



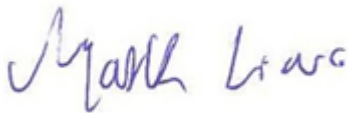
FCC RADIO TEST REPORT

Applicant : Elo Touch Solutions, Inc.
Address : 670 N. McCarthy Blvd., Suite 100, Milpitas,
CA 95035, USA
Equipment : Touch All-in-One Computer
Model No. : ESY22I1D
Trade Name : Elo or 
FCC ID : RBWESY22I1DNFC

I HEREBY CERTIFY THAT :

The sample was received on Mar. 01, 2024 and the testing was completed on Jun. 20, 2024 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:



Mark Liao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





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History of this test report

Report No.	Issued Date	Description
24030030-TRFCC07	Jun. 24, 2024	Original



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

ANSI C63.10:2013

Description of Test	Result
CO-LOCATION	PASS

*The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement, measurement uncertainty evaluation is not considered.



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Operation Frequency Range	NFC: 13.553MHz~13.567MHz BT / BLE: 2400-2483.5MHz 802.11b/g/n: 2400-2483.5MHz 802.11a/n/ac: 5150-5250MHz, 5250-5350MHz, 5470-5725MHz, 5725-5850MHz
Center Frequency Range	NFC: 13.56MHz BT / BLE: 2402MHz-2480MHz 802.11b/g/n: 2412MHz-2462MHz 802.11a/n/ac: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz
Modulation Type	NFC: ASK BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK WLAN: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM 802.11a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Modulation Technology	DSSS, OFDM, FHSS, DTS
Data Rate	BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps WLAN: 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type	NFC: Loop Antenna BT/BLE/2.4G/5G: Dipole Antenna
Antenna Gain	For NFC: 0dBi For BT / BLE: 2400-2480MHz: ANT A: 4.45dBi For WLAN: 2400-2500MHz: ANT A: 4.45dBi, ANT B: 2.5dBi 5150-5250MHz: ANT A: 3.79dBi, ANT B: 4.80dBi 5250-5350MHz: ANT A: 3.62dBi, ANT B: 4.98dBi 5471-5725MHz: ANT A: 2.12dBi, ANT B: 5.87dBi 5725-5850MHz: ANT A: 1.87dBi, ANT B: 5.97dBi
Adapter	Brand: DELTA Model: ADP-65JH HB
	Brand: BILLION Model: BA090-190474MBX
	Brand: BILLION Model: BA070-190342MBX
Panel	Brand: LG Model: LM215WF3



	Brand: AUO Model: M215HAN01.2
Firmware Number	22in-I-Series-4
Serial Number	SWEP_sdm660la50_v12.047.03.p_01

Note:

1. EUT support TPC Function.
2. EUT support Client Mode without radar detection.
3. EUT WLAN 2.4GHz 802.11b and 802.11g 1TX diversity
4. WLAN and BT can simultaneously transmission.
5. For more details, please refer to the User's manual of the EUT.
6. Panel (Brand: LG, Model: LM215WF3) is worst case, hence used at test report.



2.2 Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- The complete test system included Notebook and EUT for RF test.
- An executive program, "QRCT ver.4.0.00189.0" under Windows OS system was executed to transmit and receive data via Bluetooth.
- An executive program, "QRCT ver.4.0.00189.0" under Windows OS system was executed to transmit and receive data via WLAN.
- The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	BT GFSK CH78 + 2.4G 11n20 CH06 With Adapter
2	BT GFSK CH78 + 5G 11ac20 CH157 With Adapter
caused "Test Mode 1,2" generated the worst case, they were reported as the final data.	
Radiation Emissions	
Test Mode	Operating Description
1	BT GFSK CH78 + 2.4G 11n20 CH06 With Adapter
2	BT GFSK CH78 + 5G 11ac20 CH157 With Adapter
caused "Test Mode 1,2" generated the worst case, they were reported as the final data.	

Note:

- There are two kinds of test voltage: AC 120V / 60Hz and AC 240V / 60Hz.
For AC Power Line Conducted Emission, AC 240V / 60Hz is worst case.
For Radiated Spurious Emission, AC 120V / 60Hz is worst case.
- There are three types of Adapters with the shipment, After engineering evaluation, Model: ADP-65JH HB are worst case, hence, are used at test report.

2.3 Description of Test System

Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	DELL	Latitude E5470	N/A	Adapter / 1.8m / NS
USB Cable (A to A)	BENEVO	E210567AWM	1m / NS	N/A
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	DELL	Latitude E5470	N/A	Adapter / 1.8m / NS
USB Cable (A to A)	BENEVO	E210567AWM	1m / NS	N/A



2.4 General Information of Test

☒ Test Site	CerpPASS Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel: +886-3-3226-888 Fax: +886-3-3226-881	
	FCC	TW1439, TW1079
	IC	4934E-1, 4934E-2
Frequency Range Investigated	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 40,000MHz	
Test Distance	The test distance of radiated emission from antenna to EUT is 3 M.	

Test Item	Test Site	Test period	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2024/06/20	25.1°C / 46%	Leon Huang
Radiated Emissions	3M02-NK	2024/05/09	23.1°C / 42%	Leon Huang
Radiated Emissions	3M02-NK	2024/05/15	22.1°C / 36%	Leon Huang
AC Power Line Conducted Emission	CON02-NK	2024/03/21	21.7°C / 47%	Leon Huang



2.5 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

For BT/2.4G

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.12dB
Radiated Spurious Emission(9KHz~30MHz)	±3.5dB
Radiated Spurious Emission(30MHz~1GHz)	±5.1dB
Radiated Spurious Emission(1GHz~25GHz)	±5.2dB
Conducted Spurious Emission	±2.1dB
6dB Bandwidth	±5.4%
20dB Bandwidth	±4.4%
Occupied Bandwidth	±4.5%
Peak Output Power(Conducted Power Meter)	±1.1dB
Dwell Time / Deactivation Time	±7.6%
Power Spectral Density	±2.0dB
Duty Cycle	±3.5%

For 5G

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.12dB
Radiated Spurious Emission(9KHz~30MHz)	±3.5dB
Radiated Spurious Emission(30MHz~1GHz)	±5.1dB
Radiated Spurious Emission(1GHz~40GHz)	±5.2dB
6dB Bandwidth	±5.4%
26dB Bandwidth	±4.4%
Occupied Bandwidth	±4.5%
Peak Output Power(Conducted Power Meter)	±1.1dB
Power Spectral Density	±2.0dB
Duty Cycle	±3.5%
Frequency Stability	±0.23KHz



3. Test Equipment and Ancillaries Used for Tests

Test Item	Radiated Emissions				
Test Site	Semi Anechoic Room(3M02-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Schwarzbeck	VULB9168	369	2024/02/19	2025/02/18
Active Loop Antenna	Schwarzbeck	FMZB 1513	414	2024/01/16	2025/01/15
Horn Antenna	EMCO	3115	31601	2023/10/18	2024/10/17
Horn Antenna	EMCO	3116	31974	2023/10/16	2024/10/15
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2023/07/05	2024/07/04
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2023/08/15	2024/08/14
Preamplifier	Agilent	8449B	3008A01954	2024/03/01	2025/02/28
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2023/10/13	2024/10/12
Preamplifier	EM Electronics corp.	EM330	60659	2024/02/17	2025/02/16
Cable-4m(9k-3G)	EMEC	RG-223	18274M	2023/07/31	2024/07/30
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1315	2024/02/23	2025/02/22
Cable-0.5m(1G-40G)	HUBER SUHNER	SUCOFLEX 104	805443/4	2024/03/05	2025/03/04
Cable-3m(1G-40G)	HUBER SUHNER	SUCOFLEX 104	805796/4	2024/03/05	2025/03/04
Cable-8m(1G-26.5G)	WOKEN	WCBA-WCA203SM	CCE1374	2024/03/05	2025/03/04
Cable-1m(1G-40G)	HUBER SUHNER	HUBER SUHNER / SF102	552450	2023/06/08	2024/06/07
Cable-3m(1G-40G)	HUBER SUHNER	HUBER SUHNER / SF102	552451	2023/06/08	2024/06/07
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA
High Pass Filter	Warison	WFIL-H3000-18000F-03	WRJ5CFWC2J1	2023/07/03	2024/07/02
Highpass Filter	WOKEN	WFIL-H7000-18000F-01	WR468FWC2B1	2023/08/18	2024/08/17

Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100047	2024/03/01	2025/02/28
Attenuator	KEYSIGHT	8491B	MY39250703	2024/02/20	2025/02/19
Cable-0.5m (30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2023/10/12	2024/10/11
Power Meter	Anritsu	ML2495A	1224005	2024/02/17	2025/02/16
Power Sensor	Anritsu	MA2411B	1207295	2024/02/17	2025/02/16
Switch Box	Theda	1-4	TW5451159	NA	NA



Test Item	AC Power Line Conducted Emission				
Test Site	CON02-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESR 7	101906	2023/05/08	2024/05/07
TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	102185	2023/08/29	2024/08/28
Cable-4m(9k-3G)	EMEC	RG-223	18274M	2023/07/31	2024/07/30
E3	AUDIX	v8.2014-8-6	RK-000536	NA	NA



4. Test of AC Power Line Conducted Emission

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.10-2013. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

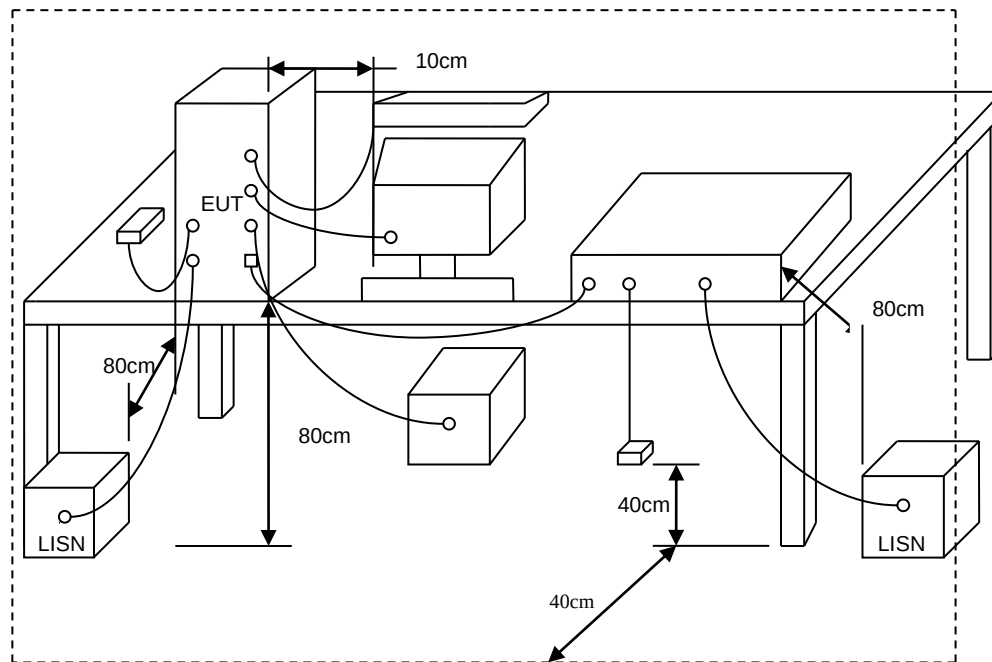
*Decreases with the logarithm of the frequency.

4.2 Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



4.3 Typical Test Setup

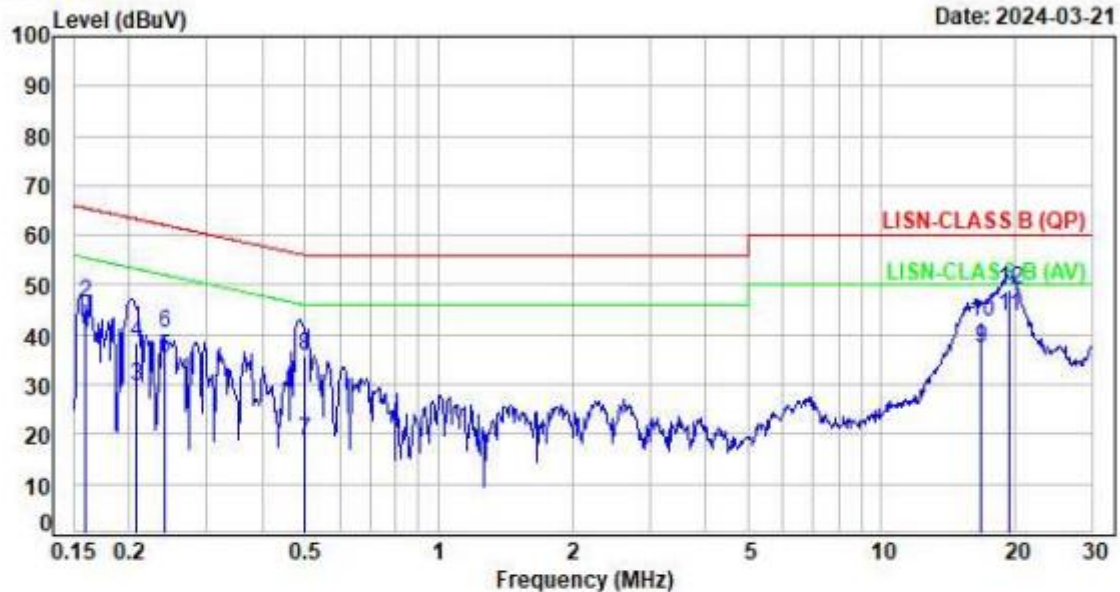




4.4 Test Result and Data

Test Mode : 2TX 11n20 CH06 MCS0+BT 1TX GFSK CH78
Voltage : From Adapter(AC 240V/60Hz)
Phase : Line

Data: 78



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1592	9.66	30.48	40.14	55.51	-15.37	Average	P
2	0.1592	9.66	36.58	46.24	65.51	-19.27	QP	P
3	0.2088	9.64	20.08	29.72	53.25	-23.53	Average	P
4	0.2088	9.64	28.58	38.22	63.25	-25.03	QP	P
5	0.2406	9.64	25.58	35.22	52.07	-16.85	Average	P
6	0.2406	9.64	30.69	40.33	62.07	-21.74	QP	P
7	0.4989	9.65	9.16	18.81	46.02	-27.21	Average	P
8	0.4989	9.65	25.96	35.61	56.02	-20.41	QP	P
9	16.7890	9.92	27.43	37.35	50.00	-12.65	Average	P
10	16.7890	9.92	32.82	42.74	60.00	-17.26	QP	P
11	19.3906	9.94	33.61	43.55	50.00	-6.45	Average	P
12	19.3906	9.94	38.94	48.88	60.00	-11.12	QP	P

Note: Level=Reading+Factor

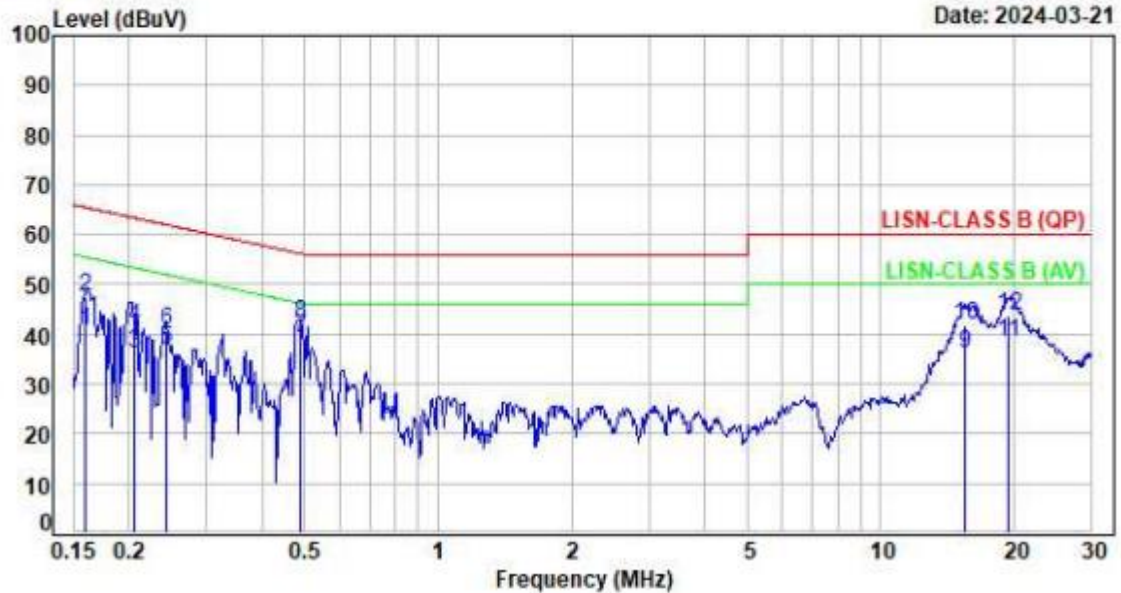
Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Test Mode : 2TX 11n20 CH06 MCS0+BT 1TX GFSK CH78
Voltage : From Adapter(AC 240V/60Hz)
Phase : Neutral

Data: 79



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1594	9.57	31.20	40.77	55.49	-14.72	Average	P
2	0.1594	9.57	38.10	47.67	65.49	-17.82	QP	P
3	0.2059	9.59	26.63	36.22	53.37	-17.15	Average	P
4	0.2059	9.59	31.96	41.55	63.37	-21.82	QP	P
5	0.2433	9.58	27.21	36.79	51.98	-15.19	Average	P
6	0.2433	9.58	31.19	40.77	61.98	-21.21	QP	P
7	0.4871	9.57	29.62	39.19	46.22	-7.03	Average	P
8	0.4871	9.57	32.50	42.07	56.22	-14.15	QP	P
9	15.4450	9.91	26.06	35.97	50.00	-14.03	Average	P
10	15.4450	9.91	31.75	41.66	60.00	-18.34	QP	P
11	19.4317	9.97	28.51	38.48	50.00	-11.52	Average	P
12	19.4317	9.97	33.70	43.67	60.00	-16.33	QP	P

Note: Level=Reading+Factor

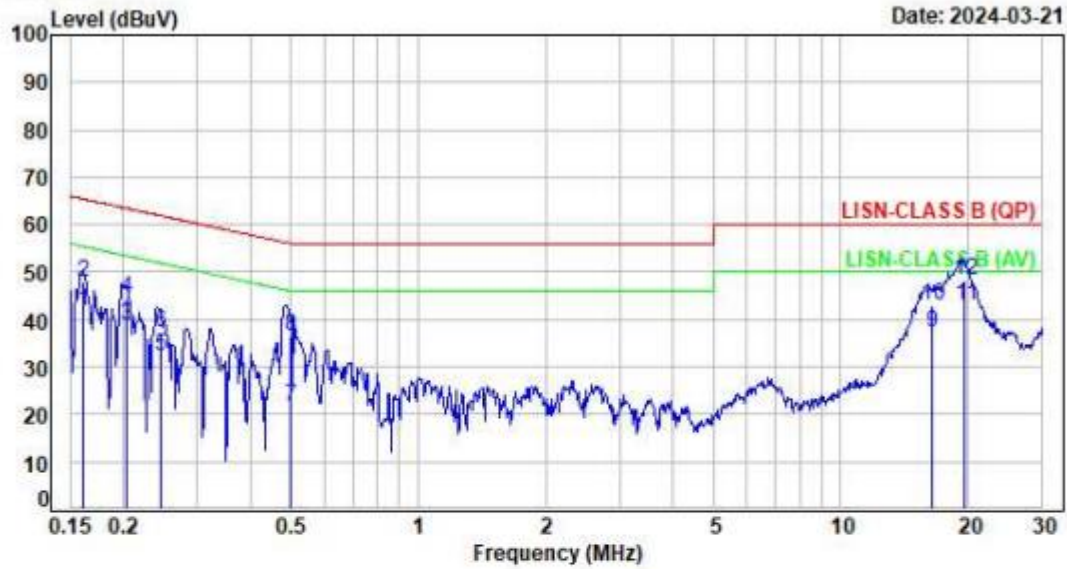
Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Test Mode : 2TX 11ac20 CH157+BT 1TX GFSK CH78
Voltage : From Adapter(AC 240V/60Hz)
Phase : Line

Data: 80



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1604	9.66	32.00	41.66	55.45	-13.79	Average	P
2	0.1604	9.66	38.32	47.98	65.45	-17.47	QP	P
3	0.2046	9.64	29.30	38.94	53.42	-14.48	Average	P
4	0.2046	9.64	34.80	44.44	63.42	-18.98	QP	P
5	0.2468	9.64	22.73	32.37	51.86	-19.49	Average	P
6	0.2468	9.64	27.60	37.24	61.86	-24.62	QP	P
7	0.4964	9.65	12.18	21.83	46.06	-24.23	Average	P
8	0.4964	9.65	26.89	36.54	56.06	-19.52	QP	P
9	16.4896	9.92	27.48	37.40	50.00	-12.60	Average	P
10	16.4896	9.92	32.89	42.81	60.00	-17.19	QP	P
11	19.6717	9.94	33.11	43.05	50.00	-6.95	Average	P
12	19.6717	9.94	38.35	48.29	60.00	-11.71	QP	P

Note: Level=Reading+Factor

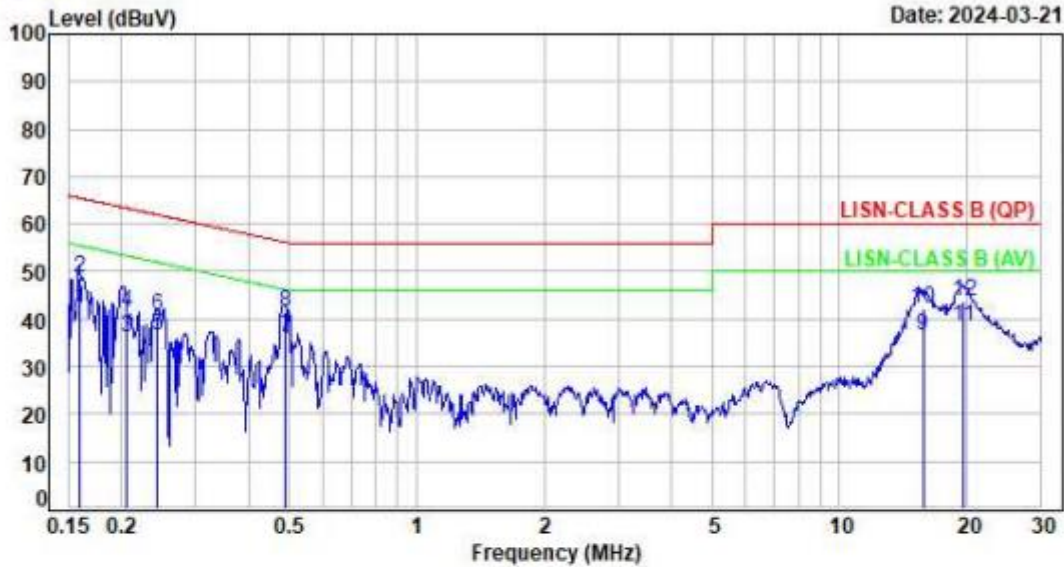
Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Test Mode : 2TX 11ac20 CH157+BT 1TX GFSK CH78
Voltage : From Adapter(AC 240V/60Hz)
Phase : Neutral

Data: 81



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1595	9.57	32.80	42.37	55.49	-13.12	Average	P
2	0.1595	9.57	38.96	48.53	65.49	-16.96	QP	P
3	0.2062	9.59	26.66	36.25	53.36	-17.11	Average	P
4	0.2062	9.59	31.83	41.42	63.36	-21.94	QP	P
5	0.2435	9.58	27.03	36.61	51.98	-15.37	Average	P
6	0.2435	9.58	31.02	40.60	61.98	-21.38	QP	P
7	0.4893	9.57	26.69	36.26	46.18	-9.92	Average	P
8	0.4893	9.57	31.78	41.35	56.18	-14.83	QP	P
9	15.7344	9.91	26.66	36.57	50.00	-13.43	Average	P
10	15.7344	9.91	32.43	42.34	60.00	-17.66	QP	P
11	19.6059	9.97	28.55	38.52	50.00	-11.48	Average	P
12	19.6059	9.97	33.91	43.88	60.00	-16.12	QP	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



5. Test of Spurious Emission (Radiated)

5.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3



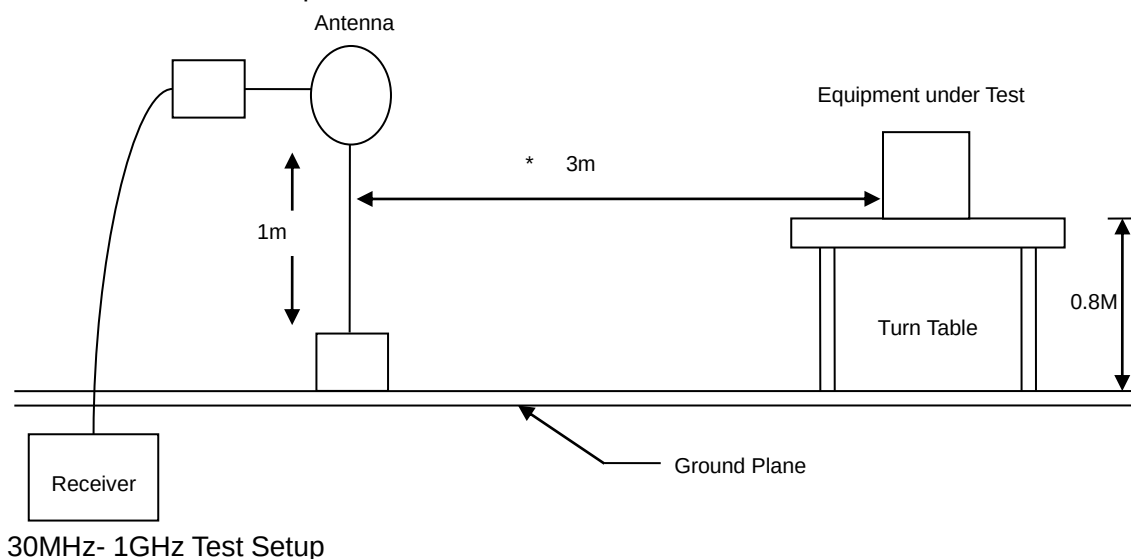
5.2 Test Procedures

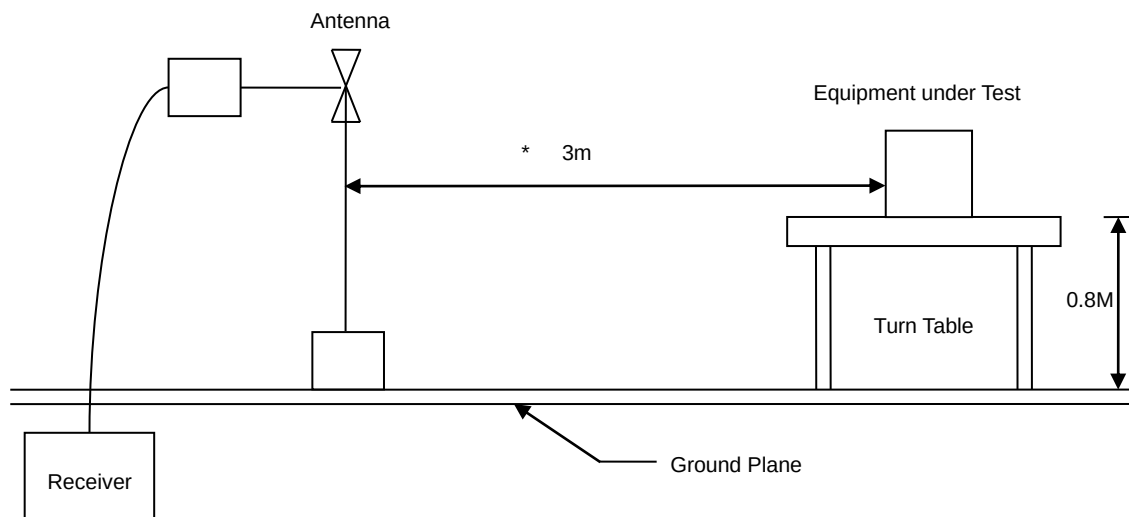
- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

Note: The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized.

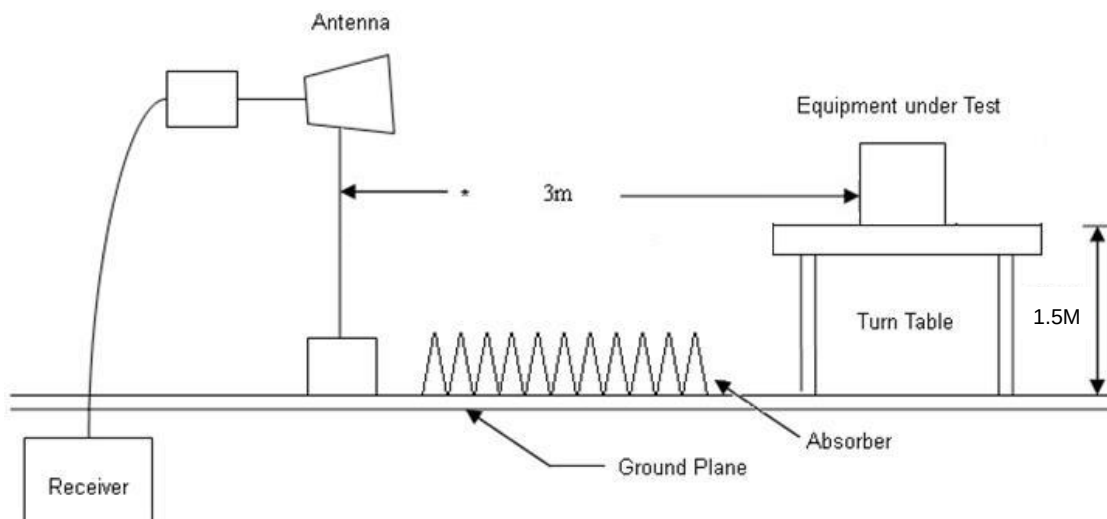
5.3 Typical Test Setup

Below 30MHz test setup





Above 1GHz Test Setup



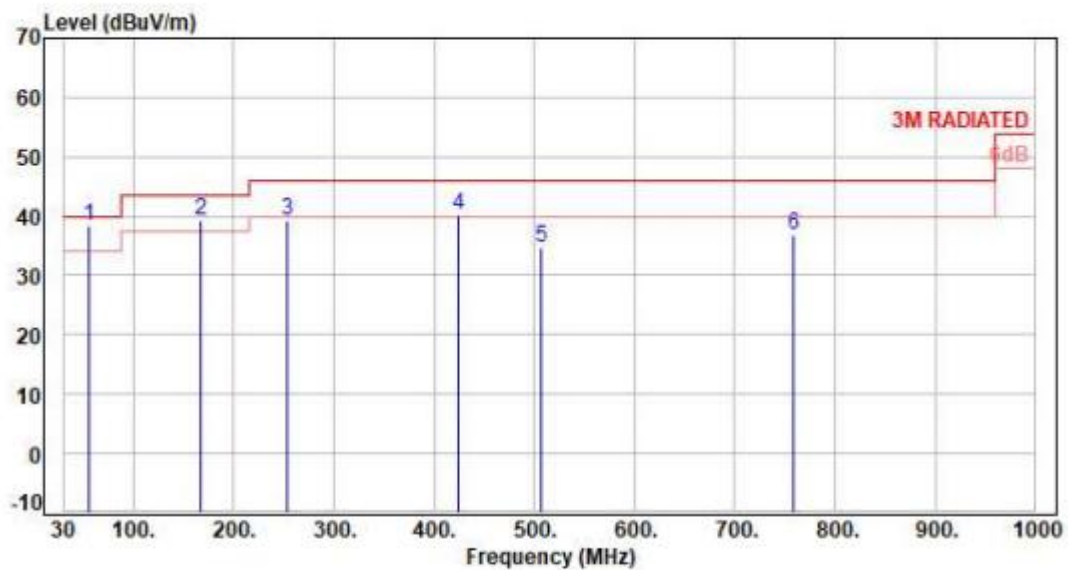


5.4 Test Result and Data (9kHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

5.5 Test Result and Data (30MHz ~ 1GHz)

Test Mode : 2TX 11n20 CH06+BT 1TX CH78 1Mbps
Voltage : From Adapter(AC120V/60Hz)
Pol : Vertical



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	55.30	-9.21	47.60	38.39	40.00	-1.61	QP	100	76	P
2	167.74	-9.55	48.96	39.41	43.50	-4.09	QP	100	85	P
3	253.10	-10.04	49.29	39.25	46.00	-6.75	Peak	400	0	P
4	423.82	-5.00	45.14	40.14	46.00	-5.86	Peak	400	0	P
5	507.24	-3.18	37.76	34.58	46.00	-11.42	Peak	400	0	P
6	759.44	1.92	35.00	36.92	46.00	-9.08	Peak	400	0	P

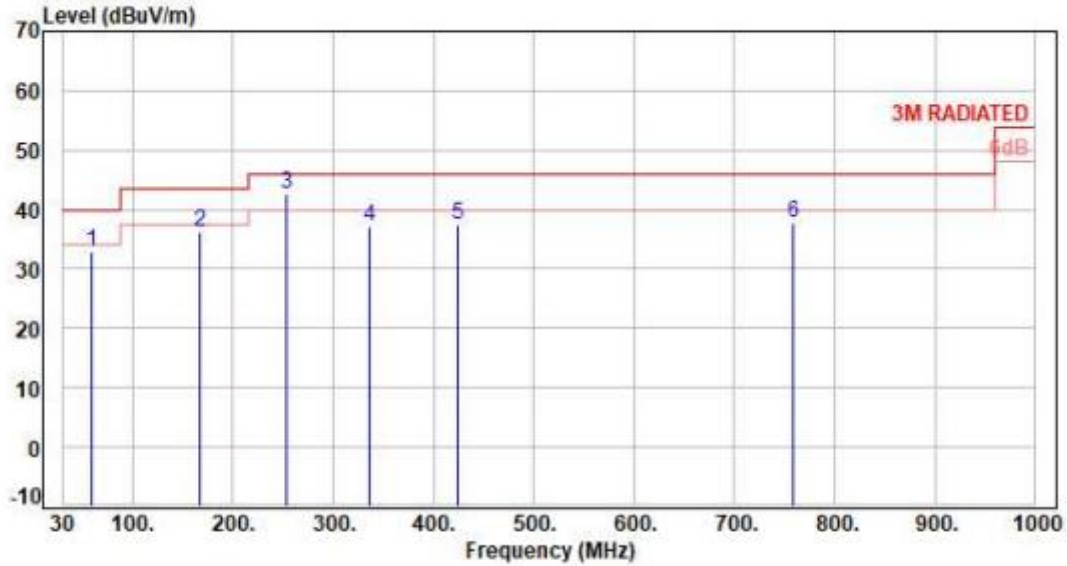
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Test Mode : 2TX 11n20 CH06+BT 1TX CH78 1Mbps
Voltage : From Adapter(AC120V/60Hz)
Pol : Horizontal



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	59.10	-9.44	42.45	33.01	40.00	-6.99	Peak	400	360	P
2	167.74	-9.55	45.92	36.37	43.50	-7.13	Peak	400	360	P
3	253.10	-10.04	52.75	42.71	46.00	-3.29	Peak	400	360	P
4	336.52	-7.42	44.58	37.16	46.00	-8.84	Peak	400	360	P
5	423.82	-5.00	42.32	37.32	46.00	-8.68	Peak	400	360	P
6	759.44	1.92	35.77	37.69	46.00	-8.31	Peak	400	360	P

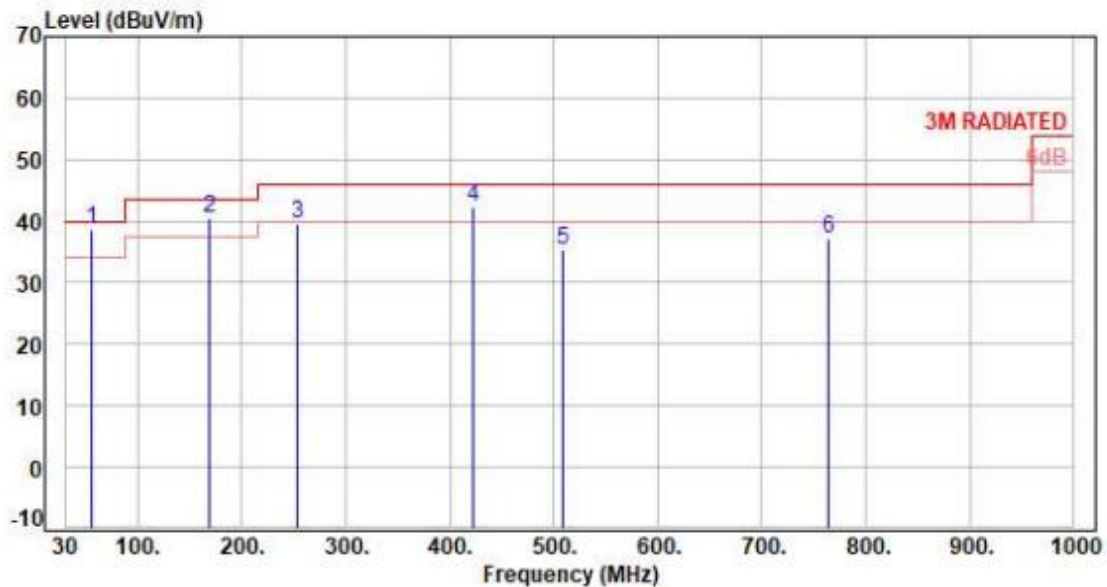
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Test Mode : 2TX 11ac20 CH157+BT 1TX CH78 1Mbps
Voltage : From Adapter(AC120V/60Hz)
Pol : Vertical



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	55.29	-9.21	47.80	38.59	40.00	-1.41	QP	100	65	P
2	168.74	-9.62	50.10	40.48	43.50	-3.02	QP	100	80	P
3	253.10	-10.04	49.61	39.57	46.00	-6.43	Peak	400	360	P
4	421.88	-5.07	47.44	42.37	46.00	-3.63	Peak	400	360	P
5	509.18	-3.09	38.37	35.28	46.00	-10.72	Peak	400	360	P
6	763.32	2.03	35.01	37.04	46.00	-8.96	Peak	400	360	P

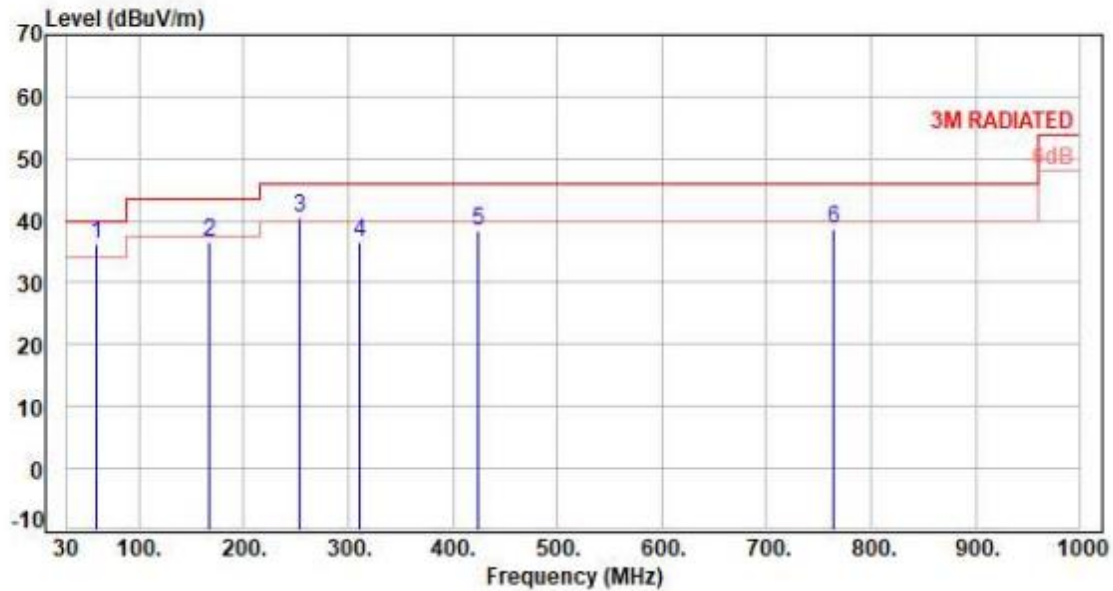
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Test Mode : 2TX 11ac20 CH157+BT 1TX CH78 1Mbps
Voltage : From Adapter(AC120V/60Hz)
Pul : Horizontal



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	59.10	-9.44	45.55	36.11	40.00	-3.89	Peak	400	360	P
2	167.74	-9.55	45.97	36.42	43.50	-7.08	Peak	400	360	P
3	253.10	-10.04	50.59	40.55	46.00	-5.45	Peak	400	360	P
4	311.30	-8.23	44.73	36.50	46.00	-9.50	Peak	400	360	P
5	423.82	-5.00	43.31	38.31	46.00	-7.69	Peak	400	360	P
6	763.32	2.03	36.68	38.71	46.00	-7.29	Peak	400	360	P

Note: Level=Reading+Factor

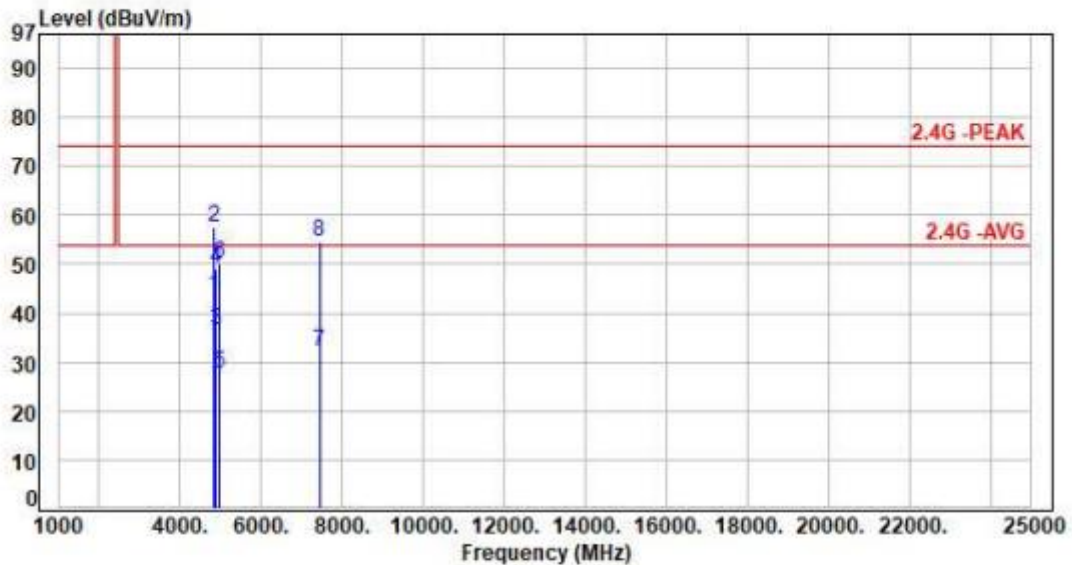
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



5.6 Test Result and Data (1GHz ~ 25GHz)

Test Mode : 2TX 11n20 CH06+BT 1TX CH78 1Mbps
Voltage : From Adapter(AC120V/60Hz)
Pol : Vertical



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	4824.00	6.08	37.29	43.37	54.00	-10.63	Average	329	112	P
2	4824.00	6.08	51.43	57.51	74.00	-16.49	Peak	329	112	P
3	4892.00	6.28	30.16	36.44	54.00	-17.56	Average	100	152	P
4	4892.00	6.28	42.82	49.10	74.00	-24.90	Peak	100	152	P
5	4960.00	6.51	21.28	27.79	54.00	-26.21	Average	100	161	P
6	4960.00	6.51	43.78	50.29	74.00	-23.71	Peak	100	161	P
7	7440.00	11.45	20.51	31.96	54.00	-22.04	Average	100	131	P
8	7440.00	11.45	43.01	54.46	74.00	-19.54	Peak	100	131	P

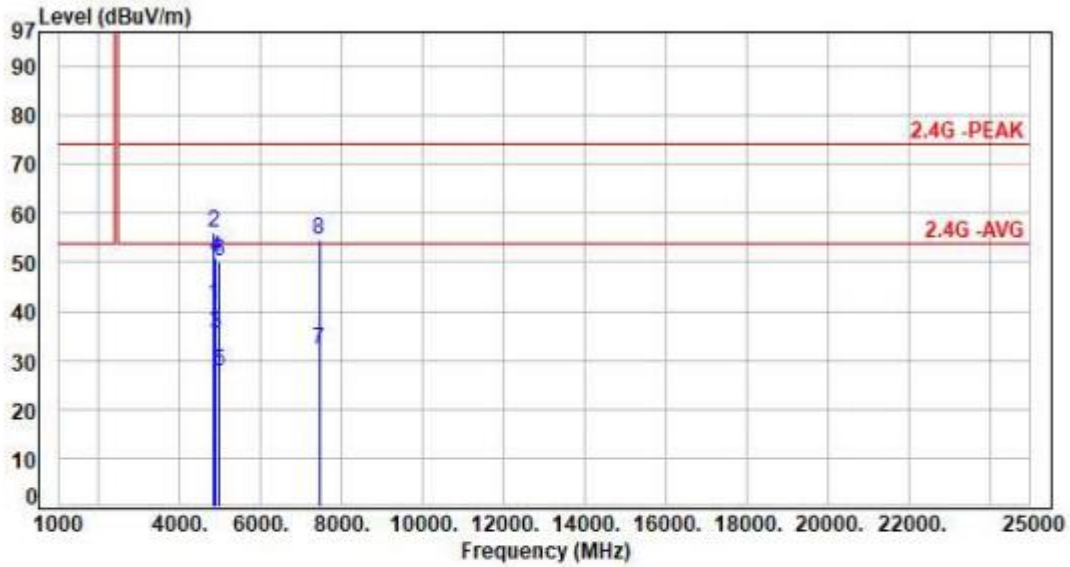
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Test Mode : 2TX 11n20 CH06+BT 1TX CH78 1Mbps
Voltage : From Adapter(AC120V/60Hz)
Pol : Horizontal



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	4824.00	6.08	35.22	41.30	54.00	-12.70	Average	100	155	P
2	4824.00	6.08	49.96	56.04	74.00	-17.96	Peak	100	155	P
3	4892.00	6.28	29.22	35.50	54.00	-18.50	Average	100	153	P
4	4892.00	6.28	44.52	50.80	74.00	-23.20	Peak	100	153	P
5	4960.00	6.51	21.21	27.72	54.00	-26.28	Average	226	156	P
6	4960.00	6.51	43.71	50.22	74.00	-23.78	Peak	226	156	P
7	7440.00	11.45	20.63	32.08	54.00	-21.92	Average	100	151	P
8	7440.00	11.45	43.13	54.58	74.00	-19.42	Peak	100	151	P

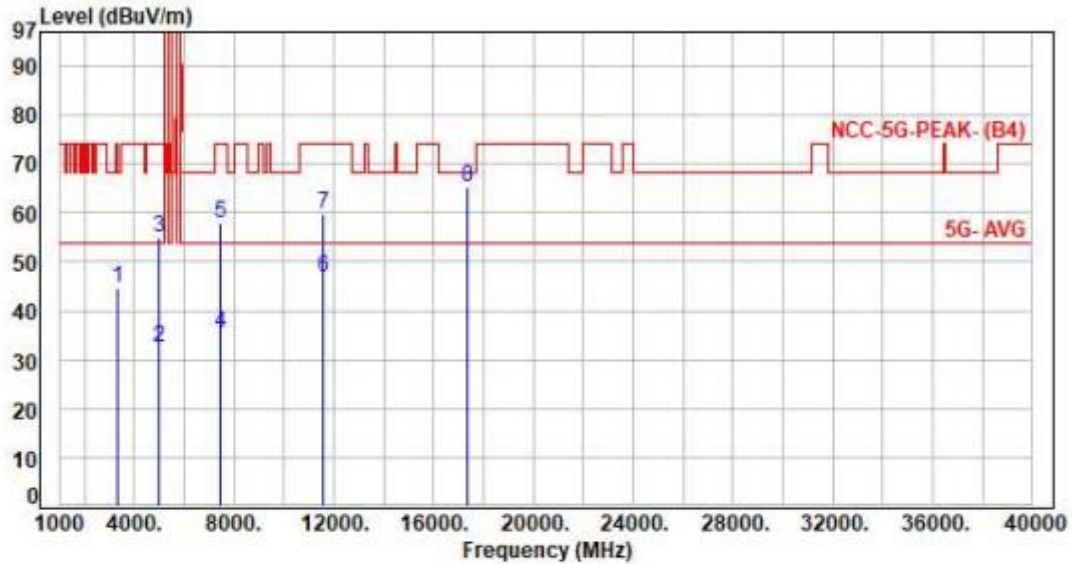
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Test Mode : 2TX 11ac20 CH157+BT 1TX CH78 1Mbps
Voltage : From Adapter(AC120V/60Hz)
Pol : Vertical



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	3305.00	1.89	42.82	44.71	68.20	-23.49	Peak	100	128	P
2	4960.00	6.06	26.37	32.43	54.00	-21.57	Average	100	162	P
3	4960.00	6.06	48.87	54.93	74.00	-19.07	Peak	100	162	P
4	7440.00	11.83	23.48	35.31	54.00	-18.69	Average	100	156	P
5	7440.00	11.83	45.98	57.81	74.00	-16.19	Peak	100	156	P
6	11570.00	16.76	29.97	46.73	54.00	-7.27	Average	100	154	P
7	11570.00	16.76	42.84	59.60	74.00	-14.40	Peak	100	154	P
8	17355.00	23.20	41.95	65.15	68.20	-3.05	Peak	100	221	P

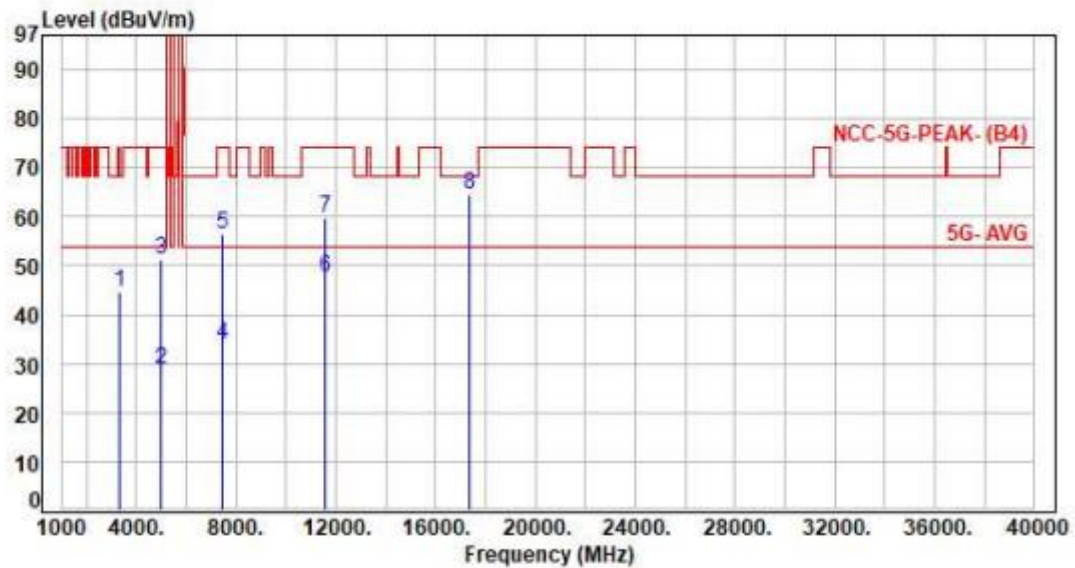
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Test Mode : 2TX 11ac20 CH157+BT 1TX CH78 1Mbps
Voltage : From Adapter(AC120V/60Hz)
Pol : Horizontal



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	3305.00	1.89	42.81	44.70	68.20	-23.50	Peak	100	184	P
2	4960.00	6.06	22.72	28.78	54.00	-25.22	Average	226	157	P
3	4960.00	6.06	45.22	51.28	74.00	-22.72	Peak	226	157	P
4	7440.00	11.83	22.18	34.01	54.00	-19.99	Average	174	197	P
5	7440.00	11.83	44.68	56.51	74.00	-17.49	Peak	174	197	P
6	11570.00	16.76	30.88	47.64	54.00	-6.36	Average	100	247	P
7	11570.00	16.76	42.89	59.65	74.00	-14.35	Peak	100	247	P
8	17355.00	23.20	41.26	64.46	68.20	-3.74	Peak	100	142	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



5.7 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

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



6. Test of Conducted Spurious Emission

6.1 Test Limit

According to the methods defined in ANSI C63.10-2013 Section 11.11.1

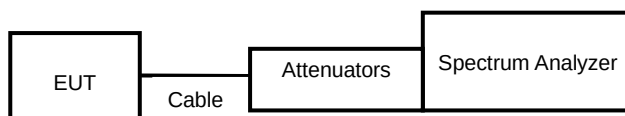
Below -20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

6.2 Test Procedure

According to the methods defined in ANSI C63.10-2013 Section 11.11.2 & 11.11.3

- The transmitter output was connected to the spectrum analyzer via a low loss cable.
- Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
- The band edges was measured and recorded.

6.3 Test Setup Layout



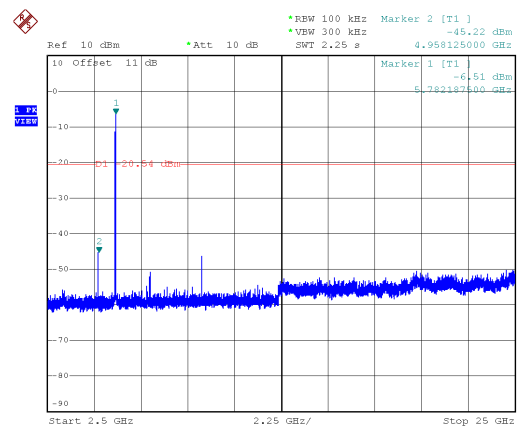
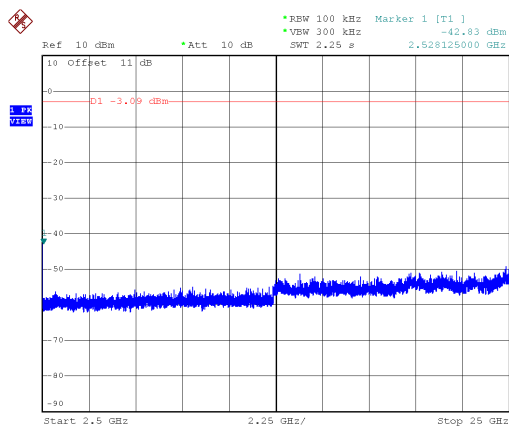
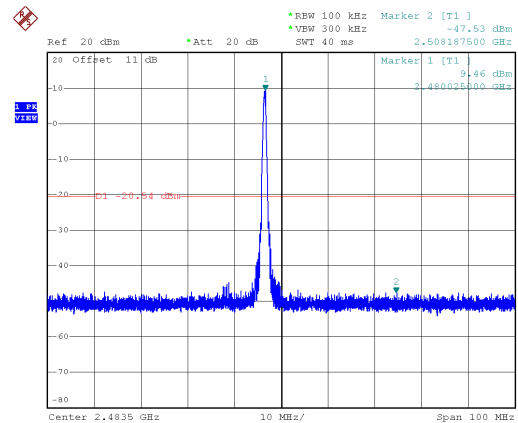
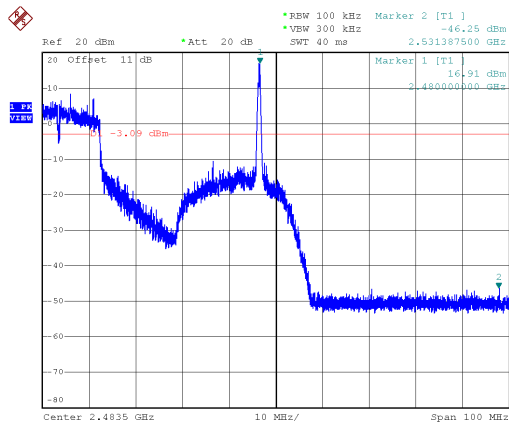
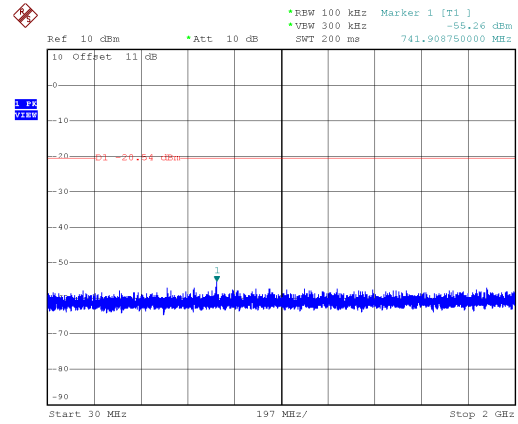
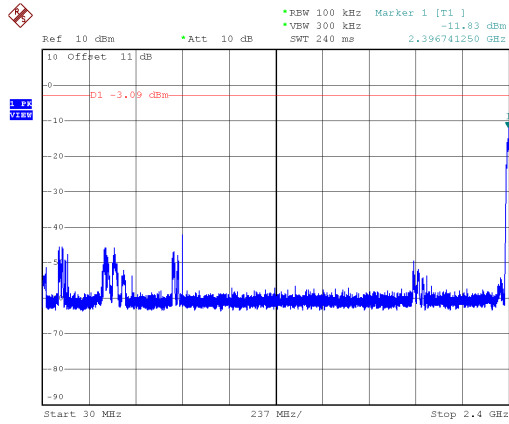
6.4 Test Result and Data

Note: Test plots refers to the following pages.



Modulation Type:
BT GFSK CH78 + 2.4G 11n20 CH06

Modulation Type:
BT GFSK CH78 + 5G 11ac20 CH157



-----THE END OF REPORT-----