



FCC RF TEST REPORT

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2203-1
FCC ID : IHDT56AE6
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : 15E 6 GHz Low Power Indoor Client (6XD)
TEST DATE(S) : Feb. 02, 2022 ~ Feb. 24, 2022

We, Sporton International Inc. (Kunshan), 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 Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager



Sporton International Inc. (Kunshan)

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China**



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History of this test report

Report No.	Version	Description	Issued Date
FR1D2901G	01	Initial issue of report	Mar. 01, 2022
FR1D2901G	02	Added the Channel Mask for Partial RU	Mar. 14, 2022



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 3.09 dB at 5915.880 MHz
3.7	15.207	AC Conducted Emission	Pass	Under limit 7.23 dB at 0.153 MHz
3.8	15.203 15.407(a)	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	XT2203-1
FCC ID	IHDT56AE6
IMEI Code	Conducted: 354596750030032/354596750030040 Conduction: 354596750032137/354596750032145 Radiation: 354596750032137/354596750032145 CBP: 354596750030032/354596750030040
HW Version	DVT2
SW Version	S1RD32.41
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 : 12.44 dBm / 0.0175 W 802.11ax HE20 : 13.86 dBm / 0.0243 W 802.11ax HE40 : 16.08 dBm / 0.0406 W 802.11ax HE80 : 17.92 dBm / 0.0619 W 802.11ax HE160 : 17.61 dBm / 0.0577 W
99% Occupied Bandwidth	802.11a : 16.33 MHz 802.11ax HE20 : 18.78 MHz 802.11ax HE40 : 37.76 MHz 802.11ax HE80 : 77.08 MHz 802.11ax HE160 : 156.32 MHz
Antenna Type / Gain	<5925 MHz ~ 6425 MHz > <Ant. 1> : PIFA Antenna with gain -5.7 dBi <Ant. 2> : PIFA Antenna with gain -5.2 dBi <6425 MHz ~ 6525 MHz > <Ant. 1> : PIFA Antenna with gain -7.1 dBi <Ant. 2> : PIFA Antenna with gain -6.3 dBi <6525 MHz ~ 6875 MHz > <Ant. 1> : PIFA Antenna with gain -6.9 dBi <Ant. 2> : PIFA Antenna with gain -6.1 dBi <6875 MHz ~ 7125 MHz > <Ant. 1> : PIFA Antenna with gain -7.7 dBi <Ant. 2> : PIFA Antenna with gain -6.9 dBi
Type of Modulation	802.11a : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.
2. The device supports for MIMO only.
3. WLAN 6G Ant. 1 / Ant. 2 corresponding to EUT Photo Ant. 6 / Ant. 5.
4. 802.11ax support full RU tone and partial RU tone, both full RU and partial RU-left (for low CH) and partial RU-right (for high CH) are tested for conducted power/PSD in appendix A, all the other test case were performed with full RU with its maximum power/PSD.
5. The EUT does not support channel puncturing mode.
6. 802.11a/ax supports CDD mode.

1.5 Modification of EUT

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



1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-KS 03CH05-KS TH01-KS DFS01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH05-KS	AUDIX	E3	6.2009-8-24al
2.	CO01-KS	AUDIX	E3	6.2009-8-24
3.	DFS01-KS	Sporton	Test Tools	1.0

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(US)	Brand Name	Motorola(Salcomp)	Model Name	MC-331
AC Adapter 1(EU)	Brand Name	Motorola(Salcomp)	Model Name	MC-332
AC Adapter 1(UK)	Brand Name	Motorola(Salcomp)	Model Name	MC-333
AC Adapter 1(IN)	Brand Name	Motorola(Salcomp)	Model Name	MC-334
AC Adapter 1(AU)	Brand Name	Motorola(Salcomp)	Model Name	MC-335
AC Adapter 1(AR)	Brand Name	Motorola(Salcomp)	Model Name	MC-336
AC Adapter 1(BR)	Brand Name	Motorola(Salcomp)	Model Name	MC-337
AC Adapter 1(CHILE)	Brand Name	Motorola(Salcomp)	Model Name	MC-339
AC Adapter 2(US)	Brand Name	Motorola(Acbel)	Model Name	MC-331
AC Adapter 2(EU)	Brand Name	Motorola(Acbel)	Model Name	MC-332
AC Adapter 2(UK)	Brand Name	Motorola(Acbel)	Model Name	MC-333
AC Adapter 3(US)	Brand Name	Motorola(AOHAI)	Model Name	MC-331
AC Adapter 3(EU)	Brand Name	Motorola(AOHAI)	Model Name	MC-332
AC Adapter 3(UK)	Brand Name	Motorola(AOHAI)	Model Name	MC-333
Battery 1	Brand Name	Motorola(ATL)	Model Name	ND40
Battery 2	Brand Name	Motorola(SCUD)	Model Name	ND40
Earphone	Brand Name	Motorola(Lyand)	Model Name	MI181C
USB Cable 1	Brand Name	Motorola(Saibao)	Model Name	SC18D22297
USB Cable 2	Brand Name	Motorola(Cabletech)	Model Name	SC18D22298
USB Cable 3	Brand Name	Motorola(Luxshare)	Model Name	SC18D22299



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 (Y 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		-			
	Freq. (MHz)	7075		7095		-			
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	6 Mbps
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

Co-location Modes:
LTE B13 Link + WLAN 6GHz 802.11ax HE160 CH15 Tx + BLE (2Mbps) CH39 Tx

Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link(6G) + USB Cable 1(Charging from Adapter 1)
Remark:	
<ol style="list-style-type: none"> For Radiated Test Cases, the tests were performed with Adapter 1 and USB Cable 1. All test modes of the Radiated Spurious Emission (RSE) were tested; only the test worse data were reported, test mode as below, <ol style="list-style-type: none"> 802.11ax HE20 full RU ch229_7095MHz and Partial RU ch229_106/54_7095MHz 802.11ax HE40 full RU ch227_7085MHz and Partial RU ch227_242/62_7085MHz 802.11ax HE80 full RU ch07_5985MHz and Partial RU ch07_484/65_5985MHz 802.11ax HE160 full RU ch15_6025MHz and Partial RU ch15_996/67_6025MHz 	

Ch. #		5925-7125 MHz	5925-7125 MHz	5925-7125 MHz	5925-7125 MHz
		UNII-5	UNII-6	UNII-7	UNII-8
		802.11a	802.11a	802.11a	802.11a
L	Low	001	097	117	189
M	Middle	045	105	149	209
H	High	093	113	181	229
Straddle		-	-	185	-

Ch. #		5925-7125 MHz	5925-7125 MHz	5925-7125 MHz	5925-7125 MHz
		UNII-5	UNII-6	UNII-7	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	229
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

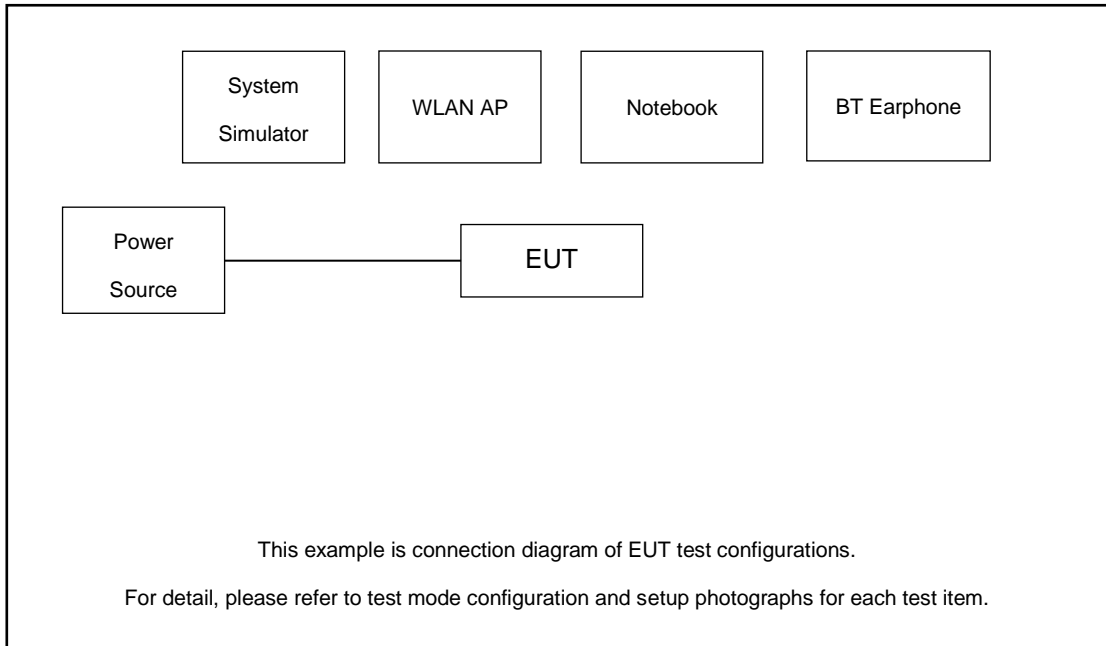
Ch. #		5925-7125 MHz UNII-5	5925-7125 MHz UNII-6	5925-7125 MHz UNII-7	5925-7125 MHz UNII-8
		802.11ax HE80	802.11ax HE80	802.11ax HE80	802.11ax HE80
L	Low	007	103	135	199
M	Middle	039		151	-
H	High	087		167	215
Straddle		-	119	183	-

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	-

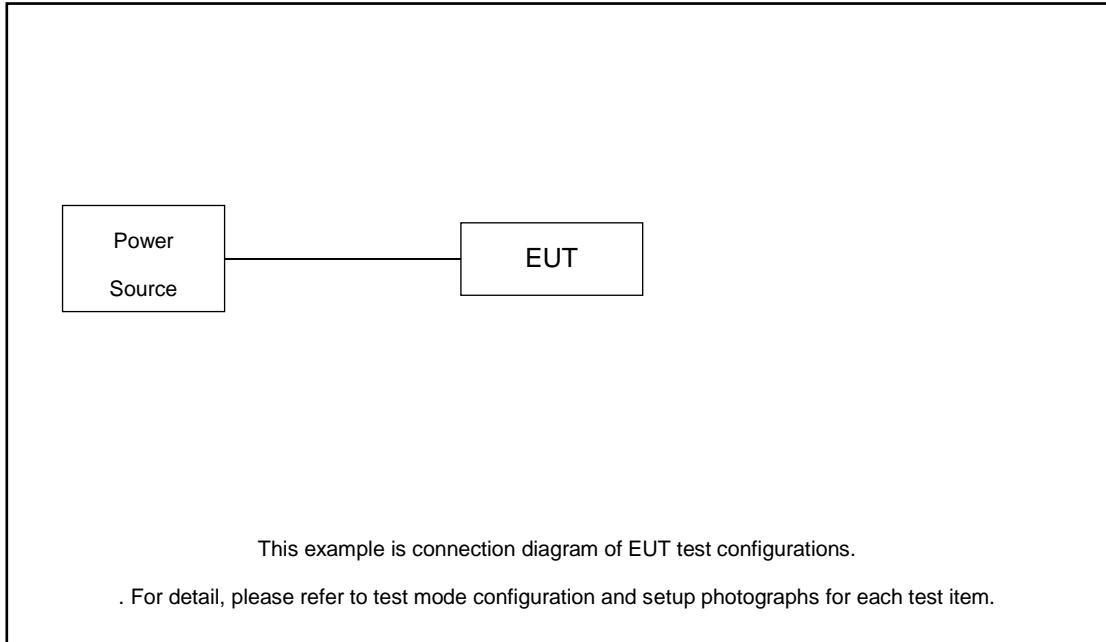
Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

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	MT8821C	N/A	N/A	Unshielded,1.8m
2.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
3.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
4.	WLAN AP	D-link	DIR-655	KA21R655B1	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.

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 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.

$$\text{Offset} = \text{RF cable loss.}$$

Following shows an offset computation example with cable loss 8.0 dB.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 8.0 \text{ (dB)} \end{aligned}$$

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.

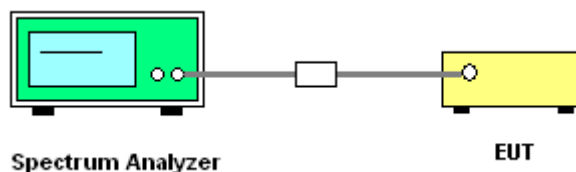
3.1.2 Measuring Instruments

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) $\geq 3 * RBW$.
8. Measure and record the results in the test report.

3.1.4 Test Setup



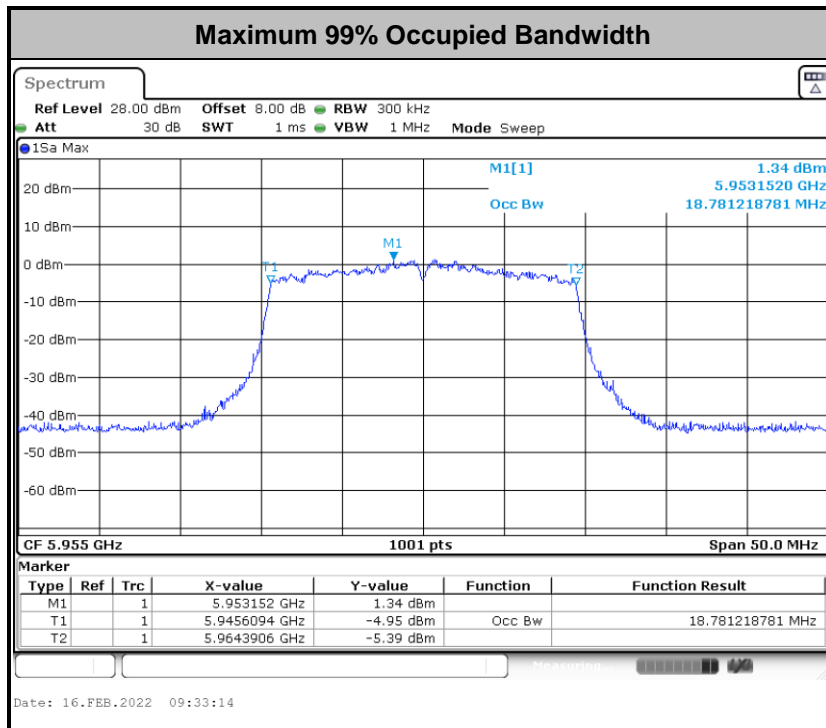
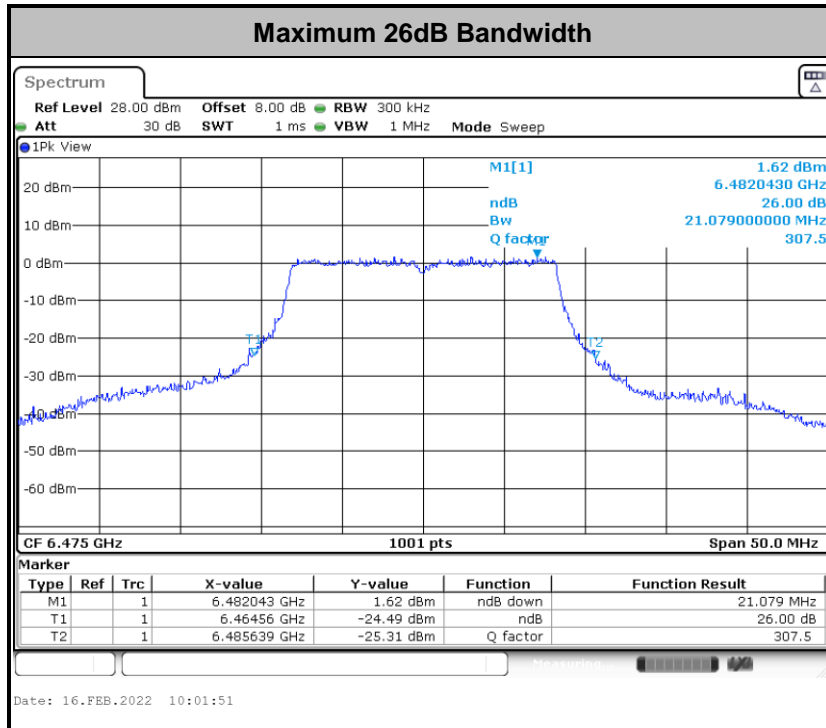
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.

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

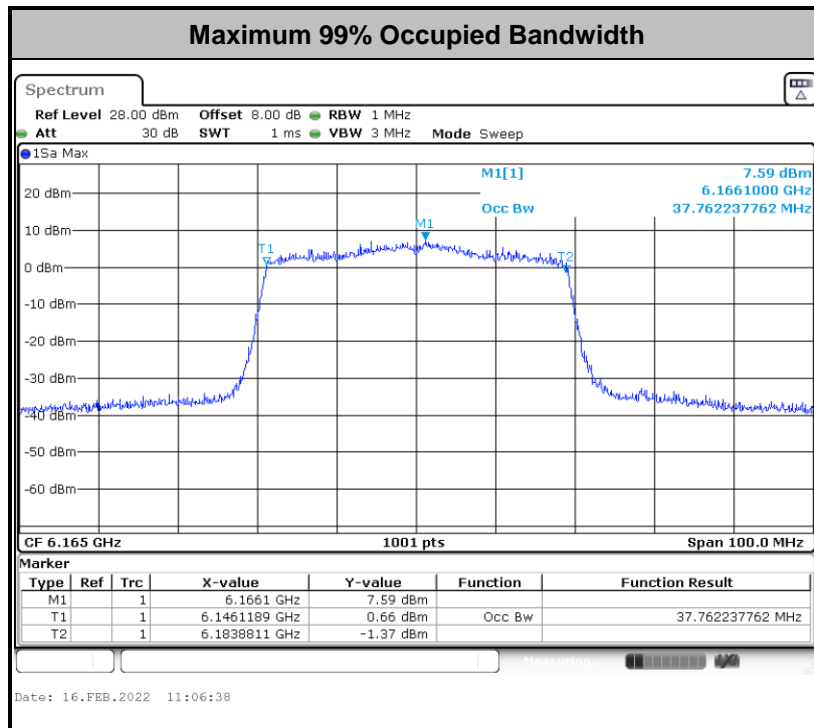
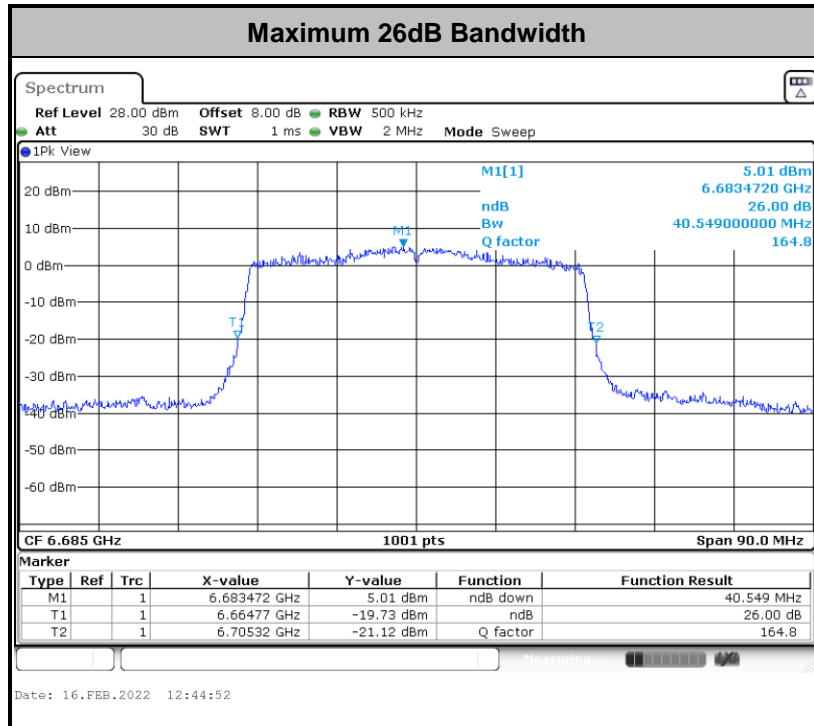


For 20MHz:



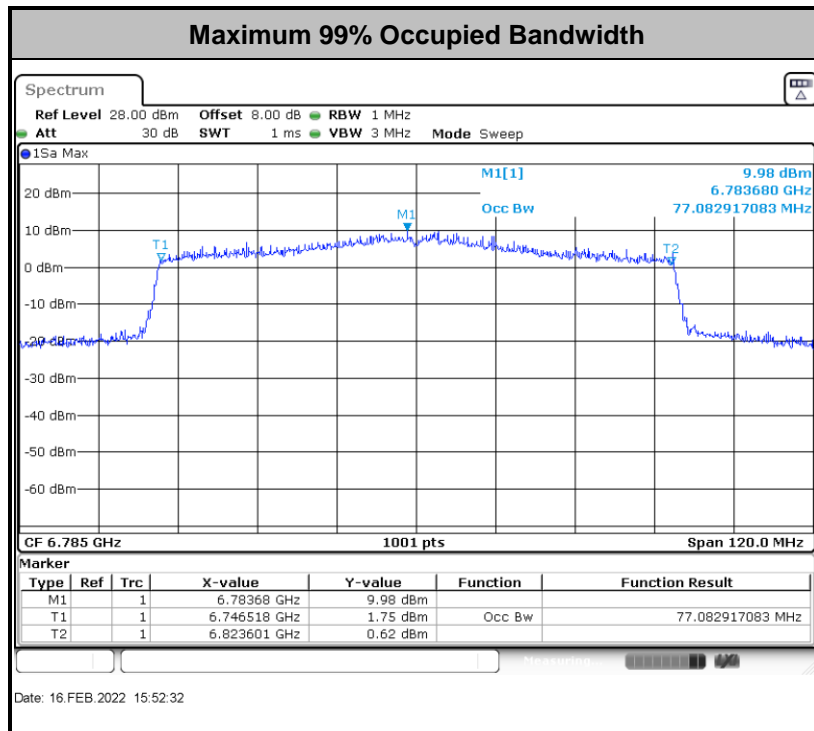
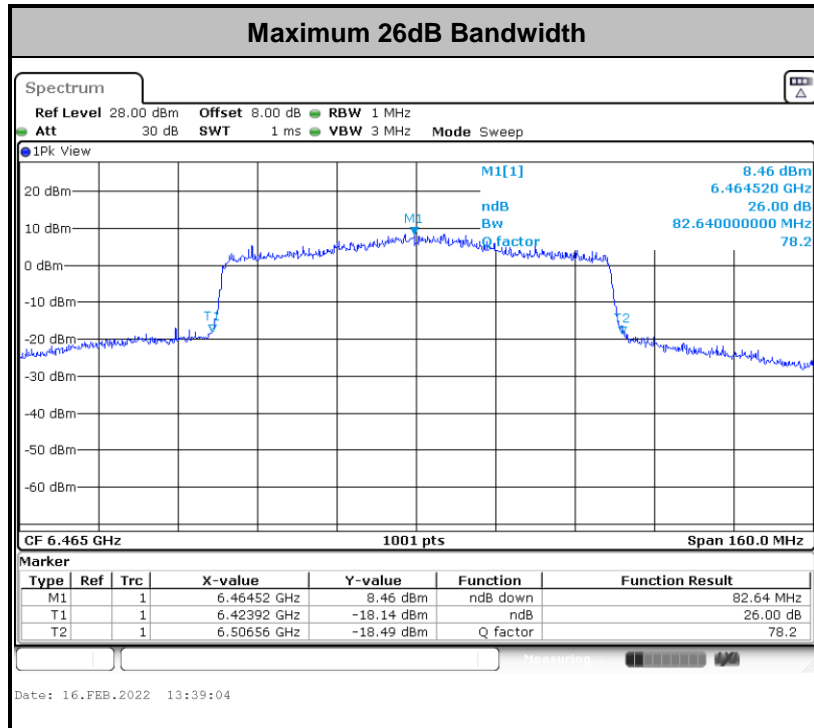


For 40MHz:



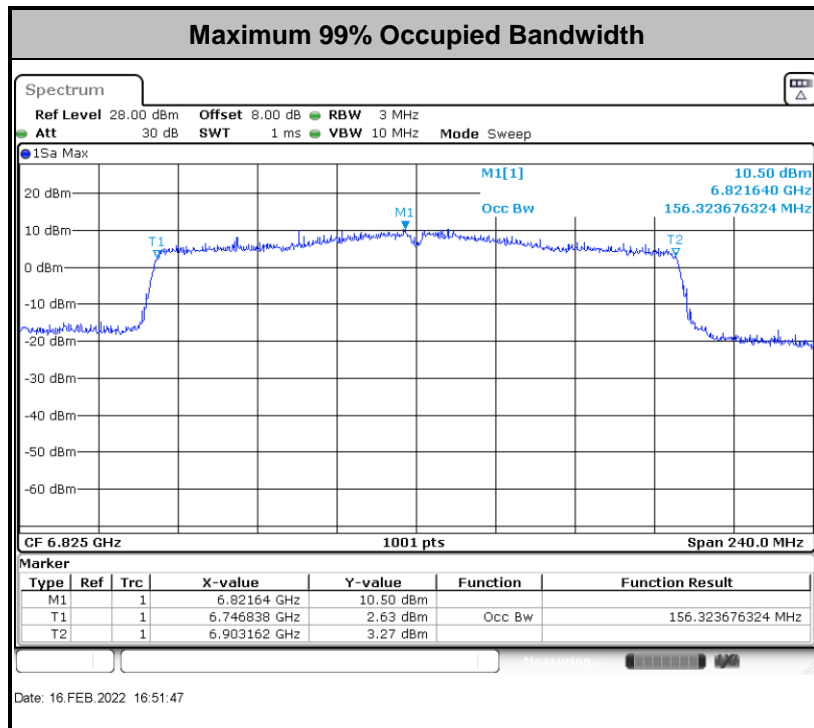
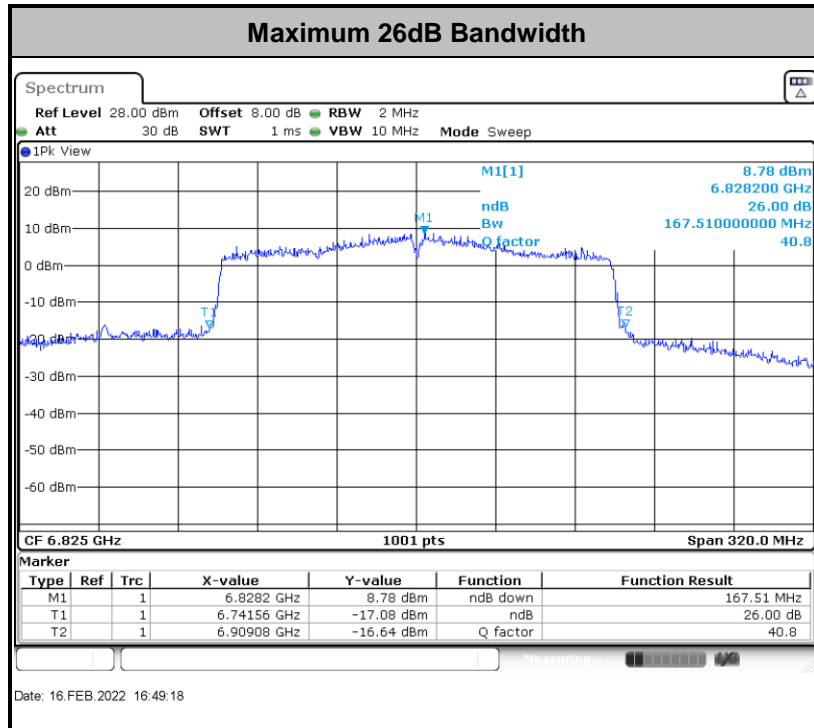


For 80MHz:





For 160MHz:



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

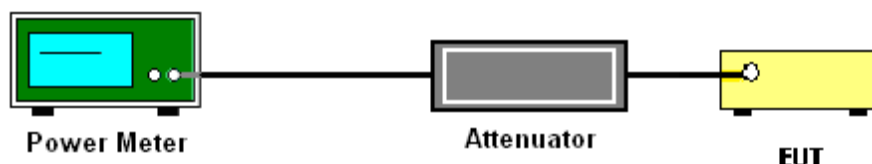
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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.
4. For MIMO mode, the measure-and-sum technique should be used for measuring the in-band transmit power of a device.

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 specified for the U-NII-2 bands, 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

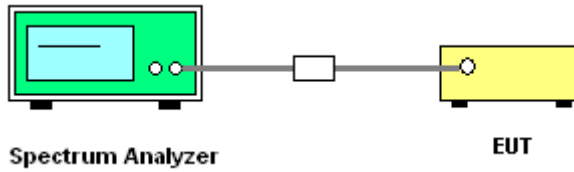
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW \geq 3 MHz.
 - Number of points in sweep \geq 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.

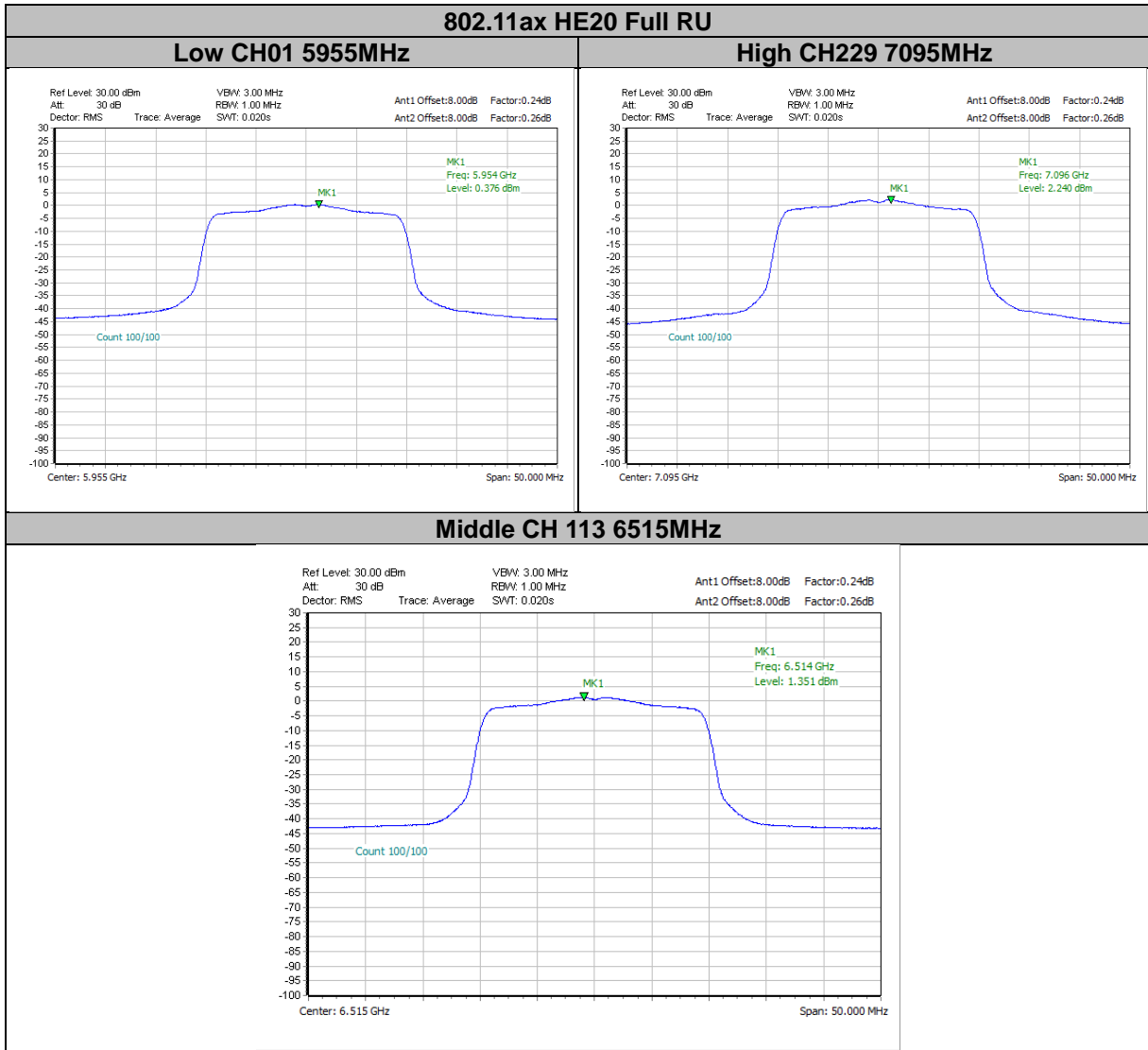
3.3.4 Test Setup

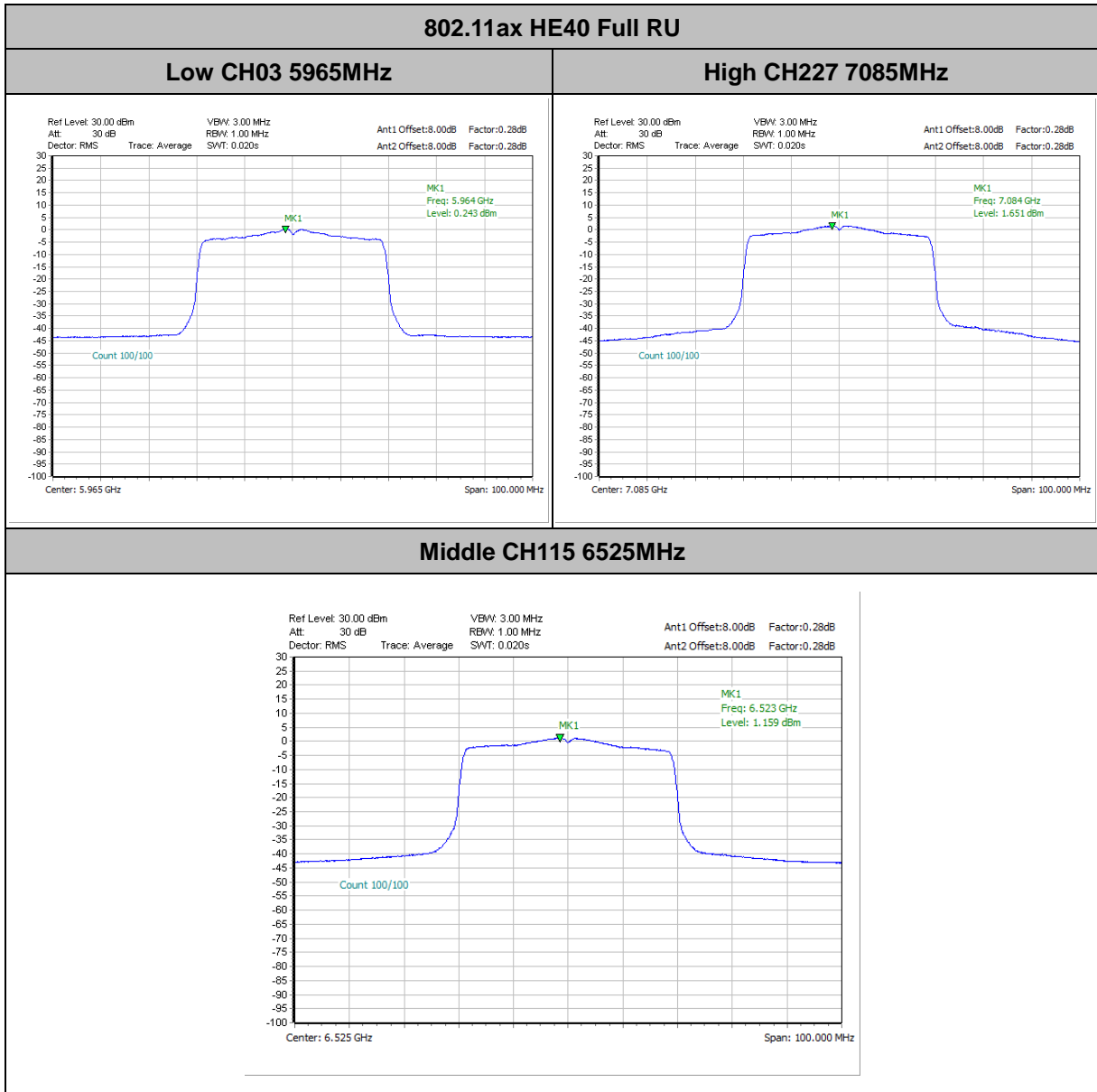


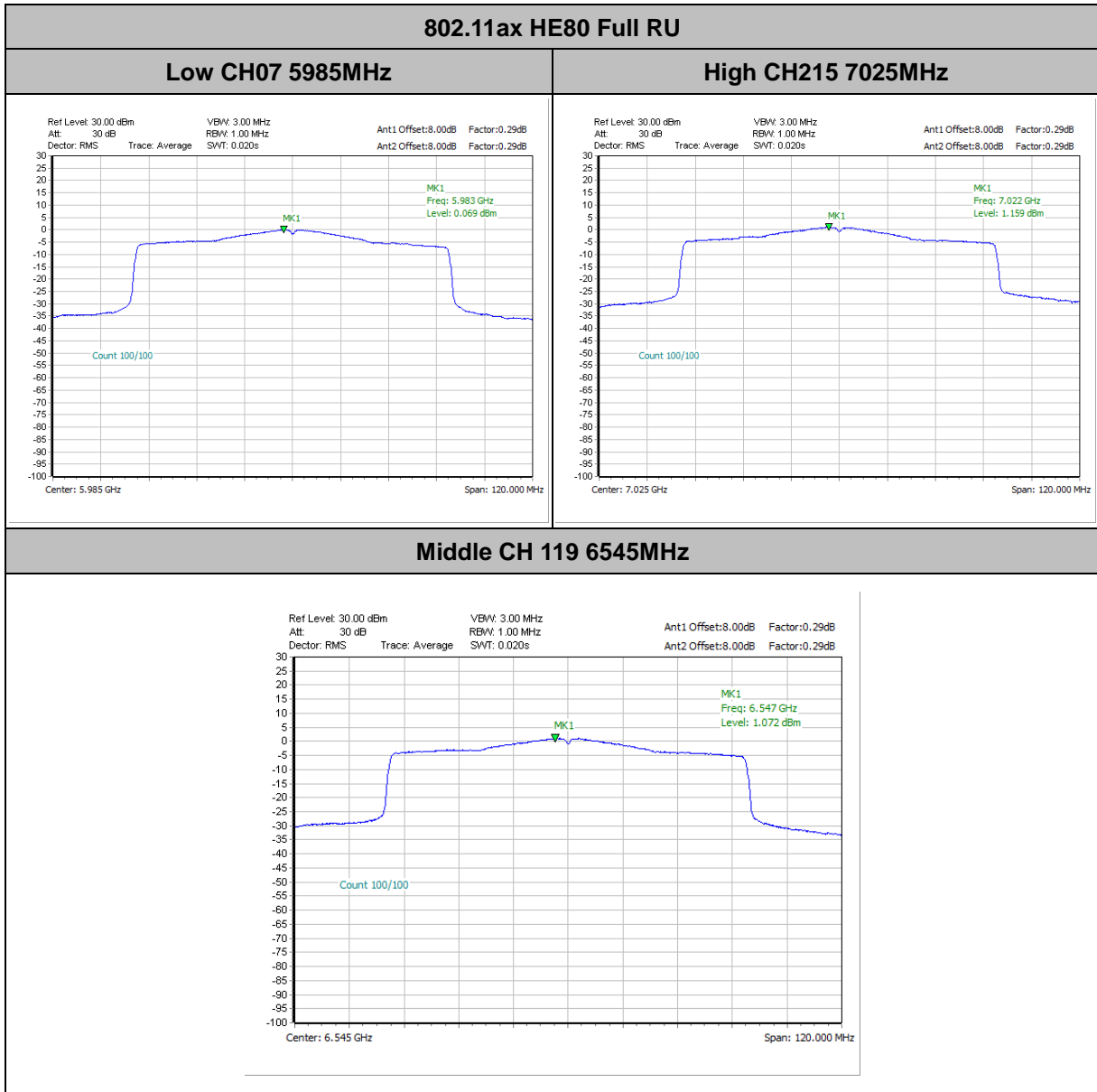
3.3.5 Test Result of Power Spectral Density

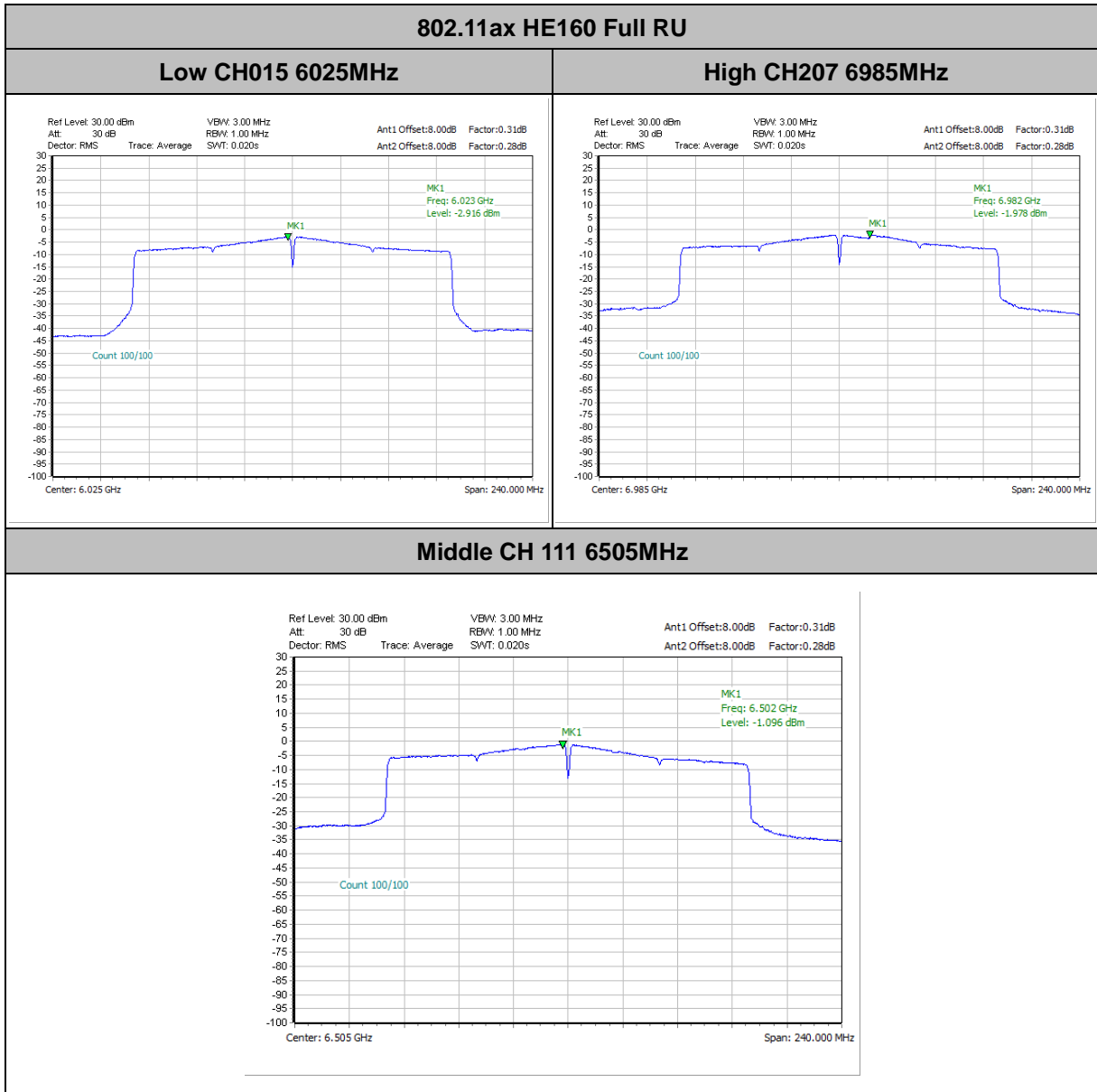
Please refer to Appendix A.

Only the L/M/H channel PSD plots of each bandwidth shown in the report.



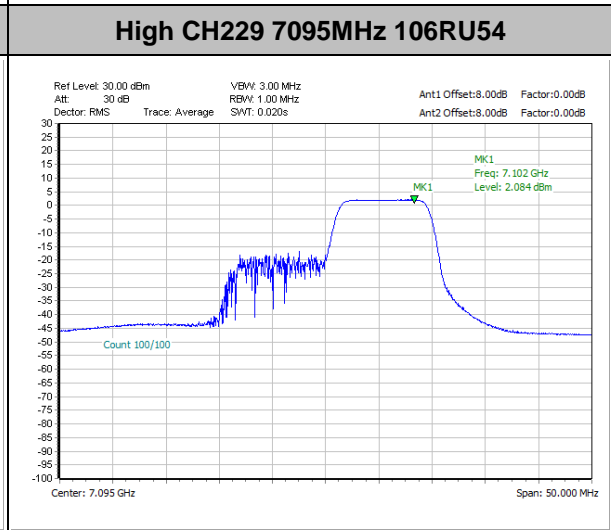
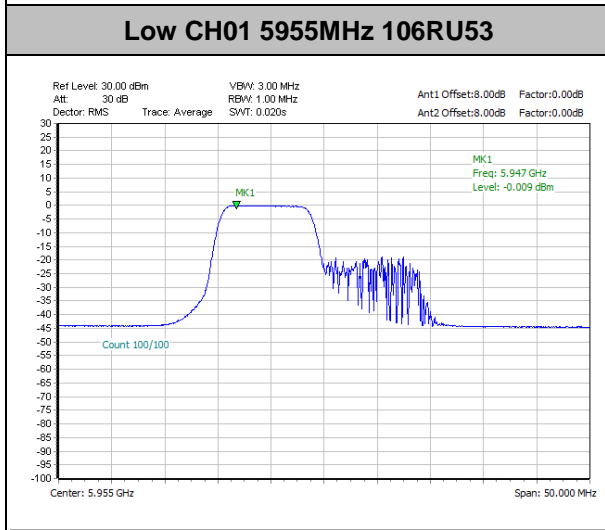
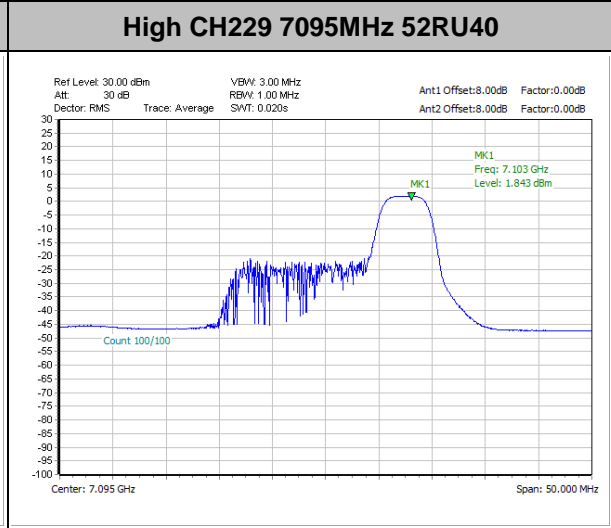
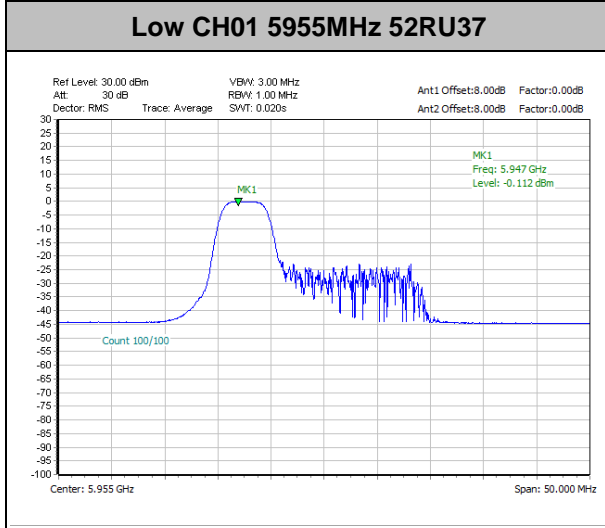
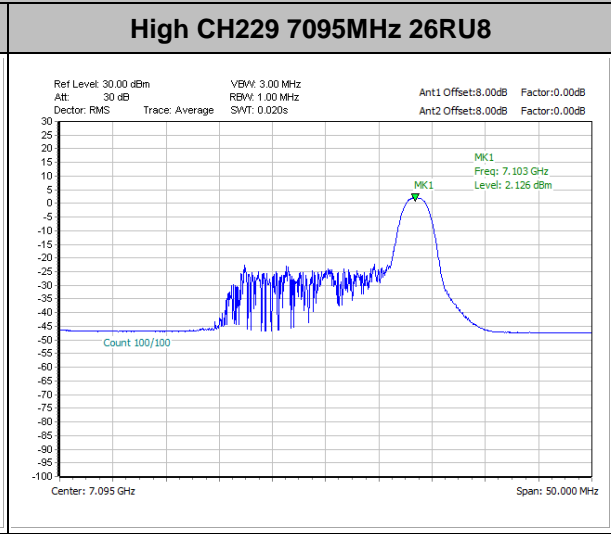
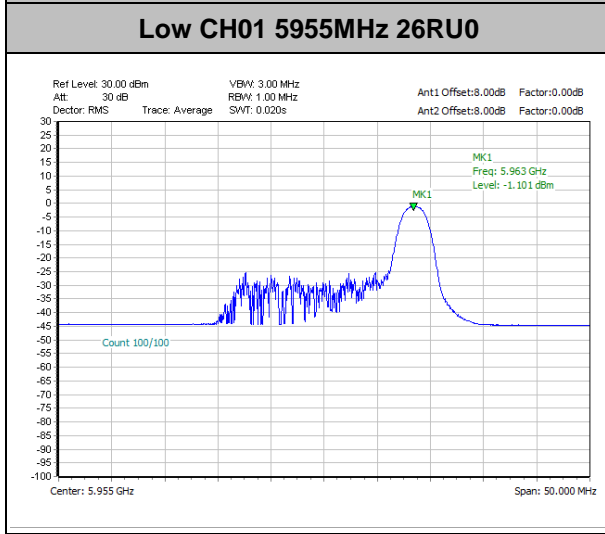








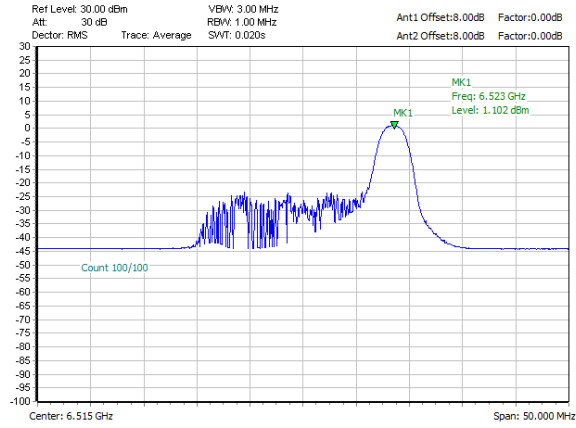
802.11ax HE20 Partial RU



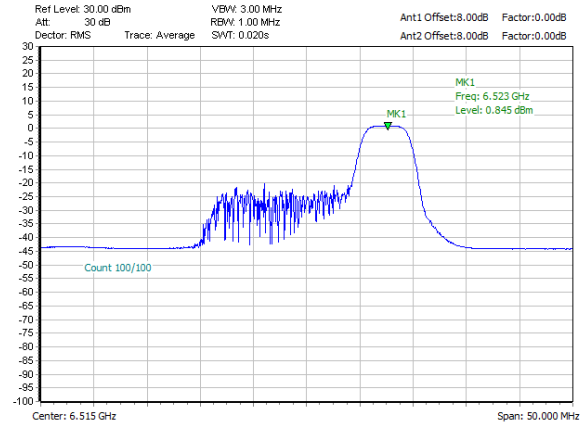


802.11ax HE20 Partial RU

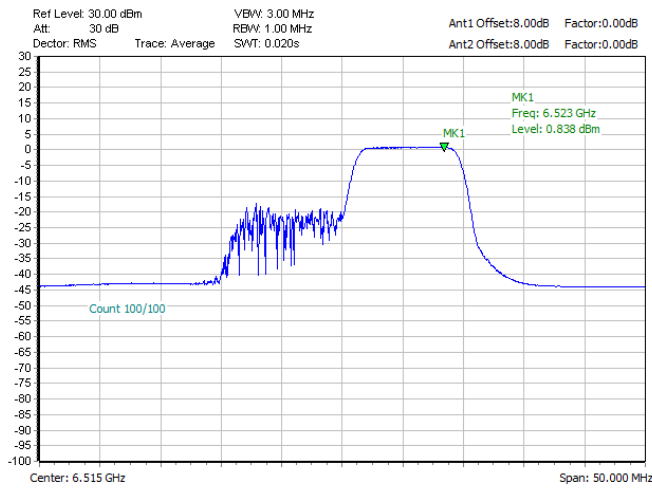
Middle CH 113 6515MHz 26RU8



Middle CH 113 6515MHz 52RU40



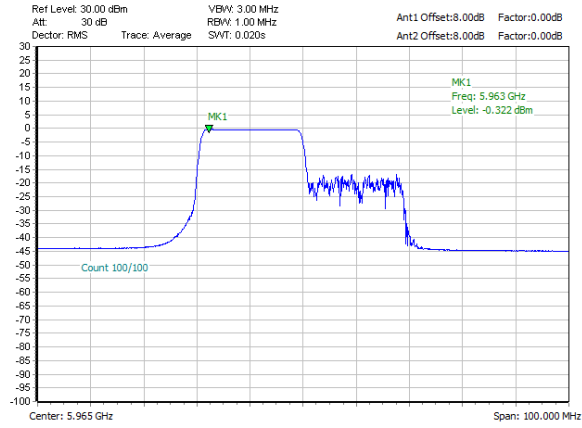
Middle CH 113 6515MHz 106RU54



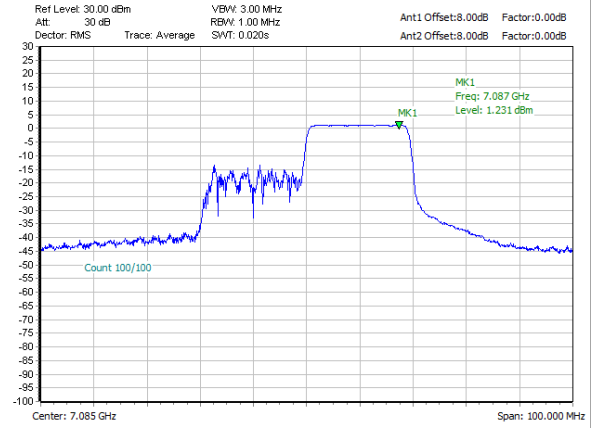


802.11ax HE40 Partial RU

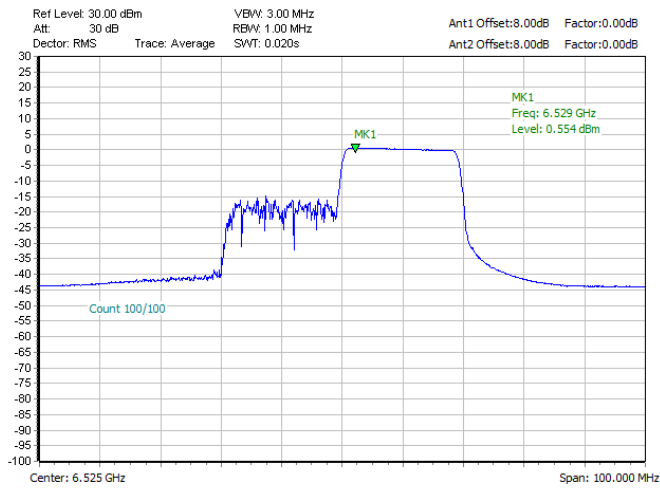
Low CH03 5965MHz 242RU61



High CH227 7085MHz 242RU62



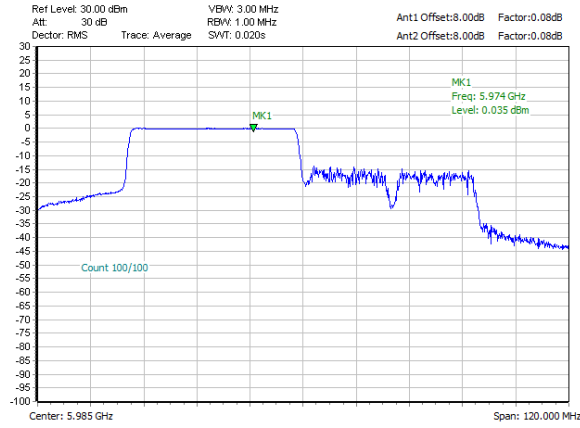
Middle CH115 6525MHz 242RU62



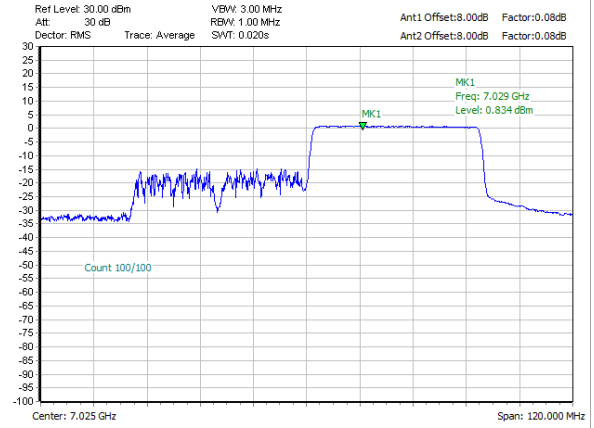


802.11ax HE80 Partial RU

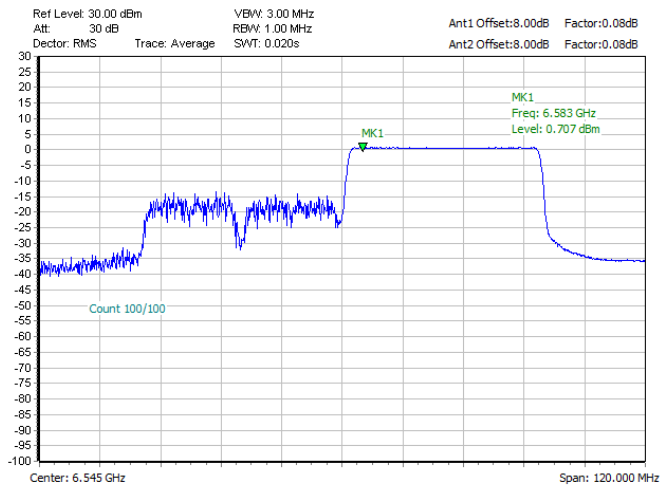
Low CH07 5985MHz 484RU65

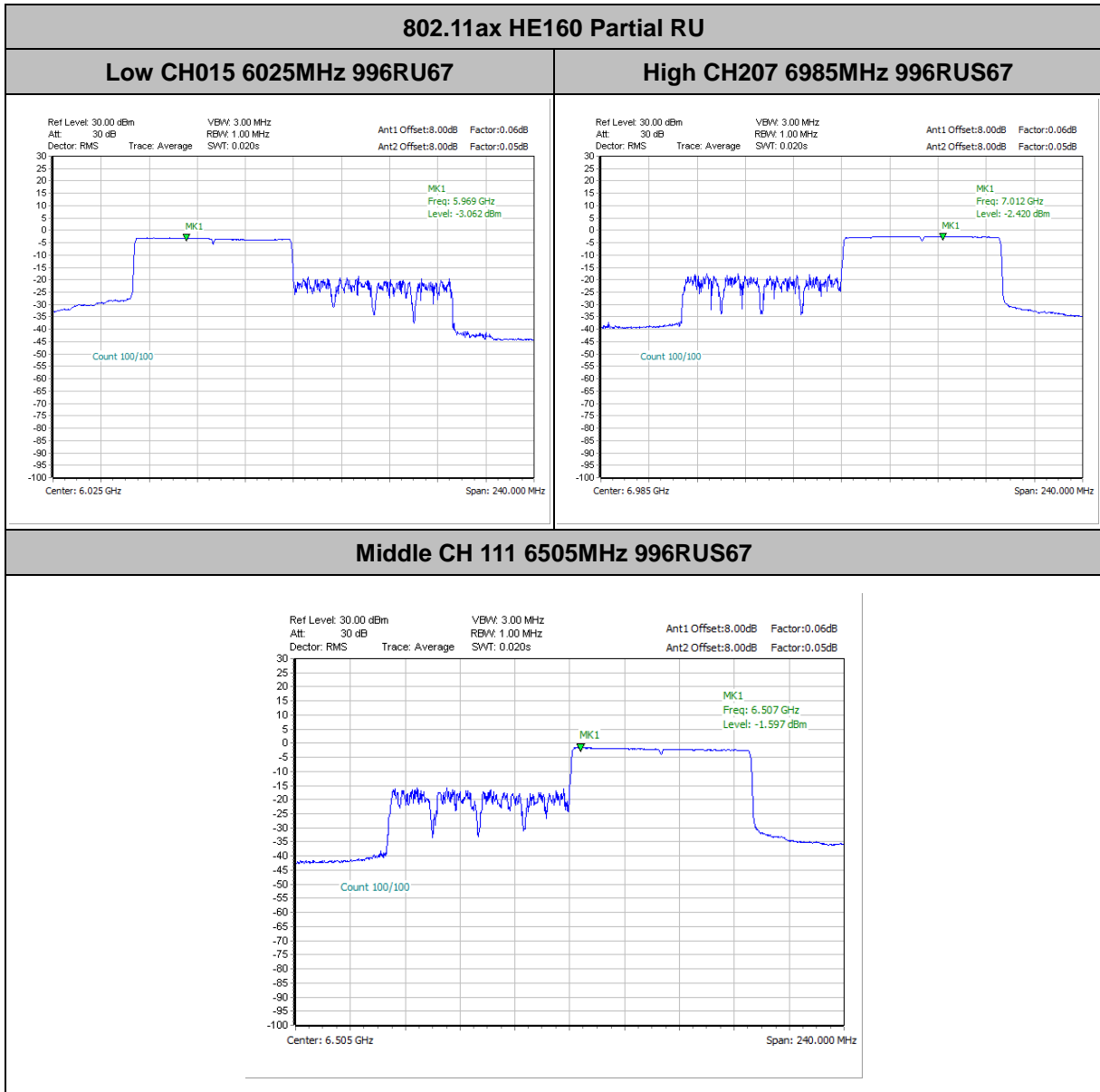


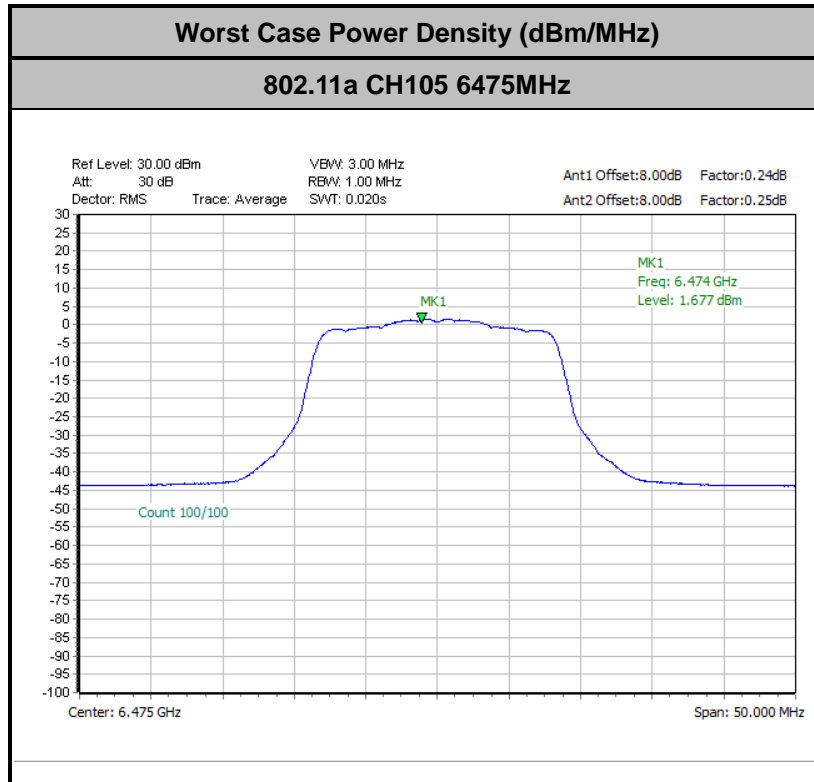
High CH215 7025MHz 484RU66



Middle CH 119 6545MHz 484RU66









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.

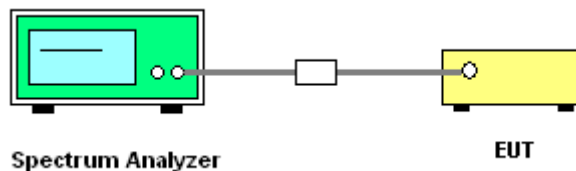
Section J) In-Band Emissions.

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 $\geq 3 \times$ RBW
 - d) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$.
 - 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.

Remark: For 802.11ax HE20/HE40 using RBW=1MHz, the test result is stricter than the test method of setting RBW in KDB 987594

3.4.4 Test Setup



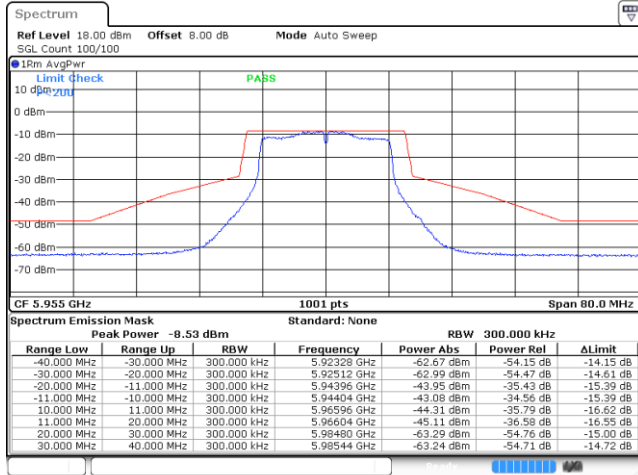


3.4.5 Test Result

MIMO <Ant. 1+2(1)>

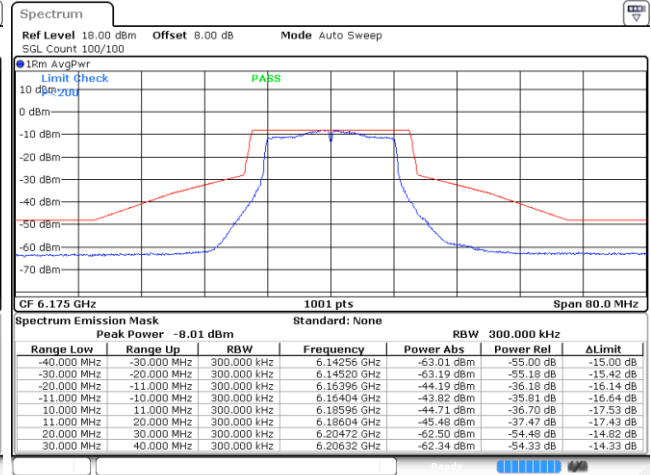
EUT Mode : 802.11a

Plot on Channel 5955MHz



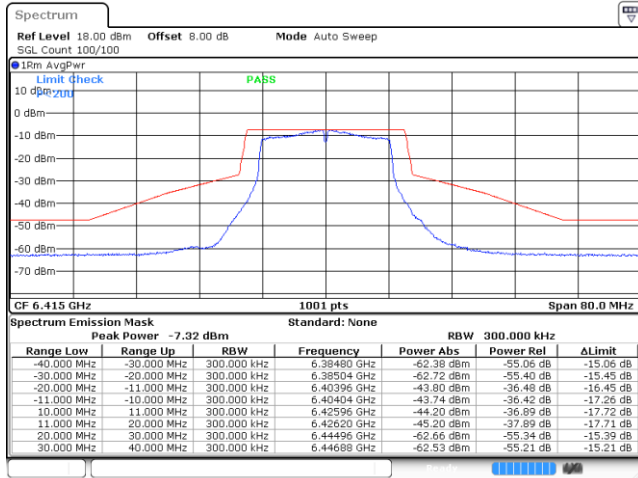
Date: 16 FEB 2022 21:37:56

Plot on Channel 6175MHz



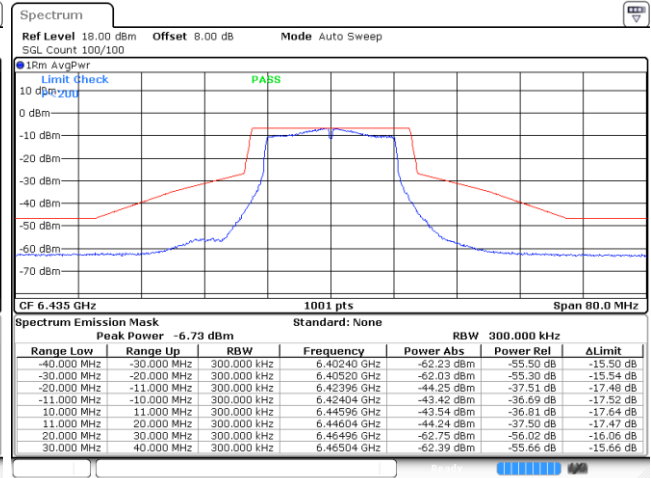
Date: 16 FEB 2022 21:51:51

Plot on Channel 6415MHz



Date: 16 FEB 2022 21:53:57

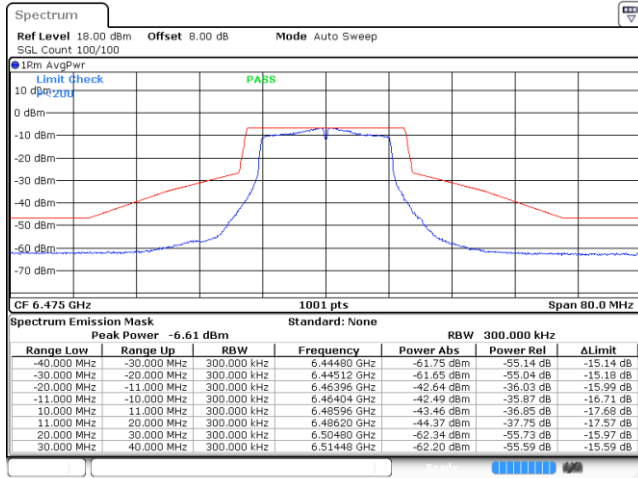
Plot on Channel 6435MHz



Date: 16 FEB 2022 22:04:44

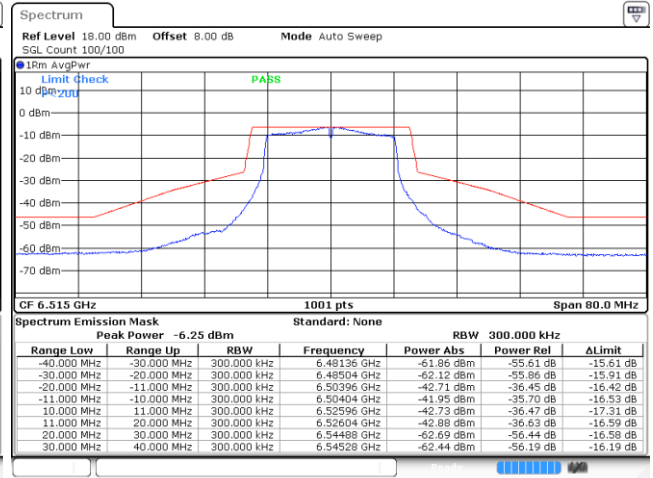


Plot on Channel 6475MHz



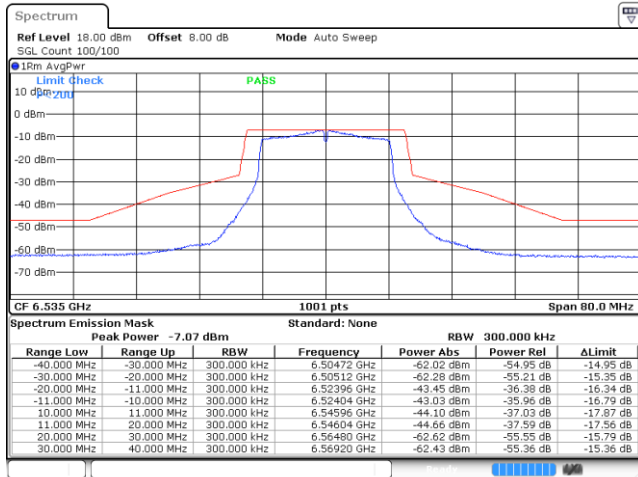
Date: 16 FEB 2022 22:07:38

Plot on Channel 6515MHz



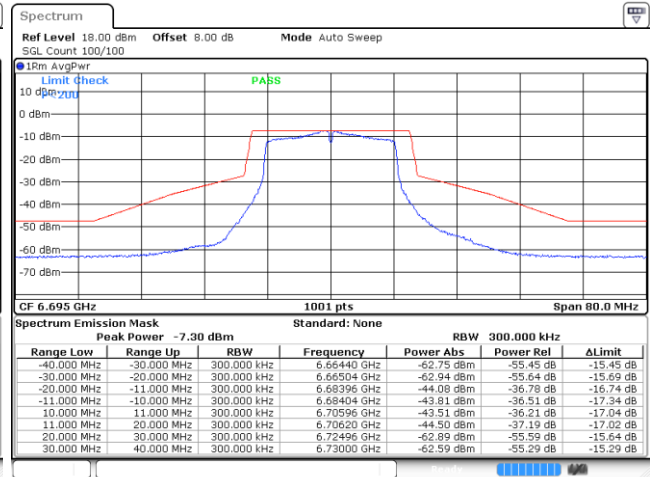
Date: 16 FEB 2022 22:12:16

Plot on Channel 6535MHz



Date: 16 FEB 2022 22:13:48

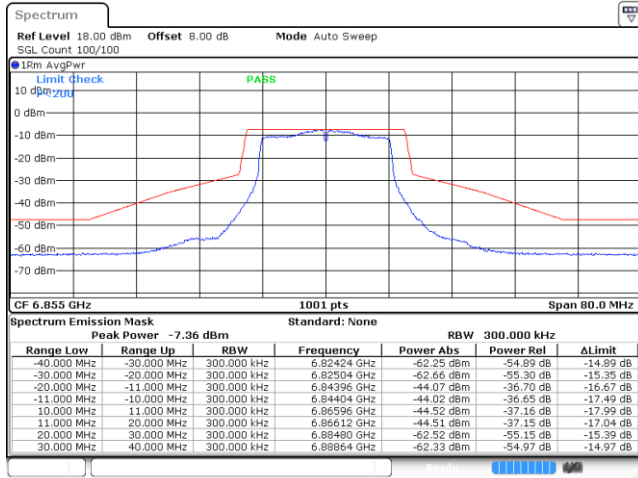
Plot on Channel 6695MHz



Date: 16 FEB 2022 22:17:22

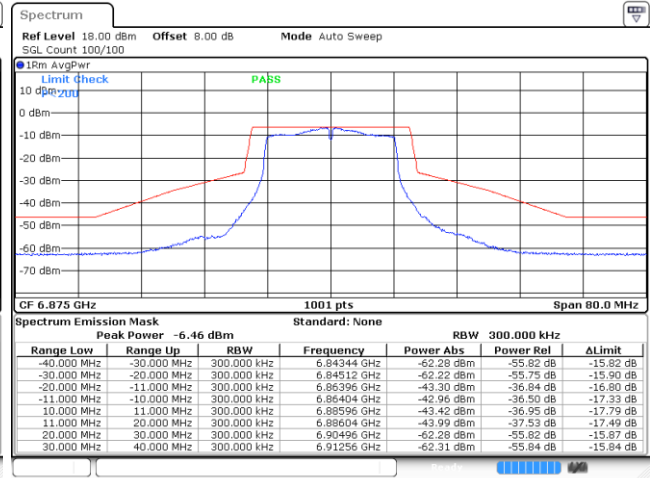


Plot on Channel 6855MHz



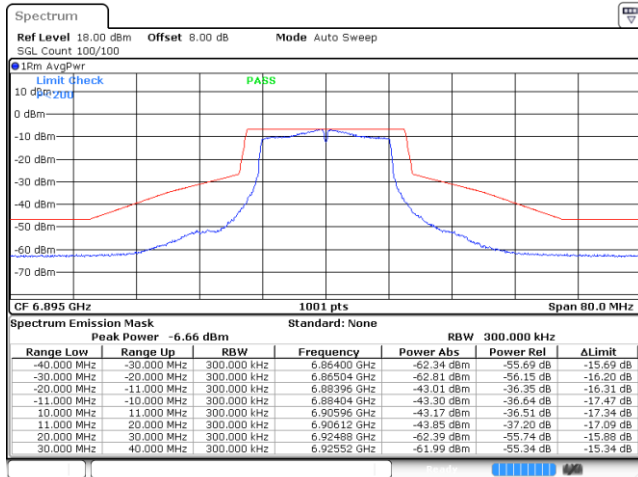
Date: 16 FEB 2022 22:18:39

Plot on Channel 6875MHz



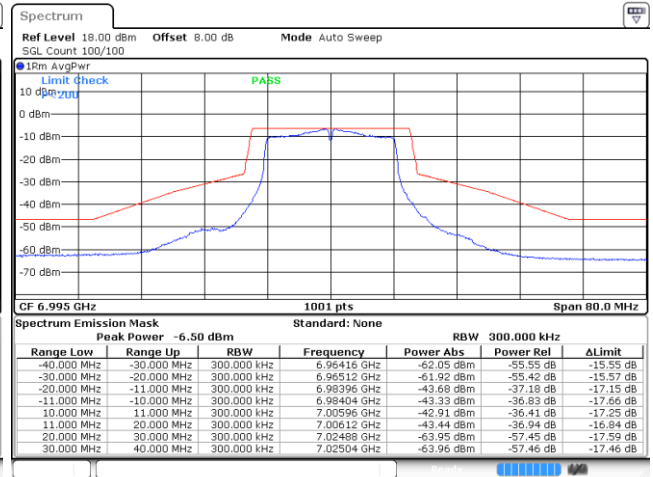
Date: 16 FEB 2022 22:21:52

Plot on Channel 6895MHz



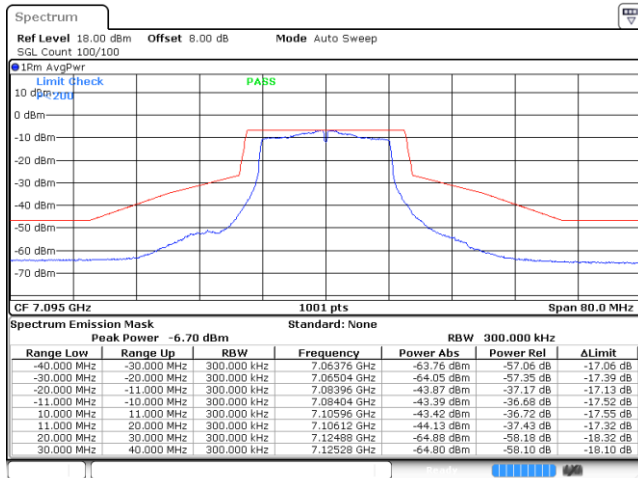
Date: 16 FEB 2022 22:23:03

Plot on Channel 6995MHz



Date: 16 FEB 2022 22:27:09

Plot on Channel 7095MHz

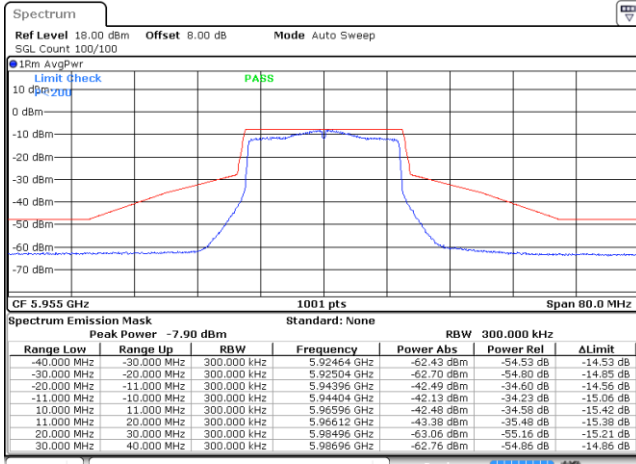


Date: 16 FEB 2022 22:28:07



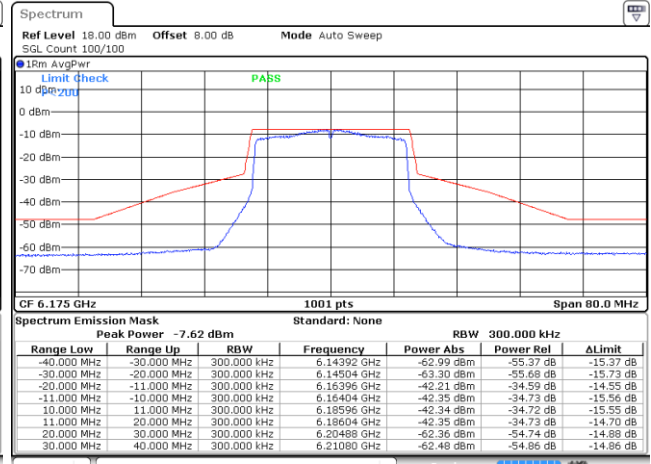
EUT Mode : 802.11ax HE20

Plot on Channel 5955MHz



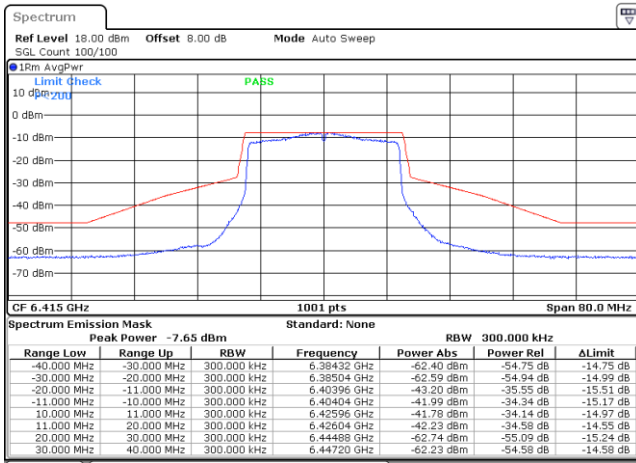
Date: 16 FEB 2022 22:58:55

Plot on Channel 6175MHz



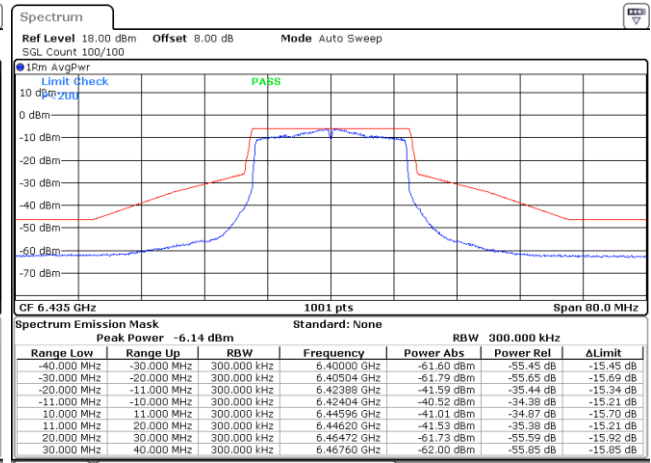
Date: 16 FEB 2022 23:03:23

Plot on Channel 6415MHz



Date: 16 FEB 2022 23:06:02

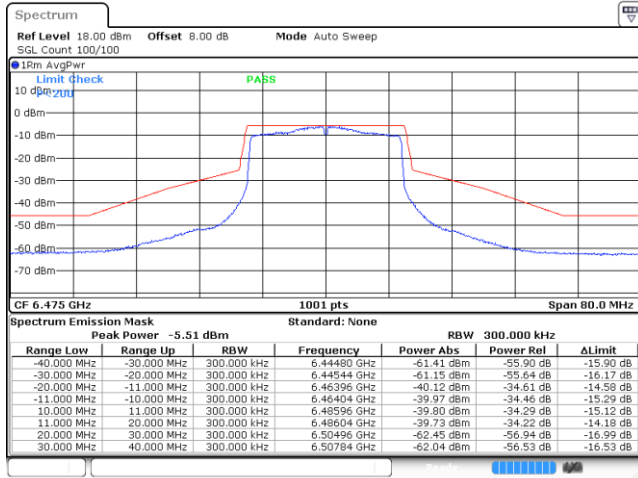
Plot on Channel 6435MHz



Date: 16 FEB 2022 23:09:28

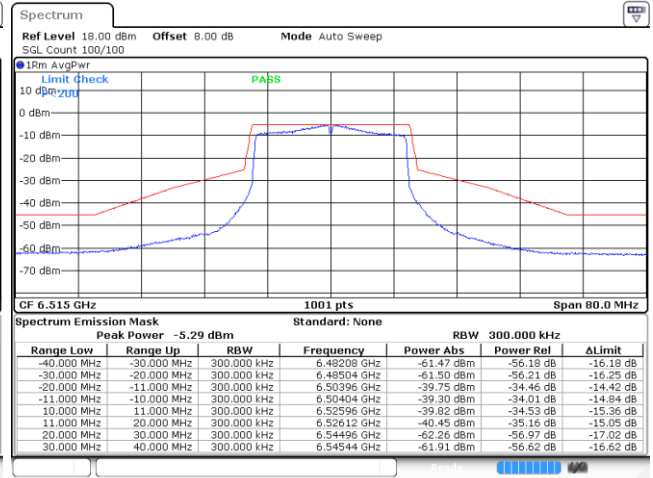


Plot on Channel 6475MHz



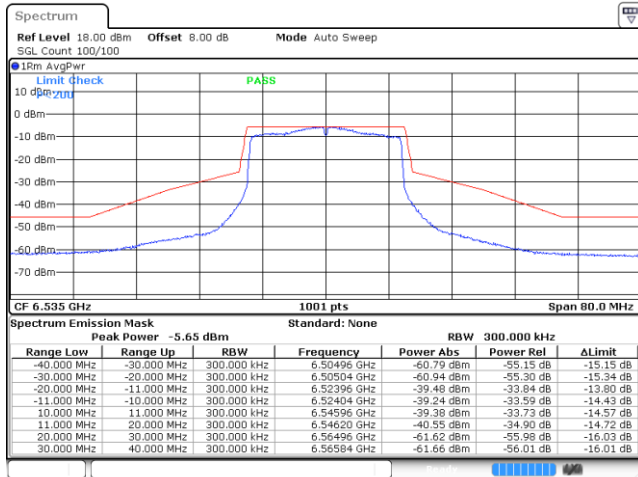
Date: 16 FEB 2022 23:11:38

Plot on Channel 6515MHz



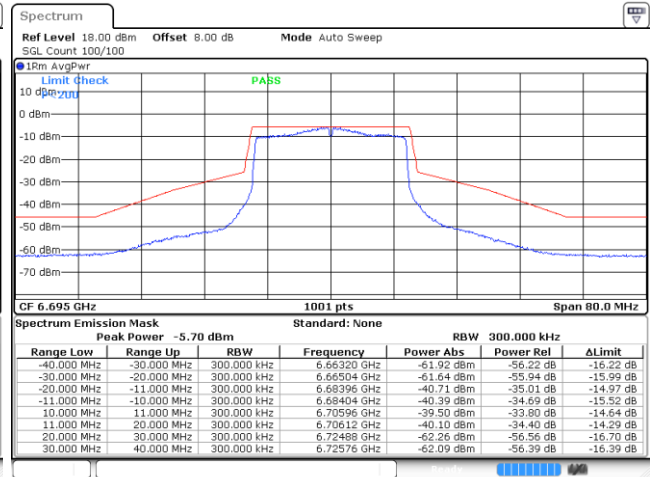
Date: 16 FEB 2022 23:13:52

Plot on Channel 6535MHz



Date: 16 FEB 2022 23:17:08

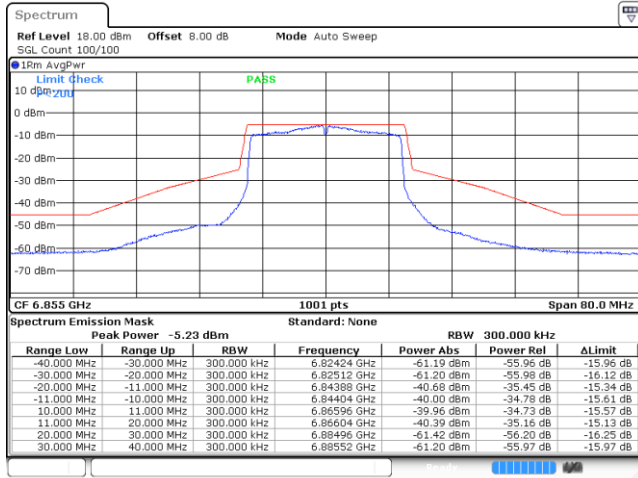
Plot on Channel 6695MHz



Date: 16 FEB 2022 23:19:32

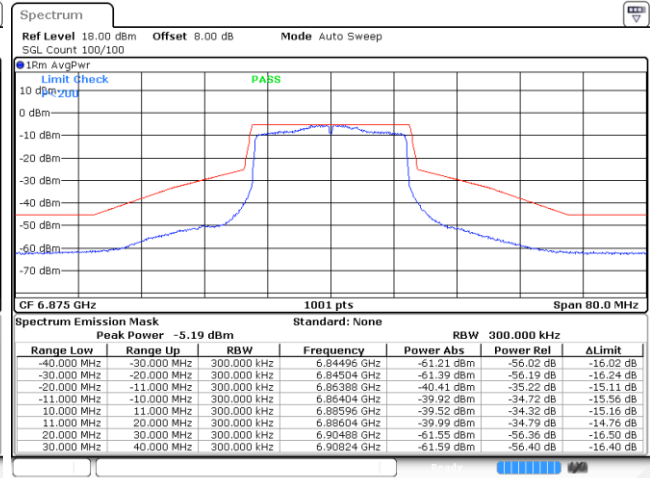


Plot on Channel 6855MHz



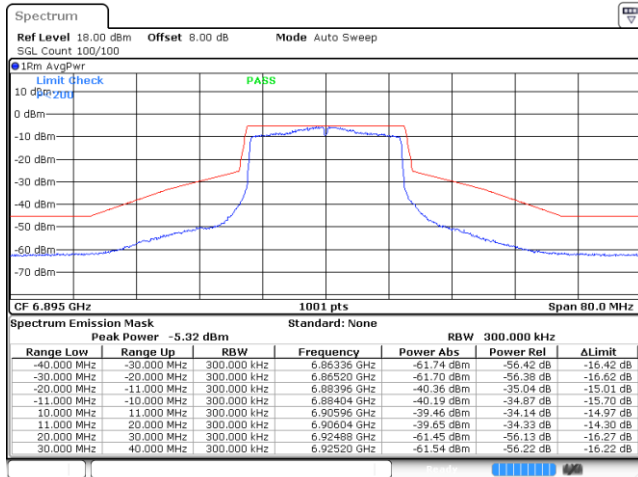
Date: 16 FEB 2022 23:22:06

Plot on Channel 6875MHz



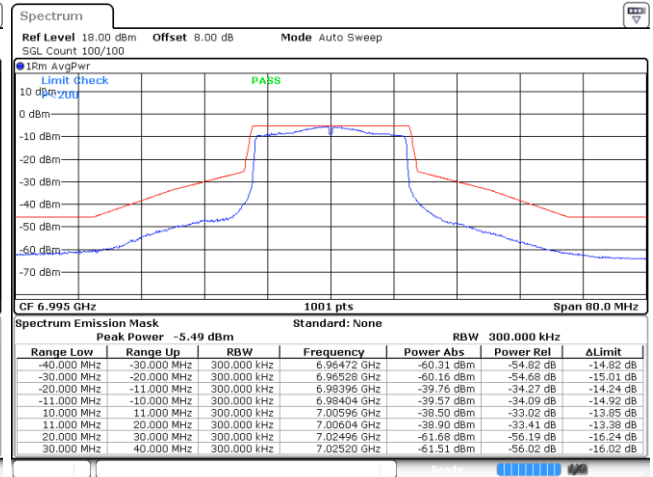
Date: 16 FEB 2022 23:24:55

Plot on Channel 6895MHz



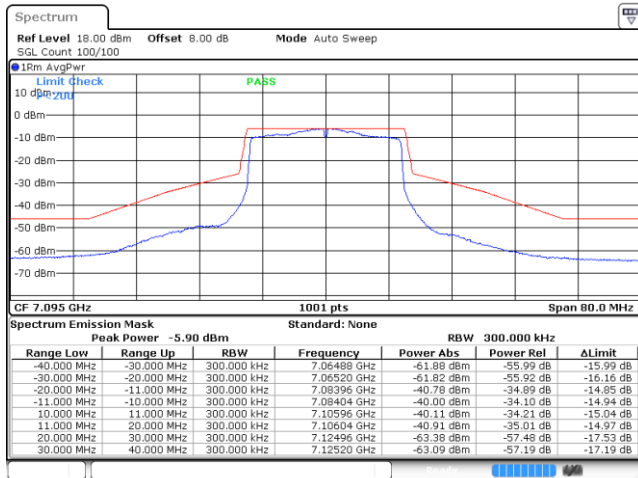
Date: 16 FEB 2022 23:28:07

Plot on Channel 6995MHz



Date: 16 FEB 2022 23:35:03

Plot on Channel 7095MHz

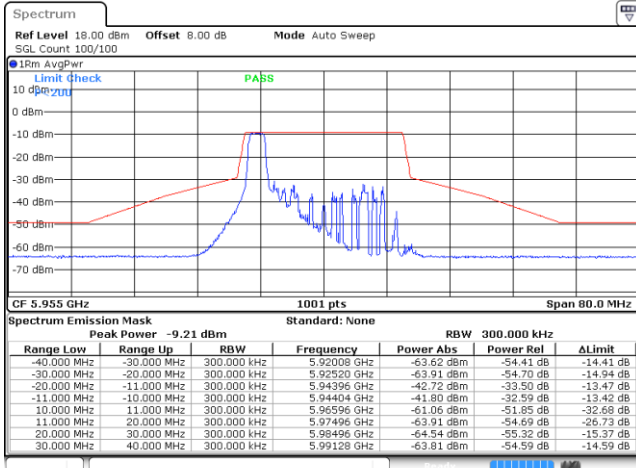


Date: 16 FEB 2022 23:40:31



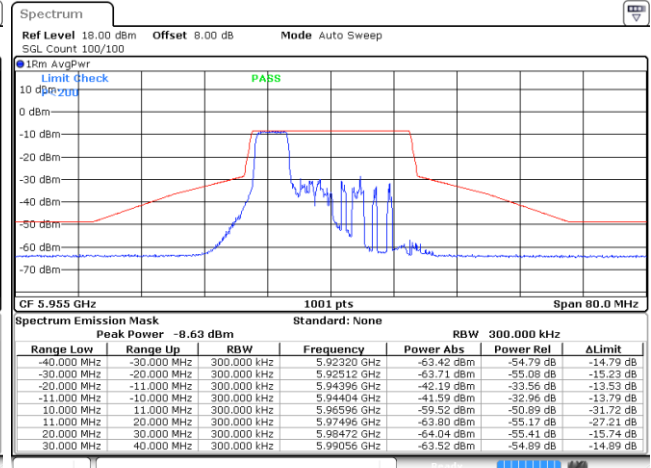
EUT Mode : 802.11ax HE20 Partial RU

Plot on Channel 5955MHz 26RU0



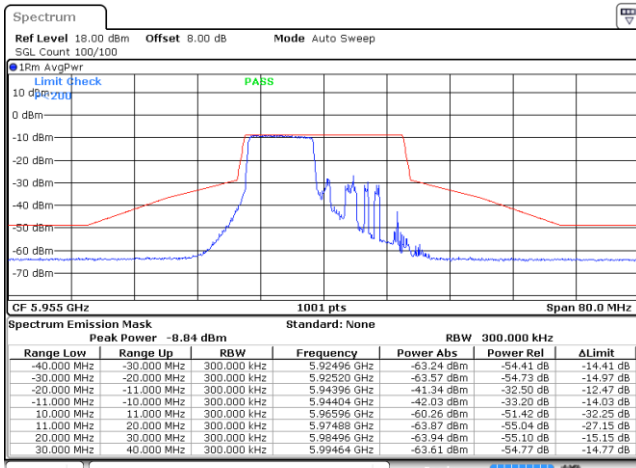
Date: 16 FEB 2022 19:19:44

Plot on Channel 5955MHz 52RU37



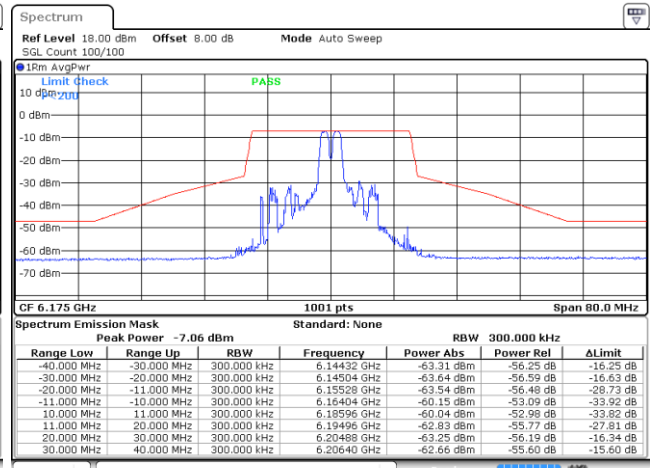
Date: 16 FEB 2022 19:22:55

Plot on Channel 5955MHz 106RU53



Date: 16 FEB 2022 19:26:05

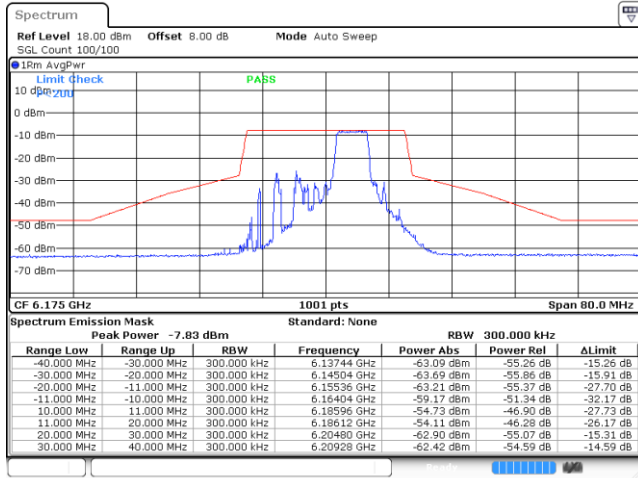
Plot on Channel 6175MHz 26RU4



Date: 16 FEB 2022 19:32:01

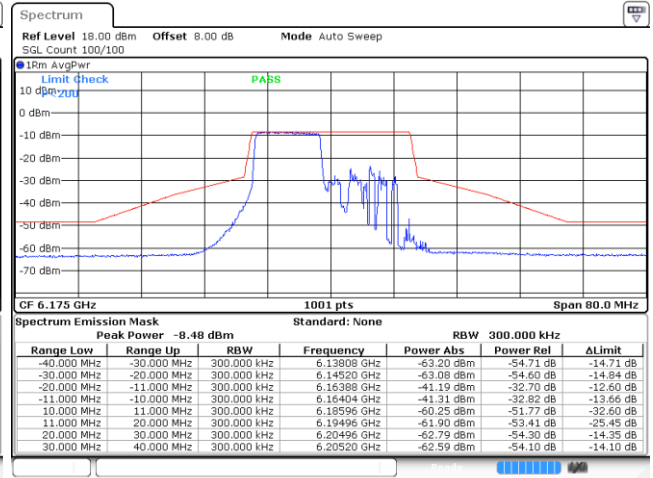


Plot on Channel 6175MHz 52RU39



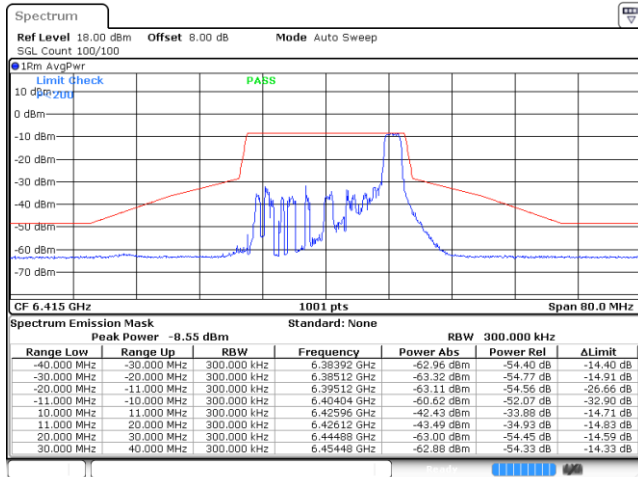
Date: 16 FEB 2022 19:34:46

Plot on Channel 6175MHz 106RU54



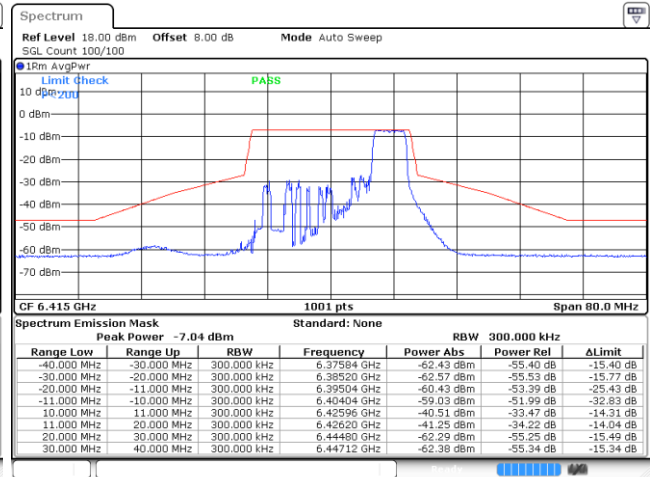
Date: 16 FEB 2022 19:39:38

Plot on Channel 6415MHz 26RU8



Date: 16 FEB 2022 19:46:58

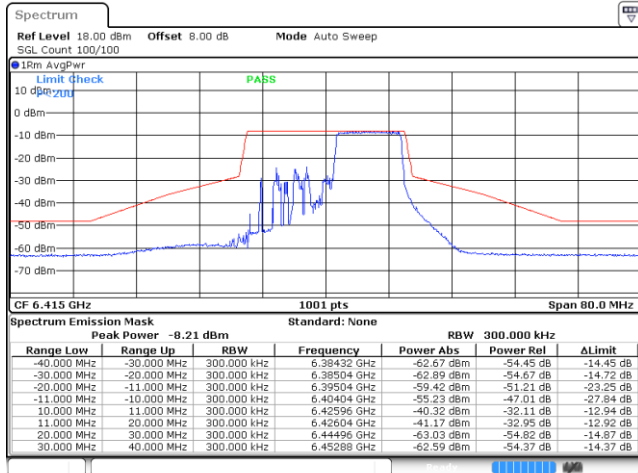
Plot on Channel 6415MHz 52RU40



Date: 16 FEB 2022 19:57:12

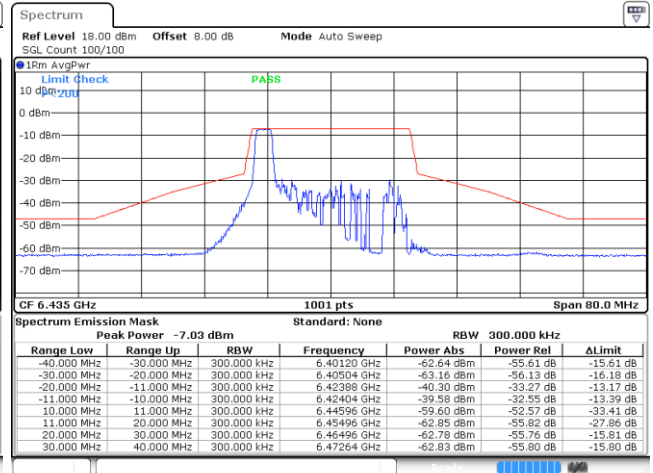


Plot on Channel 6415MHz 106RU54



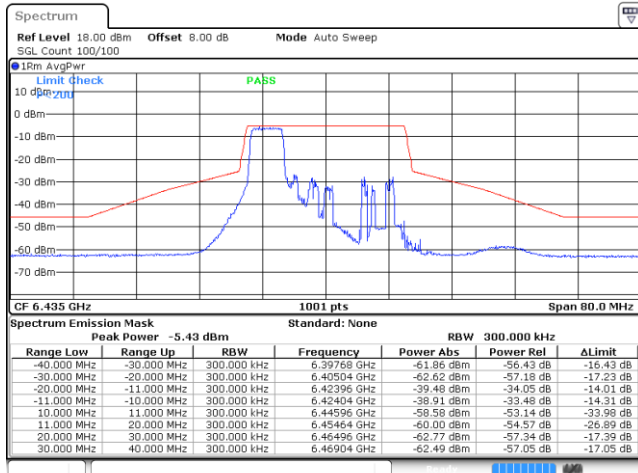
Date: 16 FEB 2022 20:01:14

Plot on Channel 6435MHz 26RU0



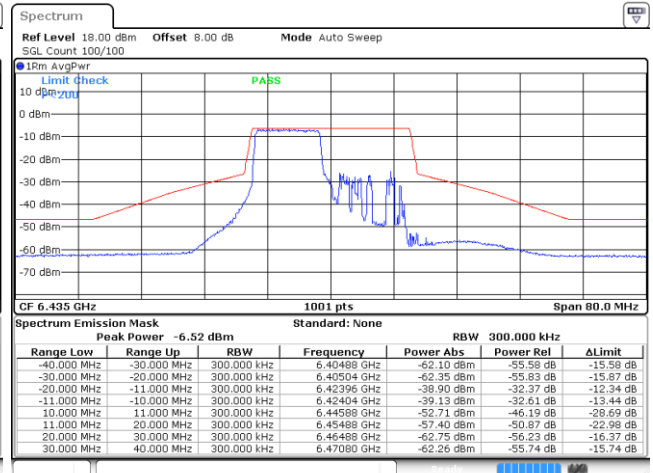
Date: 16 FEB 2022 20:04:35

Plot on Channel 6435MHz 52RU37



Date: 16 FEB 2022 20:11:42

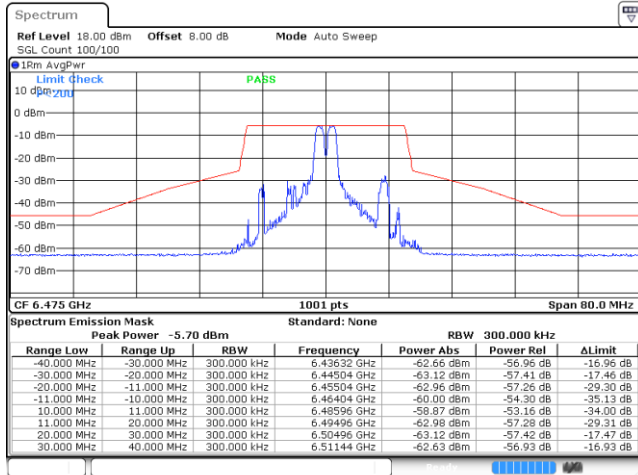
Plot on Channel 6435MHz 106RU53



Date: 16 FEB 2022 20:13:52

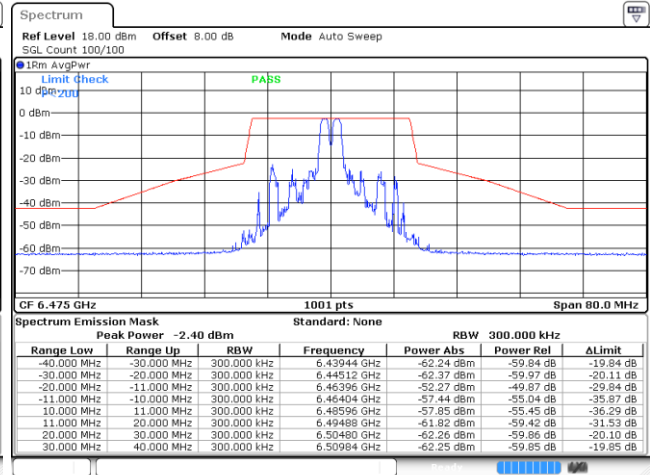


Plot on Channel 6475MHz 26RU4



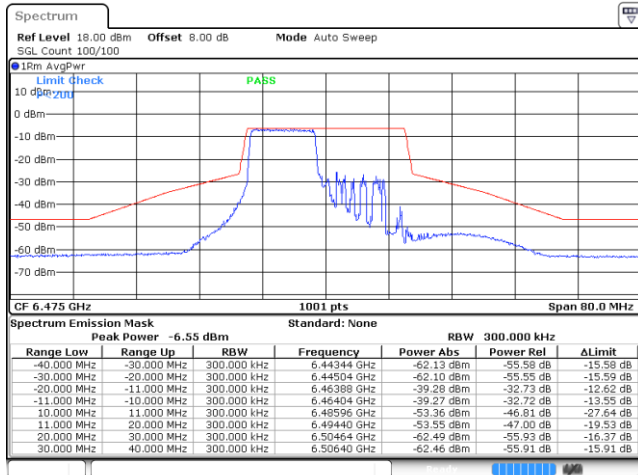
Date: 16 FEB 2022 20:18:13

Plot on Channel 6475MHz 52RU39



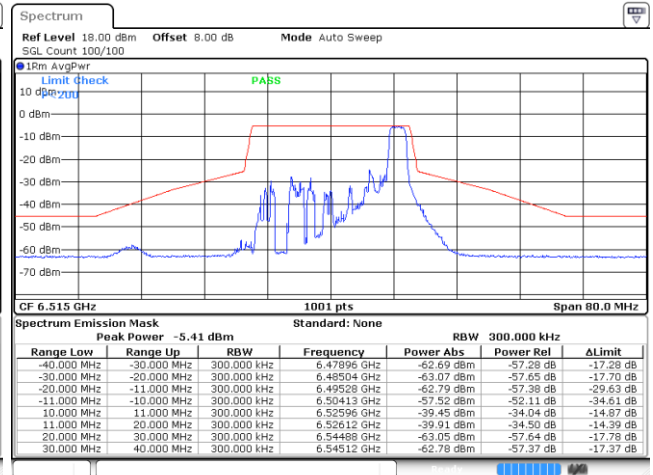
Date: 16 FEB 2022 20:20:53

Plot on Channel 6475MHz 106RU53



Date: 16 FEB 2022 20:23:29

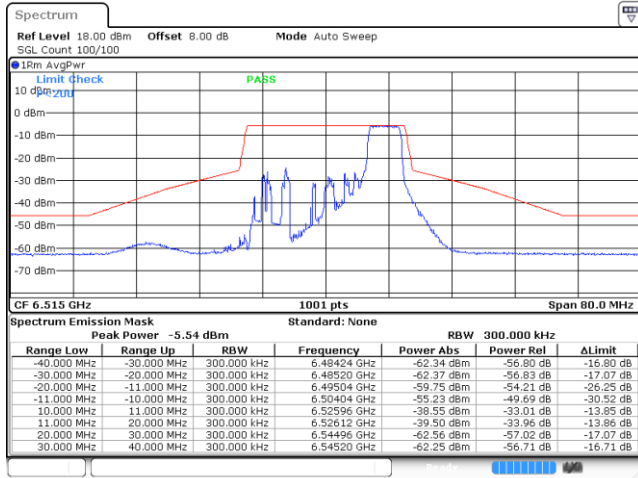
Plot on Channel 6515MHz 26RU8



Date: 16 FEB 2022 20:26:02

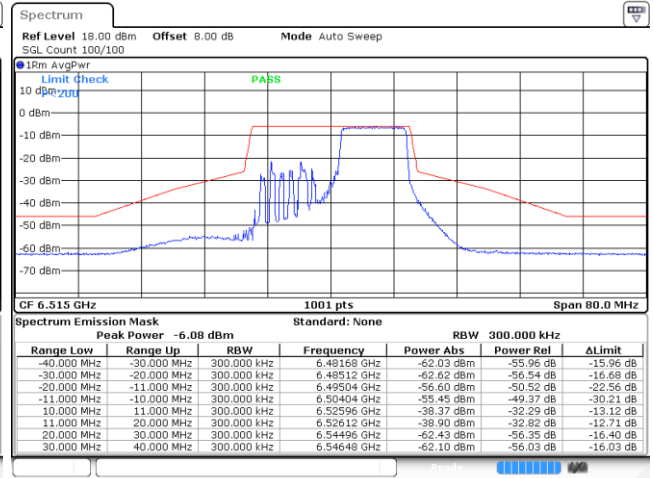


Plot on Channel 6515MHz 52RU40



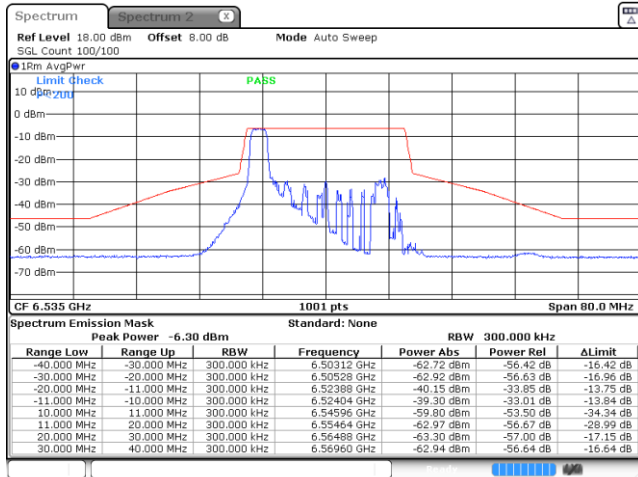
Date: 16 FEB 2022 20:30:33

Plot on Channel 6515MHz 106RU54



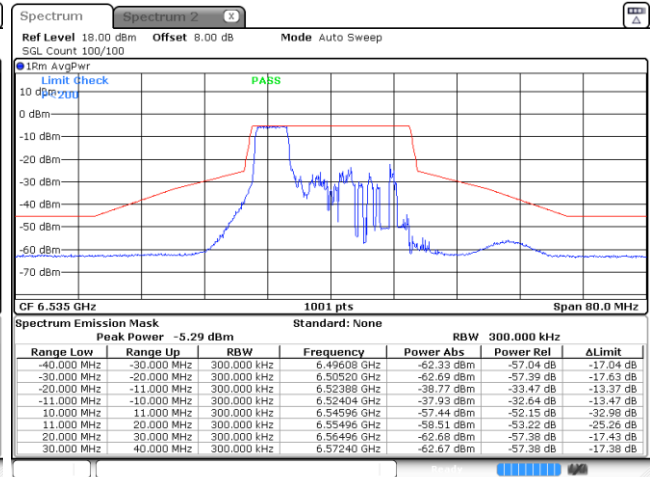
Date: 16 FEB 2022 20:34:38

Plot on Channel 6535MHz 26RU0



Date: 17 FEB 2022 09:31:26

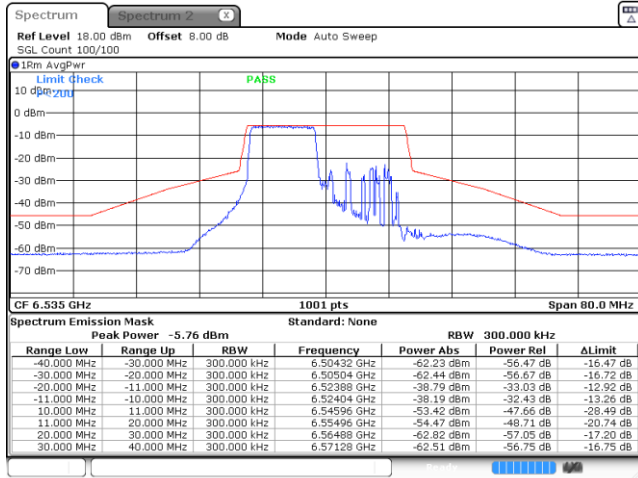
Plot on Channel 6535MHz 52RU37



Date: 17 FEB 2022 09:35:02

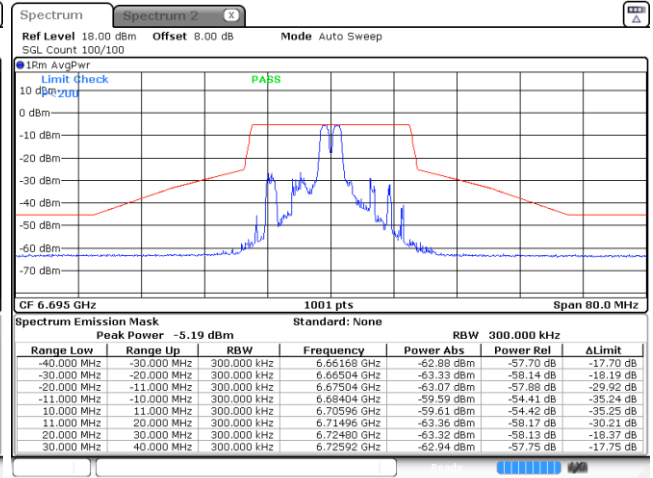


Plot on Channel 6535MHz 106RU53



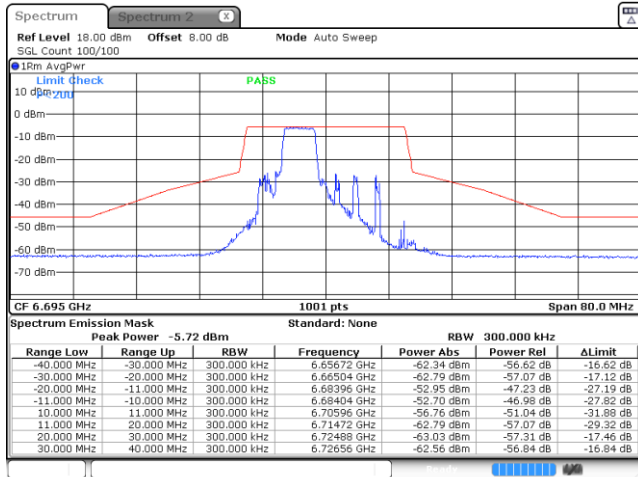
Date: 17.FEB.2022 09:38:59

Plot on Channel 6695MHz 26RU0



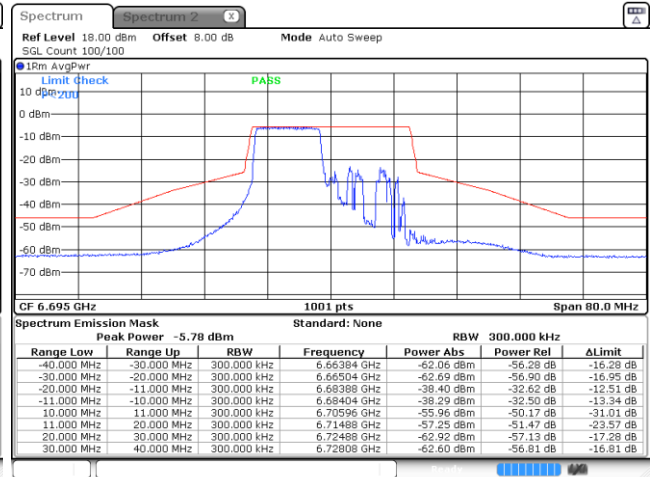
Date: 17.FEB.2022 09:39:31

Plot on Channel 6695MHz 52RU38



Date: 17.FEB.2022 09:52:13

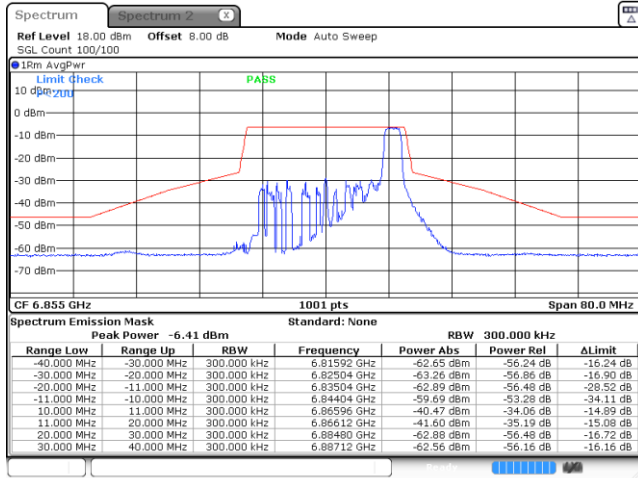
Plot on Channel 6695MHz 106RU53



Date: 17.FEB.2022 09:55:24

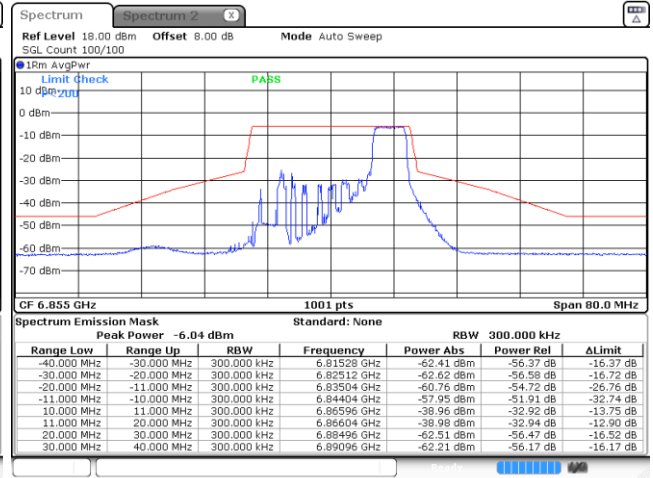


Plot on Channel 6855MHz 26RU8



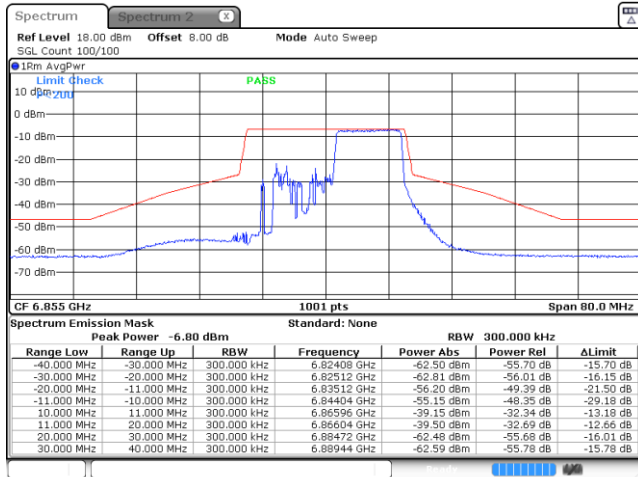
Date: 17.FEB.2022 10:01:05

Plot on Channel 6855MHz 52RU40



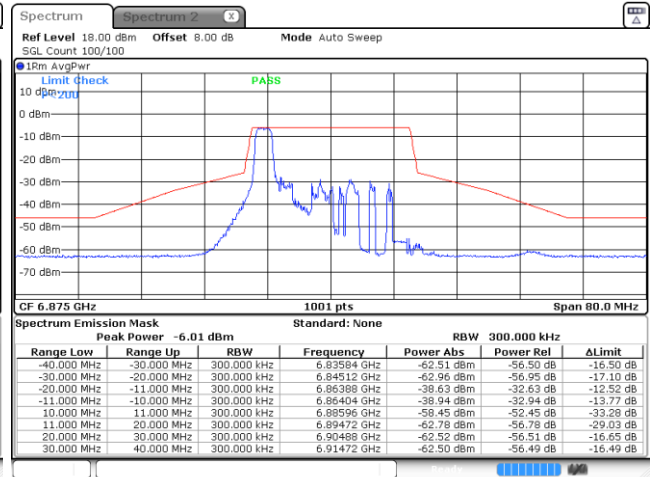
Date: 17.FEB.2022 10:03:59

Plot on Channel 6855MHz 106RU54



Date: 17.FEB.2022 10:05:35

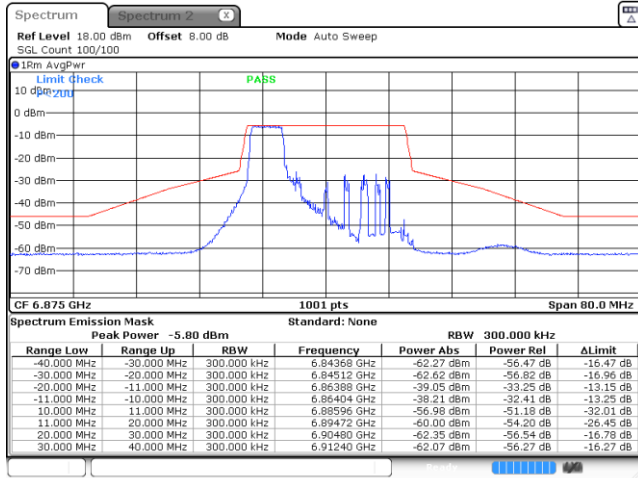
Plot on Channel 6875MHz 26RU0



Date: 17.FEB.2022 10:08:18

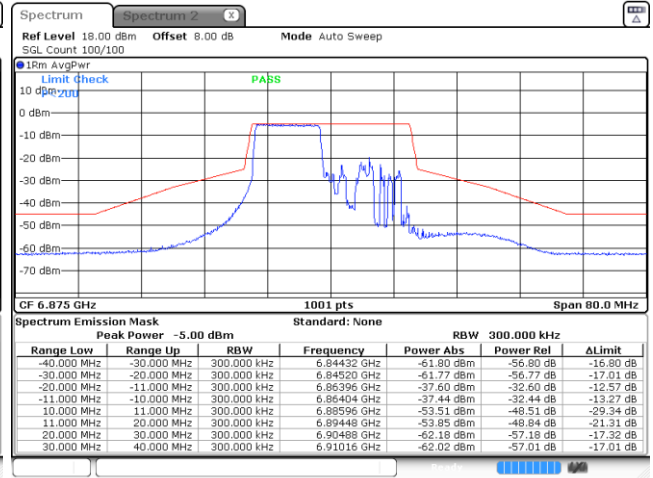


Plot on Channel 6875MHz 52RU37



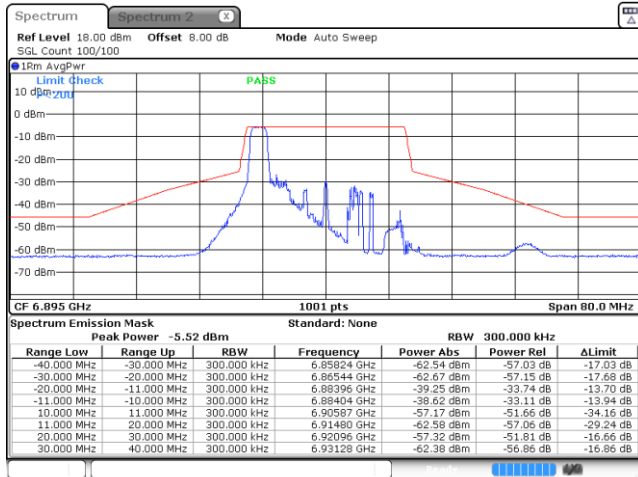
Date: 17.FEB.2022 10:10:15

Plot on Channel 6875MHz 106RU53



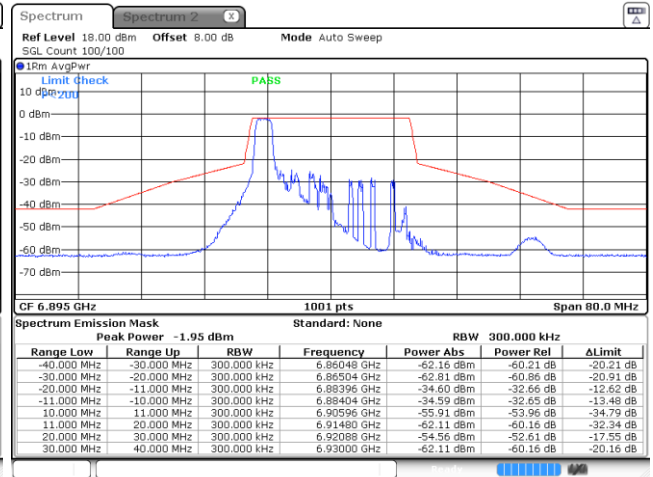
Date: 17.FEB.2022 10:13:12

Plot on Channel 6895MHz 26RU0



Date: 17.FEB.2022 10:16:57

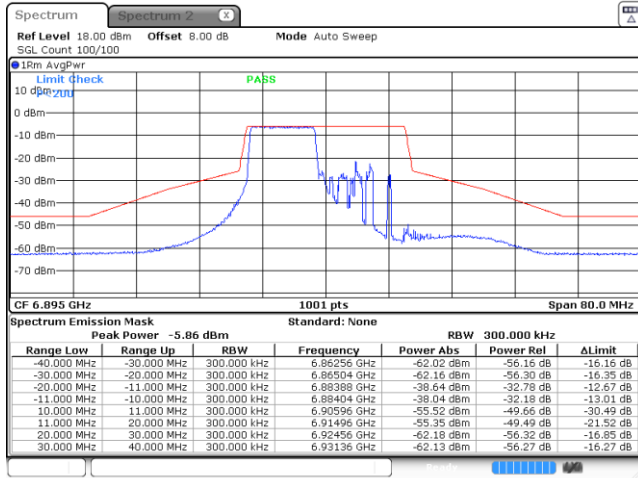
Plot on Channel 6895MHz 52RU37



Date: 17.FEB.2022 10:20:15

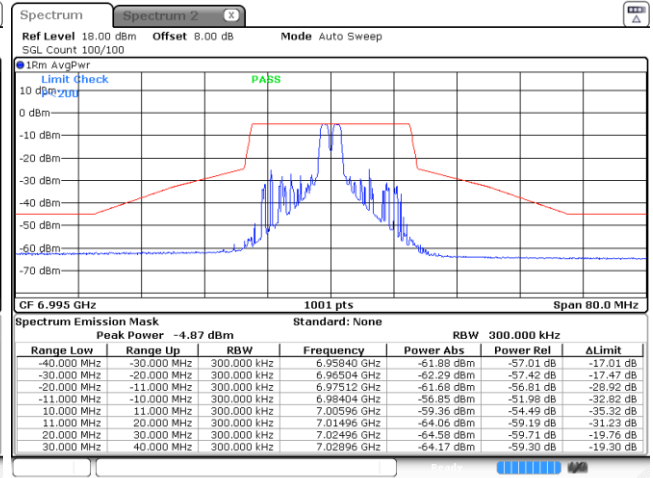


Plot on Channel 6895MHz 106RU53



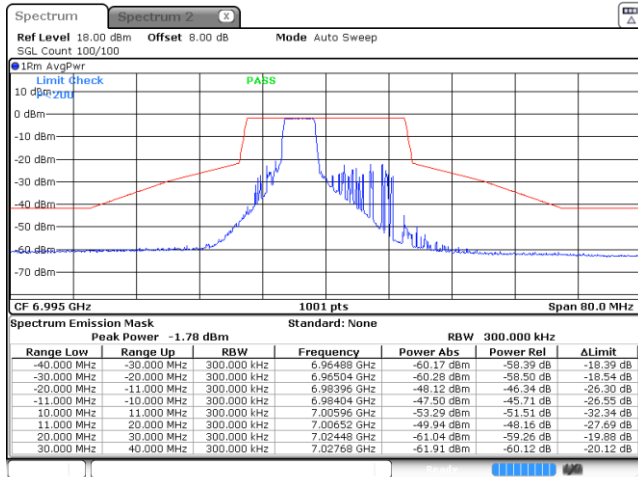
Date: 17.FEB.2022 10:23:10

Plot on Channel 6995MHz 26RU4



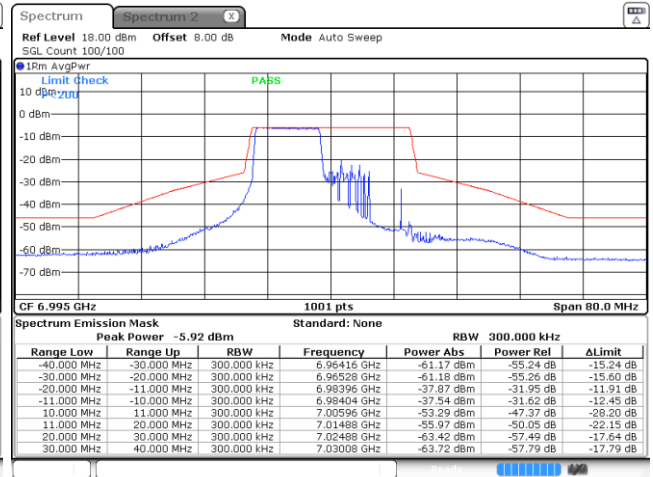
Date: 17.FEB.2022 10:26:11

Plot on Channel 6995MHz 52RU38



Date: 17.FEB.2022 10:28:49

Plot on Channel 6995MHz 106RU53



Date: 17.FEB.2022 10:33:10