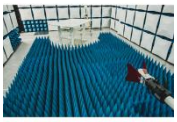
PCTEST
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. 410.290.6652 / Fax 410.290.6654
http://www.pctest.com



MEASUREMENT REPORT
FCC Part 30 5G mmWave

Applicant Name:
LG Electronics USA, Inc.
111 Sylvan Avenue, North Building
Englewood Cliffs, NJ 07632
United States

Date of Testing:
6/26/2020 – 8/21/2020
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M2006150096-06.ZNF

FCC ID:	**ZNFF100VM**
APPLICANT:	**LG Electronics USA, Inc.**

Application Type:	Certification
Model:	LM-F100VM
Additional Models:	LMF100VM, F100VM, LM-F101V, LMF101V, F101V
EUT Type:	Portable Handset
FCC Classification:	Part 30 Mobile Transmitter (5GM)
FCC Rule Part(s):	30
Test Procedure(s):	ANSI C63.26-2015, KDB 971168 D01 v03r01, KDB 842590 D01 v01r01

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Randy Ortanez
President

ACCREDITED
CERT #2041.01

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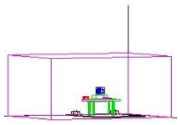
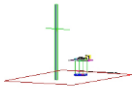


MEASUREMENT REPORT
FCC Part 30



Antenna	Mode	Bandwidth (MHz)	CCs Active	Band	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
						Max. Power (W)	Max. Power (dBm)		
Ant1	SISO	50	1	n261	27500 - 28350	0.157	21.97	-	pi/2-BPSK
Ant1	MIMO	50	1	n261	27500 - 28350	0.274	24.37	-	pi/2-BPSK
Ant1	MIMO	50	1	n261	27500 - 28350	0.234	23.70	-	QPSK
Ant1	MIMO	50	1	n261	27500 - 28350	0.164	22.15	-	16QAM
Ant1	MIMO	50	1	n261	27500 - 28350	0.118	20.72	-	64QAM
Ant1	MIMO	50	2	n261	27500 - 28350	0.072	18.56	-	pi/2-BPSK
Ant1	MIMO	50	2	n261	27500 - 28350	0.056	17.49	-	QPSK
Ant1	MIMO	50	2	n261	27500 - 28350	0.046	16.64	-	16QAM
Ant1	MIMO	50	2	n261	27500 - 28350	0.032	15.01	-	64QAM
Ant1	SISO	100	1	n261	27500 - 28350	0.167	22.22	-	pi/2-BPSK
Ant1	MIMO	100	1	n261	27500 - 28350	0.352	25.47	-	pi/2-BPSK
Ant1	MIMO	100	1	n261	27500 - 28350	0.280	24.47	-	QPSK
Ant1	MIMO	100	1	n261	27500 - 28350	0.168	22.25	-	16QAM
Ant1	MIMO	100	1	n261	27500 - 28350	0.112	20.51	-	64QAM
Ant1	MIMO	100	2	n261	27500 - 28350	0.177	22.47	-	pi/2-BPSK
Ant1	MIMO	100	2	n261	27500 - 28350	0.148	21.69	-	QPSK
Ant1	MIMO	100	2	n261	27500 - 28350	0.110	20.41	-	16QAM
Ant1	MIMO	100	2	n261	27500 - 28350	0.080	19.05	-	64QAM

EUT Overview (QTM0 / Ant1 - Band n261)

Antenna	Mode	Bandwidth (MHz)	CCs Active	Band	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
						Max. Power (W)	Max. Power (dBm)		
Ant2	SISO	50	1	n261	27500 - 28350	0.252	24.02	-	pi/2-BPSK
Ant2	MIMO	50	1	n261	27500 - 28350	0.540	27.32	-	pi/2-BPSK
Ant2	MIMO	50	1	n261	27500 - 28350	0.456	26.59	-	QPSK
Ant2	MIMO	50	1	n261	27500 - 28350	0.341	25.33	-	16QAM
Ant2	MIMO	50	1	n261	27500 - 28350	0.244	23.87	-	64QAM
Ant2	MIMO	50	2	n261	27500 - 28350	0.177	22.49	-	pi/2-BPSK
Ant2	MIMO	50	2	n261	27500 - 28350	0.144	21.57	-	QPSK
Ant2	MIMO	50	2	n261	27500 - 28350	0.117	20.70	-	16QAM
Ant2	MIMO	50	2	n261	27500 - 28350	0.073	18.65	-	64QAM
Ant2	SISO	100	1	n261	27500 - 28350	0.305	24.85	-	pi/2-BPSK
Ant2	MIMO	100	1	n261	27500 - 28350	0.735	28.66	-	pi/2-BPSK
Ant2	MIMO	100	1	n261	27500 - 28350	0.536	27.29	-	QPSK
Ant2	MIMO	100	1	n261	27500 - 28350	0.475	26.77	-	16QAM
Ant2	MIMO	100	1	n261	27500 - 28350	0.340	25.32	-	64QAM
Ant2	MIMO	100	2	n261	27500 - 28350	0.258	24.11	-	pi/2-BPSK
Ant2	MIMO	100	2	n261	27500 - 28350	0.210	23.23	-	QPSK
Ant2	MIMO	100	2	n261	27500 - 28350	0.161	22.08	-	16QAM
Ant2	MIMO	100	2	n261	27500 - 28350	0.109	20.39	-	64QAM

EUT Overview (QTM1 / Ant2 - Band n261)

Antenna	Mode	Bandwidth (MHz)	CCs Active	Band	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
						Max. Power (W)	Max. Power (dBm)		
Ant3	SISO	50	1	n261	27500 - 28350	0.305	24.84	45M6G7D	pi/2-BPSK
Ant3	MIMO	50	1	n261	27500 - 28350	0.552	27.42	45M6G7D	pi/2-BPSK
Ant3	MIMO	50	1	n261	27500 - 28350	0.454	26.57	45M4G7D	QPSK
Ant3	MIMO	50	1	n261	27500 - 28350	0.344	25.36	45M9W7D	16QAM
Ant3	MIMO	50	1	n261	27500 - 28350	0.233	23.68	46M2W7D	64QAM
Ant3	MIMO	50	2	n261	27500 - 28350	0.133	21.24	94M4G7D	pi/2-BPSK
Ant3	MIMO	50	2	n261	27500 - 28350	0.103	20.12	94M3G7D	QPSK
Ant3	MIMO	50	2	n261	27500 - 28350	0.080	19.02	94M7W7D	16QAM
Ant3	MIMO	50	2	n261	27500 - 28350	0.058	17.66	94M1W7D	64QAM
Ant3	SISO	100	1	n261	27500 - 28350	0.293	24.67	91M1G7D	pi/2-BPSK
Ant3	MIMO	100	1	n261	27500 - 28350	0.583	27.66	91M1G7D	pi/2-BPSK
Ant3	MIMO	100	1	n261	27500 - 28350	0.441	26.44	90M2G7D	QPSK
Ant3	MIMO	100	1	n261	27500 - 28350	0.331	25.20	90M7W7D	16QAM
Ant3	MIMO	100	1	n261	27500 - 28350	0.237	23.74	92M1W7D	64QAM
Ant3	MIMO	100	2	n261	27500 - 28350	0.115	20.62	140MG7D	pi/2-BPSK
Ant3	MIMO	100	2	n261	27500 - 28350	0.099	19.95	144MG7D	QPSK
Ant3	MIMO	100	2	n261	27500 - 28350	0.077	18.86	142MW7D	16QAM
Ant3	MIMO	100	2	n261	27500 - 28350	0.052	17.13	142MW7D	64QAM

EUT Overview (QTM2 / Ant3 - Band n261)

Antenna	Mode	Bandwidth (MHz)	CCs Active	Band	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
						Max. Power (W)	Max. Power (dBm)		
Ant1	SISO	50	1	n260	37000 - 40000	0.206	23.14	-	pi/2-BPSK
Ant1	MIMO	50	1	n260	37000 - 40000	0.429	26.32	-	pi/2-BPSK
Ant1	MIMO	50	1	n260	37000 - 40000	0.392	25.93	-	QPSK
Ant1	MIMO	50	1	n260	37000 - 40000	0.249	23.97	-	16QAM
Ant1	MIMO	50	1	n260	37000 - 40000	0.154	21.88	-	64QAM
Ant1	MIMO	50	2	n260	37000 - 40000	0.142	21.53	-	pi/2-BPSK
Ant1	MIMO	50	2	n260	37000 - 40000	0.132	21.22	-	QPSK
Ant1	MIMO	50	2	n260	37000 - 40000	0.086	19.34	-	16QAM
Ant1	MIMO	50	2	n260	37000 - 40000	0.055	17.41	-	64QAM
Ant1	SISO	100	1	n260	37000 - 40000	0.211	23.24	-	pi/2-BPSK
Ant1	MIMO	100	1	n260	37000 - 40000	0.441	26.44	-	pi/2-BPSK
Ant1	MIMO	100	1	n260	37000 - 40000	0.435	26.38	-	QPSK
Ant1	MIMO	100	1	n260	37000 - 40000	0.267	24.27	-	16QAM
Ant1	MIMO	100	1	n260	37000 - 40000	0.191	22.82	-	64QAM
Ant1	MIMO	100	2	n260	37000 - 40000	0.138	21.39	-	pi/2-BPSK
Ant1	MIMO	100	2	n260	37000 - 40000	0.122	20.86	-	QPSK
Ant1	MIMO	100	2	n260	37000 - 40000	0.079	18.99	-	16QAM
Ant1	MIMO	100	2	n260	37000 - 40000	0.052	17.18	-	64QAM

EUT Overview (QTM0 / Ant1 - Band n260)

Antenna	Mode	Bandwidth (MHz)	CCs Active	Band	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
						Max. Power (W)	Max. Power (dBm)		
Ant2	SISO	50	1	n260	37000 - 40000	0.262	24.19	-	pi/2-BPSK
Ant2	MIMO	50	1	n260	37000 - 40000	0.389	25.90	-	pi/2-BPSK
Ant2	MIMO	50	1	n260	37000 - 40000	0.367	25.65	-	QPSK
Ant2	MIMO	50	1	n260	37000 - 40000	0.242	23.84	-	16QAM
Ant2	MIMO	50	1	n260	37000 - 40000	0.159	22.01	-	64QAM
Ant2	MIMO	50	2	n260	37000 - 40000	0.127	21.03	-	pi/2-BPSK
Ant2	MIMO	50	2	n260	37000 - 40000	0.114	20.55	-	QPSK
Ant2	MIMO	50	2	n260	37000 - 40000	0.086	19.34	-	16QAM
Ant2	MIMO	50	2	n260	37000 - 40000	0.056	17.49	-	64QAM
Ant2	SISO	100	1	n260	37000 - 40000	0.265	24.23	-	pi/2-BPSK
Ant2	MIMO	100	1	n260	37000 - 40000	0.432	26.35	-	pi/2-BPSK
Ant2	MIMO	100	1	n260	37000 - 40000	0.415	26.18	-	QPSK
Ant2	MIMO	100	1	n260	37000 - 40000	0.282	24.51	-	16QAM
Ant2	MIMO	100	1	n260	37000 - 40000	0.187	22.73	-	64QAM
Ant2	MIMO	100	2	n260	37000 - 40000	0.142	21.52	-	pi/2-BPSK
Ant2	MIMO	100	2	n260	37000 - 40000	0.127	21.04	-	QPSK
Ant2	MIMO	100	2	n260	37000 - 40000	0.086	19.37	-	16QAM
Ant2	MIMO	100	2	n260	37000 - 40000	0.051	17.10	-	64QAM

EUT Overview (QTM1 / Ant2 - Band n260)

Antenna	Mode	Bandwidth (MHz)	CCs Active	Band	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
						Max. Power (W)	Max. Power (dBm)		
Ant3	SISO	50	1	n260	37000 - 40000	0.389	25.90	45M2G7D	pi/2-BPSK
Ant3	MIMO	50	1	n260	37000 - 40000	0.820	29.14	45M2G7D	pi/2-BPSK
Ant3	MIMO	50	1	n260	37000 - 40000	0.714	28.54	45M5G7D	QPSK
Ant3	MIMO	50	1	n260	37000 - 40000	0.471	26.73	45M4W7D	16QAM
Ant3	MIMO	50	1	n260	37000 - 40000	0.295	24.70	45M4W7D	64QAM
Ant3	MIMO	50	2	n260	37000 - 40000	0.282	24.51	99M5G7D	pi/2-BPSK
Ant3	MIMO	50	2	n260	37000 - 40000	0.239	23.78	97M5G7D	QPSK
Ant3	MIMO	50	2	n260	37000 - 40000	0.156	21.92	99M1W7D	16QAM
Ant3	MIMO	50	2	n260	37000 - 40000	0.105	20.21	103MW7D	64QAM
Ant3	SISO	100	1	n260	37000 - 40000	0.347	25.40	90M4G7D	pi/2-BPSK
Ant3	MIMO	100	1	n260	37000 - 40000	0.759	28.80	90M4G7D	pi/2-BPSK
Ant3	MIMO	100	1	n260	37000 - 40000	0.668	28.25	90M7G7D	QPSK
Ant3	MIMO	100	1	n260	37000 - 40000	0.443	26.46	90M7W7D	16QAM
Ant3	MIMO	100	1	n260	37000 - 40000	0.265	24.23	90M9W7D	64QAM
Ant3	MIMO	100	2	n260	37000 - 40000	0.244	23.87	192MG7D	pi/2-BPSK
Ant3	MIMO	100	2	n260	37000 - 40000	0.216	23.35	190MG7D	QPSK
Ant3	MIMO	100	2	n260	37000 - 40000	0.154	21.88	190MW7D	16QAM
Ant3	MIMO	100	2	n260	37000 - 40000	0.102	20.09	192MW7D	64QAM

EUT Overview (QTM2 / Ant3 - Band n260)

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFF100VM**. The test data contained in this report pertains only to the emissions due to the EUT's 5G mmWave function.

The EUT contains 3 patch antennas, referred to herein as Ant1 (QTM0), Ant2 (QTM1), and Ant3 (QTM2). Each of the patch antennas is comprised of two separate antenna feeds - one for horizontal and one for vertical polarization. Only one array antenna can be active at a time.

The EUT supports up to 8CC for DL, and 2CC for UL. For each CC, the EUT supports both 50MHz bandwidth and 100MHz bandwidth. For modulation, the EUT supports a subcarrier spacing (SCS) of 120kHz with two transmission schemes, CP-OFDM and DFT-s-OFDM, with pi/2-BPSK, QPSK, 16-QAM, and 64-QAM modulations. Different Beam IDs are supported, each corresponding to a different position in space for each antenna. During testing, FTM (Factory Test Mode) was used to operate the transmitter. MIMO operation was achieved by enabling two Beam IDs at the same time: one is from the list of H Beam IDs and other is from the list of V Beam IDs.

Antenna	Name
Ant1	QTM0
Ant2	QTM1
Ant3	QTM2

Test Device Serial No.: 00260, 00278

2.2 Device Capabilities

This device contains the following capabilities:
CDMA, GSM/GPRS/EDGE, WCDMA/HSPA, LTE, NR, WLAN, UNII, BT(1x, EDR, LE), NFC

2.3 Test Configuration

The EUT was tested per the guidance of KDB 842590 D01 v01r01 and ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated tests.

EIRP Simulation data for all Beam IDs was used to determine the worst case Beam ID for SISO operation and Beam ID pair for MIMO operation. These Beam ID's were used for final measurements.

All testing was performed using FTM (Factory Test Mode) software to trasmit continuously with a duty cycle of 100%. When implemented out in the field, the EUT will operate with a maximum uplink configuration (i.e., a maximum uplink duty cycle of up to 100%). The FTM software was also used for the EUT operation in the ENDC mode.

The EUT is capable of operating in screen closed and screen open configurations. The worst-case configuration for radiated emissions was determined from open and closed configurations in X, Y, and Z orientations for horizontal and vertical antenna polarizations. The worst case radiated emissions data is shown in this report. Additionally, the EUT is support a camera that mechanically pops up from the device. The worst case configuration was investigated with the camera down and popped up and worst case radiated data is reported herein.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled "American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services" (ANSI C63.26-2015) and the guidance provided in KDB 842590 D01 v01r01 were used in the measurement of the EUT.

3.2 Radiated Power and Radiated Spurious Emissions

§30.202, §30.203

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary for radiated emissions measurements in the spurious domain. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m for measurements above 1GHz.

Radiated power (EIRP) measurements were performed in a full anechoic chamber (FAC) conforming to the site validation requirements of CISPR 16-1-4. Radiated spurious emission measurements from 30MHz - 18GHz were performed in a semi anechoic chamber (SAC) conforming to the site validation requirements of CISPR 16-1-4. A positioner was used to manipulate the EUT through several positions in space by rotating about the roll axis as shown in the figure below. The positioner was mounted on top of a turntable bringing the total EUT height to 1.5m.

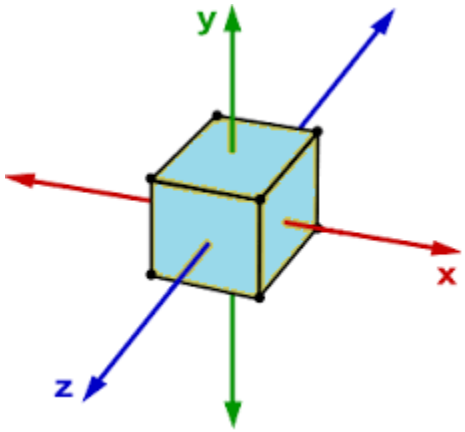


Figure 3-1. Rotation of the EUT Through Three Orthogonal Planes

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable. The measurement antenna is in the far field of the EUT per formula $2D^2/\lambda$ where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, "D" is the largest dimension of the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

Table 3-1. Far-Field Distance & Measurment Distance per Frequency Range

Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning. It was determined that H=0 degree and V=90 degree are the worst case positions when the EUT was transmitting horizontally and vertically polarized beams, respectively.

The maximized power level is recorded using the spectrum analyzer “Channel Power” function with the integration bandwidth set to the emissions’ occupied bandwidth. The EIRP is calculated from the raw power level measured with the spectrum analyzer using the formulas shown below.

Effective Isotropic Radiated Power Sample Calculation

The measured e.i.r.p is converted to E-field in V/m. Then, the distance correction is applied before converting back to calculated e.i.r.p, as explained in KDB 971168 D01.

Field Strength [dBµV/m] = Measured Value [dBm] + AFCL [dB/m] + 107

= - 32.74 dBm + (40.7dB/m + 8.78dB) + 107 = 123.74dBuV/m

= 10^(123.74/20)/1000000 = 1.54 V/m

e.i.r.p. [dBm] = 10 * log((E-Field*D_m)^2/30) + 30dB

= 10*log((1.54V/m * 1.00m)^2/30) + 30dB

= 18.98 dBm e.i.r.p.

4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to an accredited ISO/IEC 17025 calibration facility. Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N9030A	50GHz PXA Signal Analyzer	11/22/2019	Annual	11/22/2020	US51350301
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2019	Biennial	10/10/2021	121034
Espec	ESX-2CA	Environmental Chamber	8/13/2019	Annual	8/13/2020	17620
ETS-Lindgren	3116C	DRG Horn Antenna	3/11/2019	Biennial	3/11/2021	218893
Keysight Technologies	N9030A	PXA Signal Analyzer	9/13/2019	Annual	9/13/2020	MY54490576
Rohde & Schwarz	180-442-KF	Horn (Small)	8/21/2018	Biennial	8/21/2020	U157403-01
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	2/10/2020	Annual	2/10/2021	102134
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	11/1/2019	Annual	11/1/2020	100040
Rohde & Schwarz	TS-PR40	26.5-40 GHz Pre-Amplifier	11/1/2019	Annual	11/1/2020	100037
Sunol	DRH-118	Horn Antenna (1-18GHz)	10/3/2019	Biennial	10/3/2021	A050307
Virginia Diodes Inc	SAX252	SAX Module (60 - 90GHz)	9/30/2019	Annual	9/30/2020	SAX252
Virginia Diodes Inc	SAX253	SAX Module (90 - 140GHz)	9/30/2019	Annual	9/30/2020	SAX253
Virginia Diodes Inc	SAX254	SAX Module (140 - 220GHz)	9/30/2019	Annual	9/30/2020	SAX254

Table 5-1. Test Equipment

Notes:

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 800MG7D

BW = 800 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 802MW7D

BW = 802 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

7.0 TEST RESULTS

7.1 Summary

Company Name: LG Electronics USA, Inc.

FCC ID: ZNFF100VM

FCC Classification: Part 30 Mobile Transmitter (5GM)

Mode(s): TDD

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	RADIATED	PASS	Section 7.2
2.1046, 30.202	Equivalent Isotropic Radiated Power	43dBm		PASS	Section 7.3
2.1051, 30.203	Spurious Emissions	-13dBm/MHz for all out-of-band emissions		PASS	Section 7.4
2.1051, 30.203	Out-of-Band Emissions at the Band Edge	-13dBm/MHz for all out-of-band emissions, -5dBm/MHz from the band edge up to 10% of the channel BW		PASS	Section 7.5

Table 7-1. Summary of Radiated Test Results

Notes:

1) All modes of operation and modulations were investigated. The test results shown in the following sections represent the worst case emissions.
2) Per 2.1057(a)(2), spurious emissions were investigated up to 100GHz for n261 and up to 200GHz for n260.
3) The radiated RF output power and all out-of-band emissions in the spurious domain are evaluated to the EIRP limits.
4) “CC” refers to “Component Carriers”.
5) The Beam ID that produced the highest EIRP from simulation data was used for testing.
6) All testing was performed using FTM (Factory Test Mode) software to transmit continuously, this resulted in a 100% duty cycle.
7) The CP-OFDM and DFT-s-OFDM transmission schemes were investigated fully for each test type and only the wost case data is reported herein.

7.2 Occupied Bandwidth

§2.1049

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

ANSI C63.26-2015 Section 5.4.3
KDB 842590 D01 v01r01 Section 4.3

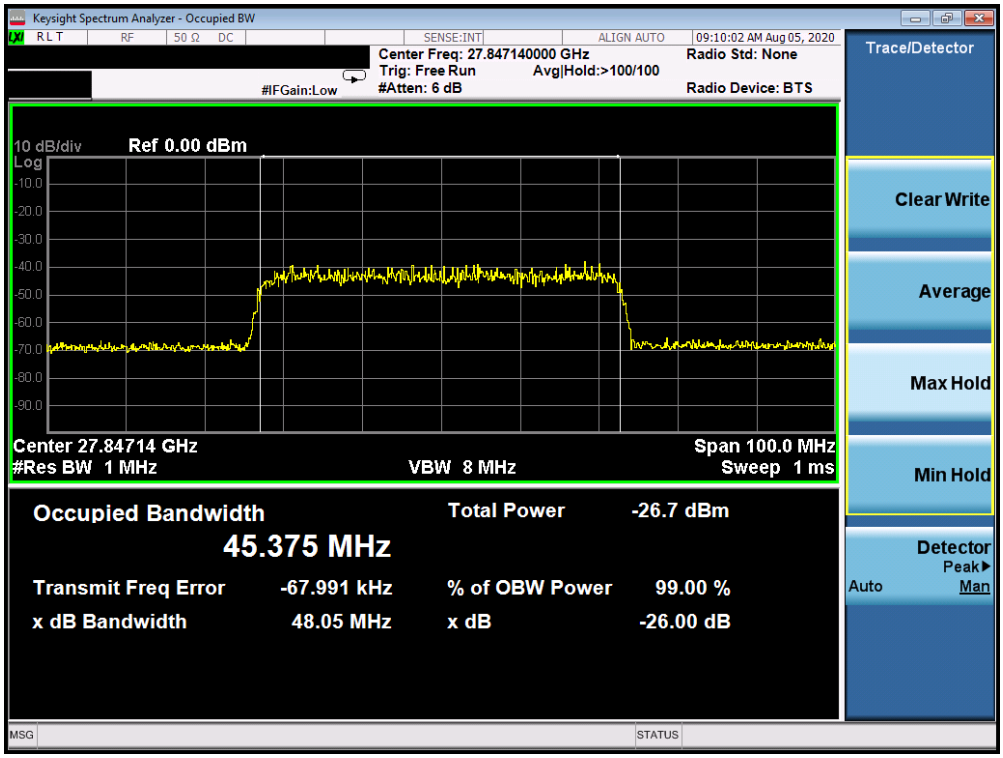
Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

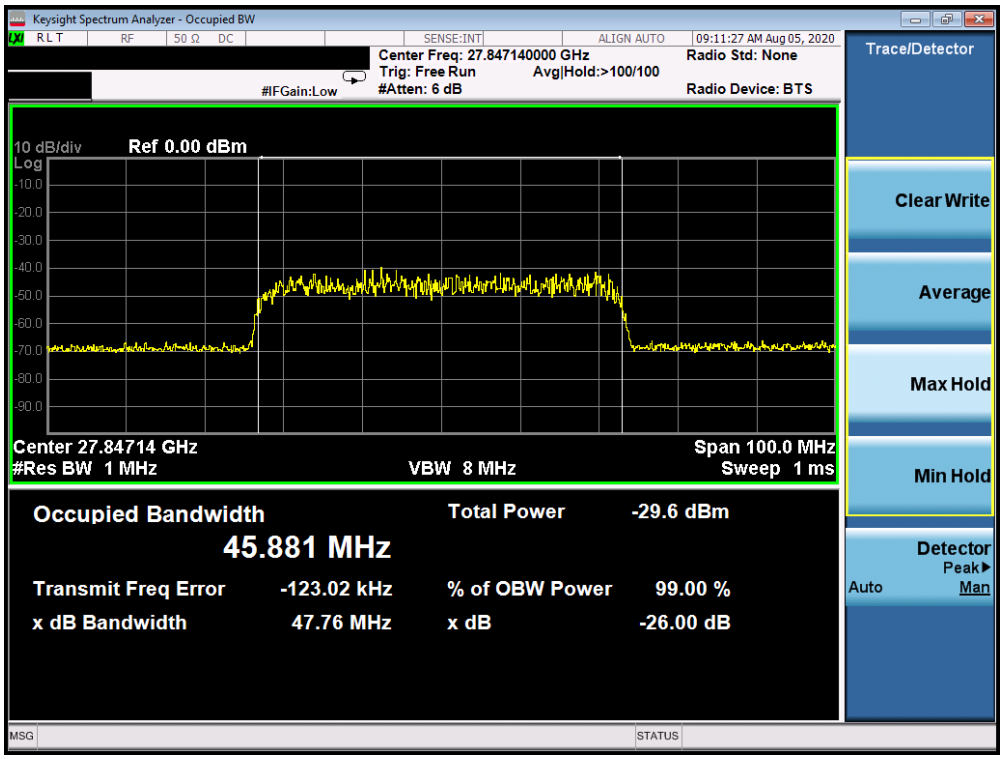
Test Notes

1. The EUT supports CP-OFDM and DFT-s-OFDM. OBW was measured for both waveforms and the worst case has been included in the report.
2. Due to similar antenna performance from both patch antennas, the Occupied Bandwidth was only measured on one antenna for each band.

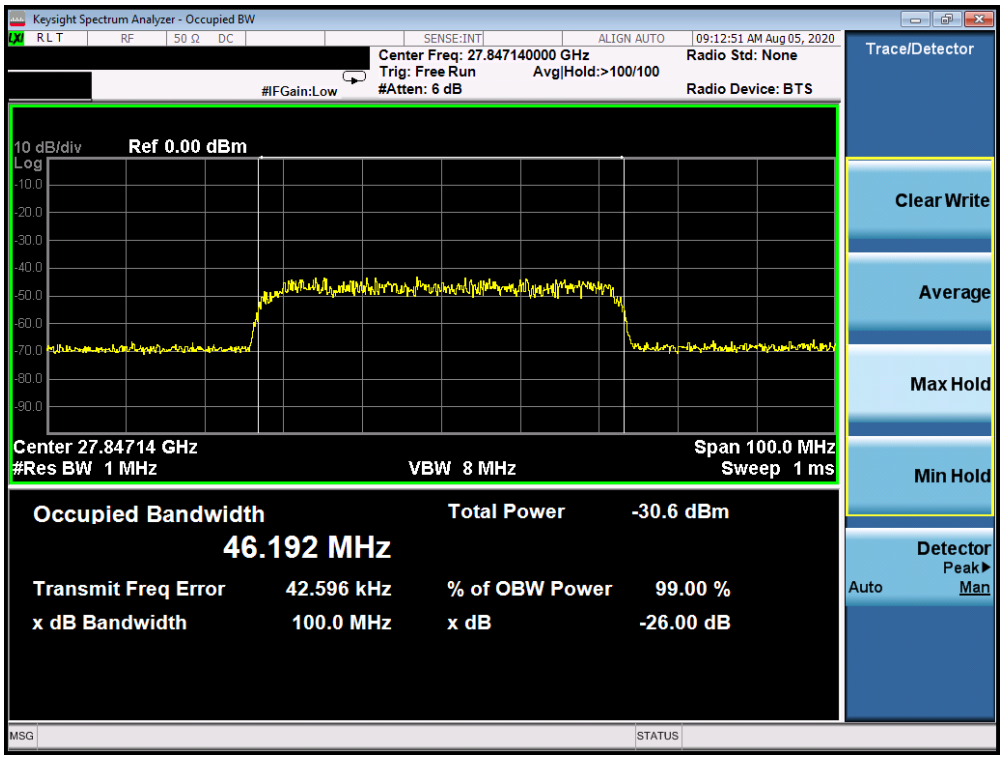
Band n261



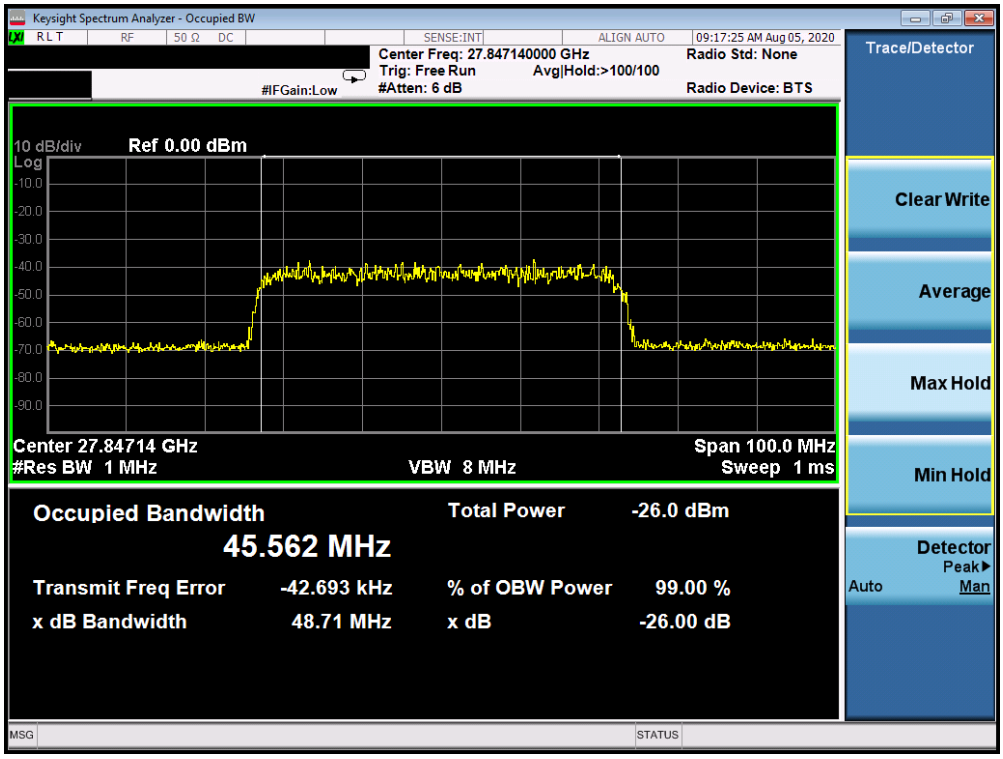
Plot 7-1. Ant 3 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)



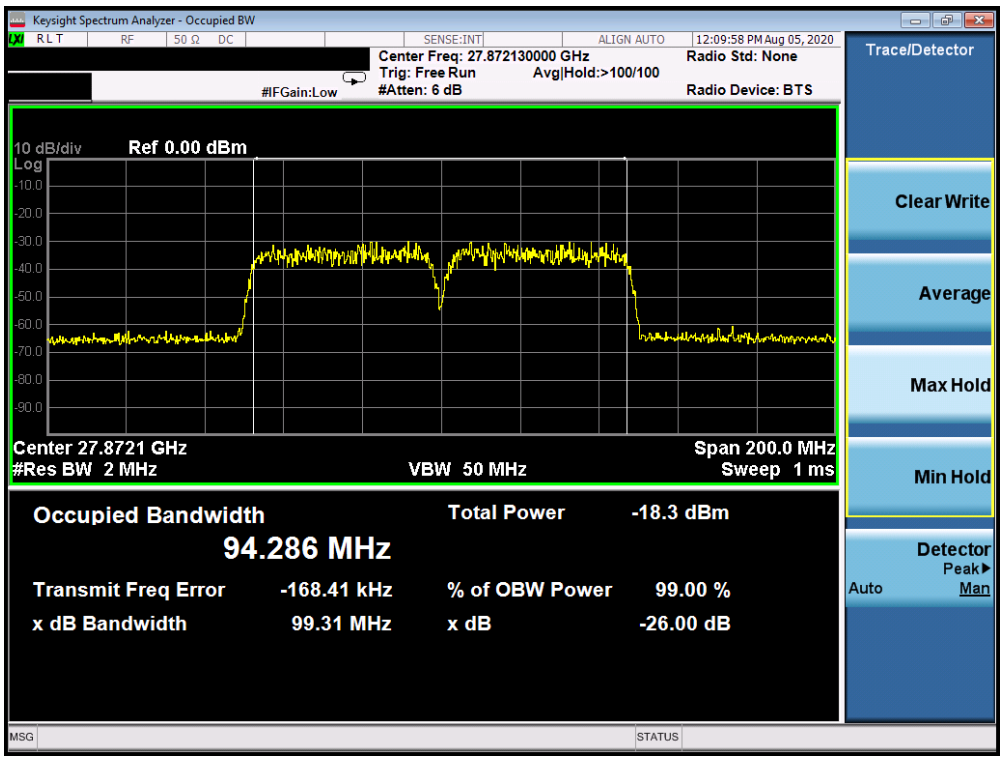
Plot 7-2. Ant 3 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



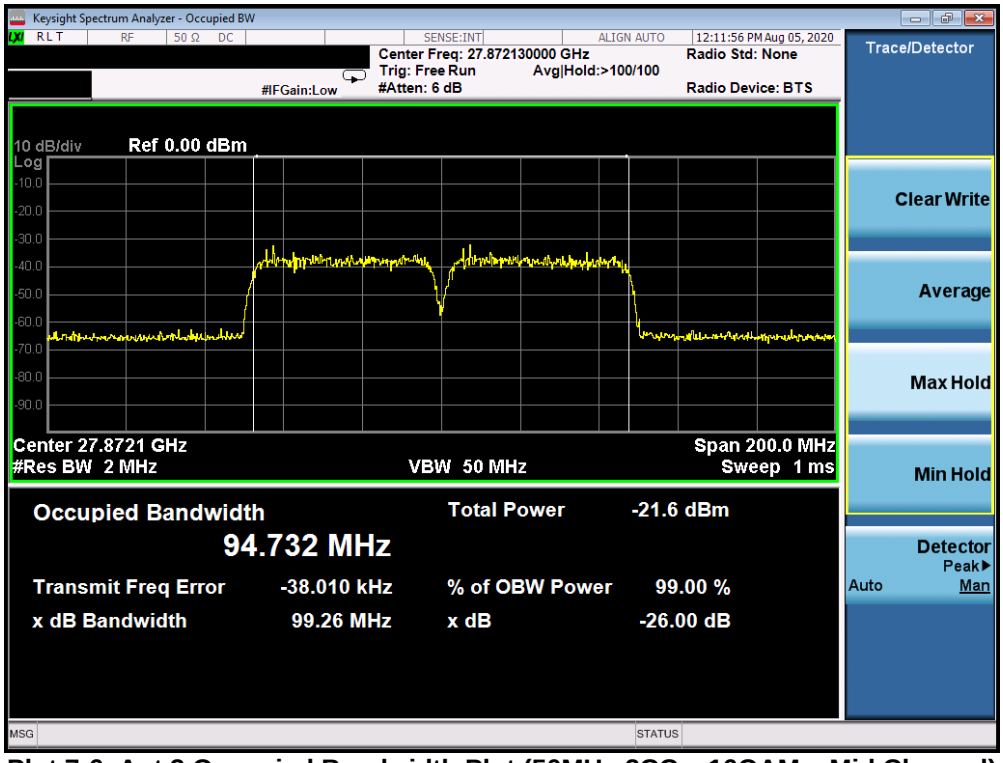
Plot 7-3. Ant 3 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)



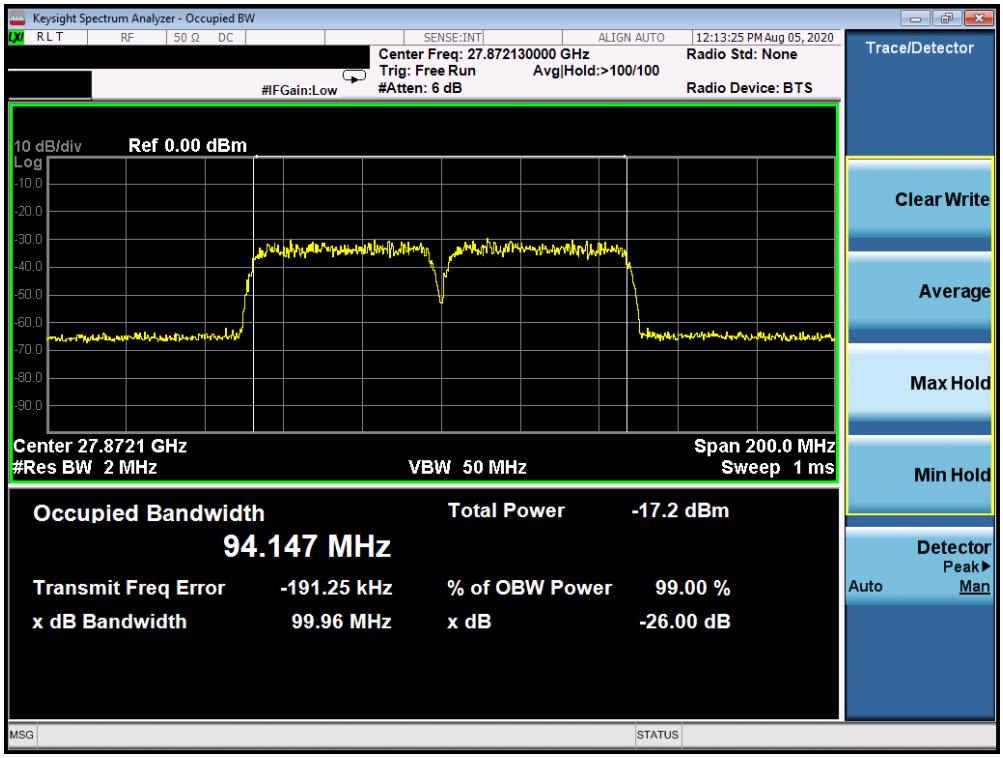
Plot 7-4. Ant 3 Occupied Bandwidth Plot (50MHz-1CC – pi/2-BPSK – Mid Channel)



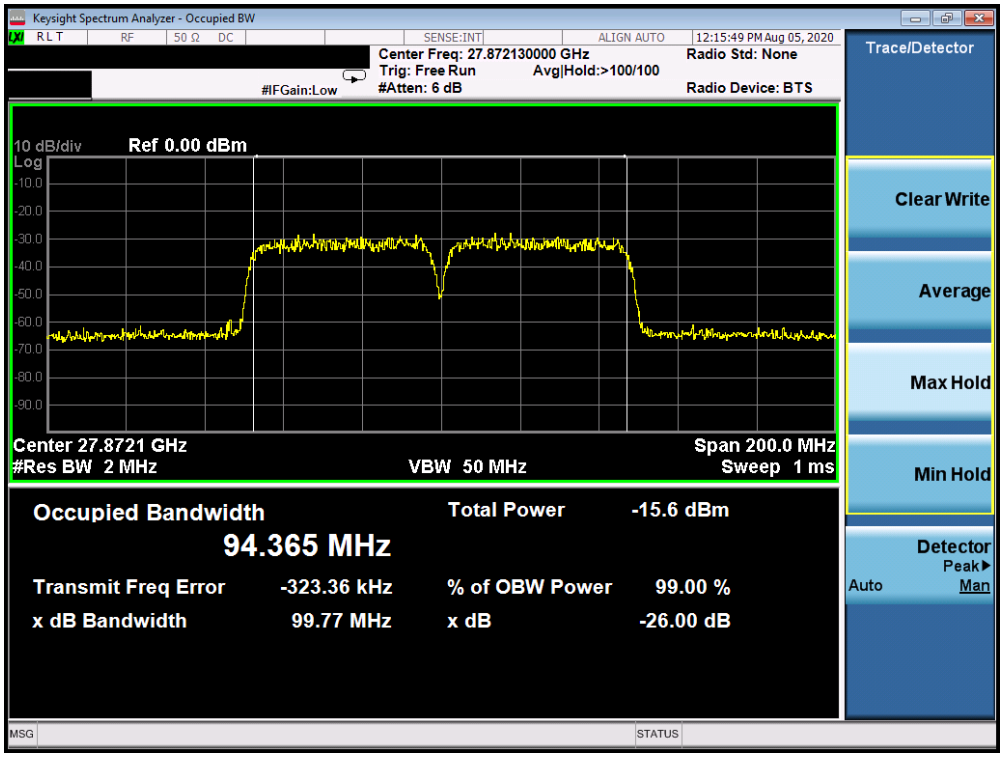
Plot 7-5. Ant 3 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



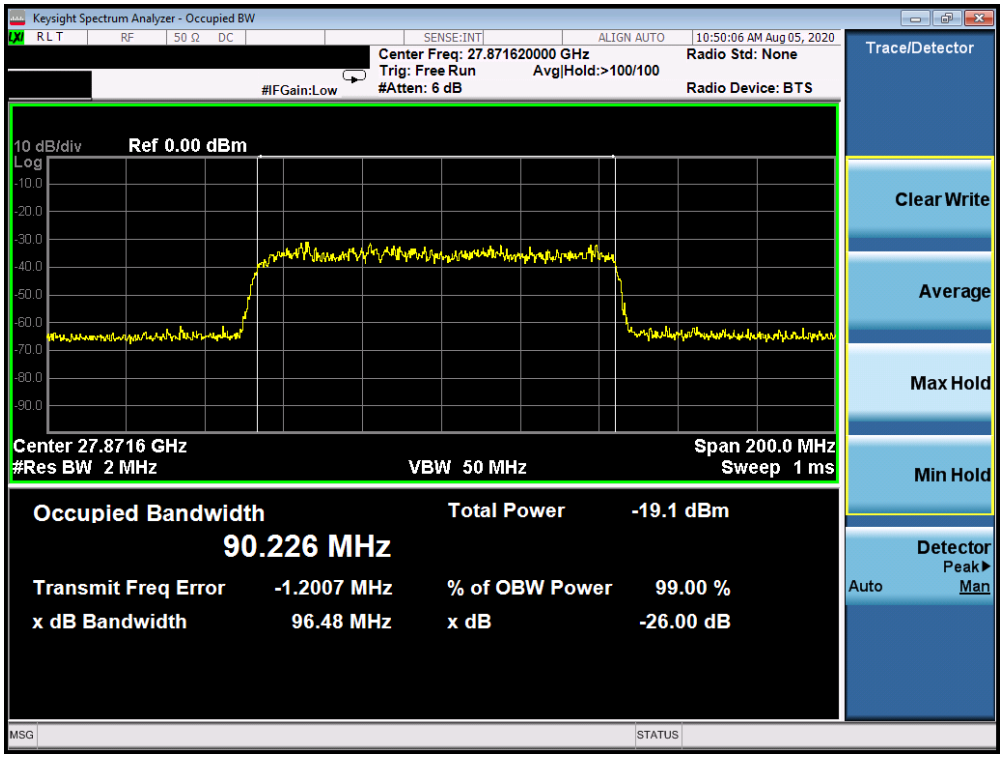
Plot 7-6. Ant 3 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)



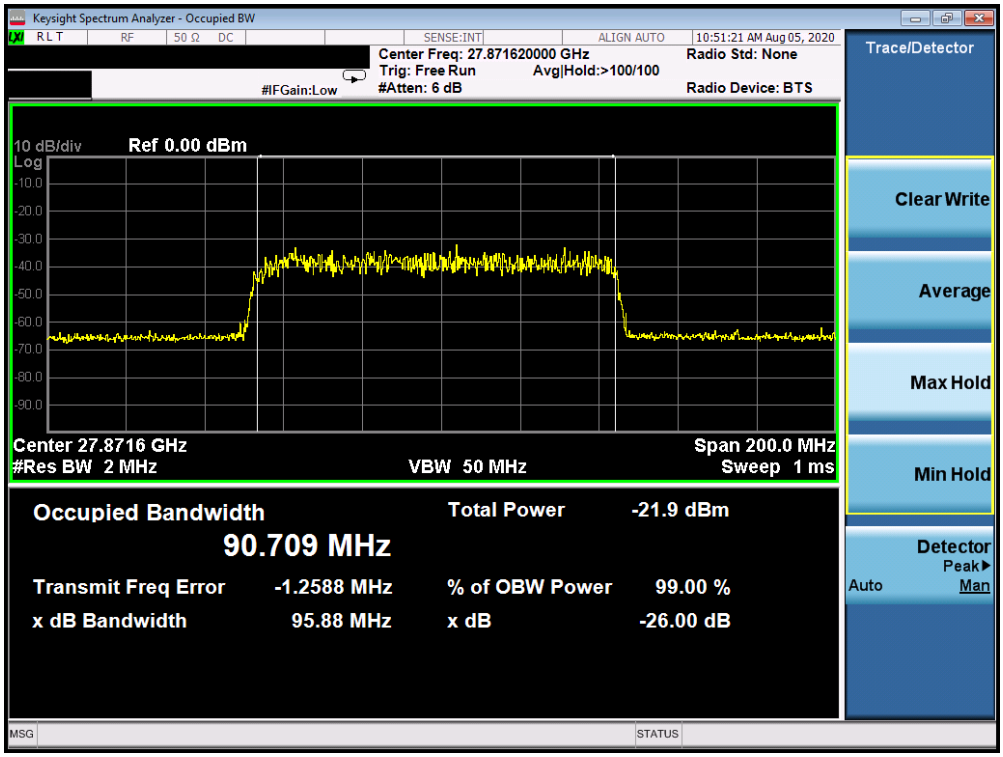
Plot 7-7. Ant 3 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



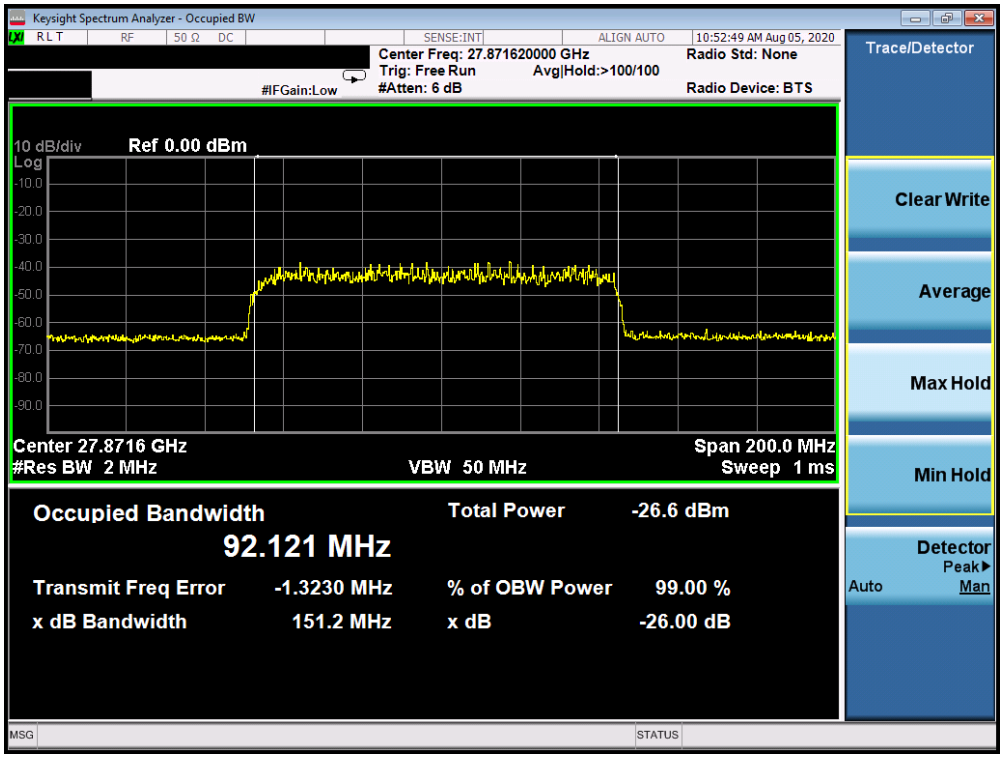
Plot 7-8. Ant 3 Occupied Bandwidth Plot (50MHz-2CC – pi/2-BPSK – Mid Channel)



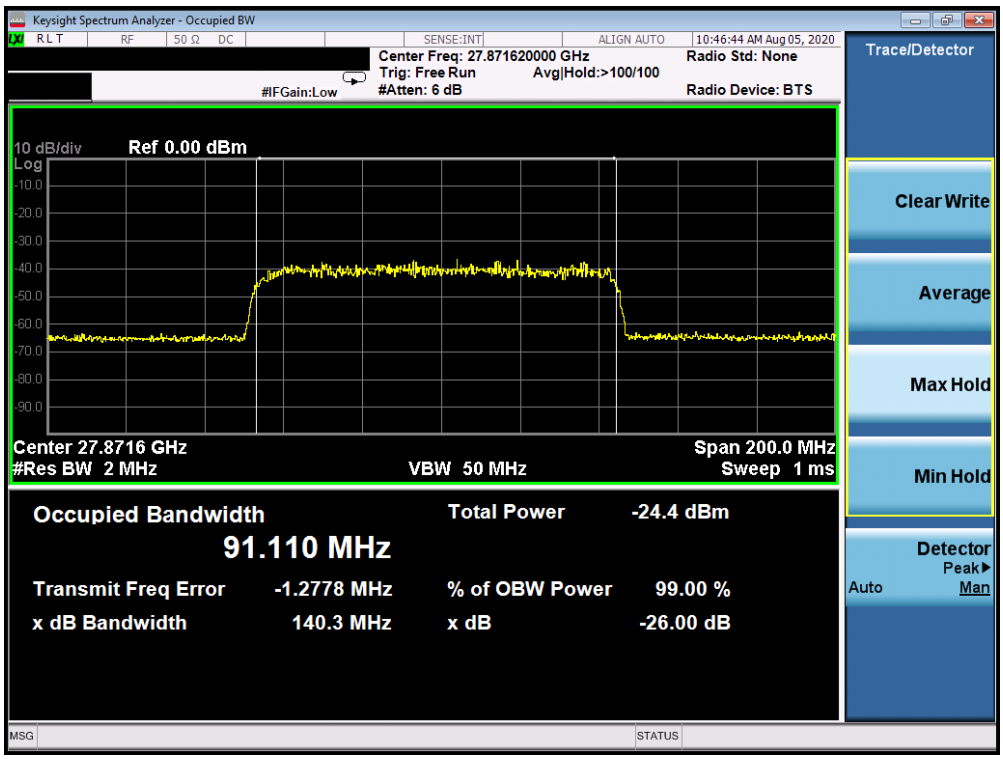
Plot 7-9. Ant 3 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)



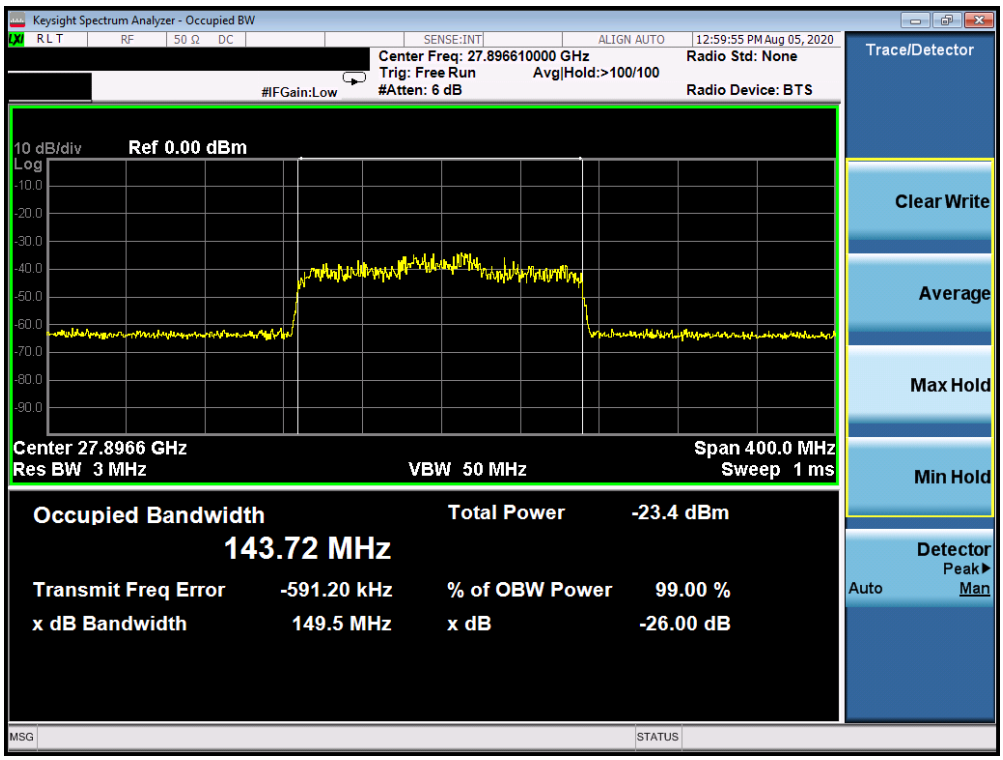
Plot 7-10. Ant 3 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



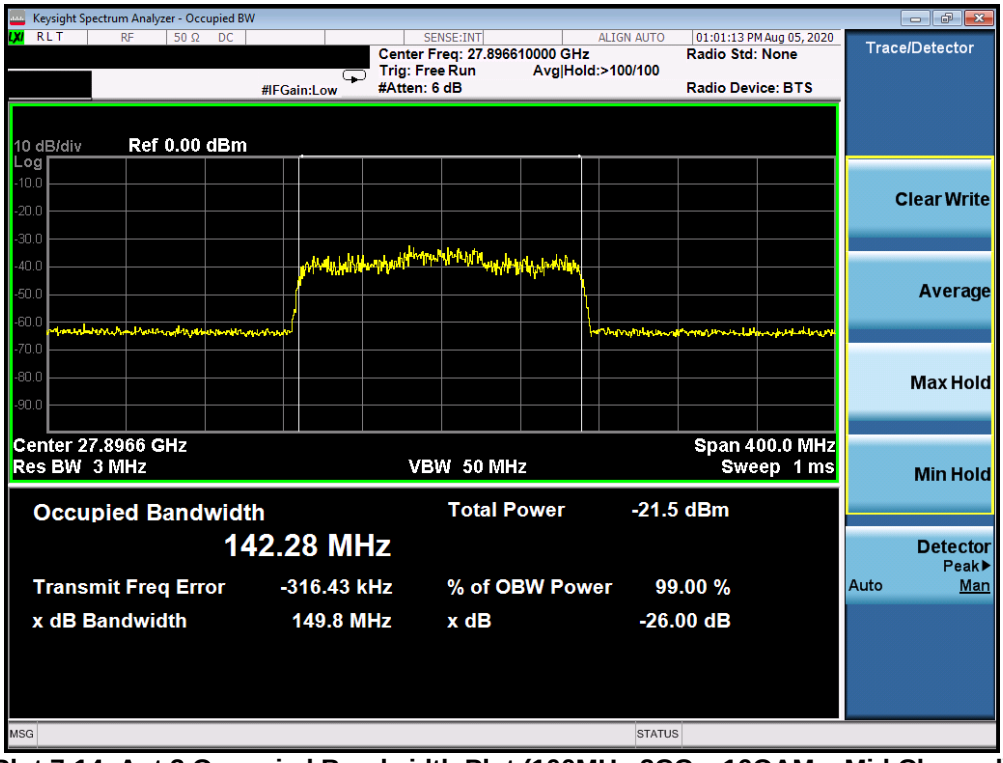
Plot 7-11. Ant 3 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)



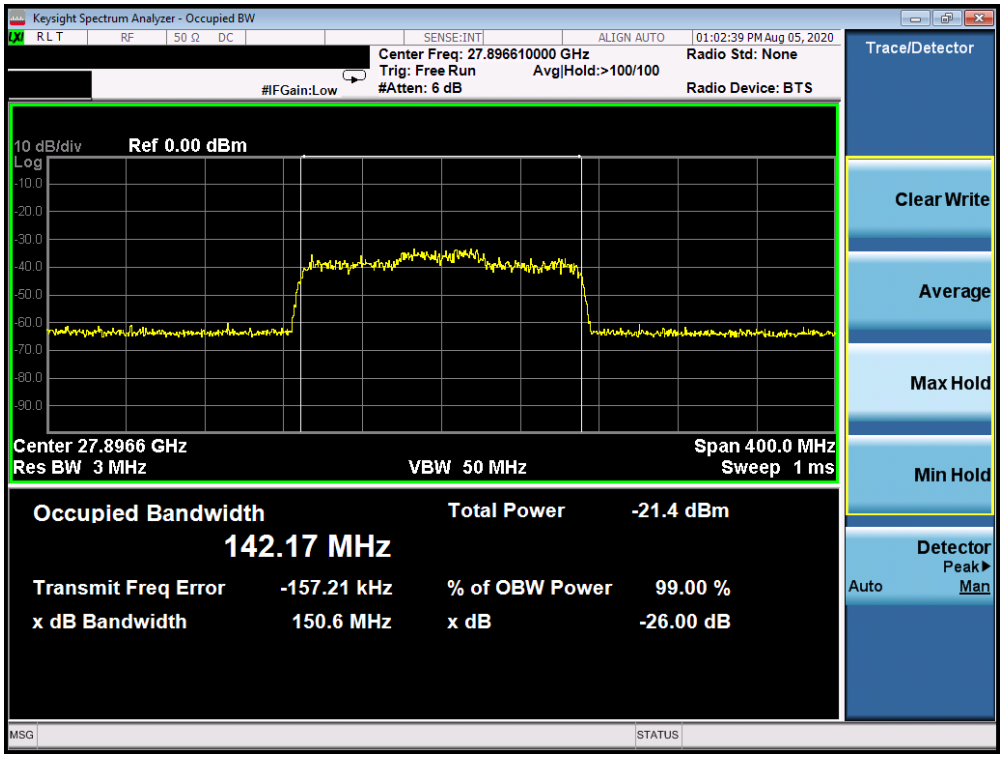
Plot 7-12. Ant 3 Occupied Bandwidth Plot (100MHz-1CC – pi/2-BPSK – Mid Channel)



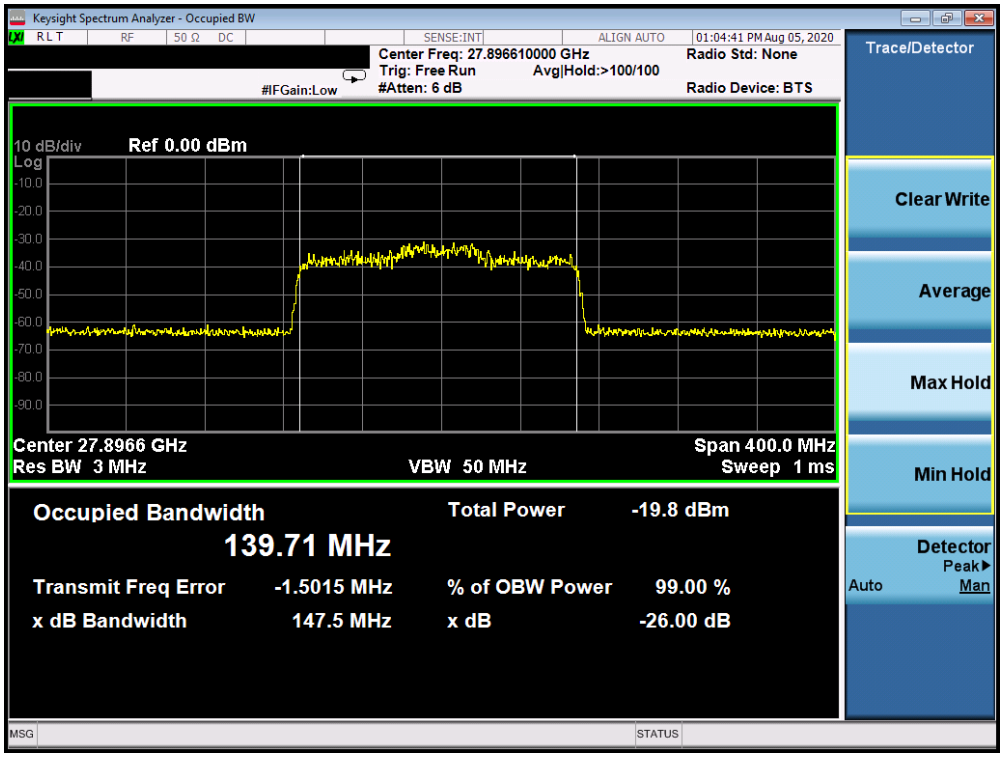
Plot 7-13. Ant 3 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-14. Ant 3 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

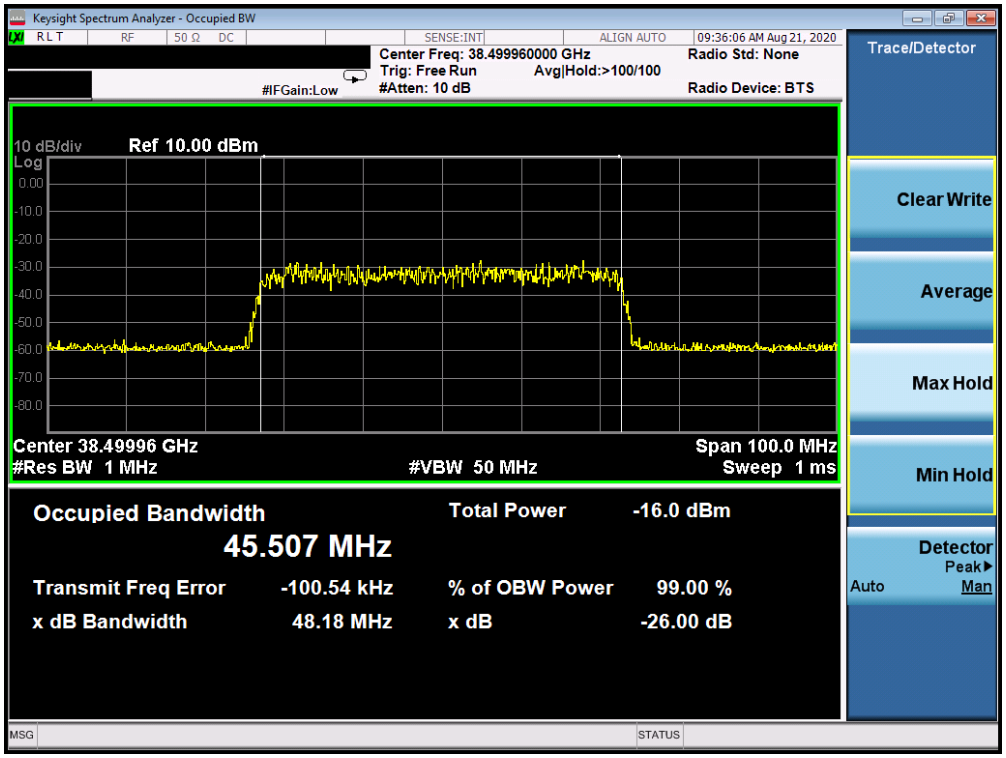


Plot 7-15. Ant 3 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

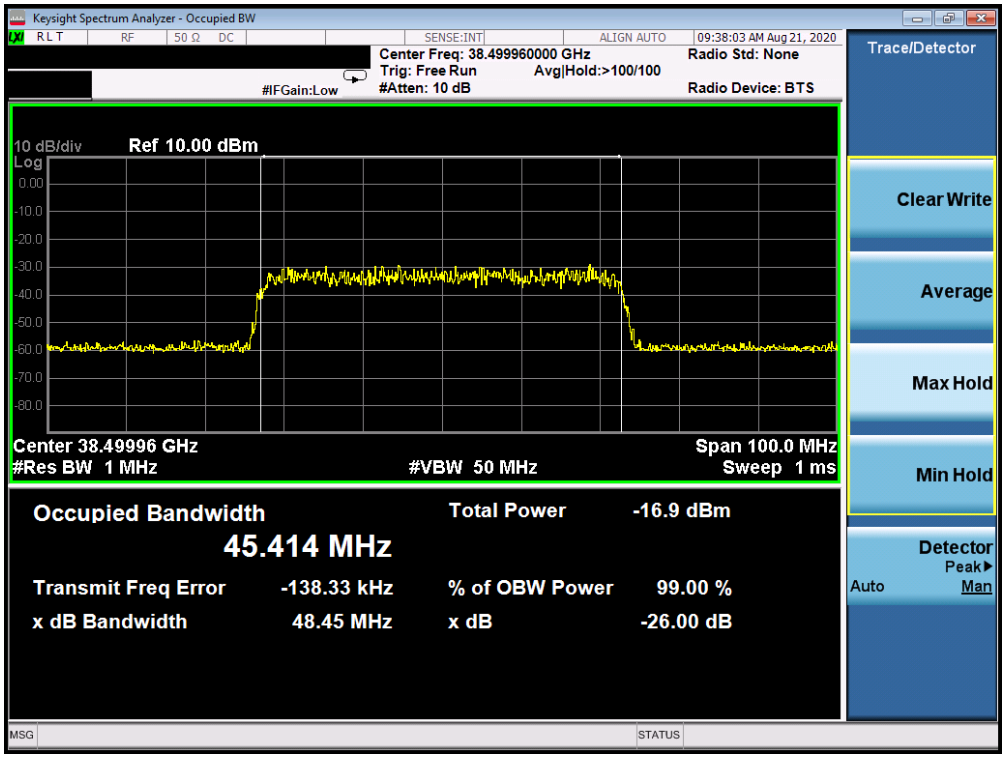


Plot 7-16. Ant 3 Occupied Bandwidth Plot (100MHz-2CC – pi/2-BPSK – Mid Channel)

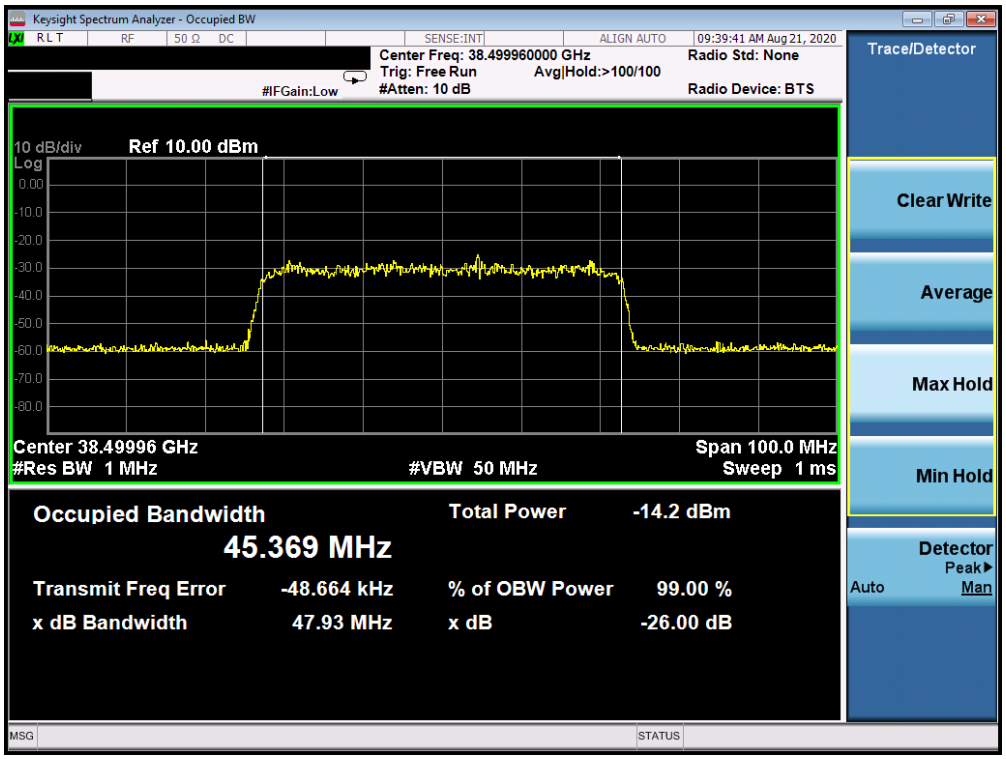
Band n260



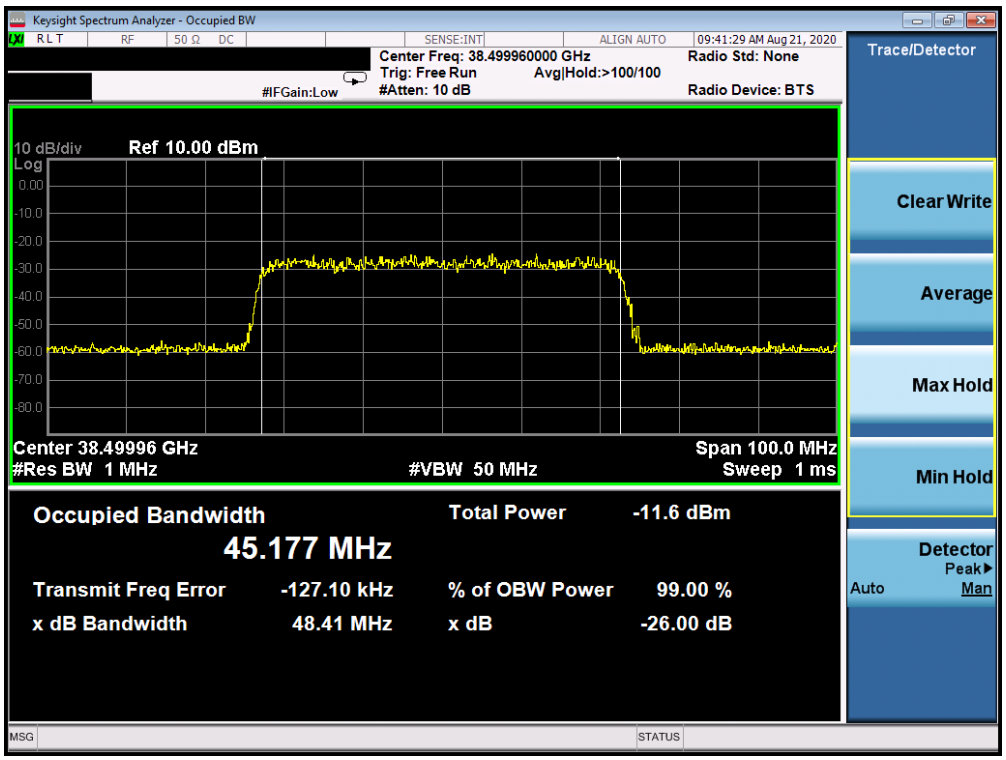
Plot 7-17. Ant 3 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)



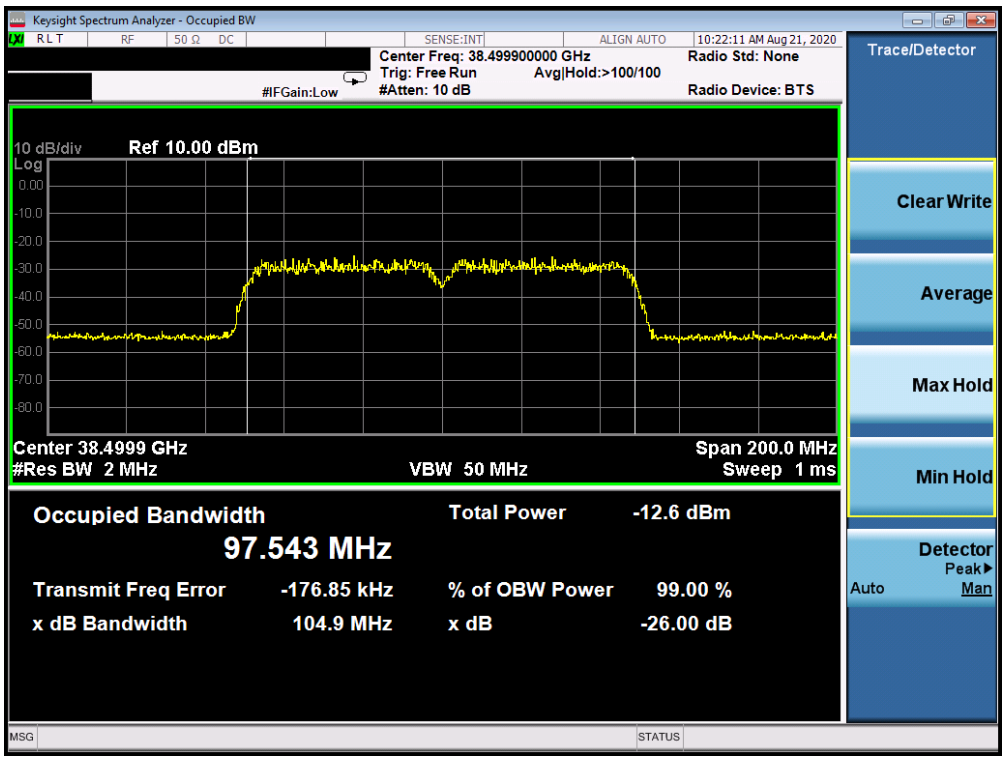
Plot 7-18. Ant 3 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



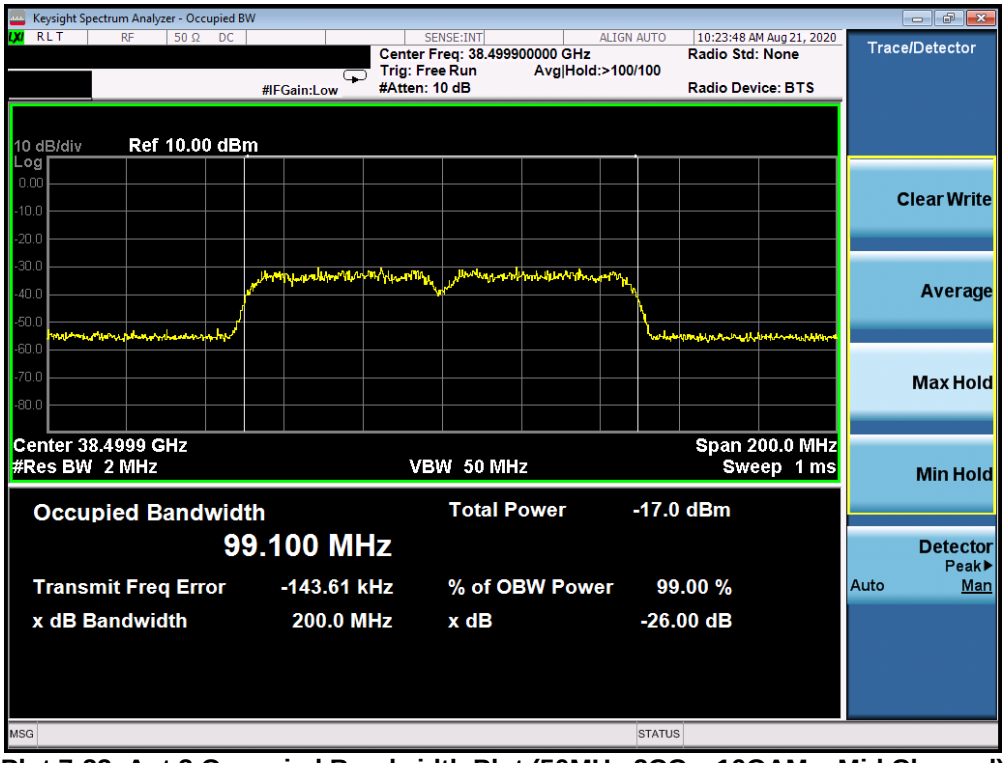
Plot 7-19. Ant 3 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)



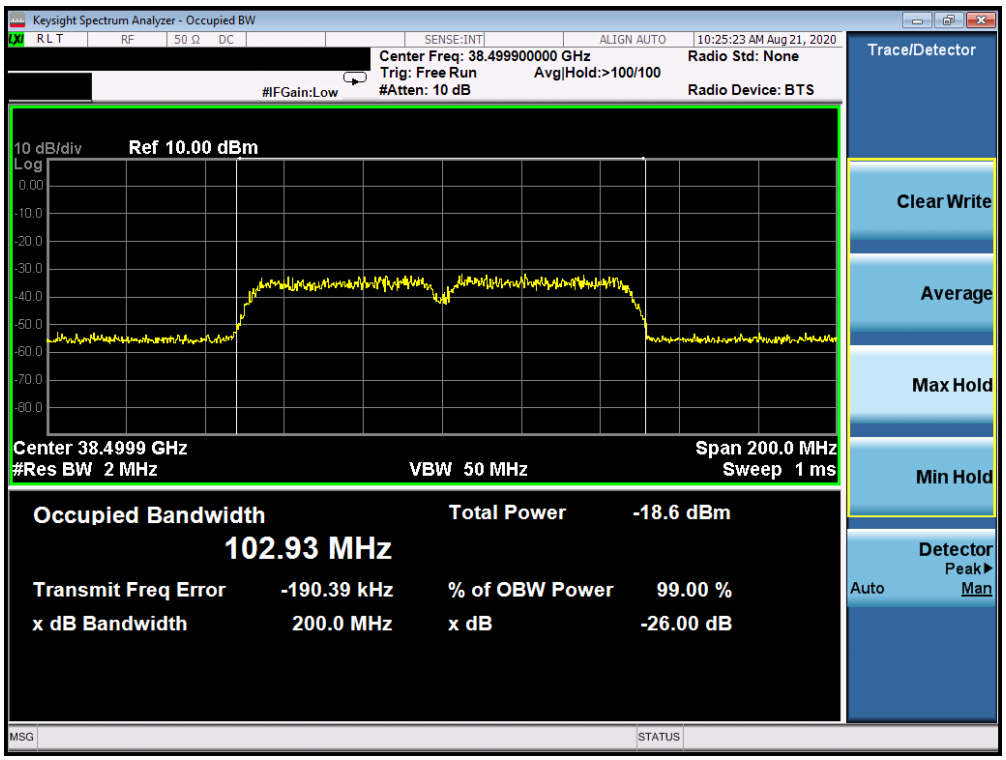
Plot 7-20. Ant 3 Occupied Bandwidth Plot (50MHz-1CC – pi/2-BPSK – Mid Channel)



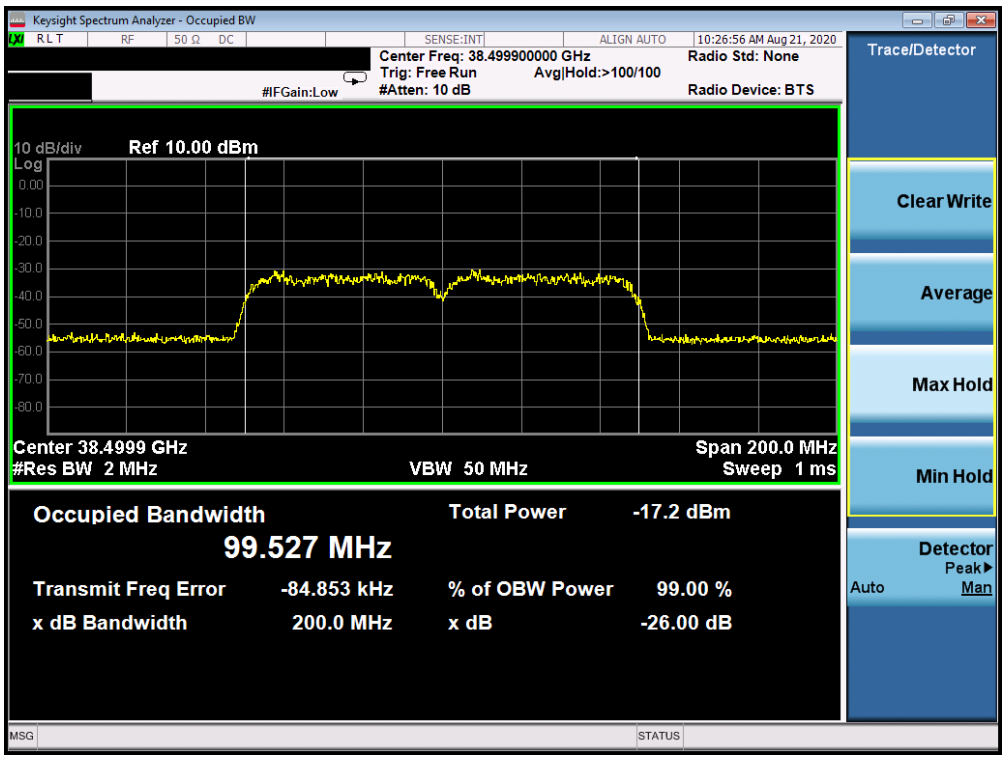
Plot 7-21. Ant 3 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



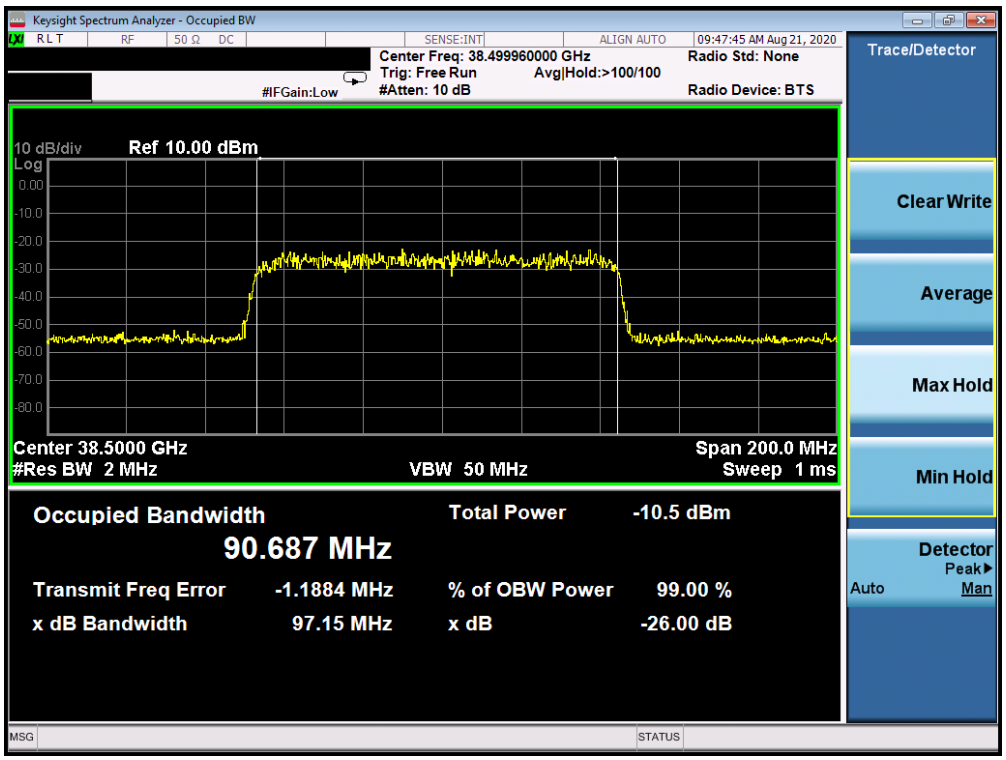
Plot 7-22. Ant 3 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)



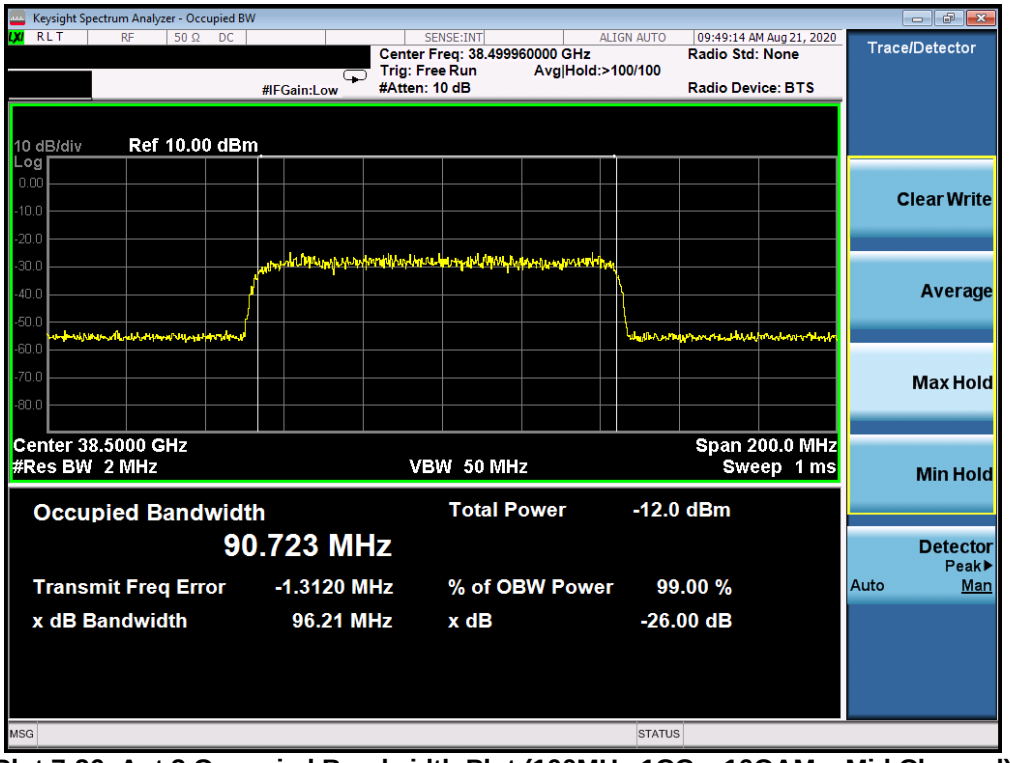
Plot 7-23. Ant 3 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



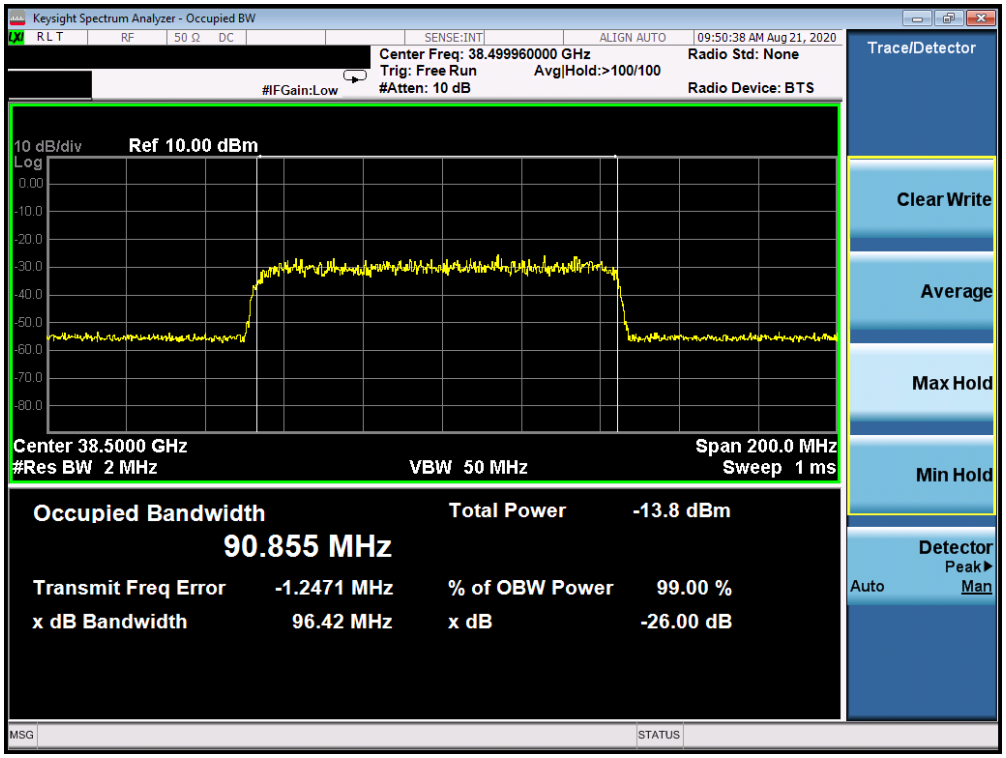
Plot 7-24. Ant 3 Occupied Bandwidth Plot (50MHz-2CC – pi/2-BPSK – Mid Channel)



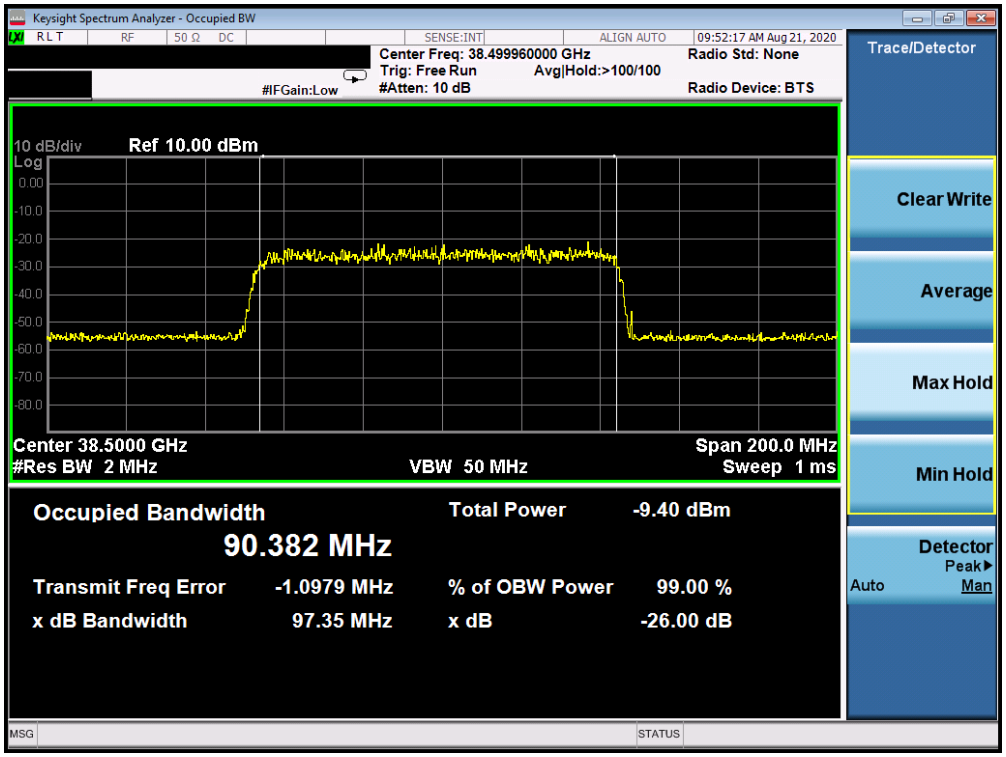
Plot 7-25. Ant 3 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)



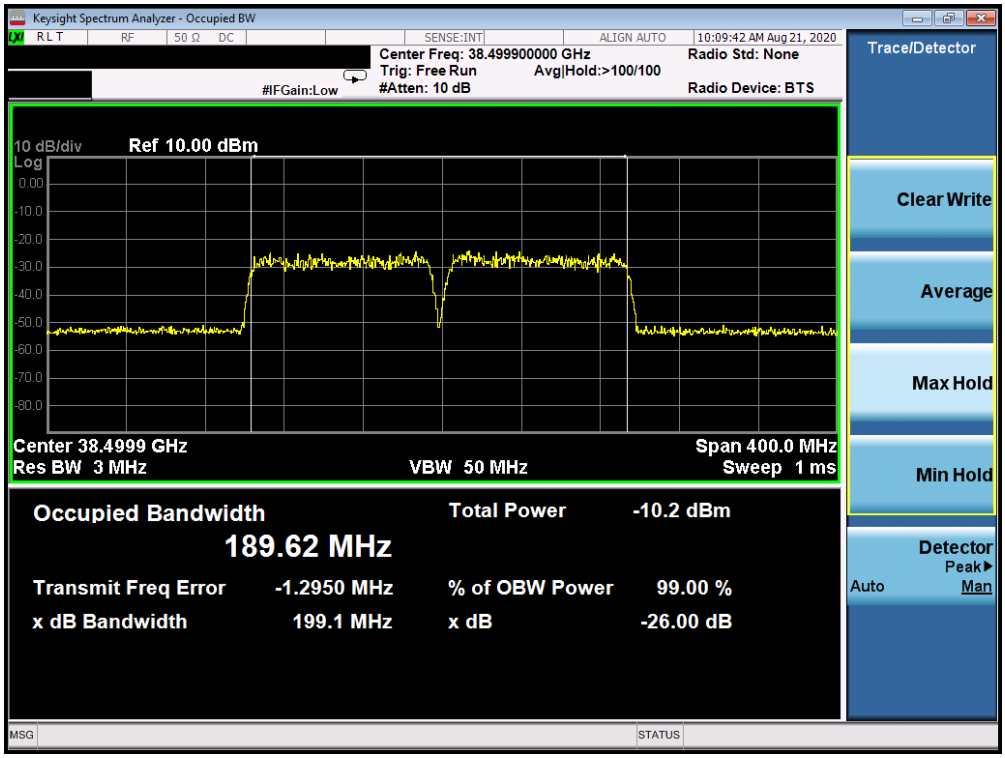
Plot 7-26. Ant 3 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



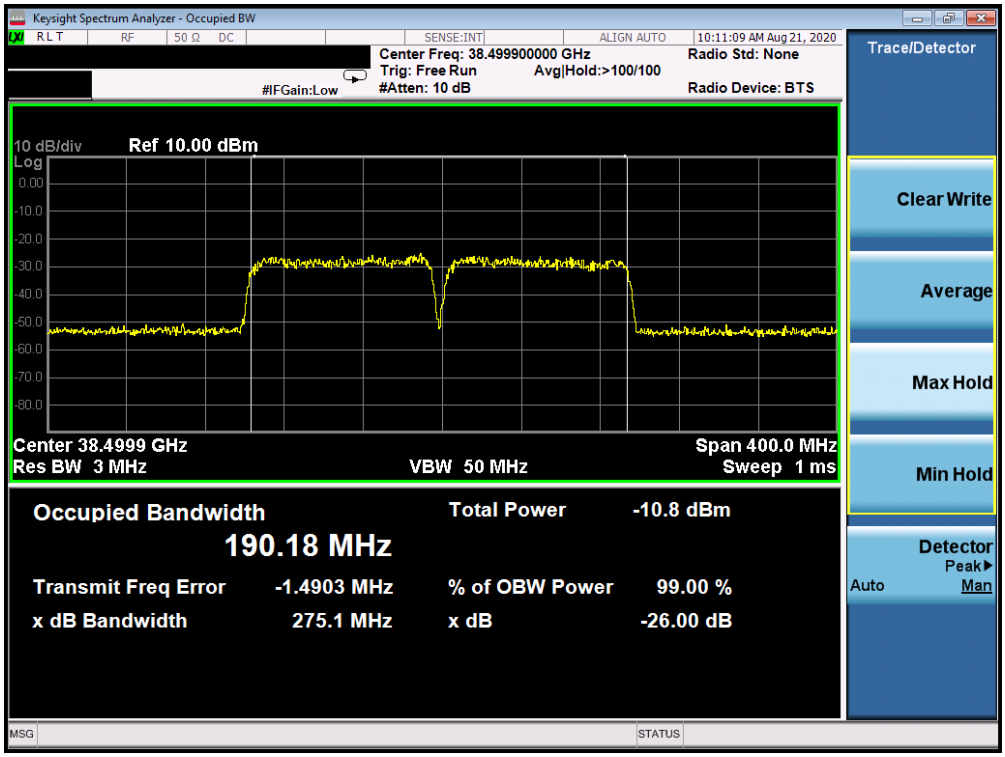
Plot 7-27. Ant 3 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)



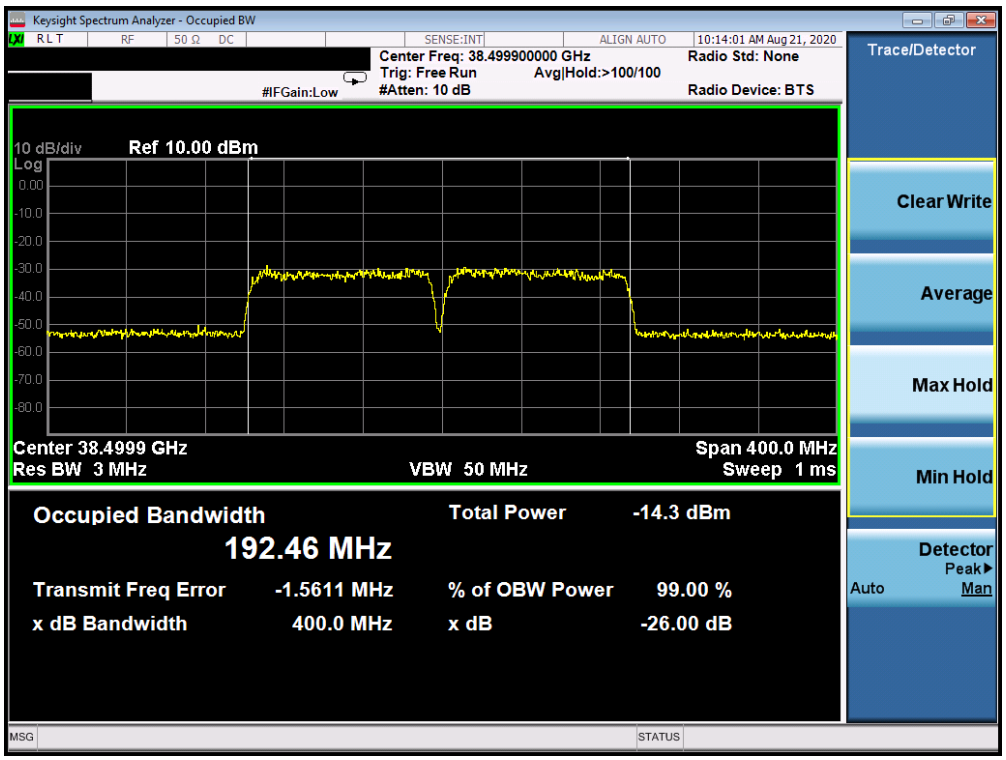
Plot 7-28. Ant 3 Occupied Bandwidth Plot (100MHz-1CC – pi/2-BPSK – Mid Channel)



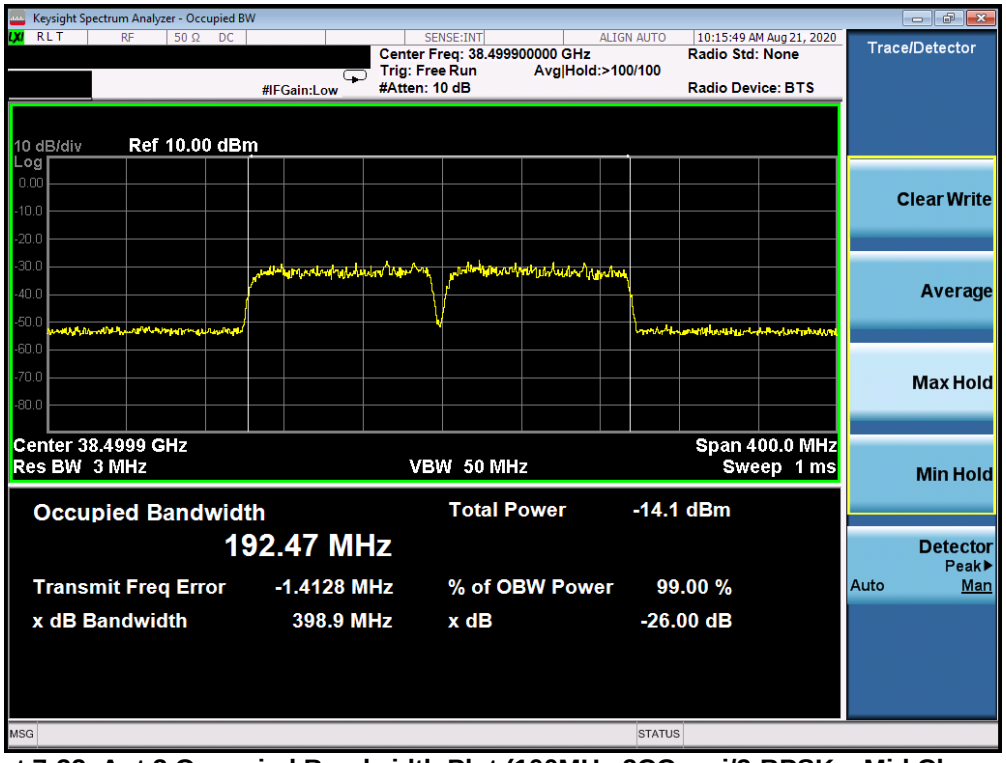
Plot 7-29. Ant 3 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-30. Ant 3 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)



Plot 7-31. Ant 3 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)



Plot 7-32. Ant 3 Occupied Bandwidth Plot (100MHz-2CC – pi/2-BPSK – Mid Channel)

7.3 Equivalent Isotropic Radiated Power

§2.1046, §30.202

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

The average power of the sum of all antenna elements is limited to a maximum EIRP of +43 dBm.

Test Procedures Used

ANSI C63.26-2015 Section 5.2.4.4.1
KDB 842590 D01 v01r01 Section 4.2

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 2x to 3x the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
8. Trace mode = trace averaging (RMS) over 100 sweeps
9. The trace was allowed to stabilize

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below. Both H-Beam and V-Beam were investigated and the worst-case measurements were reported below.

2) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.

3) EIRP measurements were taken at 1m test distance.

4) The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBµV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBµV/m) = Spectrum Analyzer Channel Power Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + 107.

5) Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning.

6) This device supports transmission of H-polarized and V-polarized beams from the antenna array in both CP-OFDM and DFT-s-OFDM transmission schemes. SISO and MIMO operation is also supported for some configurations. As part of the testing, all modes are investigated fully on the channel showing the highest simulated EIRP using QPSK modulation. The configuration that shows the highest measured EIRP was then used to determine the EIRP for the low and high channels and for the additional modulations.

7) The 1st and 2nd peak paired Beam IDs per manufacturer were investigated. Worst case EIRP is shown in tables below.

Band n261

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	27525.00	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	53	1 / 16	**24.37**
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	167	V	153	32	1 / 16	20.88
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	26	H	170	52	1 / 16	21.97
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	75	38	1 / 16	24.31
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H	SISO	167	V	153	32	1 / 16	17.51
	27924.96	Mid	CP-OFDM	pi/2-BPSK	V	SISO	26	H	170	52	1 / 16	19.03
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	39 + 167	H	75	38	1 / 16	20.66
	28324.92	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	51	1 / 16	23.87
	27525.00	Low	DFT-s-OFDM	QPSK	H + V	2Tx	39 + 167	H	92	53	1 / 16	23.70
	27525.00	Low	DFT-s-OFDM	16QAM	H + V	2Tx	39 + 167	H	92	53	1 / 16	22.15
	27525.00	Low	DFT-s-OFDM	64QAM	H + V	2Tx	39 + 167	H	92	53	1 / 16	20.72

Table 7-2. Ant 1 EIRP Data (Band n261 - 50MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	27525.00	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	53	32 / 0	**18.56**
	27525.00	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	53	32 / 0	17.49
	27525.00	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	53	32 / 0	16.64
	27525.00	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	53	32 / 0	15.01

Table 7-3. Ant 1 EIRP Data (Band n261 - 50MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	27550.08	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	53	1 / 32	**25.47**
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	167	V	153	32	1 / 32	21.41
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	26	H	170	52	1 / 32	22.22
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	75	38	1 / 32	25.14
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H	SISO	167	V	153	32	1 / 32	18.23
	27924.96	Mid	CP-OFDM	pi/2-BPSK	V	SISO	26	H	170	52	1 / 32	18.80
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	39 + 167	H	75	38	1 / 32	22.15
	28299.96	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	51	1 / 32	23.63
	27550.08	Low	DFT-s-OFDM	QPSK	H + V	2Tx	39 + 167	H	92	53	1 / 32	24.47
	27550.08	Low	DFT-s-OFDM	16QAM	H + V	2Tx	39 + 167	H	92	53	1 / 32	22.25
	27550.08	Low	DFT-s-OFDM	64QAM	H + V	2Tx	39 + 167	H	92	53	1 / 32	20.51

Table 7-4. Ant 1 EIRP Data (Band n261 - 100MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	27550.08	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	39 + 167	H	92	53	64 / 0	**22.47**
	27550.08	Low	DFT-s-OFDM	QPSK	H + V	2Tx	39 + 167	H	92	53	64 / 0	21.69
	27550.08	Low	DFT-s-OFDM	16QAM	H + V	2Tx	39 + 167	H	92	53	64 / 0	20.41
	27550.08	Low	DFT-s-OFDM	64QAM	H + V	2Tx	39 + 167	H	92	53	64 / 0	19.05

Table 7-5. Ant 1 EIRP Data (Band n261 - 100MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	27525.00	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	34 + 162	H	252	84	1 / 16	27.03
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	164	H	110	93	1 / 16	23.87
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	34	H	103	270	1 / 16	24.02
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	34 + 162	H	250	79	1 / 16	**27.32**
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H	SISO	164	H	110	93	1 / 16	20.72
	27924.96	Mid	CP-OFDM	pi/2-BPSK	V	SISO	34	H	103	270	1 / 16	21.29
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	34 + 162	H	250	79	1 / 16	23.88
	28324.92	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	20 + 148	H	250	92	1 / 16	27.16
	27924.96	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	34 + 162	H	250	79	1 / 16	26.59
	27924.96	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	34 + 162	H	250	79	1 / 16	25.33
	27924.96	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	34 + 162	H	250	79	1 / 16	23.87

Table 7-6. Ant 2 EIRP Data (Band n261 - 50MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	34 + 162	H	250	79	32 / 0	**22.49**
	27924.96	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	34 + 162	H	250	79	32 / 0	21.57
	27924.96	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	34 + 162	H	250	79	32 / 0	20.70
	27924.96	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	34 + 162	H	250	79	32 / 0	18.65

Table 7-7. Ant 2 EIRP Data (Band n261 - 50MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	27550.08	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	34 + 162	H	252	84	1 / 32	28.37
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	164	H	110	93	1 / 32	24.24
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	34	H	103	270	1 / 32	24.85
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	34 + 162	H	250	79	1 / 32	**28.66**
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H	SISO	164	H	110	93	1 / 32	20.96
	27924.96	Mid	CP-OFDM	pi/2-BPSK	V	SISO	34	H	103	270	1 / 32	21.59
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	34 + 162	H	250	79	1 / 32	23.86
	28299.96	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	20 + 148	H	250	92	1 / 32	28.29
	27924.96	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	34 + 162	H	250	79	1 / 32	27.29
	27924.96	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	34 + 162	H	250	79	1 / 32	26.77
	27924.96	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	34 + 162	H	250	79	1 / 32	25.32

Table 7-8. Ant 2 EIRP Data (Band n261 - 100MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	34 + 162	H	250	79	64 / 0	**24.11**
	27924.96	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	34 + 162	H	250	79	64 / 0	23.23
	27924.96	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	34 + 162	H	250	79	64 / 0	22.08
	27924.96	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	34 + 162	H	250	79	64 / 0	20.39

Table 7-9. Ant 2 EIRP Data (Band n261 - 100MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	27525.00	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	30 + 158	V	91	285	1 / 16	26.80
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	172	H	295	255	1 / 16	24.84
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	29	H	153	39	1 / 16	24.30
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	44 + 172	V	83	265	1 / 16	**27.42**
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H	SISO	172	H	295	255	1 / 16	24.02
	27924.96	Mid	CP-OFDM	pi/2-BPSK	V	SISO	29	H	153	39	1 / 16	23.84
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	44 + 172	V	83	265	1 / 16	24.31
	28324.92	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	44 + 172	V	56	344	1 / 16	24.92
	27924.96	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	44 + 172	V	83	265	1 / 16	26.57
	27924.96	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	44 + 172	V	83	265	1 / 16	25.36
	27924.96	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	44 + 172	V	83	265	1 / 16	23.68

Table 7-10. Ant 3 EIRP Data (Band n261 - 50MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	44 + 172	V	83	265	32 / 0	**21.24**
	27924.96	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	44 + 172	V	83	265	32 / 0	20.12
	27924.96	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	44 + 172	V	83	265	32 / 0	19.02
	27924.96	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	44 + 172	V	83	265	32 / 0	17.66

Table 7-11. Ant 3 EIRP Data (Band n261 - 50MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	27550.08	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	30 + 158	V	91	285	1 / 32	27.04
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	172	H	295	255	1 / 32	24.67
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	29	H	153	39	1 / 32	24.40
	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	44 + 172	V	83	265	1 / 32	**27.66**
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H	SISO	172	H	295	255	1 / 32	23.58
	27924.96	Mid	CP-OFDM	pi/2-BPSK	V	SISO	29	H	153	39	1 / 32	23.22
	27924.96	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	44 + 172	V	83	265	1 / 32	24.01
	28299.96	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	44 + 172	V	56	344	1 / 32	25.67
	27924.96	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	44 + 172	V	83	265	1 / 32	26.44
	27924.96	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	44 + 172	V	83	265	1 / 32	25.20
	27924.96	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	44 + 172	V	83	265	1 / 32	23.74

Table 7-12. Ant 3 EIRP Data (Band n261 - 100MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	27924.96	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	44 + 172	V	83	265	64 / 0	**20.62**
	27924.96	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	44 + 172	V	83	265	64 / 0	19.95
	27924.96	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	44 + 172	V	83	265	64 / 0	18.86
	27924.96	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	44 + 172	V	83	265	64 / 0	17.13

Table 7-13. Ant 3 EIRP Data (Band n261 - 100MHz-2CC)

Band n260

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	37027.32	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	37 + 165	V	94	113	1 / 16	21.04
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	153	V	66	108	1 / 16	22.97
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	39	V	87	344	1 / 16	23.14
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	25 + 153	V	94	113	1 / 16	**26.32**
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H	SISO	153	V	66	108	1 / 16	21.05
	38497.44	Mid	CP-OFDM	pi/2-BPSK	V	SISO	39	V	87	344	1 / 16	21.37
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	25 + 153	V	94	113	1 / 16	24.46
	39966.24	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	25 + 153	V	94	113	1 / 16	19.88
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	25 + 153	V	94	113	1 / 16	25.93
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	25 + 153	V	94	113	1 / 16	23.97
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	25 + 153	V	94	113	1 / 16	21.88

Table 7-14. Ant 1 EIRP Data (Band n260 - 50MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	25 + 153	V	94	113	32 / 0	**21.53**
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	25 + 153	V	94	113	32 / 0	21.22
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	25 + 153	V	94	113	32 / 0	19.34
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	25 + 153	V	94	113	32 / 0	17.41

Table 7-15. Ant 1 EIRP Data (Band n260 - 50MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	37027.32	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	37 + 165	V	94	113	1 / 32	20.17
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	153	V	66	108	1 / 32	23.13
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	39	V	87	344	1 / 32	23.24
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	25 + 153	V	94	113	1 / 32	**26.44**
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H	SISO	153	V	66	108	1 / 32	21.87
	38497.44	Mid	CP-OFDM	pi/2-BPSK	V	SISO	39	V	87	344	1 / 32	21.54
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	25 + 153	V	94	113	1 / 32	23.27
	39966.24	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	25 + 153	V	94	113	1 / 32	18.26
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	25 + 153	V	94	113	1 / 32	26.38
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	25 + 153	V	94	113	1 / 32	24.27
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	25 + 153	V	94	113	1 / 32	22.82

Table 7-16. Ant 1 EIRP Data (Band n260 - 100MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	25 + 153	V	94	113	64 / 0	**21.39**
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	25 + 153	V	94	113	64 / 0	20.86
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	25 + 153	V	94	113	64 / 0	18.99
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	25 + 153	V	94	113	64 / 0	17.18

Table 7-17. Ant 1 EIRP Data (Band n260 - 100MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	37027.32	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	22 + 150	H	277	295	1 / 16	22.22
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	149	V	130	297	1 / 16	23.77
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	20	V	82	125	1 / 16	24.19
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	22 + 150	H	285	240	1 / 16	**25.90**
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H	SISO	149	V	130	297	1 / 16	16.98
	38497.44	Mid	CP-OFDM	pi/2-BPSK	V	SISO	20	V	82	125	1 / 16	17.23
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	22 + 150	H	285	240	1 / 16	19.11
	39966.24	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	34 + 162	H	345	290	1 / 16	18.73
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	22 + 150	H	285	240	1 / 16	25.65
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	22 + 150	H	285	240	1 / 16	23.84
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	22 + 150	H	285	240	1 / 16	22.01

Table 7-18. Ant 2 EIRP Data (Band n260 - 50MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	22 + 150	H	285	240	32 / 0	**21.03**
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	22 + 150	H	285	240	32 / 0	20.55
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	22 + 150	H	285	240	32 / 0	19.34
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	22 + 150	H	285	240	32 / 0	17.49

Table 7-19. Ant 2 EIRP Data (Band n260 - 50MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	37027.32	Low	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	22 + 150	H	277	295	1 / 32	21.57
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	149	V	130	297	1 / 32	22.04
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	20	V	82	125	1 / 32	24.23
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	22 + 150	H	285	240	1 / 32	**26.35**
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H	SISO	149	V	130	297	1 / 32	15.75
	38497.44	Mid	CP-OFDM	pi/2-BPSK	V	SISO	20	V	82	125	1 / 32	17.96
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	22 + 150	H	285	240	1 / 32	19.22
	39966.24	High	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	34 + 162	H	345	290	1 / 32	17.49
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	22 + 150	H	285	240	1 / 32	26.18
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	22 + 150	H	285	240	1 / 32	24.51
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	22 + 150	H	285	240	1 / 32	22.73

Table 7-20. Ant 2 EIRP Data (Band n260 - 100MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	22 + 150	H	285	240	64 / 0	**21.52**
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	22 + 150	H	285	240	64 / 0	21.04
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	22 + 150	H	285	240	64 / 0	19.37
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	22 + 150	H	285	240	64 / 0	17.10

Table 7-21. Ant 2 EIRP Data (Band n260 - 100MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	37027.32	Low	DFT-s-OFDM	pi/2-BPSK	H + V	SISO	43 + 171	V	269	280	1 / 16	26.38
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	171	V	101	277	1 / 16	25.86
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	30	H	116	281	1 / 16	25.90
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	30 + 158	V	262	283	1 / 16	**29.14**
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H	SISO	171	V	101	277	1 / 16	23.95
	38497.44	Mid	CP-OFDM	pi/2-BPSK	V	SISO	30	H	116	281	1 / 16	24.07
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	30 + 158	V	262	283	1 / 16	27.11
	39966.24	High	DFT-s-OFDM	pi/2-BPSK	H + V	SISO	30 + 158	V	288	284	1 / 16	27.94
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	30 + 158	V	262	283	1 / 16	28.54
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	30 + 158	V	262	283	1 / 16	26.73
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	30 + 158	V	262	283	1 / 16	24.70

Table 7-22. Ant 3 EIRP Data (Band n260 - 50MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	30 + 158	V	262	283	32 / 0	**24.51**
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	30 + 158	V	262	283	32 / 0	23.78
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	30 + 158	V	262	283	32 / 0	21.92
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	30 + 158	V	262	283	32 / 0	20.21

Table 7-23. Ant 3 EIRP Data (Band n260 - 50MHz-2CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	37027.32	Low	DFT-s-OFDM	pi/2-BPSK	H	SISO	43 + 171	V	269	280	1 / 32	25.84
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H	SISO	171	V	101	277	1 / 32	25.30
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	V	SISO	30	H	116	281	1 / 32	25.40
	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	30 + 158	V	262	283	1 / 32	**28.80**
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H	SISO	171	V	101	277	1 / 32	23.12
	38497.44	Mid	CP-OFDM	pi/2-BPSK	V	SISO	30	H	116	281	1 / 32	23.28
	38497.44	Mid	CP-OFDM	pi/2-BPSK	H + V	MIMO	30 + 158	V	262	283	1 / 32	26.97
	39966.24	High	DFT-s-OFDM	pi/2-BPSK	H	SISO	30 + 158	V	288	284	1 / 32	27.42
	38497.44	Mid	DFT-s-OFDM	QPSK	H	2Tx	30 + 158	V	262	283	1 / 32	28.25
	38497.44	Mid	DFT-s-OFDM	16QAM	H	2Tx	30 + 158	V	262	283	1 / 32	26.46
	38497.44	Mid	DFT-s-OFDM	64QAM	H	2Tx	30 + 158	V	262	283	1 / 32	24.23

Table 7-24. Ant 3 EIRP Data (Band n260 - 100MHz-1CC)

CCs active	Frequency [MHz]	Channel	Transmission Scheme	Modulation	Beam Pol	Ant. Div.	BeamID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	38497.44	Mid	DFT-s-OFDM	pi/2-BPSK	H + V	2Tx	30 + 158	V	262	283	64 / 0	**23.87**
	38497.44	Mid	DFT-s-OFDM	QPSK	H + V	2Tx	30 + 158	V	262	283	64 / 0	23.35
	38497.44	Mid	DFT-s-OFDM	16QAM	H + V	2Tx	30 + 158	V	262	283	64 / 0	21.88
	38497.44	Mid	DFT-s-OFDM	64QAM	H + V	2Tx	30 + 158	V	262	283	64 / 0	20.09

Table 7-25. Ant 3 EIRP Data (Band n260 - 100MHz-2CC)

7.4 Radiated Spurious and Harmonic Emissions

§2.1051, §30.203

Test Overview

The spectrum is scanned from 30MHz to 100GHz for n261 and from 30MHz to 200GHz for n260. All out of band emissions are measured in a radiated test setup while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All modulations were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The conductive power or total radiated power of any emissions outside a licensee's frequency block shall be -13dBm/1MHz.

Test Procedure Used

ANSI C63.26-2015 Section 5.7.4
KDB 842590 D01 v01r01 Section 4.4.2 and Section 4.4.3

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 100 GHz for n261 and 200GHz for n260. Several plots are used to show investigations in this entire span.
2. Detector = RMS
3. Trace mode = Maxhold
4. Sweep time = auto couple
5. Number of sweep points ≥ 2 x Span/RBW
6. The trace was allowed to stabilize
7. RBW = 1MHz, VBW = 3MHz

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) All radiated spurious emissions were measured as EIRP to compare with the §30.203 TRP limits.

3) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.

4) The plots from 1-200GHz show corrected average EIRP levels. The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBμV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBμV/m) = Spectrum Analyzer Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + Harmonic Mixer Conversion Loss (dB) + 107. All appropriate Antenna Factor and Cable Loss have been applied in the spectrum analyzer for each measurement. For measurements > 40GHz, Harmonic Mixer Conversion Loss was also applied to the spectrum analyzer.

5) Emissions below 18GHz were measured at a 3 meter test distance, while emissions above 18GHz were measured at the appropriate far field distance. The far field of the mmWave signal is based on formula: R > 2D^2/wavelength, where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, D is the largest dimension of the measurement antenna.

Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

Table 7-26. Far-Field Distance & Measurement Distance per Frequency Range

6) All emissions from 30MHz - 40GHz were measured using a spectrum analyzer with an internal preamplifier. Emissions >40GHz were measured using a harmonic mixer with the spectrum analyzer.

7) All RSE's were measured with 1CC. It was determined that adding more CC's causes the overall amplitude of just 1CC to decrease, therefore, 1CC is the worst case for the purposes of spurious emissions measurements.

8) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

9) All RSE's were investigated in EN-DC mode and with 802.11 chipset active. It was determined that there is no new emission introduced by EN-DC mode, or the 802.11 chipset.

10) There was no discernible difference in the spurious emission levels when using different LTE anchor bands. Thus, LTE Band 2 was used as a representative anchor band for EN-DC investigations.

11) The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

Spurious Emissions EIRP Sample Calculation

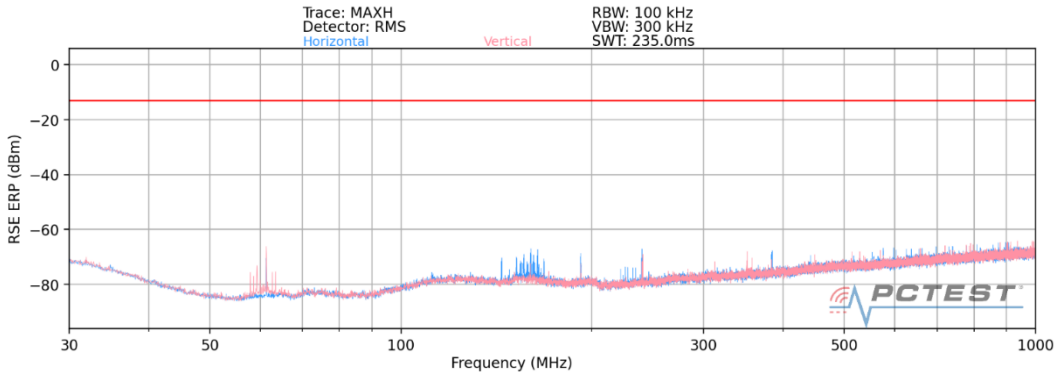
The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Note: Harmonic Mixer Conversion Loss only applies to RSE measurements > 40 GHz where harmonic mixers were used.

Band n261 – Ant 1

30MHz - 1GHz

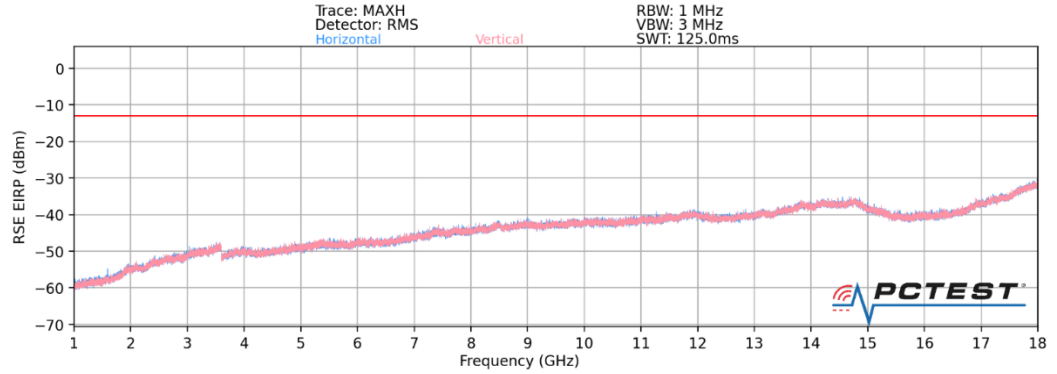


Plot 7-33. Ant 1- n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
984.00	Low	50	H + V	QPSK	H	-	-	-68.87	-13.00	-55.87
962.00	Mid	50	H + V	QPSK	H	-	-	-69.53	-13.00	-56.53
935.00	High	50	H + V	QPSK	H	-	-	-69.59	-13.00	-56.59

Table 7-28. Ant 1 - Spurious Emissions Table (30MHz - 1GHz)

1GHz - 18GHz

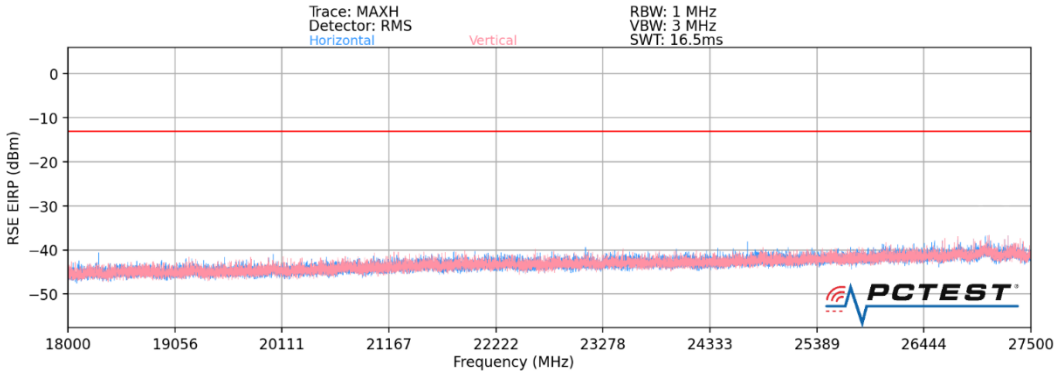


Plot 7-34. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8786.00	Low	50	H + V	QPSK	H	-	-	-44.09	-13.00	-31.09
8571.00	Mid	50	H + V	QPSK	H	-	-	-43.66	-13.00	-30.66
8996.00	High	50	H + V	QPSK	H	-	-	-42.53	-13.00	-29.53

Table 7-28. Ant 1 - Spurious Emissions Table (1GHz - 18GHz)

18GHz - 27.5GHz

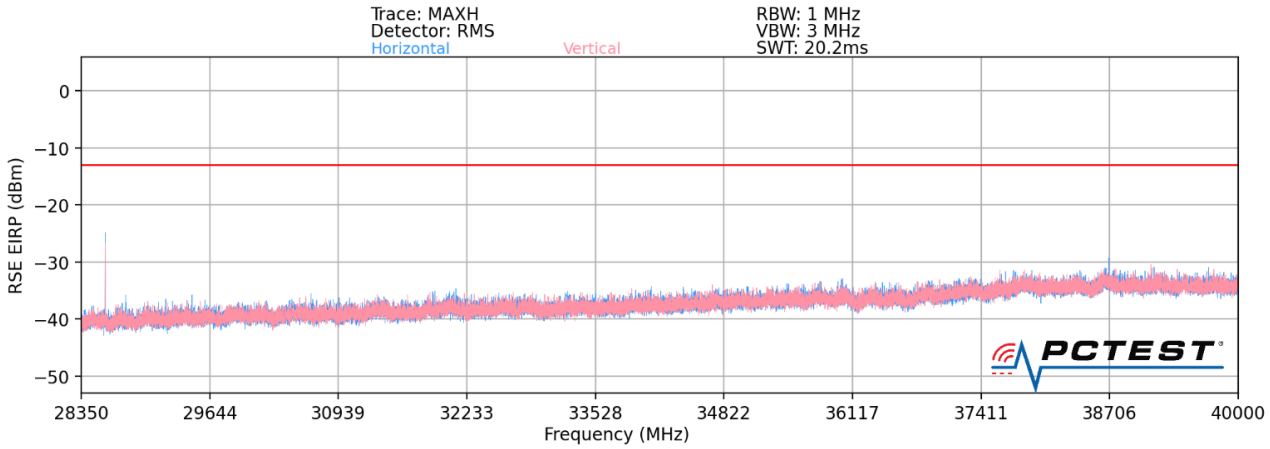


Plot 7-35. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27413.50	Low	50	H + V	QPSK	H	-	-	-41.03	-13.00	-28.03
27431.80	Mid	50	H + V	QPSK	H	-	-	-42.77	-13.00	-29.77
27297.20	High	50	H + V	QPSK	H	-	-	-41.11	-13.00	-28.11

Table 7-28. Ant 1 - Spurious Emissions Table (18GHz – 27.5GHz)

28.35GHz - 40GHz

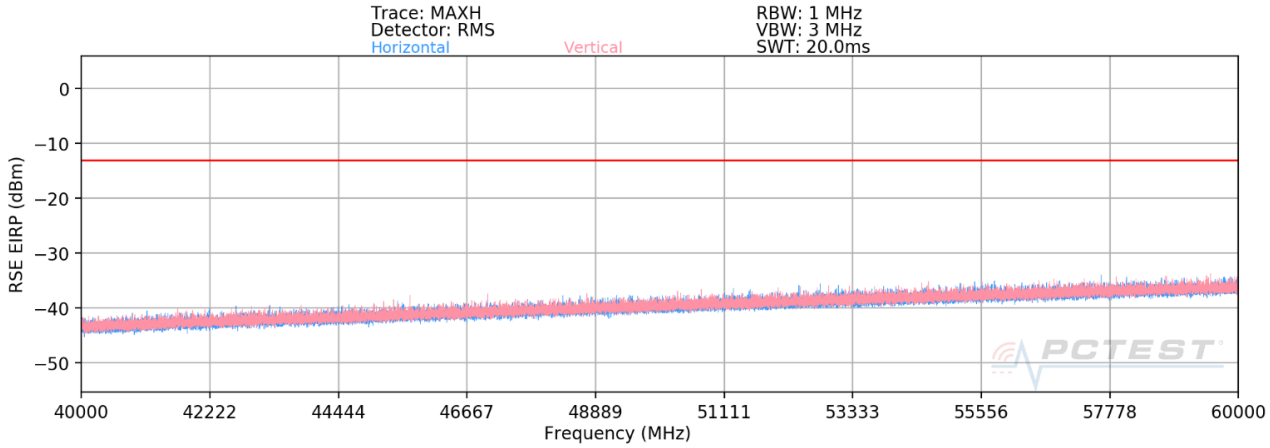


Plot 7-36. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28590.42	Low	50	H + V	QPSK	H	274	114	-28.63	-13.00	-15.63
29361.79	Mid	50	H + V	QPSK	H	251	118	-30.18	-13.00	-17.18
30137.24	High	50	H + V	QPSK	H	297	190	-31.44	-13.00	-18.44

Table 7-28. Ant 1 -Spurious Emissions Table (28.35GHz - 40GHz)

40GHz - 60GHz

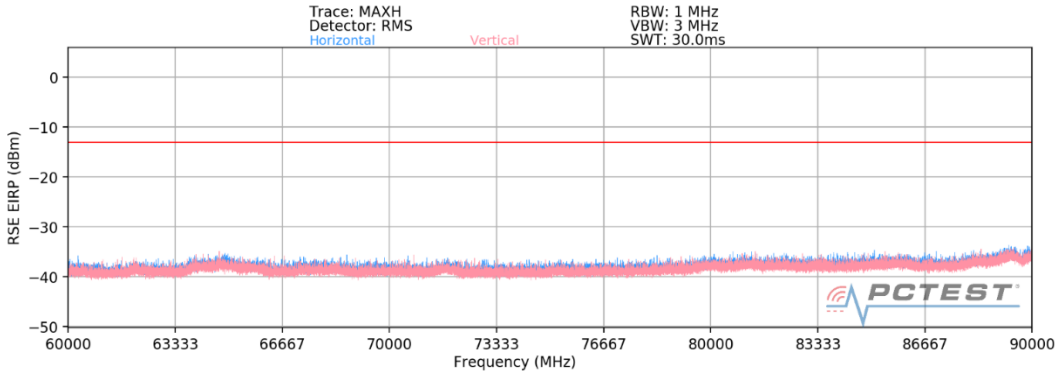


Plot 7-44. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55100.16	Low	50	H + V	QPSK	H	-	-	-38.63	-13.00	-25.63
55849.92	Mid	50	H + V	QPSK	H	-	-	-37.85	-13.00	-24.85
56599.92	High	50	H + V	QPSK	H	-	-	-38.03	-13.00	-25.03

Table 7-36. Ant 1 -Spurious Emissions Table (40GHz - 60GHz)

60GHz - 90GHz

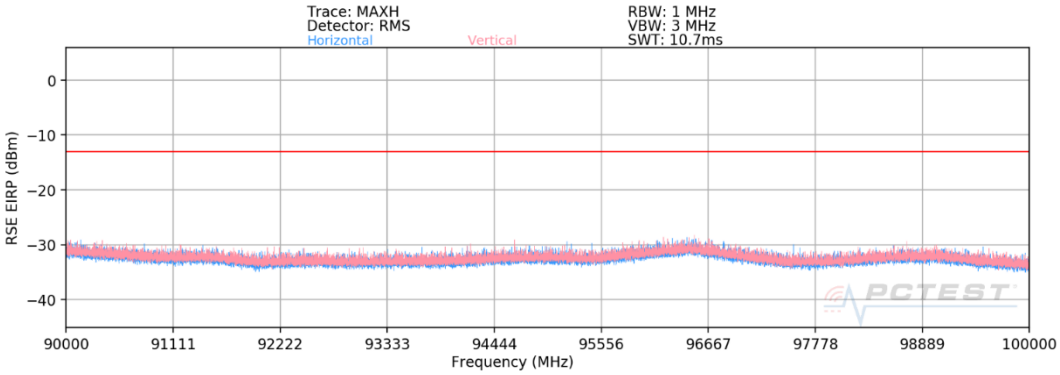


Plot 7-38. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82650.24	Low	50	H + V	QPSK	H	-	-	-37.38	-13.00	-24.38
83774.88	Mid	50	H + V	QPSK	H	-	-	-37.09	-13.00	-24.09
84899.88	High	50	H + V	QPSK	H	-	-	-36.27	-13.00	-23.27

Table 7-30. Ant 1 -Spurious Emissions Table (60GHz - 90GHz)

90GHz - 100GHz



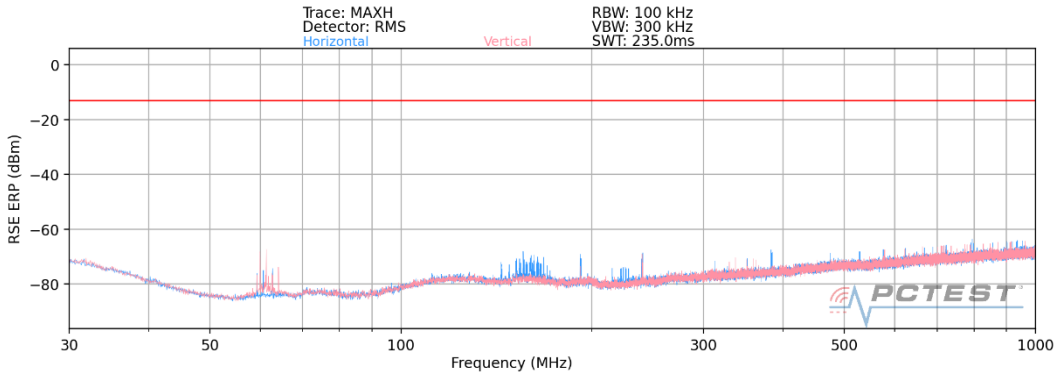
Plot 7-39. Ant 1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
99250.50	Low	50	H + V	QPSK	H	-	-	-33.05	-13.00	-20.05
90385.60	Mid	50	H + V	QPSK	H	-	-	-32.72	-13.00	-19.72
99261.10	High	50	H + V	QPSK	H	-	-	-32.12	-13.00	-19.12

Table 7-30. Ant 1 -Spurious Emissions Table (90GHz - 100GHz)

Band n261 – Ant 2

30MHz - 1GHz

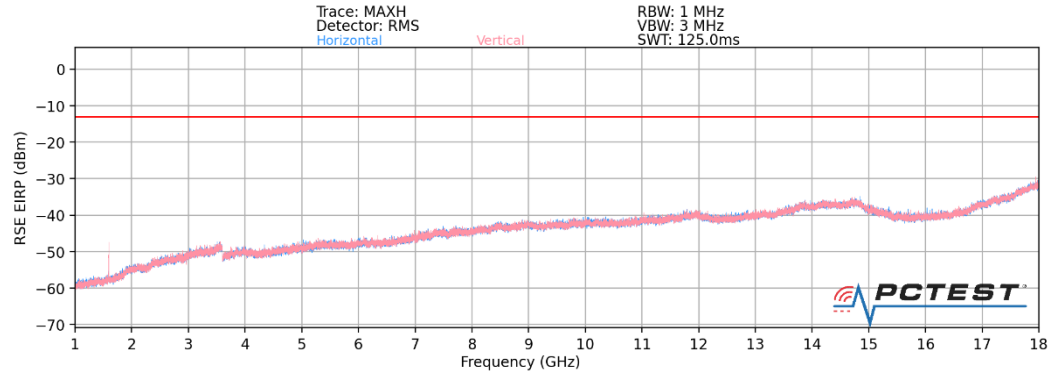


Plot 7-34. Ant 2 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
984.00	Low	50	H + V	QPSK	H	-	-	-68.89	-13.00	-55.89
962.00	Mid	50	H + V	QPSK	H	-	-	-68.32	-13.00	-55.32
935.00	High	50	H + V	QPSK	H	-	-	-70.25	-13.00	-57.25

Table 7-28. Ant 2 - Spurious Emissions Table (30MHz - 1GHz)

1GHz - 18GHz

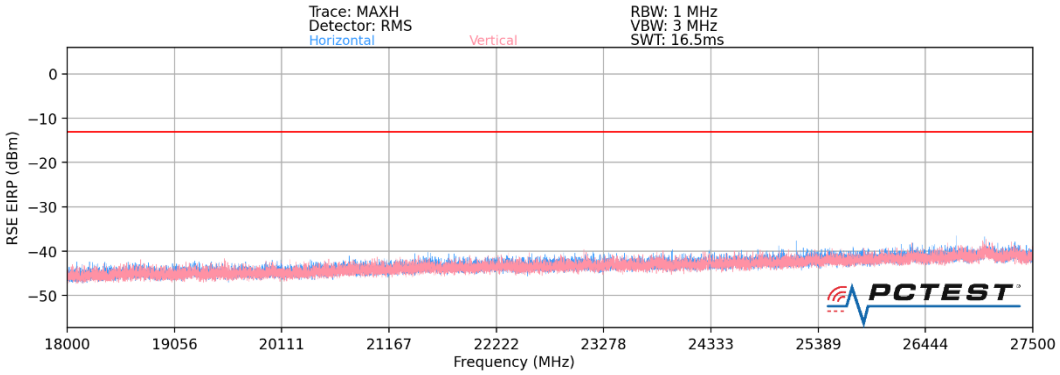


Plot 7-34. Ant 2 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8786.00	Low	50	H + V	QPSK	H	-	-	-44.15	-13.00	-31.15
8571.00	Mid	50	H + V	QPSK	H	-	-	-42.45	-13.00	-29.45
8996.00	High	50	H + V	QPSK	H	-	-	-43.03	-13.00	-30.03

Table 7-28. Ant 2 - Spurious Emissions Table (1GHz - 18GHz)

18GHz - 27.5GHz

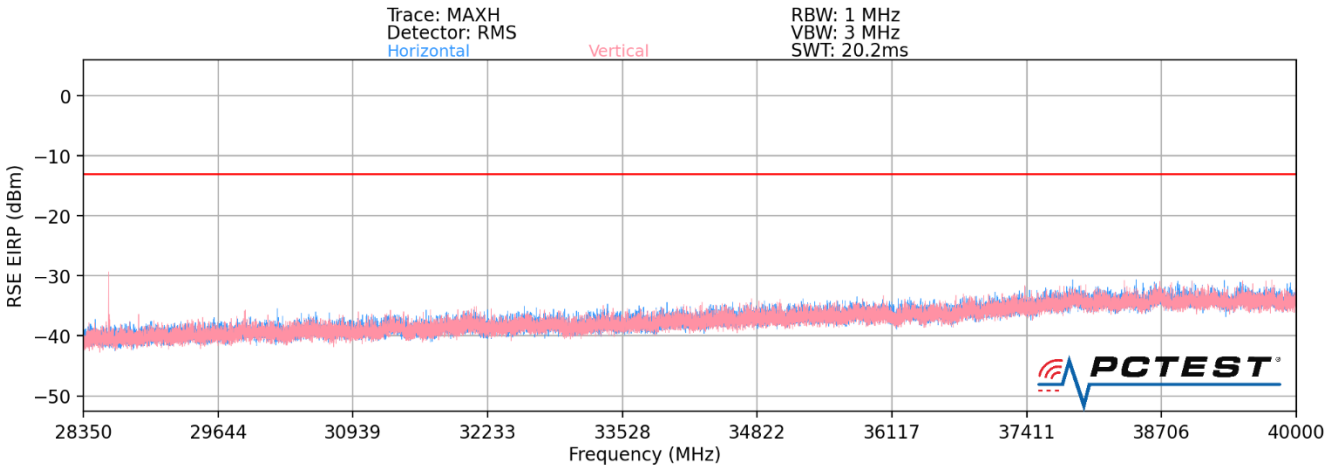


Plot 7-35. Ant 2 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27413.50	Low	50	H + V	QPSK	H	-	-	-40.81	-13.00	-27.81
27431.80	Mid	50	H + V	QPSK	H	-	-	-42.50	-13.00	-29.50
27297.20	High	50	H + V	QPSK	H	-	-	-40.07	-13.00	-27.07

Table 7-28. Ant 2 - Spurious Emissions Table (18GHz – 27.5GHz)

28.35GHz - 40GHz

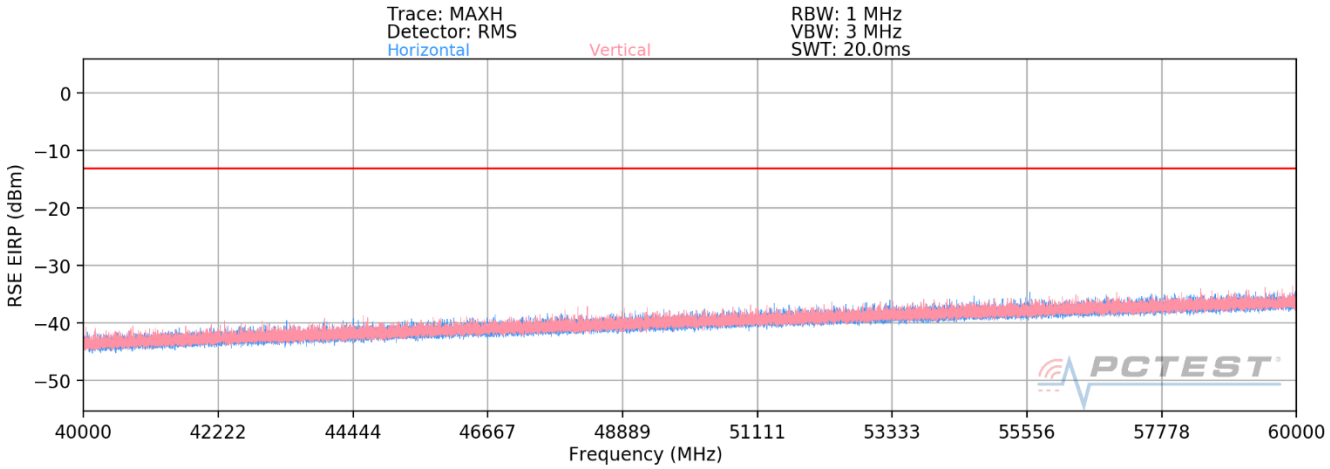


Plot 7-36. Ant 2 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28590.76	Low	50	H + V	QPSK	V	124	316	-32.66	-13.00	-19.66
29362.32	Mid	50	H + V	QPSK	V	120	303	-36.17	-13.00	-23.17
30136.41	High	50	H + V	QPSK	V	144	267	-36.01	-13.00	-23.01

Table 7-28. Ant 2 - Spurious Emissions Table (28.35GHz - 40GHz)

40GHz - 60GHz

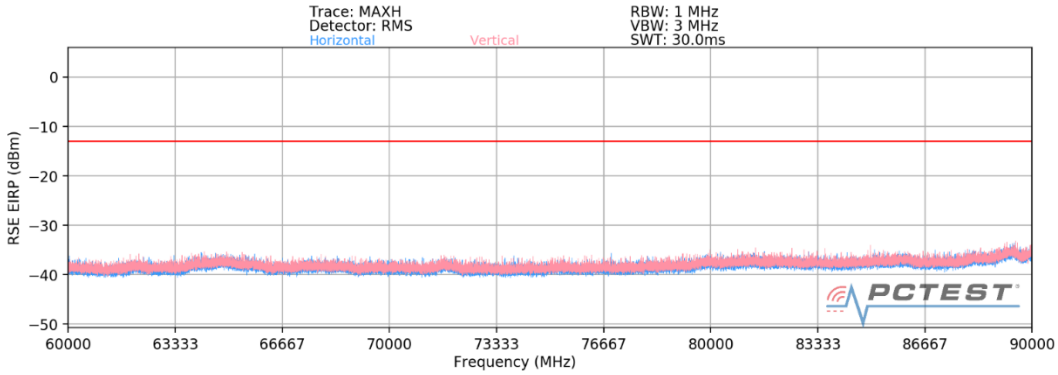


Plot 7-44. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55100.16	Low	50	H + V	QPSK	H	-	-	-38.48	-13.00	-25.48
55849.92	Mid	50	H + V	QPSK	H	-	-	-37.88	-13.00	-24.88
56599.92	High	50	H + V	QPSK	H	-	-	-37.98	-13.00	-24.98

Table 7-36. Ant 2 -Spurious Emissions Table (40GHz - 60GHz)

60GHz - 90GHz

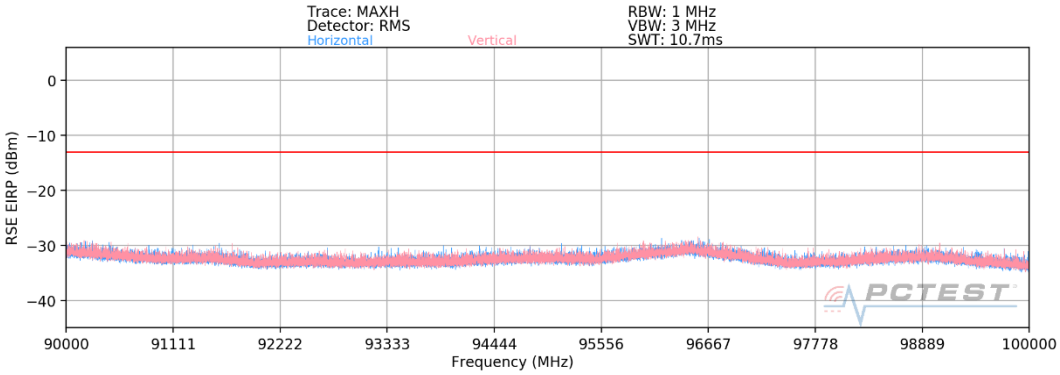


Plot 7-38. Ant 2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82650.24	Low	50	H + V	QPSK	H	-	-	-36.03	-13.00	-23.03
83774.88	Mid	50	H + V	QPSK	H	-	-	-38.24	-13.00	-25.24
84899.88	High	50	H + V	QPSK	H	-	-	-36.75	-13.00	-23.75

Table 7-30. Ant 2 -Spurious Emissions Table (60GHz - 90GHz)

90GHz - 100GHz



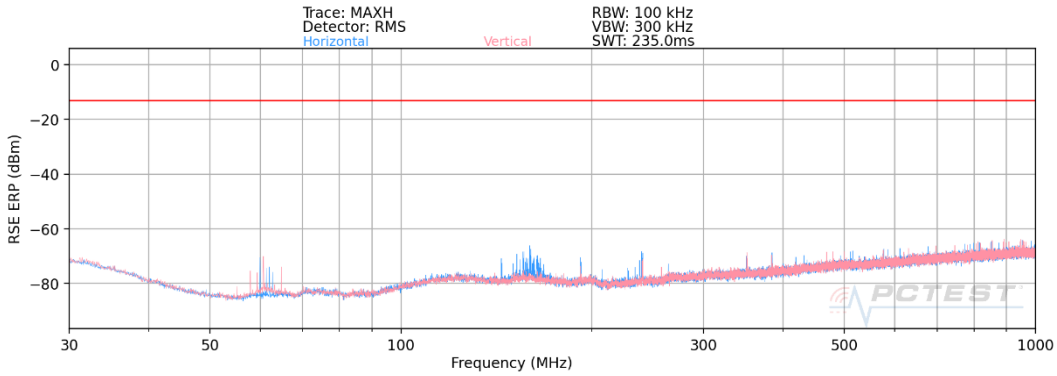
Plot 7-39. Ant 2 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
99250.50	Low	50	H + V	QPSK	H	-	-	-32.70	-13.00	-19.70
90385.60	Mid	50	H + V	QPSK	H	-	-	-33.01	-13.00	-20.01
99261.10	High	50	H + V	QPSK	H	-	-	-32.76	-13.00	-19.76

Table 7-30. Ant 2 -Spurious Emissions Table (90GHz - 100GHz)

Band n261 – Ant 3

30MHz - 1GHz

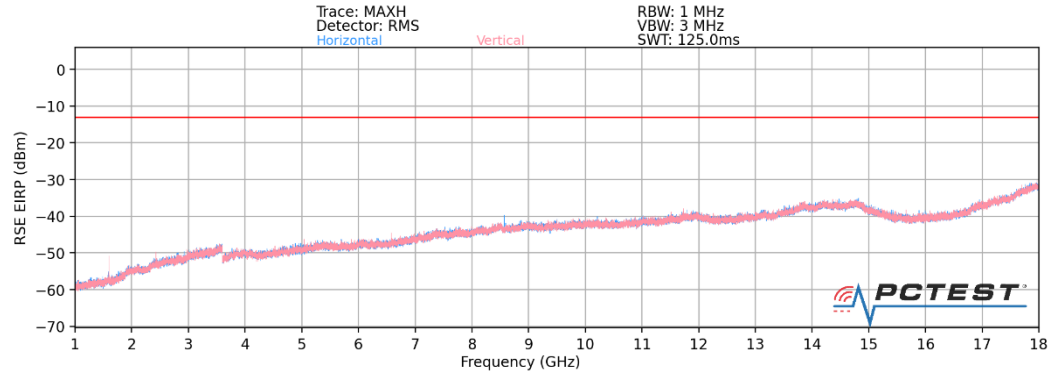


Plot 7-35. Ant 3 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
984.00	Low	100	H + V	QPSK	H	-	-	-67.84	-13.00	-54.84
962.00	Mid	100	H + V	QPSK	H	-	-	-69.08	-13.00	-56.08
935.00	High	100	H + V	QPSK	H	-	-	-67.84	-13.00	-54.84

Table 7-28. Ant 3 - Spurious Emissions Table (30MHz - 1GHz)

1GHz - 18GHz

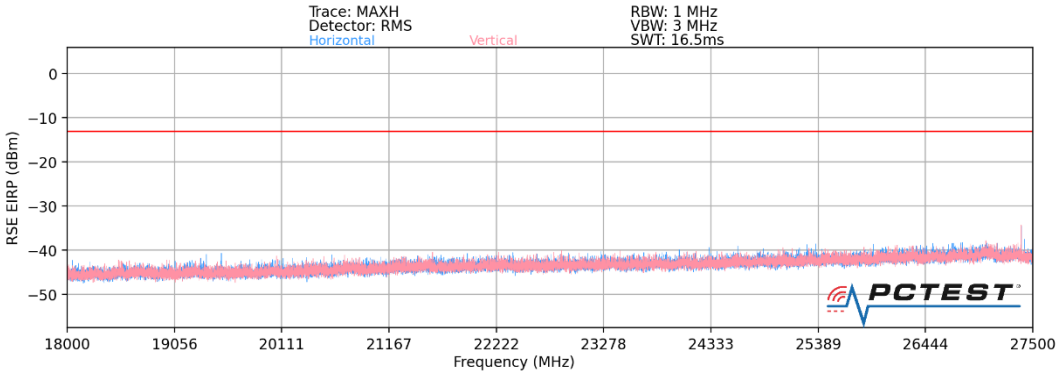


Plot 7-34. Ant 3 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8786.00	Low	100	H + V	QPSK	H	-	-	-43.51	-13.00	-30.51
8571.00	Mid	100	H + V	QPSK	H	-	-	-41.56	-13.00	-28.56
8996.00	High	100	H + V	QPSK	H	-	-	-42.22	-13.00	-29.22

Table 7-28. Ant 3 - Spurious Emissions Table (1GHz - 18GHz)

18GHz - 27.5GHz

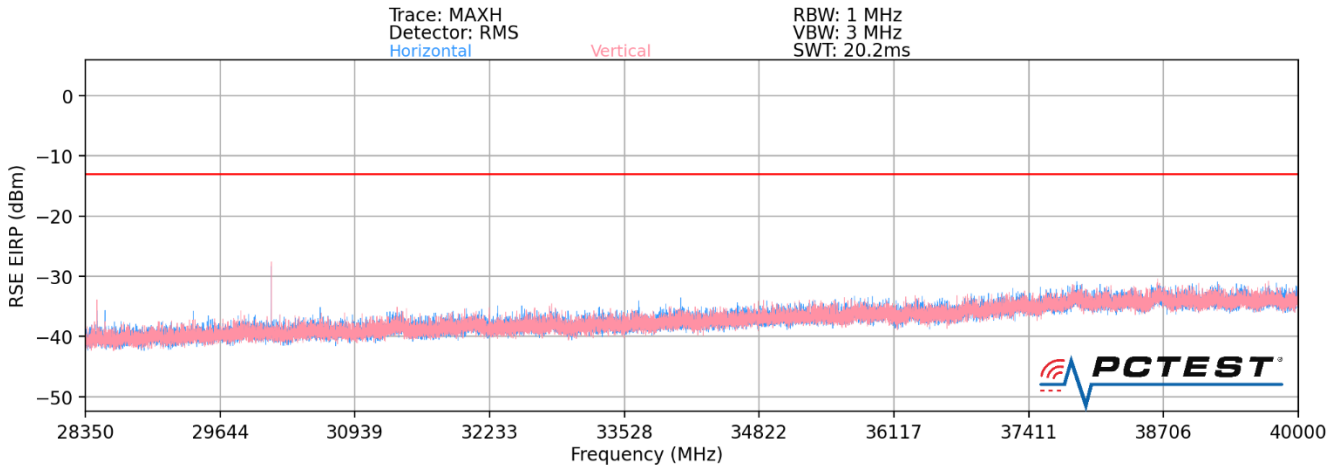


Plot 7-35. Ant 3 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27413.50	Low	100	H + V	QPSK	H	-	-	-41.67	-13.00	-28.67
27431.80	Mid	100	H + V	QPSK	H	-	-	-41.78	-13.00	-28.78
27297.20	High	100	H + V	QPSK	H	-	-	-40.65	-13.00	-27.65

Table 7-28. Ant 3 - Spurious Emissions Table (18GHz – 27.5GHz)

28.35GHz - 40GHz

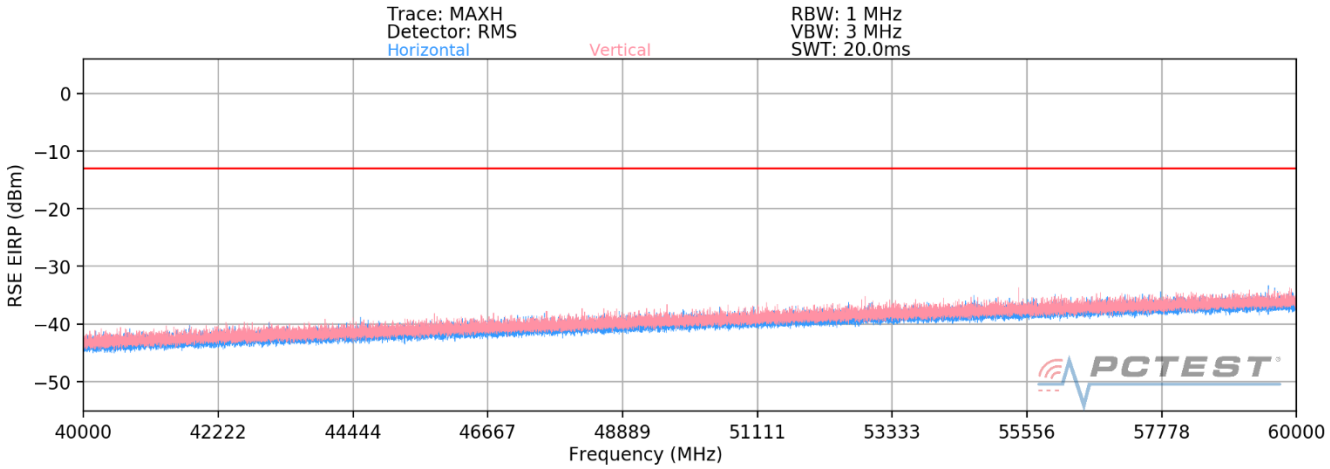


Plot 7-36. Ant 3 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28591.49	Low	100	H + V	QPSK	V	155	269	-30.10	-13.00	-17.10
29361.82	Mid	100	H + V	QPSK	V	142	263	-30.75	-13.00	-17.75
30136.57	High	100	H + V	QPSK	V	151	288	-29.93	-13.00	-16.93

Table 7-28. Ant 3 - Spurious Emissions Table (28.35GHz - 40GHz)

40GHz - 60GHz

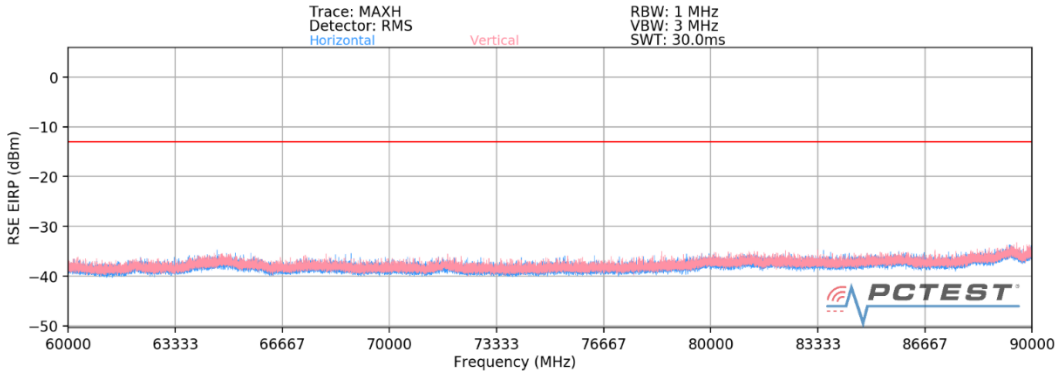


Plot 7-37. Ant 3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55100.16	Low	100	H + V	QPSK	H	-	-	-37.66	-13.00	-24.66
55849.92	Mid	100	H + V	QPSK	H	-	-	-38.60	-13.00	-25.60
56599.92	High	100	H + V	QPSK	H	-	-	-37.58	-13.00	-24.58

Table 7-29. Ant 3 -Spurious Emissions Table (40GHz - 60GHz)

60GHz - 90GHz

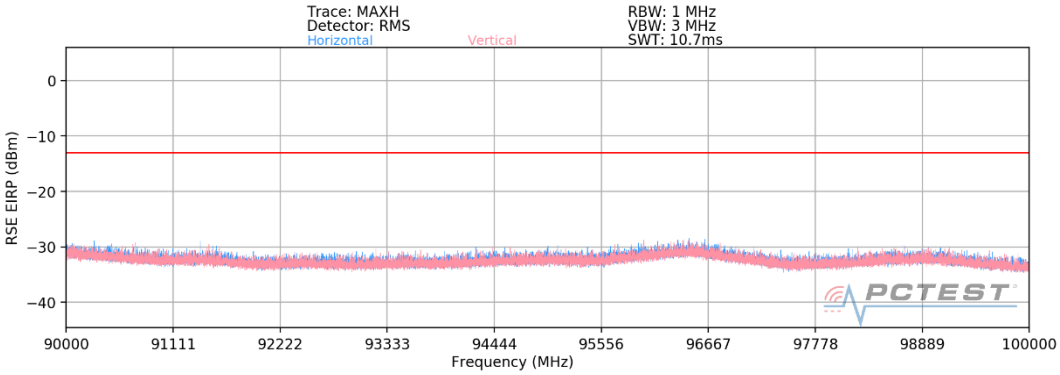


Plot 7-38. Ant 3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82650.24	Low	100	H + V	QPSK	H	-	-	-38.28	-13.00	-25.28
83774.88	Mid	100	H + V	QPSK	H	-	-	-37.52	-13.00	-24.52
84899.88	High	100	H + V	QPSK	H	-	-	-38.04	-13.00	-25.04

Table 7-30. Ant 3 -Spurious Emissions Table (60GHz - 90GHz)

90GHz - 100GHz



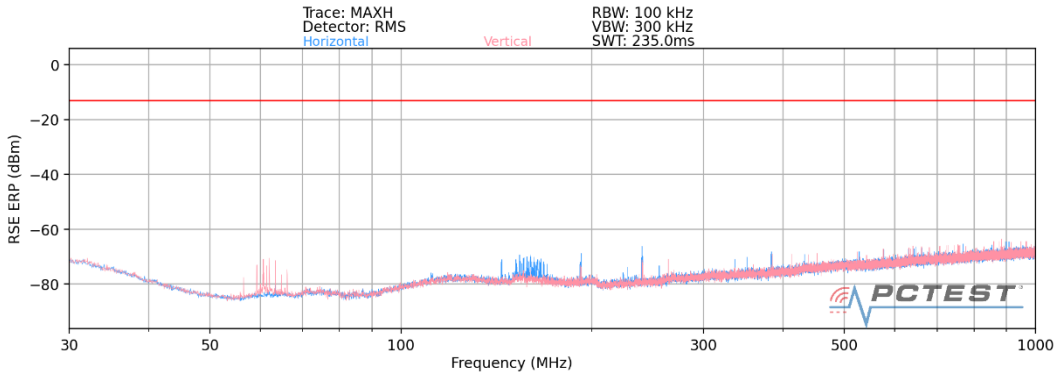
Plot 7-39. Ant 3 - n261 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
99250.50	Low	100	H + V	QPSK	H	-	-	-33.14	-13.00	-20.14
90385.60	Mid	100	H + V	QPSK	H	-	-	-31.91	-13.00	-18.91
99261.10	High	100	H + V	QPSK	H	-	-	-31.67	-13.00	-18.67

Table 7-30. Ant 3 -Spurious Emissions Table (90GHz - 100GHz)

Band n260- Ant 1

30MHz - 1GHz

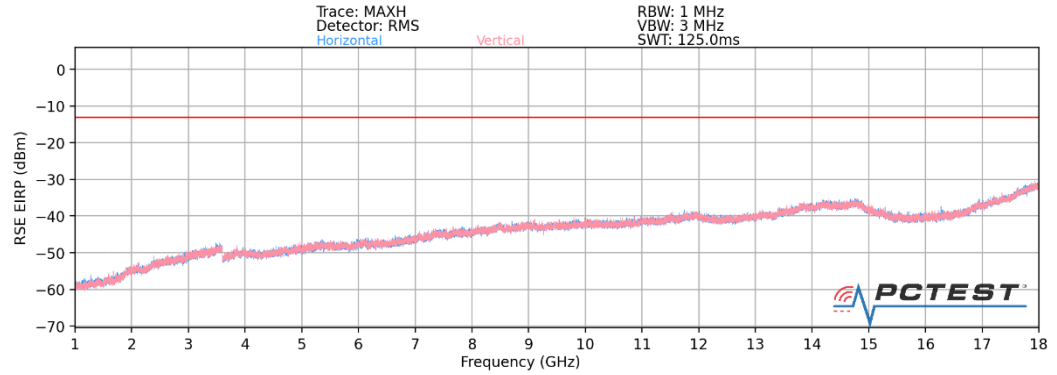


Plot 7-47. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
937.00	Low	50	H + V	QPSK	V	-	-	-68.49	-13.00	-55.49
961.00	Mid	50	H + V	QPSK	V	-	-	-69.17	-13.00	-56.17
982.00	High	50	H + V	QPSK	V	-	-	-69.55	-13.00	-56.55

Table 7-51. Ant 1 - Spurious Emissions Table (30MHz - 1GHz)

1GHz - 18GHz

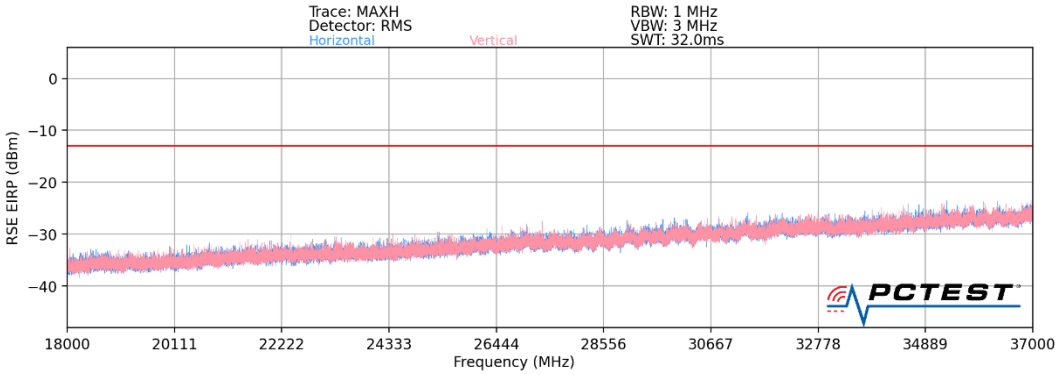


Plot 7-48. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8379.00	Low	50	H + V	QPSK	V	-	-	-43.12	-13.00	-30.12
9111.00	Mid	50	H + V	QPSK	V	-	-	-40.81	-13.00	-27.81
9180.00	High	50	H + V	QPSK	V	-	-	-43.92	-13.00	-30.92

Table 7-51. Ant 1 - Spurious Emissions Table (1GHz - 18GHz)

18GHz – 37GHz

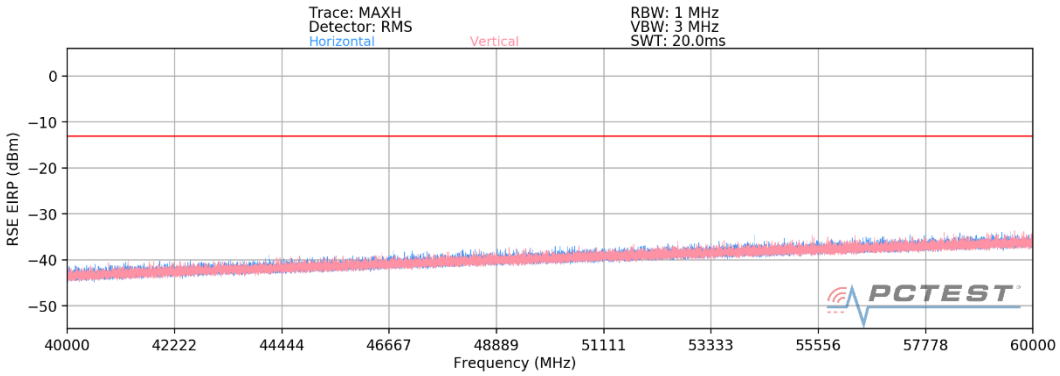


Plot 7-49. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
35983.40	Low	50	H + V	QPSK	V	-	-	-26.13	-13.00	-13.13
36247.60	Mid	50	H + V	QPSK	V	-	-	-28.15	-13.00	-15.15
36519.20	High	50	H + V	QPSK	V	-	-	-26.99	-13.00	-13.99

Table 7-51. Ant 1 - Spurious Emissions Table (18GHz - 37GHz)

40GHz - 60GHz

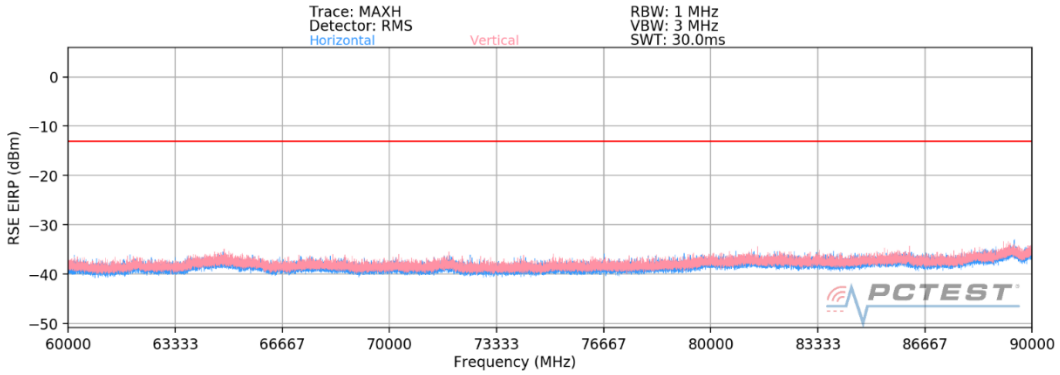


Plot 7-50. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
48781.30	Low	50	H + V	QPSK	V	-	-	-39.50	-13.00	-26.50
50960.70	Mid	50	H + V	QPSK	V	-	-	-40.22	-13.00	-27.22
51613.80	High	50	H + V	QPSK	V	-	-	-38.82	-13.00	-25.82

Table 7-51. Ant 1 - Spurious Emissions Table (40GHz - 60GHz)

60GHz - 90GHz

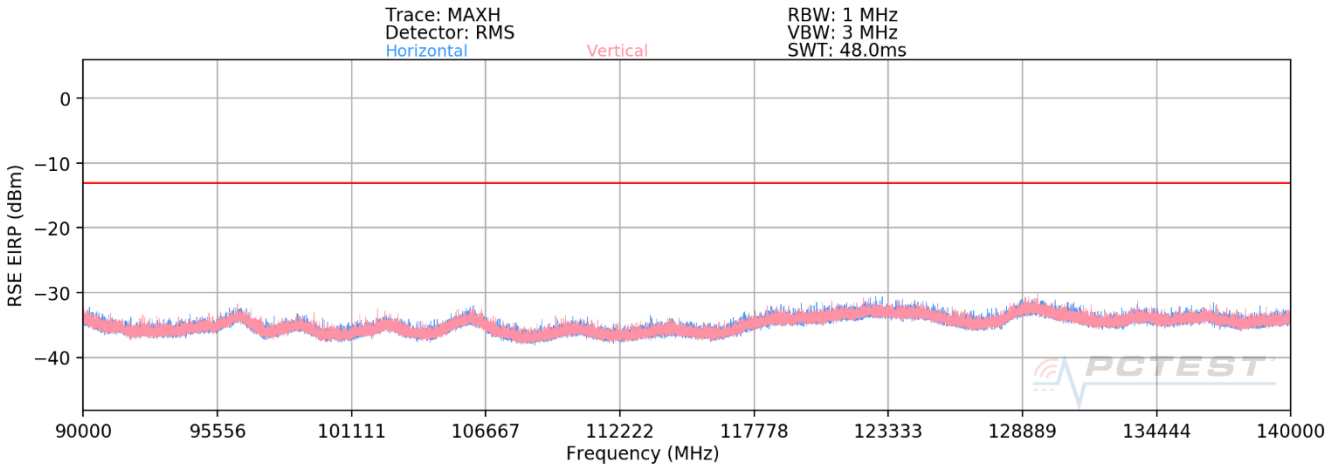


Plot 7-36. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
74100.00	Low	50	H + V	QPSK	V	-	-	-38.13	-13.00	-25.13
76999.92	Mid	50	H + V	QPSK	V	-	-	-39.11	-13.00	-26.11
79899.84	High	50	H + V	QPSK	V	-	-	-37.41	-13.00	-24.41

Table 7-51. Ant 1 -Spurious Emissions Table (60GHz - 90GHz)

90GHz - 140GHz

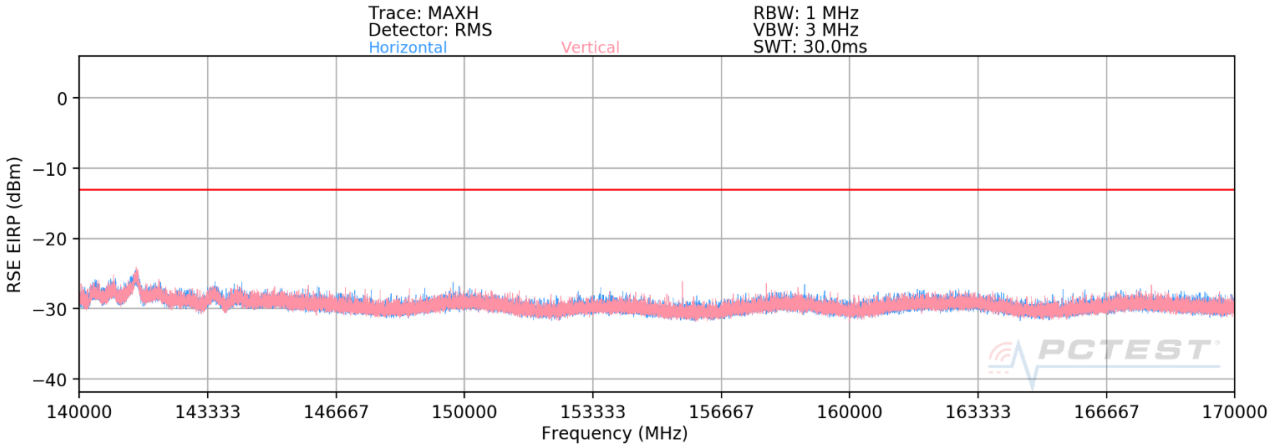


Plot 7-60. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
111150.00	Low	50	H + V	QPSK	V	-	-	-36.85	-13.00	-23.85
115499.88	Mid	50	H + V	QPSK	V	-	-	-35.63	-13.00	-22.63
119849.76	High	50	H + V	QPSK	V	-	-	-34.35	-13.00	-21.35

Table 7-52. Ant1 -Spurious Emissions Table (90GHz - 140GHz)

140GHz - 170GHz

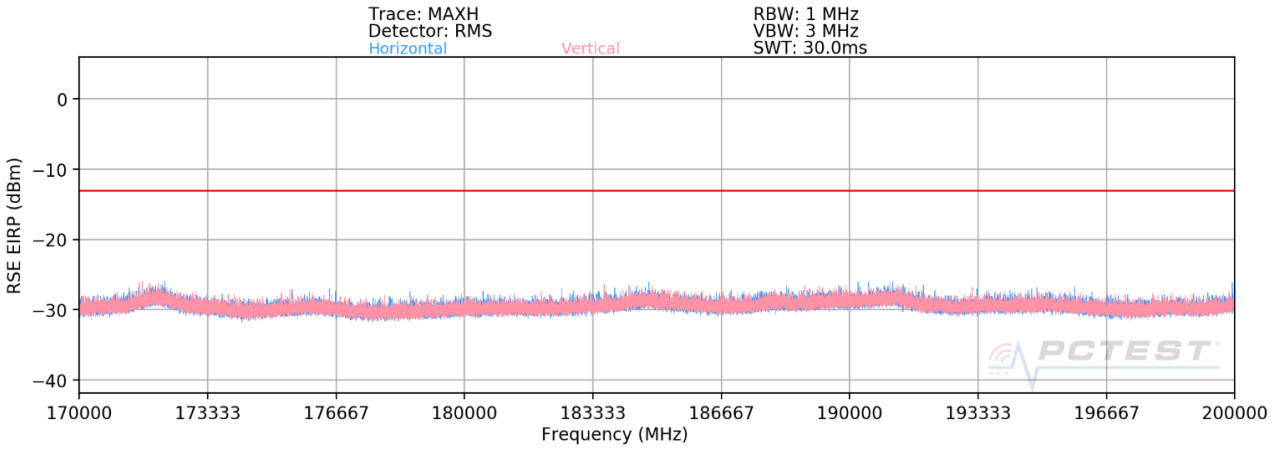


Plot 7-53. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
148200.00	Low	50	H + V	QPSK	V	-	-	-30.70	-13.00	-17.70
153999.84	Mid	50	H + V	QPSK	V	-	-	-29.64	-13.00	-16.64
159799.68	High	50	H + V	QPSK	V	-	-	-30.51	-13.00	-17.51

Table 7-52. Ant1 - Spurious Emissions Table (140GHz - 170GHz)

170GHz - 200GHz



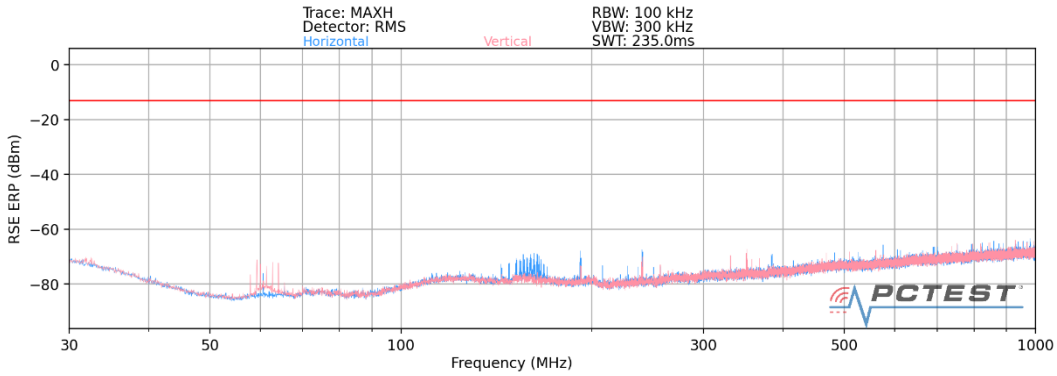
Plot 7-54. Ant 1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
185250.00	Low	50	H + V	QPSK	V	-	-	-29.62	-13.00	-16.62
192499.80	Mid	50	H + V	QPSK	V	-	-	-29.29	-13.00	-16.29
199749.60	High	50	H + V	QPSK	V	-	-	-29.16	-13.00	-16.16

Table 7-52. Ant1 - Spurious Emissions Table (170GHz - 200GHz)

Band n260- Ant 2

30MHz - 1GHz

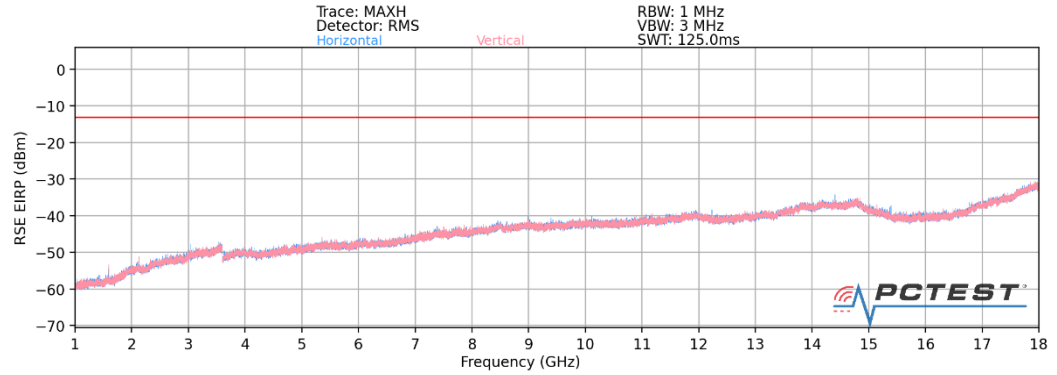


Plot 7-47. Ant 2 - n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
937.00	Low	50	H + V	QPSK	V	-	-	-68.41	-13.00	-55.41
961.00	Mid	50	H + V	QPSK	V	-	-	-68.22	-13.00	-55.22
982.00	High	50	H + V	QPSK	V	-	-	-69.18	-13.00	-56.18

Table 7-51. Ant 2 - Spurious Emissions Table (30MHz - 1GHz)

1GHz - 18GHz

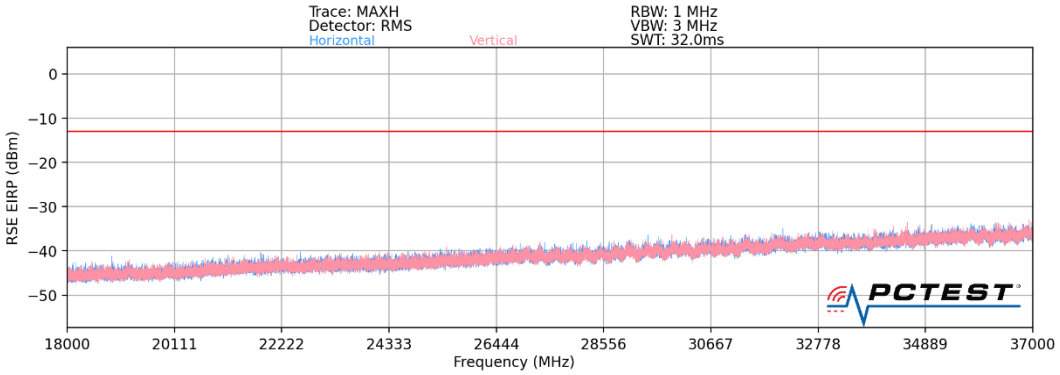


Plot 7-48. Ant 2 - n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8379.00	Low	50	H + V	QPSK	V	-	-	-42.58	-13.00	-29.58
9111.00	Mid	50	H + V	QPSK	V	-	-	-41.13	-13.00	-28.13
9180.00	High	50	H + V	QPSK	V	-	-	-41.95	-13.00	-28.95

Table 7-51. Ant 2 - Spurious Emissions Table (1GHz - 18GHz)

18GHz – 37GHz

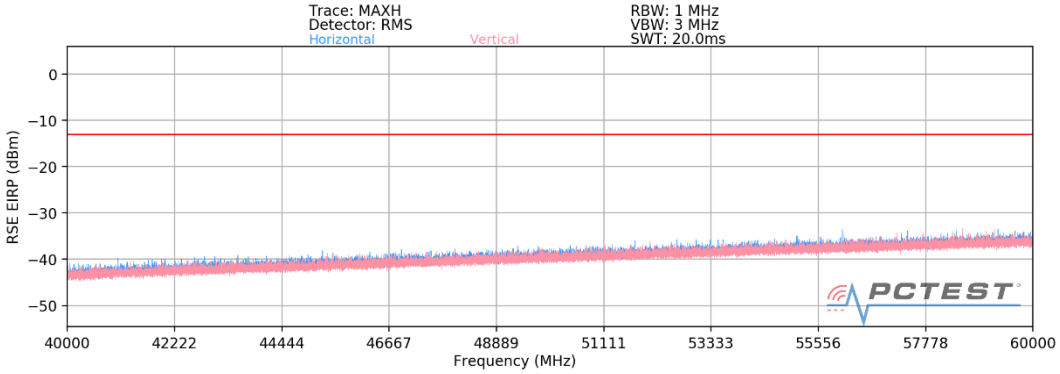


Plot 7-49. Ant 2 - n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
35983.40	Low	50	H + V	QPSK	V	-	-	-27.28	-13.00	-14.28
36247.60	Mid	50	H + V	QPSK	V	-	-	-27.14	-13.00	-14.14
36519.20	High	50	H + V	QPSK	V	-	-	-28.63	-13.00	-15.63

Table 7-51. Ant 2 - Spurious Emissions Table (18GHz - 37GHz)

40GHz - 60GHz

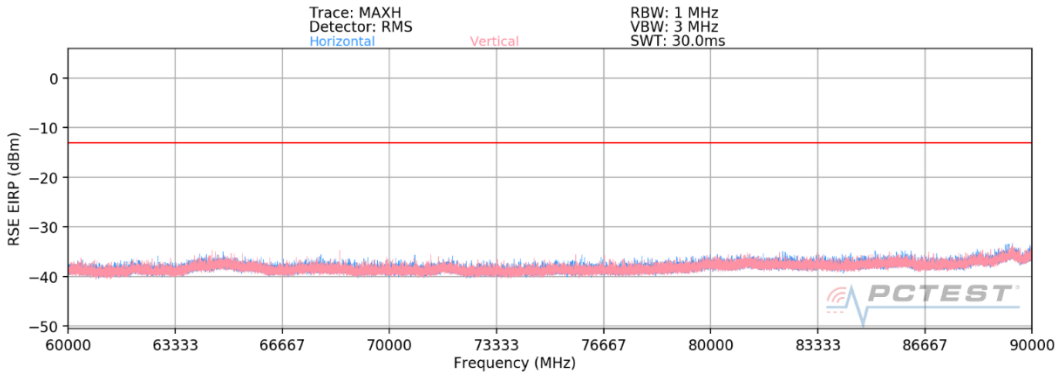


Plot 7-50. Ant 2 - n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
48781.30	Low	50	H + V	QPSK	V	-	-	-40.72	-13.00	-27.72
50960.70	Mid	50	H + V	QPSK	V	-	-	-38.96	-13.00	-25.96
51613.80	High	50	H + V	QPSK	V	-	-	-39.75	-13.00	-26.75

Table 7-51. Ant 2 - Spurious Emissions Table (40GHz - 60GHz)

60GHz - 90GHz

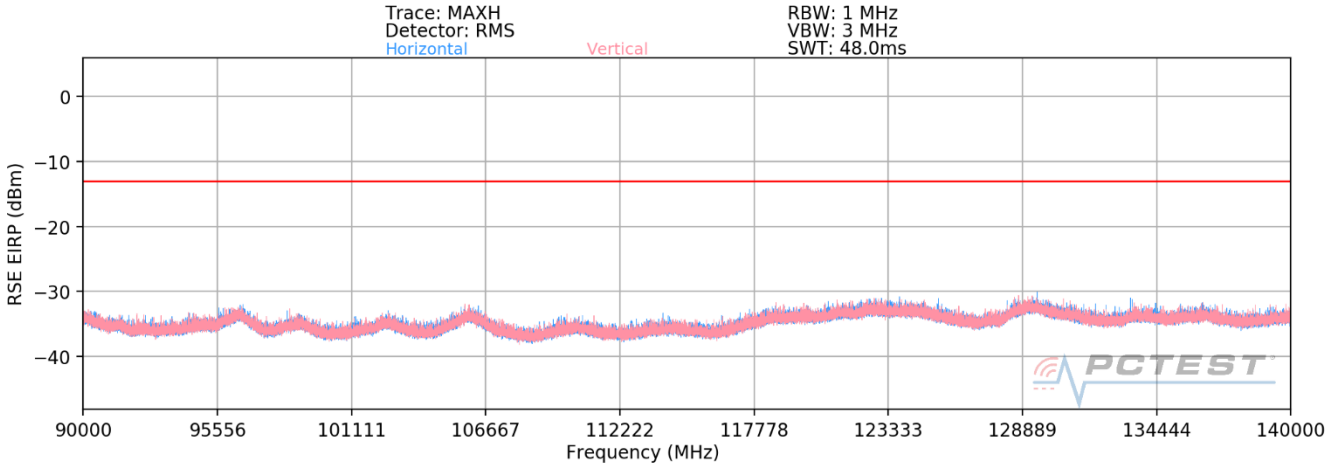


Plot 7-37. Ant 2-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
74100.00	Low	50	H + V	QPSK	V	-	-	-38.85	-13.00	-25.85
76999.92	Mid	50	H + V	QPSK	V	-	-	-39.30	-13.00	-26.30
79899.84	High	50	H + V	QPSK	V	-	-	-37.73	-13.00	-24.73

Table 7-51. Ant 2 -Spurious Emissions Table (60GHz - 90GHz)

90GHz - 140GHz

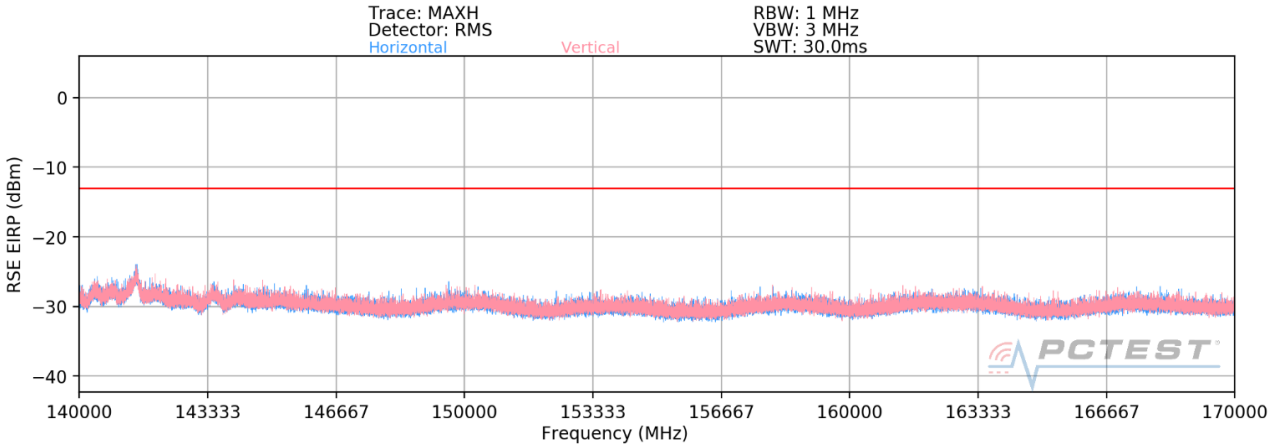


Plot 7-60. Ant 2-n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
111150.00	Low	50	H + V	QPSK	V	-	-	-35.66	-13.00	-22.66
115499.88	Mid	50	H + V	QPSK	V	-	-	-36.14	-13.00	-23.14
119849.76	High	50	H + V	QPSK	V	-	-	-33.87	-13.00	-20.87

Table 7-52. Ant2 -Spurious Emissions Table (90GHz - 140GHz)

140GHz - 170GHz

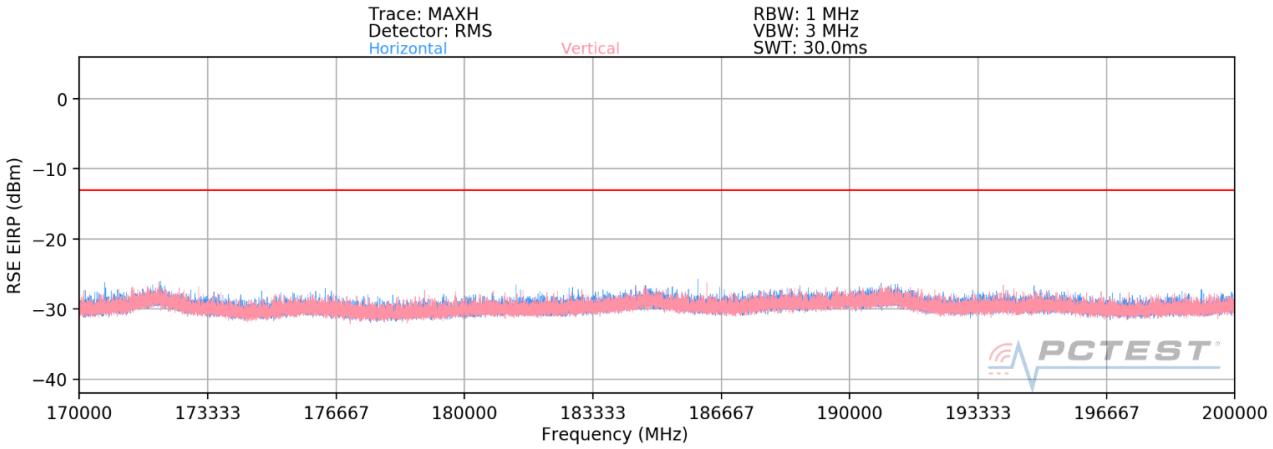


Plot 7-53. Ant 2 - n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
148200.00	Low	50	H + V	QPSK	V	-	-	-30.33	-13.00	-17.33
153999.84	Mid	50	H + V	QPSK	V	-	-	-30.59	-13.00	-17.59
159799.68	High	50	H + V	QPSK	V	-	-	-29.76	-13.00	-16.76

Table 7-51. Ant 2 - Spurious Emissions Table (140GHz - 170GHz)

170GHz - 200GHz



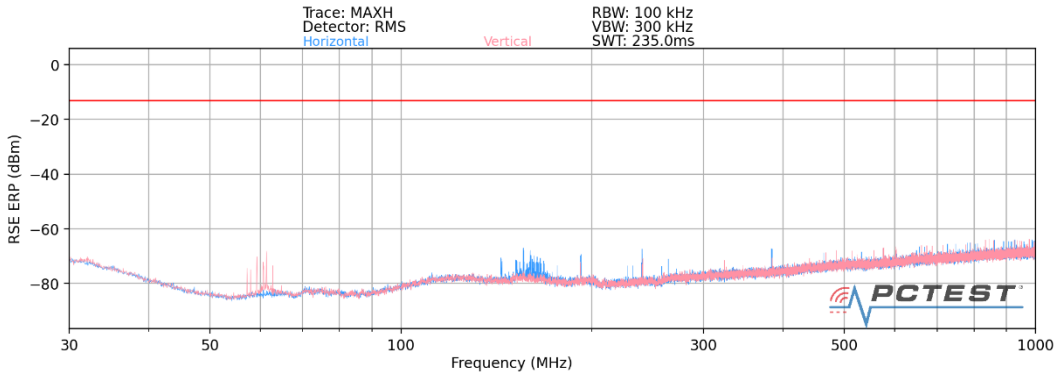
Plot 7-54. Ant 2 - n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
185250.00	Low	50	H + V	QPSK	V	-	-	-29.28	-13.00	-16.28
192499.80	Mid	50	H + V	QPSK	V	-	-	-29.76	-13.00	-16.76
199749.60	High	50	H + V	QPSK	V	-	-	-29.20	-13.00	-16.20

Table 7-51. Ant 2 - Spurious Emissions Table (170GHz - 200GHz)

Band n260- Ant 3

30MHz - 1GHz

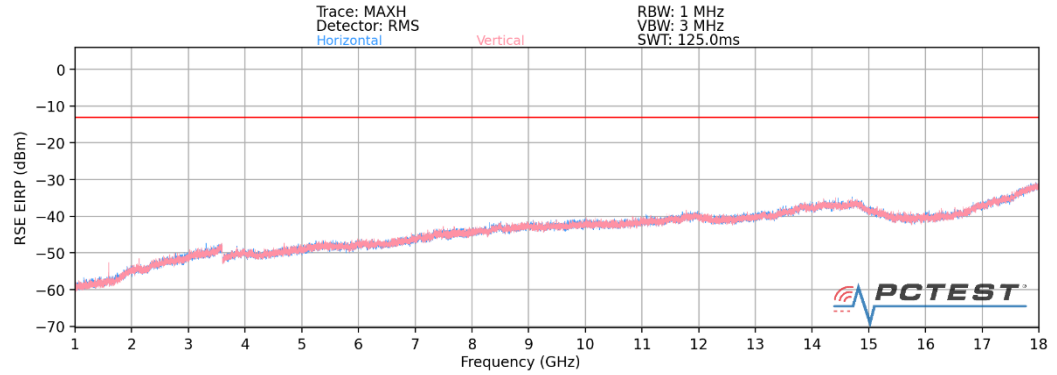


Plot 7-47. Ant 3 - n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
937.00	Low	50	H + V	QPSK	V	-	-	-69.37	-13.00	-56.37
961.00	Mid	50	H + V	QPSK	V	-	-	-68.41	-13.00	-55.41
982.00	High	50	H + V	QPSK	V	-	-	-67.97	-13.00	-54.97

Table 7-43. Ant 3 - Spurious Emissions Table (30MHz - 1GHz)

1GHz - 18GHz



Plot 7-48. Ant 3 - n260 Radiated Spurious Plot (1CC QPSK Mid Channel MIMO)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8379.00	Low	50	H + V	QPSK	V	-	-	-41.84	-13.00	-28.84
9111.00	Mid	50	H + V	QPSK	V	-	-	-41.77	-13.00	-28.77
9180.00	High	50	H + V	QPSK	V	-	-	-41.22	-13.00	-28.22

Table 7-43. Ant 3 - Spurious Emissions Table (1GHz - 18GHz)