TEST REPORT

Product Name	**:**	**WiFi 6 Module**
Model Number	**:**	**HWiFi6-1**
FCC ID	**:**	**2AQ5R-HWIFI6-1**
IC	**:**	**24301-HWIFI6**

Prepared for	:	Shenzhen KTC Commercial Display Technology CO.,LTD.
Address	:	No.4023,Northern Wuhe Road,Bantian Street,Longgang District,Shenzhen City,Guangdong Province,P.R.China
Prepared by	:	EMTEK (SHENZHEN) CO., LTD.
Address	:	Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Tel: (0755) 26954280 Fax: (0755) 26954282

Report Number	:	ENS2303150002W00202R
Date(s) of Tests	:	May 18, 2023 to July 5, 2023
Date of issue	:	July 7, 2023

1 TEST RESULT CERTIFICATION

Applicant	:	Shenzhen KTC Commercial Display Technology CO.,LTD.
Address	:	No.4023,Northern Wuhe Road,Bantian Street,Longgang District,Shenzhen City,Guangdong Province,P.R.China
Manufacturer	:	Shenzhen KTC Commercial Display Technology CO.,LTD.
Address	:	No.4023,Northern Wuhe Road,Bantian Street,Longgang District,Shenzhen City,Guangdong Province,P.R.China
EUT	:	WiFi 6 Module
Model Name	:	HWiFi6-1
Trademark	:	N/A

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart E	**PASS**
IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021) IC RSS-247 Issue 2(02-2017)	**PASS**

The above equipment was tested by EMTEK (SHENZHEN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2, Part 15.407, IC RSS-247 Issue 2 and IC RSS-GEN, Issue 5.

The test results of this report relate only to the tested sample identified in this report.

Date of Test : May 18, 2023 to July 5, 2023

Prepared by : Una Yu /Editor

Reviewer : Sevin Li /Supervisor

Approve & Authorized Signer : Lisa Wang/Manager

Modified History

Version	Report No.	Revision Date	Summary
V1.0	ENS2303150002W00202R	/	Original Report

TABLE OF CONTENTS

2 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product:	WiFi 6 Module
Model Number:	HWiFi6-1
Sample Number:	2#
Wifi Type:	Wifi 5G with 5150MHz-5250MHz Band Wifi 5G with 5250MHz-5350MHz Band Wifi 5G with 5470MHz-5725MHz Band Wifi 5G with 5725MHz-5850MHz Band
WLAN Supported:	802.11a/n/ac/ax
Data Rate :	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: MCS0-MCS15 802.11ac: MCS0-MCS9 802.11ax: MCS0-MCS11
Modulation:	OFDM with BPSK/QPSK/16QAM/64QAM for 802.11a/n OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11ac OFDM with BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM for 802.11ax
Frequency Range:	UNII-1: 5150MHz-5250MHz Band 5180-5240MHz for 802.11a/n(HT20)/ac(VHT20)/ax(HE20); 5190-5230MHz for 802.11n(HT40)/ac(VHT40)/ax(HE40); 5210MHz for 802.11ac(VHT80)/ax(HE80);
	UNII-2A: 5250MHz-5350MHz Band 5260-5320MHz for 802.11a/n(HT20)/ac(VHT20)/ax(HE20); 5270-5310MHz for 802.11n(HT40)/ac(VHT40)/ax(HE40); 5290MHz for 802.11ac(VHT80)/ax(HE80);
	UNII-2C: 5470MHz-5725MHz Band 5500-5700MHz for 802.11a/n(HT20)/ac(VHT20)/ax(HE20); 5510-5670MHz for 802.11n(HT40)/ac(VHT40)/ax(HE40); 5530MHz for 802.11ac(VHT80)/ax(HE80);
	UNII-3 with 5725MHz-5850MHz Band 5745-5825MHz for 802.11a/n(HT20)/ac(VHT20)/ax(HE20); 5755-5795MHz for 802.11n(HT40)/ac(VHT40)/ax(HE40); 5775MHz for 802.11ac(VHT80)/ax(HE80);
TPC Function:	Not Applicable
Antenna Type:	PCB Antenna
Antenna Gain:	5.5 dBi

Transmit Power:	BL-M7621AX7： UNII-1 Band: 14.04 dBm UNII-2A Band: 14.20 dBm UNII-2C Band: 14.26 dBm UNII-3 Band: 13.70 dBm BL-M8832AU1： UNII-1 Band: 13.31 dBm UNII-2A Band: 13.99 dBm UNII-2C Band: 15.09 dBm UNII-3 Band: 14.63 dBm
FVIN	V1.0.0
Power Supply :	120V/50Hz
Date of Received:	March 17, 2023
Temperature Range:	-10°C ~ +40°C

Note: *For more details, please refer to the User's manual of the EUT.*

3 SUMMARY OF TEST RESULT

FCC Part Clause	IC Part Clause	Test Parameter	Verdict	Remark
15.407 (a) 15.407 (e) 2.1049	RSS-247 6.2 RSS-Gen 6.7	99% , 6dB and 26dB Bandwidth	PASS	
15.407 (a)	RSS-247 6.2	Maximum Conducted Output Power	PASS	
15.407 (a)	RSS-247 6.2	Peak Power Spectral Density	PASS	
15.407 (b) 15.209 15.205	RSS-247 6.2 RSS-Gen 8.9 RSS-Gen 8.10 RSS-Gen 6.13	Radiated Spurious Emission	PASS	
15.407(g)	RSS-GEN 6.11 RSS-GEN 8.11	Frequency Stability	PASS	
15.207	RSS-Gen 8.8	Power Line Conducted Emission	PASS	
15.407(a) 15.203	RSS-Gen 6.8	Antenna Application	PASS	
NOTE1: N/A (Not Applicable) NOTE2: According to FCC OET KDB 789033, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.				

RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for **FCC ID: 2AQ5R-HWIFI6-1** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

This submittal(s) (test report) is intended for **IC: 24301-HWIFI6** filing to comply with RSS-247 Rules.

4 TEST METHODOLOGY

4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:
FCC 47 CFR Part 2, Subpart J
FCC 47 CFR Part 15, Subpart E
IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021)
IC RSS-247 Issue 2(02-2017)
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
FCC KDB 789033 D2 General UNII Test Procedures New Rules v02r01

4.2 MEASUREMENT EQUIPMENT USED

Conducted Emission Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Test Receiver	Rohde & Schwarz	ESCI	101384	May 14, 2023	1 Year
L.I.S.N.	Rohde & Schwarz	ENV216	101161	May 14, 2023	1 Year
L.I.S.N.	Kyoritsu	KNW-407	8-1492-9	N/A	N/A

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESU 26	100154	May 14, 2023	1 Year
Pre-Amplifie	Lunar EM	LNA30M3G-25	J10100000070	May 14, 2023	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	661	May 14, 2023	2 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1177	May 14, 2023	2 Year
Pre-Amplifie	SKET	LNPA_0118G-45	SK2019051801	May 14, 2023	1 Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	May 14, 2023	2 Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	100967	May 14, 2023	1 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1178	Aug. 22, 2021	2 Year
Band reject Filter(50dB)	WI/DE	WRCGV-2400(2400-2485MHz)	2	May 14, 2023	1 Year

For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Signal Analyzer	Agilent	N9010A	MY53470879	May 14, 2023	1Year
Vector Signal Generater	Agilent	N5182B	MY53050878	May 14, 2023	1Year
Analog Signal Generator	Agilent	N5171B	MY53050553	May 14, 2023	1Year
Power Meter	Agilent	PS-X10-100	\	May 15, 2023	1Year
Blocking Box	THEDA	AD211	TW5451140	May 14, 2023	1Year
Switchgroup	THEDA	ETF-025(VASC6)	TW5451008	N/A	N/A
MIMO Matrix Switch	THEDA	4P5TM18	TW5451009	N/A	N/A
Temperature&Humidity Chamber	ESPEC	EL-02KA	12107166	May 14, 2023	1 Year

4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.
The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.
Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.
Those data rates (802.11a: 54 Mbps; 802.11n(HT20): MCS0; 802.11ac(VHT20): MCS0; 802.11ax(HE20): MCS0; 802.11n(HT40): MCS0; 802.11ac(VHT40): MCS0; 802.11ax(HE40): MCS0; 802.11ac(VHT80): MCS0; 802.11ax(HE80): MCS0;) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

☒Wifi 5G with U-NII - 1
Frequency and Channel list for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220		
40	5200	48	5240		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230		

Frequency and Channel list for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210				

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	48	5240

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	N/A	N/A	46	5230

Test Frequency and channel for 802.11ac (VHT80), 802.11ax (HE80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	N/A	N/A	N/A	N/A

☒ Wifi 5G with U-NII -2A

Frequency and Channel list 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300		
56	5280	64	5320		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270				
62	5310				

Frequency and Channel list for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
58	5290				

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	56	5280	64	5320

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	N/A	N/A	62	5310

Test Frequency and channel for 802.11ac (VHT80), 802.11ax (HE80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
58	5290				

☒ Wifi 5G with U-NII -2C

Frequency and Channel list for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	116	5580	132	5660
104	5520	120	5600	136	5680
108	5540	124	5620	140	5700
112	5560	128	5640		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	118	5590	134	5670
110	5550	126	5630		

Frequency and Channel list for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	122	5610		

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	120	5600	140	5700

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510			134	5670

Test Frequency and channel for 802.11ac (VHT80), 802.11ax (HE80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530				

☒ Wifi 5G with U-NII -3

Frequency and Channel list for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825
153	5765	161	5805		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795		

Frequency and Channel list for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	N/A	N/A	159	5795

Test Frequency and channel for 802.11ac (VHT80), 802.11ax (HE80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

Multi-antenna correlation:

☑	Transmit Signals are Correlated
	Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi
☐	All Transmit Signals are Completely Uncorrelated
	Directional gain = 10 log[$(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N_{ANT}$] dBi

Directional gain = 10 log $[(10^{4.28/20} + 10^{3.89/20})^2/2]$ dBi=7.10 dBi

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at:

EMTEK (Shenzhen) Co., Ltd.
Building 69, Majialong Industry Zone District, Nanshan District, Shenzhen, China
The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description		
EMC Lab.	:	**Accredited by CNAS** The Certificate Registration Number is L2291. The Laboratory has been assessed and proved to be in compliance with CNAS-CL01 (identical to ISO/IEC 17025:2017) **Accredited by FCC** Designation Number: CN1204 Test Firm Registration Number: 882943 **Accredited by A2LA** The Certificate Number is 4321.01. Accredited by Industry Canada The Conformity Assessment Body Identifier is CN0008
Name of Firm	:	EMTEK (SHENZHEN) CO., LTD.
Site Location	:	Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

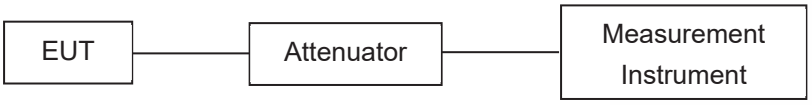
Test Parameter	Measurement Uncertainty
Radio Frequency	±1x10^-5
Maximum Peak Output Power Test	±1.0dB
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Power Density	±2.0dB
Occupied Bandwidth Test	±1.0dB
Band Edge Test	±3dB
All emission, radiated	±3dB
Antenna Port Emission	±3dB
Temperature	±0.5℃
Humidity	±3%

Measurement Uncertainty for a level of Confidence of 95%

7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP

The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP

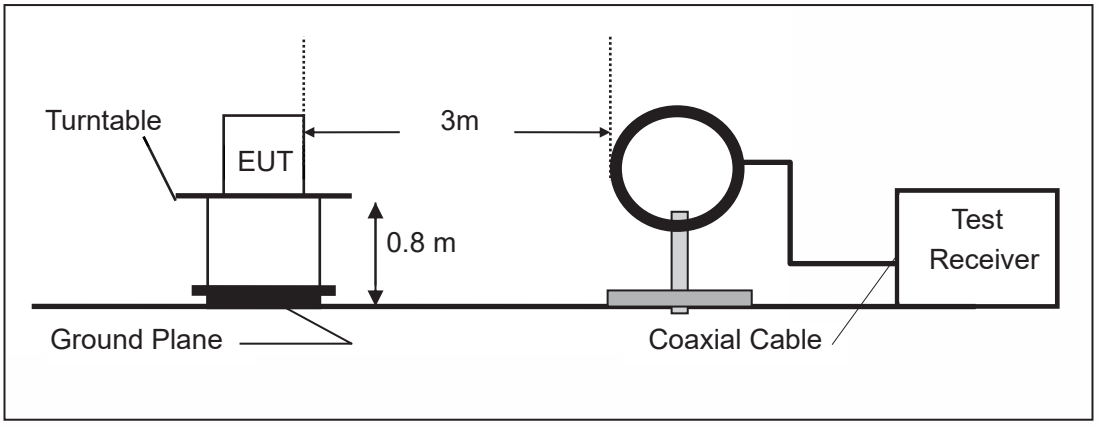
The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

Below 30MHz：
The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

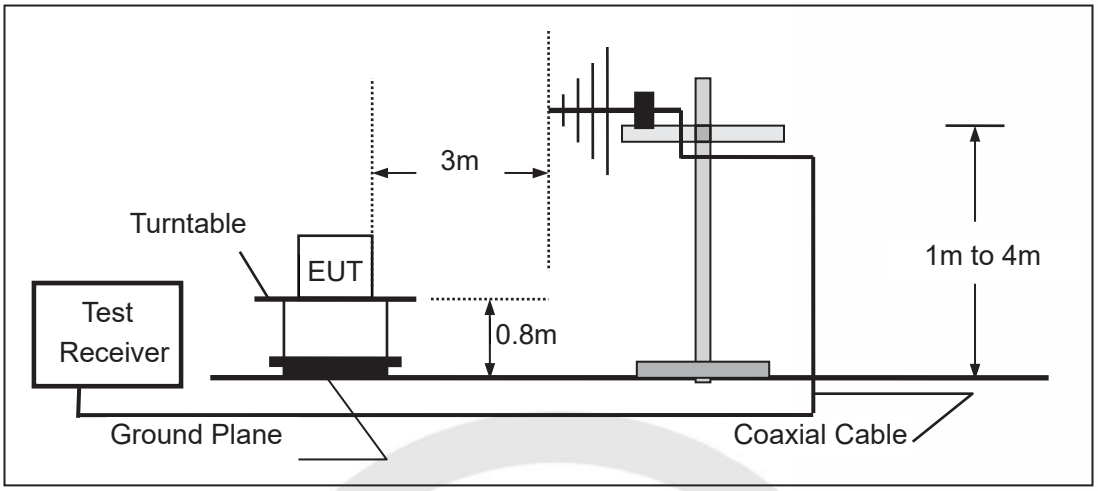
Above 30MHz：
The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz：
(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.)
The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

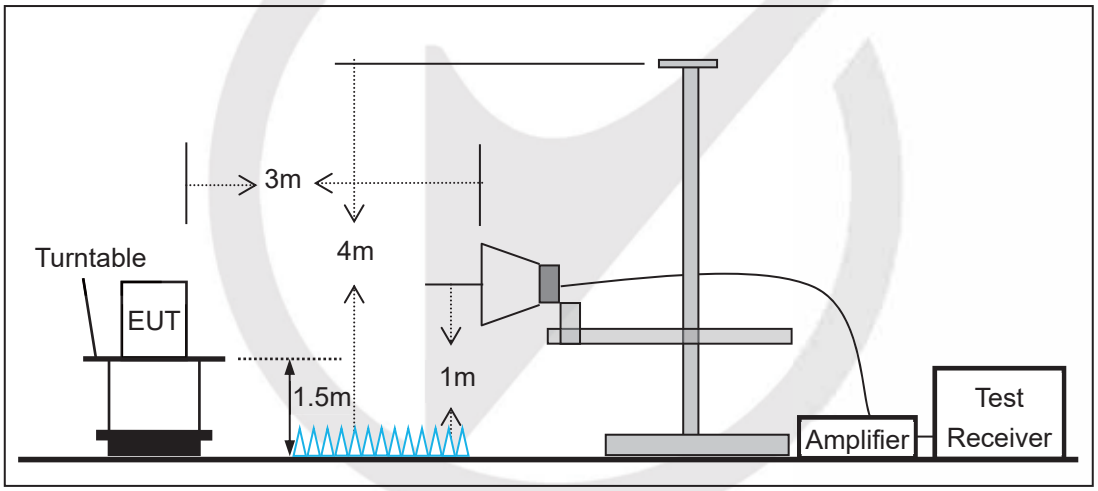
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz

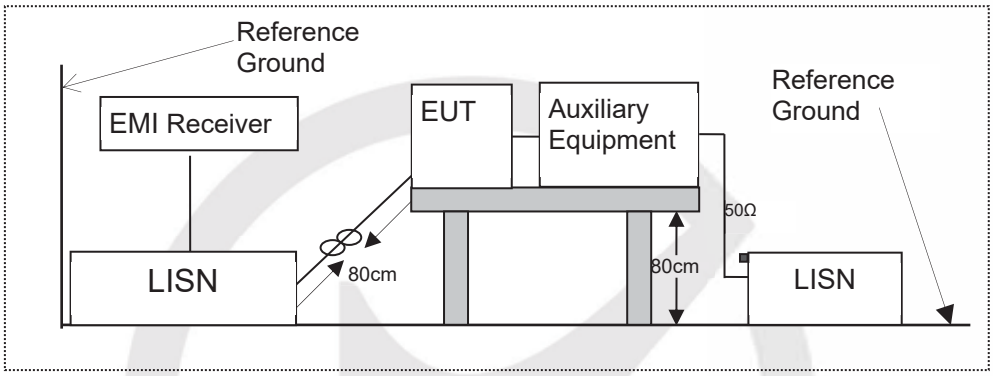


7.3 CONDUCTED EMISSION TEST SETUP

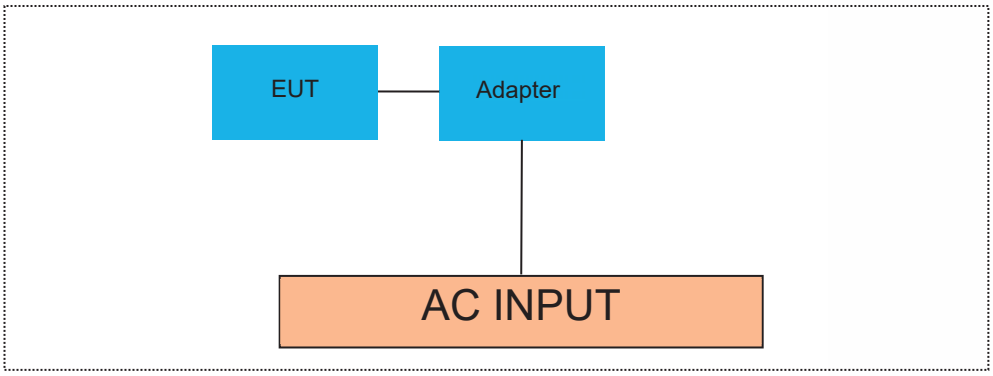
The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



7.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



7.5 SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

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.

8 TEST REQUIREMENTS

8.1 BANDWIDTH MEASUREMENT

8.1.1 Applicable Standard

According to FCC Part 15.407(a)(1) for UNII Band I
According to FCC Part 15.407(a)(2) for UNII Band II-A and UNII Band II-C
According to FCC Part 15.407(a)(3) for UNII Band III
According to FCC Part 15.407(e) for UNII Band III
According to 789033 D02 Section II(C)
According to 789033 D02 Section II(D)
According to RSS-Gen 6.6, RSS 247 6.2

8.1.2 Conformance Limit

The 26dB bandwidth is used to determine the conducted power limits.
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

8.1.3 Test Configuration

Test according to clause 7.1 radio frequency test setup

8.1.4 Test Procedure

According to 789033 D02 v02r01 section C&D, the following is the measurement procedure.

1. Emission Bandwidth (EBW)
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%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) $\geqslant$ 3 $\times$ RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) 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.
Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

D. 99 Percent Occupied Bandwidth
The 99-percent occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section II.G.3.d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the EBW to 789033 D02 v01r02 General UNII Test Procedures New Rules v01 define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section II.E. However, the

EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

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 ≥ 3 • 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.

8.1.5 Test Results

Temperature:	25˚C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

BL-M7621AX7

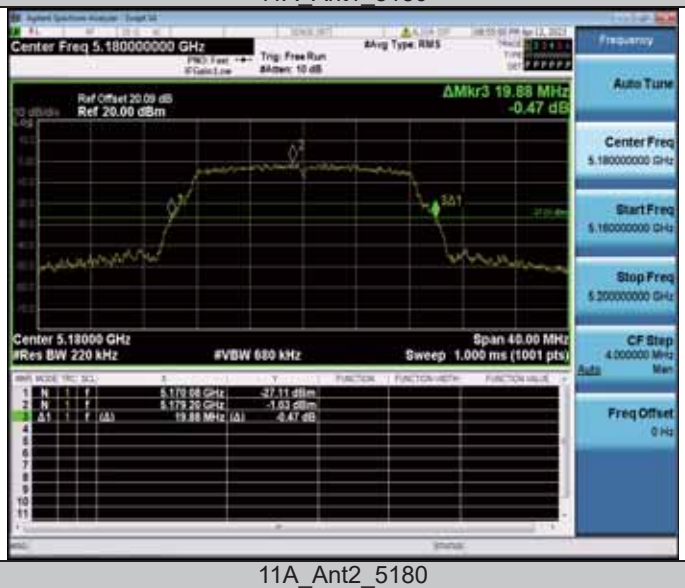
Emission Bandwidth

TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	19.880	5170.080	5189.960	---	---
	Ant2	5180	19.960	5170.080	5190.040	---	---
	Ant1	5200	20.120	5190.000	5210.120	---	---
	Ant2	5200	19.960	5190.000	5209.960	---	---
	Ant1	5240	19.720	5230.200	5249.920	---	---
	Ant2	5240	19.960	5230.200	5250.160	---	---
	Ant1	5260	19.800	5250.200	5270.000	---	---
	Ant2	5260	19.920	5250.200	5270.120	---	---
	Ant1	5280	20.160	5269.960	5290.120	---	---
	Ant2	5280	19.920	5270.000	5289.920	---	---
	Ant1	5320	19.880	5310.080	5329.960	---	---
	Ant2	5320	20.000	5309.960	5329.960	---	---
	Ant1	5500	20.160	5490.000	5510.160	---	---
	Ant2	5500	19.600	5490.280	5509.880	---	---
	Ant1	5580	20.040	5570.000	5590.040	---	---
	Ant2	5580	20.000	5570.040	5590.040	---	---
	Ant1	5700	20.000	5690.080	5710.080	---	---
	Ant2	5700	19.960	5690.080	5710.040	---	---
	Ant1	5745	19.720	5735.200	5754.920	---	---
	Ant2	5745	19.800	5735.120	5754.920	---	---
	Ant1	5785	19.720	5775.080	5794.800	---	---
	Ant2	5785	19.760	5775.120	5794.880	---	---
	Ant1	5825	19.840	5815.240	5835.080	---	---
	Ant2	5825	19.800	5815.200	5835.000	---	---
11N20MIMO	Ant1	5180	20.200	5169.960	5190.160	---	---
	Ant2	5180	20.160	5169.920	5190.080	---	---
	Ant1	5200	20.400	5189.800	5210.200	---	---
	Ant2	5200	20.200	5189.840	5210.040	---	---
	Ant1	5240	20.440	5229.800	5250.240	---	---
	Ant2	5240	20.280	5229.840	5250.120	---	---
	Ant1	5260	20.120	5250.000	5270.120	---	---
	Ant2	5260	20.200	5249.880	5270.080	---	---
	Ant1	5280	20.120	5270.080	5290.200	---	---
	Ant2	5280	20.280	5269.960	5290.240	---	---
	Ant1	5320	20.160	5309.960	5330.120	---	---
	Ant2	5320	20.200	5310.000	5330.200	---	---
	Ant1	5500	20.200	5489.920	5510.120	---	---
	Ant2	5500	20.160	5490.040	5510.200	---	---
	Ant1	5580	20.200	5569.880	5590.080	---	---
	Ant2	5580	20.000	5569.960	5589.960	---	---

	Ant1	5700	20.080	5689.960	5710.040	---	---
	Ant2	5700	20.120	5689.960	5710.080	---	---
	Ant1	5745	20.080	5735.000	5755.080	---	---
	Ant2	5745	20.160	5735.000	5755.160	---	---
	Ant1	5785	20.200	5774.920	5795.120	---	---
	Ant2	5785	20.160	5774.960	5795.120	---	---
	Ant1	5825	19.920	5815.040	5834.960	---	---
	Ant2	5825	20.320	5814.840	5835.160	---	---
11N40MIMO	Ant1	5190	39.520	5170.240	5209.760	---	---
	Ant2	5190	39.840	5169.920	5209.760	---	---
	Ant1	5230	39.680	5210.160	5249.840	---	---
	Ant2	5230	39.840	5210.080	5249.920	---	---
	Ant1	5270	39.200	5250.240	5289.440	---	---
	Ant2	5270	39.920	5250.160	5290.080	---	---
	Ant1	5310	39.920	5290.240	5330.160	---	---
	Ant2	5310	40.000	5290.000	5330.000	---	---
	Ant1	5510	40.000	5489.840	5529.840	---	---
	Ant2	5510	39.920	5490.000	5529.920	---	---
	Ant1	5550	39.440	5530.400	5569.840	---	---
	Ant2	5550	39.840	5530.080	5569.920	---	---
	Ant1	5670	39.680	5650.160	5689.840	---	---
	Ant2	5670	40.160	5650.000	5690.160	---	---
	Ant1	5755	39.360	5735.480	5774.840	---	---
	Ant2	5755	40.000	5735.240	5775.240	---	---
	Ant1	5795	39.360	5775.240	5814.600	---	---
	Ant2	5795	40.240	5774.920	5815.160	---	---
11AC20MIMO	Ant1	5180	20.160	5169.920	5190.080	---	---
	Ant2	5180	20.440	5169.760	5190.200	---	---
	Ant1	5200	20.160	5189.960	5210.120	---	---
	Ant2	5200	20.160	5189.960	5210.120	---	---
	Ant1	5240	20.240	5229.880	5250.120	---	---
	Ant2	5240	20.080	5229.960	5250.040	---	---
	Ant1	5260	20.400	5249.760	5270.160	---	---
	Ant2	5260	20.080	5249.960	5270.040	---	---
	Ant1	5280	20.240	5269.920	5290.160	---	---
	Ant2	5280	20.280	5269.880	5290.160	---	---
	Ant1	5320	20.120	5309.920	5330.040	---	---
	Ant2	5320	20.280	5309.960	5330.240	---	---
	Ant1	5500	20.160	5489.920	5510.080	---	---
	Ant2	5500	20.160	5489.960	5510.120	---	---
	Ant1	5580	20.160	5570.000	5590.160	---	---
	Ant2	5580	20.400	5569.760	5590.160	---	---
	Ant1	5700	20.120	5690.000	5710.120	---	---
	Ant2	5700	20.200	5689.960	5710.160	---	---
	Ant1	5745	20.120	5734.920	5755.040	---	---
	Ant2	5745	20.160	5734.920	5755.080	---	---
	Ant1	5785	20.000	5775.000	5795.000	---	---
	Ant2	5785	20.160	5775.000	5795.160	---	---
	Ant1	5825	20.000	5815.000	5835.000	---	---
	Ant2	5825	20.520	5814.800	5835.320	---	---
11AC40MIMO	Ant1	5190	39.840	5170.160	5210.000	---	---
	Ant2	5190	39.920	5169.920	5209.840	---	---
	Ant1	5230	40.000	5210.000	5250.000	---	---
	Ant2	5230	40.160	5209.840	5250.000	---	---
	Ant1	5270	39.440	5250.400	5289.840	---	---

	Ant2	5270	40.000	5250.160	5290.160	---	---
	Ant1	5310	39.200	5290.400	5329.600	---	---
	Ant2	5310	39.920	5290.160	5330.080	---	---
	Ant1	5510	39.280	5490.240	5529.520	---	---
	Ant2	5510	40.080	5490.080	5530.160	---	---
	Ant1	5550	39.440	5530.320	5569.760	---	---
	Ant2	5550	40.160	5530.000	5570.160	---	---
	Ant1	5670	39.200	5650.560	5689.760	---	---
	Ant2	5670	40.400	5649.920	5690.320	---	---
	Ant1	5755	39.760	5735.080	5774.840	---	---
	Ant2	5755	39.920	5735.080	5775.000	---	---
	Ant1	5795	38.960	5775.560	5814.520	---	---
	Ant2	5795	40.000	5774.920	5814.920	---	---
11AC80MIMO	Ant1	5210	79.360	5170.320	5249.680	---	---
	Ant2	5210	79.520	5170.160	5249.680	---	---
	Ant1	5290	79.040	5250.480	5329.520	---	---
	Ant2	5290	79.840	5250.160	5330.000	---	---
	Ant1	5530	79.680	5490.480	5570.160	---	---
	Ant2	5530	80.000	5490.000	5570.000	---	---
	Ant1	5610	79.200	5570.480	5649.680	---	---
	Ant2	5610	79.680	5570.160	5649.840	---	---
	Ant1	5775	79.360	5735.480	5814.840	---	---
	Ant2	5775	79.520	5735.320	5814.840	---	---
11AX20MIMO	Ant1	5180	22.040	5169.160	5191.200	---	---
	Ant2	5180	21.520	5169.280	5190.800	---	---
	Ant1	5200	22.800	5188.960	5211.760	---	---
	Ant2	5200	22.520	5188.480	5211.000	---	---
	Ant1	5240	19.920	5230.080	5250.000	---	---
	Ant2	5240	20.040	5230.040	5250.080	---	---
	Ant1	5260	21.600	5249.320	5270.920	---	---
	Ant2	5260	21.240	5249.360	5270.600	---	---
	Ant1	5280	21.240	5269.480	5290.720	---	---
	Ant2	5280	21.840	5269.440	5291.280	---	---
	Ant1	5320	22.600	5308.520	5331.120	---	---
	Ant2	5320	22.040	5309.280	5331.320	---	---
	Ant1	5500	21.400	5489.400	5510.800	---	---
	Ant2	5500	22.200	5488.920	5511.120	---	---
	Ant1	5580	21.960	5569.000	5590.960	---	---
	Ant2	5580	22.240	5569.080	5591.320	---	---
	Ant1	5700	22.280	5688.960	5711.240	---	---
	Ant2	5700	21.720	5689.280	5711.000	---	---
	Ant1	5745	23.280	5733.040	5756.320	---	---
	Ant2	5745	24.600	5734.120	5758.720	---	---
	Ant1	5785	22.040	5773.920	5795.960	---	---
	Ant2	5785	22.160	5773.840	5796.000	---	---
	Ant1	5825	23.000	5813.240	5836.240	---	---
	Ant2	5825	22.280	5813.560	5835.840	---	---
11AX40MIMO	Ant1	5190	39.520	5170.240	5209.760	---	---
	Ant2	5190	39.440	5170.240	5209.680	---	---
	Ant1	5230	39.520	5210.240	5249.760	---	---
	Ant2	5230	39.520	5210.240	5249.760	---	---
	Ant1	5270	39.520	5250.320	5289.840	---	---
	Ant2	5270	39.520	5250.240	5289.760	---	---
	Ant1	5310	39.440	5290.240	5329.680	---	---

	Ant2	5310	39.440	5290.320	5329.760	---	---
	Ant1	5510	39.440	5490.320	5529.760	---	---
	Ant2	5510	39.520	5490.320	5529.840	---	---
	Ant1	5550	39.520	5530.240	5569.760	---	---
	Ant2	5550	39.600	5530.240	5569.840	---	---
	Ant1	5670	39.360	5650.320	5689.680	---	---
	Ant2	5670	39.600	5650.240	5689.840	---	---
	Ant1	5755	39.440	5735.400	5774.840	---	---
	Ant2	5755	39.280	5735.320	5774.600	---	---
	Ant1	5795	39.520	5775.320	5814.840	---	---
	Ant2	5795	39.520	5775.320	5814.840	---	---
11AX80MIMO	Ant1	5210	80.160	5170.000	5250.160	---	---
	Ant2	5210	79.840	5170.160	5250.000	---	---
	Ant1	5290	80.000	5250.160	5330.160	---	---
	Ant2	5290	80.320	5249.840	5330.160	---	---
	Ant1	5530	80.160	5490.000	5570.160	---	---
	Ant2	5530	80.160	5490.160	5570.320	---	---
	Ant1	5610	80.320	5569.840	5650.160	---	---
	Ant2	5610	80.000	5570.000	5650.000	---	---
	Ant1	5775	79.840	5735.160	5815.000	---	---
	Ant2	5775	80.320	5734.840	5815.160	---	---

11A_Ant1_5180

11A_Ant2_5180

11A_Ant1_5200


11A_Ant2_5200

11A_Ant1_5240

11A_Ant2_5240


11A_Ant1_5260

11A_Ant2_5260

11A_Ant1_5280


11A_Ant2_5280

11A_Ant1_5320

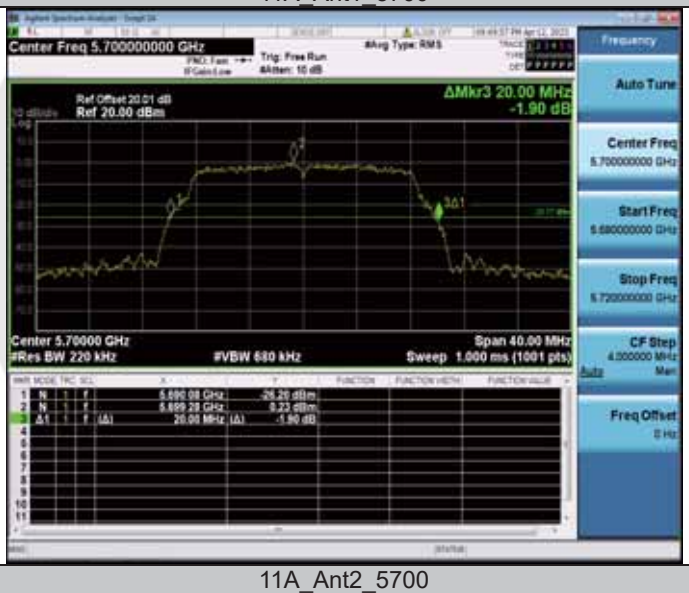
11A_Ant2_5320


11A_Ant1_5500

11A_Ant2_5500

11A_Ant1_5580


11A_Ant2_5580

11A_Ant1_5700

11A_Ant2_5700


11A_Ant1_5745

11A_Ant2_5745

11A_Ant1_5785


11A_Ant2_5785

11A_Ant1_5825

11A_Ant2_5825


11N20MIMO_Ant1_5180

11N20MIMO_Ant2_5180

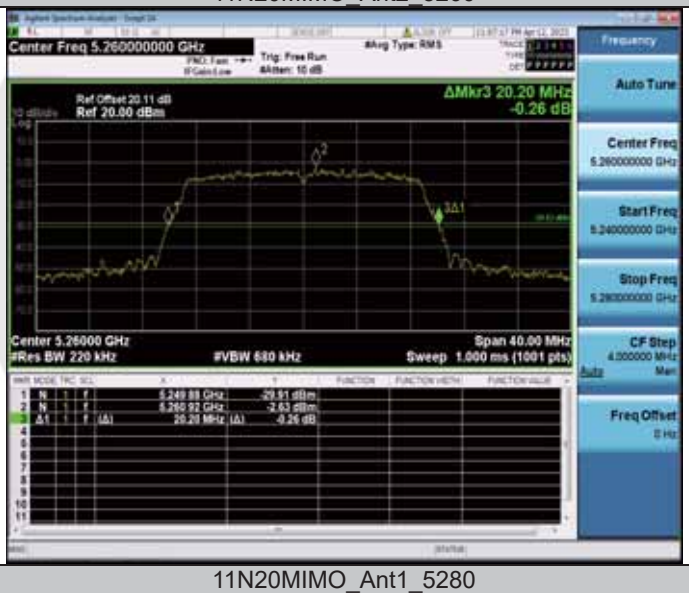
11N20MIMO_Ant1_5200


11N20MIMO_Ant2_5200

11N20MIMO_Ant1_5240

11N20MIMO_Ant2_5240


11N20MIMO_Ant1_5260

11N20MIMO_Ant2_5260

11N20MIMO_Ant1_5280


11N20MIMO_Ant2_5280

11N20MIMO_Ant1_5320

11N20MIMO_Ant2_5320


11N20MIMO_Ant1_5500

11N20MIMO_Ant2_5500

11N20MIMO_Ant1_5580


11N20MIMO_Ant2_5580

11N20MIMO_Ant1_5700

11N20MIMO_Ant2_5700


11N20MIMO_Ant1_5745

11N20MIMO_Ant2_5745

11N20MIMO_Ant1_5785


11N20MIMO_Ant2_5785

11N20MIMO_Ant1_5825

11N20MIMO_Ant2_5825


11N40MIMO_Ant1_5190

11N40MIMO_Ant2_5190

11N40MIMO_Ant1_5230


11N40MIMO_Ant2_5230

11N40MIMO_Ant1_5270

11N40MIMO_Ant2_5270


11N40MIMO_Ant1_5310

11N40MIMO_Ant2_5310

11N40MIMO_Ant1_5510


11N40MIMO_Ant2_5510

11N40MIMO_Ant1_5550

11N40MIMO_Ant2_5550


11N40MIMO_Ant1_5670

11N40MIMO_Ant2_5670

11N40MIMO_Ant1_5755


11N40MIMO_Ant2_5755

11N40MIMO_Ant1_5795

11N40MIMO_Ant2_5795


11AC20MIMO_Ant1_5180

11AC20MIMO_Ant2_5180

11AC20MIMO_Ant1_5200


11AC20MIMO_Ant2_5200

11AC20MIMO_Ant1_5240

11AC20MIMO_Ant2_5240


11AC20MIMO_Ant1_5260

11AC20MIMO_Ant2_5260

11AC20MIMO_Ant1_5280


11AC20MIMO_Ant2_5280

11AC20MIMO_Ant1_5320

11AC20MIMO_Ant2_5320


11AC20MIMO_Ant1_5500

11AC20MIMO_Ant2_5500

11AC20MIMO_Ant1_5580


11AC20MIMO_Ant2_5580

11AC20MIMO_Ant1_5700

11AC20MIMO_Ant2_5700


11AC20MIMO_Ant1_5745

11AC20MIMO_Ant2_5745

11AC20MIMO_Ant1_5785


11AC20MIMO_Ant2_5785

11AC20MIMO_Ant1_5825

11AC20MIMO_Ant2_5825


11AC40MIMO_Ant1_5190

11AC40MIMO_Ant2_5190

11AC40MIMO_Ant1_5230


11AC40MIMO_Ant2_5230

11AC40MIMO_Ant1_5270

11AC40MIMO_Ant2_5270


11AC40MIMO_Ant1_5310

11AC40MIMO_Ant2_5310

11AC40MIMO_Ant1_5510


11AC40MIMO_Ant2_5510

11AC40MIMO_Ant1_5550

11AC40MIMO_Ant2_5550


11AC40MIMO_Ant1_5670

11AC40MIMO_Ant2_5670

11AC40MIMO_Ant1_5755


11AC40MIMO_Ant2_5755

11AC40MIMO_Ant1_5795

11AC40MIMO_Ant2_5795

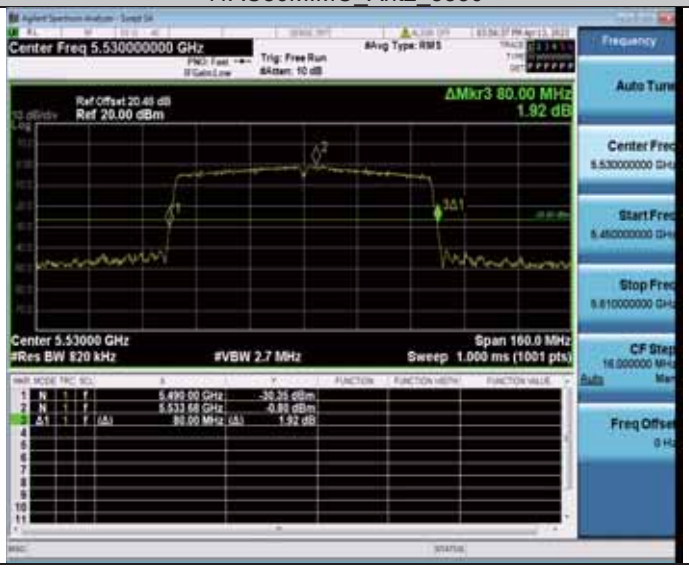

11AC80MIMO_Ant1_5210

11AC80MIMO_Ant2_5210

11AC80MIMO_Ant1_5290

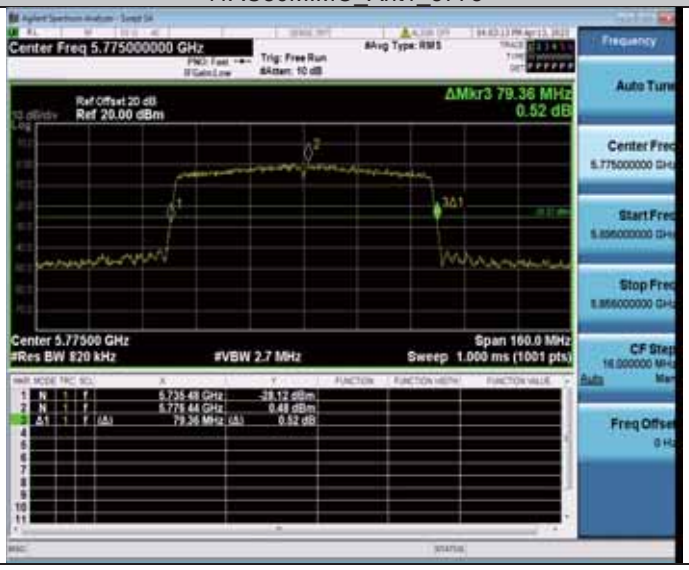

11AC80MIMO_Ant2_5290

11AC80MIMO_Ant1_5530

11AC80MIMO_Ant2_5530


11AC80MIMO_Ant1_5610

11AC80MIMO_Ant2_5610

11AC80MIMO_Ant1_5775


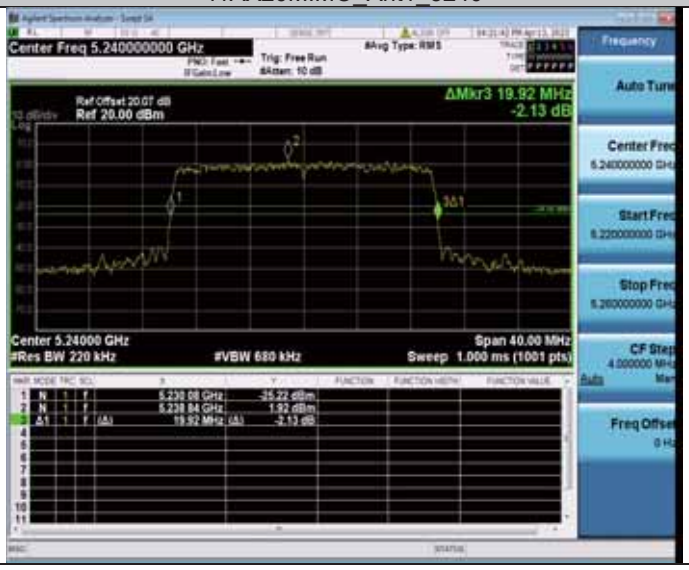
11AC80MIMO_Ant2_5775

11AX20MIMO_Ant1_5180

11AX20MIMO_Ant2_5180


11AX20MIMO_Ant1_5200

11AX20MIMO_Ant2_5200

11AX20MIMO_Ant1_5240


11AX20MIMO_Ant2_5240

11AX20MIMO_Ant1_5260

11AX20MIMO_Ant2_5260


11AX20MIMO_Ant1_5280

11AX20MIMO_Ant2_5280

11AX20MIMO_Ant1_5320


11AX20MIMO_Ant2_5320

11AX20MIMO_Ant1_5500

11AX20MIMO_Ant2_5500


11AX20MIMO_Ant1_5580

11AX20MIMO_Ant2_5580

11AX20MIMO_Ant1_5700


11AX20MIMO_Ant2_5700

11AX20MIMO_Ant1_5745

11AX20MIMO_Ant2_5745


11AX20MIMO_Ant1_5785

11AX20MIMO_Ant2_5785

11AX20MIMO_Ant1_5825


11AX20MIMO_Ant2_5825

11AX40MIMO_Ant1_5190

11AX40MIMO_Ant2_5190


11AX40MIMO_Ant1_5230

11AX40MIMO_Ant2_5230

11AX40MIMO_Ant1_5270


11AX40MIMO_Ant2_5270

11AX40MIMO_Ant1_5310

11AX40MIMO_Ant2_5310


11AX40MIMO_Ant1_5510

11AX40MIMO_Ant2_5510

11AX40MIMO_Ant1_5550


11AX40MIMO_Ant2_5550

11AX40MIMO_Ant1_5670

11AX40MIMO_Ant2_5670


11AX40MIMO_Ant1_5755

11AX40MIMO_Ant2_5755

11AX40MIMO_Ant1_5795


11AX40MIMO_Ant2_5795

11AX80MIMO_Ant1_5210

11AX80MIMO_Ant2_5210


11AX80MIMO_Ant1_5290

11AX80MIMO_Ant2_5290

11AX80MIMO_Ant1_5530


11AX80MIMO_Ant2_5530

11AX80MIMO_Ant1_5610

11AX80MIMO_Ant2_5610


11AX80MIMO_Ant1_5775

11AX80MIMO_Ant2_5775

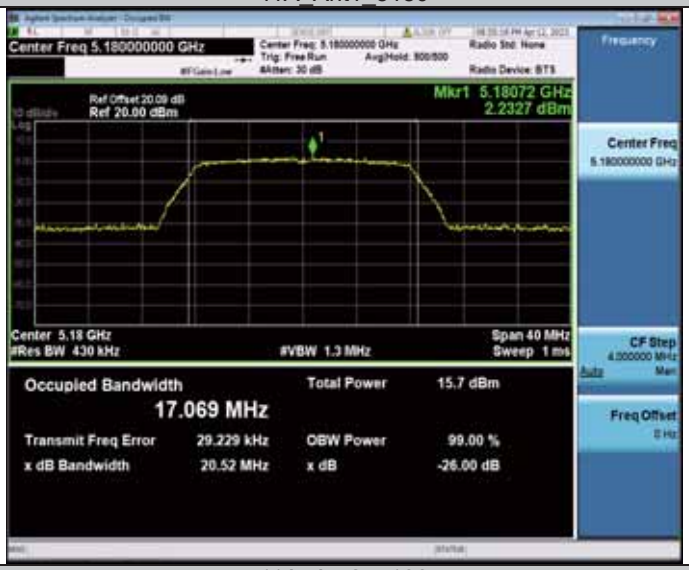
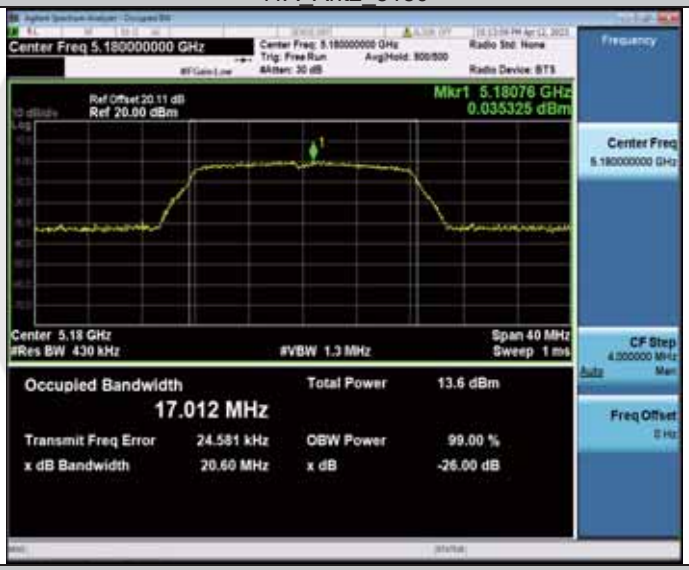
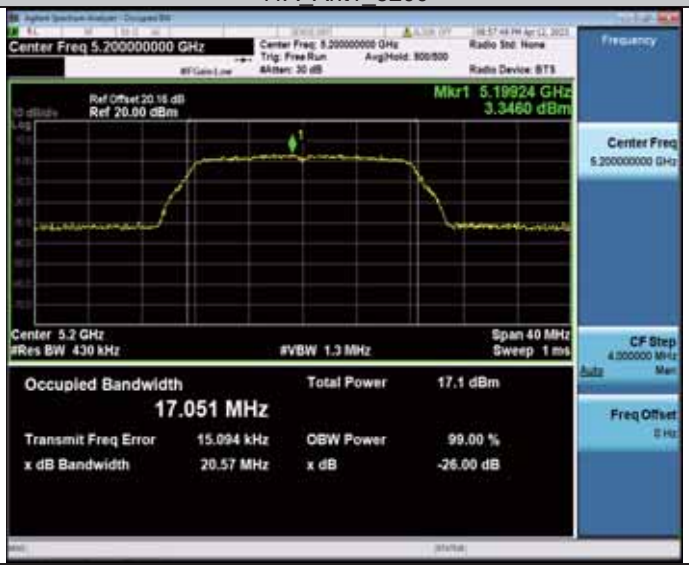

Occupied channel bandwidth

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.069	5171.4947	5188.5637	---	---
	Ant2	5180	17.012	5171.5186	5188.5306	---	---
	Ant1	5200	17.051	5191.4896	5208.5406	---	---
	Ant2	5200	17.150	5191.4061	5208.5561	---	---
	Ant1	5240	17.084	5231.4775	5248.5615	---	---
	Ant2	5240	17.102	5231.4733	5248.5753	---	---
	Ant1	5260	17.024	5251.5243	5268.5483	---	---
	Ant2	5260	17.080	5251.4959	5268.5759	---	---
	Ant1	5280	17.040	5271.5081	5288.5481	---	---
	Ant2	5280	16.987	5271.5290	5288.5160	---	---
	Ant1	5320	17.031	5311.5011	5328.5321	---	---
	Ant2	5320	17.061	5311.4911	5328.5521	---	---
	Ant1	5500	17.007	5491.5196	5508.5266	---	---
	Ant2	5500	17.062	5491.4980	5508.5600	---	---
	Ant1	5580	16.994	5571.5018	5588.4958	---	---
	Ant2	5580	17.066	5571.5023	5588.5683	---	---
	Ant1	5700	17.025	5691.5378	5708.5628	---	---
	Ant2	5700	16.963	5691.5358	5708.4988	---	---
	Ant1	5745	17.011	5736.5527	5753.5637	---	---
	Ant2	5745	16.979	5736.5416	5753.5206	---	---
	Ant1	5785	17.033	5776.5082	5793.5412	---	---
	Ant2	5785	17.042	5776.5106	5793.5526	---	---
	Ant1	5825	17.043	5816.5062	5833.5492	---	---
	Ant2	5825	16.997	5816.5136	5833.5106	---	---
11N20MIMO	Ant1	5180	17.775	5171.1238	5188.8988	---	---
	Ant2	5180	17.977	5170.9977	5188.9747	---	---
	Ant1	5200	17.725	5191.1641	5208.8891	---	---
	Ant2	5200	18.099	5190.9440	5209.0430	---	---
	Ant1	5240	17.741	5231.1510	5248.8920	---	---
	Ant2	5240	18.042	5230.9757	5249.0177	---	---
	Ant1	5260	17.799	5251.1426	5268.9416	---	---
	Ant2	5260	17.970	5251.0187	5268.9887	---	---
	Ant1	5280	17.771	5271.1448	5288.9158	---	---
	Ant2	5280	17.995	5271.0159	5289.0109	---	---
	Ant1	5320	17.771	5311.1173	5328.8883	---	---
	Ant2	5320	17.974	5311.0326	5329.0066	---	---
	Ant1	5500	17.773	5491.1290	5508.9020	---	---
	Ant2	5500	17.949	5491.0382	5508.9872	---	---
	Ant1	5580	17.778	5571.1154	5588.8934	---	---
	Ant2	5580	18.077	5570.9628	5589.0398	---	---
	Ant1	5700	17.794	5691.1317	5708.9257	---	---
	Ant2	5700	18.037	5691.0516	5709.0886	---	---
	Ant1	5745	17.761	5736.1553	5753.9163	---	---
	Ant2	5745	17.949	5736.0728	5754.0218	---	---
	Ant1	5785	17.778	5776.1195	5793.8975	---	---
	Ant2	5785	17.934	5776.0329	5793.9669	---	---
	Ant1	5825	17.798	5816.1358	5833.9338	---	---
	Ant2	5825	17.967	5816.0633	5834.0303	---	---
11N40MIMO	Ant1	5190	35.954	5172.0431	5207.9971	---	---
	Ant2	5190	36.396	5171.7123	5208.1083	---	---
	Ant1	5230	36.015	5212.0513	5248.0663	---	---
	Ant2	5230	36.390	5211.7896	5248.1796	---	---

	Ant1	5270	35.968	5252.0720	5288.0400	---	---
	Ant2	5270	36.378	5251.8290	5288.2070	---	---
	Ant1	5310	35.971	5292.0507	5328.0217	---	---
	Ant2	5310	36.466	5291.7975	5328.2635	---	---
	Ant1	5510	36.140	5491.9284	5528.0684	---	---
	Ant2	5510	36.244	5491.8776	5528.1216	---	---
	Ant1	5550	36.058	5532.0394	5568.0974	---	---
	Ant2	5550	36.262	5531.9480	5568.2100	---	---
	Ant1	5670	36.116	5651.9690	5688.0850	---	---
	Ant2	5670	36.286	5651.9231	5688.2091	---	---
	Ant1	5755	35.977	5737.0403	5773.0173	---	---
	Ant2	5755	36.201	5736.9642	5773.1652	---	---
	Ant1	5795	35.983	5777.0418	5813.0248	---	---
	Ant2	5795	36.151	5776.9188	5813.0698	---	---
11AC20MIMO	Ant1	5180	17.754	5171.1504	5188.9044	---	---
	Ant2	5180	17.988	5171.0063	5188.9943	---	---
	Ant1	5200	17.742	5191.1453	5208.8873	---	---
	Ant2	5200	17.981	5191.0002	5208.9812	---	---
	Ant1	5240	17.736	5231.1609	5248.8969	---	---
	Ant2	5240	18.028	5230.9674	5248.9954	---	---
	Ant1	5260	17.773	5251.1441	5268.9171	---	---
	Ant2	5260	17.989	5251.0013	5268.9903	---	---
	Ant1	5280	17.740	5271.1559	5288.8959	---	---
	Ant2	5280	18.001	5271.0255	5289.0265	---	---
	Ant1	5320	17.758	5311.1244	5328.8824	---	---
	Ant2	5320	18.033	5310.9780	5329.0110	---	---
	Ant1	5500	17.760	5491.1288	5508.8888	---	---
	Ant2	5500	18.066	5490.9592	5509.0252	---	---
	Ant1	5580	17.806	5571.0941	5588.9001	---	---
	Ant2	5580	17.995	5570.9951	5588.9901	---	---
	Ant1	5700	17.746	5691.1471	5708.8931	---	---
	Ant2	5700	17.975	5691.0290	5709.0040	---	---
	Ant1	5745	17.798	5736.1022	5753.9002	---	---
	Ant2	5745	17.987	5736.0238	5754.0108	---	---
	Ant1	5785	17.810	5776.1048	5793.9148	---	---
	Ant2	5785	18.033	5775.9735	5794.0065	---	---
	Ant1	5825	17.771	5816.1432	5833.9142	---	---
	Ant2	5825	17.939	5816.0288	5833.9678	---	---
11AC40MIMO	Ant1	5190	36.101	5171.8909	5207.9919	---	---
	Ant2	5190	36.277	5171.8023	5208.0793	---	---
	Ant1	5230	35.939	5212.0755	5248.0145	---	---
	Ant2	5230	36.278	5211.8333	5248.1113	---	---
	Ant1	5270	35.890	5252.0970	5287.9870	---	---
	Ant2	5270	36.287	5251.8209	5288.1079	---	---
	Ant1	5310	35.996	5291.9589	5327.9549	---	---
	Ant2	5310	36.244	5291.8425	5328.0865	---	---
	Ant1	5510	35.910	5492.0613	5527.9713	---	---
	Ant2	5510	36.303	5491.8776	5528.1806	---	---
	Ant1	5550	36.019	5532.0533	5568.0723	---	---
	Ant2	5550	36.258	5531.9243	5568.1823	---	---
	Ant1	5670	36.022	5652.0468	5688.0688	---	---
	Ant2	5670	36.178	5652.0194	5688.1974	---	---
	Ant1	5755	36.062	5737.0074	5773.0694	---	---
	Ant2	5755	36.214	5736.9757	5773.1897	---	---
	Ant1	5795	36.049	5777.0044	5813.0534	---	---

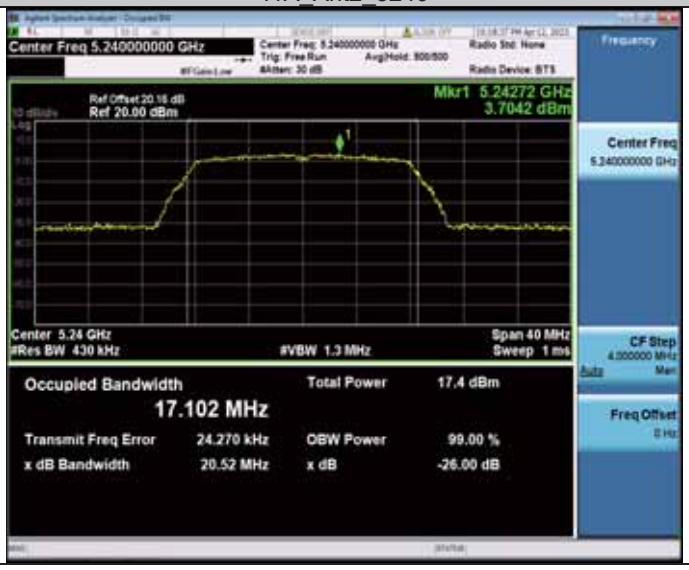
	Ant2	5795	36.220	5776.9241	5813.1441	---	---
11AC80MIMO	Ant1	5210	75.022	5172.5735	5247.5955	---	---
	Ant2	5210	75.464	5172.2530	5247.7170	---	---
	Ant1	5290	75.006	5252.5292	5327.5352	---	---
	Ant2	5290	75.352	5252.3419	5327.6939	---	---
	Ant1	5530	75.156	5492.5375	5567.6935	---	---
	Ant2	5530	75.333	5492.2908	5567.6238	---	---
	Ant1	5610	74.856	5572.5974	5647.4534	---	---
	Ant2	5610	75.295	5572.3284	5647.6234	---	---
	Ant1	5775	75.174	5737.4010	5812.5750	---	---
	Ant2	5775	75.065	5737.5526	5812.6176	---	---
11AX20MIMO	Ant1	5180	19.250	5170.3829	5189.6329	---	---
	Ant2	5180	19.385	5170.2868	5189.6718	---	---
	Ant1	5200	19.410	5190.3343	5209.7443	---	---
	Ant2	5200	19.370	5190.2733	5209.6433	---	---
	Ant1	5240	18.919	5230.5625	5249.4815	---	---
	Ant2	5240	18.930	5230.5631	5249.4931	---	---
	Ant1	5260	19.260	5250.4335	5269.6935	---	---
	Ant2	5260	19.300	5250.3609	5269.6609	---	---
	Ant1	5280	19.329	5270.3270	5289.6560	---	---
	Ant2	5280	19.380	5270.3210	5289.7010	---	---
	Ant1	5320	19.314	5310.3645	5329.6785	---	---
	Ant2	5320	19.360	5310.3908	5329.7508	---	---
	Ant1	5500	19.287	5490.3549	5509.6419	---	---
	Ant2	5500	19.318	5490.3411	5509.6591	---	---
	Ant1	5580	19.318	5570.3945	5589.7125	---	---
	Ant2	5580	19.289	5570.3573	5589.6463	---	---
	Ant1	5700	19.350	5690.2939	5709.6439	---	---
	Ant2	5700	19.364	5690.3712	5709.7352	---	---
	Ant1	5745	19.241	5735.4086	5754.6496	---	---
	Ant2	5745	19.362	5735.3943	5754.7563	---	---
	Ant1	5785	19.319	5775.3309	5794.6499	---	---
	Ant2	5785	19.333	5775.3362	5794.6692	---	---
	Ant1	5825	19.314	5815.3350	5834.6490	---	---
	Ant2	5825	19.300	5815.3797	5834.6797	---	---
11AX40MIMO	Ant1	5190	37.578	5171.2196	5208.7976	---	---
	Ant2	5190	37.536	5171.1961	5208.7321	---	---
	Ant1	5230	37.687	5211.1869	5248.8739	---	---
	Ant2	5230	37.641	5211.1662	5248.8072	---	---
	Ant1	5270	37.519	5251.2819	5288.8009	---	---
	Ant2	5270	37.609	5251.1995	5288.8085	---	---
	Ant1	5310	37.681	5291.1936	5328.8746	---	---
	Ant2	5310	37.675	5291.1775	5328.8525	---	---
	Ant1	5510	37.533	5491.2317	5528.7647	---	---
	Ant2	5510	37.535	5491.2580	5528.7930	---	---
	Ant1	5550	37.550	5531.2553	5568.8053	---	---
	Ant2	5550	37.542	5531.2253	5568.7673	---	---
	Ant1	5670	37.668	5651.2256	5688.8936	---	---
	Ant2	5670	37.593	5651.2494	5688.8424	---	---
	Ant1	5755	37.562	5736.2553	5773.8173	---	---
	Ant2	5755	37.681	5736.1899	5773.8709	---	---
	Ant1	5795	37.548	5776.2591	5813.8071	---	---
	Ant2	5795	37.578	5776.1975	5813.7755	---	---
11AX80MIMO	Ant1	5210	77.048	5171.5702	5248.6182	---	---
	Ant2	5210	77.113	5171.4389	5248.5519	---	---

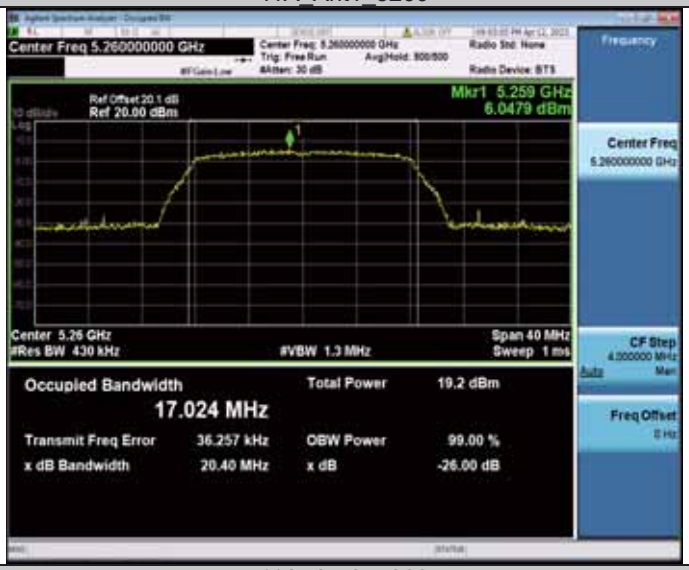
	Ant1	5290	76.687	5251.7251	5328.4121	---	---
	Ant2	5290	77.077	5251.3529	5328.4299	---	---
	Ant1	5530	76.863	5491.7237	5568.5867	---	---
	Ant2	5530	77.011	5491.4726	5568.4836	---	---
	Ant1	5610	76.880	5571.5083	5648.3883	---	---
	Ant2	5610	77.034	5571.5988	5648.6328	---	---
	Ant1	5775	77.112	5736.4061	5813.5181	---	---
	Ant2	5775	76.754	5736.6784	5813.4324	---	---

11A_Ant1_5180

11A_Ant2_5180

11A_Ant1_5200


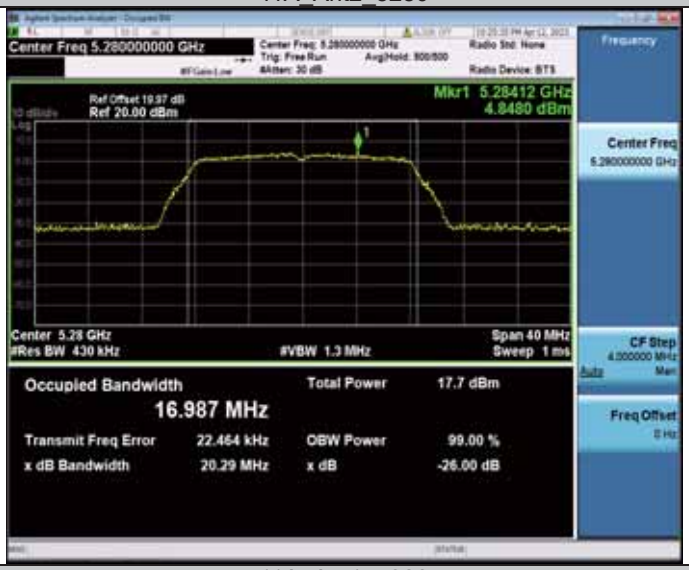
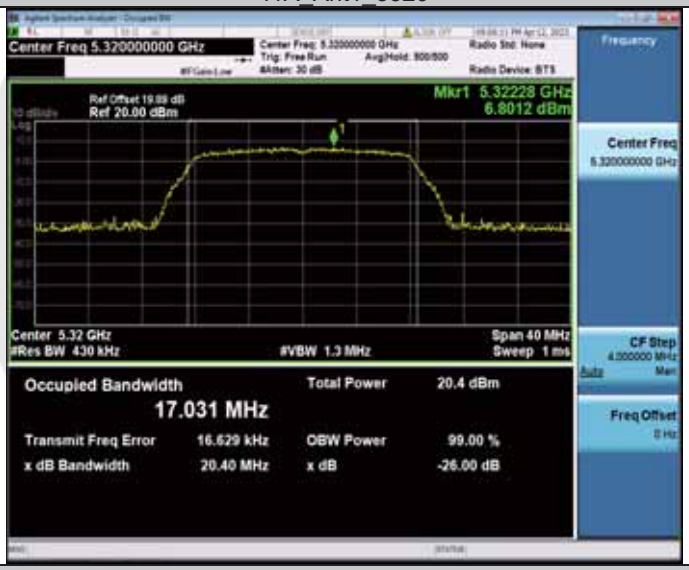
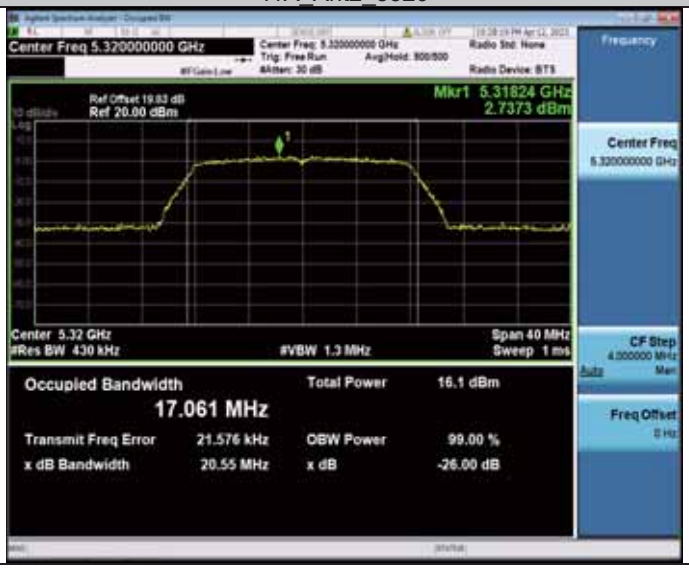
11A_Ant2_5200

11A_Ant1_5240

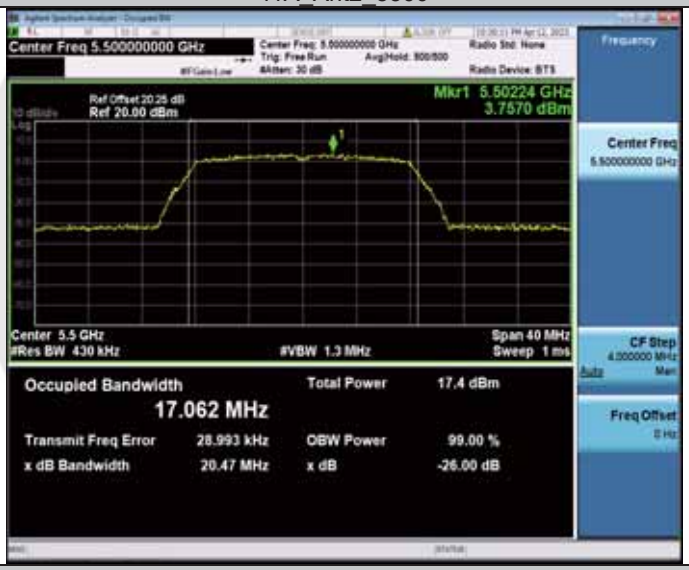
11A_Ant2_5240


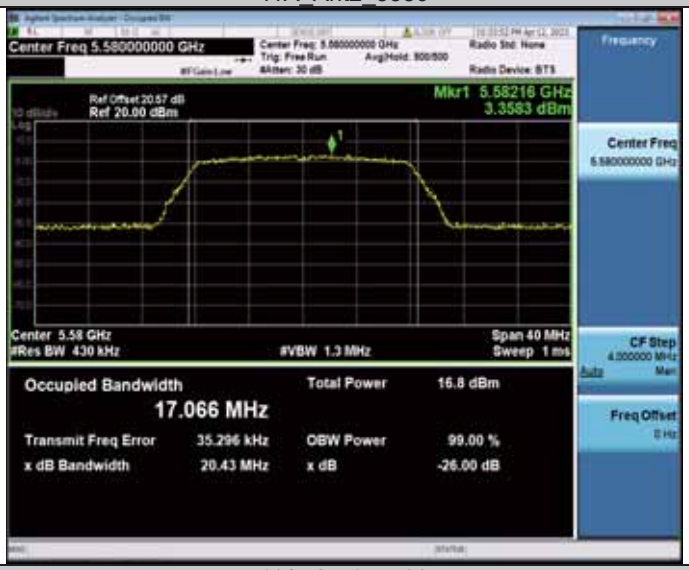
11A_Ant1_5260

11A_Ant2_5260

11A_Ant1_5280

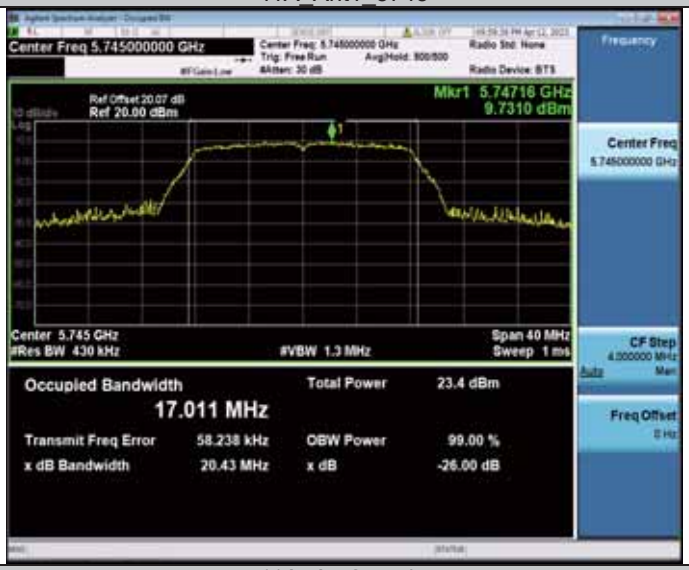
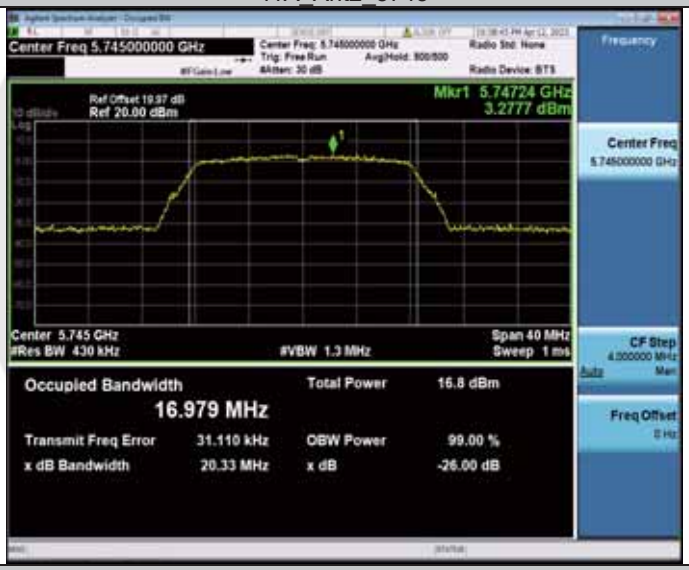

11A_Ant2_5280

11A_Ant1_5320

11A_Ant2_5320


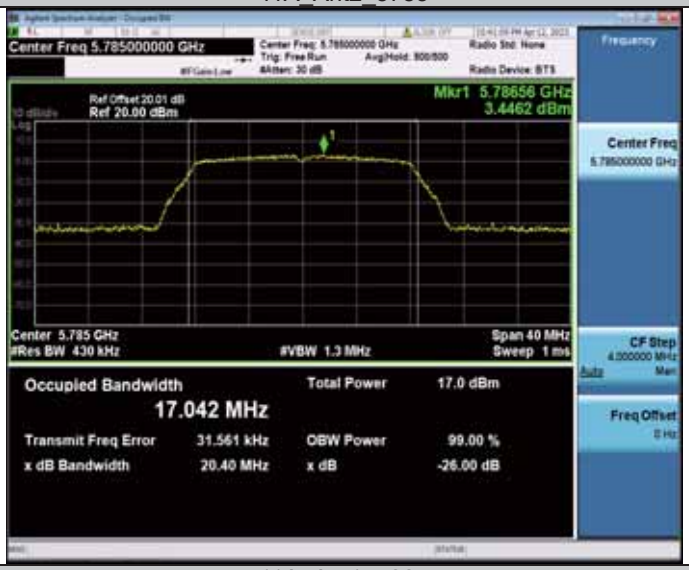
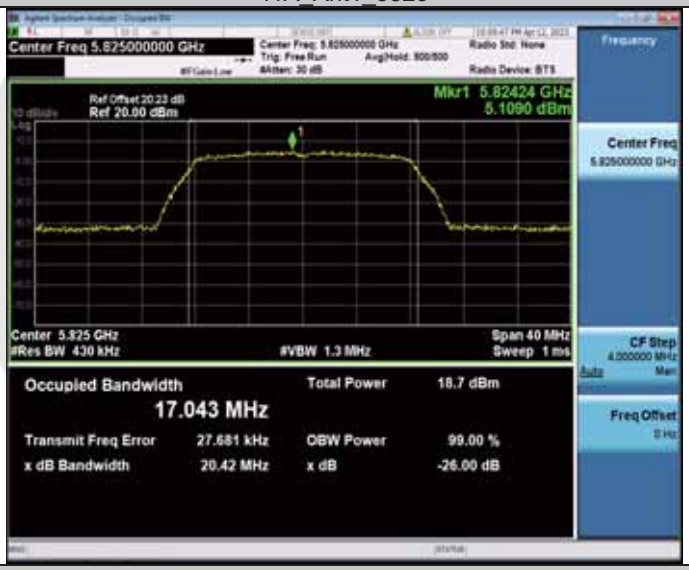
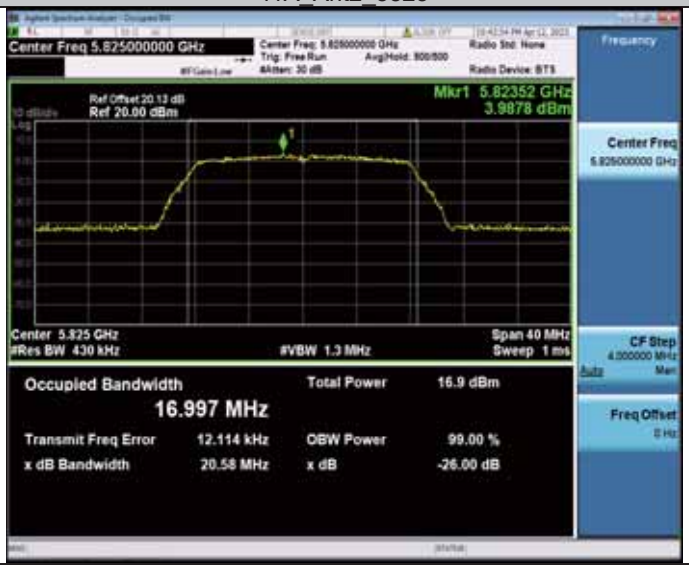
11A_Ant1_5500

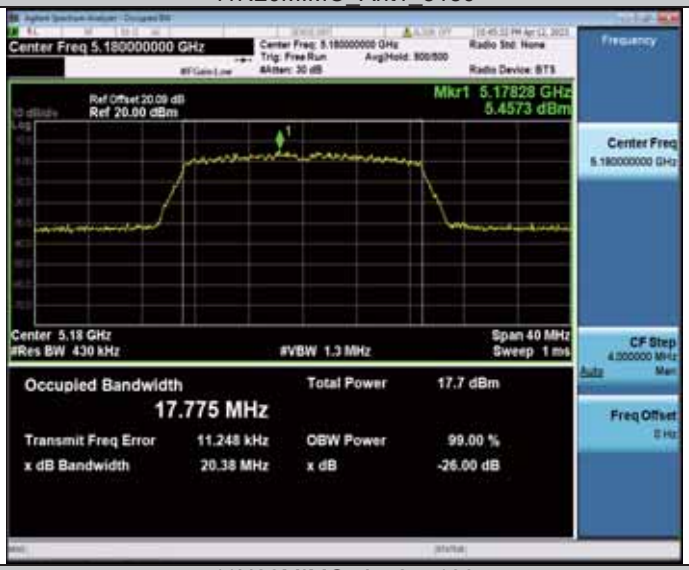
11A_Ant2_5500

11A_Ant1_5580


11A_Ant2_5580

11A_Ant1_5700

11A_Ant2_5700

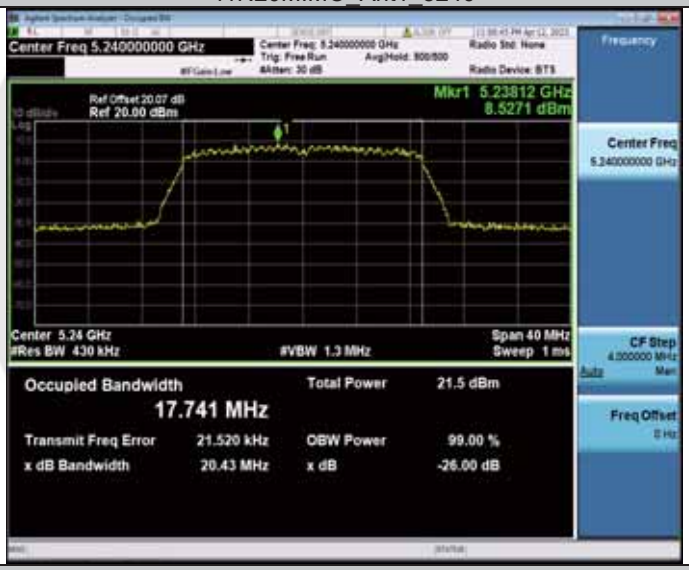

11A_Ant1_5745

11A_Ant2_5745

11A_Ant1_5785

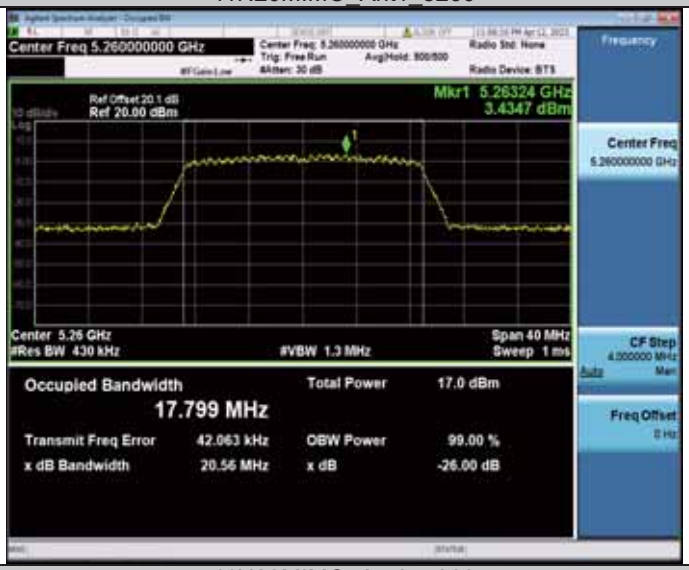

11A_Ant2_5785

11A_Ant1_5825

11A_Ant2_5825


11N20MIMO_Ant1_5180

11N20MIMO_Ant2_5180

11N20MIMO_Ant1_5200


11N20MIMO_Ant2_5200

11N20MIMO_Ant1_5240

11N20MIMO_Ant2_5240


11N20MIMO_Ant1_5260

11N20MIMO_Ant2_5260

11N20MIMO_Ant1_5280


11N20MIMO_Ant2_5280

11N20MIMO_Ant1_5320

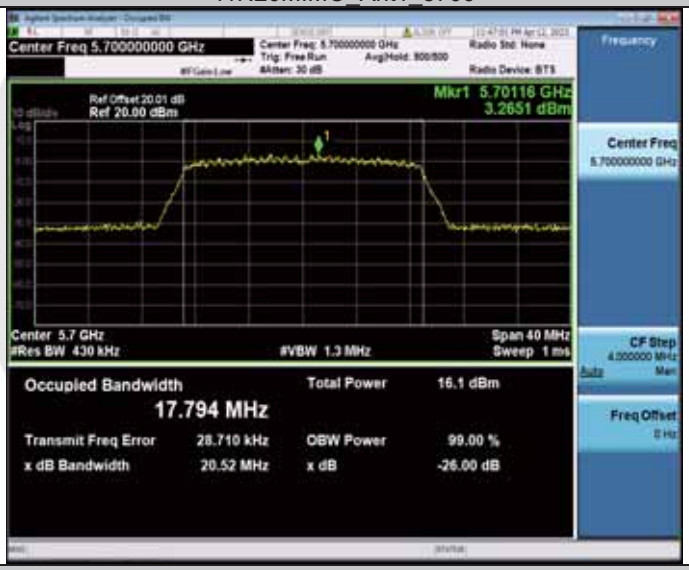
11N20MIMO_Ant2_5320

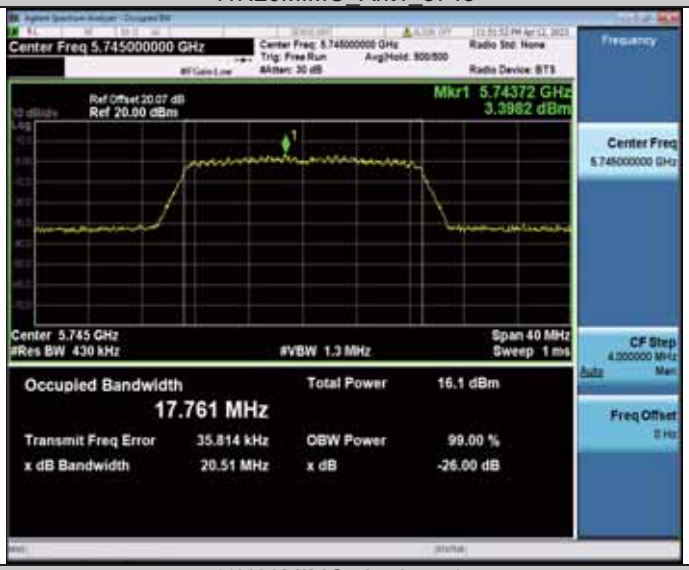
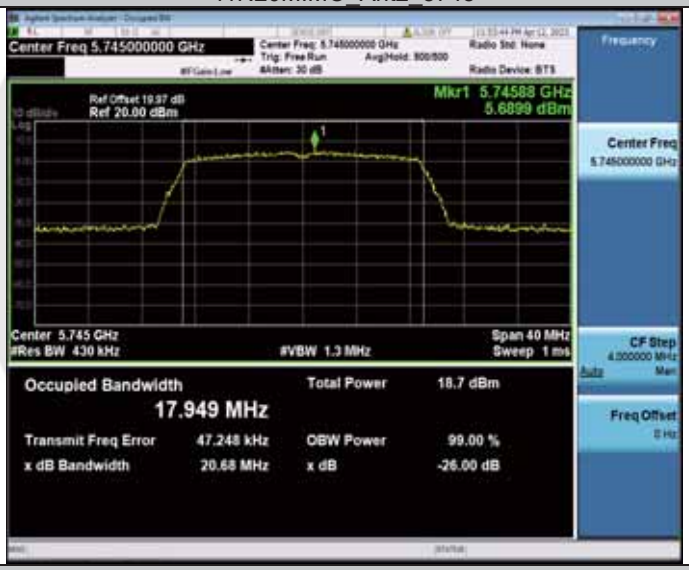

11N20MIMO_Ant1_5500

11N20MIMO_Ant2_5500

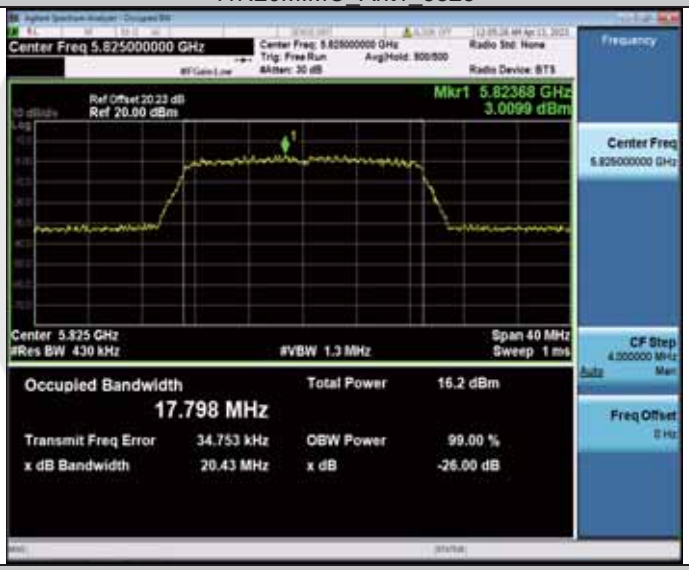
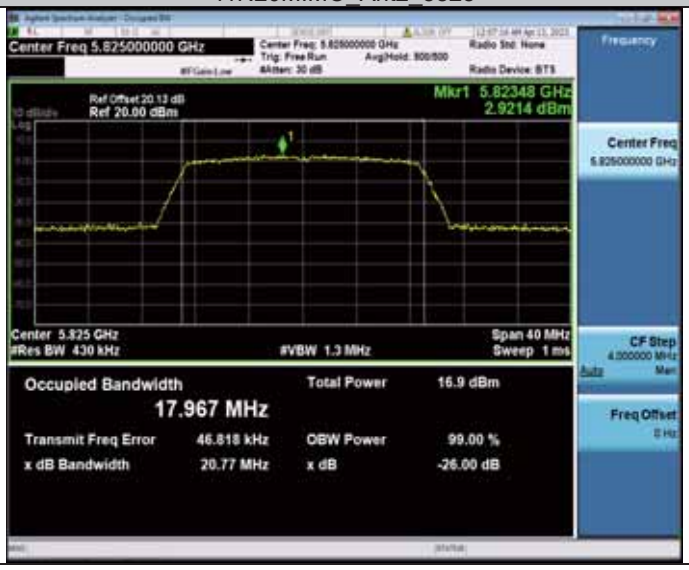
11N20MIMO_Ant1_5580


11N20MIMO_Ant2_5580

11N20MIMO_Ant1_5700

11N20MIMO_Ant2_5700


11N20MIMO_Ant1_5745

11N20MIMO_Ant2_5745

11N20MIMO_Ant1_5785


11N20MIMO_Ant2_5785

11N20MIMO_Ant1_5825

11N20MIMO_Ant2_5825


11N40MIMO_Ant1_5190

11N40MIMO_Ant2_5190

11N40MIMO_Ant1_5230


11N40MIMO_Ant2_5230

11N40MIMO_Ant1_5270

11N40MIMO_Ant2_5270


11N40MIMO_Ant1_5310

11N40MIMO_Ant2_5310

11N40MIMO_Ant1_5510


11N40MIMO_Ant2_5510

11N40MIMO_Ant1_5550

11N40MIMO_Ant2_5550


11N40MIMO_Ant1_5670

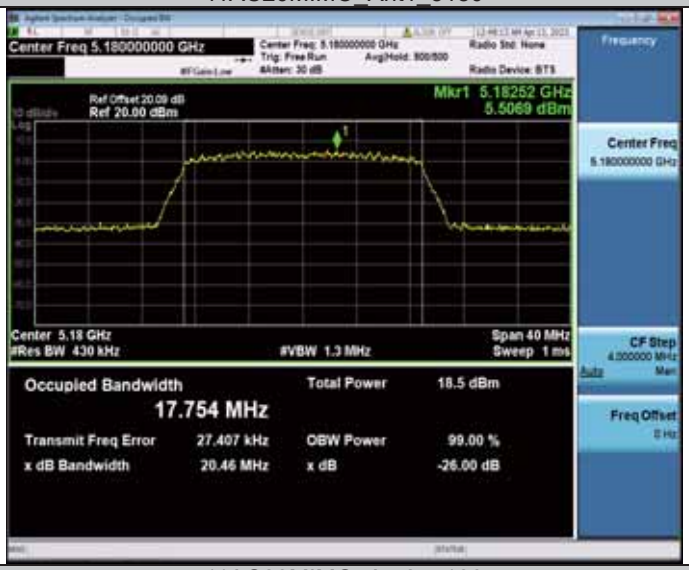
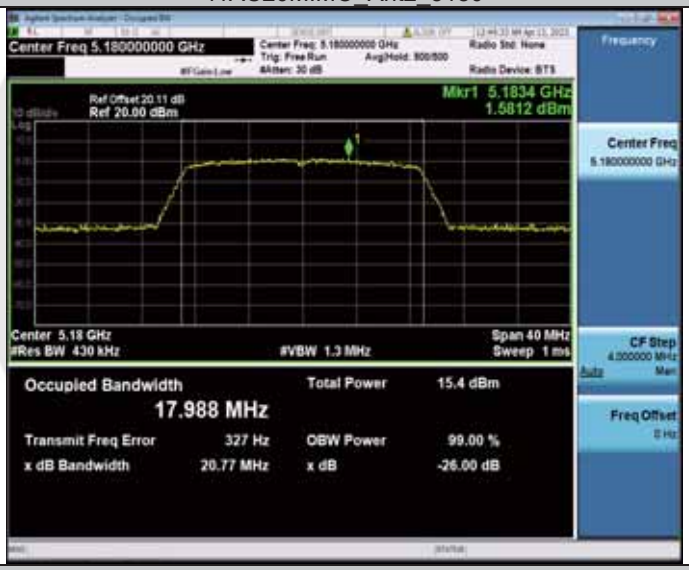
11N40MIMO_Ant2_5670

11N40MIMO_Ant1_5755


11N40MIMO_Ant2_5755

11N40MIMO_Ant1_5795

11N40MIMO_Ant2_5795


11AC20MIMO_Ant1_5180

11AC20MIMO_Ant2_5180

11AC20MIMO_Ant1_5200


11AC20MIMO_Ant2_5200

11AC20MIMO_Ant1_5240

11AC20MIMO_Ant2_5240


11AC20MIMO_Ant1_5260

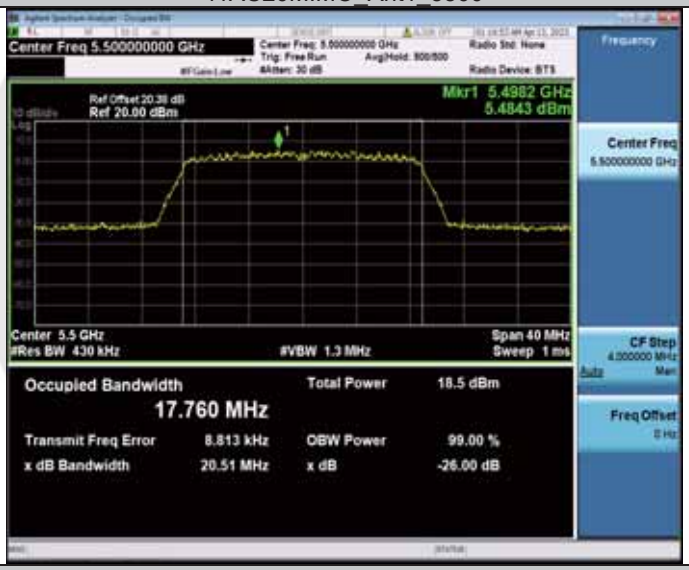
11AC20MIMO_Ant2_5260

11AC20MIMO_Ant1_5280

11AC20MIMO_Ant2_5280

11AC20MIMO_Ant1_5320

11AC20MIMO_Ant2_5320

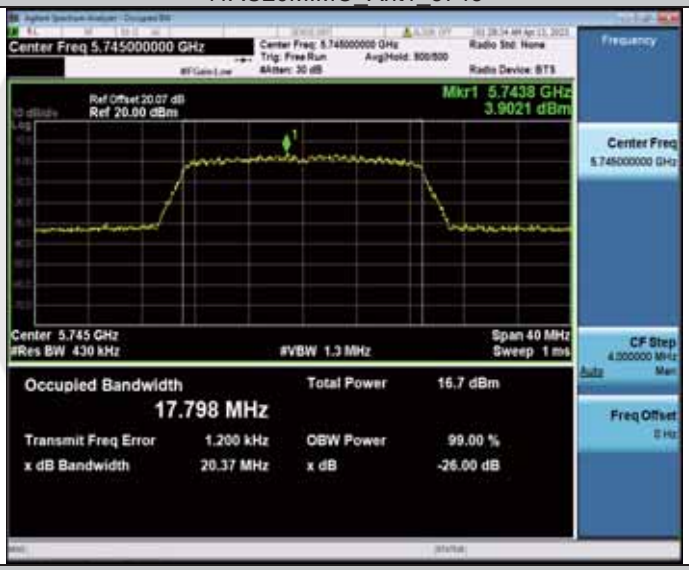
11AC20MIMO_Ant1_5500

11AC20MIMO_Ant2_5500


11AC20MIMO_Ant1_5580

11AC20MIMO_Ant2_5580

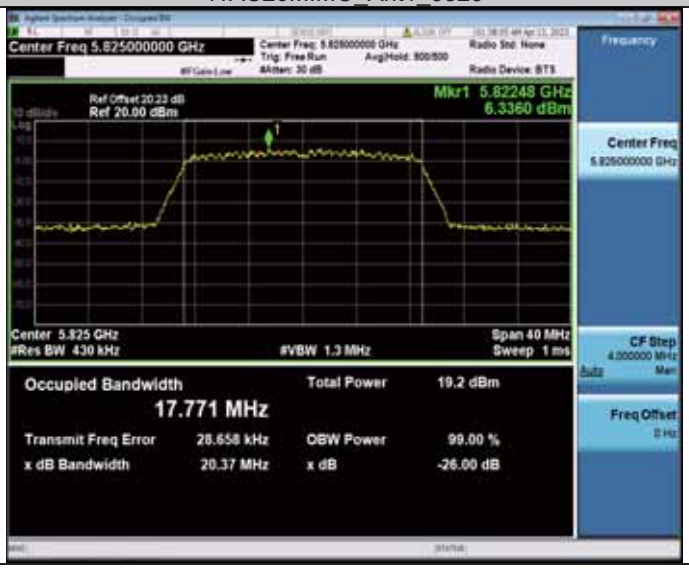
11AC20MIMO_Ant1_5700


11AC20MIMO_Ant2_5700

11AC20MIMO_Ant1_5745

11AC20MIMO_Ant2_5745


11AC20MIMO_Ant1_5785

11AC20MIMO_Ant2_5785

11AC20MIMO_Ant1_5825


11AC20MIMO_Ant2_5825

11AC40MIMO_Ant1_5190

11AC40MIMO_Ant2_5190


11AC40MIMO_Ant1_5230

11AC40MIMO_Ant2_5230

11AC40MIMO_Ant1_5270


11AC40MIMO_Ant2_5270

11AC40MIMO_Ant1_5310

11AC40MIMO_Ant2_5310


11AC40MIMO_Ant1_5510

11AC40MIMO_Ant2_5510

11AC40MIMO_Ant1_5550

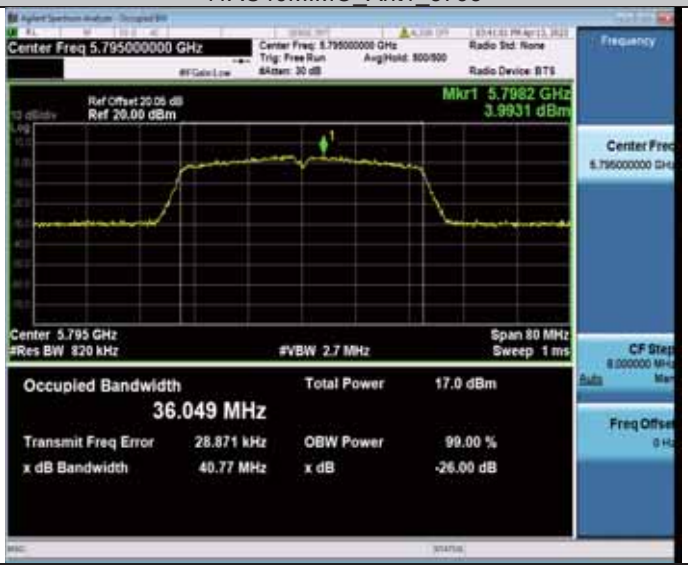

11AC40MIMO_Ant2_5550

11AC40MIMO_Ant1_5670

11AC40MIMO_Ant2_5670


11AC40MIMO_Ant1_5755

11AC40MIMO_Ant2_5755

11AC40MIMO_Ant1_5795


11AC40MIMO_Ant2_5795

11AC80MIMO_Ant1_5210

11AC80MIMO_Ant2_5210