DigitalPath, Inc.

TEST REPORT FOR

Gen7 AP
Models: G7RL10H and G7RL10S

Tested to The Following Standards:

FCC Part 15 Subpart E Section(s)

15.207 & 15.407
UNII 2c AND UNII 3

Report No.: 100331-24

Date of issue: December 18, 2017

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

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REPORT PREPARED BY

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Mariposa, CA 95338

Project Number: 100331

DATE OF EQUIPMENT RECEIPT: October 4, 2017
DATE(S) OF TESTING: October 4, 2017 and November3-17, 2017

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

1120 Fulton Place
Fremont, CA 94539

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.11

Site Registration & Accreditation Information

Location	NIST CB #	TAIWAN	CANADA	FCC	JAPAN
Fremont, CA	US0082	SL2-IN-E-1148R	3082B-1	US1023	A-0149
Mariposa A, CA	US0103	SL2-IN-E-1147R	3082A-2	US1024	A-0136

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart E - 15.407 (UNII 2c and UNII 3)

Test Procedure	Description	Modifications	Results
15.215	Occupied Bandwidth	Mod. #1	Pass
15.407(a)	Output Power	Mod. #1	Pass
15.407(a)	Power Spectral Density	Mod. #1	Pass
15.407(b), (b)(1), (b)(3) & (b)(4)	Radiated Emissions & Band Edge	Mod. #1	Pass
15.207	AC Conducted Emissions	Mod. #1	Pass

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions
Modification #1: A new GPS unit was installed into the product in order to pass spurious emissions. Product Name: ublox7 Model: Max-7 GNSS module Serial: NA Manufacturer: ublox
All testing was repeated to insure validity of test results.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions
When Chains 0 & 1 are active the max data rates are 173Mbps, 360MBps and 780Mbps.

EQUIPMENT UNDER TEST (EUT)

During testing, numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1

Equipment Tested:

Device	Manufacturer	Model #	S/N
Gen7 AP	DigitalPath, Inc.	G7RL10S	0000001
Switching Gigabit Power Supply	Ubiquiti Networks	GP-C500-120G	1713-0000107

Support Equipment:

Device	Manufacturer	Model #	S/N
AC/DC power Adapter	HP	Series PPP012H-S	F12941126327228
Laptop Computer	HP	Probook 6565b	None

Configuration 2

Equipment Tested:

Device	Manufacturer	Model #	S/N
Gen7 AP	DigitalPath, Inc.	G7RL10S	0000001
Switching Gigabit Power Supply	Ubiquiti Networks	GP-C500-120G	1713-0000107
30 Degree Horn Antenna	DigitalPath, Inc.	DP-TP-5-30	None

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop Computer	HP	Probook 6565b	None
AC/DC power Adapter	HP	Series PPP012H-S	F12941126327228

Configuration 4

Equipment Tested:

Device	Manufacturer	Model #	S/N
Gen7 AP	DigitalPath, Inc.	G7RL10S	0000001
Switching Gigabit Power Supply	Ubiquiti Networks	GP-C500-120G	1713-0000107
90 Degree Horn Antenna	DigitalPath, Inc.	DP-TP-5-90	None

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop Computer	HP	Probook 6565b	None
AC/DC power Adapter	HP	Series PPP012H-S	F12941126327228

Configuration 5

Equipment Tested:

Device	Manufacturer	Model #	S/N
Gen7 AP	DigitalPath, Inc.	G7RL10H	0000002
Switching Gigabit Power Supply	Ubiquiti Networks	GP-C500-120G	1713-0000107

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop Computer	HP	Probook 6565b	None
AC/DC power Adapter	HP	Series PPP012H-S	F12941126327228

Configuration 6

Equipment Tested:

Device	Manufacturer	Model #	S/N
Gen7 AP	DigitalPath, Inc.	G7RL10S	0000001
Switching Gigabit Power Supply	Ubiquiti Networks	GP-C500-120G	1713-0000107
Dish Antenna	PacWireless	DP-D-5-29	None

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop Computer	HP	Probook 6565b	None
AC/DC power Adapter	HP	Series PPP012H-S	F12941126327228

Configuration 7

Equipment Tested:

Device	Manufacturer	Model #	S/N
Dish Antenna	PacWireless	DP-D-5-29	None
90 Degree Horn Antenna	DigitalPath, Inc.	DP-TP-5-90	None
50 Degree Horn Antenna	DigitalPath, Inc.	DP-TP-5-50	None
30 Degree Horn Antenna	DigitalPath, Inc.	DP-TP-5-30	None
Gen7 AP	DigitalPath, Inc.	G7RL10H	0000002
Gen7 AP	DigitalPath, Inc.	G7RL10S	0000001
Switching Gigabit Power Supply	Ubiquiti Networks	GP-C500-120G	1713-0000107

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop Computer	HP	Probook 6565b	None
AC/DC power Adapter	HP	Series PPP012H-S	F12941126327228

General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type:	Stand-Alone Equipment
Type of Wideband System:	802.11ac
Operating Frequency Range:	5.470 – 5.850 GHz
Modulation Type(s):	OFDM
Maximum Duty Cycle:	100%
Number of TX Chains:	4 (All are identical)
Antenna Type(s) and Gain:	30 Degree Horn / 17.5dBi 50 Degree Horn / 13dBi 90 Degree Horn / 9dBi HexHorn / 13dBi Pac Wireless Parabolic Dish / 28dBi
Beamforming Type:	None
Antenna Connection Type:	Integral PCB Trace (13dBi, 17.5dBi, and 9dBi Antennas) and External Connector (SMA) for 28dBi antennas
Nominal Input Voltage:	48VDC POE
Firmware / Software used for Test:	Web Interface on EUT to Atheros TX99 Tool: athtestcmd provided by Qualcomm

Note: The 50 Degree Horn and the HexHorn are identical. The HexHorn has 6 of the 50 Degree horns within it and it uses the same exact radio.
Within the definitions provided within KDB 662911 D01 v02r01, the manufacturer declares the output from all antennas to be *completely uncorrelated* therefore, power aggregation is not required.

FCC Part 15 Subpart E

15.215 Occupied Bandwidth

Test Setup/Conditions			
Test Location:	Mariposa Lab A	Test Engineer:	Benny Lovan
Test Method:	ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)	Test Date(s):	11/3/2017
Configuration:	1		
Test Setup:	The EUT is setup on a table with its antenna port directly connected to an analyzer through 11.4dB of attenuation. The EUT has two antenna ports that are identical. Testing was performed on Port 1		
Declaration:	Modification #1 was in place during testing.		

Environmental Conditions			
Temperature (ºC)	20	Relative Humidity (%):	42

Test Equipment					
Asset#	**Description**	**Manufacturer**	**Model**	**Cal Date**	**Cal Due**
02660	Spectrum Analyzer	Agilent	E4446A	10/10/2016	10/10/2018
03361	Cable	Astrolab	32022-2-29094-48TC	1/10/2017	1/10/2019
P05935	Attenuator	Weinschel	84A-10	1/18/2016	1/18/2018

26dB Occupied Bandwidth

Test Data Summary UNII 2c					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
5500	1	OFDM / 20MHz	23564	None	NA
5600	1	OFDM / 20MHz	23541		
5700	1	OFDM / 20MHz	23565		
5500	1	OFDM / 40MHz	43912		
5520	1	OFDM / 40MHz	43662		
5595	1	OFDM / 40MHz	44002		
5700	1	OFDM / 40MHz	43569		
5510	1	OFDM / 80MHz	89013		
5540	1	OFDM / 80MHz	89544		
5600	1	OFDM / 80MHz	88683		

Test Data Summary – UNII 3					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
5745	1	OFDM / 20MHz	23746	None	NA
5785	1	OFDM / 20MHz	23857		
5795	1	OFDM / 20MHz	26779		
5840	1	OFDM / 20MHz	24692		
5745	1	OFDM / 40MHz	44589		
5760	1	OFDM / 40MHz	45746		
5785	1	OFDM / 40MHz	45376		
5800	1	OFDM / 40MHz	60445		
5825	1	OFDM / 40MHz	44406		
5840	1	OFDM / 40MHz	64087		
5760	1	OFDM / 80MHz	88616		
5785	1	OFDM / 80MHz	88095		
5815	1	OFDM / 80MHz	97587		
5820	1	OFDM / 80MHz	97972		
5825	1	OFDM / 80MHz	60428		
5840	1	OFDM / 80MHz	87005		

99% Occupied Bandwidth

Test Data Summary – UNII 2c					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
5500	1	OFDM / 20MHz	18047.3	None	NA
5600	1	OFDM / 20MHz	18041.6		
5700	1	OFDM / 20MHz	18044.1		
5500	1	OFDM / 40MHz	36426.9		
5520	1	OFDM / 40MHz	36378.0		
5595	1	OFDM / 40MHz	36422.7		
5700	1	OFDM / 40MHz	36501.6		
5510	1	OFDM / 80MHz	76246.8		
5540	1	OFDM / 80MHz	76411.8		
5600	1	OFDM / 80MHz	76192.2		

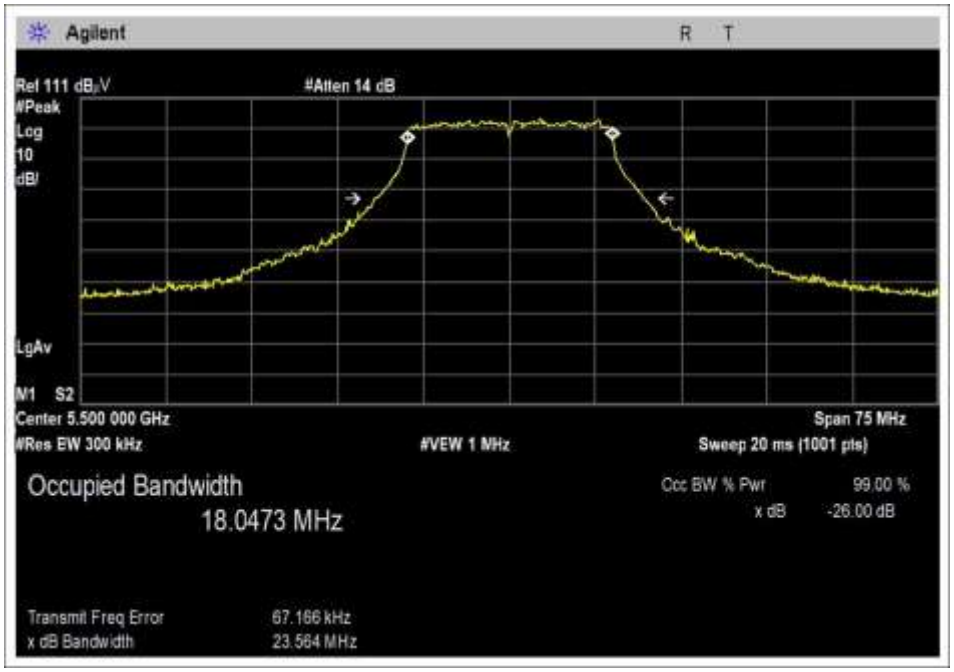
Test Data Summary – UNII 3					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
5745	1	OFDM / 20MHz	18067.7	None	NA
5785	1	OFDM / 20MHz	18068.6		
5795	1	OFDM / 20MHz	18287.3		
5840	1	OFDM / 20MHz	18096.5		
5745	1	OFDM / 40MHz	36665.6		
5760	1	OFDM / 40MHz	36697.8		
5785	1	OFDM / 40MHz	36765.7		
5800	1	OFDM / 40MHz	36842.3		
5825	1	OFDM / 40MHz	36664.7		
5840	1	OFDM / 40MHz	36875.8		
5760	1	OFDM / 80MHz	76267.6		
5785	1	OFDM / 80MHz	76284.9		
5815	1	OFDM / 80MHz	76406.6		
5820	1	OFDM / 80MHz	76185.9		
5840	1	OFDM / 80MHz	76203.3		

-6dB Minimum BW

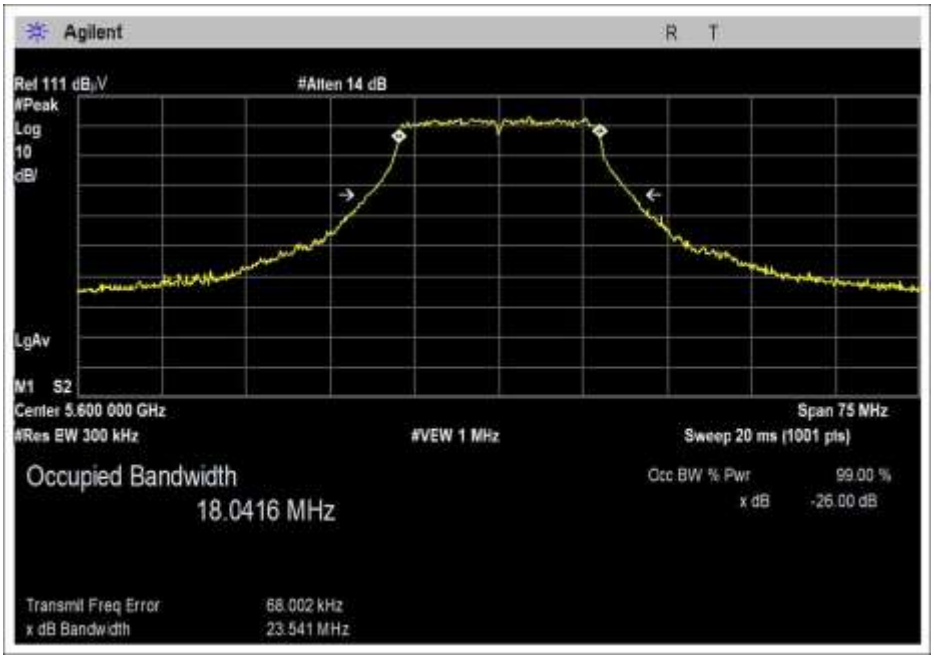
Test Data Summary – UNII 3 Only					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
5745	1	OFDM / 20MHz	17783	>500kHz	PASS
5785	1	OFDM / 20MHz	17784		
5795	1	OFDM / 20MHz	17784		
5840	1	OFDM / 20MHz	17784		
5745	1	OFDM / 40MHz	36508		
5760	1	OFDM / 40MHz	36488		
5785	1	OFDM / 40MHz	36509		
5800	1	OFDM / 40MHz	36474		
5825	1	OFDM / 40MHz	36481		
5840	1	OFDM / 40MHz	36478		
5760	1	OFDM / 80MHz	76621		
5785	1	OFDM / 80MHz	76633		
5840	1	OFDM / 80MHz	76629		

Plots
UNII 2c

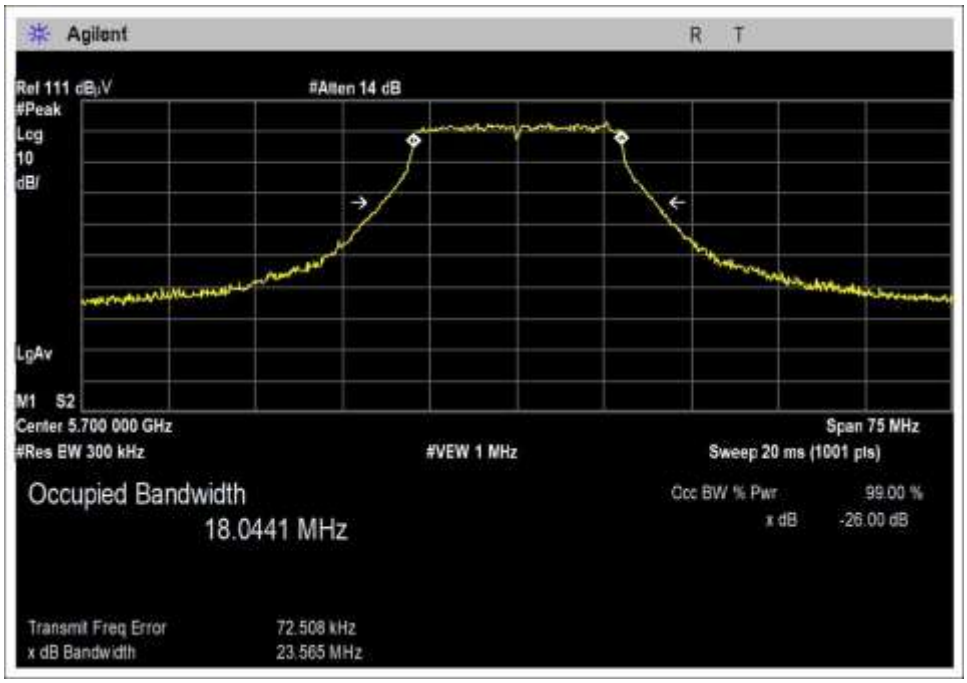
20MHz / -26dB



Low Channel

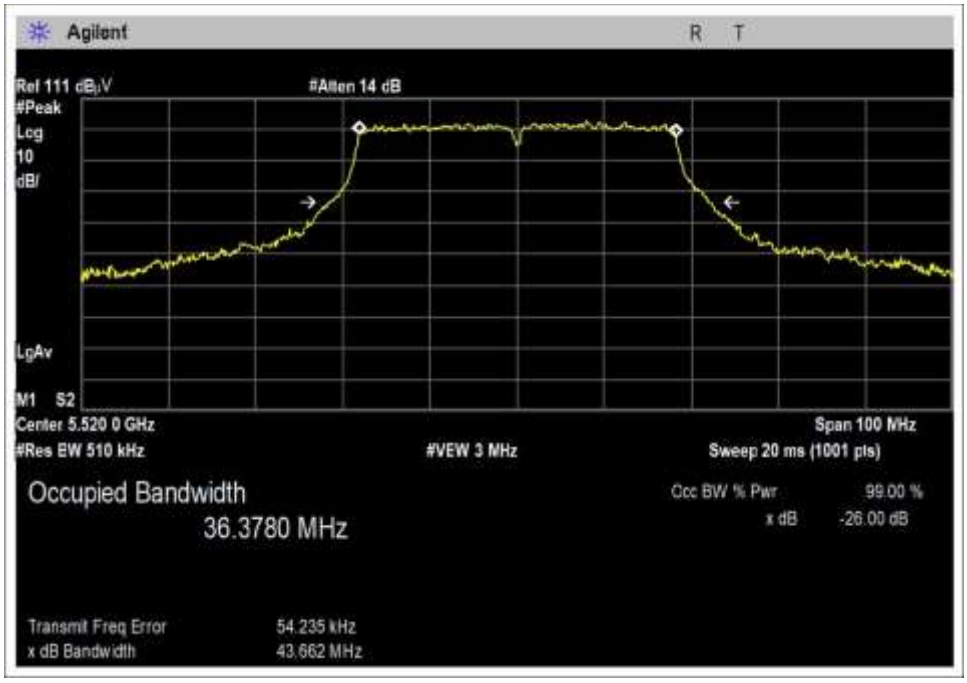


Middle Channel

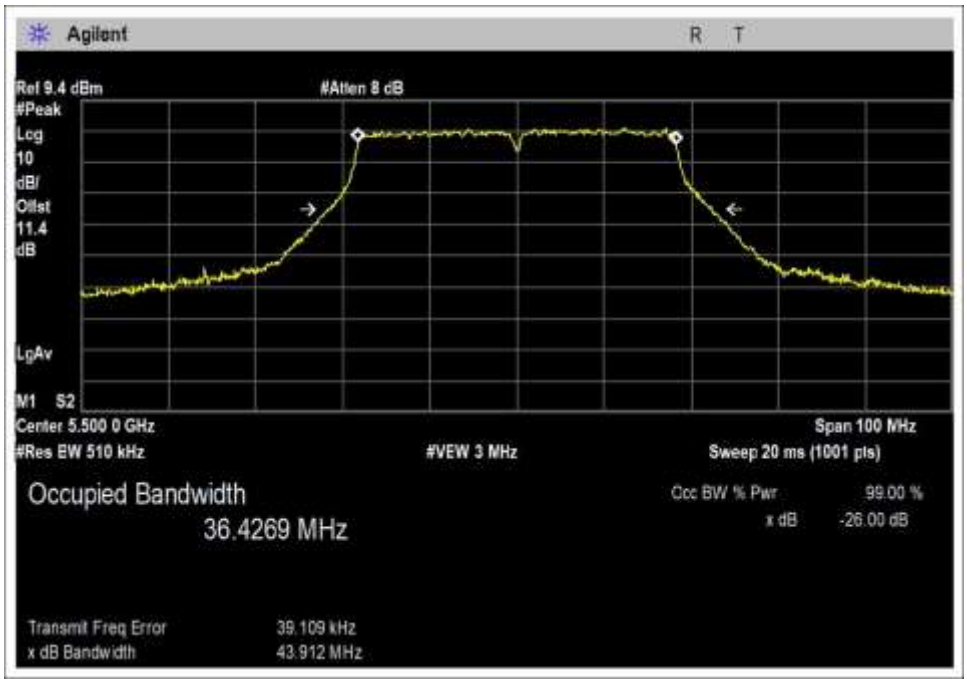


High Channel

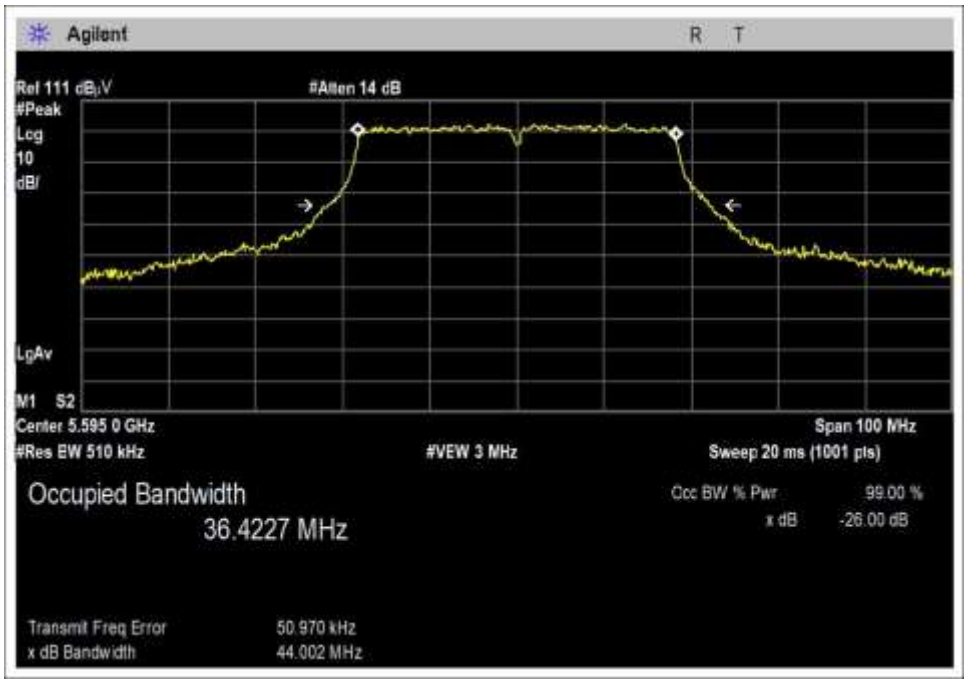
40MHz / -26dB



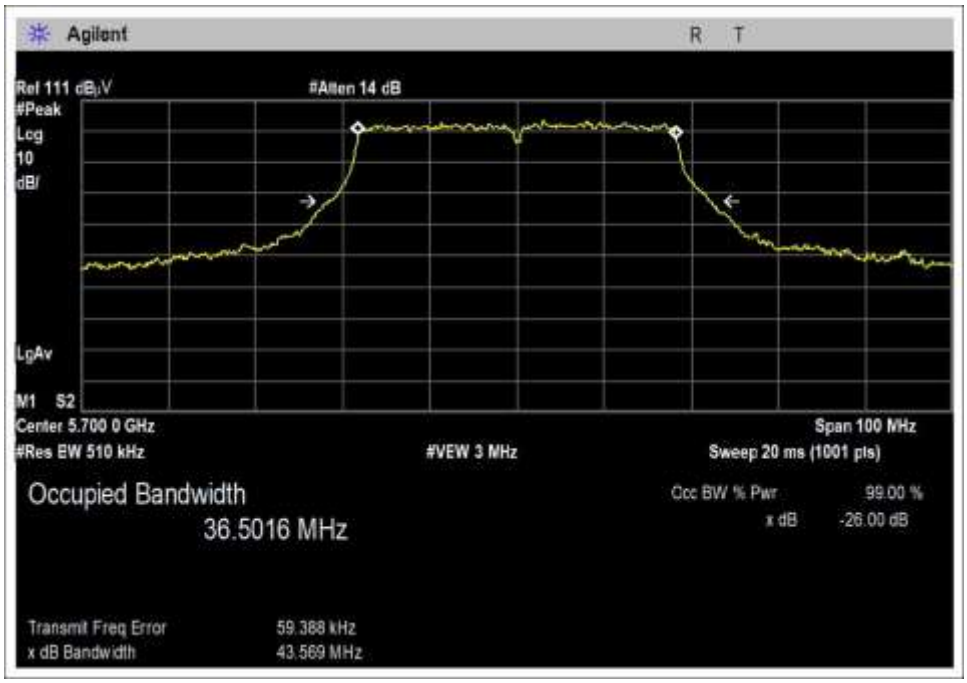
Low Channel



Low Channel 5500

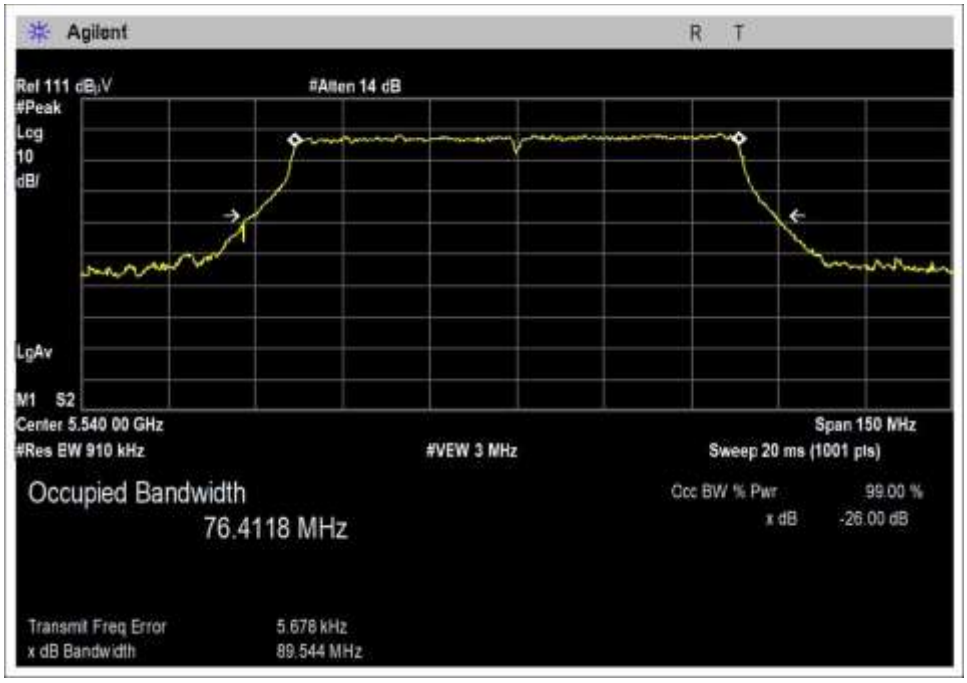


Middle Channel

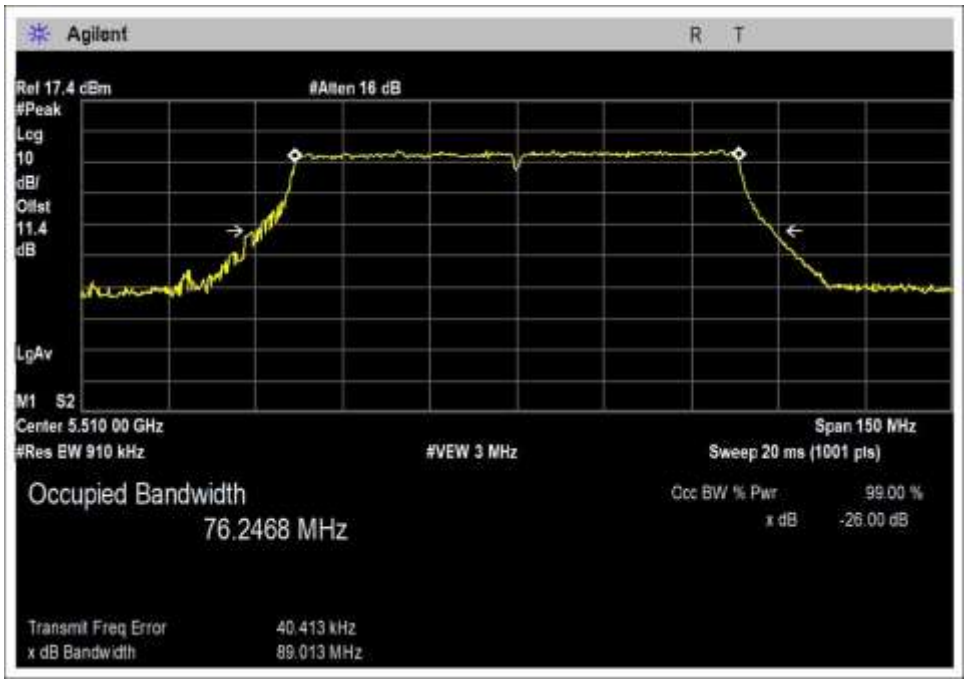


High Channel

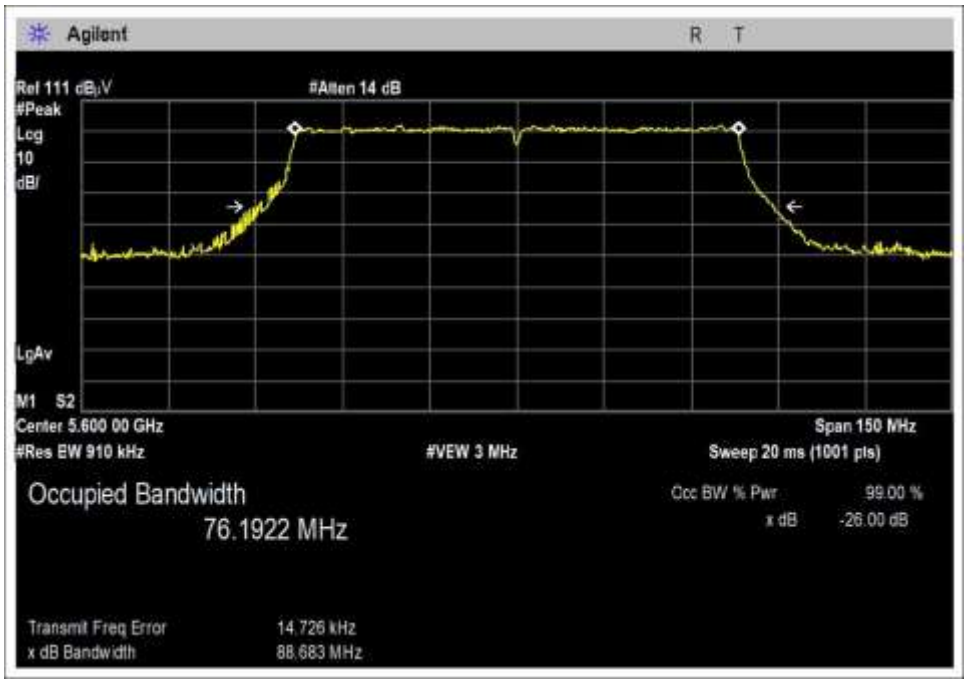
80MHz / -26dB



Low Channel



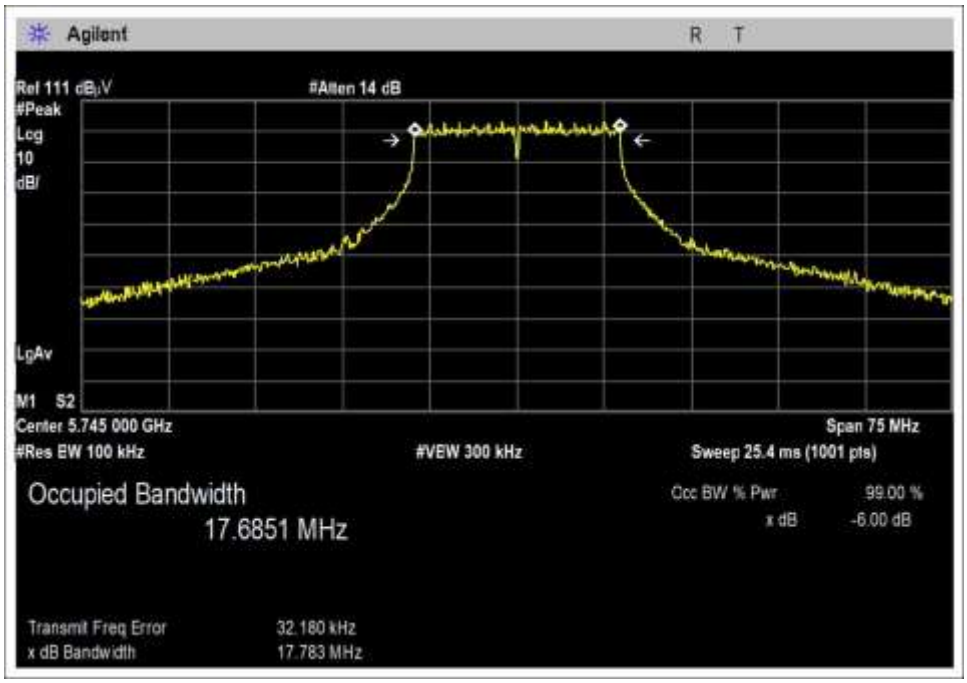
Low Channel 5510



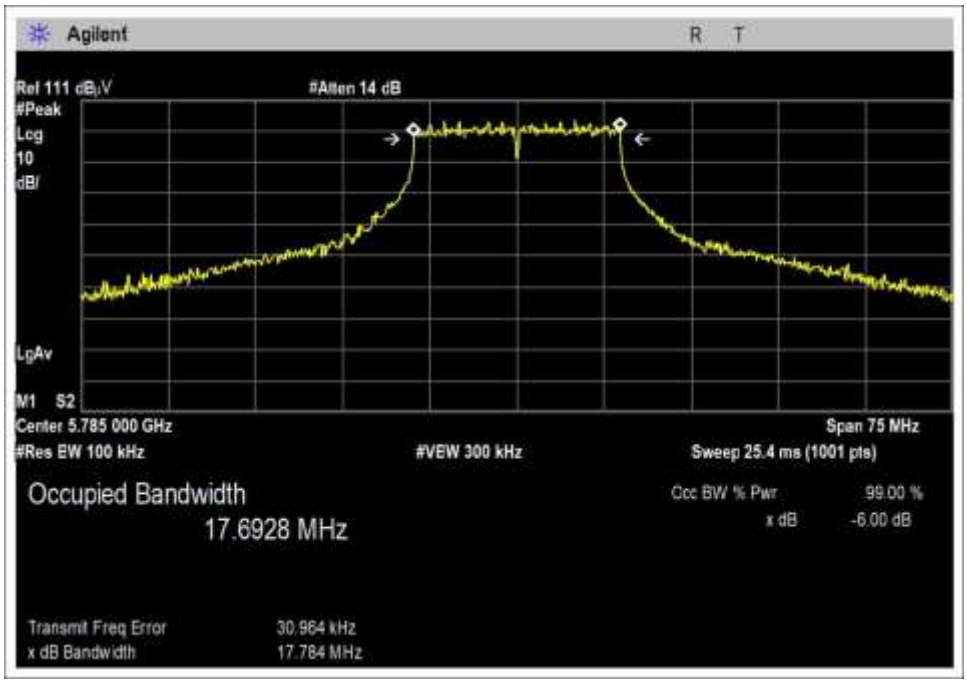
High Channel

UNII 3

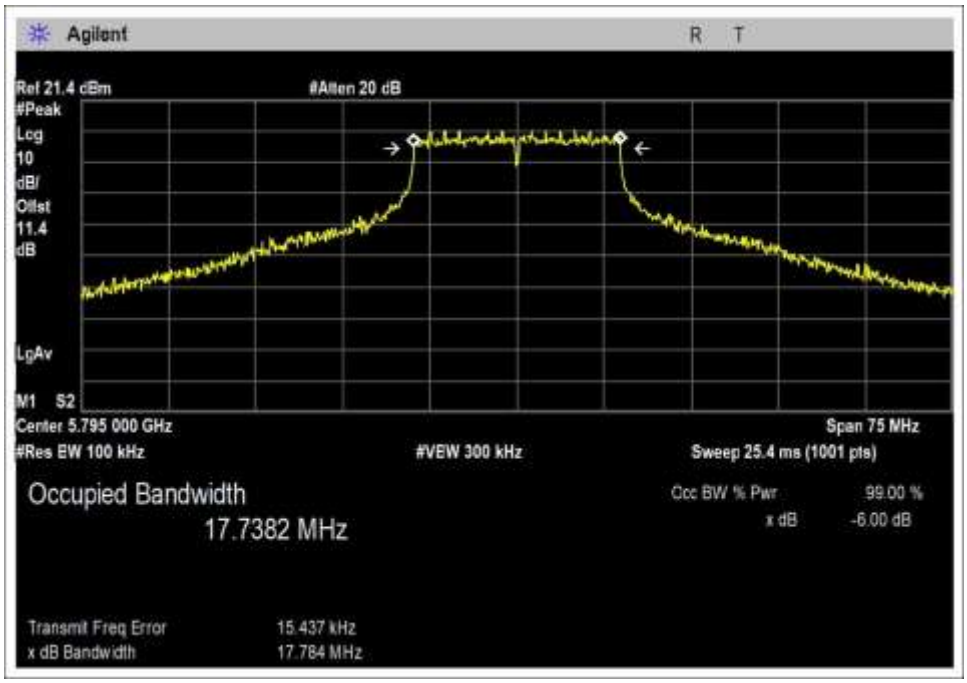
20MHz / -6dB



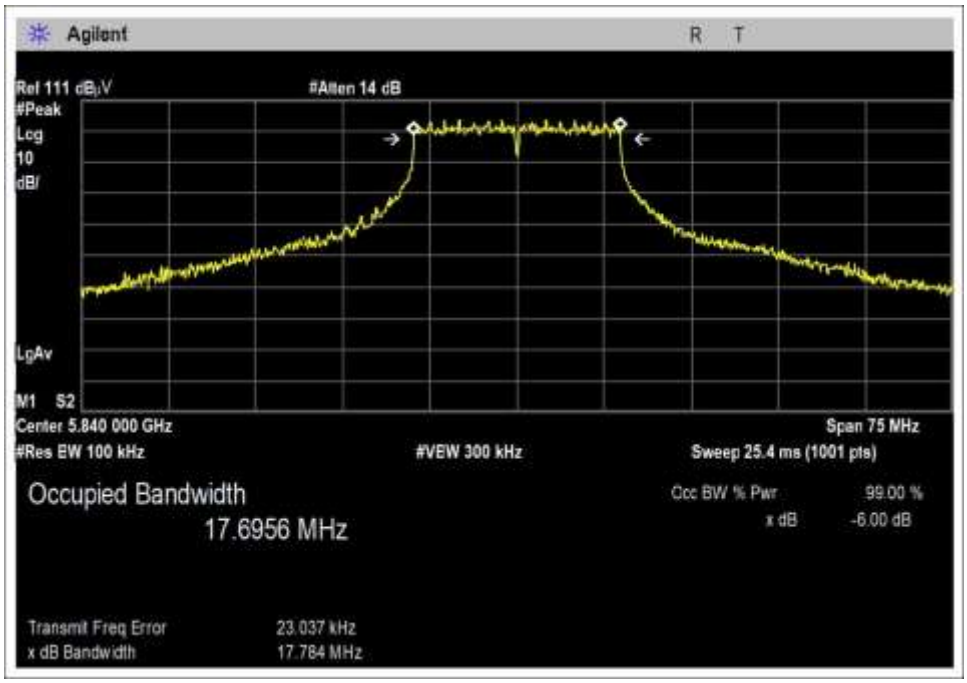
Low Channel



Middle Channel

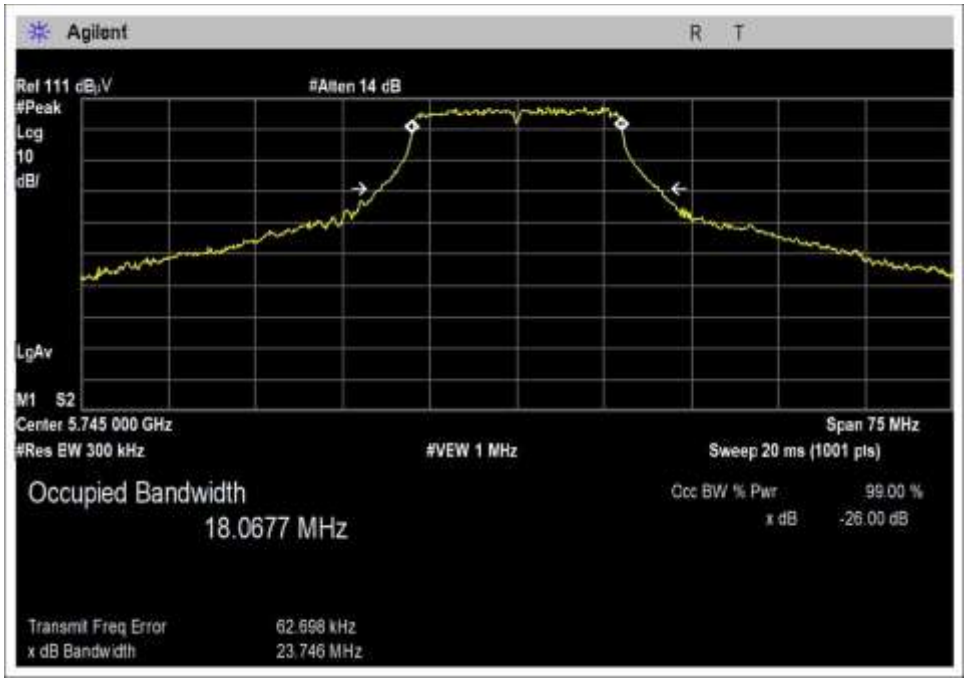


Middle Channel 5795

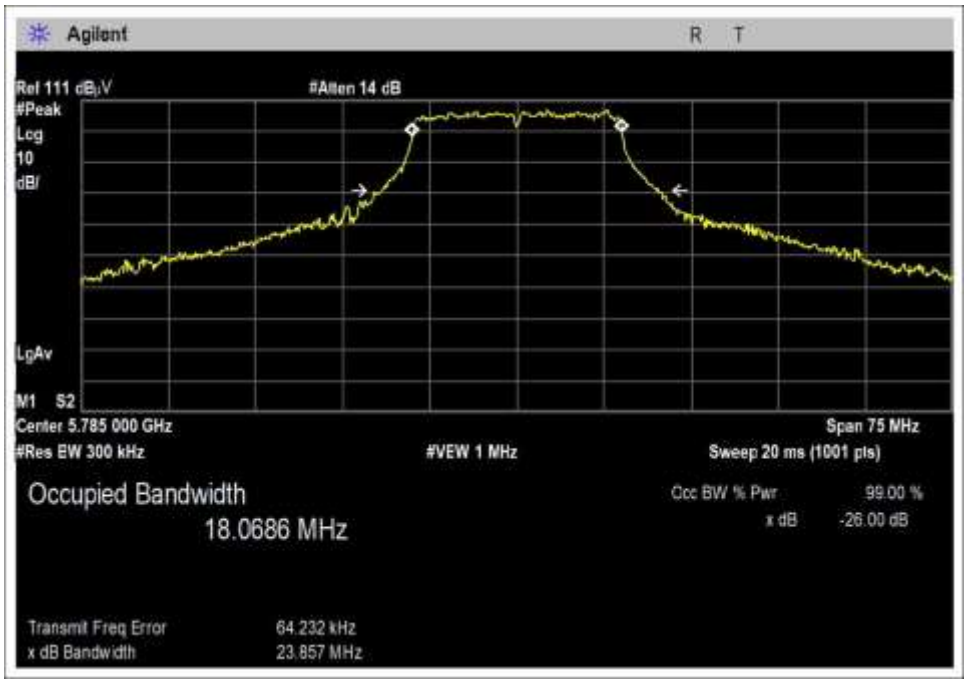


High Channel

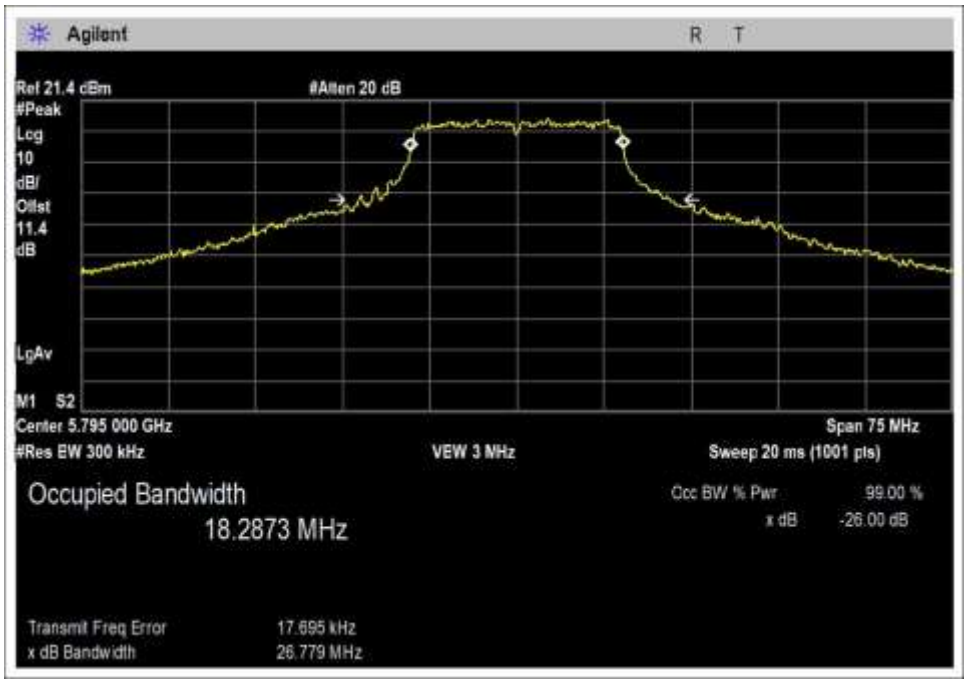
20MHz / -26dB



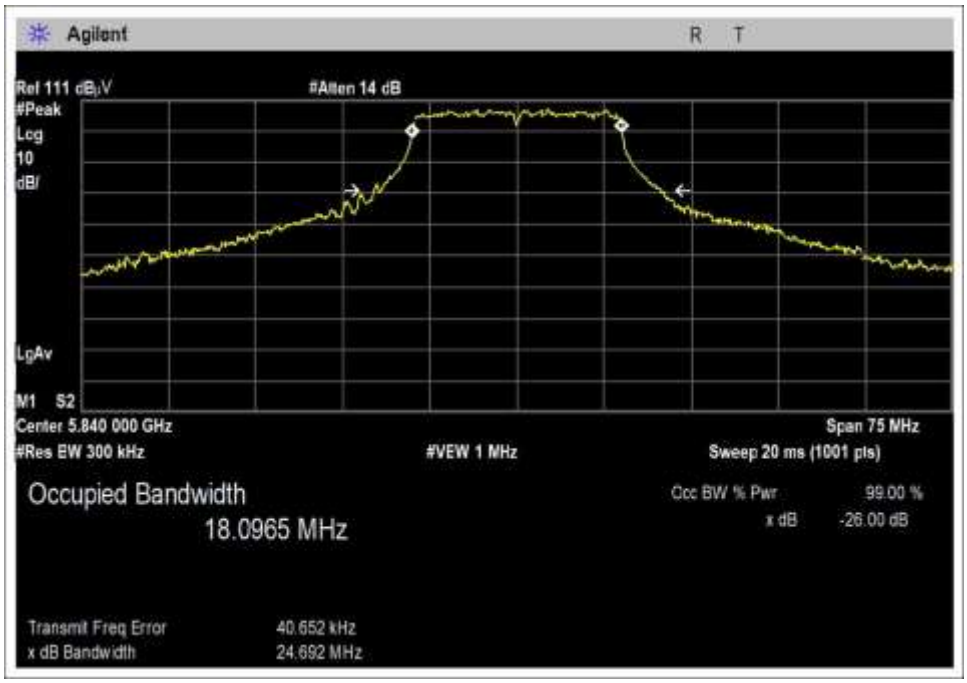
Low Channel



Middle Channel

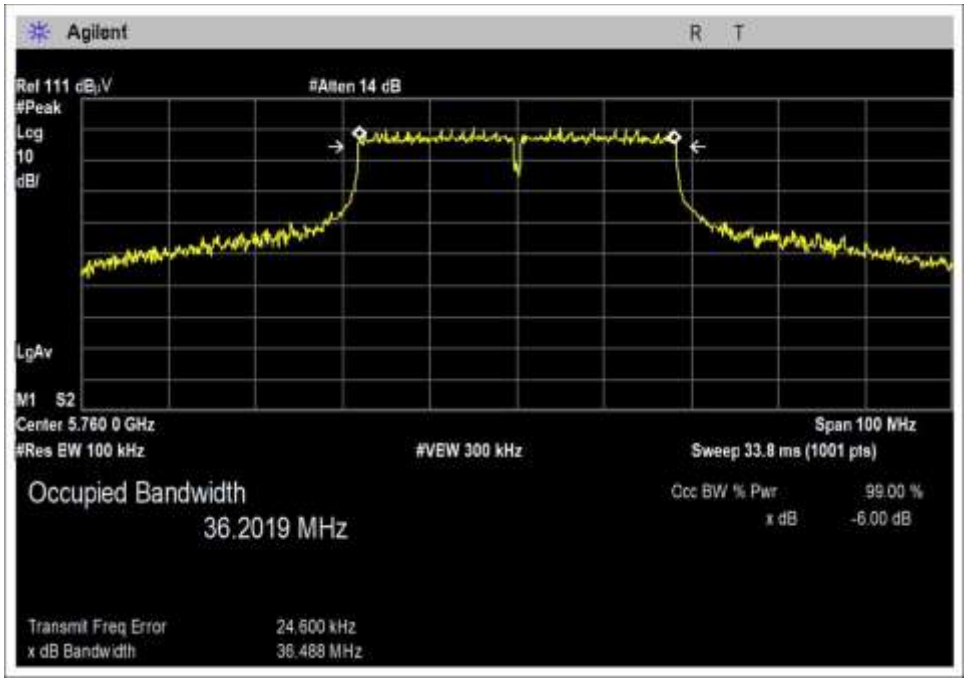


Middle Channel 5795

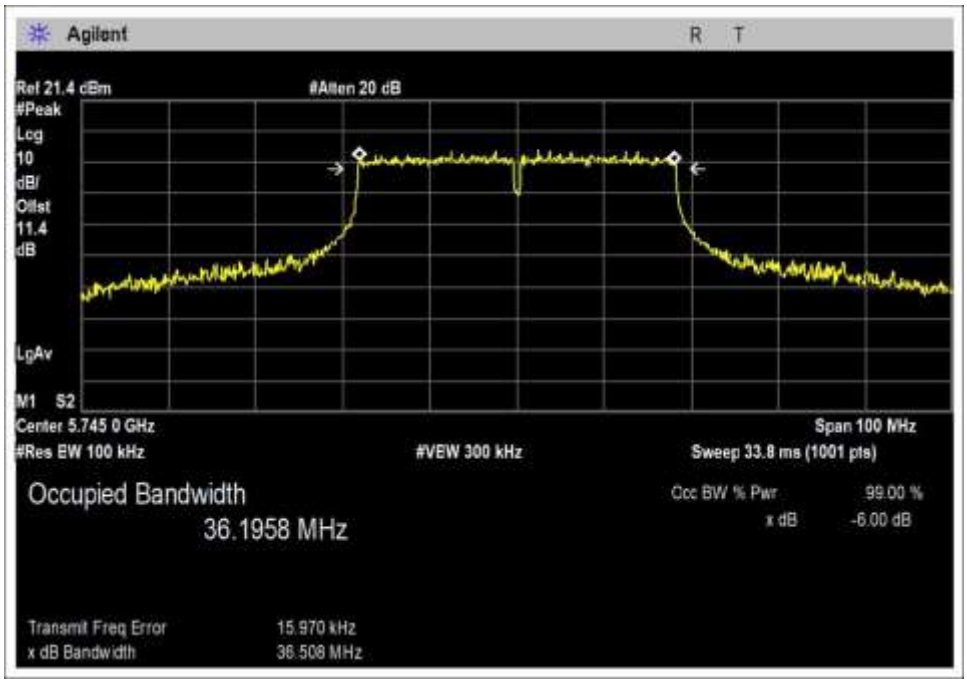


High Channel

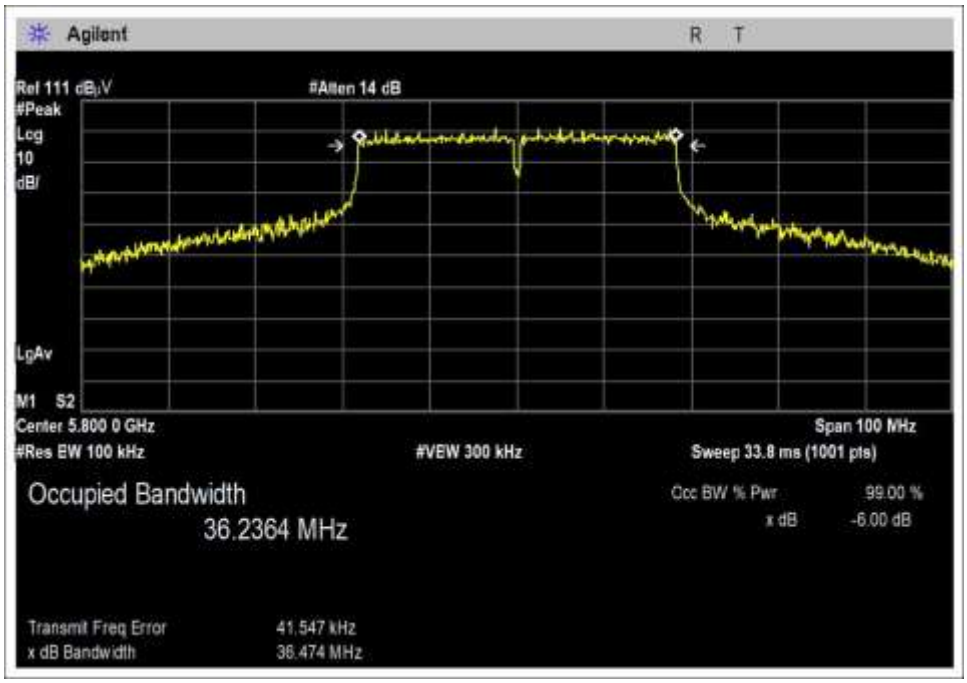
40MHz / -6dB



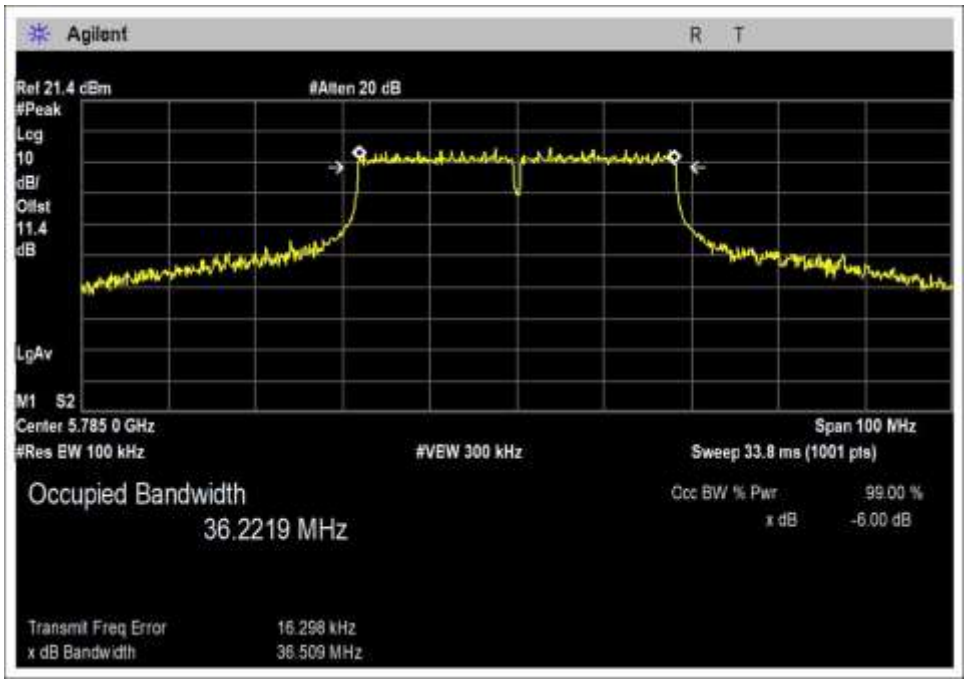
Low Channel



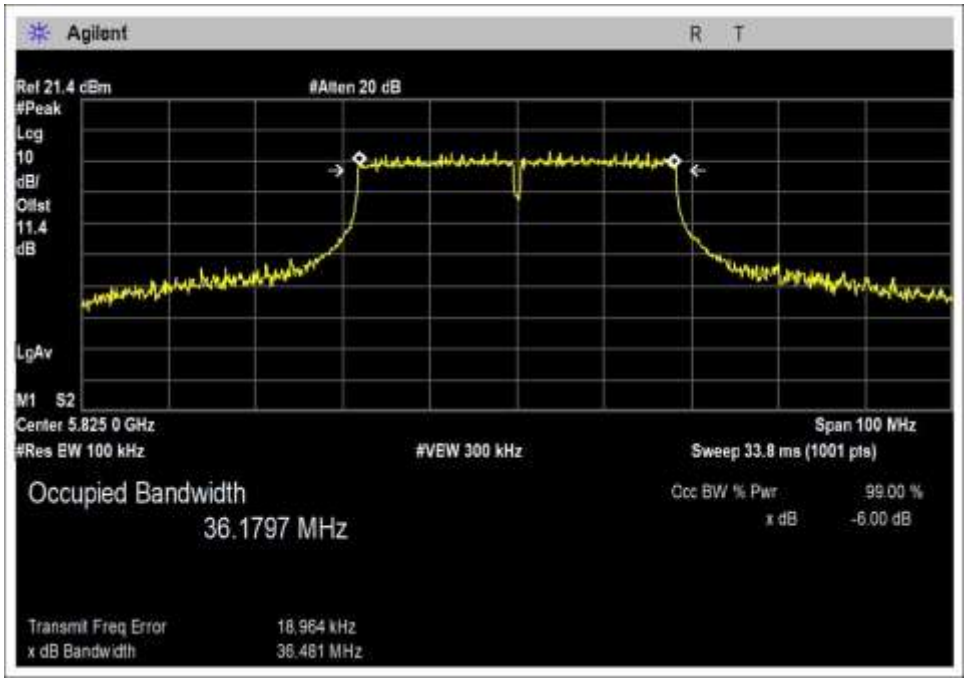
Low Channel 5745



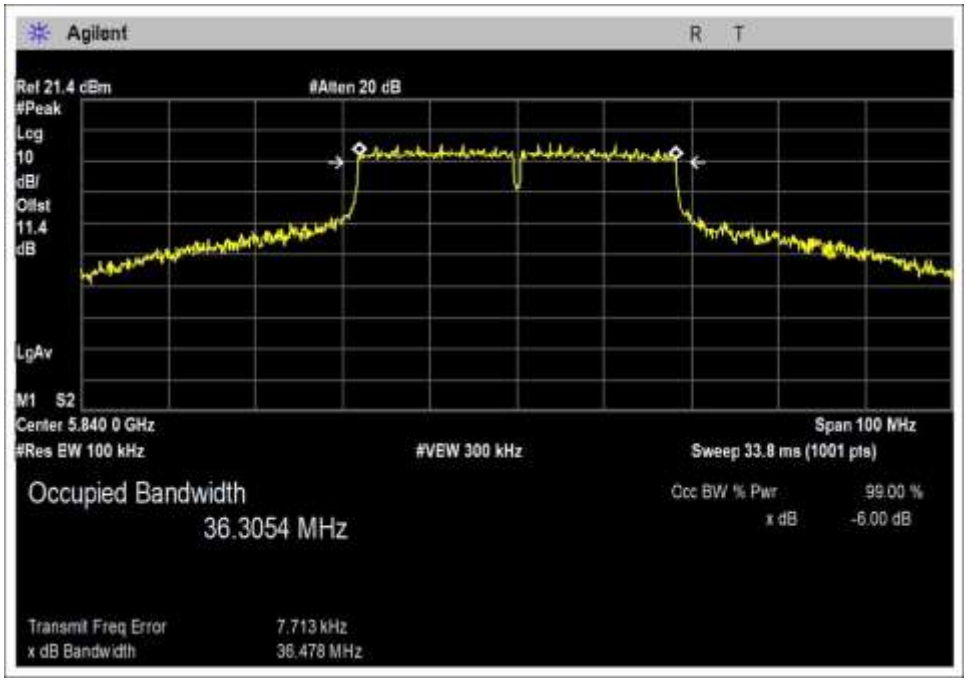
Middle Channel



Middle Channel 5785

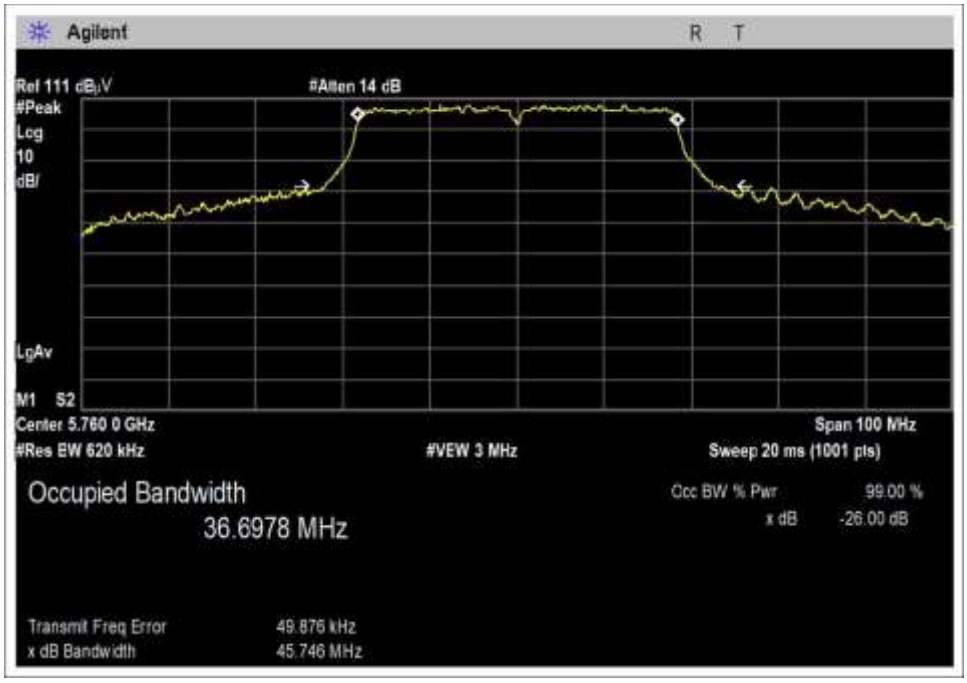


High Channel 5825

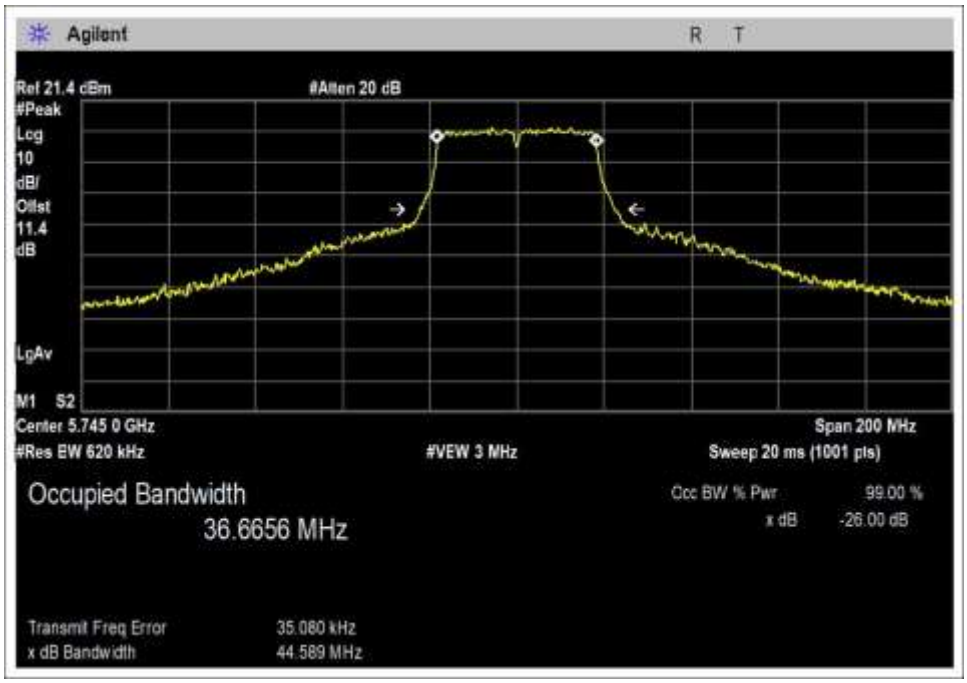


High Channel 5840

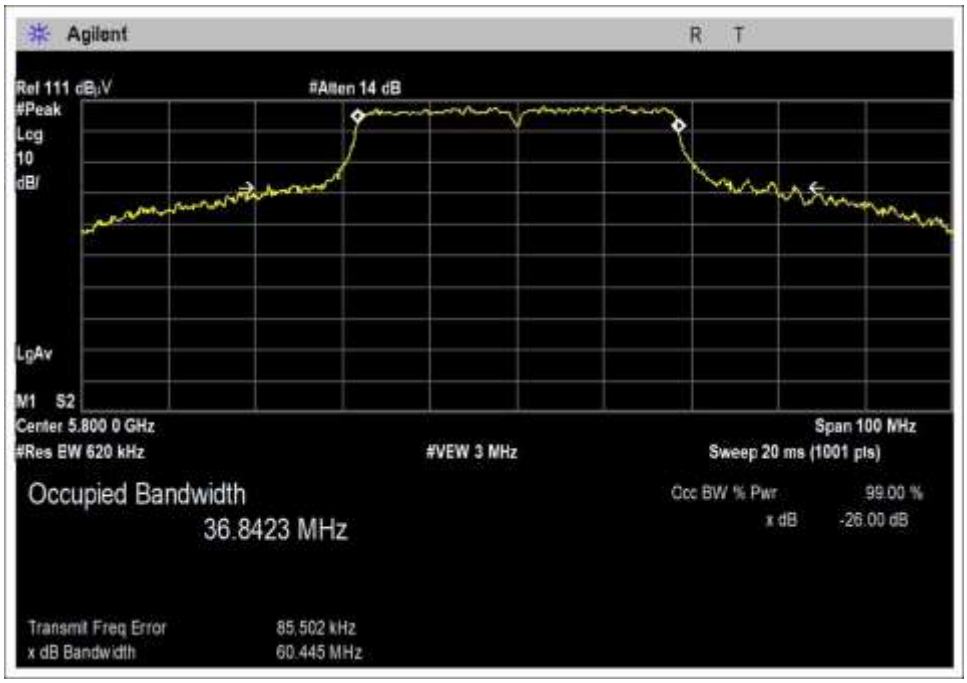
40MHz / -26dB



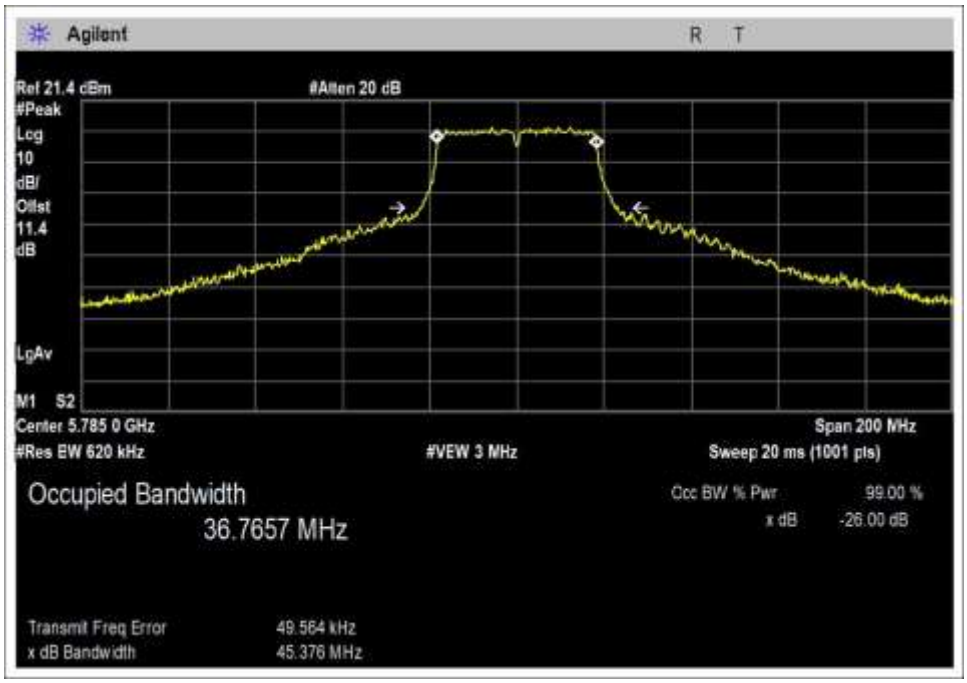
Low Channel



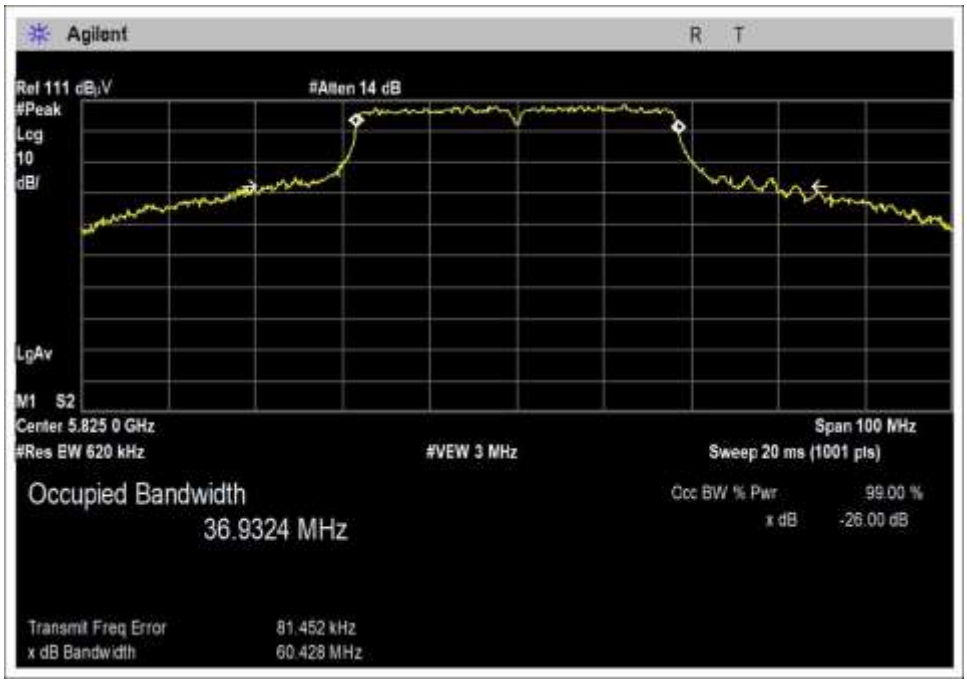
Low Channel 5745



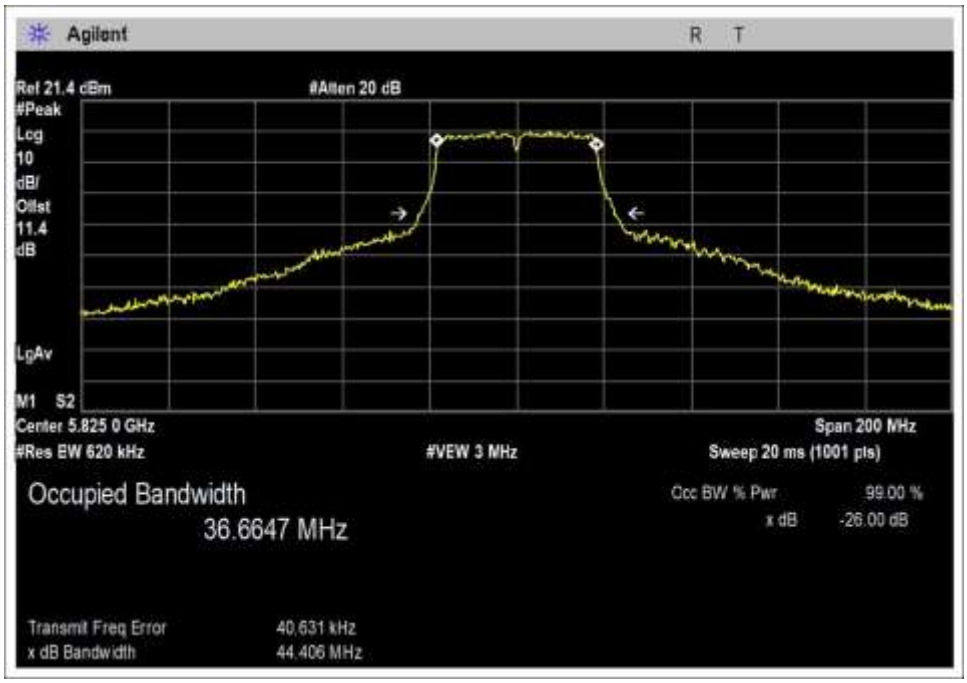
Middle Channel



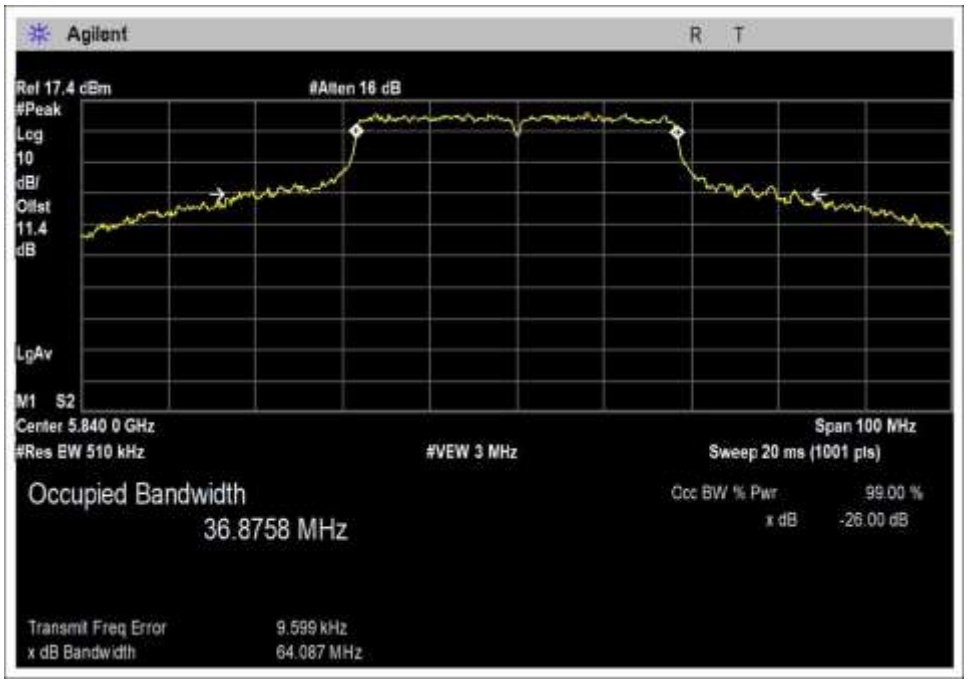
Middle Channel 5785



High Channel

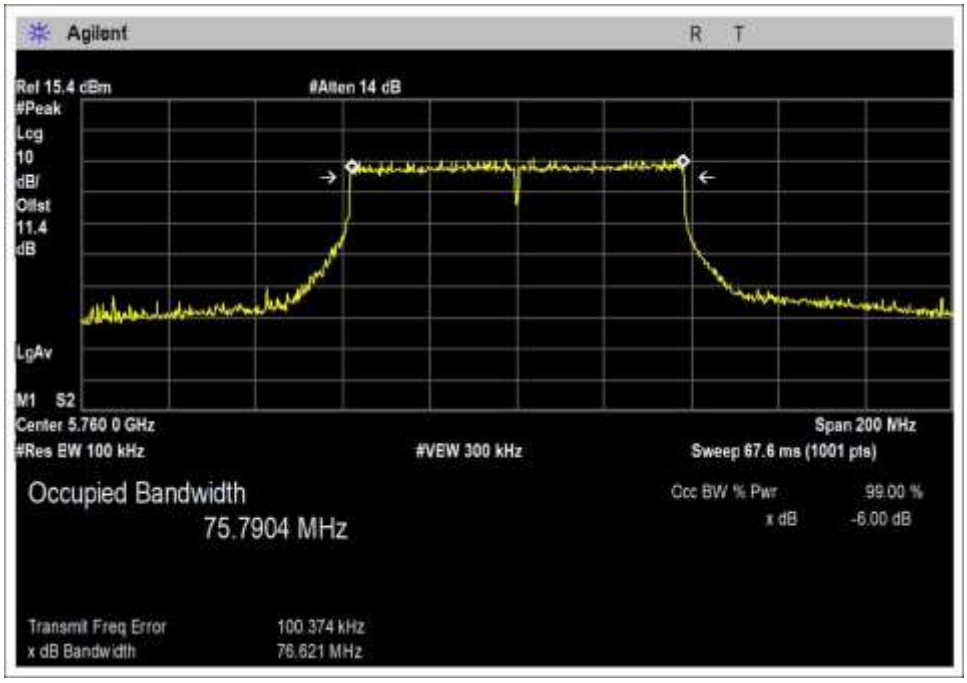


High Channel 5825

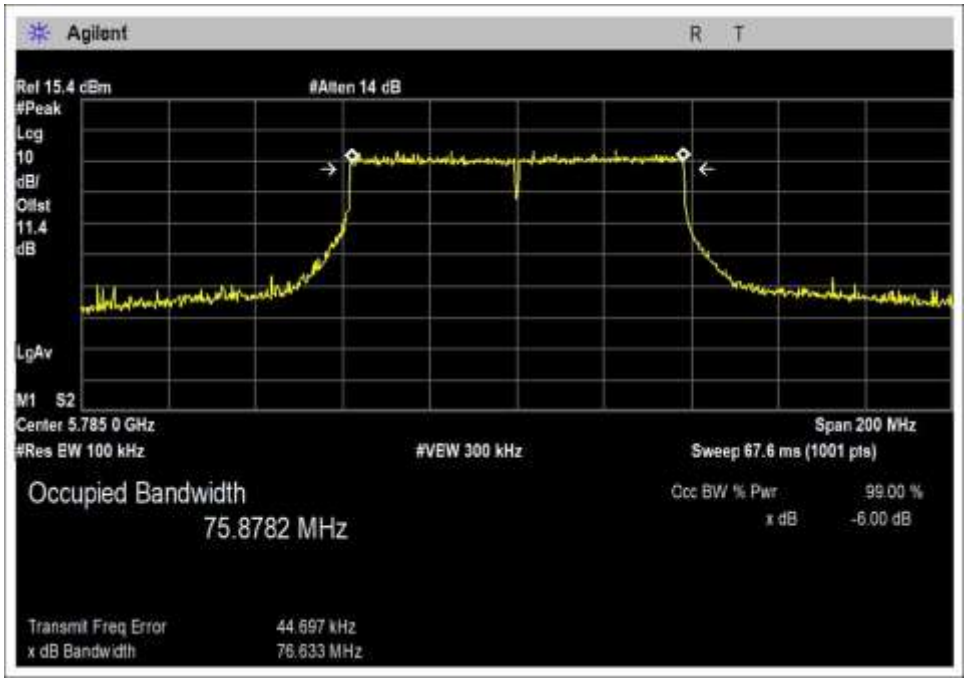


High Channel 5840

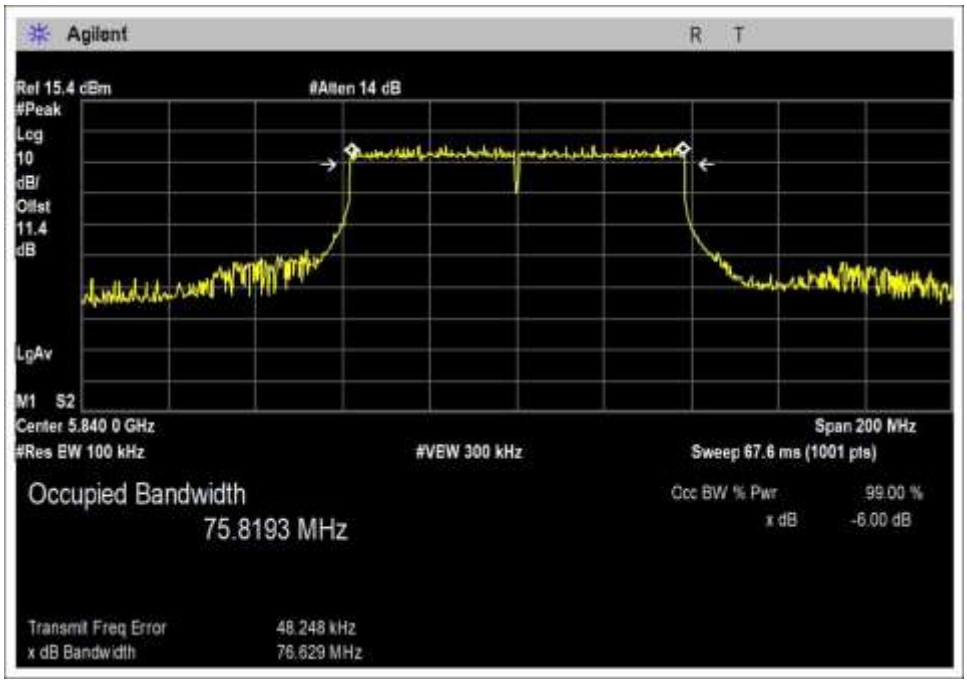
80MHz / -6dB



Low Channel 5760

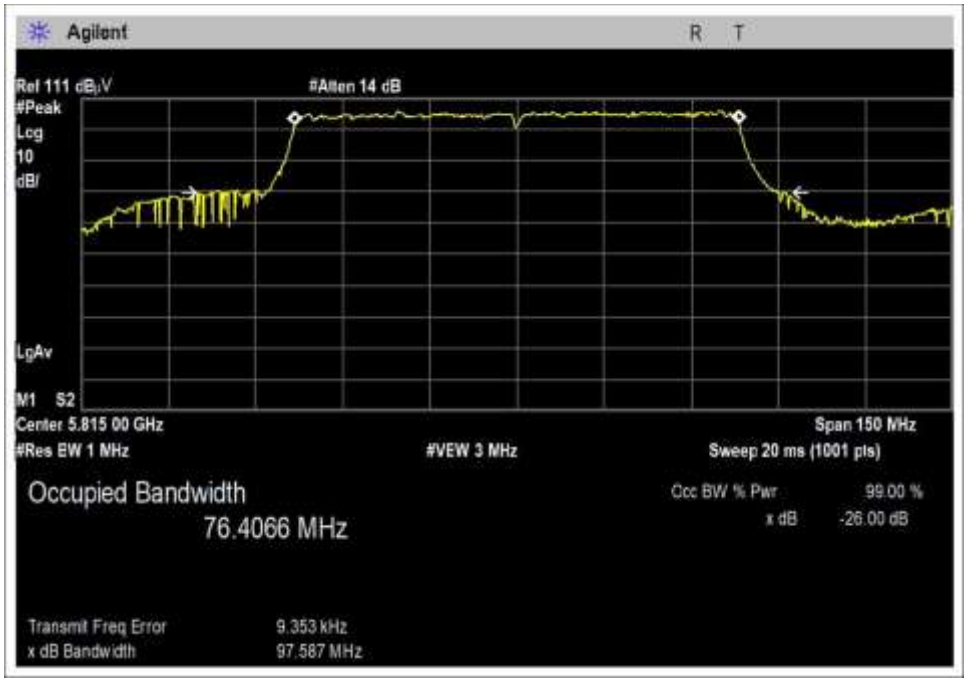


High Channel 5785

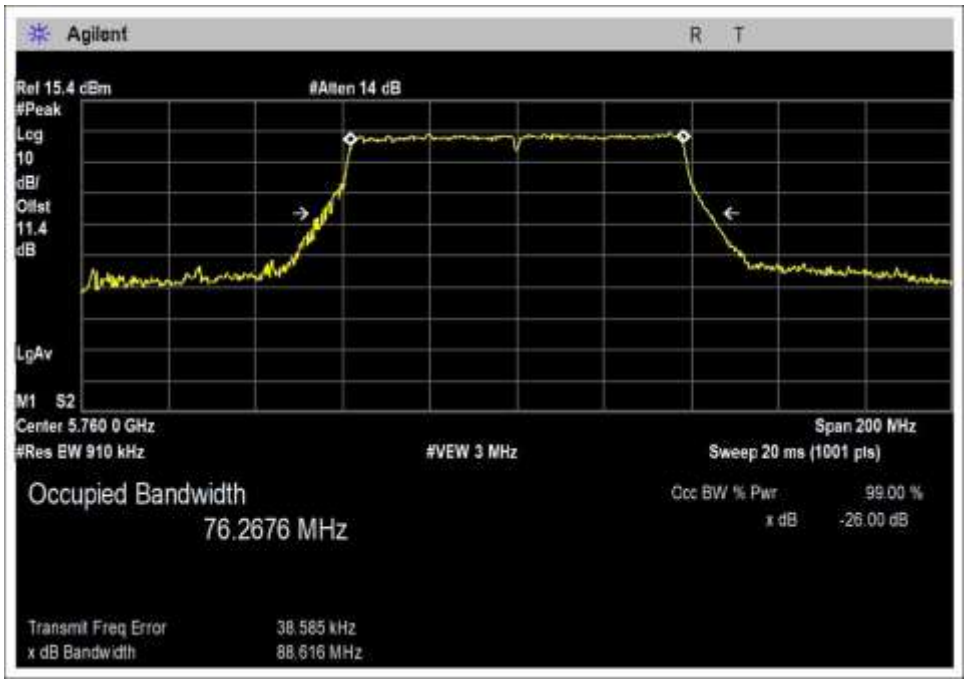


High Channel 5840

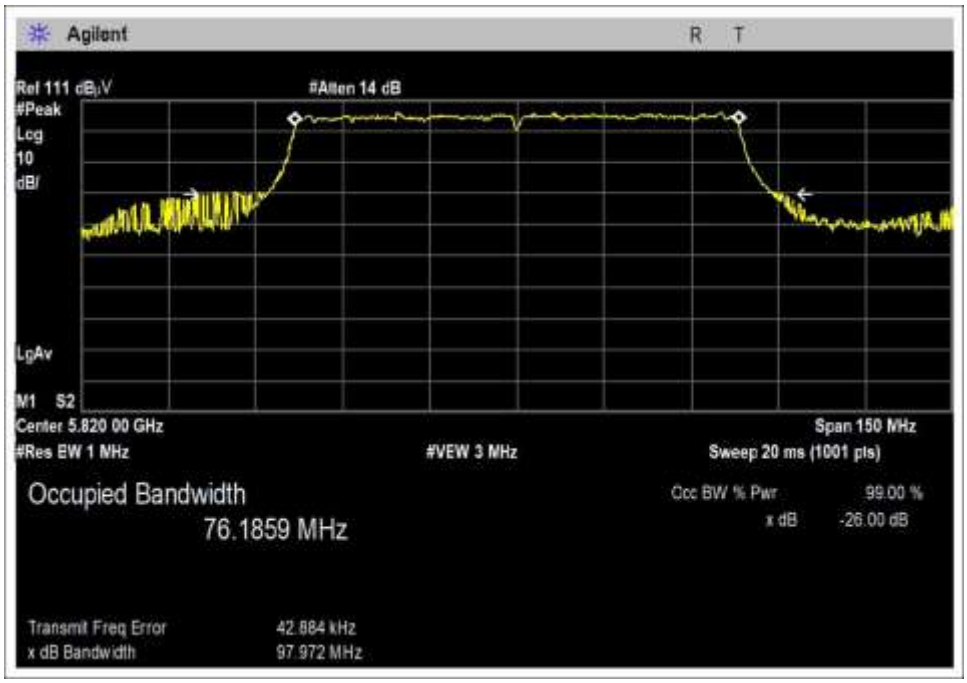
80MHz / -26dB



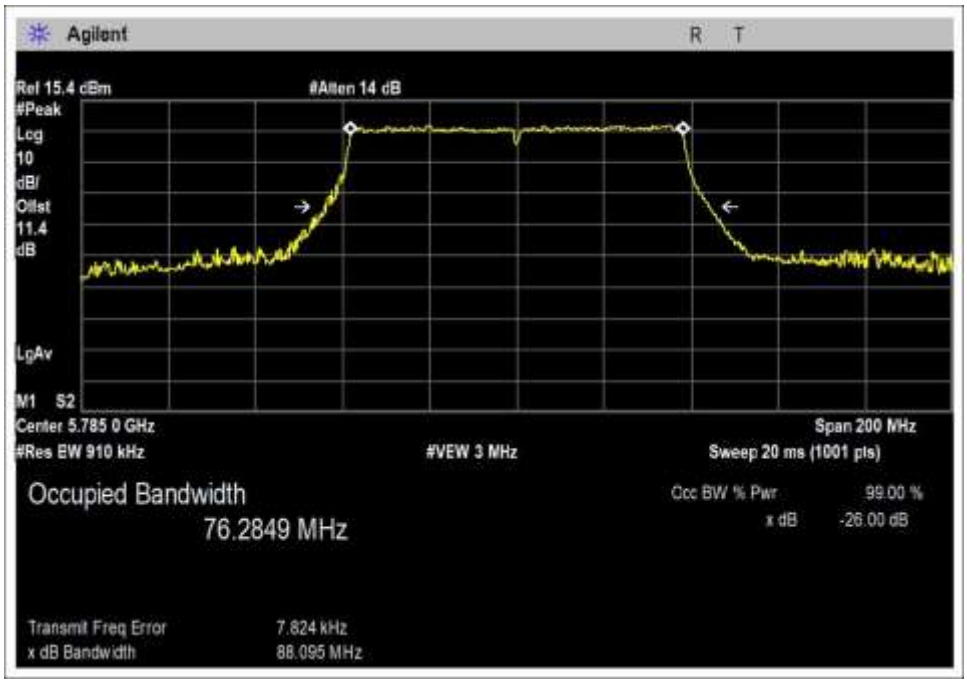
Low Channel



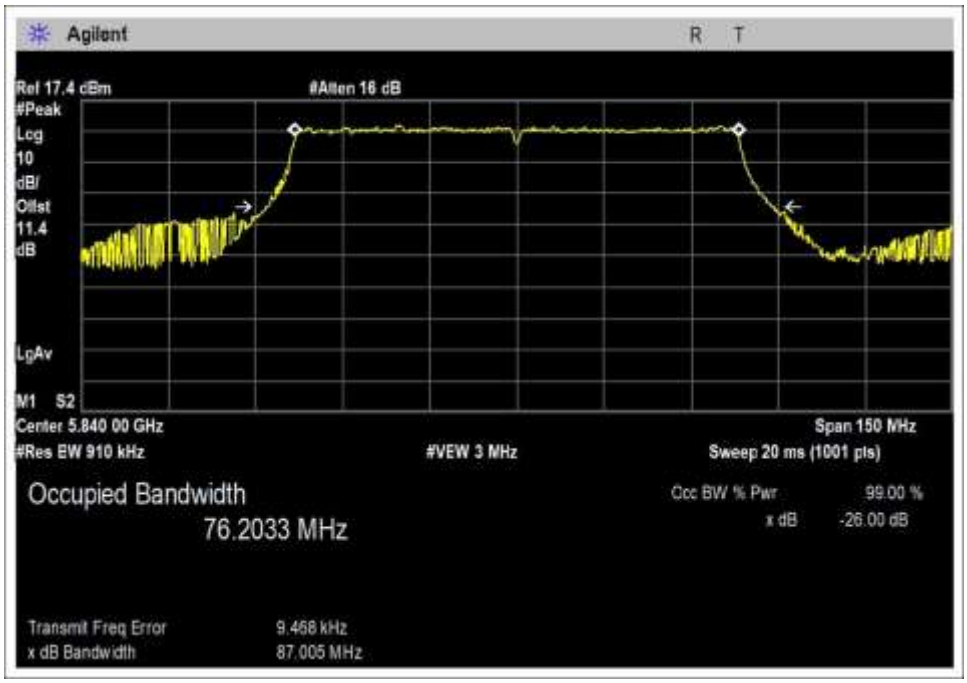
Low Channel 5760



High Channel



High Channel 5785



High Channel 5840

Test Setup Photos

15.407(a) Output Power

Test Setup/Conditions			
Test Location:	Mariposa Lab A	Test Engineer:	Benny Lovan
Test Method:	ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)	Test Date(s):	11/14/2017 – 11/15/2017
Configuration:	1		
Test Setup:	The EUT is setup on a table with its antenna port directly connected to an analyzer through 11.4dB of attenuation. The EUT has two antenna ports that are identical. Testing was performed on Port 1		
Declaration:	Modification #1 was in place during testing.		

Environmental Conditions			
Temperature (ºC)	20-22	Relative Humidity (%):	42-45

Test Equipment					
Asset#	**Description**	**Manufacturer**	**Model**	**Cal Date**	**Cal Due**
02660	Spectrum Analyzer	Agilent	E4446A	10/10/2016	10/10/2018
03361	Cable	Astrolab	32022-2-29094-48TC	1/10/2017	1/10/2019
P05935	Attenuator	Weinschel	84A-10	1/18/2016	1/18/2018

Test Data Summary - Voltage Variations-20MHz Channel Bandwidth					
Frequency (MHz)	Modulation / Ant Port	$V_{Minimum}$ (dBm)	$V_{Nominal}$ (dBm)	$V_{Maximum}$ (dBm)	Max Deviation from $V_{Nominal}$ (dB)
UNII 2c					
5500	OFDM / Ant Port 1	20.64	20.64	20.63	0.01
5600	OFDM / Ant Port 1	19.46	19.47	19.49	0.03
5700	OFDM / Ant Port 1	19.64	19.63	19.63	0.01
UNII 3					
5745	OFDM / Ant Port 1	22.80	22.82	22.82	0.02
5795	OFDM / Ant Port 1	23.10	23.08	23.08	0.02
5840	OFDM / Ant Port 1	23.33	23.32	23.33	0.01

Test performed using operational mode with the highest output power, representing worst case.

Test Data Summary - Voltage Variations-40MHz Channel Bandwidth					
Frequency (MHz)	Modulation / Ant Port	$V_{Minimum}$ (dBm)	$V_{Nominal}$ (dBm)	$V_{Maximum}$ (dBm)	Max Deviation from $V_{Nominal}$ (dB)
UNII 2c					
5500	OFDM / Ant Port 1	16.37	16.37	16.37	0.00
5595	OFDM / Ant Port 1	16.26	16.25	16.24	0.02
5700	OFDM / Ant Port 1	16.50	16.49	16.49	0.01
UNII 3					
5745	OFDM / Ant Port 1	22.77	22.78	22.79	0.02
5785	OFDM / Ant Port 1	23.01	23.00	23.00	0.01
5840	OFDM / Ant Port 1	21.47	21.50	21.48	0.03

Test performed using operational mode with the highest output power, representing worst case.

Test Data Summary - Voltage Variations-80MHz Channel Bandwidth					
Frequency (MHz)	Modulation / Ant Port	$V_{Minimum}$ (dBm)	$V_{Nominal}$ (dBm)	$V_{Maximum}$ (dBm)	Max Deviation from $V_{Nominal}$ (dB)
UNII 2c					
5510	OFDM / Ant Port 1	10.53	10.51	10.50	0.03
5600	OFDM / Ant Port 1	17.40	17.40	17.41	0.01
UNII 3					
5815	OFDM / Ant Port 1	18.36	18.38	18.37	0.02
5840	OFDM / Ant Port 1	18.44	18.42	18.45	0.03

Test performed using operational mode with the highest output power, representing worst case.

Parameter Definitions:

Measurements performed at input voltage Vnominal ± 15%.

Parameter	Value
$V_{Nominal}$:	48 VDC
$V_{Minimum}$:	40.8 VDC
$V_{Maximum}$:	55.2 VDC

UNII2c Test Data Summary - RF Conducted Measurement					
Measurement Option: AVGSA-1					
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Measured (dBm)**	**Limit (dBm)**	**Results**
20MHz Channel BW					
5500	OFDM	17.5dBi 30DegHorn	12.46	≤ 12.5	Pass
5600	OFDM	17.5dBi 30DegHorn	12.01	≤ 12.5	Pass
5700	OFDM	17.5dBi 30DegHorn	12.06	≤ 12.5	Pass
5500	OFDM	13 dBi 50DegHorn	14.38	≤ 17	Pass
5600	OFDM	13 dBi 50DegHorn	14.92	≤ 17	Pass
5700	OFDM	13 dBi 50DegHorn	15.57	≤ 17	Pass
5500	OFDM	9dBi 90DegHron	20.36	≤ 21	Pass
5600	OFDM	9 dBi 90DegHron	19.23	≤ 21	Pass
5700	OFDM	9 dBi 90DegHron	19.45	≤ 21	Pass
40MHz Channel BW					
5520	OFDM	17.5dBi 30DegHorn	12.21	≤ 12.5	Pass
5595	OFDM	17.5dBi 30DegHorn	12.21	≤ 12.5	Pass
5700	OFDM	17.5dBi 30DegHorn	12.34	≤ 12.5	Pass
5500	OFDM	13 dBi 50DegHorn	13.73	≤ 17	Pass
5595	OFDM	13 dBi 50DegHorn	16.59	≤ 17	Pass
5700	OFDM	13 dBi 50DegHorn	16.91	≤ 17	Pass
5500	OFDM	9dBi 90DegHron	15.88	≤ 21	Pass
5595	OFDM	9 dBi 90DegHron	15.97	≤ 21	Pass
5700	OFDM	9 dBi 90DegHron	16.46	≤ 21	Pass
80MHz Channel BW					
5540	OFDM	17.5dBi 30DegHorn	8.51	≤ 12.5	Pass
5600	OFDM	17.5dBi 30DegHorn	7.96	≤ 12.5	Pass
5515	OFDM	13 dBi 50DegHorn	11.47	≤ 17	Pass
5540	OFDM	13 dBi 50DegHorn	12.51	≤ 17	Pass
5600	OFDM	13 dBi 50DegHorn	16.60	≤ 17	Pass
5510	OFDM	9dBi 90DegHron	10.04	≤ 21	Pass
5600	OFDM	9 dBi 90DegHron	17.18	≤ 21	Pass

The limit is calculated in accordance with 15.407(a)(2):

$$Limit = The\ lesser\ of \begin{cases} 24\ dBm - (G-6) \\ 11dBm + 10LOG(B) - (G-6) \end{cases}$$

UNII 3 Test Data Summary - RF Conducted Measurement					
Measurement Option: AVGSA-1					
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Measured (dBm)**	**Limit (dBm)**	**Results**
20MHz Channel BW					
5745	OFDM	17.5dBi 30DegHorn	16.37	≤ 18.5	Pass
5785	OFDM	17.5dBi 30DegHorn	16.48	≤ 18.5	Pass
5840	OFDM	17.5dBi 30DegHorn	17.11	≤ 18.5	Pass
5745	OFDM	13 dBi 50DegHorn	19.92	≤ 23	Pass
5785	OFDM	13 dBi 50DegHorn	20.02	≤ 23	Pass
5840	OFDM	13 dBi 50DegHorn	20.28	≤ 23	Pass
5745	OFDM	9dBi 90DegHron	19.61	≤ 27	Pass
5785	OFDM	9 dBi 90DegHron	20.65	≤ 27	Pass
5840	OFDM	9 dBi 90DegHron	21.10	≤ 27	Pass
5745	OFDM	28dBi Dish	22.61	≤ 30	Pass
5795	OFDM	28dBi Dish	22.82	≤ 30	Pass
5840	OFDM	28dBi Dish	22.94	≤ 30	Pass
40MHz Channel BW					
5760	OFDM	17.5dBi 30DegHorn	18.3	≤ 18.5	Pass
5800	OFDM	17.5dBi 30DegHorn	18.48	≤ 18.5	Pass
5825	OFDM	17.5dBi 30DegHorn	18.44	≤ 18.5	Pass
5760	OFDM	13 dBi 50DegHorn	20.17	≤ 23	Pass
5800	OFDM	13 dBi 50DegHorn	20.57	≤ 23	Pass
5840	OFDM	13 dBi 50DegHorn	20.48	≤ 23	Pass
5760	OFDM	9dBi 90DegHron	20.88	≤ 27	Pass
5800	OFDM	9 dBi 90DegHron	21.51	≤ 27	Pass
5840	OFDM	9 dBi 90DegHron	20.93	≤ 27	Pass
5745	OFDM	28dBi Dish	19.80	≤ 30	Pass
5785	OFDM	28dBi Dish	20.02	≤ 30	Pass
5825	OFDM	28dBi Dish	18.53	≤ 30	Pass

UNII 3 Test Data Summary - RF Conducted Measurement - continued					
Measurement Option: AVGSA-1					
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Measured (dBm)**	**Limit (dBm)**	**Results**
80MHz Channel BW					
5815	OFDM	17.5dBi 30DegHorn	16.4	≤ 18.5	Pass
5820	OFDM	17.5dBi 30DegHorn	16.5	≤ 18.5	Pass
5815	OFDM	13 dBi 50DegHorn	19.44	≤ 23	Pass
5820	OFDM	13 dBi 50DegHorn	19.53	≤ 23	Pass
5840	OFDM	13 dBi 50DegHorn	16.45	≤ 23	Pass
5815	OFDM	9dBi 90DegHron	18.05	≤ 27	Pass
5840	OFDM	9 dBi 90DegHron	18.15	≤ 27	Pass
5760	OFDM	28dBi Dish	13.63	≤ 30	Pass
5785	OFDM	28dBi Dish	16.31	≤ 30	Pass
5815	OFDM	28dBi Dish	10.95	≤ 30	Pass

For equipment using antennas other than in fixed point-to-point applications, the limit is calculated in accordance with 15.407(a)(3):

$Limit = 30 - Roundup(G - 6)$

Note: This equation was used for the 17.5dBi, 13dBi and 9dBi antennas.

For equipment using antennas in fixed point-to-point applications, the limit is calculated in accordance with 15.407(a)(3):

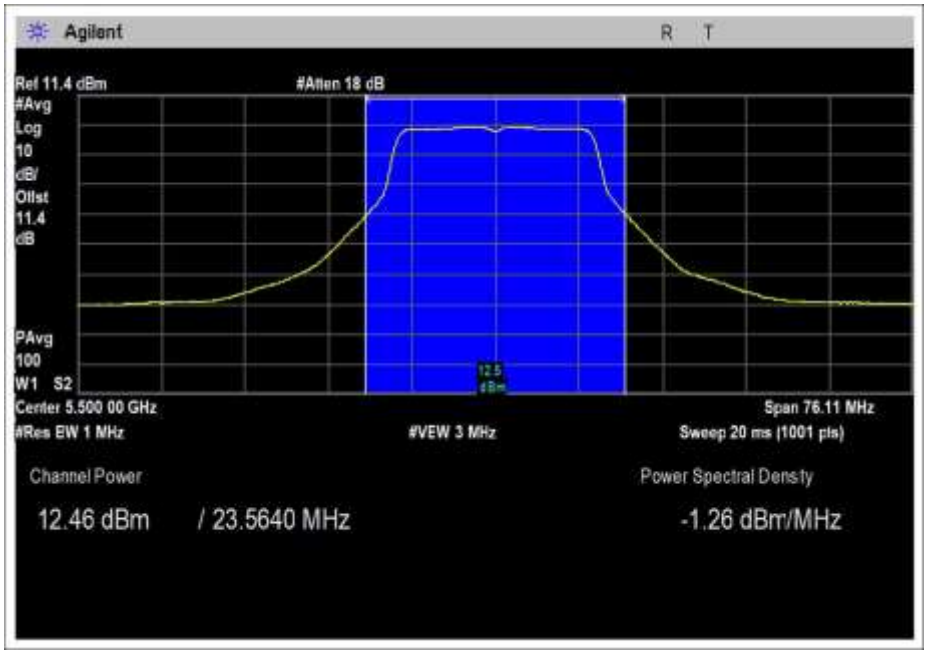
$Limit = 30$

Note: This equation was used for the 28dBi Dish.

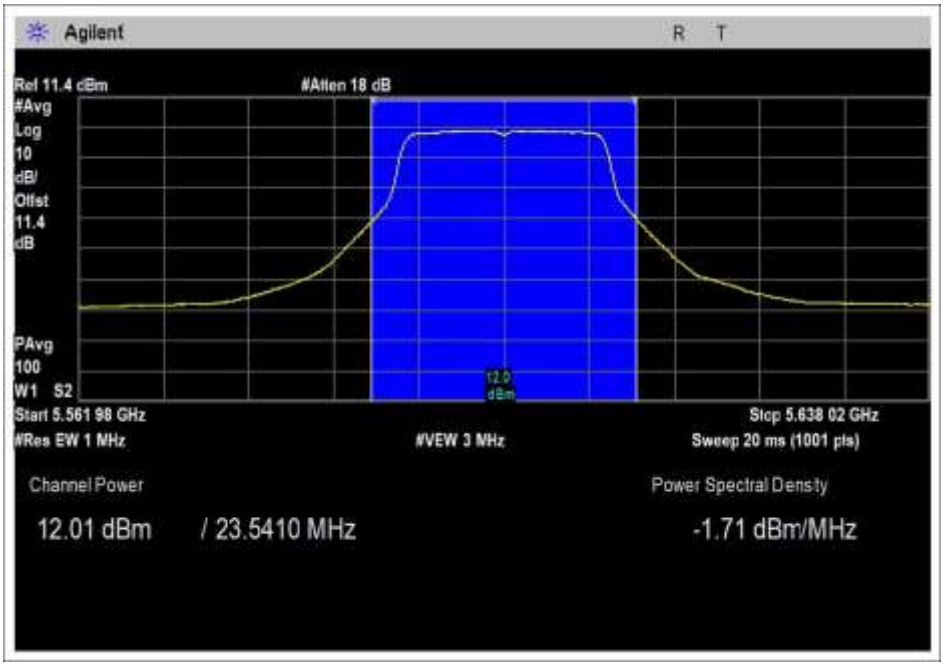
Plots

UNII 2c

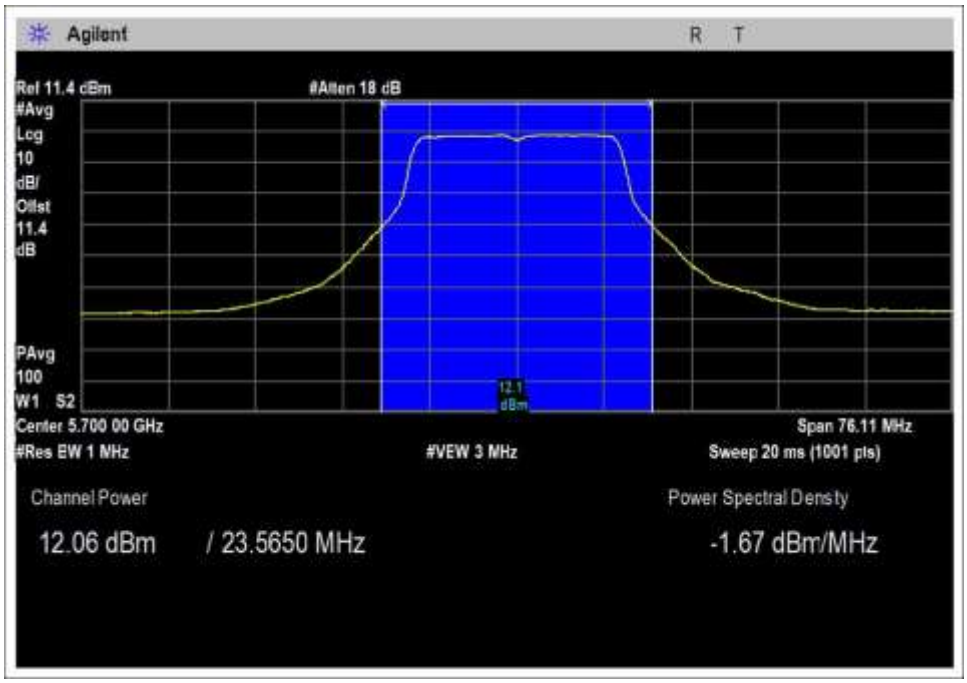
20MHz / 30Deg / 17.5dBi



LB, Set 14.5

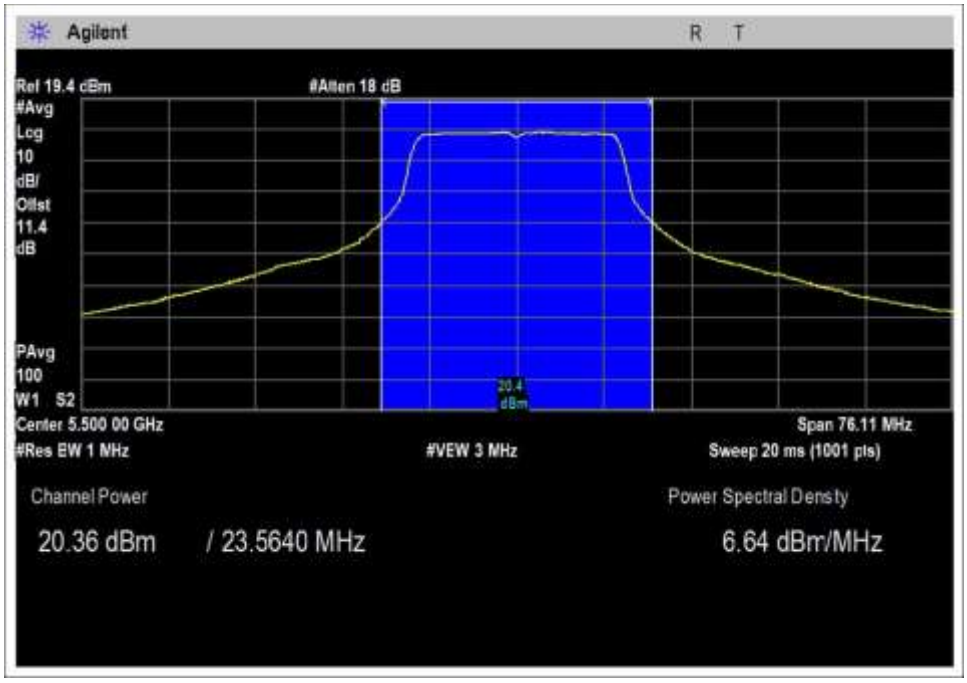


MB, Set 14

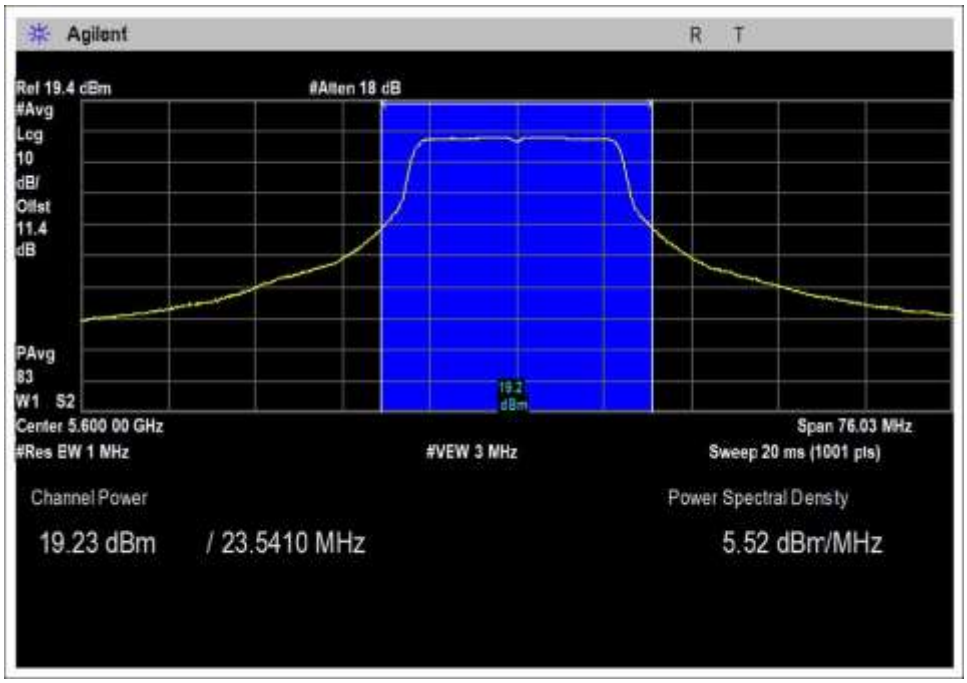

Agilent
R T
Ref 11.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
12.1
dBm
Center 5.700 00 GHz
Span 76.11 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
12.06 dBm
/ 23.5650 MHz
Power Spectral Density
-1.67 dBm/MHz

HB, Set 13.5

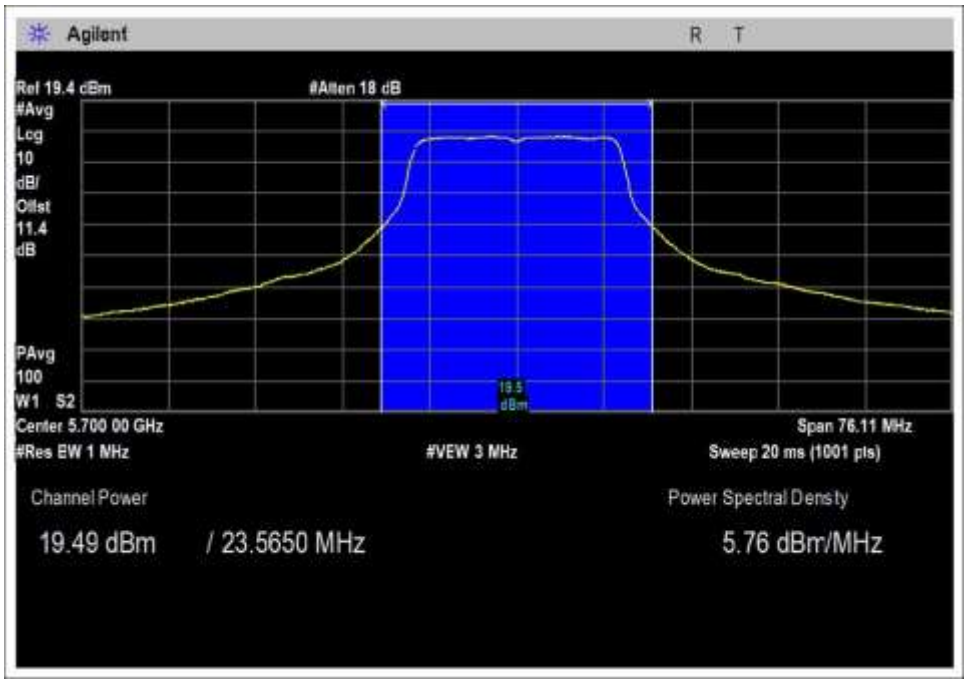
20MHz / 90Deg / 9dBi



LB, Set 22

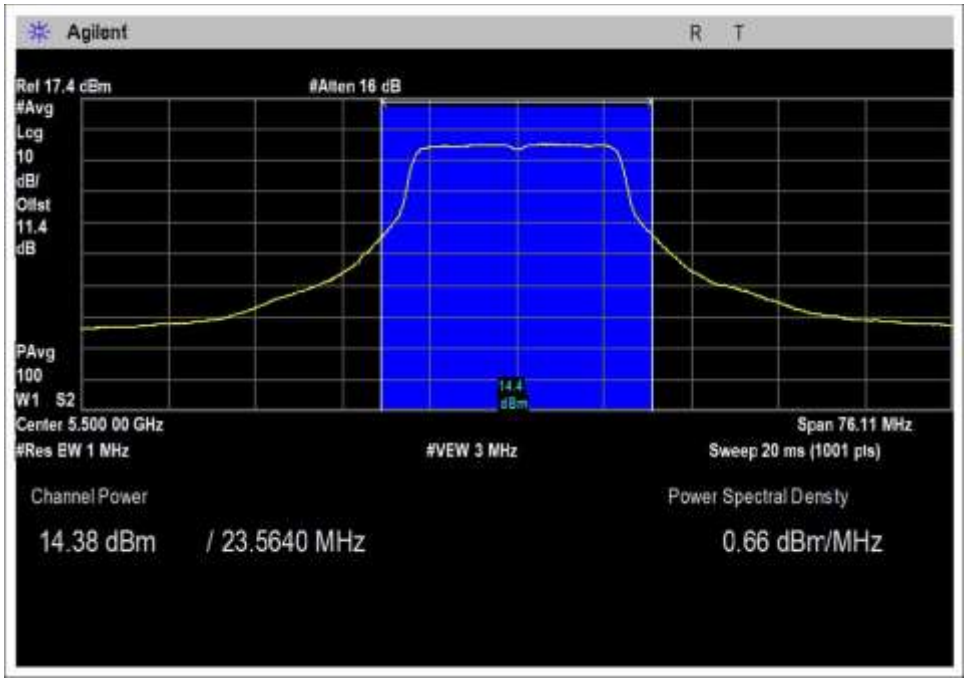


MB, Set 21

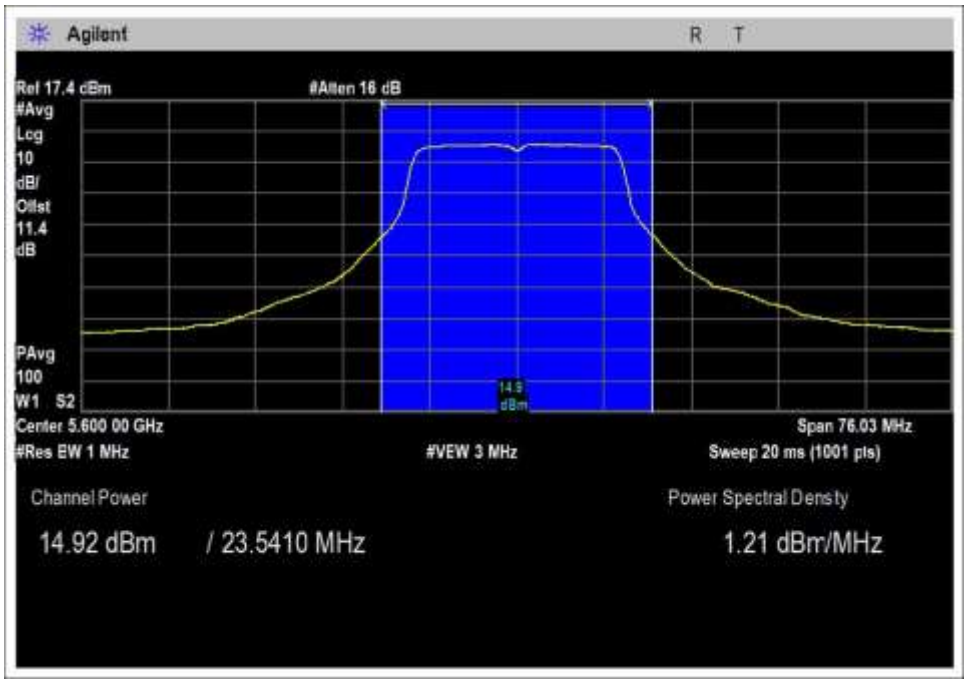

Agilent
R T
Ref 19.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
19.5
dBm
Center 5.700 00 GHz
Span 76.11 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
19.49 dBm
/ 23.5650 MHz
Power Spectral Density
5.76 dBm/MHz

HB, Set 21

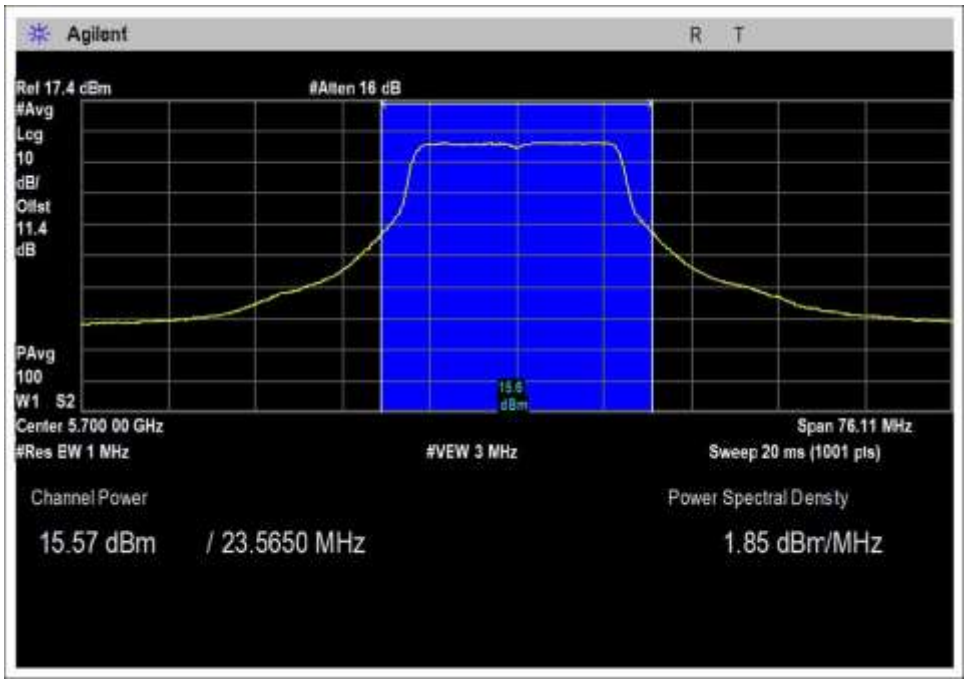
20MHz / HexHorn / 13dBi



LB Set 16.5

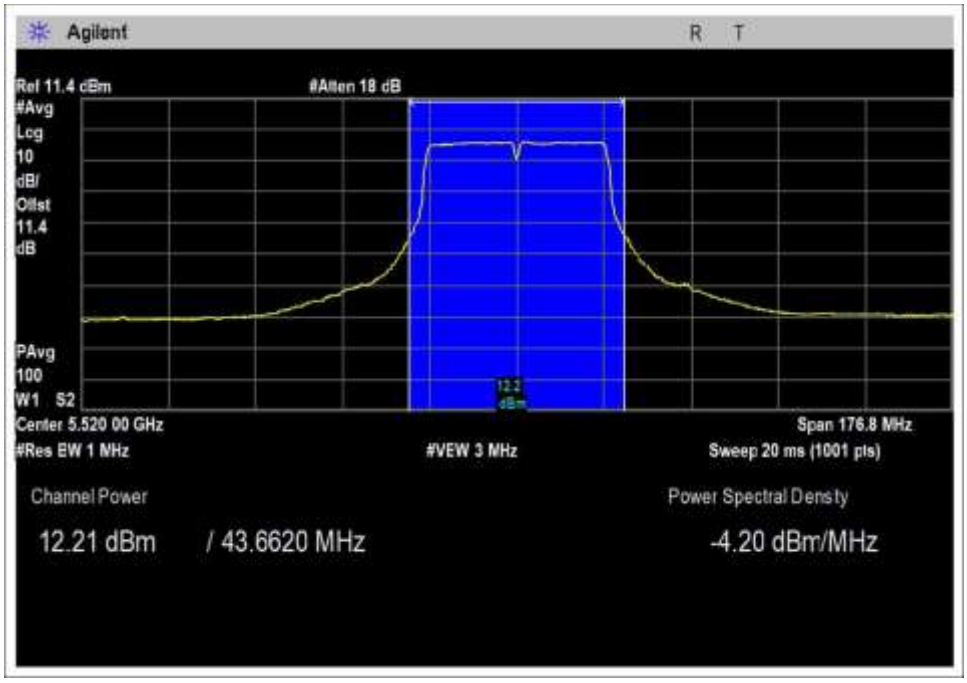


MB, Set 16.5

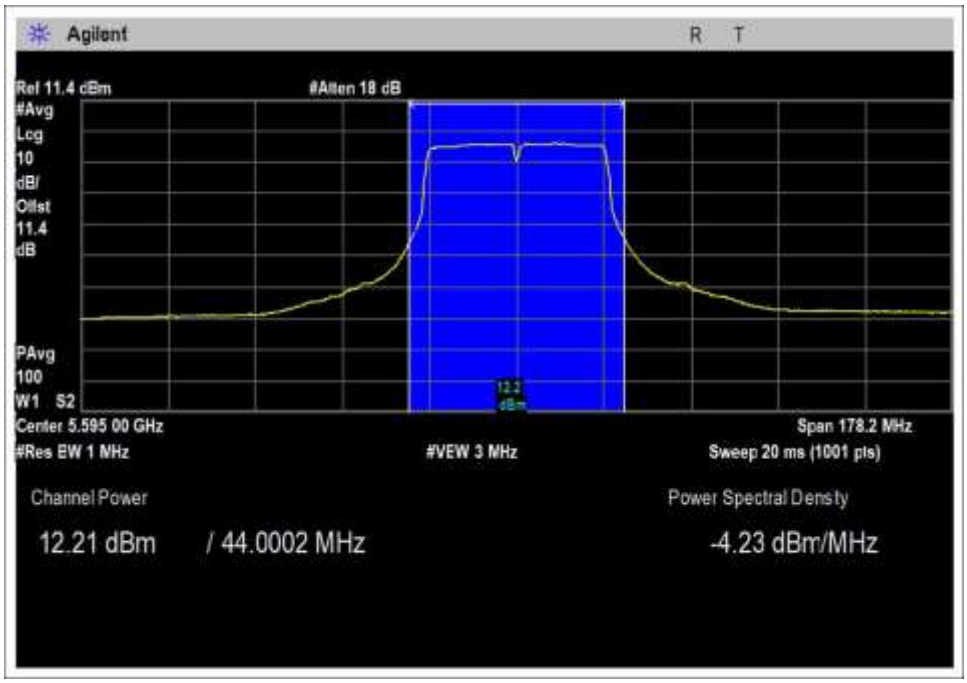

Agilent
R T
Ref 17.4 dBm
#Atten 16 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
15.6
dBm
Center 5.700 00 GHz
Span 76.11 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
15.57 dBm
/ 23.5650 MHz
Power Spectral Density
1.85 dBm/MHz

HB, Set 16.5

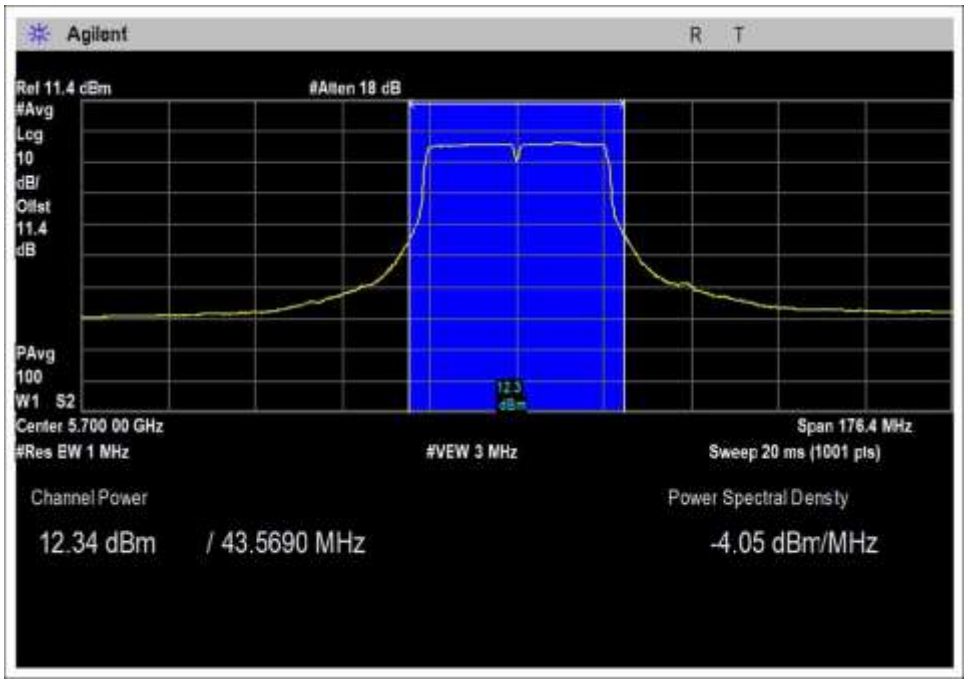
40MHz / 30Deg / 17.5dBi



LB, Set 14

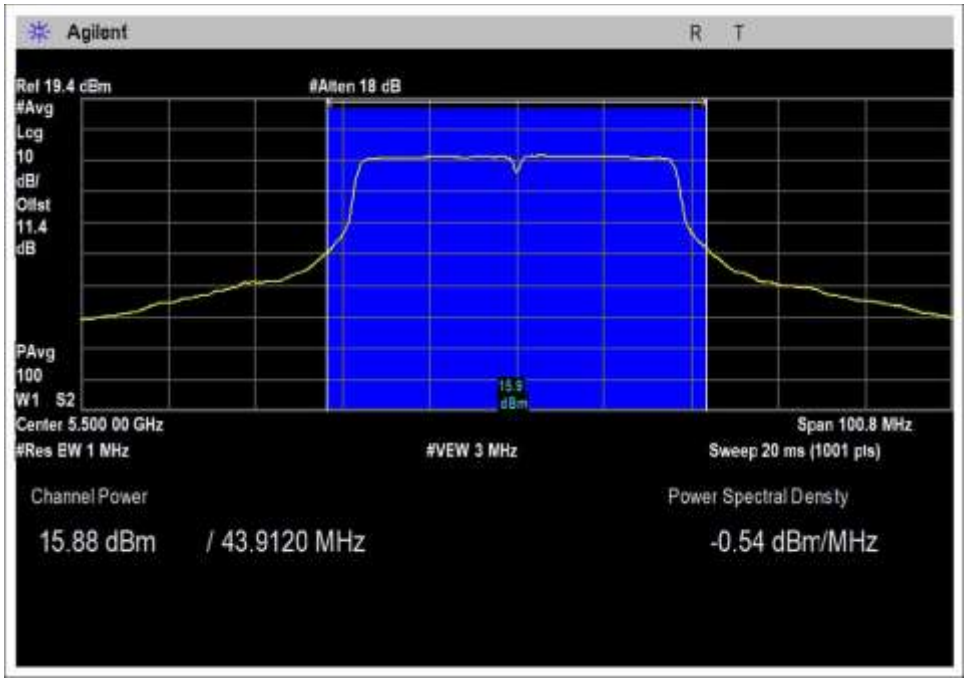


MB, Set 14

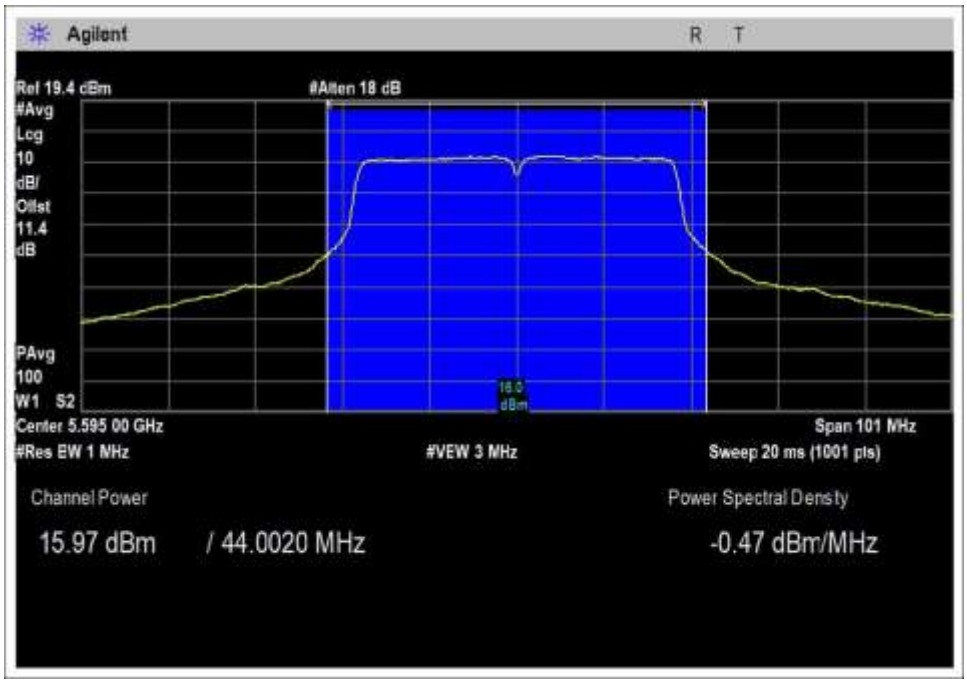

Agilent
R T
Ref 11.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
Center 5.700 00 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 176.4 MHz
Sweep 20 ms (1001 pts)
Channel Power
12.34 dBm
/ 43.5690 MHz
Power Spectral Density
-4.05 dBm/MHz

HB, Set 13.5

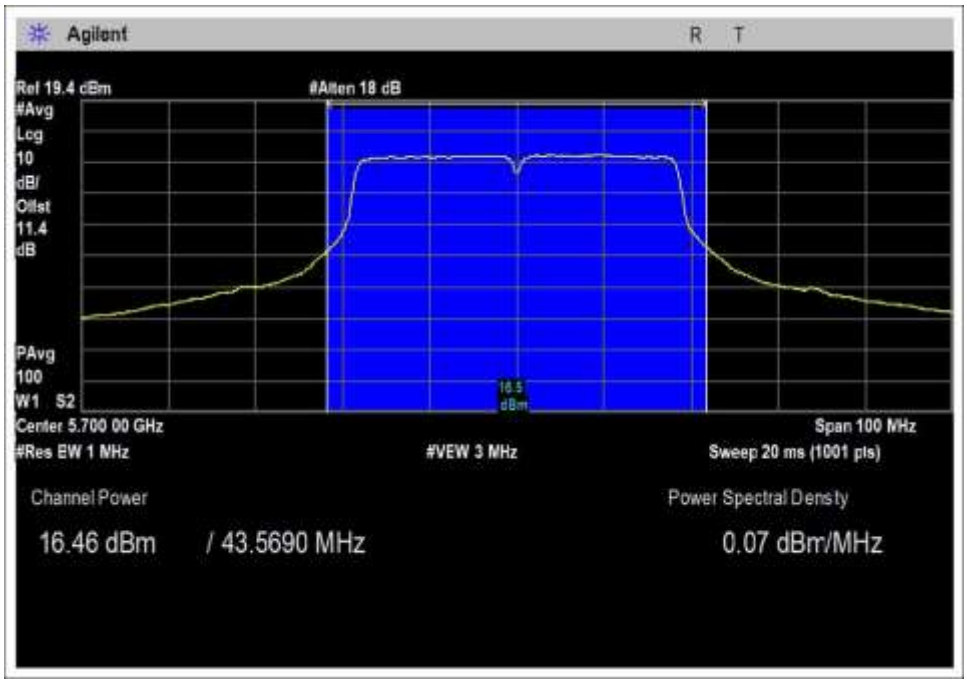
40MHz / 90Deg / 9dBi



LB, Set 17.5

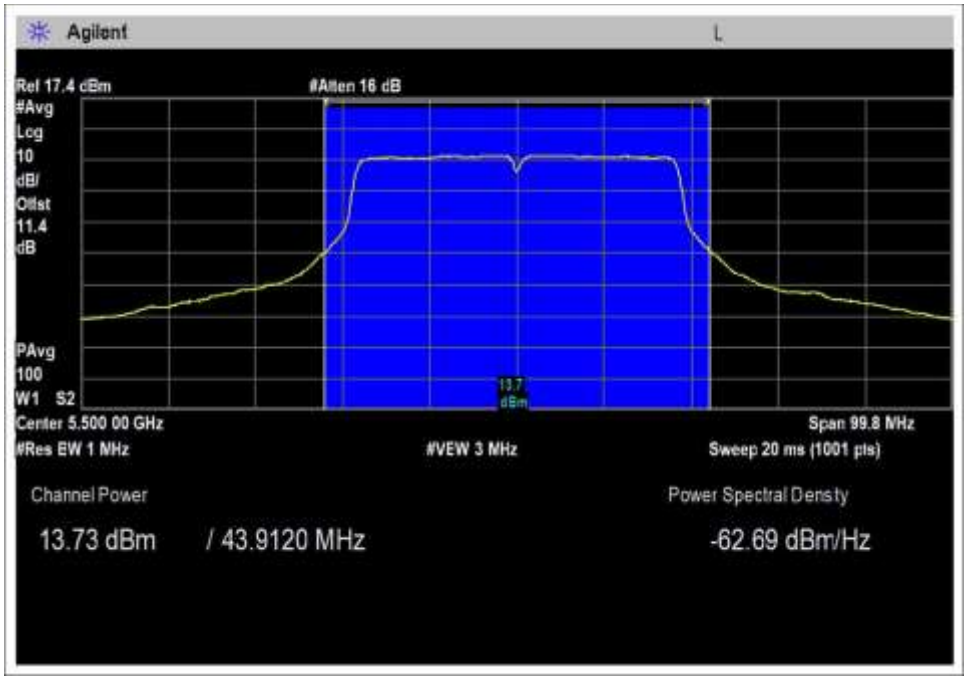


MB, Set 17.5

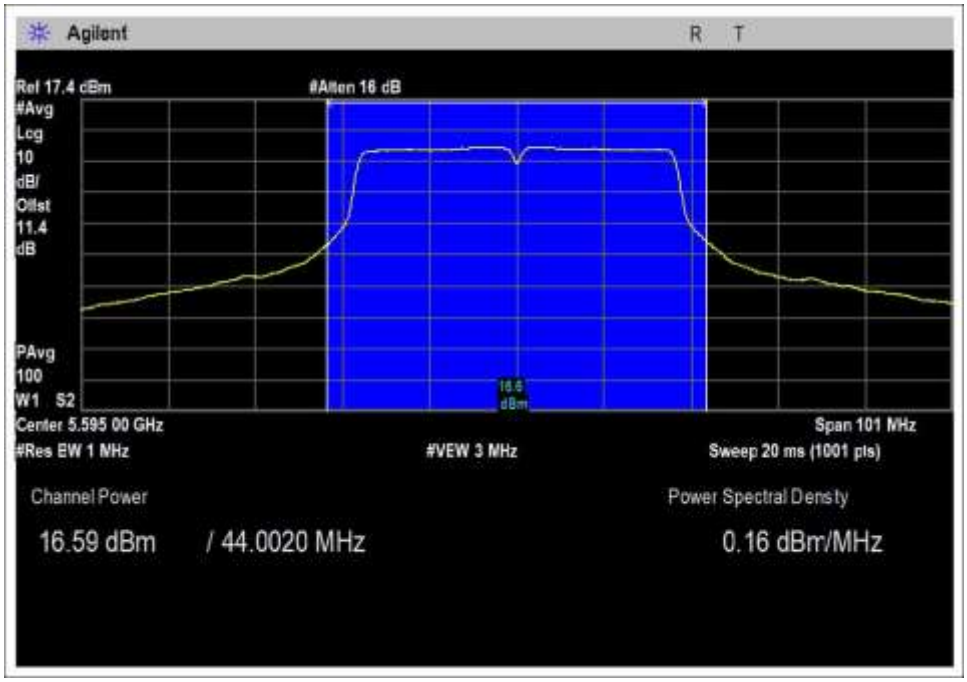

Agilent
R T
Ref 19.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
16.5
dBm
Center 5.700 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
16.46 dBm
/ 43.5690 MHz
Power Spectral Density
0.07 dBm/MHz

HB, Set 17.5

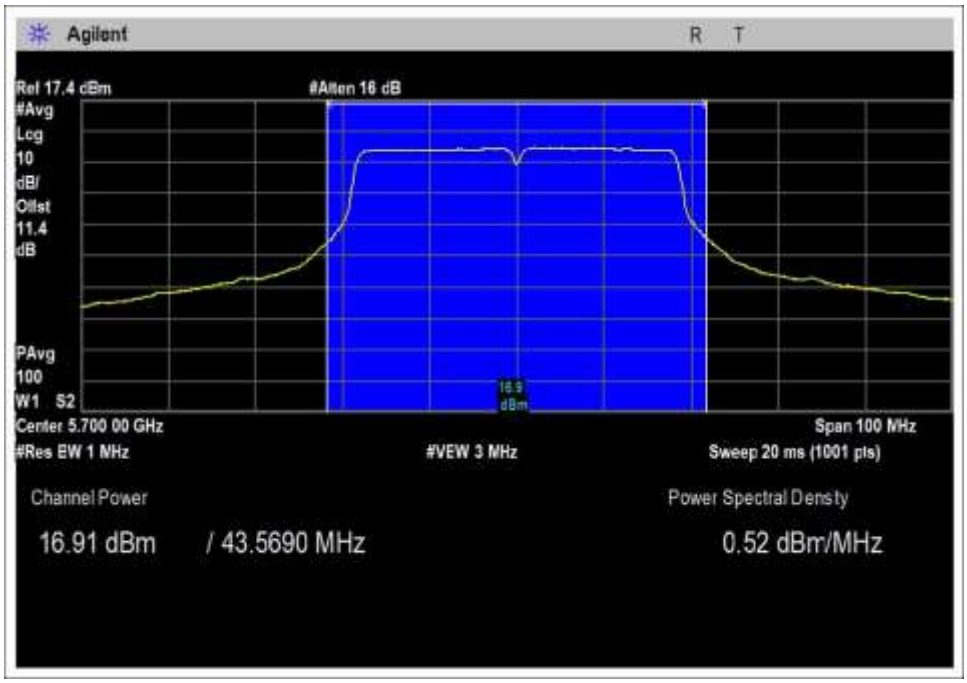
40MHz / HexHorn / 13dBi



LB, Set 17

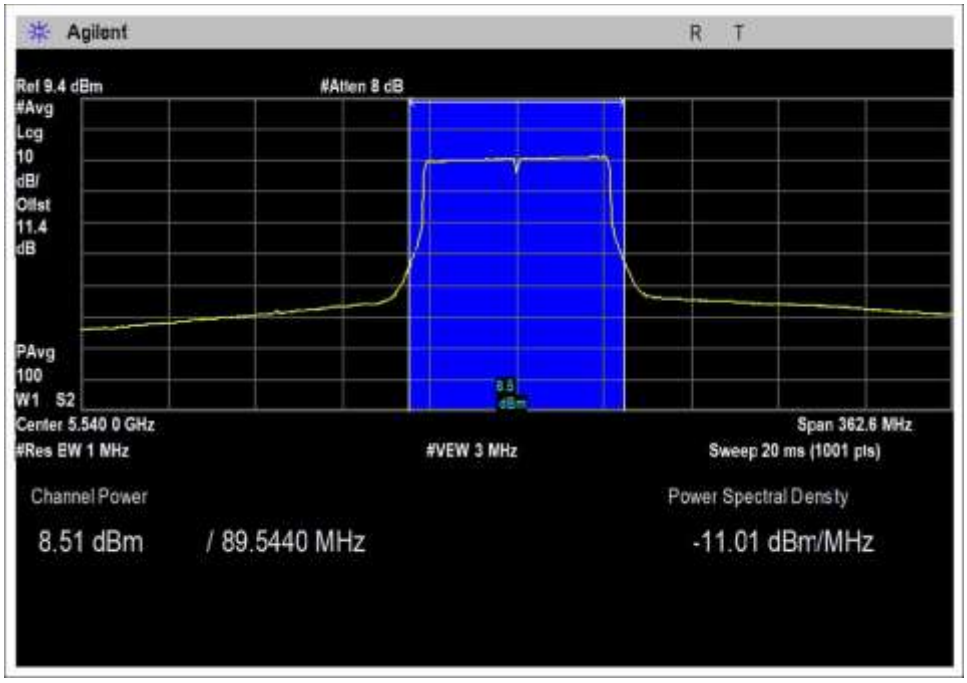


MB, Set 17

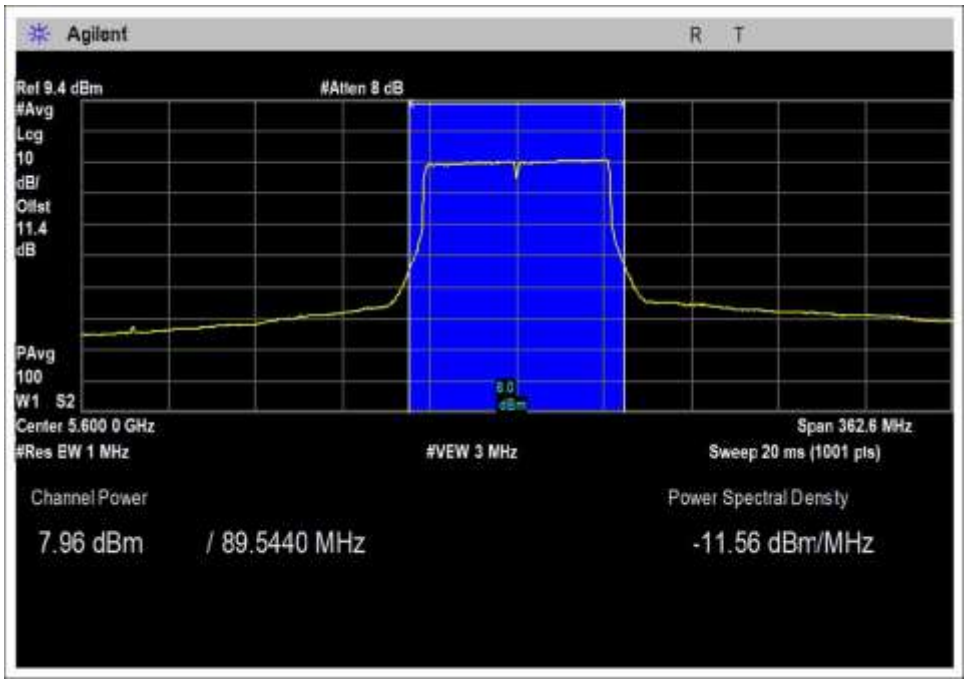

Agilent
R T
Ref 17.4 dBm
#Atten 16 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
16.9
dBm
Center 5.700 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
16.91 dBm
/ 43.5690 MHz
Power Spectral Density
0.52 dBm/MHz

HB, Set 17

80MHz / 30Deg / 17.5dBi

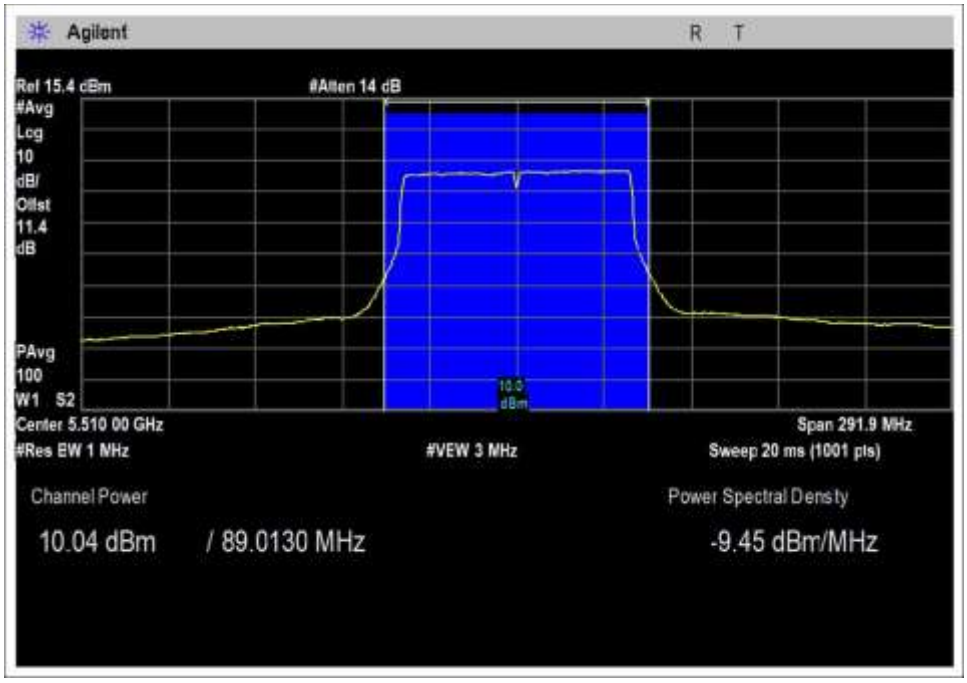


LB, Set 10

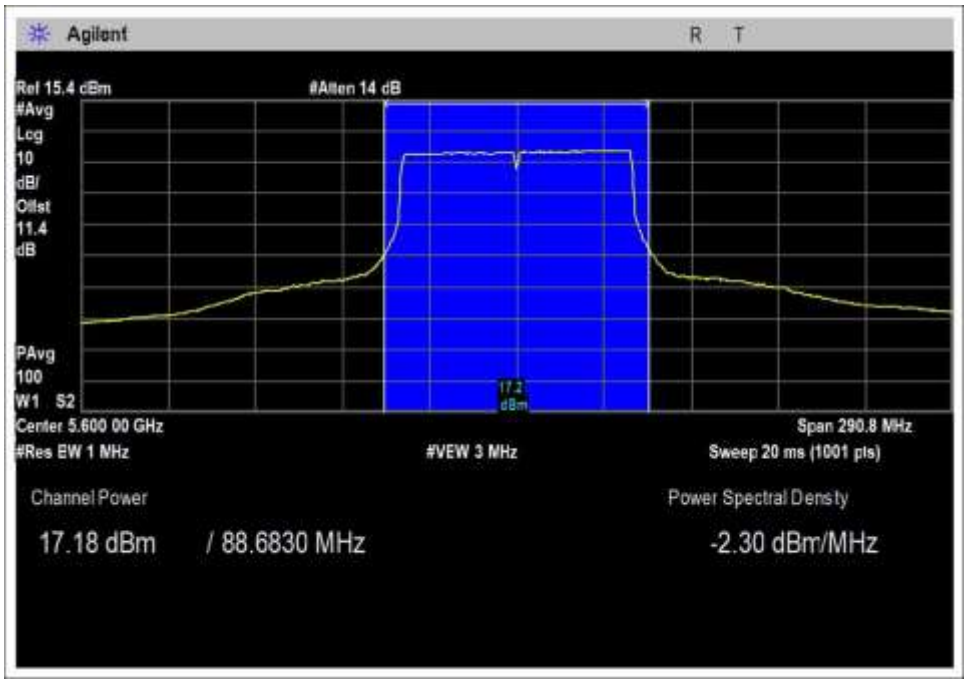


HB, Set 10

80MHz / 90Deg / 9dBi

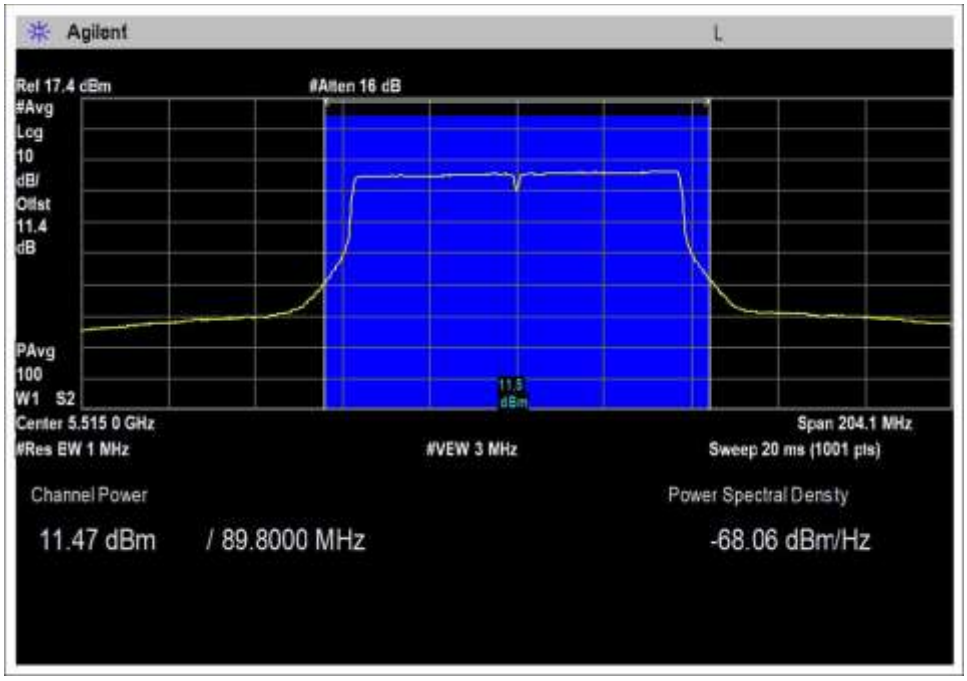


LB, Set 11.5

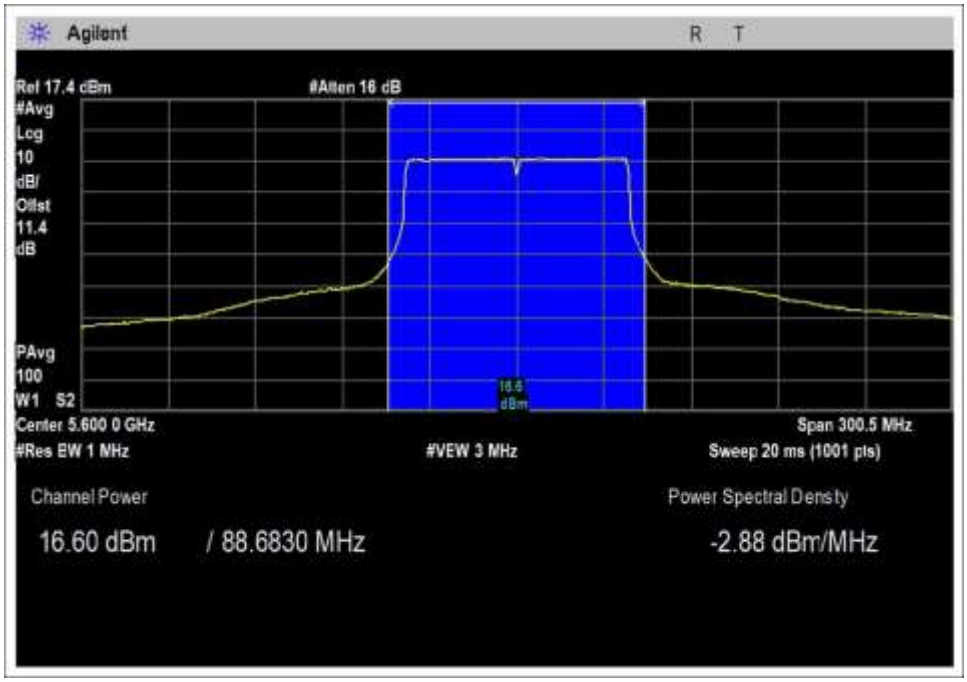


HB, Set 19

80MHz / HexHorn / 13dBi



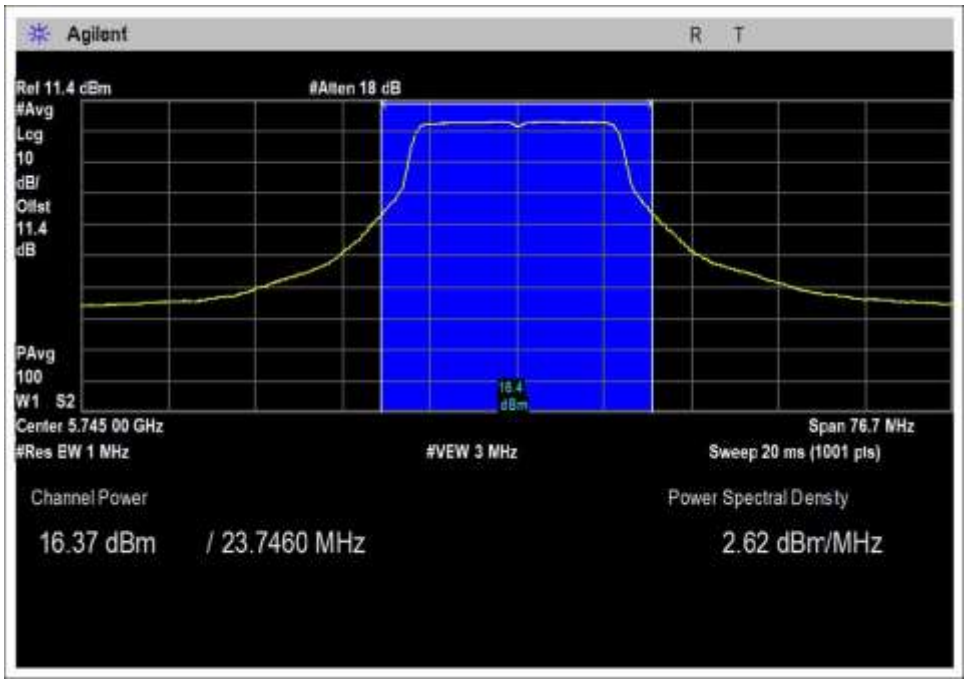
LB, Set 13



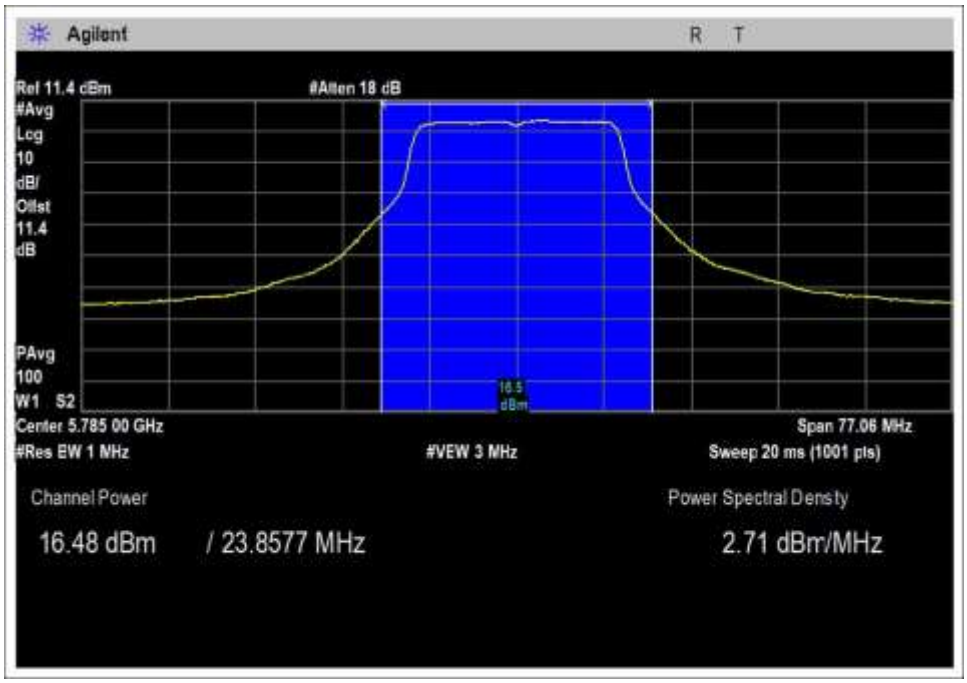
HB, Set 17

UNII 3

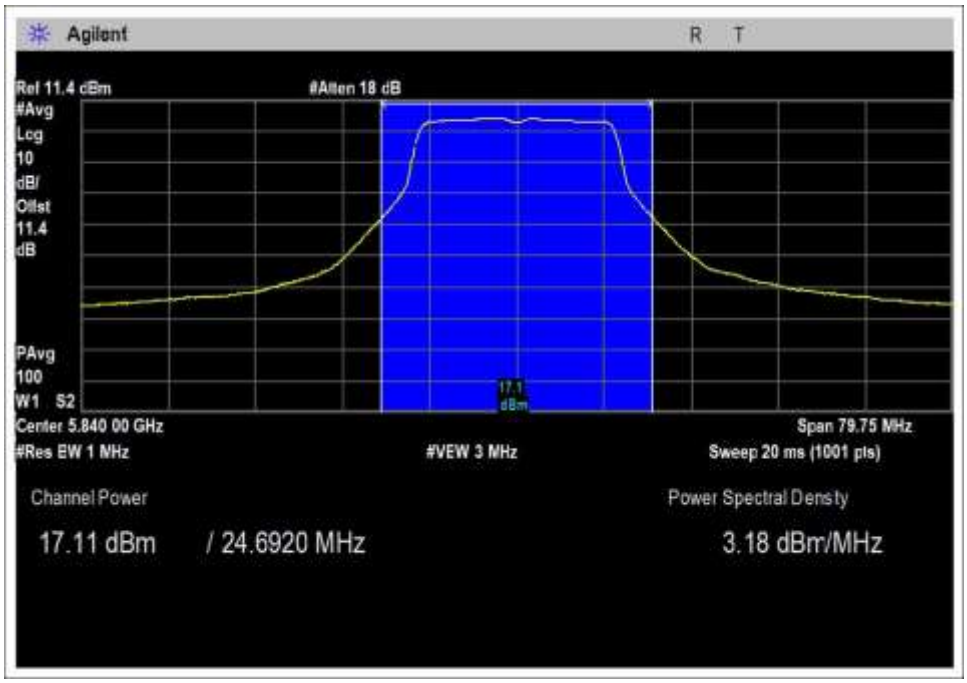
20MHz / 30Deg / 17.5dBi



LB, Set 18

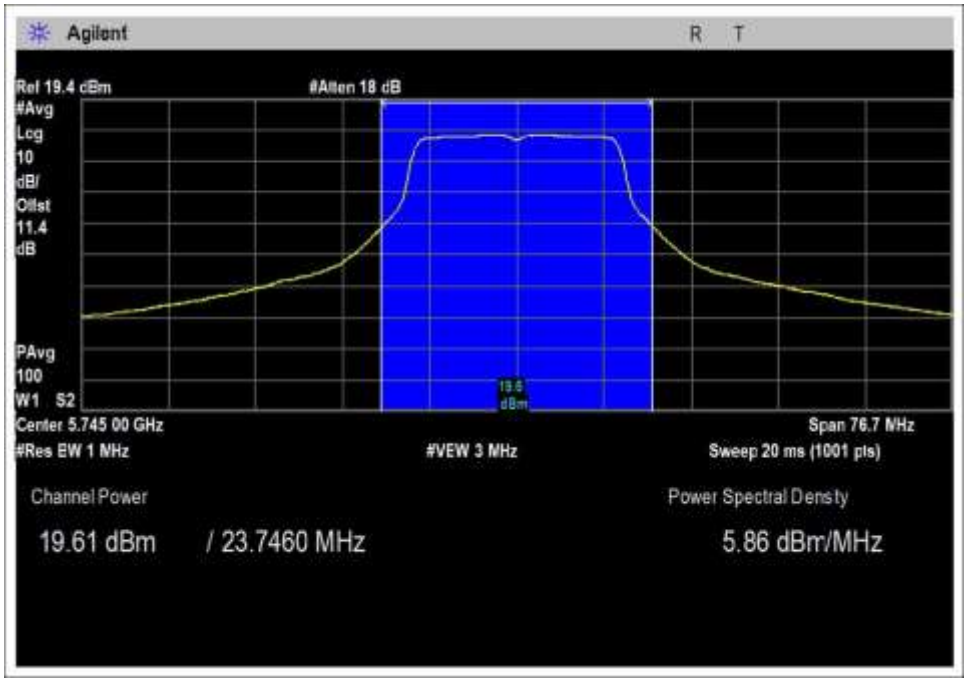


MB, Set 18

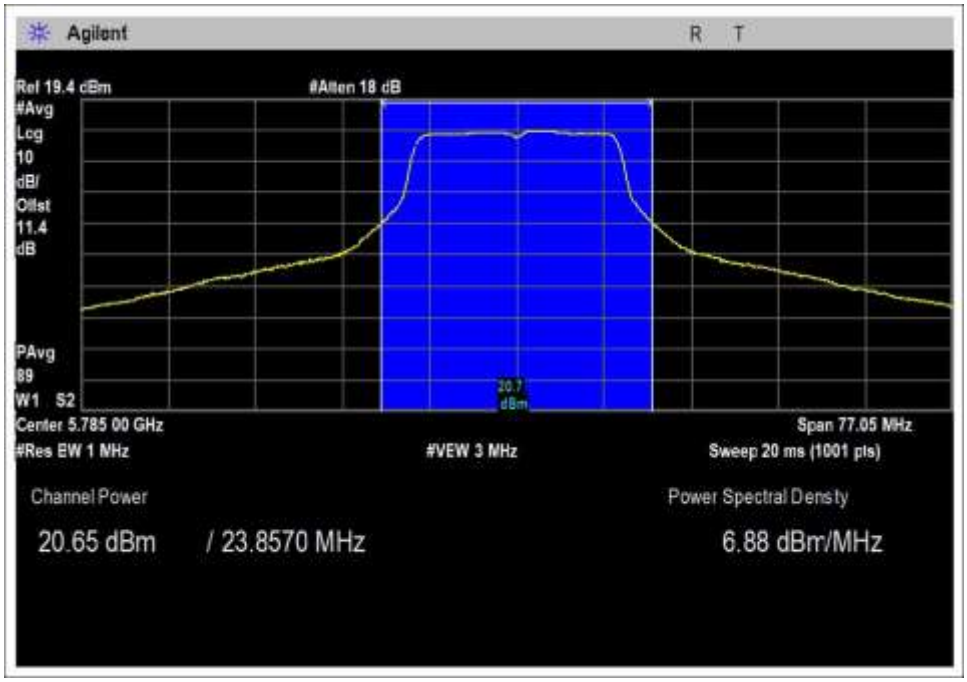

Agilent
R T
Ref 11.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
Center 5.840 00 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 79.75 MHz
Sweep 20 ms (1001 pts)
Channel Power
17.11 dBm
/ 24.6920 MHz
Power Spectral Density
3.18 dBm/MHz

HB, Set 18

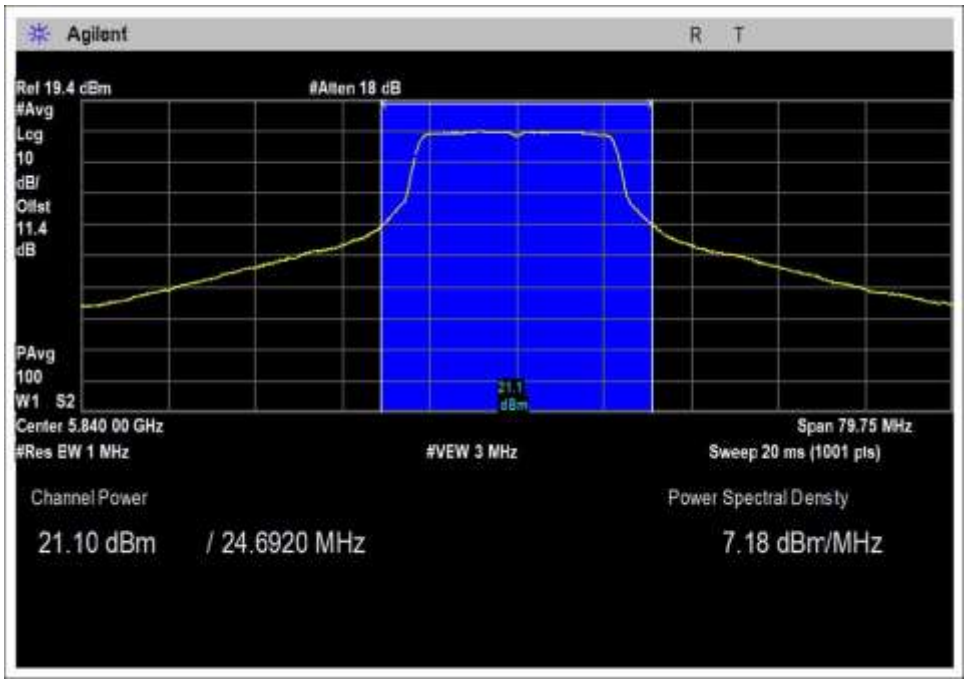
20MHz / 90Deg / 9dBi



LB, Set 21

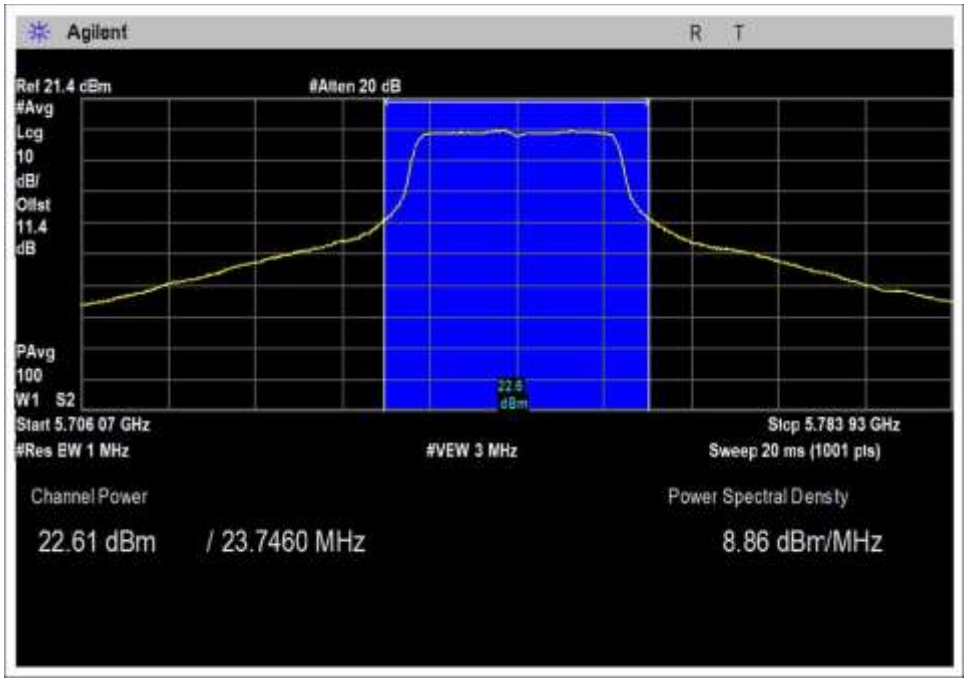


MB, Set 22

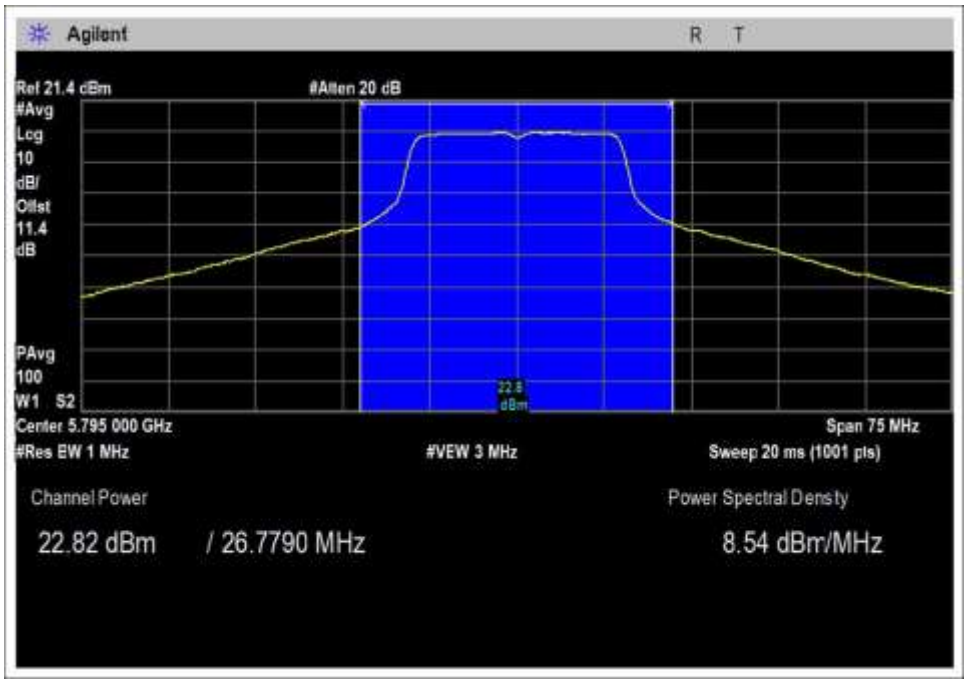

Agilent
R T
Ref 19.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
Center 5.840 00 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 79.75 MHz
Sweep 20 ms (1001 pts)
Channel Power
21.10 dBm
/ 24.6920 MHz
Power Spectral Density
7.18 dBm/MHz

HB, Set 22

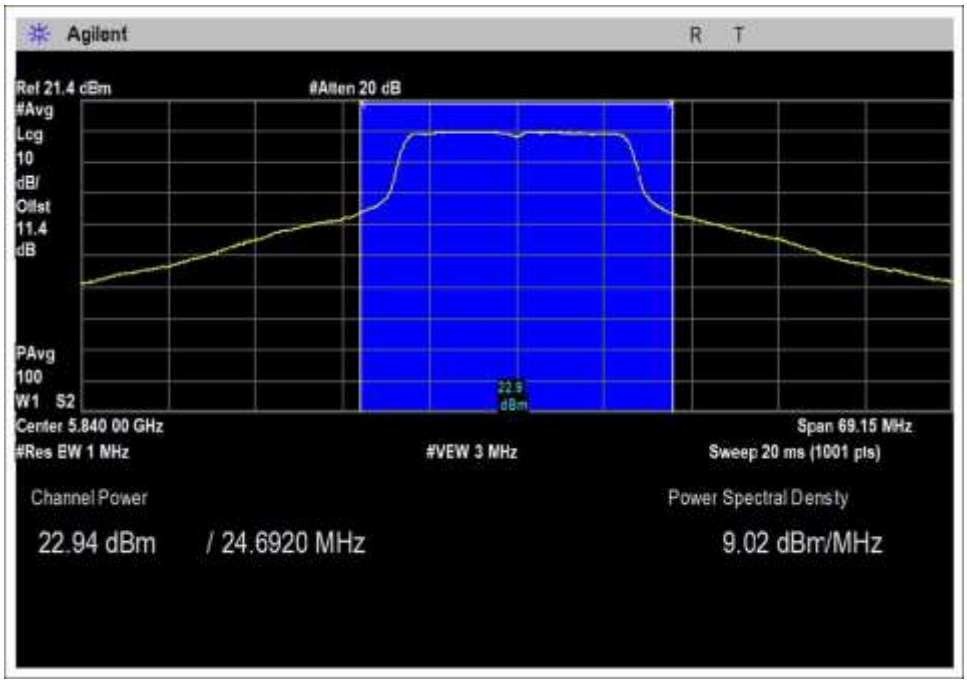
20MHz / Dish / 28dBi



LB, Set 24

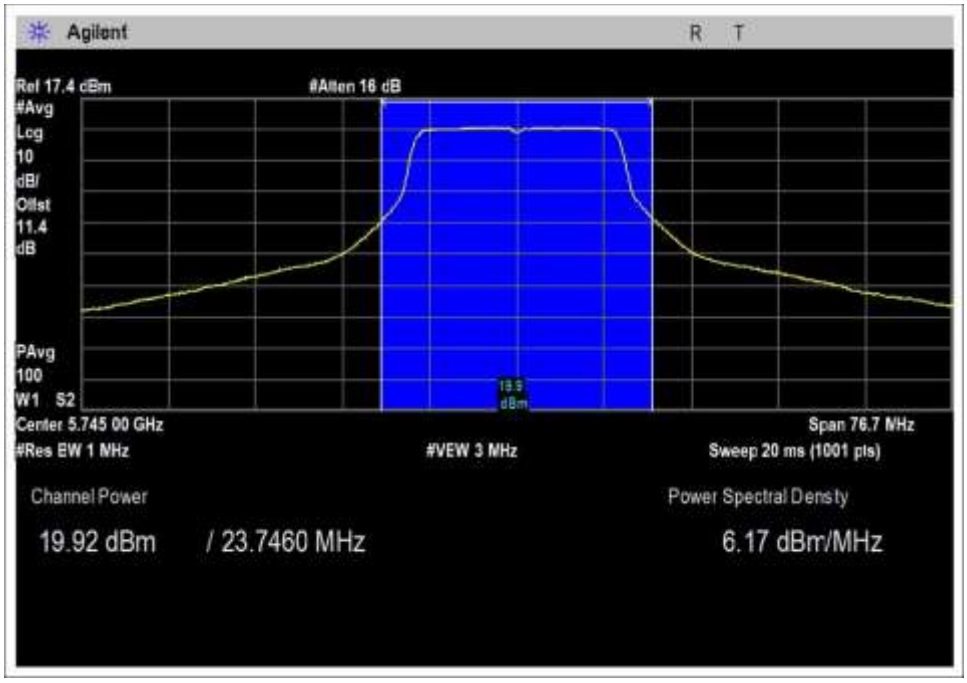


MB, Set 24

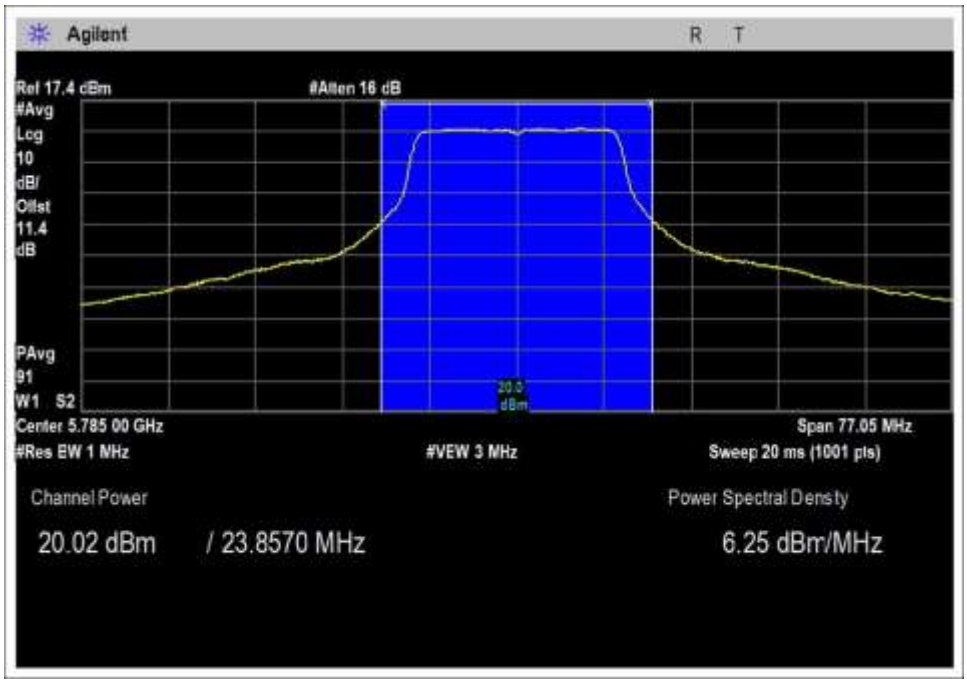

Agilent
R T
Ref 21.4 dBm
#Atten 20 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
22.9
dBm
Center 5.840 00 GHz
Span 69.15 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
22.94 dBm
/ 24.6920 MHz
Power Spectral Density
9.02 dBm/MHz

HB, Set 24

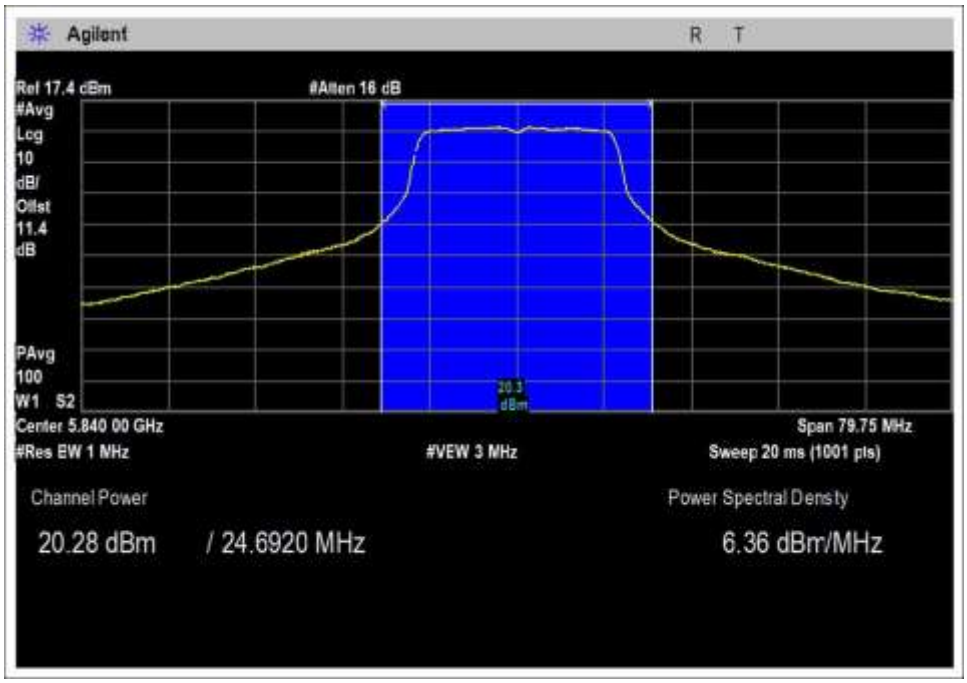
20MHz / HexHorn / 13dBi



LB, Set 20

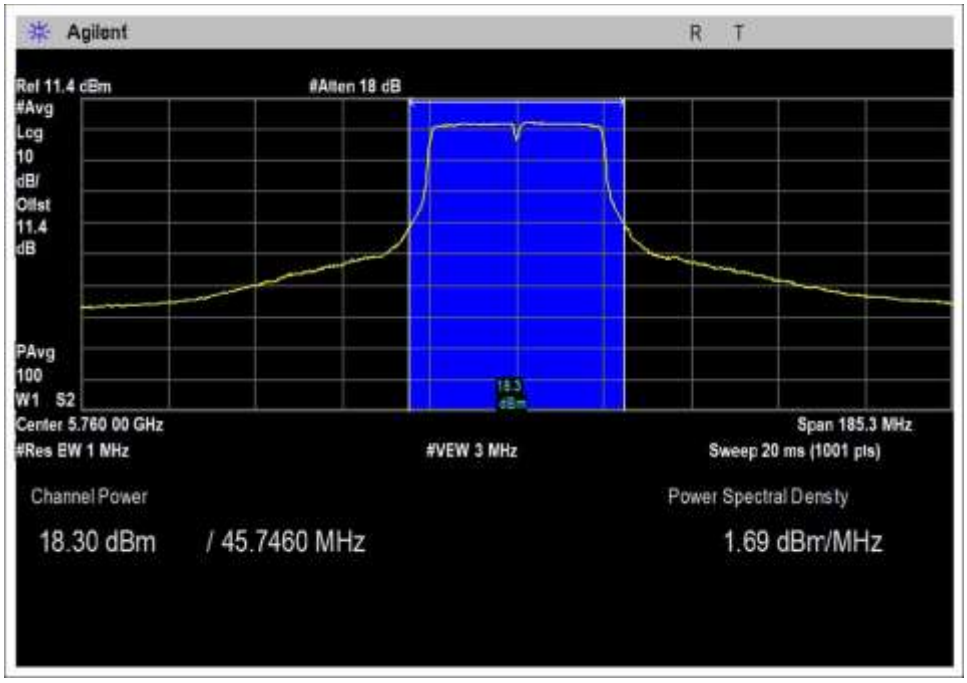


MB, Set 20

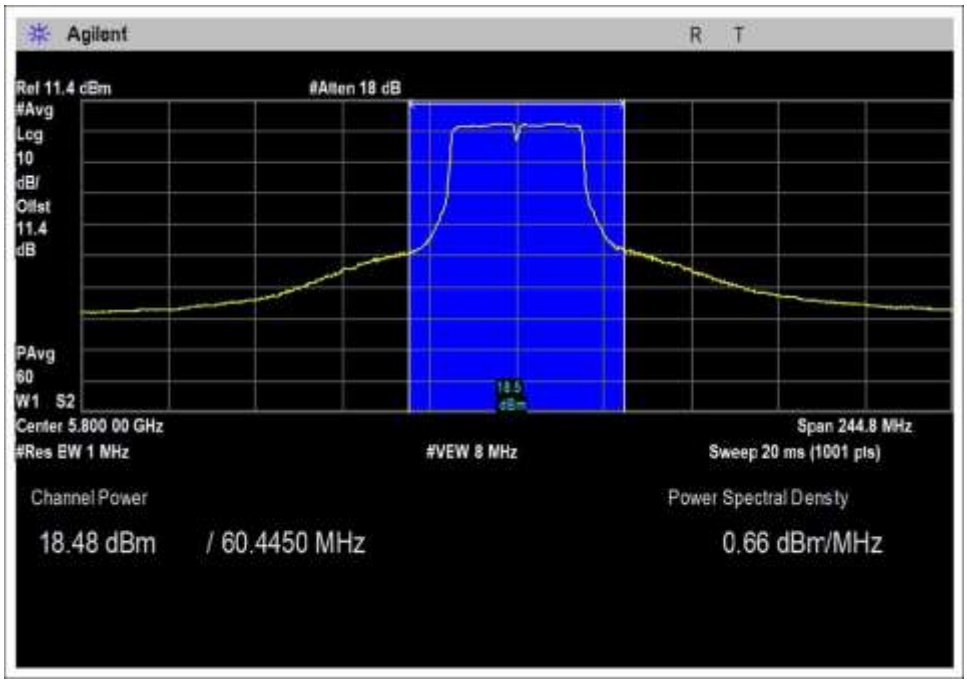

Agilent
R T
Ref 17.4 dBm
#Atten 16 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
20.3
dBm
Center 5.840 00 GHz
Span 79.75 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
20.28 dBm
/ 24.6920 MHz
Power Spectral Density
6.36 dBm/MHz

HB, Set 20

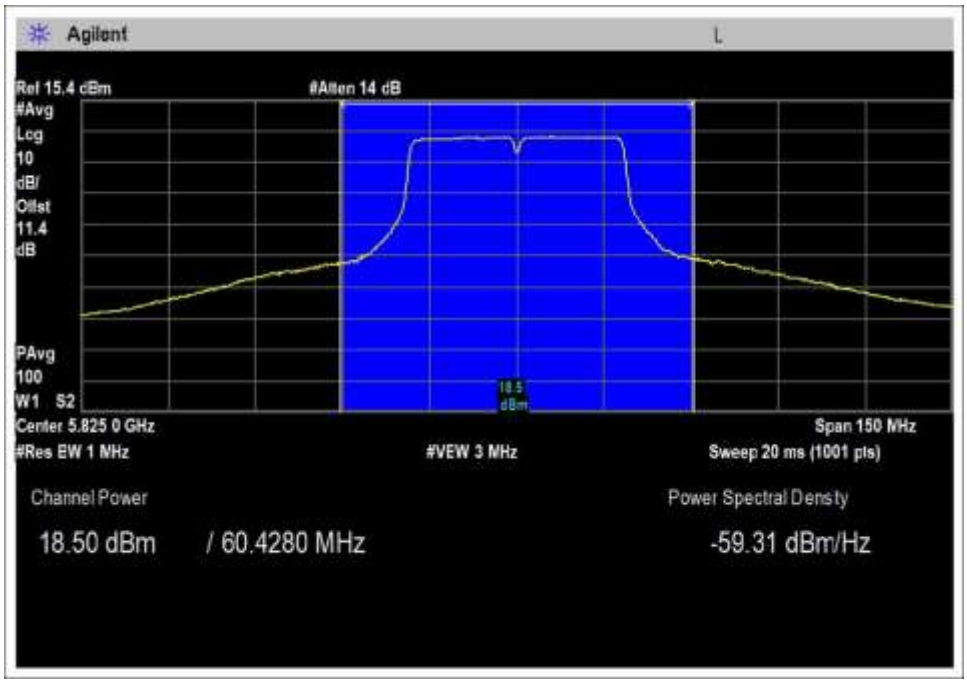
40MHz / 30Deg / 17.5dBi



LB, Set 19.5

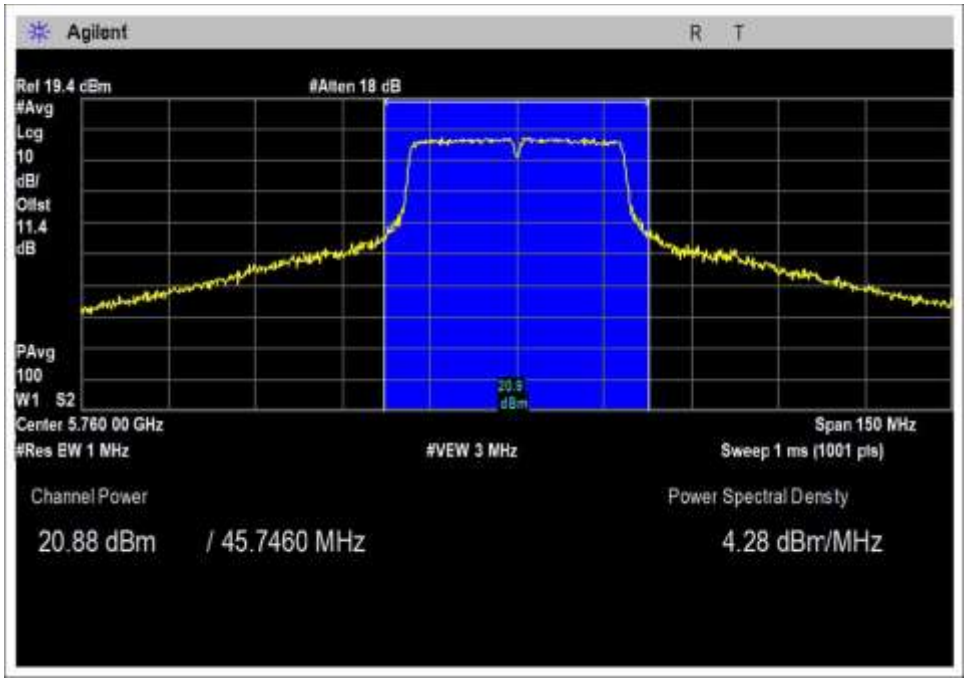


MB, Set 19.5

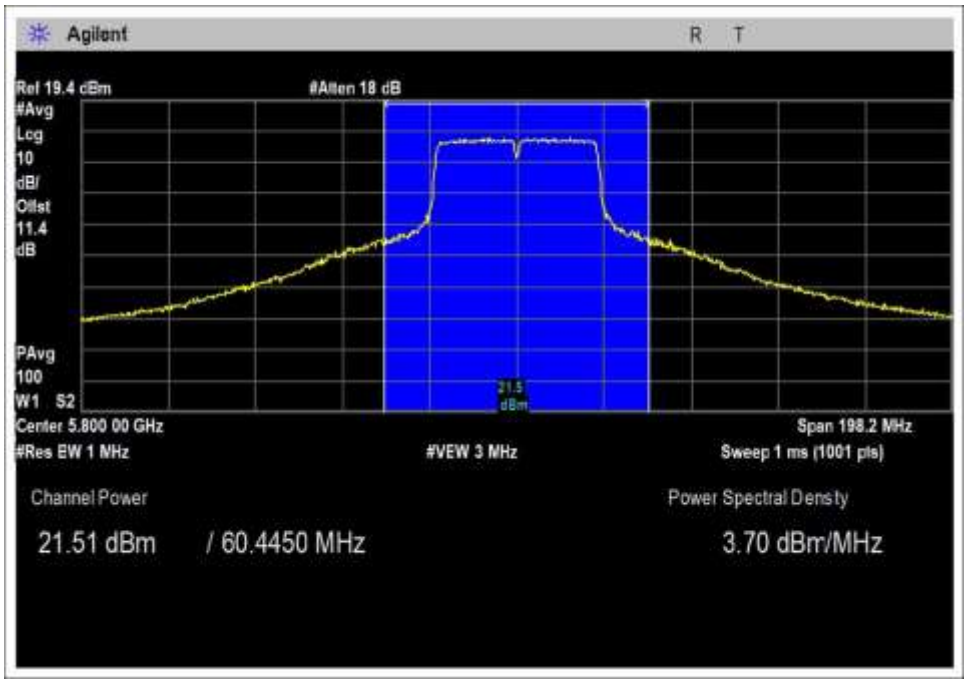

Agilent
Ref 15.4 dBm
#Atten 14 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
18.5
dBm
Center 5.825 0 GHz
Span 150 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
18.50 dBm
/ 60.4280 MHz
Power Spectral Density
-59.31 dBm/Hz

HB, Set 19.5

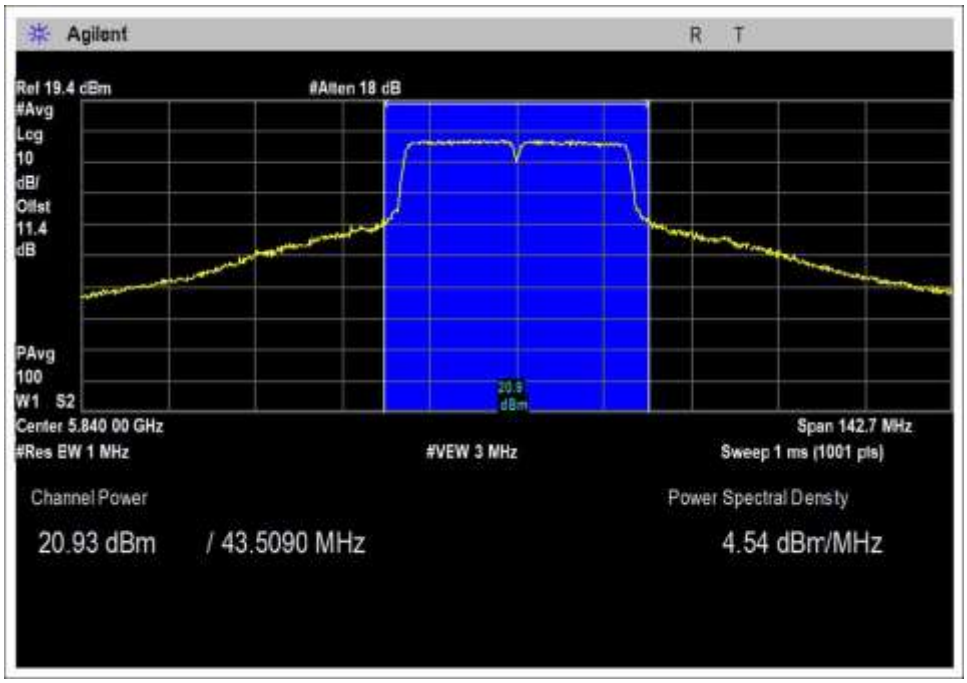
40MHz / 90Deg / 9dBi



LB, Set 22

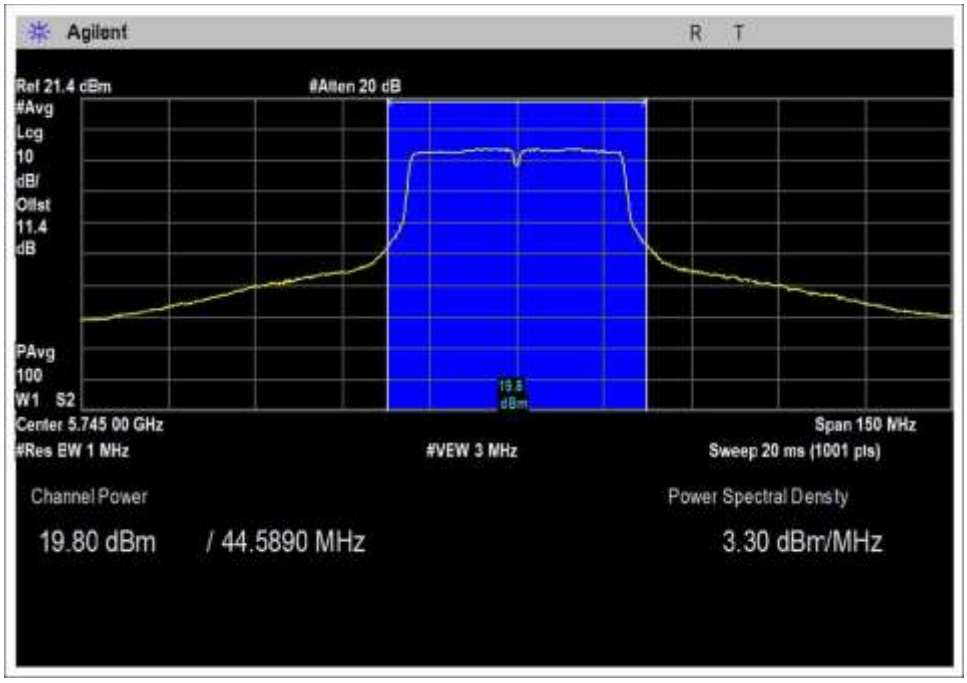


MB, Set 22

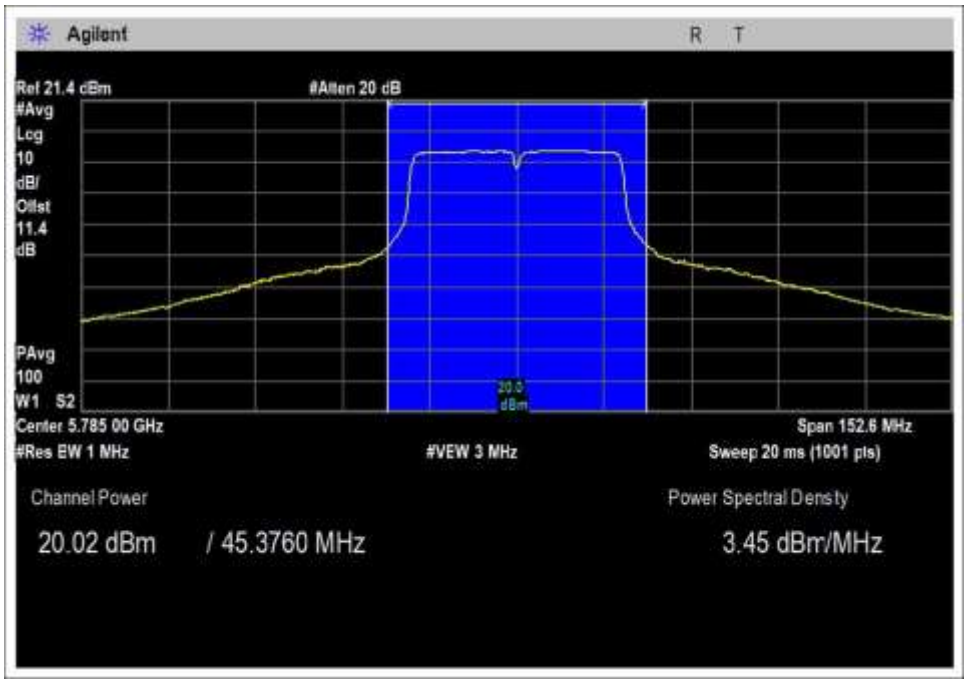

Agilent
R T
Ref 19.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
20.9
dBm
Center 5.840 00 GHz
Span 142.7 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (1001 pts)
Channel Power
20.93 dBm
/ 43.5090 MHz
Power Spectral Density
4.54 dBm/MHz

HB, Set 22

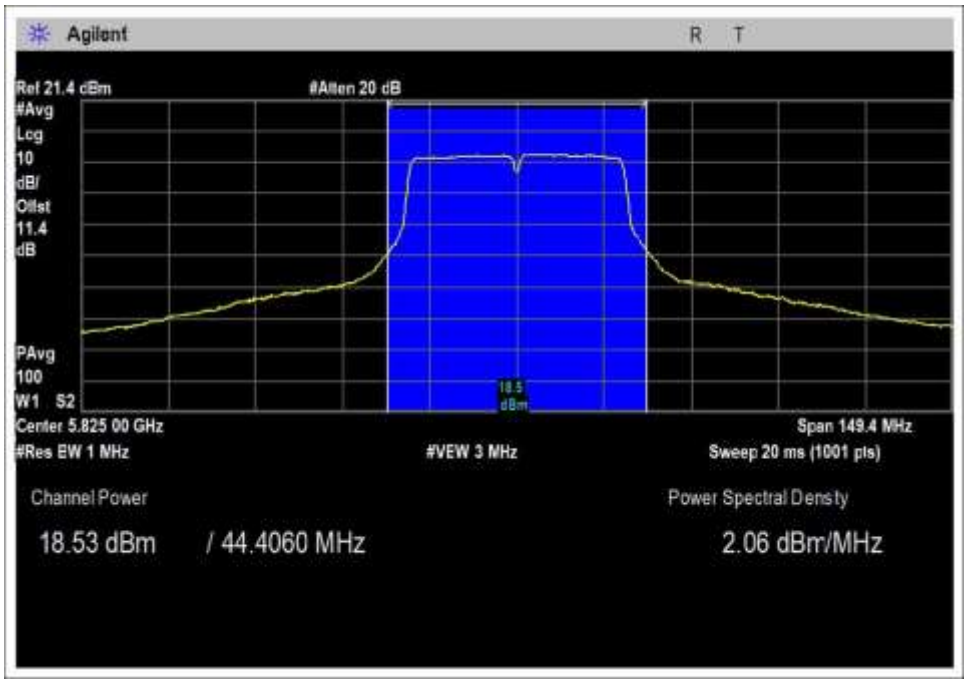
40MHz / Dish / 28dBi



LB, Set 21

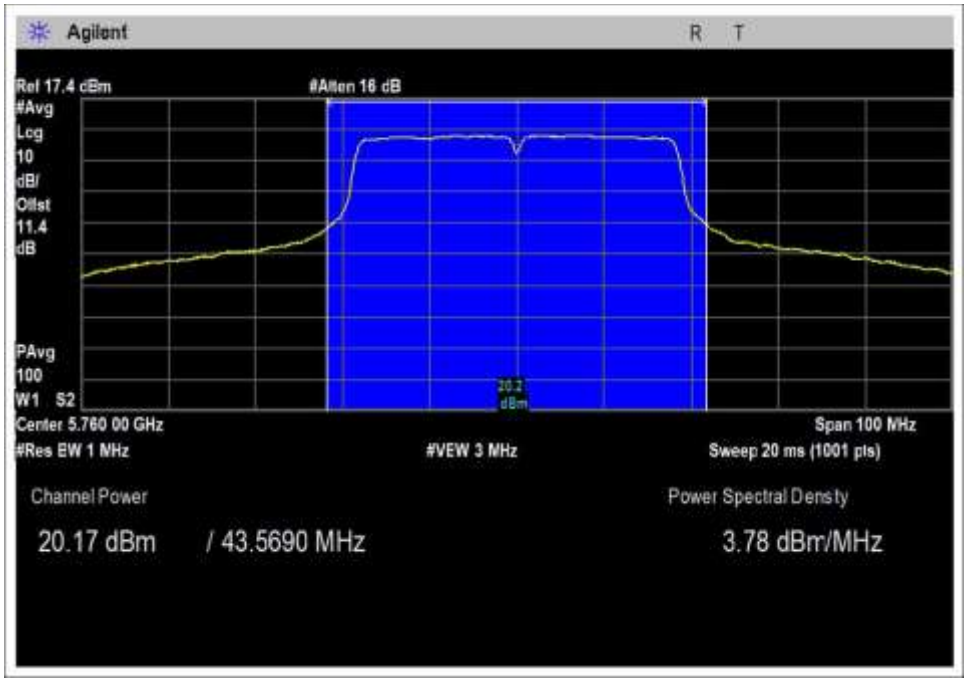


MB, Set 21

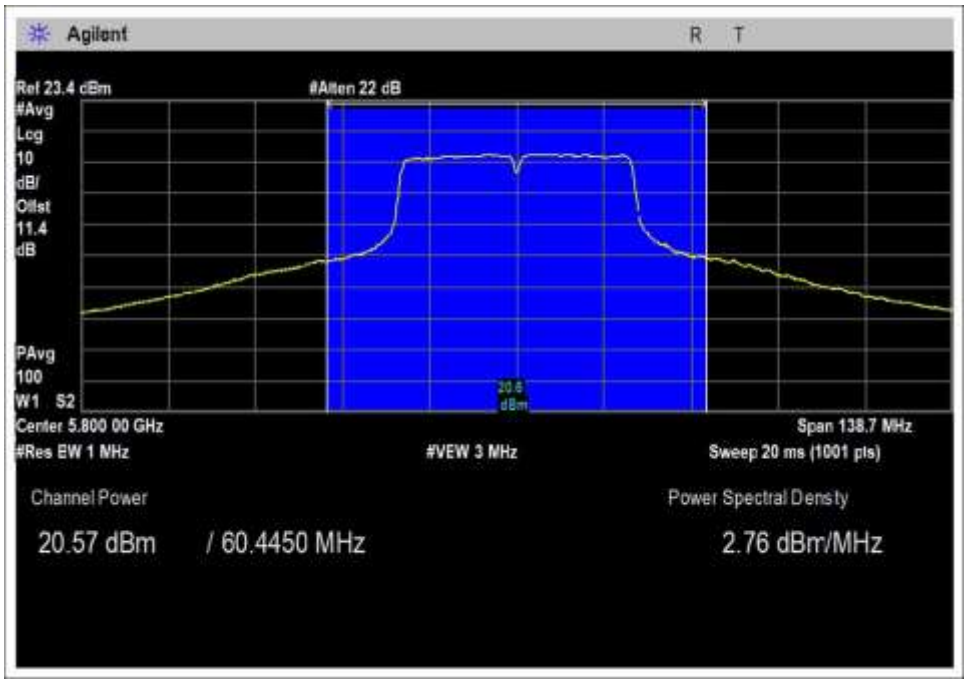

Agilent
R T
Ref 21.4 dBm
#Atten 20 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
18.5
dBm
Center 5.825 00 GHz
Span 149.4 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
18.53 dBm
/ 44.4060 MHz
Power Spectral Density
2.06 dBm/MHz

HB, Set 19

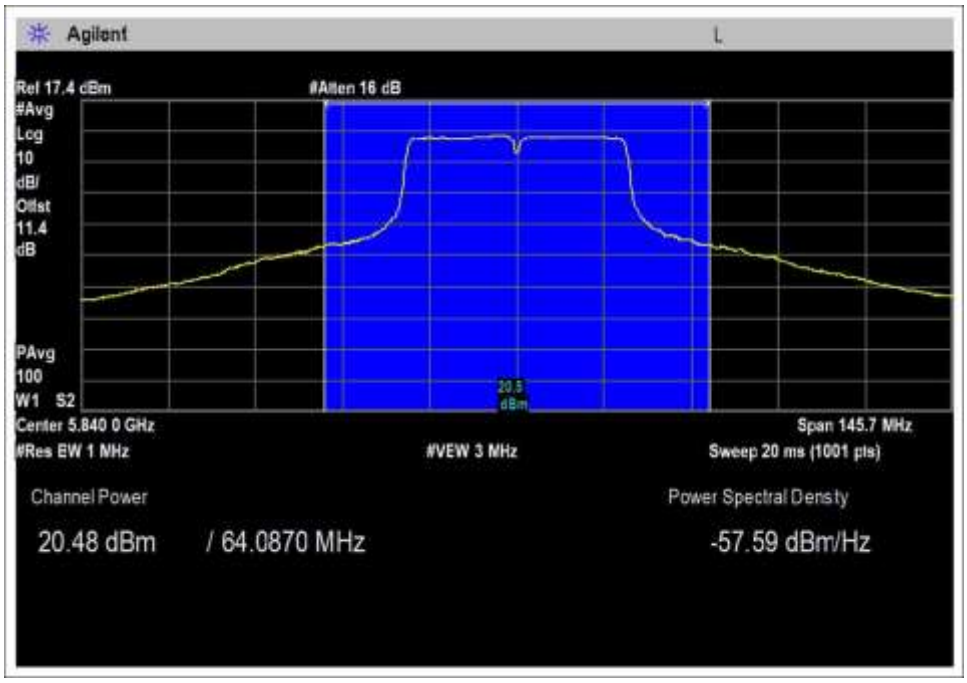
40MHz / HexHorn / 13dBi



LB, Set 20

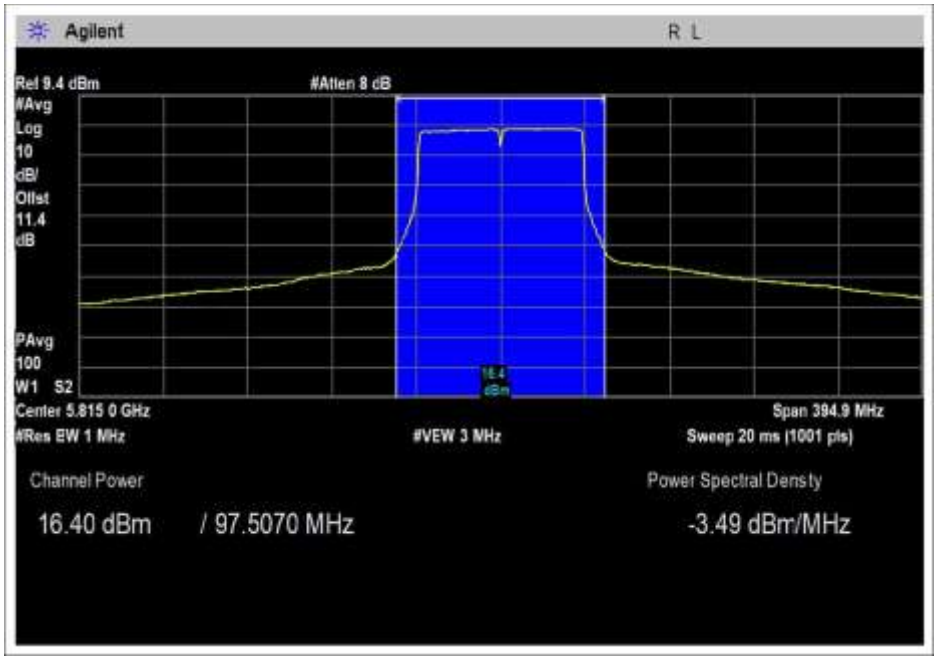


MB, Set 20

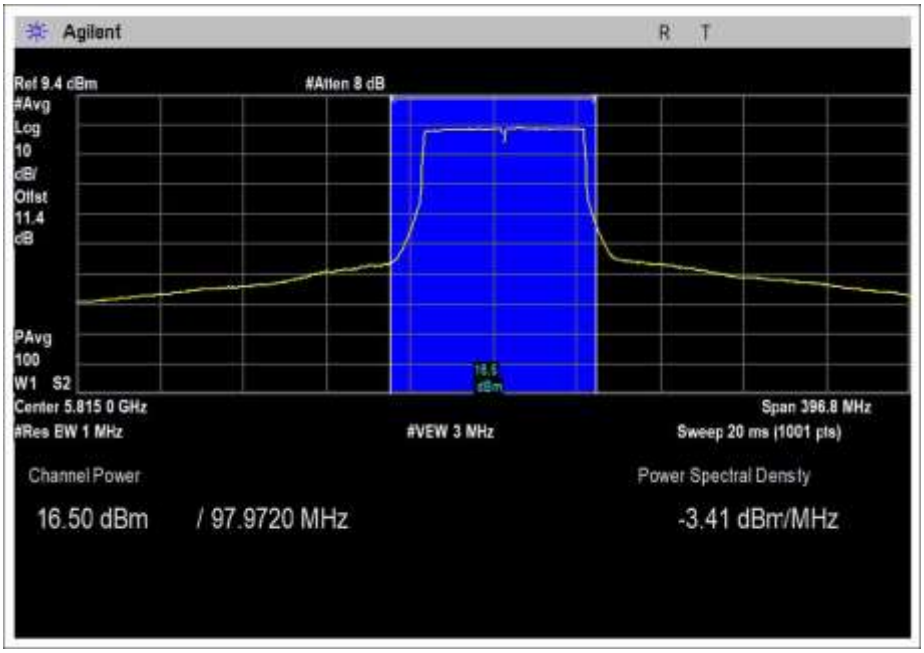

Agilent
Ref 17.4 dBm
#Atten 16 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
20.5
dBm
Center 5.840 0 GHz
Span 145.7 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
20.48 dBm
/ 64.0870 MHz
Power Spectral Density
-57.59 dBm/Hz

HB, Set 22

80MHz / 30Deg / 17.5dBi



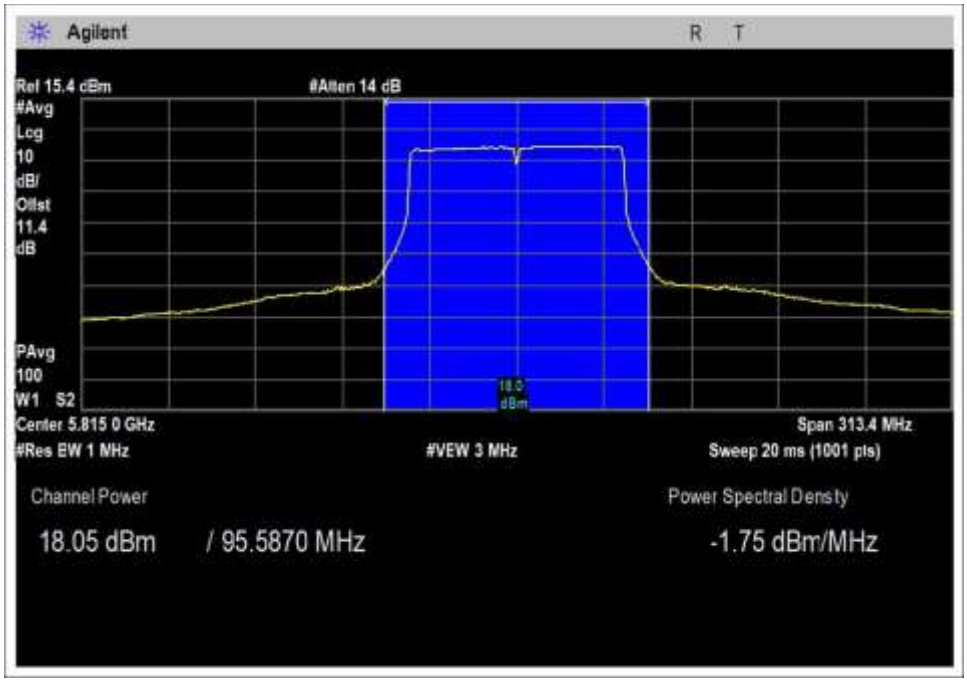
LB, Set 17.5



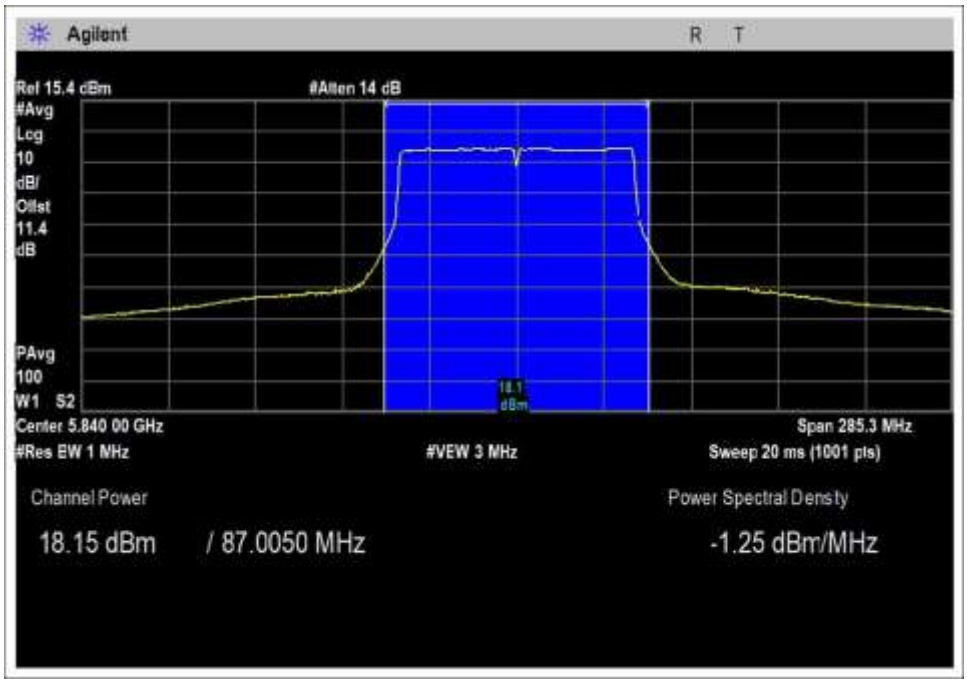
HB, Set 17.5

Note: The output power measurement was re-measured and after re-measuring, it has been determined that the data reported is valid and represents worst-case.

80MHz / 90Deg / 9dBi

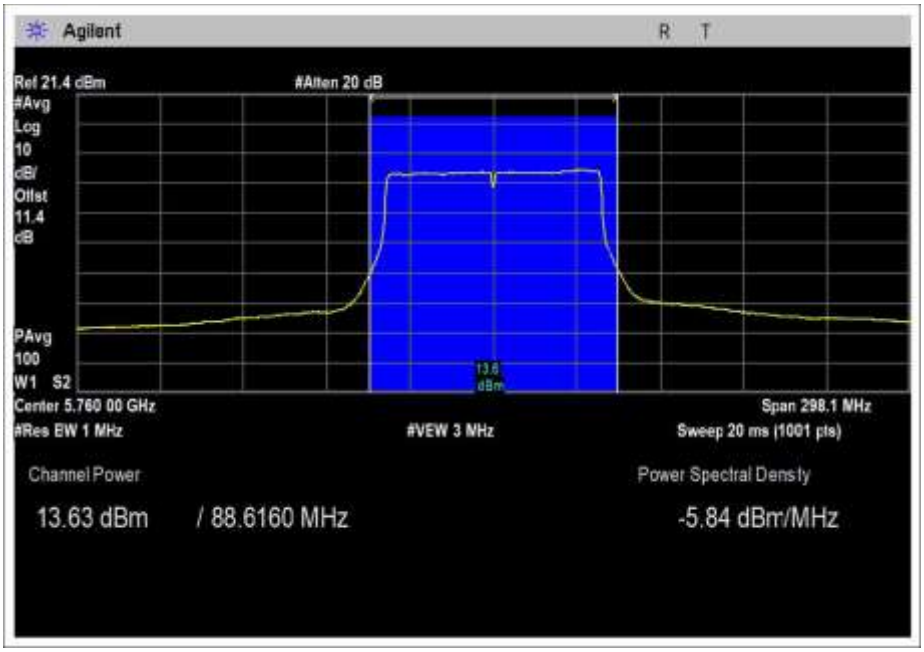


LB, Set 19

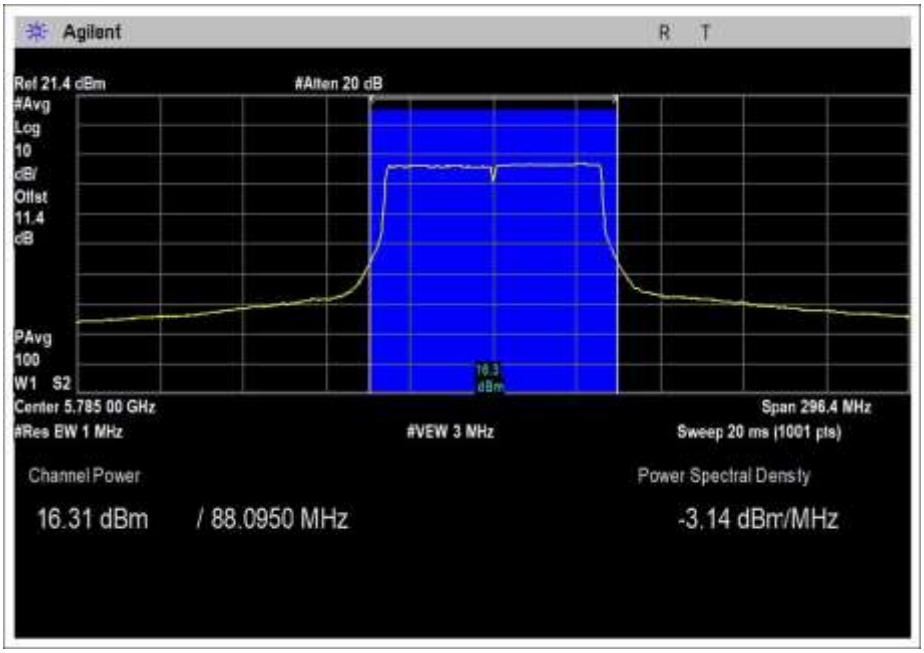


HB, Set 19

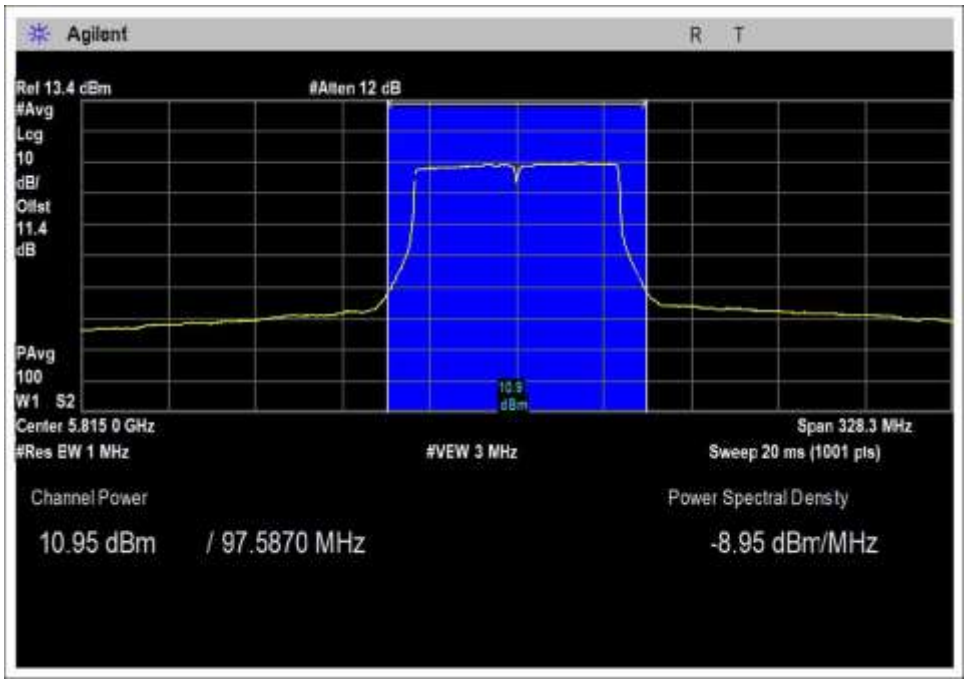
80MHz / Dish / 28dBi



LB, Set 15

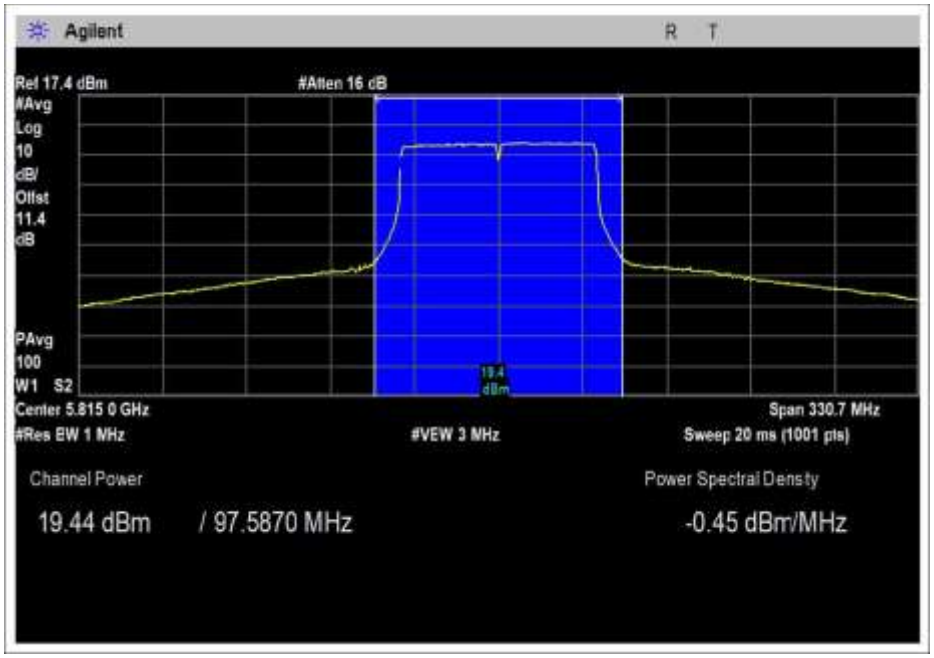


MB, Set 17.5

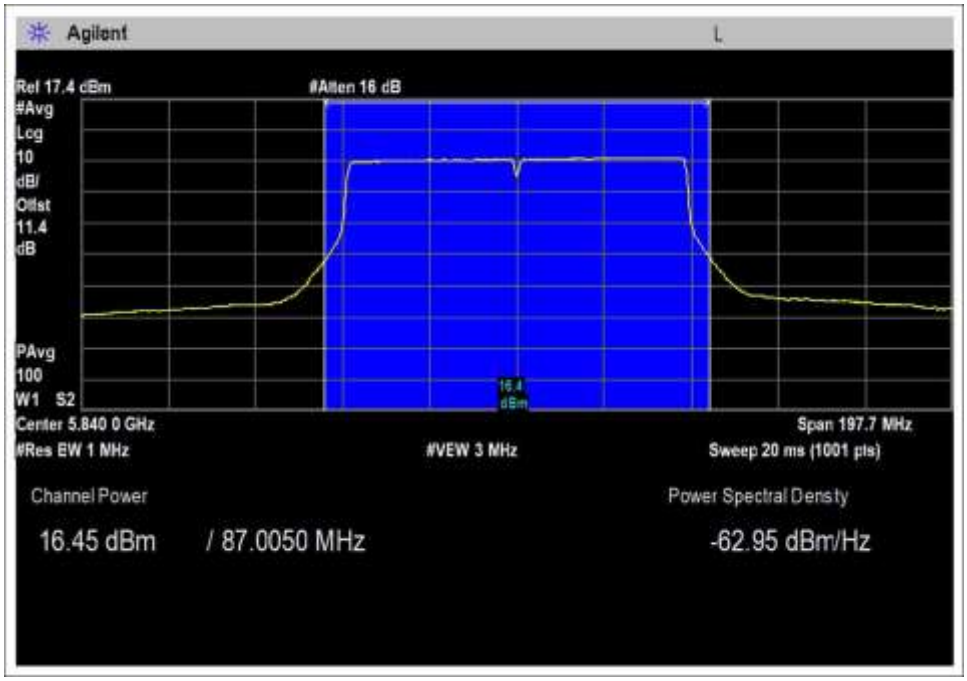

Agilent
R T
Ref 13.4 dBm
#Atten 12 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
10.9
dBm
Center 5.815 0 GHz
Span 328.3 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
10.95 dBm
/ 97.5870 MHz
Power Spectral Density
-8.95 dBm/MHz

HB, Set 12

80MHz / HexHorn / 13dBi



LB, Set 19



HB, Set 19

Note: The output power measurement was re-measured and after re-measuring, it has been determined that the data reported is valid and represents worst-case.

Test Setup Photos

15.407(a) Power Spectral Density

Test Setup/Conditions			
Test Location:	Mariposa Lab A	Test Engineer:	Benny Lovan
Test Method:	ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)	Test Date(s):	11/14/2017 – 11/15/2017
Configuration:	1		
Test Setup:	The EUT is setup on a table with its antenna port directly connected to an analyzer through 11.4dB of attenuation. The EUT has two antenna ports that are identical. Testing was performed on Port 1 The Average Power Spectral Density measurement was made, using the PSD Wireless feature of the analyzer. This method provides the peak of the averaged waveform per MHz. The method by which the analyzer makes this message is in accordance with the KDB.		
Declaration:	Modification #1 was in place during testing.		

Environmental Conditions			
Temperature (ºC)	20-22	Relative Humidity (%):	42-45

Test Equipment					
Asset#	**Description**	**Manufacturer**	**Model**	**Cal Date**	**Cal Due**
02660	Spectrum Analyzer	Agilent	E4446A	10/10/2016	10/10/2018
03361	Cable	Astrolab	32022-2-29094-48TC	1/10/2017	1/10/2019
P05935	Attenuator	Weinschel	84A-10	1/18/2016	1/18/2018

UNII 2c Test Data Summary - RF Conducted Measurement					
Measurement Option: AVGSA-1					
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Measured (dBm/MHz)**	**Limit (dBm/MHz)**	**Results**
20MHz Channel BW					
5500	OFDM	17.5dBi 30DegHorn	-1.26	≤ -0.5	Pass
5600	OFDM	17.5dBi 30DegHorn	-1.71	≤ -0.5	Pass
5700	OFDM	17.5dBi 30DegHorn	-1.67	≤ -0.5	Pass
5500	OFDM	13 dBi 50DegHorn	0.66	≤ 4	Pass
5600	OFDM	13 dBi 50DegHorn	1.21	≤ 4	Pass
5700	OFDM	13 dBi 50DegHorn	1.85	≤ 4	Pass
5500	OFDM	9dBi 90DegHron	6.64	≤ 8	Pass
5600	OFDM	9 dBi 90DegHron	5.52	≤ 8	Pass
5700	OFDM	9 dBi 90DegHron	5.72	≤ 8	Pass
40MHz Channel BW					
5520	OFDM	17.5dBi 30DegHorn	-4.20	≤ -0.5	Pass
5595	OFDM	17.5dBi 30DegHorn	-4.23	≤ -0.5	Pass
5700	OFDM	17.5dBi 30DegHorn	-4.05	≤ -0.5	Pass
5500	OFDM	13 dBi 50DegHorn	-1.142	≤ 4	Pass
5595	OFDM	13 dBi 50DegHorn	0.16	≤ 4	Pass
5700	OFDM	13 dBi 50DegHorn	0.52	≤ 4	Pass
5500	OFDM	9dBi 90DegHron	-0.54	≤ 8	Pass
5595	OFDM	9 dBi 90DegHron	-0.47	≤ 8	Pass
5700	OFDM	9 dBi 90DegHron	0.07	≤ 8	Pass
80MHz Channel BW					
5540	OFDM	17.5dBi 30DegHorn	-11.01	≤ -0.5	Pass
5600	OFDM	17.5dBi 30DegHorn	-11.56	≤ -0.5	Pass
5515	OFDM	13 dBi 50DegHorn	-6.75	≤ 4	Pass
5540	OFDM	13 dBi 50DegHorn	-7.01	≤ 4	Pass
5600	OFDM	13 dBi 50DegHorn	-2.88	≤ 4	Pass
5510	OFDM	9dBi 90DegHron	-9.45	≤ 8	Pass
5600	OFDM	9 dBi 90DegHron	-2.30	≤ 8	Pass

The limit is calculated in accordance with 15.407(a)(2):

$Limit = 11 - Roundup(G - 6)$

UNII 3 Test Data Summary - RF Conducted Measurement					
Measurement Option: AVGSA-1					
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Measured (dBm/MHz)**	**Limit (dBm/MHz)**	**Results**
20MHz Channel BW					
5745	OFDM	17.5dBi 30DegHorn	1.642	≤ 18.5	Pass
5785	OFDM	17.5dBi 30DegHorn	1.752	≤ 18.5	Pass
5840	OFDM	17.5dBi 30DegHorn	2.060	≤ 18.5	Pass
5745	OFDM	13 dBi 50DegHorn	5.027	≤ 23	Pass
5785	OFDM	13 dBi 50DegHorn	5.197	≤ 23	Pass
5840	OFDM	13 dBi 50DegHorn	5.519	≤ 23	Pass
5745	OFDM	9dBi 90DegHron	5.226	≤ 27	Pass
5785	OFDM	9 dBi 90DegHron	6.353	≤ 27	Pass
5840	OFDM	9 dBi 90DegHron	6.663	≤27	Pass
5745	OFDM	28dBi Dish	7.595	≤ 30	Pass
5795	OFDM	28dBi Dish	8.091	≤ 30	Pass
5840	OFDM	28dBi Dish	8.371	≤ 30	Pass
40MHz Channel BW					
5760	OFDM	17.5dBi 30DegHorn	0.391	≤ 18.5	Pass
5800	OFDM	17.5dBi 30DegHorn	0.964	≤ 18.5	Pass
5825	OFDM	17.5dBi 30DegHorn	1.240	≤ 18.5	Pass
5760	OFDM	13 dBi 50DegHorn	2.566	≤ 23	Pass
5800	OFDM	13 dBi 50DegHorn	2.785	≤ 23	Pass
5840	OFDM	13 dBi 50DegHorn	2.745	≤ 23	Pass
5760	OFDM	9dBi 90DegHron	3.335	≤ 27	Pass
5800	OFDM	9 dBi 90DegHron	3.404	≤ 27	Pass
5840	OFDM	9 dBi 90DegHron	4.031	≤27	Pass
5745	OFDM	28dBi Dish	2.171	≤ 30	Pass
5785	OFDM	28dBi Dish	2.262	≤ 30	Pass
5825	OFDM	28dBi Dish	0.956	≤ 30	Pass

UNII 3 Test Data Summary - RF Conducted Measurement - continued					
Measurement Option: AVGSA-1					
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Measured (dBm/MHz)**	**Limit (dBm/MHz)**	**Results**
80MHz Channel BW					
5815	OFDM	17.5dBi 30DegHorn	-4.513	≤ 18.5	Pass
5820	OFDM	17.5dBi 30DegHorn	-4.709	≤ 18.5	Pass
5815	OFDM	13 dBi 50DegHorn	-1.641	≤ 23	Pass
5820	OFDM	13 dBi 50DegHorn	-1.587	≤ 23	Pass
5840	OFDM	13 dBi 50DegHorn	-4.634	≤ 23	Pass
5815	OFDM	9dBi 90DegHron	-2.871	≤ 27	Pass
5840	OFDM	9 dBi 90DegHron	-2.93	≤ 27	Pass
5760	OFDM	28dBi Dish	-7.325	≤ 8	Pass
5785	OFDM	28dBi Dish	-4.410	≤ 8	Pass
5815	OFDM	28dBi Dish	-9.516	≤ 8	Pass

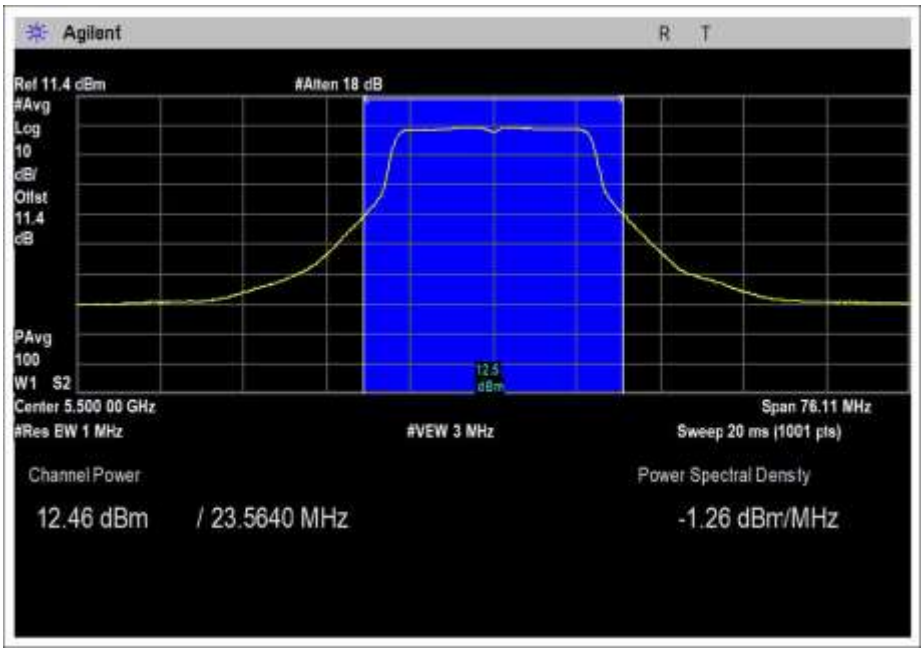
The limit is calculated in accordance with 15.407(a)(3):

$Limit = 30 - Roundup(G - 6)$

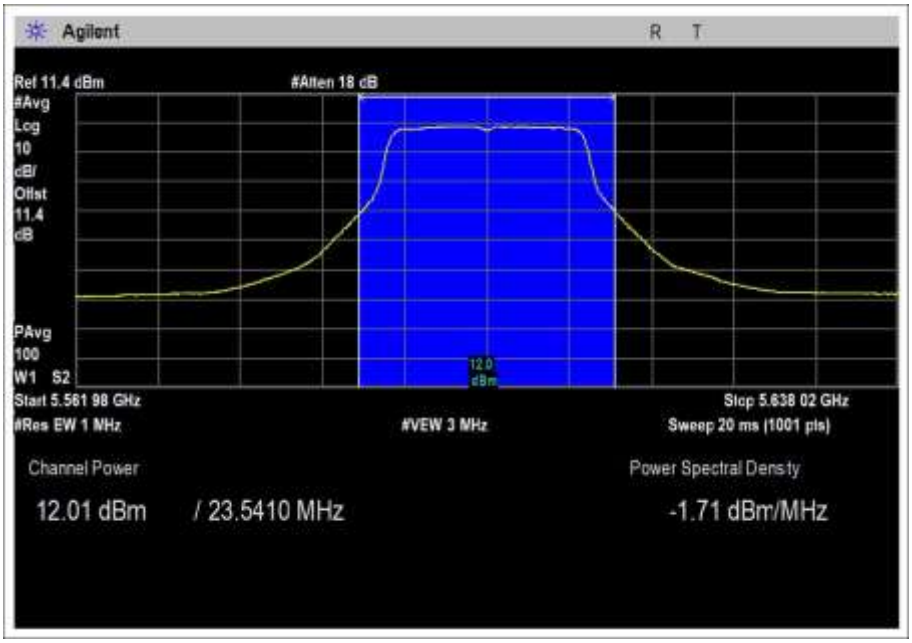
Plots

UNII 2c

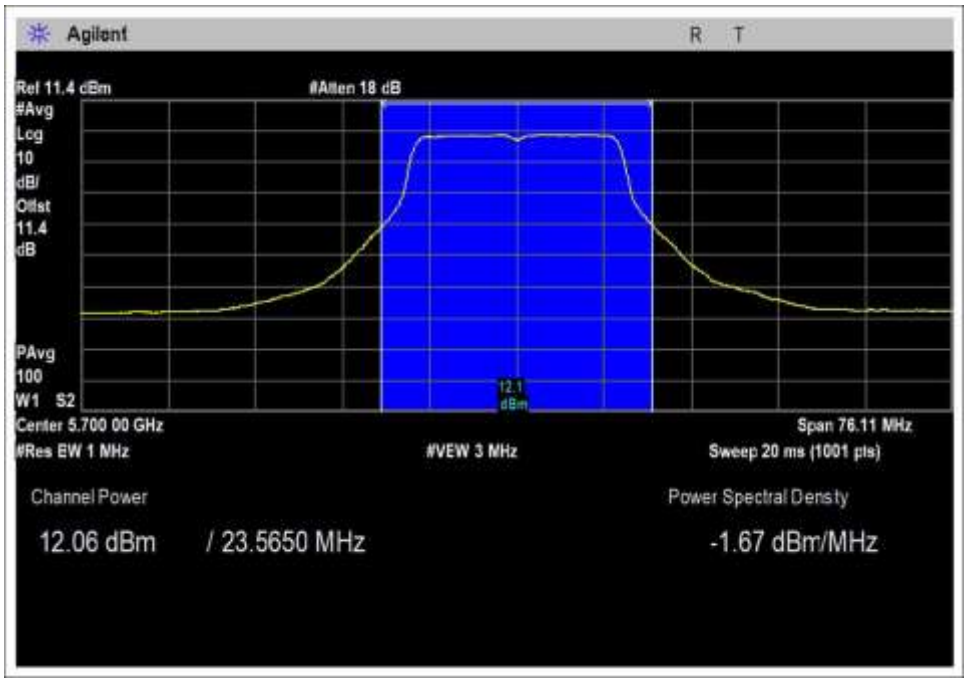
20MHz / 30Deg / 17.5dBi



LB Set 14.5

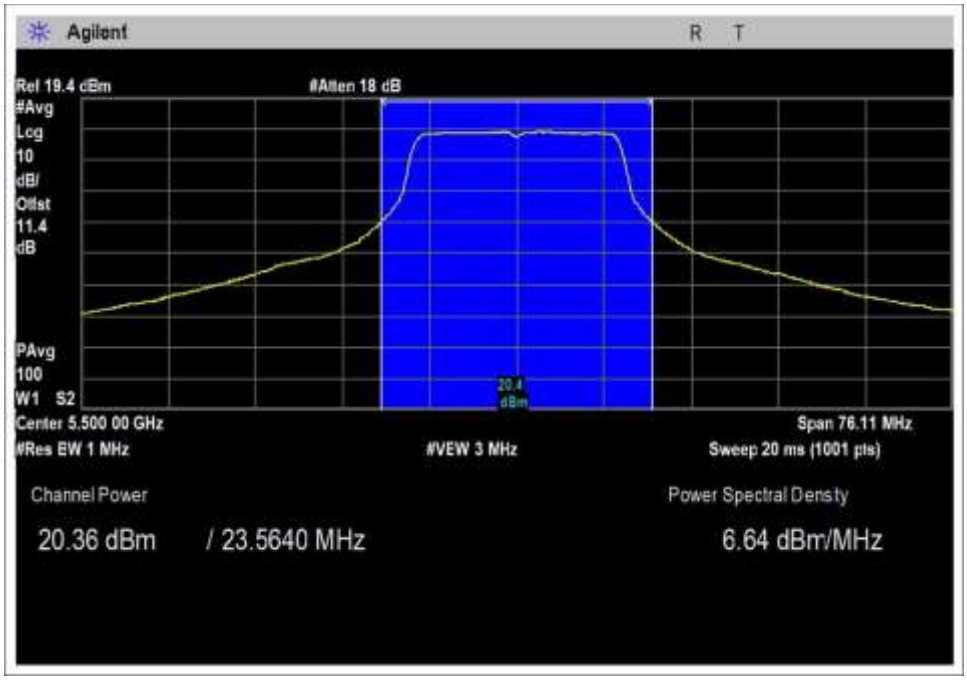


MB Set 14

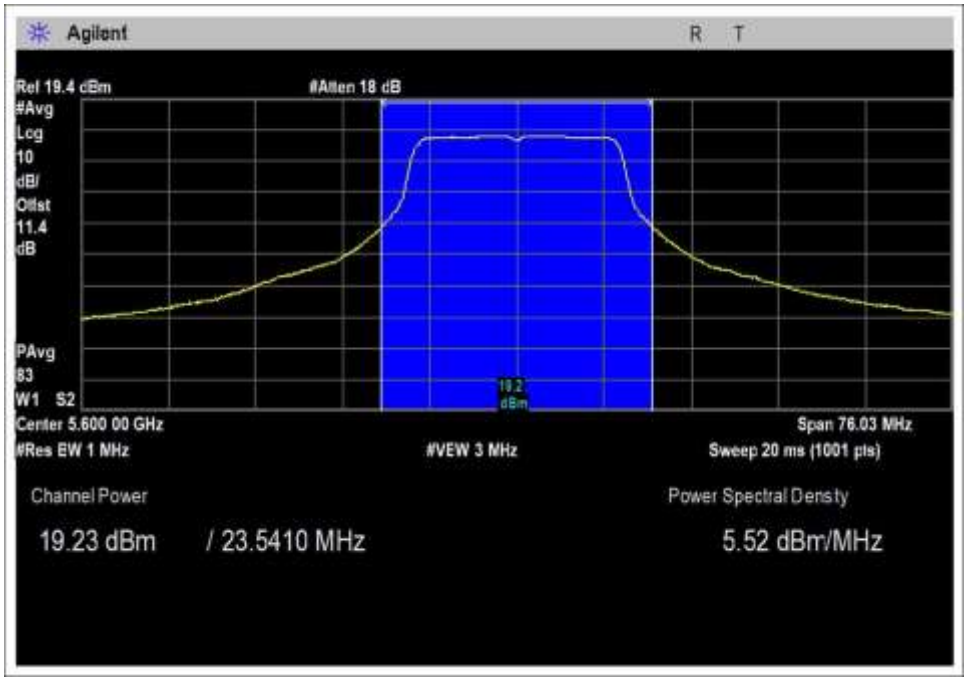

Agilent
R T
Ref 11.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
12.1
dBm
Center 5.700 00 GHz
Span 76.11 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
12.06 dBm
/ 23.5650 MHz
Power Spectral Density
-1.67 dBm/MHz

HB Set 13.5

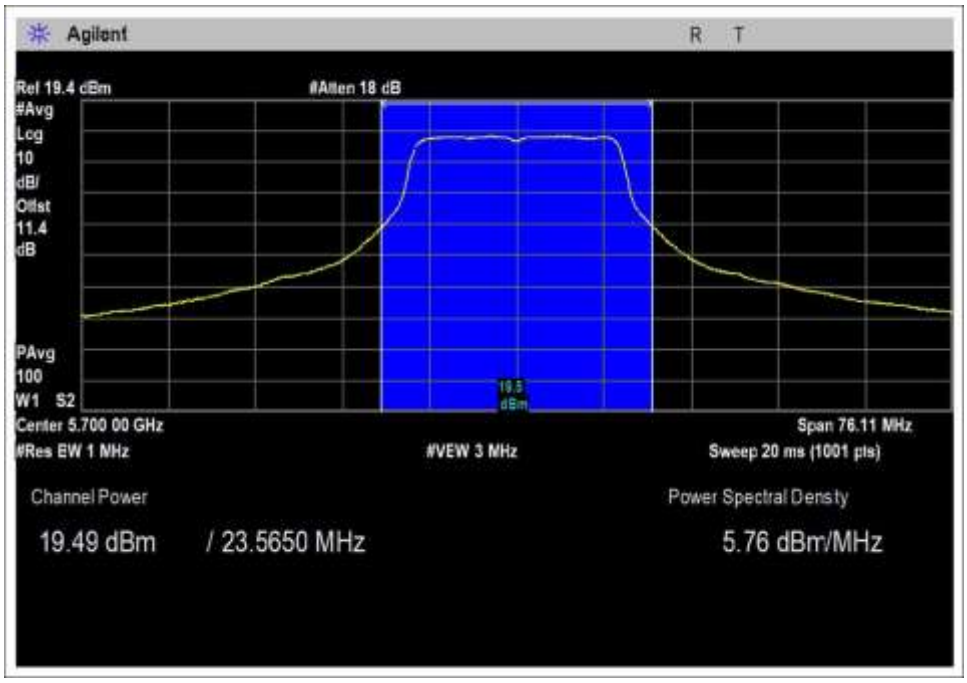
20MHz / 90Deg / 9dBi



LB, Set 22

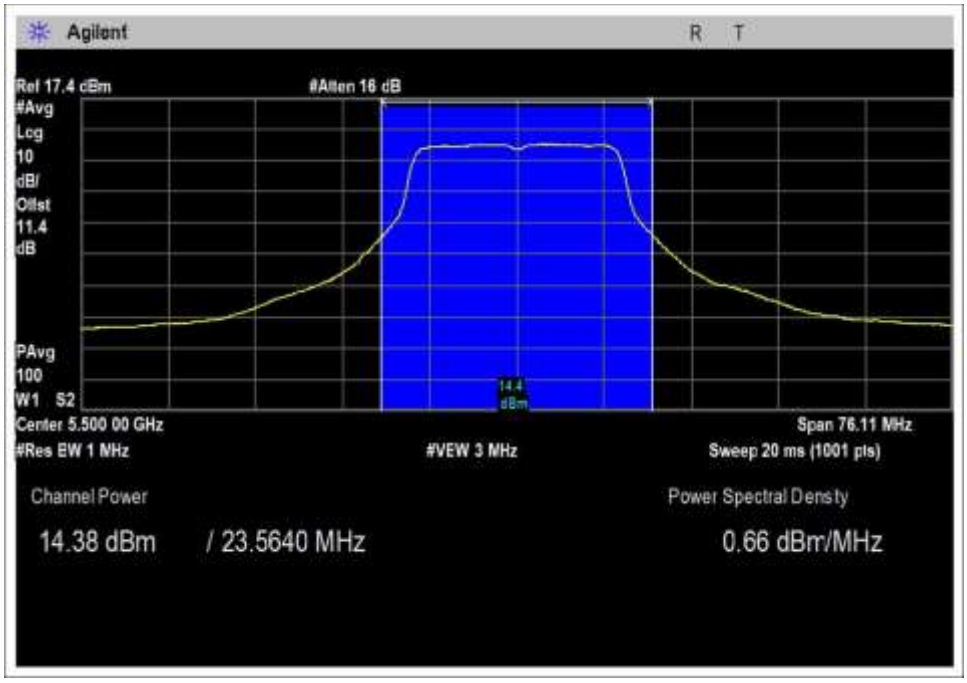


MB, Set 21

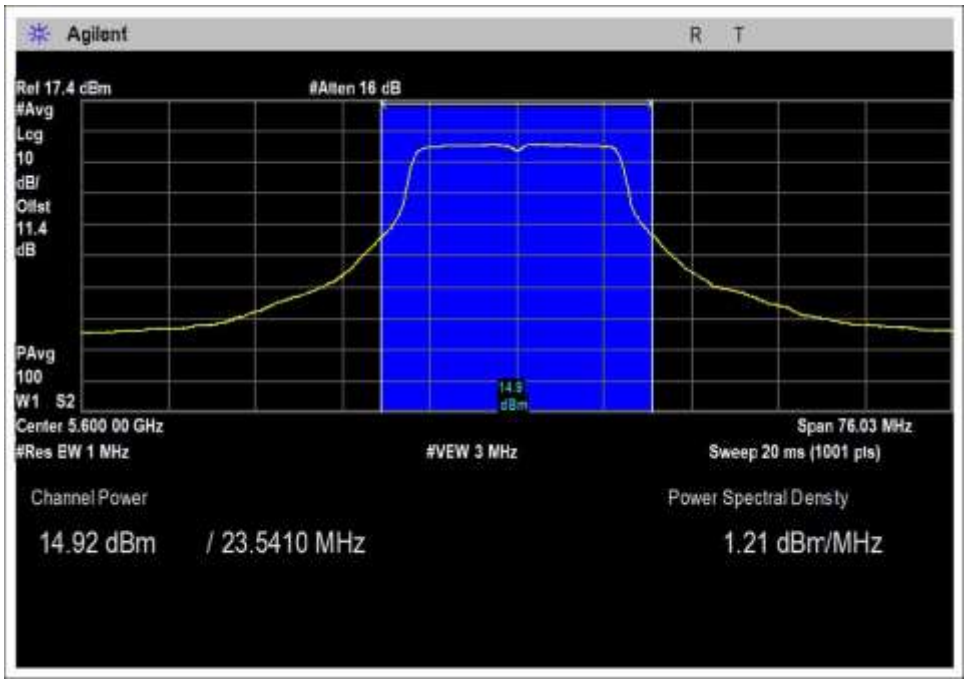

Agilent
R T
Ref 19.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
19.5
dBm
Center 5.700 00 GHz
Span 76.11 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
19.49 dBm
/ 23.5650 MHz
Power Spectral Density
5.76 dBm/MHz

HB, Set 21

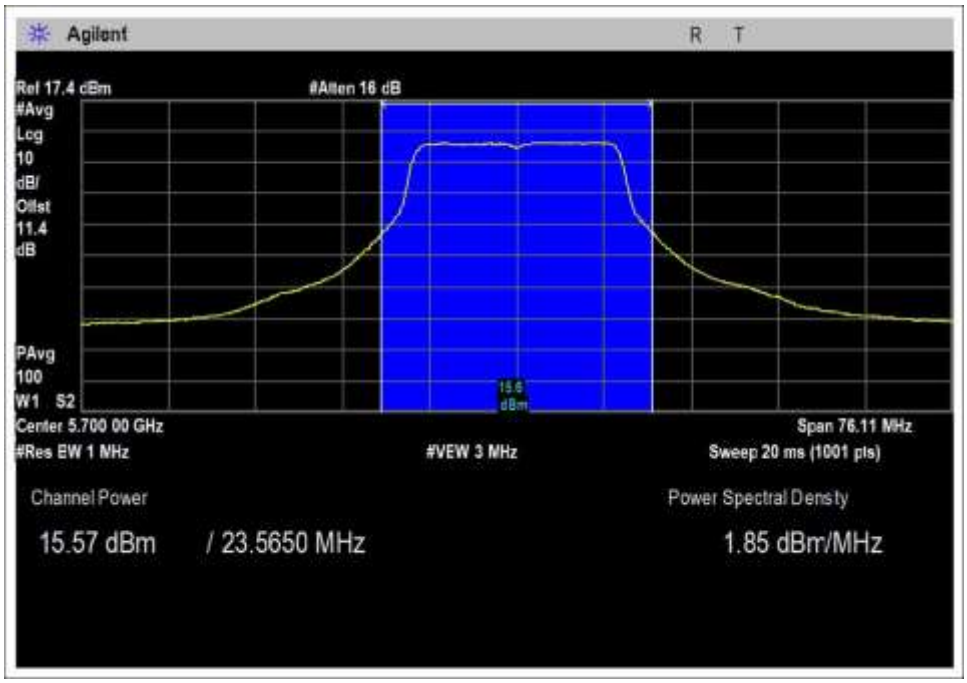
20MHz / HexHorn / 13dBi



LB Set 16.5

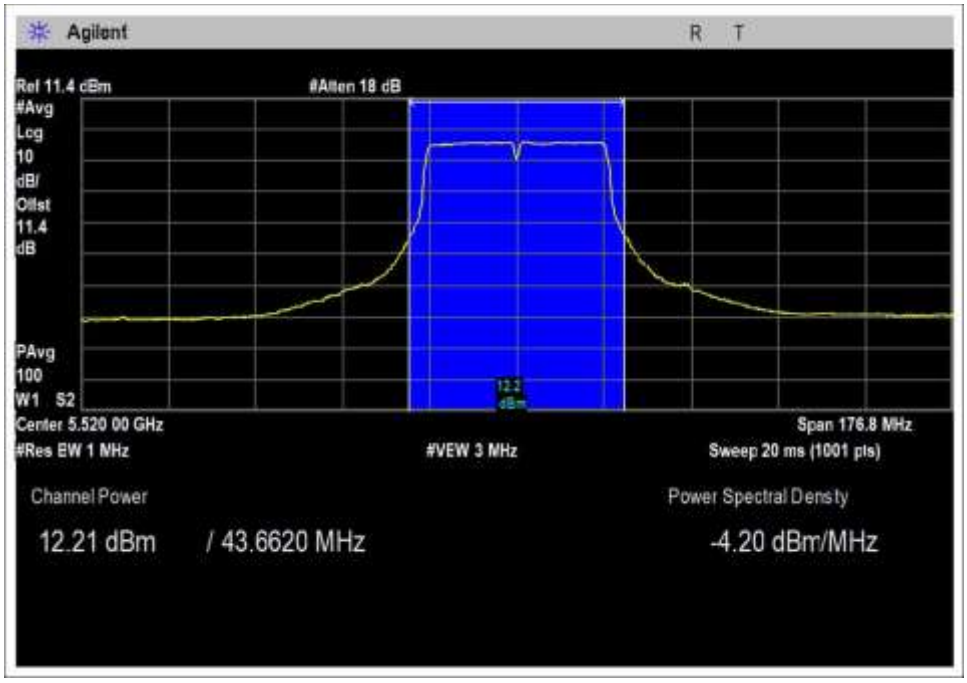


MB, Set 16.5

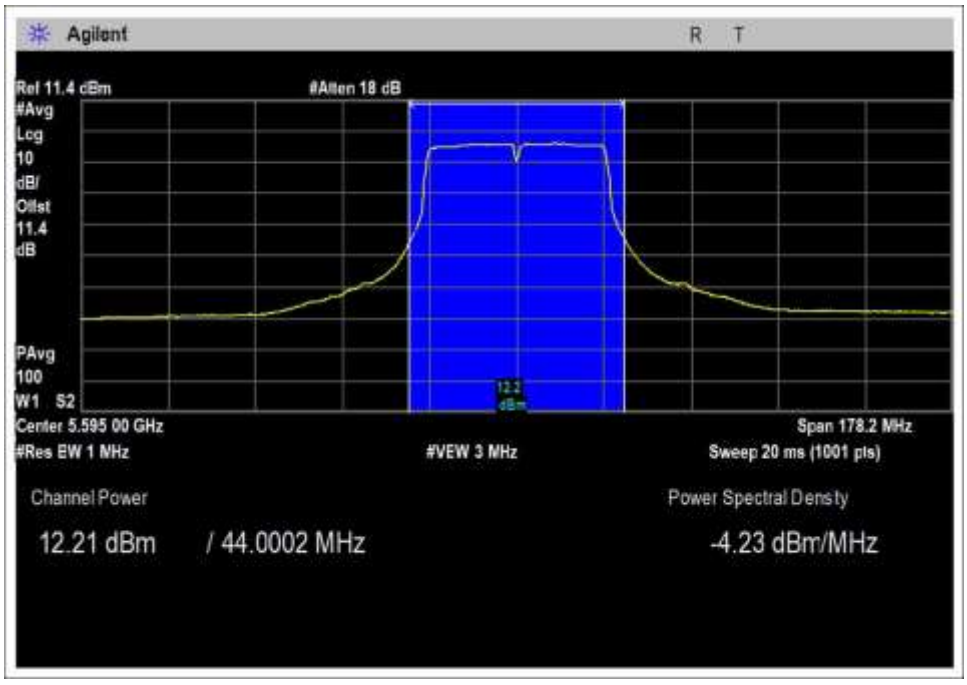

Agilent
R T
Ref 17.4 dBm
#Atten 16 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
15.6
dBm
Center 5.700 00 GHz
Span 76.11 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
15.57 dBm
/ 23.5650 MHz
Power Spectral Density
1.85 dBm/MHz

HB, Set 16.5

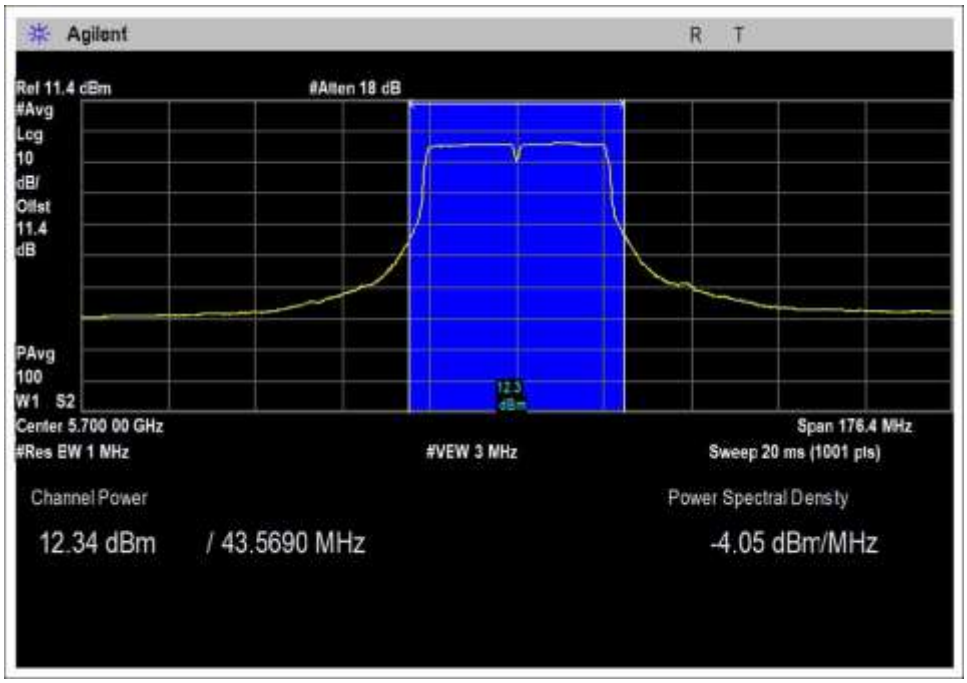
40MHz / 30Deg / 17.5dBi



LB, Set 14

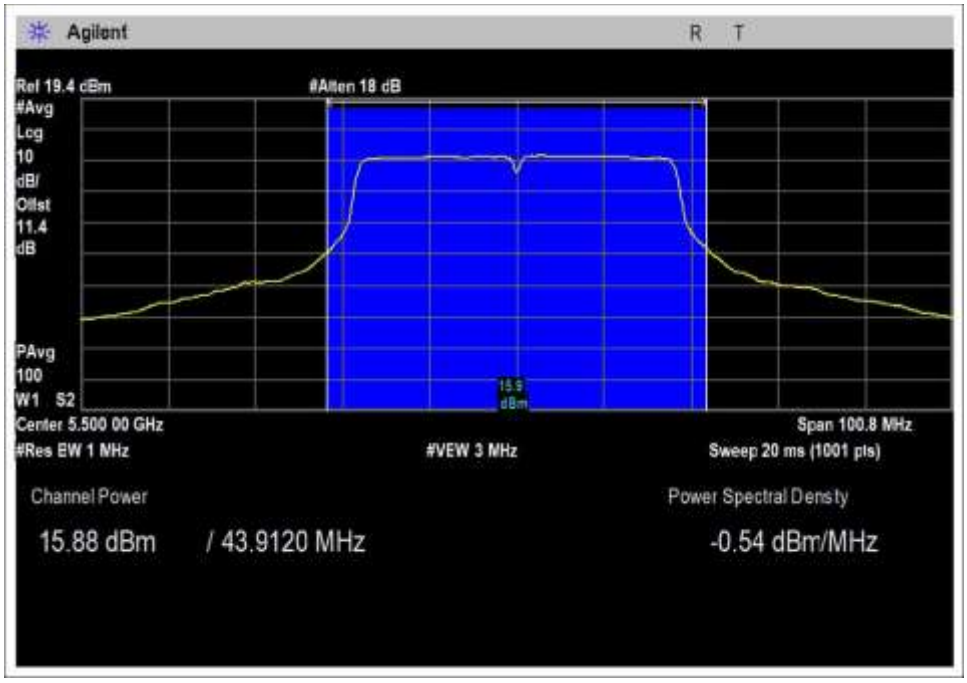


MB, Set 14

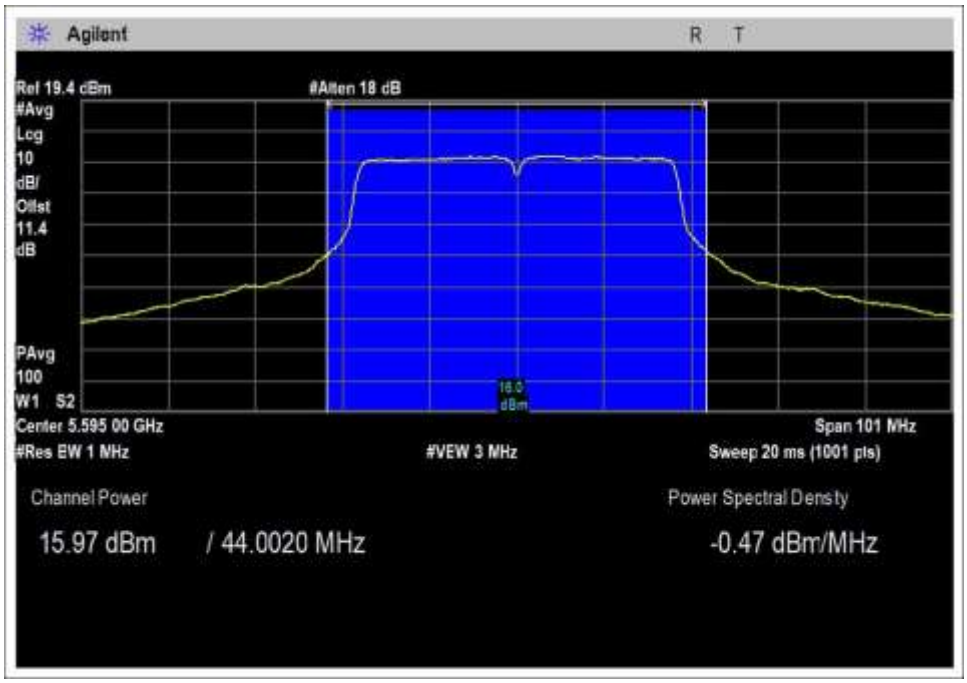

Agilent
R T
Ref 11.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
Center 5.700 00 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 176.4 MHz
Sweep 20 ms (1001 pts)
Channel Power
12.34 dBm
/ 43.5690 MHz
Power Spectral Density
-4.05 dBm/MHz

HB, Set 13.5

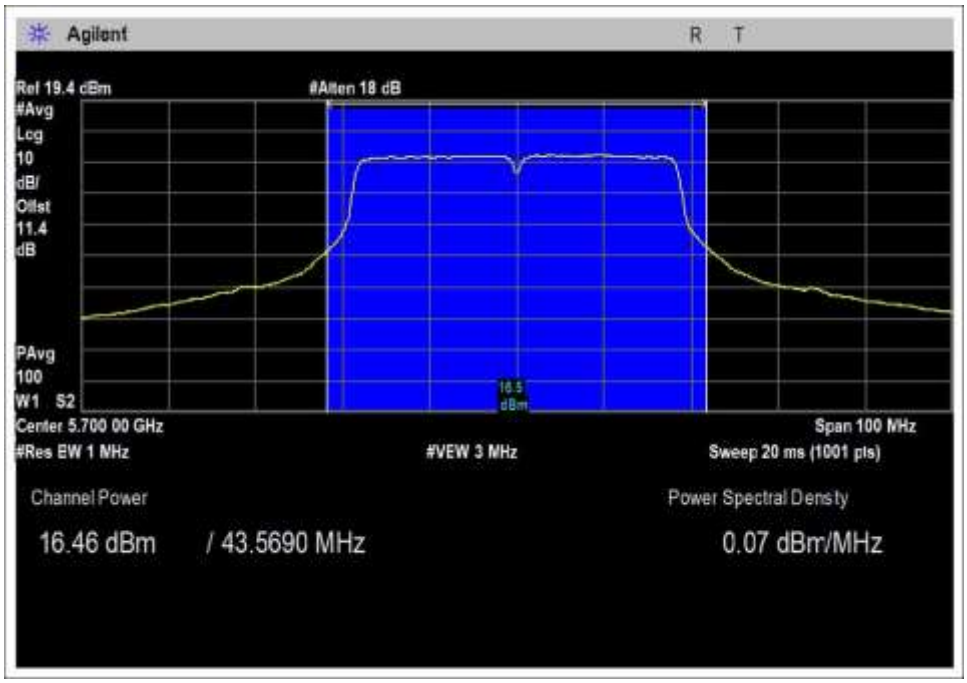
40MHz / 90Deg / 9dBi



LB, Set 17.5

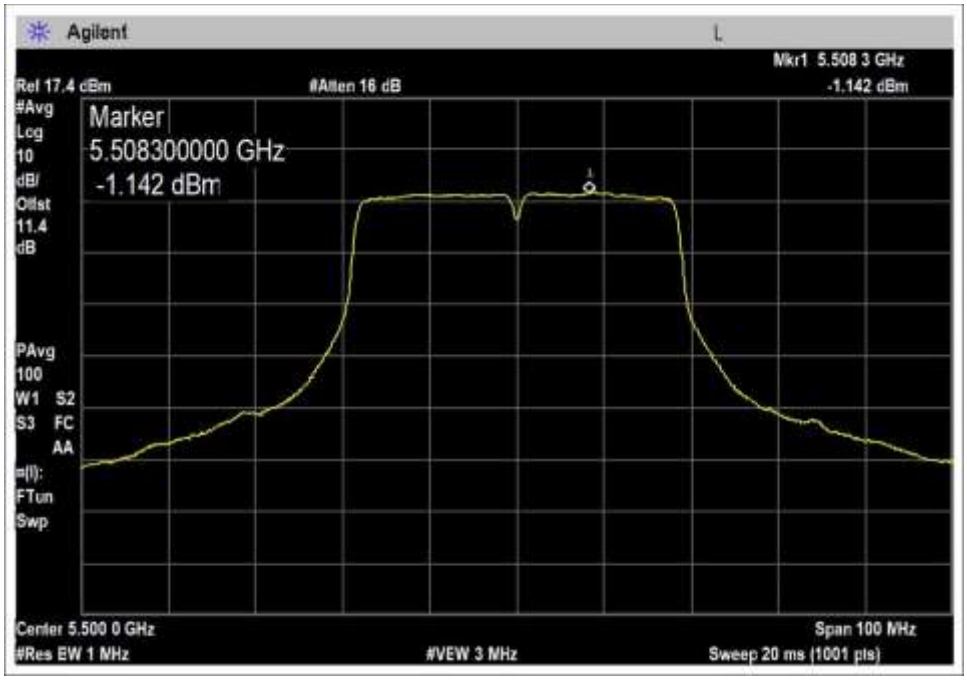


MB, Set 17.5

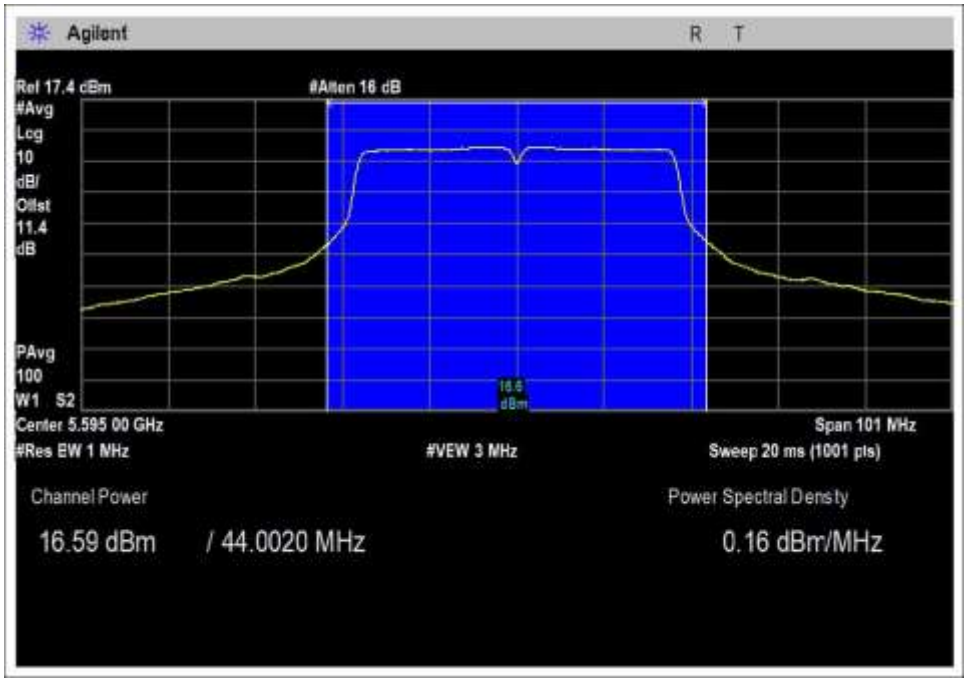

Agilent
R T
Ref 19.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
16.5
dBm
Center 5.700 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
16.46 dBm
/ 43.5690 MHz
Power Spectral Density
0.07 dBm/MHz

HB, Set 17.5

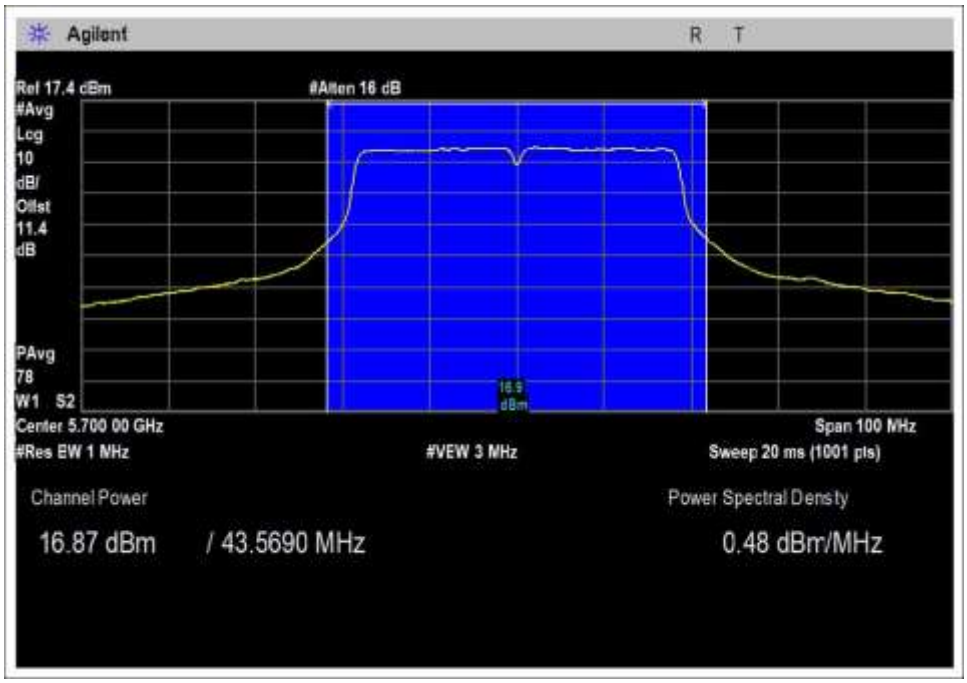
40MHz / HexHorn / 13dBi



LB, Set 17

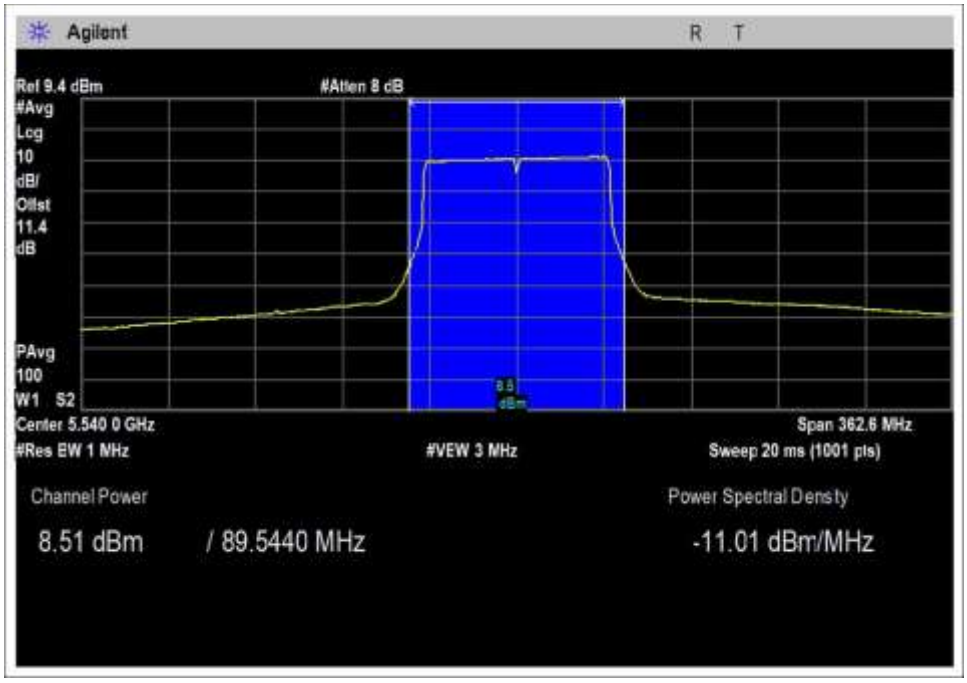


MB, Set 17

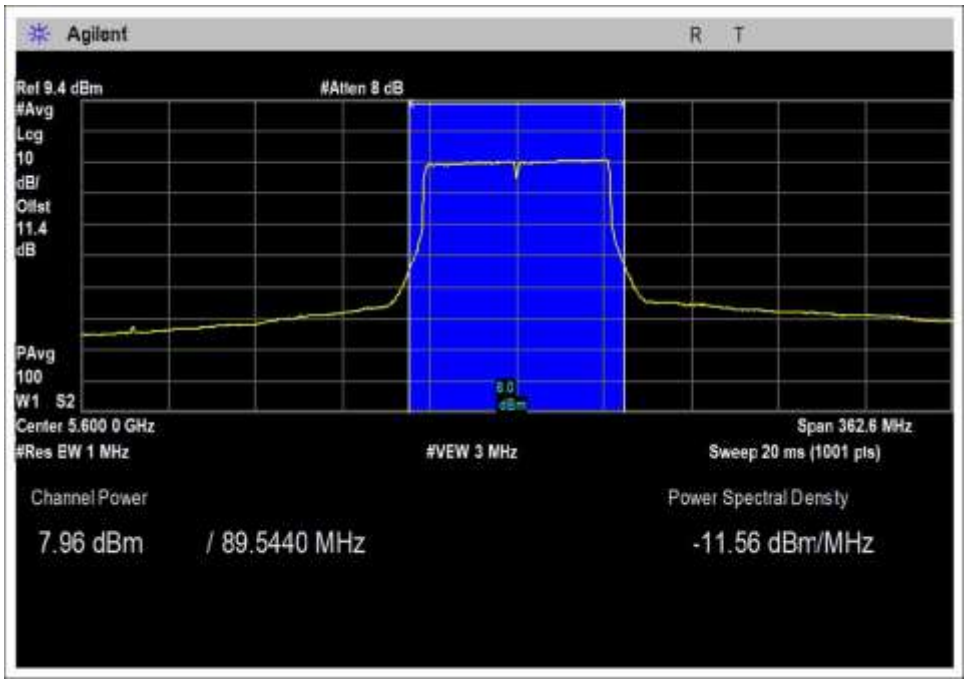

Agilent
R T
Ref 17.4 dBm
#Atten 16 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
78
W1 S2
16.9
dBm
Center 5.700 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
16.87 dBm
/ 43.5690 MHz
Power Spectral Density
0.48 dBm/MHz

HB, Set 17

80MHz / 30Deg / 17.5dBi

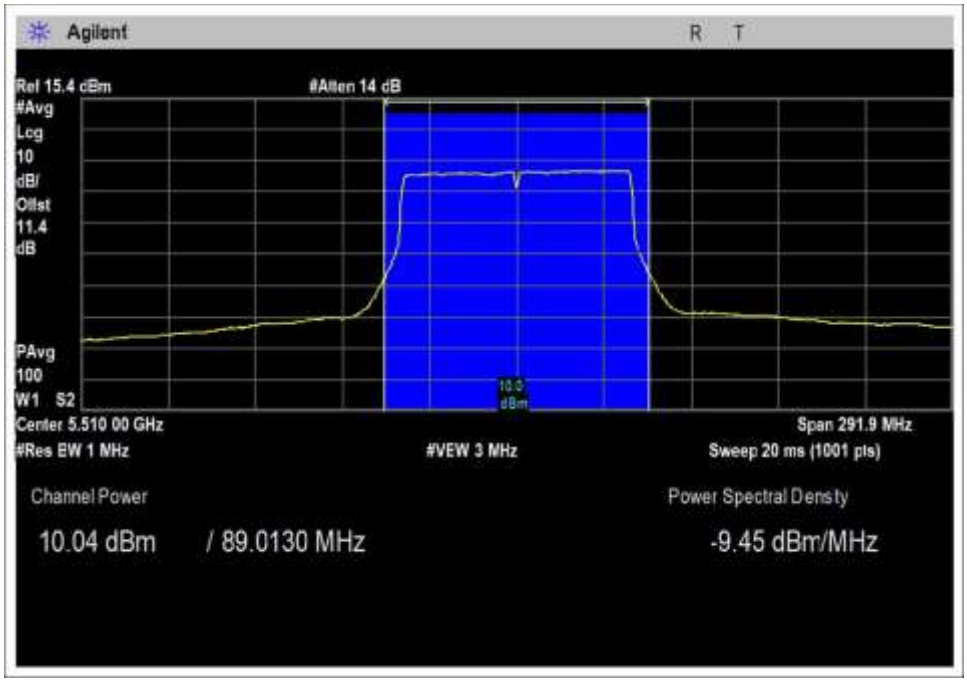


LB, Set 10

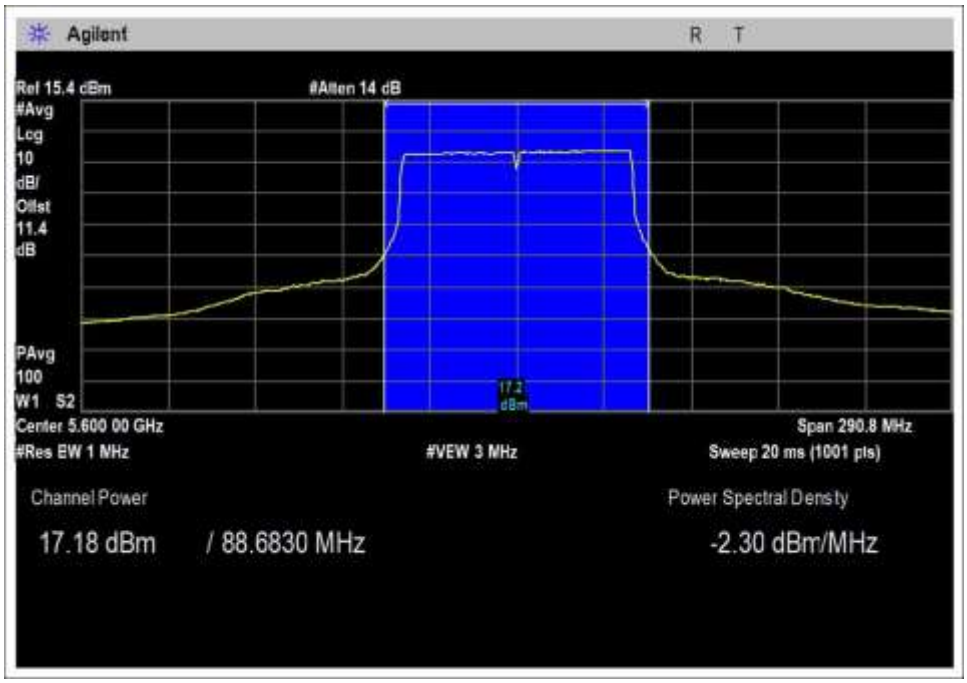


HB, Set 10

80MHz / 90Deg / 9dBi

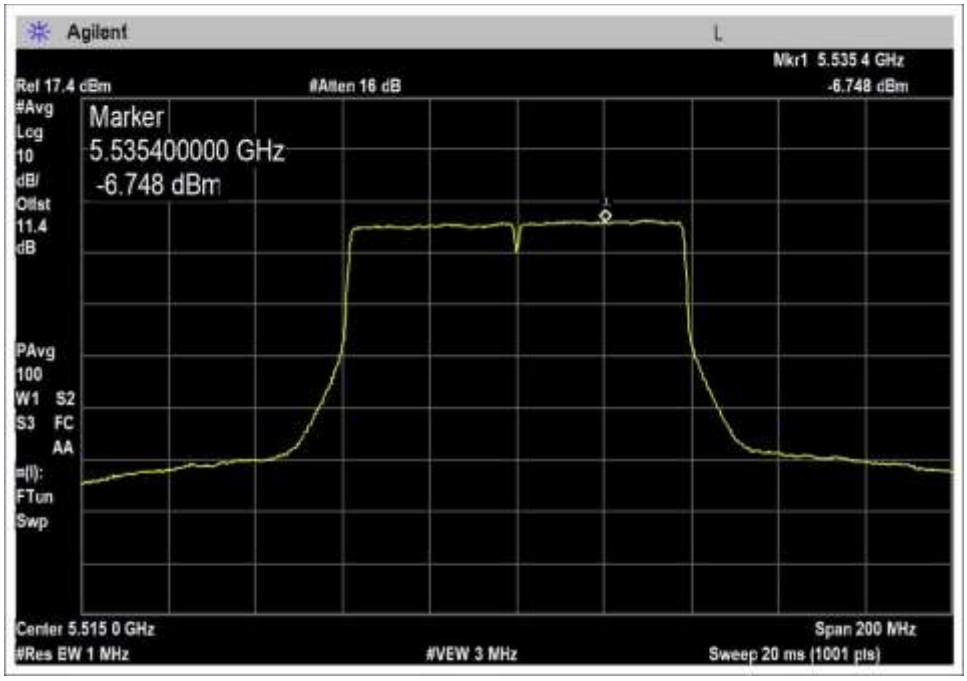


LB, Set 11.5

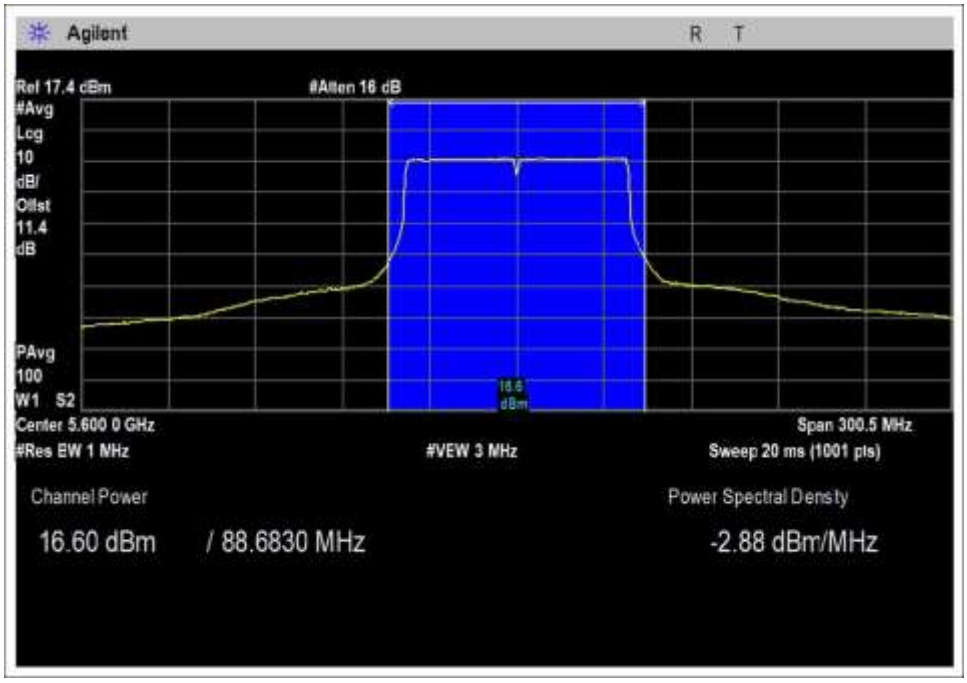


HB, Set 19

80MHz / HexHorn / 13dBi



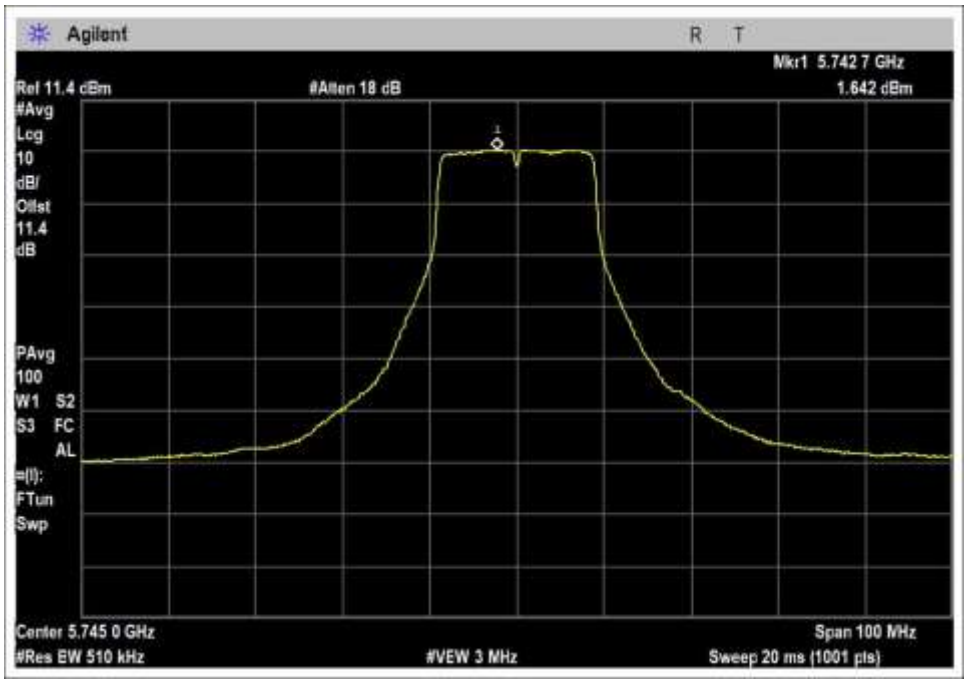
LB, Set 13



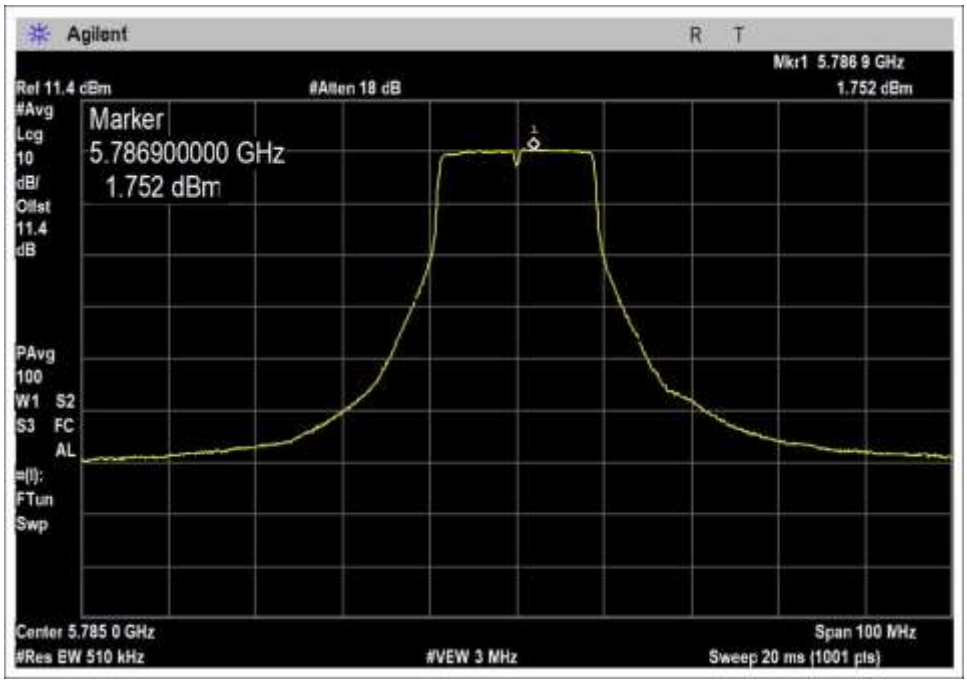
HB, Set 17

UNII 3

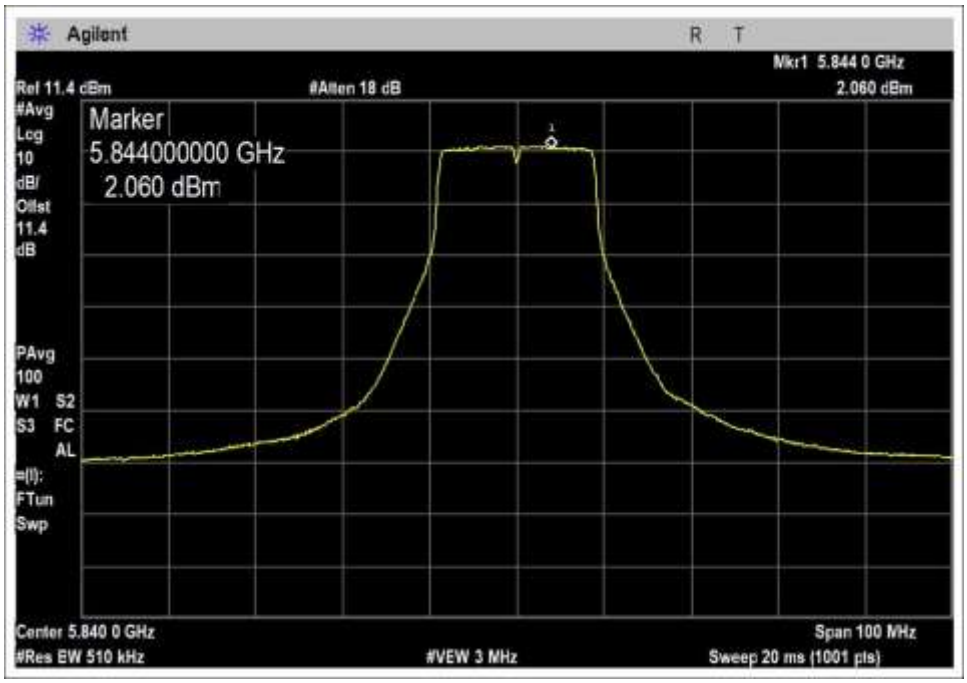
20MHz / 30Deg / 17.5dBi



LB, Set 18

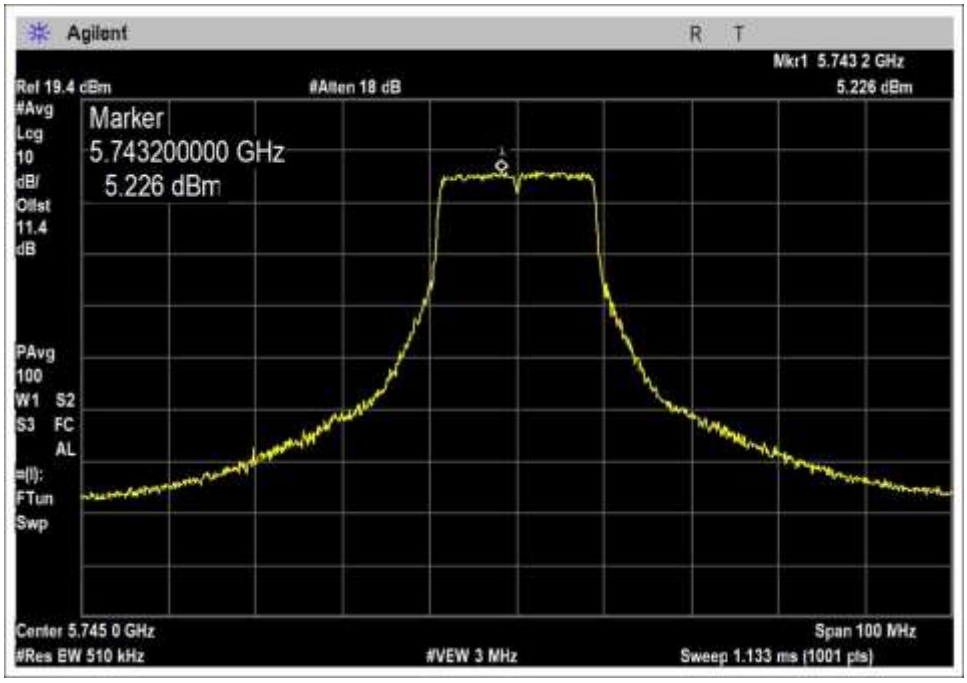


MB, Set 18

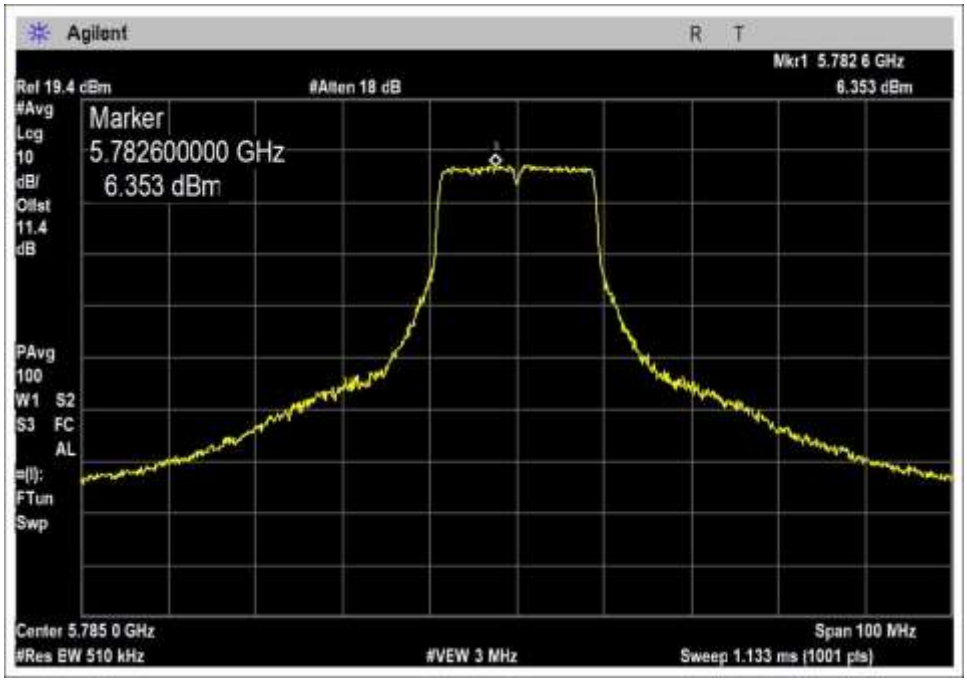

Agilent
R T
Mkr1 5.844 0 GHz
2.060 dBm
Ref 11.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.844000000 GHz
2.060 dBm
PAvg
100
W1 S2
S3 FC
AL
#(!):
FTun
Swp
Center 5.840 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 100 MHz
Sweep 20 ms (1001 pts)

HB, Set 18

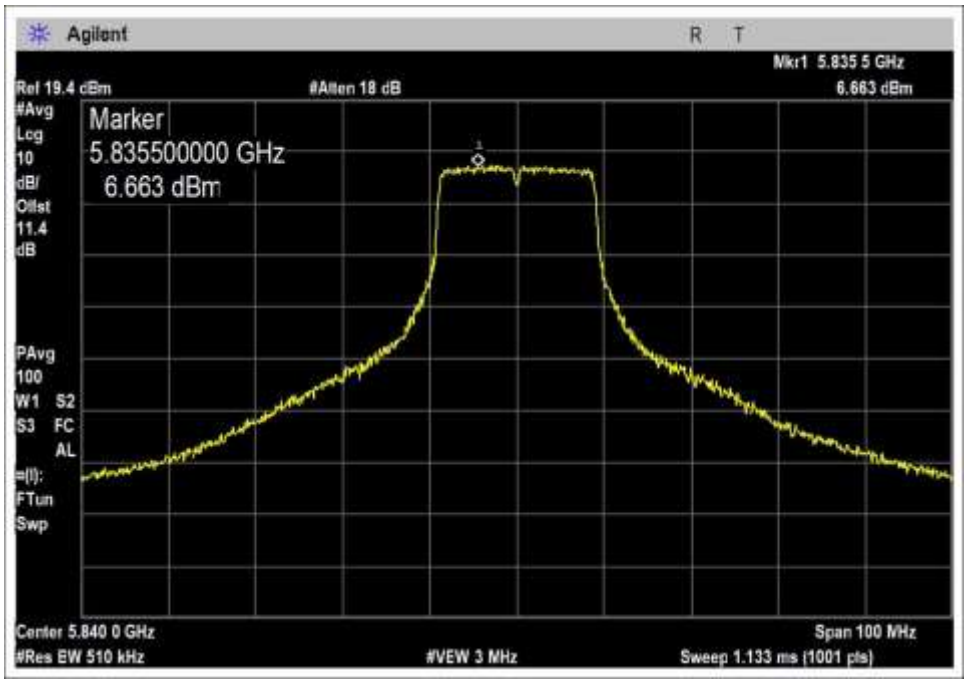
20MHz / 90Deg / 9dBi



LB, Set 21

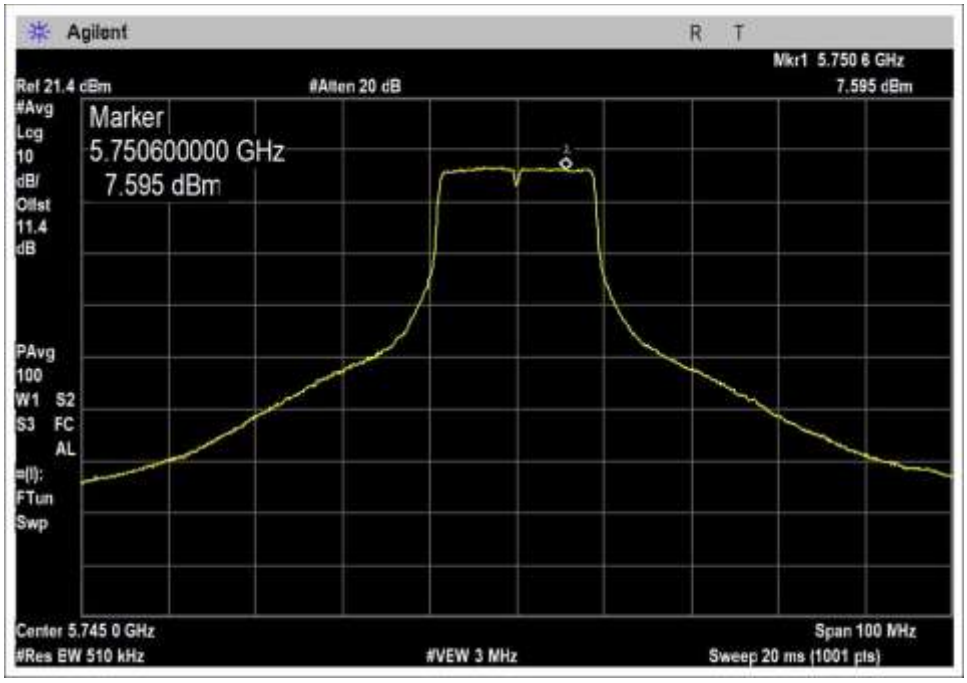


MB, Set 22

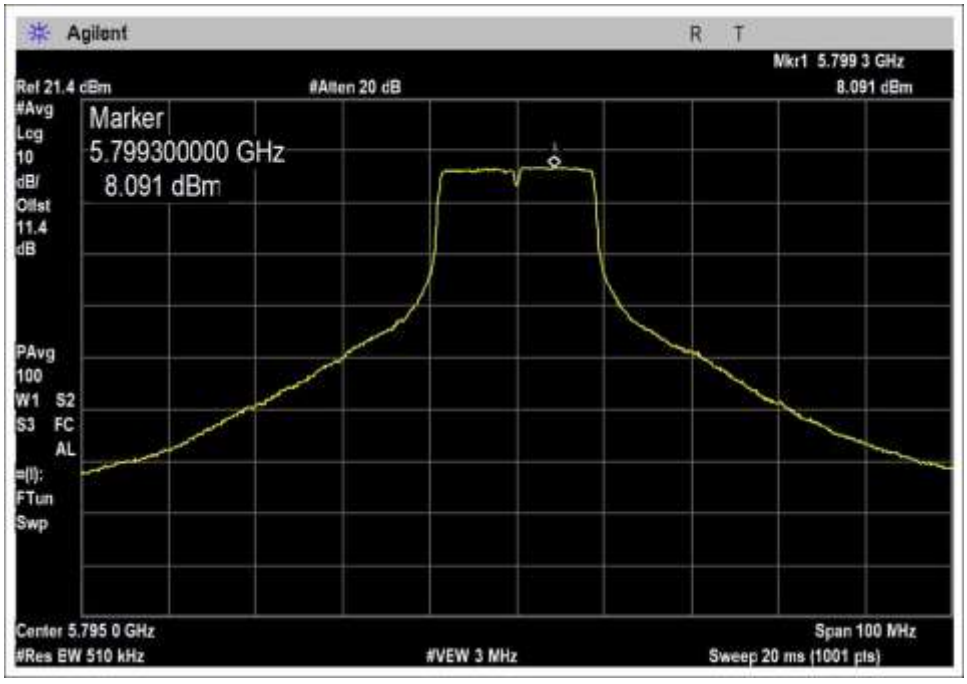

Agilent
R T
Mkr1 5.835 5 GHz
6.663 dBm
Ref 19.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.835500000 GHz
6.663 dBm
PAvg
100
W1 S2
S3 FC
AL
#(!):
FTun
Swp
Center 5.840 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 100 MHz
Sweep 1.133 ms (1001 pts)

HB, Set 22

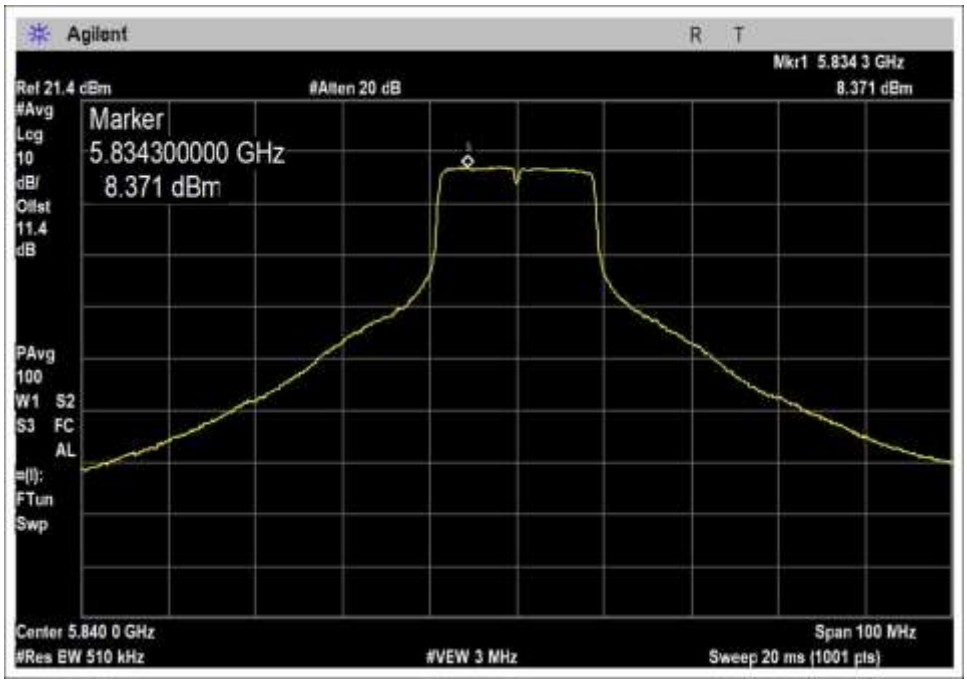
20MHz / Dish / 28dBi



LB, Set 24

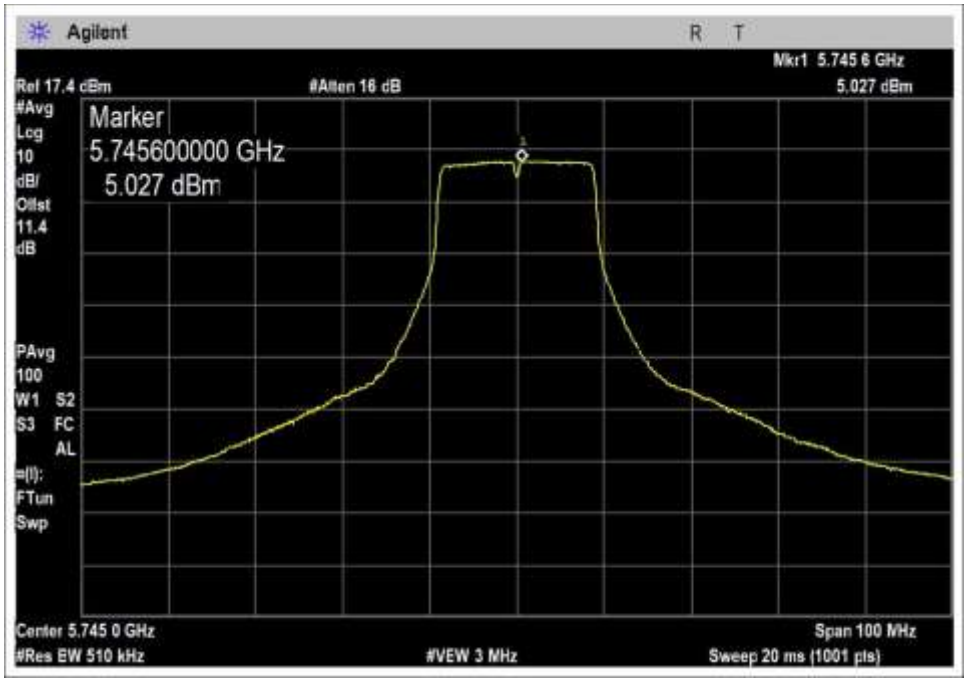


MB, Set 24

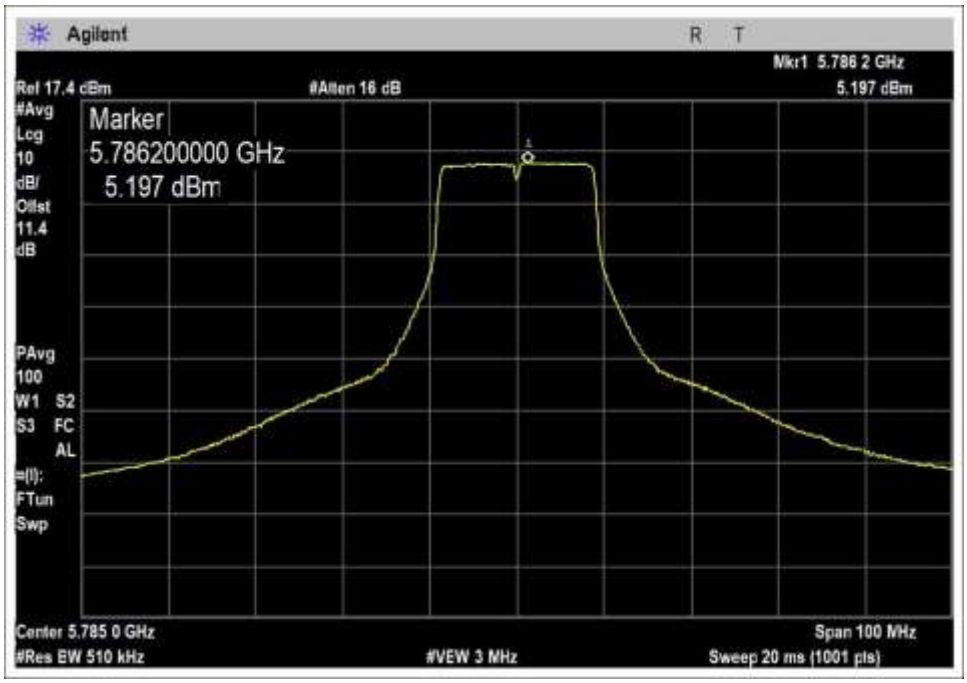

Agilent
R T
Mkr1 5.834 3 GHz
8.371 dBm
Ref 21.4 dBm
#Atten 20 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.834300000 GHz
8.371 dBm
PAvg
100
W1 S2
S3 FC
AL
#(!):
FTun
Swp
Center 5.840 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 100 MHz
Sweep 20 ms (1001 pts)

HB, Set 24

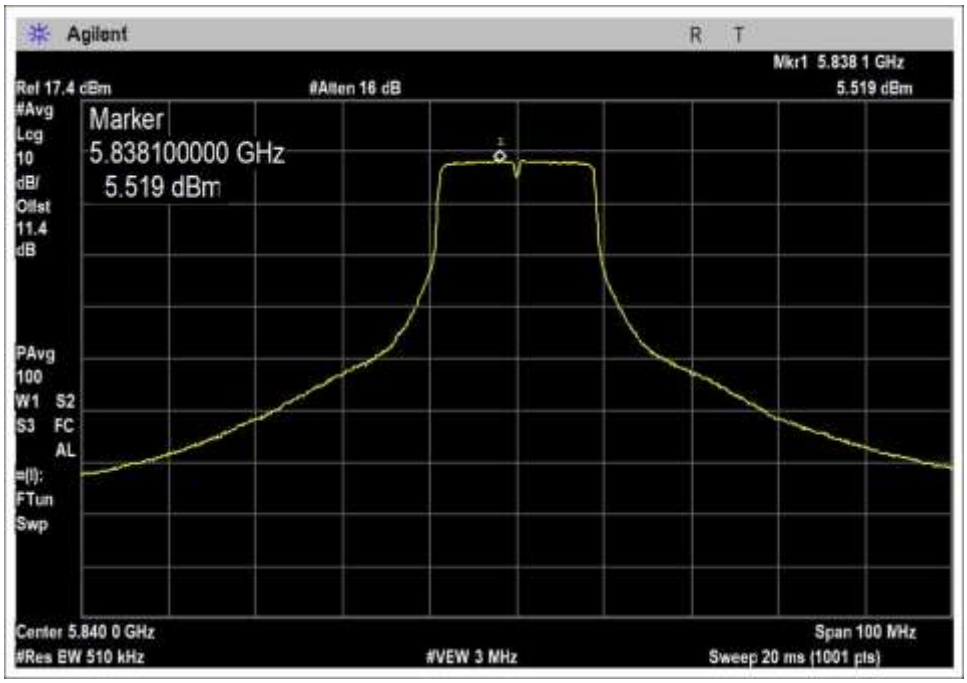
20MHz / HexHorn / 13dBi



LB, Set 20

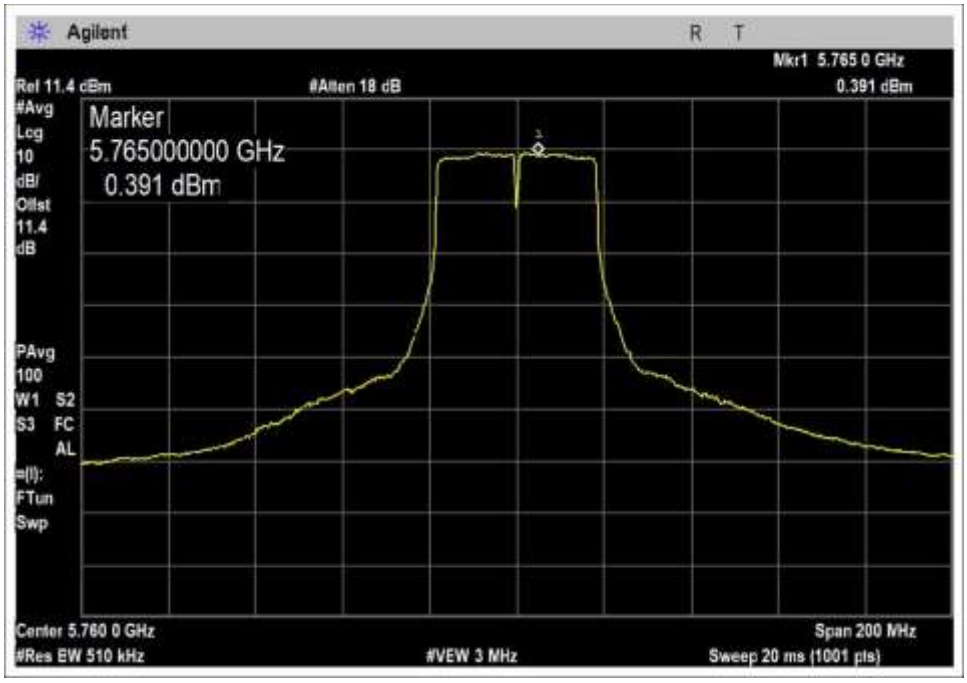


MB, Set 20

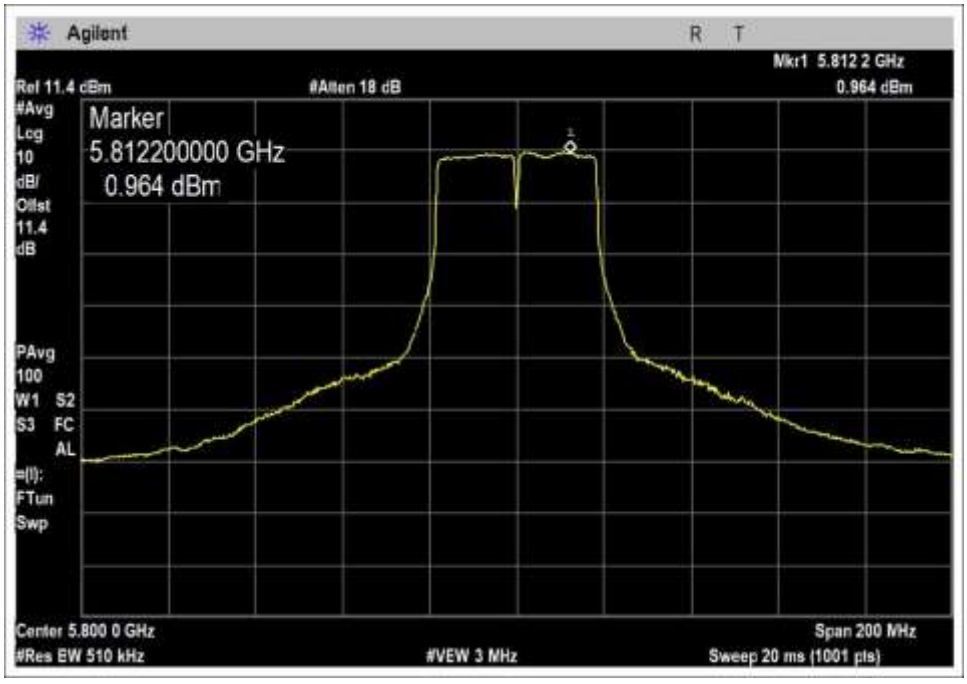

Agilent
R T
Mkr1 5.838 1 GHz
5.519 dBm
Ref 17.4 dBm
#Atten 16 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.838100000 GHz
5.519 dBm
PAvg
100
W1 S2
S3 FC
AL
#(!):
FTun
Swp
Center 5.840 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 100 MHz
Sweep 20 ms (1001 pts)

HB, Set 20

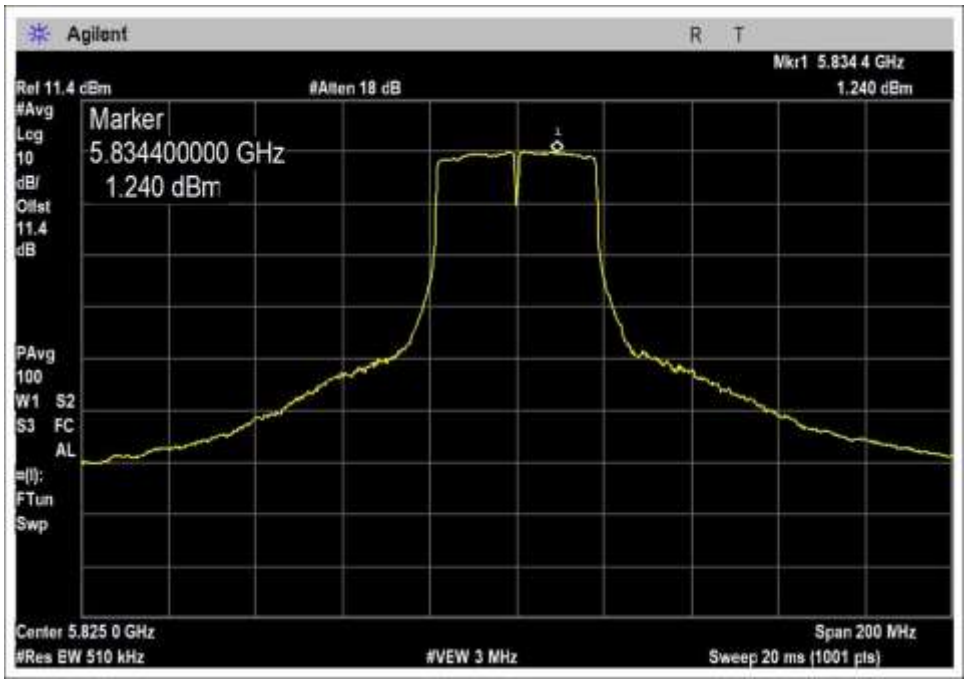
40MHz / 30Deg / 17.5dBi



LB, Set 19.5

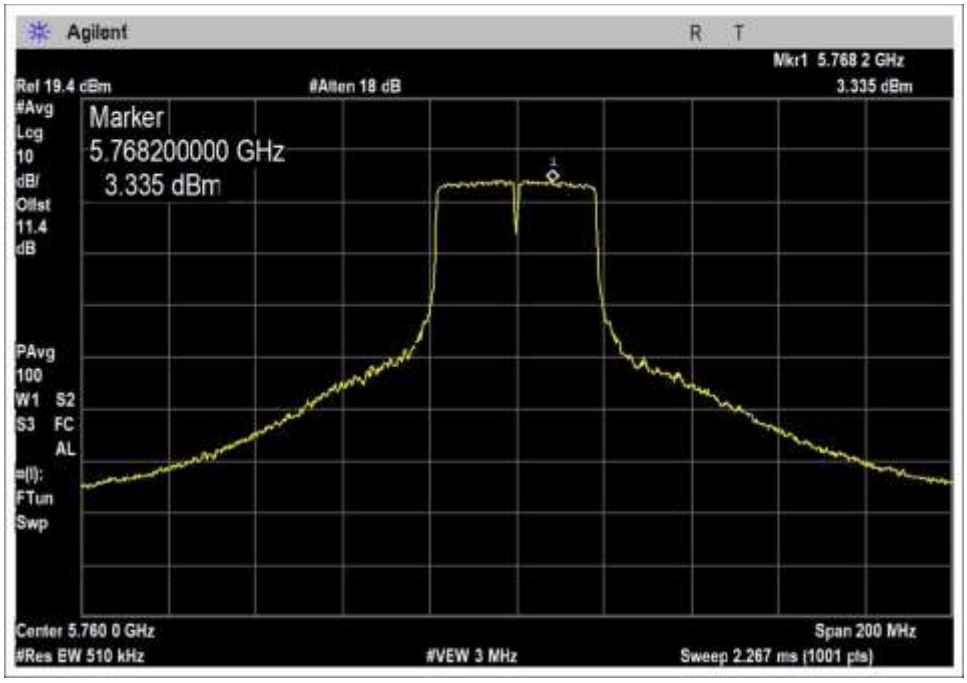


MB, Set 19.5

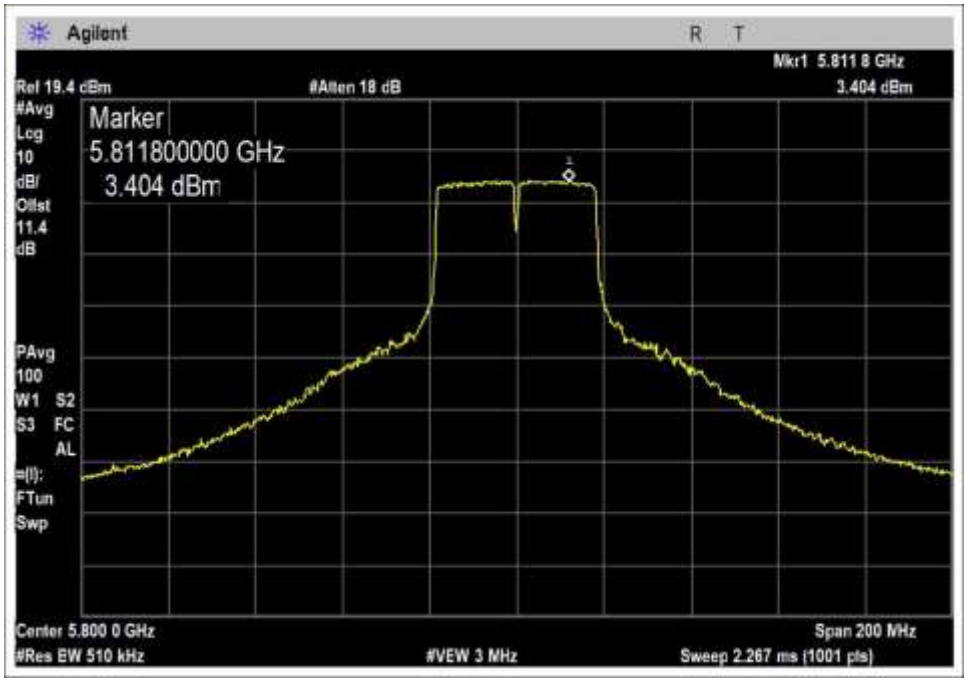

Agilent
R T
Mkr1 5.834 4 GHz
1.240 dBm
Ref 11.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.834400000 GHz
1.240 dBm
PAvg
100
W1 S2
S3 FC
AL
#(!):
FTun
Swp
Center 5.825 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 200 MHz
Sweep 20 ms (1001 pts)

HB, Set 19.5

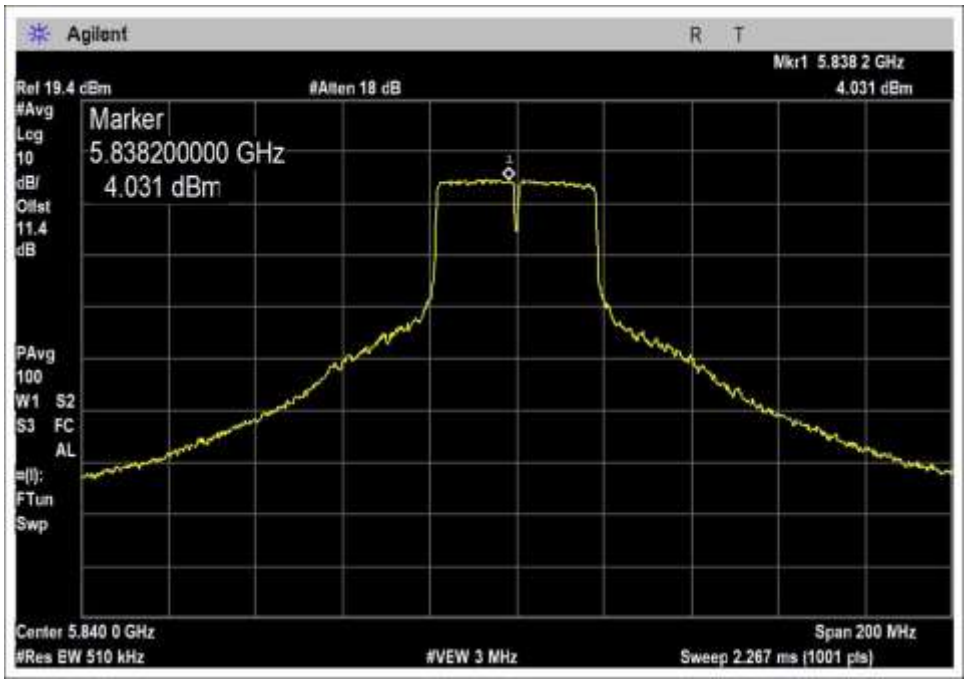
40MHz / 90Deg / 9dBi



LB, Set 22

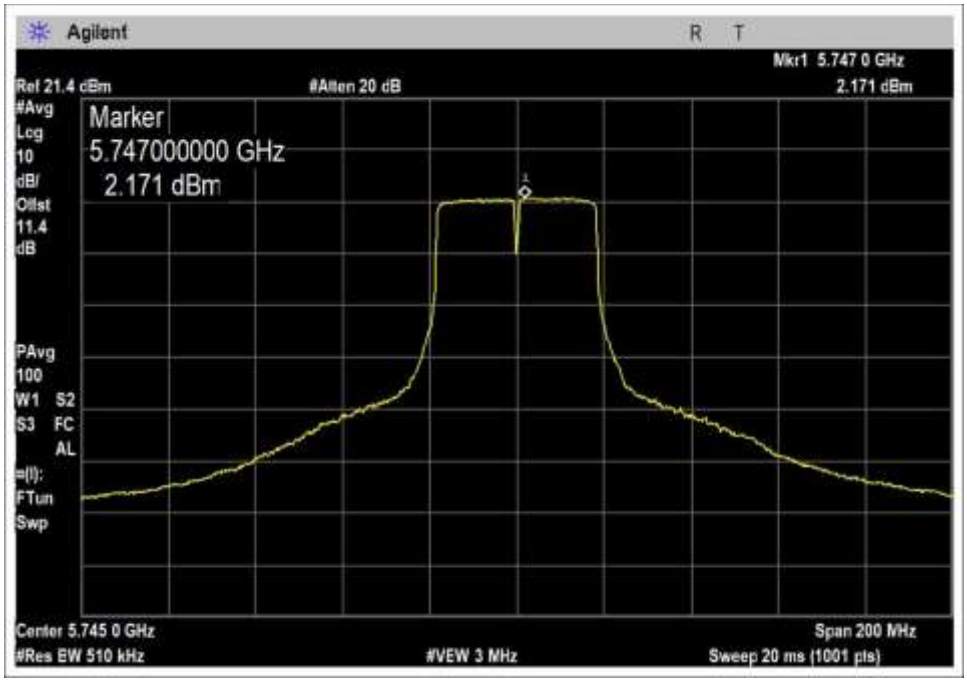


MB, Set 22

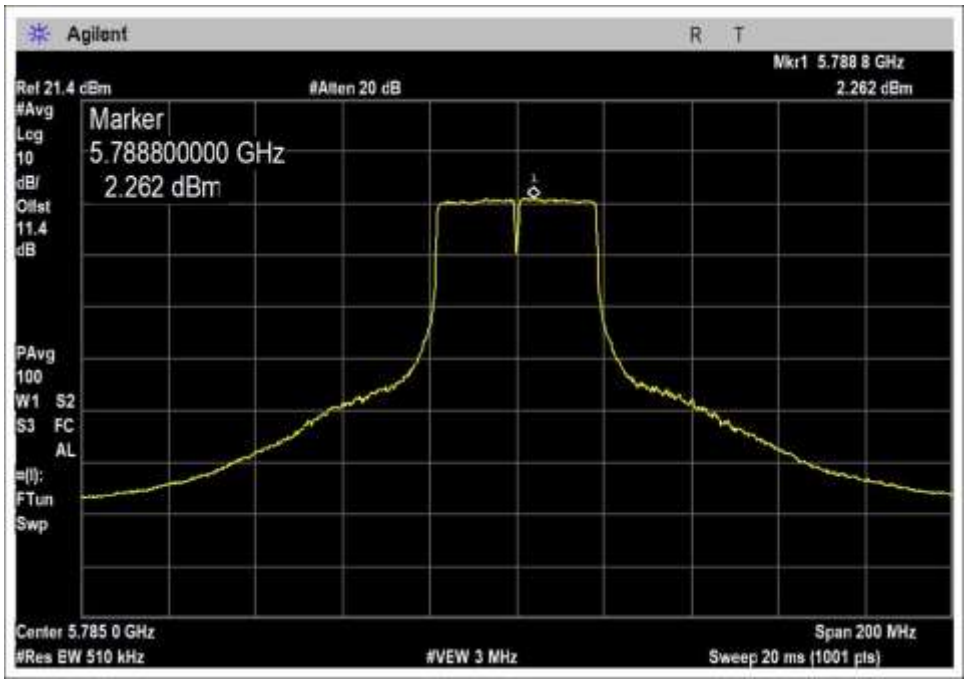

Agilent
R T
Mkr1 5.838 2 GHz
4.031 dBm
Ref 19.4 dBm
#Atten 18 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.838200000 GHz
4.031 dBm
PAvg
100
W1 S2
S3 FC
AL
FTun
Swp
Center 5.840 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 200 MHz
Sweep 2.267 ms (1001 pts)

HB, Set 22

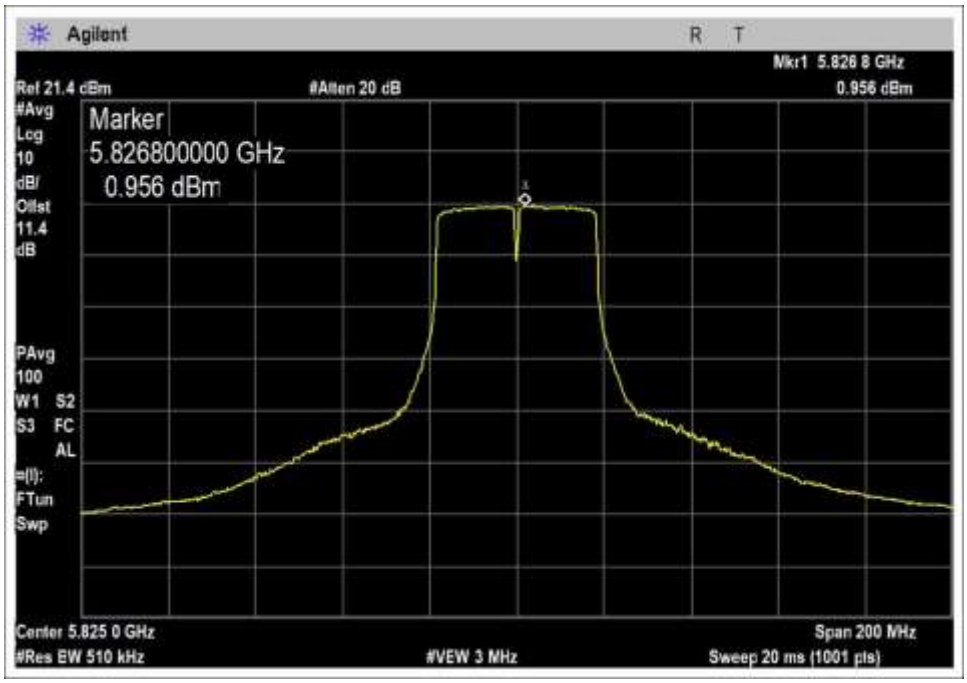
40MHz / Dish / 28dBi



LB, Set 21

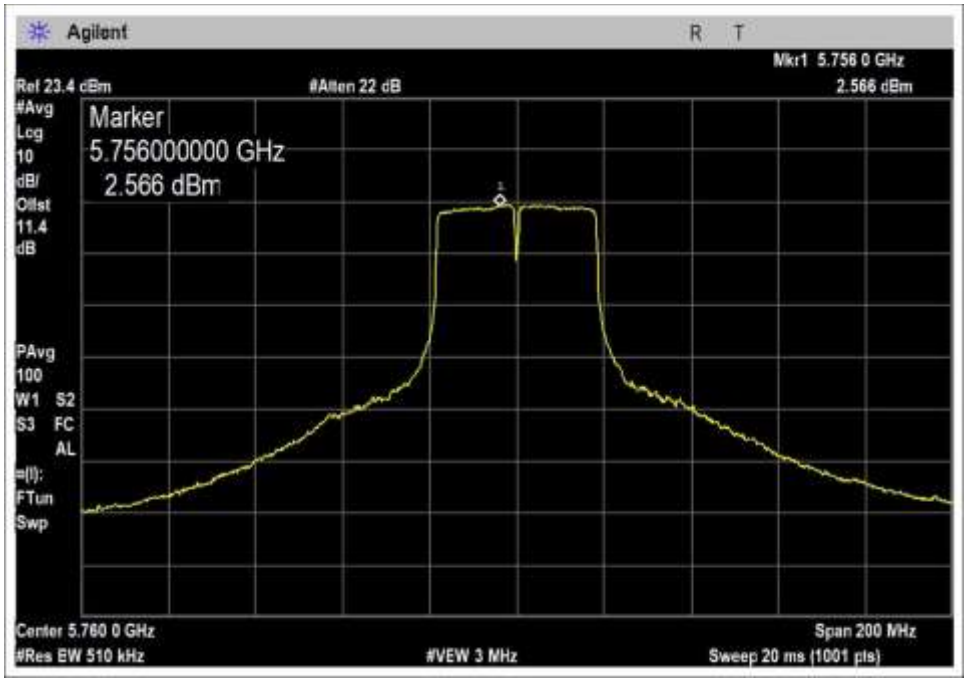


MB, Set 21

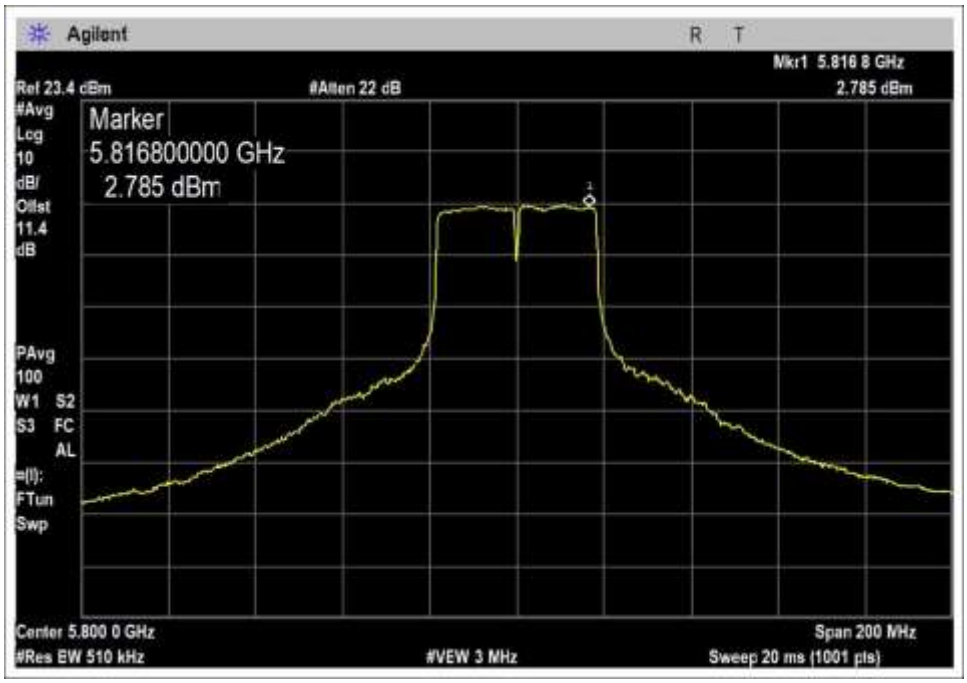

Agilent
R T
Mkr1 5.826 8 GHz
0.956 dBm
Ref 21.4 dBm
#Atten 20 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.826800000 GHz
0.956 dBm
PAvg
100
W1 S2
S3 FC
AL
#(!):
FTun
Swp
Center 5.825 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 200 MHz
Sweep 20 ms (1001 pts)

HB, Set 19

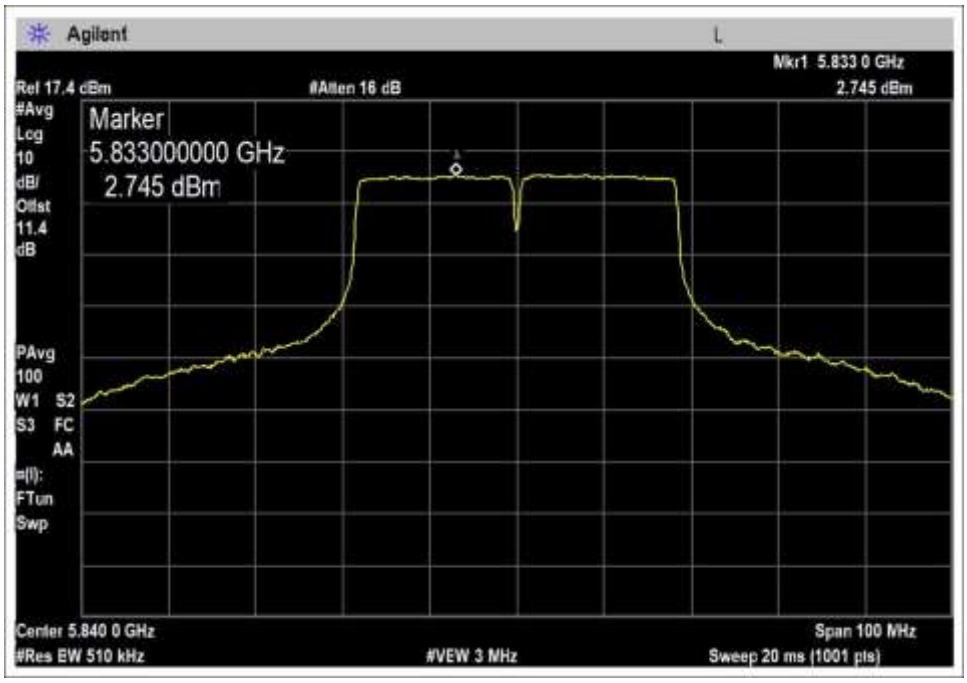
40MHz / HexHorn / 13dBi



LB, Set 20

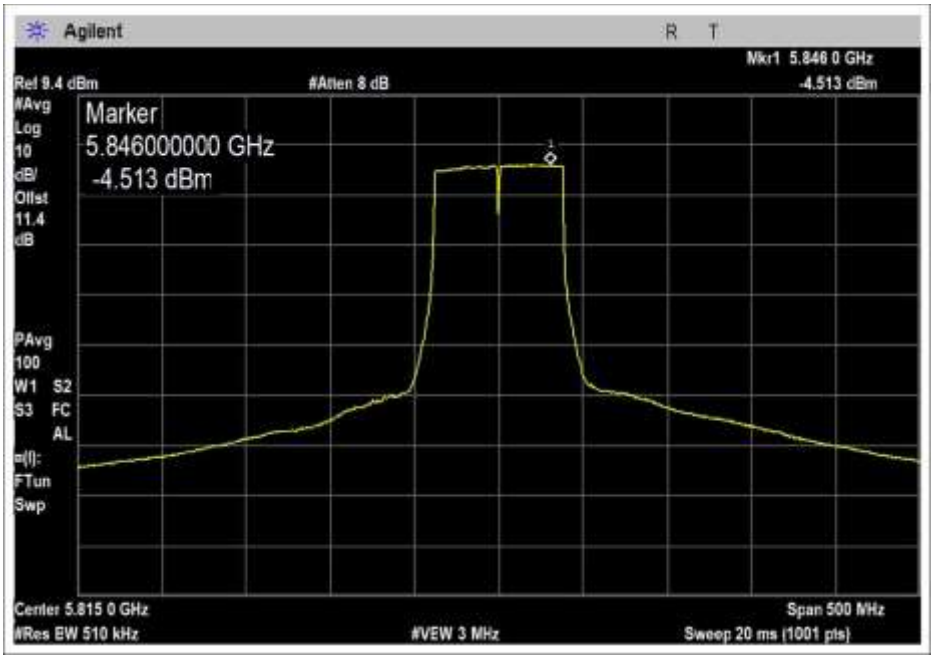


MB, Set 20

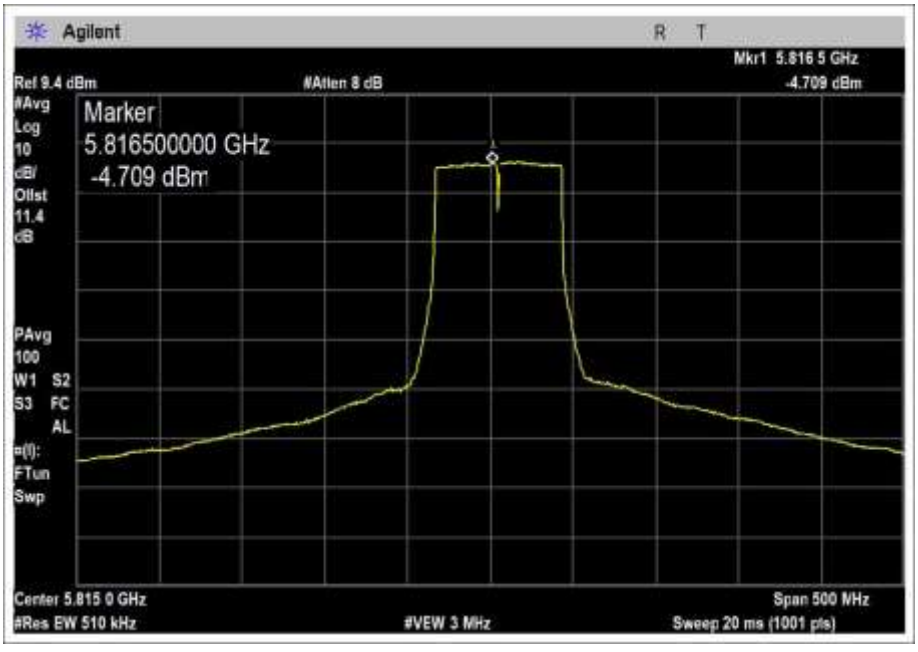

Agilent
Mkr1 5.833 0 GHz
2.745 dBm
Ref 17.4 dBm
#Atten 16 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.833000000 GHz
2.745 dBm
PAvg
100
W1 S2
S3 FC
AA
m(l):
FTun
Swp
Center 5.840 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 100 MHz
Sweep 20 ms (1001 pts)

HB, Set 22

80MHz / 30Deg / 17.5dBi



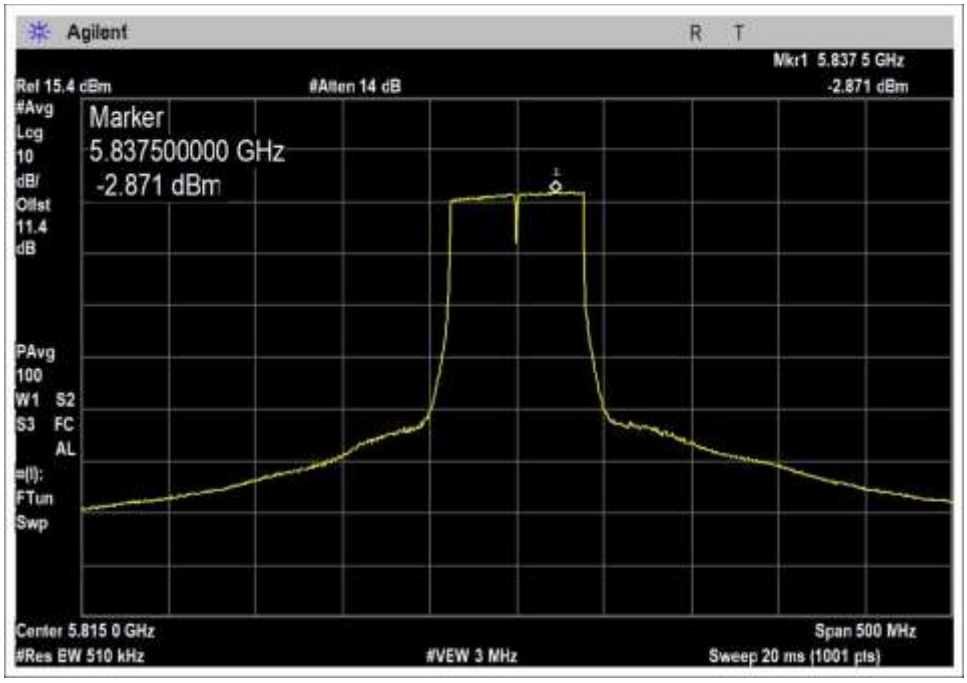
LB, Set 17.5



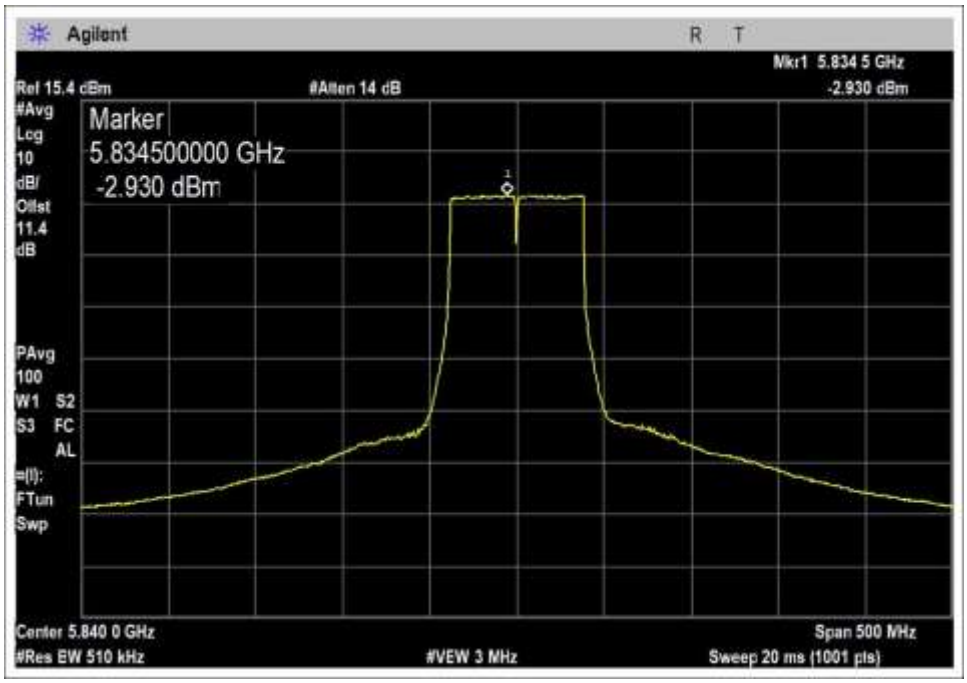
HB, Set 17.5

Note: The output power measurement was re-measured and after re-measuring, it has been determined that the data reported is valid and represents worst-case.

80MHz / 90Deg / 9dBi

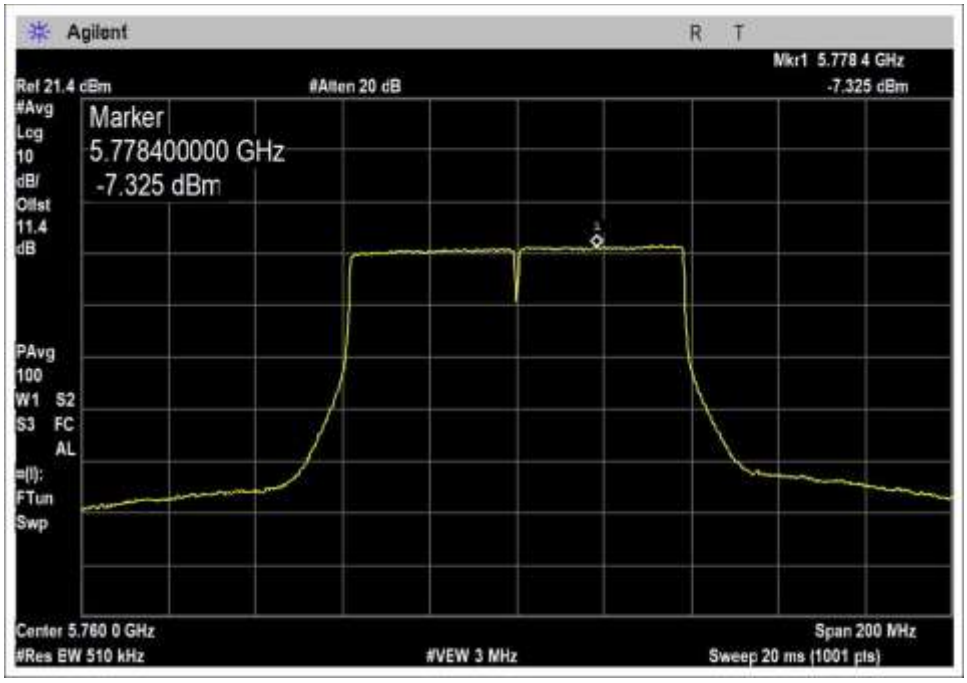


LB, Set 19

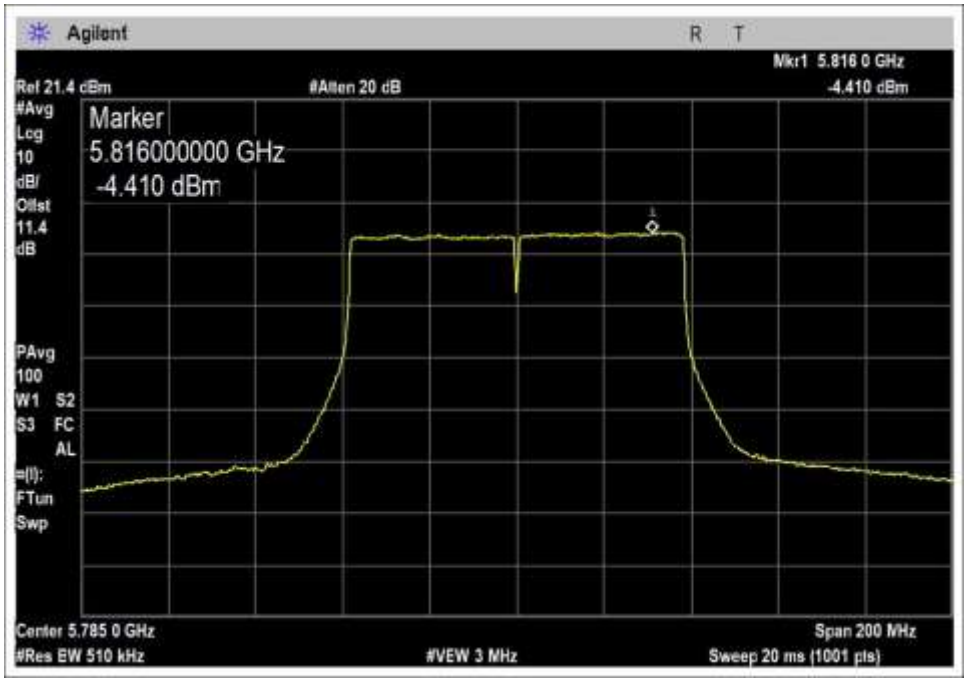


HB, Set 19

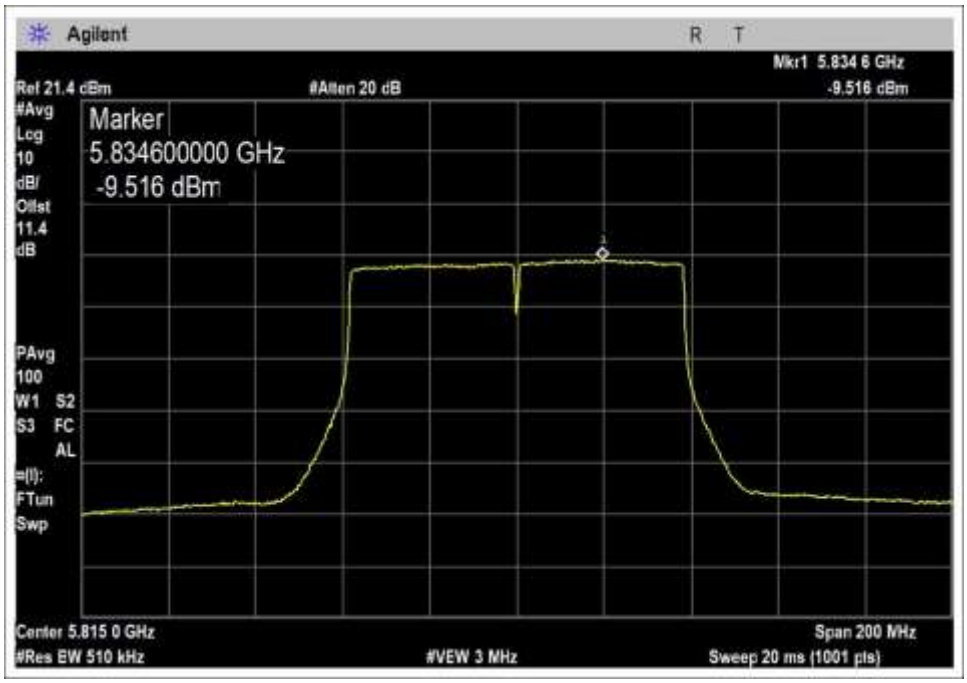
80MHz / Dish / 28dBi



LB, Set 15

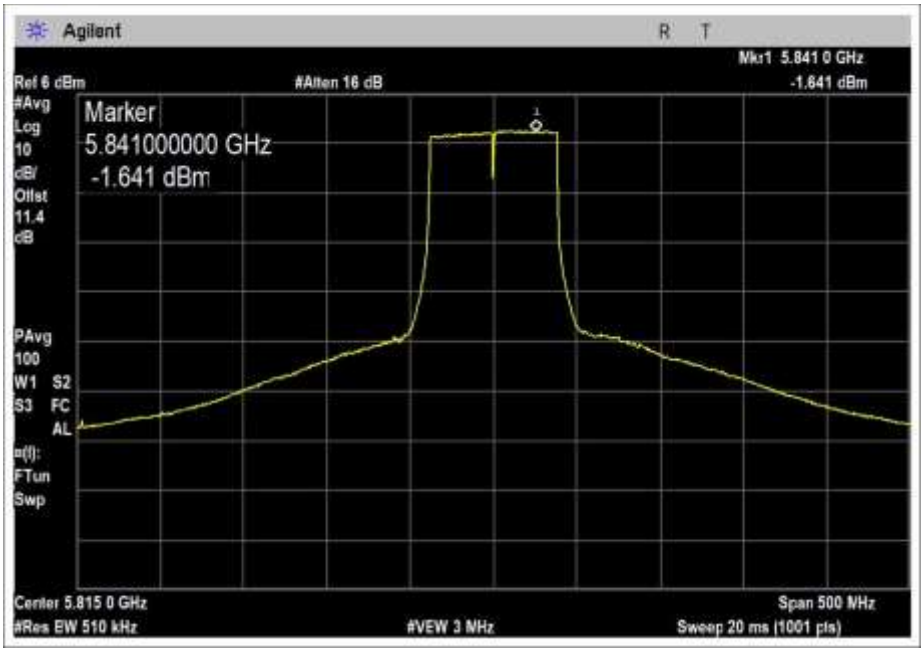


MB, Set 17.5

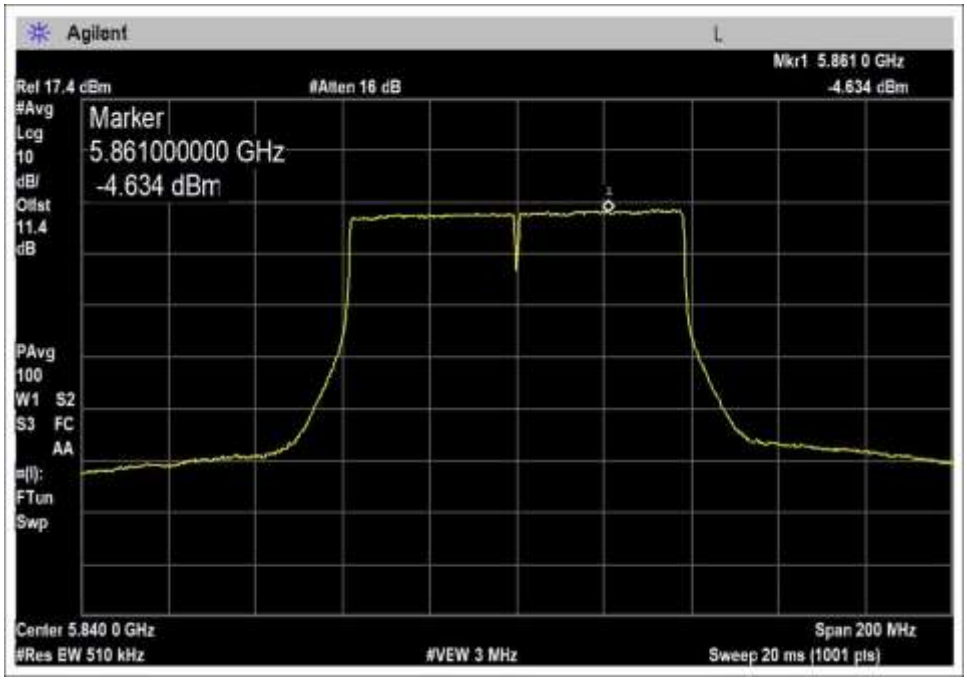

Agilent
R T
Mkr1 5.834 6 GHz
-9.516 dBm
Ref 21.4 dBm
#Atten 20 dB
#Avg
Log
10
dB/
Offst
11.4
dB
Marker
5.834600000 GHz
-9.516 dBm
PAvg
100
W1 S2
S3 FC
AL
#(!):
FTun
Swp
Center 5.815 0 GHz
#Res BW 510 kHz
#VBW 3 MHz
Span 200 MHz
Sweep 20 ms (1001 pts)

HB, Set 12

80MHz / HexHorn / 13dBi



LB, Set 19



HB, Set 19

Test Setup Photos

15.407(b), (b)(1), (b)(3), & (b)(4) Radiated Emissions & Band Edge

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.407(b) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**100331**	Date:	10/4/2017
Test Type:	**Radiated Scan**	Time:	14:41:25
Tested By:	Benny Lovan	Sequence#:	5
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 7			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 7			

Test Conditions / Notes:

Equipment is an outdoor access point for use in PTMP and PTP applications.

Modulation used: OFDM (802.11ac)
Unit is outputting on all three radios.
Antenna: All Antennas
Operational Frequency: Radio 1 is at 5745MHz, Radio 2: 5540MHz and Radio 3: 5180MHz
Data Rate:
Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

Power Output Setting: all radios set to 17dBm

Frequency Range Investigated: 30-1000M
Highest Generated Frequency not related to radio: 1.4GHz

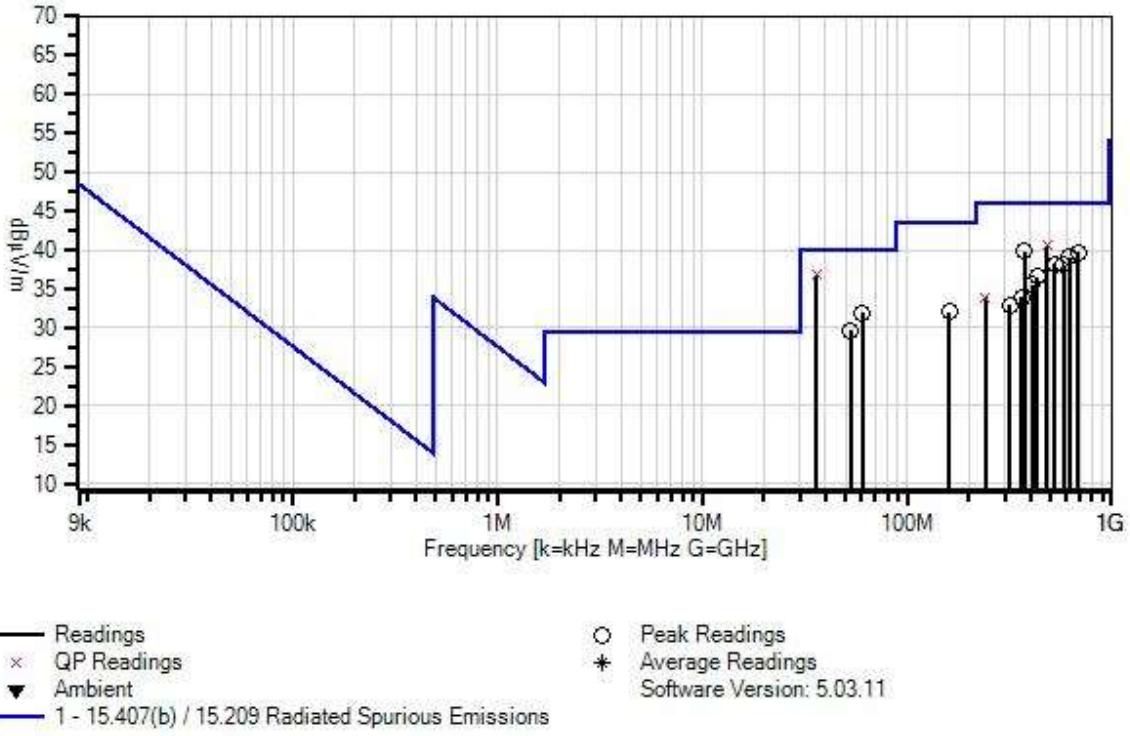
Temperature: 18ºC
Rel. Humidity: 27%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

This data sheet is for all antennas. The radio is identical in every configuration with the antenna being the only thing that changes. The radio is exercising all three radios within the system. For the HexHorn, all radios are identical but we are testing multiple frequencies at once. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.

Digital Path W/O#: 100331 Sequence#: 5 Date: 10/4/2017
15.407(b) / 15.209 Radiated Spurious Emissions Test Distance: 10 Meters Horiz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	11/1/2016	11/1/2018
T2	ANP05656	Attenuator	PE7004-6	12/22/2015	12/22/2017
T3	AN00449	Preamp-Top Amp (dB)	8447F	2/18/2016	2/18/2018
T4	ANP06847	Cable	LMR195-FR-6	7/31/2017	7/31/2019
T5	ANP06883	Cable	LMR195-FR-3	8/2/2017	8/2/2019
T6	ANP04249	Cable	CXTA04A-50	3/3/2016	3/3/2018
T7	ANP06230	Cable-Amplitude +15C to +45C (dB)	CXTA04A-50	11/29/2016	11/29/2018
T8	AN03634	Spectrum Analyzer	E4445A	8/30/2017	8/30/2018

Measurement Data: Reading listed by margin. Test Distance: 10 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	35.910M	30.5	+15.5	+6.0	-27.1	+0.2	+10.5	36.8	40.0	-3.2	Vert
	QP		+0.1	+0.5	+0.6	+0.0					
^	35.910M	52.0	+15.5	+6.0	-27.1	+0.2	+10.5	58.3	40.0	+18.3	Vert
			+0.1	+0.5	+0.6	+0.0					
3	479.998M	28.5	+17.7	+6.0	-27.6	+0.7	+10.5	40.6	46.0	-5.4	Horiz
	QP		+0.4	+1.8	+2.6	+0.0					
^	479.998M	31.6	+17.7	+6.0	-27.6	+0.7	+10.5	43.7	46.0	-2.3	Horiz
			+0.4	+1.8	+2.6	+0.0					
5	375.100M	29.9	+15.4	+6.0	-26.8	+0.6	+10.5	39.8	46.0	-6.2	Horiz
			+0.4	+1.6	+2.2	+0.0					
6	685.100M	24.0	+20.6	+6.0	-27.9	+0.8	+10.5	39.7	46.0	-6.3	Horiz
			+0.4	+2.2	+3.1	+0.0					
7	622.850M	23.8	+20.4	+6.0	-27.9	+0.8	+10.5	39.1	46.0	-6.9	Vert
			+0.4	+2.1	+3.0	+0.0					
8	524.700M	25.0	+18.7	+6.0	-27.7	+0.7	+10.5	38.2	46.0	-7.8	Horiz
			+0.4	+1.9	+2.7	+0.0					
9	581.700M	23.5	+19.9	+6.0	-27.9	+0.8	+10.5	38.1	46.0	-7.9	Vert
			+0.4	+2.0	+2.9	+0.0					
10	60.326M	34.9	+5.8	+6.0	-27.1	+0.3	+10.5	31.9	40.0	-8.1	Vert
			+0.1	+0.6	+0.8	+0.0					
11	431.700M	25.5	+16.7	+6.0	-27.3	+0.7	+10.5	36.5	46.0	-9.5	Vert
			+0.3	+1.7	+2.4	+0.0					

12	53.142M	31.3	+7.4	+6.0	-27.2	+0.2	+10.5	29.7	40.0	-10.3	Horiz
			+0.1	+0.6	+0.8	+0.0					
13	409.000M	24.9	+16.2	+6.0	-27.2	+0.7	+10.5	35.5	46.0	-10.5	Horiz
			+0.4	+1.7	+2.3	+0.0					
14	160.034M	28.8	+10.5	+6.0	-26.8	+0.4	+10.5	32.0	43.5	-11.5	Horiz
			+0.2	+1.0	+1.4	+0.0					
15	361.710M	24.3	+15.1	+6.0	-26.7	+0.6	+10.5	33.9	46.0	-12.1	Vert
			+0.3	+1.6	+2.2	+0.0					
16	240.000M	28.0	+12.0	+6.0	-26.4	+0.5	+10.5	33.9	46.0	-12.1	Vert
	QP		+0.3	+1.3	+1.7	+0.0					
^	240.000M	35.4	+12.0	+6.0	-26.4	+0.5	+10.5	41.3	46.0	-4.7	Vert
			+0.3	+1.3	+1.7	+0.0					
18	318.878M	24.3	+14.0	+6.0	-26.2	+0.6	+10.5	32.9	46.0	-13.1	Vert
			+0.3	+1.4	+2.0	+0.0					

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.407(b)(1) / 15.209 Radiated Spurious Emissions - Fixed PTP Devices**		
Work Order #:	**100331**	Date:	11/2/2017
Test Type:	**Radiated Scan**	Time:	15:40:00
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 7			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 7			

Test Conditions / Notes:

Equipment is an outdoor access point for use in PTMP and PTP applications.

Modulation used: OFDM (802.11ac)
Antenna: All Antennas
Operational Frequency: Radio 1 is at 5745MHz, Radio 2: 5540MHz and Radio 3: 5180MHz
Data Rate:
Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain. Power Output Setting: all radios set to 17dBm

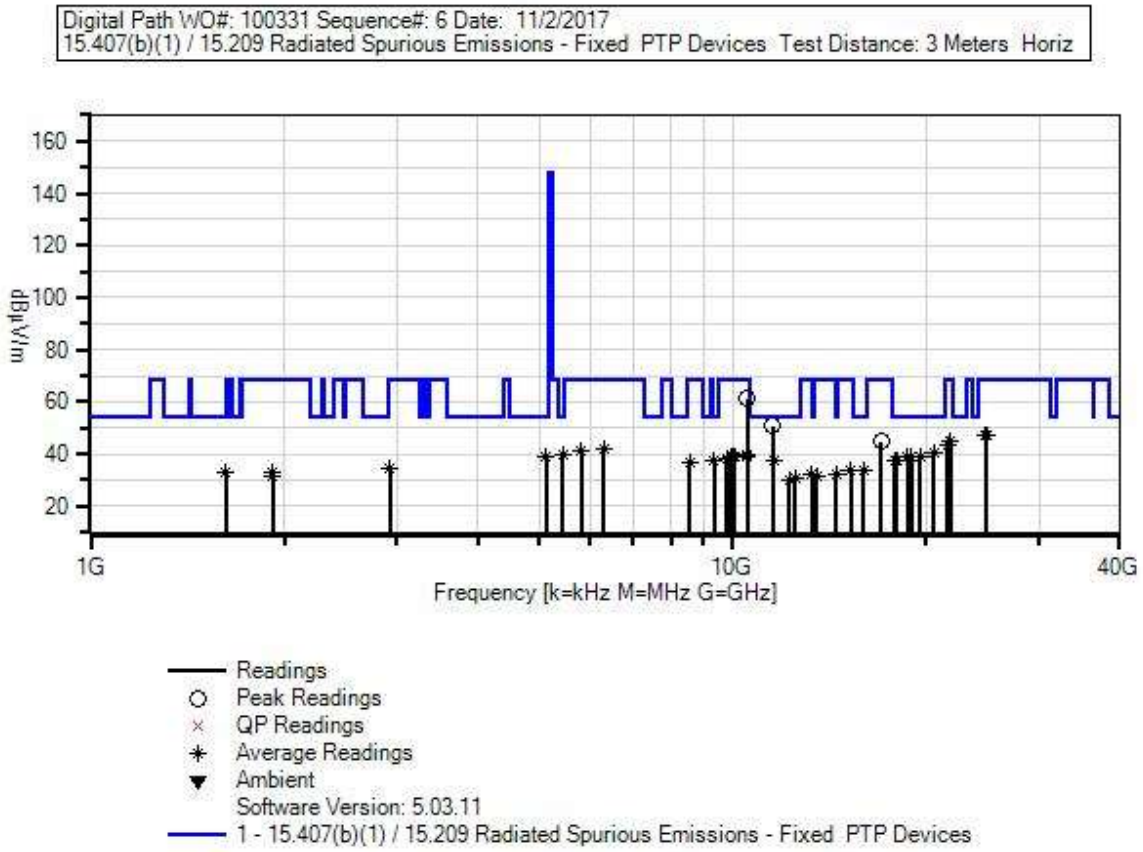
Frequency Range Investigated: 1-26.5G
Highest Generated Frequency not related to radio: 1.4GHz

Temperature: 20.9ºC
Rel. Humidity: 46.1%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

This data sheet is for all antennas. The radio is identical in every configuration with the antenna being the only thing that changes. The radio is exercising all three radios within the system. For the HexHorn, all radios are identical but we are testing multiple frequencies at once. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.


Digital Path WO#: 100331 Sequence#: 6 Date: 11/2/2017
15.407(b)(1) / 15.209 Radiated Spurious Emissions - Fixed PTP Devices Test Distance: 3 Meters Horiz
160
140
120
100
80
60
40
20
dBµV/m
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.11
1 - 15.407(b)(1) / 15.209 Radiated Spurious Emissions - Fixed PTP Devices

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02115	Preamp	83051A	2/27/2017	2/27/2019
T2	AN00327	Horn Antenna	3115	3/4/2016	3/4/2018
T3	AN03361	Cable	32022-2-29094-48TC	1/10/2017	1/10/2019
T4	AN02660	Spectrum Analyzer	E4446A	10/10/2016	10/10/2018
T5	AN03543	Cable	32022-29094K-29094K-10M	11/2/2015	11/2/2017
T6	ANP06239	Attenuator	54A-10	8/8/2016	8/8/2018
T7	AN01417	High Pass Filter	84300-80039	1/18/2016	1/18/2018
T8	AN03366	Horn Antenna-ANSI C63.5 Calibration	GH-62-25	2/9/2016	2/9/2018
T9	AN02046	Horn Antenna	MWH-1826/B	10/7/2016	10/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	11527.500 M	31.5	-32.9 +12.9 +0.0	+36.5 +0.0	+2.2 +0.4	+0.0 +0.0	+0.0	50.6	54.0	-3.4	Horiz
2	10527.500 M	42.1	-32.1 +12.3 +0.0	+36.1 +0.0	+2.1 +0.7	+0.0 +0.0	+0.0	61.2	68.2	-7.0	Horiz
3	20528.500 M Ave	19.1	-33.8 +17.7 +33.8	+0.0 +0.0	+2.8 +0.9	+0.0 +0.0	+0.0	40.5	54.0	-13.5	Vert
^	20528.500 M	32.0	-33.8 +17.7 +33.8	+0.0 +0.0	+2.8 +0.9	+0.0 +0.0	+0.0	53.4	54.0	-0.6	Vert
5	5429.500M Ave	20.8	-32.5 +8.8 +0.0	+31.1 +9.9	+1.5 +0.0	+0.0 +0.0	+0.0	39.6	54.0	-14.4	Horiz
^	5429.500M	35.0	-32.5 +8.8 +0.0	+31.1 +9.9	+1.5 +0.0	+0.0 +0.0	+0.0	53.8	54.0	-0.2	Horiz
7	19565.000 M Ave	18.3	-33.4 +17.1 +33.6	+0.0 +0.0	+2.8 +0.5	+0.0 +0.0	+0.0	38.9	54.0	-15.1	Horiz
^	19565.000 M	30.6	-33.4 +17.1 +33.6	+0.0 +0.0	+2.8 +0.5	+0.0 +0.0	+0.0	51.2	54.0	-2.8	Horiz
9	18915.000 M Ave	17.5	-32.5 +16.8 +33.7	+0.0 +0.0	+2.8 +0.5	+0.0 +0.0	+0.0	38.8	54.0	-15.2	Vert
^	18915.000 M	30.9	-32.5 +16.8 +33.7	+0.0 +0.0	+2.8 +0.5	+0.0 +0.0	+0.0	52.2	54.0	-1.8	Vert

11	18663.000 M Ave	17.4	-32.5 +16.7 +33.8	+0.0 +0.0	+2.7 +0.7	+0.0 +0.0	+0.0	38.8	54.0	-15.2	Horiz
^	18663.000 M	29.9	-32.5 +16.7 +33.8	+0.0 +0.0	+2.7 +0.7	+0.0 +0.0	+0.0	51.3	54.0	-2.7	Horiz
13	5116.500M Ave	21.2	-32.6 +8.4 +0.0	+30.4 +9.9	+1.4 +0.0	+0.0 +0.0	+0.0	38.7	54.0	-15.3	Horiz
^	5116.500M	37.3	-32.6 +8.4 +0.0	+30.4 +9.9	+1.4 +0.0	+0.0 +0.0	+0.0	54.8	54.0	+0.8	Horiz
15	9352.000M Ave	19.1	-31.8 +11.6 +0.0	+36.2 +0.0	+2.0 +0.5	+0.0 +0.0	+0.0	37.6	54.0	-16.4	Vert
^	9352.000M	29.0	-31.8 +11.6 +0.0	+36.2 +0.0	+2.0 +0.5	+0.0 +0.0	+0.0	47.5	54.0	-6.5	Vert
17	11587.000 M Ave	18.3	-32.9 +13.0 +0.0	+36.4 +0.0	+2.2 +0.4	+0.0 +0.0	+0.0	37.4	54.0	-16.6	Vert
^	11587.000 M	31.4	-32.9 +13.0 +0.0	+36.4 +0.0	+2.2 +0.4	+0.0 +0.0	+0.0	50.5	54.0	-3.5	Vert
19	17830.500 M Ave	18.3	-32.5 +16.4 +0.0	+0.0 +0.0	+2.6 +1.1	+0.0 +31.3	+0.0	37.2	54.0	-16.8	Horiz
^	17830.500 M	28.9	-32.5 +16.4 +0.0	+0.0 +0.0	+2.6 +1.1	+0.0 +31.3	+0.0	47.8	54.0	-6.2	Horiz
21	17988.300 M Ave	18.0	-32.5 +16.4 +0.0	+0.0 +0.0	+2.6 +1.2	+0.0 +31.4	+0.0	37.1	54.0	-16.9	Vert
^	17988.300 M	28.5	-32.5 +16.4 +0.0	+0.0 +0.0	+2.6 +1.2	+0.0 +31.4	+0.0	47.6	54.0	-6.4	Vert
23	15988.300 M Ave	19.2	-34.3 +15.3 +0.0	+0.0 +0.0	+2.5 +0.8	+0.0 +30.1	+0.0	33.6	54.0	-20.4	Vert
^	15988.300 M	29.3	-34.3 +15.3 +0.0	+0.0 +0.0	+2.5 +0.8	+0.0 +30.1	+0.0	43.7	54.0	-10.3	Vert
25	1625.000M Ave	29.9	-35.6 +4.6 +0.0	+23.2 +9.9	+0.8 +0.0	+0.0 +0.0	+0.0	32.8	54.0	-21.2	Horiz
^	1625.000M	38.4	-35.6 +4.6 +0.0	+23.2 +9.9	+0.8 +0.0	+0.0 +0.0	+0.0	41.3	54.0	-12.7	Horiz
27	24768.000 M Ave	23.7	-34.0 +19.6 +34.4	+0.0 +0.0	+3.2 +0.0	+0.0 +0.0	+0.0	46.9	68.2	-21.3	Vert

^	24768.000 M	36.7	-34.0 +19.6 +34.4	+0.0 +0.0	+3.2 +0.0	+0.0 +0.0	+0.0	59.9	68.2	-8.3	Vert
29	24730.000 M Ave	23.8	-34.0 +19.6 +34.3	+0.0 +0.0	+3.2 +0.0	+0.0 +0.0	+0.0	46.9	68.2	-21.3	Horiz
^	24730.000 M	35.2	-34.0 +19.6 +34.3	+0.0 +0.0	+3.2 +0.0	+0.0 +0.0	+0.0	58.3	68.2	-9.9	Horiz
31	13250.000 M Ave	20.1	-33.6 +14.0 +0.0	+0.0 +0.0	+2.2 +0.5	+0.0 +28.8	+0.0	32.0	54.0	-22.0	Horiz
^	13250.000 M	30.4	-33.6 +14.0 +0.0	+0.0 +0.0	+2.2 +0.5	+0.0 +28.8	+0.0	42.3	54.0	-11.7	Horiz
33	14488.300 M Ave	19.7	-34.4 +14.6 +0.0	+0.0 +0.0	+2.3 +0.4	+0.0 +29.3	+0.0	31.9	54.0	-22.1	Vert
^	14488.300 M	31.5	-34.4 +14.6 +0.0	+0.0 +0.0	+2.3 +0.4	+0.0 +29.3	+0.0	43.7	54.0	-10.3	Vert
35	12488.300 M Ave	19.1	-33.2 +13.5 +0.0	+0.0 +0.0	+2.2 +0.5	+0.0 +28.6	+0.0	30.7	54.0	-23.3	Vert
^	12488.300 M	31.8	-33.2 +13.5 +0.0	+0.0 +0.0	+2.2 +0.5	+0.0 +28.6	+0.0	43.4	54.0	-10.6	Vert
37	16988.300 M	28.4	-33.4 +15.9 +0.0	+0.0 +0.0	+2.5 +0.8	+0.0 +30.6	+0.0	44.8	68.2	-23.4	Vert
38	21781.500 M Ave	18.7	-31.4 +18.2 +34.6	+0.0 +0.0	+3.0 +1.6	+0.0 +0.0	+0.0	44.7	68.2	-23.5	Vert
^	21781.500 M	31.7	-31.4 +18.2 +34.6	+0.0 +0.0	+3.0 +1.6	+0.0 +0.0	+0.0	57.7	68.2	-10.5	Vert
40	12250.000 M Ave	18.6	-33.1 +13.4 +0.0	+0.0 +0.0	+2.2 +0.6	+0.0 +28.5	+0.0	30.2	54.0	-23.8	Horiz
^	12250.000 M	29.3	-33.1 +13.4 +0.0	+0.0 +0.0	+2.2 +0.6	+0.0 +28.5	+0.0	40.9	54.0	-13.1	Horiz
42	21567.000 M Ave	17.9	-31.7 +18.2 +34.5	+0.0 +0.0	+3.0 +1.5	+0.0 +0.0	+0.0	43.4	68.2	-24.8	Horiz
^	21567.000 M	30.8	-31.7 +18.2 +34.5	+0.0 +0.0	+3.0 +1.5	+0.0 +0.0	+0.0	56.3	68.2	-11.9	Horiz
44	6298.500M Ave	19.7	-31.8 +9.4 +0.0	+32.8 +9.9	+1.6 +0.0	+0.0 +0.0	+0.0	41.6	68.2	-26.6	Vert

^	6298.500M	30.3	-31.8 +9.4 +0.0	+32.8 +9.9	+1.6 +0.0	+0.0 +0.0	+0.0	52.2	68.2	-16.0	Vert
46	5798.500M Ave	21.5	-32.2 +9.0 +0.0	+31.7 +9.9	+1.5 +0.0	+0.0 +0.0	+0.0	41.4	68.2	-26.8	Vert
^	5798.500M	39.0	-32.2 +9.0 +0.0	+31.7 +9.9	+1.5 +0.0	+0.0 +0.0	+0.0	58.9	68.2	-9.3	Vert
48	5797.000M Ave	21.1	-32.2 +9.0 +0.0	+31.7 +9.9	+1.5 +0.0	+0.0 +0.0	+0.0	41.0	68.2	-27.2	Horiz
^	5797.000M	37.8	-32.2 +9.0 +0.0	+31.7 +9.9	+1.5 +0.0	+0.0 +0.0	+0.0	57.7	68.2	-10.5	Horiz
50	10537.978 M Ave	20.5	-32.1 +12.3 +0.0	+36.1 +0.0	+2.1 +0.7	+0.0 +0.0	+0.0	39.6	68.2	-28.6	Horiz
^	10537.978 M	46.4	-32.1 +12.3 +0.0	+36.1 +0.0	+2.1 +0.7	+0.0 +0.0	+0.0	65.5	68.2	-2.7	Horiz
52	10002.500 M Ave	18.9	-32.1 +12.1 +0.0	+37.4 +0.0	+2.1 +0.7	+0.0 +0.0	+0.0	39.1	68.2	-29.1	Vert
^	10002.500 M	31.0	-32.1 +12.1 +0.0	+37.4 +0.0	+2.1 +0.7	+0.0 +0.0	+0.0	51.2	68.2	-17.0	Vert
54	9909.500M Ave	18.9	-32.1 +12.0 +0.0	+37.2 +0.0	+2.1 +0.7	+0.0 +0.0	+0.0	38.8	68.2	-29.4	Vert
^	9909.500M	32.4	-32.1 +12.0 +0.0	+37.2 +0.0	+2.1 +0.7	+0.0 +0.0	+0.0	52.3	68.2	-15.9	Vert
56	10049.200 M Ave	18.6	-32.2 +12.1 +0.0	+37.3 +0.0	+2.1 +0.8	+0.0 +0.0	+0.0	38.7	68.2	-29.5	Horiz
^	10049.200 M	37.2	-32.2 +12.1 +0.0	+37.3 +0.0	+2.1 +0.8	+0.0 +0.0	+0.0	57.3	68.2	-10.9	Horiz
58	10527.043 M Ave	19.6	-32.1 +12.3 +0.0	+36.1 +0.0	+2.1 +0.7	+0.0 +0.0	+0.0	38.7	68.2	-29.5	Horiz
59	9769.500M Ave	19.0	-32.0 +11.9 +0.0	+36.8 +0.0	+2.0 +0.6	+0.0 +0.0	+0.0	38.3	68.2	-29.9	Vert
^	9769.500M	30.3	-32.0 +11.9 +0.0	+36.8 +0.0	+2.0 +0.6	+0.0 +0.0	+0.0	49.6	68.2	-18.6	Vert
61	8549.200M Ave	19.2	-31.5 +11.1 +0.0	+34.9 +0.0	+1.9 +1.0	+0.0 +0.0	+0.0	36.6	68.2	-31.6	Horiz

^	8549.200M	39.8	-31.5 +11.1 +0.0	+34.9 +0.0	+1.9 +1.0	+0.0 +0.0	+0.0	57.2	68.2	-11.0	Horiz
63	2921.500M Ave	23.4	-33.1 +6.2 +0.0	+26.7 +9.9	+1.1 +0.0	+0.0 +0.0	+0.0	34.2	68.2	-34.0	Vert
^	2921.500M	35.5	-33.1 +6.2 +0.0	+26.7 +9.9	+1.1 +0.0	+0.0 +0.0	+0.0	46.3	68.2	-21.9	Vert
65	15250.000 M Ave	20.3	-34.4 +15.0 +0.0	+0.0 +0.0	+2.4 +0.6	+0.0 +29.8	+0.0	33.7	68.2	-34.5	Horiz
^	15250.000 M	31.5	-34.4 +15.0 +0.0	+0.0 +0.0	+2.4 +0.6	+0.0 +29.8	+0.0	44.9	68.2	-23.3	Horiz
67	1921.500M Ave	26.1	-33.6 +5.1 +0.0	+24.5 +9.8	+0.9 +0.0	+0.0 +0.0	+0.0	32.8	68.2	-35.4	Vert
^	1921.500M	42.1	-33.6 +5.1 +0.0	+24.5 +9.8	+0.9 +0.0	+0.0 +0.0	+0.0	48.8	68.2	-19.4	Vert
69	1923.500M Ave	24.9	-33.6 +5.1 +0.0	+24.5 +9.8	+0.9 +0.0	+0.0 +0.0	+0.0	31.6	68.2	-36.6	Horiz
^	1923.500M	45.9	-33.6 +5.1 +0.0	+24.5 +9.8	+0.9 +0.0	+0.0 +0.0	+0.0	52.6	68.2	-15.6	Horiz
71	13488.300 M Ave	19.4	-33.8 +14.1 +0.0	+0.0 +0.0	+2.2 +0.5	+0.0 +28.8	+0.0	31.2	68.2	-37.0	Vert
^	13488.300 M	31.3	-33.8 +14.1 +0.0	+0.0 +0.0	+2.2 +0.5	+0.0 +28.8	+0.0	43.1	68.2	-25.1	Vert

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.407(b)(1) / 15.209 Radiated Spurious Emissions - Fixed PTP Devices**		
Work Order #:	**100331**	Date:	11/10/2017
Test Type:	**Radiated Scan**	Time:	06:30:36
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 7			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 7			

Test Conditions / Notes:

Equipment is an outdoor access point for use in PTMP and PTP applications.

Modulation used: OFDM (802.11ac)
Antenna: All Horns
Operational Frequency: Radio 1 is at 5745MHz, Radio 2: 5540MHz and Radio 3: 5180MHz
Data Rate:
Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

Power Output Setting: all radios set to 17dBm

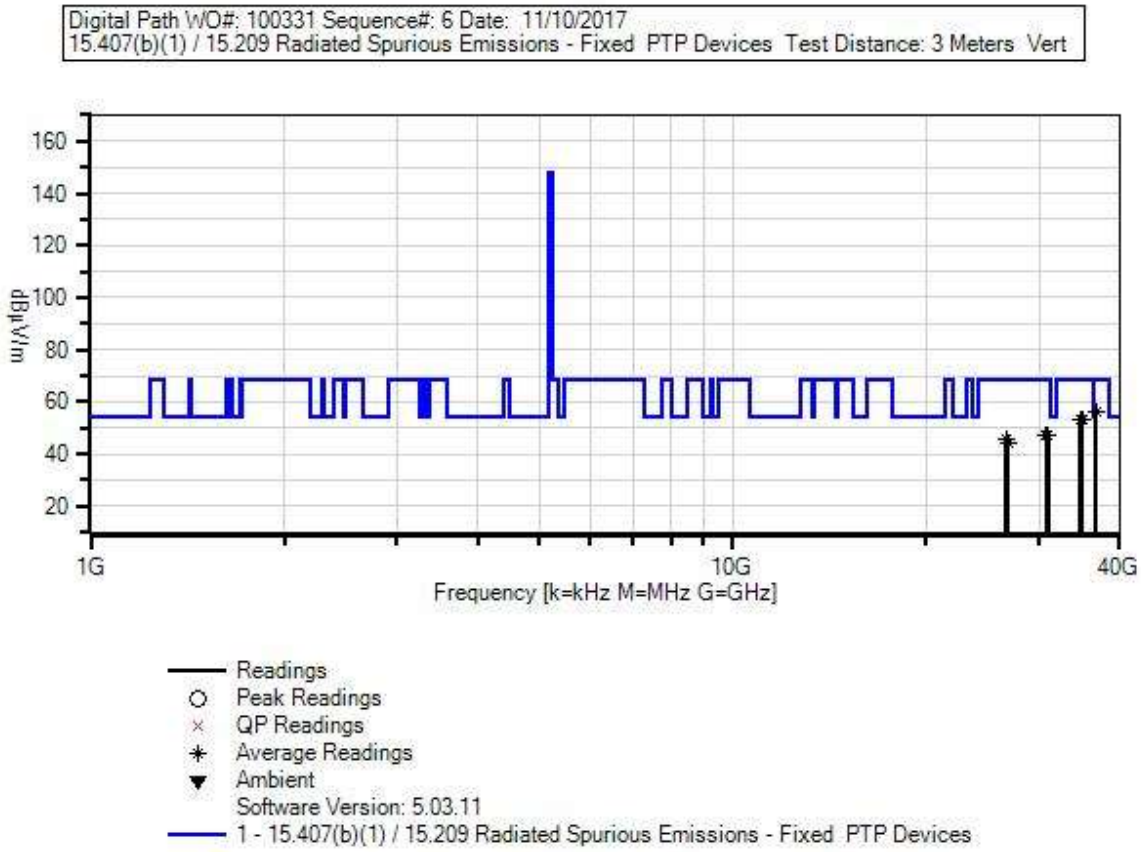
Frequency Range Investigated: 26.5-40G
Highest Generated Frequency not related to radio: 1.4GHz

Temperature: 20.9ºC
Rel. Humidity: 46.1%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

This data sheet is for all antennas. The radio is identical in every configuration with the antenna being the only thing that changes. The radio is exercising all three radios within the system. For the HexHorn, all radios are identical but we are testing multiple frequencies at once. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.


Digital Path WO#: 100331 Sequence#: 6 Date: 11/10/2017
15.407(b)(1) / 15.209 Radiated Spurious Emissions - Fixed PTP Devices Test Distance: 3 Meters Vert
160
140
120
100
80
60
40
20
dBµV/m
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.11
1 - 15.407(b)(1) / 15.209 Radiated Spurious Emissions - Fixed PTP Devices

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03543	Cable	32022-29094K-29094K-10M	11/7/2017	11/7/2019
	AN02660	Spectrum Analyzer	E4446A	10/10/2016	10/10/2018
T2	AN02695	Active Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-260400-33-8P	5/11/2017	5/11/2019

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	36762.000 M Ave	28.8	+25.3	+2.1			+0.0	56.2	68.2	-12.0	Horiz
^	36762.000 M	34.1	+25.3	+2.1			+0.0	61.5	68.2	-6.7	Horiz
3	36762.000 M Ave	28.8	+25.3	+2.1			+0.0	56.2	68.2	-12.0	Vert
^	36762.000 M	35.9	+25.3	+2.1			+0.0	63.3	68.2	-4.9	Vert
5	34762.000 M Ave	25.3	+24.6	+3.0			+0.0	52.9	68.2	-15.3	Vert
^	34762.000 M	32.3	+24.6	+3.0			+0.0	59.9	68.2	-8.3	Vert
7	34967.000 M Ave	25.3	+24.7	+2.9			+0.0	52.9	68.2	-15.3	Horiz
^	34967.000 M	29.9	+24.7	+2.9			+0.0	57.5	68.2	-10.7	Horiz
9	30967.000 M Ave	20.8	+22.9	+3.6			+0.0	47.3	68.2	-20.9	Horiz
^	30967.000 M	31.4	+22.9	+3.6			+0.0	57.9	68.2	-10.3	Horiz

11	30762.000 M Ave	21.0	+22.8	+3.5		+0.0	47.3	68.2	-20.9	Vert
^	30762.000 M	32.8	+22.8	+3.5		+0.0	59.1	68.2	-9.1	Vert
13	26563.000 M Ave	21.7	+21.1	+2.9		+0.0	45.7	68.2	-22.5	Horiz
^	26563.000 M	33.9	+21.1	+2.9		+0.0	57.9	68.2	-10.3	Horiz
15	26762.000 M Ave	20.5	+21.2	+2.7		+0.0	44.4	68.2	-23.8	Vert
^	26762.000 M	32.8	+21.2	+2.7		+0.0	56.7	68.2	-11.5	Vert

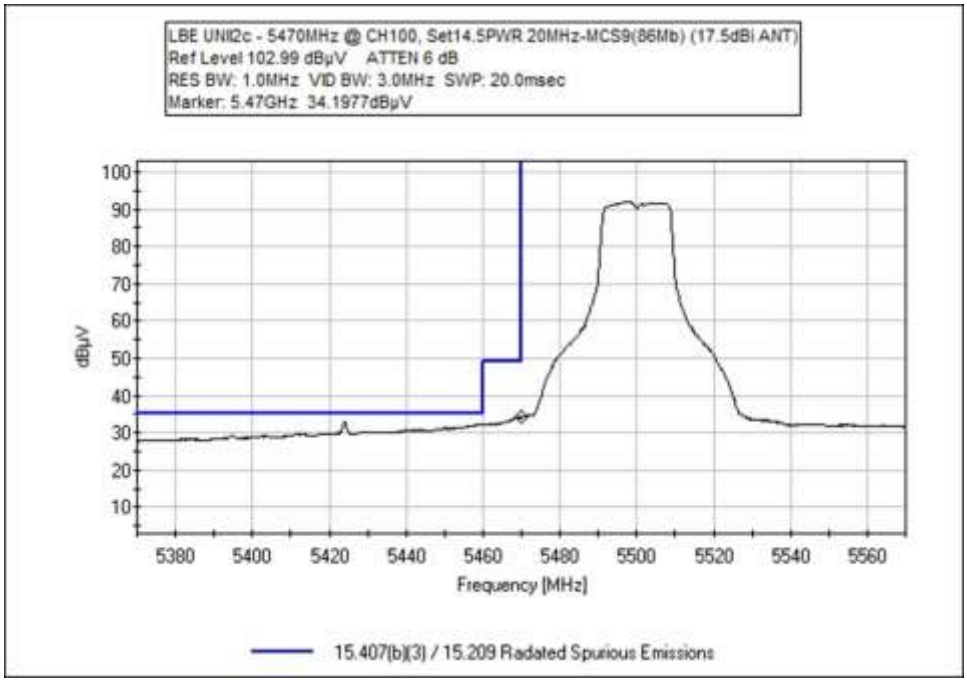
Band Edge

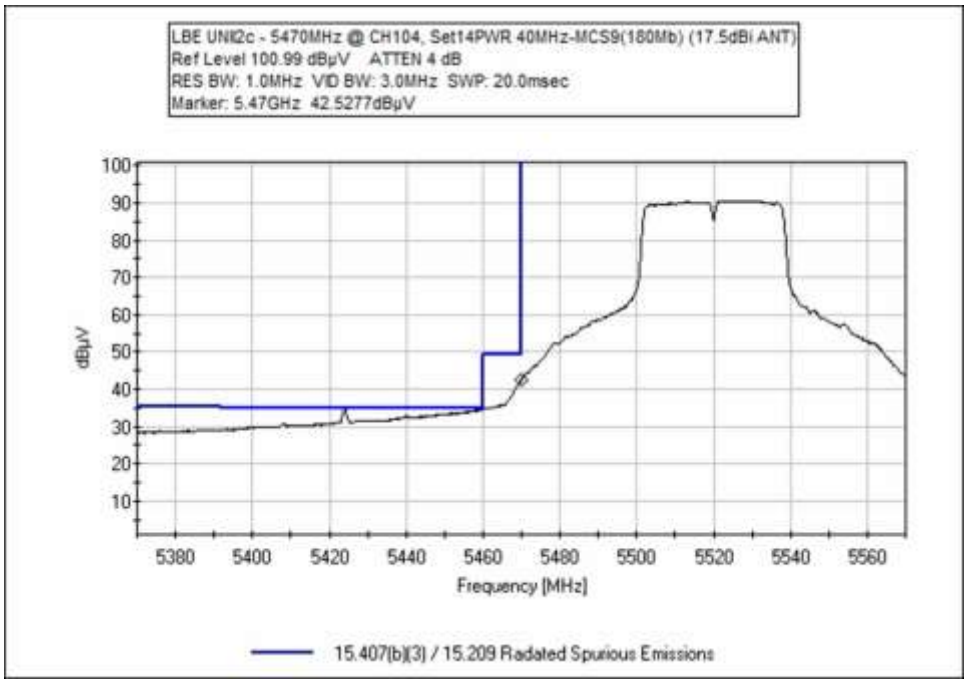
Band Edge Summary					
Frequency (MHz)	**Modulation**	**Ant. Type**	**Field Strength (dBuV/m @3m)**	**Limit (dBuV/m @3m)**	**Results**
Low – 5500	OFDM – 20MHz	90 Degree Horn / 9dBi	55.9	< 68.2	Pass
High – 5840	OFDM – 20MHz	90 Degree Horn / 9dBi	91.4	< 122.2	Pass
Low – 5500	OFDM – 40MHz	90 Degree Horn / 9dBi	57.2	< 68.2	Pass
High – 5840	OFDM – 40MHz	90 Degree Horn / 9dBi	107.6	< 122.2	Pass
Low – 5510	OFDM – 80MHz	90 Degree Horn / 9dBi	67.9	< 68.2	Pass
High – 5840	OFDM – 80MHz	90 Degree Horn / 9dBi	101.4	< 122.2	Pass
Low – 5500	OFDM – 20MHz	50 Degree Horn / HexHorn 13dBi	50.8	< 68.2	Pass
High – 5840	OFDM – 20MHz	50 Degree Horn / HexHorn 13dBi	94.3	< 122.2	Pass
Low – 5500	OFDM – 40MHz	50 Degree Horn / HexHorn 13dBi	55.1	< 68.2	Pass
High – 5840	OFDM – 40MHz	50 Degree Horn / HexHorn 13dBi	110.0	< 122.2	Pass
Low – 5515	OFDM – 80MHz	50 Degree Horn / HexHorn 13dBi	55.7	< 68.2	Pass
High – 5840	OFDM – 80MHz	50 Degree Horn / HexHorn 13dBi	103.0	< 122.2	Pass
Low – 5500	OFDM – 20MHz	30 Degree Horn / 17.5dBi	53.5	< 68.2	Pass
High – 5840	OFDM – 20MHz	30 Degree Horn / 17.5dBi	94.8	< 122.2	Pass
Low – 5520	OFDM – 40MHz	30 Degree Horn / 17.5dBi	61.6	< 68.2	Pass
High – 5825	OFDM – 40MHz	30 Degree Horn / 17.5dBi	89.8	< 122.2	Pass
Low – 5540	OFDM – 80MHz	30 Degree Horn / 17.5dBi	54.5	< 68.2	Pass
High – 5820	OFDM – 80MHz	30 Degree Horn / 17.5dBi	107.0	< 122.2	Pass
Low – 5745	OFDM – 20MHz	PacWireless Dish / 28dBi	90.0	< 68.2	Pass
High – 5840	OFDM – 20MHz	PacWireless Dish / 28dBi	112.5	< 122.2	Pass
Low – 5745	OFDM – 40MHz	PacWireless Dish / 28dBi	100.6	< 68.2	Pass
High – 5825	OFDM – 40MHz	PacWireless Dish / 28dBi	86.3	< 122.2	Pass
Low – 5760	OFDM – 80MHz	PacWireless Dish / 28dBi	115.0	< 68.2	Pass
High – 5815	OFDM – 80MHz	PacWireless Dish / 28dBi	113.8	< 122.2	Pass

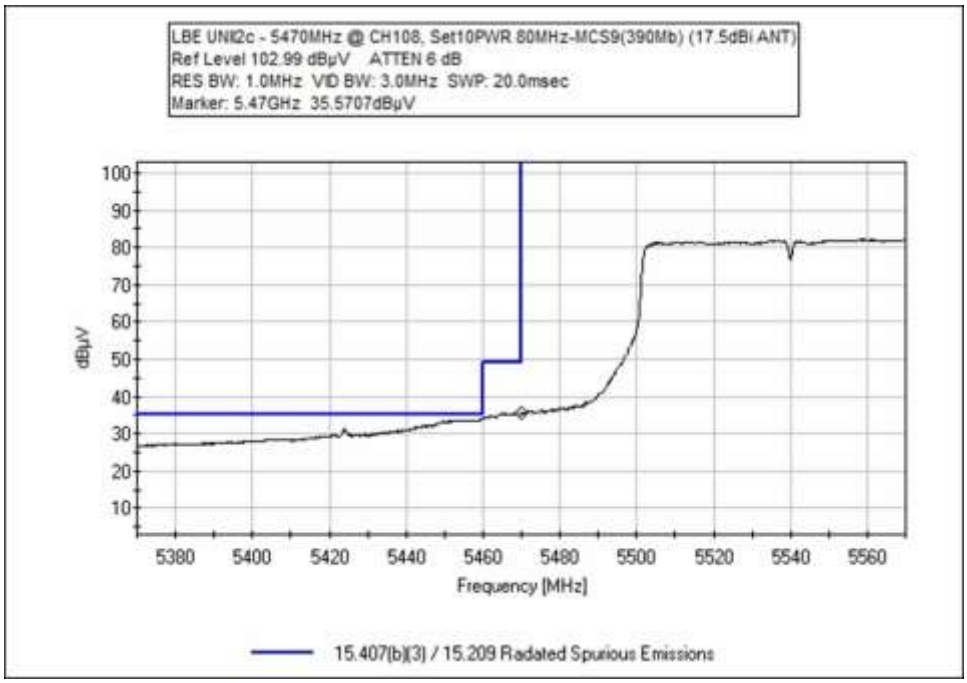
Band Edge Plots

UNII 2c

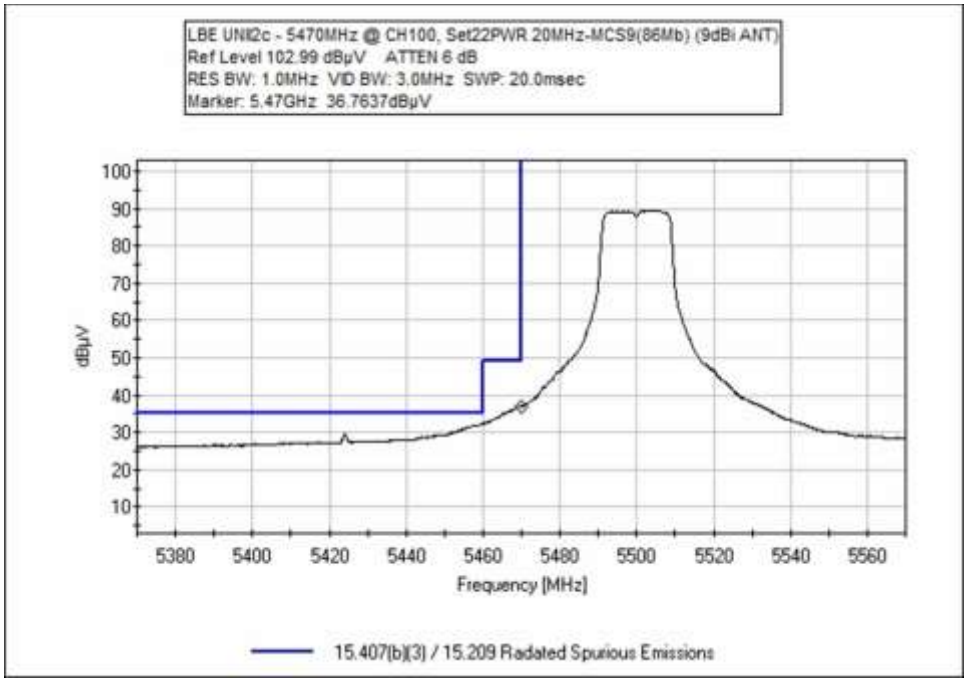
30Deg / 17.5dBi

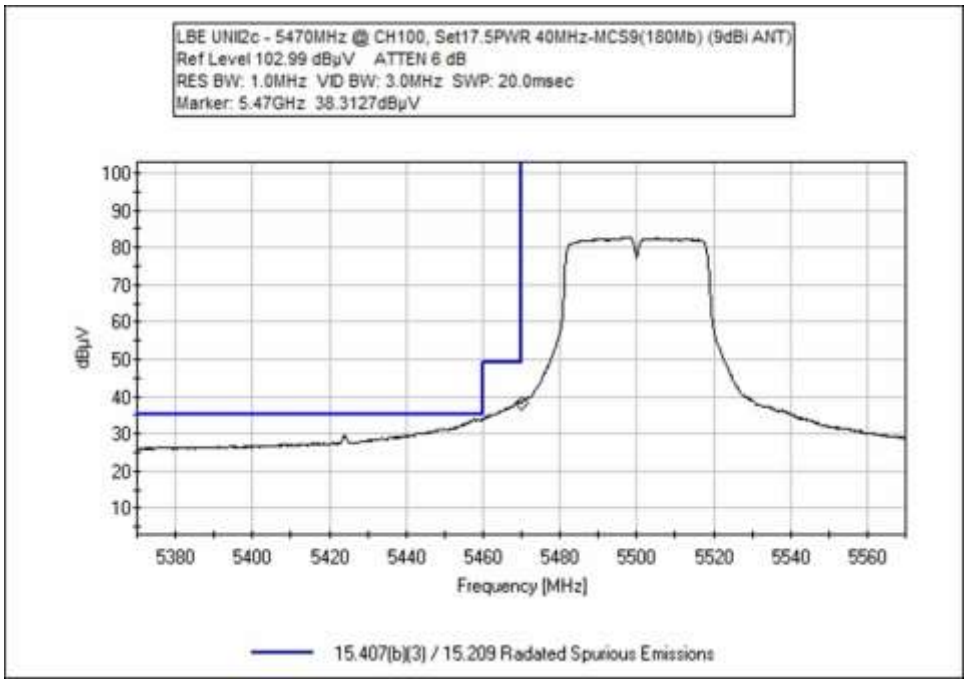


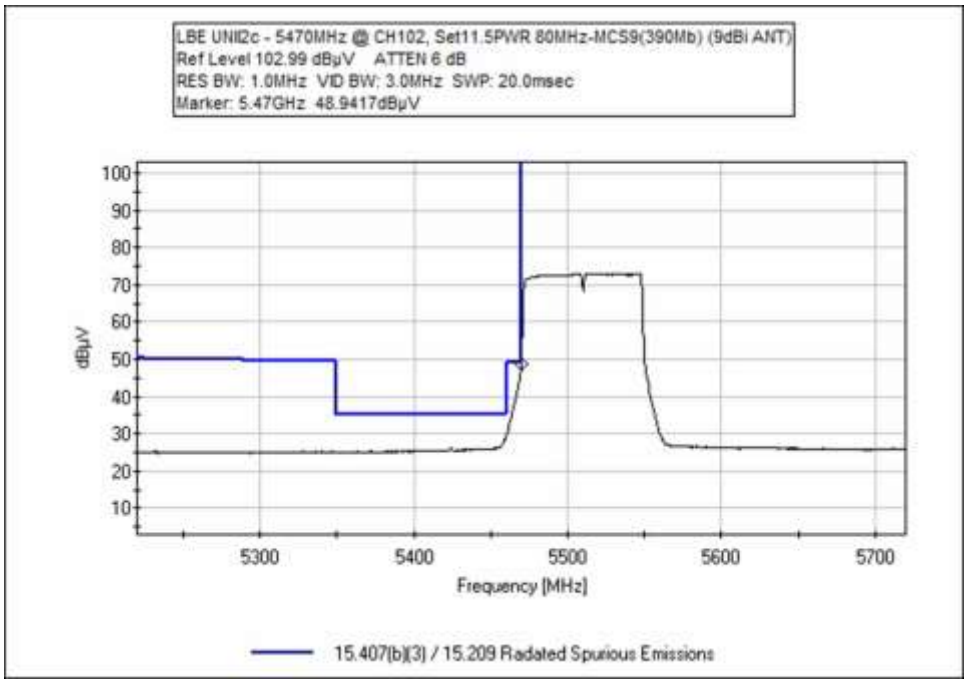



LBE Unit2c - 5470MHz @ CH108, Set10PWR 80MHz-MCS9(390Mb) (17.5dBi ANT)
Ref Level 102.99 dBµV ATTEN 6 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.47GHz 35.5707dBµV
dBµV
100
90
80
70
60
50
40
30
20
10
5380
5400
5420
5440
5460
5480
5500
5520
5540
5560
Frequency [MHz]
15.407(b)(3) / 15.209 Radated Spurious Emissions

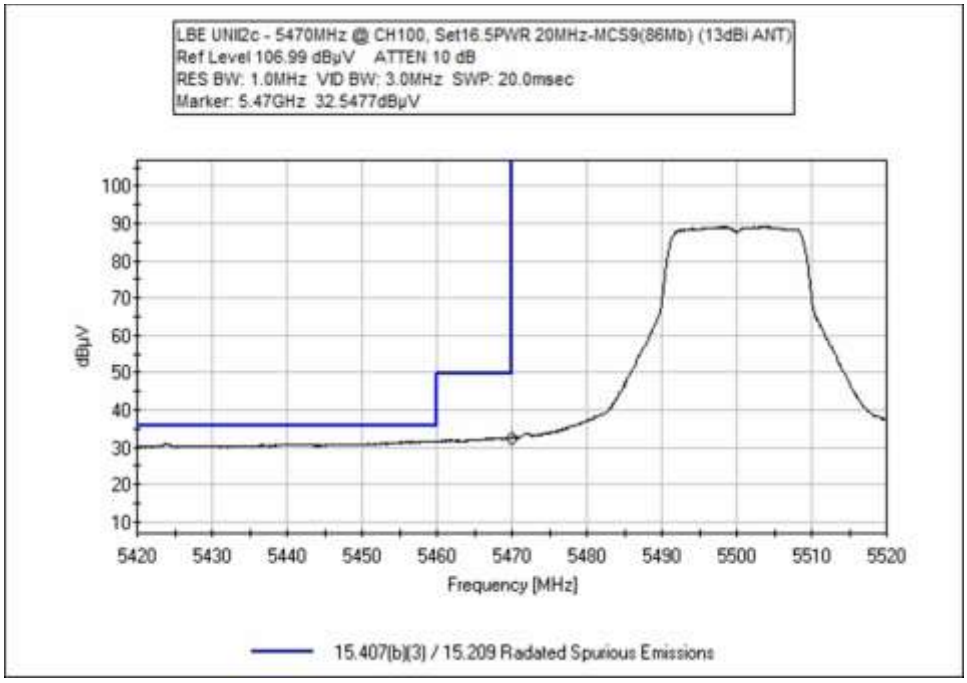
90Deg Horn / 9dBi

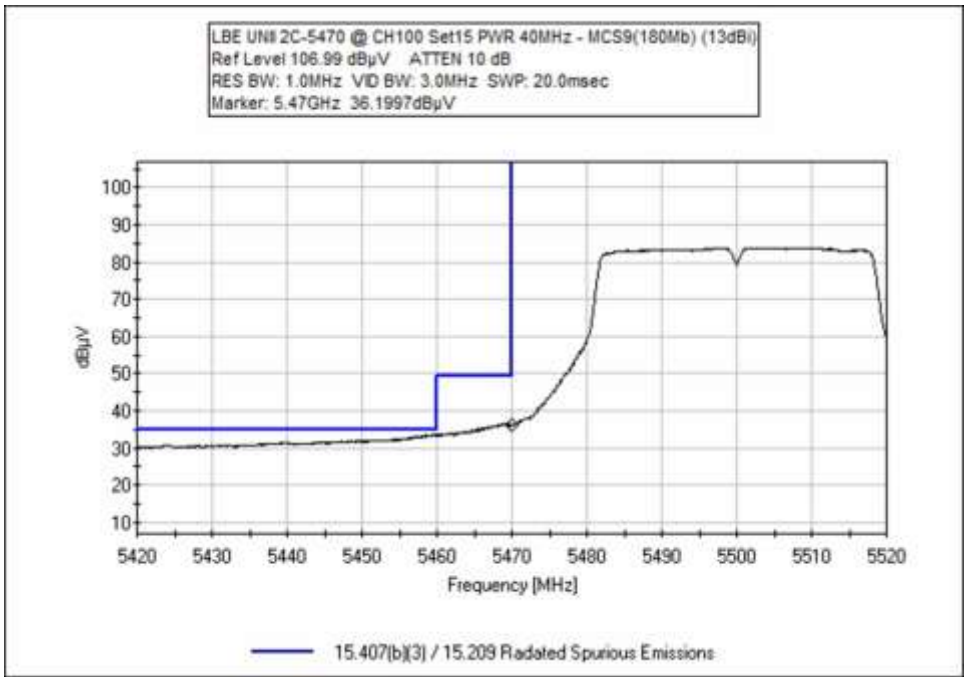


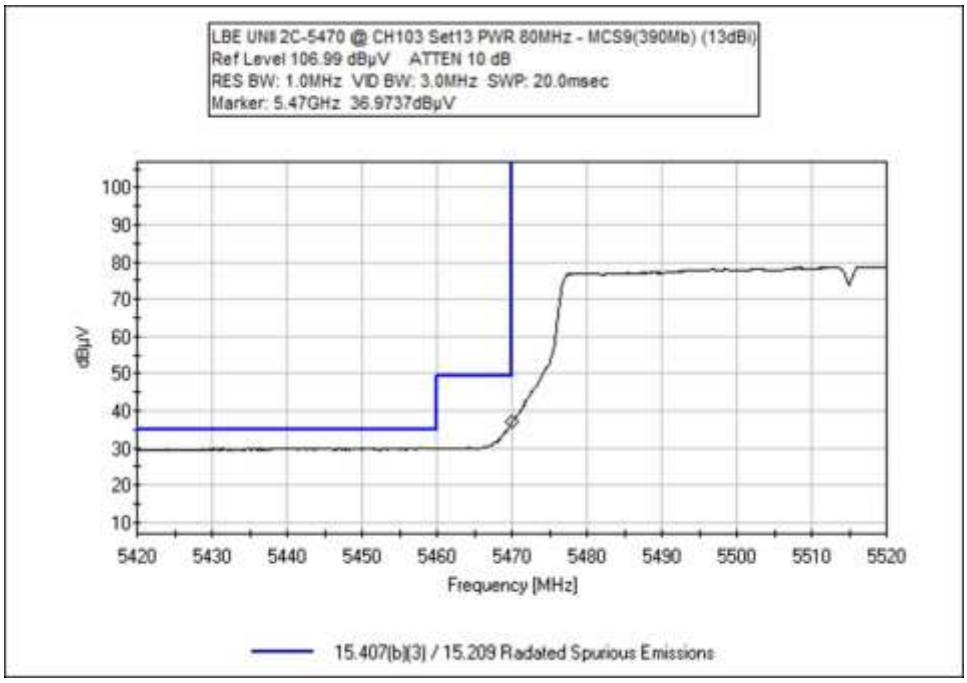



LBE UNII2c - 5470MHz @ CH102, Set11.5PWR 80MHz-MCS9(390Mb) (9dBi ANT)
Ref Level 102.99 dBµV ATTEN 6 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.47GHz 48.9417dBµV
dBµV
100
90
80
70
60
50
40
30
20
10
5300
5400
5500
5600
5700
Frequency [MHz]
15.407(b)(3) / 15.209 Radated Spurious Emissions

HexHorn / 50Deg Horn / 13dBi

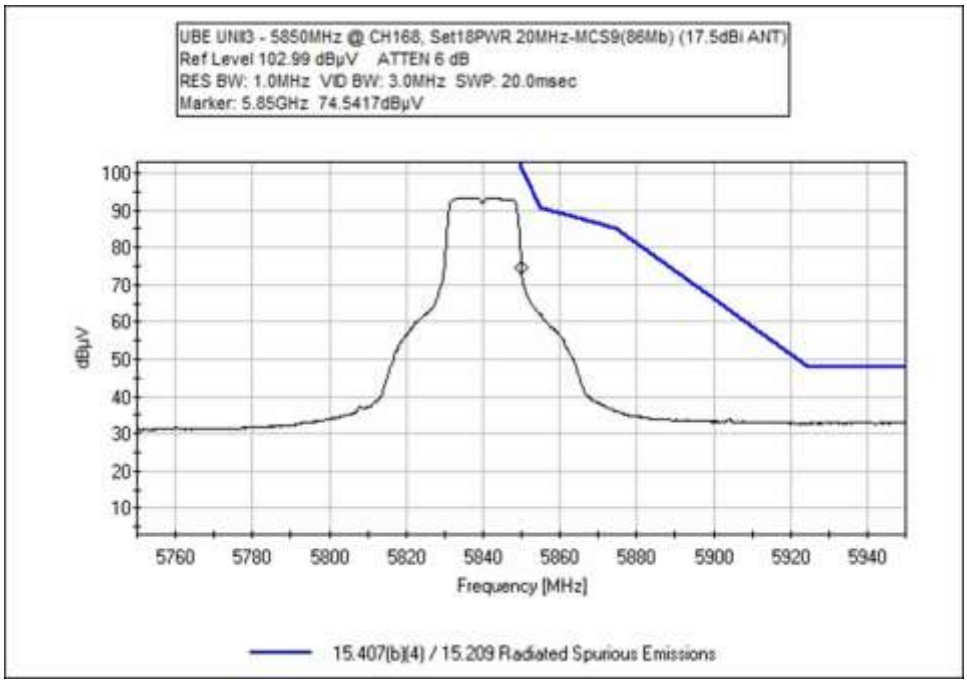


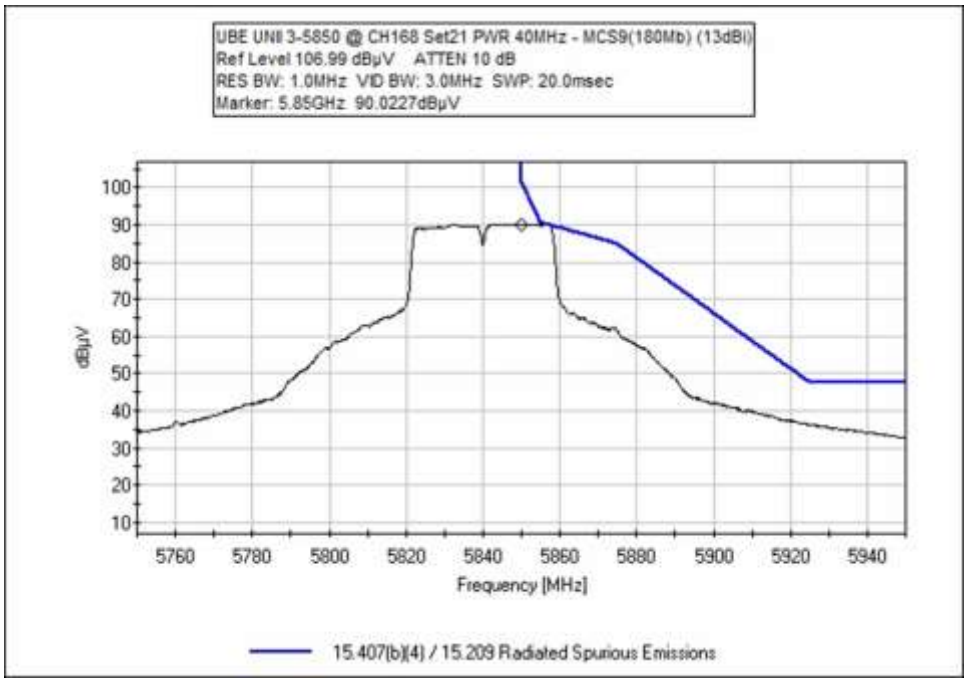


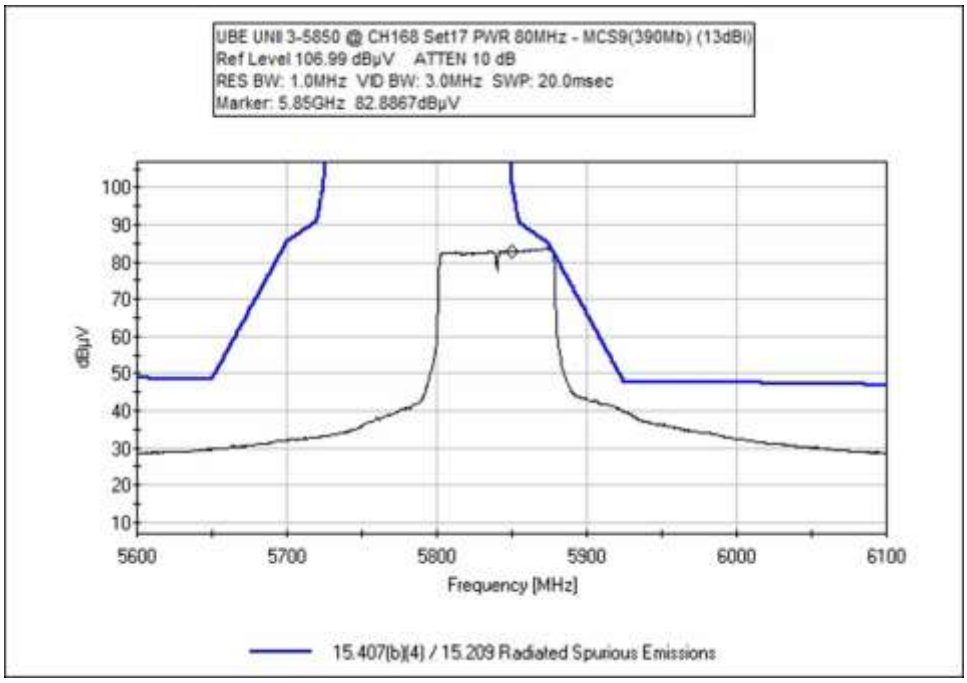

LBE UNII 2C-5470 @ CH103 Set13 PWR 80MHz - MCS9(390Mb) (13dBi)
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.47GHz 36.9737dBµV
dBµV
100
90
80
70
60
50
40
30
20
10
5420
5430
5440
5450
5460
5470
5480
5490
5500
5510
5520
Frequency [MHz]
15.407(b)(3) / 15.209 Radated Spurious Emissions

UNII 3

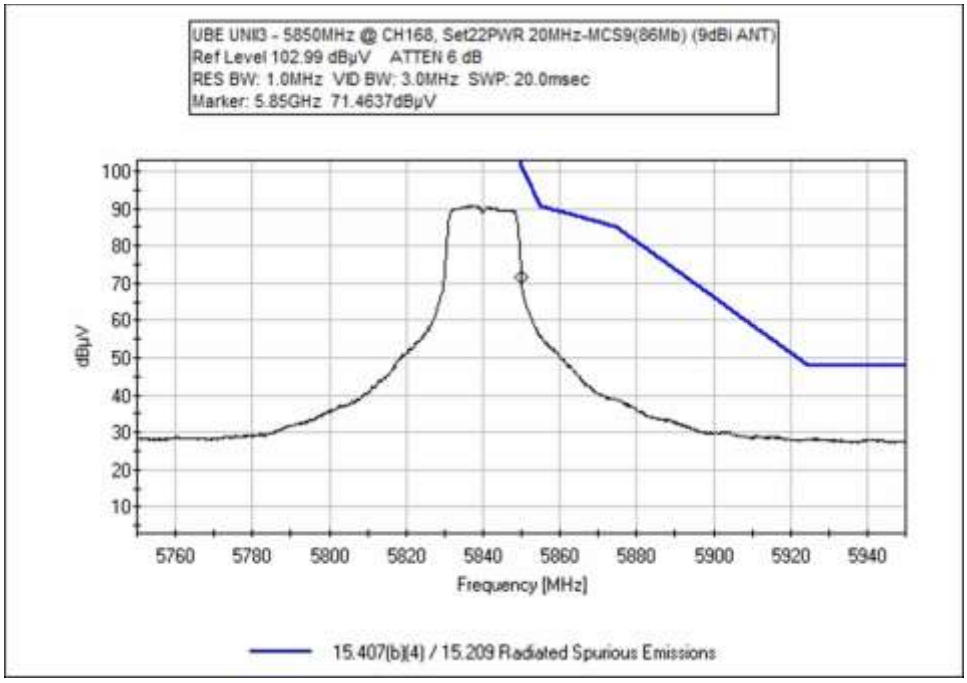
30Deg / 17.5dBi

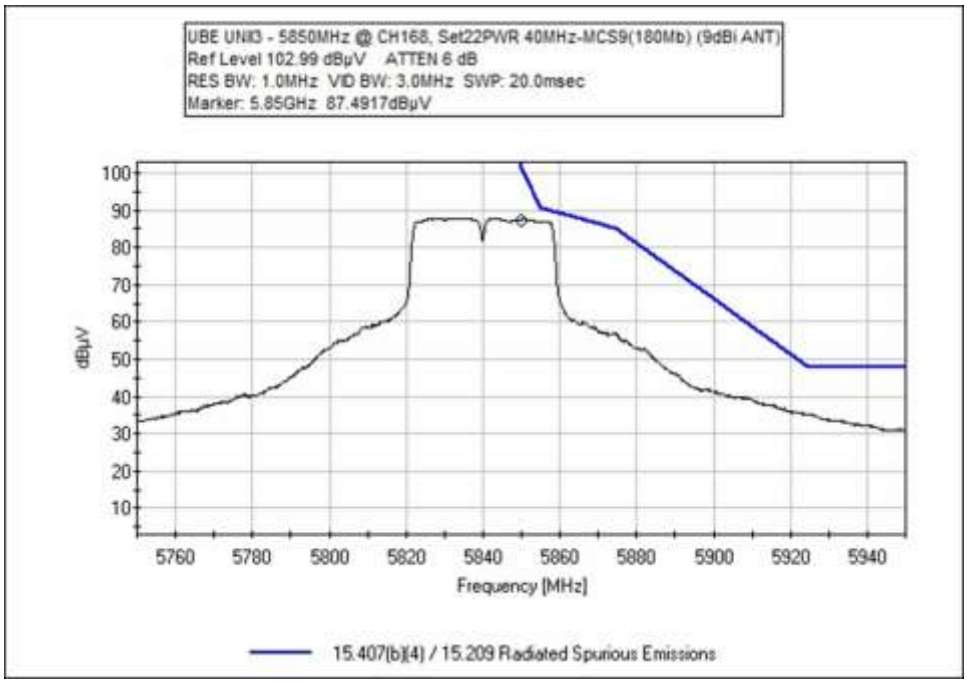


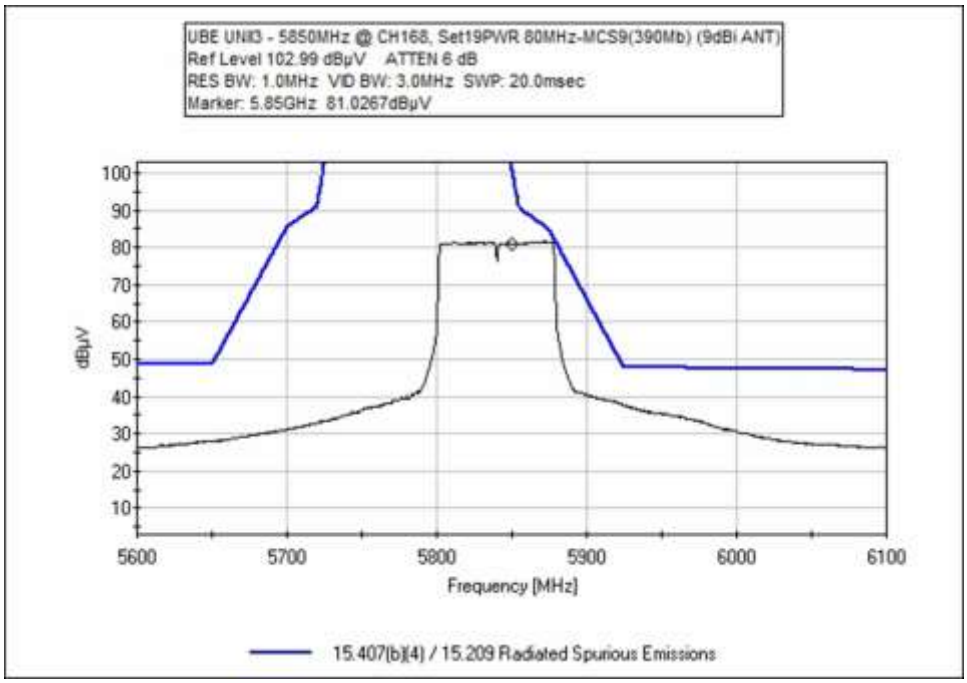



UBE UNII 3-5850 @ CH168 Set17 PWR 80MHz - MCS9(390Mb) (13dBi)
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.85GHz 82.8867dBµV
dBµV
100
90
80
70
60
50
40
30
20
10
5600
5700
5800
5900
6000
6100
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions

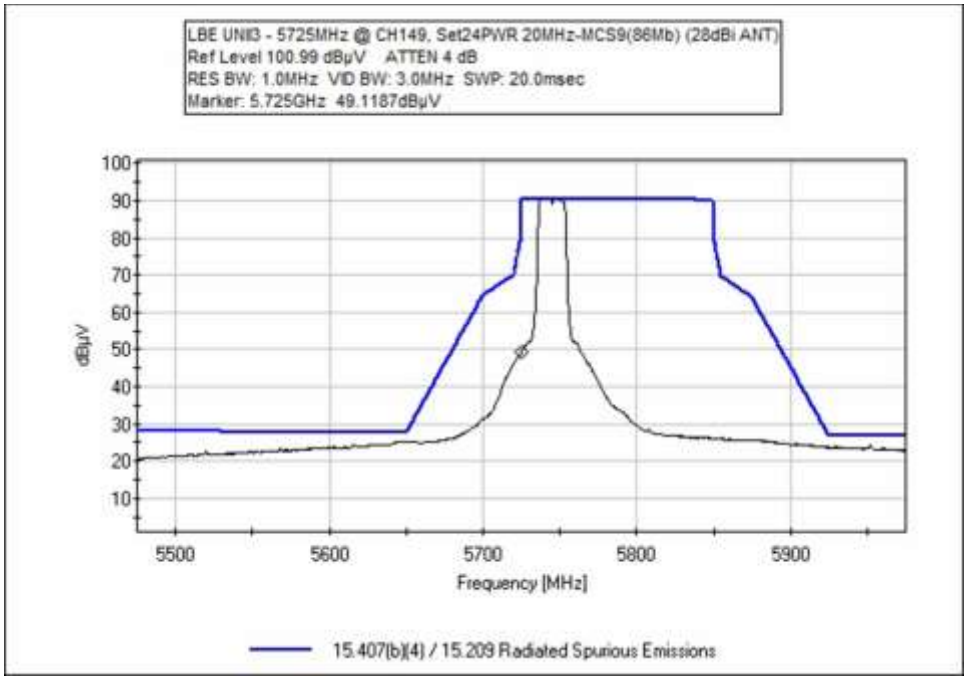
90Deg Horn / 9dBi

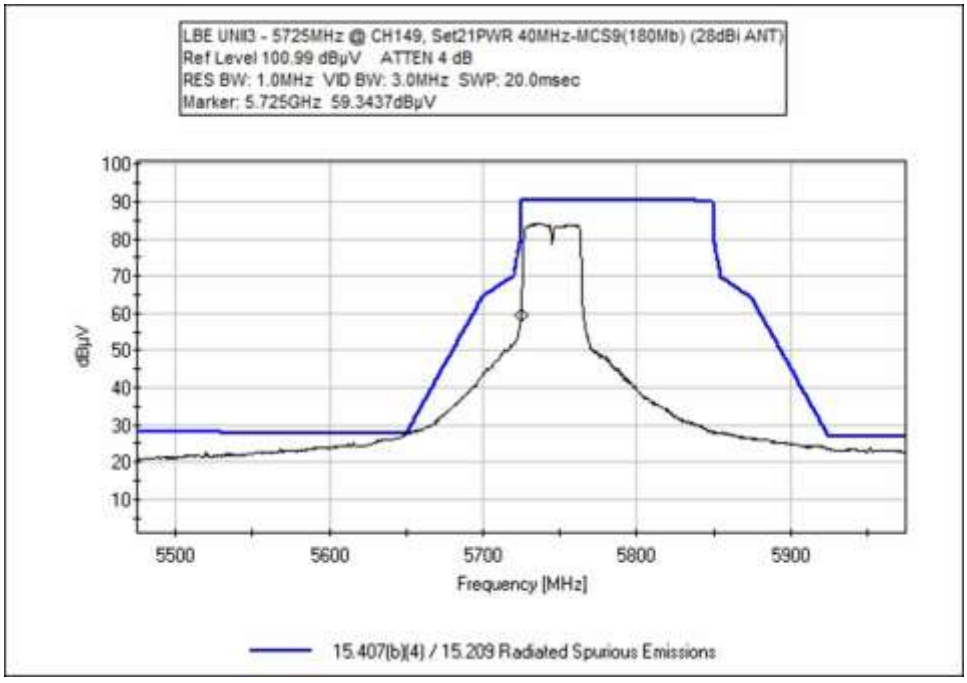


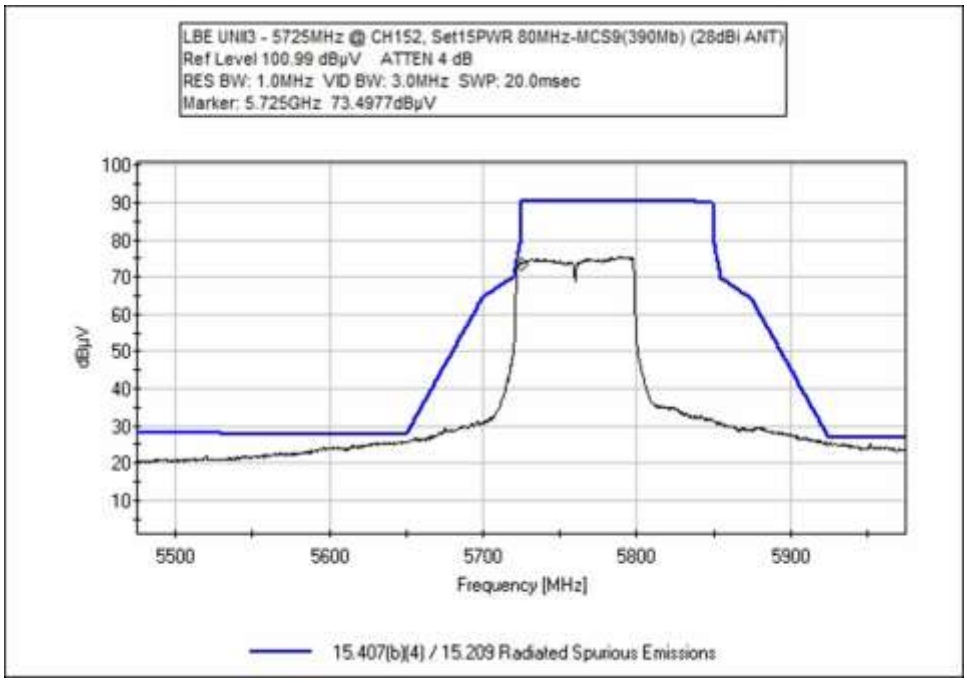


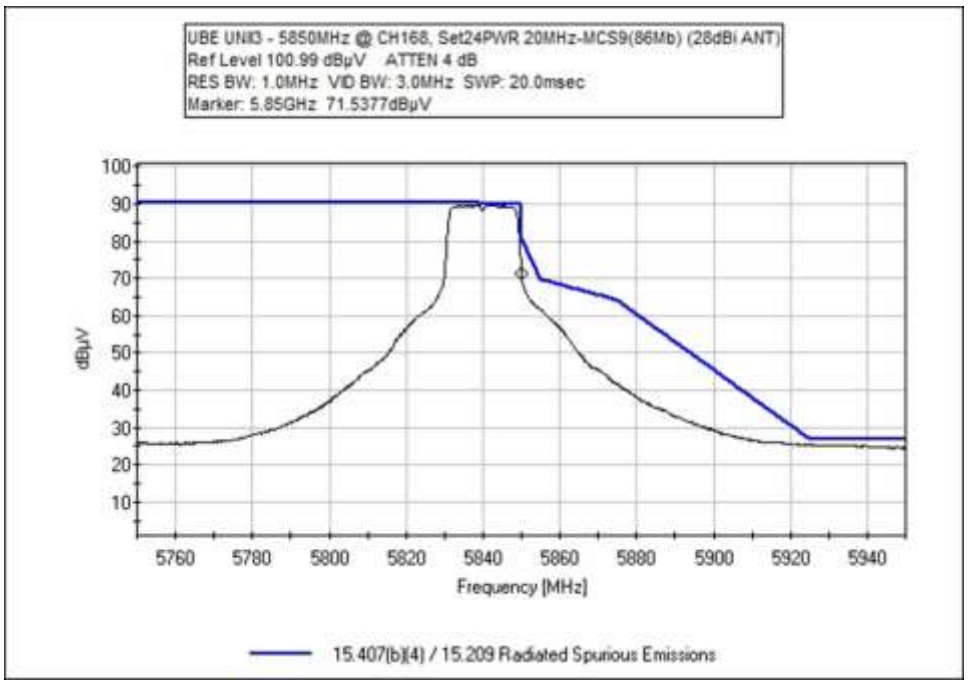

UBE UNII3 - 5850MHz @ CH168, Set19PWR 80MHz-MCS9(390Mb) (9dBi ANT)
Ref Level 102.99 dBµV ATTEN 6 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.85GHz 81.0267dBµV
100
90
80
70
60
50
40
30
20
10
dBµV
5600
5700
5800
5900
6000
6100
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions

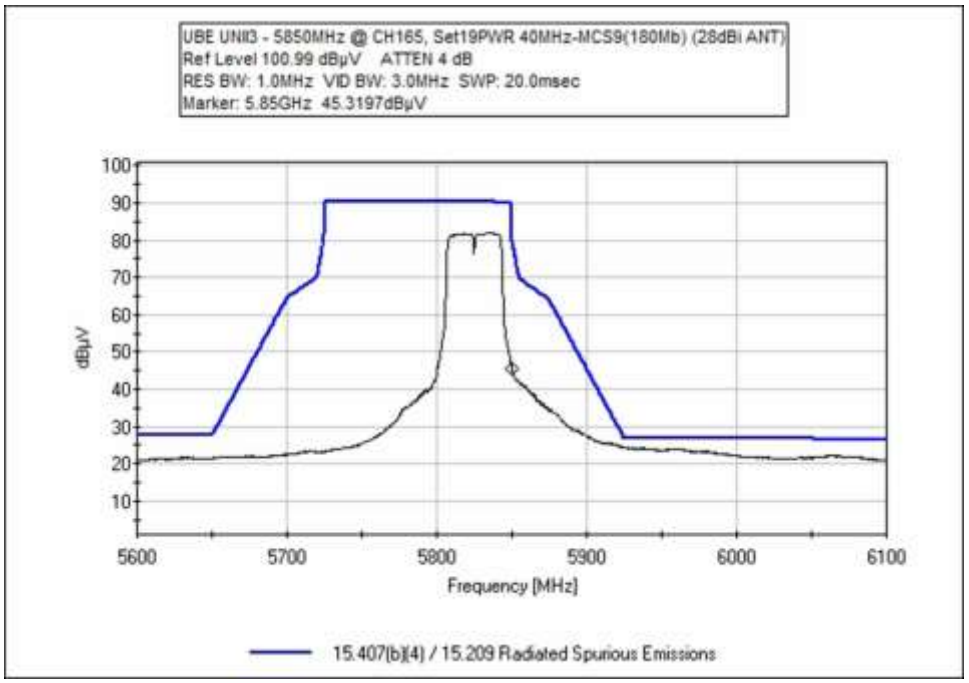
Dish / 28dBi

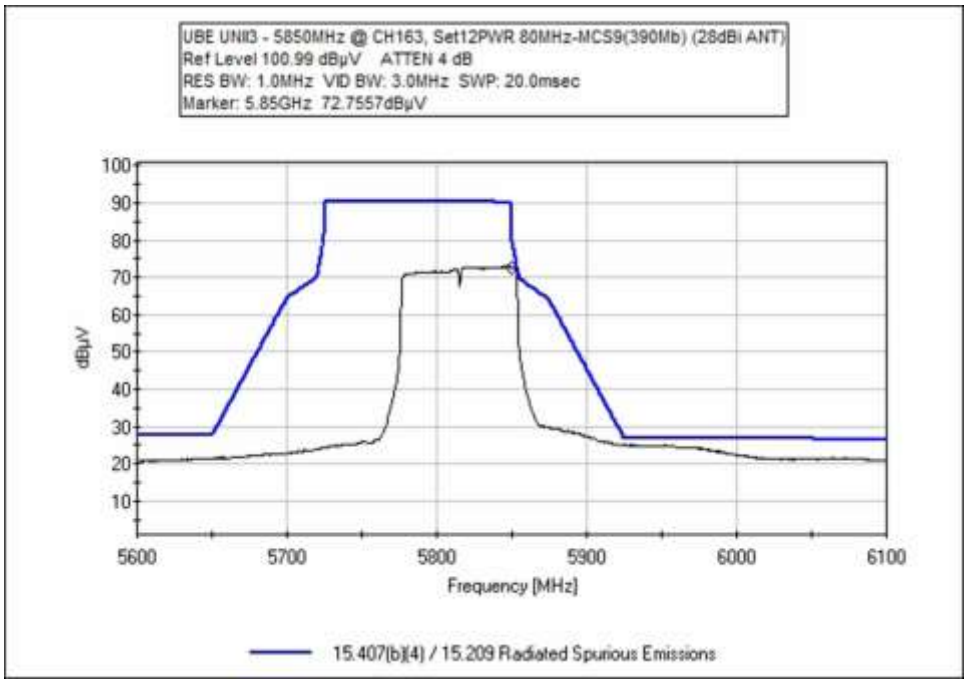

LBE UNII3 - 5725MHz @ CH149, Set24PWR 20MHz-MCS9(86Mb) (28dBi ANT)
Ref Level 100.99 dBµV ATTEN 4 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.725GHz 49.1187dBµV
dBµV
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions


LBE UNII3 - 5725MHz @ CH149, Set21PWR 40MHz-MCS9(180Mb) (28dBi ANT)
Ref Level 100.99 dBµV ATTEN 4 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.725GHz 59.3437dBµV
dBµV
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions

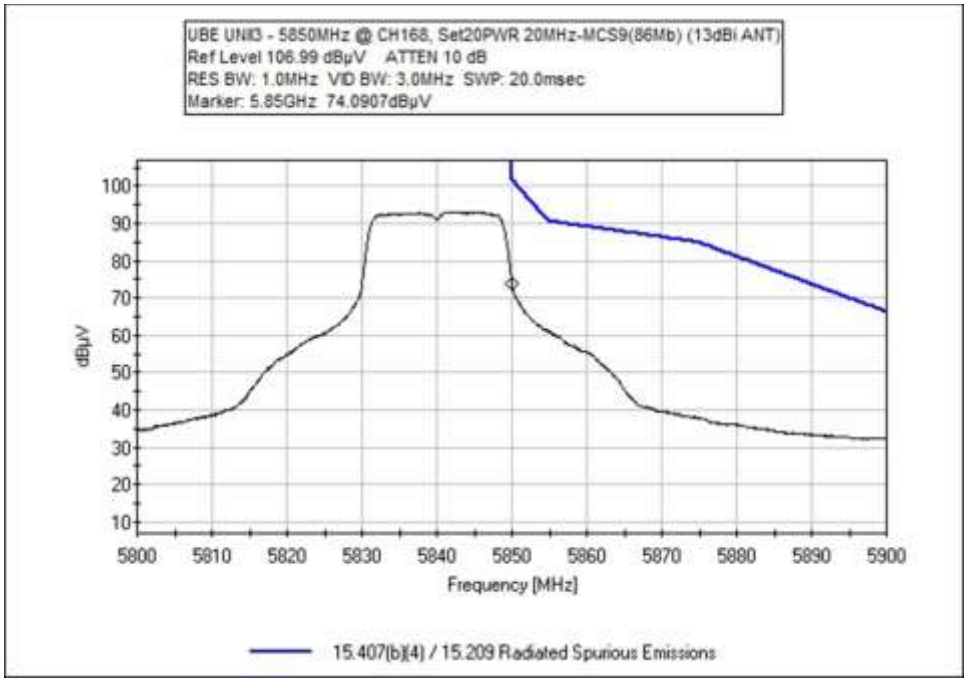

LBE UNII3 - 5725MHz @ CH152, Set15PWR 80MHz-MCS9(390Mb) (28dBi ANT)
Ref Level 100.99 dBµV ATTEN 4 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.725GHz 73.4977dBµV
100
90
80
70
60
50
40
30
20
10
dBµV
5500
5600
5700
5800
5900
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions

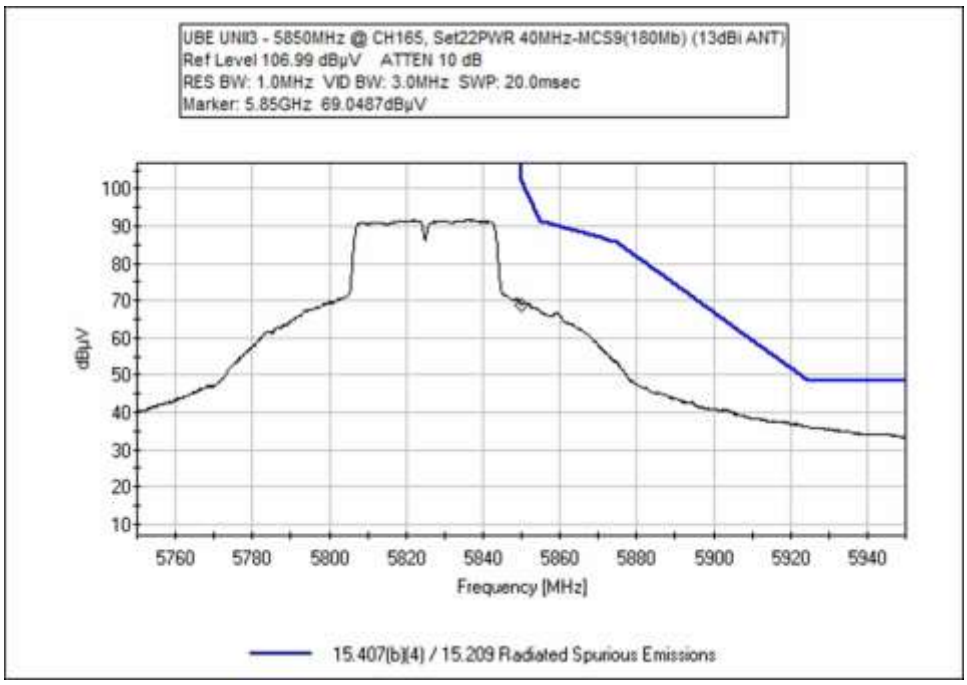

UBE UNII3 - 5850MHz @ CH168, Set24PWR 20MHz-MCS9(86Mb) (28dBi ANT)
Ref Level 100.99 dBµV ATTEN 4 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.85GHz 71.5377dBµV
dBµV
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions

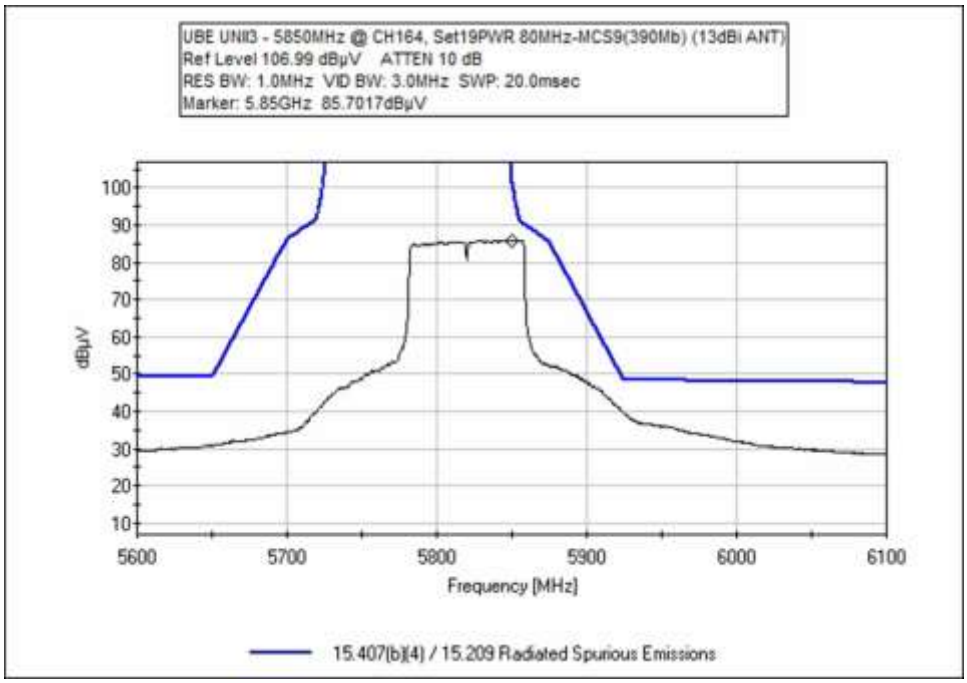

UBE UNII3 - 5850MHz @ CH165, Set19PWR 40MHz-MCS9(180Mb) (28dBi ANT)
Ref Level 100.99 dBµV ATTEN 4 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.85GHz 45.3197dBµV
dBµV
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions


UBE UNII3 - 5850MHz @ CH163, Set12PWR 80MHz-MCS9(390Mb) (28dBi ANT)
Ref Level 100.99 dBµV ATTEN 4 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.85GHz 72.7557dBµV
100
90
80
70
60
50
40
30
20
10
dBµV
5600
5700
5800
5900
6000
6100
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions

HexHorn / 50Deg Horn / 13dBi






UBE UNII3 - 5850MHz @ CH164, Set19PWR 80MHz-MCS9(390Mb) (13dBi ANT)
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 5.85GHz 85.7017dBµV
dBµV
100
90
80
70
60
50
40
30
20
10
5600
5700
5800
5900
6000
6100
Frequency [MHz]
15.407(b)(4) / 15.209 Radiated Spurious Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.407(b)(3) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**100331**	Date:	11/17/2017
Test Type:	**Radiated Scan**	Time:	14:35:35
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

Equipment is an outdoor access point for use in PTMP applications.

Modulation used: OFDM (802.11ac)
unit is in continuous mode
Antenna: 30 degree Horn
Gain: 17.5dBi

Highest Generated Frequency not related to radio: 1.4GHz

Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

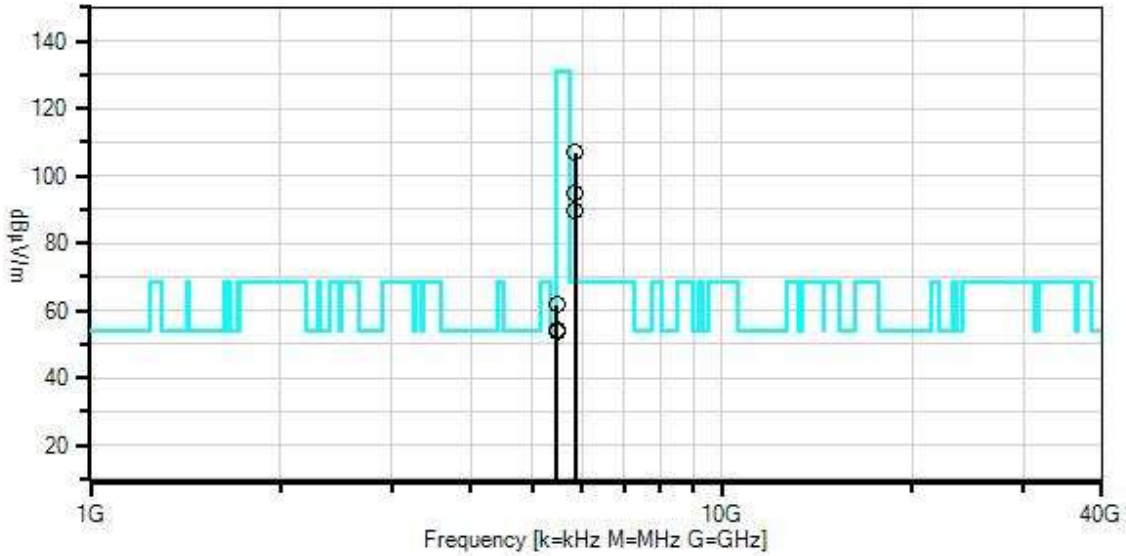
Temperature: 17.8 ºC
Rel. Humidity: 48%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

The EUT is usually setup on a roof or tower. For testing, it has been placed on a tripod that mimics actual installation. The EUT has multiple radios within the EUT but all are identical. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.

Digital Path WO#: 100331 Sequence#: 6 Date: 11/17/2017
15.407(b)(3) / 15.209 Radated Spurious Emissions Test Distance: 3 Meters Horiz



Readings
QP Readings
Ambient
1 - 15.407(b)(3) / 15.209 Radated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00327	Horn Antenna	3115	3/4/2016	3/4/2018
T2	AN02115	Preamp	83051A	2/27/2017	2/27/2019
T3	AN03361	Cable	32022-2-29094-48TC	1/10/2017	1/10/2019
T4	ANP05935	Attenuator	84A-10	1/18/2016	1/18/2018
T5	AN03543	Cable	32022-29094K-29094K-10M	11/7/2017	11/7/2019
T6	AN02660	Spectrum Analyzer	E4446A	10/10/2016	10/10/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	5470.000M	42.6	+31.1 +9.1	-32.5 +0.0	+1.5	+9.8	+0.0	61.6	68.2	-6.6	Horiz
									LBE UNII2c - 5470MHz @ CH104, Set14PWR 40MHz-MCS9(180Mb) (9dBi ANT)		
2	5470.000M	35.5	+31.1 +9.1	-32.5 +0.0	+1.5	+9.8	+0.0	54.5	68.2	-13.7	Horiz
									LBE UNII2c - 5470MHz @ CH108, Set10PWR 80MHz-MCS9(390Mb) (17.5dBi ANT)		
3	5470.000M	34.5	+31.1 +9.1	-32.5 +0.0	+1.5	+9.8	+0.0	53.5	68.2	-14.7	Horiz
									LBE UNII2c - 5470MHz @ CH100, Set14.5PWR 20MHz-MCS9(86Mb) (17.5dBi ANT)		
4	5850.000M	86.8	+31.8 +9.3	-32.2 +0.0	+1.5	+9.8	+0.0	107.0	122.2	-15.2	Horiz
									UBE UNII3 - 5850MHz @ CH164, Set17.5PWR 80MHz-MCS9(390Mb) (17.5dBi ANT)		

5	5850.000M	74.6	+31.8 +9.3	-32.2 +0.0	+1.5	+9.8	+0.0	94.8	122.2	-27.4	Horiz UBE UNII3 - 5850MHz @ CH168, Set18PWR 20MHz-MCS9(86Mb) (17.5dBi ANT)
6	5850.000M	69.6	+31.8 +9.3	-32.2 +0.0	+1.5	+9.8	+0.0	89.8	122.2	-32.4	Horiz UBE UNII3 - 5850MHz @ CH165, Set19.5PWR 40MHz-MCS9(180Mb) (17.5dBi ANT)

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.407(b)(3) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**100331**	Date:	11/13/2017
Test Type:	**Radiated Scan**	Time:	15:49:17
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

Equipment is an outdoor access point for use in PTMP applications.

Modulation used: OFDM (802.11ac)
unit is in continuous mode
Antenna: 90 degree Horn
Gain: 17.5dBi

Highest Generated Frequency not related to radio: 1.4GHz

Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

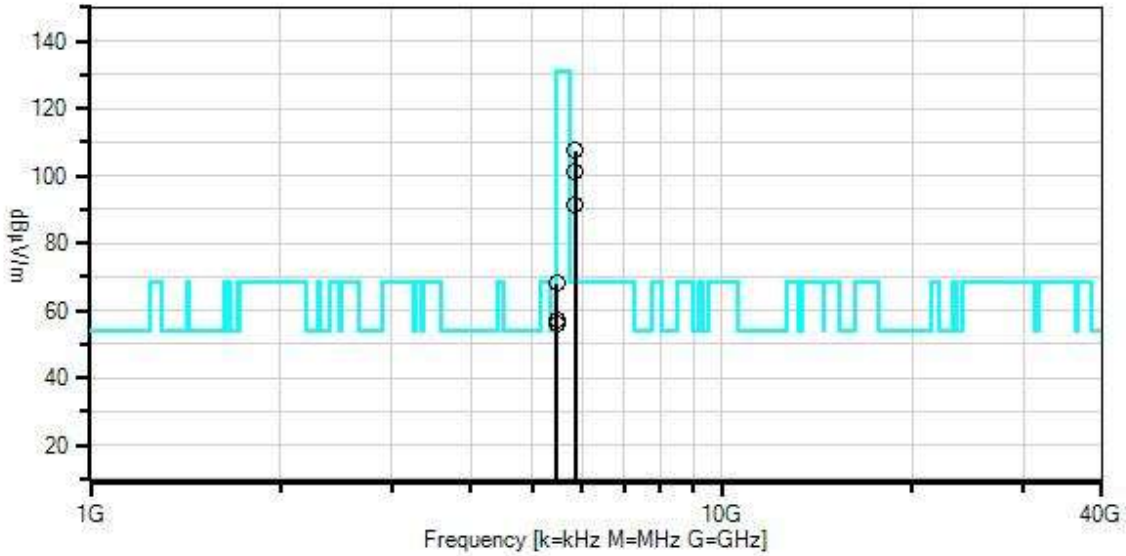
Temperature: 14.2ºC
Rel. Humidity: 64%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

The EUT is usually setup on a roof or tower. For testing, it has been placed on a tripod that mimics actual installation. The EUT has multiple radios within the EUT but all are identical. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.

Digital Path WO#: 100331 Sequence#: 6 Date: 11/13/2017
15.407(b)(3) / 15.209 Radated Spurious Emissions Test Distance: 3 Meters Horiz



Readings
QP Readings
Ambient
1 - 15.407(b)(3) / 15.209 Radated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00327	Horn Antenna	3115	3/4/2016	3/4/2018
T2	AN02115	Preamp	83051A	2/27/2017	2/27/2019
T3	AN03361	Cable	32022-2-29094-48TC	1/10/2017	1/10/2019
T4	ANP05935	Attenuator	84A-10	1/18/2016	1/18/2018
T5	AN03543	Cable	32022-29094K-29094K-10M	11/7/2017	11/7/2019
T6	AN02660	Spectrum Analyzer	E4446A	10/10/2016	10/10/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	5470.000M	48.9	+31.1 +9.1	-32.5 +0.0	+1.5	+9.8	+0.0	67.9	68.2 LBE UNII2c - 5470MHz @ CH102, Set11.5PWR 80MHz-MCS9(390Mb) (9dBi ANT)	-0.3	Horiz
2	5470.000M	38.2	+31.1 +9.1	-32.5 +0.0	+1.5	+9.8	+0.0	57.2	68.2 LBE UNII2c - 5470MHz @ CH100, Set17.5PWR 40MHz-MCS9(180Mb) (9dBi ANT)	-11.0	Horiz
3	5470.000M	36.9	+31.1 +9.1	-32.5 +0.0	+1.5	+9.8	+0.0	55.9	68.2 LBE UNII2c - 5470MHz @ CH100, Set22PWR 20MHz-MCS9(86Mb) (9dBi ANT)	-12.3	Horiz
4	5850.000M	87.4	+31.8 +9.3	-32.2 +0.0	+1.5	+9.8	+0.0	107.6	122.2 UBE UNII3 - 5850MHz @ CH168, Set22PWR 40MHz-MCS9(180Mb) (9dBi ANT)	-14.6	Horiz

5	5850.000M	81.2	+31.8 +9.3	-32.2 +0.0	+1.5	+9.8	+0.0	101.4	122.2	-20.8	Horiz UBE UNII3 - 5850MHz @ CH168, Set19PWR 80MHz-MCS9(390Mb) (9dBi ANT)
6	5850.000M	71.2	+31.8 +9.3	-32.2 +0.0	+1.5	+9.8	+0.0	91.4	122.2	-30.8	Horiz UBE UNII3 - 5850MHz @ CH168, Set22PWR 20MHz-MCS9(86Mb) (9dBi ANT)

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.407(b)(4) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**100331**	Date:	11/17/2017
Test Type:	**Radiated Scan**	Time:	14:19:01
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 6			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 6			

Test Conditions / Notes:

Equipment is an outdoor access point for use in PTP applications.

Modulation used: OFDM (802.11ac)
unit is in continuous mode
Antenna: Pac Wireless Dish
Gain: 28dBi

Highest Generated Frequency not related to radio: 1.4GHz

Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

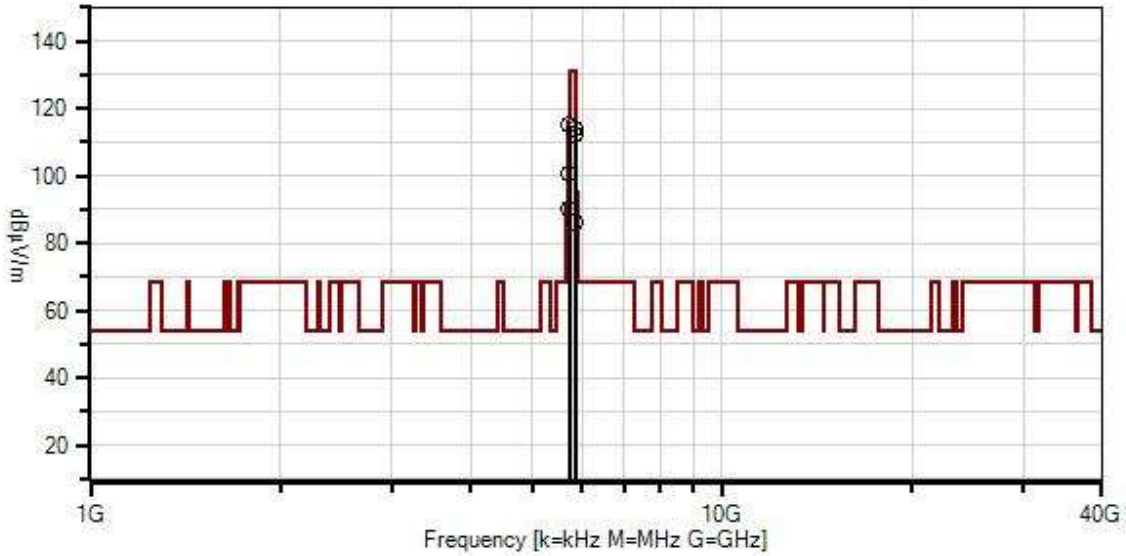
Temperature: 17.8 ºC
Rel. Humidity: 48%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

The EUT is usually setup on a roof or tower. For testing, it has been placed on a tripod that mimics actual installation. The EUT has multiple radios within the EUT but all are identical. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.

Digital Path WO#: 100331 Sequence#: 6 Date: 11/17/2017
15.407(b)(4) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Horiz



Readings
QP Readings
Ambient
1 - 15.407(b)(4) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00327	Horn Antenna	3115	3/4/2016	3/4/2018
	AN02115	Preamp	83051A	2/27/2017	2/27/2019
	AN03361	Cable	32022-2-29094-48TC	1/10/2017	1/10/2019
	ANP05935	Attenuator	84A-10	1/18/2016	1/18/2018
T2	AN03543	Cable	32022-29094K-29094K-10M	11/7/2017	11/7/2019
T3	AN02660	Spectrum Analyzer	E4446A	10/10/2016	10/10/2018
	ANP05936	Attenuator	84A-6	1/18/2016	1/18/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	5725.000M	74.2	+31.6	+9.2	+0.0		+0.0	115.0	122.2	-7.2	Horiz
									LBE UNII3 - 5725MHz @ CH152, Set15PWR 80MHz-MCS9(390Mb) (28dBi ANT)		
2	5850.000M	72.7	+31.8	+9.3	+0.0		+0.0	113.8	122.2	-8.4	Horiz
									UBE UNII3 - 5850MHz @ CH163, Set12PWR 80MHz-MCS9(390Mb) (28dBi ANT)		
3	5850.000M	71.4	+31.8	+9.3	+0.0		+0.0	112.5	122.2	-9.7	Horiz
									UBE UNII3 - 5850MHz @ CH168, Set24PWR 20MHz-MCS9(86Mb) (28dBi ANT)		
4	5725.000M	59.8	+31.6	+9.2	+0.0		+0.0	100.6	122.2	-21.6	Horiz
									LBE UNII3 - 5725MHz @ CH149, Set21PWR 40MHz-MCS9(180Mb) (28dBi ANT)		

5	5725.000M	49.2	+31.6	+9.2	+0.0	+0.0	90.0	122.2	-32.2	Horiz	LBE UNII3 - 5725MHz @ CH149, Set24PWR 20MHz-MCS9(86Mb) (28dBi ANT)
6	5850.000M	45.2	+31.8	+9.3	+0.0	+0.0	86.3	122.2	-35.9	Horiz	UBE UNII3 - 5850MHz @ CH165, Set19PWR 40MHz-MCS9(180Mb) (28dBi ANT)

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.407(b)(3) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**100331**	Date:	10/4/2017, 11/5/2017 and 11/7/2017
Test Type:	**Radiated Scan**	Time:	09:59:25
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 5			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 5			

Test Conditions / Notes:

Equipment is an outdoor access point for use in PTMP applications.

Modulation used: OFDM (802.11ac)
Unit is in Continuous Mode
Antenna: 50 degree Hex Array Horn (6 horns)
Data collected will be for both the HexHorn and the 50 Degree Horn. The customer declares that the antennas are exactly the same and so are the radios.

Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

Highest Generated Frequency not related to radio: 1.4GHz

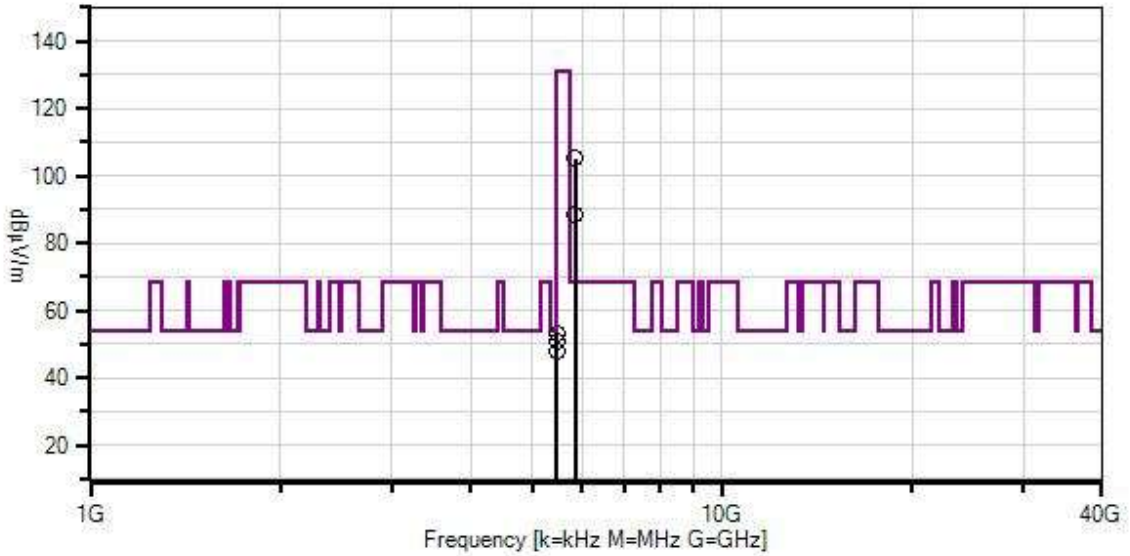
Temperature: 18ºC
Rel. Humidity: 27%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

The EUT is usually setup on a roof or tower. For testing, it has been placed on a non-conductive table. The EUT has 6 Horn Antennas in a hexagon shape. It has 3 radios and 4 chains. Each radio is identical as well as each transmit chain. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.

Digital Path WO#: 100331 Sequence#: 6 Date: 11/7/2017
15.407(b)(3) / 15.209 Radated Spurious Emissions Test Distance: 3 Meters Horiz



Readings
QP Readings
Ambient
1 - 15.407(b)(3) / 15.209 Radated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03634	Spectrum Analyzer	E4445A	8/30/2017	8/30/2018
T2	AN00327	Horn Antenna	3115	3/4/2016	3/4/2018
T3	AN03543	Cable	32022-29094K-29094K-10M	11/2/2015	11/2/2017
T3	AN03543	Cable	32022-29094K-29094K-10M	11/7/2017	11/7/2019
T4	AN02115	Preamp	83051A	2/27/2017	2/27/2019
T5	AN03361	Cable	32022-2-29094-48TC	1/10/2017	1/10/2019
T6	ANP05411	Attenuator	54A-10	1/18/2016	1/18/2018

Cable asset 3543 went out of calibration and was recalibrating during the testing. All testing was done with this cable in calibration

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	5470.000M	34.8	+0.0 +1.5	+31.1 +9.4	+8.8	-32.5	+0.0	53.1	68.2 LBE UNII2C - 5470MHz @ CH104, Set17PWR 40MHz-MCS9(180Mb) (13dBi ANT)	-15.1	Horiz
2	5850.000M	85.7	+0.0 +1.5	+31.8 +9.4	+9.0	-32.2	+0.0	105.2	122.2 UBE UNII3 - 5850MHz @ CH164, Set19PWR 80MHz-MCS9(390Mb) (13dBi ANT)	-17.0	Horiz
3	5470.000M	32.5	+0.0 +1.5	+31.1 +9.4	+8.8	-32.5	+0.0	50.8	68.2 LBE UNII2c - 5470MHz @ CH100, Set16.5PWR 20MHz-MCS9(86Mb) (13dBi ANT)	-17.4	Horiz

4	5470.000M	29.7	+0.0 +1.5	+31.1 +9.4	+8.8	-32.5	+0.0	48.0	68.2	-20.2	Horiz LBE UNII2C - 5470MHz @ CH108, Set13PWR 80MHz-MCS9(390Mb) (13dBi ANT)
5	5850.000M	69.0	+0.0 +1.5	+31.8 +9.4	+9.0	-32.2	+0.0	88.5	122.2	-33.7	Horiz UBE UNII3 - 5850MHz @ CH165, Set22PWR 40MHz-MCS9(180Mb) (13dBi ANT)

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.407(b)(4) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**100331**	Date:	11/10/2017
Test Type:	**Radiated Scan**	Time:	05:21:52
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.11		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 5			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 5			

Test Conditions / Notes:

Equipment is an outdoor access point for use in PTMP applications.

Modulation used: OFDM (802.11ac)
Unit is in Continuous Mode
Antenna: 50 degree Hex Array Horn (6 horns)
Data collected will be for both the HexHorn and the 50 Degree Horn. The customer declares that the antennas are exactly the same and so are the radios.

Highest Generated Frequency not related to radio: 1.4GHz

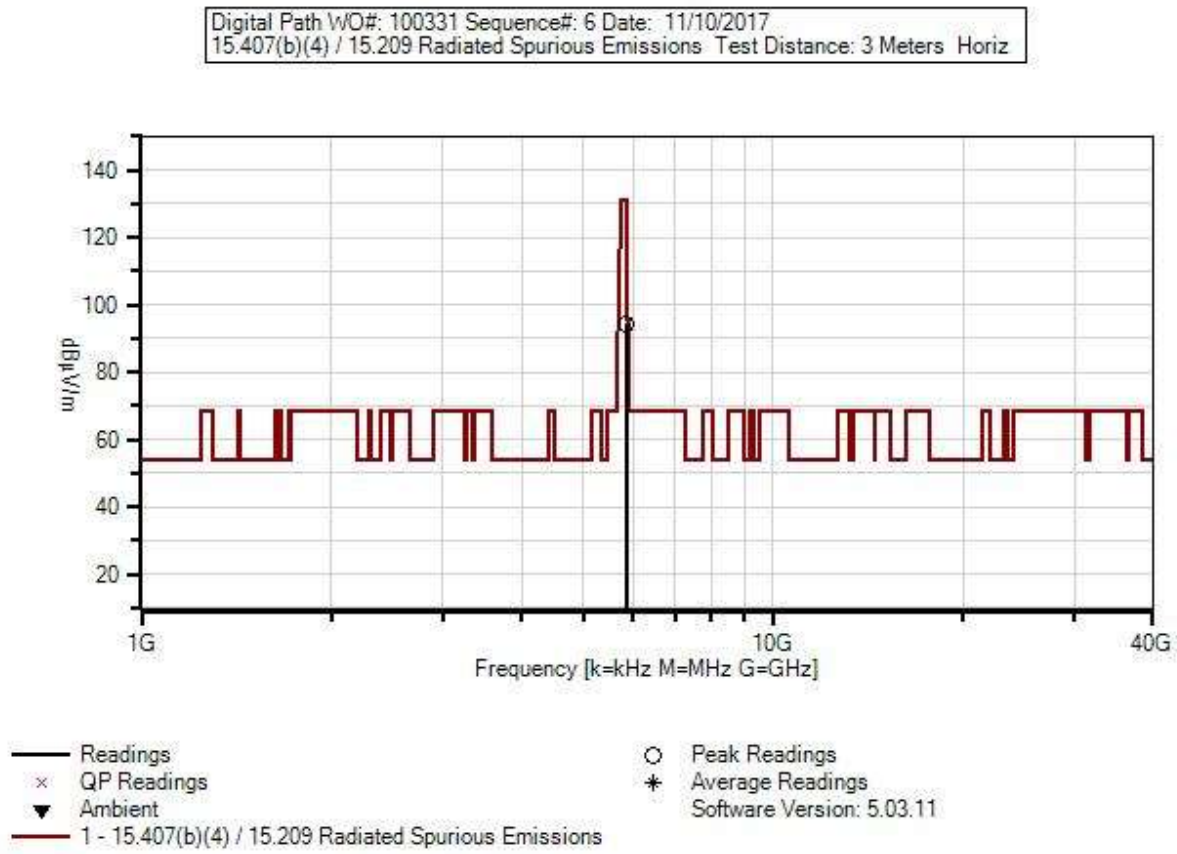
Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

Temperature: 18ºC
Rel. Humidity: 27%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

The EUT is usually setup on a roof or tower. For testing, it has been placed on a non-conductive table. The EUT has 6 Horn Antennas in a hexagon shape. It has 3 radios and 4 chains. Each radio is identical as well as each transmit chain. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.


Digital Path WO#: 100331 Sequence#: 6 Date: 11/10/2017
15.407(b)(4) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Horiz
140
120
100
80
60
40
20
dBµV/m
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.407(b)(4) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.11

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00327	Horn Antenna	3115	3/4/2016	3/4/2018
T2	AN02115	Preamp	83051A	2/27/2017	2/27/2019
T3	AN03361	Cable	32022-2-29094-48TC	1/10/2017	1/10/2019
T4	ANP05935	Attenuator	84A-10	1/18/2016	1/18/2018
T5	AN03543	Cable	32022-29094K-29094K-10M	11/7/2017	11/7/2019
T6	AN02660	Spectrum Analyzer	E4446A	10/10/2016	10/10/2018

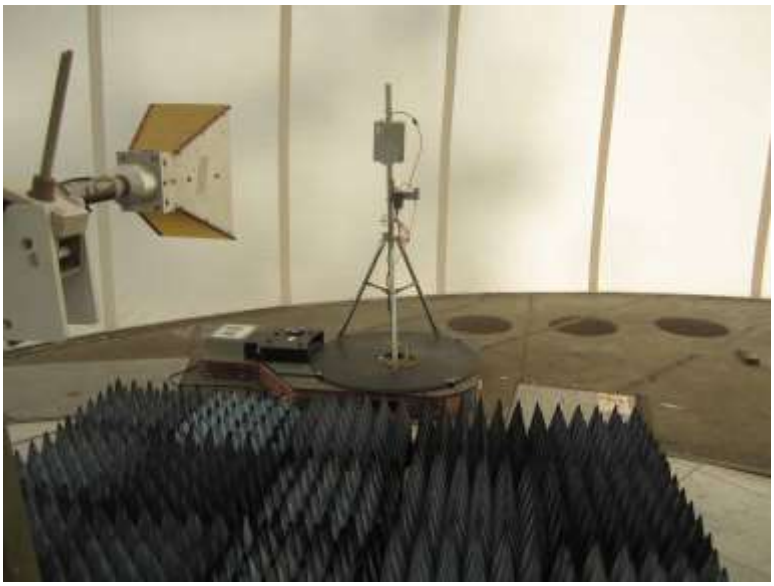
Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	5850.000M	74.1	+31.8 +9.3	-32.2 +0.0	+1.5	+9.8	+0.0	94.3	122.2 UBE UNII3 - 5850MHz @ CH168, Set20PWR 20MHz-MCS9(86Mb) (13dBi ANT)	-27.9	Horiz

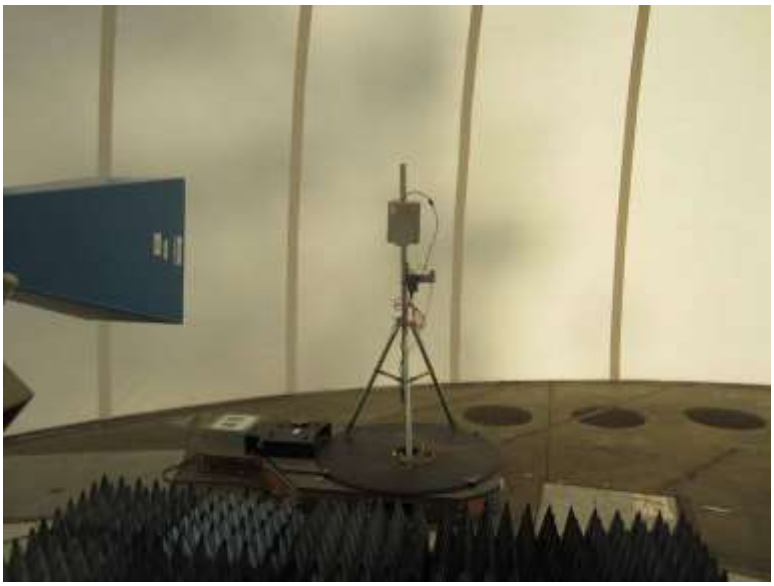
Test Setup Photos

9dBi-30-1000MHz

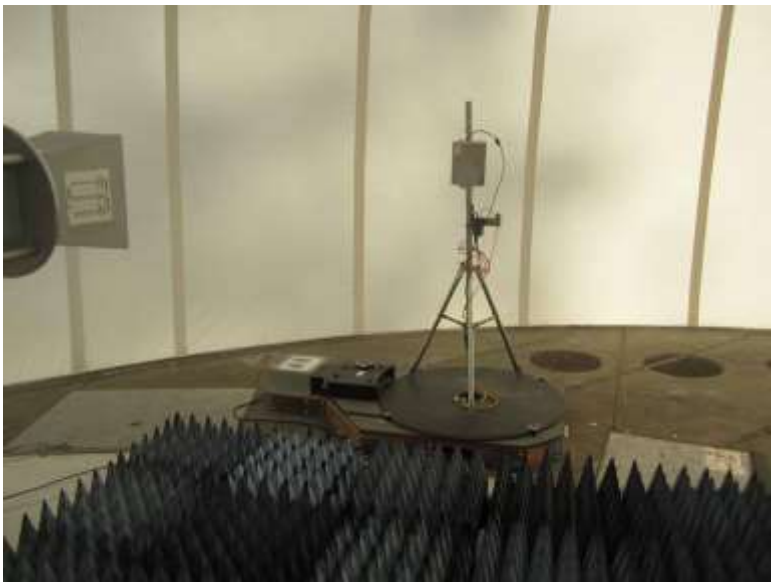
9dBi-30-1000MHz



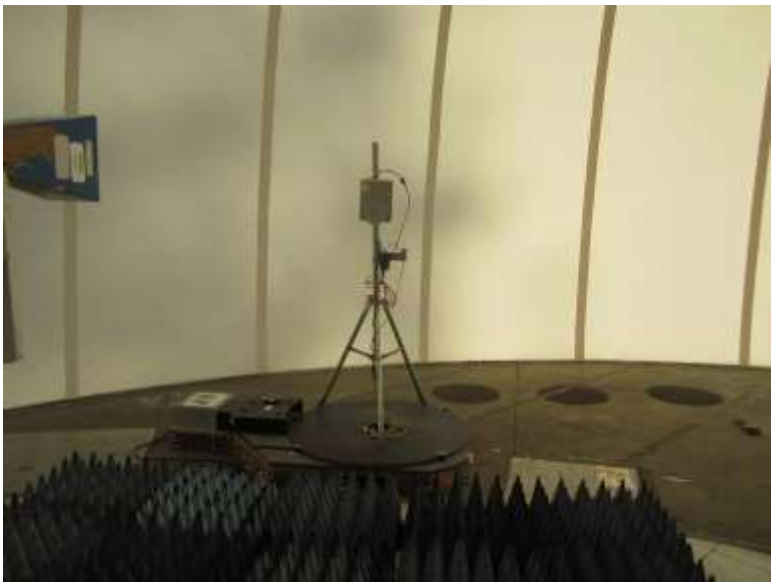
9dBi-1-12GHz, Cone placement



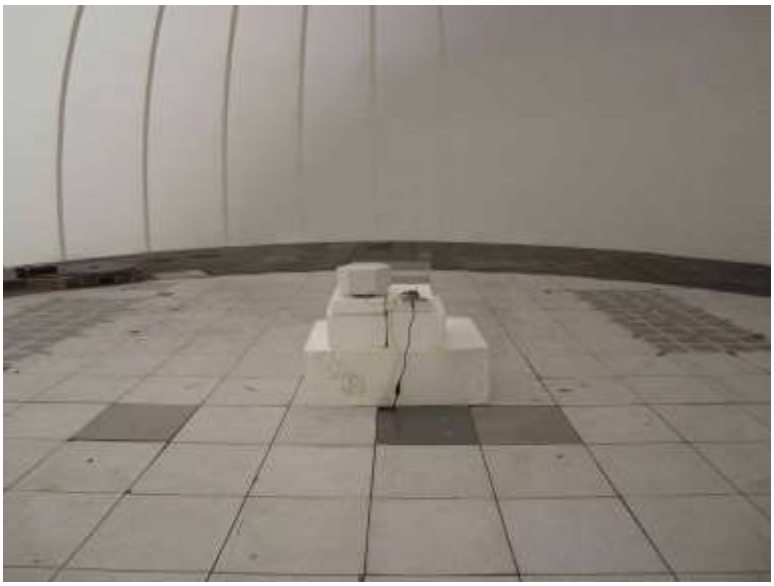
9dBi-12-18GHz, Cone placement



9dBi-18-26.5GHz, Cone placement

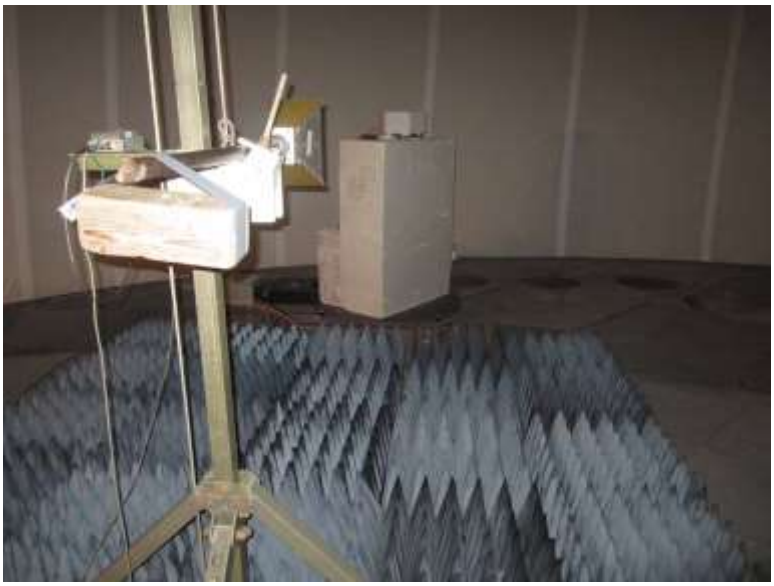


9dBi-26.5-40GHz, Cone placement

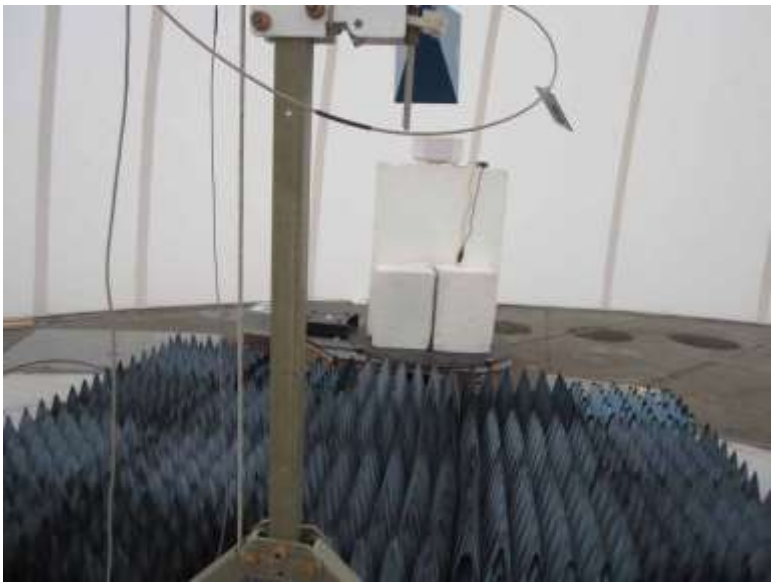


13dBi-Hex-30-1000MHz

13dBi-Hex-30-1000MHz



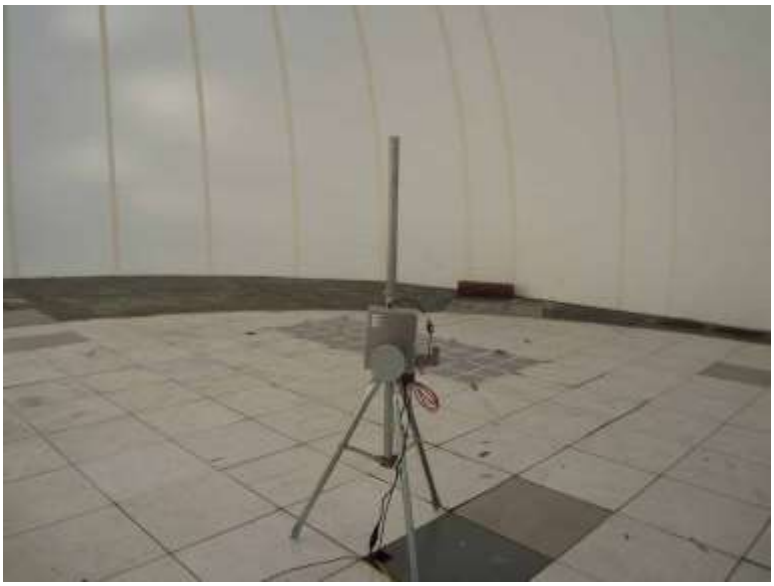
13dBi-Hex-1-12GHz, Cone placement



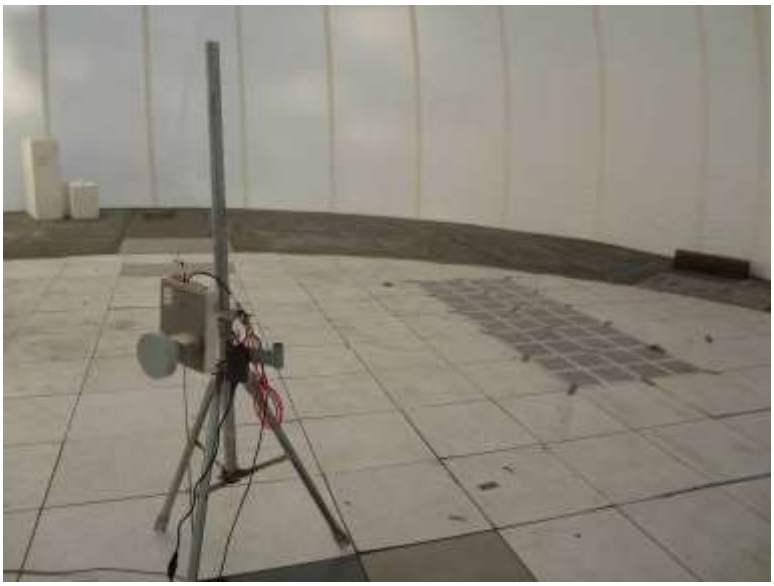
13dBi-Hex-12-18GHz, Cone placement

13dBi-Hex-18-26.5GHz, Cone placement

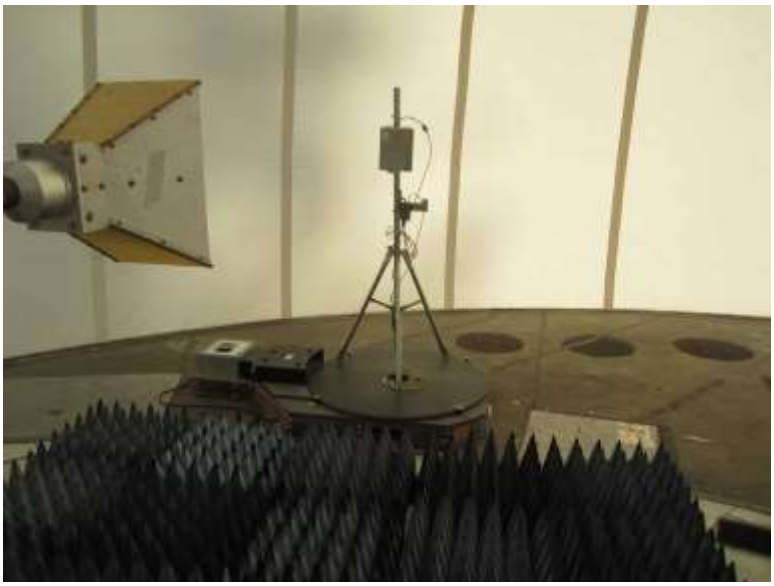
13dBi-Hex-26.5-40GHz, Cone placement



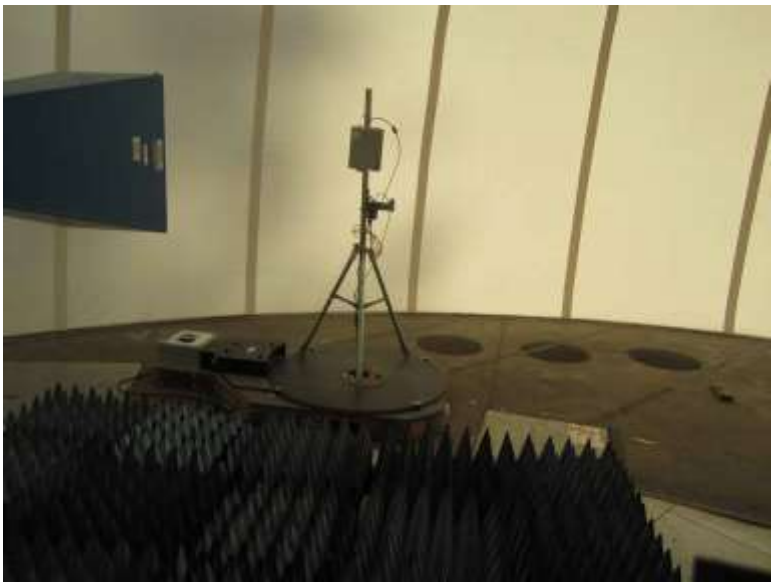
13dBi-Horn-30-1000MHz



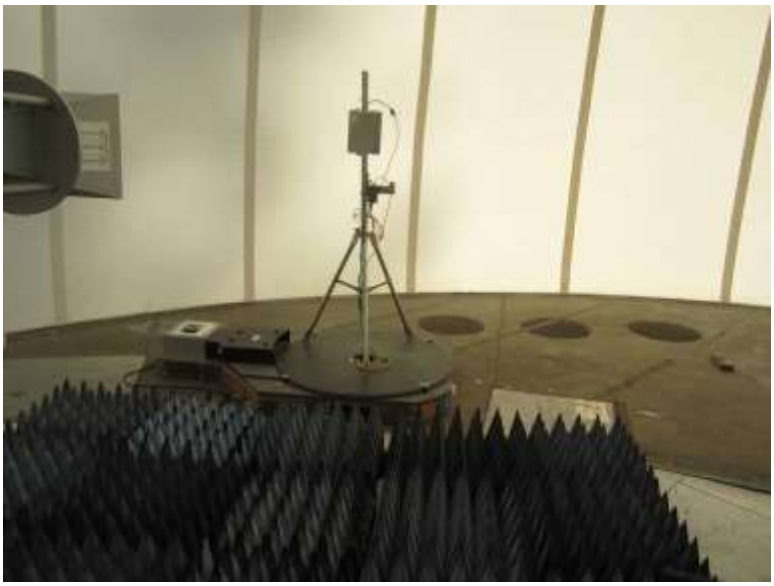
13dBi-Horn-30-1000MHz-



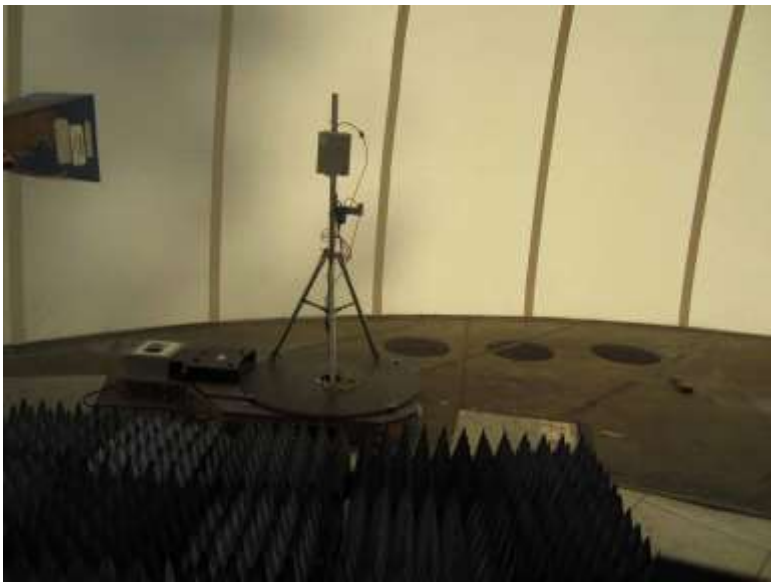
13dBi-Horn-1-12GHz, Cone placement



13dBi-Horn-12-18GHz, Cone placement

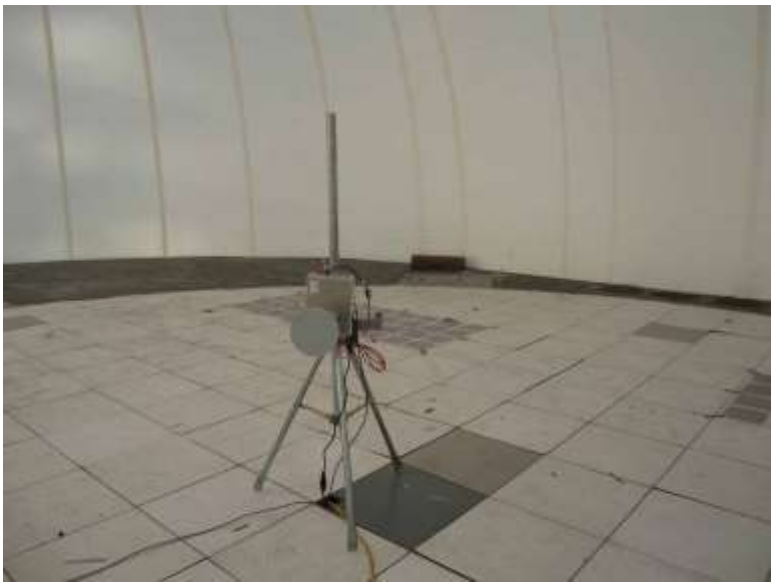


13dBi-Horn-18-26.5GHz, Cone placement

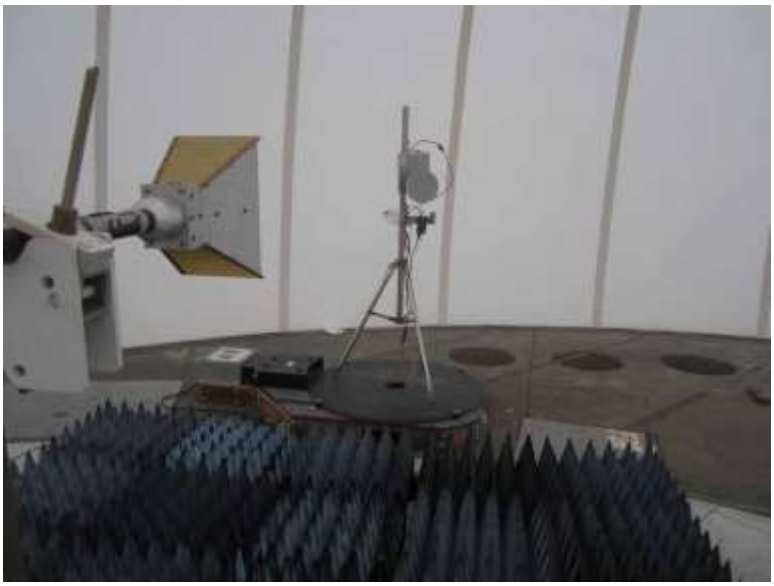


13dBi-Horn-26.5-40GHz, Cone placement

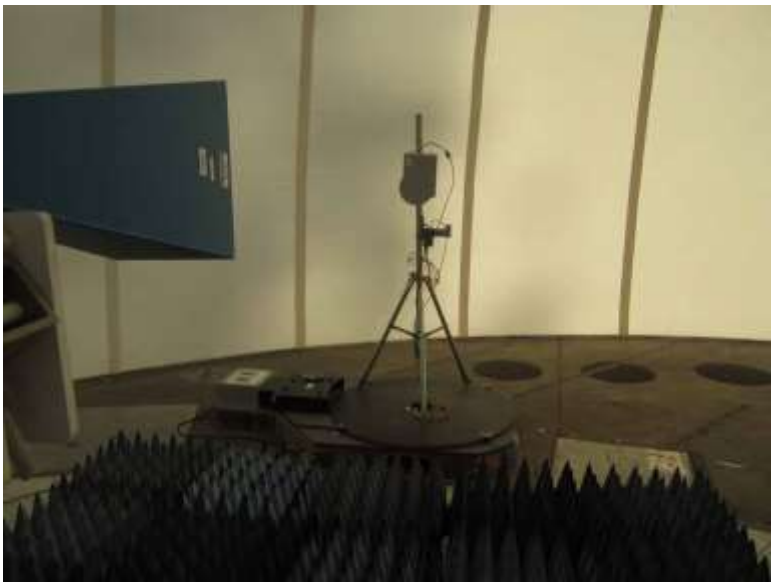
17.5dBi-30-1000MHz



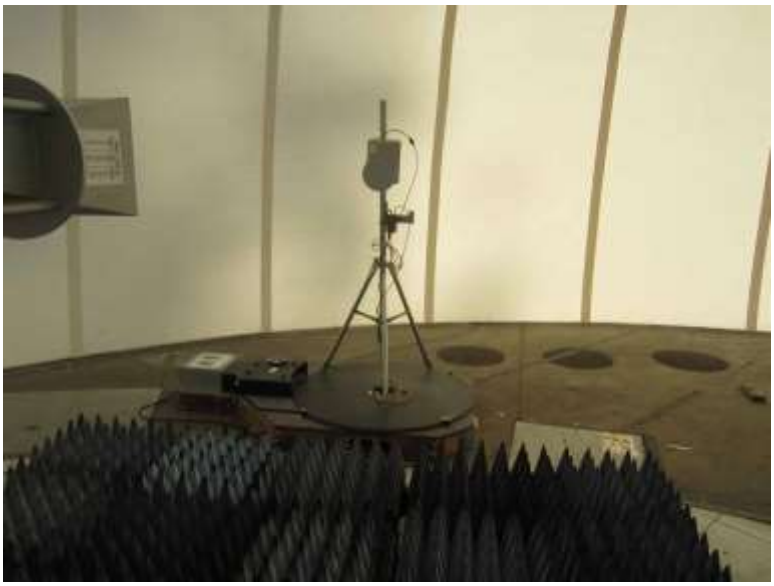
17.5dBi-30-1000MHz



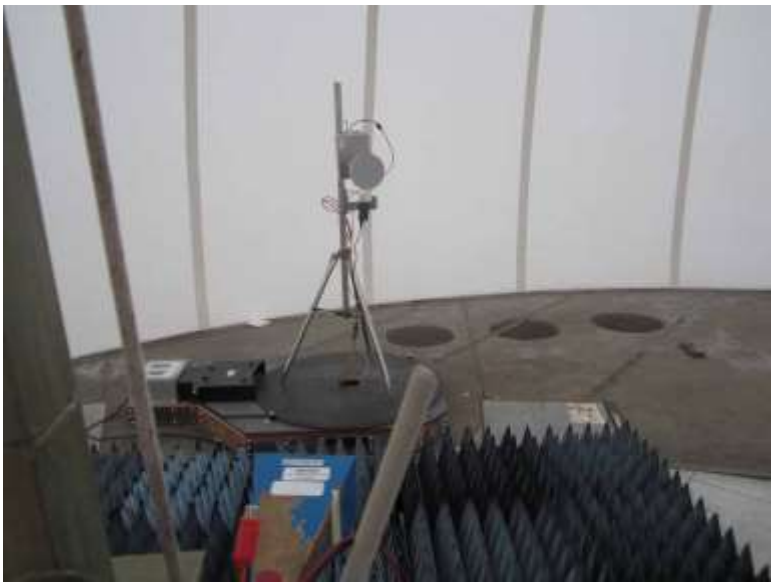
17.5dBi-1-12GHz, Cone placement



17.5dBi-12-18GHz, Cone placement



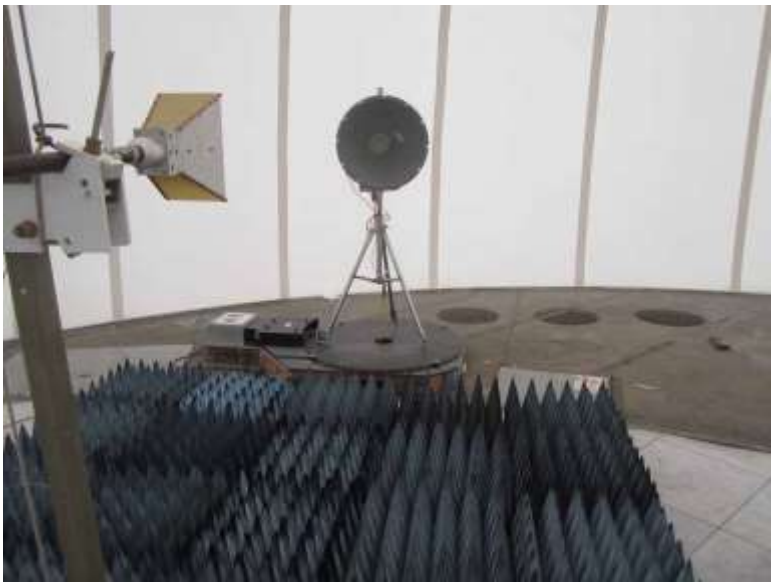
17.5dBi-18-26.5GHz, Cone placement



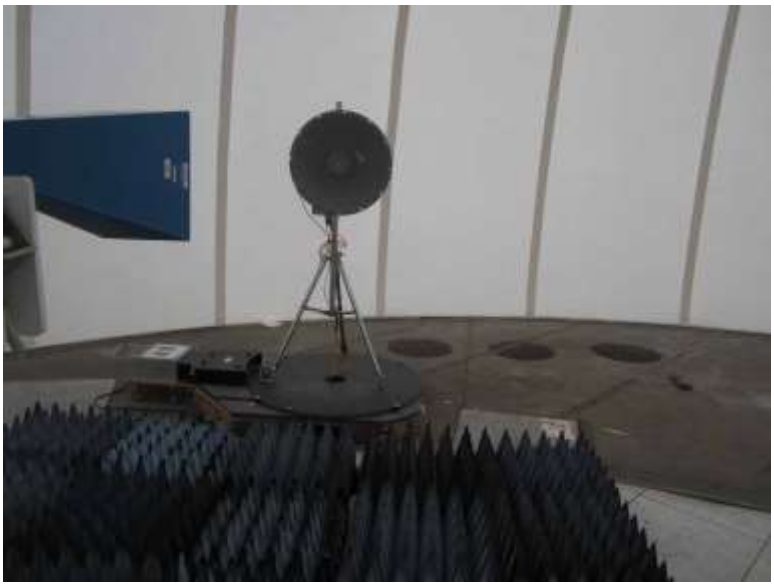
17.5dBi-26.5-40GHz, Cone placement

28dBi-30-1000MHz

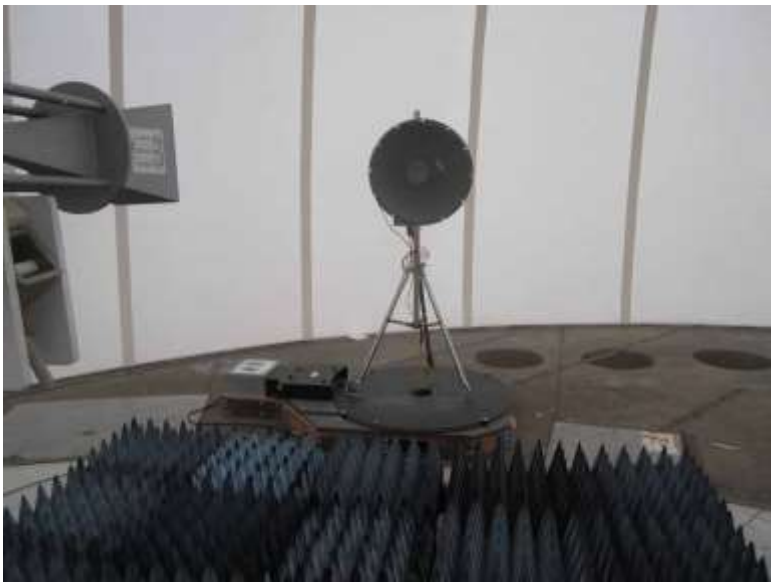
28dBi-30-1000MHz



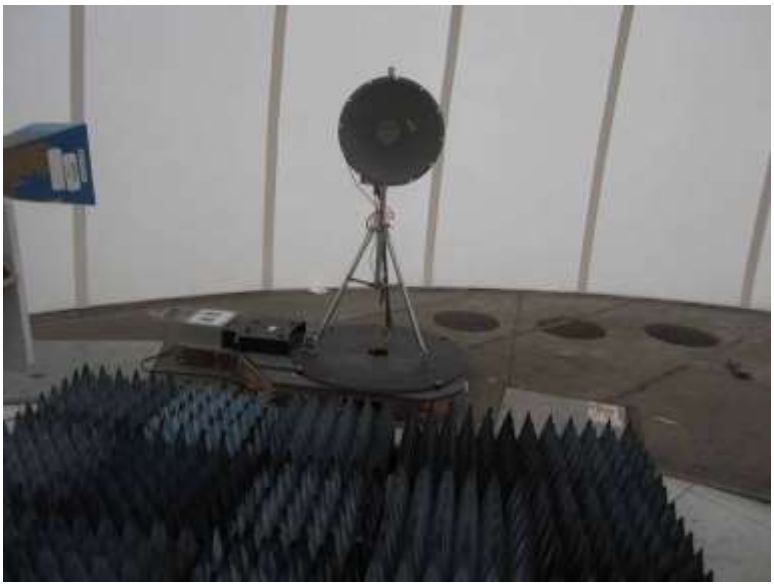
28dBi-1-12GHz, Cone placement



28dBi-12-18GHz, Cone placement



28dBi-18-26.5GHz, Cone placement



28dBi-26.5-40GHz, Cone placement

15.207 AC Conducted Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**100331**	Date:	10/4/2017
Test Type:	**Conducted Emissions**	Time:	11:04:45
Tested By:	Benny Lovan	Sequence#:	1
Software:	EMITest 5.03.11		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 5			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 5			

Test Conditions / Notes:

Equipment is an outdoor access point

Modulation used: OFDM (802.11ac)
Unit is continuously operating on all three radios simultaneously
Antenna: 50 degree Hex Array Horn (6 horns)
Note: The power supply for the radio is POE and has an external unit that provides it. For testing of conducted emissions, we will perform the scans on this antenna as the worst case. The radio is identical to all other configurations using different antennas. This antenna has the ability to transmit on multiple antennas simultaneously and it was chosen to represent the conducted emissions.

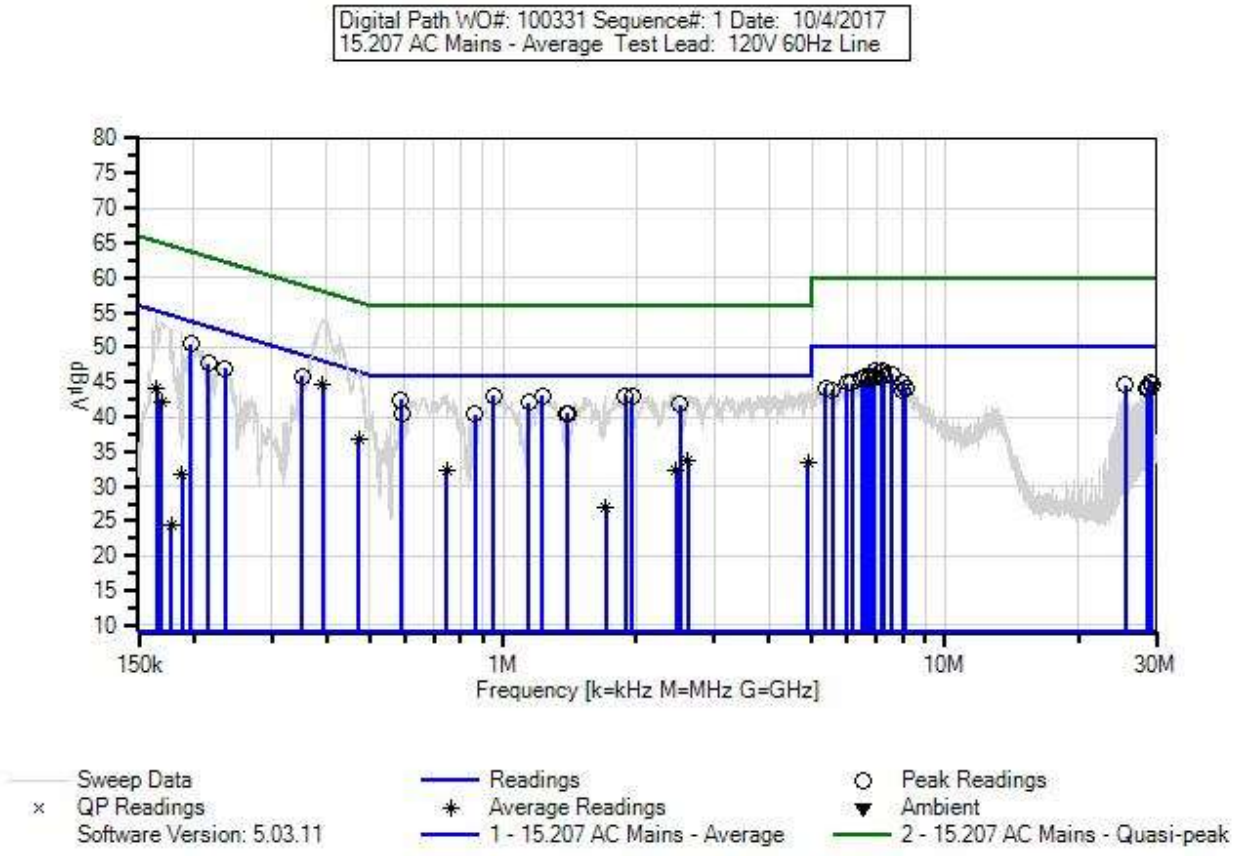
Operational Frequency: Radio 1 is at 5745MHz, Radio 2: 5540MHz and Radio 3: 5240MHz
Power Output Setting: all radios set to 17dBm
Frequency Range Investigated: 150kHz - 30MHz
Highest Generated Frequency not related to radio: 1.4GHz

Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

Temperature: 18ºC
Rel. Humidity: 27%
Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

The EUT is usually setup on a roof or tower. For testing, it has been placed on a non-conductive tabletop. The EUT has 6 Horn Antennas in a hexagon shape. It is exercising all three radios within the system. All radios are identical but we are testing multiple frequencies at once. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The power supply cable is shorter than 80cm so it is placed at a position above the ground plane that extends the power supply cable fully. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.


Digital Path WO#: 100331 Sequence#: 1 Date: 10/4/2017
15.207 AC Mains - Average Test Lead: 120V 60Hz Line
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
dBµV
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.11
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05624	Attenuator	PE7010-10	1/15/2017	1/15/2019
T2	AN00374	50uH LISN-Line (L1) (dB)	8028-TS-50-BNC	1/9/2017	1/9/2018
	AN00374	50uH LISN-Return (L2)	8028-TS-50-BNC	1/9/2017	1/9/2018
T3	AN02609	High Pass Filter	HE9615-150K-50-720B	2/18/2016	2/18/2018
T4	ANP06231	Cable	CXTA04A-70	3/3/2016	3/3/2018
T5	ANP06232	Cable	CXTA04A-35	3/3/2016	3/3/2018
T6	ANP06847	Cable	LMR195-FR-6	7/31/2017	7/31/2019
	AN03634	Spectrum Analyzer	E4445A	8/30/2017	8/30/2018

Measurement Data: Reading listed by margin. Test Lead: Line

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	1.226M	32.5	+10.0 +0.1	+0.1 +0.0	+0.2	+0.1	+0.0	43.0	46.0	-3.0	Line
2	953.754k	32.5	+10.0 +0.1	+0.1 +0.0	+0.2	+0.1	+0.0	43.0	46.0	-3.0	Line
3	1.889M	32.5	+10.0 +0.1	+0.1 +0.0	+0.2	+0.1	+0.0	43.0	46.0	-3.0	Line
4	1.962M	32.3	+10.0 +0.1	+0.1 +0.0	+0.2	+0.2	+0.0	42.9	46.0	-3.1	Line
5	351.436k	35.6	+10.0 +0.0	+0.1 +0.0	+0.1	+0.0	+0.0	45.8	48.9	-3.1	Line
6	391.432k Ave	34.3	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	44.6	48.0	-3.4	Line
^	391.432k	43.9	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	54.2	48.0	+6.2	Line
8	196.541k	40.1	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	50.4	53.8	-3.4	Line
9	7.238M	35.7	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	46.5	50.0	-3.5	Line
10	6.932M	35.7	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	46.5	50.0	-3.5	Line
11	587.778k	32.0	+10.0 +0.0	+0.1 +0.0	+0.3	+0.1	+0.0	42.5	46.0	-3.5	Line
12	7.157M	35.4	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	46.2	50.0	-3.8	Line
13	7.571M	35.2	+10.0 +0.2	+0.1 +0.1	+0.2	+0.3	+0.0	46.1	50.0	-3.9	Line
14	1.145M	31.6	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	42.0	46.0	-4.0	Line
15	6.607M	35.1	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	45.9	50.0	-4.1	Line
16	6.905M	35.1	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	45.9	50.0	-4.1	Line

17	7.256M	35.1	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	45.9	50.0	-4.1	Line
18	2.519M	31.2	+10.0 +0.1	+0.1 +0.1	+0.1	+0.2	+0.0	41.8	46.0	-4.2	Line
19	6.697M	35.0	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	45.8	50.0	-4.2	Line
20	6.752M	34.7	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	45.5	50.0	-4.5	Line
21	6.472M	34.6	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	45.4	50.0	-4.6	Line
22	6.851M	34.6	+10.0 +0.1	+0.1 +0.1	+0.2	+0.3	+0.0	45.4	50.0	-4.6	Line
23	29.054M	32.8	+10.0 +0.4	+0.5 +0.2	+0.3	+0.8	+0.0	45.0	50.0	-5.0	Line
24	8.013M	34.2	+10.0 +0.1	+0.1 +0.1	+0.1	+0.3	+0.0	44.9	50.0	-5.1	Line
25	6.148M	34.2	+10.0 +0.1	+0.1 +0.1	+0.1	+0.3	+0.0	44.9	50.0	-5.1	Line
26	5.995M	34.1	+10.0 +0.1	+0.1 +0.1	+0.1	+0.3	+0.0	44.8	50.0	-5.2	Line
27	216.175k	37.4	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	47.7	53.0	-5.3	Line
28	235.083k	36.7	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	47.0	52.3	-5.3	Line
29	25.546M	32.6	+10.0 +0.4	+0.4 +0.2	+0.3	+0.7	+0.0	44.6	50.0	-5.4	Line
30	29.308M	32.4	+10.0 +0.4	+0.5 +0.2	+0.3	+0.8	+0.0	44.6	50.0	-5.4	Line
31	1.396M	30.0	+10.0 +0.1	+0.1 +0.0	+0.2	+0.1	+0.0	40.5	46.0	-5.5	Line
32	865.570k	30.0	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	40.4	46.0	-5.6	Line
33	1.405M	29.9	+10.0 +0.1	+0.1 +0.0	+0.2	+0.1	+0.0	40.4	46.0	-5.6	Line
34	589.959k	29.8	+10.0 +0.0	+0.1 +0.0	+0.3	+0.1	+0.0	40.3	46.0	-5.7	Line
35	5.373M	33.5	+10.0 +0.1	+0.1 +0.1	+0.1	+0.3	+0.0	44.2	50.0	-5.8	Line
36	8.157M	33.4	+10.0 +0.1	+0.2 +0.1	+0.1	+0.3	+0.0	44.2	50.0	-5.8	Line
37	28.554M	32.0	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	44.1	50.0	-5.9	Line
38	28.808M	31.8	+10.0 +0.4	+0.5 +0.2	+0.3	+0.8	+0.0	44.0	50.0	-6.0	Line
39	5.553M	33.2	+10.0 +0.1	+0.1 +0.1	+0.1	+0.3	+0.0	43.9	50.0	-6.1	Line
40	8.031M	33.1	+10.0 +0.1	+0.2 +0.1	+0.1	+0.3	+0.0	43.9	50.0	-6.1	Line
41	472.152k Ave	26.5	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	36.9	46.5	-9.6	Line

^	472.152k	36.7	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	47.1	46.5	+0.6	Line
43	164.544k Ave	33.4	+10.0 +0.0	+0.1 +0.0	+0.5	+0.0	+0.0	44.0	55.2	-11.2	Line
44	2.625M Ave	23.1	+10.0 +0.1	+0.1 +0.1	+0.1	+0.2	+0.0	33.7	46.0	-12.3	Line
^	2.625M	32.9	+10.0 +0.1	+0.1 +0.1	+0.1	+0.2	+0.0	43.5	46.0	-2.5	Line
46	4.909M Ave	22.7	+10.0 +0.1	+0.1 +0.1	+0.1	+0.2	+0.0	33.3	46.0	-12.7	Line
^	4.909M	33.2	+10.0 +0.1	+0.1 +0.1	+0.1	+0.2	+0.0	43.8	46.0	-2.2	Line
48	168.907k Ave	31.6	+10.0 +0.0	+0.1 +0.0	+0.4	+0.0	+0.0	42.1	55.0	-12.9	Line
^	164.544k	44.8	+10.0 +0.0	+0.1 +0.0	+0.5	+0.0	+0.0	55.4	55.2	+0.2	Line
^	168.907k	44.1	+10.0 +0.0	+0.1 +0.0	+0.4	+0.0	+0.0	54.6	55.0	-0.4	Line
51	2.459M Ave	21.7	+10.0 +0.1	+0.1 +0.1	+0.1	+0.2	+0.0	32.3	46.0	-13.7	Line
^	2.459M	33.1	+10.0 +0.1	+0.1 +0.1	+0.1	+0.2	+0.0	43.7	46.0	-2.3	Line
53	747.036k Ave	21.8	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	32.2	46.0	-13.8	Line
^	747.036k	32.3	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	42.7	46.0	-3.3	Line
55	1.711M Ave	16.4	+10.0 +0.1	+0.1 +0.0	+0.2	+0.2	+0.0	27.0	46.0	-19.0	Line
^	1.711M	31.8	+10.0 +0.1	+0.1 +0.0	+0.2	+0.2	+0.0	42.4	46.0	-3.6	Line
57	187.815k Ave	21.2	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	31.6	54.1	-22.5	Line
^	187.815k	40.1	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	50.5	54.1	-3.6	Line
59	177.634k Ave	14.1	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	24.5	54.6	-30.1	Line
^	177.634k	43.3	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	53.7	54.6	-0.9	Line

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170		
Customer:	**Digital Path**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**100331**	Date:	10/4/2017
Test Type:	**Conducted Emissions**	Time:	11:11:41
Tested By:	Benny Lovan	Sequence#:	2
Software:	EMITest 5.03.11		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 5			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 5			

Test Conditions / Notes:

Equipment is an outdoor access point

Modulation used: OFDM (802.11ac)
Unit is continuously operating on all three radios simultaneously
Antenna: 50 degree Hex Array Horn (6 horns)
Note: The power supply for the radio is POE and has an external unit that provides it. For testing of conducted emissions, we will perform the scans on this antenna as the worst case. The radio is identical to all other configurations using different antennas. This antenna has the ability to transmit on multiple antennas simultaneously and it was chosen to represent the conducted emissions.

Operational Frequency: Radio 1 is at 5745MHz, Radio 2: 5540MHz and Radio 3: 5240MHz
Power Output Setting: all radios set to 17dBm

Frequency Range Investigated: 150kHz - 30MHz
Highest Generated Frequency not related to radio: 1.4GHz

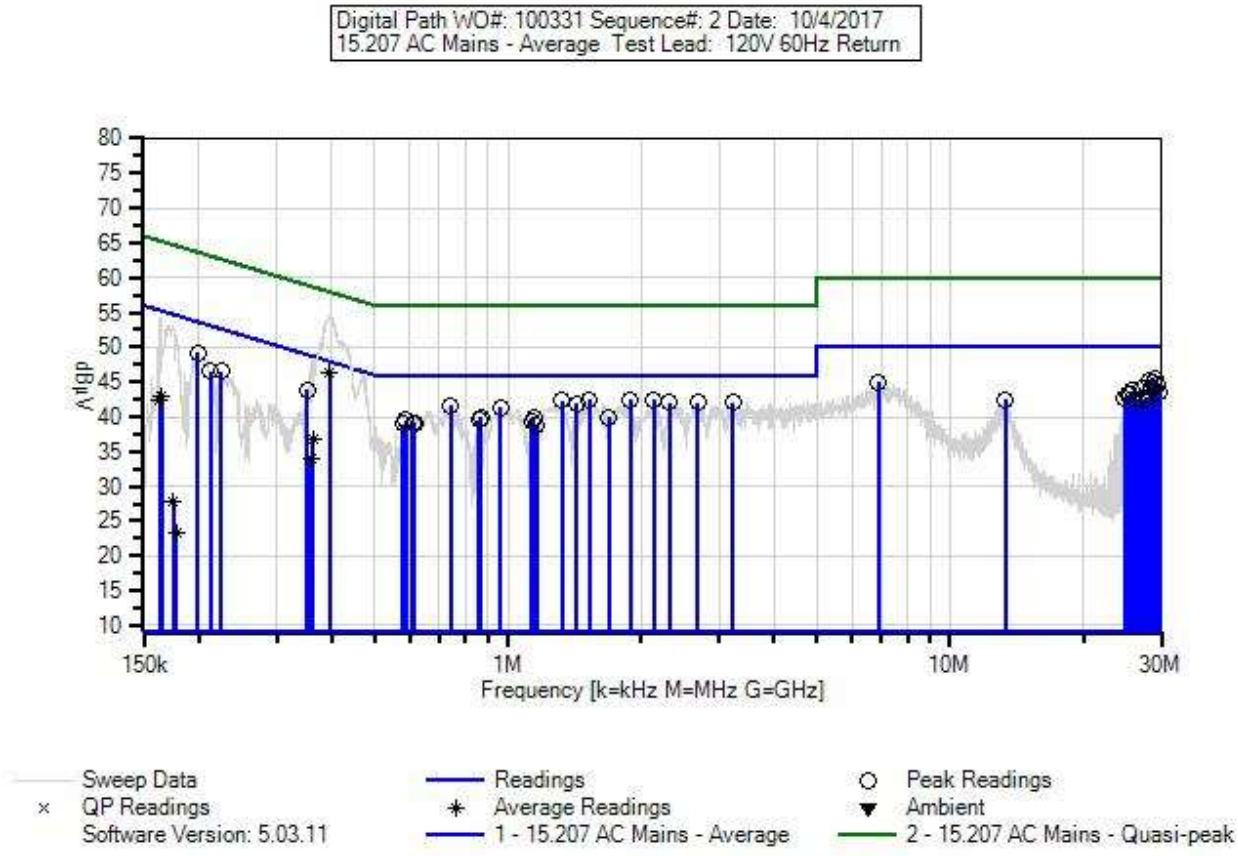
Radio 1 5745MHz – Max Data Rate = 86Mbps per chain
Radio 2: 5540MHz – Max Data Rate =86Mbps per chain
Radio 3: 5240MHz – Max Data Rate =86Mbps per chain

Temperature: 18ºC
Rel. Humidity: 27%

Test method: ANSI C63.10 (2013), KDB 789033 v01r04 (May 2, 2017)

The EUT is usually setup on a roof or tower. For testing, it has been placed on a non-conductive tabletop. The EUT has 6 Horn Antennas in a hexagon shape. It is exercising all three radios within the system. All radios are identical but we are testing multiple frequencies at once. The customer's power to the EUT is POE. It has an AC to DC adapter which supplies the POE to the EUT. The power supply cable is shorter than 80cm so it is placed at a position above the ground plane that extends the power supply cable fully. The EUT is setup with unshielded Ethernet cables.

Modification #1 was in place during testing.


Digital Path WO#: 100331 Sequence#: 2 Date: 10/4/2017
15.207 AC Mains - Average Test Lead: 120V 60Hz Return
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
dBµV
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.11
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05624	Attenuator	PE7010-10	1/15/2017	1/15/2019
	AN00374	50uH LISN-Line (L1) (dB)	8028-TS-50-BNC	1/9/2017	1/9/2018
T2	AN00374	50uH LISN-Return (L2)	8028-TS-50-BNC	1/9/2017	1/9/2018
T3	AN02609	High Pass Filter	HE9615-150K-50-720B	2/18/2016	2/18/2018
T4	ANP06231	Cable	CXTA04A-70	3/3/2016	3/3/2018
T5	ANP06232	Cable	CXTA04A-35	3/3/2016	3/3/2018
T6	ANP06847	Cable	LMR195-FR-6	7/31/2017	7/31/2019
	AN03634	Spectrum Analyzer	E4445A	8/30/2017	8/30/2018

Measurement Data: Reading listed by margin. Test Lead: Return

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	395.067k	36.0	+10.0	+0.1	+0.2	+0.0	+0.0	46.3	48.0	-1.7	Retur
Ave			+0.0	+0.0							
^	395.067k	44.1	+10.0	+0.1	+0.2	+0.0	+0.0	54.4	48.0	+6.4	Retur
			+0.0	+0.0							
3	1.894M	32.0	+10.0	+0.1	+0.2	+0.1	+0.0	42.5	46.0	-3.5	Retur
			+0.1	+0.0							
4	2.136M	31.7	+10.0	+0.1	+0.2	+0.2	+0.0	42.4	46.0	-3.6	Retur
			+0.1	+0.1							
5	1.528M	31.9	+10.0	+0.1	+0.2	+0.1	+0.0	42.4	46.0	-3.6	Retur
			+0.1	+0.0							
6	1.324M	31.9	+10.0	+0.1	+0.2	+0.1	+0.0	42.3	46.0	-3.7	Retur
			+0.0	+0.0							
7	3.225M	31.4	+10.0	+0.1	+0.1	+0.3	+0.0	42.1	46.0	-3.9	Retur
			+0.1	+0.1							
8	2.315M	31.3	+10.0	+0.1	+0.2	+0.2	+0.0	42.0	46.0	-4.0	Retur
			+0.1	+0.1							
9	2.685M	31.4	+10.0	+0.1	+0.1	+0.2	+0.0	42.0	46.0	-4.0	Retur
			+0.1	+0.1							
10	1.430M	31.4	+10.0	+0.1	+0.2	+0.1	+0.0	41.9	46.0	-4.1	Retur
			+0.1	+0.0							
11	740.490k	31.2	+10.0	+0.1	+0.2	+0.1	+0.0	41.6	46.0	-4.4	Retur
			+0.0	+0.0							
12	198.721k	38.9	+10.0	+0.1	+0.2	+0.0	+0.0	49.2	53.7	-4.5	Retur
			+0.0	+0.0							
13	962.259k	30.9	+10.0	+0.1	+0.2	+0.1	+0.0	41.4	46.0	-4.6	Retur
			+0.1	+0.0							
14	29.061M	33.1	+10.0	+0.6	+0.3	+0.8	+0.0	45.4	50.0	-4.6	Retur
			+0.4	+0.2							
15	28.308M	33.0	+10.0	+0.5	+0.3	+0.7	+0.0	45.1	50.0	-4.9	Retur
			+0.4	+0.2							
16	6.887M	34.1	+10.0	+0.2	+0.2	+0.3	+0.0	45.0	50.0	-5.0	Retur
			+0.1	+0.1							

17	351.435k	33.6	+10.0 +0.0	+0.1 +0.0	+0.1	+0.0	+0.0	43.8	48.9	-5.1	Retur
18	28.808M	32.7	+10.0 +0.4	+0.5 +0.2	+0.3	+0.8	+0.0	44.9	50.0	-5.1	Retur
19	29.308M	32.3	+10.0 +0.4	+0.6 +0.2	+0.3	+0.8	+0.0	44.6	50.0	-5.4	Retur
20	1.141M	29.6	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	40.0	46.0	-6.0	Retur
21	27.054M	31.9	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	44.0	50.0	-6.0	Retur
22	28.554M	31.9	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	44.0	50.0	-6.0	Retur
23	870.660k	29.5	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	39.9	46.0	-6.1	Retur
24	1.694M	29.3	+10.0 +0.1	+0.1 +0.0	+0.2	+0.2	+0.0	39.9	46.0	-6.1	Retur
25	224.174k	36.2	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	46.5	52.7	-6.2	Retur
26	25.800M	31.6	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	43.7	50.0	-6.3	Retur
27	29.808M	31.3	+10.0 +0.4	+0.6 +0.2	+0.3	+0.8	+0.0	43.6	50.0	-6.4	Retur
28	588.504k	29.0	+10.0 +0.0	+0.1 +0.0	+0.3	+0.1	+0.0	39.5	46.0	-6.5	Retur
29	861.206k	29.0	+10.0 +0.0	+0.1 +0.0	+0.3	+0.1	+0.0	39.5	46.0	-6.5	Retur
30	212.538k	36.2	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	46.5	53.1	-6.6	Retur
31	1.132M	28.9	+10.0 +0.0	+0.1 +0.0	+0.2	+0.1	+0.0	39.3	46.0	-6.7	Retur
32	25.553M	31.2	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	43.3	50.0	-6.7	Retur
33	609.593k	28.6	+10.0 +0.0	+0.1 +0.0	+0.3	+0.1	+0.0	39.1	46.0	-6.9	Retur
34	614.683k	28.6	+10.0 +0.0	+0.1 +0.0	+0.3	+0.1	+0.0	39.1	46.0	-6.9	Retur
35	25.299M	31.1	+10.0 +0.3	+0.5 +0.2	+0.3	+0.7	+0.0	43.1	50.0	-6.9	Retur
36	578.323k	28.4	+10.0 +0.0	+0.1 +0.0	+0.3	+0.1	+0.0	38.9	46.0	-7.1	Retur
37	1.162M	28.3	+10.0 +0.1	+0.1 +0.0	+0.2	+0.1	+0.0	38.8	46.0	-7.2	Retur
38	27.807M	30.7	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	42.8	50.0	-7.2	Retur
39	24.799M	30.8	+10.0 +0.3	+0.4 +0.2	+0.3	+0.7	+0.0	42.7	50.0	-7.3	Retur
40	28.054M	30.6	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	42.7	50.0	-7.3	Retur
41	13.355M	31.2	+10.0 +0.2	+0.2 +0.2	+0.2	+0.5	+0.0	42.5	50.0	-7.5	Retur

42	26.553M	30.4	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	42.5	50.0	-7.5	Retur
43	27.300M	30.4	+10.0 +0.4	+0.5 +0.2	+0.3	+0.7	+0.0	42.5	50.0	-7.5	Retur
44	361.616k Ave	26.6	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	36.9	48.7	-11.8	Retur
45	164.543k Ave	32.3	+10.0 +0.0	+0.1 +0.0	+0.5	+0.0	+0.0	42.9	55.2	-12.3	Retur
46	163.089k Ave	31.7	+10.0 +0.0	+0.1 +0.0	+0.5	+0.0	+0.0	42.3	55.3	-13.0	Retur
^	163.089k	43.6	+10.0 +0.0	+0.1 +0.0	+0.5	+0.0	+0.0	54.2	55.3	-1.1	Retur
^	164.543k	43.2	+10.0 +0.0	+0.1 +0.0	+0.5	+0.0	+0.0	53.8	55.2	-1.4	Retur
^	160.907k	39.2	+10.0 +0.0	+0.1 +0.0	+0.6	+0.0	+0.0	49.9	55.4	-5.5	Retur
50	358.707k Ave	23.7	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	34.0	48.8	-14.8	Retur
^	358.707k	39.7	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	50.0	48.8	+1.2	Retur
^	361.616k	39.5	+10.0 +0.0	+0.1 +0.0	+0.2	+0.0	+0.0	49.8	48.7	+1.1	Retur
53	175.451k Ave	17.5	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	27.9	54.7	-26.8	Retur
54	177.633k Ave	13.0	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	23.4	54.6	-31.2	Retur
^	177.633k	43.5	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	53.9	54.6	-0.7	Retur
^	175.451k	42.9	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	53.3	54.7	-1.4	Retur
^	180.541k	39.4	+10.0 +0.0	+0.1 +0.0	+0.3	+0.0	+0.0	49.8	54.5	-4.7	Retur

Test Setup Photos

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

Uncertainties reported are worst case for all CKC Laboratories' sites and represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point, the measuring device is set into the linear mode and the scan time is reduced.