

TEST REPORT

Report No.: BCTC2009001659-4E

Applicant: Shenzhen Hengbida Electronic Technology co., Ltd

Product Name: Double screen translator

Model/Type Ref.: XF4

Tested Date: Oct. 03, 2020 to Nov. 04, 2020

Issued Date: Nov. 04, 2020

Shenzhen BCTC Testing Co., Ltd.

FCC ID: 2AG7X-XF4

Product Name: Double screen translator
Trademark: YISITE
XF4
Model/Type Ref.: XF2, XF3, XF5, XF6, XF7, XF8, XF9, XF10, XF11, XF12, XF13, XF14, XF15, XF16, XF17, XF18, XF19, XF20, XF21
Prepared For: Shenzhen Hengbida Electronic Technology Co., Ltd
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Sample Received Date: Oct. 03, 2020
Sample tested Date: Oct. 03, 2020 to Nov. 04, 2020
Issue Date: Nov. 04, 2020
Report No.: BCTC2009001659-4E
FCC Part15 15.407
Test Standards ANSI C63.10-2013
KDB 662911 D01 v02r01
KDB 789033 D02 v02r01
Test Results PASS

Tested by:



Sam zeng/Project Handler

Approved by:



Zero Zhou/Reviewer

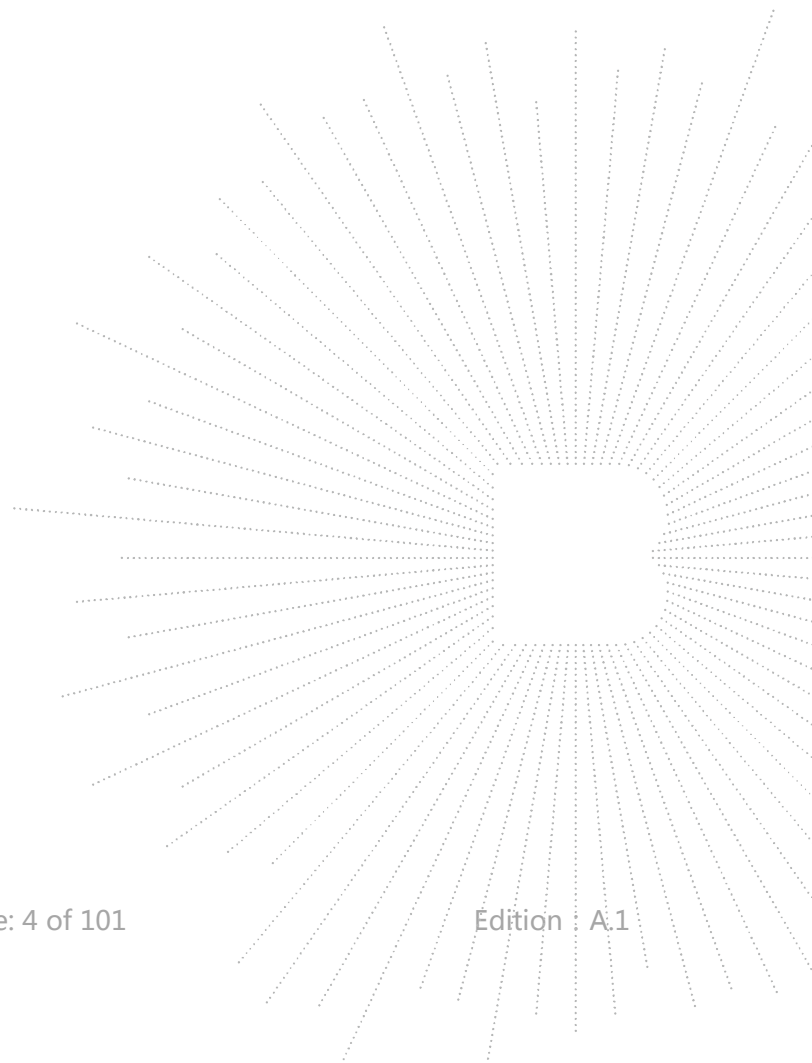
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TABLE OF CONTENT

Test Report Declaration	Page
1. VERSION	5
2. TEST SUMMARY	6
3. MEASUREMENT UNCERTAINTY	7
4. PRODUCT INFORMATION AND TEST SETUP	8
4.1 Product Information	8
4.2 Test Setup Configuration	9
4.3 Support Equipment	9
4.4 Channel List	10
4.5 Test Mode	11
4.6 table of parameters of text software setting	11
5. TEST FACILITY AND TEST INSTRUMENT USED	12
5.1 Test Facility	12
5.2 Test Instrument Used	12
6. CONDUCTED EMISSIONS	14
6.1 Block Diagram Of Test Setup	14
6.2 Limit	14
6.3 Test procedure	14
6.4 EUT operating Conditions	14
6.5 Test Result	15
7. RADIATED EMISSIONS	17
7.1 Block Diagram Of Test Setup	17
7.2 Limit	18
7.3 Test procedure	19
7.4 EUT operating Conditions	20
7.5 Test Result	21
8. POWER SPECTRAL DENSITY TEST	36
8.1 Block Diagram Of Test Setup	36
8.2 Limit	36
8.3 Test procedure	37
8.4 EUT operating Conditions	37
8.5 Test Result	38
9. 26DB & 6DB & 99% EMISSION BANDWIDTH	46
9.1 Block Diagram Of Test Setup	46
9.2 Limit	46
9.3 Test procedure	46
9.4 EUT operating Conditions	47
9.5 Test Result	47
10. MAXIMUM CONDUCTED OUTPUT POWER	63
10.1 Block Diagram Of Test Setup	63
10.2 Limit	63
10.3 Test procedure	63

10.4	EUT operating Conditions	64
10.5	Test Result	65
11.	OUT OF BAND EMISSIONS	67
11.1	Block Diagram Of Test Setup	67
11.2	Limit	67
11.3	Test procedure	67
11.4	EUT operating Conditions	67
11.5	Test Result	68
12.	SPURIOUS RF CONDUCTED EMISSIONS	74
12.1	Block Diagram Of Test Setup	74
12.2	Limit	74
12.3	Test procedure	74
12.4	Test Result	75
13.	FREQUENCY STABILITY MEASUREMENT	90
13.1	Block Diagram Of Test Setup	90
13.2	Limit	90
13.3	Test procedure	90
13.4	Test Result	91
14.	ANTENNA REQUIREMENT	97
14.1	Limit	97
14.2	EUT ANTENNA	97
15.	EUT PHOTOGRAPHS	98
16.	EUT TEST SETUP PHOTOGRAPHS	99

(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2009001659-4E	Nov. 04, 2020	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No	Results
1	Spurious Radiated Emissions	15.209(a), 15.407 (b)(1) 15.407 (b)(4) 15.407 (b)(6)	PASS
2	Conducted Emission	15.207	PASS
3	26 dB and 99% Emission Bandwidth	15.407 (a)(5) 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
8	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(1GHz-18GHz)	U=4.5dB
3	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
4	Conducted Adjacent channel power	U=1.38dB
5	Conducted output power uncertainty Above 1G	U=1.576dB
6	Conducted output power uncertainty below 1G	U=1.28dB
7	humidity uncertainty	U=5.3%
8	Temperature uncertainty	U=0.59°C

4. PRODUCT INFORMATION AND TEST SETUP

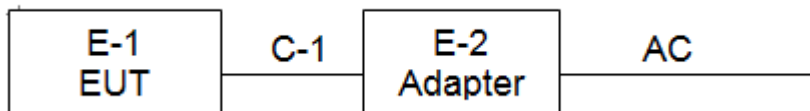
4.1 Product Information

Model/Type Ref.:	XF4 XF2, XF3, XF5, XF6, XF7, XF8, XF9, XF10, XF11, XF12, XF13, XF14, XF15, XF16, XF17, XF18, XF19, XF20, XF21
Model differences:	All the model are the same circuit and RF module, except model names.
Hardware Version:	HBD XF4_MB_V1
Software Version:	HBD.XF4.V1.d3.a3_a.u_s_v0.202008212015.V1.img
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:	Internal antenna
Antenna Gain:	0.8dBi
Ratings:	DC 3.7V from Battery DC 5V from adapter

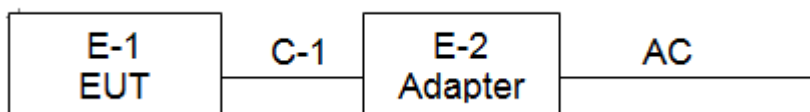
4.2 Test Setup Configuration

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.	Data Cable	Power Cord
E-1	Double screen translator	YISITE	XF4	N/A	EUT	E-1
E-2	Adapter	N/A	BCTC001	N/A	Auxiliary	E-2

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.3M	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

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)
42	5210

Frequency and Channel list for 802.11a/n/ac(20 MHz) band IV (5745-5825MHz):

802.11a/n/ac(20 MHz) 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)
151	5755	159	5795	-	-

802.11ac 80MHz Carrier Frequency Channel	
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	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 5	Link Mode

Conducted Emission	
Final Test Mode	Description
Mode 5	Link Mode

For Radiated Emission	
Final Test 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	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165

Note:

(1) 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	FCC_TOOL		
Parameters	DEF	DEF	DEF

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: 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, 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

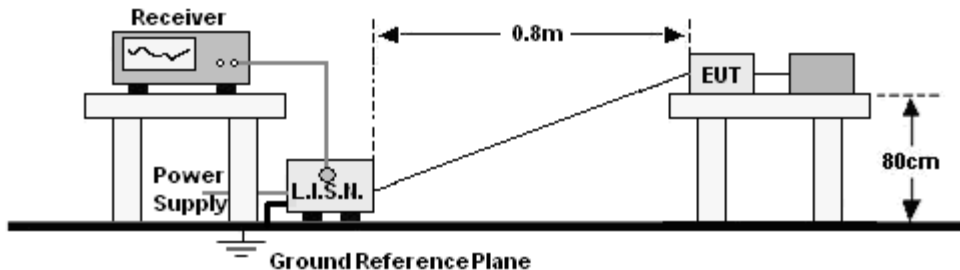
5.2 Test Instrument Used

Conducted emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
LISN	R&S	ENV216	101375	Jun. 04, 2020	Jun. 03, 2021
ISN	HPX	ISN T800	S1509001	Jun. 04, 2020	Jun. 03, 2021
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

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	Jun. 08, 2020	Jun. 07, 2021
Receiver	R&S	ESRP	101154	Jun. 08, 2020	Jun. 07, 2021
Amplifier	Schwarzbeck	BBV9718	9718-309	Jun. 04, 2020	Jun. 03, 2021
Amplifier	Schwarzbeck	BBV9744	9744-0037	Jun. 04, 2020	Jun. 03, 2021
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-942	Jun. 08, 2020	Jun. 07, 2021
Horn Antenna	SCHWARZBEC K	BBHA9120 D	1201	Jun. 10, 2020	Jun. 09, 2021
Horn Antenna (18GHz-40GHz)	SCHWARZBEC K	BBHA9170	822	Jun. 10, 2020	Jun. 09, 2021
Amplifier (18GHz-40GHz)	MITEQ	TTA1840-3 5-HG	2034381	Jun. 08, 2020	Jun. 07, 2021
Loop Antenna (9kHz-30MHz)	SCHWARZBEC K	FMZB1519 B	014	Jun. 08, 2020	Jun. 07, 2021
RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MH z	B1702988-0 008	Jun. 08, 2020	Jun. 07, 2021
RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1G Hz	1486150	Jun. 08, 2020	Jun. 07, 2021
RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40G Hz	1607106	Jun. 08, 2020	Jun. 07, 2021
Power Metter	Keysight	E4419B	\	Jun. 08, 2020	Jun. 07, 2021
Power Sensor (AV)	Keysight	E9 300A	\	Jun. 08, 2020	Jun. 07, 2021
Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY4910006 0	Jun. 04, 2020	Jun. 03, 2021
Spectrum Analyzer 9kHz-40GHz	Agilent	FSP40	100363	Jun. 13, 2020	Jun. 12, 2021
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:
1. *Decreasing linearly with logarithm of frequency.
2. 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

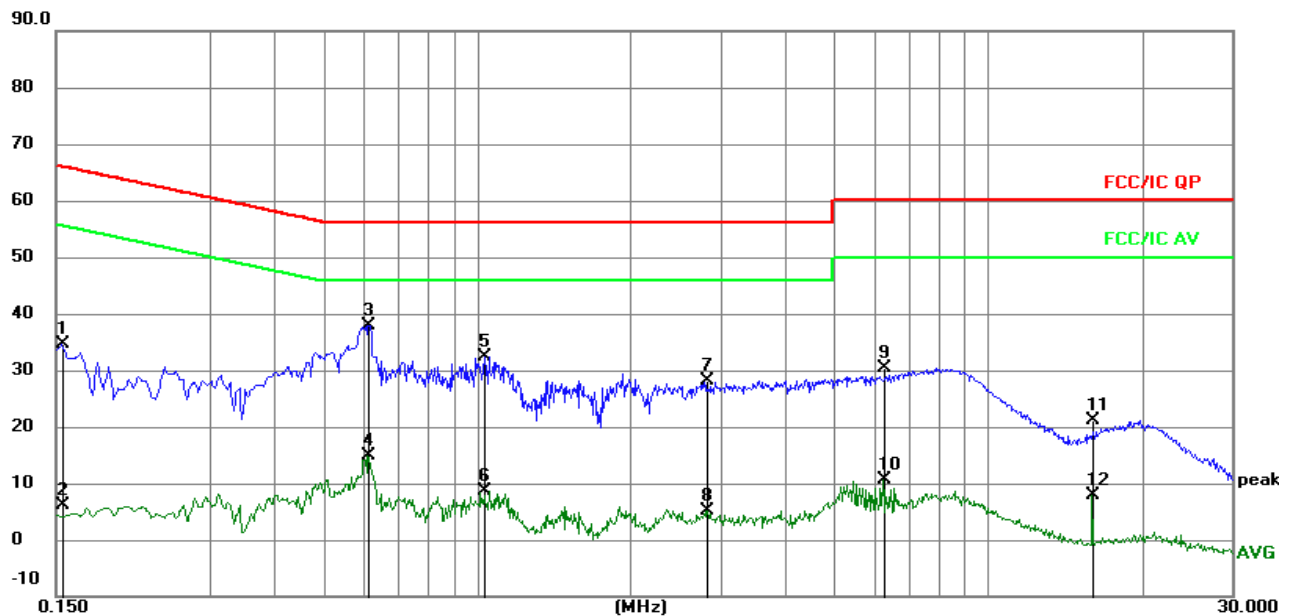
- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak 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.

6.5 Test Result

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

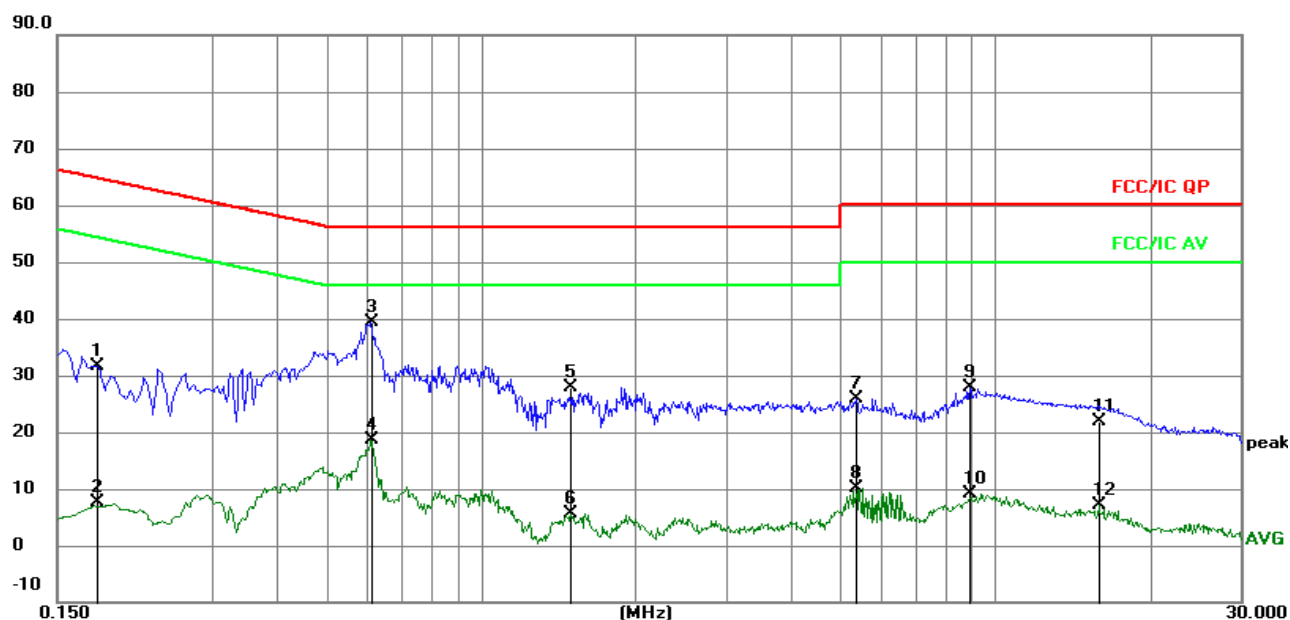


Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq. MHz	Reading Level dB	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1545	25.10	9.51	34.61	65.75	-31.14	QP	
2		0.1545	-3.29	9.51	6.22	55.75	-49.53	AVG	
3	*	0.6134	27.88	9.95	37.83	56.00	-18.17	QP	
4		0.6134	4.93	9.95	14.88	46.00	-31.12	AVG	
5		1.0320	22.83	9.57	32.40	56.00	-23.60	QP	
6		1.0320	-1.05	9.57	8.52	46.00	-37.48	AVG	
7		2.8095	18.41	9.65	28.06	56.00	-27.94	QP	
8		2.8095	-4.52	9.65	5.13	46.00	-40.87	AVG	
9		6.2385	20.51	9.75	30.26	60.00	-29.74	QP	
10		6.2385	0.90	9.75	10.65	50.00	-39.35	AVG	
11		15.9855	11.51	9.72	21.23	60.00	-38.77	QP	
12		15.9855	-1.78	9.72	7.94	50.00	-42.06	AVG	

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



Remark:

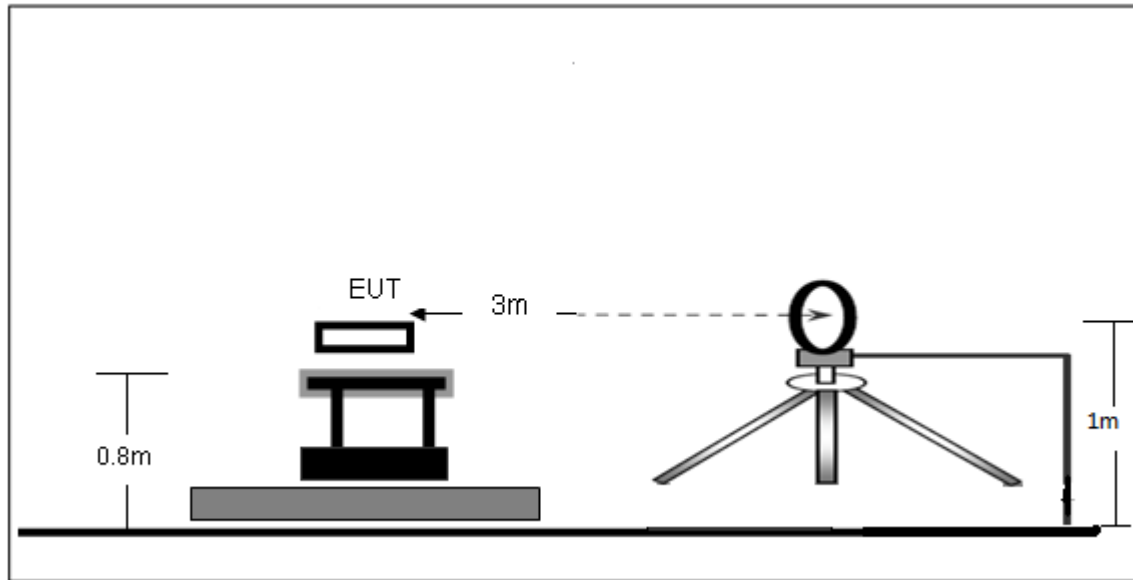
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz		dB	dBuV	dBuV	dB		
1		0.1787	22.09	9.49	31.58	64.55	-32.97	QP	
2		0.1787	-1.90	9.49	7.59	54.55	-46.96	AVG	
3	*	0.6108	29.40	9.96	39.36	56.00	-16.64	QP	
4		0.6108	8.67	9.96	18.63	46.00	-27.37	AVG	
5		1.4953	18.32	9.58	27.90	56.00	-28.10	QP	
6		1.4953	-3.85	9.58	5.73	46.00	-40.27	AVG	
7		5.3615	16.06	9.79	25.85	60.00	-34.15	QP	
8		5.3615	0.38	9.79	10.17	50.00	-39.83	AVG	
9		8.9163	18.09	9.70	27.79	60.00	-32.21	QP	
10		8.9163	-0.63	9.70	9.07	50.00	-40.93	AVG	
11		15.8854	12.11	9.72	21.83	60.00	-38.17	QP	
12		15.8854	-2.63	9.72	7.09	50.00	-42.91	AVG	

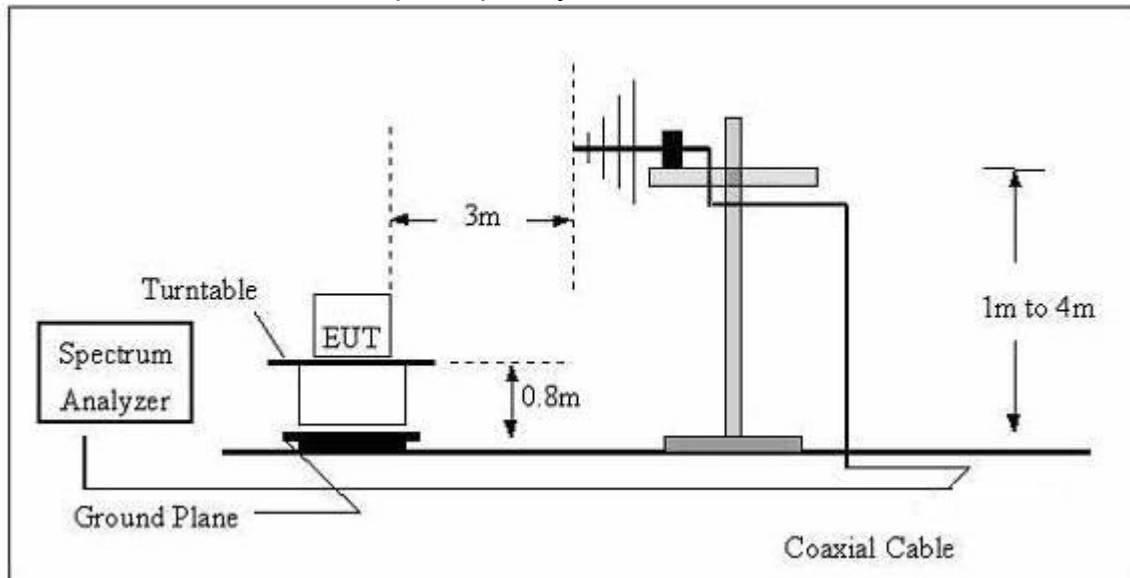
7. RADIATED EMISSIONS

7.1 Block Diagram Of Test Setup

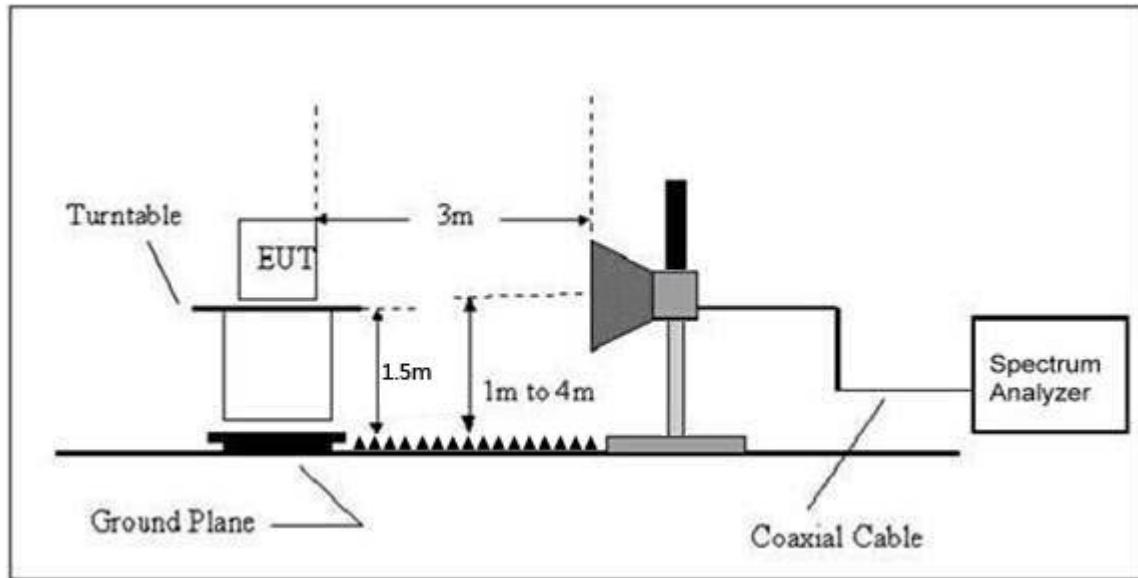
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	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

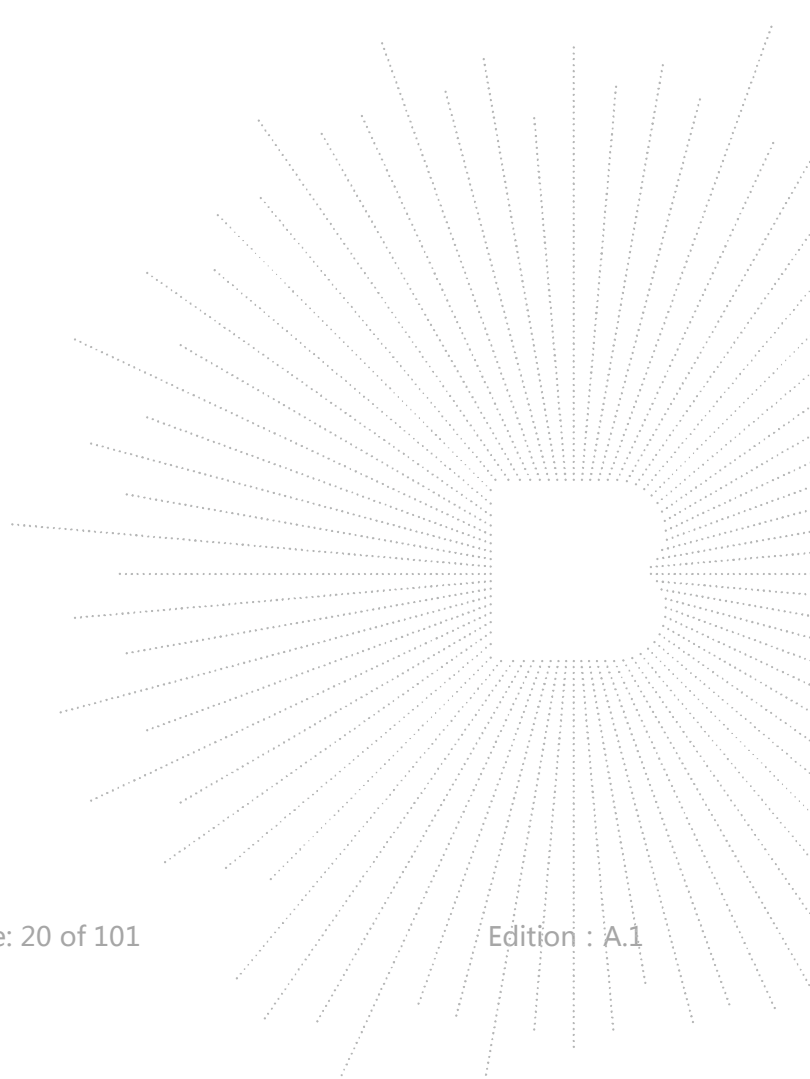
During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

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℃	Relative Humidity:	24%
Pressure:	101 kPa	Test Voltage :	AC120V/60Hz
Test Mode :	Mode 4	Polarization :	--

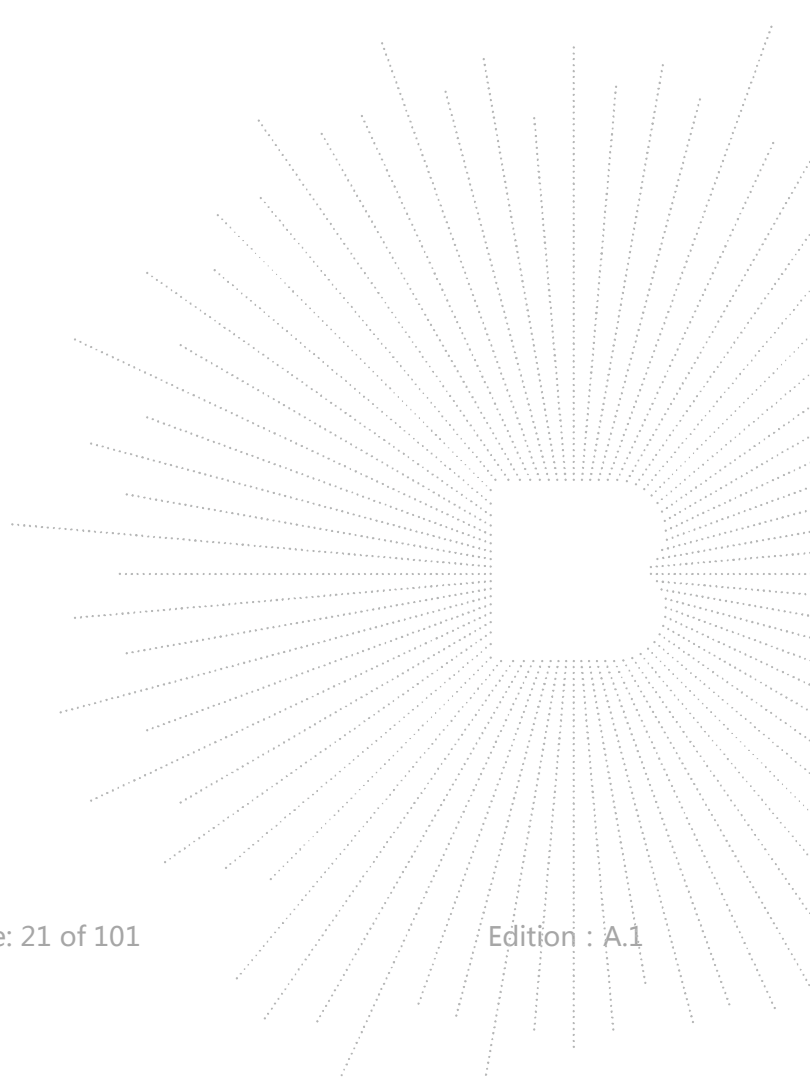
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:

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

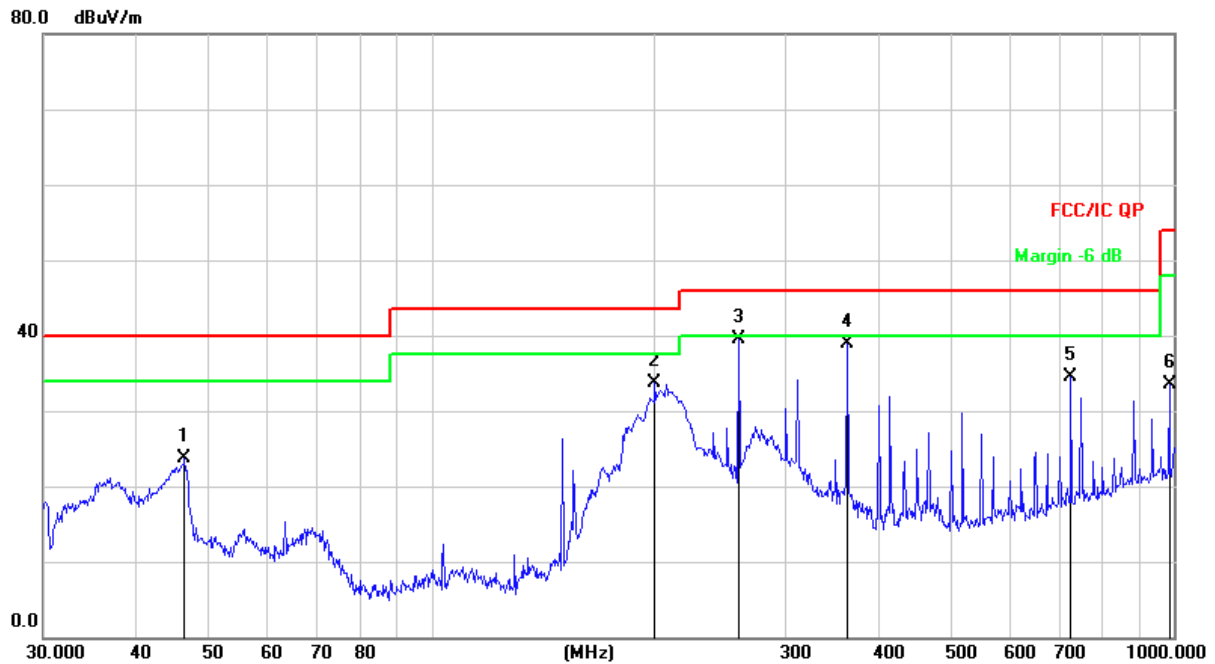
Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

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



Between 30MHz – 1GHz

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

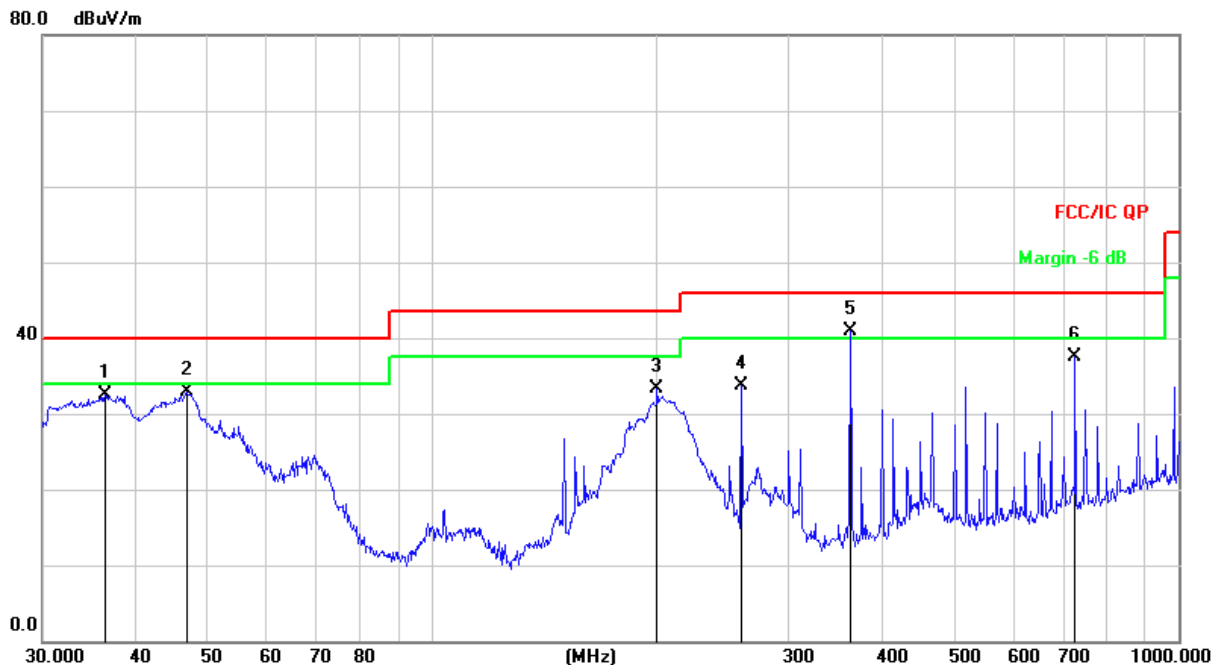


Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		46.5030	38.71	-15.05	23.66	40.00	-16.34	QP
2		199.9856	50.04	-16.30	33.74	43.50	-9.76	QP
3	*	259.2336	54.43	-14.86	39.57	46.00	-6.43	QP
4		362.9844	50.84	-11.93	38.91	46.00	-7.09	QP
5		726.8052	39.13	-4.71	34.42	46.00	-11.58	QP
6		986.0715	34.34	-0.89	33.45	54.00	-20.55	QP

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kpa	Test Voltage :	AC120V/60Hz
Test Mode :	Mode 4	Polarization :	Vertical



Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		36.3814	48.61	-16.09	32.52	40.00	-7.48	QP
2		46.8303	47.91	-15.03	32.88	40.00	-7.12	QP
3		199.9856	49.53	-16.30	33.23	43.50	-10.27	QP
4		259.2338	48.63	-14.86	33.77	46.00	-12.23	QP
5	*	362.9844	52.77	-11.93	40.84	46.00	-5.16	QP
6		726.8052	42.21	-4.71	37.50	46.00	-8.50	QP

Between 1GHz – 40GHz

Test Mode :	TX(5.1G) - 802.11a
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenn a Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G									
V	4434.092	60.65	5.94	35.40	44.00	57.99	68.20	-10.21	PK
V	4434.092	43.89	5.94	35.40	44.00	41.23	54.00	-12.77	AV
V	10360.177	61.85	8.46	39.75	44.50	65.56	74.00	-8.44	PK
V	10360.177	43.70	8.46	39.75	44.50	47.41	54.00	-6.59	AV
V	15540.057	63.32	10.12	38.80	44.10	68.14	74.00	-5.86	PK
V	15540.057	43.39	10.12	38.80	42.70	49.61	54.00	-4.39	AV
H	4434.016	61.04	5.94	35.18	44.00	58.16	68.20	-10.04	PK
H	4434.016	43.33	5.94	35.18	44.00	40.45	54.00	-13.55	AV
H	10360.121	53.25	8.46	38.71	44.50	55.92	74.00	-18.08	PK
H	10360.121	41.07	8.46	38.71	44.50	43.74	54.00	-10.26	AV
H	15540.182	53.72	10.12	38.38	44.10	58.12	74.00	-15.88	PK
H	15540.182	42.73	10.12	38.38	44.10	47.13	54.00	-6.87	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.008	61.56	6.48	36.35	44.05	60.34	74.00	-13.66	PK
V	4592.008	43.98	6.48	36.35	44.05	42.76	54.00	-11.24	AV
V	10400.085	61.42	8.47	37.88	44.51	63.26	68.20	-4.94	PK
V	10400.085	43.68	8.47	37.88	44.51	45.52	54.00	-8.48	AV
V	15600.099	63.32	10.12	38.80	44.10	68.14	74.00	-5.86	PK
V	15600.099	43.89	10.12	38.80	42.70	50.11	54.00	-3.89	AV
H	4592.082	63.17	6.48	36.37	44.05	61.97	74.00	-12.03	PK
H	4592.082	43.15	6.48	36.37	44.05	41.95	54.00	-12.05	AV
H	10400.139	51.31	8.47	38.64	44.50	53.92	68.20	-14.28	PK
H	10400.139	44.84	8.47	38.64	44.50	47.45	54.00	-6.55	AV
H	15600.128	54.32	10.12	38.38	44.10	58.72	74.00	-15.28	PK
H	15600.128	41.41	10.12	38.38	44.10	45.81	54.00	-8.19	AV
High Channel (5240 MHz)-Above 1G									
V	4739.051	63.10	7.10	37.24	43.50	63.94	74.00	-10.06	PK
V	4739.051	43.77	7.10	37.24	43.50	44.61	54.00	-9.39	AV
V	10480.151	60.90	8.46	37.68	44.50	62.54	68.20	-5.66	PK
V	10480.151	43.58	8.46	37.68	44.50	45.22	54.00	-8.78	AV
V	15720.062	64.50	10.12	38.80	44.10	69.32	74.00	-4.68	PK
V	15720.062	43.55	10.12	38.80	42.70	49.77	54.00	-4.23	AV
H	4739.091	62.31	7.10	37.24	43.50	63.15	74.00	-10.85	PK
H	4739.091	43.30	7.10	37.24	43.50	44.14	54.00	-9.86	AV
H	10480.102	52.71	8.46	38.57	44.50	55.24	68.20	-12.96	PK
H	10480.102	44.15	8.46	38.57	44.50	46.68	54.00	-7.32	AV
H	15720.147	50.26	10.12	38.38	44.10	54.66	74.00	-19.34	PK
H	15720.147	42.29	10.12	38.38	44.10	46.69	54.00	-7.31	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 :	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	4434.024	61.61	5.94	35.40	44.00	58.95	68.20	-9.25	PK
V	4434.024	43.08	5.94	35.40	44.00	40.42	54.00	-13.58	AV
V	10360.051	63.02	8.46	39.75	44.50	66.73	68.20	-1.47	PK
V	10360.051	43.70	8.46	39.75	44.50	47.41	54.00	-6.59	AV
V	15540.016	62.96	10.12	38.80	44.10	67.78	74.00	-6.22	PK
V	15540.016	43.72	10.12	38.80	42.70	49.94	54.00	-4.06	AV
H	4434.025	63.62	5.94	35.18	44.00	60.74	68.20	-7.46	PK
H	4434.025	43.61	5.94	35.18	44.00	40.73	54.00	-13.27	AV
H	10360.193	50.07	8.46	38.71	44.50	52.74	68.20	-15.46	PK
H	10360.193	44.68	8.46	38.71	44.50	47.35	54.00	-6.65	AV
H	15540.086	54.36	10.12	38.38	44.10	58.76	74.00	-15.24	PK
H	15540.086	40.57	10.12	38.38	44.10	44.97	54.00	-9.03	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.009	61.22	6.48	36.35	44.05	60.00	74.00	-14.00	PK
V	4592.009	43.50	6.48	36.35	44.05	42.28	54.00	-11.72	AV
V	10400.064	63.65	8.47	37.88	44.51	65.49	68.20	-2.71	PK
V	10400.064	43.72	8.47	37.88	44.51	45.56	54.00	-8.44	AV
V	15600.116	61.25	10.12	38.80	44.10	66.07	74.00	-7.93	PK
V	15600.116	43.90	10.12	38.80	42.70	50.12	54.00	-3.88	AV
H	4592.093	61.89	6.48	36.37	44.05	60.69	74.00	-13.31	PK
H	4592.093	43.94	6.48	36.37	44.05	42.74	54.00	-11.26	AV
H	10400.162	52.29	8.47	38.64	44.50	54.90	68.20	-13.30	PK
H	10400.162	44.27	8.47	38.64	44.50	46.88	54.00	-7.12	AV
H	15600.190	51.26	10.12	38.38	44.10	55.66	74.00	-18.34	PK
H	15600.190	42.93	10.12	38.38	44.10	47.33	54.00	-6.67	AV
High Channel (5240 MHz)-Above 1G									
V	4739.013	63.55	7.10	37.24	43.50	64.39	74.00	-9.61	PK
V	4739.013	43.48	7.10	37.24	43.50	44.32	54.00	-9.68	AV
V	10480.036	62.55	8.46	37.68	44.50	64.19	68.20	-4.01	PK
V	10480.036	43.71	8.46	37.68	44.50	45.35	54.00	-8.65	AV
V	15720.131	62.82	10.12	38.80	44.10	67.64	74.00	-6.36	PK
V	15720.131	43.39	10.12	38.80	42.70	49.61	54.00	-4.39	AV
H	4739.133	62.37	7.10	37.24	43.50	63.21	74.00	-10.79	PK
H	4739.133	43.29	7.10	37.24	43.50	44.13	54.00	-9.87	AV
H	10480.149	50.35	8.46	38.57	44.50	52.88	68.20	-15.32	PK
H	10480.149	42.00	8.46	38.57	44.50	44.53	54.00	-9.47	AV
H	15720.196	50.31	10.12	38.38	44.10	54.71	74.00	-19.29	PK
H	15720.196	41.81	10.12	38.38	44.10	46.21	54.00	-7.79	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 :	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	4434.187	64.72	5.94	35.40	44.00	62.06	74.00	-11.94	PK
V	4434.187	43.53	5.94	35.40	44.00	40.87	54.00	-13.13	AV
V	10380.132	61.28	8.46	39.75	44.50	64.99	68.20	-3.21	PK
V	10380.132	43.16	8.46	39.75	44.50	46.87	54.00	-7.13	AV
V	15570.135	60.22	10.12	38.80	44.10	65.04	74.00	-8.96	PK
V	15570.135	43.34	10.12	38.80	42.70	49.56	54.00	-4.44	AV
H	4434.110	61.72	5.94	35.18	44.00	58.84	74.00	-15.16	PK
H	4434.110	43.45	5.94	35.18	44.00	40.57	54.00	-13.43	AV
H	10380.121	50.98	8.46	38.71	44.50	53.65	68.20	-14.55	PK
H	10380.121	42.59	8.46	38.71	44.50	45.26	54.00	-8.74	AV
H	15570.083	53.70	10.12	38.38	44.10	58.10	74.00	-15.90	PK
H	15570.083	41.23	10.12	38.38	44.10	45.63	54.00	-8.37	AV
middle Channel (5230 MHz)-Above 1G									
V	4739.068	63.23	6.48	36.35	44.05	62.01	74.00	-11.99	PK
V	4739.068	43.13	6.48	36.35	44.05	41.91	54.00	-12.09	AV
V	10460.044	62.15	8.47	37.88	44.51	63.99	68.20	-4.21	PK
V	10460.044	43.49	8.47	37.88	44.51	45.33	54.00	-8.67	AV
V	15690.154	63.45	10.12	38.80	44.10	68.27	74.00	-5.73	PK
V	15690.154	43.16	10.12	38.80	42.70	49.38	54.00	-4.62	AV
H	4739.078	60.87	6.48	36.37	44.05	59.67	74.00	-14.33	PK
H	4739.078	43.69	6.48	36.37	44.05	42.49	54.00	-11.51	AV
H	10460.030	53.24	8.47	38.64	44.50	55.85	68.20	-12.35	PK
H	10460.030	40.34	8.47	38.64	44.50	42.95	54.00	-11.05	AV
H	15690.066	50.77	10.12	38.38	44.10	55.17	74.00	-18.83	PK
H	15690.066	40.07	10.12	38.38	44.10	44.47	54.00	-9.53	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 :	TX(5.1G) - 802.11 AC20
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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	4434.080	61.63	5.94	35.40	44.00	58.97	68.20	-9.23	PK
V	4434.080	43.57	5.94	35.40	44.00	40.91	54.00	-13.09	AV
V	10360.005	62.92	8.46	39.75	44.50	66.63	74.00	-7.37	PK
V	10360.005	43.60	8.46	39.75	44.50	47.31	54.00	-6.69	AV
V	15540.010	62.97	10.12	38.80	44.10	67.79	74.00	-6.21	PK
V	15540.010	43.46	10.12	38.80	42.70	49.68	54.00	-4.32	AV
H	4434.146	63.30	5.94	35.18	44.00	60.42	68.20	-7.78	PK
H	4434.146	43.06	5.94	35.18	44.00	40.18	54.00	-13.82	AV
H	10360.114	53.32	8.46	38.71	44.50	55.99	74.00	-18.01	PK
H	10360.114	43.13	8.46	38.71	44.50	45.80	54.00	-8.20	AV
H	15540.159	52.88	10.12	38.38	44.10	57.28	74.00	-16.72	PK
H	15540.159	42.69	10.12	38.38	44.10	47.09	54.00	-6.91	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.177	64.74	6.48	36.35	44.05	63.52	74.00	-10.48	PK
V	4592.177	43.54	6.48	36.35	44.05	42.32	54.00	-11.68	AV
V	10400.055	62.18	8.47	37.88	44.51	64.02	68.20	-4.18	PK
V	10400.055	43.35	8.47	37.88	44.51	45.19	54.00	-8.81	AV
V	15600.008	63.41	10.12	38.80	44.10	68.23	74.00	-5.77	PK
V	15600.008	43.78	10.12	38.80	42.70	50.00	54.00	-4.00	AV
H	4592.007	63.85	6.48	36.37	44.05	62.65	74.00	-11.35	PK
H	4592.007	43.37	6.48	36.37	44.05	42.17	54.00	-11.83	AV
H	10400.142	52.09	8.47	38.64	44.50	54.70	68.20	-13.50	PK
H	10400.142	43.86	8.47	38.64	44.50	46.47	54.00	-7.53	AV
H	15600.044	53.46	10.12	38.38	44.10	57.86	74.00	-16.14	PK
H	15600.044	44.80	10.12	38.38	44.10	49.20	54.00	-4.80	AV
High Channel (5240 MHz)-Above 1G									
V	4739.094	63.28	7.10	37.24	43.50	64.12	74.00	-9.88	PK
V	4739.094	43.51	7.10	37.24	43.50	44.35	54.00	-9.65	AV
V	10480.077	60.68	8.46	37.68	44.50	62.32	68.20	-5.88	PK
V	10480.077	43.46	8.46	37.68	44.50	45.10	54.00	-8.90	AV
V	15720.171	60.10	10.12	38.80	44.10	64.92	74.00	-9.08	PK
V	15720.171	43.91	10.12	38.80	42.70	50.13	54.00	-3.87	AV
H	4739.045	61.57	7.10	37.24	43.50	62.41	74.00	-11.59	PK
H	4739.045	43.57	7.10	37.24	43.50	44.41	54.00	-9.59	AV
H	10480.176	54.97	8.46	38.57	44.50	57.50	68.20	-10.70	PK
H	10480.176	42.49	8.46	38.57	44.50	45.02	54.00	-8.98	AV
H	15720.187	54.24	10.12	38.38	44.10	58.64	74.00	-15.36	PK
H	15720.187	40.65	10.12	38.38	44.10	45.05	54.00	-8.95	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 :	TX(5.1G) - 802.11 AC40
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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	4434.027	60.98	5.94	35.40	44.00	58.32	74.00	-15.68	PK
V	4434.027	43.73	5.94	35.40	44.00	41.07	54.00	-12.93	AV
V	10380.195	63.64	8.46	39.75	44.50	67.35	68.20	-0.85	PK
V	10380.195	43.02	8.46	39.75	44.50	46.73	54.00	-7.27	AV
V	15570.116	60.93	10.12	38.80	44.10	65.75	74.00	-8.25	PK
V	15570.116	43.99	10.12	38.80	42.70	50.21	54.00	-3.79	AV
H	4434.108	63.66	5.94	35.18	44.00	60.78	74.00	-13.22	PK
H	4434.108	43.51	5.94	35.18	44.00	40.63	54.00	-13.37	AV
H	10380.035	54.75	8.46	38.71	44.50	57.42	68.20	-10.78	PK
H	10380.035	42.29	8.46	38.71	44.50	44.96	54.00	-9.04	AV
H	15570.191	52.89	10.12	38.38	44.10	57.29	74.00	-16.71	PK
H	15570.191	41.92	10.12	38.38	44.10	46.32	54.00	-7.68	AV
middle Channel (5230 MHz)-Above 1G									
V	4739.085	64.30	6.48	36.35	44.05	63.08	74.00	-10.92	PK
V	4739.085	43.80	6.48	36.35	44.05	42.58	54.00	-11.42	AV
V	10460.112	62.70	8.47	37.88	44.51	64.54	68.20	-3.66	PK
V	10460.112	43.36	8.47	37.88	44.51	45.20	54.00	-8.80	AV
V	15690.169	63.10	10.12	38.80	44.10	67.92	74.00	-6.08	PK
V	15690.169	43.33	10.12	38.80	42.70	49.55	54.00	-4.45	AV
H	4739.039	64.14	6.48	36.37	44.05	62.94	74.00	-11.06	PK
H	4739.039	43.07	6.48	36.37	44.05	41.87	54.00	-12.13	AV
H	10460.138	53.75	8.47	38.64	44.50	56.36	68.20	-11.84	PK
H	10460.138	42.37	8.47	38.64	44.50	44.98	54.00	-9.02	AV
H	15690.160	51.47	10.12	38.38	44.10	55.87	74.00	-18.13	PK
H	15690.160	43.21	10.12	38.38	44.10	47.61	54.00	-6.39	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.

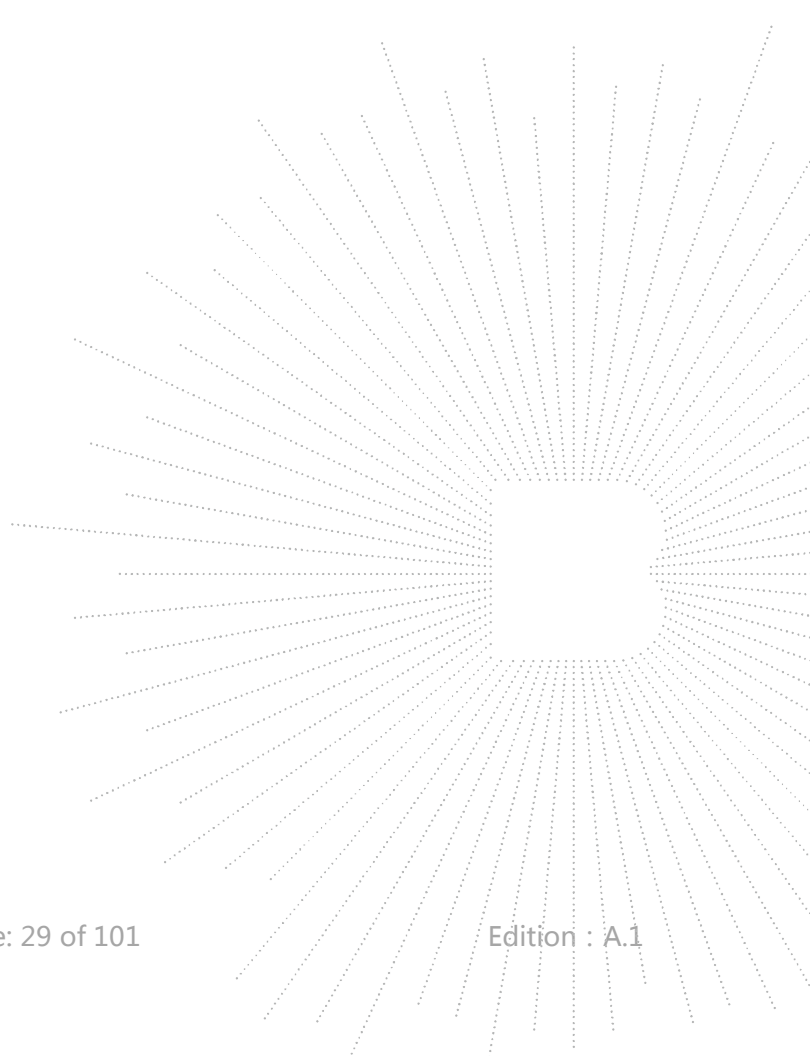
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

Test Mode :	TX(5.1G) - 802.11 AC80
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
(5210 MHz)-Above 1G									
V	4434.043	63.27	5.94	35.40	44.00	60.61	74.00	-13.39	PK
V	4434.043	43.12	5.94	35.40	44.00	40.46	54.00	-13.54	AV
V	10420.029	62.96	8.46	39.75	44.50	66.67	68.20	-1.53	PK
V	10420.029	43.93	8.46	39.75	44.50	47.64	54.00	-6.36	AV
V	15630.117	63.67	10.12	38.80	44.10	68.49	74.00	-5.51	PK
V	15630.117	43.75	10.12	38.80	42.70	49.97	54.00	-4.03	AV
H	4434.037	63.58	5.94	35.18	44.00	60.70	74.00	-13.30	PK
H	4434.037	43.37	5.94	35.18	44.00	40.49	54.00	-13.51	AV
H	10420.176	52.67	8.46	38.71	44.50	55.34	68.20	-12.86	PK
H	10420.176	41.91	8.46	38.71	44.50	44.58	54.00	-9.42	AV
H	15630.163	52.66	10.12	38.38	44.10	57.06	74.00	-16.94	PK
H	15630.163	43.41	10.12	38.38	44.10	47.81	54.00	-6.19	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 :	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	4679.123	61.32	5.94	35.40	44.00	58.66	74.00	-15.34	PK
V	4679.123	43.28	5.94	35.40	44.00	40.62	54.00	-13.38	AV
V	11490.180	61.15	8.46	39.75	44.50	64.86	68.20	-3.34	PK
V	11490.180	43.03	8.46	39.75	44.50	46.74	54.00	-7.26	AV
V	17235.148	61.69	10.12	38.80	44.10	66.51	74.00	-7.49	PK
V	17235.148	43.30	10.12	38.80	42.70	49.52	54.00	-4.48	AV
H	4679.045	61.31	5.94	35.18	44.00	58.43	74.00	-15.57	PK
H	4679.045	43.91	5.94	35.18	44.00	41.03	54.00	-12.97	AV
H	11490.127	52.52	8.46	38.71	44.50	55.19	68.20	-13.01	PK
H	11490.127	41.77	8.46	38.71	44.50	44.44	54.00	-9.56	AV
H	17235.165	54.01	10.12	38.38	44.10	58.41	74.00	-15.59	PK
H	17235.165	43.41	10.12	38.38	44.10	47.81	54.00	-6.19	AV
middle Channel (5785 MHz)-Above 1G									
V	4592.135	60.09	6.48	36.35	44.05	58.87	74.00	-15.13	PK
V	4592.135	43.12	6.48	36.35	44.05	41.90	54.00	-12.10	AV
V	11570.056	60.72	8.47	37.88	44.51	62.56	68.20	-5.64	PK
V	11570.056	43.96	8.47	37.88	44.51	45.80	54.00	-8.20	AV
V	17355.000	60.50	10.12	38.80	44.10	65.32	74.00	-8.68	PK
V	17355.000	43.83	10.12	38.80	42.70	50.05	54.00	-3.95	AV
H	4592.173	60.64	6.48	36.37	44.05	59.44	74.00	-14.56	PK
H	4592.173	43.02	6.48	36.37	44.05	41.82	54.00	-12.18	AV
H	11570.172	50.79	8.47	38.64	44.50	53.40	68.20	-14.80	PK
H	11570.172	40.79	8.47	38.64	44.50	43.40	54.00	-10.60	AV
H	17355.152	50.68	10.12	38.38	44.10	55.08	74.00	-18.92	PK
H	17355.152	44.44	10.12	38.38	44.10	48.84	54.00	-5.16	AV
High Channel (5825 MHz)-Above 1G									
V	6039.016	64.07	7.10	37.24	43.50	64.91	68.20	-3.29	PK
V	6039.016	43.33	7.10	37.24	43.50	44.17	54.00	-9.83	AV
V	11650.080	64.72	8.46	37.68	44.50	66.36	74.00	-7.64	PK
V	11650.080	43.79	8.46	37.68	44.50	45.43	54.00	-8.57	AV
V	17475.034	61.34	10.12	38.80	44.10	66.16	68.20	-2.04	PK
V	17475.034	43.43	10.12	38.80	42.70	49.65	54.00	-4.35	AV
H	6039.045	63.56	7.10	37.24	43.50	64.40	68.20	-3.80	PK
H	6039.045	43.32	7.10	37.24	43.50	44.16	54.00	-9.84	AV
H	11650.107	50.66	8.46	38.57	44.50	53.19	74.00	-20.81	PK
H	11650.107	44.69	8.46	38.57	44.50	47.22	54.00	-6.78	AV
H	17475.010	52.43	10.12	38.38	44.10	56.83	68.20	-11.37	PK
H	17475.010	40.95	10.12	38.38	44.10	45.35	54.00	-8.65	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 :	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	4679.013	61.94	5.94	35.40	44.00	59.28	74.00	-14.72	PK
V	4679.013	43.26	5.94	35.40	44.00	40.60	54.00	-13.40	AV
V	11490.116	63.46	8.46	39.75	44.50	67.17	68.20	-1.03	PK
V	11490.116	43.80	8.46	39.75	44.50	47.51	54.00	-6.49	AV
V	17235.042	63.64	10.12	38.80	44.10	68.46	74.00	-5.54	PK
V	17235.042	43.06	10.12	38.80	42.70	49.28	54.00	-4.72	AV
H	4679.198	64.18	5.94	35.18	44.00	61.30	74.00	-12.70	PK
H	4679.198	43.45	5.94	35.18	44.00	40.57	54.00	-13.43	AV
H	11490.105	53.97	8.46	38.71	44.50	56.64	68.20	-11.56	PK
H	11490.105	43.56	8.46	38.71	44.50	46.23	54.00	-7.77	AV
H	17235.121	50.36	10.12	38.38	44.10	54.76	74.00	-19.24	PK
H	17235.121	41.10	10.12	38.38	44.10	45.50	54.00	-8.50	AV
middle Channel (5785 MHz)-Above 1G									
V	4592.139	61.28	6.48	36.35	44.05	60.06	74.00	-13.94	PK
V	4592.139	43.79	6.48	36.35	44.05	42.57	54.00	-11.43	AV
V	11570.151	63.51	8.47	37.88	44.51	65.35	68.20	-2.85	PK
V	11570.151	43.60	8.47	37.88	44.51	45.44	54.00	-8.56	AV
V	17355.190	64.95	10.12	38.80	44.10	69.77	74.00	-4.23	PK
V	17355.190	43.06	10.12	38.80	42.70	49.28	54.00	-4.72	AV
H	4592.177	61.50	6.48	36.37	44.05	60.30	74.00	-13.70	PK
H	4592.177	43.15	6.48	36.37	44.05	41.95	54.00	-12.05	AV
H	11570.062	51.16	8.47	38.64	44.50	53.77	68.20	-14.43	PK
H	11570.062	42.34	8.47	38.64	44.50	44.95	54.00	-9.05	AV
H	17355.182	51.33	10.12	38.38	44.10	55.73	74.00	-18.27	PK
H	17355.182	42.16	10.12	38.38	44.10	46.56	54.00	-7.44	AV
High Channel (5825 MHz)-Above 1G									
V	6039.106	63.09	7.10	37.24	43.50	63.93	68.20	-4.27	PK
V	6039.106	43.47	7.10	37.24	43.50	44.31	54.00	-9.69	AV
V	11650.066	64.58	8.46	37.68	44.50	66.22	74.00	-7.78	PK
V	11650.066	43.53	8.46	37.68	44.50	45.17	54.00	-8.83	AV
V	17475.037	60.34	10.12	38.80	44.10	65.16	68.20	-3.04	PK
V	17475.037	43.28	10.12	38.80	42.70	49.50	54.00	-4.50	AV
H	6039.033	63.12	7.10	37.24	43.50	63.96	68.20	-4.24	PK
H	6039.033	43.10	7.10	37.24	43.50	43.94	54.00	-10.06	AV
H	11650.126	53.58	8.46	38.57	44.50	56.11	74.00	-17.89	PK
H	11650.126	40.38	8.46	38.57	44.50	42.91	54.00	-11.09	AV
H	17475.013	53.26	10.12	38.38	44.10	57.66	68.20	-10.54	PK
H	17475.013	40.20	10.12	38.38	44.10	44.60	54.00	-9.40	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 :	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	4679.155	64.69	5.94	35.40	44.00	62.03	74.00	-11.97	PK
V	4679.155	43.90	5.94	35.40	44.00	41.24	54.00	-12.76	AV
V	11510.024	60.13	8.46	39.75	44.50	63.84	68.20	-4.36	PK
V	11510.024	43.43	8.46	39.75	44.50	47.14	54.00	-6.86	AV
V	17265.062	60.95	10.12	38.80	44.10	65.77	74.00	-8.23	PK
V	17265.062	43.54	10.12	38.80	42.70	49.76	54.00	-4.24	AV
H	4679.101	63.25	5.94	35.18	44.00	60.37	74.00	-13.63	PK
H	4679.101	43.50	5.94	35.18	44.00	40.62	54.00	-13.38	AV
H	11510.150	54.32	8.46	38.71	44.50	56.99	68.20	-11.21	PK
H	11510.150	41.32	8.46	38.71	44.50	43.99	54.00	-10.01	AV
H	17265.039	53.54	10.12	38.38	44.10	57.94	74.00	-16.06	PK
H	17265.039	44.41	10.12	38.38	44.10	48.81	54.00	-5.19	AV
middle Channel (5795 MHz)-Above 1G									
V	6039.043	64.38	6.48	36.35	44.05	63.16	68.20	-5.04	PK
V	6039.043	43.82	6.48	36.35	44.05	42.60	54.00	-11.40	AV
V	11590.051	64.28	8.47	37.88	44.51	66.12	74.00	-7.88	PK
V	11590.051	43.93	8.47	37.88	44.51	45.77	54.00	-8.23	AV
V	17385.130	60.20	10.12	38.80	44.10	65.02	68.20	-3.18	PK
V	17385.130	43.39	10.12	38.80	42.70	49.61	54.00	-4.39	AV
H	6039.141	63.18	6.48	36.37	44.05	61.98	68.20	-6.22	PK
H	6039.141	43.00	6.48	36.37	44.05	41.80	54.00	-12.20	AV
H	11590.072	51.15	8.47	38.64	44.50	53.76	74.00	-20.24	PK
H	11590.072	40.83	8.47	38.64	44.50	43.44	54.00	-10.56	AV
H	17385.071	53.53	10.12	38.38	44.10	57.93	68.20	-10.27	PK
H	17385.071	44.50	10.12	38.38	44.10	48.90	54.00	-5.10	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 :	TX (5.8G) --802.11AC20
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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	4679.158	61.15	5.94	35.40	44.00	58.49	74.00	-15.51	PK
V	4679.158	43.03	5.94	35.40	44.00	40.37	54.00	-13.63	AV
V	11490.049	63.77	8.46	39.75	44.50	67.48	68.20	-0.72	PK
V	11490.049	43.31	8.46	39.75	44.50	47.02	54.00	-6.98	AV
V	17235.180	62.03	10.12	38.80	44.10	66.85	74.00	-7.15	PK
V	17235.180	43.16	10.12	38.80	42.70	49.38	54.00	-4.62	AV
H	4679.093	61.15	5.94	35.18	44.00	58.27	74.00	-15.73	PK
H	4679.093	43.71	5.94	35.18	44.00	40.83	54.00	-13.17	AV
H	11490.194	54.39	8.46	38.71	44.50	57.06	68.20	-11.14	PK
H	11490.194	43.30	8.46	38.71	44.50	45.97	54.00	-8.03	AV
H	17235.183	53.61	10.12	38.38	44.10	58.01	74.00	-15.99	PK
H	17235.183	44.86	10.12	38.38	44.10	49.26	54.00	-4.74	AV
middle Channel (5785 MHz)-Above 1G									
V	4592.125	63.81	6.48	36.35	44.05	62.59	74.00	-11.41	PK
V	4592.125	43.47	6.48	36.35	44.05	42.25	54.00	-11.75	AV
V	11570.080	63.56	8.47	37.88	44.51	65.40	68.20	-2.80	PK
V	11570.080	43.61	8.47	37.88	44.51	45.45	54.00	-8.55	AV
V	17355.102	60.12	10.12	38.80	44.10	64.94	74.00	-9.06	PK
V	17355.102	43.02	10.12	38.80	42.70	49.24	54.00	-4.76	AV
H	4592.012	60.72	6.48	36.37	44.05	59.52	74.00	-14.48	PK
H	4592.012	43.26	6.48	36.37	44.05	42.06	54.00	-11.94	AV
H	11570.116	50.98	8.47	38.64	44.50	53.59	68.20	-14.61	PK
H	11570.116	43.26	8.47	38.64	44.50	45.87	54.00	-8.13	AV
H	17355.082	53.90	10.12	38.38	44.10	58.30	74.00	-15.70	PK
H	17355.082	43.57	10.12	38.38	44.10	47.97	54.00	-6.03	AV
High Channel (5825 MHz)-Above 1G									
V	6039.123	62.86	7.10	37.24	43.50	63.70	68.20	-4.50	PK
V	6039.123	43.78	7.10	37.24	43.50	44.62	54.00	-9.38	AV
V	11650.013	62.01	8.46	37.68	44.50	63.65	74.00	-10.35	PK
V	11650.013	43.41	8.46	37.68	44.50	45.05	54.00	-8.95	AV
V	17475.070	61.83	10.12	38.80	44.10	66.65	68.20	-1.55	PK
V	17475.070	43.57	10.12	38.80	42.70	49.79	54.00	-4.21	AV
H	6039.093	63.72	7.10	37.24	43.50	64.56	68.20	-3.64	PK
H	6039.093	43.28	7.10	37.24	43.50	44.12	54.00	-9.88	AV
H	11650.185	54.34	8.46	38.57	44.50	56.87	74.00	-17.13	PK
H	11650.185	43.22	8.46	38.57	44.50	45.75	54.00	-8.25	AV
H	17475.114	54.74	10.12	38.38	44.10	59.14	68.20	-9.06	PK
H	17475.114	43.15	10.12	38.38	44.10	47.55	54.00	-6.45	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 :	TX (5.8G) -- 802.11AC40
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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	4679.106	64.89	5.94	35.40	44.00	62.23	74.00	-11.77	PK
V	4679.106	43.01	5.94	35.40	44.00	40.35	54.00	-13.65	AV
V	11510.025	61.11	8.46	39.75	44.50	64.82	68.20	-3.38	PK
V	11510.025	43.63	8.46	39.75	44.50	47.34	54.00	-6.66	AV
V	17265.129	61.96	10.12	38.80	44.10	66.78	74.00	-7.22	PK
V	17265.129	43.04	10.12	38.80	42.70	49.26	54.00	-4.74	AV
H	4679.136	60.44	5.94	35.18	44.00	57.56	74.00	-16.44	PK
H	4679.136	43.63	5.94	35.18	44.00	40.75	54.00	-13.25	AV
H	11510.066	52.39	8.46	38.71	44.50	55.06	68.20	-13.14	PK
H	11510.066	40.82	8.46	38.71	44.50	43.49	54.00	-10.51	AV
H	17265.075	51.03	10.12	38.38	44.10	55.43	74.00	-18.57	PK
H	17265.075	41.31	10.12	38.38	44.10	45.71	54.00	-8.29	AV
middle Channel (5795 MHz)-Above 1G									
V	6039.156	64.91	6.48	36.35	44.05	63.69	68.20	-4.51	PK
V	6039.156	43.52	6.48	36.35	44.05	42.30	54.00	-11.70	AV
V	11590.014	64.93	8.47	37.88	44.51	66.77	74.00	-7.23	PK
V	11590.014	43.84	8.47	37.88	44.51	45.68	54.00	-8.32	AV
V	17385.192	60.44	10.12	38.80	44.10	65.26	68.20	-2.94	PK
V	17385.192	43.16	10.12	38.80	42.70	49.38	54.00	-4.62	AV
H	6039.053	61.11	6.48	36.37	44.05	59.91	68.20	-8.29	PK
H	6039.053	43.13	6.48	36.37	44.05	41.93	54.00	-12.07	AV
H	11590.132	50.28	8.47	38.64	44.50	52.89	74.00	-21.11	PK
H	11590.132	40.10	8.47	38.64	44.50	42.71	54.00	-11.29	AV
H	17385.006	50.46	10.12	38.38	44.10	54.86	68.20	-13.34	PK
H	17385.006	40.35	10.12	38.38	44.10	44.75	54.00	-9.25	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.

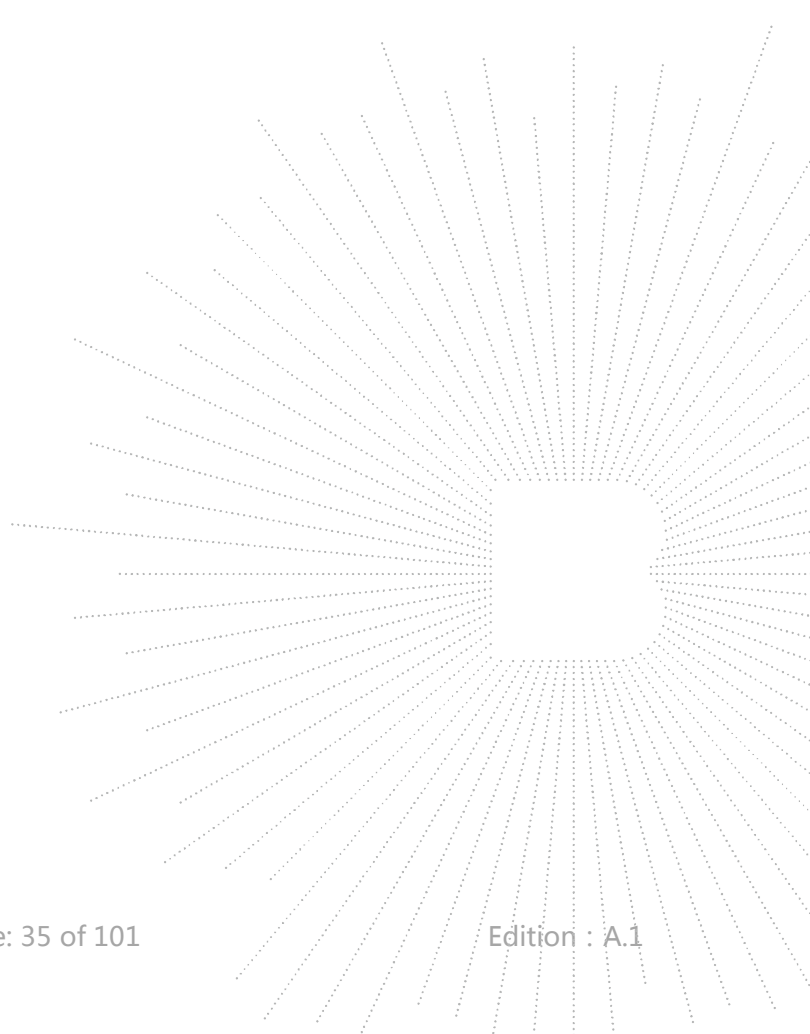
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

Test Mode :	TX(5.8G) - 802.11 AC80
-------------	------------------------

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
(5775 MHz)-Above 1G									
V	4679.046	63.93	5.94	35.40	44.00	61.27	74.00	-12.73	PK
V	4679.046	43.40	5.94	35.40	44.00	40.74	54.00	-13.26	AV
V	11550.173	61.68	8.46	39.75	44.50	65.39	68.20	-2.81	PK
V	11550.173	43.28	8.46	39.75	44.50	46.99	54.00	-7.01	AV
V	17325.088	62.11	10.12	38.80	44.10	66.93	74.00	-7.07	PK
V	17325.088	43.71	10.12	38.80	42.70	49.93	54.00	-4.07	AV
H	4679.195	60.53	5.94	35.18	44.00	57.65	74.00	-16.35	PK
H	4679.195	43.06	5.94	35.18	44.00	40.18	54.00	-13.82	AV
H	11550.139	53.76	8.46	38.71	44.50	56.43	68.20	-11.77	PK
H	11550.139	40.40	8.46	38.71	44.50	43.07	54.00	-10.93	AV
H	17325.081	51.06	10.12	38.38	44.10	55.46	74.00	-18.54	PK
H	17325.081	44.02	10.12	38.38	44.10	48.42	54.00	-5.58	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.



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 access point 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 access point 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 access points 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 colocated 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 $RBW (< 500 \text{ KHz})$ 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 $RBW (< 1 \text{ MHz})$ 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 $RBW=100 \text{ KHz}$ 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

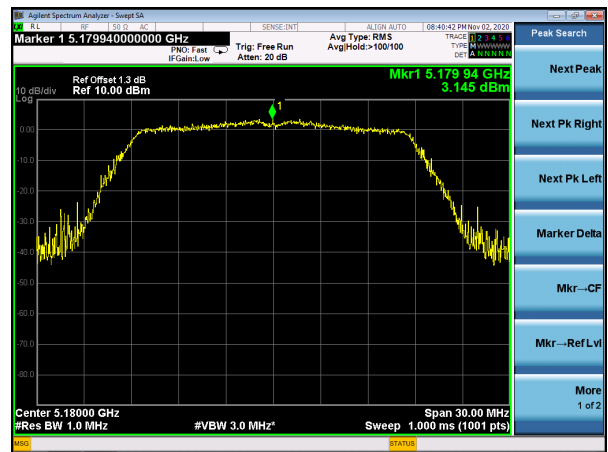
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX Frequency U-NII-1 (5180-5240MHz)		

Mode	Frequency	Measured Power Density (dBm/MHz)	Limit (dBm/MHz)	Result
802.11 a	5180 MHz	3.351	11	PASS
	5200 MHz	2.872	11	PASS
	5240 MHz	0.971	11	PASS
802.11 n20	5180 MHz	3.145	11	PASS
	5200 MHz	3.043	11	PASS
	5240 MHz	0.419	11	PASS
802.11 n40	5190 MHz	-0.636	11	PASS
	5230 MHz	-1.608	11	PASS
802.11 AC20	5180 MHz	3.560	11	PASS
	5200 MHz	2.626	11	PASS
	5240 MHz	1.040	11	PASS
802.11 AC40	5190 MHz	-1.078	11	PASS
	5230 MHz	-2.582	11	PASS
802.11 AC80	5210 MHz	-3.500	11	PASS

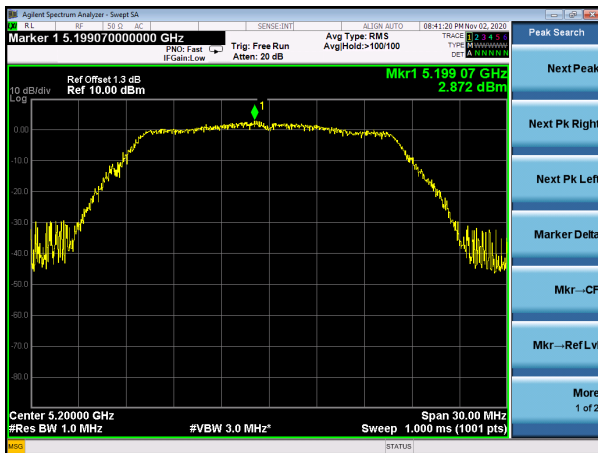
(802.11a) PSD plot on channel 36



(802.11n20) PSD plot on channel 36



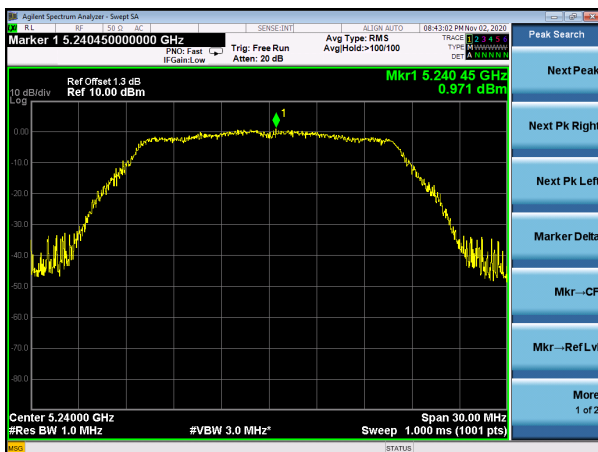
(802.11a) PSD plot on channel 40



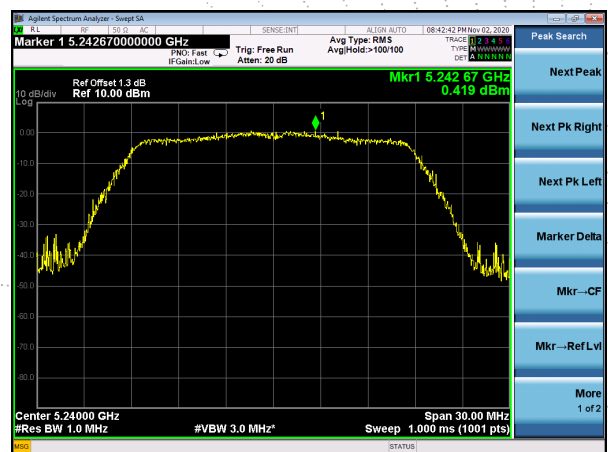
(802.11n20) PSD plot on channel 40



(802.11a) PSD plot on channel 48



(802.11n20) PSD plot on channel 48



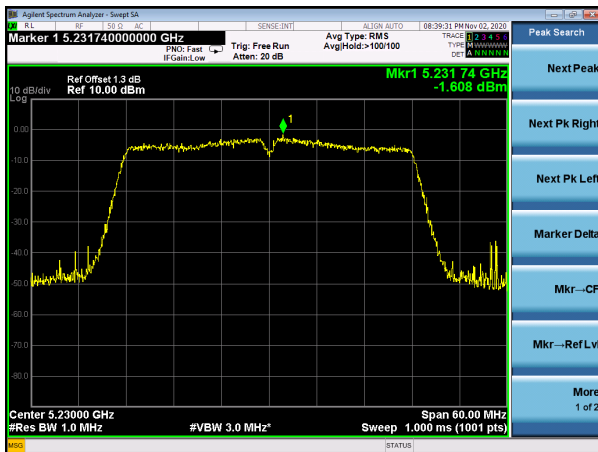
(802.11n40) PSD plot on channel 38



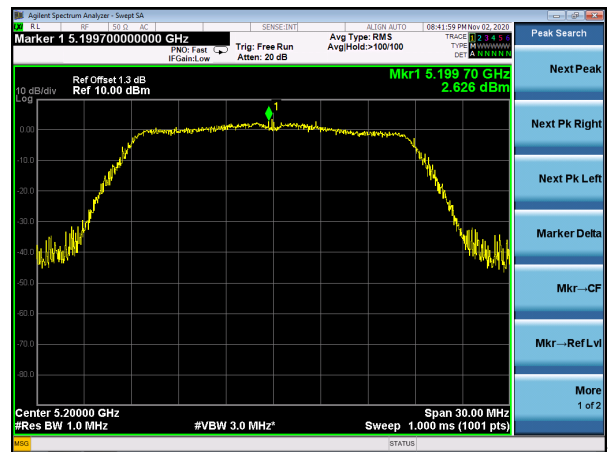
(802.11ac20) PSD plot on channel 36



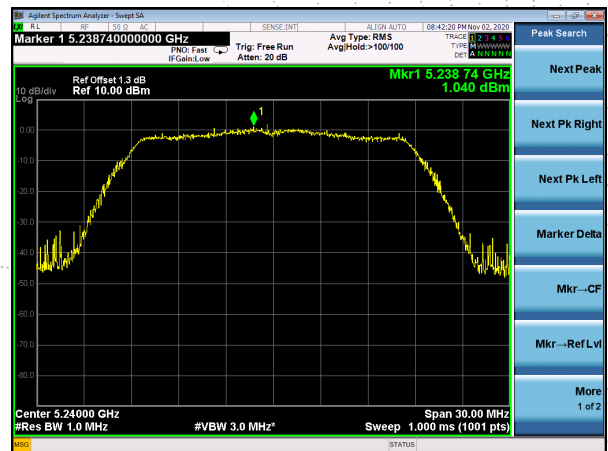
(802.11n40) PSD plot on channel 46



(802.11ac20) PSD plot on channel 40



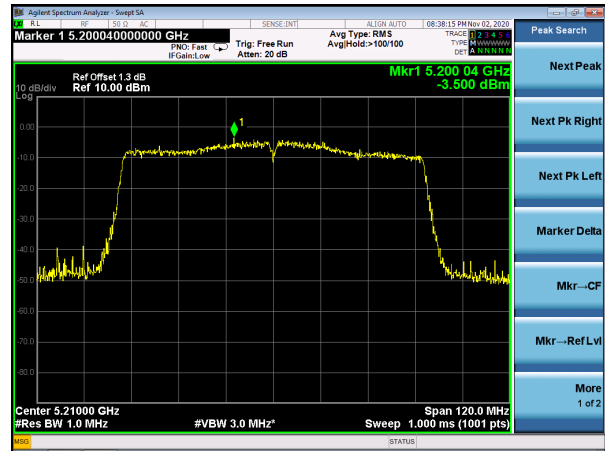
(802.11ac20) PSD plot on channel 48



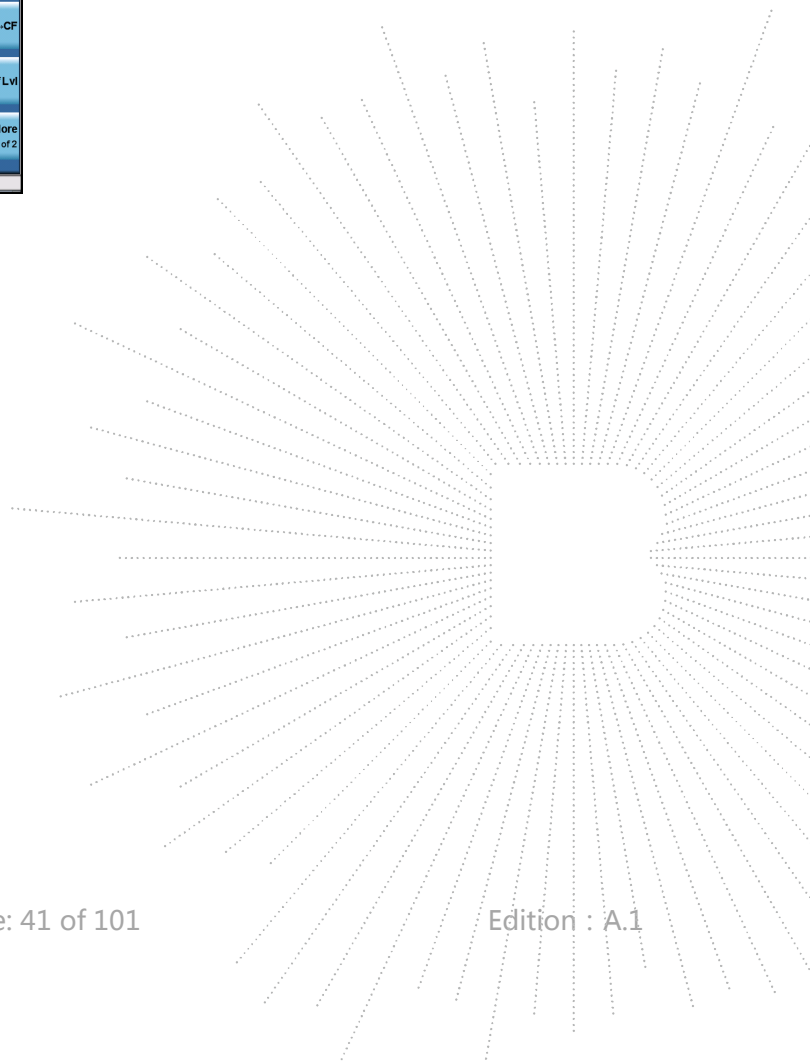
(802.11ac40) PSD plot on channel 38



(802.11ac80) PSD plot on channel 42

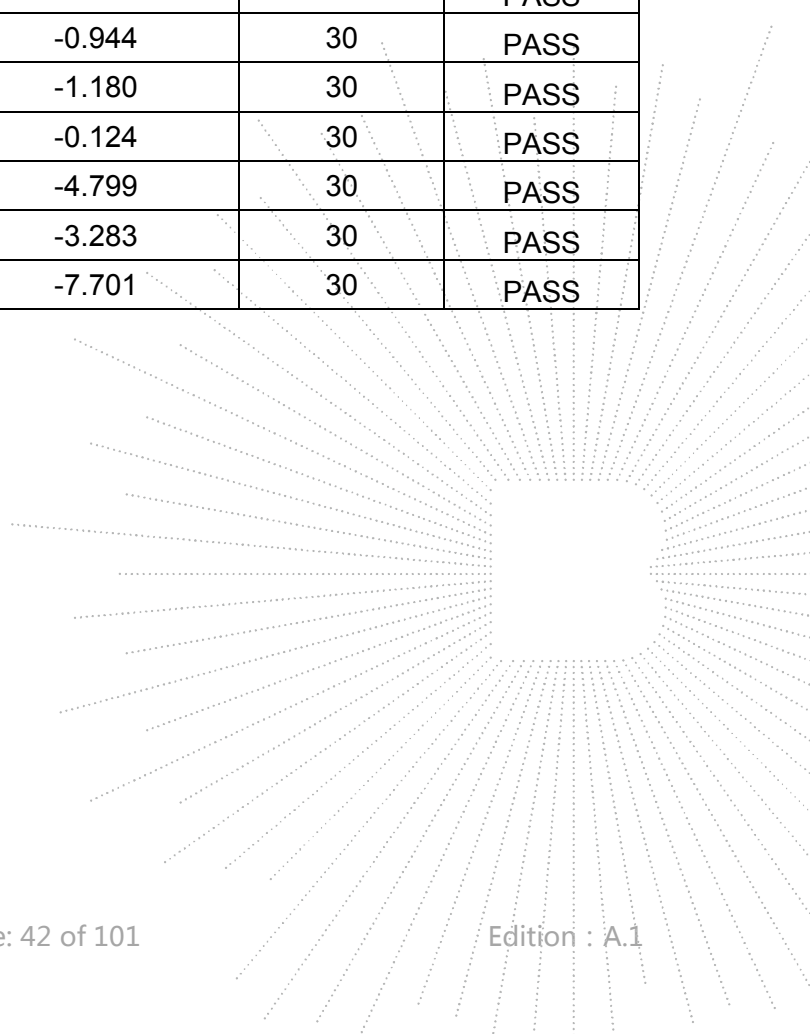


(802.11ac40) PSD plot on channel 46



Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX Frequency U-NII-3 (5745-5825MHz)		

Mode	Frequency	Measured Power Density (dBm/500kHz)	Limit (dBm/500kHz)	Result
802.11 a	5745 MHz	-0.630	30	PASS
	5785 MHz	-1.402	30	PASS
	5825 MHz	0.075	30	PASS
802.11 n20	5745 MHz	-0.800	30	PASS
	5785 MHz	0.571	30	PASS
	5825 MHz	0.253	30	PASS
802.11 n40	5755 MHz	-4.715	30	PASS
	5795 MHz	-4.391	30	PASS
802.11 AC20	5745 MHz	-0.944	30	PASS
	5785 MHz	-1.180	30	PASS
	5825 MHz	-0.124	30	PASS
802.11 AC40	5755 MHz	-4.799	30	PASS
	5795 MHz	-3.283	30	PASS
802.11 AC80	5775 MHz	-7.701	30	PASS



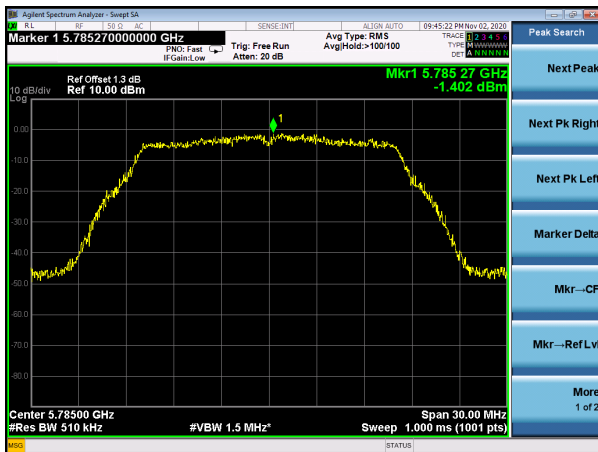
(802.11a) PSD plot on channel 149



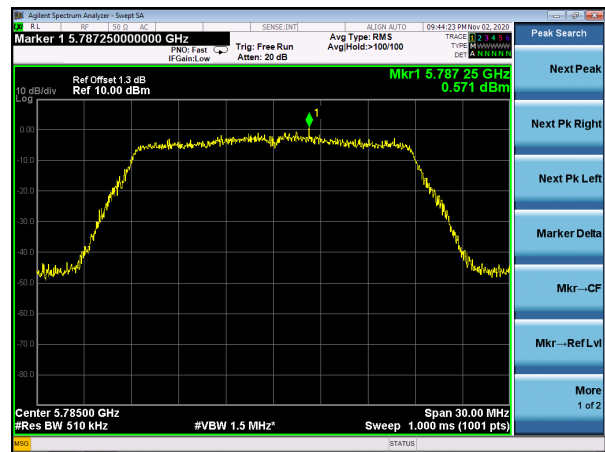
(802.11n20) PSD plot on channel 149



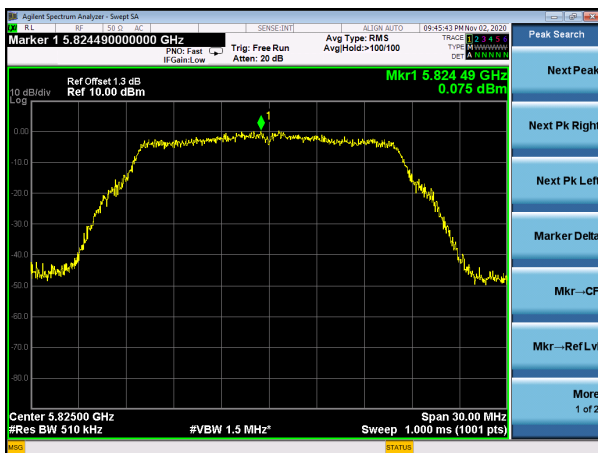
(802.11a) PSD plot on channel 157



(802.11n20) PSD plot on channel 157



(802.11a) PSD plot on channel 165



(802.11n20) PSD plot on channel 165



(802.11n40) PSD plot on channel 151



(802.11ac20) PSD plot on channel 149



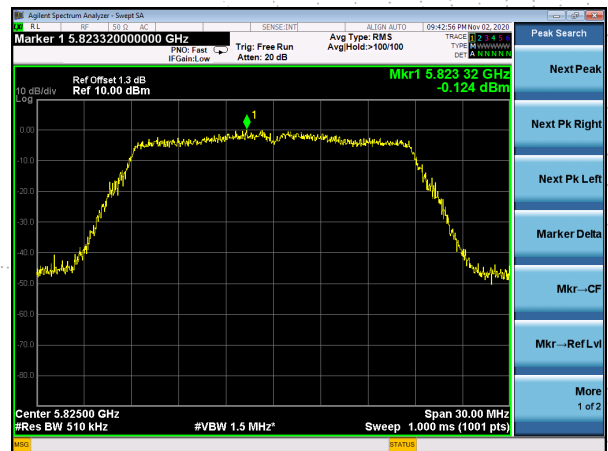
(802.11n40) PSD plot on channel 159



(802.11ac20) PSD plot on channel 157



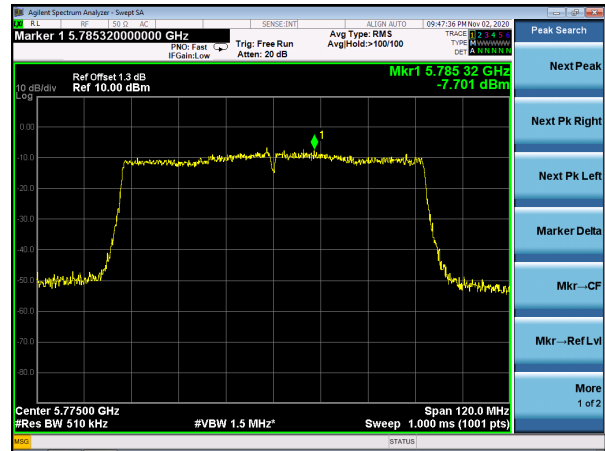
(802.11ac20) PSD plot on channel 165



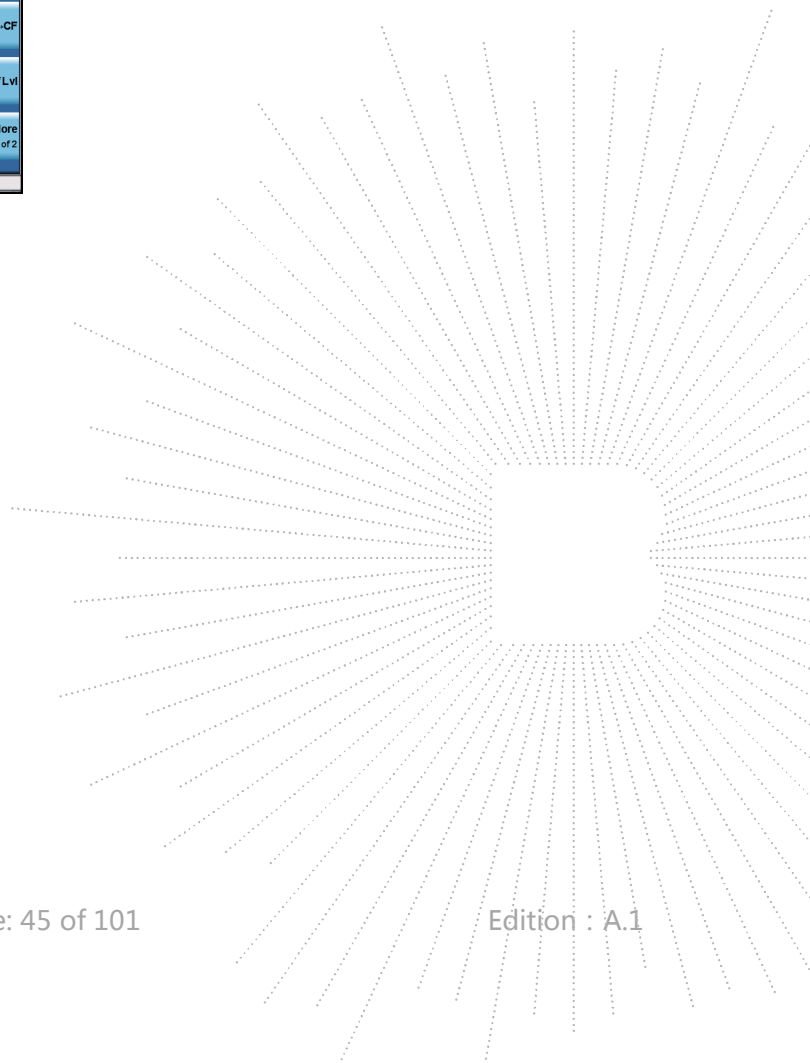
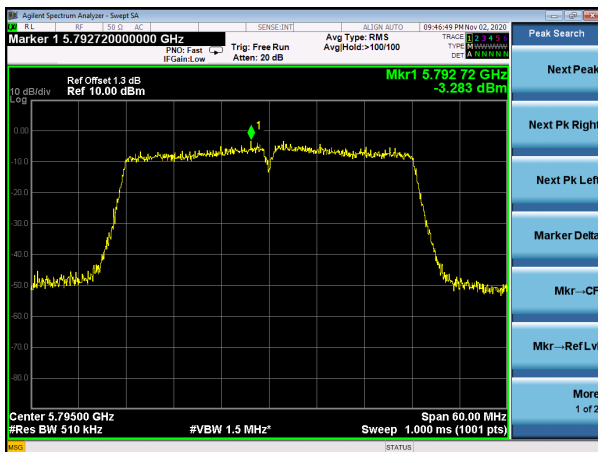
(802.11ac40) PSD plot on channel 151



(802.11ac80) PSD plot on channel 155

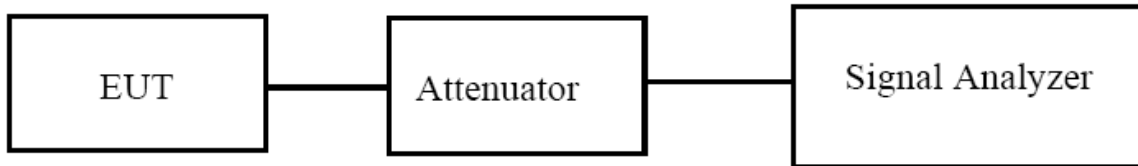


(802.11ac40) PSD plot on channel 159



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.

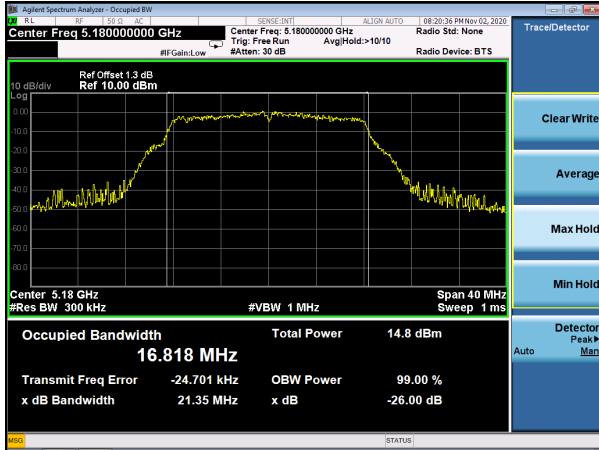
9.5 Test Result

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX Frequency U-NII-1 (5180-5240MHz)		

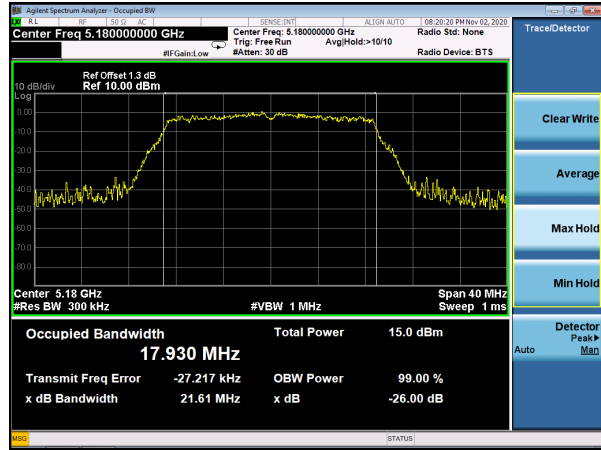
Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	26dB bandwidth (MHz)	Result
802.11a	CH36	5180	16.848	21.35	Pass
	CH40	5200	16.900	21.18	Pass
	CH48	5240	16.833	21.60	Pass
802.11 n20	CH36	5180	17.930	21.61	Pass
	CH40	5200	17.932	21.31	Pass
	CH48	5240	17.919	21.37	Pass
802.11 n40	CH 38	5190	36.347	40.59	Pass
	CH 46	5230	36.424	40.73	Pass
802.11 AC20	CH36	5180	18.043	21.72	Pass
	CH40	5200	17.850	21.52	Pass
	CH48	5240	17.971	21.51	Pass
802.11 AC40	CH 38	5190	36.452	40.65	Pass
	CH 46	5230	36.432	40.96	Pass
802.11 AC80	CH 42	5210	75.460	81.40	Pass

Test plot

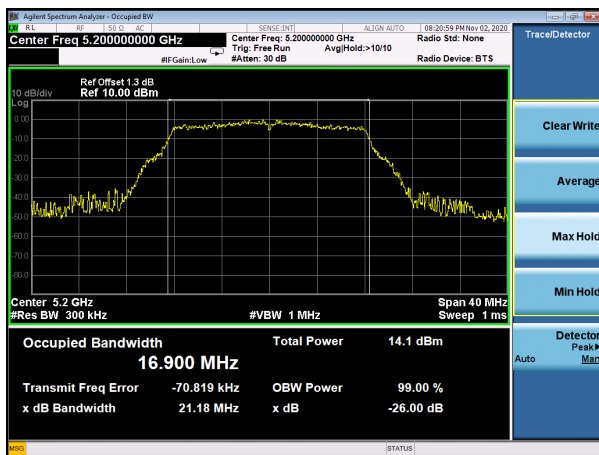
(802.11a) 26dB&99%Bandwidth plot on channel 36



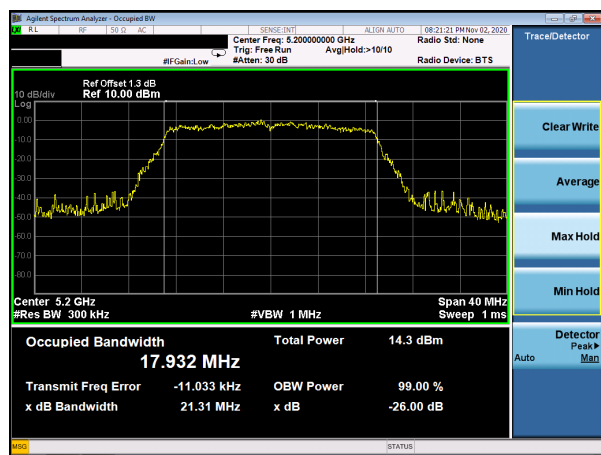
(802.11 n20) 26dB&99%Bandwidth plot on channel 36



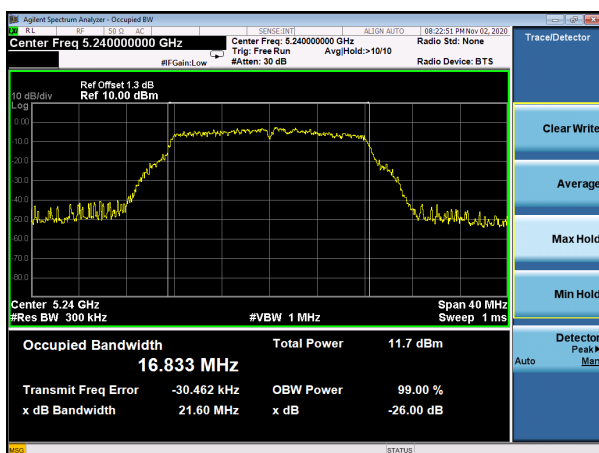
(802.11a) 26dB&99%Bandwidth plot on channel 40



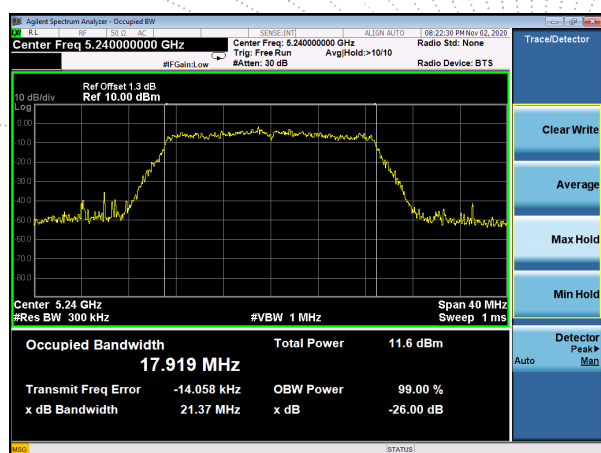
(802.11 n20) 26dB&99%Bandwidth plot on channel 40



(802.11a) 26dB&99%Bandwidth plot on channel 48

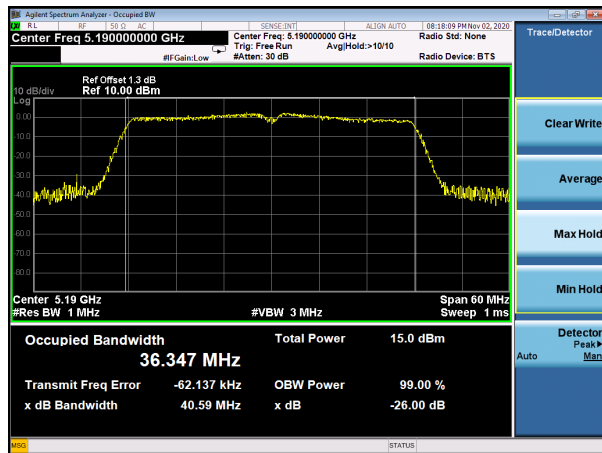


(802.11 n20) 26dB&99%Bandwidth plot on channel 48

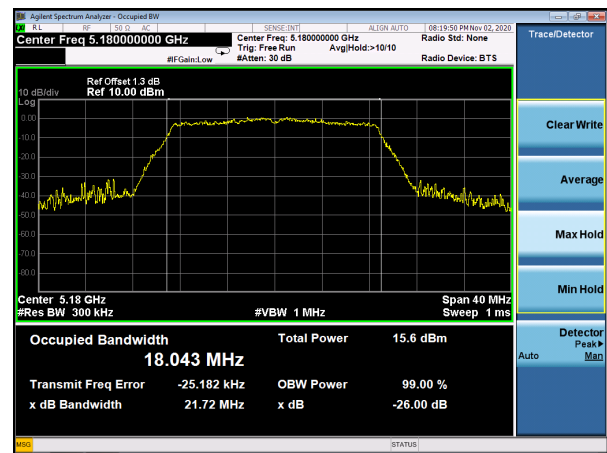


Test plot

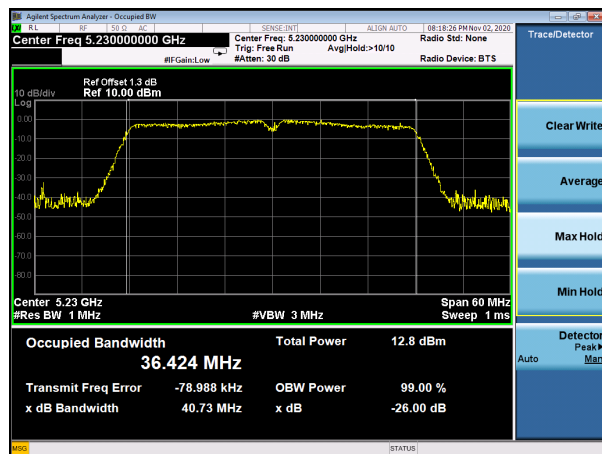
(802.11 n40) 26dB&99%Bandwidth plot on channel 38



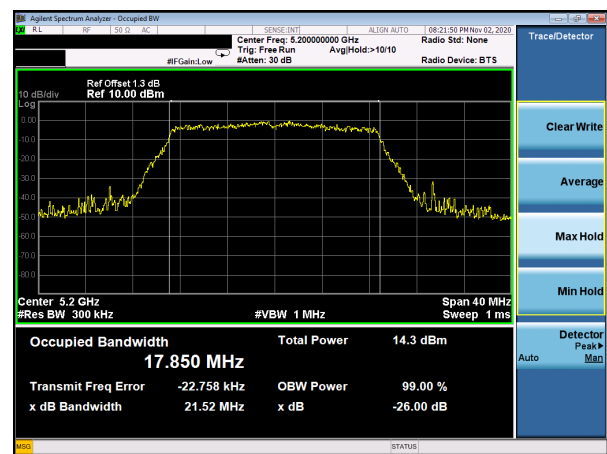
(802.11 AC20) -26dB&99%Bandwidth plot on channel 36



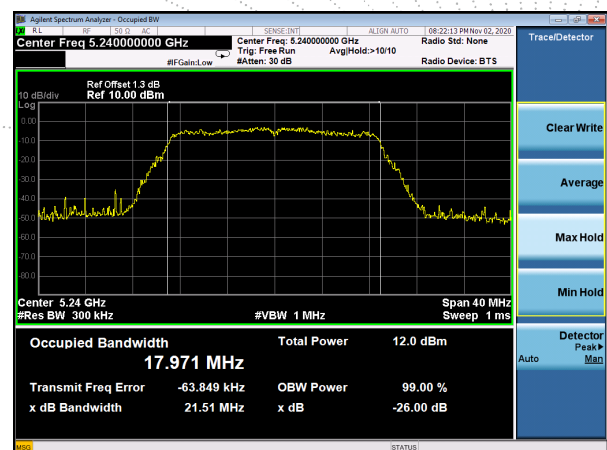
(802.11 n40) 26dB&99%Bandwidth plot on channel 46



(802.11 AC20) -26dB&99%Bandwidth plot on channel 40

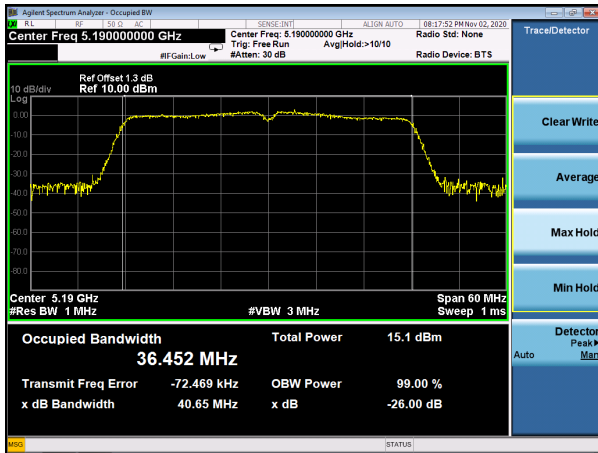


(802.11 AC20) -26dB&99%Bandwidth plot on channel 48

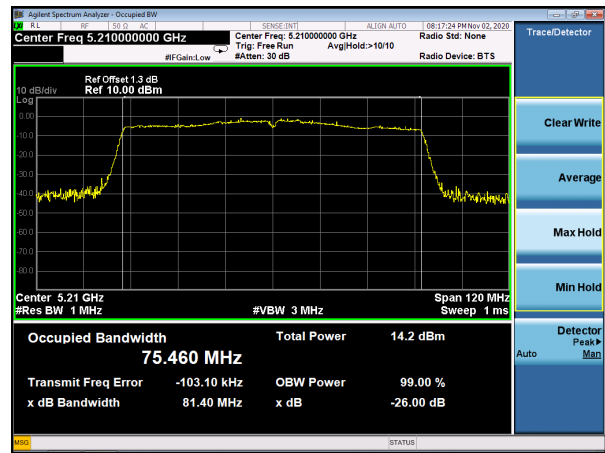


Test plot

(802.11 AC40) -26dB&99%Bandwidth plot on
channel 38



(802.11 AC80) -26dB&99%Bandwidth plot on
channel 42



(802.11 AC40) -26dB&99%Bandwidth plot on
channel 46

