FCC RF TEST REPORT

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2141-2
FCC ID	:	IHDT56ZP2
Standard	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	15E 6 GHz Low Power Indoor Client (6XD)
TEST DATE(S)	:	Jun. 08, 2021 ~ Aug. 19, 2021

We, Sporton International (ShenZhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (ShenZhen) Inc., the test report shall not be reproduced except in full.

Reviewed by: Derreck Chen / Supervisor

Approved by: Eric Shih / Manager

ACCREDITED Cert #5145.01

Sporton International (ShenZhen) Inc.

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055

People's Republic of China

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History of this test report

Report No.	Version	Description	Issued Date
FR151701-01G	01	Initial issue of report	Jul. 01, 2021
FR151701-01G	02	1. Added Duty Cycle Plots in Appendix D 2. Added the maximum 26dB & 99% OB plots of each bandwidth(Page 16~20) 3. Added Power EIRP and PSD EIRP Directional Gain calculation formula in Appendix A	Aug. 16, 2021
FR151701-01G	03	1. Updated the 26dB & 99% OB plots of 20/40MHz bandwidth(Page 16~18 & Appendix A) 2. Updated the Channel Mask plots of 20/40/160MHz bandwidth (Page 24~75) 3. Amend the description of the antenna requirement section (Page 89).	Aug. 20, 2021

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.403(i) 15.407(a)(10)	26dB Emission Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.407(a)(8)	Maximum Conducted Output Power	Reporting only	-
3.2	15.407(a)(8)	Fundamental Maximum EIRP	Pass	-
3.3	15.407(a)(8)	Fundamental Power Spectral Density	Pass	-
3.4	15.407(b)(6)	In-Band Emissions (Channel Mask)	Pass	-
3.5	15.407(d)(6)	Contention Based Protocol	Pass	-
3.6	15.407(b)	Unwanted Emissions	Pass	Under limit 7.17 dB at 52.310 MHz
3.7	15.207	AC Conducted Emission	Pass	Under limit 18.92 dB at 0.310 MHz
3.8	15.407(c)	Automatically Discontinue Transmission	Pass	-
3.9	15.203	Antenna Requirement	Pass	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2141-2
FCC ID	IHDT56ZP2
EUT supports Radios application	GSM/WCDMA/LTE/5G NR WLAN 2.4GHz 802.11b/g/n HT20 WLAN 2.4GHz 802.11ac/ax VHT20/HE20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160 WLAN 6GHz 802.11a/n HT20/HT40 WLAN 6GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 6GHz 802.11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC and GNSS
IMEI Code	Conducted: 354398490012366 Conduction: 354398490013232 Radiation: 354398490013265
HW Version	DVT2
SW Version	RRM31.43
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	U-NII-5: 5925 MHz ~ 6425 MHz U-NII-6: 6425 MHz ~ 6525 MHz U-NII-7: 6525 MHz ~ 6875 MHz U-NII-8: 6875 MHz ~ 7125 MHz
Maximum Output Power to Antenna	**<5925 MHz ~ 7125 MHz >** 802.11a : 13.35 dBm / 0.0216 W 802.11n HT20 : 13.41 dBm / 0.0219 W 802.11n HT40 : 14.35 dBm / 0.0272 W 802.11ac VHT20: 13.39 dBm / 0.0218 W 802.11ac VHT40: 14.33 dBm / 0.0271 W 802.11ac VHT80: 15.58 dBm / 0.0361 W 802.11ac VHT160: 14.39 dBm / 0.0275 W 802.11ax HE20 : 13.66 dBm / 0.0232 W 802.11ax HE40 : 14.21 dBm / 0.0264 W 802.11ax HE80 : 14.42 dBm / 0.0277 W 802.11ax HE160 : 14.46 dBm / 0.0279 W
99% Occupied Bandwidth	802.11a : 16.63 MHz 802.11n HT20 : 17.58 MHz 802.11n HT40 : 36.06 MHz 802.11ac VHT80: 75.16 MHz 802.11ac VHT160: 153.93 MHz 802.11ax HE20 : 18.93 MHz 802.11ax HE40 : 37.76 MHz 802.11ax HE80 : 76.84 MHz 802.11ax HE160 : 155.84 MHz
Antenna Type / Gain	**<5925 MHz ~ 6425 MHz >** <Ant. 1> : PIFA Antenna with gain -3.20 dBi <Ant. 2> : PIFA Antenna with gain -2.00 dBi **<6425 MHz ~ 6525 MHz >** <Ant. 1> : PIFA Antenna with gain -2.70 dBi <Ant. 2> : PIFA Antenna with gain -3.20 dBi **<6525 MHz ~ 6875 MHz >** <Ant. 1> : PIFA Antenna with gain -3.00 dBi <Ant. 2> : PIFA Antenna with gain -3.40 dBi **<6875 MHz ~ 7125 MHz >** <Ant. 1> : PIFA Antenna with gain -4.70 dBi <Ant. 2> : PIFA Antenna with gain -5.50 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac/ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)
Antenna Function Description	<table><tr><td></td><td>Ant. 1</td><td>Ant. 2</td></tr><tr><td>802.11 a/n/ac/ax MIMO</td><td>V</td><td>V</td></tr></table>

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.
2. For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing have

assessed only 802.11n HT20/ HT40 by referring to their maximum conducted power.

3. The EUT supports for MIMO mode only.
4. Based on E.I.R.P. Power, only the test results of maximum power among all modulations for bandwidth 20MHz/40MHz/80MHz/160MHz is shown in the report for RSE testing.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	CO01-SZ TH01-SZ	CN1256	421272

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH03-SZ	CN1256	421272

1.7 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH03-SZ	AUDIX	E3	6.2009-8-24
2.	CO01-SZ	AUDIX	E3	6.120613b

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 987594 D02 U-NII 6 GHz EMC Measurement v01
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.9 Specification of Accessory

Specification of Accessory				
AC Adapter 1	**Brand Name**	Motorola (Salom)	**Model Name**	MC-301
AC Adapter 2	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-301
Battery	**Brand Name**	Motorola (ATL)	**Model Name**	MB50
USB Cable 1	**Brand Name**	Motorola (Luxshare)	**Model Name**	SC18D13217
USB Cable 2	**Brand Name**	Motorola (Saibao)	**Model Name**	SC18D13215
USB Cable 3	**Brand Name**	Motorola (Cabletech)	**Model Name**	SC18D13216

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

<U-NII-5, 6, 7, 8>

BW 20M	**Channel**	1	5	9	13	17	21	25	29
	Freq. (MHz)	5955	5975	5995	6015	6035	6055	6075	6095
BW 40M	**Channel**	3		11		19		27	
	Freq. (MHz)	5965		6005		6045		6085	
BW 80M	**Channel**	7				23			
	Freq. (MHz)	5985				6065			
BW 160M	**Channel**	15							
	Freq. (MHz)	6025							

BW 20M	**Channel**	33	37	41	45	49	53	57	61
	Freq. (MHz)	6115	6135	6155	6175	6195	6215	6235	6255
BW 40M	**Channel**	35		43		51		59	
	Freq. (MHz)	6125		6165		6205		6245	
BW 80M	**Channel**	39				55			
	Freq. (MHz)	6145				6225			
BW 160M	**Channel**	47							
	Freq. (MHz)	6185							

BW 20M	**Channel**	65	69	73	77	81	85	89	93
	Freq. (MHz)	6275	6295	6315	6335	6355	6375	6395	6415
BW 40M	**Channel**	67		75		83		91	
	Freq. (MHz)	6285		6325		6365		6405	
BW 80M	**Channel**	71				87			
	Freq. (MHz)	6305				6385			
BW 160M	**Channel**	79							
	Freq. (MHz)	6345							

BW 20M	Channel	97	101	105	109	113	117	121	125
	Freq. (MHz)	6435	6455	6475	6495	6515	6535	6555	6575
BW 40M	Channel	99		107		115		123	
	Freq. (MHz)	6445		6485		6525		6565	
BW 80M	Channel	103				119			
	Freq. (MHz)	6465				6545			
BW 160M	Channel	111							
	Freq. (MHz)	6505							

BW 20M	Channel	129	133	137	141	145	149	153	157
	Freq. (MHz)	6595	6615	6635	6655	6675	6695	6715	6735
BW 40M	Channel	131		139		147		155	
	Freq. (MHz)	6605		6645		6685		6725	
BW 80M	Channel	135				151			
	Freq. (MHz)	6625				6705			
BW 160M	Channel	143							
	Freq. (MHz)	6665							

BW 20M	Channel	161	165	169	173	177	181	185	189
	Freq. (MHz)	6755	6775	6795	6815	6835	6855	6875	6895
BW 40M	Channel	163		171		179		187	
	Freq. (MHz)	6765		6805		6845		6885	
BW 80M	Channel	167				183			
	Freq. (MHz)	6785				6865			
BW 160M	Channel	175							
	Freq. (MHz)	6825							

BW 20M	Channel	193	197	201	205	209	213	217	221
	Freq. (MHz)	6915	6935	6955	6975	6995	7015	7035	7055
BW 40M	Channel	195		203		211		219	
	Freq. (MHz)	6925		6965		7005		7045	
BW 80M	Channel	199				215			
	Freq. (MHz)	6945				7025			
BW 160M	Channel	207							
	Freq. (MHz)	6985							

BW 20M	Channel	225	229	233
	Freq. (MHz)	7075	7095	7115
BW 40M	Channel	227		
	Freq. (MHz)	7085		

2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11a	6Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT80	MCS0
802.11ac VHT160	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link(6G) + USB Cable 1(Charging from Adapter 1) + Battery
Remark: For Radiated Test Cases, the tests were performed with Adapter 1, Battery and USB Cable 1.	

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11a/n HT20	802.11a/n HT20	802.11a/n HT20	802.11a/n HT20
L	Low	001	097	117	189
M	Middle	045	105	149	209
H	High	093	113	181	233
Straddle		-	-	-	185

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11n HT40	802.11n HT40	802.11n HT40	802.11n HT40
L	Low	003	099	123	195
M	Middle	043	-	147	203
H	High	091	107	179	227
Straddle		-	115	-	187

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ac VHT20	802.11ac VHT20	802.11ac VHT20	802.11ac VHT20
L	Low	001	097	117	189
M	Middle	045	105	149	209
H	High	093	113	181	233
Straddle		-	-	-	185

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ac VHT40	802.11ac VHT40	802.11ac VHT40	802.11ac VHT40
L	Low	003	099	123	195
M	Middle	043	-	147	203
H	High	091	107	179	227
Straddle		-	115	-	187

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	007	103	135	199
M	Middle	039		151	-
H	High	087		167	215
Straddle		-	119	183	-

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ac VHT160	802.11ac VHT160	802.11ac VHT160	802.11ac VHT160
L	Low	015	-	143	207
M	Middle	047			
H	High	079			
Straddle		-	111	175	-

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ax HE20	802.11ax HE20	802.11ax HE20	802.11ax HE20
L	Low	001	097	117	189
M	Middle	045	105	149	209
H	High	093	113	181	233
Straddle		-	-	-	185

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ax HE40	802.11ax HE40	802.11ax HE40	802.11ax HE40
L	Low	003	099	123	195
M	Middle	043	-	147	203
H	High	091	107	179	227
Straddle		-	115	-	187

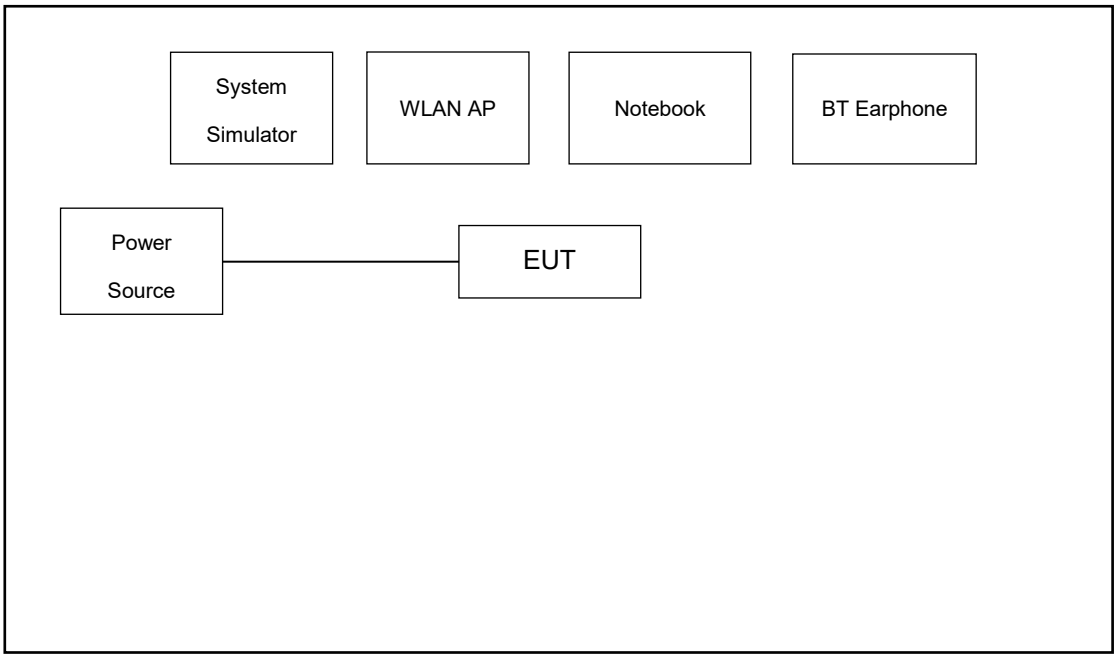
Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ax HE80	802.11ax HE80	802.11ax HE80	802.11ax HE80
L	Low	007	103	135	199
M	Middle	039		151	-
H	High	087		167	215
Straddle		-	119	183	-

Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ax HE160	802.11ax HE160	802.11ax HE160	802.11ax HE160
L	Low	015	-	143	207
M	Middle	047			
H	High	079			
Straddle		-	111	175	-

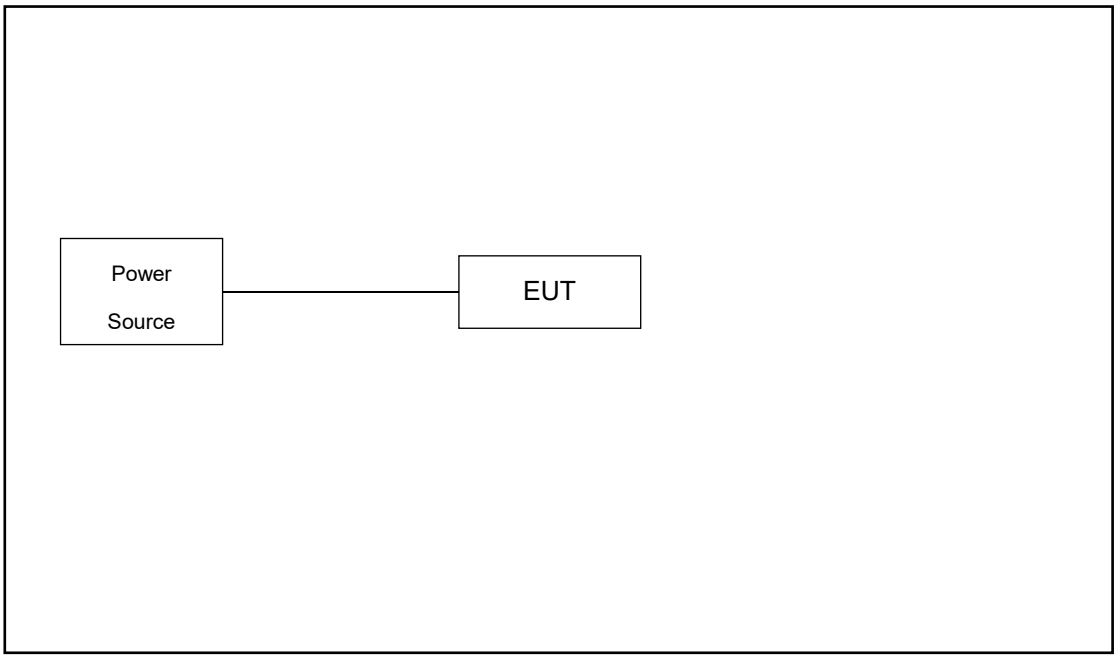
Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

2.3 Connection Diagram of Test System

For Conducted Emission:



For Radiated Emission:



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	Bluetooth Earphone	Samsung	EO-MG900	N/A	N/A	N/A
3.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P Unshielded,1.2m DC O/P : Shielded, 1.8m
4.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5.2 dB and 20dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 5.2 + 20 = 25.2 (dB)

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Limit of 26dB & 99% Occupied Bandwidth

<FCC 14-30 CFR 15.407>

(a)(10) The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak 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%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) ≥ 3 * RBW.
8. Measure and record the results in the test report.

3.1.4 Test Setup

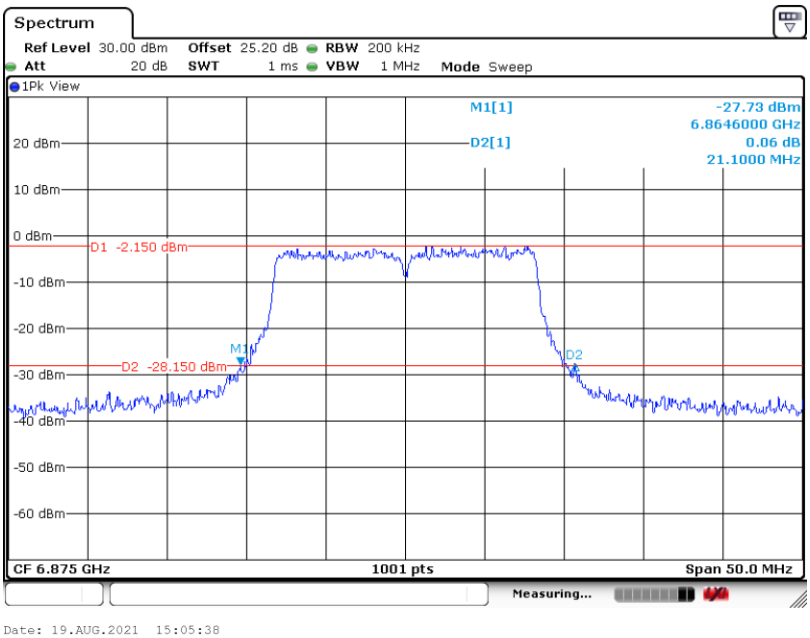
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.

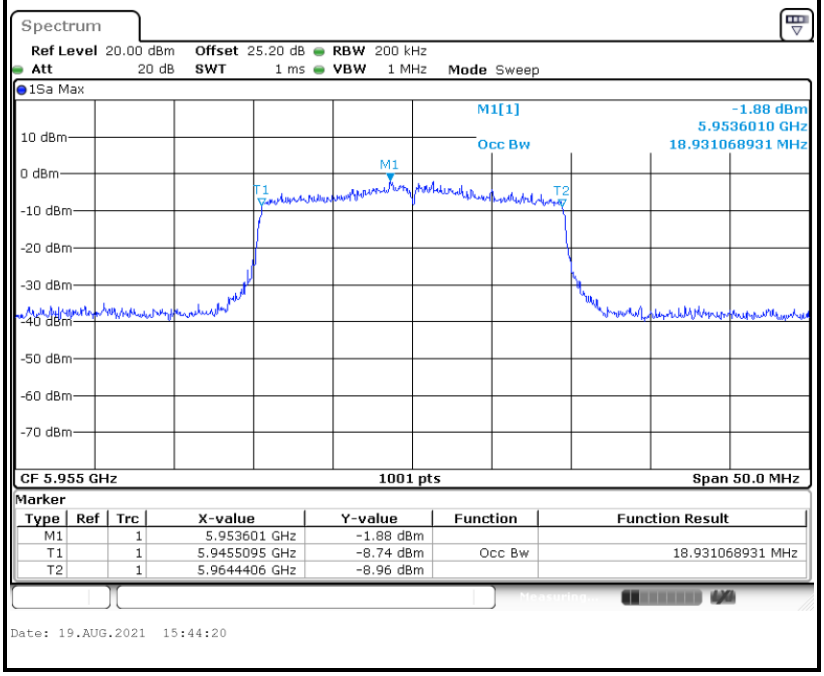
Only the maximum 26dB & 99% OB plots of each bandwidth shown in the report.

For 20MHz:

Maximum 26dB Bandwidth

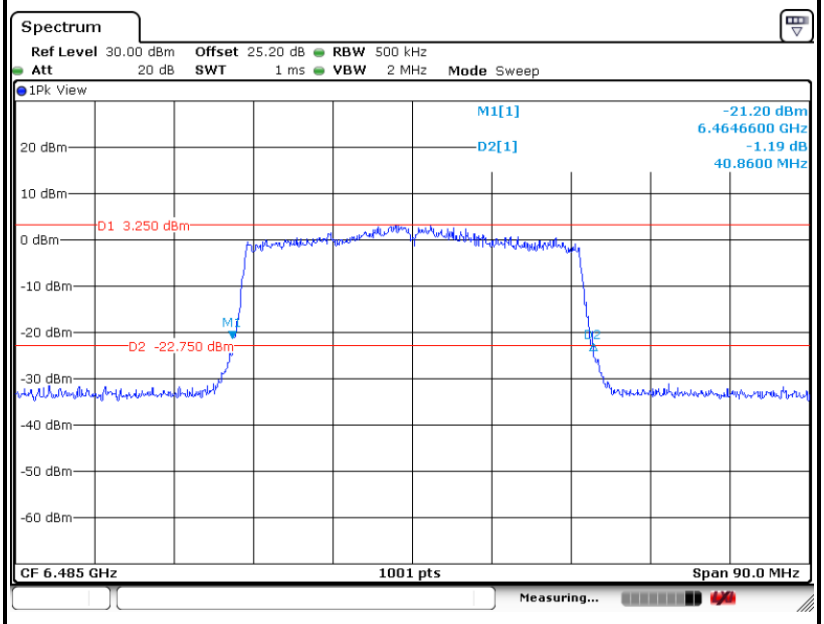


Maximum 99% Occupied Bandwidth

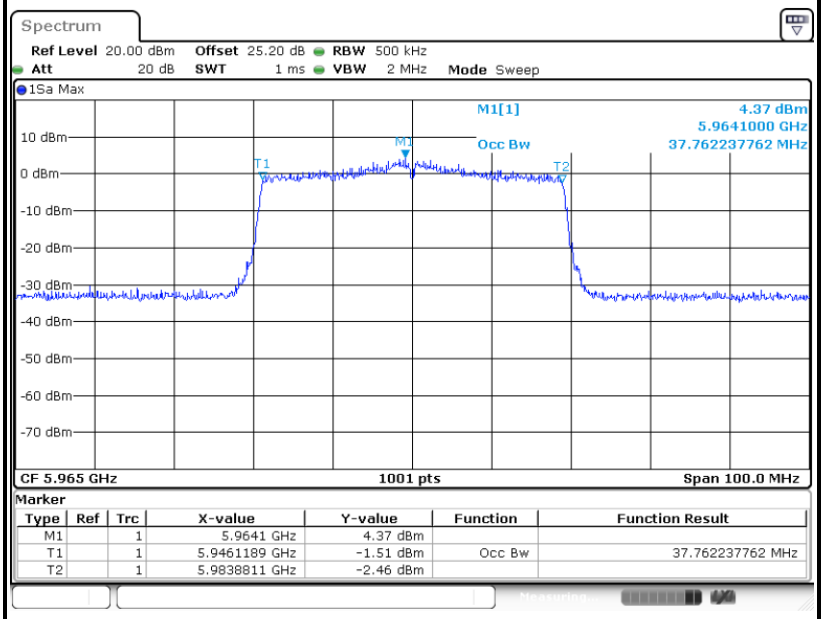


For 40MHz:

Maximum 26dB Bandwidth

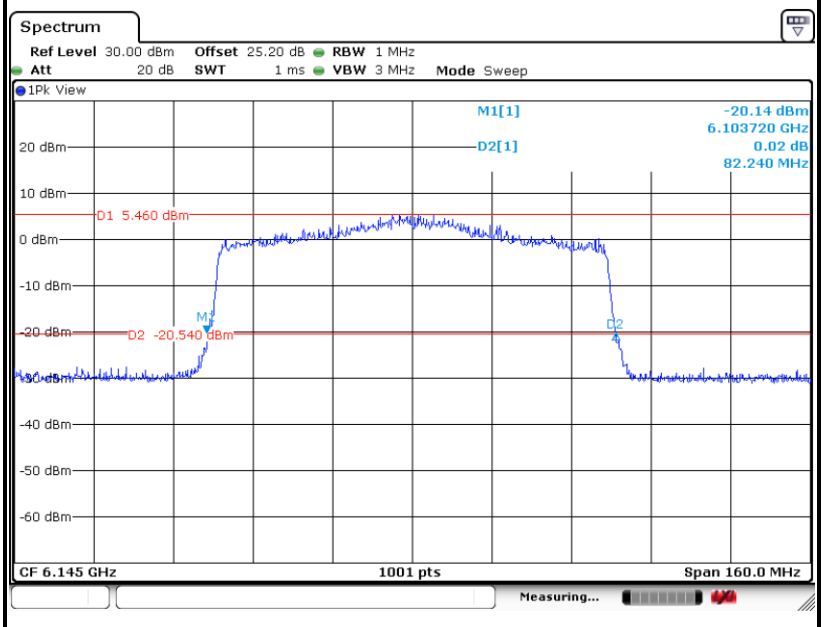


Maximum 99% Occupied Bandwidth

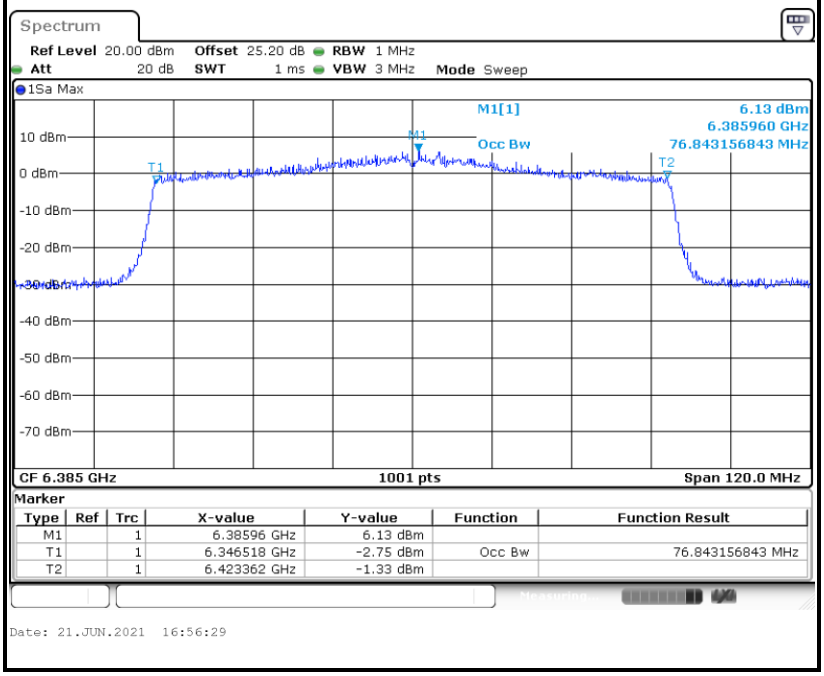


For 80MHz:

Maximum 26dB Bandwidth

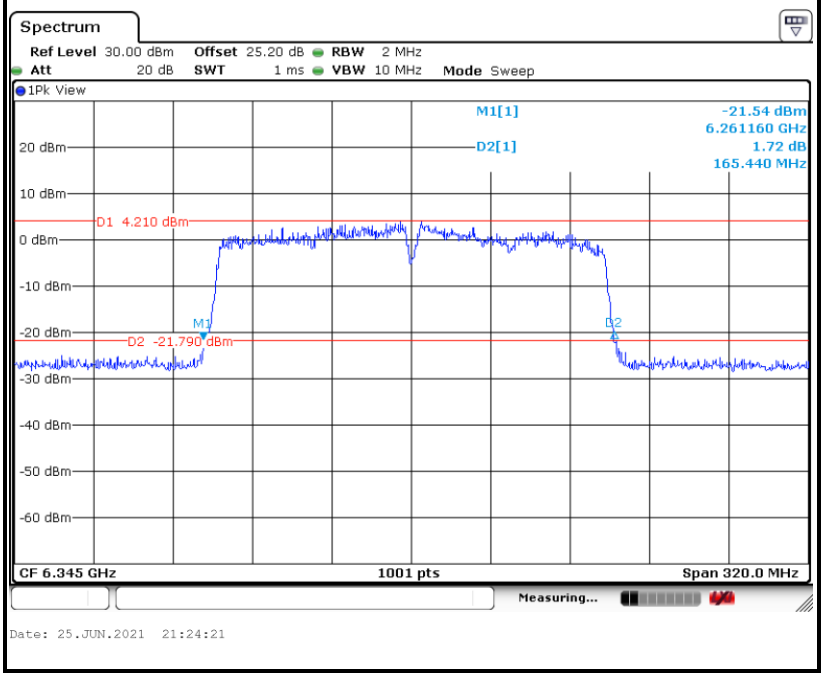


Maximum 99% Occupied Bandwidth

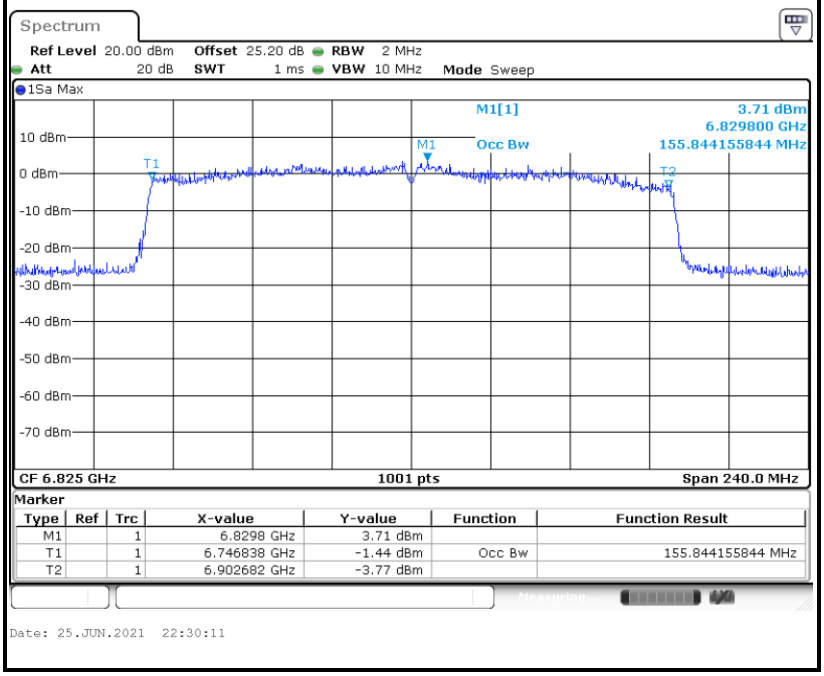


For 160MHz:

Maximum 26dB Bandwidth



Maximum 99% Occupied Bandwidth



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Maximum conducted Output Power and Fundamental Maximum EIRP Measurement

3.2.1 Limit of Fundamental Maximum EIRP

<FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm.

3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

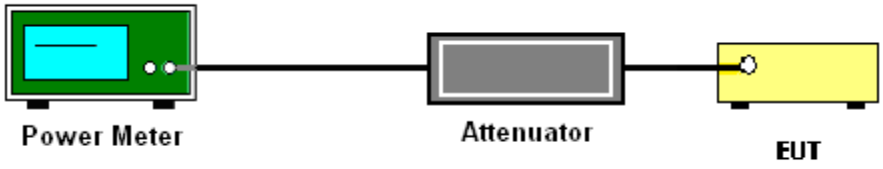
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits, a single measurement over the entire emission bandwidth can be performed to show compliance.

3.2.4 Test Setup



3.2.5 Test Result of Fundamental Maximum EIRP

Please refer to Appendix A.

3.3 Fundamental Power Spectral Density Measurement

3.3.1 Limit of Fundamental Power Spectral Density

<FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum power spectral density must not exceed −1 dBm e.i.r.p. in any 1-megahertz band.

3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Section F) Maximum power spectral density.

 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

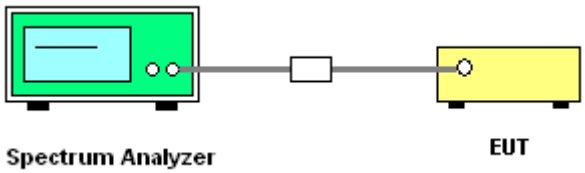
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.

1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

   Method (a): Measure and sum the spectra across the outputs.

   The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

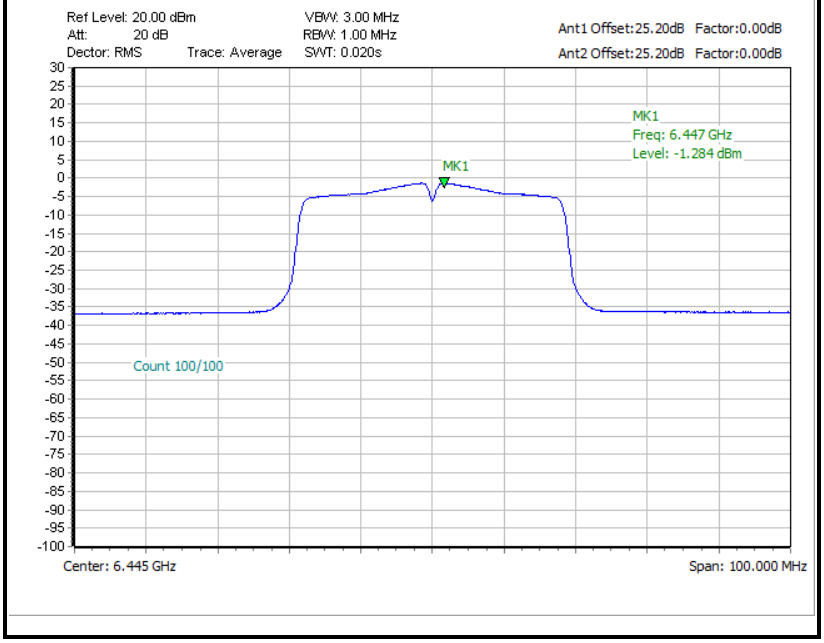
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/MHz)



Note: EIRP Power Density = maximum power spectral density + Gain

3.4 In-Band Emissions (Channel Mask)

3.4.1 Limit of Unwanted Emissions

<FCC 14-30 CFR 15.407>

(b)(6) For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

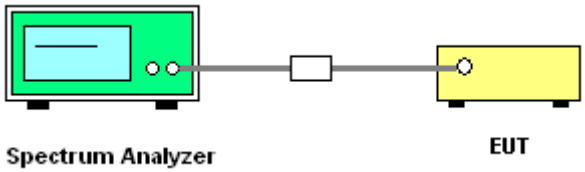
The testing follows FCC KDB 987594 D02 U-NII 6GHz EMC Measurement v01.

Section J) In-Band Emissions.

1. Take nominal bandwidth as reference channel bandwidth provided that 26 dB emission bandwidth is always larger than nominal bandwidth
2. Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:
   a) Set the span to encompass the entire 26 dB EBW of the signal.
   b) Set RBW = same RBW used for 26 dB EBW measurement.
   c) Set VBW ≥ 3 X RBW
   d) Number of points in sweep ≥ [2 X span / RBW].
   e) Sweep time = auto.
   f) Detector = RMS (i.e., power averaging)
   g) Trace average at least 100 traces in power averaging (rms) mode.
   h) Use the peak search function on the instrument to find the peak of the spectrum.

3. Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:
   a. Suppressed by 20 dB at 1 MHz outside of the channel edge.
   b. Suppressed by 28 dB at one channel bandwidth from the channel center.
   c. Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.
4. Adjust the span to encompass the entire mask as necessary.
5. Clear trace.
6. Trace average at least 100 traces in power averaging (rms) mode.
7. Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

3.4.4 Test Setup

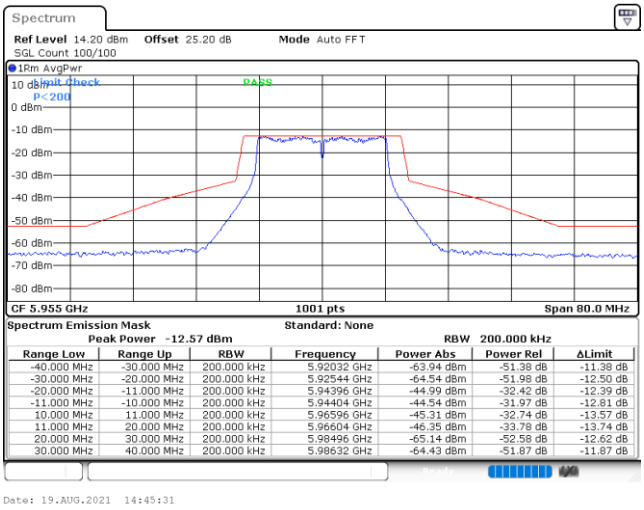


3.4.5 Test Result

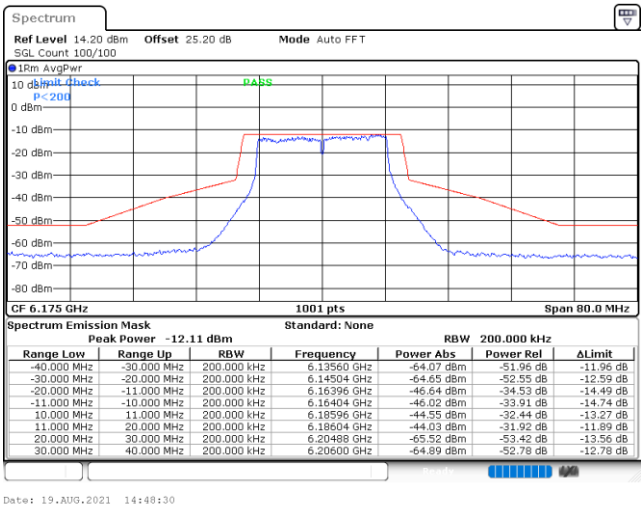
MIMO <Ant. 1+2(1)>

EUT Mode :	802.11a

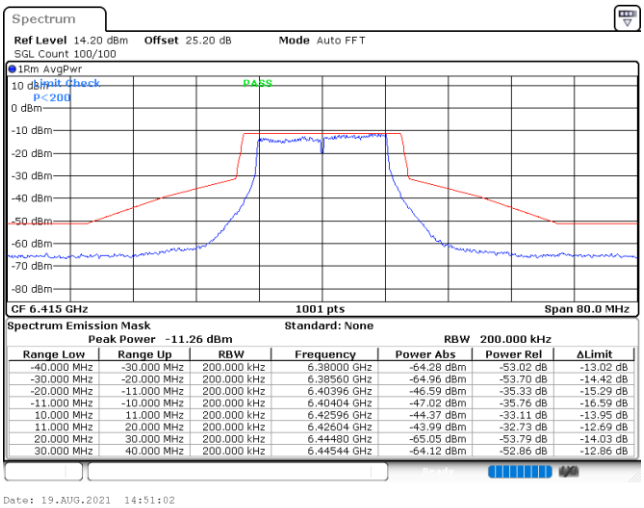
Plot on Channel 5955MHz



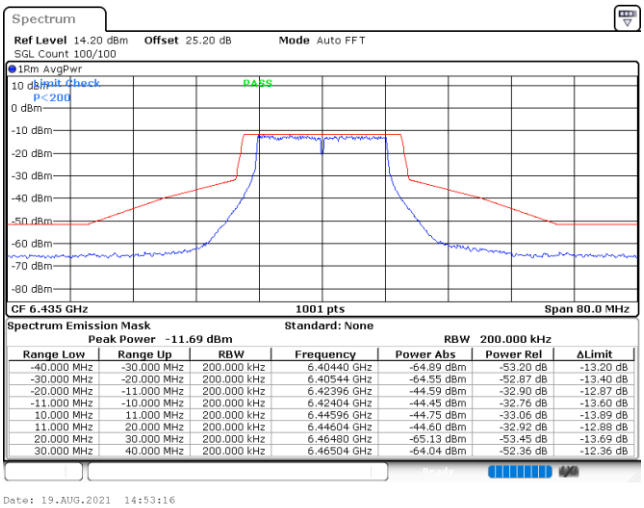
Plot on Channel 6175MHz



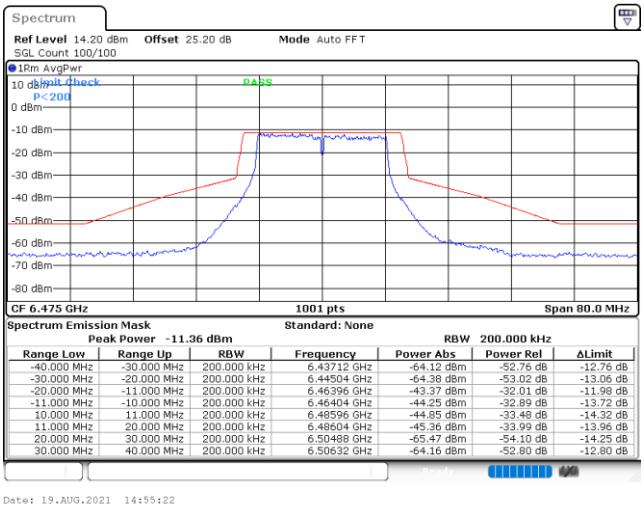
Plot on Channel 6415MHz



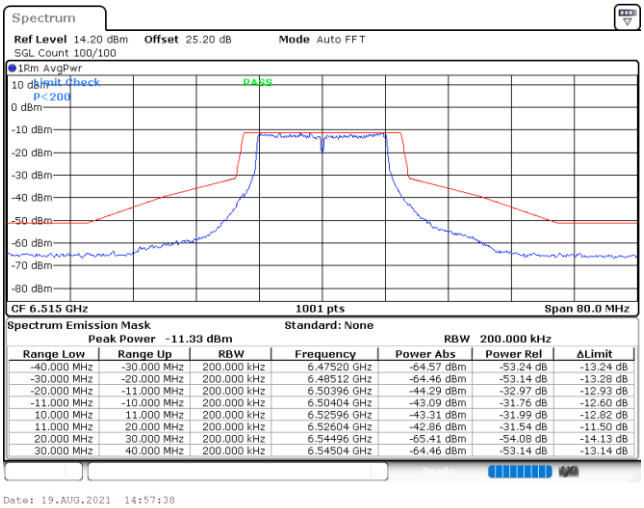
Plot on Channel 6435MHz



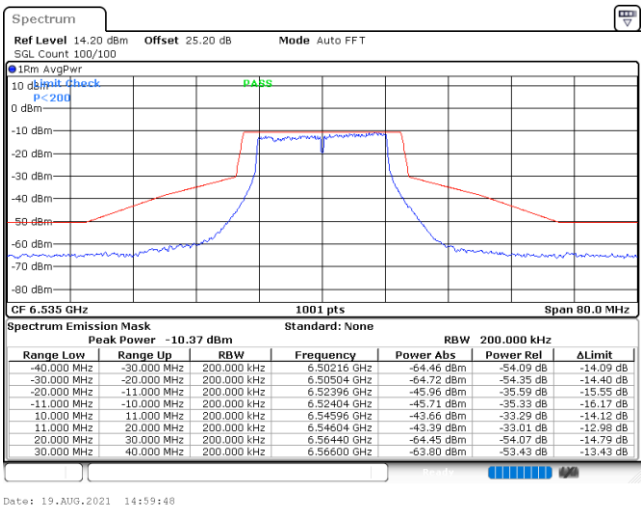
Plot on Channel 6475MHz



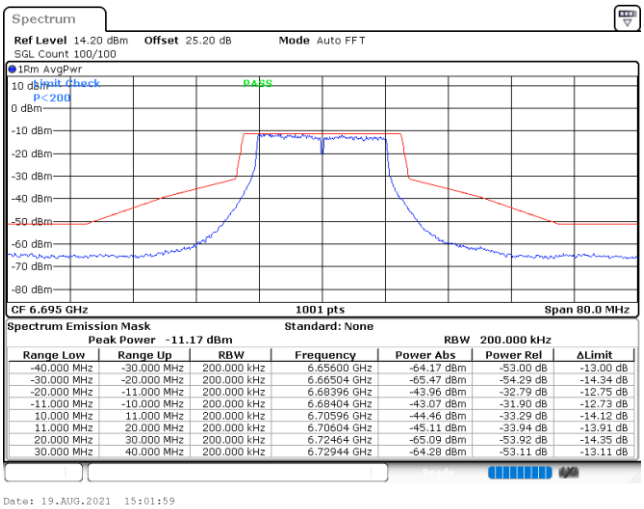
Plot on Channel 6515MHz



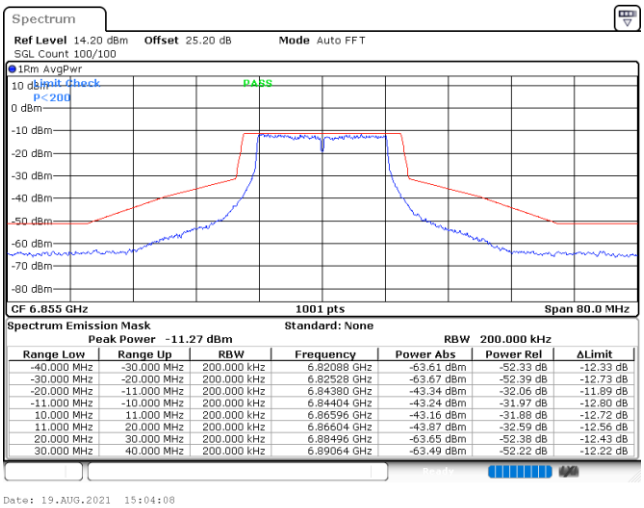
Plot on Channel 6535MHz



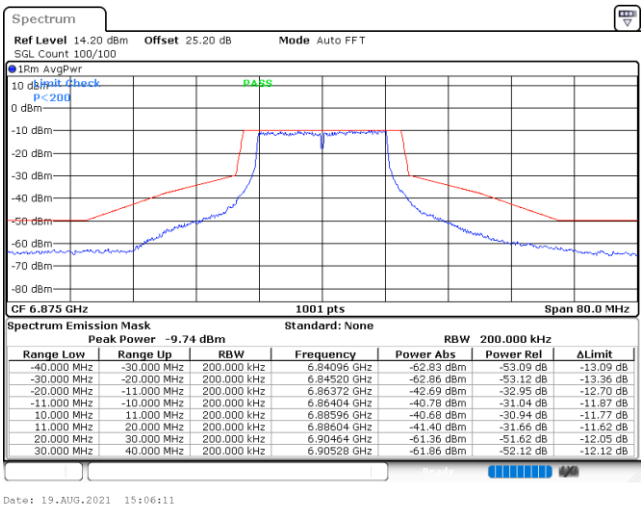
Plot on Channel 6695MHz



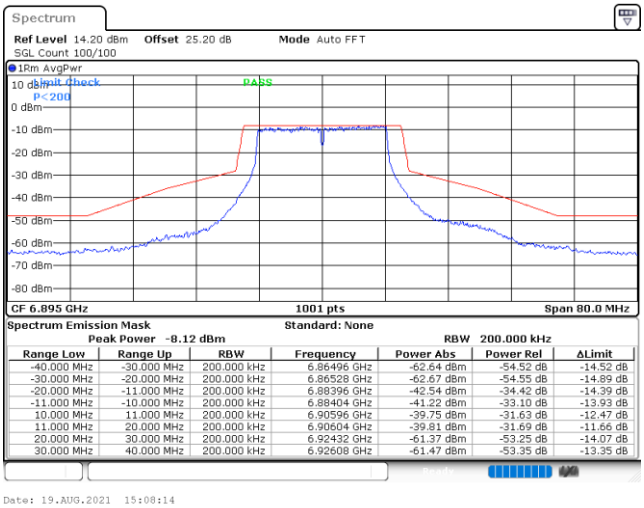
Plot on Channel 6855MHz



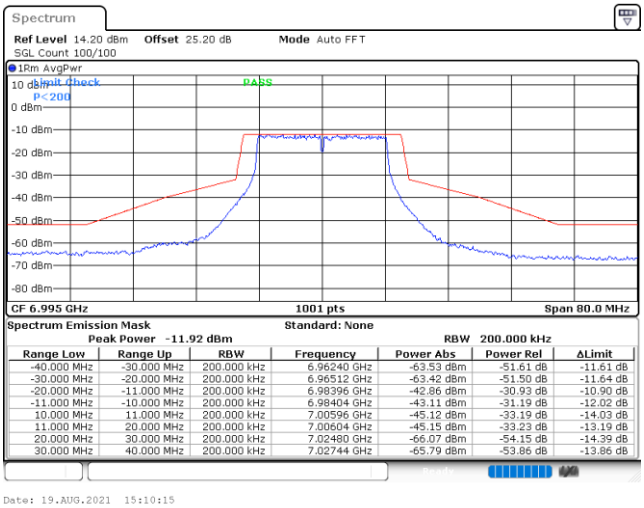
Plot on Channel 6875MHz



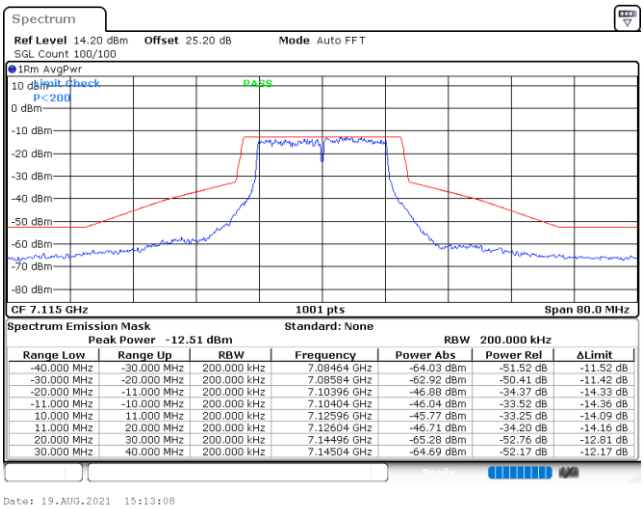
Plot on Channel 6895MHz



Plot on Channel 6995MHz

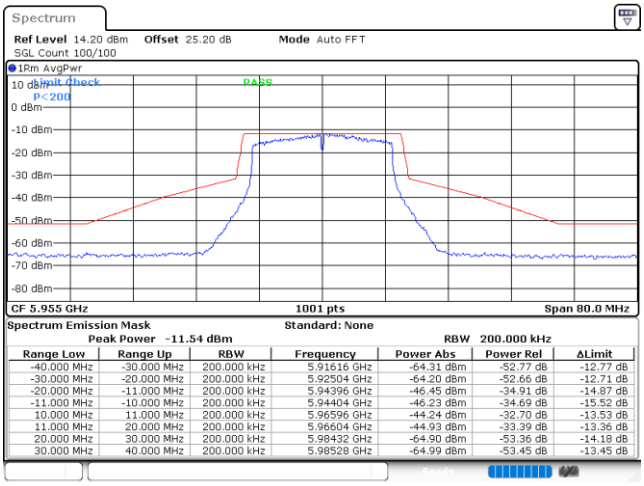


Plot on Channel 7115MHz

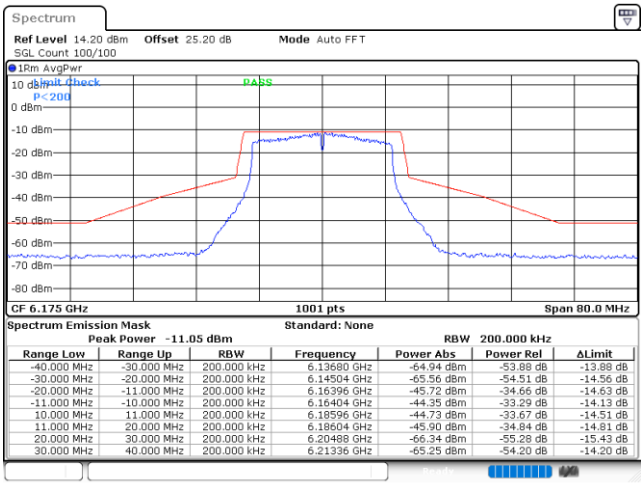


EUT Mode :	802.11n HT20

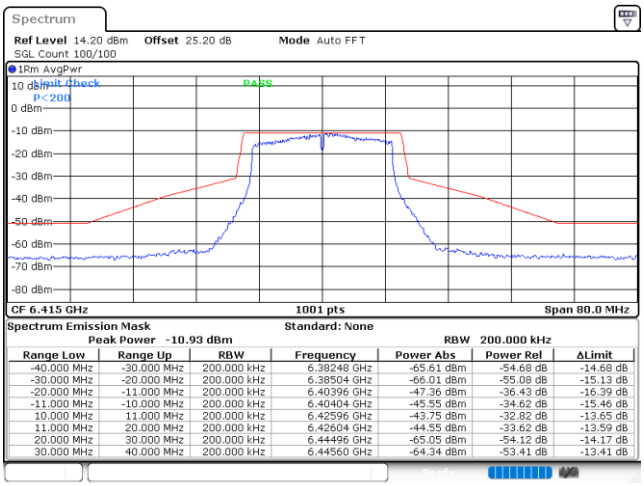
Plot on Channel 5955MHz



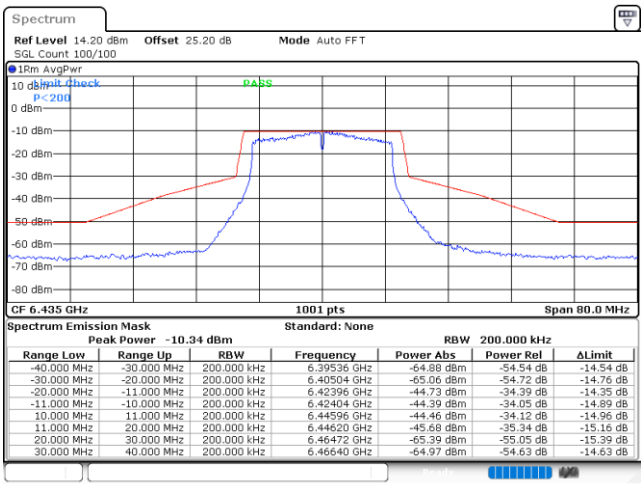
Plot on Channel 6175MHz



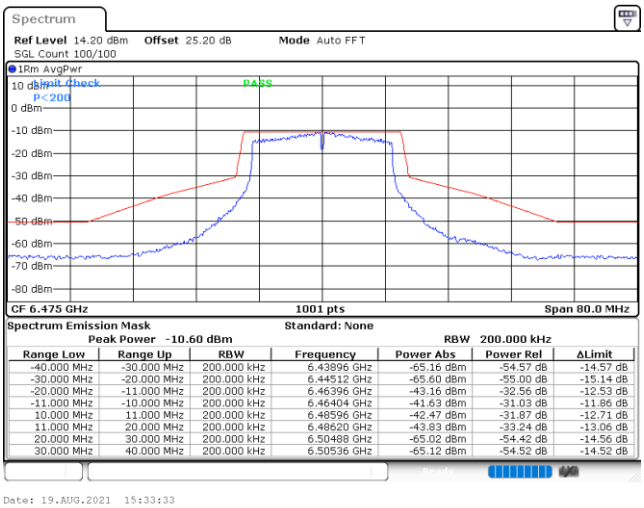
Plot on Channel 6415MHz



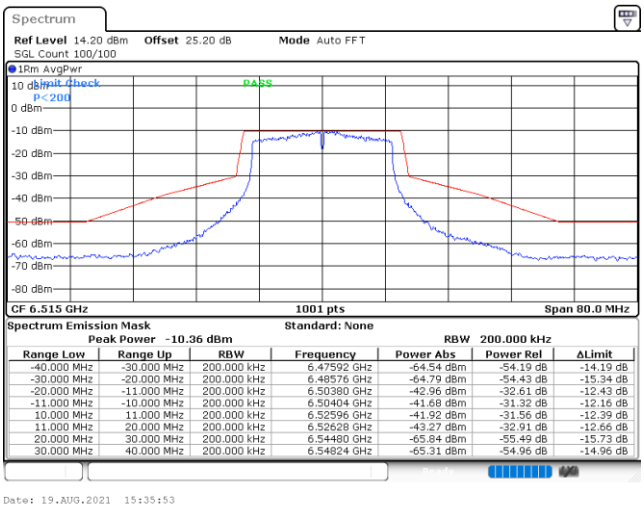
Plot on Channel 6435MHz



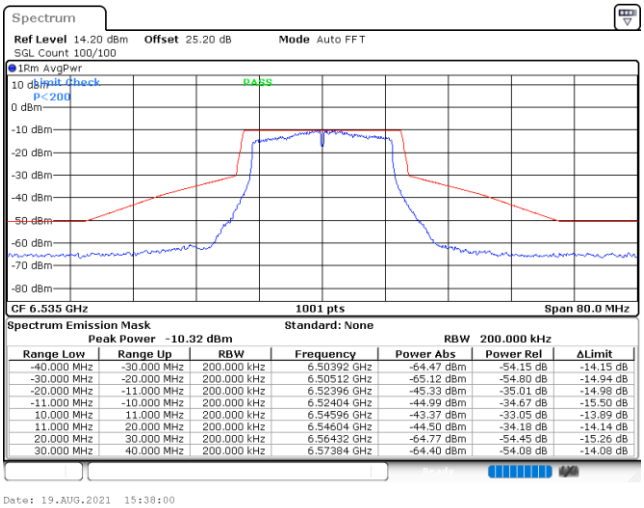
Plot on Channel 6475MHz



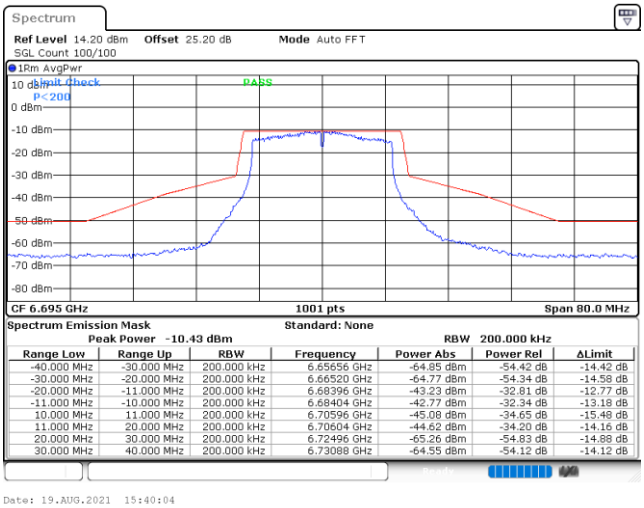
Plot on Channel 6515MHz



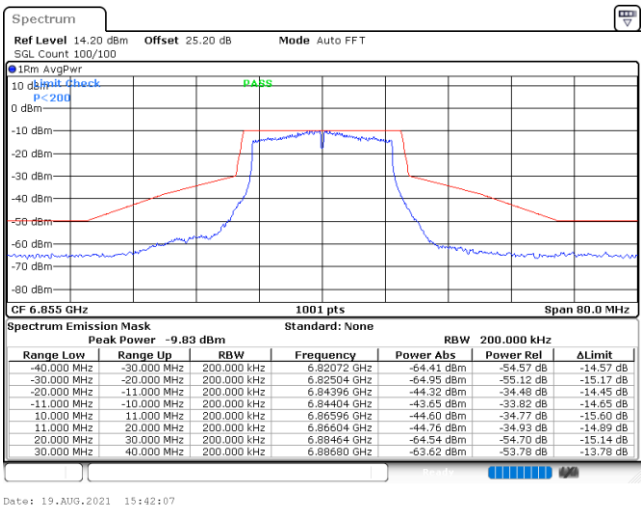
Plot on Channel 6535MHz



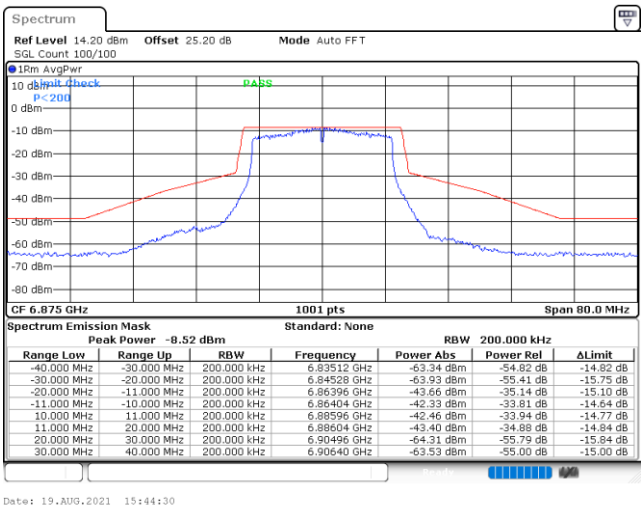
Plot on Channel 6695MHz



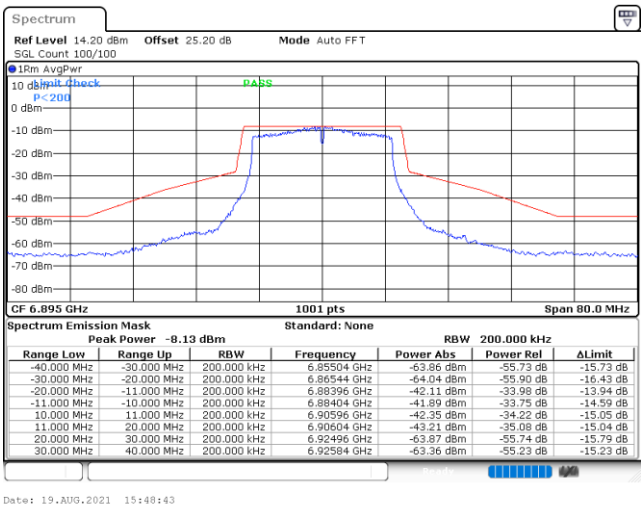
Plot on Channel 6855MHz



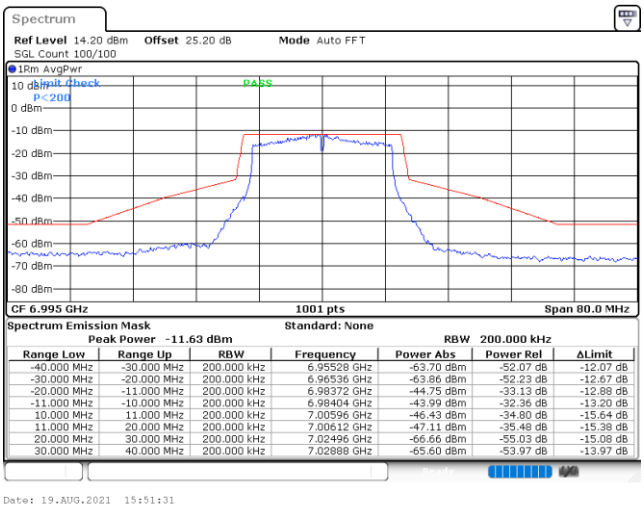
Plot on Channel 6875MHz



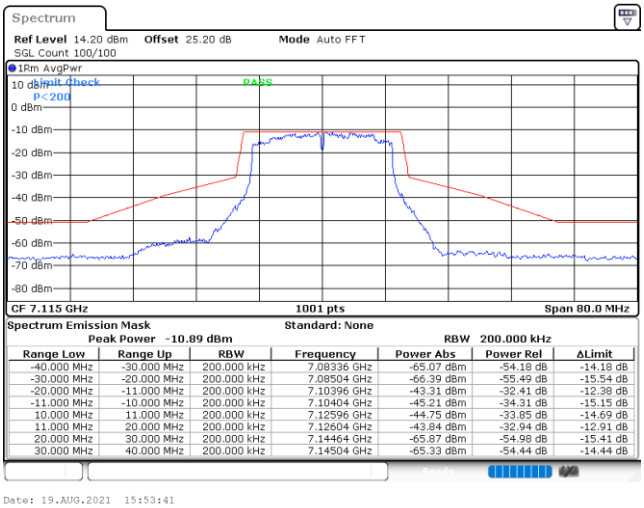
Plot on Channel 6895MHz



Plot on Channel 6995MHz

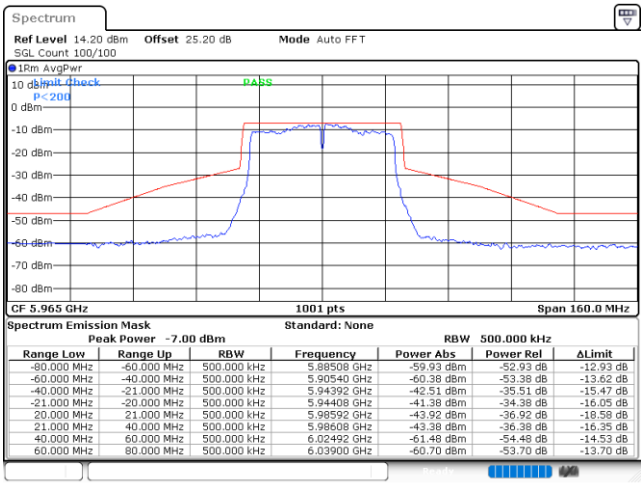


Plot on Channel 7115MHz

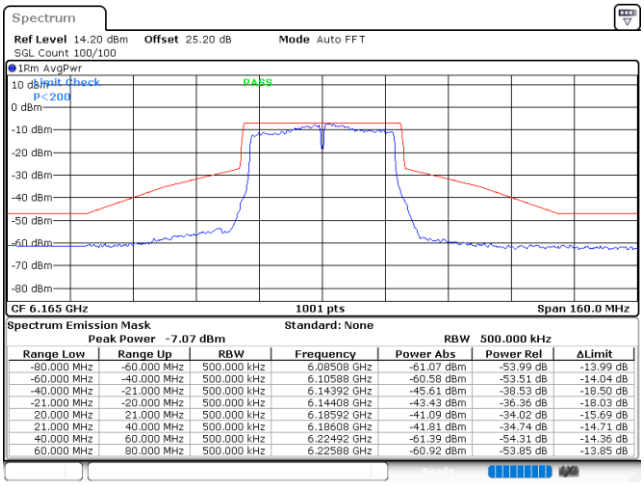


EUT Mode :	802.11n HT40

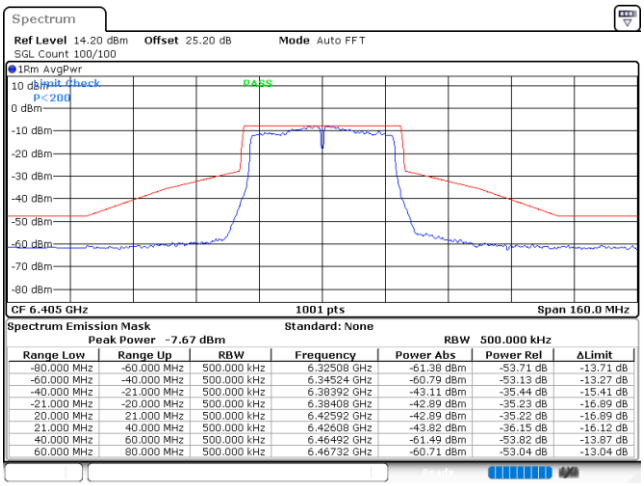
Plot on Channel 5965MHz



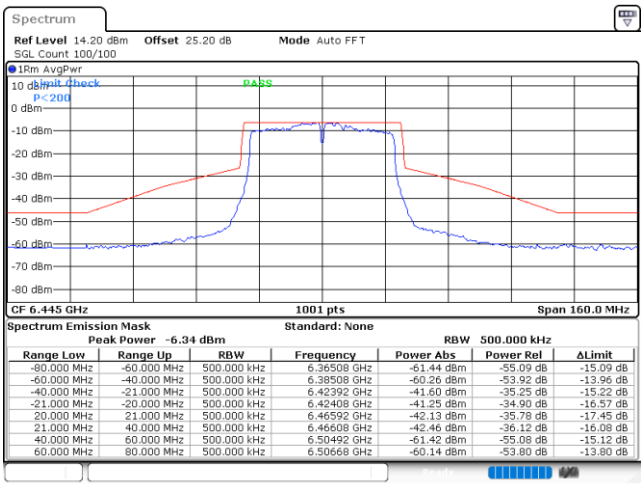
Plot on Channel 6165MHz



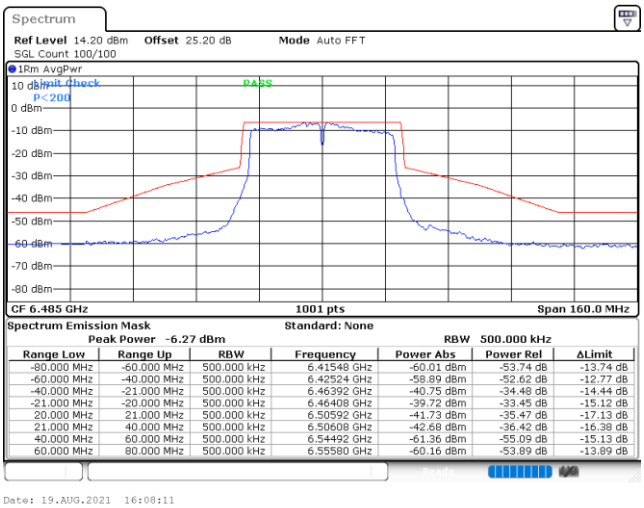
Plot on Channel 6405MHz



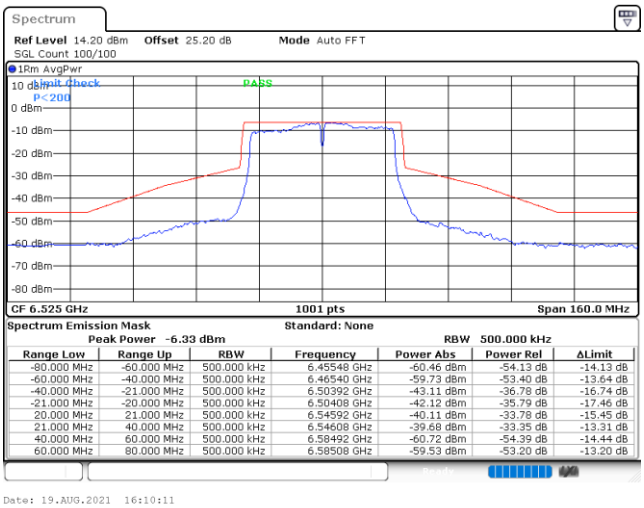
Plot on Channel 6445MHz



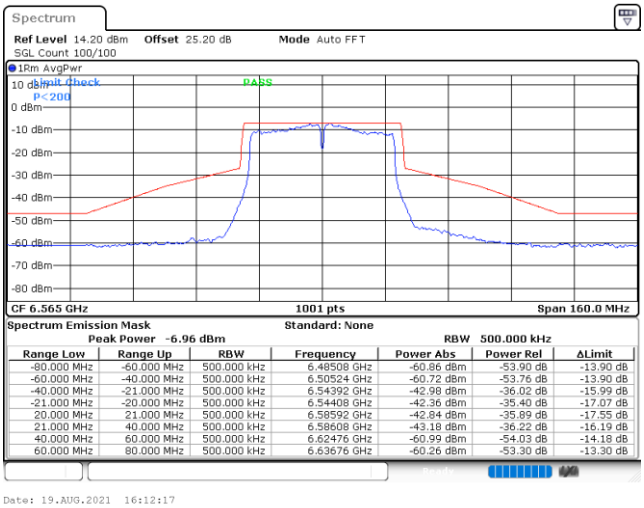
Plot on Channel 6485MHz



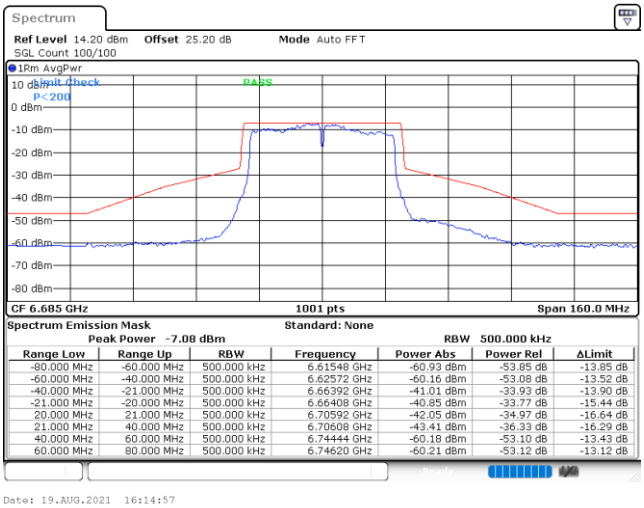
Plot on Channel 6525MHz



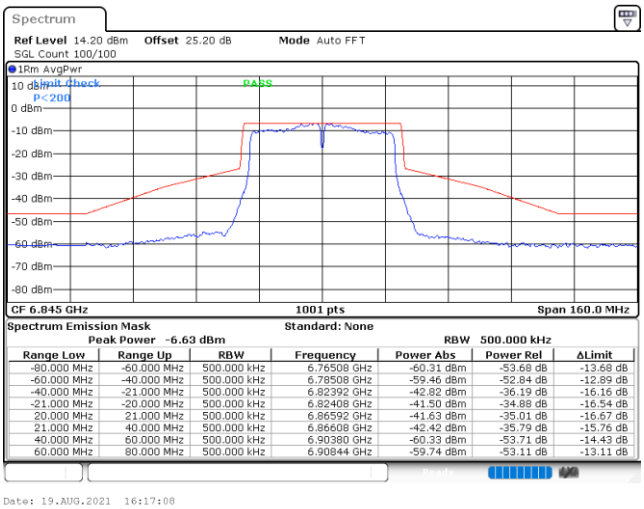
Plot on Channel 6565MHz



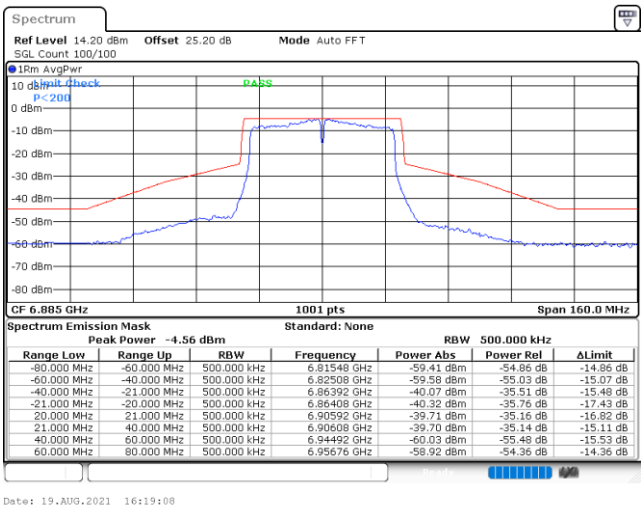
Plot on Channel 6685MHz



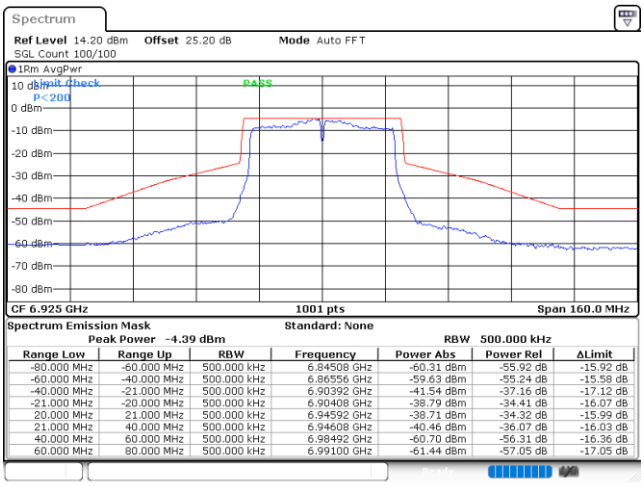
Plot on Channel 6845MHz



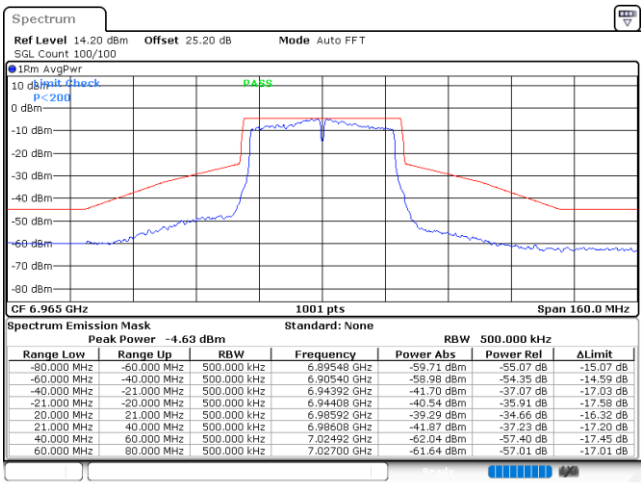
Plot on Channel 6885MHz



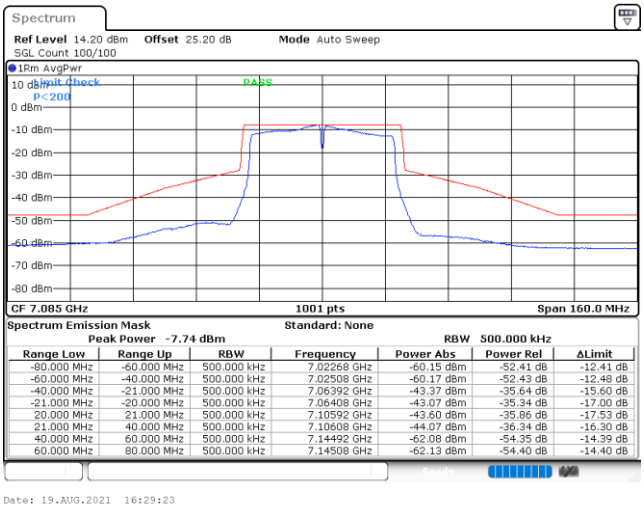
Plot on Channel 6925MHz



Plot on Channel 6965MHz

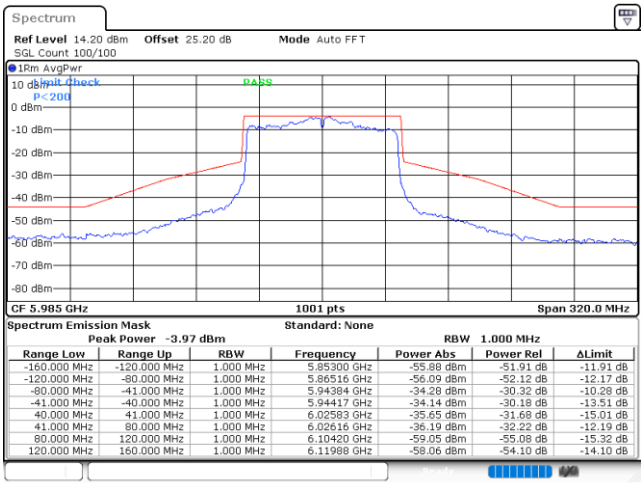


Plot on Channel 7085MHz

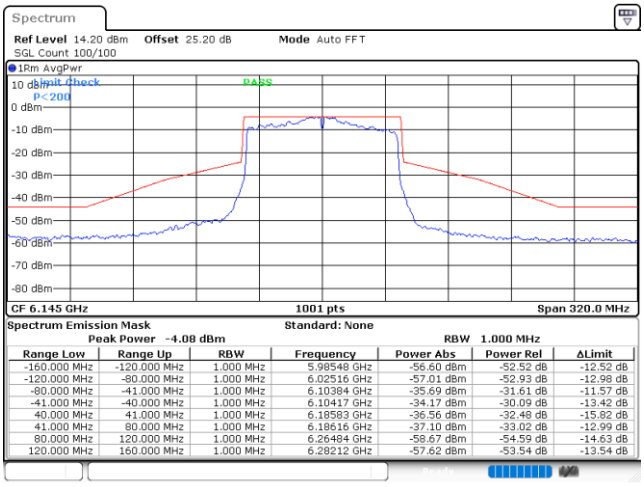


EUT Mode :	802.11ac VHT80

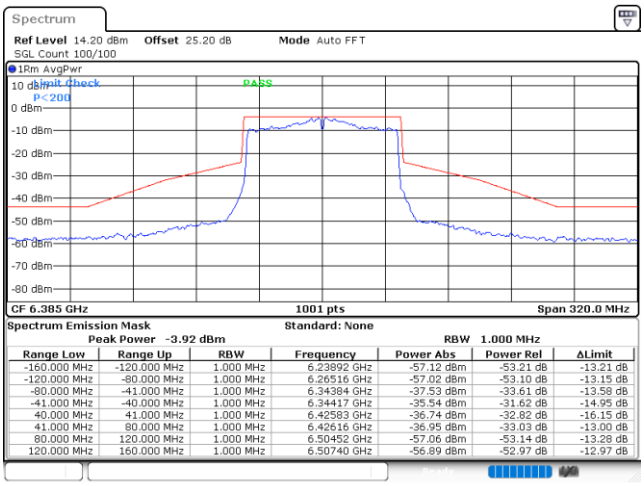
Plot on Channel 5985MHz



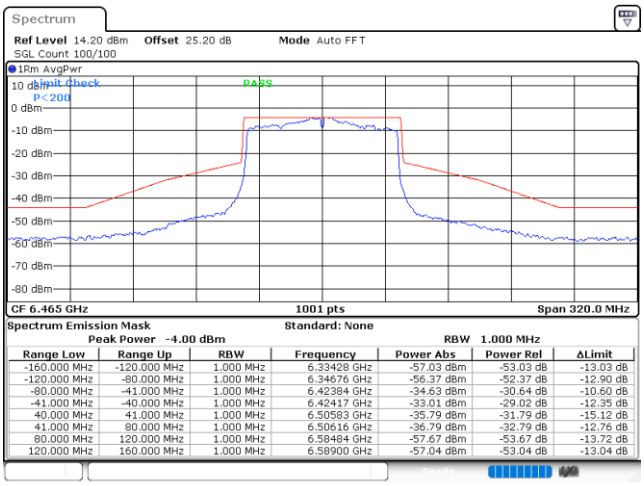
Plot on Channel 6145MHz



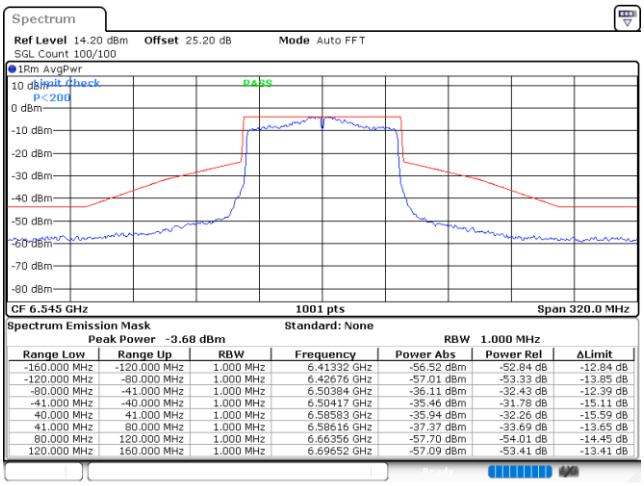
Plot on Channel 6385MHz



Plot on Channel 6465MHz



Plot on Channel 6545MHz



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-160.000 MHz	-120.000 MHz	1.000 MHz	6.41332 GHz	-56.52 dBm	-52.84 dB	-12.84 dB
-120.000 MHz	-80.000 MHz	1.000 MHz	6.42676 GHz	-57.01 dBm	-53.33 dB	-13.85 dB
-80.000 MHz	-41.000 MHz	1.000 MHz	6.50384 GHz	-36.11 dBm	-32.43 dB	-12.39 dB
-41.000 MHz	-40.000 MHz	1.000 MHz	6.50417 GHz	-35.46 dBm	-31.78 dB	-15.11 dB
40.000 MHz	41.000 MHz	1.000 MHz	6.58583 GHz	-35.94 dBm	-32.26 dB	-15.59 dB
41.000 MHz	80.000 MHz	1.000 MHz	6.58616 GHz	-37.37 dBm	-33.69 dB	-13.65 dB
80.000 MHz	120.000 MHz	1.000 MHz	6.66356 GHz	-57.70 dBm	-54.01 dB	-14.45 dB
120.000 MHz	160.000 MHz	1.000 MHz	6.69652 GHz	-57.09 dBm	-53.41 dB	-13.41 dB

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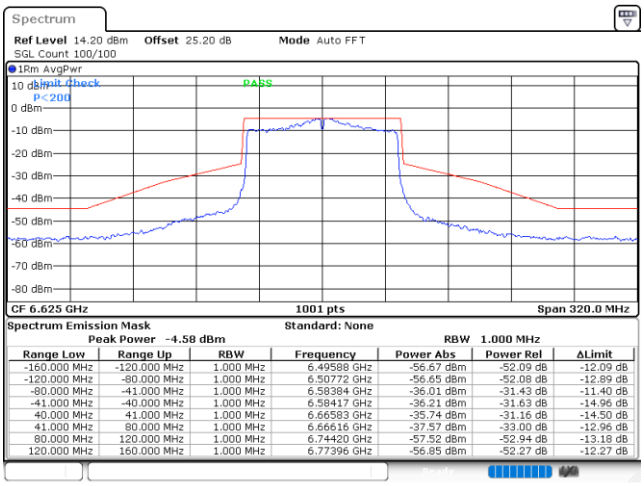
Plot on Channel 6625MHz



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-160.000 MHz	-120.000 MHz	1.000 MHz	6.49588 GHz	-56.67 dBm	-52.09 dB	-12.09 dB
-120.000 MHz	-80.000 MHz	1.000 MHz	6.50772 GHz	-56.65 dBm	-52.08 dB	-12.89 dB
-80.000 MHz	-41.000 MHz	1.000 MHz	6.58384 GHz	-36.01 dBm	-31.43 dB	-11.40 dB
-41.000 MHz	-40.000 MHz	1.000 MHz	6.58417 GHz	-36.21 dBm	-31.63 dB	-14.96 dB
40.000 MHz	41.000 MHz	1.000 MHz	6.66583 GHz	-35.74 dBm	-31.16 dB	-14.50 dB
41.000 MHz	80.000 MHz	1.000 MHz	6.66616 GHz	-37.57 dBm	-33.00 dB	-12.96 dB
80.000 MHz	120.000 MHz	1.000 MHz	6.74420 GHz	-57.52 dBm	-52.94 dB	-13.18 dB
120.000 MHz	160.000 MHz	1.000 MHz	6.77396 GHz	-56.85 dBm	-52.27 dB	-12.27 dB

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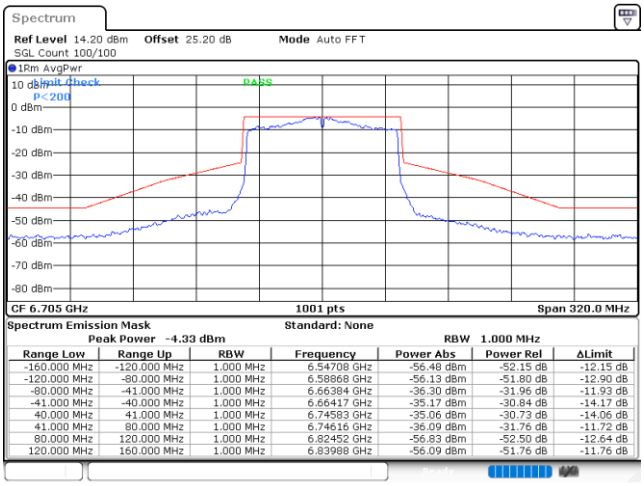
Plot on Channel 6705MHz



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-160.000 MHz	-120.000 MHz	1.000 MHz	6.54708 GHz	-56.48 dBm	-52.15 dB	-12.15 dB
-120.000 MHz	-80.000 MHz	1.000 MHz	6.58868 GHz	-56.13 dBm	-51.80 dB	-12.90 dB
-80.000 MHz	-41.000 MHz	1.000 MHz	6.66384 GHz	-36.30 dBm	-31.96 dB	-11.93 dB
-41.000 MHz	-40.000 MHz	1.000 MHz	6.66417 GHz	-35.17 dBm	-30.84 dB	-14.17 dB
40.000 MHz	41.000 MHz	1.000 MHz	6.74583 GHz	-35.06 dBm	-30.73 dB	-14.06 dB
41.000 MHz	80.000 MHz	1.000 MHz	6.74616 GHz	-36.09 dBm	-31.76 dB	-11.72 dB
80.000 MHz	120.000 MHz	1.000 MHz	6.82452 GHz	-56.83 dBm	-52.50 dB	-12.64 dB
120.000 MHz	160.000 MHz	1.000 MHz	6.83988 GHz	-56.09 dBm	-51.76 dB	-11.76 dB

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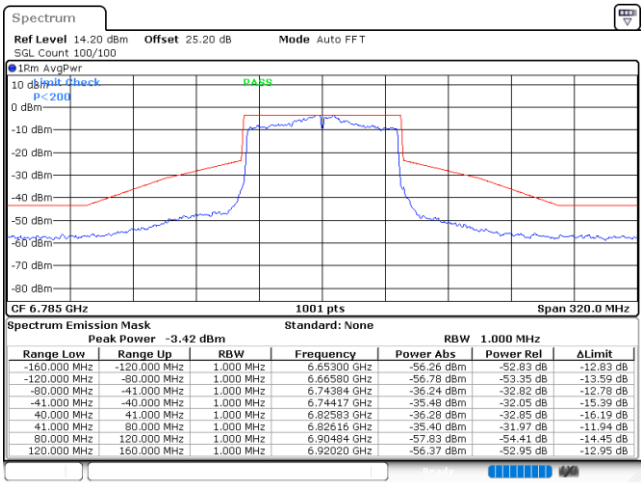
Plot on Channel 6785MHz



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-160.000 MHz	-120.000 MHz	1.000 MHz	6.65300 GHz	-56.26 dBm	-52.83 dB	-12.83 dB
-120.000 MHz	-80.000 MHz	1.000 MHz	6.66580 GHz	-56.78 dBm	-53.35 dB	-13.59 dB
-80.000 MHz	-41.000 MHz	1.000 MHz	6.74384 GHz	-36.24 dBm	-32.82 dB	-12.78 dB
-41.000 MHz	-40.000 MHz	1.000 MHz	6.74417 GHz	-35.48 dBm	-32.05 dB	-15.39 dB
40.000 MHz	41.000 MHz	1.000 MHz	6.82583 GHz	-36.28 dBm	-32.85 dB	-16.19 dB
41.000 MHz	80.000 MHz	1.000 MHz	6.82616 GHz	-35.40 dBm	-31.97 dB	-11.94 dB
80.000 MHz	120.000 MHz	1.000 MHz	6.90484 GHz	-57.83 dBm	-54.41 dB	-14.45 dB
120.000 MHz	160.000 MHz	1.000 MHz	6.92020 GHz	-56.37 dBm	-52.95 dB	-12.95 dB

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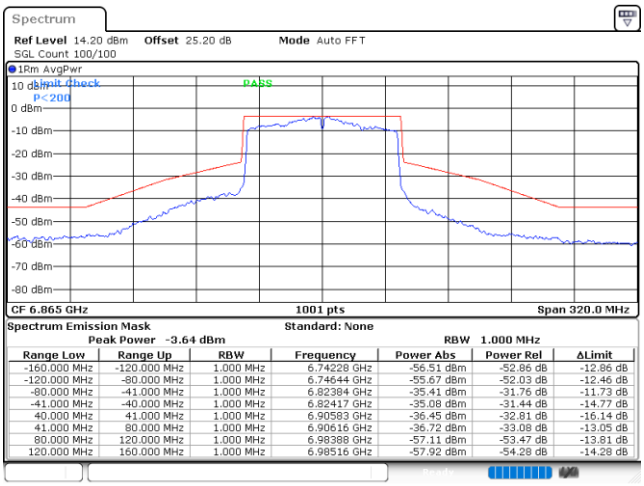
Plot on Channel 6865MHz



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-160.000 MHz	-120.000 MHz	1.000 MHz	6.74228 GHz	-56.51 dBm	-52.86 dB	-12.86 dB
-120.000 MHz	-80.000 MHz	1.000 MHz	6.74644 GHz	-55.67 dBm	-52.03 dB	-12.46 dB
-80.000 MHz	-41.000 MHz	1.000 MHz	6.82384 GHz	-35.41 dBm	-31.76 dB	-11.73 dB
-41.000 MHz	-40.000 MHz	1.000 MHz	6.82417 GHz	-35.08 dBm	-31.44 dB	-14.77 dB
40.000 MHz	41.000 MHz	1.000 MHz	6.90583 GHz	-36.45 dBm	-32.81 dB	-16.14 dB
41.000 MHz	80.000 MHz	1.000 MHz	6.90616 GHz	-36.72 dBm	-33.08 dB	-13.05 dB
80.000 MHz	120.000 MHz	1.000 MHz	6.98388 GHz	-57.11 dBm	-53.47 dB	-13.81 dB
120.000 MHz	160.000 MHz	1.000 MHz	6.98516 GHz	-57.92 dBm	-54.28 dB	-14.28 dB

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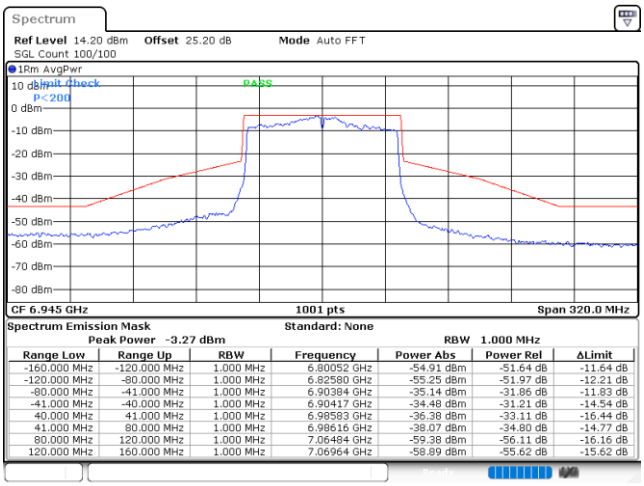
Plot on Channel 6945MHz



Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-160.000 MHz	-120.000 MHz	1.000 MHz	6.80052 GHz	-54.91 dBm	-51.64 dB	-11.64 dB
-120.000 MHz	-80.000 MHz	1.000 MHz	6.82580 GHz	-55.25 dBm	-51.97 dB	-12.21 dB
-80.000 MHz	-41.000 MHz	1.000 MHz	6.90384 GHz	-35.14 dBm	-31.86 dB	-11.83 dB
-41.000 MHz	-40.000 MHz	1.000 MHz	6.90417 GHz	-34.48 dBm	-31.21 dB	-14.54 dB
40.000 MHz	41.000 MHz	1.000 MHz	6.98583 GHz	-36.38 dBm	-33.11 dB	-16.44 dB
41.000 MHz	80.000 MHz	1.000 MHz	6.98616 GHz	-38.07 dBm	-34.80 dB	-14.77 dB
80.000 MHz	120.000 MHz	1.000 MHz	7.06484 GHz	-59.38 dBm	-56.11 dB	-16.16 dB
120.000 MHz	160.000 MHz	1.000 MHz	7.06964 GHz	-58.89 dBm	-55.62 dB	-15.62 dB

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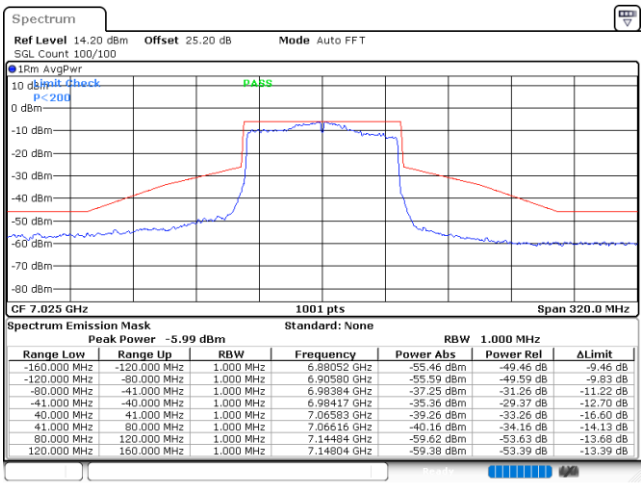
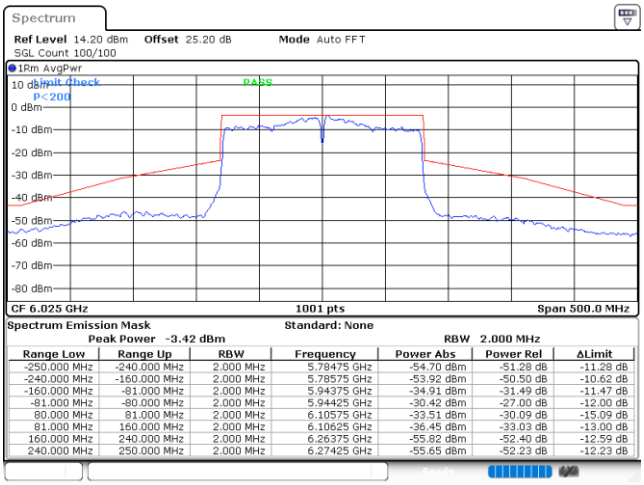
Plot on Channel 7025MHz

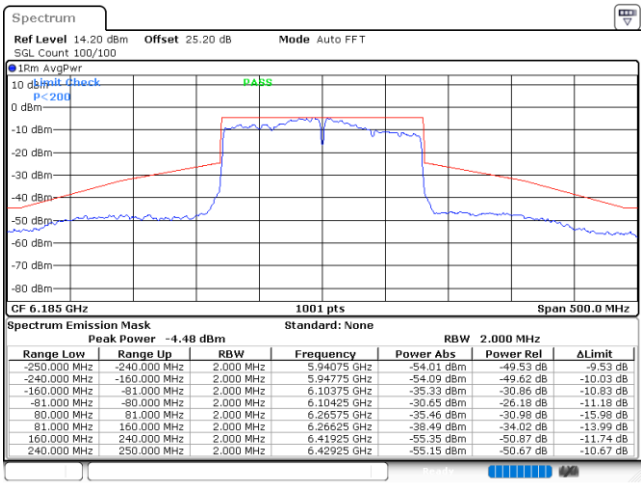


EUT Mode :	802.11ac VHT160

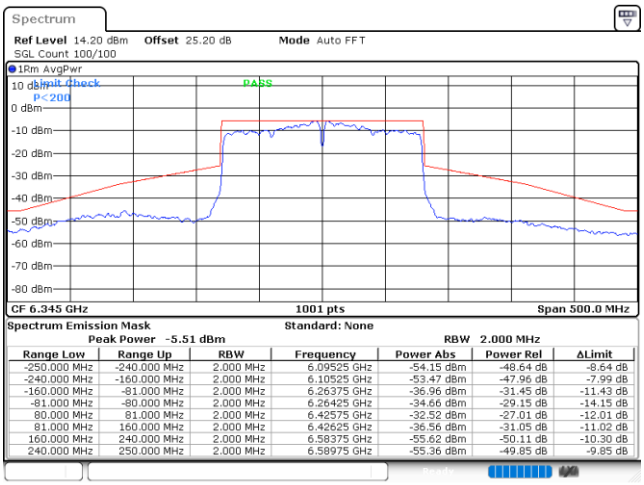
Plot on Channel 6025MHz



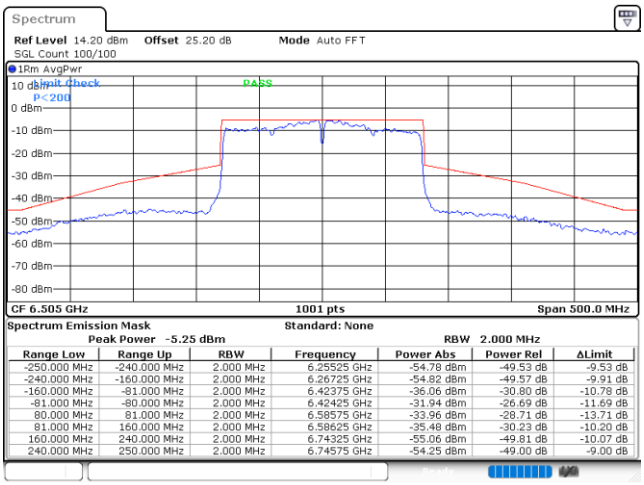
Plot on Channel 6185MHz



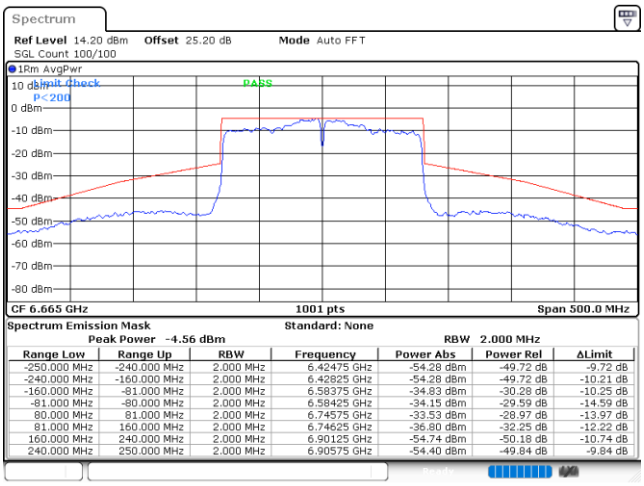
Plot on Channel 6345MHz



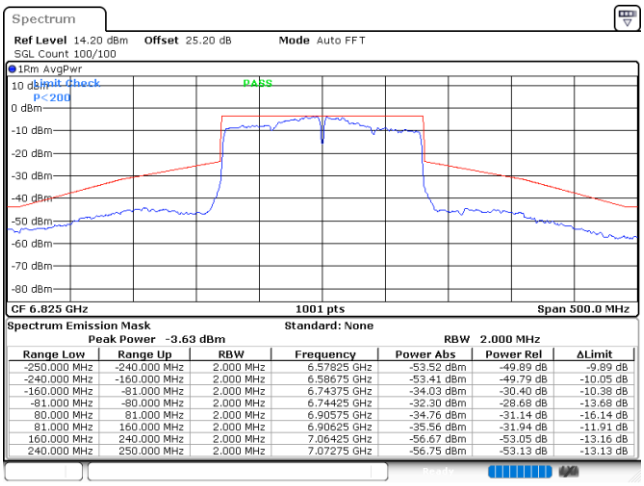
Plot on Channel 6505MHz



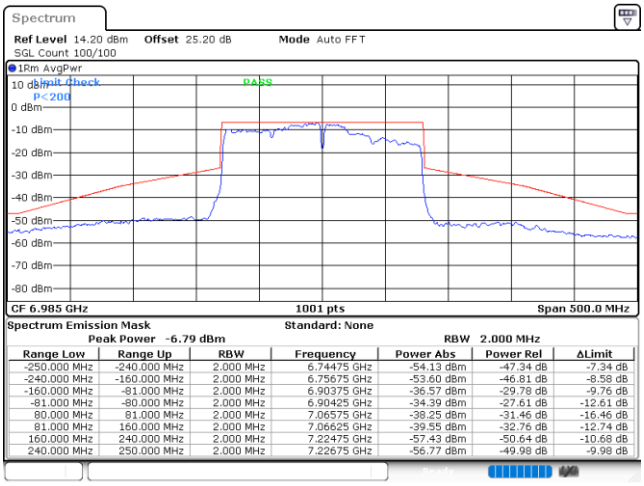
Plot on Channel 6665MHz



Plot on Channel 6825MHz

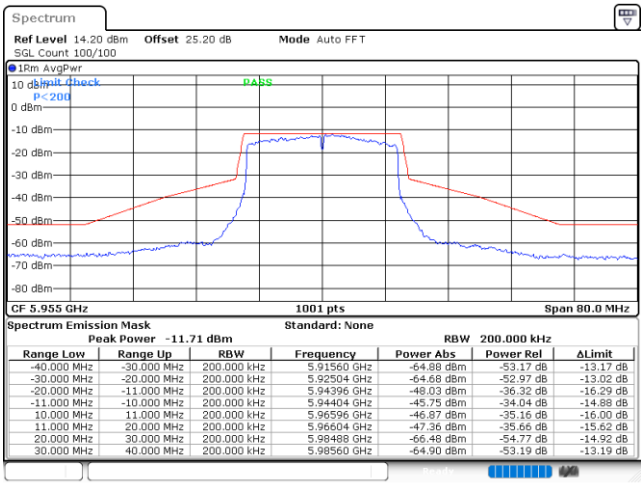


Plot on Channel 6985MHz

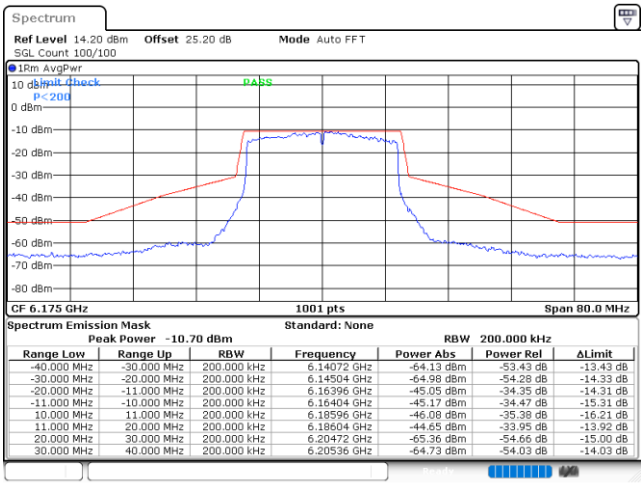


EUT Mode :	802.11ax HE20

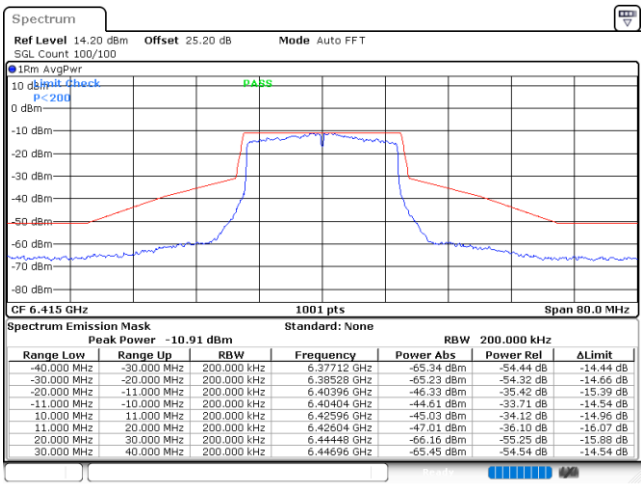
Plot on Channel 5955MHz



Plot on Channel 6175MHz



Plot on Channel 6415MHz



Plot on Channel 6435MHz