

Report No.: FR2N1015AC

RADIO TEST REPORT

FCC ID : 2ABLKU10XE

Equipment : GigaSpire BLAST u10xe

Brand Name : Calix

Model Name : u10xe GS4237

Applicant : Calix Inc.

1035 N. McDowell Blvd. Petaluma, CA94954 U.S.A

Manufacturer : NEWEB VIET NAM CO., LTD.

Land Lot CN01, Dong Van III Industrial zone, Dong Van Ward, Duy Tien Town, Ha Nam Province,

VietNam

Standard : 47 CFR FCC Part 15.407

The product was received on Nov. 15, 2022, and testing was started from Nov. 16, 2022 and completed on Jan. 19, 2023. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown 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. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

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TEL: 886-3-656-9065 FAX: 886-3-656-9085

Report Template No.: CB-A12_5 Ver1.1

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Report Version : 04

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History of this test report

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Report No.	Version	Description	Issued Date
FR2N1015AC	01	Initial issue of report	May 24, 2023
FR2N1015AC	02	Changing manufacturer and photos of power adapter	May 26, 2023
FR2N1015AC	03	Changing equipment name	Jun. 02, 2023
FR2N1015AC	04	Revising Applicable Standards in section 1.2	Jun. 06, 2023

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Summary of Test Result

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Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum Equivalent Isotopically Radiated Power (E.I.R.P.)	PASS	-
3.4	15.407(a)	Peak Power Spectral Density (E.I.R.P.)	PASS	-
3.5	15.407(b)	Unwanted Emissions	PASS	-
3.6	15.407(d)	Contention-Based Protocol	PASS	-
3.7	15.407(g)	Frequency Stability	PASS	-

Conformity Assessment Condition:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the
 regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall
 bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into
 account.
- 2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

- 1. The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.
- 2. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.

Reviewed by: Sam Chen

Report Producer: Sophia Shiung

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1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5925-7125	ax (HEW20)	5955-7095	1-229 [58]
5925-7125	ax (HEW40)	5965-7085	3-227 [29]
5925-7125	ax (HEW80)	5985-7025	7-215 [14]
5925-7125	ax (HEW160)	6025-6985	15-207 [7]

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Band	Mode	BWch (MHz)	Nant
5.925-7.125GHz	802.11ax HEW20	20	4TX
5.925-7.125GHz	802.11ax HEW20-BF	20	4TX
5.925-7.125GHz	802.11ax HEW40	40	4TX
5.925-7.125GHz	802.11ax HEW40-BF	40	4TX
5.925-7.125GHz	802.11ax HEW80	80	4TX
5.925-7.125GHz	802.11ax HEW80-BF	80	4TX
5.925-7.125GHz	802.11ax HEW160	160	4TX
5.925-7.125GHz	802.11ax HEW160-BF	160	4TX

Note:

- HEW20, HEW40, HEW80 and HEW160 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- BWch is the nominal channel bandwidth.

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1.1.2 Antenna Information

	Port				Antonno		Gain	
Ant.	WLAN 2.4GHz	WLAN 5GHz	WLAN 6GHz	Brand	Model Name	Antenna Type	Connector	(dBi)
1	1	3	-	WNC	81XKAC15.GFB	Dipole	I-PEX	
2	2	4	-	WNC	81XKAC15.GFC	Dipole	I-PEX	
3	-	1	-	WNC	81XKAC15.GGA	Dipole	I-PEX	
4	-	2	-	WNC	81XKAC15.GGA	Dipole	I-PEX	Note 1
5	ı	-	1	WNC	81XKAC15.GFD	Dipole	I-PEX	Note 1
6	-	-	2	WNC	81XKAC15.GFE	Dipole	I-PEX	
7	ı	-	3	WNC	81XKAC15.GFF	Dipole	I-PEX	
8	-	-	4	WNC	81XKAC15.GFG	Dipole	I-PEX	

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Note 1:

		Antenna Gain (dBi)								
Ant.	WLAN 2.4GHz	WLAN 5GHz UNII 1	WLAN 5GHz UNII 2A	WLAN 5GHz UNII 2C	WLAN 5GHz UNII 3					
1	2.88	0.9	1.02	3.27	1.99					
2	3.07	0.72	0.74	2.25	1.46					
3	•	1.13	2	2.99	3.26					
4	-	0.82	1.2	1.82	2.95					

	Antenna Gain (dBi)								
Ant.	WLAN 6GHz UNII 5	WLAN 6GHz UNII 6	WLAN 6GHz UNII 7	WLAN 6GHz UNII 8					
5	3.00	3.70	3.11	3.23					
6	3.68	3.56	3.60	3.60					
7	4.75	4.70	4.90	4.93					
8	4.84	4.55	4.21	3.93					

			Directional gain (dB	i)					
Item	WLAN 2.4GHz		WLAN 5GHz						
	2.45GHz	5.2GHz	5.3GHz	5.6GHz	5.785GHz				
2T1S	4.76	-	-	-	-				
2T2S	3.07	-	-	=	-				
4T1S	-	3.32	4.34	6.76	7.06				
4T2S	-	1.13	2	3.76	4.06				
4T4S	-	1.13	2	3.27	3.26				

Note 2: The above information (except antenna 1~4 gain and directional gain) was declared by manufacturer.

Note 3: For 2.4GHz / 5GHz, the antenna gain and directional gain are measured which follow the procedure of KDB 662911 D03.

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Note 4: For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax (2TX/2RX):

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11a/n/ac/ax (4TX/4RX):

Port 1~4 can be used as transmitting/receiving antenna.

Port 1~4 could transmit/receive simultaneously.

For 6GHz function:

For IEEE 802.11ax (4TX/4RX):

Port 1~4 can be used as transmitting/receiving antenna.

Port 1~4 could transmit/receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11ax HEW20	0.793	1.01	5.446m	300
802.11ax HEW20-BF	0.946	0.24	3.44m	300
802.11ax HEW40	0.788	1.03	5.446m	300
802.11ax HEW40-BF	0.953	0.21	3.44m	300
802.11ax HEW80	0.791	1.02	5.446m	300
802.11ax HEW80-BF	0.97	0.13	3.693m	300
802.11ax HEW160	0.789	1.03	5.446m	300
802.11ax HEW160-BF	0.962	0.17	3.892m	300

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Note:

DC is Duty Cycle.

DCF is Duty Cycle Factor.

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1.1.4 EUT Operational Condition

EUT Power Type	Fror	n power adapter and UPS			
		With beamforming		Without beamforming	
Beamforming Function	The product has beamforming function for n/VHT/ax in 2.4GHz, n/ac/ax in 5GHz and ax in 6GHz.				
		Indoor Access Point	\boxtimes	Subordinate	
Device Type		Indoor Client		Standard Power Access Point	
		Dual Client		Standard Client	
		Fixed Client			
Channel Puncturing Function		Supported	\boxtimes	Unsupported	
Support RU		Full RU		Partial RU	
Software / Firmware Version		QSPR V5.0-00199			
		OpenWrt 19.07-SNAPSHOT r0+12588-d73b7fa885 / LuCl NHSS.QSDK.12.0 branch git-22.080.21006-5f1c70d			

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Note: The above information was declared by manufacturer.

1.1.5 Table for EUT supports functions

Function
AP
Repeater

Note 1: After evaluating, AP Mode was selected to test and record in the report.

Note 2: The above information was declared by manufacturer.

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1.2 Applicable Standards

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

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- 47 CFR FCC Part 15.407
- ANSI C63.10-2013
- FCC KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF.

- FCC KDB 987594 D02 v01r01
- FCC KDB 662911 D01 v02r01
- FCC KDB 412172 D01 v01r01
- FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing	Location	Information

Test Lab.: Sporton International Inc. Hsinchu Laboratory

Hsinchu ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

(TAF: 3787) TEL: 886-3-656-9065 FAX: 886-3-656-9085

Test site Designation No. TW3787 with FCC.

Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date	
RF Conducted (For other tests)	TH03-CB	Owen Hsu	23.4~24.5 / 62~69	Nov. 24, 2022~ Jan. 12, 2023	
Radiated < 1GHz	03CH05-CB	Chris Lee	23.8~24.9 / 55~58	Dec. 05, 2022~ Dec. 14, 2022	
Radiated > 1GHz	03CH01-CB	Gordon Hung	Candan Illina	21.2~23 / 64~69	Nov. 16, 2022~
Radiated > TGH2	03CH03-CB		21~22.7 / 65~68	Jan. 19, 2023	
AC Conduction	CO01-CB	Joe Chu	23~24 / 56~57	Dec. 19, 2022	
RF Conducted (Contention-Based Protocol test)	DF02-CB	Jeff Wu	21.1~23.2 / 65~70	Nov. 29, 2022~ Dec. 09, 2022	

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1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence

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level (based on a coverage factor (k=2)

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Conducted Emission	3.2 dB	Confidence levels of 95%
Bandwidth Measurement	2.0 %	Confidence levels of 95%

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2 Test Configuration of EUT

2.1 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item	AC power-line conducted emissions	
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz	
Operating Mode	Normal Link	
1	EUT + Adapter (Powering) + UPS (Without powering)	

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The Worst Case Mode for Following Conformance Tests		
Tests Item	Emission Bandwidth Contention Based Protocol Frequency Stability	
Test Condition	Test Condition Conducted measurement at transmit chains	

The Worst Case Mode for Following Conformance Tests		
Tests Item	Maximum Equivalent Isotopically Radiated Power (E.I.R.P.) Peak Power Spectral Density (E.I.R.P.)	
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.	
	СТХ	
Operating Mode	After evaluating, EUT in Y axis was the worst case. So the measurement will follow this same test configuration.	
1	EUT in Y axis	

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The Worst Case Mode for Following Conformance Tests		
Tests Item	Unwanted Emissions	
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.	
	Normal Link	
Operating Mode < 1GHz	After evaluating, EUT in Y axis was the worst case. So the measurement will follow this same test configuration.	
1	EUT in Y axis + Adapter (Powering) + UPS (Powering)	
	СТХ	
Operating Mode > 1GHz	After evaluating, EUT in Y axis was the worst case. So the measurement will follow this same test configuration.	
1	EUT in Y axis	

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The Worst Case Mode for Following Conformance Tests		
Tests Item Emission MASK		
Test Condition Conducted measurement at transmit chains		

The Worst Case Mode for Following Conformance Tests		
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation		
Operating Mode		
1	WLAN 2.4GHz + WLAN 5GHz + WLAN 6GHz	
Refer to Sporton Test Report No.: FA2N1015 for Co-location RF Exposure Evaluation.		

Note: The UPS was for measurement only and would not be marketed. Its information is shown as below:

Equipment	Brand	Model
UPS	CyberPower	CSN75A12V3

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2.2 EUT Operation during Test

For CTX Mode:

Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

Beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

During the test, the following programs under WIN 10 were executed.

The program was executed as follows:

- 1. During the test, the EUT operation to normal function.
- 2. Executed command fixed test channel under DOS.
- 3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by 6E Client and transmit duty cycle no less than 98%.

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For Normal Link Mode:

During the test, the EUT operation to normal function.

2.3 Accessories

Accessories				
Equipment Name	Rating			
Adapter	Chenzhou Frecom	F65L1-120450SPAU	Input: 100-240V~50/60Hz, 1.8A Output: 12.0V, 4.5A, 54.0W	

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2.4 Support Equipment

For AC Conduction:

	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
Α	10G WAN PC	DELL	T3400	N/A	
В	1G LAN NB	DELL	E6430	N/A	
С	OLT	CALIX	NGPOIV2-4	N/A	
D	Switch	ZXYEL	GS1210-12	N/A	
Е	OLT NB	DELL	E6430	N/A	
F	Phone 1	SAMPO	HT-B 907WL	N/A	
G	Phone 2	SAMPO	HT-B 907WL	N/A	
Н	2.4G NB	DELL	E6430	N/A	
I	5G NB	DELL	E6430	N/A	
J	6G Client	WNC	LRV2	N/A	
K	Flash disk3.0	SanDisk	Msip-rem-tad-sdcz73	N/A	
L	UPS	CyberPower	CSN75A12V3	N/A	

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For Radiated (below 1GHz):

	Support Equipment			
No.	Equipment	Brand Name	Model Name	FCC ID
Α	10G WAN PC	HP	SGH8190LP1	N/A
В	NB (WiFi 2.4G)	DELL	E4300	N/A
С	NB (WiFi 5G)	DELL	E4300	N/A
D	RX Driver (WiFi 6E)	WNC	LRV2	N/A
Е	OLT PC	HP	SGH8190LP1	N/A
F	UPS	CyberPower	CSN75A12V3	N/A
G	Phone	TENTEL	K-311	N/A
Н	Phone	TENTEL	K-311	N/A
I	Converter	OPTCORE	10G Ethernet Media Converter	N/A
J	1G LAN NB	DELL	E4300	N/A
K	Flash disk3.0	Silicon Power	B06	N/A
L	OLT	Calix	NGPOIV2-4	N/A
М	Transceiver module	Calix	XGS-PON OLT N1 ITEMP	N/A

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For Radiated (above 1GHz):

<Non-beamforming mode>

	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
Α	NB	DELL	E4300	N/A	

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<Beamforming mode>

	Support Equipment			
No.	Equipment	Brand Name	Model Name	FCC ID
Α	NB	DELL	E4300	N/A
В	NB	DELL	E4300	N/A
С	6E Client	WNC	LCS3	N/A

For RF Conducted (Other test items):

	Support Equipment			
No.	Equipment	Brand Name	Model Name	FCC ID
Α	NB	DELL	E4300	N/A

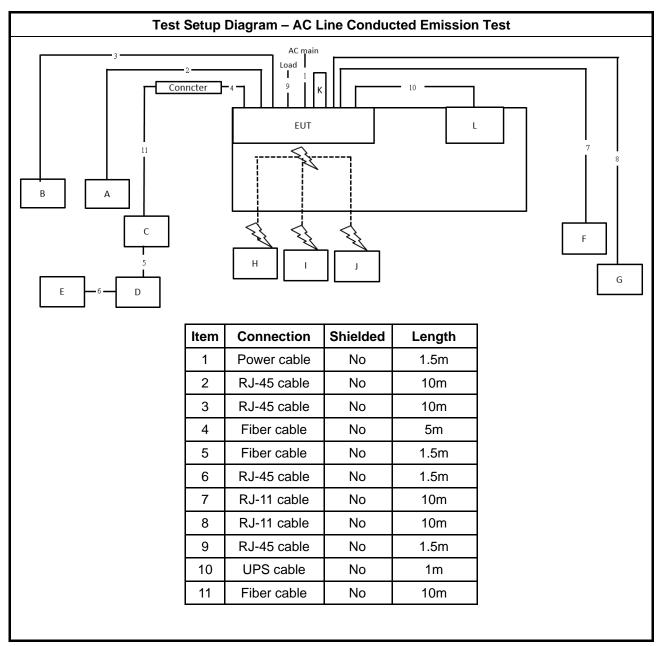
For RF Conducted (Contention Based Protocol test):

	Support Equipment			
No.	Equipment	Brand Name	Model Name	FCC ID
Α	Notebook	DELL	E4300	N/A
В	Notebook	DELL	E4300	N/A
С	WLAN module	Intel	AX210NGW	PD9AX210NG

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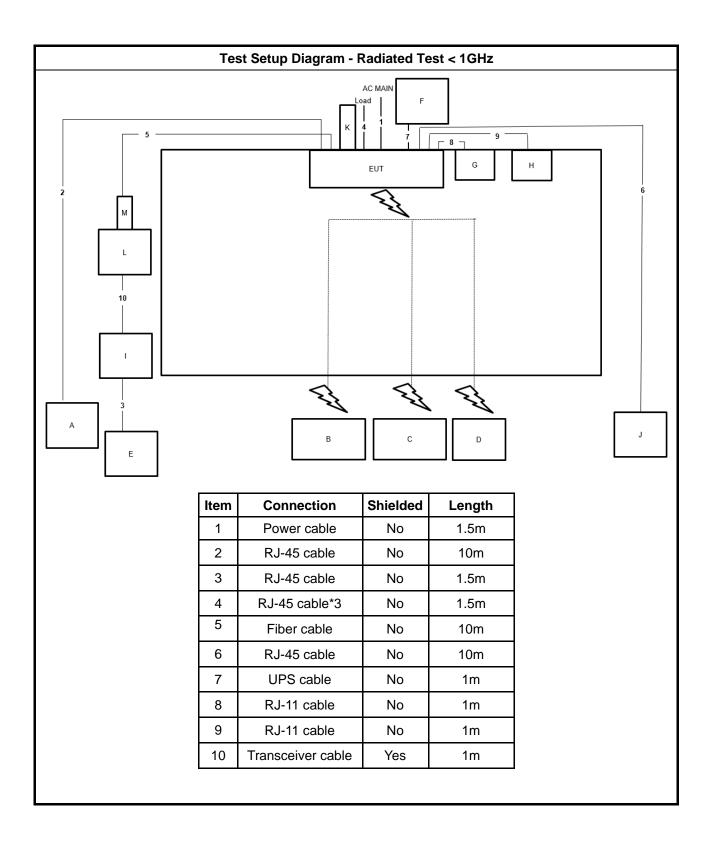


Test Setup Diagram 2.5



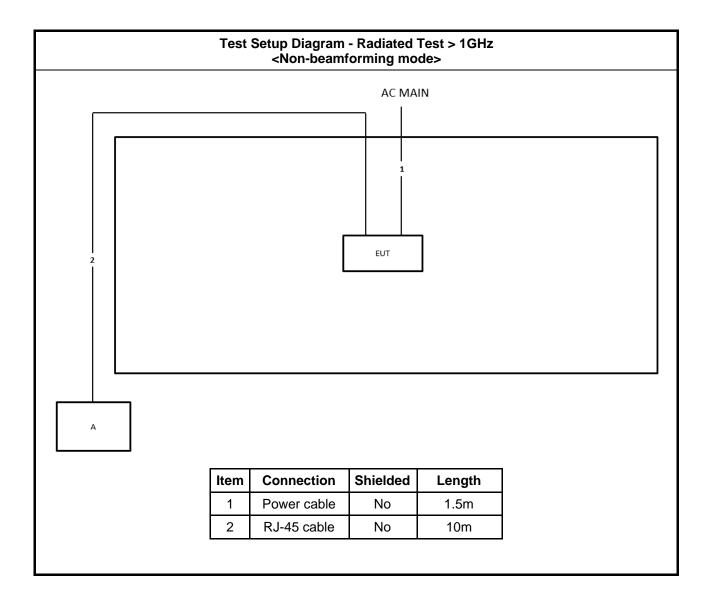
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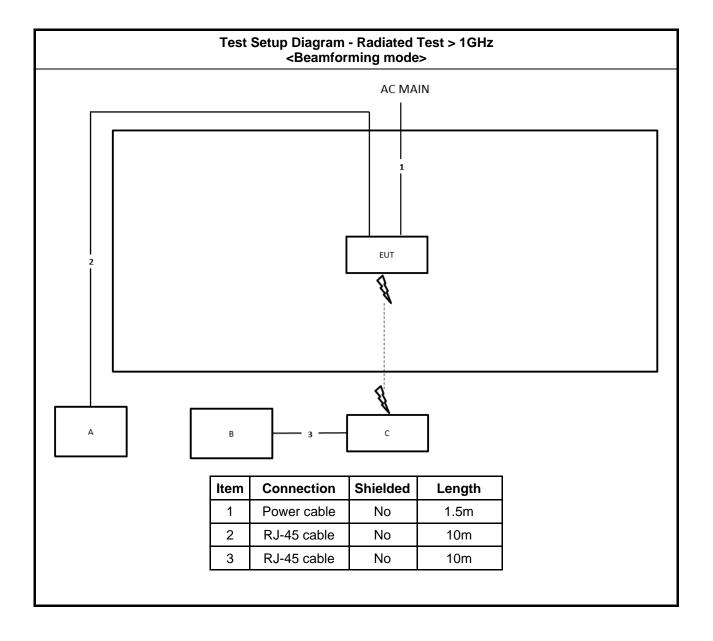


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3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit			
Frequency Emission (MHz) Quasi-Peak Average			
0.15-0.5	66 - 56 *	56 - 46 *	
0.5-5	56	46	
5-30	60	50	
Note 1: * Decreases with the logarithm of the frequency.			

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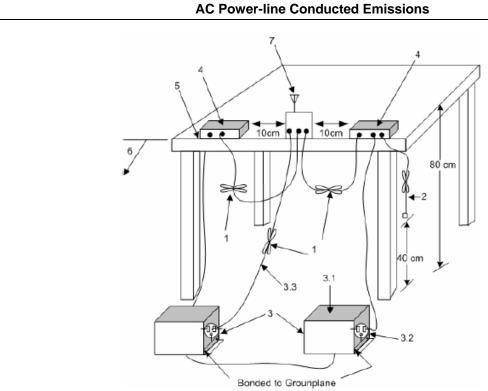
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.

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- 2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
- 3.1—All other equipment powered from additional LISN(s).
- 3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
- 3.3—LISN at least 80 cm from nearest part of EUT chassis.
- 4—Non-EUT components of EUT system being tested.
- 5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
- 6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
- 7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading (dBuV) = LISN Factor + Cable Loss + Read Level = Level
- b. Margin = Limit + (Read Level + LISN Factor + Cable Loss)

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

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3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

	Emission Bandwidth Limit			
UNI	JNII Devices			
\boxtimes	For the 5925-6425 GHz band, N/A			
\boxtimes	For the 6425-6525 GHz band, N/A			
\boxtimes	For the 6525-6875 GHz band, N/A			
\boxtimes	For the 6875-7125 GHz band, N/A			
RL	AN Devices			
	For the 5925-6425 GHz band, N/A			
	For the 6425-6525 GHz band, N/A			
	For the 6525-6875 GHz band, N/A			
	For the 6875-7125 GHz band, N/A			

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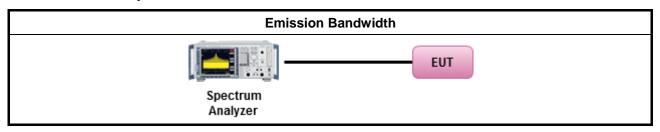
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

		Test Method	
•	For the emission bandwidth shall be measured using one of the options below:		
		According to FCC KDB 987594 D02 clause II.C, measurement procedure shall refer to FCC KDB 789033 D02, clause C for EBW and clause D for OBW measurement.	
		Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.	
		Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.	

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

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3.3 Maximum Equivalent Isotopically Radiated Power (E.I.R.P.)

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3.3.1 Maximum Equivalent Isotopically Radiated Power (E.I.R.P.) Limit

		Maximum Equivalent Isotopically Radiated Power (E.I.R.P.) Limit
UNI	l De	vices
\boxtimes	For	the 5.925 ~ 6.425 GHz band:
	•	For standard power access point and fixed client device : e.i.r.p < 36 dBm , For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees not exceed 125 mW (21 dBm).
	•	For indoor access point : e.i.r.p < 30 dBm.
	•	For subordinate device control of an indoor access point : e.i.r.p < 30 dBm.
	•	For client device control of a standard power access point : e.i.r.p < 30 dBm.
	•	For client device control of an indoor access point : e.i.r.p < 24 dBm.
\boxtimes	For	the 6.425 ~ 6.525 GHz band:
	•	For indoor access point : e.i.r.p < 30 dBm.
	•	For client device control of an indoor access point : e.i.r.p < 24 dBm.
\boxtimes	For	the 6.525 ~ 6.875 GHz band:
	•	For standard power access point and fixed client device : e.i.r.p < 36 dBm , For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees not exceed 125 mW (21 dBm).
	•	For indoor access point : e.i.r.p < 30 dBm.
	•	For subordinate device control of an indoor access point : e.i.r.p < 30 dBm.
	•	For client device control of a standard power access point : e.i.r.p < 30 dBm.
	•	For client device control of an indoor access point : e.i.r.p < 24 dBm.
\boxtimes	For	the 6.875 ~ 7.125 GHz band:
	•	For indoor access point : e.i.r.p < 30 dBm.
	•	For client device control of an indoor access point : e.i.r.p < 24 dBm.
RLA	AN D	evices
	For	the 5.925 ~ 7.125 GHz band:
	•	For low-power indoor access-points & indoor subordinate devices < 30 dBm.
	•	For low-power client devices < 24 dBm.
	For	the 5.925 ~ 6.875 GHz band:
	•	For standard-power access points & fixed client devices < 36 dBm.
	•	For standard client devices < 30 dBm.

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3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

		Test Method	
•	According to FCC KDB 987594 D02 clause II.E, the test measurement procedure shall refer to KDB 789033.		
	Ave	rage over on/off periods with duty factor	
		Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging). Spectrum analyzer setting: RBW/VBW: 1/3MHz; Detector: RMS; Trace mode: Average; Sweep Count 100.	
		Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)	
	Wid	eband RF power meter and average over on/off periods with duty factor	
		Refer as FCC KDB 789033 D02, clause E Method PM-G (using an RF average power meter).	
	For	conducted measurement.	
	•	If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
	•	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	
\boxtimes	For	radiated measurement.	
	•	Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"	
	•	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.	
	•	Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.	

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Note:

The test is the final test result, It includes antenna /cable loss factor & FSL factor.

The EIRP calculation refer to "KDB 412172 D01 Determining ERP and EIRP v01r01"

EIRP Formula:

EIRP(dBm) = PR(dBm) + LP(FSL factor)

where;

PR(dBm): Power measurement level include antenna/cable loss

LP: Free Space Loss(dB)

PR Formula:

PR(dBm) = P Meas(dBm) - GR(dBi) + LC(dB)

where:

P Meas(dBm): Power measurement level

GR(dBi): Gain of the receive(measurement) antenna (dBi)

LC(dB): Measurement cable loss (dB)

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LP(FSL factor) Formula:

 $LP(dB) = 20 \log F + 20 \log D - 27.54$

where;

F(MHz) : EUT center frequency D(m) : Measurement distance

For Example:

Test mode HE20 BF 4T1S 5955MHz EIRP measurement

PR Formula:

PR(dBm) = -38.34 - 10.21 + 5.48 = -43.07

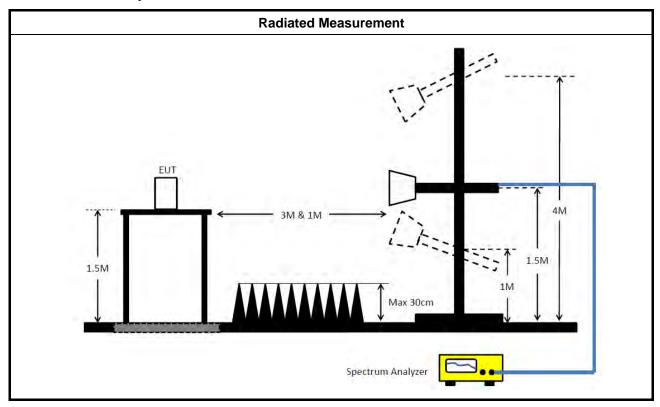
LP(FSL factor) Formula:

LP(dB) = 20log(5955) + 20log(3) -27.5 = 57.54

EIRP Formula:

EIRP(dBm) = -43.07 + 57.54 = 14.47

3.3.4 Test Setup



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3.3.5 Test Result of Maximum Equivalent Isotopically Radiated Power (E.I.R.P)

Refer as Appendix C

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3.4 Peak Power Spectral Density (E.I.R.P.)

3.4.1 Peak Power Spectral Density (E.I.R.P.) Limit

	Peak Power Spectral Density (E.I.R.P.) Limit				
UNI	UNII Devices				
\boxtimes	For	the 5.925 ~ 6.425 GHz band:			
	•	For standard power access point and fixed client device : e.i.r.p PSD < 23 dBm/MHz.			
	•	For indoor access point : e.i.r.p PSD < 5 dBm/MHz.			
	•	For subordinate device control of an indoor access point : e.i.r.p PSD < 5 dBm/MHz.			
	•	For client device control of a standard power access point : e.i.r.p PSD < 17 dBm/MHz.			
	•	For client device control of an indoor access point : e.i.r.p PSD < -1 dBm/MHz.			
\boxtimes	For	the 6.425 ~ 6.525 GHz band:			
	•	For indoor access point : e.i.r.p PSD < 5 dBm/MHz.			
	•	For client device control of an indoor access point : e.i.r.p PSD < -1 dBm/MHz.			
\boxtimes	For	the 6.525 ~ 6.875 GHz band:			
	•	For standard power access point and fixed client device : e.i.r.p PSD < 23 dBm/MHz.			
	•	For indoor access point : e.i.r.p PSD < 5 dBm/MHz.			
	•	For subordinate device control of an indoor access point : e.i.r.p PSD < 5 dBm/MHz.			
	•	For client device control of a standard power access point : e.i.r.p PSD < 17 dBm/MHz.			
	•	For client device control of an indoor access point : e.i.r.p PSD < -1 dBm/MHz.			
\boxtimes	For	the 6.875 ~ 7.125 GHz band:			
	•	For indoor access point : e.i.r.p PSD < 5 dBm/MHz.			
	•	For client device control of an indoor access point : e.i.r.p PSD < -1 dBm/MHz.			
RL	AN [Devices			
	For	the 5.925 ~ 7.125 GHz band:			
	•	For low-power indoor access-points & indoor subordinate devices < 5 dBm / MHz.			
	•	For low-power client devices < -1 dBm / MHz.			
	For	the 5.925 ~ 6.875 GHz band:			
	•	For standard-power access points & fixed client devices < 23 dBm / MHz.			
	•	For standard client devices < 17 dBm / MHz.			

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3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

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3.4.3 Test Procedures

Test Method					
•	Peak outpout function	ording to FCC KDB 987594 D02 clause II.F, the measurement procedure shall refer to KDB 789033. It power spectral density procedures that the same method as used to determine the conducted out power shall be used to determine the peak power spectral density and use the peak search tion on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density be measured using below options:			
		Refer as FCC KDB 789033 D02, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth			
	[duty cycle ≥ 98% or external video / power trigger]				
	\boxtimes	Refer as FCC KDB 789033 D02, clause E Method SA-1 (spectral trace averaging).			
		Refer as FCC KDB 789033 D02, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)			
	duty cycle < 98% and average over on/off periods with duty factor				
	\boxtimes	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).			
		Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)			
	For conducted measurement.				
	•	If the EUT supports multiple transmit chains using options given below:			
		Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.			
		Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,			
		Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.			
	•	If multiple transmit chains, EIRP PPSD calculation could be following as methods: $ PPSD_{total} = PPSD_1 + PPSD_2 + \ldots + PPSD_n \\ (calculated in linear unit [mW] and transfer to log unit [dBm]) \\ EIRP_{total} = PPSD_{total} + DG $			
\boxtimes	For r	adiated measurement.			
	•	Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"			
	•	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.			

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Test Method

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Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

Note:

The test is the final test result, It includes antenna /cable loss factor & FSL factor.

The EIRP PSD calculation refer to "KDB 412172 D01 Determining ERP and EIRP v01r01"

EIRP PSD Formula:

EIRP PSD(dBm/MHz) = PR(dBm/MHz) + LP(FSL factor)

where:

PR(dBm/MHz): Power measurement level include antenna/cable loss

LP: Free Space Loss(dB)

PR Formula:

PR(dBm/MHz) = P Meas(dBm/MHz) - GR(dBi) + LC(dB)

where:

P Meas(dBm/MHz): PSD measurement level

GR(dBi): Gain of the receive(measurement) antenna (dBi)

LC(dB): Measurement cable loss (dB)

LP(FSL factor) Formula:

 $LP(dB) = 20 \log F + 20 \log D - 27.54$

where;

F(MHz) : EUT center frequency D(m) : Measurement distance

For Example:

Test mode HE20 BF 4T1S 5955MHz EIRP PSD measurement

PR Formula:

PR(dBm/MHz) = -48.02 - 10.22 + 5.48 = -52.76

LP(FSL factor) Formula:

LP(dB) = 20log(5953.5) + 20log(3) -27.5 = 57.55

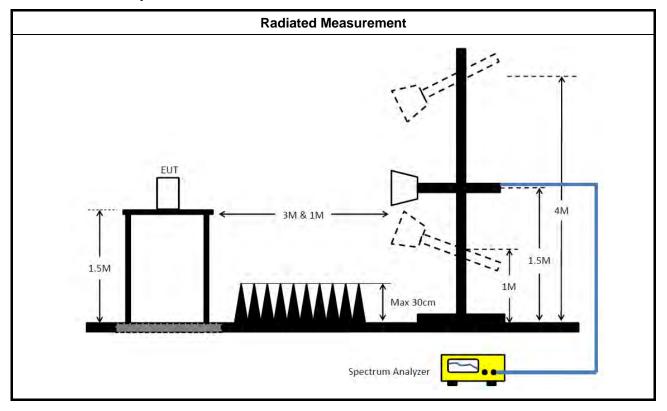
EIRP PSD Formula

EIRP PSD(dBm/MHz) = -52.76 + 57.55 = 4.79

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3.4.4 Test Setup



3.4.5 Test Result of Peak Power Spectral Density (E.I.R.P.)

Refer as Appendix D

3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit						
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)			
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300			
0.490~1.705	24000/F(kHz)	33.8 - 23	30			
1.705~30.0	30	29	30			
30~88	100	40	3			
88~216	150	43.5	3			
216~960	200	46	3			
Above 960	500	54	3			

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- Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
- Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.
- Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m(20 x log (standard distance/ test distance) = 20log(3/1) = 9.54dB.

 EX. Above 18GHz emission limit calculation (3m to 1m) = 54dBuV/m at 3m + 9.54dB = 63.54 dBuV/m at 1m.

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Un-restricted band emissions above 1GHz Limit Limit Frequency Any outside the 5.945 e.i.r.p. -27 dBm [68.2 dBuV/m@3m] 7.125 GHz emission Note 1: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m(20 x log (standard distance/ test distance) = $20\log(3/1) = 9.54dB$. EX. Above 18GHz emission limit calculation (3m to 1m) = 68.2dBuV/m at 3m + 9.54dB = 77.74 dBuV/m at 1m.Note 2:-27 dBm EIRP OOBE is measured RMS which is a deviation from the current 15E rules for 5 GHz bands. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit. **Emission MASK Limit** Frequency 5.945 - 7.125 GHz 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 oneand one-half times the channel bandwidth must be suppressed by at least 40 dB. Fc - EBW Fc + EBW 20 dB 28 dB 40 dB Fc + EBW/2 1.5 X EBW 1.5 X EBW

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3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method

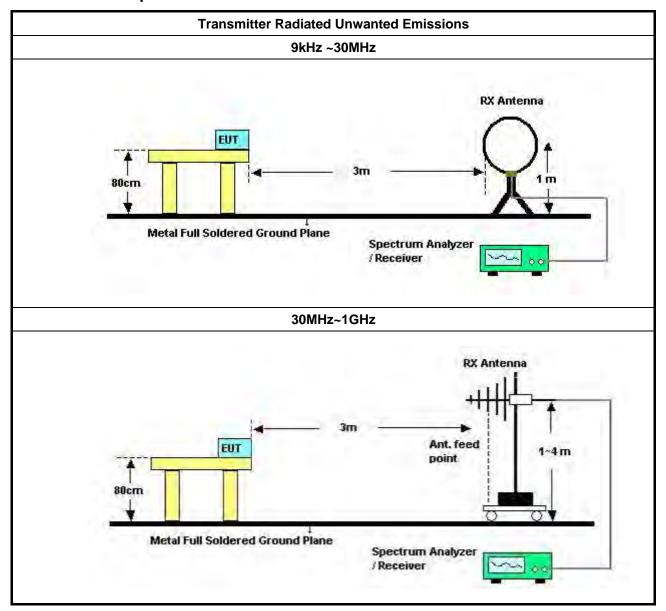
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- According to FCC KDB 987594 D02 II.G. the unwanted emission measurement procedure shall refer to KDB 789300(except emission MASK).
 - Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
- The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
- For the transmitter unwanted emissions shall be measured using following options below:
 - Refer as FCC KDB 789033 D02, clause G)2) for unwanted emissions into non-restricted bands.
 - Refer as FCC KDB 789033 D02, clause G)1) for unwanted emissions into restricted bands.
 - Refer as FCC KDB 789033 D02, G)6) Method AD (Trace Averaging). (For unrestricted band measurement)
 - Refer as FCC KDB 789033 D02, G)6) Method VB (Reduced VBW).
 - Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.(For restricted band average measurement)
 - Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
 - Refer as FCC KDB 789033 D02, clause G)5) measurement procedure peak limit.
 - Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
 - Refer as FCC KDB 789033 D02, clause G)3)d)ii) for Band edge Integration measurements.
- For emission MASK shall be measured using following options below:
 - Refer as FCC KDB 987594 D02, J) In-Band Emissions
- For radiated measurement.
 - Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
 - Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
 - Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
- The any unwanted emissions level shall not exceed the fundamental emission level.
- All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

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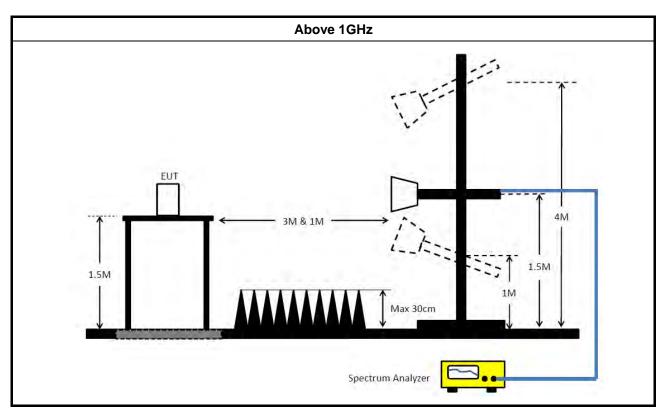


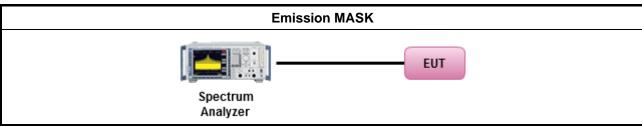
3.5.4 Test Setup



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3.5.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level

3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

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3.6 Contention Based Protocol

3.6.1 Contention Based Protocol Limit

EUT can detect an AWGN signal with 90% (or better) level of certainty.

3.6.2 Measuring Instruments

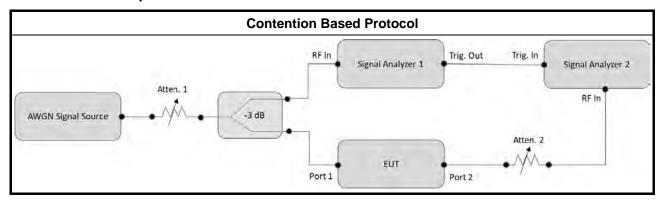
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

	Test Method		
•	For Contention Based Protocol shall be measured using following options below:		
	Refer as FCC KDB 987594 D02, I) Contention Based Protocol.		

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3.6.4 Test Setup



3.6.5 Test Result of Contention Based Protocol

Refer as Appendix F

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3.7 Frequency Stability

3.7.1 Frequency Stability Limit

Frequency Stability Limit

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• In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.7.2 Measuring Instruments

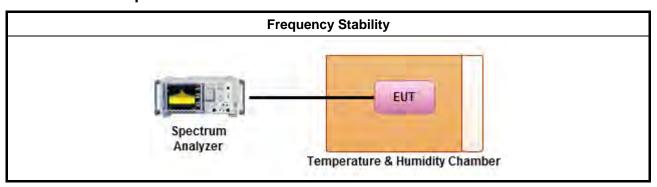
Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

Test Method

- Refer as ANSI C63.10, clause 6.8 for frequency stability tests
 - Frequency stability with respect to ambient temperature
 - Frequency stability when varying supply voltage
 - Extreme temperature is -30°C~50°C.

3.7.4 Test Setup



3.7.5 Test Result of Frequency Stability

Refer as Appendix G

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4 Test Equipment and Calibration Data

	7	1	7	1	7		1
Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 22, 2022	Feb. 21, 2023	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50- 16-2	04083	150kHz ~ 100MHz	Feb. 09, 2022	Feb. 08, 2023	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 12, 2022	Apr. 11, 2023	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 10, 2022	Feb. 09, 2023	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 18, 2022	Oct. 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	May 14, 2022	May 13, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30MHz ~ 1GHz	Aug. 03, 2022	Aug. 02, 2023	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 25, 2022	Mar. 24, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 26, 2022	Apr. 25, 2023	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Mar. 14, 2022	Mar. 13, 2023	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 17, 2022	Jun. 16, 2023	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH01-CB	1GHz ~18GHz 3m	May 06, 2022	May 05, 2023	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	BBHA 9120 D 1370	1GHz~18GHz	Jun. 23, 2022	Jun. 22, 2023	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz	May 19, 2022	May 18, 2023	Radiation (03CH01-CB)
Pre-Amplifier	EM	EM18G40GA	060874	18GHz ~ 40GHz	Aug. 23 2022	Aug. 22 2023	Radiation (03CH01-CB)

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FAX: 886-3-656-9085 Issued Date : Jun. 06, 2023

Calibration Calibration Instrument **Brand** Model No. Serial No. Characteristics Remark **Due Date** Date Radiation Spectrum FSP40 100056 9kHz ~ 40GHz R&S May 06, 2022 May 05, 2023 (03CH01-CB) Analyzer Radiation RF Cable-high Woken RG402 High Cable-16 1 GHz ~ 18 GHz Oct. 03, 2022 Oct. 02, 2023 (03CH01-CB) High Radiation RF Cable-high Woken RG402 1 GHz ~ 18 GHz Oct. 03, 2022 Oct. 02, 2023 Cable-16+17 (03CH01-CB) Radiation WCA0929M 40G#5+7 1GHz ~ 40 GHz Dec. 14, 2021 High Cable Woken Dec. 13, 2022 (03CH01-CB) Radiation High Cable Woken WCA0929M 40G#5+6 1GHz ~ 40 GHz Dec. 07, 2022 Dec. 06, 2023 (03CH01-CB) Radiation High Cable Woken WCA0929M 40G#5 1GHz ~ 40 GHz Dec. 08, 2021 Dec. 07, 2022 (03CH01-CB) Radiation WCA0929M 1GHz ~ 40 GHz High Cable 40G#5 Dec. 07, 2022 Dec. 06, 2023 Woken (03CH01-CB) Radiation High Cable Woken WCA0929M 40G#7 1GHz ~ 40 GHz Dec. 14, 2021 Dec. 13, 2022 (03CH01-CB) Radiation High Cable Woken WCA0929M 40G#6 1GHz ~ 40 GHz Dec. 07, 2022 Dec. 06, 2023 (03CH01-CB) Radiation **SPORTON** Test Software SENSE V5.10 N.C.R. N.C.R. (03CH01-CB) 3m Semi 1GHz ~18GHz Anechoic Radiation **TDK** SAC-3M 03CH03-CB May 05, 2022 May 04, 2023 Chamber (03CH03-CB) **VSWR** 750MHz~ Radiation Horn Antenna 6821 Jan. 21, 2022 Jan. 20, 2023 **ETS**·Lindaren 3115 18GHz (03CH03-CB) Radiation BBHA9170252 Horn Antenna Schwarzbeck **BBHA 9170** 15GHz ~ 40GHz Aug. 22, 2022 Aug. 21, 2023 (03CH03-CB) 1GHz ~ Radiation Pre-Amplifier 8449B 3008A02097 Jul. 01, 2022 Jun. 30, 2023 Agilent 26.5GHz (03CH03-CB) Radiation Pre-Amplifier ΕM EM18G40GA 060874 18GHz ~ 40GHz Aug. 23 2022 Aug. 22 2023 (03CH03-CB) Spectrum Radiation FSP40 100019 9kHz ~ 40GHz R&S Jun. 10, 2022 Jun. 09, 2023 (03CH03-CB) Analyzer High Radiation RF Cable-high RG402 1GHz ~ 18GHz Oct. 03, 2022 Oct. 02, 2023 Woken Cable-20+29 (03CH03-CB) Radiation RF Cable-high RG402 High Cable-29 1GHz ~ 18GHz Oct. 03, 2022 Oct. 02, 2023 Woken (03CH03-CB) Radiation WCA0929M 1GHz ~ 40 GHz High Cable Woken 40G#5+7 Dec. 14, 2021 Dec. 13, 2022 (03CH03-CB) Radiation WCA0929M 40G#5+6 1GHz ~ 40 GHz Dec. 07, 2022 Dec. 06, 2023 High Cable Woken (03CH03-CB) Radiation WCA0929M 40G#5 High Cable Woken 1GHz ~ 40 GHz Dec. 08, 2021 Dec. 07, 2022 (03CH03-CB) Radiation High Cable Woken WCA0929M 40G#5 1GHz ~ 40 GHz Dec. 07, 2022 Dec. 06, 2023

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(03CH03-CB)

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Calibration Calibration Instrument Brand Model No. Serial No. Characteristics Remark **Due Date** Date Radiation 40G#7 1GHz ~ 40 GHz High Cable Woken WCA0929M Dec. 14, 2021 Dec. 13, 2022 (03CH03-CB) Radiation High Cable Woken WCA0929M 40G#6 1GHz ~ 40 GHz Dec. 07, 2022 Dec. 06, 2023 (03CH03-CB) Radiation **SPORTON** N.C.R. N.C.R. Test Software SENSE V5.10 (03CH03-CB) Spectrum Conducted FSV40 101028 9kHz~40GHz Jan. 07, 2022 Jan. 06, 2023 R&S (TH03-CB) analyzer Spectrum Conducted R&S FSV40 101028 9kHz~40GHz Dec. 30, 2022 Dec. 29, 2023 (TH03-CB) analyzer 300MHz~ Conducted Power Sensor Anritsu MA2411B 1531344 Jul. 31, 2022 Jul. 30, 2023 40GHz (TH03-CB) 300MHz~ Conducted Power Meter Anritsu ML2495A 1728002 Jul. 31, 2022 Jul. 30, 2023 40GHz (TH03-CB) Conducted RF Cable-high Woken RG402 High Cable-11 1 GHz -18 GHz Oct. 03, 2022 Oct. 02, 2023 (TH03-CB) Conducted RF Cable-high Woken RG402 High Cable-12 1 GHz -18 GHz Oct. 03, 2022 Oct. 02, 2023 (TH03-CB) Conducted Woken RG402 High Cable-13 1 GHz -18 GHz Oct. 03, 2022 Oct. 02, 2023 RF Cable-high (TH03-CB) Conducted RF Cable-high Woken RG402 High Cable-14 1 GHz -18 GHz Oct. 03, 2022 Oct. 02, 2023 (TH03-CB) Conducted RG402 1 GHz -18 GHz Oct. 03, 2022 Oct. 02, 2023 RF Cable-high Woken High Cable-15 (TH03-CB) 6G Band Conducted 1GHz ~ 7.4GHz MT.J CB6G-BRJ-01 Oct. 04, 2022 Oct. 03, 2023 **Band Rejector** (TH03-CB) Rejector 6G Band Conducted 1GHz ~ 8GHz Oct. 04, 2022 **Band Rejector** MTJ CB6G-BRJ-02 Oct. 03, 2023 (TH03-CB) Rejector 1 GHz -26.5 Conducted **SPTCB** SP-SWI **SWI-03** Oct. 03, 2023 Switch Oct. 04, 2022 GHz (TH03-CB) Conducted **Test Software SPORTON** N.C.R. N.C.R. SENSE V5.10 (TH03-CB) Spectrum Conducted R&S FSV40 101025 9kHz ~ 40GHz Oct. 28, 2022 Oct. 27, 2023 Analyzer (DF02-CB) Vector Signal Conducted SMW200A 109426 100kHz- 7.5GHz R&S Dec. 28, 2021 Dec. 27, 2022 (DF02-CB) generator RF Power Conducted STI 1GHz ~ 8GHz Oct. 04, 2022 Oct. 03, 2023 2 Way DV-2way -05 Divider (DF02-CB) RF Power Conducted STI 2 Way DV-2way -06 1GHz ~ 8GHz Oct. 04, 2022 Oct. 03, 2023 Divider (DF02-CB) **RF** Power Conducted STI 2 Way DV-2way -07 1GHz ~ 8GHz Oct. 04, 2022 Oct. 03, 2023 (DF02-CB) Divider RF Power Conducted STI DV-2way -08 1GHz ~ 8GHz Oct. 04, 2022 Oct. 03, 2023 2 Way Divider (DF02-CB)

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Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-60	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-61	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-62	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-63	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-66	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-06	1GHz-26.5GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-07	1GHz-26.5GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-08	1GHz-26.5GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-09	1GHz–26.5GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-10	1GHz-26.5GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)
RF Cable-high	Woken	RG402	High Cable-30	1GHz-26.5GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (DF02-CB)

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Note: Calibration Interval of instruments listed above is one year.

NCR means Non-Calibration required.

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Conducted Emissions at Powerline

Appendix A

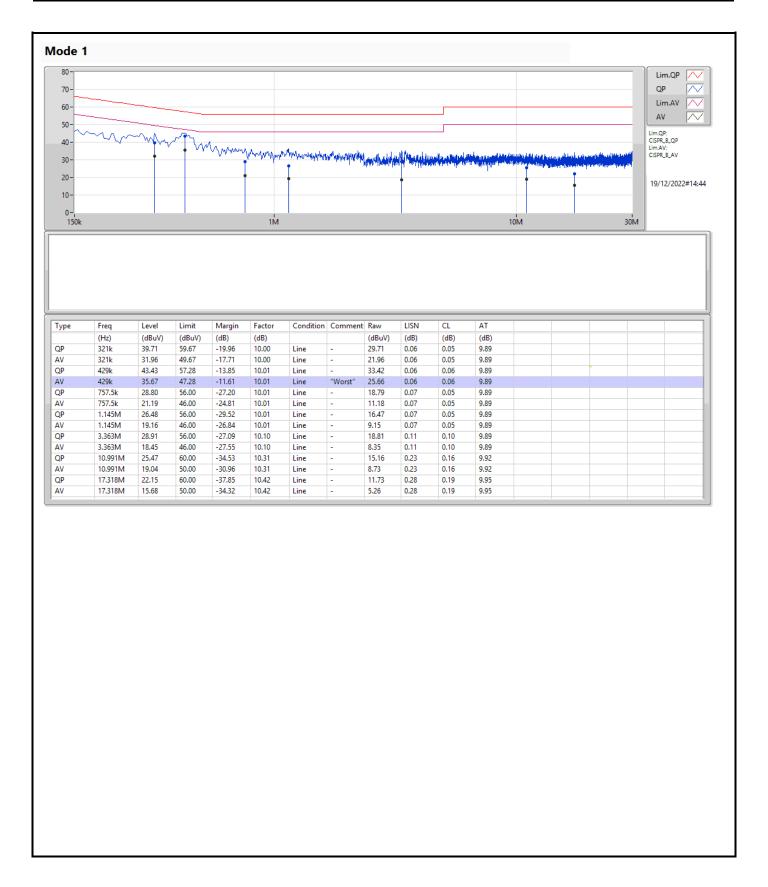
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	429k	35.67	47.28	-11.61	Line

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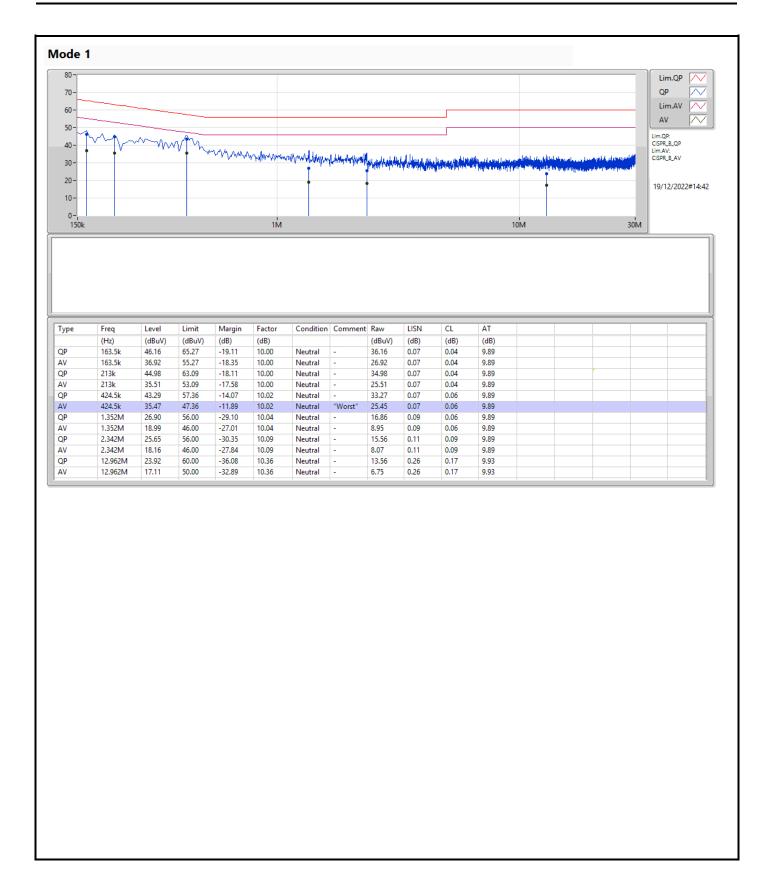
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EBW_Non-beamforming mode

Appendix B.1

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
5.925-6.425GHz	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_4TX	21.3M	18.895M	18M9D1D	20.85M	18.836M
802.11ax HEW40_Nss1,(MCS0)_4TX	40.62M	37.731M	37M7D1D	40.02M	37.554M
802.11ax HEW80_Nss1,(MCS0)_4TX	82.44M	77.225M	77M2D1D	81.48M	76.872M
802.11ax HEW160_Nss1,(MCS0)_4TX	168.24M	155.625M	156MD1D	166.56M	154.449M
6.425-6.525GHz	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_4TX	21.36M	18.865M	18M9D1D	20.88M	18.836M
802.11ax HEW40_Nss1,(MCS0)_4TX	40.74M	37.848M	37M8D1D	40.26M	37.601M
802.11ax HEW80_Nss1,(MCS0)_4TX	83.04M	77.46M	77M5D1D	82.08M	77.001M
802.11ax HEW160_Nss1,(MCS0)_4TX	167.52M	155.442M	155MD1D	166.8M	155.202M
6.525-6.875GHz	-	-	=	=	-
802.11ax HEW20_Nss1,(MCS0)_4TX	21.72M	18.983M	19M0D1D	20.82M	18.831M
802.11ax HEW40_Nss1,(MCS0)_4TX	40.74M	37.731M	37M7D1D	40.14M	37.496M
802.11ax HEW80_Nss1,(MCS0)_4TX	83.04M	77.342M	77M3D1D	81.48M	76.754M
802.11ax HEW160_Nss1,(MCS0)_4TX	167.28M	155.39M	155MD1D	165.84M	154.243M
6.875-7.125GHz	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_4TX	21.72M	18.983M	19M0D1D	20.94M	18.836M
802.11ax HEW40_Nss1,(MCS0)_4TX	40.74M	37.731M	37M7D1D	40.26M	37.554M
802.11ax HEW80_Nss1,(MCS0)_4TX	82.92M	77.107M	77M1D1D	81.48M	76.99M
802.11ax HEW160_Nss1,(MCS0)_4TX	167.04M	155.154M	155MD1D	165.84M	154.684M

 $\label{eq:max-NdB} \mbox{ Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;} \\ \mbox{ Max-OBW = Maximum 99% occupied bandwidth;} \\ \mbox{ Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;} \\ \mbox{ Min-OBW = Minimum 99% occupied bandwidth}$

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EBW_Non-beamforming mode

Appendix B.1

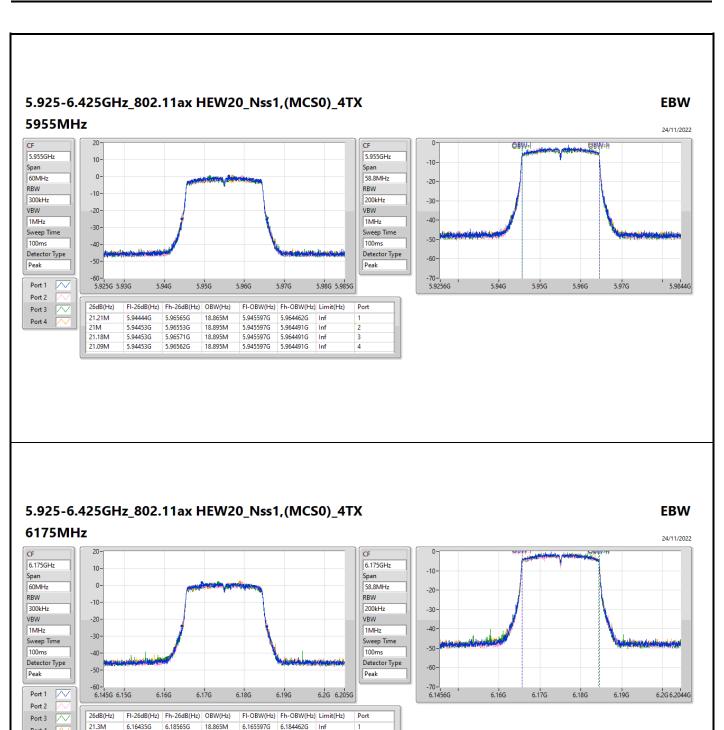
Result

Resuit										
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW	Port 3-N dB	Port 3-OBW	Port 4-N dB	Port 4-OBW
000 11 HEWOO N1 (MCCO) ATV		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	- 04.0414	- 10.0/514	-	- 40.00514	- 04 4014	- 10.00514	- 01.0014	- 10.00514
5955MHz	Pass	Inf	21.21M	18.865M	21M	18.895M	21.18M	18.895M	21.09M	18.895M
6175MHz	Pass	Inf	21.3M	18.865M	21.27M	18.895M	20.97M	18.836M	20.94M	18.895M
6415MHz	Pass	Inf	21.12M	18.865M	21.18M	18.865M	20.85M	18.836M	21.03M	18.865M
6435MHz	Pass	Inf	21M	18.865M	21.36M	18.865M	21.3M	18.865M	21.3M	18.836M
6475MHz	Pass	Inf	21.27M	18.865M	21.15M	18.865M	20.88M	18.836M	21.12M	18.836M
6515MHz	Pass	Inf	21.18M	18.865M	21.21M	18.865M	21.03M	18.865M	21M	18.836M
6535MHz	Pass	Inf	21.06M	18.865M	21.03M	18.865M	21.27M	18.865M	20.82M	18.836M
6695MHz	Pass	Inf	21.18M	18.865M	21.36M	18.895M	21.33M	18.924M	21.12M	18.895M
6855MHz	Pass	Inf	21.12M	18.895M	21.18M	18.895M	21.09M	18.836M	21.18M	18.983M
6875MHz Straddle 6.525-6.875GHz	Pass	Inf	21.42M	18.861M	21.21M	18.891M	21.06M	18.831M	21.72M	18.981M
6895MHz	Pass	Inf	21.21M	18.895M	20.94M	18.865M	21.15M	18.836M	21.36M	18.983M
6995MHz	Pass	Inf	21.3M	18.895M	21.21M	18.895M	21.06M	18.865M	21.72M	18.924M
7095MHz	Pass	Inf	21.57M	18.895M	21.15M	18.895M	21.15M	18.836M	21.51M	18.895M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	÷	-	-	=	-	-
5965MHz	Pass	Inf	40.56M	37.554M	40.26M	37.613M	40.14M	37.613M	40.32M	37.613M
6165MHz	Pass	Inf	40.02M	37.672M	40.5M	37.672M	40.38M	37.672M	40.26M	37.554M
6405MHz	Pass	Inf	40.62M	37.672M	40.38M	37.613M	40.38M	37.672M	40.56M	37.731M
6445MHz	Pass	Inf	40.44M	37.672M	40.62M	37.731M	40.44M	37.731M	40.38M	37.848M
6485MHz	Pass	Inf	40.32M	37.672M	40.38M	37.672M	40.38M	37.79M	40.56M	37.79M
6525MHz Straddle 6.425-6.525GHz	Pass	Inf	40.56M	37.661M	40.74M	37.601M	40.26M	37.721M	40.56M	37.721M
6565MHz	Pass	Inf	40.38M	37.672M	40.2M	37.672M	40.32M	37.613M	40.32M	37.731M
6685MHz	Pass	Inf	40.68M	37.672M	40.44M	37.613M	40.38M	37.554M	40.26M	37.672M
6845MHz	Pass	Inf	40.38M	37.731M	40.38M	37.613M	40.74M	37.613M	40.14M	37.496M
6885MHz Straddle 6.525-6.875GHz	Pass	Inf	40.5M	37.721M	40.56M	37.661M	40.5M	37.721M	40.2M	37.541M
6925MHz	Pass	Inf	40.74M	37.672M	40.38M	37.613M	40.38M	37.672M	40.38M	37.613M
7005MHz	Pass	Inf	40.44M	37.613M	40.44M	37.672M	40.68M	37.672M	40.5M	37.554M
7085MHz	Pass	Inf	40.32M	37.613M	40.26M	37.613M	40.38M	37.731M	40.32M	37.731M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	=	-	-
5985MHz	Pass	Inf	82.32M	76.99M	82.44M	76.99M	82.08M	76.99M	82.08M	76.872M
6145MHz	Pass	Inf	82.2M	77.225M	82.08M	77.107M	81.84M	77.225M	81.96M	76.99M
6385MHz	Pass	Inf	82.08M	77.107M	82.44M	77.107M	81.48M	77.107M	81.84M	77.225M
6465MHz	Pass	Inf	82.08M	77.107M	83.04M	77.225M	82.32M	77.107M	82.08M	77.46M
6545MHz Straddle 6.425-6.525GHz	Pass	Inf	82.56M	77.121M	82.44M	77.001M	82.44M	77.121M	82.08M	77.361M
6625MHz	Pass	Inf	83.04M	77.107M	82.2M	76.99M	81.48M	76.872M	81.84M	77.342M
6705MHz	Pass	Inf	82.2M	77.107M	82.56M	77.225M	81.72M	76.754M	82.44M	77.107M
6785MHz	Pass	Inf	81.96M	77.225M	82.56M	77.225M	82.32M	76.99M	81.84M	76.872M
6865MHz Straddle 6.525-6.875GHz	Pass	Inf	82.08M	77.121M	82.32M	77.121M	82.44M	77.121M	81.84M	76.882M
6945MHz	Pass	Inf	82.56M	77.107M	82.2M	76.99M	82.32M	77.107M	81.48M	76.99M
7025MHz	Pass	Inf	82.56M	77.107M	82.08M	76.99M	82.92M	77.107M	82.8M	76.99M
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
6025MHz	Pass	Inf	167.28M	155.154M	167.76M	154.919M	166.56M	154.449M	166.56M	154.449M
6185MHz	Pass	Inf	167.52M	155.154M	167.04M	155.154M	168.24M	155.625M	167.04M	154.919M
6345MHz	Pass	Inf	167.52M	154.919M	167.04M	154.919M	166.8M	155.154M	166.56M	154.919M
6505MHz Straddle 6.425-6.525GHz	Pass	Inf	167.52M	155.202M	167.04M	155.202M	166.8M	155.202M	166.8M	155.442M
6665MHz	Pass	Inf	167.28M	155.154M	166.56M	155.154M	167.28M	154.684M	166.32M	155.39M
6825MHz Straddle 6.525-6.875GHz	Pass	Inf	166.8M	155.202M	166.08M	154.963M	166.8M	154.723M	165.84M	154.243M
6985MHz	Pass	Inf	166.8M	155.154M	166.8M	154.684M	167.04M	155.154M	165.84M	154.684M
	1		i	i		i	1			

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth

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21.27M

20.97M

6.16438G

6.1645G

6.18565G

6.18547G

18.895M

18.836M

6.165567G

6.165597G

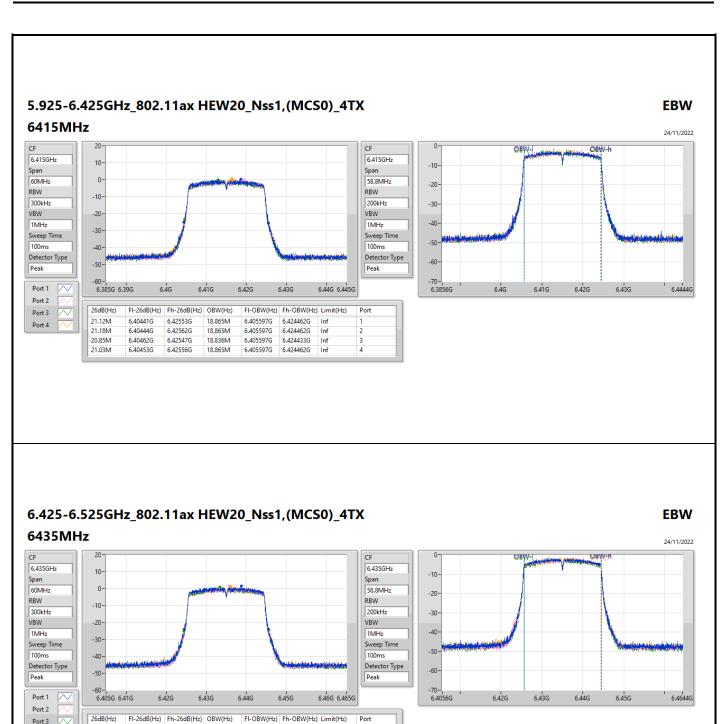
6.184462G

6.184433G 6.184462G

Port 4

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21M

21.36M

21.3M

6.42453G

6.42441G

6.42435G

6.42438G

6.44553G

6.44577G

6.44565G

6.44568G

18.865M

18.865M

18.836M

6.425597G

6.425597G

6.425597G

6.425597G

6.444462G

6.444462G

6.444462G

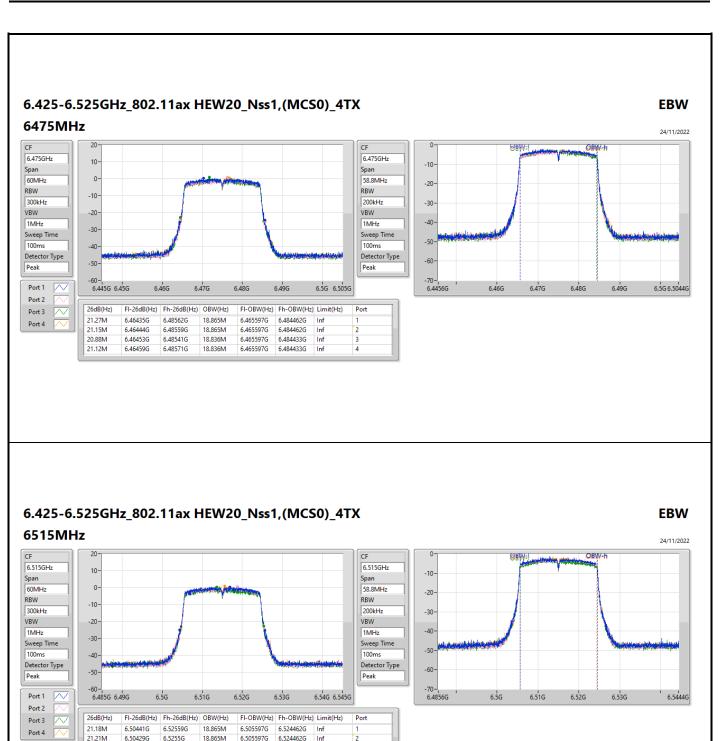
6.444433G

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6.50435G

6.50462G

21M

6.52538G

6.52562G

18.836M

6.505597G

6.505597G

6.524462G

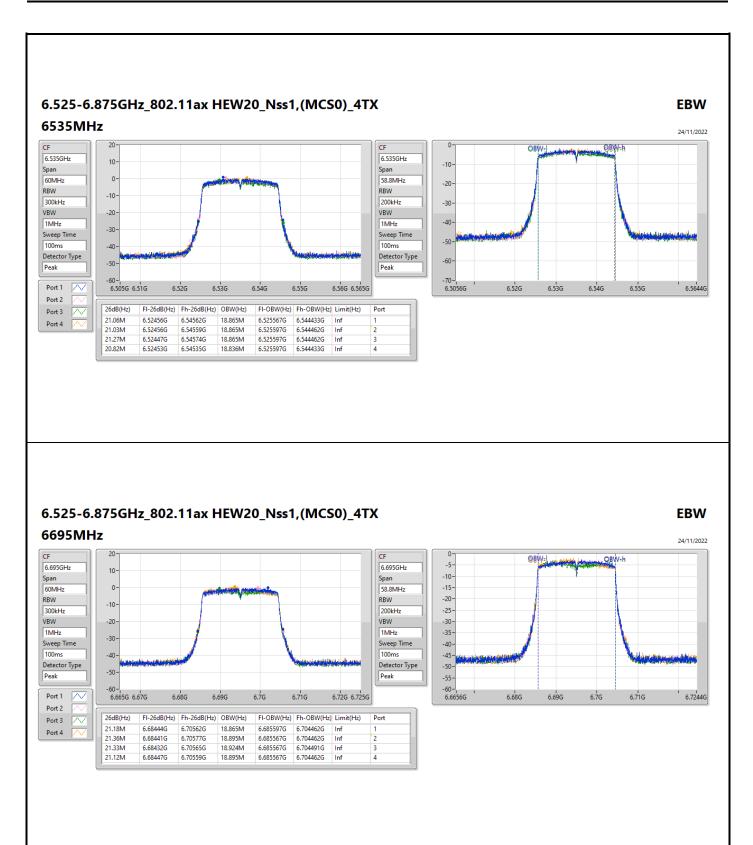
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6.875GHz

60MHz

300kHz

RBW

VBW

1MHz

Sweep Tir

Port 1

Port 2

Port 3

Detector Type

10-

0-

-10-

-20-

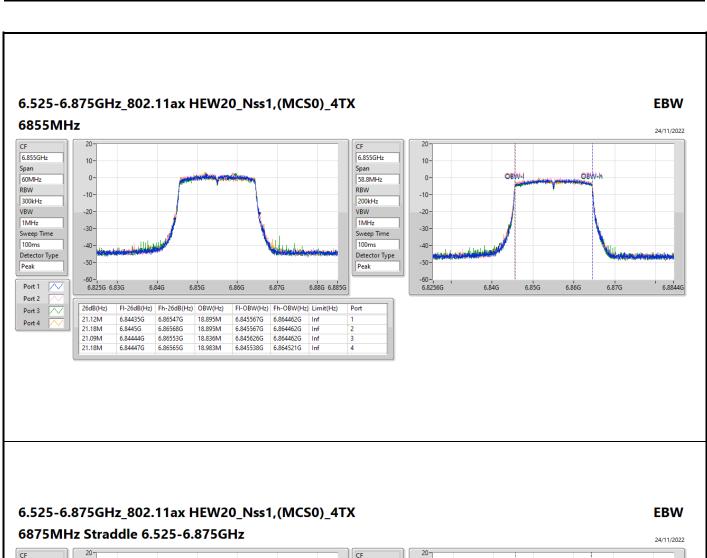
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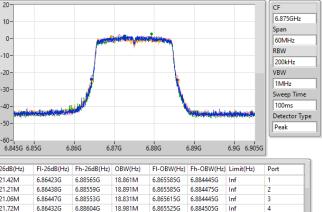
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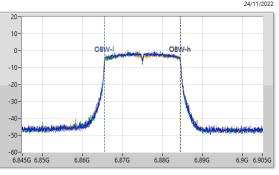
21.42M

21.21M

21.72M



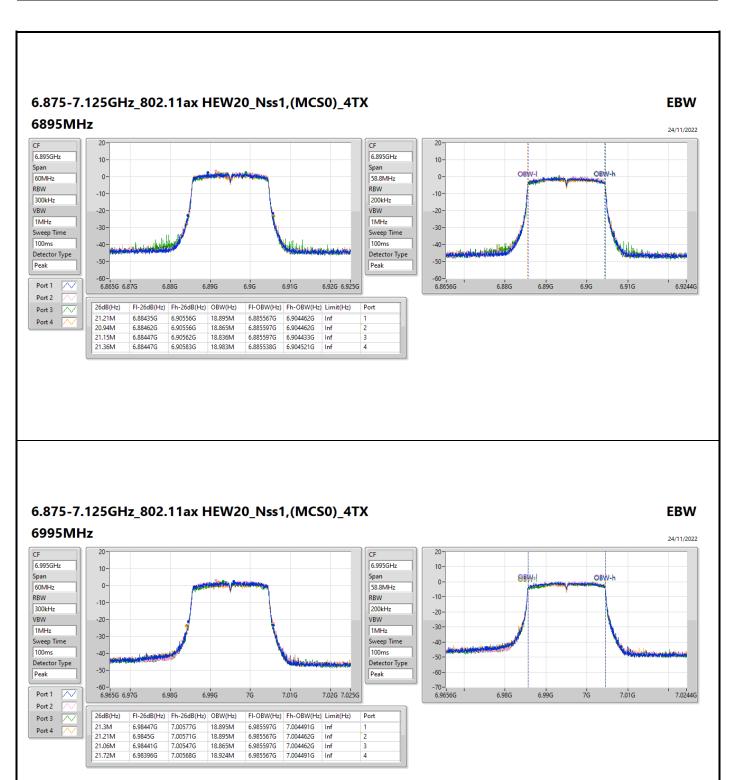




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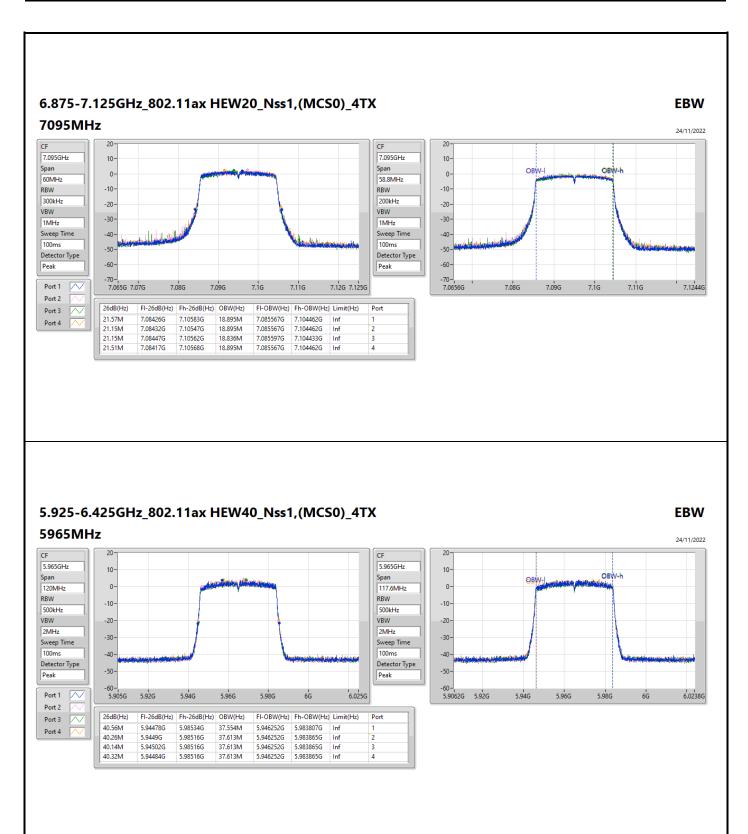




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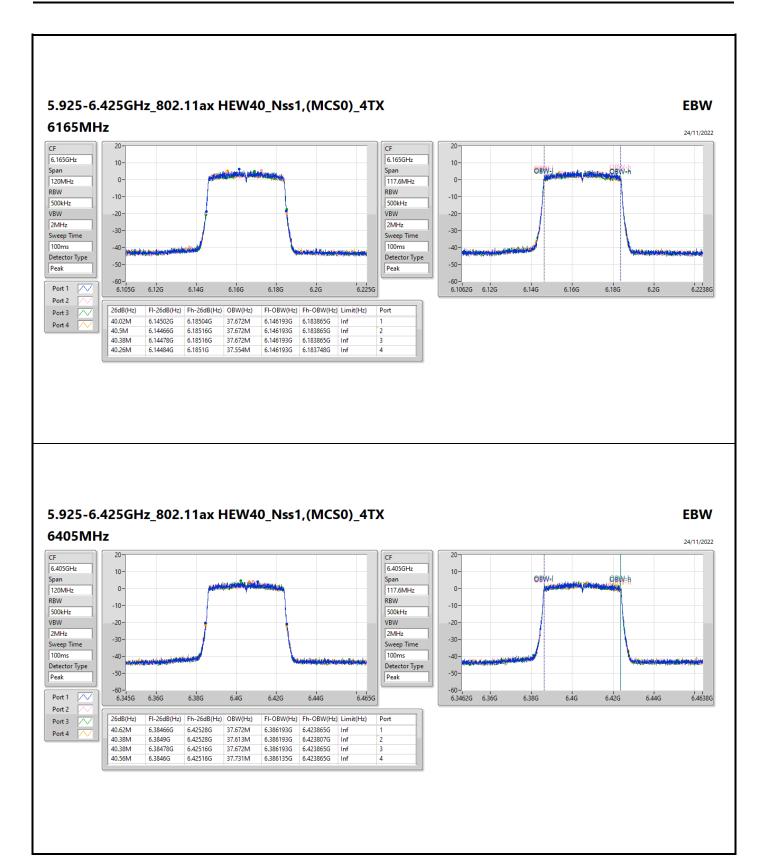




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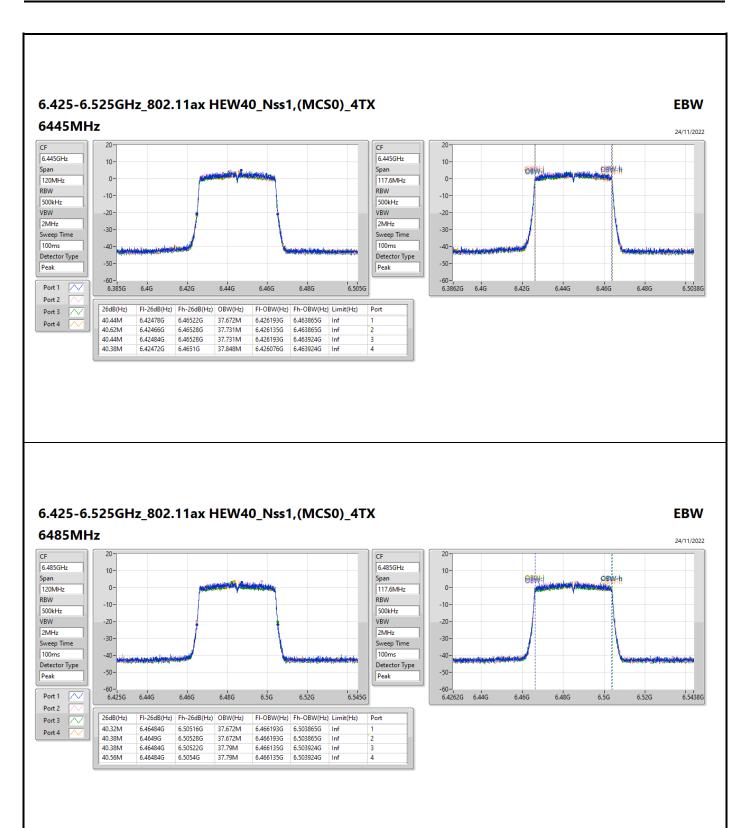




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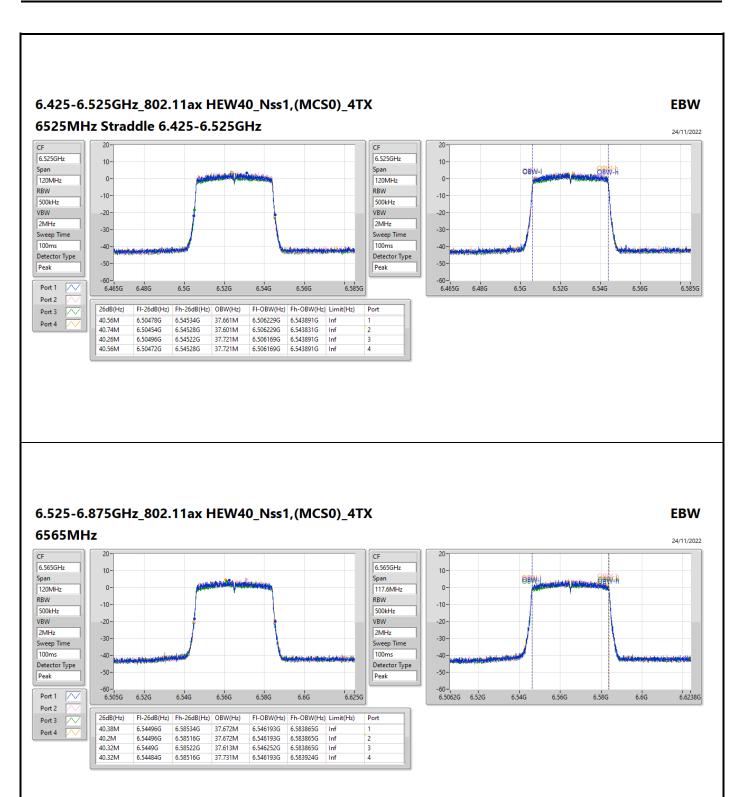




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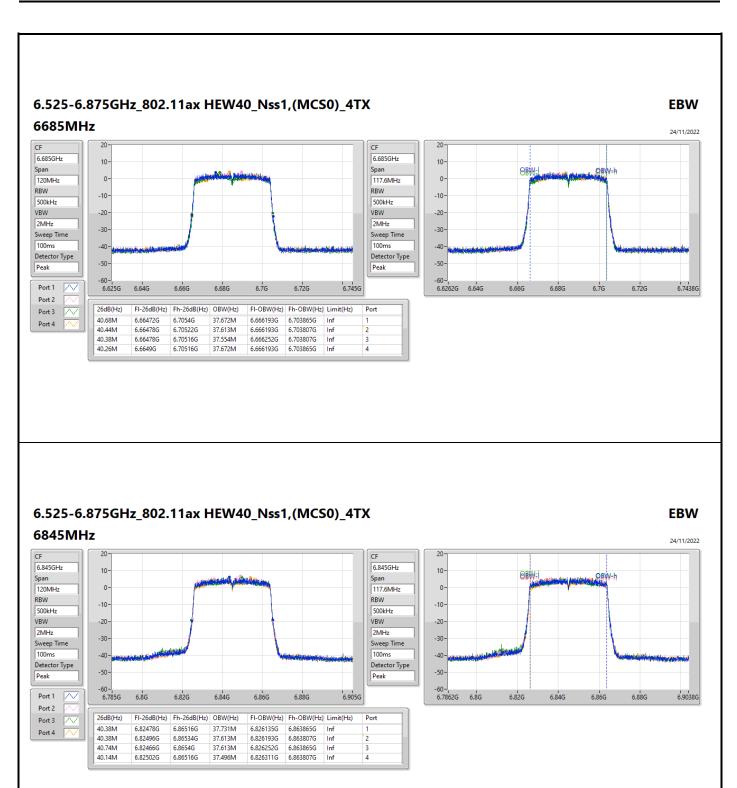




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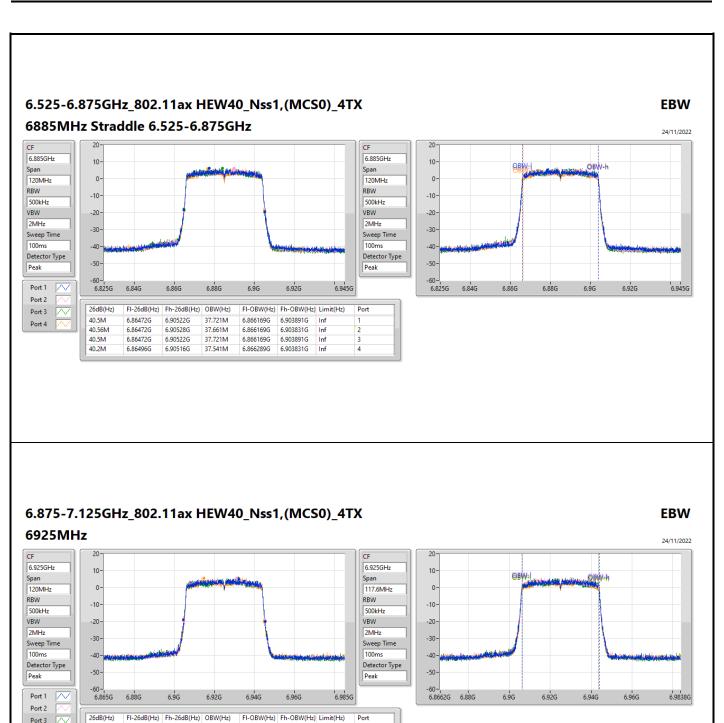




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40.74M

40.38M

40.38M

40.38M

6.9046G

6.90478G

6.90484G

6.90466G

6.94534G

6.94516G

6.94522G

6.94504G

37.672M

37.613M

37.672M

37.613M

6.906252G

6.906193G

6.906193G

6.906193G

6.943924G

6.943807G

6.943865G

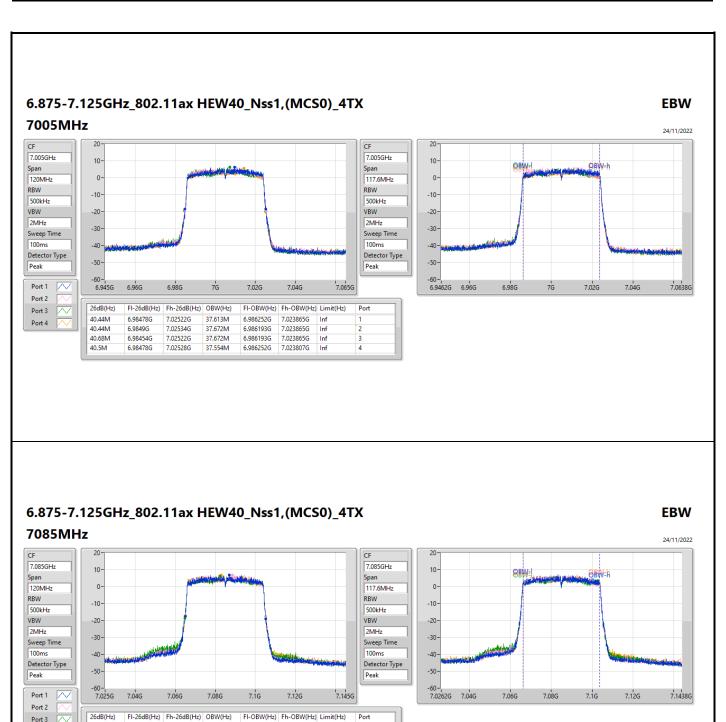
6.943807G

Inf

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Port 3

40.32M

40.26M

40.38M

40.32M

7.06496G

7.06496G

7.06478G

7.06484G

7.10528G

7.10522G

7.10516G

7.10516G

37.613M

37.613M

37.731M

37.731M

7.066193G

7.066193G

7.066135G

7.103807G

7.103807G

7.103865G

7.103865G

Inf

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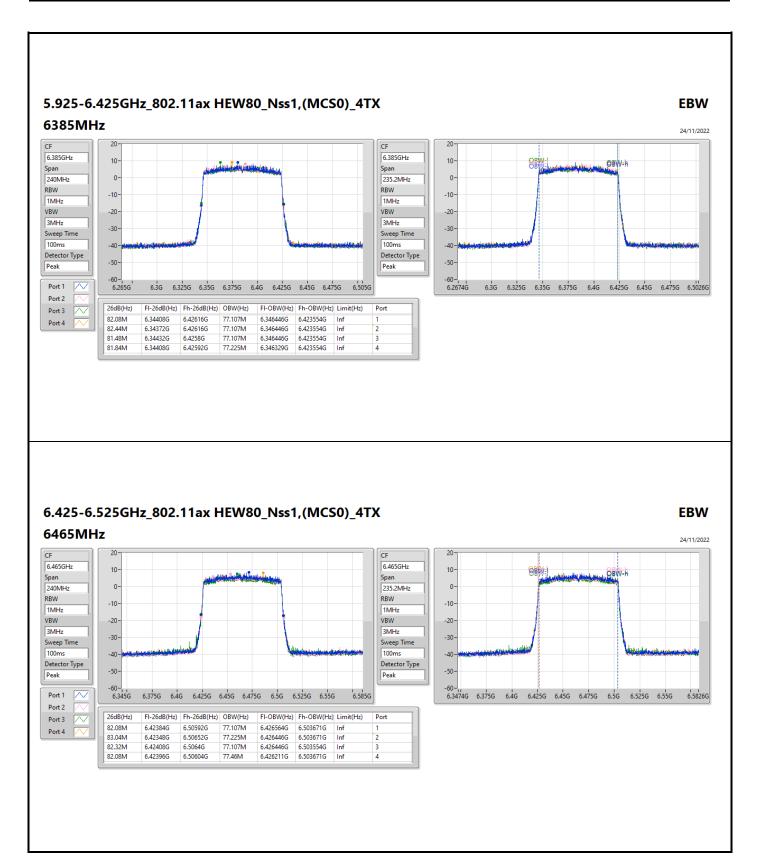




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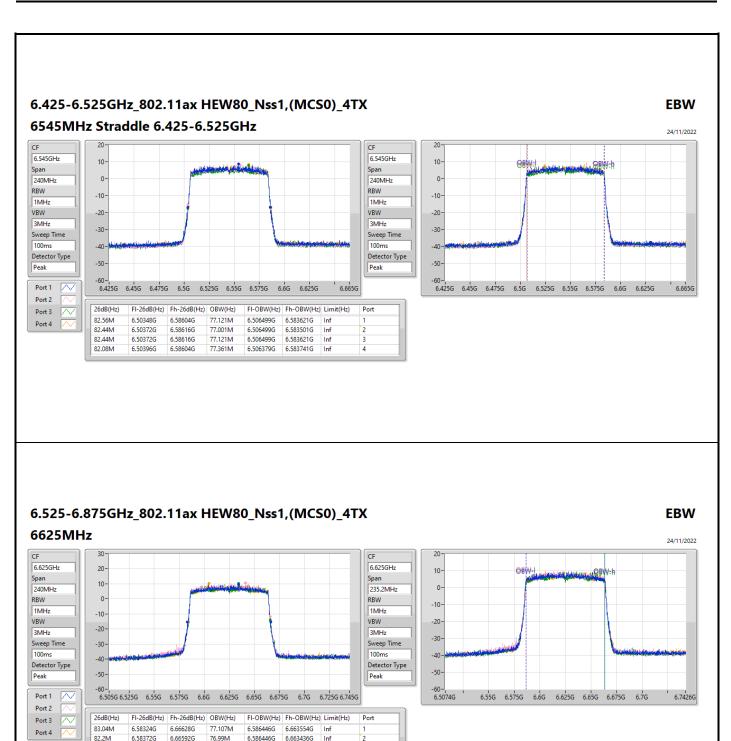




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81.48M

81.84M

6.5842G

6.58408G

6.66568G

6.66592G

76.872M

77.342M

6.586446G

6.586329G

6.663318G

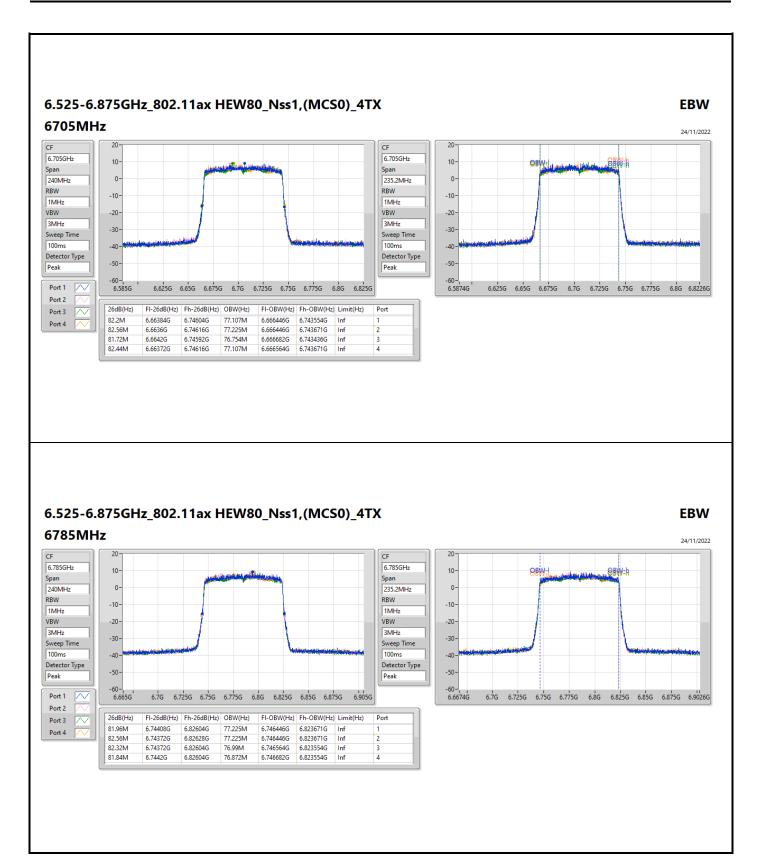
6.663671G

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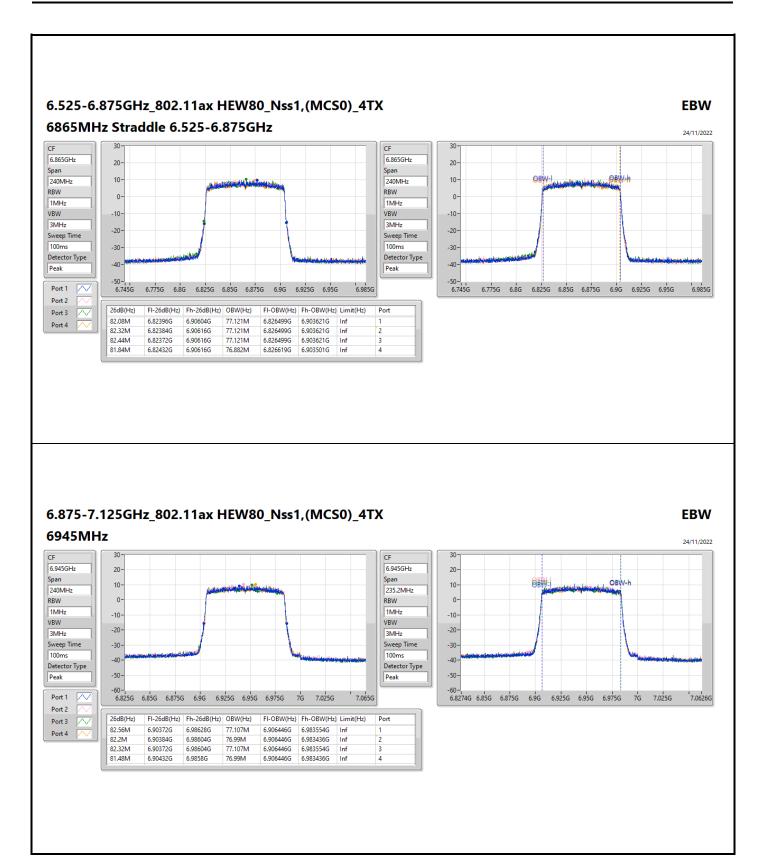




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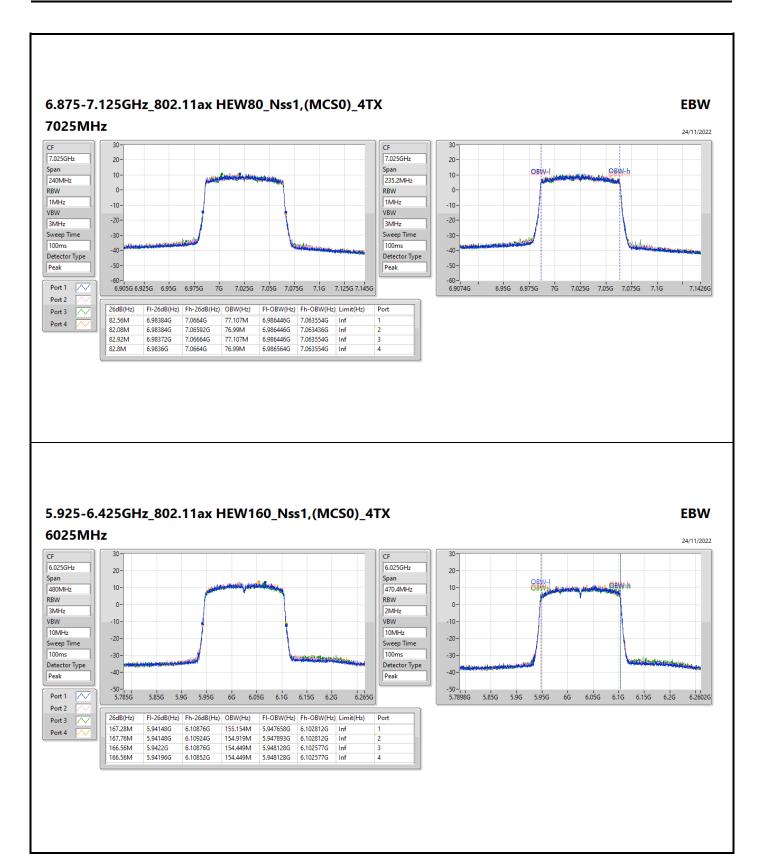




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-50-l 6.105G 6.15G 6.2G 6.25G 6.3G 6.35G 6.4G 6.45G 6.5G 6.55G 6.585G

154.919M

154.919M

154,919M

6.267423G

6.267658G

6.267658G

6.267423G

FI-OBW(Hz) Fh-OBW(Hz) Limit(Hz)

6.422342G

6.422577G

6.422812G

6.422342G

Inf

FI-26dB(Hz) Fh-26dB(Hz) OBW(Hz)

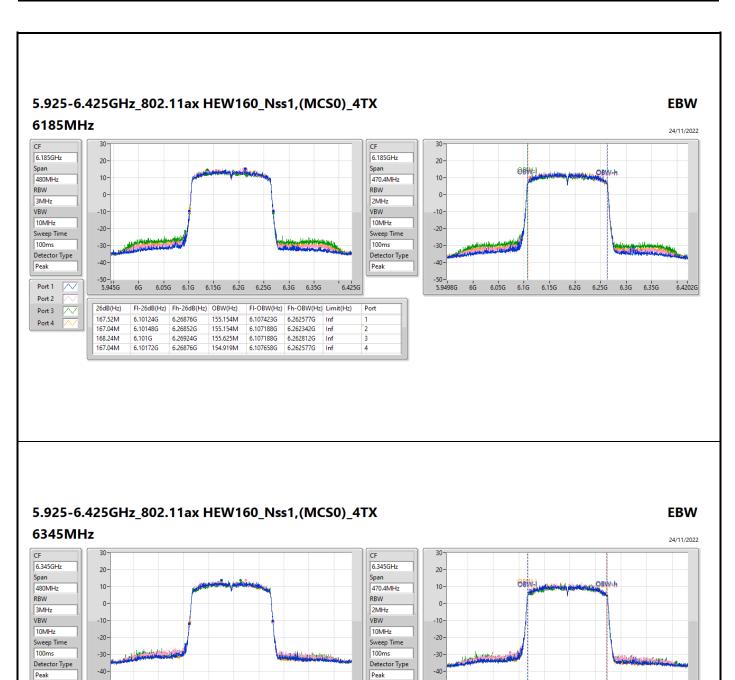
6.42828G

6.42876G

6.42828G

6.42828G





167.52M

167.04M

166.8M

166.56M

6.26076G

6.26172G

6.26172G

Port 1

Port 2

Port 3

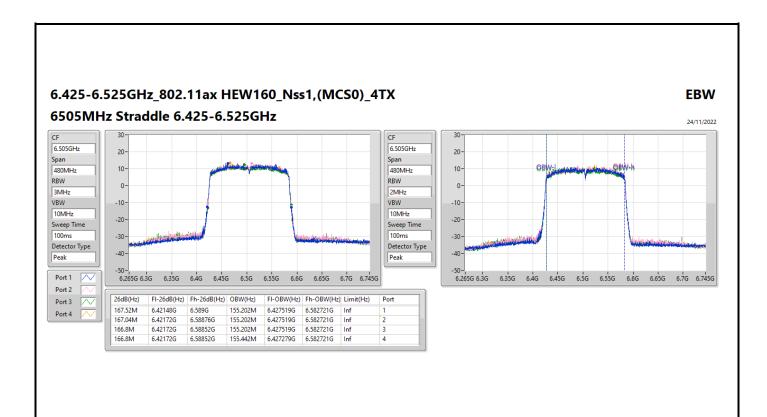
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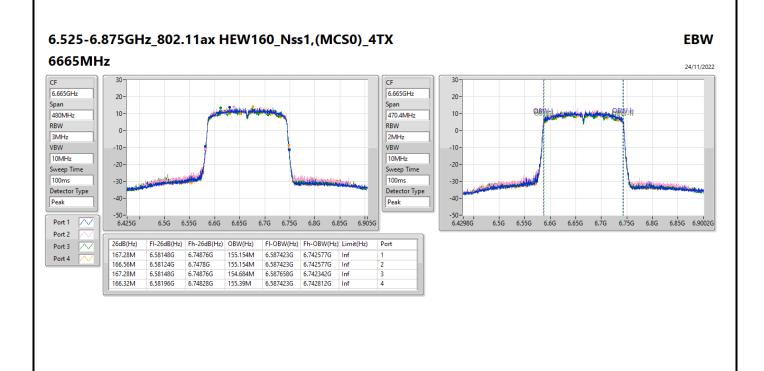
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6.5802G

-50-1 6.1098G 6.15G 6.2G 6.25G 6.3G 6.35G 6.4G 6.45G 6.5G

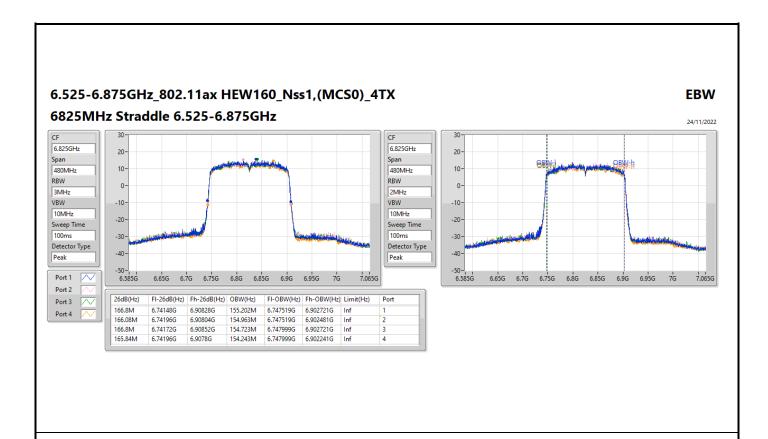


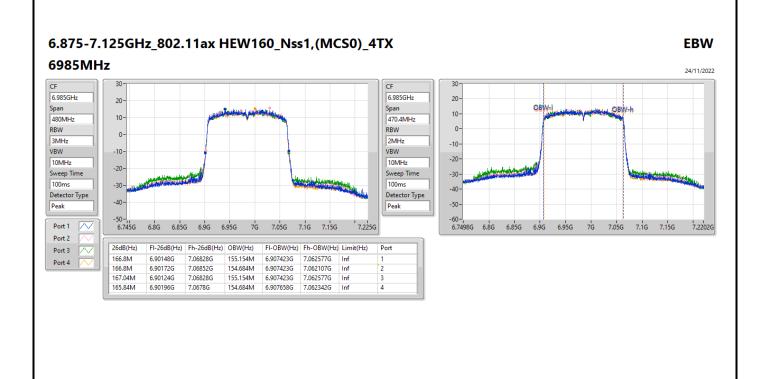




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EBW_Beamforming mode

Appendix B.2

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
5.925-6.425GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	21.36M	18.895M	18M9D1D	20.55M	18.865M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	40.74M	37.731M	37M7D1D	39.66M	37.613M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	84M	77.225M	77M2D1D	81.36M	76.99M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	169.68M	155.625M	156MD1D	165.36M	154.449M
6.425-6.525GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	21.36M	18.895M	18M9D1D	20.7M	18.865M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	40.74M	37.731M	37M7D1D	40.08M	37.613M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	82.8M	77.121M	77M1D1D	80.16M	75.461M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	166.8M	154.963M	155MD1D	164.16M	154.003M
6.525-6.875GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	21.45M	18.895M	18M9D1D	20.4M	18.861M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	41.22M	37.848M	37M8D1D	40.08M	37.613M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	83.16M	77.241M	77M2D1D	81.36M	76.642M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	168.24M	155.39M	155MD1D	164.88M	154.483M
6.875-7.125GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	21.42M	18.924M	18M9D1D	20.49M	18.865M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	41.22M	37.731M	37M7D1D	40.14M	37.613M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	83.88M	77.342M	77M3D1D	81.96M	76.99M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	168M	155.154M	155MD1D	165.36M	154.684M

 $\label{eq:max-NdB} \mbox{ Asaximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;} \\ \mbox{ Max-OBW = Maximum 99% occupied bandwidth;} \\ \mbox{ Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;} \\ \mbox{ Min-OBW = Minimum 99% occupied bandwidth}$

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EBW_Beamforming mode

Appendix B.2

Result

Result										
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW	Port 3-N dB	Port 3-OBW	Port 4-N dB	Port 4-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5955MHz	Pass	Inf	21.09M	18.895M	20.88M	18.865M	21.21M	18.865M	21.15M	18.895M
6175MHz	Pass	Inf	21.12M	18.865M	21.06M	18.865M	21.21M	18.895M	21.33M	18.895M
6415MHz	Pass	Inf	20.55M	18.895M	21.33M	18.865M	21.24M	18.865M	21.36M	18.895M
6435MHz	Pass	Inf	21.15M	18.895M	21.36M	18.865M	21.36M	18.895M	21.24M	18.895M
6475MHz	Pass	Inf	21.12M	18.865M	21.12M	18.865M	20.85M	18.895M	20.94M	18.865M
6515MHz	Pass	Inf	20.7M	18.865M	21.18M	18.895M	21.36M	18.895M	21.24M	18.865M
6535MHz	Pass	Inf	21.09M	18.895M	21.27M	18.895M	21.09M	18.865M	20.94M	18.865M
6695MHz	Pass	Inf	21.12M	18.895M	21.09M	18.865M	21.45M	18.895M	21.27M	18.895M
6855MHz	Pass	Inf	20.4M	18.865M	21.06M	18.895M	21.21M	18.895M	21.18M	18.895M
6875MHz Straddle 6.525-6.875GHz	Pass	Inf	21.09M	18.861M	21.39M	18.891M	21.24M	18.861M	21.27M	18.891M
6895MHz	Pass	Inf	21.18M	18.865M	21.24M	18.865M	21.39M	18.865M	21.18M	18.895M
6995MHz	Pass	Inf	20.49M	18.924M	21.36M	18.865M	21.42M	18.895M	21.09M	18.865M
7095MHz	Pass	Inf	20.64M	18.895M	20.97M	18.895M	21.21M	18.895M	21.12M	18.865M
7115MHz	Pass	Inf	20.55M	18.865M	21.12M	18.865M	21.33M	18.924M	21.36M	18.865M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5965MHz	Pass	Inf	40.14M	37.613M	40.62M	37.672M	40.5M	37.613M	40.74M	37.672M
6165MHz	Pass	Inf	40.38M	37.613M	40.5M	37.672M	40.38M	37.613M	40.74M	37.731M
6405MHz	Pass	Inf	39.66M	37.672M	40.62M	37.672M	40.44M	37.672M	40.5M	37.672M
6445MHz	Pass	Inf	40.56M	37.672M	40.74M	37.672M	40.62M	37.613M	40.38M	37.731M
6485MHz	Pass	Inf	40.62M	37.613M	40.32M	37.731M	40.38M	37.672M	40.14M	37.672M
6525MHz Straddle 6.425-6.525GHz	Pass	Inf	40.08M	37.661M	40.68M	37.661M	40.26M	37.661M	40.56M	37.661M
6565MHz	Pass	Inf	40.38M	37.672M	40.5M	37.613M	40.62M	37.672M	41.22M	37.613M
6685MHz	Pass	Inf	40.5M	37.613M	40.74M	37.613M	40.38M	37.672M	40.08M	37.613M
6845MHz	Pass	Inf	40.68M	37.848M	40.26M	37.672M	40.5M	37.672M	40.62M	37.672M
6885MHz Straddle 6.525-6.875GHz	Pass	Inf	40.08M	37.661M	40.26M	37.661M	40.56M	37.661M	40.38M	37.661M
6925MHz	Pass	Inf	41.22M	37.672M	40.62M	37.731M	40.56M	37.672M	40.5M	37.672M
7005MHz	Pass	Inf	40.2M	37.613M	40.62M	37.672M	40.14M	37.613M	40.44M	37.672M
7085MHz	Pass	Inf	40.98M	37.613M	40.5M	37.672M	40.32M	37.672M	40.38M	37.731M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5985MHz	Pass	Inf	81.6M	76.99M	82.68M	77.107M	82.2M	76.99M	82.44M	77.107M
6145MHz	Pass	Inf	82.44M	77.225M	84M	76.99M	82.2M	77.225M	81.96M	77.107M
6385MHz	Pass	Inf	81.36M	77.107M	82.56M	77.107M	82.44M	77.225M	82.56M	77.107M
6465MHz	Pass	Inf	81.84M	77.107M	80.16M	75.461M	81.96M	77.107M	82.8M	77.107M
6545MHz Straddle 6.425-6.525GHz	Pass	Inf	82.44M	77.001M	82.08M	77.001M	81.84M	76.882M	81.36M	77.121M
6625MHz	Pass	Inf	82.56M	77.107M	81.96M	77.107M	82.44M	77.107M	82.68M	77.107M
6705MHz	Pass	Inf	81.84M	76.99M	83.16M	77.107M	82.32M	77.225M	82.2M	76.99M
6785MHz	Pass	Inf	82.08M	77.107M	82.56M	77.223W	82.32M	76.872M	82.68M	76.99M
6865MHz Straddle 6.525-6.875GHz	Pass	Inf	81.6M	77.107M 77.241M	82.32M	77.107M 77.241M	81.36M	76.642M	82.56M	77.121M
6945MHz	Pass	Inf	83.64M	77.24 IIVI 77.225M	82.56M	77.24 IW	81.96M	76.99M	81.96M	77.121W
7025MHz	Pass	Inf	83.88M	76.99M	82.56M	77.107M 77.107M	82.44M	77.107M	83.28M	77.342IVI 77.107M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX		-	-						-	77.107W
6025MHz	Pass	Inf	166.08M	- 155.154M	- 166.8M	- 154.684M	- 166.32M	- 154.449M	168.96M	154.684M
6185MHz	Pass	Inf	166.32M	154.919M	167.52M	154.064W	167.04M	155.625M	166.32M	154.064W
6345MHz	Pass		165.36M	154.919M	167.52IVI 169.68M	154.919M	167.04M	153.625W	167.28M	154.919M
	-	Inf					166.8M			
6505MHz Straddle 6.425-6.525GHz	Pass	Inf	164.16M	154.723M	165.12M	154.003M		154.483M	164.88M	154.963M
6665MHz	Pass	Inf	168.24M	154.919M	166.56M	154.684M	166.08M	155.154M	166.8M	155.39M
6825MHz Straddle 6.525-6.875GHz	Pass	Inf	164.88M	154.723M	168M	155.202M	165.84M	154.723M	166.8M	154.483M
6985MHz	Pass	Inf	168M	154.684M	167.28M	155.154M	165.36M	154.919M	166.08M	154.919M

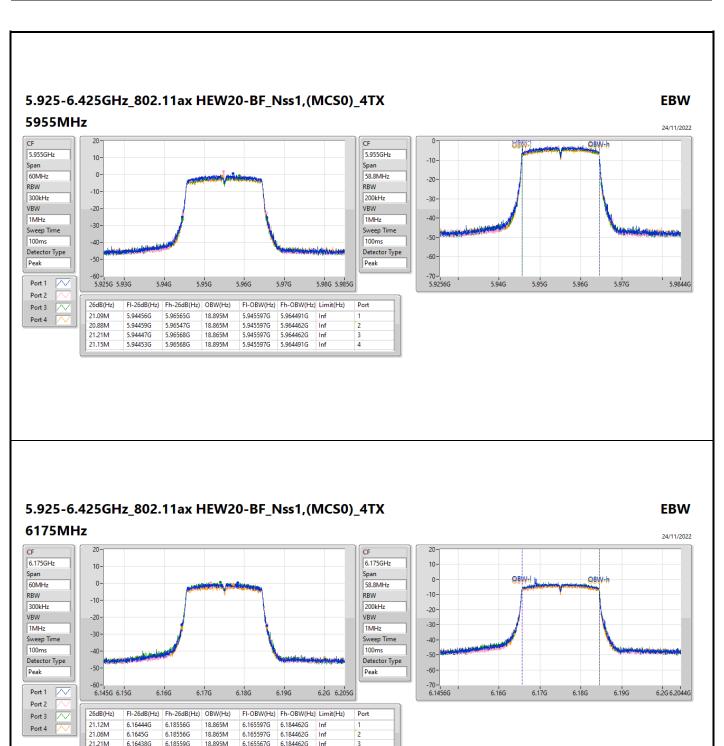
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth

Sporton International Inc. Hsinchu Laboratory

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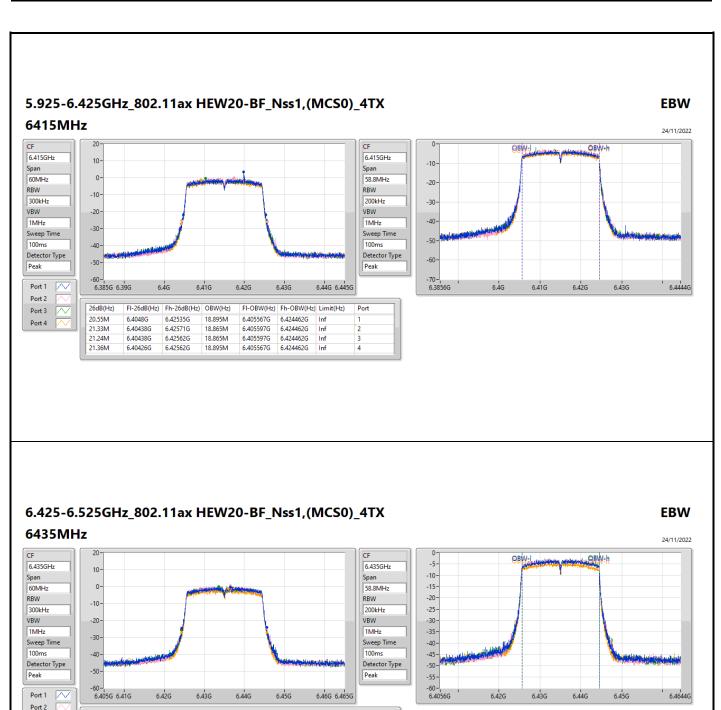
6.184462G

6.16435G

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Port 3

21.15M

21.36M

21.24M

6.42444G

6.42429G

6.42429G

6.42438G

FI-26dB(Hz) Fh-26dB(Hz) OBW(Hz)

6.44559G

6.44565G

6.44565G

6.44562G

18.895M

18.865M

18.895M

FI-OBW(Hz) Fh-OBW(Hz) Limit(Hz)

6.444462G

6.444462G

6.444462G

6.444462G

Inf

6.425567G

6.425597G

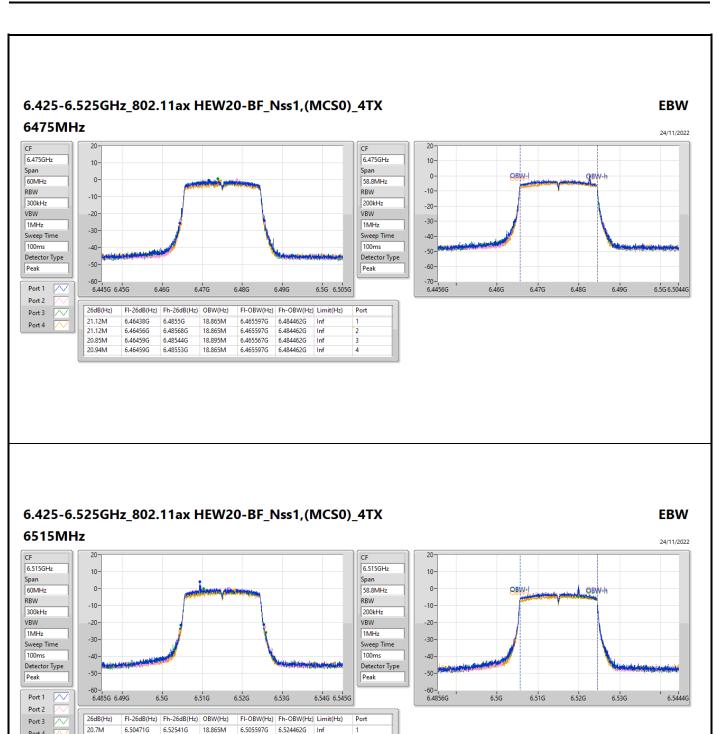
6.425567G

6.425567G

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21.18M

21.24M

6.50441G

6.50447G

6.50438G

6.52559G

6.52583G

6.52562G

18.895M

18.865M

6.505567G

6.505567G

6.505597G

6.524462G

6.524462G

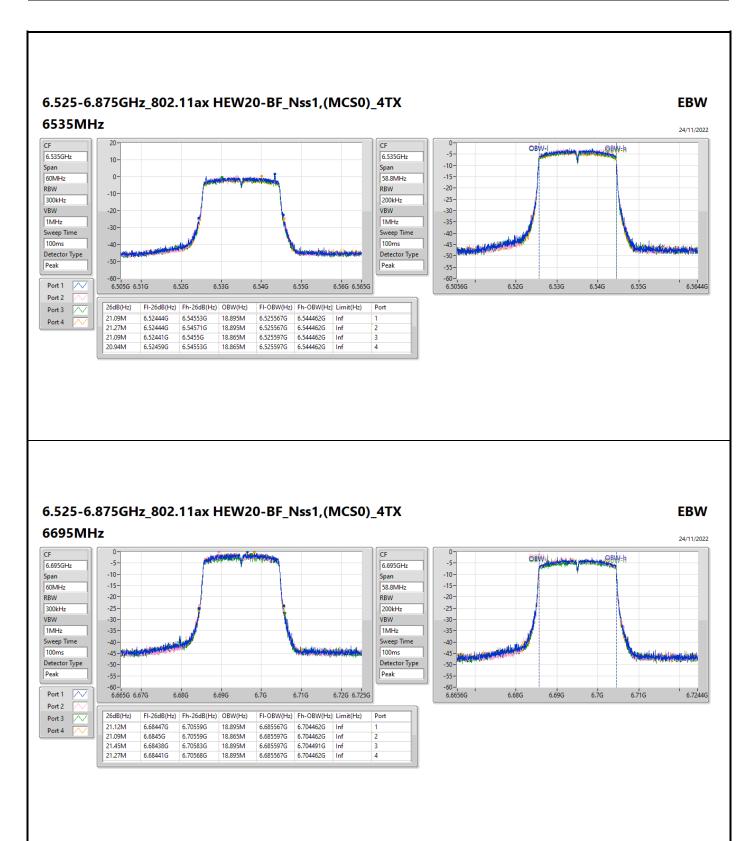
6.524462G

Inf

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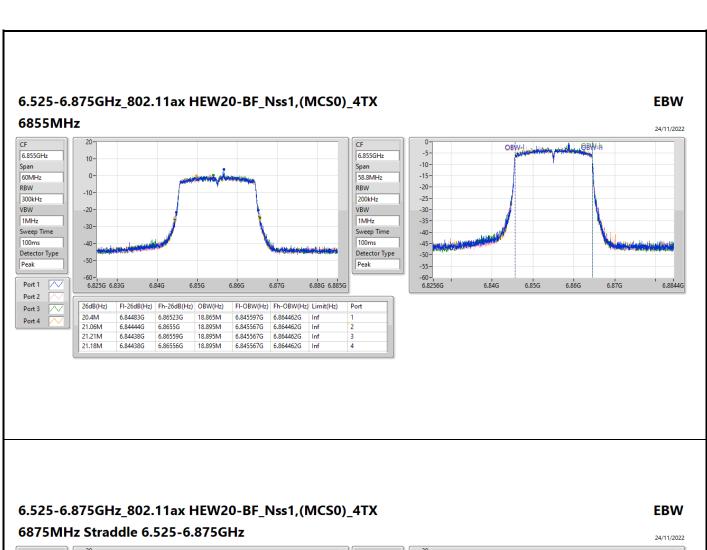




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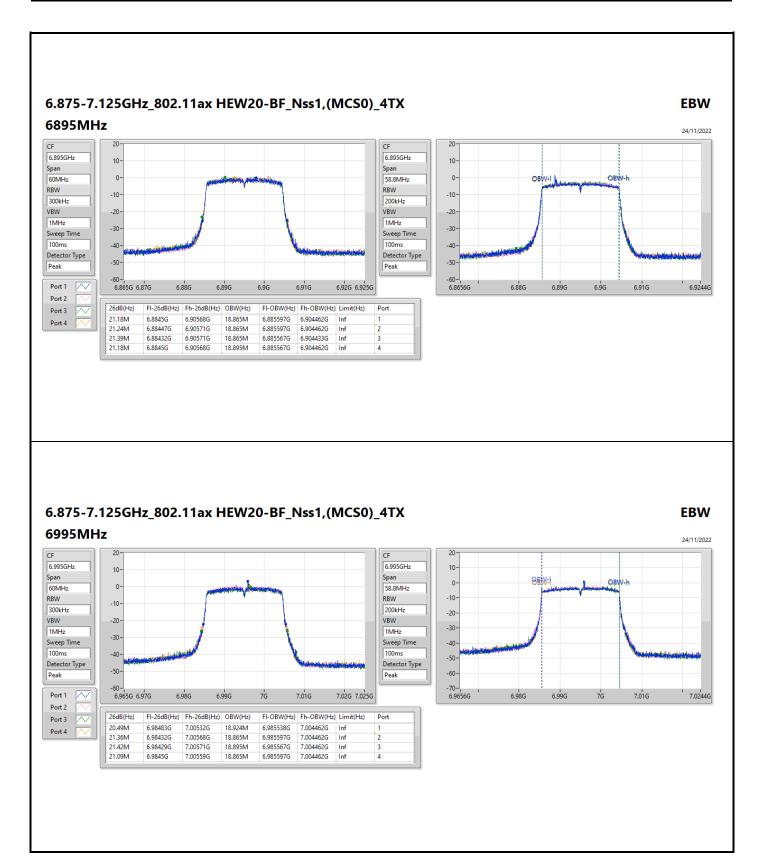


6.875GHz 6.875GHz 10-10-0-0. OBW:h 60MHz 60MHz OBW-RBW RBW -10--10-300kHz 200kHz VBW -20-VBW -20 1MHz 1MHz -30 -30 Sweep Time Sweep Tir -40 Detector Type Detector Type -50 Peak -60-6.845G 6.85G Port 1 6.9G 6.905G 6.86G 6.87G 6.88G 6.89G 6.9G 6.905G 6.845G 6.85G 6.86G 6.87G 6.88G 6.89G Port 2 FI-26dB(Hz) Fh-26dB(Hz) OBW(Hz) FI-OBW(Hz) Fh-OBW(Hz) Limit(Hz) Port 3 21.09M 6.86459G 6.88568G 18.861M 6.865585G 6.884445G 21.39M 6.86435G 6.88574G 18.891M 6.865585G 6.884475G 6.86453G 6.88577G 6.865585G 6.884445G 21.27M 6.86447G 6.88574G 18.891M 6.865585G 6.884475G Inf

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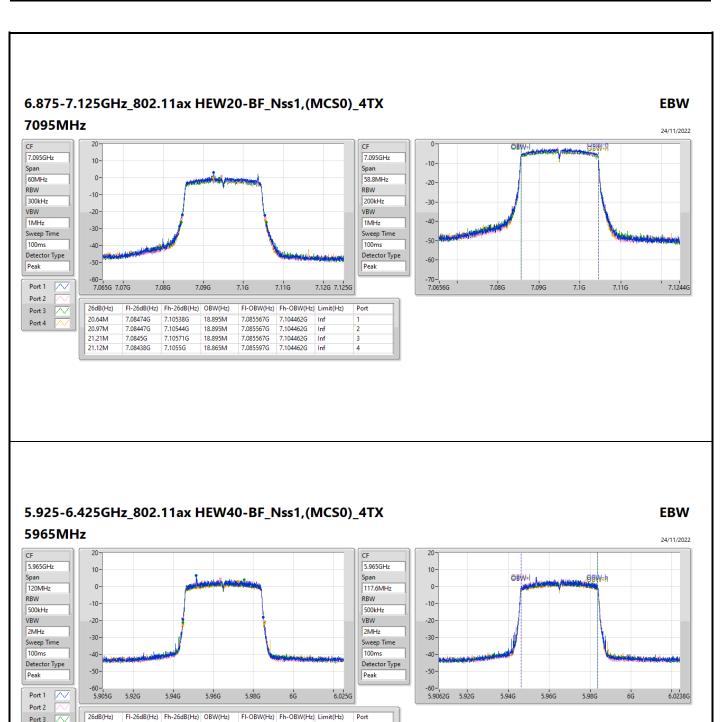




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Port 3

40.14M

40.62M

40.74M

5.9449G

5.94466G

5.9449G

5.94472G

5.98504G

5.98528G

5.98546G

37.613M

37.672M

37.613M

37.672M

5.946193G

5.946193G

5.946252G

5.946193G

5.983807G

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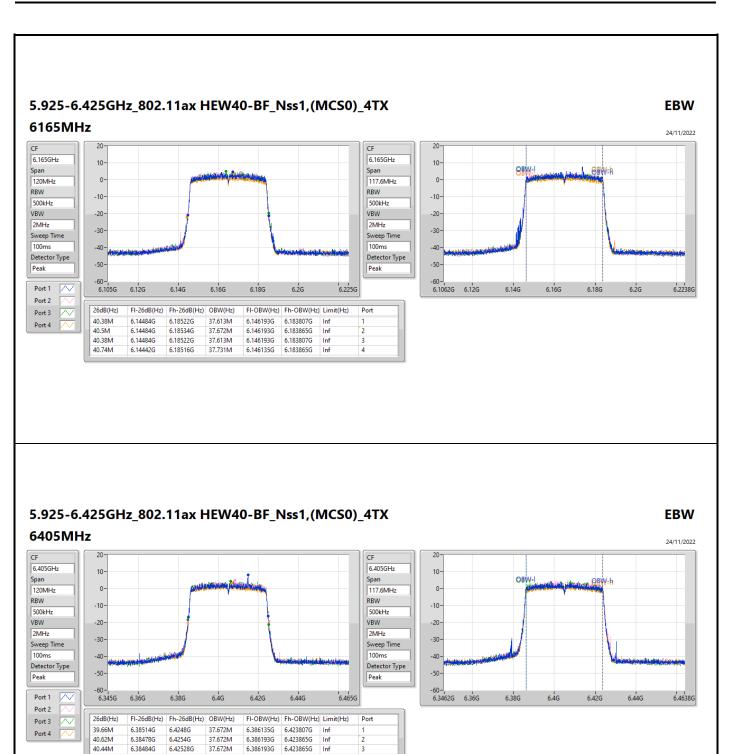
5.983865G

5.983865G

Inf

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40.5M

6.38478G

6.42528G

37.672M

6.386135G

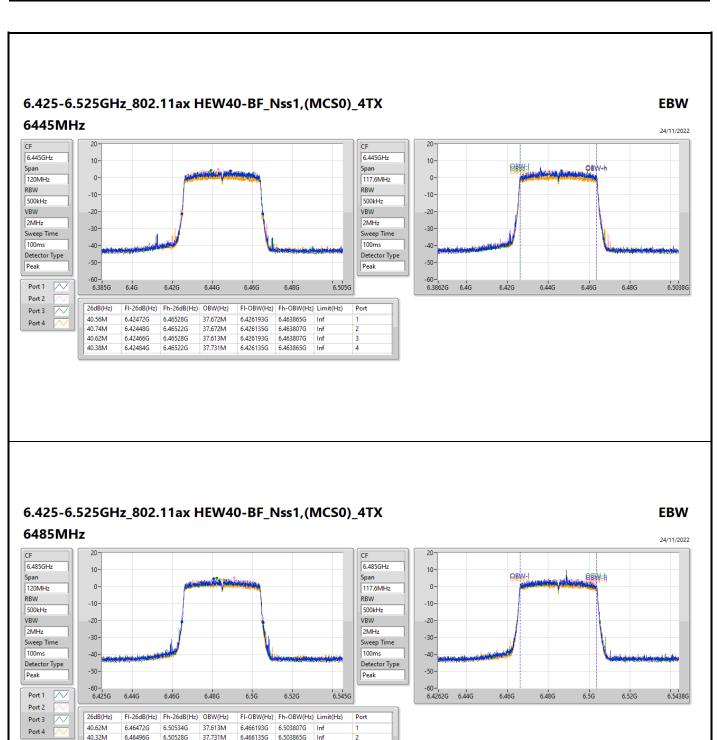
6.423807G

Inf

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40.38M

40.14M

6.46478G

6.4649G

6.50516G

6.50504G

37.672M

37.672M

6.466135G

6.466193G

6.503807G

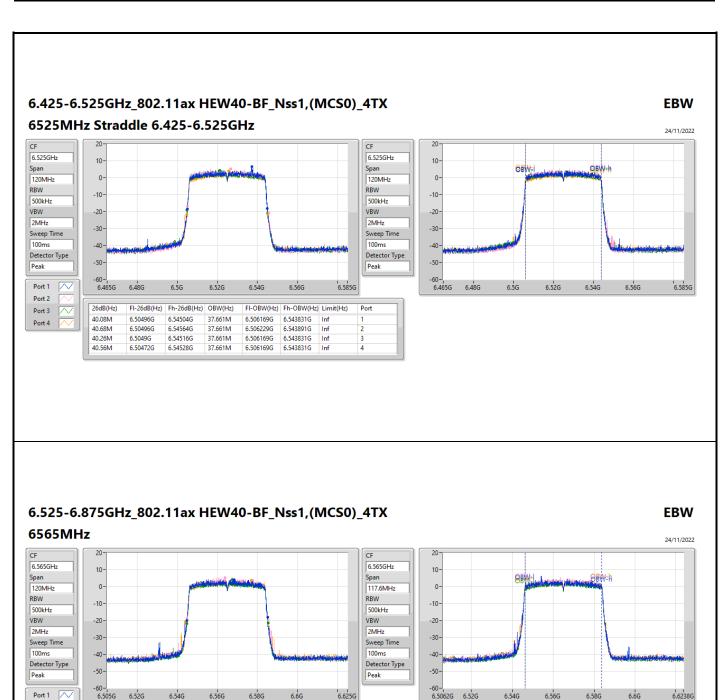
6.503865G

Inf

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26dB(Hz)

6.54478G

6.54484G

6.54472G

6.54412G

40.38M

40.5M

41.22M

FI-26dB(Hz) Fh-26dB(Hz) OBW(Hz)

6.58516G

6.58534G

6.58534G

6.58534G

37.672M

37.613M

37.672M

37.613M

FI-OBW(Hz) Fh-OBW(Hz) Limit(Hz)

6.583865G

6.583807G

6.583865G

6.583865G

Inf

6.546193G

6.546193G

6.546193G

6.546252G

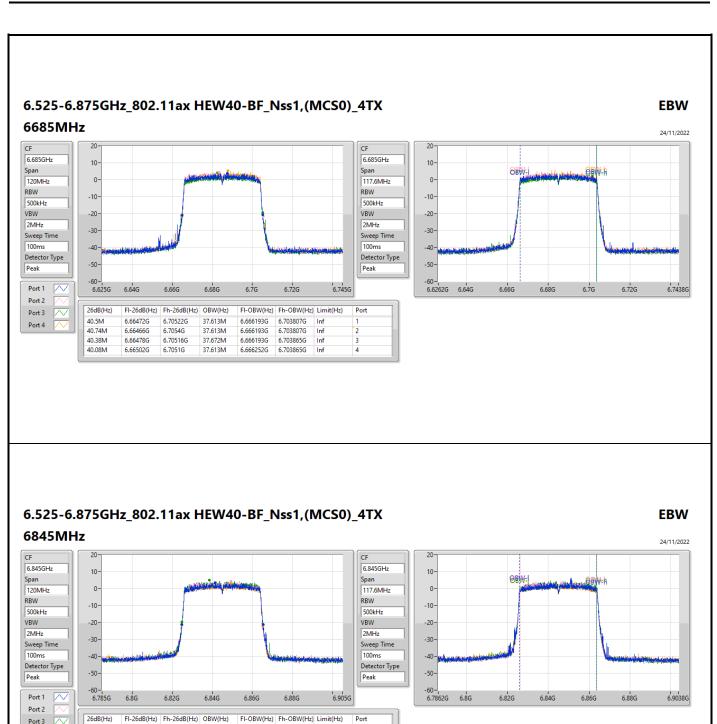
Port 2

Port 3

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40.68M

40.26M

40.5M

40.62M

6.82478G

6.82484G

6.82478G

6.8246G

6.86546G

6.86528G

6.86522G

6.8651G

37.848M

37.672M

37.672M

6.826017G

6.826135G

6.826193G

6.826193G

6.863865G

6.863807G

6.863865G

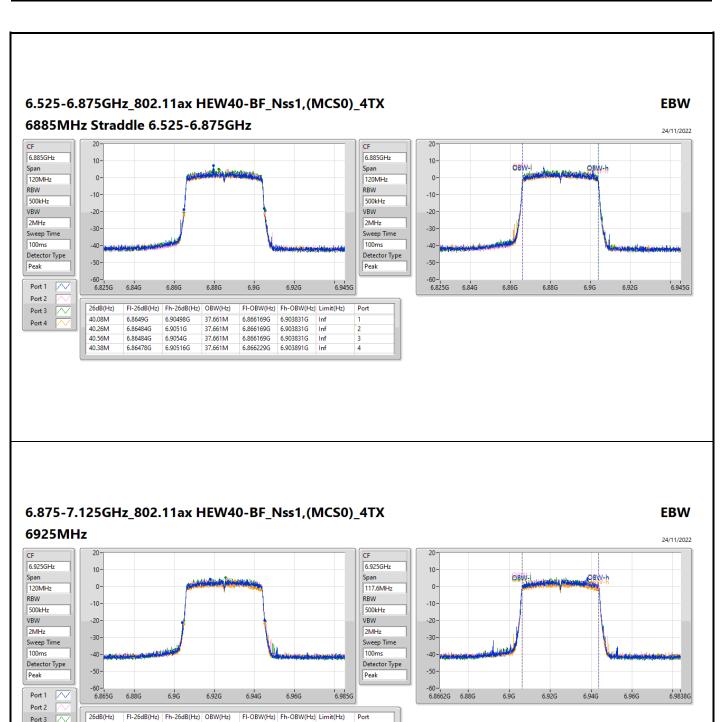
6.863865G

Inf

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Port 3

41.22M

40.62M

40.56M

40.5M

6.90406G

6.9046G

6.90478G

6.90472G

6.94528G

6.94522G

6.94534G

6.94522G

37.672M

37.731M

37.672M

37.672M

6.906193G

6.906135G

6.906135G

6.906135G

6.943865G

6.943865G

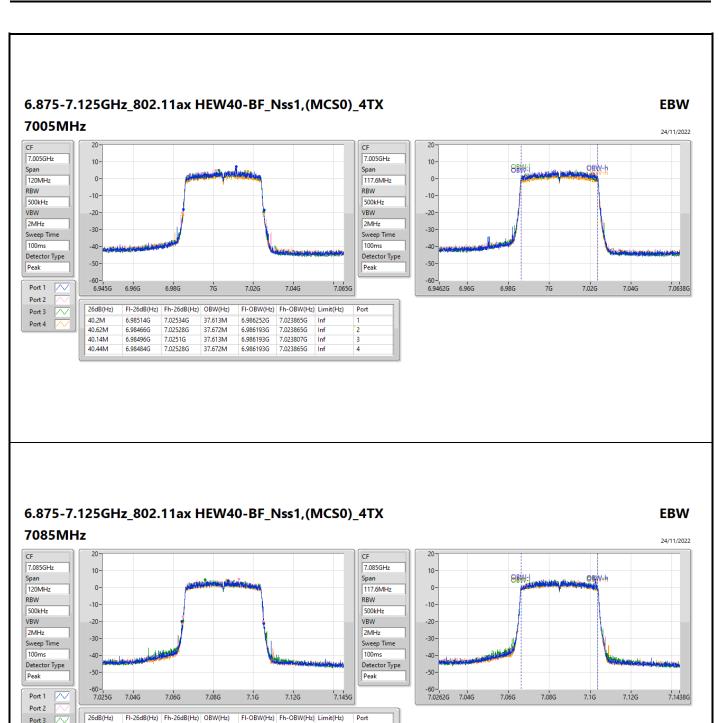
6.943807G

6.943807G

Inf

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40.98M

40.5M

40.32M

40.38M

7.06418G

7.06472G

7.06484G

7.06466G

7.10516G

7.10522G

7.10516G

7.10504G

37.613M

37.672M

37.672M

37.731M

7.066193G

7.066135G

7.066135G

7.103807G

7.103807G

7.103865G

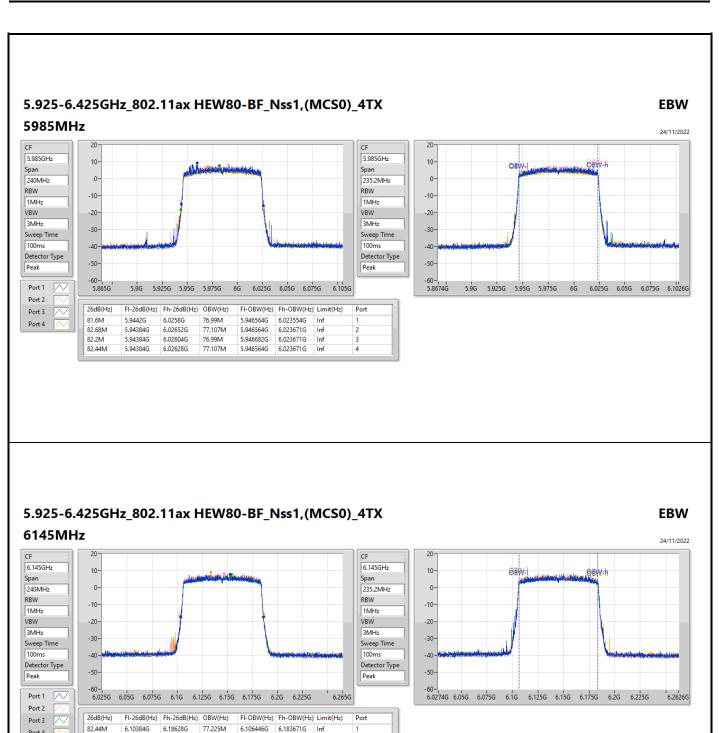
7.103865G

Inf

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84M

81.96M

6.10216G

6.10384G

6.10384G

6.18616G

6.18604G

6.1858G

76.99M

77.225M

77.107M

6.106446G

6.106329G

6.106446G

6.183436G

6.183554G

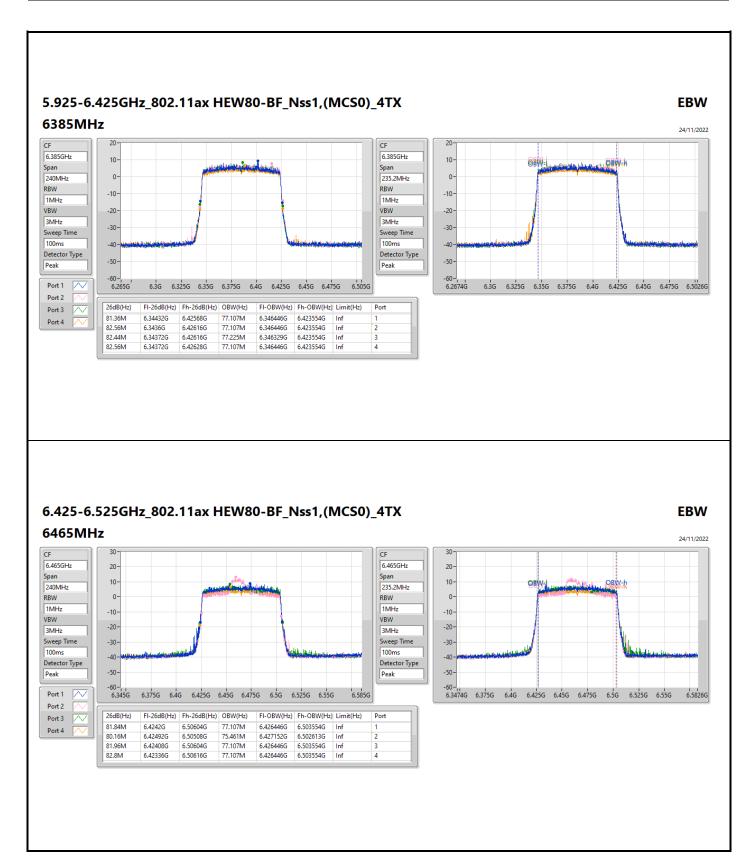
6.183554G

Inf

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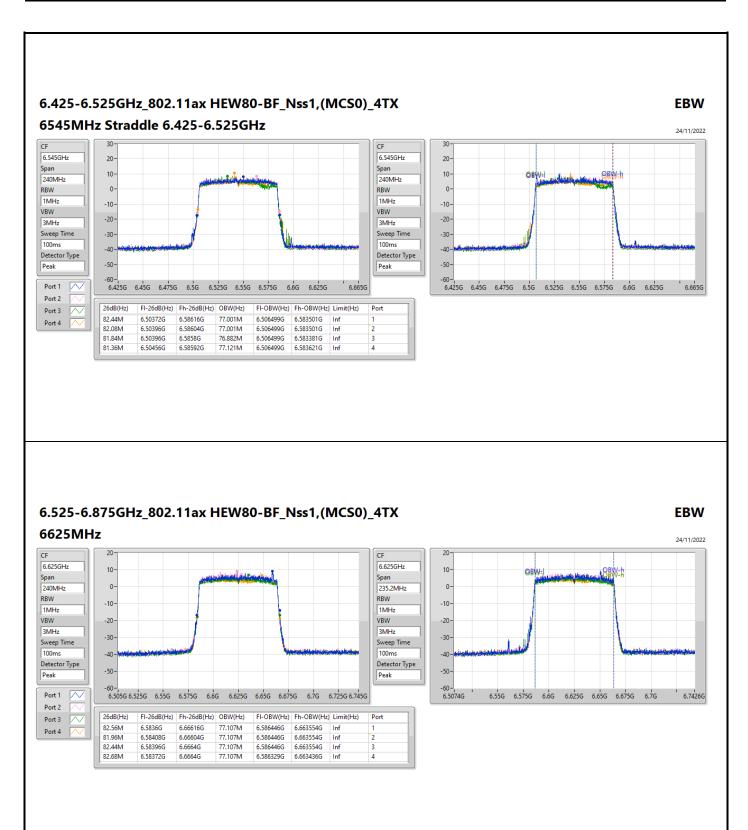




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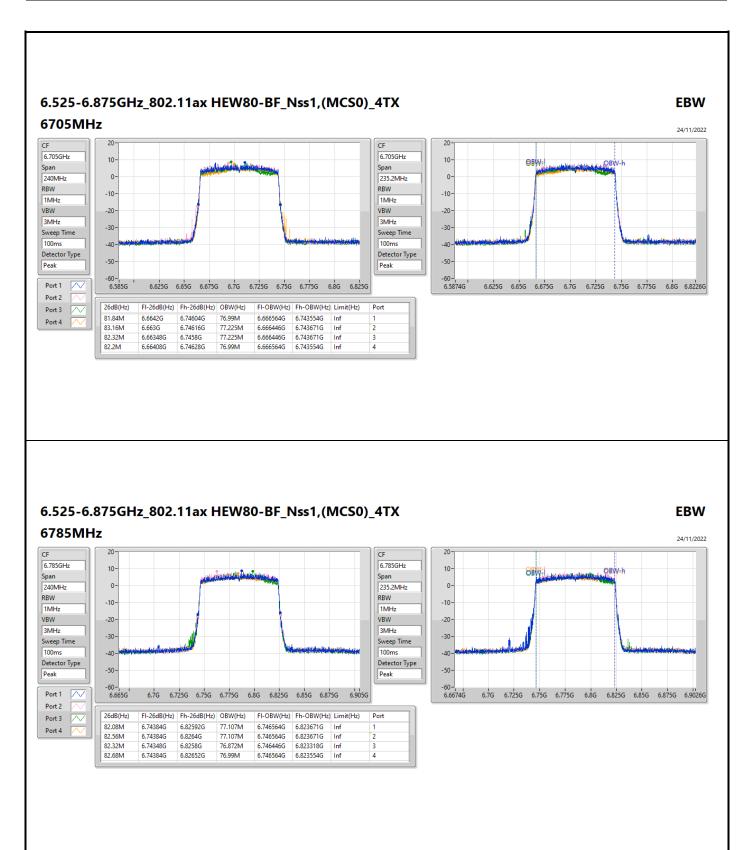
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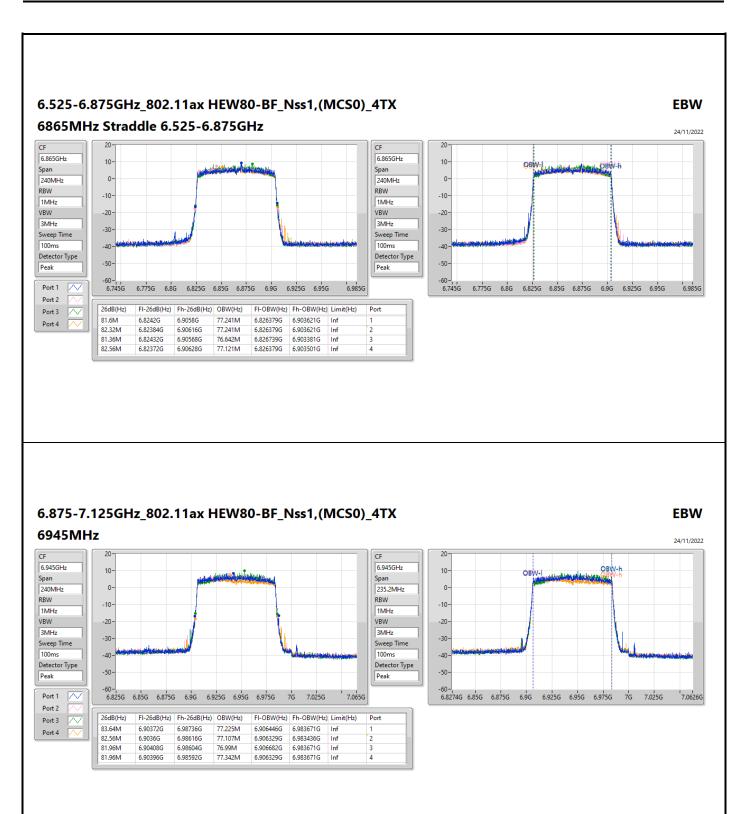




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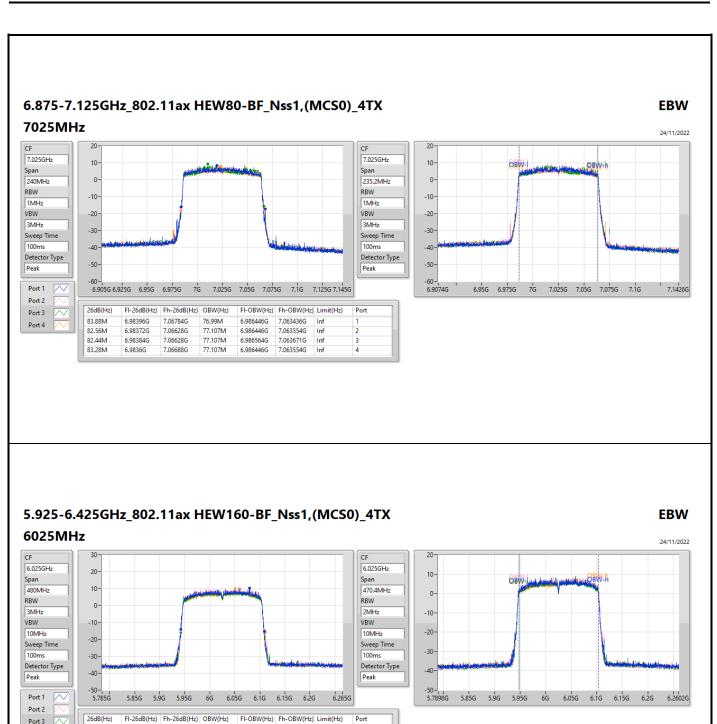
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166.08M

166.8M

166.32M

168,96M

5.94244G

5.94172G

5.9422G

5.94196G

6.10852G

6.10852G

6.10852G

6.11092G

155.154M

154.684M

154.449M

154.684M

5.947658G

5.947893G

5.948128G

5.948128G

6.102812G

6.102577G

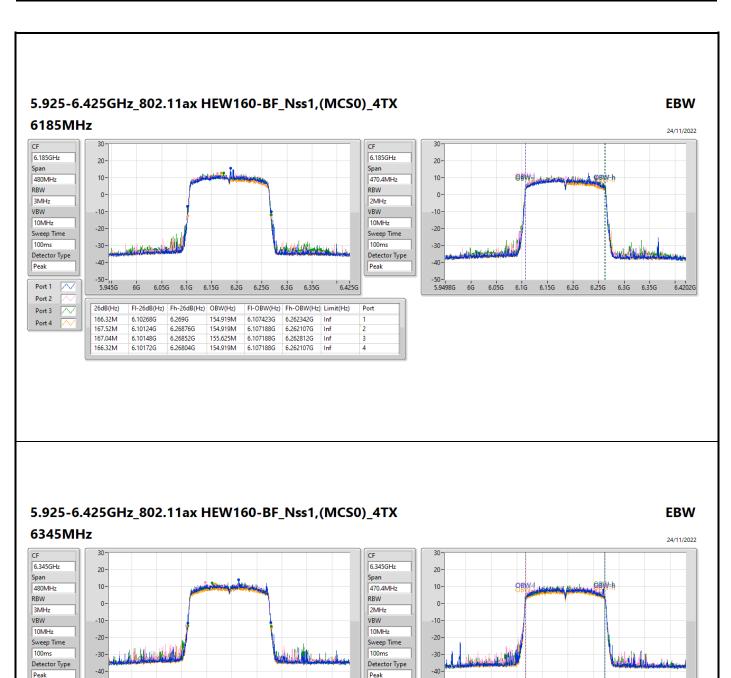
6.102577G

6.102812G

Inf

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165.36M

169.68M

167.04M

167.28M

6.2622G

6.2586G

6.26196G

Port 1

Port 2

Port 3

-50-1 6.105G 6.15G 6.2G 6.25G 6.3G 6.35G 6.4G 6.45G 6.5G 6.55G 6.585G

154.919M

154.919M

154.684M

154,919M

6.267423G

6.267658G

6.267423G

6.267423G

FI-OBW(Hz) Fh-OBW(Hz) Limit(Hz)

6.422342G

6.422577G

6.422107G

6.422342G

Inf

FI-26dB(Hz) Fh-26dB(Hz) OBW(Hz)

6.42756G

6.42828G

6.42876G

6.42924G

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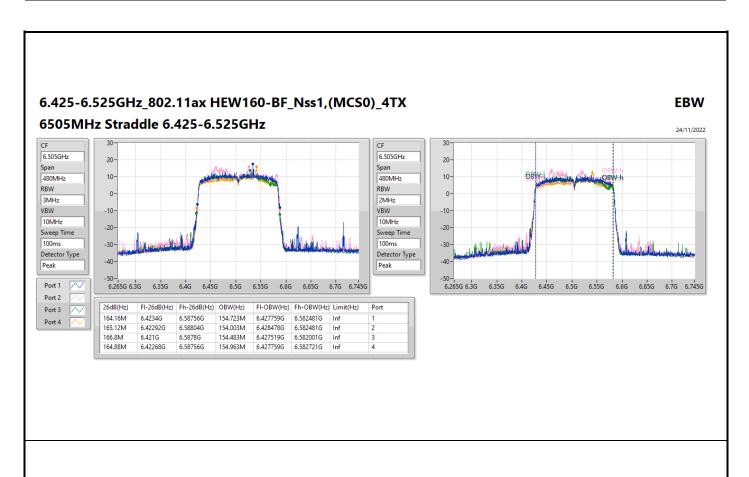
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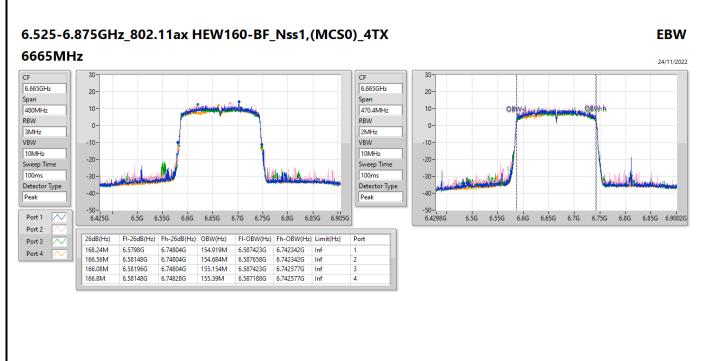
6.3G 6.35G 6.4G 6.45G 6.5G

6.5802G

-50-6.1098G 6.15G 6.2G 6.25G

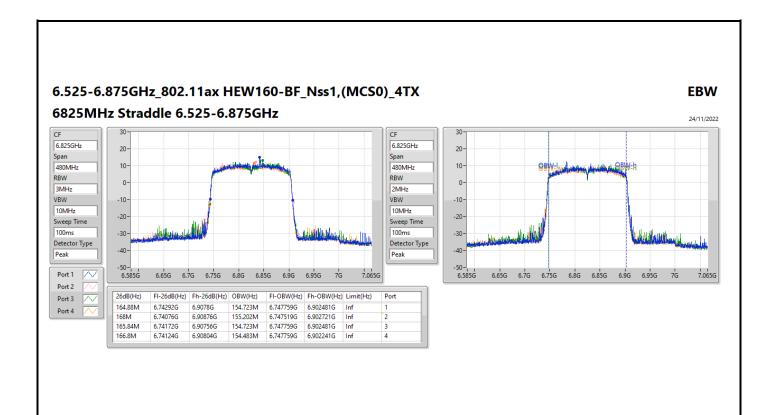


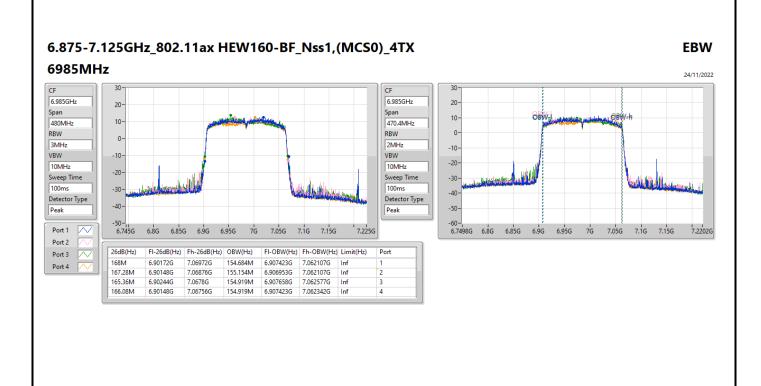




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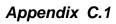




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Summary

Mode	EIRP	EIRP
	(dBm)	(W)
5.925-6.425GHz	-	-
802.11ax HEW20_Nss1,(MCS0)_4TX	14.45	0.02786
802.11ax HEW40_Nss1,(MCS0)_4TX	15.68	0.03698
802.11ax HEW80_Nss1,(MCS0)_4TX	19.87	0.09705
802.11ax HEW160_Nss1,(MCS0)_4TX	23.29	0.21330
6.425-6.525GHz	-	-
802.11ax HEW20_Nss1,(MCS0)_4TX	14.33	0.02710
802.11ax HEW40_Nss1,(MCS0)_4TX	15.79	0.03793
802.11ax HEW80_Nss1,(MCS0)_4TX	19.73	0.09397
802.11ax HEW160_Nss1,(MCS0)_4TX	20.82	0.12078
6.525-6.875GHz	-	-
802.11ax HEW20_Nss1,(MCS0)_4TX	14.04	0.02535
802.11ax HEW40_Nss1,(MCS0)_4TX	17.82	0.06053
802.11ax HEW80_Nss1,(MCS0)_4TX	19.58	0.09078
802.11ax HEW160_Nss1,(MCS0)_4TX	22.71	0.18664
6.875-7.125GHz	-	-
802.11ax HEW20_Nss1,(MCS0)_4TX	14.55	0.02851
802.11ax HEW40_Nss1,(MCS0)_4TX	17.61	0.05768
802.11ax HEW80_Nss1,(MCS0)_4TX	19.80	0.09550
802.11ax HEW160_Nss1,(MCS0)_4TX	21.60	0.14454

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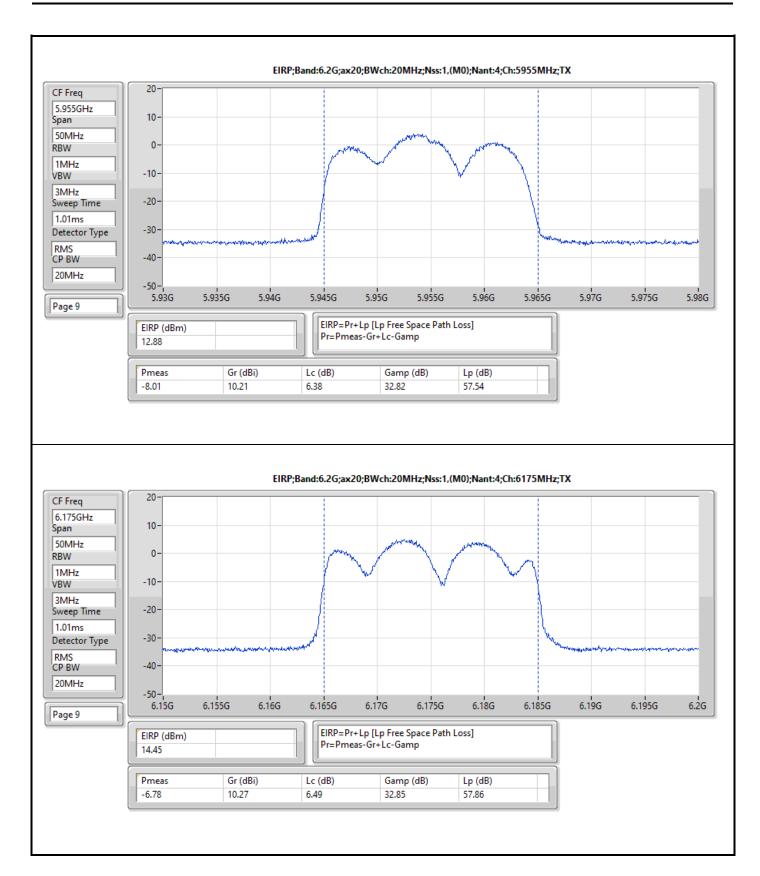
Result

Result	T 5 "	FIDD	FIDD I : "
Mode	Result	EIRP	EIRP Limit
802.11ax HEW20 Nss1,(MCS0) 4TX		(dBm)	(dBm)
	Door	12.88	20.00
5955MHz 6175MHz	Pass Pass	14.45	30.00
			30.00
6415MHz	Pass	13.80	30.00
6435MHz	Pass	14.33	30.00
6475MHz	Pass	13.41	30.00
6515MHz	Pass	13.15	30.00
6535MHz	Pass	13.09	30.00
6695MHz	Pass	11.50	30.00
6855MHz	Pass	14.04	30.00
6875MHz Straddle 6.525-6.875GHz	Pass	12.62	30.00
6895MHz	Pass	14.55	30.00
6995MHz	Pass	13.72	30.00
7095MHz	Pass	12.36	30.00
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-
5965MHz	Pass	14.85	30.00
6165MHz	Pass	15.68	30.00
6405MHz	Pass	15.14	30.00
6445MHz	Pass	13.88	30.00
6485MHz	Pass	15.79	30.00
6525MHz Straddle 6.425-6.525GHz	Pass	14.66	30.00
6565MHz	Pass	14.99	30.00
6685MHz	Pass	14.58	30.00
6845MHz	Pass	16.79	30.00
6885MHz Straddle 6.525-6.875GHz	Pass	17.82	30.00
6925MHz	Pass	17.61	30.00
7005MHz	Pass	15.94	30.00
7085MHz	Pass	15.77	30.00
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-
5985MHz	Pass	19.87	30.00
6145MHz	Pass	18.87	30.00
6385MHz	Pass	17.76	30.00
6465MHz	Pass	19.73	30.00
6545MHz Straddle 6.425-6.525GHz	Pass	18.69	30.00
6625MHz	Pass	19.58	30.00
6705MHz	Pass	19.02	30.00
6785MHz	Pass	18.42	30.00
6865MHz Straddle 6.525-6.875GHz	Pass	19.35	30.00
6945MHz	Pass	19.80	30.00
7025MHz	Pass	18.14	30.00
802.11ax HEW160_Nss1,(MCS0)_4TX	-	=	-
6025MHz	Pass	21.20	30.00
6185MHz	Pass	23.29	30.00
6345MHz	Pass	20.17	30.00
6505MHz Straddle 6.425-6.525GHz	Pass	20.82	30.00
6665MHz	Pass	21.02	30.00
6825MHz Straddle 6.525-6.875GHz	Pass	22.71	30.00
6985MHz	Pass	21.60	30.00

DG = Directional Gain; Port X = Port X output power

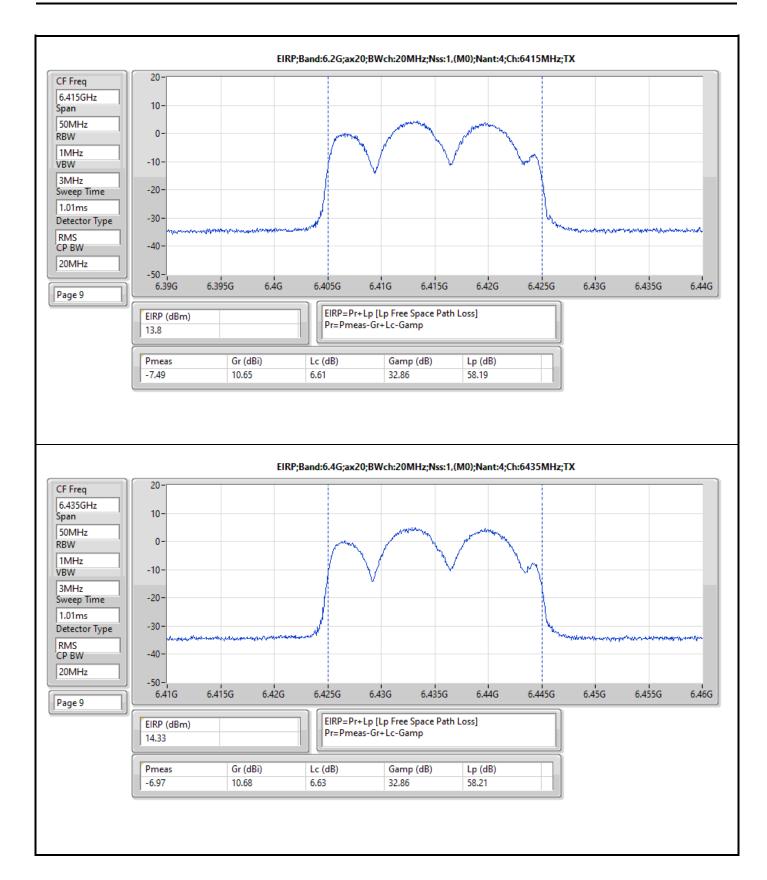
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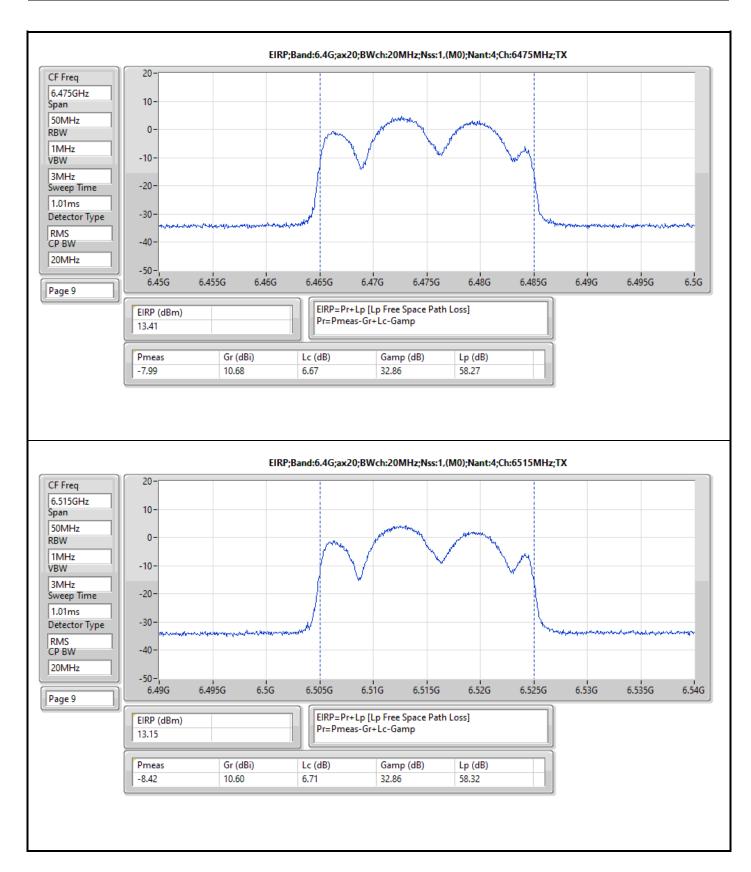
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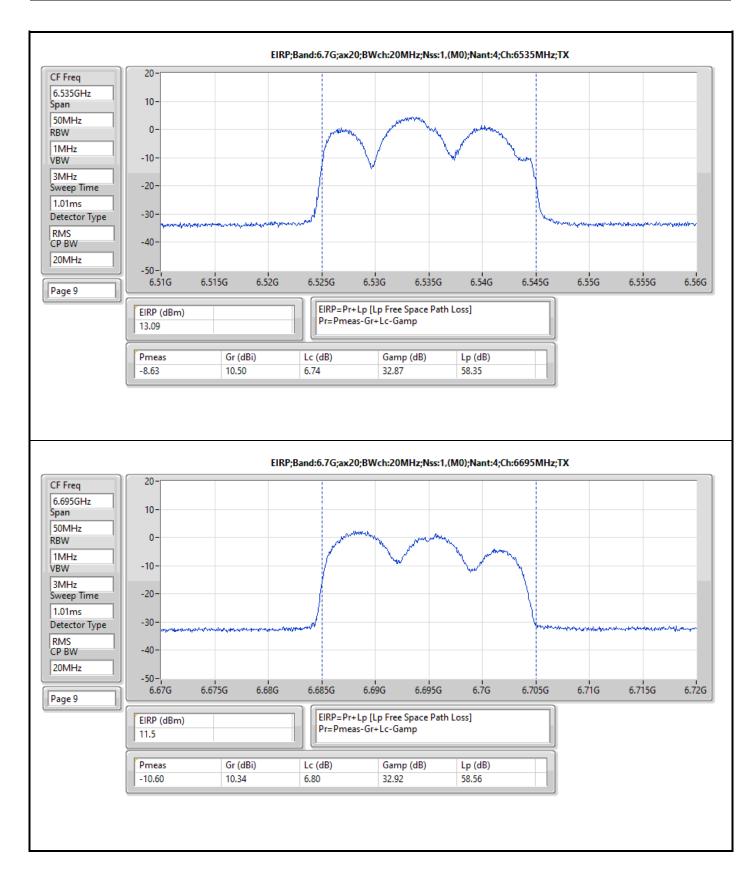




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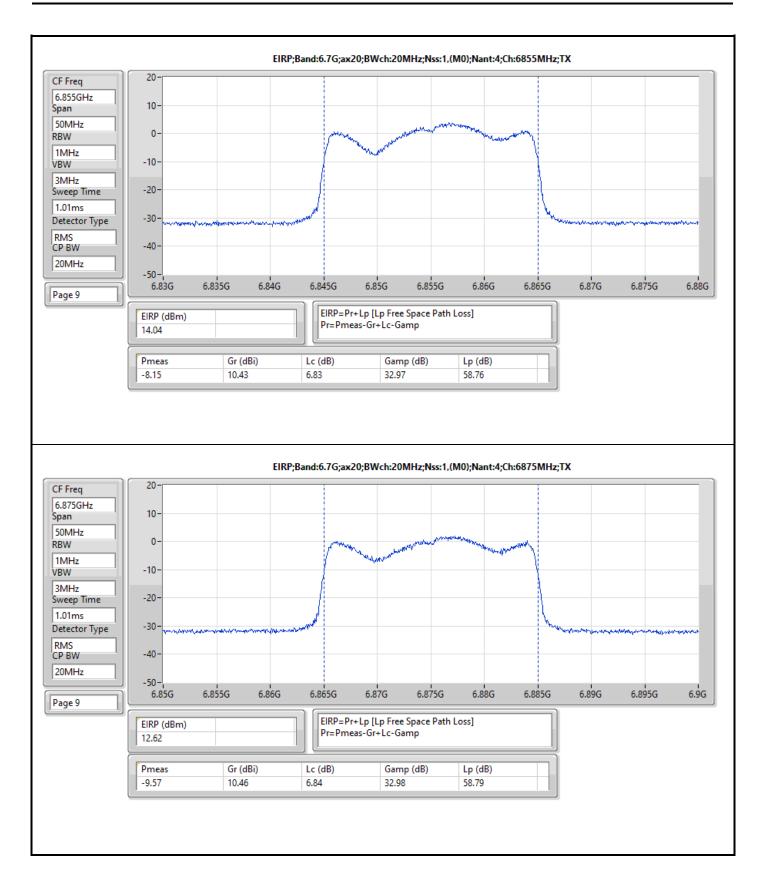
Report No. : FR2N1015AC





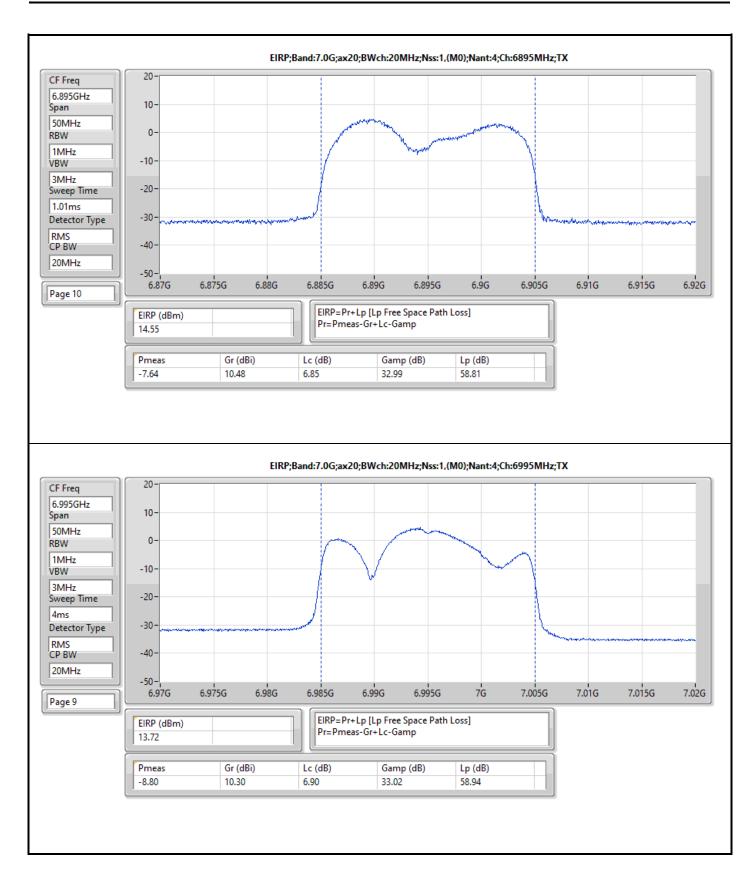
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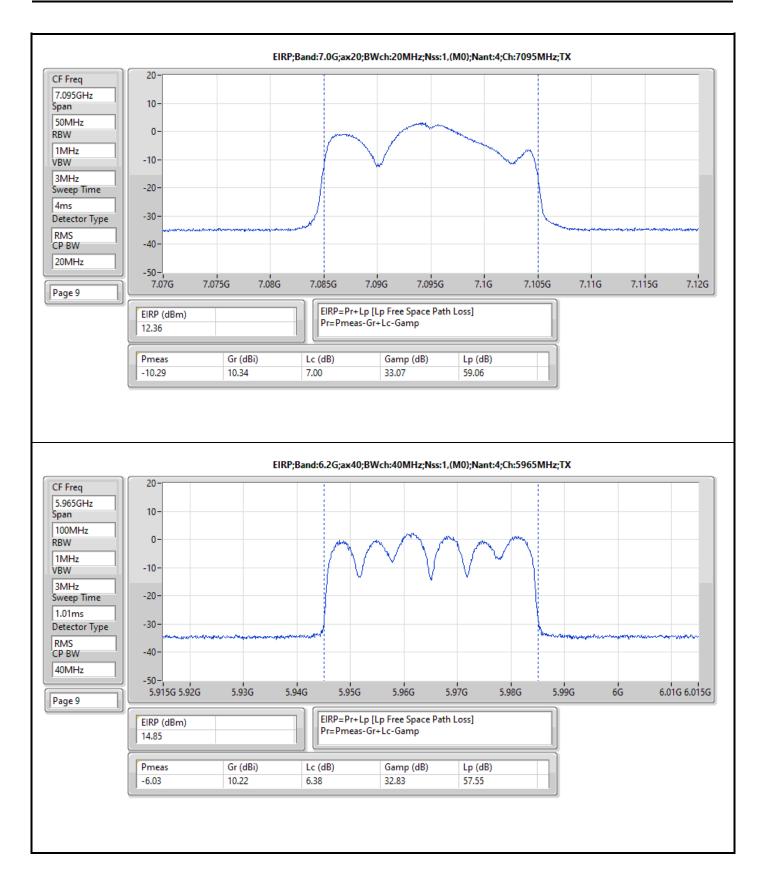
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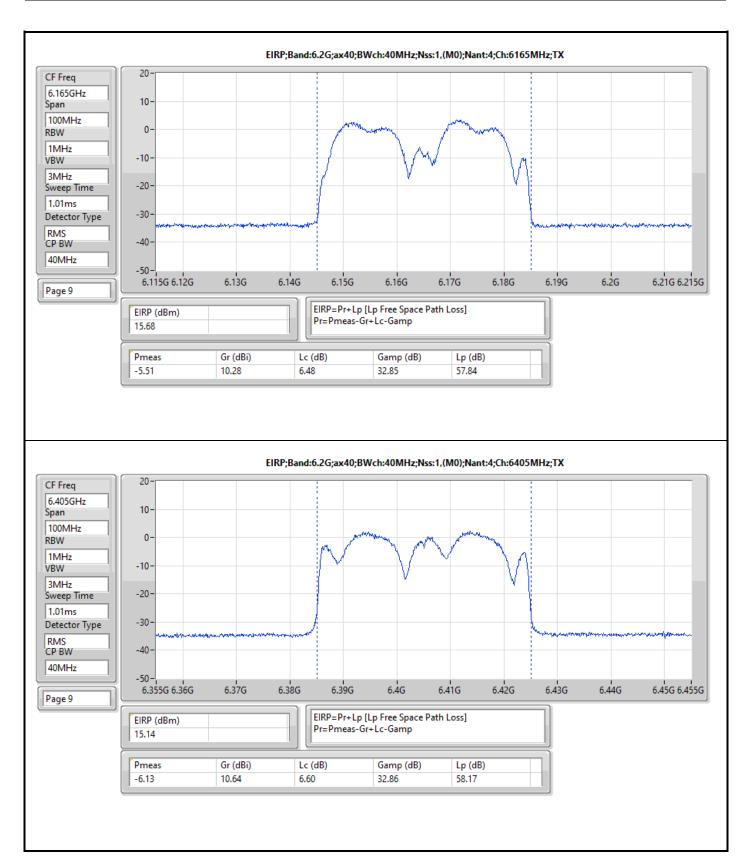
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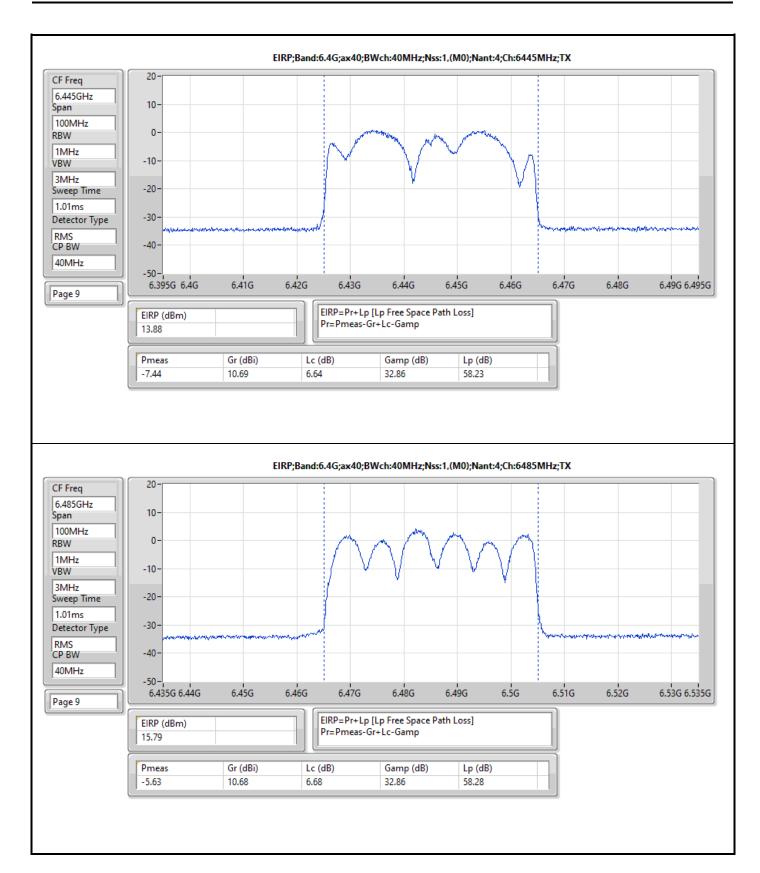
Report No. : FR2N1015AC





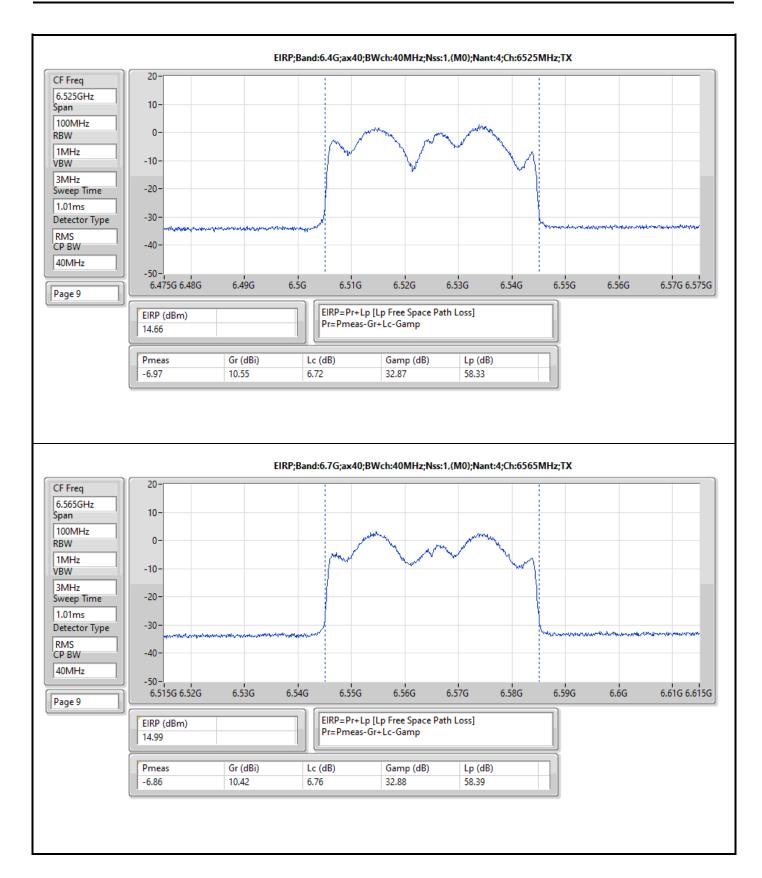
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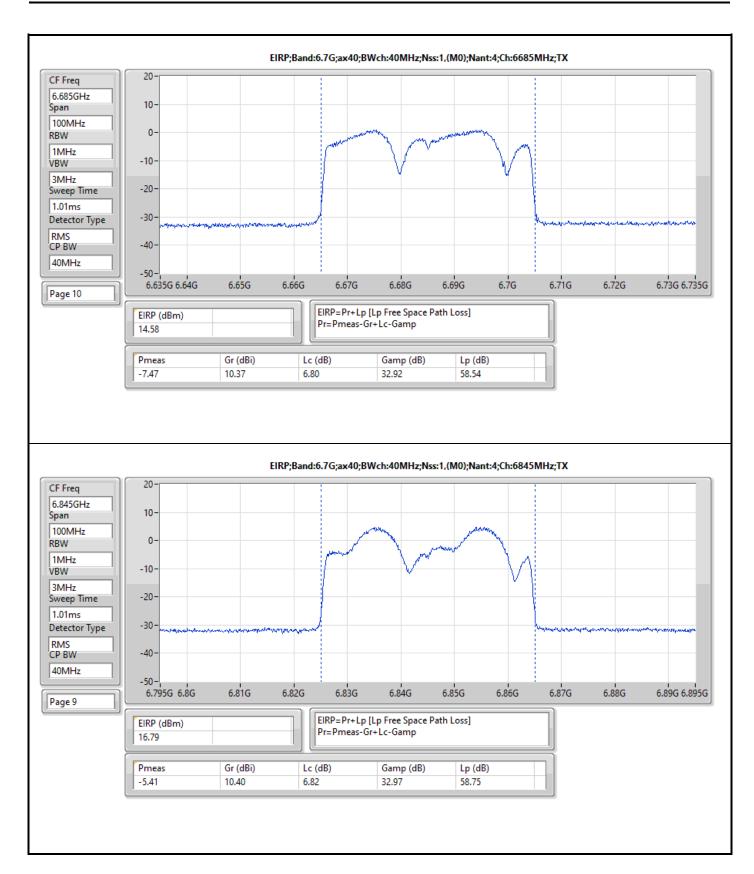
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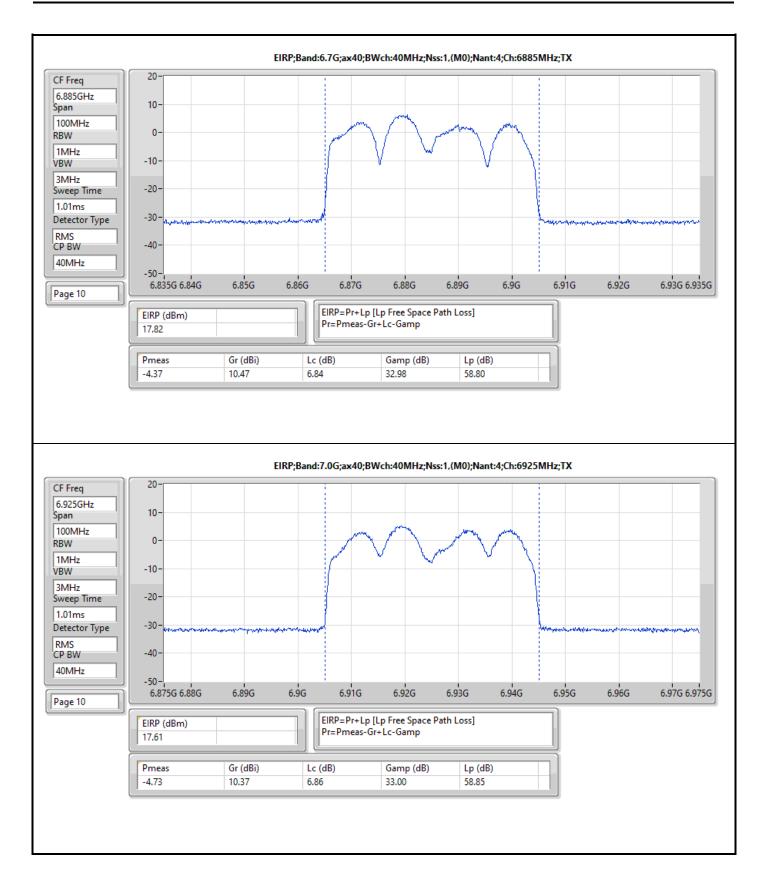
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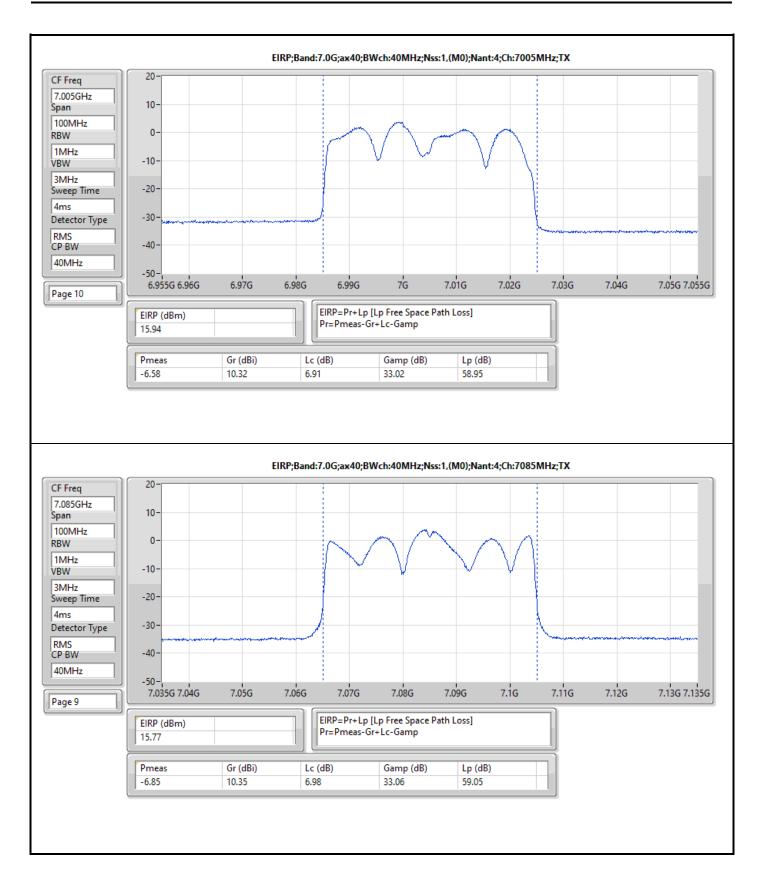
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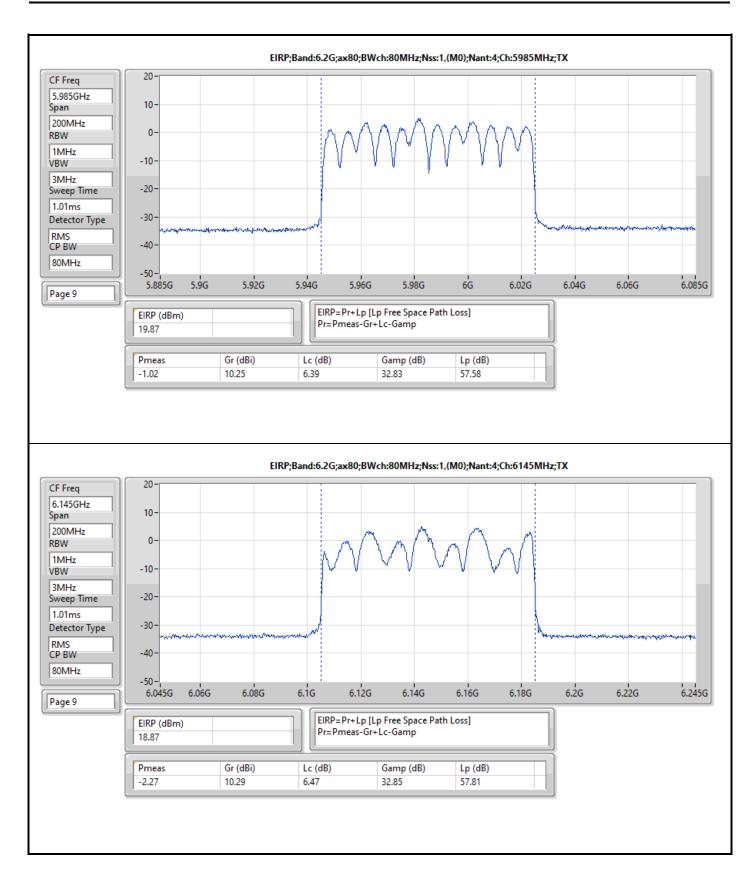
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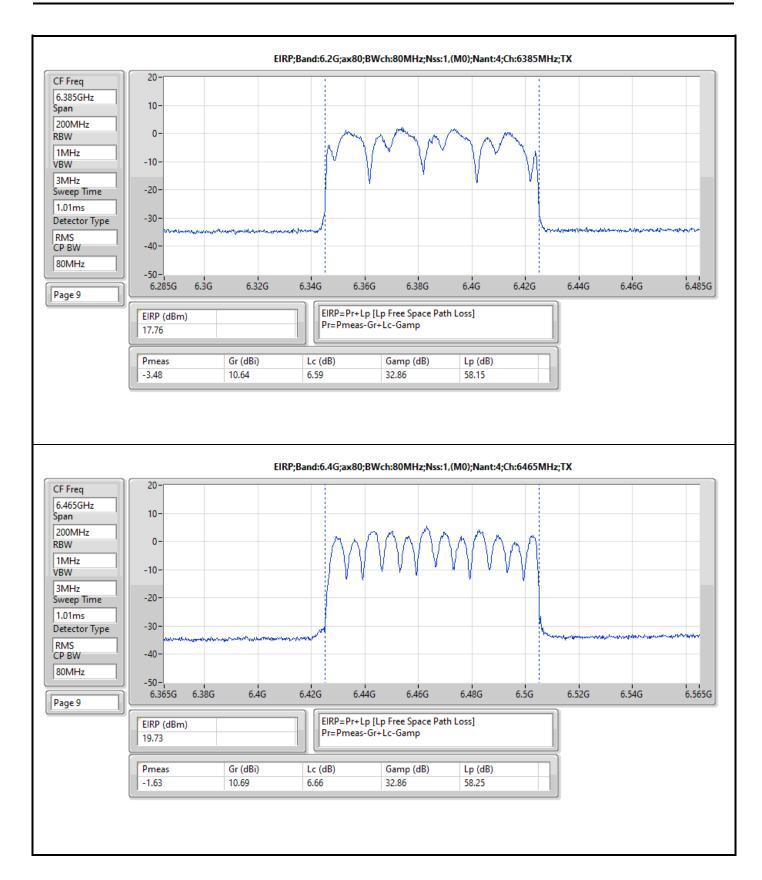
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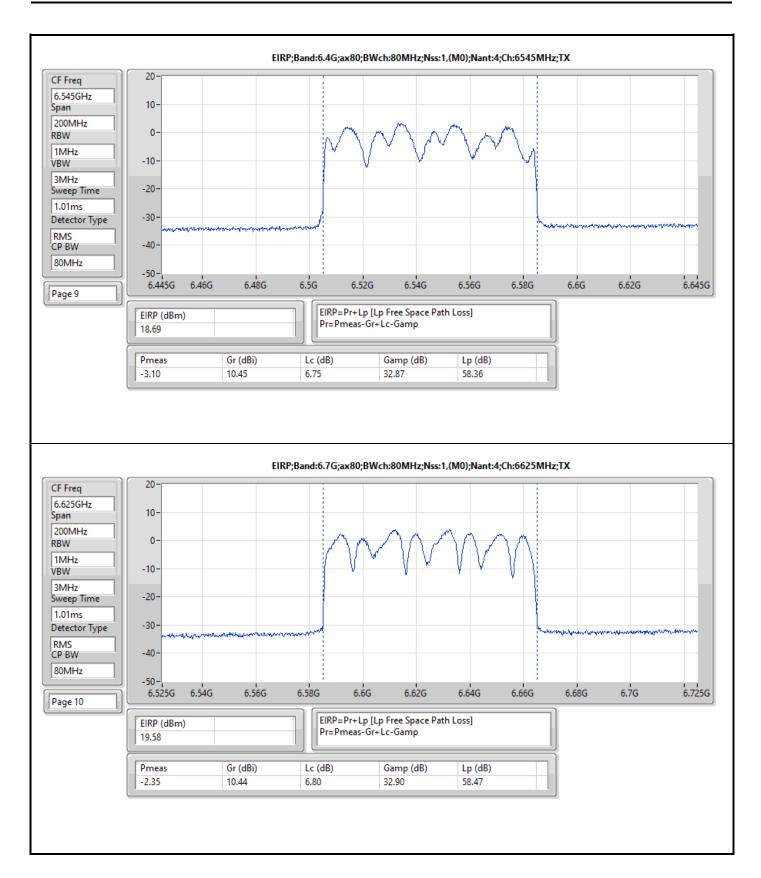
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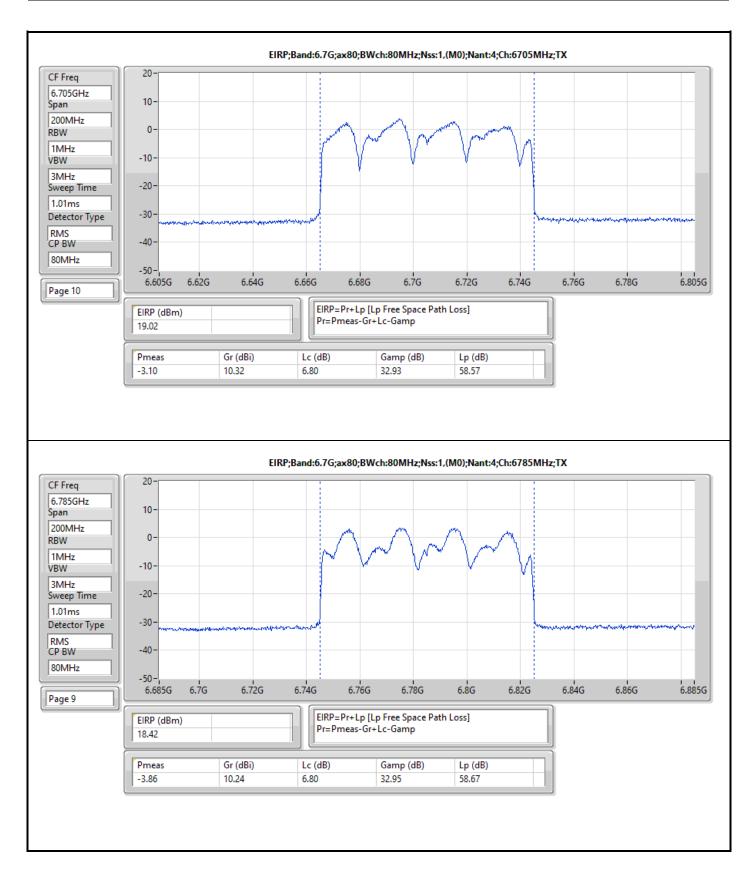
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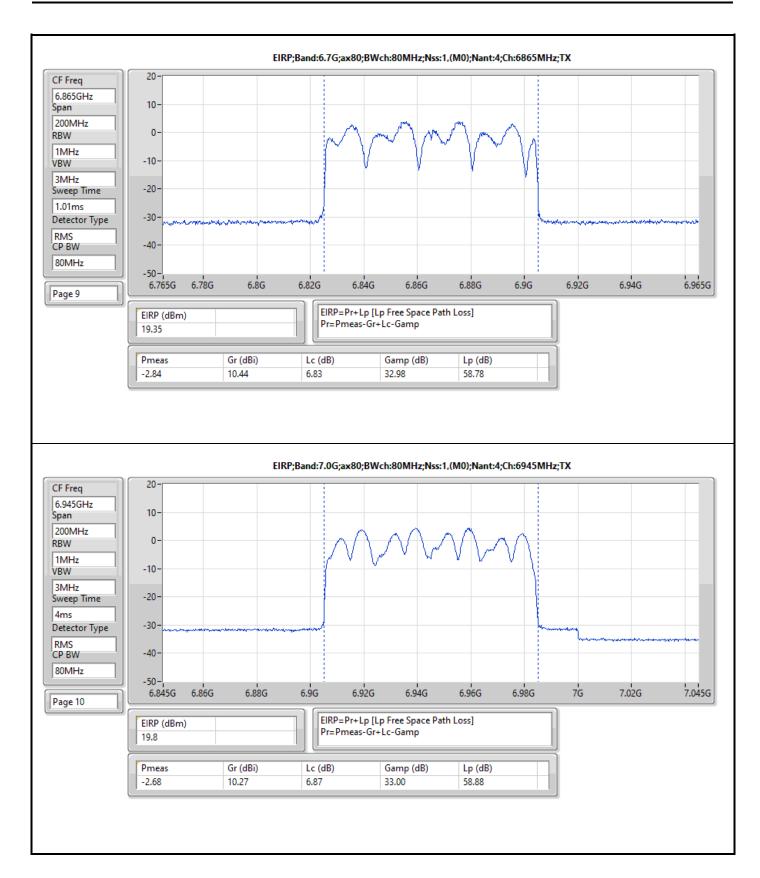
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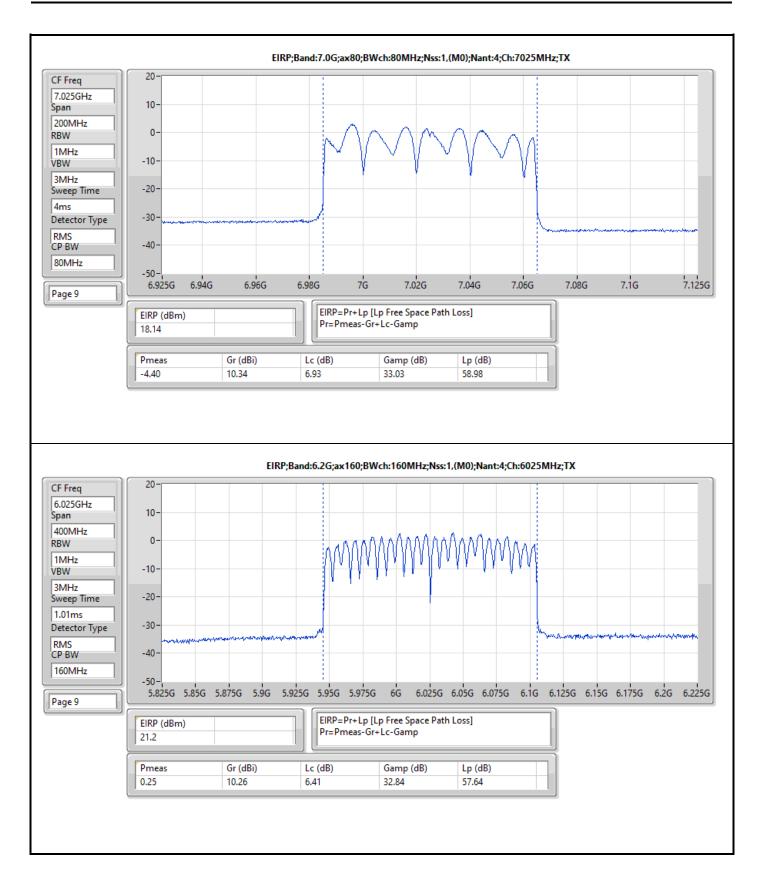
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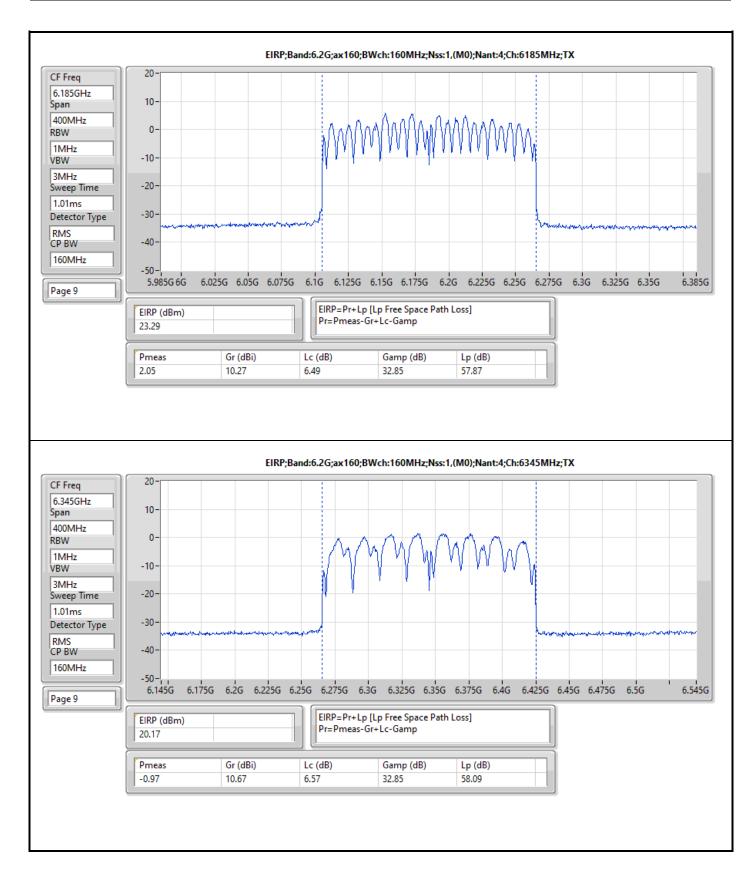
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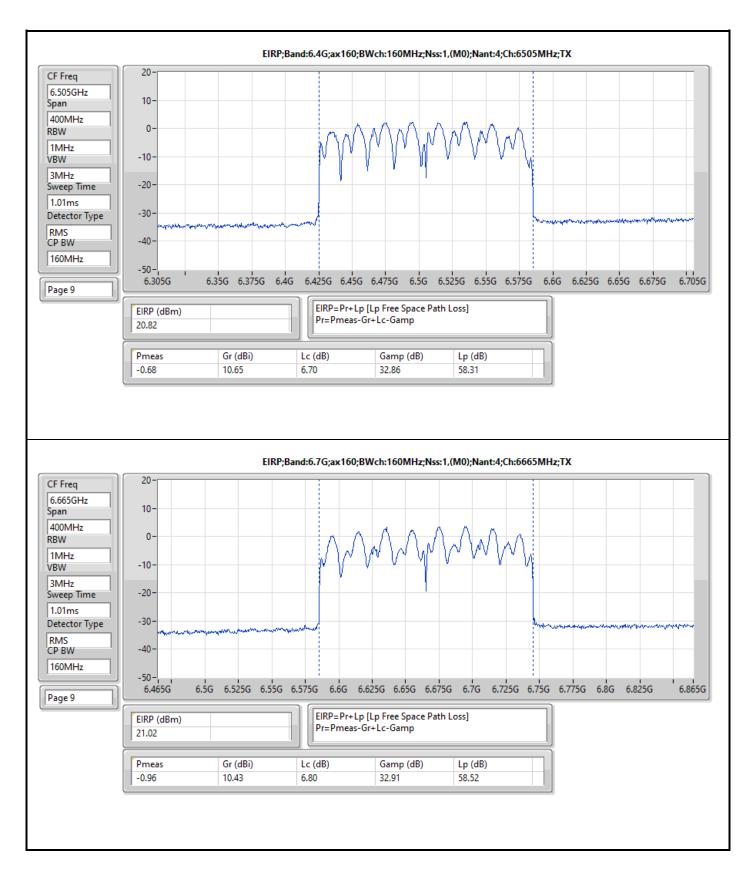
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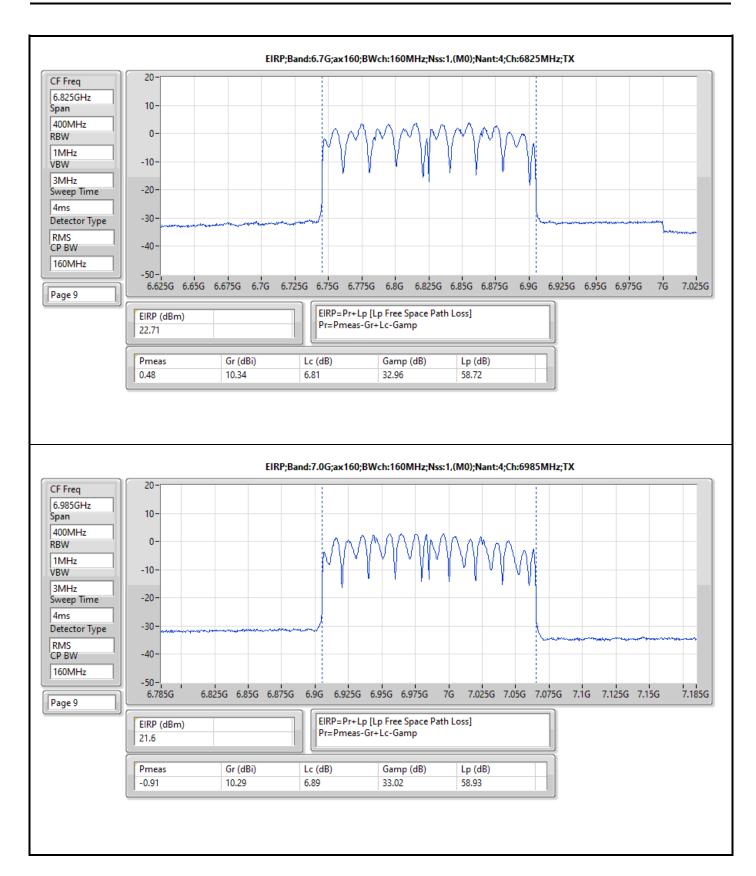
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Average Power_Beamforming mode

Appendix C.2

Summary

Mode	Total Power	Total Power	EIRP	EIRP
	(dBm)	(W)	(dBm)	(W)
5.925-6.425GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	8.55	0.00716	14.57	0.02864
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	12.44	0.01754	18.46	0.07015
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	14.65	0.02917	20.67	0.11668
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	16.38	0.04345	22.40	0.17378
6.425-6.525GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	7.73	0.00593	13.75	0.02371
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	11.85	0.01531	17.87	0.06124
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	15.35	0.03428	21.37	0.13709
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	15.62	0.03648	21.64	0.14588
6.525-6.875GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	8.62	0.00728	14.64	0.02911
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	12.46	0.01762	18.48	0.07047
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	15.01	0.03170	21.03	0.12677
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	17.18	0.05224	23.20	0.20893
6.875-7.125GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	9.56	0.00904	15.58	0.03614
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	12.31	0.01702	18.33	0.06808
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	13.51	0.02244	19.53	0.08974
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	15.91	0.03899	21.93	0.15596

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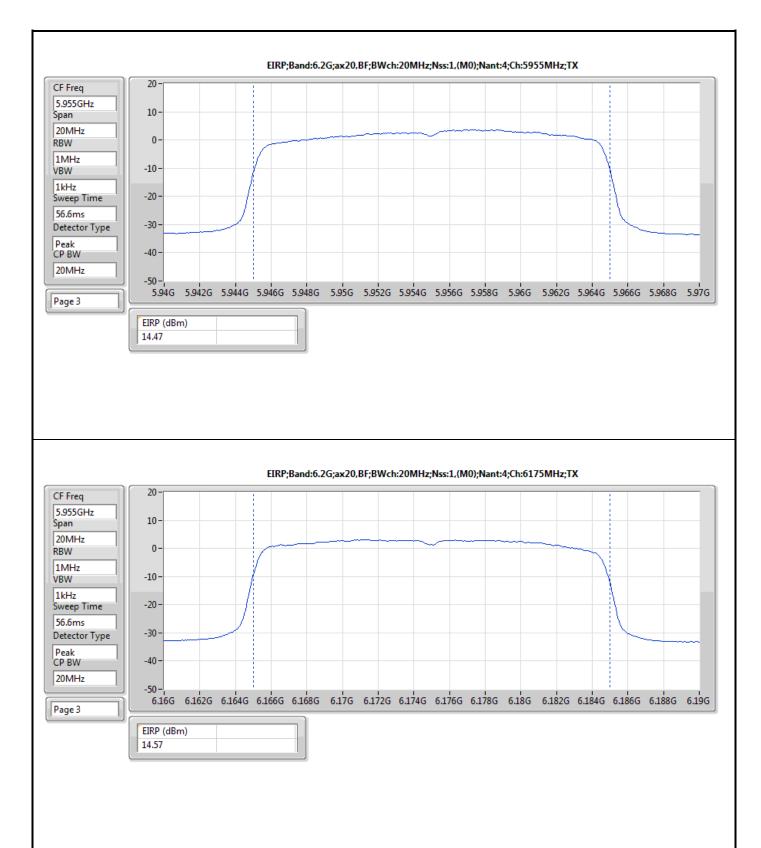
Result

Mode	Result	EIRP	EIRP Limit
		(dBm)	(dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	=
5955MHz	Pass	14.47	30.00
6175MHz	Pass	14.57	30.00
6415MHz	Pass	14.37	30.00
6435MHz	Pass	13.59	30.00
6475MHz	Pass	13.22	30.00
6515MHz	Pass	13.75	30.00
6535MHz	Pass	13.23	30.00
6695MHz	Pass	14.64	30.00
6855MHz	Pass	13.36	30.00
6875MHz Straddle 6.525-6.875GHz	Pass	13.82	30.00
6895MHz	Pass	15.58	30.00
6995MHz	Pass	13.25	30.00
7095MHz	Pass	13.63	30.00
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-
5965MHz	Pass	16.18	30.00
6165MHz	Pass	16.35	30.00
6405MHz	Pass	18.46	30.00
6445MHz	Pass	17.85	30.00
6485MHz	Pass	17.87	30.00
6525MHz Straddle 6.425-6.525GHz	Pass	16.57	30.00
6565MHz	Pass	18.31	30.00
6685MHz	Pass	17.61	30.00
6845MHz	Pass	16.93	30.00
6885MHz Straddle 6.525-6.875GHz	Pass	18.48	30.00
6925MHz	Pass	18.33	30.00
7005MHz	Pass	16.55	30.00
7085MHz	Pass	16.37	30.00
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	=	-
5985MHz	Pass	19.61	30.00
6145MHz	Pass	20.64	30.00
6385MHz	Pass	20.67	30.00
6465MHz	Pass	20.34	30.00
6545MHz Straddle 6.425-6.525GHz	Pass	21.37	30.00
6625MHz	Pass	19.08	30.00
6705MHz	Pass	20.04	30.00
6785MHz	Pass	20.35	30.00
6865MHz Straddle 6.525-6.875GHz	Pass	21.03	30.00
6945MHz	Pass	19.53	30.00
7025MHz	Pass	19.47	30.00
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-	-
6025MHz	Pass	21.37	30.00
6185MHz	Pass	22.40	30.00
6345MHz	Pass	21.69	30.00
6505MHz Straddle 6.425-6.525GHz	Pass	21.64	30.00
6665MHz	Pass	23.20	30.00
6825MHz Straddle 6.525-6.875GHz	Pass	22.21	30.00
6985MHz	Pass	21.93	30.00

DG = Directional Gain; Port X = Port X output power

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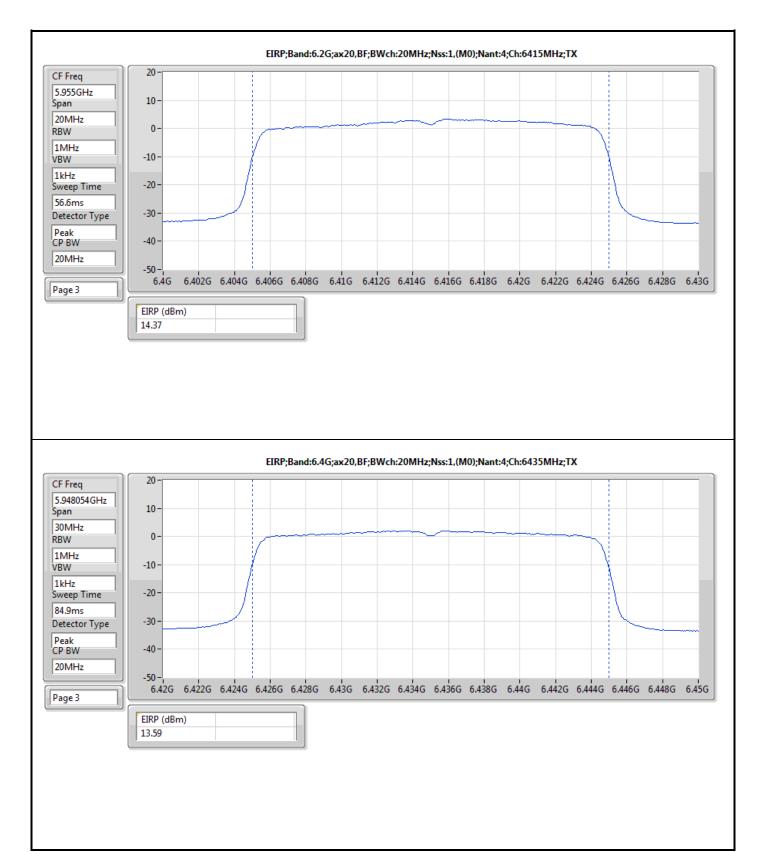




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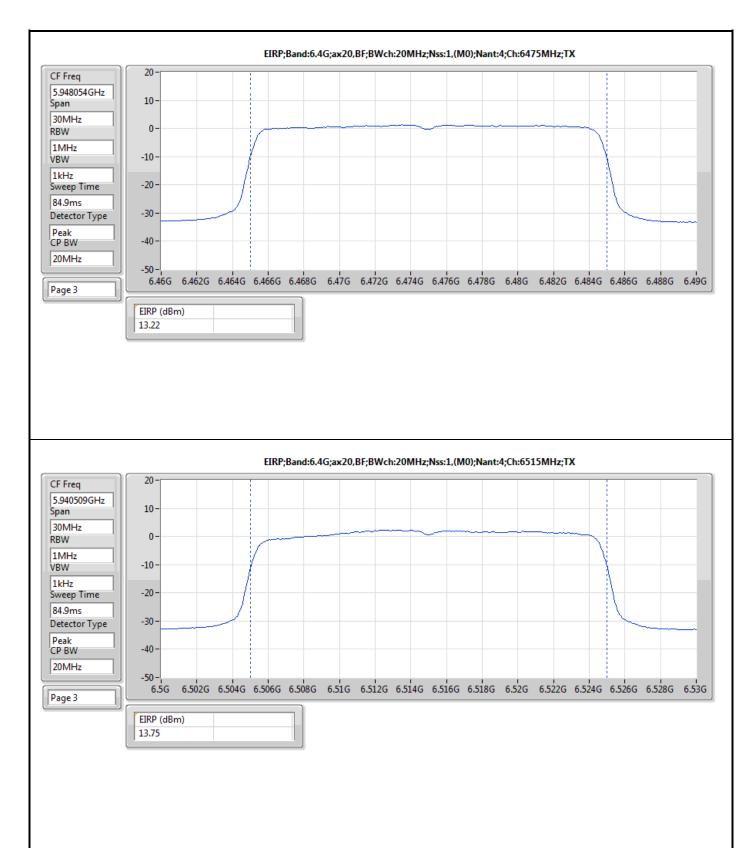




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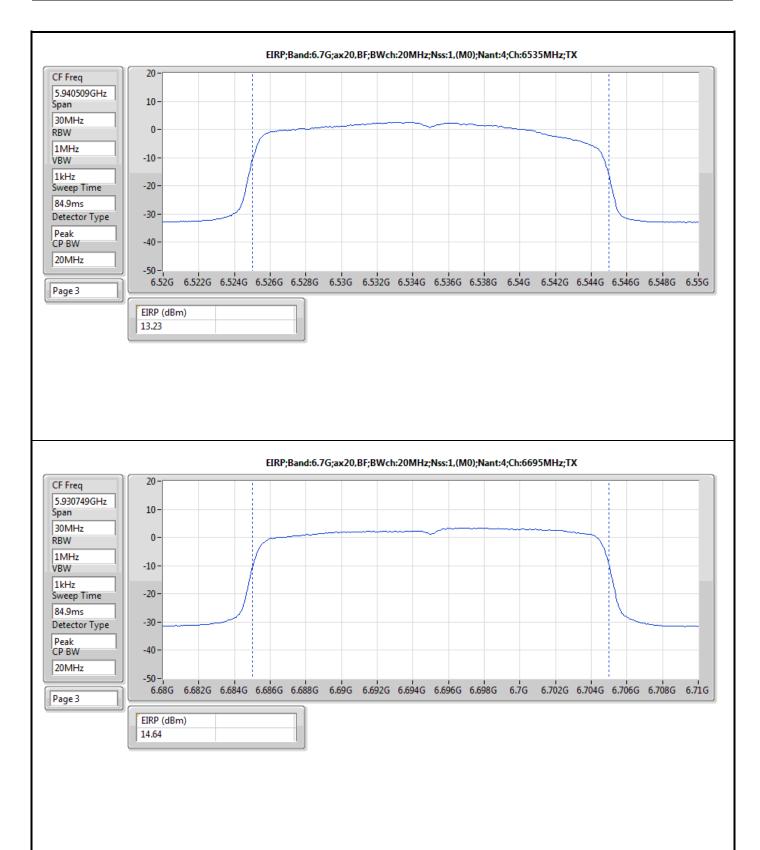




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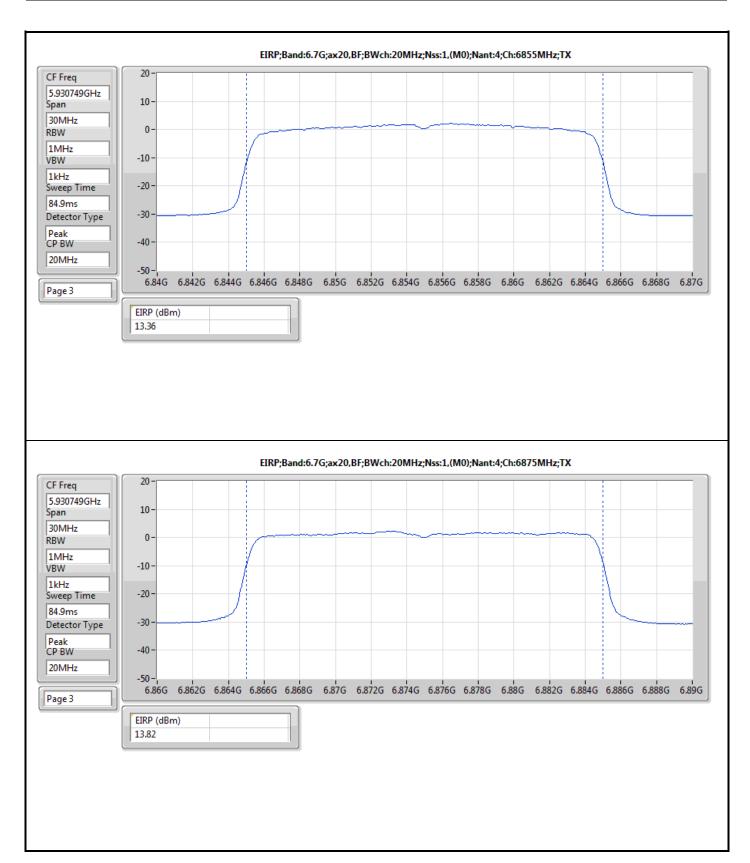
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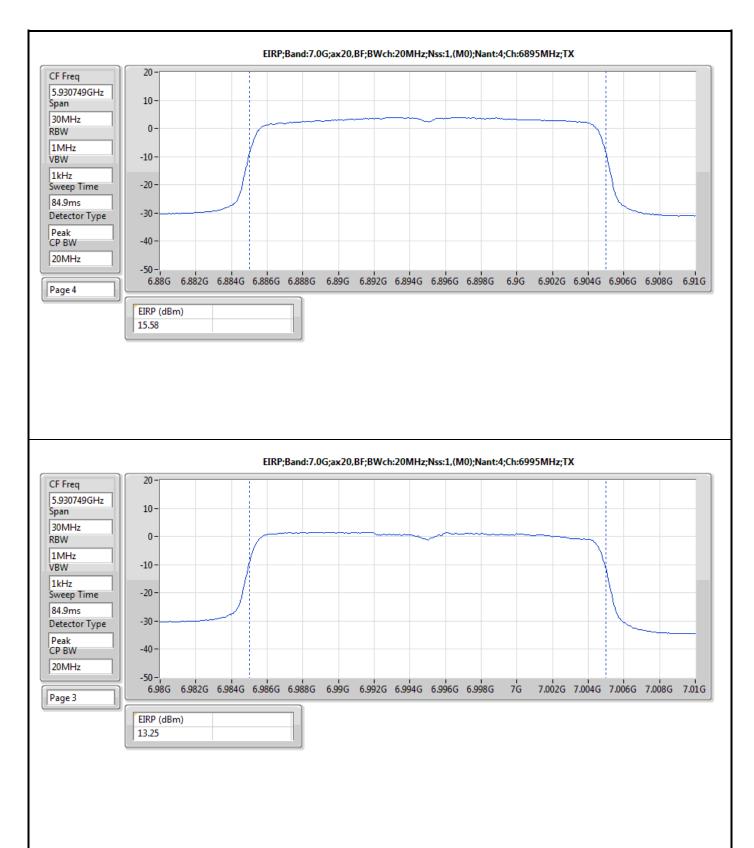




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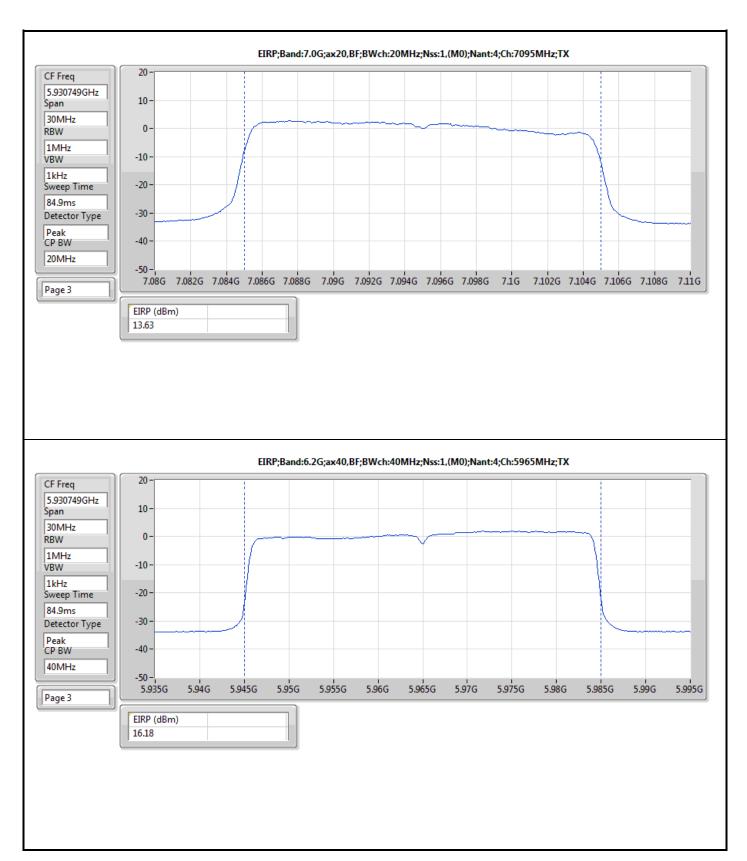




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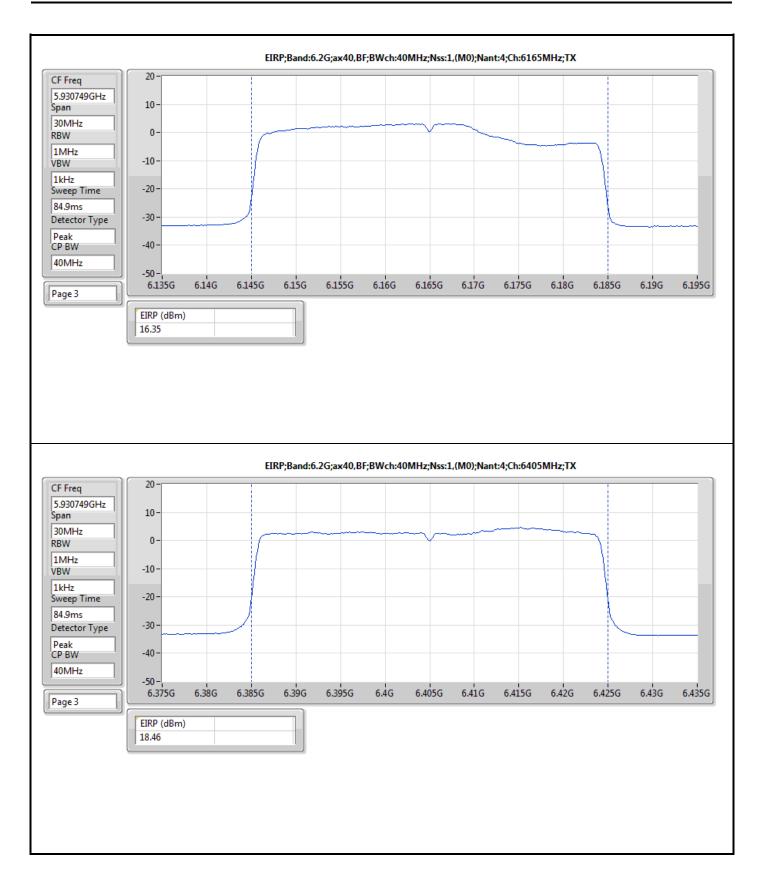
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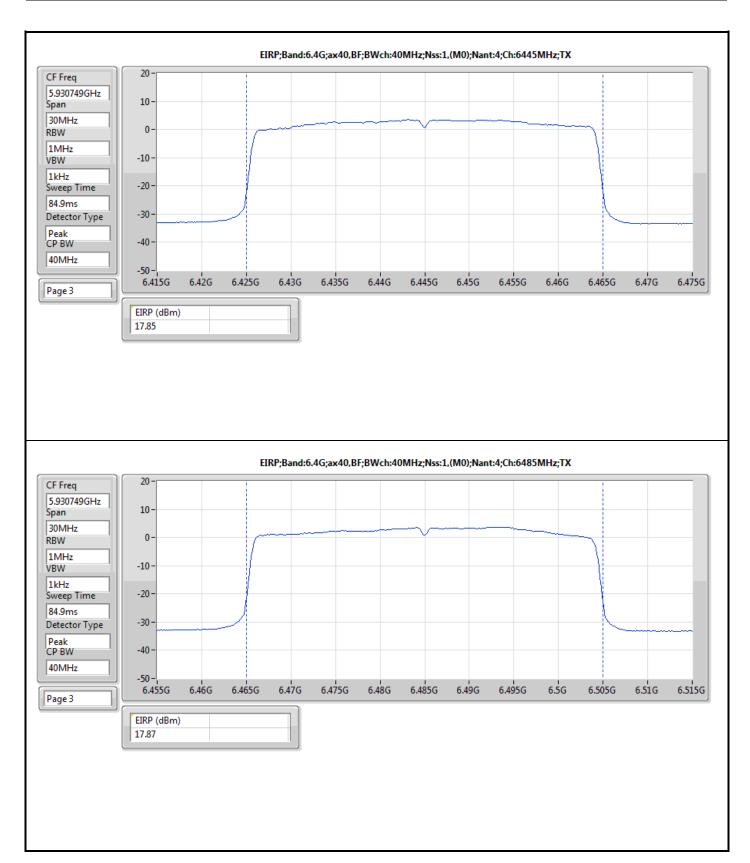
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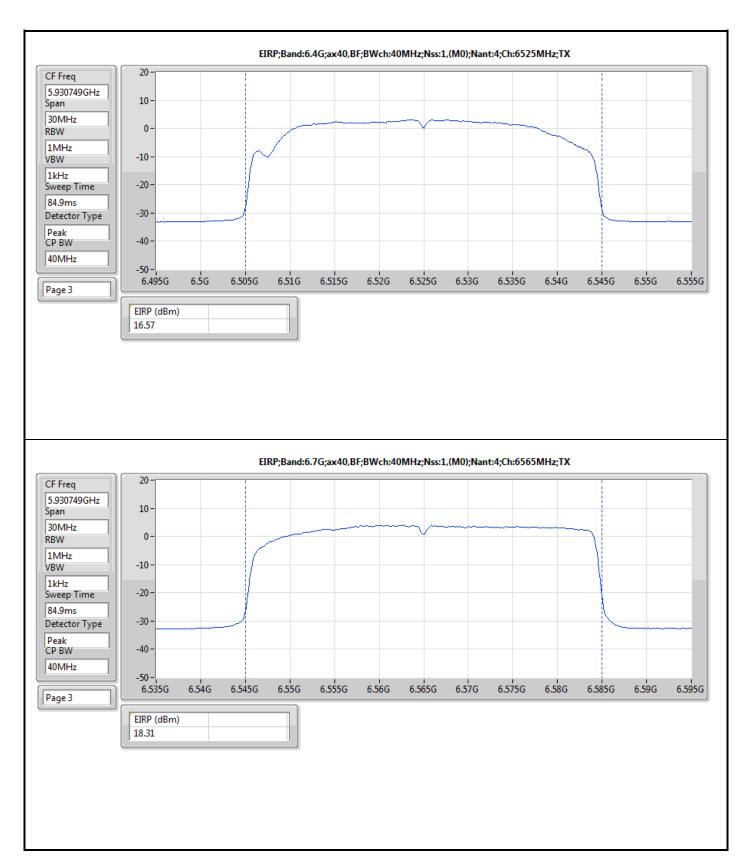




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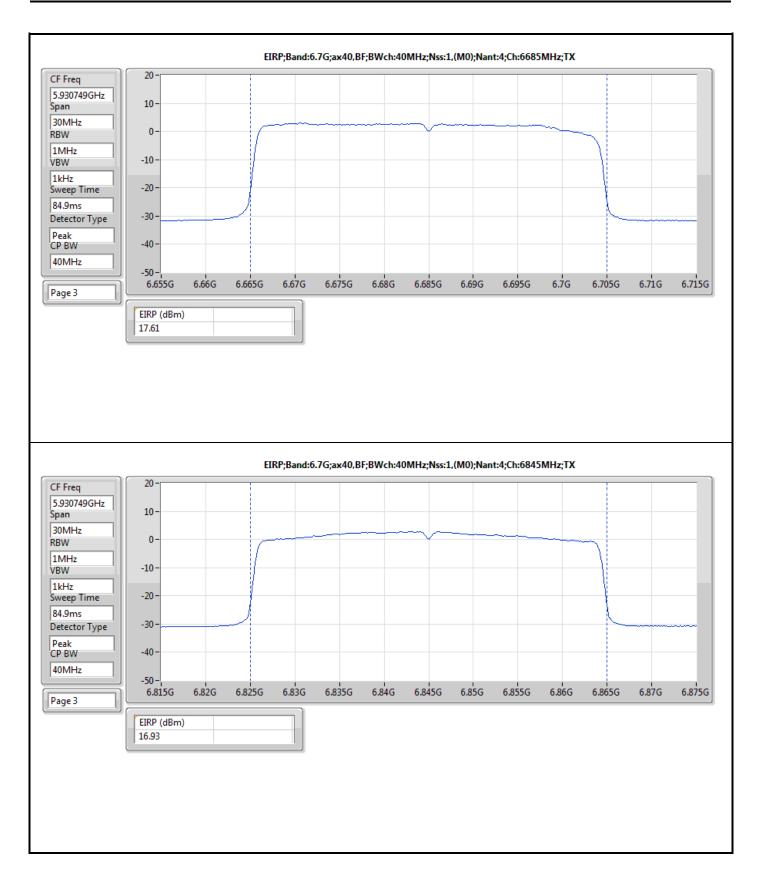
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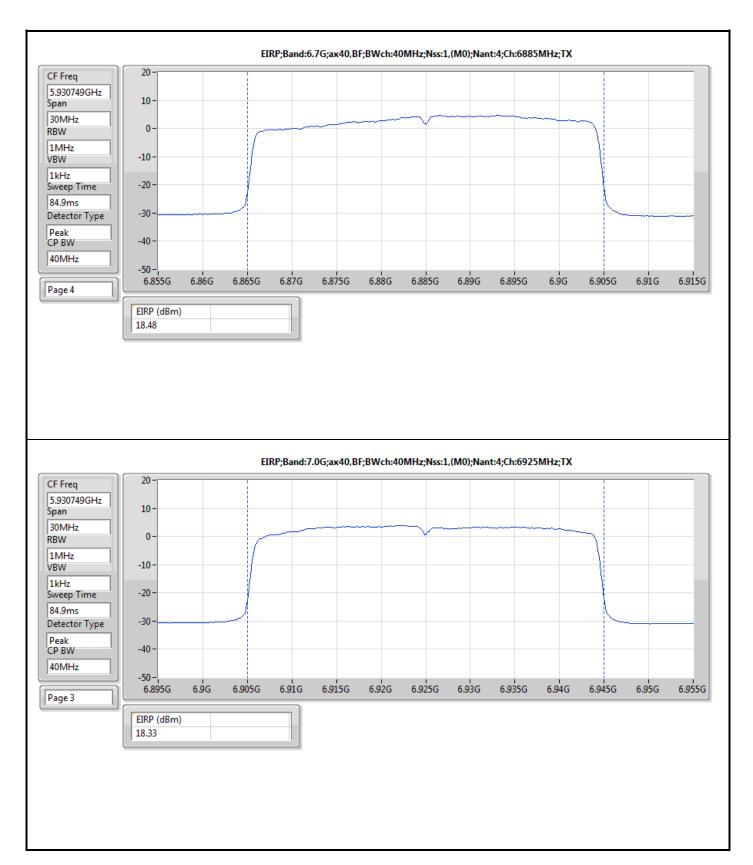
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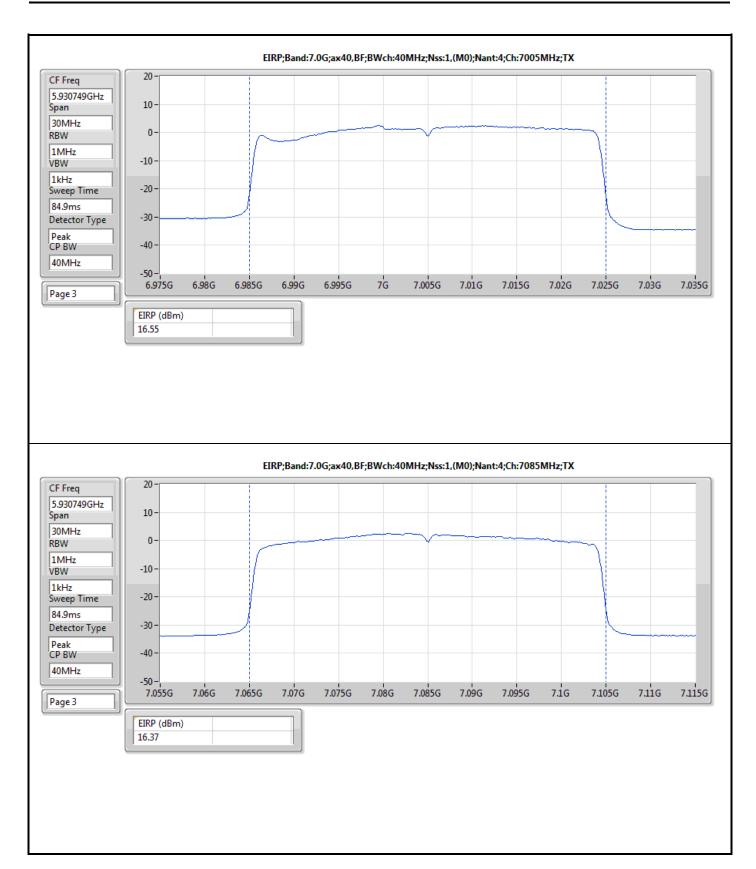
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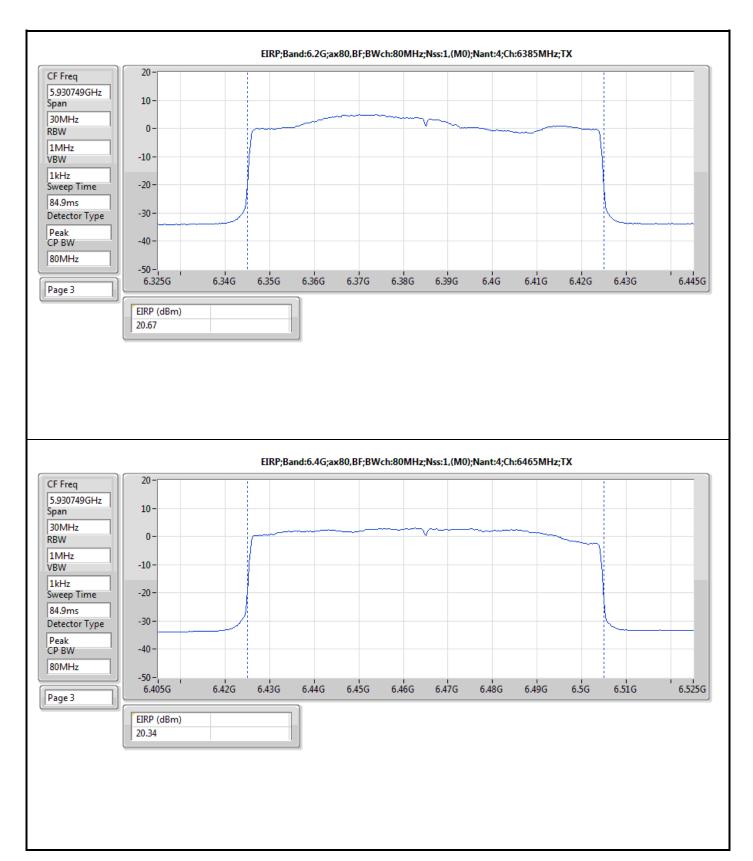
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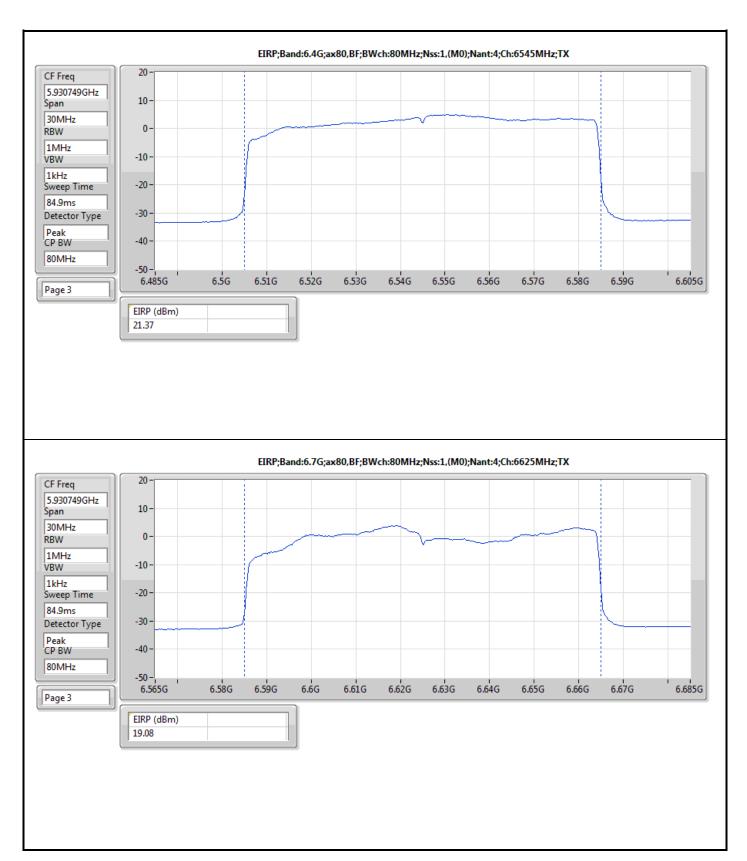




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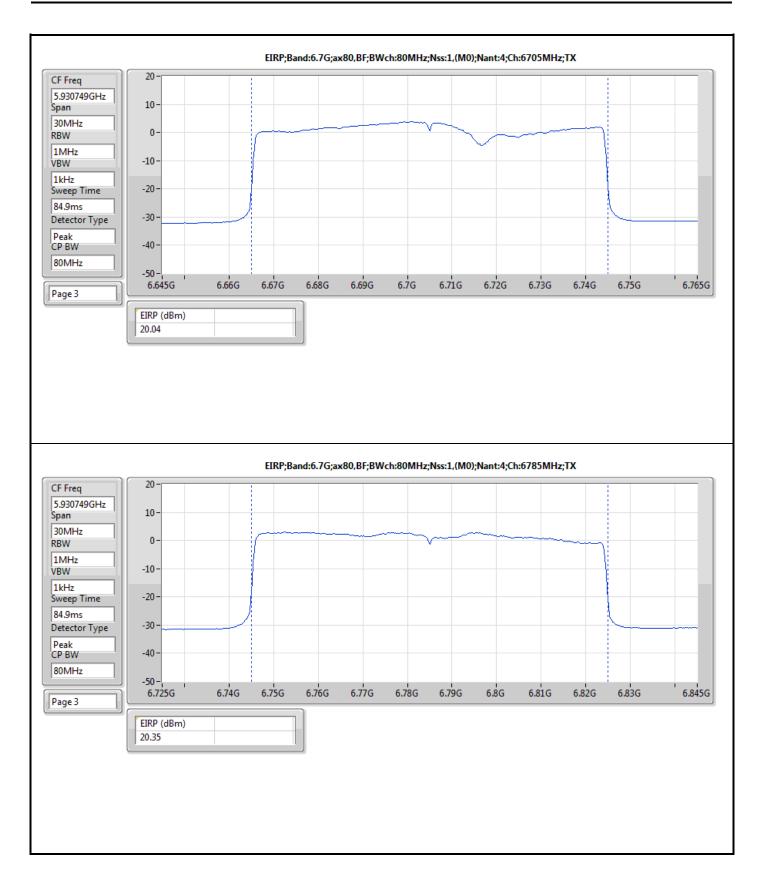
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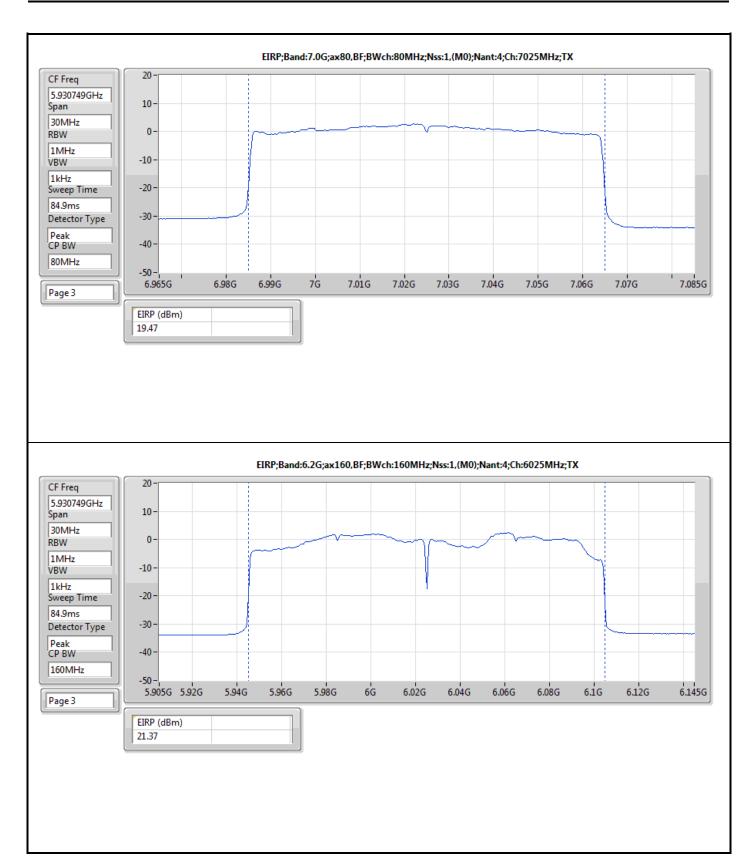
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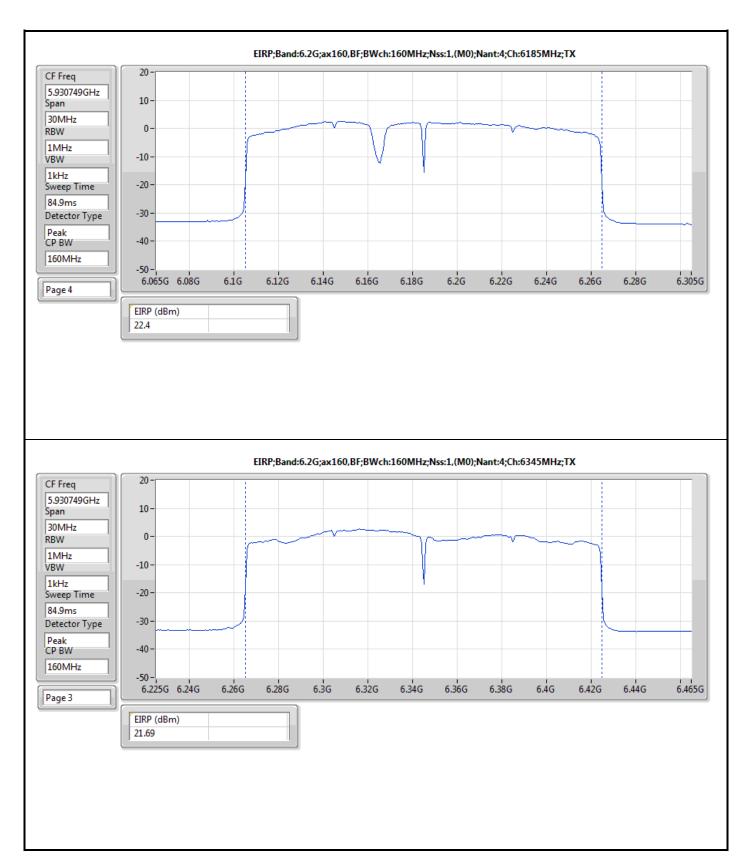
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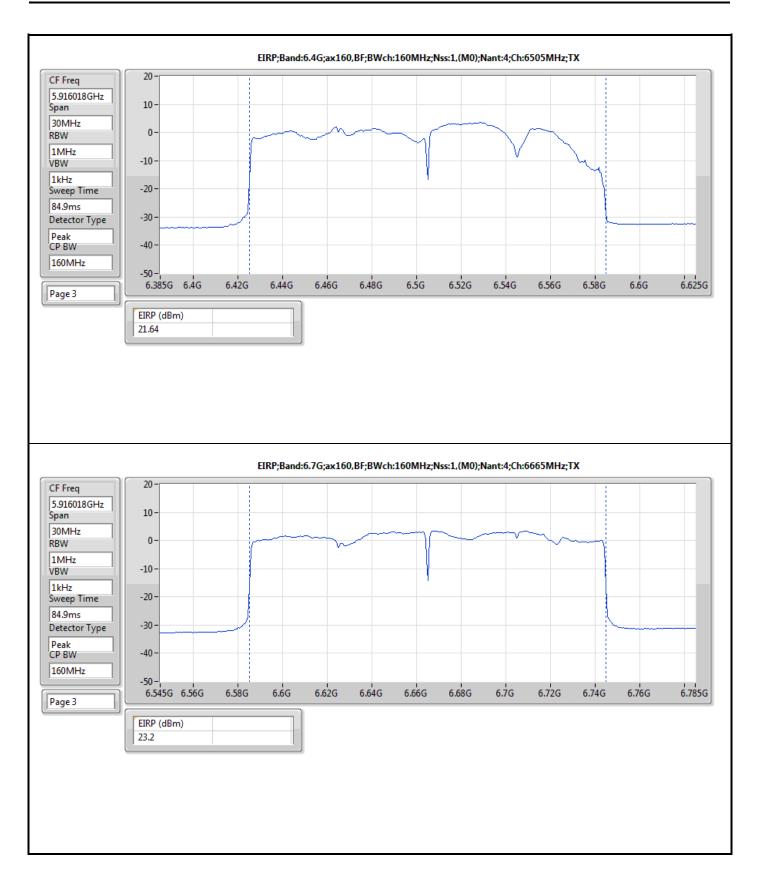
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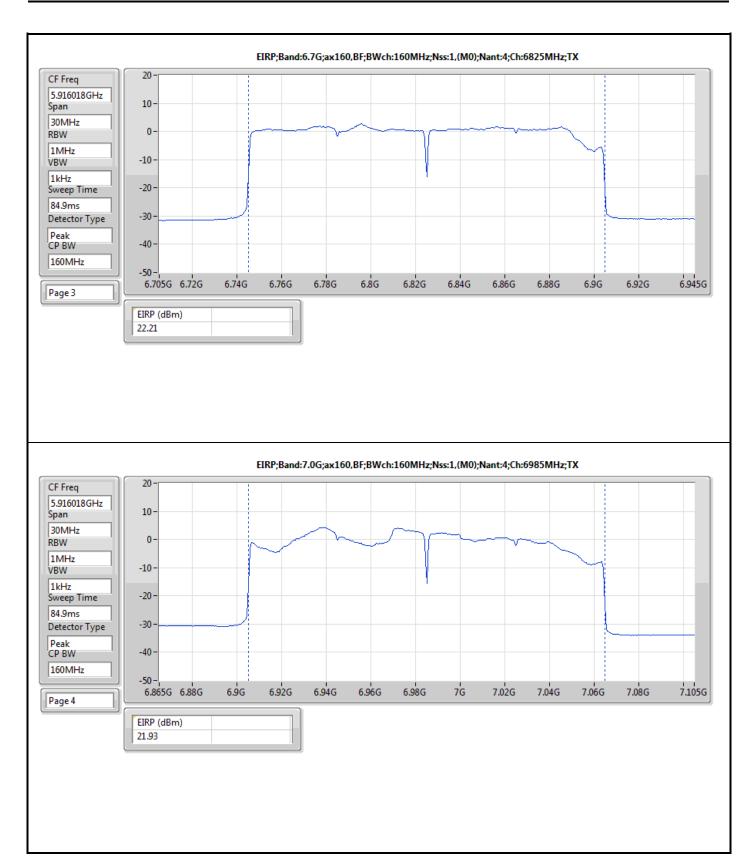
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PSD Appendix D.1

Summary

Mode	EIRP PD
	(dBm/RBW)
5.925-6.425GHz	-
802.11ax HEW20_Nss1,(MCS0)_4TX	4.97
802.11ax HEW40_Nss1,(MCS0)_4TX	4.96
802.11ax HEW80_Nss1,(MCS0)_4TX	4.90
802.11ax HEW160_Nss1,(MCS0)_4TX	4.63
6.425-6.525GHz	-
802.11ax HEW20_Nss1,(MCS0)_4TX	4.98
802.11ax HEW40_Nss1,(MCS0)_4TX	4.73
802.11ax HEW80_Nss1,(MCS0)_4TX	4.91
802.11ax HEW160_Nss1,(MCS0)_4TX	4.94
6.525-6.875GHz	-
802.11ax HEW20_Nss1,(MCS0)_4TX	4.98
802.11ax HEW40_Nss1,(MCS0)_4TX	4.96
802.11ax HEW80_Nss1,(MCS0)_4TX	4.75
802.11ax HEW160_Nss1,(MCS0)_4TX	4.88
6.875-7.125GHz	-
802.11ax HEW20_Nss1,(MCS0)_4TX	4.70
802.11ax HEW40_Nss1,(MCS0)_4TX	4.97
802.11ax HEW80_Nss1,(MCS0)_4TX	4.98
802.11ax HEW160_Nss1,(MCS0)_4TX	4.96

RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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