ISRAEL TESTING LABORATORIES
Global Certifications You Can Trust

ACCREDITED
TESTING Cert No.1152.01

DATE: 7 October 2021

I.T.L. (PRODUCT TESTING) LTD.

FCC/IC Radio Test Report

for

Telrad Networks Ltd.

Equipment under test:

Point to Point and Point to Multi Point Wireless Bridge

BreezeAir ACE

Tested by: _____
I. Kaganovic

Approved by: _____
M. Zohar

This report must not be reproduced, except in full, without the written permission of I.T.L. (Product Testing) Ltd. This report relates only to items tested.

ISRAEL TESTING LABORATORIES
Global Certifications You Can Trust

Measurement/Technical Report for

Telrad Networks Ltd.

Point to Point and Point to Multi Point Wireless Bridge

FCC ID: ARA-BACE5X
IC: 899A-BACE5X

This report concerns:	Original Grant:	X
	Class I Change:	
	Class II Change:	

Equipment type:	FCC: (NII) Unlicensed National Information Infrastructure TX ISED: WLAN
Limits used:	47CFR15, Part 15, Subpart E, Section 15.407 RSS 247, Issue 2, February 2017, Section 5 RSS-Gen, Issue 5, April 2018

Measurement procedure used is KDB 789033 D02 v02, ANSI C63.10:2013 and RSS-Gen, Issue 5, April 2018.

Application for Certification	Applicant for this device (different from "Prepared by"):
Prepared by:	
R. Ezrah	Amit Arazi
ITL (Product Testing) Ltd.	Telrad Networks Ltd.
1 Bat Sheva St., Lod 7116002, Israel	1 Bat Sheva St., Lod 7116002, Israel
Email: rame@itlglobal.org	Email: amit.arazi@telrad.com

TABLE OF CONTENTS

1. GENERAL INFORMATION ---------- 5
1.1 Administrative Information 5
1.2 List of Accreditations 6
1.3 Product Description 7
1.4 Test Methodology 7
1.5 Test Facility 7
1.6 Measurement Uncertainty 7

2. SYSTEM TEST CONFIGURATION ---------- 8
2.1 Justification 8
2.2 EUT Exercise Software 9
2.3 Special Accessories 9
2.4 Equipment Modifications 9
2.5 Configuration of Tested System 9

3. CONDUCTED AND RADIATED MEASUREMENT TEST SETUP PHOTOS ---------- 10
3.1 Conducted Setup Photographs 10
3.1 Radiated Setup Photographs 11

4. CONDUCTED EMISSION FROM AC MAINS ---------- 13
4.1 Test Specification 13
4.2 Test Procedure 13
4.3 Test Limit 13
4.4 Test Results 14
4.5 Test Equipment Used; Conducted Emission 19

5. MAXIMUM CONDUCTED OUTPUT POWER ---------- 20
5.1 Test Specification 20
5.2 Test Procedure 20
5.3 FCC and ISED Test Limit 20
5.4 Test Results fixed point to multipoint 21
5.5 Test Results fixed point to point 24
5.1 Test Results 25
5.2 Test Equipment Used; Maximum Peak Power Output 54

6. MAXIMUM POWER SPECTRAL DENSITY (PSD) ---------- 55
6.1 Test Specification 55
6.2 Test Procedure 55
6.3 FCC and ISED Test Limit 55
6.4 Test Results for PSD Fixed Point to Multipoint 55
6.1 Test Results for PSD Fixed Point to Point 58
6.2 Test Equipment Used; Transmitted Power Density 87

7. UNDESIRABLE/UNWANTED EMISSIONS ---------- 88
7.1 Test Specification 88
7.2 Test Procedure 88
7.3 FCC and ISED Test Limits 89
7.5 Test Instrumentation Used, Undesirable Emissions 100

8. OCCUPIED BANDWIDTH ---------- 101
8.1 Test Specification 101
8.2 Test Procedure 101
8.3 Test Limit 101
8.4 Test Results 101
8.5 Test Equipment Used; Occupied Bandwidth 108
9.1 Test Specification 109
9.2 Test Procedure 109
9.3 Test Limit 109
9.4 Test Results 109
9.5 Test Equipment Used; 6dB Bandwidth 116

10. RF EXPOSURE ---------- 117

11. APPENDIX A - CORRECTION FACTORS ---------- 118

11.1 For ITL #1911 OATS RF Cable 118
11.2 For ITL #1840 Anechoic Chamber RF Cable 119
11.3 For ITL # 1075 Active Loop Antenna 120
11.4 For ITL #1356 Biconical Antenna 121
11.5 For ITL # 1349 Log Periodic Antenna 122
11.6 For ITL # 1352 1-18 GHz Horn Antenna 123
11.7 For ITL # 1353 18-26.5 GHz Horn Antenna 124
11.8 For ITL # 1777 26.5-40 GHz Horn Antenna 125

1. General Information

1.1 Administrative Information

Manufacturer:	Telrad Networks Ltd.
Manufacturer's Address:	1 Bat Sheva St., P.O Box 4176, Lod, 7114003, Israel
Manufacturer's Representative:	Amit Arazi
Equipment Under Test (E.U.T):	Point to Point and Point to Multi Point Wireless Bridge
Equipment PMN:	BreezeAir ACE
Equipment Serial No.:	Not designated
Equipment Part No.:	BA5XYYYYYYY (Y stand for various product sub types)
Equipment HVIN:	BACE5X
Equipment FVIN:	V15_00XXX (X can be a letter or a number)
Date of Receipt of E.U.T:	July 14, 2021
Start of Test:	July 14, 2021
End of Test:	August 24, 2021
Test Laboratory Location:	I.T.L (Product Testing) Ltd. 1 Bat Sheva St., Lod 7120101, Israel
Test Specifications:	47CFR15, Part 15, Subpart E, Section 15.407 RSS 247, Issue 2, February 2017, Section 5 RSS-Gen, Issue 5, April 2018

1.2 List of Accreditations

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), FCC Designation No. IL1005.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. Department of Innovation, Science and Economic Development (ISED) Canada, CAB identifier: IL1002

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.

1.3 Product Description

The BreezeAir ACE is a point-to-point and point to multi point broadband wireless communication system. The system uses dual radio channel (MIMO) in the 5.8 GHz bands, utilizing 20/40/80 MHz channels, OFDM modulation, and TDD Spectrum Management.

The E.U.T. utilizes 2x2 MIMO connected to integrated or external dual-polarization MIMO antennas, based on Qualcomm's 802.11ac chipset, with no use of beamforming or beam steering.

1.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures in KDB 789003 D02 v02, KDB 662911 D01 Multiple Transmitter Output v02r01, and ANSI C63.10: 2013, RSS-Gen, Issue 5, April 2018.

Radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.5 Test Facility

Emissions tests were performed at I.T.L.'s testing facility located in Lod, Israel. I.T.L.'s EMC Laboratory is accredited by A2LA, certificate No. 1152.01, and its FCC designation number is IL1005.

1.6 Measurement Uncertainty

Conducted Emission
Conducted Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4)

0.15 – 30 MHz:
Expanded Uncertainty (95% Confidence, K=2):
± 3.44 dB

Radiated Emission
Radiated Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4) for open site:

30-1000MHz:
Expanded Uncertainty (95% Confidence, K=2):
± 4.96 dB

1 GHz to 6 GHz
Expanded Uncertainty (95% Confidence, K=2):
±5.19 dB

>6 GHz
Expanded Uncertainty (95% Confidence, K=2):
±5.51 dB

2. System Test Configuration

2.1 Justification

1. The E.U.T contains a UNII 3 band transceiver.
2. The E.U.T have the following futures:
   - Number of antenna types & gain: 23dBi Flat panel & 32dBi dish antenna
   - Number of operation modes: PTP (Point to Point) and PTMP (Point to Multipoint)
   - Number of BW's: 3 (20/40/80MHz)
   - Modulations: OFDM family (QPSK, 64QAM, 256QAM)
   - Ports: 2 TX chains (MIMO)
3. Evaluation performed at the following frequencies:
   - For 20MHz BW Frequencies: 5740MHz, 5785MHz, 5835MHz
   - For 40MHz BW Frequencies: 5750MHz, 5785MHz, 5825MHz
   - For 80MHz BW Frequencies: 5770MHz, 5785MHz, 5805MHz
4. As agreed with customer the following test plan was performed:

Configuration	**Point to Point (PTP)**							
Test	**EBW**			**Antenna Gain**		**Modulations**		
	20MHz	**40MHz**	**80MHz**	**23dBi**	**30dBi**	**QPSK**	**64QAM**	**256QAM**
Conducted Power	☒	☒	☒	☒	☒	☒	☒	☒
PSD	☒	☒	☒	☒	☒	☒	☒	☒
Radiated Emissions	☒	☐	☐	☒	☒	☒	☐	☐
Spurious Masks	☒	☒	☒	☒	☒	☒	☐	☐
Occupied BW	☒	☒	☒	☒	☒	☒	☒	☒
6dB BW	☒	☒	☒	☒	☒	☒	☒	☒
Configuration	**Point to Multipoint (PTMP)**							
Test	**EBW**			**Antenna Gain**		**Modulations**		
	20MHz	**40MHz**	**80MHz**	**23dBi**	**30dBi**	**QPSK**	**64QAM**	**256QAM**
Conducted Power	☒	☒	☒	☒	☒	☒	☒	☒
PSD	☒	☒	☒	☒	☒	☒	☒	☒

- final tests were performed for one type modulation from the OFDM family (based on preliminary power screening)
- final tests for all
- Final radiated emission (spurious and masks) was performed only at the highest EIRP mode (PTP) and for each antenna type. Final radiated spurious emission was evaluated (until 40GHz) only for QPSK Modulation (this decision based on preliminary power screenings)
- For PTMP mode only conducted power & PSD were performed due to the fact that transmitted power lower than in PTP mode.

2.2 EUT Exercise Software

No special exercise software was used.

2.3 Special Accessories

No special accessories were used

2.4 Equipment Modifications

No modifications were necessary to achieve compliance.

2.5 Configuration of Tested System

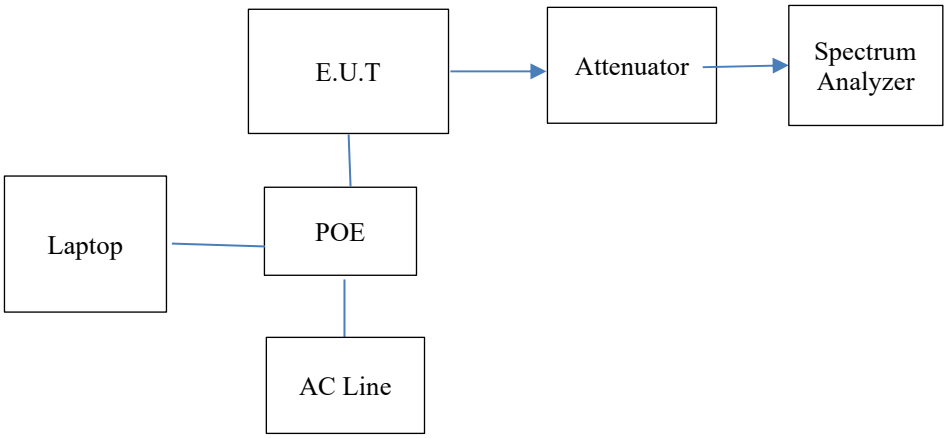


Figure 1. Configuration of Tested System - Conducted

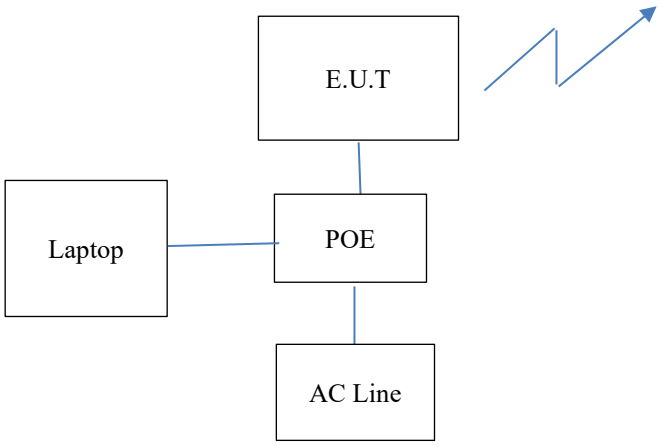


Figure 2. Configuration of Tested System - Radiated

3. Conducted and Radiated Measurement Test Setup Photos

3.1 Conducted Setup Photographs

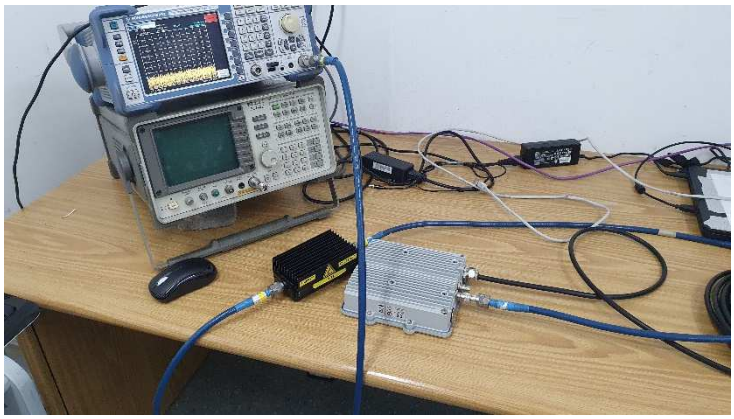


Figure 3: Conducted measurement

Figure 4: Conducted emission test - Neutral line

Figure 5: Conducted emission test - Phase line

3.1 Radiated Setup Photographs

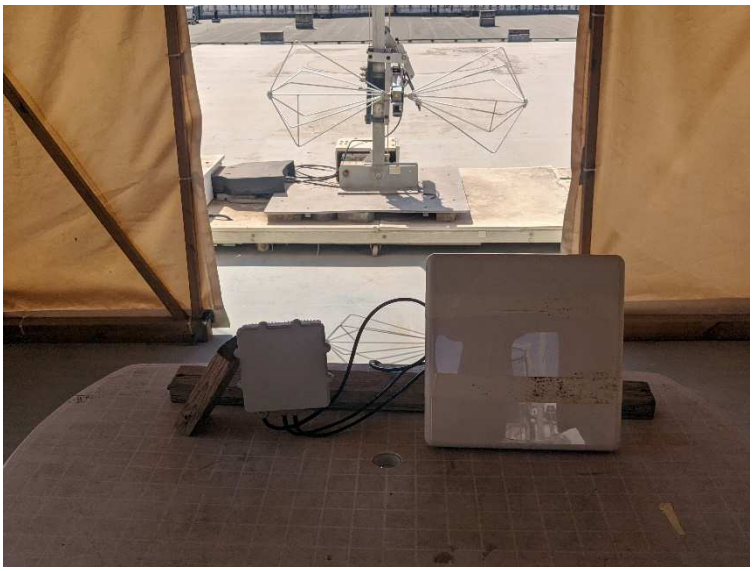


Figure 6: Radiated Emission - 30-200 MHz

Figure 7: Radiated Emission - 200-1000 MHz

Figure 8: Radiated Emission above 1GHz

4. Conducted Emission from AC Mains

4.1 Test Specification

FCC Part 15, Subpart E, Section 15.207
RSS Gen, Issue 5, Clause 8.8

4.2 Test Procedure

(Temperature (22°C)/ Humidity (56%RH))

The E.U.T operation mode and test setup are as described in Section 2 of this report. In order to minimize background noise interference, the conducted emission testing was performed inside a shielded room, with the E.U.T placed on a 0.8 meter high wooden table, 0.4 meter from the room's vertical wall. In the case of a floor-standing E.U.T., it was placed on the horizontal ground plane.

The E.U.T was powered from 115 V AC / 60 Hz via 50 Ohm / 50 µHn Line Impedance Stabilization Network (LISN) on the phase and neutral lines. The LISN's were grounded to the shielded room ground plane (floor), and were kept at least 0.8 meters from the nearest boundary of the E.U.T.

The center of the E.U.T.'s AC cable was folded back and forth, in order to form a bundle less than 0.40 meters and a total cable length of 1 meter.

The effect of varying the position of the cables was investigated to find the configuration that produces maximum emission.

The emission voltages at the LISN's outputs were measured using a computerized receiver, complying with CISPR 16 requirements. The specification limits are loaded to the receiver and are displayed on the receiver's spectrum display.

The E.U.T was evaluated in TX operation mode.

A frequency scan between 0.15 and 30 MHz was performed at 9 kHz I.F. band width, using peak detection.

The spectral components having the highest level on each line were measured using a quasi-peak and average detector.

4.3 Test Limit

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

** Decreases with the logarithm of the frequency.*

4.4 Test Results

JUDGEMENT: Passed by -9.37 dB

The margin between the emission levels and the specification limit is, in the worst case, -9.37 dB for the phase line at 24.018 MHz, and -9.88 dB at 24.018 MHz for the neutral line.

The EUT met the FCC Part 15, Subpart E specification requirements.

The details of the highest emissions are given in *Figure 9* to *Figure 12*.

Conducted Emission

E.U.T Description	Point to Point and Point to Multi Point Wireless Bridge
Type	BreezeAir ACE
Serial Number:	Not designated

Specification:	FCC Part 15, Subpart E; RSS Gen, Issue 5, Clause 8.8
Lead:	Phase
Detectors:	Peak, Quasi-peak, Average
Power Operation	AC/DC Adapter

EDIT PEAK LIST (Final Measurement Results)

Trace1: CE22BQP
Trace2: CE22BAP
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Quasi Peak	162 kHz	50.43	-14.92
2	Average	162 kHz	37.66	-17.69
1	Quasi Peak	274 kHz	38.76	-22.23
2	Average	286 kHz	33.78	-16.85
1	Quasi Peak	610 kHz	41.24	-14.75
2	Average	610 kHz	40.13	-5.86
2	Average	914 kHz	43.95	-2.04
1	Quasi Peak	918 kHz	44.88	-11.11
1	Quasi Peak	1.526 MHz	39.57	-16.42
2	Average	1.526 MHz	37.70	-8.29
1	Quasi Peak	2.746 MHz	36.95	-19.05
2	Average	2.746 MHz	29.39	-16.60
2	Average	4.882 MHz	36.65	-9.34
1	Quasi Peak	4.994 MHz	45.96	-10.03
1	Quasi Peak	7.922 MHz	42.38	-17.61
2	Average	8.718 MHz	38.44	-11.55
2	Average	10.794 MHz	34.03	-15.96
1	Quasi Peak	11.89 MHz	38.10	-21.89
2	Average	23.13 MHz	37.30	-12.69
1	Quasi Peak	27.342 MHz	40.66	-19.33

Date: 24.AUG.2021 17:03:01

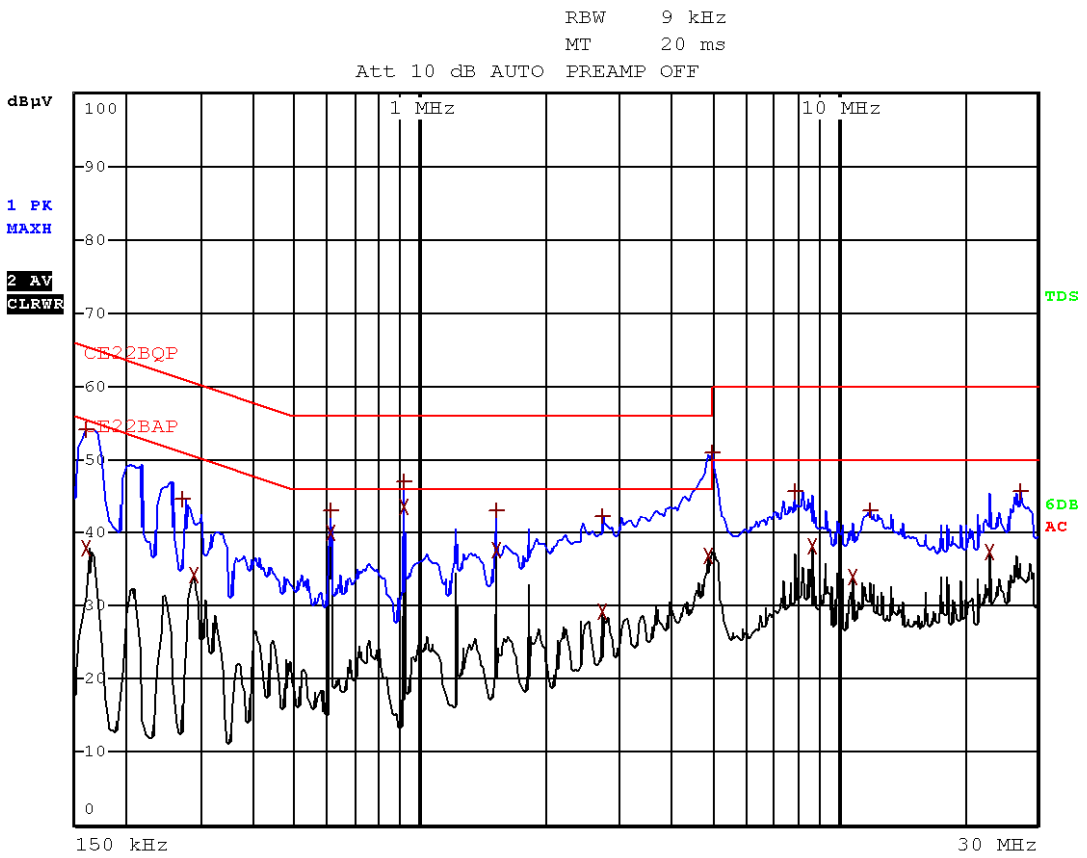
Figure 9. Detectors: Peak, Quasi-peak, Average

Note: Delta Limit refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

Conducted Emission

E.U.T Description	Point to Point and Point to Multi Point Wireless Bridge
Type	BreezeAir ACE
Serial Number:	Not designated

Specification:	FCC Part 15, Subpart E; RSS Gen, Issue 5, Clause 8.8
Lead:	Phase
Detectors:	Peak, Quasi-peak, Average
Power Operation	AC/DC Adapter



Date: 24.AUG.2021 17:02:01

Figure 10. Detectors: Peak, Quasi-peak, Average

Conducted Emission

E.U.T Description	Point to Point and Point to Multi Point Wireless Bridge
Type	BreezeAir ACE
Serial Number:	Not designated

Specification:	FCC Part 15, Subpart E; RSS Gen, Issue 5, Clause 8.8
Lead:	Neutral
Detectors:	Peak, Quasi-peak, Average
Power Operation	AC/DC Adapter

EDIT PEAK LIST (Final Measurement Results)

Trace1: CE22BQP
Trace2: CE22BAP
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Quasi Peak	162 kHz	48.30	-17.05
2	Average	162 kHz	36.23	-19.12
1	Quasi Peak	258 kHz	38.96	-22.53
2	Average	286 kHz	35.81	-14.82
1	Quasi Peak	610 kHz	37.17	-18.83
2	Average	610 kHz	33.12	-12.87
1	Quasi Peak	914 kHz	41.25	-14.74
2	Average	914 kHz	37.35	-8.64
2	Average	1.526 MHz	31.47	-14.52
1	Quasi Peak	1.83 MHz	36.69	-19.30
1	Quasi Peak	3.374 MHz	39.80	-16.19
2	Average	3.418 MHz	29.73	-16.26
1	Quasi Peak	4.886 MHz	41.10	-14.89
2	Average	5.206 MHz	32.95	-17.04
1	Quasi Peak	7.922 MHz	40.63	-19.36
2	Average	7.922 MHz	35.81	-14.18
2	Average	12.138 MHz	36.67	-13.32
1	Quasi Peak	12.198 MHz	43.18	-16.81
1	Quasi Peak	26.61 MHz	44.58	-15.41
2	Average	26.61 MHz	39.21	-10.78

Date: 24.AUG.2021 17:38:51

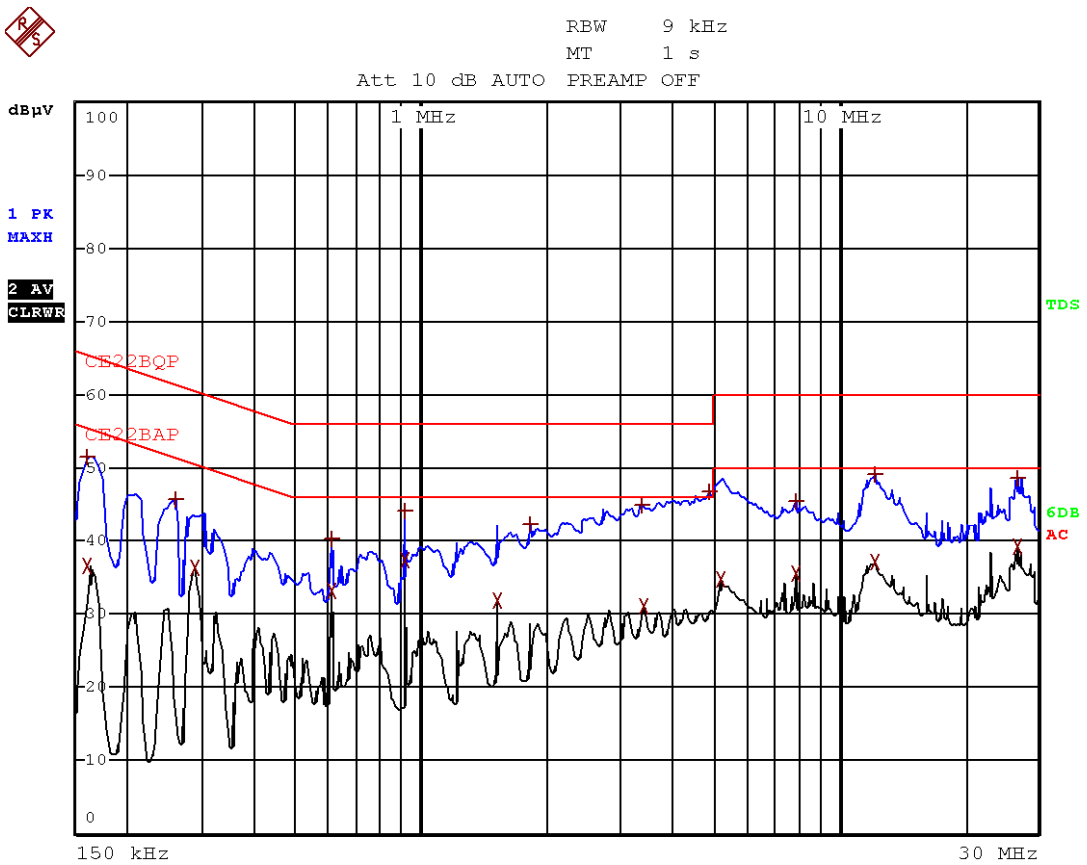
Figure 11. Detectors: Peak, Quasi-peak, Average

Note: Delta Limit refers to the test results obtained minus specified requirement; thus, a positive number indicates failure, and a negative result indicates that the product passes the test.

Conducted Emission

E.U.T Description	Point to Point and Point to Multi Point Wireless Bridge
Type	BreezeAir ACE
Serial Number:	Not designated

Specification:	FCC Part 15, Subpart E; RSS Gen, Issue 5, Clause 8.8
Lead:	Neutral
Detectors:	Peak, Quasi-peak, Average
Power Operation	AC/DC Adapter



Date: 24.AUG.2021 17:37:51

Figure 12 Detectors: Peak, Quasi-peak, Average

4.5 Test Equipment Used; Conducted Emission

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Next Calibration Due
LISN	Fischer	FCC-LISN-25A	127	October 28, 2020	October 28, 2021
Transient Limiter	HP	11947A	3107A03042	October 28, 2020	October 31, 2021
EMI Receiver	Rohde & Schwarz	ESCI7	100724	February 23, 2021	February 23, 2022
Cable CE Chamber 5M	Telrad	RJ214	-	March 31, 2019	March 31, 2020

Figure 13 Test Equipment Used

5. Maximum Conducted Output Power

5.1 Test Specification

FCC, Part 15, Subpart E, Section 407(a)(3)

RSS 247, Issue 2, Section 6.2.4

5.2 Test Procedure

(Temperature (20°C)/ Humidity (56%RH))

The E.U.T operation mode and test set-up are as described in Section 2 of this report. The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator and an appropriate coaxial cable (total loss=31.5 dB). Special attention was taken to prevent Spectrum Analyzer RF input overload.
Spectrum setting done according KDB 789033 d02 v01, method SA-1 instructions (section 2.b).

5.3 FCC and ISED Test Limit

Fixed point to multipoint devices:
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
Fixed point to point devices:
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W. Directional antenna gain greater than 6dBi can be employed without any corresponding reduction of transmitter conducted power.
The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

5.4 Test Results fixed point to multipoint

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	0.7	0.33	3.53	30.0	33.53	30.0	-2.47
	5785.0	0.12	0.86	3.51	30.0	33.51	30.0	-2.48
	5835.0	-1.04	0.2	2.63	30.0	32.63	30.0	-3.36
40.0	5750.0	-0.2	0.22	3.025	30.0	33.025	30.0	-2.97
	5785.0	-0.75	-0.7	2.3	30.0	32.3	30.0	-3.7
	5825.0	-2.39	-1.02	1.35	30.0	31.35	30.0	-4.64
80.0	5770.0	-1.0	-0.47	2.28	30.0	32.28	30.0	-3.7
	5785.0	-1.26	-0.72	2.03	30.0	32.03	30.0	-3.97
	5805.0	-2.25	-0.91	1.48	30.0	31.48	30.0	-4.52

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 14 Test Results Fixed Point to Multipoint mode, 30dBi AG, QPSK

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	9.76	9.3	12.54	23.0	35.546	30.0	-0.45
	5785.0	8.87	9.7	12.31	23.0	35.315	30.0	-0.68
	5835.0	8.37	8.7	11.55	23.0	34.548	30.0	-1.45
40.0	5750.0	9.35	9.14	12.26	23.0	35.257	30.0	-0.74
	5785.0	8.63	8.02	11.34	23.0	34.346	30.0	-1.65
	5825.0	6.89	7.84	10.4	23.0	33.401	30.0	-2.6
80.0	5770.0	8.85	8.03	11.47	23.0	34.470	30.0	-1.53
	5785.0	8.14	7.8	10.98	23.0	33.984	30.0	-2.01
	5805.0	7.24	6.89	10.08	23.0	33.079	30.0	-2.9

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 15 Test Results Fixed Point to Multipoint mode, 23dBi AG, QPSK

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	0.47	0.59	3.54	30.0	33.54	30.0	-2.46
	5785.0	0.86	1.18	3.03	30.0	33.03	30.0	-2.97
	5835.0	-0.77	0.78	3.08	30.0	33.08	30.0	-2.92
40.0	5750.0	0.78	0.32	3.56	30.0	33.56	30.0	-2.43
	5785.0	-0.05	-0.72	2.64	30.0	32.64	30.0	-3.36
	5825.0	-1.23	-0.61	2.1	30.0	32.1	30.0	-3.9
80.0	5770.0	1.0	0.72	3.86	30.0	33.86	30.0	-2.13
	5785.0	0.55	0.37	3.47	30.0	33.47	30.0	-2.53
	5805.0	0.28	0.53	3.42	30.0	33.42	30.0	-2.58

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 16 Test Results Fixed Point to Multipoint mode, 30dBi AG, 64QAM

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	9.43	8.5	11.9	23.0	34.9	30.0	-1.0
	5785.0	9.64	9.95	12.8	23.0	35.8	30.0	-0.2
	5835.0	9.34	9.78	12.6	23.0	35.6	30.0	-0.4
40.0	5750.0	7.14	7.07	10.1	23.0	33.1	30.0	-2.8
	5785.0	7.24	6.25	9.78	23.0	32.8	30.0	-3.2
	5825.0	6.3	5.4	8.9	23.0	31.9	30.0	-4.1
80.0	5770.0	7.65	7.56	10.62	23.0	33.6	30.0	-2.4
	5785.0	8.37	6.95	10.73	23.0	33.7	30.0	-2.27
	5805.0	7.75	6.14	10.03	23.0	33.03	30.0	-2.9

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 17 Test Results Fixed Point to Multipoint mode, 23dBi AG, 64QAM

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	-2.23	-2.43	0.68	30.0	30.68	30.0	-5.32
	5785.0	-1.51	-1.43	1.54	30.0	31.54	30.0	-4.46
	5835.0	-2.08	-2.1	0.91	30.0	30.9	30.0	-5.08
40.0	5750.0	-2.67	-2.92	0.22	30.0	30.2	30.0	-5.78
	5785.0	-3.63	-3.68	-0.64	30.0	29.36	30.0	-6.64
	5825.0	-4.54	-4.38	-1.45	30.0	28.55	30.0	-7.45
80.0	5770.0	-2.96	-3.0	0.03	30.0	30.03	30.0	-5.97
	5785.0	-3.38	-3.8	-0.57	30.0	29.43	30.0	-6.57
	5805.0	-3.9	-3.9	-0.9	30.0	29.1	30.0	-6.9

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 18 Test Results Fixed Point to Multipoint mode, 30dBi AG, 256QAM

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	7.08	6.4	9.76	23.0	32.76	30.0	-3.24
	5785.0	7.36	7.5	10.44	23.0	33.44	30.0	-2.55
	5835.0	7.3	6.76	10.04	23.0	33.04	30.0	-2.96
40.0	5750.0	6.75	6.2	9.5	23.0	32.5	30.0	-3.51
	5785.0	6.0	5.2	8.64	23.0	31.64	30.0	-4.36
	5825.0	4.9	4.5	7.74	23.0	30.74	30.0	-5.26
80.0	5770.0	6.7	5.7	9.25	23.0	32.25	30.0	-3.74
	5785.0	5.5	5.2	8.37	23.0	31.37	30.0	-4.62
	5805.0	4.9	4.84	7.88	23.0	30.88	30.0	-5.12

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 19 Test Results Fixed Point to Multipoint mode, 23dBi AG, 256QAM

5.5 Test Results fixed point to point

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	17.62	17.71	20.67	30.0	50.67	30.0	-9.32
	5785.0	17.0	17.63	20.34	30.0	50.34	30.0	-9.6
	5835.0	16.08	16.74	19.43	30.0	49.43	30.0	-10.56
40.0	5750.0	17.2	17.1	20.16	30.0	50.16	30.0	-9.84
	5785.0	15.9	16.1	19.01	30.0	49.01	30.0	-10.98
	5825.0	15.2	15.96	18.6	30.0	48.6	30.0	-11.4
80.0	5770.0	15.63	14.96	18.3	30.0	48.31	30.0	-11.7
	5785.0	15.13	14.96	18.05	30.0	48.05	30.0	-11.94
	5805.0	15.1	15.42	18.3	30.0	48.3	30.0	-11.73

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 20 Test Results Fixed Point to Point mode, 30dBi AG, QPSK

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	17.62	17.71	20.67	23.0	43.67	30.0	-9.32
	5785.0	17.0	17.63	20.34	23.0	43.34	30.0	-9.6
	5835.0	16.08	16.74	19.43	23.0	42.43	30.0	-10.56
40.0	5750.0	17.2	17.1	20.16	23.0	43.16	30.0	-9.84
	5785.0	15.9	16.1	19.01	23.0	42.01	30.0	-10.98
	5825.0	15.2	15.96	18.6	23.0	41.6	30.0	-11.4
80.0	5770.0	15.63	14.96	18.3	23.0	41.3	30.0	-11.7
	5785.0	15.13	14.96	18.05	23.0	41.05	30.0	-11.94
	5805.0	15.1	15.42	18.3	23.0	41.3	30.0	-11.73

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 21 Test Results Fixed Point to Point mode, 23dBi AG, QPSK

5.1 Test Results

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	17.66	17.2	20.45	30.0	50.45	30.0	-9.5
	5785.0	17.92	17.72	20.83	30.0	50.83	30.0	-9.17
	5835.0	16.48	17.26	19.9	30.0	49.9	30.0	-10.1
40.0	5750.0	18.3	16.74	20.6	30.0	50.6	30.0	-9.4
	5785.0	16.02	15.84	18.94	30.0	48.94	30.0	-11.06
	5825.0	16.76	16.54	19.66	30.0	49.66	30.0	-10.34
80.0	5770.0	18.2	17.04	20.65	30.0	50.65	30.0	-9.34
	5785.0	18.2	16.93	20.63	30.0	50.63	30.0	-9.37
	5805.0	17.96	17.0	20.5	30.0	50.5	30.0	-9.5

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 22 Test Results Fixed Point to Point mode, 30dBi AG, 64QAM

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	17.66	17.2	20.45	23.0	43.45	30.0	-9.5
	5785.0	17.92	17.72	20.83	23.0	43.83	30.0	-9.17
	5835.0	16.48	17.26	19.9	23.0	42.9	30.0	-10.1
40.0	5750.0	18.3	16.74	20.6	23.0	43.6	30.0	-9.4
	5785.0	16.02	15.84	18.94	23.0	41.94	30.0	-11.06
	5825.0	16.76	16.54	19.66	23.0	42.6	30.0	-10.34
80.0	5770.0	18.2	17.04	20.65	23.0	43.65	30.0	-9.34
	5785.0	18.2	16.93	20.63	23.0	43.63	30.0	-9.37
	5805.0	17.96	17.0	20.5	23.0	43.5	30.0	-9.5

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 23 Test Results Fixed Point to Point mode, 23dBi AG, 64QAM

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	15.3	14.0	17.7	30.0	47.68	30.0	-12.32
	5785.0	15.66	14.56	18.15	30.0	48.15	30.0	-11.84
	5835.0	15.33	14.71	18.04	30.0	48.04	30.0	-11.96
40.0	5750.0	15.14	14.35	17.77	30.0	47.77	30.0	-11.82
	5785.0	12.94	13.16	16.06	30.0	46.06	30.0	-12.54
	5825.0	13.38	12.48	15.96	30.0	45.96	30.0	-12.82
80.0	5770.0	14.79	13.08	17.03	30.0	47.03	30.0	-12.97
	5785.0	14.31	12.96	16.7	30.0	46.69	30.0	-13.3
	5805.0	14.01	12.27	16.23	30.0	46.24	30.0	-13.76

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 24 Test Results Fixed Point to Point mode, 30dBi AG, 256QAM

BW	Operation Frequency	Port 1 Reading	Port 2 Reading	Total Power*	Antenna Gain	EIRP	Limit	Margin
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)
20.0	5740.0	15.3	14.0	17.7	23.0	40.68	30.0	-12.32
	5785.0	15.66	14.56	18.15	23.0	41.15	30.0	-11.84
	5835.0	15.33	14.71	18.04	23.0	41.04	30.0	-11.96
40.0	5750.0	15.14	14.35	17.77	23.0	40.77	30.0	-11.82
	5785.0	12.94	13.16	16.06	23.0	39.06	30.0	-12.54
	5825.0	13.38	12.48	15.96	23.0	38.96	30.0	-12.82
80.0	5770.0	14.79	13.08	17.03	23.0	40.03	30.0	-12.97
	5785.0	14.31	12.96	16.7	23.0	39.7	30.0	-13.3
	5805.0	14.01	12.27	16.23	23.0	39.23	30.0	-13.76

**Note: total power (dBm)= 10 log [port1(mW)+port2(mW)]*

Figure 25 Test Results Fixed Point to Point mode, 23dBi AG, 256QAM

JUDGMENT: Passed by 6.7dB

For additional information see *Figure 26* to *Figure 187*.

Fixed Point to Multipoint mode, 23dBi AG, QPSK Modulation:

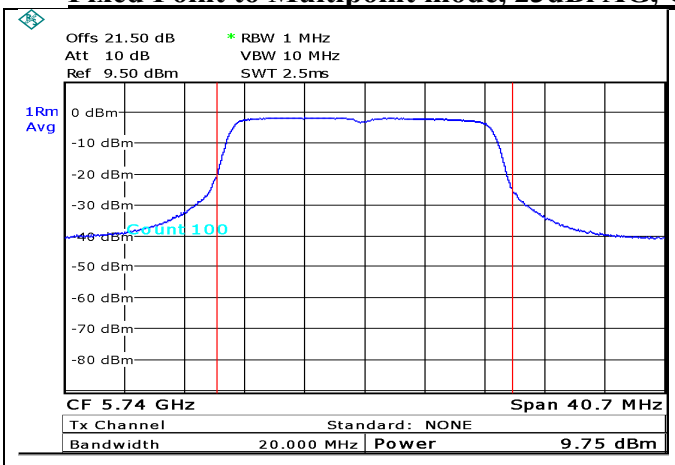


Figure 26. 5740.0MHz,20MHz BW, port1

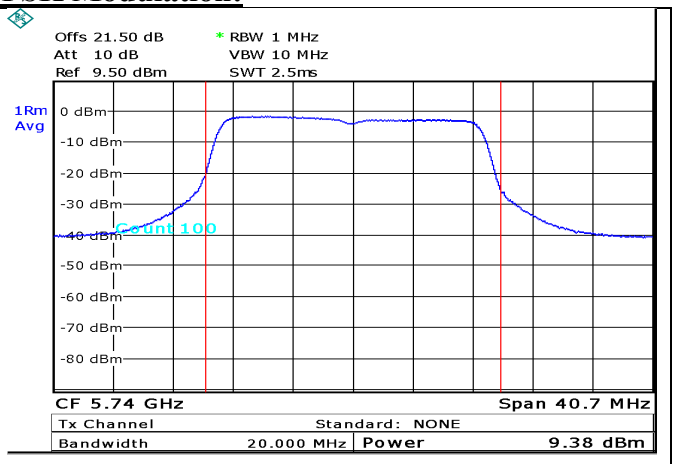


Figure 27. 5740.0MHz,20MHz BW, port2

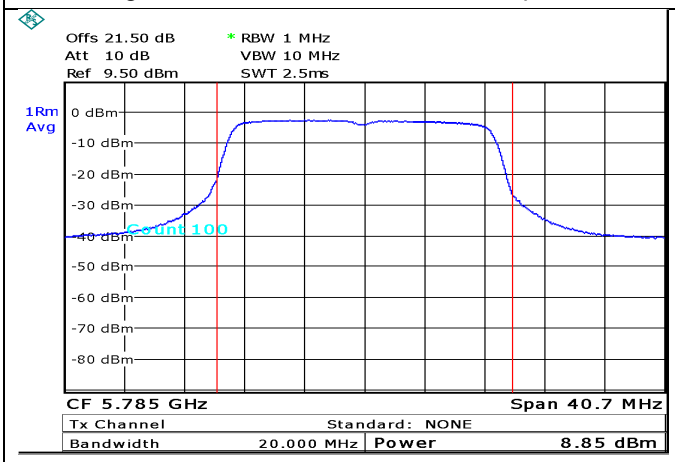


Figure 28. 5785.0MHz,20MHz BW, port1

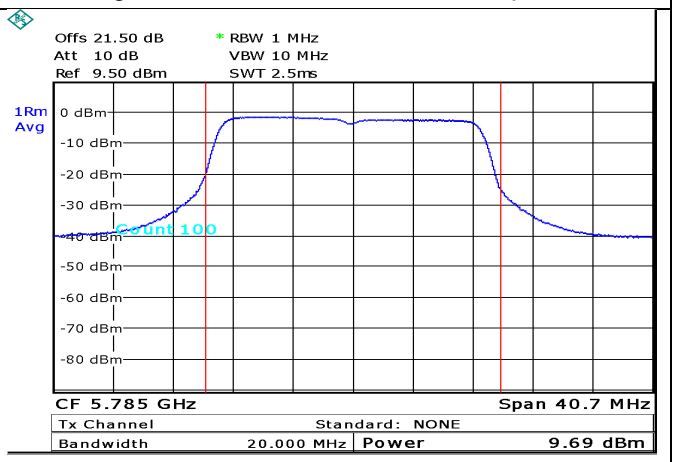


Figure 29. 5785.0MHz,20MHz BW, port2

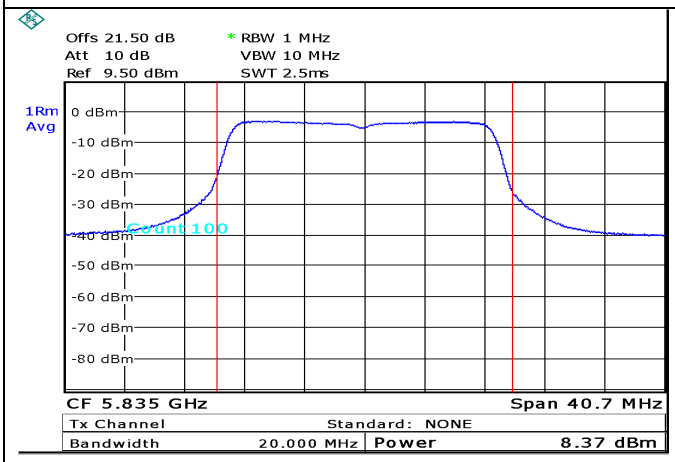


Figure 30. 5835.0MHz,20MHz BW, port1

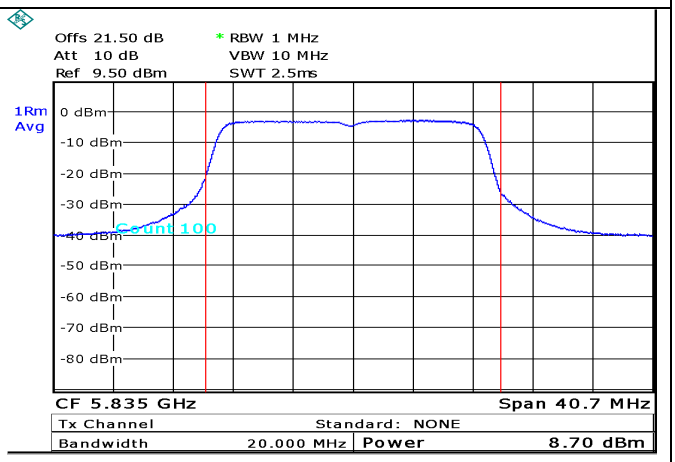


Figure 31. 5835.0MHz,20MHz BW, port2

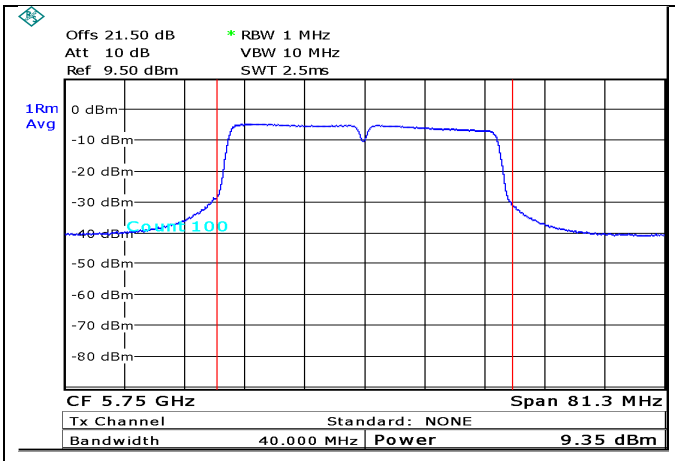


Figure 32. 5750.0MHz,40MHz BW, port1

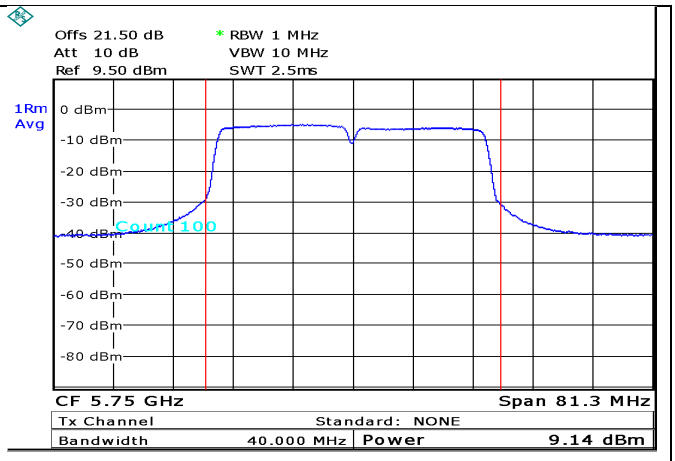


Figure 33. 5750.0MHz,40MHz BW, port2

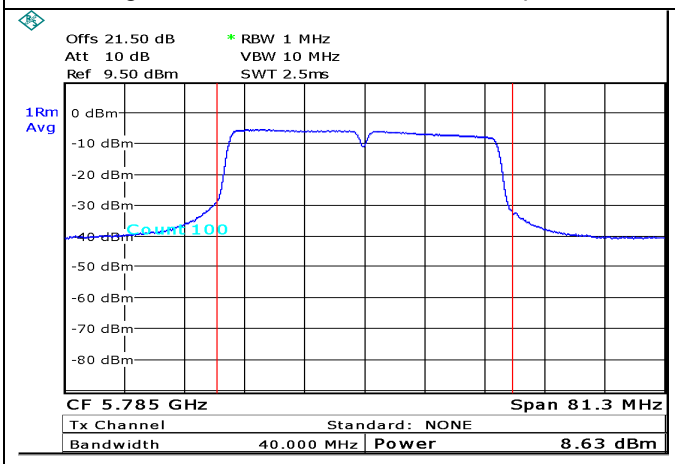


Figure 34. 5785.0MHz,40MHz BW, port1

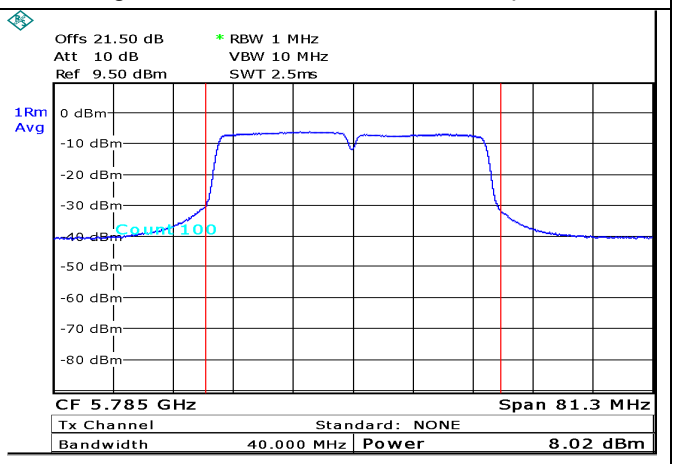


Figure 35. 5785.0MHz,40MHz BW, port2

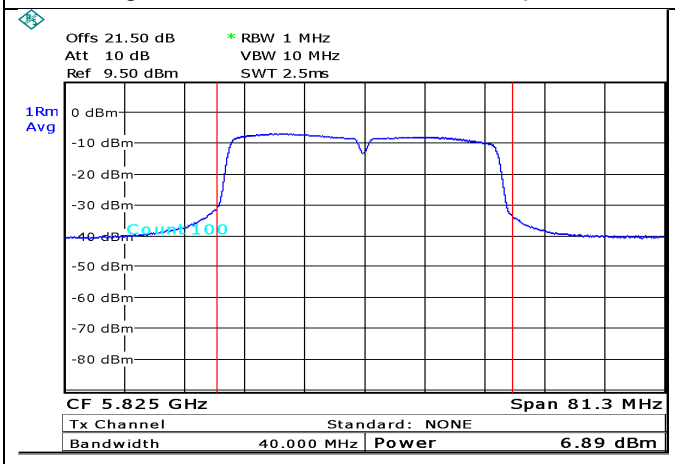


Figure 36. 5825.0MHz,40MHz BW, port1

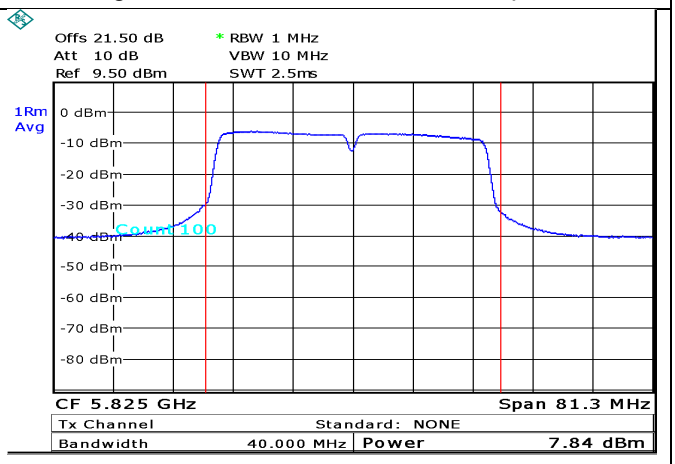


Figure 37. 5825.0MHz,40MHz BW, port2

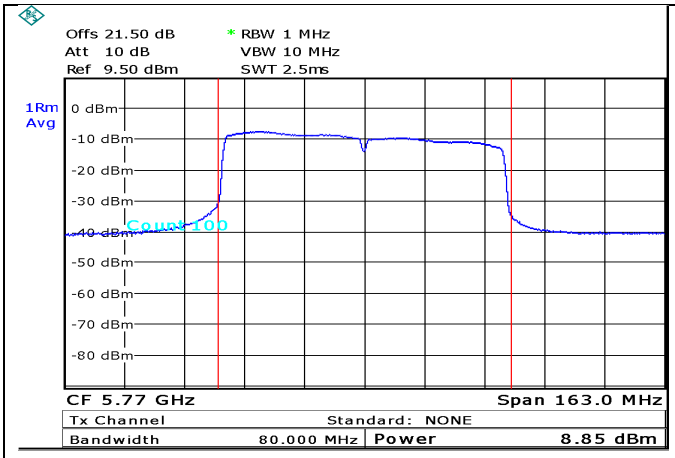


Figure 38. 5770.0MHz,80MHz BW, port1

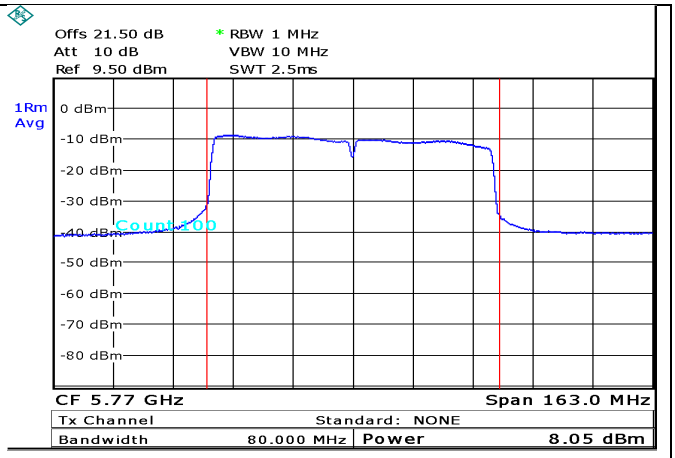


Figure 39. 5770.0MHz,80MHz BW, port2

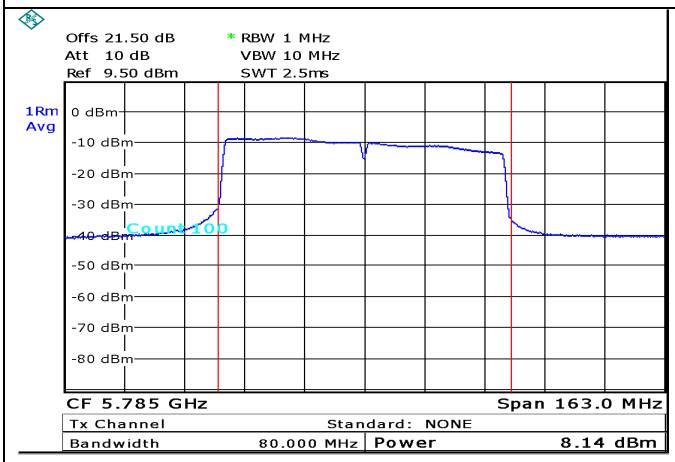


Figure 40. 5785.0MHz,80MHz BW, port1

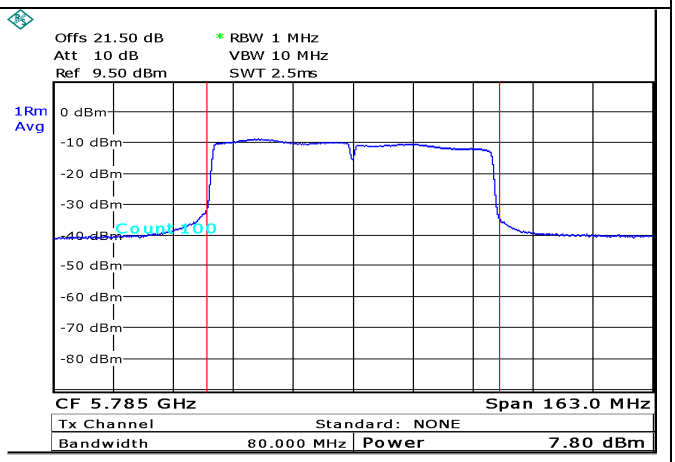


Figure 41. 5785.0MHz,80MHz BW, port2

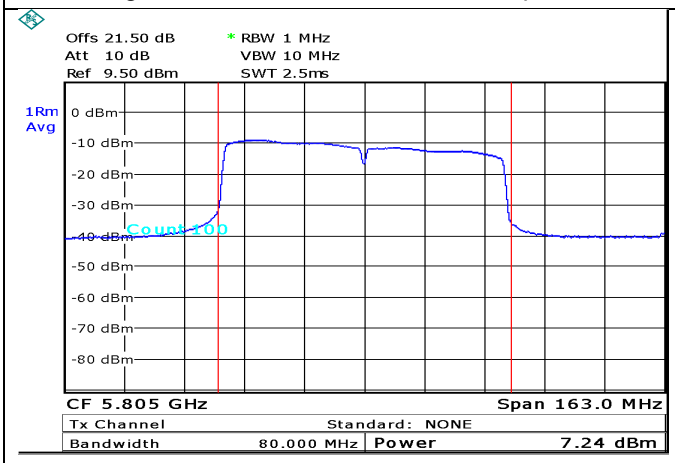


Figure 42. 5805.0MHz,80MHz BW, port1

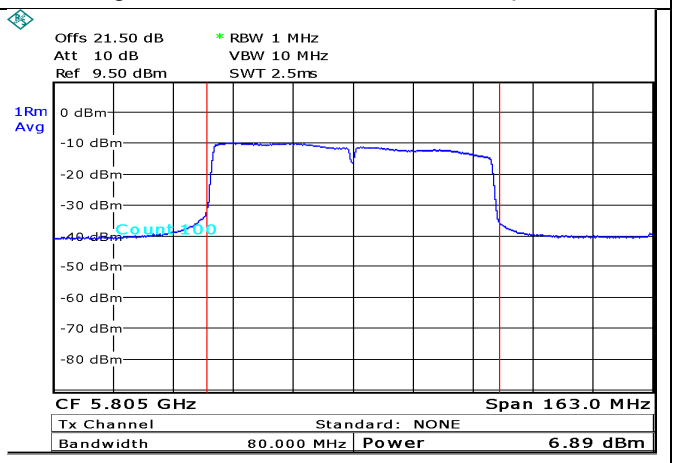


Figure 43. 5805.0MHz,80MHz BW, port2

Fixed Point to Multipoint mode, 23dBi AG, 64QAM Modulation:

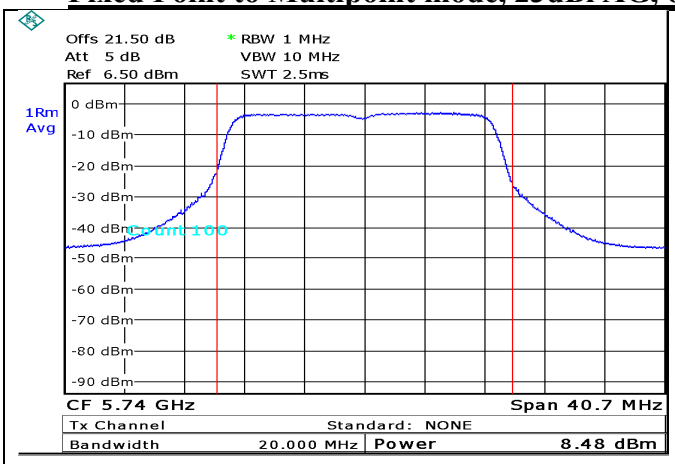


Figure 44. 5740.0MHz,20MHz BW, port1

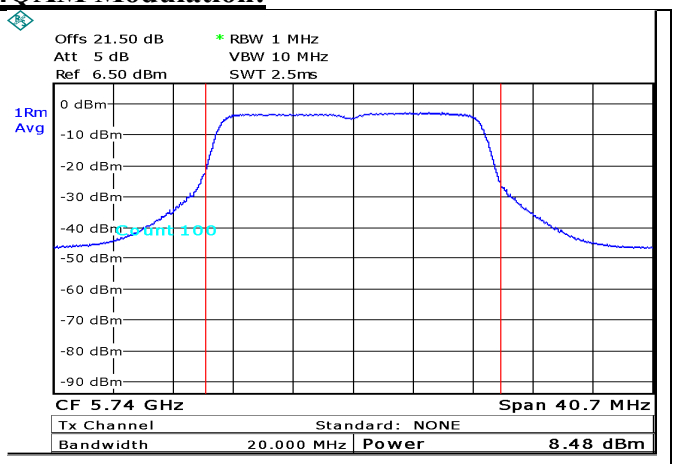


Figure 45. 5740.0MHz,20MHz BW, port2

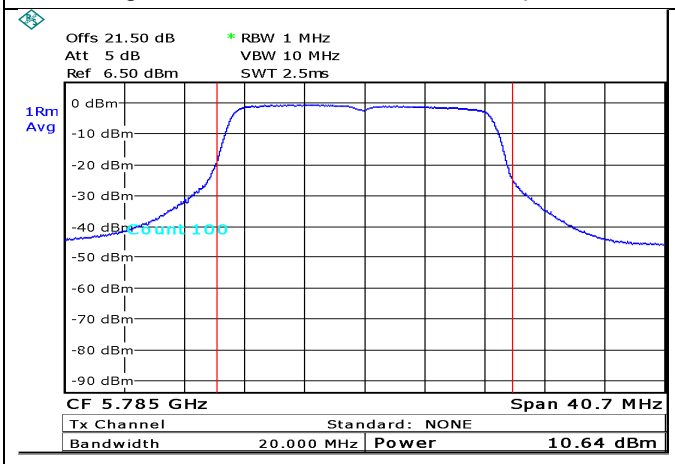


Figure 46. 5785.0MHz,20MHz BW, port1

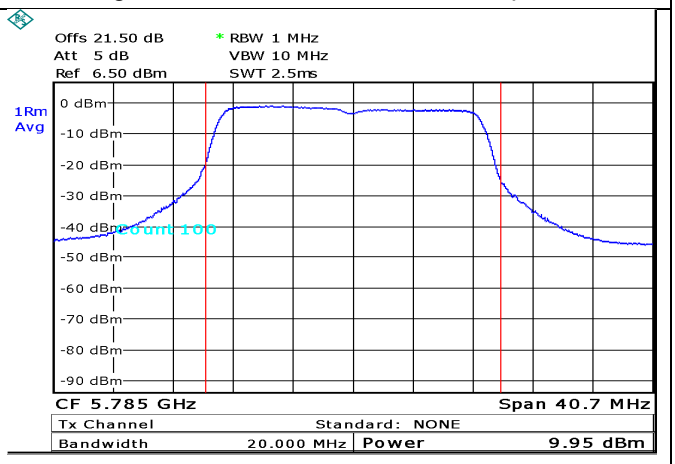


Figure 47. 5785.0MHz,20MHz BW, port2

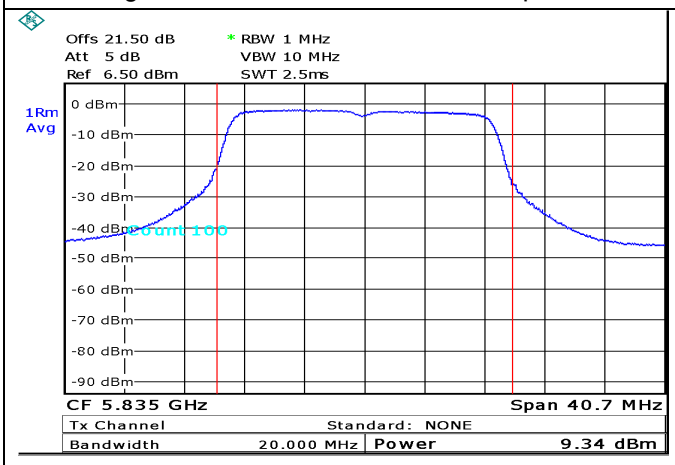


Figure 48. 5835.0MHz,20MHz BW, port1

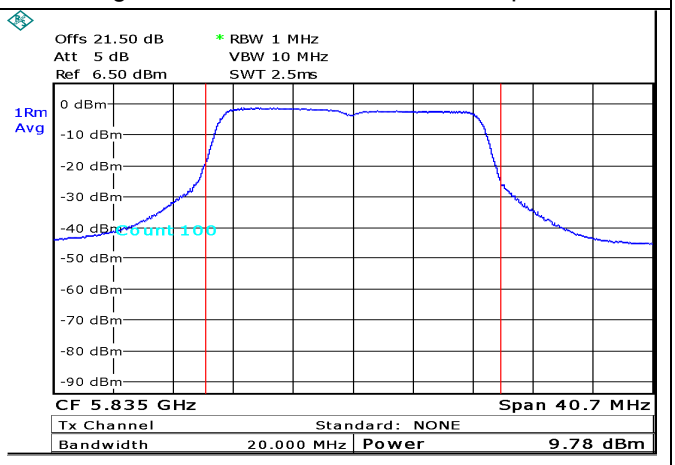


Figure 49. 5835.0MHz,20MHz BW, port2

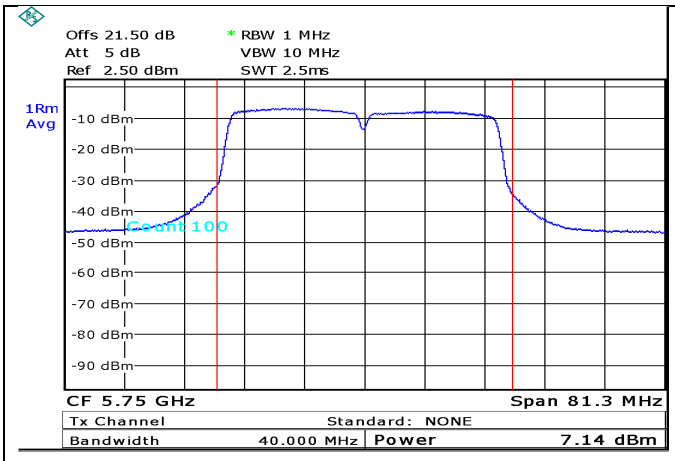


Figure 50. 5750.0MHz,40MHz BW, port1

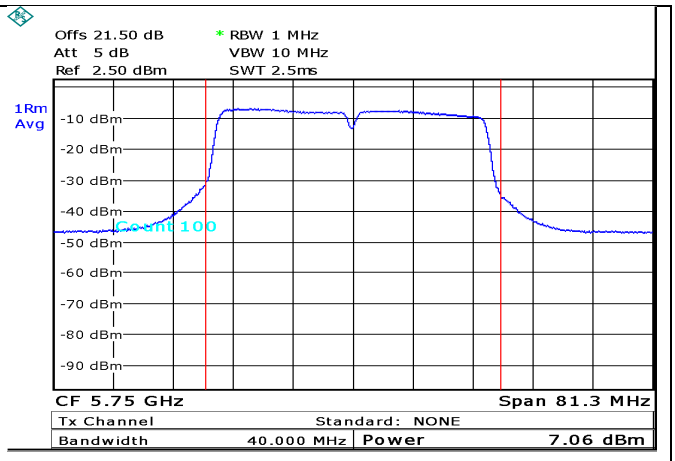


Figure 51. 5750.0MHz,40MHz BW, port2

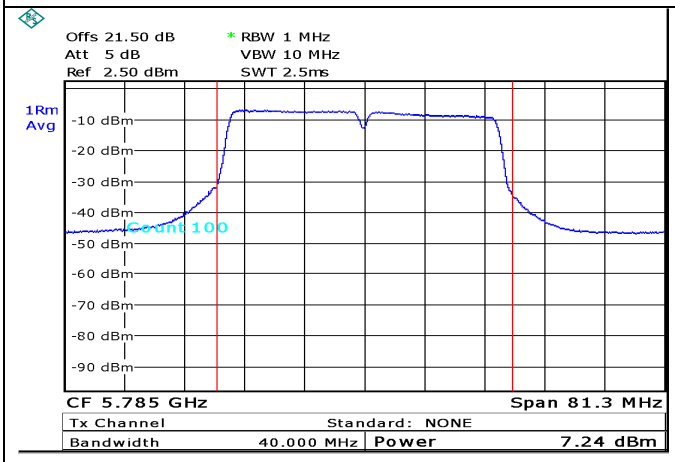


Figure 52. 5785.0MHz,40MHz BW, port1

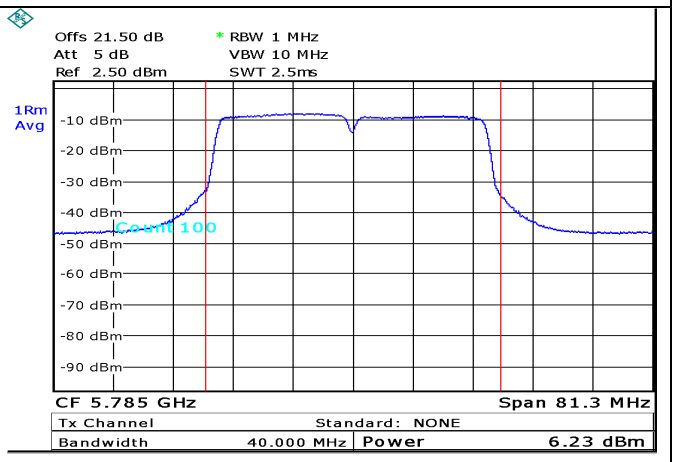


Figure 53. 5785.0MHz,40MHz BW, port2

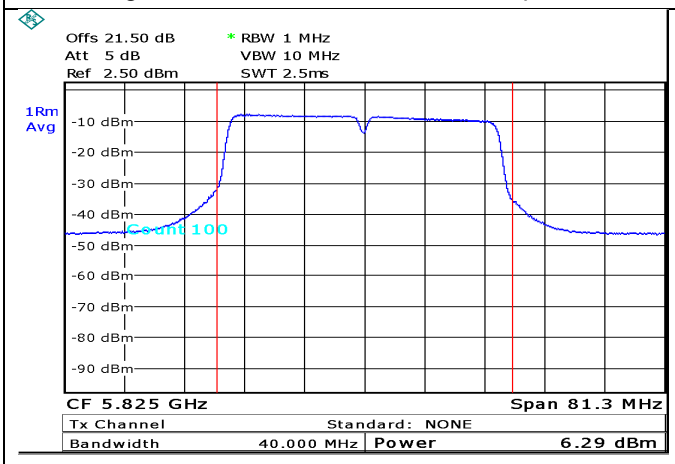


Figure 54. 5825.0MHz,40MHz BW, port1

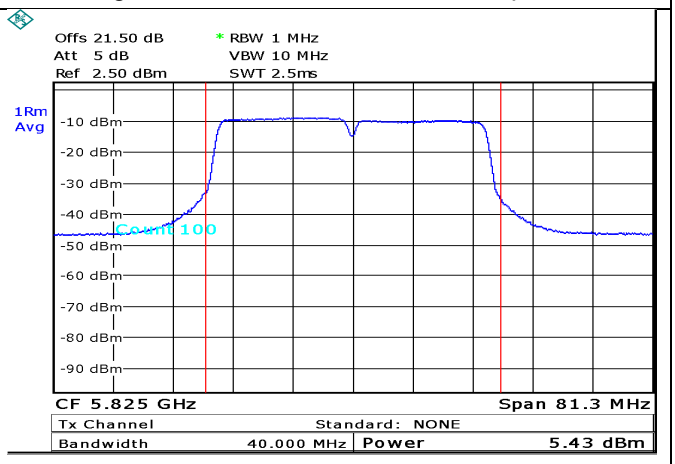


Figure 55. 5825.0MHz,40MHz BW, port2

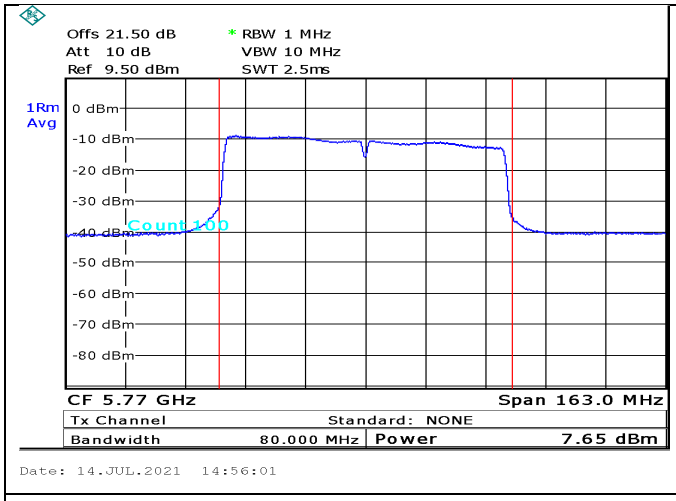


Figure 56. 5770.0MHz,80MHz BW, port1

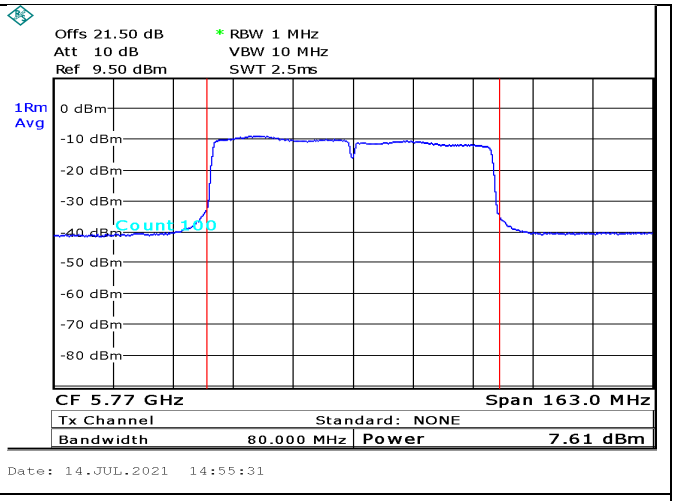


Figure 57. 5770.0MHz,80MHz BW, port2

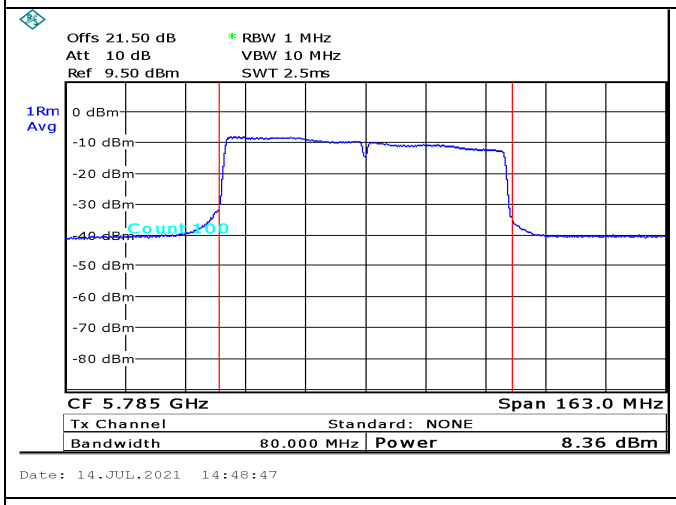


Figure 58. 5785.0MHz,80MHz BW, port1

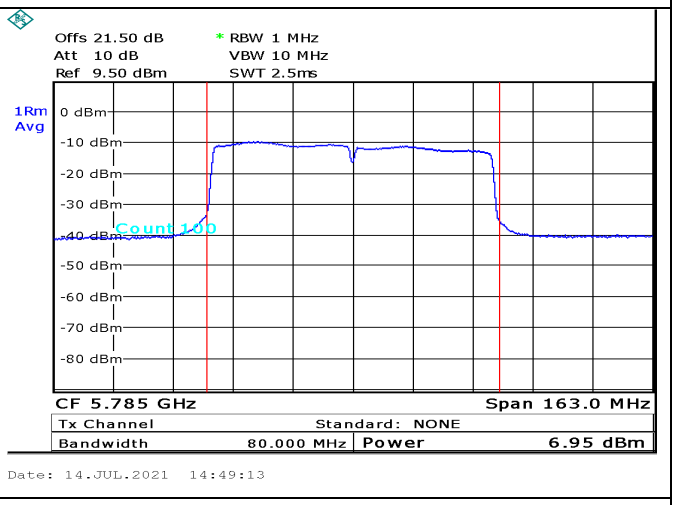


Figure 59. 5785.0MHz,80MHz BW, port2

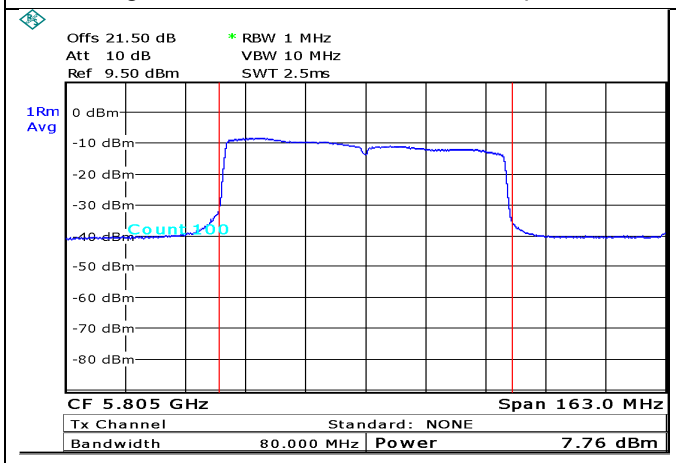


Figure 60. 5805.0MHz,80MHz BW, port1

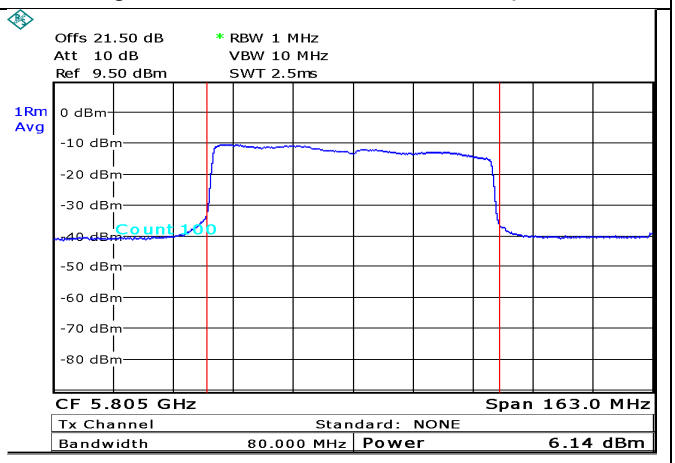


Figure 61. 5805.0MHz,80MHz BW, port2

Fixed Point to Multipoint mode, 23dBi AG, 256QAM Modulation:

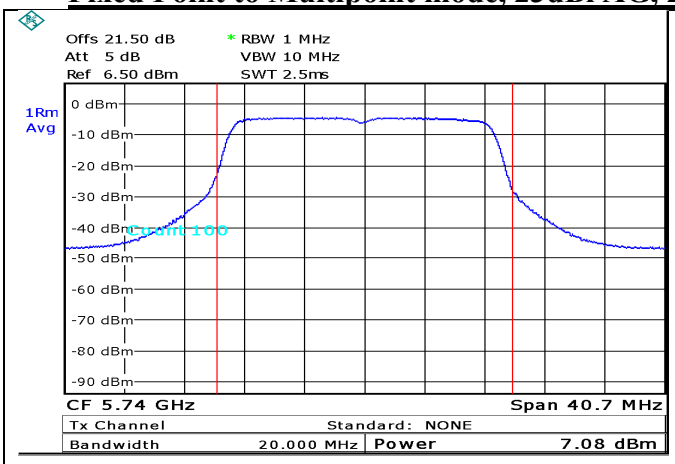


Figure 62. 5740.0MHz,20MHz BW, port1

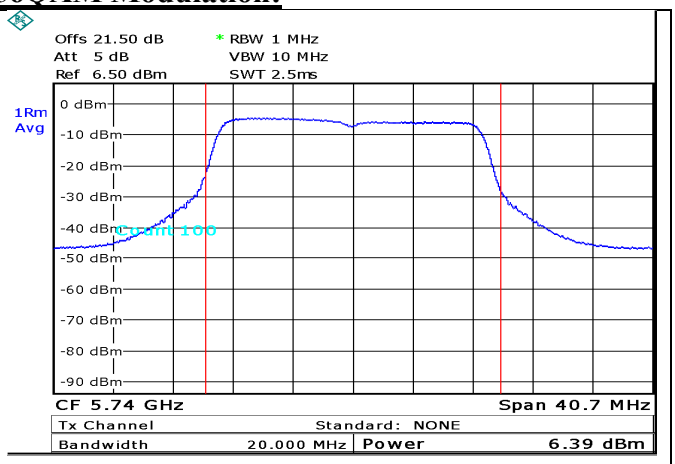


Figure 63. 5740.0MHz,20MHz BW, port2

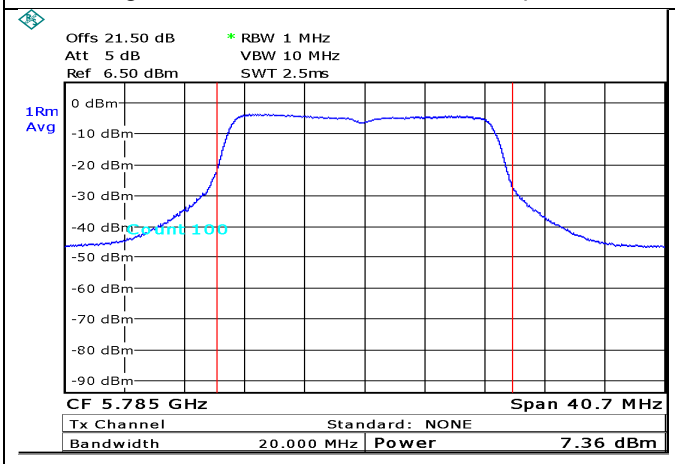


Figure 64. 5785.0MHz,20MHz BW, port1

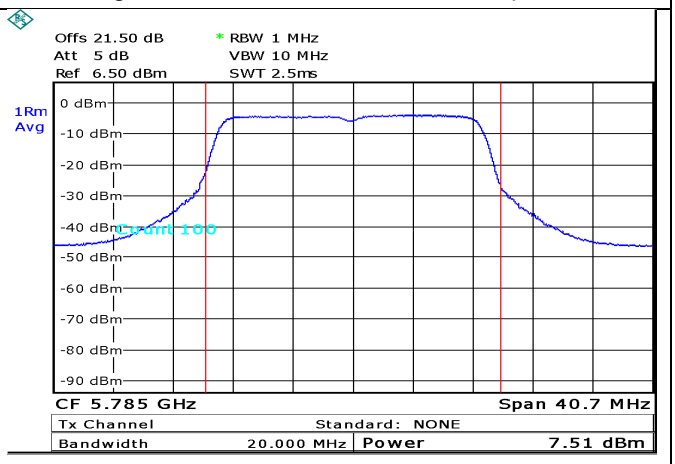


Figure 65. 5785.0MHz,20MHz BW, port2

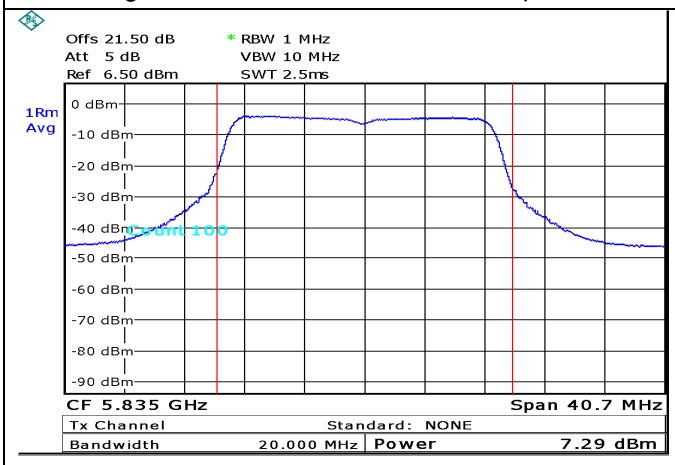


Figure 66. 5835.0MHz,20MHz BW, port1

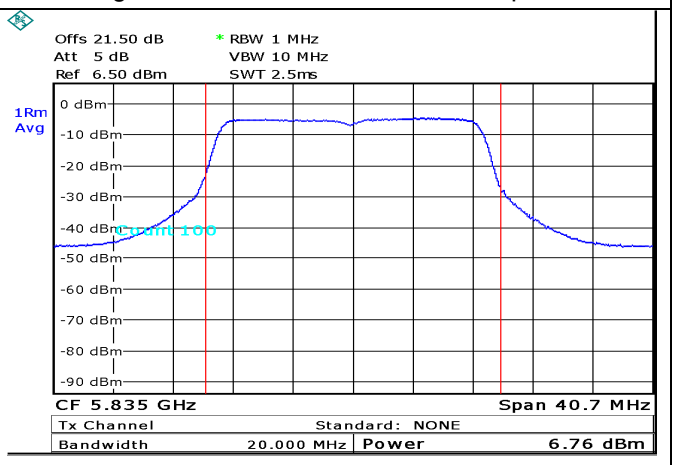


Figure 67. 5835.0MHz,20MHz BW, port2

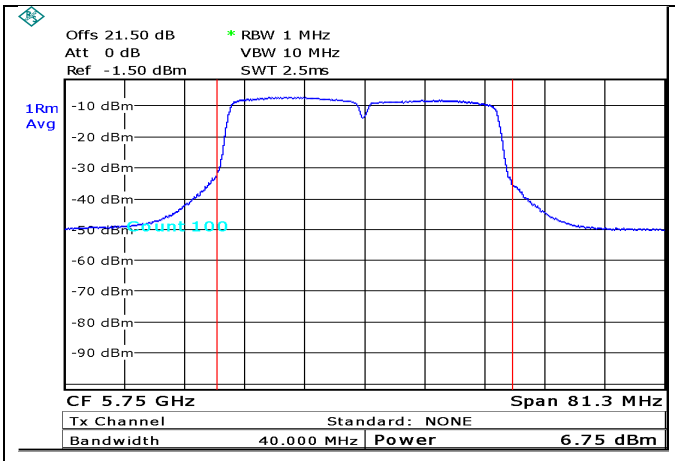


Figure 68. 5750.0MHz,40MHz BW, port1

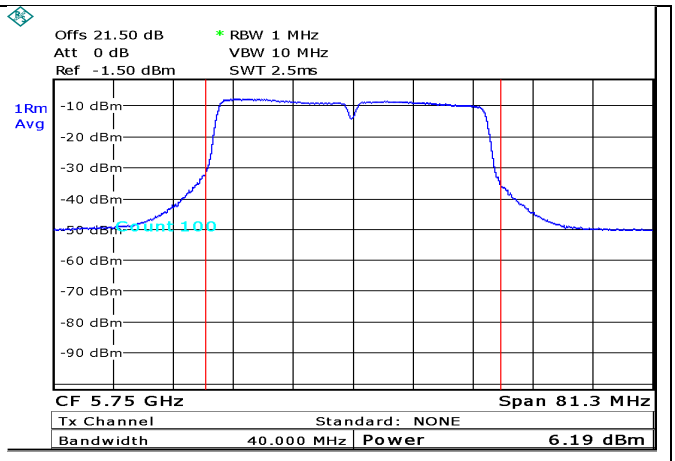


Figure 69. 5750.0MHz,40MHz BW, port2

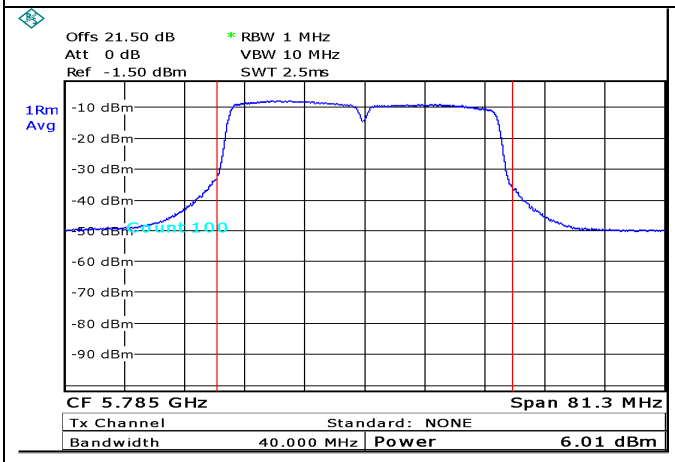


Figure 70. 5785.0MHz,40MHz BW, port1

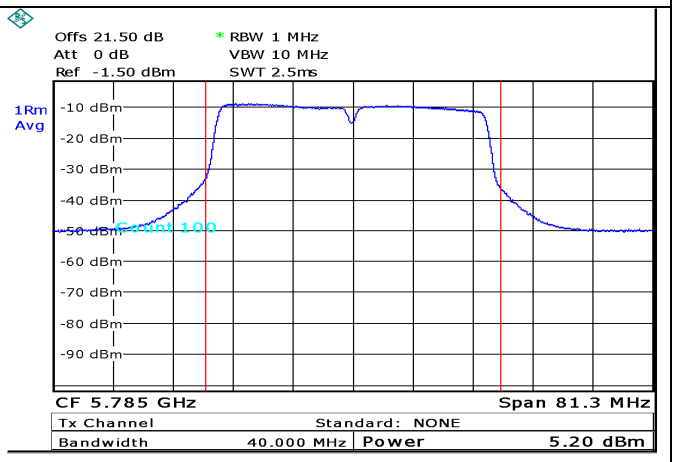


Figure 71. 5785.0MHz,40MHz BW, port2

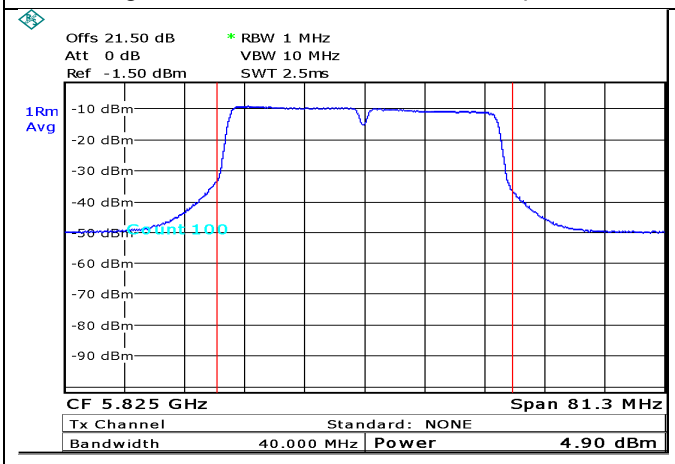


Figure 72. 5825.0MHz,40MHz BW, port1

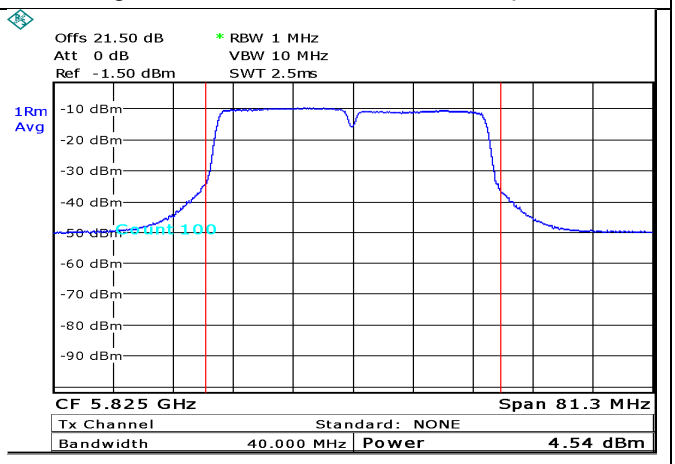


Figure 73. 5825.0MHz,40MHz BW, port2

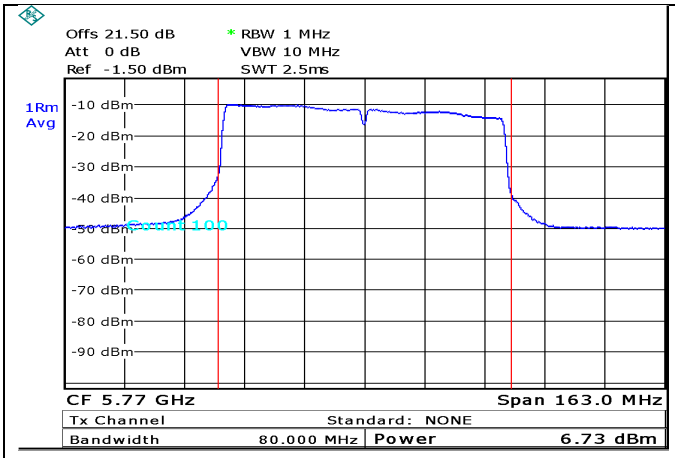


Figure 74. 5770.0MHz,80MHz BW, port1

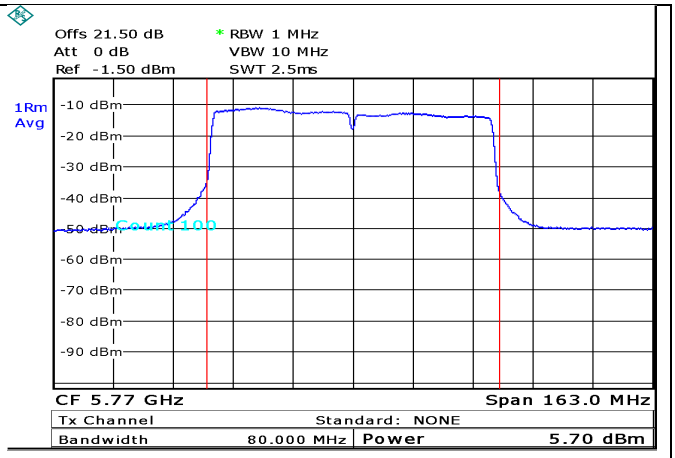


Figure 75. 5770.0MHz,80MHz BW, port2

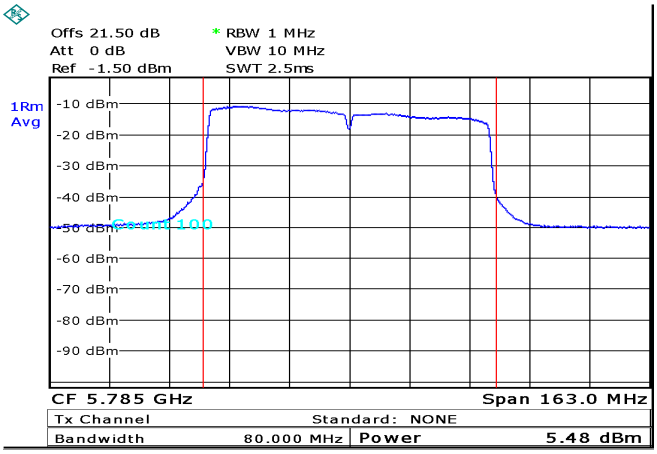


Figure 76. 5785.0MHz,80MHz BW, port1

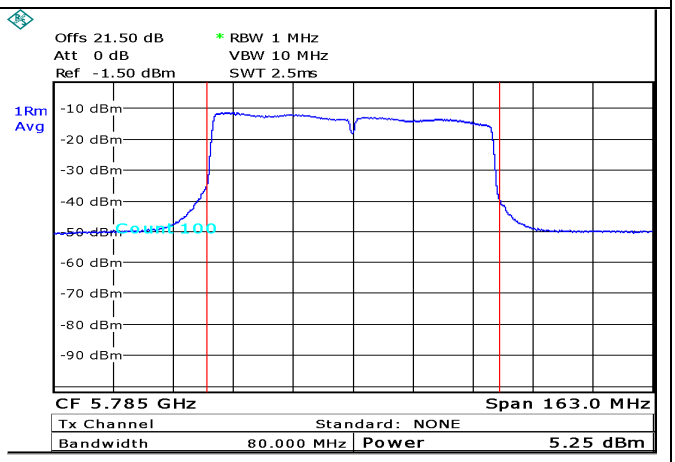


Figure 77. 5785.0MHz,80MHz BW, port2

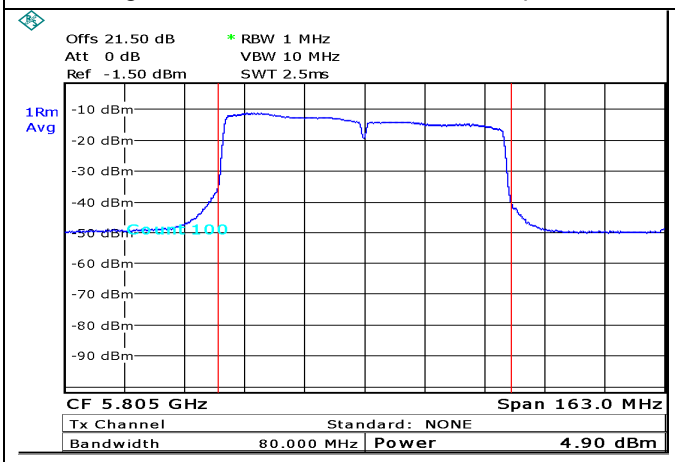


Figure 78. 5805.0MHz,80MHz BW, port1

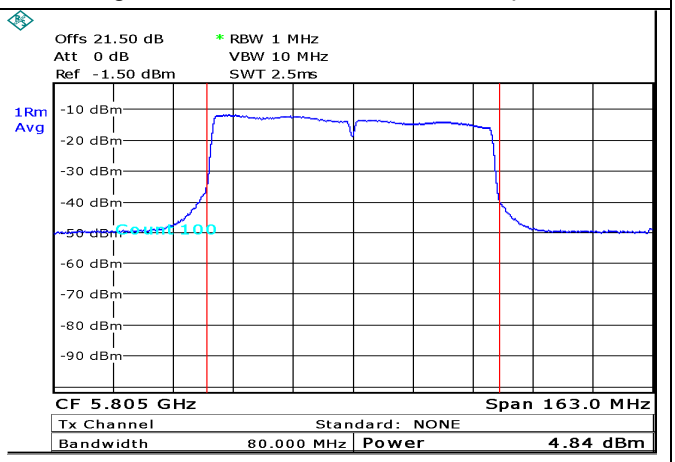


Figure 79. 5805.0MHz,80MHz BW, port2

Fixed Point to Multipoint mode, 30dBi AG, QPSK Modulation:

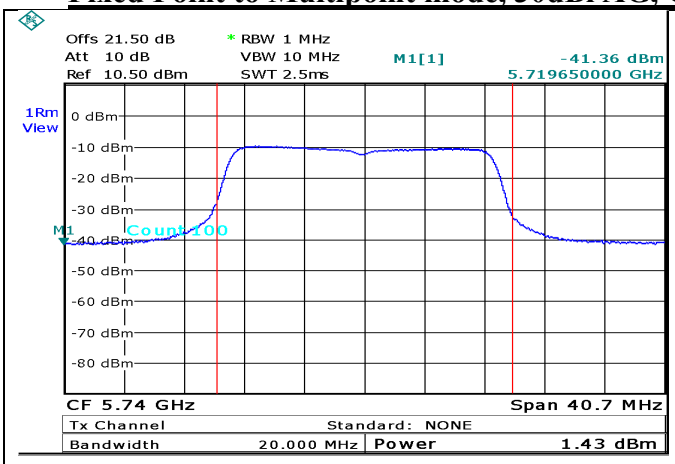


Figure 80. 5740.0MHz,20MHz BW, port1

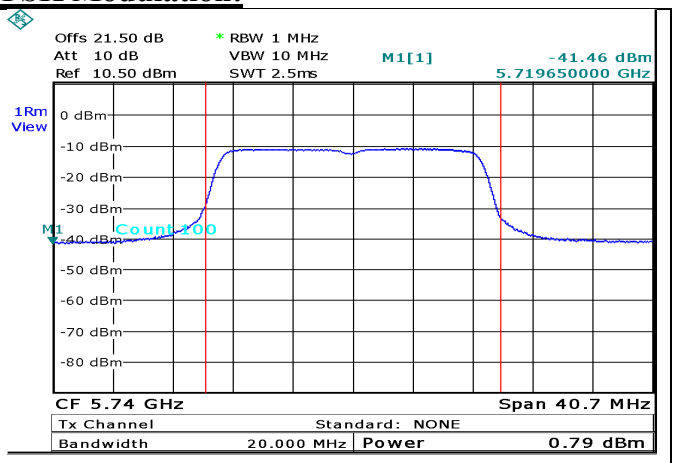


Figure 81. 5740.0MHz,20MHz BW, port2

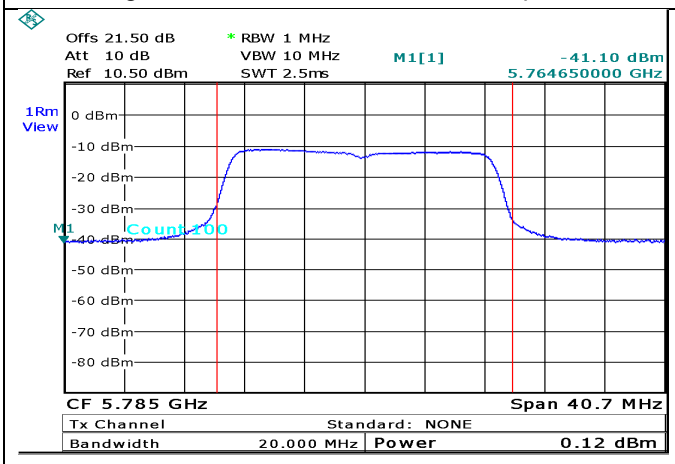


Figure 82. 5785.0MHz,20MHz BW, port1

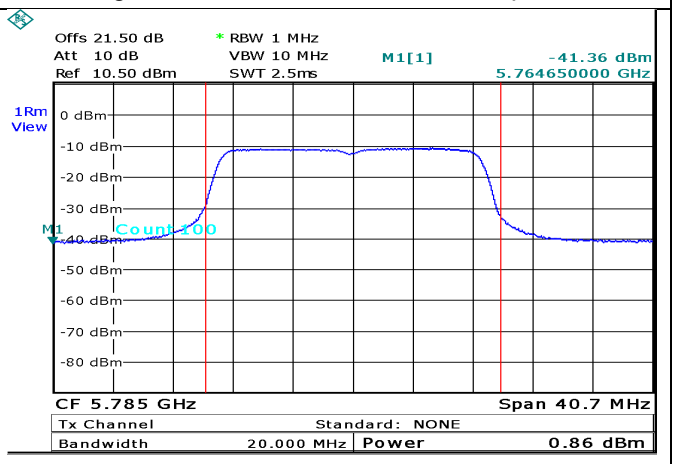


Figure 83. 5785.0MHz,20MHz BW, port2

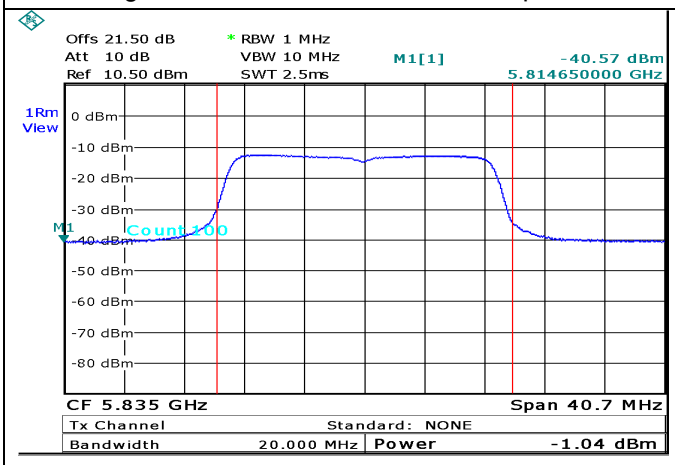


Figure 84. 5835.0MHz,20MHz BW, port1

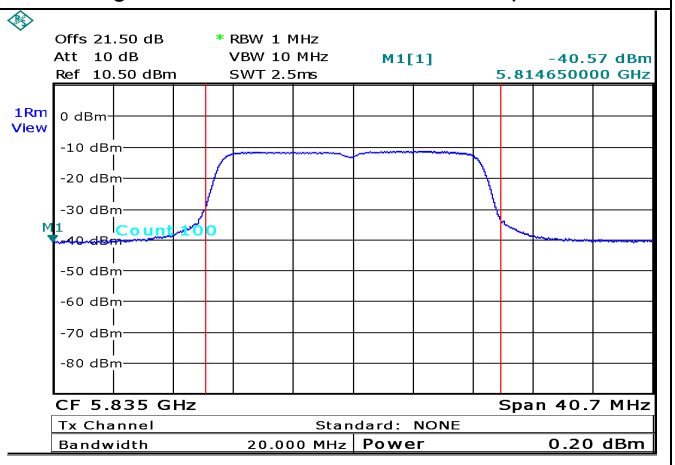


Figure 85. 5835.0MHz,20MHz BW, port2

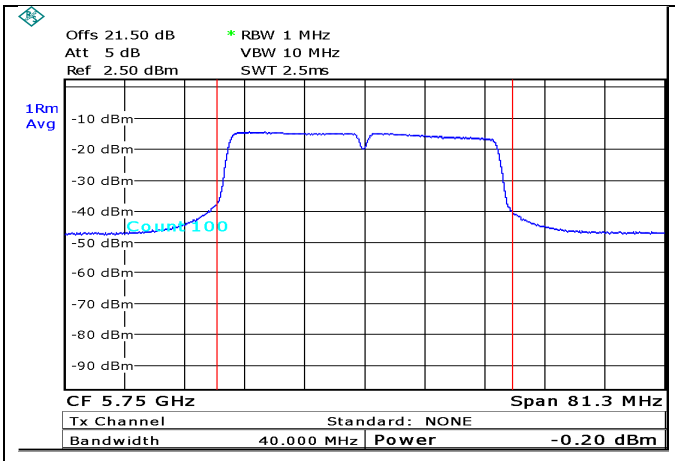


Figure 86. 5750.0MHz,40MHz BW, port1

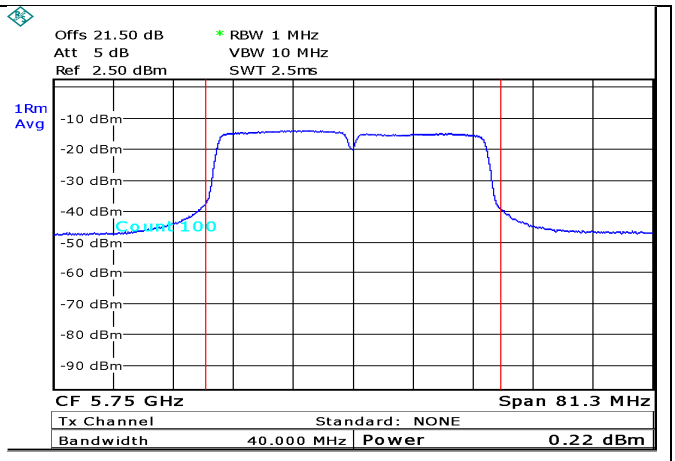


Figure 87. 5750.0MHz,40MHz BW, port2

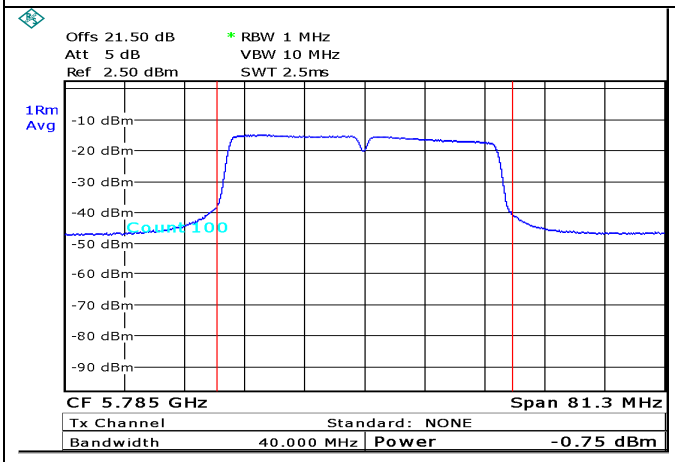


Figure 88. 5785.0MHz,40MHz BW, port1

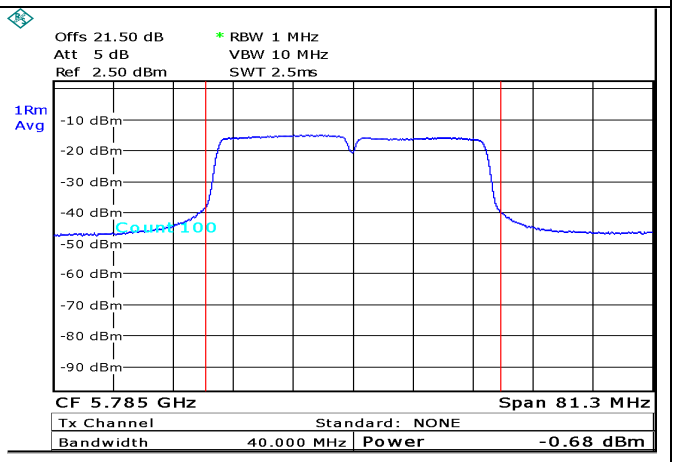


Figure 89. 5785.0MHz,40MHz BW, port2

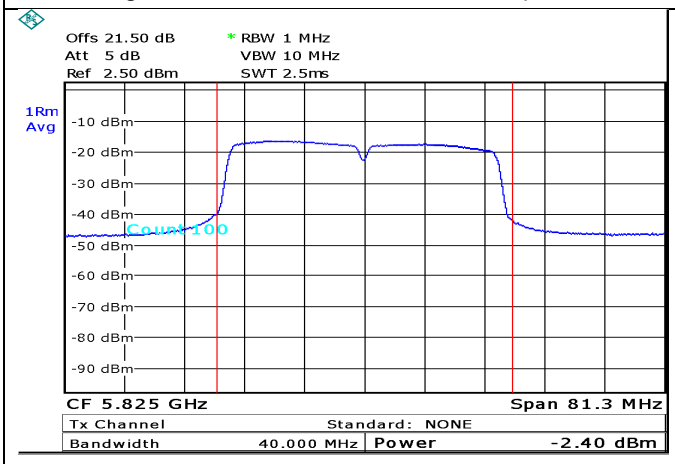


Figure 90. 5825.0MHz,40MHz BW, port1

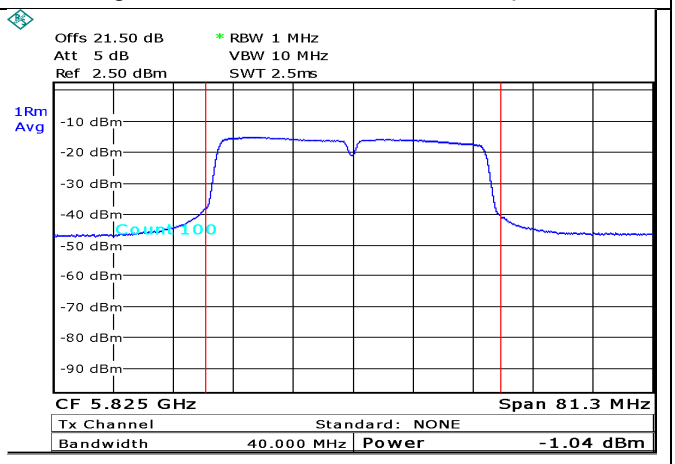


Figure 91. 5825.0MHz,40MHz BW, port2

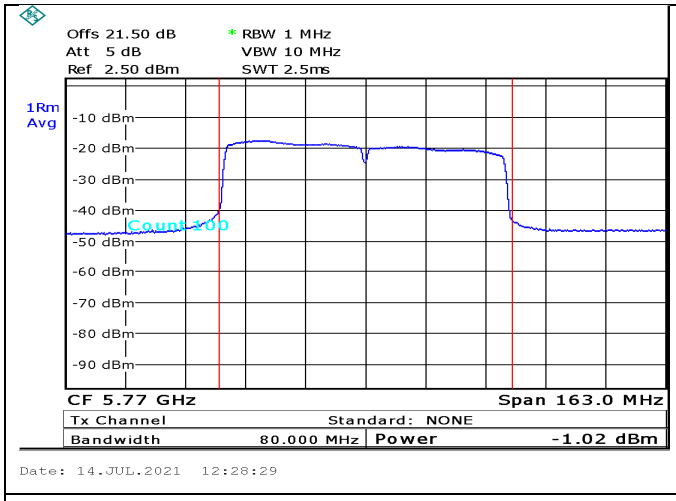


Figure 92. 5770.0MHz,80MHz BW, port1

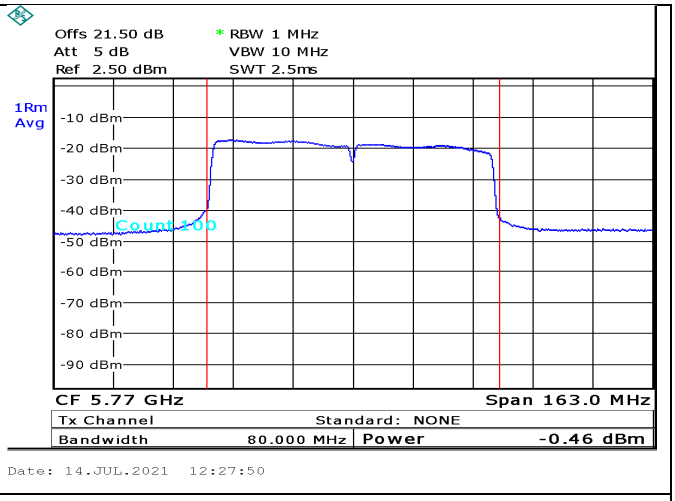


Figure 93. 5770.0MHz,80MHz BW, port2

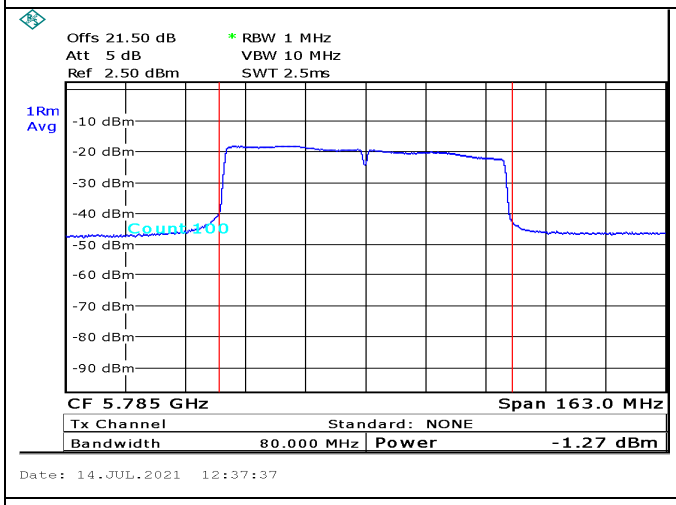


Figure 94. 5785.0MHz,80MHz BW, port1

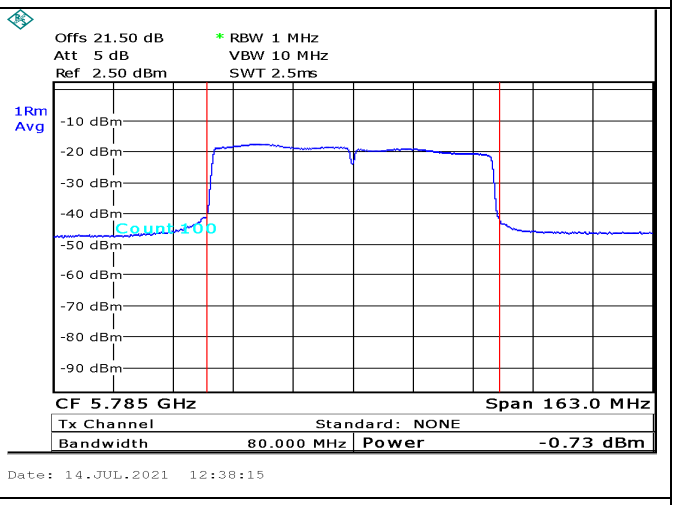


Figure 95. 5785.0MHz,80MHz BW, port2

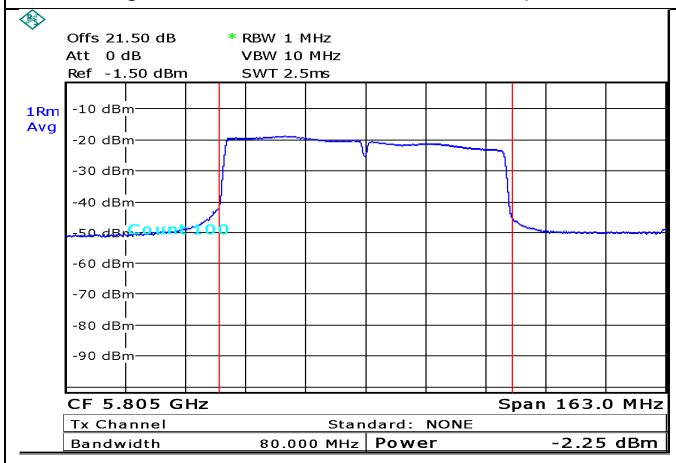


Figure 96. 5805.0MHz,80MHz BW, port1

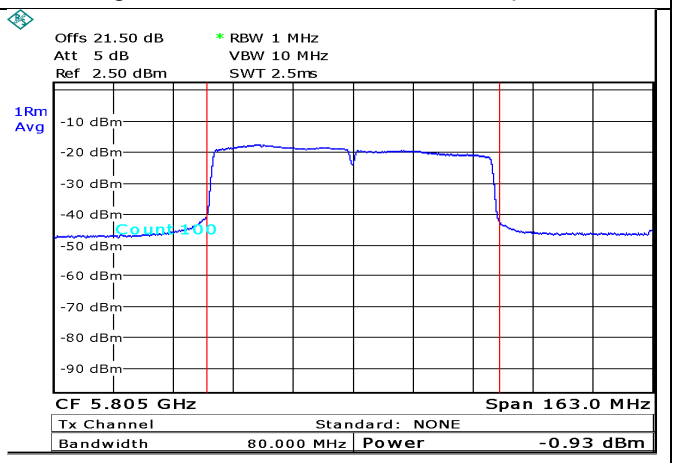


Figure 97. 5805.0MHz,80MHz BW, port2

Fixed Point to Multipoint mode, 30dBi AG, 64QAM Modulation:

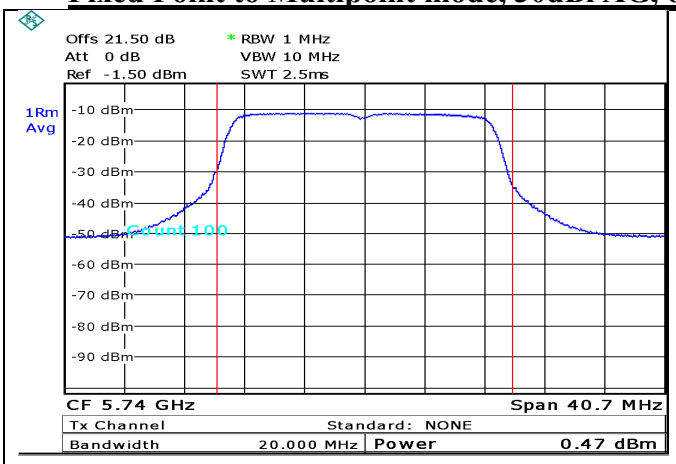


Figure 98. 5740.0MHz,20MHz BW, port1

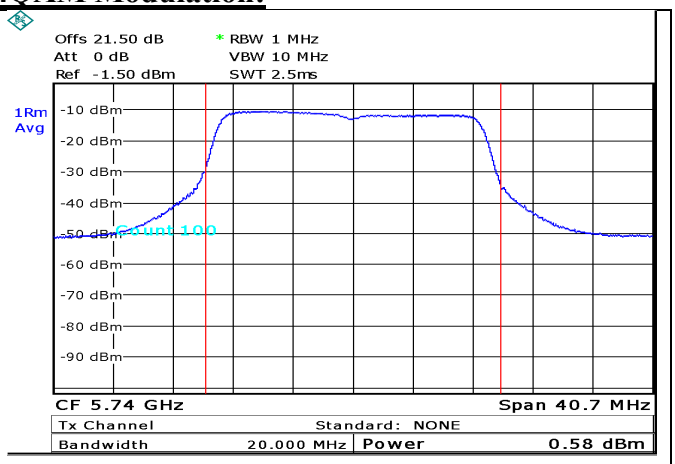


Figure 99. 5740.0MHz,20MHz BW, port2

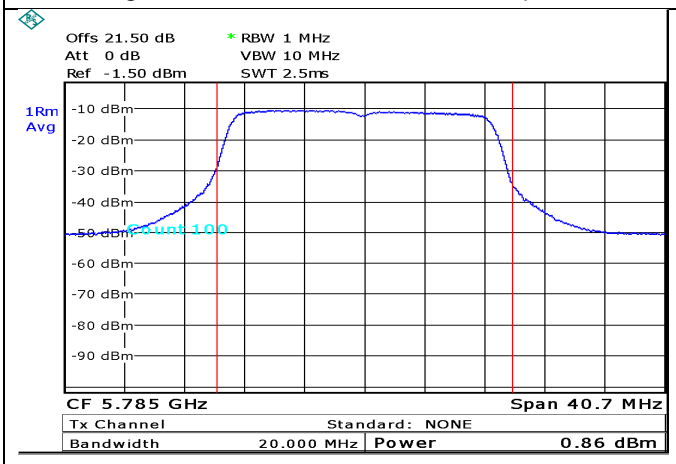


Figure 100. 5785.0MHz,20MHz BW, port1

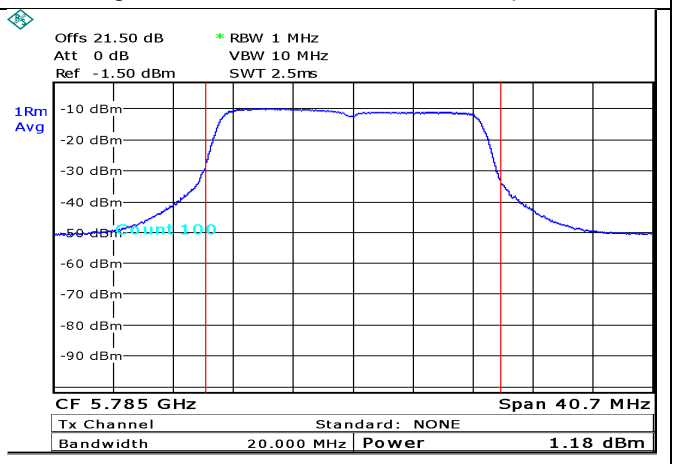


Figure 101. 5785.0MHz,20MHz BW, port2

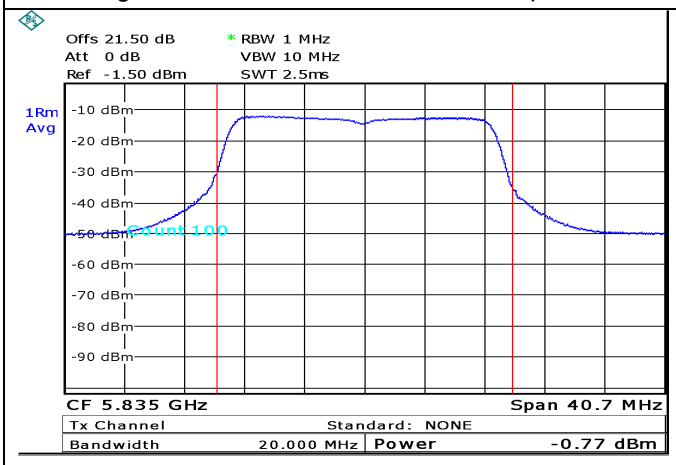


Figure 102. 5835.0MHz,20MHz BW, port1

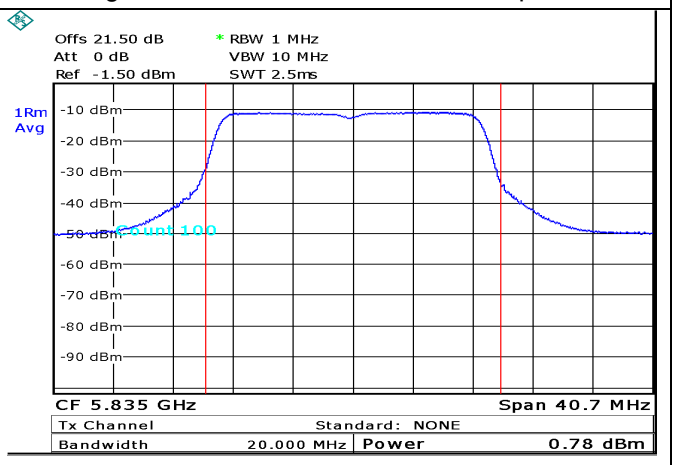


Figure 103. 5835.0MHz,20MHz BW, port2

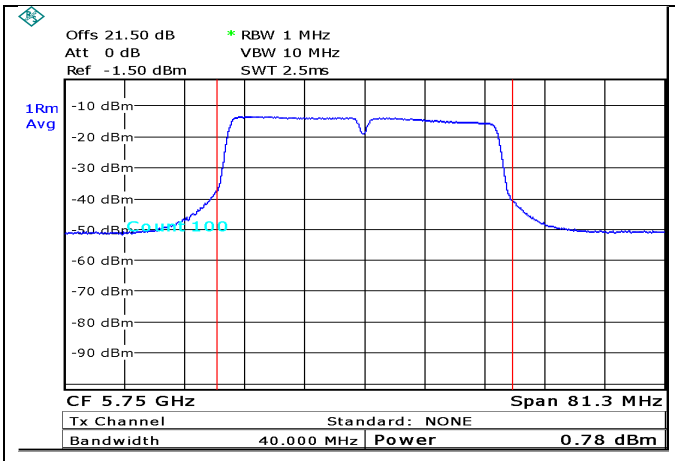


Figure 104. 5750.0MHz,40MHz BW, port1

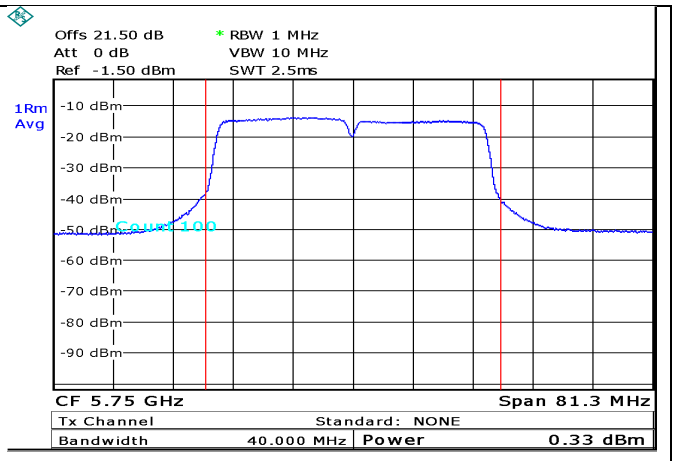


Figure 105. 5750.0MHz,40MHz BW, port2

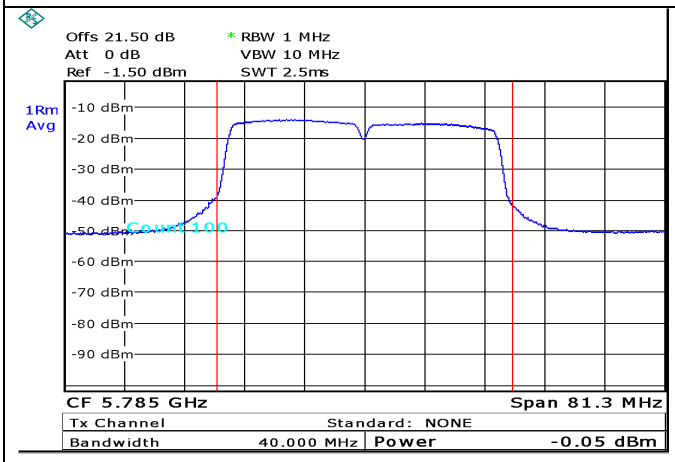


Figure 106. 5785.0MHz,40MHz BW, port1

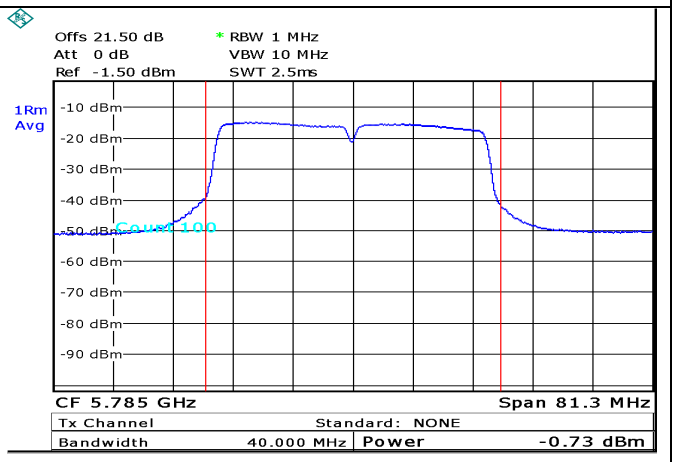


Figure 107. 5785.0MHz,40MHz BW, port2

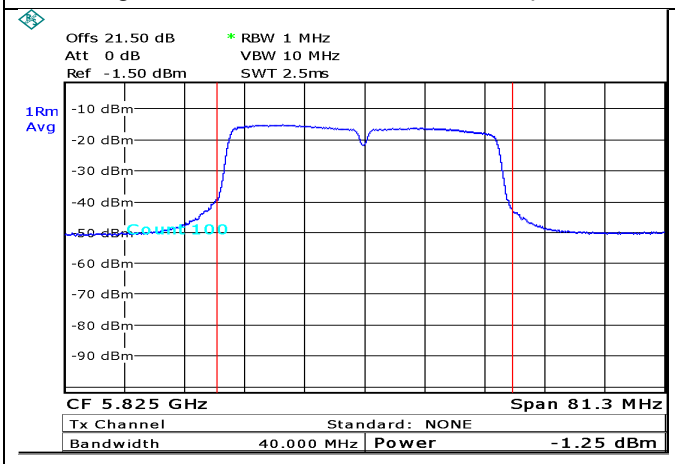


Figure 108. 5825.0MHz,40MHz BW, port1

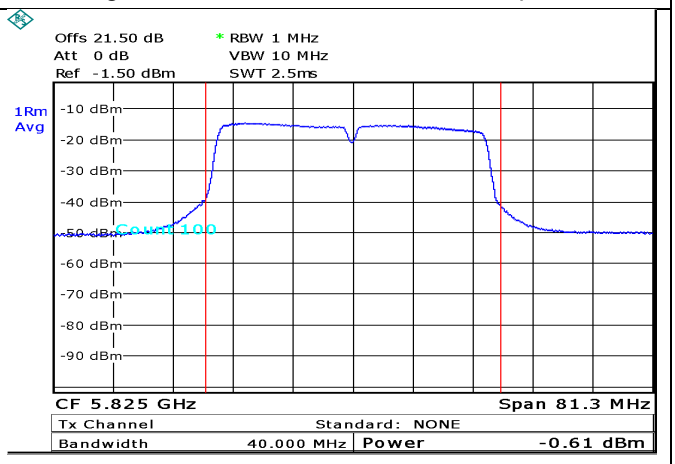


Figure 109. 5825.0MHz,40MHz BW, port2

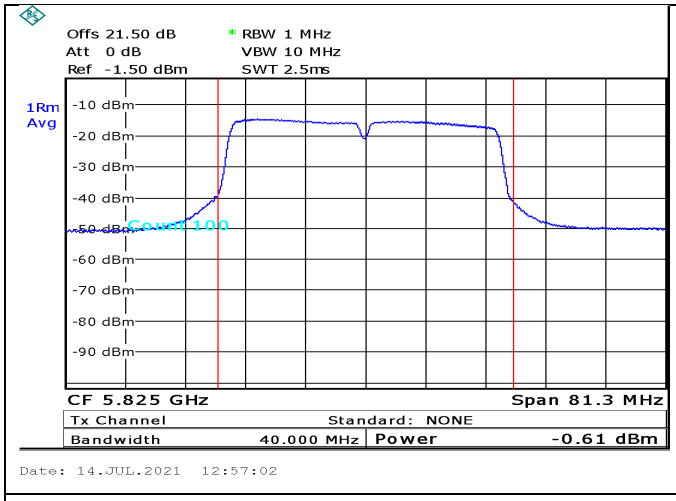


Figure 110. 5770.0MHz,80MHz BW, port1

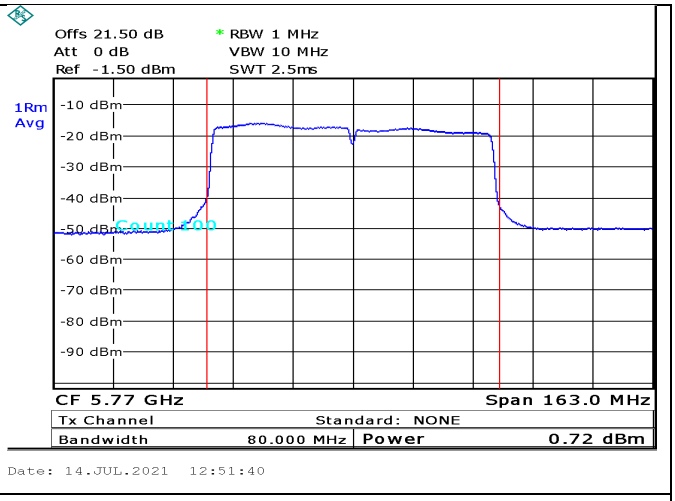


Figure 111. 5770.0MHz,80MHz BW, port2

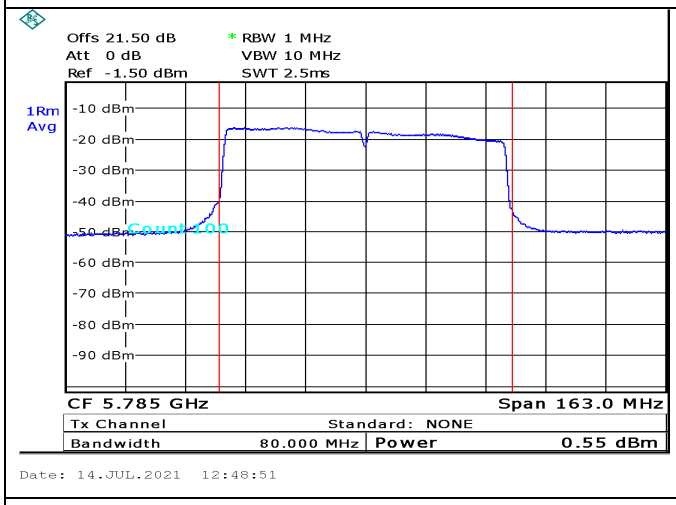


Figure 112. 5785.0MHz,80MHz BW, port1

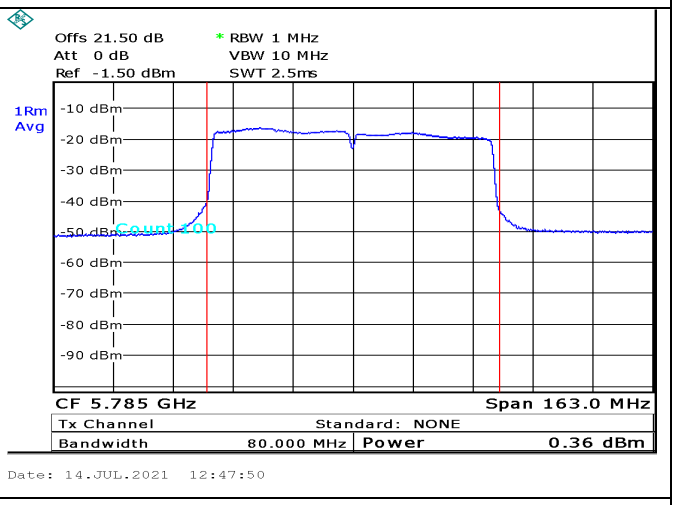


Figure 113. 5785.0MHz,80MHz BW, port2

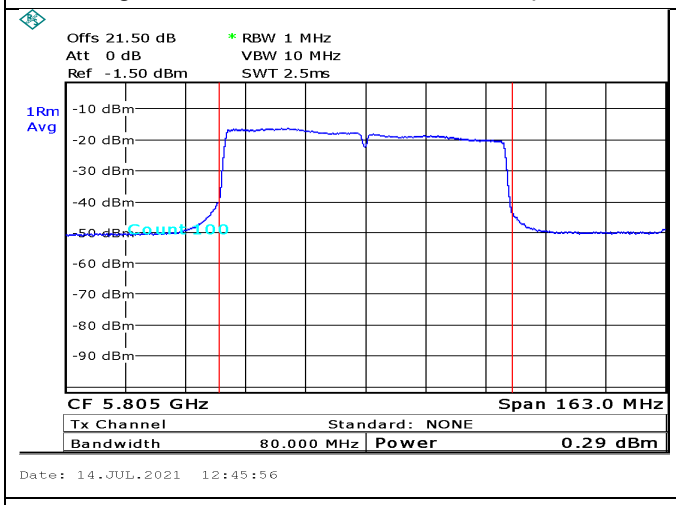


Figure 114. 5805.0MHz,80MHz BW, port1

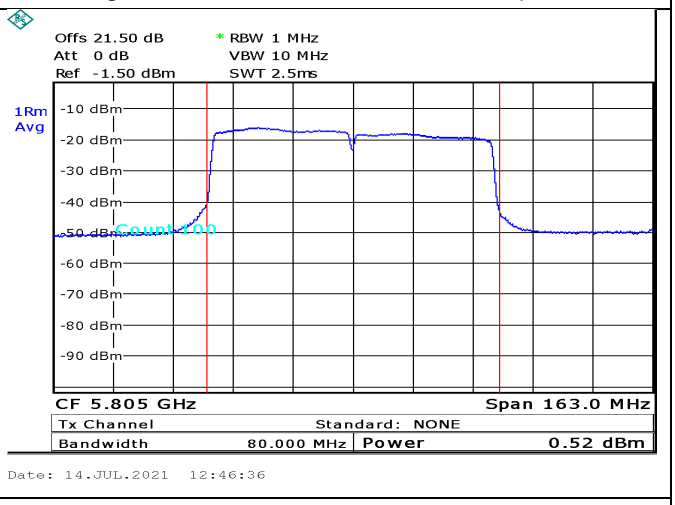


Figure 115. 5805.0MHz,80MHz BW, port2

Fixed Point to Multipoint mode, 30dBi AG, 256QAM Modulation:

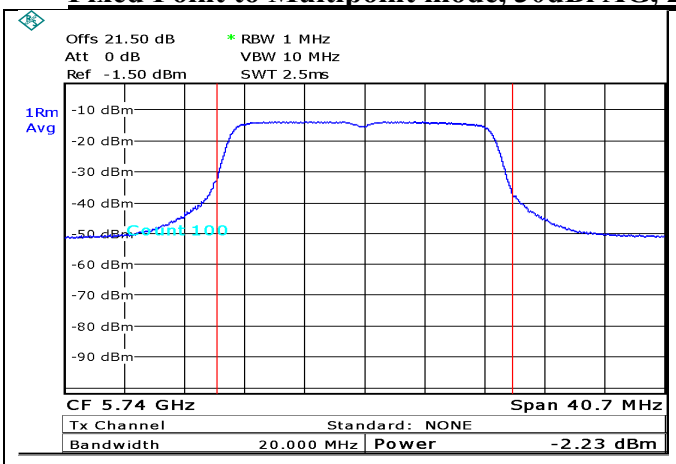


Figure 116. 5740.0MHz,20MHz BW, port1

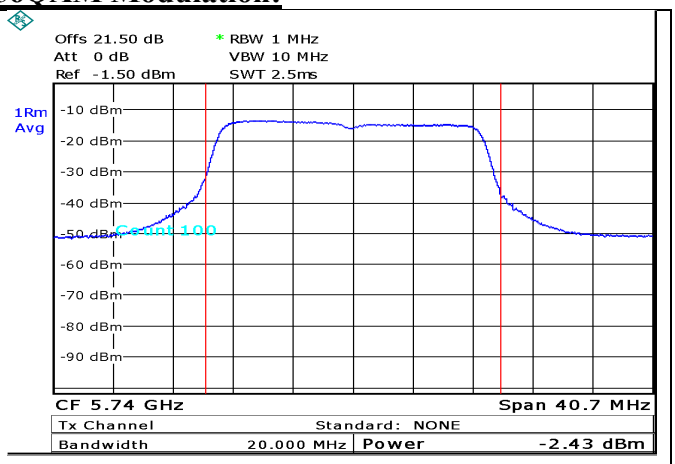


Figure 117. 5740.0MHz,20MHz BW, port2

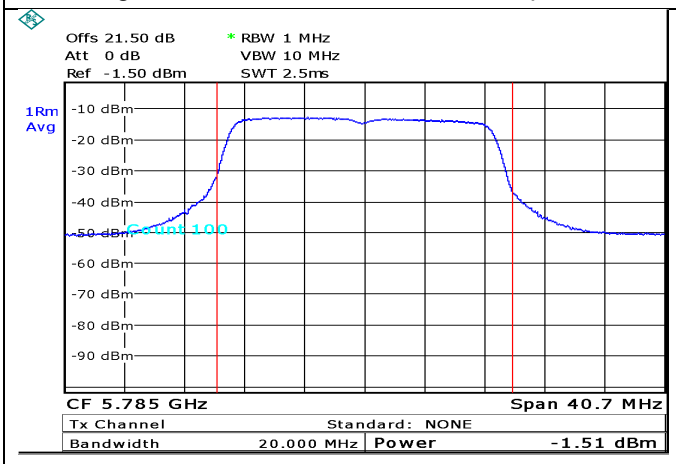


Figure 118. 5785.0MHz,20MHz BW, port1

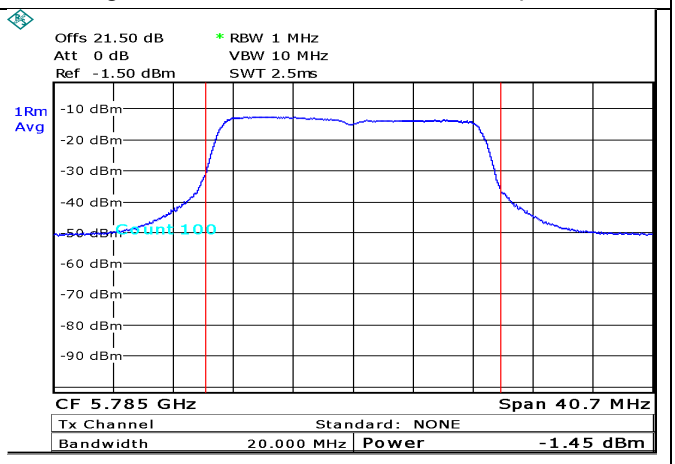


Figure 119. 5785.0MHz,20MHz BW, port2

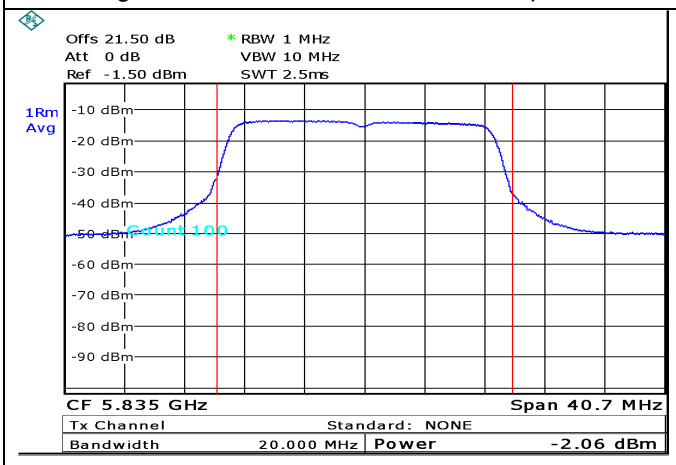


Figure 120. 5835.0MHz,20MHz BW, port1

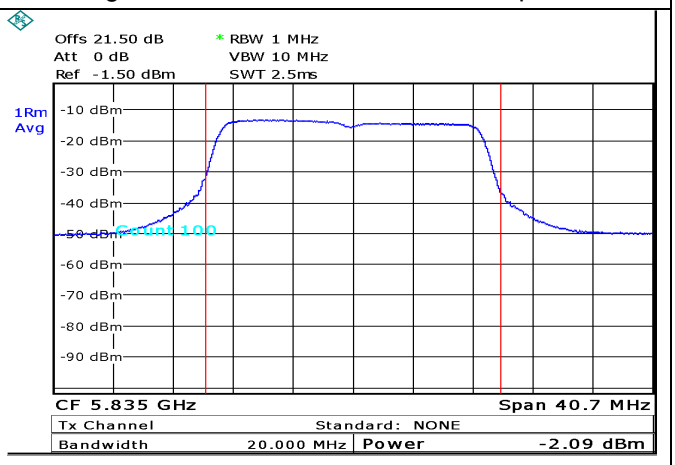


Figure 121. 5835.0MHz,20MHz BW, port2

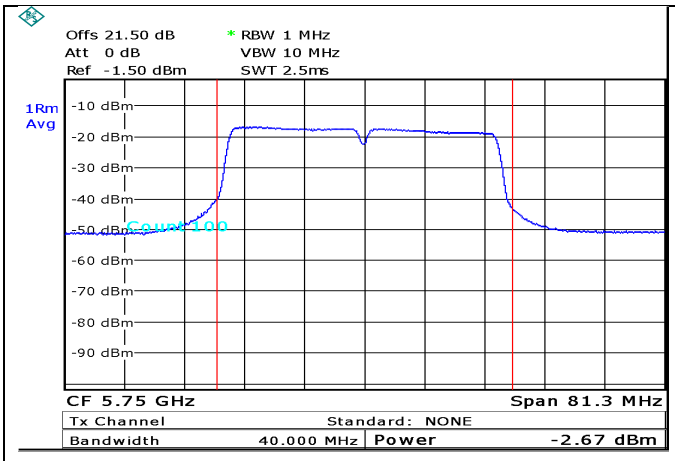


Figure 122. 5750.0MHz,40MHz BW, port1

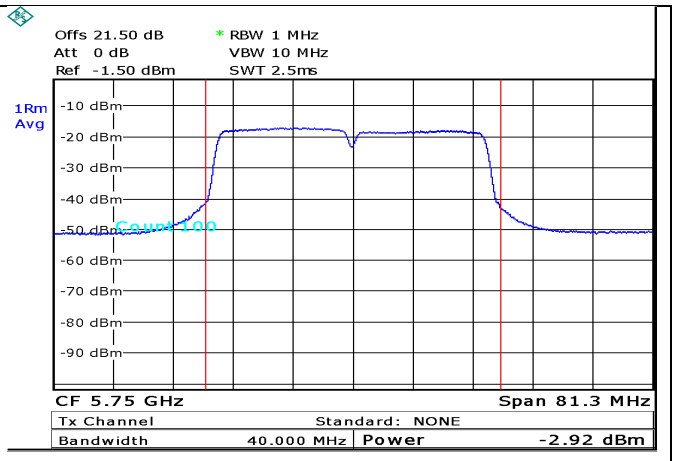


Figure 123. 5750.0MHz,40MHz BW, port2

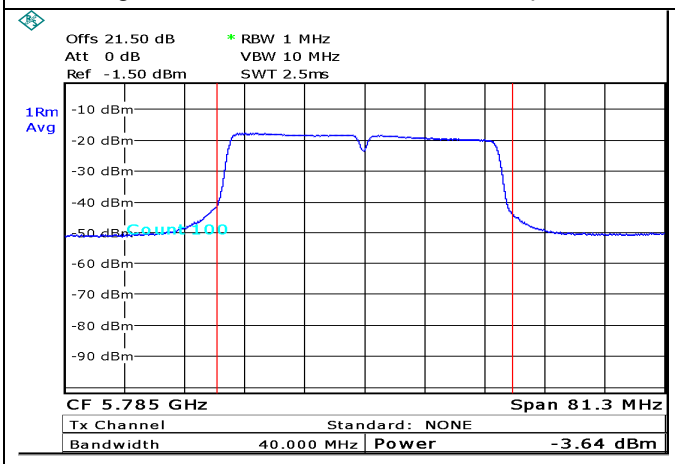


Figure 124. 5785.0MHz,40MHz BW, port1

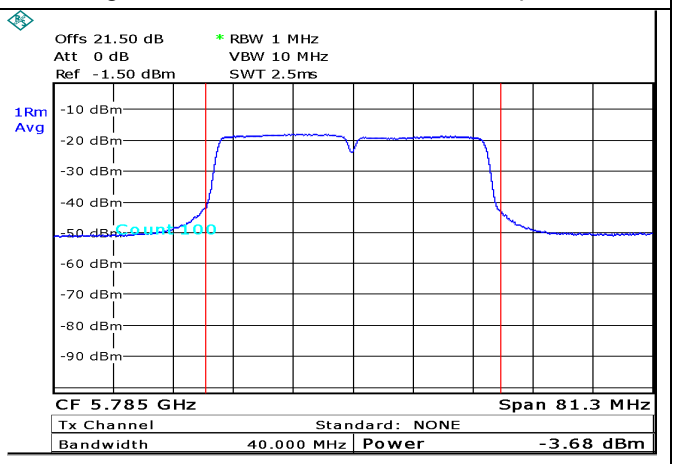


Figure 125. 5785.0MHz,40MHz BW, port2

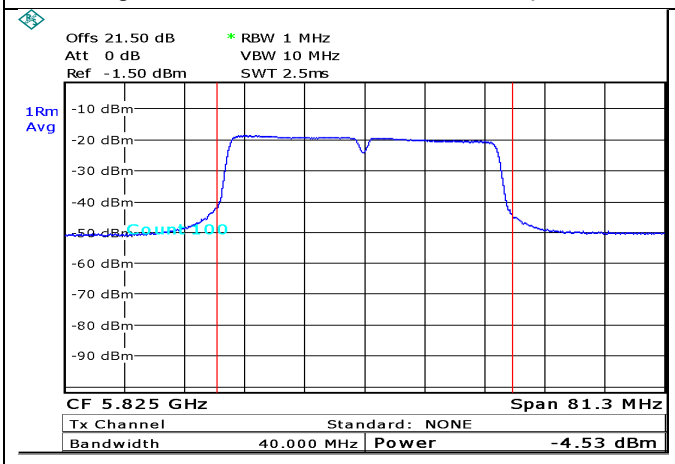


Figure 126. 5825.0MHz,40MHz BW, port1

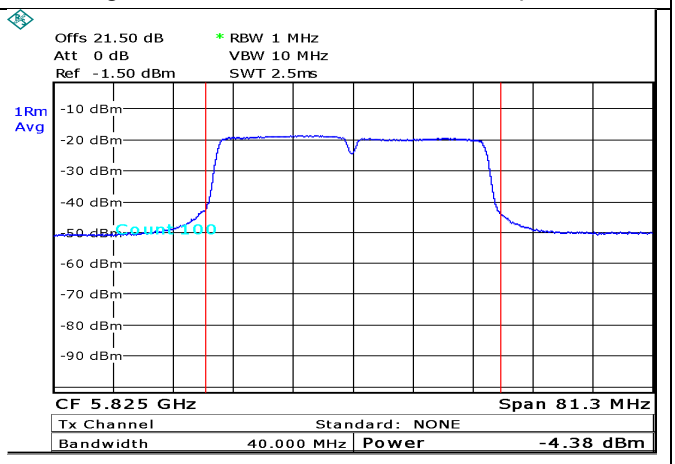


Figure 127. 5825.0MHz,40MHz BW, port2

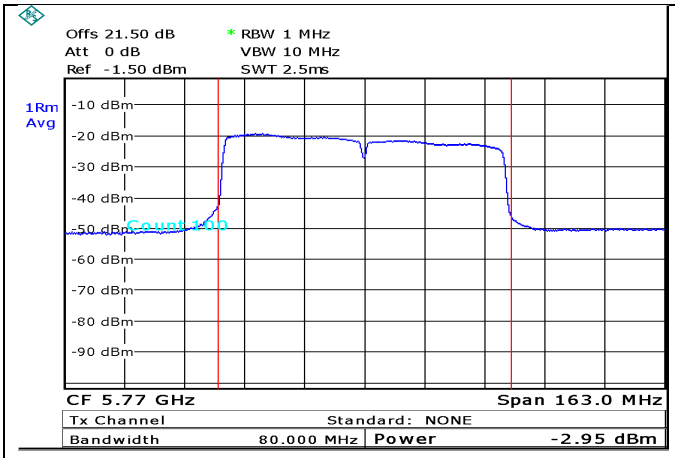


Figure 128. 5770.0MHz,80MHz BW, port1

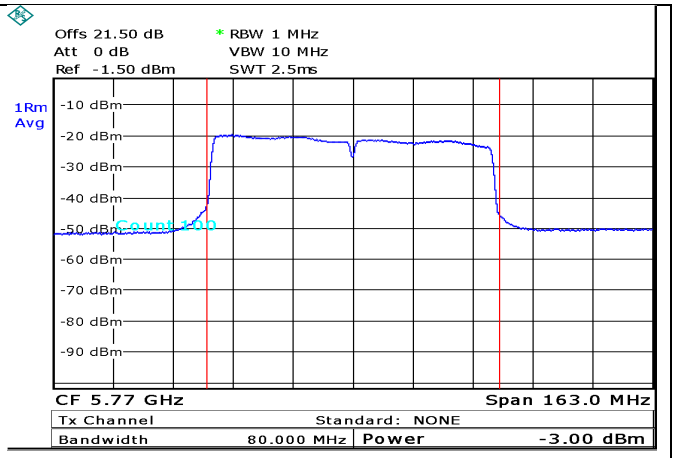


Figure 129. 5770.0MHz,80MHz BW, port2

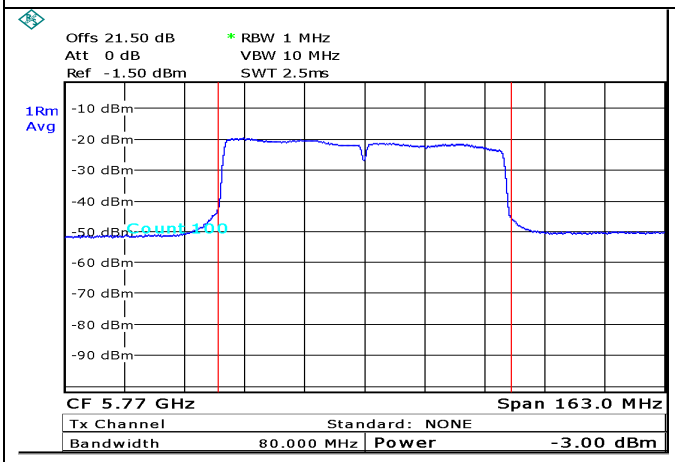


Figure 130. 5785.0MHz,80MHz BW, port1

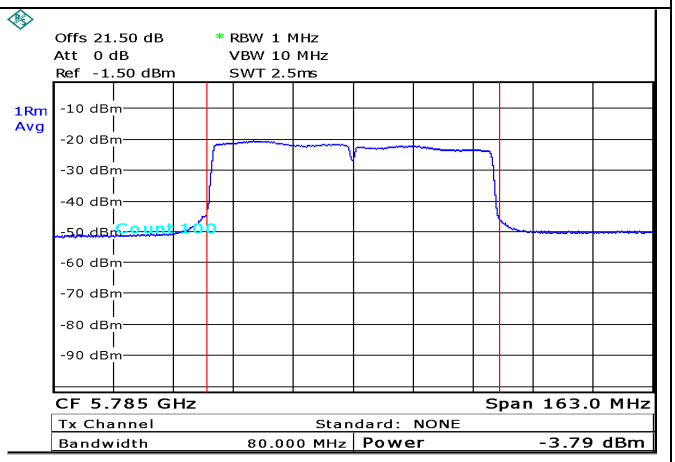


Figure 131. 5785.0MHz,80MHz BW, port2

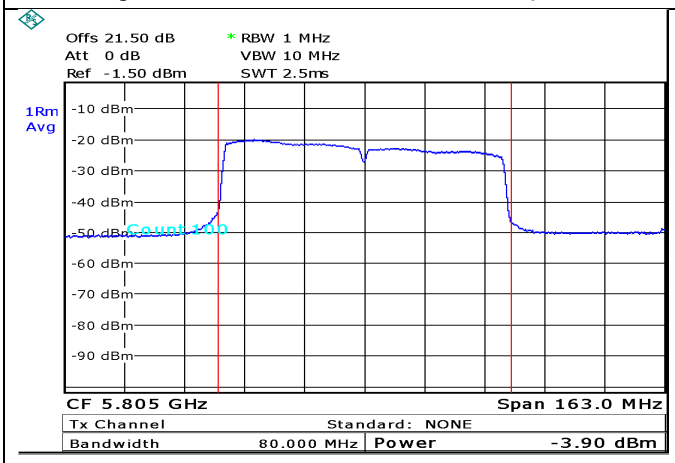


Figure 132. 5805.0MHz,80MHz BW, port1

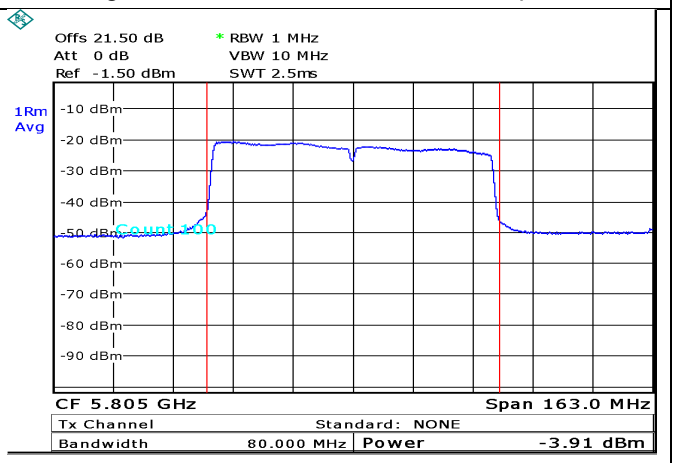


Figure 133. 5805.0MHz,80MHz BW, port2

Fixed Point to Point mode, 23dBi/30dBi AG, QPSK Modulation:

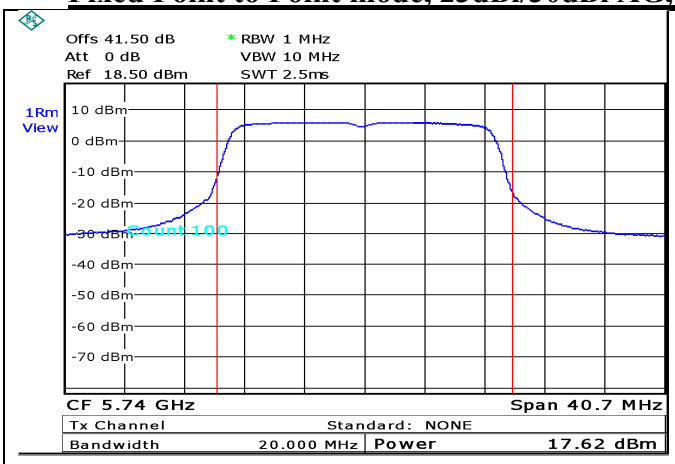


Figure 134. 5740.0MHz,20MHz BW, port1

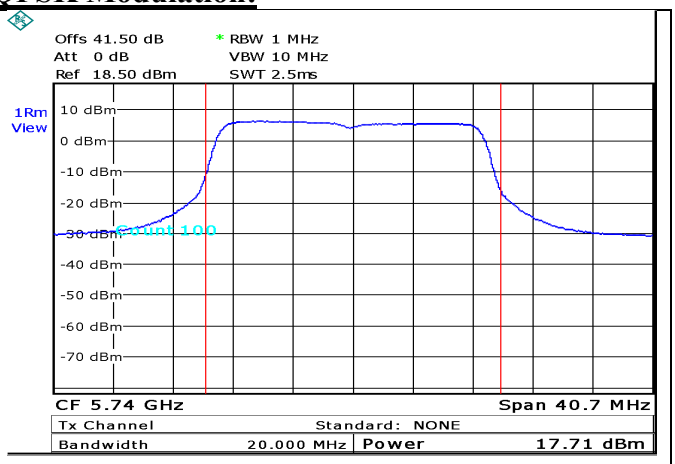


Figure 135. 5740.0MHz,20MHz BW, port2

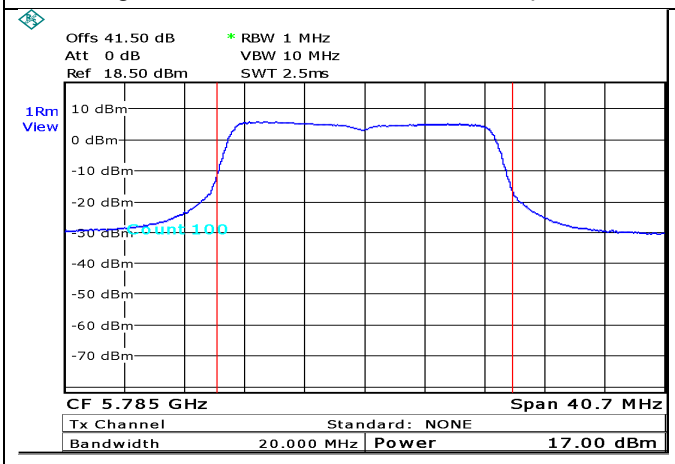


Figure 136. 5785.0MHz,20MHz BW, port1

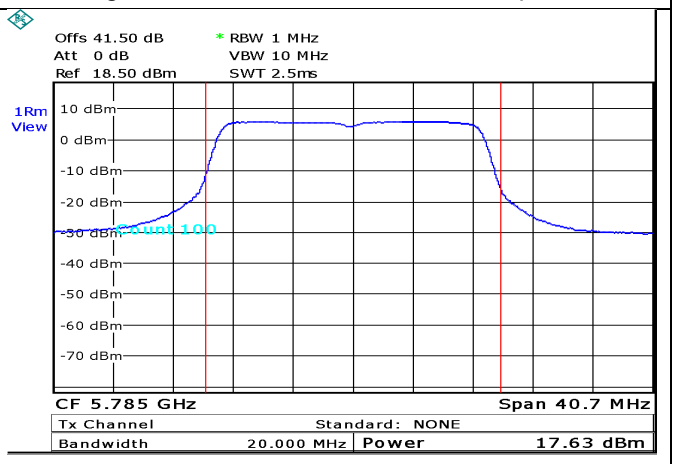


Figure 137. 5785.0MHz,20MHz BW, port2

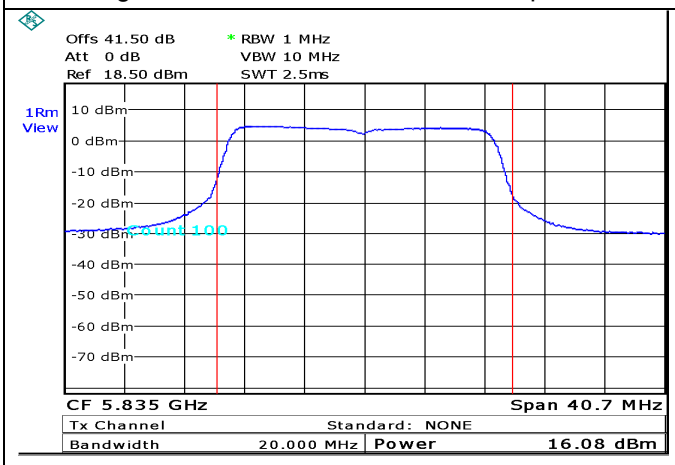


Figure 138. 5835.0MHz,20MHz BW, port1

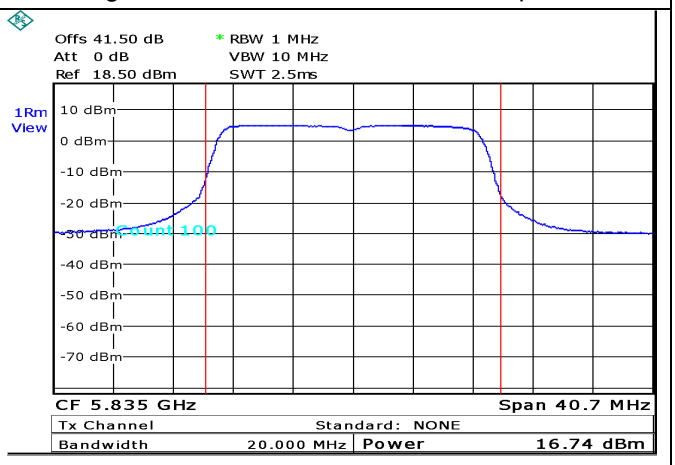


Figure 139. 5835.0MHz,20MHz BW, port2

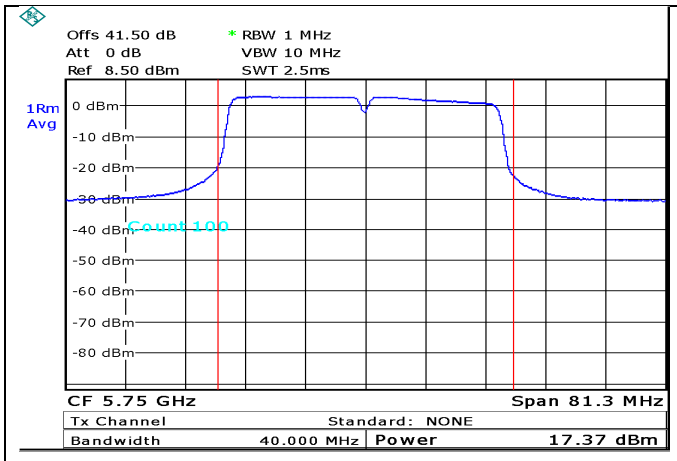


Figure 140. 5750.0MHz,40MHz BW, port1

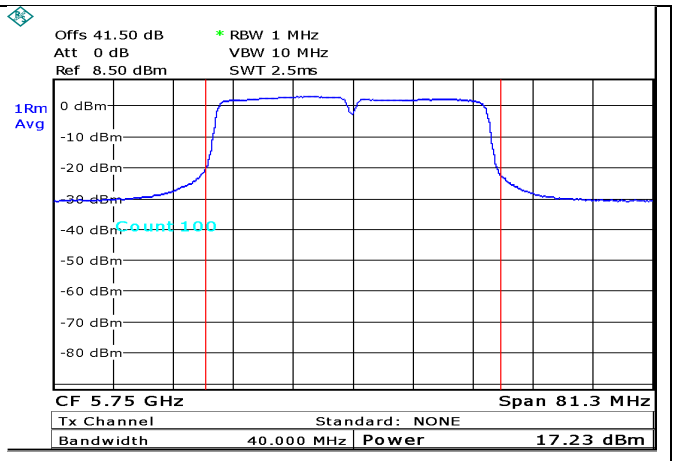


Figure 141. 5750.0MHz,40MHz BW, port2

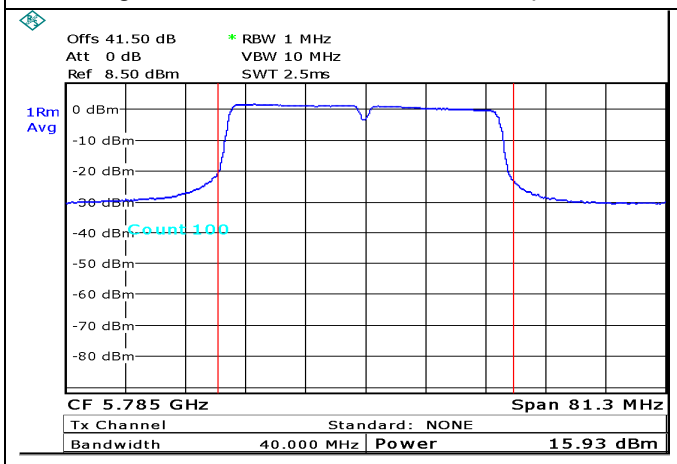


Figure 142. 5785.0MHz,40MHz BW, port1

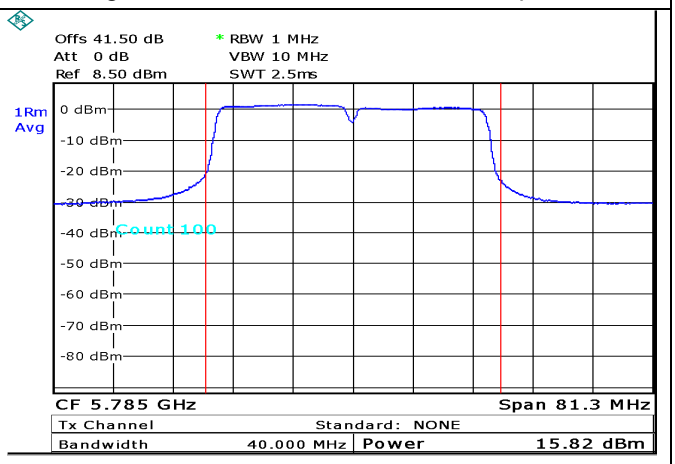


Figure 143. 5785.0MHz,40MHz BW, port2

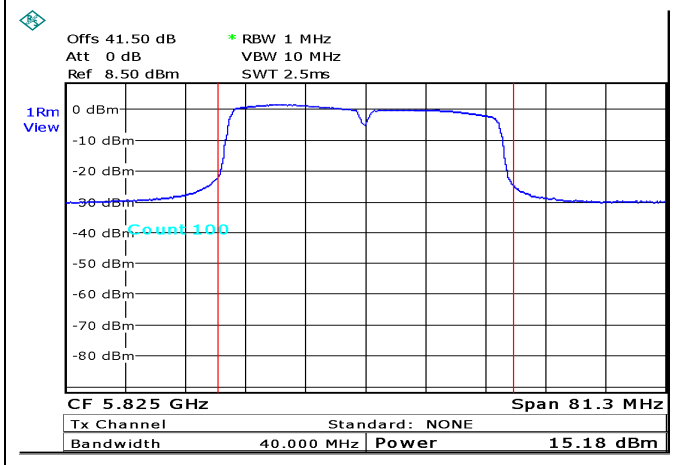


Figure 144. 5825.0MHz,40MHz BW, port1

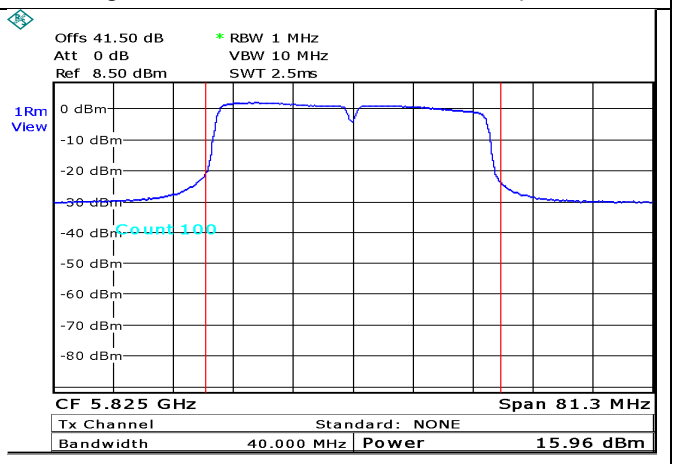


Figure 145. 5825.0MHz,40MHz BW, port2

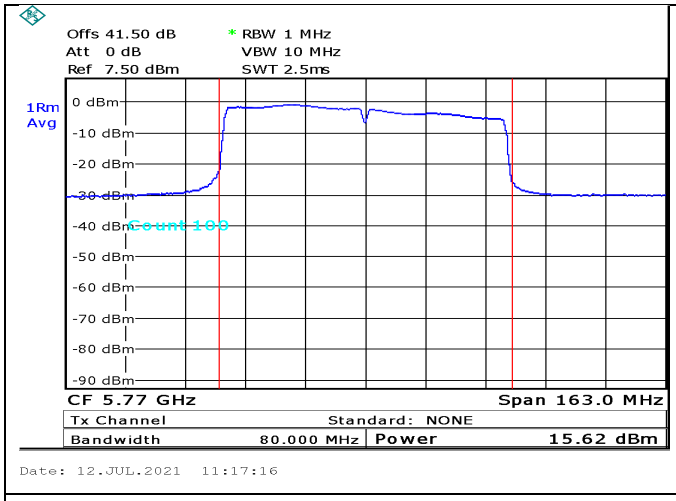


Figure 146. 5770.0MHz,80MHz BW, port1

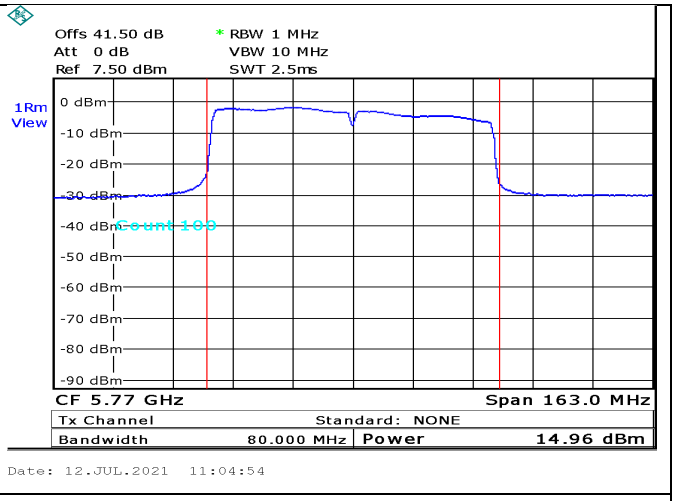


Figure 147. 5770.0MHz,80MHz BW, port2

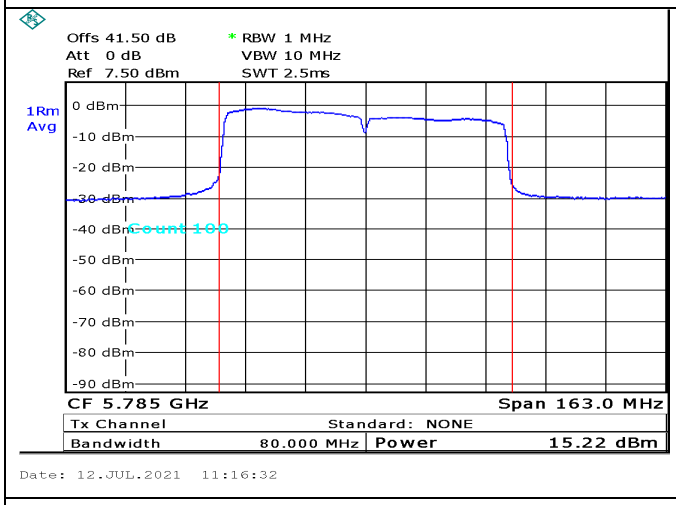


Figure 148. 5785.0MHz,80MHz BW, port1

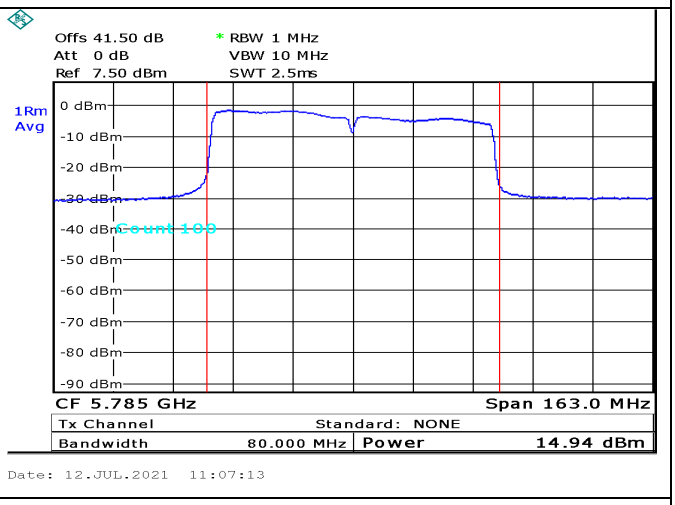


Figure 149. 5785.0MHz,80MHz BW, port2

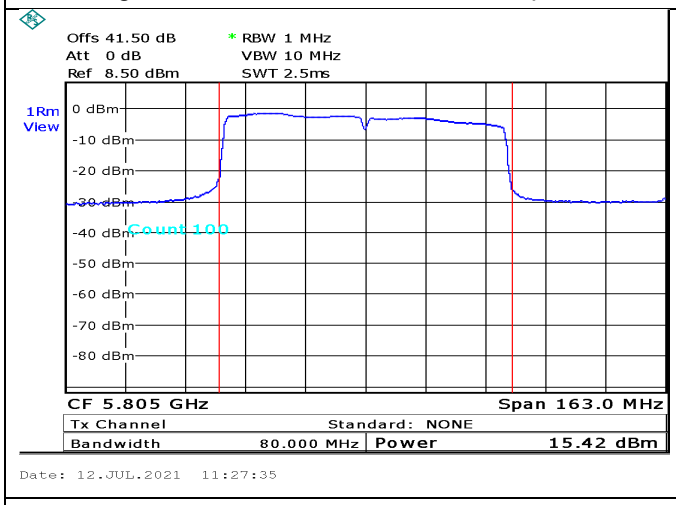


Figure 150. 5805.0MHz,80MHz BW, port1

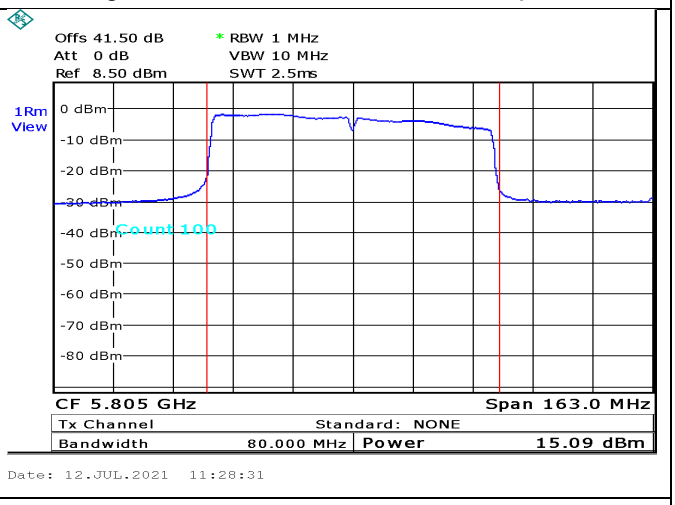


Figure 151. 5805.0MHz,80MHz BW, port2

Fixed Point to Point mode, 23dBi/30dBi AG, 64QAM Modulation:

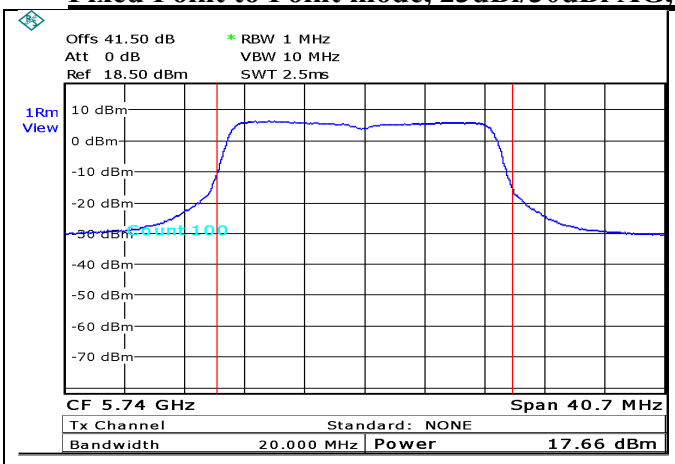


Figure 152. 5740.0MHz,20MHz BW, port1

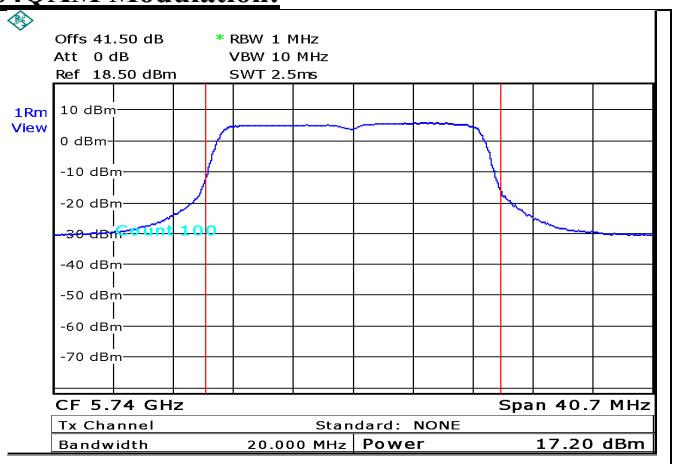


Figure 153. 5740.0MHz,20MHz BW, port2

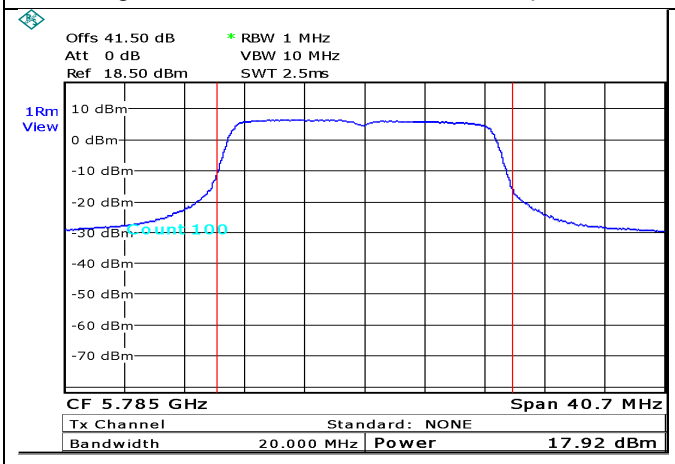


Figure 154. 5785.0MHz,20MHz BW, port1

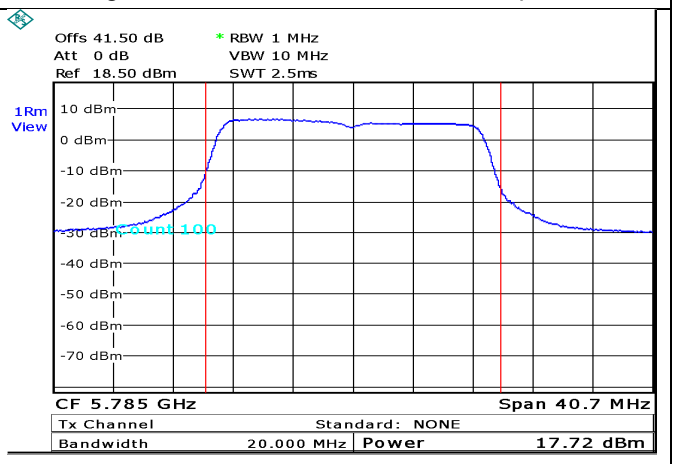


Figure 155. 5785.0MHz,20MHz BW, port2

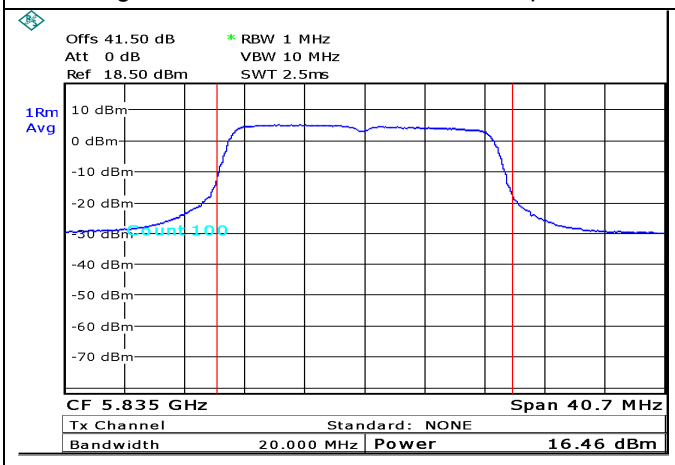


Figure 156. 5835.0MHz,20MHz BW, port1

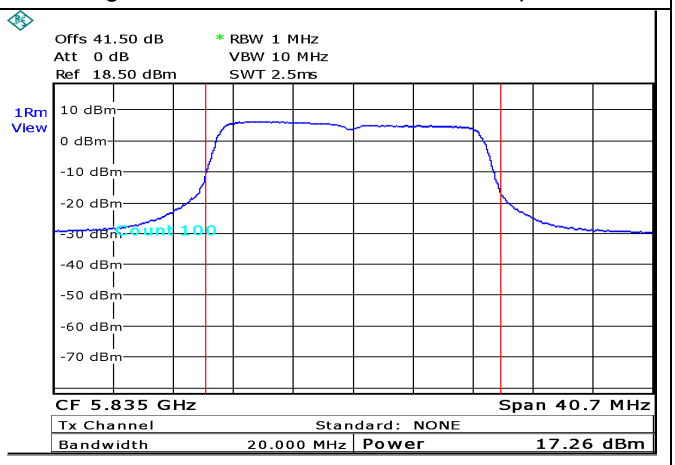


Figure 157. 5835.0MHz,20MHz BW, port2

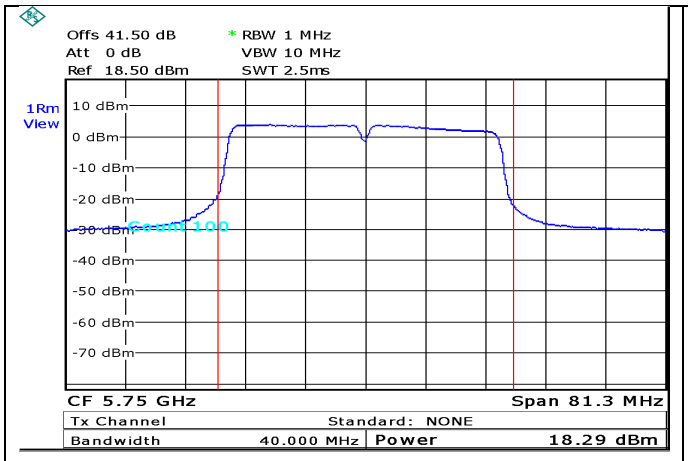


Figure 158. 5750.0MHz,40MHz BW, port1

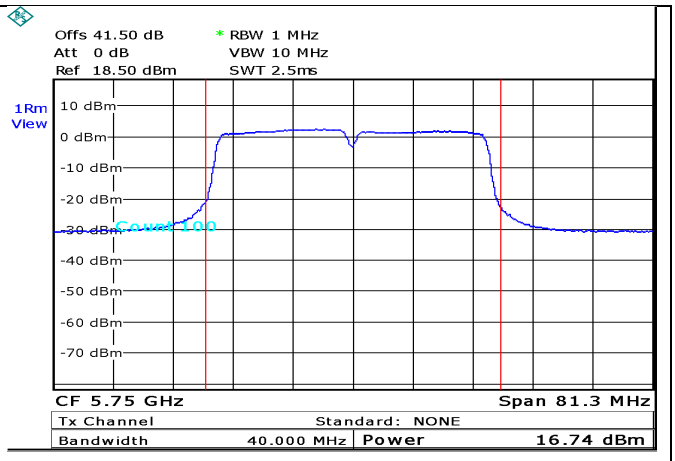


Figure 159. 5750.0MHz,40MHz BW, port2

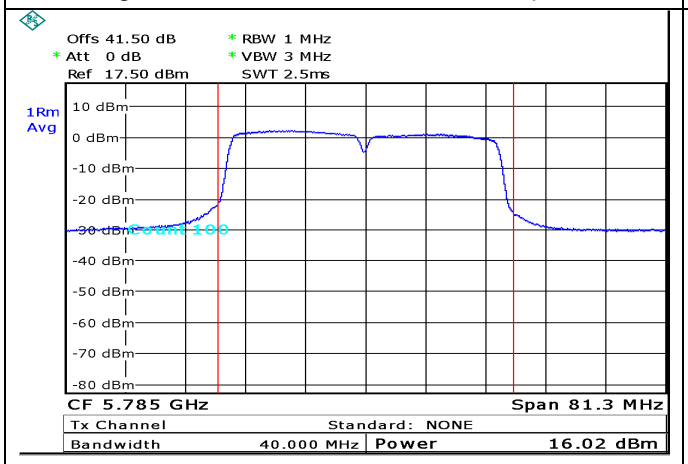


Figure 160. 5785.0MHz,40MHz BW, port1

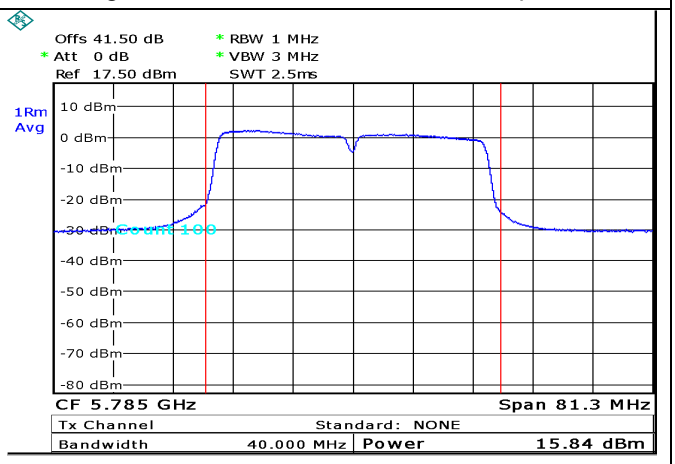


Figure 161. 5785.0MHz,40MHz BW, port2

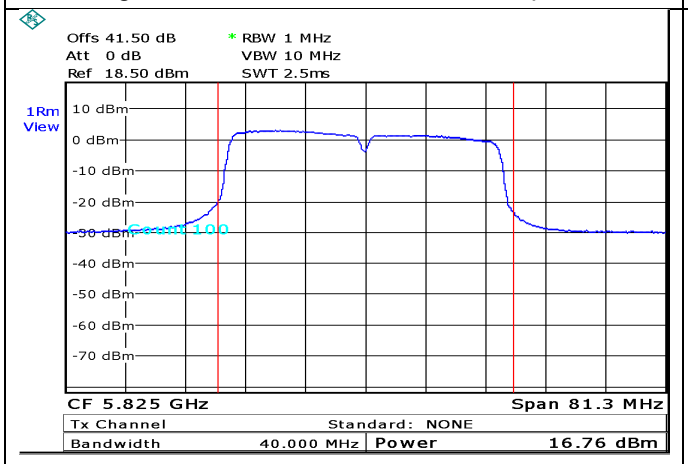


Figure 162. 5825.0MHz,40MHz BW, port1

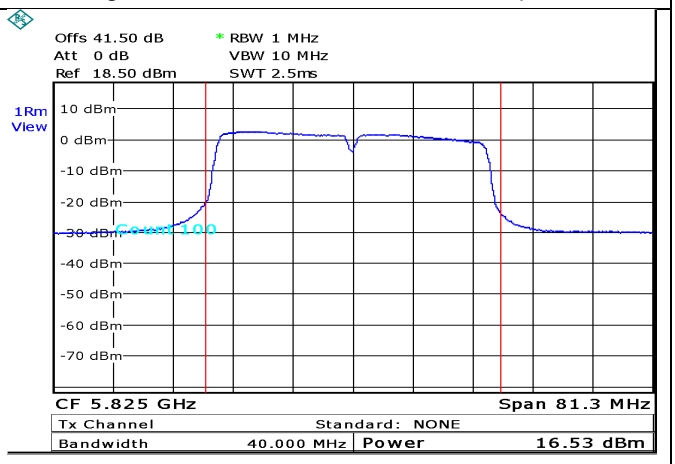


Figure 163. 5825.0MHz,40MHz BW, port2

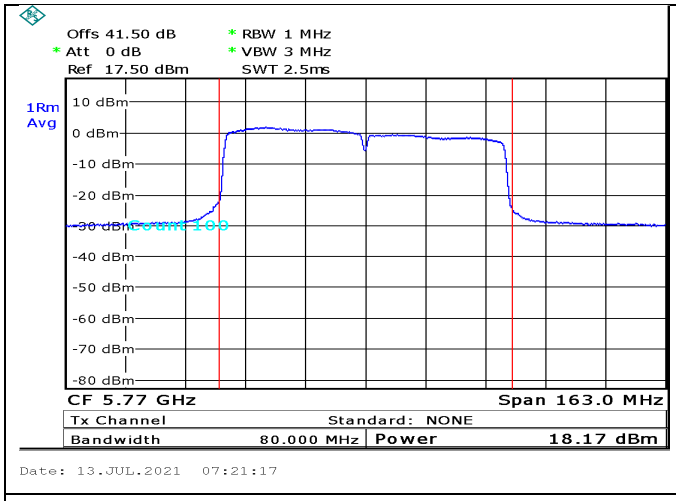


Figure 164. 5770.0MHz,80MHz BW, port1

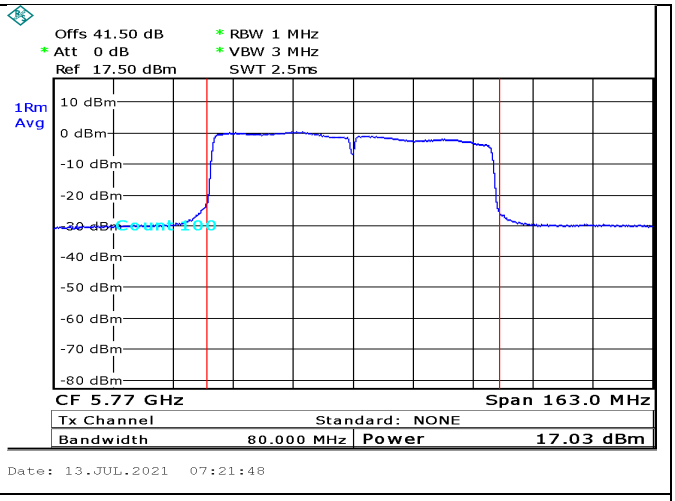


Figure 165. 5770.0MHz,80MHz BW, port2

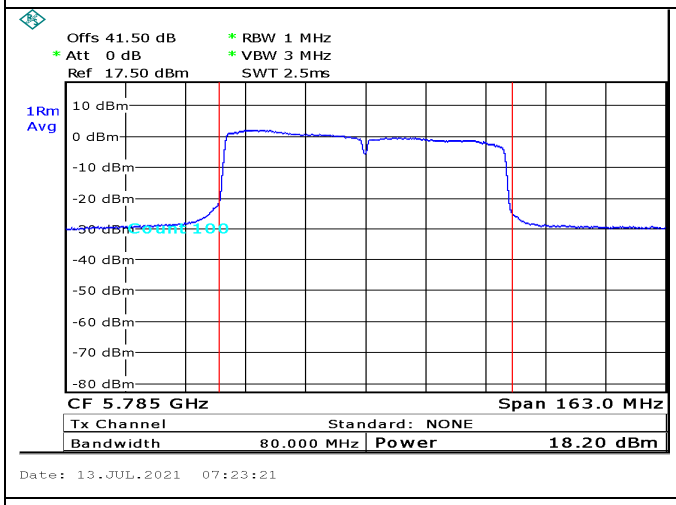


Figure 166. 5785.0MHz,80MHz BW, port1

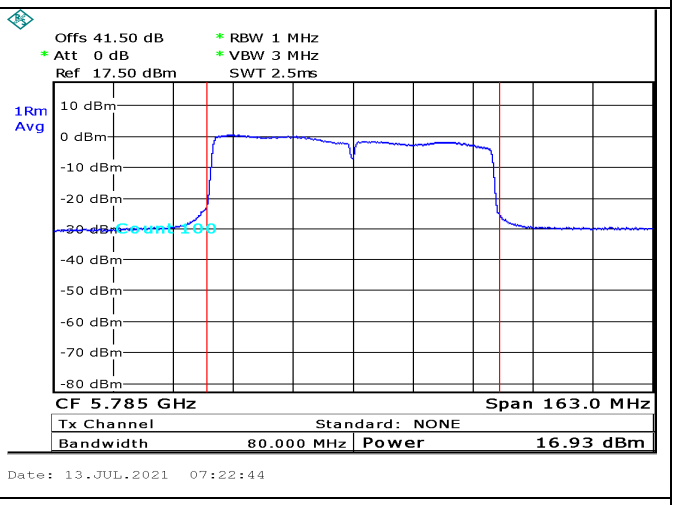


Figure 167. 5785.0MHz,80MHz BW, port2

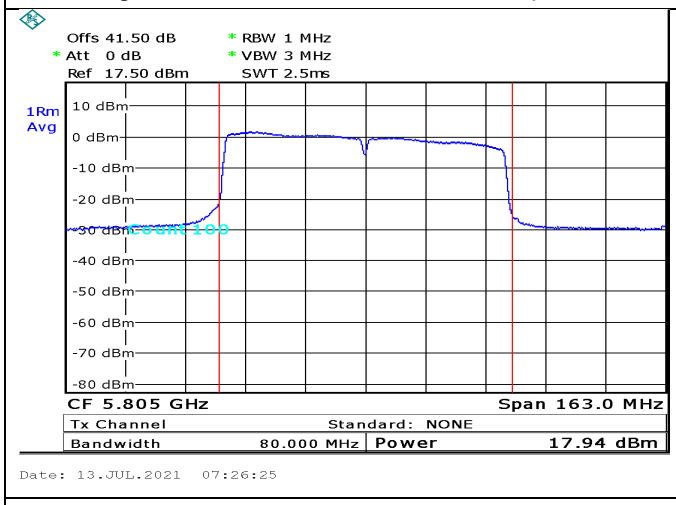


Figure 168. 5805.0MHz,80MHz BW, port1

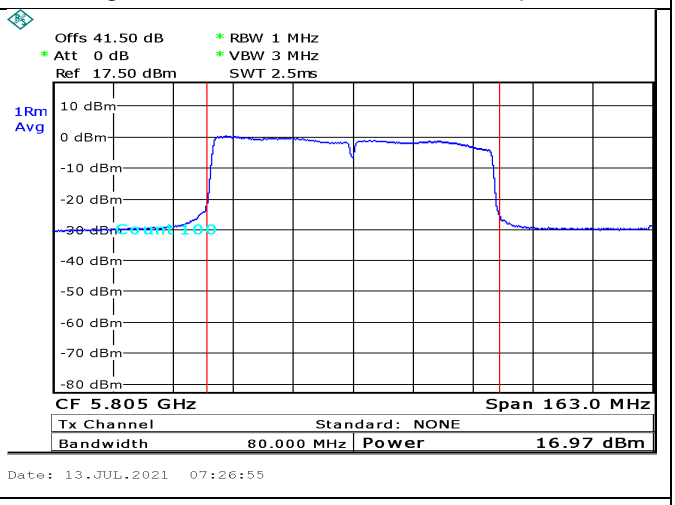


Figure 169. 5805.0MHz,80MHz BW, port2

Fixed Point to Point mode, 23dBi/30dBi AG, 256QAM Modulation:

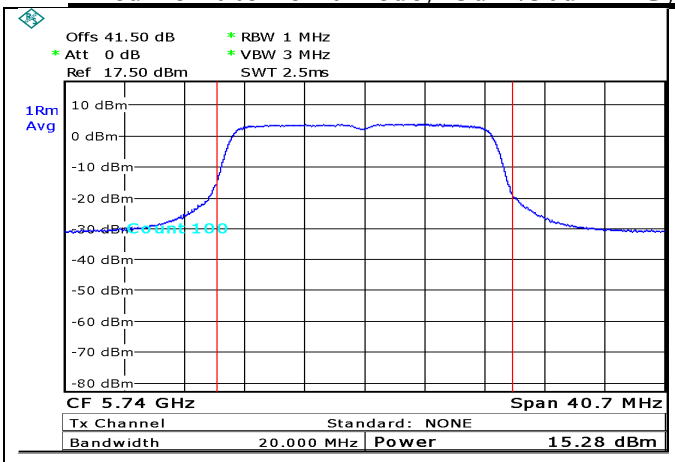


Figure 170. 5740.0MHz,20MHz BW, port1

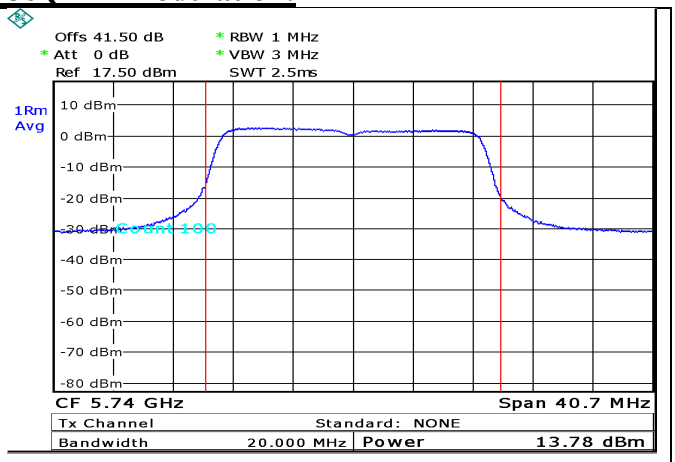


Figure 171. 5740.0MHz,20MHz BW, port2

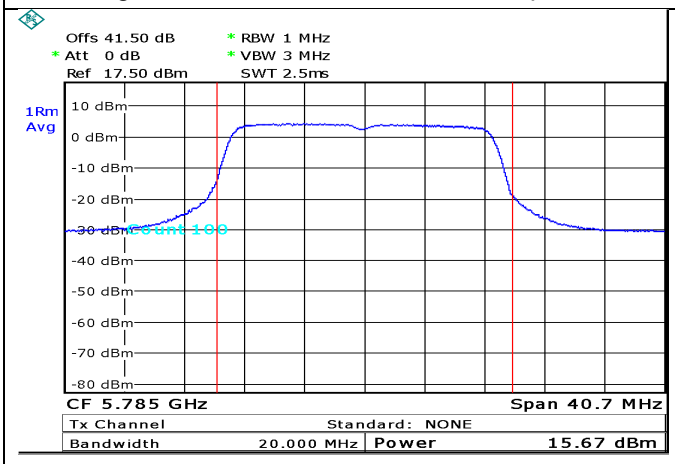


Figure 172. 5785.0MHz,20MHz BW, port1

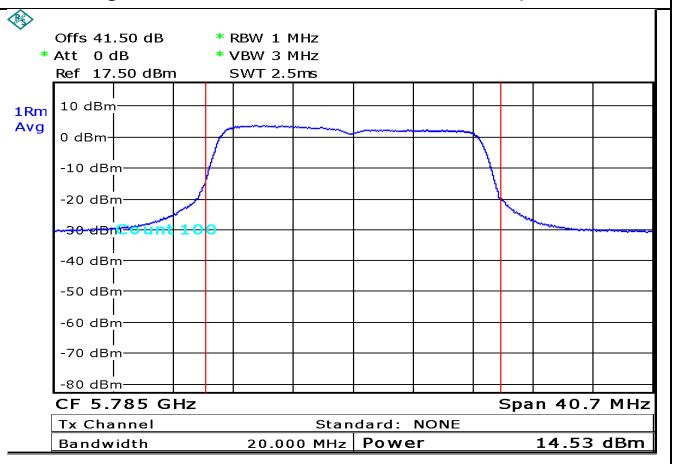


Figure 173. 5785.0MHz,20MHz BW, port2

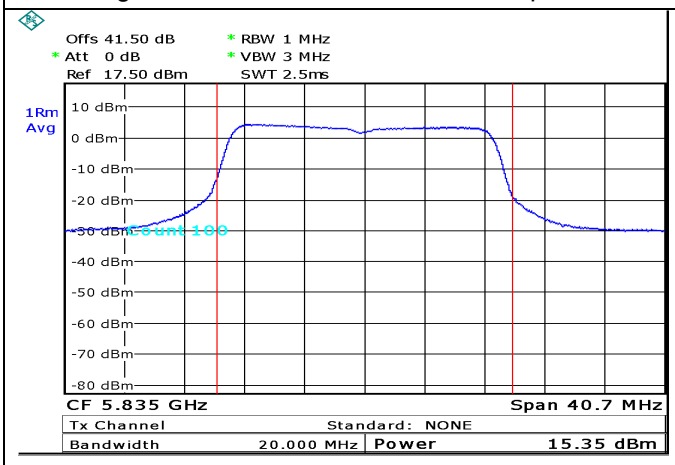


Figure 174. 5835.0MHz,20MHz BW, port1

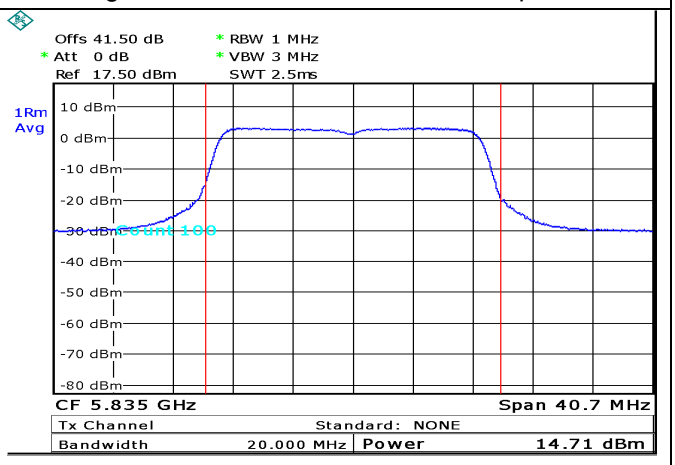


Figure 175. 5835.0MHz,20MHz BW, port2

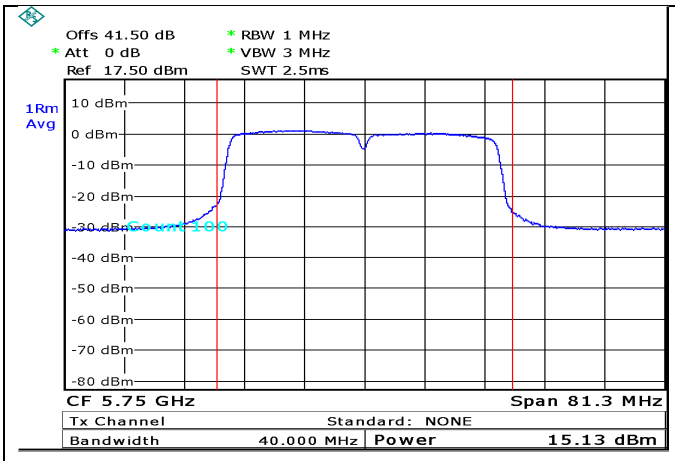


Figure 176. 5750.0MHz,40MHz BW, port1

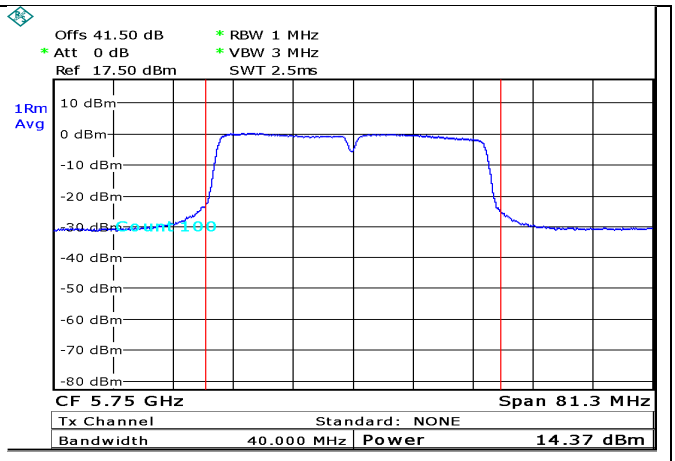


Figure 177. 5750.0MHz,40MHz BW, port2

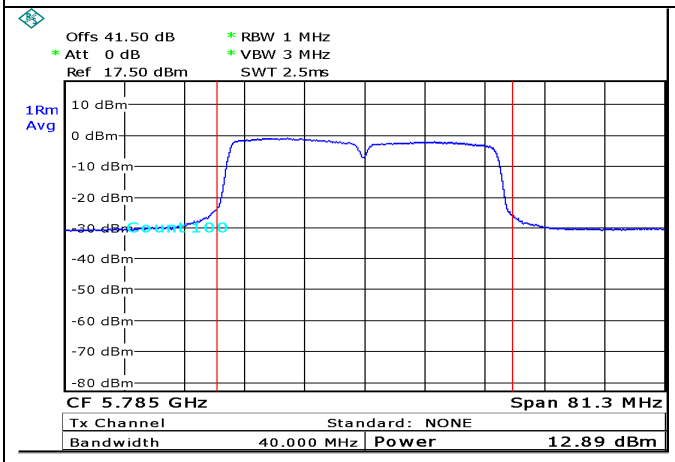


Figure 178. 5785.0MHz,40MHz BW, port1

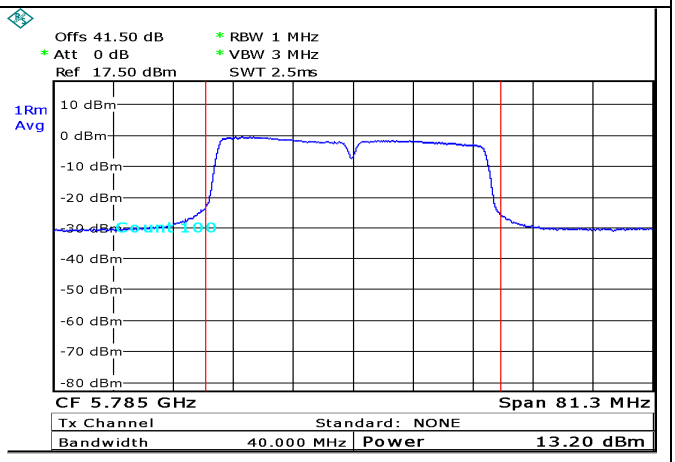


Figure 179. 5785.0MHz,40MHz BW, port2

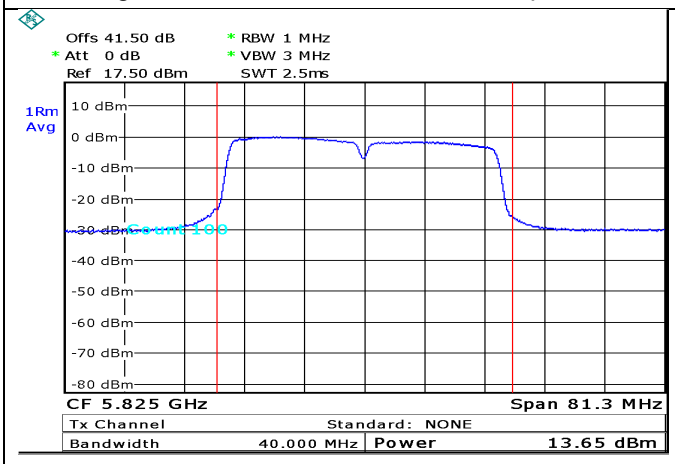


Figure 180. 5825.0MHz,40MHz BW, port1

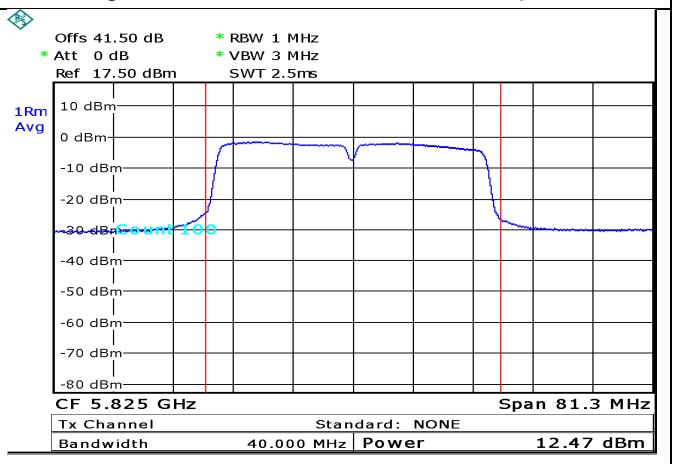


Figure 181. 5825.0MHz,40MHz BW, port2

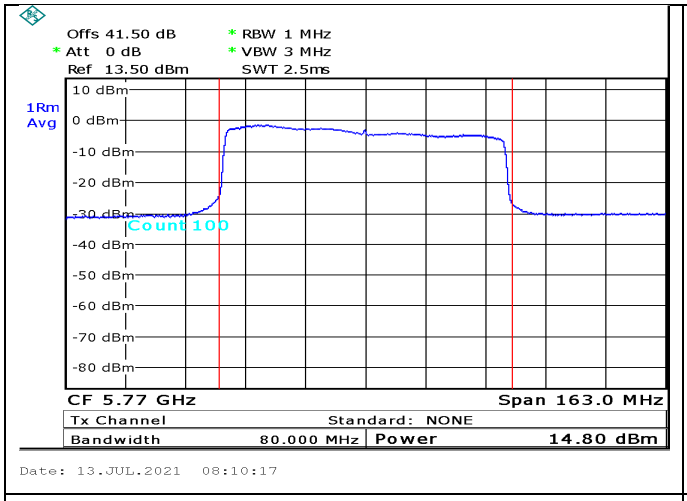


Figure 182. 5770.0MHz,80MHz BW, port1

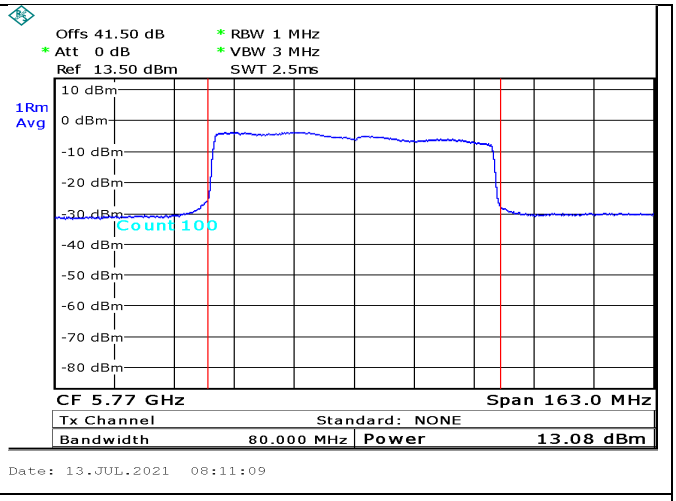


Figure 183. 5770.0MHz,80MHz BW, port2

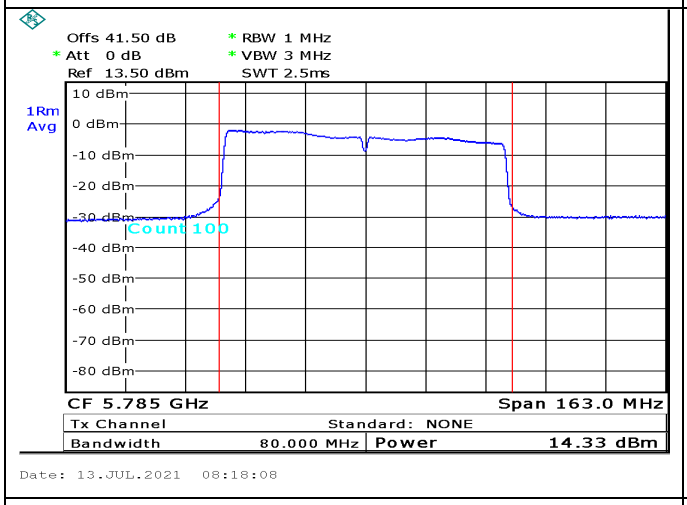


Figure 184. 5785.0MHz,80MHz BW, port1

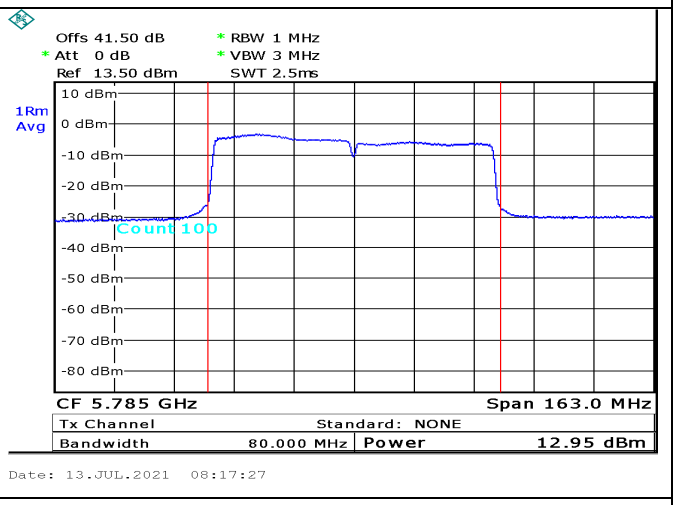


Figure 185. 5785.0MHz,80MHz BW, port2

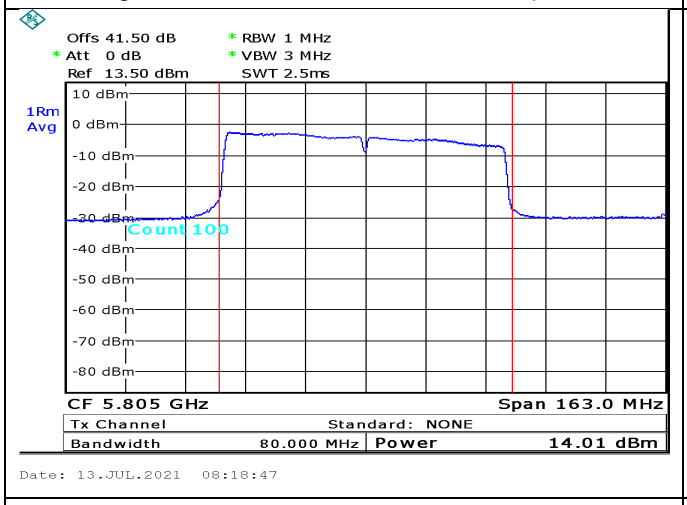


Figure 186. 5805.0MHz,80MHz BW, port1

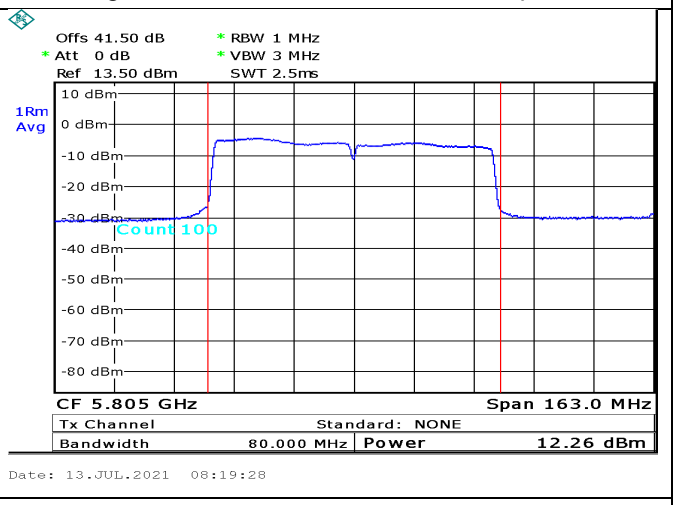


Figure 187. 5805.0MHz,80MHz BW, port2

5.2 Test Equipment Used; Maximum Peak Power Output

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Next Calibration Due
Spectrum Analyzer	Rohde & Schwarz	FSL6	100194	February 23, 2021	February 23, 2022
Low Loss cable	Huber Shunner	Sucofelex	27504/4PEA	May 23, 2021	May 23, 2022
30 dB attenuator	MCL	BW-S30W5	533	May 23, 2021	May 23, 2022

Figure 188 Test Equipment Used

6. Maximum Power Spectral Density (PSD)

6.1 Test Specification

FCC, Part 15, Subpart E, Section 407(a)(3)

RSS 247, Issue 2, Section 6.2.4

6.2 Test Procedure

(Temperature (22°C)/ Humidity (56%RH))

The E.U.T operation mode and test set-up are as described in Section 2 of this report. The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator and an appropriate coaxial cable (total loss= 31.5dB). Special attention was taken to prevent Spectrum Analyzer RF input overload. Spectrum setting done according KDB 789033 d02 v01instructions (section F).

6.3 FCC and ISED Test Limit

In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.4 Test Results for PSD Fixed Point to Multipoint

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-21.55	-20.36	-10.91	30.0	-40.9
	5785.0	-21.7	-21.1	-11.4	30.0	-41.4
	5835.0	-23.1	-22.5	-12.8	30.0	-42.8
40.0	5750.0	-24.5	-24.1	-14.3	30.0	-44.3
	5785.0	-25.4	-25.4	-15.4	30.0	-45.4
	5825.0	-27.0	-25.5	-16.2	30.0	-46.2
80.0	5770.0	-28.7	-27.9	-18.3	30.0	-48.3
	5785.0	-28.7	-28.1	-18.4	30.0	-48.4
	5805.0	-28.8	-28.5	-18.65	30.0	-48.65

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 189 Test Results, Fixed Point to Multipoint mode, QPSK Modulation, AG 30dBi

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-13.02	-12.7	-2.86	30.0	-32.86
	5785.0	-13.02	-12.02	-2.5	30.0	-32.5
	5835.0	-13.97	-12.9	-3.4	30.0	-33.4
40.0	5750.0	-16.35	-15.4	-5.8	30.0	-35.8
	5785.0	-16.2	-16.4	-6.3	30.0	-36.3
	5825.0	-18.3	-16.9	-7.5	30.0	-37.5
80.0	5770.0	-19.5	-19.3	-9.4	30.0	-39.4
	5785.0	-18.4	-19.5	-8.9	30.0	-38.9
	5805.0	-20.3	-19.6	-9.9	30.0	-39.9

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 190 Test Results, Fixed Point to Multipoint mode, QPSK Modulation, AG 23dBi

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-21.37	-21.45	-11.41	30.0	-48.4
	5785.0	-20.66	-21.31	-10.97	30.0	-47.96
	5835.0	-21.53	-22.52	-12.0	30.0	-48.98
40.0	5750.0	-24.14	-24.15	-14.14	30.0	-51.13
	5785.0	-24.72	-26.03	-15.32	30.0	-52.31
	5825.0	-25.65	-24.82	-15.21	30.0	-52.2
80.0	5770.0	-28.39	-28.94	-18.66	30.0	-55.64
	5785.0	-27.65	-27.56	-17.6	30.0	-54.6
	5805.0	-26.48	-27.32	-16.88	30.0	-53.87

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 191 Test Results, Fixed Point to Multipoint mode, 64QAM Modulation, AG 30dBi

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-12.9	-13.9	-3.4	30.0	-33.4
	5785.0	-12.5	-11.8	-2.1	30.0	-32.1
	5835.0	-13.3	-12.9	-3.1	30.0	-33.1
40.0	5750.0	-14.65	-16.1	-5.32	30.0	-35.32
	5785.0	-15.42	-16.45	-5.9	30.0	-35.905
	5825.0	-16.83	-16.09	-6.44	30.0	-36.44
80.0	5770.0	-16.01	-17.63	-6.74	30.0	-36.74
	5785.0	-17.16	-18.35	-7.71	30.0	-37.71
	5805.0	-17.33	-18.38	-7.82	30.0	-37.82

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 192 Test Results, Fixed Point to Multipoint mode, 64QAM Modulation, AG 23dBi

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-24.68	-24.2	-14.43	30.0	-51.42
	5785.0	-23.8	-23.2	-13.48	30.0	-50.47
	5835.0	-24.32	-23.98	-14.14	30.0	-51.14
40.0	5750.0	-27.32	-28.35	-17.8	30.0	-54.8
	5785.0	-28.5	-29.11	-18.78	30.0	-55.77
	5825.0	-29.77	-29.36	-19.56	30.0	-56.55
80.0	5770.0	-30.31	-31.04	-20.66	30.0	-57.65
	5785.0	-30.85	-30.65	-20.75	30.0	-57.74
	5805.0	-30.46	-31.25	-20.84	30.0	-57.83

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 193 Test Results, Fixed Point to Multipoint mode, 256QAM Modulation, AG 30dBi

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-15.2	-17.54	-6.2	30.0	-36.2
	5785.0	-14.1	-15.74	-4.84	30.0	-34.84
	5835.0	-14.62	-15.55	-5.06	30.0	-35.06
40.0	5750.0	-18.07	-19.01	-8.5	30.0	-38.51
	5785.0	-18.63	-19.53	-9.06	30.0	-39.06
	5825.0	-19.8	-19.65	-9.72	30.0	-39.72
80.0	5770.0	-20.82	-21.7	-11.24	30.0	-41.24
	5785.0	-20.66	-22.0	-11.27	30.0	-41.27
	5805.0	-21.22	-22.42	-11.78	30.0	-41.78

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 194 Test Results, Fixed Point to Multipoint mode, 256QAM Modulation, AG 23dBi

6.1 Test Results for PSD Fixed Point to Point

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-8.02	-9.14	1.45	30.0	-28.54
	5785.0	-9.16	-9.71	0.57	30.0	-29.42
	5835.0	-9.63	-8.7	0.86	30.0	-29.14
40.0	5750.0	-11.1	-12.4	-1.7	30.0	-31.7
	5785.0	-13.1	-13.26	-3.17	30.0	-33.17
	5825.0	-13.22	-12.82	-3.015	30.0	-33.015
80.0	5770.0	-15.0	-15.5	-5.24	30.0	-35.24
	5785.0	-15.45	-17.15	-6.22	30.0	-36.22
	5805.0	-16.15	-16.74	-6.43	30.0	-36.43

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 195 Test Results, Fixed Point to Multipoint mode, QPSK Modulation

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-8.34	-9.2	1.25	30.0	-28.75
	5785.0	-8.94	-8.32	1.38	30.0	-28.62
	5835.0	-8.7	-8.2	1.56	30.0	-28.44
40.0	5750.0	-11.33	-12.21	-1.75	30.0	-31.75
	5785.0	-11.66	-12.42	-2.02	30.0	-32.03
	5825.0	-12.17	-12.63	-2.4	30.0	-32.4
80.0	5770.0	-12.75	-14.73	-3.63	30.0	-33.63
	5785.0	-13.2	-14.42	-3.77	30.0	-33.77
	5805.0	-13.62	-15.15	-4.32	30.0	-34.32

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 196 Test Results, Fixed Point to Multipoint mode, 64QAM Modulation

BW	Operation Frequency	PSD@RBW=100kHz		Total Reading*	Limit	Margin
		Port 1 Reading	Port 2 Reading			
(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
20.0	5740.0	-10.3	-12.04	-1.083	30.0	-31.083
	5785.0	-10.92	-11.25	-1.08	30.0	-31.082
	5835.0	-11.2	-11.92	-1.54	30.0	-31.545
40.0	5750.0	-14.36	-15.36	-4.83	30.0	-34.83
	5785.0	-15.34	-15.78	-5.55	30.0	-35.55
	5825.0	-15.44	-16.26	-5.83	30.0	-35.83
80.0	5770.0	-19.36	-20.4	-9.85	30.0	-39.85
	5785.0	-19.1	-20.22	-9.61	30.0	-39.61
	5805.0	-18.16	-19.8	-8.9	30.0	-38.9

**Note: total reading (dBm)= 10 log [port1(mW)+port2(mW)], total reading includes factor of conversion RBW 100kHz to 500kHz which is 7dB.*
***Note: RBW Conversion factor was calculated as the following equation: 10log(500kHz/100kHz) =7dB*

Figure 197 Test Results, Fixed Point to Multipoint mode, 256QAM Modulation

JUDGMENT: Passed by 996 mW

For additional information see *Figure 198* to *Figure 359*.