







Test Report No.: FCC2021-0035-RF4

# **RF Test Report**

EUT : Quamtum Access Q3

MODEL : Access Q3

BRAND NAME : N/A

CLIENT : QUAMTUM CONNECTIVITY DE

MEXICO, S.A. DE C.V.

Classification Of Test : N/A

**CVC Testing Technology Co., Ltd.** 



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Test Report No.: FCC202	1-0035-1	NF4			Page 2	UI 04 	
		Name : QUAMTU	JM CONNECTIV	ITY DE ME	XICO, S.A. DE C	. <b>V</b> .	
Client		Polan	Address : Torcuato Tasso 245, Despacho 403, Oficina 21Col. Polanco V Sección, C.P. 11560 Alcaldía Miguel Hidalgo, CDMX,México				
		Name : QUAMTU	JM CONNECTIV	ITY DE ME	XICO, S.A. DE C	. <b>V</b> .	
Manufacturer			•	•	403, Oficina 21C Alcaldía Miguel H		
		Name : Quamtu	m Access Q3				
		Model/Type: Ac	cess Q3				
Equipment Under	Test	Trade mark : N/A	4				
		Serial NO.:N/A					
		Sampe NO.:3-1	Sampe NO.:3-1				
Date of Receipt.		2021.11.18	Date of Testing		2021.11.18~2021.12.04		
Test Spec	cificatio	n	Test Result				
FCC Part 15, Subpa	rt C, Se	tion 15.247 PASS					
		The equipment under test was found to comply with the					
Evaluation of Test Resu	ilt	requirements of the standards applied.					
		Issue Date:		ssue Date: 20	21.12.0		
Tested by:		Reviewed by:	Approved by:				
Xu Zhanfei	Linyonghai		Chartman				
Xu ZhenFei Liu Yo Name Signature Name			ong <b>Hai Chen HuaWen</b> Signature Name Signature			ıre	
Other Aspects: NONE.	<del>-</del>	Tamo	0.9.13(4)	1144	Oignate	<u> U</u>	
Abbreviations:OK, Pass= passed	l	Fail = failed N/A	= not applicable	EUT= equi	pment, sample(s) under	tested	
This test report relates only to the	he EUT, a	and shall not be reprodu	uced except in full, v	without writter	approval of CVC.		



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### **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED	
FCC2021-0034-RF4	Original release	2021.12.06	



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#### 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

PPLIED STANDARD: FCC Part 15, Subpart C								
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK					
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit.					
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit.					
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.					
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.					
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.					
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.					
15.203	Antenna Requirement	PASS	Meet the requirement of limit.					

#### 1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Refer to Appendix B.

#### 1.2 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:

No.	ITEM FREQUENCY		UNCERTAINTY
1	Conducted emissions	9kHz~30MHz	±2.66dB
2		9KHz ~ 30MHz	±0.769dB
	Dadiated emissions	30MHz ~ 1GMHz	±0.877dB
	Radiated emissions	1GHz ~ 18GHz	±0.777dB
		18GHz ~ 40GHz	±1.315dB

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

#### 1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab. of CVC Testing Technology Co., Ltd.

Address: No.3, Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, China

Post Code: 510663 Tel: 020-32293888

FAX: 020-32293889 E-mail: office@cvc.org.cn

Test Firm Registration Number: 937273

CN Number: 26239 Wireless Test Site Registration Number: CN0103



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#### 2 GENERAL INFORMATION

#### 2.1 GENERAL PRODUCT INFORMATION

PRODUCT	Quamtum Access Q3
BRAND	N/A
MODEL	Access Q3
ADDITIONAL MODEL	N/A
FCC ID	2A3WD-ACCESS-Q3
POWER SUPPLY	DC 12V From Adapter
MODULATIONTECHNOLOGY	DSSS, OFDM
MODUL ATION TYPE	CCK, DQPSK, DBPSK for DSSS
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK for OFDM
OPERATING FREQUENCY	2412MHz ~ 2462MHz for 11b/g/n(HT20)
NUMBER OF CHANNEL	802.11b/g/n (HT20): 11
PEAK OUTPUT POWER	WLAN: 24.40dBm (Maximum)
ANTENNA TYPE	WLAN: PCB Antenna, 2dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

#### Remark:

- 1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- 2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- 3. Please refer to the EUT photo document for detailed product photo.
- 4. The EUT have SISO function, provides 2 completed transmitter and 2 receiver.

MODULATION MODE	TX FUNCTION
802.11b	2TX/2RX
802.11g	2TX/2RX
802.11n (HT20)	2TX/2RX

### 2.2 Description of Accessories

Adapter						
<b>BRAND</b> Quamtum						
Model No.: ZL-A012W1201000						
Input: 100-240 V~50/60 Hz 0.5 A Max						
Output: 12.0 V == 1 A						
AC Cable: N/A						
DC Cable:	1.50 Meter, Unshielded without ferrite					



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#### 2.3 OTHER INFORMATION

Operating frequency of each channel

2.4G WIFI								
802.11b/g/n (HT20)								
CHANNEL FREQ. (MHz) CHANNEL FREQ. (MHz) CHANNEL FREQ. (MHz)								
1	2412	5	2432	9	2452			
2	2417	6	2437	10	2457			
3	2422	7	2442	11	2462			
4	2427	8	2447					

**Note:** The channels which were indicated in bold type of the above channel list were selected as representative test channel. Therefore only the data of the test channels were recorded in this report.

#### 2.4 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports

EUT	APF	PLICABLE	TEST ITE	EMS	
CONFIGURE MODE		RE≥1G	PLC	APCM	DESCRIPTION
Α	√	<b>V</b>	√	<b>V</b>	2.4G WIFI Function

Where **RE<1G**: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

**RE≥1G:** Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

#### **RADIATED EMISSION TEST (BELOW 1 GHz):**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.

The worst case was found when positioned on x axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

CONFI MO	GURE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
А	١	802.11b	1 to 11	6	DSSS	DBPSK	6.0

For the test results, only the worst case was shown in test report.



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#### **RADIATED EMISSION TEST (ABOVE 1 GHz):**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.

The worst case was found when positioned on x axis for radiated emission. 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	DATA RATE (Mbps)
А	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
А	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Α	802.11n(HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
Α	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

#### **POWER LINE CONDUCTED EMISSION TEST:**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.

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

EUT CONFIGURE MODE	TESTED CONDITION
-	WIFI (2.4G) Link

#### **ANTENNA PORT CONDUCTED MEASUREMENT:**

This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types

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	DATA RATE (Mbps)
А	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
А	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Α	802.11n(HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
Α	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5



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### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE (SYSTEM)	TESTED BY
<b>RE&lt;1G</b> 24deg. C, 55%RH		AC 120V/60Hz	Li JiaLing
RE≥1G	24deg. C, 55%RH	AC 120V/60Hz	Li JiaLing
<b>PLC</b> 24deg. C, 55%RH		AC 120V/60Hz	Li JiaLing
APCM	25deg. C, 58%RH	AC 120V/60Hz	Li JiaLing



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#### 2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC PART 15, Subpart C. Section 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10-2020

All test items have been performed and recorded as per the above standards

#### 2.6 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.

during	the tests.											
	Support Equipment											
NO	D Description Brand		Model No.	Serial No	umber	Supplied by						
N/A	/A N/A		N/A	N/A	N/A	N/A		N/A				
			Sı	ipport Cable								
NO	Description	Quantity	Length	Detachable	Shielded	Cores	S	Supplied by				
NO	Description	(Number)	(cm)	(Yes/ No)	(Yes/ No)	(Numbe	er)	Supplied by				
N/A	N/A	N/A	N/A	N/A	N/A	N/A N/A		N/A				



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#### 3 TEST TYPES AND RESULTS

#### 3.1 CONDUCTED EMISSION MEASUREMENT

#### 3.1.1 Limit

Frequency	Conducted Limits(dBμV)					
(MHz)	Quasi-peak	Average				
0.15 - 0.5	66 to 56 *	56 to 46*				
0.5 - 5	56	46				
5 - 30	60	50				

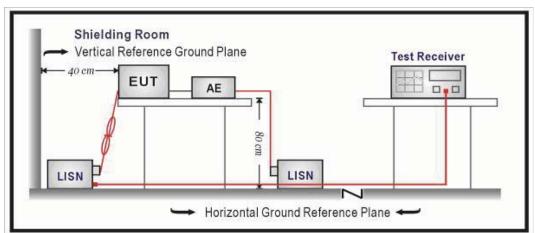
NOTE: 1. The lower limit shall apply at the transition frequencies.

NOTE: 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

#### 3.1.2 Measurement procedure

- a. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the Test photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The equipment under test shall be placed on a support of non-metallic material, the height of which shall be 1.5m above the ground,
- b. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- c. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

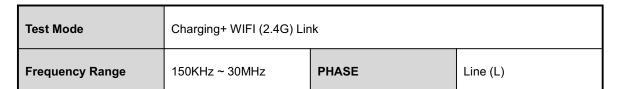
#### 3.1.3 Test setup

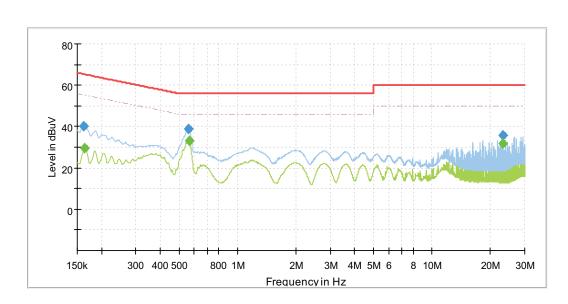




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#### 3.1.4 Test results





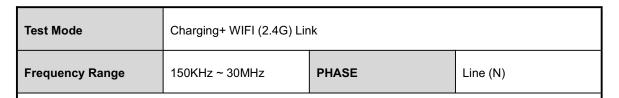
NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	0.161	40.1		65.4	25.3	L1	19.5
2	0.164		29.4	55.3	25.8	L1	19.5
3	0.562	38.8		56.0	17.2	L1	19.6
4	0.566		32.9	46.0	13.1	L1	19.6
5	23.127	35.7		60.0	24.3	L1	19.9
6	23.127		31.6	50.0	18.4	L1	19.9

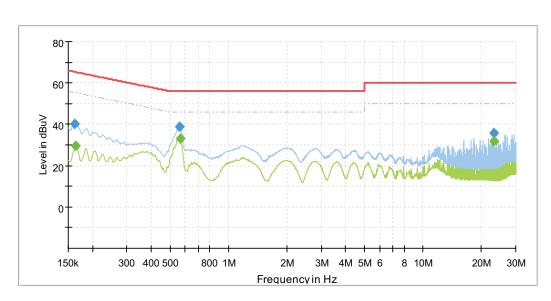
Remark: 1.The emission levels of other frequencies were very low against the limit.

- 2.Margin= Limit Result
- 3. Corr.= Insertion loss + Cable loss + LISN Factor
- 4. Result = Corr. + Reading



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NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	0.161	39.3		65.4	26.1	N	19.5
2	0.164		21.2	55.3	34.1	N	19.5
3	0.562	28.6		56.0	27.4	N	19.6
4	0.564		22.3	46.0	23.7	N	19.6
5	23.127		30.1	50.0	19.9	N	20.2
6	29.234	36.9		60.0	23.1	N	20.3

Remark: 1.The emission levels of other frequencies were very low against the limit.

- 2.Margin= Limit Result
- 3. Corr.= Insertion loss + Cable loss + LISN Factor
- 4. Result = Corr. + Reading



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#### 3.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

#### 3.2.1 Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

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.

NOTE: 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

NOTE: 3. As shown in 15.35(b), 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.

#### 3.2.2 Measurement procedure

- a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. 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. For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode
- f.For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- g. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.



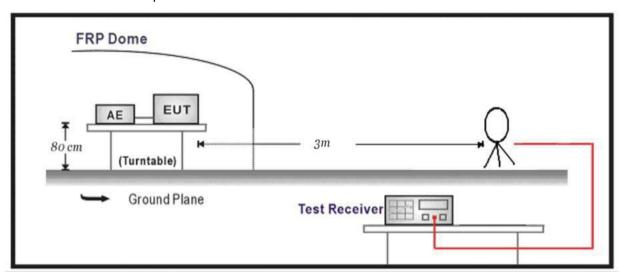
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#### NOTE:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
- 4. All modes of operation were investigated and the worst-case emissions are reported.
- 5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

#### 3.2.3 Test setup

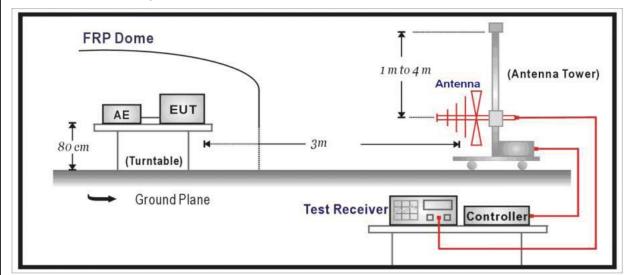
#### Below 30MHz Test Setup:



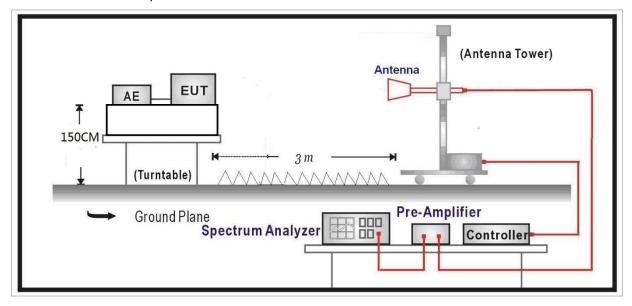


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#### Below 1GHz Test Setup:



#### Above 1GHz Test Setup:





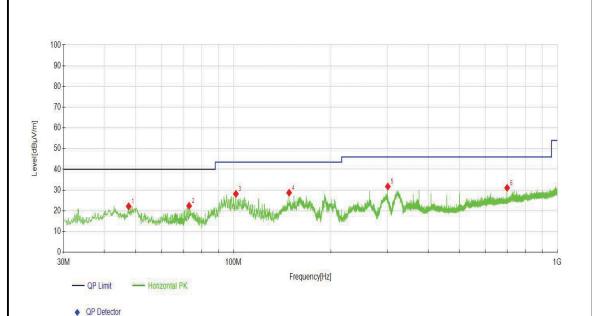
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#### 3.2.4 Test results

#### BELOW 1GHz WORST-CASE DATA:

Worst Test Mode	Worst Test Mode 802.11b		CH 1	
Frequency Range	9KHz ~ 1GHz	Detector Function	Quasi-Peak (QP)	

#### Horizontal



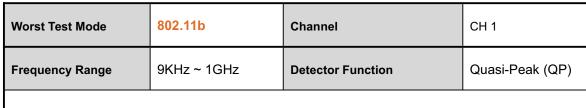
NO	Freq.	Reading	Level	Factor	Limit	Margin	Height	Angle
	[MHz]	[dBµV/m]	[dBµV/m]	[dB]	[dBµV/m]	[dB]	[cm]	[°]
1	47.5588	7.78	22.13	14.35	40.00	17.87	200	122
2	73.0723	11.11	22.38	11.27	40.00	17.62	300	290
3	101.8842	16.76	28.16	11.40	43.50	15.34	300	344
4	148.7399	13.34	28.70	15.36	43.50	14.80	200	134
5	299.9780	16.87	31.72	14.85	46.00	14.28	100	184
6	700.0460	8.78	31.07	22.29	46.00	14.93	100	358

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.

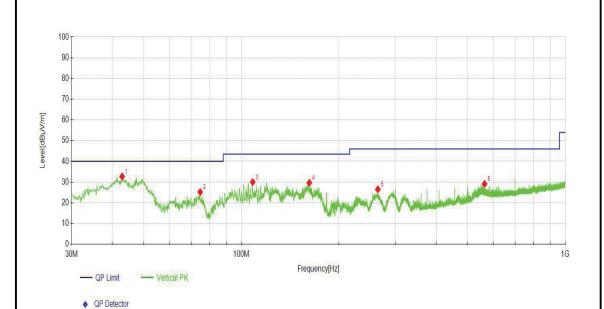
- 2. The emission levels of other frequencies were greater than 20dB margin.
- 3. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 4. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 5. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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#### Vertical



NO	Freq.	Reading	Level	Factor	Limit	Margin	Height	Angle
	[MHz]	[dBµV/m]	[dBµV/m]	[dB]	[dBµV/m]	[dB]	[cm]	[°]
1	42.9023	18.19	32.68	14.49	40.00	7.32	100	99
2	74.7215	14.14	25.18	11.04	40.00	14.82	100	296
3	108.4808	18.22	29.99	11.77	43.50	13.51	100	76
4	162.2242	13.95	29.66	15.71	43.50	13.84	100	177
5	263.9874	12.92	26.51	13.59	46.00	19.49	100	183
6	563.3593	8.91	29.10	20.19	46.00	16.90	100	344

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.

- 2. The emission levels of other frequencies were greater than 20dB margin.
- 3. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 4. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 5. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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#### ABOVE 1GHz DATA

Channel	802.11b CH 1	Frequency	<b>2412MH</b> z
Frequency Range	Above 1G	Detector Function	PK/AV

#### Horizontal

NO	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2390	46.65	-0.13	46.52	54.00	7.48	150	141	AV
2	2390	63.04	-0.13	62.91	74.00	11.09	196	141	PK
3	2412	96.36	0.14	96.50	-	-	147	213	AV
4	2412	98.78	0.16	98.94	-	-	243	226	PK
5	4824	44.93	14.61	59.54	74.00	14.46	189	341	PK
6	4824	37.33	14.51	51.84	54.00	2.16	166	143	AV
7	7236	23.34	12.81	36.15	54.00	17.85	228	32	AV
8	7236	30.58	12.72	43.30	74.00	30.70	227	181	PK
9	9648	26.76	13.14	39.90	54.00	14.10	206	356	AV
10	9648	32.25	13.14	45.39	74.00	28.61	164	359	PK

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390	46.02	-0.15	45.87	54.00	8.13	149	220	AV
2	2390	61.78	-0.15	61.63	74.00	12.37	176	220	PK
3	2412	98.46	0.14	98.60	-	-	165	220	AV
4	2412	100.80	0.15	100.95	-	-	224	214	PK
5	4824	44.91	9.92	54.83	74.00	19.17	164	360	PK
6	4824	37.88	10.00	47.88	54.00	6.12	218	323	AV
7	7236	23.97	12.41	36.38	54.00	17.62	188	206	AV
8	7236	31.56	12.45	44.01	74.00	29.99	160	286	PK
9	9648	37.14	13.14	50.28	74.00	23.72	132	225	PK
10	9648	33.10	13.14	46.24	54.00	7.76	157	225	AV

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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Channel	802.11b CH 6	Frequency	<b>2437MH</b> z
Frequency Range	Above 1G	Detector Function	PK/AV

#### Horizontal

NO	Freq.	Reading	Factor	Level	Limit	Margin	Height	Angle	Detector
	[MHz]	[dBµV/m]	[dB]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]	Detector
1	4874	44.83	9.98	54.81	74.00	19.19	194	263	PK
2	4874	36.67	10.22	46.89	54.00	7.11	130	359	AV
3	7311	30.27	12.81	43.08	74.00	30.92	246	334	PK
4	7311	23.66	12.80	36.46	54.00	17.54	134	281	AV
5	9748	30.78	13.23	44.01	74.00	29.99	155	308	PK
6	9748	24.84	13.23	38.07	54.00	15.93	147	288	AV

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390	45.34	10.09	55.43	74.00	18.57	245	157	PK
2	2390	36.60	10.18	46.78	54.00	7.22	133	348	AV
3	2412	24.42	12.23	36.65	54.00	17.35	158	130	AV
4	2412	31.81	12.59	44.40	74.00	29.60	140	144	PK
5	4824	36.35	13.23	49.58	74.00	24.42	167	216	PK
6	4824	30.09	13.23	43.32	54.00	10.68	154	222	AV

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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Channel	802.11b CH 11	Frequency	<b>2462MH</b> z
Frequency Range	Above 1G	Detector Function	PK/AV

#### Horizontal

NO	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2462	95.76	0.60	96.36	-	-	155	119	AV
2	2462	98.02	0.61	98.63	-	-	196	119	PK
3	2483.5	44.50	0.45	44.95	54.00	9.05	202	153	AV
4	2483.5	60.46	0.46	60.92	74.00	13.08	130	119	PK
5	4924	36.53	9.96	46.49	54.00	7.51	234	94	AV
6	4924	44.78	10.11	54.89	74.00	19.11	174	107	PK
7	7386	31.67	12.17	43.84	74.00	30.16	130	311	PK
8	7386	24.29	12.74	37.03	54.00	16.97	148	339	AV
9	9848	30.66	13.23	43.89	74.00	30.11	209	305	PK
10	9848	25.79	13.23	39.02	54.00	14.98	187	305	AV

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2462	99.47	0.59	100.06	-	-	244	49	AV
2	2462	101.73	0.62	102.35	-	-	242	49	PK
3	2483.5	66.52	0.51	67.03	74.00	6.97	167	28	PK
4	2483.5	50.23	0.51	50.74	54.00	3.26	200	28	AV
5	4924	45.45	10.00	55.45	74.00	18.55	181	249	PK
6	4924	36.00	10.12	46.12	54.00	7.88	236	1	AV
7	7386	32.10	11.91	44.01	74.00	29.99	175	307	PK
8	7386	23.67	12.55	36.22	54.00	17.78	148	334	AV
9	9848	35.53	13.23	48.76	74.00	25.24	175	221	PK
10	9848	32.20	13.23	45.43	54.00	8.57	244	221	AV

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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Channel	802.11g CH 1	Frequency	<b>2412MH</b> z
Frequency Range	Above 1G	Detector Function	PK/AV

#### Horizontal

NO	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2390	48.88	-0.16	48.72	74.00	25.28	187	186	PK
2	2390	40.93	-0.15	40.78	54.00	13.22	246	117	AV
3	2412	100.84	0.06	100.90	-	ı	174	117	PK
4	2412	93.80	0.14	93.94	-	-	175	117	AV
5	4824	44.68	9.90	54.58	74.00	19.42	224	348	PK
6	4824	35.89	10.10	45.99	54.00	8.01	245	223	AV
7	7236	33.06	11.43	44.49	74.00	29.51	154	262	PK
8	7236	24.45	11.54	35.99	54.00	18.01	148	64	AV
9	9648	31.81	13.14	44.95	74.00	29.05	130	283	PK
10	9648	26.75	13.14	39.89	54.00	14.11	219	283	AV

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390	48.25	-0.18	48.07	74.00	25.93	130	48	PK
2	2390	40.15	-0.16	39.99	54.00	14.01	250	40	AV
3	2412	93.53	0.13	93.66	-	-	157	40	AV
4	2412	100.65	0.18	100.83	-	-	153	40	PK
5	4824	45.30	9.84	55.14	74.00	18.86	192	304	PK
6	4824	36.04	9.87	45.91	54.00	8.09	141	1	AV
7	7236	30.73	12.47	43.20	74.00	30.80	197	6	PK
8	7236	23.49	12.70	36.19	54.00	17.81	136	269	AV
9	9648	36.71	13.14	49.85	74.00	24.15	187	222	PK
10	9648	33.54	13.14	46.68	54.00	7.32	235	222	AV

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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Channel	802.11g CH 6	Frequency	<b>2437MH</b> z
Frequency Range	Above 1G	Detector Function	PK/AV

#### Horizontal

NO	Freq.	Reading	Factor	Level	Limit	Margin	Height	Angle	Detector
	[MHz]	[dBµV/m]	[dB]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]	Botootoi
1	4874	44.76	9.74	54.50	74.00	19.50	226	359	PK
2	4874	36.21	10.10	46.31	54.00	7.69	203	259	AV
3	7311	30.63	12.55	43.18	74.00	30.82	234	236	PK
4	7311	23.66	12.51	36.17	54.00	17.83	199	94	AV
5	9748	30.41	13.23	43.64	74.00	30.36	178	285	PK
6	9748	24.93	13.23	38.16	54.00	15.84	226	285	AV

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4874	45.29	9.98	55.27	74.00	18.73	234	143	PK
2	4874	35.98	10.00	45.98	54.00	8.02	239	128	AV
3	7311	23.30	12.81	36.11	54.00	17.89	217	326	AV
4	7311	30.99	12.68	43.67	74.00	30.33	138	181	PK
5	9748	37.70	13.23	50.93	74.00	23.07	165	210	PK
6	9748	32.77	13.23	46.00	54.00	8.00	183	210	AV

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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Channel	802.11g CH 11	Frequency	<b>2462MH</b> z
Frequency Range	Above 1G	Detector Function	PK/AV

#### Horizontal

NO	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2462	95.00	0.57	95.57	-	-	130	48	AV
2	2462	102.07	0.56	102.63	-	-	242	48	PK
3	2483.5	60.82	0.48	61.30	74.00	12.70	130	39	PK
4	2483.5	45.46	0.48	45.94	54.00	8.06	168	39	AV
5	4924	35.75	10.25	46.00	54.00	8.00	167	0	AV
6	4924	44.60	10.28	54.88	74.00	19.12	149	23	PK
7	7386	24.16	12.52	36.68	54.00	17.32	189	34	AV
8	7386	31.13	12.52	43.65	74.00	30.35	240	34	PK
9	9848	30.52	13.23	43.75	74.00	30.25	217	268	PK
10	9848	26.20	13.23	39.43	54.00	14.57	219	296	AV

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2462	91.33	0.57	91.90	-	-	250	124	AV
2	2462	98.26	0.56	98.82	-	-	238	124	PK
3	2483.5	53.88	0.47	54.35	74.00	19.65	222	112	PK
4	2483.5	40.14	0.47	40.61	54.00	13.39	176	112	AV
5	4924	45.27	10.08	55.35	74.00	18.65	238	4	PK
6	4924	36.10	10.11	46.21	54.00	7.79	131	216	AV
7	7386	31.97	11.81	43.78	74.00	30.22	183	186	PK
8	7386	23.56	12.83	36.39	54.00	17.61	163	90	AV
9	9848	35.76	13.23	48.99	74.00	25.01	248	201	PK
10	9848	32.69	13.23	45.92	54.00	8.08	207	208	AV

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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Channel	802.11n20 CH 1	Frequency	<b>2412MH</b> z
Frequency Range	Above 1G	Detector Function	PK/AV

#### Horizontal

NO	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2390	40.37	-0.16	40.21	54.00	13.79	245	212	AV
2	2390	46.78	-0.15	46.63	74.00	27.37	245	231	PK
3	2412	93.62	0.25	93.87	-	-	182	231	AV
4	2412	100.15	0.25	100.40	-	-	163	231	PK
5	4824	46.43	9.78	56.21	74.00	17.79	250	302	PK
6	4824	35.92	10.11	46.03	54.00	7.97	191	175	AV
7	7236	32.30	11.31	43.61	74.00	30.39	130	262	PK
8	7236	23.76	12.23	35.99	54.00	18.01	131	262	AV
9	9648	31.77	13.14	44.91	74.00	29.09	237	288	PK
10	9648	26.86	13.14	40.00	54.00	14.00	201	357	AV

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390	41.68	-0.16	41.52	54.00	12.48	228	106	AV
2	2390	52.86	-0.15	52.71	74.00	21.29	215	113	PK
3	2412	96.70	0.24	96.94	-	-	235	120	AV
4	2412	104.31	0.24	104.55	-	-	170	106	PK
5	4824	45.06	9.95	55.01	74.00	18.99	166	296	PK
6	4824	35.99	9.80	45.79	54.00	8.21	164	197	AV
7	7236	31.73	12.06	43.79	74.00	30.21	142	215	PK
8	7236	23.99	12.72	36.71	54.00	17.29	180	215	AV
9	9648	35.85	13.14	48.99	74.00	25.01	244	127	PK
10	9648	32.60	13.14	45.74	54.00	8.26	151	221	AV

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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Channel	802.11n20 CH 6	Frequency	<b>2437MH</b> z
Frequency Range	Above 1G	Detector Function	PK/AV

#### Horizontal

NO	Freq.	Reading	Factor	Level	Limit	Margin	Height	Angle	Detector
	[MHz]	[dBµV/m]	[dB]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]	Dotootoi
1	4874	44.90	10.04	54.94	74.00	19.06	218	222	PK
2	4874	36.06	10.16	46.22	54.00	7.78	175	39	AV
3	7311	23.04	12.81	35.85	54.00	18.15	192	87	AV
4	7311	30.72	12.48	43.20	74.00	30.80	179	26	PK
5	9748	24.61	13.23	37.84	54.00	16.16	229	276	AV
6	9748	30.49	13.24	43.73	74.00	30.27	215	60	PK

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4874	46.21	10.07	56.28	74.00	17.72	231	15	PK
2	4874	35.60	11.05	46.65	54.00	7.35	213	359	AV
3	7311	31.37	11.85	43.22	74.00	30.78	183	2	PK
4	7311	23.68	12.70	36.38	54.00	17.62	196	141	AV
5	9748	33.04	13.23	46.27	54.00	7.73	136	208	AV
6	9748	37.13	13.23	50.36	74.00	23.64	217	208	PK

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]



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Channel	802.11n20 CH 11	Frequency	2462MHz	
Frequency Range	Above 1G	Detector Function	PK/AV	

#### Horizontal

NO	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2462	94.04	0.57	94.61	-	-	197	166	AV
2	2462	101.67	0.60	102.27	-	-	223	214	PK
3	2483.5	55.70	0.51	56.21	74.00	17.79	150	222	PK
4	2483.5	42.51	0.53	43.04	54.00	10.96	227	160	AV
5	4924	45.65	9.92	55.57	74.00	18.43	228	358	PK
6	4924	35.70	10.68	46.38	54.00	7.62	199	102	AV
7	7386	23.48	12.77	36.25	54.00	17.75	229	236	AV
8	7386	31.30	12.32	43.62	74.00	30.38	208	61	PK
9	9848	31.67	13.23	44.90	74.00	29.10	205	277	PK
10	9848	25.61	13.23	38.84	54.00	15.16	220	277	AV

#### Vertical

NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/ m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2462	105.50	0.64	106.14	-	-	207	2	PK
2	2462	97.74	0.73	98.47	-	-	148	45	AV
3	2483.5	45.22	0.46	45.68	54.00	8.32	227	316	AV
4	2483.5	58.81	0.47	59.28	74.00	14.72	178	337	PK
5	4924	44.28	9.71	53.99	74.00	20.01	162	102	PK
6	4924	35.60	9.87	45.47	54.00	8.53	154	150	AV
7	7386	23.40	12.77	36.17	54.00	17.83	236	236	AV
8	7386	30.53	12.81	43.34	74.00	30.66	230	125	PK
9	9848	34.56	13.23	47.79	74.00	26.21	176	207	PK
10	9848	31.64	13.23	44.87	54.00	9.13	176	207	AV

- 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
- 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 4. Margin(dB) = Limit[dB $\mu$ V/m] Level [dB $\mu$ V/m]

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#### 3.3 6dB BANDWIDTH MEASUREMENT

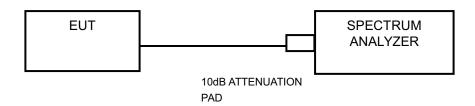
#### **3.3.1 Limits**

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

#### 3.3.2 Measurement procedure

- a. Set resolution bandwidth (RBW) = 100KHz
- b. Set the video bandwidth (VBW)  $\geq$  3 x RBW, Detector = Peak.
- c. Trace mode = max hold.
- d. Sweep = auto couple.
- e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 3.3.3 Test setup



#### 3.3.4 Test result

Please refer Annex A



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#### 3.4 CONDUCTED OUTPUT POWER

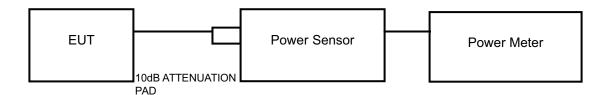
#### 3.4.1 Limits

Forsystems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm).

#### 3.4.2 Measurement procedure

- a. A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor and set the detector to PEAK. Record the power level.
- b. Anaverage power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power senso and set the detector to AVERAGE. Record the power level.

#### 3.4.3 Test setup



#### 3.4.4 Test result

Please refer Annex A.

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#### 3.5 POWER SPECTRAL DENSITY MEASUREMENT

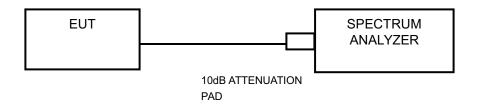
#### 3.5.1 **Limits**

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

#### 3.5.2 Measurement procedure

- a. Set instrument center frequency to DTS channel center frequency.
- b. Set the span to 1.5 times the DTS bandwidth.
- c. Set RBW to: 3KHz
- d. Set VBW ≥3 x RBW.
- e. Detector = peak
- f.Ensure that the number of measurement points in the sweep  $\geq 2 \times \text{span/RBW}$ .
- g. Sweep time = auto couple.
- h. Use the peak marker function to determine the maximum amplitude level.

#### 3.5.3 Test setup



#### 3.5.4 Test result

Please refer Annex A.

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#### 3.6 OUT OF BAND EMISSION MEASUREMENT

#### 3.6.1 Limits

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

#### 3.6.2 Measurement procedure

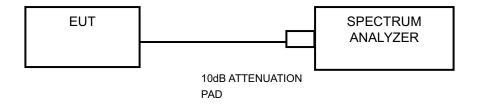
#### **Measurement Procedure -Reference Level**

- a. Set the RBW = 100 kHz.
- b. Set the VBW ≥ 300 kHz.
- c. Detector = peak.
- d. Sweep time = auto couple.
- e. Trace mode = max hold.
- f. Allow trace to fully stabilize.
- g. Use the peak marker function to determine the maximum power level in any 100 kHzband segment within the fundamental EBW.

#### Measurement Procedure - Unwanted Emission Level

- a. Set RBW = 100 kHz.
- b. Set VBW ≥ 300 kHz.
- c. Set span to encompass the spectrum to be examined
- d. Detector = peak.
- e. Trace Mode = max hold.
- f.Sweep = auto couple.

#### 3.6.3 Test setup



#### 3.6.4 Test result

Please refer Annex A.



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### 5 Appendix A

Please refer to the following pages for test results.

#### 5.1 6DB BANDWIDTH MEASUREMENT

#### 5.1.1 Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.640	2407.400	2417.040	0.5	PASS
	Ant2	2412	9.640	2407.400	2417.040	0.5	PASS
	Ant1	2437	10.160	2431.920	2442.080	0.5	PASS
	Ant2	2437	10.080	2431.960	2442.040	0.5	PASS
	Ant1	2462	9.200	2457.400	2466.600	0.5	PASS
	Ant2	2462	9.640	2456.960	2466.600	0.5	PASS
	Ant1	2412	16.400	2403.800	2420.200	0.5	PASS
	Ant2	2412	16.400	2403.800	2420.200	0.5	PASS
440	Ant1	2437	16.400	2428.800	2445.200	0.5	PASS
11G	Ant2	2437	16.400	2428.800	2445.200	0.5	PASS
	Ant1	2462	16.400	2453.800	2470.200	0.5	PASS
	Ant2	2462	16.400	2453.800	2470.200	0.5	PASS
11N20MIMO	Ant1	2412	17.400	2403.440	2420.840	0.5	PASS
	Ant2	2412	17.640	2403.200	2420.840	0.5	PASS
	Ant1	2437	17.640	2428.200	2445.840	0.5	PASS
	Ant2	2437	17.640	2428.200	2445.840	0.5	PASS
	Ant1	2462	17.640	2453.200	2470.840	0.5	PASS
	Ant2	2462	17.680	2453.160	2470.840	0.5	PASS

Test Report No.: FCC2021-0035-RF4 Page 35 of 84 5.1.2 Test Graphs 11B\_Ant1\_2412 Spectrum Ref Level 30.00 dBm
Att 40 dB
Count 100/100

1Pk: View 9.08 dBr 2.4125200 GH MI LEVELLE PARALLOS -30 d8m-X-value 2.4074 GHz 2.41252 GHz 9.64 MHz **Function Result** Date: 19.NOV.2021 13:15:08 11B\_Ant2\_2412 Ref Level 30.00 dB Offset 8.19 dB ■ RBW 100 kHz 8WT 56.9 µs ■ VBW 300 kHz Mode Auto FFT MI LEMEN JAMES 103 Type | Ref | Trc | Function **Function Result** 11B\_Ant1\_2437 M1[1] 4.23 dB 2,4319200 GH M2[1] -10 dB Date: 19.NOV.2021 13:22:31

Test Report No.: FCC2021-0035-RF4 Page 36 of 84 11B\_Ant2\_2437 Offset 8.28 dB • RBW 100 kHz SWT 56.9 µs • VBW 300 kHz Ref Level 30,00 dBm 1Pk View -0.85 dBm 2.4319600 GHz 5.42 dBm 2.4375200 GHz 20 dBm M2[1] when Jenera -20 dBr CF 2.437 GHz Type | Ref | Trc Function **Function Result** Date: 19.NOV.2021 13:40:17 11B Ant1 2462 Ref Level 30.00 dBm Offset 8.15 dB • RBW 100 kHz
Att 40 dB SWT 56.9 µs • VBW 300 kHz Mode Auto FFT Count 100/100 M1[1] 20 dBm M2[1] -20 dB -50 dBm -60 dBm CF 2.462 GH Type | Ref | Trc | Y-value -2.10 dBn **Function Result** Date: 19.NOV.2021 13:26:06 11B\_Ant2\_2462 MI Johnson Jahans Type | Ref | Trc | Y-value -0.27 d8m **Function Result** Date: 19.NOV.2021 13:43:08

Test Report No.: FCC2021-0035-RF4 Page 37 of 84 11G\_Ant1\_2412 00 dBm Offset 7.97 dB • RBW 100 kHz 40 dB SWT 56.9 µs • VBW 300 kHz Ref Level 30,00 dBm Att Count 100/100 1Pk View 2.4038000 GH 20 dBm 1.23 dBn 2.4195200 GH M2[1] The Markey responsible and water -10 dBm -20 dBm Much CF 2.412 GHz Type | Ref | Trc | Function **Function Result** Date: 19.NOV.2021 13:28:38 11G Ant2 2412 Ref Level 30.00 dBm Offset 8.19 dB • RBW 100 kHz
Att 40 dB SWT 56.9 µs • VBW 300 kHz Mode Auto FFT Count 100/100 20 dBm M2[1] -30 dBr -50 dBm -60 dBm CF 2.412 GHz Type | Ref | Trc | X-value 2.4038 GHz 2.41952 GHz 16.4 MHz Y-value -3.91 dBm 3.35 dBm 1.09 dB Function **Function Result** Date: 19.NOV.2021 13:45:28 11G\_Ant1\_2437 Count 100/100 -6.11 dBm 2.4288000 GHz 0.98 dBm 2.4445200 GHz M2[1] 01 -5.019 -10 dBm--60 dBm CF 2.437 GHz Type | Ref | Trc X-value 2.4288 GHz 2.44452 GHz 16.4 MHz Function **Function Result** 

Test Report No.: FCC2021-0035-RF4 Page 38 of 84 11G\_Ant2\_2437 00 dBm Offset 8.28 dB • RBW 100 kHz 40 dB SWT 56.9 µs • VBW 300 kHz Ref Level 30,00 dBm Att Count 100/100 1Pk View 2.4288000 GH 20 dBm 1.59 dBn 2.4445200 GH M2[1] 10 dBm -10 dBm -20 dBr CF 2.437 GHz Type | Ref | Trc | Function **Function Result** Date: 19.NOV.2021 13:50:01 11G Ant1 2462 Ref Level 30.00 dBm Offset 8.15 dB • RBW 100 kHz • Att 40 dB SWT 56.9 µs • VBW 300 kHz Mode Auto FFT • 1Pk View M1[1] 20 dBm M2[1] 01 -4.228 -20 dBr -40 dBm White Mary Mary -50 dBm -60 dBm CF 2.462 GHz Type | Ref | Trc | Function X-value 2.4538 GHz Y-value -5.65 dBn **Function Result** Date: 19.NOV.2021 13:32:51 11G\_Ant2\_2462 Spectrum -5.07 dBm 2.4538000 GHz 1.63 dBm M2[1] 2.4695200 GHz 10 dBm D1 -4,367 -10 dBm--50 dBm -60 d8m-CF 2.462 ( Type | Ref | Trc Function **Function Result** Date: 19.NOV.2021 13:52:50

Test Report No.: FCC2021-0035-RF4 Page 39 of 84 11N20MIMO Ant1 2412 Offset 7.97 dB ■ RBW 100 kHz SWT 56.9 µs ■ VBW 300 kHz Ref Level 30,00 dBm Att Count 100/100 1Pk View -6.73 dBm 2.4034400 GHz -0.65 dBm 2.4195200 GHz 20 dBm M2[1] CF 2.412 GHz Type | Ref | Trc Function **Function Result** Date: 19.NOV.2021 13:55:04 11N20MIMO Ant2 2412 Ref Level 30.00 dBm
Att 40 dB
Count 100/100

1Pk View 20 dBr M2[1] 10 dBm May he he wheel when per health when he who -10 dBm-20 dBm 30 dBm -50 dBm -60 dBn 1001 pts Type | Ref | Trc | Function **Function Result** 11N20MIMO\_Ant1\_2437 Spectrum Ref Level 30.00 dBm 00 dBm Offset 8.15 dB • RBW 100 kHz 40 dB SWT 56.9 µs • VBW 300 kHz -8.37 dBn M1[1] 2.4282000 GHz -1.98 dBm 2.4445200 GHz 20 dRm M2[1] 10 dBm-CF 2.437 GHz Type | Ref | Trc Function **Function Result** Date: 19.NOV.2021 14:31:52

Test Report No.: FCC2021-0035-RF4 Page 40 of 84 11N20MIMO Ant2 2437 Offset 8.28 dB • RBW 100 kHz SWT 56.9 µs • VBW 300 kHz Ref Level 30,00 dBm Att Count 100/100 1Pk View M1[1] 2.4282000 GHz -1.00 dBm 2.4445200 GHz 20 dBm M2[1] 10 dBm 01 -7.005 CF 2.437 GHz Type | Ref | Trc | Function **Function Result** Date: 19.NOV.2021 14:33:28 11N20MIMO Ant1 2462 Ref Level 30.00 dBm Offset 8.15 dB = RBW 100 kHz Att 40 dB SWT 56.9 µs = VBW 300 kHz Mode Auto FFT ● 1Pk View M1[1] 20 dBm M2[1] -30 dBr -50 dBm -60 dBm CF 2.462 GH Type | Ref | Trc | Function X-value 2.4532 GHz Y-value -7.89 dBn **Function Result** Date: 19.NOV.2021 14:35:00 11N20MIMO\_Ant2\_2462 Spectrum -8.08 dBm 2.4531600 GHz -1.00 dBm M2[1] 2.4695200 GHz 10 dBm D1 -6.999 -10 dBm -60 d8m-CF 2.462 G Type | Ref | Trc Function **Function Result** Date: 19.NOV.2021 14:36:47



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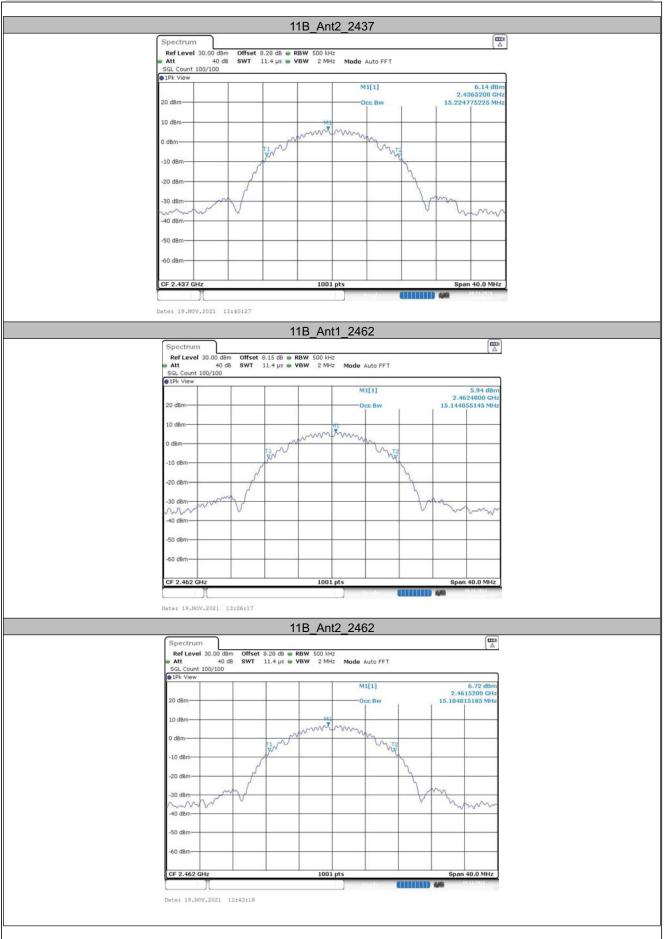
# 5.2 Occupied Channel Bandwidth 5.2.1 Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
	Ant1	2412	15.225	2404.408	2419.632		PASS
	Ant2	2412	15.105	2404.488	2419.592		PASS
140	Ant1	2437	15.265	2429.368	2444.632		PASS
11B	Ant2	2437	15.225	2429.448	2444.672		PASS
	Ant1	2462	15.145	2454.448	2469.592		PASS
	Ant2	2462	15.185	2454.408	2469.592		PASS
	Ant1	2412	17.103	2403.528	2420.631		PASS
	Ant2	2412	17.622	2403.009	2420.631		PASS
110	Ant1	2437	17.063	2428.369	2445.432		PASS
11G	Ant2	2437	16.903	2428.648	2445.551		PASS
	Ant1	2462	17.023	2453.369	2470.392		PASS
	Ant2	2462	16.943	2453.489	2470.432		PASS
	Ant1	2412	18.182	2402.769	2420.951		PASS
	Ant2	2412	18.422	2402.969	2421.391		PASS
11N20MIMO	Ant1	2437	18.501	2427.609	2446.111		PASS
	Ant2	2437	18.182	2428.009	2446.191		PASS
	Ant1	2462	18.142	2452.809	2470.951		PASS
	Ant2	2462	18.062	2452.929	2470.991		PASS

Test Report No.: FCC2021-0035-RF4 Page 42 of 84 5.2.2 Test Graphs 11B\_Ant1\_2412 9,81 dBn 2,4124800 GHz 15,224775225 MHz Date: 19.NOV.2021 13:15:18 11B Ant2 2412 | Spectrum | Ref Level 30.00 d8m | Offset 8.19 d8 = RBW | S00 kHz | M140 d8 | SWT | 11.4 µs = VBW | 2 MHz | Mode | Auto FFT | SGL Count 100/100 6.69 dBn 2.4124800 GH: 15.104895105 more Date: 19.NOV.2021 13:35:24 11B\_Ant1\_2437 Ref Level 30.00 dBm
Att 40 dB
SGL Count 100/100

1Pk View Offset 8.15 dB • RBW 500 kHz SWT 11.4 µs • VBW 2 MHz Mode Auto FFT -60 dBm

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11G\_Ant1\_2412

Spectrum
Ref Level 30.00 dbm Offset 7.97 db @ RBW 500 kHz
Att 40 db SWT 11.4 µs @ VBW 2 MHz Mode Auto FFT



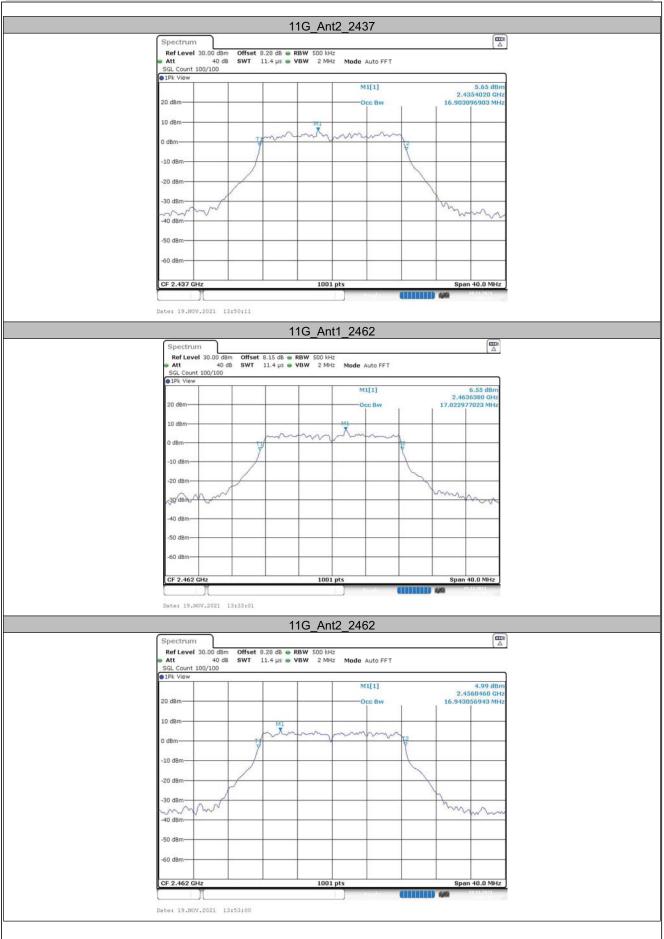




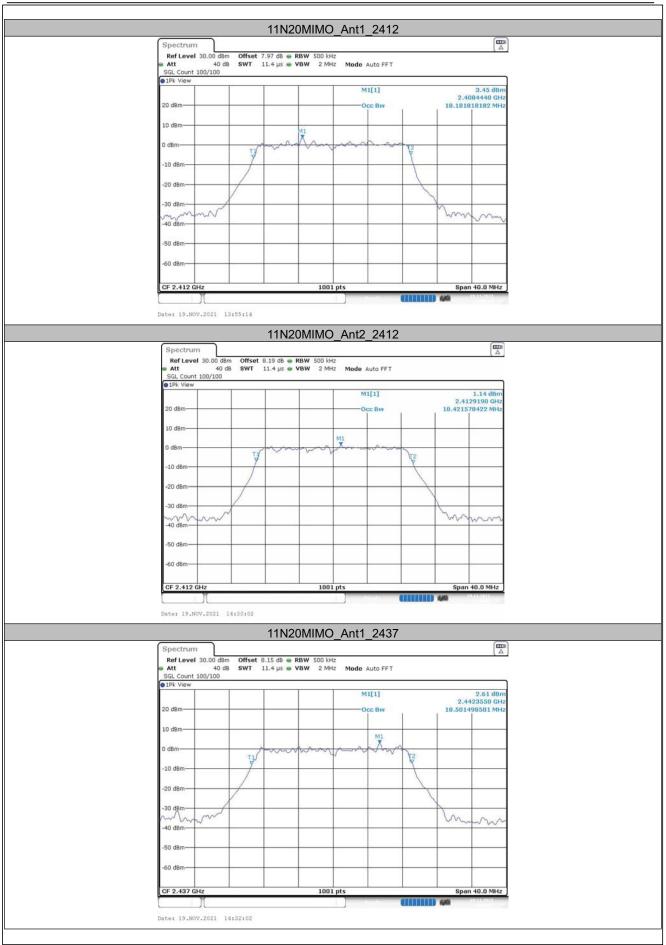
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LTC-R-7069-FCC15.247-A0

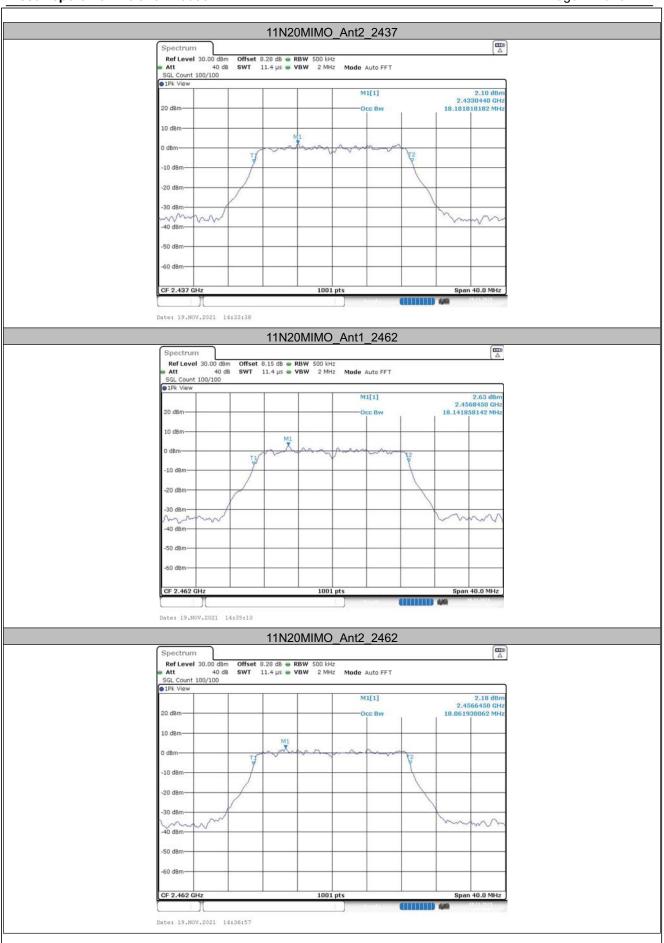
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#### 5.3 CONDUCTED OUTPUT POWER

5.3.1 Test Result

#### AVG:

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
	Ant1	2412	18.49	≤30	PASS
	Ant2	2412	18.48	≤30	PASS
110	Ant1	2437	17.90	≤30	PASS
11B	Ant2	2437	18.26	≤30	PASS
	Ant1	2462	18.23	≤30	PASS
	Ant2	2462	18.09	≤30	PASS
	Ant1	2412	15.67	≤30	PASS
	Ant2	2412	15.34	≤30	PASS
110	Ant1	2437	15.21	≤30	PASS
11G	Ant2	2437	15.13	≤30	PASS
	Ant1	2462	15.83	≤30	PASS
	Ant2	2462	15.09	≤30	PASS
	Ant1	2412	14.61	≤30	PASS
	Ant2	2412	14.91	≤30	PASS
4481	total	2412	17.77	≤30	PASS
11N	Ant1	2437	14.91	≤30	PASS
	Ant2	2437	15.53	≤30	PASS
	total	2437	18.24	≤30	PASS
	Ant1	2462	15.30	≤30	PASS
11N	Ant2	2462	15.45	≤30	PASS
	total	2462	18.39	≤30	PASS

#### PK:

1 11.					
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
	Ant1	2412	19.59	≤30	PASS
	Ant2	2412	19.74	≤30	PASS
44D	Ant1	2437	19.22	≤30	PASS
11B	Ant2	2437	19.74	≤30	PASS
	Ant1	2462	19.43	≤30	PASS
	Ant2	2462	19.41	≤30	PASS
	Ant1	2412	20.81	≤30	PASS
	Ant2	2412	21.04	≤30	PASS
11G	Ant1	2437	20.75	≤30	PASS
IIG	Ant2	2437	21.05	≤30	PASS
	Ant1	2462	21.47	≤30	PASS
	Ant2	2462	20.84	≤30	PASS
	Ant1	2412	20.09	≤30	PASS
	Ant2	2412	20.57	≤30	PASS
	total	2412	23.30	≤30	PASS
	Ant1	2437	20.82	≤30	PASS
11N20MIMO	Ant2	2437	21.70	≤30	PASS
	total	2437	24.30	≤30	PASS
	Ant1	2462	21.56	≤30	PASS
	Ant2	2462	21.16	≤30	PASS
	total	2462	24.40	≤30	PASS



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# 5.4 POWER SPECTRAL DENSITY MEASUREMENT 5.4.1 Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
	Ant1	2412	2.20	≤8	PASS
	Ant2	2412	2.32	≤8	PASS
11D	Ant1	2437	1.63	≤8	PASS
11B	Ant2	2437	2.15	≤8	PASS
	Ant1	2462	2.12	≤8	PASS
	Ant2	2462	2.01	≤8	PASS
	Ant1	2412	-13.63	≤8	PASS
	Ant2	2412	-13.47	≤8	PASS
11G	Ant1	2437	-13.75	≤8	PASS
IIG	Ant2	2437	-13.26	≤8	PASS
	Ant1	2462	-12.77	≤8	PASS
	Ant2	2462	-13.66	≤8	PASS
	Ant1	2412	-14.03	≤8	PASS
	Ant2	2412	-13.17	≤8	PASS
	total	2412	-10.57	≤8	PASS
	Ant1	2437	-13.02	≤8	PASS
11N20MIMO	Ant2	2437	-12.66	≤8	PASS
	total	2437	-9.83	≤8	PASS
	Ant1	2462	-12.93	≤8	PASS
	Ant2	2462	-12.79	≤8	PASS
	total	2462	-9.85	≤8	PASS



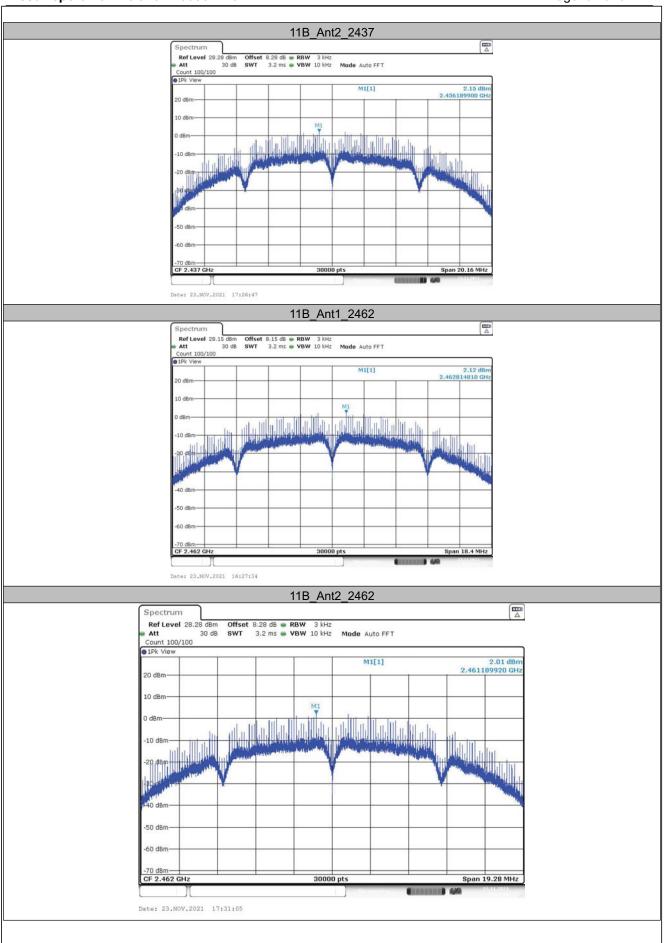
Test Report No.: FCC2021-0035-RF5 Page 50 of 84 5.4.2 Test Graphs 11B\_Ant1\_2412 
 Ref Level
 27.97 dBm
 Offset
 7.97 dB ■ RBW
 3 kHz

 Att
 30 dB
 SWT
 3.2 ms
 VBW
 10 kHz
 Mode
 Auto FFT
 11B\_Ant2\_2412 2.412815220 G Date: 23,NOV.2021 17:23:59 11B\_Ant1\_2437 Ref Level 28.15 dBm Offset 8.15 dB • RBW 3 kHz

Att 30 dB SWT 3.2 ms • VBW 10 kHz Mode Auto FFT 2.437814490 GH 30000 pts Date: 23.NOV.2021 16:21:55

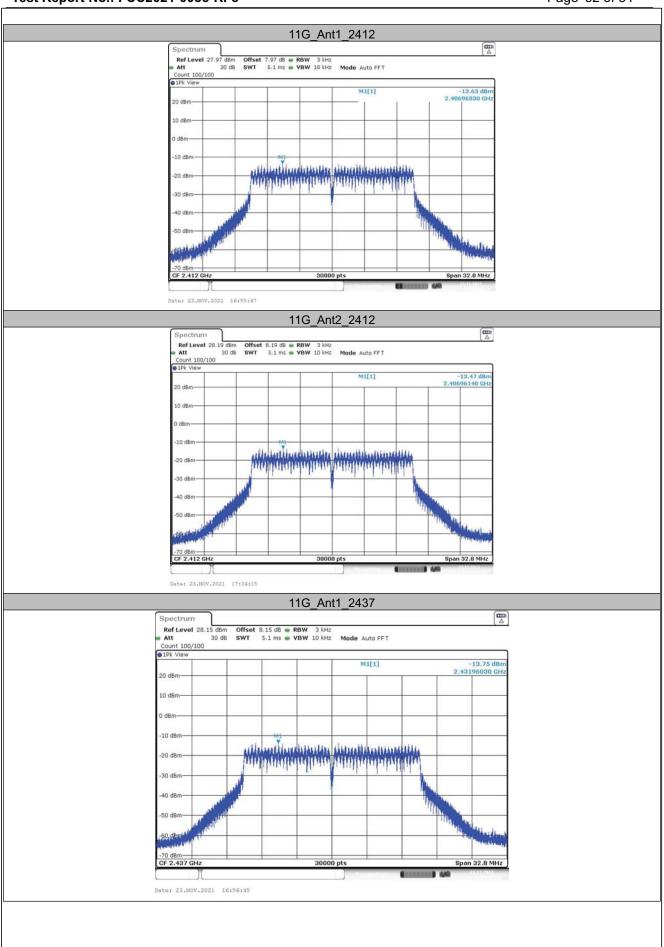


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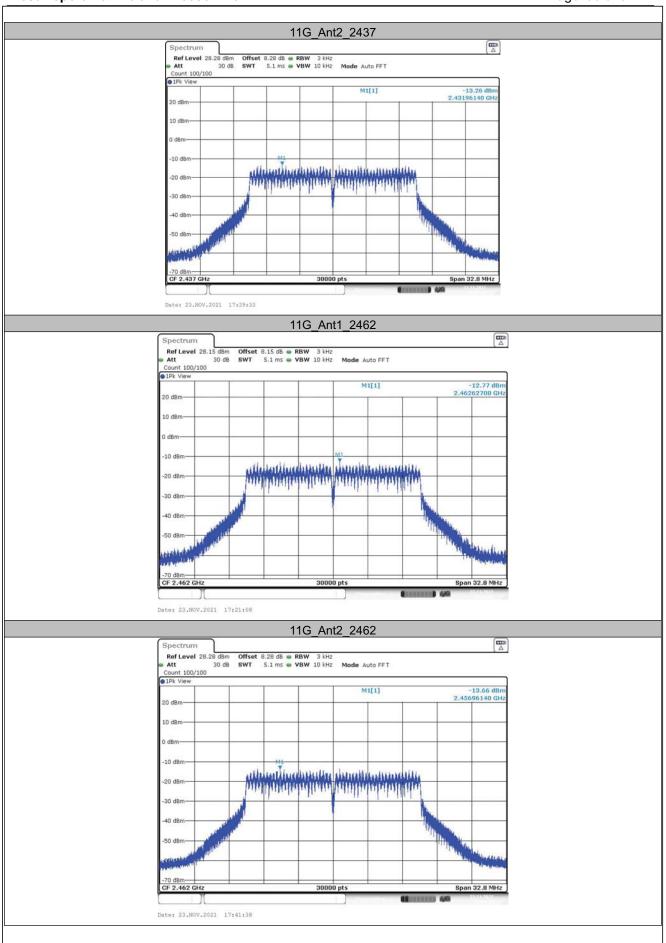


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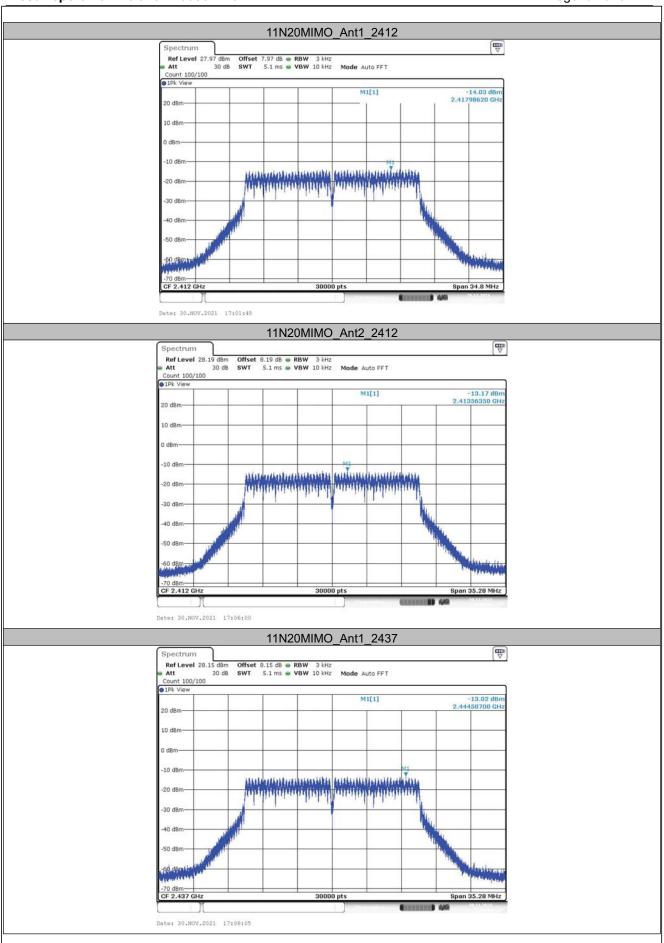


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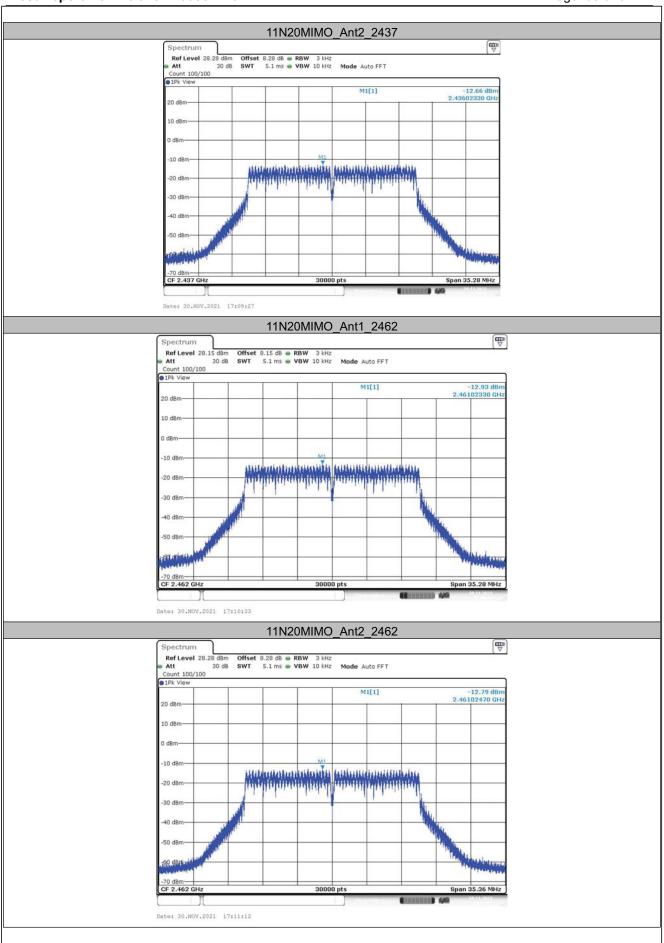




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## 5.5 Band edge measurements 5.5.1 Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
	Ant1	Low	2412	4.63	-31.74	≤-25.37	PASS
11B	Ant2	Low	2412	4.95	-31.58	≤-25.05	PASS
IID	Ant1	High	2462	4.54	-43.54	≤-25.46	PASS
	Ant2	High	2462	5.74	-47.57	≤-24.26	PASS
	Ant1	Low	2412	1.33	-33.78	≤-28.67	PASS
110	Ant2	Low	2412	0.51	-37.73	≤-29.49	PASS
11G	Ant1	High	2462	1.93	-40.71	≤-28.07	PASS
	Ant2	High	2462	1.25	-47.38	≤-28.75	PASS
	Ant1	Low	2412	-2.12	-39.13	≤-32.12	PASS
11N20MIMO	Ant2	Low	2412	-1.96	-38.88	≤-31.96	PASS
	Ant1	High	2462	-1.52	-44.87	≤-31.52	PASS
	Ant2	High	2462	-1.48	-47.51	≤-31.48	PASS



Test Report No.: FCC2021-0035-RF5 Page 57 of 84 5.5.2 Test Graphs 11B\_Ant1\_Low\_2412 Spectrum 
 Ref Level
 20.00 dBm
 Offset
 7.97 dB
 RBW
 100 kHz

 Att
 30 dB
 SWT
 151.7 μs
 VBW
 300 kHz

 Count 300/300
 Mode Auto FFT 4.63 dBm 2.412600 GHz -33.28 dBm M2[1] -60 dBm--70 dBm-Start 2.3 GHz Y-value 4.63 dBm -33.28 dBm -49.80 dBm -31.74 dBm Type | Ref | Trc **Function Result** 11B\_Ant2\_Low\_2412 Ref Level 20,00 dBm 1Pk View 4.95 dBm M2.412600 GHz -32.36 dBm M1[1] 10 dBm M2[1] 0 dBm -10 dBm 01 -25.050 -30 dBm--40 dBm 50 dBm -60 dBm -70 dBm Start 2.3 GHz Stop 2.43 GHz 691 pts Marker Type | Ref | Trc Function Function Result Date: 19.NOV.2021 13:38:34



Test Report No.: FCC2021-0035-RF5 Page 58 of 84 11B\_Ant1\_High\_2462 Offset 8.15 dB • RBW 100 kHz SWT 132.7 µs • VBW 300 kHz Ref Level 20.00 dBm 1Pk View 4.54 dBm 2.463000 GHz -43.54 dBm 2.483500 GHz M1[1] 10 dBm-M2[1] 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -70 dBm Start 2.44 GHz Marker Type | Ref | Trc Y-value Function

4.54 dBm

-43.54 dBm

-51.37 dBm

-43.54 dBm **Function Result** Date: 19.NOV.2021 13:27:19 11B\_Ant2\_High\_2462 Spectrum Ref Level 20.00 dBm Offset 8.28 dB = RBW 100 kHz Att 30 dB SWT 132.7 µs = VBW 300 kHz Mode Auto FFT 5.74 dBm 2.461570 GHz -49.34 dBm 2.483500 GHz M2[1] 01 -24.260 -50 dBr -60 dBm Type | Ref | Trc X-value 2.46157 GHz 2.4835 GHz 2.5 GHz 2.484478 GHz **Function Result** Date: 19.NOV.2021 13:44:21



Test Report No.: FCC2021-0035-RF5 Page 59 of 84 11G\_Ant1\_Low\_2412 Offset 7.97 dB • RBW 100 kHz SWT 151.7 µs • VBW 300 kHz Ref Level 20.00 dBm 1Pk View 1.33 dBm 2.419560 GHz -3\$;06 dBm 2.400000 GHz M1[1] 10 dBm-M2[1] 0 dBm -10 dBm--20 dBm--30 dBm--40 dBm -70 dBm-Start 2.3 GHz Marker Type | Ref | Trc Y-value Function

1.33 dBm

-35.06 dBm

-49.23 dBm

-33.78 dBm **Function Result** Date: 19.NOV.2021 13:29:23 11G Ant2 Low 2412 Spectrum Ref Level 20.00 dBm Offset 8.19 dB = RBW 100 kHz Att 30 dB SWT 151.7 µs = VBW 300 kHz Mode Auto FFT 0.51 dBm 2.405820 GHz M1 -36.45 dBm 2.400000 GHz M2[1] -60 dBm Type | Ref | Trc **Function Result** Date: 19.NOV.2021 13:48:40



Test Report No.: FCC2021-0035-RF5 Page 60 of 84 11G\_Ant1\_High\_2462 Ref Level 20.00 dBm 1Pk View M1[1] 1.93 dBm 2.464440 GHz -41.45 dBm 2.483500 GHz 10 dBm-M2[1] white house 0 dBm -10 dBm -30 dBm D1 -28.070 Whyrog -50 dBm -60 dBm -70 dBm-Start 2.44 GHz 691 pts Marker Type | Ref | Trc Y-value 1.93 dBm -41.45 dBm -51.69 dBm -40.71 dBm Function Function Result Date: 19.NOV.2021 13:33:44 11G\_Ant2\_High\_2462 Spectrum 1.25 dBm 2.454570 GHz -47.38 dBm 2.483500 GHz M2[1] -50 dBm -60 dBm -70 dBm Type | Ref | Trc X-value 2.45457 GHz 2.4835 GHz 2.5 GHz 2.483522 GHz **Function Result** Date: 19.NOV.2021 13:53:43



Test Report No.: FCC2021-0035-RF5 Page 61 of 84 11N20MIMO\_Ant1\_Low\_2412 Offset 7.97 dB • RBW 100 kHz SWT 151.7 µs • VBW 300 kHz Ref Level 20,00 dBm 1Pk View M1[1] -2.12 dBm 2.405820 GHz -37.53 dBm 2.400000 GHz 10 dBm-M2[1] 0 dBm Muliula -10 dBm--20 dBm--30 dBm-D1 -32.120 -40 dBm sa dam -60 dBm -70 dBm-Start 2.3 GHz 691 pts Marker Type | Ref | Trc Y-value Function
-2.12 dBm
-37.53 dBm
-50.12 dBm
-39.13 dBm **Function Result** Date: 19.NOV.2021 14:28:42 11N20MIMO Ant2 Low 2412 Spectrum Ref Level 20.00 dBm Offset 8.19 dB = RBW 100 kHz Att 30 dB SWT 151.7 µs = VBW 300 kHz Mode Auto FFT Count 300/300 M2[1] M1 2.4m -60 dBm Type | Ref | Trc **Function Result** Date: 19.NOV.2021 14:30:23



Test Report No.: FCC2021-0035-RF5 Page 62 of 84 11N20MIMO\_Ant1\_High\_2462 Offset 8.15 dB • RBW 100 kHz SWT 132.7 µs • VBW 300 kHz Ref Level 20,00 dBm 1Pk View M1[1] -1.52 dBm 2.456950 GHz -46.63 dBm 2.483500 GHz 10 dBm-M2[1] 0 dBm helph hille -10 dBm--20 dBm -30 dBm--40 dBm Wenny ! -60 dBm--70 dBm-Start 2.44 GHz Marker Type | Ref | Trc Y-value Function
-1.52 dBm
-46.63 dBm
-50.70 dBm
-44.87 dBm **Function Result** Date: 19.NOV.2021 14:35:29 11N20MIMO Ant2 High 2462 Spectrum -1.48 dBm 2.456950 GHz -48.80 dBm 2.483500 GHz M2[1] will will 01 -31.4 -50 dBm -60 dBm 691 pts Type | Ref | Trc X-value 2.45695 GHz 2.4835 GHz 2.5 GHz 2.52258 GHz **Function Result** Date: 19.NOV.2021 14:37:17



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# 5.6 OUT OF BAND EMISSION MEASUREMENT 5.6.1 Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
			Reference	4.36	4.36	[dDili]	PASS
	Ant1	2412	30~1000	4.36	-60.14	≤-25.64	PASS
	Anti	2712	1000~26500	4.36	-48.98	≤-25.64	PASS
			Reference	4.85	4.85	Z0.0 <del>-</del>	PASS
	Ant2	2412	30~1000	4.85	-59.66	≤-25.15	PASS
	Anz	2712	1000~26500	4.85	-48.69	≤-25.15	PASS
			Reference	4.43	4.43	<u></u>	PASS
	Ant1	2437	30~1000	4.43	-59.22	≤-25.57	PASS
	Anti	2437	1000~26500	4.43	-49.11	≤-25.57	PASS
11B			Reference	5.15	5.15	<u></u>	PASS
	Ant2	2437	30~1000	5.15	-59.68	≤-24.85	PASS
	Anz	2437	1000~26500	5.15	-48.65	≤-24.85	PASS
			Reference	5.05	5.05	<u></u>	PASS
	Ant1	2462	30~1000	5.05	-58.93	≤-24.95	PASS
	7 (1)(1)	2402	1000~26500	5.05	-44.85	≤-24.95	PASS
		2462	Reference	5.70	5.70	<u></u>	PASS
	Ant2		30~1000	5.70	-59.31	≤-24.3	PASS
	Anz		1000~26500	5.70	-48.69	≤-24.3	PASS
		2412	Reference	0.88	0.88	= ZT.0	PASS
	Ant1		30~1000	0.88	-59.65	≤-29.12	
			1000~26500	0.88	-48.99	≤-29.12	
	Ant2	2412	Reference	0.35	0.35		
			30~1000	0.35	-60.1	≤-29.65	
	7 (11)2	2112	1000~26500	0.35	-48.39	≤-29.65	PASS
			Reference	1.09	1.09		PASS
	Ant1	2437	30~1000	1.09	-60.12	≤-28.91	PASS
	7		1000~26500	1.09	-48.06	≤-28.91	PASS
11G			Reference	1.01	1.01		PASS
	Ant2	2437	30~1000	1.01	-59.48	≤-28.99	PASS
	7	2.07	1000~26500	1.01	-48.45	≤-28.99	PASS
			Reference	2.00	2.00		PASS
	Ant1	2462	30~1000	2.00	-59.65	≤-28	PASS
	,	2702	1000~26500	2.00	-44.9	≤-28	PASS
			Reference	1.95	1.95		PASS
	Ant2	2462	30~1000	1.95	-59.48	≤-28.05	PASS
			1000~26500	1.95	-48.19	≤-28.05	PASS



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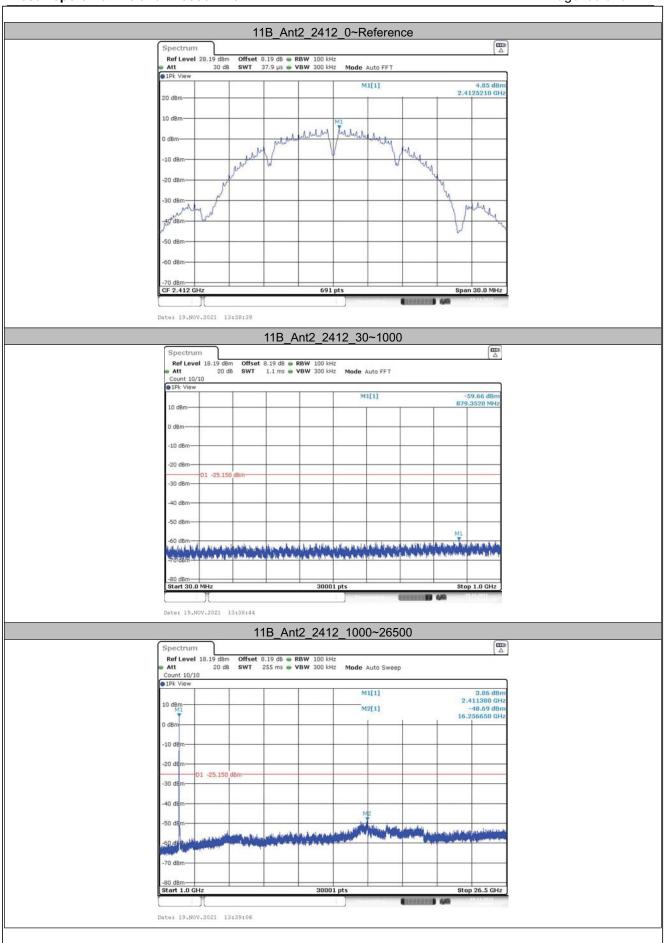
			Deference	1.62	1.60		DACC
			Reference	-1.63	-1.63		PASS
	Ant1	2412	30~1000	-1.63	-60.43	≤-31.63	PASS
			1000~26500	-1.63	-49.62	≤-31.63	PASS
			Reference	-1.61	-1.61		PASS
	Ant2	2412	30~1000	-1.61	-60.02	≤-31.61	PASS
			1000~26500	-1.61	-48.2	≤-31.61	PASS
			Reference	-2.24	-2.24		PASS
	Ant1	2437	30~1000	-2.24	-59.53	≤-32.24	PASS
441100141140			1000~26500	-2.24	-49.05	≤-32.24	PASS
11N20MIMO	Ant2	2437	Reference	-0.89	-0.89		PASS
			30~1000	-0.89	-59.42	≤-30.89	PASS
			1000~26500	-0.89	-48.78	≤-30.89	PASS
			Reference	-1.50	-1.50		PASS
	Ant1	2462	30~1000	-1.50	-59.1	≤-31.5	PASS
			1000~26500	-1.50	-47.58	≤-31.5	PASS
		2462	Reference	-1.14	-1.14		PASS
	Ant2		30~1000	-1.14	-58.53	≤-31.14	PASS
			1000~26500	-1.14	-48.76	≤-31.14	PASS

Test Report No.: FCC2021-0035-RF5 Page 65 of 84 5.6.2 Test Graphs 11B\_Ant1\_2412\_0~Reference 7 dBm Offset 7.97 dB = RBW 100 kHz 30 dB SWT 37.9 µs = VBW 300 kHz Mode Auto FFT Ref Level 27.97 dBm Milula Date: 19.NOV.2021 13:21:19 11B\_Ant1\_2412\_30~1000 
 Ref Level
 17.97 dBm
 Offset
 7.97 dB
 ■ RBW
 100 kHz

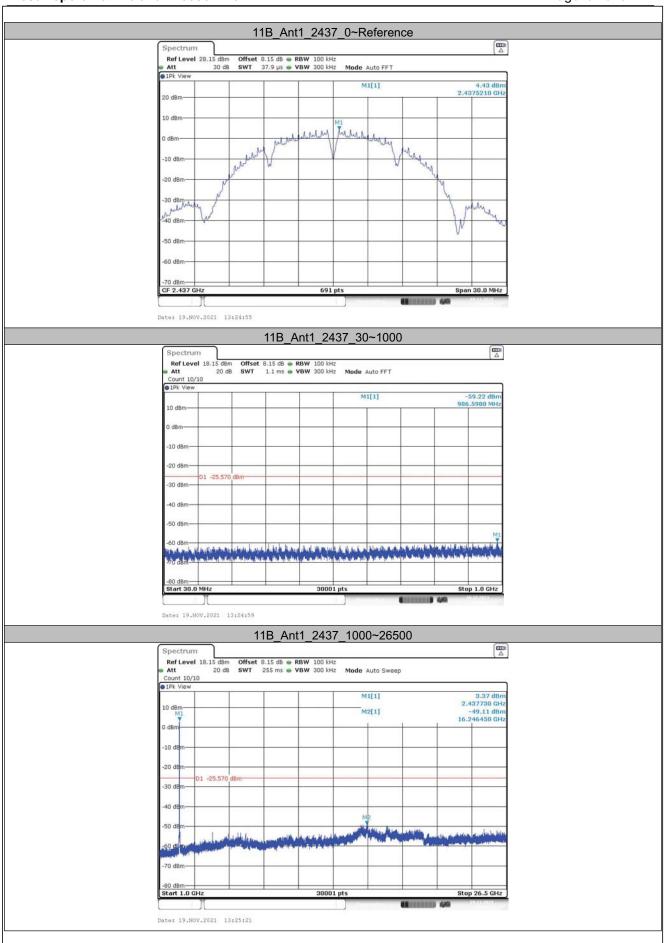
 Att
 20 dB
 SWT
 1.1 ms
 ■ VBW
 300 kHz
 Mode
 Auto FFT
 M1[1] -60.14 dB 972.0490 MF Date: 19.NOV.2021 13:21:24 11B\_Ant1\_2412\_1000~26500 
 Ref Level
 17.97 dBm
 Offset
 7.97 dB end
 RBW
 100 kHz

 Att
 20 dB
 SWT
 255 ms
 VBW
 300 kHz
 Mode
 Auto Sweep
 Count 10/10 M2[1] 01 -25.640 70 dBm Stop 26.5 GHz art 1.0 GHz

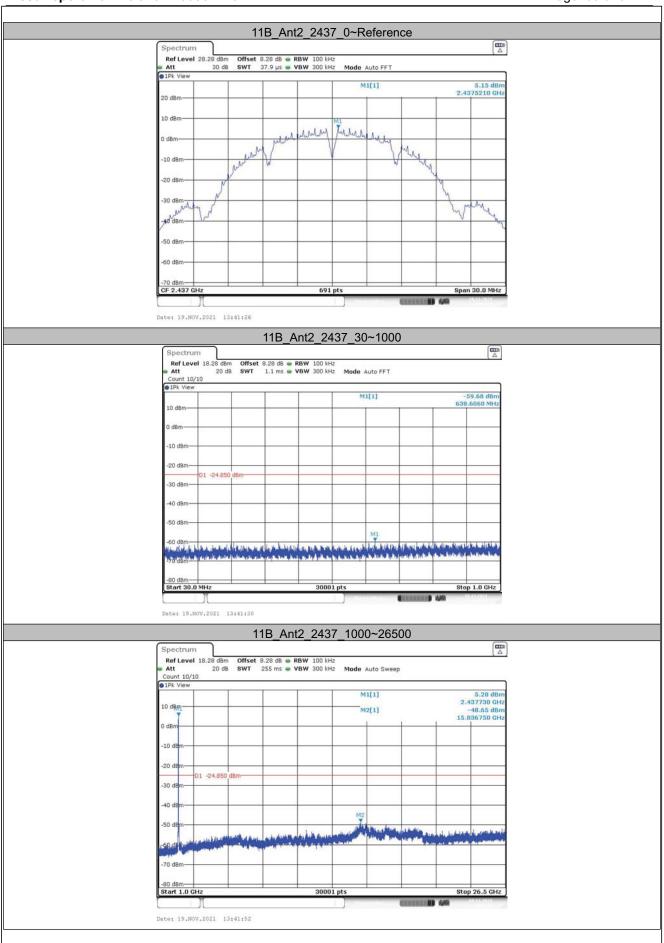
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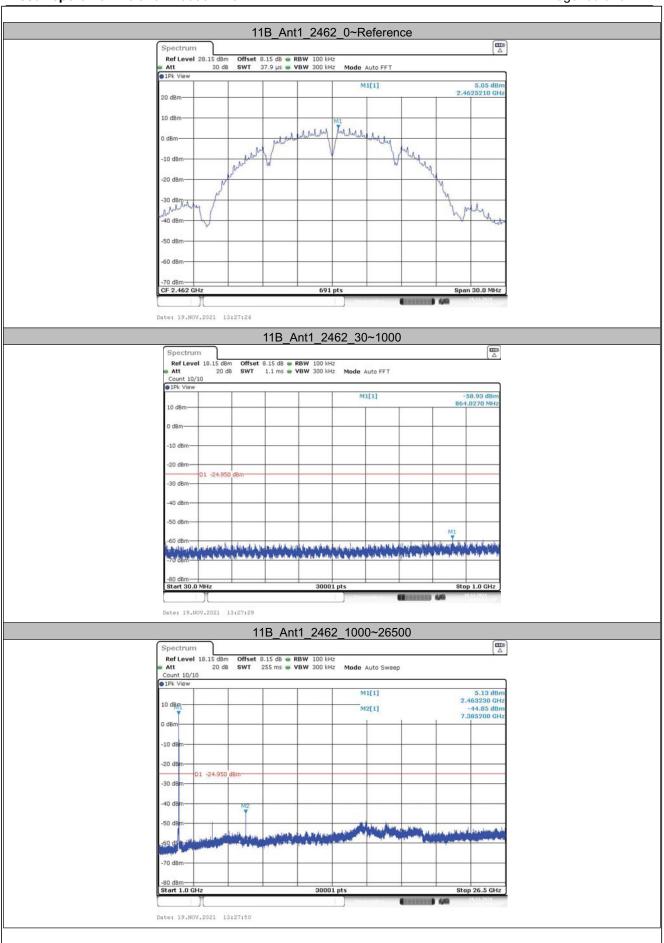
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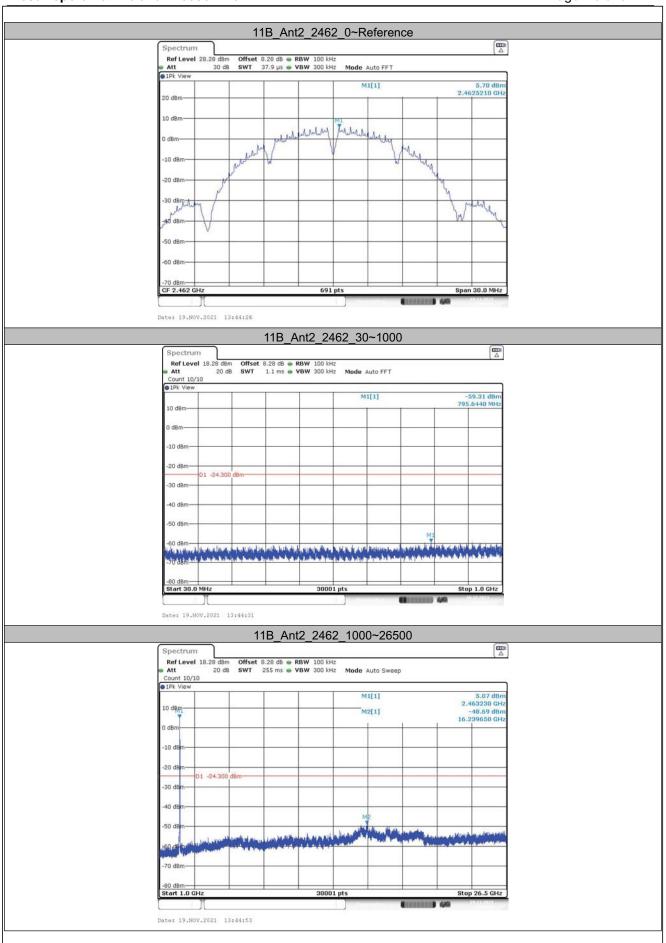
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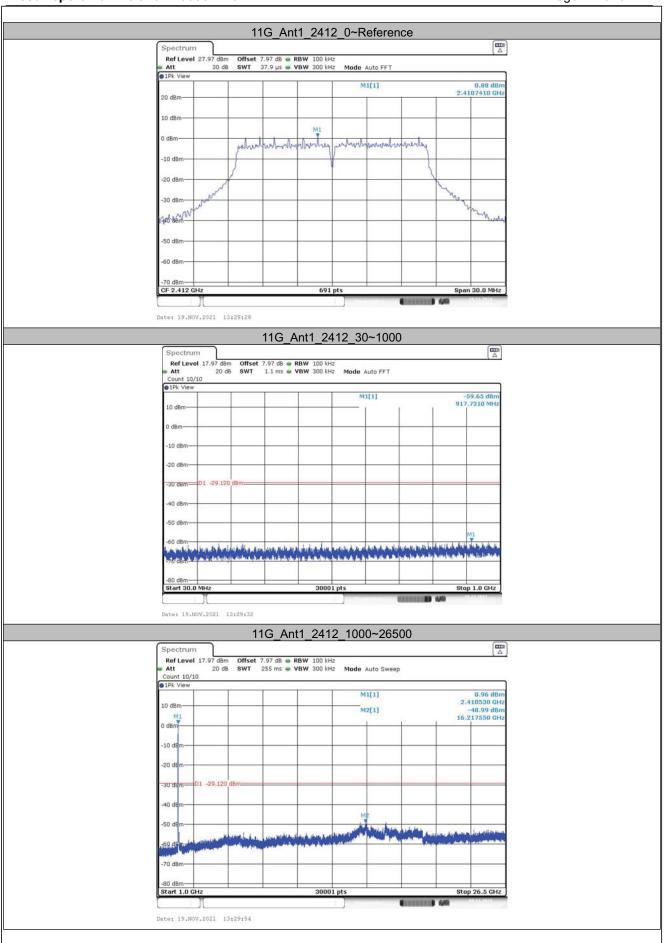
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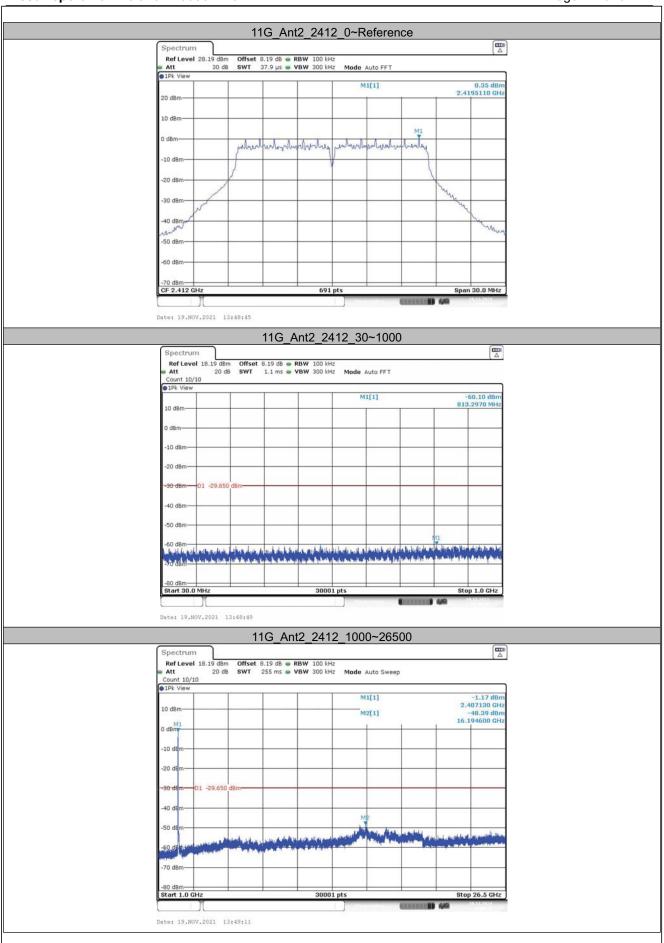
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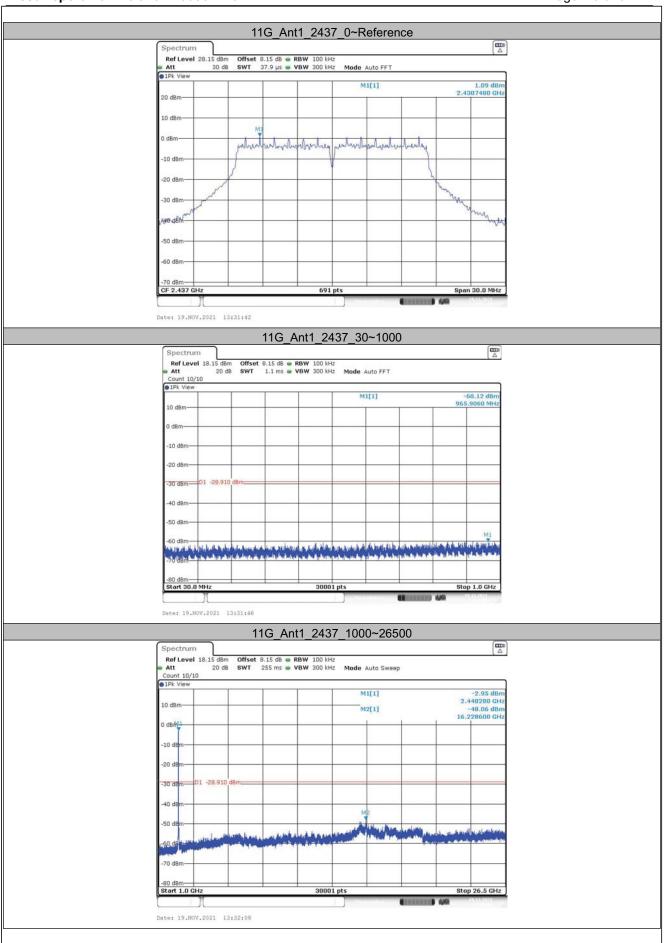
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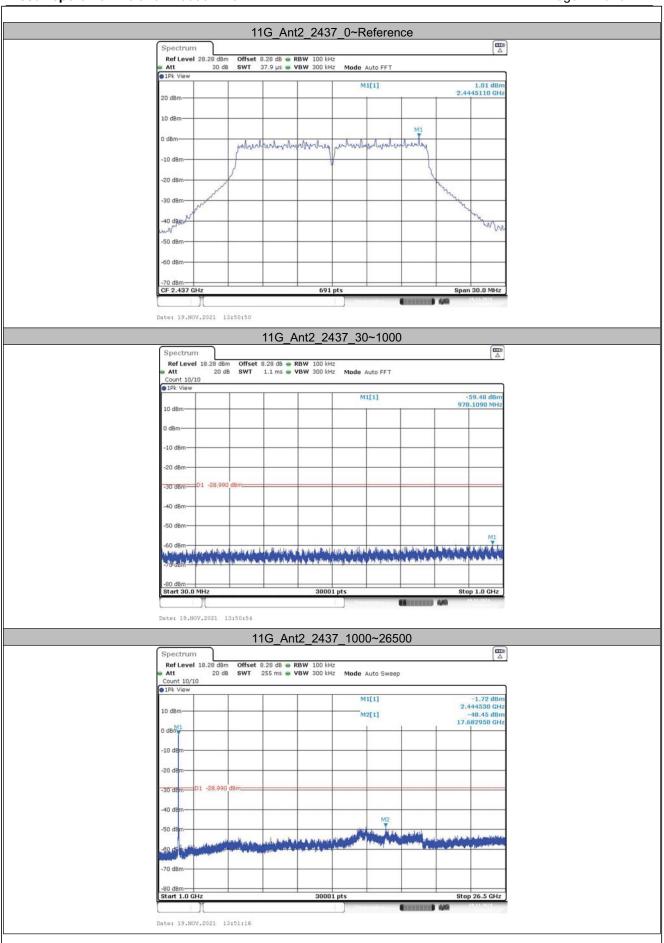
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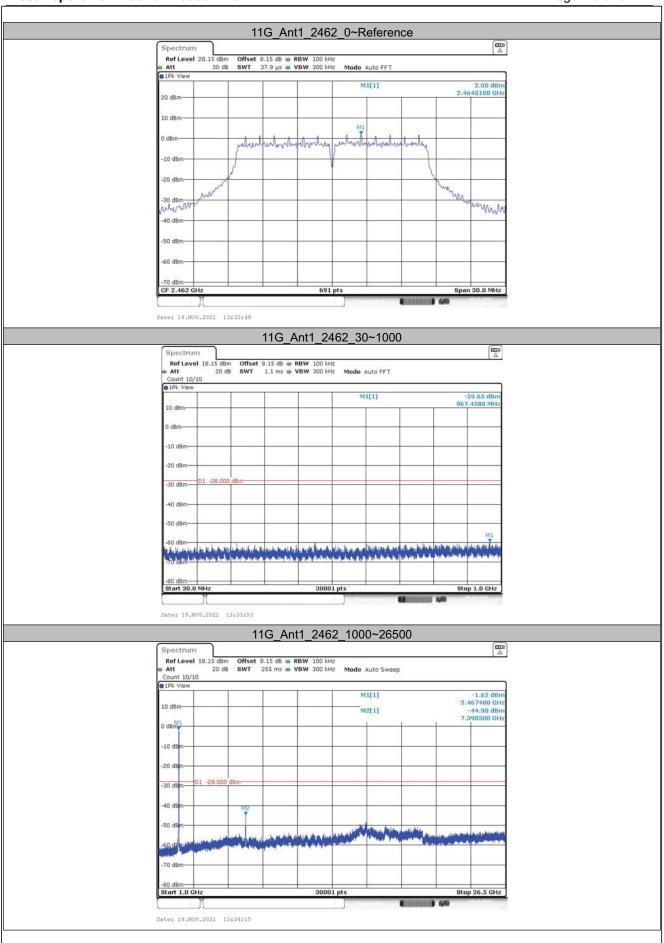
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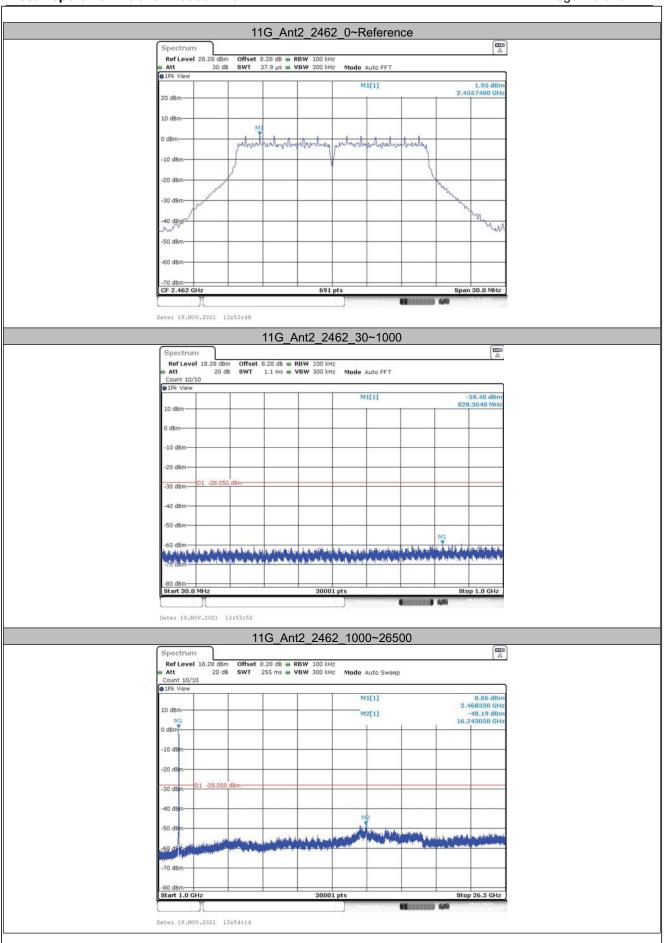
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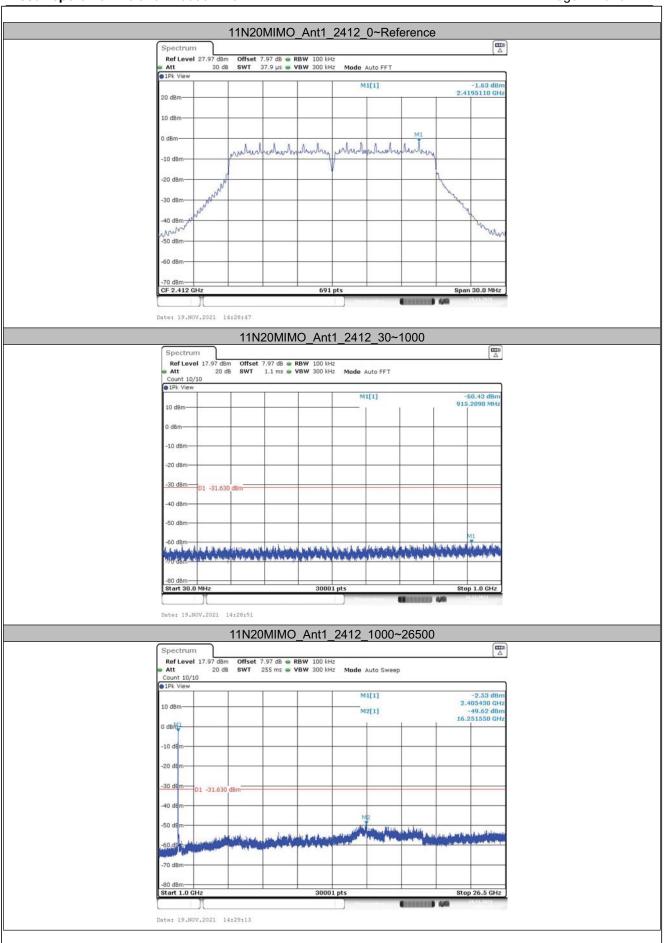
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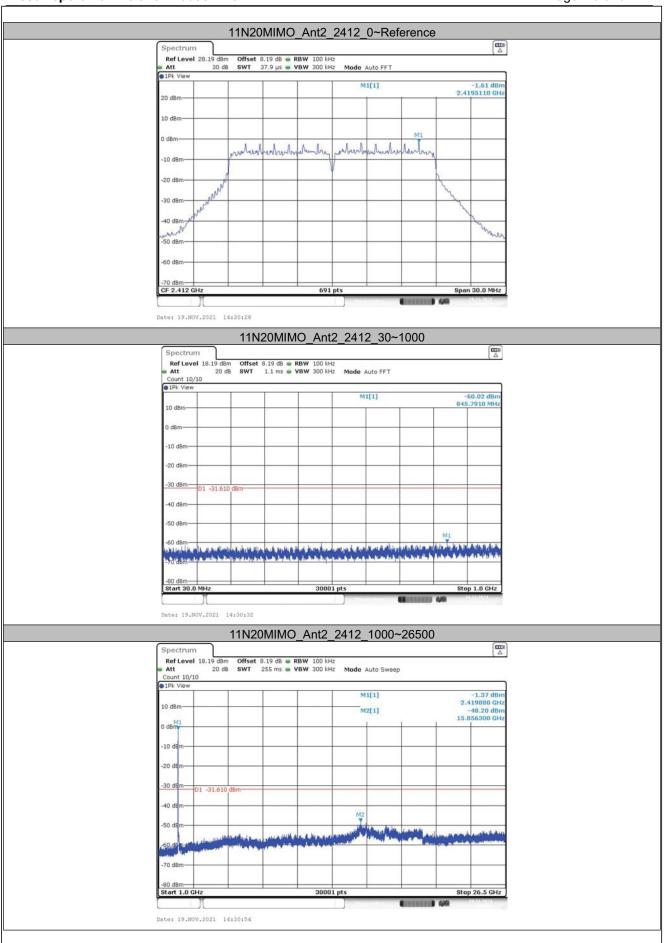
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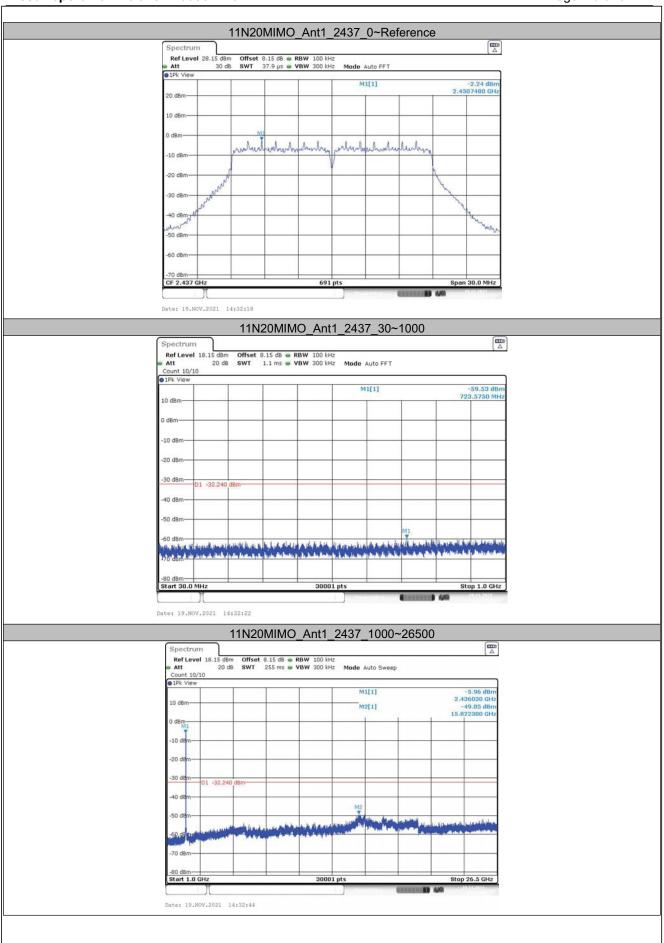
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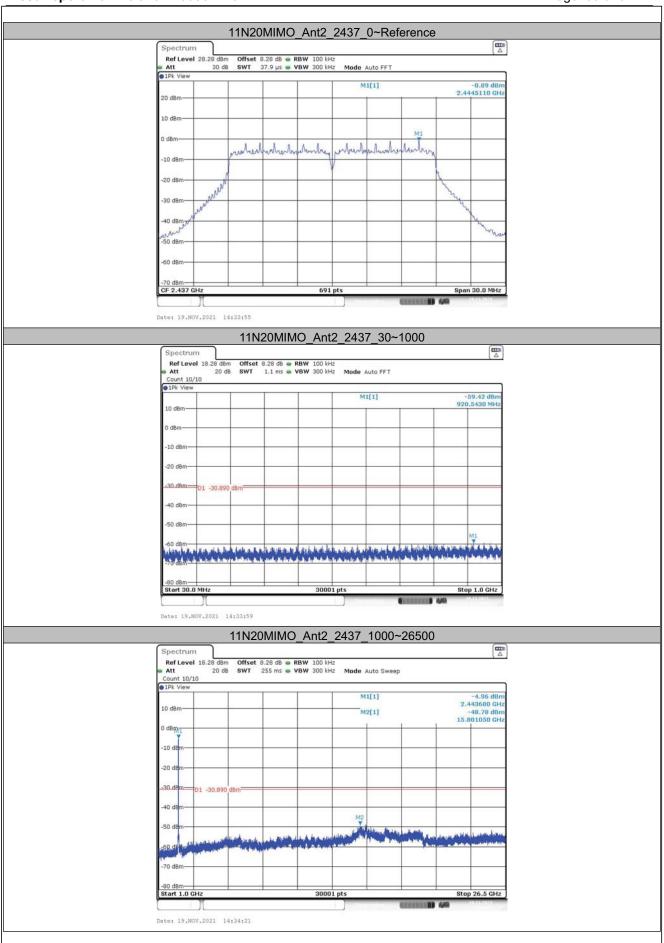
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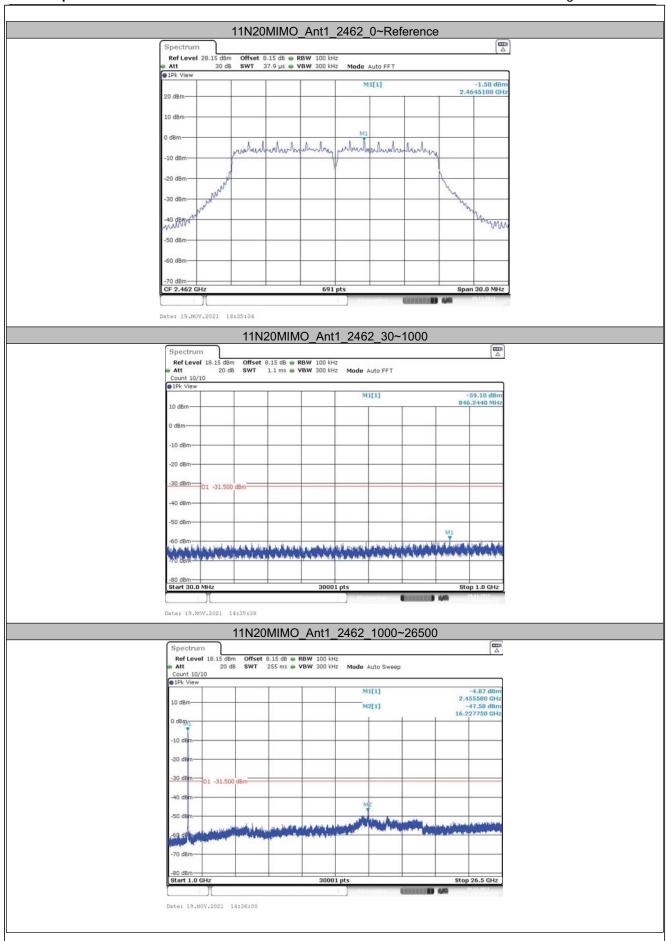
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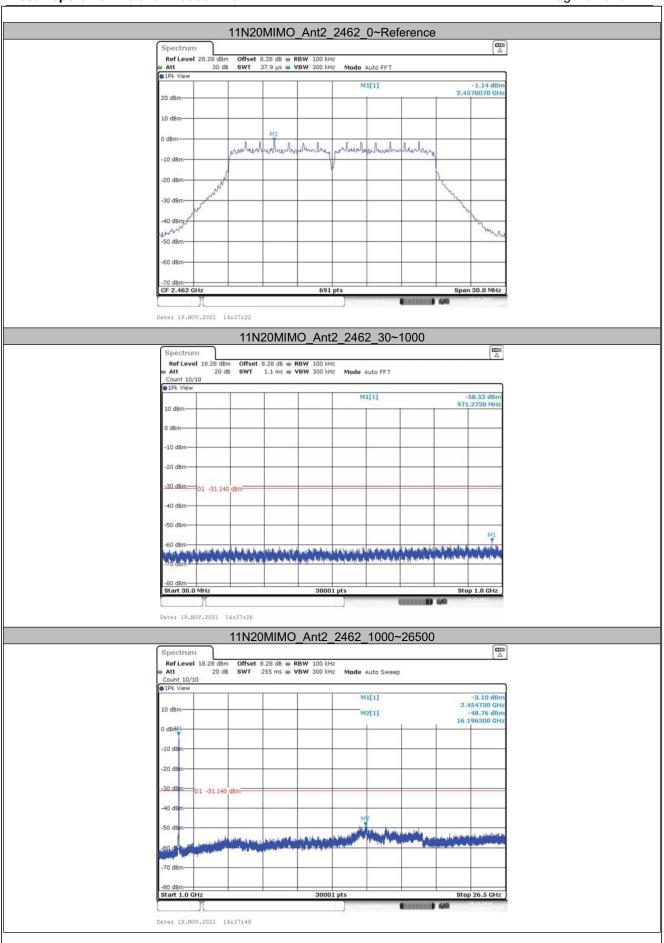
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#### 6 Appendix B

Antenna Port Conducted Test						
Equipment	Model No.	Serial Number	Manufacturer	Cal. Due		
Communication Shielded Room 3	4m*3m*3m	CRTDSWKSR44301	CRT	2024/04/24		
Spectrum Analyzer	N9030A	MY53310374	Agilent	2022/09/28		
Comprehensive Test Instrument	CMW270	100659	R&S	2021/12/07		
Analog Signal Generator	N5173B	MY53270588	KEYSIGHT	2022/01/04		
Vector Signal Generator	N5172B	MY53051933	KEYSIGHT	2021/12/07		
Four-channel Power Probe	U2021XA	MY55400014	Tonscend	2022/01/04		
Programmable DC Power Supply	E3646A	MY58036222	KEYSIGHT	2022/06/07		

Radiated Emission Test - 3M Chamber					
Equipment	Model No.	Serial Number	Manufacturer	Cal. Due	
3m Semi-Anechoic Chamber	FACT-4	ST08035	ETS	2024/12/12	
Spectrum Analyzer	N9010B	MY57470323	KEYSIGHT	2022/03/04	
EMI Test Receiver	N9038A-508	MY532290079	Agilent	2022/03/05	
Broadband Antenna	VULB 9163	9163-530	SCHWARZBECK	2022/06/26	
Waveguide Horn Antenna	HF906	360306/008	R&S	2022/03/05	
Waveguide Horn Antenna	BBHA9170	00949	SCHWARZBECK	2022/08/27	
Preamplifier	BBV 9721	9721-050	SCHWARZBECK	2022/06/30	
5G Bandstop Filters	WRCJV12-4900- 5100-5900-6100- 50EE	1	WI	2021/12/16	
Comprehensive tester	CMW500	159000	R&S	2022/01/04	



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#### **Important**

- (1) The test report is valid with the official seal of the laboratory and the signatures of Test engineer, Author and Reviewer simultaneously.
- (2) The test report is invalid if altered.
- (3) Any photocopies or part photocopies in the test report are forbidden without the written permission from the laboratory.
- (4) Objections to the test report must be submitted to the laboratory within 15 days.
- (5) Generally, commission test is responsible for the tested samples only.

Address of the laboratory:

CVC Testing Technology Co., Ltd.

Address: No.3, Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, China

Post Code: 510663 Tel: 020-32293888

FAX: 020-32293889 E-mail: office@cvc.org.cn