

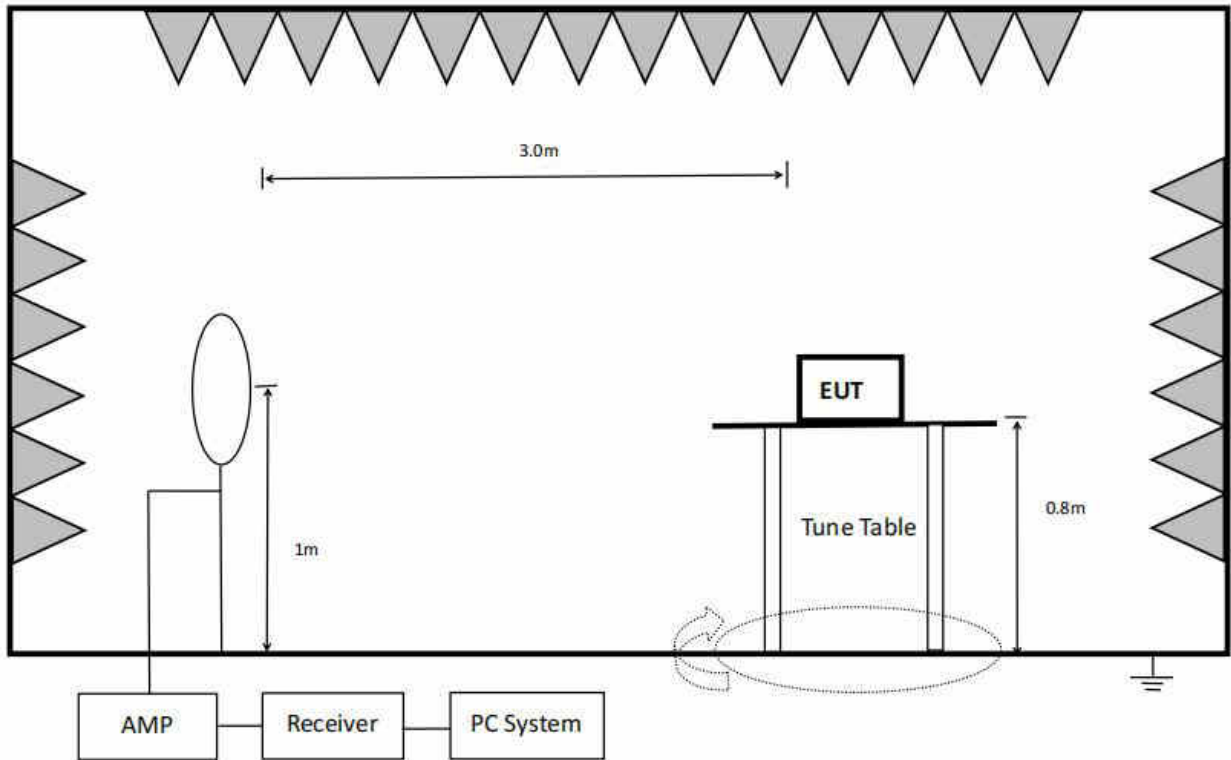
Temperature								
Test Mode	Antenna	Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11N20MIMO	Ant1	5180	NV	-20	80000.00	15.444015	20	PASS
			NV	-10	81000.00	15.637066	20	PASS
			NV	0	80000.00	15.444015	20	PASS
			NV	10	81000.00	15.637066	20	PASS
			NV	20	81000.00	15.637066	20	PASS
			NV	30	81000.00	15.637066	20	PASS
			NV	40	82000.00	15.830116	20	PASS
			NV	50	82000.00	15.830116	20	PASS
		5200	NV	-20	83000.00	15.961538	20	PASS
			NV	-10	84000.00	16.153846	20	PASS
			NV	0	85000.00	16.346154	20	PASS
			NV	10	85000.00	16.346154	20	PASS
			NV	20	85000.00	16.346154	20	PASS
			NV	30	86000.00	16.538462	20	PASS
			NV	40	86000.00	16.538462	20	PASS
			NV	50	86000.00	16.538462	20	PASS
		5240	NV	-20	90000.00	17.175573	20	PASS
			NV	-10	91000.00	17.366412	20	PASS
			NV	0	92000.00	17.557252	20	PASS
			NV	10	92000.00	17.557252	20	PASS
			NV	20	93000.00	17.748092	20	PASS
			NV	30	93000.00	17.748092	20	PASS
			NV	40	93000.00	17.748092	20	PASS
			NV	50	94000.00	17.938931	20	PASS
		5745	NV	-20	73000.00	12.706701	20	PASS
			NV	-10	80000.00	13.925152	20	PASS
			NV	0	84000.00	14.621410	20	PASS
			NV	10	89000.00	15.491732	20	PASS
			NV	20	92000.00	16.013925	20	PASS
			NV	30	95000.00	16.536118	20	PASS
			NV	40	98000.00	17.058312	20	PASS
			NV	50	100000.00	17.406440	20	PASS
		5785	NV	-20	96000.00	16.594641	20	PASS
			NV	-10	99000.00	17.113224	20	PASS
			NV	0	102000.00	17.631806	20	PASS
			NV	10	104000.00	17.977528	20	PASS
			NV	20	106000.00	18.323250	20	PASS
			NV	30	108000.00	18.668971	20	PASS
			NV	40	109000.00	18.841832	20	PASS
			NV	50	110000.00	19.014693	20	PASS
		5825	NV	-20	-2000.00	-0.343348	20	PASS
			NV	-10	2000.00	0.343348	20	PASS
			NV	0	5000.00	0.858369	20	PASS
			NV	10	9000.00	1.545064	20	PASS
			NV	20	12000.00	2.060086	20	PASS
			NV	30	14000.00	2.403433	20	PASS
			NV	40	17000.00	2.918455	20	PASS
			NV	50	19000.00	3.261803	20	PASS
11N40MIMO	Ant1	5190	NV	-20	35000.00	6.743738	20	PASS
			NV	-10	35000.00	6.743738	20	PASS
			NV	0	35000.00	6.743738	20	PASS
			NV	10	35000.00	6.743738	20	PASS
			NV	20	35000.00	6.743738	20	PASS
			NV	30	35000.00	6.743738	20	PASS
			NV	40	36000.00	6.936416	20	PASS
			NV	50	36000.00	6.936416	20	PASS

		5230	NV	-20	38000.00	7.265774	20	PASS
			NV	-10	38000.00	7.265774	20	PASS
			NV	0	39000.00	7.456979	20	PASS
			NV	10	39000.00	7.456979	20	PASS
			NV	20	40000.00	7.648184	20	PASS
			NV	30	40000.00	7.648184	20	PASS
			NV	40	40000.00	7.648184	20	PASS
			NV	50	41000.00	7.839388	20	PASS
		5755	NV	-20	52000.00	9.035621	20	PASS
			NV	-10	54000.00	9.383145	20	PASS
			NV	0	55000.00	9.556907	20	PASS
			NV	10	57000.00	9.904431	20	PASS
			NV	20	58000.00	10.078193	20	PASS
			NV	30	58000.00	10.078193	20	PASS
			NV	40	59000.00	10.251955	20	PASS
			NV	50	60000.00	10.425717	20	PASS
		5795	NV	-20	67000.00	11.561691	20	PASS
			NV	-10	67000.00	11.561691	20	PASS
			NV	0	67000.00	11.561691	20	PASS
			NV	10	68000.00	11.734254	20	PASS
			NV	20	68000.00	11.734254	20	PASS
			NV	30	68000.00	11.734254	20	PASS
			NV	40	68000.00	11.734254	20	PASS
			NV	50	69000.00	11.906816	20	PASS

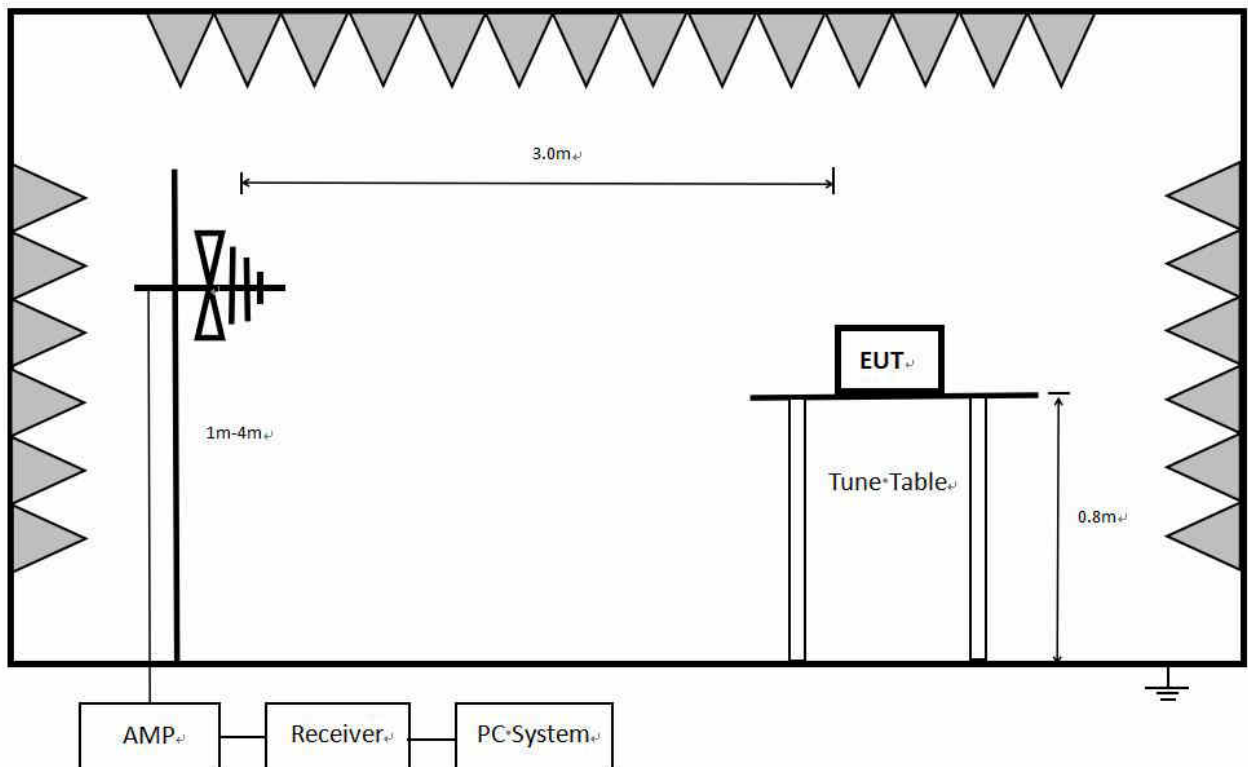
13. Radiated Emission

13.1. Block Diagram of Test Setup

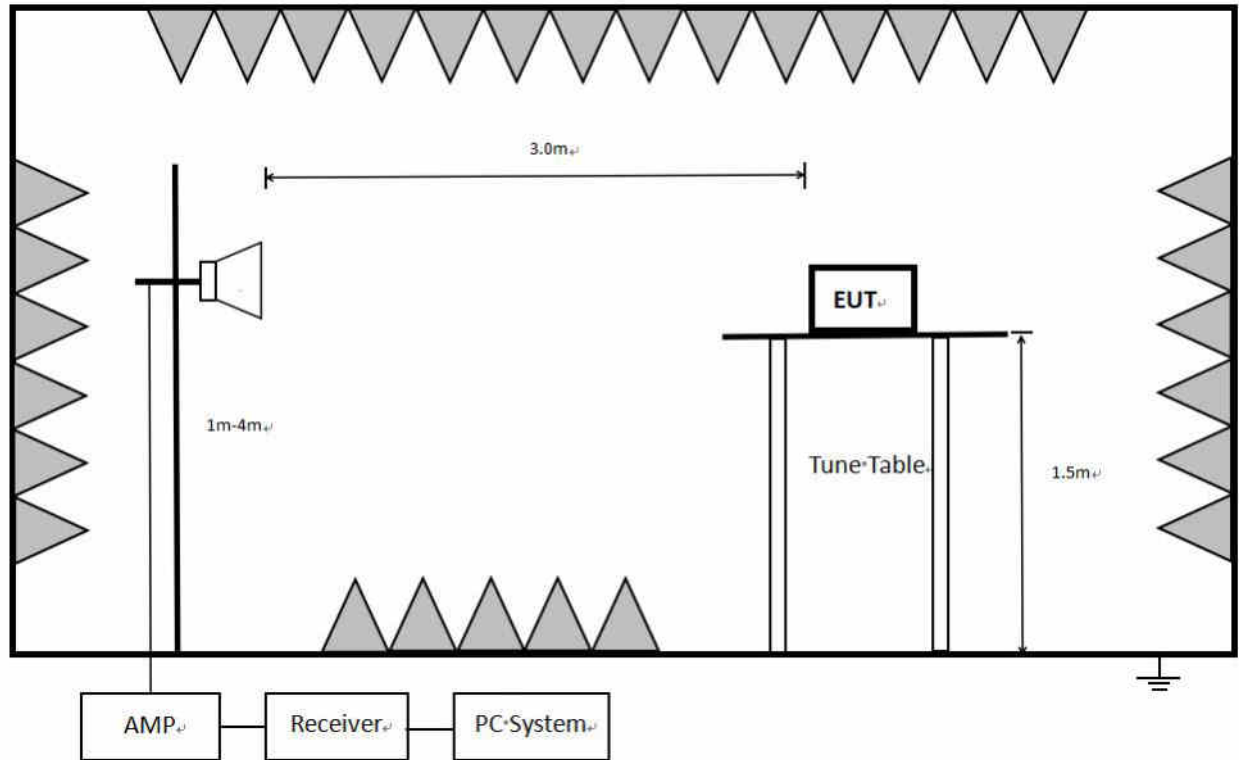
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

13.2. Limit

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6

(2) FCC 15.209 Limit.

Frequency MHz	Distance Meters	Field strengths limit	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm / MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm / MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm / MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm / MHz.

(5) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(6) The provisions of §15.205 apply to intentional radiators operating under this section.

-27 dBm/MHz Limit=95.2+EIRP (dBm)=95.2-27=68.2 dB $\mu\text{V}/\text{m}$

Note:

(1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3\text{m}}(\text{dB}\mu\text{V}/\text{m}) = \text{Limit}_{30\text{m}}(\text{dB}\mu\text{V}/\text{m}) + 40\text{Log}(30\text{m}/3\text{m})$$

(3) Limit for this EUT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions or comply with 15.209 limits.

13.3. Test Procedure

Below 30 MHz:

The setting of the spectrum Analyzer

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm meter above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of 1 meter height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KdB 414788.

Below 1 GHz and above 30 MHz:

The setting of the spectrum Analyzer

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

Above 1 GHz:

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video

bandwidth with peak detector for AVG measurements. For the Duty Cycle please refer to clause 8.1.ON TIME AND DUTY CYCLE.

7. Restriction band: Investigated frequency range from 5.15-5.25 GHz, 5250-5350 GHz, 5470-5725 GHz, 5.725-5.85 GHz.

All restriction band should comply with 15.209, other emission should be at least 20 dB below the fundamental.

Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: The EUT does not support simultaneous transmission.

Note 3: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

13.4. Test Result

PASS. (See below detailed test result)

All the emissions except fundamental emission from 9kHz to 40GHz were comply with 15.209 limit.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 40 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in 11a mode.

Note3: For below test data, when the limit tabular marked “/” means this frequency point is the fundamental emission and no need comply with this limit.

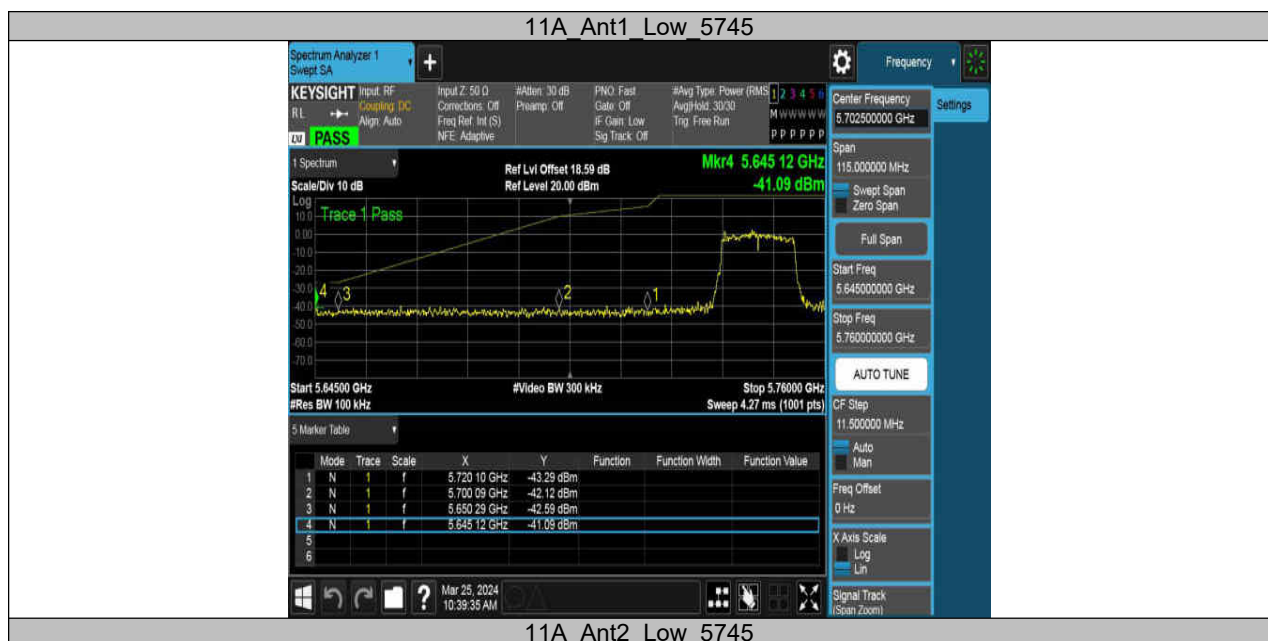
Note 4: As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit

Note 5: For emissions Above 1 GHz, all mode have been tested, 11a mode is worse case and recorded in report.

13.5. Original Test Data

Below 1 GHz and above 30 MHz test data Refer to appendix A

Above 1 GHz test data Refer to appendix B



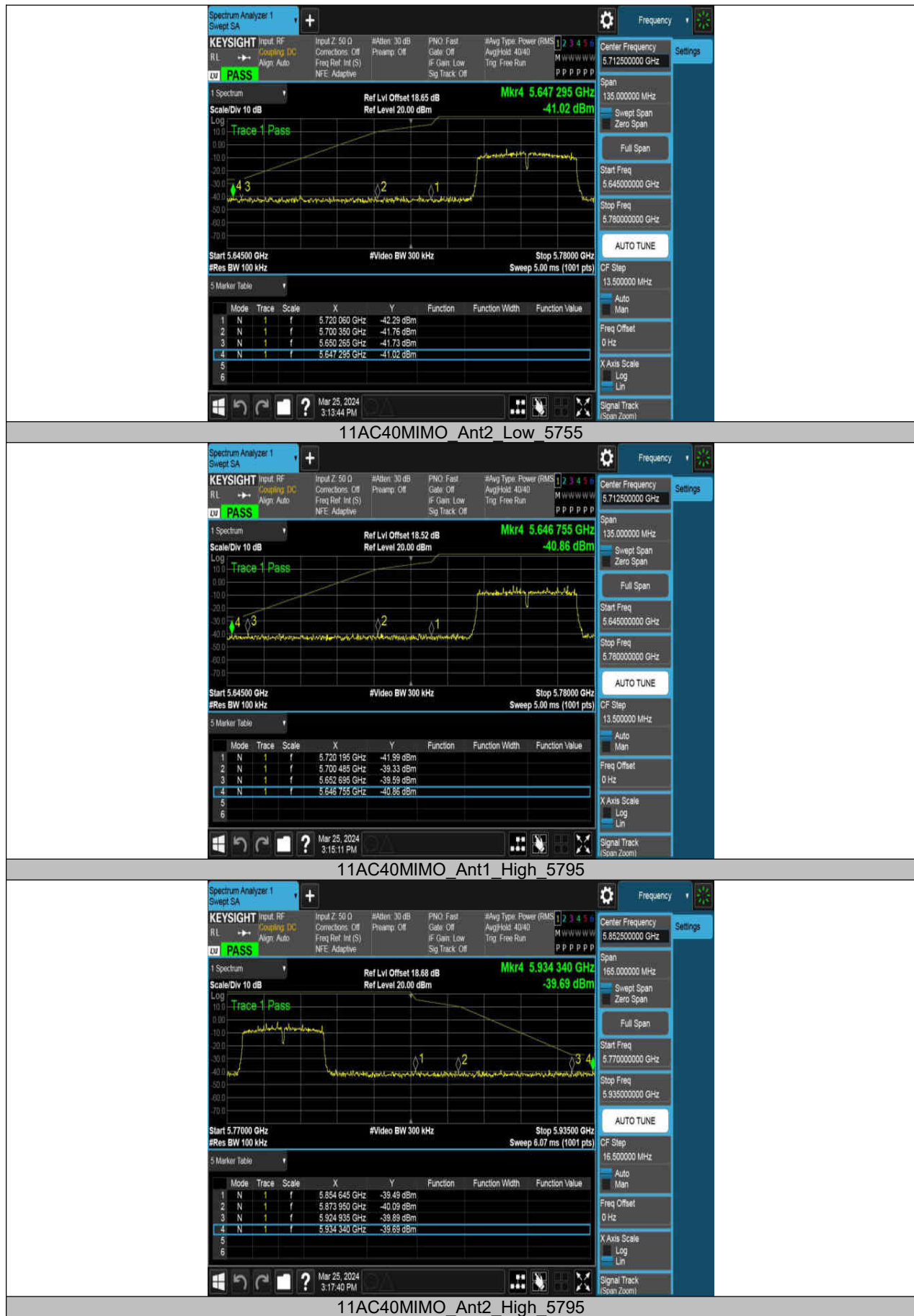








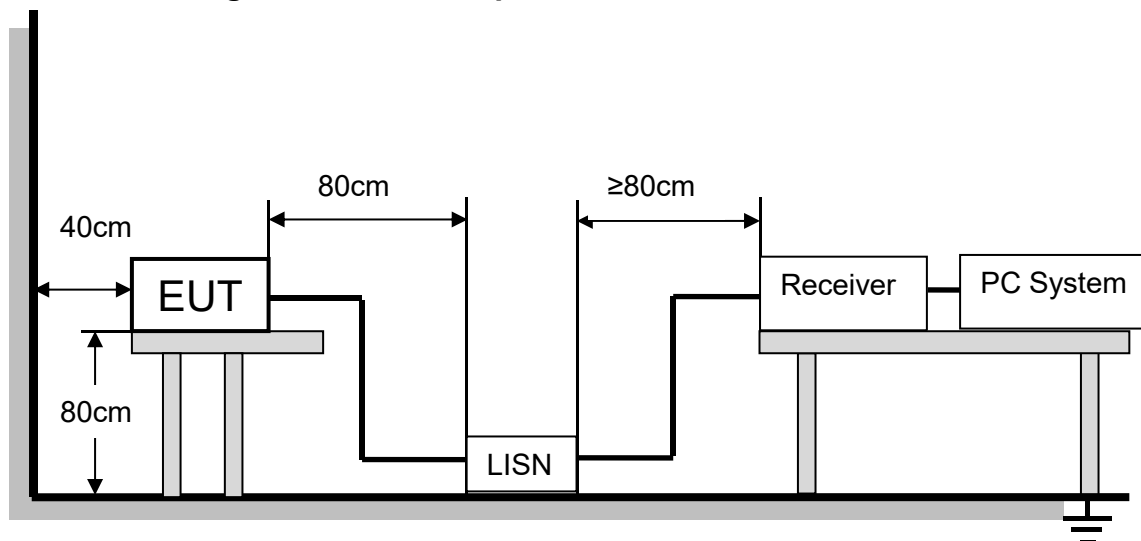






14. AC Power Line Conducted Emissions

14.1. Block Diagram of Test Setup



The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

14.2. Limits

Please refer to CFR 47 FCC §15.207 (a).

Frequency (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

14.3. Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

14.4. Test Result

This product is not suitable for conducted emissions testing, and it uses POE network port for power supply.

15. Antenna Requirements

15.1. Applicable Requirements

Please refer to FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

15.2. Result

The device support 2T2R MIMO, the antennas both used for this product are dedicated FPC antennas and other than that furnished by the responsible party shall be used with the device, maximum antenna gain is 2.79dBi.

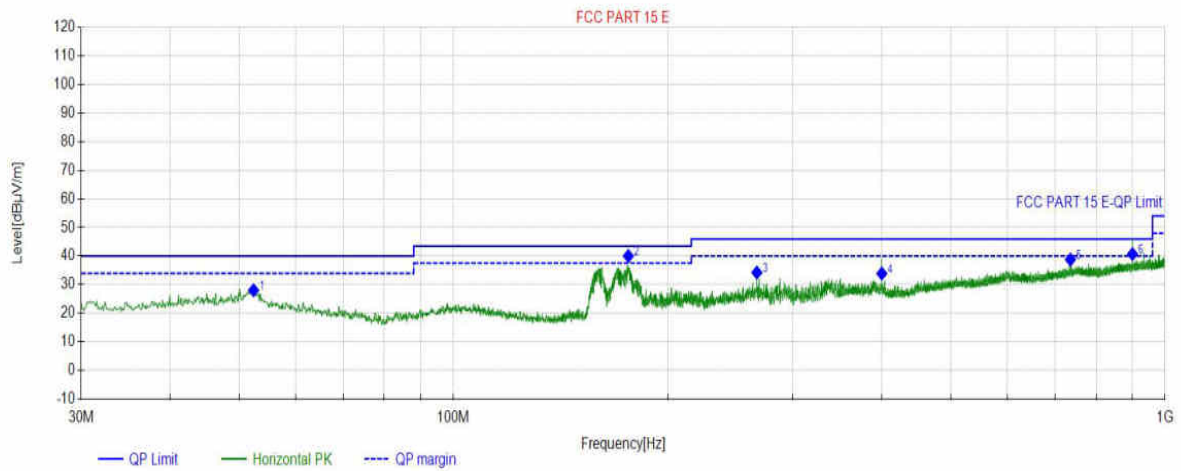
APPENDIX A - Radiated Emission Below 1GHz Test Data

Test Report

Project Information			
EUT:	TCP30T	Environment:	24.2℃ 44%
Model:	TCP30T	SN:	
Mode:	11A_5240	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 85		

Start of Test: 2024-03-30 11:29:41

Test Graph



Final Data List

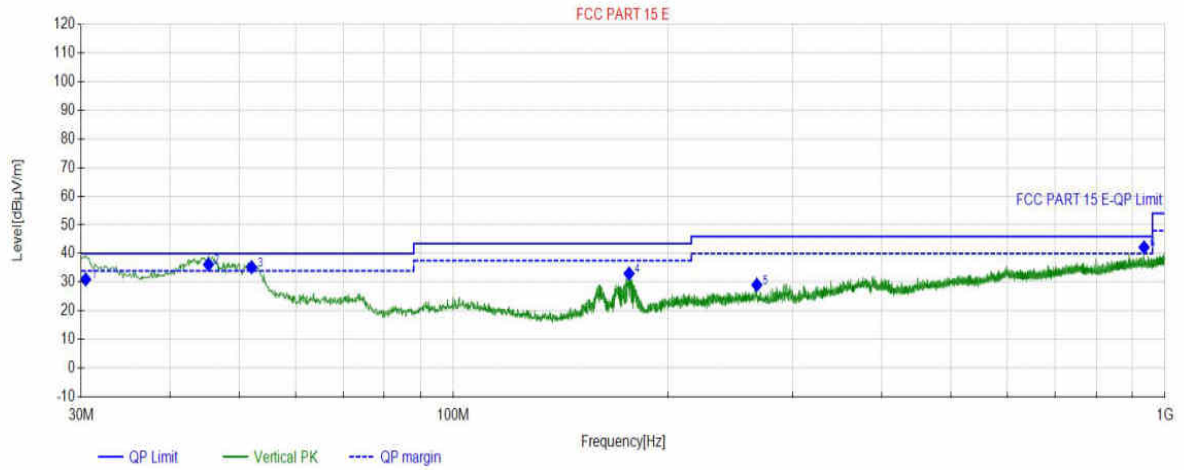
NO.	Freq. (MHz)	Factor (dB)	QP Value (dBμV/m)	QP Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Polarity
1	52.4125	22.02	28.03	40.00	11.97	113.8	231	Horizontal
2	176.1855	18.09	40.02	43.50	3.48	119.7	284.3	Horizontal
3	267.0213	21.44	34.24	46.00	11.76	100	133.5	Horizontal
4	399.9950	24.92	33.90	46.00	12.10	109.3	142.7	Horizontal
5	736.3390	31.84	38.79	46.00	7.21	111.7	132.2	Horizontal
6	900.1223	34.22	40.69	46.00	5.31	111.3	260.7	Horizontal

Test Report

Project Information			
EUT:	TCP30T	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5240	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 85		

Start of Test: 2024-03-30 11:30:34

Test Graph



Final Data List

NO.	Freq. (MHz)	Factor (dB)	QP Value (dBμV/m)	QP Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Polarity
1	30.4436	18.58	30.98	40.00	9.02	100.1	190	Vertical
2	45.2908	22.17	36.18	40.00	3.82	104.9	280	Vertical
3	52.0727	22.10	35.24	40.00	4.76	116.2	146.9	Vertical
4	176.6054	18.10	33.02	43.50	10.48	120	52	Vertical
5	266.9653	21.44	29.07	46.00	16.93	119.9	92.4	Vertical
6	934.5092	34.56	42.15	46.00	3.85	119.8	85.2	Vertical

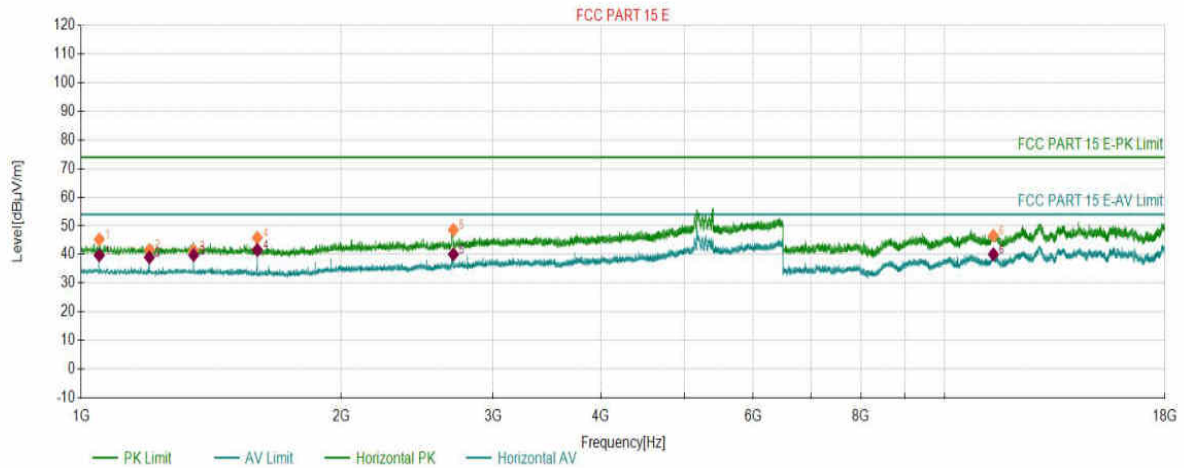
APPENDIX B – Radiated Emission Above 1GHz Test Data

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5180	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 75		

Start of Test: 2024-03-28 19:21:35

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	45.30	74.00	28.70	150	94	Horizontal
2	1199.6700	2.47	41.65	74.00	32.35	150	70	Horizontal
3	1349.8350	3.02	41.46	74.00	32.54	150	236	Horizontal
4	1599.5600	3.52	45.84	74.00	28.16	150	102	Horizontal
5	2698.5699	7.83	48.60	74.00	25.40	150	62	Horizontal
6	11390.2890	6.10	46.58	74.00	27.42	150	346	Horizontal

AV Final Data List

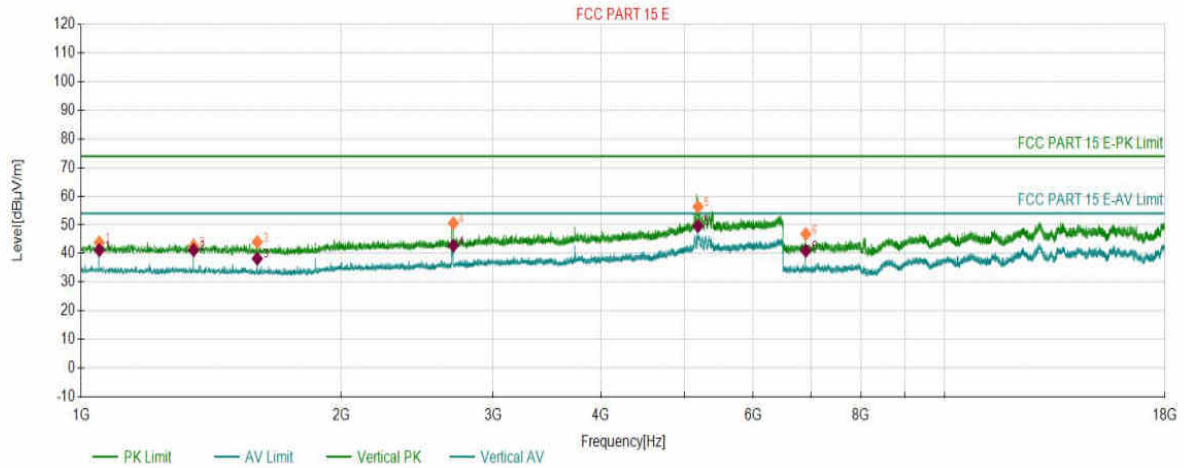
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	39.76	54.00	14.24	150	94	Horizontal
2	1199.6700	2.47	39.03	54.00	14.97	150	70	Horizontal
3	1349.8350	3.02	39.81	54.00	14.19	150	236	Horizontal
4	1599.5600	3.52	41.62	54.00	12.38	150	102	Horizontal
5	2698.5699	7.83	40.11	54.00	13.89	150	62	Horizontal
6	11390.2890	6.10	40.09	54.00	13.91	150	346	Horizontal

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5180	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 75		

Start of Test: 2024-03-28 19:22:55

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	43.85	74.00	30.15	150	14	Vertical
2	1349.8350	3.02	42.59	74.00	31.41	150	148	Vertical
3	1599.5600	3.52	43.98	74.00	30.02	150	114	Vertical
4	2698.5699	7.83	50.56	74.00	23.44	150	2	Vertical
5	5180.9681	20.86	56.33	74.00	17.67	150	84	Vertical
6	6907.1407	-1.96	46.80	74.00	27.20	150	8	Vertical

AV Final Data List

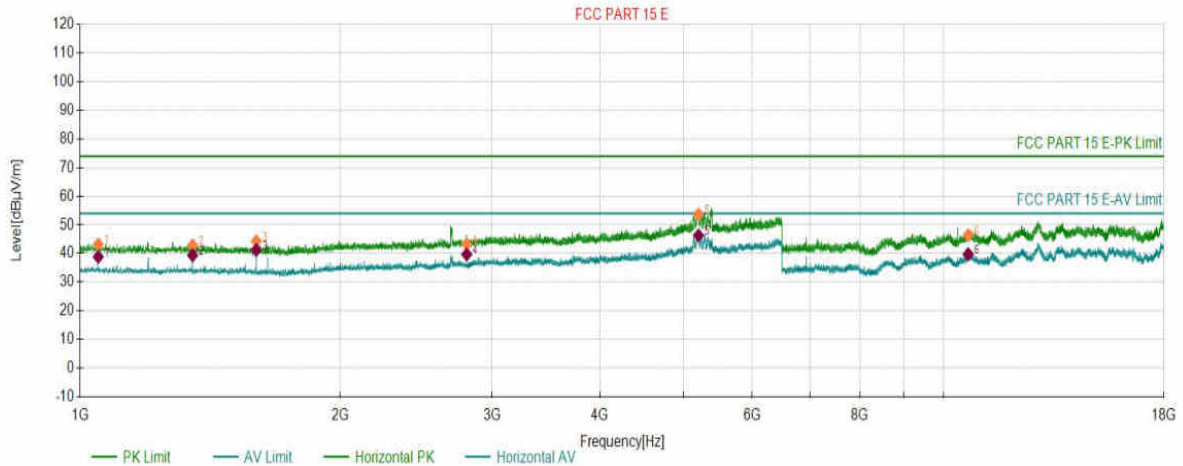
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	41.21	54.00	12.79	150	14	Vertical
2	1349.8350	3.02	41.19	54.00	12.81	150	148	Vertical
3	1599.5600	3.52	38.24	54.00	15.76	150	114	Vertical
4	2698.5699	7.83	42.77	54.00	11.23	150	2	Vertical
5	5180.9681	20.86	49.58	54.00	4.42	150	84	Vertical
6	6907.1407	-1.96	40.94	54.00	13.06	150	8	Vertical

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5200	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 75		

Start of Test: 2024-03-28 19:25:39

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	43.21	74.00	30.79	150	96	Horizontal
2	1349.8350	3.02	42.89	74.00	31.11	150	251	Horizontal
3	1599.5600	3.52	44.35	74.00	29.65	150	102	Horizontal
4	2803.6304	8.36	43.32	74.00	30.68	150	64	Horizontal
5	5201.3201	20.86	53.66	74.00	20.34	150	199	Horizontal
6	10678.3678	5.72	46.41	74.00	27.59	150	0	Horizontal

AV Final Data List

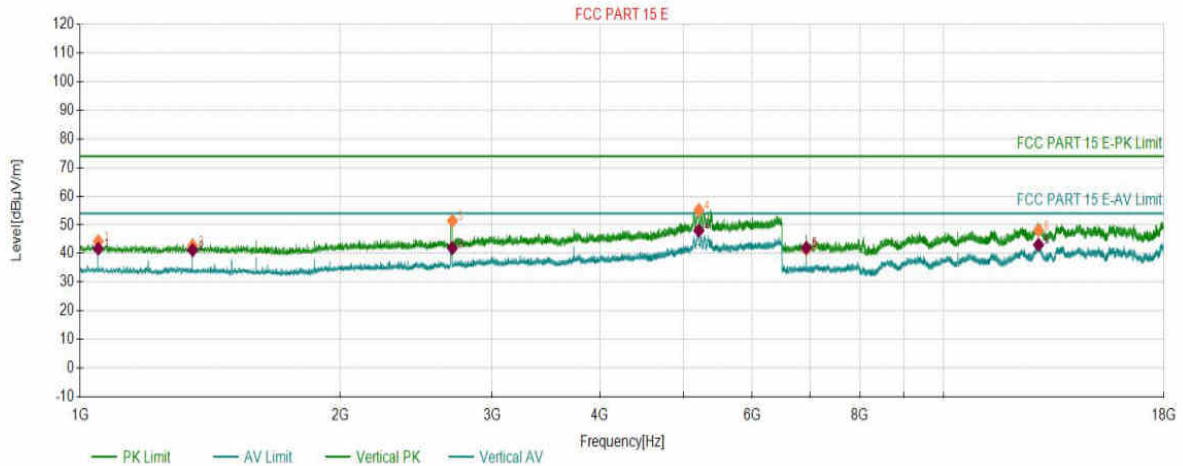
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	38.84	54.00	15.16	150	96	Horizontal
2	1349.8350	3.02	39.39	54.00	14.61	150	251	Horizontal
3	1599.5600	3.52	41.25	54.00	12.75	150	102	Horizontal
4	2803.6304	8.36	39.71	54.00	14.29	150	64	Horizontal
5	5201.3201	20.86	46.33	54.00	7.67	150	199	Horizontal
6	10678.3678	5.72	39.80	54.00	14.20	150	0	Horizontal

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2℃ 44%
Model:	TCP30T	SN:	
Mode:	11A_5200	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 75		

Start of Test: 2024-03-28 19:27:07

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	44.28	74.00	29.72	150	123	Vertical
2	1349.8350	3.02	42.80	74.00	31.20	150	148	Vertical
3	2698.5699	7.83	51.41	74.00	22.59	150	8	Vertical
4	5206.8207	20.86	55.17	74.00	18.83	150	21	Vertical
5	6933.5934	-2.02	41.47	74.00	32.53	150	10	Vertical
6	12880.8381	10.61	48.06	74.00	25.94	150	16	Vertical

AV Final Data List

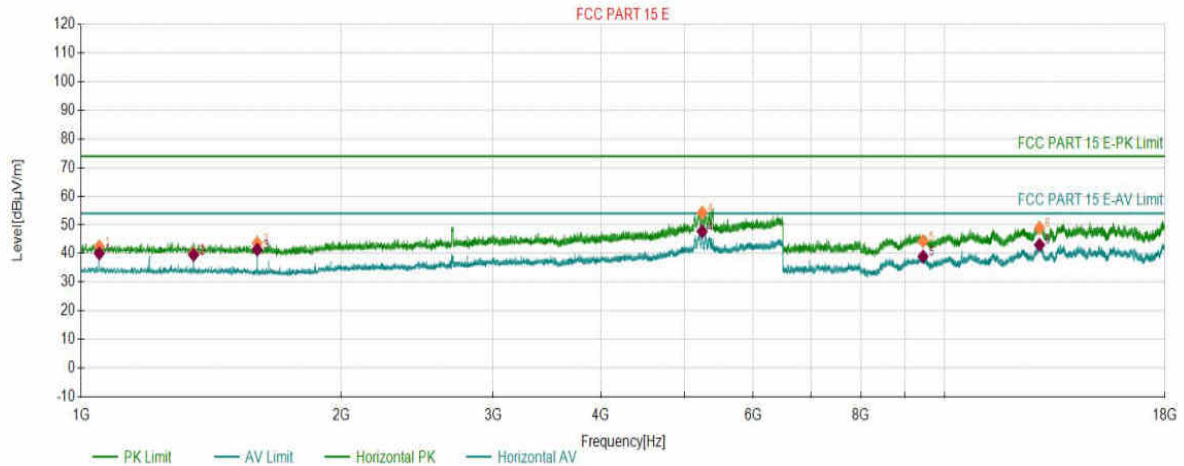
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	41.72	54.00	12.28	150	123	Vertical
2	1349.8350	3.02	41.20	54.00	12.80	150	148	Vertical
3	2698.5699	7.83	41.92	54.00	12.08	150	8	Vertical
4	5206.8207	20.86	47.99	54.00	6.01	150	21	Vertical
5	6933.5934	-2.02	42.02	54.00	11.98	150	10	Vertical
6	12880.8381	10.61	43.06	54.00	10.94	150	16	Vertical

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5240	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 85		

Start of Test: 2024-03-28 19:28:58

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	42.50	74.00	31.50	150	92	Horizontal
2	1349.8350	3.02	40.14	74.00	33.86	150	251	Horizontal
3	1599.5600	3.52	43.54	74.00	30.46	150	100	Horizontal
4	5239.2739	20.89	54.28	74.00	19.72	150	22	Horizontal
5	9440.8441	4.28	44.31	74.00	29.69	150	205	Horizontal
6	12879.6880	10.59	48.91	74.00	25.09	150	308	Horizontal

AV Final Data List

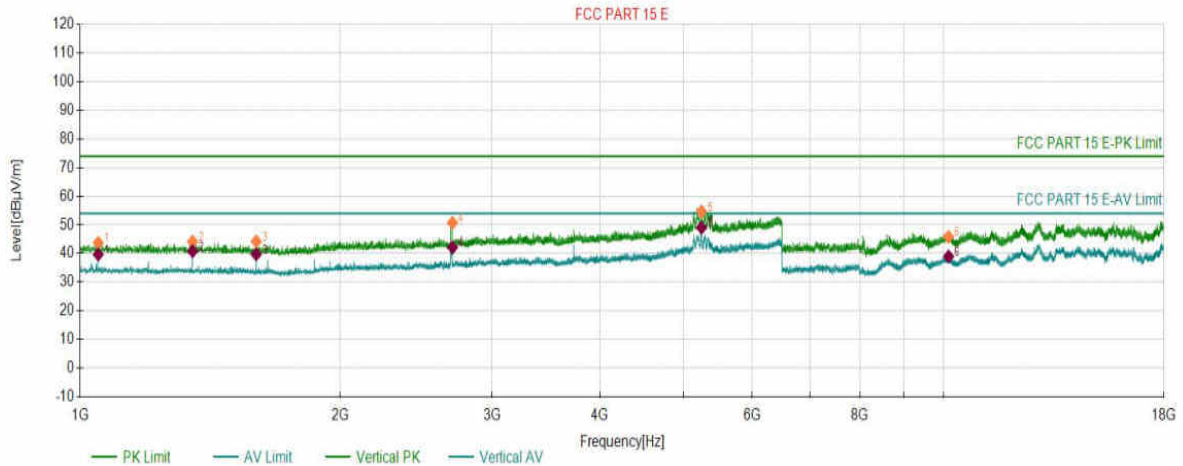
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	40.05	54.00	13.95	150	92	Horizontal
2	1349.8350	3.02	39.54	54.00	14.46	150	251	Horizontal
3	1599.5600	3.52	41.37	54.00	12.63	150	100	Horizontal
4	5239.2739	20.89	47.73	54.00	6.27	150	22	Horizontal
5	9440.8441	4.28	38.99	54.00	15.01	150	205	Horizontal
6	12879.6880	10.59	43.04	54.00	10.96	150	308	Horizontal

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5240	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 85		

Start of Test: 2024-03-28 19:30:27

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	43.77	74.00	30.23	150	30	Vertical
2	1349.8350	3.02	44.15	74.00	29.85	150	151	Vertical
3	1599.5600	3.52	44.23	74.00	29.77	150	127	Vertical
4	2699.1199	7.83	50.76	74.00	23.24	150	4	Vertical
5	5244.7745	20.90	54.65	74.00	19.35	150	30	Vertical
6	10132.0632	5.20	45.84	74.00	28.16	150	345	Vertical

AV Final Data List

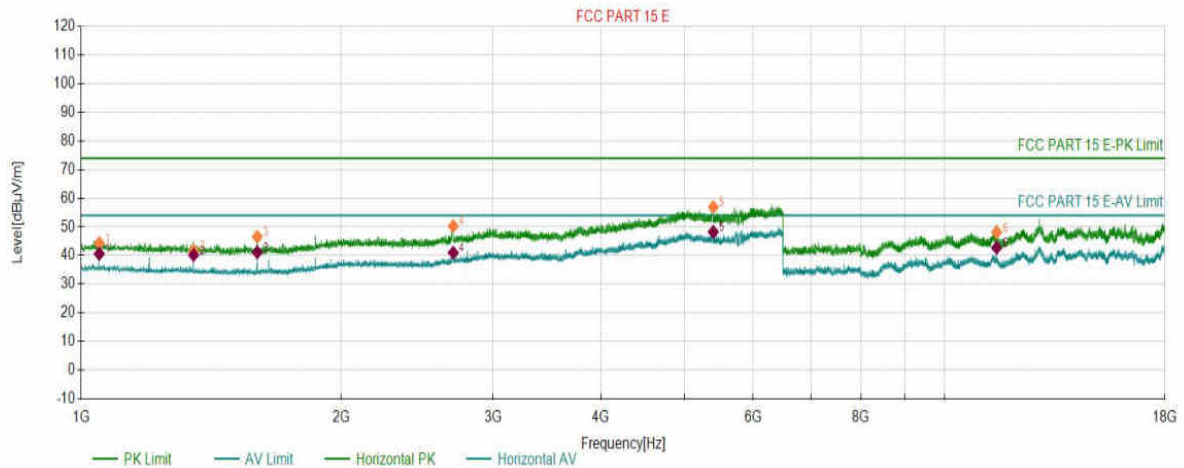
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	1.75	39.69	54.00	14.31	150	30	Vertical
2	1349.8350	3.02	40.81	54.00	13.19	150	151	Vertical
3	1599.5600	3.52	39.74	54.00	14.26	150	127	Vertical
4	2699.1199	7.83	42.12	54.00	11.88	150	4	Vertical
5	5244.7745	20.90	49.03	54.00	4.97	150	30	Vertical
6	10132.0632	5.20	38.97	54.00	15.03	150	345	Vertical

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5745	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 65		

Start of Test: 2024-03-28 19:54:59

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	3.12	44.38	74.00	29.62	150	121	Horizontal
2	1349.8350	3.67	41.69	74.00	32.31	150	235	Horizontal
3	1599.5600	4.20	46.55	74.00	27.45	150	96	Horizontal
4	2697.4697	9.83	50.29	74.00	23.71	150	24	Horizontal
5	5397.1397	22.26	56.93	74.00	17.07	150	137	Horizontal
6	11488.0488	6.24	48.15	74.00	25.85	150	310	Horizontal

AV Final Data List

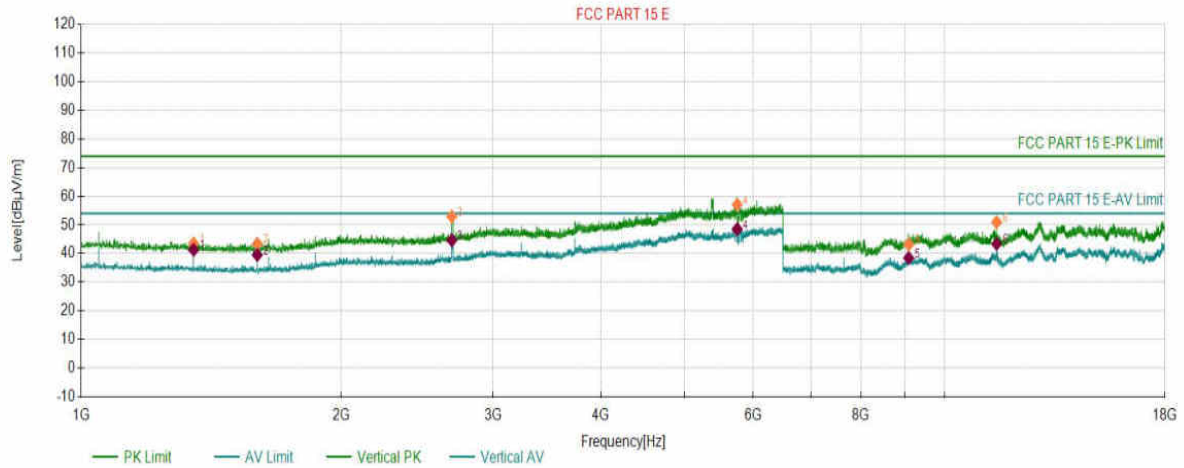
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	3.12	40.62	54.00	13.38	150	121	Horizontal
2	1349.8350	3.67	40.19	54.00	13.81	150	235	Horizontal
3	1599.5600	4.20	41.14	54.00	12.86	150	96	Horizontal
4	2697.4697	9.83	40.98	54.00	13.02	150	24	Horizontal
5	5397.1397	22.26	48.25	54.00	5.75	150	137	Horizontal
6	11488.0488	6.24	42.75	54.00	11.25	150	310	Horizontal

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5745	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 65		

Start of Test: 2024-03-28 19:56:26

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1349.8350	3.67	43.53	74.00	30.47	150	250	Vertical
2	1599.5600	4.20	43.40	74.00	30.60	150	114	Vertical
3	2687.5688	9.76	52.91	74.00	21.09	150	7	Vertical
4	5751.9252	23.46	57.07	74.00	16.93	150	1	Vertical
5	9086.6087	2.68	43.15	74.00	30.85	150	14	Vertical
6	11489.1989	6.24	50.95	74.00	23.05	150	29	Vertical

AV Final Data List

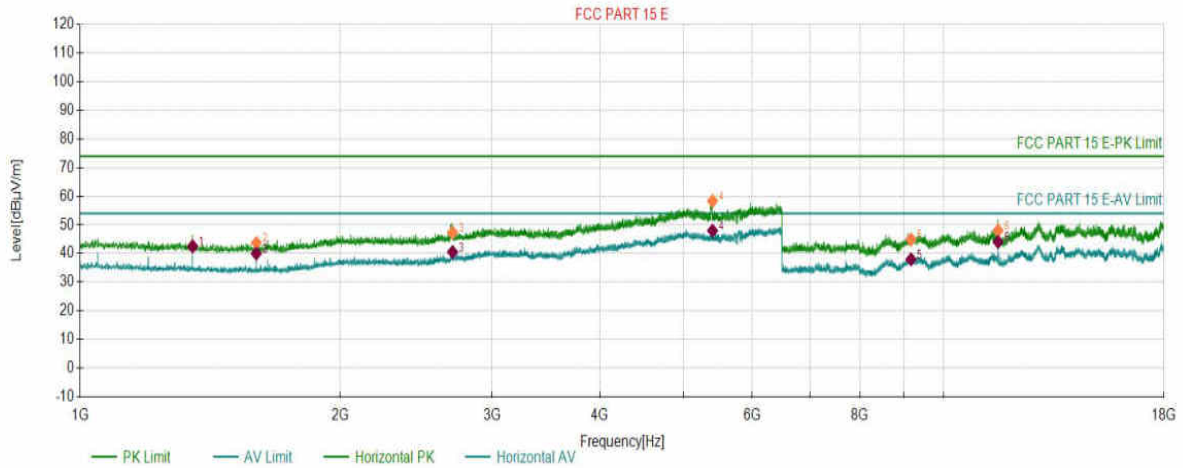
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1349.8350	3.67	41.29	54.00	12.71	150	250	Vertical
2	1599.5600	4.20	39.52	54.00	14.48	150	114	Vertical
3	2687.5688	9.76	44.64	54.00	9.36	150	7	Vertical
4	5751.9252	23.46	48.53	54.00	5.47	150	1	Vertical
5	9086.6087	2.68	38.46	54.00	15.54	150	14	Vertical
6	11489.1989	6.24	43.38	54.00	10.62	150	29	Vertical

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2℃ 44%
Model:	TCP30T	SN:	
Mode:	11A_5785	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 65		

Start of Test: 2024-03-28 20:17:27

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1349.8350	3.67	42.61	74.00	31.39	150	66	Horizontal
2	1599.5600	4.20	43.71	74.00	30.29	150	172	Horizontal
3	2699.6700	9.85	47.33	74.00	26.67	150	100	Horizontal
4	5399.8900	22.26	58.37	74.00	15.63	150	230	Horizontal
5	9168.2668	2.99	44.91	74.00	29.09	150	331	Horizontal
6	11563.9564	5.33	48.03	74.00	25.97	150	35	Horizontal

AV Final Data List

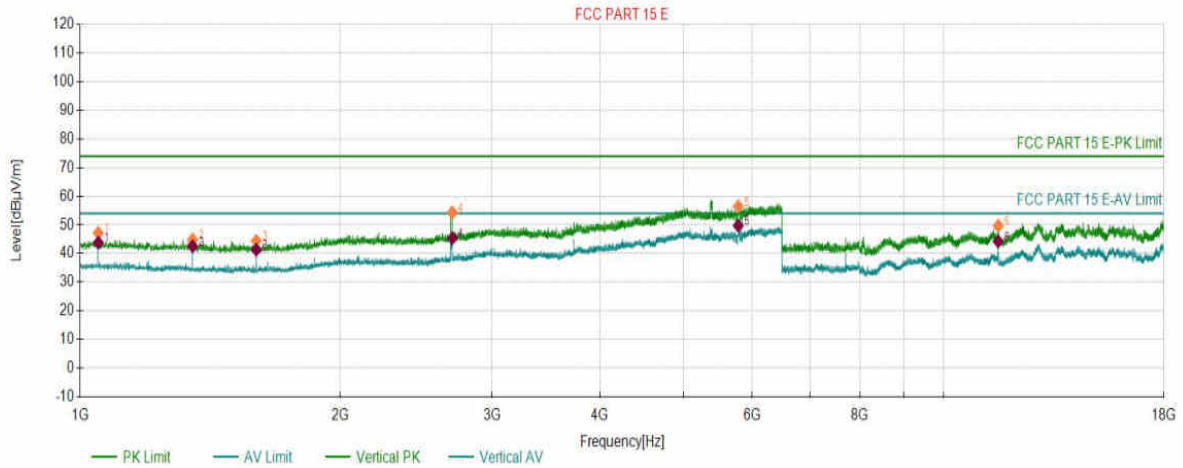
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1349.8350	3.67	42.49	54.00	11.51	150	66	Horizontal
2	1599.5600	4.20	39.98	54.00	14.02	150	172	Horizontal
3	2699.6700	9.85	40.56	54.00	13.44	150	100	Horizontal
4	5399.8900	22.26	47.98	54.00	6.02	150	230	Horizontal
5	9168.2668	2.99	37.98	54.00	16.02	150	331	Horizontal
6	11563.9564	5.33	44.06	54.00	9.94	150	35	Horizontal

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5785	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 65		

Start of Test: 2024-03-28 20:18:55

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	3.12	47.23	74.00	26.77	150	198	Vertical
2	1349.8350	3.67	44.86	74.00	29.14	150	316	Vertical
3	1599.5600	4.20	44.43	74.00	29.57	150	266	Vertical
4	2698.5699	9.84	54.32	74.00	19.68	150	77	Vertical
5	5783.2783	23.65	56.45	74.00	17.55	150	86	Vertical
6	11568.5569	5.26	49.71	74.00	24.29	150	87	Vertical

AV Final Data List

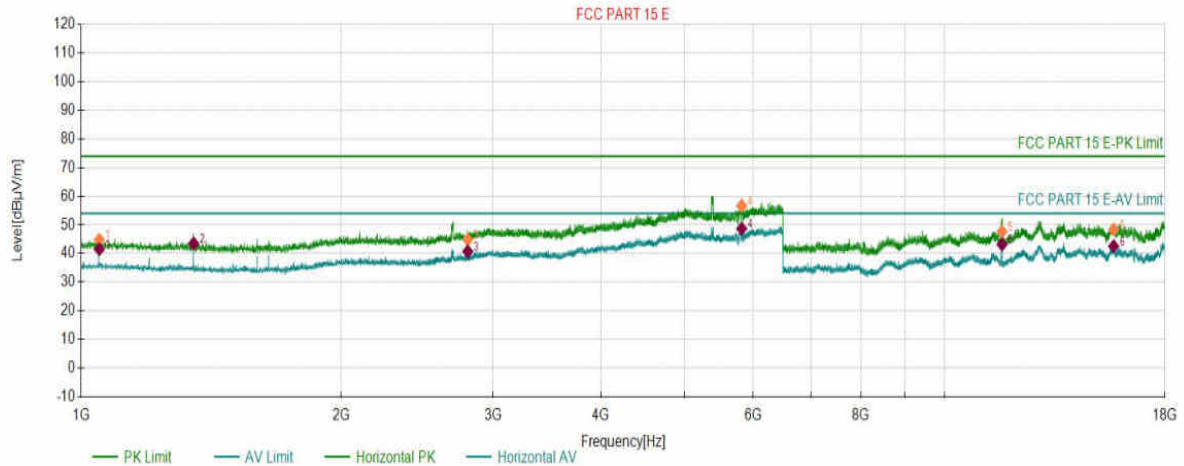
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	3.12	43.82	54.00	10.18	150	198	Vertical
2	1349.8350	3.67	42.54	54.00	11.46	150	316	Vertical
3	1599.5600	4.20	41.35	54.00	12.65	150	266	Vertical
4	2698.5699	9.84	45.43	54.00	8.57	150	77	Vertical
5	5783.2783	23.65	49.75	54.00	4.25	150	86	Vertical
6	11568.5569	5.26	44.25	54.00	9.75	150	87	Vertical

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5825	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 65		

Start of Test: 2024-03-28 20:21:24

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	3.12	44.82	74.00	29.18	150	68	Horizontal
2	1349.8350	3.67	43.49	74.00	30.51	150	68	Horizontal
3	2803.6304	10.64	44.85	74.00	29.15	150	227	Horizontal
4	5821.2321	23.81	56.68	74.00	17.32	150	266	Horizontal
5	11653.6654	4.67	47.65	74.00	26.35	150	36	Horizontal
6	15696.3196	11.75	48.34	74.00	25.66	150	360	Horizontal

AV Final Data List

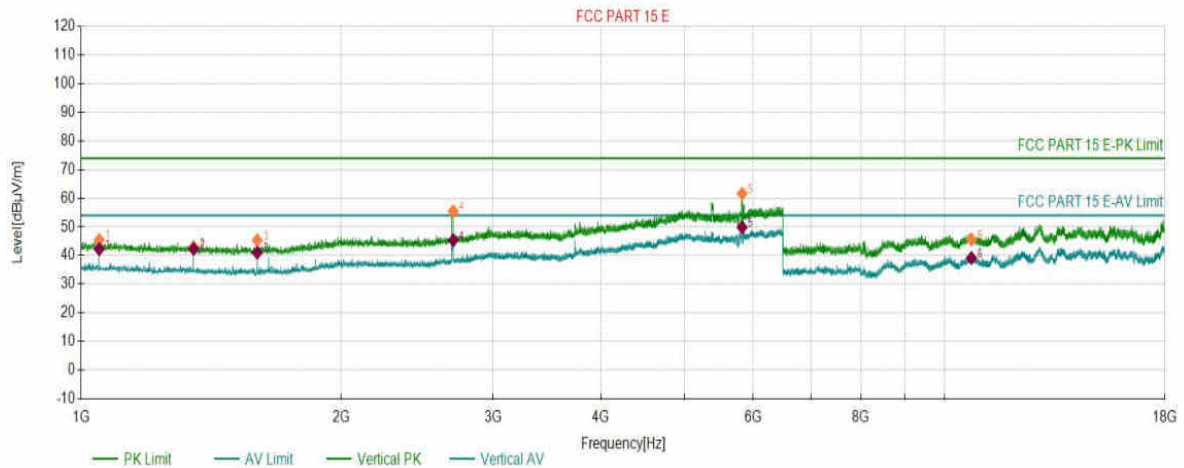
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	3.12	41.53	54.00	12.47	150	68	Horizontal
2	1349.8350	3.67	43.46	54.00	10.54	150	68	Horizontal
3	2803.6304	10.64	40.74	54.00	13.26	150	227	Horizontal
4	5821.2321	23.81	48.69	54.00	5.31	150	266	Horizontal
5	11653.6654	4.67	43.17	54.00	10.83	150	36	Horizontal
6	15696.3196	11.75	42.56	54.00	11.44	150	360	Horizontal

Test Report

Project Information			
EUT:	Touch Control Panel	Environment:	24.2°C 44%
Model:	TCP30T	SN:	
Mode:	11A_5825	Voltage:	DC 52V
Customer:		Engineer:	Soho Liu
Remark:	Power set: 65		

Start of Test: 2024-03-28 20:22:52

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	3.12	45.44	74.00	28.56	150	185	Vertical
2	1349.8350	3.67	42.93	74.00	31.07	150	226	Vertical
3	1599.5600	4.20	45.34	74.00	28.66	150	283	Vertical
4	2698.0198	9.83	55.45	74.00	18.55	150	81	Vertical
5	5827.8328	23.83	61.63	74.00	12.37	150	219	Vertical
6	10740.4740	5.84	45.59	74.00	28.41	150	158	Vertical

AV Final Data List

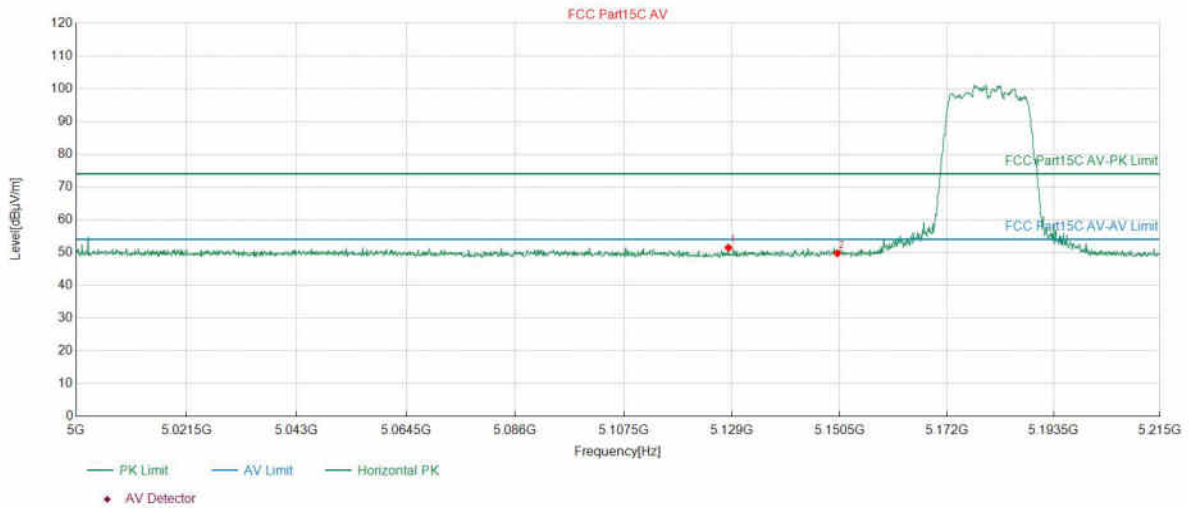
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1049.5050	3.12	42.27	54.00	11.73	150	185	Vertical
2	1349.8350	3.67	42.30	54.00	11.70	150	226	Vertical
3	1599.5600	4.20	41.03	54.00	12.97	150	283	Vertical
4	2698.0198	9.83	45.36	54.00	8.64	150	81	Vertical
5	5827.8328	23.83	49.83	54.00	4.17	150	219	Vertical
6	10740.4740	5.84	39.14	54.00	14.86	150	158	Vertical

Test Report

Project Information			
Customer:		EUT:	Touch Control Panel
Model:	TCP30T	SN:	
Mode:	11A_5180	Voltage:	DC 52V
Environment:	Temp: 25℃; Humi:60%	Engineer:	Soho Liu
Remark:	Power set: 75		
Test Standard:			

Start of Test:2024-03-28

Test Graph



PK Final Data List

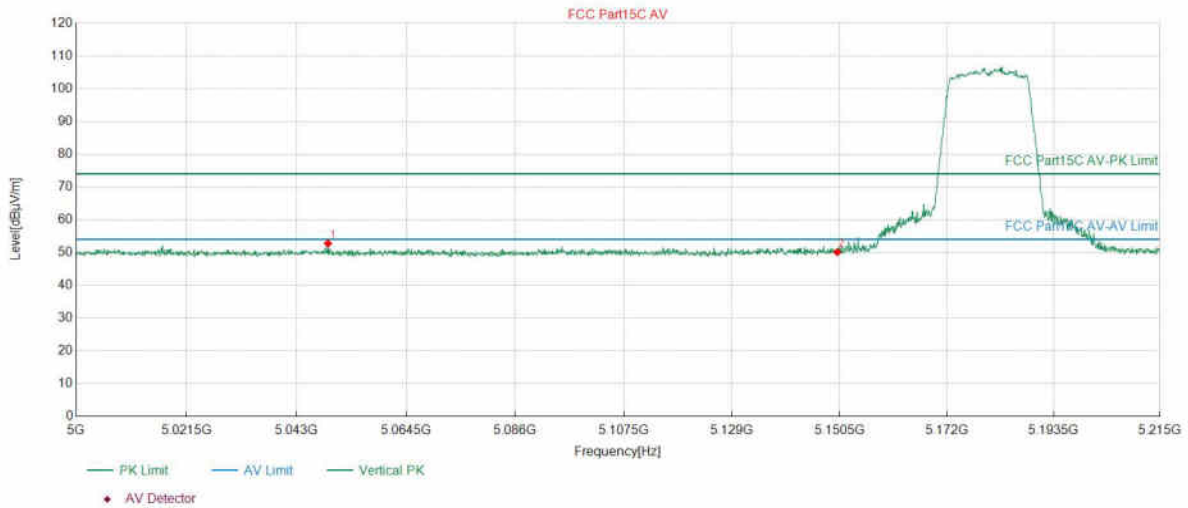
NO.	Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Polarity
1	5128	51.46	74.00	22.54	150	26	Horizontal
2	5150	49.75	74.00	24.25	150	43	Horizontal

Test Report

Project Information			
Customer:		EUT:	Touch Control Panel
Model:	TCP30T	SN:	
Mode:	11A_5180	Voltage:	DC 52V
Environment:	Temp: 25℃; Humi:60%	Engineer:	Soho Liu
Remark:	Power set: 75		
Test Standard:			

Start of Test:2024-03-28

Test Graph



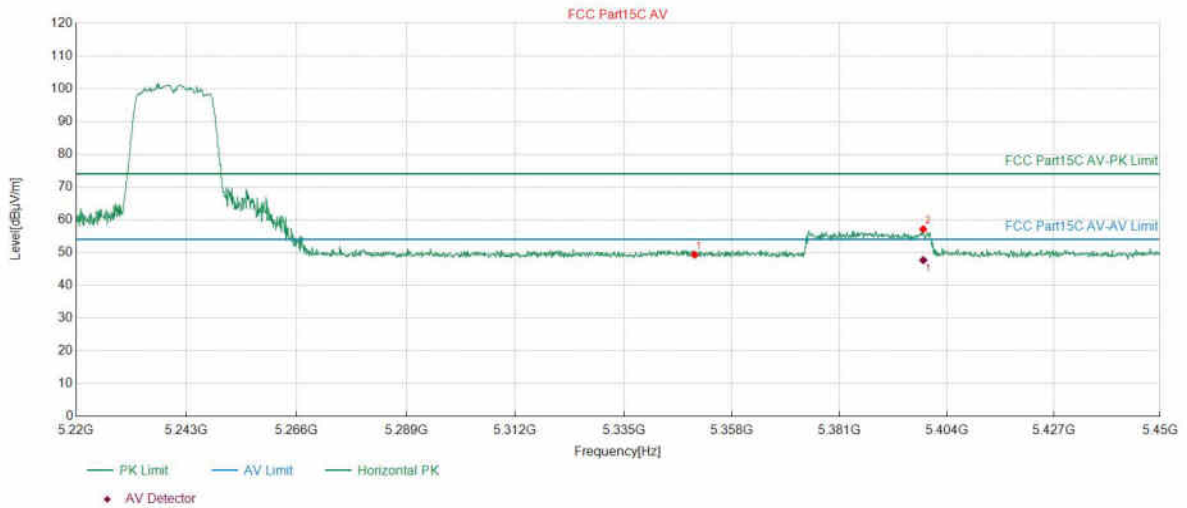
PK Final Data List							
NO.	Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Angle (°)	Polarity
1	5049	52.76	74.00	21.24	150	359	Vertical
2	5150	50.11	74.00	23.89	150	147	Vertical

Test Report

Project Information			
Customer:		EUT:	Touch Control Panel
Model:	TCP30T	SN:	
Mode:	11A_5240	Voltage:	DC 52V
Environment:	Temp: 25℃; Humi:60%	Engineer:	Soho Liu
Remark:	Power set: 85		
Test Standard:			

Start of Test:2024-03-28

Test Graph



PK Final Data List

NO.	Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Polarity
1	5350	49.35	74.00	24.65	150	73	Horizontal
2	5399	57.13	74.00	16.87	150	227	Horizontal

AV Final Data List

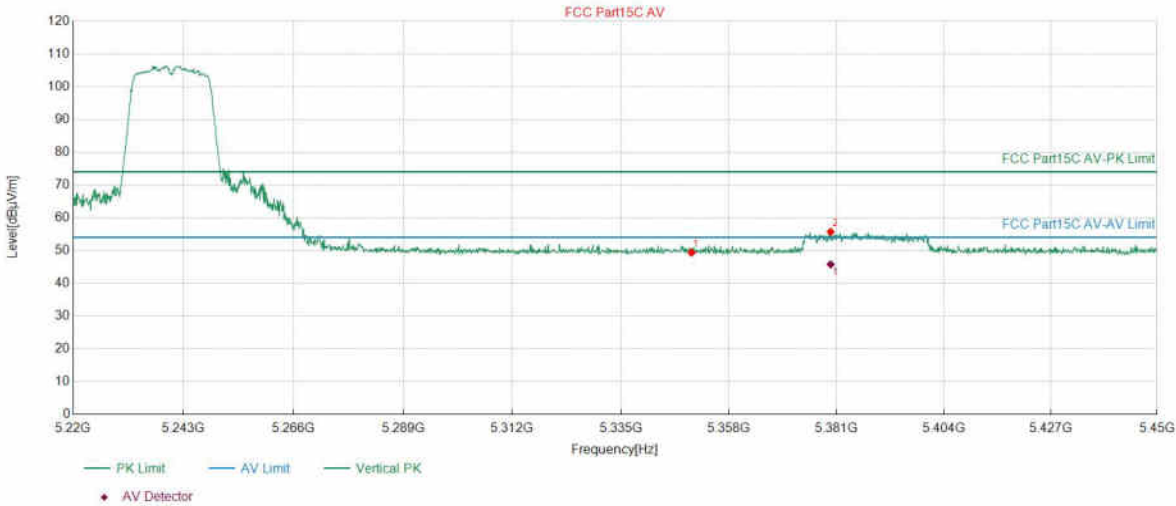
NO	Frequency (MHz)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	5398.9142	47.68	54.00	6.32	150	225	Horizontal

Test Report

Project Information			
Customer:		EUT:	Touch Control Panel
Model:	TCP30T	SN:	
Mode:	11A_5240	Voltage:	DC 52V
Environment:	Temp: 25℃; Humi:60%	Engineer:	Soho Liu
Remark:	Power set: 85		
Test Standard:			

Start of Test:2024-03-28

Test Graph



PK Final Data List							
NO.	Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Polarity
1	5350	49.35	74.00	24.65	150	41	Vertical
2	5380	55.69	74.00	18.31	150	129	Vertical

AV Final Data List							
NO	Frequency (MHz)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	5379.6999	45.78	54.00	8.22	150	129	Vertical

END OF REPORT