

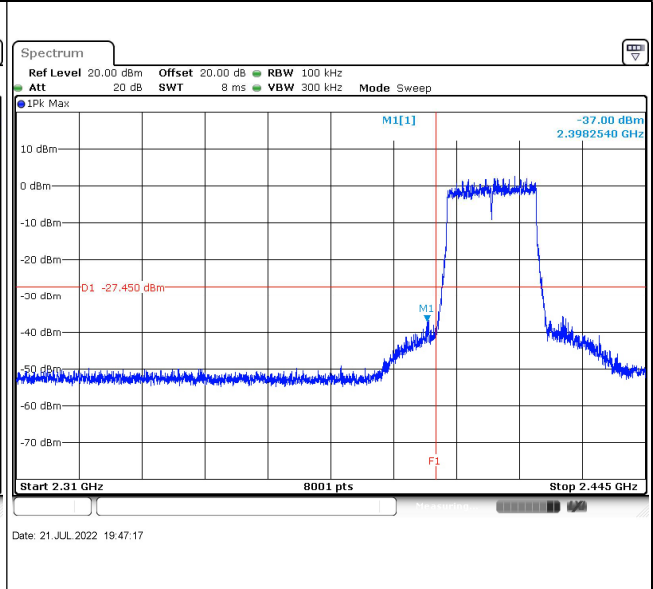
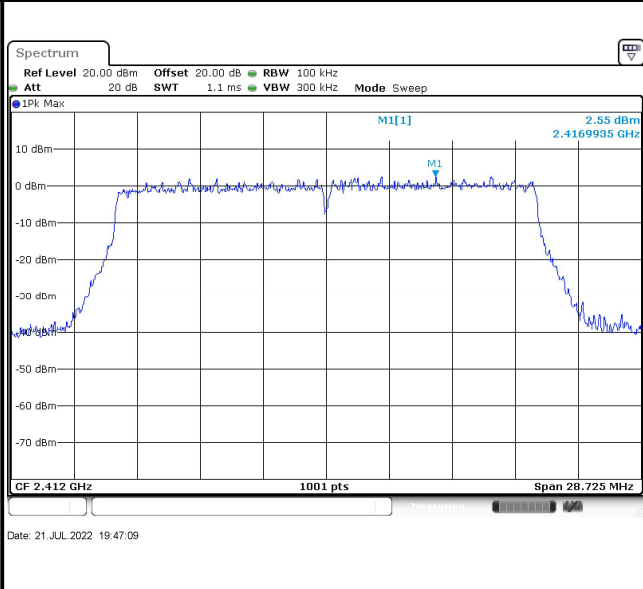


<TXBF Mode>

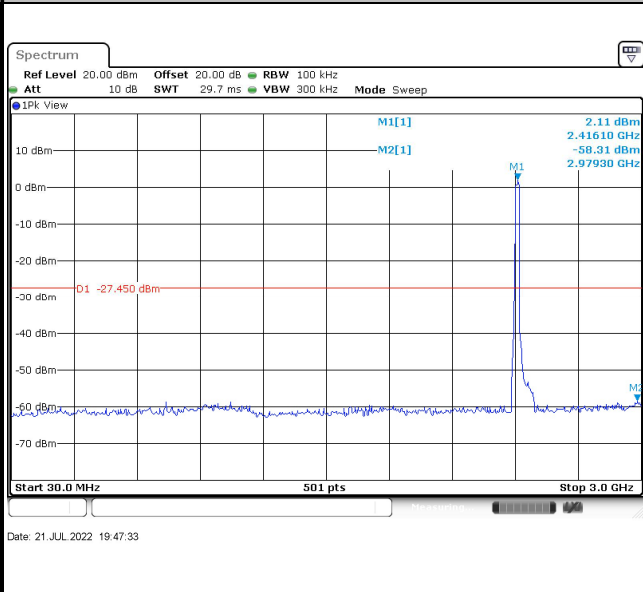
Number of TX = 2, Ant. 6 (Measured)

Test Mode :	802.11ax HE20	Test Channel :	01 Full RU
-------------	---------------	----------------	------------

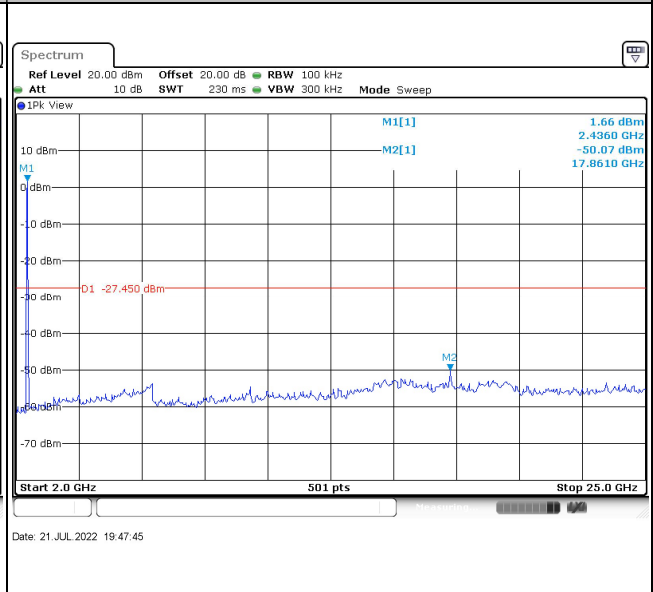
<b>100kHz PSD reference Level</b>	<b>Low Channel Plot</b>
-----------------------------------	-------------------------



**Spurious Emission 30MHz~3GHz**

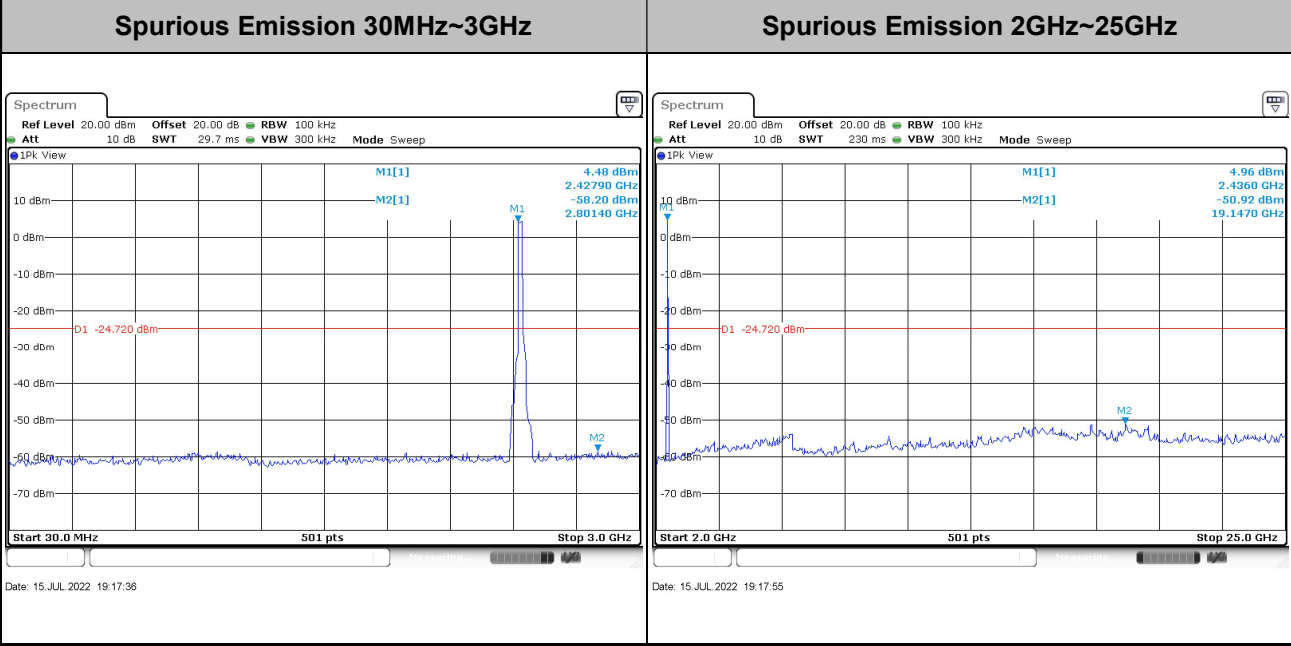
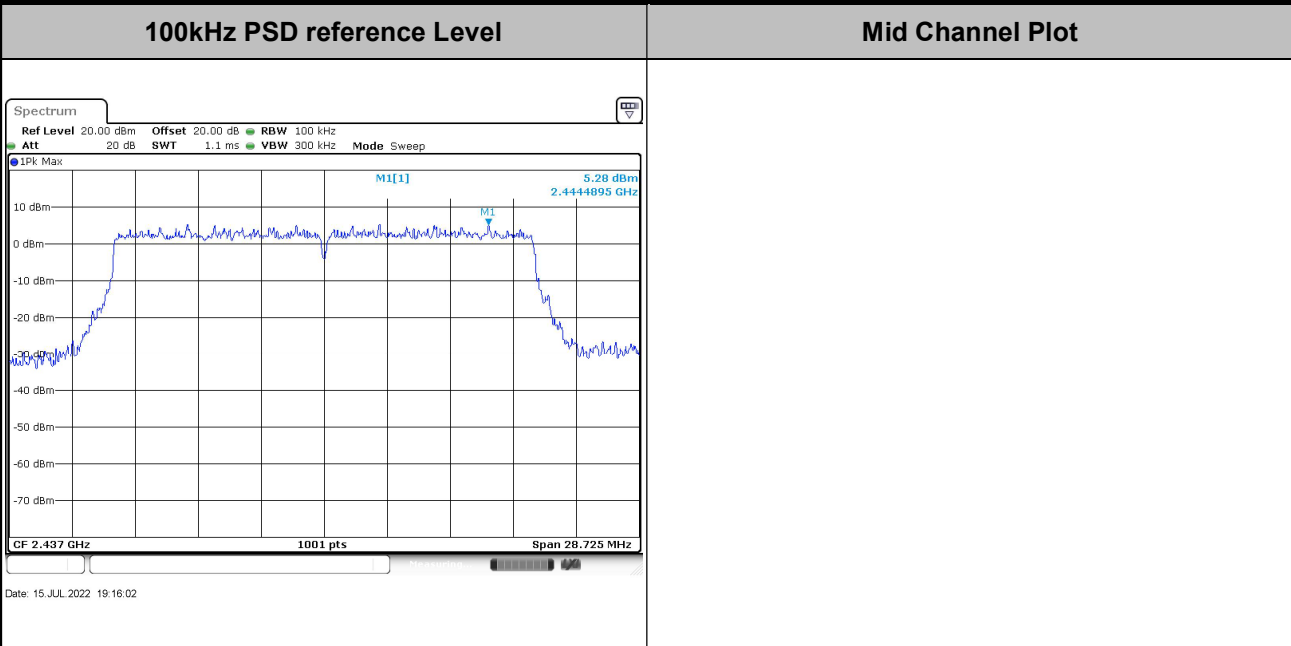


**Spurious Emission 2GHz~25GHz**



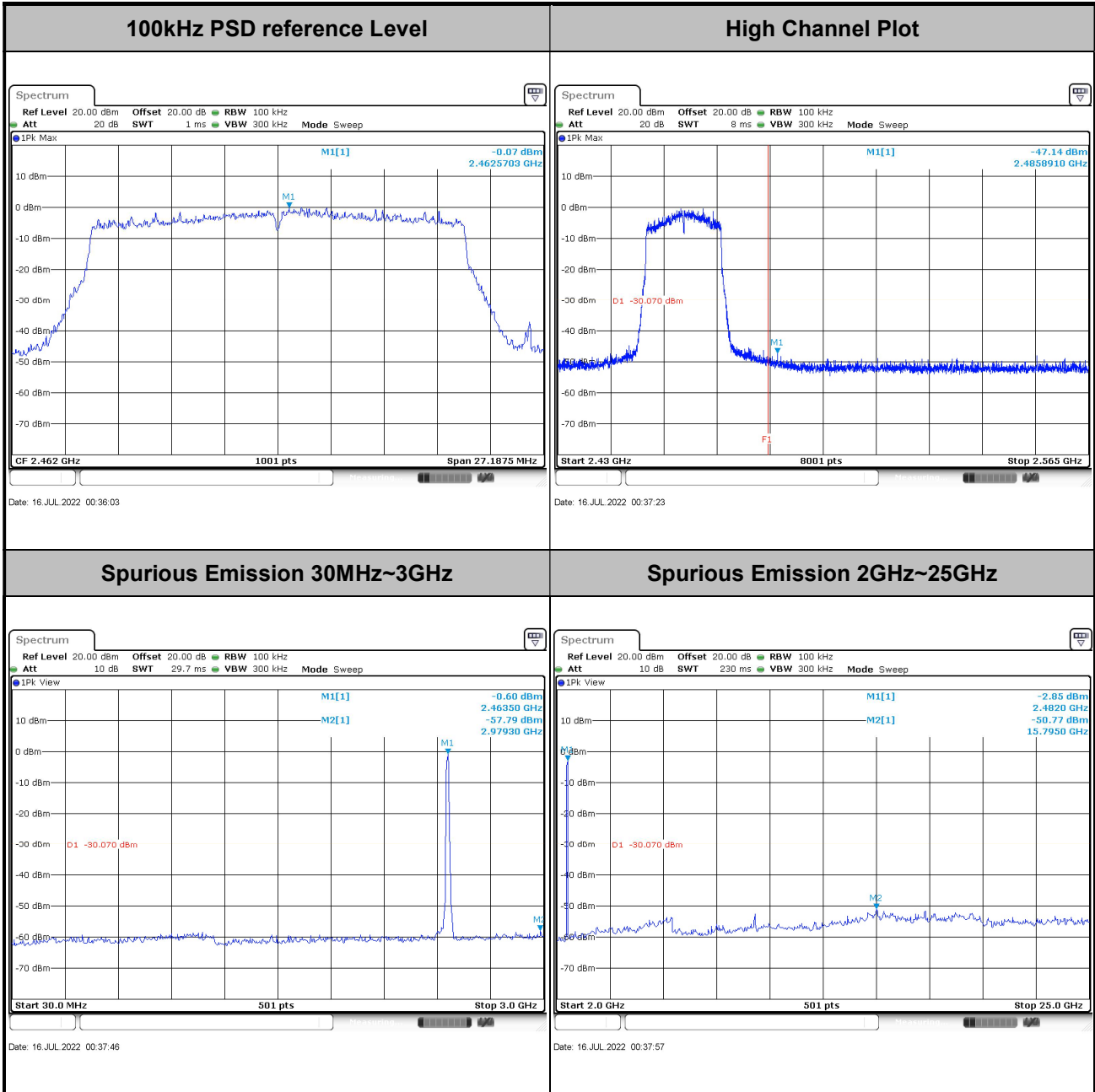


<b>Test Mode :</b>	802.11ax HE20	<b>Test Channel :</b>	06 Full RU
--------------------	---------------	-----------------------	------------





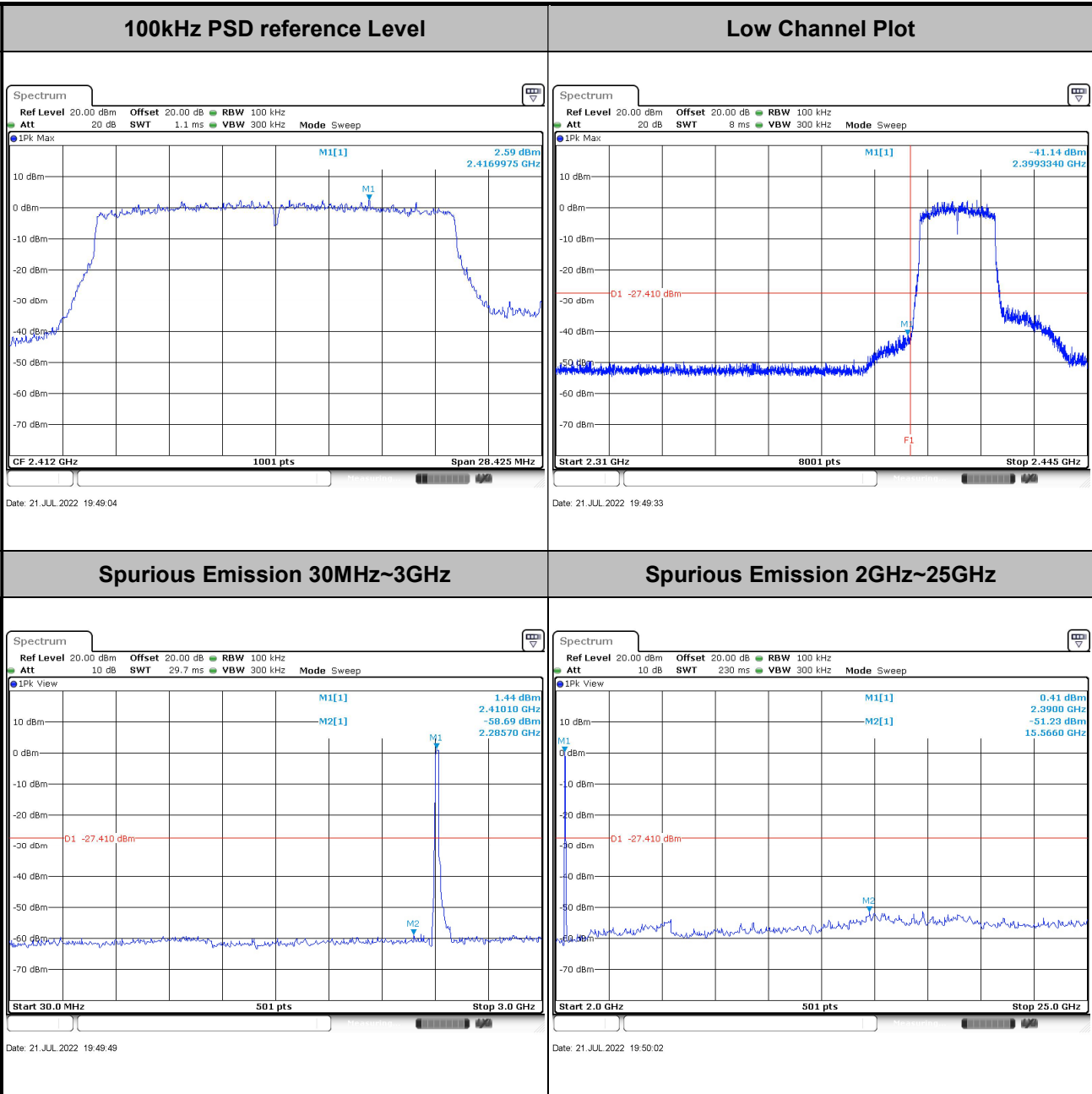
<b>Test Mode :</b>	802.11ax HE20	<b>Test Channel :</b>	11 Full RU
--------------------	---------------	-----------------------	------------





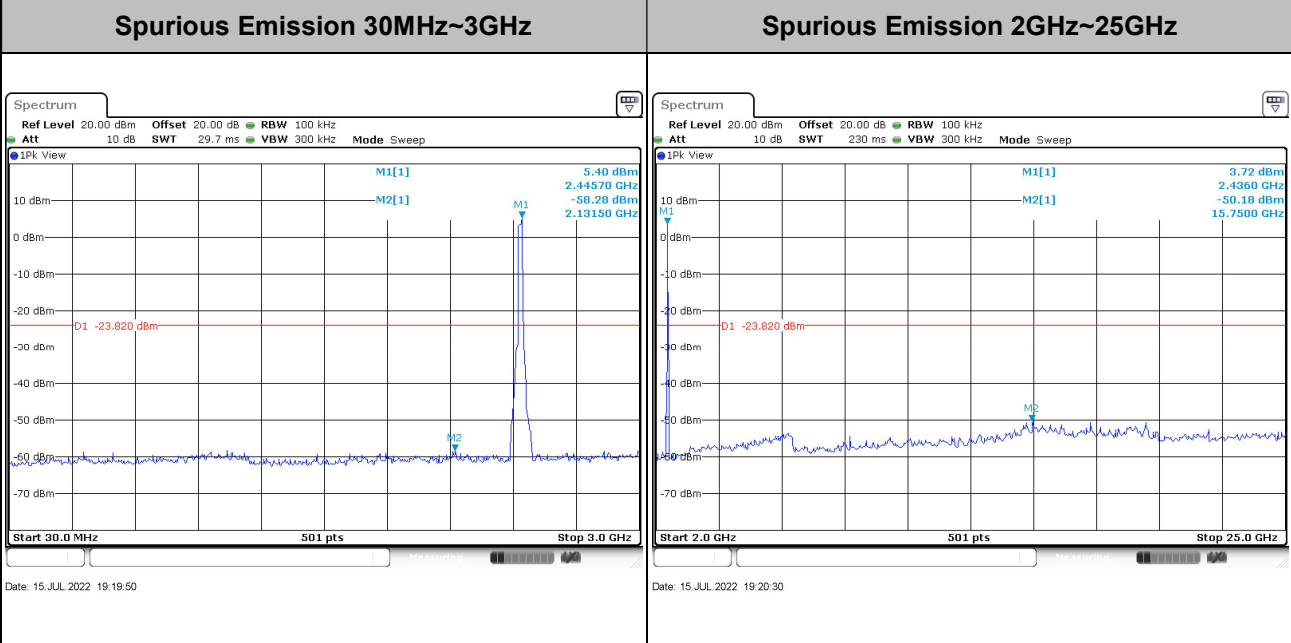
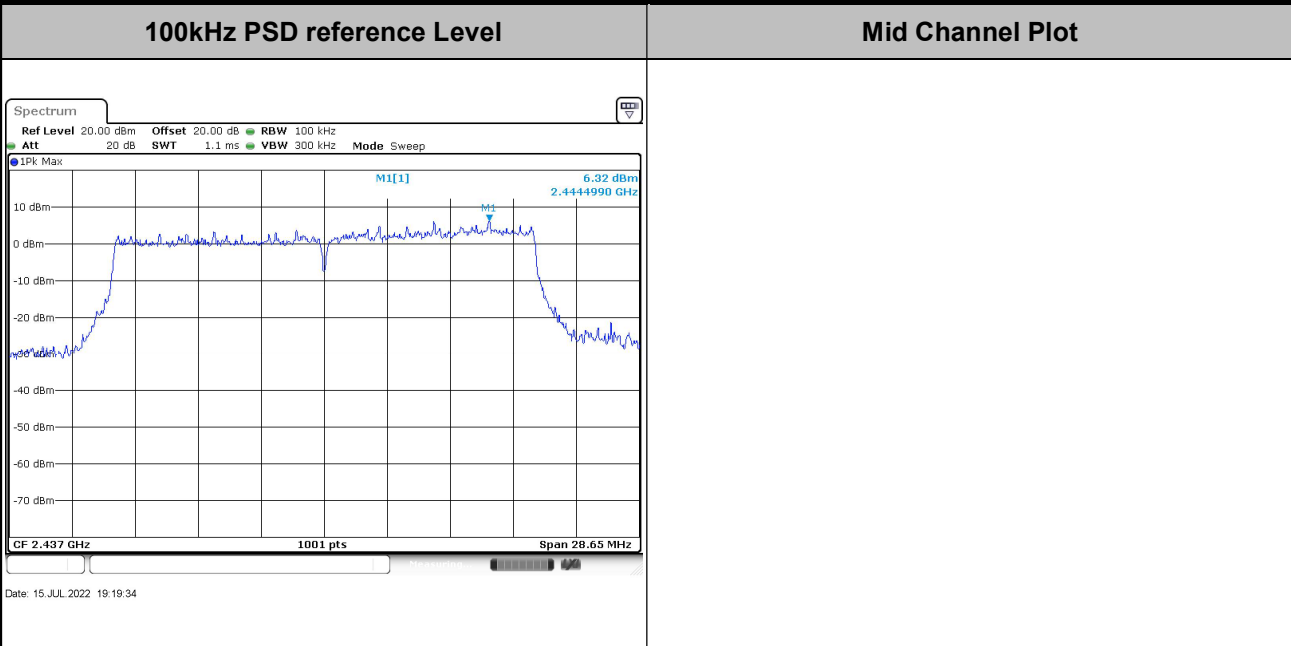
Number of TX = 2, Ant. 7 (Measured)

Test Mode :	802.11ax HE20	Test Channel :	01 Full RU
-------------	---------------	----------------	------------



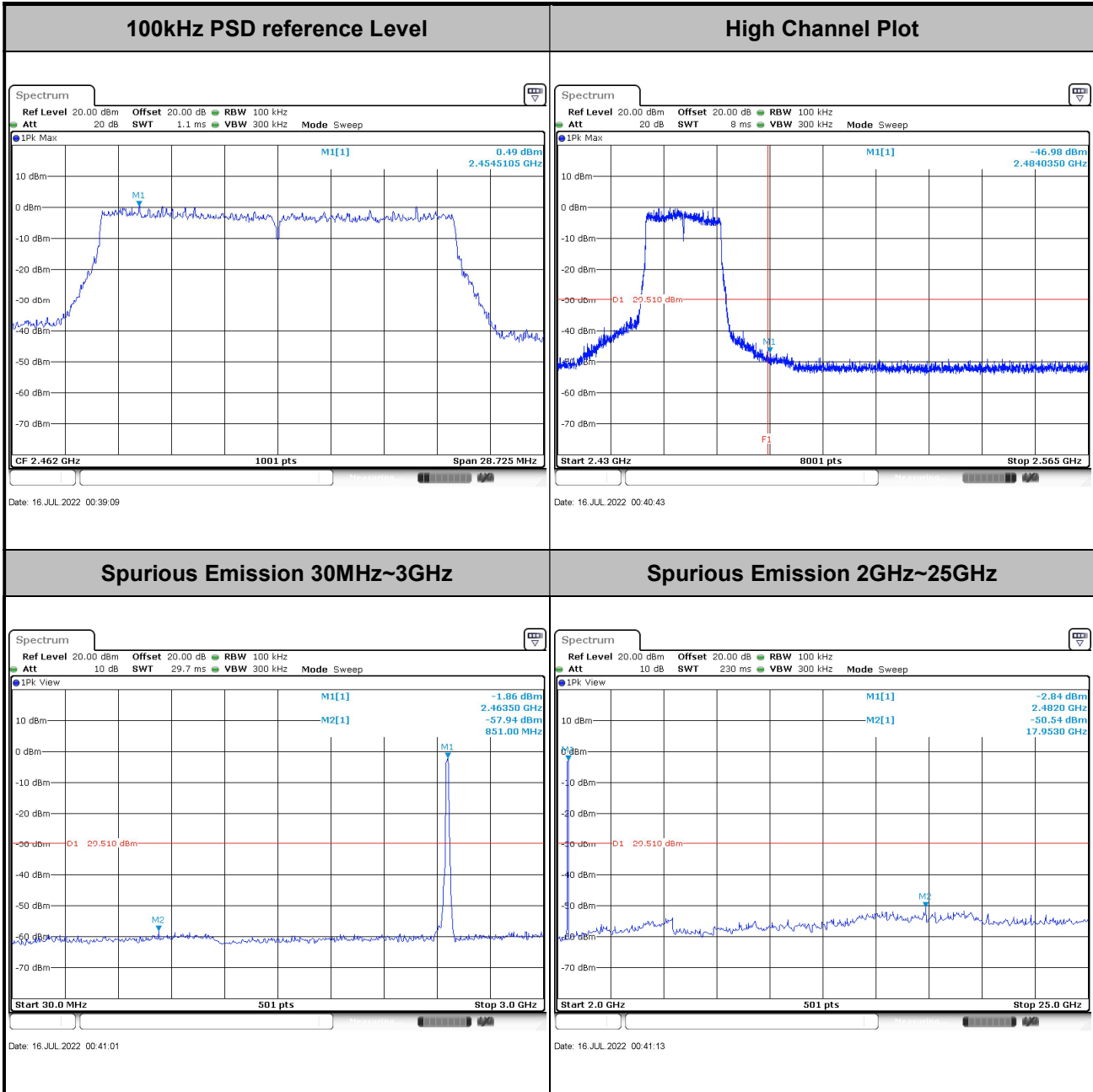


<b>Test Mode :</b>	802.11ax HE20	<b>Test Channel :</b>	06 Full RU
--------------------	---------------	-----------------------	------------





<b>Test Mode :</b>	802.11ax HE20	<b>Test Channel :</b>	11 Full RU
--------------------	---------------	-----------------------	------------





### 3.5 Radiated Band Edges and Spurious Emission Measurement

#### 3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device is measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (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

#### 3.5.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

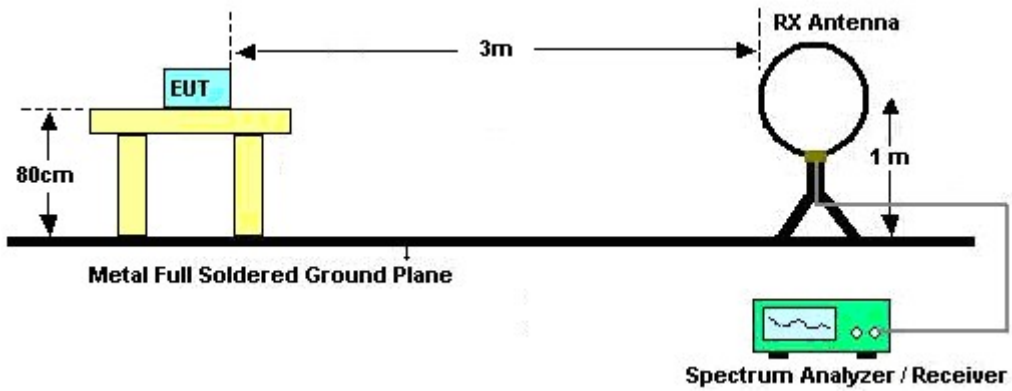
**3.5.3 Test Procedures**

1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
4. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-“.
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-“.
8. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW = 100 kHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3 MHz for  $f \geq 1$  GHz for peak measurement.  
For average measurement:
    - VBW = 10 Hz, when duty cycle is no less than 98 percent.
    - VBW  $\geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



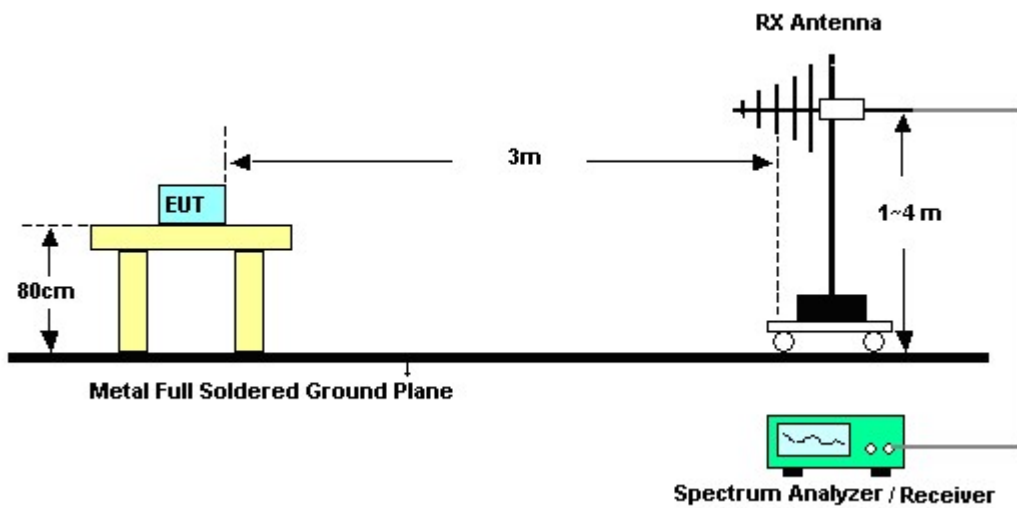
### 3.5.4 Test Setup

For radiated emissions below 30MHz

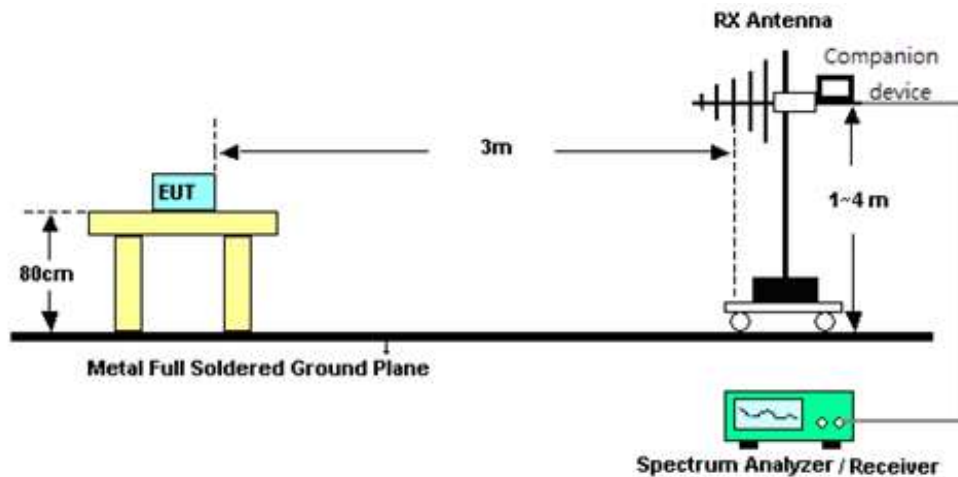


For radiated emissions from 30MHz to 1GHz

<CDD Mode>

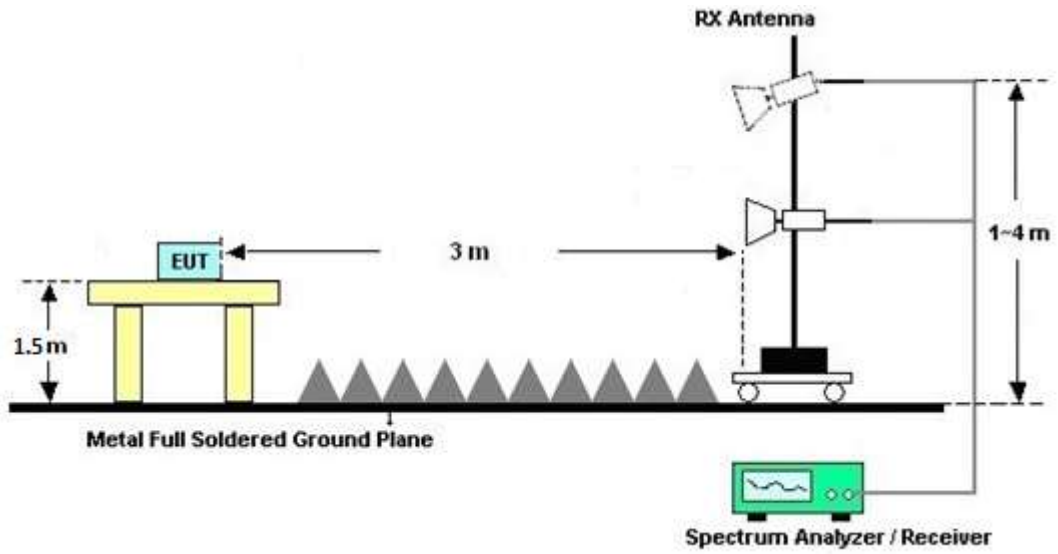


<TXBF Modes>

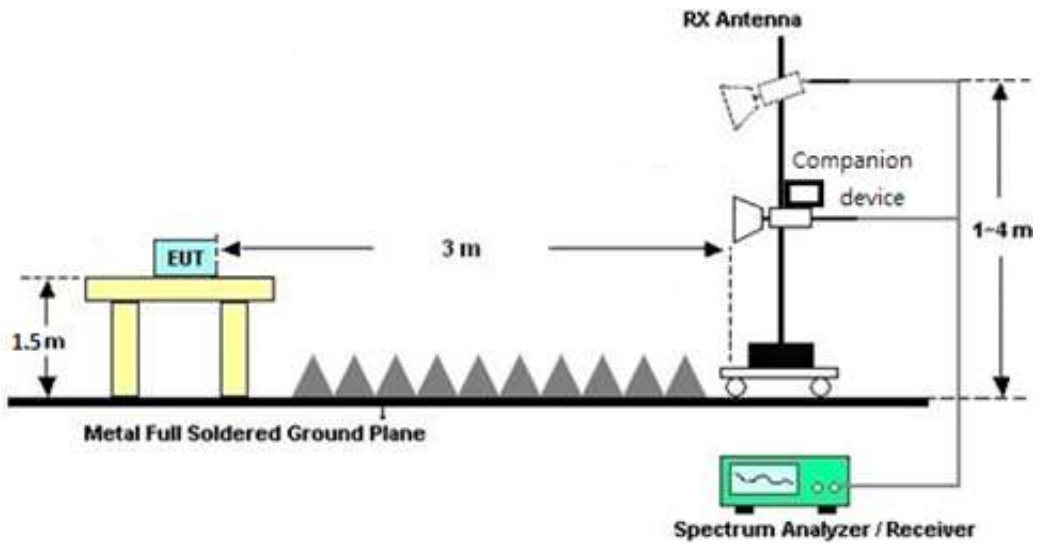


For radiated test from 1GHz to 18GHz

<CDD Mode>

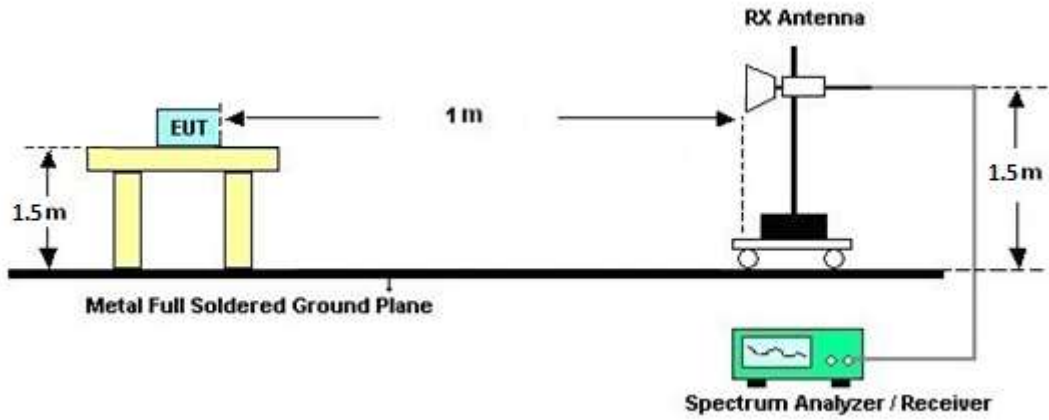


<TXBF Modes>

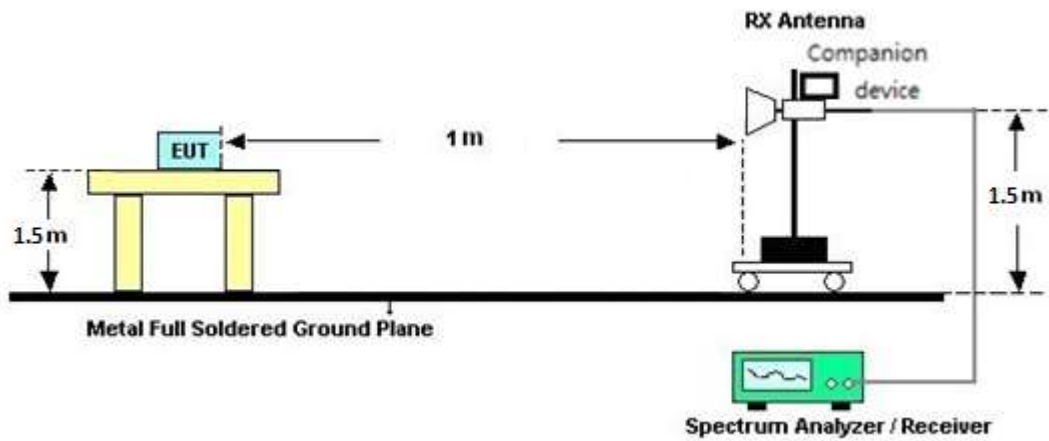


For radiated test above 18GHz

<CDD Mode>



<TXBF Modes>





### **3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)**

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result comes out very similar.

### **3.5.6 Test Result of Radiated Spurious at Band Edges**

Please refer to Appendix B and C.

### **3.5.7 Duty Cycle**

Please refer to Appendix D.

### **3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)**

Please refer to Appendix B and C.



### 3.6 AC Conducted Emission Measurement

#### 3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

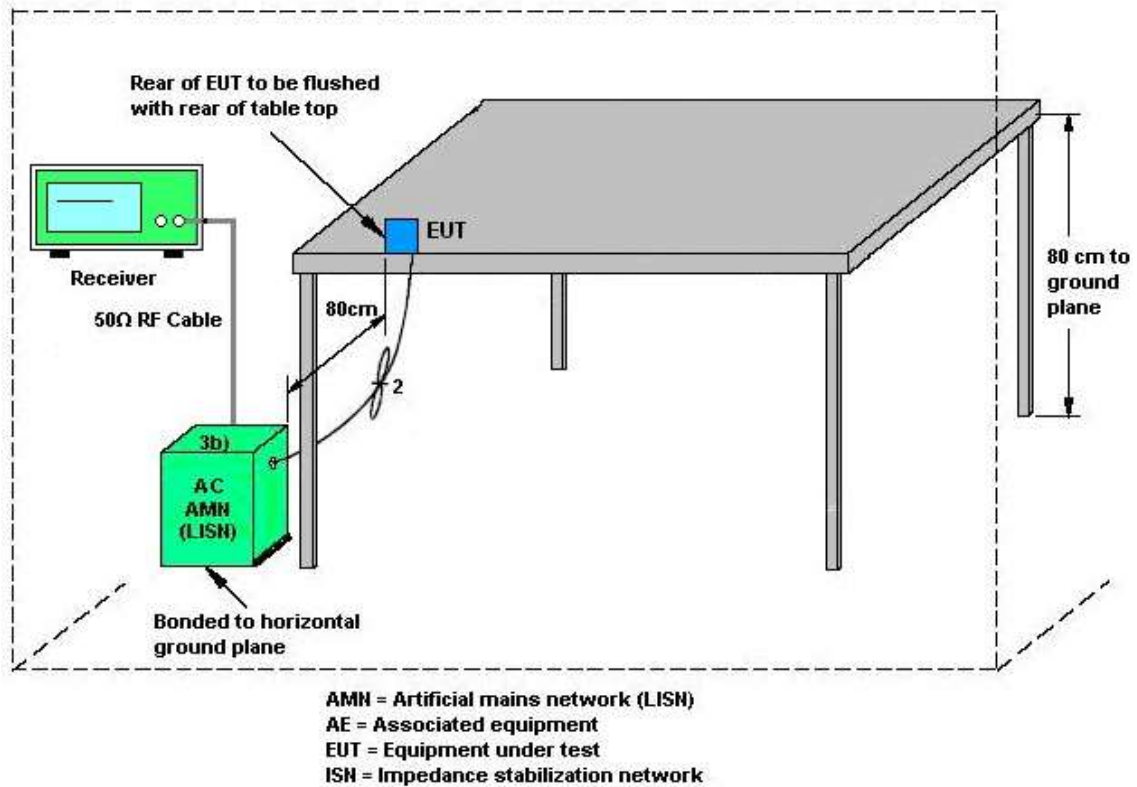
#### 3.6.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

#### 3.6.3 Test Procedures

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

### 3.6.4 Test Setup



### 3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix A.



### 3.7 Antenna Requirements

#### 3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

#### 3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For power measurements on IEEE 802.11 devices,

Directional gain =  $G_{ANT}$  + Array Gain, where Array Gain is as follows:

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ .

$G_{ANT}$  is set equal to the gain of the antenna having the highest gain.

For PSD measurements, the directional gain calculation follows F)2)f)ii) of KDB 662911 D01 v02r01.

$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

$N_{SS}$  = the number of independent spatial streams of data;

$N_{ANT}$  = the total number of antennas

$g_{j,k} = 10^{G_k/20}$  if the  $k$ th antenna is being fed by spatial stream  $j$ , or zero if it is not;  
 $G_k$  is the gain in dBi of the  $k$ th antenna.

As minimum  $N_{SS}=1$  is supported by EUT, the formula can be simplified as:

Directional gain =  $10 \cdot \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$  dBi

Where  $G_1, G_2, \dots, G_N$  denote single antenna gain.



For example: If a device has two antenna,  $G_{ANT1}= 3.6\text{dBi}$ ;  $G_{ANT2}=4.2\text{dBi}$

Directional gain of power measurement =  $\max(3.6, 4.2) + 0 = 4.2 \text{ dBi}$

Directional gain of PSD measurement =  $10 * \log[ (10^{3.6/20} + 10^{4.2/20})^2 / 2 ] = 6.92 \text{ dBi}$

The directional gain of EUT is listed in the following table.

<b>&lt;CDD Modes&gt;</b>						
			<b>DG</b>	<b>DG</b>	<b>Power</b>	<b>PSD</b>
			<b>for</b>	<b>for</b>	<b>Limit</b>	<b>Limit</b>
	<b>Ant. 6</b>	<b>Ant. 7</b>	<b>Power</b>	<b>PSD</b>	<b>Reduction</b>	<b>Reduction</b>
	<b>(dBi)</b>	<b>(dBi)</b>	<b>(dBi)</b>	<b>(dBi)</b>	<b>(dB)</b>	<b>(dB)</b>
<b>2.4 GHz</b>	1.20	1.50	1.50	4.36	0.00	0.00

*Power Limit Reduction =  $DG(\text{Power}) - 6\text{dBi}$ , ( min = 0 )*

*PSD Limit Reduction =  $DG(\text{PSD}) - 6\text{dBi}$ , ( min = 0 )*

Calculation example:

For the DG for PSD is derived from formula is

$$10 \times \log \left\{ \left[ 10^{(1.20 \text{ dBi} / 20)} + 10^{(1.50 \text{ dBi} / 20)} \right]^2 / 2 \right\}$$

$$= 4.36 \text{ dBi}$$



**TXBF modes**

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

$N_{SS}$  = the number of independent spatial streams of data;

$N_{ANT}$  = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$  if the  $k$ th antenna is being fed by spatial stream  $j$ , or zero if it is not;  
 $G_k$  is the gain in dBi of the  $k$ th antenna.

The EUT supports beamforming modes.

The directional gain calculation is following F)2)e)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

			DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
	Ant. 6 (dBi)	Ant. 7 (dBi)				
<b>2.4 GHz</b>	1.20	1.50	4.36	4.36	0.00	0.00

Power Limit Reduction = DG(Power) – 6dBi, ( min = 0 )

PSD Limit Reduction = DG(PSD) – 6dBi, ( min = 0 )

Calculation example:

For the DG for PSD is derived from formula is

$$10 \times \log \left\{ \left[ 10^{1.20 / 20} + 10^{1.50 / 20} \right]^2 / 2 \right\}$$

= 4.36 dBi



## 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9kHz~30MHz	Sep. 07, 2021	Jun. 17, 2022~ Jun. 30, 2022	Sep. 06, 2022	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	40103 & 07	30MHz~1GHz	Apr. 24, 2022	Jun. 17, 2022~ Jun. 30, 2022	Apr. 23, 2023	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1241	1GHz~18GHz	Jul. 13, 2021	Jun. 17, 2022~ Jun. 30, 2022	Jul. 12, 2022	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	00994	18GHz~40GHz	Nov. 04, 2021	Jun. 17, 2022~ Jun. 30, 2022	Nov. 03, 2022	Radiation (03CH13-HY)
Amplifier	Sonoma-Instru ment	310 N	187282	9kHz~1GHz	Dec. 15, 2021	Jun. 17, 2022~ Jun. 30, 2022	Dec. 14, 2022	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	1GHz~18GHz	May 17, 2022	Jun. 17, 2022~ Jun. 30, 2022	May 16, 2023	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Oct. 26, 2021	Jun. 17, 2022~ Jun. 30, 2022	Oct. 25, 2022	Radiation (03CH13-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 24, 2021	Jun. 17, 2022~ Jun. 30, 2022	Dec. 23, 2022	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	10Hz~44GHz	Mar. 18, 2022	Jun. 17, 2022~ Jun. 30, 2022	Mar. 17, 2023	Radiation (03CH13-HY)
Hygrometer	TECPEL	DTM-303B	TP200889	N/A	Sep. 30, 2021	Jun. 17, 2022~ Jun. 30, 2022	Sep. 29, 2022	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jun. 17, 2022~ Jun. 30, 2022	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jun. 17, 2022~ Jun. 30, 2022	N/A	Radiation (03CH13-HY)
Software	Audix	E3 6.2009-8-24	RK-000992	N/A	N/A	Jun. 17, 2022~ Jun. 30, 2022	N/A	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0030/126E	30MHz~18GHz	Feb. 09, 2022	Jun. 17, 2022~ Jun. 30, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	804793/4	30MHz~18GHz	Feb. 09, 2022	Jun. 17, 2022~ Jun. 30, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24961/4	30MHz~18GHz	Feb. 09, 2022	Jun. 17, 2022~ Jun. 30, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2, 804012/2	18GHz~40GHz	Jan. 04, 2022	Jun. 17, 2022~ Jun. 30, 2022	Jan. 03, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	Jun. 17, 2022~ Jun. 30, 2022	Mar. 09, 2023	Radiation (03CH13-HY)
Filter	Wainwright	WLK4-1000-15 30-8000-40SS	SN12	1.53GHz Low Pass Filter	Sep. 14, 2021	Jun. 17, 2022~ Jun. 30, 2022	Sep. 13, 2022	Radiation (03CH13-HY)
Filter	Wainwright	WHKX8-5872. 5-6750-18000- 40ST	SN5	6.75GHz High Pass Filter	Mar. 10, 2022	Jun. 17, 2022~ Jun. 30, 2022	Mar. 09, 2023	Radiation (03CH13-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0SS	SN2	3GHz High Pass Filter	Jul. 12, 2021	Jun. 17, 2022~ Jun. 30, 2022	Jul. 11, 2022	Radiation (03CH13-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Jun. 09, 2022~ Jul. 21, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO 12 (NO:113)	10MHz~6GHz	Dec. 16, 2021	Jun. 09, 2022~ Jul. 21, 2022	Dec. 15, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Jun. 09, 2022~ Jul. 21, 2022	Aug. 29, 2022	Conducted (TH05-HY)
Switch Control Mainframe	E-IUSTRUMENT	ETF-1405-0	EC1900067 (BOX7)	N/A	Aug. 12, 2021	Jun. 09, 2022~ Jul. 21, 2022	Aug. 11, 2022	Conducted (TH05-HY)
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Jul. 05, 2022	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jul. 05, 2022	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Oct. 29, 2021	Jul. 05, 2022	Oct. 28, 2022	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	Mar. 16, 2022	Jul. 05, 2022	Mar. 15, 2023	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Feb. 16, 2022	Jul. 05, 2022	Feb. 15, 2023	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI7	100724	9kHz~7GHz	Fed. 24, 2022	Jul. 05, 2022	Feb. 23, 2023	Conduction (CO07-HY)



## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.3 dB
---	--------

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	6.0 dB
---	--------

### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.2 dB
---	--------

### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.9 dB
---	--------



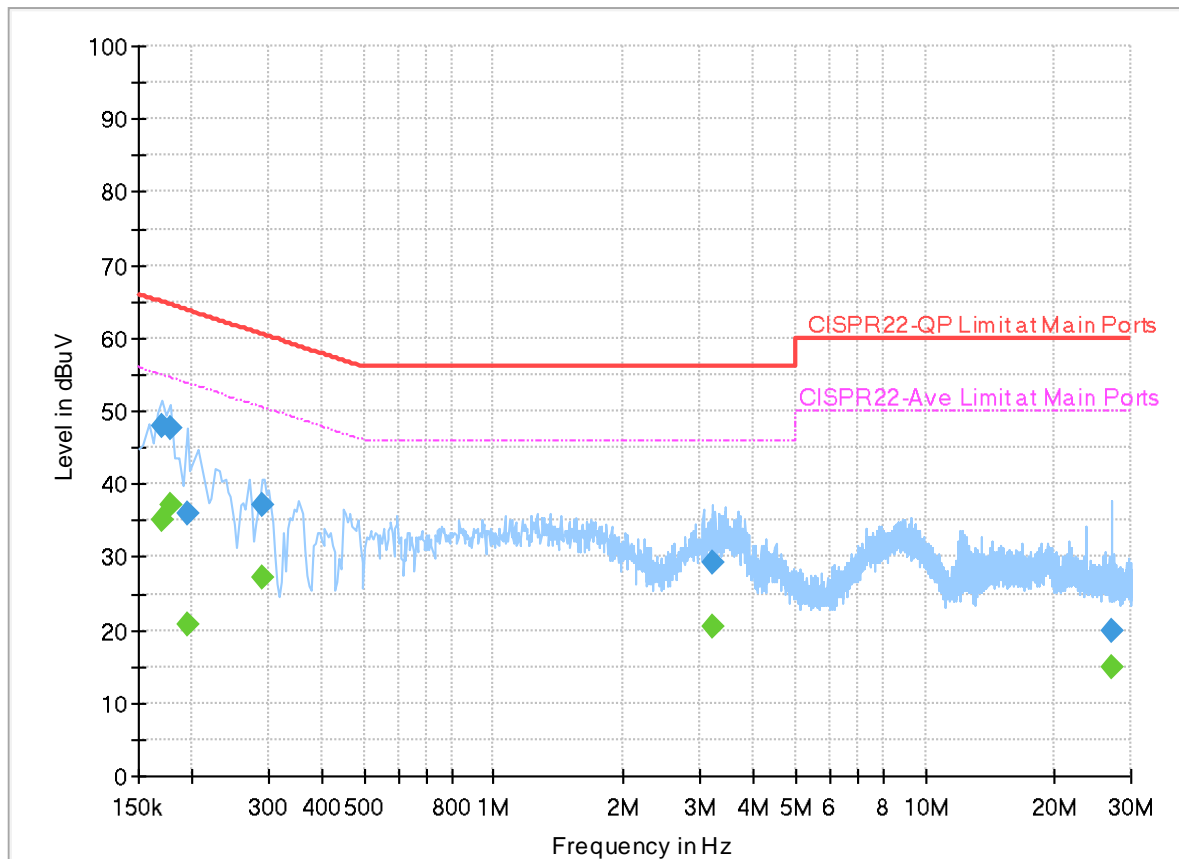
## Appendix A. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	Temperature :	23.7~26.1°C
		Relative Humidity :	50.2~55.6%

## EUT Information

Report NO : 1N2539  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Line

Full Spectrum



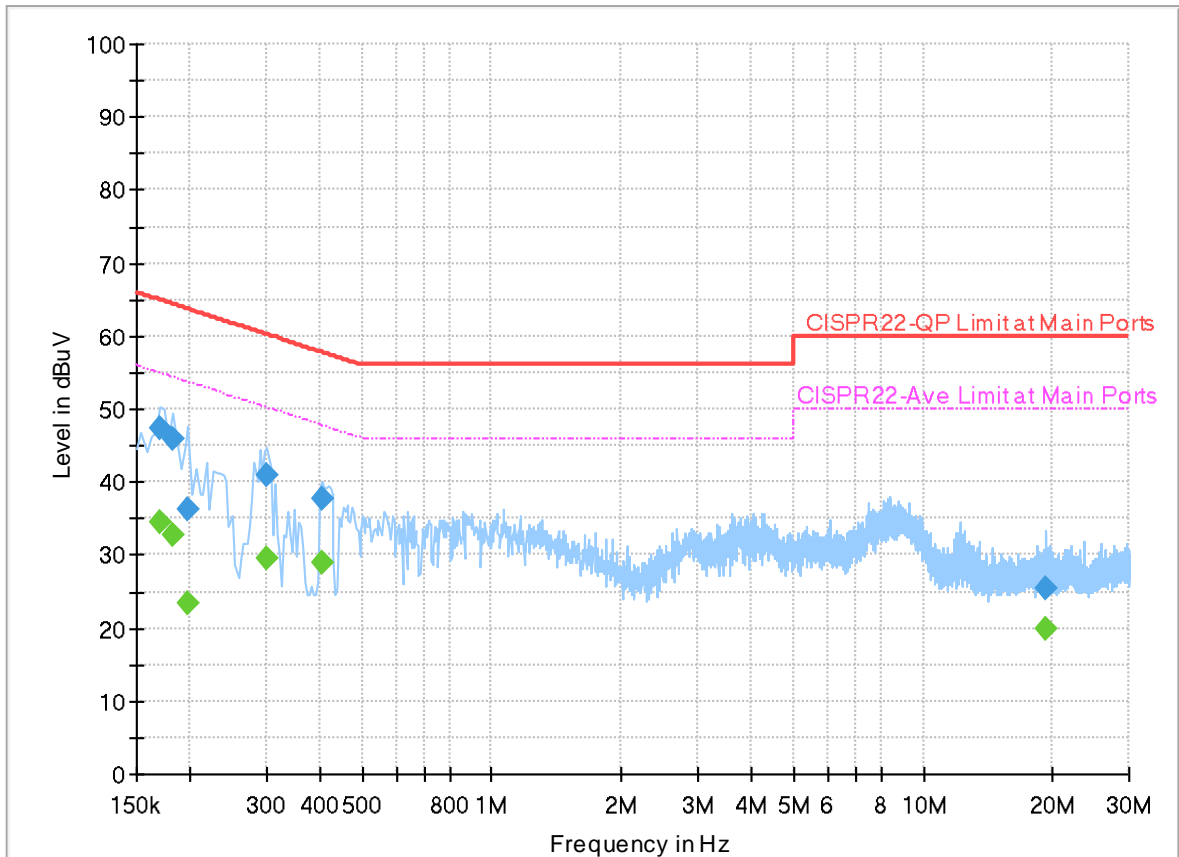
## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170000	---	34.99	54.96	19.97	L1	OFF	20.0
0.170000	47.86	---	64.96	17.10	L1	OFF	20.0
0.178000	---	37.07	54.58	17.51	L1	OFF	20.0
0.178000	47.73	---	64.58	16.85	L1	OFF	20.0
0.194000	---	20.69	53.86	33.17	L1	OFF	20.0
0.194000	35.94	---	63.86	27.92	L1	OFF	20.0
0.290000	---	27.15	50.52	23.37	L1	OFF	20.0
0.290000	37.14	---	60.52	23.38	L1	OFF	20.0
3.222000	---	20.51	46.00	25.49	L1	OFF	20.0
3.222000	29.22	---	56.00	26.78	L1	OFF	20.0
27.066000	---	14.78	50.00	35.22	L1	OFF	20.3
27.066000	19.83	---	60.00	40.17	L1	OFF	20.3

# EUT Information

Report NO : 1N2539  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Neutral

Full Spectrum



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170000	---	34.53	54.96	20.43	N	OFF	20.0
0.170000	47.38	---	64.96	17.58	N	OFF	20.0
0.182000	---	32.61	54.39	21.78	N	OFF	20.0
0.182000	45.95	---	64.39	18.44	N	OFF	20.0
0.198000	---	23.26	53.69	30.43	N	OFF	20.0
0.198000	36.29	---	63.69	27.40	N	OFF	20.0
0.302000	---	29.44	50.19	20.75	N	OFF	20.0
0.302000	40.82	---	60.19	19.37	N	OFF	20.0
0.406000	---	28.82	47.73	18.91	N	OFF	20.0
0.406000	37.71	---	57.73	20.02	N	OFF	20.0
19.330000	---	19.87	50.00	30.13	N	OFF	20.3
19.330000	25.50	---	60.00	34.50	N	OFF	20.3



## Appendix B. Radiated Spurious Emission

Test Engineer :	Mancy Chou, Jacky Hong and Rain Lee	Temperature :	20~25°C
		Relative Humidity :	50~60%

<CDD Mode>

### 2.4GHz 2400~2483.5MHz WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.	
Ant.		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
802.11b CH 01 2412MHz		2389.8	58.9	-15.1	74	44.19	27.72	14.06	27.07	100	166	P	H	
		2390	52.62	-1.38	54	37.91	27.72	14.06	27.07	100	166	A	H	
	*	2412	112.52	-	-	97.82	27.68	14.08	27.06	100	166	P	H	
	*	2412	109.46	-	-	94.76	27.68	14.08	27.06	100	166	A	H	
													H	
													H	
			2389.485	58.36	-15.64	74	43.65	27.72	14.06	27.07	400	180	P	V
			2389.59	51.05	-2.95	54	36.34	27.72	14.06	27.07	400	180	A	V
	*		2412	111.05	-	-	96.35	27.68	14.08	27.06	400	180	P	V
	*		2412	107.93	-	-	93.23	27.68	14.08	27.06	400	180	A	V
													V	
													V	
802.11b CH 06 2437MHz		2332.26	55.83	-18.17	74	40.96	27.94	14.01	27.08	100	154	P	H	
		2389.94	44.88	-9.12	54	30.17	27.72	14.06	27.07	100	154	A	H	
	*	2437	112.8	-	-	98.12	27.63	14.1	27.05	100	154	P	H	
	*	2437	109.62	-	-	94.94	27.63	14.1	27.05	100	154	A	H	
			2483.98	56.55	-17.45	74	41.77	27.67	14.15	27.04	100	154	P	H
			2485.69	46.33	-7.67	54	31.54	27.67	14.15	27.03	100	154	A	H
			2332.68	55.73	-18.27	74	40.86	27.94	14.01	27.08	391	198	P	V
			2389.52	44.42	-9.58	54	29.71	27.72	14.06	27.07	391	198	A	V
	*		2437	111.93	-	-	97.25	27.63	14.1	27.05	391	198	P	V
	*		2437	108.58	-	-	93.9	27.63	14.1	27.05	391	198	A	V
			2486.23	55.76	-18.24	74	40.97	27.67	14.15	27.03	391	198	P	V
			2483.53	45.46	-8.54	54	30.68	27.67	14.15	27.04	391	198	A	V





<b>802.11b</b> <b>CH 11</b> <b>2462MHz</b>	*	2462	109.3	-	-	94.59	27.62	14.13	27.04	120	161	P	H
	*	2462	106.31	-	-	91.6	27.62	14.13	27.04	120	161	A	H
		2483.64	60.28	-13.72	74	45.5	27.67	14.15	27.04	120	161	P	H
		2483.52	52.19	-1.81	54	37.41	27.67	14.15	27.04	120	161	A	H
													H
													H
	*	2462	103.86	-	-	89.15	27.62	14.13	27.04	379	183	P	V
	*	2462	100.93	-	-	86.22	27.62	14.13	27.04	379	183	A	V
		2483.64	59.25	-14.75	74	44.47	27.67	14.15	27.04	379	183	P	V
		2483.52	51.96	-2.04	54	37.18	27.67	14.15	27.04	379	183	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz  
WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	41.21	-32.79	74	60.27	31.45	6.8	57.31	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			4824	39.98	-34.02	74	59.04	31.45	6.8	57.31	-	-	P
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V



WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 06 2437MHz		4874	39.78	-34.22	74	58.74	31.45	6.82	57.23	-	-	P	H
		7311	45.68	-28.32	74	57.49	37.08	8.44	57.33	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			4874	39.55	-34.45	74	58.51	31.45	6.82	57.23	-	-	P
		7311	47.02	-26.98	74	58.83	37.08	8.44	57.33	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V



WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)	
802.11b CH 11 2462MHz		4924	39.29	-34.71	74	58.06	31.54	6.85	57.16	-	-	P	H	
		7386	52.04	-21.96	74	63.86	37.07	8.55	57.44	398	12	P	H	
		7386	46.54	-7.46	54	58.36	37.07	8.55	57.44	398	12	A	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4924	40.16	-33.84	74	58.93	31.54	6.85	57.16	-	-	P	V
			7386	53.21	-20.79	74	65.03	37.07	8.55	57.44	122	83	P	V
			7386	48.62	-5.38	54	60.44	37.07	8.55	57.44	122	83	A	V
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
<b>Remark</b>	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> <li>The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.</li> </ol>													



**2.4GHz 2400~2483.5MHz**  
**WIFI 802.11g (Band Edge @ 3m)**

WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11g CH 01 2412MHz		2390	64.67	-9.33	74	49.96	27.72	14.06	27.07	124	345	P	H	
		2389.695	52.17	-1.83	54	37.46	27.72	14.06	27.07	124	345	A	H	
	*	2412	110.18	-	-	95.48	27.68	14.08	27.06	124	345	P	H	
	*	2412	102.76	-	-	88.06	27.68	14.08	27.06	124	345	A	H	
													H	
													H	
			2389.485	63.16	-10.84	74	48.45	27.72	14.06	27.07	398	198	P	V
			2390	50.47	-3.53	54	35.76	27.72	14.06	27.07	398	198	A	V
	*		2412	108.64	-	-	93.94	27.68	14.08	27.06	398	198	P	V
	*		2412	101.57	-	-	86.87	27.68	14.08	27.06	398	198	A	V
													V	
													V	
802.11g CH 02 2417MHz		2389.8	66.71	-7.29	74	52	27.72	14.06	27.07	150	319	P	H	
		2390	52.05	-1.95	54	37.34	27.72	14.06	27.07	150	319	A	H	
	*	2417	111.41	-	-	96.71	27.67	14.09	27.06	150	319	P	H	
	*	2417	103.78	-	-	89.08	27.67	14.09	27.06	150	319	A	H	
													H	
													H	
			2390	63.75	-10.25	74	49.04	27.72	14.06	27.07	400	177	P	V
			2390	50.49	-3.51	54	35.78	27.72	14.06	27.07	400	177	A	V
	*		2417	109.87	-	-	95.17	27.67	14.09	27.06	400	177	P	V
	*		2417	102.35	-	-	87.65	27.67	14.09	27.06	400	177	A	V
													V	
													V	



<b>802.11g CH 06 2437MHz</b>		2389.94	57.67	-16.33	74	42.96	27.72	14.06	27.07	100	167	P	H
		2389.94	47.42	-6.58	54	32.71	27.72	14.06	27.07	100	167	A	H
	*	2437	113.36	-	-	98.68	27.63	14.1	27.05	100	167	P	H
	*	2437	106.03	-	-	91.35	27.63	14.1	27.05	100	167	A	H
		2484.04	62.71	-11.29	74	47.93	27.67	14.15	27.04	100	167	P	H
		2483.62	51.98	-2.02	54	37.2	27.67	14.15	27.04	100	167	A	H
		2389.94	56.22	-17.78	74	41.51	27.72	14.06	27.07	368	178	P	V
		2389.8	45.97	-8.03	54	31.26	27.72	14.06	27.07	368	178	A	V
	*	2437	111.09	-	-	96.41	27.63	14.1	27.05	368	178	P	V
	*	2437	103.37	-	-	88.69	27.63	14.1	27.05	368	178	A	V
		2483.97	62.78	-11.22	74	48	27.67	14.15	27.04	368	178	P	V
		2483.62	50.16	-3.84	54	35.38	27.67	14.15	27.04	368	178	A	V
	<b>802.11g CH 09 2452MHz</b>	*	2452	111.5	-	-	96.83	27.6	14.12	27.05	100	162	P
*		2452	104.12	-	-	89.45	27.6	14.12	27.05	100	162	A	H
		2486.62	63.87	-10.13	74	49.08	27.67	14.15	27.03	100	162	P	H
		2483.62	52	-2	54	37.22	27.67	14.15	27.04	100	162	A	H
													H
													H
*		2452	108.9	-	-	94.23	27.6	14.12	27.05	371	178	P	V
*		2452	101.27	-	-	86.6	27.6	14.12	27.05	371	178	A	V
		2484.58	63.29	-10.71	74	48.5	27.67	14.15	27.03	371	178	P	V
		2483.56	51.21	-2.79	54	36.43	27.67	14.15	27.04	371	178	A	V
												V	
												V	



<b>802.11g</b> <b>CH 10</b> <b>2457MHz</b>	*	2457	109.4	-	-	94.71	27.61	14.12	27.04	104	166	P	H
	*	2457	101.8	-	-	87.11	27.61	14.12	27.04	104	166	A	H
		2483.56	65.32	-8.68	74	50.54	27.67	14.15	27.04	104	166	P	H
		2483.5	50.71	-3.29	54	35.93	27.67	14.15	27.04	104	166	A	H
													H
													H
	*	2457	107.68	-	-	92.99	27.61	14.12	27.04	376	193	P	V
	*	2457	100.1	-	-	85.41	27.61	14.12	27.04	376	193	A	V
		2483.62	66.42	-7.58	74	51.64	27.67	14.15	27.04	376	193	P	V
		2483.68	48.88	-5.12	54	34.1	27.67	14.15	27.04	376	193	A	V
													V
													V
<b>802.11g</b> <b>CH 11</b> <b>2462MHz</b>	*	2462	108.38	-	-	93.67	27.62	14.13	27.04	112	166	P	H
	*	2462	100.67	-	-	85.96	27.62	14.13	27.04	112	166	A	H
		2484.36	66.26	-7.74	74	51.48	27.67	14.15	27.04	112	166	P	H
		2483.64	50.91	-3.09	54	36.13	27.67	14.15	27.04	112	166	A	H
													H
													H
	*	2462	105.96	-	-	91.25	27.62	14.13	27.04	373	185	P	V
	*	2462	98.23	-	-	83.52	27.62	14.13	27.04	373	185	A	V
		2483.64	63.8	-10.2	74	49.02	27.67	14.15	27.04	373	185	P	V
		2483.52	49.93	-4.07	54	35.15	27.67	14.15	27.04	373	185	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	39.64	-34.36	74	58.7	31.45	6.8	57.31	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			4824	40.27	-33.73	74	59.33	31.45	6.8	57.31	-	-	P
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V





WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBµV/m )	Margin ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 06 2437MHz		4874	39.34	-34.66	74	58.3	31.45	6.82	57.23	-	-	P	H
		7311	45	-29	74	56.81	37.08	8.44	57.33	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			4874	39.28	-34.72	74	58.24	31.45	6.82	57.23	-	-	P
		7311	53.15	-20.85	74	64.96	37.08	8.44	57.33	101	82	P	V
		7311	42.37	-11.63	54	54.18	37.08	8.44	57.33	101	82	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V



WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11g CH 11 2462MHz		4924	39.4	-34.6	74	58.17	31.54	6.85	57.16	-	-	P	H	
		7386	44.5	-29.5	74	56.32	37.07	8.55	57.44	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4924	39.8	-34.2	74	58.57	31.54	6.85	57.16	-	-	P	V
			7386	45.24	-28.76	74	57.06	37.07	8.55	57.44	-	-	P	V
														V
														V
														V
														V
														V
														V
														V
													V	
<b>Remark</b>	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> <li>The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.</li> </ol>													



**2.4GHz 2400~2483.5MHz**  
**WIFI 802.11ax HE20 Full (Band Edge @ 3m)**

WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11ax HE20 Full CH 01 2412MHz		2390	63.98	-10.02	74	49.27	27.72	14.06	27.07	150	161	P	H	
		2390	52.02	-1.98	54	37.31	27.72	14.06	27.07	150	161	A	H	
	*	2412	109.26	-	-	94.56	27.68	14.08	27.06	150	161	P	H	
	*	2412	100.01	-	-	85.31	27.68	14.08	27.06	150	161	A	H	
													H	
														H
			2389.8	62.12	-11.88	74	47.41	27.72	14.06	27.07	353	197	P	V
			2390	49.73	-4.27	54	35.02	27.72	14.06	27.07	353	197	A	V
		*	2412	108.36	-	-	93.66	27.68	14.08	27.06	353	197	P	V
		*	2412	99.15	-	-	84.45	27.68	14.08	27.06	353	197	A	V
													V	
													V	
802.11ax HE20 Full CH 06 2437MHz		2388.26	55.79	-18.21	74	41.08	27.72	14.06	27.07	100	167	P	H	
		2389.1	45.1	-8.9	54	30.39	27.72	14.06	27.07	100	167	A	H	
		*	2437	114.14	-	-	99.46	27.63	14.1	27.05	100	167	P	H
		*	2437	103.72	-	-	89.04	27.63	14.1	27.05	100	167	A	H
			2483.62	61.64	-12.36	74	46.86	27.67	14.15	27.04	100	167	P	H
			2483.5	48.74	-5.26	54	33.96	27.67	14.15	27.04	100	167	A	H
			2340.38	55.79	-18.21	74	40.97	27.88	14.02	27.08	377	188	P	V
			2387.56	44.77	-9.23	54	30.06	27.72	14.06	27.07	377	188	A	V
		*	2437	113.01	-	-	98.33	27.63	14.1	27.05	377	188	P	V
		*	2437	102.34	-	-	87.66	27.63	14.1	27.05	377	188	A	V
		2483.55	59.34	-14.66	74	44.56	27.67	14.15	27.04	377	188	P	V	
		2483.5	47.6	-6.4	54	32.82	27.67	14.15	27.04	377	188	A	V	



WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ax HE20 Full CH 10 2457MHz	*	2457	112.27	-	-	97.58	27.61	14.12	27.04	100	167	P	H
	*	2457	101.73	-	-	87.04	27.61	14.12	27.04	100	167	A	H
		2483.5	68.72	-5.28	74	53.94	27.67	14.15	27.04	100	167	P	H
		2483.52	52.75	-1.25	54	37.97	27.67	14.15	27.04	100	167	A	H
													H
													H
	*	2457	107.26	-	-	92.57	27.61	14.12	27.04	331	206	P	V
	*	2457	98.24	-	-	83.55	27.61	14.12	27.04	331	206	A	V
		2484.36	68.99	-5.01	74	54.21	27.67	14.15	27.04	331	206	P	V
		2483.6	51.17	-2.83	54	36.39	27.67	14.15	27.04	331	206	A	V
												V	
												V	
802.11ax HE20 Full CH 11 2462MHz	*	2462	108.48	-	-	93.77	27.62	14.13	27.04	103	154	P	H
	*	2462	98.63	-	-	83.92	27.62	14.13	27.04	103	154	A	H
		2484.12	68.14	-5.86	74	53.36	27.67	14.15	27.04	103	154	P	H
		2483.6	52.5	-1.5	54	37.72	27.67	14.15	27.04	103	154	A	H
													H
													H
	*	2462	107.81	-	-	93.1	27.62	14.13	27.04	367	201	P	V
	*	2462	96.71	-	-	82	27.62	14.13	27.04	367	201	A	V
		2484.36	68.58	-5.42	74	53.8	27.67	14.15	27.04	367	201	P	V
		2483.6	51.41	-2.59	54	36.63	27.67	14.15	27.04	367	201	A	V
												V	
												V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)	
802.11ax HE20 Full CH 01 2412MHz		4824	40.56	-33.44	74	59.62	31.45	6.8	57.31	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4824	40.03	-33.97	74	59.09	31.45	6.8	57.31	-	-	P	V
														V
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	



WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)	
802.11ax HE20 Full CH 06 2437MHz		4874	38.87	-35.13	74	57.83	31.45	6.82	57.23	-	-	P	H	
		7311	48.34	-25.66	74	60.15	37.08	8.44	57.33	100	288	P	H	
		7311	37.8	-16.2	54	49.61	37.08	8.44	57.33	100	288	A	H	
													H	
													H	
													H	
														H
														H
														H
														H
		4874	38.45	-35.55	74	57.41	31.45	6.82	57.23	-	-	P	V	
		7311	50.85	-23.15	74	62.66	37.08	8.44	57.33	100	84	P	V	
		7311	41.94	-12.06	54	53.75	37.08	8.44	57.33	100	84	A	V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	



WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11ax HE20 Full CH 11 2462MHz		4924	38.98	-35.02	74	57.75	31.54	6.85	57.16	-	-	P	H	
		7386	44.96	-29.04	74	56.78	37.07	8.55	57.44	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
	Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Partial 106 (Band Edge @ 3m)

WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11ax HE20 Partial 106/53 CH 01 2412MHz		2390	67.36	-6.64	74	52.65	27.72	14.06	27.07	124	339	P	H	
		2390	52.8	-1.2	54	38.09	27.72	14.06	27.07	124	339	A	H	
	*	2412	113.13	-	-	98.43	27.68	14.08	27.06	124	339	P	H	
	*	2412	104.2	-	-	89.5	27.68	14.08	27.06	124	339	A	H	
													H	
														H
			2389.695	67.03	-6.97	74	52.32	27.72	14.06	27.07	400	11	P	V
			2390	51.29	-2.71	54	36.58	27.72	14.06	27.07	400	11	A	V
	*		2412	111.17	-	-	96.47	27.68	14.08	27.06	400	11	P	V
	*		2412	102.44	-	-	87.74	27.68	14.08	27.06	400	11	A	V
													V	
													V	
802.11ax HE20 Partial 106/54 CH 11 2462MHz	*	2462	110.95	-	-	96.24	27.62	14.13	27.04	100	167	P	H	
	*	2462	102.49	-	-	87.78	27.62	14.13	27.04	100	167	A	H	
		2483.8	72.28	-1.72	74	57.5	27.67	14.15	27.04	100	167	P	H	
		2483.52	50.75	-3.25	54	35.97	27.67	14.15	27.04	100	167	A	H	
													H	
													H	
	*	2462	108.63	-	-	93.92	27.62	14.13	27.04	369	183	P	V	
	*	2462	100.71	-	-	86	27.62	14.13	27.04	369	183	A	V	
			2484.12	68.96	-5.04	74	54.18	27.67	14.15	27.04	369	183	P	V
			2483.52	49.65	-4.35	54	34.87	27.67	14.15	27.04	369	183	A	V
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													





**Emission below 1GHz  
2.4GHz WIFI 802.11ax HE20 (LF)**

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.	
Ant.					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
6+7		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
2.4GHz 802.11ax HE20 LF		30.97	22.1	-17.9	40	29.49	24.24	0.72	32.35	-	-	P	H	
		127.97	19.51	-23.99	43.5	33.25	17.42	1.14	32.3	-	-	P	H	
		259.89	19.2	-26.8	46	29.9	20.03	1.5	32.23	-	-	P	H	
		436.43	23.35	-22.65	46	30.54	23.07	1.92	32.18	-	-	P	H	
		553.8	27.24	-18.76	46	31.58	25.78	2.12	32.24	-	-	P	H	
		764.29	31.66	-14.34	46	33.37	28.06	2.35	32.12	-	-	P	H	
														H
														H
														H
														H
														H
														H
			30	22.15	-17.85	40	29.24	24.53	0.72	32.34	-	-	P	V
			113.42	21.75	-21.75	43.5	35.85	17.1	1.11	32.31	-	-	P	V
			258.92	19.18	-26.82	46	30.04	19.87	1.5	32.23	-	-	P	V
			439.34	23.69	-22.31	46	30.84	23.1	1.92	32.17	-	-	P	V
			682.81	28.04	-17.96	46	31.45	26.45	2.32	32.18	-	-	P	V
			765.26	30.58	-15.42	46	32.27	28.07	2.35	32.11	-	-	P	V
													V	
													V	
													V	
													V	
													V	
													V	

**Remark**

- No other spurious found.
- All results are PASS against limit line.
- The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.



<TXBF Mode>

2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Full (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
6+7		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
802.11ax HE20 Full CH 01 2412MHz		2389.905	67.91	-6.09	74	53.2	27.72	14.06	27.07	150	154	P	H	
		2390	52.78	-1.22	54	38.07	27.72	14.06	27.07	150	154	A	H	
	*	2412	110.08	-	-	95.38	27.68	14.08	27.06	150	154	P	H	
	*	2412	100.94	-	-	86.24	27.68	14.08	27.06	150	154	A	H	
													H	
														H
			2389.905	68.05	-5.95	74	53.34	27.72	14.06	27.07	400	195	P	V
			2389.905	52.66	-1.34	54	37.95	27.72	14.06	27.07	400	195	A	V
		*	2412	108.87	-	-	94.17	27.68	14.08	27.06	400	195	P	V
		*	2412	100.36	-	-	85.66	27.68	14.08	27.06	400	195	A	V
													V	
													V	
802.11ax HE20 Full CH 06 2437MHz		2389.94	57.1	-16.9	74	42.39	27.72	14.06	27.07	113	168	P	H	
		2389.8	45.75	-8.25	54	31.04	27.72	14.06	27.07	113	168	A	H	
	*	2437	113.45	-	-	98.77	27.63	14.1	27.05	113	168	P	H	
	*	2437	104.98	-	-	90.3	27.63	14.1	27.05	113	168	A	H	
			2485.09	60.46	-13.54	74	45.67	27.67	14.15	27.03	113	168	P	H
			2483.5	48.38	-5.62	54	33.6	27.67	14.15	27.04	113	168	A	H
			2340.52	56.28	-17.72	74	41.46	27.88	14.02	27.08	124	12	P	V
			2310.98	45.62	-8.38	54	30.61	28.11	13.99	27.09	124	12	A	V
		*	2437	107.19	-	-	92.51	27.63	14.1	27.05	124	12	P	V
		*	2437	104.15	-	-	89.47	27.63	14.1	27.05	124	12	A	V
		2486.56	55.21	-18.79	74	40.42	27.67	14.15	27.03	124	12	P	V	
		2496.43	45.53	-8.47	54	30.71	27.69	14.16	27.03	124	12	A	V	



WiFi Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ax HE20 Full CH 09 2452MHz	*	2452	113.24	-	-	98.57	27.6	14.12	27.05	100	166	P	H
	*	2452	104.23	-	-	89.56	27.6	14.12	27.05	100	166	A	H
		2483.92	64.95	-9.05	74	50.17	27.67	14.15	27.04	100	166	P	H
		2483.86	52.64	-1.36	54	37.86	27.67	14.15	27.04	100	166	A	H
													H
													H
	*	2452	109.41	-	-	94.74	27.6	14.12	27.05	370	205	P	V
	*	2452	100.47	-	-	85.8	27.6	14.12	27.05	370	205	A	V
		2486.74	65.81	-8.19	74	51.02	27.67	14.15	27.03	370	205	P	V
		2483.98	51.25	-2.75	54	36.47	27.67	14.15	27.04	370	205	A	V
												V	
												V	
802.11ax HE20 Full CH 10 2457MHz	*	2457	111.39	-	-	96.7	27.61	14.12	27.04	100	164	P	H
	*	2457	101.76	-	-	87.07	27.61	14.12	27.04	100	164	A	H
		2485.56	69.04	-4.96	74	54.25	27.67	14.15	27.03	100	164	P	H
		2483.56	52.25	-1.75	54	37.47	27.67	14.15	27.04	100	164	A	H
													H
													H
	*	2457	109.01	-	-	94.32	27.61	14.12	27.04	375	202	P	V
	*	2457	99.68	-	-	84.99	27.61	14.12	27.04	375	202	A	V
		2484.32	68.36	-5.64	74	53.58	27.67	14.15	27.04	375	202	P	V
		2483.72	51.4	-2.6	54	36.62	27.67	14.15	27.04	375	202	A	V
												V	
												V	



<b>802.11ax HE20 Full CH 11 2462MHz</b>	*	2462	108.87	-	-	94.16	27.62	14.13	27.04	100	169	P	H
	*	2462	99.27	-	-	84.56	27.62	14.13	27.04	100	169	A	H
		2483.76	66.6	-7.4	74	51.82	27.67	14.15	27.04	100	169	P	H
		2483.56	51.82	-2.18	54	37.04	27.67	14.15	27.04	100	169	A	H
													H
													H
	*	2462	105.83	-	-	91.12	27.62	14.13	27.04	376	184	P	V
	*	2462	97.26	-	-	82.55	27.62	14.13	27.04	376	184	A	V
		2483.56	66.53	-7.47	74	51.75	27.67	14.15	27.04	376	184	P	V
		2483.72	51.3	-2.7	54	36.52	27.67	14.15	27.04	376	184	A	V
												V	
												V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11ax HE20 Full CH 01 2412MHz		4824	41.19	-32.81	74	60.25	31.45	6.8	57.31	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4824	40.17	-33.83	74	59.23	31.45	6.8	57.31	-	-	P	V
														V
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	



WiFi Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ax HE20 Full CH 06 2437MHz		4874	39.17	-34.83	74	58.13	31.45	6.82	57.23	-	-	P	H
		7311	44.64	-29.36	74	56.45	37.08	8.44	57.33	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			4874	39.14	-34.86	74	58.1	31.45	6.82	57.23	-	-	P
		7311	44.79	-29.21	74	56.6	37.08	8.44	57.33	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V



WiFi Ant. 6+7	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11ax HE20 Full CH 11 2462MHz		4924	39.12	-34.88	74	57.89	31.54	6.85	57.16	-	-	P	H	
		7386	44.27	-29.73	74	56.09	37.07	8.55	57.44	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
	Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



**Note symbol**

*	<b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is <b>over limit</b> line.
P/A	<b>Peak</b> or <b>Average</b>
H/V	<b>Horizontal</b> or <b>Vertical</b>





A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
6+7													
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =  
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

1. Level(dBμV/m)  
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)  
= 55.45 (dBμV/m)
2. Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 55.45(dBμV/m) – 74(dBμV/m)  
= -18.55(dB)

**For Average Limit @ 2390MHz:**

1. Level(dBμV/m)  
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)  
= 43.54 (dBμV/m)
2. Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 43.54(dBμV/m) – 54(dBμV/m)  
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



### Appendix C. Radiated Spurious Emission Plots

Test Engineer :	Mancy Chou, Jacky Hong and Rain Lee	Temperature :	20~25°C
		Relative Humidity :	50~60%

Note symbol

-L	Low channel location
-R	High channel location