

## 2. 研究発表・講演、文献、特許等の状況

### 2. 1 研究発表・講演

- [1] 大森智貴、辻隆男、大山力、上村敏：“SVC の無効電力制御量推定に基づく電圧制御機器高効率運用方式”、電気学会電力技術電力系統技術合同研究会、PE-16-076、PSE-16-096
- [2] Yuting Dou, Takao Tsuji, Tsutomu Oyama, Satoshi Uemura: "Contingency Analysis of STATCOM for Voltage Regulation with Dead Band in Distribution Systems", 電気学会電力技術電力系統技術合同研究会、PE-16-073、PSE-16-093 (2016)
- [3] 辻隆男、角川遼河：“太陽光発電を含む配電系統における自端制御に基づいた SVC 導入による電圧変動抑制の評価”、平成 31 年電気学会全国大会、6-221 (2019)
- [4] 辻隆男、齋藤優：“単独運転検出機能によるフリッカ現象の SVC を用いた補償制御の実験検討”、平成 31 年電気学会全国大会、6-364 (2019)
- [5] Ryoga Kadokawa, Takao Tsuji: "A Novel Method for LDC Parameter Tuning of SVR Considering SVC and UPFC Based on Autonomous Control in Distribution System with Photovoltaics", Proc. on the International Council on Electrical Engineering 2019 (2019)
- [6] 森脇滉、上村敏：“模擬グリッドにおける配電系統圧制御機器の実証検証-電圧フリッカ補償に関する評価-”、令和元年電気学会電力・エネルギー部門大会(2019)

### 2. 2 文献

該当なし

### 2. 3 特許等

該当なし

### 2. 4 その他の公表(プレス発表等)

該当なし

付録（１）定常解析結果データ（詳細）

定常電圧解析の各パターンにおける評価指標のまとめ

OD22 系統, PV 力率 1.0, 末端集中, SVR-SVR-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量（上限） [kV・sec]	0	0	0	0	0	18.805	13.906	1168.9	4467.2	10597	22520
電圧逸脱量（下限） [kV・sec]	0	0	0	0	0	13.007	247.02	11.969	5.7907	20.581	0
電圧逸脱量（合計） [kV・sec]	0	0	0	0	0	31.812	260.926	1180.87	4472.99	10617.6	22520
電圧逸脱時間（上限）[sec]	0	0	0	0	0	3320	2260	8010	17340	20970	29390
電圧逸脱時間（下限）[sec]	0	0	0	0	0	1020	4360	1160	280	1000	0
電圧逸脱時間（合計）[sec]	0	0	0	0	0	4340	6620	9170	17620	21970	29390
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.7385	6.742	6.7853	6.8636	6.9367	7.0007
最小電圧[kV]	6.4565	6.4494	6.4498	6.45	6.46	6.4298	6.4031	6.434	6.4313	6.4259	6.4489
タップ動作回数	8	18	38	62	83	101	129	129	121	117	85

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量（上限） [kV・sec]	0	5.383	149.29	725.52	1761.5	3221.9	4864.3	7348.9	12139	19926	34828
電圧逸脱量（下限） [kV・sec]	0.178	2.335	192.31	642.67	1837.9	3065.5	4979.3	4684.1	4812	4400.3	3026.6
電圧逸脱量（合計） [kV・sec]	0.178	7.718	341.6	1368.19	3599.4	6287.4	9843.6	12033	16951	24326.3	37854.6
電圧逸脱時間（上限）[sec]	0	100	920	2130	7710	11390	10210	15620	19540	21240	25650
電圧逸脱時間（下限）[sec]	150	530	1230	2150	4650	7260	11590	8500	8340	7100	5640
電圧逸脱時間（合計）[sec]	150	630	2150	4280	12360	18650	21800	24120	27880	28340	31290
最大電圧[kV]	6.7185	6.7426	6.8034	6.9219	7.0516	7.0942	7.0967	7.189	7.262	7.2493	7.3189
最小電圧[kV]	6.4407	6.4342	6.3597	6.3108	6.2455	6.1951	6.1639	6.114	6.1298	6.1161	6.156
タップ動作回数	8	18	38	62	83	101	129	129	121	117	85



OD22 系統, PV 力率 1.0, 末端集中, SVR-SVR-TVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	19.619	76.874	1663.3	5942.2	13199	26828
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	19.619	76.874	1663.3	5942.2	13199	26828
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	3330	4580	10650	21560	25480	30340
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	3330	4580	10650	21560	25480	30340
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.739	6.7422	6.7807	6.8636	6.9367	7.0045
最小電圧[kV]	6.4565	6.4495	6.4498	6.4495	6.4493	6.45	6.4489	6.4502	6.4445	6.4493	6.4604
タップ動作回数	3	3	13	25	27	31	39	41	41	45	27

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	12.008	53.062	187.08	618.11	1782.3	4465.4	9827.4	18096	33922
電圧逸脱量 (下限) [kV・sec]	0.176	2.324	8.384	30.371	107.87	205.53	342.55	424.73	530.01	484.67	163.58
電圧逸脱量 (合計) [kV・sec]	0.176	2.324	20.392	83.433	294.95	823.64	2124.85	4890.13	10357.4	18580.7	34085.6
電圧逸脱時間 (上限) [sec]	0	0	110	660	2750	9640	12220	14490	19960	22570	27140
電圧逸脱時間 (下限) [sec]	150	530	580	720	940	1080	1760	3290	3730	2540	640
電圧逸脱時間 (合計) [sec]	150	530	690	1380	3690	10720	13980	17780	23690	25110	27780
最大電圧[kV]	6.7185	6.7185	6.7572	6.8168	6.8753	6.9508	6.9391	6.9902	7.0727	7.1481	7.2138
最小電圧[kV]	6.4407	6.4342	6.4177	6.4016	6.3728	6.3699	6.3576	6.3441	6.3529	6.3372	6.3493
タップ動作回数	3	3	13	25	27	31	39	41	41	45	27

○D22 系統, PV 力率 1.0, 末端集中, SVR-TV R-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	227.12	75.415	1385.2	4129.3	10662	28347
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	42.154	2.1204	135.38	7.8413	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	227.12	117.569	1387.32	4264.68	10669.8	28347
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	3650	5730	10400	18460	25990	34190
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	2200	250	3610	650	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	3650	7930	10650	22070	26640	34190
最大電圧[kV]	6.6896	6.6918	6.6908	6.6997	6.6968	6.7506	6.7471	6.7923	6.8518	6.9322	7.0519
最小電圧[kV]	6.4631	6.4631	6.4564	6.4569	6.4575	6.4558	6.4248	6.4375	6.4145	6.4342	6.4605
タップ動作回数	2	2	12	12	20	28	34	40	40	34	25

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	2.491	72.448	321.16	1271.7	1476.2	4021	7581.6	15755	35861
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	148.48	277.67	853.37	1278.5	1475.4	1030.9	659.38
電圧逸脱量 (合計) [kV・sec]	0	0	2.491	72.448	469.64	1549.37	2329.57	5299.5	9057	16785.9	36520.4
電圧逸脱時間 (上限) [sec]	0	0	110	260	2150	9060	11380	16040	19140	23350	31290
電圧逸脱時間 (下限) [sec]	0	0	0	0	950	1940	6530	5730	8420	5320	2830
電圧逸脱時間 (合計) [sec]	0	0	110	260	3100	11000	17910	21770	27560	28670	34120
最大電圧[kV]	6.693	6.6952	6.7383	6.8325	6.8152	6.8979	6.9686	7.013	7.0749	7.0836	7.1749
最小電圧[kV]	6.4631	6.4631	6.4455	6.4468	6.3751	6.3562	6.3003	6.2649	6.2697	6.279	6.2877
タップ動作回数	2	2	12	12	20	28	34	40	40	34	25

OD22 系統, PV 力率 1.0, 末端集中, SVR-TV R-TV R

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	63.802	1654.3	4645.7	12153	31474
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	63.802	1654.3	4645.7	12153	31474
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	5570	10260	19310	26080	35610
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	5570	10260	19310	26080	35610
最大電圧[kV]	6.6864	6.6874	6.6908	6.6874	6.6954	6.7205	6.7438	6.7884	6.849	6.9325	7.053
最小電圧[kV]	6.463	6.463	6.4563	6.4569	6.4575	6.4578	6.4488	6.4588	6.4444	6.4493	6.4605
タップ動作回数	0	0	2	2	2	2	2	2	2	2	2

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	4.917	53.844	425.28	2946.4	6593.5	14909	35892
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0.928	22.496	53.997	69.842	26.653	2.168
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	4.917	54.772	447.776	3000.4	6663.34	14935.7	35894.2
電圧逸脱時間 (上限) [sec]	0	0	0	0	110	1590	10500	14150	18220	22940	32660
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	50	710	1380	2120	950	70
電圧逸脱時間 (合計) [sec]	0	0	0	0	110	1640	11210	15530	20340	23890	32730
最大電圧[kV]	6.689	6.6899	6.6915	6.7186	6.7515	6.7763	6.8031	6.8324	6.8924	6.9678	7.0996
最小電圧[kV]	6.463	6.463	6.4501	6.4494	6.4487	6.4307	6.4049	6.3988	6.3899	6.4044	6.4229
タップ動作回数	0	0	2	2	2	2	2	2	2	2	2

OD22 系統, PV 力率 1.0, 末端集中, SVR-SVR-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	253.17	3995.6	5402.2	11891	27424	65914
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	253.17	3995.6	5402.2	11891	27424	65914
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	3410	10130	13630	22040	27480	30730
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	3410	10130	13630	22040	27480	30730
最大電圧[kV]	6.6948	6.6917	6.6918	6.6917	6.7176	6.7546	6.8536	6.8642	6.9268	7.0274	7.1453
最小電圧[kV]	6.5297	6.5297	6.5297	6.5291	6.4702	6.4701	6.4699	6.4697	6.4645	6.4598	6.4573
タップ動作回数	0	2	2	2	9	9	7	17	19	17	16
SVCの最大Q制御量[kVar]	20.37	54.89	244.35	300	300	300	300	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	42.353	1128.8	7518	10825	19285	36585	75874
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	7.227	11.692	26.919	47.068	32.68	12.408	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	49.58	1140.49	7544.92	10872.1	19317.7	36597.4	75874
電圧逸脱時間 (上限) [sec]	0	0	0	0	540	7450	12030	15240	18460	23250	27820
電圧逸脱時間 (下限) [sec]	0	0	0	0	300	380	330	690	800	360	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	840	7830	12360	15930	19260	23610	27820
最大電圧[kV]	6.6956	6.6936	6.6937	6.6937	6.7788	6.8897	6.8952	6.9841	7.0616	7.1279	7.2821
最小電圧[kV]	6.5297	6.5245	6.5206	6.5195	6.4255	6.4274	6.4184	6.4255	6.4258	6.4248	6.4482
タップ動作回数	0	2	2	2	9	9	7	17	19	17	16
SVCの最大Q制御量[kVar]	20.37	54.89	244.35	300	300	300	300	300	300	300	300

OD22 系統, PV 力率 1.0, 末端集中, SVR-SVC-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	3.9716	0	0	1346.7	4942.4	10710	18405
電圧逸脱量 (下限) [kV・sec]	0	0	280.91	280.94	281.04	276.77	416.5	341.7	1070.7	1030.8	999.25
電圧逸脱量 (合計) [kV・sec]	0	0	280.91	280.94	285.012	276.77	416.5	1688.4	6013.1	11740.8	19404.3
電圧逸脱時間 (上限) [sec]	0	0	0	0	750	0	0	7200	12380	19710	26150
電圧逸脱時間 (下限) [sec]	0	0	2600	2600	2600	2590	7060	3890	6170	5840	4160
電圧逸脱時間 (合計) [sec]	0	0	2600	2600	3350	2590	7060	11090	18550	25550	30310
最大電圧[kV]	6.6696	6.6696	6.6715	6.6748	6.7283	6.7084	6.7227	6.7949	6.8756	6.9465	7.0078
最小電圧[kV]	6.4638	6.4638	6.4061	6.4061	6.4061	6.4063	6.4063	6.4063	6.3863	6.3873	6.3866
タップ動作回数	2	2	14	20	16	24	42	46	56	58	54
SVCの最大Q制御量[kVar]	-54.15	3.79	171.56	300	300	300	300	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	70.541	259.76	529.6	1513.9	4266.3	9462.3	17165	25854
電圧逸脱量 (下限) [kV・sec]	0	0	609.79	609.79	628.47	774.66	1706.1	1866	2989.7	3019.8	2704
電圧逸脱量 (合計) [kV・sec]	0	0	609.79	680.331	888.23	1304.26	3220	6132.3	12452	20184.8	28558
電圧逸脱時間 (上限) [sec]	0	0	0	610	5490	2990	9080	12390	15810	18420	22120
電圧逸脱時間 (下限) [sec]	0	0	2640	2640	2930	3910	11110	9030	10140	10460	9590
電圧逸脱時間 (合計) [sec]	0	0	2640	3250	8420	6900	20190	21420	25950	28880	31710
最大電圧[kV]	6.6699	6.672	6.7093	6.7809	6.8354	6.8331	6.9367	7.0293	7.0927	7.1655	7.2187
最小電圧[kV]	6.4638	6.4638	6.3906	6.3906	6.3867	6.3785	6.2964	6.2971	6.2882	6.2904	6.293
タップ動作回数	2	2	14	20	16	24	42	46	56	58	54
SVCの最大Q制御量[kVar]	-54.15	3.79	171.56	300	300	300	300	300	300	300	300

○D22 系統, PV 力率 1.0, 末端集中, SVR-SVC-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	43.238	1394.6	4221.2	8669.4	14454	30444
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	43.238	1394.6	4221.2	8669.4	14454	30444
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	2860	7690	12540	21220	24720	27610
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	2860	7690	12540	21220	24720	27610
最大電圧[kV]	6.6723	6.6723	6.6722	6.6722	6.6783	6.7361	6.7916	6.8558	6.8957	6.9446	7.0581
最小電圧[kV]	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5241
タップ動作回数	1	1	1	1	1	1	1	1	1	1	2
SVCの最大Q制御量[kVar]	-39.84	21.98	205.28	300	300	300	300	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	309.99	2603.8	6701.3	11930	18001	35443
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	309.99	2603.8	6701.3	11930	18001	35443
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	5930	10660	14500	18540	21310	23700
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	5930	10660	14500	18540	21310	23700
最大電圧[kV]	6.6731	6.6731	6.6731	6.6732	6.6949	6.7558	6.814	6.8698	6.923	6.974	7.0944
最小電圧[kV]	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5034	6.5063
タップ動作回数	1	1	1	1	1	1	1	1	1	1	2
SVCの最大Q制御量[kVar]	-39.84	21.98	205.28	300	300	300	300	300	300	300	300

○D22 系統, PV 力率 0.95, 末端集中, SVR-SVR-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	441.18
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	441.18
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	3820
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	3820
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7126	6.7873
最小電圧[kV]	6.4565	6.4484	6.4484	6.4487	6.4487	6.4485	6.4484	6.4493	6.4505	6.4561	6.461
タップ動作回数	8	12	14	12	16	18	18	16	14	40	79

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	3.303	29.563	35.182	12.455	9.053	2.909	454.9	2638.2
電圧逸脱量 (下限) [kV・sec]	0.178	2.898	2.901	2.706	55.371	22.501	50.059	38.756	65.197	252.94	957.47
電圧逸脱量 (合計) [kV・sec]	0.178	2.898	2.901	6.009	84.934	57.683	62.514	47.809	68.106	707.84	3595.67
電圧逸脱時間 (上限) [sec]	0	0	0	70	100	120	180	170	130	3050	7300
電圧逸脱時間 (下限) [sec]	150	590	590	570	660	860	810	710	1200	1130	1860
電圧逸脱時間 (合計) [sec]	150	590	590	640	760	980	990	880	1330	4180	9160
最大電圧[kV]	6.7185	6.7185	6.7185	6.7518	6.7584	6.7592	6.7454	6.7446	6.7443	6.8223	6.9323
最小電圧[kV]	6.4407	6.4332	6.4332	6.4335	6.357	6.4235	6.3987	6.4066	6.3895	6.3183	6.2017
タップ動作回数	8	12	14	12	16	18	18	16	14	40	79

○D22 系統, PV 力率 0.95, 末端集中, SVR-SVR-TVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	787.42
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	787.42
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	7480
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	7480
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7113	6.7641
最小電圧[kV]	6.4565	6.4484	6.4484	6.4487	6.4487	6.4486	6.4484	6.4493	6.4505	6.4561	6.4611
タップ動作回数	3	5	3	3	7	7	3	3	3	19	41

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	10.646	11.847	0	0	0	26.471	1763.1
電圧逸脱量 (下限) [kV・sec]	0.176	2.887	2.89	2.695	2.693	2.79	2.89	2.417	1.827	74.491	342.85
電圧逸脱量 (合計) [kV・sec]	0.176	2.887	2.89	2.695	13.339	14.637	2.89	2.417	1.827	100.962	2105.95
電圧逸脱時間 (上限) [sec]	0	0	0	0	100	110	0	0	0	440	10650
電圧逸脱時間 (下限) [sec]	150	590	590	570	570	580	590	540	470	760	870
電圧逸脱時間 (合計) [sec]	150	590	590	570	670	690	590	540	470	1200	11520
最大電圧[kV]	6.7185	6.7185	6.7185	6.7185	6.7565	6.7569	6.7185	6.7185	6.7185	6.772	6.8686
最小電圧[kV]	6.4407	6.4332	6.4332	6.4335	6.4335	6.4333	6.4332	6.4341	6.4353	6.3874	6.3158
タップ動作回数	3	5	3	3	7	7	3	3	3	19	41



○D22 系統, PV 力率 0.95, 末端集中, SVR-TV R-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	787.42
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	787.42
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	7480
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	7480
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7113	6.7641
最小電圧[kV]	6.4565	6.4484	6.4484	6.4487	6.4487	6.4486	6.4484	6.4493	6.4505	6.4561	6.4611
タップ動作回数	3	5	3	3	7	7	3	3	3	19	41

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	2.916	16.259	29.024	13.925	15.12
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	1.18	23.735
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	2.916	16.259	29.024	15.105	38.855
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	260	300	260	120	220
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	20	390
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	260	300	260	140	610
最大電圧[kV]	6.693	6.6933	6.6933	6.6935	6.7018	6.7198	6.7361	6.7591	6.7687	6.8252	6.7752
最小電圧[kV]	6.4631	6.4631	6.4631	6.4631	6.4495	6.4498	6.4469	6.4527	6.4525	6.4189	6.3503
タップ動作回数	2	2	2	2	10	12	12	10	8	8	6

OD22 系統, PV 力率 0.95, 末端集中, SVR-TV R-TV R

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	781.67
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	781.67
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	7540
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	7540
最大電圧[kV]	6.6864	6.6899	6.6912	6.6913	6.69	6.6899	6.6912	6.6903	6.6924	6.7114	6.7636
最小電圧[kV]	6.463	6.463	6.463	6.463	6.4557	6.4569	6.463	6.463	6.463	6.4558	6.4621
タップ動作回数	0	0	0	0	2	2	0	0	0	2	2

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	24.123	1603
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	12.011
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	24.123	1615.01
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	460	10430
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	290
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	460	10720
最大電圧[kV]	6.689	6.6932	6.6945	6.6947	6.6934	6.6933	6.6945	6.6937	6.7092	6.777	6.8659
最小電圧[kV]	6.463	6.463	6.463	6.463	6.4495	6.4498	6.463	6.463	6.463	6.4431	6.352
タップ動作回数	0	0	0	0	2	2	0	0	0	2	2

OD22 系統, PV 力率 0.95, 末端集中, SVR-SVR-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	89.999	314.75
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	89.999	314.75
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	5620	6850
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	5620	6850
最大電圧[kV]	6.6948	6.6913	6.6913	6.6914	6.6914	6.6913	6.6913	6.6915	6.6919	6.6935	6.6944
最小電圧[kV]	6.5297	6.5104	6.5104	6.5102	6.5102	6.5056	6.4891	6.4937	6.4697	6.4147	6.35
タップ動作回数	0	2	2	2	2	2	2	2	2	6	14
SVCの最大Q制御量[kVar]	20.37	5.12	30.66	106.62	135.69	144.46	144.05	239.76	239.63	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	2.579	195.84
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	172.91	527.64
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	175.489	723.48
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	320	1710
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	6820	8990
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	7140	10700
最大電圧[kV]	6.6956	6.6934	6.6934	6.6935	6.6935	6.6935	6.6935	6.6936	6.6938	6.7361	6.9146
最小電圧[kV]	6.5297	6.4955	6.4955	6.4954	6.4954	6.4955	6.4833	6.4606	6.4517	6.4082	6.3372
タップ動作回数	0	2	2	2	2	2	2	2	2	6	14
SVCの最大Q制御量[kVar]	20.37	5.12	30.66	106.62	135.69	144.46	144.05	239.76	239.63	300	300

○D22 系統, PV 力率 0.95, 末端集中, SVR-SVC-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	2.7672	1362.7
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	445.15
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	2.7672	1807.85
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	430	10580
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	3060
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	430	13640
最大電圧[kV]	6.6696	6.6696	6.6696	6.6705	6.6796	6.6697	6.6697	6.6804	6.6915	6.7314	6.7793
最小電圧[kV]	6.4638	6.4638	6.4638	6.4638	6.4638	6.4638	6.4638	6.4638	6.4638	6.4638	6.4003
タップ動作回数	2	2	2	2	6	10	14	12	12	8	6
SVCの最大Q制御量[kVar]	-54.15	-36.78	0	22.86	42.06	42.57	42.58	41.95	41.99	39.73	21.26

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	3.422	8.286	28.331	157.32	2081.6
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	812.23
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	3.422	8.286	28.331	157.32	2893.83
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	160	180	950	2260	12450
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	2990
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	160	180	950	2260	15440
最大電圧[kV]	6.6699	6.6699	6.6701	6.6716	6.692	6.7156	6.7368	6.7414	6.7421	6.7701	6.7908
最小電圧[kV]	6.4638	6.4638	6.4638	6.4638	6.4587	6.459	6.4586	6.461	6.4614	6.4638	6.3848
タップ動作回数	2	2	2	2	6	10	14	12	12	8	6
SVCの最大Q制御量[kVar]	-54.15	-36.78	0	22.86	42.06	42.57	42.58	41.95	41.99	39.73	21.26

○D22 系統, PV 力率 0.95, 末端集中, SVR-SVC-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	17.035
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	17.035
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	820
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	820
最大電圧[kV]	6.6723	6.672	6.672	6.672	6.672	6.672	6.672	6.672	6.672	6.6718	6.6734
最小電圧[kV]	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5039	6.4757	6.4493	6.4558	6.4371
タップ動作回数	1	1	1	1	1	1	1	1	1	2	0
SVCの最大Q制御量[kVar]	-39.84	-40.55	11.95	87.06	154.05	201.46	218.27	217.1	218.09	298.42	299.93

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	185.37	327.22
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	185.37	327.22
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	1220	4350
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	1220	4350
最大電圧[kV]	6.6731	6.6729	6.6729	6.6729	6.6729	6.6732	6.6732	6.6732	6.6729	6.6726	6.6741
最小電圧[kV]	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.4912	6.4653	6.4441	6.4075	6.4115
タップ動作回数	1	1	1	1	1	1	1	1	1	2	0
SVCの最大Q制御量[kVar]	-39.84	-40.55	11.95	87.06	154.05	201.46	218.27	217.1	218.09	298.42	299.93

OD21 系統, PV 力率 1.0, 末端集中, SVR-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	70.9705	78.0002	7.5454	526.77
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	3.5041	385.22	95.504
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	70.9705	81.5043	392.765	622.274
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	4690	4080	1470	8950
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	610	6600	6760
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	4690	4690	8070	15710
最大電圧[kV]	6.6673	6.6689	6.6677	6.7018	6.6935	6.6849	6.6893	6.7528	6.7523	6.7375	6.7979
最小電圧[kV]	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4365	6.4017	6.4208
タップ動作回数	4	2	16	16	26	58	80	88	102	120	118

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	1.257	105.07	282.79	710.48	1454.1	2225.5	3210.3	4461.5	6080
電圧逸脱量 (下限) [kV・sec]	0	0	0	16.746	193.11	787.48	1584.1	1930.5	3008.8	4855.4	4715.2
電圧逸脱量 (合計) [kV・sec]	0	0	1.257	121.816	475.9	1497.96	3038.2	4156	6219.1	9316.9	10795.2
電圧逸脱時間 (上限) [sec]	0	0	110	280	1410	2800	4570	10490	11790	11550	14920
電圧逸脱時間 (下限) [sec]	0	0	0	90	510	2520	3220	3570	6680	11880	9830
電圧逸脱時間 (合計) [sec]	0	0	110	370	1920	5320	7790	14060	18470	23430	24750
最大電圧[kV]	6.6731	6.6728	6.739	6.8339	6.8235	6.8947	6.9779	7.0598	7.0484	7.1166	7.1878
最小電圧[kV]	6.4608	6.4608	6.4465	6.4247	6.3726	6.31	6.2804	6.2804	6.2357	6.2002	6.1649
タップ動作回数	4	2	16	16	26	58	80	88	102	120	118

OD21 系統, PV 力率 1.0, 末端集中, SVR-TV R

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0.7683	117.25	196.06	929.04
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0.07131	0.06318
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0.7683	117.25	196.131	929.103
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	740	5290	9420	13620
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	360	340
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	740	5290	9780	13960
最大電圧[kV]	6.6657	6.6689	6.6676	6.6694	6.6743	6.6917	6.7091	6.7265	6.7523	6.7596	6.7951
最小電圧[kV]	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4427	6.4426
タップ動作回数	0	0	2	2	2	12	22	26	22	28	30

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	1.952	45.655	169.998	605.09	1417	3167.7
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	2.616	21.262	15.035	18.254	187.13	272.46
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	4.568	66.917	185.033	623.344	1604.13	3440.16
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	270	1170	6110	10070	12510	15120
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	80	150	90	370	4590	4680
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	350	1320	6200	10440	17100	19800
最大電圧[kV]	6.6665	6.6728	6.6758	6.6875	6.716	6.7415	6.7884	6.8331	6.8636	6.9232	6.9954
最小電圧[kV]	6.4609	6.4609	6.4609	6.4601	6.4589	6.4247	6.4025	6.4109	6.4175	6.3826	6.3465
タップ動作回数	0	0	2	2	2	12	22	26	22	28	30

OD21 系統, PV 力率 1.0, 末端集中, SVR-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	284.91	85.029	2650.6	9364.9	13679	20531
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0.0121	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	284.91	85.029	2650.6	9364.9	13679	20531
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	4800	4640	9670	16890	22390	26450
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	40	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	4800	4640	9670	16890	22430	26450
最大電圧[kV]	6.6657	6.6659	6.6662	6.6666	6.6783	6.7625	6.7579	6.8289	6.9045	6.9324	6.9587
最小電圧[kV]	6.5039	6.5039	6.4999	6.5001	6.5003	6.5006	6.5009	6.5009	6.4922	6.4425	6.4494
タップ動作回数	0	0	2	2	2	4	16	18	18	24	24
SVCの最大Q制御量[kVar]	0	111.06	300	300	300	300	300	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	1077.9	1670.3	6863.8	16447	23614	31472
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	74.9	153.26
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	1077.9	1670.3	6863.8	16447	23688.9	31625.3
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	7460	8720	13690	16150	18370	21380
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	1420	1390
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	7460	8720	13690	16150	19790	22770
最大電圧[kV]	6.6665	6.6668	6.667	6.6673	6.7098	6.795	6.879	6.9556	7.0315	7.1047	7.1501
最小電圧[kV]	6.5039	6.5039	6.4931	6.4923	6.4918	6.4862	6.4564	6.4664	6.4713	6.4073	6.4053
タップ動作回数	0	0	2	2	2	4	16	18	18	24	24
SVCの最大Q制御量[kVar]	0	111.06	300	300	300	300	300	300	300	300	300



OD21 系統, PV 力率 0.95, 末端集中, SVR-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0.4655
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	13.479
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	13.9445
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	600
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	900
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	1500
最大電圧[kV]	6.6673	6.6658	6.6695	6.6677	6.669	6.67	6.6713	6.7033	6.687	6.68	6.7261
最小電圧[kV]	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4435	6.4331
タップ動作回数	4	2	6	16	16	12	26	28	38	46	56

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0.085	37.513	0.53	74.06	165.19	290.74	550.92	783.05
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	49.476	263.95	166.46	529.57	861.44	1096.8
電圧逸脱量 (合計) [kV・sec]	0	0	0	0.085	37.513	50.006	338.01	331.65	820.31	1412.36	1879.85
電圧逸脱時間 (上限) [sec]	0	0	0	40	300	100	1000	910	2410	2390	6220
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	220	590	700	1220	3800	4520
電圧逸脱時間 (合計) [sec]	0	0	0	40	300	320	1590	1610	3630	6190	10740
最大電圧[kV]	6.6731	6.6704	6.6769	6.7288	6.7853	6.737	6.7863	6.8324	6.8586	6.8993	6.9354
最小電圧[kV]	6.4608	6.4608	6.4605	6.446	6.4447	6.4049	6.3716	6.3803	6.3334	6.3441	6.2938
タップ動作回数	4	2	6	16	16	12	26	28	38	46	56

OD21 系統, PV 力率 0.95, 末端集中, SVR-TV R

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6657	6.6658	6.6695	6.6677	6.669	6.67001	6.6713	6.6715	6.6823	6.6817	6.6905
最小電圧[kV]	6.4609	6.4609	6.4609	6.4609	6.4609	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608
タップ動作回数	0	0	2	2	2	2	2	2	2	8	12

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0.004	0.721
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	1.443	0.41
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	1.447	1.131
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	10	150
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	60	60
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	70	210
最大電圧[kV]	6.6665	6.6674	6.6769	6.6766	6.6728	6.6734	6.6876	6.7001	6.7143	6.7254	6.7372
最小電圧[kV]	6.4609	6.4609	6.4606	6.4609	6.4602	6.4593	6.4584	6.4577	6.4571	6.4292	6.436
タップ動作回数	0	0	2	2	2	2	2	2	2	8	12

OD21 系統, PV 力率 0.95, 末端集中, SVR-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	142.43	1128.1
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	142.43	1128.1
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	4780	8110
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	4780	8110
最大電圧[kV]	6.6657	6.6658	6.666	6.6662	6.6664	6.6667	6.6667	6.6796	6.7201	6.7577	6.7925
最小電圧[kV]	6.5039	6.5039	6.5039	6.5039	6.4796	6.4797	6.4796	6.4797	6.4796	6.4795	6.4796
タップ動作回数	0	0	0	0	2	2	2	2	2	2	2
SVCの最大Q制御量[kVar]	0	16.67	183.45	300	300	300	300	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	9.728	697.41	2728.5
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	9.728	697.41	2728.5
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	2190	8180	10560
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	2190	8180	10560
最大電圧[kV]	6.6665	6.6667	6.6669	6.6671	6.668	6.6793	6.6756	6.7094	6.7499	6.7875	6.8221
最小電圧[kV]	6.5039	6.5039	6.5039	6.5039	6.4655	6.4656	6.4656	6.4657	6.4657	6.4657	6.4658
タップ動作回数	0	0	0	0	2	2	2	2	2	2	2
SVCの最大Q制御量[kVar]	0	16.67	183.45	300	300	300	300	300	300	300	300

OC2 系統, PV 力率 1.0, 末端集中, SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	13.468
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	13.468
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	790
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	790
最大電圧[kV]	6.6632	6.6634	6.6635	6.6639	6.6649	6.6673	6.6977	6.6915	6.6809	6.6988	6.7305
最小電圧[kV]	6.5159	6.5159	6.4878	6.4903	6.493	6.4957	6.4974	6.4991	6.5008	6.5025	6.5012
タップ動作回数	0	0	2	2	2	2	2	12	22	24	26

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	60.406	216.81	325.48	739.5
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	8.693	2.214	0.524
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	60.406	225.503	327.694	740.024
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	920	1330	1140	6280
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	60	30	40
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	920	1390	1170	6320
最大電圧[kV]	6.6641	6.6654	6.6697	6.67	6.6704	6.683	6.7174	6.7512	6.7843	6.8169	6.8489
最小電圧[kV]	6.5159	6.5159	6.4833	6.4853	6.4853	6.4864	6.4869	6.4464	6.4283	6.4346	6.4381
タップ動作回数	0	0	2	2	2	2	2	12	22	24	26

OC2 系統, PV 力率 1.0, 末端集中, TVR

(a) 30 分移動平均值

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6542	6.6554	6.6584	6.6593	6.6605	6.664	6.6645	6.6695	6.6803	6.691	6.7006
最小電圧[kV]	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.5171	6.5124

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	1.08
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	1.08
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	30
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	30
最大電圧[kV]	6.6811	6.6811	6.6811	6.6811	6.6811	6.6811	6.6813	6.6961	6.7056	6.7195	6.7378
最小電圧[kV]	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.5127	6.4965

OC2 系統, PV 力率 1.0, 末端集中, SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	331.27	1767.7
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	331.27	1767.7
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	3920	6930
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	3920	6930
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.6151	6.6487	6.6817	6.7141	6.746	6.7773
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-186.46	0	75.66	295.66	300	300	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	4.294	1155.5	3828.1
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	4.294	1155.5	3828.1
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	230	7420	9950
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	230	7420	9950
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.6341	6.6682	6.7017	6.7346	6.7674	6.8004
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-186.46	0	75.66	295.66	300	300	300	300	300	300

OC2 系統, PV 力率 0.95, 末端集中, SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6632	6.6633	6.6634	6.6635	6.6636	6.6637	6.6639	6.6641	6.6647	6.6674	6.678
最小電圧[kV]	6.5159	6.5159	6.4835	6.4835	6.4846	6.4843	6.4842	6.4851	6.4851	6.4958	6.4958
タップ動作回数	0	0	2	2	2	2	2	2	2	2	2

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6641	6.6642	6.6676	6.667	6.6676	6.6646	6.6651	6.665	6.6661	6.6797	6.6965
最小電圧[kV]	6.5159	6.5159	6.4808	6.4803	6.4807	6.4801	6.4797	6.48	6.4797	6.4863	6.4859
タップ動作回数	0	0	2	2	2	2	2	2	2	2	2

OC2 系統, PV 力率 0.95, 末端集中, TVR

(a) 30 分移動平均值

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6542	6.6543	6.6539	6.6539	6.6545	6.6542	6.6541	6.6546	6.6544	6.6544	6.6543
最小電圧[kV]	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6811	6.6811	6.6811	6.6811	6.6811	6.6811	6.6811	6.6811	6.6811	6.6811	6.6811
最小電圧[kV]	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517	6.517



OC2 系統, PV 力率 0.95, 末端集中, SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6001	6.6005	6.6108	6.6272
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-281.75	-145.78	-15.26	0	38.95	154.58	265.45	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.6	6.6602	6.6605	6.6119	6.629	6.6455
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-281.75	-145.78	-15.26	0	38.95	154.58	265.45	300	300	300

OD22 系統, PV 力率 1.0, 分散配置, SVR-SVR-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	37.782
電圧逸脱量 (下限) [kV・sec]	0	0.4169	0.3735	0.4168	0.4618	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0.4169	0.3735	0.4168	0.4618	0	0	0	0	0	37.782
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	2980
電圧逸脱時間 (下限) [sec]	0	260	250	260	270	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	260	250	260	270	0	0	0	0	0	2980
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7132	6.7109	6.7425
最小電圧[kV]	6.4565	6.4398	6.44	6.4398	6.4397	6.4439	6.444	6.4442	6.4441	6.4443	6.4444
タップ動作回数	8	10	24	46	58	72	115	130	150	166	170

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	22.391	110.7	441.46	748.29	1771	1923.3	3211.1	4116.6	5112.7
電圧逸脱量 (下限) [kV・sec]	0.178	12.086	28.408	150.02	266.41	647.1	1561.2	2306.5	3066.4	3851.1	4479.5
電圧逸脱量 (合計) [kV・sec]	0.178	12.086	50.799	260.72	707.87	1395.39	3332.2	4229.8	6277.5	7967.7	9592.2
電圧逸脱時間 (上限) [sec]	0	0	370	540	870	1260	1680	2310	3650	4220	10010
電圧逸脱時間 (下限) [sec]	150	1100	1690	2460	2710	2380	2950	3270	3680	3840	4330
電圧逸脱時間 (合計) [sec]	150	1100	2060	3000	3580	3640	4630	5580	7330	8060	14340
最大電圧[kV]	6.7185	6.7185	6.7425	6.7881	6.8678	6.9487	6.9633	7.0267	6.9848	7.0594	7.1127
最小電圧[kV]	6.4407	6.4248	6.3931	6.3817	6.3726	6.324	6.3004	6.2623	6.2362	6.2304	6.1753
タップ動作回数	8	10	24	46	58	72	115	130	150	166	170

○D22 系統, PV 力率 1.0, 分散配置, SVR-SVR-TVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	37.806
電圧逸脱量 (下限) [kV・sec]	0	0.4121	0.4121	0.4121	0.4569	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0.4121	0.4121	0.4121	0.4569	0	0	0	0	0	37.806
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	2980
電圧逸脱時間 (下限) [sec]	0	260	260	260	270	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	260	260	260	270	0	0	0	0	0	2980
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7132	6.7109	6.7425
最小電圧[kV]	6.4565	6.4399	6.4399	6.4399	6.4397	6.4439	6.4444	6.4442	6.4441	6.4443	6.4444
タップ動作回数	3	5	7	21	25	31	57	65	83	89	83

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	6.908	6.767	63.889	178.39	491.38	638.41	1354.3	1748.2	2252.1
電圧逸脱量 (下限) [kV・sec]	0.176	12.042	28.684	68.076	68.374	153.86	483.37	603.7	975.77	1322.9	1568.7
電圧逸脱量 (合計) [kV・sec]	0.176	12.042	35.592	74.843	132.263	332.25	974.75	1242.11	2330.07	3071.1	3820.8
電圧逸脱時間 (上限) [sec]	0	0	150	150	340	710	1220	1870	2810	3630	9600
電圧逸脱時間 (下限) [sec]	150	1100	1700	2340	2240	1840	2290	2470	3000	3130	3650
電圧逸脱時間 (合計) [sec]	150	1100	1850	2490	2580	2550	3510	4340	5810	6760	13250
最大電圧[kV]	6.7185	6.7185	6.7425	6.7422	6.786	6.8288	6.8947	6.9643	6.9551	7.0106	7.0473
最小電圧[kV]	6.4407	6.4248	6.3931	6.3817	6.3875	6.3533	6.3321	6.2916	6.3112	6.2686	6.2692
タップ動作回数	3	5	7	21	25	31	57	65	83	89	83

○D22 系統, PV 力率 1.0, 分散配置, SVR-TV R-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	29.639
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	29.639
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	2980
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	2980
最大電圧[kV]	6.6896	6.6846	6.6847	6.6846	6.6845	6.6832	6.6825	6.6832	6.6831	6.7104	6.7422
最小電圧[kV]	6.4631	6.4631	6.4439	6.4439	6.444	6.4439	6.444	6.4442	6.4441	6.4443	6.4444
タップ動作回数	2	2	4	4	4	4	14	26	38	32	32

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0.021	7.394	44.507	80.377	312.12
電圧逸脱量 (下限) [kV・sec]	0	0	2.009	2.127	2.173	2.472	3.899	11.549	18.387	11.26	29.425
電圧逸脱量 (合計) [kV・sec]	0	0	2.009	2.127	2.173	2.472	3.92	18.943	62.894	91.637	341.545
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	20	390	730	760	7220
電圧逸脱時間 (下限) [sec]	0	0	540	560	570	610	760	780	830	800	860
電圧逸脱時間 (合計) [sec]	0	0	540	560	570	610	780	1170	1560	1560	8080
最大電圧[kV]	6.693	6.688	6.6881	6.688	6.6879	6.6886	6.7268	6.7632	6.798	6.8206	6.8632
最小電圧[kV]	6.4631	6.4631	6.4358	6.4356	6.4355	6.435	6.422	6.4007	6.408	6.4136	6.4045
タップ動作回数	2	2	4	4	4	4	14	26	38	32	32

OD22 系統, PV 力率 1.0, 分散配置, SVR-TV R-TV R

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	28.928
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	28.928
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	2980
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	2980
最大電圧[kV]	6.6864	6.6806	6.6806	6.6806	6.6806	6.6805	6.6805	6.6805	6.6805	6.7102	6.742
最小電圧[kV]	6.463	6.463	6.4439	6.4439	6.444	6.4439	6.4441	6.4442	6.4441	6.4443	6.4444
タップ動作回数	0	0	2	2	2	2	12	18	24	18	14

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0.019	6.538	27.606	24.114	171.1
電圧逸脱量 (下限) [kV・sec]	0	0	2.022	2.139	2.182	2.487	3.842	7.903	6.212	5.195	4.31
電圧逸脱量 (合計) [kV・sec]	0	0	2.022	2.139	2.182	2.487	3.861	14.441	33.818	29.309	175.41
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	20	390	680	540	7070
電圧逸脱時間 (下限) [sec]	0	0	550	560	570	610	750	770	750	740	750
電圧逸脱時間 (合計) [sec]	0	0	550	560	570	610	770	1160	1430	1280	7820
最大電圧[kV]	6.689	6.6827	6.6827	6.6827	6.6825	6.6886	6.7267	6.7631	6.7979	6.8204	6.8629
最小電圧[kV]	6.463	6.463	6.4358	6.4356	6.4355	6.4349	6.422	6.4007	6.408	6.4136	6.4187
タップ動作回数	0	0	2	2	2	2	12	18	24	18	14

○D22 系統, PV 力率 1.0, 分散配置, SVR-SVR-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6948	6.6879	6.6879	6.6878	6.6878	6.7176	6.7176	6.7176	6.7176	6.7176	6.7176
最小電圧[kV]	6.5297	6.4703	6.4591	6.4591	6.4591	6.4598	6.4598	6.4598	6.4599	6.4601	6.46
タップ動作回数	0	4	4	4	4	5	5	17	17	25	25
SVCの最大Q制御量[kVar]	20.37	0	0	17.12	126.47	209.76	287.94	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	6.788	144.37	269.18
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	1.444	1.444	3.205	9.693	4.313	4.63
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	1.444	1.444	3.205	16.481	148.683	273.81
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	60	320	490
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	150	150	190	170	230	230
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	150	150	190	230	550	720
最大電圧[kV]	6.6956	6.6896	6.6896	6.6894	6.6892	6.72	6.72	6.72	6.7468	6.8203	6.8747
最小電圧[kV]	6.5297	6.4617	6.4499	6.4499	6.4499	6.433	6.433	6.4271	6.3913	6.4152	6.4224
タップ動作回数	0	4	4	4	4	5	5	17	17	25	25
SVCの最大Q制御量[kVar]	20.37	0	0	17.12	126.47	209.76	287.94	300	300	300	300

OD22 系統, PV 力率 1.0, 分散配置, SVR-SVC-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	184.11
電圧逸脱量 (下限) [kV・sec]	0	0	899.16	899.17	899.18	891.21	891.22	891.24	891.26	891.28	891.29
電圧逸脱量 (合計) [kV・sec]	0	0	899.16	899.17	899.18	891.21	891.22	891.24	891.26	891.28	1075.4
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	3810
電圧逸脱時間 (下限) [sec]	0	0	3990	3990	3990	3980	3980	3980	3980	3980	3980
電圧逸脱時間 (合計) [sec]	0	0	3990	3990	3990	3980	3980	3980	3980	3980	7790
最大電圧[kV]	6.6696	6.6709	6.6735	6.6736	6.6736	6.6732	6.6733	6.6755	6.6731	6.6999	6.7566
最小電圧[kV]	6.4638	6.4638	6.3887	6.3887	6.3887	6.3889	6.3889	6.3889	6.3889	6.3889	6.3889
タップ動作回数	2	0	6	6	6	6	6	16	28	28	44
SVCの最大Q制御量[kVar]	-54.15	0	-50.91	19.76	140.52	255.98	300	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	3.106	166.35	227.41	1611.4
電圧逸脱量 (下限) [kV・sec]	0	0	1314.3	1314.3	1314.3	1305.8	1305.8	1305.8	1305.8	1308.8	1416
電圧逸脱量 (合計) [kV・sec]	0	0	1314.3	1314.3	1314.3	1305.8	1305.8	1308.91	1472.15	1536.21	3027.4
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	70	410	830	7380
電圧逸脱時間 (下限) [sec]	0	0	3640	3640	3640	3630	3630	3630	3630	3640	4180
電圧逸脱時間 (合計) [sec]	0	0	3640	3640	3640	3630	3630	3700	4040	4470	11560
最大電圧[kV]	6.6699	6.6723	6.6848	6.6848	6.6848	6.685	6.685	6.7414	6.8167	6.8512	6.9471
最小電圧[kV]	6.4638	6.4638	6.3732	6.3732	6.3732	6.3734	6.3734	6.3734	6.3734	6.3734	6.3734
タップ動作回数	2	0	6	6	6	6	6	16	28	28	44
SVCの最大Q制御量[kVar]	-54.15	0	-50.91	19.76	140.52	255.98	300	300	300	300	300

○D22 系統, PV 力率 1.0, 分散配置, SVR-SVC-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6723	6.6725	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684
最小電圧[kV]	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045
タップ動作回数	1	1	1	1	1	1	1	1	1	1	3
SVCの最大Q制御量[kVar]	-39.84	-38.95	-37.04	17.13	82.28	171.01	254.71	281.57	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6731	6.6734	6.6691	6.6691	6.6691	6.6691	6.6691	6.6691	6.6691	6.6758	6.706
最小電圧[kV]	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.4995
タップ動作回数	1	1	1	1	1	1	1	1	1	1	3
SVCの最大Q制御量[kVar]	-39.84	-38.95	-37.04	17.13	82.28	171.01	254.71	281.57	300	300	300



○D22 系統, PV 力率 0.95, 分散配置, SVR-SVR-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0.4169	0.4619	0.2946	0.3328	0.3734	0.3735	0.4168	0.2946	0.3329	0
電圧逸脱量 (合計) [kV・sec]	0	0.4169	0.4619	0.2946	0.3328	0.3734	0.3735	0.4168	0.2946	0.3329	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	260	270	220	230	250	250	260	220	230	0
電圧逸脱時間 (合計) [sec]	0	260	270	220	230	250	250	260	220	230	0
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109
最小電圧[kV]	6.4565	6.4398	6.4397	6.4403	6.4402	6.44	6.44	6.4398	6.4403	6.4402	6.4439
タップ動作回数	8	10	16	18	24	32	36	48	48	56	54

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	7.921	9.098	15.976	15.196	52.478	153.56	158.42	240.21	422.1
電圧逸脱量 (下限) [kV・sec]	0.178	12.081	14.092	26.321	19.33	30.664	103.46	193.27	123.99	171.82	272.28
電圧逸脱量 (合計) [kV・sec]	0.178	12.081	22.013	35.419	35.306	45.86	155.938	346.83	282.41	412.03	694.38
電圧逸脱時間 (上限) [sec]	0	0	170	150	360	350	410	680	570	680	670
電圧逸脱時間 (下限) [sec]	150	1090	1610	1670	1770	1850	2220	2400	2310	2240	1830
電圧逸脱時間 (合計) [sec]	150	1090	1780	1820	2130	2200	2630	3080	2880	2920	2500
最大電圧[kV]	6.7185	6.7185	6.7432	6.7425	6.7423	6.7422	6.7725	6.8033	6.8309	6.8609	6.8862
最小電圧[kV]	6.4407	6.4248	6.4247	6.3845	6.4174	6.4096	6.3889	6.3648	6.3767	6.3811	6.3405
タップ動作回数	8	10	16	18	24	32	36	48	48	56	54

○D22 系統, PV 力率 0.95, 分散配置, SVR-SVR-TVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0.4119	0.4568	0.2905	0.3287	0.3688	0.3689	0.4121	0.2906	0.3287	0
電圧逸脱量 (合計) [kV・sec]	0	0.4119	0.4568	0.2905	0.3287	0.3688	0.3689	0.4121	0.2906	0.3287	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	260	270	220	230	250	250	260	220	230	0
電圧逸脱時間 (合計) [sec]	0	260	270	220	230	250	250	260	220	230	0
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109	6.7109
最小電圧[kV]	6.4565	6.4399	6.4397	6.4404	6.4402	6.44	6.44	6.4399	6.4404	6.4402	6.4439
タップ動作回数	3	5	9	7	7	11	17	21	23	21	21

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	7.366	6.929	6.801	6.764	6.723	6.475	16.885	32.844	72.885
電圧逸脱量 (下限) [kV・sec]	0.176	12.037	14.012	26.28	19.218	21.486	52.181	56.445	56.157	45.918	27.249
電圧逸脱量 (合計) [kV・sec]	0.176	12.037	21.378	33.209	26.019	28.25	58.904	62.92	73.042	78.762	100.134
電圧逸脱時間 (上限) [sec]	0	0	150	150	150	150	150	160	210	310	420
電圧逸脱時間 (下限) [sec]	150	1090	1600	1670	1740	1770	2170	2300	2080	2030	1390
電圧逸脱時間 (合計) [sec]	150	1090	1750	1820	1890	1920	2320	2460	2290	2340	1810
最大電圧[kV]	6.7185	6.7185	6.7432	6.7425	6.7423	6.7422	6.7421	6.7417	6.7505	6.7729	6.7932
最小電圧[kV]	6.4407	6.4248	6.4247	6.3845	6.4174	6.4096	6.4057	6.3844	6.3893	6.3955	6.4014
タップ動作回数	3	5	9	7	7	11	17	21	23	21	21

○D22 系統, PV 力率 0.95, 分散配置, SVR-TV R-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6896	6.6834	6.6845	6.6849	6.6849	6.6847	6.6847	6.6834	6.6837	6.6837	6.6837
最小電圧[kV]	6.4631	6.4631	6.4441	6.4438	6.4438	6.4439	6.444	6.4438	6.4438	6.4439	6.4439
タップ動作回数	2	2	4	4	4	4	4	4	4	4	4

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	1.622	1.976	2.066	2.113	2.126	2.396	2.45	2.471	2.498
電圧逸脱量 (合計) [kV・sec]	0	0	1.622	1.976	2.066	2.113	2.126	2.396	2.45	2.471	2.498
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	490	540	550	560	560	600	600	610	610
電圧逸脱時間 (合計) [sec]	0	0	490	540	550	560	560	600	600	610	610
最大電圧[kV]	6.693	6.6868	6.6879	6.6889	6.6882	6.6881	6.6881	6.6868	6.6871	6.687	6.687
最小電圧[kV]	6.4631	6.4631	6.4365	6.4359	6.4357	6.4356	6.4355	6.4351	6.4351	6.435	6.4349
タップ動作回数	2	2	4	4	4	4	4	4	4	4	4

○D22 系統, PV 力率 0.95, 分散配置, SVR-TV R-TV R

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6864	6.6806	6.6806	6.6807	6.6807	6.6807	6.6807	6.6806	6.6808	6.6807	6.6807
最小電圧[kV]	6.463	6.463	6.4441	6.4438	6.4439	6.4439	6.4439	6.4438	6.4438	6.4439	6.444
タップ動作回数	0	0	2	2	2	2	2	2	2	2	2

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	1.339	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	1.632	1.983	2.005	2.128	2.147	2.408	2.463	2.479	2.429
電圧逸脱量 (合計) [kV・sec]	0	0	1.632	1.983	3.344	2.128	2.147	2.408	2.463	2.479	2.429
電圧逸脱時間 (上限) [sec]	0	0	0	0	10	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	490	540	540	560	560	600	610	610	600
電圧逸脱時間 (合計) [sec]	0	0	490	540	550	560	560	600	610	610	600
最大電圧[kV]	6.689	6.6827	6.6825	6.6829	6.7634	6.6827	6.6827	6.6827	6.683	6.6829	6.6829
最小電圧[kV]	6.463	6.463	6.4365	6.4358	6.4358	6.4356	6.4355	6.4351	6.435	6.435	6.4351
タップ動作回数	0	0	2	2	2	2	2	2	2	2	2

○D22 系統, PV 力率 0.95, 分散配置, SVR-SVR-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6948	6.6879	6.6878	6.6881	6.688	6.688	6.688	6.6879	6.7135	6.7135	6.7176
最小電圧[kV]	6.5297	6.4591	6.4591	6.4591	6.4591	6.4591	6.4591	6.4592	6.4592	6.4593	6.46
タップ動作回数	0	4	4	4	4	4	4	4	6	6	5
SVCの最大Q制御量[kVar]	20.37	0	0	0	0	0	0	29.67	67.27	102.96	128.39

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	1.743
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	1.743
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	190
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	190
最大電圧[kV]	6.6956	6.6895	6.6892	6.6901	6.69	6.6898	6.6898	6.6896	6.7158	6.7157	6.72
最小電圧[kV]	6.5297	6.4499	6.4499	6.4499	6.4499	6.4499	6.4499	6.45	6.45	6.4502	6.4334
タップ動作回数	0	4	4	4	4	4	4	4	6	6	5
SVCの最大Q制御量[kVar]	20.37	0	0	0	0	0	0	29.67	67.27	102.96	128.39

○D22 系統, PV 力率 0.95, 分散配置, SVR-SVC-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0.498
電圧逸脱量 (下限) [kV・sec]	0	900.2	900.21	900.21	900.22	900.24	900.25	892.27	892.28	892.3	892.31
電圧逸脱量 (合計) [kV・sec]	0	900.2	900.21	900.21	900.22	900.24	900.25	892.27	892.28	892.3	892.808
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	710
電圧逸脱時間 (下限) [sec]	0	3990	3990	3990	3990	3990	3990	3980	3980	3980	3980
電圧逸脱時間 (合計) [sec]	0	3990	3990	3990	3990	3990	3990	3980	3980	3980	4690
最大電圧[kV]	6.6696	6.6678	6.6678	6.6678	6.6678	6.6678	6.6727	6.6888	6.7128	6.7195	6.7258
最小電圧[kV]	6.4638	6.2887	6.3887	6.3887	6.3887	6.3887	6.3887	6.3889	6.3889	6.3889	6.3889
タップ動作回数	2	2	2	2	2	2	2	2	2	2	2
SVCの最大Q制御量[kVar]	-54.15	-98.37	-98.37	-98.37	-60.45	-8.48	0	26.75	64.35	97.29	126.08

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0.04	17.62
電圧逸脱量 (下限) [kV・sec]	0	1328.8	1328.8	1328.8	1328.8	1328.8	1328.8	1319.7	1319.7	1319.7	1319.7
電圧逸脱量 (合計) [kV・sec]	0	1328.8	1328.8	1328.8	1328.8	1328.8	1328.8	1319.7	1319.7	1319.74	1337.32
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	40	5380
電圧逸脱時間 (下限) [sec]	0	3640	3640	3640	3640	3640	3640	3630	3630	3630	3630
電圧逸脱時間 (合計) [sec]	0	3640	3640	3640	3640	3640	3640	3630	3630	3670	9010
最大電圧[kV]	6.6699	6.668	6.668	6.668	6.668	6.6707	6.6977	6.7134	6.7199	6.7264	6.7328
最小電圧[kV]	6.4638	6.3732	6.3732	6.3732	6.3732	6.3732	6.3732	6.3734	6.3734	6.3734	6.3734
タップ動作回数	2	2	2	2	2	2	2	2	2	2	2
SVCの最大Q制御量[kVar]	-54.15	-98.37	-98.37	-98.37	-60.45	-8.48	0	26.75	64.35	97.29	126.08

○D22 系統, PV 力率 0.95, 分散配置, SVR-SVC-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6723	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684	6.6684
最小電圧[kV]	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045
タップ動作回数	1	1	1	1	1	1	1	1	1	1	1
SVCの最大Q制御量[kVar]	-39.84	-51.78	-51.78	-51.78	-45.44	-6.32	0	29.74	49.45	52.29	70.06

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6731	6.6691	6.6691	6.6691	6.6691	6.6691	6.6691	6.6691	6.6691	6.6691	6.6691
最小電圧[kV]	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045	6.5045
タップ動作回数	1	1	1	1	1	1	1	1	1	1	1
SVCの最大Q制御量[kVar]	-39.84	-51.78	-51.78	-51.78	-45.44	-6.32	0	29.74	49.45	52.29	70.06

OD21 系統, PV 力率 1.0, 分散配置, SVR-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6673	6.6679	6.6704	6.6737	6.6745	6.6747	6.6733	6.6715	6.6713	6.7084	6.6791
最小電圧[kV]	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608
タップ動作回数	4	2	4	10	18	18	34	52	70	66	86

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	21.554	82.336	100.3	299.01	492.86	1038.1	1242.8
電圧逸脱量 (下限) [kV・sec]	0	0	0.562	0	0.478	21.405	163.4	511.24	749.88	717.38	1324.9
電圧逸脱量 (合計) [kV・sec]	0	0	0.562	0	22.032	103.741	263.7	810.25	1242.74	1755.48	2567.7
電圧逸脱時間 (上限) [sec]	0	0	0	0	110	150	240	830	800	1230	3030
電圧逸脱時間 (下限) [sec]	0	0	20	0	60	100	340	920	1010	990	1600
電圧逸脱時間 (合計) [sec]	0	0	20	0	170	250	580	1750	1810	2220	4630
最大電圧[kV]	6.6731	6.6726	6.6795	6.6969	6.748	6.7988	6.8089	6.8781	6.8256	6.9136	6.9214
最小電圧[kV]	6.4608	6.4608	6.4348	6.4494	6.4381	6.4191	6.3827	6.3583	6.3414	6.3375	6.3018
タップ動作回数	4	2	4	10	18	18	34	52	70	66	86



OD21 系統, PV 力率 1.0, 分散配置, SVR-TV R

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6657	6.6679	6.6704	6.6737	6.6745	6.6747	6.6733	6.6715	6.6713	6.7084	6.6791
最小電圧[kV]	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609
タップ動作回数	0	0	2	2	2	2	12	22	26	26	28

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	14.452	69.204	185.67	266.36
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	5.976	36.694	15.566	16.102	74.717
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	5.976	51.146	84.77	201.772	341.077
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	360	560	690	2530
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	90	240	130	100	420
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	90	600	690	790	2950
最大電圧[kV]	6.6665	6.6716	6.6795	6.681	6.6793	6.6773	6.7173	6.7565	6.795	6.8198	6.8578
最小電圧[kV]	6.4609	6.4609	6.4609	6.4609	6.4587	6.4582	6.4171	6.3936	6.4021	6.4076	6.3859
タップ動作回数	0	0	2	2	2	2	12	22	26	26	28

OD21 系統, PV 力率 1.0, 分散配置, SVR-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6657	6.6681	6.6739	6.6733	6.6745	6.6752	6.6751	6.6738	6.6729	6.6729	6.7011
最小電圧[kV]	6.5039	6.5039	6.4632	6.4648	6.4651	6.4665	6.4667	6.4667	6.4683	6.4682	6.4638
タップ動作回数	0	0	2	2	2	2	2	6	8	8	8
SVCの最大Q制御量[kVar]	0	0	56.56	122.76	123.16	257.35	300	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	4.295	52.395	158.48
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	4.295	52.395	158.48
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	70	130	220
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	70	130	220
最大電圧[kV]	6.6665	6.6716	6.6763	6.6792	6.6782	6.6765	6.6768	6.6953	6.7364	6.7701	6.8138
最小電圧[kV]	6.5039	6.5039	6.4491	6.4504	6.4507	6.4522	6.4525	6.4525	6.4541	6.4541	6.4542
タップ動作回数	0	0	2	2	2	2	2	6	8	8	8
SVCの最大Q制御量[kVar]	0	0	56.56	122.76	123.16	257.35	300	300	300	300	300

OD21 系統, PV 力率 0.95, 分散配置, SVR-SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6673	6.6664	6.6716	6.6726	6.6718	6.6736	6.6744	6.6749	6.6746	6.6736	6.6718
最小電圧[kV]	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608	6.4608
タップ動作回数	4	2	2	4	6	16	18	16	12	26	36

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6657	6.6681	6.6739	6.6733	6.6745	6.6752	6.6751	6.6738	6.6729	6.6729	6.7011
最小電圧[kV]	6.5039	6.5039	6.4632	6.4648	6.4651	6.4665	6.4667	6.4667	6.4683	6.4682	6.4638
タップ動作回数	0	0	2	2	2	2	2	6	8	8	8
SVCの最大Q制御量[kVar]	0	0	56.56	122.76	123.16	257.35	300	300	300	300	300

○D21 系統, PV 力率 0.95, 分散配置, SVR-TV R

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6657	6.6658	6.6716	6.6726	6.6718	6.6736	6.6744	6.6749	6.6746	6.6736	6.6718
最小電圧[kV]	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609	6.4609
タップ動作回数	0	0	0	2	2	2	2	2	2	8	14

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0.006
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	2.371	8.313
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	2.371	8.319
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	10
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	20	140
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	20	150
最大電圧[kV]	6.6665	6.6667	6.6761	6.6788	6.6812	6.6786	6.6798	6.6774	6.679	6.7026	6.7256
最小電圧[kV]	6.4609	6.4609	6.4609	6.4609	6.4609	6.4599	6.4589	6.4582	6.4574	6.4229	6.4086
タップ動作回数	0	0	0	2	2	2	2	2	2	8	14

○D21 系統, PV 力率 0.95, 分散配置, SVR-SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6657	6.6658	6.6715	6.6754	6.6722	6.6746	6.6744	6.6751	6.6749	6.6749	6.6739
最小電圧[kV]	6.5039	6.5039	6.5039	6.4683	6.4686	6.47	6.4703	6.4704	6.4704	6.4716	6.4718
タップ動作回数	0	0	0	2	2	2	2	2	2	2	2
SVCの最大Q制御量[kVar]	0	0	23.55	113.56	140.26	120.98	100.68	181.66	259.68	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6665	6.6667	6.6748	6.6787	6.6799	6.679	6.6777	6.6763	6.6759	6.6765	6.6765
最小電圧[kV]	6.5039	6.5039	6.5039	6.454	6.4542	6.4557	6.4561	6.4562	6.4562	6.4575	6.4577
タップ動作回数	0	0	0	2	2	2	2	2	2	2	2
SVCの最大Q制御量[kVar]	0	0	23.55	113.56	140.26	120.98	100.68	181.66	259.68	300	300

OC2 系統, PV 力率 1.0, 分散配置, SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6632	6.6633	6.6666	6.6648	6.6672	6.6678	6.6684	6.6678	6.6668	6.6668	6.6671
最小電圧[kV]	6.5159	6.5159	6.4839	6.484	6.4841	6.4842	6.4843	6.4844	6.4846	6.4848	6.4849
タップ動作回数	0	0	2	2	2	2	2	2	2	12	18

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0.187	5.333
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0.187	5.333
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	20	90
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	20	90
最大電圧[kV]	6.6641	6.6643	6.6748	6.6751	6.6708	6.6725	6.6702	6.6709	6.6788	6.7004	6.7218
最小電圧[kV]	6.5159	6.5159	6.4811	6.4806	6.4803	6.48	6.4797	6.4795	6.4793	6.4392	6.4287
タップ動作回数	0	0	2	2	2	2	2	2	2	12	18

OC2 系統, PV 力率 1.0, 分散配置, TVR

(a) 30 分移動平均值

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6542	6.6541	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539
最小電圧[kV]	6.517	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6811	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802
最小電圧[kV]	6.517	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159

OC2 系統, PV 力率 1.0, 分散配置, SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.6002	6.6025	6.6071	6.6166	6.6331	6.6531
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-282.05	-142.46	-4.26	0	71.78	204.85	300	300	300	300

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.602	6.6067	6.6151	6.6321	6.6519	6.6731
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-282.05	-142.46	-4.26	0	71.78	204.85	300	300	300	300



○C2 系統, PV 力率 0.95, 分散配置, SVR

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6632	6.6633	6.6634	6.6647	6.6648	6.6649	6.6662	6.6669	6.6672	6.6684	6.6684
最小電圧[kV]	6.5159	6.5159	6.5159	6.4838	6.4839	6.4839	6.484	6.4841	6.4842	6.4842	6.4843
タップ動作回数	0	0	0	2	2	2	2	2	2	2	2

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6641	6.6642	6.6665	6.6727	6.6718	6.675	6.6732	6.6707	6.6734	6.6697	6.6702
最小電圧[kV]	6.5159	6.5159	6.5159	6.4811	6.4808	6.4806	6.4803	6.4802	6.48	6.4799	6.4798
タップ動作回数	0	0	0	2	2	2	2	2	2	2	2

OC2 系統, PV 力率 0.95, 分散配置, TVR

(a) 30 分移動平均值

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6542	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539	6.6539
最小電圧[kV]	6.517	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6811	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802	6.6802
最小電圧[kV]	6.517	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159	6.5159

OC2 系統, PV 力率 0.95, 分散配置, SVC

(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.6	6.6001	6.6006	6.6012	6.6018	6.6034
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-288.86	-254.77	-172.76	-92.17	-12.97	0	0	23.76	97.66	169.86

(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.6	6.6006	6.6012	6.6023	6.6041	6.6063
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-288.86	-254.77	-172.76	-92.17	-12.97	0	0	23.76	97.66	169.86

OD22 系統, PV 力率 1.0, 末端集中, SVR-SVR-SVR LDC パラメータ更新無

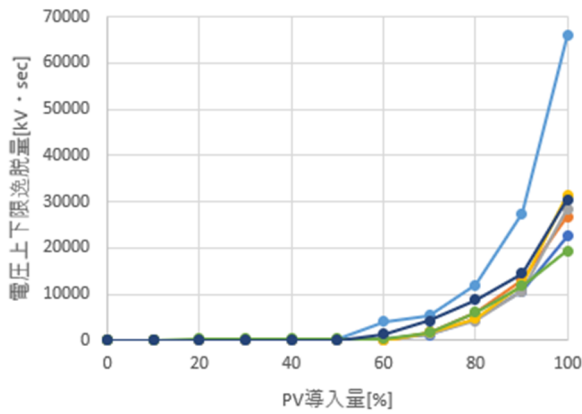
(a) 30 分移動平均値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	148.29	199.07	1307.3	6271.6	14487	25205	37066
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	1.1538	0	4.0438	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	148.29	199.07	1307.3	6272.8	14487	25209	37066
電圧逸脱時間 (上限) [sec]	0	0	0	0	5740	7180	16610	21210	25500	28320	29830
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	330	0	270	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	5740	7180	16610	21540	25500	28590	29830
最大電圧[kV]	6.7109	6.7109	6.7109	6.7109	6.7638	6.7641	6.8023	6.8714	6.9553	7.0296	7.0947
最小電圧[kV]	6.4565	6.4494	6.4537	6.4542	6.4546	6.4486	6.4555	6.4404	6.4519	6.4351	6.4565
タップ動作回数	8	20	28	70	73	97	113	101	97	89	73

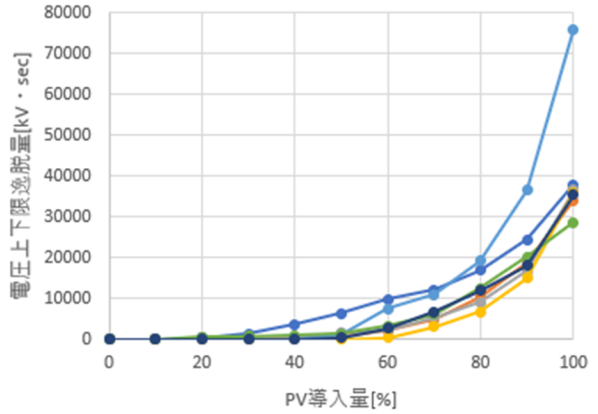
(b) 10 秒値

PV導入量[%]	0	10	20	30	40	50	60	70	80	90	100
電圧逸脱量 (上限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (下限) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱量 (合計) [kV・sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (上限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (下限) [sec]	0	0	0	0	0	0	0	0	0	0	0
電圧逸脱時間 (合計) [sec]	0	0	0	0	0	0	0	0	0	0	0
最大電圧[kV]	6.6	6.6	6.6	6.6	6.6	6.6	6.6001	6.6006	6.6012	6.6018	6.6034
最小電圧[kV]	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463	6.463
SVCの最大Q制御量[kVar]	-290.07	-288.86	-254.77	-172.76	-92.17	-12.97	0	0	23.76	97.66	169.86

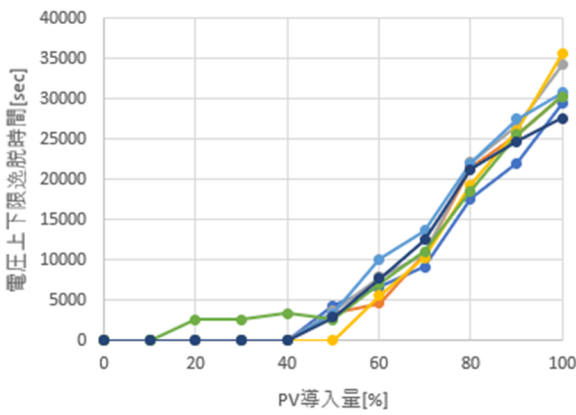
OD22 系統, PV 力率 1.0, 末端集中 (PV 導入量増加に伴う各評価指標の変化)



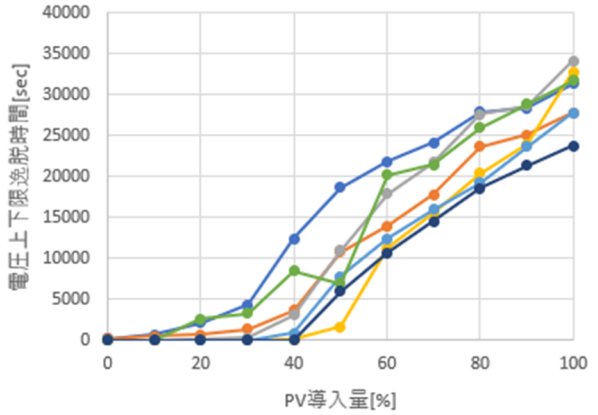
(a) 逸脱量 (30 分移動平均値)



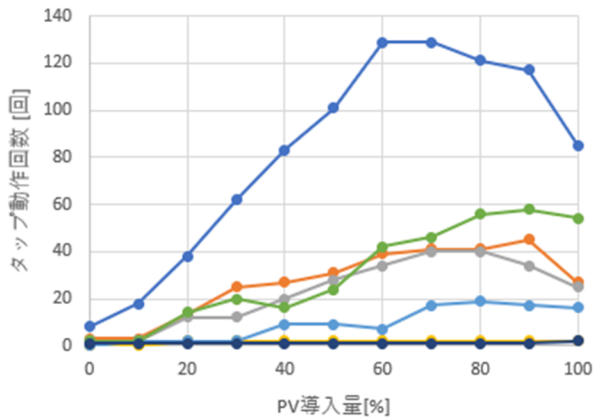
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)

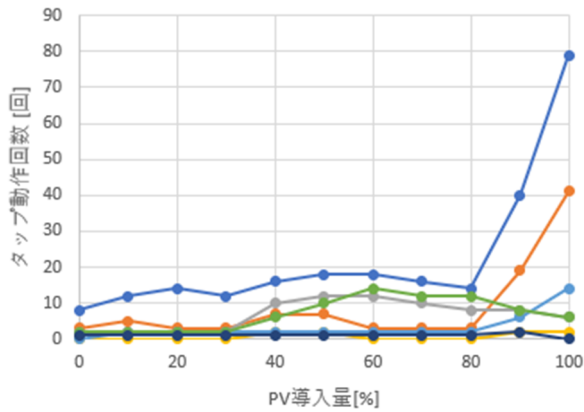


(e) タップ動作回数

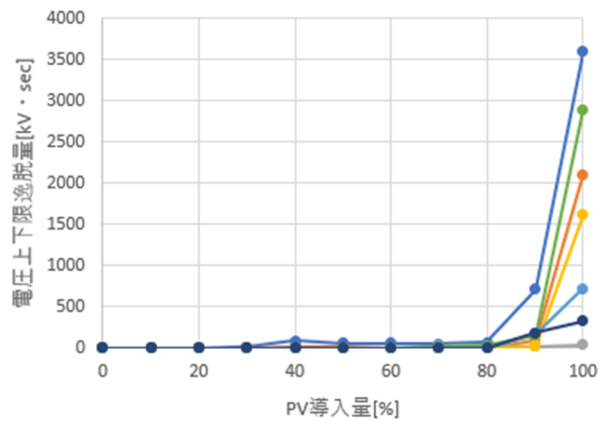


(凡例)

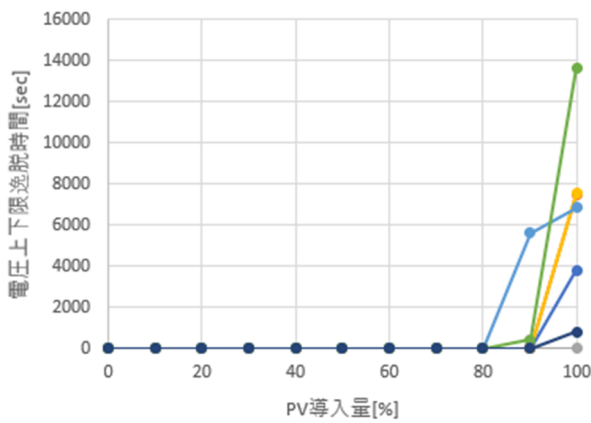
OD22 系統, PV 力率 0.95, 末端集中 (PV 導入量増加に伴う各評価指標の変化)



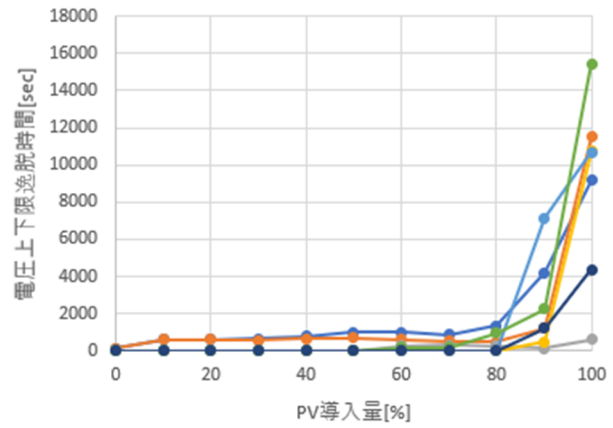
(a) 逸脱量 (30 分移動平均値)



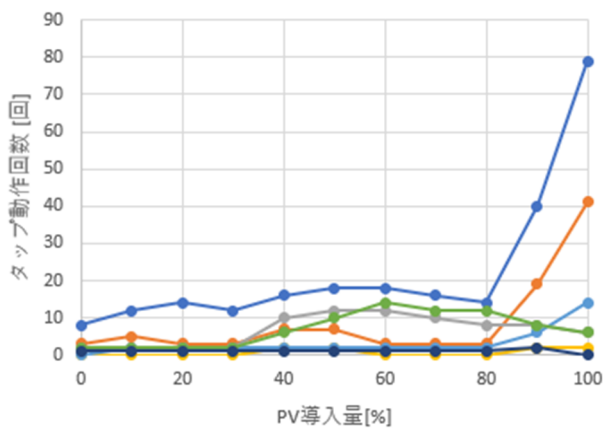
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)

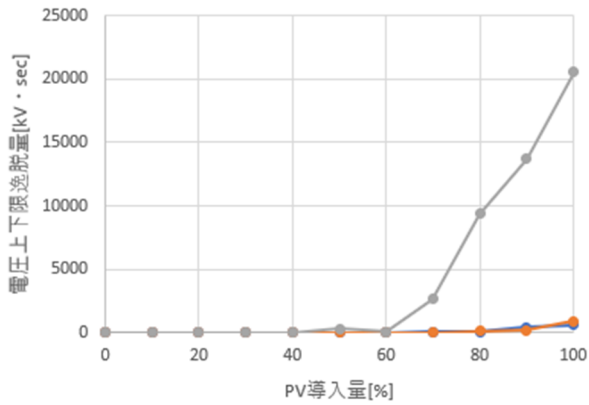


(e) タップ動作回数

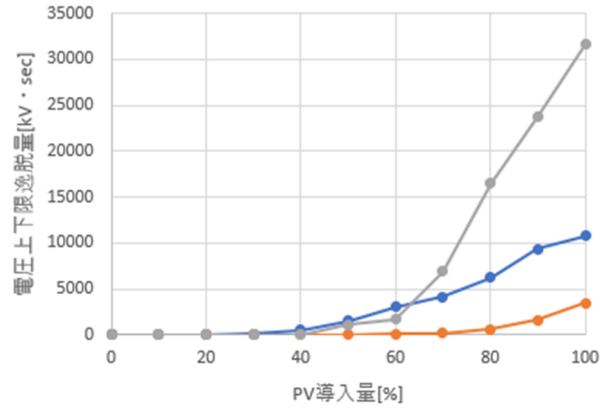


(凡例)

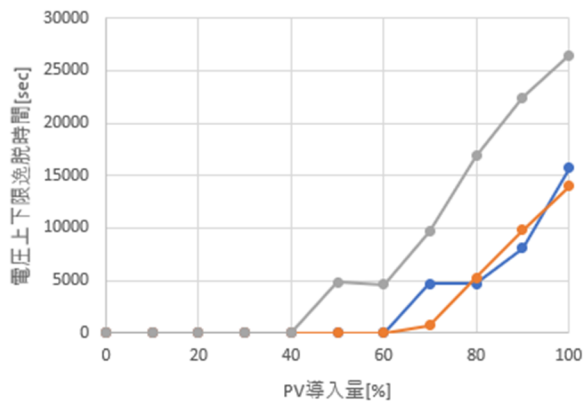
OD21 系統, PV 力率 1.0, 末端集中 (PV 導入量増加に伴う各評価指標の変化)



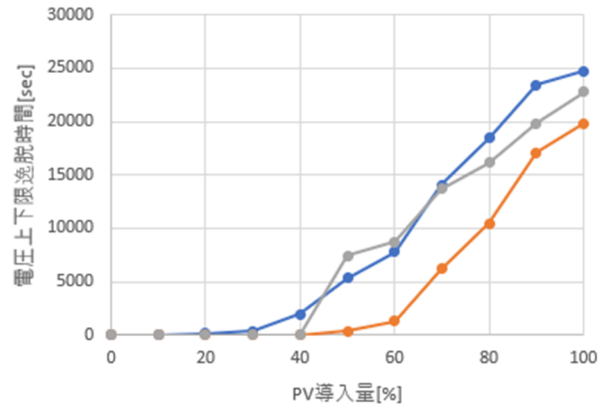
(a) 逸脱量 (30 分移動平均値)



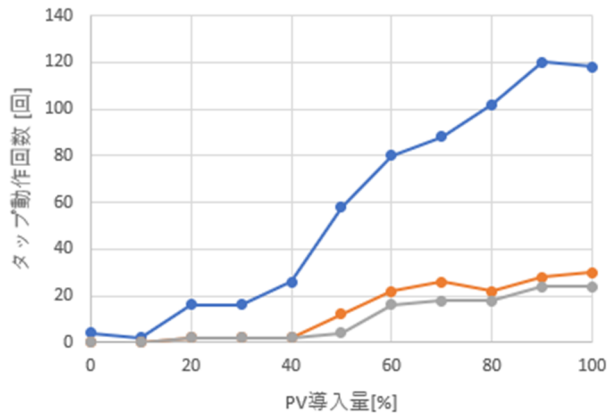
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)

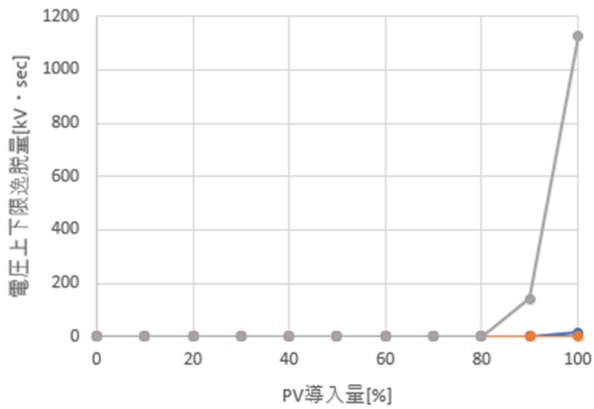


(e) タップ動作回数

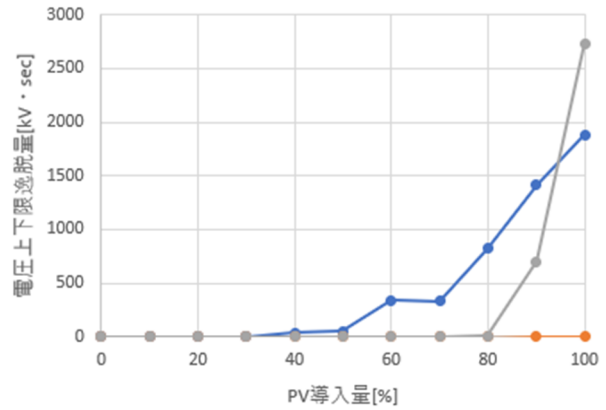


(凡例)

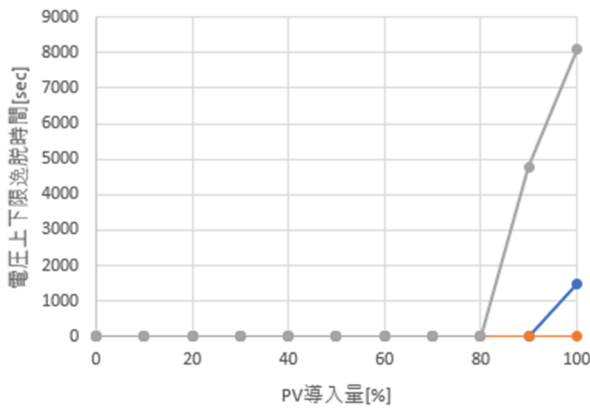
OD21 系統, PV 力率 0.95, 末端集中 (PV 導入量増加に伴う各評価指標の変化)



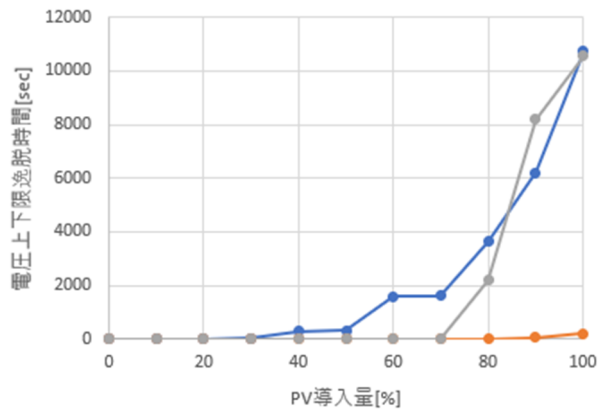
(a) 逸脱量 (30分移動平均値)



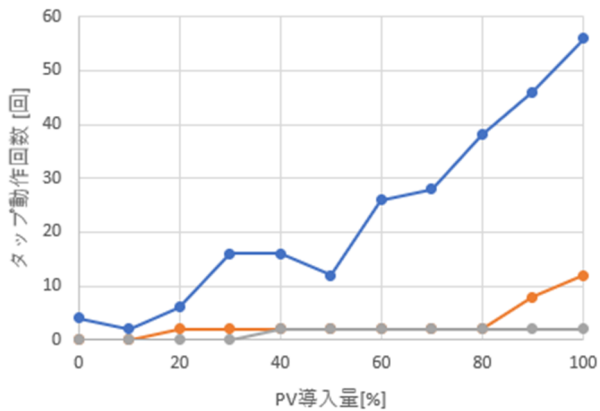
(b) 逸脱量 (10秒値)



(c) 逸脱時間 (30分移動平均値)



(d) 逸脱時間 (10秒値)



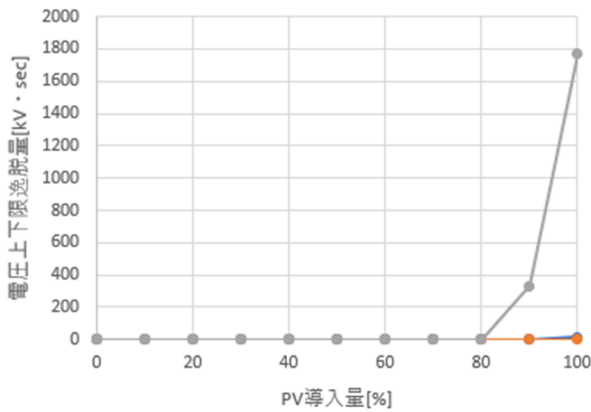
(e) タップ動作回数



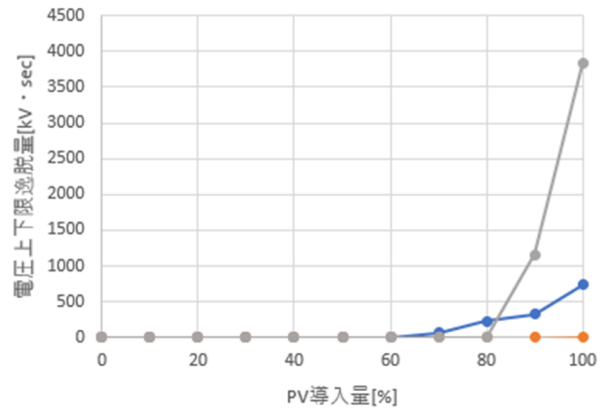
(凡例)



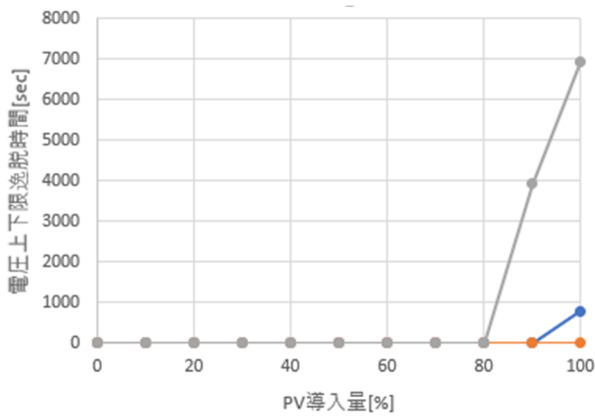
OC2 系統, PV 力率 1.0, 末端集中 (PV 導入量増加に伴う各評価指標の変化)



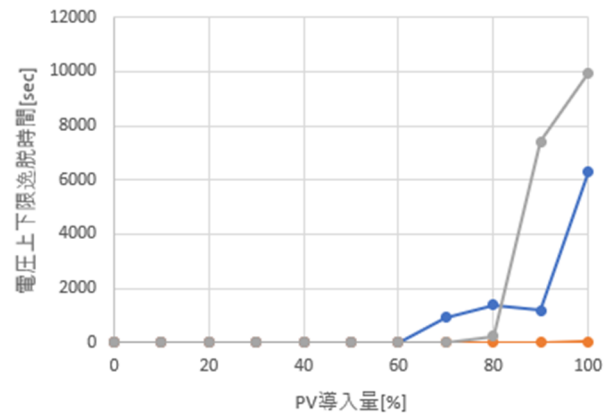
(a) 逸脱量 (30 分移動平均値)



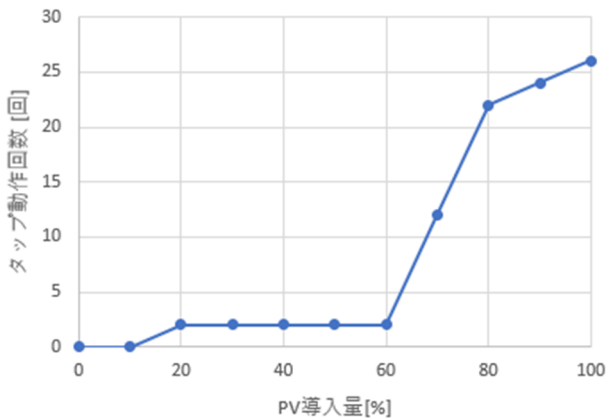
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)

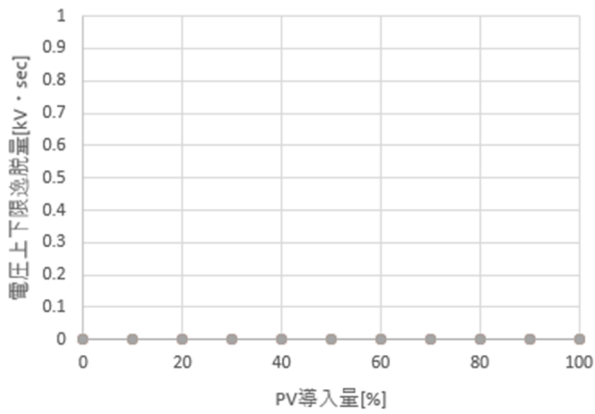


(e) タップ動作回数

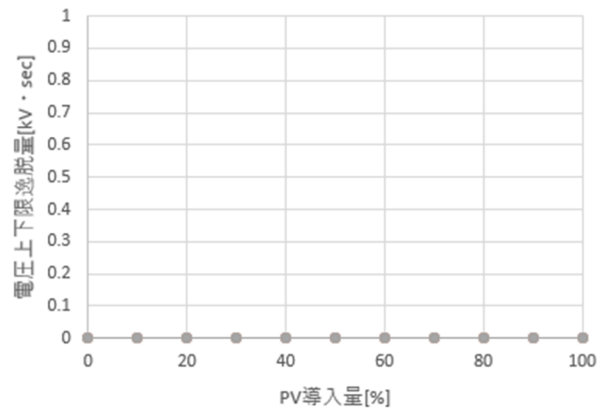


(凡例)

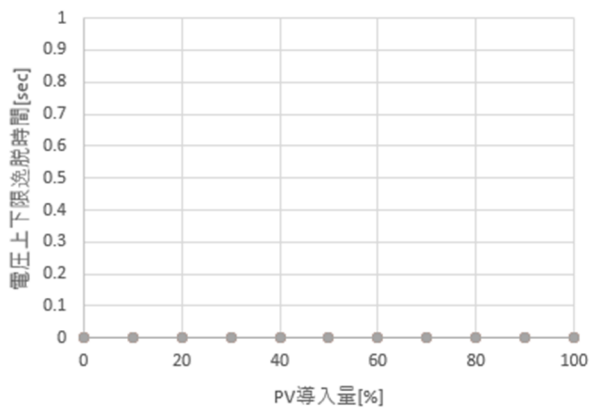
OC2 系統, PV 力率 0.95, 末端集中 (PV 導入量増加に伴う各評価指標の変化)



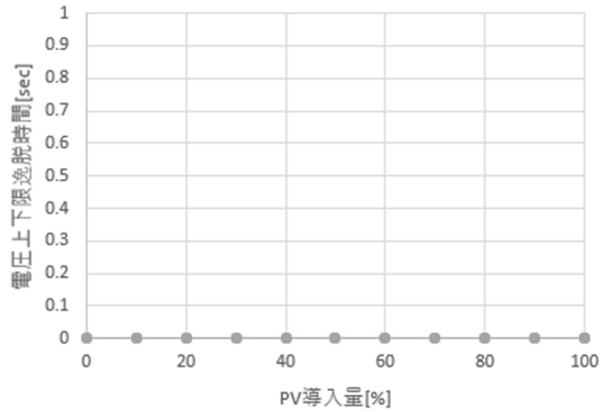
(a) 逸脱量 (30 分移動平均値)



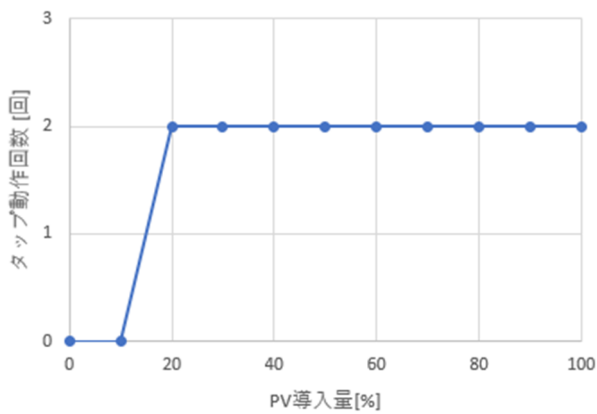
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)

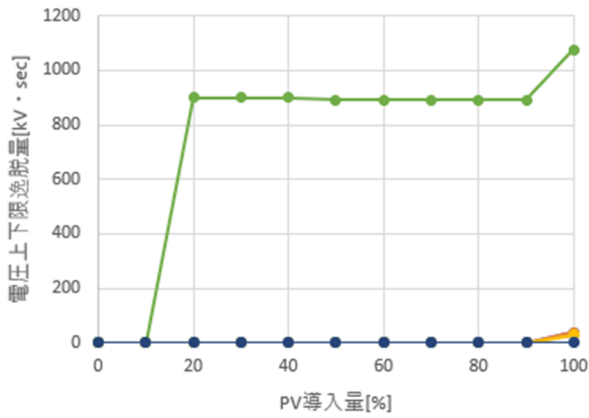


(e) タップ動作回数

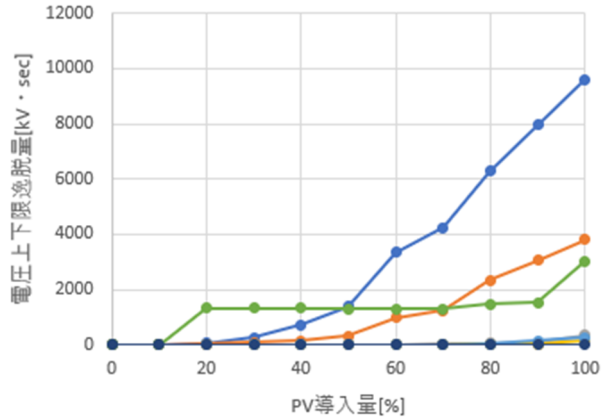


(凡例)

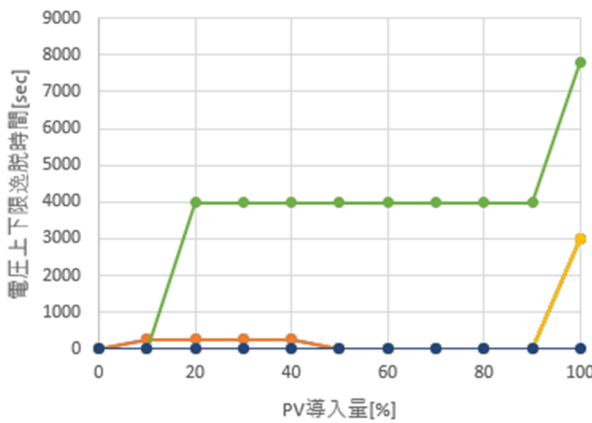
OD22 系統, PV 力率 1.0, 分散配置 (PV 導入量増加に伴う各評価指標の変化)



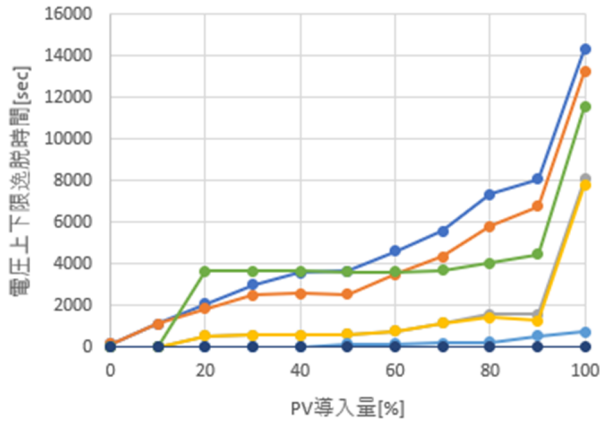
(a) 逸脱量 (30 分移動平均値)



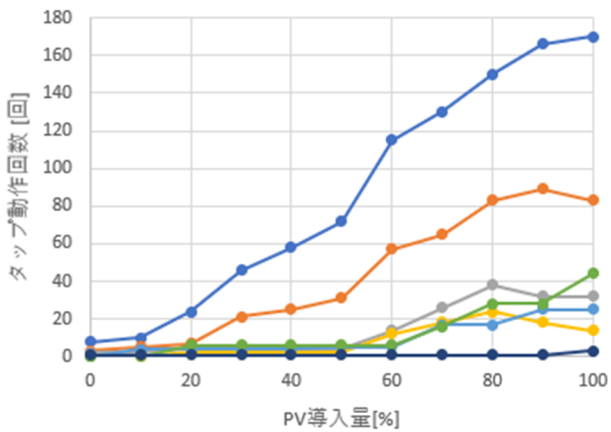
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)

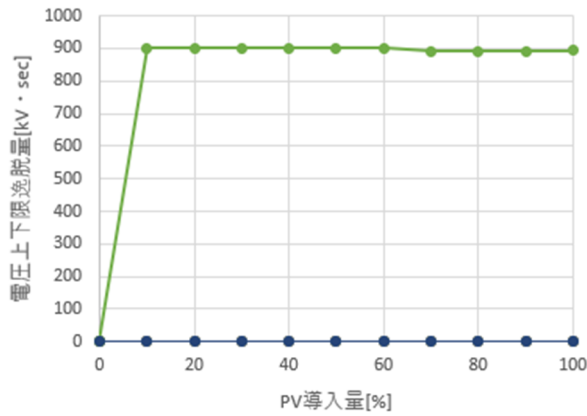


(e) タップ動作回数

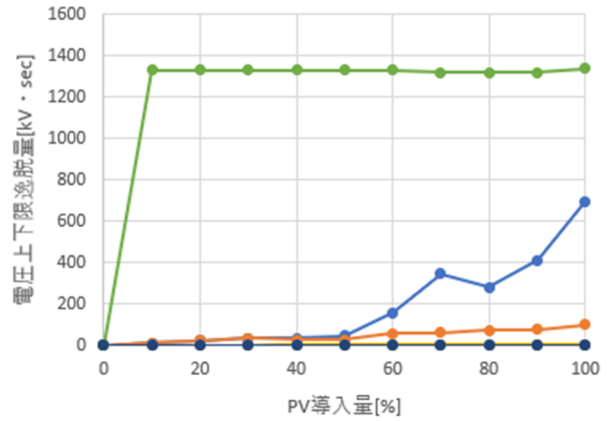
- R-R-R
- R-R-T
- R-T-R
- R-T-T
- R-R-C
- R-C-R
- R-C-C

(凡例)

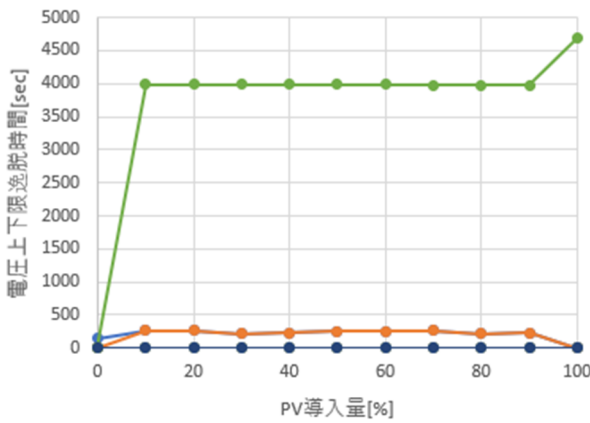
OD22 系統, PV 力率 0.95, 分散配置 (PV 導入量増加に伴う各評価指標の変化)



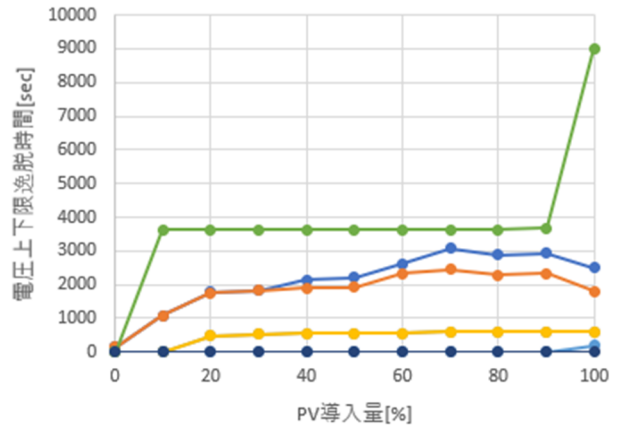
(a) 逸脱量 (30 分移動平均値)



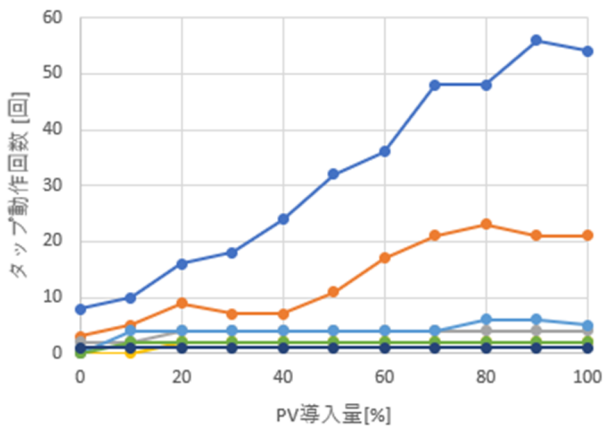
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)

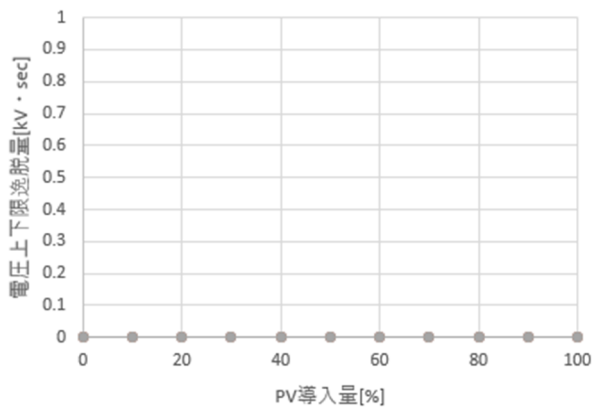


(e) タップ動作回数

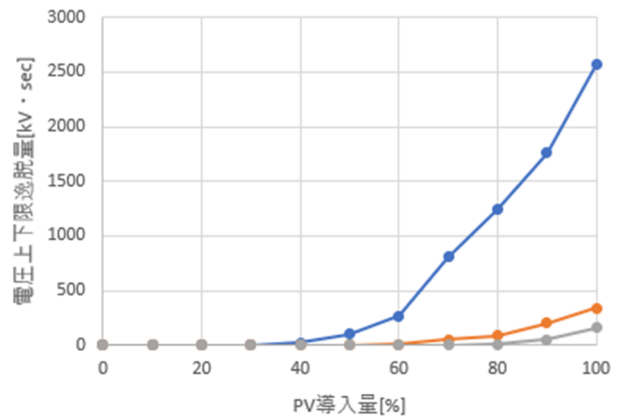


(凡例)

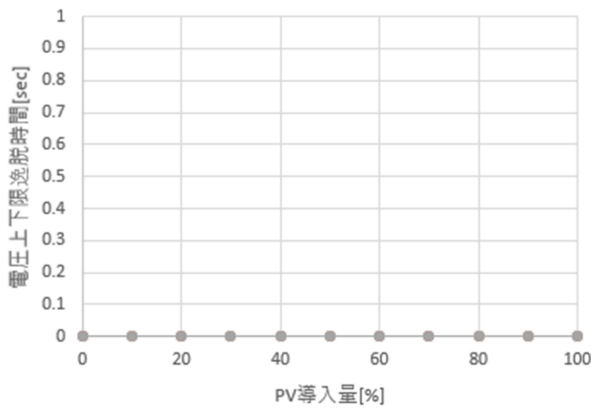
OD21 系統, PV 力率 1.0, 分散配置 (PV 導入量増加に伴う各評価指標の変化)



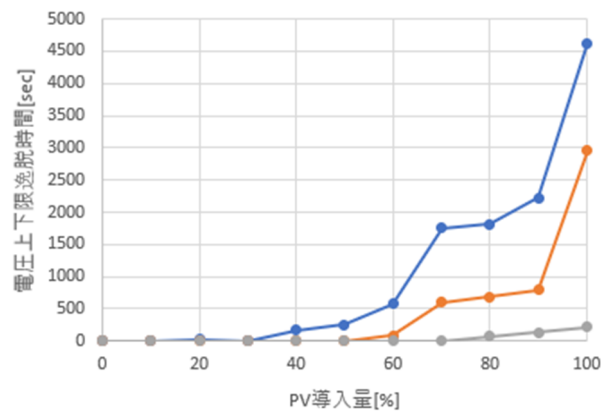
(a) 逸脱量 (30分移動平均値)



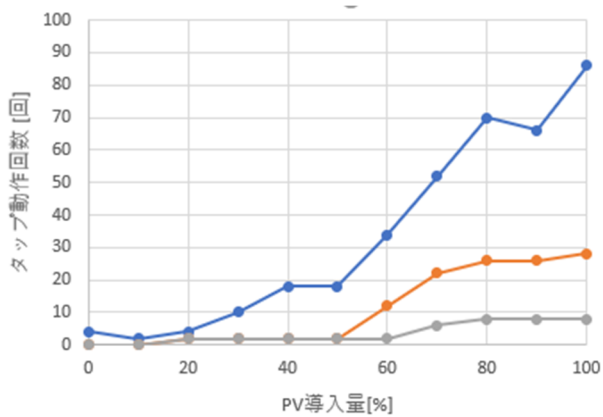
(b) 逸脱量 (10秒値)



(c) 逸脱時間 (30分移動平均値)



(d) 逸脱時間 (10秒値)

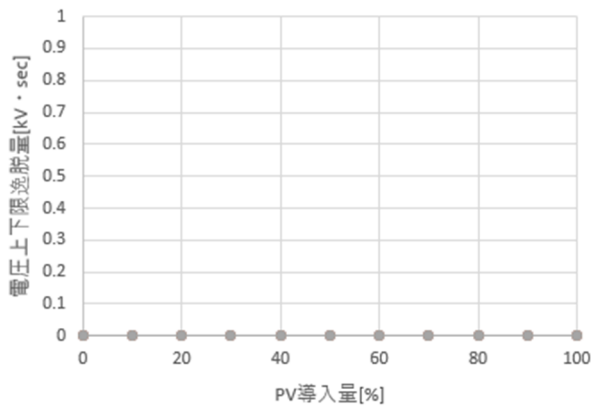


(e) タップ動作回数

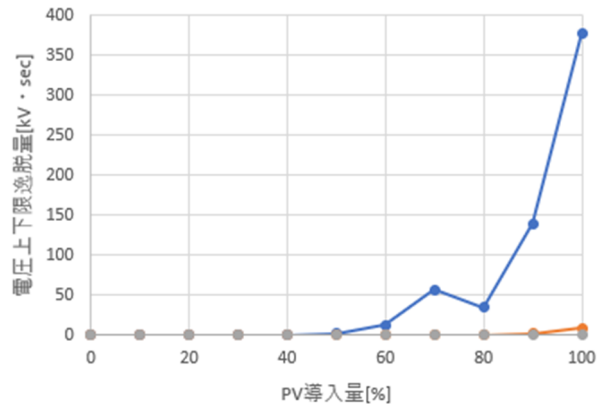


(凡例)

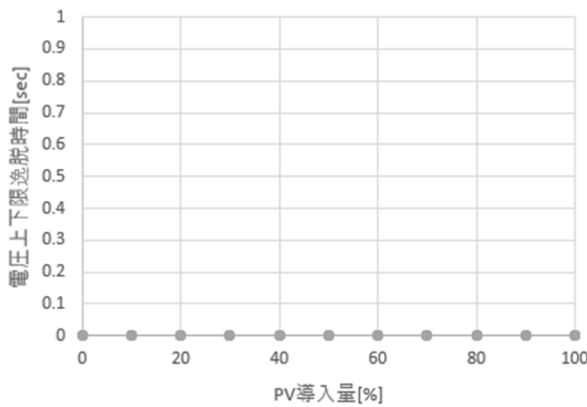
OD21 系統, PV 力率 0.95, 分散配置 (PV 導入量増加に伴う各評価指標の変化)



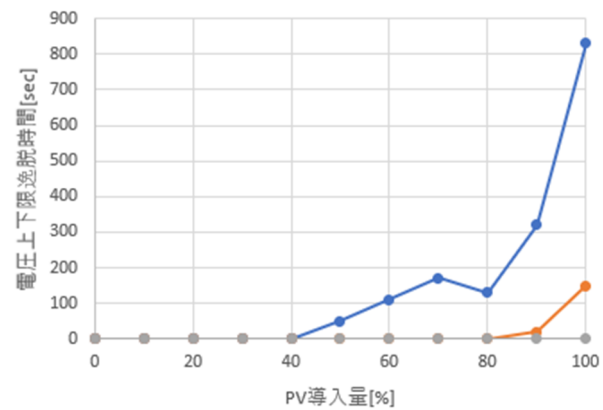
(a) 逸脱量 (30分移動平均値)



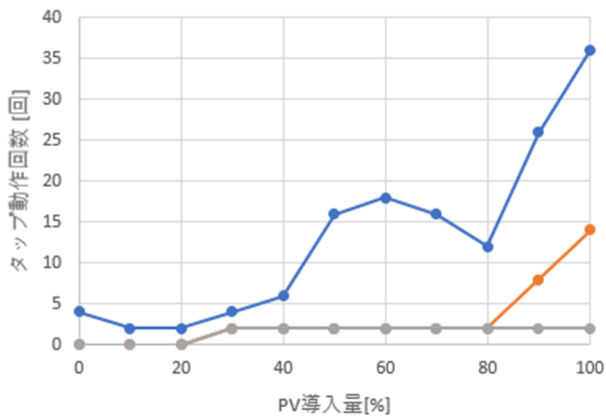
(b) 逸脱量 (10秒値)



(c) 逸脱時間 (30分移動平均値)



(d) 逸脱時間 (10秒値)

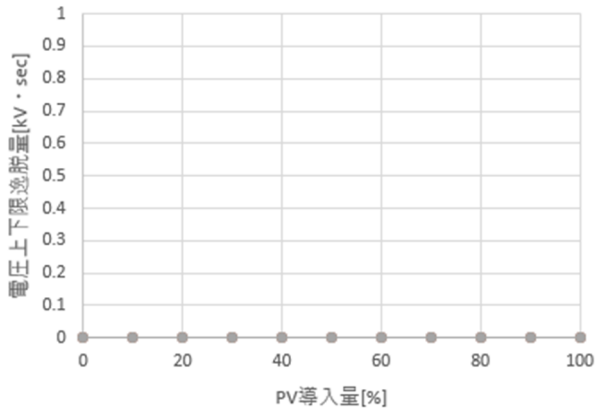


(e) タップ動作回数

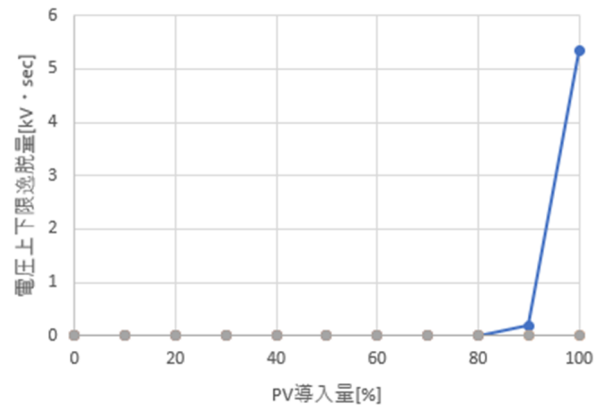


(凡例)

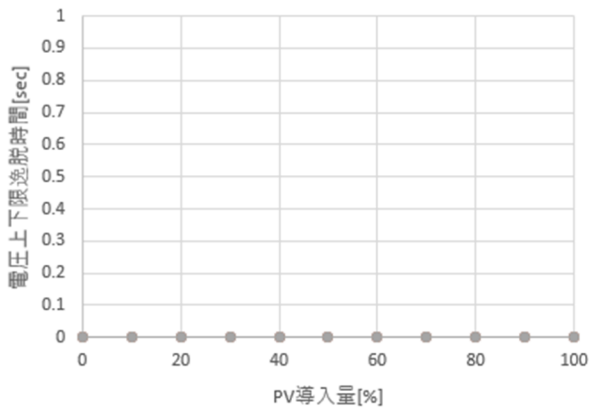
OC2 系統, PV 力率 1.0, 分散配置 (PV 導入量増加に伴う各評価指標の変化)



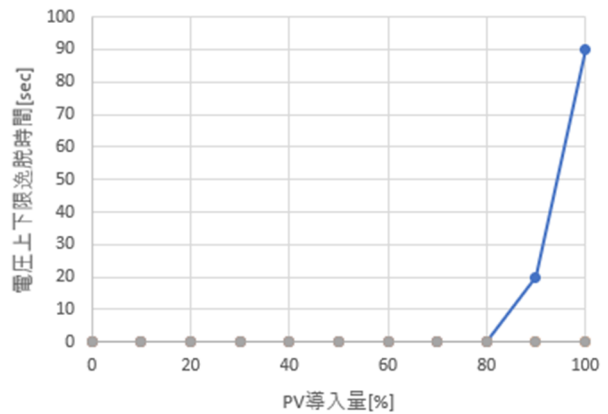
(a) 逸脱量 (30 分移動平均値)



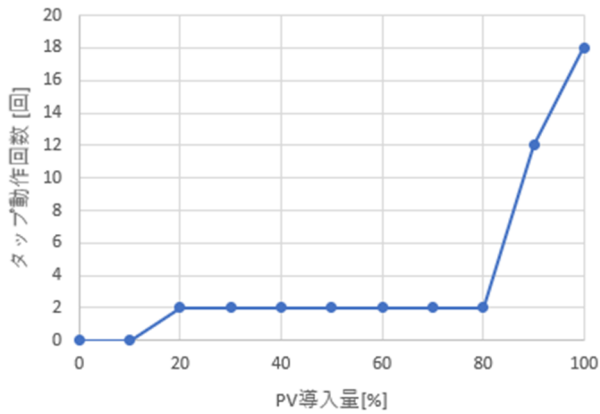
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)

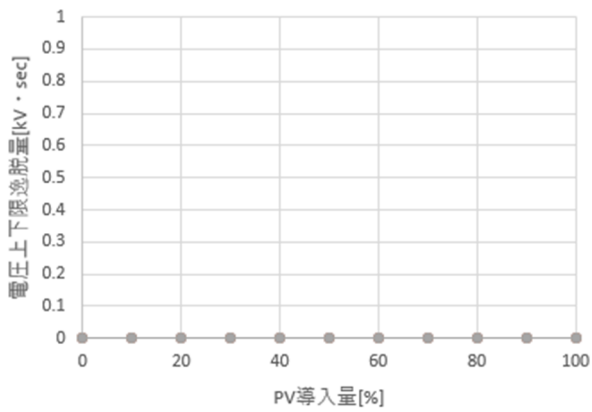


(e) タップ動作回数

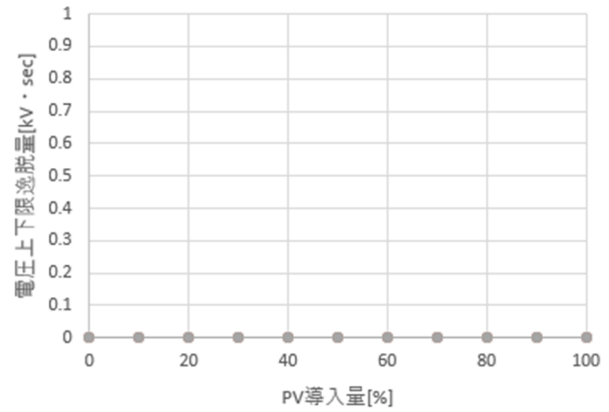


(凡例)

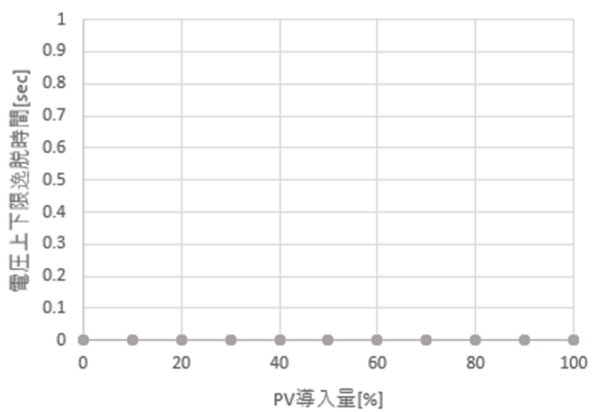
OC2 系統, PV 力率 0.95, 分散配置 (PV 導入量増加に伴う各評価指標の変化)



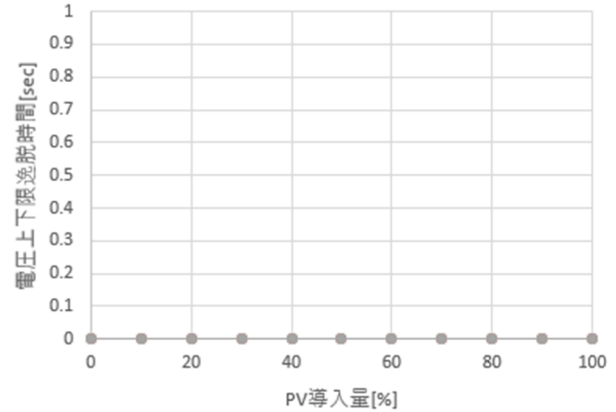
(a) 逸脱量 (30 分移動平均値)



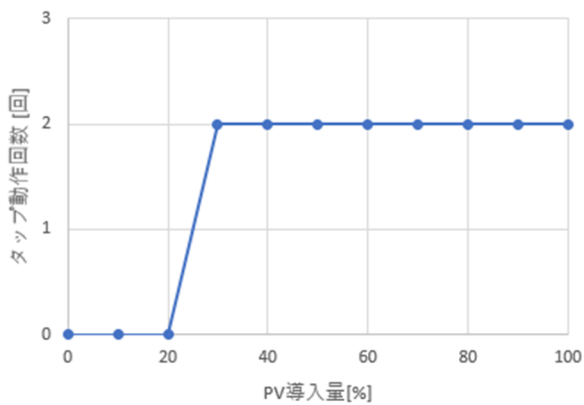
(b) 逸脱量 (10 秒値)



(c) 逸脱時間 (30 分移動平均値)



(d) 逸脱時間 (10 秒値)



(e) タップ動作回数



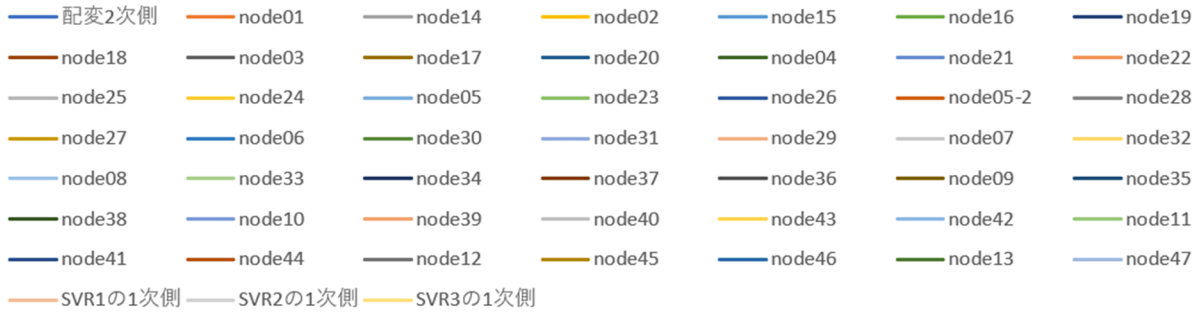
(凡例)



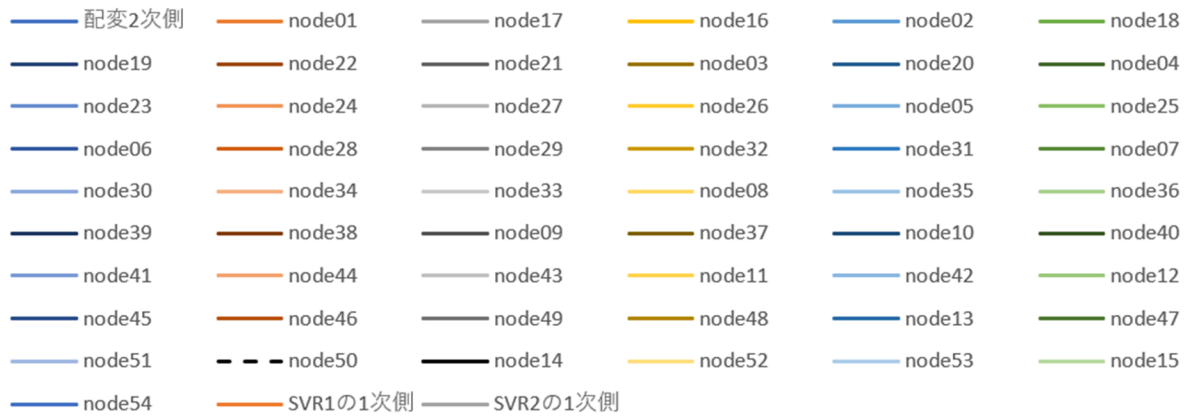
## 付録2. 定常電圧解析の各パターンにおける時系列波形のまとめ

### 各配電系統モデルでの電圧の時系列波形の凡例

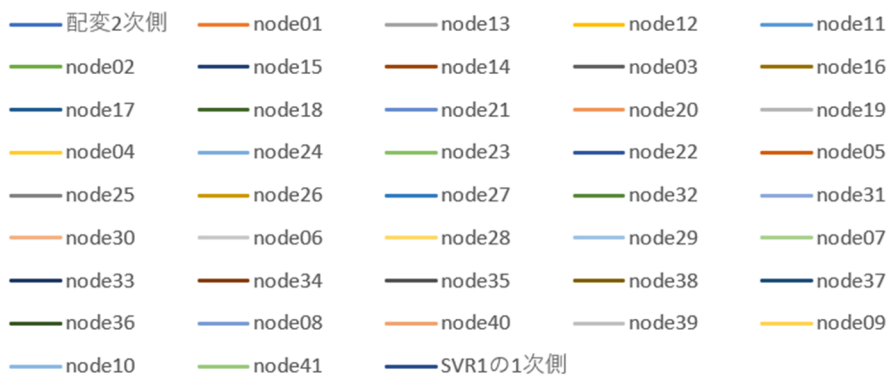
#### OD22



#### OD21

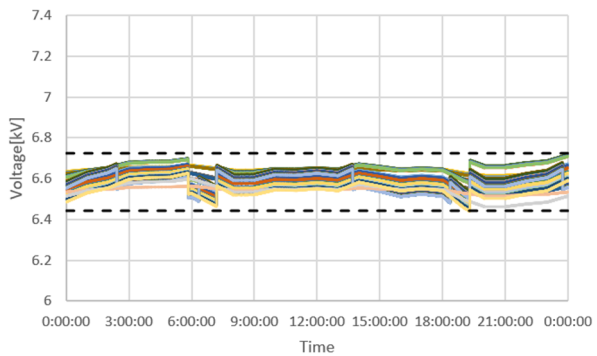


#### OC2

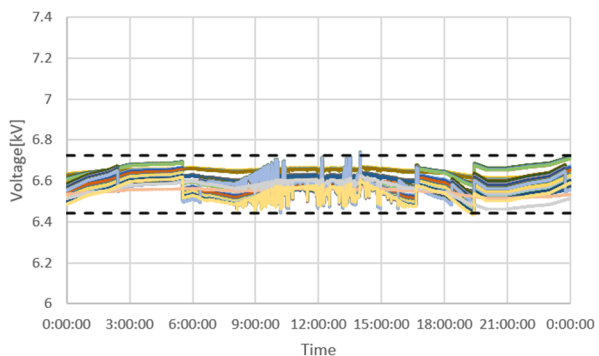


OD22 系統, PV 力率 1.0, 末端集中, SVR-SVR-SVR

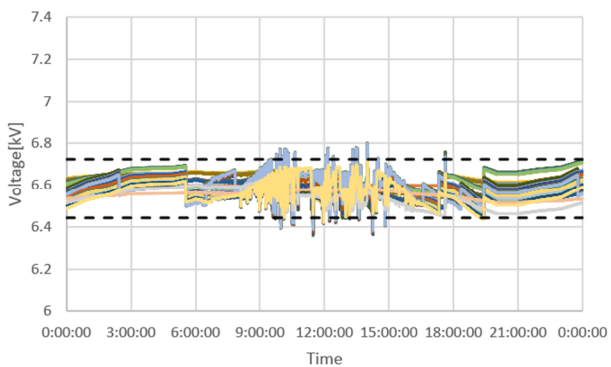
(上: 電圧分布, 下: タップ位置)



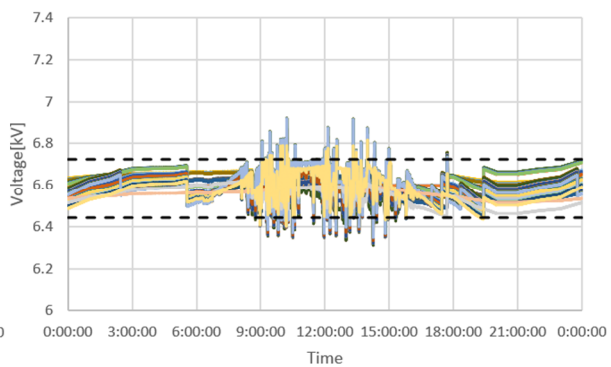
(a) PV 0%



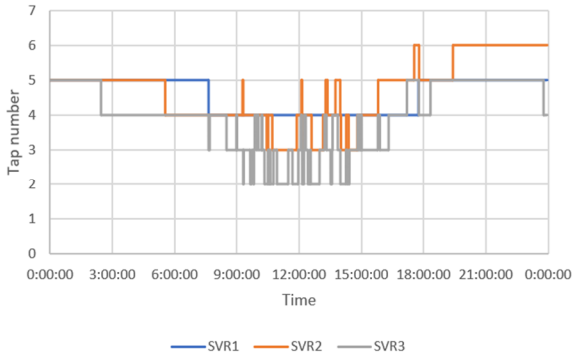
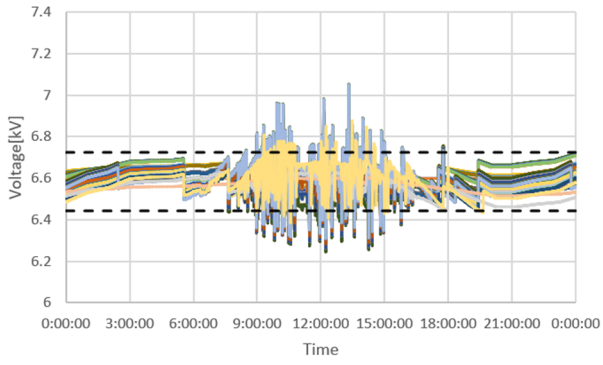
(b) PV 10%



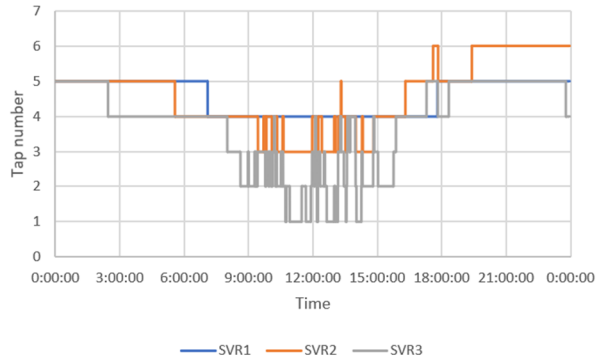
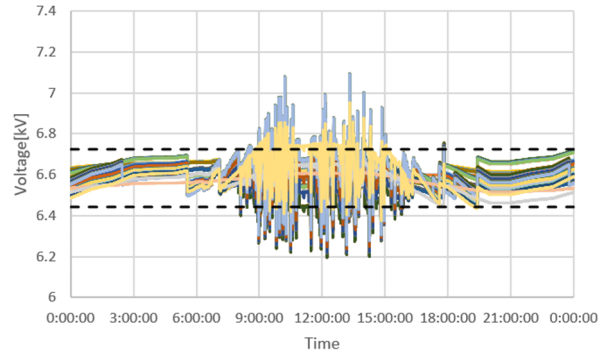
(c) PV 20%



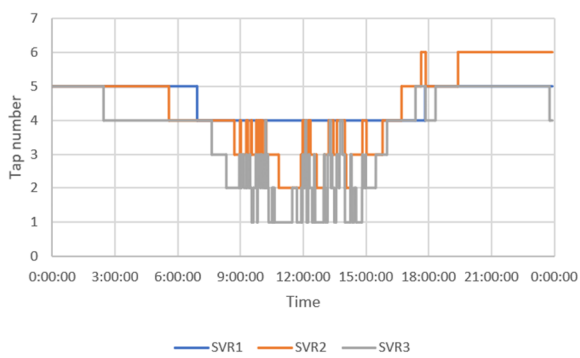
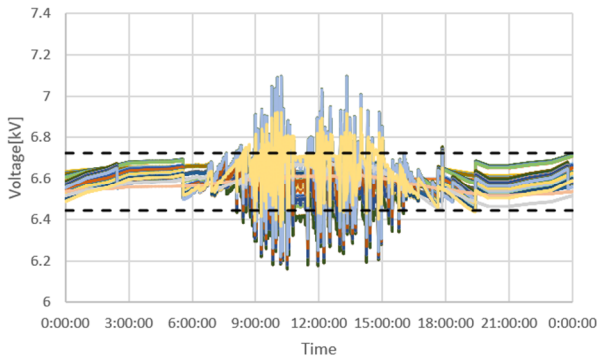
(d) PV 30%



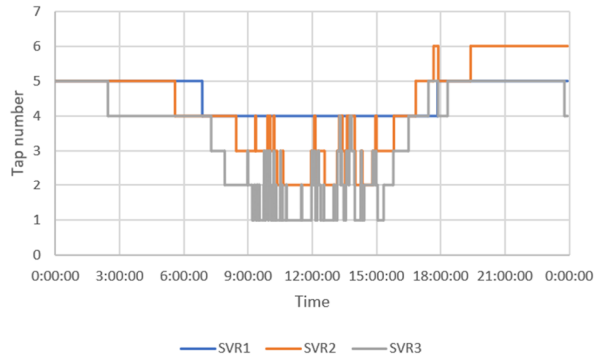
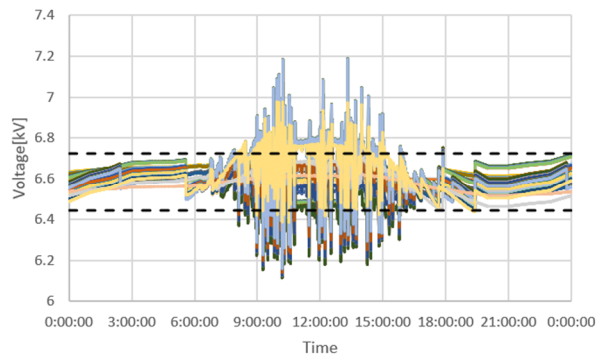
(e) PV 40%



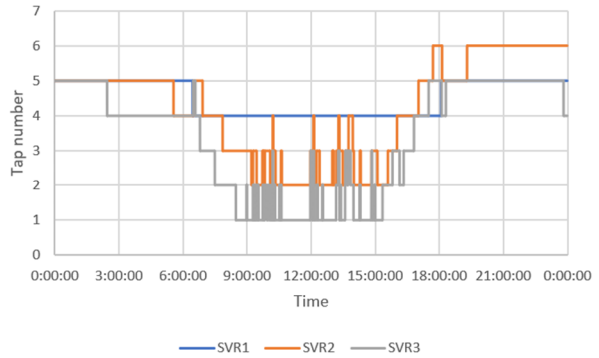
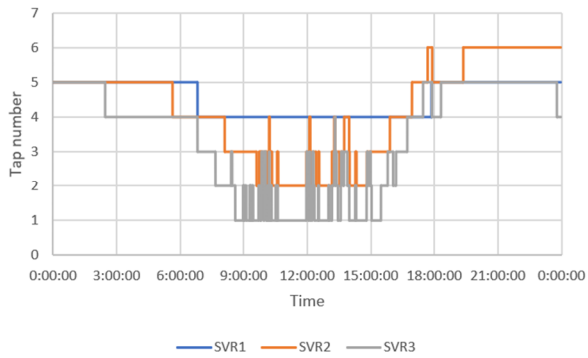
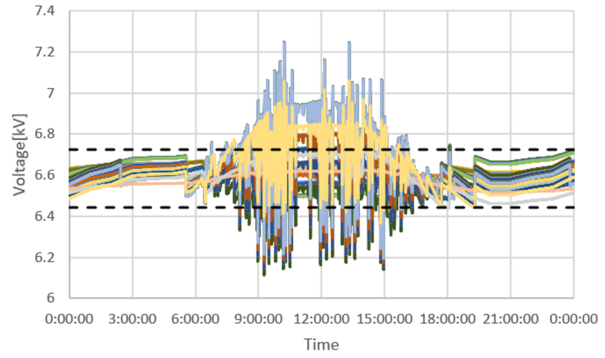
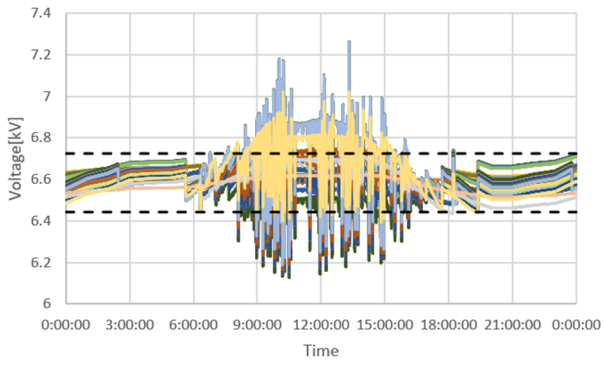
(f) PV 50%



(g) PV 60%

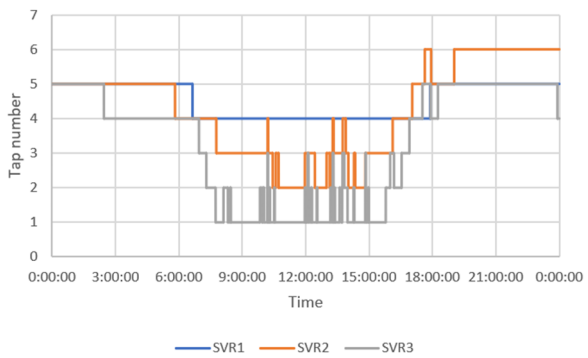
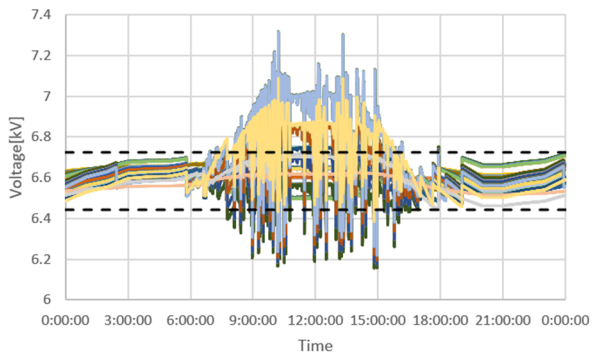


(h) PV 70%



(i) PV 80%

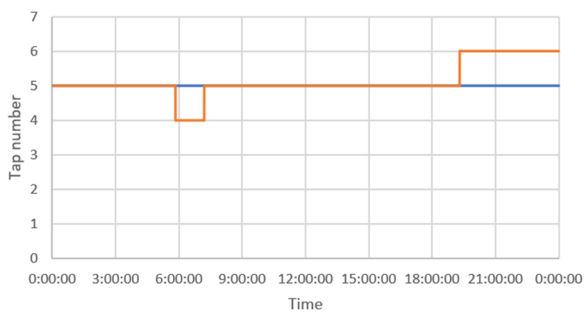
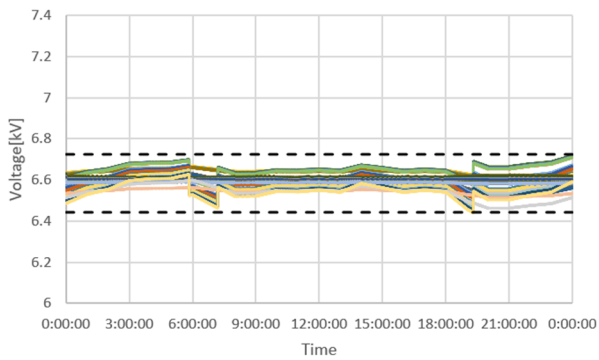
(j) PV 90%



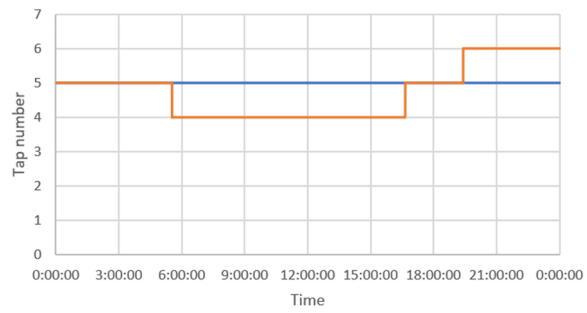
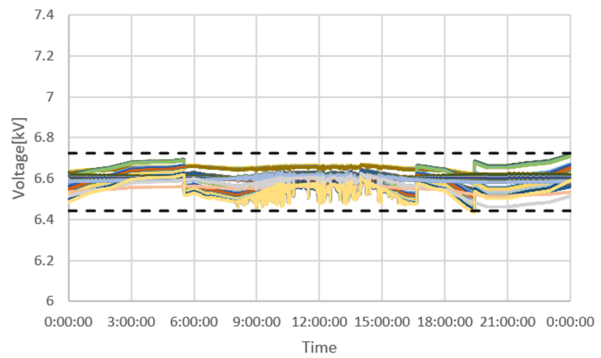
(k) PV 100%

OD22 系統, PV 力率 1.0, 末端集中, SVR-SVR-CVC

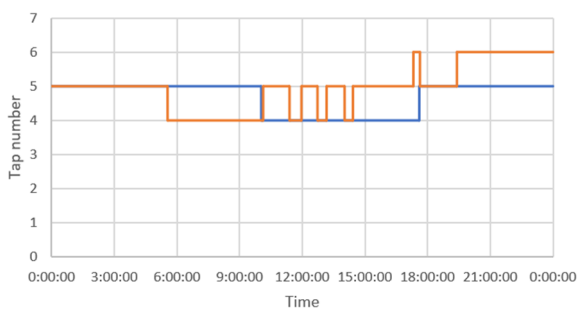
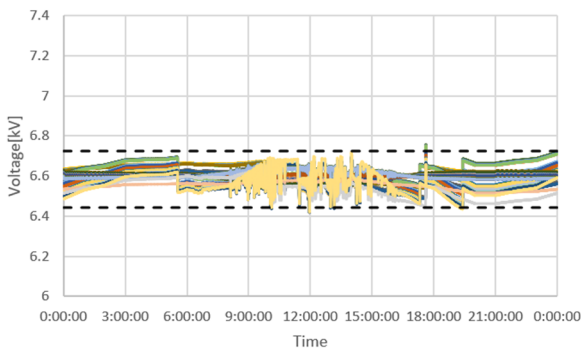
(上: 電圧分布, 下: タップ位置)



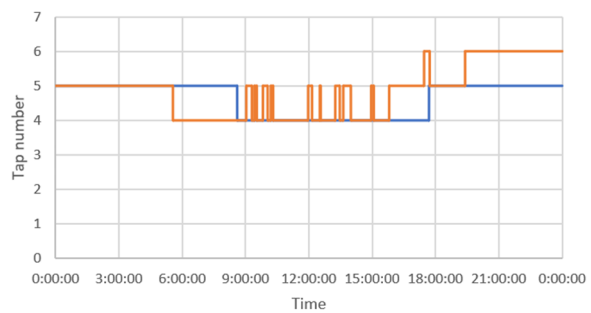
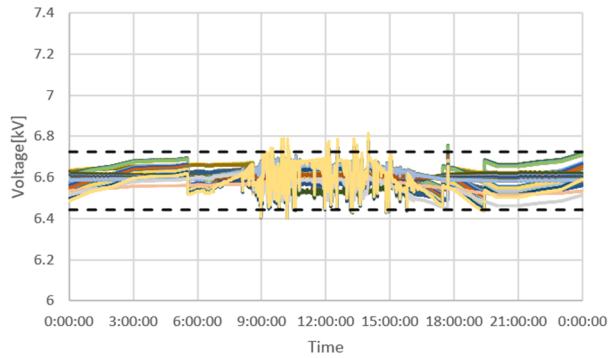
(a) PV 0%



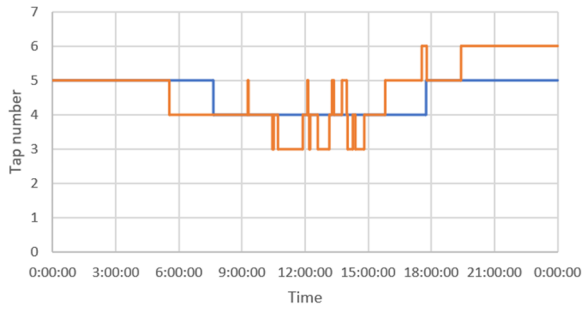
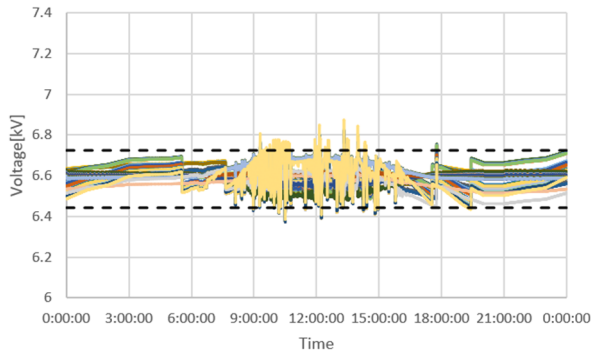
(b) PV 10%



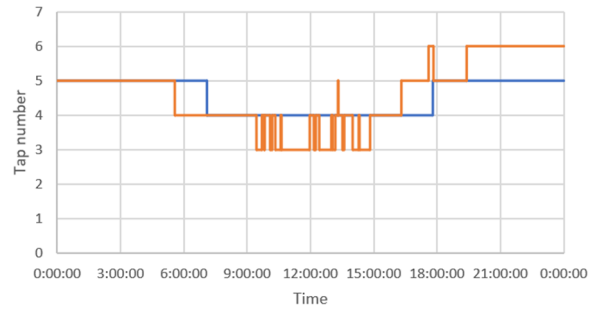
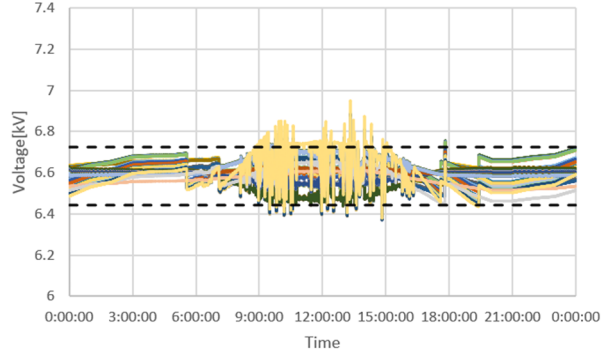
(c) PV 20%



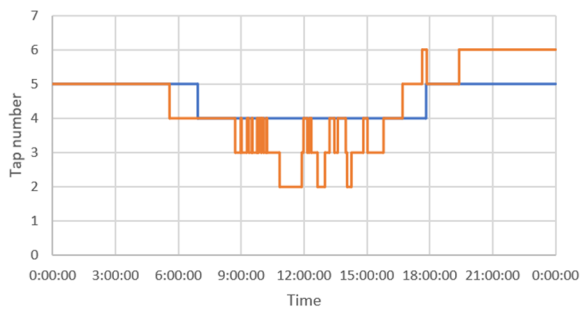
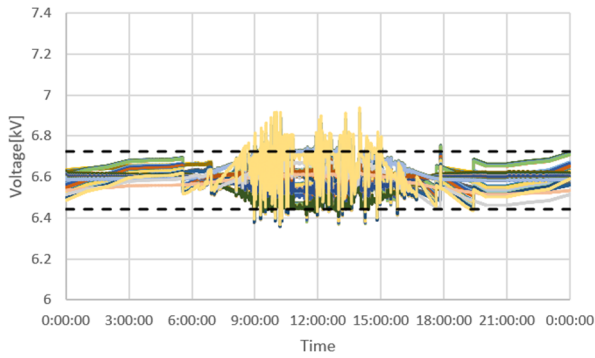
(d) PV 30%



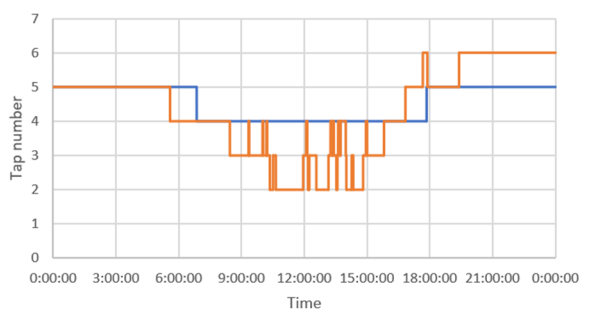
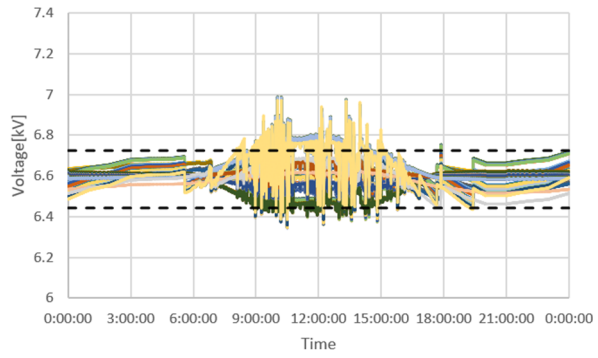
(e) PV 40%



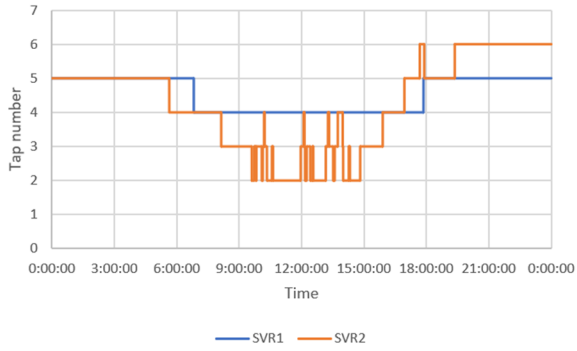
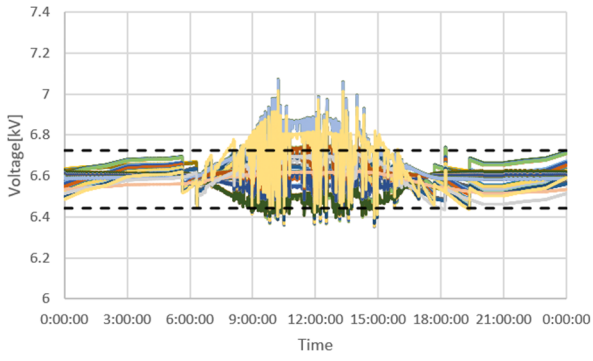
(f) PV 50%



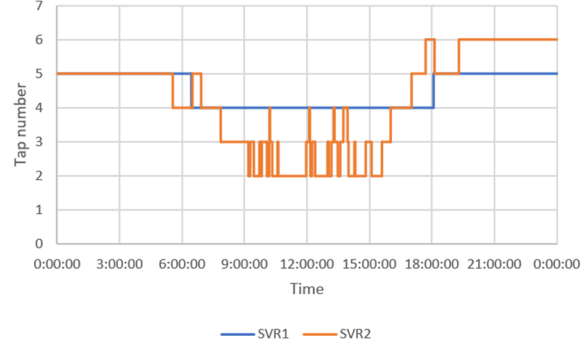
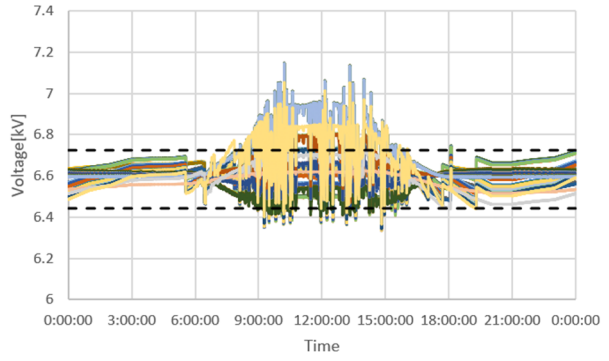
(g) PV 60%



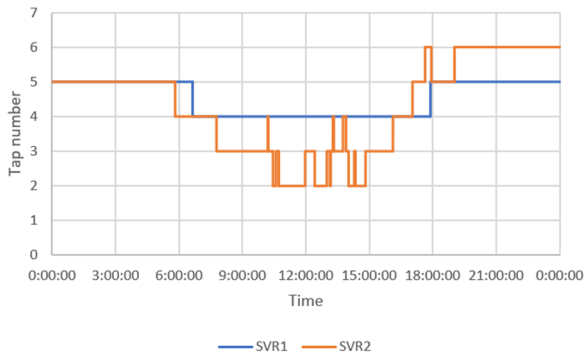
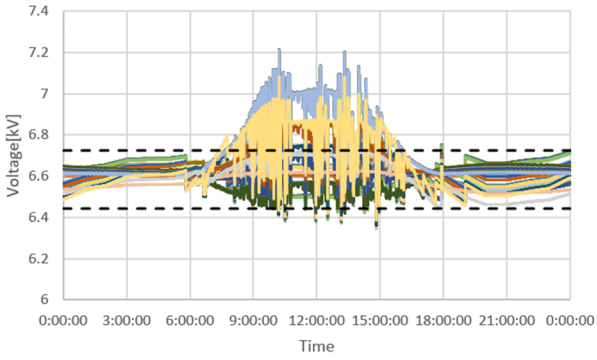
(h) PV 70%



(i) PV 80%



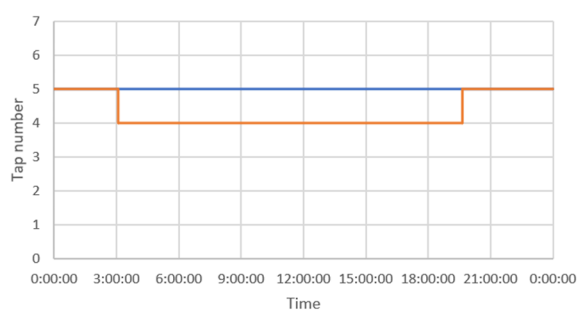
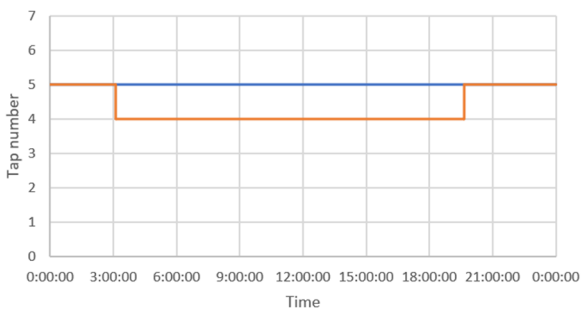
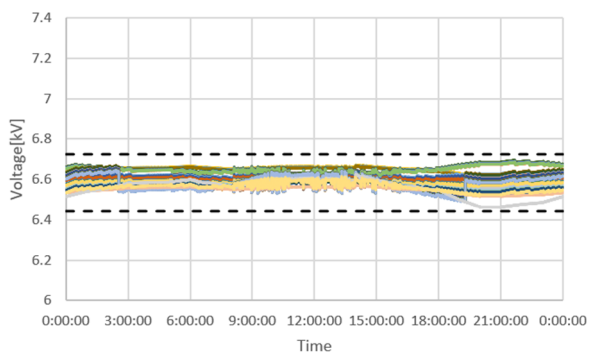
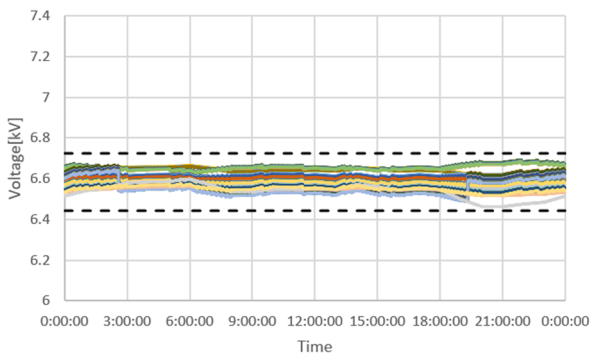
(j) PV 90%



(k) PV 100%

OD22 系統, PV 力率 1.0, 末端集中, SVR-TVV-SVR

(上: 電圧分布, 下: タップ位置)

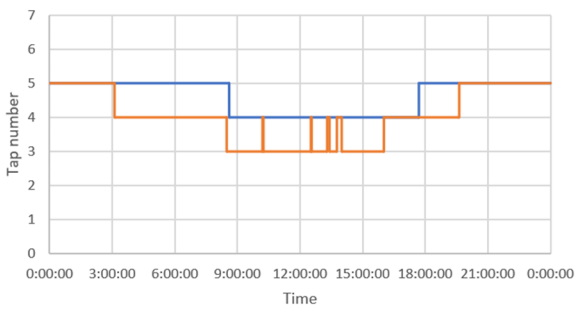
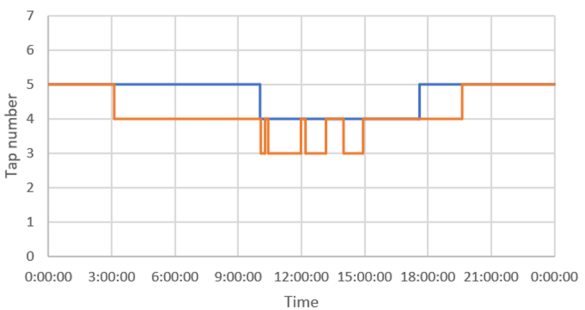
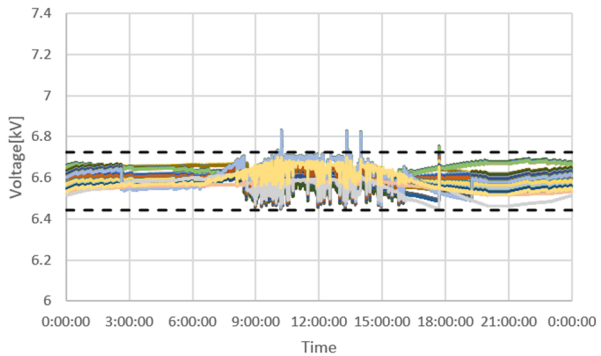
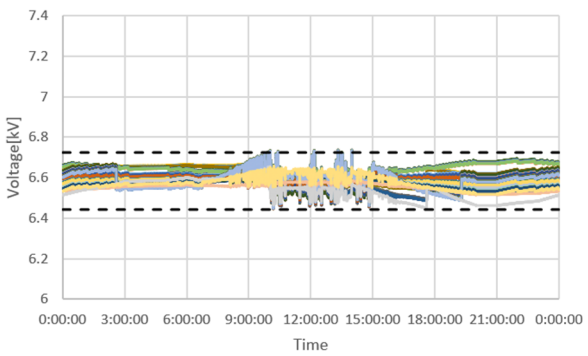


— SVR1 — SVR2

— SVR1 — SVR2

(a) PV 0%

(b) PV 10%



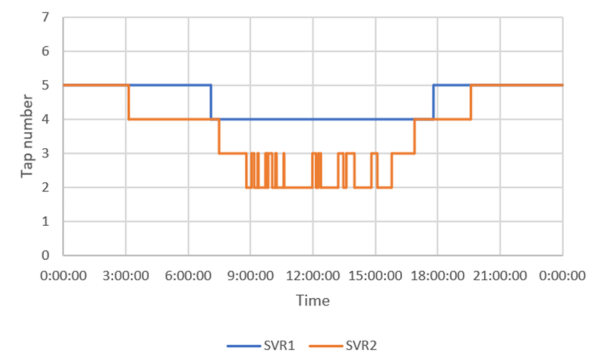
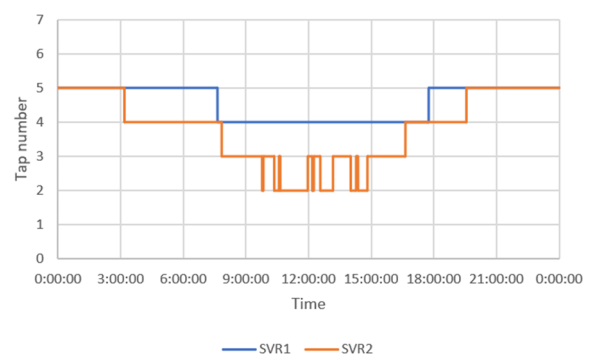
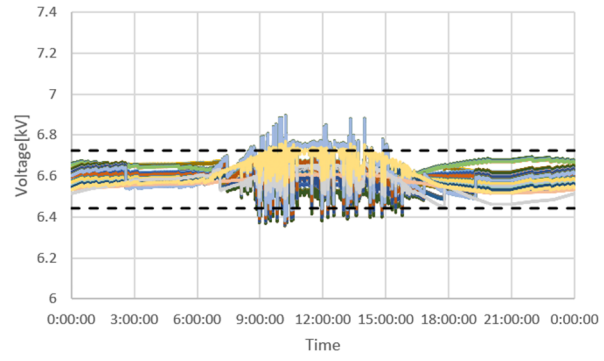
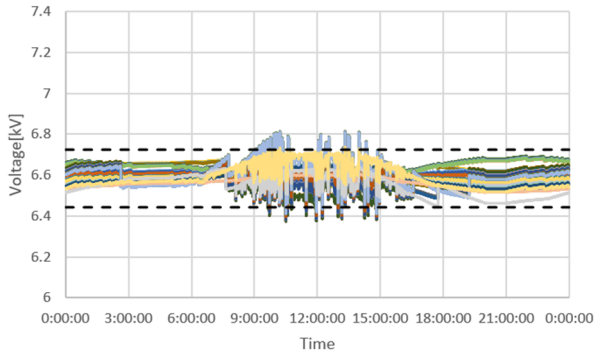
— SVR1 — SVR2

— SVR1 — SVR2

(c) PV 20%

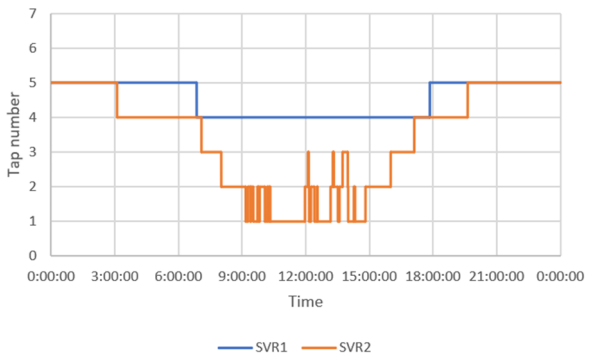
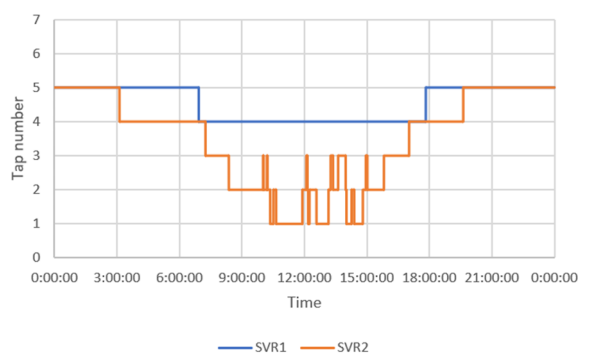
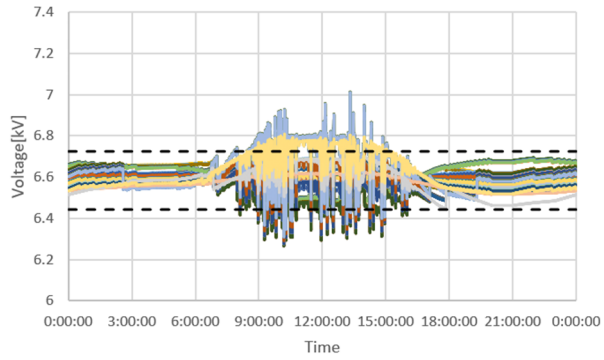
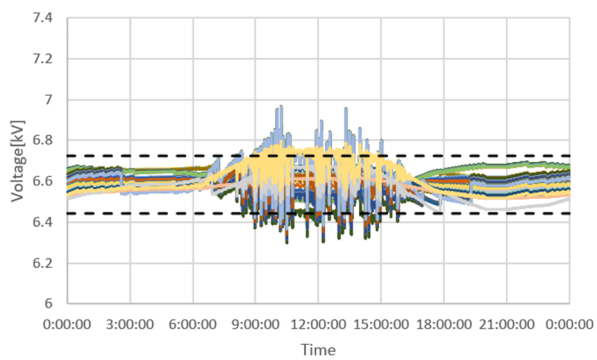
(d) PV 30%





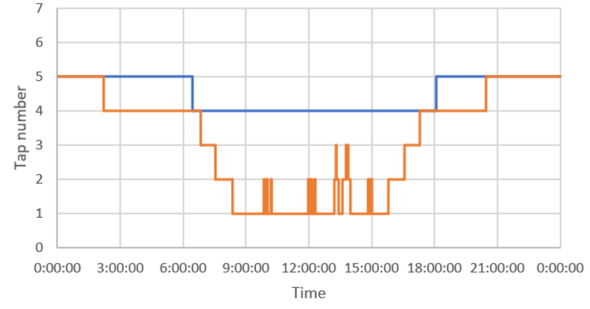
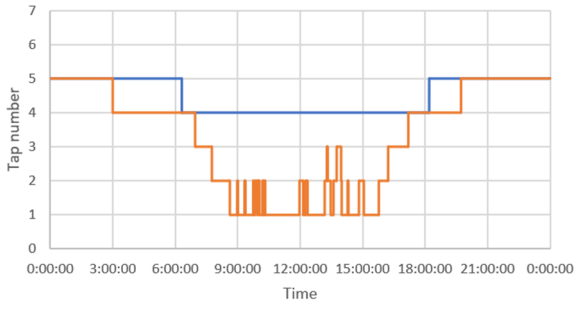
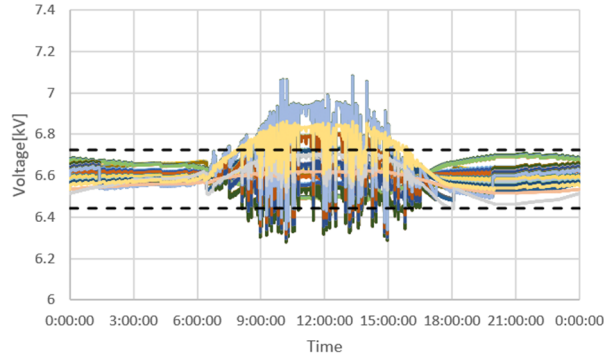
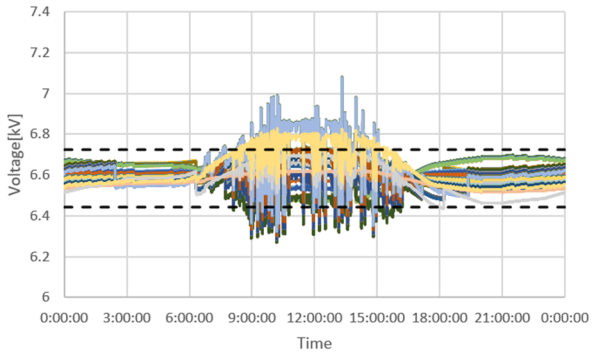
(e) PV 40%

(f) PV 50%



(g) PV 60%

(h) PV 70%

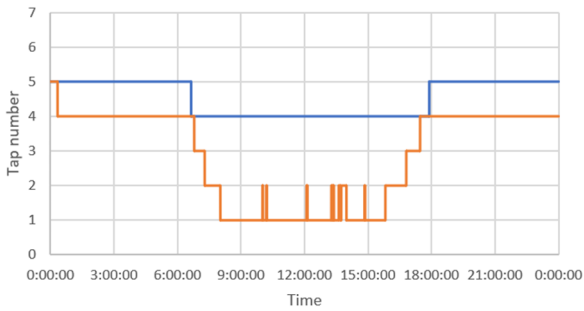
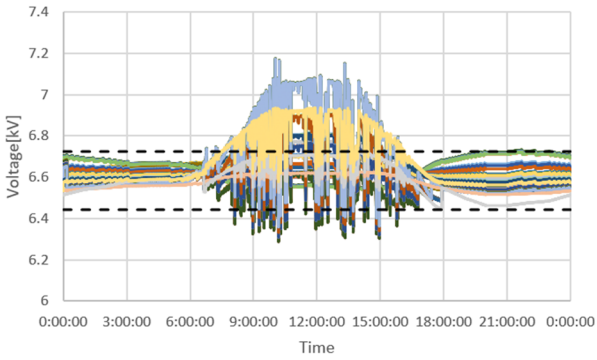


— SVR1 — SVR2

— SVR1 — SVR2

(i) PV 80%

(j) PV 90%

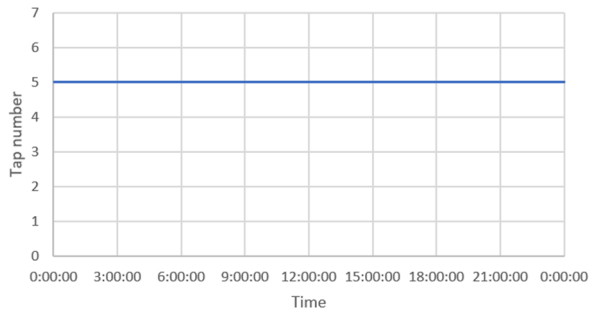
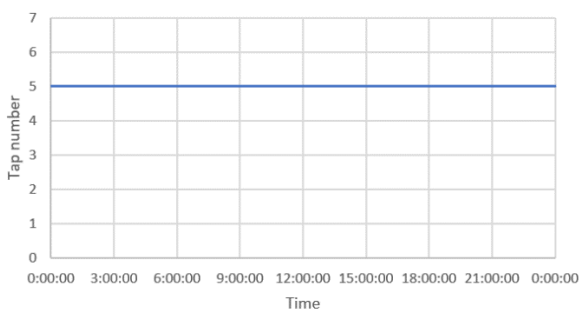
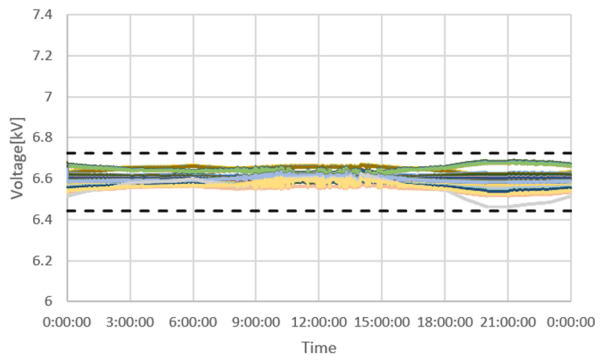
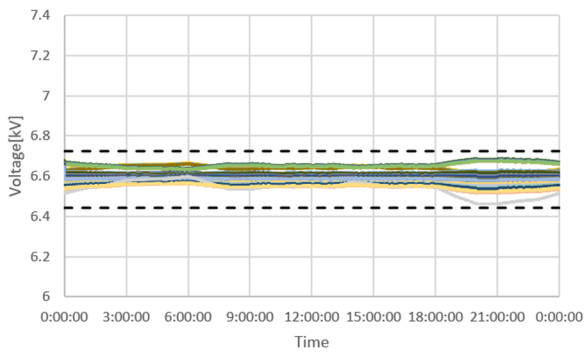


— SVR1 — SVR2

(k) PV 100%

OD22 系統, PV 力率 1.0, 末端集中, SVR-TVV-TVV

(上: 電圧分布, 下: タップ位置)

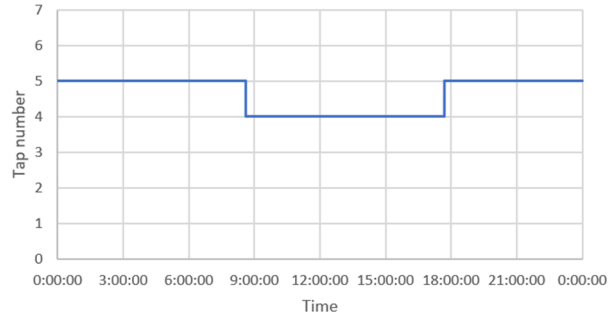
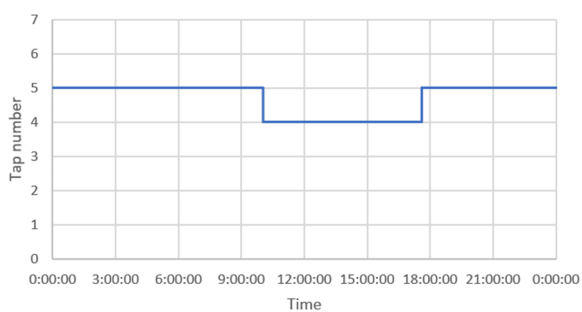
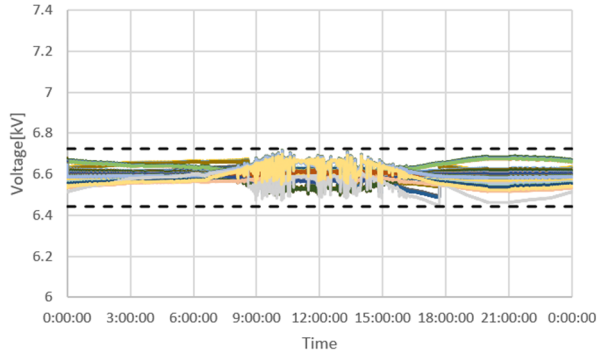
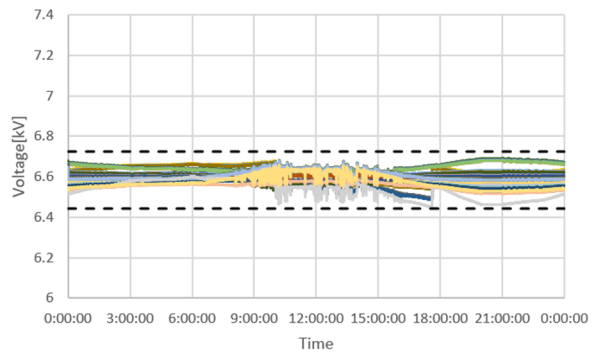


— SVR1

— SVR1

(a) PV 0%

(b) PV 10%

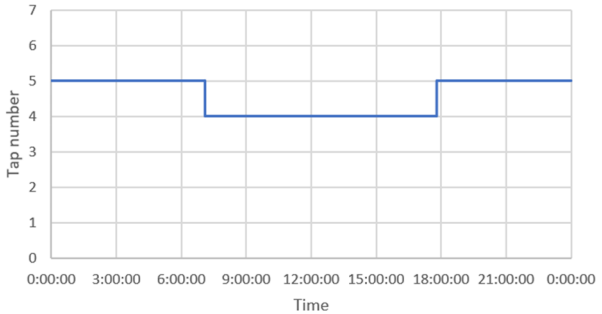
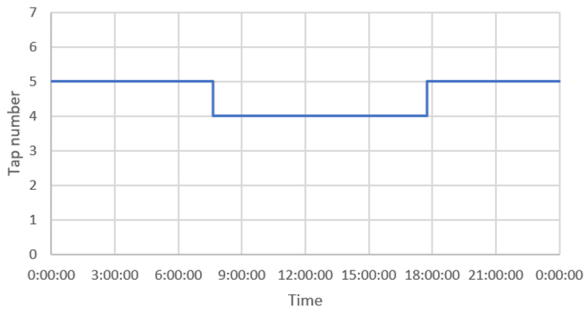
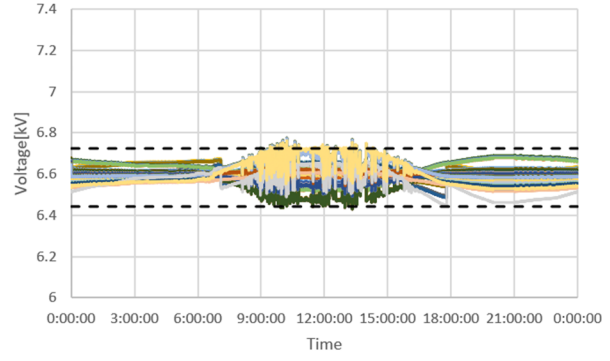
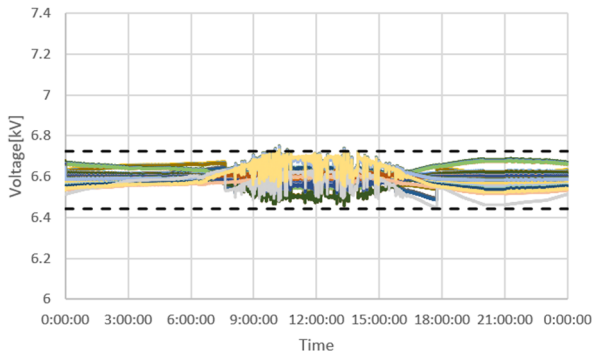


— SVR1

— SVR1

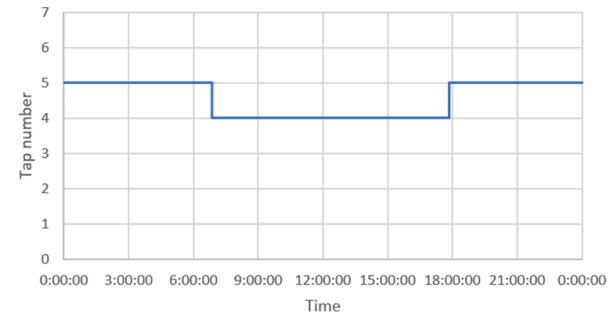
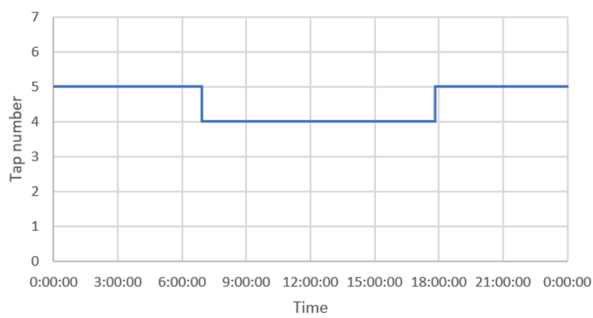
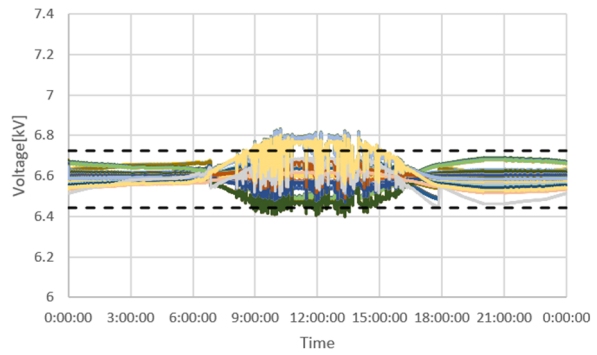
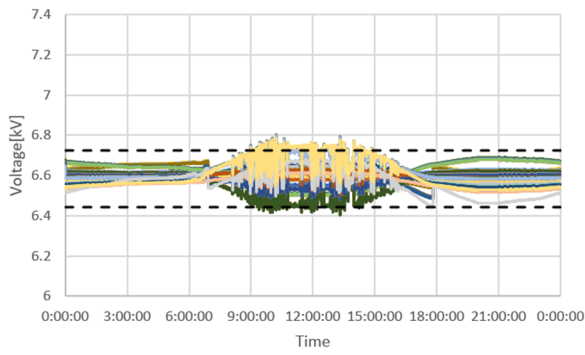
(c) PV 20%

(d) PV 30%



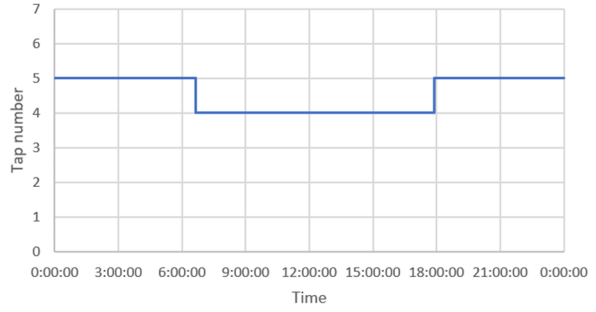
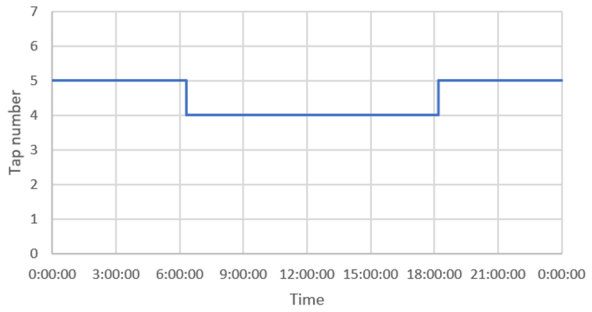
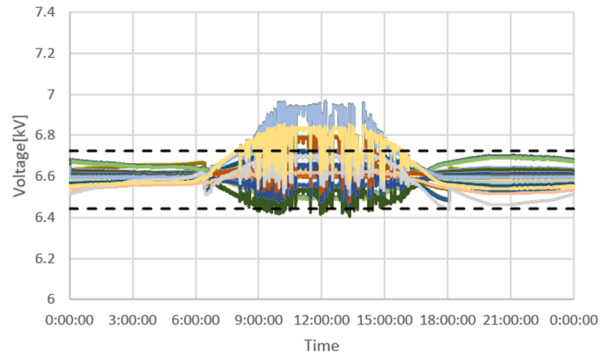
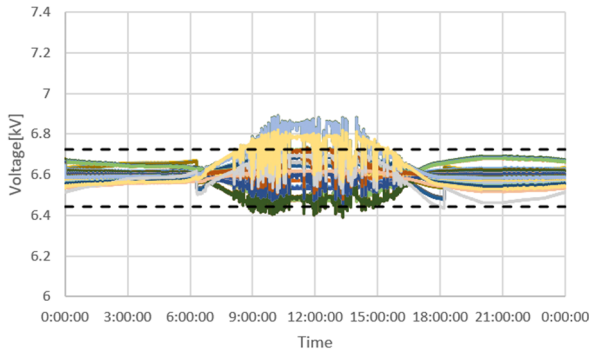
(e) PV 40%

(f) PV 50%



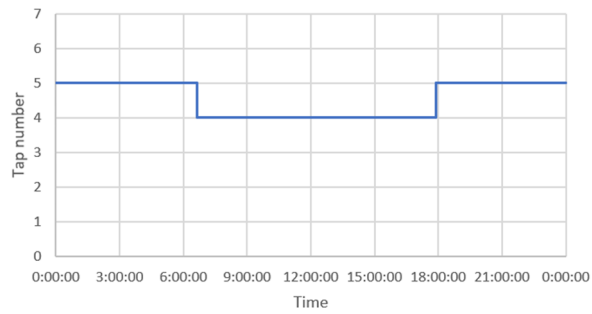
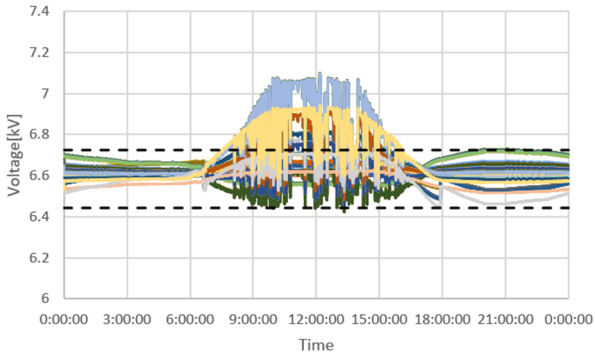
(g) PV 60%

(h) PV 70%



(i) PV 80%

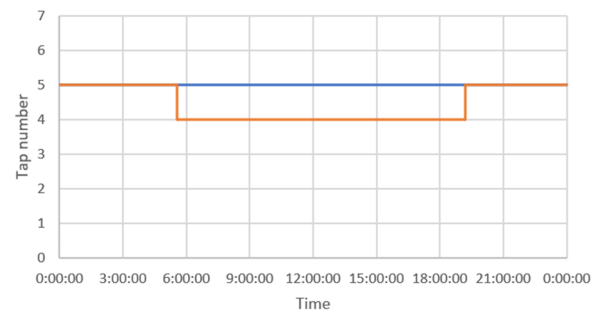
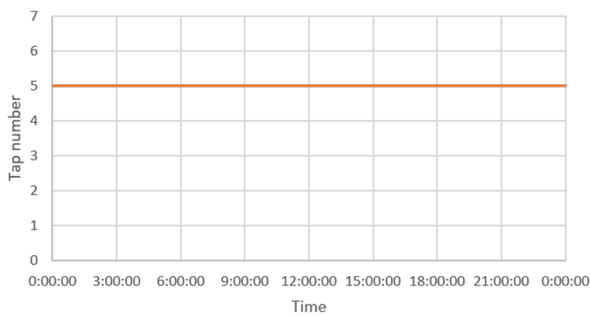
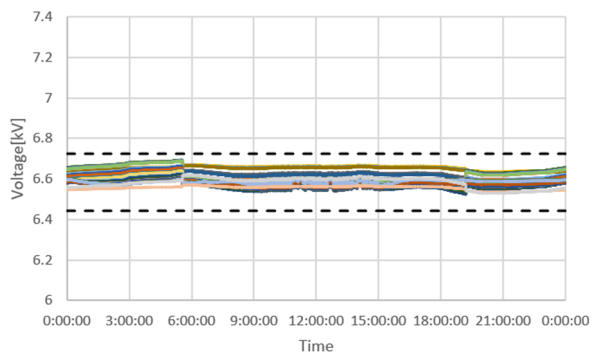
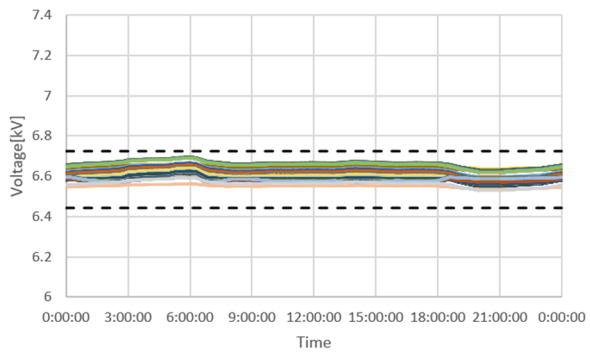
(j) PV 90%



(k) PV 100%

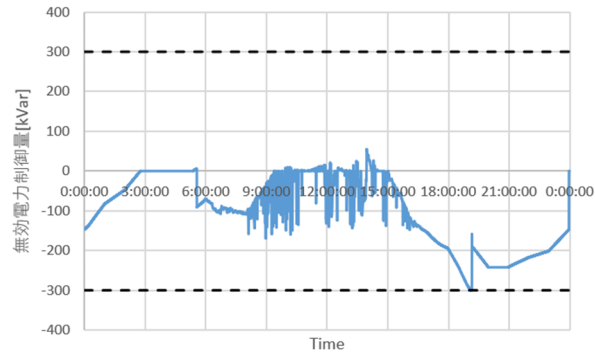
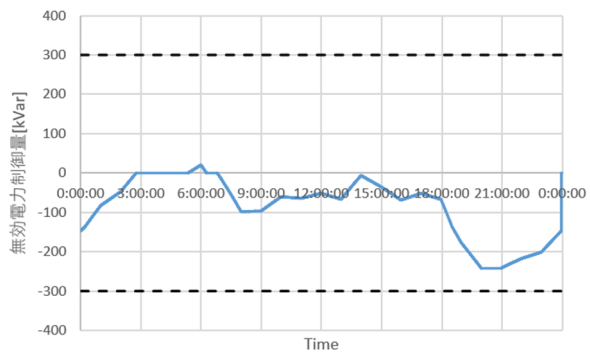
OD22 系統, PV 力率 1.0, 末端集中, SVR-SVR-SVC

(上: 電圧分布, 下: タップ位置)



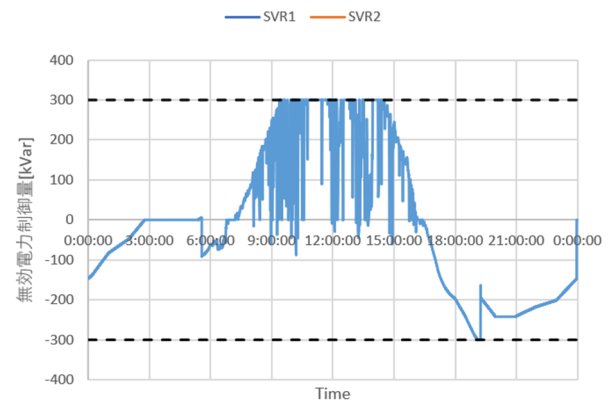
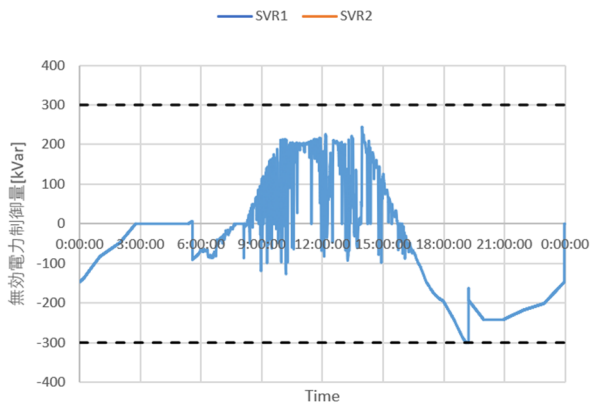
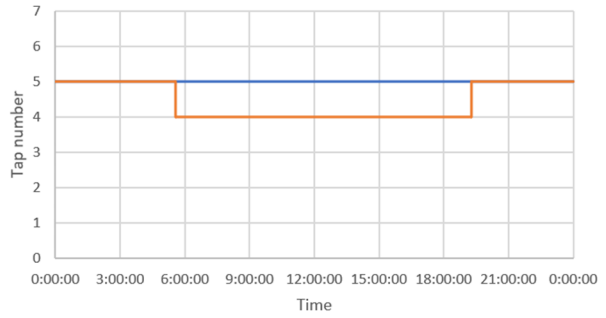
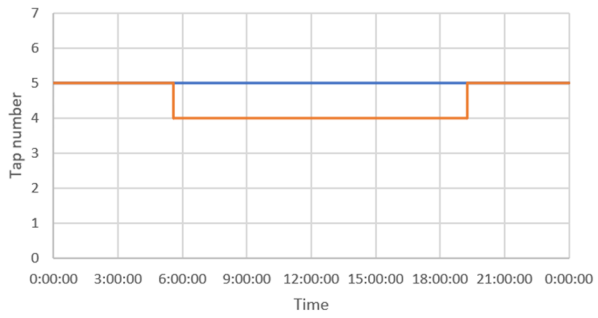
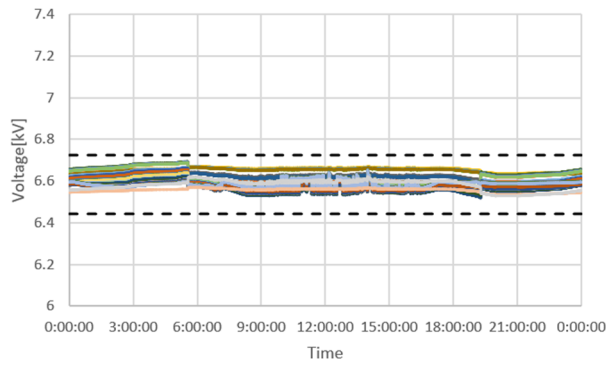
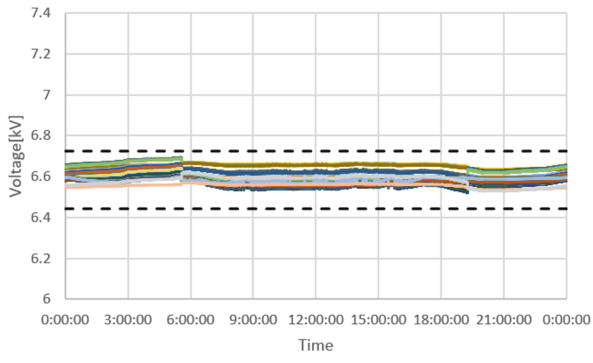
— SVR1 — SVR2

— SVR1 — SVR2



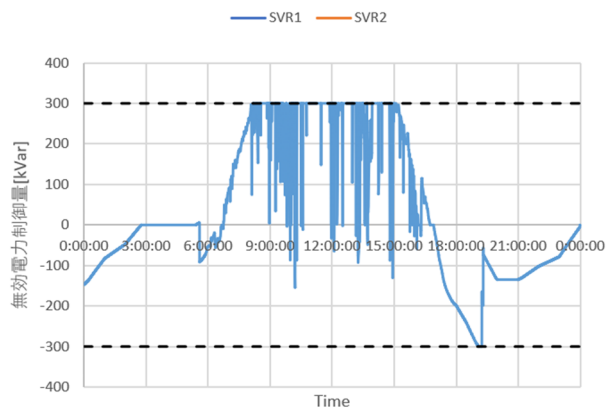
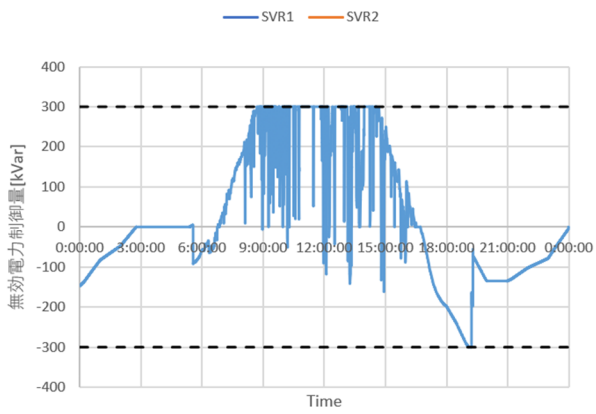
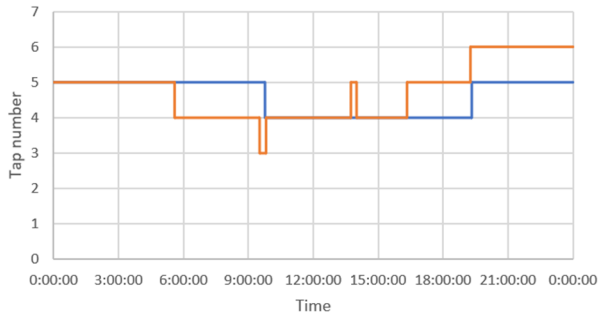
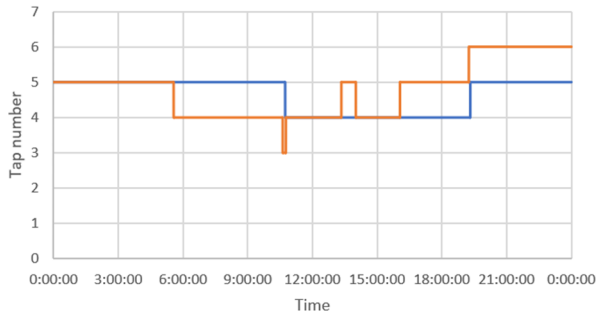
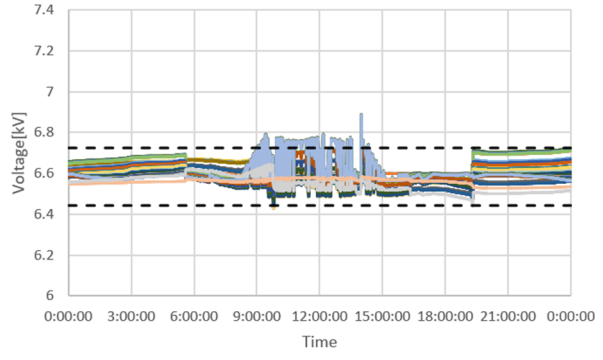
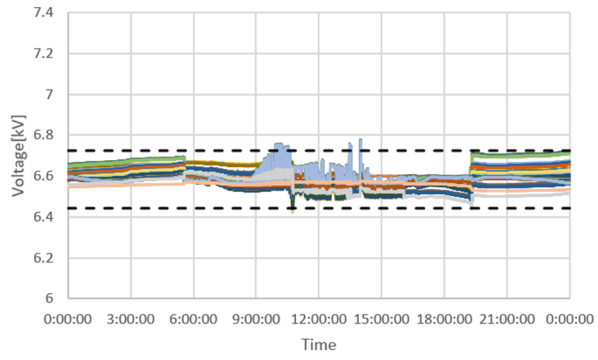
(a) PV 0%

(b) PV 10%



(c) PV 20%

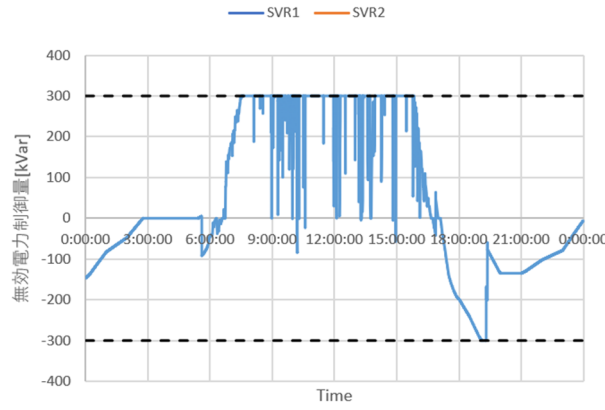
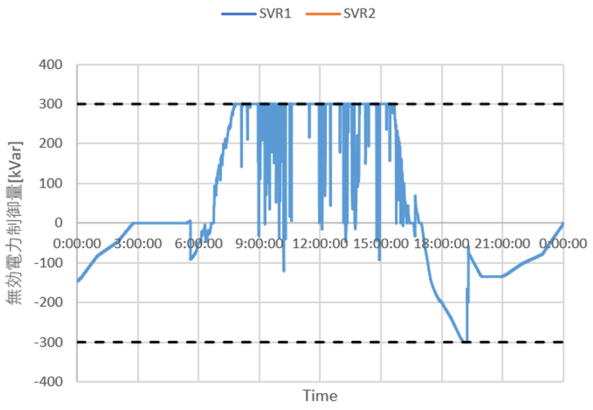
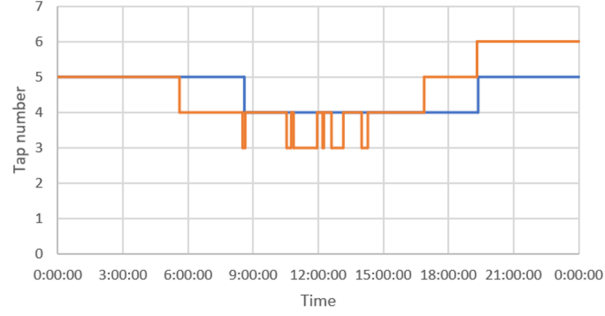
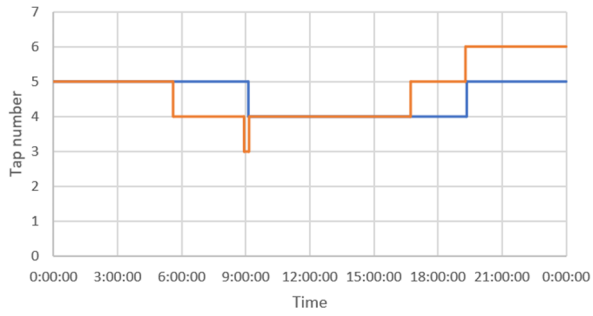
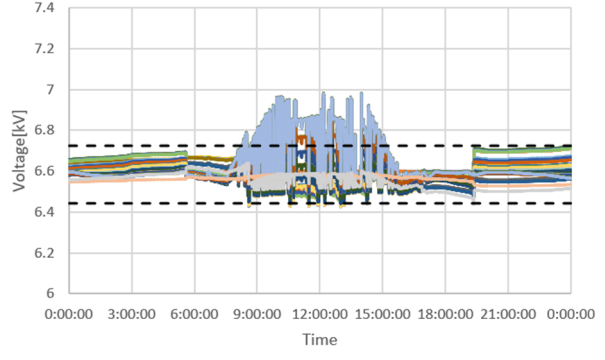
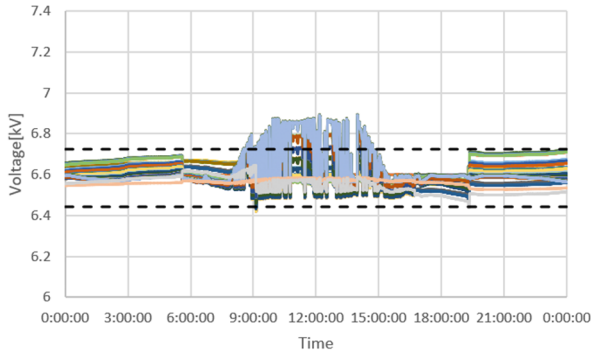
(d) PV 30%



(e) PV 40%

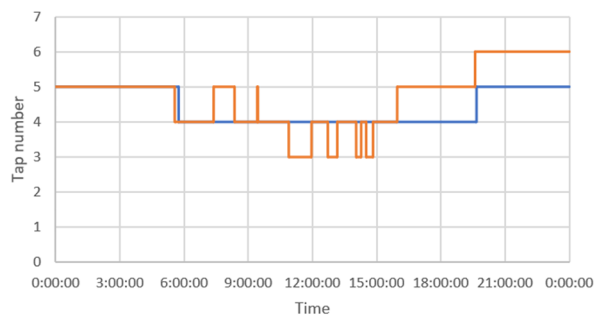
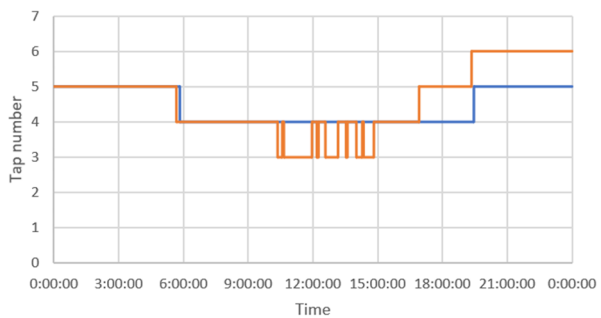
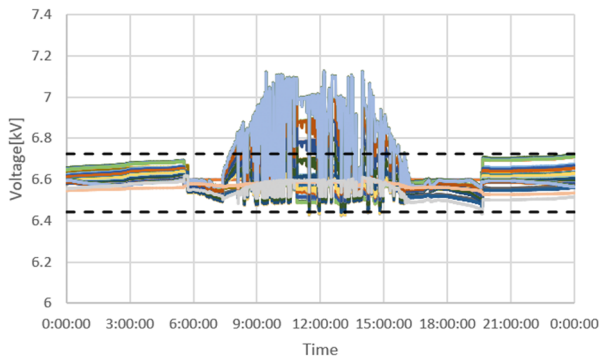
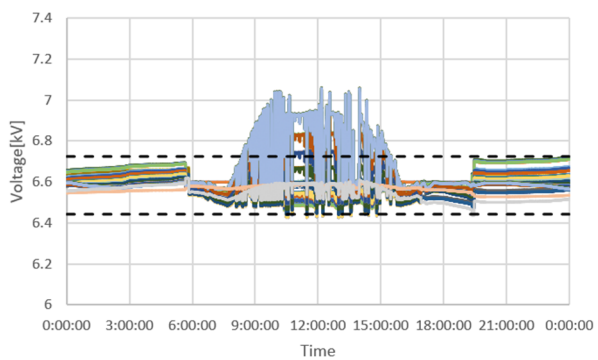
(f) PV 50%





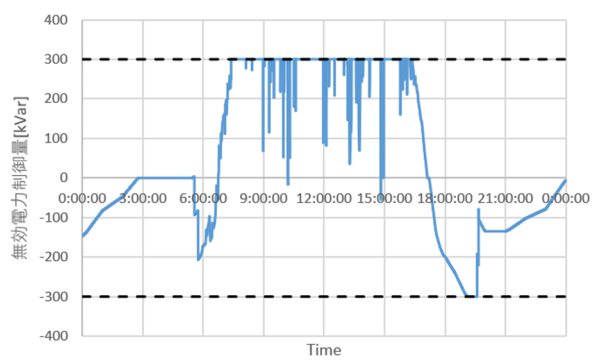
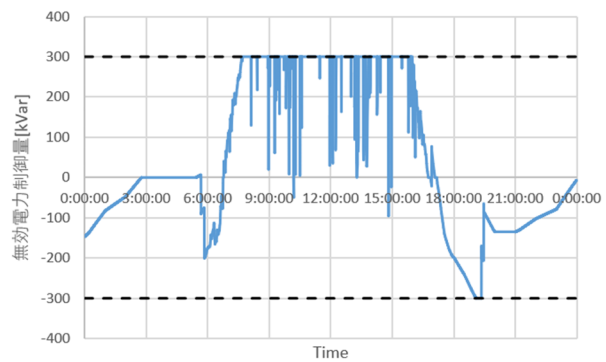
(g) PV 60%

(h) PV 70%



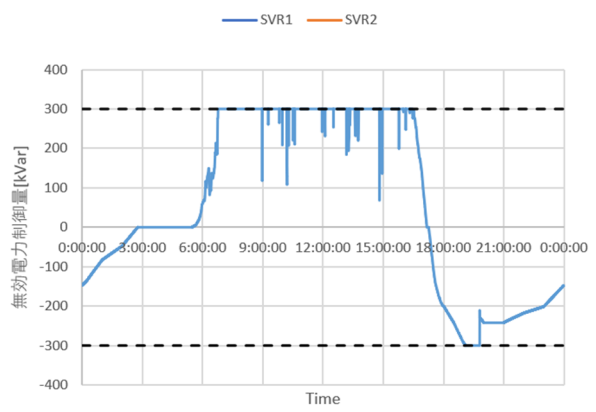
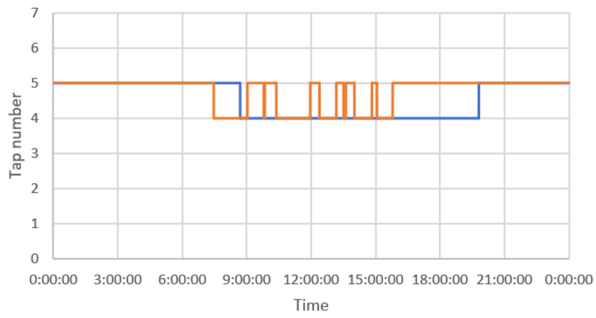
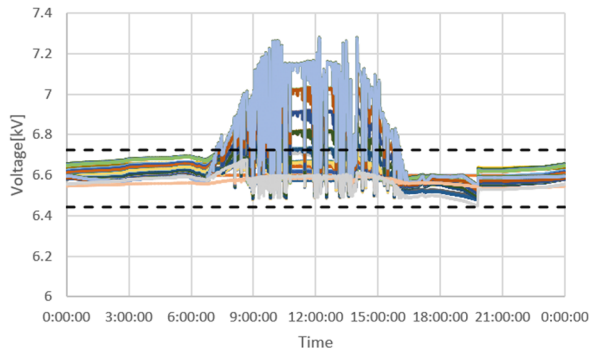
— SVR1 — SVR2

— SVR1 — SVR2



(i) PV 80%

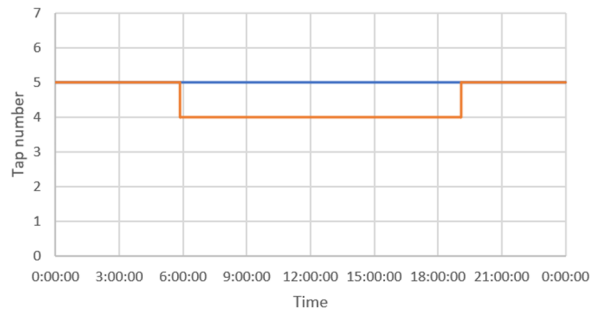
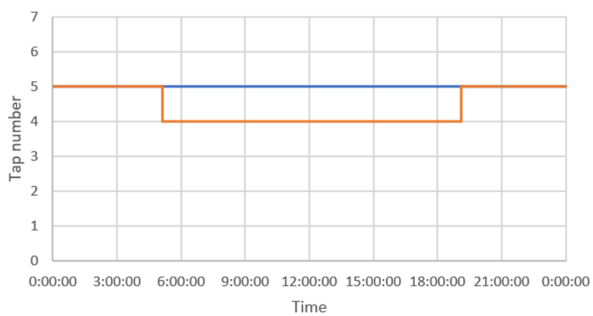
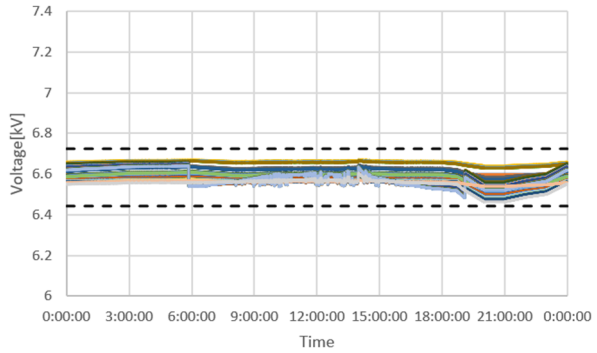
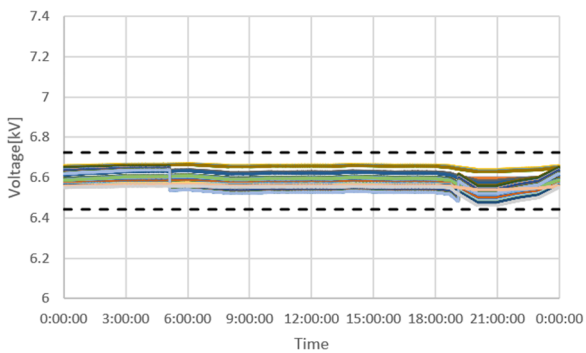
(j) PV 90%



(k) PV 100%

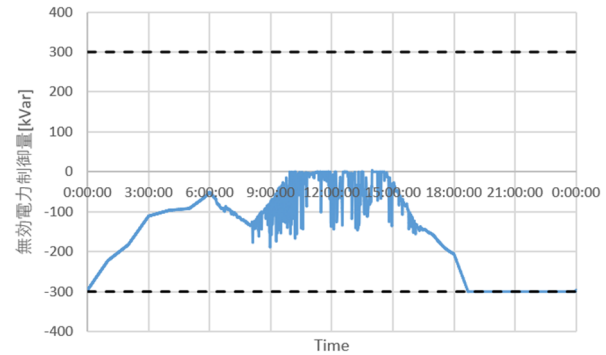
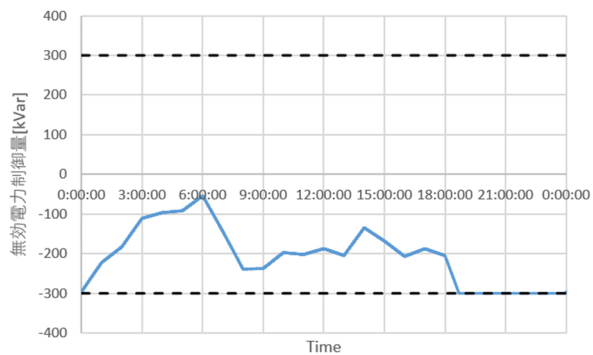
OD22 系統, PV 力率 1.0, 末端集中, SVR-SVG-SVR

(上: 電圧分布, 下: タップ位置)



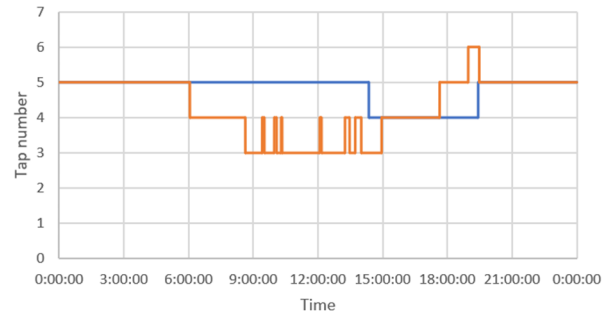
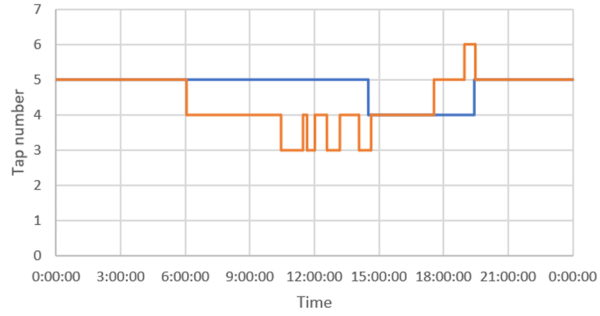
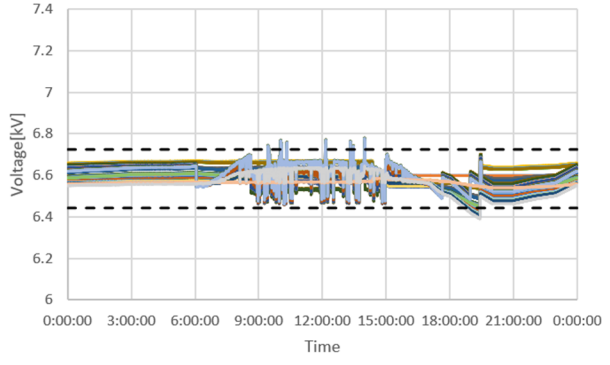
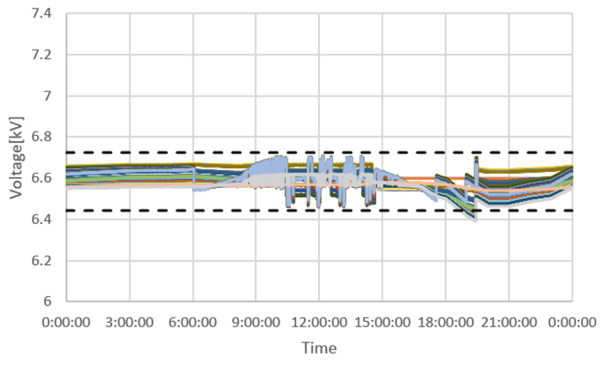
— SVR1 — SVR2

— SVR1 — SVR2



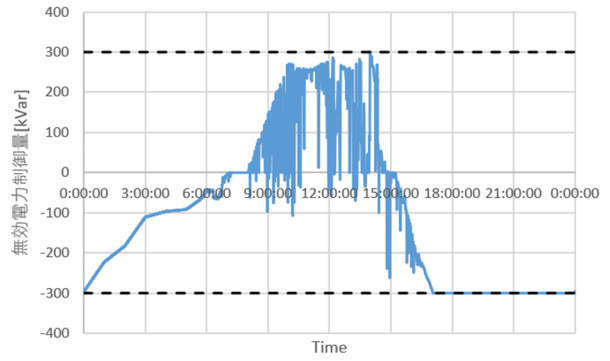
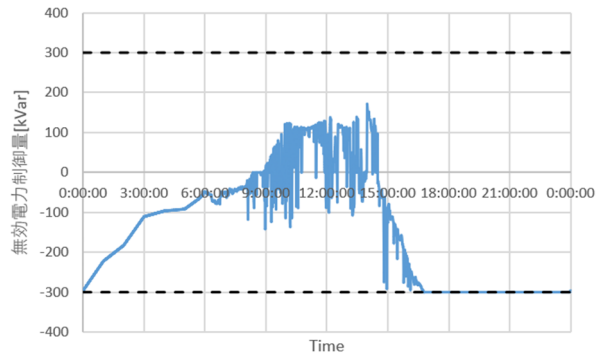
(a) PV 0%

(b) PV 10%



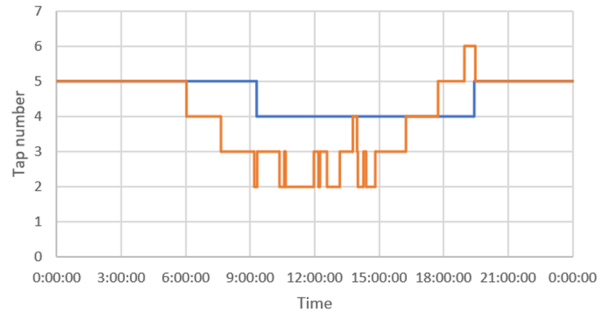
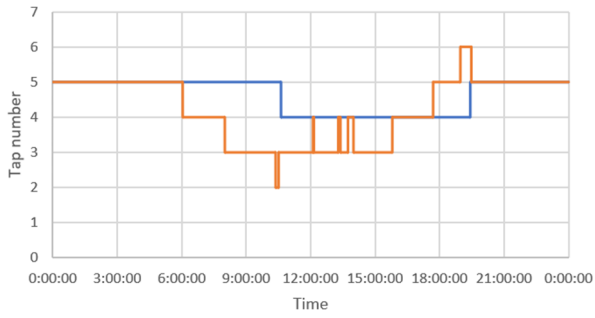
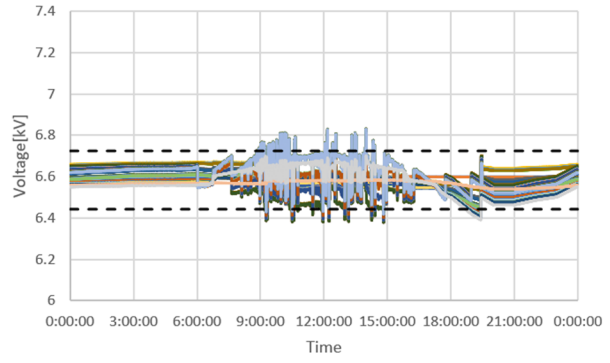
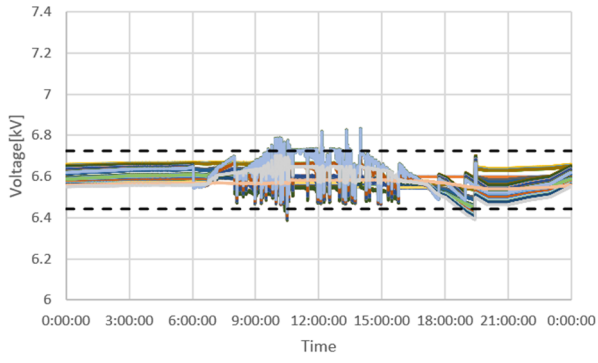
— SVR1 — SVR2

— SVR1 — SVR2



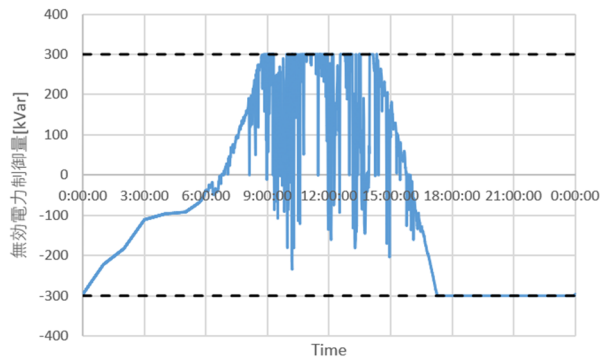
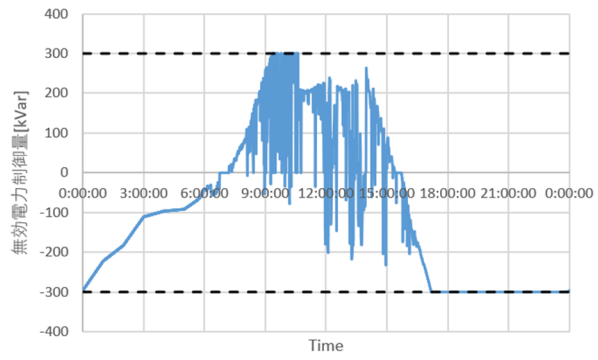
(c) PV 20%

(d) PV 30%



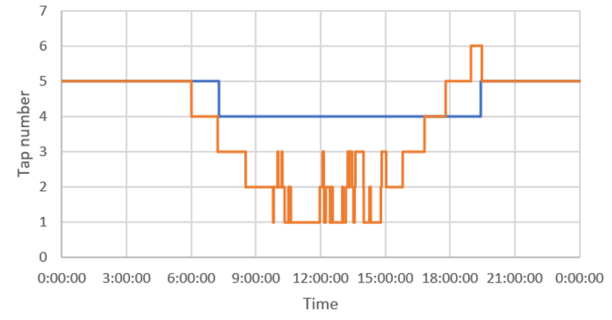
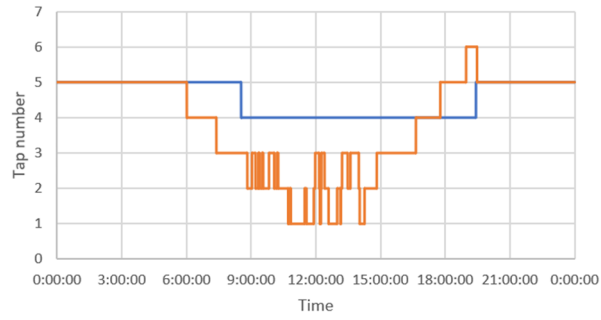
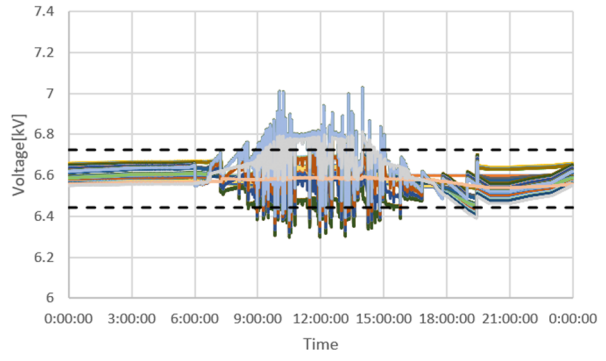
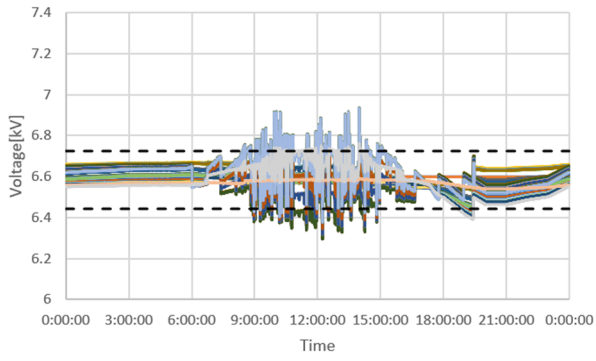
— SVR1 — SVR2

— SVR1 — SVR2



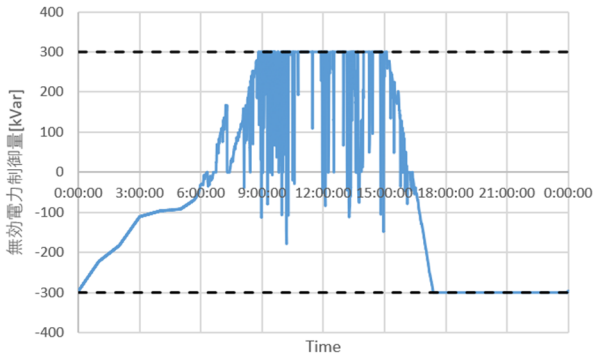
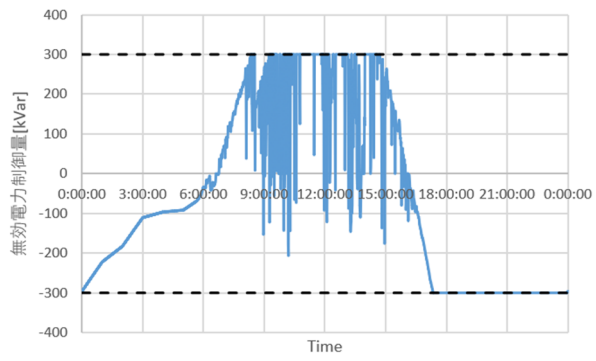
(e) PV 40%

(f) PV 50%



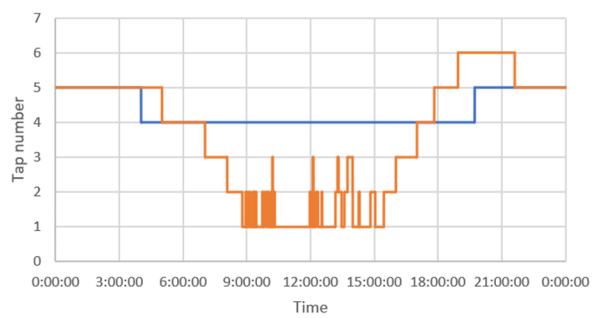
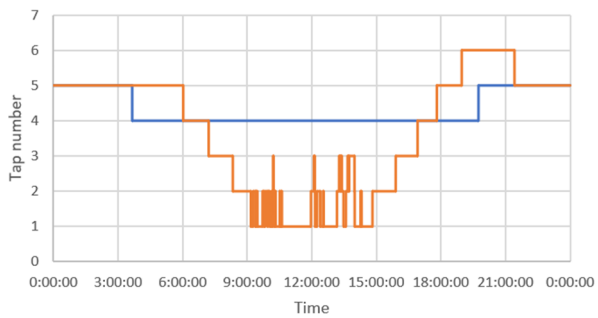
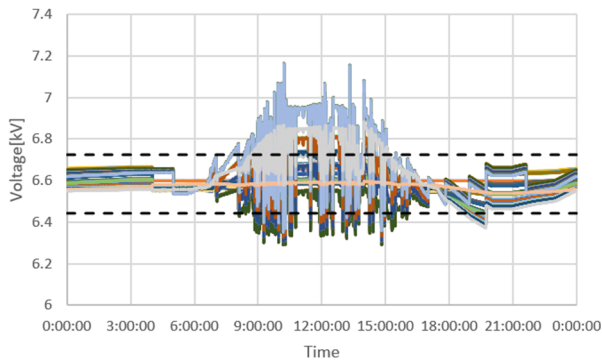
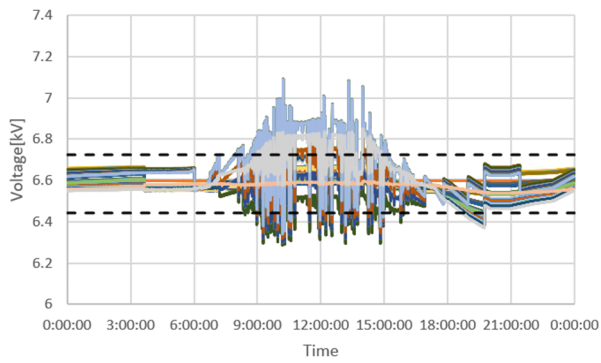
— SVR1 — SVR2

— SVR1 — SVR2



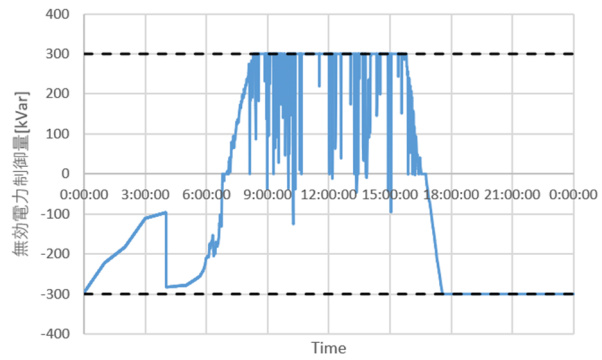
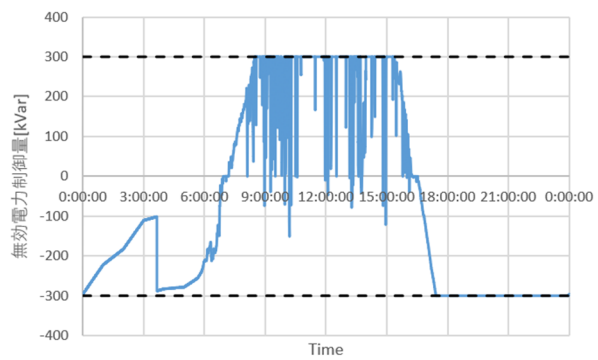
(g) PV 60%

(h) PV 70%



— SVR1 — SVR2

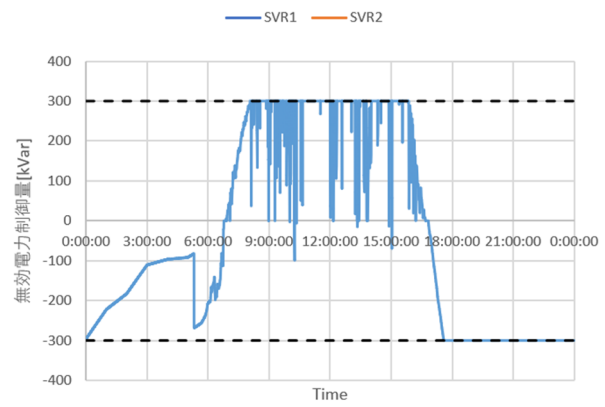
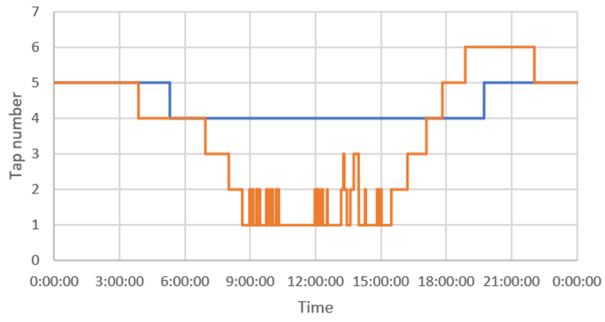
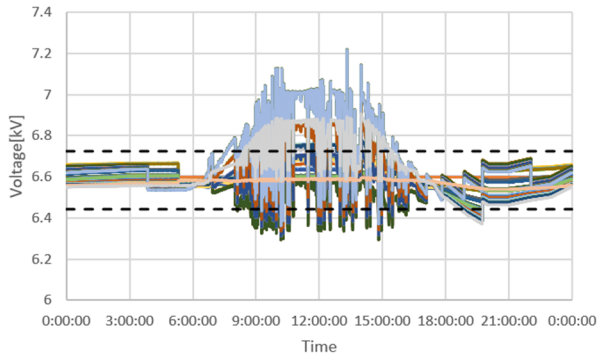
— SVR1 — SVR2



(i) PV 80%

(j) PV 90%

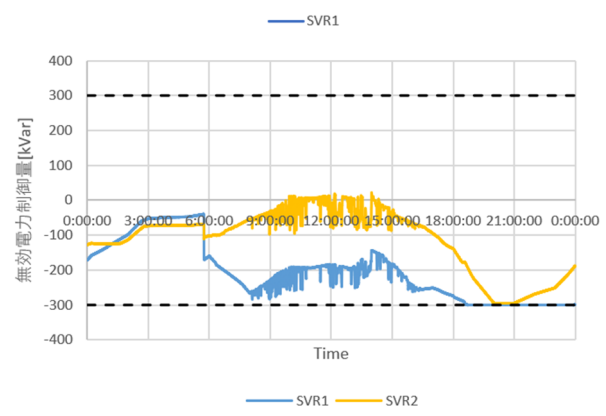
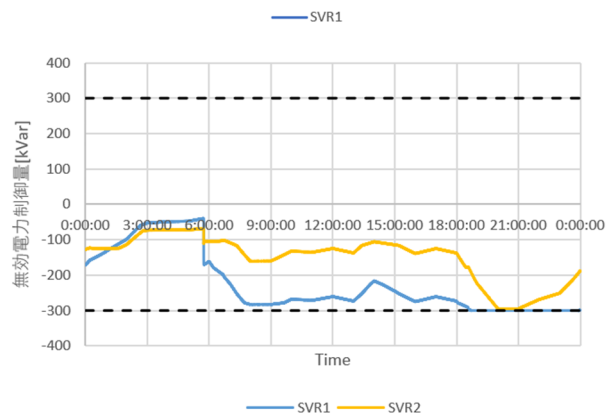
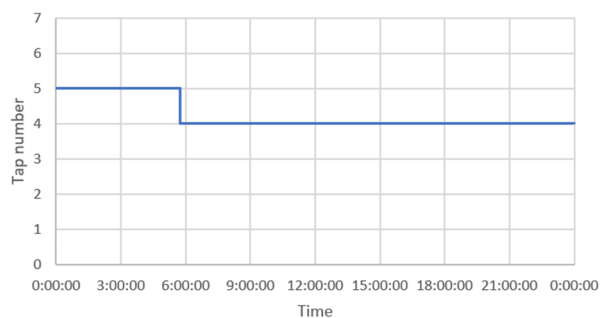
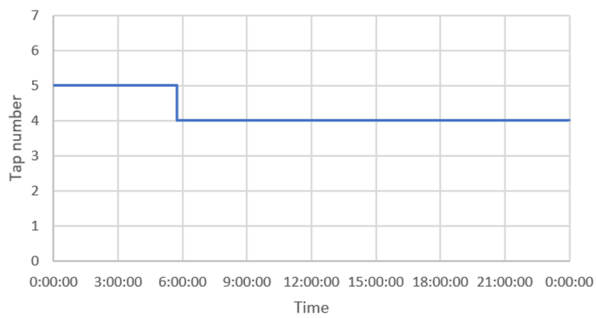
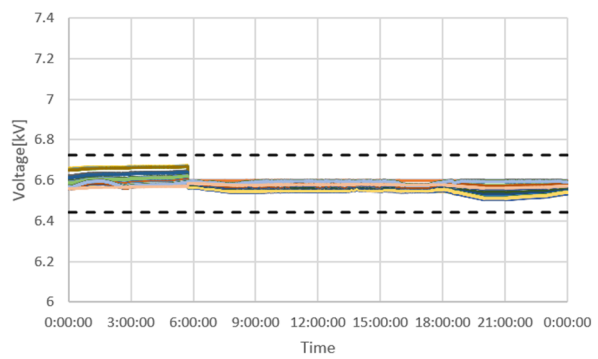
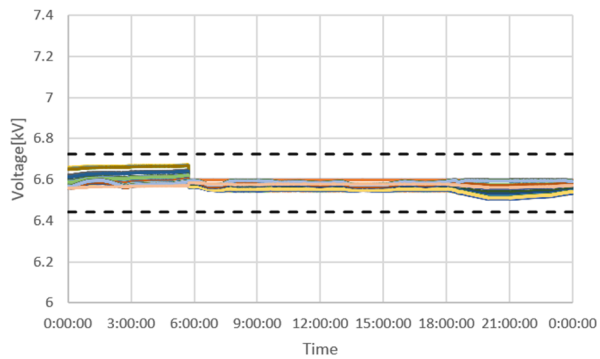




(k) PV 100%

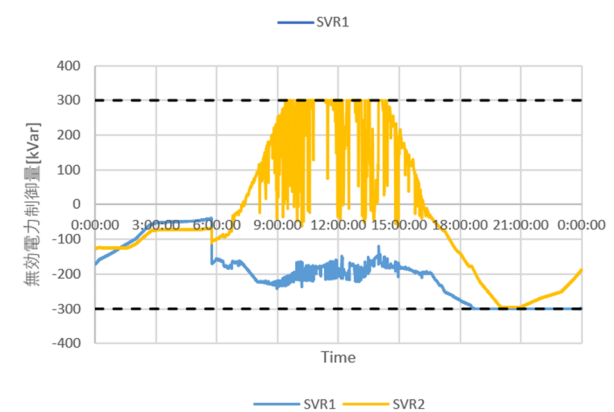
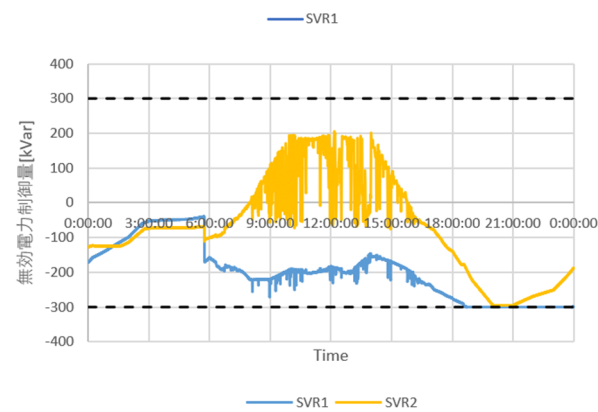
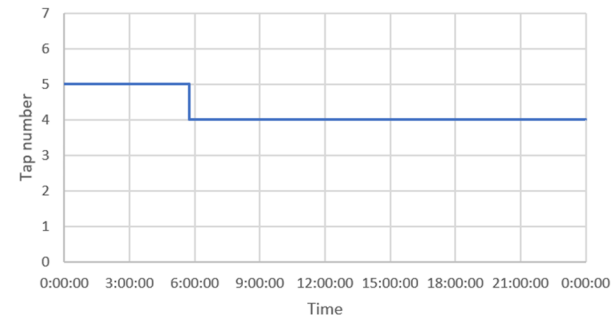
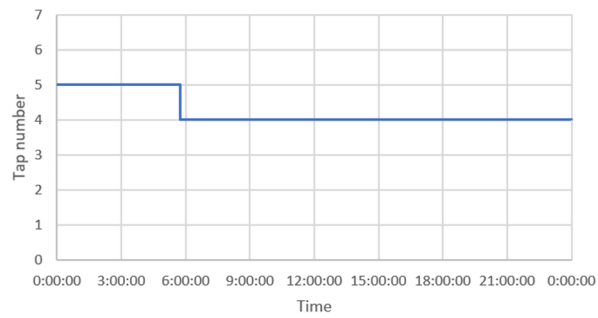
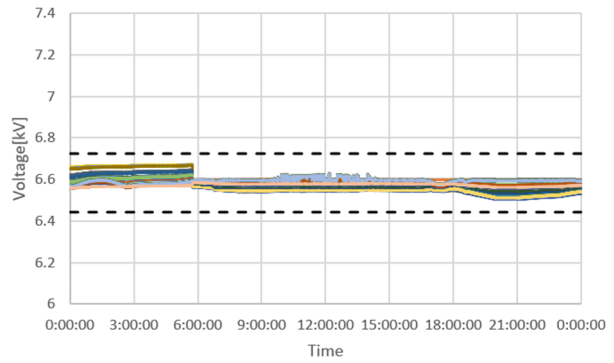
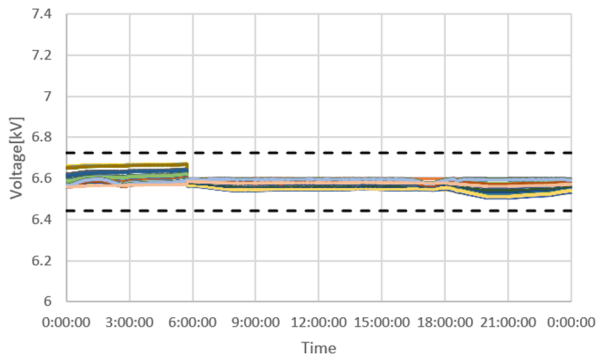
OD22 系統, PV 力率 1.0, 末端集中, SVR-SVC-SVC

(上: 電圧分布, 下: タップ位置)



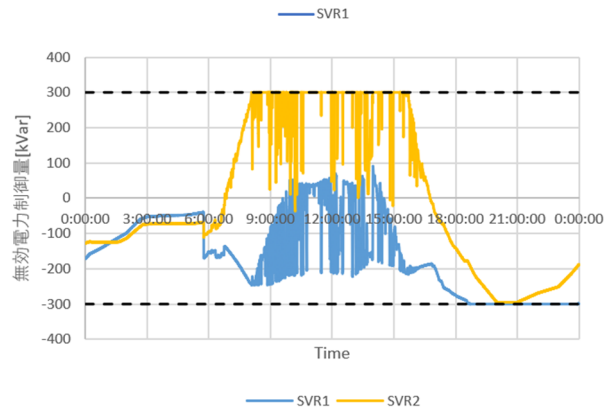
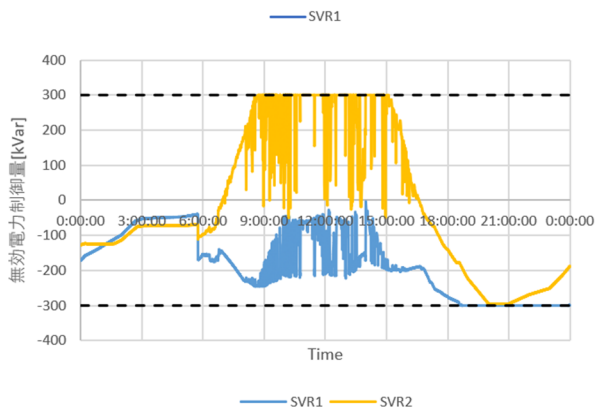
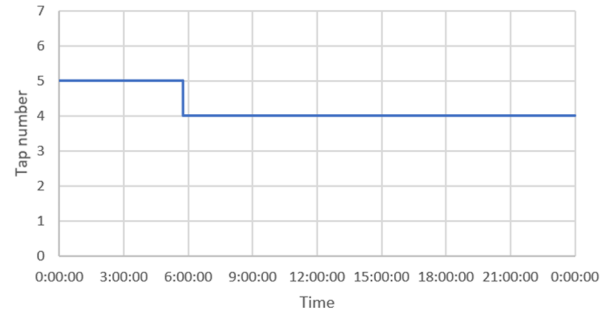
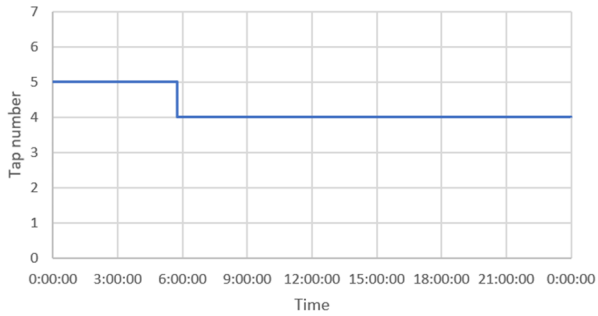
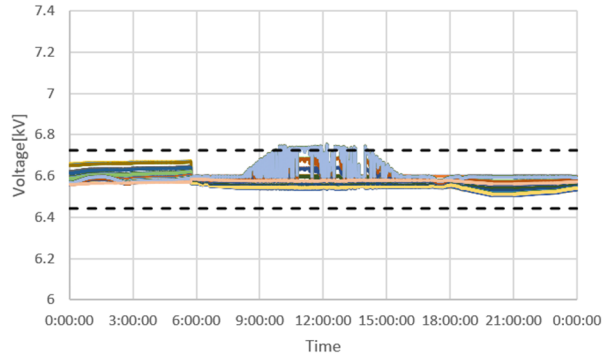
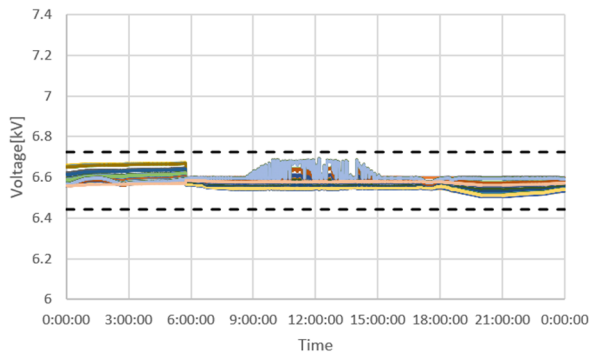
(a) PV 0%

(b) PV 10%



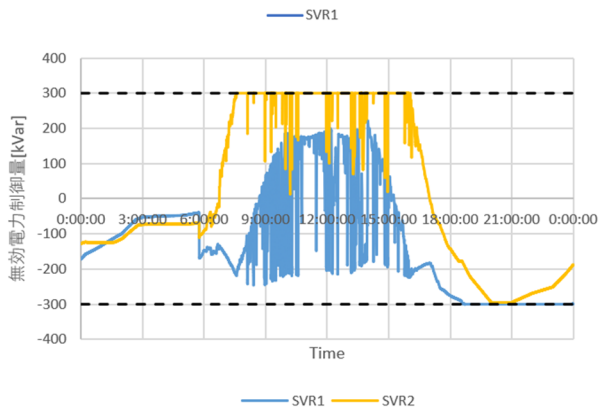
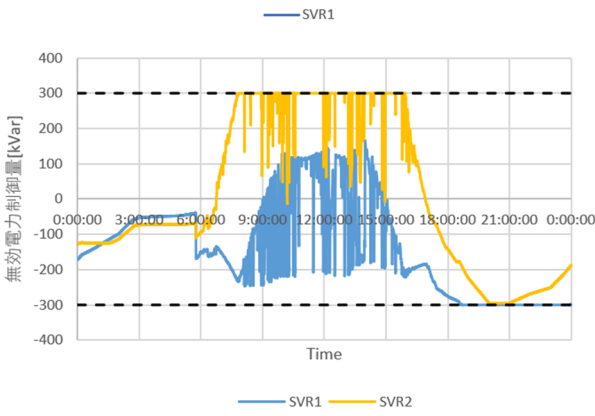
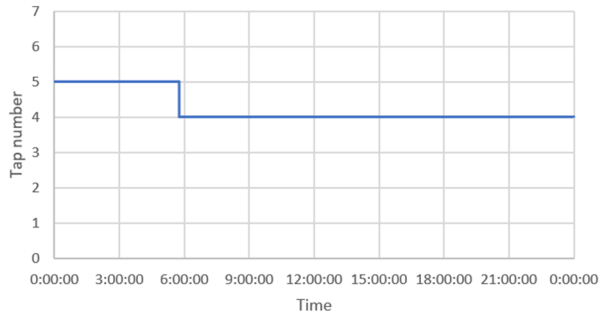
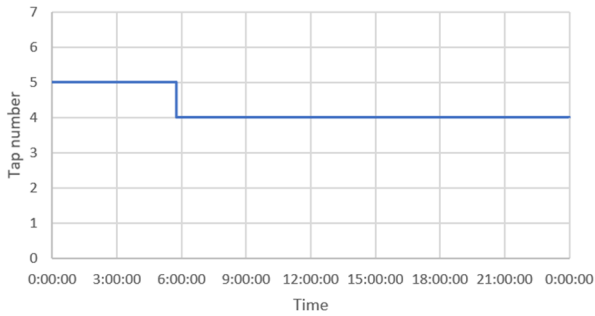
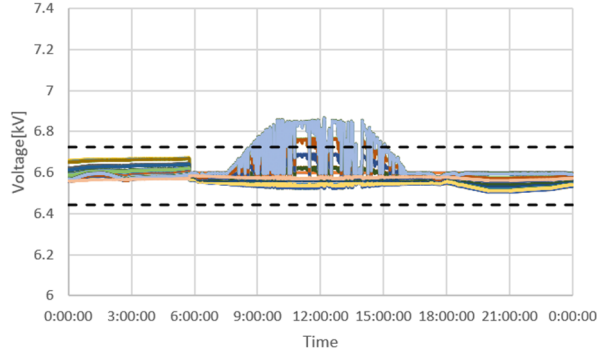
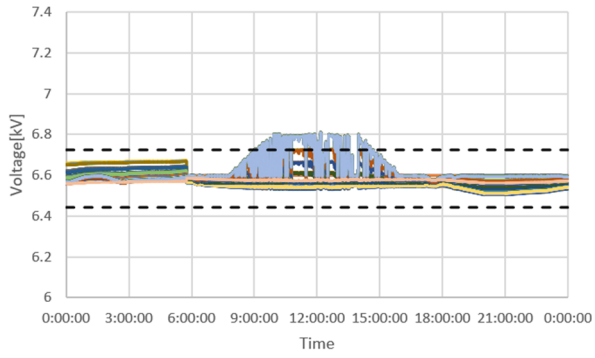
(c) PV 20%

(d) PV 30%



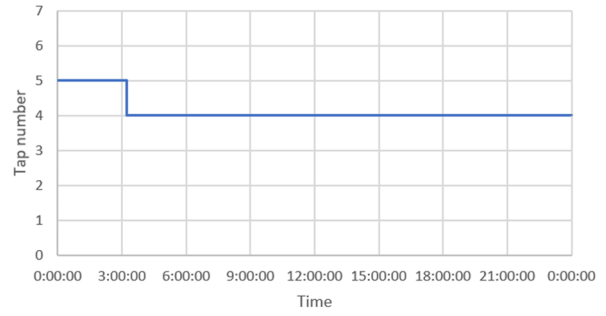
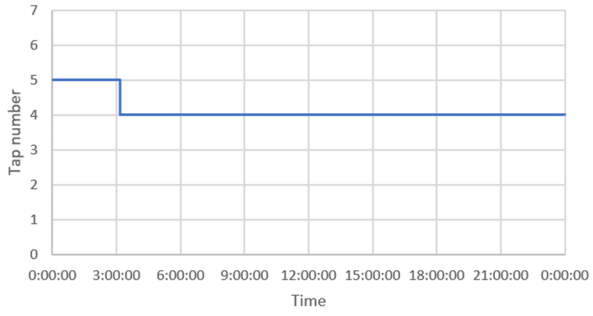
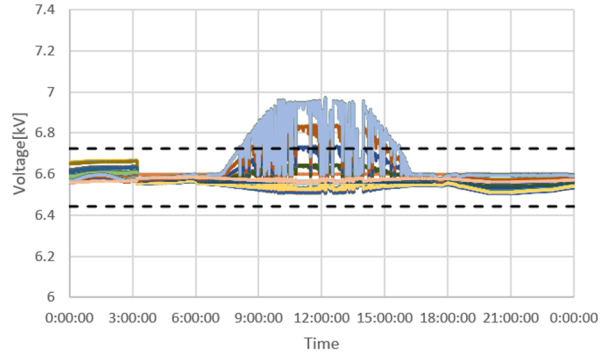
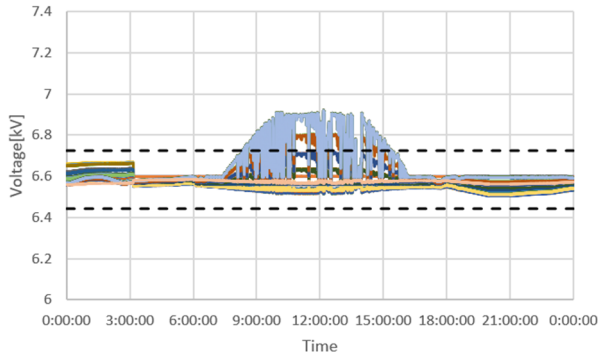
(e) PV 40%

(f) PV 50%



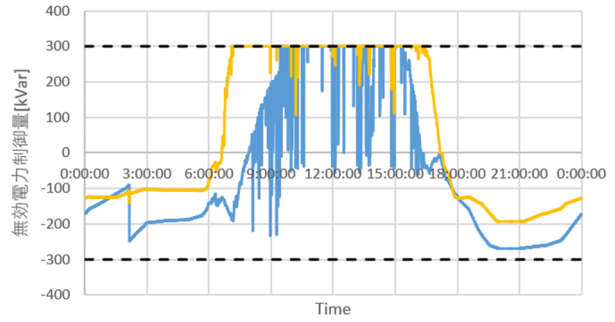
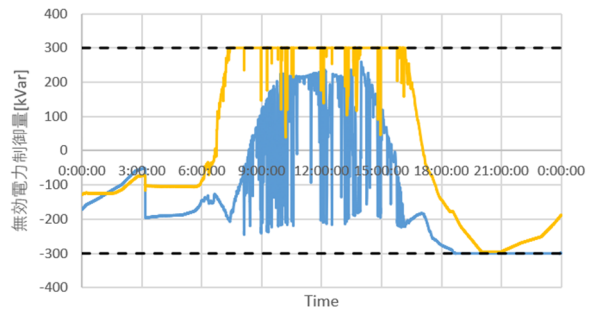
(g) PV 60%

(h) PV 70%



— SVR1

— SVR1

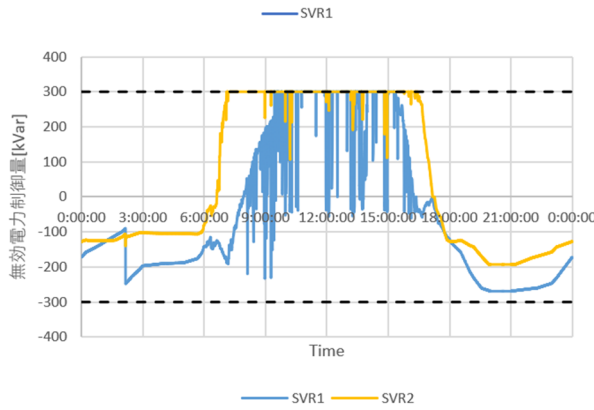
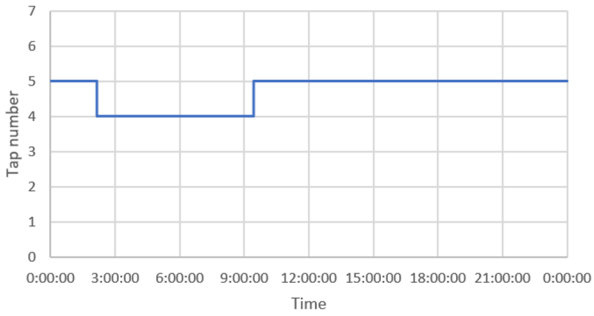
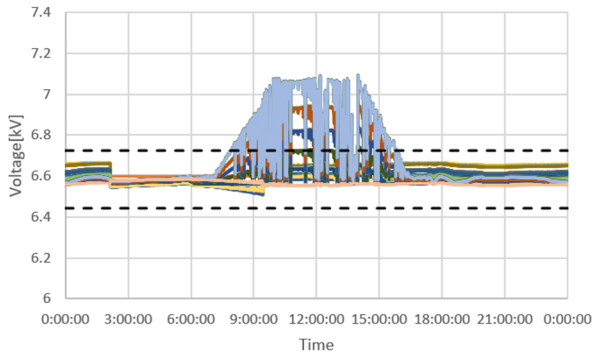


— SVR1 — SVR2

— SVR1 — SVR2

(i) PV 80%

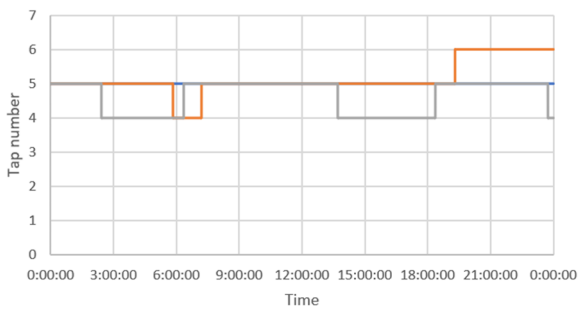
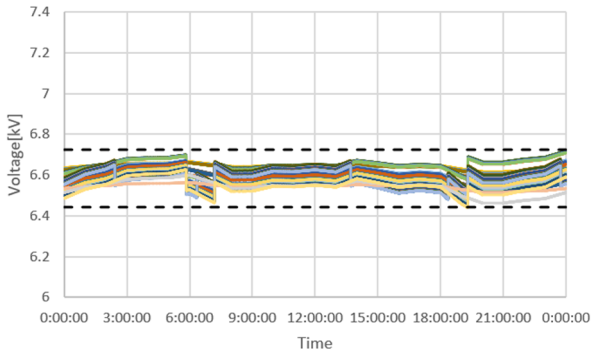
(j) PV 90%



(k) PV 100%

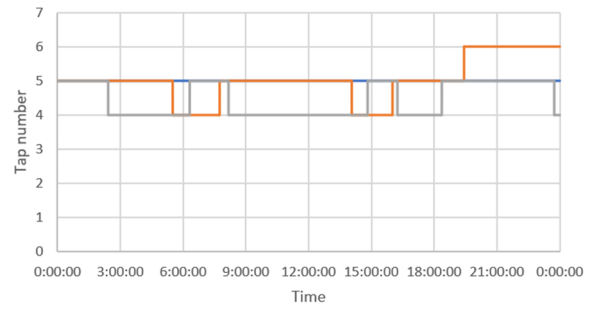
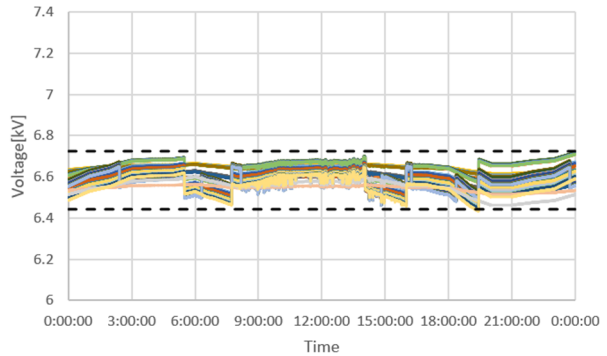
OD22 系統, PV 力率 0.95, 末端集中, SVR-SVR-SVR

(上: 電圧分布, 下: タップ位置)



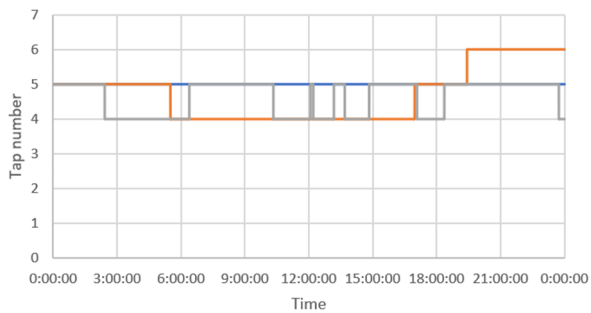
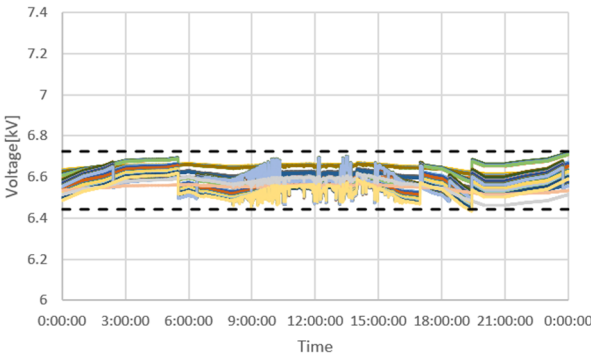
— SVR1 — SVR2 — SVR3

(a) PV 0%



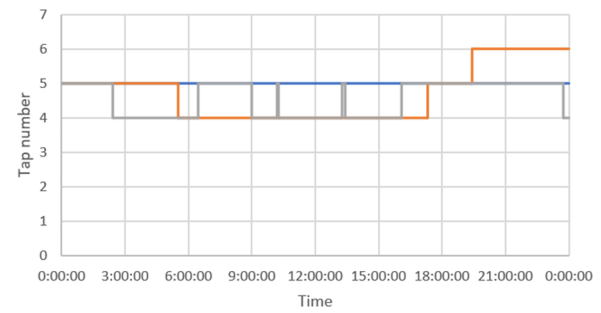
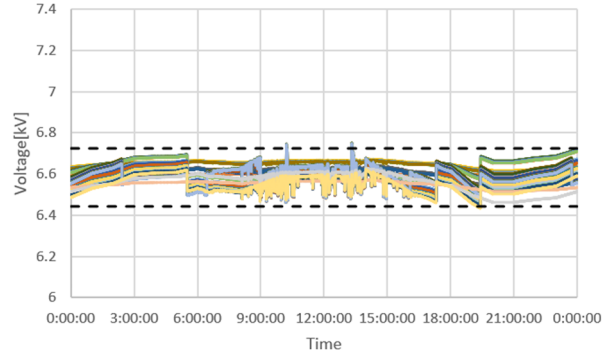
— SVR1 — SVR2 — SVR3

(b) PV 10%



— SVR1 — SVR2 — SVR3

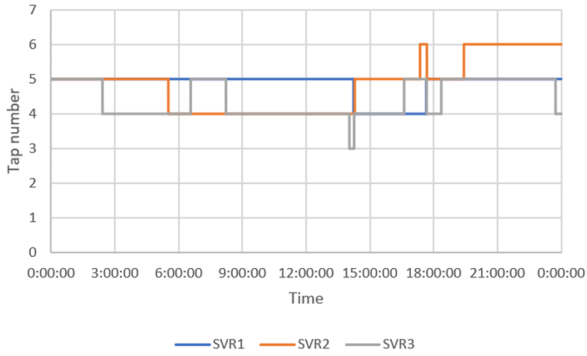
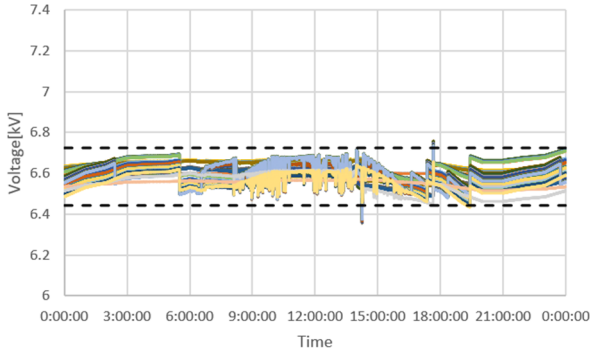
(c) PV 20%



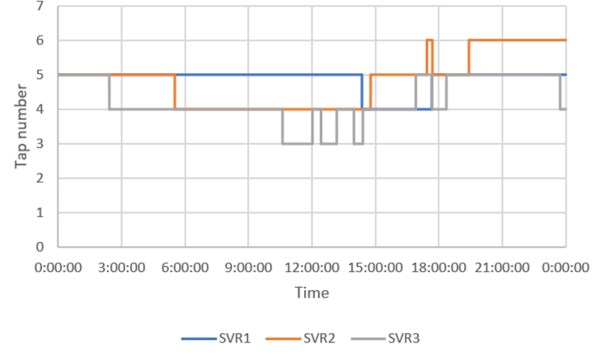
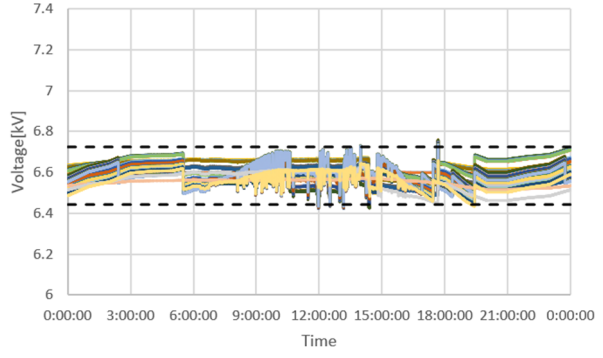
— SVR1 — SVR2 — SVR3

(d) PV 30%

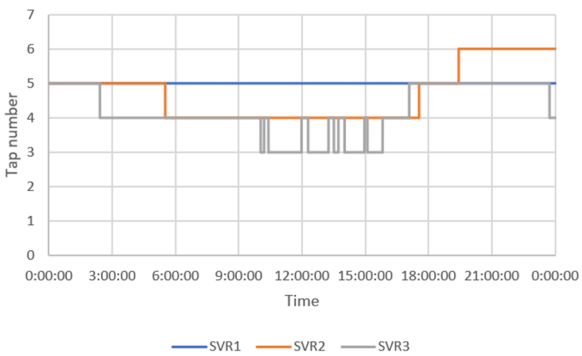
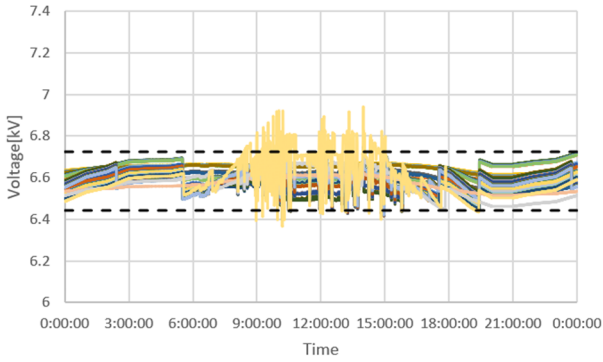




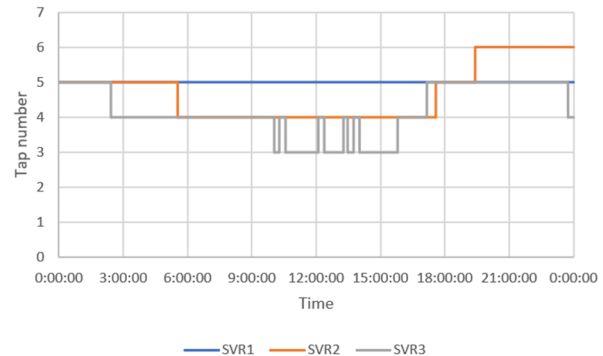
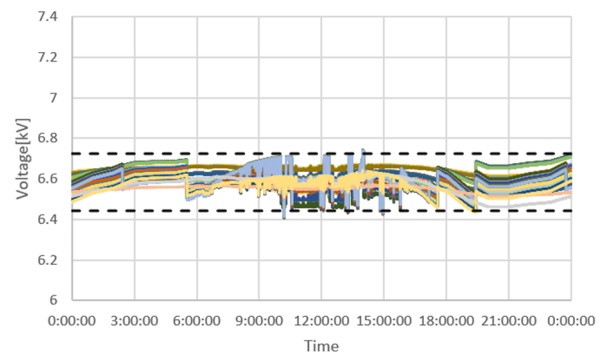
(e) PV 40%



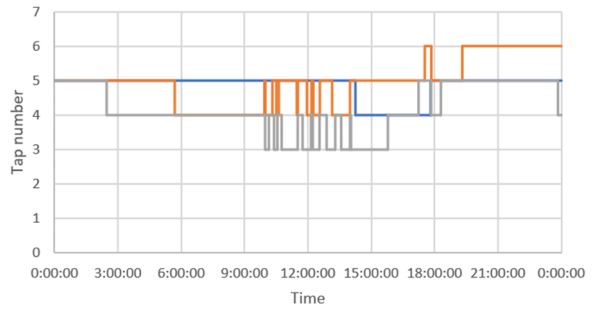
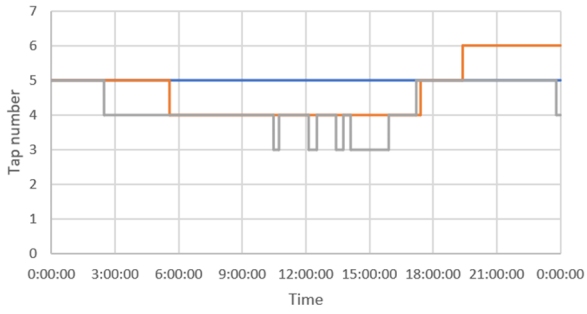
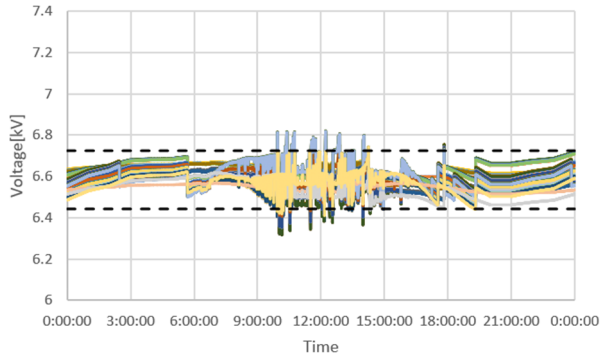
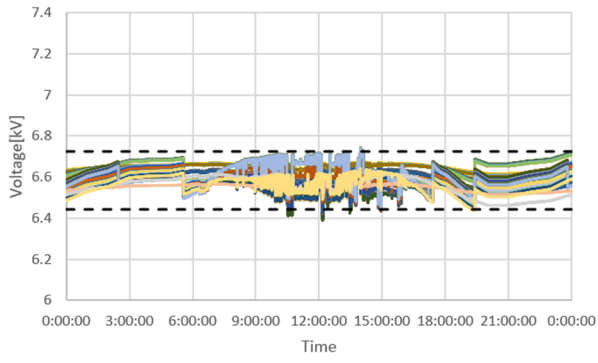
(f) PV 50%



(g) PV 60%



(h) PV 70%

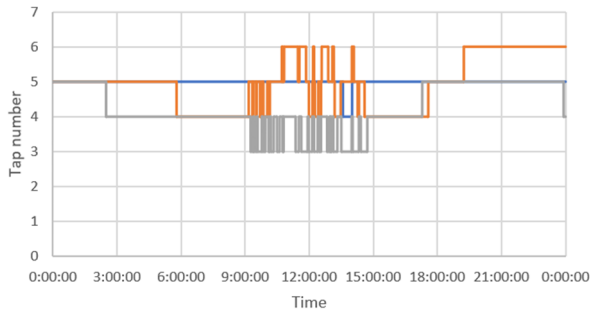
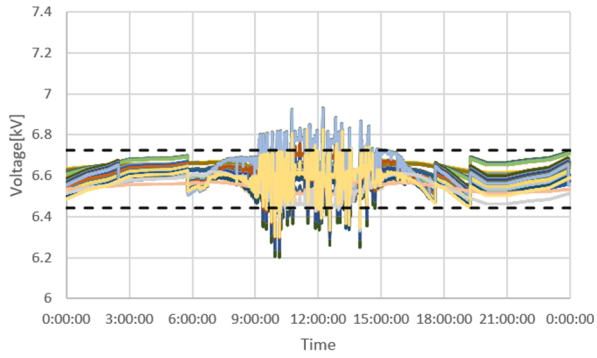


— SVR1 — SVR2 — SVR3

(i) PV 80%

— SVR1 — SVR2 — SVR3

(j) PV 90%

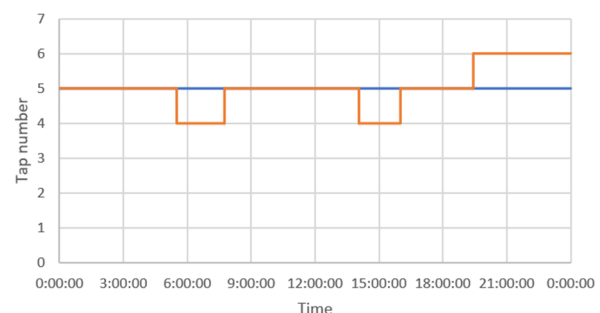
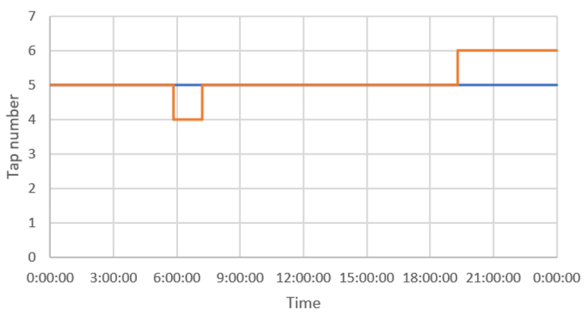
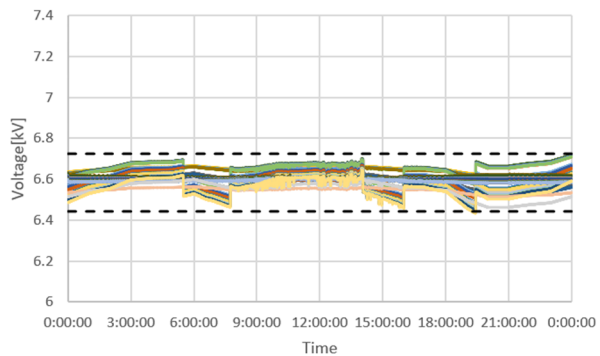
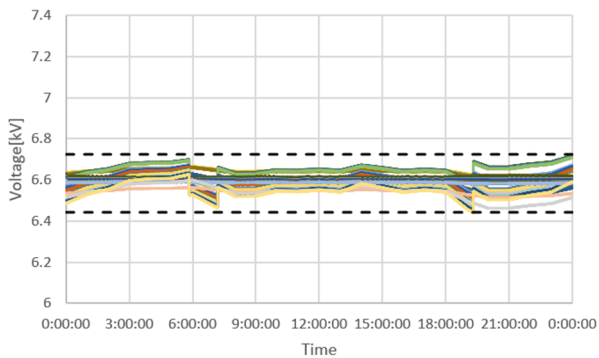


— SVR1 — SVR2 — SVR3

(k) PV 100%

OD22 系統, PV 力率 0.95, 末端集中, SVR-SVR-TVR

(上: 電圧分布, 下: タップ位置)

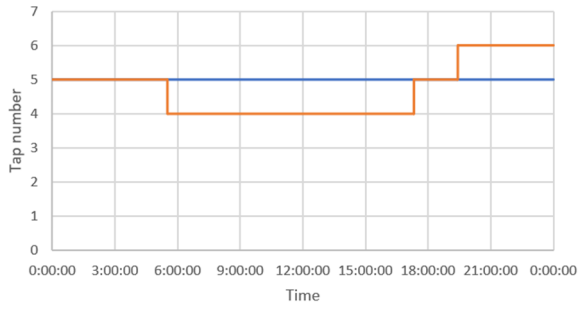
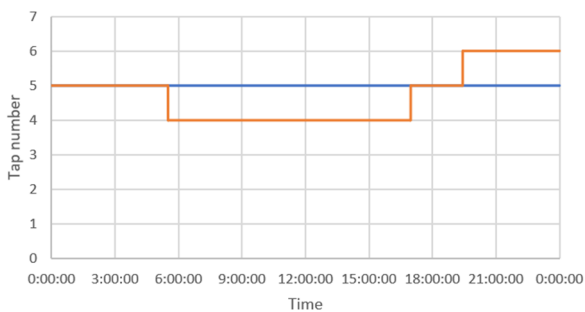
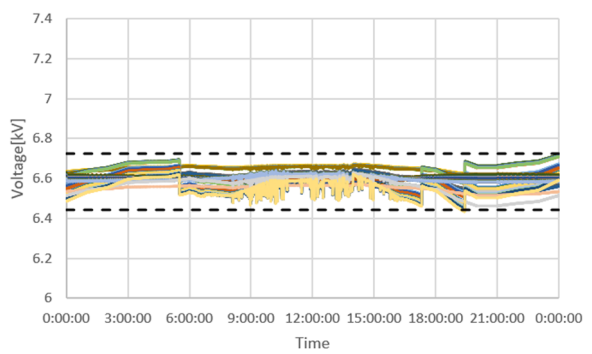
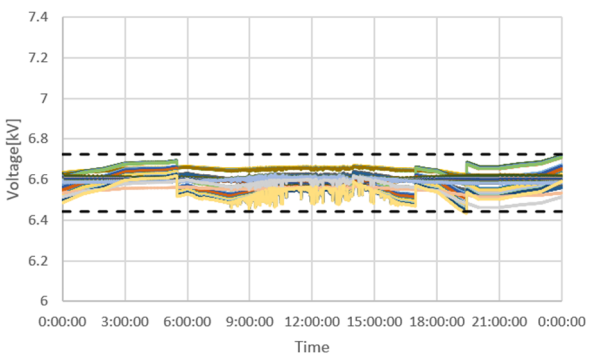


— SVR1 — SVR2

— SVR1 — SVR2

(a) PV 0%

(b) PV 10%

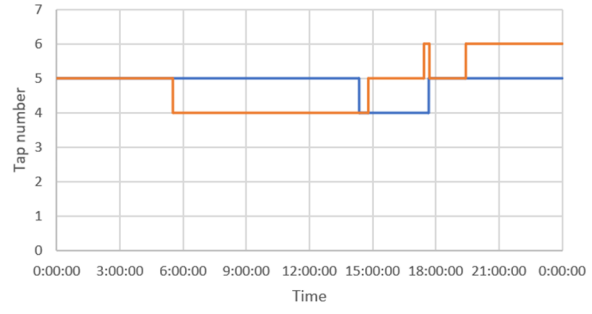
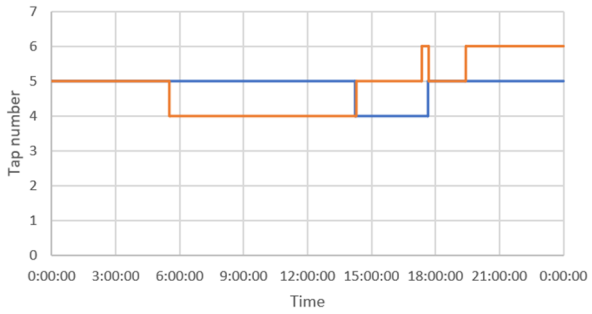
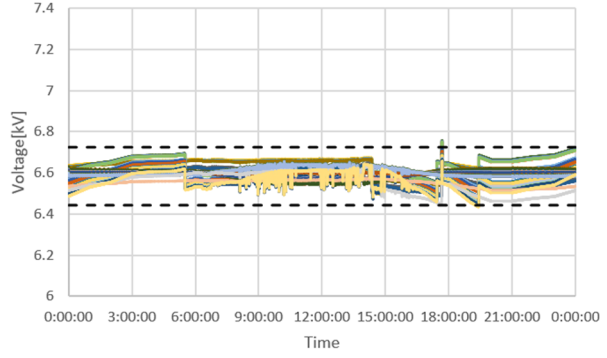
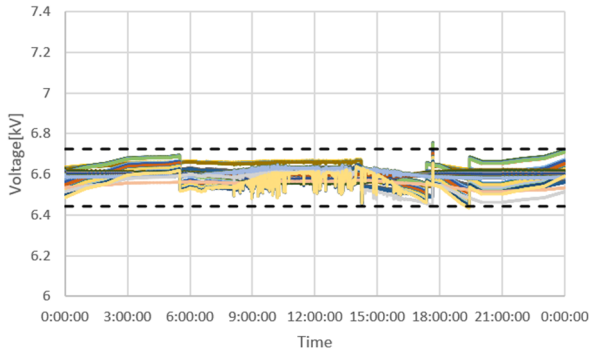


— SVR1 — SVR2

— SVR1 — SVR2

(c) PV 20%

(d) PV 30%

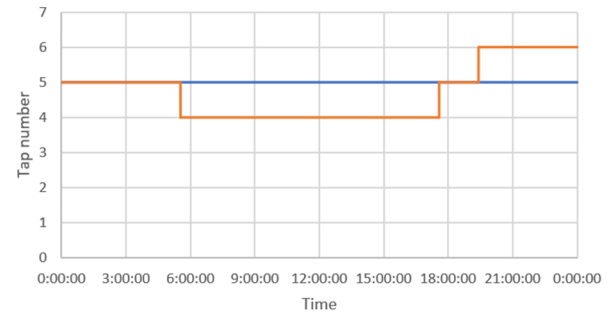
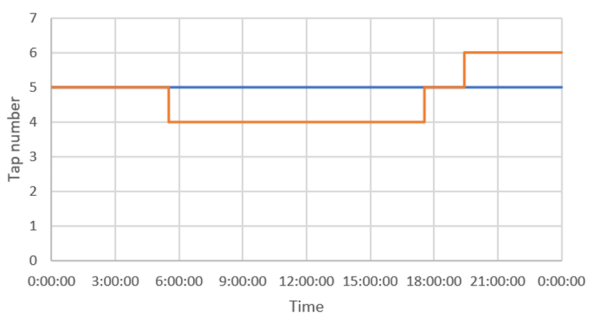
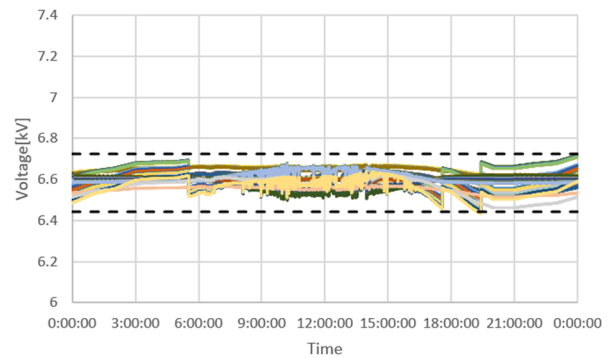
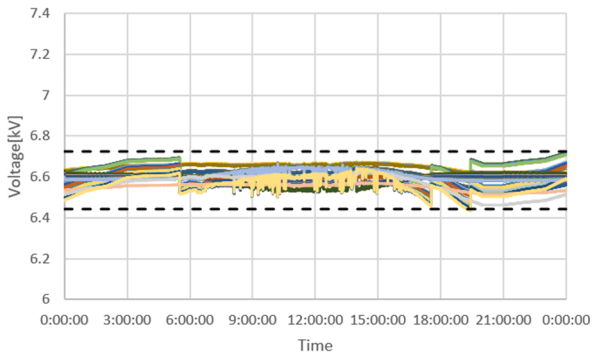


— SVR1 — SVR2

(e) PV 40%

— SVR1 — SVR2

(f) PV 50%

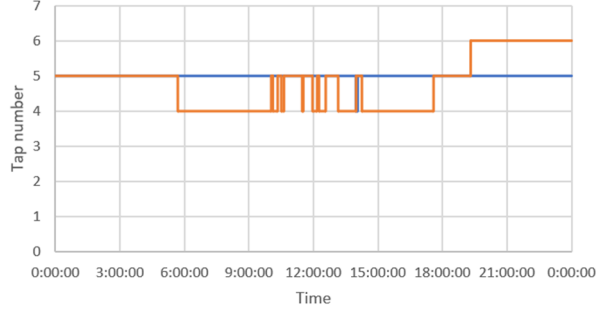
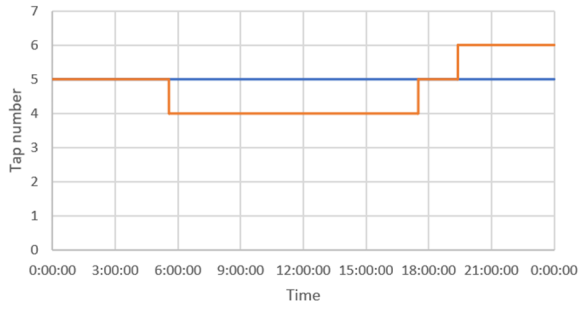
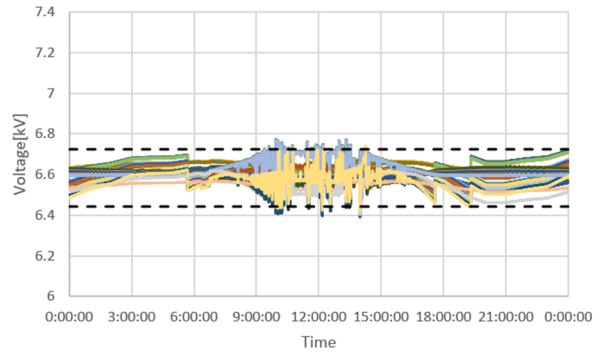
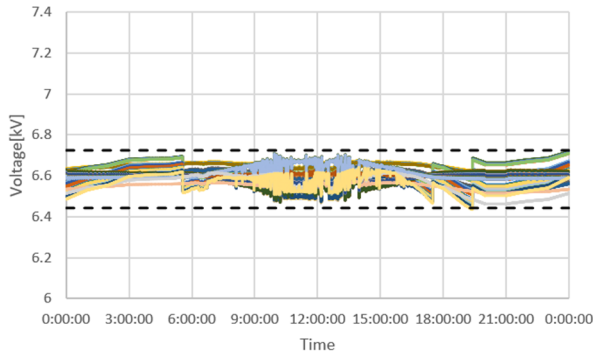


— SVR1 — SVR2

(g) PV 60%

— SVR1 — SVR2

(h) PV 70%

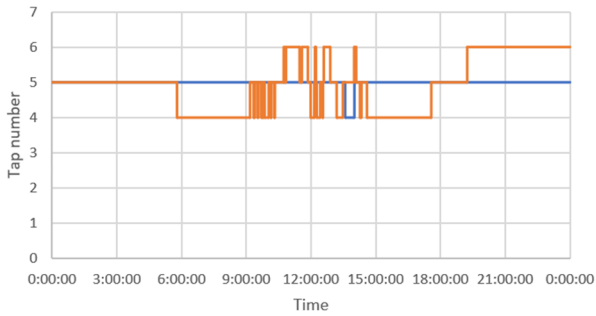
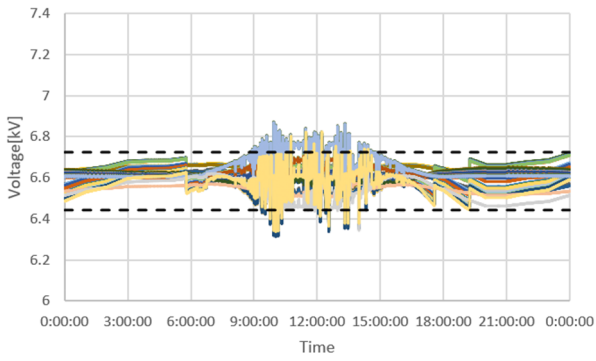


— SVR1 — SVR2

(i) PV 80%

— SVR1 — SVR2

(j) PV 90%

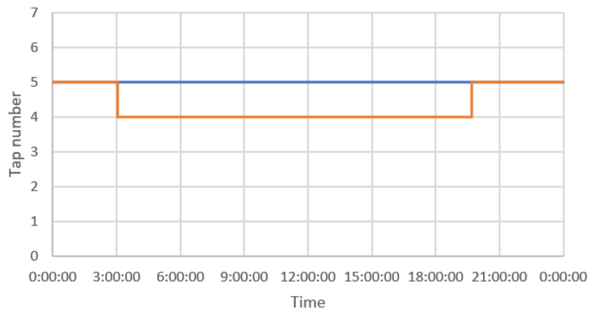
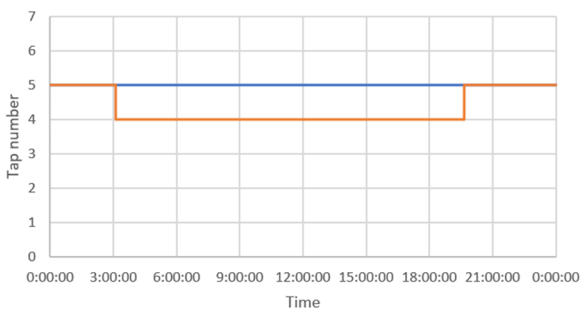
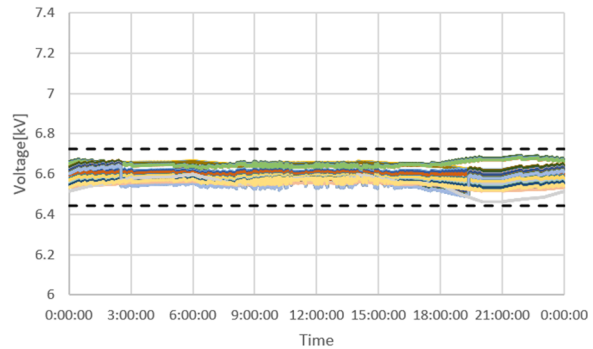
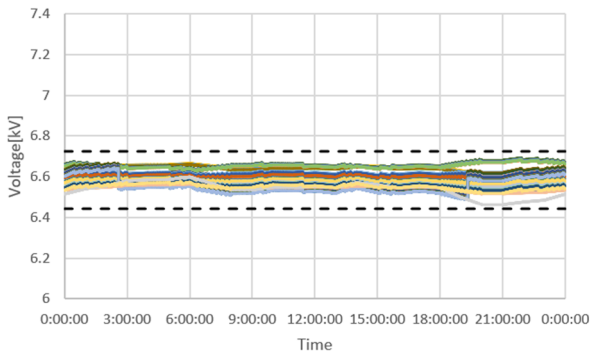


— SVR1 — SVR2

(k) PV 100%

OD22 系統, PV 力率 0.95, 末端集中, SVR-TV<sub>R</sub>-SVR

(上: 電圧分布, 下: タップ位置)

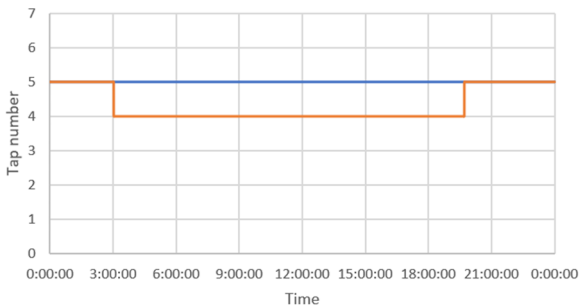
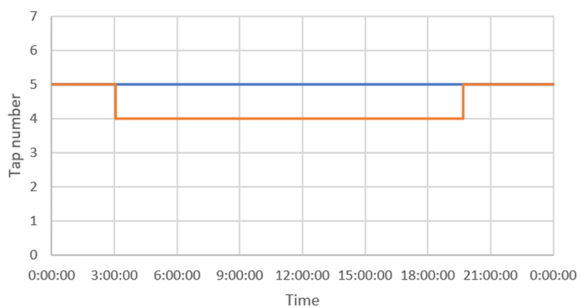
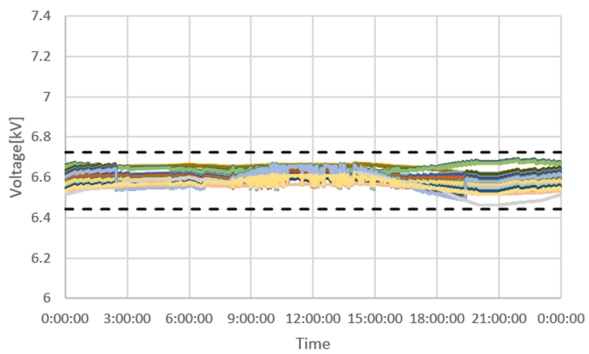
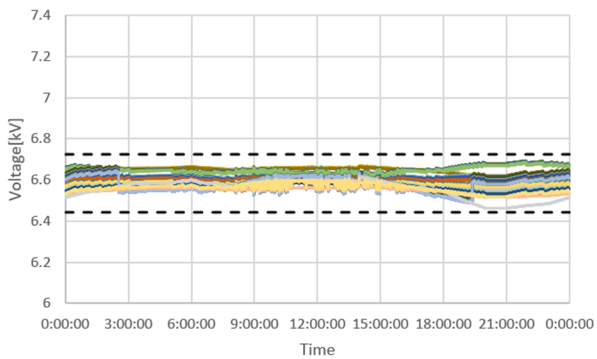


— SVR1 — SVR2

— SVR1 — SVR2

(a) PV 0%

(b) PV 10%

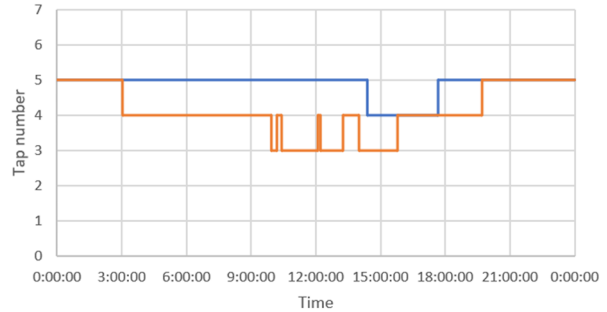
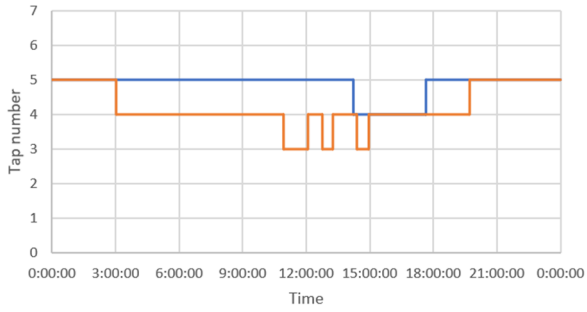
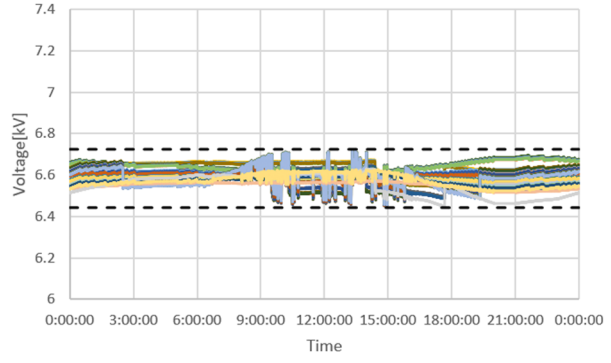
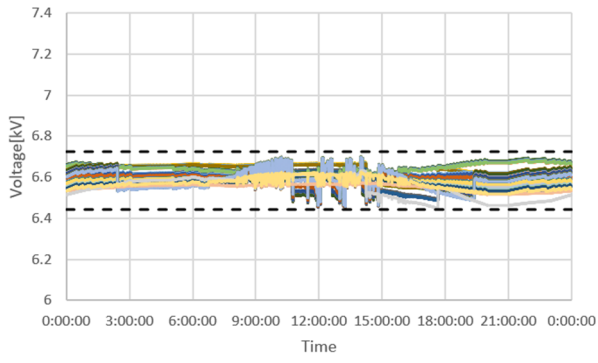


— SVR1 — SVR2

— SVR1 — SVR2

(c) PV 20%

(d) PV 30%

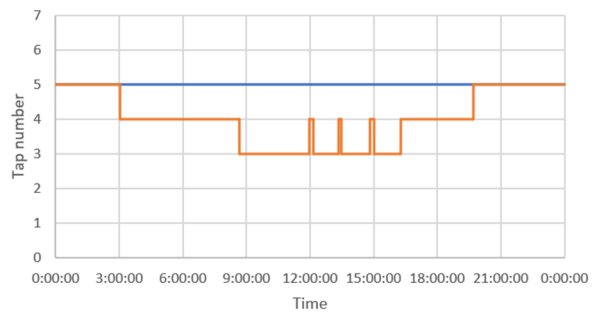
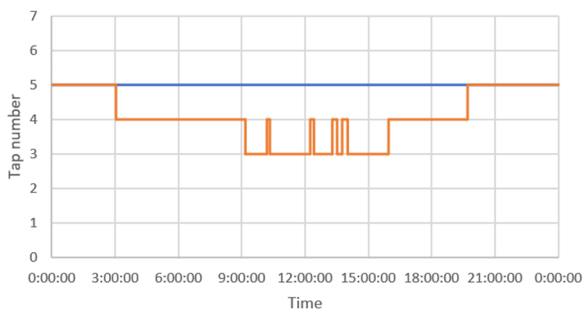
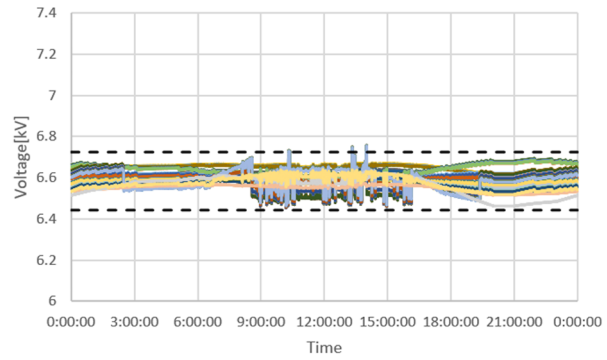
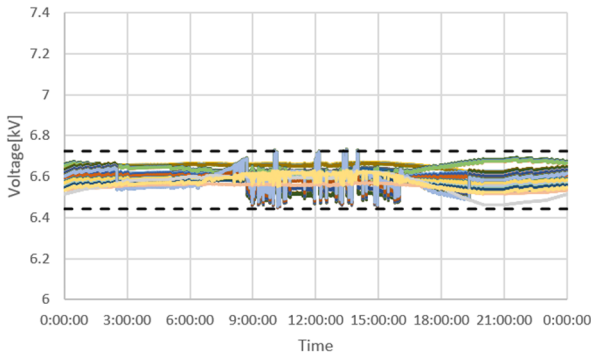


— SVR1 — SVR2

(e) PV 40%

— SVR1 — SVR2

(f) PV 50%

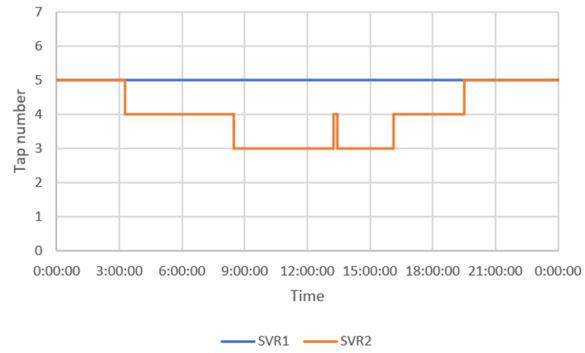
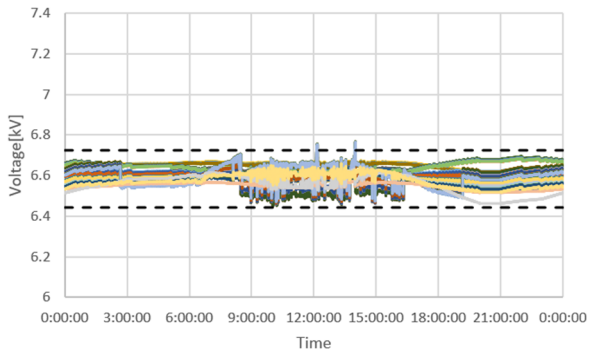


— SVR1 — SVR2

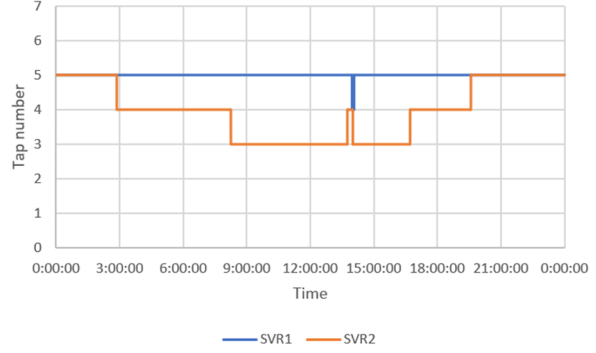
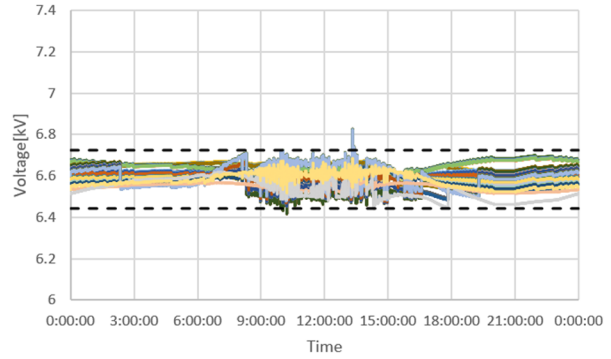
(g) PV 60%

— SVR1 — SVR2

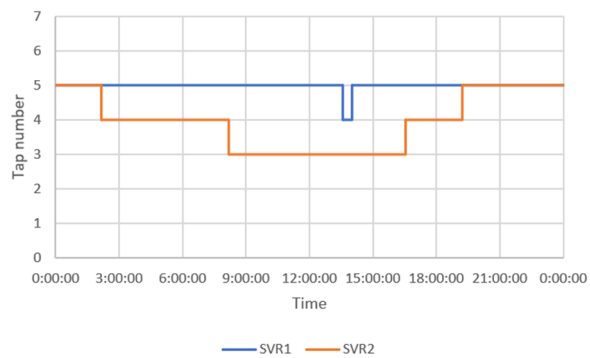
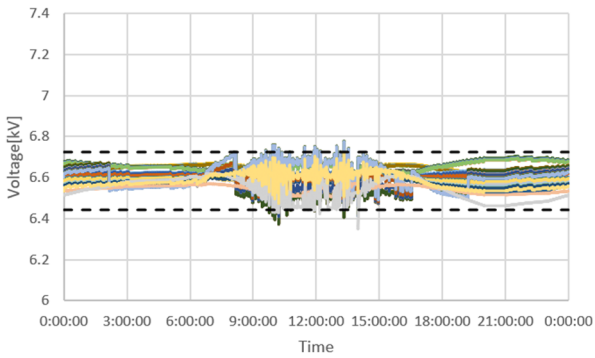
(h) PV 70%



(i) PV 80%



(j) PV 90%

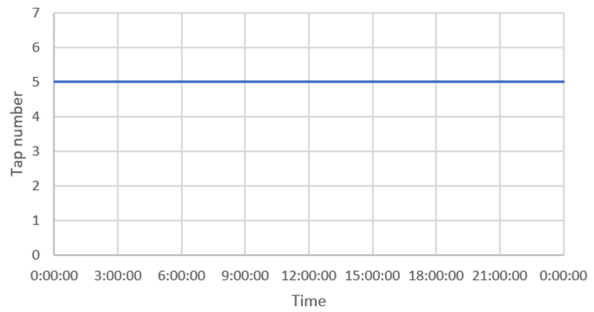
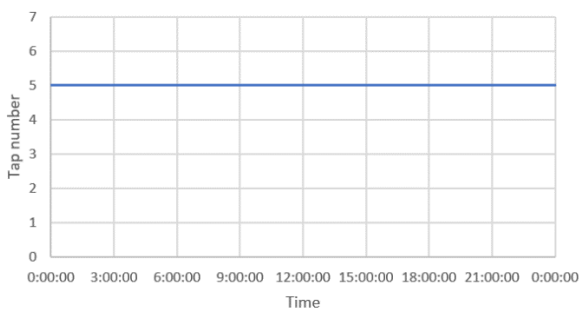
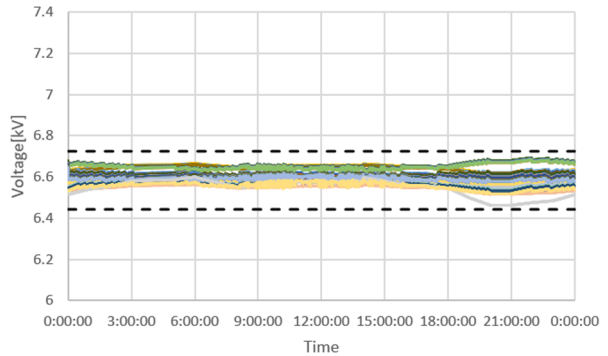
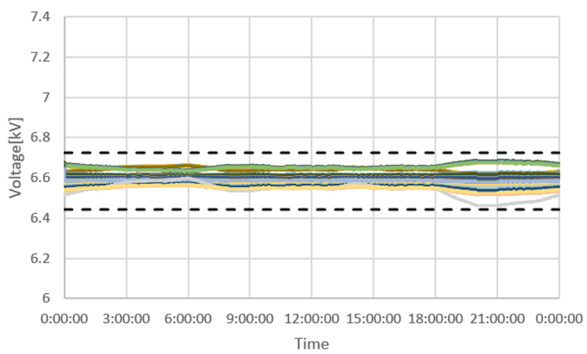


(k) PV 100%



OD22 系統, PV 力率 0.95, 末端集中, SVR-TV<sub>R</sub>-TV<sub>R</sub>

(上: 電圧分布, 下: タップ位置)

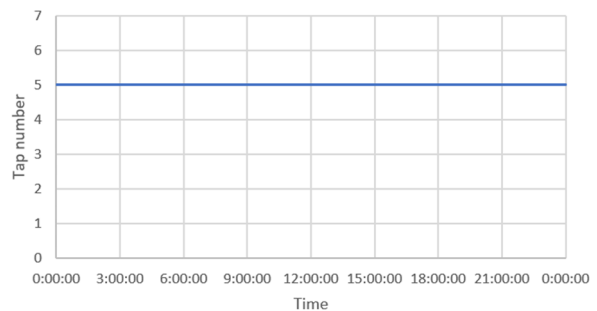
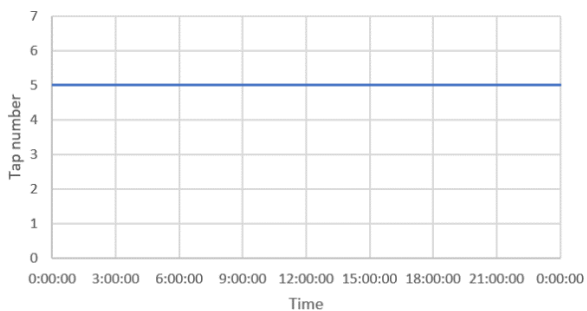
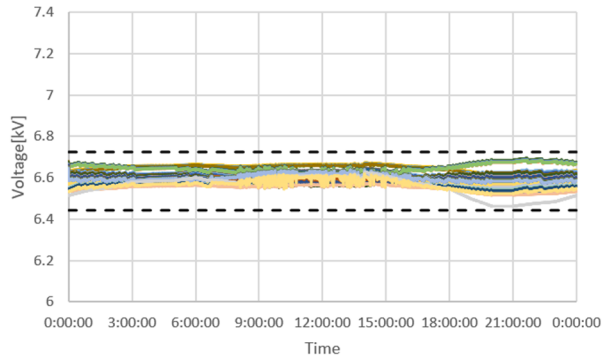
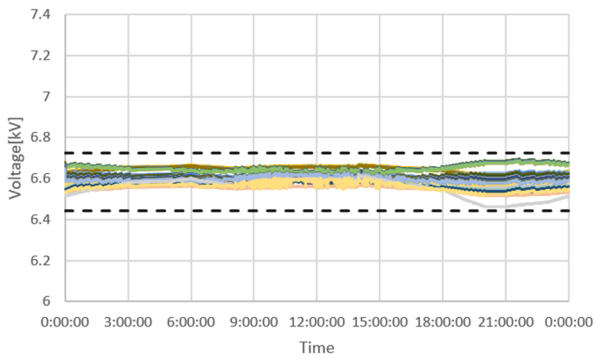


— SVR1

— SVR1

(a) PV 0%

(b) PV 10%

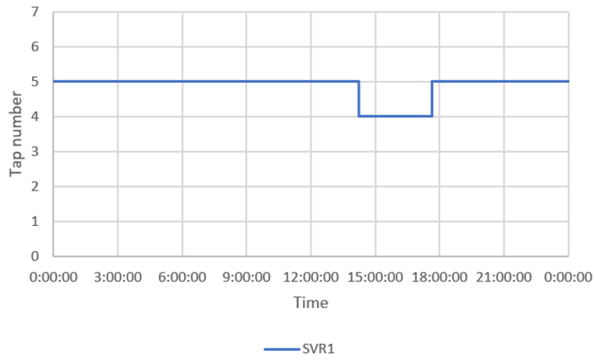
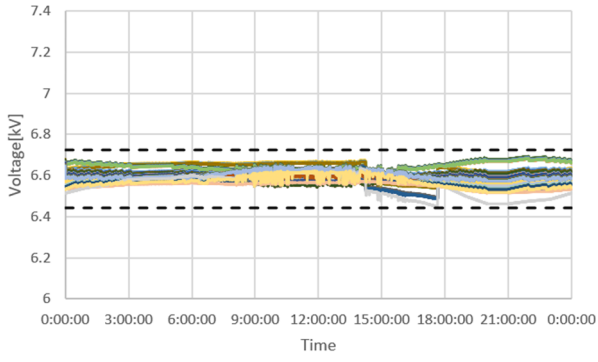


— SVR1

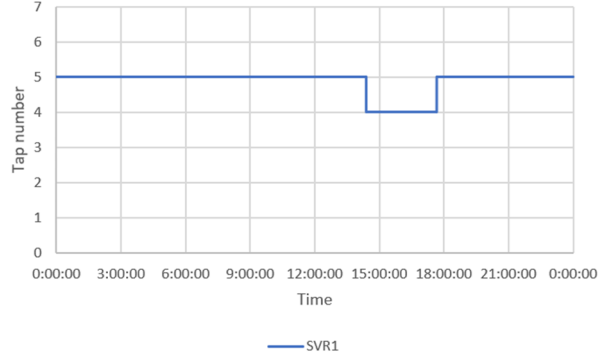
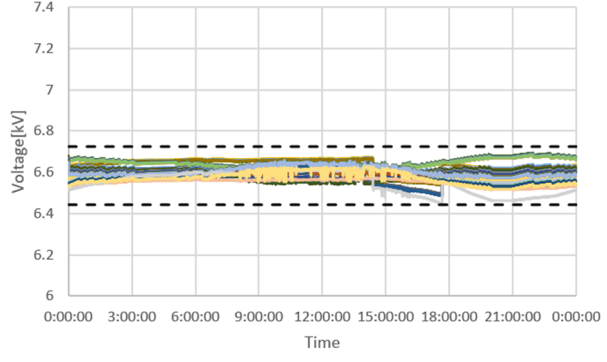
— SVR1

(c) PV 20%

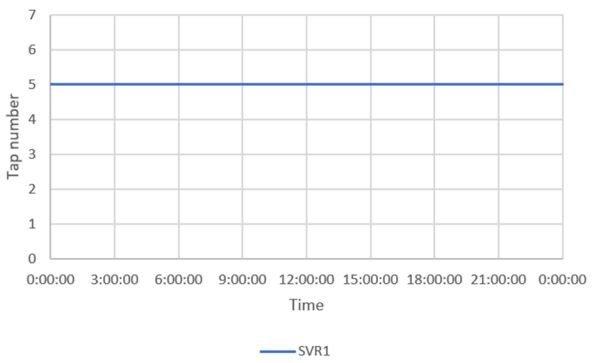
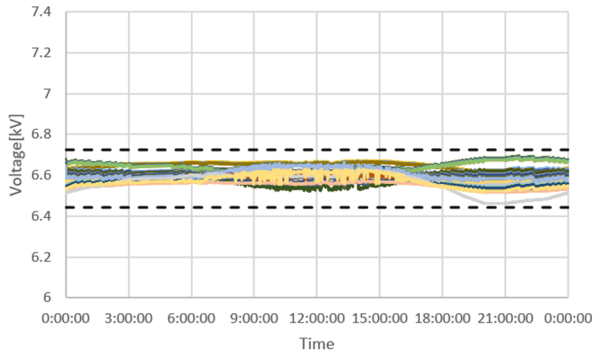
(d) PV 30%



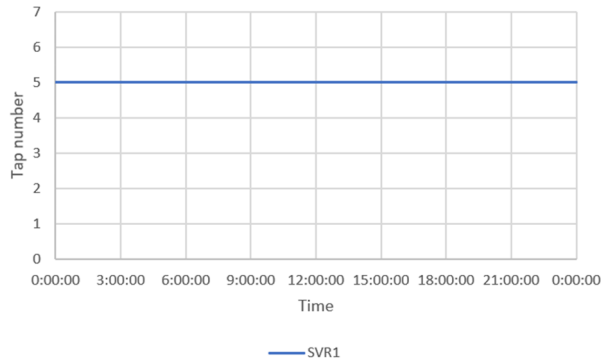
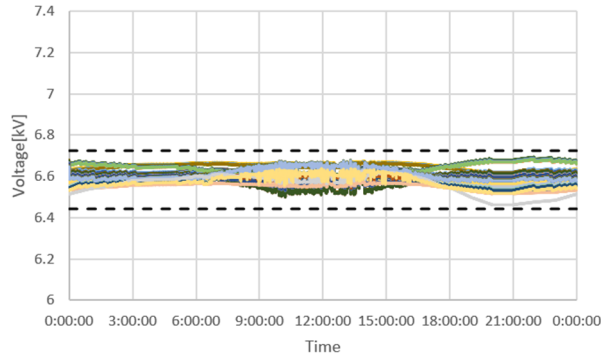
(e) PV 40%



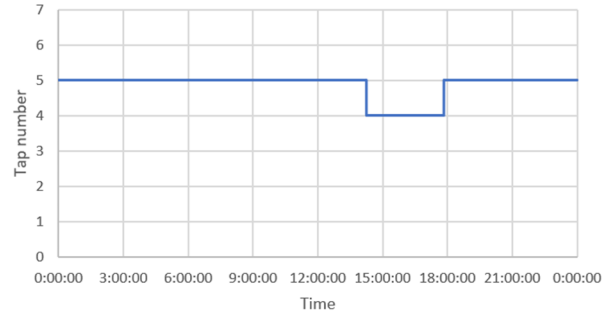
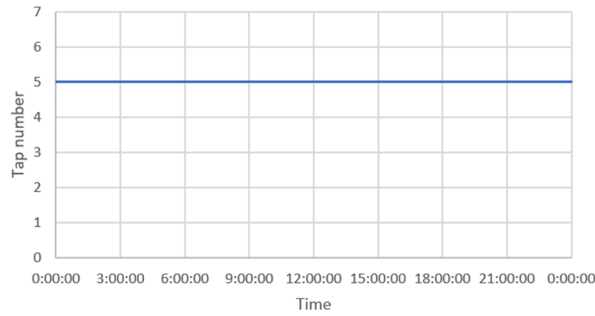
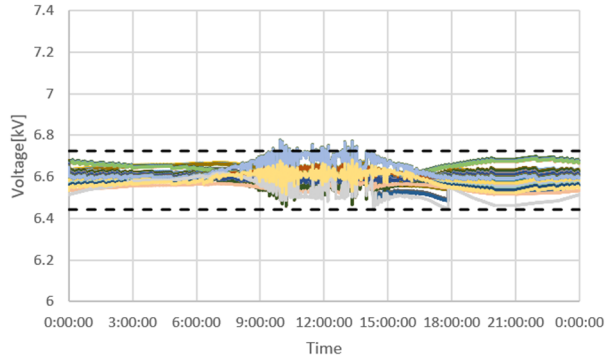
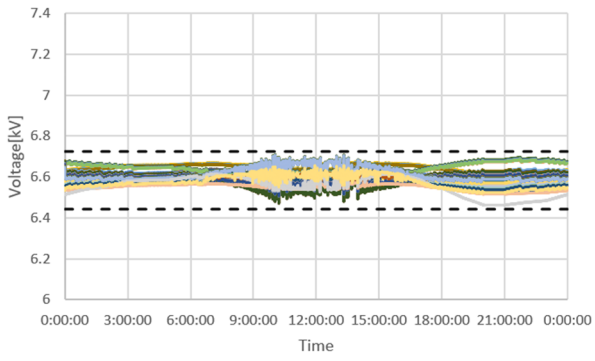
(f) PV 50%



(g) PV 60%

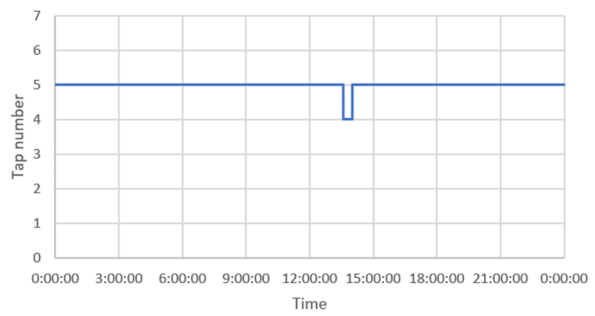
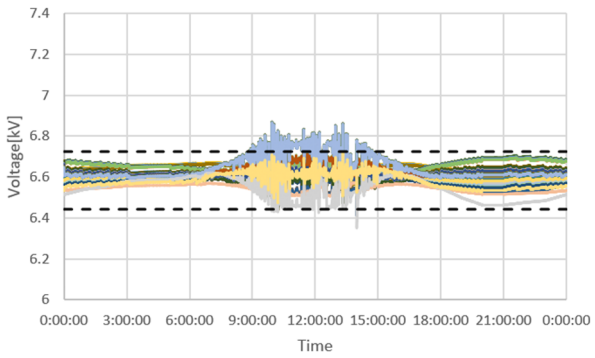


(h) PV 70%



(i) PV 80%

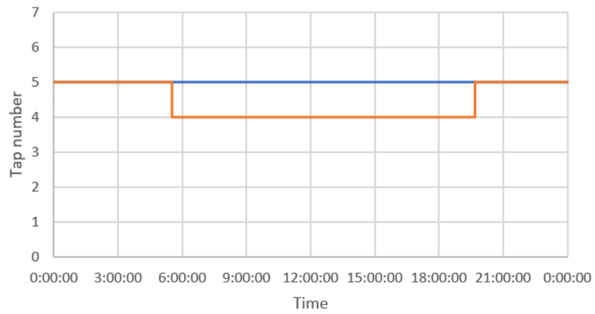
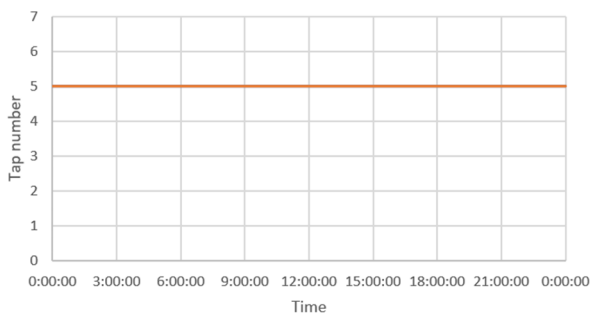
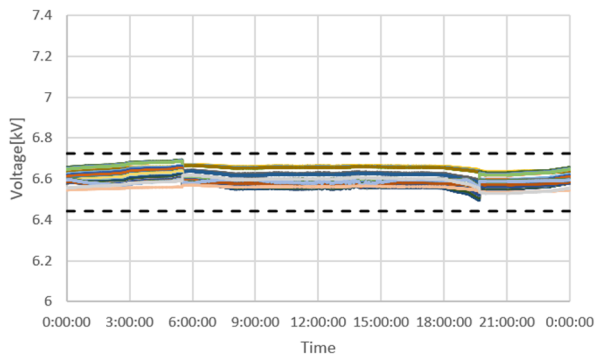
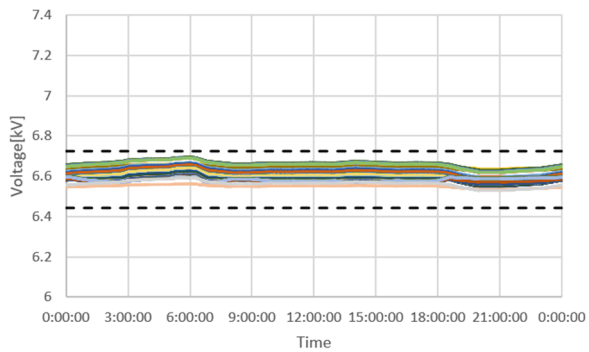
(j) PV 90%



(k) PV 100%

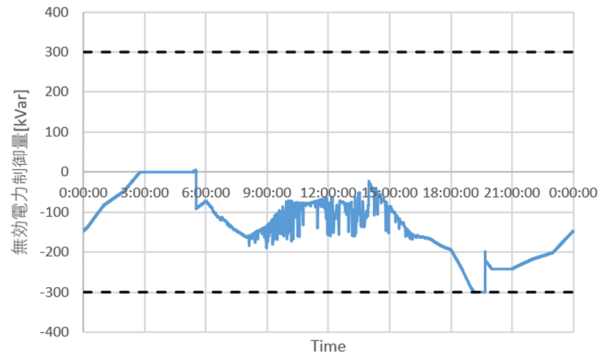
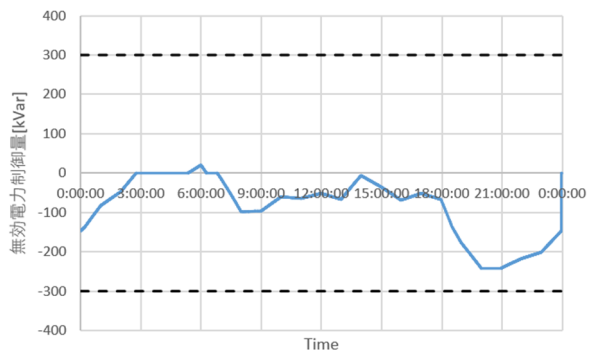
OD22 系統, PV 力率 0.95, 末端集中, SVR-SVR-SVC

(上: 電圧分布, 下: タップ位置)



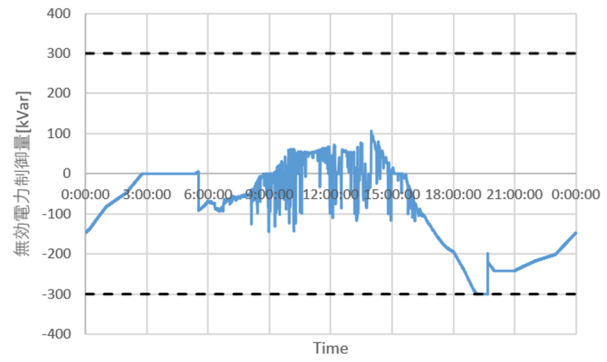
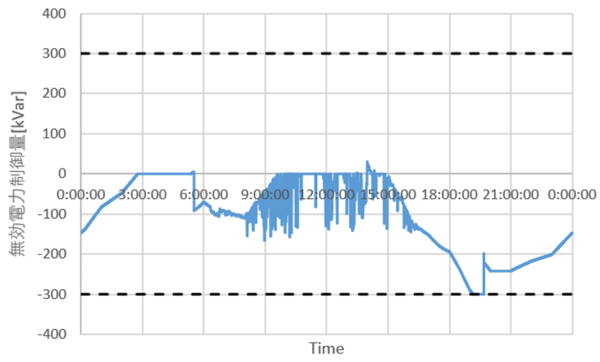
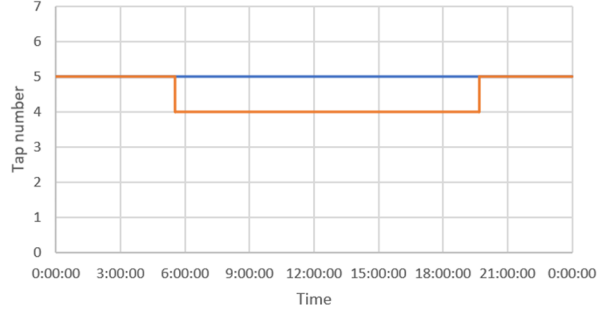
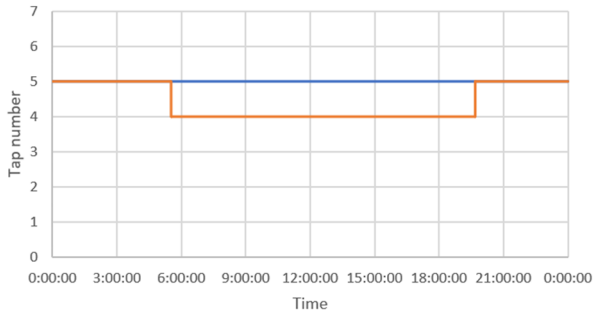
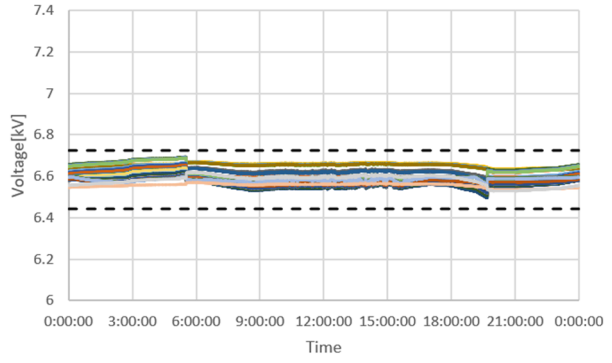
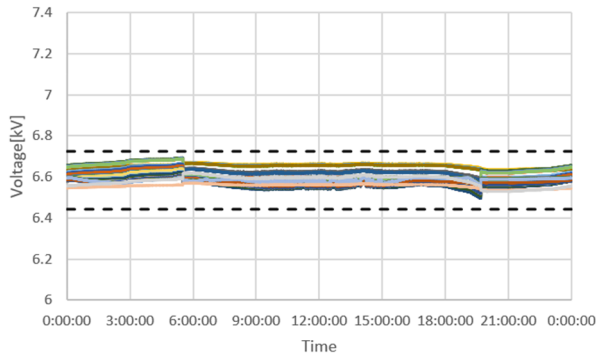
— SVR1 — SVR2

— SVR1 — SVR2



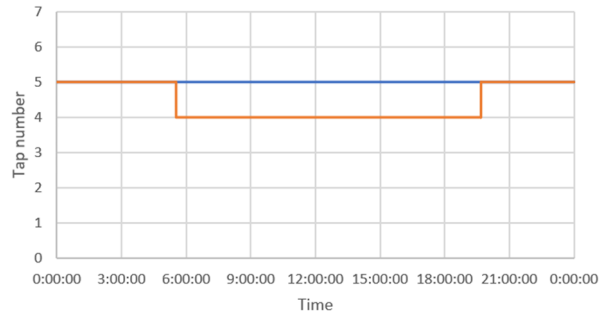
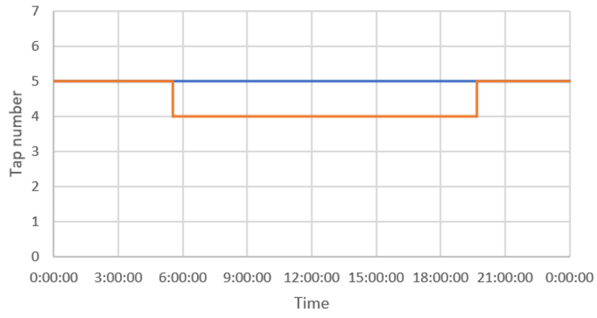
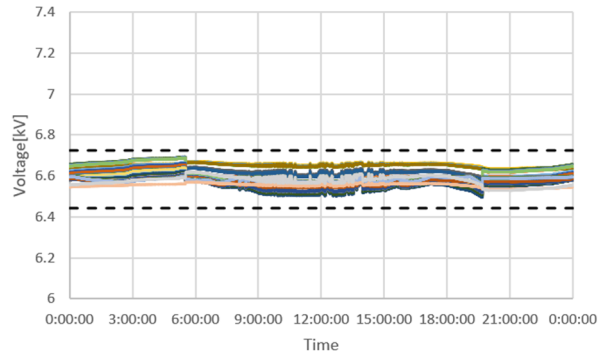
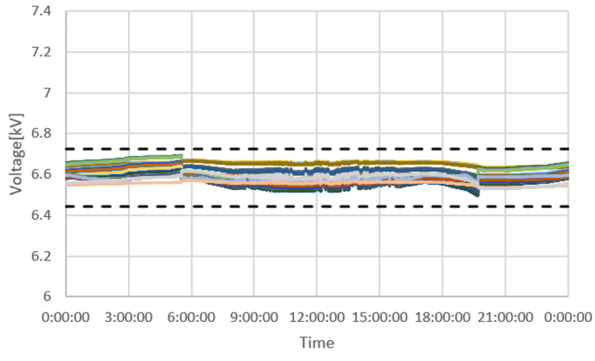
(a) PV 0%

(b) PV 10%



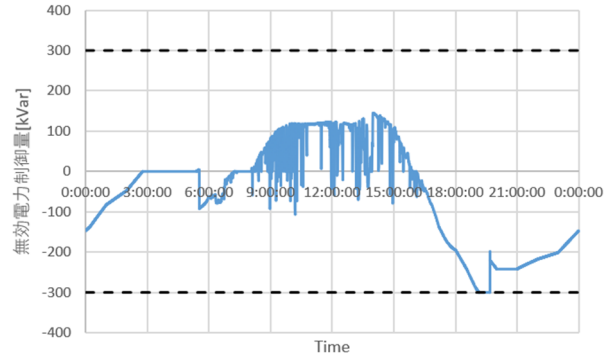
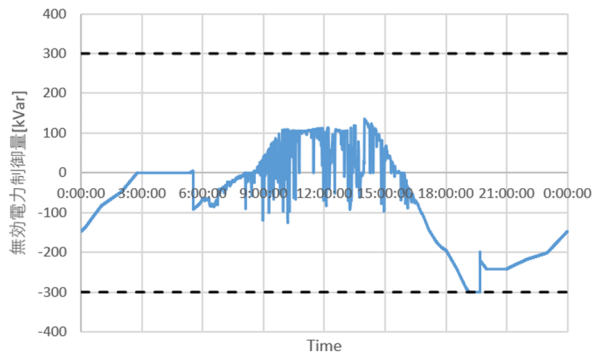
(c) PV 20%

(d) PV 30%



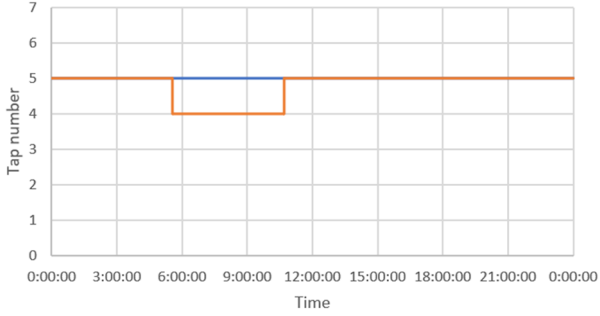
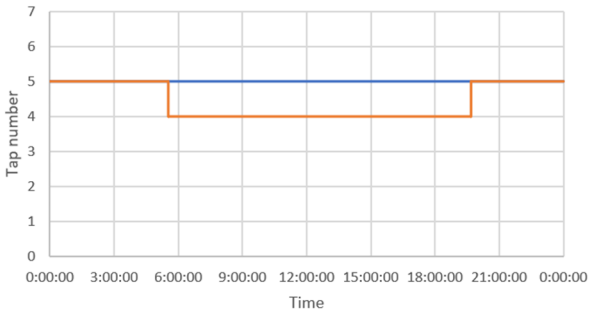
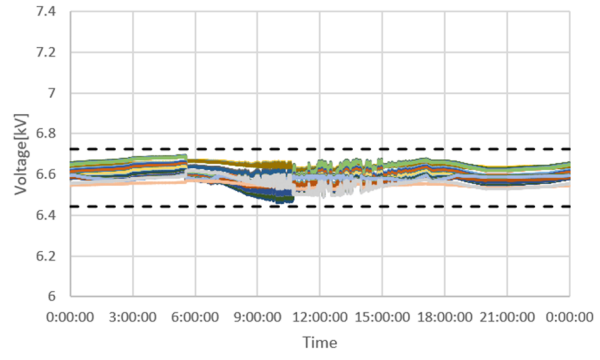
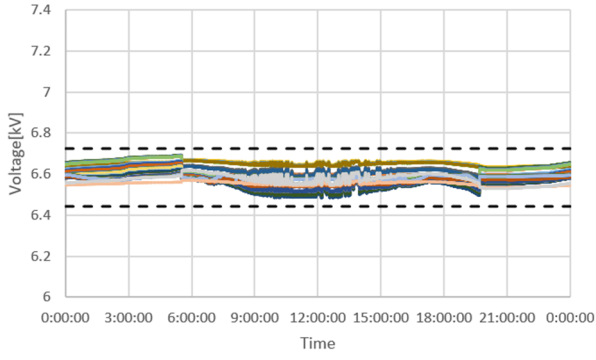
— SVR1 — SVR2

— SVR1 — SVR2



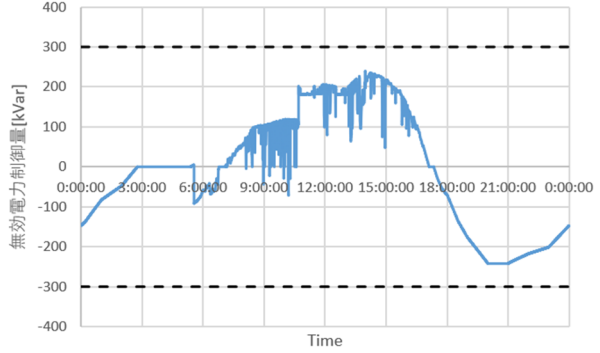
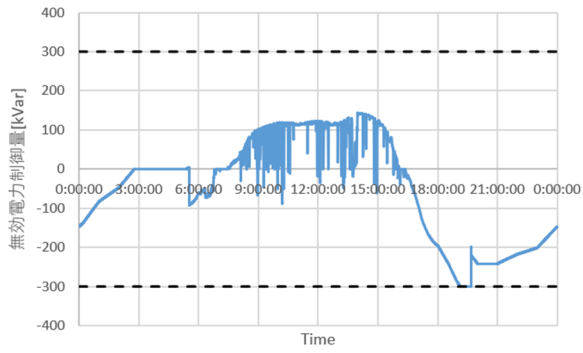
(e) PV 40%

(f) PV 50%



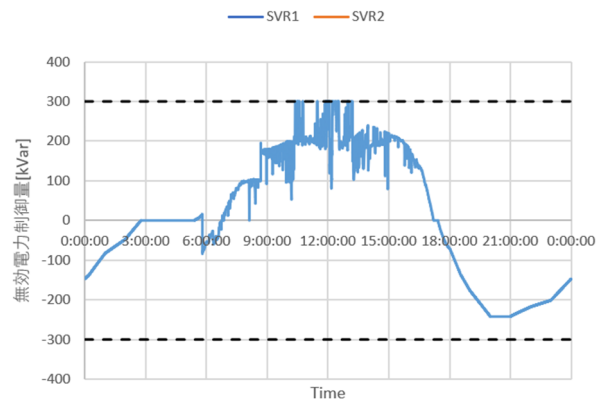
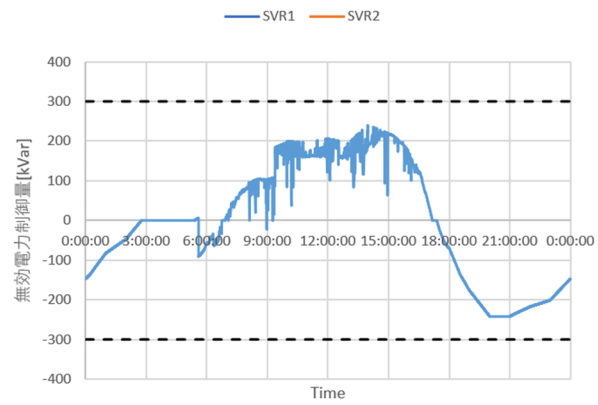
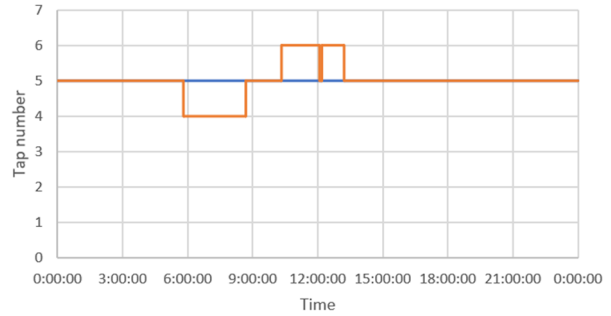
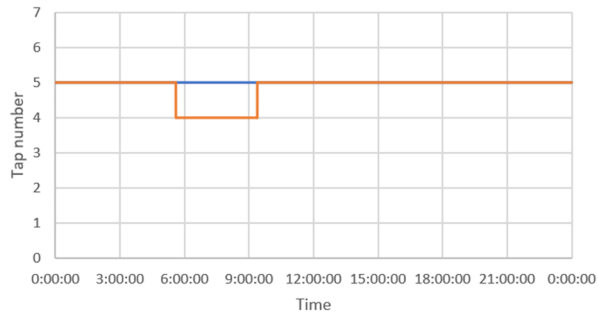
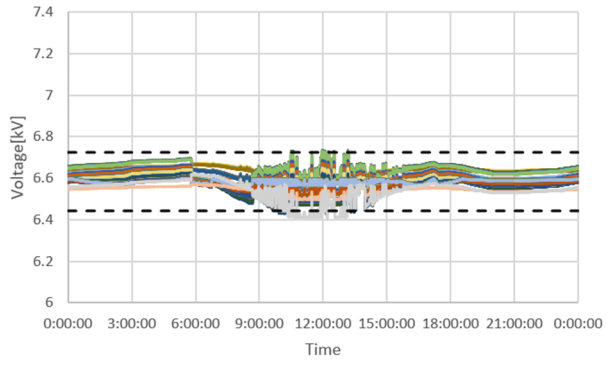
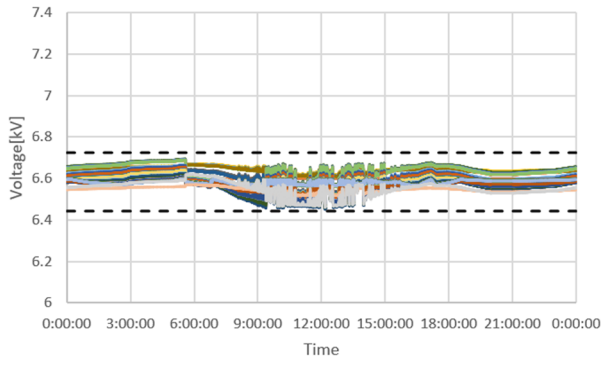
— SVR1 — SVR2

— SVR1 — SVR2



(g) PV 60%

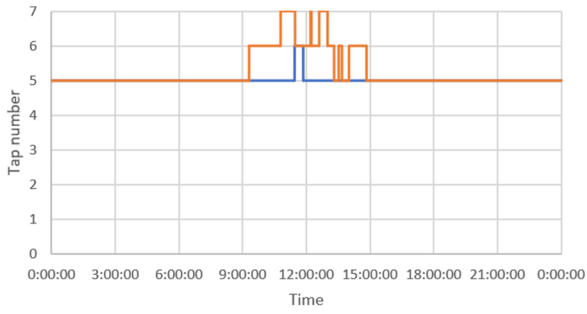
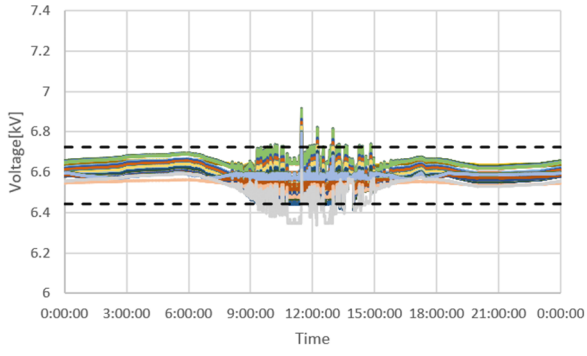
(h) PV 70%



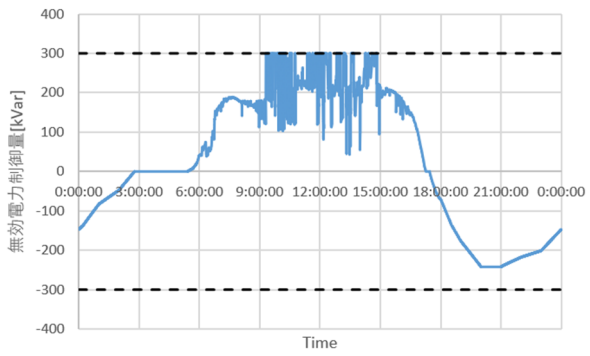
(i) PV 80%

(j) PV 90%





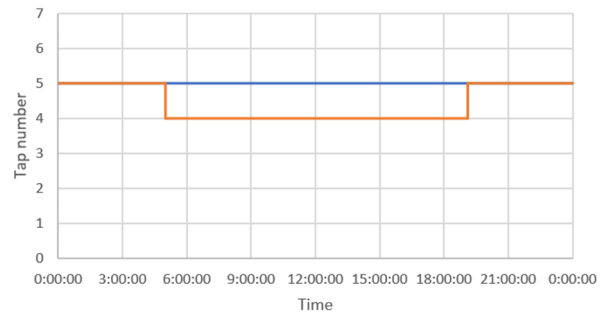
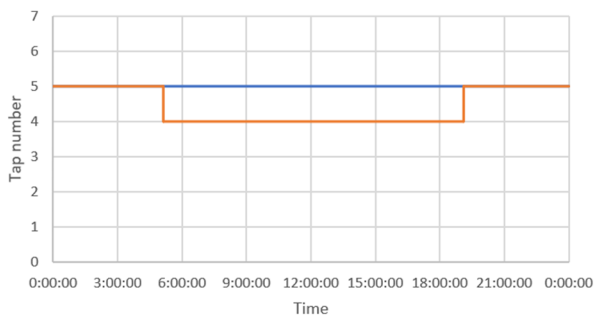
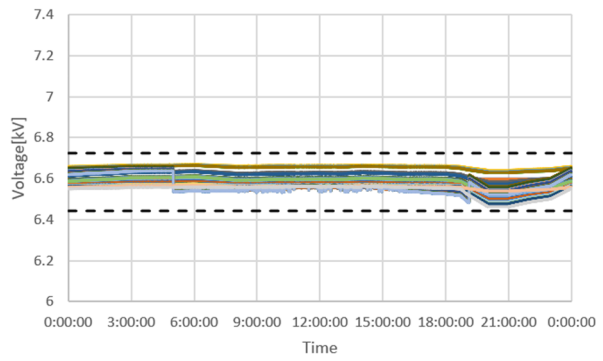
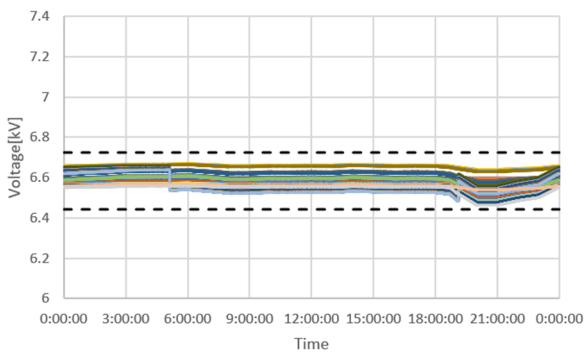
— SVR1 — SVR2



(k) PV 100%

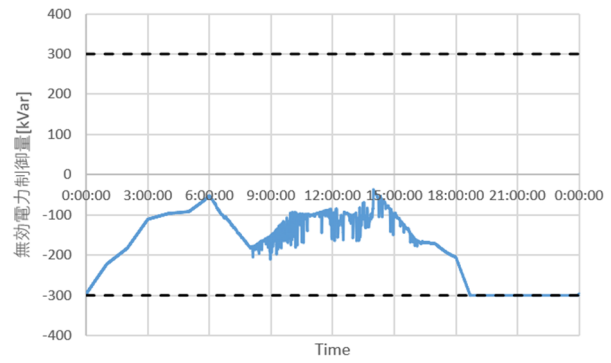
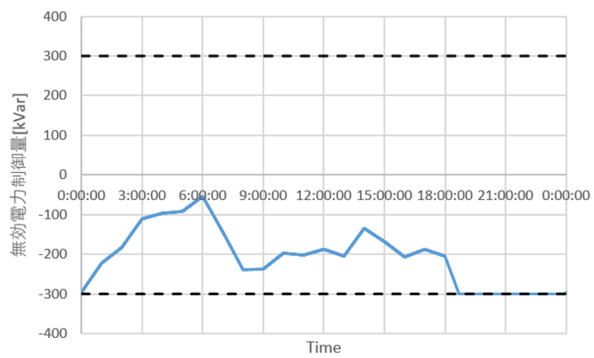
OD22 系統, PV 力率 0.95, 末端集中, SVR-SVG-SVR

(上: 電圧分布, 下: タップ位置)



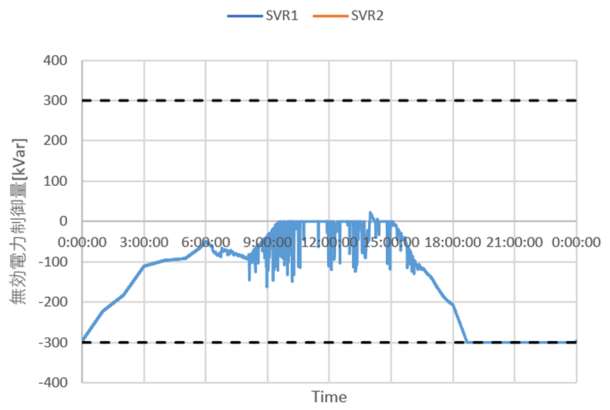
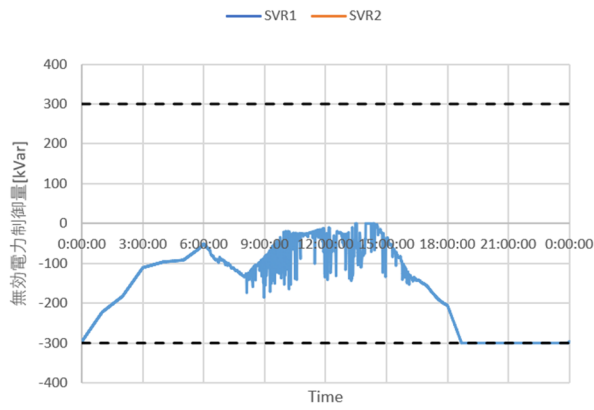
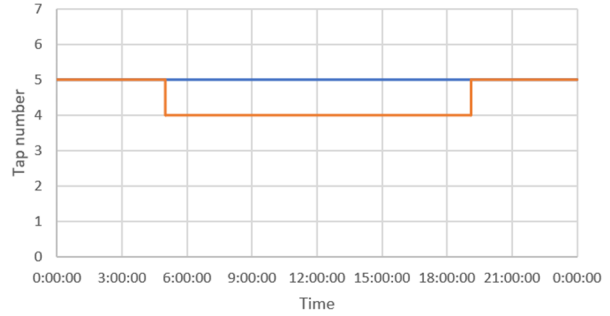
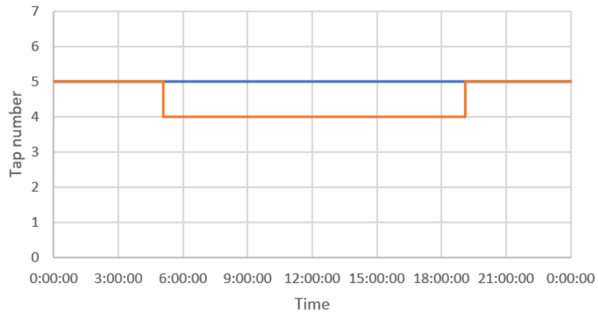
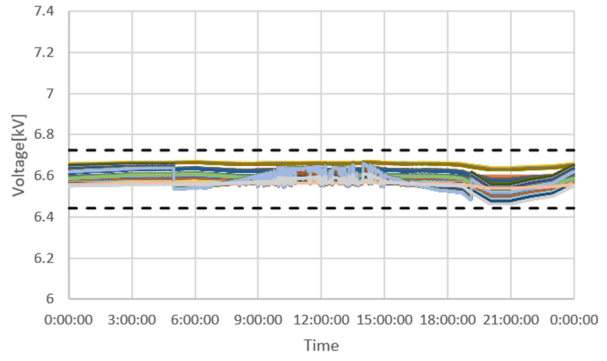
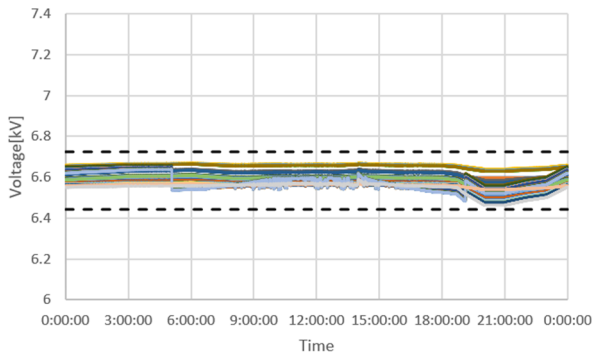
— SVR1 — SVR2

— SVR1 — SVR2



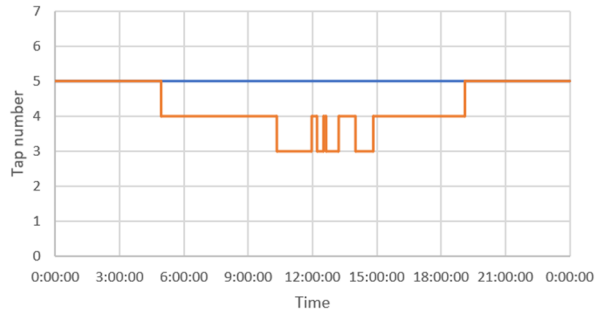
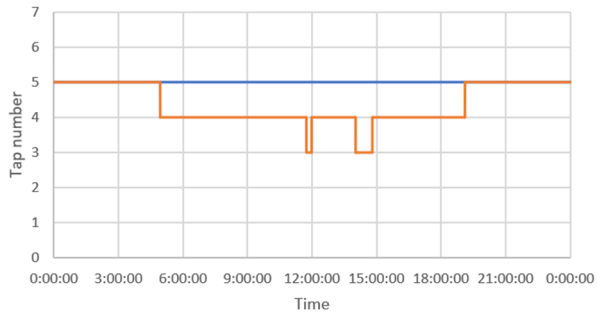
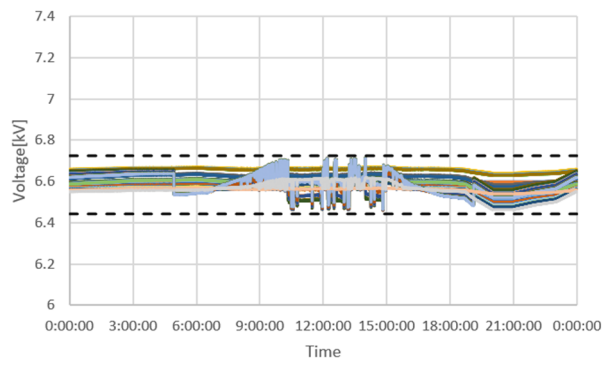
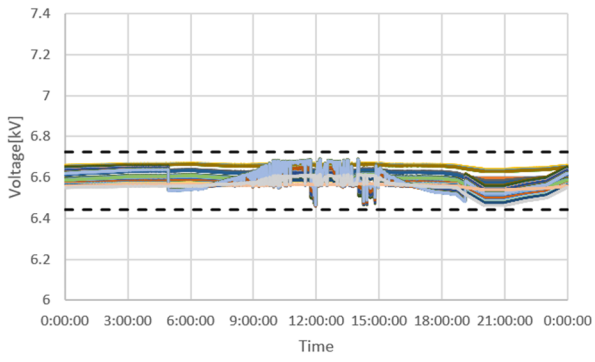
(a) PV 0%

(b) PV 10%



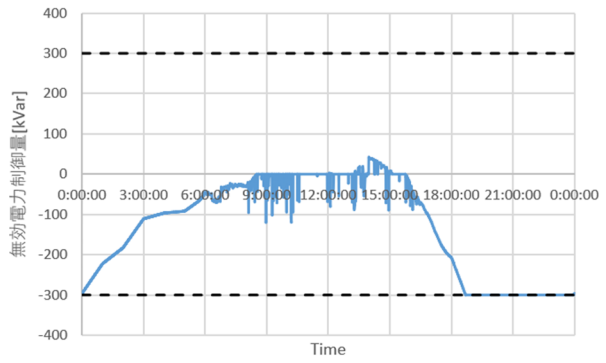
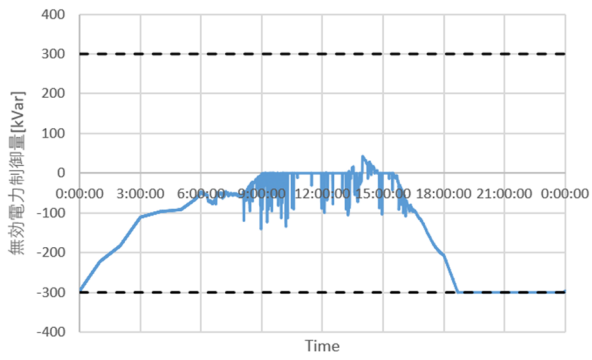
(c) PV 20%

(d) PV 30%



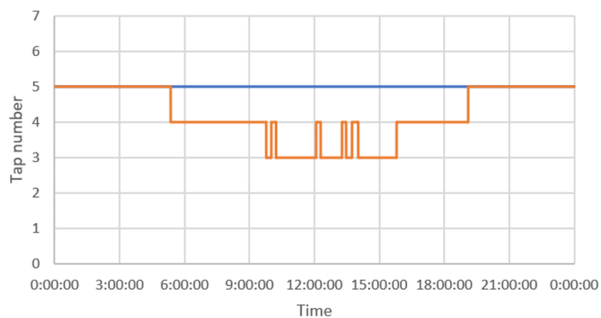
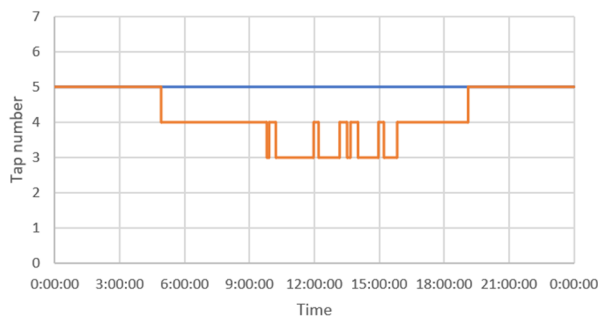
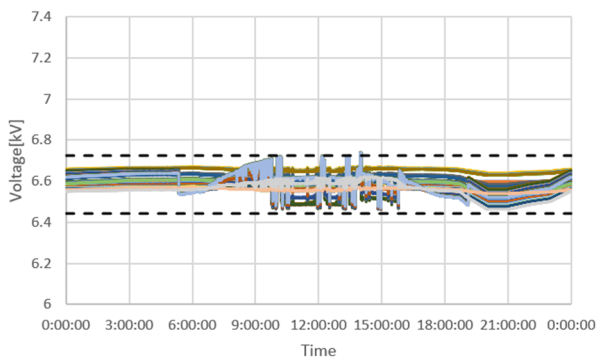
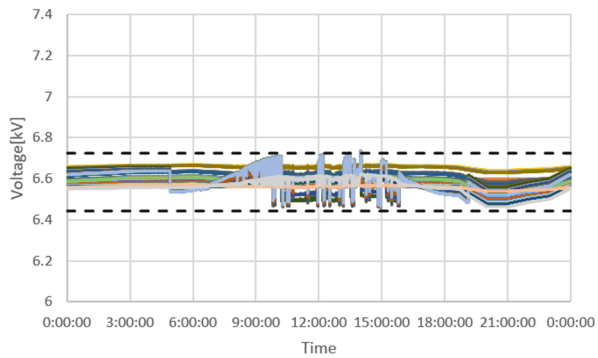
— SVR1 — SVR2

— SVR1 — SVR2



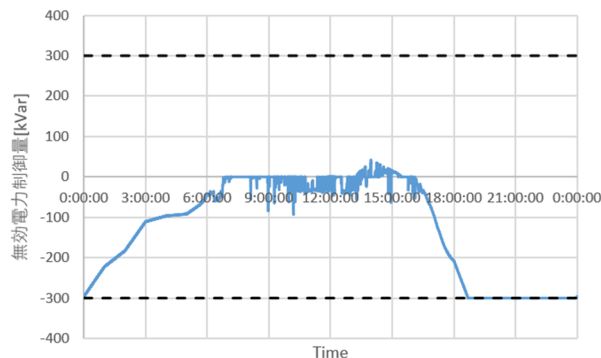
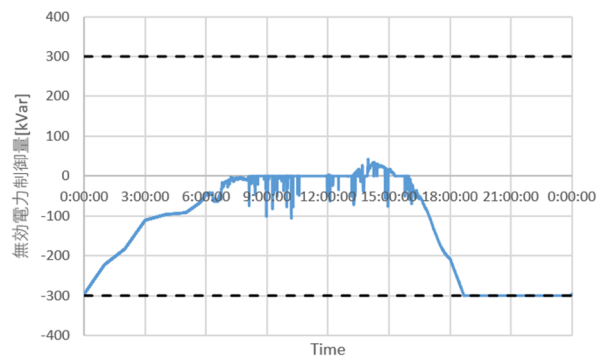
(e) PV 40%

(f) PV 50%



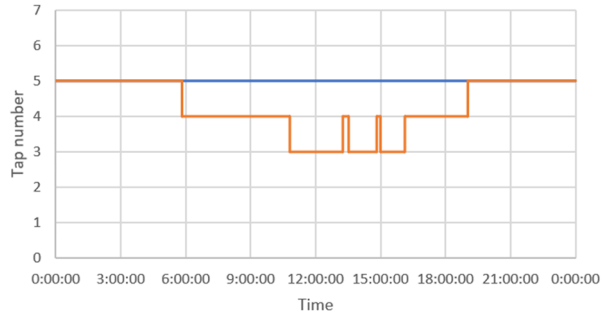
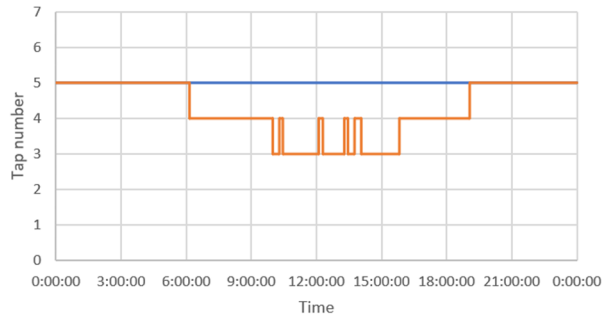
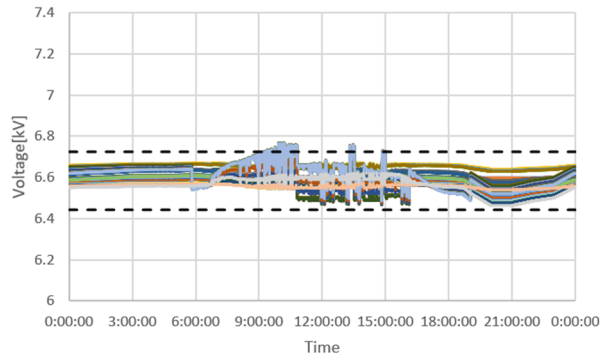
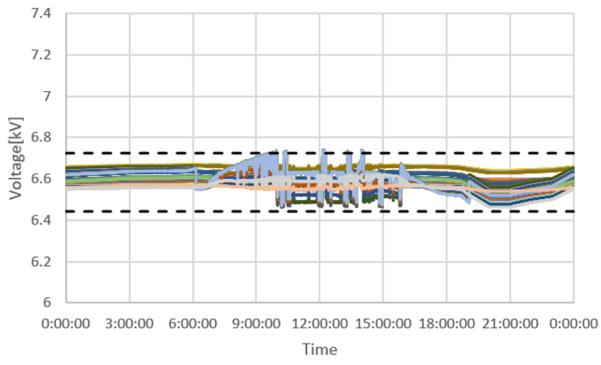
— SVR1 — SVR2

— SVR1 — SVR2



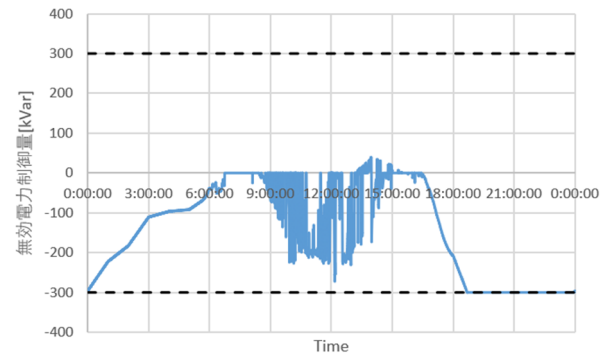
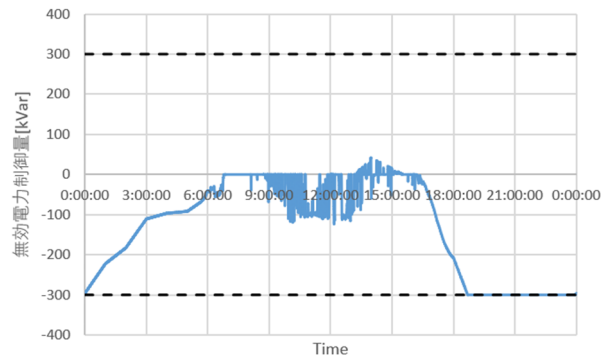
(g) PV 60%

(h) PV 70%



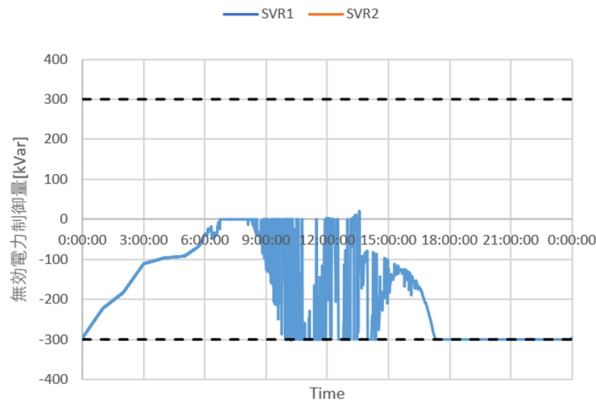
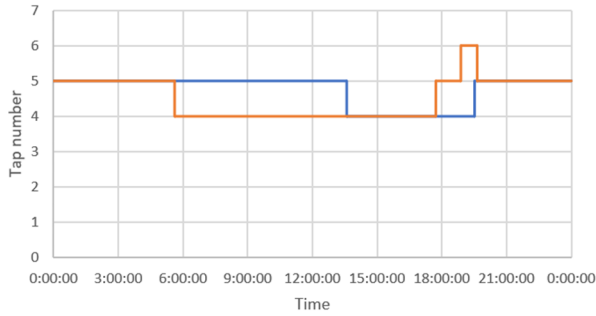
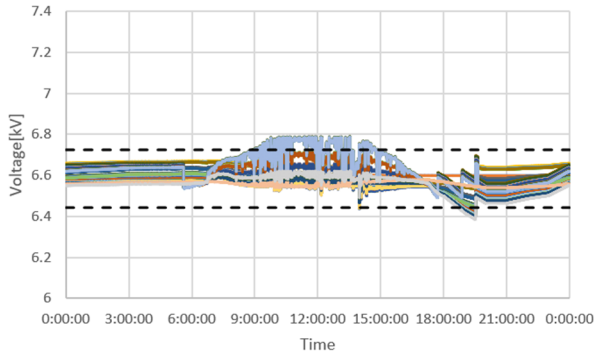
— SVR1 — SVR2

— SVR1 — SVR2



(i) PV 80%

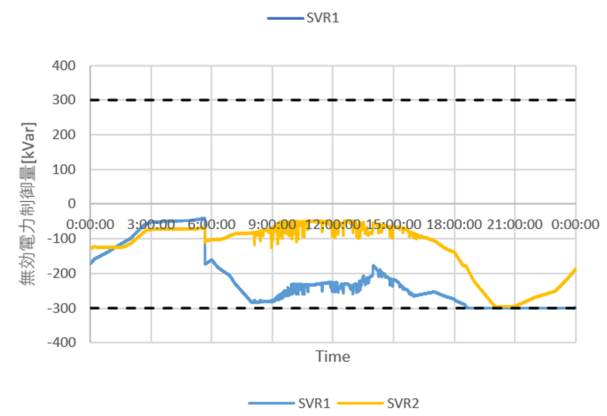
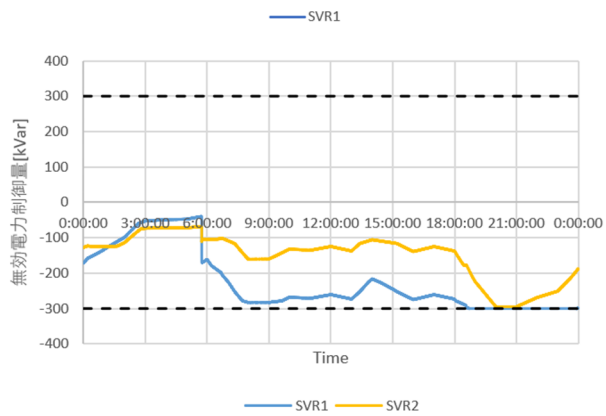
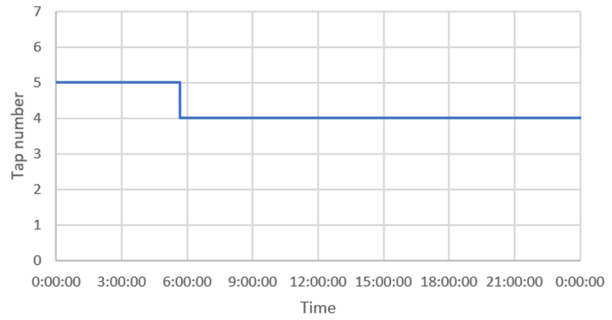
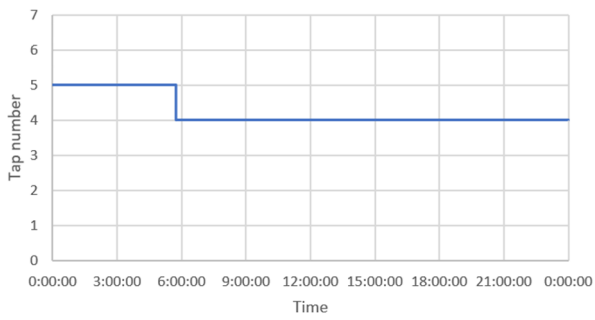
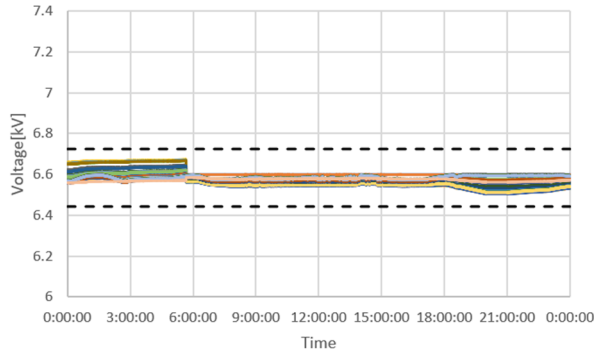
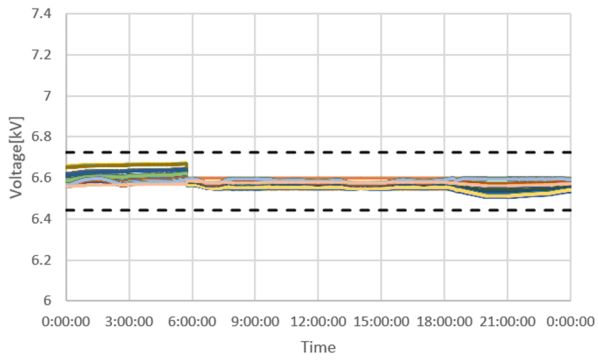
(j) PV 90%



(k) PV 100%

OD22 系統, PV 力率 0.95, 末端集中, SVR-SVC-SVC

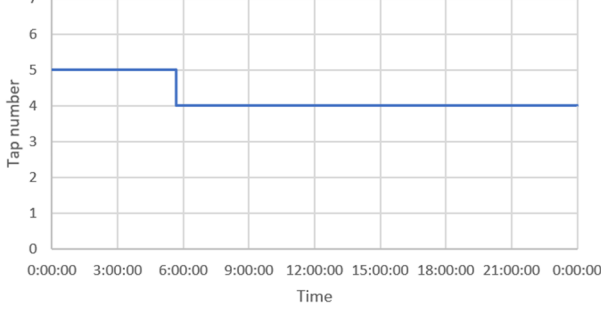
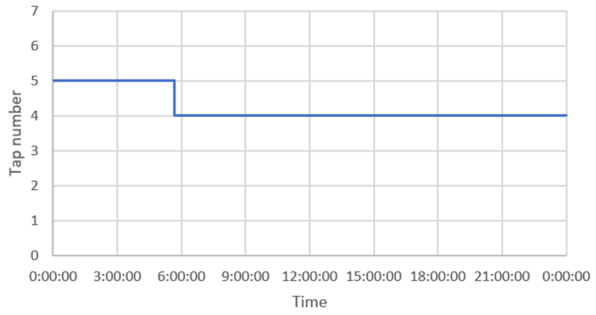
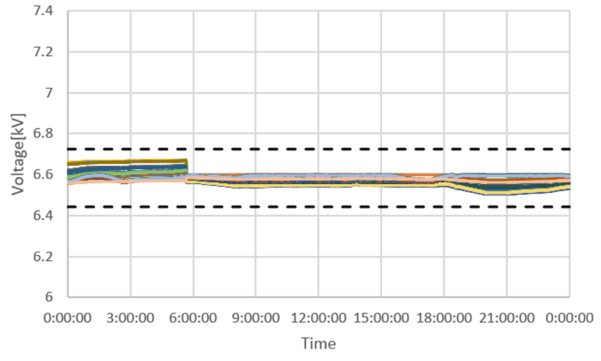
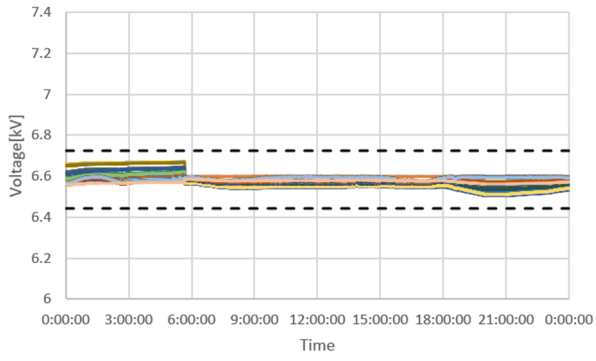
(上: 電圧分布, 下: タップ位置)



(a) PV 0%

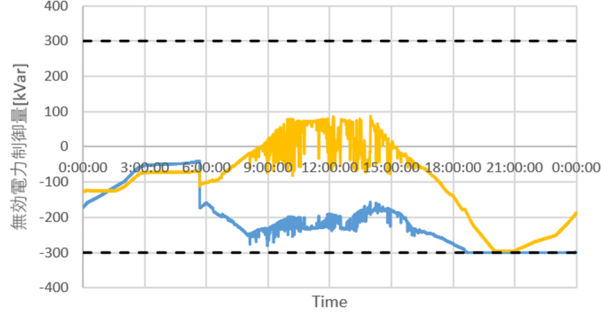
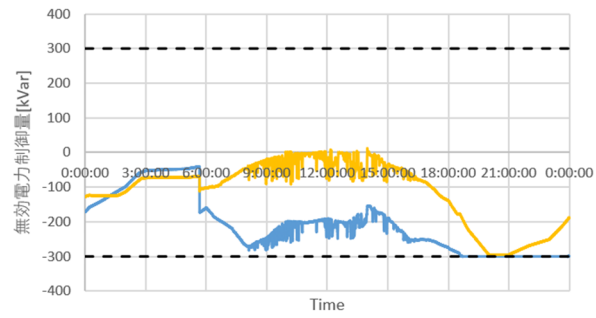
(b) PV 10%





— SVR1

— SVR1

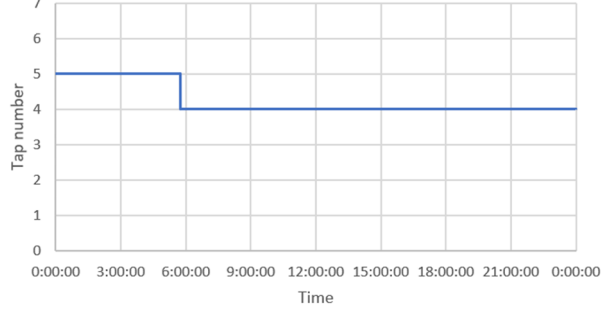
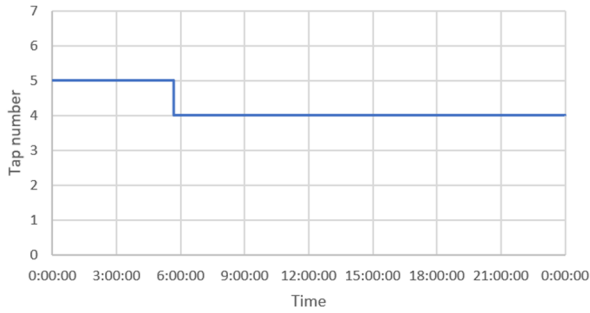
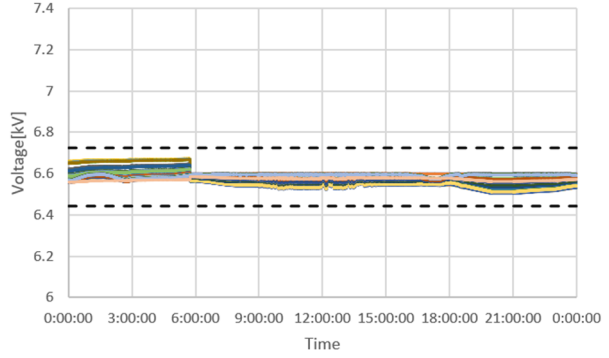
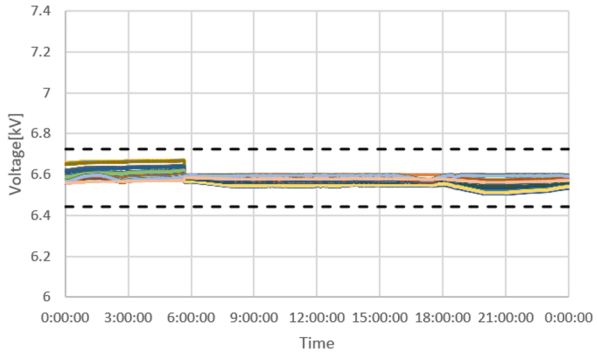


— SVR1 — SVR2

— SVR1 — SVR2

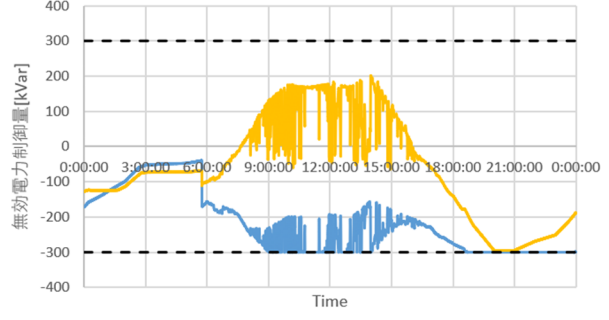
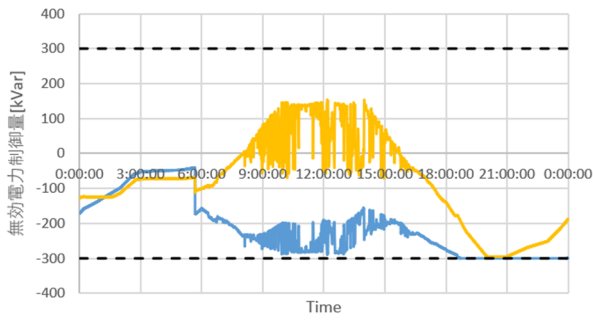
(c) PV 20%

(d) PV 30%



— SVR1

— SVR1

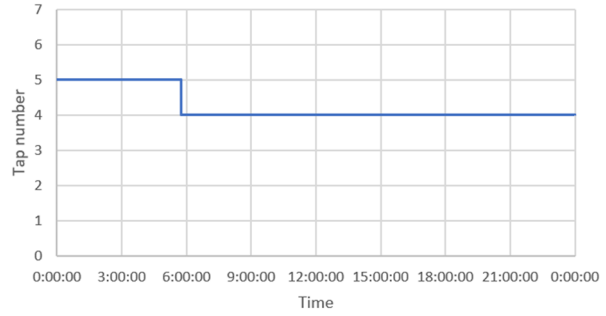
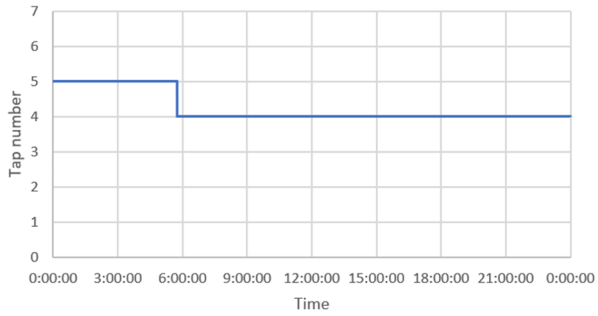
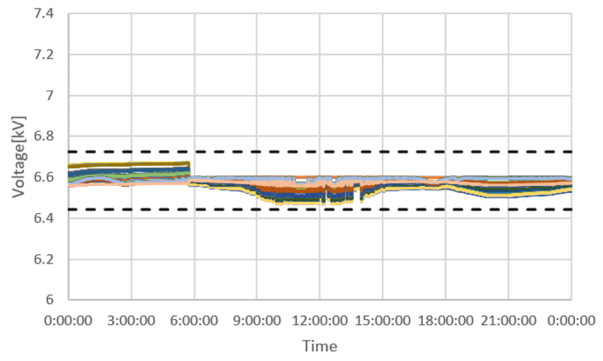
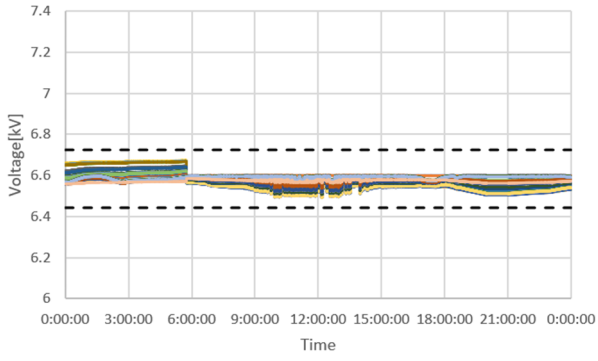


— SVR1 — SVR2

— SVR1 — SVR2

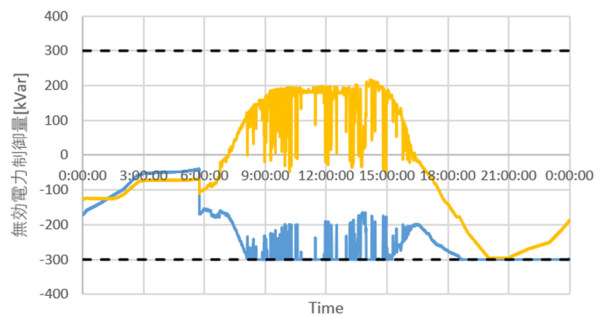
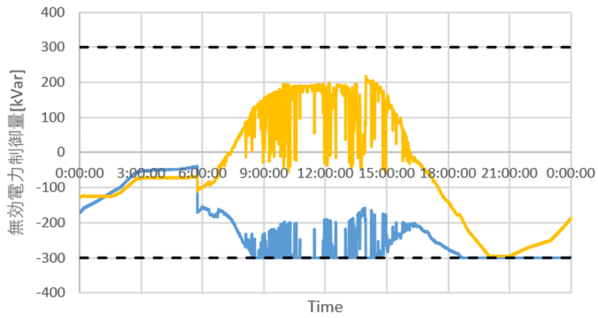
(e) PV 40%

(f) PV 50%



— SVR1

— SVR1

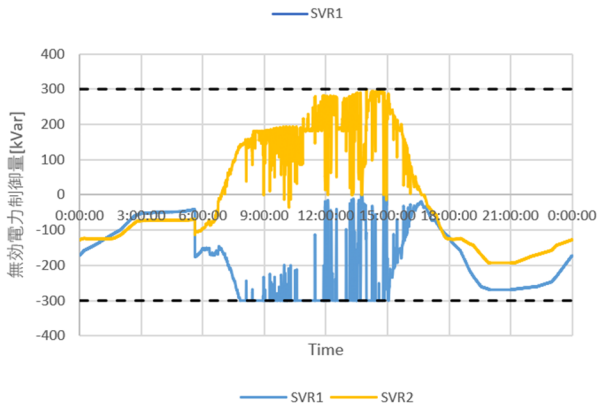
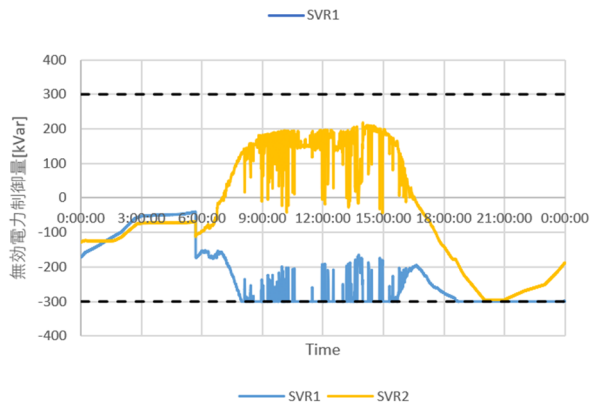
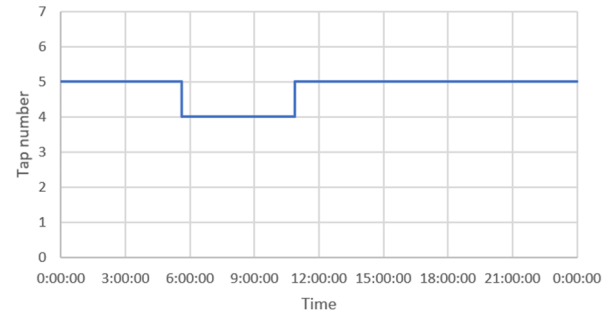
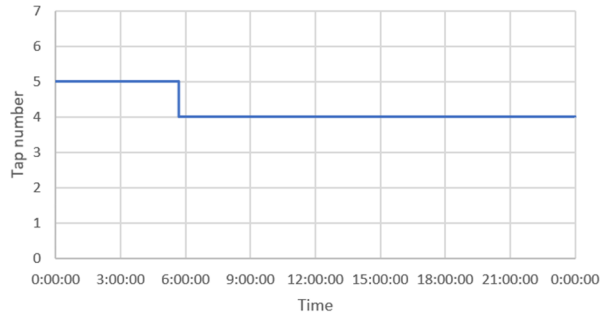
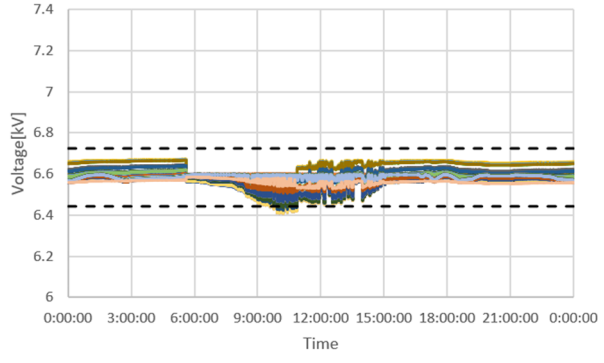
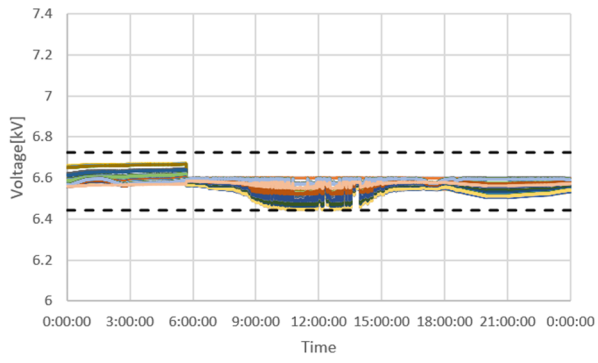


— SVR1 — SVR2

— SVR1 — SVR2

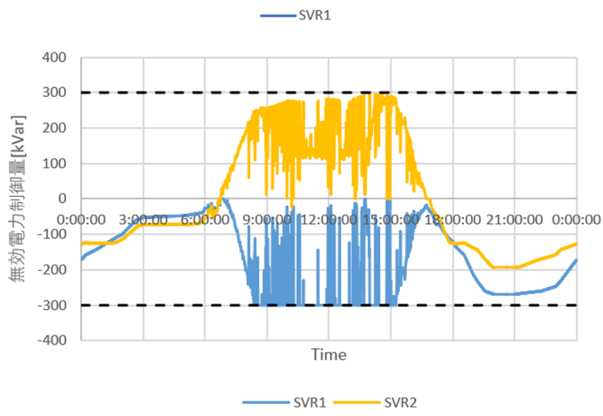
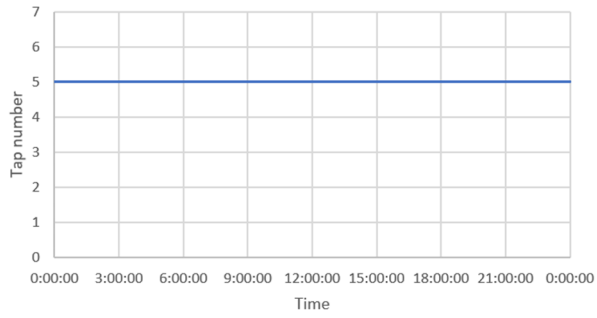
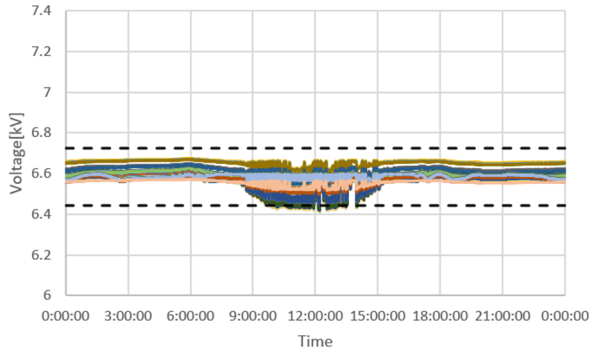
(g) PV 60%

(h) PV 70%



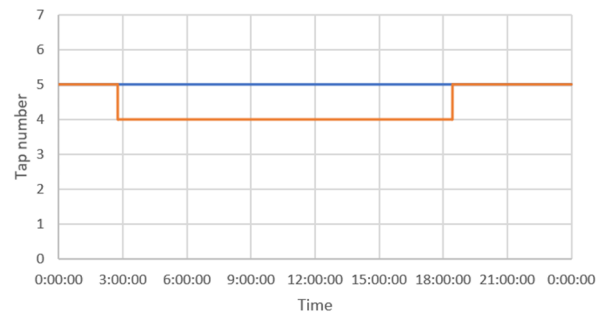
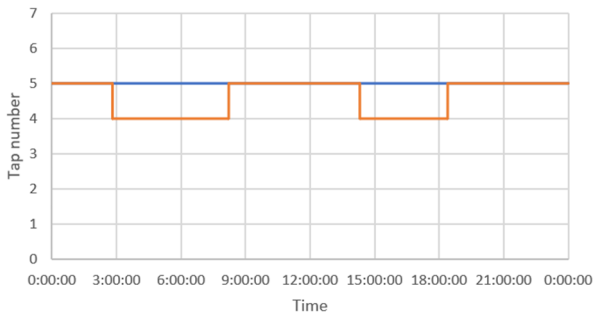
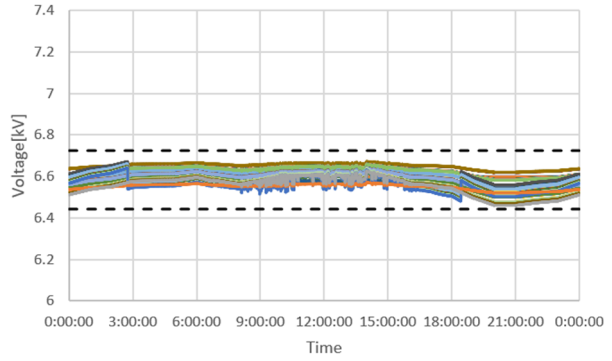
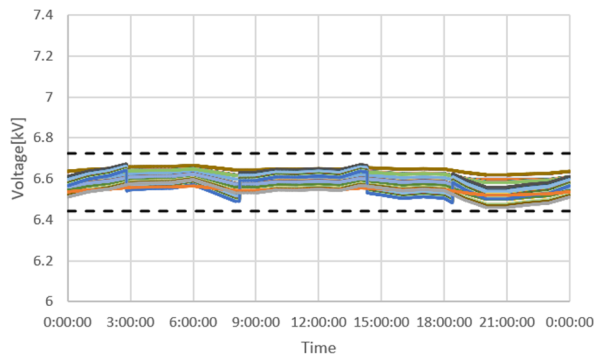
(i) PV 80%

(j) PV 90%



(k) PV 100%

OD21 系統, PV 力率 1.0, 末端集中, SVR-SVR  
 (上: 電圧分布, 下: タップ位置)

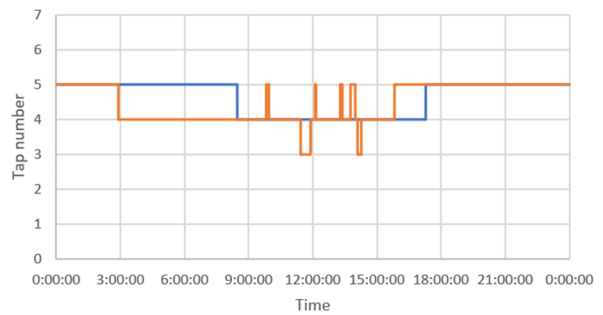
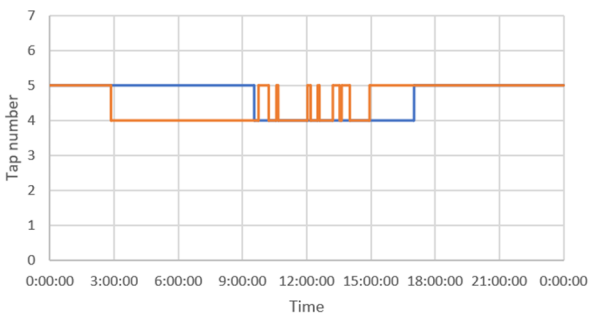
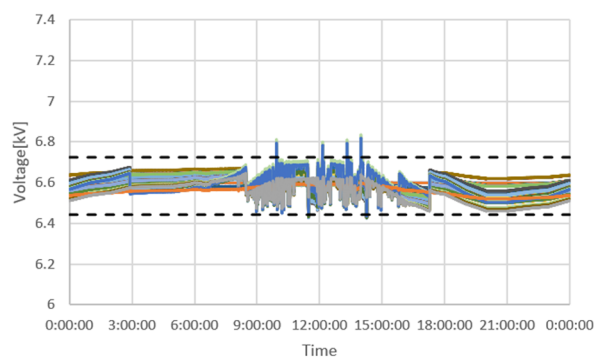
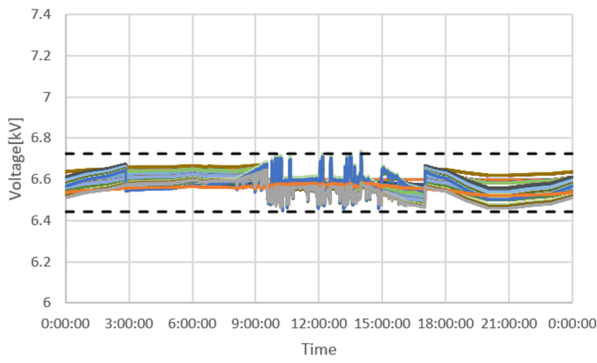


— SVR1 — SVR2

(a) PV 0%

— SVR1 — SVR2

(b) PV 10%

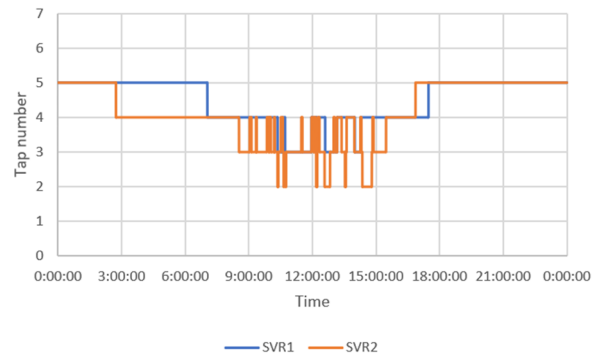
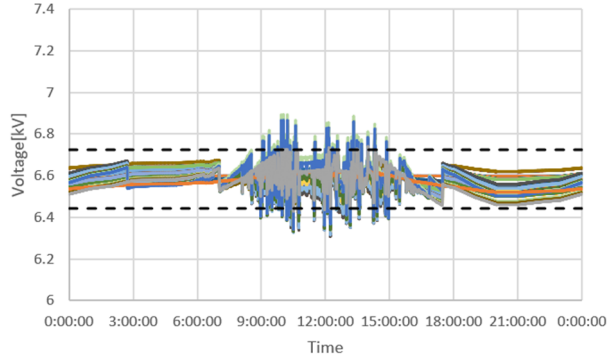
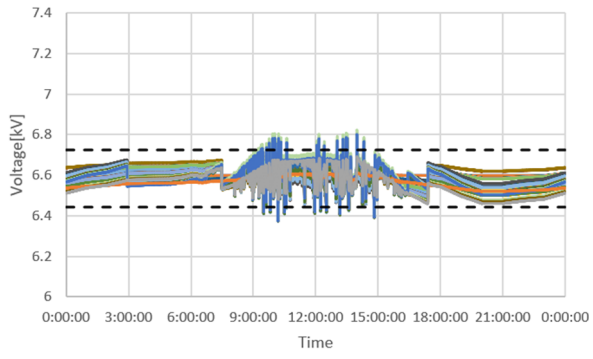


— SVR1 — SVR2

(c) PV 20%

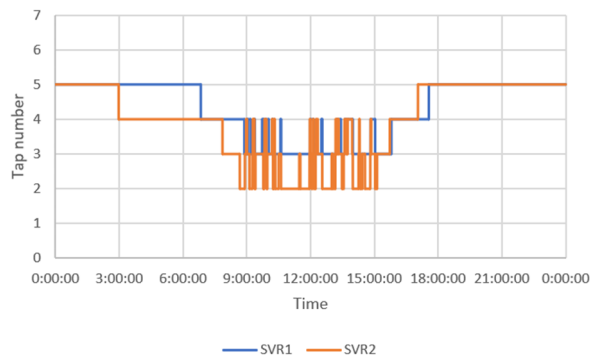
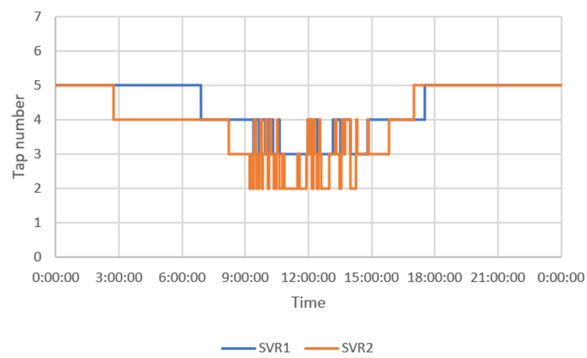
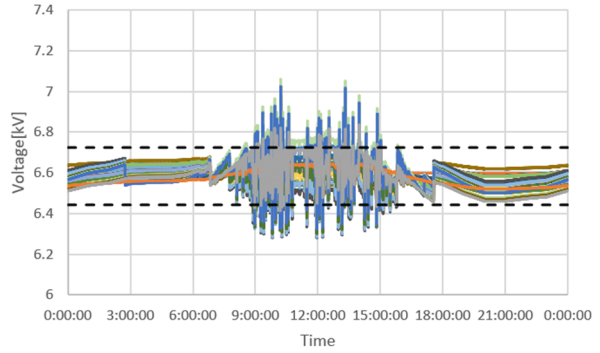
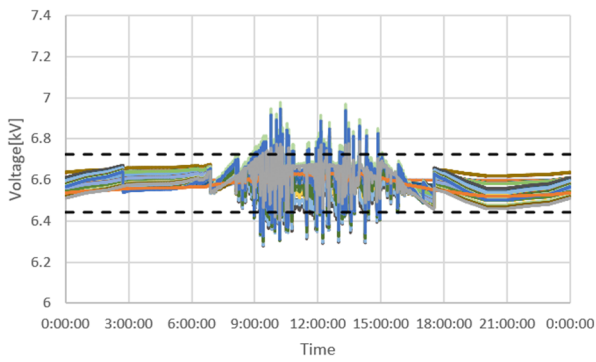
— SVR1 — SVR2

(d) PV 30%



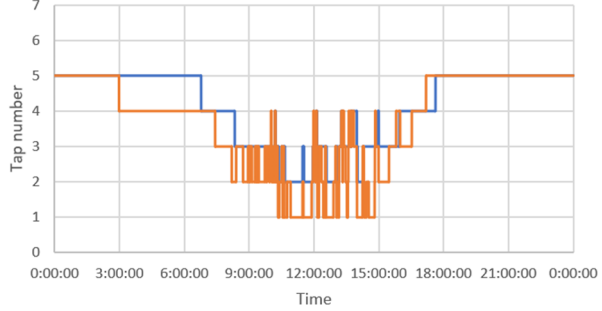
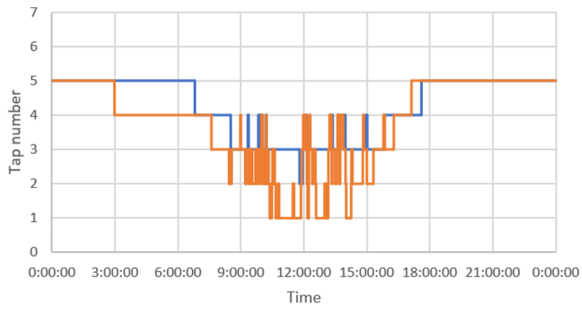
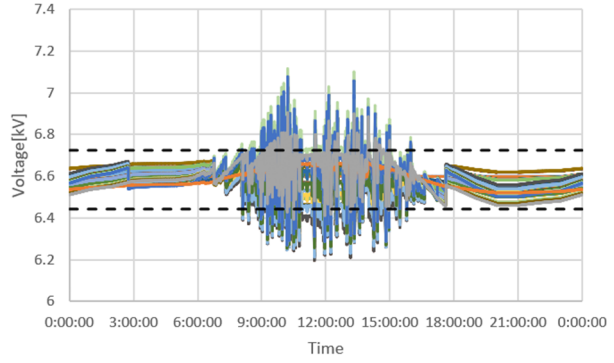
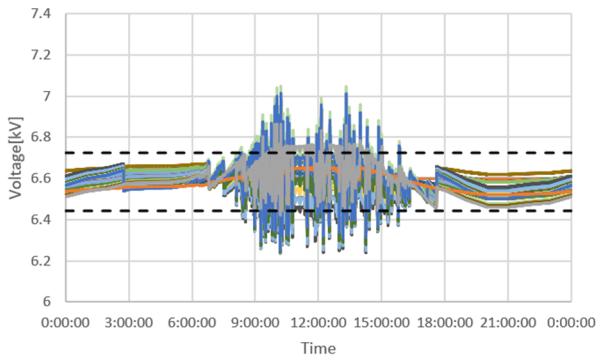
(e) PV 40%

(f) PV 50%



(g) PV 60%

(h) PV 70%

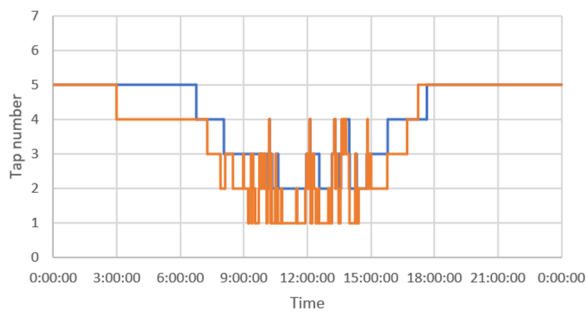
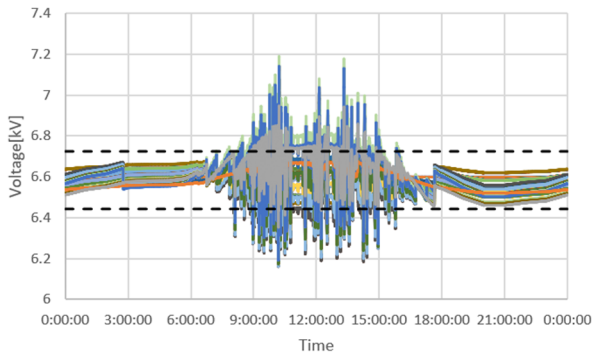


— SVR1 — SVR2

— SVR1 — SVR2

(i) PV 80%

(j) PV 90%



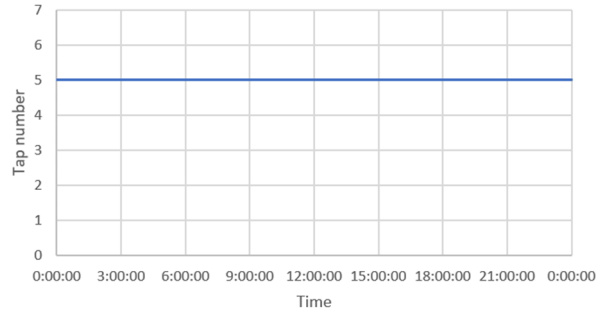
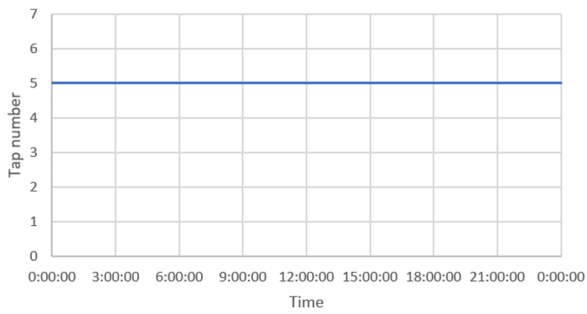
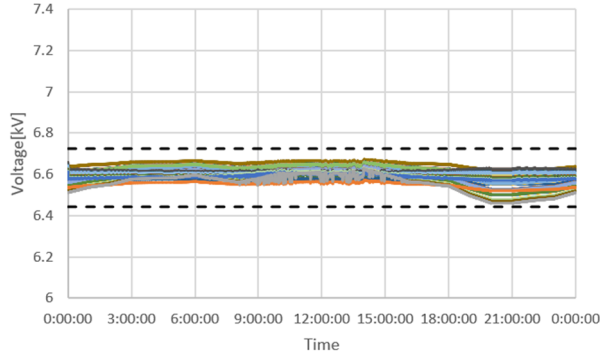
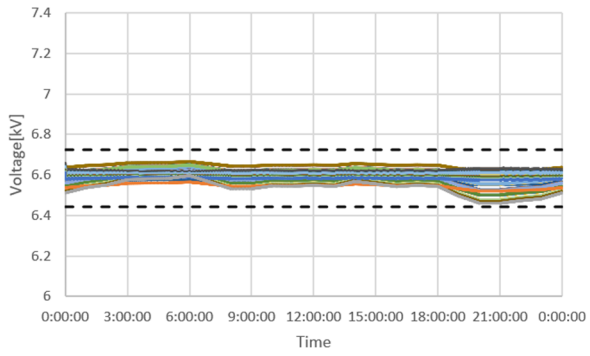
— SVR1 — SVR2

(k) PV 100%



OD21 系統, PV 力率 1.0, 末端集中, SVR-TVV

(上: 電圧分布, 下: タップ位置)

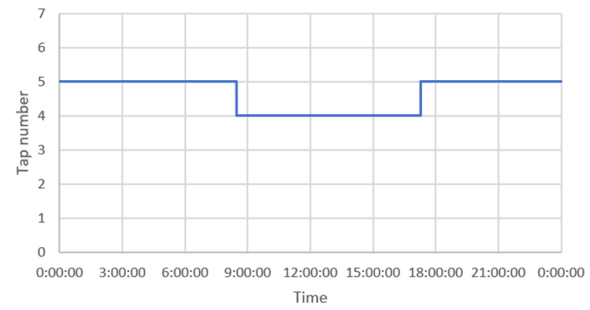
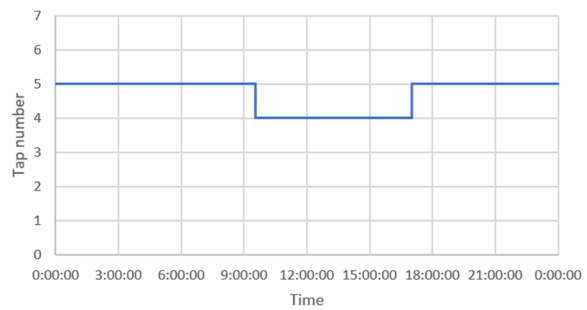
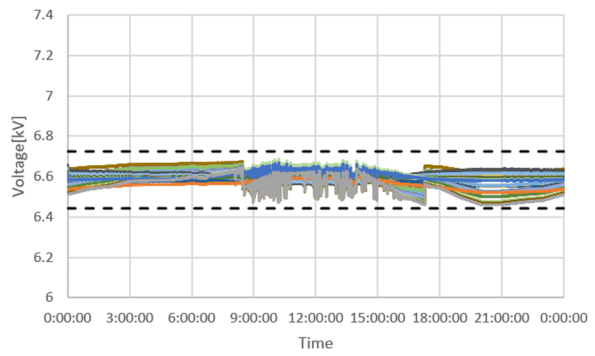
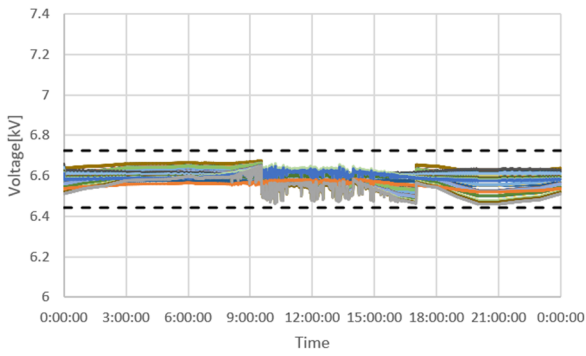


— SVR1

— SVR1

(a) PV 0%

(b) PV 10%

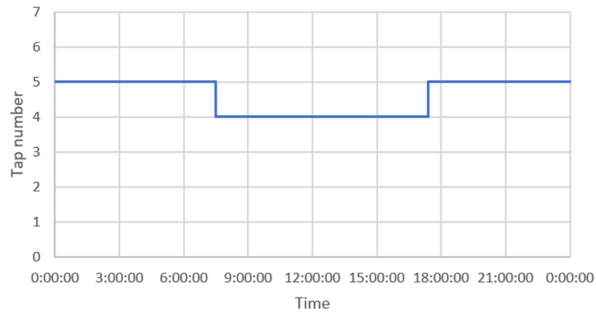
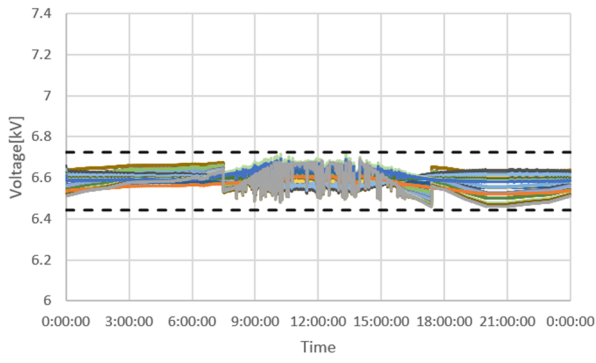


— SVR1

— SVR1

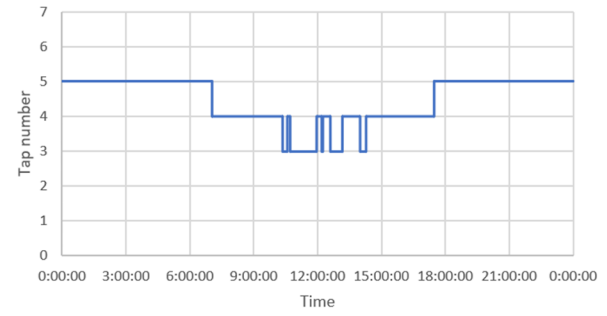
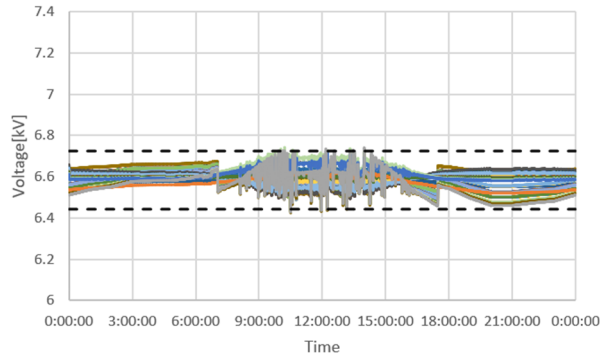
(c) PV 20%

(d) PV 30%



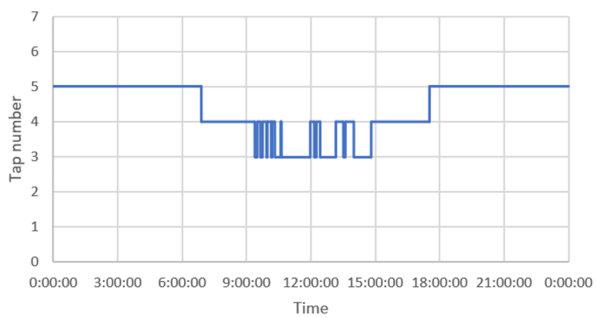
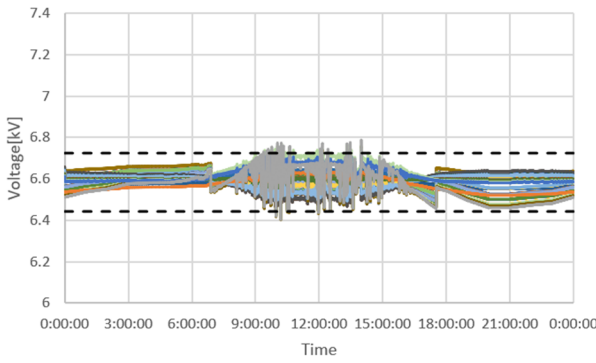
— SVR1

(e) PV 40%



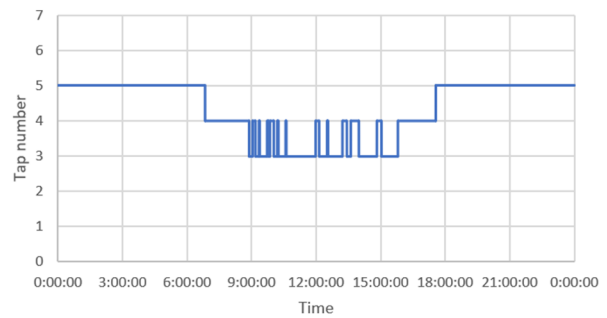
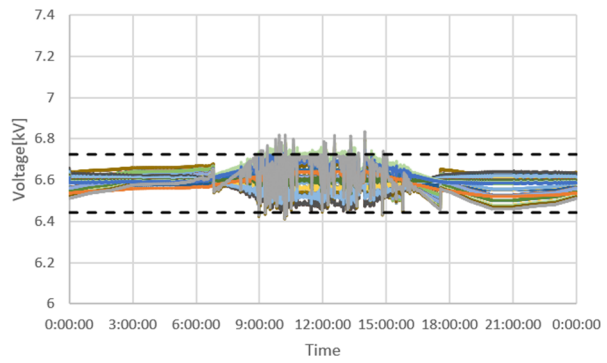
— SVR1

(f) PV 50%



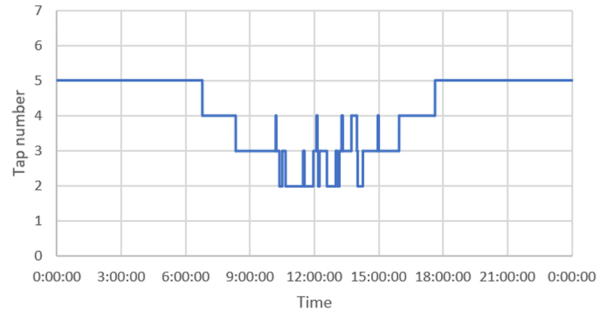
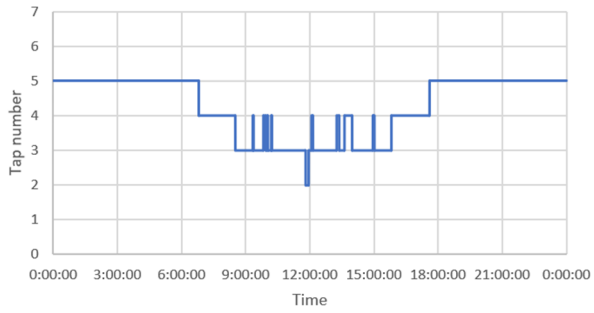
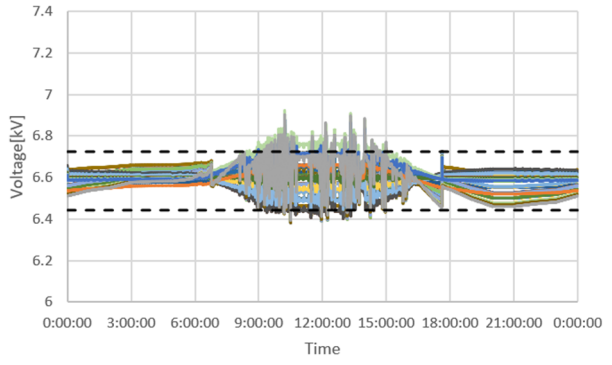
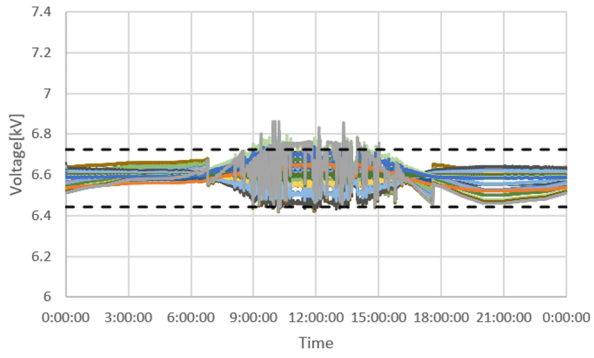
— SVR1

(g) PV 60%



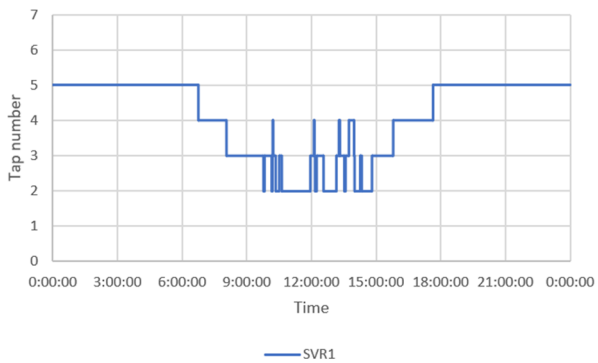
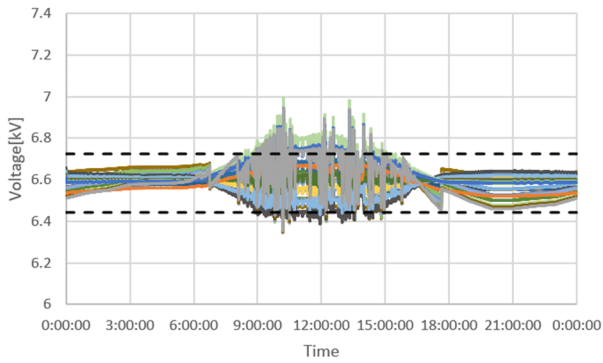
— SVR1

(h) PV 70%



(i) PV 80%

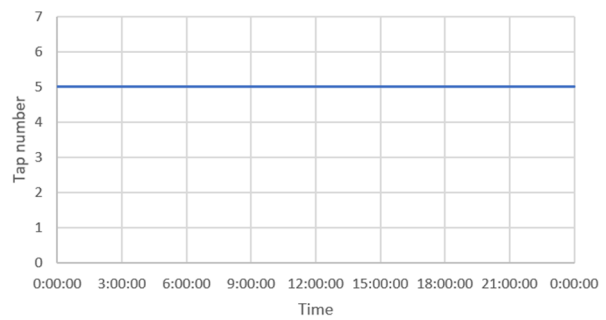
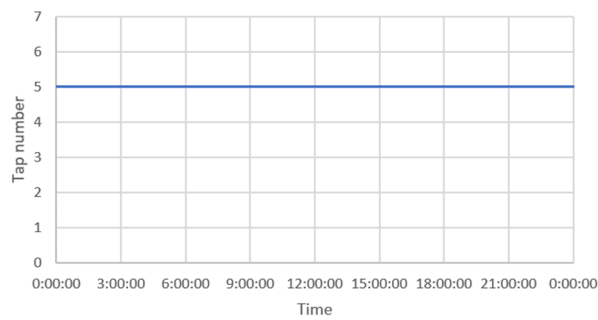
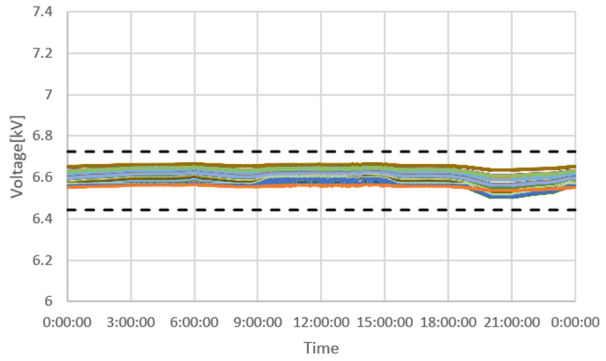
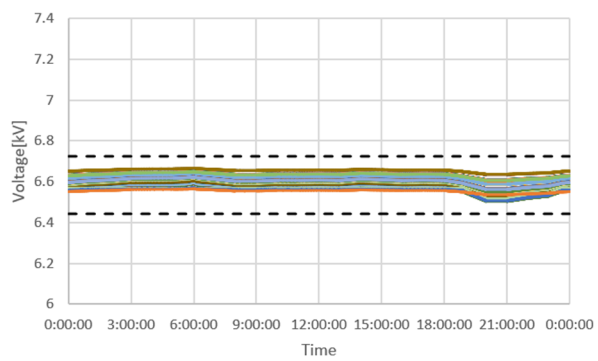
(j) PV 90%



(k) PV 100%

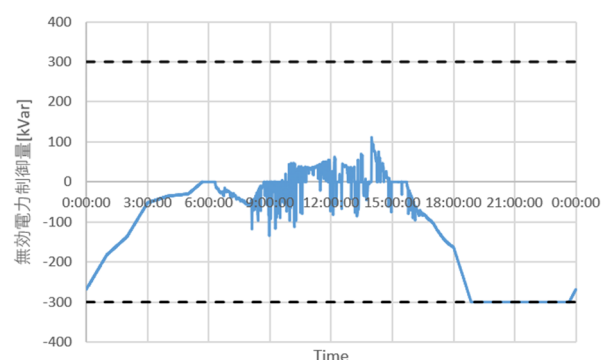
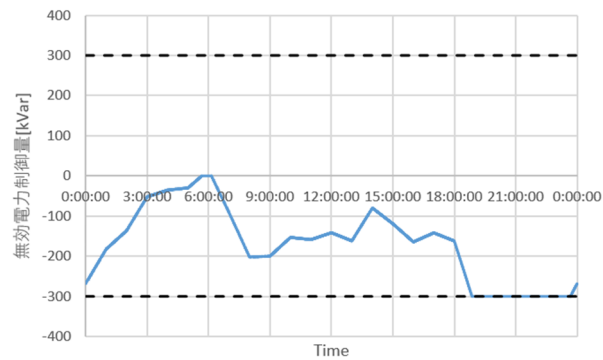
OD21 系統, PV 力率 1.0, 末端集中, SVR-SVC

(上 : 電圧分布, 中 : タップ位置, 下 : SVC の無効電力)



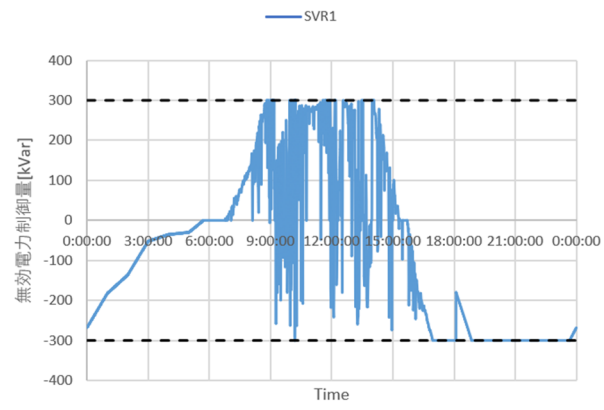
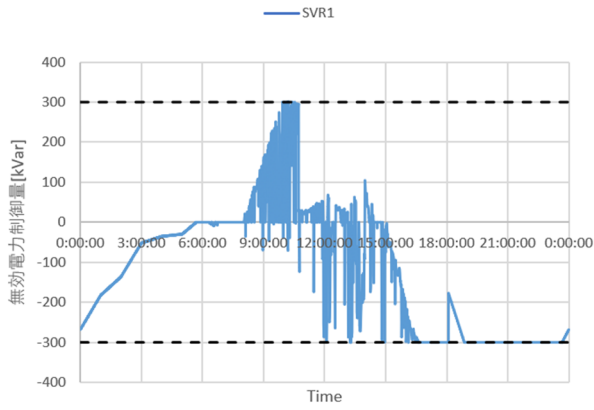
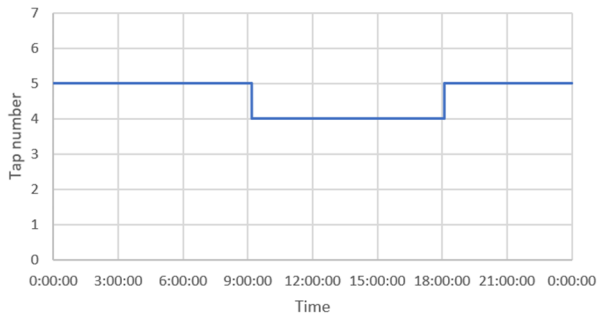
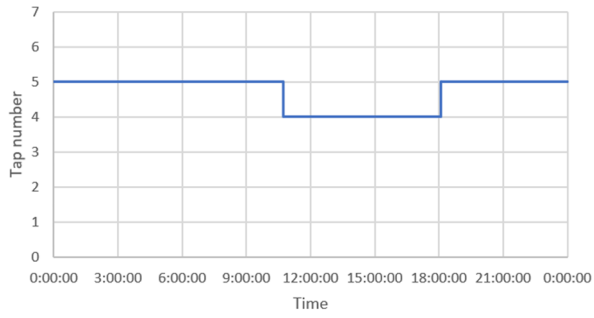
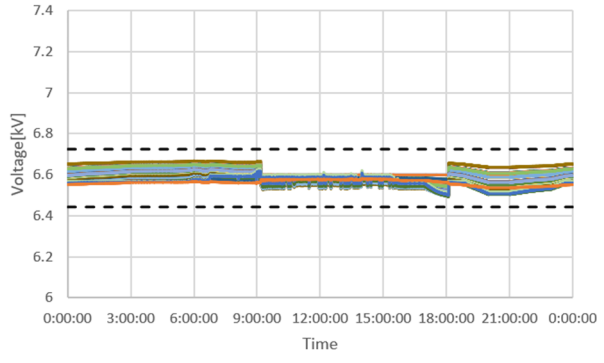
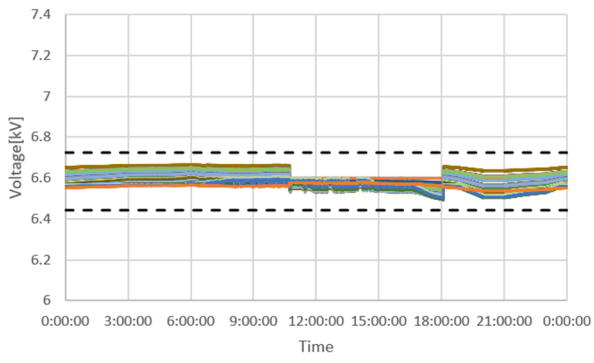
— SVR1

— SVR1



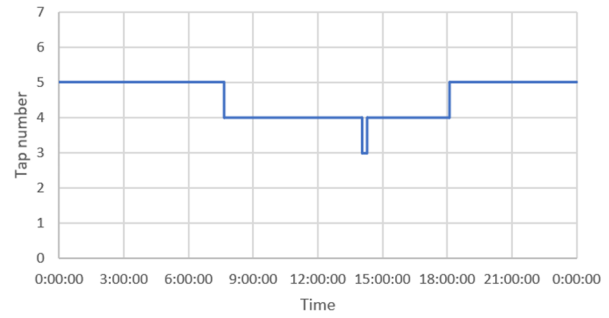
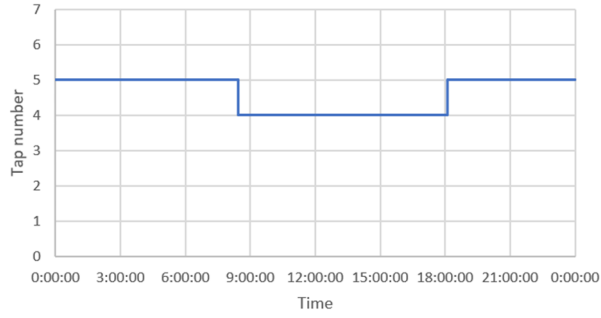
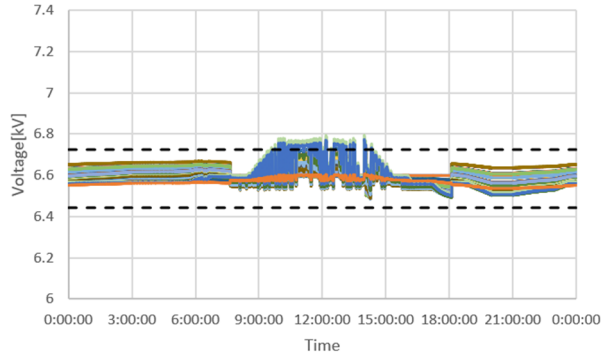
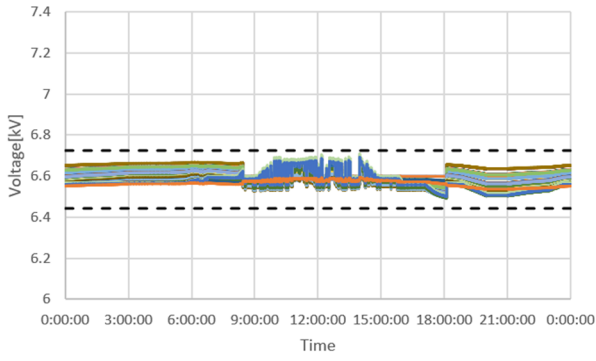
(a) PV 0%

(b) PV 10%



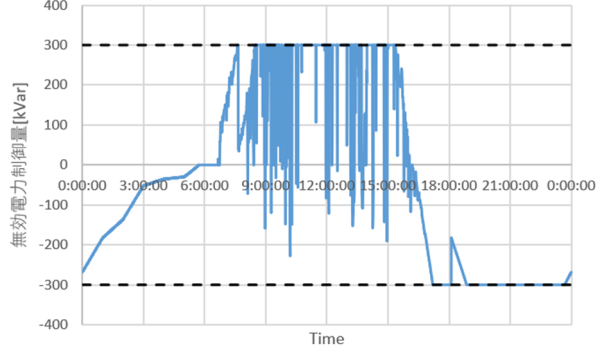
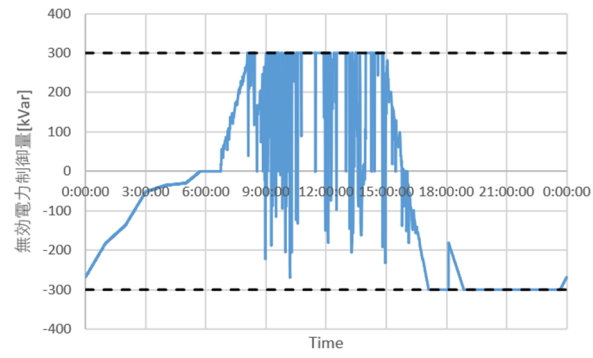
(c) PV 20%

(d) PV 30%



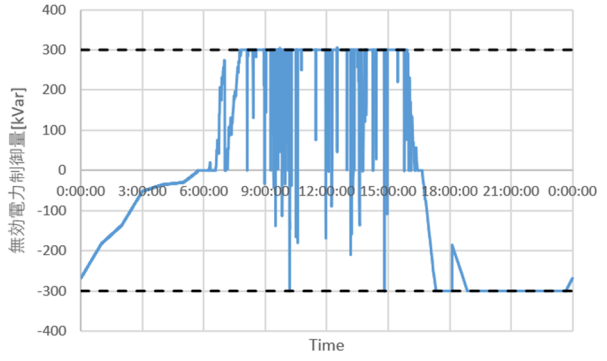
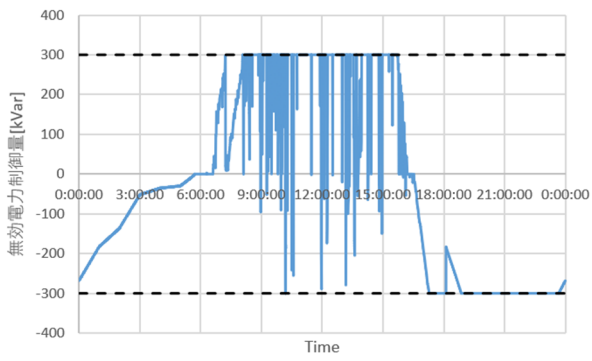
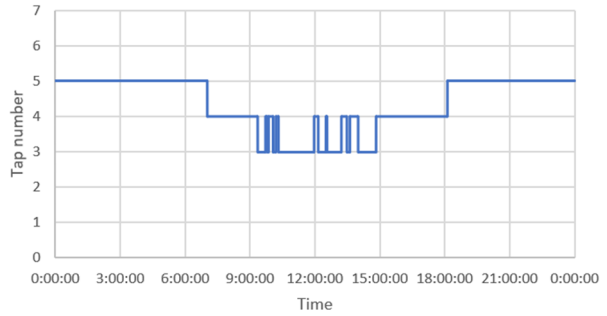
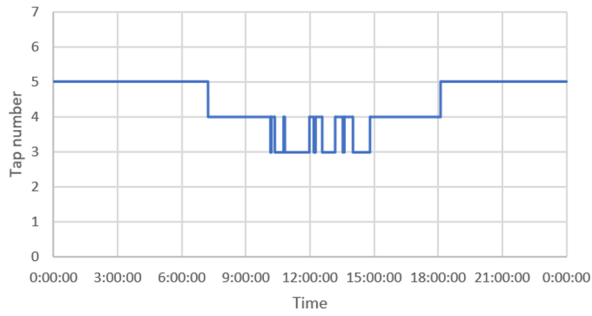
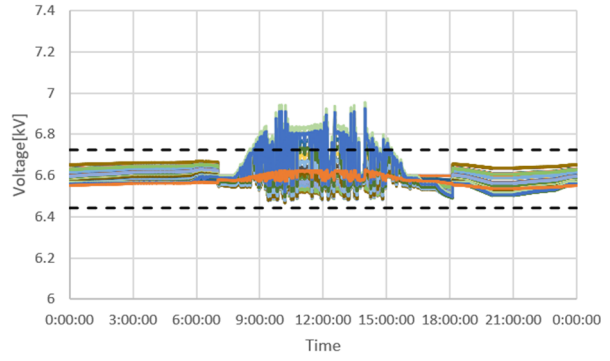
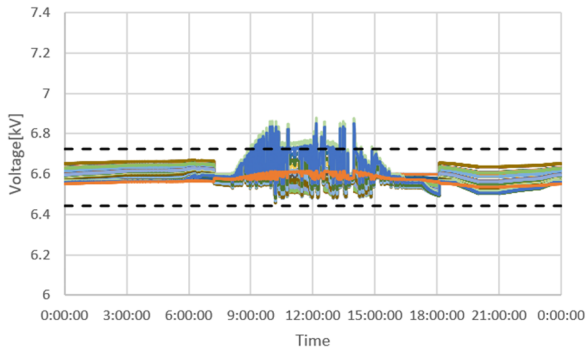
— SVR1

— SVR1



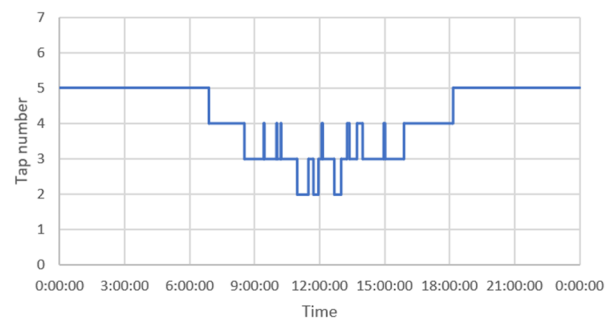
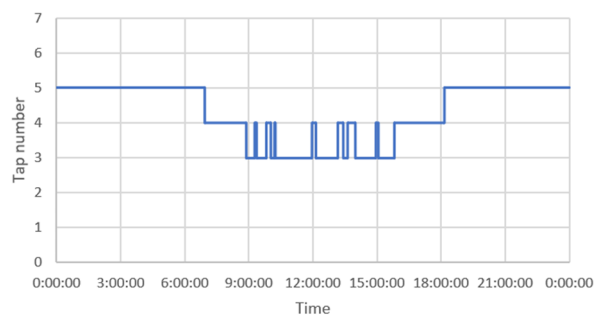
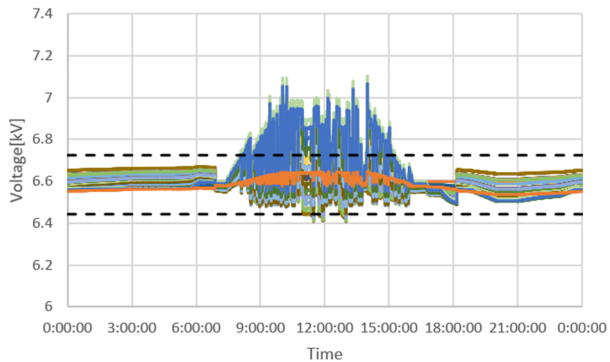
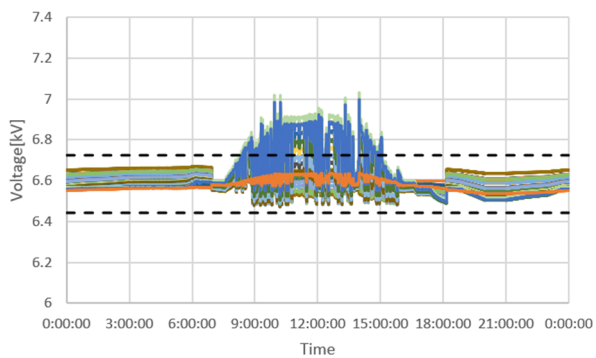
(e) PV 40%

(f) PV 50%



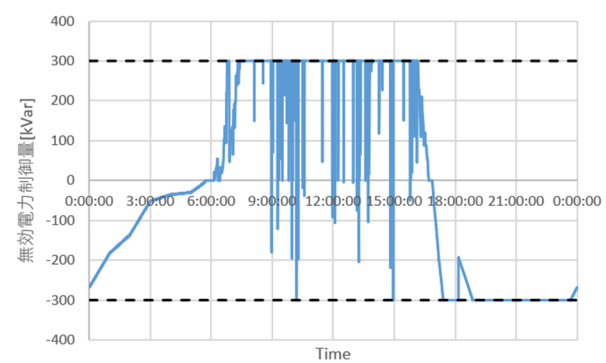
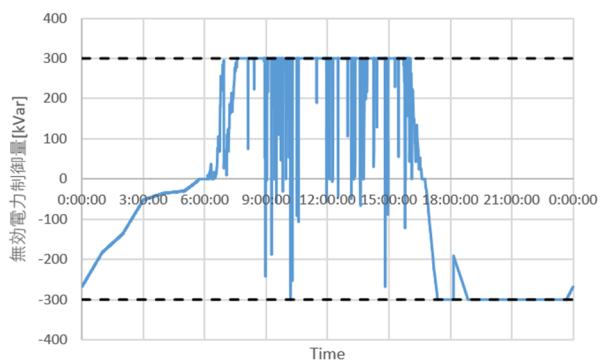
(g) PV 60%

(h) PV 70%



— SVR1

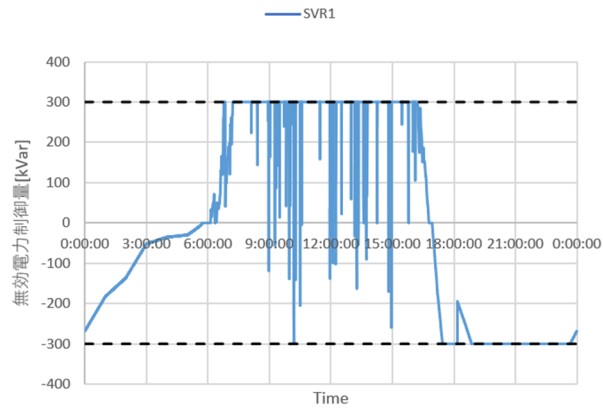
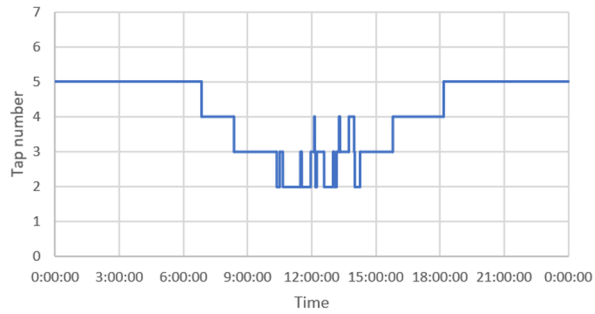
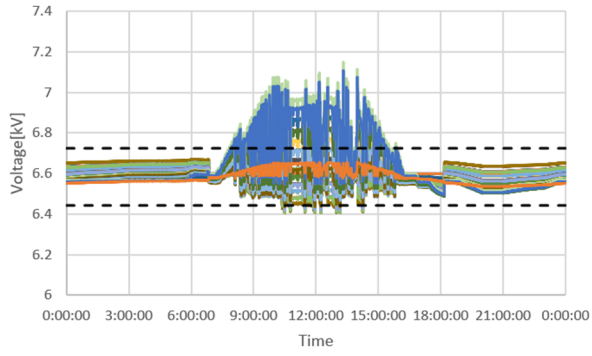
— SVR1



(i) PV 80%

(j) PV 90%

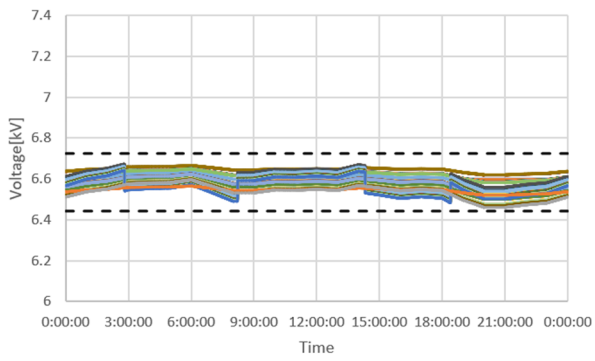




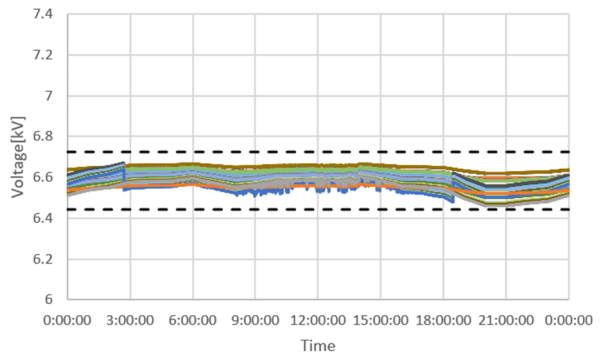
(k) PV 100%

OD21 系統, PV 力率 0.95, 末端集中, SVR-SVR

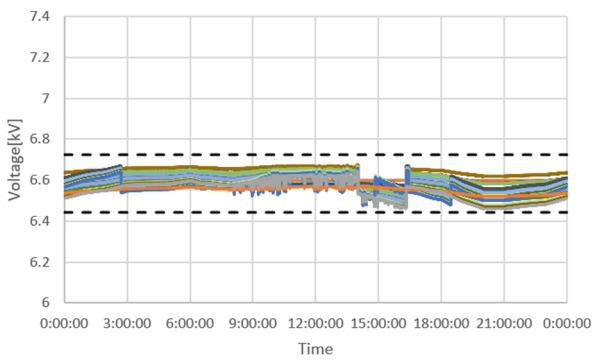
(上: 電圧分布, 下: タップ位置)



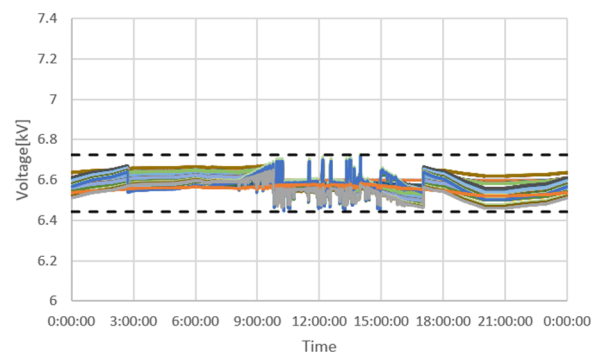
(a) PV 0%



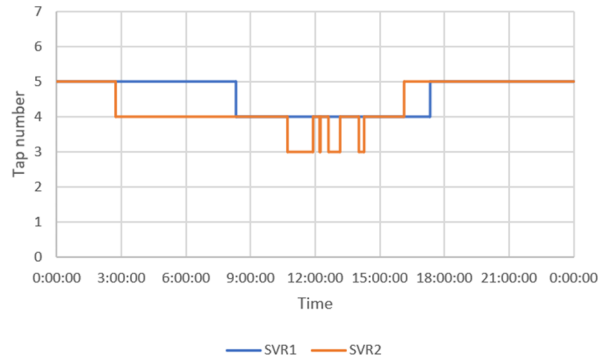
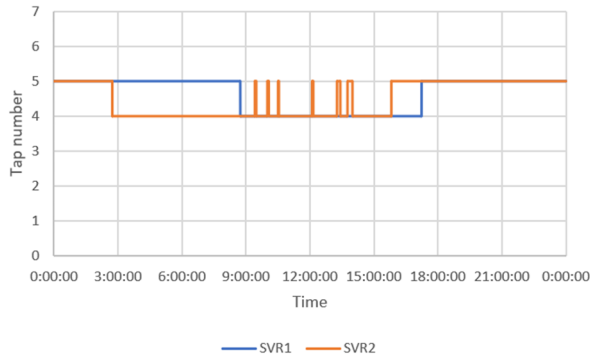
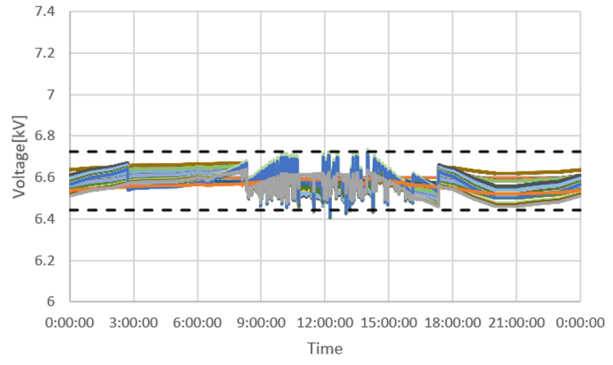
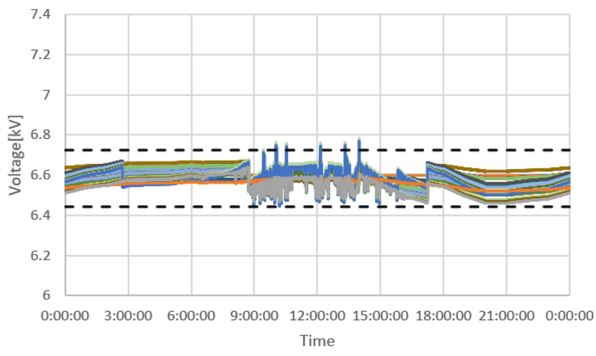
(b) PV 10%



(c) PV 20%

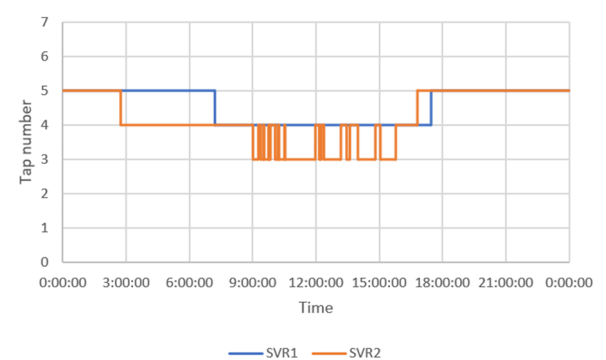
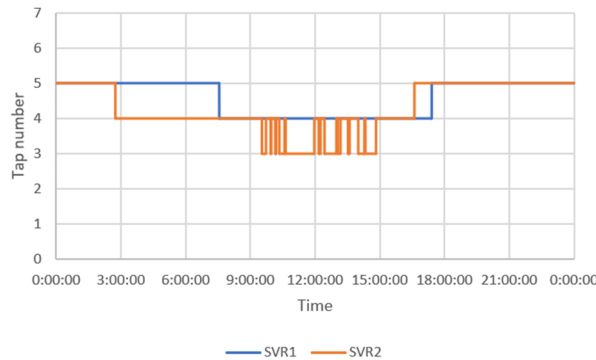
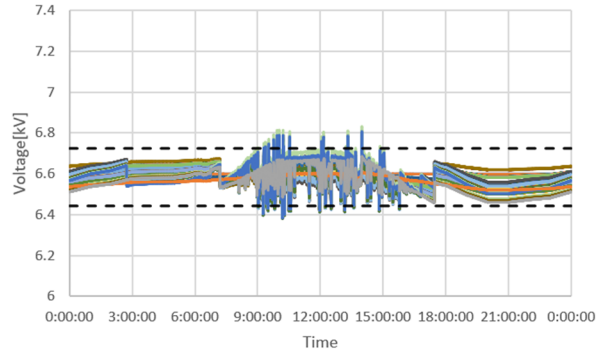
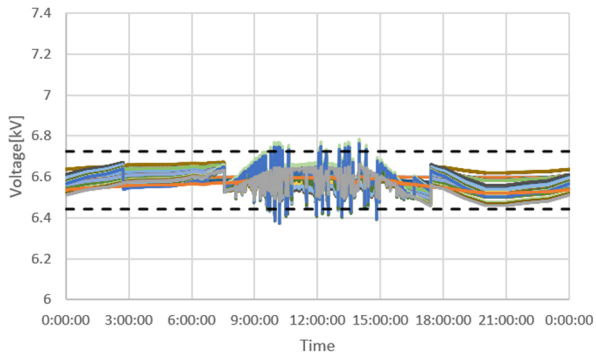


(d) PV 30%



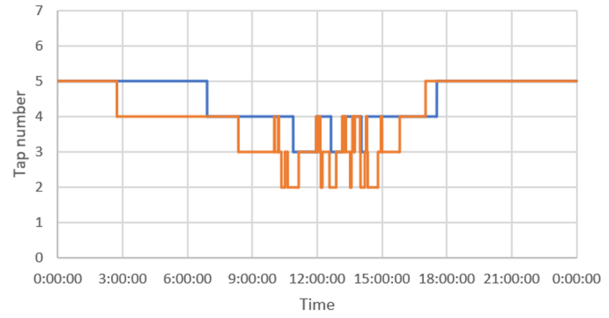
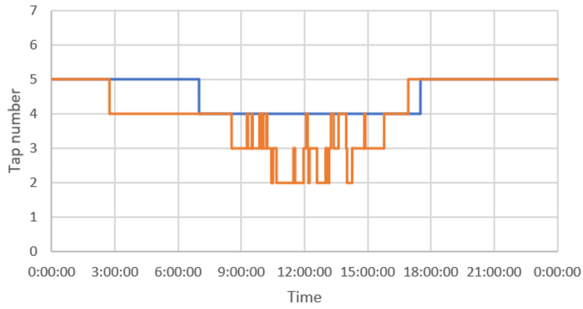
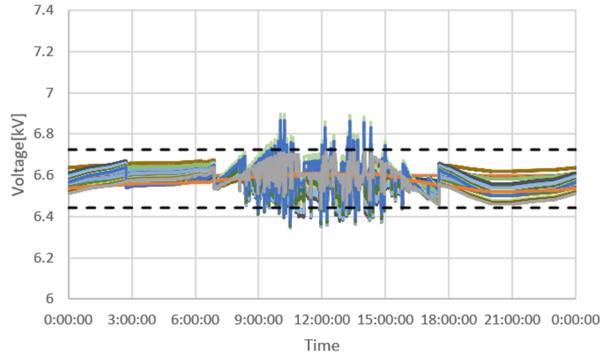
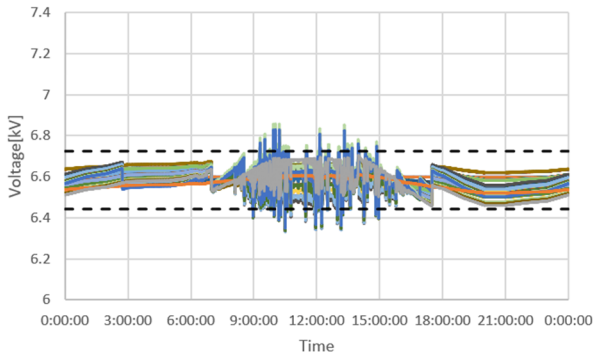
(e) PV 40%

(f) PV 50%



(g) PV 60%

(h) PV 70%

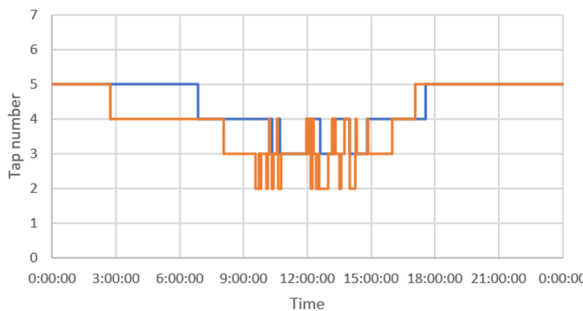
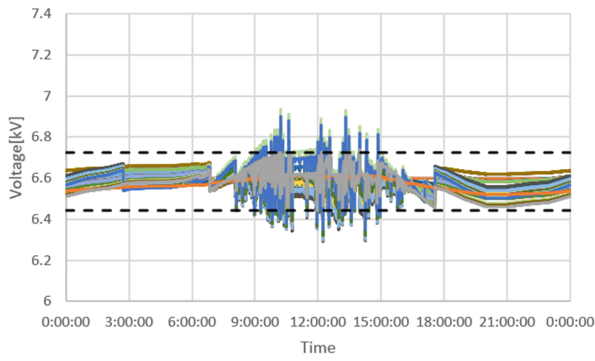


— SVR1 — SVR2

(i) PV 80%

— SVR1 — SVR2

(j) PV 90%

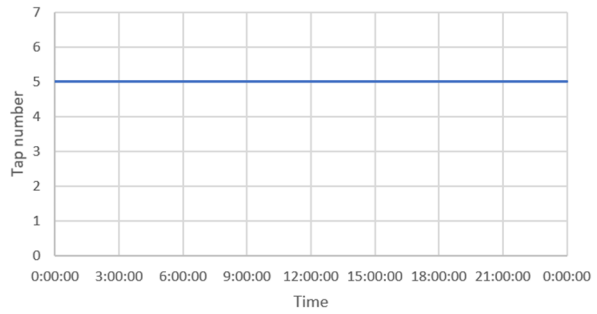
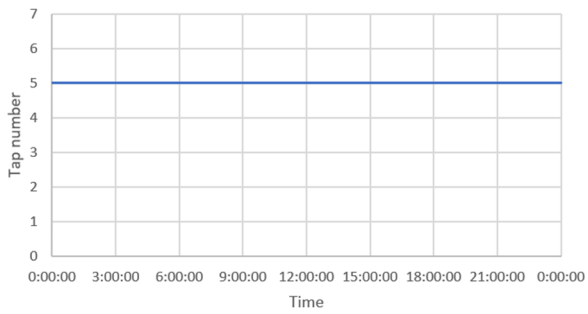
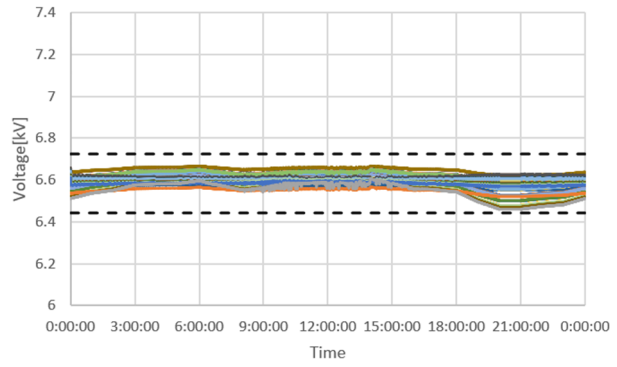
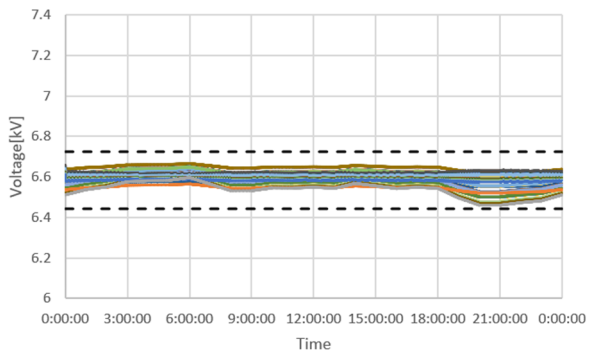


— SVR1 — SVR2

(k) PV 100%

OD21 系統, PV 力率 0.95, 末端集中, SVR-TV<sub>R</sub>

(上: 電圧分布, 下: タップ位置)

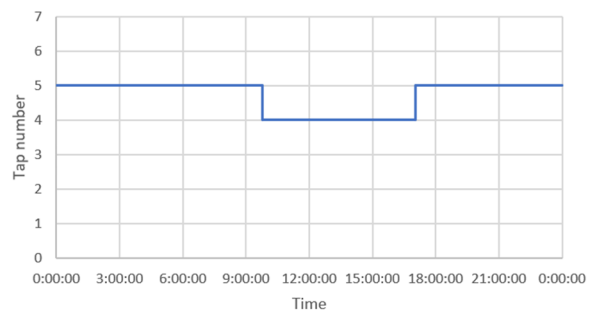
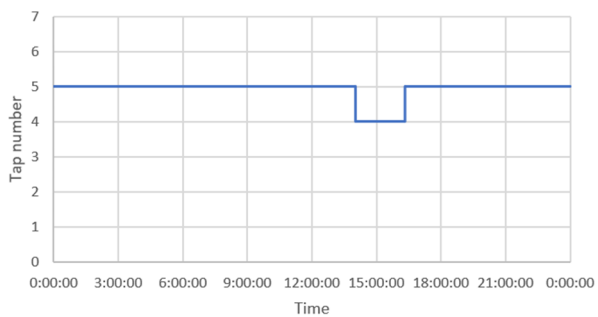
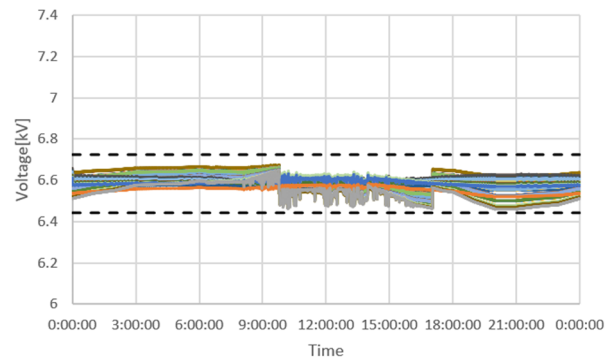
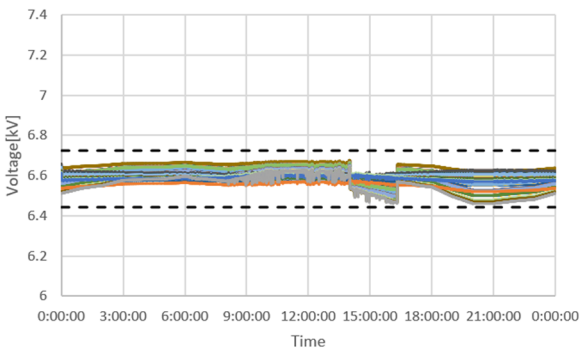


— SVR1

— SVR1

(a) PV 0%

(b) PV 10%

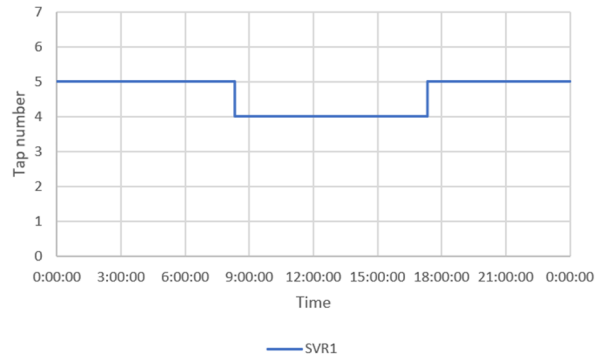
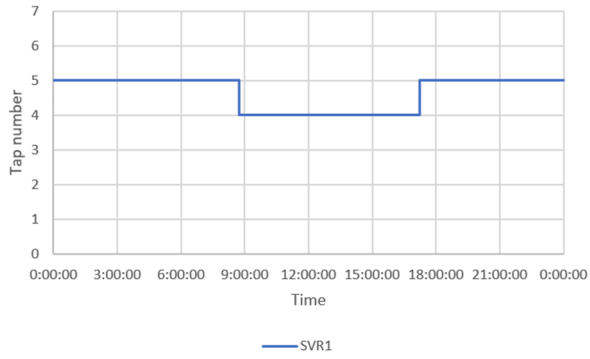
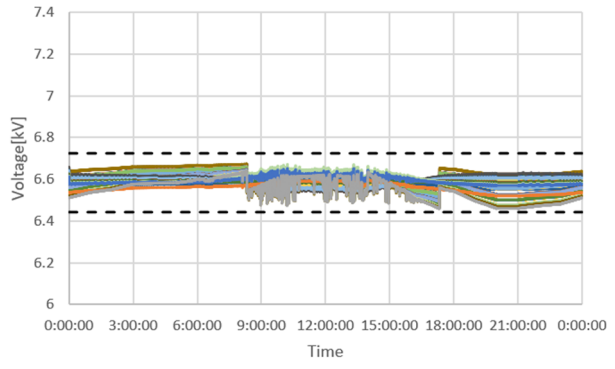
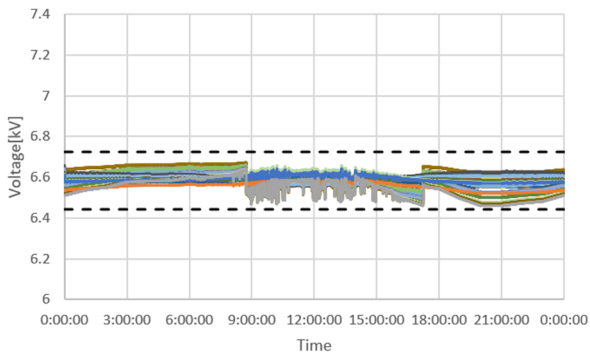


— SVR1

— SVR1

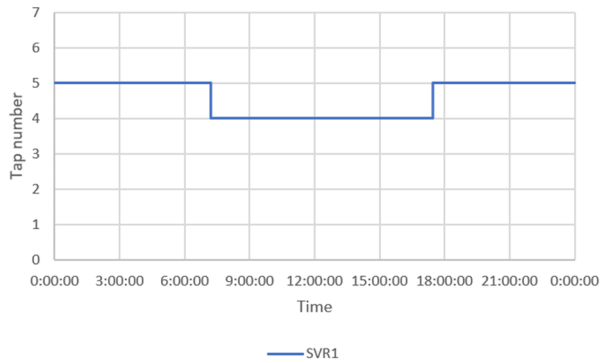
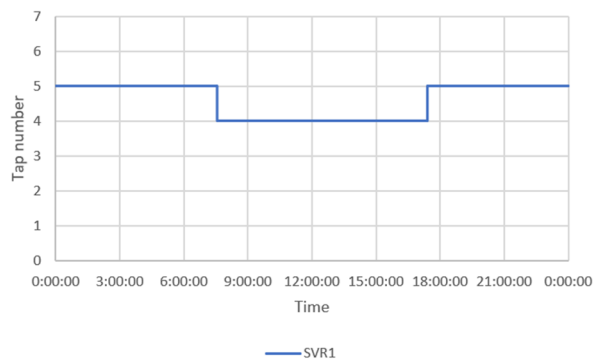
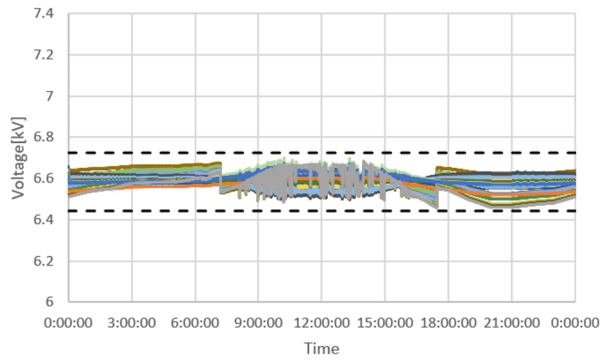
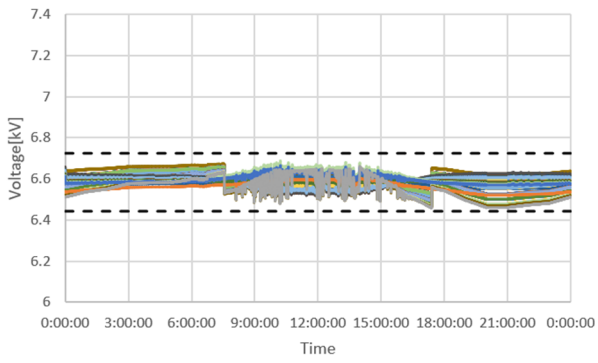
(c) PV 20%

(d) PV 30%



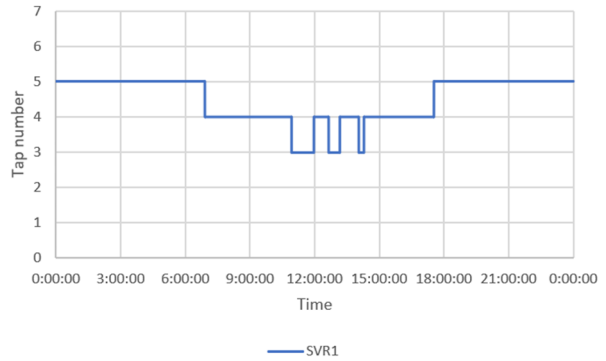
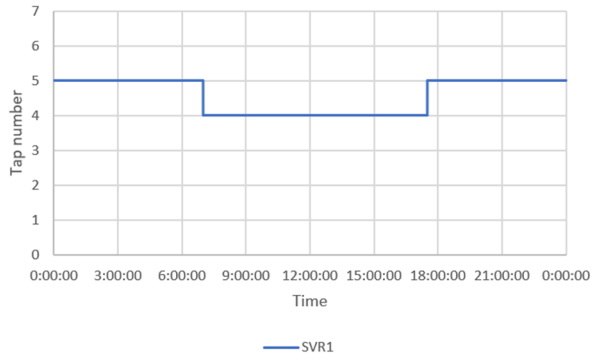
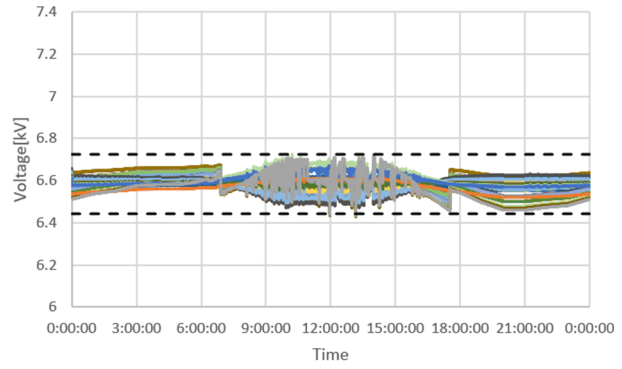
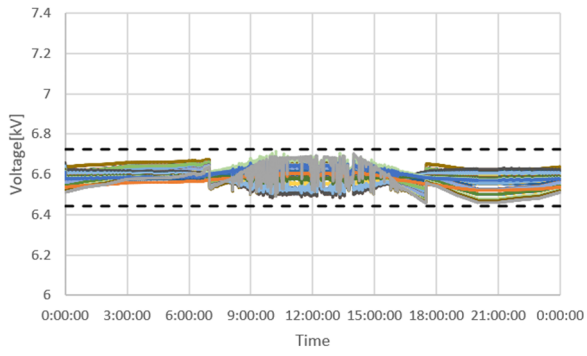
(e) PV 40%

(f) PV 50%



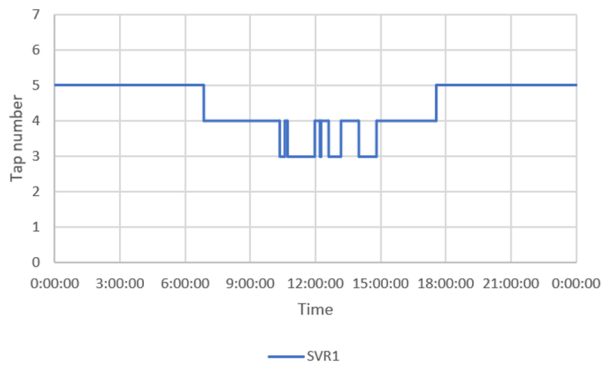
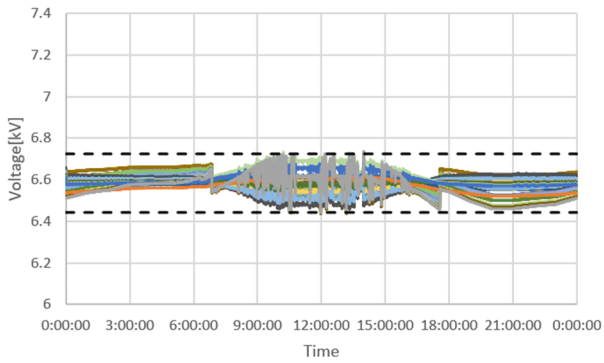
(g) PV 60%

(h) PV 70%



(i) PV 80%

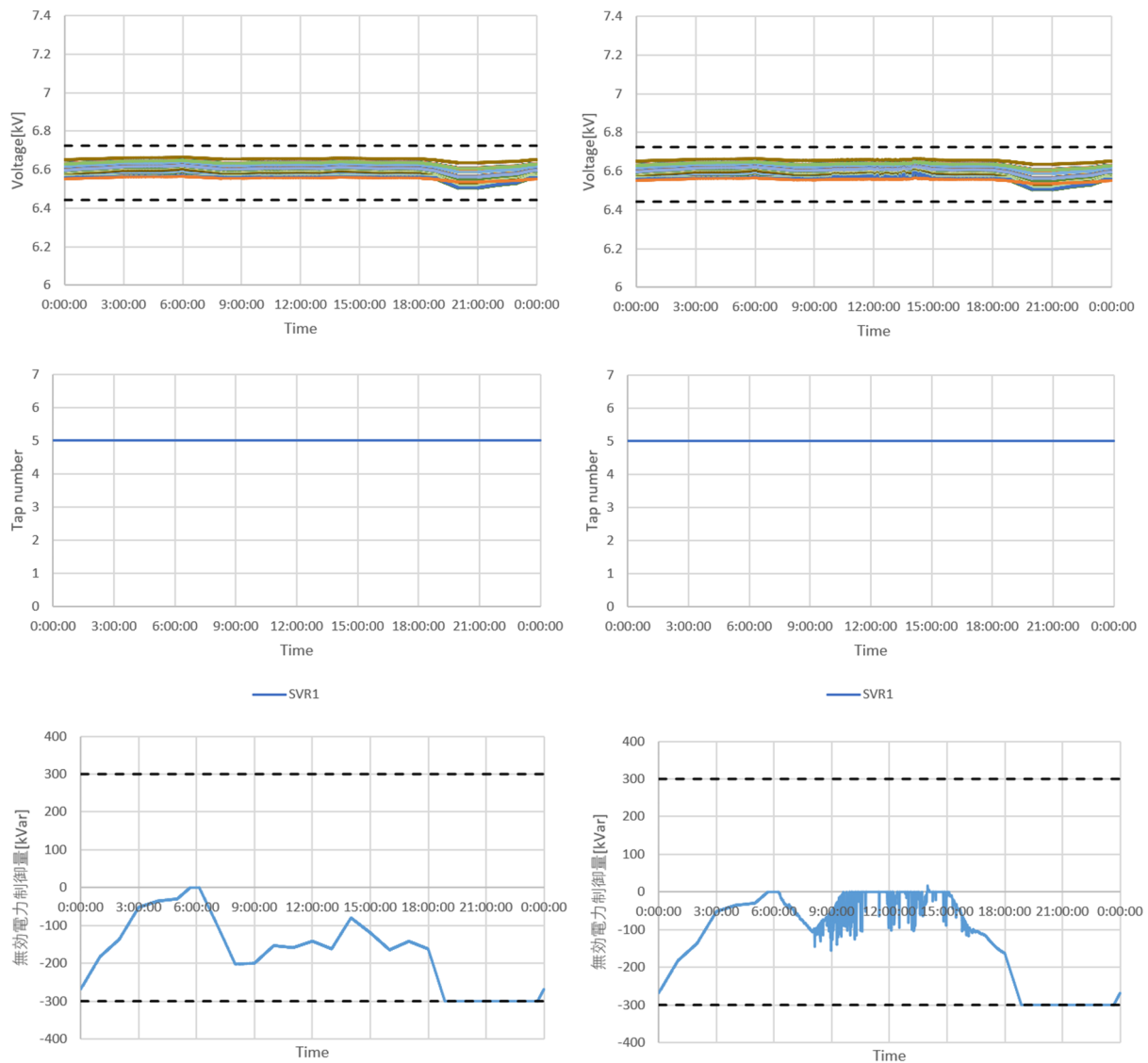
(j) PV 90%



(k) PV 100%

OD21 系統, PV 力率 0.95, 末端集中, SVR-SVC

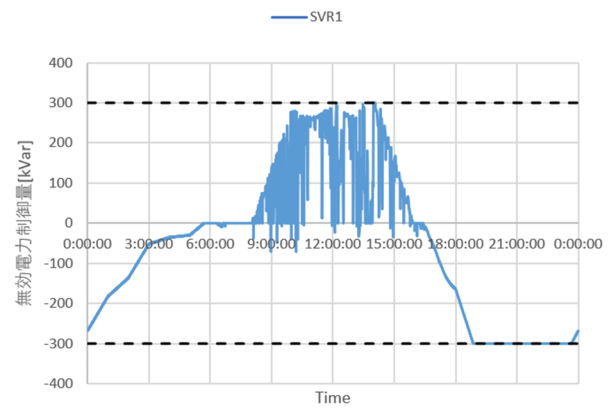
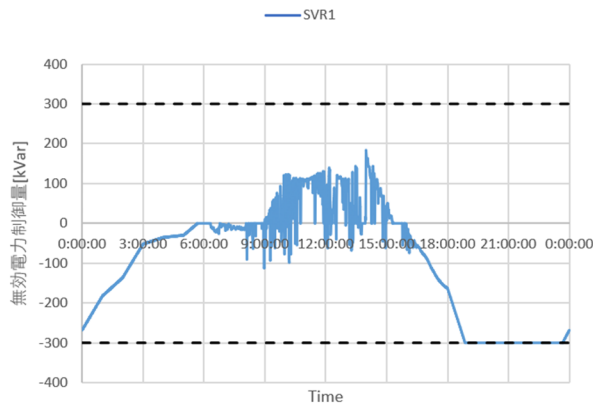
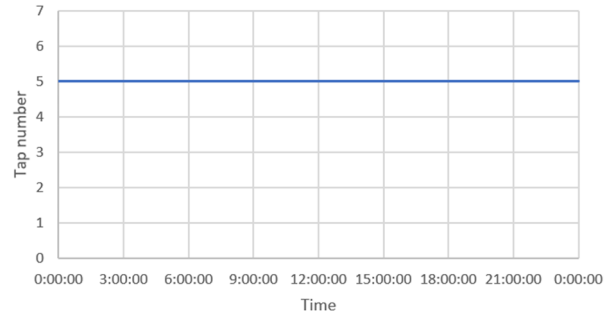
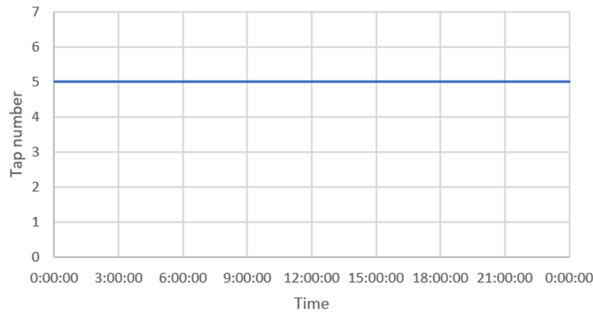
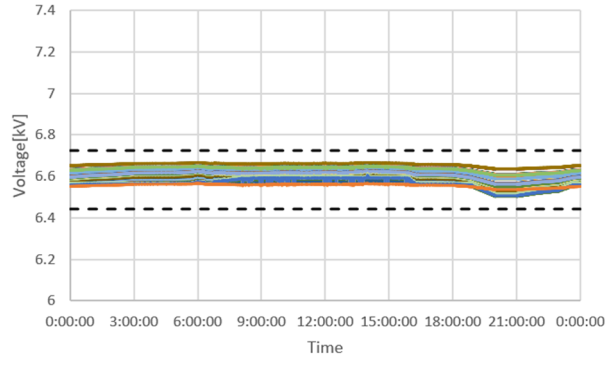
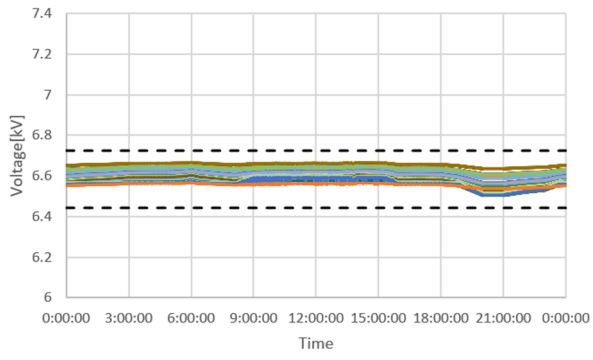
(上 : 電圧分布, 中 : タップ位置, 下 : SVC の無効電力)



(a) PV 0%

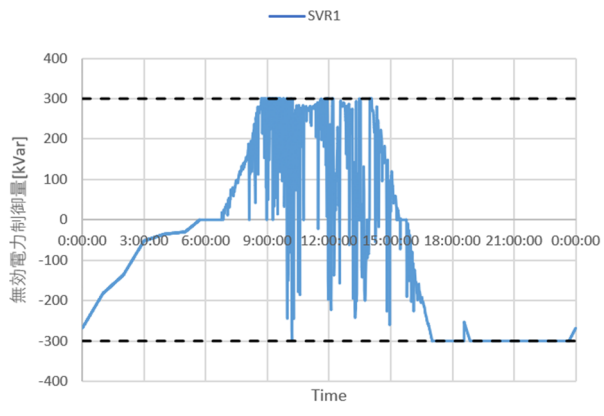
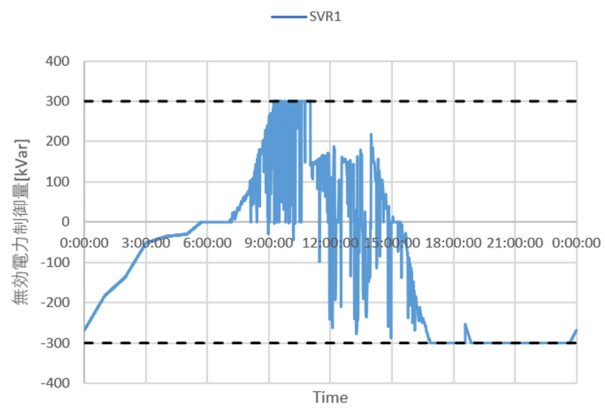
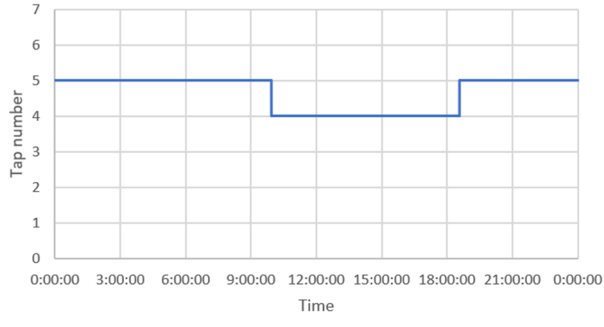
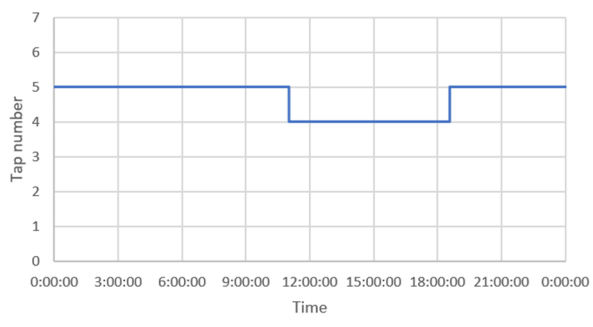
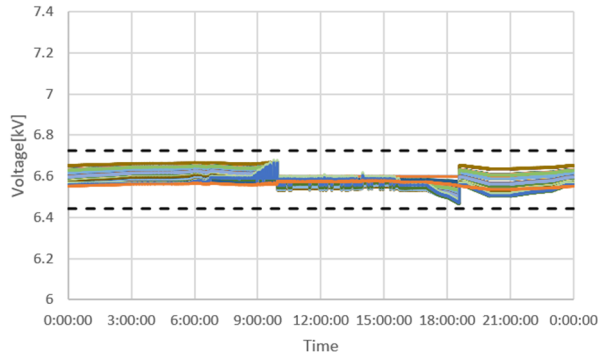
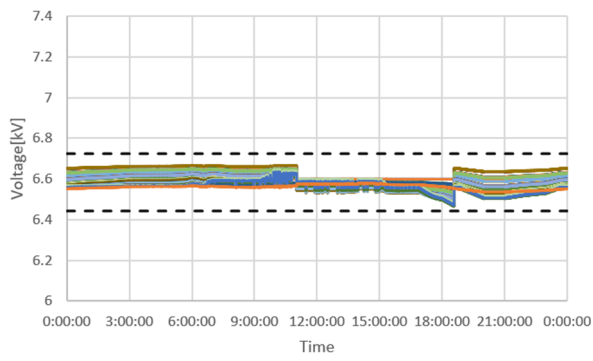
(b) PV 10%





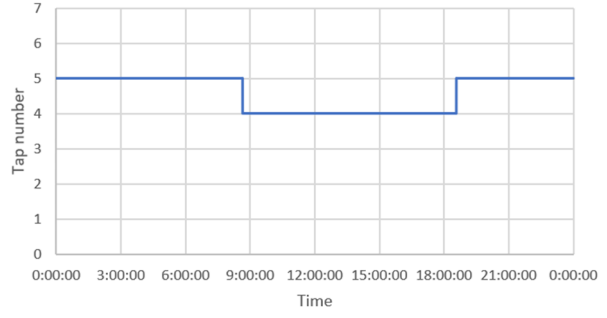
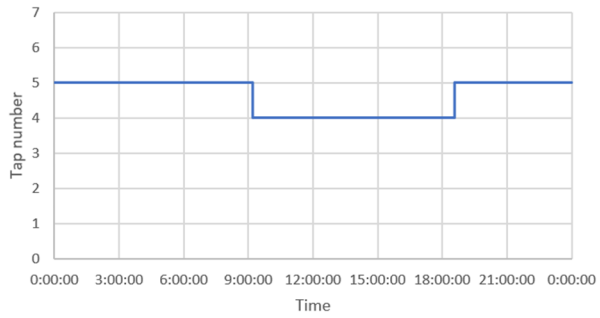
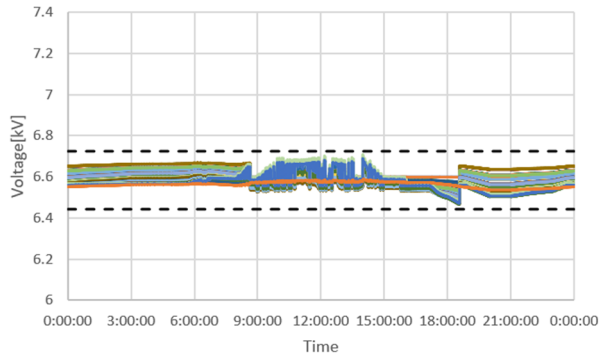
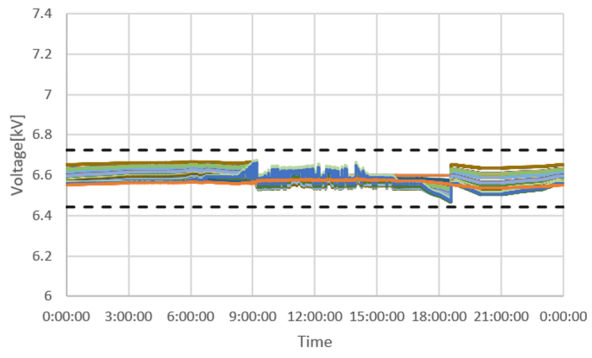
(c) PV 20%

(d) PV 30%



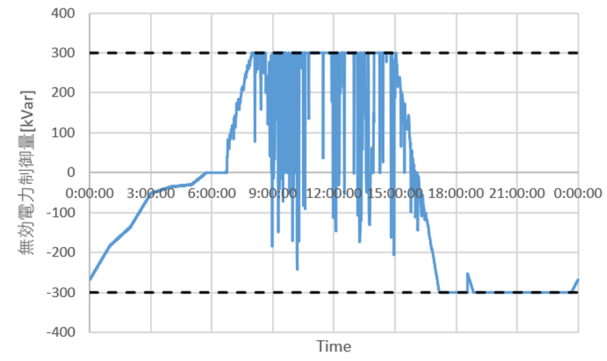
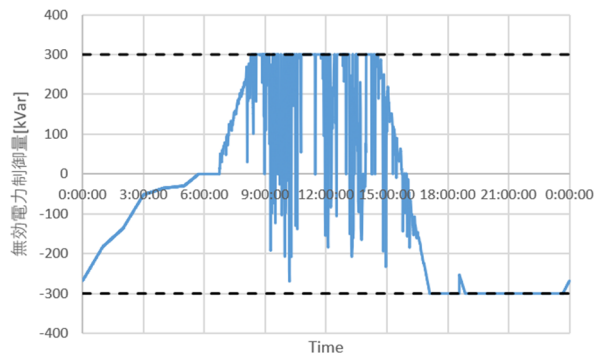
(e) PV 40%

(f) PV 50%



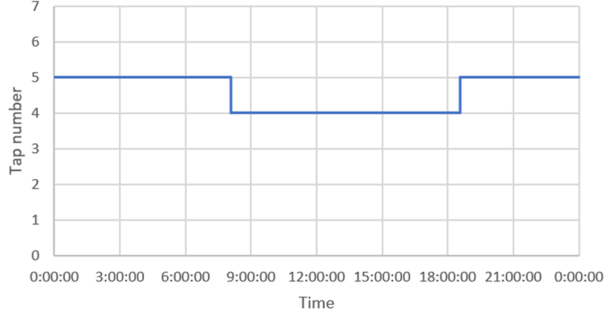
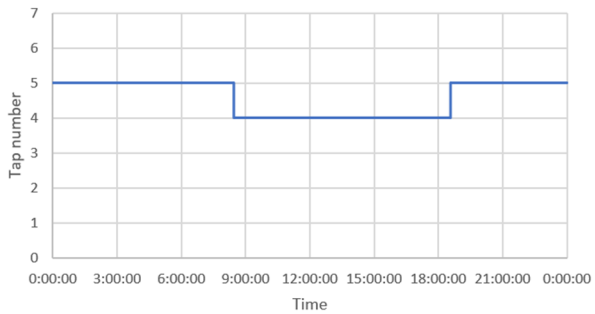
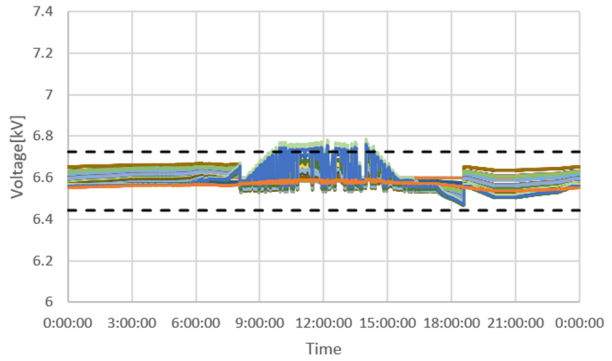
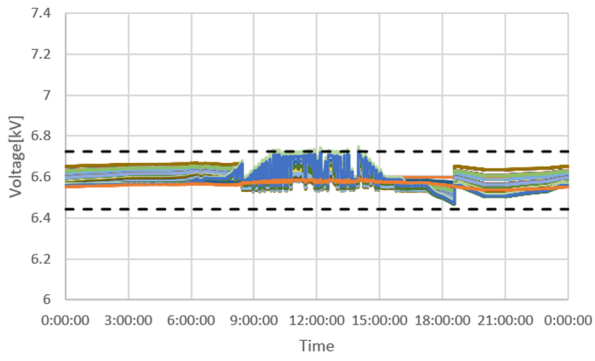
— SVR1

— SVR1



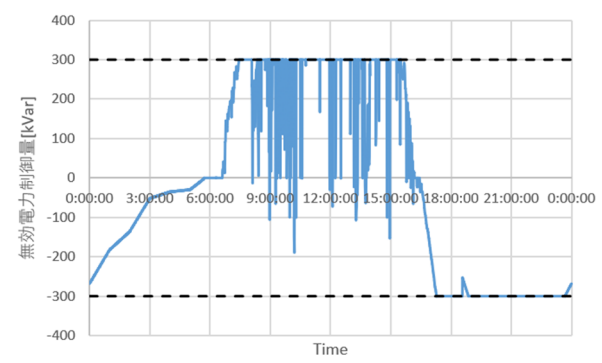
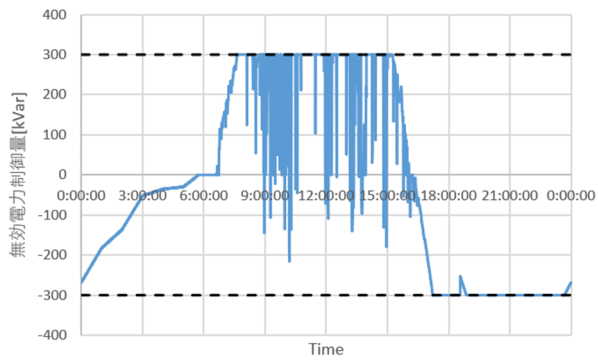
(g) PV 60%

(h) PV 70%



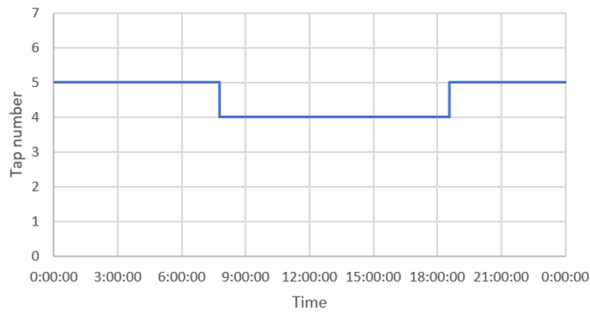
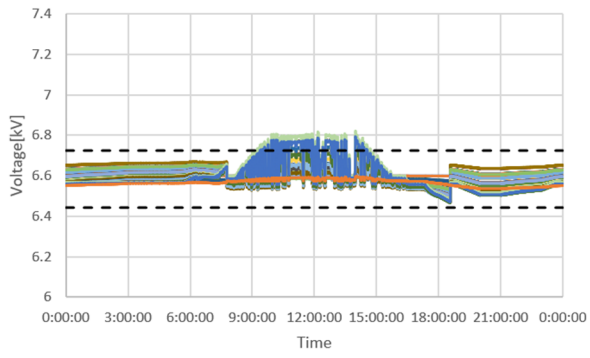
— SVR1

— SVR1

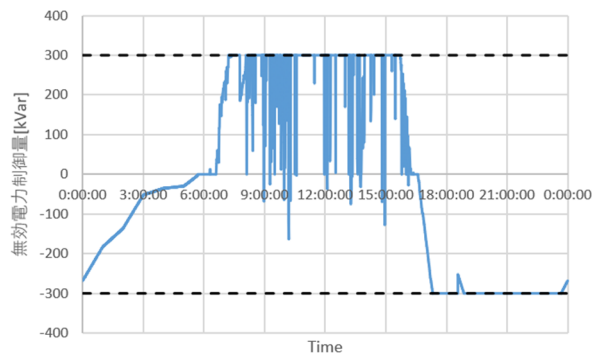


(i) PV 80%

(j) PV 90%

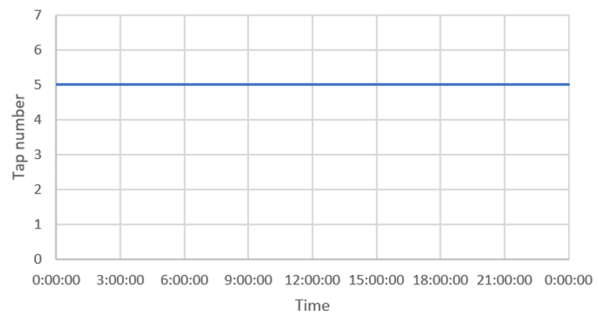
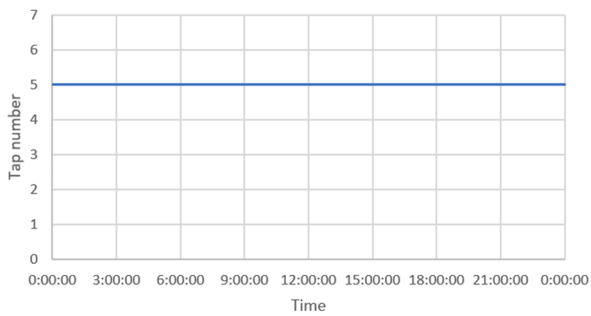
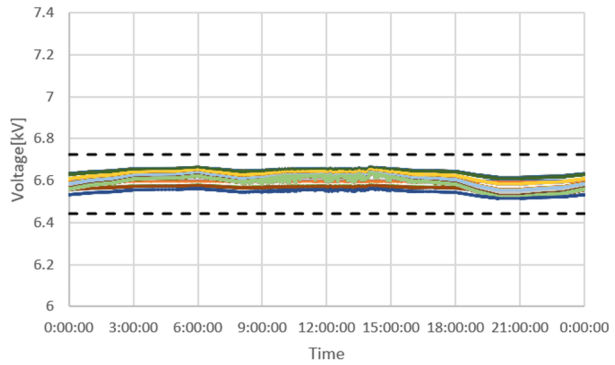
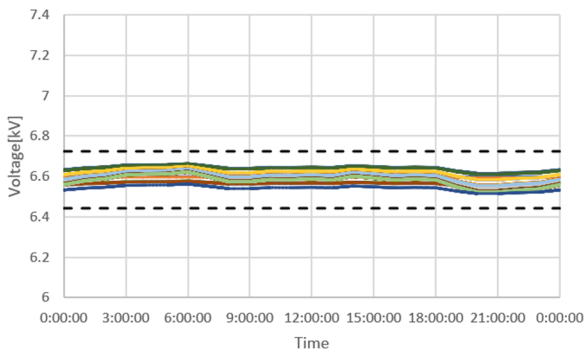


— SVR1



(k) PV 100%

OC2 系統, PV 力率 1.0, 末端集中, SVR  
 (上: 電圧分布, 下: タップ位置)

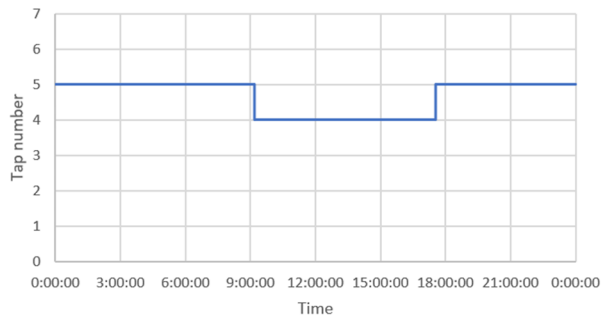
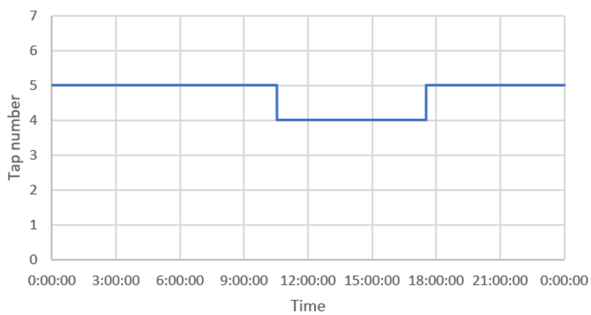
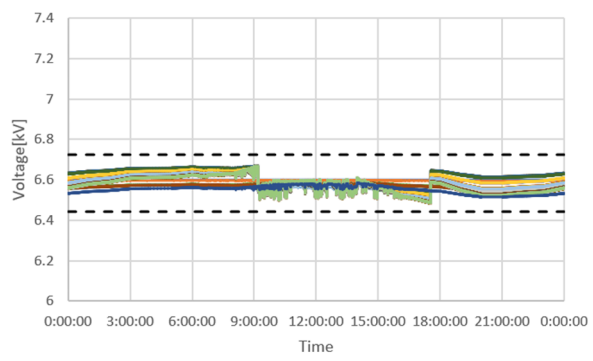
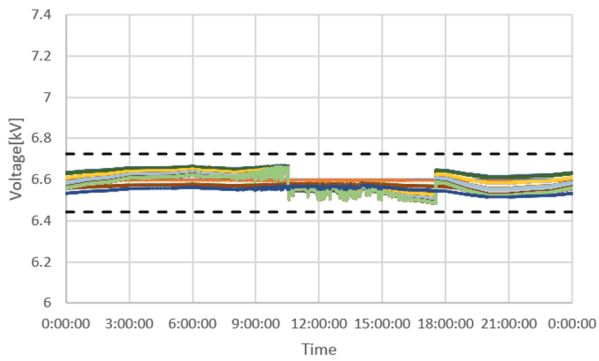


— SVR1

— SVR1

(a) PV 0%

(b) PV 10%

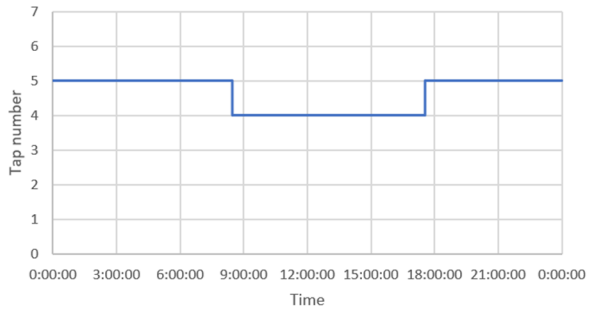
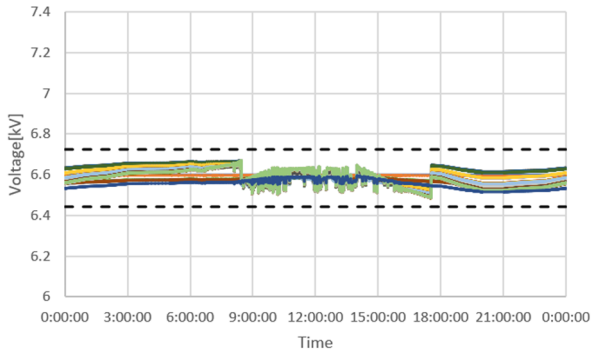


— SVR1

— SVR1

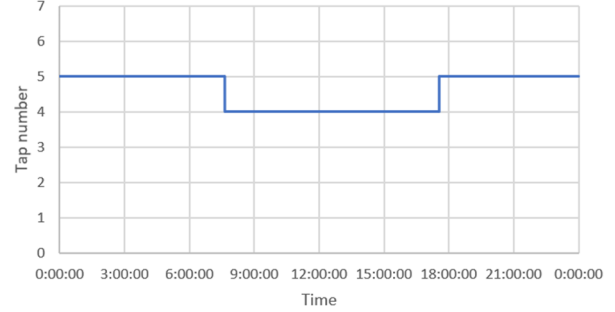
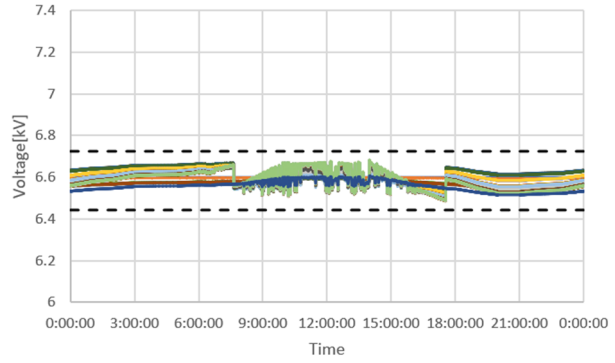
(c) PV 20%

(d) PV 30%



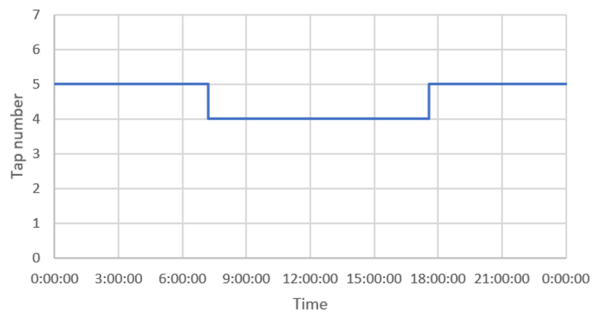
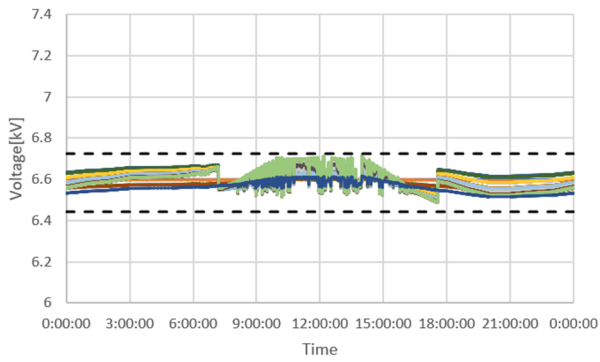
— SVR1

(e) PV 40%



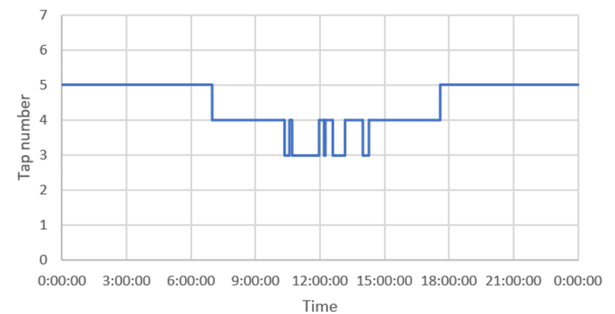
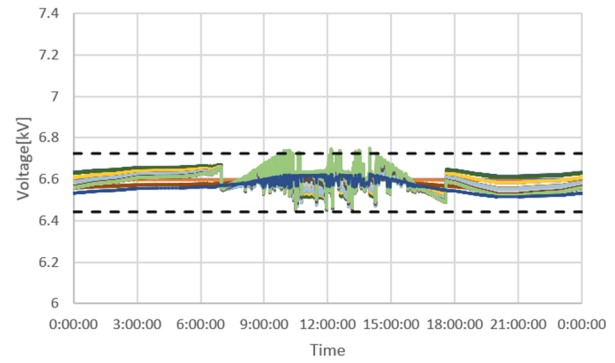
— SVR1

(f) PV 50%



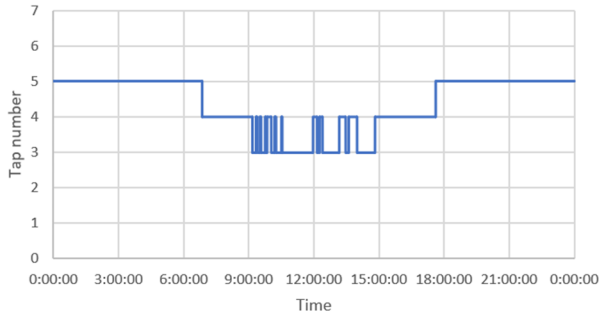
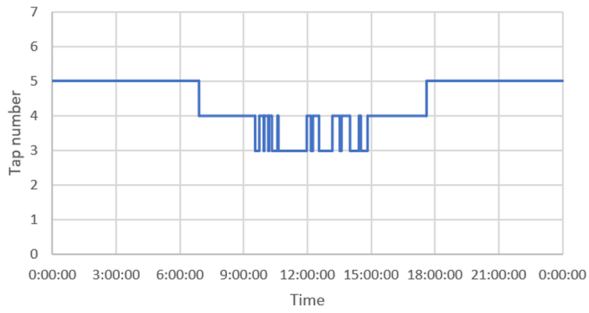
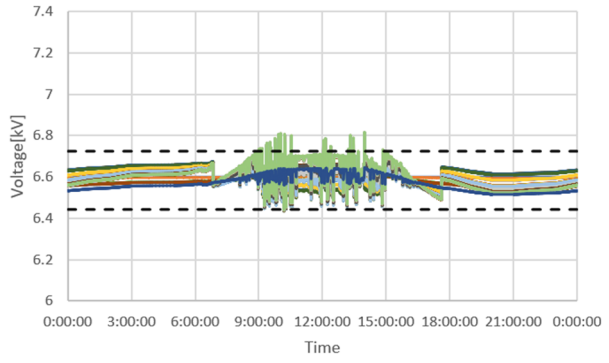
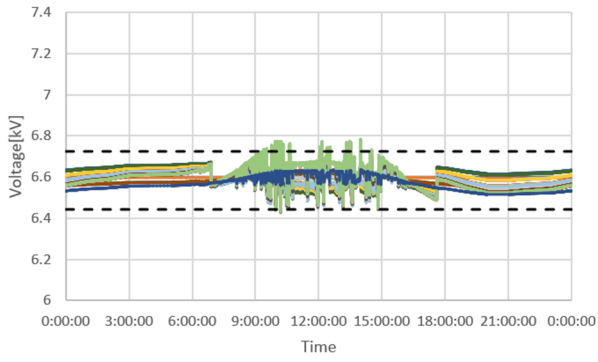
— SVR1

(g) PV 60%



— SVR1

(h) PV 70%

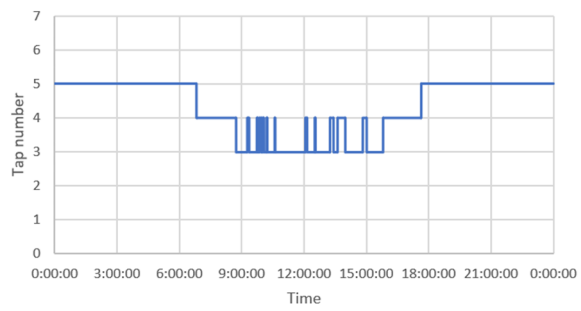
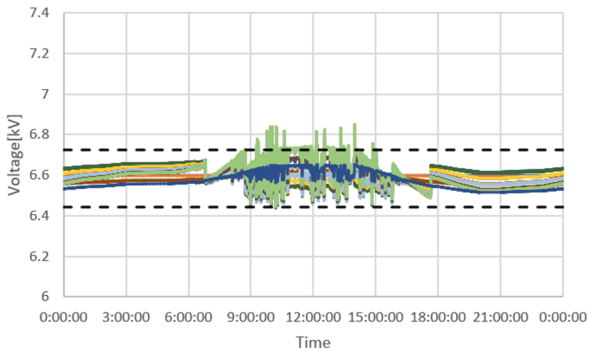


— SVR1

(i) PV 80%

— SVR1

(j) PV 90%

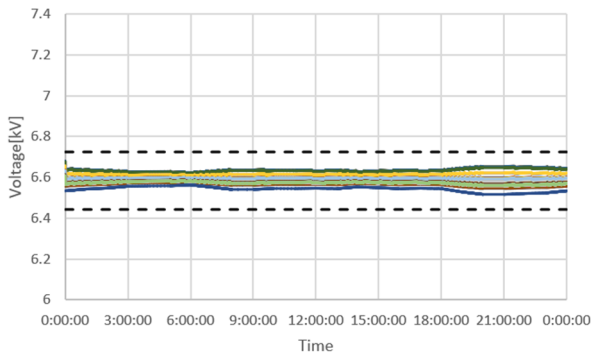


— SVR1

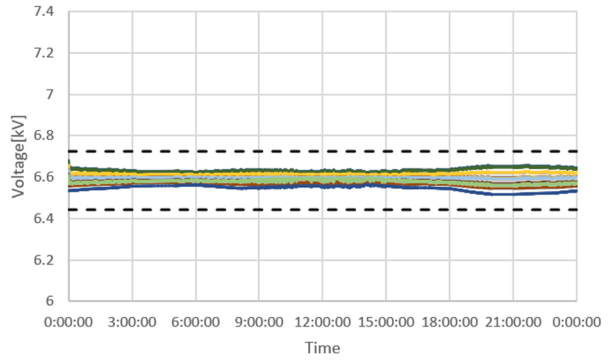
(k) PV 100%



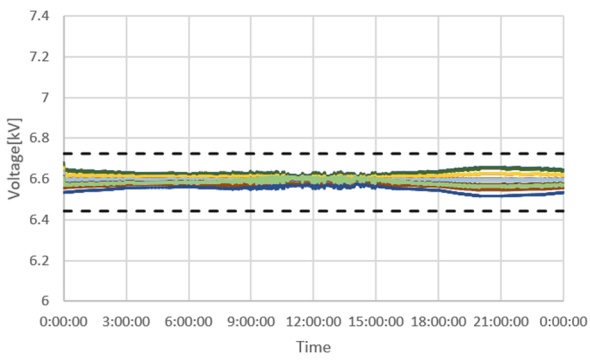
OC2 系統, PV 力率 1.0, 末端集中, TVR  
 (上: 電圧分布, 下: タップ位置)



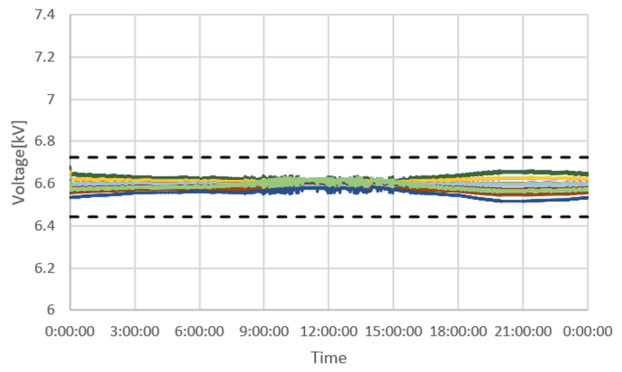
(a) PV 0%



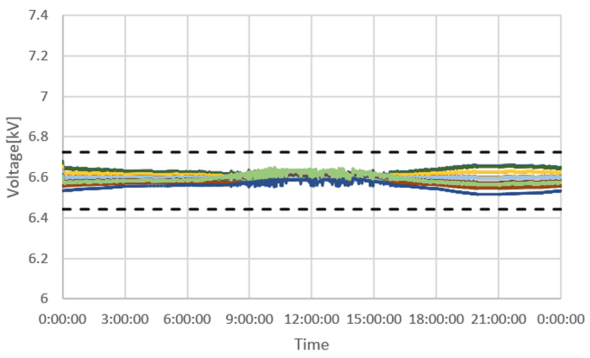
(b) PV 10%



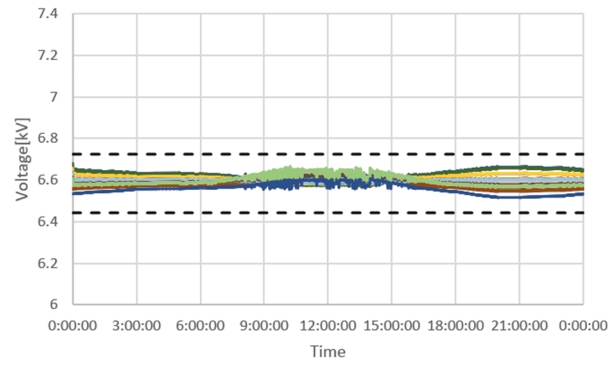
(c) PV 20%



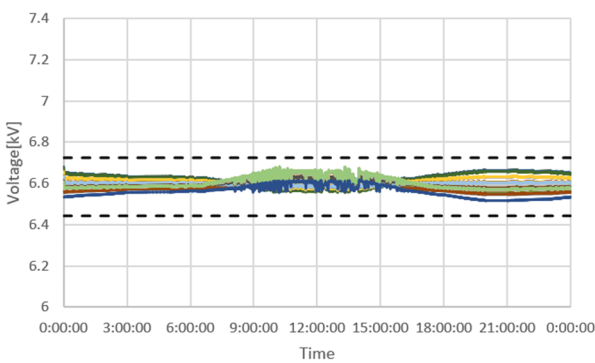
(d) PV 30%



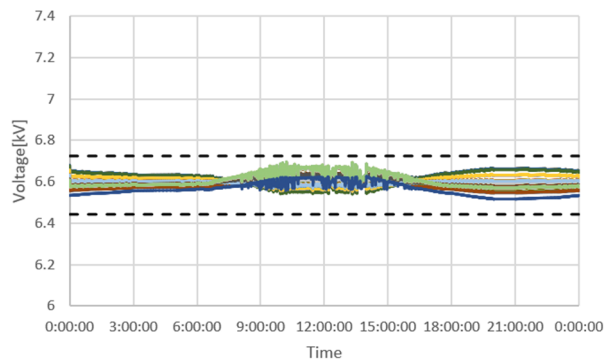
(e) PV 40%



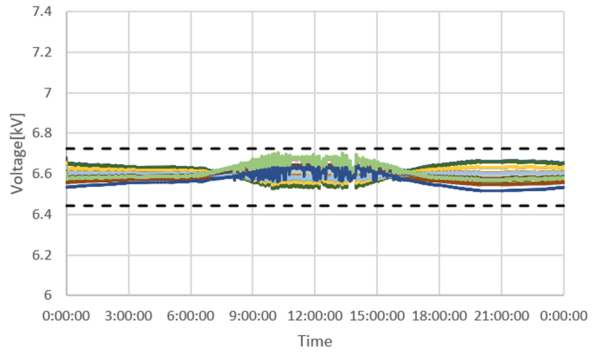
(f) PV 50%



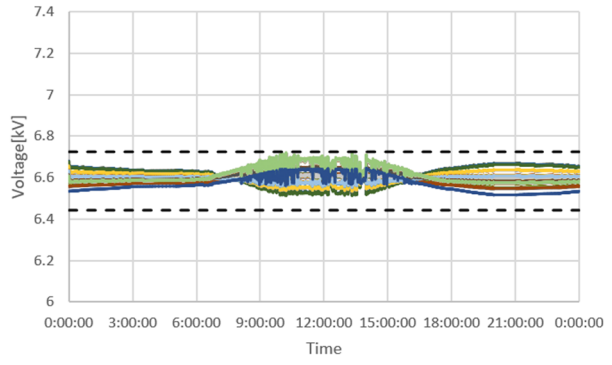
(g) PV 60%



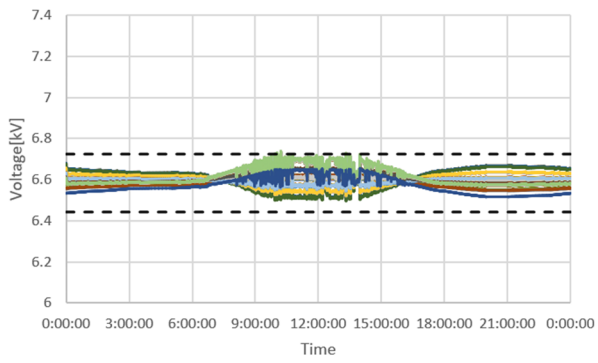
(h) PV 70%



(i) PV 80%

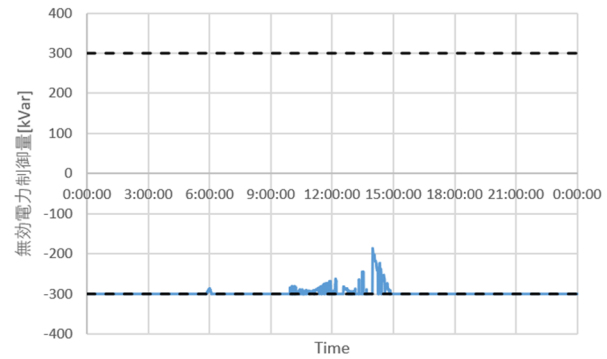
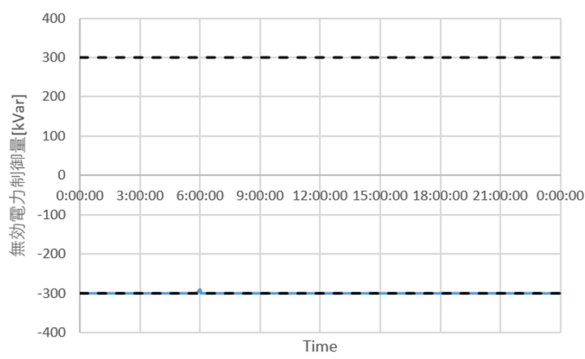
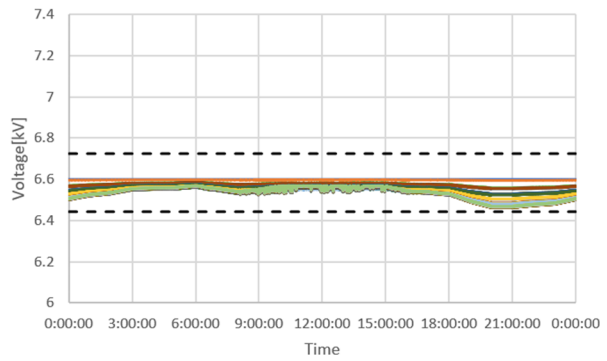
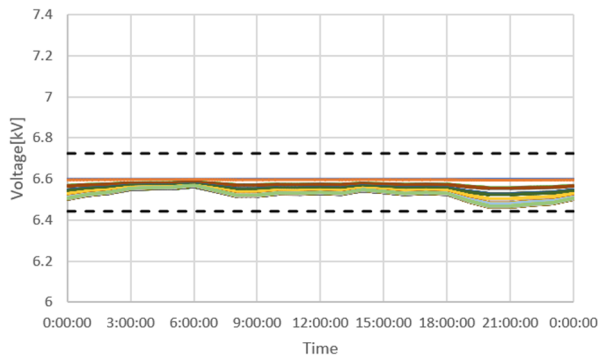


(j) PV 90%



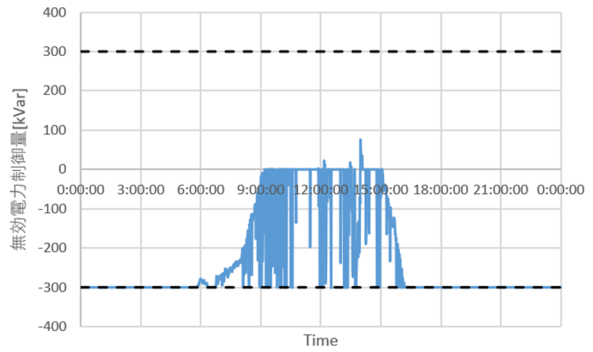
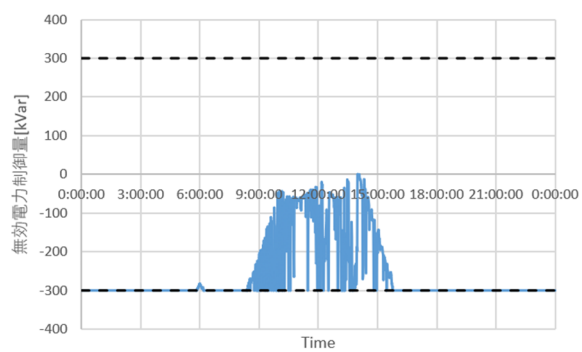
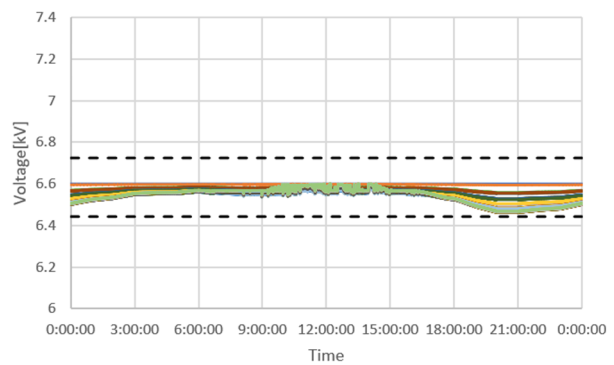
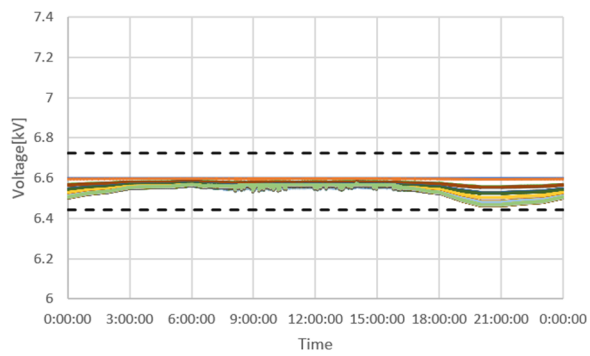
(k) PV 100%

OC2 系統, PV 力率 1.0, 末端集中, SVC  
 (上: 電圧分布, 下: SVC の無効電力)



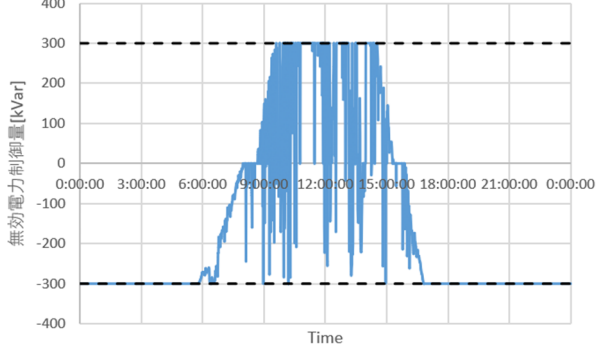
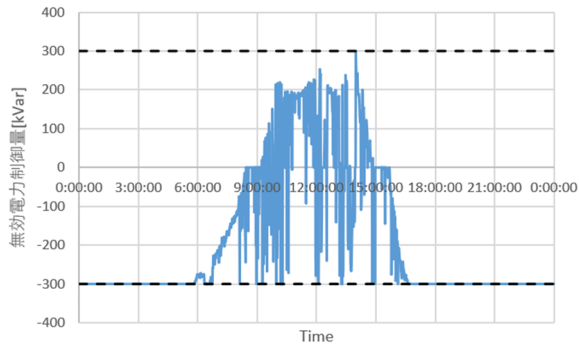
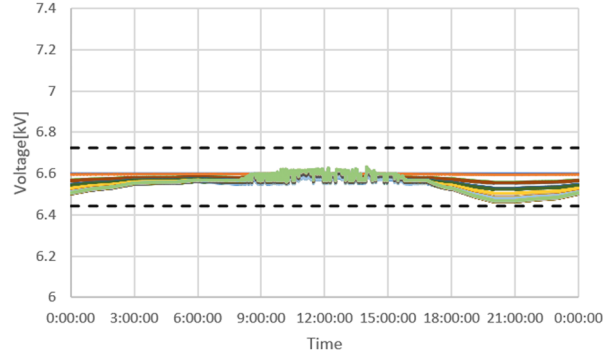
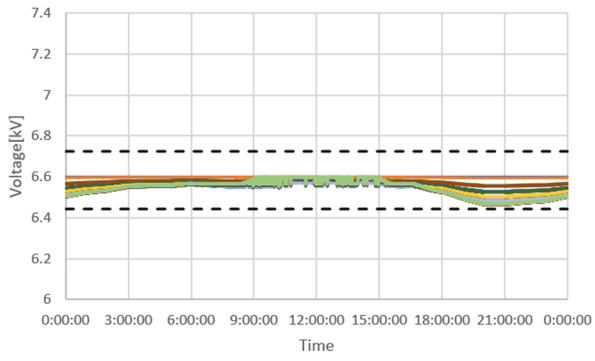
(a) PV 0%

(b) PV 10%



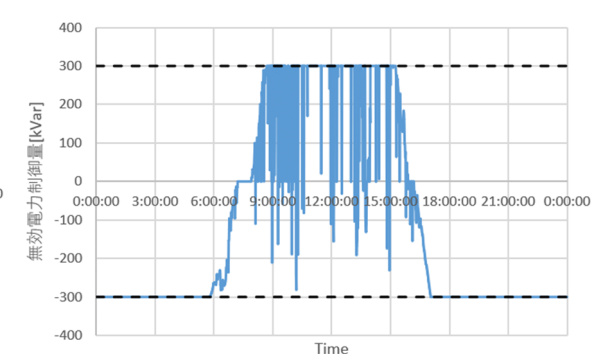
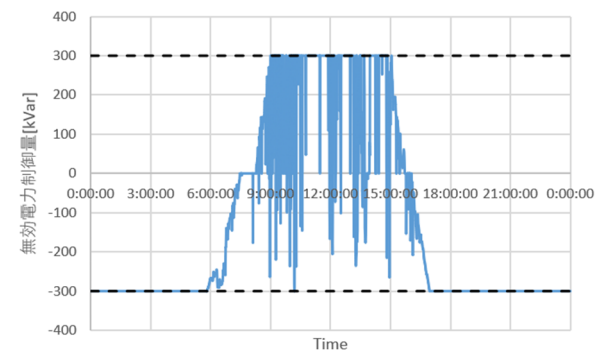
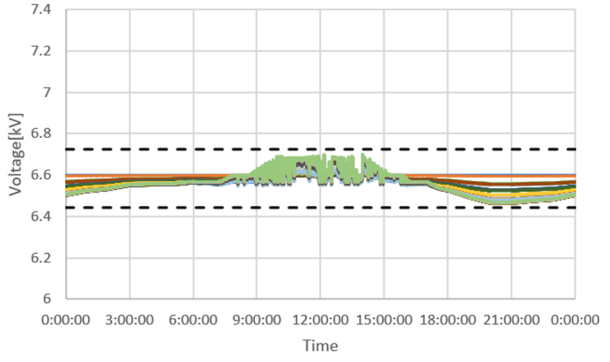
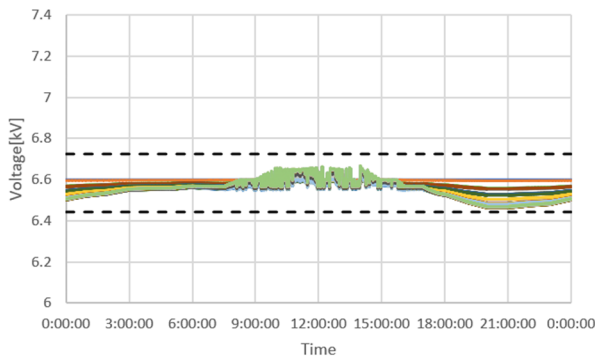
(c) PV 20%

(d) PV 30%



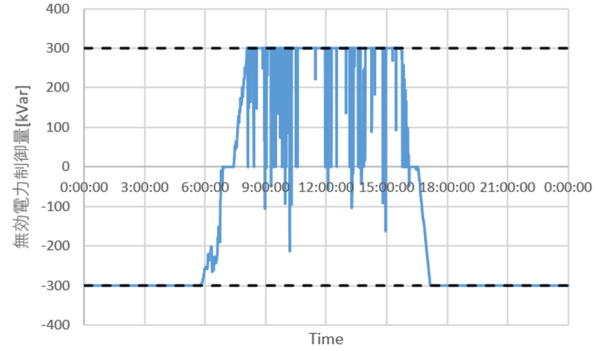
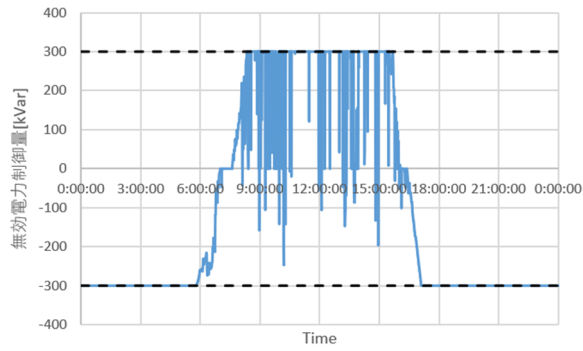
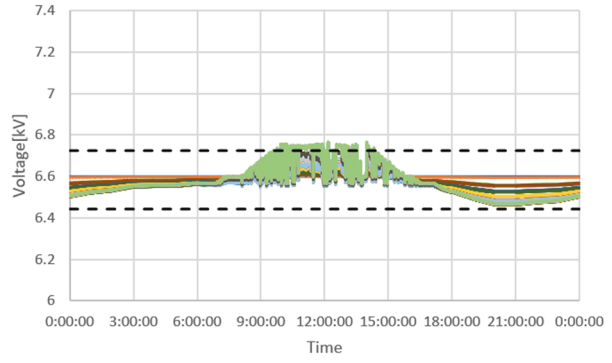
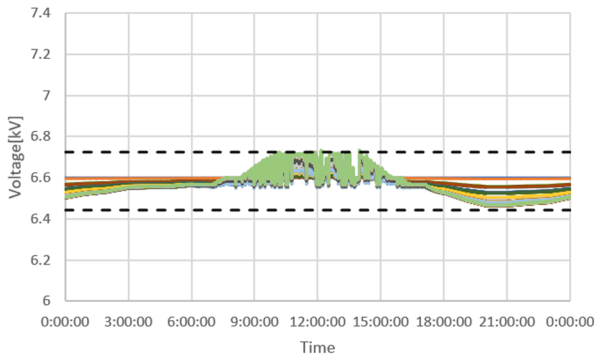
(e) PV 40%

(f) PV 50%



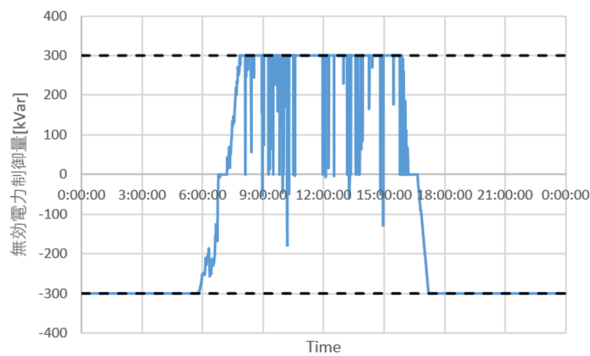
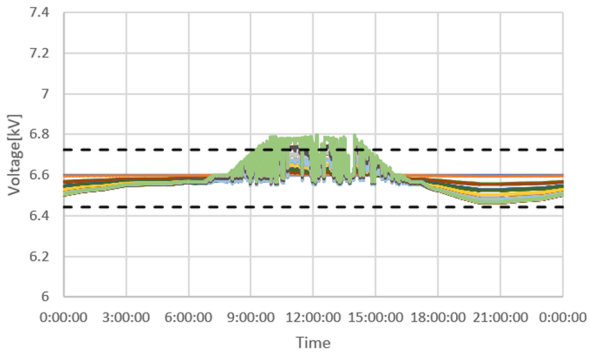
(g) PV 60%

(h) PV 70%



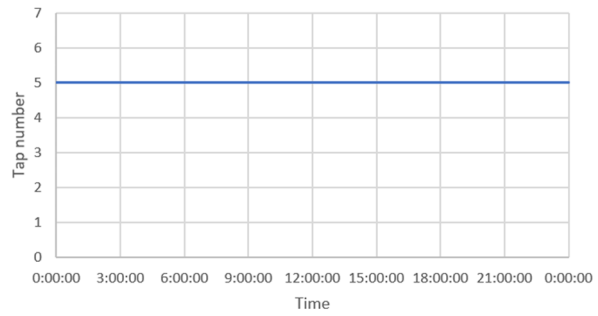
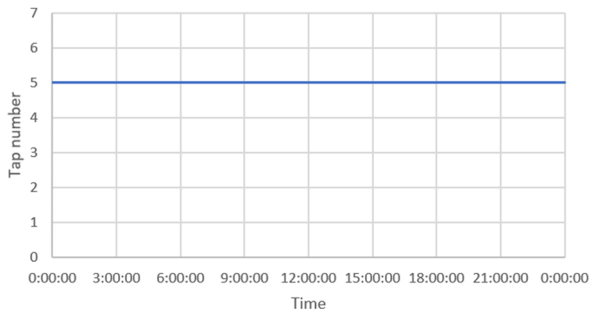
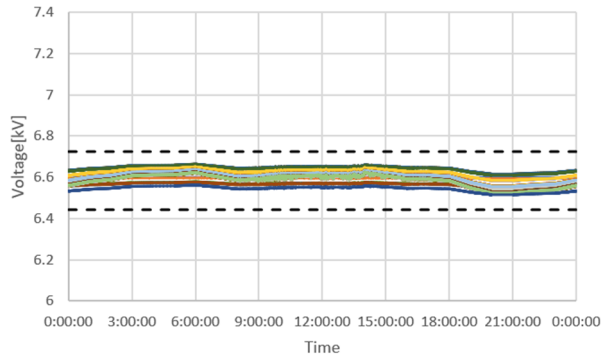
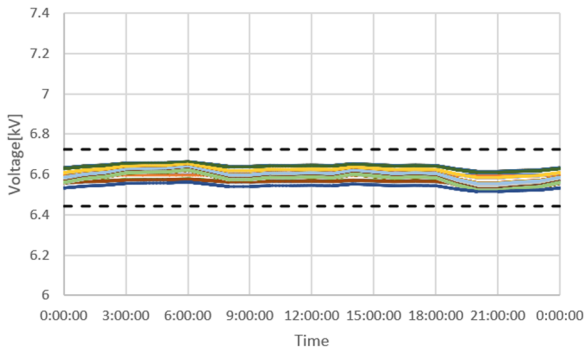
(i) PV 80%

(j) PV 90%



(k) PV 100%

OC2 系統, PV 力率 0.95, 末端集中, SVR  
 (上: 電圧分布, 下: タップ位置)

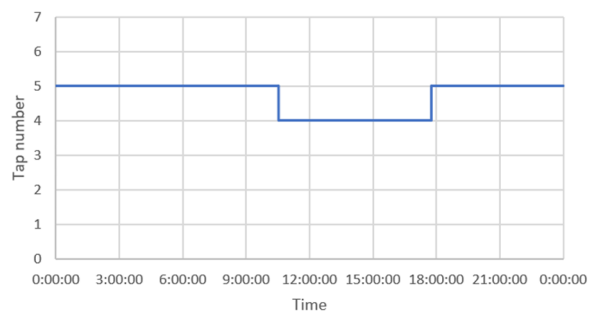
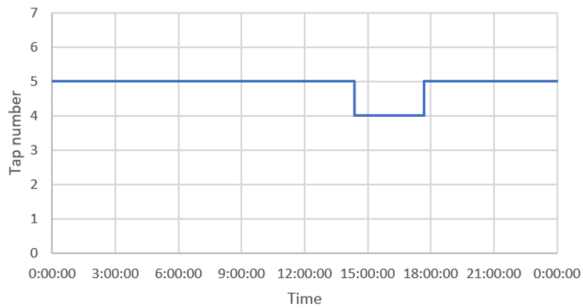
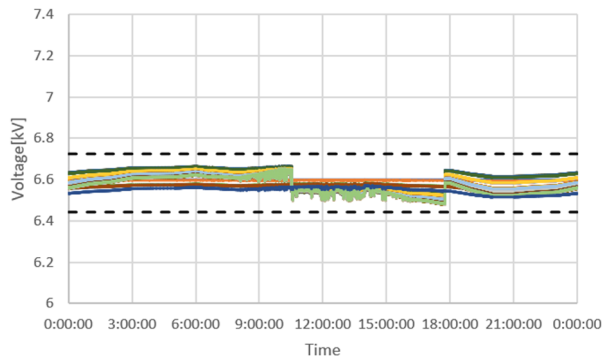
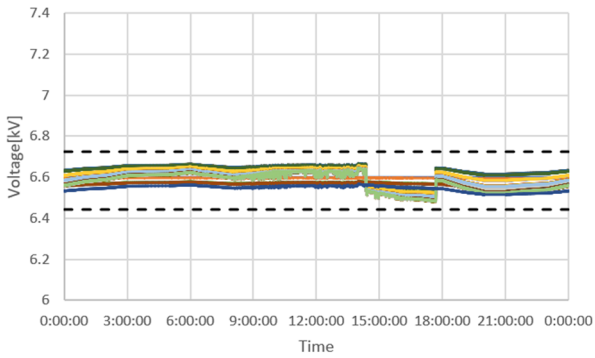


— SVR1

(a) PV 0%

— SVR1

(b) PV 10%

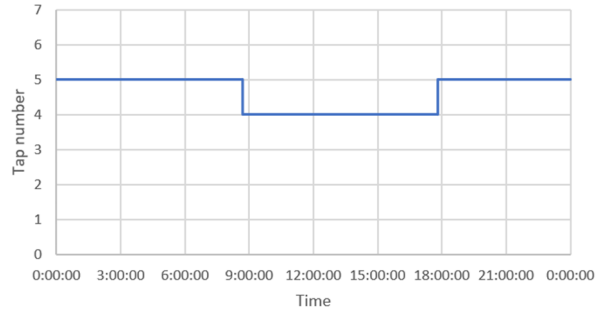
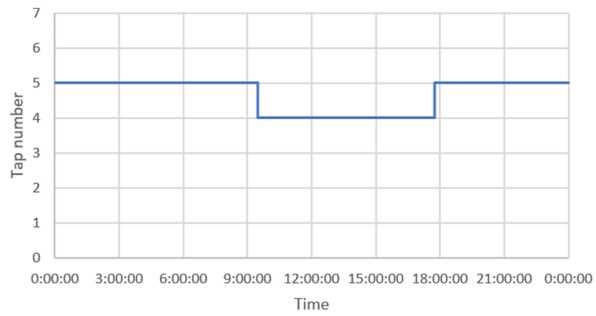
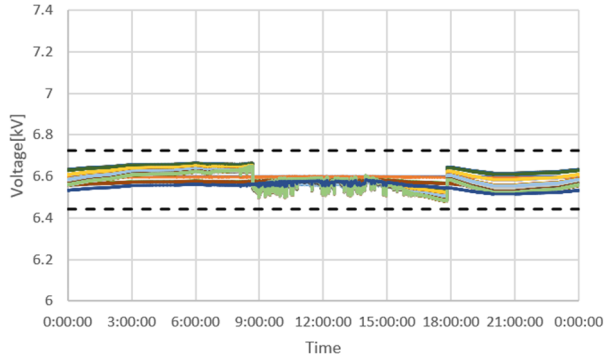
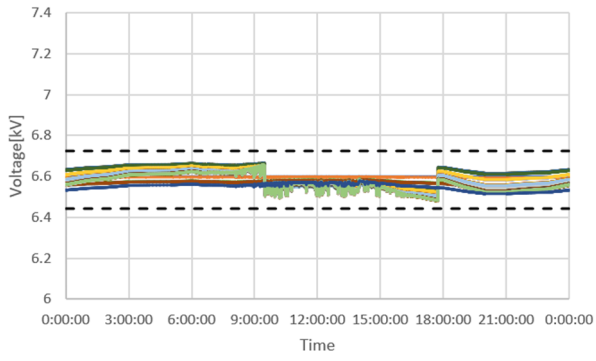


— SVR1

(c) PV 20%

— SVR1

(d) PV 30%

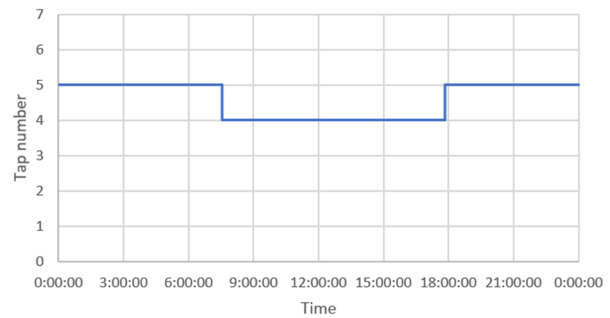
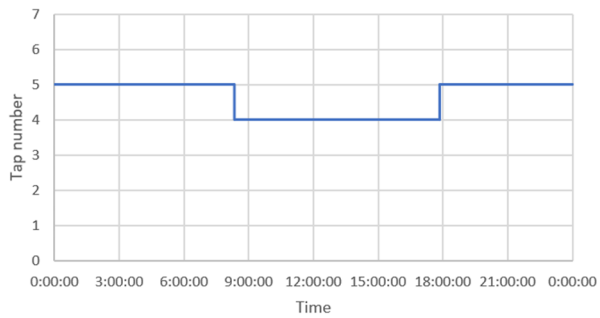
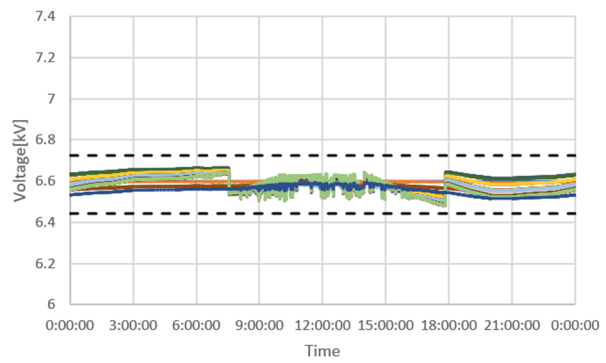
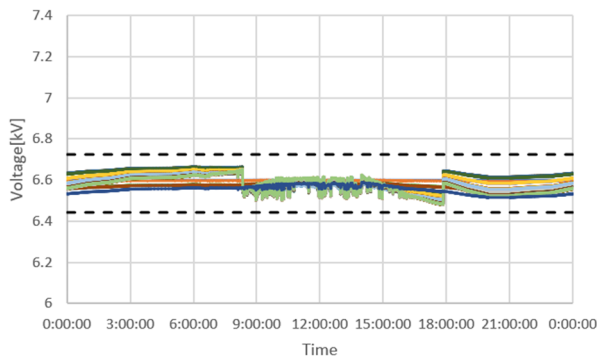


— SVR1

— SVR1

(e) PV 40%

(f) PV 50%

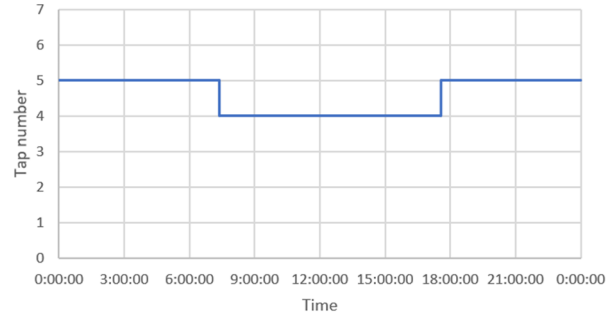
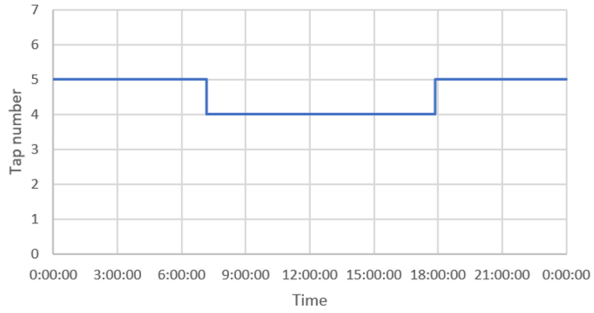
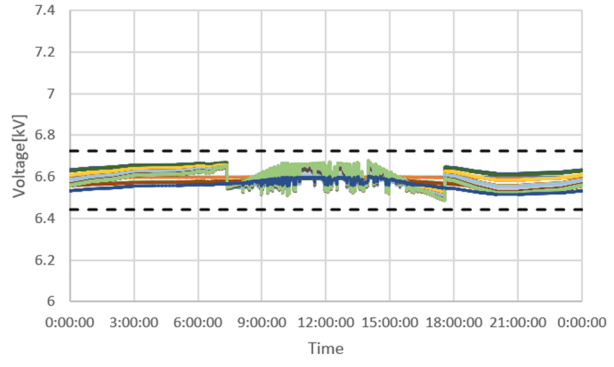
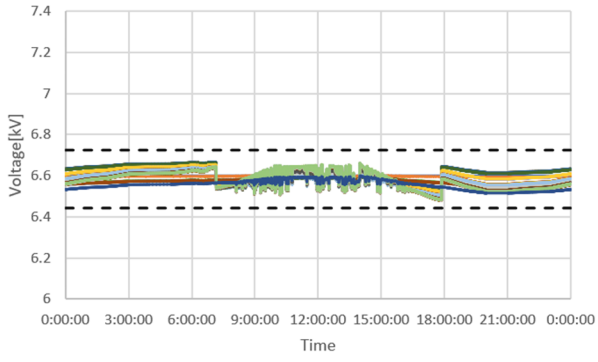


— SVR1

— SVR1

(g) PV 60%

(h) PV 70%

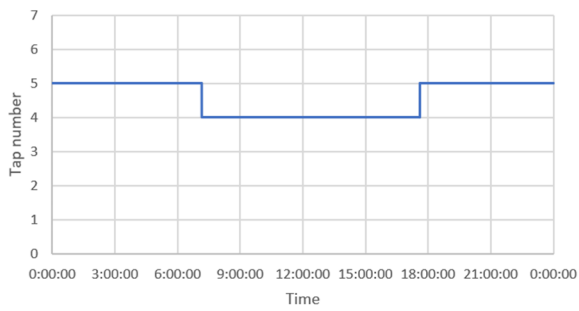
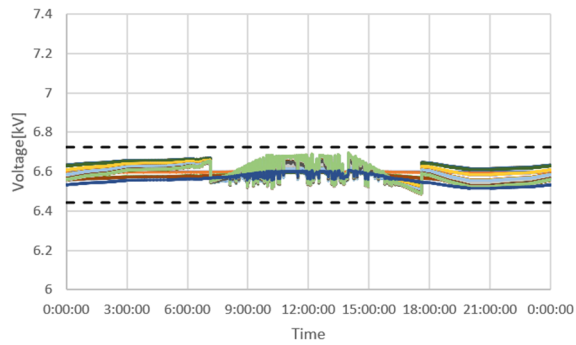


— SVR1

— SVR1

(i) PV 80%

(j) PV 90%

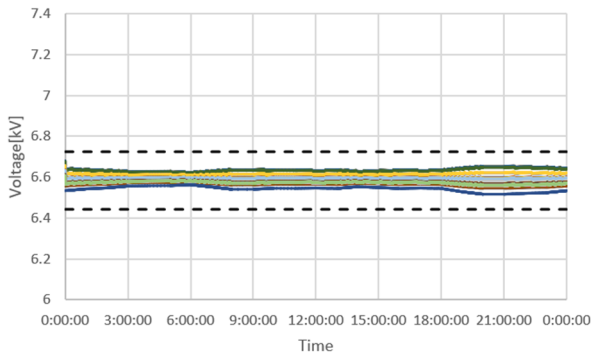


— SVR1

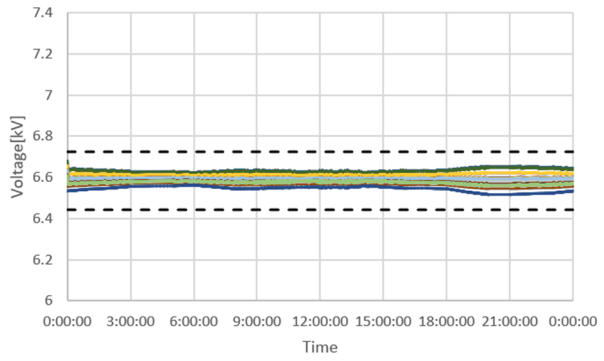
(k) PV 100%



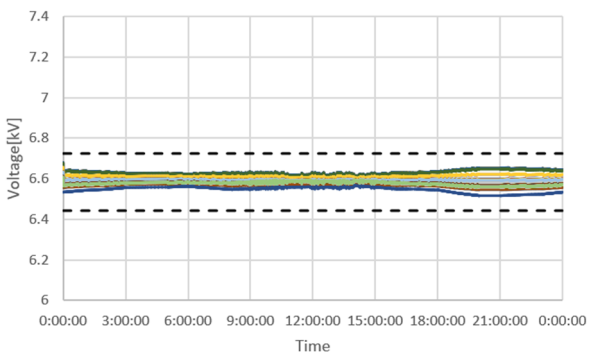
OC2 系統, PV 力率 0.95, 末端集中, TVR  
 (上 : 電圧分布, 下 : タップ位置)



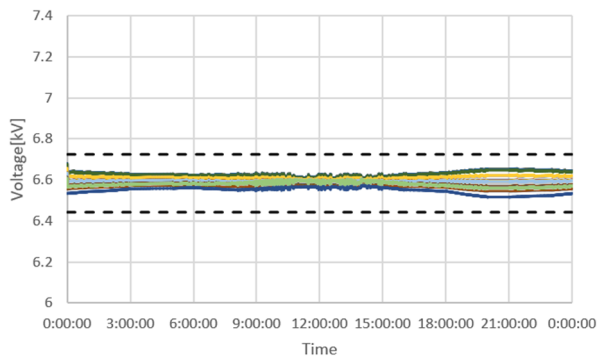
(a) PV 0%



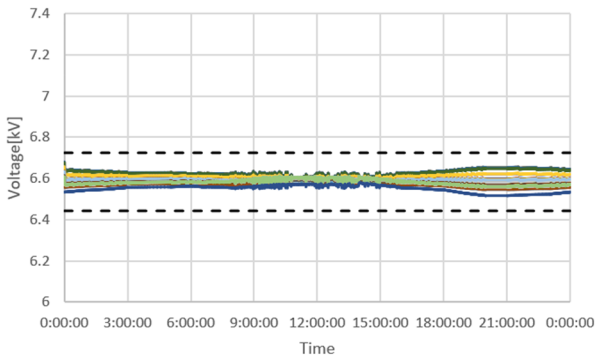
(b) PV 10%



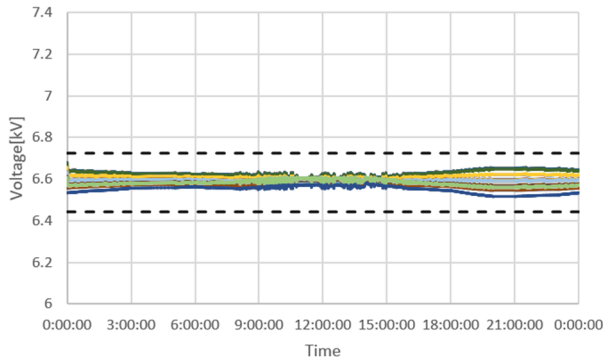
(c) PV 20%



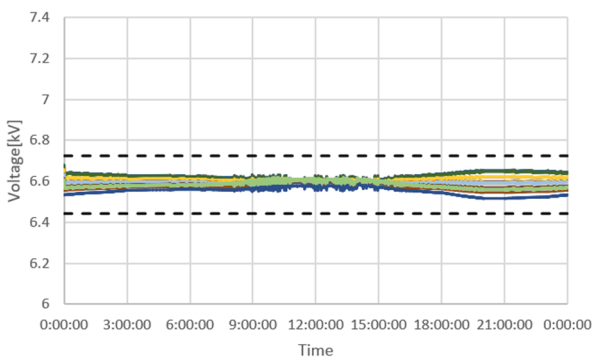
(d) PV 30%



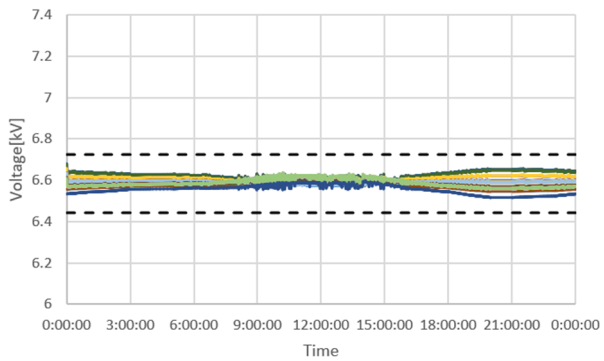
(e) PV 40%



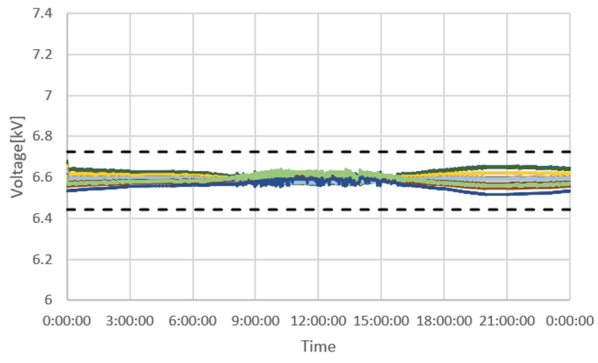
(f) PV 50%



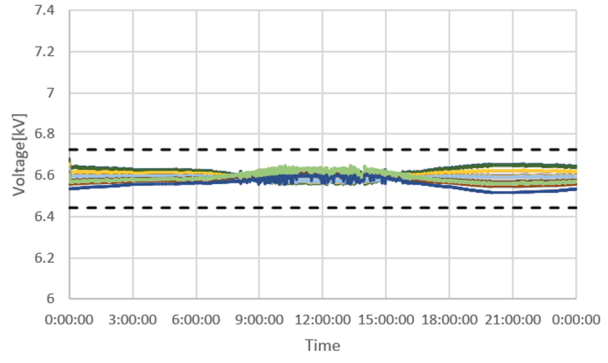
(g) PV 60%



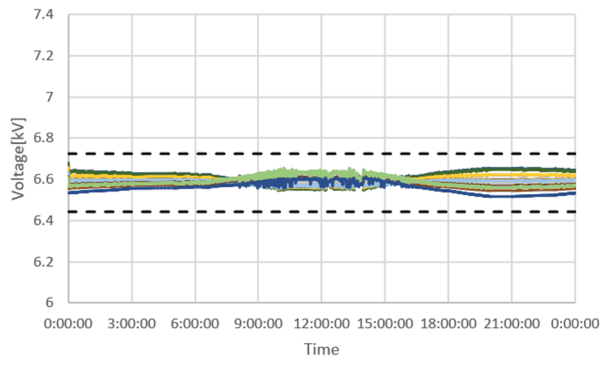
(h) PV 70%



(i) PV 80%



(j) PV 90%



(k) PV 100%