

## Supplemental “Transmit Simultaneously” Test Report

**Report No.:** RFBHVI-WTW-P23120316-3

**FCC ID:** N6C-IM100

**Test Model:** IM-100

**Received Date:** 2023/12/14

**Test Date:** 2024/2/16 ~ 2024/2/21

**Issued Date:** 2024/5/7

**Applicant:** Silex Technology, Inc.

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



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### Release Control Record

Issue No.	Description	Date Issued
RFBHVI-WTW-P23120316-3	Original release.	2024/5/7



## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart C, E (SECTION 15.247, 15.407)			
FCC Clause	Test Item	Result	Remarks
15.205 / 15.209 / 15.247(d) 15.407(b) (1/2/3/4(i/ii)/8)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -7.5 dB at 11160.00 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) ( $\pm$ )
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	Embedded wireless module
Brand	Silex Technology
Test Model	IM-100
Status of EUT	Engineering sample
Power Supply Rating	3.3 Vdc from host equipment
Modulation Type	<b>WLAN:</b> CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode 1024QAM for OFDMA in 11ax mode <b>BT-LE:</b> GFSK
Modulation Technology	<b>WLAN:</b> DSSS, OFDM, OFDMA <b>BT-LE:</b> DTS
Operating Frequency	<b>WLAN:</b> <b>2.4GHz:</b> 2.412 ~ 2.462 GHz <b>5GHz:</b> 5.18 ~ 5.24 GHz, 5.26 ~ 5.32 GHz, 5.50 ~ 5.72 GHz, 5.745 ~ 5.825 GHz <b>BT-LE:</b> 2.402 ~ 2.480 GHz
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. There are Bluetooth and WLAN (2.4 GHz & 5 GHz) technology used for the EUT.
2. The product's WLAN 2.4G and WLAN 5G will not operate simultaneously.
3. Simultaneously transmission condition.

Condition	Technology	
1	WLAN (5 GHz)	Bluetooth

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

4. The antennas provided to the EUT, please refer to the following table:

Antenna No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
1	Molex	146153	3.18	2.4~2.4835	Dipole	ipex(MHF)	50
			3.18	5.15~5.25			
			2.98	5.25~5.35			
			4.28	5.47~5.725			
			3.78	5.725~5.85			
2	Unictron	AA258	2.67	2.4~2.4835	Dipole	ipex(MHF)	50
			3.22	5.15~5.25			
			3.91	5.25~5.35			
			2.77	5.47~5.725			
			3.92	5.725~5.85			
3	Sillex	SXANTFDB24A55-03	2.75	2.4~2.4835	Folded inverted-L	None (On-board)	NA
			1.82	5.15~5.25			
			1.82	5.25~5.35			
			2.82	5.47~5.725			
			2.99	5.725~5.85			

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

5. The EUT incorporates a SISO function:

2.4 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11b	1Tx	1Rx
802.11g	1Tx	1Rx
802.11n (HT20)	1Tx	1Rx
802.11ax (HE20)	1Tx	1Rx
802.11ax (RU26/52/106)	1Tx	1Rx
5 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11a	1Tx	1Rx
802.11n (HT20)	1Tx	1Rx
802.11ac (VHT20)	1Tx	1Rx
802.11ax (HE20)	1Tx	1Rx
802.11ax (RU26/52/106)	1Tx	1Rx

6. 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	OB	
-	√	√	√	-

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz & Bandedge Measurement  
**RE $<$ 1G**: Radiated Emission below 1GHz  
**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 Z-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.

MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
5GHz: 802.11ax (HE20) + BT-LE_2M	116	OFDMA	BPSK
	19	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.

MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
5GHz: 802.11ax (HE20) + BT-LE_2M	116	OFDMA	BPSK
	19	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.

MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
5GHz: 802.11ax (HE20) + BT-LE_2M	116	OFDMA	BPSK
	19	DTS	GFSK

#### **Test Condition:**

Applicable To	Environmental Conditions	Input Power	Tested By
<b>RE<math>\geq</math>1G</b>	23deg. C, 71%RH	120Vac, 60Hz (System)	Louis Yang
<b>RE<math>&lt;</math>1G</b>	22deg. C, 71%RH	120Vac, 60Hz (System)	Louis Yang
<b>OB</b>	25deg. C, 72%RH	3.3Vdc	Louis Yang



### 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.

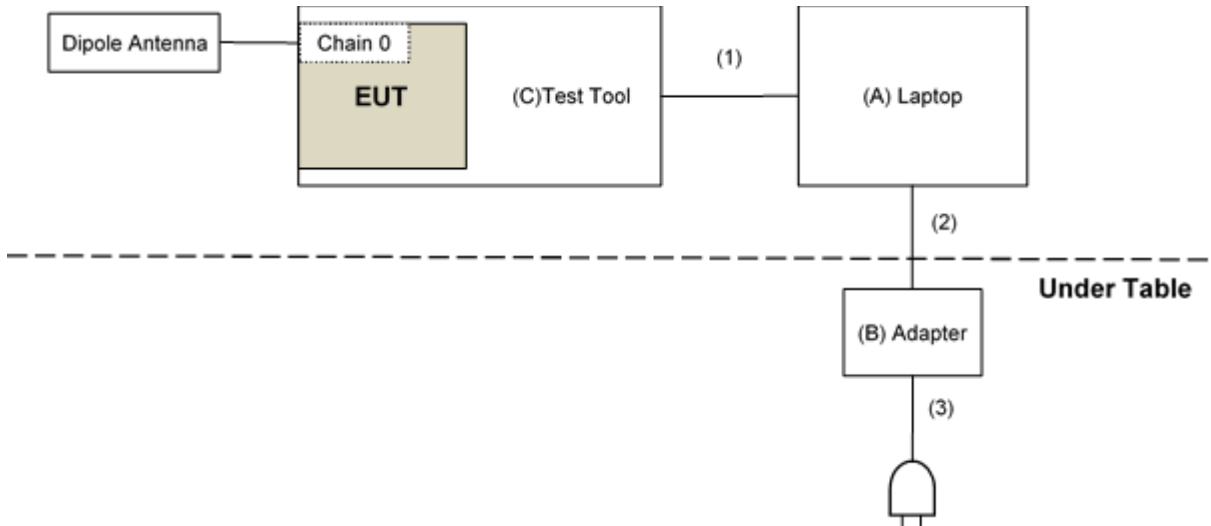
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	Lenovo	20U5S01X00 L14	PF-1ANPYA	N/A	Provided by Lab
B	Adapter	Lenovo	ADLX45YLC3D	N/A	N/A	Provided by Lab
C	Test Tool	Silex Technology	N/A	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB Cable	1	1	Yes	0	Supplied by applicant
2	DC Cable	1	1.8	No	0	Provided by Lab
3	AC Cable	1	1	No	0	Provided by Lab
4	Data Cable	1	0.35	No	0	Supplied by applicant

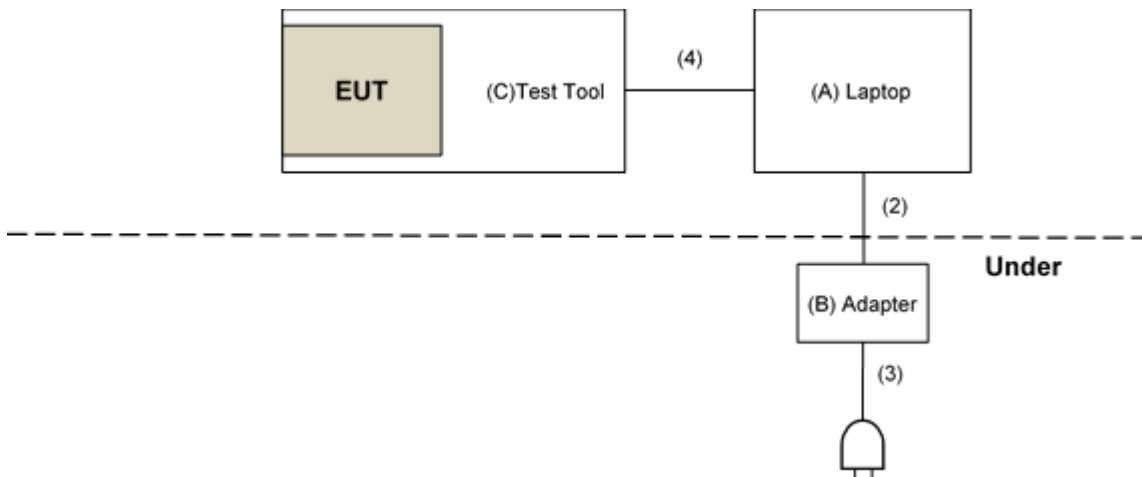
### 3.2.1 Configuration of System under Test

For Radiated Emission test

#### Dipole Antenna



#### PCB Antenna



## 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) <sup>*1</sup> PK: 10 (dBm/MHz) <sup>*2</sup> PK: 15.6 (dBm/MHz) <sup>*3</sup> PK: 27 (dBm/MHz) <sup>*4</sup>	PK: 68.2(dBμV/m) <sup>*1</sup> PK: 105.2 (dBμV/m) <sup>*2</sup> PK: 110.8(dBμV/m) <sup>*3</sup> PK: 122.2 (dBμV/m) <sup>*4</sup>
5725~5850 MHz	15.407(b)(4)(i)	PK: -27 (dBm/MHz) <sup>*1</sup> PK: 10 (dBm/MHz) <sup>*2</sup> PK: 15.6 (dBm/MHz) <sup>*3</sup> PK: 27 (dBm/MHz) <sup>*4</sup>	PK: 68.2(dBμV/m) <sup>*1</sup> PK: 105.2 (dBμV/m) <sup>*2</sup> PK: 110.8(dBμV/m) <sup>*3</sup> PK: 122.2 (dBμV/m) <sup>*4</sup>
<sup>*1</sup> beyond 75 MHz or more above of the band edge. <sup>*3</sup> below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.		<sup>*2</sup> below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. <sup>*4</sup> 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:

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

#### 4.1.2 Test Instruments

##### For Radiated emission test:

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	2023/11/12	2024/11/11
	BBHA 9170	9170-739	2023/11/12	2024/11/11
MXE EMI Receiver Agilent	N9038A	MY50010156	2023/6/13	2024/6/12
Preamplifier EMCI	EMC12630SE	980384	2023/8/9 2024/1/29	2024/8/8 2025/1/28
	EMC184045SE	980387	2023/8/9	2024/8/8
PXA Signal Analyzer Keysight	N9030B	MY57142938	2023/4/6	2024/4/5
RF Coaxial Cable EMCI	EMC102-KM-KM-1200	160924	2023/8/9 2024/1/29	2024/8/8 2025/1/28
	EMC102-KM-KM-4000	200214	2023/2/20 2024/1/29	2024/2/19 2025/1/28
	EMC104-SM-SM-1500	180504	2023/3/27 2024/1/29	2024/3/26 2025/1/28
	EMC104-SM-SM-2000	180601	2023/6/2 2024/1/29	2024/6/1 2025/1/28
	EMC104-SM-SM-6000	210201	2023/5/8 2024/1/29	2024/5/7 2025/1/28
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

##### Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2024/2/19 ~ 2024/2/21

##### For other test items:

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 test was performed in Oven room 2.
2. Tested Date: 2024/2/16 ~ 2024/2/17

#### 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:**

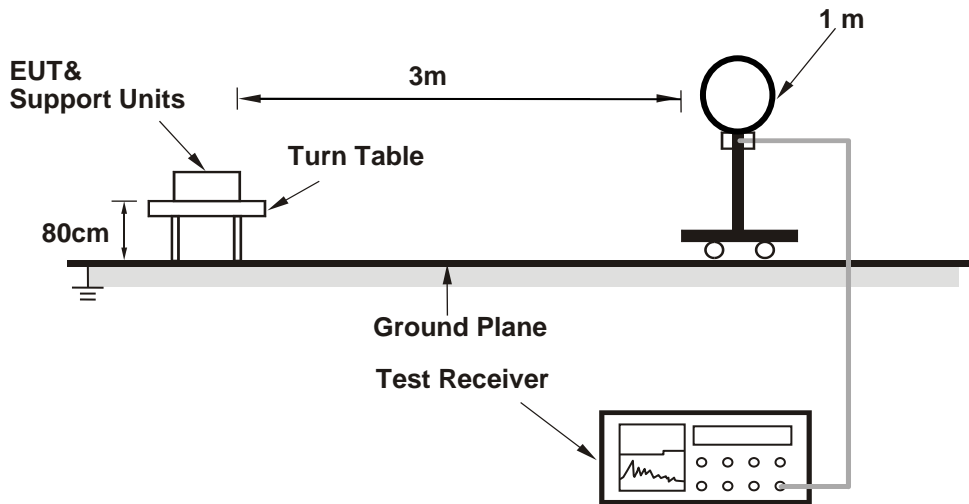
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

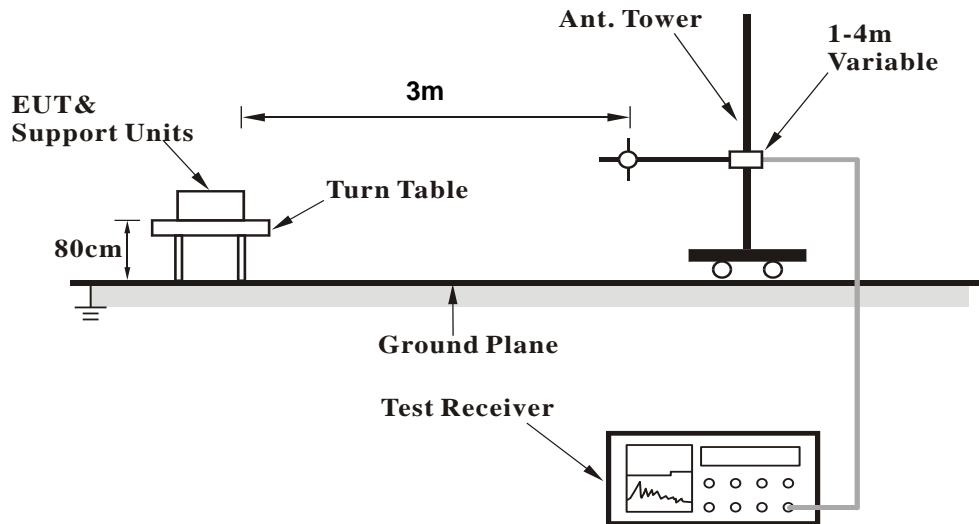
No deviation.

4.1.5 Test Setup

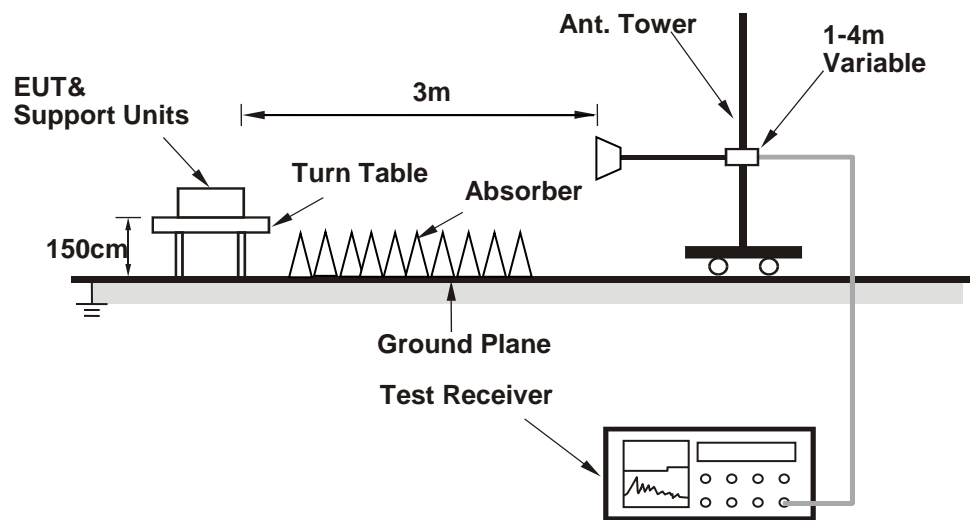
**For Radiated emission below 30MHz**



**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 (DutApiSisoApApp\_RW610.exe 1.0.0.12) has been activated to set the EUT under transmission condition continuously at specific channel frequency.



## 4.1.7 Test Results

 Above 1GHz Data:  
 Dipole Antenna

Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)
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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	4880.00	41.0 PK	74.0	-33.0	1.07 H	83	39.0	2.0
2	4880.00	27.2 AV	54.0	-26.8	1.07 H	83	25.2	2.0
3	7320.00	44.7 PK	74.0	-29.3	2.58 H	125	37.1	7.6
4	7320.00	31.0 AV	54.0	-23.0	2.58 H	125	23.4	7.6
5	11160.00	57.0 PK	74.0	-17.0	1.59 H	198	44.8	12.2
6	11160.00	44.4 AV	54.0	-9.6	1.59 H	198	32.2	12.2
7	#16740.00	49.6 PK	68.2	-18.6	1.53 H	102	34.4	15.2
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	4880.00	41.9 PK	74.0	-32.1	1.09 V	36	39.9	2.0
2	4880.00	27.5 AV	54.0	-26.5	1.09 V	36	25.5	2.0
3	7320.00	45.5 PK	74.0	-28.5	2.63 V	145	37.9	7.6
4	7320.00	32.3 AV	54.0	-21.7	2.63 V	145	24.7	7.6
5	11160.00	58.1 PK	74.0	-15.9	1.45 V	226	45.9	12.2
6	<b>11160.00</b>	<b>46.5 AV</b>	<b>54.0</b>	<b>-7.5</b>	<b>1.45 V</b>	<b>226</b>	<b>34.3</b>	<b>12.2</b>
7	#16740.00	49.2 PK	68.2	-19.0	1.51 V	66	34.0	15.2

## 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.

### PCB Antenna

Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)
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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	4880.00	41.0 PK	74.0	-33.0	1.02 H	82	39.0	2.0
2	4880.00	26.9 AV	54.0	-27.1	1.02 H	82	24.9	2.0
3	7320.00	45.4 PK	74.0	-28.6	2.53 H	156	37.8	7.6
4	7320.00	31.5 AV	54.0	-22.5	2.53 H	156	23.9	7.6
5	11160.00	57.3 PK	74.0	-16.7	1.45 H	211	45.1	12.2
6	11160.00	45.1 AV	54.0	-8.9	1.45 H	211	32.9	12.2
7	#16740.00	49.5 PK	68.2	-18.7	1.49 H	108	34.3	15.2

#### 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	4880.00	41.2 PK	74.0	-32.8	1.06 V	54	39.2	2.0
2	4880.00	26.8 AV	54.0	-27.2	1.06 V	54	24.8	2.0
3	7320.00	45.3 PK	74.0	-28.7	2.63 V	141	37.7	7.6
4	7320.00	32.0 AV	54.0	-22.0	2.63 V	141	24.4	7.6
5	11160.00	57.4 PK	74.0	-16.6	1.41 V	245	45.2	12.2
6	11160.00	45.4 AV	54.0	-8.6	1.41 V	245	33.2	12.2
7	#16740.00	49.5 PK	68.2	-18.7	1.44 V	96	34.3	15.2

#### 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.

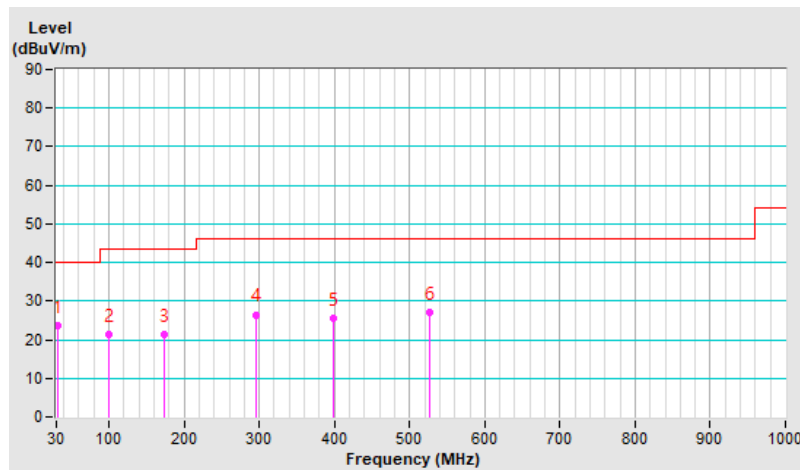
**Below 1GHz Data:**  
**Dipole Antenna**

<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Detector Function</b>	Quasi-Peak (QP)
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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	31.64	23.5 QP	40.0	-16.5	2.00 H	15	37.0	-13.5
2	100.56	21.3 QP	43.5	-22.2	1.50 H	355	38.1	-16.8
3	173.64	21.5 QP	43.5	-22.0	1.00 H	260	35.0	-13.5
4	295.81	26.5 QP	46.0	-19.5	2.00 H	280	38.4	-11.9
5	398.31	25.5 QP	46.0	-20.5	1.50 H	94	34.9	-9.4
6	527.31	27.1 QP	46.0	-18.9	1.50 H	95	33.2	-6.1

**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 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.

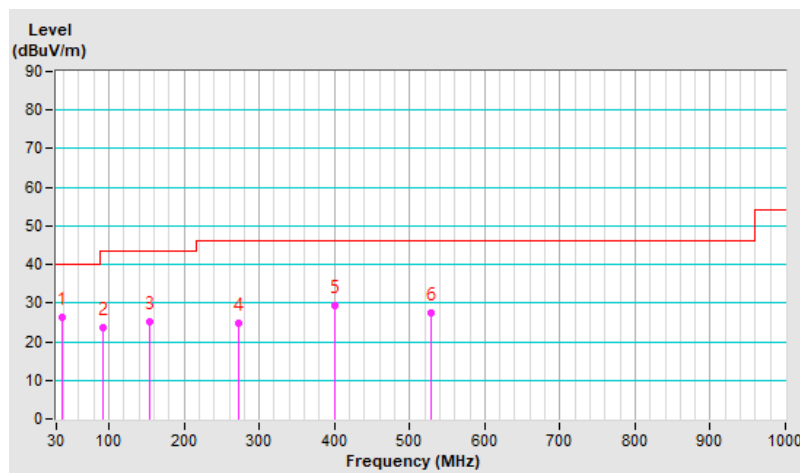


Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
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Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.05	26.3 QP	40.0	-13.7	2.00 V	107	39.5	-13.2
2	92.97	23.5 QP	43.5	-20.0	3.00 V	279	41.5	-18.0
3	153.47	25.2 QP	43.5	-18.3	1.50 V	244	37.8	-12.6
4	273.04	24.7 QP	46.0	-21.3	2.50 V	356	37.3	-12.6
5	401.05	29.2 QP	46.0	-16.8	1.50 V	333	38.5	-9.3
6	527.61	27.6 QP	46.0	-18.4	2.00 V	155	33.7	-6.1

**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 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.



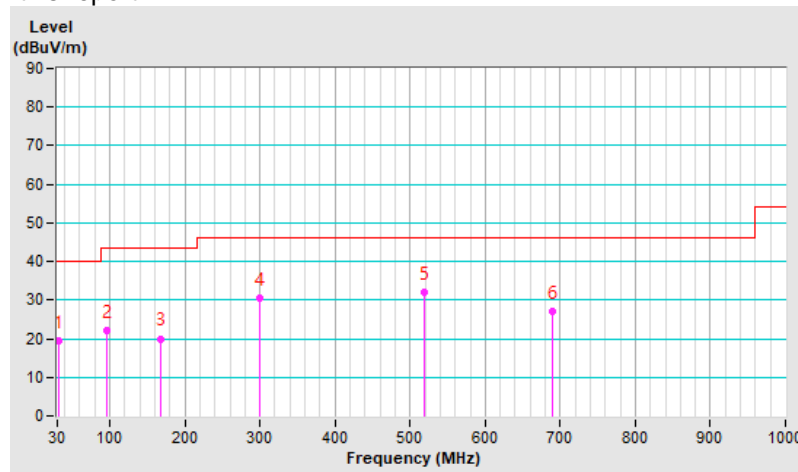
**PCB Antenna**

<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Detector Function</b>	Quasi-Peak (QP)
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<b>Antenna Polarity &amp; Test Distance : Horizontal at 3 m</b>								
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	32.25	19.5 QP	40.0	-20.5	1.00 H	25	33.1	-13.6
2	95.31	22.0 QP	43.5	-21.5	2.00 H	289	39.8	-17.8
3	167.10	20.0 QP	43.5	-23.5	3.00 H	358	32.9	-12.9
4	300.17	30.5 QP	46.0	-15.5	3.50 H	245	41.9	-11.4
5	518.52	32.1 QP	46.0	-13.9	2.00 H	198	38.4	-6.3
6	689.24	27.2 QP	46.0	-18.8	3.00 H	45	29.9	-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 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.

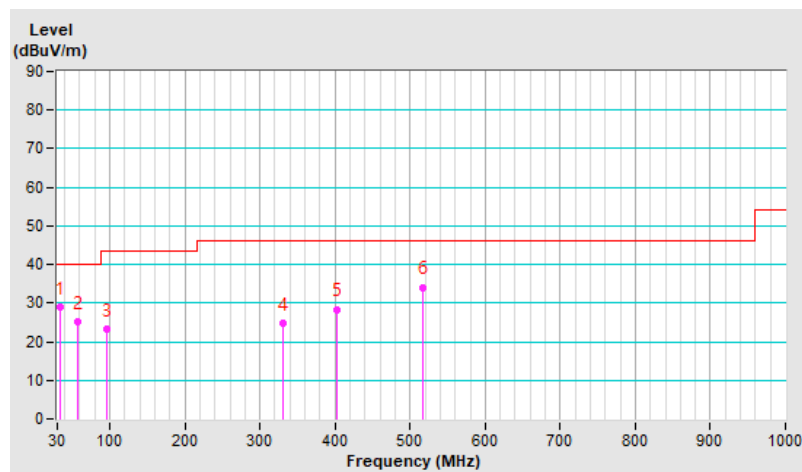


Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
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Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	33.10	29.0 QP	40.0	-11.0	1.00 V	0	42.6	-13.6
2	58.11	25.2 QP	40.0	-14.8	1.50 V	359	38.3	-13.1
3	95.22	23.4 QP	43.5	-20.1	1.50 V	358	41.2	-17.8
4	331.36	24.9 QP	46.0	-21.1	2.00 V	154	35.2	-10.3
5	403.11	28.4 QP	46.0	-17.6	1.50 V	176	37.6	-9.2
6	517.72	34.1 QP	46.0	-11.9	1.00 V	64	40.5	-6.4

**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 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.

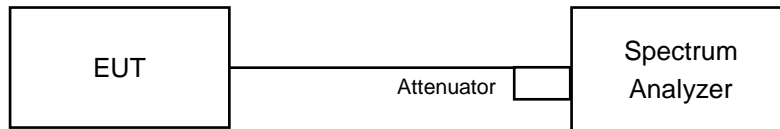


## 4.2 Conducted Out of Band Emission Measurement

### 4.2.1 Limits of Conducted Out of Band Emission Measurement

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

### 4.2.2 Test Setup



### 4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.2.4 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 OOBE

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.

### 4.2.5 Deviation from Test Standard

No deviation.

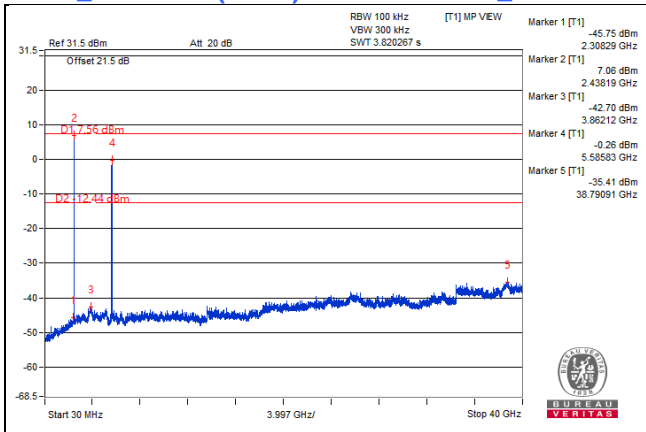
### 4.2.6 EUT Operating Conditions

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

### 4.2.7 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.

### 5GHz\_ 802.11ax (HE20) CH116 + BT-LE\_ 2M CH19





## 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.

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**Web Site:** [www.bureauveritas-adt.com](http://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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