MEASUREMENT REPORT

FCC PART 15.407/ WLAN 802.11a/n/ac

FCC ID:	P27OT221
Application:	Sercomm Corporation
Application Type:	Certification
Product:	Subscriber End Equipment HGW
Model No.:	AOT-4221SR
Brand Name:	Airtel
FCC Classification:	Unlicensed National Information Infrastructure (NII)
FCC Rule Part(s):	Part15 Subpart E (Section 15.407)
Test Procedure(s):	ANSI C63.10-2013, KDB 789033 D02v02r01 KDB 662911 D01v02r01
Test Date:	August 07 ~ September 05, 2020

Reviewed By: oscar shi
(Oscar Shi)

Approved By: Robin Wu
(Robin Wu)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date	Note
2008RSU008-U2	Rev. 01	Initial Report	09-24-2020	Valid

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General Information

Applicant:	Sercomm Corporation
Applicant Address:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.
Manufacturer:	Sercomm Corporation
Manufacturer Address:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is an FCC accredited testing laboratory (MRT Designation No. CN1166) on the FCC website.**
- **MRT facility is an ISED recognized testing laboratory (MRT Reg. No. CN0001) on the ISED website.**
- **MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the A2LA under the A2LA Program (Cert. No. 3628.01) and CNAS under the CNAS Program (Cert. No. L10551) in EMC, Safety, Radio, Telecommunications and SAR testing.**

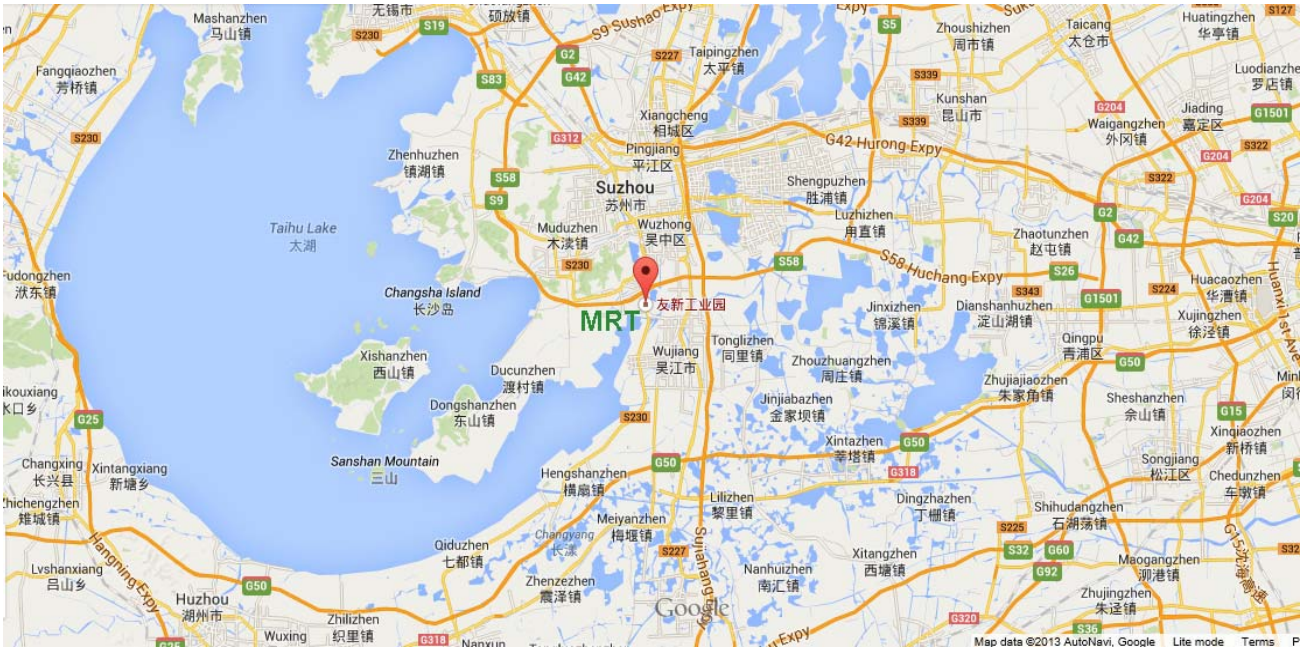
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	Subscriber End Equipment HGW
Model No.	AOT-4221SR
Wi-Fi Specification	802.11a/b/g/n/ac
Serial Number	SROTFA000022
Accessories	
Adapter	Model No.: MSA-C2000IS12.0-24W-IN Input Power: 90 - 270V ~ 50/60Hz, 0.7A max Output Power: 12V dc 2.0A

2.2. Product Specification Subjective to this Report

Frequency Range:	For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5230MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5775MHz
Type of Modulation:	802.11a/n/ac: OFDM
Data Rate:	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.6Mbps
Maximum Average Output Power:	802.11a: 29.65dBm 802.11n-HT20: 29.75dBm 802.11n-HT40: 29.59dBm 802.11ac-VHT20: 29.79dBm 802.11ac-VHT40: 29.48dBm 802.11ac-VHT80:27.93dBm

Note: For other features of this EUT, test report will be issued separately.

2.3. Description of Available Antennas

Antenna Type	Frequency Band (GHz)	Antenna Gain (dBi)		Directional Gain (dBi)	
		Ant 0	Ant 1	For Power	For PSD
PIFA Antenna	2.4~2.5	3.50	3.40	3.50	6.51
	5.1~5.25 5.725~5.85	3.20	3.30	3.30	6.31

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11a/b/g/n/ac mode.

Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;

- For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB for $N_{ANT} \leq 4$;

If antenna gains are not equal, 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.

Note 3: The antenna gain is declared by manufacture.

2.4. Working Frequencies for this Report

802.11a/n-HT20/ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz
159	5795 MHz	--	--	--	--

802.11ac-VHT80

Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	155	5775 MHz	--	--

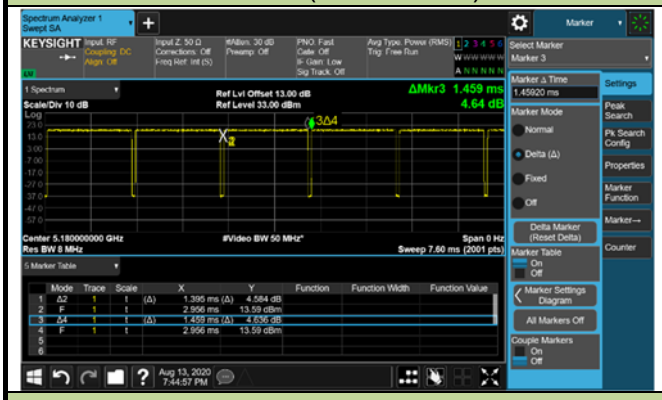
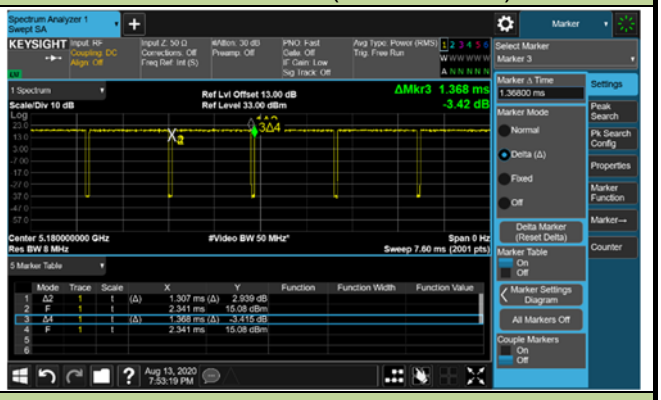
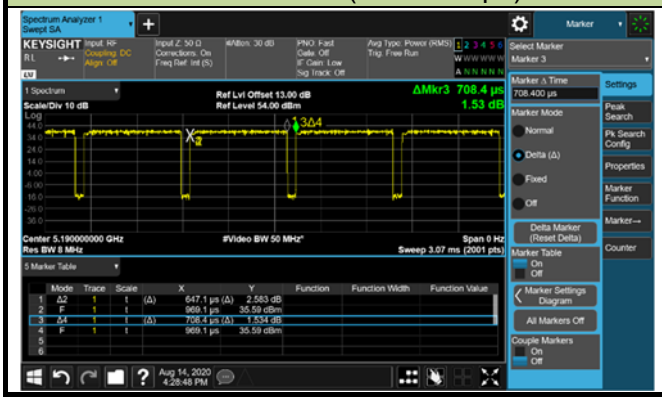
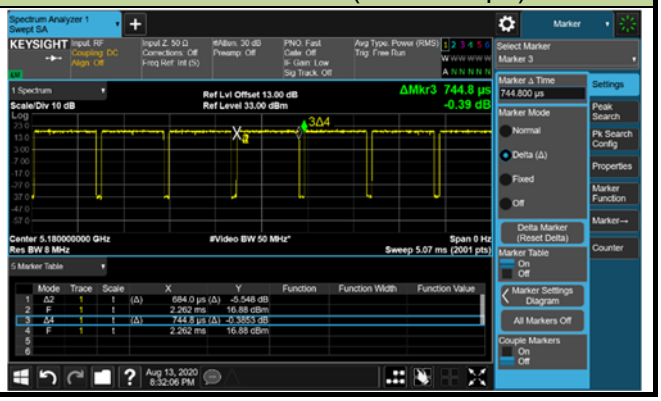
2.5. Test Mode

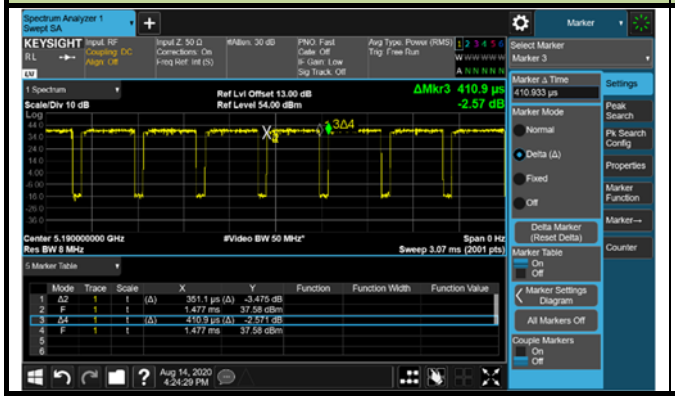
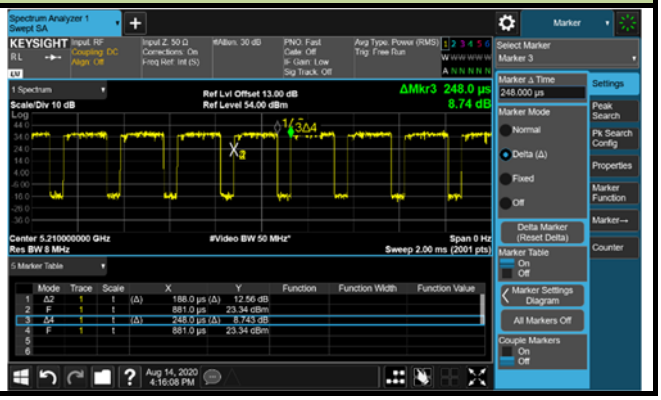
Test Mode	Mode 1: Transmit by 802.11a (6Mbps)
	Mode 2: Transmit by 802.11n-HT20 (MCS0)
	Mode 3: Transmit by 802.11n-HT40 (MCS0)
	Mode 4: Transmit by 802.11ac-VHT20 (MCS0)
	Mode 5: Transmit by 802.11ac-VHT40 (MCS0)
	Mode 6: Transmit by 802.11ac-VHT80 (MCS0)

2.6. Duty Cycle

5GHz (NII) operation is possible in 20MHz, 40MHzand 80MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Test Mode	Duty Cycle
802.11a	95.61%
802.11n-HT20	95.54%
802.11n-HT40	91.35%
802.11ac-VHT20	91.84%
802.11ac-VHT40	85.45%
802.11ac-VHT80	75.81%

Duty Cycle (T = Transmission Duration)	
802.11a (T =1.395ms)	802.11n-HT20 (T = 1.307ms)
	
802.11n-HT40 (T = 647.1μs)	802.11ac-VHT20 (T = 684.0μs)
	

Duty Cycle (T = Transmission Duration)	
802.11ac-VHT40 (T = 351.1μs)	802.11ac-VHT80 (T = 188.0μs)
	

2.7. Description of Test Software

The test utility software used during testing was “QATool_Dbg.exe”, and the version was v5.02.

Power parameter value refers to operation description.

2.8. Power setting of 5G Wi-Fi

Model	Ch.	Freq. (MHz)	Power Setting (Hex)	Power Setting (Dec)
a	36	5180	25	18.5
	44	5220	2B	21.5
	48	5240	2B	21.5
	149	5745	2F	23.5
	157	5785	34	26.0
	165	5825	30	24.0
n-HT20	36	5180	27	19.5
	44	5220	2D	22.5
	48	5240	2C	22.0
	149	5745	31	24.5
	157	5785	35	26.5
	165	5825	33	25.5
n-HT40	38	5190	26	19.0
	46	5230	34	26.0
	151	5755	36	27.0
	159	5795	36	27.0
ac-VHT20	36	5180	29	20.5
	44	5220	2D	22.5
	48	5240	2C	22.0

	149	5745	30	24.0
	157	5785	35	26.5
	165	5825	34	26.0
ac-VHT40	38	5190	22	17.0
	46	5230	34	26.0
	151	5755	35	26.5
	159	5795	35	26.5
ac-VHT80	42	5210	1E	15.0
	155	5775	32	25.0

2.9. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.10. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

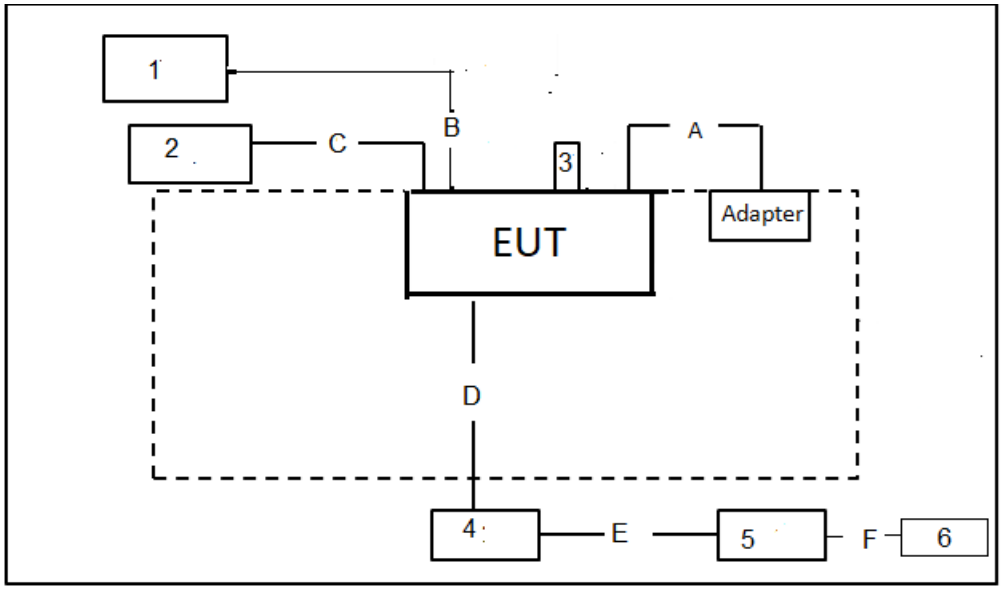
2.11. Test Environment Condition

Ambient Temperature	15°C~35°C
Relative Humidity	20%RH ~75%RH

2.12. Description of Test Configuration

The device was tested per the guidance ANSI C63.10: 2013 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram



Signal Cable Type		Signal cable Description
A	Power Cable	Non-Shielded, 1.5m
B	LAN Cable (RJ45)	Non-Shielded, >1.5m
C	LAN Cable (RJ11)	Non-Shielded, >1.5m
D	Optical fiber cable	Non-Shielded, >1.5m
E	LAN Cable (RJ45)	Non-Shielded, >1.5m
F	LAN Cable (RJ45)	Non-Shielded, 1.5m

2.13. Test System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Lenovo	E495	N/A	Non-Shielded, 1.8m
2	Telephone	Tonnet	TA-8012A	N/A	N/A
3	USB flash disk	SanDisk	CZ48	N/A	N/A
4	OLT	Fiberhome	AN5516-04	N/A	Non-Shielded, 1.5m
5	TRAFFIC Generator/ Performance analyzer	IXIA	IXIA 400T	N/A	Non-Shielded, 1.5m
6	Notebook	Lenovo	E495	N/A	Non-Shielded, 1.8m

3. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antenna of the device is **permanently attached.**
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2021/01/18
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2021/06/11
Four-Line V-Network	R&S	ENV432	MRTSUE06615	1 year	2020/11/11
Impedance Stabilization Network	TESEQ	ISN T200A	MRTSUE06004	1 year	2021/01/04
Impedance Stabilization Network	TESEQ	ISN T800	MRTSUE06005	1 year	2021/01/04
Impedance Stabilization Network	TESEQ	ISN T8-CAT6	MRTSUE06006	1 year	2021/01/04
V-Network	R&S	ESH3-Z6	MRTSUE06187	1 year	2021/04/14
V-Network	R&S	ESH3-Z6	MRTSUE06188	1 year	2021/04/14
RF Current Probe	R&S	EZ-17	MRTSUE06190	1 year	2021/04/14
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2021/07/26

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2021/01/18
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2021/08/30
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2021/04/03
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2020/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2020/12/29
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	EMC Instruments corporation	EMC051845SE	MRTSUE06602	1 year	2020/10/07
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2021/07/26
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06213	1 year	2021/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2021/07/02
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2020/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2020/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2020/12/29
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2020/12/29
Preamplifier	EMC Instruments corporation	EMC051845SE	MRTSUE06602	1 year	2020/10/07
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2020/12/15
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2021/04/30

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2021/04/14
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2021/01/08
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2021/04/14
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2020/11/18
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2021/06/11
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2021/06/11
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2021/06/11
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2021/06/11
Modulation Analyzer	HP	HP8901A	MRTSUE06098	1 year	2020/10/10
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Attenuator	MVE	6dB	MRTSUE06534	1 year	2020/12/12
Attenuator	MVE	10dB	MRTSUE06543	1 year	2020/12/12
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2020/11/07
Thermal Hygrometer	testo	608-H1	MRTSUE06401	1 year	2021/07/26

Software	Version	Function
EMI Software	V3	EMI Test Software

5. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT 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.

AC Conducted Emission Measurement
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%

6. TEST RESULT

6.1. Summary

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)	26dB Bandwidth	N/A	Conducted	Pass	Section 6.2
15.407(e)	6dB Bandwidth	≥ 500kHz		Pass	Section 6.3
15.407(a)(1)(ii), (3)	Maximum Conducted Output Power	U-NII-1: ≤1W U-NII-3: ≤1W		Pass	Section 6.4
15.407(h)(1)	Transmit Power Control	≤24dBm		N/A	Section 6.5
15.407(a)(1)(ii), (3)	Power Spectral Density	Refer to Section 6.6		Pass	Section 6.6
15.407(g)	Frequency Stability	N/A		Pass	Section 6.7
15.407(b)(1), (4)(i)	Undesirable Emissions	Refer to Section 6.9	Radiated	Pass	Section 6.8 Section 6.9
15.205, 15.209 15.407(b)(1), (4)(i)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in15.209		Pass	
15.207	AC Conducted Emissions 150kHz-30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 6.10

Notes:

1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
3) “N/A” means that the test item is not applicable, and the details refer to relevant section.

6.2. Emission Bandwidth Measurement

6.2.1.Test Limit

N/A

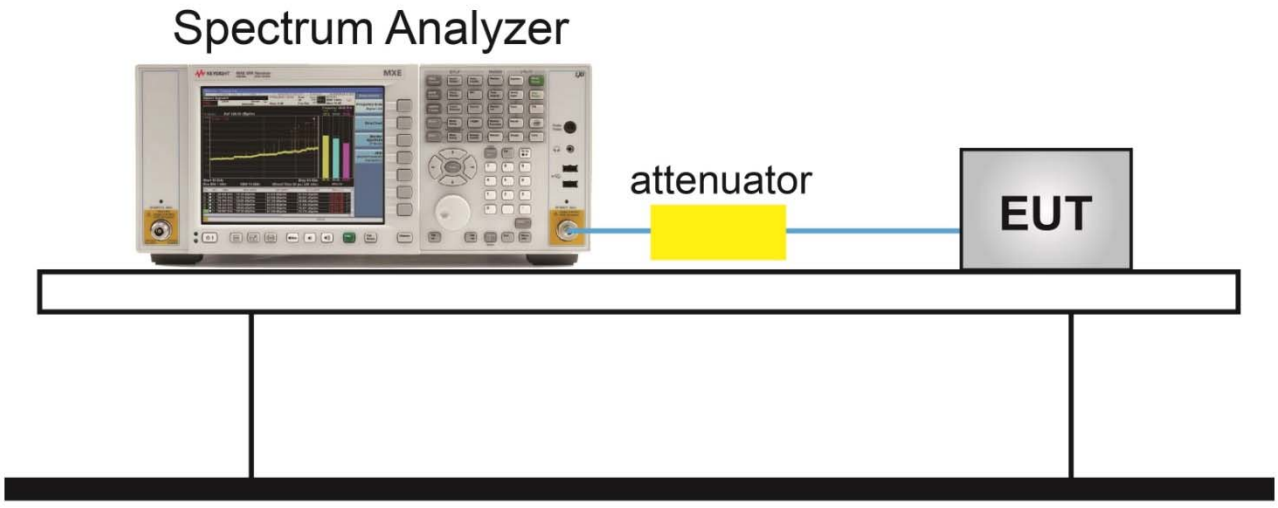
6.2.2.TestProcedureUsed

KDB 789033 D02v02r01 -Section C.1

6.2.3.TestSetting

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. 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%.

6.2.4.Test Setup



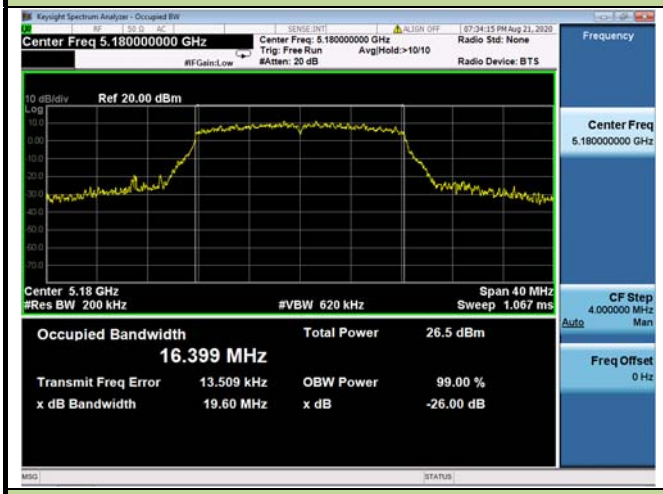
6.2.5.Test Result

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Amy Zhang
Test Site	TR3	Test Date	2020/08/21

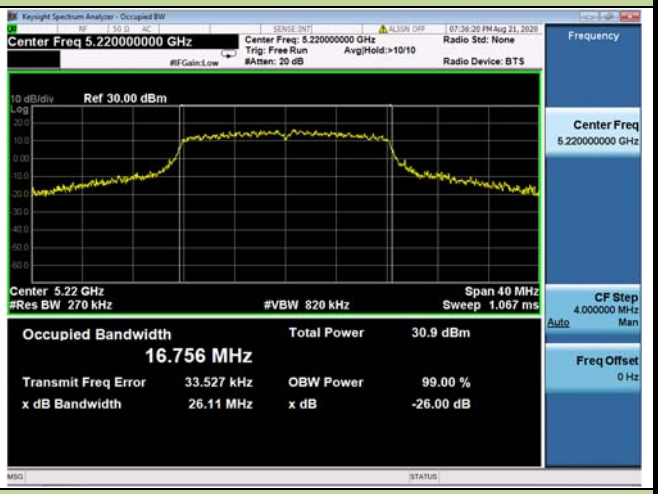
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)
Ant 0 / Ant 0 + 1				
802.11a	6Mbps	36	5180	19.60
802.11a	6Mbps	44	5220	26.11
802.11a	6Mbps	48	5240	26.02
802.11a	6Mbps	149	5745	32.85
802.11a	6Mbps	157	5785	38.53
802.11a	6Mbps	165	5825	37.39
802.11n-HT20	MCS0	36	5180	19.97
802.11n-HT20	MCS0	44	5220	29.47
802.11n-HT20	MCS0	48	5240	29.62
802.11n-HT20	MCS0	149	5745	35.76
802.11n-HT20	MCS0	157	5785	38.96
802.11n-HT20	MCS0	165	5825	38.52
802.11n-HT40	MCS0	38	5190	40.10
802.11n-HT40	MCS0	46	5230	74.39
802.11n-HT40	MCS0	151	5755	80.00
802.11n-HT40	MCS0	159	5795	78.79
802.11ac-VHT20	MCS0	36	5180	19.94
802.11ac-VHT20	MCS0	44	5220	29.89
802.11ac-VHT20	MCS0	48	5240	29.29
802.11ac-VHT20	MCS0	149	5745	37.26
802.11ac-VHT20	MCS0	157	5785	38.55
802.11ac-VHT20	MCS0	165	5825	38.70
802.11ac-VHT40	MCS0	38	5190	39.89
802.11ac-VHT40	MCS0	46	5230	79.72
802.11ac-VHT40	MCS0	151	5755	78.42
802.11ac-VHT40	MCS0	159	5795	79.08
802.11ac-VHT80	MCS0	42	5210	79.88
802.11ac-VHT80	MCS0	155	5775	117.3

802.11a 26dB Bandwidth

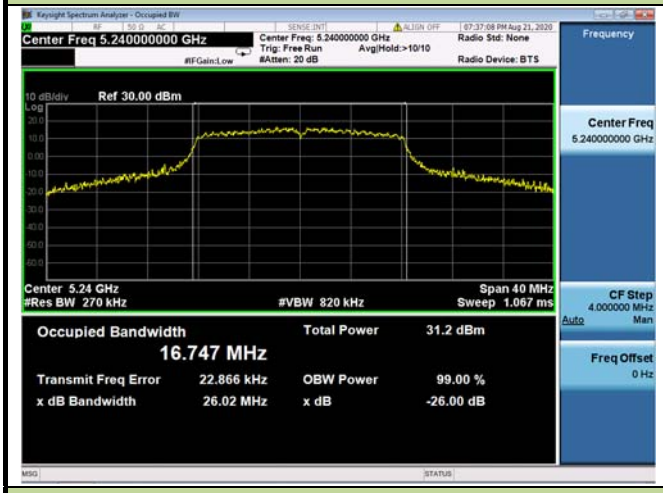
Channel 36 (5180MHz)



Channel 44 (5220MHz)



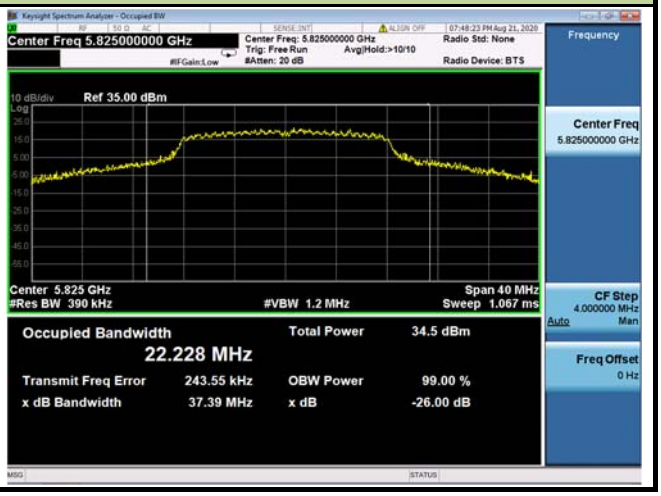
Channel 48 (5240MHz)



Channel 149 (5745MHz)

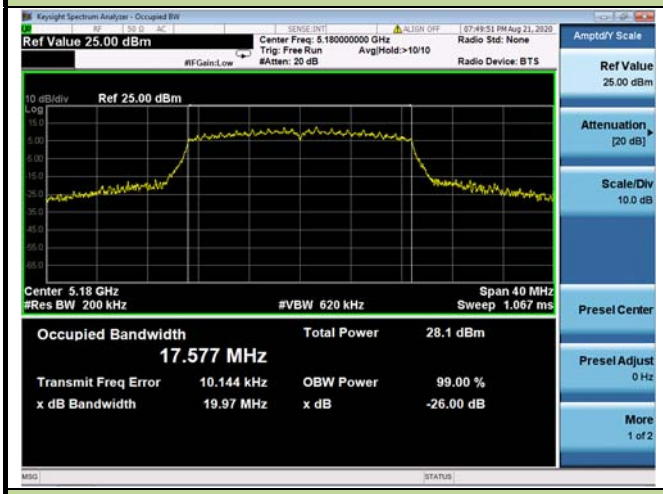
Channel 157 (5785MHz)

Channel 165 (5825MHz)

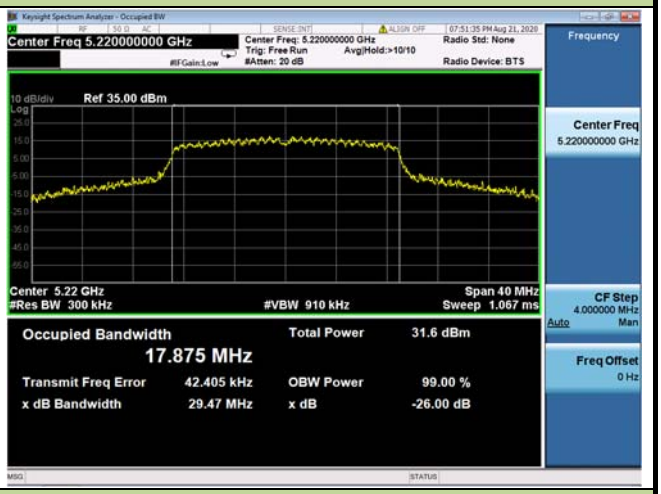


802.11n-HT20 26dB Bandwidth

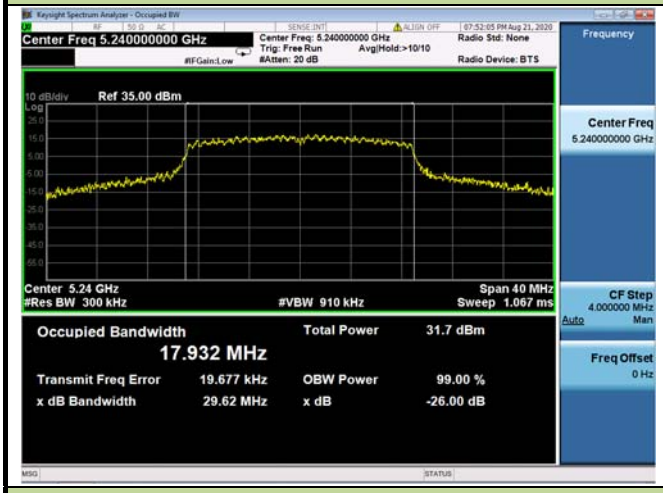
Channel 36 (5180MHz)



Channel 44 (5220MHz)



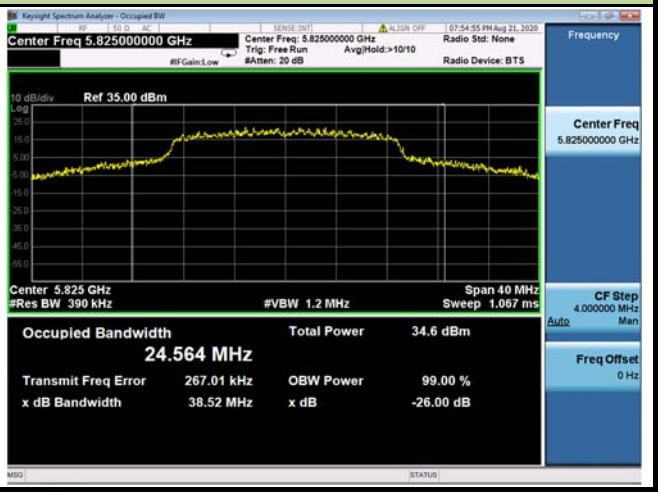
Channel 48 (5240MHz)

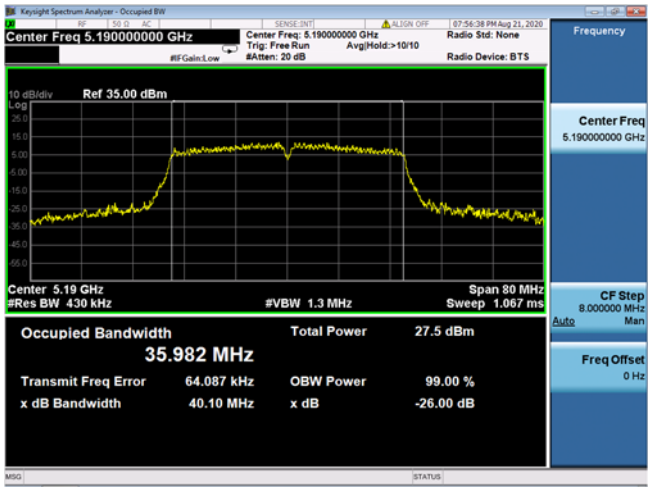
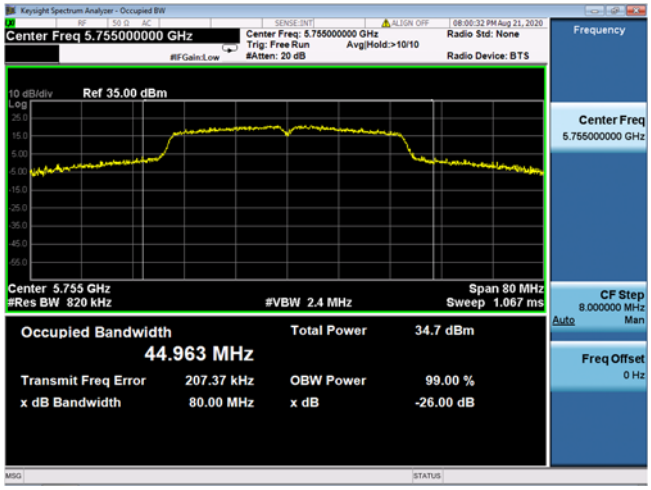


Channel 149 (5745MHz)

Channel 157 (5785MHz)

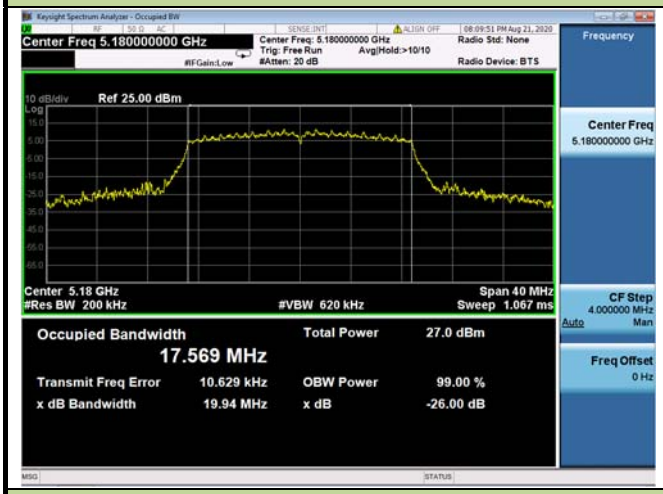
Channel 165 (5825MHz)



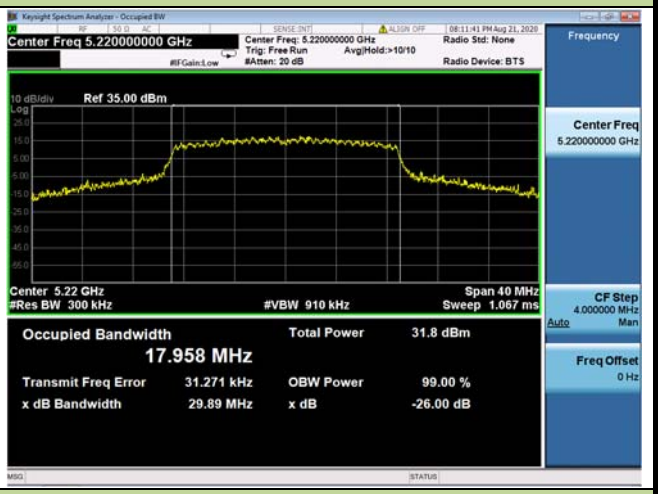
802.11n-HT40 26dB Bandwidth	
Channel 38 (5190MHz)	**Channel 46 (5230MHz)**
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT20 26dB Bandwidth

Channel 36 (5180MHz)



Channel 44 (5220MHz)

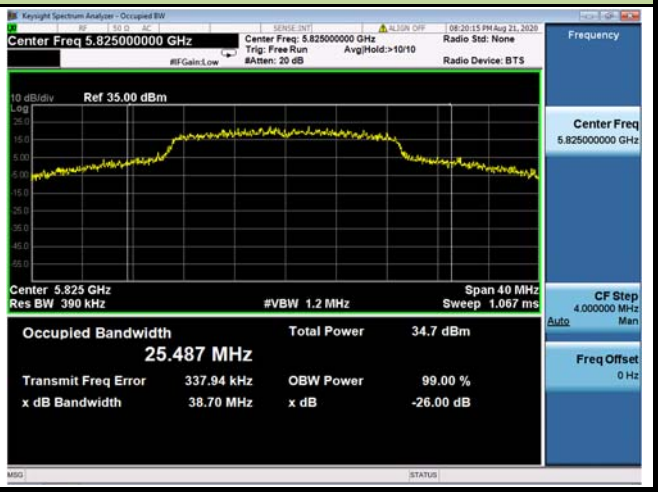


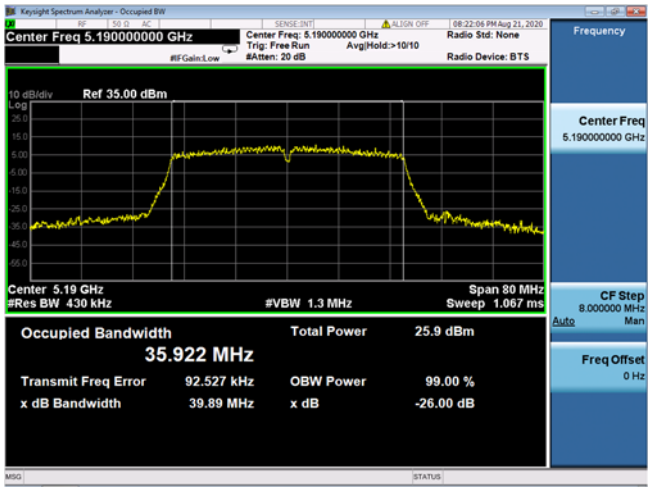
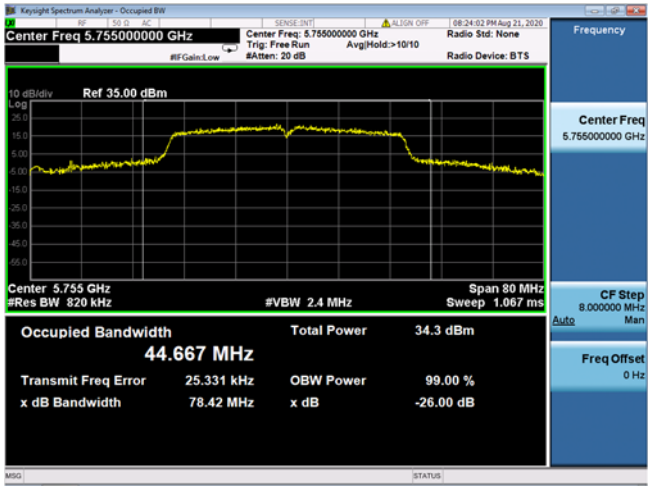
Channel 48 (5240MHz)

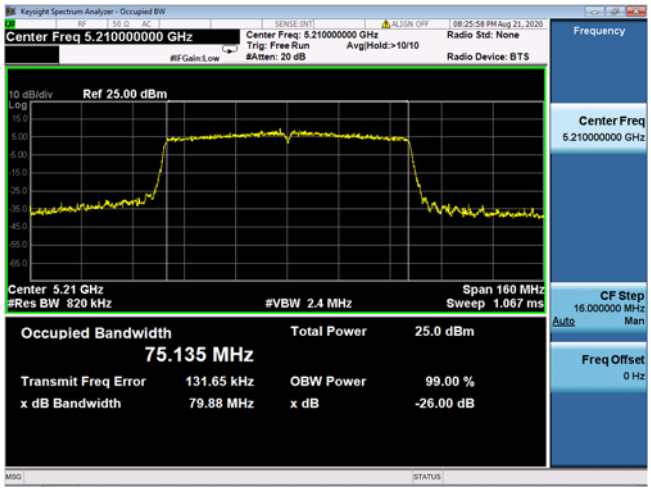
Channel 149 (5745MHz)

Channel 157 (5785MHz)

Channel 165 (5825MHz)



802.11ac-VHT40 26dB Bandwidth	
Channel 38 (5190MHz)	**Channel 46 (5230MHz)**
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT80 26dB Bandwidth	
Channel 42 (5210MHz)	**Channel 155 (5775MHz)**
	

6.3. 6dB Bandwidth Measurement

6.3.1.Test Limit

The minimum 6dBbandwidth shall be at least 500 kHz.

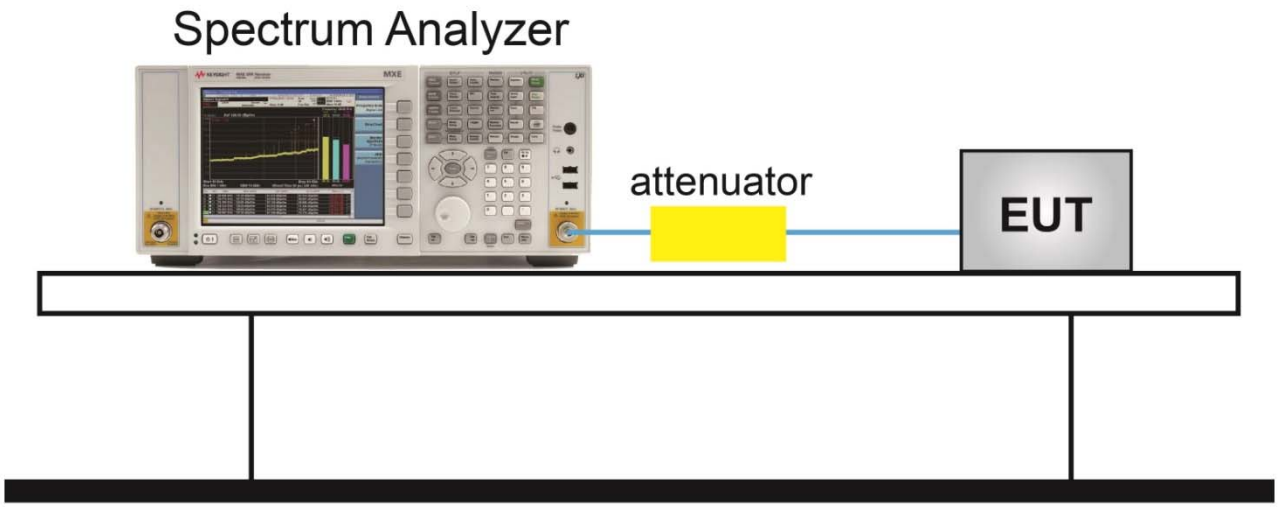
6.3.2.Test Procedure Used

KDB 789033 D02v02r01 - Section C.2

6.3.3.TestSetting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW≥ 3 × RBW.
4. Detector = Peak.
5. Trace mode = Max hold.
6. Sweep = Auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3.4.Test Setup



6.3.5.Test Result

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Amy Zhang
Test Site	TR3	Test Date	2020/09/05

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11a	6Mbps	149	5745	15.10	≥ 0.5	Pass
802.11a	6Mbps	157	5785	15.35	≥ 0.5	Pass
802.11a	6Mbps	165	5825	15.13	≥ 0.5	Pass
802.11n-HT20	MCS0	149	5745	15.13	≥ 0.5	Pass
802.11n-HT20	MCS0	157	5785	15.14	≥ 0.5	Pass
802.11n-HT20	MCS0	165	5825	15.11	≥ 0.5	Pass
802.11n-HT40	MCS0	151	5755	35.09	≥ 0.5	Pass
802.11n-HT40	MCS0	159	5795	35.05	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	15.16	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	15.13	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	15.11	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	35.07	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	35.08	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	75.19	≥ 0.5	Pass

802.11a 6dB Bandwidth

Channel 149 (5745MHz)

Channel 157 (5785MHz)

Channel 165 (5825MHz)

802.11n-HT20 6dB Bandwidth

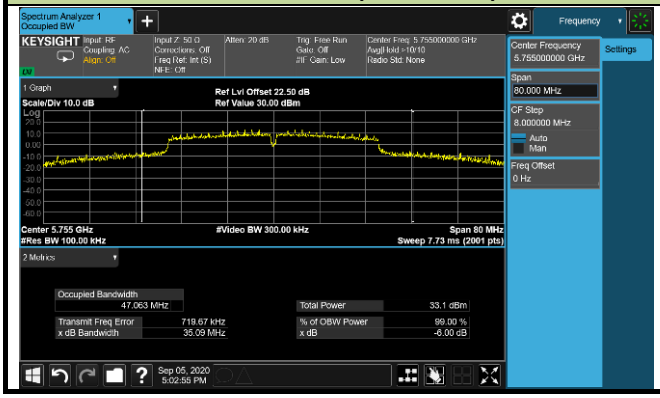
Channel 149 (5745MHz)

Channel 157 (5785MHz)

Channel 165 (5825MHz)

802.11n-HT40 6dB Bandwidth

Channel 151 (5755MHz)



Channel 159 (5795MHz)

802.11ac-VHT20 6dB Bandwidth

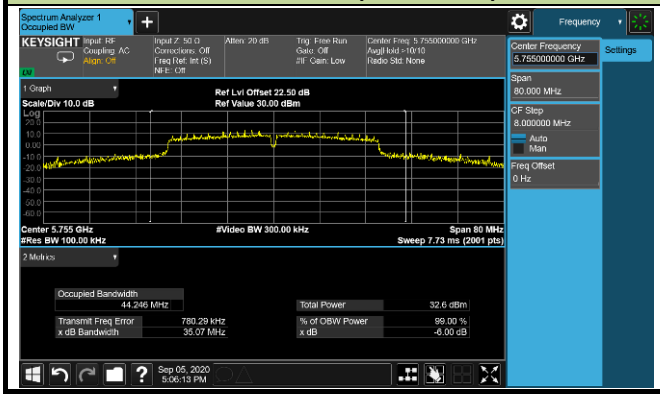
Channel 149 (5745MHz)

Channel 157 (5785MHz)

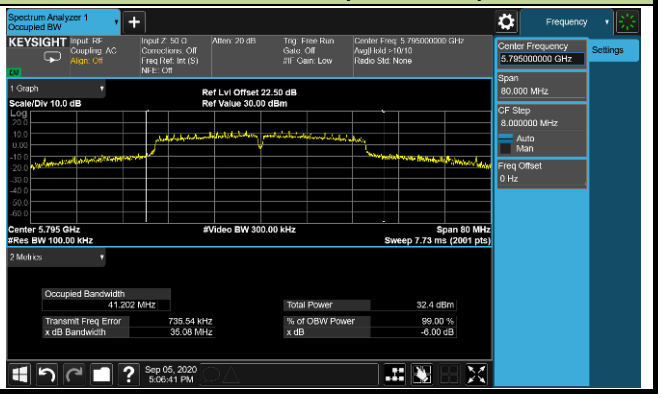
Channel 165 (5825MHz)

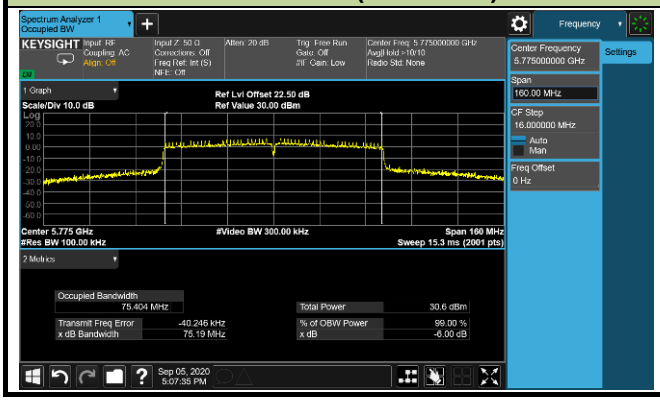
802.11ac-VHT40 6dB Bandwidth

Channel 151 (5755MHz)



Channel 159 (5795MHz)



802.11ac-VHT80 6dB Bandwidth	
Channel 155 (5775MHz)	
	

6.4. Output Power Measurement

6.4.1.Test Limit

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

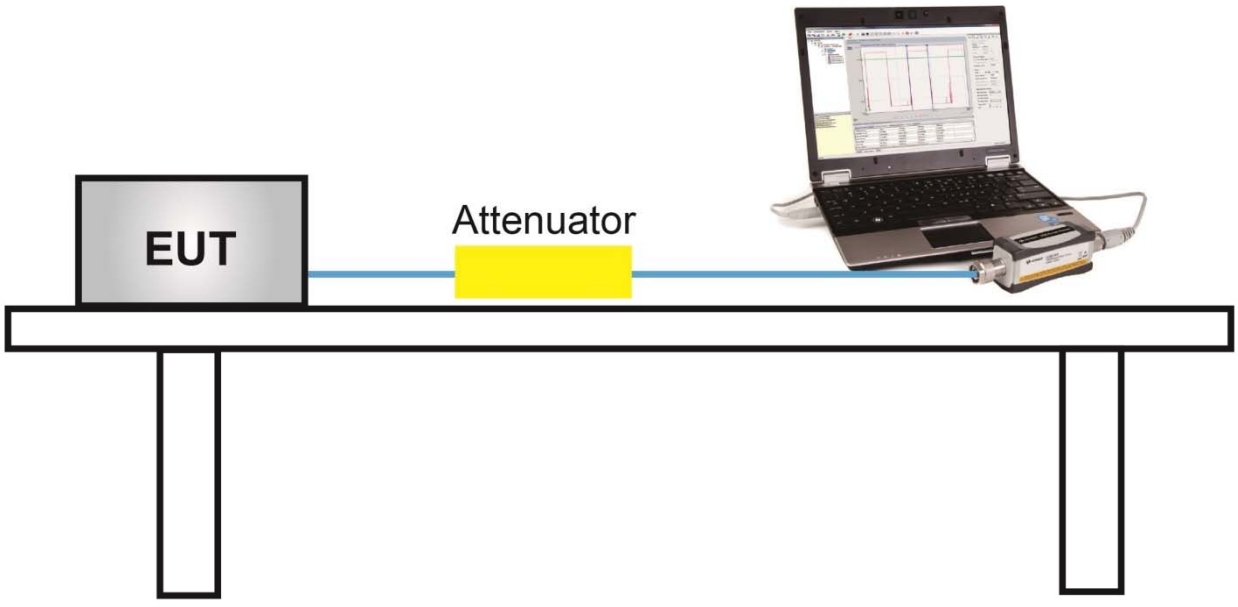
6.4.2.Test Procedure Used

KDB 789033D02v02r01- Section E)3)b) Method PM-G

6.4.3.Test Setting

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

6.4.4.Test Setup



6.4.5.Test Result

Output power test was verified over all data rates of each mode shown as below table, and then choose the maximum output power (gray marker) for final test of each channel.

Output power at various data rates for Ant 0 / Ant 0+1 port:

Test Mode	Bandwidth	Channel No.	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11a	20	36	5180	6Mbps	21.24
				24Mbps	21.03
				54Mbps	20.88
802.11n	20	36	5180	MCS0	21.75
				MCS4	21.53
				MCS8	21.36
802.11n	40	38	5190	MCS0	19.63
				MCS4	19.54
				MCS9	19.39
802.11ac	20	36	5180	MCS0	22.93
				MCS4	22.68
				MCS8	22.46
802.11ac	40	38	5190	MCS0	19.98
				MCS4	19.72
				MCS9	19.56
802.11ac	80	42	5210	MCS0	16.61
				MCS4	16.42
				MCS9	16.25

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Amy Zhang
Test Site	TR3	Test Date	2020/08/21

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Average Power (dBm)		Average Power (dBm)	Limit (dBm)	Result
				Ant 0	Ant 1			
802.11a	6Mbps	36	5180	21.24	21.28	24.27	≤ 30.00	Pass
802.11a	6Mbps	44	5220	23.89	24.28	27.10	≤ 30.00	Pass
802.11a	6Mbps	48	5240	24.03	24.21	27.13	≤ 30.00	Pass
802.11a	6Mbps	149	5745	25.10	25.41	28.27	≤ 30.00	Pass
802.11a	6Mbps	157	5785	26.41	26.85	29.65	≤ 30.00	Pass
802.11a	6Mbps	165	5825	25.46	26.58	29.07	≤ 30.00	Pass
802.11n-HT20	MCS0	36	5180	21.75	21.36	24.57	≤ 30.00	Pass
802.11n-HT20	MCS0	44	5220	24.21	24.81	27.53	≤ 30.00	Pass
802.11n-HT20	MCS0	48	5240	24.36	24.66	27.52	≤ 30.00	Pass
802.11n-HT20	MCS0	149	5745	24.74	25.75	28.28	≤ 30.00	Pass
802.11n-HT20	MCS0	157	5785	26.53	26.94	29.75	≤ 30.00	Pass
802.11n-HT20	MCS0	165	5825	25.51	25.31	28.42	≤ 30.00	Pass
802.11n-HT40	MCS0	38	5190	19.63	19.54	22.60	≤ 30.00	Pass
802.11n-HT40	MCS0	46	5230	26.57	26.58	29.59	≤ 30.00	Pass
802.11n-HT40	MCS0	151	5755	26.09	26.68	29.41	≤ 30.00	Pass
802.11n-HT40	MCS0	159	5795	26.11	26.35	29.24	≤ 30.00	Pass
802.11ac-VHT20	MCS0	36	5180	22.93	22.71	25.83	≤ 30.00	Pass
802.11ac-VHT20	MCS0	44	5220	24.27	24.76	27.53	≤ 30.00	Pass
802.11ac-VHT20	MCS0	48	5240	24.38	24.61	27.51	≤ 30.00	Pass
802.11ac-VHT20	MCS0	149	5745	24.52	24.91	27.73	≤ 30.00	Pass
802.11ac-VHT20	MCS0	157	5785	26.54	27.01	29.79	≤ 30.00	Pass
802.11ac-VHT20	MCS0	165	5825	25.74	24.08	28.00	≤ 30.00	Pass
802.11ac-VHT40	MCS0	38	5190	19.98	20.06	23.03	≤ 30.00	Pass
802.11ac-VHT40	MCS0	46	5230	26.34	26.60	29.48	≤ 30.00	Pass
802.11ac-VHT40	MCS0	151	5755	25.67	26.38	29.05	≤ 30.00	Pass
802.11ac-VHT40	MCS0	159	5795	25.40	26.03	28.74	≤ 30.00	Pass
802.11ac-VHT80	MCS0	42	5210	16.61	16.69	19.66	≤ 30.00	Pass
802.11ac-VHT80	MCS0	155	5775	24.91	24.93	27.93	≤ 30.00	Pass

Note: Total Average Power (dBm) = $10*\log\{10^{(\text{ANT 0 Average Power }/10)}+10^{(\text{ANT 1 Average Power }/10)}\}$ (dBm).

6.5. Transmit Power Control

6.5.1.Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

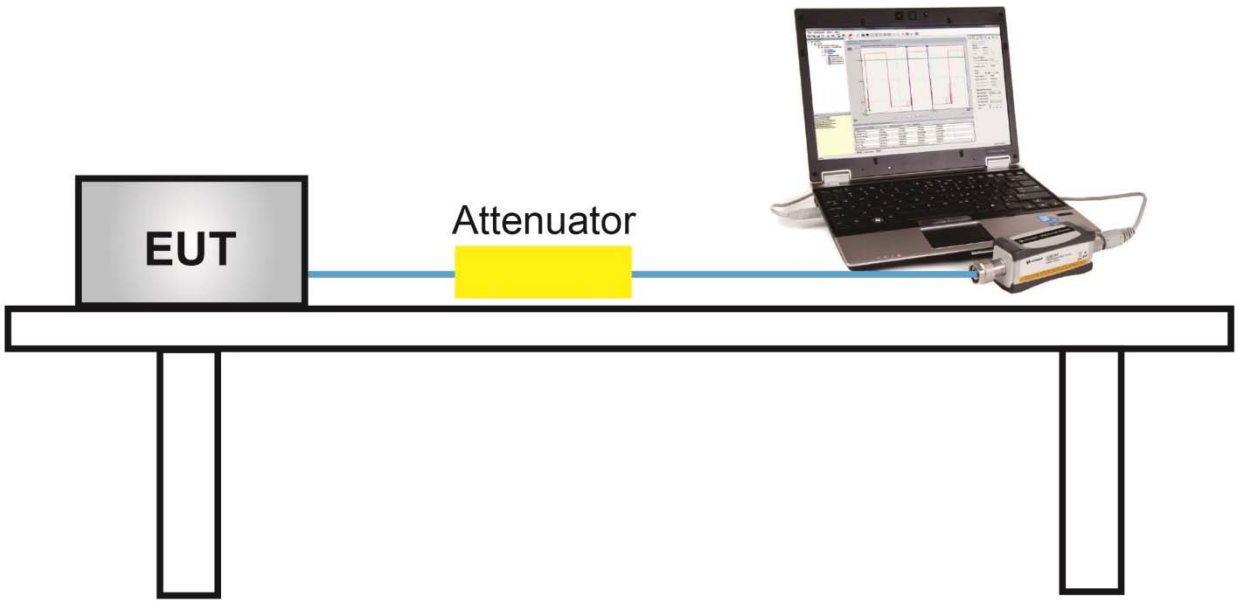
6.5.2.Test Procedure Used

ANSI C63.10-2013- Section 12.3.3.2 Method PM-G

6.5.3.Test Setting

Average power measurements were perform only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

6.5.4.Test Setup



6.5.5.TestResult

A TPC mechanism is not required for U-NII devices operating in the 5.15-5.25 GHz band and the 5.745-5.825 GHz band.

6.6. Power Spectral Density Measurement

6.6.1.TestLimit

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.

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 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

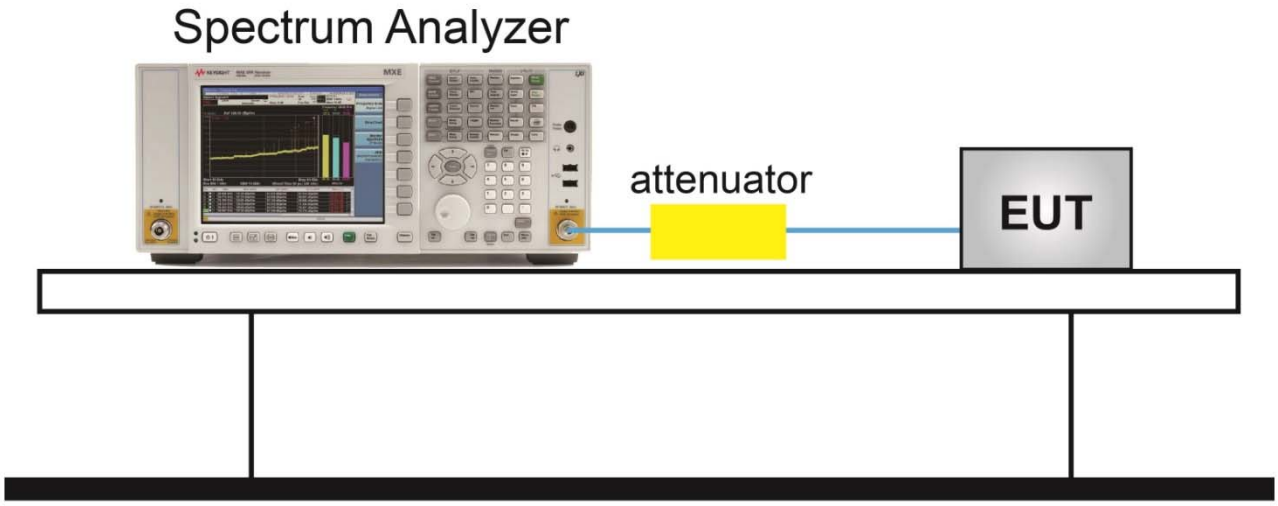
6.6.2.Test Procedure Used

KDB 789033 D02v02r01 - Section F

6.6.3.Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz
   If measurement bandwidth of Maximum PSD is specified in 500 kHz, RBW = 510kHz
4. VBW = 3MHz
5. Number of sweep points ≥ 2 × (span / RBW)
6. Detector = Power averaging (Average)
7. Trace average at least 100 traces in power averaging (rms) mode
8. Sweep time = Auto
9. Trigger = Free run
10. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
11. Add 10*log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10*log (1/0.25) = 6 dB if the duty cycle is 25 percent.

6.6.4.Test Setup



6.6.5.Test Result

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Amy Zhang
Test Site	TR3	Test Date	2020/08/21
Test Item	Power Spectral Density (UNII-Band 1)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)		Duty Cycle (%)	Final PSD (dBm/MHz)	PSD Limit (dBm/MHz)	Result
				Ant 0	Ant 1				
11a	6Mbps	36	5180	9.64	9.72	95.61	12.89	≤16.69	Pass
11a	6Mbps	44	5220	13.43	13.51	95.61	16.67	≤16.69	Pass
11a	6Mbps	48	5240	13.21	13.63	95.61	16.63	≤16.69	Pass
11n-HT20	MCS0	36	5180	10.35	10.50	95.54	13.63	≤16.69	Pass
11n-HT20	MCS0	44	5220	13.27	13.53	95.54	16.61	≤16.69	Pass
11n-HT20	MCS0	48	5240	13.15	13.41	95.54	16.49	≤16.69	Pass
11n-HT40	MCS0	38	5190	6.44	6.14	91.35	9.69	≤16.69	Pass
11n-HT40	MCS0	46	5230	12.62	12.73	91.35	16.08	≤16.69	Pass
11ac-VHT20	MCS0	36	5180	9.66	9.47	91.84	12.94	≤16.69	Pass
11ac-VHT20	MCS0	44	5220	13.15	13.42	91.84	16.67	≤16.69	Pass
11ac-VHT20	MCS0	48	5240	12.81	13.41	91.84	16.50	≤16.69	Pass
11ac-VHT40	MCS0	38	5190	5.47	5.71	85.45	9.28	≤16.69	Pass
11ac-VHT40	MCS0	46	5230	12.24	12.35	85.45	15.99	≤16.69	Pass
11ac-VHT80	MCS0	42	5210	-1.45	-1.07	75.81	2.96	≤16.69	Pass

Note 1:

When EUT duty cycle > 98%, Final PSD (dBm / MHz) =$10*\log\{10^{(\text{Ant 0 AVGPSD}/10)}+10^{(\text{Ant 1 AVGPSD}/10)}\}$.

When EUT duty cycle < 98%, Final PSD (dBm / MHz) =$10*\log\{10^{(\text{Ant 0 AVGPSD}/10)}+10^{(\text{Ant 1 AVGPSD}/10)}\}$ +10*log(1/Duty cycle).

Note 2: PSD Limit Calculation as below:

For 5150-5250MHz: PSD Limit = 17 - (6.31 - 6) = 16.69dBm/MHz;

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Amy Zhang
Test Site	TR3	Test Date	2020/08/21
Test Item	Power Spectral Density (UNII-Band 3)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD(dBm/ 510kHz)		Duty Cycle (%)	Final PSD(dBm/ 510kHz)	Limit (dBm/ 500kHz)	Result
				Ant 0	Ant 1				
11a	6Mbps	149	5745	10.98	11.26	95.61	14.33	≤29.69	Pass
11a	6Mbps	157	5785	12.41	13.15	95.61	16.00	≤29.69	Pass
11a	6Mbps	165	5825	11.85	12.93	95.61	15.63	≤29.69	Pass
11n-HT20	MCS0	149	5745	11.76	12.12	95.54	15.15	≤29.69	Pass
11n-HT20	MCS0	157	5785	12.36	13.35	95.54	16.09	≤29.69	Pass
11n-HT20	MCS0	165	5825	12.31	13.77	95.54	16.31	≤29.69	Pass
11n-HT40	MCS0	151	5755	9.01	9.31	91.35	12.56	≤29.69	Pass
11n-HT40	MCS0	159	5795	8.99	9.73	91.35	12.78	≤29.69	Pass
11ac-VHT20	MCS0	149	5745	11.01	11.68	91.84	14.73	≤29.69	Pass
11ac-VHT20	MCS0	157	5785	12.46	12.99	91.84	16.12	≤29.69	Pass
11ac-VHT20	MCS0	165	5825	12.79	13.92	91.84	16.77	≤29.69	Pass
11ac-VHT40	MCS0	151	5755	8.50	9.36	85.45	12.64	≤29.69	Pass
11ac-VHT40	MCS0	159	5795	8.48	8.96	85.45	12.42	≤29.69	Pass
11ac-VHT80	MCS0	155	5775	2.61	3.28	75.81	7.17	≤29.69	Pass

Note 1:

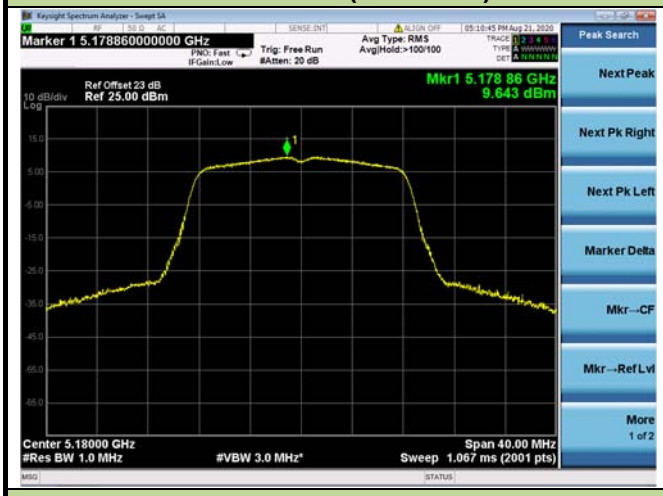
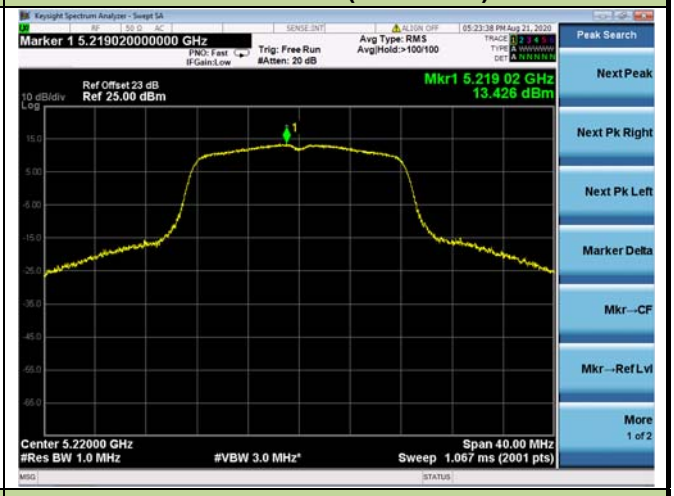
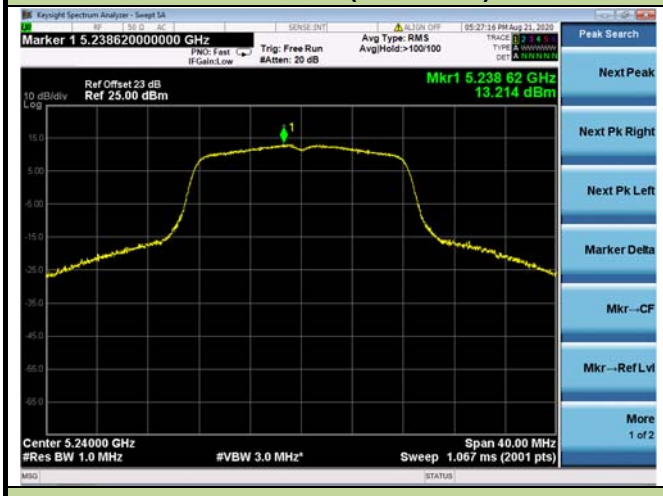
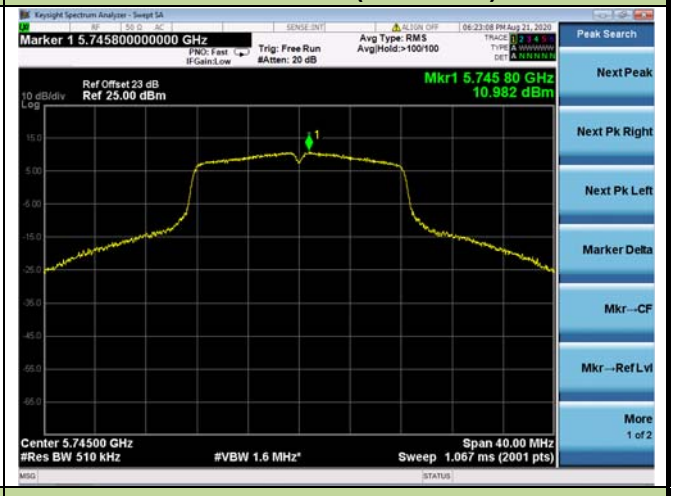
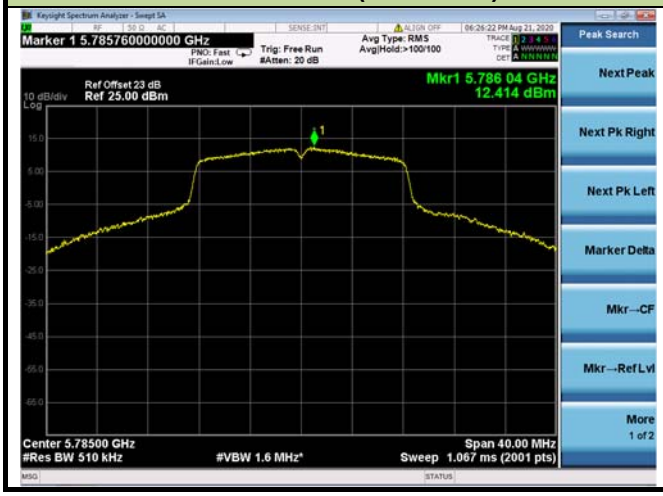
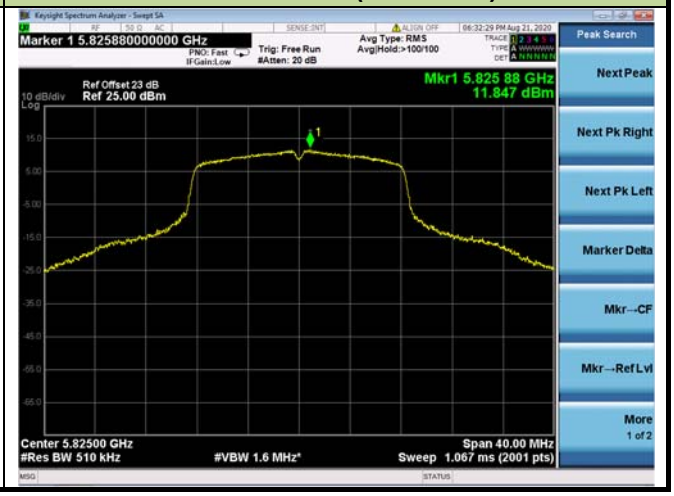
When EUT duty cycle > 98%, Final PSD (dBm / 510kHz) =$10*\log\{10^{(\text{Ant 0 AVGPSD}/10)}+10^{(\text{Ant 1 AVGPSD}/10)}\}$.

When EUT duty cycle < 98%, Final PSD (dBm / 510kHz) =$10*\log\{10^{(\text{Ant 0 AVGPSD}/10)}+10^{(\text{Ant 1 AVGPSD}/10)}\}$

+10*log(1/Duty cycle).

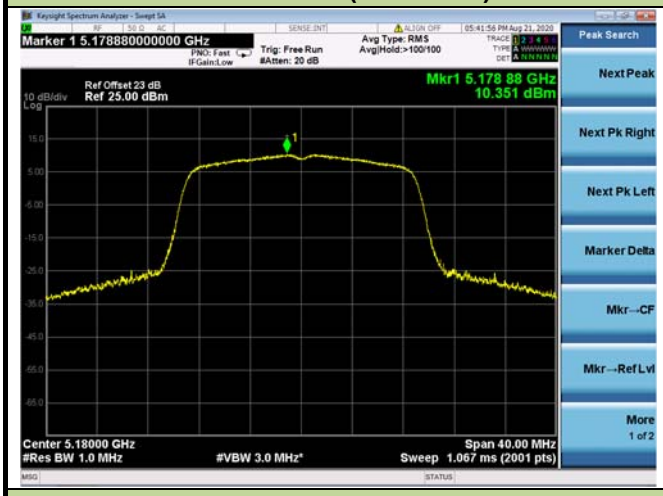
Note 2: PSD Limit Calculation as below:

For 5725-5850MHz: PSD Limit = 30– (6.31 - 6) = 29.69dBm/MHz;

802.11a Power Spectral Density – Ant 0	
Channel 36 (5180MHz)	**Channel 44 (5220MHz)**
	
Channel 48 (5240MHz)	**Channel 149 (5745MHz)**
	
Channel 157 (5785MHz)	**Channel 165 (5825MHz)**
	

802.11n-HT20 Power Spectral Density – Ant 0

Channel 36 (5180MHz)



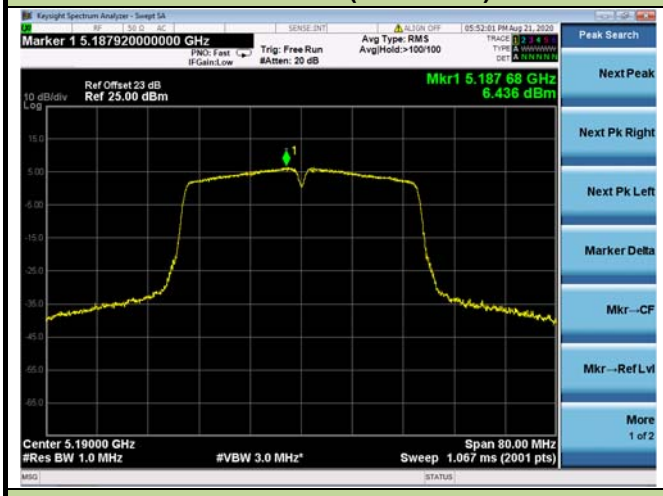
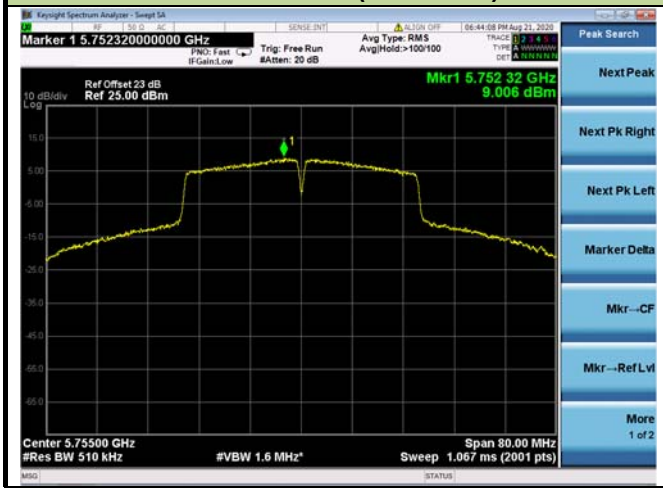
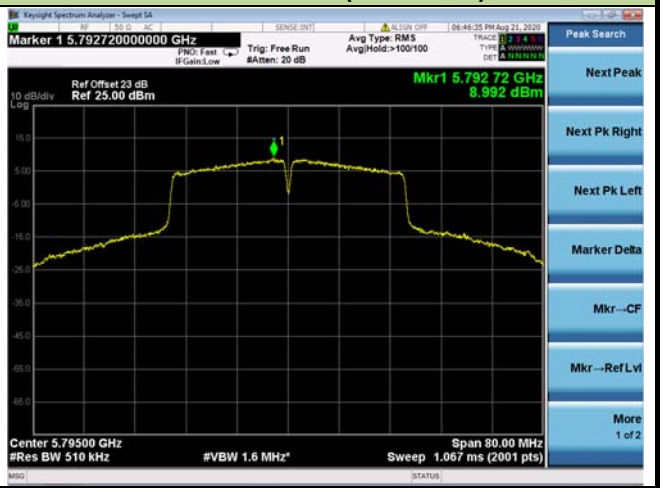
Channel 44 (5220MHz)

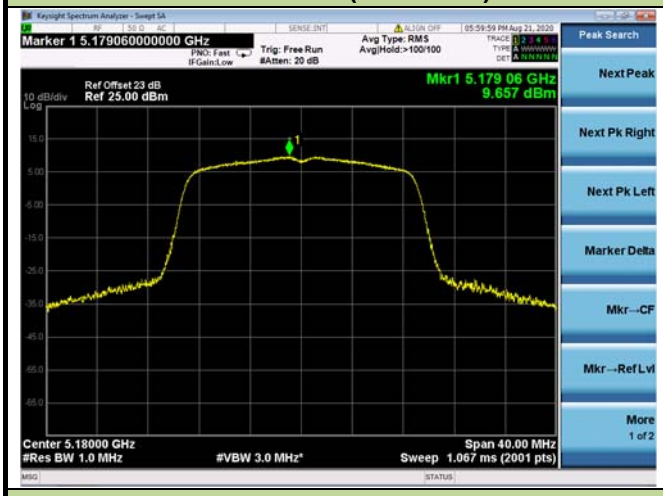
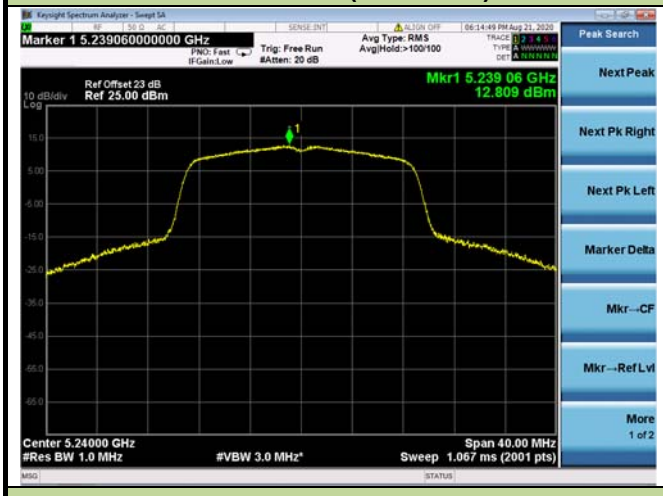
Channel 48 (5240MHz)

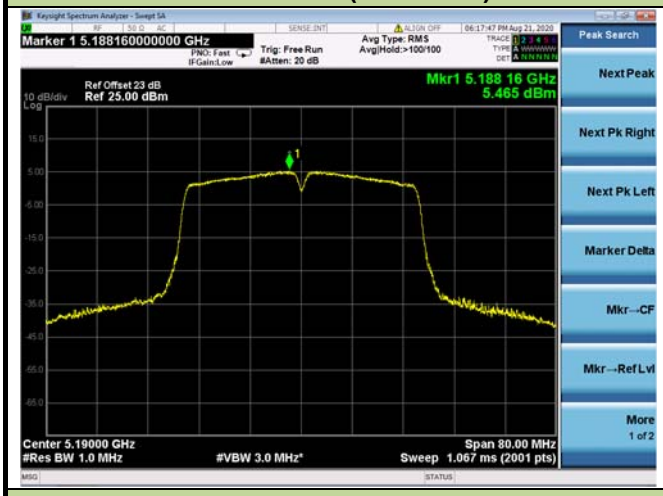
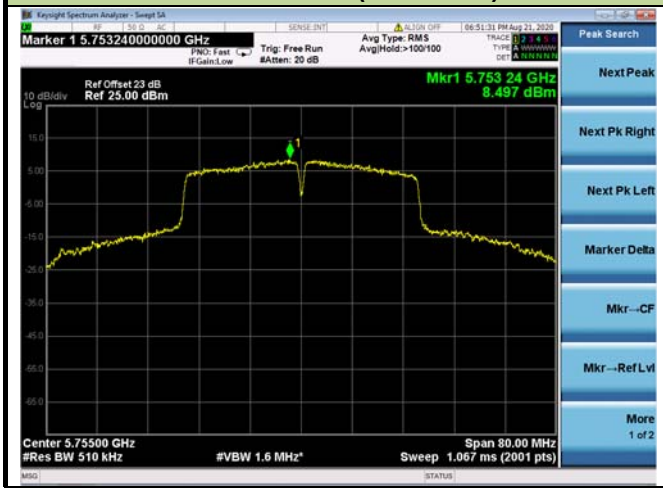
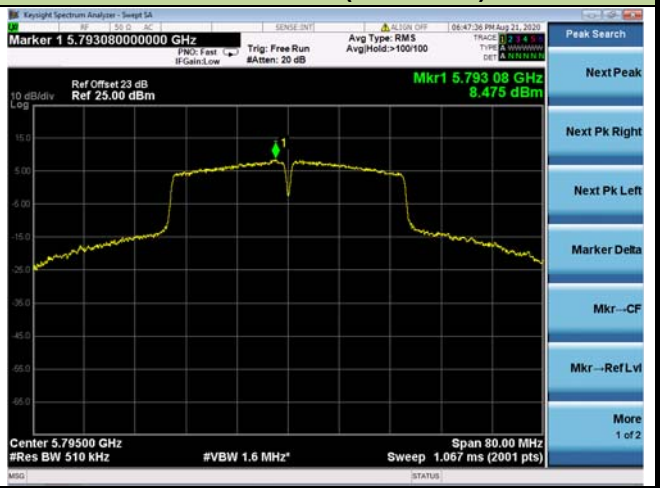
Channel 149 (5745MHz)

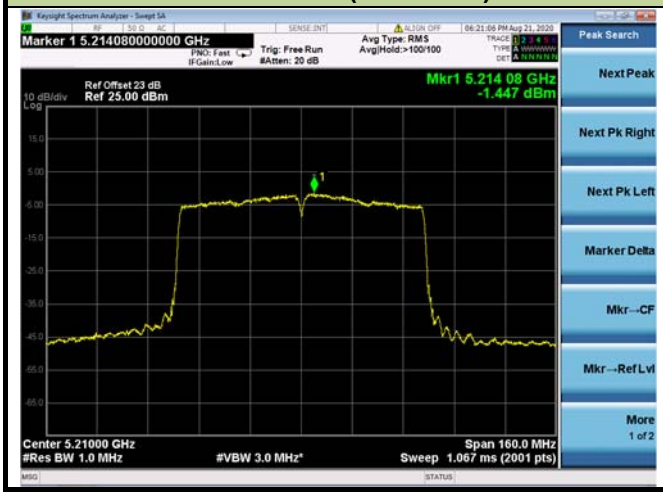
Channel 157 (5785MHz)

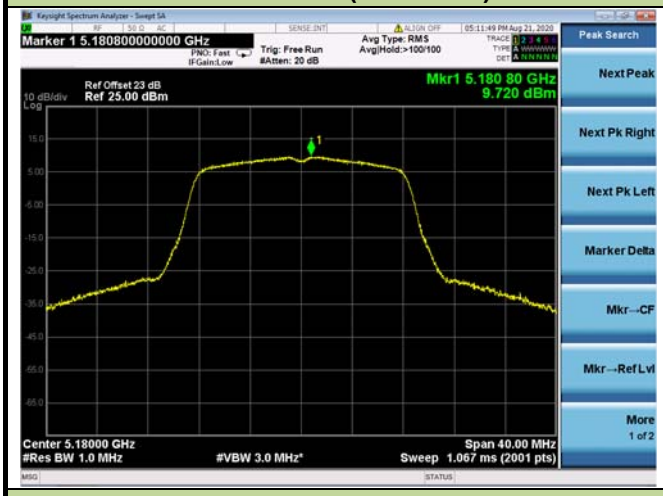
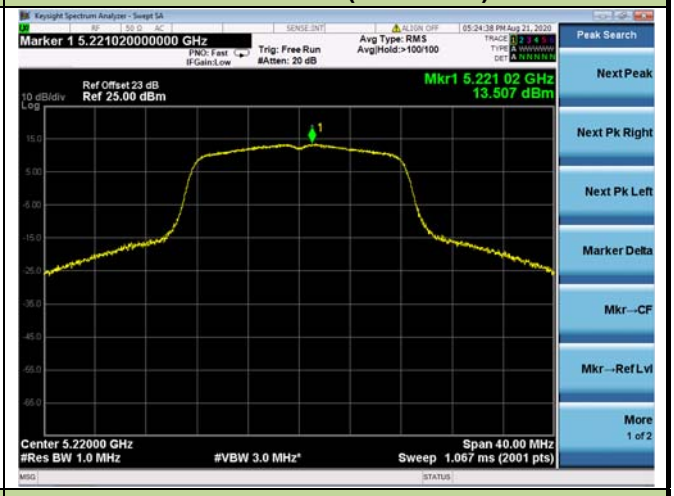
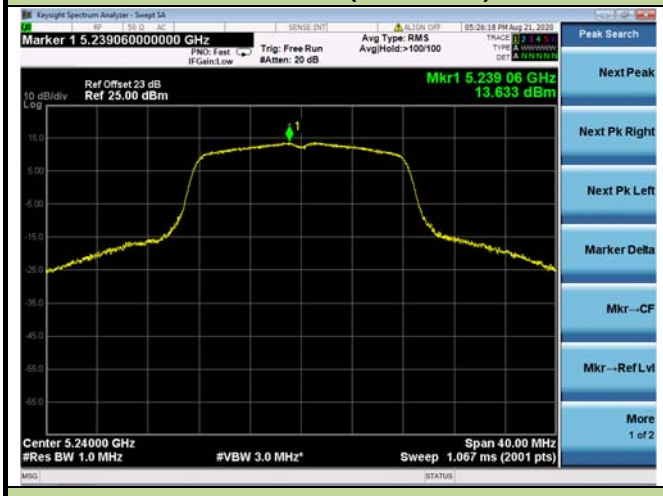
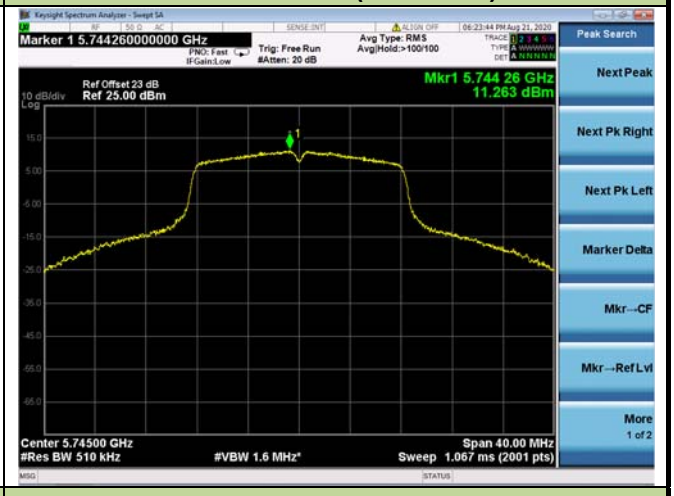
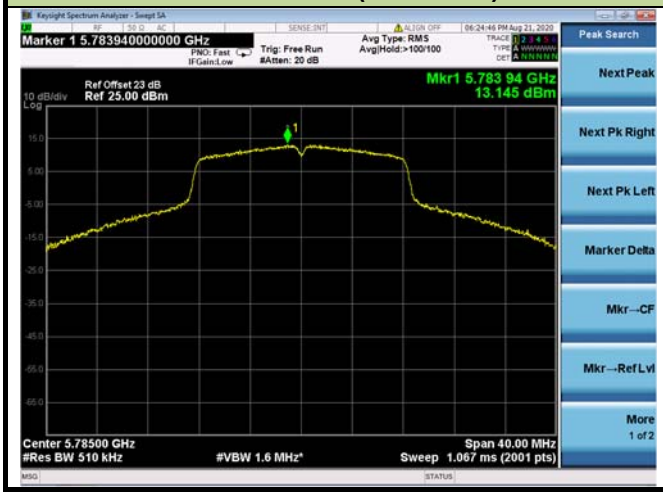
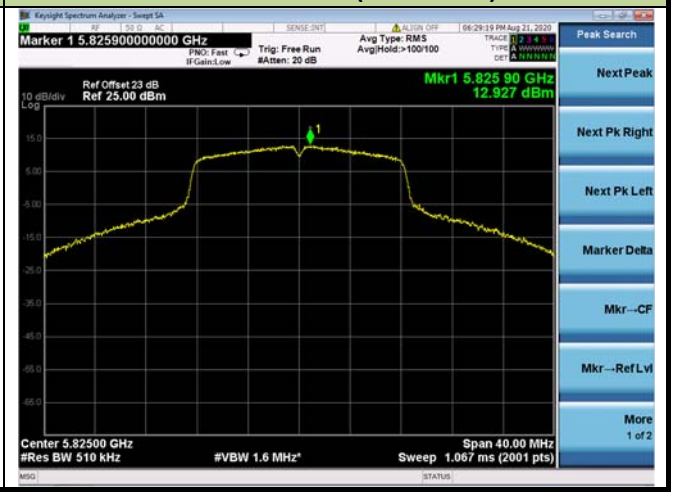
Channel 165 (5825MHz)

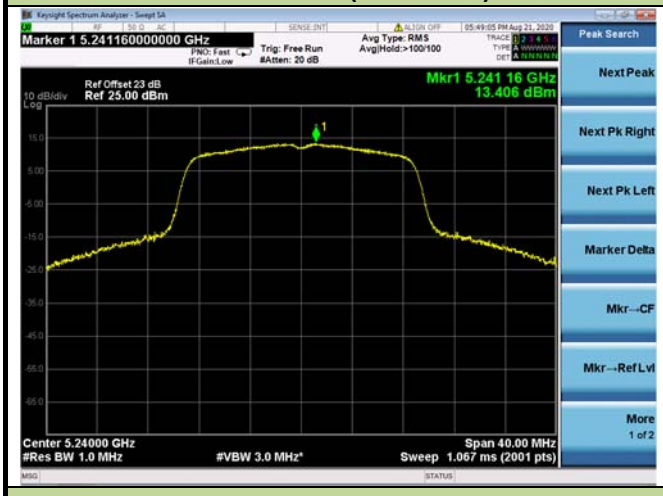
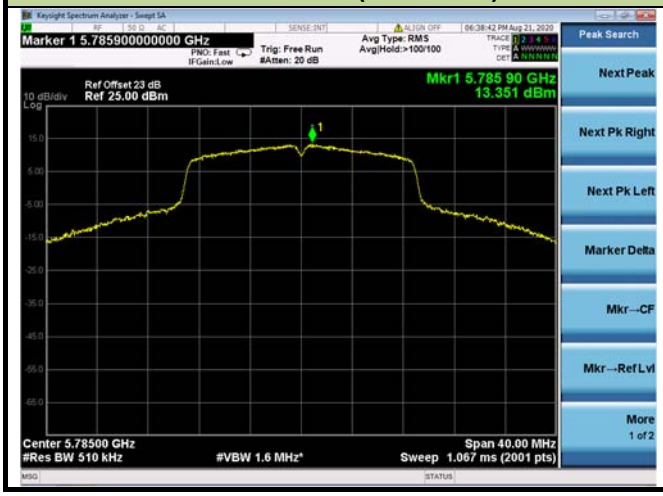
802.11n-HT40 Power Spectral Density – Ant 0	
Channel 38 (5190MHz)	**Channel 46 (5230MHz)**
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

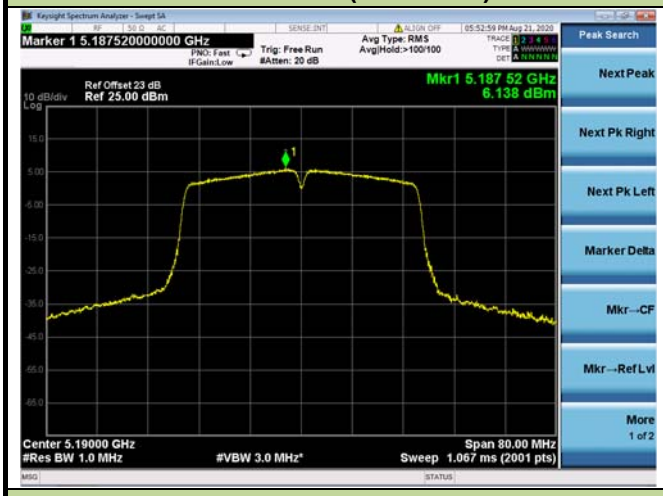
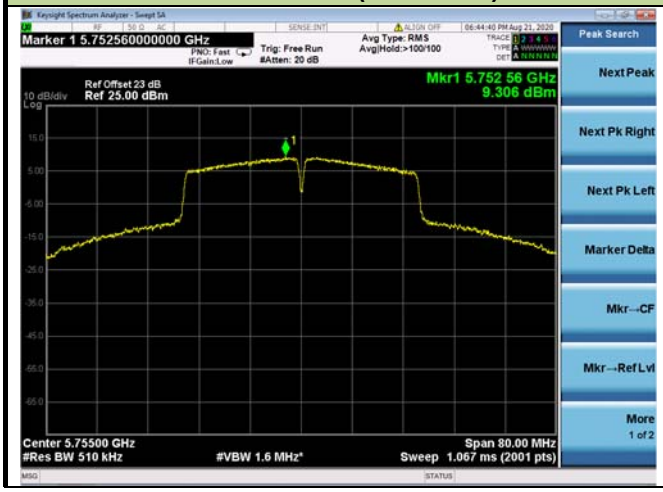
802.11ac-VHT20 Power Spectral Density – Ant 0	
Channel 36 (5180MHz)	**Channel 44 (5220MHz)**
	
Channel 48 (5240MHz)	**Channel 149 (5745MHz)**
	
Channel 157 (5785MHz)	**Channel 165 (5825MHz)**
	

802.11ac-VHT40 Power Spectral Density – Ant 0	
Channel 38 (5190MHz)	**Channel 46 (5230MHz)**
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT80 Power Spectral Density – Ant 0	
Channel 42 (5210MHz)	**Channel 155 (5775MHz)**
	

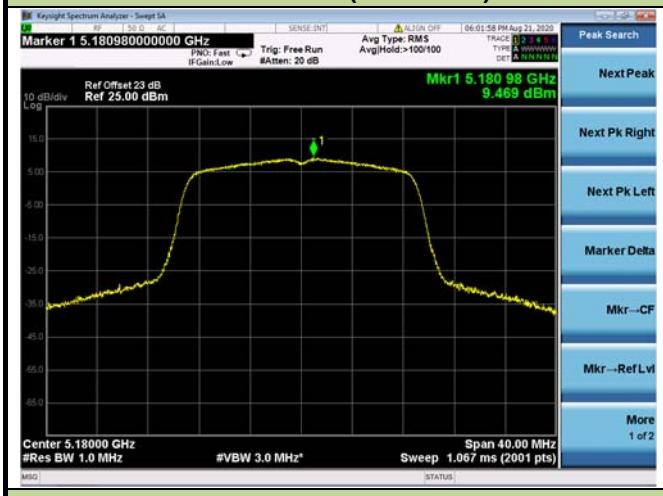
802.11a Power Spectral Density – Ant 1	
Channel 36 (5180MHz)	**Channel 44 (5220MHz)**
	
Channel 48 (5240MHz)	**Channel 149 (5745MHz)**
	
Channel 157 (5785MHz)	**Channel 165 (5825MHz)**
	

802.11n-HT20 Power Spectral Density – Ant 1	
Channel 36 (5180MHz)	**Channel 44 (5220MHz)**
	
Channel 48 (5240MHz)	**Channel 149 (5745MHz)**
	
Channel 157 (5785MHz)	**Channel 165 (5825MHz)**
	

802.11n-HT40 Power Spectral Density – Ant 1	
Channel 38 (5190MHz)	**Channel 46 (5230MHz)**
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT20 Power Spectral Density – Ant 1

Channel 36 (5180MHz)

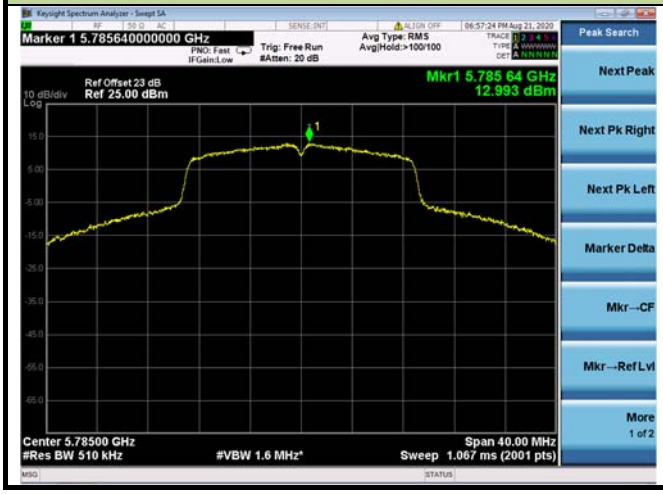


Channel 44 (5220MHz)

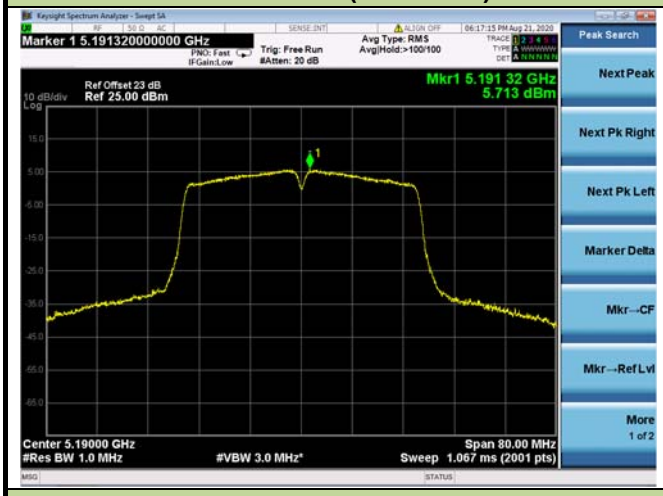
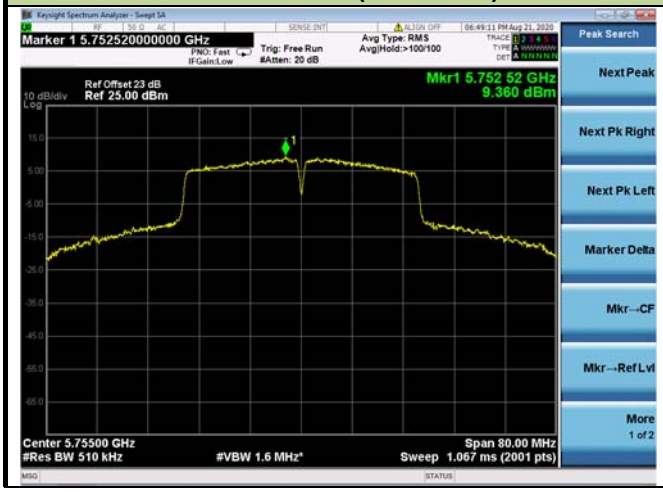
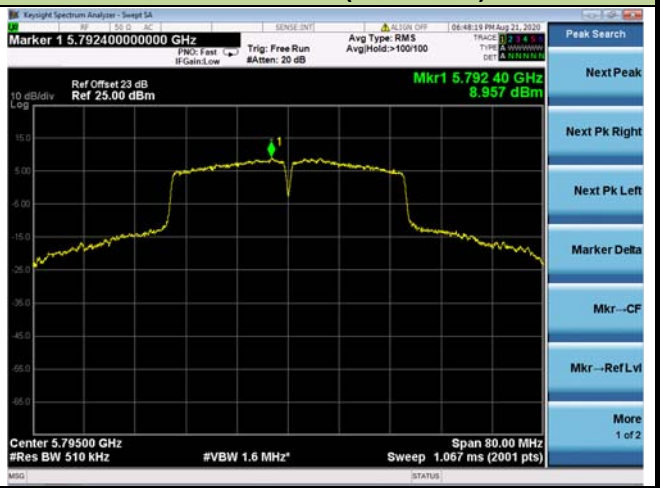
Channel 48 (5240MHz)

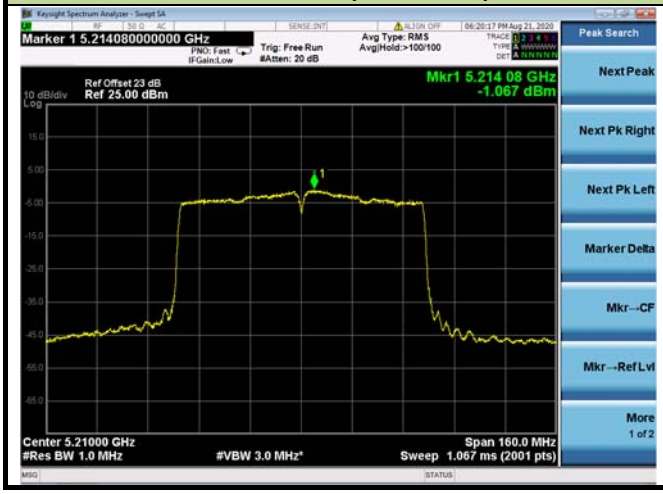
Channel 149 (5745MHz)

Channel 157 (5785MHz)



Channel 165 (5825MHz)

802.11ac-VHT40 Power Spectral Density – Ant 1	
Channel 38 (5190MHz)	**Channel 46 (5230MHz)**
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT80 Power Spectral Density – Ant 1	
Channel 42 (5210MHz)	**Channel 155 (5775MHz)**
	

6.7. Frequency Stability Measurement

6.7.1.TestLimit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

6.7.2.Test Procedure Used

Frequency Stability Under Temperature Variations:

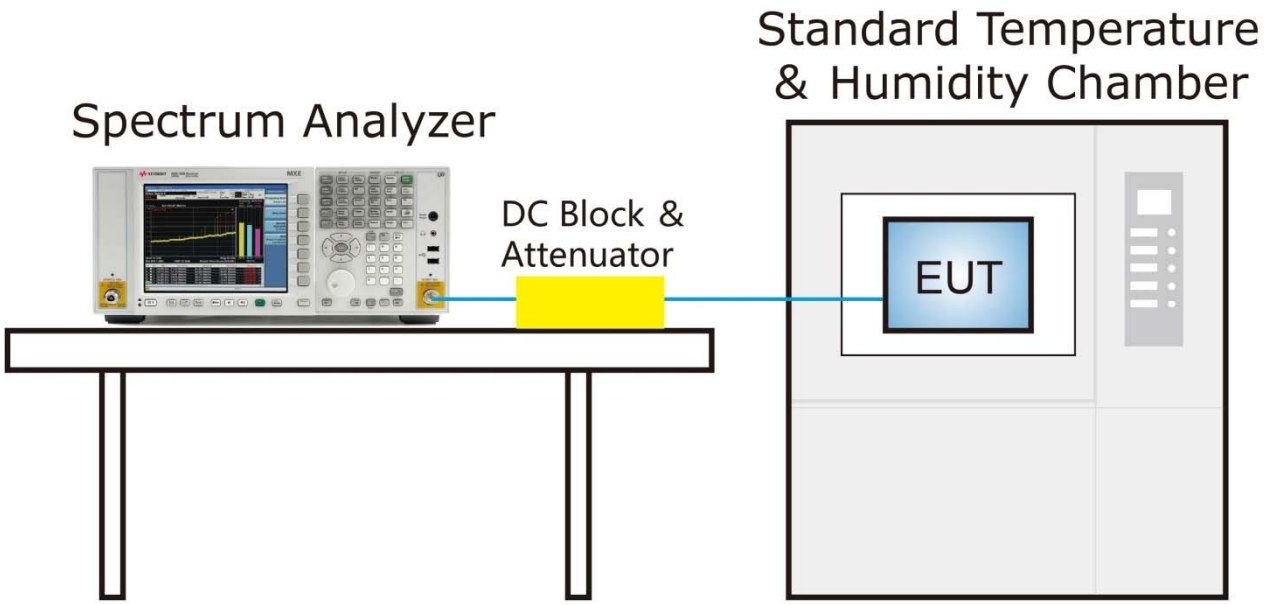
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, recordthe maximum frequency change.For hand-carried battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

6.7.3.Test Setup



6.7.4.Test Result

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Amy Zhang
Test Site	TR3	Test Time	2020/08/21
Test Mode	5180MHz (Carrier Mode)		

Voltage (%)	Power (V_{AC})	Temp (°C)	Frequency Tolerance (ppm)			
			0 minutes	2 minutes	5 minutes	10 minutes
100%	120	0	-0.73	-7.21	1.21	-9.17
		+ 10	2.04	-9.37	-5.31	-2.93
		+ 20 (Ref)	1.99	-1.32	-5.25	-1.73
		+ 30	-7.94	0.62	3.71	-6.30
		+ 40	-4.01	-5.41	-2.29	3.92
		+ 45	-0.02	-5.46	5.04	-3.34
115%	138	+ 20	-0.20	-7.93	-6.84	-2.73
85%	102	+ 20	-8.87	1.14	3.45	-1.58

Note 1: Frequency Tolerance (ppm) = {[Measured Frequency (MHz) - Declared Frequency (MHz)] / Declared Frequency (MHz)} *10^6.

6.8. Radiated Spurious Emission Measurement

6.8.1.Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (μV/m)	Measured Distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.8.2.Test Procedure Used

KDB 789033 D02v02r01- Section G

6.8.3.Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

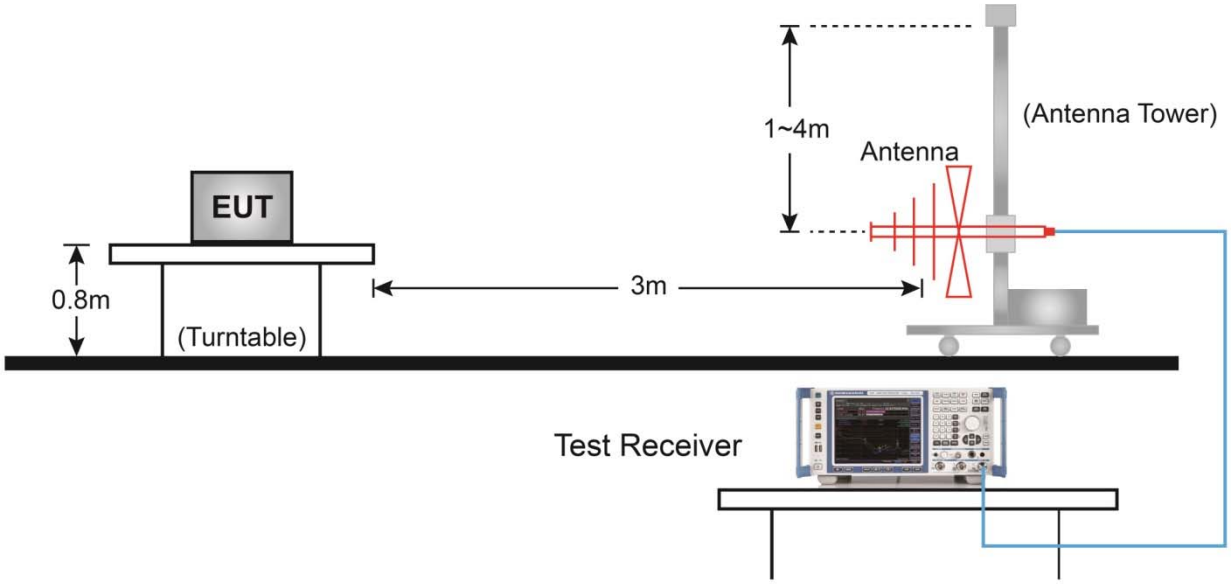
Average Measurements above 1GHz (Method VB)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW;If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10Hz

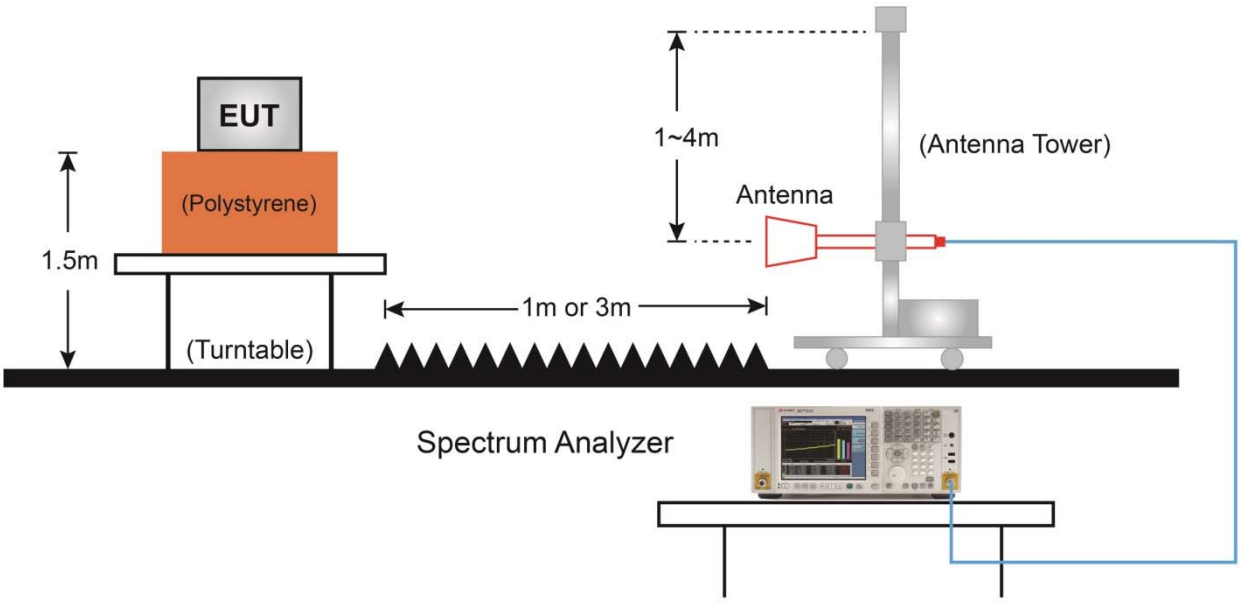
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

6.8.4.Test Setup

Below 1GHz Test Setup:



Above1GHz Test Setup:



6.8.5.Test Result

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11a (CDD mode)	Test Channel	36
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10358.5	38.8	16.2	55.0	68.2	-13.2	Peak	Horizontal
	11497.5	36.2	16.2	52.4	74.0	-21.6	Peak	Horizontal
	15603.0	36.8	15.2	52.0	74.0	-22.0	Peak	Horizontal
*	16495.5	34.5	16.0	50.5	68.2	-17.7	Peak	Horizontal
*	10367.0	43.9	16.0	59.9	68.2	-8.3	Peak	Vertical
	11608.0	36.4	15.8	52.2	74.0	-21.8	Peak	Vertical
	15543.5	38.6	15.0	53.6	74.0	-20.4	Peak	Vertical
	15543.5	27.1	15.0	42.1	54.0	-11.9	Average	Vertical
*	16614.5	33.7	16.7	50.4	68.2	-17.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11a (CDD mode)	Test Channel	44
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10443.5	44.9	15.9	60.8	68.2	-7.4	Peak	Horizontal
	11795.0	37.3	15.1	52.4	74.0	-21.6	Peak	Horizontal
	15660.1	49.1	15.1	64.2	74.0	-9.8	Peak	Horizontal
	15660.1	37.4	15.1	52.5	54.0	-1.5	Average	Horizontal
*	16495.5	34.9	16.0	50.9	68.2	-17.3	Peak	Horizontal
*	10435.0	50.7	16.4	67.1	68.2	-1.1	Peak	Vertical
	12271.0	36.9	15.2	52.1	74.0	-21.9	Peak	Vertical
	15662.5	37.8	15.1	52.9	54.0	-1.1	Average	Vertical
	15662.5	50.1	15.1	65.2	74.0	-8.8	Peak	Vertical
*	16512.5	35.0	15.9	50.9	68.2	-17.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11a (CDD mode)	Test Channel	48
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10486.0	44.3	16.5	60.8	68.2	-7.4	Peak	Horizontal
	12033.0	35.4	14.9	50.3	74.0	-23.7	Peak	Horizontal
	15722.0	37.3	14.6	51.9	54.0	-2.1	Average	Horizontal
	15722.0	47.0	14.6	61.6	74.0	-12.4	Peak	Horizontal
*	16495.5	34.3	16.0	50.3	68.2	-17.9	Peak	Horizontal
*	10477.5	50.4	16.4	66.8	68.2	-1.4	Peak	Vertical
	12381.5	36.1	14.6	50.7	74.0	-23.3	Peak	Vertical
	15718.5	38.4	14.6	53.0	54.0	-1.0	Average	Vertical
	15718.5	50.3	14.6	64.9	74.0	-9.1	Peak	Vertical
*	16300.0	33.5	15.5	49.0	68.2	-19.2	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11a (CDD mode)	Test Channel	149
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9984.5	35.1	15.1	50.2	68.2	-18.0	Peak	Horizontal
	11490.7	42.8	16.3	59.1	74.0	-14.9	Peak	Horizontal
	11490.7	32.1	16.3	48.4	54.0	-5.6	Average	Horizontal
	16104.5	34.0	14.7	48.7	74.0	-25.3	Peak	Horizontal
*	17226.5	39.2	17.5	56.7	68.2	-11.5	Peak	Horizontal
*	10239.5	36.3	15.7	52.0	68.2	-16.2	Peak	Vertical
	11490.8	33.5	16.3	49.8	54.0	-4.2	Average	Vertical
	11490.8	40.9	16.3	57.2	74.0	-16.8	Peak	Vertical
	15577.5	34.9	15.3	50.2	74.0	-23.8	Peak	Vertical
*	17235.0	43.8	17.4	61.2	68.2	-7.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11a (CDD mode)	Test Channel	157
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10239.5	35.8	15.7	51.5	68.2	-16.7	Peak	Horizontal
	11569.8	36.7	15.6	52.3	54.0	-1.7	Average	Horizontal
	11569.8	43.5	15.6	59.1	74.0	-14.9	Peak	Horizontal
	15645.5	36.0	15.2	51.2	74.0	-22.8	Peak	Horizontal
*	17354.0	40.2	17.7	57.9	68.2	-10.3	Peak	Horizontal
*	9933.5	36.4	15.0	51.4	68.2	-16.8	Peak	Vertical
	11570.6	44.9	15.6	60.5	74.0	-13.5	Peak	Vertical
	11570.6	37.4	15.6	53.0	54.0	-1.0	Average	Vertical
	15654.0	36.7	15.2	51.9	74.0	-22.1	Peak	Vertical
*	17345.5	43.7	17.7	61.4	68.2	-6.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11a (CDD mode)	Test Channel	165
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9780.5	35.6	15.2	50.8	68.2	-17.4	Peak	Horizontal
	11649.5	34.2	15.3	49.5	54.0	-4.5	Average	Horizontal
	11649.5	45.4	15.3	60.7	74.0	-13.3	Peak	Horizontal
	15713.5	36.1	14.7	50.8	74.0	-23.2	Peak	Horizontal
*	17209.5	36.9	17.9	54.8	68.2	-13.4	Peak	Horizontal
*	10435.0	35.8	16.4	52.2	68.2	-16.0	Peak	Vertical
	11650.7	47.7	15.3	63.0	74.0	-11.0	Peak	Vertical
	11650.7	37.5	15.3	52.8	54.0	-1.2	Average	Vertical
	15875.0	35.5	14.8	50.3	74.0	-23.7	Peak	Vertical
*	17464.5	41.9	19.7	61.6	68.2	-6.6	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT20 (CDD mode)	Test Channel	36
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10358.5	38.3	16.2	54.5	68.2	-13.7	Peak	Horizontal
	11344.5	36.0	16.0	52.0	74.0	-22.0	Peak	Horizontal
	15535.0	37.5	15.0	52.5	74.0	-21.5	Peak	Horizontal
*	16487.0	33.6	16.1	49.7	68.2	-18.5	Peak	Horizontal
*	10358.5	44.2	16.2	60.4	68.2	-7.8	Peak	Vertical
	11735.5	36.6	15.2	51.8	74.0	-22.2	Peak	Vertical
	15535.0	37.6	15.0	52.6	74.0	-21.4	Peak	Vertical
*	16640.0	35.9	17.4	53.3	68.2	-14.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT20 (CDD mode)	Test Channel	44
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10443.5	46.1	15.9	62.0	68.2	-6.2	Peak	Horizontal
	12084.0	35.5	15.0	50.5	74.0	-23.5	Peak	Horizontal
	15659.0	45.0	15.1	60.1	74.0	-13.9	Peak	Horizontal
	15659.0	35.8	15.1	50.9	54.0	-3.1	Average	Horizontal
*	16206.5	33.4	14.9	48.3	68.2	-19.9	Peak	Horizontal
*	10443.5	51.1	15.9	67.0	68.2	-1.2	Peak	Vertical
	12339.0	35.7	14.8	50.5	74.0	-23.5	Peak	Vertical
	15657.0	37.7	15.1	52.8	54.0	-1.2	Average	Vertical
	15657.0	47.6	15.1	62.7	74.0	-11.3	Peak	Vertical
*	16742.0	35.6	18.0	53.6	68.2	-14.6	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT20 (CDD mode)	Test Channel	48
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10477.5	43.5	16.4	59.9	68.2	-8.3	Peak	Horizontal
	11846.0	33.9	15.3	49.2	74.0	-24.8	Peak	Horizontal
	15719.1	45.2	14.6	59.8	74.0	-14.2	Peak	Horizontal
	15719.1	35.4	14.6	50.0	54.0	-4.0	Average	Horizontal
*	16359.5	34.2	16.2	50.4	68.2	-17.8	Peak	Horizontal
*	10477.5	47.5	16.4	63.9	68.2	-4.3	Peak	Vertical
	12109.5	36.4	15.2	51.6	74.0	-22.4	Peak	Vertical
	15720.8	47.4	14.6	62.0	74.0	-12.0	Peak	Vertical
	15720.8	37.3	14.6	51.9	54.0	-2.1	Average	Vertical
*	16512.5	33.4	15.9	49.3	68.2	-18.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT20 (CDD mode)	Test Channel	149
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10350.0	36.6	16.0	52.6	68.2	-15.6	Peak	Horizontal
	11488.0	43.7	16.3	60.0	74.0	-14.0	Peak	Horizontal
	11488.0	32.5	16.3	48.8	54.0	-5.2	Average	Horizontal
	15756.0	35.3	14.9	50.2	74.0	-23.8	Peak	Horizontal
*	17235.0	40.5	17.4	57.9	68.2	-10.3	Peak	Horizontal
*	9874.0	36.2	15.6	51.8	68.2	-16.4	Peak	Vertical
	11490.0	43.5	16.3	59.8	74.0	-14.2	Peak	Vertical
	11490.0	33.5	16.3	49.8	54.0	-4.2	Average	Vertical
	15756.0	35.5	14.9	50.4	74.0	-23.6	Peak	Vertical
*	17226.5	45.9	17.5	63.4	68.2	-4.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT20 (CDD mode)	Test Channel	157
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10392.5	35.7	16.0	51.7	68.2	-16.5	Peak	Horizontal
	11572.3	35.3	15.6	50.9	54.0	-3.1	Average	Horizontal
	11572.3	45.7	15.6	61.3	74.0	-12.7	Peak	Horizontal
	15875.0	36.1	14.8	50.9	74.0	-23.1	Peak	Horizontal
*	17354.0	41.5	17.7	59.2	68.2	-9.0	Peak	Horizontal
*	10477.5	36.0	16.4	52.4	68.2	-15.8	Peak	Vertical
	11570.5	36.7	15.6	52.3	54.0	-1.7	Average	Vertical
	11570.5	46.6	15.6	62.2	74.0	-11.8	Peak	Vertical
	15577.5	35.8	15.3	51.1	74.0	-22.9	Peak	Vertical
*	17354.0	44.9	17.7	62.6	68.2	-5.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT20 (CDD mode)	Test Channel	165
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10078.0	35.8	15.1	50.9	68.2	-17.3	Peak	Horizontal
	11650.1	34.8	15.3	50.1	54.0	-3.9	Average	Horizontal
	11650.1	45.9	15.3	61.2	74.0	-12.8	Peak	Horizontal
	15815.5	35.0	14.8	49.8	74.0	-24.2	Peak	Horizontal
*	17473.0	37.0	19.5	56.5	68.2	-11.7	Peak	Horizontal
*	9899.5	34.3	15.1	49.4	68.2	-18.8	Peak	Vertical
	11652.5	48.6	15.3	63.9	74.0	-10.1	Peak	Vertical
	11652.5	37.7	15.3	53.0	54.0	-1.0	Average	Vertical
	15594.5	34.8	15.4	50.2	74.0	-23.8	Peak	Vertical
*	17473.0	42.0	19.5	61.5	68.2	-6.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT40 (CDD mode)	Test Channel	38
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10384.0	39.1	15.7	54.8	68.2	-13.4	Peak	Horizontal
	11540.0	36.7	15.8	52.5	74.0	-21.5	Peak	Horizontal
	15968.5	34.1	15.0	49.1	74.0	-24.9	Peak	Horizontal
*	17107.5	36.3	18.2	54.5	68.2	-13.7	Peak	Horizontal
*	10384.0	42.7	15.7	58.4	68.2	-9.8	Peak	Vertical
	12296.5	36.1	15.1	51.2	74.0	-22.8	Peak	Vertical
	15577.5	37.0	15.3	52.3	74.0	-21.7	Peak	Vertical
*	16665.5	35.5	17.2	52.7	68.2	-15.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT40 (CDD mode)	Test Channel	46
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10452.0	43.6	15.6	59.2	68.2	-9.0	Peak	Horizontal
	11880.0	36.4	15.1	51.5	74.0	-22.5	Peak	Horizontal
	15686.3	35.9	15.0	50.9	54.0	-3.1	Average	Horizontal
	15686.3	45.2	15.0	60.2	74.0	-13.8	Peak	Horizontal
*	16317.0	35.6	16.1	51.7	68.2	-16.5	Peak	Horizontal
*	10460.5	51.2	15.9	67.1	68.2	-1.1	Peak	Vertical
	12271.0	35.5	15.2	50.7	74.0	-23.3	Peak	Vertical
	15689.8	48.0	15.0	63.0	74.0	-11.0	Peak	Vertical
	15689.8	37.5	15.0	52.5	54.0	-1.5	Average	Vertical
*	16359.5	34.6	16.2	50.8	68.2	-17.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT40 (CDD mode)	Test Channel	151
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10248.0	36.0	15.5	51.5	68.2	-16.7	Peak	Horizontal
	11509.5	41.9	15.9	57.8	74.0	-16.2	Peak	Horizontal
	11509.5	32.9	15.9	48.8	54.0	-5.2	Average	Horizontal
	15722.0	36.0	14.6	50.6	74.0	-23.4	Peak	Horizontal
*	17269.0	42.0	17.3	59.3	68.2	-8.9	Peak	Horizontal
*	10018.5	34.5	15.1	49.6	68.2	-18.6	Peak	Vertical
	11508.0	42.2	16.0	58.2	74.0	-15.8	Peak	Vertical
	11508.0	33.2	16.0	49.2	54.0	-4.8	Average	Vertical
	15849.5	33.7	14.8	48.5	74.0	-25.5	Peak	Vertical
*	17260.5	42.8	17.3	60.1	68.2	-8.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11n-HT40 (CDD mode)	Test Channel	159
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10282.0	35.9	15.8	51.7	68.2	-16.5	Peak	Horizontal
	11592.1	44.9	15.6	60.5	74.0	-13.5	Peak	Horizontal
	11592.1	35.1	15.6	50.7	54.0	-3.3	Average	Horizontal
	15637.0	34.4	15.1	49.5	74.0	-24.5	Peak	Horizontal
*	17396.5	39.5	18.8	58.3	68.2	-9.9	Peak	Horizontal
*	9942.0	33.3	15.0	48.3	68.2	-19.9	Peak	Vertical
	11588.0	35.1	15.5	50.6	54.0	-3.4	Average	Vertical
	11588.0	47.1	15.5	62.6	74.0	-11.4	Peak	Vertical
	15645.5	34.5	15.2	49.7	74.0	-24.3	Peak	Vertical
*	17379.5	40.8	18.6	59.4	68.2	-8.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11ac-VHT20 (CDD mode)	Test Channel	36
Remark	3. Average measurement was not performed if peak level lower than average limit. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10358.5	38.3	16.2	54.5	68.2	-13.7	Peak	Horizontal
	11735.5	34.5	15.2	49.7	74.0	-24.3	Peak	Horizontal
	15917.5	33.7	14.9	48.6	74.0	-25.4	Peak	Horizontal
*	16733.5	36.3	18.0	54.3	68.2	-13.9	Peak	Horizontal
*	10367.0	43.0	16.0	59.0	68.2	-9.2	Peak	Vertical
	11659.0	34.7	15.3	50.0	74.0	-24.0	Peak	Vertical
	15824.0	35.7	14.9	50.6	74.0	-23.4	Peak	Vertical
*	16648.5	34.2	17.3	51.5	68.2	-16.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11ac-VHT20 (CDD mode)	Test Channel	44
Remark	3. Average measurement was not performed if peak level lower than average limit. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10443.5	44.5	15.9	60.4	68.2	-7.8	Peak	Horizontal
	11480.5	36.1	16.2	52.3	74.0	-21.7	Peak	Horizontal
	15659.5	33.9	15.1	49.0	54.0	-5.0	Average	Horizontal
	15659.5	44.9	15.1	60.0	74.0	-14.0	Peak	Horizontal
*	16631.5	35.2	17.2	52.4	68.2	-15.8	Peak	Horizontal
*	10435.0	49.1	16.4	65.5	68.2	-2.7	Peak	Vertical
	11948.0	35.5	15.1	50.6	74.0	-23.4	Peak	Vertical
	15661.0	46.7	15.1	61.8	74.0	-12.2	Peak	Vertical
	15661.0	36.6	15.1	51.7	54.0	-2.3	Average	Vertical
*	16351.0	33.1	16.1	49.2	68.2	-19.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11ac-VHT20 (CDD mode)	Test Channel	48
Remark	3. Average measurement was not performed if peak level lower than average limit. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10477.5	43.1	16.4	59.5	68.2	-8.7	Peak	Horizontal
	12169.0	34.7	15.1	49.8	74.0	-24.2	Peak	Horizontal
	15722.8	44.8	14.6	59.4	74.0	-14.6	Peak	Horizontal
	15722.8	34.4	14.6	49.0	54.0	-5.0	Average	Horizontal
*	16980.0	36.4	17.9	54.3	68.2	-13.9	Peak	Horizontal
*	10477.5	46.4	16.4	62.8	68.2	-5.4	Peak	Vertical
	11880.0	36.0	15.1	51.1	74.0	-22.9	Peak	Vertical
	15719.8	37.0	14.6	51.6	54.0	-2.4	Average	Vertical
	15719.8	48.6	14.6	63.2	74.0	-10.8	Peak	Vertical
*	16300.0	34.5	15.5	50.0	68.2	-18.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11ac-VHT20 (CDD mode)	Test Channel	149
Remark	3. Average measurement was not performed if peak level lower than average limit. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10129.0	35.6	15.8	51.4	68.2	-16.8	Peak	Horizontal
	11489.8	43.4	16.3	59.7	74.0	-14.3	Peak	Horizontal
	11489.8	32.3	16.3	48.6	54.0	-5.4	Average	Horizontal
	15569.0	35.6	15.1	50.7	74.0	-23.3	Peak	Horizontal
*	17235.0	39.4	17.4	56.8	68.2	-11.4	Peak	Horizontal
*	10358.5	35.3	16.2	51.5	68.2	-16.7	Peak	Vertical
	11489.9	43.1	16.3	59.4	74.0	-14.6	Peak	Vertical
	11489.9	32.8	16.3	49.1	54.0	-4.9	Average	Vertical
	15688.0	36.1	15.0	51.1	74.0	-22.9	Peak	Vertical
*	17235.0	42.4	17.4	59.8	68.2	-8.4	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	SUBSCRIBER END EQUIPMENT HGW	Test Engineer	Buter Shi
Test Site	AC1	Test Date	2020/08/19
Test Mode	802.11ac-VHT20 (CDD mode)	Test Channel	157
Remark	3. Average measurement was not performed if peak level lower than average limit. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	10171.5	35.5	15.5	51.0	68.2	-17.2	Peak	Horizontal
	11570.0	44.0	15.6	59.6	74.0	-14.4	Peak	Horizontal
	11570.0	35.4	15.6	51.0	54.0	-3.0	Average	Horizontal
	16070.5	35.4	15.2	50.6	74.0	-23.4	Peak	Horizontal
*	17354.0	39.6	17.7	57.3	68.2	-10.9	Peak	Horizontal
*	10205.5	34.7	15.6	50.3	68.2	-17.9	Peak	Vertical
	11582.0	46.6	15.4	62.0	74.0	-12.0	Peak	Vertical
	11582.0	36.7	15.4	52.1	54.0	-1.9	Average	Vertical
	15875.0	35.0	14.8	49.8	74.0	-24.2	Peak	Vertical
*	17354.0	42.6	17.7	60.3	68.2	-7.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)