


# Test Report

<b>Product</b>	Telepresence Unit		
<b>Name and address of the applicant</b>	Cisco Systems Norway AS Philip Pedersens vei 1 1366 Lysaker, Norway		
<b>Name and address of the manufacturer</b>	Cisco Systems, Inc. 170 West Tasman Drive San Jose CA 95134, USA		
<b>Model</b>	07-100577		
<b>Rating</b>	100 – 240V <sub>AC</sub>		
<b>Trademark</b>	CISCO		
<b>Serial number</b>	FOC2536N3GU		
<b>Additional information</b>	WiFi, BT Classic, BLE		
<b>Tested according to</b>	<b>Parts of FCC Part 15.407</b> Unlicensed National Information Infrastructure Devices (U-NII) <b>Parts of Industry Canada RSS-247, Issue 2</b> Licence-Exempt Local Area Network (LE-LAN) Devices		
<b>Order number</b>	450335		
<b>Tested in period</b>	2021-10-13 to 2021-10-29 and 2022-01-06		
<b>Issue date</b>	2022-01-14		
<b>Name and address of the testing laboratory</b>	 Instituttveien 6 Kjeller, Norway www.nemko.com	CAB Number FCC: NO0001 ISED: NO0470  TEL: +47 22 96 03 30 FAX: +47 22 96 05 50	 
<b>An accredited technical test executed under the Norwegian accreditation scheme</b>			
 Prepared by [Frode Sveinsen]		 Approved by [G.Suhanthakumar]	
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# 1 INFORMATION

## 1.1 Test Item

Name	Cisco Webex Room Bar
Model	07-100577
FCC ID	LDK073002357
ISED ID	2461N-073002357
Serial number	FOC2536N3GU
Hardware identity and/or version	Rev. B
Software identity and/or version	S01845-2.19.0/ CE10.8.0
Frequency Ranges	U-NII 1 : 5180 – 5240 MHz: 4 channels U-NII 2A : 5260 – 5320 MHz: 4 channels U-NII 2C : 5500 – 5720 MHz: 12 channels U-NII 3 : 5745 – 5825 MHz: 5 channels
Operating Modes	802.11a 802.11n (20/40 MHz BW) 802.11ac (40/80 MHz BW)
Type of Modulation	Digital (OFDM - Orthogonal frequency-division multiplexing)
Conducted Output Power	5180 – 5240 MHz: 39.6 mW 5260 – 5320 MHz: 86.7 mW 5500 – 5720 MHz: 99.5 mW 5745 – 5825 MHz: 111.7 mW
Antenna Connector	None
Number of Antennas	2
Antenna Diversity Supported	Yes
Smart Antennas Supported	Yes
TPC Supported	Not implemented. Not required when EIRP is below 500 mW
DFS Supported	Client Device without Radar Detection
Ad-hoc Mode	EUT does not support Ad-hoc Mode in DFS bands*
Hotspot Mode	EUT does not support Hotspot Mode in DFS bands*
Power Supply	Mains Powered External Power Supply Model: FSP086-A12C1401 (Output 12V <sub>DC</sub> , 2.5A)

\* EUTs that support Ad-hoc or Hotspot mode in the DFS Bands are considered Master Devices

### Description of Test Item

The EUT is a radio module with WiFi and BT/BLE module in a collaboration end-point system.

This 5 GHz WiFi part has been tested as a U-NII system.

The radio is a certified radio module. This test report only covers additional tests for use with new antennas.

Data for the original radio module				
Brand Name	FCC ID	IC ID	Original Test Report No	Radio Technology
muRata	VPLYLBEE5XV1XA	772C-LBEE5XV1XA	ER-2020-90106	BT Classic
			ER-2020-90107	BT Low Energy
			ER-2020-90108	WLAN
			ER-2020-90109	UNII 2TX
			ER-2020-90110	DFS

### 1.3 Normal test conditions

Temperature: 20 - 24 °C  
 Relative humidity: 20 - 50 %  
 Normal test voltage: 120V 60Hz

The EUT was powered from a regulated Power Source during all tests.  
 The values are the limit registered during the test period.

### 1.4 Test Engineer(s)

Frode Sveinsen

### 1.5 Antenna Requirement

Is the antenna detachable?  Yes  No

If detachable, is the antenna connector non-standard?  Yes  No

Type of antenna connector: N/A, Integral Antenna

### 1.6 Worst-Case Configuration

Radiated Emissions and Power Line Conducted Emissions were performed with the EUT set to transmit at the channel with the highest output power as worst-case scenario.

Worst case data rates were:

802.11a mode: 6 Mbps  
 802.11n HT20 mode: MCS8 MIMO  
 802.11n HT40 mode : MCS8 MIMO  
 802.11ac VHT80 mode : MCS8 MIMO

### 1.7 EUT Operating Modes

<b>Description of operating modes</b>	Continuous TX, 5 GHz 20/40/80 MHz Mode
<b>Additional information</b>	EUT was controlled from a computer and programmed with test scripts from Putty.

### 1.8 Comments

The measurements were done with the EUT powered by 120V 60Hz from the power source.

It was checked that power variations between 85% and 115% did not have any influence on the measurements.

All ports were populated during spurious emission measurements.

This test report covers only selected tests for new antennas, all other tests are covered by the original SGS Test Report.

## 1.9 EUT Power Levels

Channel	Carrier Freq (MHz)	11a	11n HT20 SISO	11n HT20 MIMO	11n HT40 MIMO	11ac VHT80 MIMO
40	5200	10.5	10	10		
60	5300	12	10.5	10.5		
64	5320	10	9.5			
104	5520	12	12	10		
136	5680	13	13	13		
54	5270				13	
110	5550				13.5	
118	5590				13.5	

ISED Canada require that all channels in the TDWR Band (5.60-5.65 GHz) are disabled, also on client devices.

The above table shows channels where the power level was reduced, all other channels have the default power levels.

## 2 TEST REPORT SUMMARY

### 2.1 General

All measurements are traceable to national standards.

The tests were conducted for demonstrating compliance with FCC CFR 47 Part 15, paragraph 15.407 and ISED RSS-247 Issue 2.

Tests were performed in accordance with ANSI C63.4-2014 and ANSI C63.10-2013.

Radiated tests were performed in a semi-anechoic chamber at measuring distances of 1m and 3m.

- |  |   |
|--|---|
| <input type="checkbox"/> New Submission                        | <input checked="" type="checkbox"/> Production Unit |
| <input checked="" type="checkbox"/> Class II Permissive Change | <input type="checkbox"/> Pre-production Unit        |
| <b>Nil</b> Equipment Code                                      | <input type="checkbox"/> Family Listing             |



#### **THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.**

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".

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## 2.2 Test Summary

Name of test	FCC Part 15 reference	RSS-247 Issue 2 RSS-GEN Issue 5 reference	Result
Supply Voltage Variations	15.31(e)	6.11 (RSS-GEN)	Complies
Antenna Requirement	15.203	6.8 (RSS-GEN)	Complies
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2 / 8.8 (RSS-GEN)	Complies
Maximum Output Power	15.407(a)	6.2	Complies
Power Spectral Density	15.407(a)	6.2	N/T
Emission Bandwidth	15.407(a)(2)	6.2	N/T
Unwanted Emissions	15.407(b)	6.2	Complies
Discontinuation of Transmission	15.407(c)	6.3	N/T <sup>1</sup>
6 dB Bandwidth	15.407(e)	6.2.4	N/T
Transmit Power Control	15.407(h)	6.2.3	N/A <sup>2</sup>
Dynamic Frequency Selection	15.407(h)	6.3	N/T <sup>3</sup>
Radiated Emissions	15.205 15.209	7.3 (RSS-GEN) 8.9 (RSS-GEN)	Complies

<sup>1</sup> See manufacturers declaration

<sup>2</sup> Transmit Power Control is not required when Max EIRP is below 500 mW

<sup>3</sup> The EUT is a Client Device without Radar Detection.

### Revision history

Revision	Date	Comment	Sign
00	2022-01-14	First edition	FS

### 3 TEST RESULTS

#### 3.1 Power-Line Conducted Emissions

FCC Part 15.207

ISED RSS-GEN Issue 5, Clause 7.2/8.8

Measurement procedure: ANSI C63.4-2014 using 50  $\mu$ H/50 ohms LISN.

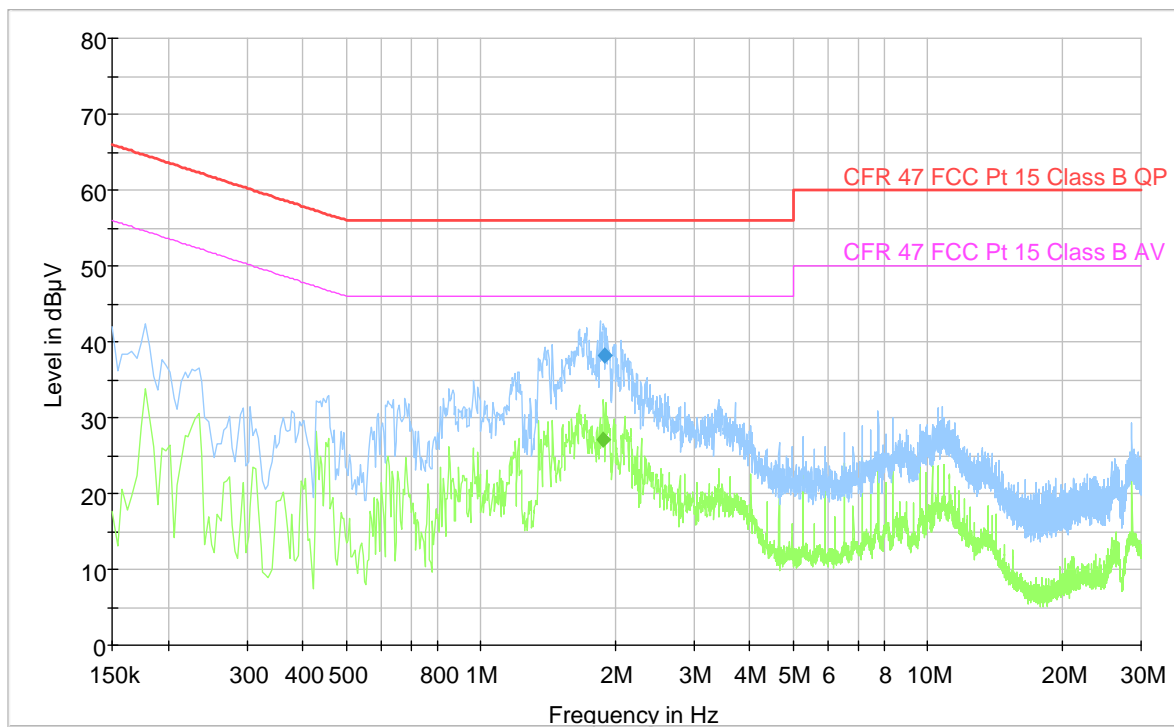
Test Results: Complies

Measurement Data: See attached plots.

Highest measured value (L1 and N):

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter
1.880	---	27.14	46.00	18.86	1000	9	N	OFF
1.896	38.16	---	56.00	17.84	1000	9	L1	OFF

Full Spectrum





### 3.2 Maximum Output Power, EIRP

FCC 15.407 (a)

ISED RSS-247, Issue 2, Clause 6.2

Measurement procedure: ANSI C63.10-2013 Clause 12.3, method SA-1

Test Results: Complies

Measurement Data:

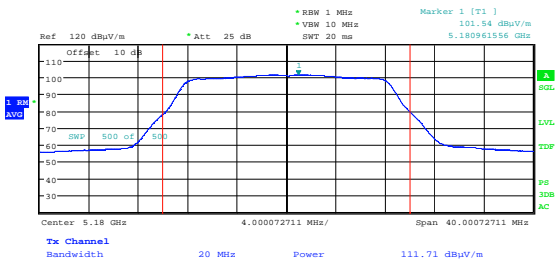
Ch. No.	Nominal Frequency (MHz)	Maximum Field Strength (dB $\mu$ V/m)			Maximum e.i.r.p. (dBm)		
		802.11a	802.11n HT20		802.11a	802.11n HT20	
			SISO	MIMO		SISO	MIMO
36	5180	111.7	110.5	109.3	16.5	15.3	14.1
40	5200	112.5	111.7	112.1	17.3	16.5	16.9
44	5220	116.0	115.8	113.2	20.8	20.6	18.0
56	5280	116.7	116.2	115.4	21.4	21.0	20.2
60	5300	114.0	112.5	112.2	18.8	17.3	17.0
64	5320	110.9	110.9	108.2	15.7	15.7	12.9
100	5500	112.3	111.4	117.9	17.1	16.2	22.7
104	5520	114.7	114.9	114.9	19.5	19.7	19.7
108	5540	117.8	117.6	117.3	22.5	22.4	22.1
132	5660	116.8	116.9	117.0	21.6	21.7	21.7
136	5680	114.7	114.7	114.7	19.5	19.4	19.4
140	5700	111.2	110.0	108.0	16.0	14.8	12.8
144	5720	115.9	115.6	116.2	20.7	20.4	21.0
149	5745	117.2	117.2	117.3	21.9	22.0	22.1
165	5825	117.1	114.8	116.7	21.8	19.6	21.5

Ch. No.	Nominal Frequency (MHz)	Maximum Field Strength (dB $\mu$ V/m)		Maximum e.i.r.p. (dBm)	
		802.11n HT40 MIMO	802.11ac VHT80 MIMO	802.11n HT40 MIMO	802.11ac VHT80 MIMO
38	5190	108.5		13.3	
46	5230	111.8		16.5	
54	5270	113.6		18.4	
62	5310	107.4		12.1	
102	5510	110.0		14.7	
110	5550	115.8		20.6	
118	5590	116.6		21.3	
126	5630	116.2		20.9	
134	5670	110.7		15.5	
142	5710	115.1		19.9	
151	5755	115.5		20.2	
159	5795	114.8		19.6	
42	5210		106.7		11.5
58	5290		104.3		9.0
106	5530		107.2		12.0
122	5610		116.0		20.8
138	5690		114.7		19.5
155	5775		112.3		17.1

The EUT operates continuously; therefore, method SA-1 of ANSI C63.10-2013 clause 12.3 was used.  
 EIRP values were calculated from Field Strength values using the method described in KDB 412172 D01.  
 This is an indoor device with directional Antenna Gain less than 6 dBi.

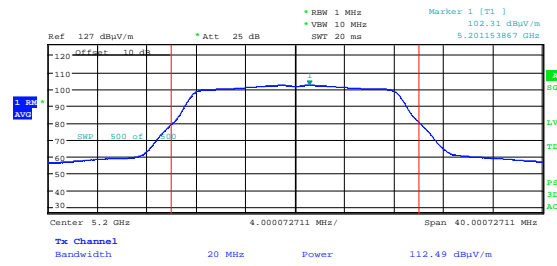
**Limits for Indoor Device:**

Frequency Band	FCC 15.407(a)	ISED RSS-247 Issue 2
5150 – 5250 MHz	Less than 250 mW (24 dBm) for client device Less than 1 W (30 dBm) for master device	Less than the lesser of 200 mW e.i.r.p. or $10 + 10 \log_{10} B$ dBm e.i.r.p.
5250 – 5350 MHz 5470 – 5725 MHz	Less than the lesser of 250 mW (24 dBm) or $11 + 10 \log_{10} B$ dBm	Less than the lesser of 250 mW or $11 + 10 \log_{10} B$ dBm, and Less than the lesser of 1 W e.i.r.p. or $17 + 10 \log_{10} B$ dBm e.i.r.p. Devices with e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W
5725 – 5825 MHz	Less than 1 Watt	Less than 1 Watt If Antenna Gain is more than 6 dBi the Power Limit is reduced by the amount exceeding 6 dBi
	If Antenna Gain is more than 6 dBi the Power Limit is reduced by the amount exceeding 6 dBi	
	$B$ is the 26dB emission bandwidth in MHz	$B$ is the 99% emission bandwidth in MHz



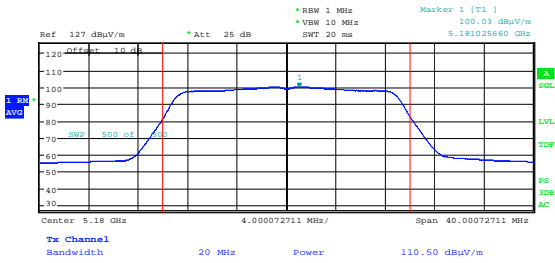
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**Maximum EIRP, Ch036, 802.11a, 6Mb**



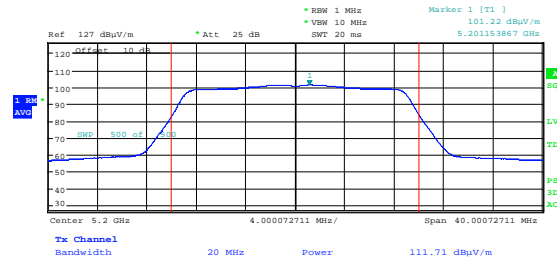
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**Maximum EIRP, Ch040, 802.11a, 6Mb**



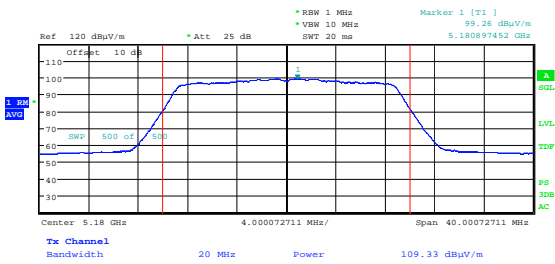
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**Maximum EIRP, Ch036, 802.11n, HT20 SISO**



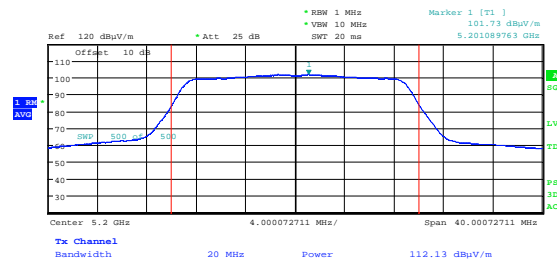
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**Maximum EIRP, Ch040, 802.11n, HT20 SISO**



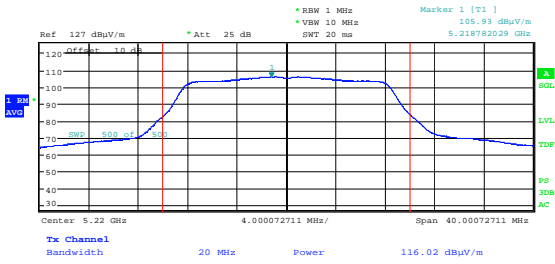
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**Maximum EIRP, Ch036, 802.11n, HT20 MIMO**



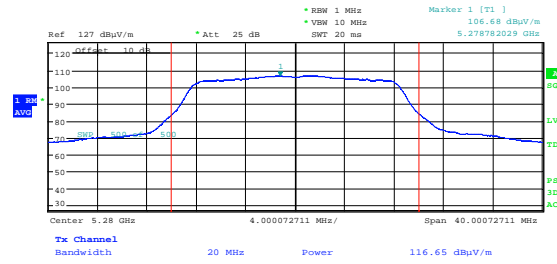
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**Maximum EIRP, Ch040, 802.11n, HT20 MIMO**



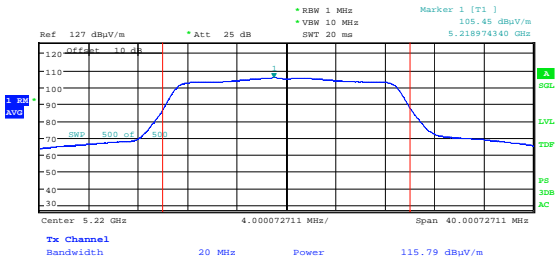
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**Maximum EIRP, Ch044, 802.11a, 6Mb**



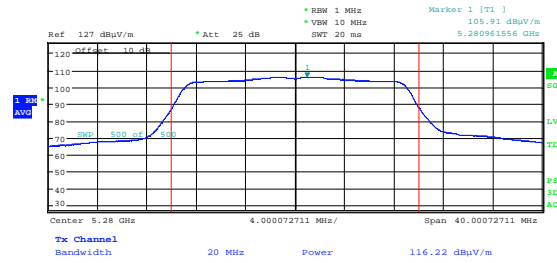
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**Maximum EIRP, Ch056, 802.11a, 6Mb**



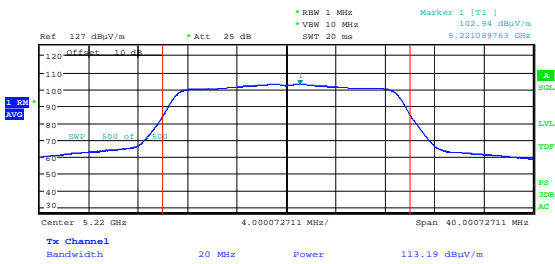
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**Maximum EIRP, Ch044, 802.11n, HT20 SISO**



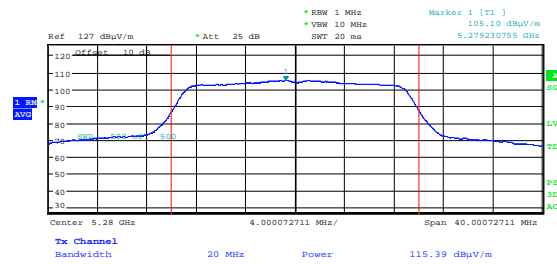
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**Maximum EIRP, Ch056, 802.11n, HT20 SISO**



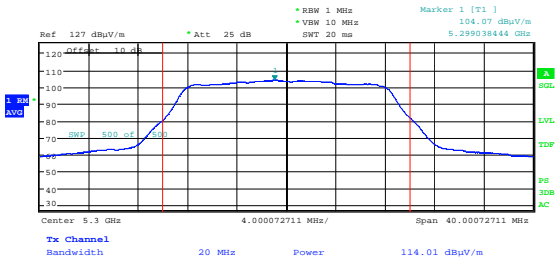
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**Maximum EIRP, Ch044, 802.11n, HT20 MIMO**



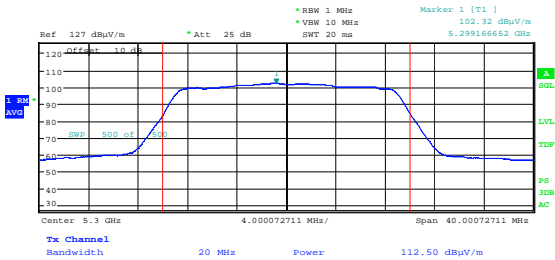
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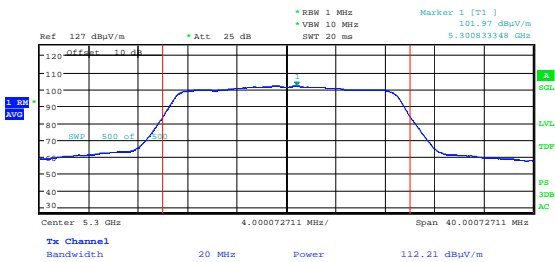
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**Maximum EIRP, Ch060, 802.11a, 6Mb**



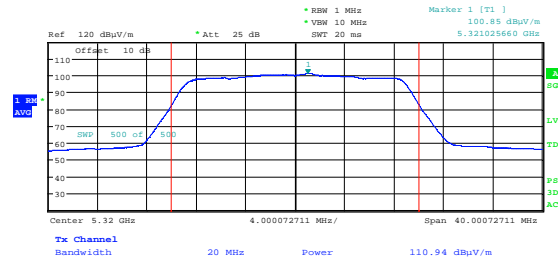
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**Maximum EIRP, Ch060, 802.11n, HT20 SISO**



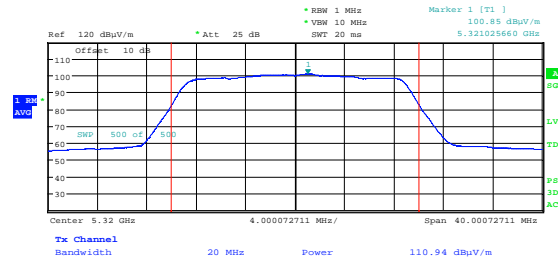
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**Maximum EIRP, Ch060, 802.11n, HT20 MIMO**



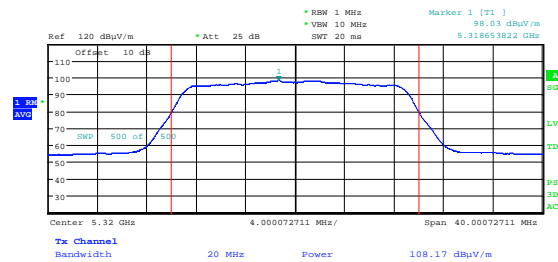
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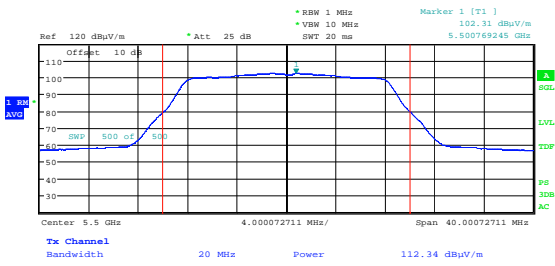
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**Maximum EIRP, Ch064, 802.11n, HT20 SISO**



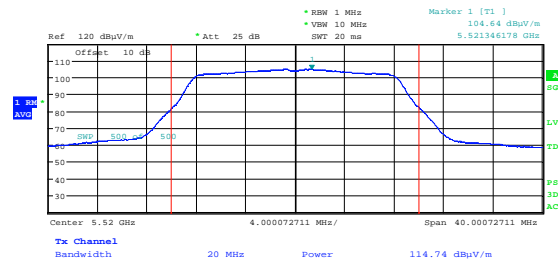
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**Maximum EIRP, Ch064, 802.11n, HT20 MIMO**



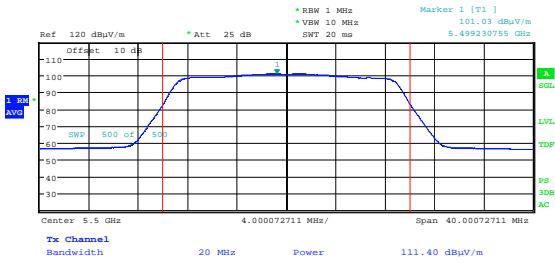
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**Maximum EIRP, Ch100, 802.11a, 6Mb**



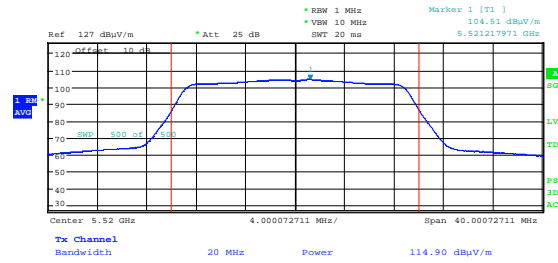
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**Maximum EIRP, Ch104, 802.11a, 6Mb**



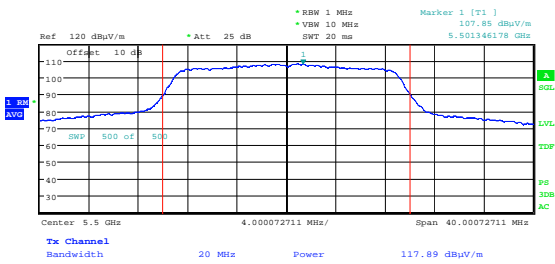
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**Maximum EIRP, Ch100, 802.11n, HT20 SISO**



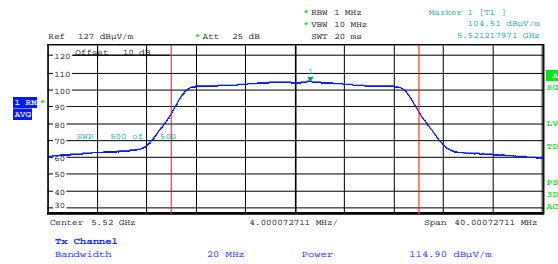
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**Maximum EIRP, Ch104, 802.11n, HT20 SISO**



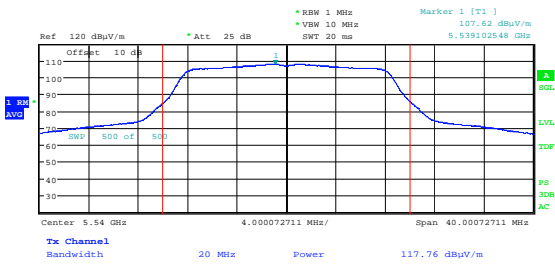
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**Maximum EIRP, Ch100, 802.11n, HT20 MIMO**



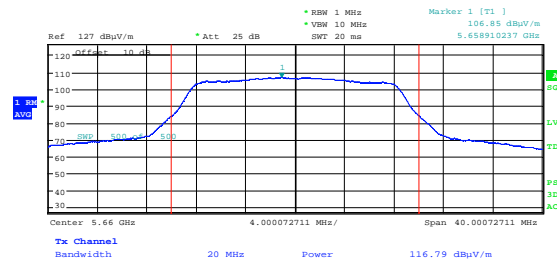
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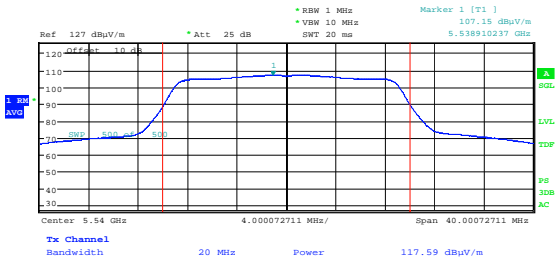
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**Maximum EIRP, Ch108, 802.11a, 6Mb**



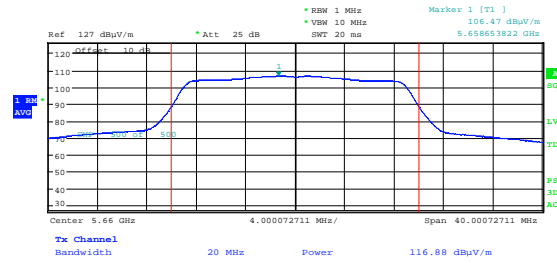
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**Maximum EIRP, Ch132, 802.11a, 6Mb**



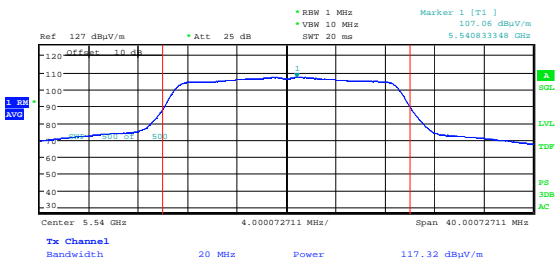
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**Maximum EIRP, Ch108, 802.11n, HT20 SISO**



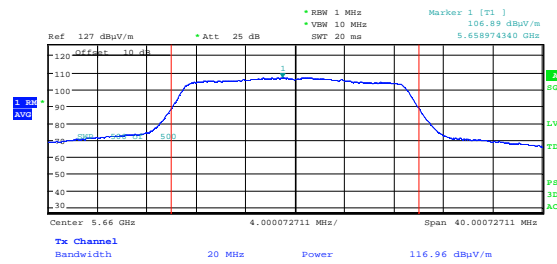
Date: 13.OCT.2021 16:24:52

**Maximum EIRP, Ch132, 802.11n, HT20 SISO**



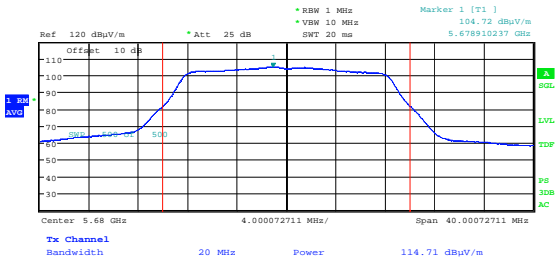
Date: 28.OCT.2021 10:46:07

**Maximum EIRP, Ch108, 802.11n, HT20 MIMO**



Date: 28.OCT.2021 10:49:00

**Maximum EIRP, Ch132, 802.11n, HT20 MIMO**



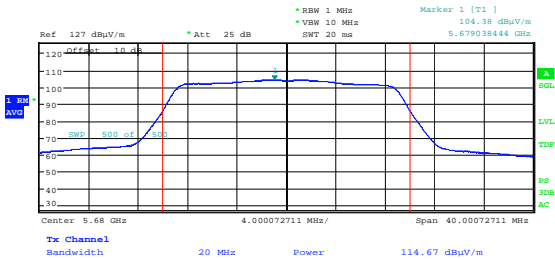
Date: 13.OCT.2021 15:15:09

**Maximum EIRP, Ch136, 802.11a, 6Mb**



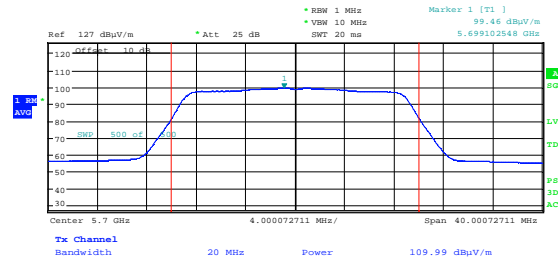
Date: 13.OCT.2021 15:09:49

**Maximum EIRP, Ch140, 802.11a, 6Mb**



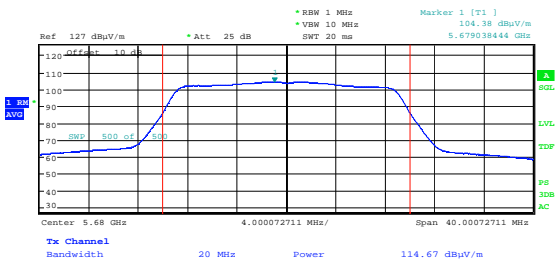
Date: 13.OCT.2021 16:06:49

**Maximum EIRP, Ch136, 802.11n, HT20 SISO**



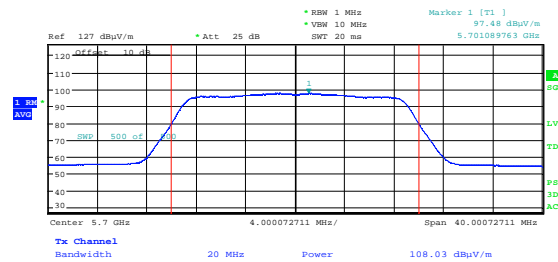
Date: 13.OCT.2021 16:01:38

**Maximum EIRP, Ch140, 802.11n, HT20 SISO**



Date: 13.OCT.2021 16:06:49

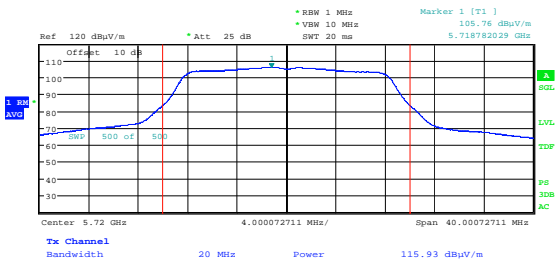
**Maximum EIRP, Ch136, 802.11n, HT20 MIMO**



Date: 28.OCT.2021 10:23:18

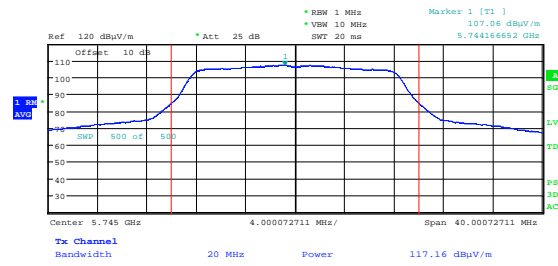
**Maximum EIRP, Ch140, 802.11n, HT20 MIMO**





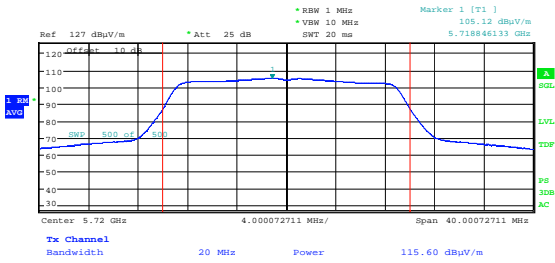
Date: 13.OCT.2021 15:16:47

Maximum EIRP, Ch144, 802.11a, 6Mb



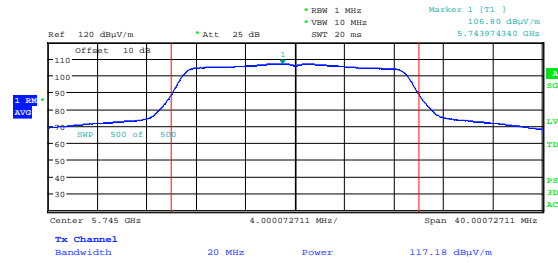
Date: 28.OCT.2021 09:29:21

Maximum EIRP, Ch149, 802.11a, 6Mb



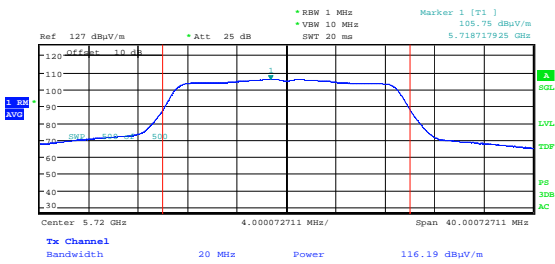
Date: 13.OCT.2021 16:11:23

Maximum EIRP, Ch144, 802.11n, HT20 SISO



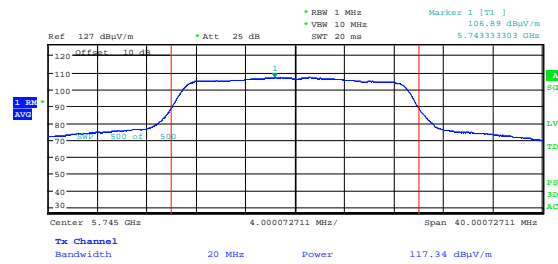
Date: 28.OCT.2021 09:32:00

Maximum EIRP, Ch149, 802.11n, HT20 SISO



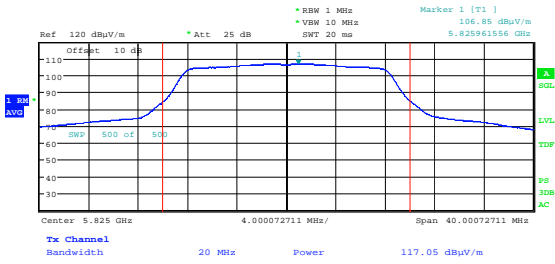
Date: 28.OCT.2021 11:20:52

Maximum EIRP, Ch144, 802.11n, HT20 MIMO



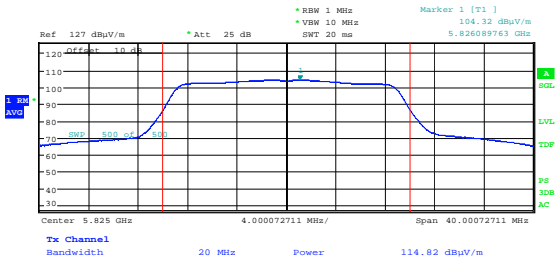
Date: 28.OCT.2021 11:22:03

Maximum EIRP, Ch149, 802.11n, HT20 MIMO



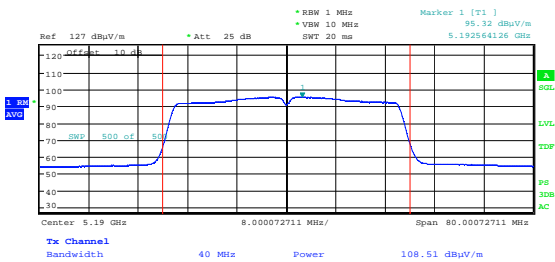
Date: 28.OCT.2021 09:25:58

**Maximum EIRP, Ch165, 802.11a, 6Mb**



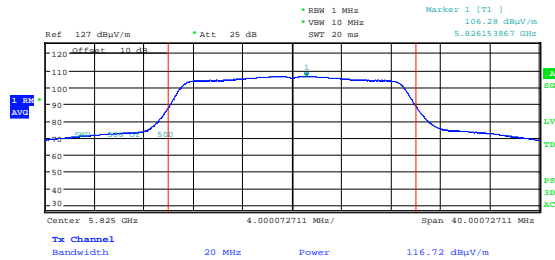
Date: 13.OCT.2021 16:16:22

**Maximum EIRP, Ch165, 802.11n, HT20 SISO**



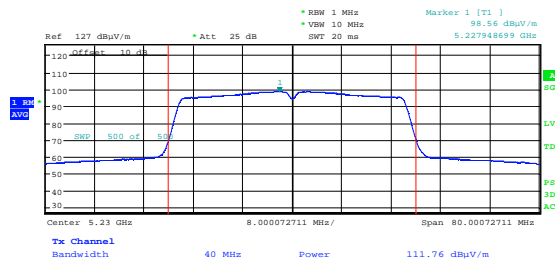
Date: 28.OCT.2021 12:23:05

**Maximum EIRP, Ch038, 802.11n, HT40, MIMO**



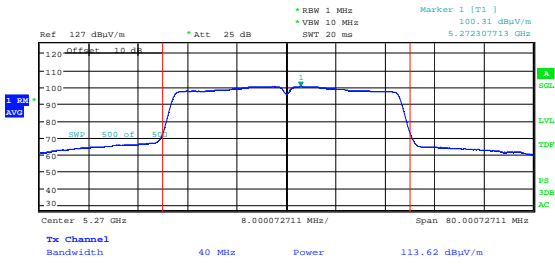
Date: 28.OCT.2021 11:23:49

**Maximum EIRP, Ch165, 802.11n, HT20 MIMO**



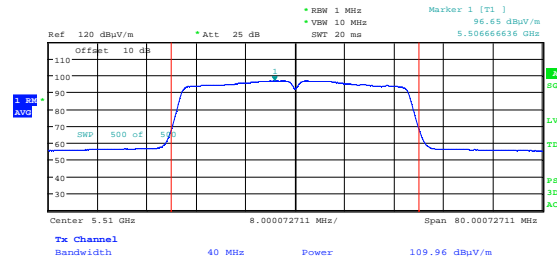
Date: 28.OCT.2021 12:22:08

**Maximum EIRP, Ch046, 802.11n, HT40, MIMO**



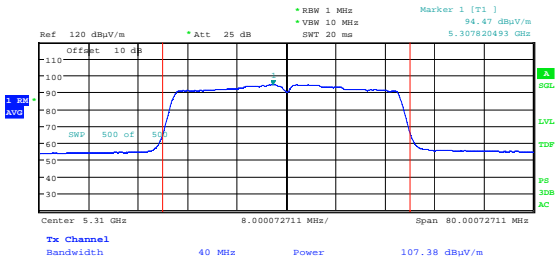
Date: 28.OCT.2021 12:18:51

**Maximum EIRP, Ch054, 802.11n, HT40, MIMO**



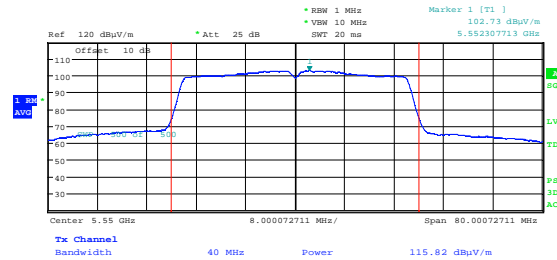
Date: 28.OCT.2021 12:03:02

**Maximum EIRP, Ch102, 802.11n, HT40, MIMO**



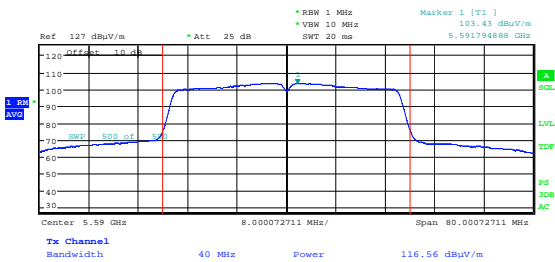
Date: 28.OCT.2021 12:14:25

**Maximum EIRP, Ch062, 802.11n, HT40, MIMO**



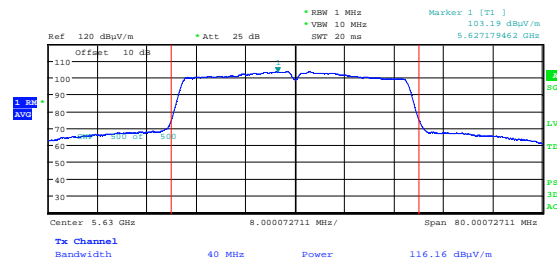
Date: 28.OCT.2021 12:08:24

**Maximum EIRP, Ch110, 802.11n, HT40, MIMO**



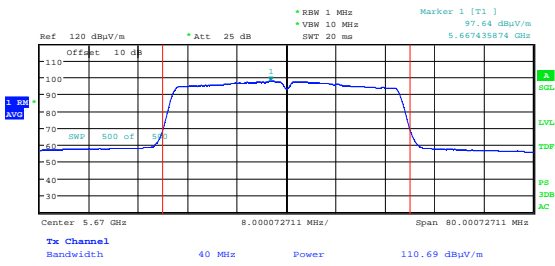
Date: 28.OCT.2021 12:10:54

**Maximum EIRP, Ch118, 802.11n, HT40, MIMO**



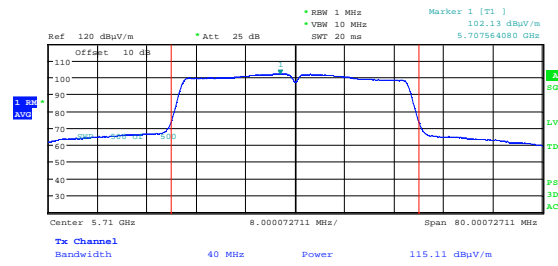
Date: 28.OCT.2021 12:00:23

**Maximum EIRP, Ch126, 802.11n, HT40, MIMO**



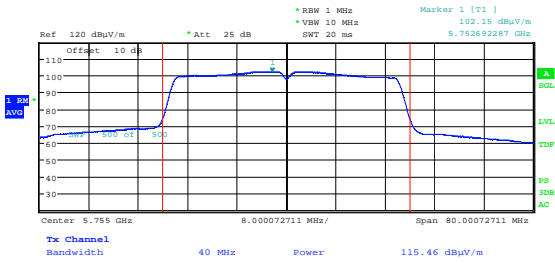
Date: 28.OCT.2021 11:58:19

**Maximum EIRP, Ch134, 802.11n, HT40, MIMO**



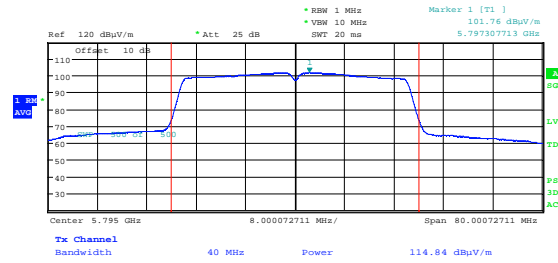
Date: 28.OCT.2021 11:56:58

**Maximum EIRP, Ch142, 802.11n, HT40, MIMO**



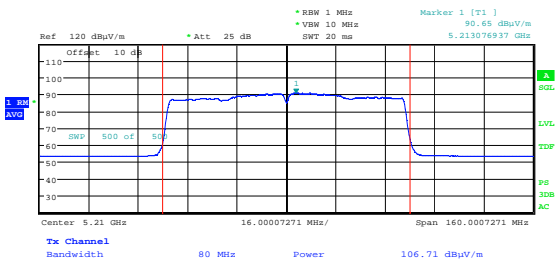
Date: 28.OCT.2021 11:52:41

**Maximum EIRP, Ch151, 802.11n, HT40, MIMO**



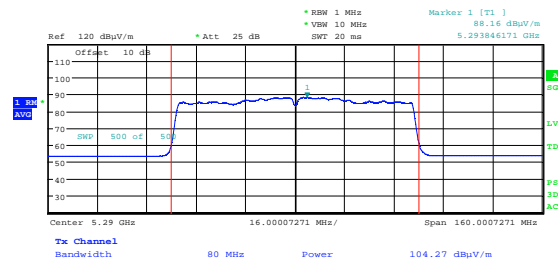
Date: 28.OCT.2021 11:54:36

**Maximum EIRP, Ch159, 802.11n, HT40, MIMO**



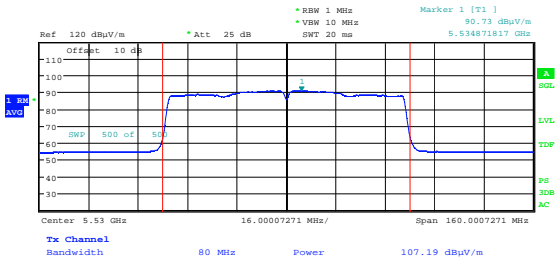
Date: 28.OCT.2021 12:27:16

**Maximum EIRP, Ch042, 802.11ac, VHT80, MIMO**



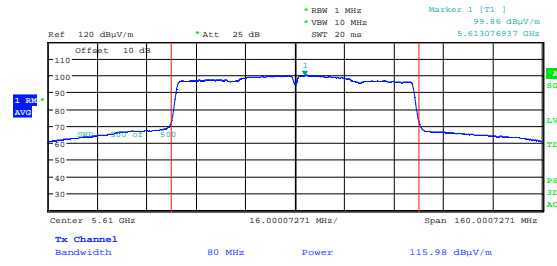
Date: 28.OCT.2021 12:29:55

**Maximum EIRP, Ch058, 802.11ac, VHT80, MIMO**



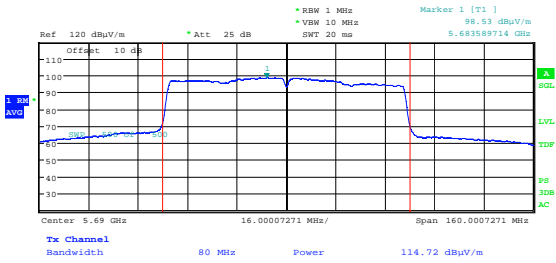
Date: 28.OCT.2021 12:33:46

**Maximum EIRP, Ch106, 802.11ac, VHT80, MIMO**



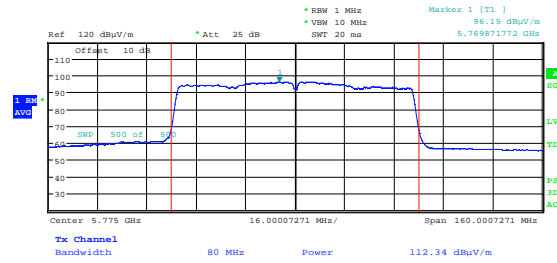
Date: 28.OCT.2021 12:38:01

**Maximum EIRP, Ch122, 802.11ac, VHT80, MIMO**



Date: 28.OCT.2021 12:41:07

**Maximum EIRP, Ch138, 802.11ac, VHT80, MIMO**



Date: 28.OCT.2021 12:42:37

**Maximum EIRP, Ch155, 802.11ac, VHT80, MIMO**

### 3.3 Unwanted Emissions

FCC 15.407 (b)

ISED RSS-247, Issue 2, clause 6.2

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

Measurement Data:

Band Edge Emissions:

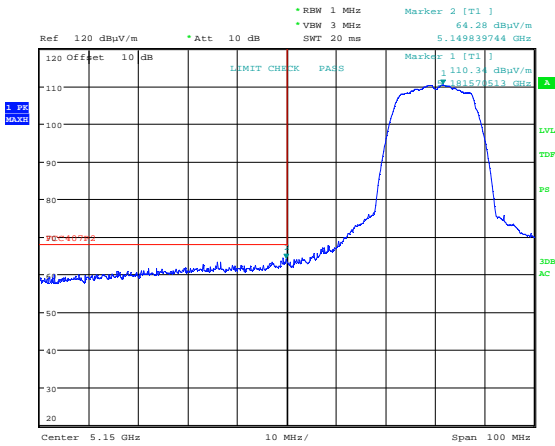
Band Edge Frequency (MHz)	Measured Values (dBm/MHz e.i.r.p.)				
	11a 6Mb	11n HT20 SISO	11n HT20 MIMO	11n HT40 MIMO	11ac VHT80 MIMO
5150	-29.5	-27.2	-30.2		
5350	-29.3	-28.1	-27.6		
5470	-28.5	-27.7	-28.0		
5725	-29.7	-28.7	-28.3		
5650	<-30	<-30	<-30		
5700	<-20	<-20	<-20		
5875	<-20	<-20	<-20		
5925	<-30	<-30	<-30		
5150				-32.8	
5350				-27.4	
5470				-28.1	
5725				-31.4	
5650				<-30	
5700				<-20	
5875				<-20	
5925				<-30	
5150					-35.0
5350					-35.0
5470					-32.8
5725					-28.2
5650					<-30
5700					<-20
5875					<-20
5925					<-30

The measurement was performed radiated.  
EIRP values were calculated from field strength using the method in KDB 412172 D01.  
The tested equipment is for indoor use only, no band-edge requirements apply at 5250 MHz.  
A 10 dB attenuator was used before the preamp for all Band Edge measurements.

**Limits:**

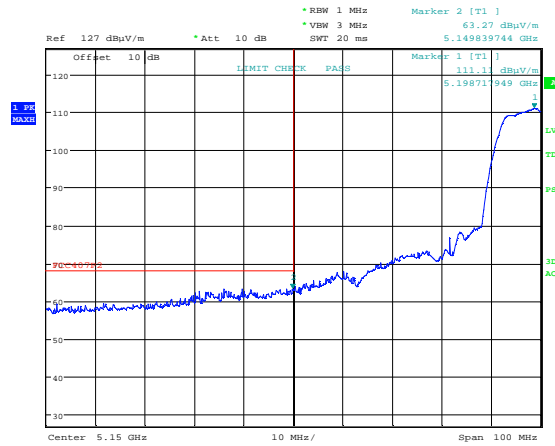
Operating Frequency band	Limit for Emissions Outside Operating Frequency Band
5150 – 5250 MHz	-27 dBm/MHz e.i.r.p.
5250 – 5350 MHz	-27 dBm/MHz e.i.r.p.
5470 – 5725 MHz	-27 dBm/MHz e.i.r.p.
5725 – 5825 MHz	See FCC 15.407(b)(4)(i) or 15.407(b)(4)(ii)

Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.



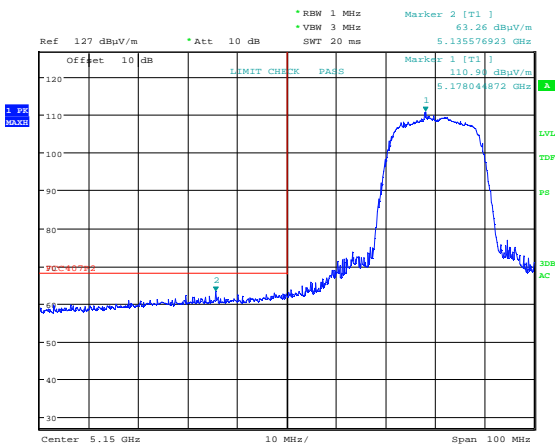
Date: 13.OCT.2021 14:57:13

Band Edge 5150MHz, ch036, 802.11a 6M, Max



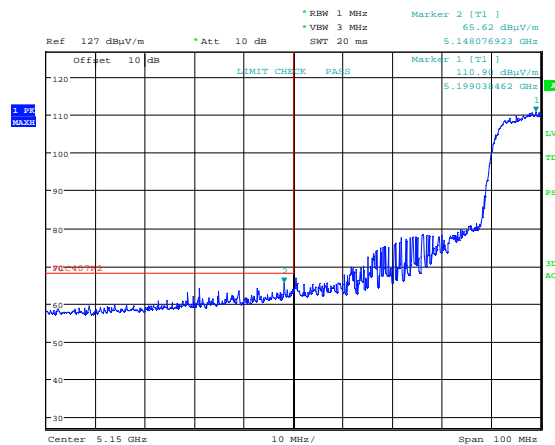
Date: 13.OCT.2021 15:02:10

Band Edge 5150MHz, ch040, 802.11a 6M, Max



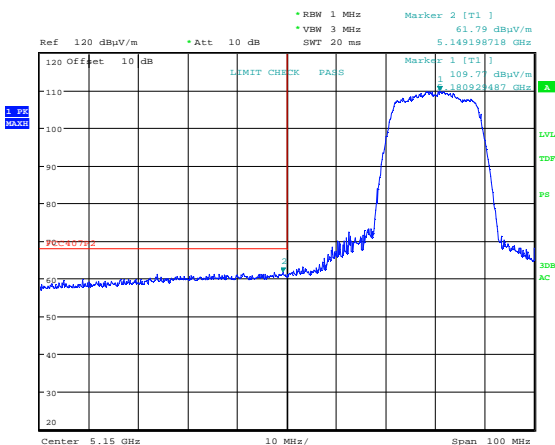
Date: 13.OCT.2021 15:50:40

Band Edge 5150MHz, ch036, 802.11n SISO, Max



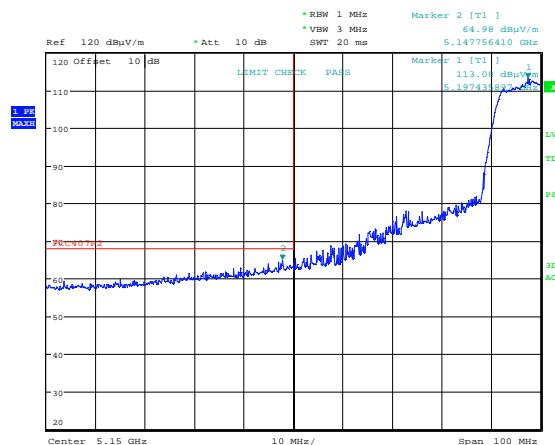
Date: 13.OCT.2021 15:55:33

Band Edge 5150MHz, ch040, 802.11n SISO, Max



Date: 28.OCT.2021 11:00:02

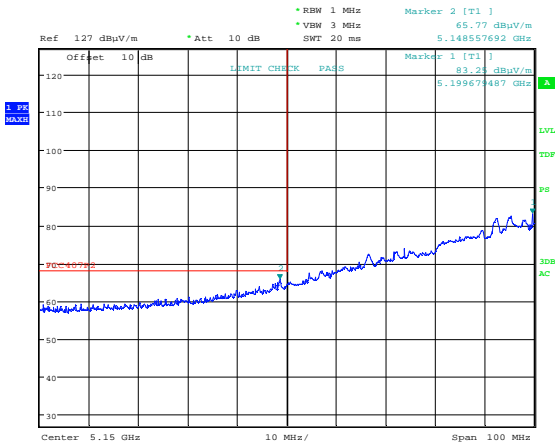
Band Edge 5150MHz, ch036, 802.11n MIMO, Max



Date: 28.OCT.2021 11:04:56

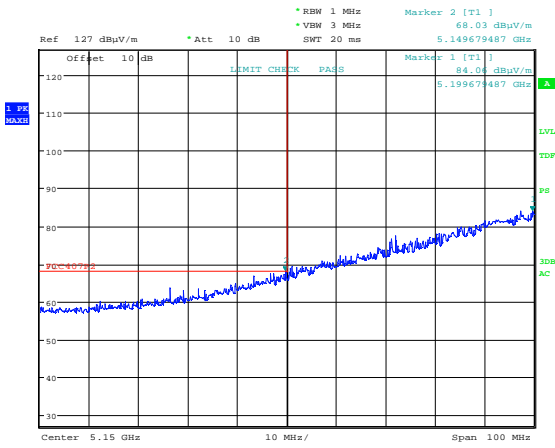
Band Edge 5150MHz, ch040, 802.11n MIMO, Max





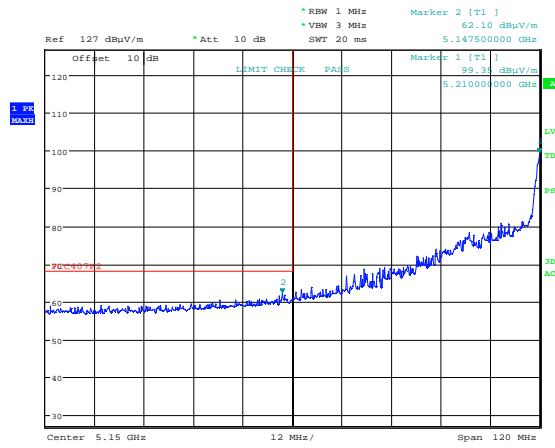
Date: 13.OCT.2021 15:06:28

**Band Edge 5150MHz, ch044, 802.11a 6M, Max**



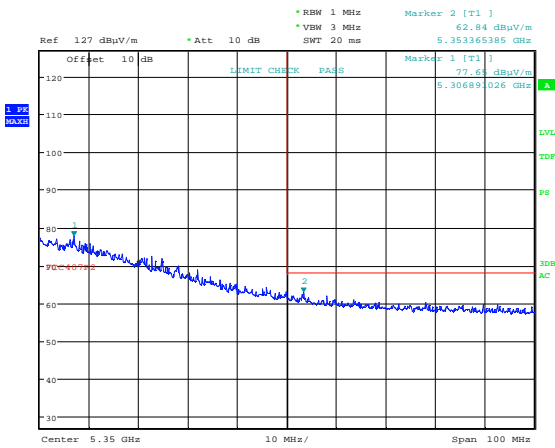
Date: 13.OCT.2021 15:58:02

**Band Edge 5150MHz, ch044, 802.11n SISO, Max**



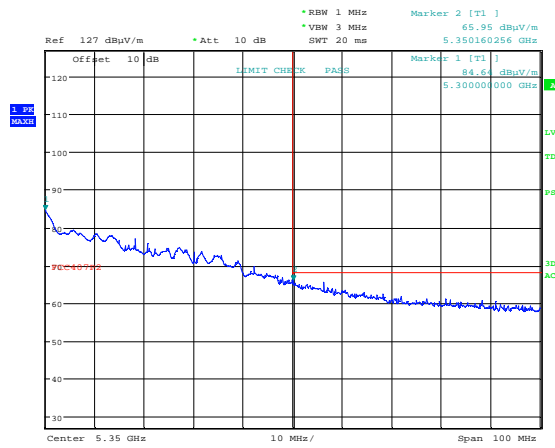
Date: 28.OCT.2021 10:55:17

**Band Edge 5150MHz, ch044, 802.11n MIMO, Max**



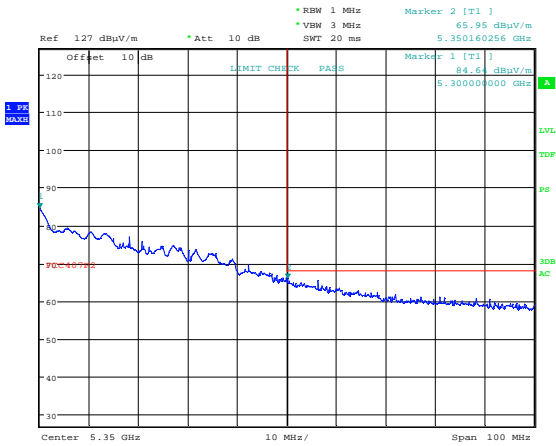
Date: 13.OCT.2021 16:08:56

**Band Edge 5350MHz, ch052, 802.11a 6M, Max**



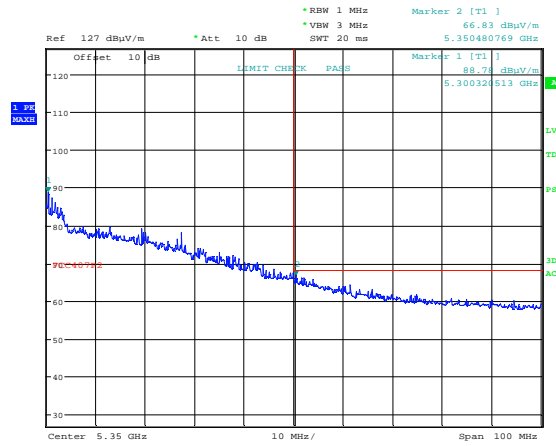
Date: 13.OCT.2021 14:54:35

**Band Edge 5350MHz, ch056, 802.11a 6M, Max**



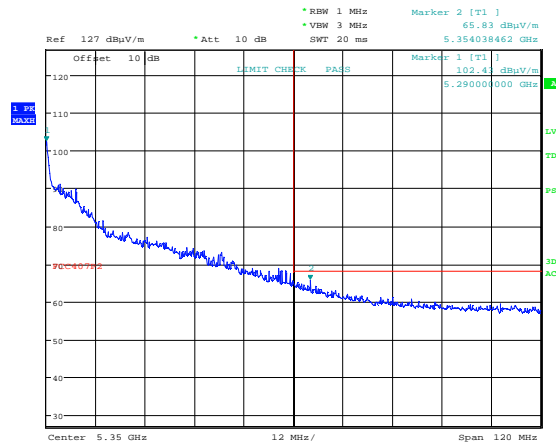
Date: 13.OCT.2021 14:54:35

Band Edge 5350MHz, ch052, 802.11n SISO, Max



Date: 13.OCT.2021 15:48:09

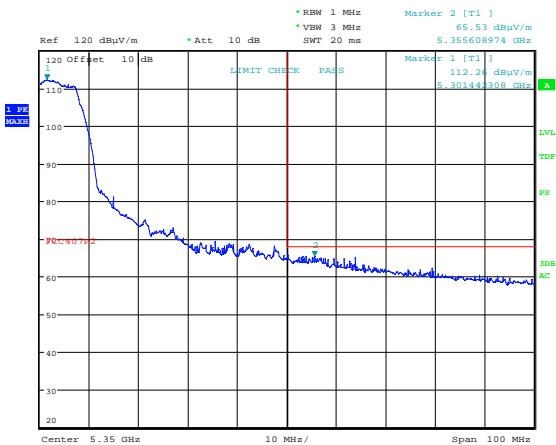
Band Edge 5350MHz, ch056, 802.11n SISO, Max



Date: 28.OCT.2021 10:52:12

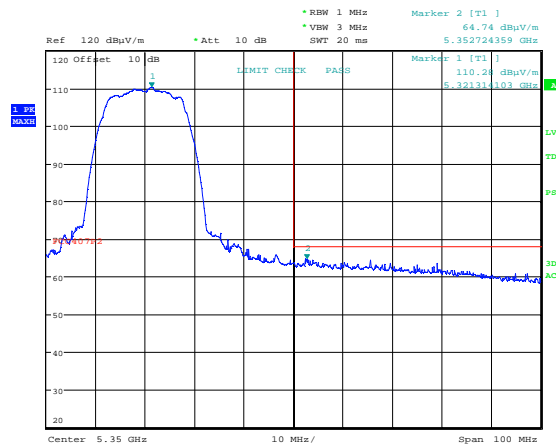
Band Edge 5350MHz, ch052, 802.11n MIMO, Max

Band Edge 5350MHz, ch056, 802.11n MIMO, Max



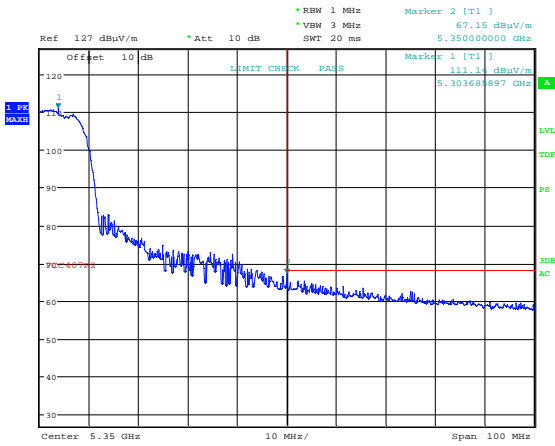
Date: 13.OCT.2021 14:48:40

Band Edge 5350MHz, ch060, 802.11a 6M, Max



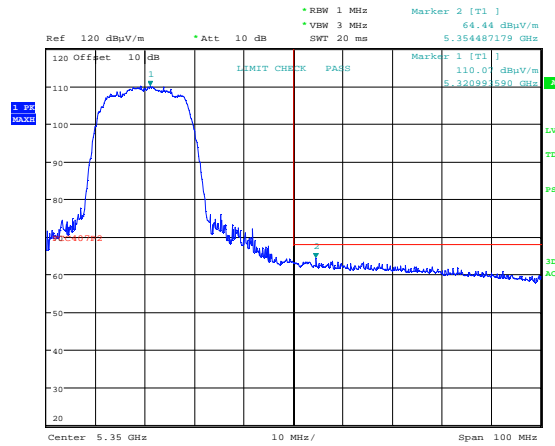
Date: 13.OCT.2021 14:29:32

Band Edge 5350MHz, ch064, 802.11a 6M, Max



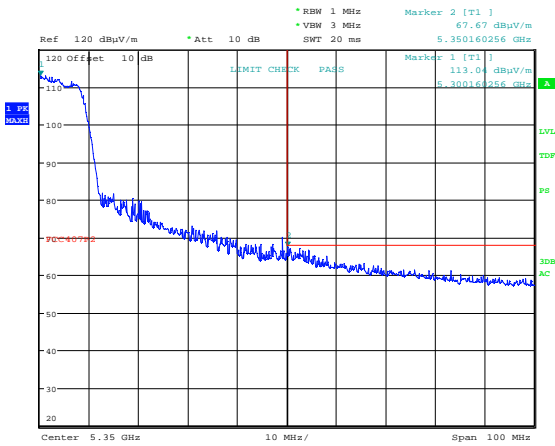
Date: 13.OCT.2021 15:44:00

**Band Edge 5350MHz, ch060, 802.11n SISO, Max**



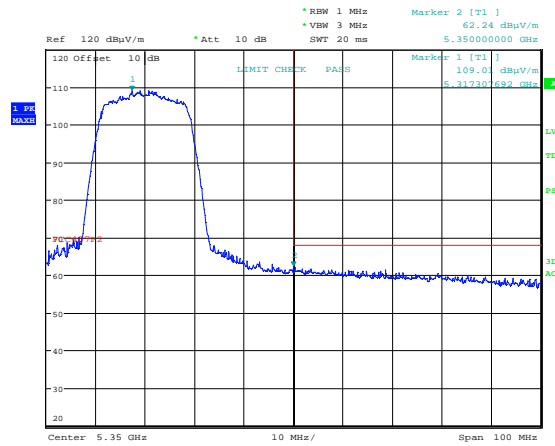
Date: 13.OCT.2021 15:37:46

**Band Edge 5350MHz, ch064, 802.11n SISO, Max**



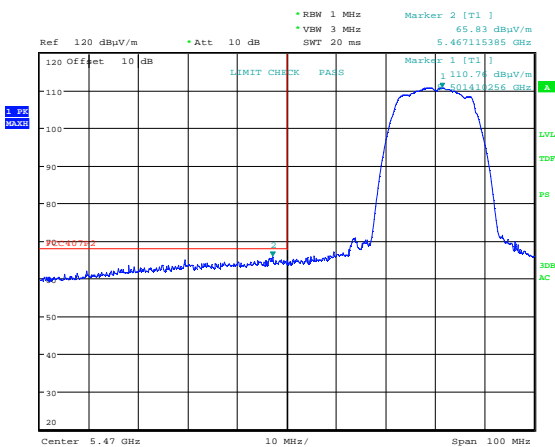
Date: 28.OCT.2021 11:13:27

**Band Edge 5350MHz, ch060, 802.11n MIMO, Max**



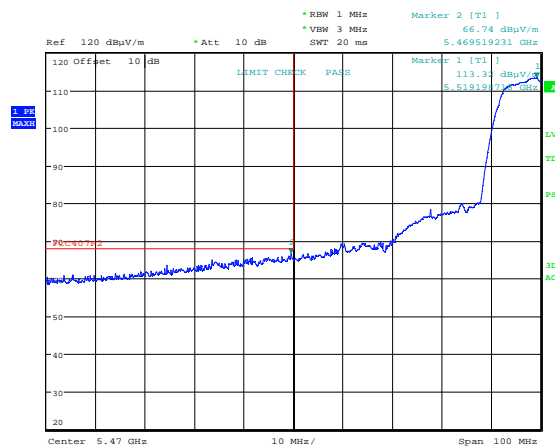
Date: 28.OCT.2021 11:08:39

**Band Edge 5350MHz, ch064, 802.11n MIMO, Max**



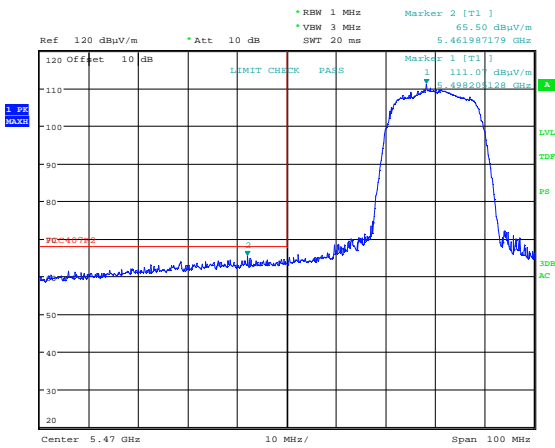
Date: 13.OCT.2021 14:34:26

**Band Edge 5470MHz, ch100, 802.11a 6M, Max**



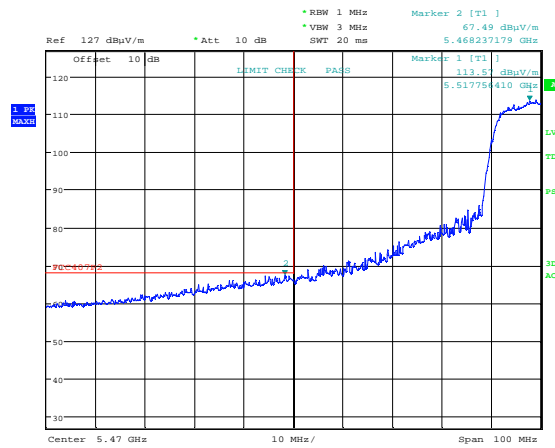
Date: 13.OCT.2021 14:42:02

**Band Edge 5470MHz, ch104, 802.11a 6M, Max**



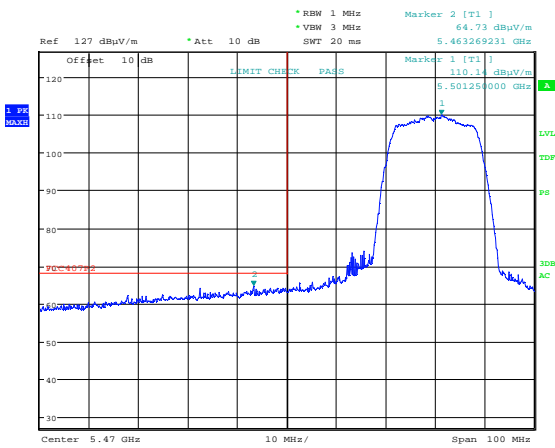
Date: 13.OCT.2021 15:21:25

**Band Edge 5470MHz, ch100, 802.11n SISO, Max**



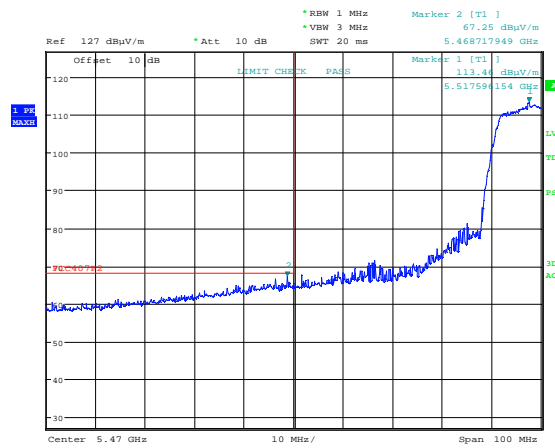
Date: 13.OCT.2021 15:26:51

**Band Edge 5470MHz, ch104, 802.11n SISO, Max**



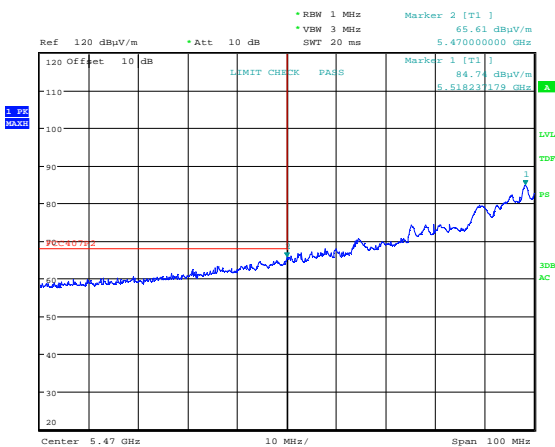
Date: 28.OCT.2021 10:20:25

**Band Edge 5470MHz, ch100, 802.11n MIMO, Max**



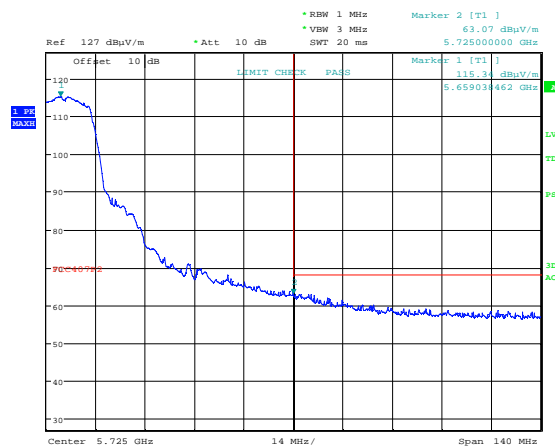
Date: 28.OCT.2021 10:40:25

**Band Edge 5470MHz, ch104, 802.11n MIMO, Max**



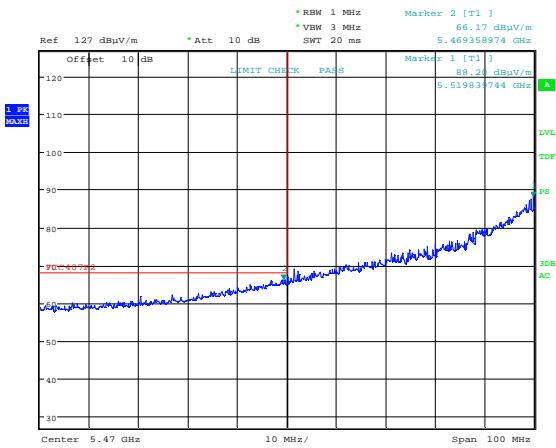
Date: 13.OCT.2021 14:45:03

**Band Edge 5470MHz, ch108, 802.11a 6M, Max**



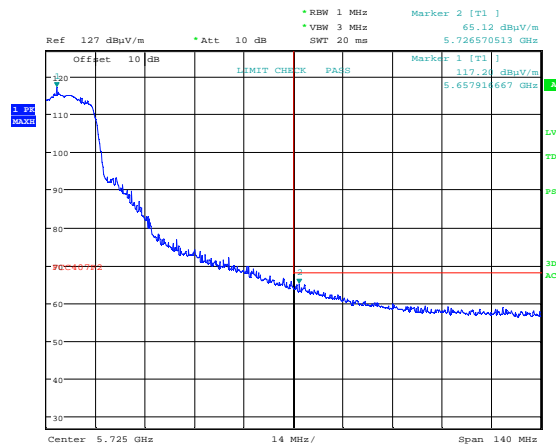
Date: 13.OCT.2021 16:22:16

**Band Edge 5725MHz, ch132, 802.11a 6M, Max**



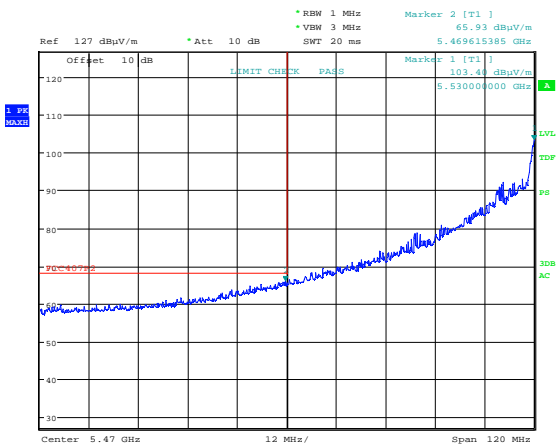
Date: 13.OCT.2021 15:30:17

**Band Edge 5470MHz, ch108, 802.11n SISO, Max**



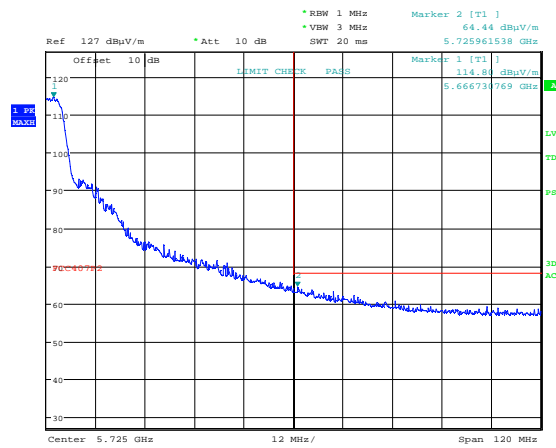
Date: 13.OCT.2021 16:24:23

**Band Edge 5725MHz, ch132, 802.11n SISO, Max**



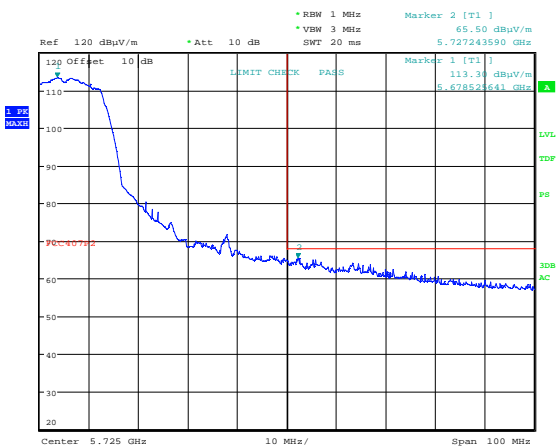
Date: 28.OCT.2021 10:44:43

**Band Edge 5470MHz, ch108, 802.11n MIMO, Max**



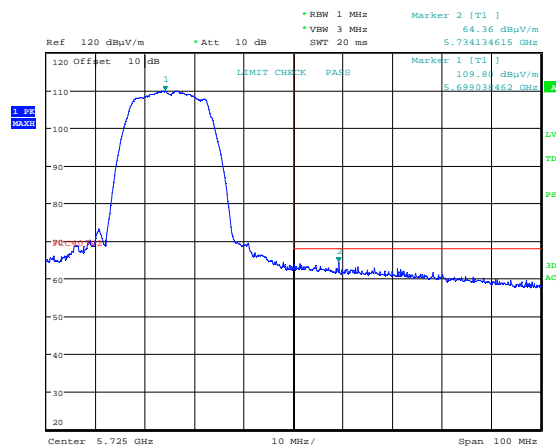
Date: 28.OCT.2021 10:48:31

**Band Edge 5725MHz, ch132, 802.11n MIMO, Max**



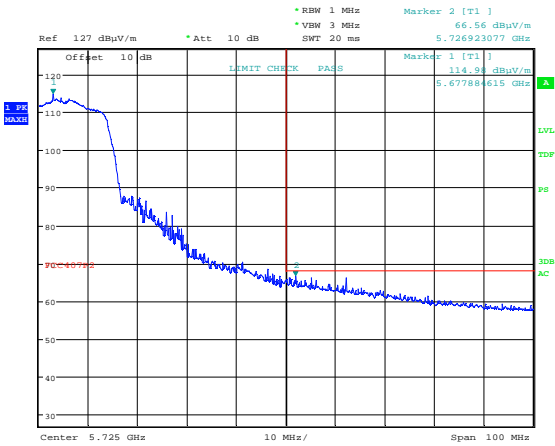
Date: 13.OCT.2021 15:14:41

**Band Edge 5725MHz, ch136, 802.11a 6M, Max**



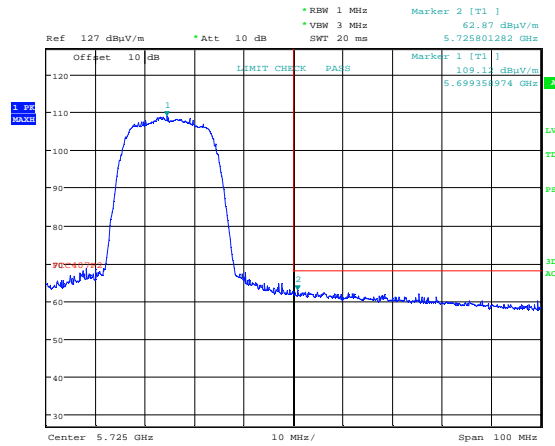
Date: 13.OCT.2021 15:09:20

**Band Edge 5725MHz, ch140, 802.11a 6M, Max**



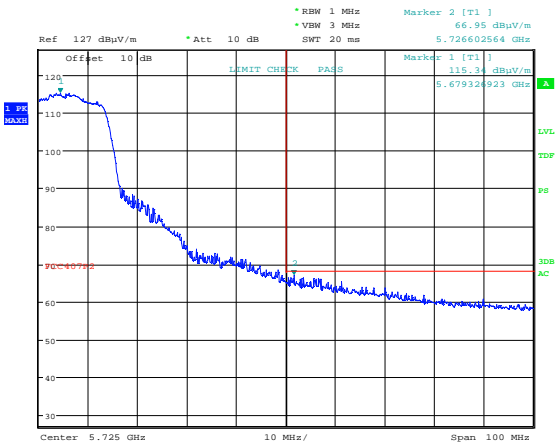
Date: 13.OCT.2021 16:04:07

Band Edge 5725MHz, ch136, 802.11n SISO, Max



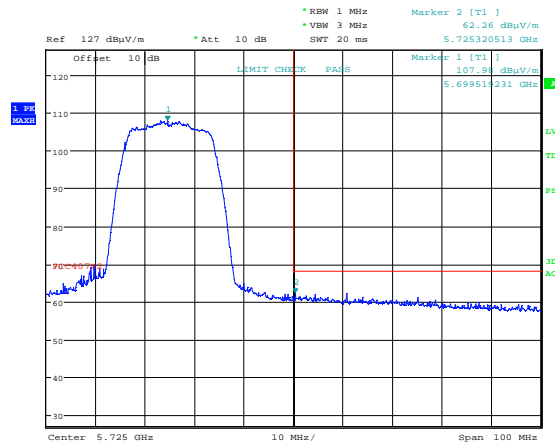
Date: 13.OCT.2021 16:00:54

Band Edge 5725MHz, ch140, 802.11n SISO, Max



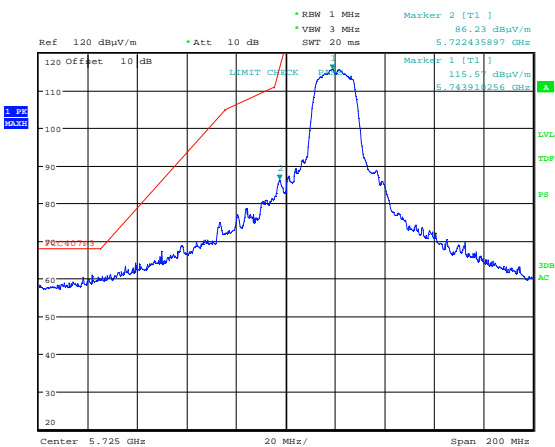
Date: 28.OCT.2021 10:34:49

Band Edge 5725MHz, ch136, 802.11n MIMO, Max



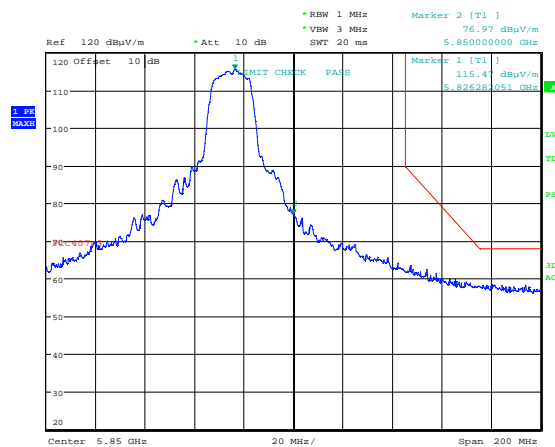
Date: 28.OCT.2021 10:28:14

Band Edge 5725MHz, ch140, 802.11n MIMO, Max



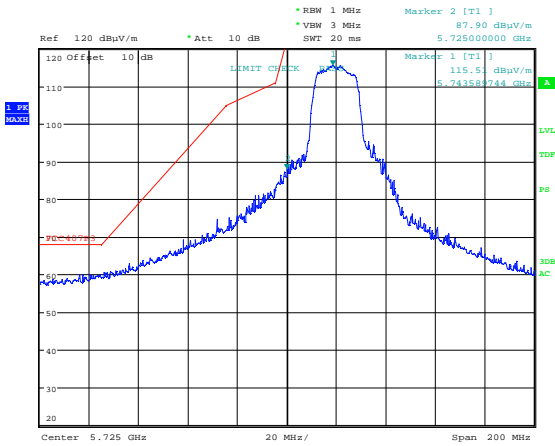
Date: 28.OCT.2021 09:30:17

Band Edge 5725MHz, ch149, 802.11a 6M, Max



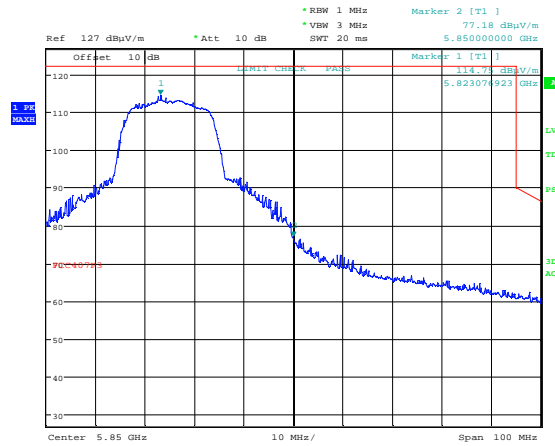
Date: 28.OCT.2021 09:28:01

Band Edge 5725MHz, ch165, 802.11a 6M, Max



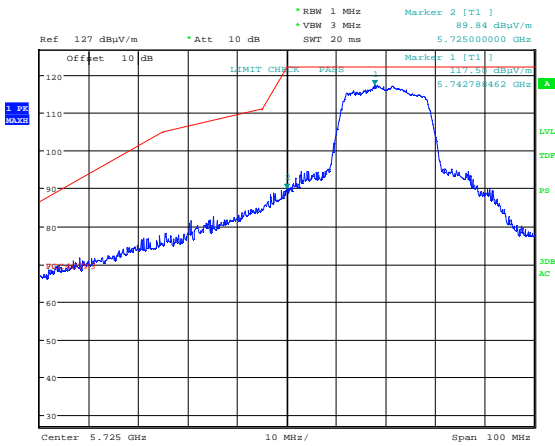
Date: 28.OCT.2021 09:34:26

**Band Edge 5725MHz, ch149, 802.11n SISO, Max**



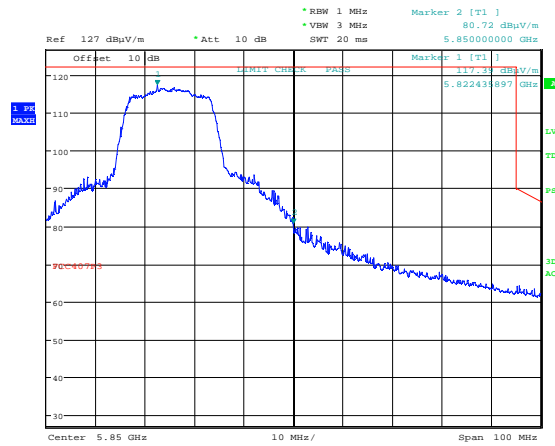
Date: 13.OCT.2021 16:15:42

**Band Edge 5725MHz, ch165, 802.11n SISO, Max**



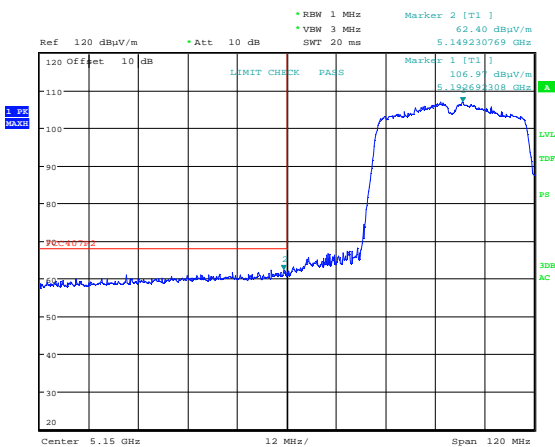
Date: 28.OCT.2021 11:22:55

**Band Edge 5725MHz, ch149, 802.11n MIMO, Max**



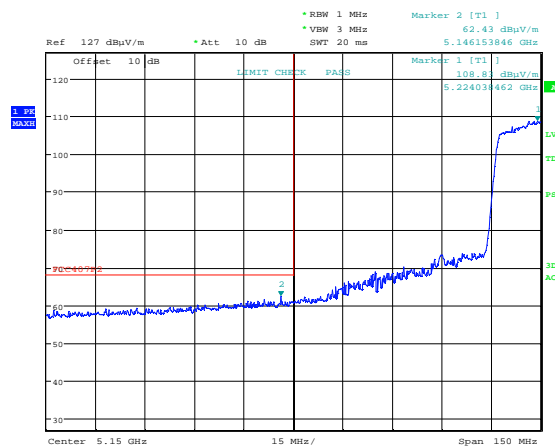
Date: 28.OCT.2021 11:24:41

**Band Edge 5725MHz, ch165, 802.11n MIMO, Max**



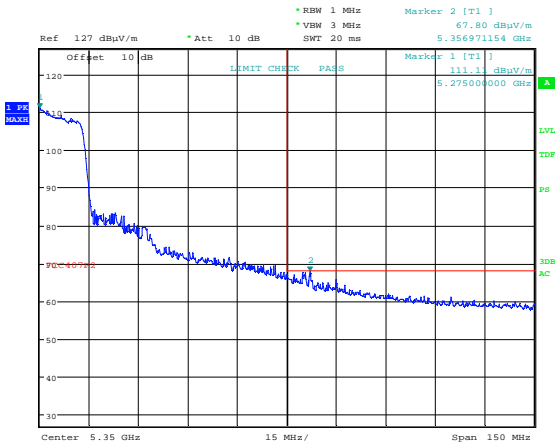
Date: 28.OCT.2021 12:25:05

**Band Edge 5150 MHz, ch038, 802.11n HT40 MIMO, Max**



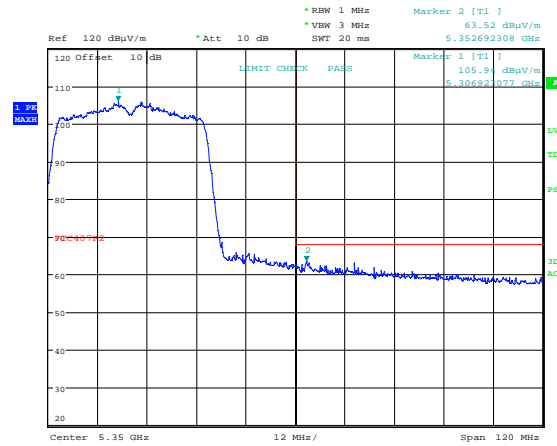
Date: 28.OCT.2021 12:21:00

**Band Edge 5150 MHz, ch046, 802.11n HT40 MIMO, Max**



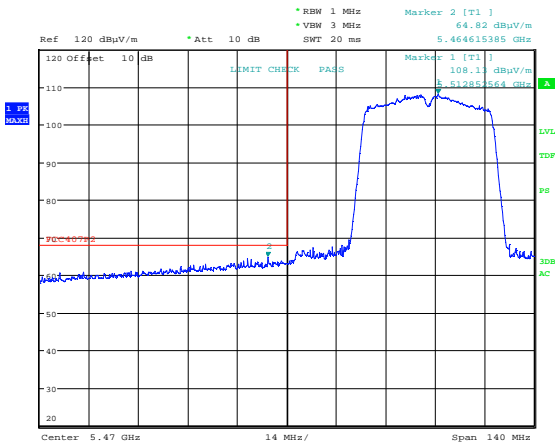
Date: 28.OCT.2021 12:17:34

Band Edge 5350 MHz, ch054, 802.11n HT40 MIMO, Max



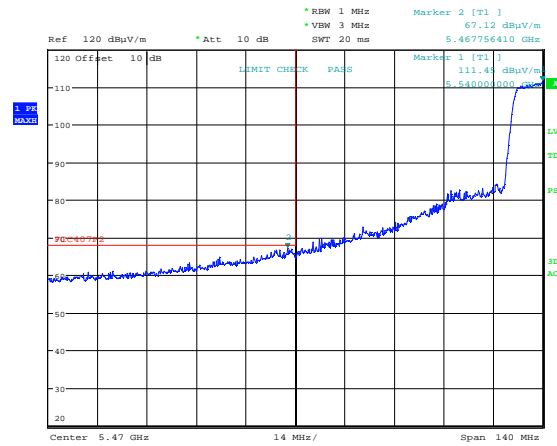
Date: 28.OCT.2021 12:13:07

Band Edge 5350 MHz, ch062, 802.11n HT40 MIMO, Max



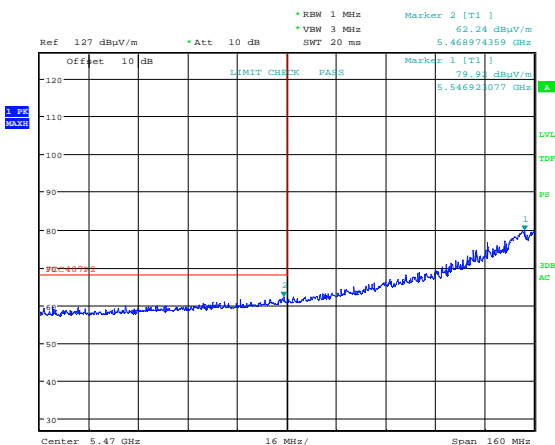
Date: 28.OCT.2021 12:03:49

Band Edge 5470 MHz, ch102, 802.11n HT40 MIMO, Max



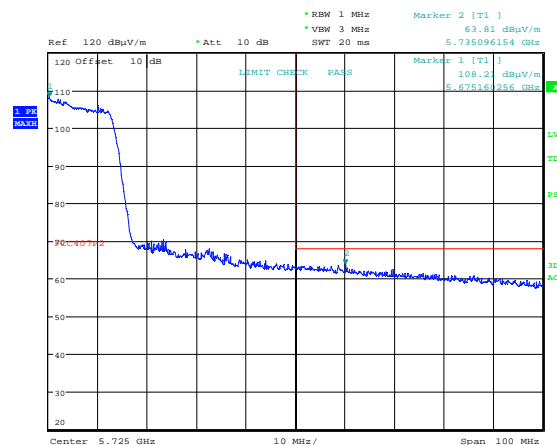
Date: 28.OCT.2021 12:07:18

Band Edge 5470 MHz, ch110, 802.11n HT40 MIMO, Max



Date: 28.OCT.2021 12:10:03

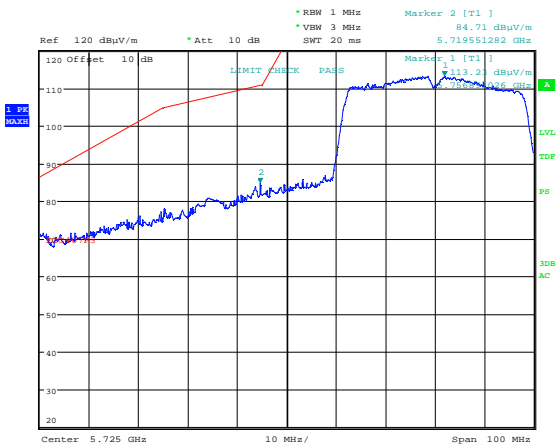
Band Edge 5470 MHz, ch118, 802.11n HT40 MIMO, Max



Date: 28.OCT.2021 11:59:14

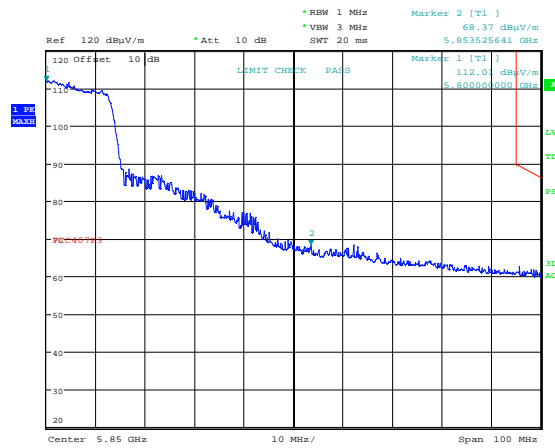
Band Edge 5725 MHz, ch134, 802.11n HT40 MIMO, Max





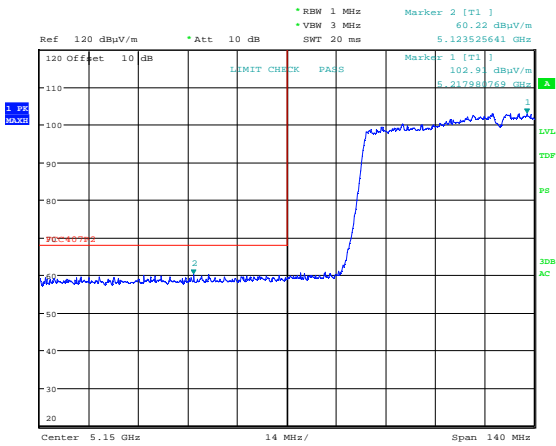
Date: 28.OCT.2021 11:53:39

**Band Edge 5725 MHz, ch151, 802.11n HT40 MIMO, Max**



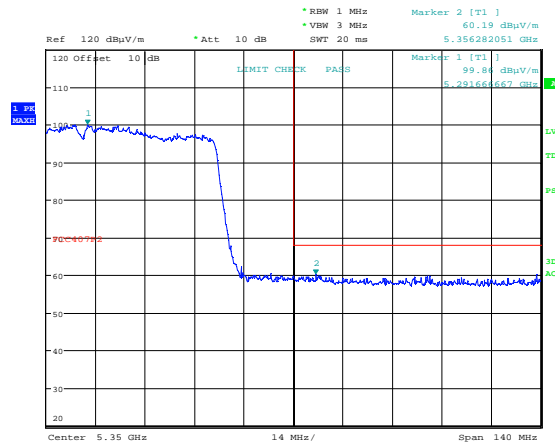
Date: 28.OCT.2021 11:55:28

**Band Edge 5850 MHz, ch159, 802.11n HT40 MIMO, Max**



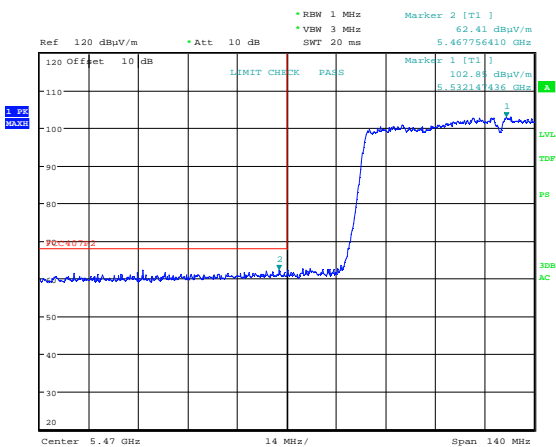
Date: 28.OCT.2021 12:28:03

**Band Edge 5150 MHz, ch042, 802.11ac VHT80 MIMO, Max**



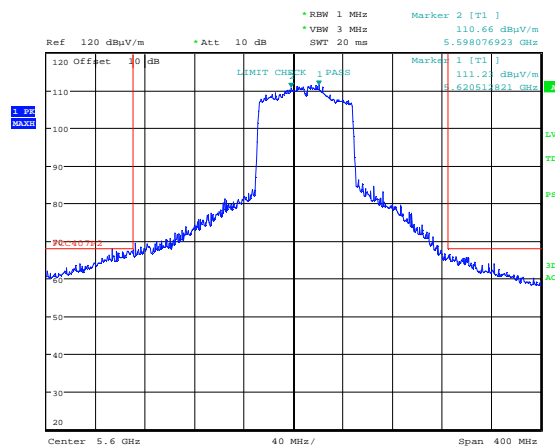
Date: 28.OCT.2021 12:30:42

**Band Edge 5350 MHz, ch058, 802.11ac VHT80 MIMO, Max**



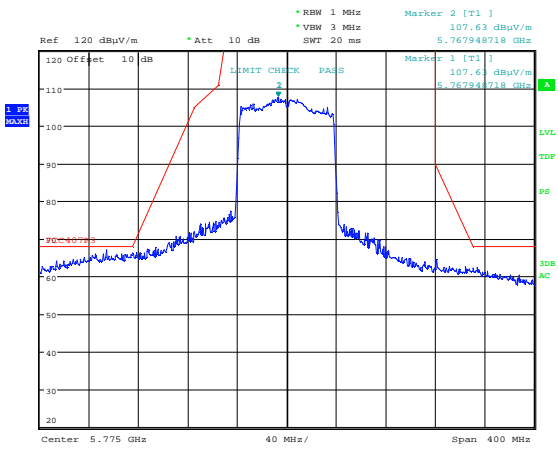
Date: 28.OCT.2021 12:34:28

**Band Edge 5470 MHz, ch106, 802.11ac VHT80 MIMO, Max**



Date: 28.OCT.2021 12:38:54

**Band Edge 5725 MHz, ch122, 802.11ac VHT80 MIMO, Max**



Date: 28.OCT.2021 12:43:30

**Band Edge 5725/5850 MHz, ch155, 802.11ac VHT80 MIMO, Max**

### 3.4 Restricted Bands of operation

Restricted Bands of operation for FCC and ISED are defined in FCC Part 15.205 and ISED RSS-GEN, Issue 5 clause 8.10.

Generally, no fundamentals are allowed in the restricted bands and all emissions must comply with the limits in FCC 15.209 or RSS-GEN, Issue 5, clause 8.9.

FCC (MHz)	ISED (MHz)	FCC (GHz)	ISED (GHz)
0.090-0.110		<b>0.96-1.24</b> <b>1.3-1.427</b>	<b>0.96-1.427</b>
0.495-0.505		1.435-1.6265	
2.1735-2.1905		1.6455-1.6465	
	<b>3.020-3.026</b>	1.660-1.710	
4.125-4.128		1.7188-1.7222	
4.17725-4.17775		2.2-2.3	
4.20725-4.20775		2.31-2.39	
	<b>5.677-5.683</b>	2.4835-2.5	
6.215-6.218		<b>2.69-2.9</b>	<b>2.655-2.9</b>
6.26775-6.26825		3.26-3.267	
6.31175-6.31225		3.332-3.339	
8.291-8.294		3.3458-3.358	
8.362-8.366		<b>3.6-4.4</b>	<b>3.5-4.4</b>
8.37625-8.38675		4.5-5.15	
8.41425-8.41475		5.35-5.46	
12.29-12.293		7.25-7.75	
12.51975-12.52025		8.025-8.5	
12.57675-12.57725		9.0-9.2	
13.36-13.41		9.3-9.5	
16.42-16.423		10.6-12.7	
16.69475-16.69525		13.25-13.4	
16.80425-16.80475		14.47-14.5	
25.5-25.67		15.35-16.2	
37.5-38.25		17.7-21.4	
73-74.6		22.01-23.12	
74.8-75.2		23.6-24.0	
<b>108-121.94</b> <b>123-138</b>	<b>108-138</b>	31.2-31.8	
149.9-150.05		36.43-36.5	
156.52475-156.52525		Above 38.6	
156.7-156.9			
162.0125-167.17			
167.72-173.2			
240-285			
322-335.4			
399.9-410			
608-614			

Frequencies in **Bold** text are specific for FCC or ISED, all other frequencies are common.

### 3.5 Radiated Emissions, 30 – 1000 MHz

FCC 15.205, 15.209, 15.407

ISED RSS-GEN, Issue 5, Clause 8.9

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

**Measurement Data:**

Detector: QuasiPeak (Peak for Pre-Scan)

Measuring distance 3m

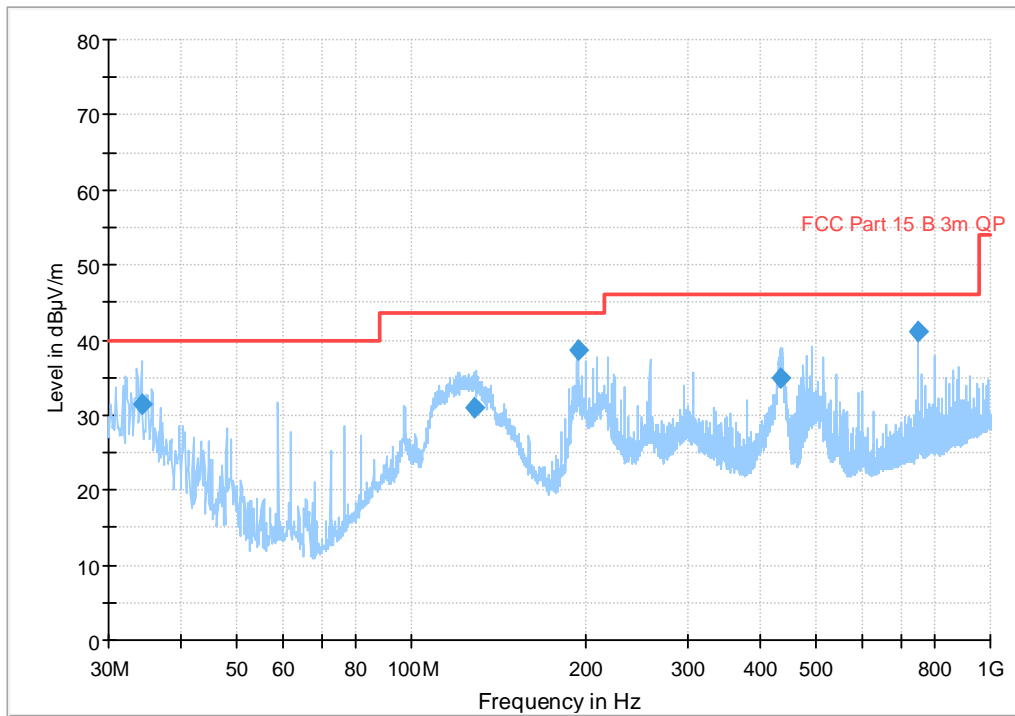
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
34.256550	31.56	40.00	8.44	1000.0	120.000	112.0	V	95.0
128.882900	31.03	43.50	12.47	1000.0	120.000	100.0	V	127.0
193.539750	38.60	43.50	4.90	1000.0	120.000	205.0	H	4.0
433.910600	35.00	46.00	11.00	1000.0	120.000	100.0	H	329.0
749.583450	41.18	46.00	4.82	1000.0	120.000	124.0	H	49.0

See attached plots.

**Requirements/Limit**

<b>FCC</b>	Part 15.209 @ frequencies defined in §15.205	
<b>ISED</b>	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10	
<b>Frequency</b>	Radiated emission limit @3 meters	
30 – 88 MHz	100 µV/m	40.0 dBµV/m
88 – 216 MHz	150 µV/m	43.5 dBµV/m
216 – 960 MHz	200 µV/m	46.0 dBµV/m
960 – 1000 MHz	500 µV/m	54.0 dBµV/m
Limits above are with Quasi Peak Detector		

Full Spectrum



— Preview Result 1-PK+    — FCC Part 15 B 3m QP    ◆ Final Result QPK

Radiated Emissions 30 - 1000 MHz

### 3.6 Radiated Emissions, 1 – 40 GHz

FCC 15.205, 15.209, 15.407

ISED RSS-GEN, Issue 5, Clause 8.9

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

Measurement Data:

Measuring distance 3m up to 18 GHz, 1m above 18 GHz.

RBW/VBW = 1MHz/3MHz

Spurious Frequency (GHz)	Modulation	Measured Emissions (dBµV/m)		Limit (dBµV/m)		Margin (dB)	
		Peak	Average	Peak	Average	Peak	Average
5150	11a 6Mbps	65.8	51.3	74	54	8.2	2.7
5150	11n HT20 SISO	68.0	50.5	74	54	6.0	3.5
5150	11n HT20 MIMO	65.0	50.8	74	54	9.0	3.2
5150	11n HT40 MIMO	62.4	49.5	74	54	11.6	4.5
5150	11n HT80 MIMO	60.2	47.3	74	54	13.8	6.7
5350	11a 6Mbps	66.0	52.8	74	54	8.0	1.2
5350	11n HT20 SISO	67.2	52.1	74	54	6.8	1.9
5350	11n HT20 MIMO	67.7	51.3	74	54	6.3	2.7
5350	11n HT40 MIMO	67.8	52.4	74	54	6.2	1.6
5350	11n HT80 MIMO	60.2	47.5	74	54	13.8	6.5
5460	11a 6Mbps	66.7	52.2	74	54	7.3	1.8
5460	11n HT20 SISO	67.5	52.4	74	54	6.5	1.6
5460	11n HT20 MIMO	67.0	51.4	74	54	7.0	2.6
5460	11n HT40 MIMO	67.1	52.0	74	54	6.9	2.0
5460	11n HT80 MIMO	62.4	48.7	74	54	11.6	5.3
1483.55	Any	51.8	38.9	68.2	54	22.2	15.1
2967*	Any	61.1	/	68.2	/	7.1	/
4450.5*	Any	58.8	/	68.2	/	9.4	/
Any other	Any	<		68.2	54		

\*Not Restricted Band

Band Stop Filters were used for measurements from 1 to 18 GHz that were not at the Band Edge.

A 10 dB attenuator was used before the preamp for all Band Edge measurements.

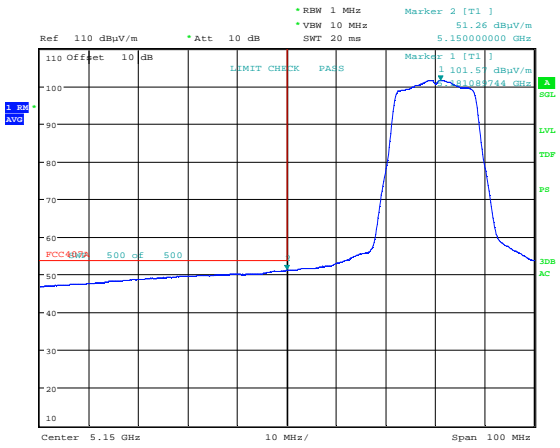
Only emissions that fall in the restricted bands (ref. §15.205) have been measured.

Antenna factor, amplifier gain and cable loss are included in Spectrum Analyzer "Transducer factor".

See attached plots.

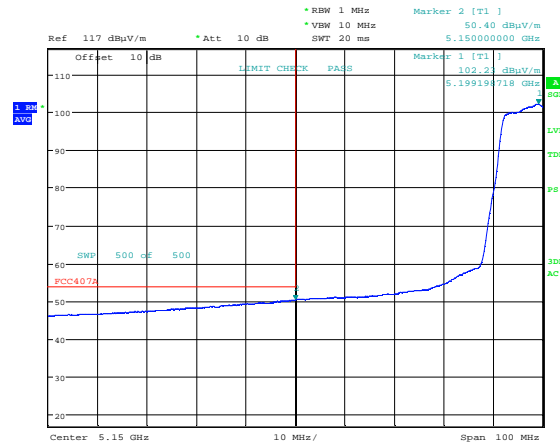
#### Requirements/Limit

FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency	Average Detector (dBµV/m)	Peak Detector (dBµV/m)
1 – 40 GHz	54.0	74.0



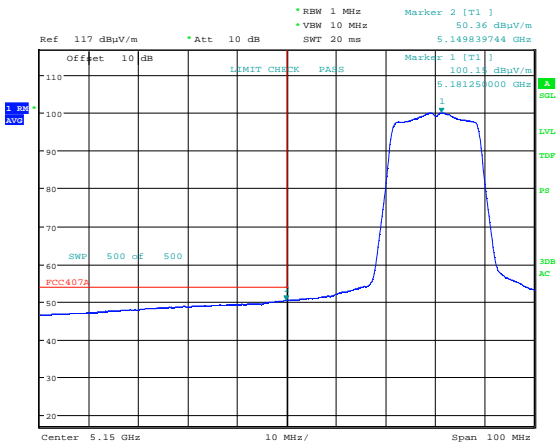
Date: 13.OCT.2021 14:58:03

**Band Edge 5150MHz, ch036, 802.11a 6M, Max**



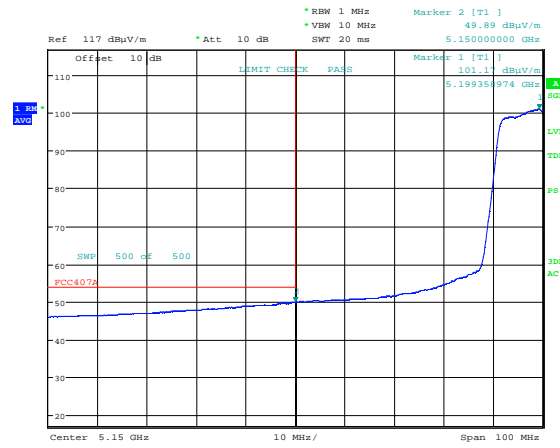
Date: 13.OCT.2021 15:04:41

**Band Edge 5150MHz, ch040, 802.11a 6M, Max**



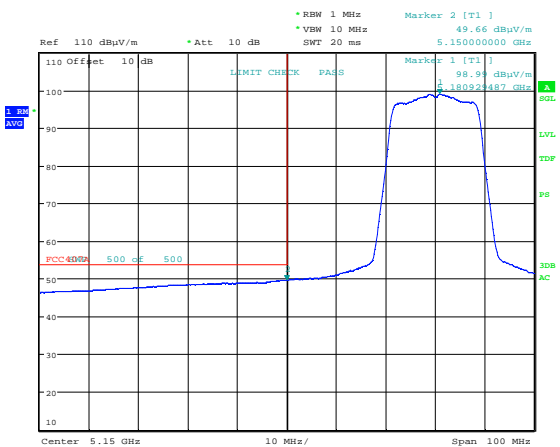
Date: 13.OCT.2021 15:51:34

**Band Edge 5150MHz, ch036, 802.11n SISO, Max**



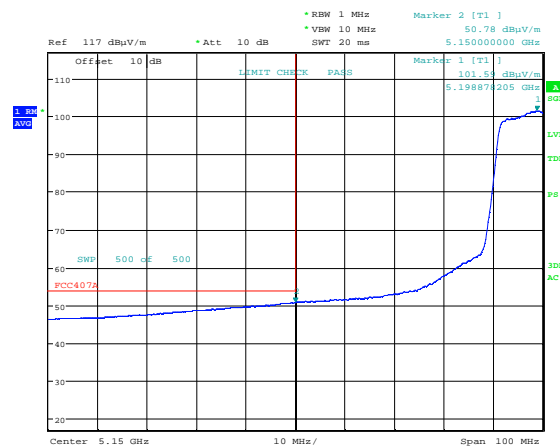
Date: 13.OCT.2021 15:56:10

**Band Edge 5150MHz, ch040, 802.11n SISO, Max**



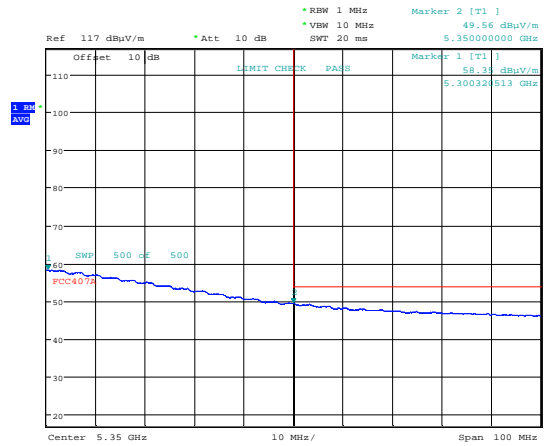
Date: 28.OCT.2021 11:00:45

**Band Edge 5150MHz, ch036, 802.11n MIMO, Max**



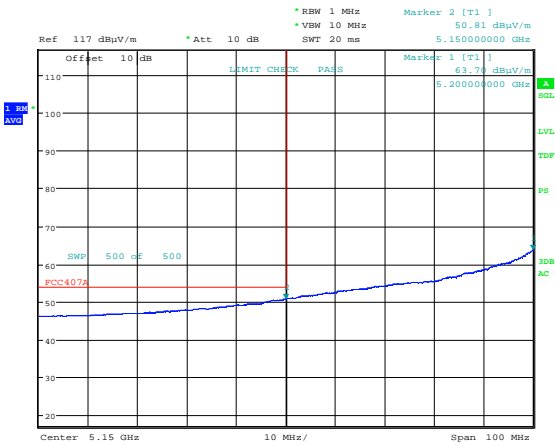
Date: 28.OCT.2021 11:06:48

**Band Edge 5150MHz, ch040, 802.11n MIMO, Max**



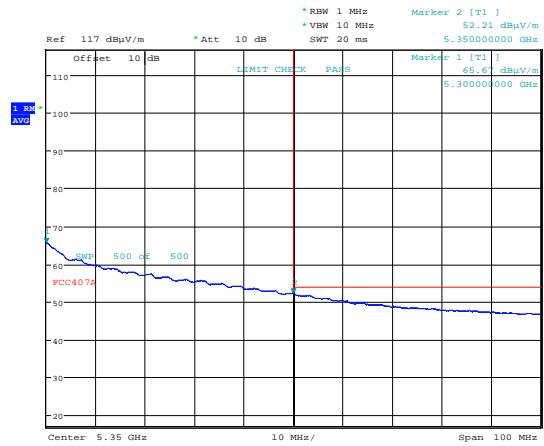
Date: 13.OCT.2021 16:09:42

**Band Edge 5350MHz, ch052, 802.11n SISO, Max**



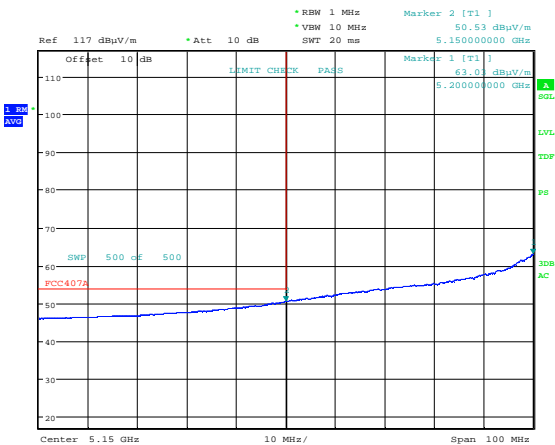
Date: 13.OCT.2021 15:07:38

**Band Edge 5150MHz, ch044, 802.11a 6M, Max**



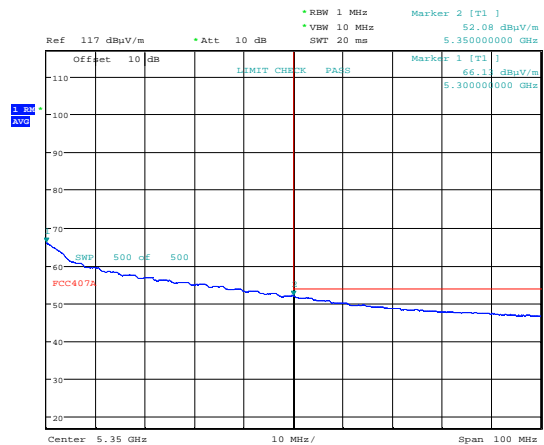
Date: 13.OCT.2021 14:55:21

**Band Edge 5350MHz, ch056, 802.11a 6M, Max**



Date: 13.OCT.2021 15:58:37

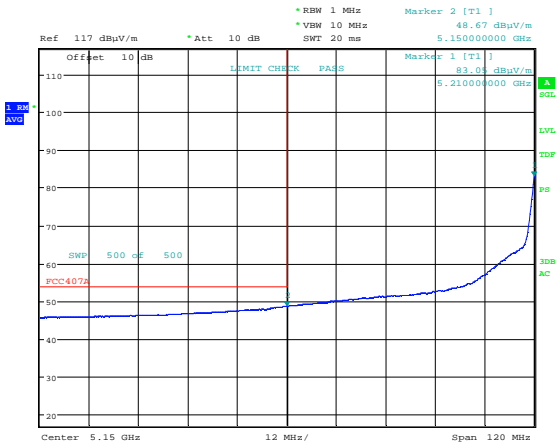
**Band Edge 5150MHz, ch044, 802.11n SISO, Max**



Date: 13.OCT.2021 15:49:13

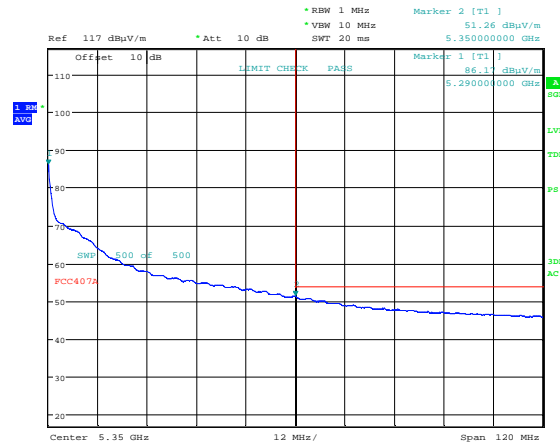
**Band Edge 5350MHz, ch056, 802.11n SISO, Max**





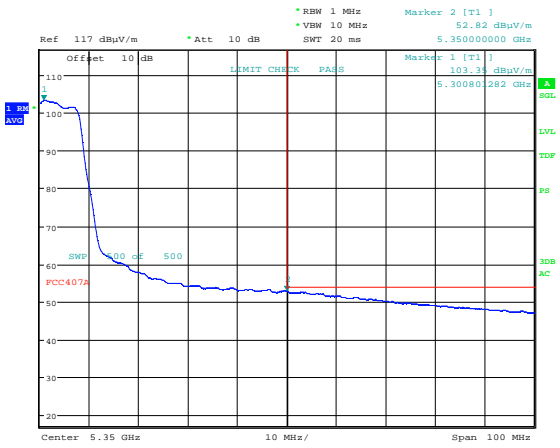
Date: 28.OCT.2021 10:55:58

**Band Edge 5150MHz, ch044, 802.11n MIMO, Max**



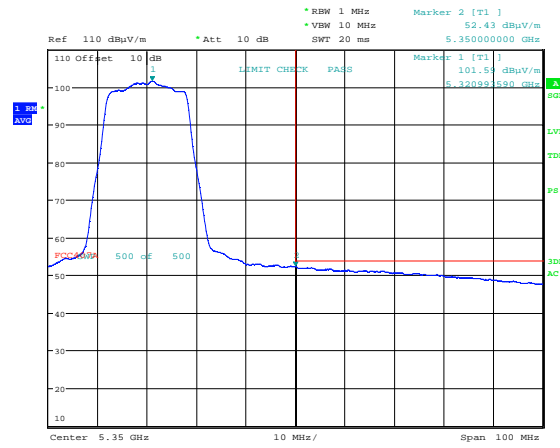
Date: 28.OCT.2021 10:53:29

**Band Edge 5350MHz, ch056, 802.11n MIMO, Max**



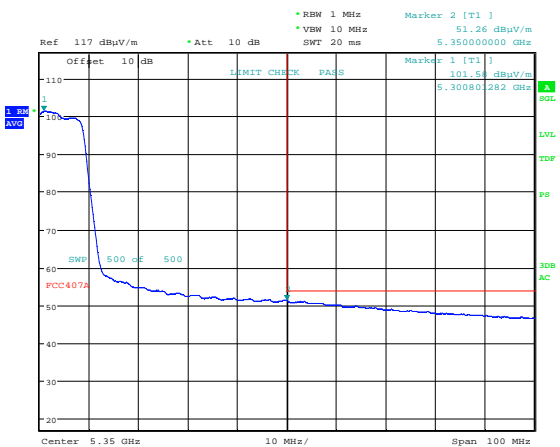
Date: 13.OCT.2021 14:50:00

**Band Edge 5350MHz, ch060, 802.11a 6M, Max**



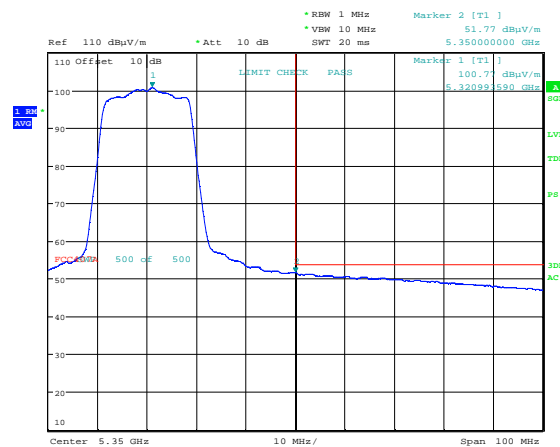
Date: 13.OCT.2021 14:30:20

**Band Edge 5350MHz, ch064, 802.11a 6M, Max**



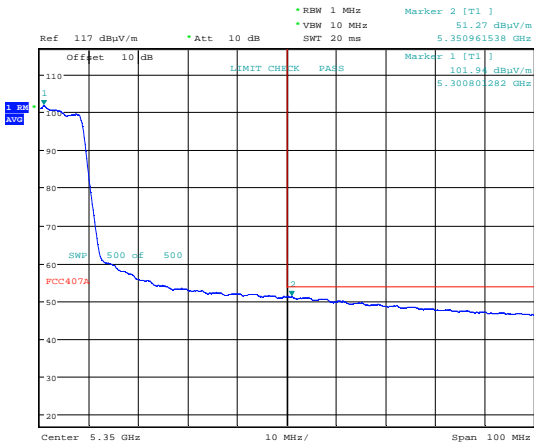
Date: 13.OCT.2021 15:45:07

**Band Edge 5350MHz, ch060, 802.11n SISO, Max**



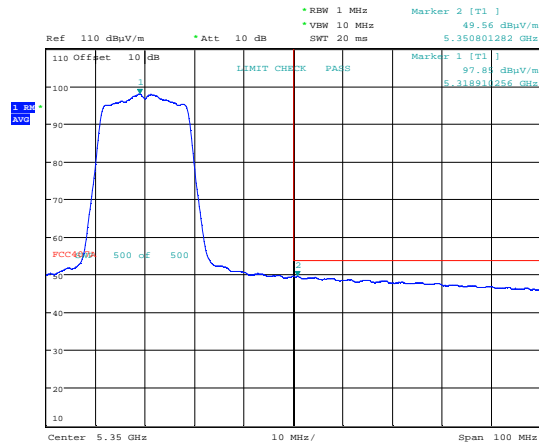
Date: 13.OCT.2021 15:38:31

**Band Edge 5350MHz, ch064, 802.11n SISO, Max**



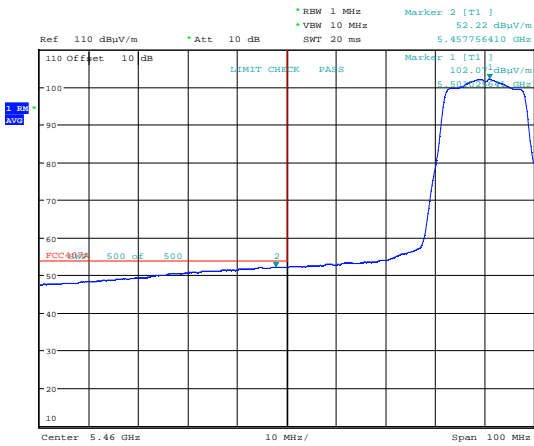
Date: 28.OCT.2021 11:15:42

**Band Edge 5350MHz, ch060, 802.11n MIMO, Max**



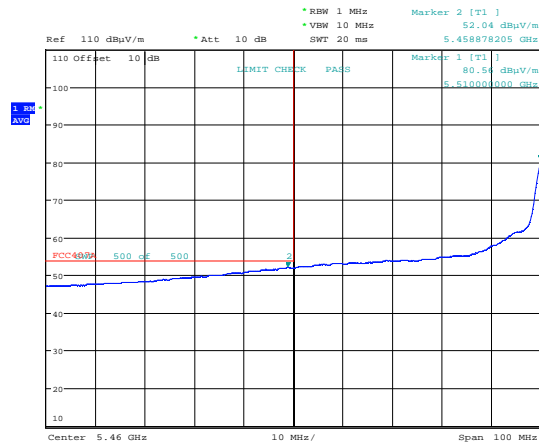
Date: 28.OCT.2021 11:09:19

**Band Edge 5350MHz, ch064, 802.11n MIMO, Max**



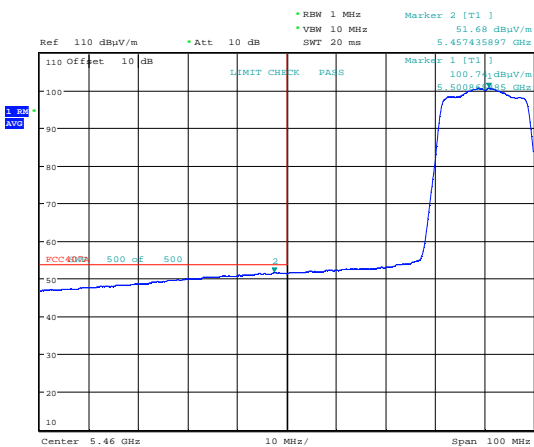
Date: 13.OCT.2021 14:34:59

**Band Edge 5470MHz, ch100, 802.11a 6M, Max**



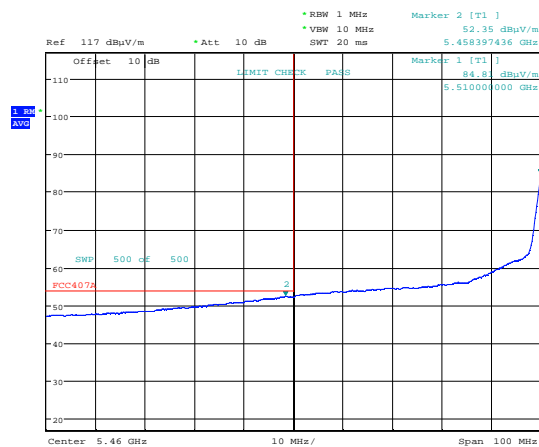
Date: 13.OCT.2021 14:43:17

**Band Edge 5470MHz, ch104, 802.11a 6M, Max**



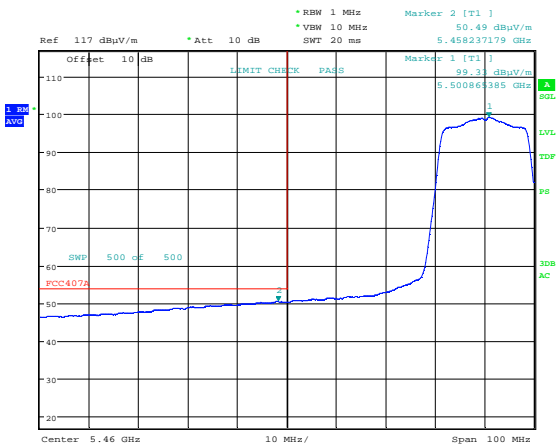
Date: 13.OCT.2021 15:22:00

**Band Edge 5470MHz, ch100, 802.11n SISO, Max**



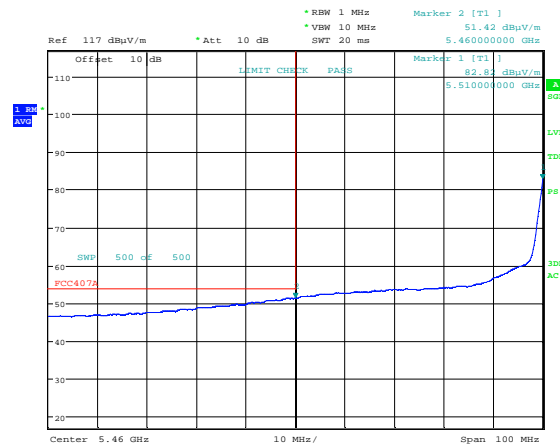
Date: 13.OCT.2021 15:27:33

**Band Edge 5470MHz, ch104, 802.11n SISO, Max**



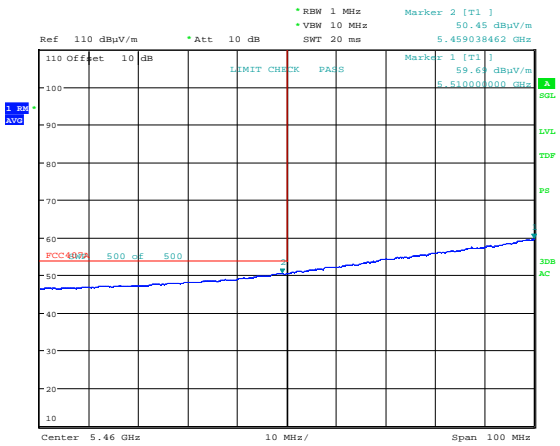
Date: 28.OCT.2021 10:21:37

**Band Edge 5470MHz, ch100, 802.11n MIMO, Max**



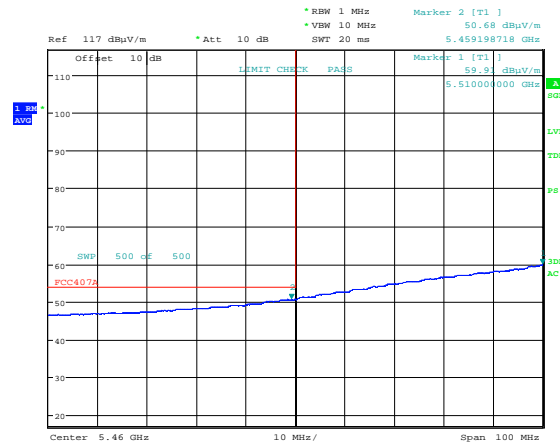
Date: 28.OCT.2021 10:41:25

**Band Edge 5470MHz, ch104, 802.11n MIMO, Max**



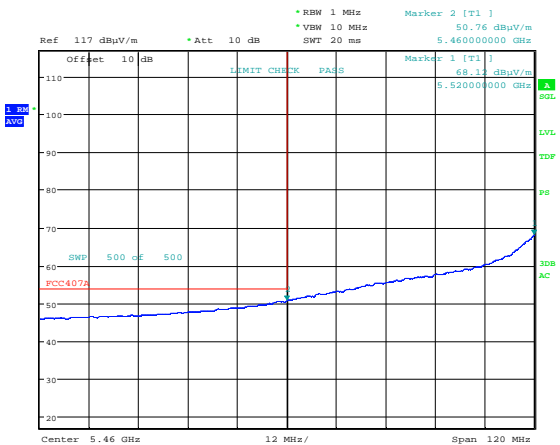
Date: 13.OCT.2021 14:45:40

**Band Edge 5470MHz, ch108, 802.11a 6M, Max**



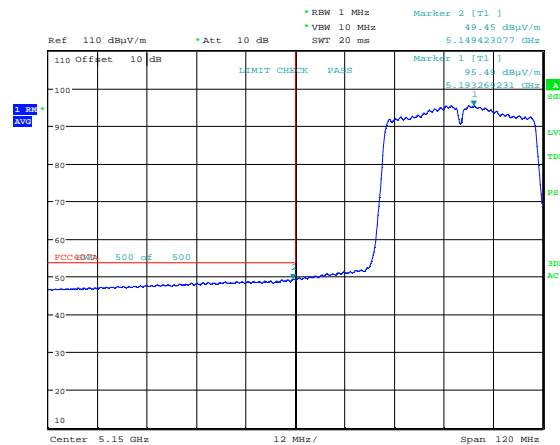
Date: 13.OCT.2021 15:30:50

**Band Edge 5470MHz, ch108, 802.11n SISO, Max**



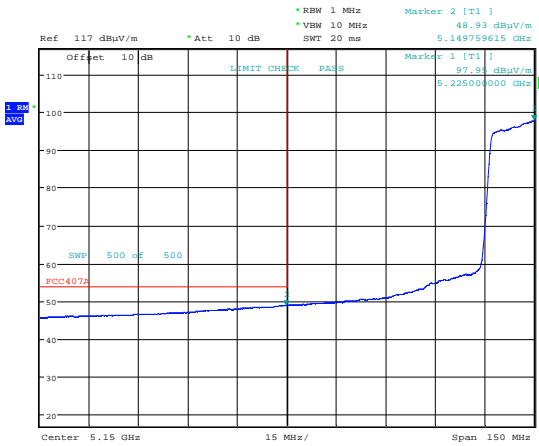
Date: 28.OCT.2021 10:45:34

**Band Edge 5470MHz, ch108, 802.11n MIMO, Max**



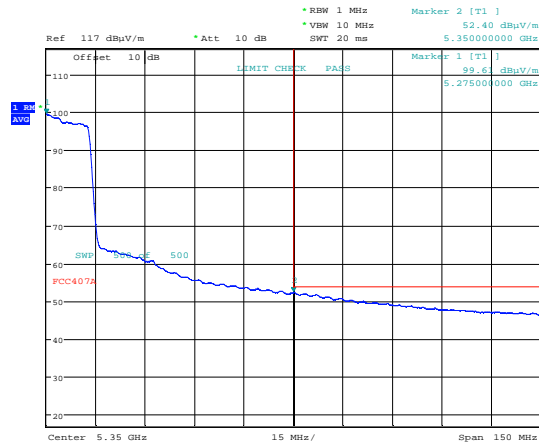
Date: 28.OCT.2021 12:25:40

**Band Edge 5150 MHz, ch038, 802.11n HT40 MIMO, Max**



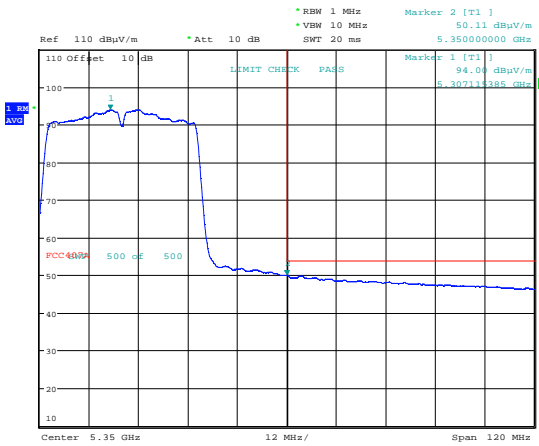
Date: 28.OCT.2021 12:21:36

**Band Edge 5150 MHz, ch046, 802.11n HT40 MIMO, Max**



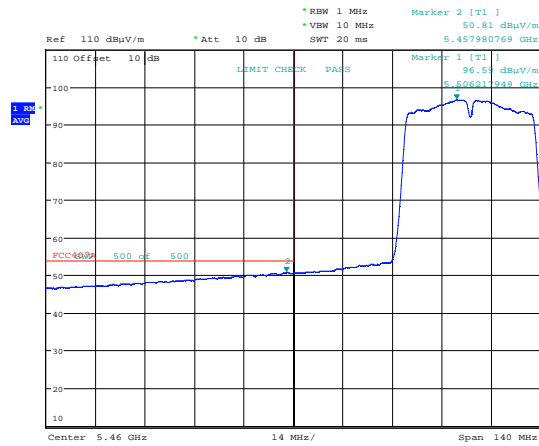
Date: 28.OCT.2021 12:18:22

**Band Edge 5350 MHz, ch054, 802.11n HT40 MIMO, Max**



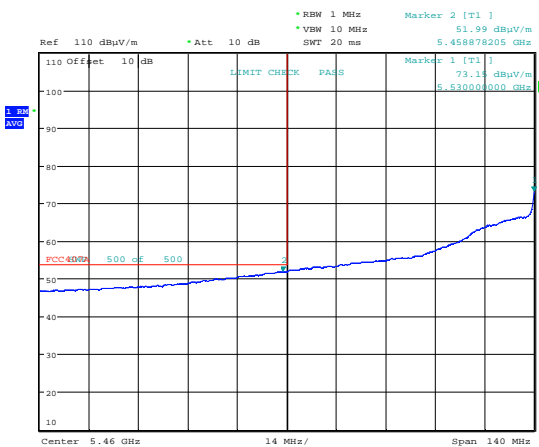
Date: 28.OCT.2021 12:13:53

**Band Edge 5350 MHz, ch062, 802.11n HT40 MIMO, Max**



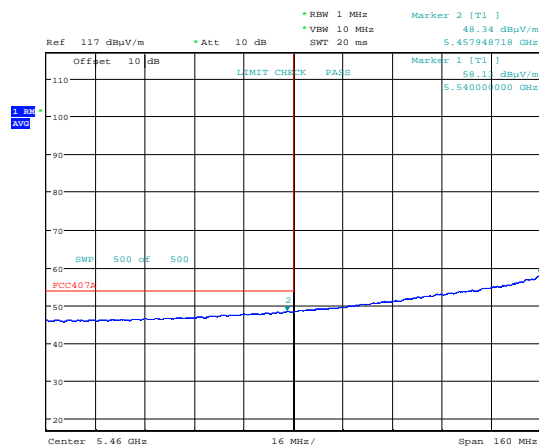
Date: 28.OCT.2021 12:04:22

**Band Edge 5470 MHz, ch102, 802.11n HT40 MIMO, Max**



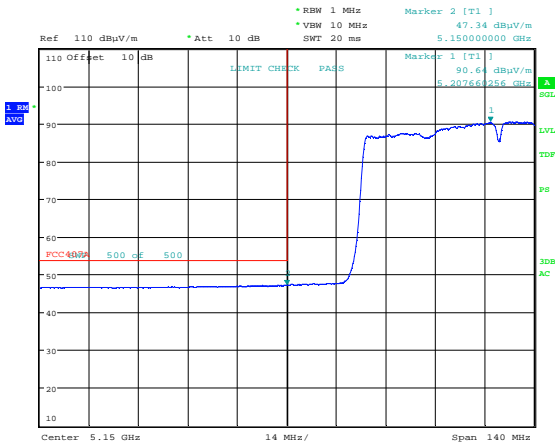
Date: 28.OCT.2021 12:07:56

**Band Edge 5470 MHz, ch110, 802.11n HT40 MIMO, Max**



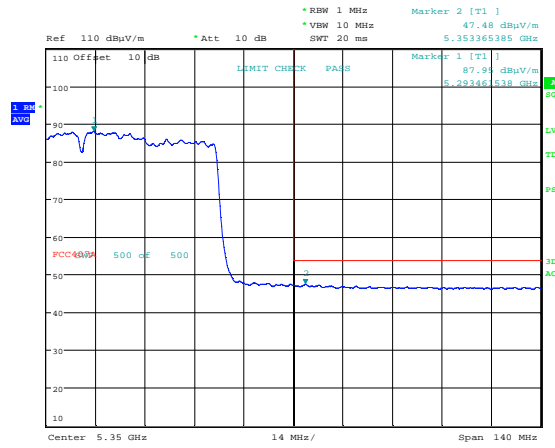
Date: 28.OCT.2021 12:11:32

**Band Edge 5470 MHz, ch118, 802.11n HT40 MIMO, Max**



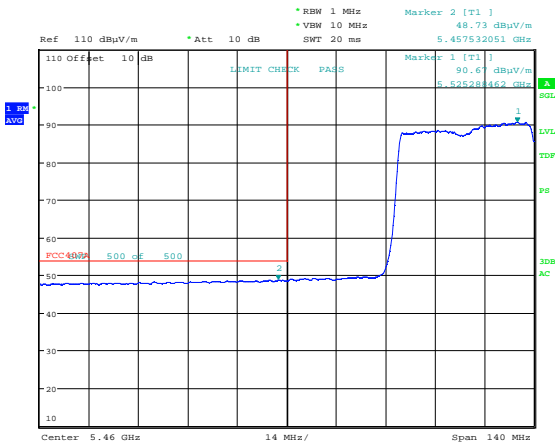
Date: 28.OCT.2021 12:28:36

**Band Edge 5150 MHz, ch042, 802.11ac VHT80 MIMO, Max**



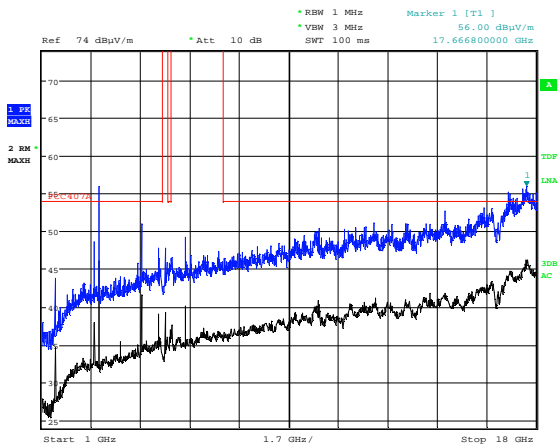
Date: 28.OCT.2021 12:31:16

**Band Edge 5350 MHz, ch058, 802.11ac VHT80 MIMO, Max**



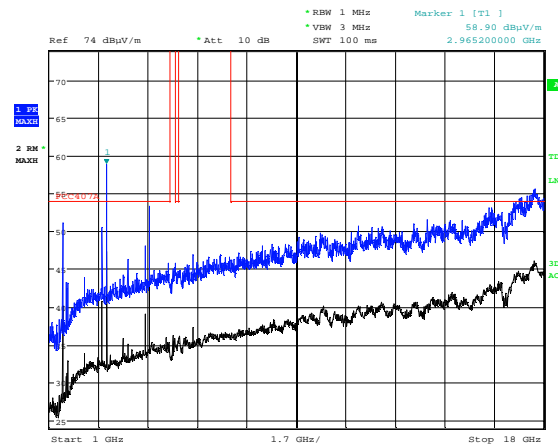
Date: 28.OCT.2021 12:35:01

**Band Edge 5470 MHz, ch106, 802.11ac VHT80 MIMO, Max**



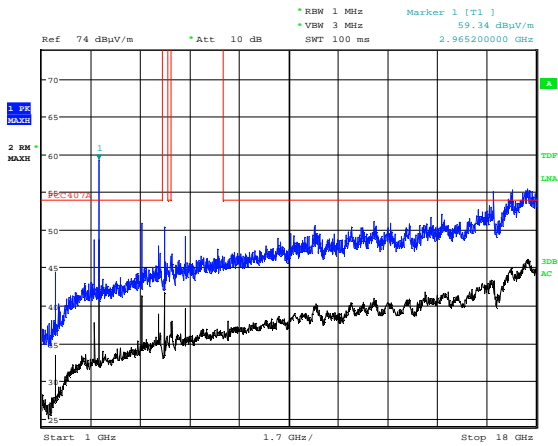
Date: 28.OCT.2021 13:41:13

**Radiated Emissions 1 -18 GHz, Ch052, 802.11a 6M, Ant1, HP**



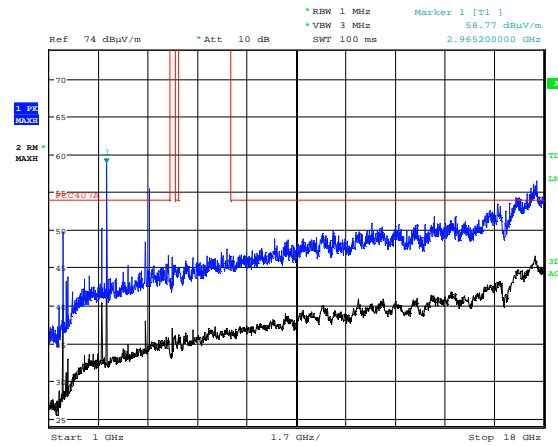
Date: 28.OCT.2021 13:39:02

**Radiated Emissions 1 -18 GHz, Ch052, 802.11a 6M, Ant1, VP**



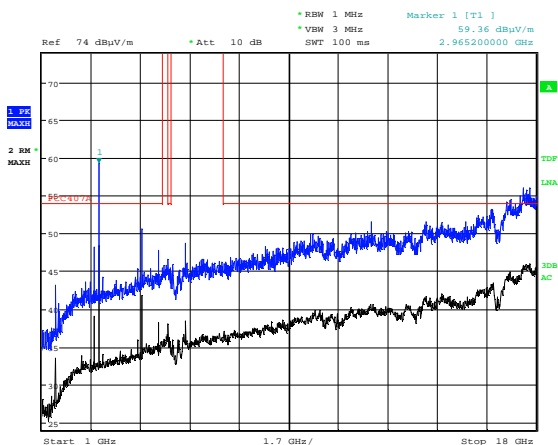
Date: 28.OCT.2021 13:04:10

**Radiated Emissions 1 -18 GHz, Ch048, 802.11n HT20, MIMO, HP**



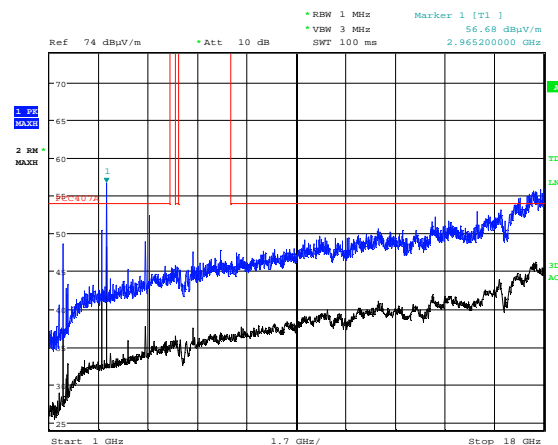
Date: 28.OCT.2021 13:01:58

**Radiated Emissions 1 -18 GHz, Ch048, 802.11n HT20, MIMO, VP**



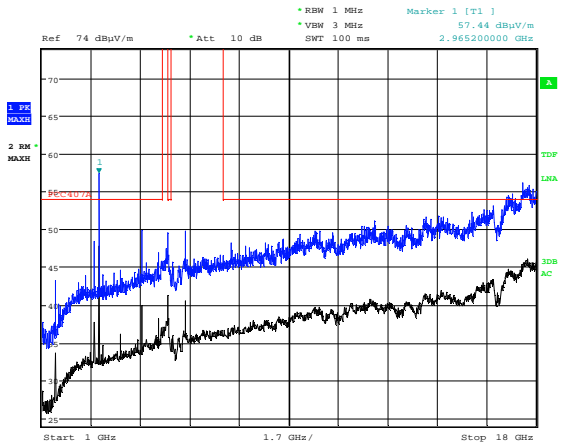
Date: 28.OCT.2021 13:48:05

**Radiated Emissions 1 -18 GHz, Ch116, 802.11a 6M, Ant1, HP**



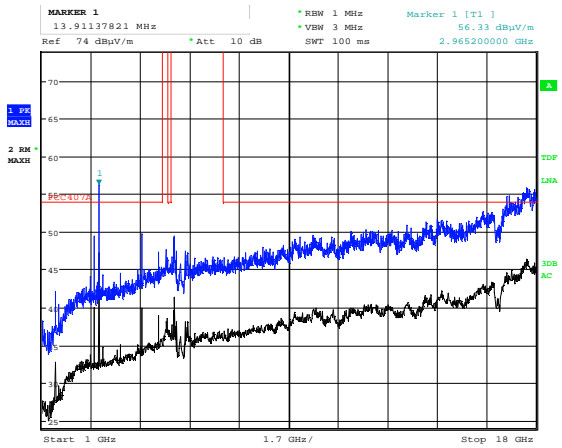
Date: 28.OCT.2021 13:45:53

**Radiated Emissions 1 -18 GHz, Ch116, 802.11a 6M, Ant1, VP**



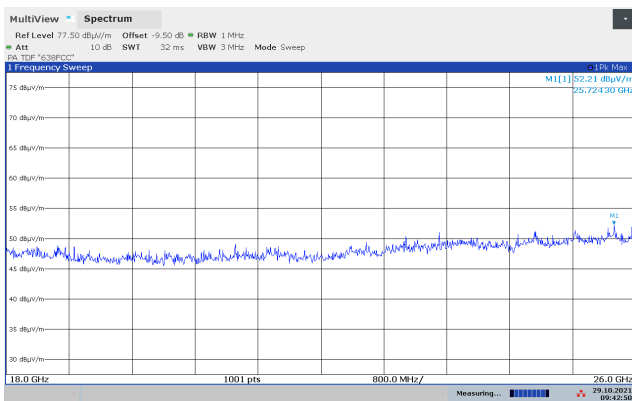
Date: 28.OCT.2021 13:57:53

**Radiated Emissions 1 -18 GHz, Ch116, 802.11n HT20, MIMO, HP**

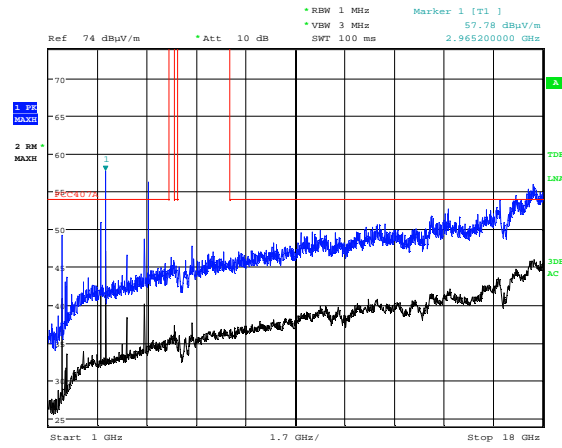


Date: 28.OCT.2021 14:47:03

**Radiated Emissions 1 -18 GHz, Ch157, 802.11n HT20, MIMO, HP**

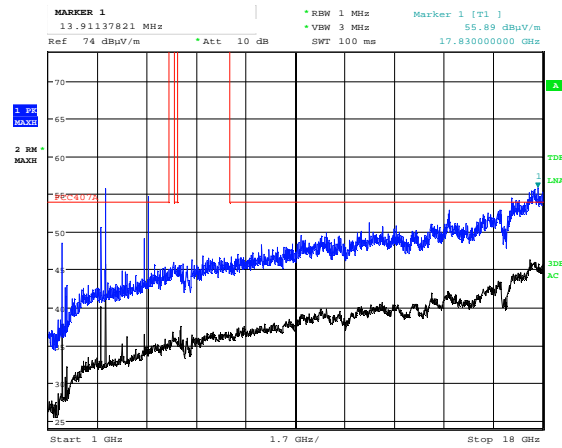


**Emissions 18-26 GHz, Ch052, 802.11a 6M, Ant1, HP, @1m**



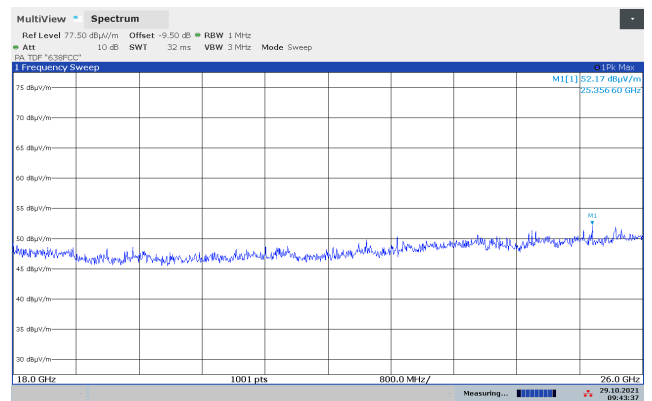
Date: 28.OCT.2021 13:55:41

**Radiated Emissions 1 -18 GHz, Ch116, 802.11n HT20, MIMO, VP**

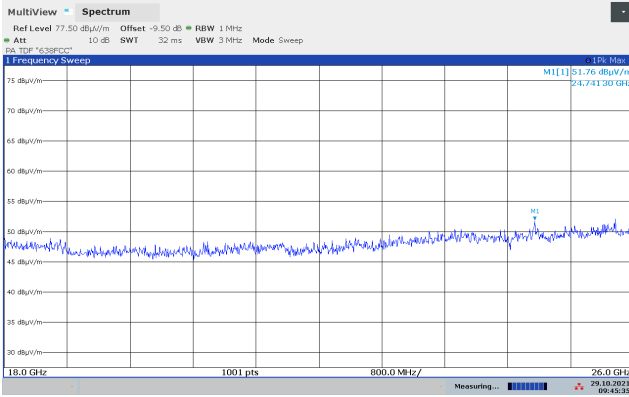


Date: 28.OCT.2021 14:44:49

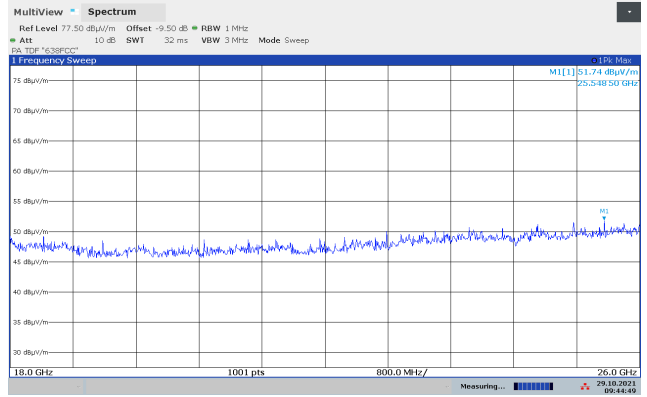
**Radiated Emissions 1 -18 GHz, Ch157, 802.11n HT20, MIMO, VP**



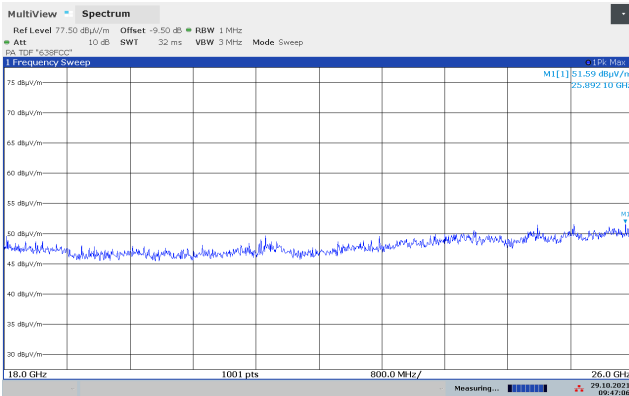
**Emissions 18-26 GHz, Ch052, 802.11a 6M, Ant1, VP, @1m**



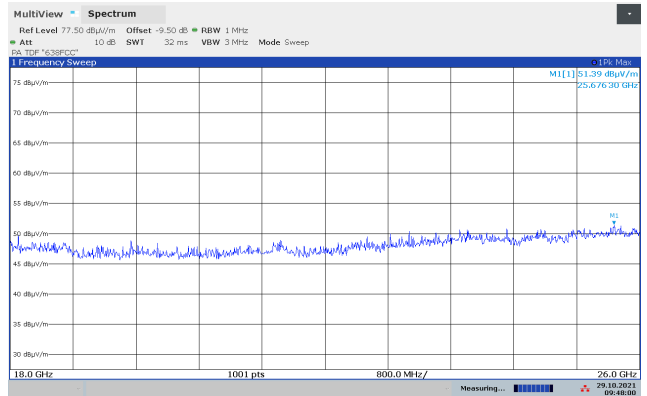
Emissions 18-26 GHz, Ch052, 802.11a 6M, Ant2, HP, @1m



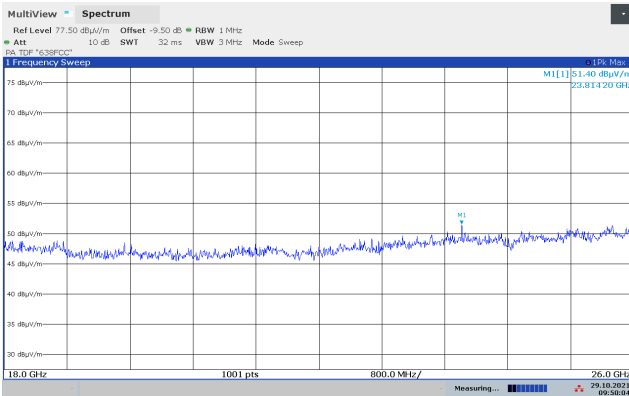
Emissions 18-26 GHz, Ch052, 802.11a 6M, Ant2, VP, @1m



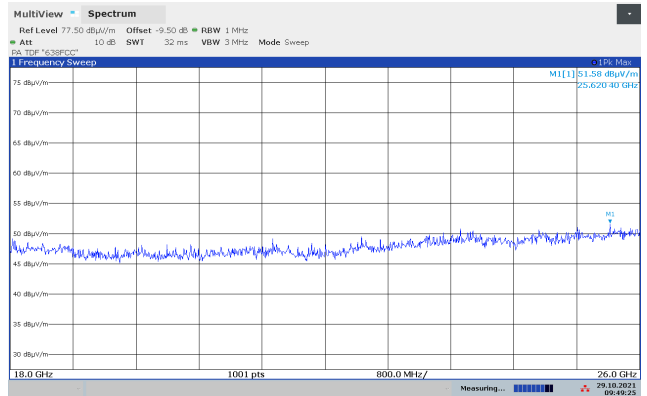
Emissions 18-26 GHz, Ch052, 802.11n HT20, MIMO, HP, @1m



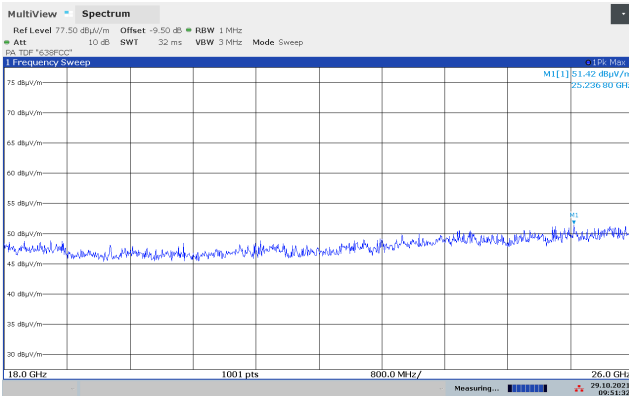
Emissions 18-26 GHz, Ch052, 802.11n HT20, MIMO, VP, @1m



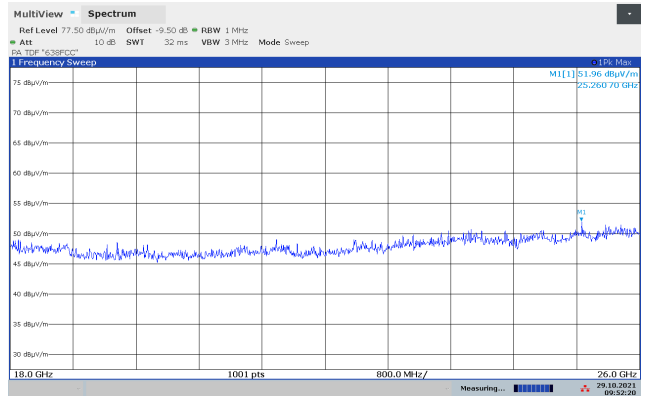
Emissions 18-26 GHz, Ch116, 802.11n HT20, MIMO, HP, @1m



Emissions 18-26 GHz, Ch116, 802.11n HT20, MIMO, VP, @1m

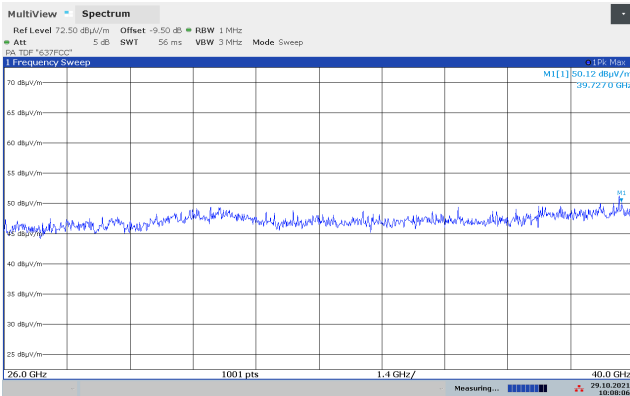


Emissions 18-26 GHz, Ch157, 802.11n HT20, MIMO, HP, @1m

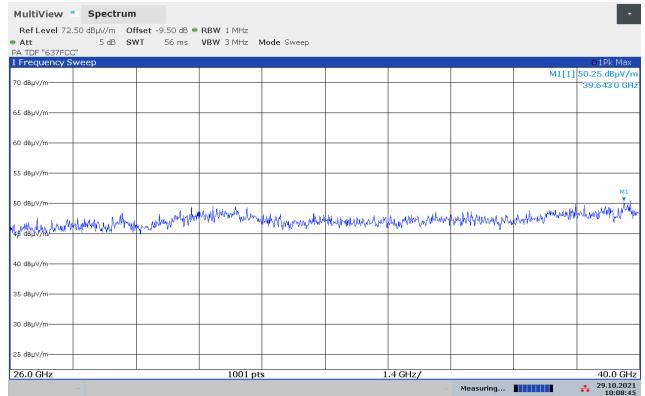


Emissions 18-26 GHz, Ch157, 802.11n HT20, MIMO, VP, @1m

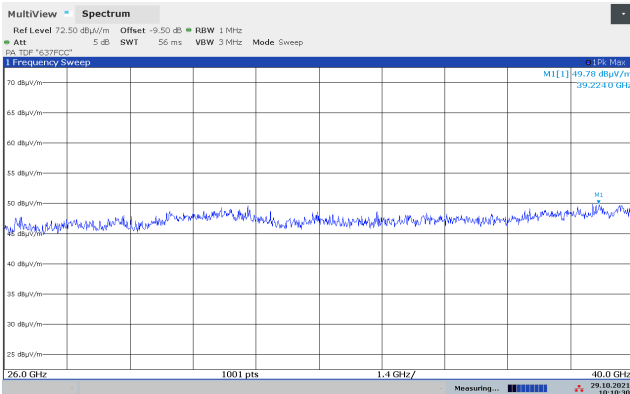




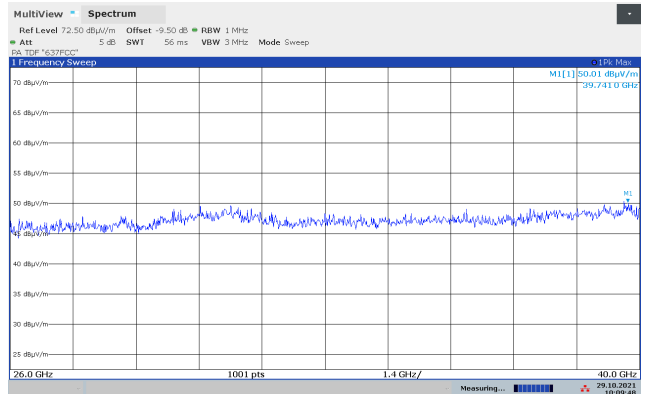
Emissions 26-40 GHz, Ch052, 802.11a 6M, Ant1, HP, @1m



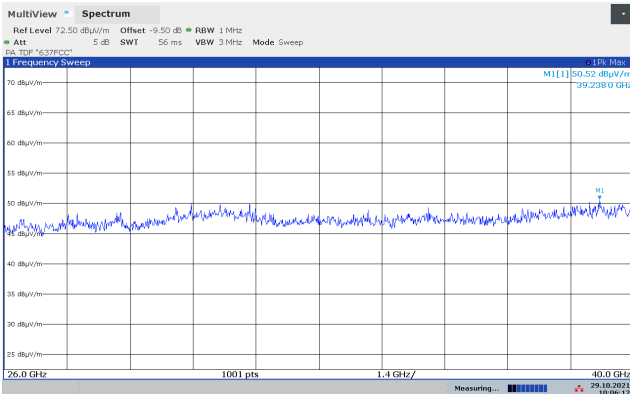
Emissions 26-40 GHz, Ch052, 802.11a 6M, Ant1, VP, @1m



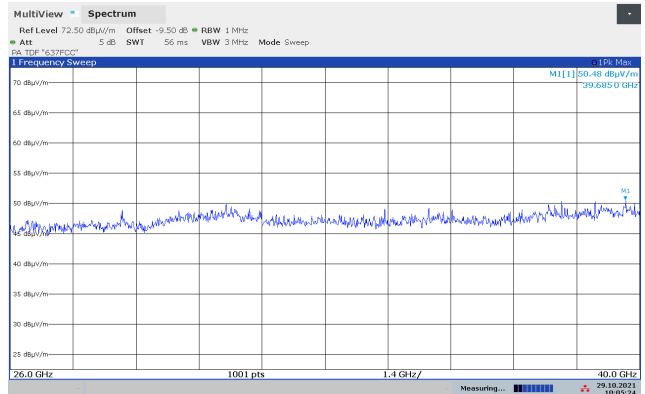
Emissions 26-40 GHz, Ch052, 802.11a 6M, Ant2, HP, @1m



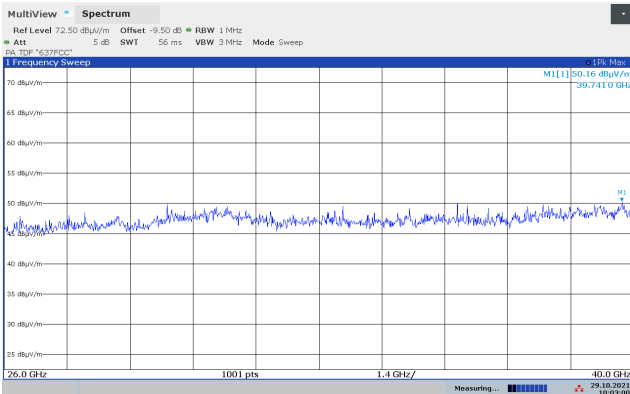
Emissions 26-40 GHz, Ch052, 802.11a 6M, Ant2, VP, @1m



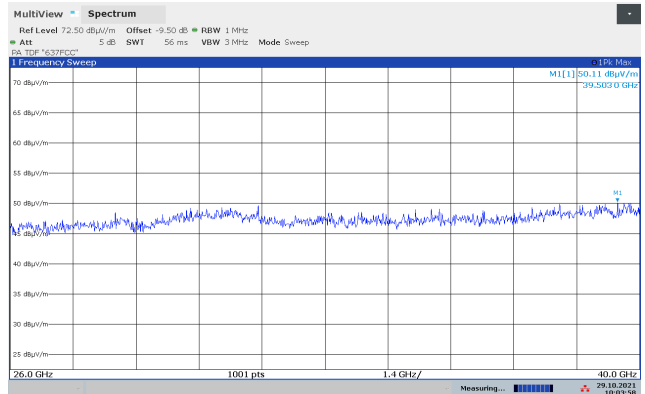
Emissions 26-40 GHz, Ch052, 802.11n HT20, MIMO, HP, @1m



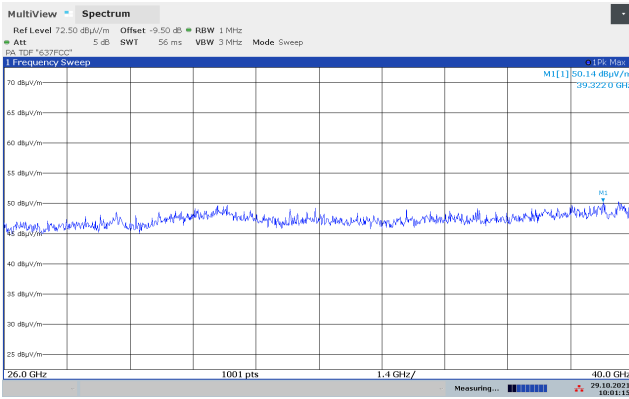
Emissions 26-40 GHz, Ch052, 802.11n HT20, MIMO, VP, @1m



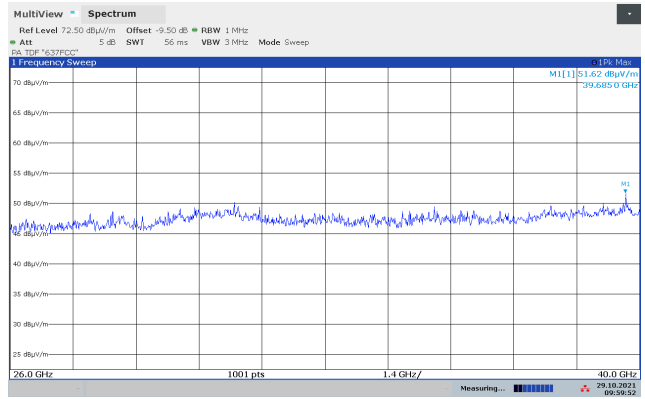
Emissions 26-40 GHz, Ch116, 802.11n HT20, MIMO, HP, @1m



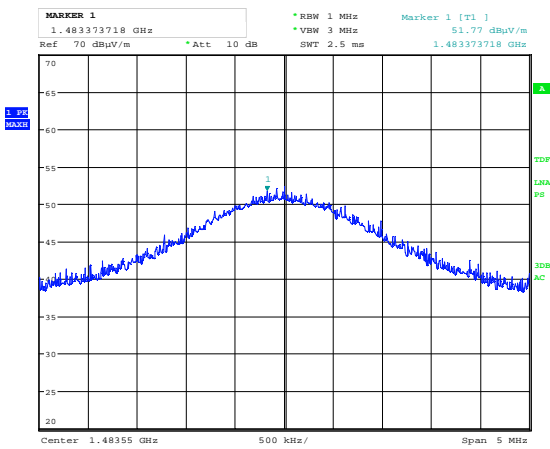
Emissions 26-40 GHz, Ch116, 802.11n HT20, MIMO, VP, @1m



Emissions 26-40 GHz, Ch157, 802.11n HT20, MIMO, HP, @1m

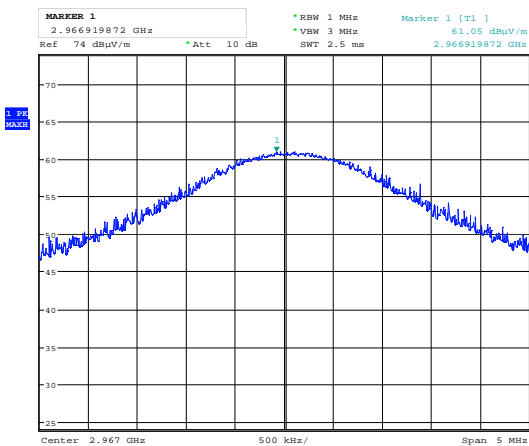


Emissions 26-40 GHz, Ch157, 802.11n HT20, MIMO, VP, @1m



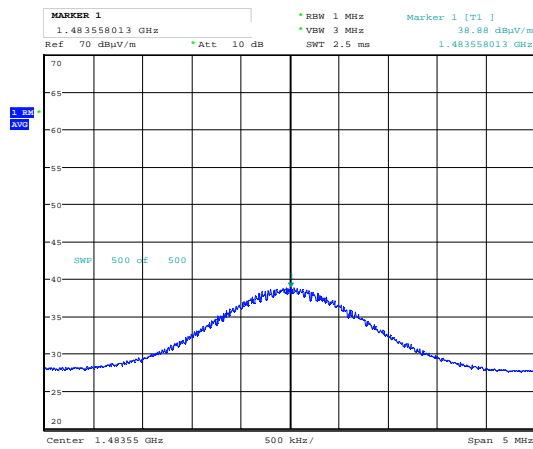
Date: 28.OCT.2021 14:34:55

Radiated Emissions 1483.55 MHz, 2442 MHz, GFSK, VP, Pk



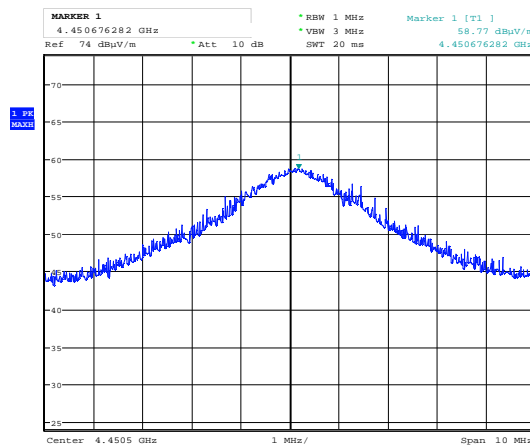
Date: 28.OCT.2021 13:30:02

Radiated Emissions 2967 MHz, 2442 MHz, GFSK, HP, Pk



Date: 28.OCT.2021 14:36:03

Radiated Emissions 1483.55 MHz, 2442 MHz, GFSK, VP, RMS



Date: 28.OCT.2021 14:21:33

Radiated Emissions 4450.5 MHz, 2442 MHz, GFSK, VP, Pk

## 4 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item		Uncertainty
Output Power		±0.5 dB
Power Spectral Density		±0.5 dB
Out of Band Emissions, Conducted	< 3.6 GHz	±0.6 dB
	> 3.6 GHz	±0.9 dB
Spurious Emissions, Radiated	< 1 GHz	±2.5 dB
	> 1 GHz	±2.2 dB
Emission Bandwidth		±4 %
Power Line Conducted Emissions		+2.9 / -4.1 dB
Spectrum Mask Measurements	Frequency	±5 %
	Amplitude	±1.0 dB
Frequency Error		±0.6 ppm
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

## 5 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2021-02	2022-02
2	6810-17B	Attenuator	Suhner	LR 1669	2021-08	2022-08
3	317	Preamplifier	Sonoma Inst.	LR 1687	2021-08	2022-08
4	8449A	Pre-amplifier	Hewlett Packard	LR 1322	2021-08	2022-08
5	3115	Horn Antenna	EMCO	LR 1330	N/A	
6	3117-PA	Horn Antenna +PreAmp	EMCO	LR 1717	2021-08	2022-08
7	Model 638	Antenna Horn	Narda	LR 1480	N/A	
8	WLK5-1100-1485-7000-40SS	Low Pass Filter (1 GHz)	Wainwright Inst.	LR 1761	COU	
9	N0452501 (5150-5350 MHz)	BandStop Filter	Microwave Circuits	LR 1775	COU	
10	N0555983 (5470-5725 MHz)	BandStop Filter	Microwave Circuits	LR 1774	COU	
11	N0257881 (5725-5850 MHz)	BandStop Filter	Microwave Circuits	LR 1764	COU	
12	Model 87 V	Multimeter	Fluke	LR 1599	2021-01	2023-01
13	6812B	AC Power Source	Agilent	LR 1515	2020-04	2022-04
14	ENV216	Two Line V-Network	Rohde & Schwarz	LR 1665	2021-12	2023-12
15	ESCI3	Measuring Receiver	Rohde & Schwarz	N-4259	2021-10	2023-10
16	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	COU	

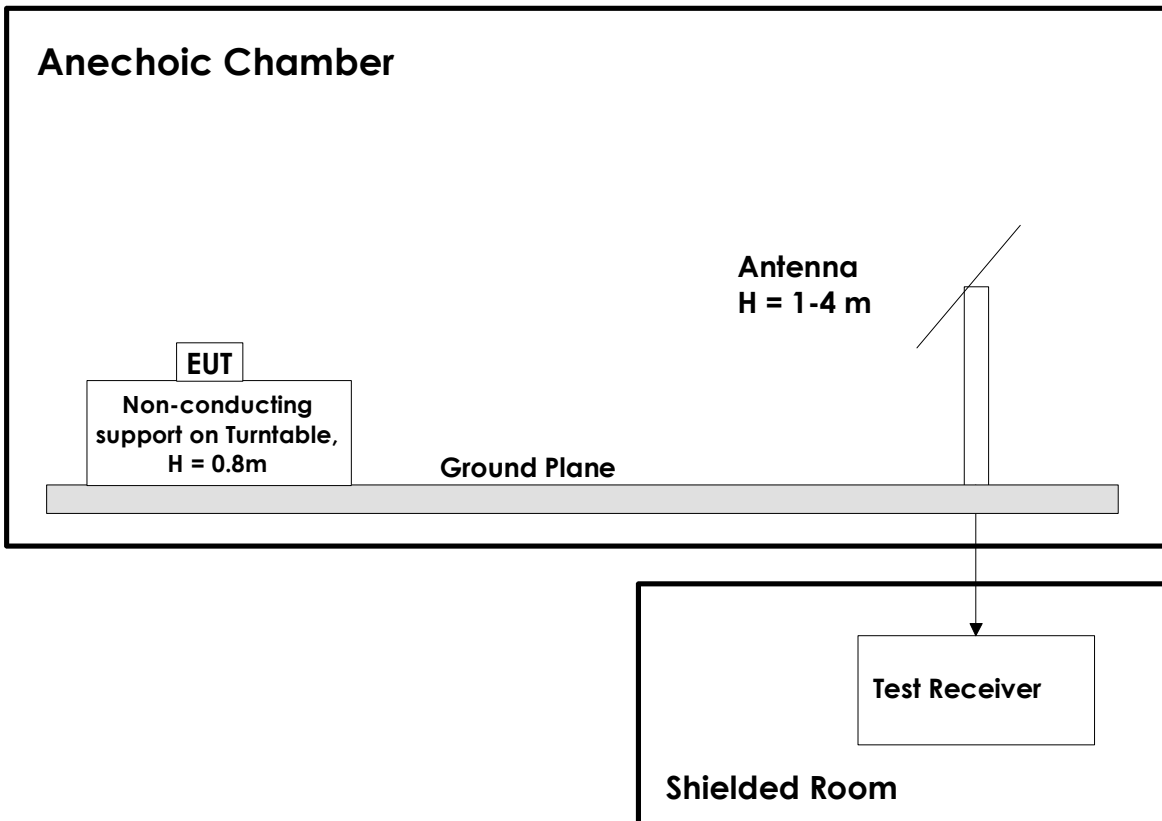
Note: COU – calibrate on use; N/A – Not Applicable

The software listed below has been used for one or more tests.

No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.50.10	Power Line Conducted test software
2	Nemko AS	RSPlot	1.0.8.0	Screenshots from R&S Spectrum Analyzers

## 6 BLOCK DIAGRAM

### 6.1 Test Site Radiated Emission



This test setup is used for all radiated emissions tests. Measuring distance is 3m for all frequencies.

Emissions above 1 GHz are measured with a Spectrum Analyzer and Horn Antenna.

All measurements at 1GHz and above were performed with turntable height 1.5m and with the ground plane covered by absorbers.

A pre-amplifier is used for all measurements, and High-Pass filter is used for all harmonics.