

TEST REPORT

Report No.: BCTC2202258504-2E

Applicant: REOLINK INNOVATION LIMITED

Product Name: WiFi IP Camera

Model/Type
reference: E1 Zoom

Tested Date: 2022-02-09 to 2022-03-01

Issued Date: 2022-03-01



Shenzhen BCTC Testing Co., Ltd.



FCC ID: 2AYHE-2201B

Product Name: WiFi IP Camera

Trademark: Reolink

Model/Type reference: E1 Zoom

Prepared For: REOLINK INNOVATION LIMITED

Address: FLAT/RM 705 7/F FA YUEN COMMERCIAL BUILDING 75-77 FA YUEN STREET
MONG KOK KL HONG KONG

Manufacturer: REOLINK INNOVATION LIMITED

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Sample Received Date: 2022-02-09

Sample tested Date: 2022-02-09 to 2022-03-01

Issue Date: 2022-03-01

Report No.: BCTC2202258504-2E

Test Standards: FCC Part15 15.407
ANSI C63.10-2013
KDB 662911 D01 v02r01
KDB 789033 D02 v02r01

Test Results: PASS

Remark: This is WIFI-5GHz band radio test report.

Tested by:



Eric Yang/Project Handler

Approved by:



Zero Zhou/Reviewer

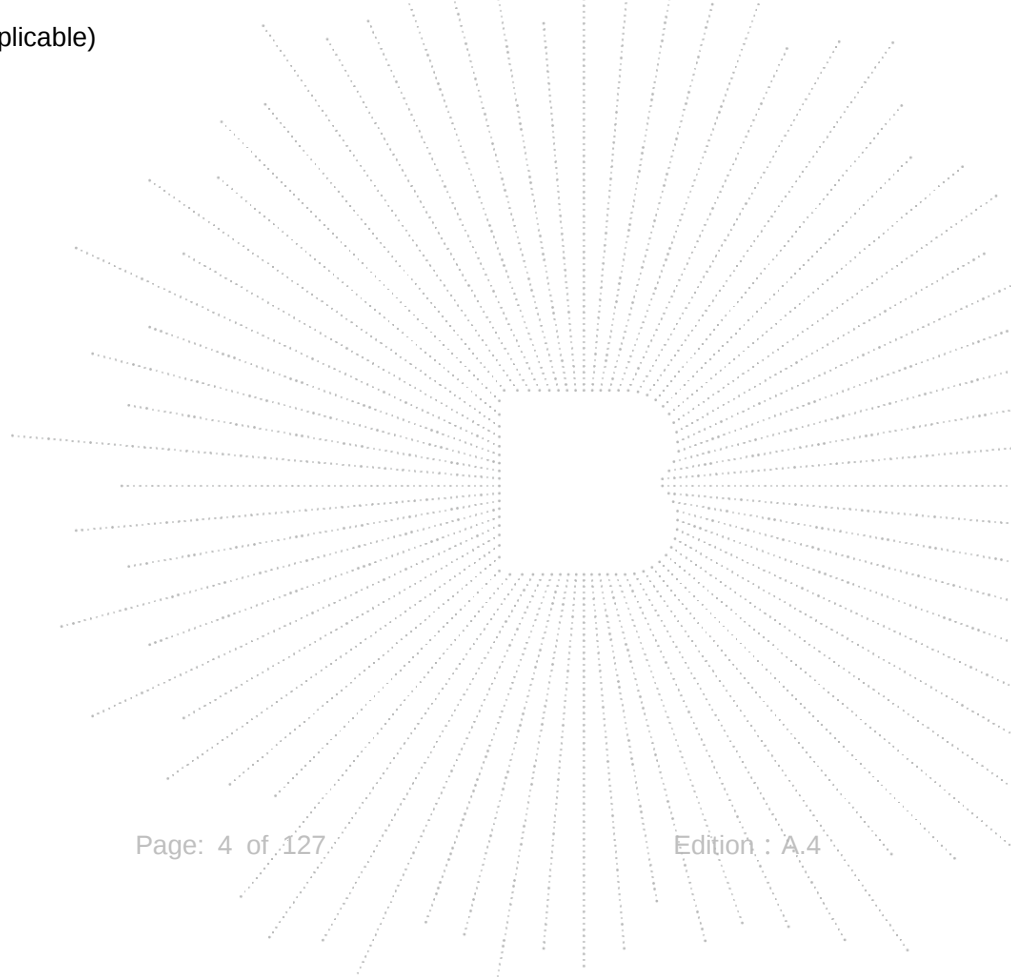
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(Note: N/A Means Not Applicable)



1. Version

Report No.	Issue Date	Description	Approved
BCTC2202258504-2E	2022-03-01	Original	Valid

2. Test Summary

The Product has been tested according to the following specifications:

1	Test Parameter	Clause No.	Results
1	Spurious Radiated Emissions	15.209(a), 15.407 (b)(1) 15.407 (b)(4) 15.407 (b)(8)	PASS
2	Conducted Emission	15.207	PASS
3	26 dB and 99% Emission Bandwidth	15.407 (a)(12) 15.1049	PASS
4	Minimum 6 dB bandwidth	15.407(e)	PASS
5	Maximum Conducted Output Power	15.407 (a)(1) 15.407 (a)(3)	PASS
6	Band Edge	2.1051, 15.407(b)(1) 15.407(b)(4)	PASS
7	Power Spectral Density	15.407 (a)(1) 15.407 (a)(3)	PASS
8	Spurious Emissions at Antenna Terminals	2.1051, 15.407(b)	PASS
9	Antenna Requirement	15.203	PASS

3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(9KHz-30MHz)	U=3.7dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
5	Conducted Emission (150kHz-30MHz)	U=3.20dB
6	Conducted Adjacent channel power	U=1.38dB
7	Conducted output power uncertainty Above 1G	U=1.576dB
8	Conducted output power uncertainty below 1G	U=1.28dB
9	humidity uncertainty	U=5.3%
10	Temperature uncertainty	U=0.59°C

4. Product Information And Test Setup

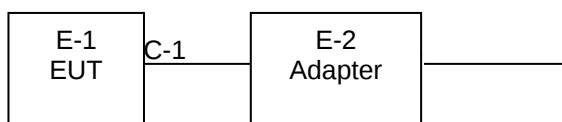
4.1 Product Information

Model/Type reference:	E1 Zoom
Model differences:	N/A
IEEE 802.11 WLAN Mode Supported:	802.11a/n/ac(20MHz channel bandwidth) 802.11n/ac(40MHz channel bandwidth) 802.11ac(80MHz channel bandwidth)
Operation Frequency:	5180-5240MHz for 802.11a/n(HT20)/ac20; 5190-5230MHz for 802.11n(HT40)/ac40; 5210MHz for 802.11 ac80; 5745-5825 MHz for 802.11a/n(HT20)/ac20; 5755-5795 MHz for 802.11a/n(HT40)/ac40; 5775MHz for 802.11 ac80;
Data Rate:	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15; 802.11ac(VHT20): NSS1, MCS0-MCS8 802.11ac(VHT40/VHT80):NSS1, MCS0-MCS
Type of Modulation:	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac;
Number Of Channel:	4 channels for 802.11a/n20 in the 5180-5240MHz band ; 2 channels for 802.11 n40 in the 5190-5230MHz band ; 1 channels for 802.11 ac80 in the 5210MHz band ; 5 channels for 802.11a/n20 in the 5745-5825MHz band ; 2 channels for 802.11 n40 in the 5755-5795MHz band ; 1 channels for 802.11 ac80 in the 5775MHz band ;
Antenna installation:	FPC antenna*2
Antenna Gain:	WiFi (5GHz): Antenna A : 3.84 dBi Antenna B : 3.34 dBi WiFi (5.8GHz): Antenna A : 5.05 dBi Antenna B : 5.38 dBi
Ratings:	DC 5V
Adapter:	Model: DCT12W050100US-B0 Input:100-240V~50/60Hz 0.3A max Output: DC 5.0V 1.0A

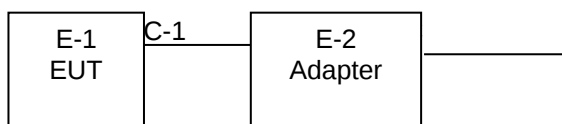
4.2 Test Setup Configuration

See test photographs attached in *EUT TEST SETUP PHOTOGRAPHS* for the actual connections between Product and support equipment.

Conducted Emission:



Radiated Spurious Emission



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	WiFi IP Camera	Reolink	E1 Zoom	N/A	
E-2	Adapter	N/A	DCT12W050100US-B0	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	N/A	N/A	3M	DC cable unshielded

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

Frequency and Channel list for 802.11a/n /ac (5180-5240MHz):

802.11a/n/ac(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220	40	5200	48	5240

802.11n/ac(40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	-	-	-	-

802.11ac (80MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	-	-	-	-	-	-

Frequency and Channel list for 802.11a/n /ac (5745-5825MHz):

802.11a/n/ac(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

802.11n/ac(40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795	-	-	-	-

802.11ac (80MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775	-	-	-	-	-	-

4.5 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 2	802.11n/ ac40 CH38/ CH 46 802.11n/ ac40 CH 151 / CH 159
Mode 3	802.11 ac80 CH 42/CH 155
Mode 4	Link Mode

Note: The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

4.6 Table Of Parameters Of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters

Test software Version	CMD		
Parameters	DEF	DEF	DEF

4.7 Antenna

Table for FPC antenna

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A	N/A	N/A	FPC antenna	See 4.1 chapter	N/A
B	N/A	N/A	FPC antenna	See 4.1 chapter	N/A

5G

EUT has two External antennas with Max antenna A gain 3.84dBi and antenna B gain 3.34dBi on every antenna, CDD device with two spatial streams, also can operat with one spatial streams according to KDB662911 D01 v02r01,

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

1)For power spectral density(PSD) measurements,
 $\text{Array Gain} = 10\log(N_{ANT}/N_{SS})\text{dB} = 10\log(2/1) = 3.01\text{dB}$,
 So the directional gain for PSD is 6.85dBi

2)For power measurements,
 The Array gain=0 dB for $N_{ANT} \leq 4$,
 So the directional gain for Power measurements is 3.84dBi

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

5.8G

EUT has two External antennas with Max antenna A gain 5.05dBi and antenna B gain 5.38dBi on every antenna, CDD device with two spatial streams, also can operate with one spatial streams according to KDB662911 D01 v02r01,

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

1) For power spectral density (PSD) measurements,
Array Gain= $10\log(N_{ANT}/N_{SS})$ dB = $10\log(2/1)$ = 3.01 dB,
So the directional gain for PSD is 8.39 dBi

2) For power measurements,
The Array gain = 0 dB for $N_{ANT} \leq 4$,
So the directional gain for Power measurements is 5.38 dBi

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

5. Test Facility And Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address:1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

FCC Test Firm Registration Number: 712850

IC Registered No.: 23583

5.2 Test Instrument Used

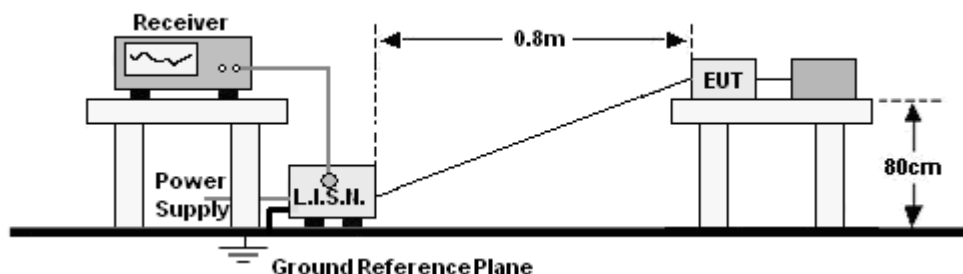
Conducted Emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
LISN	R&S	ENV216	101375	May 28, 2021	May 27, 2022
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Attenuator	\	10dB C-6GHz	1650	May 28, 2021	May 27, 2022

RF Conducted Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Power Metter	Keysight	E4419	\	May 28, 2021	May 27, 2022
Power Sensor (AV)	Keysight	E9300A	\	May 28, 2021	May 27, 2022
Signal Analyzer 20kHz-26.5GHz	Keysight	N9020A	MY49100060	May 28, 2021	May 27, 2022
Spectrum Analyzer 9kHz-40GHz	R&S	FSP 40	\	May 28, 2021	May 27, 2022

Radiated Emissions Test (966 Chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
Receiver	R&S	ESRP	101154	May 28, 2021	May 27, 2022
Amplifier	SKET	LAPA_01G18 G-45dB	\	May 28, 2021	May 27, 2022
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 28, 2021	May 27, 2022
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	Jun. 01, 2021	May 31, 2022
Horn Antenna	Schwarzbeck	BBHA9120D	1541	Jun. 02, 2021	Jun. 01, 2022
Horn Antenn (18GHz-40GH z)	Schwarzbeck	BBHA9170	00822	Jun. 15, 2021	Jun. 14, 2022
Amplifier (18GHz-40GH z)	MITEQ	TTA1840-35- HG	2034381	May 28, 2021	May 27, 2022
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Jun. 02, 2021	Jun. 01, 2022
RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-000 8	May 28, 2021	May 27, 2022
RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	May 28, 2021	May 27, 2022
RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	May 28, 2021	May 27, 2022
Power Metter	Keysight	E4419	\	May 28, 2021	May 27, 2022
Power Sensor (AV)	Keysight	E9300A	\	May 28, 2021	May 27, 2022
Signal Analyzer 20kHz-26.5G Hz	Keysight	N9020A	MY49100060	May 28, 2021	May 27, 2022
Spectrum Analyzer 9kHz-40GHz	R&S	FSP 40	\	May 28, 2021	May 27, 2022
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. Conducted Emissions

6.1 Block Diagram Of Test Setup



6.2 Limit

Frequency (MHz)	Limit (dBuV)	
	Quas-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Notes:

- *Decreasing linearly with logarithm of frequency.
- The lower limit shall apply at the transition frequencies.

6.3 Test procedure

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

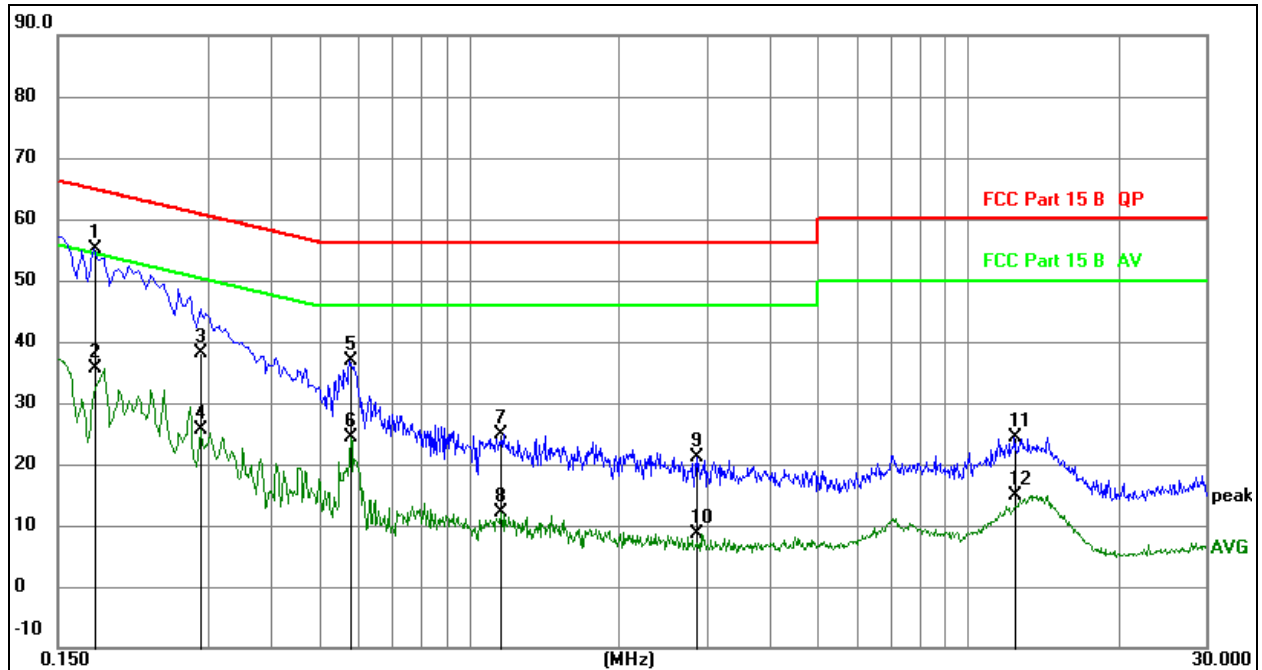
6.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

6.5 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	L

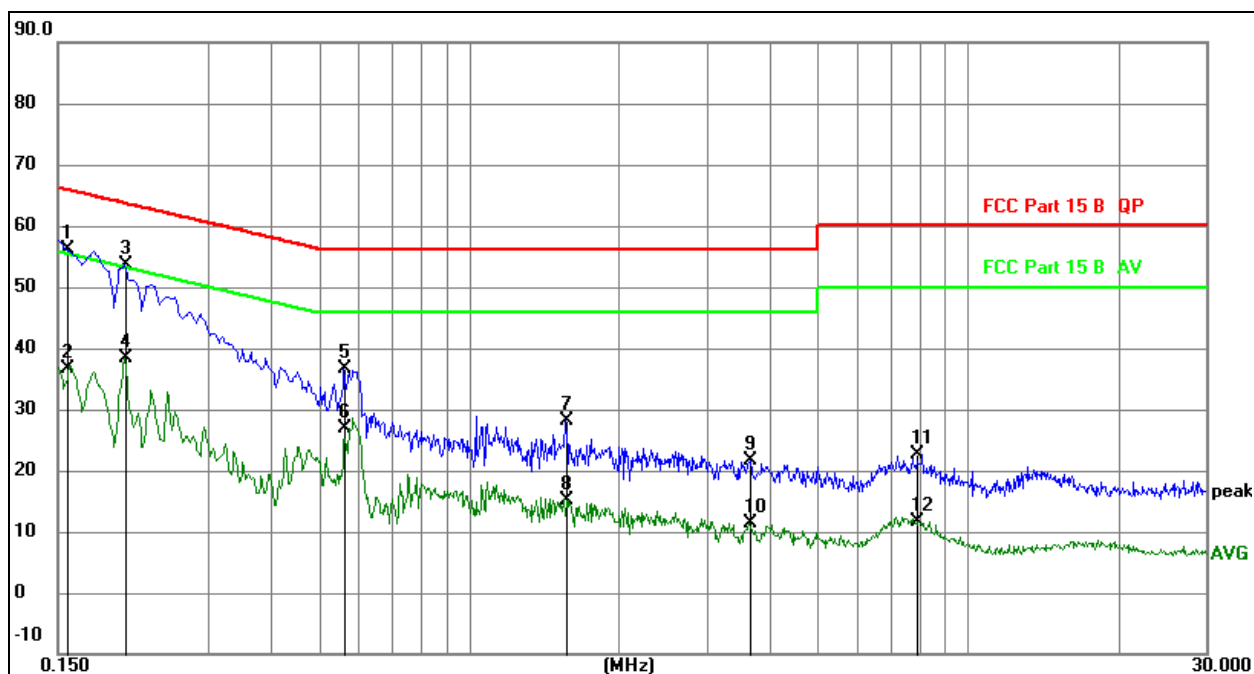


Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Mk.	Freq. MHz	Reading Level dB	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	0.1768	35.60	19.60	55.20	64.63	-9.43	QP
2		0.1768	15.96	19.60	35.56	54.63	-19.07	AVG
3		0.2893	18.58	19.61	38.19	60.54	-22.35	QP
4		0.2893	6.09	19.61	25.70	50.54	-24.84	AVG
5		0.5762	17.35	19.61	36.96	56.00	-19.04	QP
6		0.5762	4.69	19.61	24.30	46.00	-21.70	AVG
7		1.1595	5.33	19.62	24.95	56.00	-31.05	QP
8		1.1595	-7.43	19.62	12.19	46.00	-33.81	AVG
9		2.8541	1.45	19.64	21.09	56.00	-34.91	QP
10		2.8541	-10.96	19.64	8.68	46.00	-37.32	AVG
11		12.3837	4.56	19.78	24.34	60.00	-35.66	QP
12		12.3837	-4.88	19.78	14.90	50.00	-35.10	AVG

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	N


Remark:

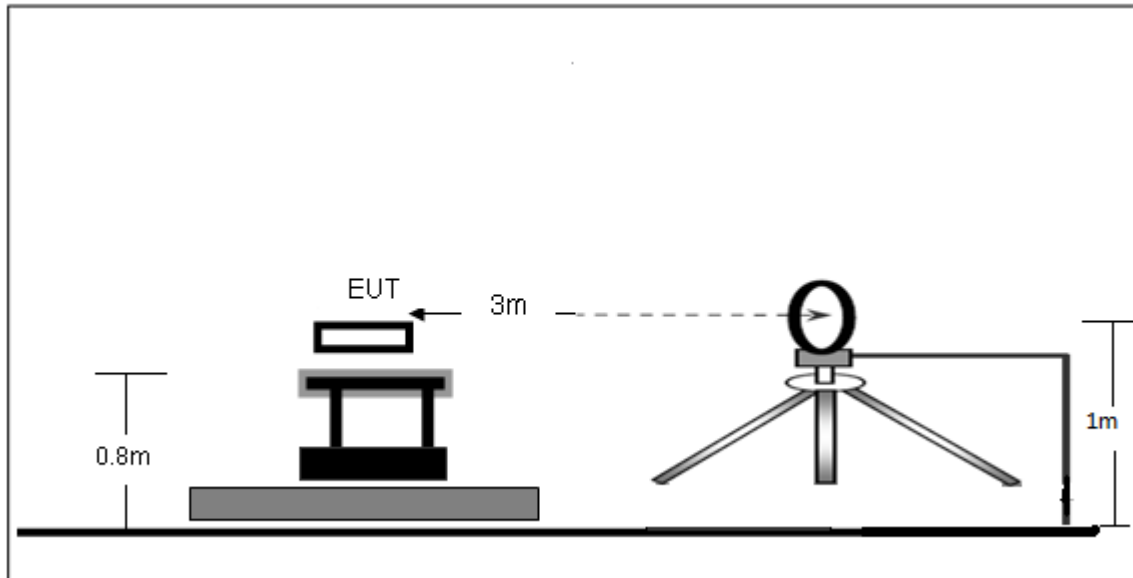
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Mk.	Freq. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	0.1565	36.43	19.60	56.03	65.65	-9.62	QP
2		0.1565	17.10	19.60	36.70	55.65	-18.95	AVG
3		0.2040	33.92	19.60	53.52	63.45	-9.93	QP
4		0.2040	18.81	19.60	38.41	53.45	-15.04	AVG
5		0.5639	16.96	19.61	36.57	56.00	-19.43	QP
6		0.5639	7.22	19.61	26.83	46.00	-19.17	AVG
7		1.5675	8.49	19.62	28.11	56.00	-27.89	QP
8		1.5675	-4.47	19.62	15.15	46.00	-30.85	AVG
9		3.6600	2.02	19.66	21.68	56.00	-34.32	QP
10		3.6600	-8.23	19.66	11.43	46.00	-34.57	AVG
11		7.9125	2.79	19.75	22.54	60.00	-37.46	QP
12		7.9125	-8.15	19.75	11.60	50.00	-38.40	AVG

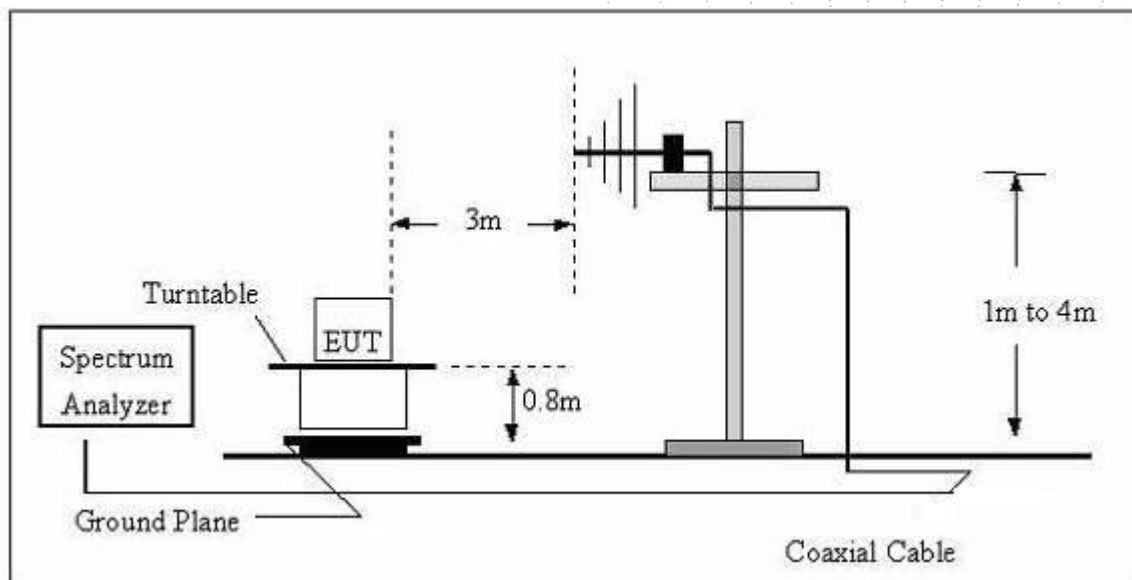
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

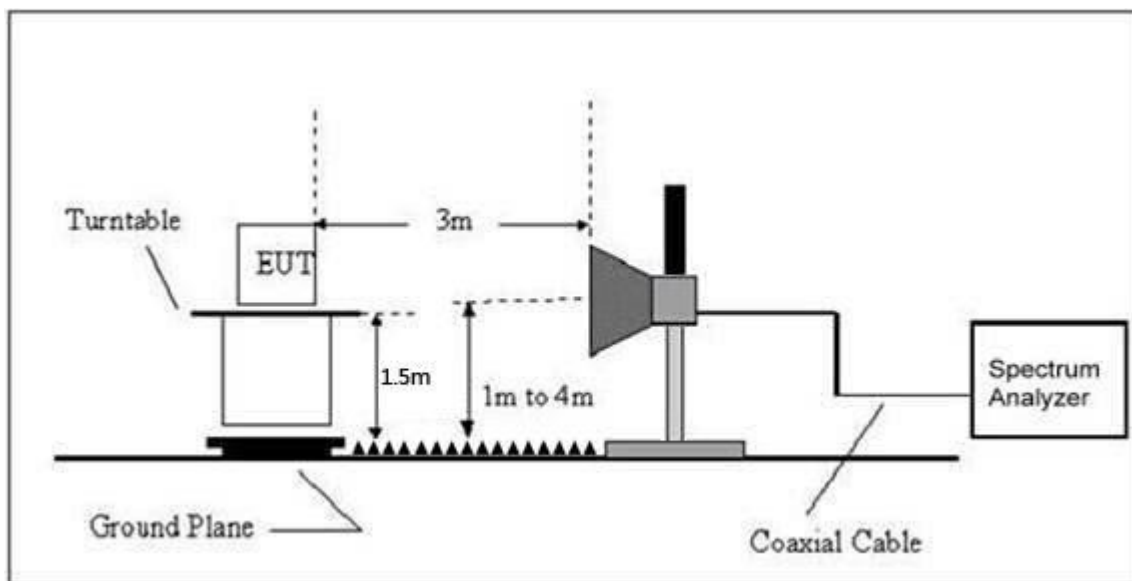
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



7.2 Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency (MHz)	Field Strength uV/m	Distance (m)	Field Strength Limit at 3m Distance	
			uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

Limits Of Radiated Emission Measurement (Above 1000MHz)

Frequency (MHz)	Limit (dBuV/m) (at 3M)	
	Peak	Average
Above 1000	74	54

Notes:

- (1)The limit for radiated test was performed according to FCC PART 15C.
- (2)The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

7.3 Test procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205.

It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where $RBWCF [dB] = 10 \cdot \lg(100 [kHz] / \text{narrower RBW} [kHz])$. , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

7.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

7.5 Test Result

Below 30MHz

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	---

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

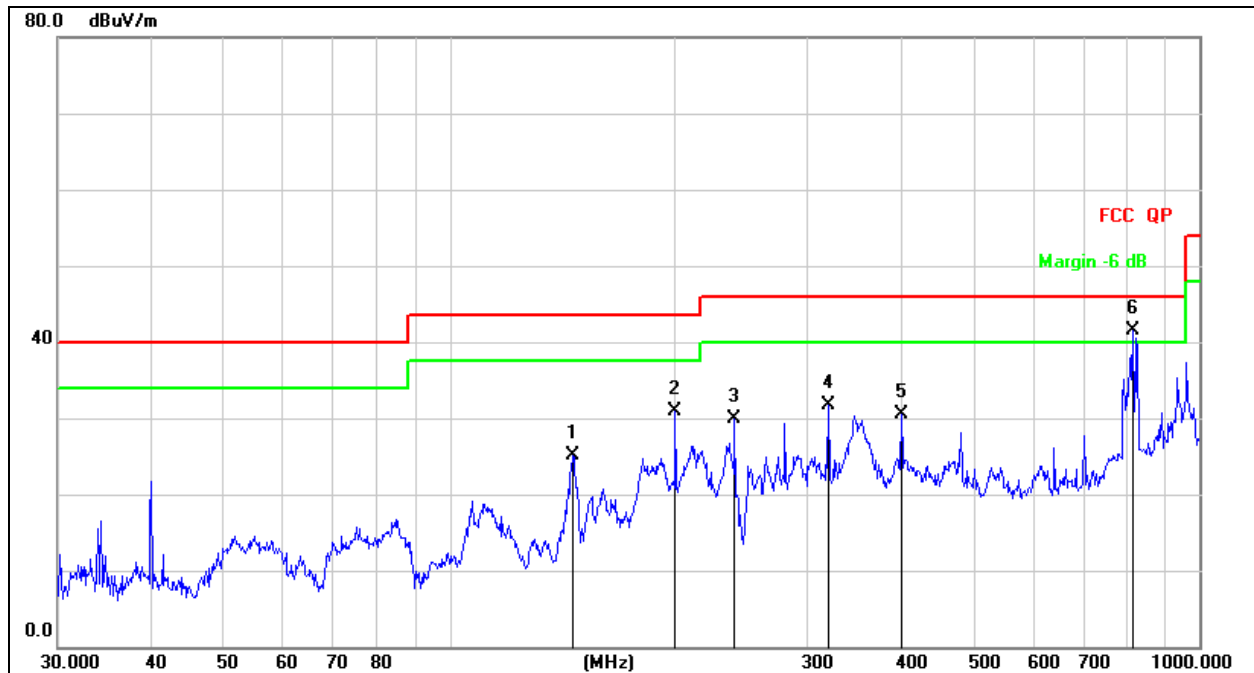
Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance/test distance})(\text{dB})$;

Limit line = specific limits(dBuv) + distance extrapolation factor.

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	Horizontal

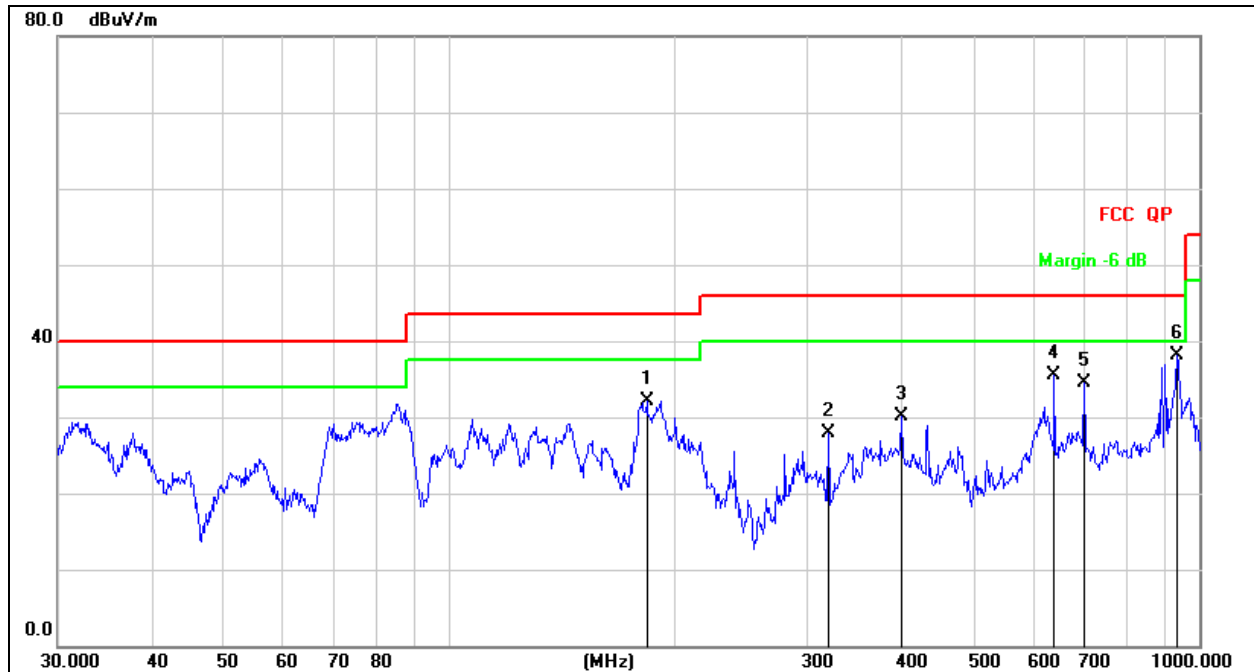


Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement = Reading Level + Correct Factor
3. Over = Measurement - Limit

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector
	MHz	dBuV	dB	dBuV/m	dB/m	dB	
1	145.8611	44.23	-19.21	25.02	43.50	-18.48	QP
2	199.9856	46.44	-15.45	30.99	43.50	-12.51	QP
3	239.9874	44.74	-14.81	29.93	46.00	-16.07	QP
4	319.9370	44.81	-13.18	31.63	46.00	-14.37	QP
5	400.4319	41.29	-10.84	30.45	46.00	-15.55	QP
6 *	815.9678	43.11	-1.57	41.54	46.00	-4.46	QP

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	Vertical



Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- Measurement = Reading Level + Correct Factor
- Over = Measurement - Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		183.2005	48.99	-16.81	32.18	43.50	-11.32	QP
2		319.9370	41.05	-13.18	27.87	46.00	-18.13	QP
3		400.4319	40.89	-10.84	30.05	46.00	-15.95	QP
4		640.6110	40.53	-5.03	35.50	46.00	-10.50	QP
5		701.7610	38.09	-3.64	34.45	46.00	-11.55	QP
6	*	932.2715	37.74	0.44	38.18	46.00	-7.82	QP

Test Mode:	TX(5.1G) - 802.11a
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G									
V	4434.032	61.03	5.94	35.40	44.00	58.37	68.2	-9.83	PK
V	4434.032	43.09	5.94	35.40	44.00	40.43	54	-13.57	AV
V	10360.080	60.82	8.46	39.75	44.50	64.53	68.2	-3.67	PK
V	10360.080	43.64	8.46	39.75	44.50	47.35	54	-6.65	AV
V	15540.038	60.93	10.12	38.80	44.10	65.75	74	-8.25	PK
V	15540.038	43.89	10.12	38.80	42.70	50.11	54	-3.89	AV
H	4434.156	63.92	5.94	35.18	44.00	61.04	68.2	-7.16	PK
H	4434.156	43.58	5.94	35.18	44.00	40.70	54	-13.30	AV
H	10360.044	51.57	8.46	38.71	44.50	54.24	68.2	-13.96	PK
H	10360.044	44.99	8.46	38.71	44.50	47.66	54	-6.34	AV
H	15540.006	53.93	10.12	38.38	44.10	58.33	74	-15.67	PK
H	15540.006	44.54	10.12	38.38	44.10	48.94	54	-5.06	AV
Middle Channel (5200 MHz)-Above 1G									
V	4592.139	62.71	6.48	36.35	44.05	61.49	74	-12.51	PK
V	4592.139	43.49	6.48	36.35	44.05	42.27	54	-11.73	AV
V	10400.187	61.41	8.47	37.88	44.51	63.25	68.2	-4.95	PK
V	10400.187	43.81	8.47	37.88	44.51	45.65	54	-8.35	AV
V	15600.133	63.22	10.12	38.80	44.10	68.04	74	-5.96	PK
V	15600.133	43.34	10.12	38.80	42.70	49.56	54	-4.44	AV
H	4592.045	61.48	6.48	36.37	44.05	60.28	74	-13.72	PK
H	4592.045	43.53	6.48	36.37	44.05	42.33	54	-11.67	AV
H	10400.073	51.85	8.47	38.64	44.50	54.46	68.2	-13.74	PK
H	10400.073	40.96	8.47	38.64	44.50	43.57	54	-10.43	AV
H	15600.069	52.81	10.12	38.38	44.10	57.21	74	-16.79	PK
H	15600.069	43.95	10.12	38.38	44.10	48.35	54	-5.65	AV
High Channel (5240 MHz)-Above 1G									
V	4739.198	62.99	7.10	37.24	43.50	63.83	74	-10.17	PK
V	4739.198	43.77	7.10	37.24	43.50	44.61	54	-9.39	AV
V	10480.158	63.11	8.46	37.68	44.50	64.75	68.2	-3.45	PK
V	10480.158	43.71	8.46	37.68	44.50	45.35	54	-8.65	AV
V	15720.185	62.52	10.12	38.80	44.10	67.34	74	-6.66	PK
V	15720.185	43.43	10.12	38.80	42.70	49.65	54	-4.35	AV
H	4739.149	62.69	7.10	37.24	43.50	63.53	74	-10.47	PK
H	4739.149	43.60	7.10	37.24	43.50	44.44	54	-9.56	AV
H	10480.145	54.96	8.46	38.57	44.50	57.49	68.2	-10.71	PK
H	10480.145	43.13	8.46	38.57	44.50	45.66	54	-8.34	AV
H	15720.033	51.71	10.12	38.38	44.10	56.11	74	-17.89	PK
H	15720.033	41.84	10.12	38.38	44.10	46.24	54	-7.76	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The worst case is Antenna A.

Test Mode:	TX(5.1G) - 802.11n-HT20
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G									
V	4434.141	64.53	5.94	35.40	44.00	61.87	68.2	-6.33	PK
V	4434.141	43.58	5.94	35.40	44.00	40.92	54	-13.08	AV
V	10360.031	62.20	8.46	39.75	44.50	65.91	68.2	-2.29	PK
V	10360.031	43.98	8.46	39.75	44.50	47.69	54	-6.31	AV
V	15540.045	62.50	10.12	38.80	44.10	67.32	74	-6.68	PK
V	15540.045	43.74	10.12	38.80	42.70	49.96	54	-4.04	AV
H	4434.171	60.47	5.94	35.18	44.00	57.59	68.2	-10.61	PK
H	4434.171	43.94	5.94	35.18	44.00	41.06	54	-12.94	AV
H	10360.060	53.07	8.46	38.71	44.50	55.74	68.2	-12.46	PK
H	10360.060	42.77	8.46	38.71	44.50	45.44	54	-8.56	AV
H	15540.060	54.57	10.12	38.38	44.10	58.97	74	-15.03	PK
H	15540.060	41.56	10.12	38.38	44.10	45.96	54	-8.04	AV
Middle Channel (5200 MHz)-Above 1G									
V	4592.072	63.12	6.48	36.35	44.05	61.90	74	-12.10	PK
V	4592.072	43.38	6.48	36.35	44.05	42.16	54	-11.84	AV
V	10400.108	60.68	8.47	37.88	44.51	62.52	68.2	-5.68	PK
V	10400.108	43.59	8.47	37.88	44.51	45.43	54	-8.57	AV
V	15600.055	64.03	10.12	38.80	44.10	68.85	74	-5.15	PK
V	15600.055	43.92	10.12	38.80	42.70	50.14	54	-3.86	AV
H	4592.012	63.82	6.48	36.37	44.05	62.62	74	-11.38	PK
H	4592.012	43.51	6.48	36.37	44.05	42.31	54	-11.69	AV
H	10400.040	54.63	8.47	38.64	44.50	57.24	68.2	-10.96	PK
H	10400.040	40.11	8.47	38.64	44.50	42.72	54	-11.28	AV
H	15600.027	51.17	10.12	38.38	44.10	55.57	74	-18.43	PK
H	15600.027	41.24	10.12	38.38	44.10	45.64	54	-8.36	AV
High Channel (5240 MHz)-Above 1G									
V	4739.198	64.11	7.10	37.24	43.50	64.95	74	-9.05	PK
V	4739.198	43.06	7.10	37.24	43.50	43.90	54	-10.10	AV
V	10480.129	63.22	8.46	37.68	44.50	64.86	68.2	-3.34	PK
V	10480.129	43.75	8.46	37.68	44.50	45.39	54	-8.61	AV
V	15720.143	63.26	10.12	38.80	44.10	68.08	74	-5.92	PK
V	15720.143	43.49	10.12	38.80	42.70	49.71	54	-4.29	AV
H	4739.059	63.09	7.10	37.24	43.50	63.93	74	-10.07	PK
H	4739.059	43.05	7.10	37.24	43.50	43.89	54	-10.11	AV
H	10480.092	52.60	8.46	38.57	44.50	55.13	68.2	-13.07	PK
H	10480.092	42.00	8.46	38.57	44.50	44.53	54	-9.47	AV
H	15720.087	51.21	10.12	38.38	44.10	55.61	74	-18.39	PK
H	15720.087	41.01	10.12	38.38	44.10	45.41	54	-8.59	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.1G) - 802.11n-HT40
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5190 MHz)-Above 1G									
V	4434.119	61.38	5.94	35.40	44.00	58.72	68.2	-9.48	PK
V	4434.119	43.21	5.94	35.40	44.00	40.55	54	-13.45	AV
V	10380.072	63.09	8.46	39.75	44.50	66.80	68.2	-1.40	PK
V	10380.072	43.30	8.46	39.75	44.50	47.01	54	-6.99	AV
V	15570.163	64.26	10.12	38.80	44.10	69.08	74	-4.92	PK
V	15570.163	43.90	10.12	38.80	42.70	50.12	54	-3.88	AV
H	4434.194	62.32	5.94	35.18	44.00	59.44	74	-14.56	PK
H	4434.194	43.72	5.94	35.18	44.00	40.84	54	-13.16	AV
H	10380.002	54.51	8.46	38.71	44.50	57.18	68.2	-11.02	PK
H	10380.002	42.24	8.46	38.71	44.50	44.91	54	-9.09	AV
H	15570.177	53.45	10.12	38.38	44.10	57.85	74	-16.15	PK
H	15570.177	41.52	10.12	38.38	44.10	45.92	54	-8.08	AV
High Channel (5230 MHz)-Above 1G									
V	4739.063	62.80	6.48	36.35	44.05	61.58	68.2	-6.62	PK
V	4739.063	43.64	6.48	36.35	44.05	42.42	54	-11.58	AV
V	10460.123	61.52	8.47	37.88	44.51	63.36	68.2	-4.84	PK
V	10460.123	43.84	8.47	37.88	44.51	45.68	54	-8.32	AV
V	15690.107	63.76	10.12	38.80	44.10	68.58	74	-5.42	PK
V	15690.107	43.86	10.12	38.80	42.70	50.08	54	-3.92	AV
H	4739.180	62.55	6.48	36.37	44.05	61.35	68.2	-6.85	PK
H	4739.180	43.71	6.48	36.37	44.05	42.51	54	-11.49	AV
H	10460.142	53.29	8.47	38.64	44.50	55.90	68.2	-12.30	PK
H	10460.142	43.69	8.47	38.64	44.50	46.30	54	-7.70	AV
H	15690.026	52.24	10.12	38.38	44.10	56.64	74	-17.36	PK
H	15690.026	43.40	10.12	38.38	44.10	47.80	54	-6.20	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.1G) - 802.11ac-HT20
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G									
V	4434.147	62.95	5.94	35.40	44.00	60.29	68.2	-7.91	PK
V	4434.147	43.63	5.94	35.40	44.00	40.97	54	-13.03	AV
V	10360.170	60.27	8.46	39.75	44.50	63.98	68.2	-4.22	PK
V	10360.170	43.48	8.46	39.75	44.50	47.19	54	-6.81	AV
V	15540.021	64.57	10.12	38.80	44.10	69.39	74	-4.61	PK
V	15540.021	43.85	10.12	38.80	42.70	50.07	54	-3.93	AV
H	4434.037	64.68	5.94	35.18	44.00	61.80	68.2	-6.40	PK
H	4434.037	43.31	5.94	35.18	44.00	40.43	54	-13.57	AV
H	10360.091	53.87	8.46	38.71	44.50	56.54	68.2	-11.66	PK
H	10360.091	44.24	8.46	38.71	44.50	46.91	54	-7.09	AV
H	15540.008	52.74	10.12	38.38	44.10	57.14	74	-16.86	PK
H	15540.008	44.15	10.12	38.38	44.10	48.55	54	-5.45	AV
Middle Channel (5200 MHz)-Above 1G									
V	4592.126	60.63	6.48	36.35	44.05	59.41	74	-14.59	PK
V	4592.126	43.16	6.48	36.35	44.05	41.94	54	-12.06	AV
V	10400.170	61.31	8.47	37.88	44.51	63.15	68.2	-5.05	PK
V	10400.170	43.35	8.47	37.88	44.51	45.19	54	-8.81	AV
V	15600.188	62.18	10.12	38.80	44.10	67.00	74	-7.00	PK
V	15600.188	43.05	10.12	38.80	42.70	49.27	54	-4.73	AV
H	4592.052	62.06	6.48	36.37	44.05	60.86	74	-13.14	PK
H	4592.052	43.88	6.48	36.37	44.05	42.68	54	-11.32	AV
H	10400.191	50.41	8.47	38.64	44.50	53.02	68.2	-15.18	PK
H	10400.191	42.80	8.47	38.64	44.50	45.41	54	-8.59	AV
H	15600.107	52.20	10.12	38.38	44.10	56.60	74	-17.40	PK
H	15600.107	44.32	10.12	38.38	44.10	48.72	54	-5.28	AV
High Channel (5240 MHz)-Above 1G									
V	4739.048	64.98	7.10	37.24	43.50	65.82	74	-8.18	PK
V	4739.048	43.56	7.10	37.24	43.50	44.40	54	-9.60	AV
V	10480.003	63.63	8.46	37.68	44.50	65.27	68.2	-2.93	PK
V	10480.003	43.38	8.46	37.68	44.50	45.02	54	-8.98	AV
V	15720.090	61.64	10.12	38.80	44.10	66.46	74	-7.54	PK
V	15720.090	43.88	10.12	38.80	42.70	50.10	54	-3.90	AV
H	4739.146	60.41	7.10	37.24	43.50	61.25	74	-12.75	PK
H	4739.146	43.24	7.10	37.24	43.50	44.08	54	-9.92	AV
H	10480.052	52.70	8.46	38.57	44.50	55.23	68.2	-12.97	PK
H	10480.052	43.02	8.46	38.57	44.50	45.55	54	-8.45	AV
H	15720.154	53.15	10.12	38.38	44.10	57.55	74	-16.45	PK
H	15720.154	41.67	10.12	38.38	44.10	46.07	54	-7.93	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.1G) - 802.11ac-HT40
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5190 MHz)-Above 1G									
V	4434.069	60.08	5.94	35.40	44.00	57.42	68.2	-10.78	PK
V	4434.069	43.64	5.94	35.40	44.00	40.98	54	-13.02	AV
V	10380.024	63.57	8.46	39.75	44.50	67.28	68.2	-0.92	PK
V	10380.024	43.46	8.46	39.75	44.50	47.17	54	-6.83	AV
V	15570.152	63.96	10.12	38.80	44.10	68.78	74	-5.22	PK
V	15570.152	43.97	10.12	38.80	42.70	50.19	54	-3.81	AV
H	4434.173	62.01	5.94	35.18	44.00	59.13	74	-14.87	PK
H	4434.173	43.07	5.94	35.18	44.00	40.19	54	-13.81	AV
H	10380.104	51.56	8.46	38.71	44.50	54.23	68.2	-13.97	PK
H	10380.104	41.11	8.46	38.71	44.50	43.78	54	-10.22	AV
H	15570.049	51.62	10.12	38.38	44.10	56.02	74	-17.98	PK
H	15570.049	43.72	10.12	38.38	44.10	48.12	54	-5.88	AV
High Channel (5230 MHz)-Above 1G									
V	4739.089	64.64	6.48	36.35	44.05	63.42	68.2	-4.78	PK
V	4739.089	43.20	6.48	36.35	44.05	41.98	54	-12.02	AV
V	10460.173	64.47	8.47	37.88	44.51	66.31	68.2	-1.89	PK
V	10460.173	43.19	8.47	37.88	44.51	45.03	54	-8.97	AV
V	15690.151	61.66	10.12	38.80	44.10	66.48	74	-7.52	PK
V	15690.151	43.09	10.12	38.80	42.70	49.31	54	-4.69	AV
H	4739.089	60.19	6.48	36.37	44.05	58.99	68.2	-9.21	PK
H	4739.089	43.06	6.48	36.37	44.05	41.86	54	-12.14	AV
H	10460.113	53.78	8.47	38.64	44.50	56.39	68.2	-11.81	PK
H	10460.113	42.03	8.47	38.64	44.50	44.64	54	-9.36	AV
H	15690.134	53.18	10.12	38.38	44.10	57.58	74	-16.42	PK
H	15690.134	42.20	10.12	38.38	44.10	46.60	54	-7.40	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.1G) - 802.11ac-HT80
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
(5210 MHz)-Above 1G									
V	4434.198	64.67	5.94	35.40	44.00	62.01	68.2	-6.19	PK
V	4434.198	43.75	5.94	35.40	44.00	41.09	54	-12.91	AV
V	10420.002	62.79	8.46	39.75	44.50	66.50	68.2	-1.70	PK
V	10420.002	43.91	8.46	39.75	44.50	47.62	54	-6.38	AV
V	15630.100	60.17	10.12	38.80	44.10	64.99	74	-9.01	PK
V	15630.100	43.17	10.12	38.80	42.70	49.39	54	-4.61	AV
H	4434.007	61.84	5.94	35.18	44.00	58.96	68.2	-9.24	PK
H	4434.007	43.46	5.94	35.18	44.00	40.58	54	-13.42	AV
H	10420.160	50.37	8.46	38.71	44.50	53.04	68.2	-15.16	PK
H	10420.160	40.88	8.46	38.71	44.50	43.55	54	-10.45	AV
H	15630.158	51.45	10.12	38.38	44.10	55.85	74	-18.15	PK
H	15630.158	44.69	10.12	38.38	44.10	49.09	54	-4.91	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.8G) - 802.11a
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5745 MHz)-Above 1G									
V	4679.156	58.34	5.94	35.40	44.00	55.68	74	-18.32	PK
V	4679.156	43.62	5.94	35.40	44.00	40.96	54	-13.04	AV
V	11490.038	54.22	8.46	39.75	44.50	57.93	68.2	-10.27	PK
V	11490.038	43.81	8.46	39.75	44.50	47.52	54	-6.48	AV
V	17235.134	59.52	10.12	38.80	44.10	64.34	68.2	-3.86	PK
V	17235.134	43.48	10.12	38.80	42.70	49.70	54	-4.30	AV
H	4679.069	55.03	5.94	35.18	44.00	52.15	74	-21.85	PK
H	4679.069	43.46	5.94	35.18	44.00	40.58	54	-13.42	AV
H	11490.159	50.32	8.46	38.71	44.50	52.99	68.2	-15.21	PK
H	11490.159	41.71	8.46	38.71	44.50	44.38	54	-9.62	AV
H	17235.023	50.30	10.12	38.38	44.10	54.70	68.2	-13.50	PK
H	17235.023	42.53	10.12	38.38	44.10	46.93	54	-7.07	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.074	54.80	6.48	36.35	44.05	53.58	74	-20.42	PK
V	4592.074	43.98	6.48	36.35	44.05	42.76	54	-11.24	AV
V	11570.152	55.45	8.47	37.88	44.51	57.29	68.2	-10.91	PK
V	11570.152	43.99	8.47	37.88	44.51	45.83	54	-8.17	AV
V	17355.028	59.11	10.12	38.80	44.10	63.93	68.2	-4.27	PK
V	17355.028	39.36	10.12	38.80	42.70	45.58	54	-8.42	AV
H	4592.195	59.63	6.48	36.37	44.05	58.43	74	-15.57	PK
H	4592.195	43.87	6.48	36.37	44.05	42.67	54	-11.33	AV
H	11570.154	53.24	8.47	38.64	44.50	55.85	68.2	-12.35	PK
H	11570.154	42.87	8.47	38.64	44.50	45.48	54	-8.52	AV
H	17355.177	53.05	10.12	38.38	44.10	57.45	68.2	-10.75	PK
H	17355.177	42.10	10.12	38.38	44.10	46.50	54	-7.50	AV
High Channel (5825 MHz)-Above 1G									
V	6039.146	59.98	7.10	37.24	43.50	60.82	68.2	-7.38	PK
V	6039.146	43.96	7.10	37.24	43.50	44.80	54	-9.20	AV
V	11650.039	59.61	8.46	37.68	44.50	61.25	74	-12.75	PK
V	11650.039	43.06	8.46	37.68	44.50	44.70	54	-9.30	AV
V	17475.038	54.44	10.12	38.80	44.10	59.26	68.2	-8.94	PK
V	17475.038	43.96	10.12	38.80	42.70	50.18	54	-3.82	AV
H	6039.181	58.91	7.10	37.24	43.50	59.75	68.2	-8.45	PK
H	6039.181	43.56	7.10	37.24	43.50	44.40	54	-9.60	AV
H	11650.075	54.37	8.46	38.57	44.50	56.90	74	-17.10	PK
H	11650.075	41.45	8.46	38.57	44.50	43.98	54	-10.02	AV
H	17475.101	52.39	10.12	38.38	44.10	56.79	68.2	-11.41	PK
H	17475.101	41.92	10.12	38.38	44.10	46.32	54	-7.68	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The worst case is Antenna B.

Test Mode:	TX(5.8G) - 802.11n-HT20
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5745 MHz)-Above 1G									
V	4679.018	58.50	5.94	35.40	44.00	55.84	74	-18.16	PK
V	4679.018	43.71	5.94	35.40	44.00	41.05	54	-12.95	AV
V	11490.055	55.65	8.46	39.75	44.50	59.36	68.2	-8.84	PK
V	11490.055	44.00	8.46	39.75	44.50	47.71	54	-6.29	AV
V	17235.077	57.87	10.12	38.80	44.10	62.69	68.2	-5.51	PK
V	17235.077	43.47	10.12	38.80	42.70	49.69	54	-4.31	AV
H	4679.061	57.28	5.94	35.18	44.00	54.40	74	-19.60	PK
H	4679.061	43.96	5.94	35.18	44.00	41.08	54	-12.92	AV
H	11490.098	48.61	8.46	38.71	44.50	51.28	68.2	-16.92	PK
H	11490.098	44.57	8.46	38.71	44.50	47.24	54	-6.76	AV
H	17235.178	54.05	10.12	38.38	44.10	58.45	68.2	-9.75	PK
H	17235.178	42.63	10.12	38.38	44.10	47.03	54	-6.97	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.034	60.67	6.48	36.35	44.05	59.45	74	-14.55	PK
V	4592.034	43.06	6.48	36.35	44.05	41.84	54	-12.16	AV
V	11570.108	55.76	8.47	37.88	44.51	57.60	68.2	-10.60	PK
V	11570.108	43.79	8.47	37.88	44.51	45.63	54	-8.37	AV
V	17355.195	58.56	10.12	38.80	44.10	63.38	68.2	-4.82	PK
V	17355.195	43.43	10.12	38.80	42.70	49.65	54	-4.35	AV
H	4592.063	56.03	6.48	36.37	44.05	54.83	74	-19.17	PK
H	4592.063	43.07	6.48	36.37	44.05	41.87	54	-12.13	AV
H	11570.167	53.56	8.47	38.64	44.50	56.17	68.2	-12.03	PK
H	11570.167	42.58	8.47	38.64	44.50	45.19	54	-8.81	AV
H	17355.069	54.43	10.12	38.38	44.10	58.83	68.2	-9.37	PK
H	17355.069	42.78	10.12	38.38	44.10	47.18	54	-6.82	AV
High Channel (5825 MHz)-Above 1G									
V	6039.122	59.97	7.10	37.24	43.50	60.81	68.2	-7.39	PK
V	6039.122	43.57	7.10	37.24	43.50	44.41	54	-9.59	AV
V	11650.081	56.08	8.46	37.68	44.50	57.72	74	-16.28	PK
V	11650.081	43.67	8.46	37.68	44.50	45.31	54	-8.69	AV
V	17475.004	57.49	10.12	38.80	44.10	62.31	68.2	-5.89	PK
V	17475.004	43.85	10.12	38.80	42.70	50.07	54	-3.93	AV
H	6039.145	56.81	7.10	37.24	43.50	57.65	68.2	-10.55	PK
H	6039.145	43.97	7.10	37.24	43.50	44.81	54	-9.19	AV
H	11650.049	51.72	8.46	38.57	44.50	54.25	74	-19.75	PK
H	11650.049	41.35	8.46	38.57	44.50	43.88	54	-10.12	AV
H	17475.166	51.04	10.12	38.38	44.10	55.44	68.2	-12.76	PK
H	17475.166	44.38	10.12	38.38	44.10	48.78	54	-5.22	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.8G) - 802.11n-HT40
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5755 MHz)-Above 1G									
V	4679.114	59.88	5.94	35.40	44.00	57.22	74	-16.78	PK
V	4679.114	43.31	5.94	35.40	44.00	40.65	54	-13.35	AV
V	11510.090	55.23	8.46	39.75	44.50	58.94	74	-15.06	PK
V	11510.090	43.17	8.46	39.75	44.50	46.88	54	-7.12	AV
V	17265.180	56.72	10.12	38.80	44.10	61.54	68.2	-6.66	PK
V	17265.180	2.00	10.12	38.80	42.70	8.22	54	-45.78	AV
H	4679.183	56.16	5.94	35.18	44.00	53.28	74	-20.72	PK
H	4679.183	43.62	5.94	35.18	44.00	40.74	54	-13.26	AV
H	11510.027	53.11	8.46	38.71	44.50	55.78	74	-18.22	PK
H	11510.027	41.02	8.46	38.71	44.50	43.69	54	-10.31	AV
H	17265.195	54.53	10.12	38.38	44.10	58.93	68.2	-9.27	PK
H	17265.195	40.86	10.12	38.38	44.10	45.26	54	-8.74	AV
High Channel (5795 MHz)-Above 1G									
V	6039.197	58.05	6.48	36.35	44.05	56.83	68.2	-11.37	PK
V	6039.197	43.78	6.48	36.35	44.05	42.56	54	-11.44	AV
V	11590.001	56.59	8.47	37.88	44.51	58.43	74	-15.57	PK
V	11590.001	43.52	8.47	37.88	44.51	45.36	54	-8.64	AV
V	17385.135	55.20	10.12	38.80	44.10	60.02	68.2	-8.18	PK
V	17385.135	41.20	10.12	38.80	42.70	47.42	54	-6.58	AV
H	6039.086	57.93	6.48	36.37	44.05	56.73	68.2	-11.47	PK
H	6039.086	43.72	6.48	36.37	44.05	42.52	54	-11.48	AV
H	11590.170	50.67	8.47	38.64	44.50	53.28	74	-20.72	PK
H	11590.170	40.38	8.47	38.64	44.50	42.99	54	-11.01	AV
H	17385.025	52.03	10.12	38.38	44.10	56.43	68.2	-11.77	PK
H	17385.025	42.88	10.12	38.38	44.10	47.28	54	-6.72	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
Test Mode is MIMO Mode.

Test Mode:	TX(5.8G) - 802.11ac-HT20
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5745 MHz)-Above 1G									
V	4679.086	59.03	5.94	35.40	44.00	56.37	74	-17.63	PK
V	4679.086	43.94	5.94	35.40	44.00	41.28	54	-12.72	AV
V	11490.075	53.06	8.46	39.75	44.50	56.77	68.2	-11.43	PK
V	11490.075	43.04	8.46	39.75	44.50	46.75	54	-7.25	AV
V	17235.169	61.30	10.12	38.80	44.10	66.12	68.2	-2.08	PK
V	17235.169	43.61	10.12	38.80	42.70	49.83	54	-4.17	AV
H	4679.192	56.54	5.94	35.18	44.00	53.66	74	-20.34	PK
H	4679.192	43.28	5.94	35.18	44.00	40.40	54	-13.60	AV
H	11490.156	50.37	8.46	38.71	44.50	53.04	68.2	-15.16	PK
H	11490.156	40.94	8.46	38.71	44.50	43.61	54	-10.39	AV
H	17235.080	52.03	10.12	38.38	44.10	56.43	68.2	-11.77	PK
H	17235.080	41.58	10.12	38.38	44.10	45.98	54	-8.02	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.157	59.78	6.48	36.35	44.05	58.56	74	-15.44	PK
V	4592.157	43.73	6.48	36.35	44.05	42.51	54	-11.49	AV
V	11570.157	58.90	8.47	37.88	44.51	60.74	68.2	-7.46	PK
V	11570.157	43.03	8.47	37.88	44.51	44.87	54	-9.13	AV
V	17355.068	61.15	10.12	38.80	44.10	65.97	68.2	-2.23	PK
V	17355.068	43.41	10.12	38.80	42.70	49.63	54	-4.37	AV
H	4592.077	60.06	6.48	36.37	44.05	58.86	74	-15.14	PK
H	4592.077	43.13	6.48	36.37	44.05	41.93	54	-12.07	AV
H	11570.196	52.97	8.47	38.64	44.50	55.58	68.2	-12.62	PK
H	11570.196	40.68	8.47	38.64	44.50	43.29	54	-10.71	AV
H	17355.124	53.21	10.12	38.38	44.10	57.61	68.2	-10.59	PK
H	17355.124	40.47	10.12	38.38	44.10	44.87	54	-9.13	AV
High Channel (5825 MHz)-Above 1G									
V	6039.054	55.21	7.10	37.24	43.50	56.05	68.2	-12.15	PK
V	6039.054	43.25	7.10	37.24	43.50	44.09	54	-9.91	AV
V	11650.088	59.03	8.46	37.68	44.50	60.67	74	-13.33	PK
V	11650.088	43.01	8.46	37.68	44.50	44.65	54	-9.35	AV
V	17475.102	58.11	10.12	38.80	44.10	62.93	68.2	-5.27	PK
V	17475.102	43.26	10.12	38.80	42.70	49.48	54	-4.52	AV
H	6039.191	59.67	7.10	37.24	43.50	60.51	68.2	-7.69	PK
H	6039.191	43.77	7.10	37.24	43.50	44.61	54	-9.39	AV
H	11650.106	52.84	8.46	38.57	44.50	55.37	74	-18.63	PK
H	11650.106	41.70	8.46	38.57	44.50	44.23	54	-9.77	AV
H	17475.187	51.91	10.12	38.38	44.10	56.31	68.2	-11.89	PK
H	17475.187	42.95	10.12	38.38	44.10	47.35	54	-6.65	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.8G) - 802.11ac-HT40
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5755 MHz)-Above 1G									
V	4679.003	60.27	5.94	35.40	44.00	57.61	74	-16.39	PK
V	4679.003	43.23	5.94	35.40	44.00	40.57	54	-13.43	AV
V	11510.125	55.43	8.46	39.75	44.50	59.14	74	-14.86	PK
V	11510.125	43.34	8.46	39.75	44.50	47.05	54	-6.95	AV
V	17265.183	57.47	10.12	38.80	44.10	62.29	68.2	-5.91	PK
V	17265.183	2.00	10.12	38.80	42.70	8.22	54	-45.78	AV
H	4679.097	58.72	5.94	35.18	44.00	55.84	74	-18.16	PK
H	4679.097	43.36	5.94	35.18	44.00	40.48	54	-13.52	AV
H	11510.014	50.68	8.46	38.71	44.50	53.35	74	-20.65	PK
H	11510.014	43.15	8.46	38.71	44.50	45.82	54	-8.18	AV
H	17265.077	52.03	10.12	38.38	44.10	56.43	68.2	-11.77	PK
H	17265.077	44.53	10.12	38.38	44.10	48.93	54	-5.07	AV
High Channel (5795 MHz)-Above 1G									
V	6039.127	59.95	6.48	36.35	44.05	58.73	68.2	-9.47	PK
V	6039.150	59.28	6.48	36.35	44.05	58.06	68.2	-10.14	AV
V	6039.150	43.17	6.48	36.35	44.05	41.95	54	-12.05	PK
V	11590.161	58.12	8.47	37.88	44.51	59.96	74	-14.04	AV
V	11590.161	43.68	8.47	37.88	44.51	45.52	54	-8.48	PK
V	17385.159	55.55	10.12	38.80	44.10	60.37	68.2	-7.83	AV
H	17385.159	41.95	10.12	38.80	42.70	48.17	54	-5.83	PK
H	6039.029	60.10	6.48	36.37	44.05	58.90	68.2	-9.30	AV
H	6039.029	43.56	6.48	36.37	44.05	42.36	54	-11.64	PK
H	11590.100	54.51	8.47	38.64	44.50	57.12	74	-16.88	AV
H	11590.100	41.34	8.47	38.64	44.50	43.95	54	-10.05	PK
H	17385.035	52.59	10.12	38.38	44.10	56.99	68.2	-11.21	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.8G) - 802.11ac-HT80
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
(5775 MHz)-Above 1G									
V	4679.035	58.79	5.94	35.40	44.00	56.13	74	-17.87	PK
V	4679.035	43.61	5.94	35.40	44.00	40.95	54	-13.05	AV
V	11550.084	58.07	8.46	39.75	44.50	61.78	74	-12.22	PK
V	11550.084	43.17	8.46	39.75	44.50	46.88	54	-7.12	AV
V	17325.053	57.46	10.12	38.80	44.10	62.28	68.2	-5.92	PK
V	17325.053	41.82	10.12	38.80	42.70	48.04	54	-5.96	AV
H	4679.160	59.81	5.94	35.18	44.00	56.93	74	-17.07	PK
H	4679.160	43.79	5.94	35.18	44.00	40.91	54	-13.09	AV
H	11550.156	54.31	8.46	38.71	44.50	56.98	74	-17.02	PK
H	11550.156	44.51	8.46	38.71	44.50	47.18	54	-6.82	AV
H	17325.053	51.61	10.12	38.38	44.10	56.01	68.2	-12.19	PK
H	17325.053	44.34	10.12	38.38	44.10	48.74	54	-5.26	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

8. Power Spectral Density Test

8.1 Block Diagram Of Test Setup



8.2 Limit

For the band 5.15-5.25 GHz,

(i) For an outdoor Wifi Repeater operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor Wifi Repeater operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point Wifi Repeaters operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.3 Test procedure

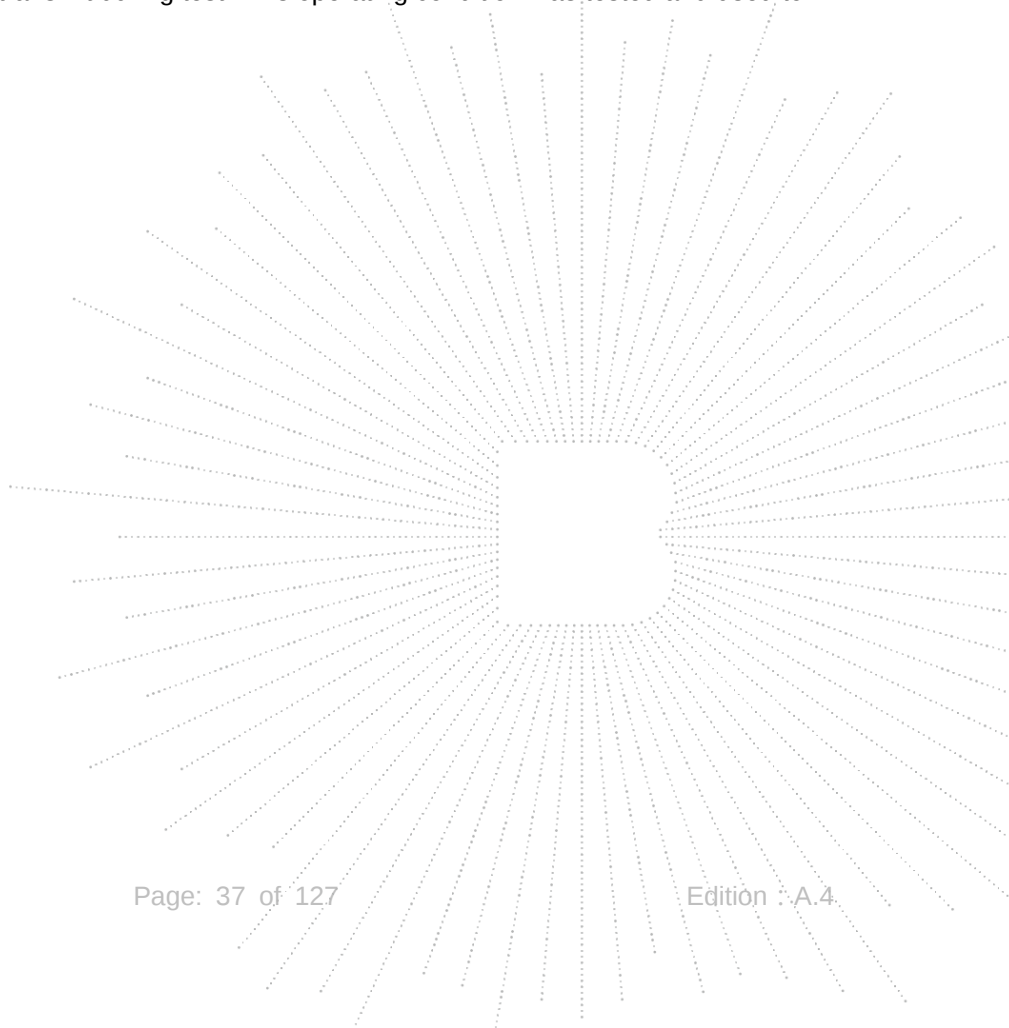
For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3$ RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHz is available on nearly all spectrum analyzers.

8.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



8.5 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	(5180-5240MHz); (5745-5825MHz)		

Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/MHz)		Total (dBm/MHz)	Limit (dBm/MHz)	Verdict
			Ant A	Ant B			
NVNT	a	5180	-10.15	-9.84	/	11	Pass
NVNT	a	5200	-9.86	-10.1	/	11	Pass
NVNT	a	5240	-11.37	-10.61	/	11	Pass
NVNT	n20	5180	-11.98	-10.72	-8.29	10.15	Pass
NVNT	n20	5200	-12.69	-11.77	-9.20	10.15	Pass
NVNT	n20	5240	-11.96	-11.01	-8.45	10.15	Pass
NVNT	n40	5190	-17.82	-16.96	-14.36	10.15	Pass
NVNT	n40	5230	-16.68	-16.69	-13.67	10.15	Pass
NVNT	ac20	5180	-12.59	-11.84	-9.19	10.15	Pass
NVNT	ac20	5200	-13.77	-11.09	-9.22	10.15	Pass
NVNT	ac20	5240	-12.91	-11.73	-9.27	10.15	Pass
NVNT	ac40	5190	-17.58	-14.72	-12.91	10.15	Pass
NVNT	ac40	5230	-17.86	-16.91	-14.35	10.15	Pass
NVNT	ac80	5210	-24.84	-26.23	-22.47	10.15	Pass

MIMO mode:

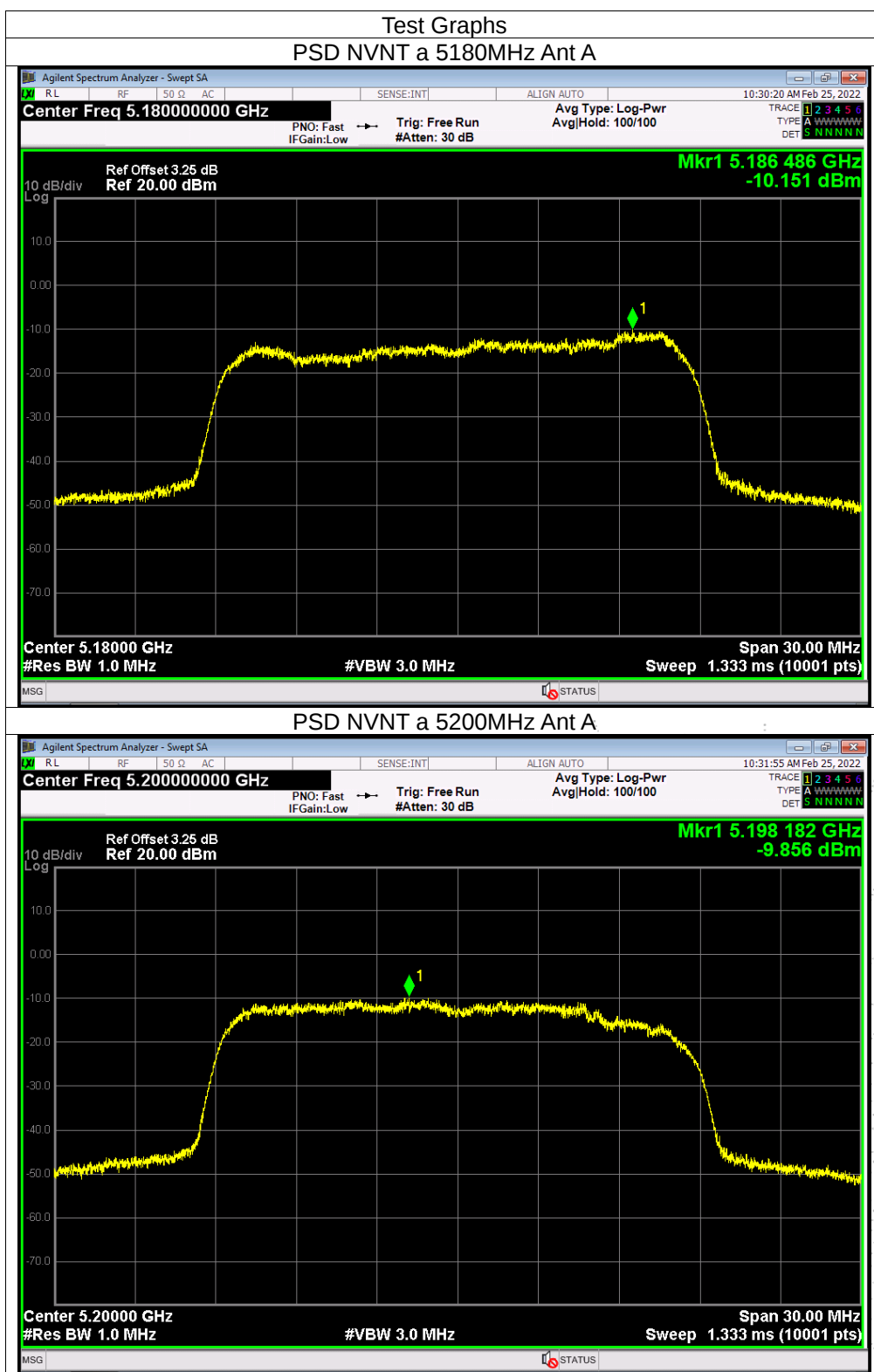
6.85dbi>6.0 dbi so power limit=11-(6.85-6.0)=10.15

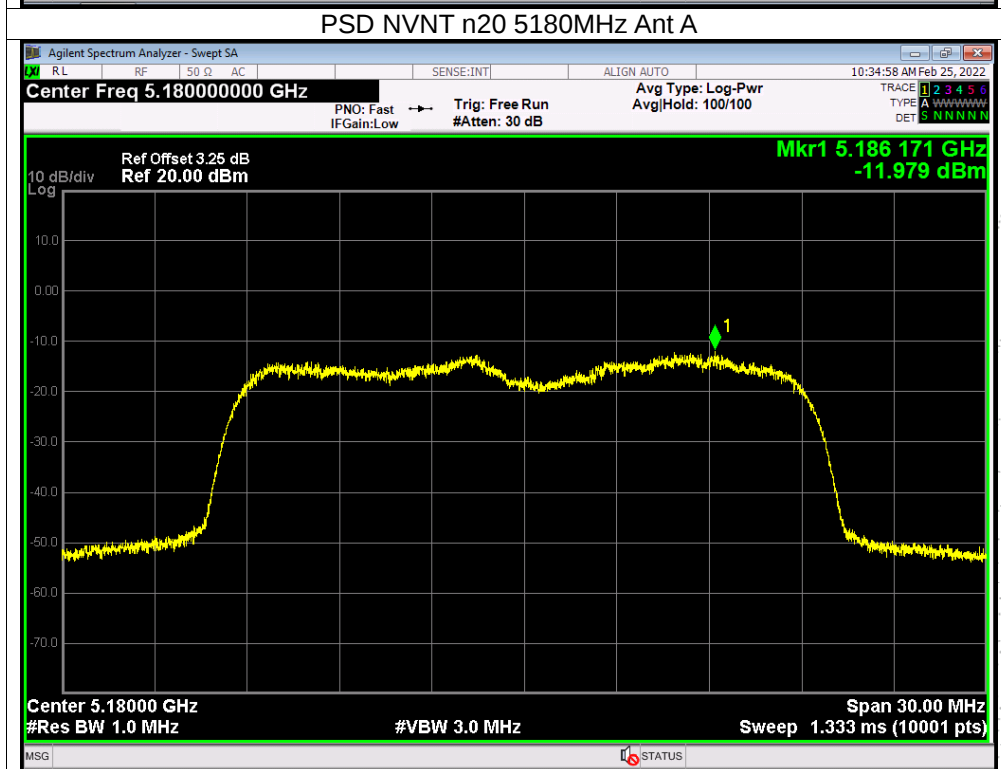
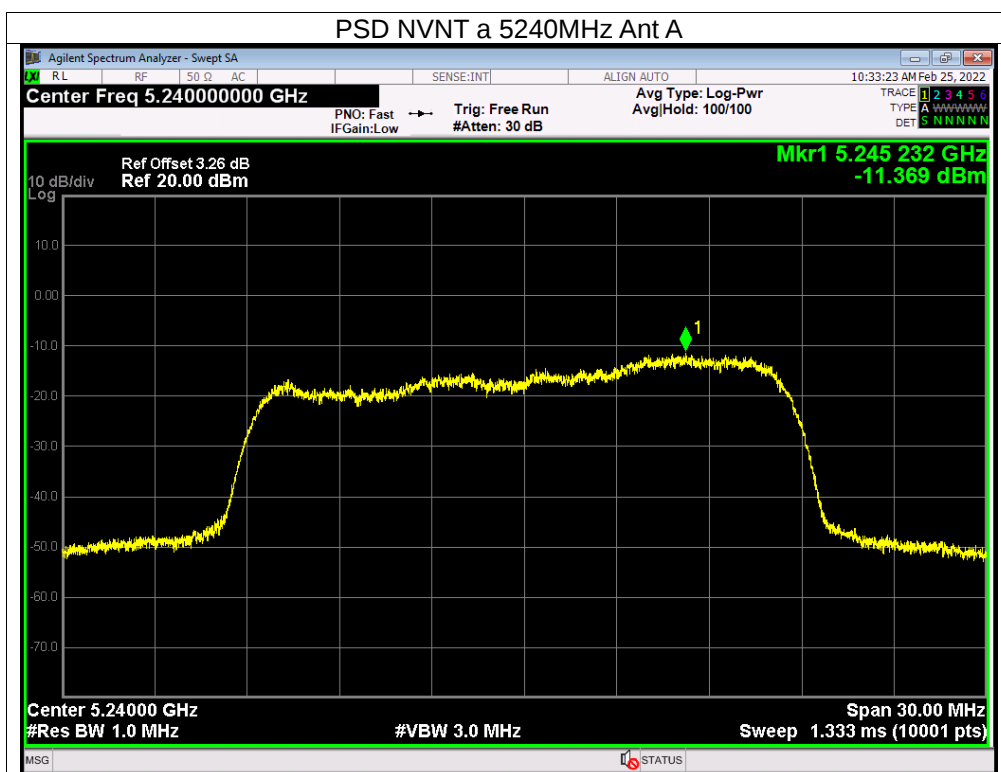
Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/500KHz)		Total (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
			Ant A	Ant B			
NVNT	a	5745	-2.33	-3.27	/	30	Pass
NVNT	a	5785	-4.61	-4.33	/	30	Pass
NVNT	a	5825	-5.14	-5.1	/	30	Pass
NVNT	n20	5745	-4.73	-4.19	-1.44	27.61	Pass
NVNT	n20	5785	-5.33	-5.48	-2.39	27.61	Pass
NVNT	n20	5825	-6.22	-6.52	-3.36	27.61	Pass
NVNT	n40	5755	-7.31	-8.46	-4.84	27.61	Pass
NVNT	n40	5795	-8.35	-9.26	-5.77	27.61	Pass
NVNT	ac20	5745	-3.49	-4.42	-0.92	27.61	Pass
NVNT	ac20	5785	-5.43	-5.63	-2.52	27.61	Pass
NVNT	ac20	5825	-6.5	-6.37	-3.42	27.61	Pass
NVNT	ac40	5755	-7.3	-7.89	-4.57	27.61	Pass
NVNT	ac40	5795	-8.91	-9.24	-6.06	27.61	Pass
NVNT	ac80	5775	-10.19	-11.57	-7.82	27.61	Pass

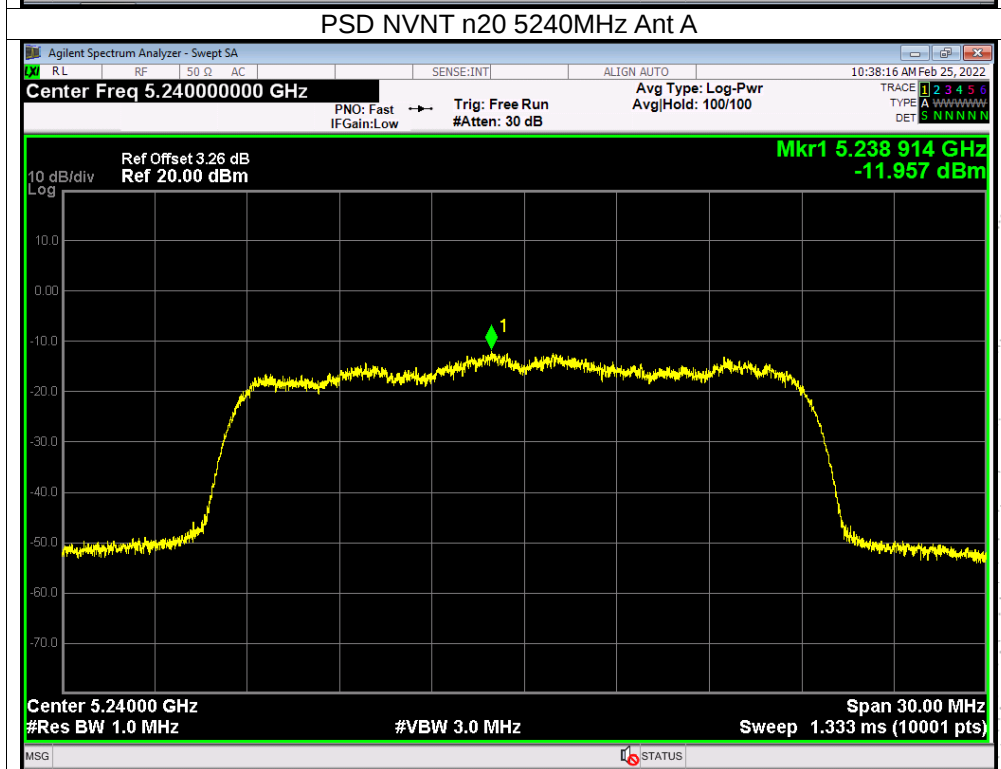
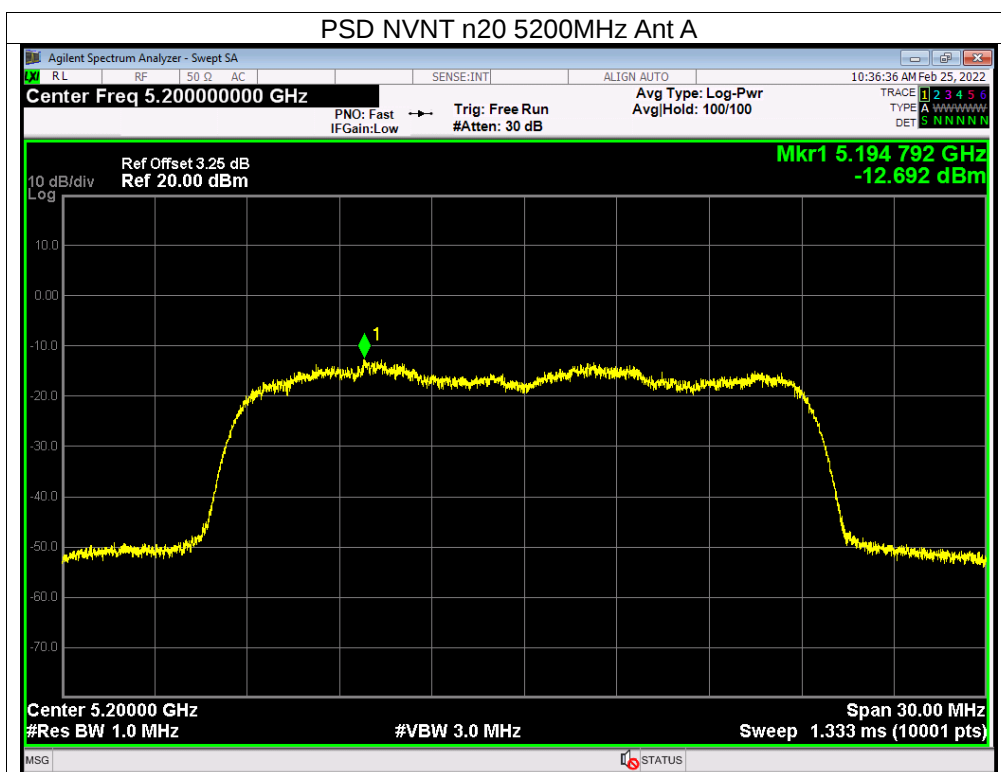
MIMO mode:

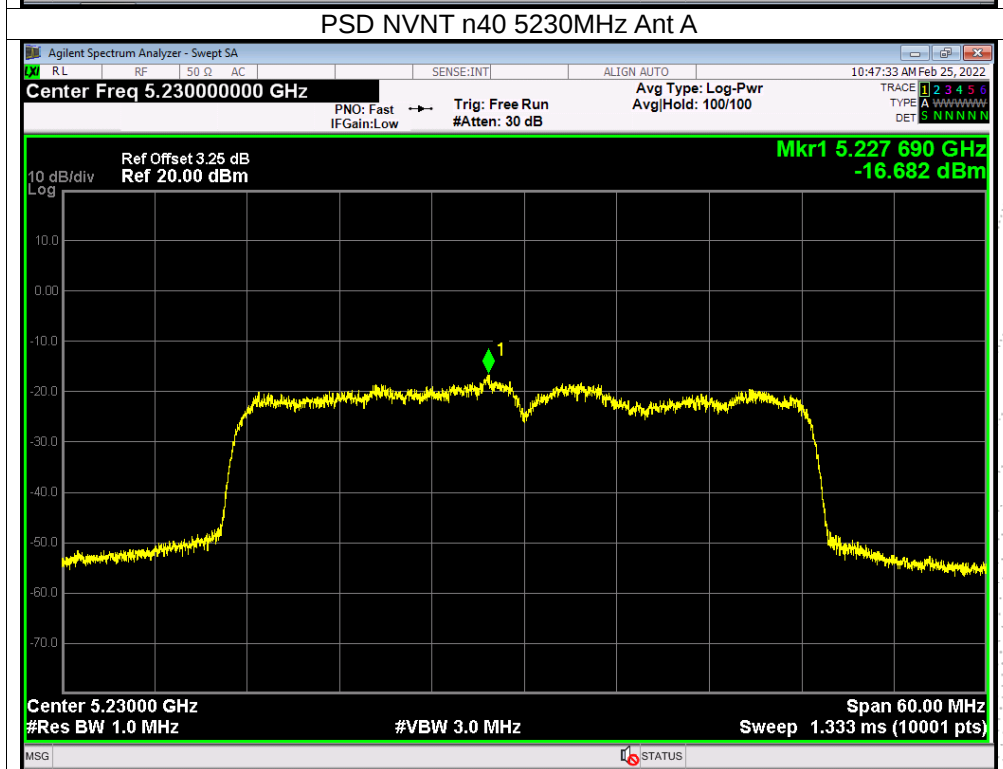
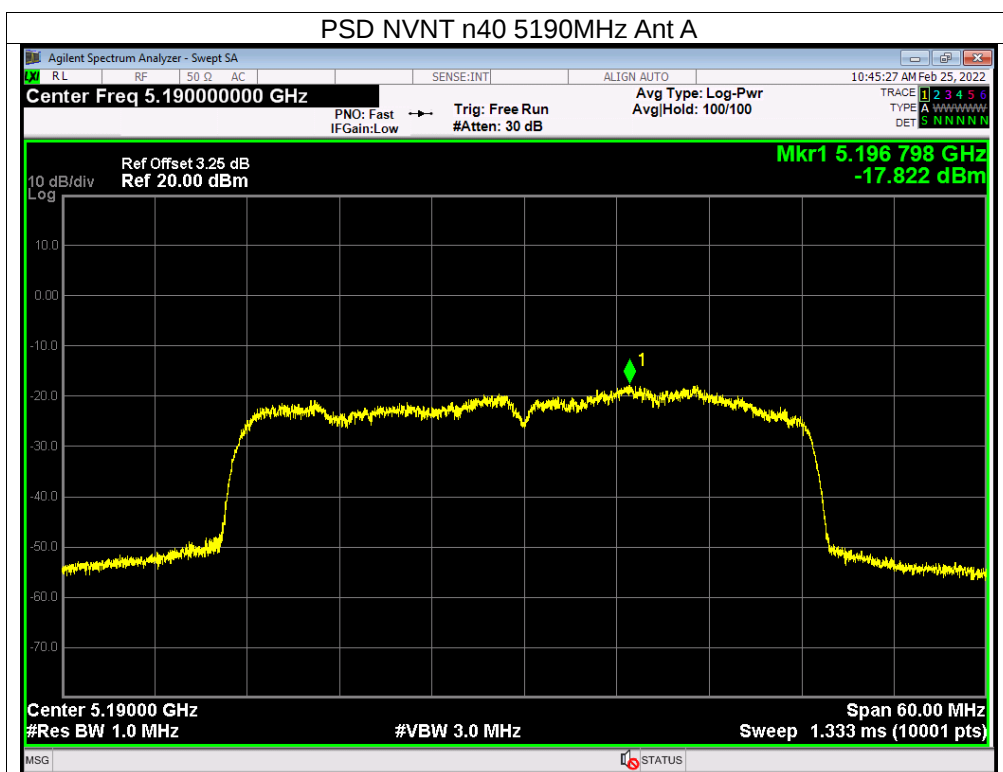
8.39dbi>6.0 dbi so power limit=30-(8.39-6.0)=27.61

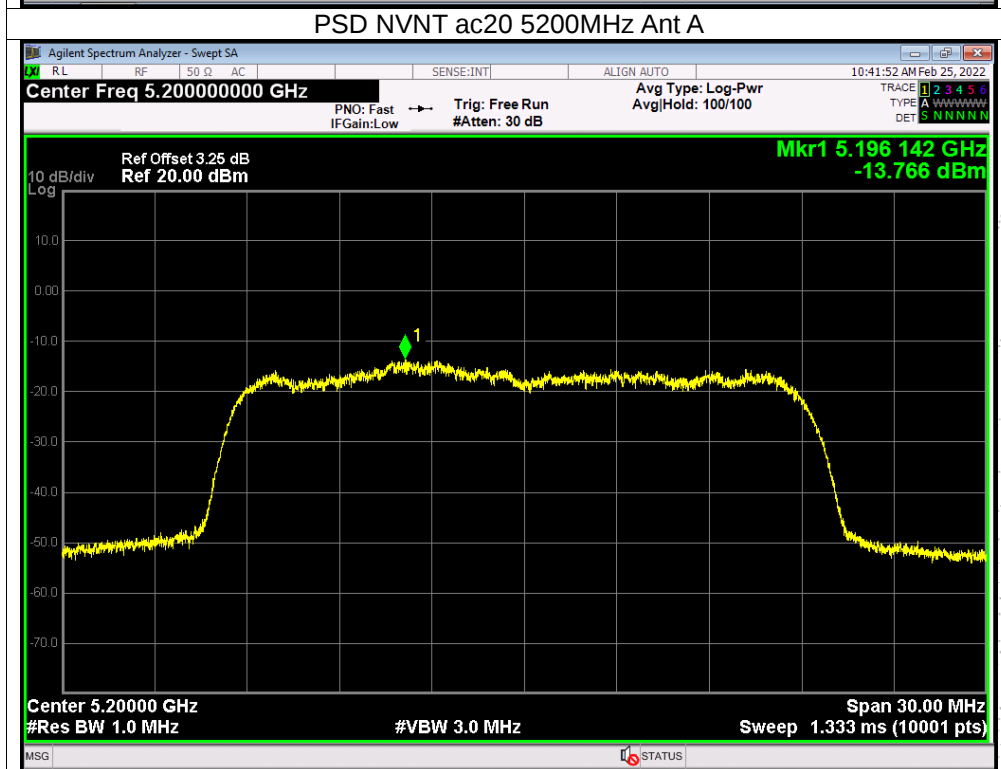
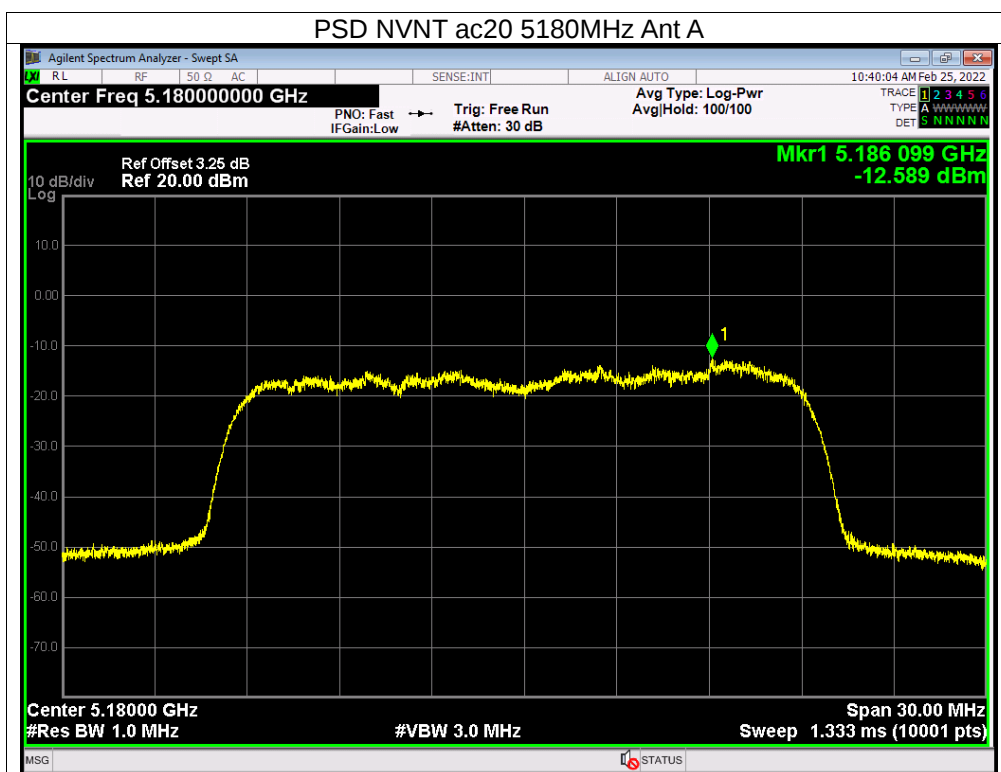
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A Plot.

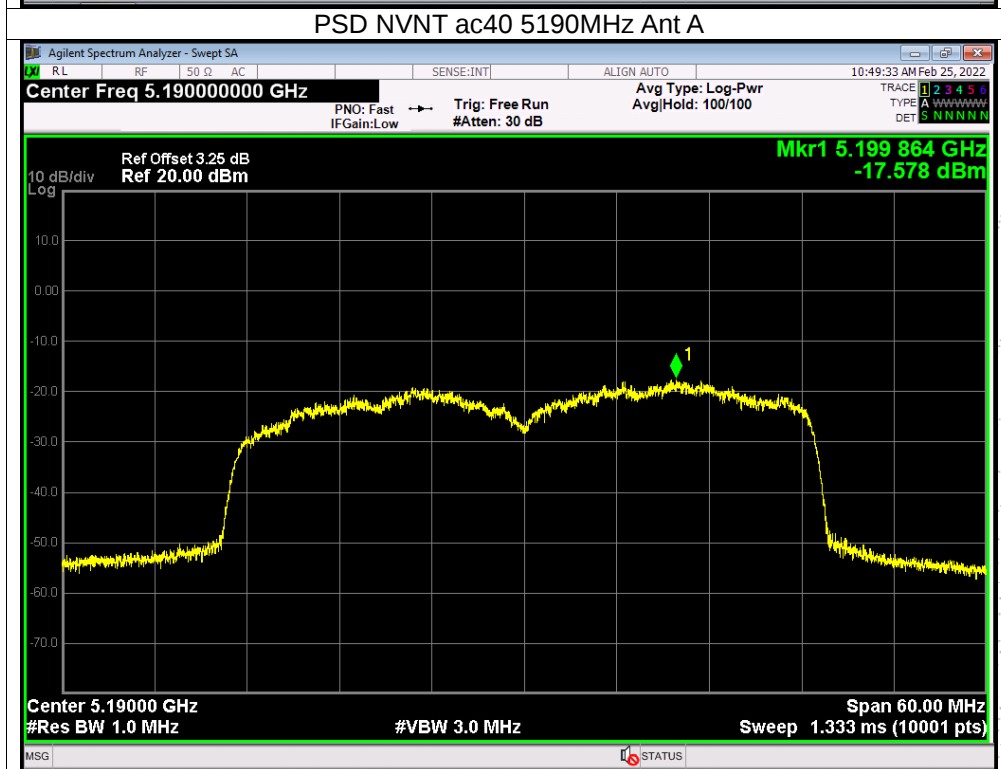
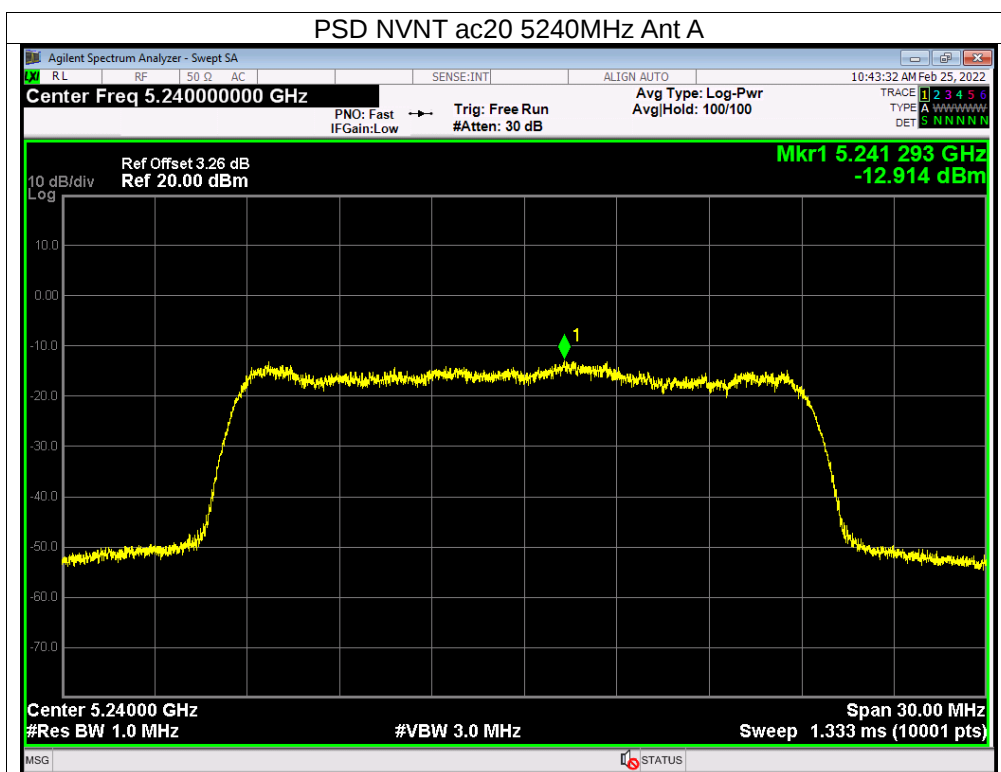


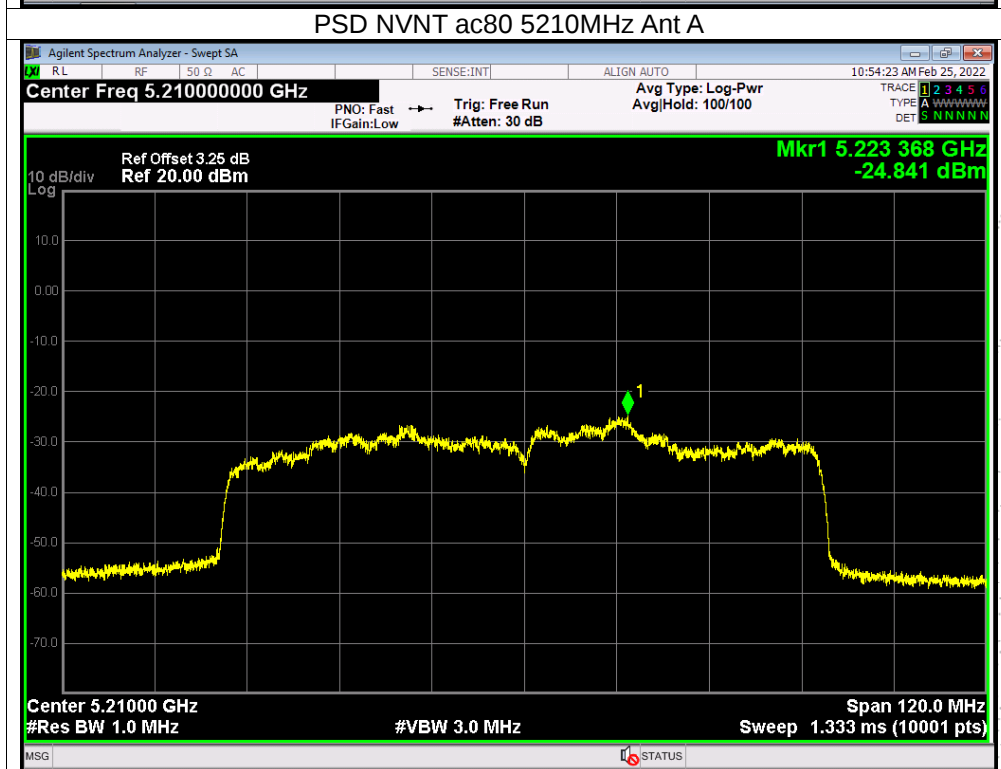
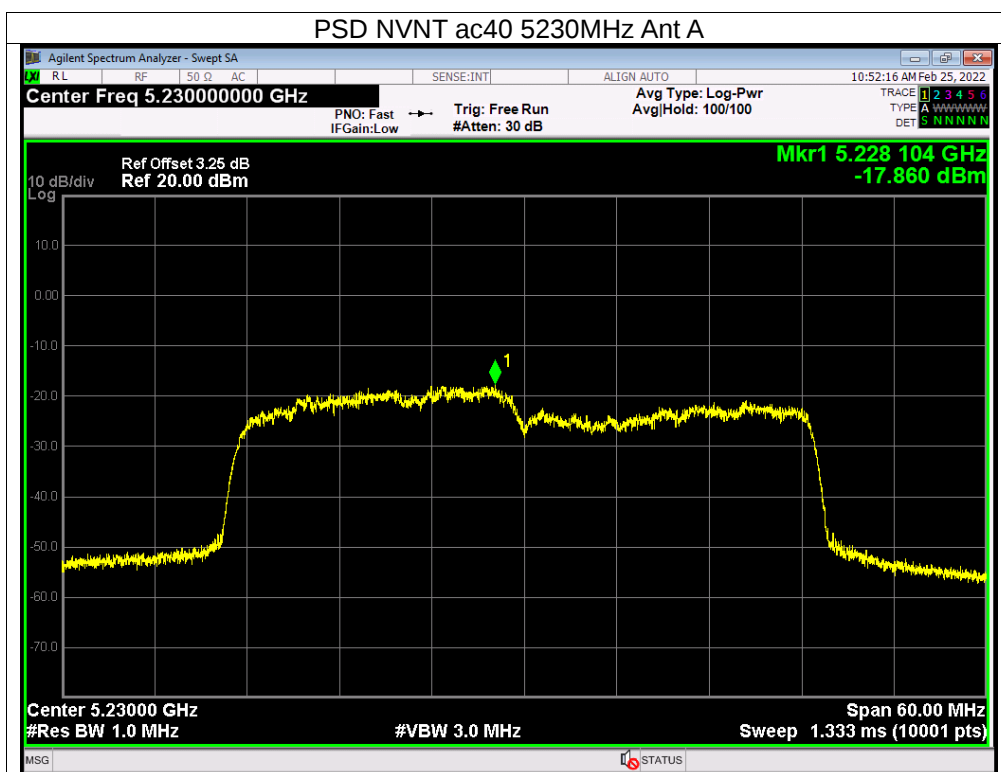


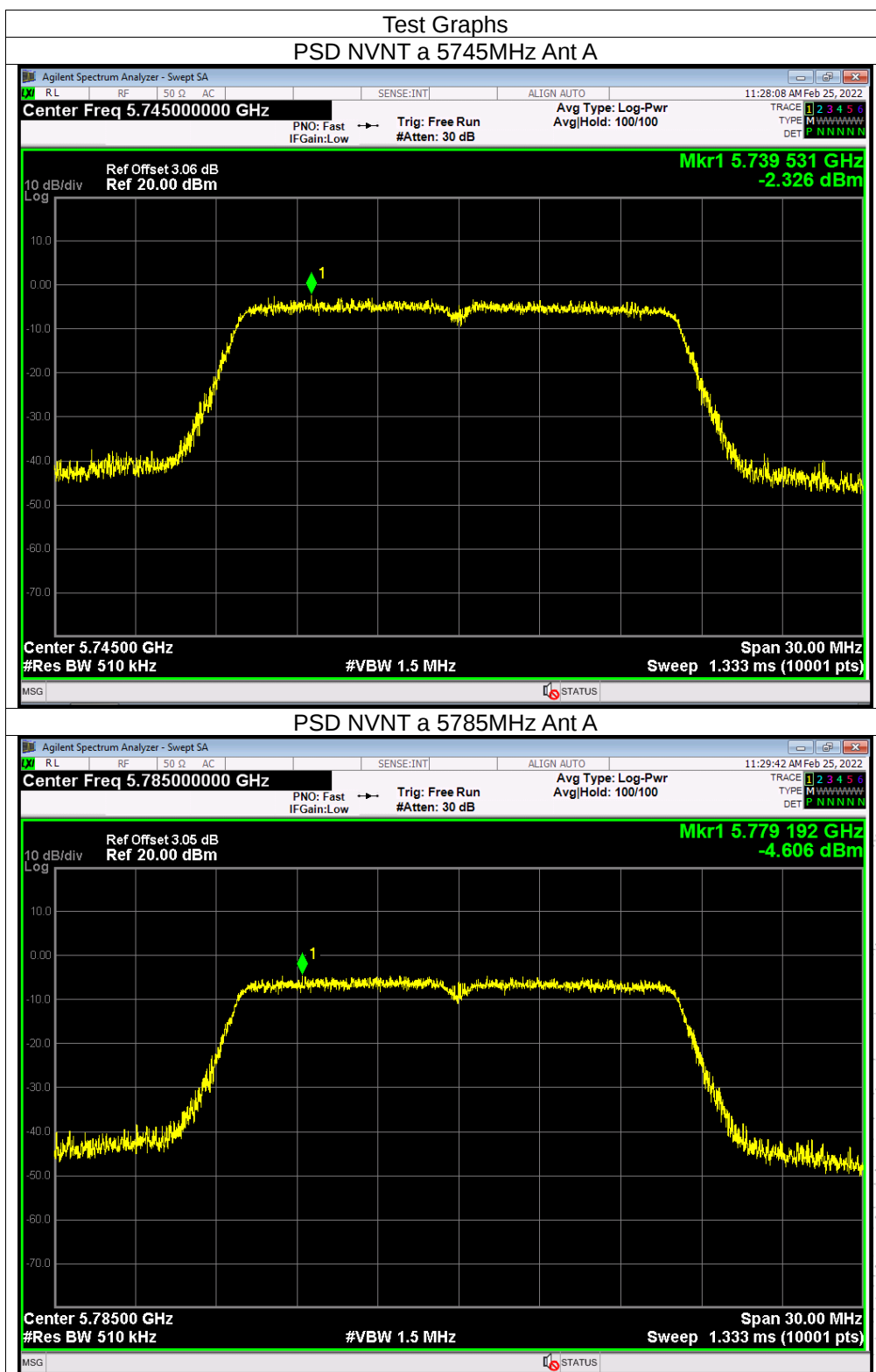


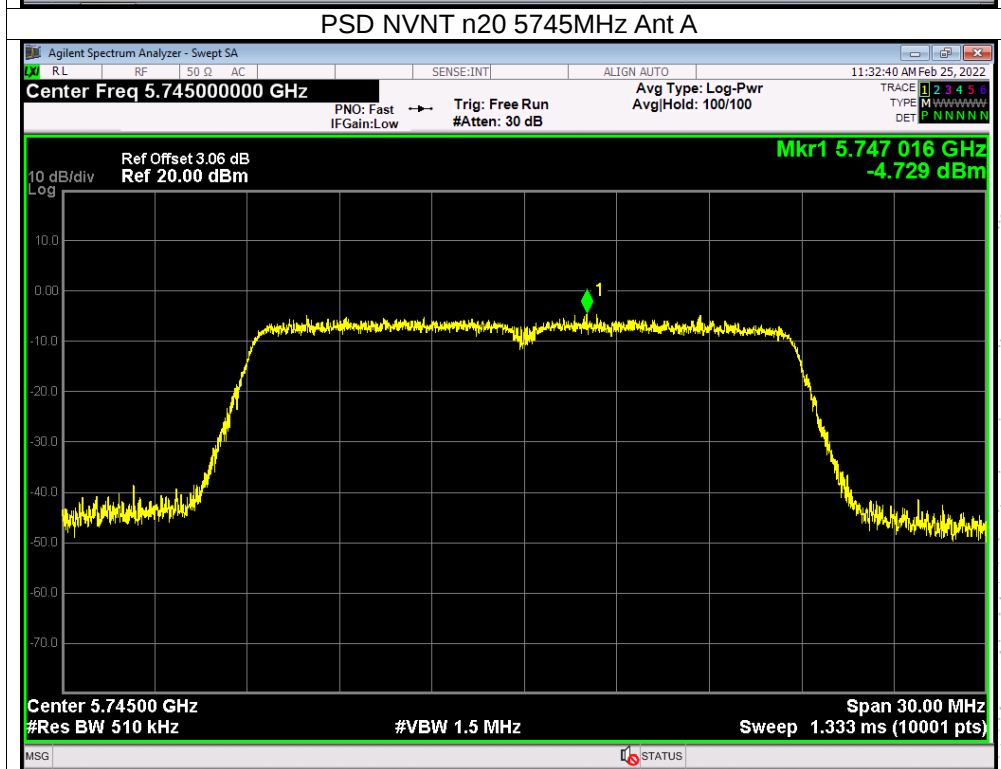
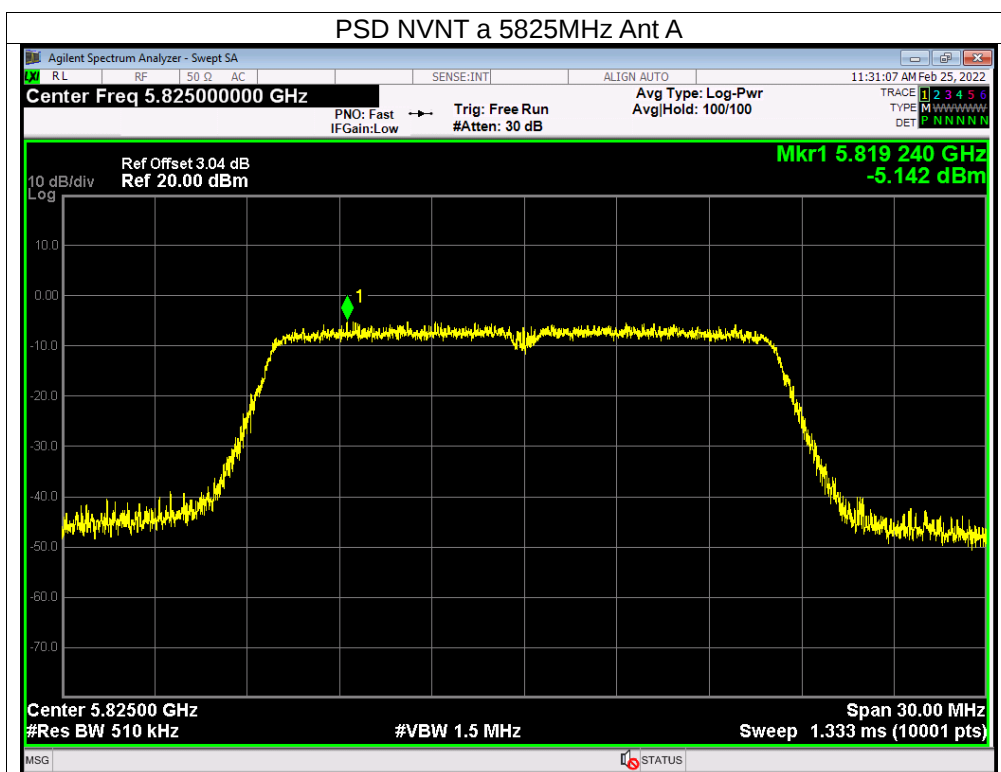


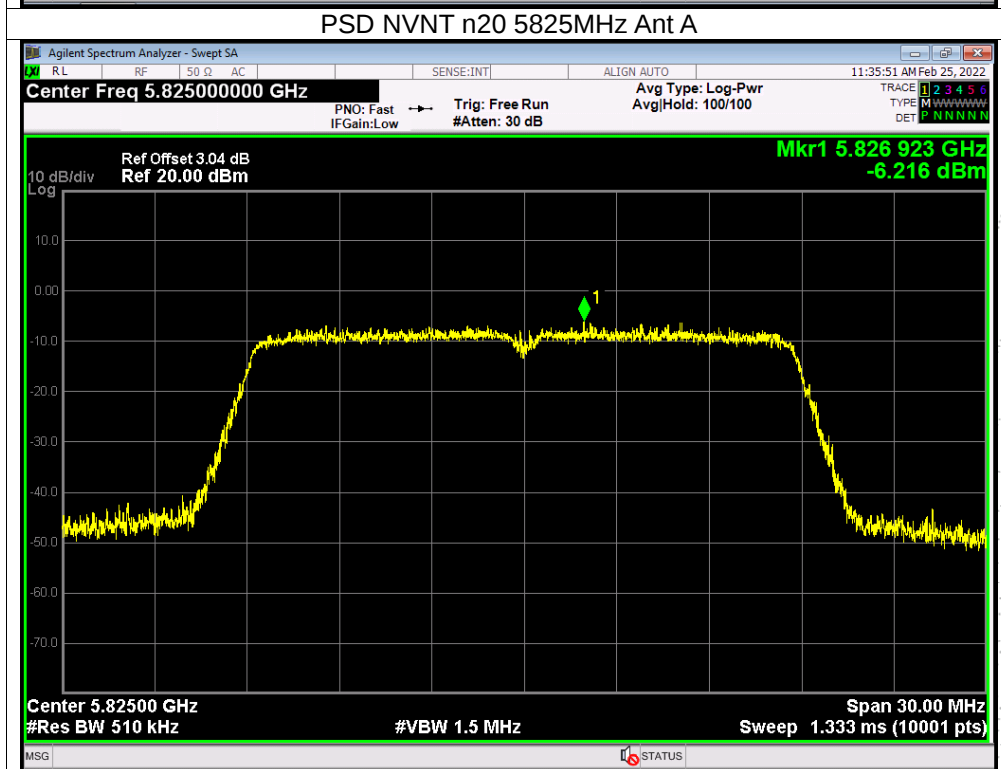
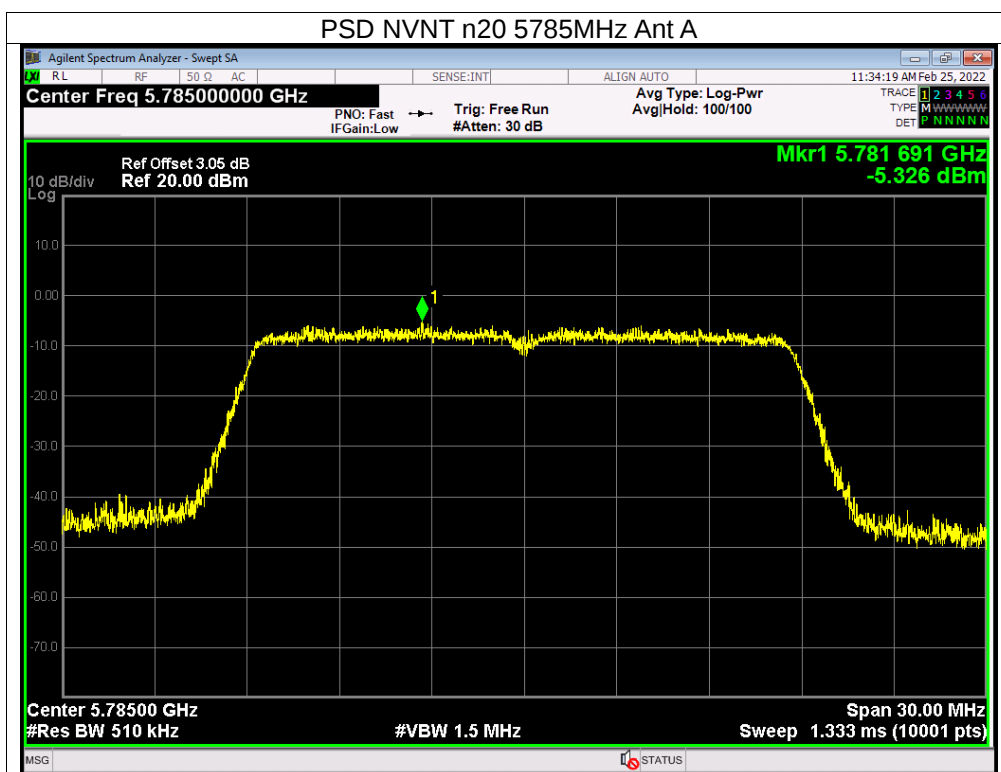


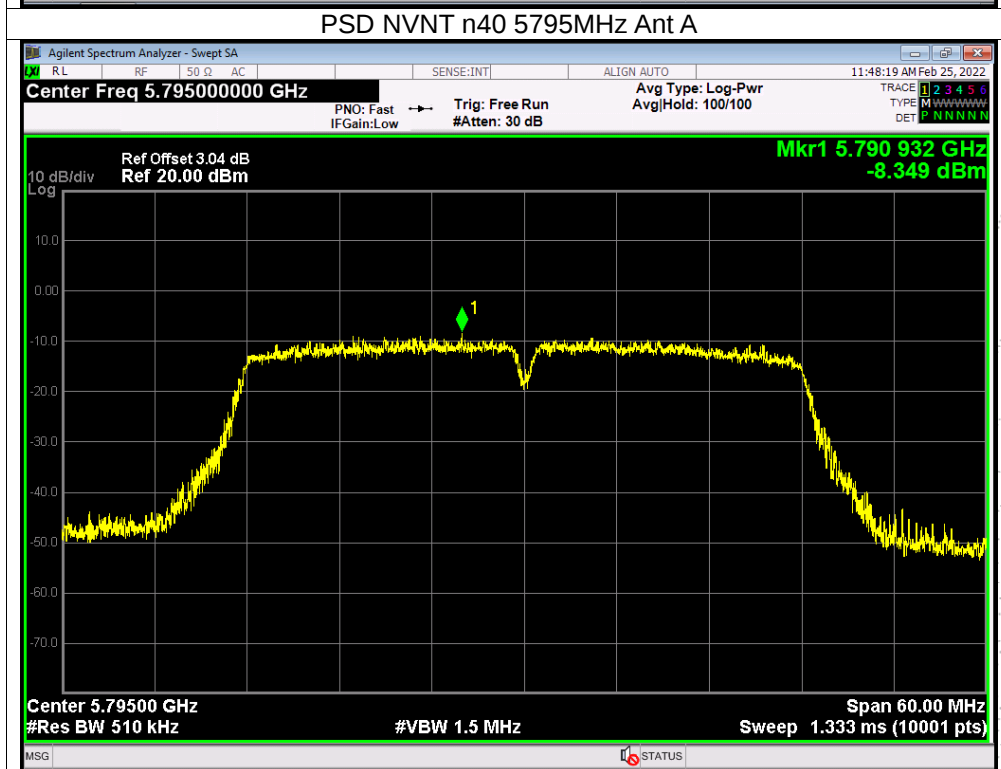
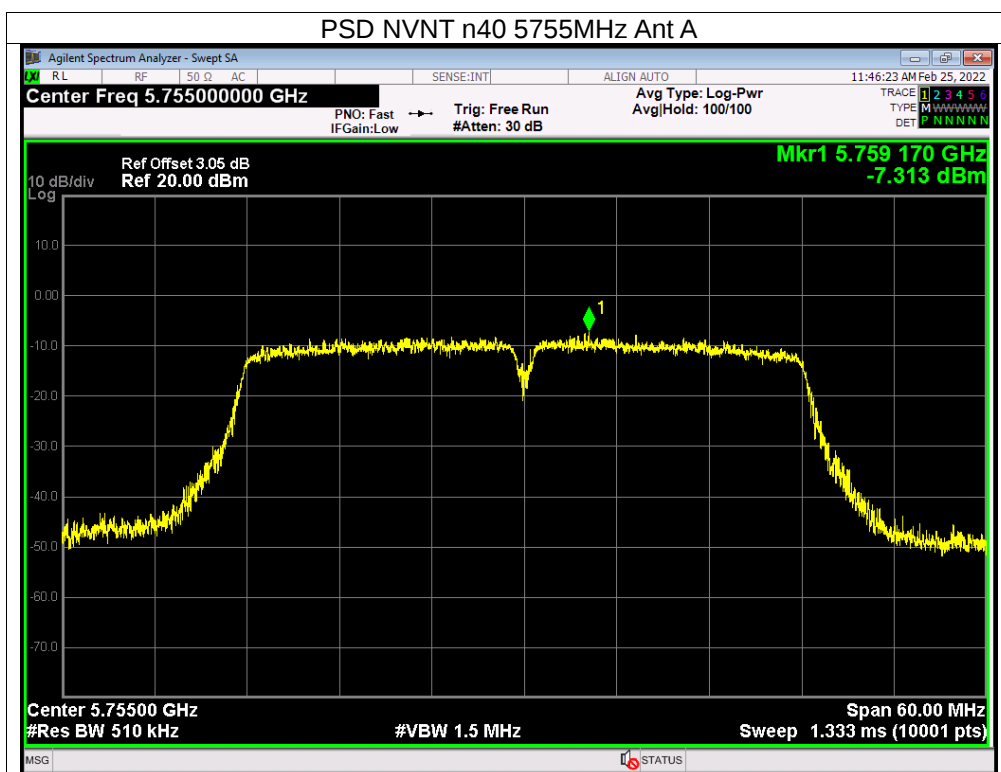


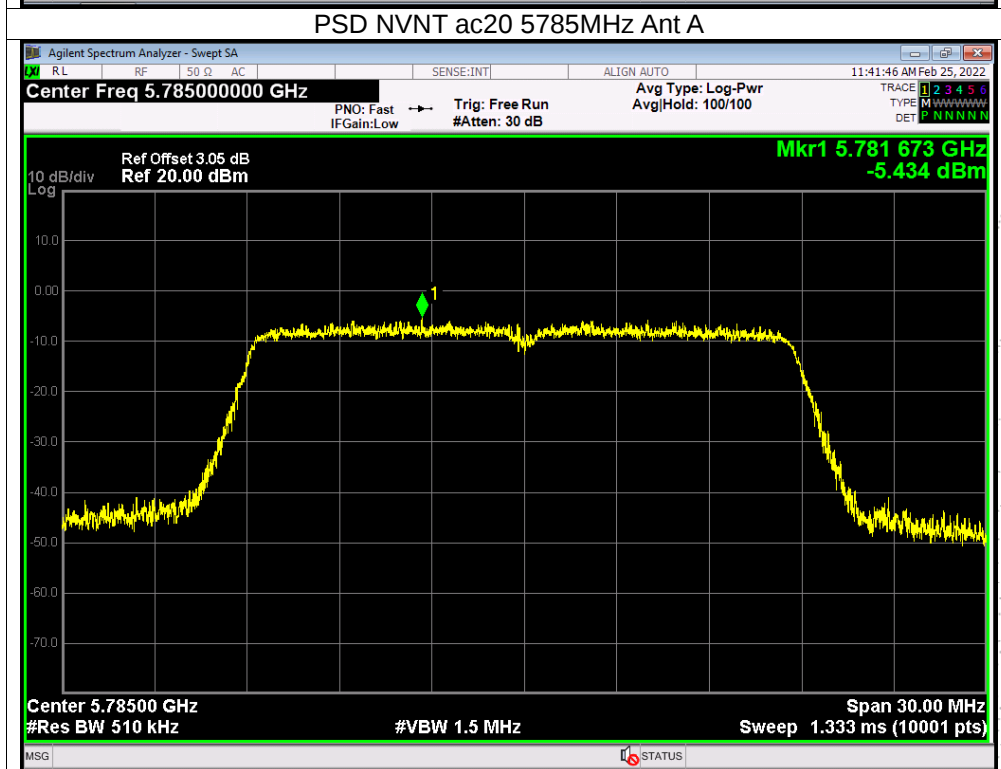
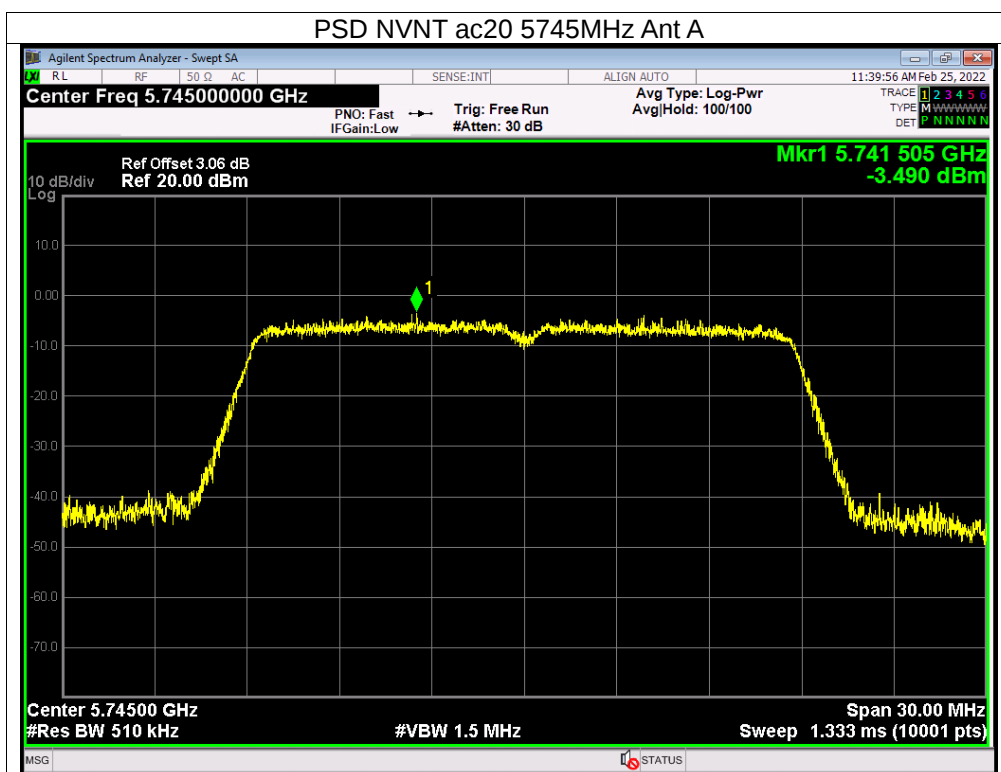


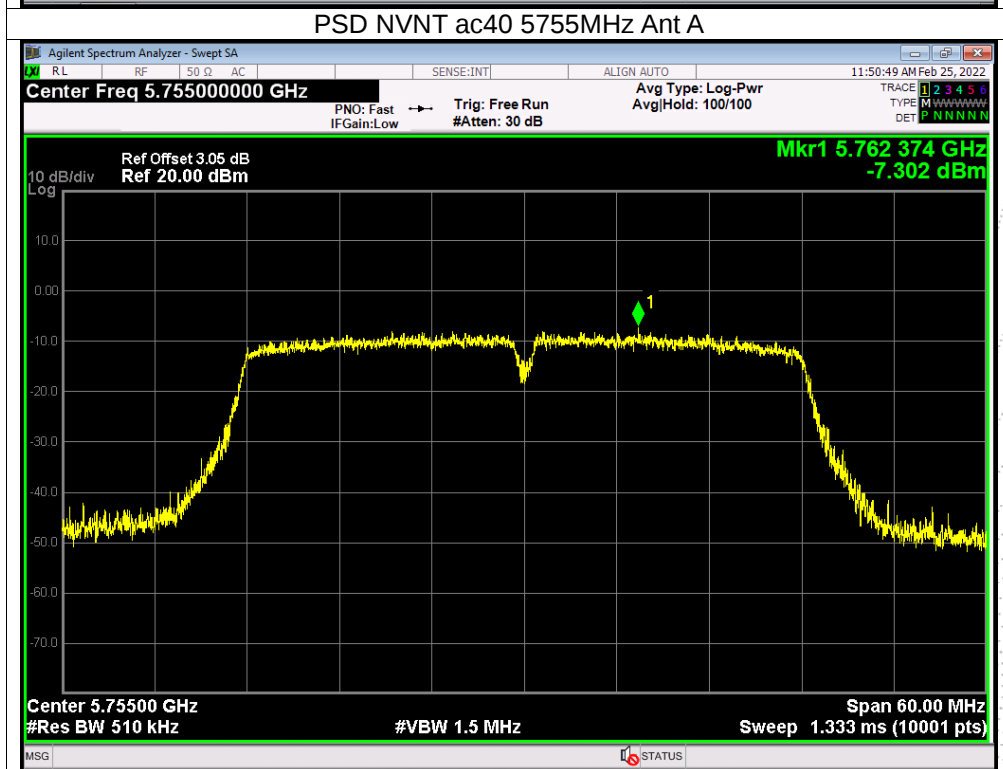
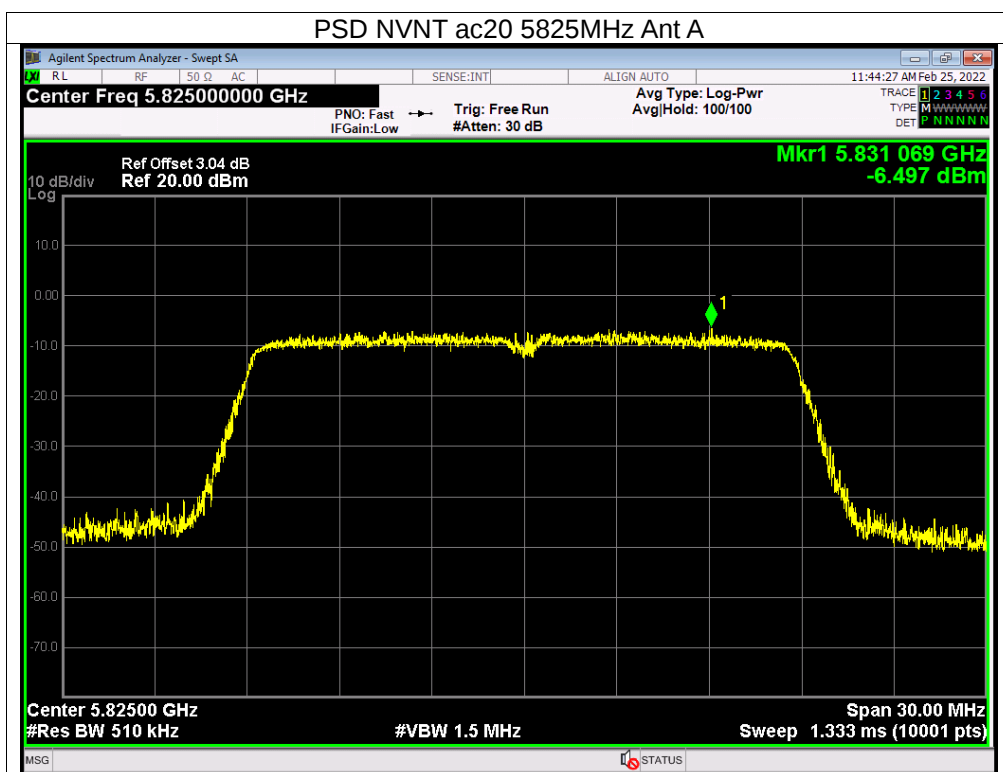


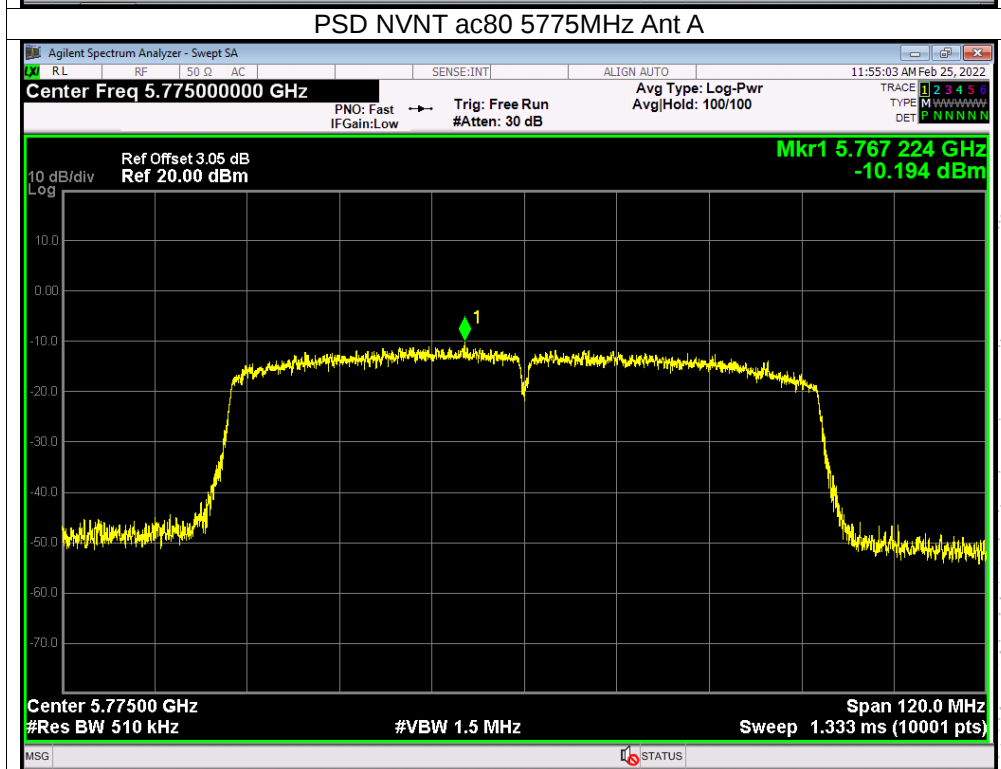
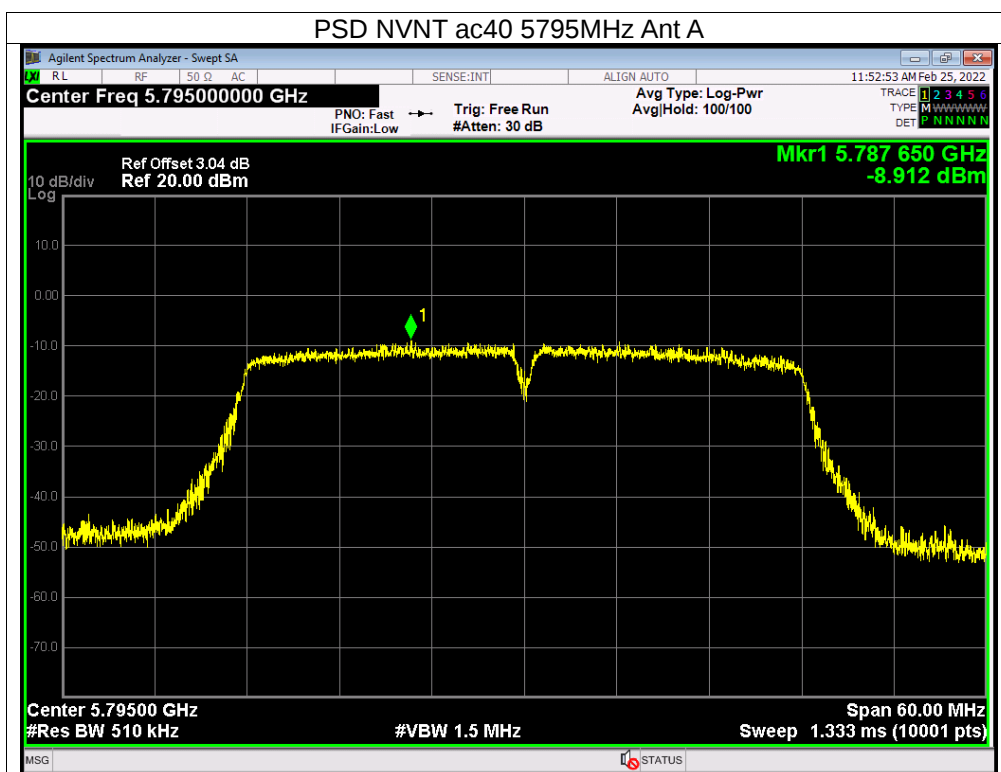






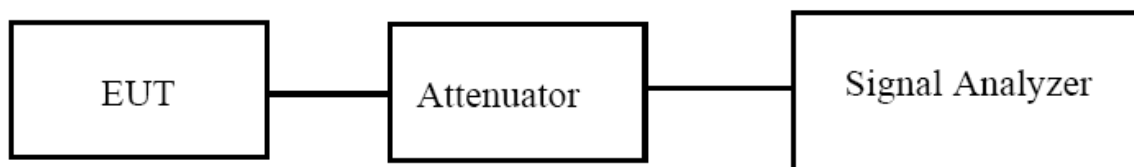






9. 26dB & 6dB & 99% Emission Bandwidth

9.1 Block Diagram Of Test Setup



9.2 Limit

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

9.3 Test procedure

a) Set RBW = approximately 1% of the emission bandwidth.

b) Set the VBW > RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.

2. Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1 % to 5 % of the OBW

4. Set VBW $\geq 3 \cdot$ RBW

5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

6. Use the 99 % power bandwidth function of the instrument (if available).

7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

9.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

9.5 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	(5180-5240MHz)		

Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)		Limit -26 dB Bandwidth (MHz)	Verdict
			Ant A	Ant B		
NVNT	a	5180	18.745	18.582	/	Pass
NVNT	a	5200	18.678	18.745	/	Pass
NVNT	a	5240	18.934	18.67	/	Pass
NVNT	n20	5180	19.477	19.654	/	Pass
NVNT	n20	5200	19.563	19.456	/	Pass
NVNT	n20	5240	19.72	19.484	/	Pass
NVNT	n40	5190	40.055	40.231	/	Pass
NVNT	n40	5230	40.195	40.783	/	Pass
NVNT	ac20	5180	19.619	19.52	/	Pass
NVNT	ac20	5200	19.523	19.599	/	Pass
NVNT	ac20	5240	19.574	19.67	/	Pass
NVNT	ac40	5190	40.161	40.309	/	Pass
NVNT	ac40	5230	40.109	40.195	/	Pass
NVNT	ac80	5210	78.972	79.41	/	Pass

Condition	Mode	Frequency (MHz)	99% OBW (MHz)	
			Ant A	Ant B
NVNT	a	5180	16.341	16.333
NVNT	a	5200	16.335	16.363
NVNT	a	5240	16.344	16.344
NVNT	n20	5180	17.527	17.522
NVNT	n20	5200	17.527	17.543
NVNT	n20	5240	17.52	17.527
NVNT	n40	5190	36.025	36.065
NVNT	n40	5230	36.101	36.059
NVNT	ac20	5180	17.526	17.531
NVNT	ac20	5200	17.532	17.533
NVNT	ac20	5240	17.521	17.522
NVNT	ac40	5190	36.048	35.992
NVNT	ac40	5230	36.04	36.001
NVNT	ac80	5210	74.427	74.593

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	(5745-5825MHz)		

Condition	Mode	Frequency (MHz)	-6 dB Bandwidth (MHz)		Limit -6 dB Bandwidth (MHz)	Verdict
			Ant A	Ant B		
NVNT	a	5745	16.344	16.313	0.5	Pass
NVNT	a	5785	16.344	16.334	0.5	Pass
NVNT	a	5825	16.319	16.324	0.5	Pass
NVNT	n20	5745	17.539	17.132	0.5	Pass
NVNT	n20	5785	17.198	17.54	0.5	Pass
NVNT	n20	5825	17.575	17.546	0.5	Pass
NVNT	n40	5755	35.458	35.167	0.5	Pass
NVNT	n40	5795	35.131	35.033	0.5	Pass
NVNT	ac20	5745	17.275	17.285	0.5	Pass
NVNT	ac20	5785	17.285	17.55	0.5	Pass
NVNT	ac20	5825	17.552	17.525	0.5	Pass
NVNT	ac40	5755	34.129	34.731	0.5	Pass
NVNT	ac40	5795	35.097	35.067	0.5	Pass
NVNT	ac80	5775	73.804	70.083	0.5	Pass

Condition	Mode	Frequency (MHz)	99% OBW (MHz)	
			Ant A	Ant B
NVNT	a	5745	16.354	16.346
NVNT	a	5785	16.344	16.351
NVNT	a	5825	16.34	16.332
NVNT	n20	5745	17.515	17.535
NVNT	n20	5785	17.542	17.538
NVNT	n20	5825	17.522	17.526
NVNT	n40	5755	36.109	36.086
NVNT	n40	5795	36.118	36.023
NVNT	ac20	5745	17.529	17.534
NVNT	ac20	5785	17.537	17.549
NVNT	ac20	5825	17.532	17.532
NVNT	ac40	5755	36.047	36.053
NVNT	ac40	5795	36.066	36.068
NVNT	ac80	5775	74.505	74.473

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B, only shown Antenna B Plot.



