

Supplemental “Transmit Simultaneously” Test Report

Report No.: RFBDKG-WTW-P23080624-4

FCC ID: JNZVR0032

Test Model: VR0032

Received Date: 2023/8/28

Test Date: 2023/10/23 ~ 2023/11/1

Issued Date: 2023/11/30

Applicant: Logitech Far East Ltd.

Address: #2 Creation Rd. 4, Science-Based Ind. Park Hsinchu Taiwan, R.O.C.

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,
Taiwan

Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan

**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

Issue No.	Description	Date Issued
RFBDKG-WTW-P23080624-4	Original release.	2023/11/30

1 Certificate of Conformity

Product: Micro Four Thirds Wireless Video Production Camera

Brand: Logitech

Test Model: VR0032

Sample Status: Engineering sample

Applicant: Logitech Far East Ltd.

Test Date: 2023/10/23 ~ 2023/11/1

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:** 2023/11/30
Phoenix Huang / Specialist

Approved by : May Chen , **Date:** 2023/11/30
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C, E (SECTION 15.247, 15.407)			
FCC Clause	Test Item	Result	Remarks
15.207 15.407(b)(9)	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -13.65 dB at 12.04297 MHz.
15.205 / 15.209 / 15.247(d) 15.407(b) (1/2/3/4(i)/6/10)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -4.1 dB at 500.01 MHz and 699.83 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) (\pm)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	1.9 dB
Conducted emissions	-	1.9 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.4 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	5.0 dB
	18 GHz ~ 40 GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Micro Four Thirds Wireless Video Production Camera
Brand	Logitech
Test Model	VR0032
Status of EUT	Engineering sample
Power Supply Rating	3.6 Vdc from battery or 5-9 Vdc from USB interface
Modulation Type	WLAN: CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode 1024QAM for OFDMA in 11ax mode BT-LE: GFSK
Modulation Technology	WLAN: DSSS, OFDM, OFDMA BT-LE: DTS
Transfer Rate	WLAN: 802.11b: up to 11 Mbps 802.11a/g: up to 54 Mbps 802.11n: up to 300 Mbps 802.11ac: up to 866.7 Mbps 802.11ax: up to 1201.2 Mbps BT-LE: up to 2 Mbps
Operating Frequency	WLAN: 2.4GHz: 2.412 GHz ~ 2.462 GHz 5GHz: 5.18 GHz ~ 5.24 GHz, 5.26 GHz ~ 5.32 GHz, 5.5 GHz ~ 5.72 GHz, 5.745 GHz ~ 5.825 GHz 6GHz: 5.955 GHz ~ 6.415 GHz 6.435 GHz ~ 6.525 GHz 6.535 GHz ~ 6.865 GHz 6.875 GHz ~ 7.095 GHz BT-LE: 2.402 GHz ~ 2.48 GHz
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory	Refer to Note

Note:

1. The EUT must be supplied with a battery as the following table:

Brand	Model	Specification
Panasonic	533-000231 533-000230	Power Rating : 3.6 Vdc ; 23.04 Wh ; 6400 mAh

Note: From the above batteries, the model (533-000230) was selected for the test and its data was recorded in this report.

2. The EUT uses following accessories.

Type C Cable		
Brand	Model	Specification
Logi	JEM 1510-0429-0138	Signal Line : Shielded, 2 m

3. There are WLAN (2.4 GHz & 5 GHz & 6 GHz) and Bluetooth technology used for the EUT.

4. Simultaneously transmission condition.

Condition	Technology	
1	WLAN (5 GHz)	Bluetooth
2	WLAN (6 GHz)	Bluetooth

5. The EUT support OFDMA and Partial RU mode, therefore partial RU combination were investigated and the worst case scenario was identified.

6. The antenna information is listed as below.

Antenna No.	RF Chain No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
0	0	4.5	2.4~2.4835	Printed F	IPEX MHF I
		6.93	5.15~5.85		
		7.03	5.925~7.125		
1	1	3.41	2.4~2.4835	Printed F	IPEX MHF I
		6.69	5.15~5.85		
		6.81	5.925~7.125		

Note: For the transmission modes of Chain 0 and chain 1 in 1Tx mode, after evaluation, chain 0 is used as a representative presentation mode.

7. Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

8. The EUT incorporates a MIMO function:

2.4 GHz Band		
Modulation Mode	Tx & Rx Configuration	
802.11b	2Tx/1Tx Diversity	2Rx
802.11g	2Tx/1Tx Diversity	2Rx
802.11n (HT20)	2Tx/1Tx Diversity	2Rx
VHT20	2Tx/1Tx Diversity	2Rx
802.11ax (HE20)	2Tx/1Tx Diversity	2Rx
802.11ax (RU26/52/106/242)	2Tx/1Tx Diversity	2Rx
5 GHz Band		
Modulation Mode	Tx & Rx Configuration	
802.11a	2Tx/1Tx Diversity	2Rx
802.11n (HT20)	2Tx/1Tx Diversity	2Rx
802.11n (HT40)	2Tx/1Tx Diversity	2Rx
802.11ac (VHT20)	2Tx/1Tx Diversity	2Rx
802.11ac (VHT40)	2Tx/1Tx Diversity	2Rx
802.11ac (VHT80)	2Tx/1Tx Diversity	2Rx
802.11ax (HE20)	2Tx/1Tx Diversity	2Rx
802.11ax (HE40)	2Tx/1Tx Diversity	2Rx
802.11ax (HE80)	2Tx/1Tx Diversity	2Rx
802.11ax (RU26/52/106/242/484/996)	2Tx/1Tx Diversity	2Rx

6 GHz Band		
Modulation Mode	Tx & Rx Configuration	
802.11a	2Tx/1Tx Diversity	2Rx
802.11ax (HE20)	2Tx/1Tx Diversity	2Rx
802.11ax (HE40)	2Tx/1Tx Diversity	2Rx
802.11ax (HE80)	2Tx/1Tx Diversity	2Rx
802.11ax (HE160)	2Tx/1Tx Diversity	2Rx
802.11ax (RU26/52/106/242/484/996)	2Tx/1Tx Diversity	2Rx

9. The EUT was pre-tested under the following modes:

Test Item	Pre-test Mode	Description	Test Item	Pre-test Mode	Description
Radiated Emissions	A	Power from Battery	AC Power Conducted Emission	D	Power from AC Adapter
	B	Power from AC Adapter		E	Power from Laptop
	C	Power from Laptop		-	-

Note:

- For Radiated Emission test, from the above modes, the worst case was found in **Mode C**. Therefore only the test data of the mode was recorded in this report.
- For AC Power Conducted Emission test, from the above modes, the worst case was found in **Mode E**. Therefore only the test data of the mode was recorded in this report.

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

3.1.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE \geq 1G	RE<1G	RE \geq 1G	OB	
1	√	√	√	√	(1Tx & 2Tx) WLAN (5 GHz) + Bluetooth
2	√	√	√	√	(1Tx & 2Tx) WLAN (6 GHz) + Bluetooth

Where **RE \geq 1G**: Radiated Emission above 1GHz & Bandedge Measurement

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

OB: Conducted Out-Band Emission Measurement

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.

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.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
1	802.11ax (HE20) + BT-LE	36 to 48 52 to 64 100 to 144 149 to 165	165	OFDMA	BPSK
		0 to 39	20	DTS	GFSK
2	802.11ax (HE80) + BT-LE	7 to 87 103 119 to 183 199 to 215	7	OFDMA	BPSK
		0 to 39	20	DTS	GFSK

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.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
1	802.11ax (HE20) + BT-LE	36 to 48 52 to 64 100 to 144 149 to 165	165	OFDMA	BPSK
		0 to 39	20	DTS	GFSK
2	802.11ax (HE80) + BT-LE	7 to 87 103 119 to 183 199 to 215	7	OFDMA	BPSK
		0 to 39	20	DTS	GFSK

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.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
1	802.11ax (HE20) + BT-LE	36 to 48 52 to 64 100 to 144 149 to 165	165	OFDMA	BPSK
		0 to 39	20	DTS	GFSK
2	802.11ax (HE80) + BT-LE	7 to 87 103 119 to 183 199 to 215	7	OFDMA	BPSK
		0 to 39	20	DTS	GFSK

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.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
1	802.11ax (HE20) + BT-LE	36 to 48 52 to 64 100 to 144 149 to 165	165	OFDMA	BPSK
		0 to 39	20	DTS	GFSK
2	802.11ax (HE80) + BT-LE	7 to 87 103 119 to 183 199 to 215	7	OFDMA	BPSK
		0 to 39	20	DTS	GFSK

Test Condition:

Applicable To	Environmental Conditions	Input Power (System)	Tested By
RE≥1G	20deg. C, 71%RH	120Vac, 60Hz	Willy Lin
RE<1G	20deg. C, 73%RH	120Vac, 60Hz	Willy Lin
PLC	23~26deg. C, 67~71%RH	120Vac, 60Hz	Sampson Chen
OB	25deg. C, 60%RH	120Vac, 60Hz	Willy Lin

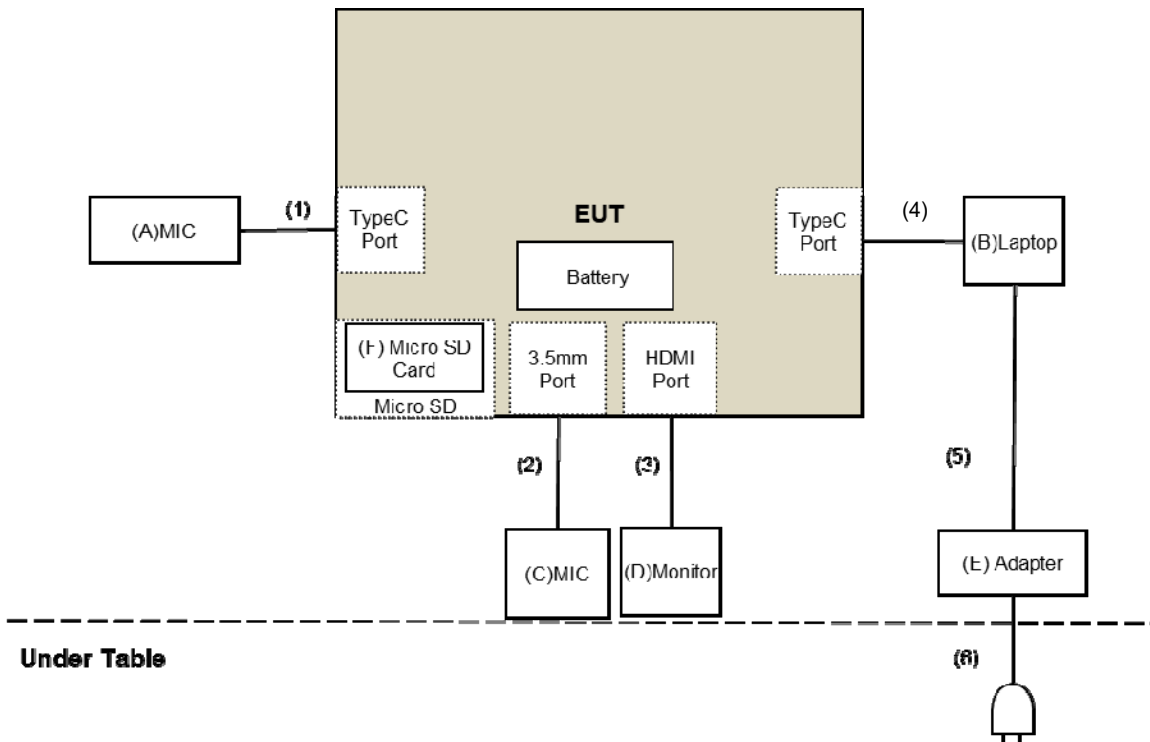
3.2 Description of Support Units

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.

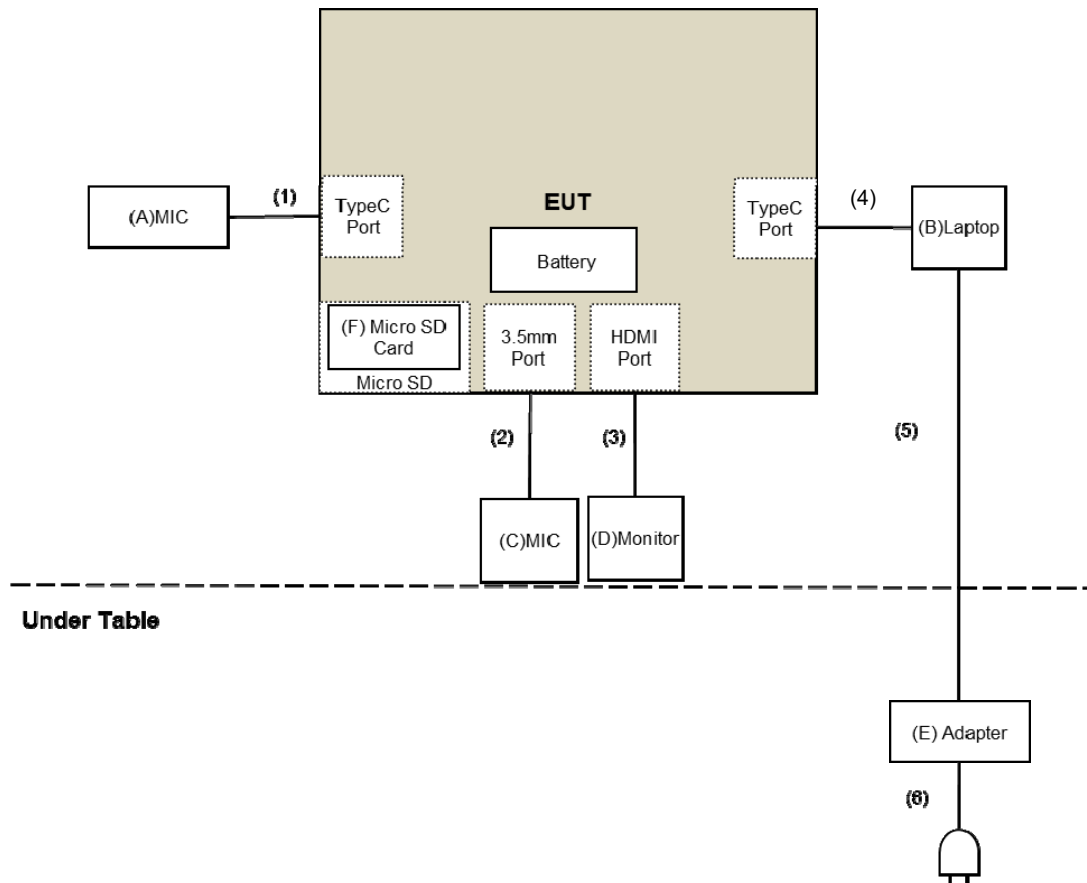
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	MIC	Logitech	2324SG000NN8	N/A	N/A	Supplied by applicant
B	Laptop	Lenovo	20U5S01X00 L14	PF-1ANPYA	N/A	Provided by Lab
C	MIC	E-books	E-EPB130	N/A	N/A	Provided by Lab
D	Monitor	DELL	P2415Q	CN-0J1P7F-QDC00-85L-13GB-A09	DoC	Provided by Lab
E	Adapter	Lenovo	ADLX45YLC3D	N/A	N/A	Provided by Lab
F	Micro SD card	Adata	2E-1746D1	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	Type C Cable	1	2	Yes	0	Supplied by applicant
2	3.5mm Cable	1	1.5	No	0	Provided by Lab
3	HDMI Cable	1	2	Yes	0	Supplied by applicant
4	Type C Cable	1	2	Yes	0	Supplied by applicant
5	DC Cable	1	1.8	No	0	Provided by Lab
6	AC Cable	1	1	No	0	Provided by Lab

3.2.1 Configuration of System under Test
For AC Power Conducted Emission test



For Radiated Emission 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:

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

For transmitters operating in the 5.925-7125 GHz band:

Frequencies (MHz)	EIRP Limit	Equivalent Field Strength at 3 m
5925 MHz > F > 7125 MHz	Peak: -7 (dBm/MHz)	88.2 (dBuV/m)
	Average: -27 (dBm/MHz)	68.2 (dBuV/m)

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

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

4.1.2 Test Instruments

For Radiated Emission test: (below 1 GHz)

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-361	2023/10/13	2024/10/12
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	2023/9/7	2024/9/6
Loop Antenna Electro-Metrics	EM-6879	264	2023/2/21	2024/2/20
MXE EMI Receiver Agilent	N9038A	MY50010156	2023/6/13	2024/6/12
Preamplifier EMCI	EMC330N	980852	2023/2/20	2024/2/19
	EMC001340	980142	2023/5/8	2024/5/7
RF Coaxial Cable JYEBAO	5D-FB	LOOPCAB-001	2022/12/19	2023/12/18
		LOOPCAB-002	2022/12/19	2023/12/18
RF Coaxial Cable PEWC	8D	966-3-2	2023/2/17	2024/2/16
		966-3-3	2023/2/17	2024/2/16
		966-4-1	2023/2/18	2024/2/17
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

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. 3.
3. Tested Date: 2023/10/23 ~ 2023/10/27

For Radiated Emission test: (above 1 GHz)

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-406	2022/11/13	2023/11/12
	BBHA 9170	9170-739	2022/11/13	2023/11/12
MXE EMI Receiver Agilent	N9038A	MY50010156	2023/6/13	2024/6/12
Preamplifier EMCI	EMC12630SE	980384	2023/8/9	2024/8/8
	EMC184045SE	980387	2023/8/9	2024/8/8
PXA Signal Analyzer Keysight	N9030B	MY57142938	2023/4/6	2024/4/5
RF Coaxial Cable EMCI	EMC-KM-KM-4000	200214	2023/2/20	2024/2/19
	EMC102-KM-KM-1200	160924	2023/8/9	2024/8/8
	EMC104-SM-SM-1500	180504	2023/3/27	2024/3/26
	EMC104-SM-SM-2000	180601	2023/6/2	2024/6/1
	EMC104-SM-SM-6000	210201	2023/5/8	2024/5/7
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

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. 3.
3. Tested Date: 2023/10/27 ~ 2023/10/28

For other test:

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
MXA Signal Analyzer Keysight	N9020B	MY60112409	2023/2/18	2024/2/17
Software	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

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 Oven room 2.
3. Tested Date: 2023/11/1

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 detect 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:

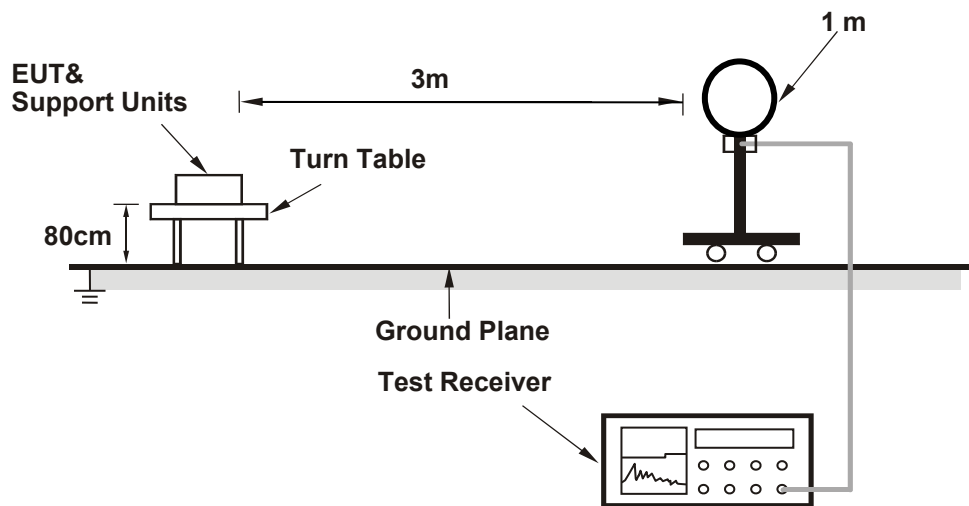
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) 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

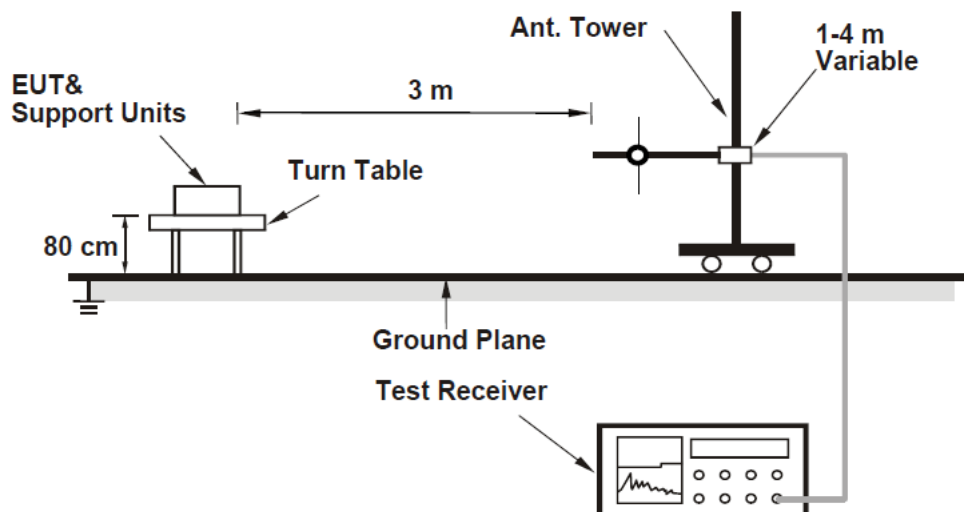
No deviation.

4.1.5 Test Setup

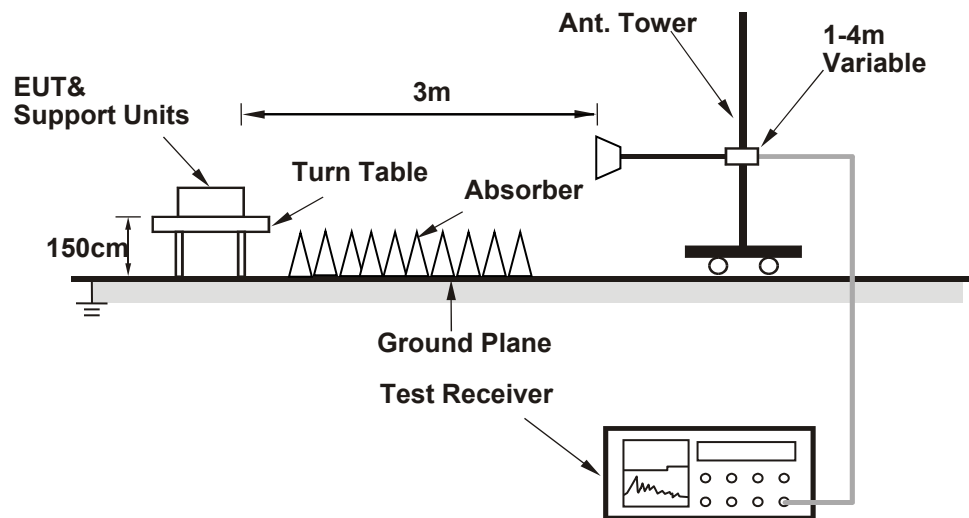
For Radiated emission below 30MHz



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. Placed the EUT on the testing table.
- b. Controlling software (WLAN: teraterm-4.106 paste VR0032_Wi-Fi TEST SOP.pptx command / BT-LE: Bluetooth RF test tool (5.2.3.79)) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results (Mode 1)

1Tx

Above 1GHz Data:

Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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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	4884.00	40.0 PK	74.0	-34.0	1.41 H	20	38.1	1.9
2	4884.00	28.7 AV	54.0	-25.3	1.41 H	20	26.8	1.9
3	7326.00	45.0 PK	74.0	-29.0	1.51 H	360	37.2	7.8
4	7326.00	34.1 AV	54.0	-19.9	1.51 H	360	26.3	7.8
5	11650.00	48.0 PK	74.0	-26.0	1.41 H	285	35.8	12.2
6	11650.00	35.2 AV	54.0	-18.8	1.41 H	285	23.0	12.2
7	#17475.00	56.9 PK	68.2	-11.3	1.43 H	197	38.8	18.1
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	4884.00	39.3 PK	74.0	-34.7	1.51 V	340	37.4	1.9
2	4884.00	28.6 AV	54.0	-25.4	1.51 V	340	26.7	1.9
3	7326.00	46.7 PK	74.0	-27.3	3.30 V	82	38.9	7.8
4	7326.00	35.5 AV	54.0	-18.5	3.30 V	82	27.7	7.8
5	11650.00	48.2 PK	74.0	-25.8	1.53 V	344	36.0	12.2
6	11650.00	35.1 AV	54.0	-18.9	1.53 V	344	22.9	12.2
7	#17475.00	55.7 PK	68.2	-12.5	1.41 V	180	37.6	18.1

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.
5. "#": The radiated frequency is out of the restricted band.

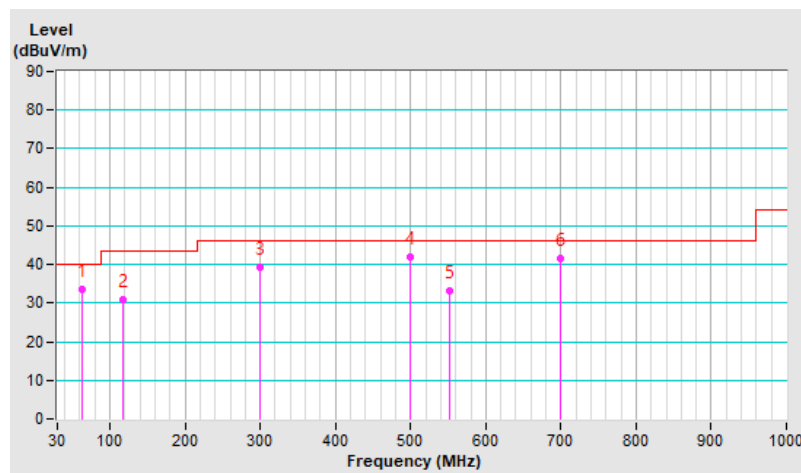
Below 1GHz Data:

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
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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	62.01	33.6 QP	40.0	-6.4	2.00 H	20	47.4	-13.8
2	116.45	30.8 QP	43.5	-12.7	1.50 H	327	45.6	-14.8
3	300.02	39.4 QP	46.0	-6.6	1.00 H	291	51.0	-11.6
4	500.01	41.9 QP	46.0	-4.1	1.50 H	333	48.6	-6.7
5	552.03	33.3 QP	46.0	-12.7	2.00 H	360	39.1	-5.8
6	700.03	41.5 QP	46.0	-4.5	1.00 H	293	44.3	-2.8

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 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

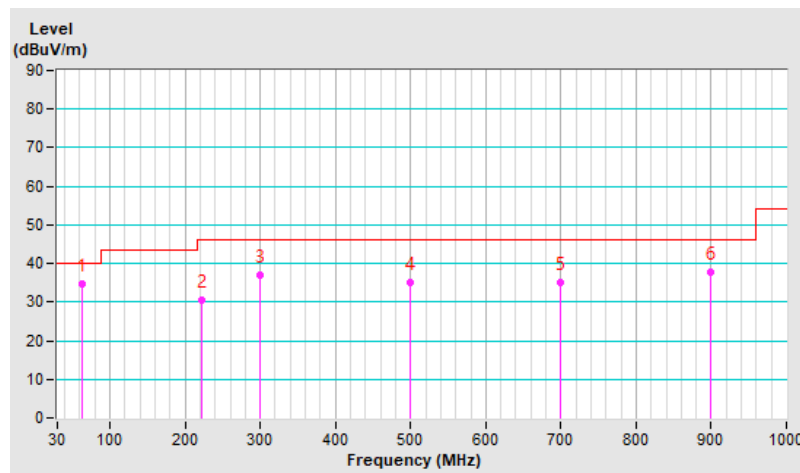


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
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Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	62.03	34.7 QP	40.0	-5.3	1.00 V	96	48.5	-13.8
2	221.21	30.4 QP	46.0	-15.6	1.00 V	327	46.2	-15.8
3	300.00	36.9 QP	46.0	-9.1	1.00 V	268	48.5	-11.6
4	500.01	35.1 QP	46.0	-10.9	1.00 V	273	41.8	-6.7
5	700.00	35.2 QP	46.0	-10.8	2.00 V	344	38.1	-2.9
6	900.02	37.7 QP	46.0	-8.3	1.00 V	360	37.4	0.3

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 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



2Tx
Above 1GHz Data:

Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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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	4884.00	39.5 PK	74.0	-34.5	1.38 H	5	37.6	1.9
2	4884.00	28.1 AV	54.0	-25.9	1.38 H	5	26.2	1.9
3	7326.00	45.7 PK	74.0	-28.3	1.48 H	342	37.9	7.8
4	7326.00	34.3 AV	54.0	-19.7	1.48 H	342	26.5	7.8
5	11650.00	48.1 PK	74.0	-25.9	1.48 H	272	35.9	12.2
6	11650.00	34.5 AV	54.0	-19.5	1.48 H	272	22.3	12.2
7	#17475.00	56.1 PK	68.2	-12.1	1.48 H	200	38.0	18.1

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	4884.00	40.4 PK	74.0	-33.6	1.54 V	355	38.5	1.9
2	4884.00	29.0 AV	54.0	-25.0	1.54 V	355	27.1	1.9
3	7326.00	45.9 PK	74.0	-28.1	3.33 V	107	38.1	7.8
4	7326.00	34.5 AV	54.0	-19.5	3.33 V	107	26.7	7.8
5	11650.00	47.8 PK	74.0	-26.2	1.45 V	337	35.6	12.2
6	11650.00	34.6 AV	54.0	-19.4	1.45 V	337	22.4	12.2
7	#17475.00	55.5 PK	68.2	-12.7	1.43 V	170	37.4	18.1

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.
5. "#": The radiated frequency is out of the restricted band.

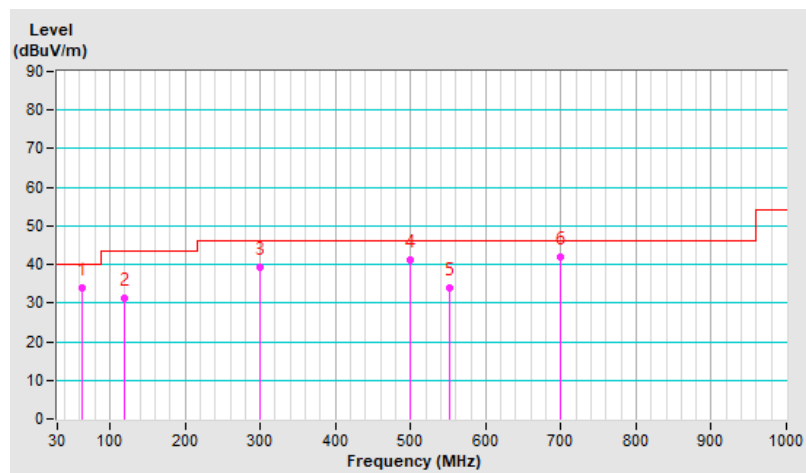
Below 1GHz Data:

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
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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	63.64	34.0 QP	40.0	-6.0	1.50 H	29	47.9	-13.9
2	118.31	31.2 QP	43.5	-12.3	2.00 H	300	45.7	-14.5
3	300.34	39.1 QP	46.0	-6.9	1.50 H	305	50.7	-11.6
4	500.07	41.2 QP	46.0	-4.8	2.00 H	350	47.9	-6.7
5	551.70	33.8 QP	46.0	-12.2	3.00 H	351	39.6	-5.8
6	699.83	41.9 QP	46.0	-4.1	2.00 H	305	44.8	-2.9

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 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

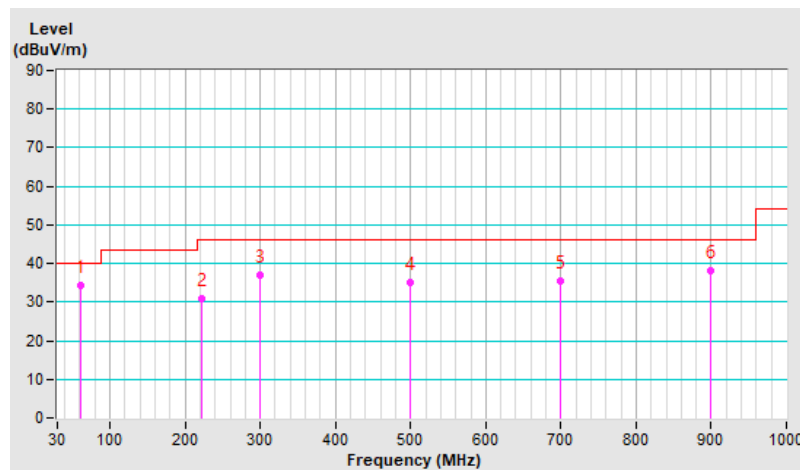


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
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Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	61.67	34.2 QP	40.0	-5.8	1.50 V	155	48.0	-13.8
2	221.74	30.7 QP	46.0	-15.3	1.50 V	354	46.5	-15.8
3	299.96	37.0 QP	46.0	-9.0	1.50 V	267	48.7	-11.7
4	500.07	35.1 QP	46.0	-10.9	1.00 V	294	41.8	-6.7
5	700.08	35.6 QP	46.0	-10.4	1.50 V	355	38.4	-2.8
6	900.06	38.1 QP	46.0	-7.9	1.50 V	288	37.8	0.3

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 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



4.1.8 Test Results (Mode 2)

1Tx

Above 1GHz Data:

Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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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	4884.00	39.9 PK	74.0	-34.1	1.25 H	12	38.0	1.9
2	4884.00	27.8 AV	54.0	-26.2	1.25 H	12	25.9	1.9
3	7326.00	46.6 PK	74.0	-27.4	1.47 H	357	38.8	7.8
4	7326.00	35.4 AV	54.0	-18.6	1.47 H	357	27.6	7.8
5	11970.00	50.1 PK	74.0	-23.9	3.07 H	83	38.4	11.7
6	11970.00	38.8 AV	54.0	-15.2	3.07 H	83	27.1	11.7
7	17955.00	52.2 PK	74.0	-21.8	1.65 H	202	29.7	22.5
8	17955.00	42.7 AV	54.0	-11.3	1.65 H	202	20.2	22.5

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	4884.00	40.9 PK	74.0	-33.1	1.66 V	360	39.0	1.9
2	4884.00	30.6 AV	54.0	-23.4	1.66 V	360	28.7	1.9
3	7326.00	46.6 PK	74.0	-27.4	3.29 V	104	38.8	7.8
4	7326.00	34.8 AV	54.0	-19.2	3.29 V	104	27.0	7.8
5	11970.00	47.1 PK	74.0	-26.9	2.04 V	186	35.4	11.7
6	11970.00	35.4 AV	54.0	-18.6	2.04 V	186	23.7	11.7
7	17955.00	54.2 PK	74.0	-19.8	1.86 V	72	31.7	22.5
8	17955.00	42.7 AV	54.0	-11.3	1.86 V	72	20.2	22.5

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.

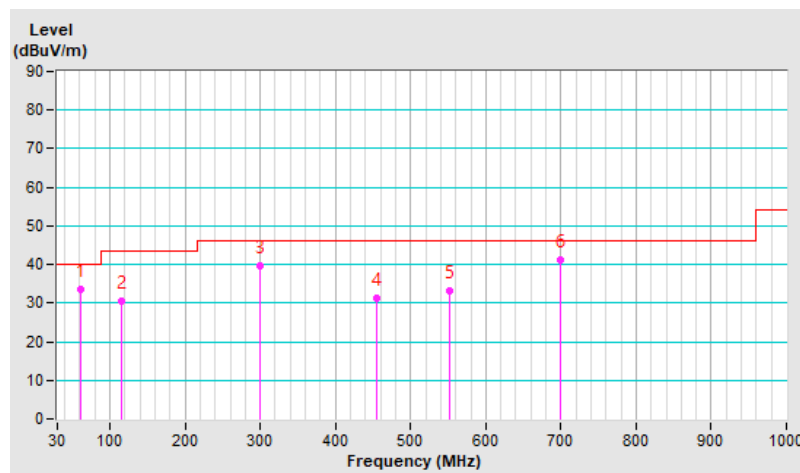
Below 1GHz Data:

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
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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	61.58	33.5 QP	40.0	-6.5	2.00 H	30	47.3	-13.8
2	115.95	30.6 QP	43.5	-12.9	1.50 H	315	45.4	-14.8
3	299.96	39.6 QP	46.0	-6.4	1.50 H	285	51.3	-11.7
4	455.74	31.2 QP	46.0	-14.8	2.00 H	42	38.8	-7.6
5	551.59	33.1 QP	46.0	-12.9	2.00 H	350	38.9	-5.8
6	699.73	41.3 QP	46.0	-4.7	1.00 H	285	44.2	-2.9

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 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



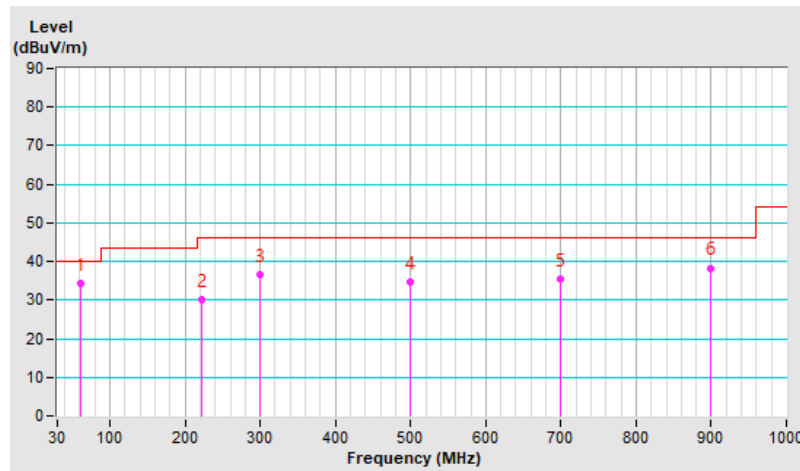
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
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Antenna Polarity & Test Distance : Vertical at 3 m

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	61.99	34.4 QP	40.0	-5.6	1.00 V	148	48.2	-13.8
2	221.19	30.2 QP	46.0	-15.8	1.00 V	333	46.0	-15.8
3	300.02	36.5 QP	46.0	-9.5	1.00 V	264	48.1	-11.6
4	500.01	34.6 QP	46.0	-11.4	1.00 V	280	41.3	-6.7
5	700.00	35.4 QP	46.0	-10.6	2.00 V	340	38.3	-2.9
6	899.99	38.3 QP	46.0	-7.7	1.00 V	360	38.0	0.3

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 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



2Tx

Above 1GHz Data:

Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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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	4884.00	39.3 PK	74.0	-34.7	1.34 H	2	37.4	1.9
2	4884.00	27.9 AV	54.0	-26.1	1.34 H	2	26.0	1.9
3	7326.00	46.2 PK	74.0	-27.8	1.43 H	334	38.4	7.8
4	7326.00	34.8 AV	54.0	-19.2	1.43 H	334	27.0	7.8
5	11970.00	49.5 PK	74.0	-24.5	3.01 H	79	37.8	11.7
6	11970.00	38.3 AV	54.0	-15.7	3.01 H	79	26.6	11.7
7	17955.00	52.1 PK	74.0	-21.9	1.62 H	197	29.6	22.5
8	17955.00	42.5 AV	54.0	-11.5	1.62 H	197	20.0	22.5

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	4884.00	40.1 PK	74.0	-33.9	1.59 V	353	38.2	1.9
2	4884.00	29.7 AV	54.0	-24.3	1.59 V	353	27.8	1.9
3	7326.00	45.6 PK	74.0	-28.4	3.35 V	109	37.8	7.8
4	7326.00	34.2 AV	54.0	-19.8	3.35 V	109	26.4	7.8
5	11970.00	46.8 PK	74.0	-27.2	2.01 V	184	35.1	11.7
6	11970.00	35.1 AV	54.0	-18.9	2.01 V	184	23.4	11.7
7	17955.00	54.1 PK	74.0	-19.9	1.81 V	77	31.6	22.5
8	17955.00	42.6 AV	54.0	-11.4	1.81 V	77	20.1	22.5

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.

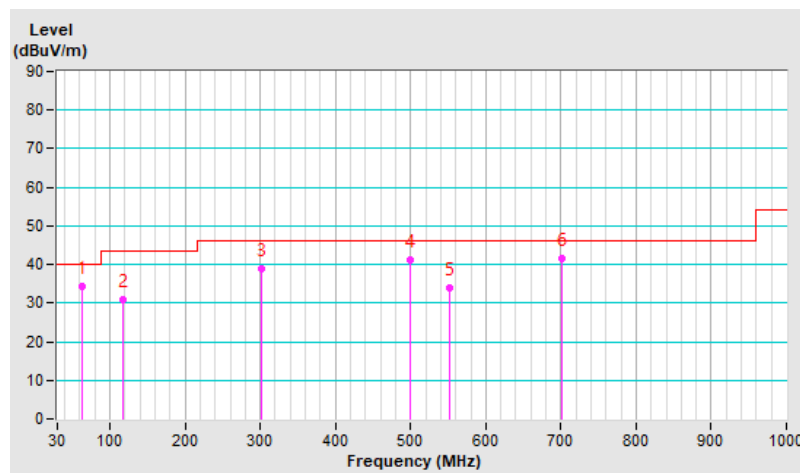
Below 1GHz Data:

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
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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	62.97	34.2 QP	40.0	-5.8	2.00 H	67	47.8	-13.6
2	117.67	30.9 QP	43.5	-12.6	3.00 H	254	45.6	-14.7
3	300.64	38.8 QP	46.0	-7.2	2.00 H	329	50.4	-11.6
4	500.16	41.0 QP	46.0	-5.0	2.00 H	344	47.7	-6.7
5	550.99	34.0 QP	46.0	-12.0	2.00 H	341	39.8	-5.8
6	700.30	41.7 QP	46.0	-4.3	1.50 H	267	44.5	-2.8

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 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



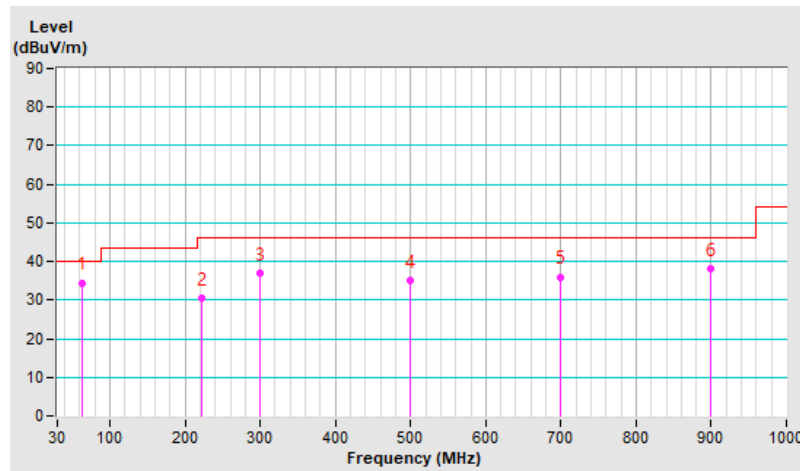
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
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Antenna Polarity & Test Distance : Vertical at 3 m

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	62.13	34.5 QP	40.0	-5.5	2.00 V	155	48.3	-13.8
2	221.60	30.5 QP	46.0	-15.5	2.00 V	355	46.3	-15.8
3	299.95	37.0 QP	46.0	-9.0	2.00 V	305	48.7	-11.7
4	499.94	35.1 QP	46.0	-10.9	2.00 V	305	41.8	-6.7
5	700.13	36.0 QP	46.0	-10.0	1.50 V	333	38.8	-2.8
6	900.05	38.0 QP	46.0	-8.0	2.00 V	351	37.7	0.3

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 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this 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
50 ohm terminal resistance	N/A	EMC-04	2023/10/20	2024/10/19
EMI Test Receiver R&S	ESCS 30	100375	2023/5/17	2024/5/16
Fixed Attenuator STI	STI02-2200-10	005	2023/7/1	2024/6/30
LISN R&S	ENV216	100071	2022/10/26 2023/10/25	2023/10/25 2024/10/24
RF Coaxial Cable JYEBAO	5D-FB	COCCAB-001	2023/7/1	2024/6/30
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A

Notes:

1. The calibration interval of the all 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: 2023/10/24 ~ 2023/10/27

4.2.3 Test Procedures

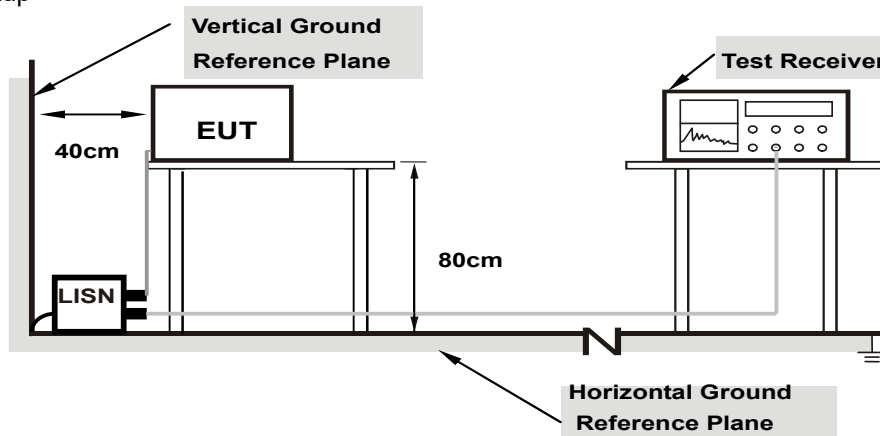
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

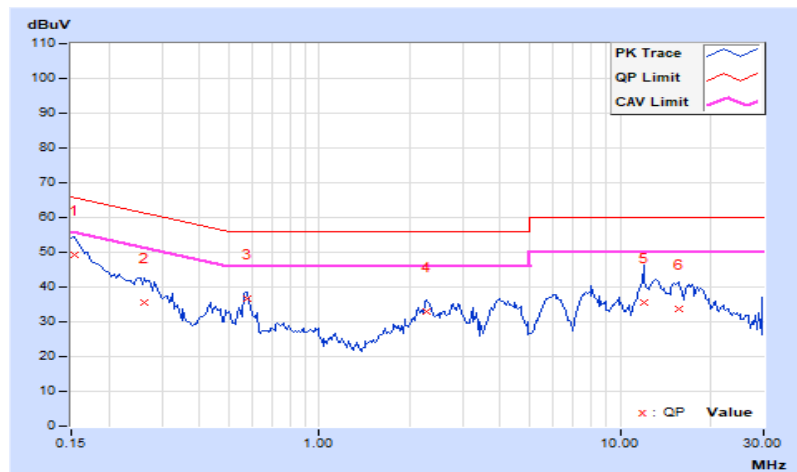
1Tx

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

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	9.93	39.31	25.04	49.24	34.97	65.79	55.79	-16.55	-20.82
2	0.26328	9.93	25.70	15.57	35.63	25.50	61.33	51.33	-25.70	-25.83
3	0.57578	9.95	26.57	21.46	36.52	31.41	56.00	46.00	-19.48	-14.59
4	2.27344	10.02	23.08	13.32	33.10	23.34	56.00	46.00	-22.90	-22.66
5	11.97266	10.59	25.13	15.20	35.72	25.79	60.00	50.00	-24.28	-24.21
6	15.59766	10.84	22.80	16.07	33.64	26.91	60.00	50.00	-26.36	-23.09

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

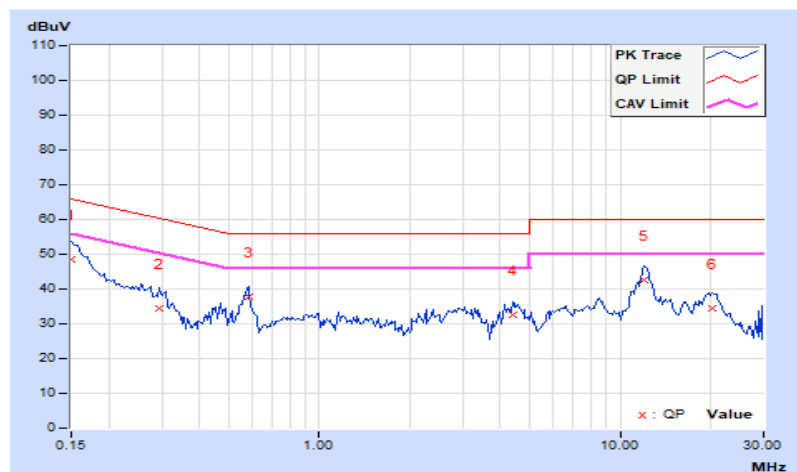


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.00	38.34	23.66	48.34	33.66	66.00	56.00	-17.66	-22.34
2	0.29453	9.99	24.47	12.60	34.46	22.59	60.40	50.40	-25.94	-27.81
3	0.58359	10.01	27.87	21.83	37.88	31.84	56.00	46.00	-18.12	-14.16
4	4.37891	10.17	22.42	16.02	32.59	26.19	56.00	46.00	-23.41	-19.81
5	12.04297	10.50	32.11	25.85	42.61	36.35	60.00	50.00	-17.39	-13.65
6	20.25391	10.89	23.60	19.36	34.49	30.25	60.00	50.00	-25.51	-19.75

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



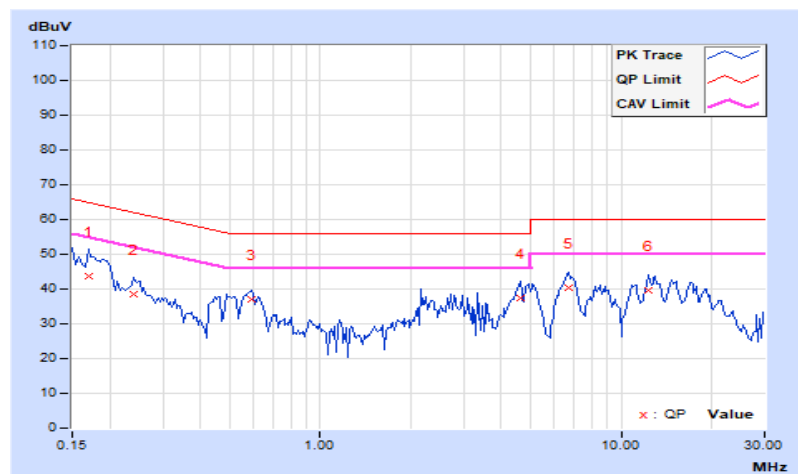
2Tx

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

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	0.16953	9.94	33.62	21.05	43.56	30.99	64.98	54.98	-21.42	-23.99
2	0.23984	9.94	28.41	19.44	38.35	29.38	62.10	52.10	-23.75	-22.72
3	0.59141	9.96	27.01	13.95	36.97	23.91	56.00	46.00	-19.03	-22.09
4	4.60547	10.18	27.26	20.67	37.44	30.85	56.00	46.00	-18.56	-15.15
5	6.66406	10.29	30.12	24.97	40.41	35.26	60.00	50.00	-19.59	-14.74
6	12.35938	10.59	29.14	22.95	39.73	33.54	60.00	50.00	-20.27	-16.46

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

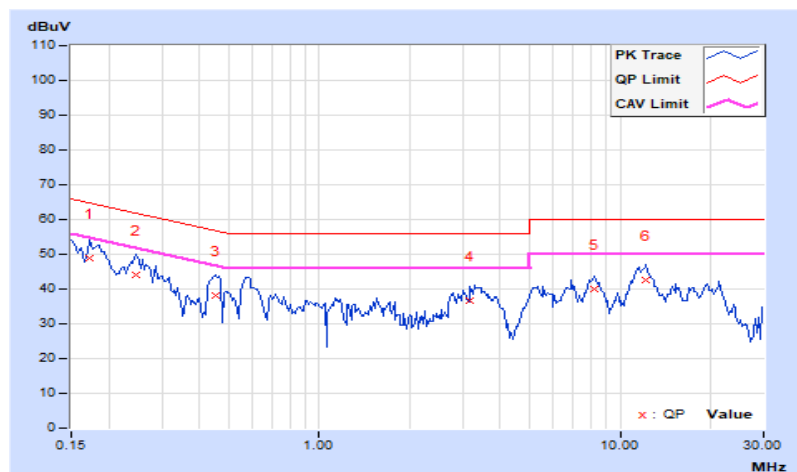


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
------------------------	------------------	---	---------------------------------------

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	0.17344	9.99	38.78	25.18	48.77	35.17	64.79	54.79	-16.02	-19.62
2	0.24766	9.99	34.00	21.05	43.99	31.04	61.84	51.84	-17.85	-20.80
3	0.45078	10.00	28.24	17.99	38.24	27.99	56.86	46.86	-18.62	-18.87
4	3.17578	10.13	26.39	20.69	36.52	30.82	56.00	46.00	-19.48	-15.18
5	8.19531	10.36	29.61	24.71	39.97	35.07	60.00	50.00	-20.03	-14.93
6	12.19141	10.52	32.25	25.41	42.77	35.93	60.00	50.00	-17.23	-14.07

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)

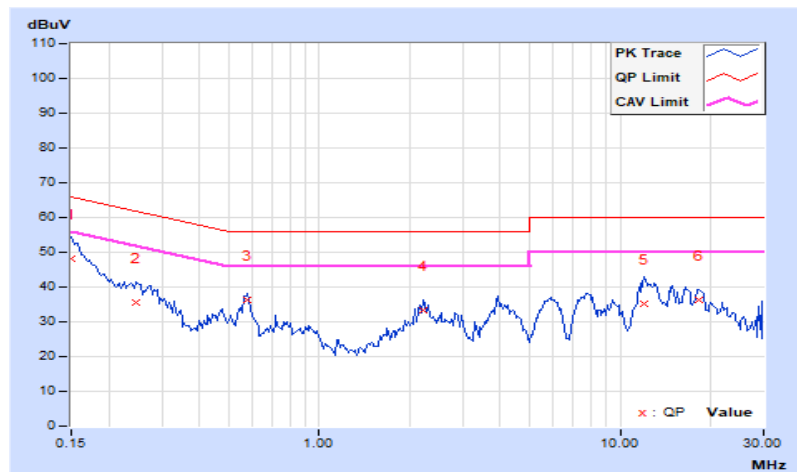
1Tx

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

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	0.15000	9.94	38.27	26.32	48.21	36.26	66.00	56.00	-17.79	-19.74
2	0.24766	9.93	25.75	14.91	35.68	24.84	61.84	51.84	-26.16	-27.00
3	0.57969	9.95	26.21	21.04	36.16	30.99	56.00	46.00	-19.84	-15.01
4	2.21875	10.01	23.33	13.54	33.34	23.55	56.00	46.00	-22.66	-22.45
5	12.00000	10.59	24.42	15.57	35.01	26.16	60.00	50.00	-24.99	-23.84
6	18.32031	11.03	25.11	20.23	36.14	31.26	60.00	50.00	-23.86	-18.74

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

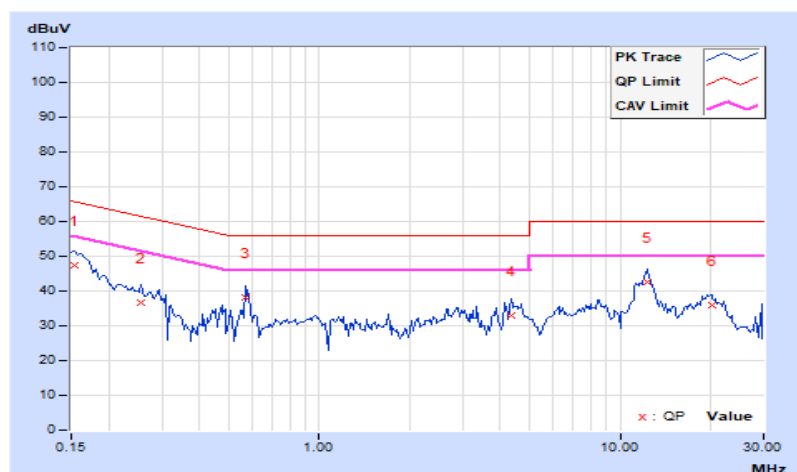


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.99	37.54	23.62	47.53	33.61	65.79	55.79	-18.26	-22.18
2	0.25547	9.99	26.61	13.32	36.60	23.31	61.58	51.58	-24.98	-28.27
3	0.56797	10.01	28.14	16.22	38.15	26.23	56.00	46.00	-17.85	-19.77
4	4.33203	10.16	22.81	15.96	32.97	26.12	56.00	46.00	-23.03	-19.88
5	12.28125	10.51	32.20	25.70	42.71	36.21	60.00	50.00	-17.29	-13.79
6	20.16016	10.88	24.87	20.25	35.75	31.13	60.00	50.00	-24.25	-18.87

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



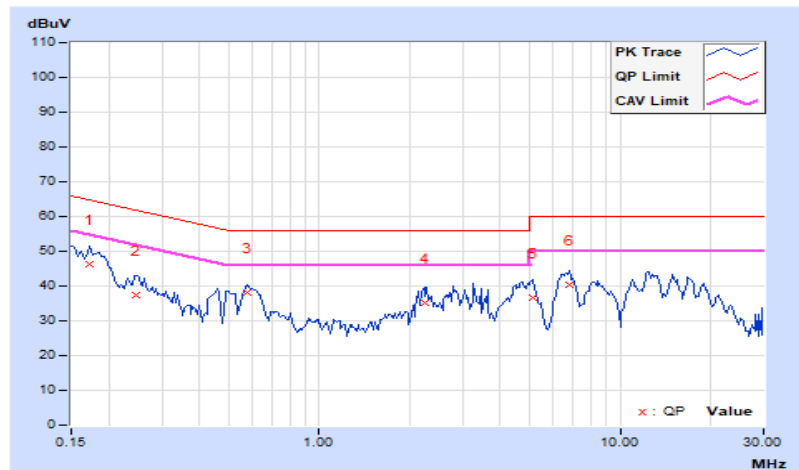
2Tx

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

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	0.17344	9.94	36.30	22.96	46.24	32.90	64.79	54.79	-18.55	-21.89
2	0.24766	9.94	27.64	19.11	37.58	29.05	61.84	51.84	-24.26	-22.79
3	0.57578	9.96	28.06	18.35	38.02	28.31	56.00	46.00	-17.98	-17.69
4	2.23438	10.03	25.13	14.62	35.16	24.65	56.00	46.00	-20.84	-21.35
5	5.12500	10.21	26.51	19.89	36.72	30.10	60.00	50.00	-23.28	-19.90
6	6.74219	10.29	30.26	24.73	40.55	35.02	60.00	50.00	-19.45	-14.98

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

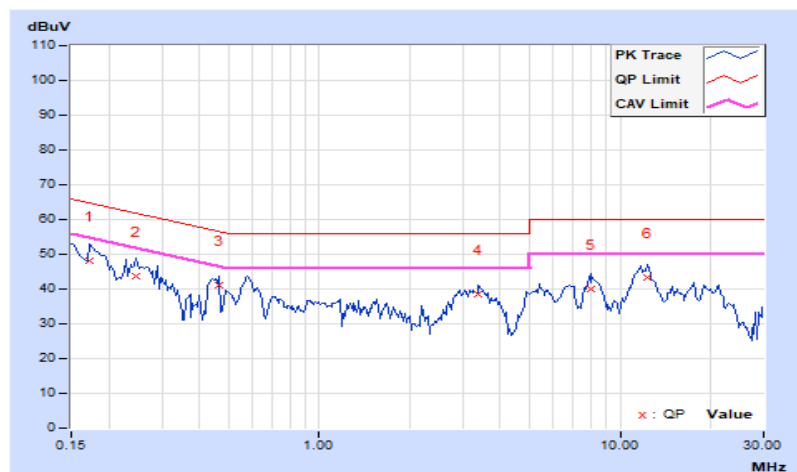


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
------------------------	------------------	---	---------------------------------------

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	0.17344	9.99	38.26	24.52	48.25	34.51	64.79	54.79	-16.54	-20.28
2	0.24766	9.99	33.66	20.62	43.65	30.61	61.84	51.84	-18.19	-21.23
3	0.46250	10.00	31.29	20.13	41.29	30.13	56.65	46.65	-15.36	-16.52
4	3.38281	10.14	28.22	20.13	38.36	30.27	56.00	46.00	-17.64	-15.73
5	7.97656	10.35	29.72	24.66	40.07	35.01	60.00	50.00	-19.93	-14.99
6	12.37891	10.52	32.73	25.75	43.25	36.27	60.00	50.00	-16.75	-13.73

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

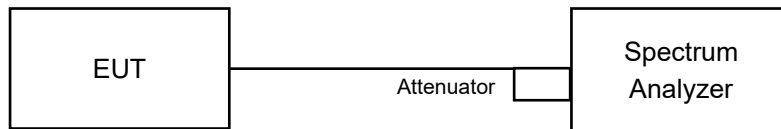


4.3 Conducted Out of Band Emission Measurement

4.3.1 Limits of Conducted Out of Band Emission Measurement

Below 20 dB 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 \geq 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 OOB

1. Set RBW = 100 kHz.
2. Set VBW \geq 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

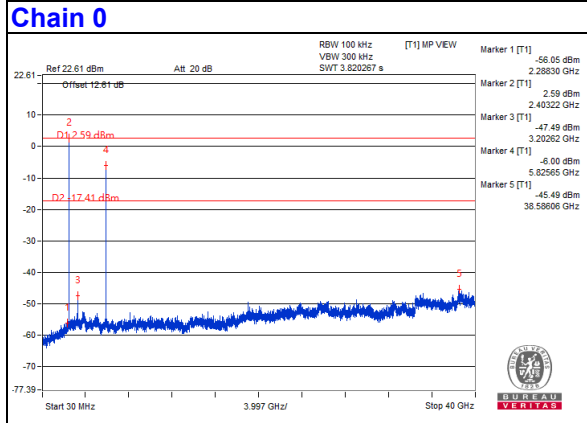
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.3.7 Test Results (Mode 1)

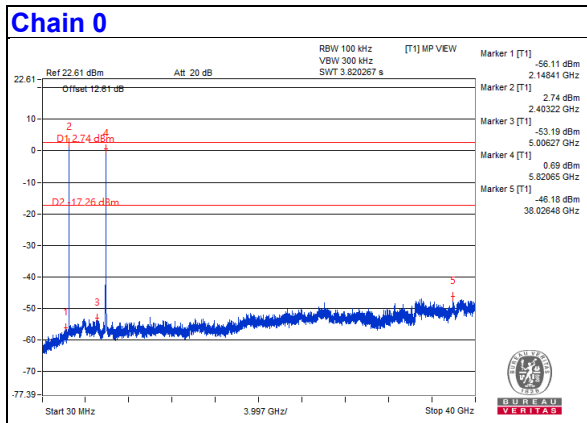
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20 dB offset below D1. It shows compliance with the requirement.

WLAN (5 GHz)_ 802.11ax (HE20) CH165 + BT-LE CH20

1Tx



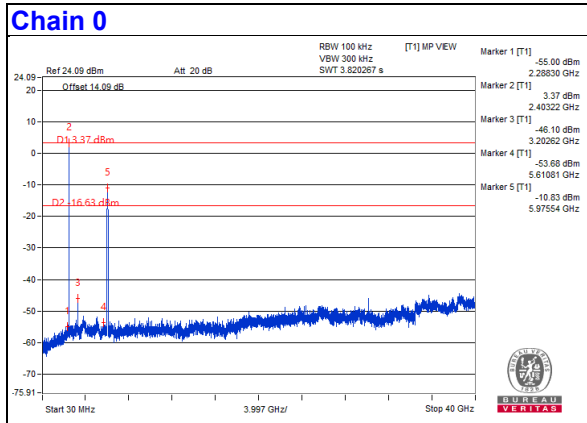
2Tx



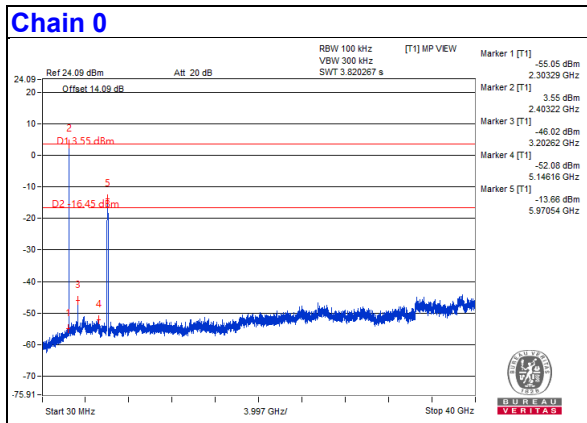
4.3.8 Test Results (Mode 2)

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

WLAN (6 GHz)_ 802.11ax (HE80) CH7 + BT-LE CH20 1Tx



2Tx



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@bureauveritas.com

Web Site: <http://ee.bureauveritas.com.tw>

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

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