

TEST REPORT

Product Name : Tablet
Model Number : FLEX 12B
FCC ID : O86-FLEX12B
IC : 10591A-FLEX12B

Prepared for : MobileDemand, LC
Address : 1501 Boyson Square Drive, Suite 101, Hiawatha, Iowa, United States

Prepared by : EMTEK (SHENZHEN) CO., LTD.
Address : Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

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Report Number : ENS2311230096W00504R
Date(s) of Tests : November 23, 2023 to December 15, 2023
Date of issue : December 15, 2023

1 TEST RESULT CERTIFICATION

Applicant : MobileDemand, LC

Address : 1501 Boyson Square Drive, Suite 101, Hiawatha, Iowa, United States

Manufacturer : MobileDemand, LC

Address : 1501 Boyson Square Drive, Suite 101, Hiawatha, Iowa, United States

EUT : Tablet

Model Name : FLEX 12B

Trademark : MobileDemand

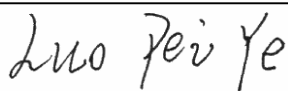
Measurement Procedure Used:

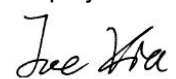
APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart E	PASS
IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021) IC RSS-247 Issue 2(02-2017)	PASS

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 : November 23, 2023 to December 15, 2023

Prepared by : 
Luo peiye /Editor

Reviewer : 
Joe Xia/Supervisor

Approve & Authorized Signer : 
Lisa Wang/Manager



Modified History

Version	Report No.	Revision Date	Summary
Ver.1.0	ENS2311230096W00504R	/	Original Report



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2 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product:	Tablet
Model Number:	FLEX 12B
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) 5250MHz for 802.11ac(VHT160)/ax(HE160)
	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) 5570MHz for 802.11ac(VHT160)/ax(HE160)
	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 Port:	☒ Antenna port 1 ☒ Antenna port 2
Antenna Type:	FPC Antenna
Antenna Gain:	☒ ANT 1: 1.73 dBi ☒ ANT 2: 1.96 dBi

Transmit Power:	UNII-1 Band: 14.53 dBm UNII-2A Band: 14.93 dBm UNII-2C Band: 14.68 dBm UNII-3 Band: 14.82 dBm
Power Supply:	DC 20V from adapter
Adapter:	MODEL: ES177B-US-2000325 INPUT: 100-240V~50/60Hz 1.5A OUTPUT:5V/3A , 9V/3A , 12V/3A, 15V/3A, 20V/3.25A, (PPS):3.3-20V/3.25A(65.0W MAX)
Test Voltage:	AC 120V/60Hz, DC 7.6V from Internal Battery
Date of Received:	November 23, 2023
Temperature Range:	0°C ~ +35°C
FVIN:	Win11
Note: 1.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	PeakPower 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	RadiatedSpurious Emission	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:O86-FLEX12B** filing to comply with Section 15.407 of the FCC Part 15, Subpart C Rules.

This submittal(s) (test report) is intended for **IC:10591A-FLEX12B** 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
EMI Test Receiver	Rohde & Schwarz	ESCI	101384	2023/5/13	1Year
AMN	Rohde & Schwarz	ENV216	101161	2023/5/13	1Year

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESU 26	100154	2023/5/13	1Year
Pre-Amplifier	Lunar EM	LNA30M3G-25	J10100000070	2023/5/13	1Year
Bilog Antenna	Schwarzbeck	VULB9163	660	2023/5/16	2 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1177	2023/5/12	2 Year
Pre-Amplifier	SKET	LNPA_0118G-45	SK2019051801	2023/5/10	1Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	2023/5/12	2 Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	100967	2023/5/10	1Year
Horn antenna	Schwarzbeck	BBHA9170	9170-399	2023/5/12	2 Year
Band reject Filter(50dB)	WI/DE	WRCGV-2400(2400-2485MHz)	2	2023/5/13	1 Year

For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Wideband Radio Communication Tester	R&S	CMW500	171168	2023/9/14	1Year
Frequency Extender	R&S	CMW-Z800A	100430	2023/11/2	1Year
Spectrum Analyzer	R&S	FSV3044	101289	2023/9/14	1Year
Analog Signal Generator	R&S	SMB100A	183237	2023/9/16	1Year
Vector Signal Generator	R&S	SMM100A	101808	2023/9/16	1Year
RF Control Unit(Power Meter)	Tonscend	JS0806-2	22C8060567	2023/9/14	1Year
Temperature&Humidity Chamber	ESPEC	EL-02KA	12107166	2023/5/10	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): MCS; 802.11ac(VHT160): MCS0; 802.11ax(HE160): MCS) 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				

Frequency and Channel list for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
50	5250				

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				

Test Frequency and channel for 802.11ac (VHT160), 802.11ax (HE160):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
50	5250	N/A	N/A	N/A	N/A

☒ 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		

Frequency and Channel list for 802.11ac (VHT160)/802.11ax(HE160):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
114	5570				

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				

Test Frequency and Channel list for 802.11ac (VHT160), 802.11ax(HE160):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
114	5570				

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

Directional gain = $10 \log [(10^{1.73/20} + 10^{1.96/20})^2 / 2]$ dBi=4.86 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:

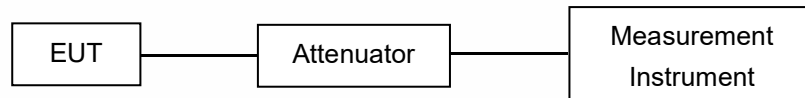
Test Parameter	Measurement Uncertainty
Frequency error	$\pm 20\text{Hz}$
Occupied Bandwidth	$\pm 0.5\text{KHz}$
Transmitter output power	$\pm 0.6\text{dB}$
Conducted spurious emissions	$\pm 3.2\text{dB}$
Radiated spurious emissions	$\pm 4.5\text{dB}$
Temperature	$\pm 1.2^{\circ}\text{C}$
Humidity	$\pm 3\%$
DC voltages	$\pm 0.25\text{V}$
Time	$\pm 1\%$

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:

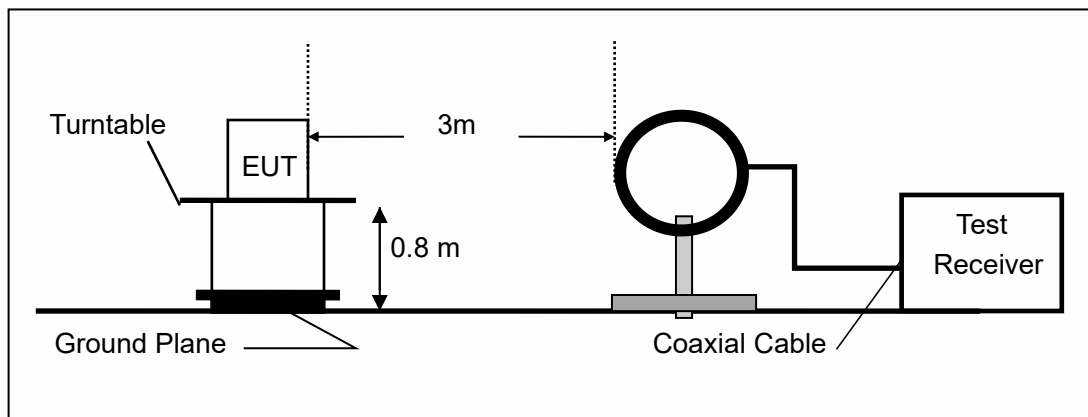
The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is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

Above 1GHz:

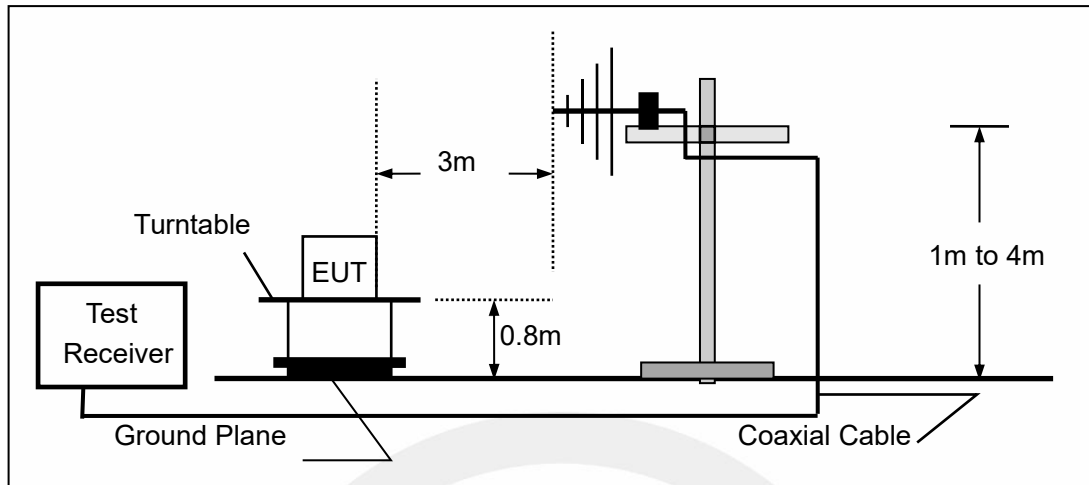
(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.)

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).

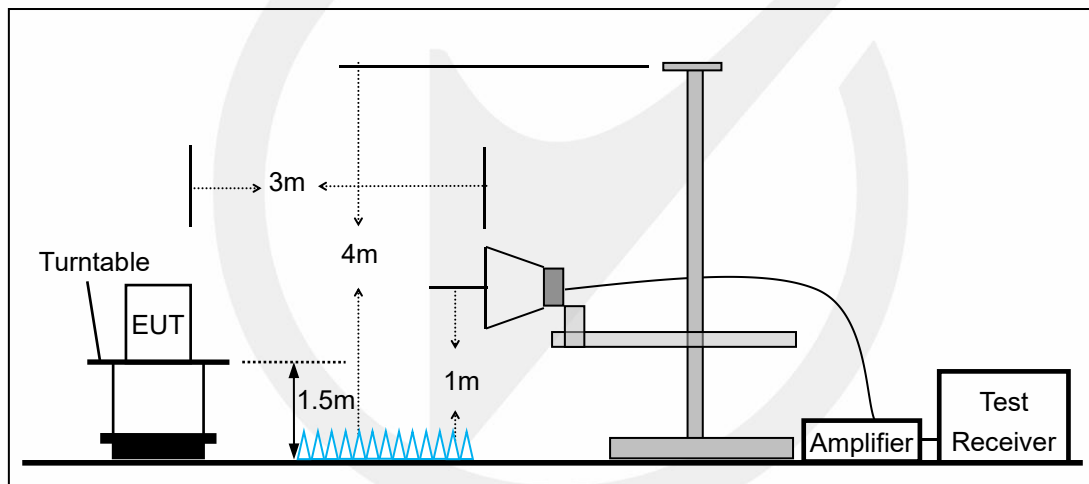
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



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



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

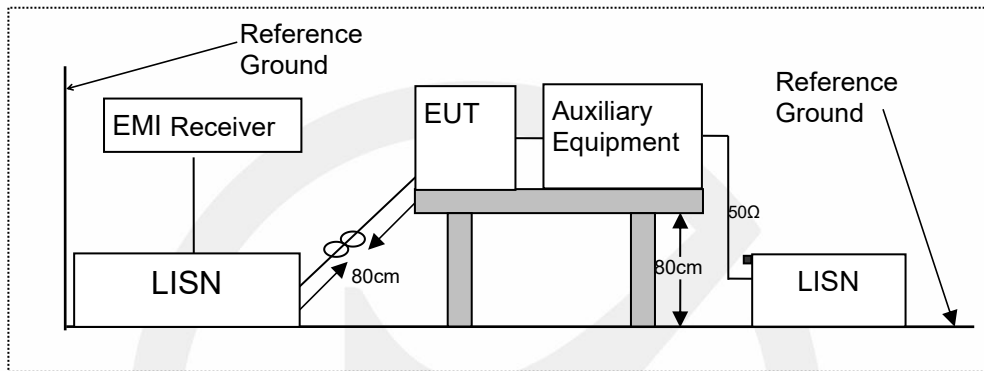


7.3 CONDUCTED EMISSION TEST SETUP

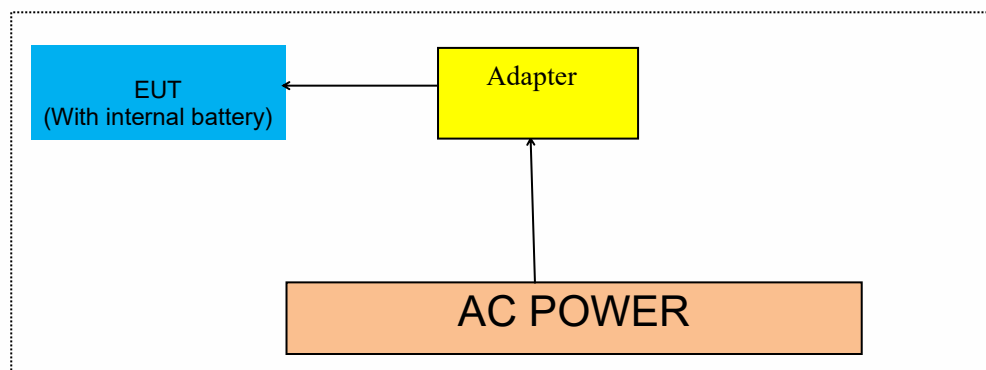
The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All 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-Gen6.6, 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)

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- 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:

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- 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 $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



8.1.5 Test Results

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

Note: N/A

TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	23.600	5168.280	5191.880	---	---
	Ant2	5180	23.160	5168.400	5191.560	---	---
	Ant1	5200	23.000	5188.480	5211.480	---	---
	Ant2	5200	23.800	5188.320	5212.120	---	---
	Ant1	5240	23.440	5228.440	5251.880	---	---
	Ant2	5240	22.960	5228.520	5251.480	---	---
	Ant1	5260	23.400	5248.240	5271.640	---	---
	Ant2	5260	23.160	5248.400	5271.560	---	---
	Ant1	5280	23.480	5268.120	5291.600	---	---
	Ant2	5280	22.800	5268.560	5291.360	---	---
	Ant1	5320	23.200	5308.160	5331.360	---	---
	Ant2	5320	23.040	5308.640	5331.680	---	---
	Ant1	5500	23.200	5488.760	5511.960	---	---
	Ant2	5500	23.280	5488.040	5511.320	---	---
	Ant1	5580	23.240	5568.400	5591.640	---	---
	Ant2	5580	23.320	5568.640	5591.960	---	---
	Ant1	5700	22.240	5689.120	5711.360	---	---
	Ant2	5700	23.840	5688.080	5711.920	---	---
	Ant1	5745	22.880	5733.720	5756.600	---	---
	Ant2	5745	23.240	5733.400	5756.640	---	---
	Ant1	5785	22.760	5773.120	5795.880	---	---
	Ant2	5785	22.840	5773.280	5796.120	---	---
	Ant1	5825	23.520	5813.200	5836.720	---	---
	Ant2	5825	23.160	5813.360	5836.520	---	---
11N20MIMO	Ant1	5180	23.320	5168.840	5192.160	---	---
	Ant2	5180	22.880	5168.480	5191.360	---	---
	Ant1	5200	23.080	5188.480	5211.560	---	---
	Ant2	5200	22.960	5188.280	5211.240	---	---
	Ant1	5240	23.040	5228.480	5251.520	---	---
	Ant2	5240	23.520	5228.360	5251.880	---	---
	Ant1	5260	23.120	5248.280	5271.400	---	---
	Ant2	5260	23.480	5248.160	5271.640	---	---
	Ant1	5280	23.320	5268.600	5291.920	---	---
	Ant2	5280	22.760	5268.640	5291.400	---	---
	Ant1	5320	23.120	5308.240	5331.360	---	---
	Ant2	5320	23.840	5308.080	5331.920	---	---
	Ant1	5500	24.240	5487.960	5512.200	---	---
	Ant2	5500	24.240	5487.760	5512.000	---	---
	Ant1	5580	23.440	5568.560	5592.000	---	---
	Ant2	5580	23.680	5568.120	5591.800	---	---
	Ant1	5700	23.360	5688.560	5711.920	---	---
	Ant2	5700	22.880	5688.760	5711.640	---	---
	Ant1	5745	22.840	5733.600	5756.440	---	---
	Ant2	5745	22.800	5733.960	5756.760	---	---
	Ant1	5785	22.480	5773.520	5796.000	---	---
	Ant2	5785	23.600	5772.960	5796.560	---	---
	Ant1	5825	23.520	5813.400	5836.920	---	---
	Ant2	5825	23.560	5813.440	5837.000	---	---
11N40MIMO	Ant1	5190	43.600	5167.920	5211.520	---	---
	Ant2	5190	43.120	5168.320	5211.440	---	---

	Ant1	5230	44.080	5207.440	5251.520	---	---
	Ant2	5230	42.720	5208.720	5251.440	---	---
	Ant1	5270	44.160	5247.360	5291.520	---	---
	Ant2	5270	42.320	5248.720	5291.040	---	---
	Ant1	5310	43.200	5288.000	5331.200	---	---
	Ant2	5310	42.160	5288.800	5330.960	---	---
	Ant1	5510	42.560	5488.880	5531.440	---	---
	Ant2	5510	43.840	5488.400	5532.240	---	---
	Ant1	5550	45.280	5527.440	5572.720	---	---
	Ant2	5550	44.000	5528.240	5572.240	---	---
	Ant1	5670	44.880	5648.400	5693.280	---	---
	Ant2	5670	43.680	5648.240	5691.920	---	---
	Ant1	5755	45.200	5732.680	5777.880	---	---
	Ant2	5755	43.680	5733.080	5776.760	---	---
	Ant1	5795	44.320	5773.240	5817.560	---	---
	Ant2	5795	43.360	5772.840	5816.200	---	---
11AC20MIMO	Ant1	5180	23.520	5168.280	5191.800	---	---
	Ant2	5180	22.880	5168.560	5191.440	---	---
	Ant1	5200	23.080	5188.600	5211.680	---	---
	Ant2	5200	23.880	5188.040	5211.920	---	---
	Ant1	5240	23.280	5228.400	5251.680	---	---
	Ant2	5240	23.400	5228.480	5251.880	---	---
	Ant1	5260	23.160	5248.480	5271.640	---	---
	Ant2	5260	23.680	5248.320	5272.000	---	---
	Ant1	5280	23.520	5268.280	5291.800	---	---
	Ant2	5280	23.440	5268.320	5291.760	---	---
	Ant1	5320	23.120	5308.440	5331.560	---	---
	Ant2	5320	23.600	5307.760	5331.360	---	---
	Ant1	5500	23.800	5487.960	5511.760	---	---
	Ant2	5500	23.160	5488.320	5511.480	---	---
	Ant1	5580	23.600	5568.000	5591.600	---	---
	Ant2	5580	22.760	5568.520	5591.280	---	---
	Ant1	5700	22.800	5688.800	5711.600	---	---
	Ant2	5700	23.400	5688.600	5712.000	---	---
	Ant1	5745	23.120	5733.360	5756.480	---	---
	Ant2	5745	23.120	5733.560	5756.680	---	---
	Ant1	5785	23.960	5773.120	5797.080	---	---
	Ant2	5785	22.600	5773.480	5796.080	---	---
	Ant1	5825	23.320	5813.360	5836.680	---	---
	Ant2	5825	23.400	5813.080	5836.480	---	---
11AC40MIMO	Ant1	5190	43.520	5168.480	5212.000	---	---
	Ant2	5190	43.520	5168.320	5211.840	---	---
	Ant1	5230	44.160	5208.720	5252.880	---	---
	Ant2	5230	43.120	5208.800	5251.920	---	---
	Ant1	5270	42.240	5248.960	5291.200	---	---
	Ant2	5270	42.080	5248.960	5291.040	---	---
	Ant1	5310	43.040	5288.480	5331.520	---	---
	Ant2	5310	43.680	5288.080	5331.760	---	---
	Ant1	5510	43.040	5488.400	5531.440	---	---
	Ant2	5510	42.320	5488.880	5531.200	---	---
	Ant1	5550	43.600	5528.320	5571.920	---	---
	Ant2	5550	44.000	5527.840	5571.840	---	---
	Ant1	5670	41.600	5649.280	5690.880	---	---
	Ant2	5670	43.840	5647.920	5691.760	---	---
	Ant1	5755	44.800	5732.600	5777.400	---	---
	Ant2	5755	42.320	5733.640	5775.960	---	---
	Ant1	5795	45.360	5772.360	5817.720	---	---
	Ant2	5795	44.320	5772.680	5817.000	---	---
11AC80MIMO	Ant1	5210	85.760	5167.440	5253.200	---	---
	Ant2	5210	83.200	5168.240	5251.440	---	---
	Ant1	5290	84.480	5248.400	5332.880	---	---

	Ant2	5290	85.920	5246.640	5332.560	---	---
	Ant1	5530	83.520	5488.240	5571.760	---	---
	Ant2	5530	83.200	5488.080	5571.280	---	---
	Ant1	5610	85.600	5567.760	5653.360	---	---
	Ant2	5610	82.720	5569.040	5651.760	---	---
	Ant1	5775	86.880	5730.520	5817.400	---	---
	Ant2	5775	84.000	5732.120	5816.120	---	---
11AC160MIMO	Ant1	5250	163.840	5169.040	5332.880	---	---
	Ant2	5250	164.480	5168.400	5332.880	---	---
	Ant1	5250 UNII-1	80.96	5169.040	5250	---	---
	Ant2	5250 UNII-1	81.6	5168.400	5250	---	---
	Ant1	5250 UNII-2A	82.88	5250	5332.880	---	---
	Ant2	5250 UNII-2A	82.88	5250	5332.880	---	---
	Ant1	5570	164.160	5488.720	5652.880	---	---
11AX20MIMO	Ant2	5570	163.840	5488.720	5652.560	---	---
	Ant1	5180	23.800	5168.000	5191.800	---	---
	Ant2	5180	23.480	5168.040	5191.520	---	---
	Ant1	5200	23.120	5188.400	5211.520	---	---
	Ant2	5200	23.480	5188.240	5211.720	---	---
	Ant1	5240	23.840	5228.120	5251.960	---	---
	Ant2	5240	21.760	5229.000	5250.760	---	---
	Ant1	5260	23.160	5248.080	5271.240	---	---
	Ant2	5260	23.120	5248.440	5271.560	---	---
	Ant1	5280	23.360	5268.200	5291.560	---	---
	Ant2	5280	23.200	5268.480	5291.680	---	---
	Ant1	5320	23.200	5308.400	5331.600	---	---
	Ant2	5320	22.760	5308.680	5331.440	---	---
	Ant1	5500	22.840	5488.240	5511.080	---	---
	Ant2	5500	22.760	5488.360	5511.120	---	---
	Ant1	5580	23.240	5568.840	5592.080	---	---
	Ant2	5580	23.480	5568.440	5591.920	---	---
	Ant1	5700	23.360	5688.680	5712.040	---	---
	Ant2	5700	22.920	5688.520	5711.440	---	---
	Ant1	5745	23.560	5732.880	5756.440	---	---
	Ant2	5745	23.840	5733.040	5756.880	---	---
	Ant1	5785	23.080	5773.120	5796.200	---	---
	Ant2	5785	22.400	5773.880	5796.280	---	---
	Ant1	5825	23.600	5813.200	5836.800	---	---
	Ant2	5825	23.200	5813.280	5836.480	---	---
11AX40MIMO	Ant1	5190	41.520	5169.280	5210.800	---	---
	Ant2	5190	41.600	5169.120	5210.720	---	---
	Ant1	5230	44.080	5207.360	5251.440	---	---
	Ant2	5230	41.440	5209.520	5250.960	---	---
	Ant1	5270	41.360	5249.280	5290.640	---	---
	Ant2	5270	40.320	5249.760	5290.080	---	---
	Ant1	5310	42.400	5288.400	5330.800	---	---
	Ant2	5310	41.920	5288.640	5330.560	---	---
	Ant1	5510	41.680	5488.800	5530.480	---	---
	Ant2	5510	41.920	5488.880	5530.800	---	---
	Ant1	5550	42.560	5528.880	5571.440	---	---
	Ant2	5550	41.120	5529.360	5570.480	---	---
	Ant1	5670	41.280	5649.840	5691.120	---	---
	Ant2	5670	42.960	5648.720	5691.680	---	---
	Ant1	5755	42.240	5733.880	5776.120	---	---
	Ant2	5755	41.680	5733.880	5775.560	---	---
	Ant1	5795	42.960	5773.080	5816.040	---	---
	Ant2	5795	40.880	5774.360	5815.240	---	---
11AX80MIMO	Ant1	5210	84.000	5168.560	5252.560	---	---
	Ant2	5210	84.480	5167.280	5251.760	---	---
	Ant1	5290	82.720	5248.720	5331.440	---	---
	Ant2	5290	83.680	5247.600	5331.280	---	---

	Ant1	5530	82.880	5489.360	5572.240	---	---
	Ant2	5530	83.680	5487.600	5571.280	---	---
	Ant1	5610	83.680	5567.280	5650.960	---	---
	Ant2	5610	82.560	5568.880	5651.440	---	---
	Ant1	5775	82.240	5733.880	5816.120	---	---
	Ant2	5775	81.760	5733.720	5815.480	---	---
11AX160MIMO	Ant1	5250	162.880	5169.040	5331.920	---	---
	Ant2	5250	162.560	5169.040	5331.600	---	---
	Ant1	5250 UNII-1	80.96	5169.040	5250	---	---
	Ant2	5250 UNII-1	80.96	5169.040	5250	---	---
	Ant1	5250 UNII-2A	81.92	5250	5331.920	---	---
	Ant2	5250 UNII-2A	81.6	5250	5331.600	---	---
	Ant1	5570	163.840	5488.400	5652.240	---	---
	Ant2	5570	162.240	5489.040	5651.280	---	---



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





11N40MIMO_Ant2_5190



11N40MIMO_Ant1_5230



11N40MIMO_Ant2_5230



11N40MIMO_Ant1_5270



11N40MIMO_Ant2_5270



11N40MIMO_Ant1_5310



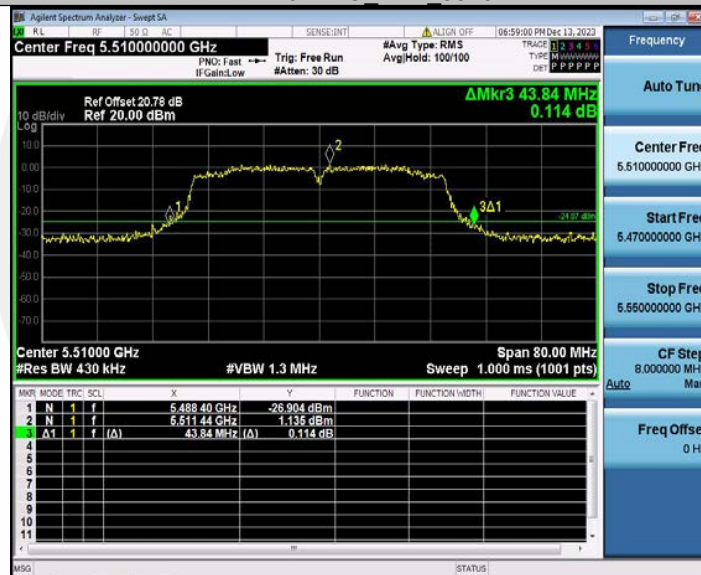
11N40MIMO_Ant2_5310



11N40MIMO_Ant1_5510



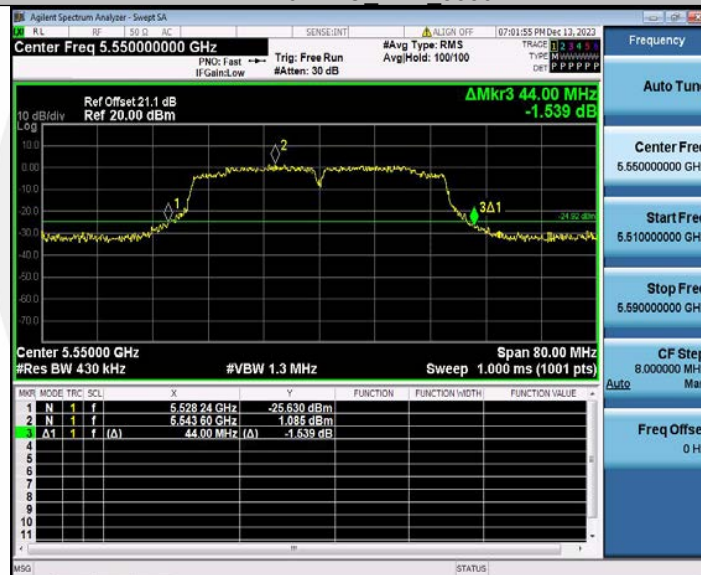
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11N40MIMO_Ant1_5550



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