Supplemental “Transmit Simultaneously” Test Report

Report No.:	RFBWIN-WTW-P21040653-5
FCC ID:	J9C-QCNFA725
Test Model:	QCNFA725
Received Date:	Apr. 20, 2021
Test Date:	May 22 to July 01, 2021
Issued Date:	July 16, 2021
Applicant:	Qualcomm Technologies, Inc.
Address:	5775 Morehouse Drive, San Diego, CA 92121-1714
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwa.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan.
FCC Registration / Designation Number:	723255 / TW2022

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RFBWIN-WTW-P21040653-5	Original release.	July 16, 2021

1 Certificate of Conformity

Product:	Wi-Fi 6E BT 5.2 M.2 1418 Module
Brand:	Qualcomm
Test Model:	QCNFA725
Sample Status:	Engineering sample
Applicant:	Qualcomm Technologies, Inc.
Test Date:	May 22 to July 01, 2021
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) 47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Phoenix Huang , **Date:** July 16, 2021

Phoenix Huang / Specialist

Approved by : , **Date:** July 16, 2021

Clark Lin / Technical Manager

2 Summary of Test Results

FCC Part 15, Subpart C, E (SECTION 15.247, 15.407)			
FCC Clause	Test Item	Result	Remarks
15.207 15.407(b)(6)	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -18.73 dB at 4.58594 MHz.
15.205 / 15.209 / 15.247(d) 15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -14.2 dB at 913.62 MHz.

Note:
Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.9 dB
Conducted Emissions	-	2.5 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.5 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.1 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wi-Fi 6E BT 5.2 M.2 1418 Module
Brand	Qualcomm
Test Model	QCNFA725
Status of EUT	Engineering sample
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	**WLAN**: CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDM in 11ac mode and VHT20/40 in 2.4GHz mode 4096QAM for OFDMA in 11ax HE mode **BT-EDR:** GFSK, π/4-DQPSK, 8DPSK **BT-LE:** GFSK
Modulation Technology	**WLAN**: DSSS, OFDM, OFDMA **BT-EDR:** FHSS **BT-LE:** DTS
Operating Frequency	**WLAN**: **2.4GHz:** 2.412 ~ 2.47 GHz **5GHz:** 5.18 ~ 5.32GHz, 5.5 ~ 5.72GHz, 5.745 ~ 5.825GHz **6GHz:** Under control by Standard Power AP: 5.935 ~ 6.415GHz, 6.535 ~ 6.855GHz Under control by Low-power Indoor AP: 5.935 ~ 6.415GHz, 6.435 ~ 6.525GHz, 6.535 ~ 6.855GHz, 6.865 ~ 7.115GHz **BT-EDR:** 2.402 ~ 2.480GHz **BT-LE:** 2.402 ~ 2.480GHz
Antenna Type	Refer to section 3.2
Antenna Connector	Refer to section 3.2
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. This device of WLAN (2.4GHz & 5GHz U-NII-1 Band) can support hotspot mode.
2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN(2.4GHz)	WLAN(6GHz)
2	WLAN(2.4GHz)	WLAN(5GHz)
3	WLAN(6GHz)	Bluetooth
4	WLAN(5GHz)	Bluetooth
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

3. The device of WLAN (2.4GHz) and Bluetooth technology can't transmit simultaneously, it was used timely shared coexistence technology.
4. The EUT incorporates a MIMO function:

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
VHT20	2TX	2RX
VHT40	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
802.11ax (RU26/52/106/242/484)	2TX	2RX
5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX
802.11ac (VHT160)	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
802.11ax (HE80)	2TX	2RX
802.11ax (HE160)	2TX	2RX
802.11ax (RU26/52/106/242/484/996/1992)	2TX	2RX
Note: The EUT support Beamforming and non-beamforming mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data (Beamforming mode) were presented in test report.		

5. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Description of Antenna

The antenna gain was declared by client; please refer to the following table:

Antenna Set	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length
1	Chain0/1	HONGBO	260-25094	3.53 3.06 3.07 4.81 4.2	2.4~2.4835 GHz 5.15~5.25 GHz 5.25~5.35 GHz 5.47~5.725 GHz 5.725~5.850 GHz	0.76 1.16 1.18 1.2 1.27	PIFA	i-pex(MHF 4L)	300mm
2	Chain0/1	HONGBO	260-25083	5.09 5.14 5.09 5.16 5.12	5.850~5.895 GHz 5.925~6.425 GHz 6.425~6.525 GHz 6.525~6.875 GHz 6.875~7.125 GHz	1.29 1.32 1.35 1.4 1.45	PIFA	i-pex(MHF 4L)	300mm
3	Chain0/1	HONGBO	260-25084	3.22 3.35 3.42 4.77 4.72 4.71 4.75 4.29 4.81 4.74	2.4~2.4835 GHz 5.150~5.250 GHz 5.250~5.350 GHz 5.470~5.725 GHz 5.725~5.850 GHz 5.850~5.895 GHz 5.925~6.425 GHz 6.425~6.525 GHz 6.525~6.875 GHz 6.875~7.125 GHz	0.5 0.76 0.78 0.81 0.85 0.86 0.87 0.91 0.96 0.98	Monopole	i-pex(MHF 4L)	200mm

Note: The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	OB	
-	√	√	√	√	-

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **OB:** Conducted Out-Band Emission Measurement

Radiated Emission Test (Above 1GHz):

☒The tested configurations represent the worst-case mode from all possible combinations by the maximum power.
☒Following channel(s) was (were) selected for the final test as listed below.

Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
1	2.4GHz: 802.11g + 6GHz: 802.11a	1 to 13	6	OFDM	BPSK
		1 to 93 97 to 113 117 to 185 209 to 233	1	OFDM	BPSK
2	2.4GHz: 802.11g + 5GHz: 802.11a	1 to 13	6	OFDM	BPSK
		36 to 64 100 to 144 149 to 165	157	OFDM	BPSK
3	BT-EDR + 6GHz: 802.11a	0 to 78	0	GFSK	DH5
		1 to 93 97 to 113 117 to 185 209 to 233	1	OFDM	BPSK
4	BT-EDR + 5GHz: 802.11a	0 to 78	0	GFSK	DH5
		36 to 64 100 to 144 149 to 165	157	OFDM	BPSK

Radiated Emission Test (Below 1GHz):

☒The tested configurations represent the worst-case mode from all possible combinations by the maximum power.
☒Following channel(s) was (were) selected for the final test as listed below.

Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
1	2.4GHz: 802.11g + 6GHz: 802.11a	1 to 13	6	OFDM	BPSK
		1 to 93 97 to 113 117 to 185 209 to 233	1	OFDM	BPSK
2	2.4GHz: 802.11g + 5GHz: 802.11a	1 to 13	6	OFDM	BPSK
		36 to 64 100 to 144 149 to 165	157	OFDM	BPSK
3	BT-EDR + 6GHz: 802.11a	0 to 78	0	GFSK	DH5
		1 to 93 97 to 113 117 to 185 209 to 233	1	OFDM	BPSK
4	BT-EDR + 5GHz: 802.11a	0 to 78	0	GFSK	DH5
		36 to 64 100 to 144 149 to 165	157	OFDM	BPSK

Power Line Conducted Emission Test:

☒The tested configurations represent the worst-case mode from all possible combinations by the maximum power.
☒Following channel(s) was (were) selected for the final test as listed below.

Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
1	2.4GHz: 802.11g + 6GHz: 802.11a	1 to 13	6	OFDM	BPSK
		1 to 93 97 to 113 117 to 185 209 to 233	1	OFDM	BPSK
2	2.4GHz: 802.11g + 5GHz: 802.11a	1 to 13	6	OFDM	BPSK
		36 to 64 100 to 144 149 to 165	157	OFDM	BPSK
3	BT-EDR + 6GHz: 802.11a	0 to 78	0	GFSK	DH5
		1 to 93 97 to 113 117 to 185 209 to 233	1	OFDM	BPSK
4	BT-EDR + 5GHz: 802.11a	0 to 78	0	GFSK	DH5
		36 to 64 100 to 144 149 to 165	157	OFDM	BPSK

Conducted Out-Band Emission Measurement:

☒The tested configurations represent the worst-case mode from all possible combinations by the maximum power.

☒Following channel(s) was (were) selected for the final test as listed below.

Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
1	2.4GHz: 802.11g + 6GHz: 802.11a	1 to 13	6	OFDM	BPSK
		1 to 93 97 to 113 117 to 185 209 to 233	1	OFDM	BPSK
2	2.4GHz: 802.11g + 5GHz: 802.11a	1 to 13	6	OFDM	BPSK
		36 to 64 100 to 144 149 to 165	157	OFDM	BPSK
3	BT-EDR + 6GHz: 802.11a	0 to 78	0	GFSK	DH5
		1 to 93 97 to 113 117 to 185 209 to 233	1	OFDM	BPSK
4	BT-EDR + 5GHz: 802.11a	0 to 78	0	GFSK	DH5
		36 to 64 100 to 144 149 to 165	157	OFDM	BPSK

Test Condition:

Applicable To	Environmental Conditions	Input Power (system)	Tested By
RE≥1G	25deg. C, 75%RH	120Vac, 60Hz	Carter Lin
RE<1G	24deg. C, 65%RH	120Vac, 60Hz	Carter Lin
PLC	25deg. C, 75%RH	120Vac, 60Hz	Carter Lin
OB	25deg. C, 60%RH	120Vac, 60Hz	Eric Peng

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	Dell	E5420	6FGHKV1	NA	Provided by Lab
B.	Test Tool	Qualcomm	Y6570	NA	NA	Supplied by client
C.	Adapter	PHIHONG	PSAA12A-120L6	NA	NA	Supplied by client

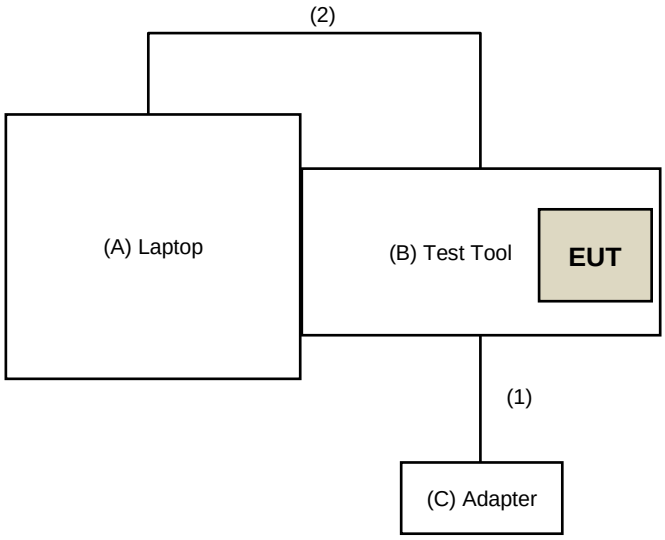
Note:

1. All power cords of the above support units are non-shielded (1.8m).

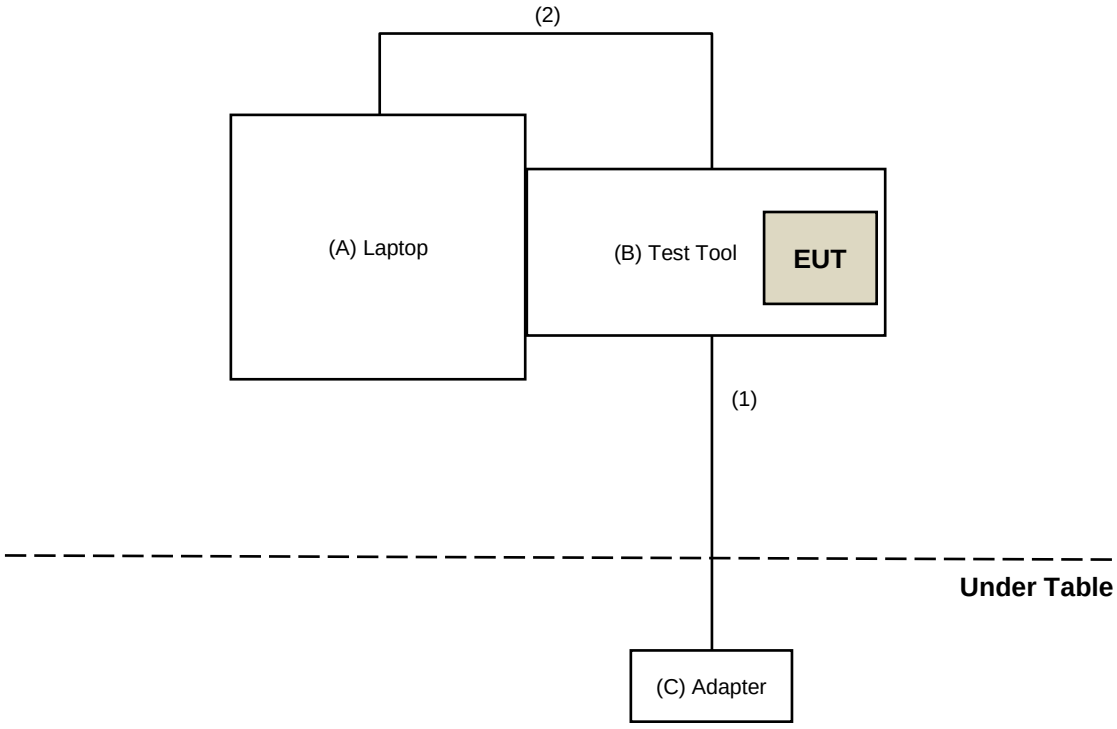
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.2	No	0	Supplied by client
2.	USB Cable	1	0.6	Yes	0	Provided by Lab

3.3.1 Configuration of System under Test

For Conducted Emissions test:



For other test:



4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/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

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK:74 (dBμV/m)	AV:54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4

*1 beyond 75 MHz or more above of the band edge.

*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

4.1.2 Test Instruments

For Radiated Emission (below 1GHz) test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210202	Dec. 01, 2020	Nov. 30, 2021
Pre-Amplifier EMCI	EMC001340	980142	May 25, 2020	May 24, 2021
Loop Antenna Electro-Metrics	EM-6879	264	Mar. 05, 2021	Mar. 04, 2022
RF Cable	5D-FB	LOOPCAB-001	Jan. 07, 2021	Jan. 06, 2022
RF Cable	5D-FB	LOOPCAB-002	Jan. 07, 2021	Jan. 06, 2022
Pre-Amplifier EMCI	EMC330N	980701	Mar. 10, 2021	Mar. 09, 2022
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 06, 2020	Nov. 05, 2021
RF Cable	8D	966-4-1	Mar. 17, 2021	Mar. 16, 2022
RF Cable	8D	966-4-2	Mar. 17, 2021	Mar. 16, 2022
RF Cable	8D	966-4-3	Mar. 17, 2021	Mar. 16, 2022
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-03	Jan. 11, 2021	Jan. 10, 2022
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 4.
3. Tested Date: May 22, 2021

For otheros test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	101516	Mar. 08, 2021	Mar. 07, 2022
10dB Attenuator Woken	MDCS18N-10	MDCS18N-10-01	Apr. 13, 2021	Apr. 12, 2022
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA

NOTE: 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: July 01, 2021

For Radiated Emission (above 1GHz) test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210202	Dec. 01, 2020	Nov. 30, 2021
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier EMCI	EMC 12630 SE	980638	Apr. 07, 2021	Apr. 06, 2022
RF Cable	EMC104-SM-SM-1200	160922	Dec. 25, 2020	Dec. 24, 2021
RF Cable	EMC104-SM-SM-2000	180502	Apr. 26, 2021	Apr. 25, 2022
RF Cable	EMC104-SM-SM-6000	180418	Apr. 26, 2021	Apr. 25, 2022
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 11, 2021	Jan. 10, 2022
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 22, 2020	Nov. 21, 2021
RF Cable	EMC102-KM-KM-1200	160924	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC-KM-KM-4000	200214	Mar. 10, 2021	Mar. 09, 2022
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 4.
3. Tested Date: June 30, 2021

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

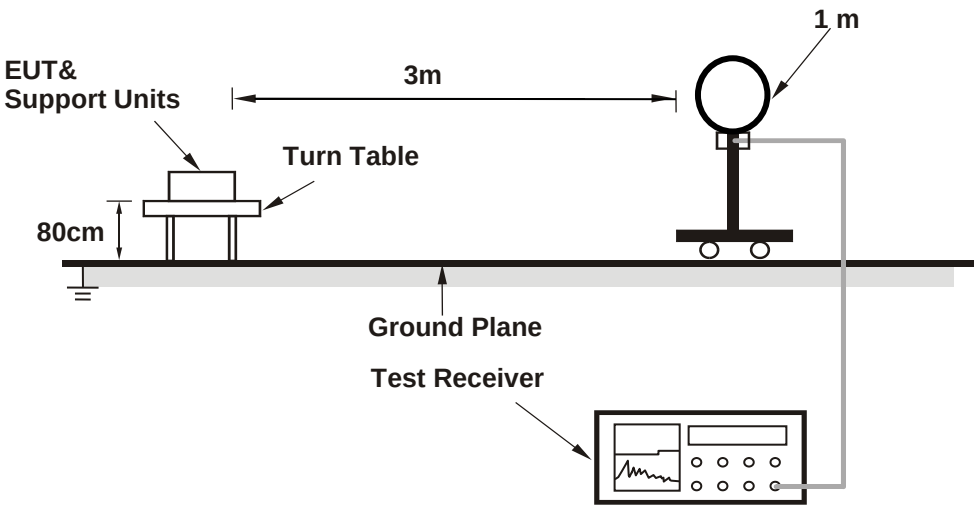
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

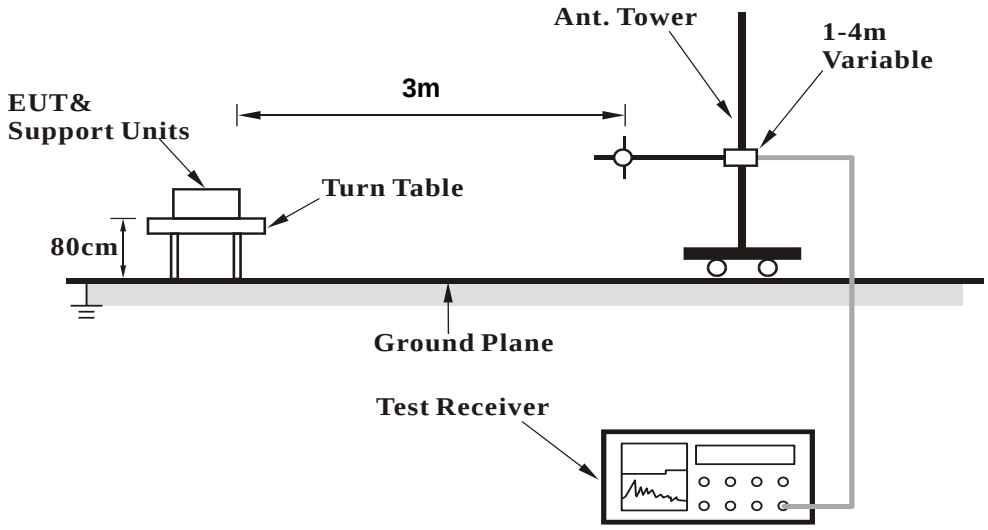
No deviation.

4.1.5 Test Setup

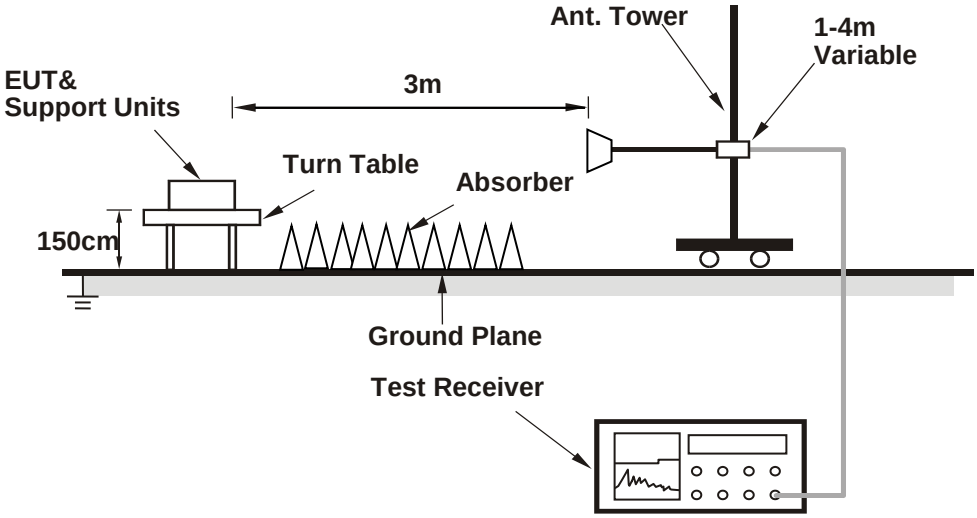
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

a. Connected the EUT with the Laptop which is placed on the testing table.
b. Controlling software (QRCT 4.0.00177.0) has been activated to set the EUT under transmission condition continuously at specific channel frenquency.

4.1.7 Test Results (Mode 1)

Above 1GHz Data:

Frequency Range	1GHz ~ 40GHz	**Detector Function**	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	4874.00	41.7 PK	74.0	-32.3	1.87 H	210	39.8	1.9
2	4874.00	28.5 AV	54.0	-25.5	1.87 H	210	26.6	1.9
3	7311.00	43.9 PK	74.0	-30.1	2.52 H	339	35.1	8.8
4	7311.00	30.1 AV	54.0	-23.9	2.52 H	339	21.3	8.8
5	11910.00	42.6 PK	74.0	-31.4	1.66 H	223	29.2	13.4
6	11910.00	30.9 AV	54.0	-23.1	1.66 H	223	17.5	13.4
7	17865.00	45.4 PK	74.0	-28.6	2.08 H	173	23.7	21.7
8	17865.00	39.1 AV	54.0	-14.9	2.08 H	173	17.4	21.7
9	23820.00	46.1 PK	74.0	-27.9	2.11 H	50	48.6	-2.5
10	23820.00	36.0 AV	54.0	-18.0	2.11 H	50	38.5	-2.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	4874.00	39.2 PK	74.0	-34.8	1.68 V	208	37.3	1.9
2	4874.00	26.0 AV	54.0	-28.0	1.68 V	208	24.1	1.9
3	7311.00	44.9 PK	74.0	-29.1	1.91 V	63	36.1	8.8
4	7311.00	31.8 AV	54.0	-22.2	1.91 V	63	23.0	8.8
5	11910.00	40.7 PK	74.0	-33.3	3.35 V	305	27.3	13.4
6	11910.00	29.4 AV	54.0	-24.6	3.35 V	305	16.0	13.4
7	17865.00	45.0 PK	74.0	-29.0	2.29 V	166	23.3	21.7
8	17865.00	38.0 AV	54.0	-16.0	2.29 V	166	16.3	21.7
9	23820.00	45.2 PK	74.0	-28.8	1.84 V	170	47.7	-2.5
10	23820.00	35.6 AV	54.0	-18.4	1.84 V	170	38.1	-2.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.

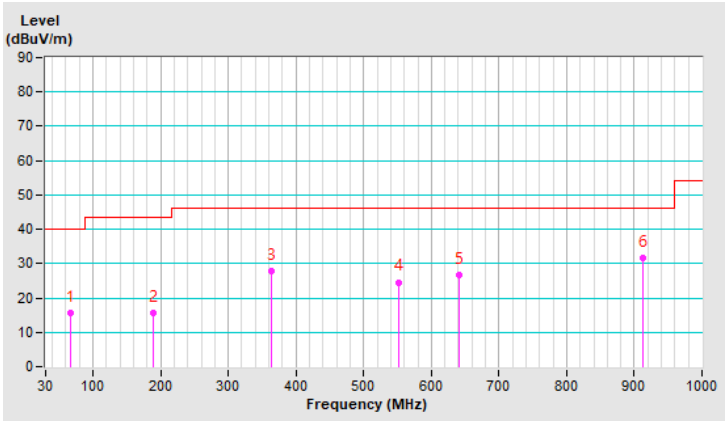
Below 1GHz Data:

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	66.69	15.6 QP	40.0	-24.4	2.00 H	25	29.6	-14.0
2	189.88	15.7 QP	43.5	-27.8	1.50 H	215	30.4	-14.7
3	364.19	27.8 QP	46.0	-18.2	1.00 H	127	36.6	-8.8
4	552.35	24.6 QP	46.0	-21.4	2.00 H	238	28.6	-4.0
5	640.69	26.6 QP	46.0	-19.4	1.50 H	290	28.1	-1.5
6	**913.62**	**31.8 QP**	**46.0**	**-14.2**	**1.00 H**	**360**	**27.9**	**3.9**

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

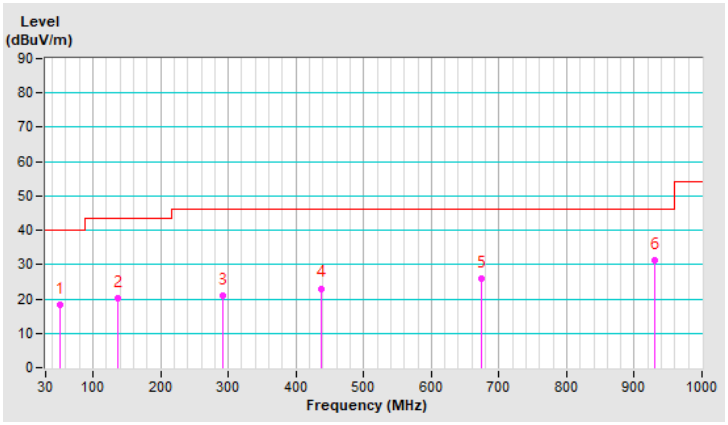


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	51.56	18.2 QP	40.0	-21.8	1.50 V	218	30.7	-12.5
2	136.24	20.0 QP	43.5	-23.5	1.00 V	360	32.7	-12.7
3	292.80	21.0 QP	46.0	-25.0	1.00 V	2	32.0	-11.0
4	437.40	23.1 QP	46.0	-22.9	1.00 V	64	29.5	-6.4
5	674.10	25.9 QP	46.0	-20.1	1.00 V	360	27.0	-1.1
6	929.97	31.1 QP	46.0	-14.9	1.00 V	360	27.0	4.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.8 Test Results (Mode 2)

Above 1GHz Data:

Frequency Range	1GHz ~ 40GHz	**Detector Function**	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	4874.00	41.5 PK	74.0	-32.5	1.92 H	199	41.0	0.5
2	4874.00	28.1 AV	54.0	-25.9	1.92 H	199	27.6	0.5
3	7311.00	44.3 PK	74.0	-29.7	2.49 H	334	37.5	6.8
4	7311.00	30.5 AV	54.0	-23.5	2.49 H	334	23.7	6.8
5	11570.00	41.9 PK	74.0	-32.1	1.69 H	223	29.5	12.4
6	11570.00	30.5 AV	54.0	-23.5	1.69 H	223	18.1	12.4
7	#17355.00	45.9 PK	68.2	-22.3	2.13 H	160	28.4	17.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	4874.00	39.5 PK	74.0	-34.5	1.67 V	213	39.0	0.5
2	4874.00	26.4 AV	54.0	-27.6	1.67 V	213	25.9	0.5
3	7311.00	45.2 PK	74.0	-28.8	1.95 V	76	38.4	6.8
4	7311.00	31.9 AV	54.0	-22.1	1.95 V	76	25.1	6.8
5	11570.00	41.0 PK	74.0	-33.0	3.34 V	317	28.6	12.4
6	11570.00	29.8 AV	54.0	-24.2	3.34 V	317	17.4	12.4
7	#17355.00	44.7 PK	68.2	-23.5	2.33 V	157	27.2	17.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " # ": The radiated frequency is out of the restricted band.

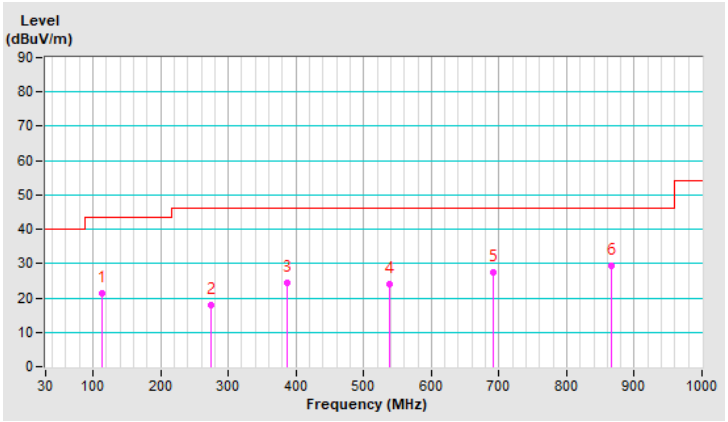
Below 1GHz Data:

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	112.96	21.4 QP	43.5	-22.1	1.00 H	360	36.1	-14.7
2	274.83	18.0 QP	46.0	-28.0	1.00 H	152	29.6	-11.6
3	387.83	24.3 QP	46.0	-21.7	1.00 H	225	32.4	-8.1
4	537.65	23.9 QP	46.0	-22.1	2.00 H	356	28.1	-4.2
5	692.07	27.6 QP	46.0	-18.4	1.50 H	66	28.3	-0.7
6	865.27	29.5 QP	46.0	-16.5	1.00 H	134	26.8	2.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

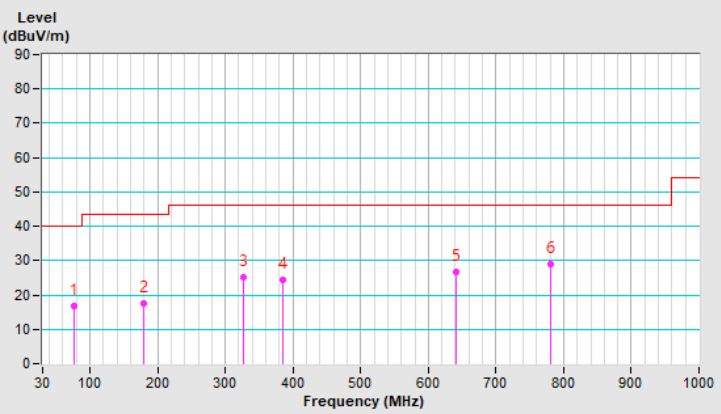


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	76.75	16.9 QP	40.0	-23.1	1.50 V	120	33.6	-16.7
2	179.99	17.4 QP	43.5	-26.1	2.00 V	163	31.0	-13.6
3	327.74	25.2 QP	46.0	-20.8	1.00 V	181	35.1	-9.9
4	384.58	24.4 QP	46.0	-21.6	1.00 V	202	32.6	-8.2
5	640.69	26.6 QP	46.0	-19.4	1.50 V	290	28.1	-1.5
6	780.49	28.9 QP	46.0	-17.1	1.50 V	0	27.5	1.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.9 Test Results (Mode 3)

Above 1GHz Data:

Frequency Range	1GHz ~ 40GHz	**Detector Function**	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	4804.00	41.6 PK	74.0	-32.4	1.89 H	187	39.7	1.9
2	4804.00	28.3 AV	54.0	-25.7	1.89 H	187	26.4	1.9
3	11910.00	44.0 PK	74.0	-30.0	2.44 H	344	30.6	13.4
4	11910.00	30.1 AV	54.0	-23.9	2.44 H	344	16.7	13.4
5	17865.00	41.7 PK	74.0	-32.3	1.64 H	212	20.0	21.7
6	17865.00	30.2 AV	54.0	-23.8	1.64 H	212	8.5	21.7
7	23820.00	45.6 PK	74.0	-28.4	2.10 H	170	48.1	-2.5
8	23820.00	39.4 AV	54.0	-14.6	2.10 H	170	41.9	-2.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	4804.00	39.4 PK	74.0	-34.6	1.63 V	203	37.5	1.9
2	4804.00	26.5 AV	54.0	-27.5	1.63 V	203	24.6	1.9
3	11910.00	45.1 PK	74.0	-28.9	1.93 V	66	31.7	13.4
4	11910.00	31.9 AV	54.0	-22.1	1.93 V	66	18.5	13.4
5	17865.00	41.4 PK	74.0	-32.6	3.39 V	321	19.7	21.7
6	17865.00	30.2 AV	54.0	-23.8	3.39 V	321	8.5	21.7
7	23820.00	44.8 PK	74.0	-29.2	2.31 V	149	47.3	-2.5
8	23820.00	37.5 AV	54.0	-16.5	2.31 V	149	40.0	-2.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.

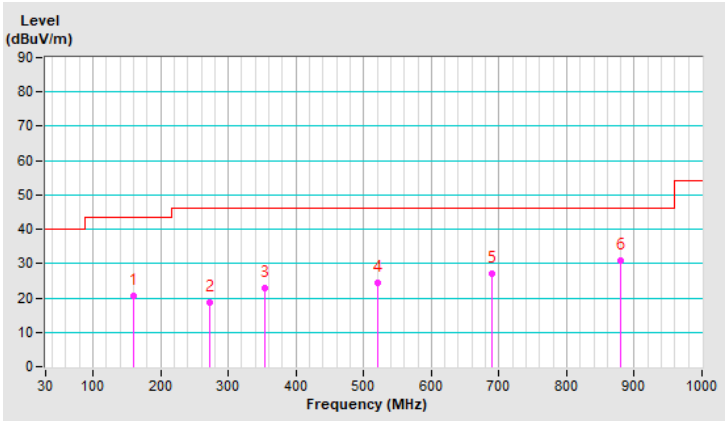
Below 1GHz Data:

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	159.57	20.6 QP	43.5	-22.9	2.00 H	300	32.5	-11.9
2	272.84	18.8 QP	46.0	-27.2	1.50 H	352	30.4	-11.6
3	354.54	23.0 QP	46.0	-23.0	1.00 H	324	32.2	-9.2
4	520.63	24.3 QP	46.0	-21.7	1.00 H	289	28.7	-4.4
5	688.78	27.2 QP	46.0	-18.8	1.50 H	83	28.0	-0.8
6	880.33	30.9 QP	46.0	-15.1	1.00 H	174	27.8	3.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

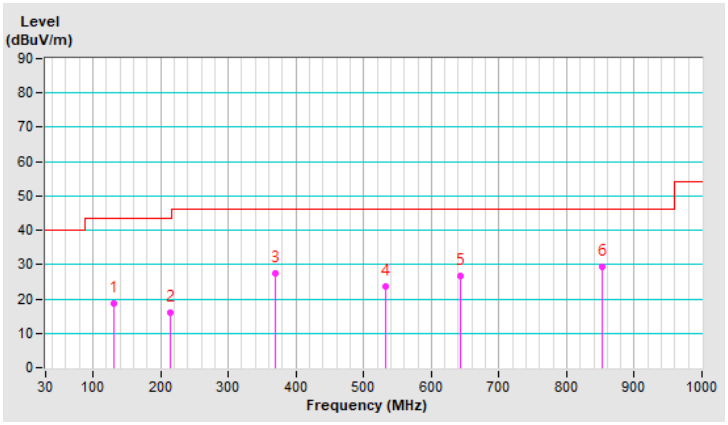


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	131.70	18.7 QP	43.5	-24.8	2.00 V	204	31.8	-13.1
2	214.64	16.0 QP	43.5	-27.5	1.00 V	175	31.1	-15.1
3	369.26	27.4 QP	46.0	-18.6	1.00 V	125	36.0	-8.6
4	532.29	23.6 QP	46.0	-22.4	2.00 V	360	27.9	-4.3
5	642.31	26.6 QP	46.0	-19.4	2.00 V	252	28.0	-1.4
6	852.03	29.4 QP	46.0	-16.6	1.00 V	109	26.8	2.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.10 Test Results (Mode 4)

Above 1GHz Data:

Frequency Range	1GHz ~ 40GHz	**Detector Function**	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	4804.00	42.3 PK	74.0	-31.7	1.40 H	291	41.9	0.4
2	4804.00	29.2 AV	54.0	-24.8	1.40 H	291	28.8	0.4
3	11570.00	42.5 PK	74.0	-31.5	1.71 H	197	30.1	12.4
4	11570.00	30.6 AV	54.0	-23.4	1.71 H	197	18.2	12.4
5	#17355.00	45.0 PK	68.2	-23.2	2.21 H	151	27.5	17.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	4804.00	40.3 PK	74.0	-33.7	1.61 V	178	39.9	0.4
2	4804.00	26.1 AV	54.0	-27.9	1.61 V	178	25.7	0.4
3	11570.00	41.8 PK	74.0	-32.2	3.18 V	314	29.4	12.4
4	11570.00	30.1 AV	54.0	-23.9	3.18 V	314	17.7	12.4
5	#17355.00	44.4 PK	68.2	-23.8	2.30 V	138	26.9	17.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " # ": The radiated frequency is out of the restricted band.

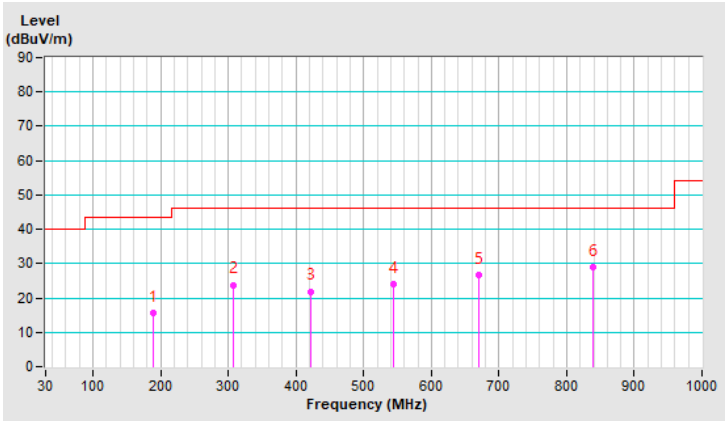
Below 1GHz Data:

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	189.88	15.7 QP	43.5	-27.8	1.50 H	215	30.4	-14.7
2	308.10	23.8 QP	46.0	-22.2	1.00 H	130	34.2	-10.4
3	422.83	21.9 QP	46.0	-24.1	1.00 H	261	29.0	-7.1
4	544.08	24.0 QP	46.0	-22.0	1.50 H	248	28.0	-4.0
5	670.52	26.5 QP	46.0	-19.5	1.00 H	287	27.7	-1.2
6	838.83	28.8 QP	46.0	-17.2	1.00 H	5	26.5	2.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

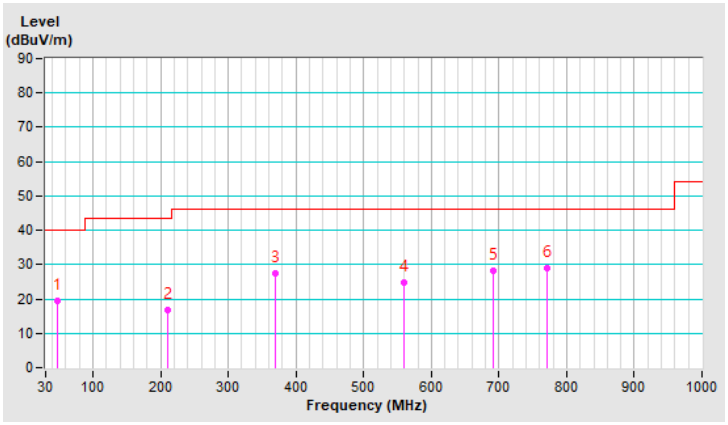


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	48.19	19.3 QP	40.0	-20.7	1.50 V	93	31.7	-12.4
2	211.17	16.6 QP	43.5	-26.9	2.00 V	360	31.7	-15.1
3	369.26	27.4 QP	46.0	-18.6	1.00 V	125	36.0	-8.6
4	559.21	24.9 QP	46.0	-21.1	1.50 V	246	28.7	-3.8
5	690.67	28.1 QP	46.0	-17.9	1.50 V	218	28.8	-0.7
6	770.33	28.9 QP	46.0	-17.1	1.00 V	338	27.6	1.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1.The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 20, 2020	Oct. 19, 2021
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 27, 2020	Oct. 26, 2021
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 26, 2021	Mar. 25, 2022
50 ohms Terminator	50	3	Oct. 26, 2020	Oct. 25, 2021
RF Cable	5D-FB	COCCAB-001	Sep. 26, 2020	Sep. 25, 2021
Fixed attenuator EMCI	STI02-2200-10	005	Aug. 29, 2020	Aug. 28, 2021
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:
1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
3 Tested Date: May 28, 2021

4.2.3 Test Procedures

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

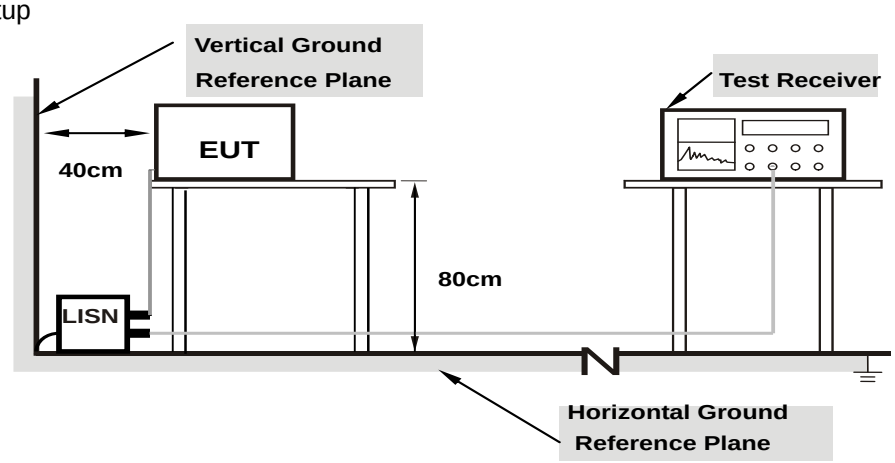
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

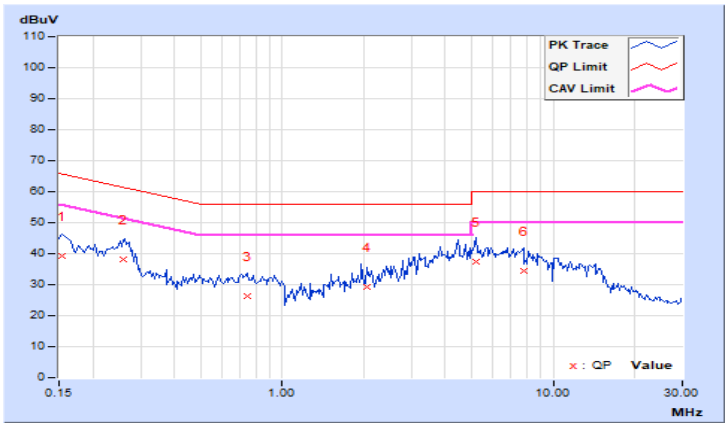
4.2.7 Test Results (Mode 1)

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.96	29.17	12.68	39.13	22.64	65.79	55.79	-26.66	-33.15
2	0.25938	10.00	28.20	17.69	38.20	27.69	61.45	51.45	-23.25	-23.76
3	0.73984	10.04	16.19	5.24	26.23	15.28	56.00	46.00	-29.77	-30.72
4	2.05078	10.14	19.02	7.40	29.16	17.54	56.00	46.00	-26.84	-28.46
5	5.20313	10.37	26.95	14.96	37.32	25.33	60.00	50.00	-22.68	-24.67
6	7.75391	10.56	23.74	12.27	34.30	22.83	60.00	50.00	-25.70	-27.17

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

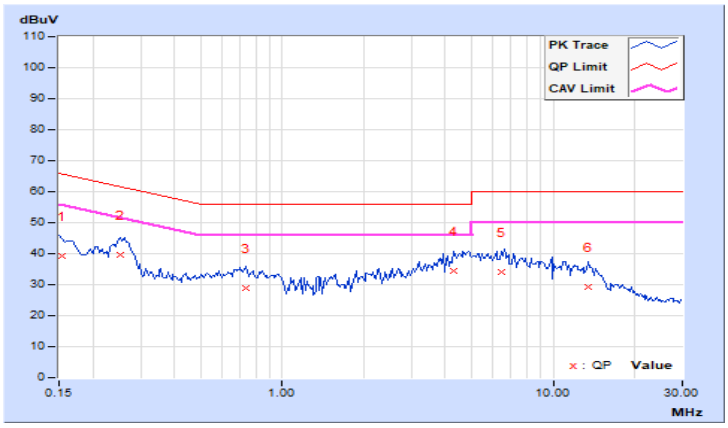


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.94	29.23	12.26	39.17	22.20	65.79	55.79	-26.62	-33.59
2	0.25156	9.99	29.75	20.14	39.74	30.13	61.71	51.71	-21.97	-21.58
3	0.73203	10.04	18.87	8.57	28.91	18.61	56.00	46.00	-27.09	-27.39
4	4.31641	10.27	24.26	13.96	34.53	24.23	56.00	46.00	-21.47	-21.77
5	6.41016	10.40	23.80	13.28	34.20	23.68	60.00	50.00	-25.80	-26.32
6	13.40625	10.81	18.31	7.37	29.12	18.18	60.00	50.00	-30.88	-31.82

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



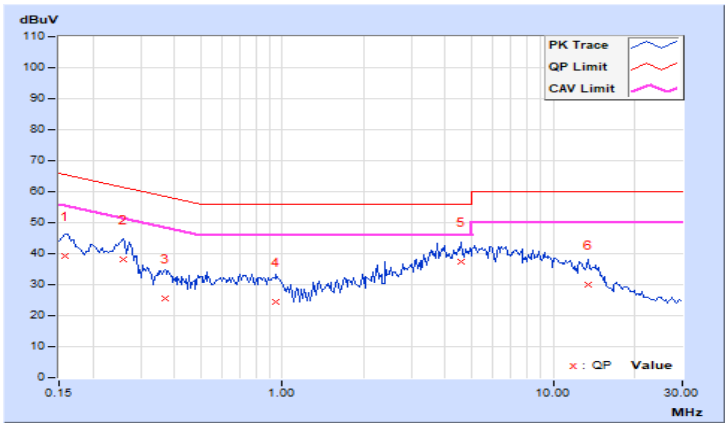
4.2.8 Test Results (Mode 2)

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	9.96	29.27	12.46	39.23	22.42	65.58	55.58	-26.35	-33.16
2	0.25938	10.00	28.28	17.67	38.28	27.67	61.45	51.45	-23.17	-23.78
3	0.36875	10.02	15.42	2.85	25.44	12.87	58.53	48.53	-33.09	-35.66
4	0.94297	10.06	14.37	3.49	24.43	13.55	56.00	46.00	-31.57	-32.45
5	**4.58594**	**10.32**	**26.95**	**15.00**	**37.27**	**25.32**	**56.00**	**46.00**	**-18.73**	**-20.68**
6	13.42969	10.98	19.09	7.57	30.07	18.55	60.00	50.00	-29.93	-31.45

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

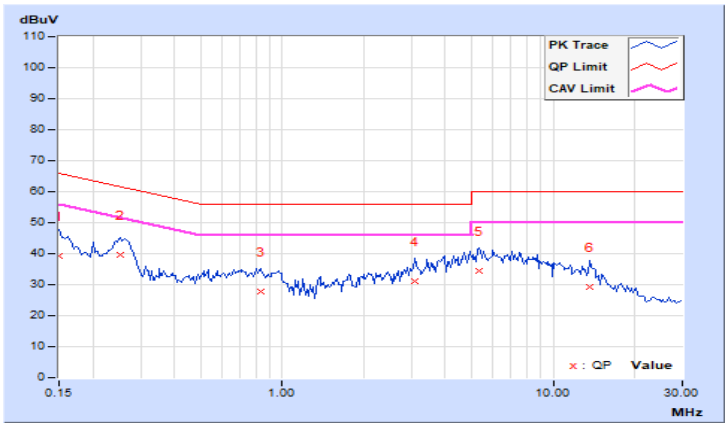


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.94	29.36	11.77	39.30	21.71	66.00	56.00	-26.70	-34.29
2	0.25156	9.99	29.71	20.22	39.70	30.21	61.71	51.71	-22.01	-21.50
3	0.83750	10.05	17.59	7.93	27.64	17.98	56.00	46.00	-28.36	-28.02
4	3.07813	10.20	21.02	11.13	31.22	21.33	56.00	46.00	-24.78	-24.67
5	5.34375	10.33	24.27	14.09	34.60	24.42	60.00	50.00	-25.40	-25.58
6	13.65234	10.83	18.48	7.48	29.31	18.31	60.00	50.00	-30.69	-31.69

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



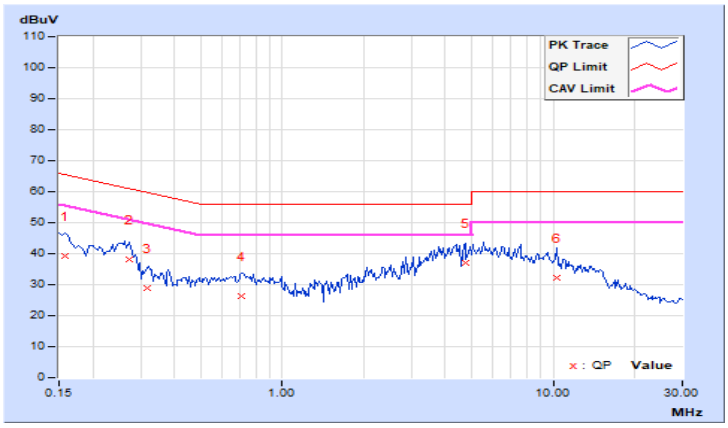
4.2.9 Test Results (Mode 3)

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	9.96	29.17	12.36	39.13	22.32	65.58	55.58	-26.45	-33.26
2	0.27109	10.00	28.13	16.70	38.13	26.70	61.08	51.08	-22.95	-24.38
3	0.31797	10.01	18.87	4.72	28.88	14.73	59.76	49.76	-30.88	-35.03
4	0.70859	10.04	16.39	5.92	26.43	15.96	56.00	46.00	-29.57	-30.04
5	4.73828	10.33	26.59	15.19	36.92	25.52	56.00	46.00	-19.08	-20.48
6	10.26172	10.74	21.58	10.13	32.32	20.87	60.00	50.00	-27.68	-29.13

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

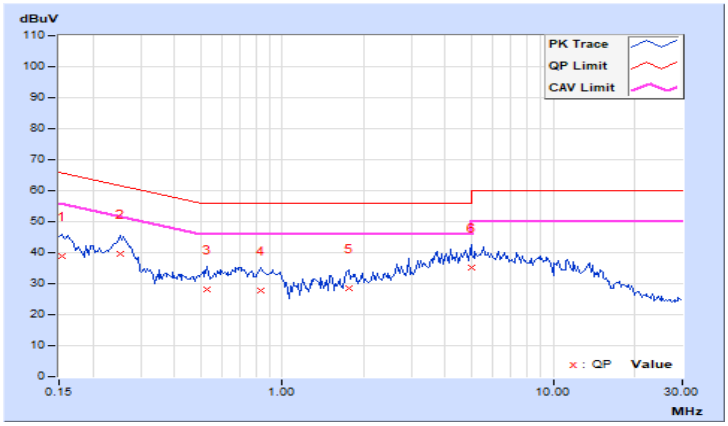


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.94	29.03	12.36	38.97	22.30	65.79	55.79	-26.82	-33.49
2	0.25156	9.99	29.65	20.26	39.64	30.25	61.71	51.71	-22.07	-21.46
3	0.52500	10.02	17.99	7.73	28.01	17.75	56.00	46.00	-27.99	-28.25
4	0.83359	10.05	17.79	7.77	27.84	17.82	56.00	46.00	-28.16	-28.18
5	1.76172	10.12	18.24	8.26	28.36	18.38	56.00	46.00	-27.64	-27.62
6	4.98047	10.31	25.00	14.42	35.31	24.73	56.00	46.00	-20.69	-21.27

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



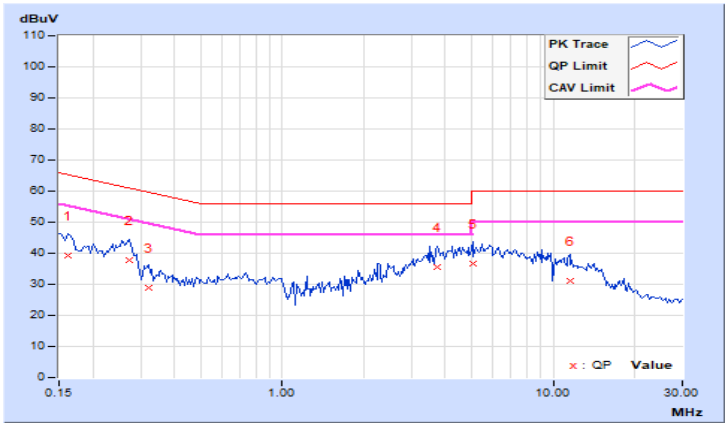
4.2.10 Test Results (Mode 4)

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	9.97	29.15	11.78	39.12	21.75	65.38	55.38	-26.26	-33.63
2	0.27109	10.00	27.74	16.69	37.74	26.69	61.08	51.08	-23.34	-24.39
3	0.32188	10.01	18.85	4.66	28.86	14.67	59.66	49.66	-30.80	-34.99
4	3.72266	10.26	25.30	13.64	35.56	23.90	56.00	46.00	-20.44	-22.10
5	5.07031	10.36	26.45	15.03	36.81	25.39	60.00	50.00	-23.19	-24.61
6	11.54688	10.84	20.30	8.81	31.14	19.65	60.00	50.00	-28.86	-30.35

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

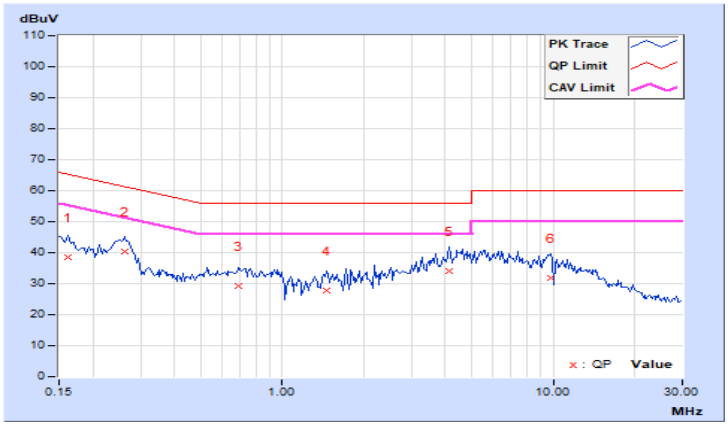


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	9.95	28.71	12.44	38.66	22.39	65.38	55.38	-26.72	-32.99
2	0.26328	9.99	30.38	22.00	40.37	31.99	61.33	51.33	-20.96	-19.34
3	0.68516	10.04	19.16	10.20	29.20	20.24	56.00	46.00	-26.80	-25.76
4	1.44922	10.10	17.71	8.15	27.81	18.25	56.00	46.00	-28.19	-27.75
5	4.12891	10.26	23.69	13.58	33.95	23.84	56.00	46.00	-22.05	-22.16
6	9.78516	10.61	21.27	10.06	31.88	20.67	60.00	50.00	-28.12	-29.33

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

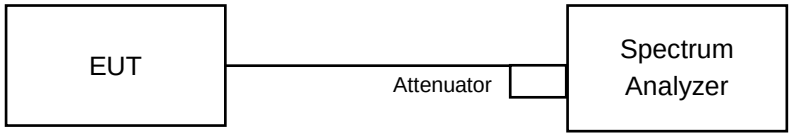


4.3 Conducted Out of Band Emission Measurement

4.3.1 Limits of Conducted Out of Band Emission Measurement

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

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedures

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

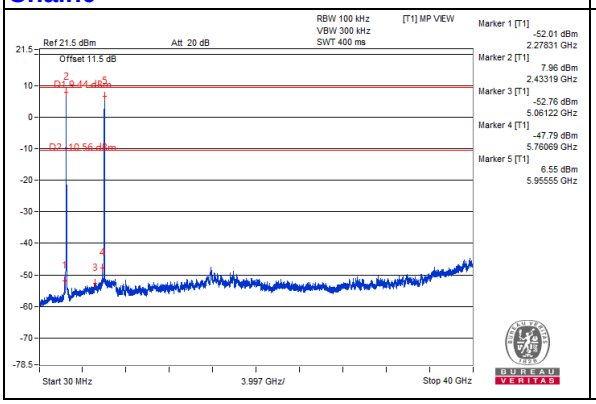
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.3.7 Test Results

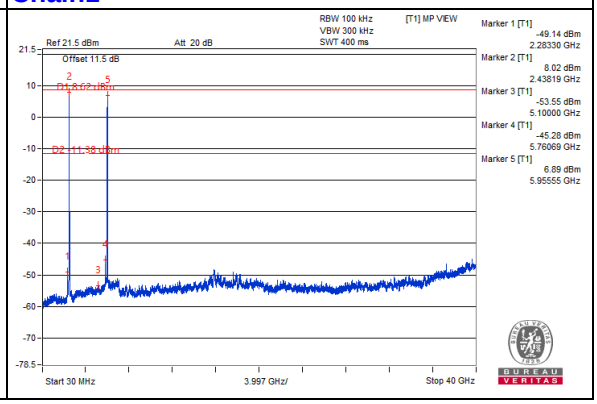
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

2.4GHz_802.11g_CH6 + 6GHz_802.11a_CH1

Chain0

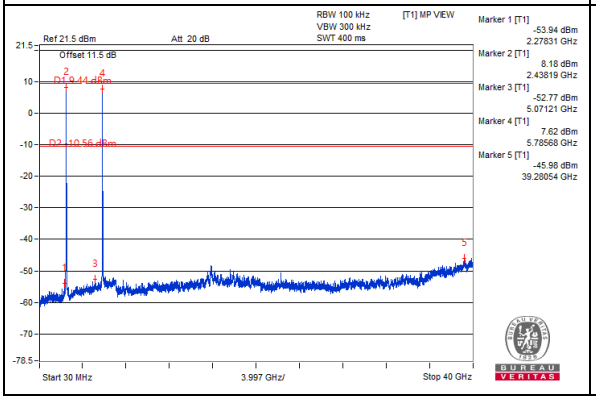


Chain1

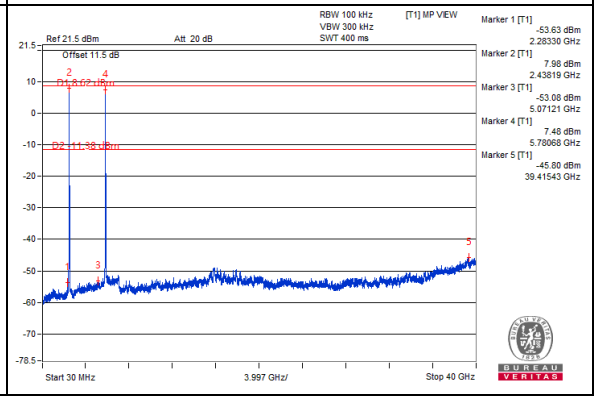


2.4GHz_802.11g_CH6 + 5GHz_802.11a_CH157

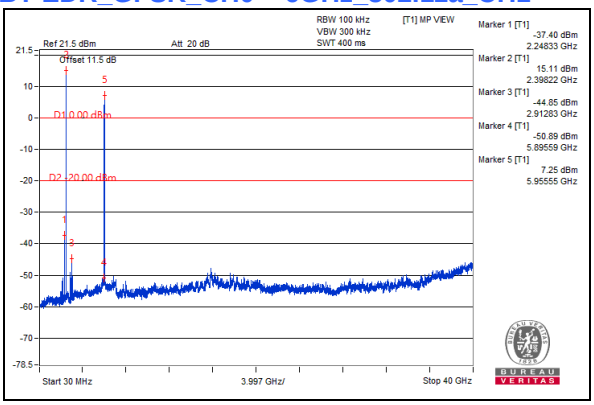
Chain0



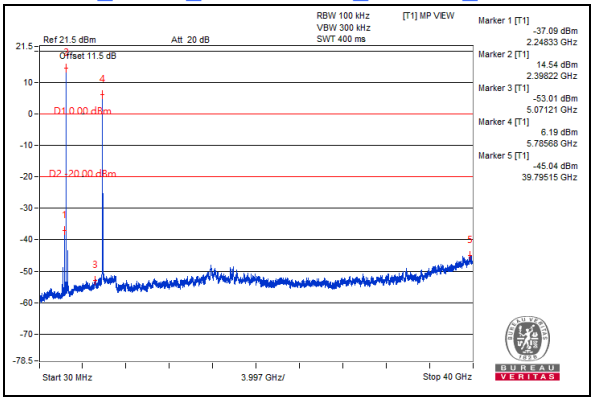
Chain1



BT-EDR_GFSK_CH0 + 6GHz_802.11a_CH1



BT-EDR_GFSK_CH0 + 5GHz_802.11a_CH157



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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