FCC Test Report (Part 30)

Report No.:	RF200612D19
FCC ID:	P27SCE5151CVZ
Test Model:	SCE5151C-B261
Series Model:	SCE5151C-B261xxxxxx (the 2nd x should be "blank" or "-", or A to Z; the first and the rest x could be 0 to 9, A to Z, "blank", or "-" or "/", for marketing purpose)
Received Date:	Jun. 12, 2020
Test Date:	Jun. 20 to Aug. 12, 2020
Issued Date:	Aug. 13, 2020
Applicant:	Sercomm Corp.
Address:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C. (NanKang Software Park)
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF200612D19	Original release.	Aug. 13, 2020

1 Certificate of Conformity

Product:	Bridgewater 5G mmWave Femto cell
Brand:	Verizon, Sercomm
Test Model:	SCE5151C-B261
Series Model:	SCE5151C-B261xxxxxx (the 2nd x should be "blank" or "-", or A to Z; the first and the rest x could be 0 to 9, A to Z, "blank", or "-" or "/", for marketing purpose)
Sample Status:	Engineering sample
Applicant:	Sercomm Corp.
Test Date:	Jun. 20 to Aug. 12, 2020
Standards:	47 CFR FCC Part 2 47 CFR FCC Part 30 ANSI C63.26:2015

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Celia Chen , **Date:** Aug. 13, 2020

Celia Chen / Supervisor

Approved by : Rex. Lai , **Date:** Aug. 13, 2020

Rex Lai / Associate Technical Manager

2 Summary of Test Results

47 CFR FCC Part 30				
FCC Clause	Test Item	Test Result	Test Condition	Remarks
2.1047	Modulation characteristics	Pass	-	Meet the requirement.
30.202	EIRP	Pass	Radiated	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass		Meet the requirement of limit.
2.1053 30.203	Radiated Spurious Emissions	Pass		Meet the requirement of limit.
2.1053 30.203	Out-of-Band Emission at the Band Edge	Pass		Meet the requirement of limit.
2.1055	Frequency Stability	Pass		Meet the requirement of limit.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Radiated emissions	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Bridgewater 5G mmWave Femto cell
Brand	Verizon, Sercomm
Test Model	SCE5151C-B261
Series Model	SCE5151C-B261xxxxxx (the 2nd x should be "blank" or "-", or A to Z; the first and the rest x could be 0 to 9, A to Z, "blank", or "-" or "/", for marketing purpose)
Model Difference	For marketing purpose
Status of EUT	Engineering sample
Power Supply Rating	19Vdc from adapter
Modulation Type	QPSK, 64QAM
Operating Frequency	n261:27.5 GHz ~ 28.35 GHz
Supported Channel Bandwidth	100MHz, 200MHz, 400MHz
Supported Component Carriers	1CC, 2CC, 4CC
Max. E.I.R.P. Power (RMS)	48.05 dBm
Antenna Type	Refer to Note as below
Accessory Device	Adapter, GPS antenna (10m)
Data Cable Supplied	Shielded LAN cable (1.5m) Shielded LAN cable (0.5m) Shielded 1PPS cable (0.52m)
Antenna Information	The QTM10028 antenna module is an active patch phased array operating at 5G FR2 band. It is designed with 64 patch elements, where each element has dual polarization operation (vertical & horizontal). This antenna module highly integrates power amplifier and phase shifter. By adjusting amplitude and phase independently for each element, the QTM10028 antenna module can provide good beamforming performance for actual application.

Note:

1. The EUT consumes power from the following adapter.

Brand	MOSO
Model	MSS-Z6000WR190-120C0-E
Input Power	100-240V, 50/60Hz, 2.0A
Output Power	19.0V, 6.0A, 114.0W
Power Line	DC: 1.5m cable without core attached on adapter AC: 1.5m non-shielded 3 Pin power cable without core

2. The EUT contains one module for millimeter wave.

Millimeter wave module	
Radio Module	Status
QCA mmWave (QTM10028)	Active

3. The worst beam ID:

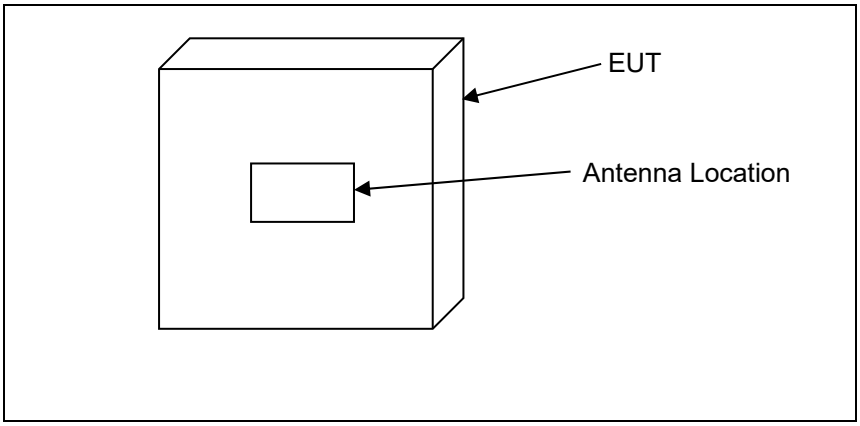
Beam ID		
Single Beam		MIMO Beam
11	139	11 + 139

*The worst beams are defined from the EIRP simulation report.
*These modes were investigated and the worst case scenario was identified. The worst case data were presented in test report.

4. The following antenna was provided to the EUT:

Ant. No.	Freq. range (MHz)	Ant. Type	Ant. Gain (dBi)	Connector Type
5G NR Antenna	27500~28350	Patch Array	22.5	NA

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
6. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
7. Antenna Location



3.2 Description of Test Modes

Band	Channel Bandwidth (MHz)	Channel	Beam ID
n261	100, 200, 400	Low	Single Beam: 11, 139 MIMO Beam: 11 + 139
		Middle	
		High	

3.2.1 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.
The worst case was found when positioned on Z-plane. Following channel(s) was (were) selected for the final test as listed below:

Test Item	Modulation	Test Carriers	Test Channel	Beam ID
Modulation characteristics	QPSK, 64QAM	1CC	M	Single Beam: 139
EIRP	QPSK, 64QAM	1CC, 2CC, 4CC	L, M, H	Single Beam: 11, 139 MIMO Beam: 11 + 139
Occupied Bandwidth	QPSK, 64QAM	1CC, 2CC, 4CC	L, M, H	Single Beam: 11, 139
Radiated Spurious Emissions	QPSK	1CC	L, M, H	Single Beam: 11, 139 MIMO Beam: 11 + 139
Out-of-Band Emission at the Band Edge	QPSK	1CC, 2CC, 4CC	L, H	Single Beam: 11, 139 MIMO Beam: 11 + 139
Frequency Stability	QPSK, 64QAM	1CC	M	Single Beam: 139

Note:
1. All test result have been consider correction factor for more detail values please refer to “Annex A”.
2. All supported modulation types were evaluated. The worst case was found in QPSK modulation for all final tests.
3. This device was tested under all RB configs/offsets. The worst case was found in full RB config/offset for all final tests.

Test Condition:

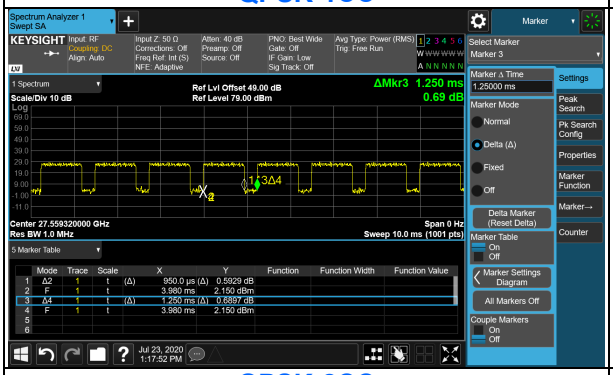
Test Item	Environmental Conditions	Input Power	Tested By
Modulation characteristics	21deg. C, 71%RH	120Vac, 60Hz	Leo Tsai
EIRP	21deg. C, 71%RH	120Vac, 60Hz	Leo Tsai
Occupied Bandwidth	21deg. C, 71%RH	120Vac, 60Hz	Leo Tsai
Radiated Spurious Emissions	25deg. C, 70%RH	120Vac, 60Hz	Luis Lee
Out-of-Band Emission at the Band Edge	21deg. C, 71%RH	120Vac, 60Hz	Leo Tsai
Frequency Stability	21deg. C, 71%RH	120Vac, 60Hz	Leo Tsai

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is <98 %.

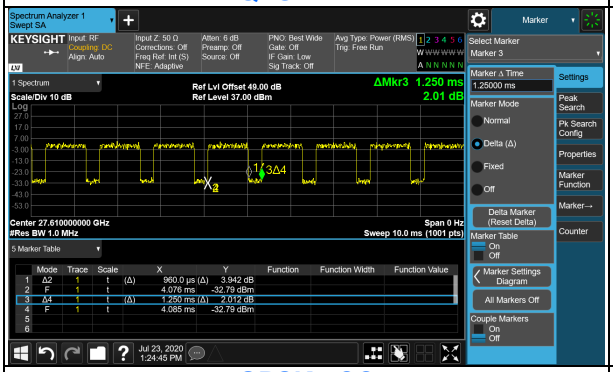
Band n261

QPSK-1CC

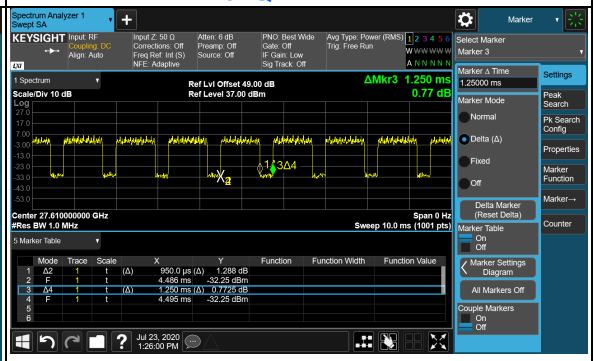


64QAM-1CC

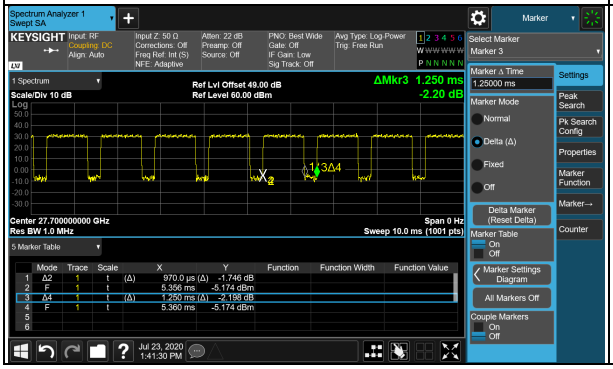
QPSK-2CC



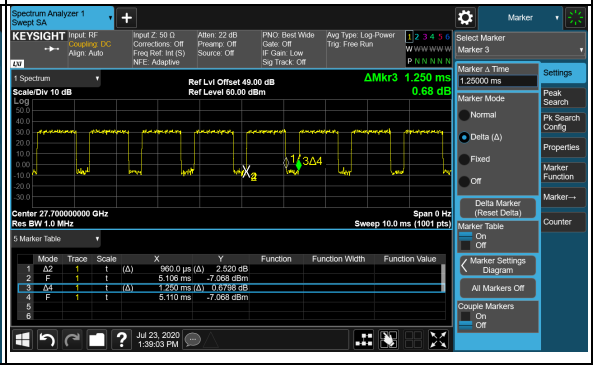
64QAM-2CC



QPSK-4CC



64QAM-4CC



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

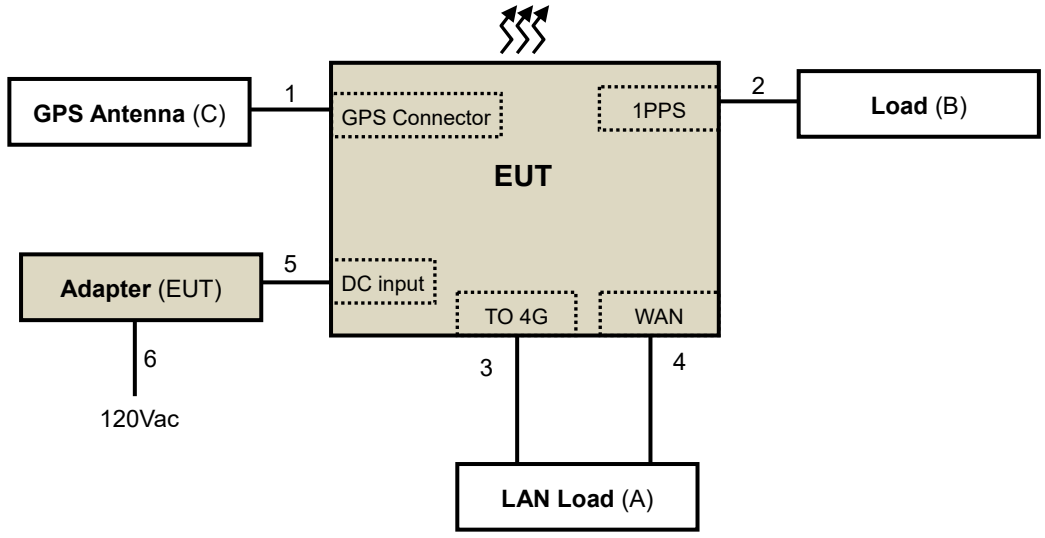
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	LAN Load	N/A	N/A	N/A	N/A	Provided by Lab
B.	Load	N/A	N/A	N/A	N/A	Supplied by client
C.	GPS Antenna	N/A	N/A	N/A	N/A	Supplied by client

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	GPS Antenna cable	1	10.0	Y	0	Supplied by client
2.	1PPS cable	1	0.52	Y	0	Supplied by client
3.	LAN cable	1	1.5	Y	0	Supplied by client (RJ45, Cat.7)
4.	LAN cable	1	0.5	Y	0	Supplied by client (RJ45, Cat.7)
5.	DC power cable	1	1.5	N	0	Supplied by client
6.	AC power cable	1	1.5	N	0	Supplied by client

Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

FCC 47 CFR Part 2

FCC 47 CFR Part 30

ANSI 63.26-2015

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 662911 D01 Multiple Transmitter Output v02r01

KDB 662911 D02 MIMO with Cross Polarized Antenna v01

KDB 842590 D01 Upper Microwave Flexible Use Service v01r01

All test items have been performed as a reference to the above KDB test guidance.

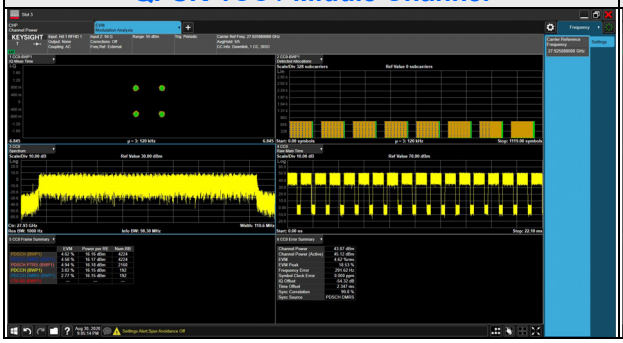
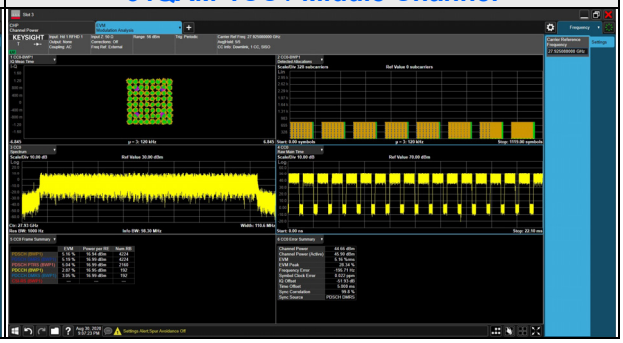
4 Test Types and Results

4.1 Modulation characteristics

4.1.1 Limits of Modulation characteristics

N/A

4.1.2 Test Results

Band / n261	
QPSK-1CC / Middle Channel	64QAM-1CC / Middle Channel
	

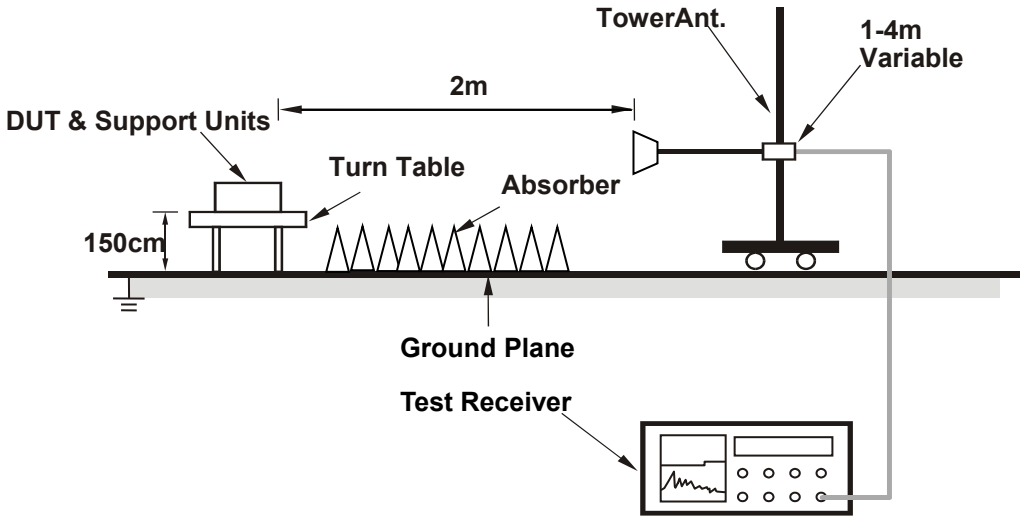
4.2 Equivalent Isotropic Radiated Power (EIRP) Measurement

4.2.1 Limits of EIRP Measurement

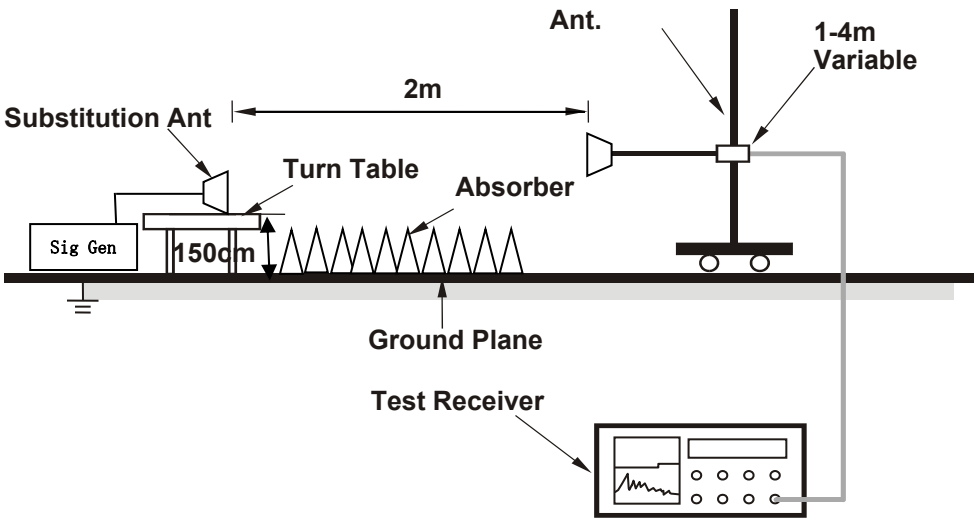
Device		Maximum Limit of EIRP
☐	Fixed and Base Stations	EIRP 75dBm/100MHz (sum of all antenna elements)
☐	Mobile Stations	EIRP 43dBm (sum of all antenna elements)
☒	Transportable Stations	EIRP 55dBm (sum of all antenna elements)

4.2.2 Test Setup

Test set-up for radiated ERP and/or EIRP measurements



Path loss measurement set-up



4.2.3 Test Instruments

For Below 40GHz and Frequency Stabillity

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020
Spectrum Analyzer KEYSIGHT	N9030A	MY54490561	Jul. 31, 2019	Jul. 30, 2020
		MY54490260	Jul. 22, 2020	Jul. 21, 2021
Spectrum Analyzer KEYSIGHT	N9030B	MY57140953	Jul. 2, 2019	Jul. 1, 2020
			Jul. 2, 2020	Jul. 1, 2021
*Biconical antenna SCHWARZBECK	VHBB9124	9124-546	Jan. 14, 2019	Jan. 13, 2022
*LOG Antenna SCHWARZBECK	VUSLP 9111	9111-363	Jan. 14, 2019	Jan. 13, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna ETS	3117	00034126	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Nov. 24, 2019	Nov. 23, 2020
Signal Generator	N5173B	MY53270724	Apr. 01, 2020	Mar. 31, 2021
Preamplifier (Below 1GHz) Agilent	8447D	2944A10631	Jun. 08, 2020	Jun. 07, 2021
Preamplifier (1GHz-18GHz) KEYSIGHT	83017A	MY53270295	Jun. 08, 2020	Jun. 07, 2021
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980116	Oct. 08, 2019	Oct. 07, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Jun. 08, 2020	Jun. 07, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Jun. 08, 2020	Jun. 07, 2021
RF signal cable HUBER+SUHNER	EMC102-KM-KM-600	150928	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER	EMC102-KM-KM-3000	150929	Aug. 20, 2019	Aug. 19, 2020
RF signal cable Rosnal	K1K50-UP0279-K1K50-3000	181129-1	Oct. 08, 2019	Oct. 07, 2020
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2020	May 31, 2021
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 06, 2020	Jun. 05, 2021

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 36 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 4.

For Above 40GHz:

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer KEYSIGHT	N9030A	MY54490561	Jul. 31, 2019	Jul. 30, 2020
		MY54490260	Jul. 22, 2020	Jul. 21, 2021
**OXE89 Horn Antenna (33~55GHz) QuinStar	QWH-UCRR00	924200002	Jan. 20, 2020	Jan. 19, 2022
**Conical Horn Antenna (50~75GHz) Keysight	WR15CH-Conical	WR15CH_001	Jan. 20, 2020	Jan. 19, 2022
**Conical Horn Antenna (75~110GHz) Keysight	WR10CH-Conical	WR10CH_001	Jan. 20, 2020	Jan. 19, 2022
N9029AV15-DC9 - 50-75 GHz VDI Standard Downconverter with 9VDC supply Keysight	SA Extension WR15	SAX 381	CoC	CoC
N9029AV10-DC9 - 75-110 GHz VDI Standard Downconverter with 9VDC supply Keysight	SA Extension WR10	SAX 378	CoC	CoC
Millimeter-Wave Signal Generator Frequency Extension Module (50~75 GHz) Keysight	E8257DV15	SGX 050	CoC	CoC
Millimeter-Wave Signal Generator Frequency Extension Module (75~110 GHz) Keysight	E8257DV10	SGX 069	CoC	CoC
PSG analog signal generator Keysight	E8257D	MY53401987	Jun. 17, 2020	Jun. 16, 2021
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 36 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 4
4. C.O.C: Certificate of conformance

4.2.4 Test Procedures

EIRP Measurement

a. Using Annex B.3 of ANSI 63.26 test procedure to measure the path loss.

b. Using pre-test site path loss to determine EUT emission power.

c. EUT emission powers are calculated using the following equation:

Emission Power = EUT Prec [dBm EIRP] + P_L [dB]

where

EUT Prec	is the power of the emission measured at the test receiver during EUT measurements
PL	is the path loss determined on the frequency of the EUT emission or calculated using linear interpolation between site characterization frequencies

d. The PL (including cable and measurement antenna factors) are using the worst value into calculated and offset to the spectrum analyzer during the testing.

Note: Measurements were taken in the far field of the mm-Wave test signal based on the formula:
R ≥ (2D^2) / wavelength.

Measurement Distance

EUT antenna of far field distance		
Measurement Frequency range	Far Field calculation distance	Measurement Distance (Far field)
Below 18GHz	0.4135m	3m
18GHz to 40GHz	0.9189m	2m
40GHz to 50GHz	0.9189m to 1.1486m	2m
50GHz to 100GHz	1.1486m to 2.2971m	3m
Note: EUT Antenna Dimension 42mm length, 41mm thick.		
Measurement antenna of far field distance		
Measurement Frequency range	Far Field calculation distance	Measurement Distance (Far field)
18GHz-40GHz	0.65m to 1.445	2m
40GHz-50GHz	0.240m to 0.3m	2m
50GHz-75GHz	0.208m to 0.313m	3m
75GHz-110GHz	0.162m to 0.238m	3m
18GHz-40GHz: Antenna Dimension 59mm length, 44mm thick.		
40GHz-50GHz: Antenna diameter 30mm length.		
50GHz-75GHz: Antenna diameter 25mm length.		
75GHz-100GHz: Antenna diameter 18mm length.		

NOTE:
Test Instruments for above 18 GHz emission test
1. 18 GHz - 40 GHz: HORN Antenna(BBHA 9170) + Pre-Ammlifier(EMC 184045)
2. 40 GHz - 50 GHz: HORN Antenna(QWH-UCRR00) + Ammlifier(LNA-22-22060)
3. 50 GHz - 75 GHz: HORN Antenna(WR15CH-Conical) + VDI Standard Downconverter
4. 75 GHz - 100 GHz: HORN Antenna(WR10CH-Conical) + VDI Standard Downconverter

The emission test results as above listed are performed by different frequency bands respectively because the test instruments, that will make the emission trace non-continuously for these bands.

Conducted Power Measurement

a. Using section 4.4.2.5 of the KDB 842590 D01 test procedure.

b. Conducted Power level (dBm) at any frequency/BW = Measured EIRP level (dBm)/BW – EUT antenna Gain (dBi)

4.2.5 Test Settings

a. Radiated power measurements were performed using the spectrum analyzer's channel power measurement function.

b. Set the RBW =1~5% of the anticipated RBW=1MHz, and the VBW ≥ 3 x RBW.

c. Set spectrum analyzer detection mode to RMS

d. Span = 2x to 3x the OBW

e. No. of sweep points ≥ 2 x span / RBW

f. Trigger is set to "free run" for test signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less that or equal to the transmission burst duration.

g. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signal with burst transmission, the "gating" function was enabled to ensure that measurements were performed during times in which the transmitter is operating at its maximum power.

h. Trace mode = trace averaging (RMS) over 100 sweeps.

i. The trace was allowed to stabilize.

j. For MIMO parameter:
The e.i.r.p of the H Beam and V Beam were first measured individually. The measured values were then summed in linear power units then converted back to dBm per the guidance of KDB 662911 D01 and D02.

MIMO e.i.r.p. = $e.i.r.p._{H} + e.i.r.p._{V}$

4.2.6 Deviation from Test Standard

No deviation.

4.2.7 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.2.8 Test Results

Band	n261	Beam ID	11
EUT position	Z-plane	Receive Antenna polarization	Vertical

QPSK-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2071821	27559.32	45.12	55
2077891	27923.52	45.44	55
2084035	28292.16	44.91	55

64QAM-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2071821	27559.32	44.84	55
2077891	27923.52	45.11	55
2084035	28292.16	44.86	55

QPSK-2CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2072613	27606.84	44.26	55
2077915	27924.96	44.11	55
2083291	28247.52	43.92	55

64QAM -2CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2072613	27606.84	44.15	55
2077915	27924.96	44.02	55
2083291	28247.52	43.85	55

QPSK-4CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2074197	27701.88	43.92	55
2077941	27926.52	44.12	55
2081515	28140.96	44.21	55

64QAM -4CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2074197	27701.88	44.01	55
2077941	27926.52	44.21	55
2081515	28140.96	44.15	55

Remarks:
1. The EIRP was evaluated on vertical and horizontal polarization.

Band	n261	Beam ID	139
EUT position	Z-plane	Receive Antenna polarization	Horizontal

QPSK-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2071821	27559.32	45.35	55
2077891	27923.52	45.78	55
2084035	28292.16	45.88	55

64QAM-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2071821	27559.32	45.12	55
2077891	27923.52	45.65	55
2084035	28292.16	45.62	55

QPSK-2CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2072613	27606.84	44.74	55
2077915	27924.96	44.35	55
2083291	28247.52	44.52	55

64QAM-2CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2072613	27606.84	44.62	55
2077915	27924.96	44.27	55
2083291	28247.52	44.44	55

QPSK-4CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2074197	27701.88	44.94	55
2077941	27926.52	44.38	55
2081515	28140.96	44.24	55

64QAM-4CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Limit (dBm)
2074197	27701.88	43.81	55
2077941	27926.52	43.23	55
2081515	28140.96	44.12	55

Remarks:
1. The EIRP was evaluated on vertical and horizontal polarization.

Band	n261	Beam ID	11 + 139
EUT position	Z-plane	Receive Antenna polarization	Vertical + Horizontal

QPSK-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)			Limit (dBm)
		Worst Beam ID		MIMO Beam	
		11	139	11 + 139	
2071821	27559.32	44.91	44.92	47.93	55
2077891	27923.52	44.97	45.10	48.05	55
2084035	28292.16	44.88	45.13	48.02	55

64QAM-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)			Limit (dBm)
		Worst Beam ID		MIMO Beam	
		11	139	11 + 139	
2071821	27559.32	44.81	44.84	47.84	55
2077891	27923.52	44.85	44.90	47.89	55
2084035	28292.16	44.79	44.97	47.89	55

QPSK-2CC

Channel No.	Freq. (MHz)	EIRP (dBm)			Limit (dBm)
		Worst Beam ID		MIMO Beam	
		11	139	11 + 139	
2072613	27606.84	44.1	44.25	47.19	55
2077915	27924.96	43.45	44.28	46.90	55
2083291	28247.52	43.55	44.81	47.24	55

64QAM-2CC

Channel No.	Freq. (MHz)	EIRP (dBm)			Limit (dBm)
		Worst Beam ID		MIMO Beam	
		11	139	11 + 139	
2072613	27606.84	44.01	44.14	47.09	55
2077915	27924.96	43.39	44.15	46.80	55
2083291	28247.52	43.43	43.76	46.61	55

QPSK-4CC

Channel No.	Freq. (MHz)	EIRP (dBm)			Limit (dBm)
		Worst Beam ID		MIMO Beam	
		11	139	11 + 139	
2074197	27701.88	43.93	44.2	47.08	55
2077941	27926.52	43.58	44.21	46.92	55
2081515	28140.96	43.72	44.21	46.98	55

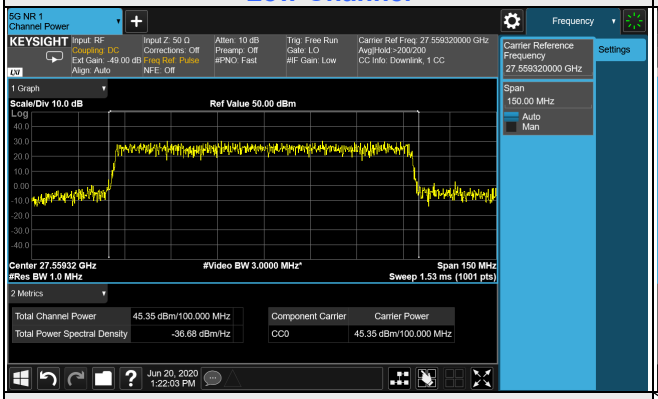
64QAM-4CC

Channel No.	Freq. (MHz)	EIRP (dBm)			Limit (dBm)
		Worst Beam ID		MIMO Beam	
		11	139	11 + 139	
2074197	27701.88	43.85	44.05	46.96	55
2077941	27926.52	43.43	44.26	46.88	55
2081515	28140.96	43.59	44.10	46.86	55

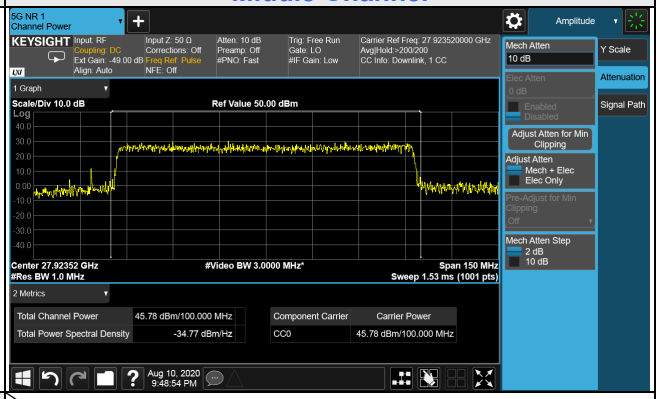
Single Beam (Worst test plots)

QPSK-1CC

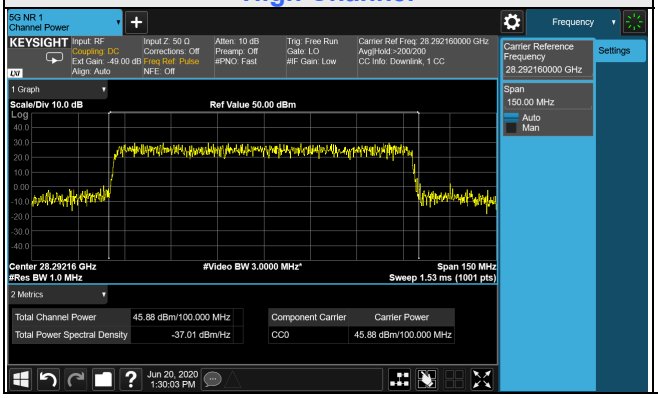
Low Channel



Middle Channel



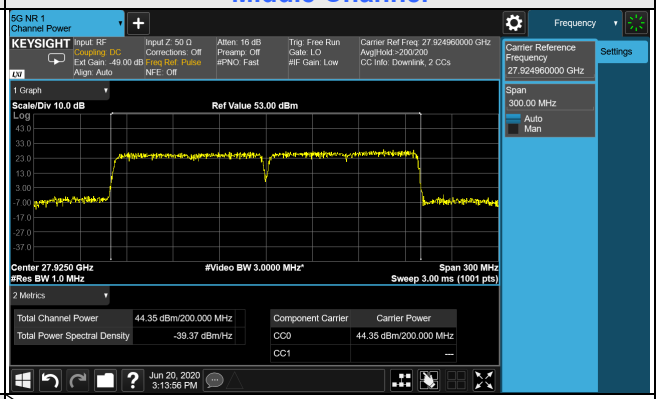
High Channel



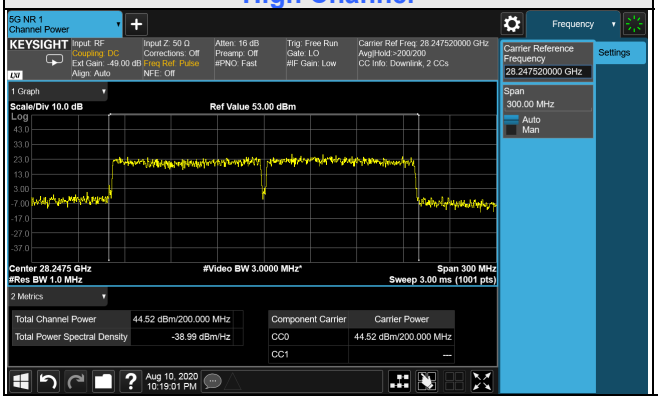
QPSK-2CC

Low Channel

Middle Channel



High Channel



QPSK-4CC

Low Channel

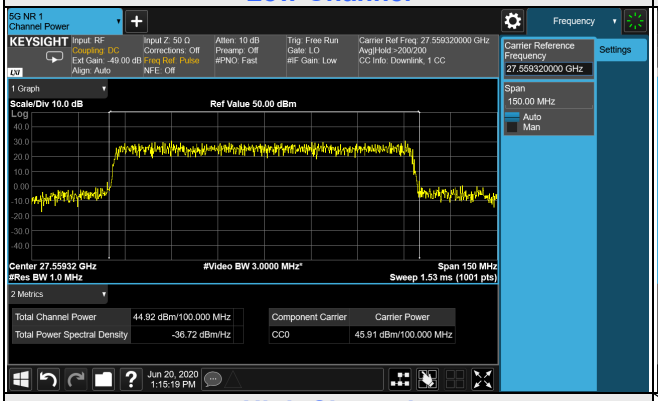
Middle Channel

High Channel

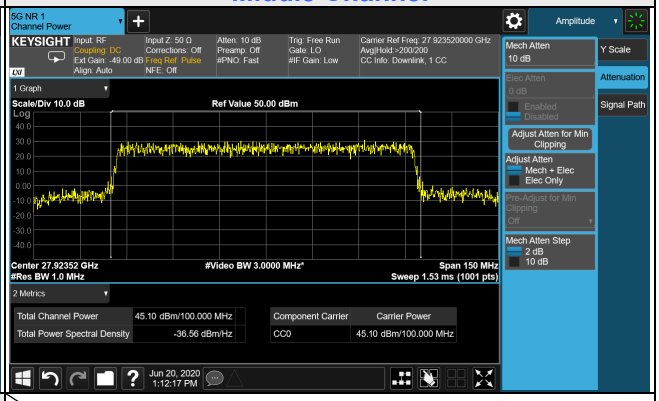
MIMO Beam (Worst test plots)

QPSK-1CC

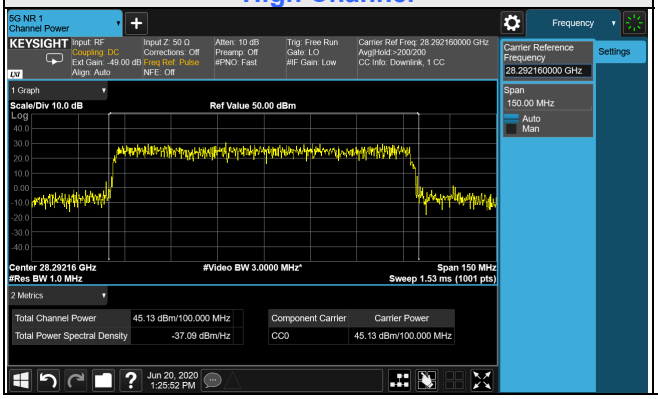
Low Channel



Middle Channel



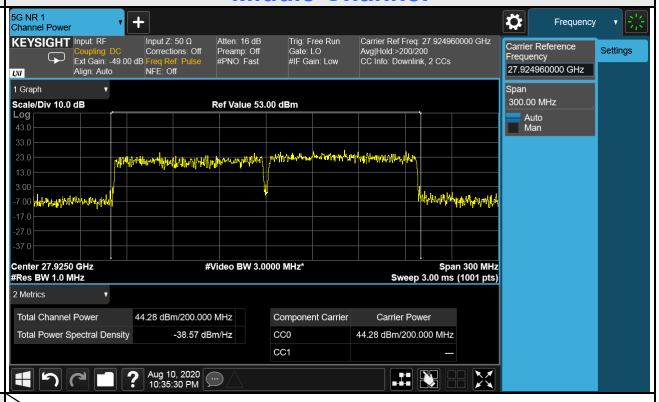
High Channel



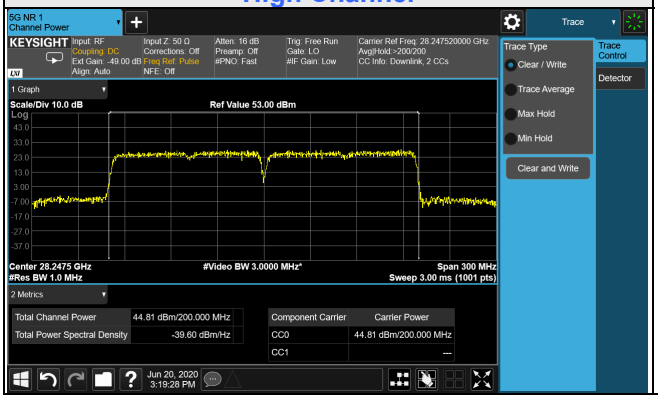
QPSK-2CC

Low Channel

Middle Channel



High Channel



QPSK-4CC

Low Channel

Middle Channel

High Channel

Conducted Power Measurement

Band	n261	Beam ID	11
EUT position	Z-plane	Receive Antenna polarization	Vertical

QPSK-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2071821	27559.32	45.12	22.5	22.62
2077891	27923.52	45.44	22.5	22.94
2084035	28292.16	44.91	22.5	22.41

64QAM-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2071821	27559.32	44.84	22.5	22.34
2077891	27923.52	45.11	22.5	22.61
2084035	28292.16	44.86	22.5	22.36

QPSK-2CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2072613	27606.84	44.26	22.5	21.76
2077915	27924.96	44.11	22.5	21.61
2083291	28247.52	43.92	22.5	21.42

64QAM -2CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2072613	27606.84	44.15	22.5	21.65
2077915	27924.96	44.02	22.5	21.52
2083291	28247.52	43.85	22.5	21.35

QPSK-4CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2074197	27701.88	43.92	22.5	21.42
2077941	27926.52	44.12	22.5	21.62
2081515	28140.96	44.21	22.5	21.71

64QAM -4CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2074197	27701.88	44.01	22.5	21.51
2077941	27926.52	44.21	22.5	21.71
2081515	28140.96	44.15	22.5	21.65

Remarks: Conducted Power level (dBm) at any frequency/BW = Measured EIRP level (dBm)/BW – EUT antenna Gain (dBi)

Band	n261	Beam ID	139
EUT position	Z-plane	Receive Antenna polarization	Horizontal

QPSK-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2071821	27559.32	45.35	22.5	22.85
2077891	27923.52	45.78	22.5	23.28
2084035	28292.16	45.88	22.5	23.38

64QAM-1CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2071821	27559.32	45.12	22.5	22.62
2077891	27923.52	45.65	22.5	23.15
2084035	28292.16	45.62	22.5	23.12

QPSK-2CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2072613	27606.84	44.74	22.5	22.24
2077915	27924.96	44.35	22.5	21.85
2083291	28247.52	44.52	22.5	22.02

64QAM-2CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2072613	27606.84	44.62	22.5	22.12
2077915	27924.96	44.27	22.5	21.77
2083291	28247.52	44.44	22.5	21.94

QPSK-4CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2074197	27701.88	44.94	22.5	22.44
2077941	27926.52	44.38	22.5	21.88
2081515	28140.96	44.24	22.5	21.74

64QAM-4CC

Channel No.	Freq. (MHz)	EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2074197	27701.88	43.81	22.5	21.31
2077941	27926.52	43.23	22.5	20.73
2081515	28140.96	44.12	22.5	21.62

Remarks: Conducted Power level (dBm) at any frequency/BW = Measured EIRP level (dBm)/BW – EUT antenna Gain (dBi)

Band	n261	Beam ID	11 + 139
EUT position	Z-plane	Receive Antenna polarization	Vertical + Horizontal

QPSK-1CC

Channel No.	Freq. (MHz)	MIMO Beam		
		11 + 139		
		EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2071821	27559.32	47.93	22.5	25.43
2077891	27923.52	48.05	22.5	25.55
2084035	28292.16	48.02	22.5	25.52

64QAM-1CC

Channel No.	Freq. (MHz)	MIMO Beam		
		11 + 139		
		EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2071821	27559.32	47.84	22.5	25.34
2077891	27923.52	47.89	22.5	25.39
2084035	28292.16	47.89	22.5	25.39

QPSK-2CC

Channel No.	Freq. (MHz)	MIMO Beam		
		11 + 139		
		EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2072613	27606.84	47.19	22.5	24.69
2077915	27924.96	46.90	22.5	24.40
2083291	28247.52	47.24	22.5	24.74

64QAM-2CC

Channel No.	Freq. (MHz)	MIMO Beam		
		11 + 139		
		EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2072613	27606.84	47.09	22.5	24.59
2077915	27924.96	46.80	22.5	24.30
2083291	28247.52	46.61	22.5	24.11

QPSK-4CC

Channel No.	Freq. (MHz)	MIMO Beam		
		11 + 139		
		EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2074197	27701.88	47.08	22.5	24.58
2077941	27926.52	46.92	22.5	24.42
2081515	28140.96	46.98	22.5	24.48

64QAM-4CC

Channel No.	Freq. (MHz)	MIMO Beam		
		11 + 139		
		EIRP (dBm)	Ant. Gain (dBi)	Conducted Power (dBm)
2074197	27701.88	46.96	22.5	24.46
2077941	27926.52	46.88	22.5	24.38
2081515	28140.96	46.86	22.5	24.36

Remarks: Conducted Power level (dBm) at any frequency/BW = Measured EIRP level (dBm)/BW – EUT antenna Gain (dBi)

4.3 Occupied Bandwidth Measurement

4.3.1 Limit of Occupied Bandwidth Measurement

Occupied bandwidth of transmissions fall within authorized bands.

4.3.2 Test Setup

Refer to section 4.2.2

4.3.3 Test Instruments

Refer to section 4.2.3 to get information of above instrument.

4.3.4 Test Procedure

1. The spectrum analyzer's automatic bandwidth measurement function was used to perform the 99% occupied bandwidth measurement.
2. Set the RBW =1~5% of the anticipated OBW, and the VBW≥3 x RBW.
3. Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
4. Sweep = auto couple.
5. Record the test plots and test results.

4.3.5 Deviation from Test Standard

No deviation.

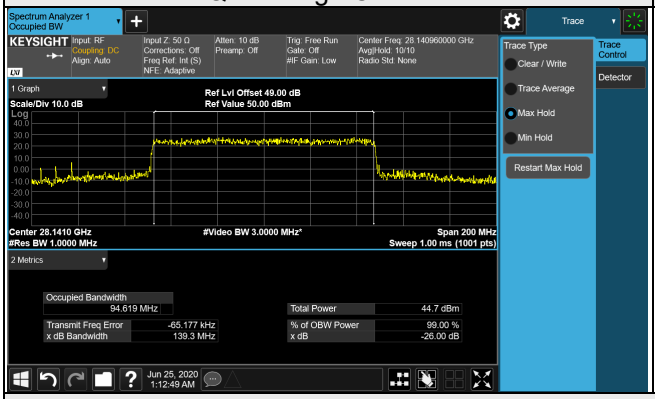
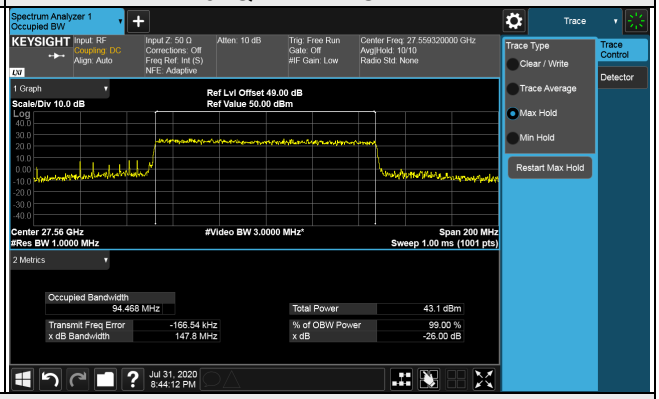
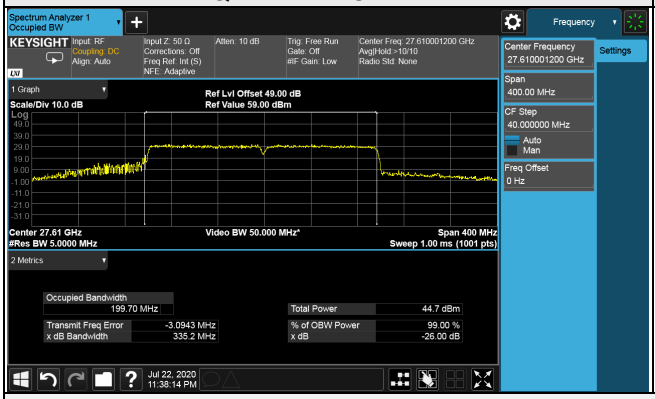
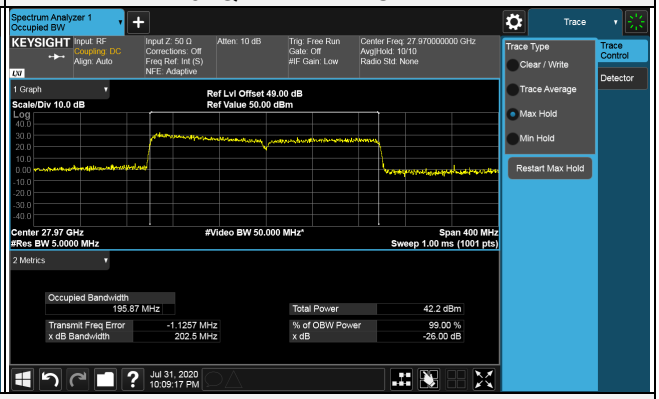
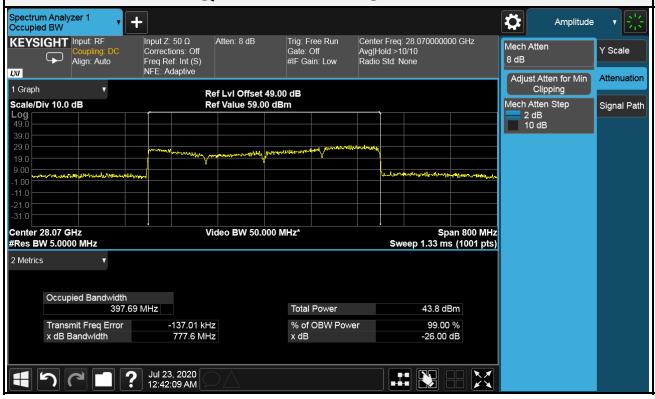
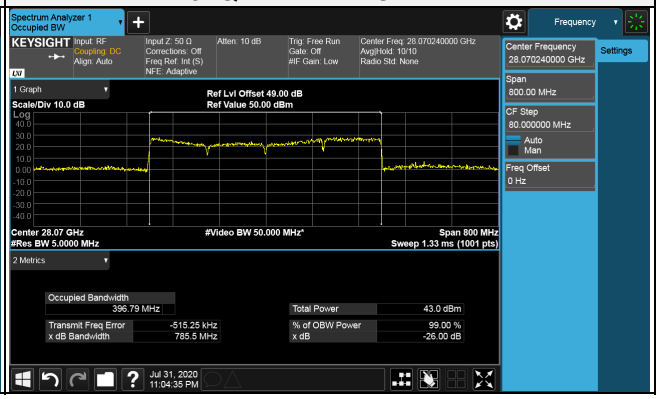
4.3.6 EUT Operating Conditions

Refer to section 4.2.7 to get information of EUT operating conditions.

4.3.7 Test Result

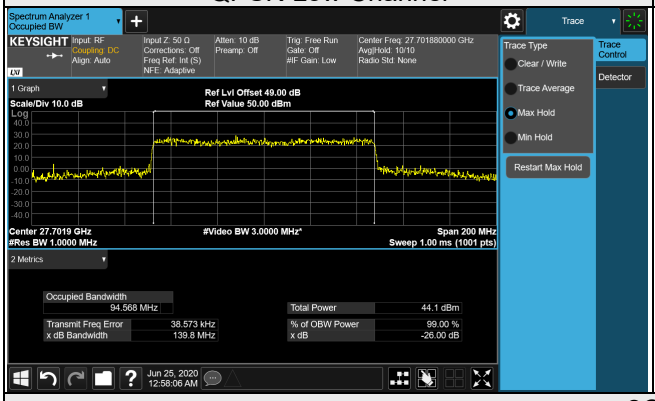
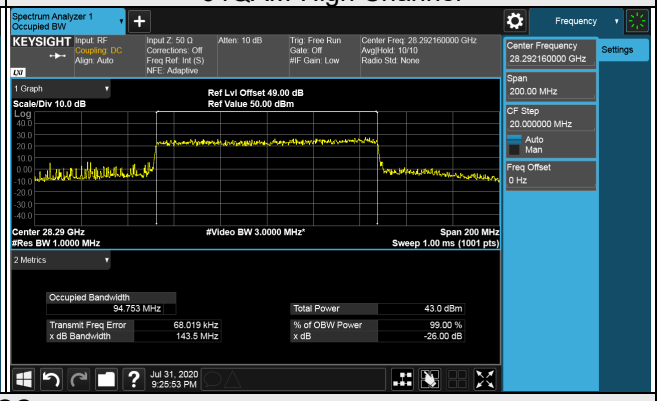
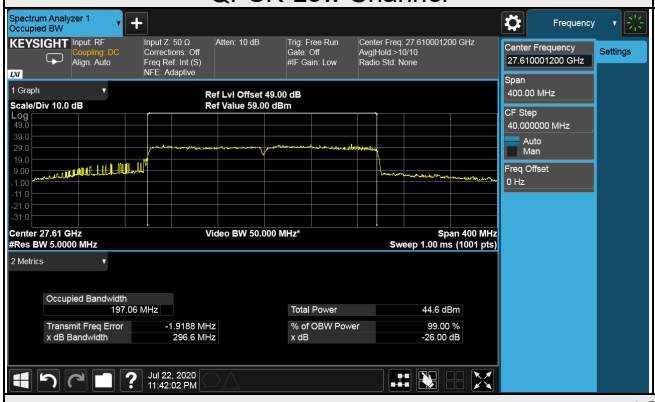
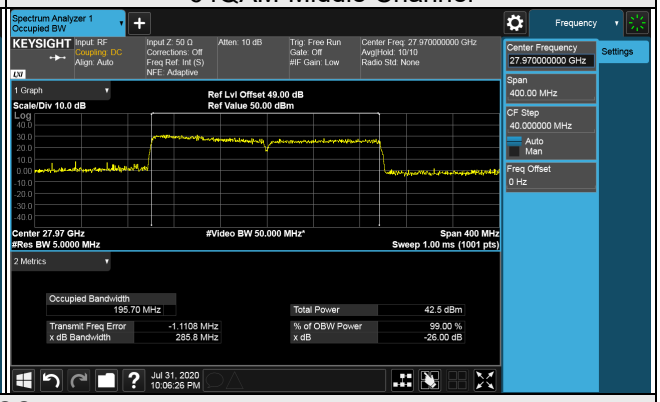
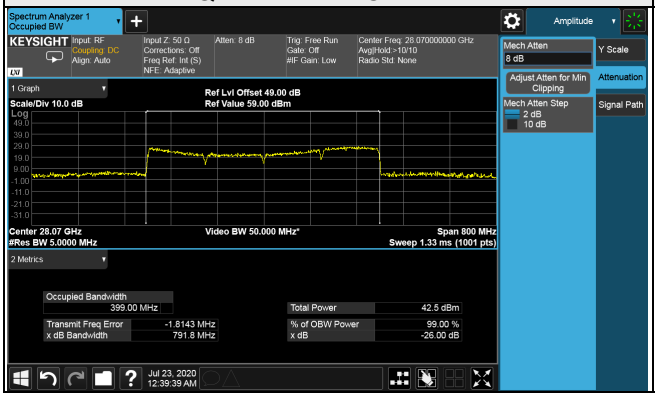
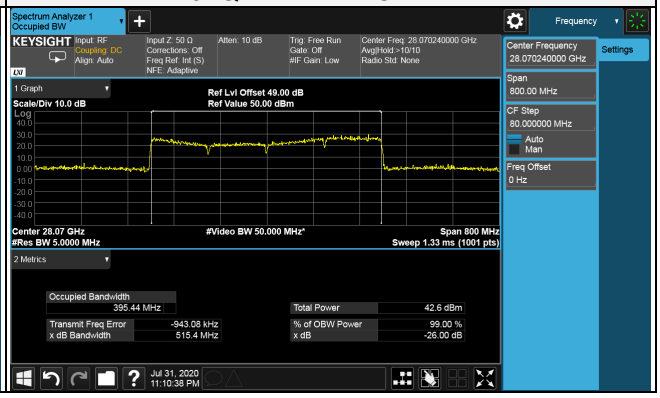
Beam ID: 11

Band	Component Carriers	Modulation	Channel	Occupied Bandwidth (MHz)
n261	1CC	QPSK	Low	94.447
			Middle	94.352
			High	94.619
		64QAM	Low	94.468
			Middle	94.372
			High	94.354
	2CC	QPSK	Low	199.70
			Middle	196.52
			High	194.89
		64QAM	Low	195.50
			Middle	195.87
			High	192.90
	4CC	QPSK	Low	390.78
			Middle	397.69
			High	394.30
		64QAM	Low	388.23
			Middle	396.79
			High	391.80

1CC	
QPSK-High Channel	64QAM-Low Channel
	
2CC	
QPSK-Low Channel	64QAM-Middle Channel
	
4CC	
QPSK-Middle Channel	64QAM-Middle Channel
	

Beam ID: 139

Band	Component Carriers	Modulation	Channel	Occupied Bandwidth (MHz)
n261	1CC	QPSK	Low	94.568
			Middle	94.286
			High	94.199
		64QAM	Low	94.508
			Middle	94.372
			High	94.753
	2CC	QPSK	Low	197.06
			Middle	196.59
			High	195.01
		64QAM	Low	194.66
			Middle	195.70
			High	195.19
	4CC	QPSK	Low	390.57
			Middle	399.00
			High	393.74
		64QAM	Low	388.47
			Middle	395.44
			High	392.15

1CC	
QPSK-Low Channel	64QAM-High Channel
	
2CC	
QPSK-Low Channel	64QAM-Middle Channel
	
4CC	
QPSK-Middle Channel	64QAM-Middle Channel
	

4.4 Radiated Spurious Emission Measurement

4.4.1 Limits of Radiated Spurious Emission Measurement

The conductive power or the total radiated power of any emission outside a licensee's frequency block shall be −13 dBm/MHz or lower. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be −5 dBm/MHz or lower.

4.4.2 Test Procedures

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
b. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

Note:

1. The resolution bandwidth of spectrum analyzer is 100 kHz and the video bandwidth is 300 kHz for below 1GHz.
2. The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for above 1GHz.
3. When test frequency below 1GHz the test-receiver detector function was use peak mode during the testing.
4. When test frequency above 1GHz the detector function was use RMS (average) mode during the testing.
5. Measurements were taken in the far field of the mm-Wave test signal based on the formula: R ≥ (2D^2) / wavelength.

Measurement Distance

EUT antenna of far field distance		
Measurement Frequency range	Far Field calculation distance	Measurement Distance (Far field)
Below 18GHz	0.4135m	3m
18GHz to 40GHz	0.9189m	2m
40GHz to 50GHz	0.9189m to 1.1486m	2m
50GHz to 100GHz	1.1486m to 2.2971m	3m
Note: EUT Antenna Dimension 42mm length, 41mm thick.		
Measurement antenna of far field distance		
Measurement Frequency range	Far Field calculation distance	Measurement Distance (Far field)
18GHz-40GHz	0.65m to 1.445	2m
40GHz-50GHz	0.240m to 0.3m	2m
50GHz-75GHz	0.208m to 0.313m	3m
75GHz-110GHz	0.162m to 0.238m	3m
18GHz-40GHz: Antenna Dimension 59mm length, 44mm thick.		
40GHz-50GHz: Antenna diameter 30mm length.		
50GHz-75GHz: Antenna diameter 25mm length.		
75GHz-100GHz: Antenna diameter 18mm length.		

NOTE:
Test Instruments for above 18 GHz emission test

1. 18 GHz - 40 GHz: HORN Antenna(BBHA 9170) + Pre-Ammlifier(EMC 184045)
2. 40 GHz - 50 GHz: HORN Antenna(QWH-UCRR00) + Ammlifier(LNA-22-22060)
3. 50 GHz - 75 GHz: HORN Antenna(WR15CH-Conical) + VDI Standard Downconverter
4. 75 GHz - 100 GHz: HORN Antenna(WR10CH-Conical) + VDI Standard Downconverter

The emission test results as above listed are performed by different frequency bands respectively because the test instruments, that will make the emission trace non-continuously for these bands.

4.4.3 Test Instruments

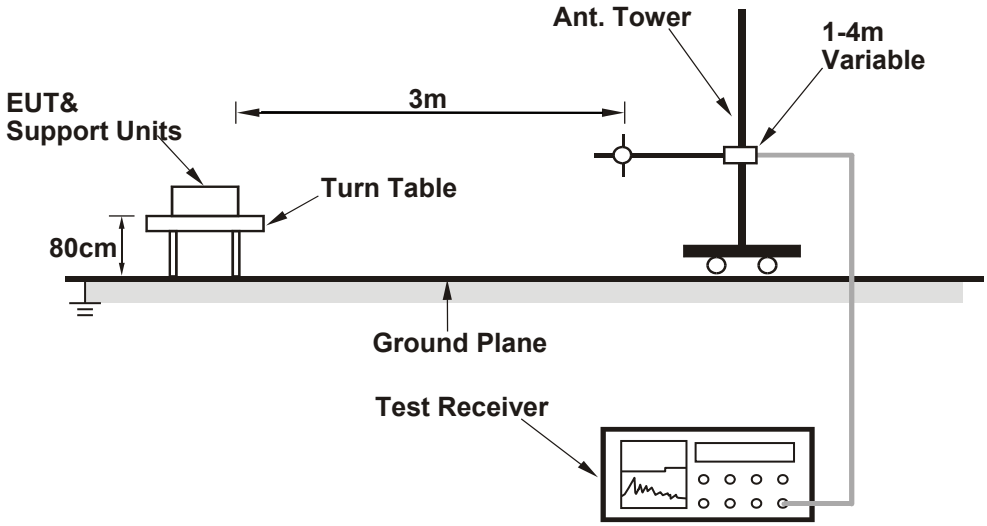
Refer to section 4.2.3 to get information of above instrument.

4.4.4 Deviation from Test Standard

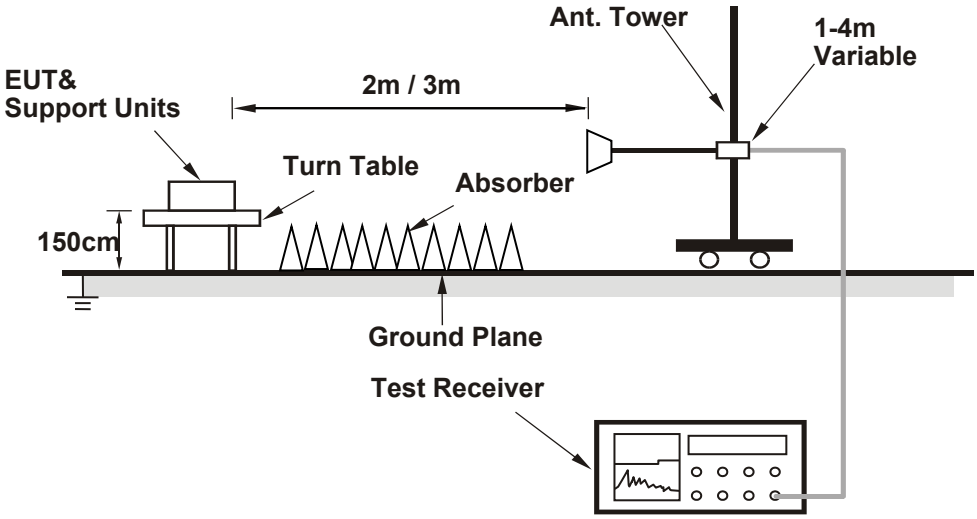
No deviation.

4.4.5 Test Set Up

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.4.6 EUT Operating Conditions

Refer to section 4.2.7 to get information of EUT operating conditions.

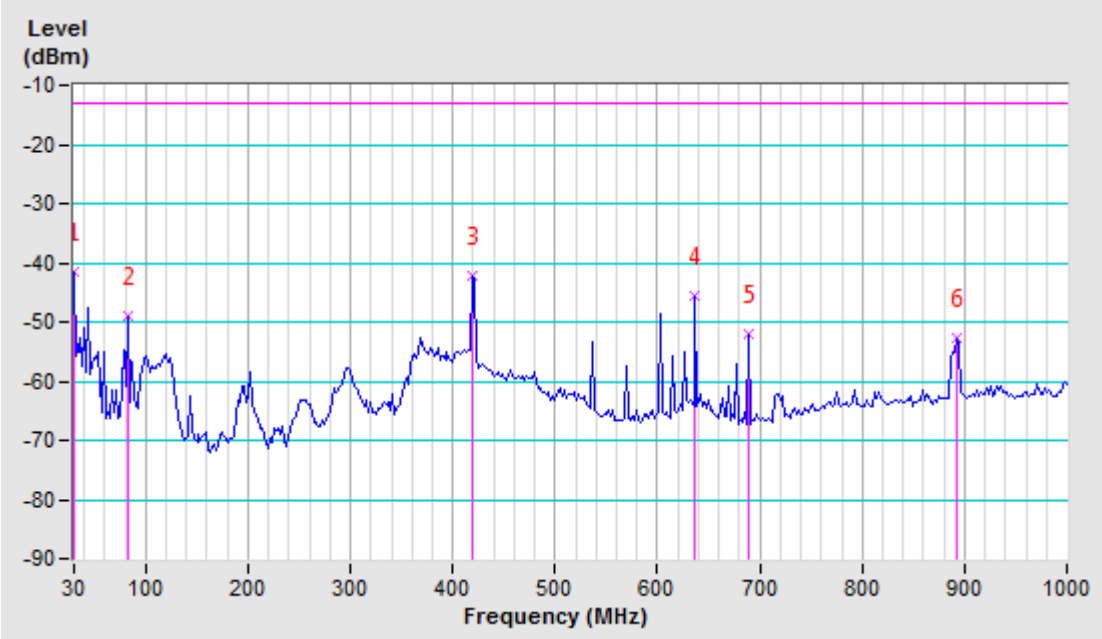
4.4.7 Test Results

Below 1GHz Data:

Band	n261	Beam ID	11
Frequency Range	Below 1000 MHz	Channel	Low
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-45.07	-29.51	-12.18	-41.69	-13.00	-28.69
2	82.38	-42.52	-48.06	-0.98	-49.04	-13.00	-36.04
3	419.94	-41.04	-47.48	5.21	-42.27	-13.00	-29.27
4	637.22	-46.69	-50.47	4.74	-45.73	-13.00	-32.73
5	689.60	-53.70	-57.17	5.16	-52.01	-13.00	-39.01
6	893.30	-59.14	-56.52	3.91	-52.61	-13.00	-39.61

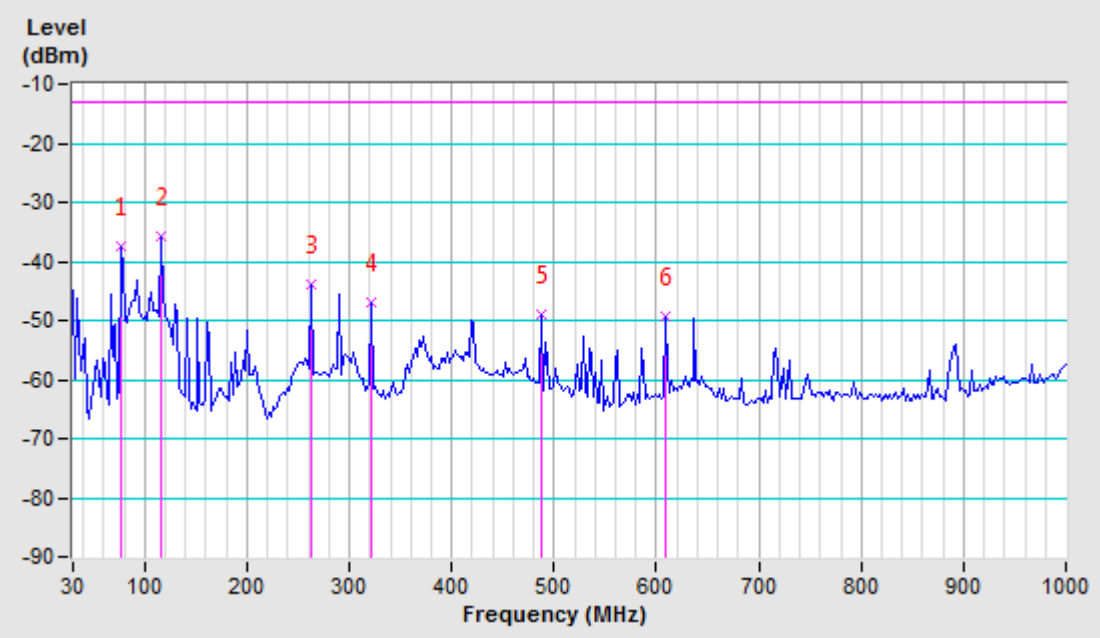
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	Below 1000 MHz	Channel	Low
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	76.56	-32.94	-34.56	-2.80	-37.36	-13.00	-24.36
2	115.36	-29.19	-36.14	0.26	-35.88	-13.00	-22.88
3	262.80	-46.13	-49.36	5.33	-44.03	-13.00	-31.03
4	321.00	-45.80	-51.96	5.15	-46.81	-13.00	-33.81
5	487.84	-47.65	-53.76	4.92	-48.84	-13.00	-35.84
6	608.12	-53.59	-53.84	4.49	-49.35	-13.00	-36.35

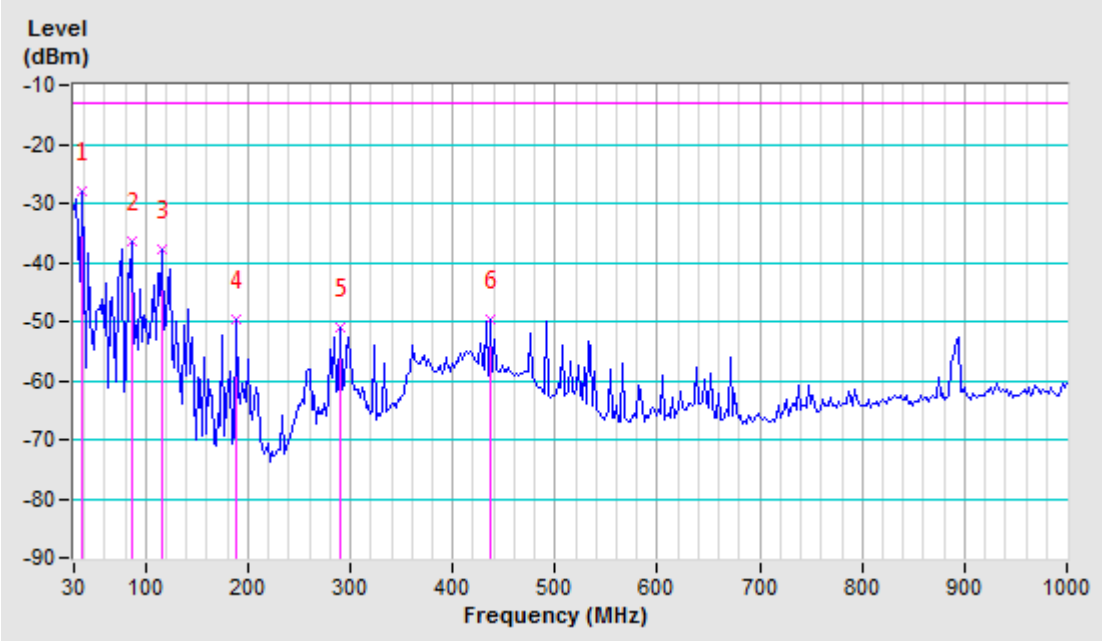
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	Below 1000 MHz	Channel	Middle
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	37.76	-31.19	-16.92	-11.18	-28.10	-13.00	-15.10
2	86.26	-29.82	-36.65	0.09	-36.56	-13.00	-23.56
3	115.36	-30.04	-38.04	0.26	-37.78	-13.00	-24.78
4	189.08	-40.90	-53.64	4.08	-49.56	-13.00	-36.56
5	289.96	-47.74	-56.14	5.18	-50.96	-13.00	-37.96
6	437.40	-48.47	-54.74	5.13	-49.61	-13.00	-36.61

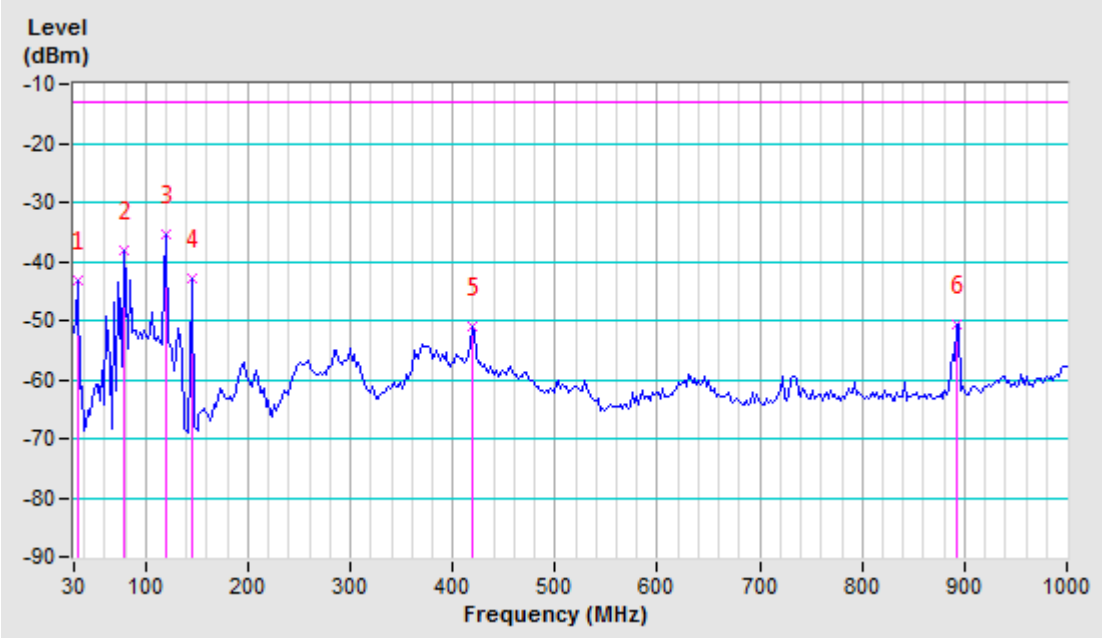
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	Below 1000 MHz	Channel	Middle
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	33.88	-33.75	-31.63	-11.68	-43.31	-13.00	-30.31
2	78.50	-34.40	-36.12	-2.14	-38.26	-13.00	-25.26
3	119.24	-28.98	-35.44	0.10	-35.34	-13.00	-22.34
4	144.46	-39.79	-42.52	-0.25	-42.77	-13.00	-29.77
5	419.94	-49.63	-56.38	5.21	-51.17	-13.00	-38.17
6	893.30	-57.57	-54.58	3.91	-50.67	-13.00	-37.67

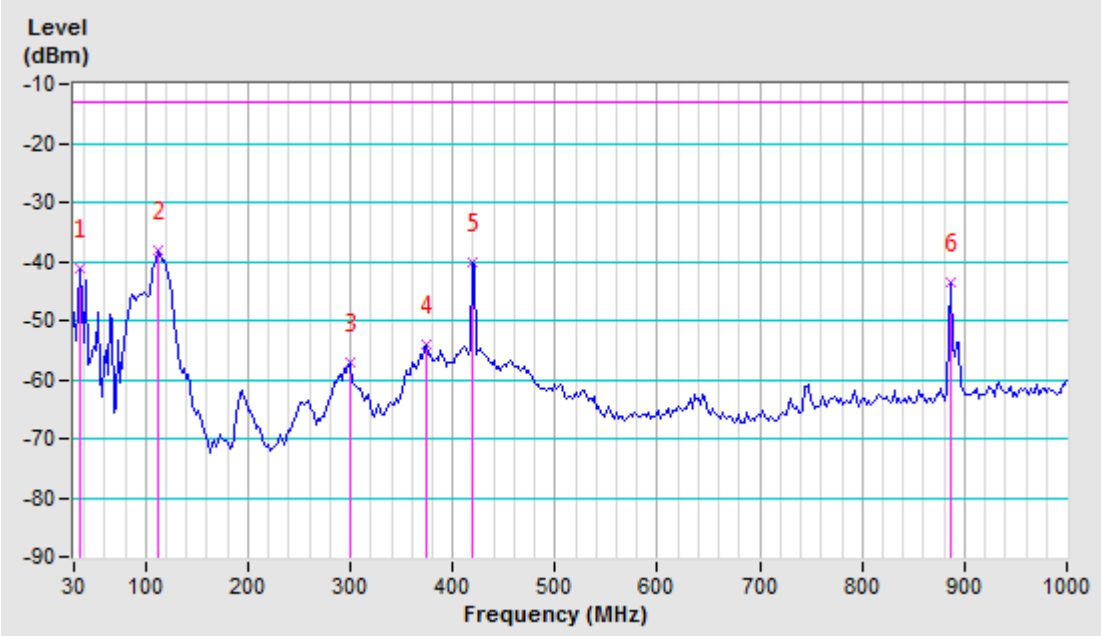
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	Below 1000 MHz	Channel	High
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	35.82	-44.32	-29.63	-11.43	-41.06	-13.00	-28.06
2	111.48	-30.77	-38.61	0.42	-38.19	-13.00	-25.19
3	299.66	-53.82	-62.40	5.13	-57.27	-13.00	-44.27
4	373.38	-51.98	-59.17	5.22	-53.95	-13.00	-40.95
5	419.94	-39.05	-45.49	5.21	-40.28	-13.00	-27.28
6	887.48	-50.14	-47.50	3.92	-43.58	-13.00	-30.58

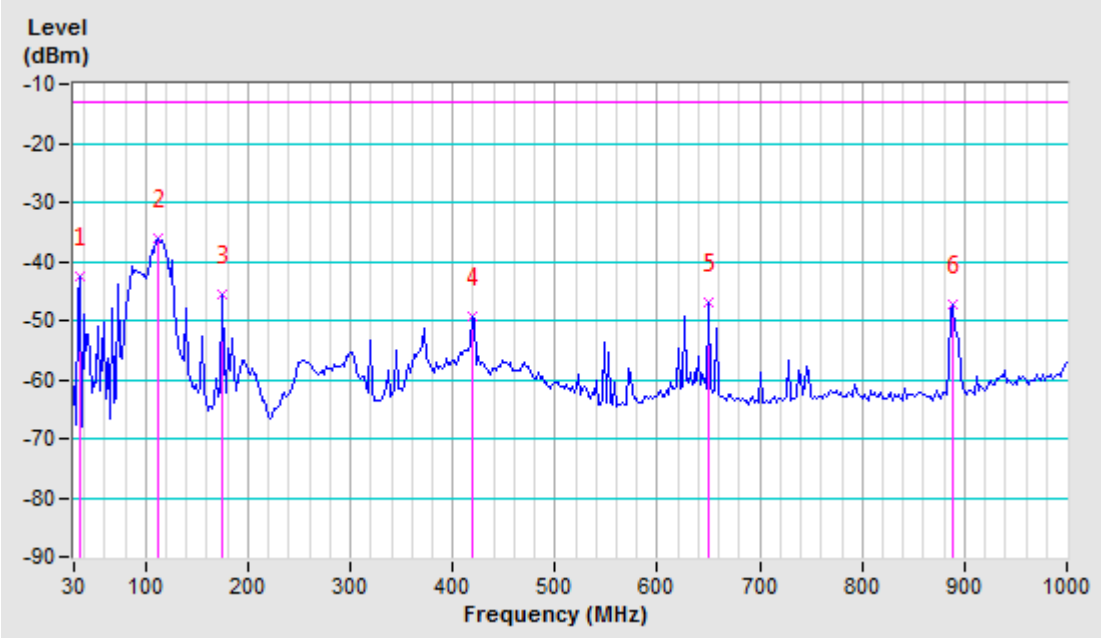
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	Below 1000 MHz	Channel	High
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	35.82	-34.01	-31.09	-11.43	-42.52	-13.00	-29.52
2	111.48	-29.61	-36.68	0.42	-36.26	-13.00	-23.26
3	175.50	-45.24	-48.06	2.34	-45.72	-13.00	-32.72
4	419.94	-47.89	-54.64	5.21	-49.43	-13.00	-36.43
5	650.80	-51.61	-51.89	4.85	-47.04	-13.00	-34.04
6	889.42	-54.26	-51.35	3.92	-47.43	-13.00	-34.43

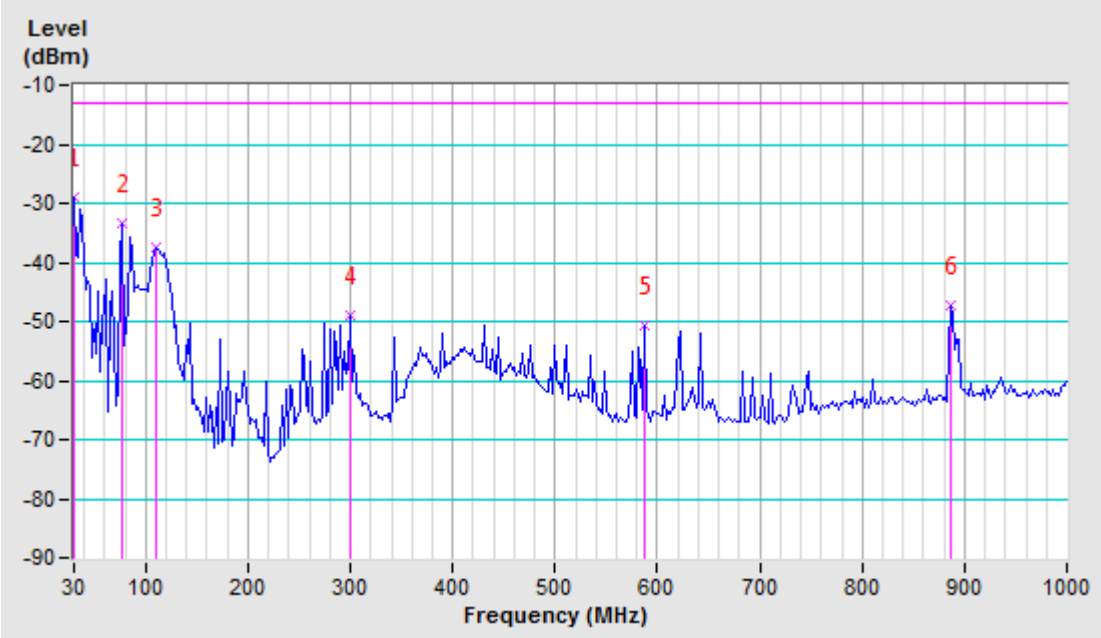
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	Below 1000 MHz	Channel	Low
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-32.51	-16.95	-12.18	-29.13	-13.00	-16.13
2	76.56	-27.26	-30.52	-2.80	-33.32	-13.00	-20.32
3	109.54	-29.59	-37.80	0.50	-37.30	-13.00	-24.30
4	299.66	-45.50	-54.08	5.13	-48.95	-13.00	-35.95
5	586.78	-50.94	-55.33	4.50	-50.83	-13.00	-37.83
6	887.48	-53.88	-51.24	3.92	-47.32	-13.00	-34.32

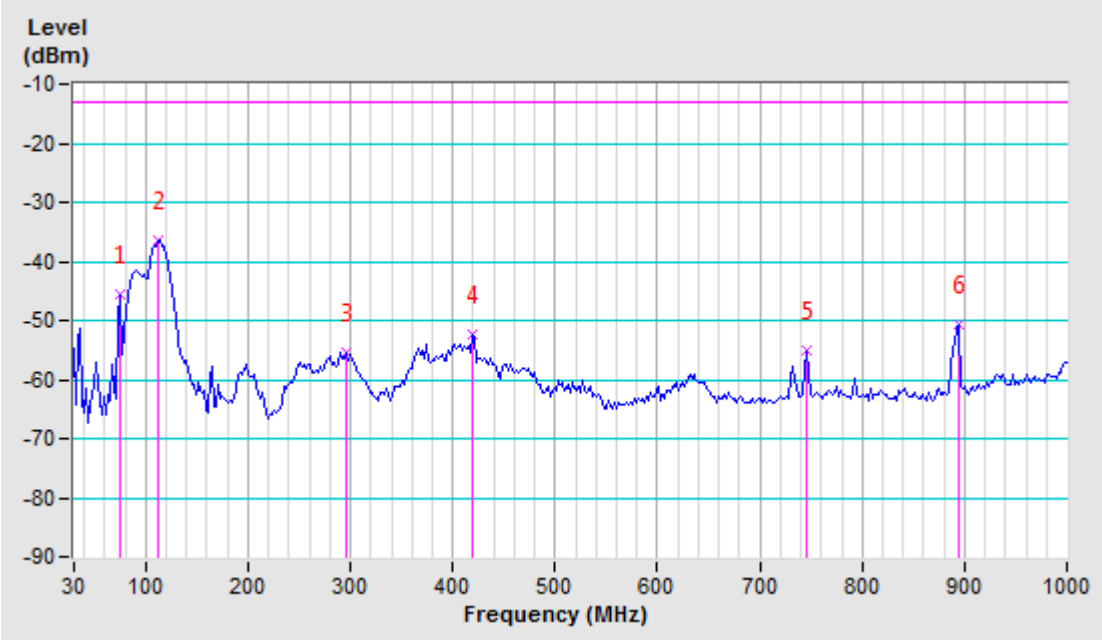
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	Below 1000 MHz	Channel	Low
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	74.62	-41.23	-42.26	-3.45	-45.71	-13.00	-32.71
2	111.48	-29.81	-36.88	0.42	-36.46	-13.00	-23.46
3	295.78	-54.47	-60.45	5.15	-55.30	-13.00	-42.30
4	419.94	-50.97	-57.72	5.21	-52.51	-13.00	-39.51
5	745.86	-60.55	-59.60	4.68	-54.92	-13.00	-41.92
6	895.24	-57.62	-54.56	3.91	-50.65	-13.00	-37.65

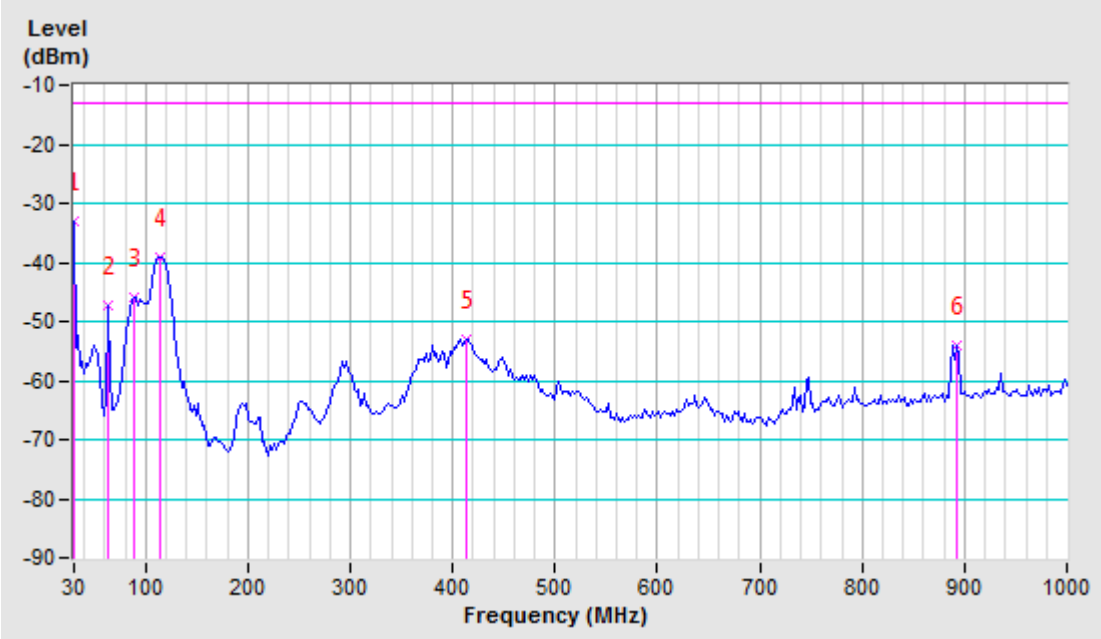
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	Below 1000 MHz	Channel	Middle
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-36.30	-20.74	-12.18	-32.92	-13.00	-19.92
2	62.98	-41.95	-40.62	-6.83	-47.45	-13.00	-34.45
3	88.20	-38.51	-46.56	0.63	-45.93	-13.00	-32.93
4	113.42	-31.42	-39.37	0.34	-39.03	-13.00	-26.03
5	414.12	-52.02	-58.18	5.23	-52.95	-13.00	-39.95
6	893.30	-60.52	-57.90	3.91	-53.99	-13.00	-40.99

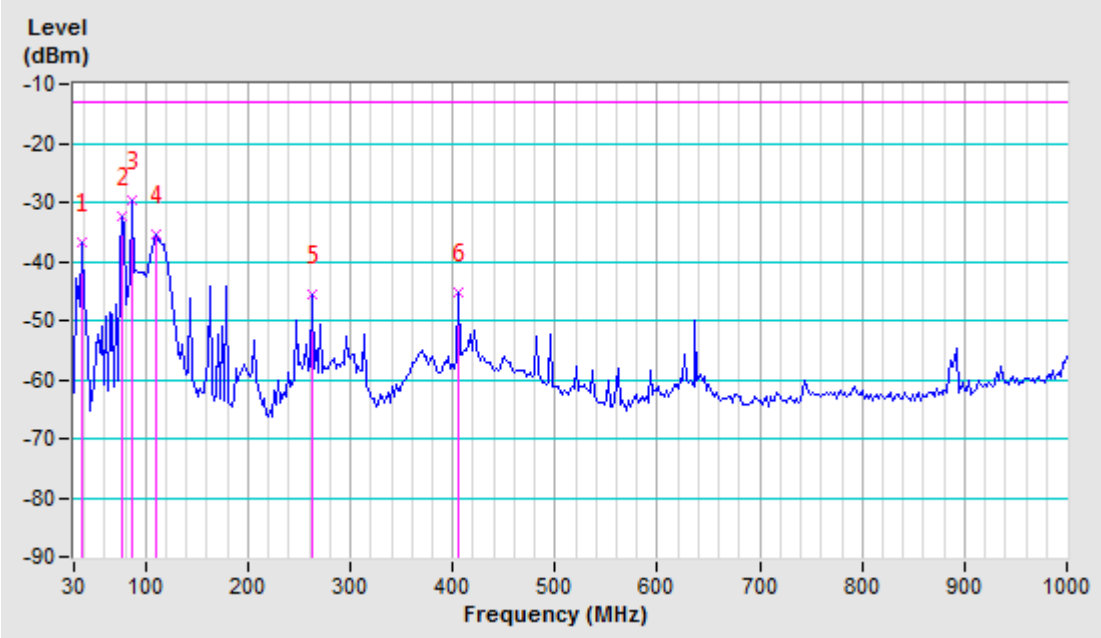
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	Below 1000 MHz	Channel	Middle
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	37.76	-28.16	-25.45	-11.18	-36.63	-13.00	-23.63
2	76.56	-27.84	-29.46	-2.80	-32.26	-13.00	-19.26
3	86.26	-24.99	-29.61	0.09	-29.52	-13.00	-16.52
4	109.54	-28.64	-35.90	0.50	-35.40	-13.00	-22.40
5	262.80	-47.68	-50.91	5.33	-45.58	-13.00	-32.58
6	406.36	-44.11	-50.46	5.26	-45.20	-13.00	-32.20

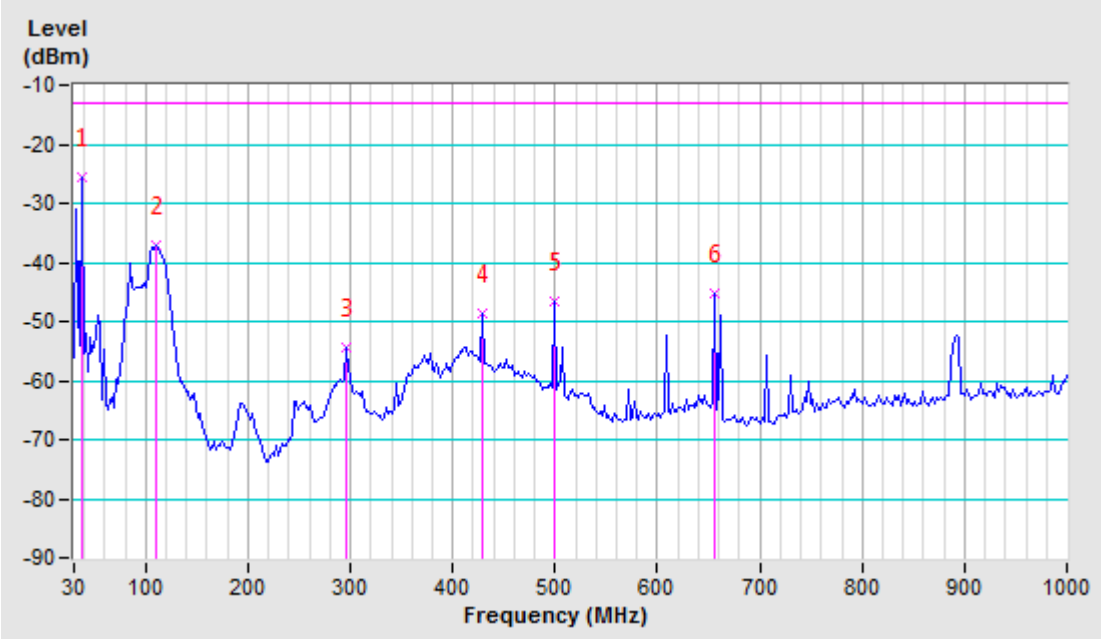
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	Below 1000 MHz	Channel	High
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	37.76	-28.65	-14.38	-11.18	-25.56	-13.00	-12.56
2	109.54	-29.52	-37.73	0.50	-37.23	-13.00	-24.23
3	295.78	-50.97	-59.69	5.15	-54.54	-13.00	-41.54
4	429.64	-47.25	-53.95	5.15	-48.80	-13.00	-35.80
5	499.48	-45.26	-51.40	4.89	-46.51	-13.00	-33.51
6	656.62	-46.65	-50.00	4.89	-45.11	-13.00	-32.11

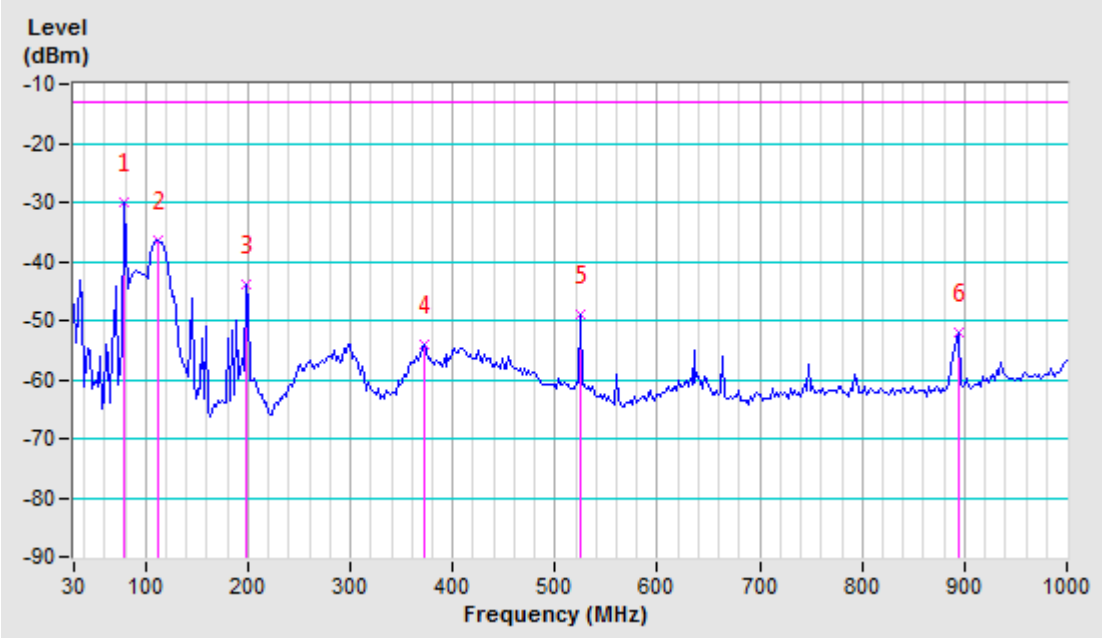
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	Below 1000 MHz	Channel	High
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	78.50	-26.15	-27.87	-2.14	-30.01	-13.00	-17.01
2	111.48	-29.76	-36.83	0.42	-36.41	-13.00	-23.41
3	198.78	-40.90	-49.25	5.31	-43.94	-13.00	-30.94
4	371.44	-52.97	-59.35	5.22	-54.13	-13.00	-41.13
5	524.70	-49.11	-53.79	4.78	-49.01	-13.00	-36.01
6	895.24	-58.93	-55.87	3.91	-51.96	-13.00	-38.96

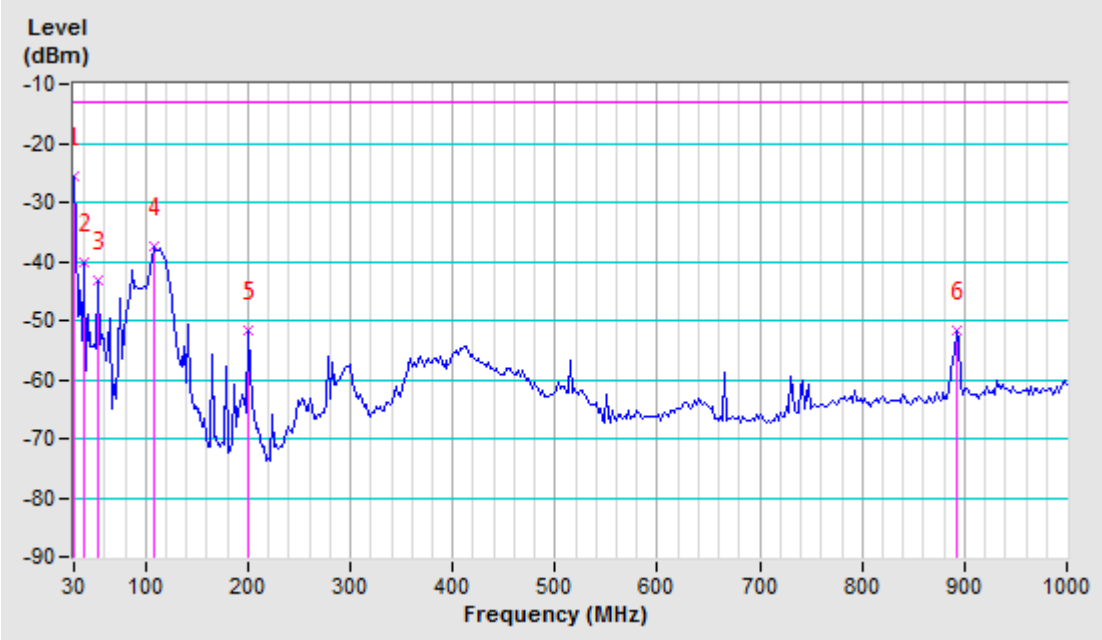
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11 + 139
Frequency Range	Below 1000 MHz	Channel	Low
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-29.13	-13.57	-12.18	-25.75	-13.00	-12.75
2	39.70	-42.61	-29.39	-10.93	-40.32	-13.00	-27.32
3	53.28	-41.58	-34.10	-9.05	-43.15	-13.00	-30.15
4	107.60	-29.87	-38.11	0.58	-37.53	-13.00	-24.53
5	200.72	-42.83	-57.01	5.47	-51.54	-13.00	-38.54
6	893.30	-58.06	-55.44	3.91	-51.53	-13.00	-38.53

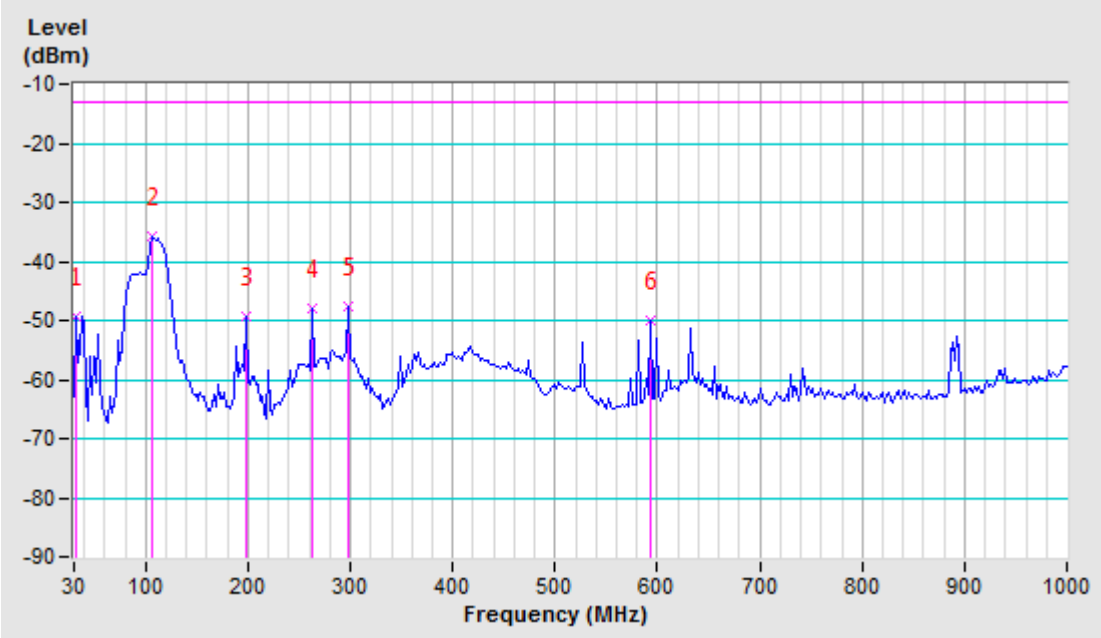
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11 + 139
Frequency Range	Below 1000 MHz	Channel	Low
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	31.94	-39.79	-37.33	-11.93	-49.26	-13.00	-36.26
2	105.66	-29.87	-36.52	0.65	-35.87	-13.00	-22.87
3	198.78	-46.25	-54.60	5.31	-49.29	-13.00	-36.29
4	262.80	-50.16	-53.39	5.33	-48.06	-13.00	-35.06
5	297.72	-46.93	-52.90	5.14	-47.76	-13.00	-34.76
6	592.60	-53.24	-54.58	4.47	-50.11	-13.00	-37.11

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



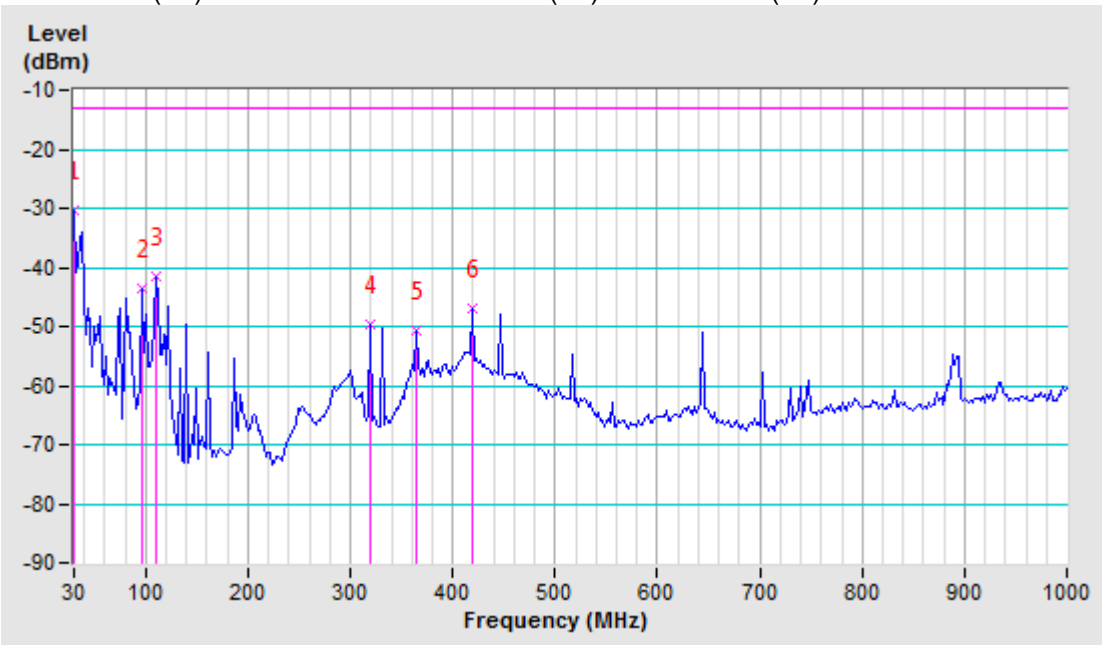
Summary of MIMO Beam Out-of Band Emission:
To address compliance of MIMO Out-of Band emission per KDB 662911 D01, the MIMO Out-of Band emission EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm.

Beam ID	EIRP for V Beam (dBm)	EIRP for H Beam (dBm)	EIRP for V+H Beam (dBm)	Limit(dBm)	Margin(dB)	Result
11 + 139	-35.87	-25.75	-25.35	-13	-12.35	Pass

Band	n261	Beam ID	11 + 139
Frequency Range	Below 1000 MHz	Channel	Middle
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-33.56	-18.00	-12.18	-30.18	-13.00	-17.18
2	95.96	-35.65	-44.62	0.98	-43.64	-13.00	-30.64
3	109.54	-33.77	-41.98	0.50	-41.48	-13.00	-28.48
4	319.06	-45.46	-54.88	5.15	-49.73	-13.00	-36.73
5	363.68	-47.81	-55.74	5.22	-50.52	-13.00	-37.52
6	419.94	-45.88	-52.32	5.21	-47.11	-13.00	-34.11

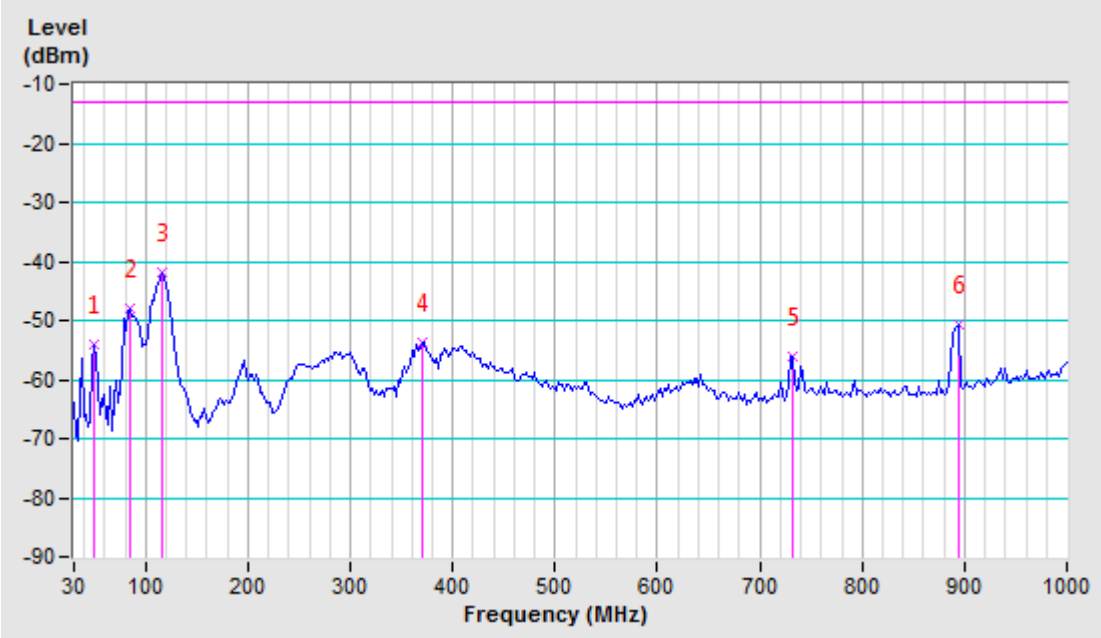
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11 + 139
Frequency Range	Below 1000 MHz	Channel	Middle
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	49.40	-47.72	-44.05	-9.85	-53.90	-13.00	-40.90
2	84.32	-43.97	-47.67	-0.45	-48.12	-13.00	-35.12
3	115.36	-35.24	-42.19	0.26	-41.93	-13.00	-28.93
4	369.50	-52.41	-58.77	5.21	-53.56	-13.00	-40.56
5	732.28	-61.53	-60.78	4.84	-55.94	-13.00	-42.94
6	895.24	-57.81	-54.75	3.91	-50.84	-13.00	-37.84

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



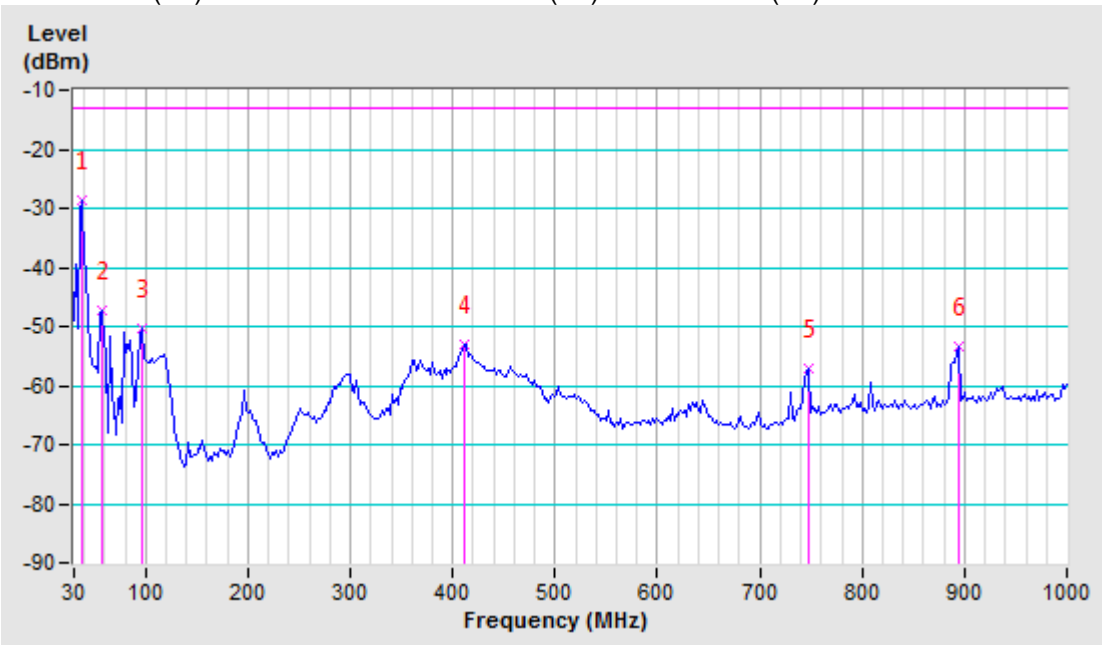
Summary of MIMO Beam Out-of Band Emission:
To address compliance of MIMO Out-of Band emission per KDB 662911 D01, the MIMO Out-of Band emission EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm.

Beam ID	EIRP for V Beam (dBm)	EIRP for H Beam (dBm)	EIRP for V+H Beam (dBm)	Limit(dBm)	Margin(dB)	Result
11 + 139	-41.93	-30.18	-29.9	-13	-16.9	Pass

Band	n261	Beam ID	11 + 139
Frequency Range	Below 1000 MHz	Channel	High
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	37.76	-31.78	-17.51	-11.18	-28.69	-13.00	-15.69
2	57.16	-43.76	-38.96	-8.21	-47.17	-13.00	-34.17
3	95.96	-42.31	-51.28	0.98	-50.30	-13.00	-37.30
4	412.18	-52.14	-58.29	5.24	-53.05	-13.00	-40.05
5	747.80	-60.75	-61.82	4.65	-57.17	-13.00	-44.17
6	895.24	-59.97	-57.32	3.91	-53.41	-13.00	-40.41

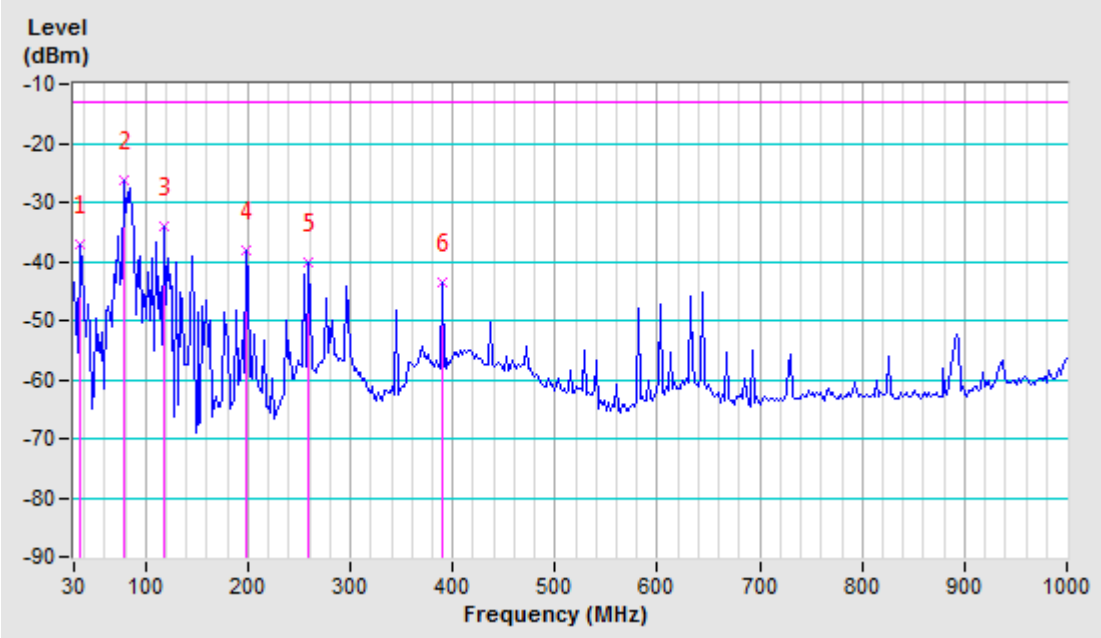
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11 + 139
Frequency Range	Below 1000 MHz	Channel	High
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	35.82	-28.57	-25.65	-11.43	-37.08	-13.00	-24.08
2	78.50	-22.28	-24.00	-2.14	-26.14	-13.00	-13.14
3	117.30	-27.70	-34.17	0.18	-33.99	-13.00	-20.99
4	198.78	-35.11	-43.46	5.31	-38.15	-13.00	-25.15
5	258.92	-41.16	-45.38	5.35	-40.03	-13.00	-27.03
6	388.90	-42.24	-48.73	5.24	-43.49	-13.00	-30.49

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Summary of MIMO Beam Out-of Band Emission:
To address compliance of MIMO Out-of Band emission per KDB 662911 D01, the MIMO Out-of Band emission EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm.

Beam ID	EIRP for V Beam (dBm)	EIRP for H Beam (dBm)	EIRP for V+H Beam (dBm)	Limit(dBm)	Margin(dB)	Result
11 + 139	-26.14	-28.69	-24.22	-13	-11.22	Pass

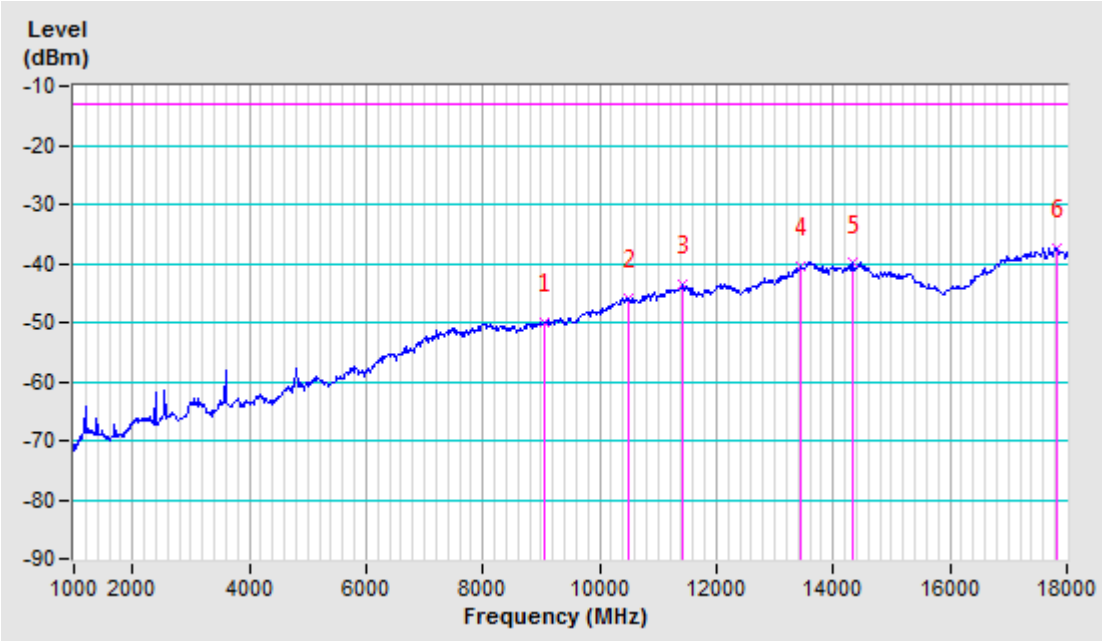
Above 1GHz Data:

1GHz-18GHz:

Band	n261	Beam ID	11
Frequency Range	1GHz ~18 GHz	Channel	Low
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	9041.00	-75.80	-54.70	4.70	-50.00	-13.00	-37.00
2	10486.00	-75.70	-48.70	2.70	-46.00	-13.00	-33.00
3	11421.00	-75.00	-46.10	2.40	-43.70	-13.00	-30.70
4	13444.00	-75.40	-43.30	2.80	-40.50	-13.00	-27.50
5	14328.00	-75.20	-41.40	1.40	-40.00	-13.00	-27.00
6	17813.00	-75.20	-34.40	-2.90	-37.30	-13.00	-24.30

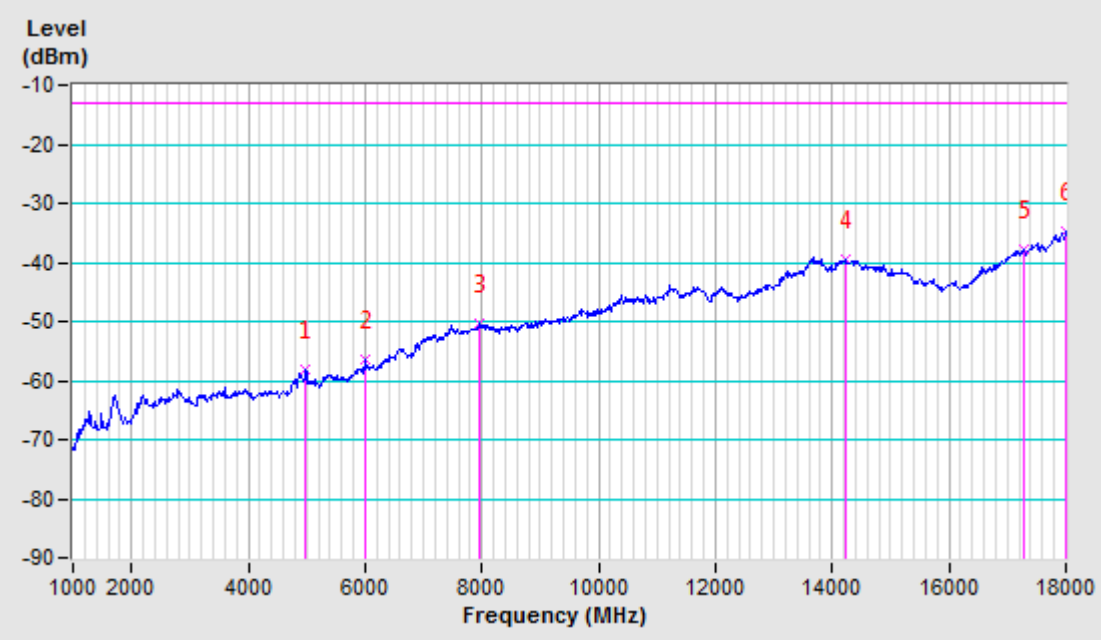
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	1GHz ~18 GHz	Channel	Low
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	4978.00	-75.70	-64.80	6.60	-58.20	-13.00	-45.20
2	5998.00	-75.60	-62.90	6.60	-56.30	-13.00	-43.30
3	7970.00	-75.30	-54.50	4.00	-50.50	-13.00	-37.50
4	14226.00	-75.30	-40.90	1.50	-39.40	-13.00	-26.40
5	17269.00	-74.60	-39.40	1.60	-37.80	-13.00	-24.80
6	18000.00	-74.90	-29.60	-5.10	-34.70	-13.00	-21.70

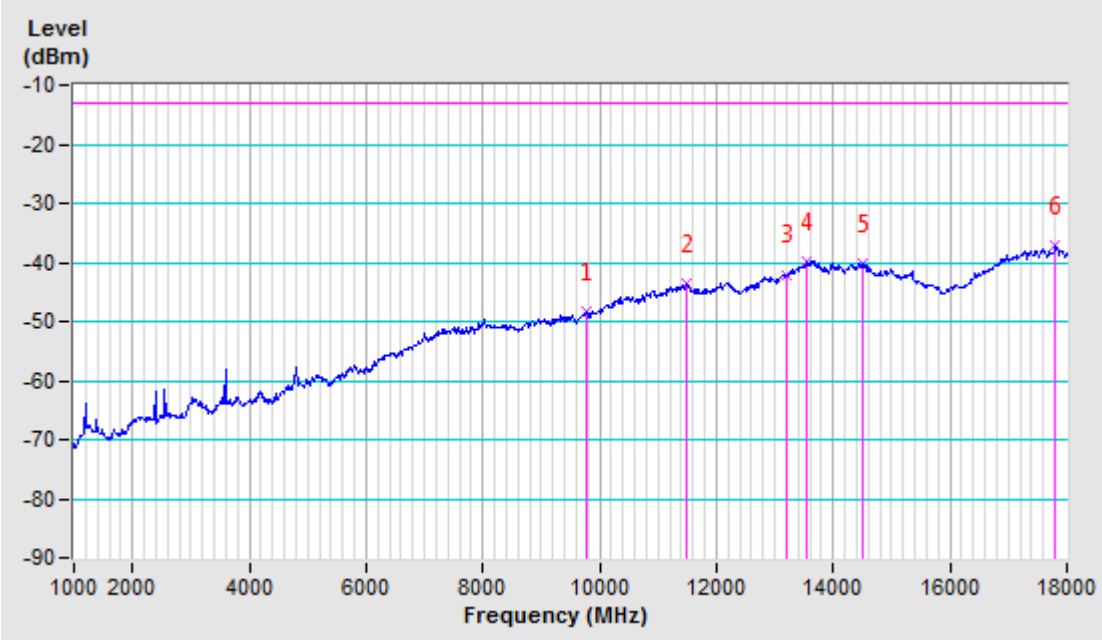
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	1GHz ~18 GHz	Channel	Middle
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	9789.00	-75.90	-52.00	3.60	-48.40	-13.00	-35.40
2	11489.00	-75.00	-46.10	2.40	-43.70	-13.00	-30.70
3	13189.00	-75.30	-45.10	3.10	-42.00	-13.00	-29.00
4	13546.00	-75.10	-42.50	2.60	-39.90	-13.00	-26.90
5	14498.00	-75.40	-41.50	1.40	-40.10	-13.00	-27.10
6	17796.00	-75.10	-34.40	-2.80	-37.20	-13.00	-24.20

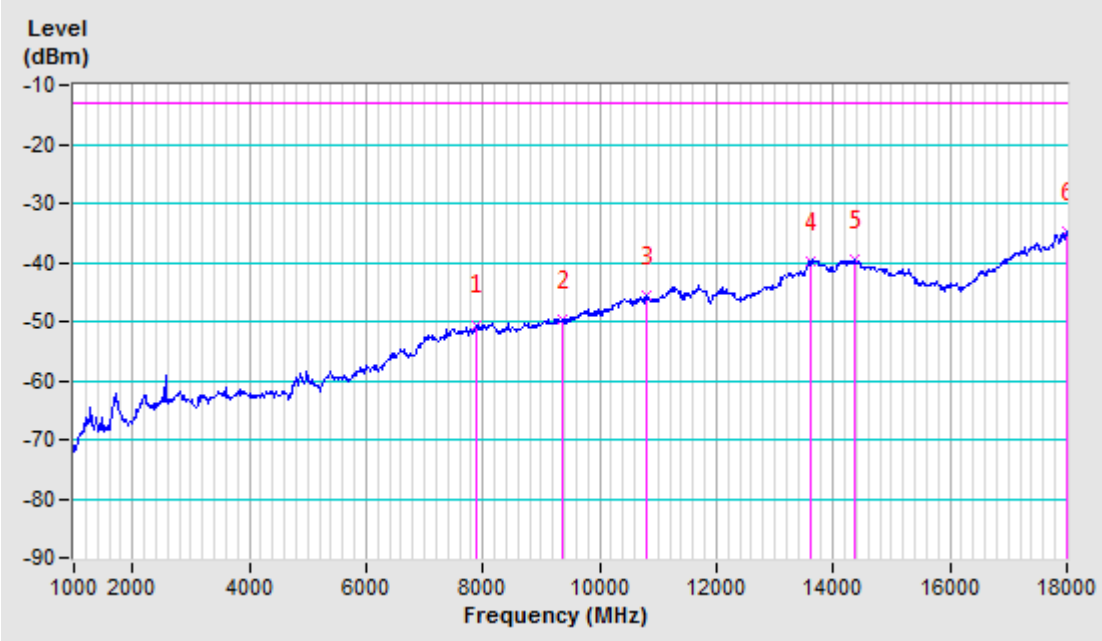
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	1GHz ~18 GHz	Channel	Middle
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	7885.00	-75.20	-54.60	4.10	-50.50	-13.00	-37.50
2	9364.00	-75.90	-53.80	4.10	-49.70	-13.00	-36.70
3	10792.00	-75.10	-47.90	2.30	-45.60	-13.00	-32.60
4	13597.00	-75.20	-42.20	2.40	-39.80	-13.00	-26.80
5	14379.00	-75.50	-41.10	1.50	-39.60	-13.00	-26.60
6	18000.00	-75.10	-29.80	-5.10	-34.90	-13.00	-21.90

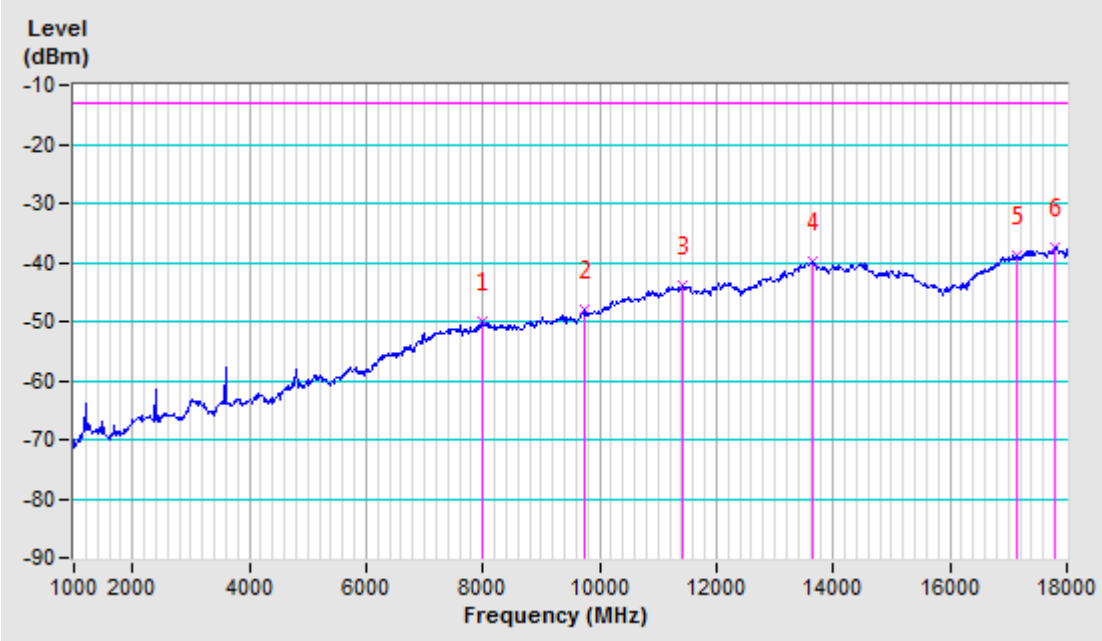
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	1GHz ~18 GHz	Channel	High
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	8004.00	-75.30	-53.90	4.00	-49.90	-13.00	-36.90
2	9755.00	-75.20	-51.50	3.70	-47.80	-13.00	-34.80
3	11421.00	-75.30	-46.40	2.40	-44.00	-13.00	-31.00
4	13631.00	-75.10	-42.20	2.40	-39.80	-13.00	-26.80
5	17150.00	-74.80	-40.60	1.90	-38.70	-13.00	-25.70
6	17796.00	-75.20	-34.50	-2.80	-37.30	-13.00	-24.30

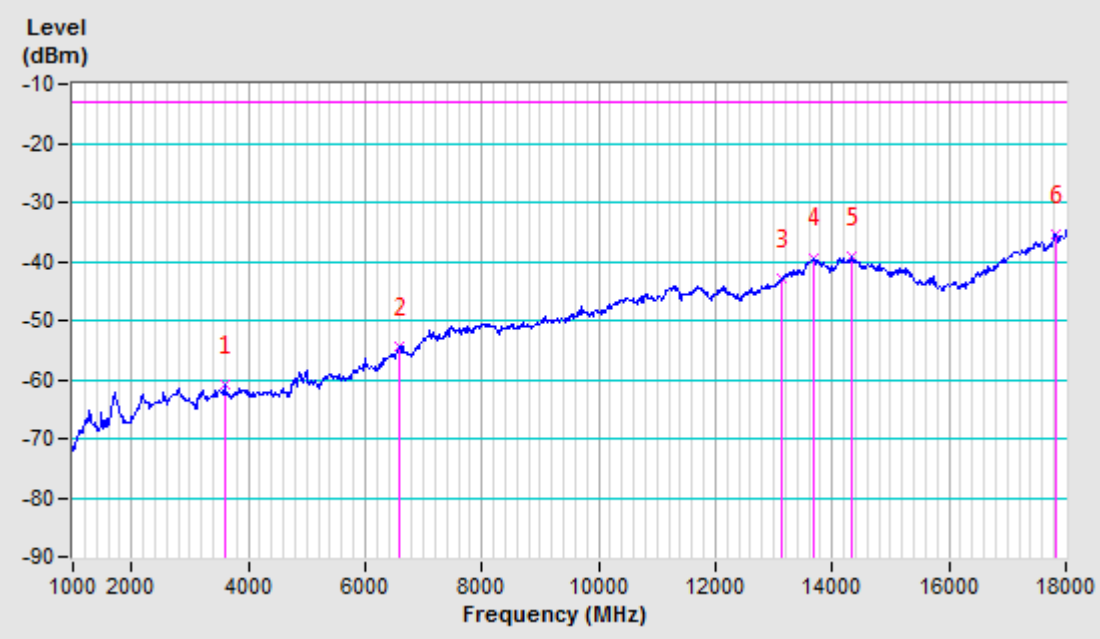
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11
Frequency Range	1GHz ~18 GHz	Channel	High
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3601.00	-74.80	-68.00	7.10	-60.90	-13.00	-47.90
2	6576.00	-76.40	-59.60	5.30	-54.30	-13.00	-41.30
3	13121.00	-75.50	-46.30	3.30	-43.00	-13.00	-30.00
4	13682.00	-74.90	-41.70	2.40	-39.30	-13.00	-26.30
5	14328.00	-75.10	-40.60	1.40	-39.20	-13.00	-26.20
6	17813.00	-74.90	-32.40	-2.90	-35.30	-13.00	-22.30

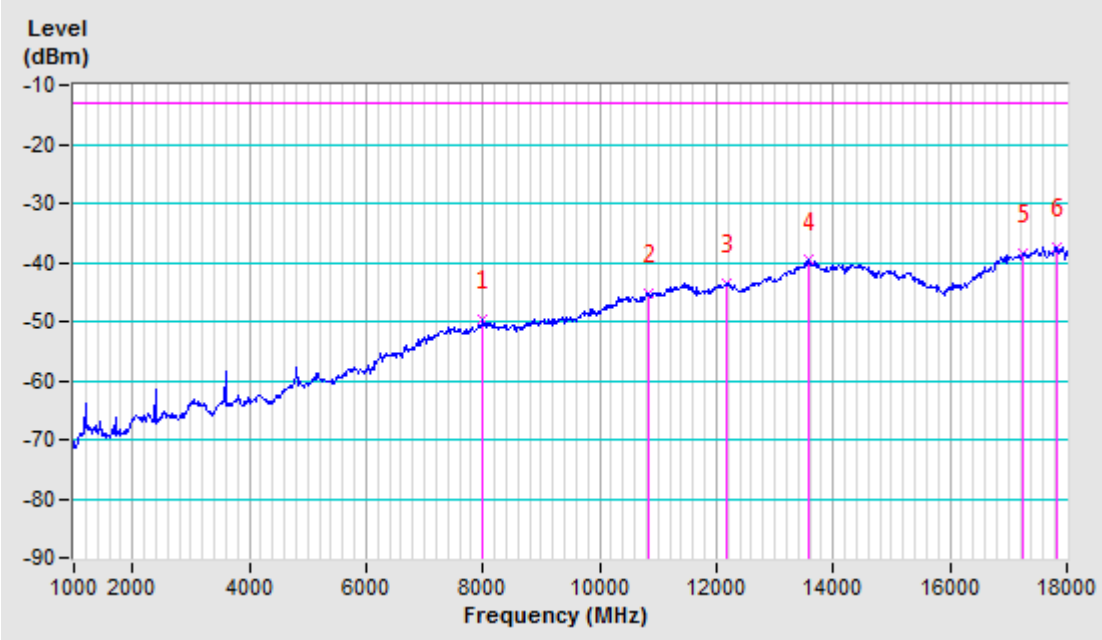
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	1GHz ~18 GHz	Channel	Low
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	8004.00	-75.10	-53.70	4.00	-49.70	-13.00	-36.70
2	10826.00	-75.60	-47.60	2.30	-45.30	-13.00	-32.30
3	12169.00	-75.10	-47.20	3.70	-43.50	-13.00	-30.50
4	13563.00	-75.00	-42.20	2.50	-39.70	-13.00	-26.70
5	17252.00	-74.90	-40.10	1.70	-38.40	-13.00	-25.40
6	17813.00	-75.20	-34.40	-2.90	-37.30	-13.00	-24.30

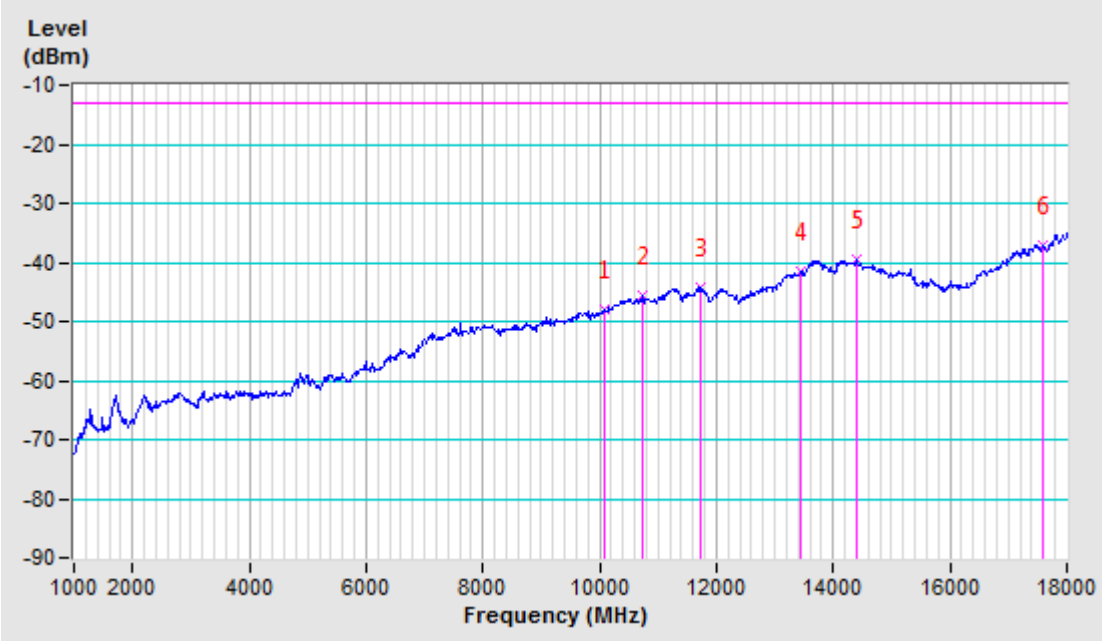
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	1GHz ~18 GHz	Channel	Low
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	10078.00	-75.70	-51.60	3.50	-48.10	-13.00	-35.10
2	10724.00	-74.90	-48.10	2.50	-45.60	-13.00	-32.60
3	11727.00	-75.20	-47.20	2.90	-44.30	-13.00	-31.30
4	13444.00	-75.30	-44.30	2.80	-41.50	-13.00	-28.50
5	14396.00	-75.50	-41.10	1.50	-39.60	-13.00	-26.60
6	17575.00	-74.90	-36.90	-0.20	-37.10	-13.00	-24.10

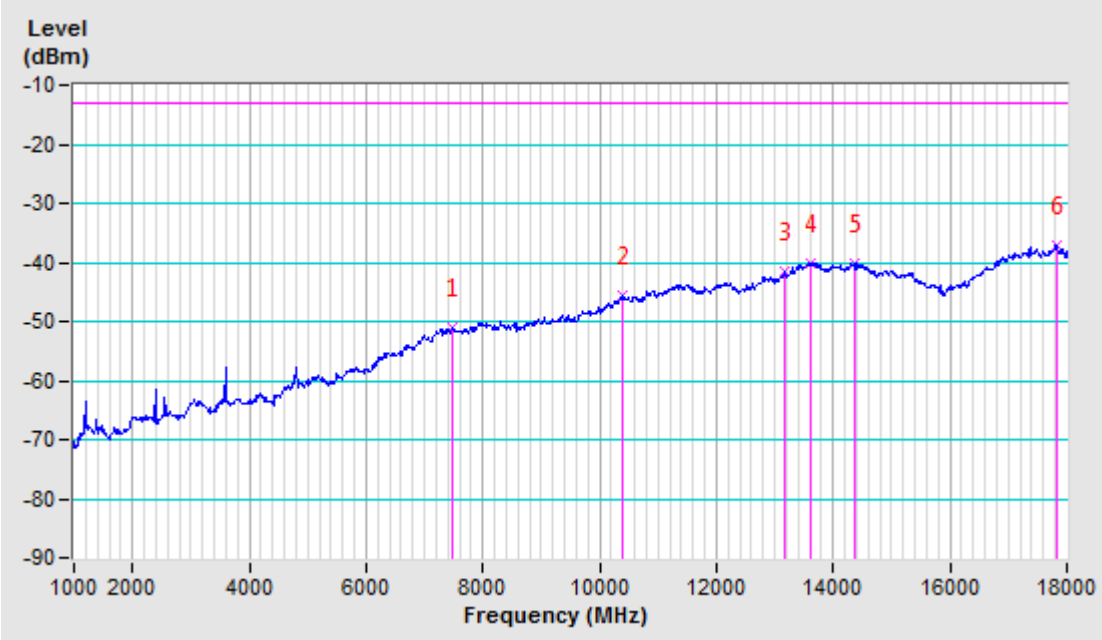
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	1GHz ~18 GHz	Channel	Middle
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	7494.00	-75.80	-55.20	4.20	-51.00	-13.00	-38.00
2	10384.00	-75.00	-48.40	2.90	-45.50	-13.00	-32.50
3	13155.00	-74.90	-44.80	3.20	-41.60	-13.00	-28.60
4	13614.00	-75.40	-42.40	2.40	-40.00	-13.00	-27.00
5	14362.00	-75.30	-41.70	1.50	-40.20	-13.00	-27.20
6	17813.00	-75.10	-34.30	-2.90	-37.20	-13.00	-24.20

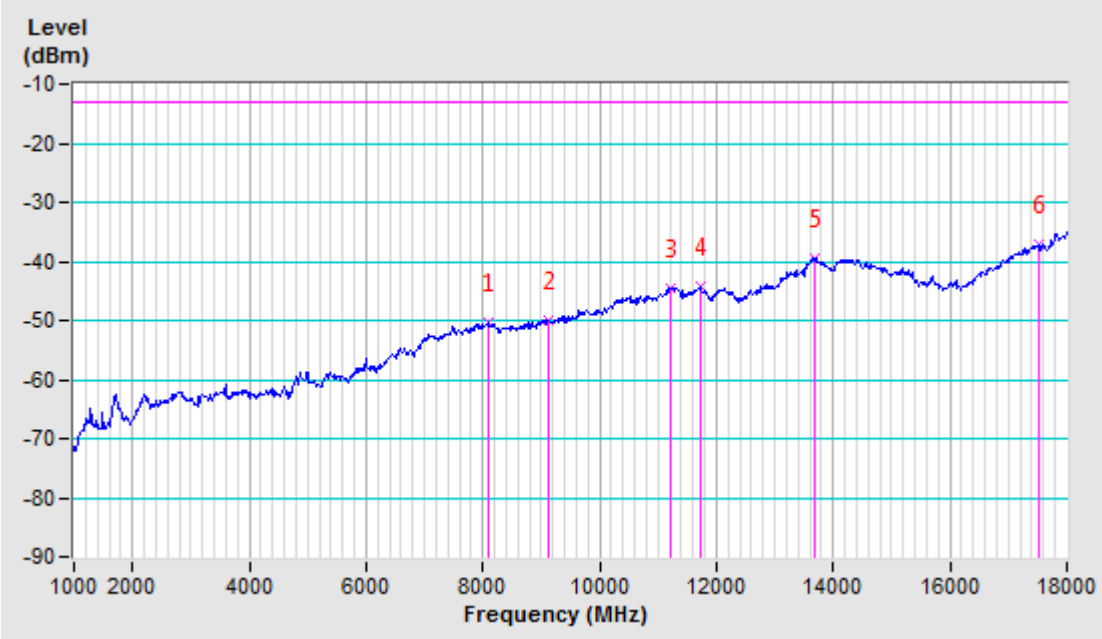
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	1GHz ~18 GHz	Channel	Middle
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	8089.00	-75.00	-54.60	4.20	-50.40	-13.00	-37.40
2	9126.00	-75.80	-54.50	4.50	-50.00	-13.00	-37.00
3	11200.00	-75.50	-46.80	2.20	-44.60	-13.00	-31.60
4	11727.00	-75.10	-47.10	2.90	-44.20	-13.00	-31.20
5	13665.00	-75.00	-41.80	2.40	-39.40	-13.00	-26.40
6	17507.00	-74.90	-37.50	0.40	-37.10	-13.00	-24.10

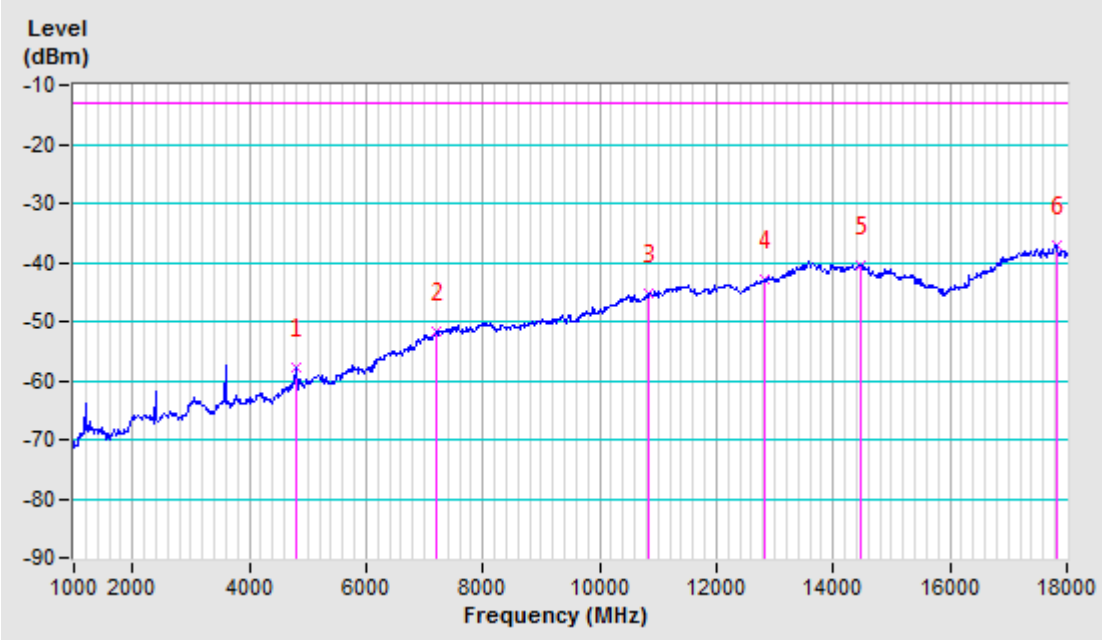
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	1GHz ~18 GHz	Channel	High
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	4808.00	-75.10	-64.50	6.60	-57.90	-13.00	-44.90
2	7205.00	-75.90	-56.10	4.50	-51.60	-13.00	-38.60
3	10826.00	-75.50	-47.50	2.30	-45.20	-13.00	-32.20
4	12815.00	-75.40	-46.80	3.80	-43.00	-13.00	-30.00
5	14481.00	-75.60	-41.80	1.40	-40.40	-13.00	-27.40
6	17813.00	-74.90	-34.10	-2.90	-37.00	-13.00	-24.00

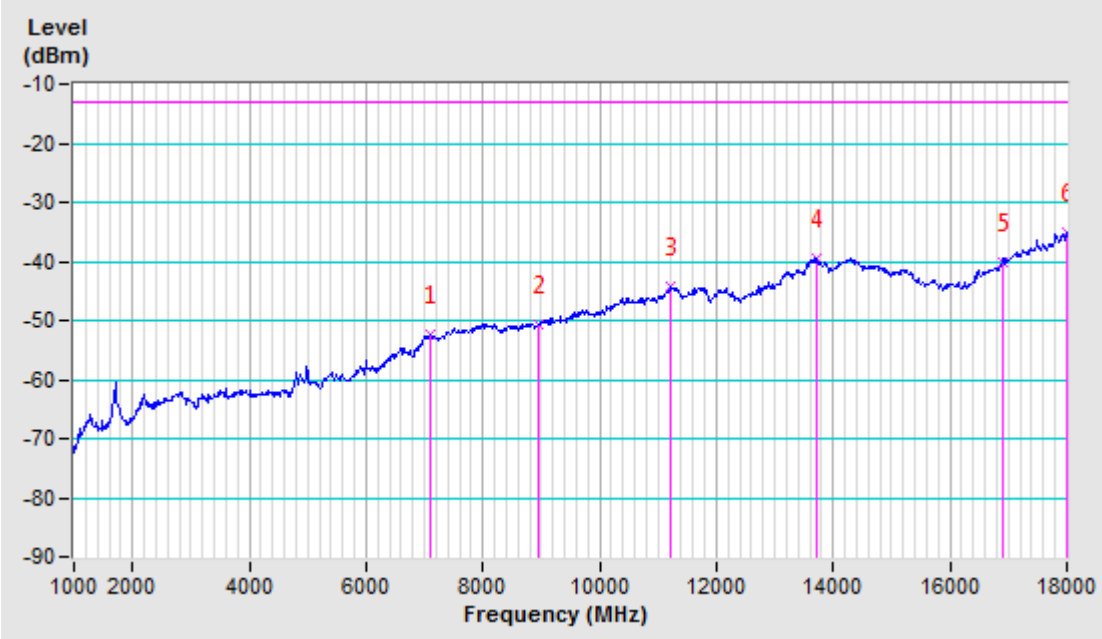
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	139
Frequency Range	1GHz ~18 GHz	Channel	High
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	7103.00	-76.00	-57.00	4.70	-52.30	-13.00	-39.30
2	8939.00	-75.90	-55.30	4.70	-50.60	-13.00	-37.60
3	11217.00	-75.20	-46.40	2.20	-44.20	-13.00	-31.20
4	13699.00	-75.20	-41.80	2.30	-39.50	-13.00	-26.50
5	16895.00	-75.50	-43.40	3.20	-40.20	-13.00	-27.20
6	18000.00	-75.40	-30.10	-5.10	-35.20	-13.00	-22.20

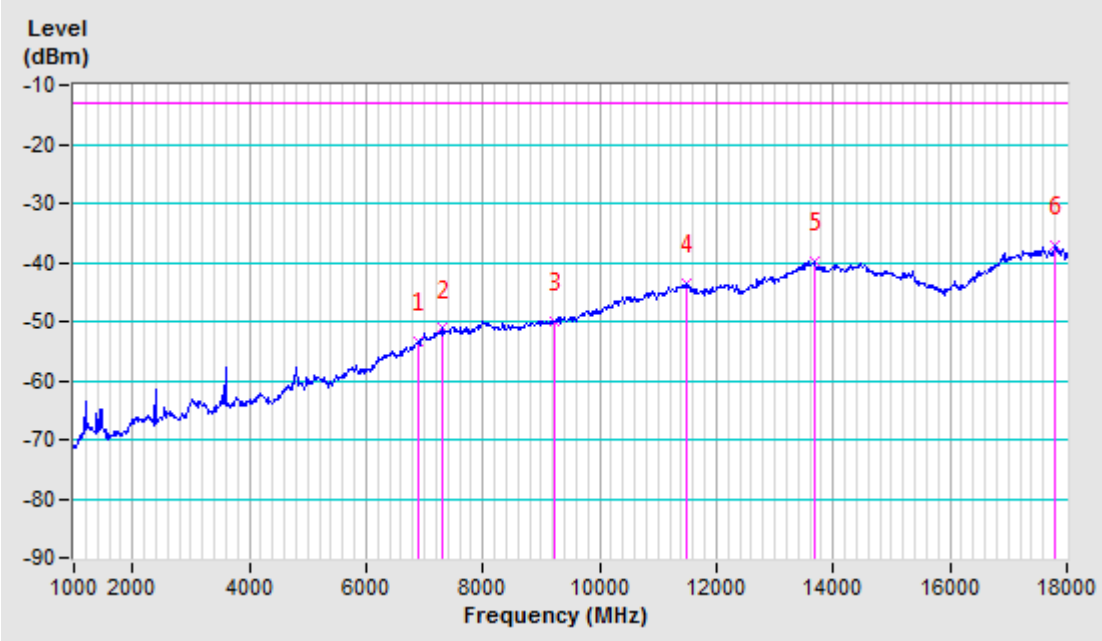
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11 + 139
Frequency Range	1GHz ~18 GHz	Channel	Low
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	6882.00	-76.40	-58.40	4.90	-53.50	-13.00	-40.50
2	7307.00	-75.70	-55.70	4.50	-51.20	-13.00	-38.20
3	9211.00	-76.30	-54.40	4.40	-50.00	-13.00	-37.00
4	11472.00	-75.00	-46.10	2.40	-43.70	-13.00	-30.70
5	13665.00	-75.00	-42.30	2.40	-39.90	-13.00	-26.90
6	17796.00	-75.10	-34.40	-2.80	-37.20	-13.00	-24.20

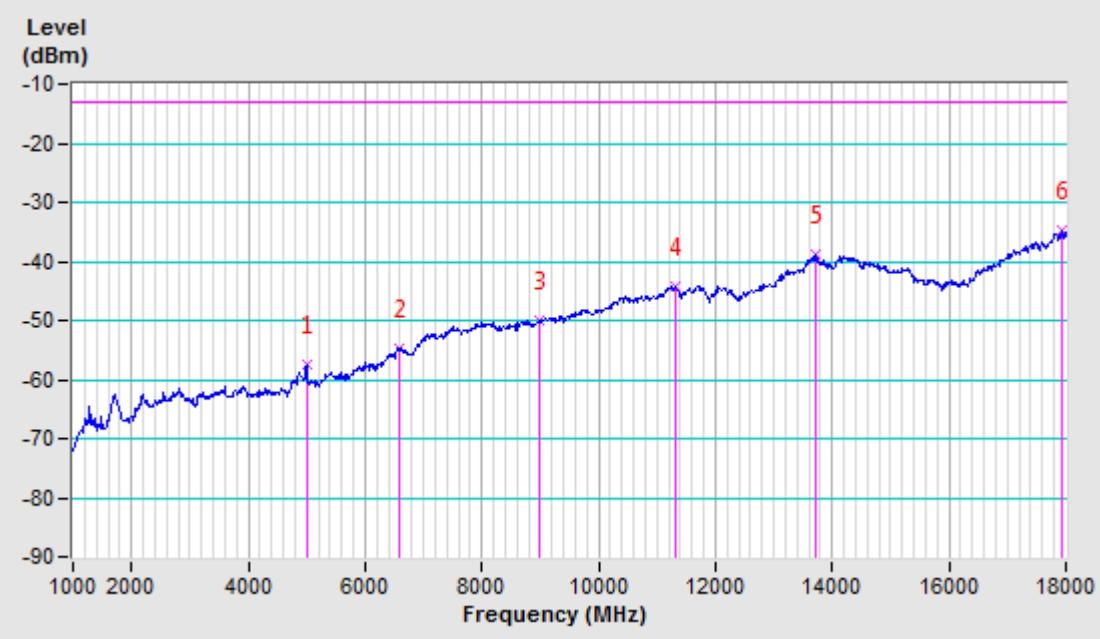
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11 + 139
Frequency Range	1GHz ~18 GHz	Channel	Low
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	4995.00	-74.90	-64.20	6.60	-57.60	-13.00	-44.60
2	6593.00	-76.90	-60.00	5.30	-54.70	-13.00	-41.70
3	8990.00	-75.60	-54.80	4.70	-50.10	-13.00	-37.10
4	11319.00	-74.90	-46.30	2.20	-44.10	-13.00	-31.10
5	13716.00	-74.40	-41.10	2.30	-38.80	-13.00	-25.80
6	17932.00	-74.40	-30.50	-4.30	-34.80	-13.00	-21.80

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



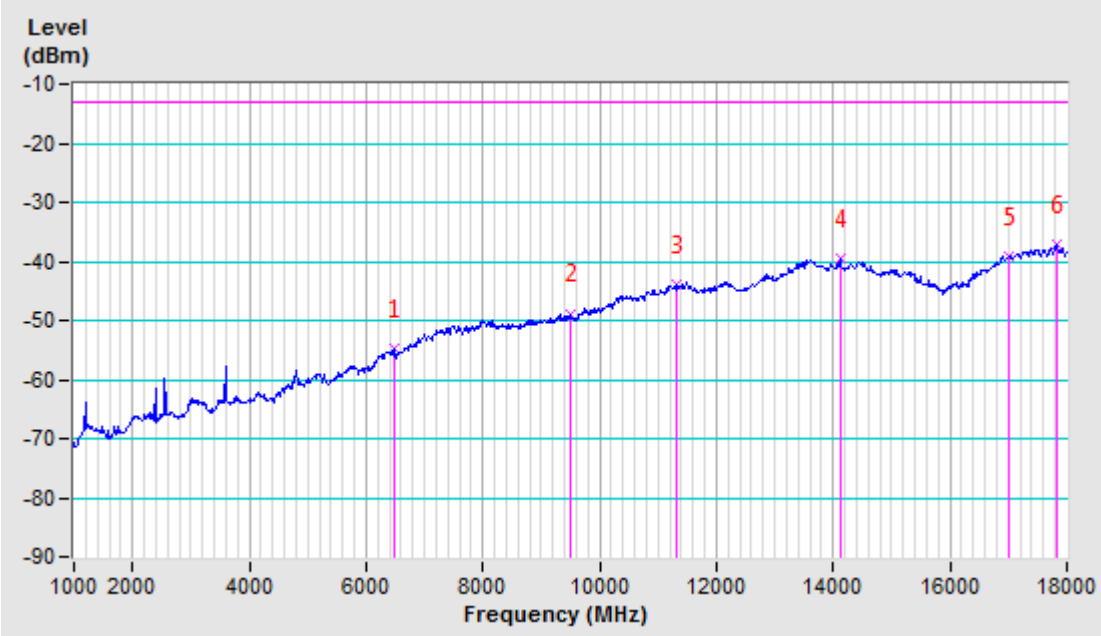
Summary of MIMO Beam Out-of Band Emission:
To address compliance of MIMO Out-of Band emission per KDB 662911 D01, the MIMO Out-of Band emission EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm.

Beam ID	EIRP for V Beam (dBm)	EIRP for H Beam (dBm)	EIRP for V+H Beam (dBm)	Limit(dBm)	Margin(dB)	Result
11 + 139	-34.80	-37.20	-32.83	-13	-19.83	Pass

Band	n261	Beam ID	11 + 139
Frequency Range	1GHz ~18 GHz	Channel	Middle
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	6474.00	-76.70	-60.30	5.50	-54.80	-13.00	-41.80
2	9483.00	-75.60	-52.80	4.00	-48.80	-13.00	-35.80
3	11319.00	-75.00	-46.20	2.20	-44.00	-13.00	-31.00
4	14124.00	-74.30	-41.20	1.60	-39.60	-13.00	-26.60
5	17014.00	-75.00	-41.60	2.50	-39.10	-13.00	-26.10
6	17813.00	-74.90	-34.10	-2.90	-37.00	-13.00	-24.00

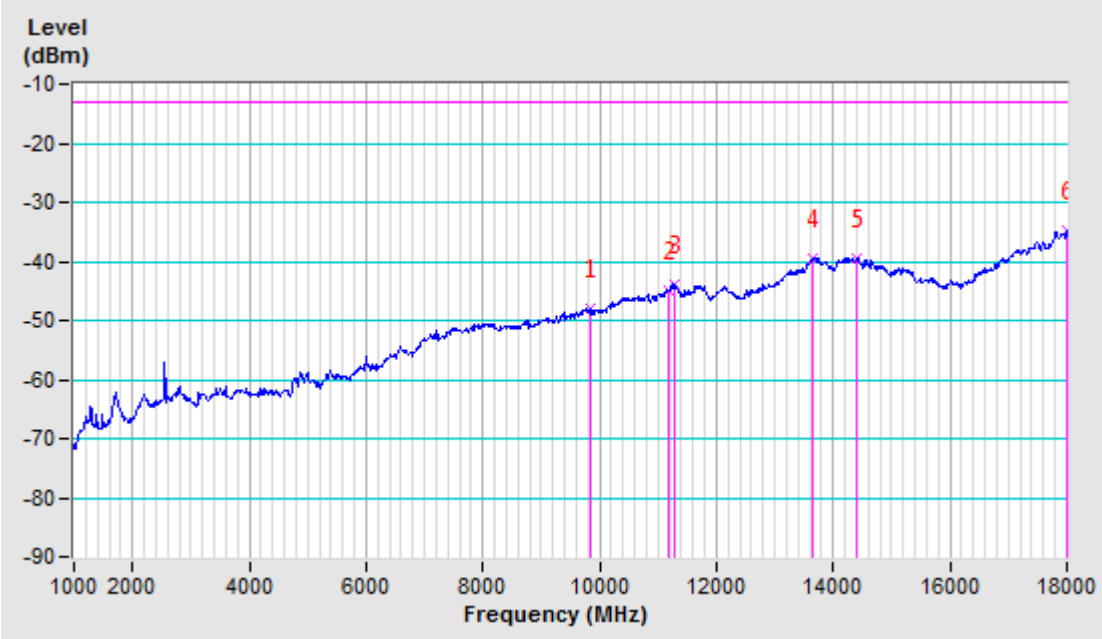
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11 + 139
Frequency Range	1GHz ~18 GHz	Channel	Middle
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	9857.00	-75.10	-51.60	3.70	-47.90	-13.00	-34.90
2	11166.00	-75.30	-47.00	2.20	-44.80	-13.00	-31.80
3	11285.00	-75.00	-46.10	2.20	-43.90	-13.00	-30.90
4	13631.00	-74.90	-41.80	2.40	-39.40	-13.00	-26.40
5	14413.00	-75.20	-41.00	1.50	-39.50	-13.00	-26.50
6	18000.00	-74.90	-29.60	-5.10	-34.70	-13.00	-21.70

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



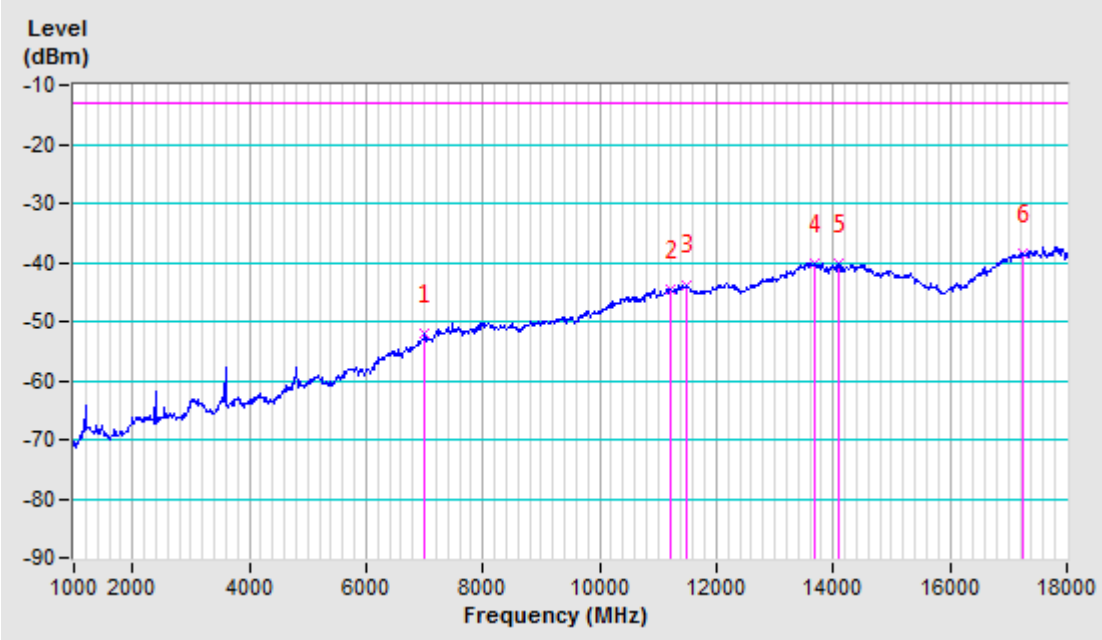
Summary of MIMO Beam Out-of Band Emission:
To address compliance of MIMO Out-of Band emission per KDB 662911 D01, the MIMO Out-of Band emission EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm.

Beam ID	EIRP for V Beam (dBm)	EIRP for H Beam (dBm)	EIRP for V+H Beam (dBm)	Limit(dBm)	Margin(dB)	Result
11 + 139	-34.70	-37.00	-32.69	-13	-19.69	Pass

Band	n261	Beam ID	11 + 139
Frequency Range	1GHz ~18 GHz	Channel	High
Polarity	Horizontal		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	7001.00	-75.80	-56.70	4.70	-52.00	-13.00	-39.00
2	11217.00	-75.80	-46.80	2.20	-44.60	-13.00	-31.60
3	11472.00	-75.00	-46.10	2.40	-43.70	-13.00	-30.70
4	13665.00	-75.30	-42.60	2.40	-40.20	-13.00	-27.20
5	14090.00	-74.90	-41.70	1.60	-40.10	-13.00	-27.10
6	17252.00	-75.10	-40.30	1.70	-38.60	-13.00	-25.60

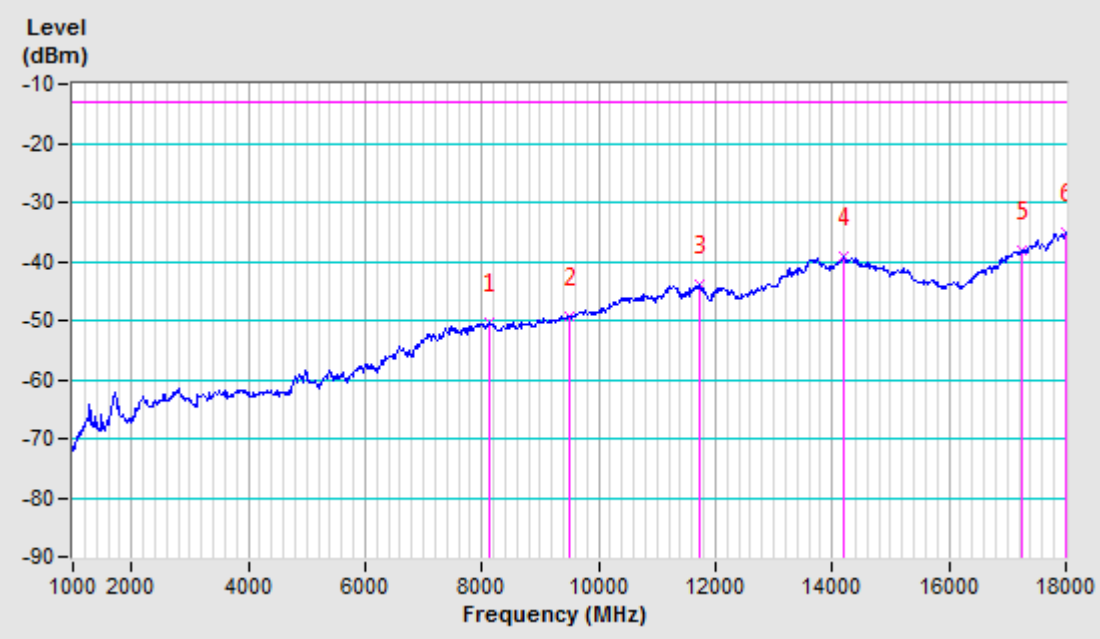
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Band	n261	Beam ID	11 + 139
Frequency Range	1GHz ~18 GHz	Channel	High
Polarity	Vertical		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	8140.00	-75.10	-54.70	4.30	-50.40	-13.00	-37.40
2	9483.00	-75.90	-53.30	4.00	-49.30	-13.00	-36.30
3	11727.00	-74.90	-46.90	2.90	-44.00	-13.00	-31.00
4	14209.00	-75.00	-40.70	1.60	-39.10	-13.00	-26.10
5	17252.00	-74.90	-39.90	1.70	-38.20	-13.00	-25.20
6	18000.00	-75.30	-30.00	-5.10	-35.10	-13.00	-22.10

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

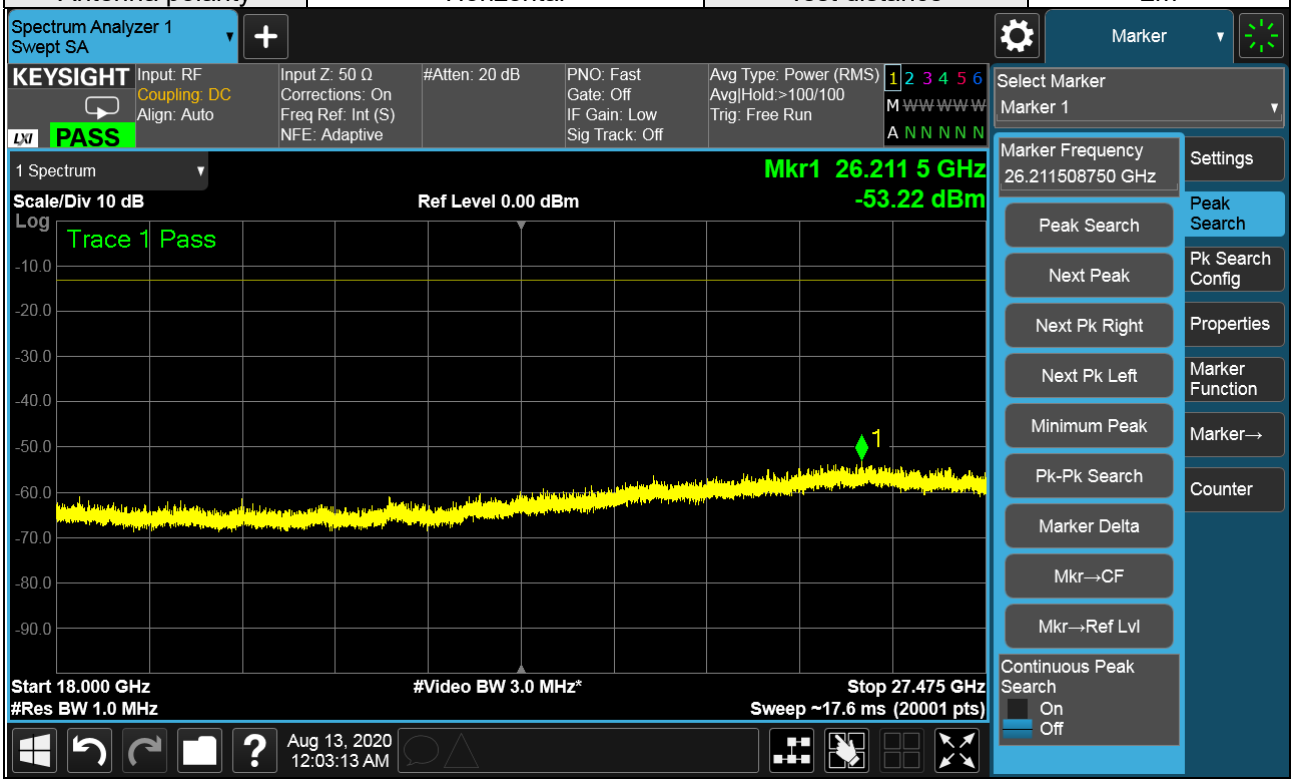


Summary of MIMO Beam Out-of Band Emission:
To address compliance of MIMO Out-of Band emission per KDB 662911 D01, the MIMO Out-of Band emission EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm.

Beam ID	EIRP for V Beam (dBm)	EIRP for H Beam (dBm)	EIRP for V+H Beam (dBm)	Limit(dBm)	Margin(dB)	Result
11 + 139	-35.10	-38.60	-33.50	-13	-20.50	Pass

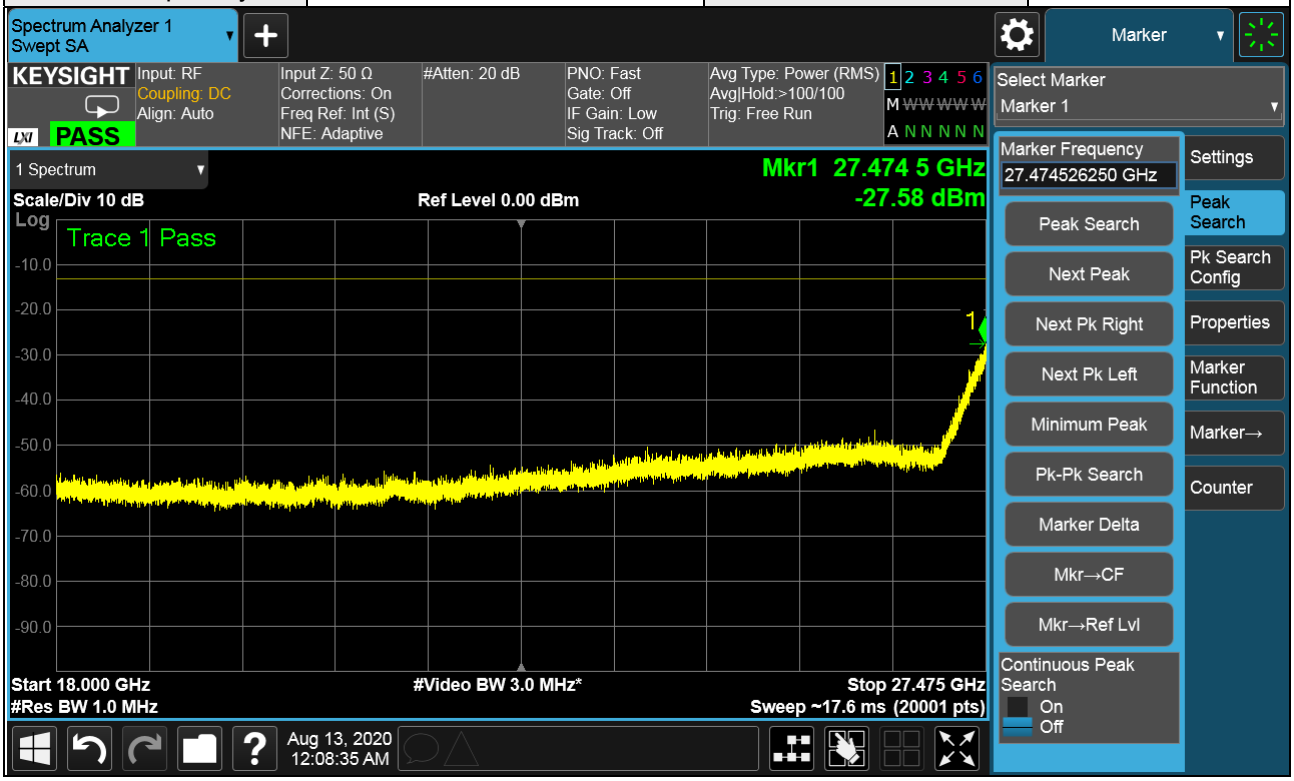
Above 18GHz Data (n261): 18GHz-27.475GHz:

Band	n261	Beam ID	11
Frequency Range	18GHz-27.475GHz	Channel	Low
Antenna polarity	Horizontal	Test distance	2m



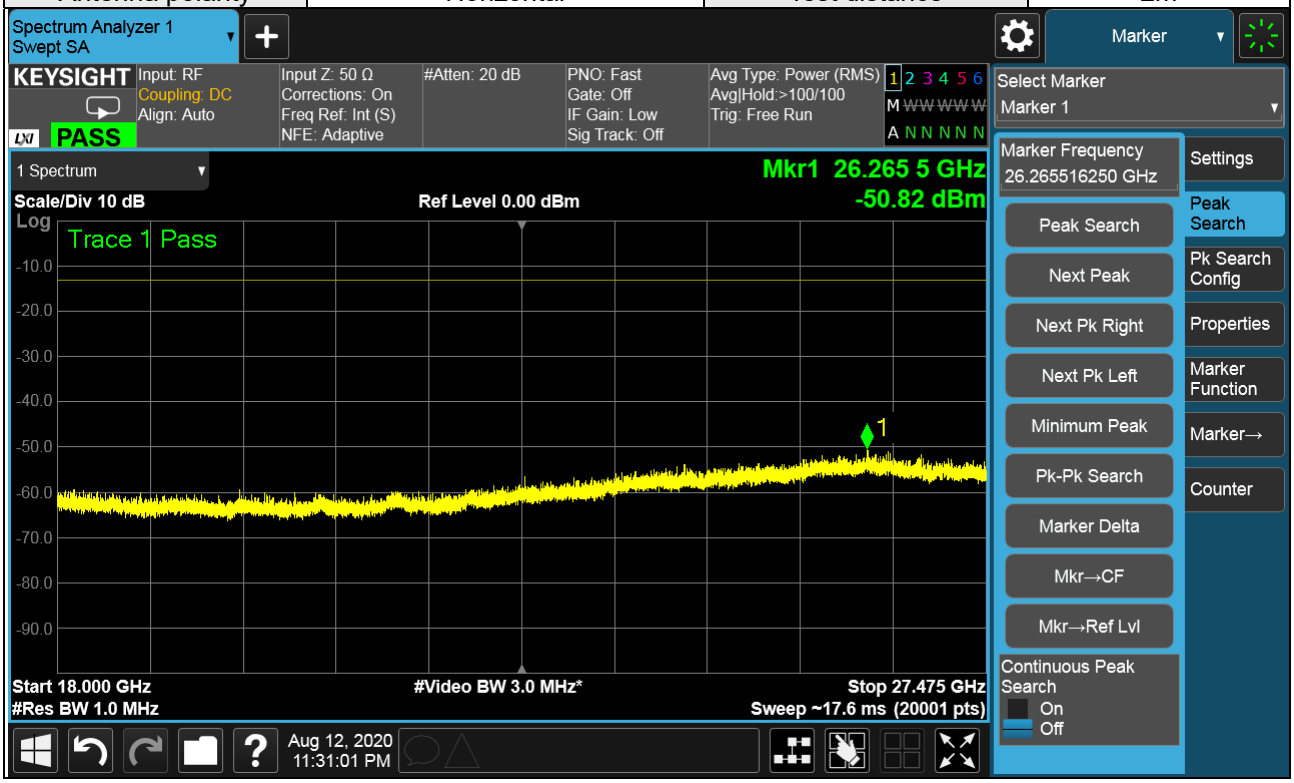
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	11
Frequency Range	18GHz-27.475GHz	Channel	Low
Antenna polarity	Vertical	Test distance	2m



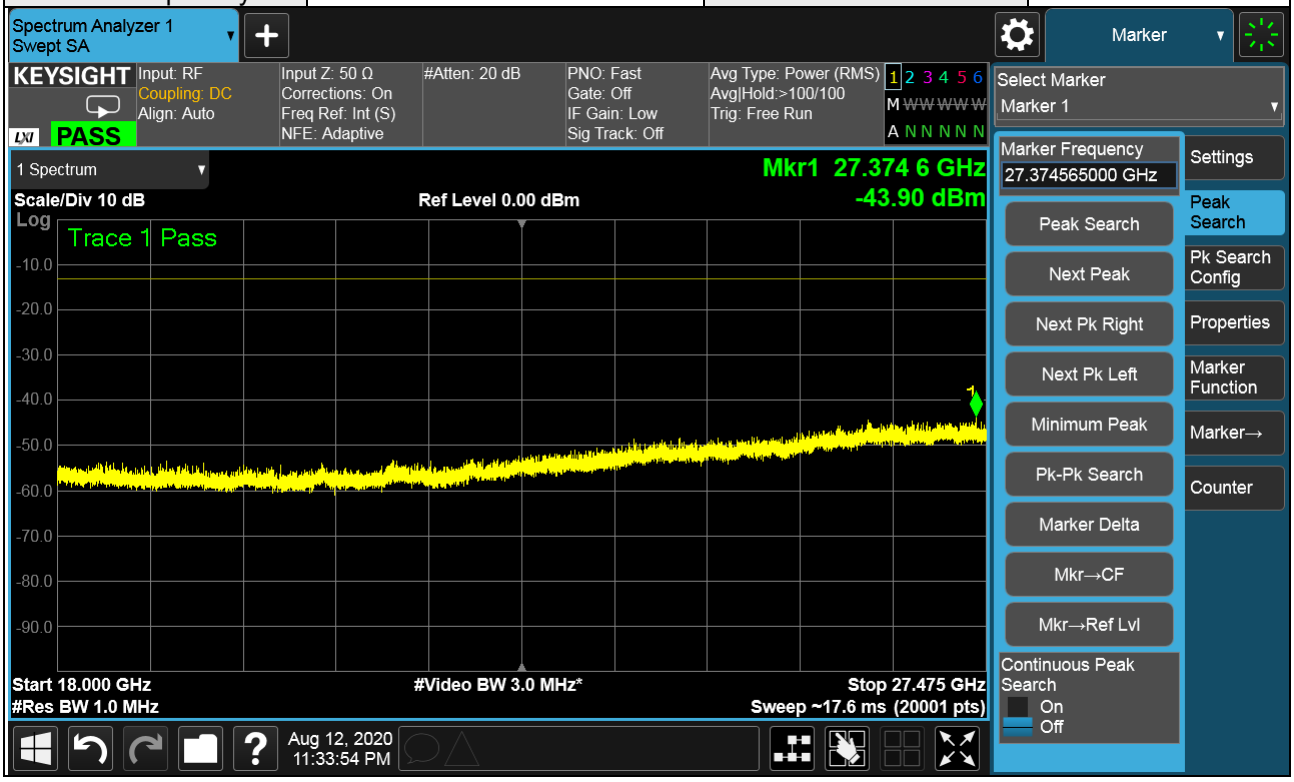
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	11
Frequency Range	18GHz-27.475GHz	Channel	Middle
Antenna polarity	Horizontal	Test distance	2m



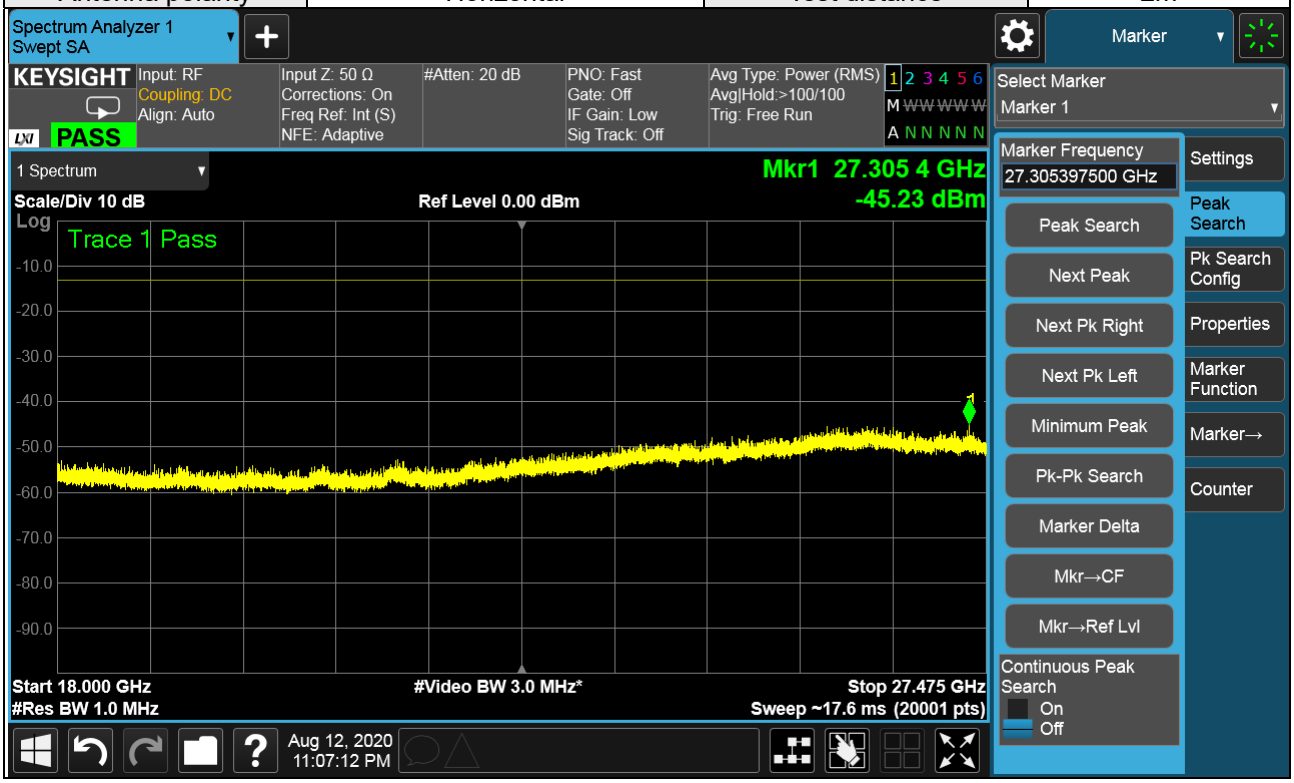
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	11
Frequency Range	18GHz-27.475GHz	Channel	Middle
Antenna polarity	Vertical	Test distance	2m



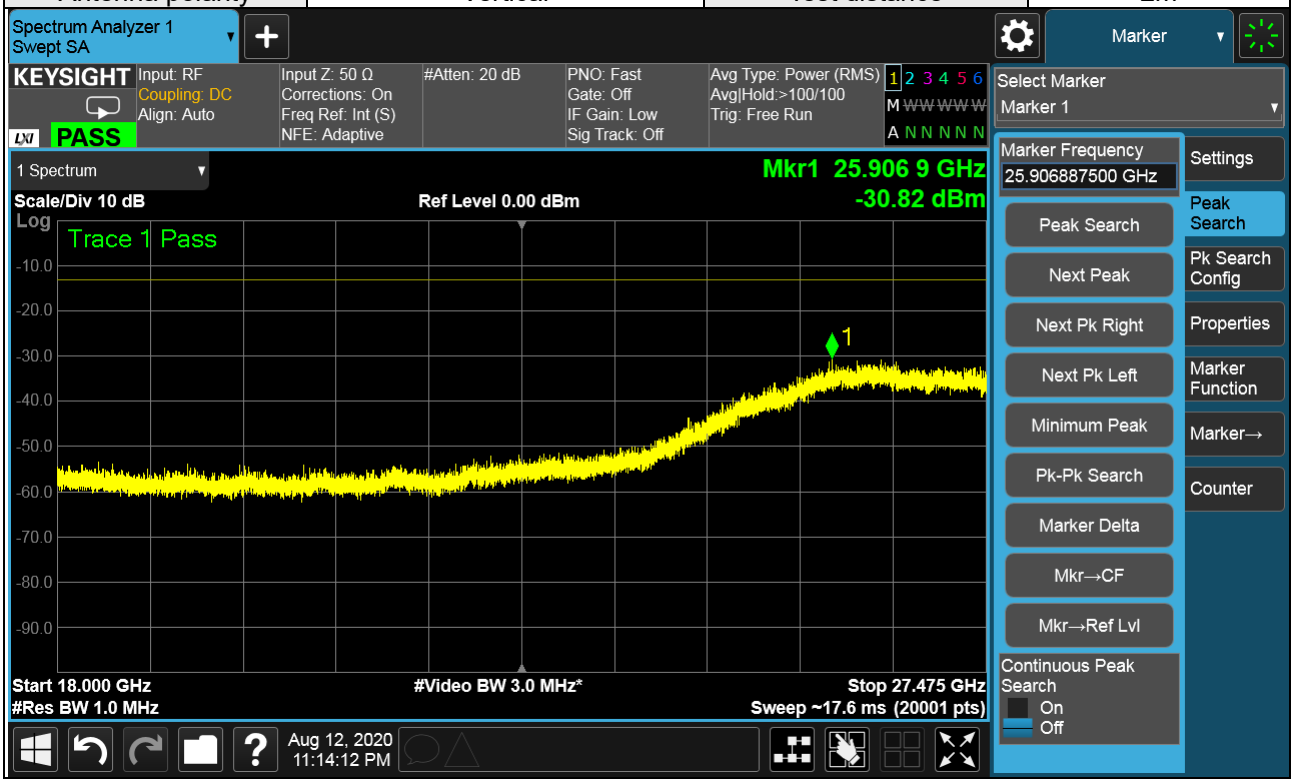
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	11
Frequency Range	18GHz-27.475GHz	Channel	High
Antenna polarity	Horizontal	Test distance	2m



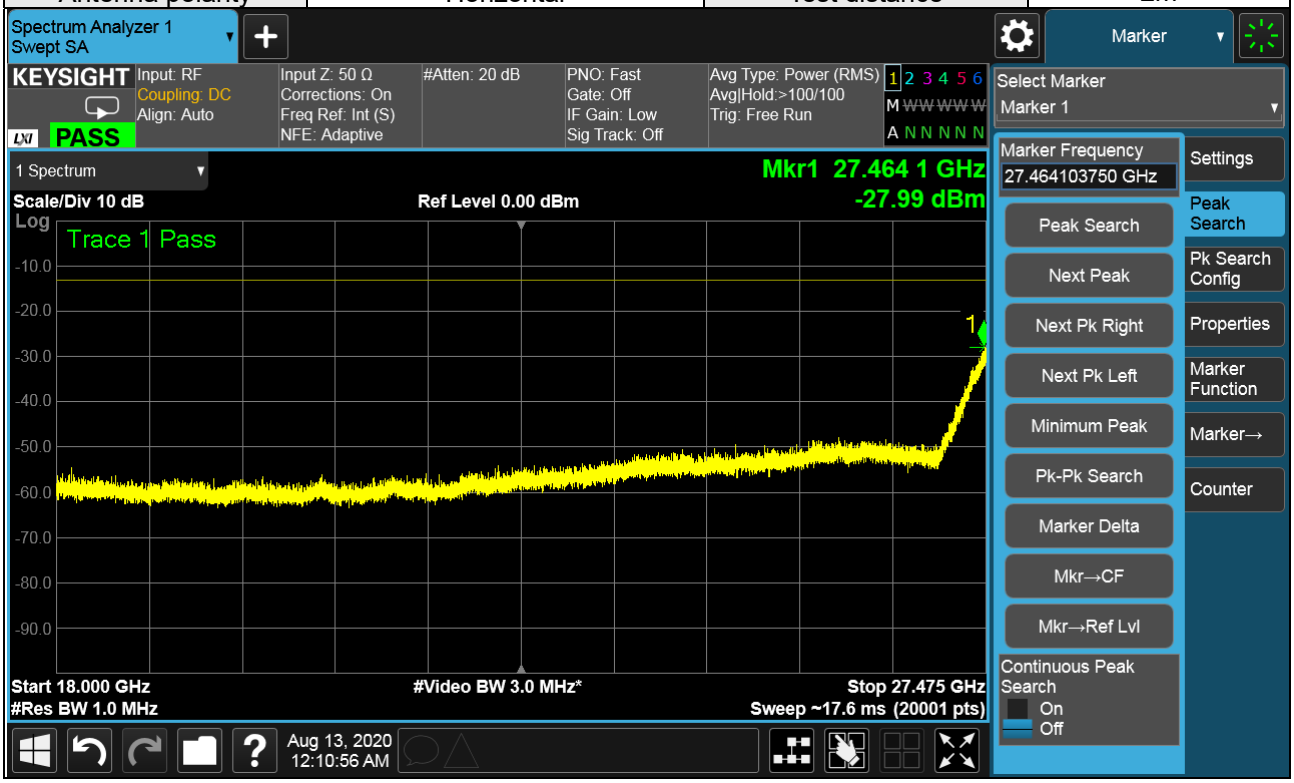
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	11
Frequency Range	18GHz-27.475GHz	Channel	High
Antenna polarity	Vertical	Test distance	2m



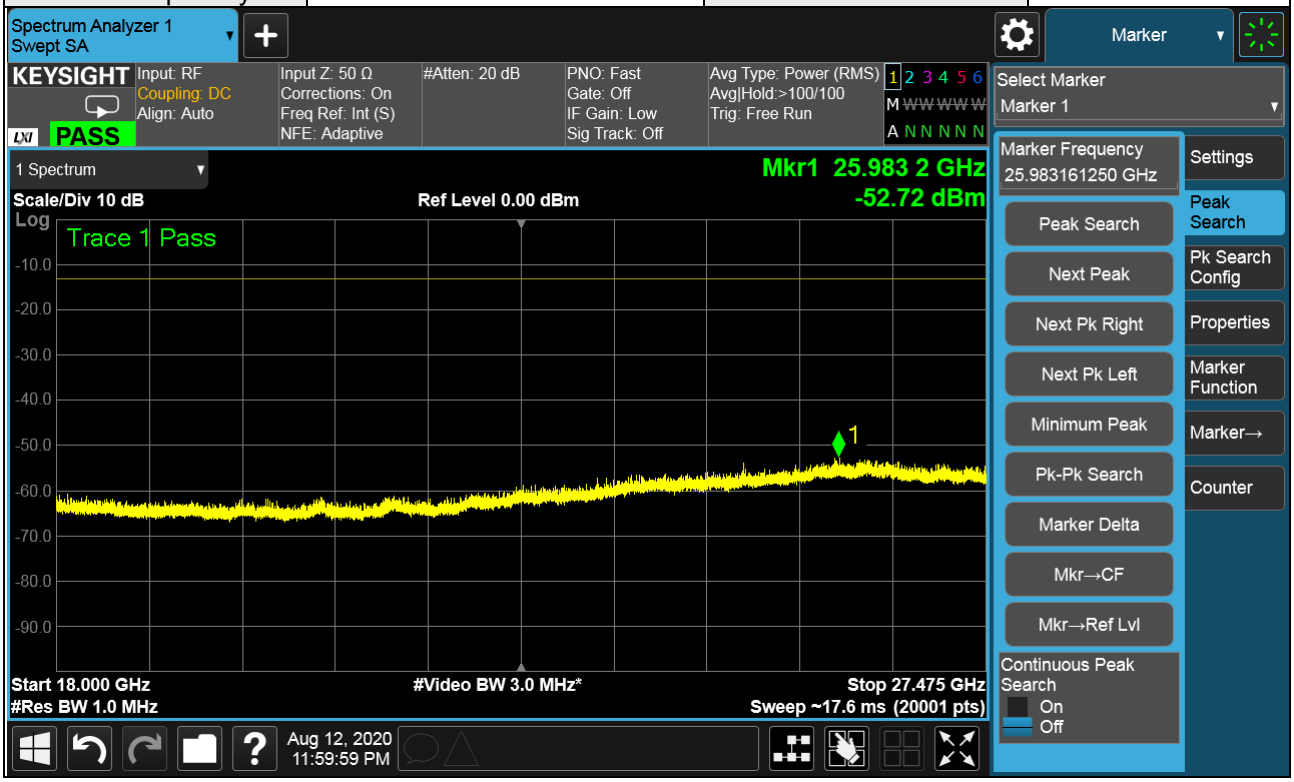
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	139
Frequency Range	18GHz-27.475GHz	Channel	Low
Antenna polarity	Horizontal	Test distance	2m



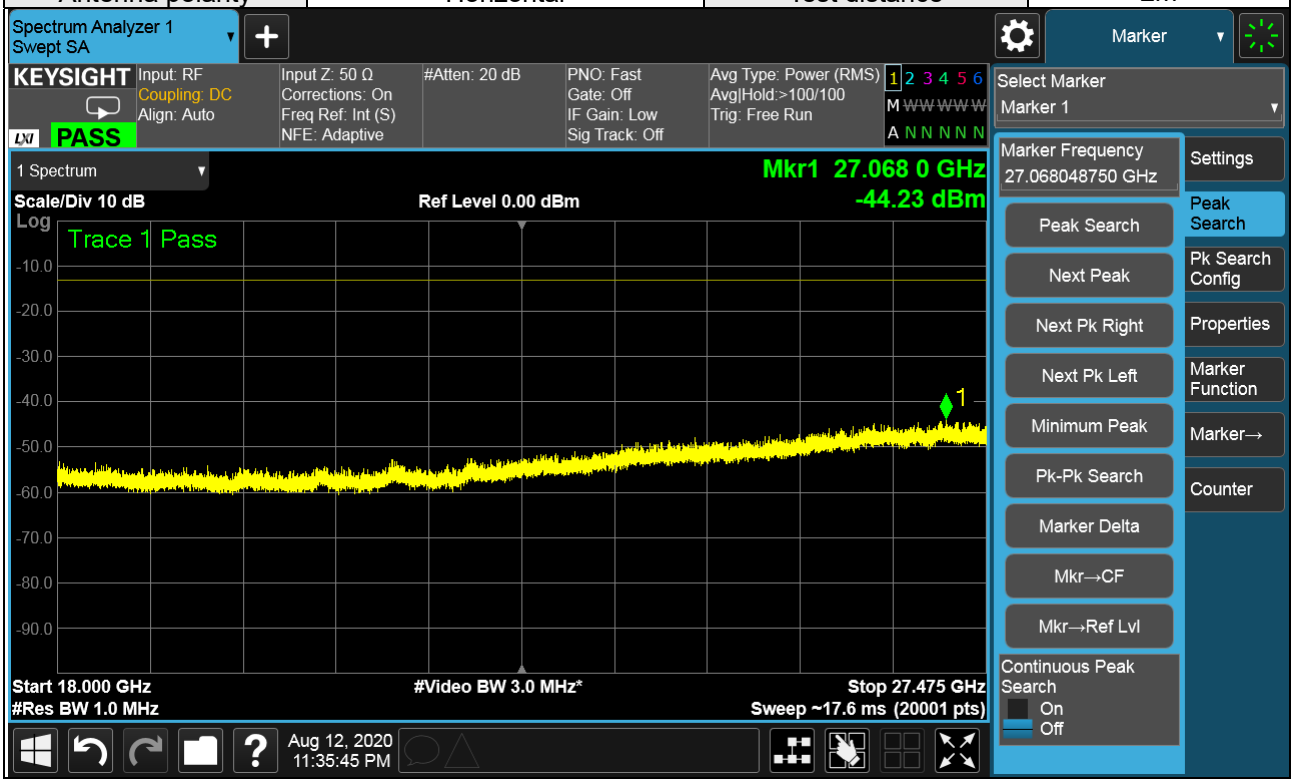
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	139
Frequency Range	18GHz-27.475GHz	Channel	Low
Antenna polarity	Vertical	Test distance	2m



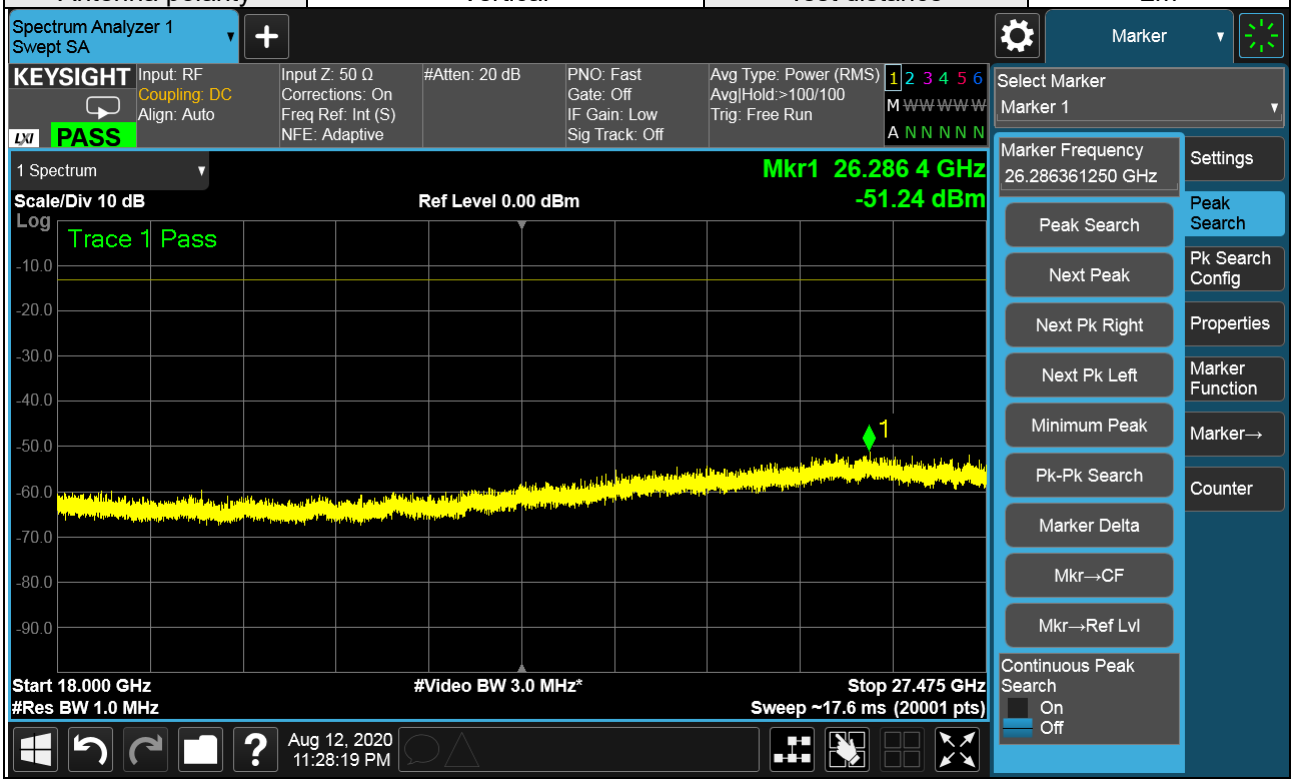
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	139
Frequency Range	18GHz-27.475GHz	Channel	Middle
Antenna polarity	Horizontal	Test distance	2m



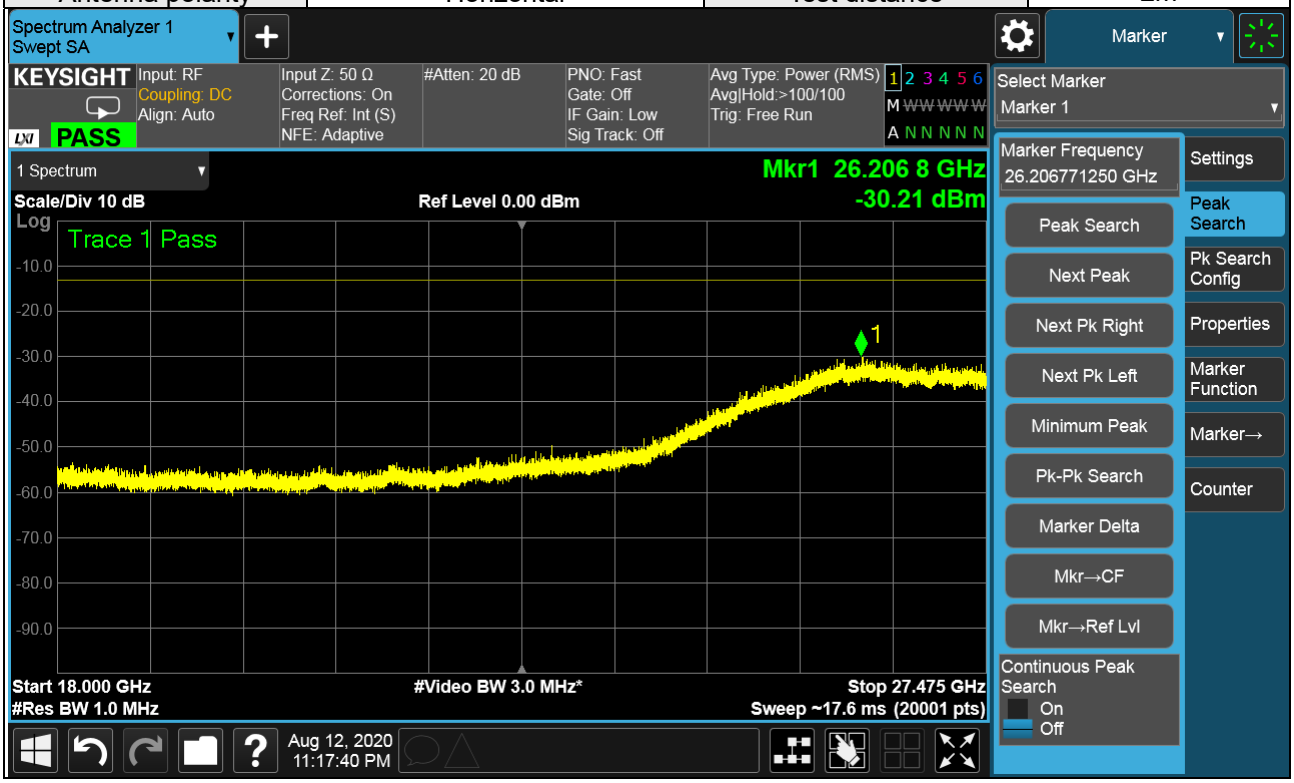
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	139
Frequency Range	18GHz-27.475GHz	Channel	Middle
Antenna polarity	Vertical	Test distance	2m



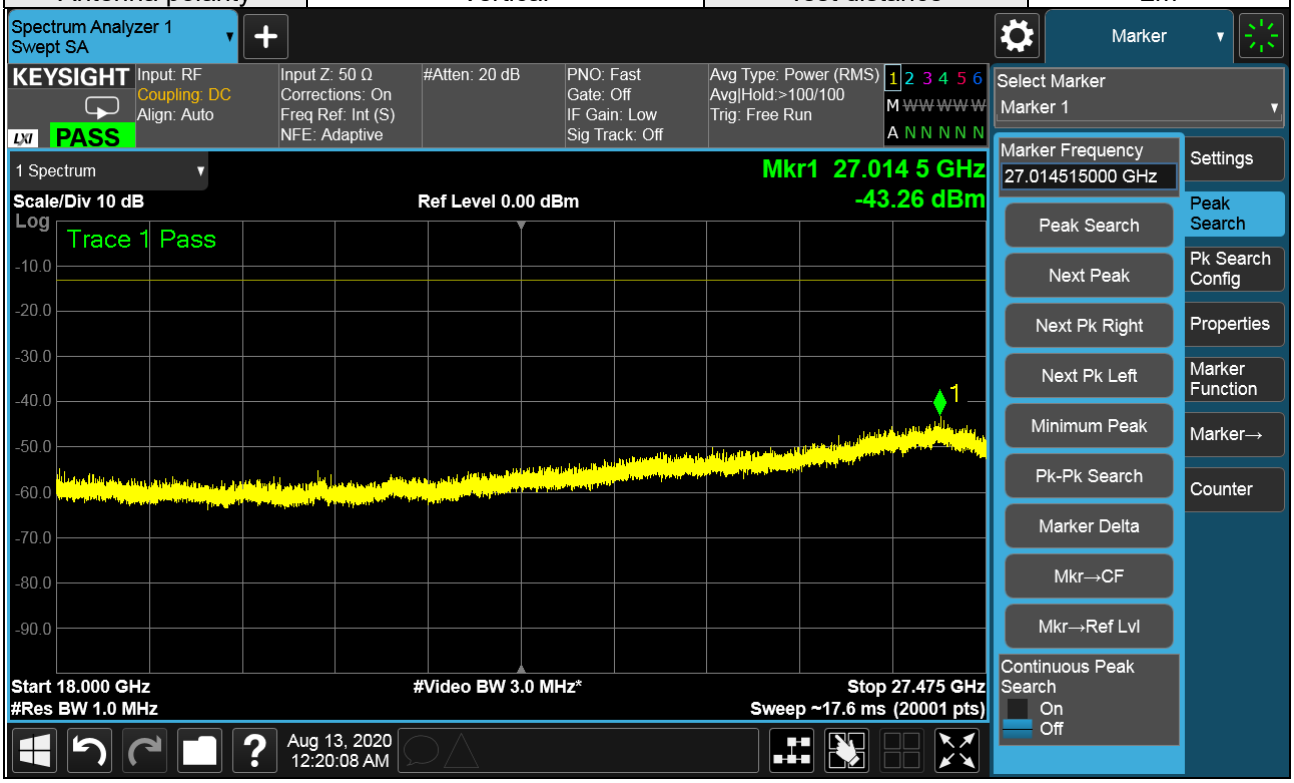
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	139
Frequency Range	18GHz-27.475GHz	Channel	High
Antenna polarity	Horizontal	Test distance	2m



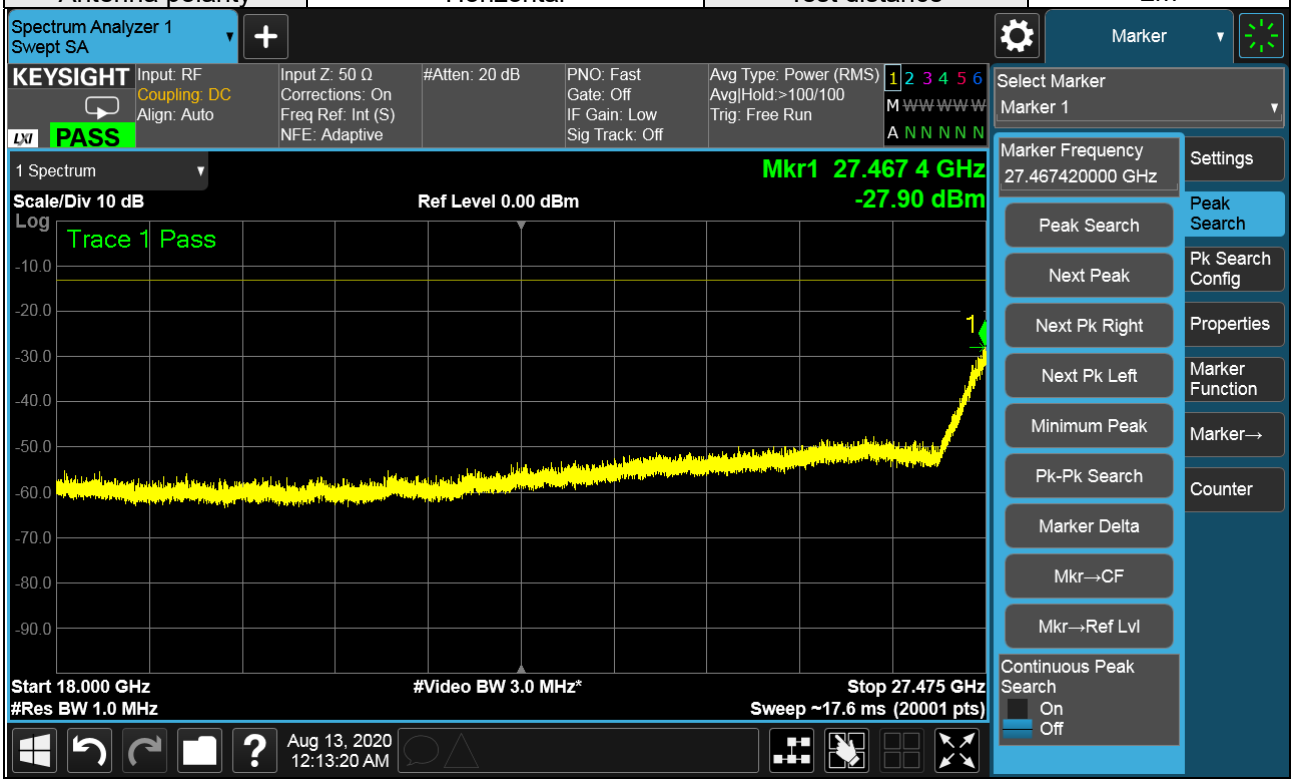
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	139
Frequency Range	18GHz-27.475GHz	Channel	High
Antenna polarity	Vertical	Test distance	2m



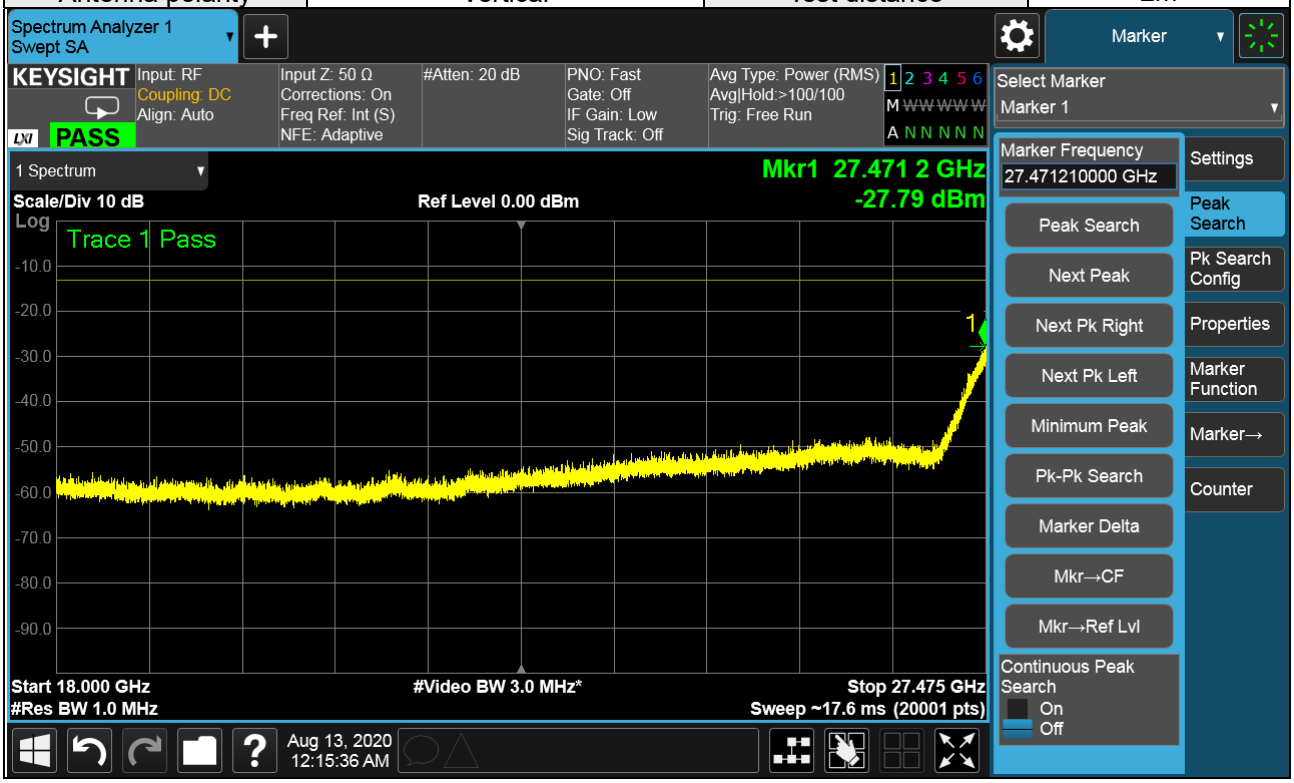
Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	11 + 139
Frequency Range	18GHz-27.475GHz	Channel	Low
Antenna polarity	Horizontal	Test distance	2m



Note: The test results already include the correction factor (corrections: On).

Band	n261	Beam ID	11 + 139
Frequency Range	18GHz-27.475GHz	Channel	Low
Antenna polarity	Vertical	Test distance	2m



Note: The test results already include the correction factor (corrections: On).

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Beam ID	EIRP for V Beam (dBm)	EIRP for H Beam (dBm)	EIRP for V+H Beam (dBm)	Limit(dBm)	Margin(dB)	Result
11 + 139	-27.79	-27.90	-24.83	-13	-11.83	Pass