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HCT

TEST REPORT

FCC Test for RF2217d-D1A

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2104-FC012-R2

DATE OF ISSUE
December 16, 2021

Tested by
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Additional Model
-

Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Eut Type Model Name	RRU(RF2217d) RF2217d-D1A
FCC ID	A3LRF2217D-D1A
Date of Test	January 18, 2021 ~ February 26, 2021
FCC Rule Parts:	CFR 47 Part 2, Part 22, Part 24

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.
This test results were applied only to the test methods required by the standard.

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	May 04, 2021	Initial Release
1	May 24, 2021	We added FCC Rule to frequency stability.
2	December 16, 2021	We recalculated the Power and PSD by modifying the antenna gain.

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

If this report is required to confirmation of authenticity, please contact to www.hct.co.kr

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1. GENERAL INFORMATION

1.1. APPLICANT INFORMATION

Company Name	Samsung Electronics Co., Ltd.
Company Address	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

1.2. PRODUCT INFORMATION

EUT Type	RRU(RF2217d)
EUT Serial Number	ORU-RU-042
Power Supply	-48 VDC
Channel Bandwidths& Output Power	Port 0, 1 : 5G NR n2, 5G NR n5

Band	Carrier	Bandwidth	Power
5G NR n2	1	5 MHz	0.125 W/path, Total: 0.25 W
5G NR n2	1	10 MHz	0.125 W/path, Total: 0.25 W
5G NR n2	1	15 MHz	0.125 W/path, Total: 0.25 W
5G NR n2	1	20 MHz	0.125 W/path, Total: 0.25 W
5G NR n5	1	5 MHz	0.125 W/path, Total: 0.25 W
5G NR n5	1	10 MHz	0.125 W/path, Total: 0.25 W
5G NR n2+ 5G NR n2	2	5 MHz+5 MHz	0.125 W/path, Total: 0.25 W
5G NR n2+ 5G NR n2	2	5 MHz+10 MHz	0.125 W/path, Total: 0.25 W
5G NR n2+ 5G NR n2	2	5 MHz+15 MHz	0.125 W/path, Total: 0.25 W
5G NR n2+ 5G NR n2	2	10 MHz+10 MHz	0.125 W/path, Total: 0.25 W

Frequency Range	5G NR n2: 1930 ~ 1990 MHz 5G NR n5: 869 ~ 894 MHz

				Emission Designator	
	Mode	Carrier	Bandwidth	QPSK (G7D)	16QAM/64QAM/256QAM (W7D)
Emission Designator	5G NR n2	1	5 MHz	4M54G7D	4M55W7D
	5G NR n2	1	10 MHz	9M34G7D	9M35W7D
	5G NR n2	1	15 MHz	14M2G7D	14M2W7D
	5G NR n2	1	20 MHz	19M0G7D	19M0W7D
	5G NR n5	1	5 MHz	4M52G7D	4M54W7D
	5G NR n5	1	10 MHz	9M34G7D	9M34W7D
	5G NR n2+ 5G NR n2 (Contiguous)	2	5 MHz+5 MHz	9M48G7D	9M52W7D
	5G NR n2+ 5G NR n2 (Non-Contiguous)	2	5 MHz+5 MHz	9M06G7D	9M07W7D
	5G NR n2+ 5G NR n2 (Contiguous)	2	5 MHz+10 MHz	14M4G7D	14M4W7D
	5G NR n2+ 5G NR n2 (Non-Contiguous)	2	5 MHz+10 MHz	13M8G7D	13M8W7D
	5G NR n2+ 5G NR n2 (Contiguous)	2	5 MHz+15 MHz	19M3G7D	19M3W7D
	5G NR n2+ 5G NR n2 (Non-Contiguous)	2	5 MHz+15 MHz	18M6G7D	18M7W7D
	5G NR n2+ 5G NR n2 (Contiguous)	2	10 MHz+10 MHz	19M3G7D	19M3W7D
	5G NR n2+ 5G NR n2 (Non-Contiguous)	2	10 MHz+10 MHz	18M7G7D	18M7W7D

Channel Bandwidths	Port 0, 1 : 5G NR n2, 5G NR n5
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM
Antenna Specification	Antenna type: Integrated Gain: Band 5 : 3.5±1dBi, Band 2 : 4.0±1dBi Directional gain calculations for in-band measurements according to KDB 662911 D01 v02r01. Transmit signals in two ports are correlated and equal antenna gain in each bands respetively.

Directional gain	G_{ANT} + 10 log(N_{ANT}) dBi
Band 5	4.5 dBi + 10 log(2) = 7.5 dBi
Band 2	5.0 dBi + 10 log(2)= 8.0 dBi

1.3. TEST INFORMATION

FCC Rule Parts	CFR 47 Part 2, Part 22, Part 24
Measurement standards	ANSI C63.26-2015, KDB 662911 D01 v02r01, KDB 971168
Place of Test	HCT CO., LTD. 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

2. FACILITIES AND ACCREDITATIONS

2.1. FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA.
The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.
Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

2.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.
Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.
All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

3. TEST SPECIFICATIONS

3.1. STANDARDS

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 2, Part 22, Part 24

Description	Reference	Results
RF Output Power	§ 2.1046, § 22.913, § 24.232	Compliant
Occupied Bandwidth	§ 2.1049	Compliant
Unwanted Conducted Emissions	§ 2.1051, § 22.917, § 24.238	Compliant
Radiated Emissions	§ 2.1053, § 22.917, § 24.238	Compliant
Frequency Stability	§ 2.1055, § 22.355, § 24.235	Compliant

3.2. ADDITIONAL DESCRIPTIONS ABOUT TEST

- The EUT was operated in a manner representative of the typical usage of the equipment.
- During all testing, system components were manipulated within the confines of typical usage to maximize each emission.
- All LTE modulation types (QPSK, 16QAM, 64QAM, 256QAM) supported by the EUT have been tested.
- The dummy loads were connected to the RF output ports for radiated spurious emission testing.
- The tests results in plots are already including the actual value of loss for the attenuator and cable combination. Please check correction factors below table.

Correction factor table			
Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
500	30.018	2200	30.407
600	29.716	2300	30.294
700	29.792	2400	30.280
800	29.782	2500	30.151
900	30.063	2600	29.996
1000	30.123	2700	29.915
1100	30.138	2800	30.310
1200	30.167	2900	30.279
1300	30.142	3000	30.667
1400	30.138	4000	30.758
1500	30.140	5000	31.118
1600	30.330	6000	31.035
1700	30.469	7000	31.418
1800	30.635	8000	32.293
1900	30.628	9000	31.240
2000	30.700	10000	31.164
2100	30.701	-	-

3.3. MAXIMUM MEASUREMENTUNCERTAINTY

The value of the measurement uncertainty for the measurement of each parameter.

Coverage factor k = 2, Confidence levels of 95 %

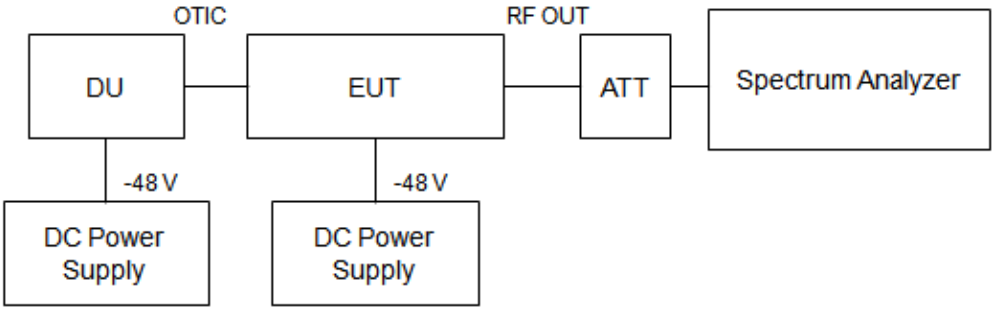
Description	Condition	Uncertainty
RF Output Power	-	± 0.72 dB
Occupied Bandwidth	OBW ≤ 20 MHz	± 52 kHz
Unwanted Conducted Emissions	-	± 1.08 dB
Radiated Emissions	f ≤ 1 GHz f > 1 GHz	± 4.80 dB ± 6.07 dB
Frequency Stability	-	± 1.22 x 10^{-6}

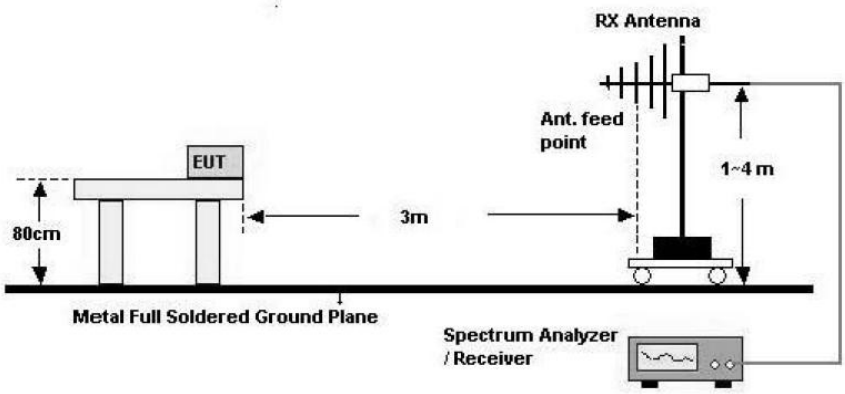
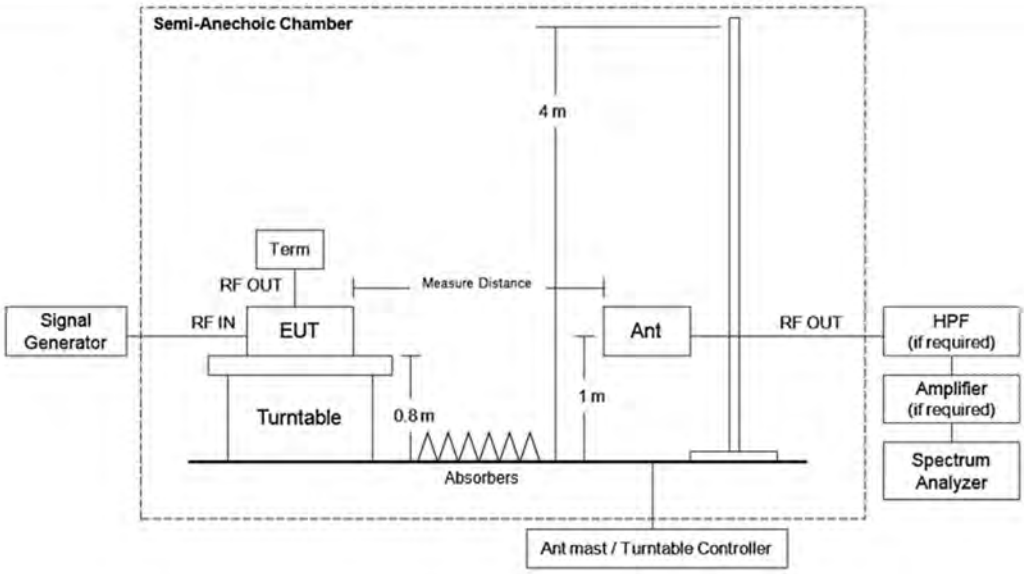
3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS

Temperature :	+15 °C to +35 °C
Relative humidity:	30 % to 60 %
Air pressure	860 mbar to 1 060 mbar

3.5. TEST DIAGRAMS

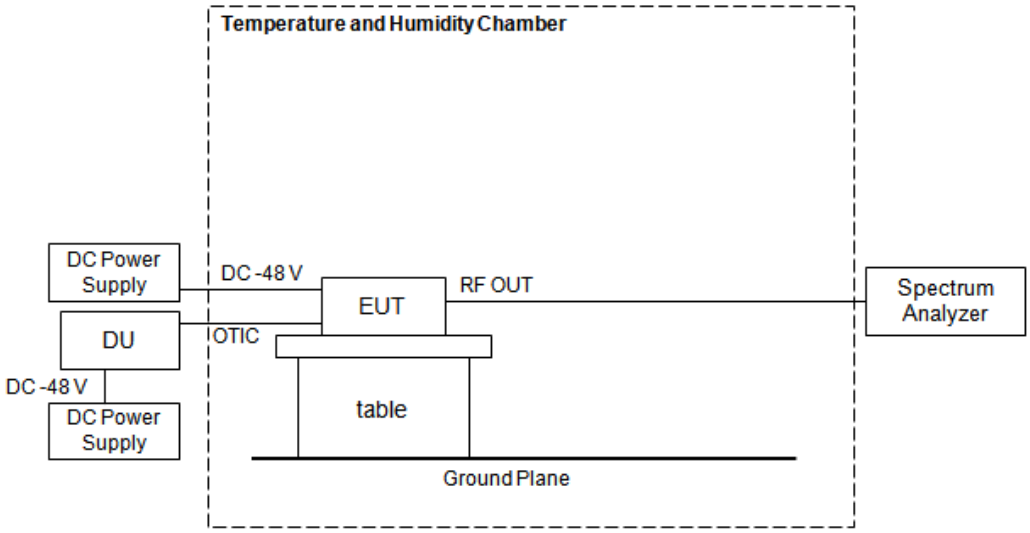
Conducted Test



Radiated Test	
30 MHz ~ 1 GHz	
Above 1 GHz	

※ EUT position is adopted by placement of floor-standing refer to section 5.5.2.3.2 of ANSI C63.26-2015

Frequency Stability



Note:

- All modulations(QPSK, 16QAM, 64QAM, 256QAM) were investigated and the worst case configuration channel results are reported.

4. TEST EQUIPMENTS

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Agilent	N9020A / Spectrum Analyzer	2021-04-06	Annual	US46220219
Keysight	N9030B / PXA Spectrum Analyzer	2020-06-04	Annual	MY55480167
AGILENT	WA67-30-33 / 30 dB ATTENUATOR	2020-06-02	Annual	CL4339
KIKUSUI	PWR1600L / DC Power Supply	2020-10-14	Annual	RL002213
KIKUSUI	PCR4000M / AC DC Power Supply	2020-10-14	Annual	VM002269
ESPEC	PL-4KP / Temperature and Humidity Chamber	2020-08-13	Annual	14021890
Innco systems	CO3000 / Controller(Antenna mast & Turn Table)	N/A	N/A	CO3000/1251/ 48920320/P
Innco systems	MA4640/800-XP-ET / Antenna Position Tower	N/A	N/A	N/A
Emco	2090 / Controller	N/A	N/A	060520
Ets	Turn Table	N/A	N/A	N/A
Rohde & Schwarz	Loop Antenna	2020-05-12	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	2019-08-02	Biennial	9168-1039
Schwarzbeck	BBHA 9120D / Horn Antenna	2019-06-28	Biennial	9120D-1300
Rohde & Schwarz	FSP / Spectrum Analyzer	2020-09-14	Annual	836650/016
Wainwright Instruments	WHKX10-900-1000-15000-40SS / High Pass Filter	2020-08-10	Annual	16
CERNEX	CBLU1183540B-01 / LOW NOISE AMP	2021-01-06	Annual	25539

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

5. TEST RESULT

5.1. RF OUTPUT POWER

Test Requirements:

§ 2.1046 Measurements required: RF power output.

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in § 2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

(b) For single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as specified and applicable in § 2.1046 (b) (1-5). In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

(c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

§ 22.913 Effective radiated power limits.

Licensees in the Cellular Radiotelephone Service are subject to the effective radiated power (ERP) limits and other requirements in this Section. *See also* § 22.169.

(a) *Maximum ERP.* The ERP of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section.

(1) Except as described in paragraphs (a)(2), (3), and (4) of this section, the ERP of base stations and repeaters must not exceed—

(i) 500 watts per emission; or

(ii) 400 watts/MHz (PSD) per sector.

(2) Except as described in paragraphs (a)(3) and (4) of this section, for systems operating in areas more than 72 kilometers (45 miles) from international borders that:

(i) Are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census; or

(ii) Extend coverage into Unserved Area on a secondary basis (*see* § 22.949), the ERP of base transmitters and repeaters must not exceed—

(A) 1000 watts per emission; or

(B) 800 watts/MHz (PSD) per sector.

(3) Provided that they also comply with paragraphs (b) and (c) of this section, licensees are permitted to operate their base transmitters and repeaters with an ERP greater than 400 watts/MHz (PSD) per sector, up to a maximum ERP of 1000 watts/MHz (PSD) per sector unless they meet the conditions in paragraph (a)(4) of this section.

(4) Provided that they also comply with paragraphs (b) and (c) of this section, licensees of systems operating in areas more than 72 kilometers (45 miles) from international borders that:

(i) Are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census; or

(ii) Extend coverage into Unserved Area on a secondary basis (*see* § 22.949), are permitted to operate base transmitters and repeaters with an ERP greater than 800 watts/MHz (PSD) per sector, up to a maximum of 2000 watts/MHz (PSD) per sector.

(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

(d) *Power measurement.* Measurement of the ERP of Cellular base transmitters and repeaters must be made using an average power measurement technique. The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

§ 24.232 Power and antenna height limits.

(a)(1) Base stations with an emission bandwidth of 1 MHz or less are limited to 1640 watts equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(2) Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(3) Base station antenna heights may exceed 300 meters HAAT with a corresponding reduction in power; *see* Tables 1 and 2 of this section.

(4) The service area boundary limit and microwave protection criteria specified in § § 24.236 and 24.237 apply.

Table 1—Reduced Power for Base Station Antenna Heights Over 300 Meters, With Emission Bandwidth of 1 MHz or Less

HAAT in meters	Maximum EIRP watts
≤300	1640
≤500	1070
≤1000	490
≤1500	270
≤2000	160

Table 2—Reduced Power for Base Station Antenna Heights Over 300 Meters, With Emission Bandwidth Greater Than 1 MHz

HAAT in meters	Maximum EIRP watts/MHz
≤300	1640
≤500	1070
≤1000	490
≤1500	270
≤2000	160

(b)(1) Base stations that are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census, with an emission bandwidth of 1 MHz or less are limited to 3280 watts equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT.

(2) Base stations that are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census, with an emission bandwidth greater than 1 MHz are limited to 3280 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT.

(3) Base station antenna heights may exceed 300 meters HAAT with a corresponding reduction in power; *see* Tables 3 and 4 of this section.

(4) The service area boundary limit and microwave protection criteria specified in § § 24.236 and 24.237 apply.

(5) Operation under this paragraph (b) at power limits greater than permitted under paragraph (a) of this section must be coordinated in advance with all broadband PCS licensees authorized to operate on adjacent frequency blocks within 120 kilometers (75 miles) of the base station and is limited to base stations located more than 120 kilometers (75 miles) from the Canadian border and more than 75 kilometers (45 miles) from the Mexican border.

Table 3—Reduced Power for Base Station Antenna Heights Over 300 Meters, With Emission Bandwidth of 1 MHz or Less

HAAT in meters	Maximum EIRP watts
≤300	3280
≤500	2140
≤1000	980
≤1500	540
≤2000	320

Table 4—Reduced Power for Base Station Antenna Heights Over 300 Meters, With Emission Bandwidth Greater Than 1 MHz

HAAT in meters	Maximum EIRP watts/MHz
≤300	3280
≤500	2140
≤1000	980
≤1500	540
≤2000	320

(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

(d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of § 24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

(e) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, *etc.*, so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

Test Procedures:

The measurement is performed in accordance with Section 5.2.4.4.1 of ANSI C63.26.

a) Set span to 2 × to 3 × the OBW.

b) Set RBW = 1 % to 5 % of the OBW.

c) Set VBW ≥ 3 × RBW.

d) Set number of measurement points in sweep ≥ 2 × span / RBW.

e) Sweep time:

1) Set = auto-couple, or

2) Set ≥ [10 × (number of points in sweep) × (transmission symbol period)] for single sweep (automation-compatible) measurement.

f) Detector = power averaging (rms).

g) If the EUT can be configured to transmit continuously, then set the trigger to free run.

h) If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).

i) Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.

j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

Note:

1) The conducted emission level is measured at each antenna port and then summed mathematically to determine the total emission level from the device.
2) Sum data is in a tolerance of specification provided from manufacturer.
3) The results of the RF output power test shown above the frequency measured values are very small and similar trend for each port, so we are attached only the worst case plot.

Test Results:
Tabular Data of RF output power(E.I.R.P)
5G NR n2, 5 MHz 1 Carrier

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	1932.50	13.63	8.00	21.63	0.15	1640
		Middle	1960.00	14.52	8.00	22.52	0.18	
		High	1987.50	14.44	8.00	22.44	0.18	
	16QAM	Low	1932.50	13.56	8.00	21.56	0.14	
		Middle	1960.00	14.44	8.00	22.44	0.18	
		High	1987.50	14.43	8.00	22.43	0.17	
	64QAM	Low	1932.50	13.49	8.00	21.49	0.14	
		Middle	1960.00	14.49	8.00	22.49	0.18	
		High	1987.50	14.50	8.00	22.50	0.18	
	256QAM	Low	1932.50	13.63	8.00	21.63	0.15	
		Middle	1960.00	14.49	8.00	22.49	0.18	
		High	1987.50	14.52	8.00	22.52	0.18	
1	QPSK	Low	1932.50	14.33	8.00	22.33	0.17	
		Middle	1960.00	14.19	8.00	22.19	0.17	
		High	1987.50	14.05	8.00	22.05	0.16	
	16QAM	Low	1932.50	14.27	8.00	22.27	0.17	
		Middle	1960.00	14.14	8.00	22.14	0.16	
		High	1987.50	13.98	8.00	21.98	0.16	
	64QAM	Low	1932.50	14.34	8.00	22.34	0.17	
		Middle	1960.00	14.23	8.00	22.23	0.17	
		High	1987.50	13.93	8.00	21.93	0.16	
	256QAM	Low	1932.50	14.27	8.00	22.27	0.17	
		Middle	1960.00	14.20	8.00	22.20	0.17	
		High	1987.50	13.98	8.00	21.98	0.16	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1932.50	0.32	0.31	0.31	0.31	1640
1960.00	0.34	0.34	0.34	0.34	
1987.50	0.34	0.33	0.33	0.34	

5G NR n2, 10 MHz 1 Carrier

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	1935.00	10.67	8.00	18.67	0.07	1640
		Middle	1960.00	11.42	8.00	19.42	0.09	
		High	1985.00	11.56	8.00	19.56	0.09	
	16QAM	Low	1935.00	10.74	8.00	18.74	0.07	
		Middle	1960.00	11.34	8.00	19.34	0.09	
		High	1985.00	11.57	8.00	19.57	0.09	
	64QAM	Low	1935.00	10.72	8.00	18.72	0.07	
		Middle	1960.00	11.63	8.00	19.63	0.09	
		High	1985.00	11.42	8.00	19.42	0.09	
	256QAM	Low	1935.00	10.81	8.00	18.81	0.08	
		Middle	1960.00	11.56	8.00	19.56	0.09	
		High	1985.00	11.50	8.00	19.50	0.09	
1	QPSK	Low	1935.00	11.56	8.00	19.56	0.09	
		Middle	1960.00	11.08	8.00	19.08	0.08	
		High	1985.00	11.05	8.00	19.05	0.08	
	16QAM	Low	1935.00	11.61	8.00	19.61	0.09	
		Middle	1960.00	11.00	8.00	19.00	0.08	
		High	1985.00	11.09	8.00	19.09	0.08	
	64QAM	Low	1935.00	11.62	8.00	19.62	0.09	
		Middle	1960.00	11.07	8.00	19.07	0.08	
		High	1985.00	11.11	8.00	19.11	0.08	
	256QAM	Low	1935.00	11.65	8.00	19.65	0.09	
		Middle	1960.00	11.08	8.00	19.08	0.08	
		High	1985.00	11.11	8.00	19.11	0.08	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1935.00	0.16	0.17	0.17	0.17	1640
1960.00	0.17	0.17	0.17	0.17	
1985.00	0.17	0.17	0.17	0.17	

5G NR n2, 15 MHz 1 Carrier

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	1937.50	9.08	8.00	17.08	0.05	1640
		Middle	1960.00	9.38	8.00	17.38	0.05	
		High	1982.50	9.75	8.00	17.75	0.06	
	16QAM	Low	1937.50	8.86	8.00	16.86	0.05	
		Middle	1960.00	9.38	8.00	17.38	0.05	
		High	1982.50	9.60	8.00	17.60	0.06	
	64QAM	Low	1937.50	9.16	8.00	17.16	0.05	
		Middle	1960.00	9.56	8.00	17.56	0.06	
		High	1982.50	9.78	8.00	17.78	0.06	
	256QAM	Low	1937.50	8.96	8.00	16.96	0.05	
		Middle	1960.00	9.49	8.00	17.49	0.06	
		High	1982.50	9.81	8.00	17.81	0.06	
1	QPSK	Low	1937.50	9.78	8.00	17.78	0.06	
		Middle	1960.00	9.11	8.00	17.11	0.05	
		High	1982.50	9.01	8.00	17.01	0.05	
	16QAM	Low	1937.50	9.70	8.00	17.70	0.06	
		Middle	1960.00	9.07	8.00	17.07	0.05	
		High	1982.50	9.08	8.00	17.08	0.05	
	64QAM	Low	1937.50	9.72	8.00	17.72	0.06	
		Middle	1960.00	9.08	8.00	17.08	0.05	
		High	1982.50	9.04	8.00	17.04	0.05	
	256QAM	Low	1937.50	9.74	8.00	17.74	0.06	
		Middle	1960.00	9.13	8.00	17.13	0.05	
		High	1982.50	9.13	8.00	17.13	0.05	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1937.50	0.11	0.11	0.11	0.11	1640
1960.00	0.11	0.11	0.11	0.11	
1982.50	0.11	0.11	0.11	0.11	

5G NR n2, 20 MHz 1 Carrier

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	1940.00	7.71	8.00	15.71	0.04	1640
		Middle	1960.00	8.14	8.00	16.14	0.04	
		High	1980.00	8.22	8.00	16.22	0.04	
	16QAM	Low	1940.00	7.67	8.00	15.67	0.04	
		Middle	1960.00	8.10	8.00	16.10	0.04	
		High	1980.00	8.09	8.00	16.09	0.04	
	64QAM	Low	1940.00	7.79	8.00	15.79	0.04	
		Middle	1960.00	7.94	8.00	15.94	0.04	
		High	1980.00	8.07	8.00	16.07	0.04	
	256QAM	Low	1940.00	7.73	8.00	15.73	0.04	
		Middle	1960.00	8.13	8.00	16.13	0.04	
		High	1980.00	8.12	8.00	16.12	0.04	
1	QPSK	Low	1940.00	8.53	8.00	16.53	0.05	
		Middle	1960.00	7.88	8.00	15.88	0.04	
		High	1980.00	7.39	8.00	15.39	0.03	
	16QAM	Low	1940.00	8.41	8.00	16.41	0.04	
		Middle	1960.00	7.87	8.00	15.87	0.04	
		High	1980.00	7.38	8.00	15.38	0.03	
	64QAM	Low	1940.00	8.51	8.00	16.51	0.04	
		Middle	1960.00	7.89	8.00	15.89	0.04	
		High	1980.00	7.42	8.00	15.42	0.03	
	256QAM	Low	1940.00	8.53	8.00	16.53	0.04	
		Middle	1960.00	7.88	8.00	15.88	0.04	
		High	1980.00	7.41	8.00	15.41	0.03	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1940.00	0.08	0.08	0.08	0.08	1640
1960.00	0.08	0.08	0.08	0.08	
1980.00	0.08	0.08	0.08	0.08	

5G NR n5, 5 MHz 1 Carrier

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	871.50	13.38	7.50	20.88	0.12	400
		Middle	881.50	13.98	7.50	21.48	0.14	
		High	891.50	13.22	7.50	20.72	0.12	
	16QAM	Low	871.50	13.55	7.50	21.05	0.13	
		Middle	881.50	13.82	7.50	21.32	0.14	
		High	891.50	13.28	7.50	20.78	0.12	
	64QAM	Low	871.50	13.36	7.50	20.86	0.12	
		Middle	881.50	13.96	7.50	21.46	0.14	
		High	891.50	13.25	7.50	20.75	0.12	
	256QAM	Low	871.50	13.42	7.50	20.92	0.12	
		Middle	881.50	14.00	7.50	21.50	0.14	
		High	891.50	13.26	7.50	20.76	0.12	
1	QPSK	Low	871.50	13.25	7.50	20.75	0.12	
		Middle	881.50	14.01	7.50	21.51	0.14	
		High	891.50	13.32	7.50	20.82	0.12	
	16QAM	Low	871.50	13.05	7.50	20.55	0.11	
		Middle	881.50	13.99	7.50	21.49	0.14	
		High	891.50	13.34	7.50	20.84	0.12	
	64QAM	Low	871.50	13.31	7.50	20.81	0.12	
		Middle	881.50	13.95	7.50	21.45	0.14	
		High	891.50	13.42	7.50	20.92	0.12	
	256QAM	Low	871.50	13.30	7.50	20.80	0.12	
		Middle	881.50	14.00	7.50	21.50	0.14	
		High	891.50	13.38	7.50	20.88	0.12	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
871.50	0.24	0.24	0.24	0.24	400
881.50	0.28	0.28	0.28	0.28	
891.50	0.24	0.24	0.24	0.24	

5G NR n5, 10 MHz 1 Carrier

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	874.00	10.63	7.50	18.13	0.06	400
		Middle	881.50	11.05	7.50	18.55	0.07	
		High	889.00	10.60	7.50	18.10	0.06	
	16QAM	Low	874.00	10.60	7.50	18.10	0.06	
		Middle	881.50	11.02	7.50	18.52	0.07	
		High	889.00	10.59	7.50	18.09	0.06	
	64QAM	Low	874.00	10.60	7.50	18.10	0.06	
		Middle	881.50	11.00	7.50	18.50	0.07	
		High	889.00	10.66	7.50	18.16	0.07	
	256QAM	Low	874.00	10.62	7.50	18.12	0.06	
		Middle	881.50	10.94	7.50	18.44	0.07	
		High	889.00	10.59	7.50	18.09	0.06	
1	QPSK	Low	874.00	10.75	7.50	18.25	0.07	
		Middle	881.50	10.99	7.50	18.49	0.07	
		High	889.00	10.16	7.50	17.66	0.06	
	16QAM	Low	874.00	10.62	7.50	18.12	0.06	
		Middle	881.50	11.00	7.50	18.50	0.07	
		High	889.00	10.15	7.50	17.65	0.06	
	64QAM	Low	874.00	10.63	7.50	18.13	0.07	
		Middle	881.50	10.99	7.50	18.49	0.07	
		High	889.00	10.15	7.50	17.65	0.06	
	256QAM	Low	874.00	10.64	7.50	18.14	0.07	
		Middle	881.50	10.85	7.50	18.35	0.07	
		High	889.00	10.15	7.50	17.65	0.06	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
874.00	0.13	0.13	0.13	0.13	400
881.50	0.14	0.14	0.14	0.14	
889.00	0.12	0.12	0.12	0.12	

Tabular Data of RF Contiguous output power

5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	1935.00	10.28	8.00	18.28	0.07	1640
		Middle	1960.00	10.79	8.00	18.79	0.08	
		High	1985.00	10.62	8.00	18.62	0.07	
	16QAM	Low	1935.00	10.21	8.00	18.21	0.07	
		Middle	1960.00	10.78	8.00	18.78	0.08	
		High	1985.00	10.59	8.00	18.59	0.07	
	64QAM	Low	1935.00	10.20	8.00	18.20	0.07	
		Middle	1960.00	10.74	8.00	18.74	0.07	
		High	1985.00	10.60	8.00	18.60	0.07	
	256QAM	Low	1935.00	10.21	8.00	18.21	0.07	
		Middle	1960.00	10.72	8.00	18.72	0.07	
		High	1985.00	10.60	8.00	18.60	0.07	
1	QPSK	Low	1935.00	11.22	8.00	19.22	0.08	
		Middle	1960.00	10.71	8.00	18.71	0.07	
		High	1985.00	10.47	8.00	18.47	0.07	
	16QAM	Low	1935.00	11.17	8.00	19.17	0.08	
		Middle	1960.00	10.65	8.00	18.65	0.07	
		High	1985.00	10.47	8.00	18.47	0.07	
	64QAM	Low	1935.00	11.19	8.00	19.19	0.08	
		Middle	1960.00	10.73	8.00	18.73	0.07	
		High	1985.00	10.44	8.00	18.44	0.07	
	256QAM	Low	1935.00	11.19	8.00	19.19	0.08	
		Middle	1960.00	10.67	8.00	18.67	0.07	
		High	1985.00	10.51	8.00	18.51	0.07	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1935.00	0.15	0.15	0.15	0.15	1640
1960.00	0.15	0.15	0.15	0.15	
1985.00	0.14	0.14	0.14	0.14	

5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	1937.50	8.97	8.00	16.97	0.05	1640
		Middle	1960.00	9.45	8.00	17.45	0.06	
		High	1982.50	9.58	8.00	17.58	0.06	
	16QAM	Low	1937.50	8.97	8.00	16.97	0.05	
		Middle	1960.00	9.48	8.00	17.48	0.06	
		High	1982.50	9.64	8.00	17.64	0.06	
	64QAM	Low	1937.50	8.96	8.00	16.96	0.05	
		Middle	1960.00	9.39	8.00	17.39	0.05	
		High	1982.50	9.56	8.00	17.56	0.06	
	256QAM	Low	1937.50	8.93	8.00	16.93	0.05	
		Middle	1960.00	9.46	8.00	17.46	0.06	
		High	1982.50	9.60	8.00	17.60	0.06	
1	QPSK	Low	1937.50	9.51	8.00	17.51	0.06	
		Middle	1960.00	8.83	8.00	16.83	0.05	
		High	1982.50	8.81	8.00	16.81	0.05	
	16QAM	Low	1937.50	9.53	8.00	17.53	0.06	
		Middle	1960.00	8.88	8.00	16.88	0.05	
		High	1982.50	8.96	8.00	16.96	0.05	
	64QAM	Low	1937.50	9.47	8.00	17.47	0.06	
		Middle	1960.00	8.89	8.00	16.89	0.05	
		High	1982.50	8.85	8.00	16.85	0.05	
	256QAM	Low	1937.50	9.45	8.00	17.45	0.06	
		Middle	1960.00	8.82	8.00	16.82	0.05	
		High	1982.50	8.82	8.00	16.82	0.05	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1937.50	0.11	0.11	0.11	0.10	1640
1960.00	0.10	0.10	0.10	0.10	
1982.50	0.11	0.11	0.11	0.11	

5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	1940.00	8.33	8.00	16.33	0.04	1640
		Middle	1960.00	8.64	8.00	16.64	0.05	
		High	1980.00	8.66	8.00	16.66	0.05	
	16QAM	Low	1940.00	8.27	8.00	16.27	0.04	
		Middle	1960.00	8.57	8.00	16.57	0.05	
		High	1980.00	8.61	8.00	16.61	0.05	
	64QAM	Low	1940.00	8.27	8.00	16.27	0.04	
		Middle	1960.00	8.59	8.00	16.59	0.05	
		High	1980.00	8.69	8.00	16.69	0.05	
	256QAM	Low	1940.00	8.27	8.00	16.27	0.04	
		Middle	1960.00	8.58	8.00	16.58	0.05	
		High	1980.00	8.66	8.00	16.66	0.05	
1	QPSK	Low	1940.00	8.12	8.00	16.12	0.04	
		Middle	1960.00	7.46	8.00	15.46	0.04	
		High	1980.00	7.38	8.00	15.38	0.03	
	16QAM	Low	1940.00	8.05	8.00	16.05	0.04	
		Middle	1960.00	7.50	8.00	15.50	0.04	
		High	1980.00	7.24	8.00	15.24	0.03	
	64QAM	Low	1940.00	8.11	8.00	16.11	0.04	
		Middle	1960.00	7.47	8.00	15.47	0.04	
		High	1980.00	7.28	8.00	15.28	0.03	
	256QAM	Low	1940.00	8.04	8.00	16.04	0.04	
		Middle	1960.00	7.46	8.00	15.46	0.04	
		High	1980.00	7.33	8.00	15.33	0.03	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1940.00	0.08	0.08	0.08	0.08	1640
1960.00	0.08	0.08	0.08	0.08	
1980.00	0.08	0.08	0.08	0.08	

5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	Low	1940.00	7.95	8.00	15.95	0.04	1640
		Middle	1960.00	8.05	8.00	16.05	0.04	
		High	1980.00	8.01	8.00	16.01	0.04	
	16QAM	Low	1940.00	7.76	8.00	15.76	0.04	
		Middle	1960.00	8.08	8.00	16.08	0.04	
		High	1980.00	7.96	8.00	15.96	0.04	
	64QAM	Low	1940.00	7.90	8.00	15.90	0.04	
		Middle	1960.00	7.99	8.00	15.99	0.04	
		High	1980.00	7.99	8.00	15.99	0.04	
	256QAM	Low	1940.00	7.85	8.00	15.85	0.04	
		Middle	1960.00	8.02	8.00	16.02	0.04	
		High	1980.00	7.96	8.00	15.96	0.04	
1	QPSK	Low	1940.00	8.41	8.00	16.41	0.04	
		Middle	1960.00	7.79	8.00	15.79	0.04	
		High	1980.00	7.63	8.00	15.63	0.04	
	16QAM	Low	1940.00	8.42	8.00	16.42	0.04	
		Middle	1960.00	7.74	8.00	15.74	0.04	
		High	1980.00	7.60	8.00	15.60	0.04	
	64QAM	Low	1940.00	8.42	8.00	16.42	0.04	
		Middle	1960.00	7.78	8.00	15.78	0.04	
		High	1980.00	7.58	8.00	15.58	0.04	
	256QAM	Low	1940.00	8.41	8.00	16.41	0.04	
		Middle	1960.00	7.80	8.00	15.80	0.04	
		High	1980.00	7.63	8.00	15.63	0.04	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1940.00	0.08	0.08	0.08	0.08	1640
1960.00	0.08	0.08	0.08	0.08	
1980.00	0.08	0.08	0.08	0.08	

Tabular Data of RF Non-Contiguous output power

5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	1932.50 + 1987.50	11.26	8.00	19.26	0.08	1640
	16QAM	1932.50 + 1987.50	11.21	8.00	19.21	0.08	
	64QAM	1932.50 + 1987.50	11.25	8.00	19.25	0.08	
	256QAM	1932.50 + 1987.50	11.23	8.00	19.23	0.08	
1	QPSK	1932.50 + 1987.50	11.07	8.00	19.07	0.08	
	16QAM	1932.50 + 1987.50	11.07	8.00	19.07	0.08	
	64QAM	1932.50 + 1987.50	11.04	8.00	19.04	0.08	
	256QAM	1932.50 + 1987.50	11.08	8.00	19.08	0.08	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1932.50 + 1987.50	0.17	0.16	0.16	0.16	1640

5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	1932.50 + 1987.50	11.10	8.00	19.10	0.08	1640
	16QAM	1932.50 + 1987.50	11.14	8.00	19.14	0.08	
	64QAM	1932.50 + 1987.50	11.11	8.00	19.11	0.08	
	256QAM	1932.50 + 1987.50	11.10	8.00	19.10	0.08	
1	QPSK	1932.50 + 1987.50	11.07	8.00	19.07	0.08	
	16QAM	1932.50 + 1987.50	11.02	8.00	19.02	0.08	
	64QAM	1932.50 + 1987.50	11.06	8.00	19.06	0.08	
	256QAM	1932.50 + 1987.50	11.07	8.00	19.07	0.08	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1932.50 + 1987.50	0.16	0.16	0.16	0.16	1640

5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	1932.50 + 1987.50	10.99	8.00	18.99	0.08	1640
	16QAM	1932.50 + 1987.50	10.96	8.00	18.96	0.08	
	64QAM	1932.50 + 1987.50	10.99	8.00	18.99	0.08	
	256QAM	1932.50 + 1987.50	10.95	8.00	18.95	0.08	
1	QPSK	1932.50 + 1987.50	10.47	8.00	18.47	0.07	
	16QAM	1932.50 + 1987.50	10.44	8.00	18.44	0.07	
	64QAM	1932.50 + 1987.50	10.47	8.00	18.47	0.07	
	256QAM	1932.50 + 1987.50	10.45	8.00	18.45	0.07	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1932.50 + 1987.50	0.15	0.15	0.15	0.15	1640

5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Frequency (MHz)	Measured Value (dBm/MHz)	Ant Gain (dBi)	E.I.R.P (dBm/MHz)	Calculated (W/MHz)	Limit (W/MHz)
0	QPSK	1932.50 + 1987.50	11.25	8.00	19.25	0.08	1640
	16QAM	1932.50 + 1987.50	11.17	8.00	19.17	0.08	
	64QAM	1932.50 + 1987.50	11.25	8.00	19.25	0.08	
	256QAM	1932.50 + 1987.50	11.21	8.00	19.21	0.08	
1	QPSK	1932.50 + 1987.50	11.01	8.00	19.01	0.08	
	16QAM	1932.50 + 1987.50	11.04	8.00	19.04	0.08	
	64QAM	1932.50 + 1987.50	11.05	8.00	19.05	0.08	
	256QAM	1932.50 + 1987.50	11.01	8.00	19.01	0.08	

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power(E.I.R.P.)				Limit
	QPSK	16QAM	64QAM	256QAM	
	W/MHz				W/MHz
1932.50 + 1987.50	0.16	0.16	0.16	0.16	1640

Tabular data of PAPR

5G NR n2 5 MHz 1 Carrier

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	1932.50	8.54
		Middle	1960.00	8.75
		High	1987.50	8.79
	16QAM	Low	1932.50	8.23
		Middle	1960.00	8.40
		High	1987.50	8.39
	64QAM	Low	1932.50	8.52
		Middle	1960.00	8.75
		High	1987.50	8.79
	256QAM	Low	1932.50	8.52
		Middle	1960.00	8.77
		High	1987.50	8.79
1	QPSK	Low	1932.50	8.43
		Middle	1960.00	8.82
		High	1987.50	8.78
	16QAM	Low	1932.50	8.12
		Middle	1960.00	8.45
		High	1987.50	8.39
	64QAM	Low	1932.50	8.42
		Middle	1960.00	8.83
		High	1987.50	8.79
	256QAM	Low	1932.50	8.41
		Middle	1960.00	8.81
		High	1987.50	8.76

5G NR n2 10 MHz 1 Carrier

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	1935.00	8.23
		Middle	1960.00	8.34
		High	1985.00	8.35
	16QAM	Low	1935.00	8.14
		Middle	1960.00	8.27
		High	1985.00	8.24
	64QAM	Low	1935.00	8.23
		Middle	1960.00	8.30
		High	1985.00	8.31
	256QAM	Low	1935.00	8.22
		Middle	1960.00	8.34
		High	1985.00	8.34
1	QPSK	Low	1935.00	8.04
		Middle	1960.00	8.37
		High	1985.00	8.32
	16QAM	Low	1935.00	8.01
		Middle	1960.00	8.28
		High	1985.00	8.25
	64QAM	Low	1935.00	8.17
		Middle	1960.00	8.40
		High	1985.00	8.36
	256QAM	Low	1935.00	8.18
		Middle	1960.00	8.37
		High	1985.00	8.31

5G NR n2 15 MHz 1 Carrier

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	1937.50	8.26
		Middle	1960.00	8.40
		High	1982.50	8.38
	16QAM	Low	1937.50	8.27
		Middle	1960.00	8.43
		High	1982.50	8.50
	64QAM	Low	1937.50	8.29
		Middle	1960.00	8.41
		High	1982.50	8.36
	256QAM	Low	1937.50	8.29
		Middle	1960.00	8.40
		High	1982.50	8.38
1	QPSK	Low	1937.50	8.18
		Middle	1960.00	8.41
		High	1982.50	8.40
	16QAM	Low	1937.50	8.11
		Middle	1960.00	8.47
		High	1982.50	8.43
	64QAM	Low	1937.50	8.18
		Middle	1960.00	8.42
		High	1982.50	8.40
	256QAM	Low	1937.50	8.18
		Middle	1960.00	8.41
		High	1982.50	8.41

5G NR n2 20 MHz 1 Carrier

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	1940.00	8.26
		Middle	1960.00	8.35
		High	1980.00	8.33
	16QAM	Low	1940.00	8.24
		Middle	1960.00	8.33
		High	1980.00	8.32
	64QAM	Low	1940.00	8.31
		Middle	1960.00	8.38
		High	1980.00	8.33
	256QAM	Low	1940.00	8.30
		Middle	1960.00	8.39
		High	1980.00	8.33
1	QPSK	Low	1940.00	8.27
		Middle	1960.00	8.37
		High	1980.00	8.37
	16QAM	Low	1940.00	8.24
		Middle	1960.00	8.37
		High	1980.00	8.37
	64QAM	Low	1940.00	8.33
		Middle	1960.00	8.37
		High	1980.00	8.36
	256QAM	Low	1940.00	8.25
		Middle	1960.00	8.36
		High	1980.00	8.38

5G NR n5 5 MHz 1 Carrier

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	871.50	8.82
		Middle	881.50	8.79
		High	891.50	8.93
	16QAM	Low	871.50	8.37
		Middle	881.50	8.36
		High	891.50	8.46
	64QAM	Low	871.50	8.80
		Middle	881.50	8.79
		High	891.50	8.93
	256QAM	Low	871.50	8.80
		Middle	881.50	8.81
		High	891.50	8.94
1	QPSK	Low	871.50	8.81
		Middle	881.50	8.85
		High	891.50	8.91
	16QAM	Low	871.50	8.43
		Middle	881.50	8.42
		High	891.50	8.52
	64QAM	Low	871.50	8.82
		Middle	881.50	8.85
		High	891.50	8.92
	256QAM	Low	871.50	8.82
		Middle	881.50	8.84
		High	891.50	8.93

5G NR n5 10 MHz 1 Carrier

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	874.00	8.31
		Middle	881.50	8.32
		High	889.00	8.42
	16QAM	Low	874.00	8.27
		Middle	881.50	8.28
		High	889.00	8.32
	64QAM	Low	874.00	8.34
		Middle	881.50	8.39
		High	889.00	8.49
	256QAM	Low	874.00	8.34
		Middle	881.50	8.39
		High	889.00	8.49
1	QPSK	Low	874.00	8.49
		Middle	881.50	8.51
		High	889.00	8.61
	16QAM	Low	874.00	8.42
		Middle	881.50	8.47
		High	889.00	8.53
	64QAM	Low	874.00	8.48
		Middle	881.50	8.53
		High	889.00	8.59
	256QAM	Low	874.00	8.54
		Middle	881.50	8.56
		High	889.00	8.58

Tabular Data of RF Contiguous PAPR

5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	1935.00	8.26
		Middle	1960.00	8.25
		High	1985.00	8.26
	16QAM	Low	1935.00	8.46
		Middle	1960.00	8.52
		High	1985.00	8.51
	64QAM	Low	1935.00	8.25
		Middle	1960.00	8.33
		High	1985.00	8.29
	256QAM	Low	1935.00	8.26
		Middle	1960.00	8.34
		High	1985.00	8.27
1	QPSK	Low	1935.00	8.18
		Middle	1960.00	8.50
		High	1985.00	8.41
	16QAM	Low	1935.00	8.35
		Middle	1960.00	8.49
		High	1985.00	8.46
	64QAM	Low	1935.00	8.16
		Middle	1960.00	8.43
		High	1985.00	8.41
	256QAM	Low	1935.00	8.16
		Middle	1960.00	8.24
		High	1985.00	8.39

5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	1937.50	8.20
		Middle	1960.00	8.30
		High	1982.50	8.32
	16QAM	Low	1937.50	8.30
		Middle	1960.00	8.44
		High	1982.50	8.40
	64QAM	Low	1937.50	8.25
		Middle	1960.00	8.26
		High	1982.50	8.28
	256QAM	Low	1937.50	8.19
		Middle	1960.00	8.35
		High	1982.50	8.34
1	QPSK	Low	1937.50	8.14
		Middle	1960.00	8.40
		High	1982.50	8.37
	16QAM	Low	1937.50	8.19
		Middle	1960.00	8.43
		High	1982.50	8.51
	64QAM	Low	1937.50	8.12
		Middle	1960.00	8.32
		High	1982.50	8.42
	256QAM	Low	1937.50	8.16
		Middle	1960.00	8.36
		High	1982.50	8.37

5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	1940.00	8.14
		Middle	1960.00	8.29
		High	1980.00	8.31
	16QAM	Low	1940.00	8.32
		Middle	1960.00	8.44
		High	1980.00	8.48
	64QAM	Low	1940.00	8.11
		Middle	1960.00	8.25
		High	1980.00	8.17
	256QAM	Low	1940.00	8.20
		Middle	1960.00	8.27
		High	1980.00	8.30
1	QPSK	Low	1940.00	8.26
		Middle	1960.00	8.41
		High	1980.00	8.33
	16QAM	Low	1940.00	8.33
		Middle	1960.00	8.36
		High	1980.00	8.39
	64QAM	Low	1940.00	8.35
		Middle	1960.00	8.38
		High	1980.00	8.43
	256QAM	Low	1940.00	8.27
		Middle	1960.00	8.34
		High	1980.00	8.33

5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	1940.00	8.29
		Middle	1960.00	8.33
		High	1980.00	8.43
	16QAM	Low	1940.00	8.32
		Middle	1960.00	8.29
		High	1980.00	8.41
	64QAM	Low	1940.00	8.40
		Middle	1960.00	8.36
		High	1980.00	8.30
	256QAM	Low	1940.00	8.29
		Middle	1960.00	8.38
		High	1980.00	8.39
1	QPSK	Low	1940.00	8.20
		Middle	1960.00	8.39
		High	1980.00	8.30
	16QAM	Low	1940.00	8.24
		Middle	1960.00	8.37
		High	1980.00	8.42
	64QAM	Low	1940.00	8.22
		Middle	1960.00	8.26
		High	1980.00	8.42
	256QAM	Low	1940.00	8.24
		Middle	1960.00	8.51
		High	1980.00	8.28

Tabular Data of Non-Contiguous PAPR

5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier]

Ant.	5G NR n2 5 MHz		5G NR n2 5 MHz	
	Frequency (MHz)	Measured Value (dB)	Frequency (MHz)	Measured Value (dB)
0	1932.50	8.72	1987.50	8.37
	1932.50	8.33	1987.50	8.31
	1932.50	8.73	1987.50	8.34
	1932.50	8.74	1987.50	8.38
1	1932.50	8.69	1987.50	8.33
	1932.50	8.29	1987.50	8.32
	1932.50	8.71	1987.50	8.35
	1932.50	8.70	1987.50	8.33

5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant.	5G NR n2 5 MHz		5G NR n2 10 MHz	
	Frequency (MHz)	Measured Value (dB)	Frequency (MHz)	Measured Value (dB)
0	1932.50	8.56	1985.00	8.46
	1932.50	7.93	1985.00	8.45
	1932.50	8.57	1985.00	8.47
	1932.50	8.57	1985.00	8.42
1	1932.50	8.50	1985.00	8.41
	1932.50	7.88	1985.00	8.42
	1932.50	8.50	1985.00	8.39
	1932.50	8.52	1985.00	8.39

5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier]

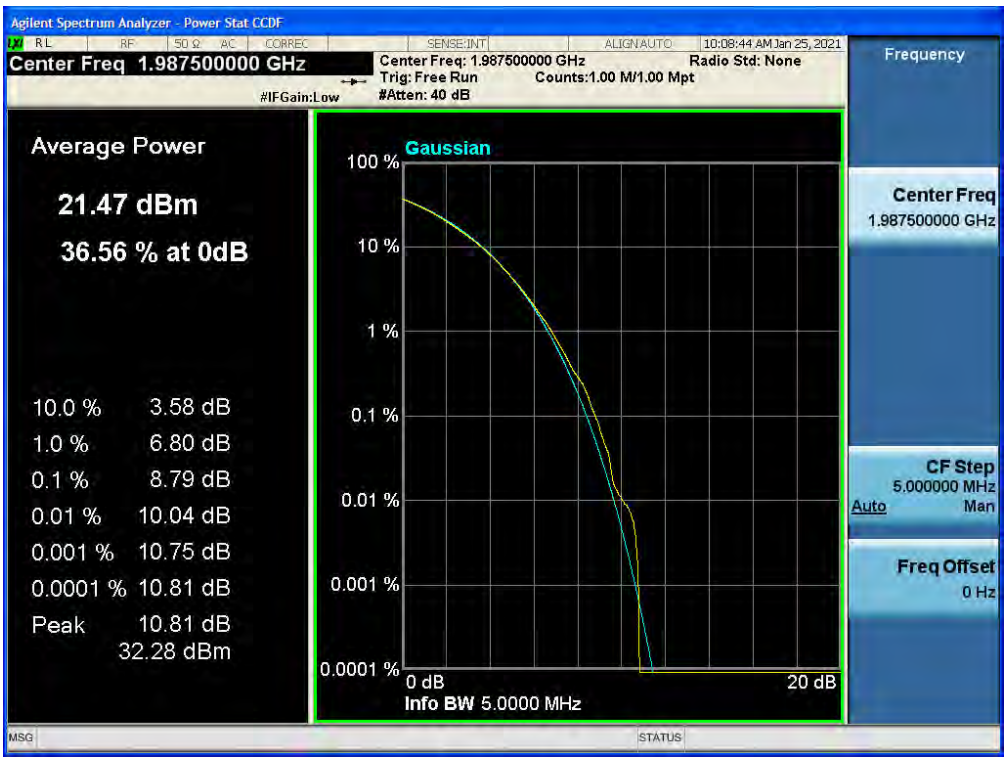
Ant.	5G NR n2 5 MHz		5G NR n2 15 MHz	
	Frequency (MHz)	Measured Value (dB)	Frequency (MHz)	Measured Value (dB)
0	1932.50	8.43	1982.50	8.41
	1932.50	8.34	1982.50	8.49
	1932.50	8.42	1982.50	8.40
	1932.50	8.42	1982.50	8.41
1	1932.50	8.41	1982.50	8.38
	1932.50	8.32	1982.50	8.47
	1932.50	8.40	1982.50	8.40
	1932.50	8.44	1982.50	8.39

5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

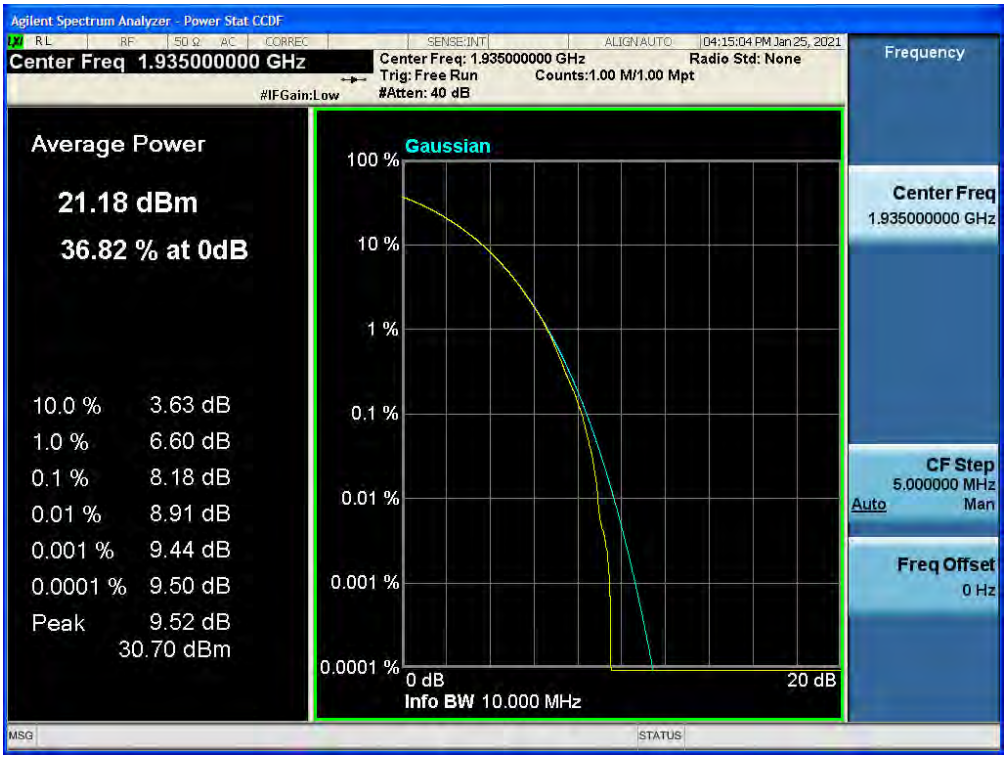
Ant.	5G NR n2 10 MHz		5G NR n2 10 MHz	
	Frequency (MHz)	Measured Value (dB)	Frequency (MHz)	Measured Value (dB)
0	1935.00	8.39	1985.00	8.46
	1935.00	8.30	1985.00	8.44
	1935.00	8.39	1985.00	8.41
	1935.00	8.37	1985.00	8.45
1	1935.00	8.38	1985.00	8.42
	1935.00	8.32	1985.00	8.42
	1935.00	8.39	1985.00	8.45
	1935.00	8.36	1985.00	8.41

Plot Data of PAPR

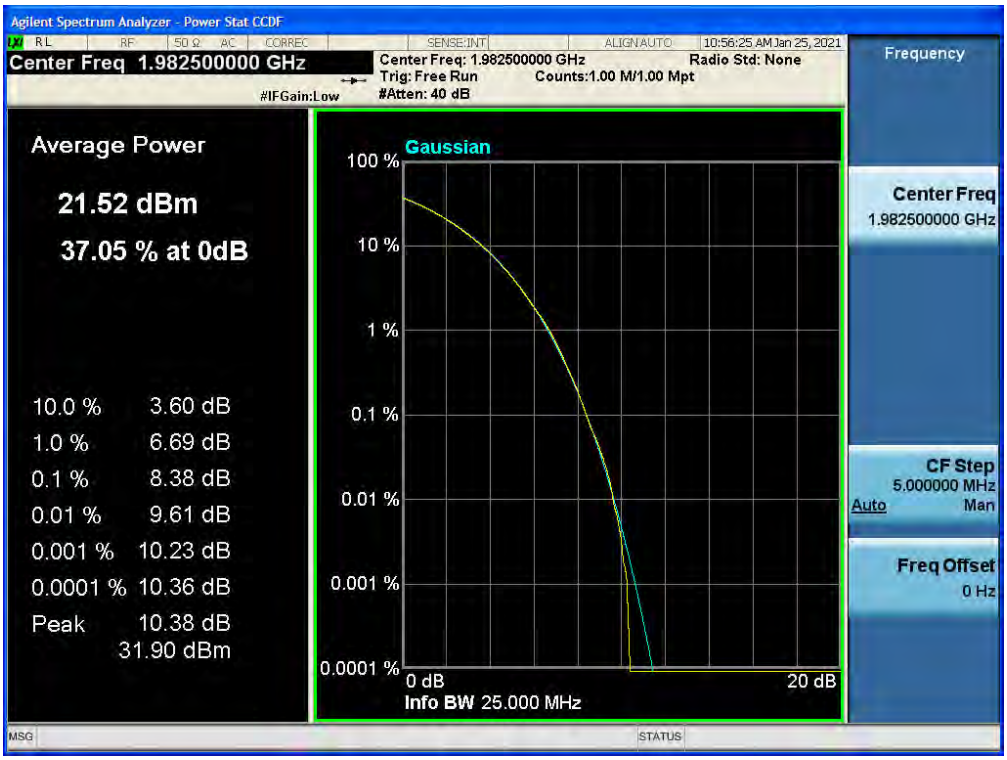
Antenna 0 / 5G NR n2 5 MHz 1 Carrier/ 256QAM / High



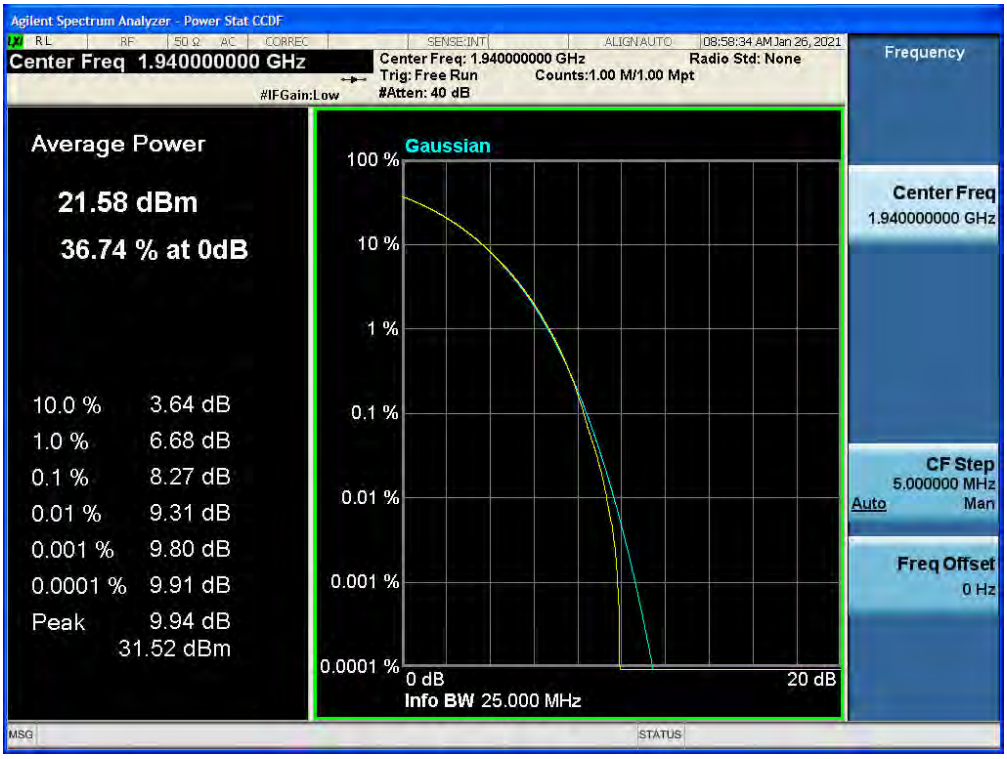
Antenna 1 / 5G NR n2 10 MHz 1 Carrier/ 256QAM / Low



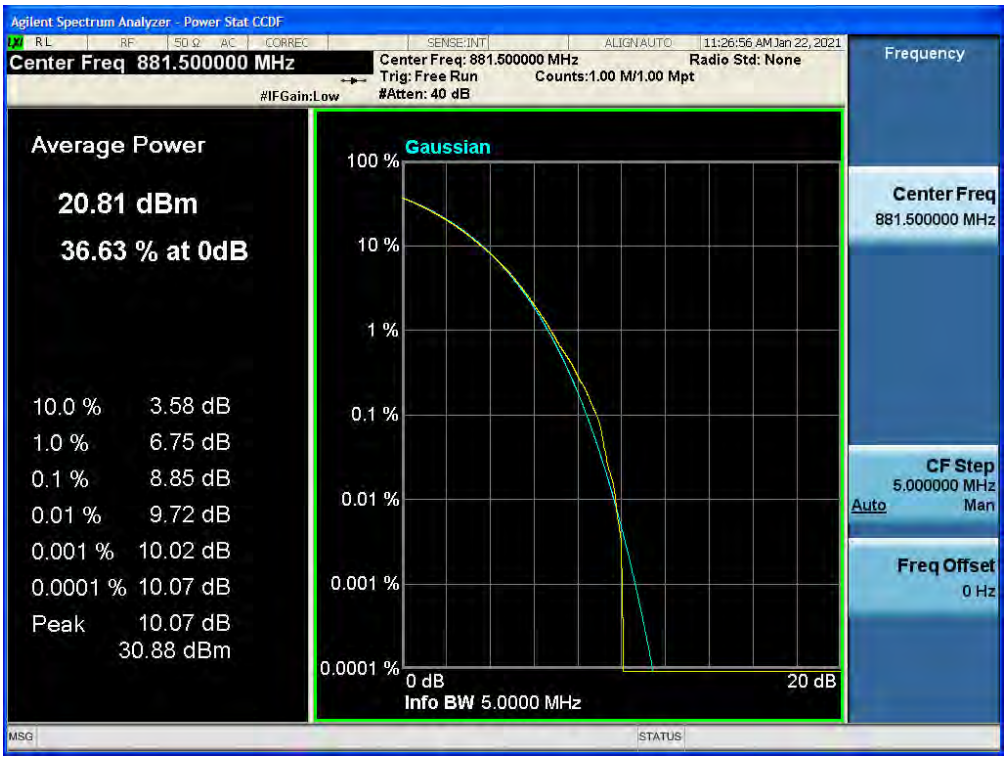
Antenna 0 / 5G NR n2 15 MHz 1 Carrier/ 256QAM / High



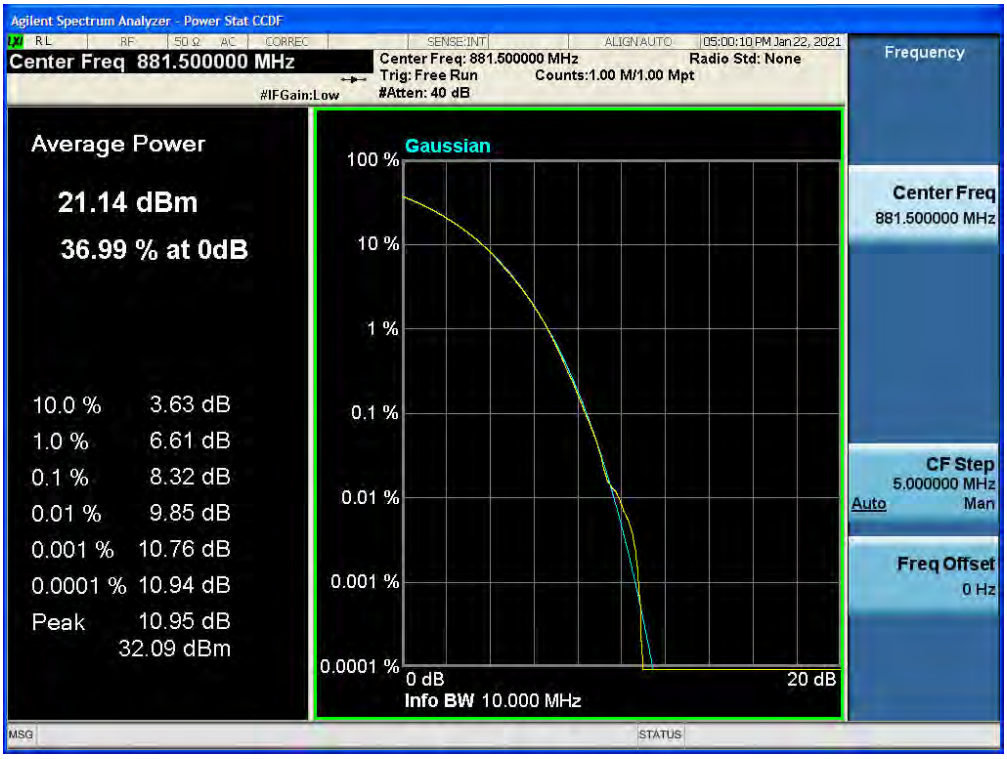
Antenna 1 / 5G NR n2 20 MHz 1 Carrier/ QPSK / Low



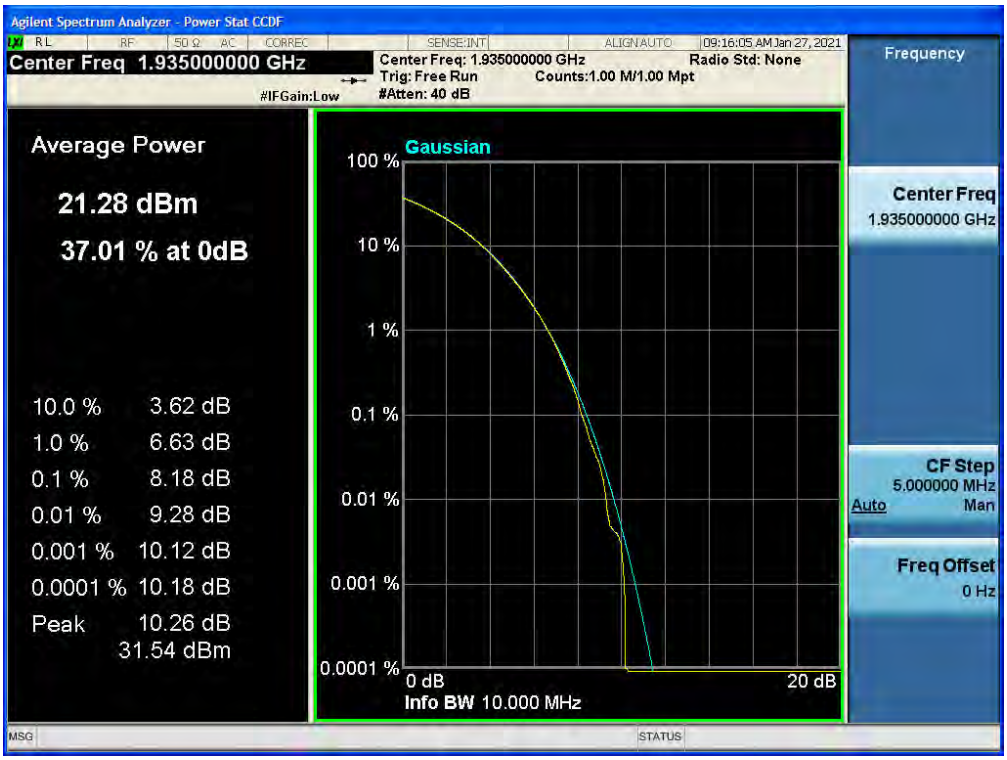
Antenna 1 / 5G NR n5 5 MHz 1 Carrier/ QPSK / Middle



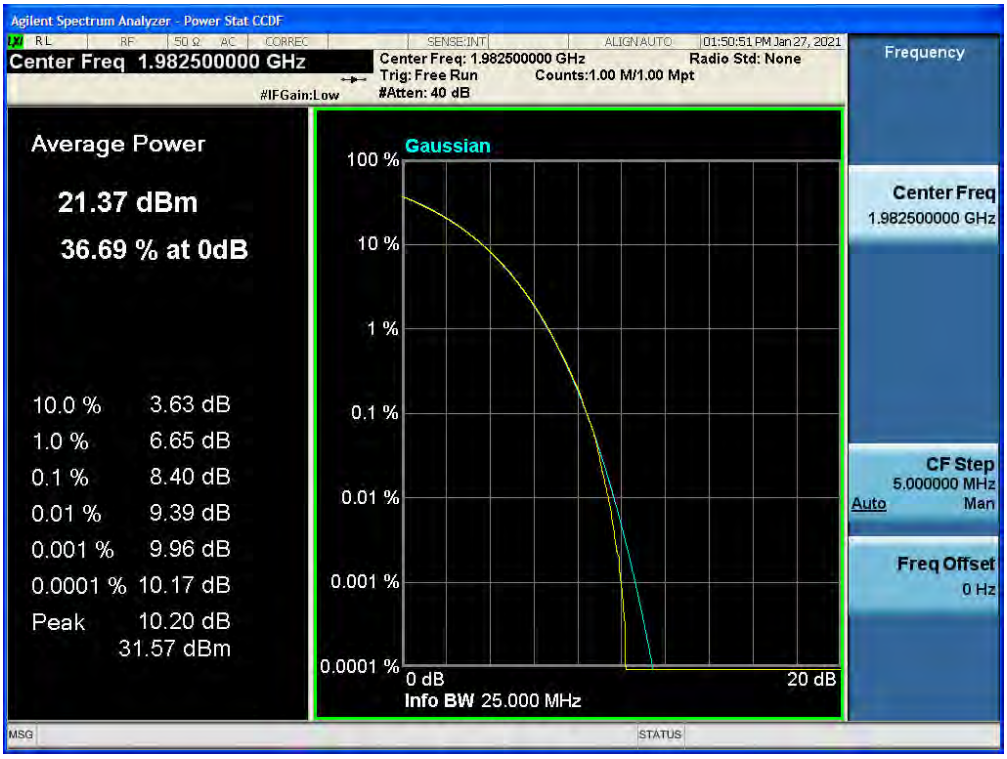
Antenna 0 / 5G NR n5 10 MHz 1 Carrier/ QPSK / Middle



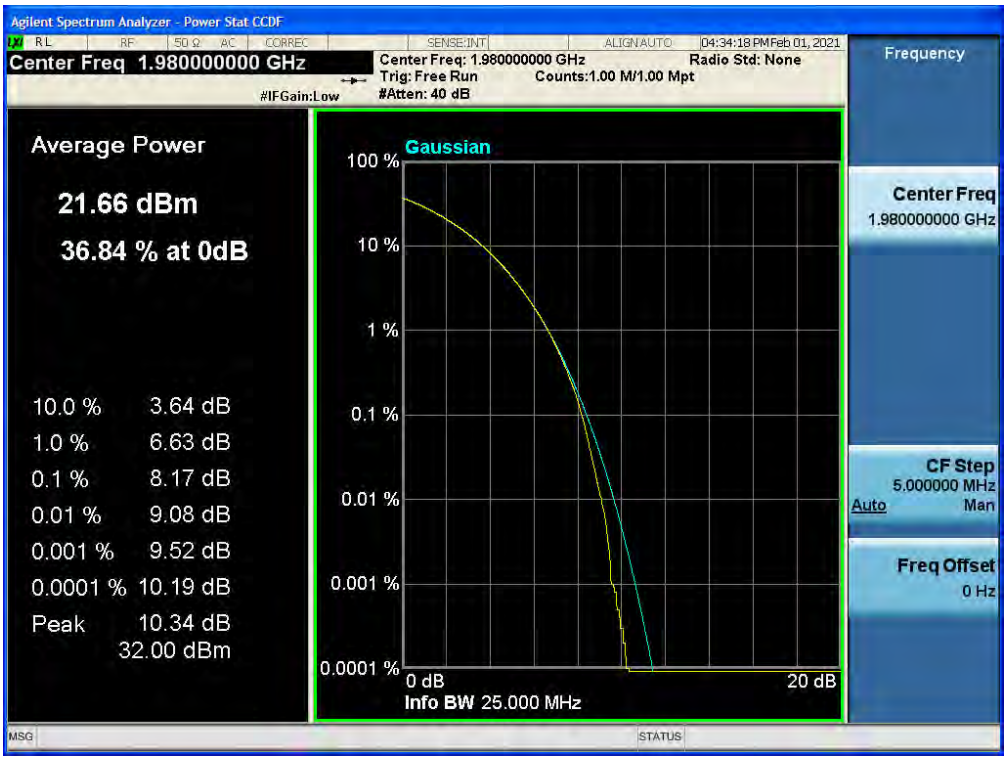
Antenna 1 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier / 2 Carrier / Contiguous / QPSK / Low



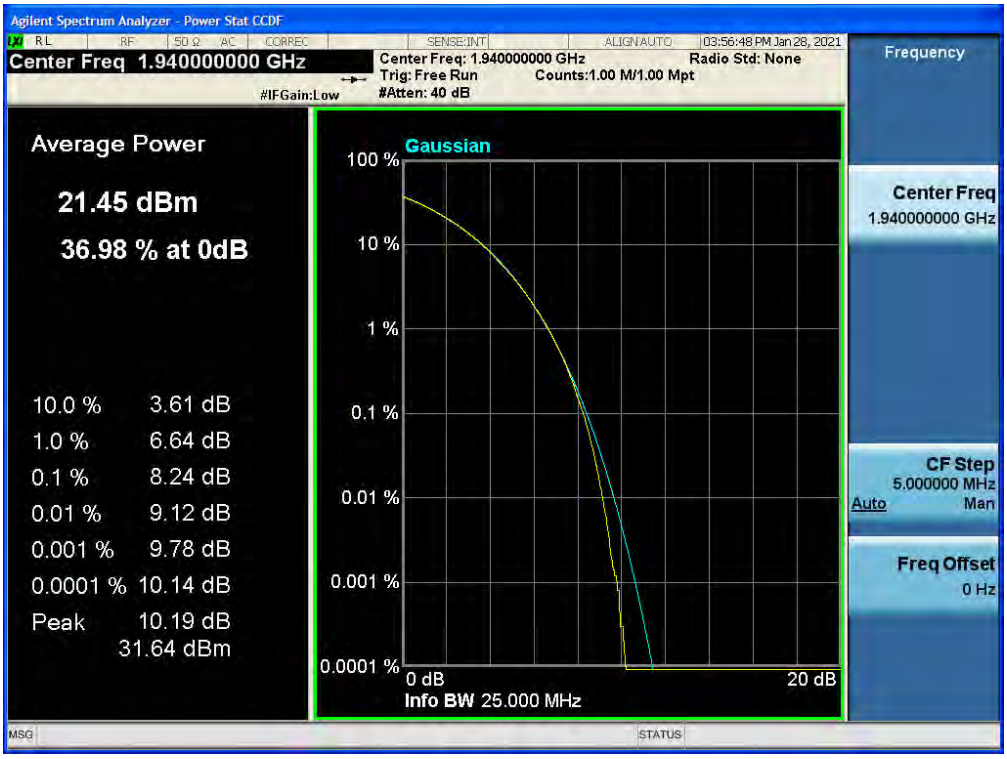
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / Contiguous / 16QAM / High



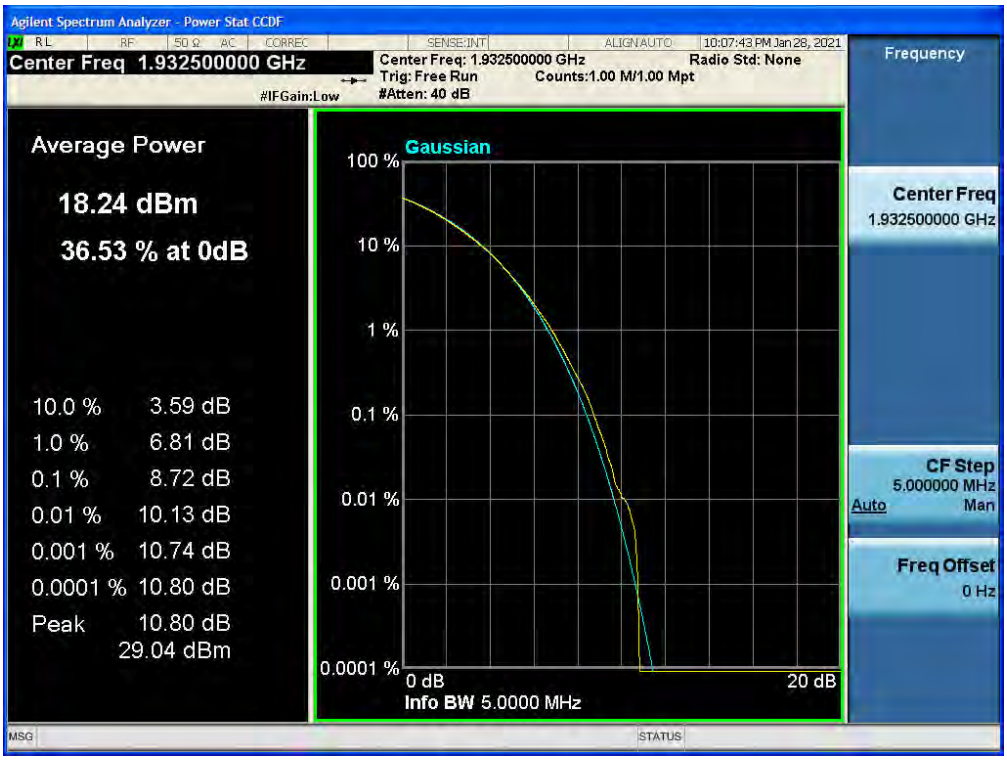
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier / 2 Carrier / Contiguous / 64QAM / High



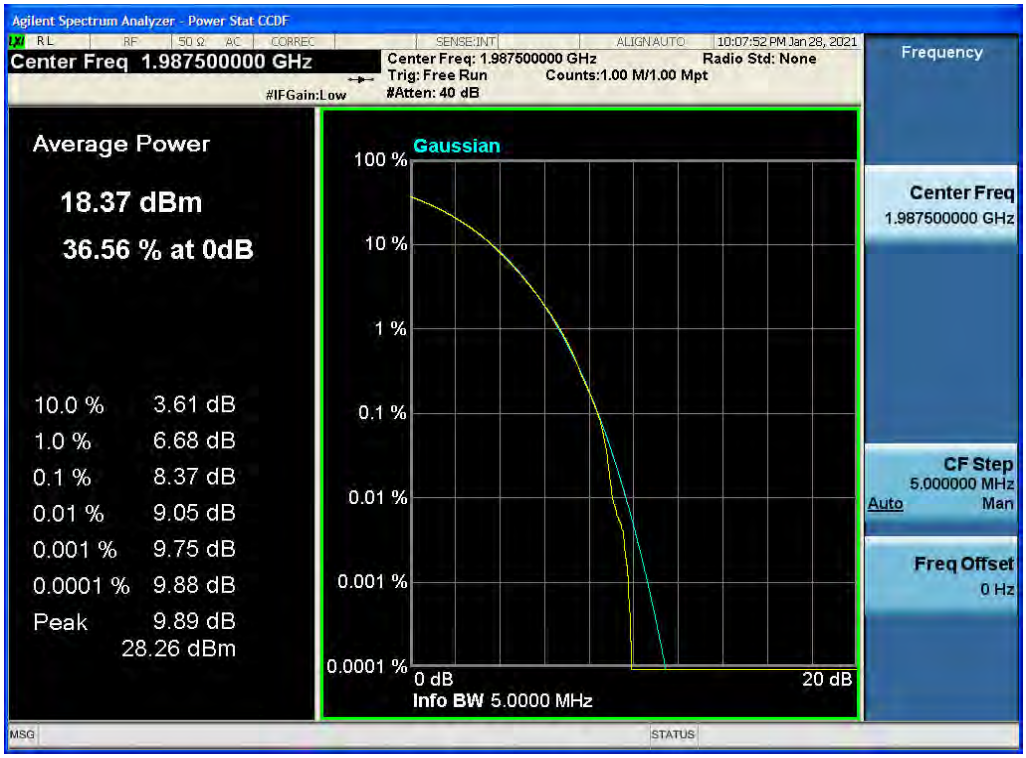
Antenna 1 / 5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / Contiguous / 16QAM / Low



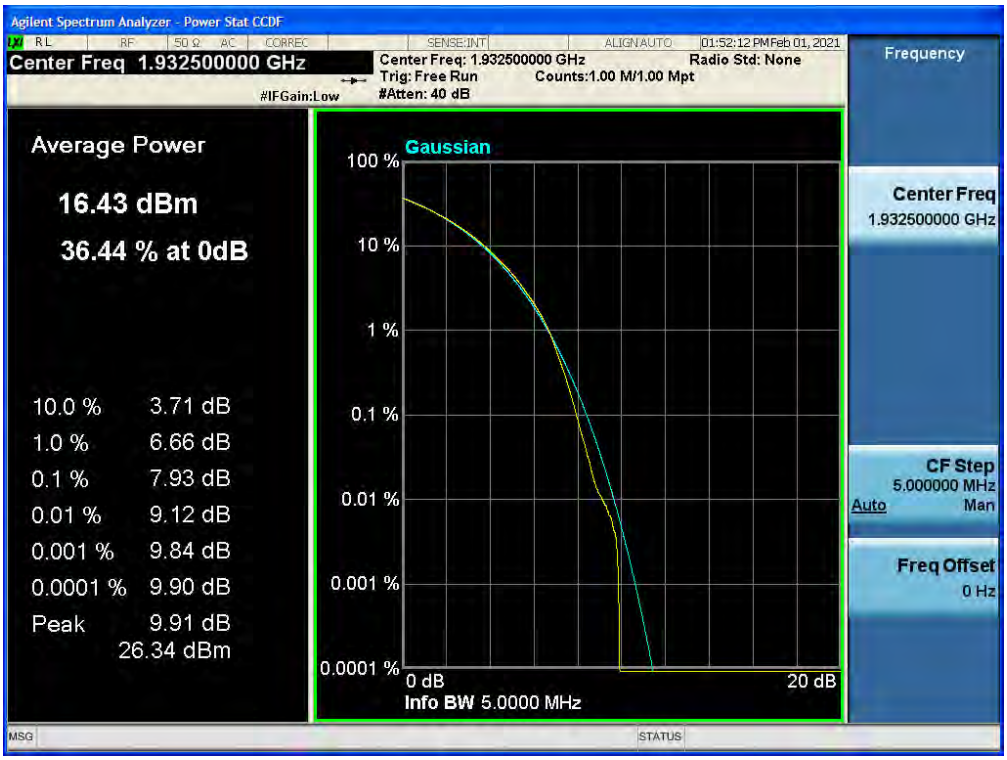
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier / 2 Carrier / [5 MHz] (Non-Contiguous) / QPSK / Low



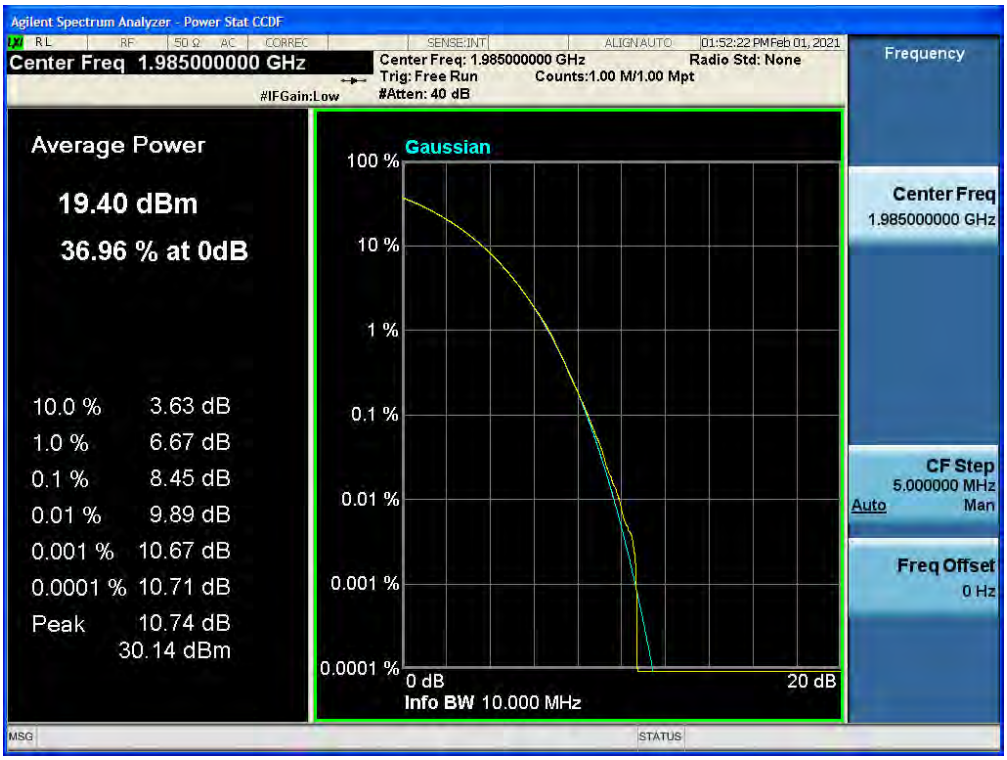
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier / 2 Carrier / [5 MHz] (Non-Contiguous) / QPSK / High



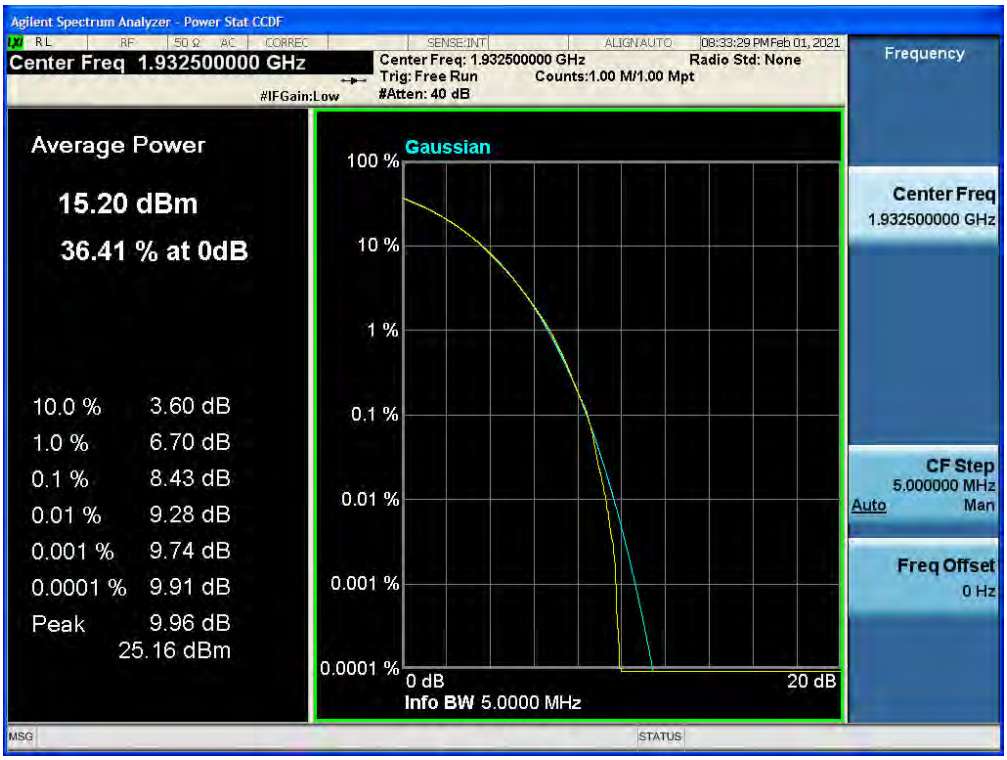
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / [5 MHz] (Non-Contiguous) / 16QAM / Low



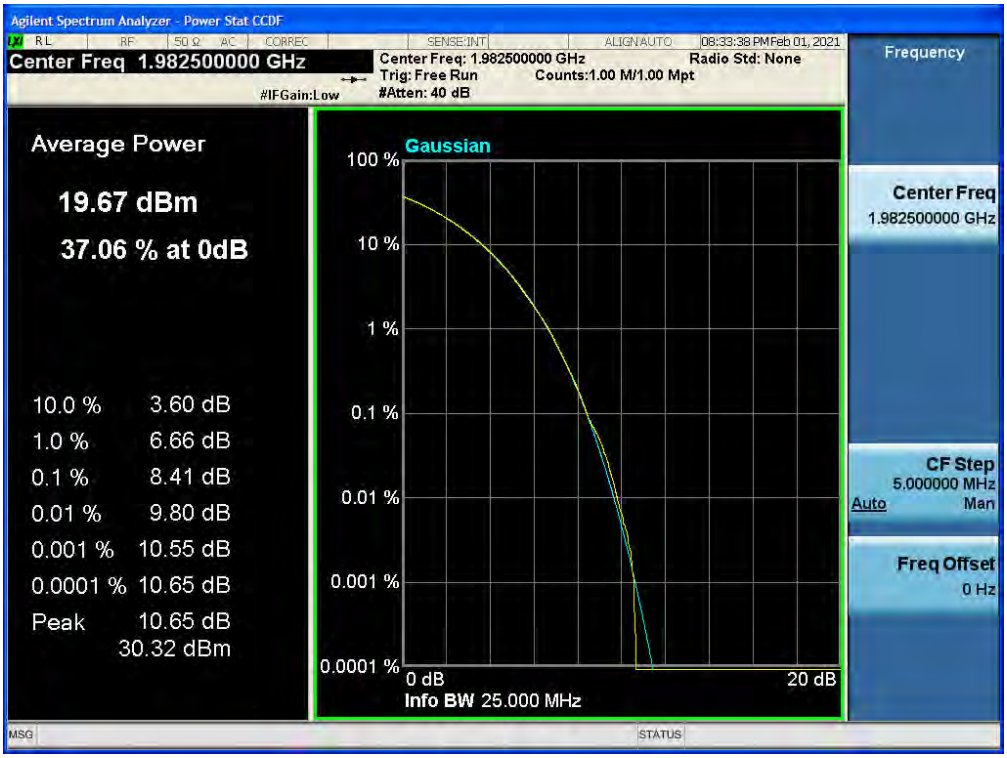
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / [10 MHz] (Non-Contiguous) / 16QAM / High



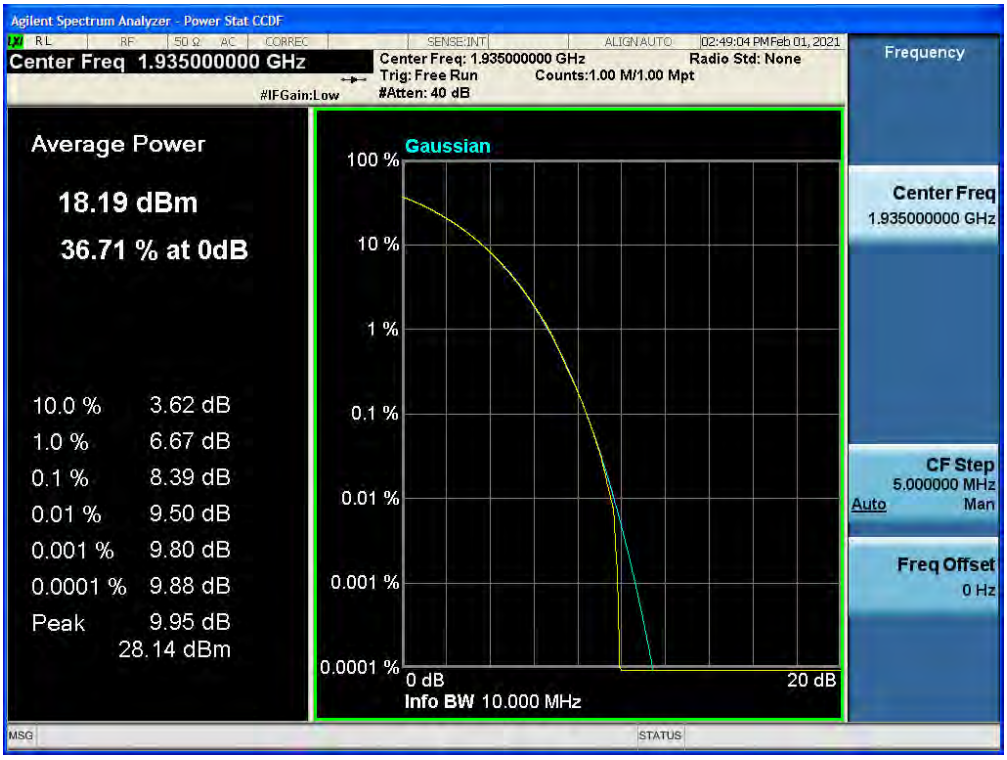
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier / 2 Carrier / [5 MHz] (Non-Contiguous) / QPSK / Low



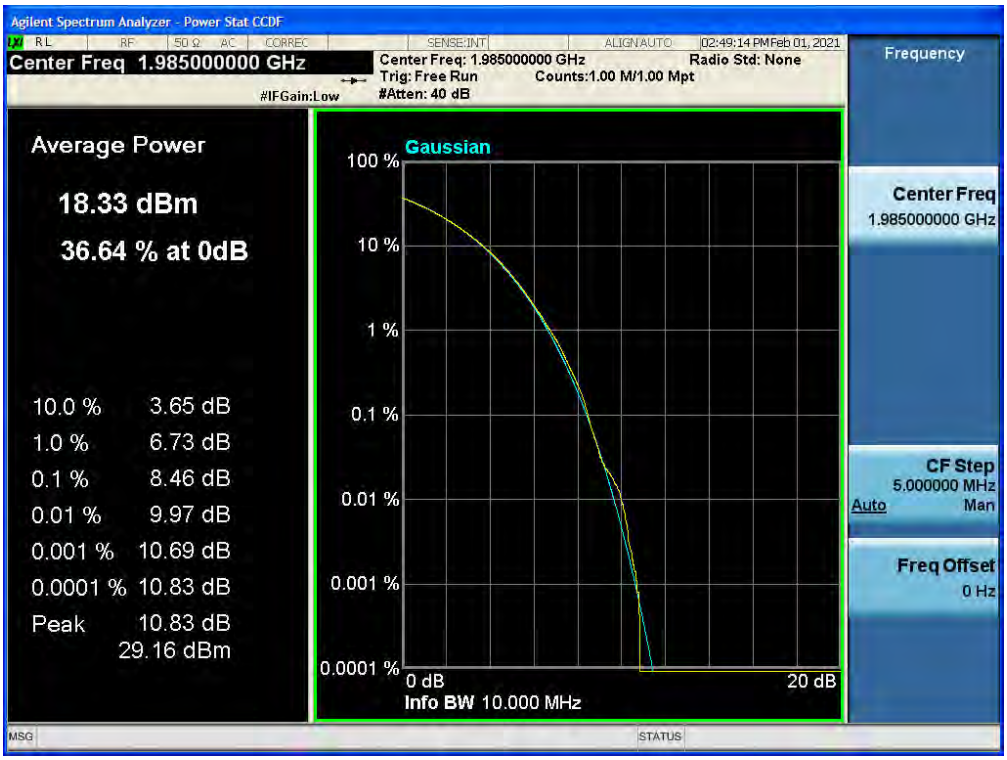
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier / 2 Carrier / [15 MHz] (Non-Contiguous) / QPSK / High



Antenna 0 / 5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / [10 MHz] (Non-Contiguous) / QPSK / Low



Antenna 0 / 5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / [10 MHz] (Non-Contiguous) / QPSK / High



5.2. OCCUPIED BANDWIDTH

Test Requirements:

§ 2.1049 Measurements required: Occupied bandwidth.

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 under the specified conditions of § 2.1049 (a) through (i) as applicable.

Test Procedures:

The measurement is performed in accordance with Section 5.4.3 and 5.4.4 of ANSI C63.26.

5.4.3 Occupied bandwidth—Relative measurement procedure

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.

b) The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.

c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.

NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target "−X dB" requirement, i.e., if the requirement calls for measuring the −26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.

e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

f) Determine the reference value by either of the following:

1) Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the Highest level of the displayed trace (this is the reference value).

2) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the level of the carrier.

g) Determine the "−X dB amplitude" as equal to (Reference Value − X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.

h) If the reference value was determined using an unmodulated carrier, turn the EUT modulation on, then either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise the trace from step f) shall be used for step i).

i) Place two markers, one at the lowest and the other at the Highest frequency of the envelope of the spectral display such that each marker is at or slightly below the "−X dB amplitude" determined in step f). If a marker is below this "−X dB amplitude" value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers. The spectral envelope can cross the "−X dB amplitude" at multiple points. The lowest or Highest frequency shall be selected as the frequencies that are the farthest away from the center frequency at which the spectral envelope crosses the "−X dB amplitude."

j) The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be

clearly labeled. Tabular data may be reported in addition to the plot(s).

5.4.4 Occupied bandwidth—Power bandwidth (99%) measurement procedure

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of 1.5 × OBW is sufficient).

b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.

c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.

NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

d) Set the detection mode to peak, and the trace mode to max-hold.

e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.

f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

Note:

The results of the Occupied Bandwidth test shown above the frequency measured values are very small and similar trend for each port, so we are attached only the worst case plot.

Test Results:
Tabular Data of Occupied Bandwidth
5G NR n2 5 MHz 1 Carrier

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	1932.50	4.4963
		Middle	1960.00	4.5293
		High	1987.50	4.5342
	16QAM	Low	1932.50	4.5387
		Middle	1960.00	4.5300
		High	1987.50	4.5268
	64QAM	Low	1932.50	4.5155
		Middle	1960.00	4.5310
		High	1987.50	4.5329
	256QAM	Low	1932.50	4.5209
		Middle	1960.00	4.5322
		High	1987.50	4.5272
1	QPSK	Low	1932.50	4.5358
		Middle	1960.00	4.5169
		High	1987.50	4.5236
	16QAM	Low	1932.50	4.5468
		Middle	1960.00	4.5131
		High	1987.50	4.5120
	64QAM	Low	1932.50	4.5085
		Middle	1960.00	4.5042
		High	1987.50	4.5347
	256QAM	Low	1932.50	4.5093
		Middle	1960.00	4.5188
		High	1987.50	4.5237

5G NR n2 10 MHz 1 Carrier

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	1935.00	9.3233
		Middle	1960.00	9.3318
		High	1985.00	9.3331
	16QAM	Low	1935.00	9.2624
		Middle	1960.00	9.2743
		High	1985.00	9.1992
	64QAM	Low	1935.00	9.3136
		Middle	1960.00	9.3292
		High	1985.00	9.3095
	256QAM	Low	1935.00	9.3470
		Middle	1960.00	9.3331
		High	1985.00	9.3171
1	QPSK	Low	1935.00	9.3400
		Middle	1960.00	9.3367
		High	1985.00	9.3219
	16QAM	Low	1935.00	9.2213
		Middle	1960.00	9.2644
		High	1985.00	9.2482
	64QAM	Low	1935.00	9.3181
		Middle	1960.00	9.3401
		High	1985.00	9.3235
	256QAM	Low	1935.00	9.3347
		Middle	1960.00	9.3312
		High	1985.00	9.3100

5G NR n2 15 MHz 1 Carrier

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	1937.50	14.130
		Middle	1960.00	14.175
		High	1982.50	14.153
	16QAM	Low	1937.50	14.172
		Middle	1960.00	14.200
		High	1982.50	14.196
	64QAM	Low	1937.50	14.139
		Middle	1960.00	14.136
		High	1982.50	14.136
	256QAM	Low	1937.50	14.140
		Middle	1960.00	14.169
		High	1982.50	14.166
1	QPSK	Low	1937.50	14.142
		Middle	1960.00	14.161
		High	1982.50	14.167
	16QAM	Low	1937.50	14.205
		Middle	1960.00	14.180
		High	1982.50	14.180
	64QAM	Low	1937.50	14.159
		Middle	1960.00	14.173
		High	1982.50	14.139
	256QAM	Low	1937.50	14.119
		Middle	1960.00	14.151
		High	1982.50	14.126

5G NR n2 20 MHz 1 Carrier

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	1940.00	18.953
		Middle	1960.00	18.976
		High	1980.00	18.934
	16QAM	Low	1940.00	19.017
		Middle	1960.00	19.008
		High	1980.00	19.007
	64QAM	Low	1940.00	18.932
		Middle	1960.00	18.949
		High	1980.00	18.930
	256QAM	Low	1940.00	18.918
		Middle	1960.00	18.952
		High	1980.00	18.959
1	QPSK	Low	1940.00	18.919
		Middle	1960.00	18.977
		High	1980.00	18.954
	16QAM	Low	1940.00	18.980
		Middle	1960.00	19.023
		High	1980.00	19.011
	64QAM	Low	1940.00	18.921
		Middle	1960.00	18.944
		High	1980.00	18.975
	256QAM	Low	1940.00	18.940
		Middle	1960.00	18.958
		High	1980.00	18.988

5G NR n5 5 MHz 1 Carrier

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	871.50	4.5176
		Middle	881.50	4.5112
		High	891.50	4.4967
	16QAM	Low	871.50	4.5072
		Middle	881.50	4.5262
		High	891.50	4.5308
	64QAM	Low	871.50	4.4976
		Middle	881.50	4.5058
		High	891.50	4.5061
	256QAM	Low	871.50	4.5025
		Middle	881.50	4.5056
		High	891.50	4.5080
1	QPSK	Low	871.50	4.5005
		Middle	881.50	4.5039
		High	891.50	4.5078
	16QAM	Low	871.50	4.5119
		Middle	881.50	4.5352
		High	891.50	4.5135
	64QAM	Low	871.50	4.5058
		Middle	881.50	4.5046
		High	891.50	4.5083
	256QAM	Low	871.50	4.5057
		Middle	881.50	4.5131
		High	891.50	4.5000

5G NR n5 10 MHz 1 Carrier

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	874.00	9.3207
		Middle	881.50	9.3365
		High	889.00	9.3165
	16QAM	Low	874.00	9.2354
		Middle	881.50	9.2299
		High	889.00	9.2482
	64QAM	Low	874.00	9.3327
		Middle	881.50	9.3284
		High	889.00	9.3028
	256QAM	Low	874.00	9.3091
		Middle	881.50	9.3163
		High	889.00	9.3132
1	QPSK	Low	874.00	9.3214
		Middle	881.50	9.3173
		High	889.00	9.3112
	16QAM	Low	874.00	9.2302
		Middle	881.50	9.2369
		High	889.00	9.2308
	64QAM	Low	874.00	9.3289
		Middle	881.50	9.3260
		High	889.00	9.3311
	256QAM	Low	874.00	9.2986
		Middle	881.50	9.3245
		High	889.00	9.3366

Tabular Data of RF Contiguous Occupied Bandwidth

5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier]

Ant	Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	1935.00	9.4557
		Middle	1960.00	9.4731
		High	1985.00	9.4837
	16QAM	Low	1935.00	9.4882
		Middle	1960.00	9.5048
		High	1985.00	9.5170
	64QAM	Low	1935.00	9.4582
		Middle	1960.00	9.4637
		High	1985.00	9.4663
	256QAM	Low	1935.00	9.4510
		Middle	1960.00	9.5044
		High	1985.00	9.4652
1	QPSK	Low	1935.00	9.4321
		Middle	1960.00	9.4821
		High	1985.00	9.4587
	16QAM	Low	1935.00	9.5004
		Middle	1960.00	9.5071
		High	1985.00	9.5092
	64QAM	Low	1935.00	9.4554
		Middle	1960.00	9.5123
		High	1985.00	9.4727
	256QAM	Low	1935.00	9.4433
		Middle	1960.00	9.5068
		High	1985.00	9.4663

5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant	Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	1937.50	14.349
		Middle	1960.00	14.361
		High	1982.50	14.349
	16QAM	Low	1937.50	14.283
		Middle	1960.00	14.280
		High	1982.50	14.262
	64QAM	Low	1937.50	14.355
		Middle	1960.00	14.366
		High	1982.50	14.341
	256QAM	Low	1937.50	14.347
		Middle	1960.00	14.360
		High	1982.50	14.341
1	QPSK	Low	1937.50	14.357
		Middle	1960.00	14.353
		High	1982.50	14.342
	16QAM	Low	1937.50	14.235
		Middle	1960.00	14.239
		High	1982.50	14.269
	64QAM	Low	1937.50	14.355
		Middle	1960.00	14.356
		High	1982.50	14.380
	256QAM	Low	1937.50	14.331
		Middle	1960.00	14.360
		High	1982.50	14.347

5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier]

Ant	Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	1940.00	19.261
		Middle	1960.00	19.278
		High	1980.00	19.267
	16QAM	Low	1940.00	19.284
		Middle	1960.00	19.291
		High	1980.00	19.298
	64QAM	Low	1940.00	19.260
		Middle	1960.00	19.303
		High	1980.00	19.250
	256QAM	Low	1940.00	19.227
		Middle	1960.00	19.276
		High	1980.00	19.261
1	QPSK	Low	1940.00	19.224
		Middle	1960.00	19.291
		High	1980.00	19.238
	16QAM	Low	1940.00	19.285
		Middle	1960.00	19.325
		High	1980.00	19.294
	64QAM	Low	1940.00	19.219
		Middle	1960.00	19.283
		High	1980.00	19.264
	256QAM	Low	1940.00	19.245
		Middle	1960.00	19.285
		High	1980.00	19.268

5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant	Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	1940.00	19.210
		Middle	1960.00	19.274
		High	1980.00	19.200
	16QAM	Low	1940.00	19.123
		Middle	1960.00	19.134
		High	1980.00	19.091
	64QAM	Low	1940.00	19.231
		Middle	1960.00	19.287
		High	1980.00	19.223
	256QAM	Low	1940.00	19.234
		Middle	1960.00	19.255
		High	1980.00	19.217
1	QPSK	Low	1940.00	19.219
		Middle	1960.00	19.244
		High	1980.00	19.244
	16QAM	Low	1940.00	19.129
		Middle	1960.00	19.149
		High	1980.00	19.101
	64QAM	Low	1940.00	19.225
		Middle	1960.00	19.243
		High	1980.00	19.256
	256QAM	Low	1940.00	19.216
		Middle	1960.00	19.239
		High	1980.00	19.266

Tabular Data of Non-Contiguous Occupied Bandwidth

5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier]

Ant	Modulation	5G NR n2 5 MHz		5G NR n2 5 MHz		Total
		Frequency (MHz)	Occupied Bandwidth (MHz)	Frequency (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
0	QPSK	1932.50	4.5186	1987.50	4.5104	9.0290
	16QAM	1932.50	4.5446	1987.50	4.5254	9.0700
	64QAM	1932.50	4.5223	1987.50	4.5113	9.0336
	256QAM	1932.50	4.5128	1987.50	4.5131	9.0259
1	QPSK	1932.50	4.5352	1987.50	4.5205	9.0558
	16QAM	1932.50	4.5379	1987.50	4.5329	9.0708
	64QAM	1932.50	4.5134	1987.50	4.4993	9.0127
	256QAM	1932.50	4.5112	1987.50	4.4965	9.0078

5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Ant	Modulation	5G NR n2 5 MHz		5G NR n2 10 MHz		Total
		Frequency (MHz)	Occupied Bandwidth (MHz)	Frequency (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
0	QPSK	1932.50	4.4923	1985.00	9.3160	13.808
	16QAM	1932.50	4.5384	1985.00	9.2010	13.739
	64QAM	1932.50	4.5251	1985.00	9.3176	13.843
	256QAM	1932.50	4.5216	1985.00	9.3129	13.835
1	QPSK	1932.50	4.5206	1985.00	9.3238	13.844
	16QAM	1932.50	4.5145	1985.00	9.2394	13.754
	64QAM	1932.50	4.5158	1985.00	9.3193	13.835
	256QAM	1932.50	4.5103	1985.00	9.3242	13.835

5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier]

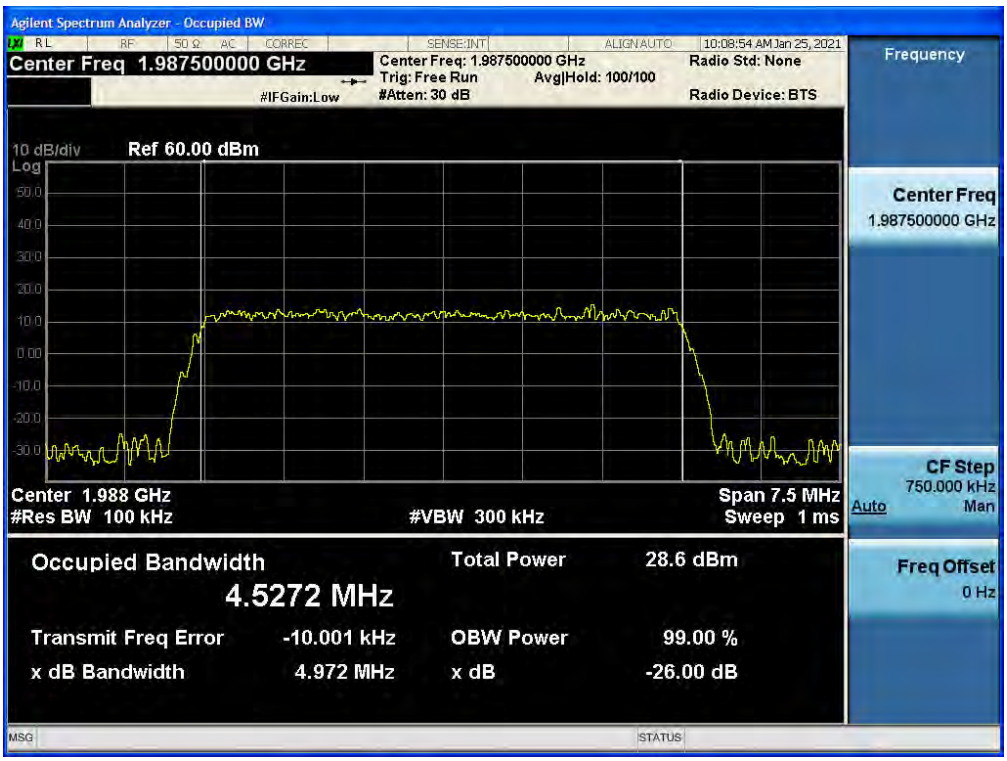
Ant	Modulation	5G NR n2 5 MHz		5G NR n2 15 MHz		Total
		Frequency (MHz)	Occupied Bandwidth (MHz)	Frequency (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
0	QPSK	1932.50	4.4867	1982.50	14.104	18.591
	16QAM	1932.50	4.4947	1982.50	14.185	18.680
	64QAM	1932.50	4.4905	1982.50	14.135	18.625
	256QAM	1932.50	4.4919	1982.50	14.147	18.639
1	QPSK	1932.50	4.4864	1982.50	14.153	18.639
	16QAM	1932.50	4.4948	1982.50	14.185	18.679
	64QAM	1932.50	4.4861	1982.50	14.156	18.642
	256QAM	1932.50	4.4838	1982.50	14.128	18.611

5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

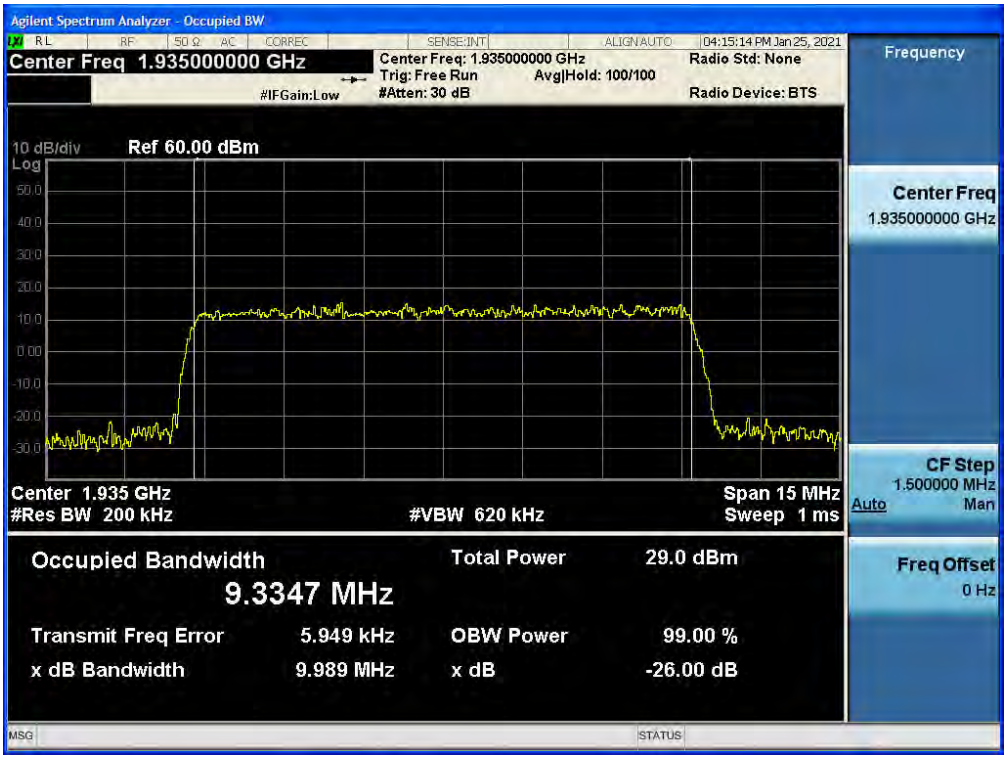
Ant	Modulation	5G NR n2 10 MHz		5G NR n2 10 MHz		Total
		Frequency (MHz)	Occupied Bandwidth (MHz)	Frequency (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
0	QPSK	1935.00	9.3506	1985.00	9.3118	18.662
	16QAM	1935.00	9.2456	1985.00	9.2260	18.472
	64QAM	1935.00	9.3247	1985.00	9.3029	18.628
	256QAM	1935.00	9.3283	1985.00	9.3128	18.641
1	QPSK	1935.00	9.3434	1985.00	9.3310	18.674
	16QAM	1935.00	9.2489	1985.00	9.2368	18.486
	64QAM	1935.00	9.3328	1985.00	9.3300	18.663
	256QAM	1935.00	9.3359	1985.00	9.3169	18.653

Plot Data of Occupied bandwidth

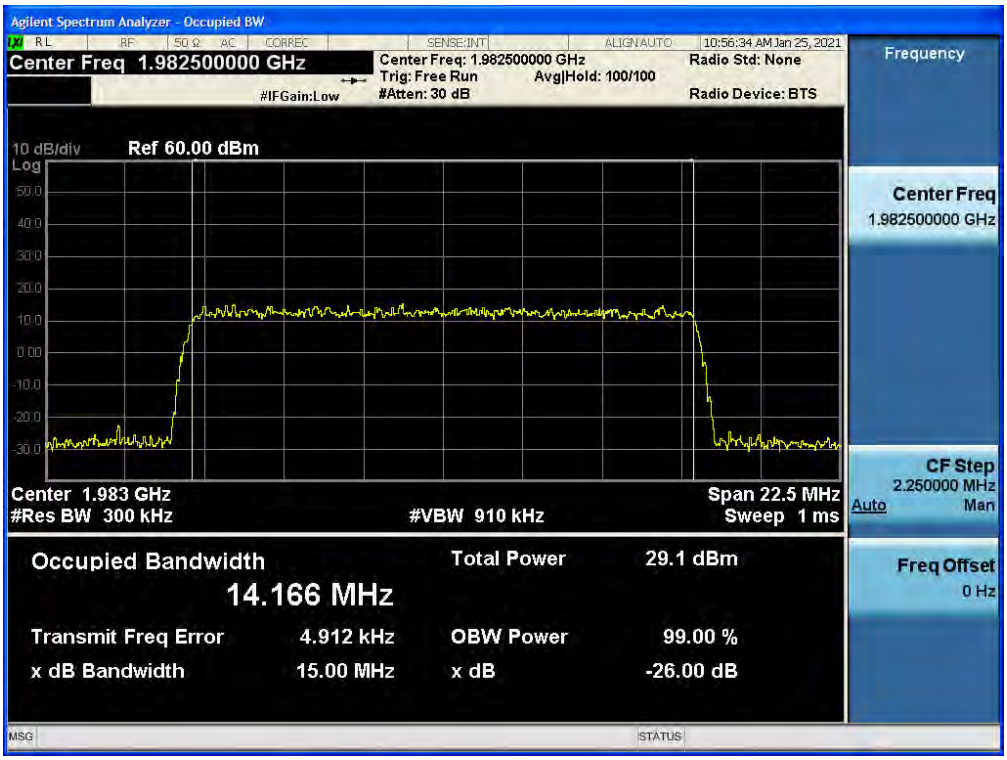
Antenna 0 / 5G NR n2 5 MHz 1 Carrier/ 256QAM / High



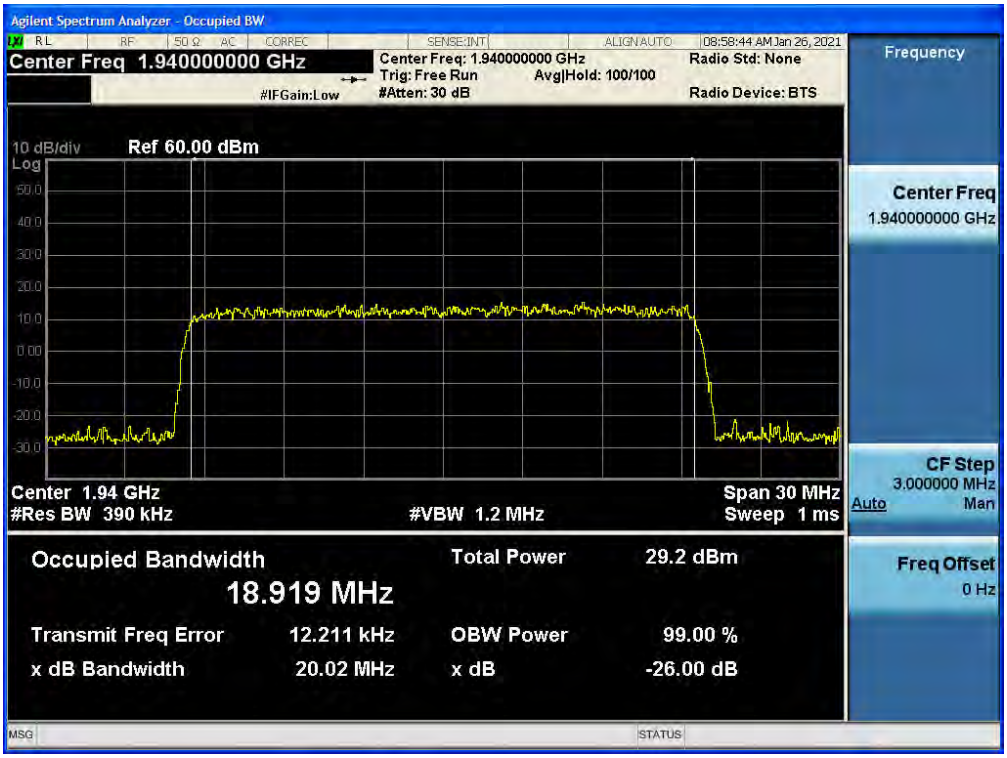
Antenna 1 / 5G NR n2 10 MHz 1 Carrier/ 256QAM / Low



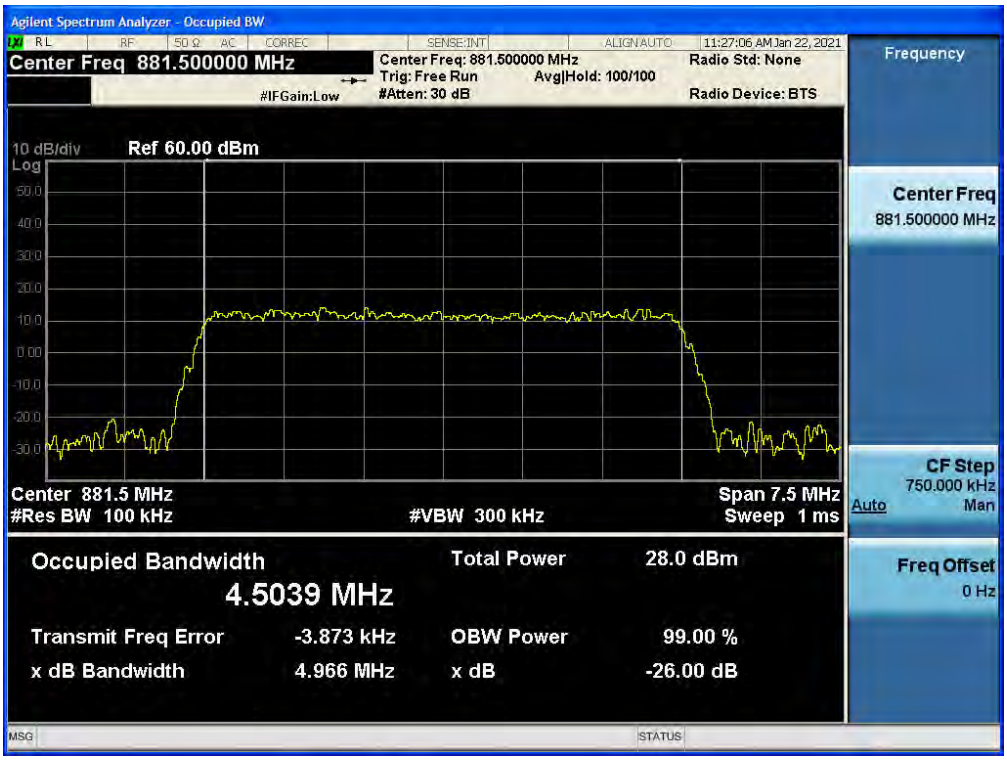
Antenna 0 / 5G NR n2 15 MHz 1 Carrier/ 256QAM / High



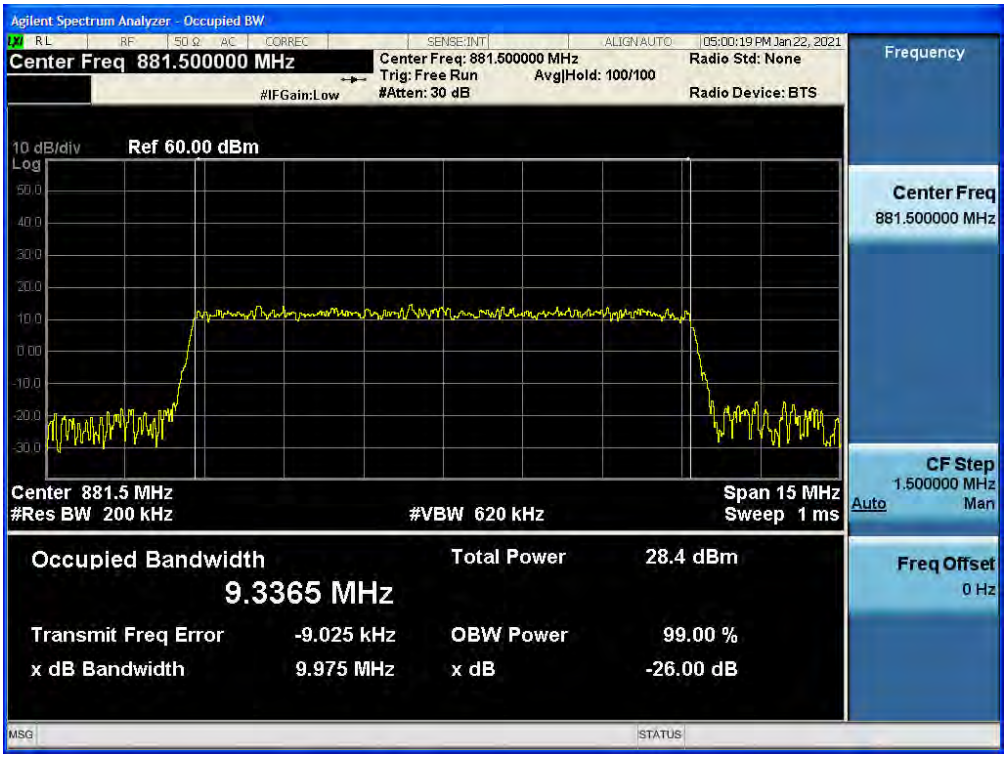
Antenna 1 / 5G NR n2 20 MHz 1 Carrier/ QPSK / Low



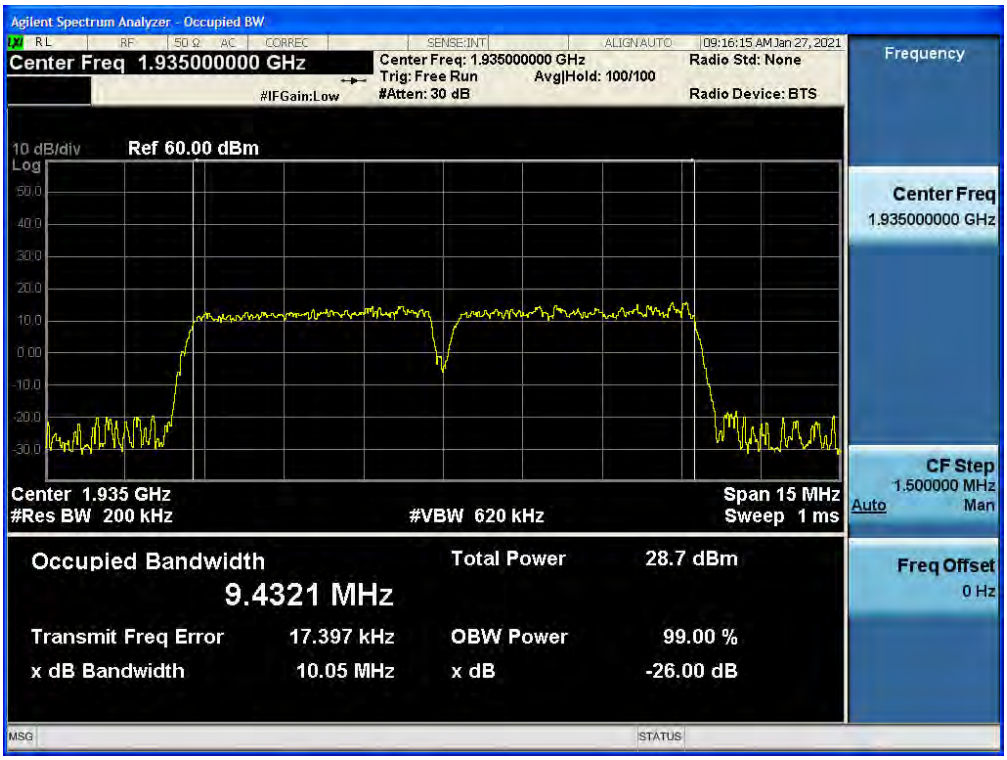
Antenna 1 / 5G NR n5 5 MHz 1 Carrier/ QPSK / Middle



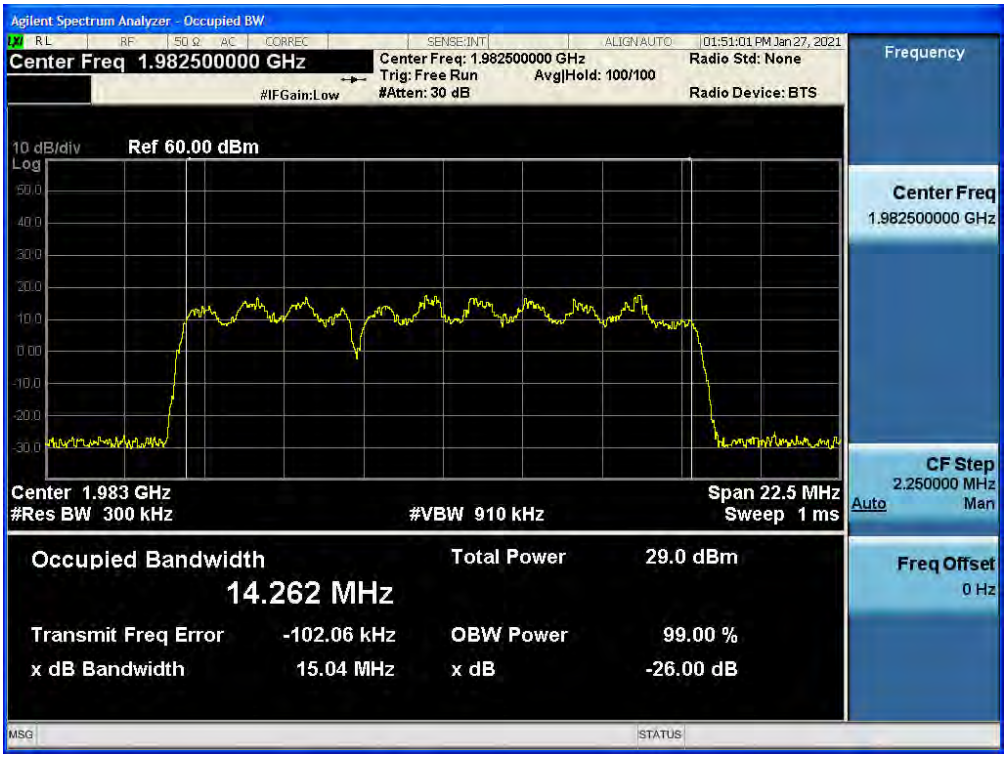
Antenna 0 / 5G NR n5 10 MHz 1 Carrier/ QPSK / Middle



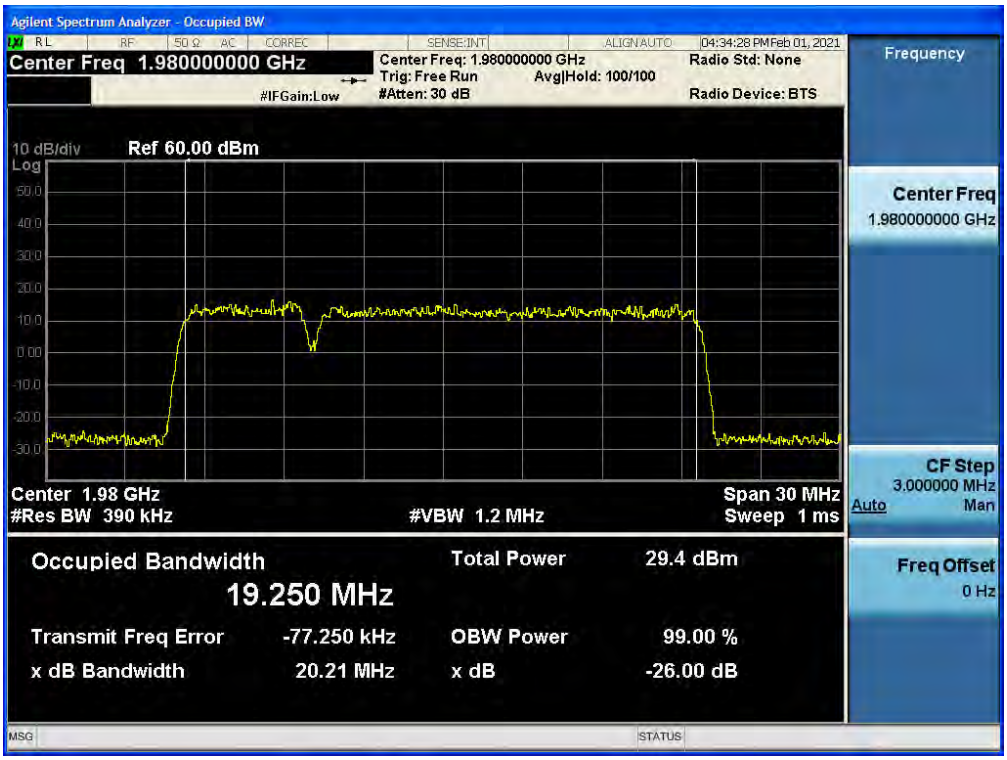
Antenna 1 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier / 2 Carrier / Contiguous / QPSK / Low



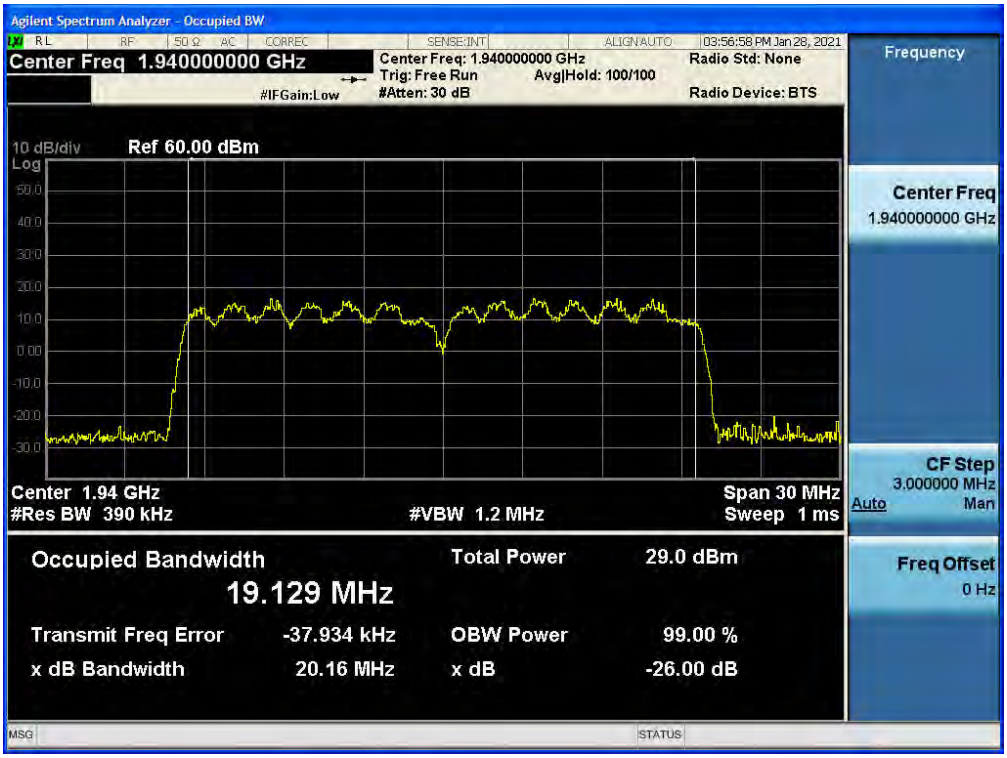
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / Contiguous / 16QAM / High



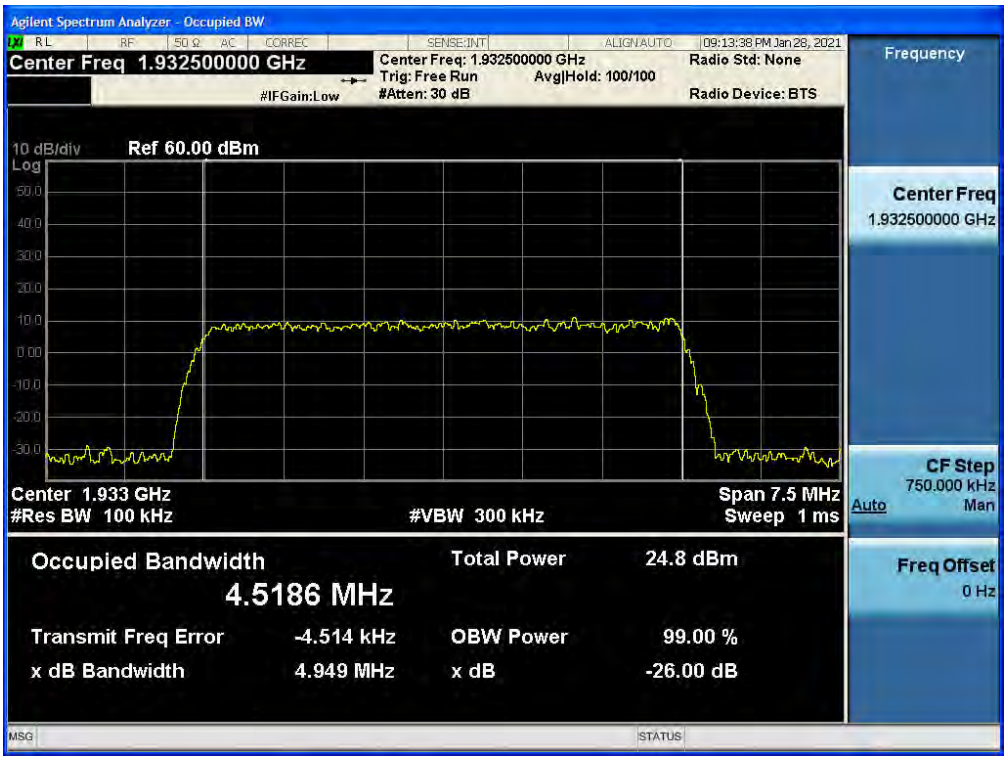
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier / 2 Carrier / Contiguous / 64QAM / High



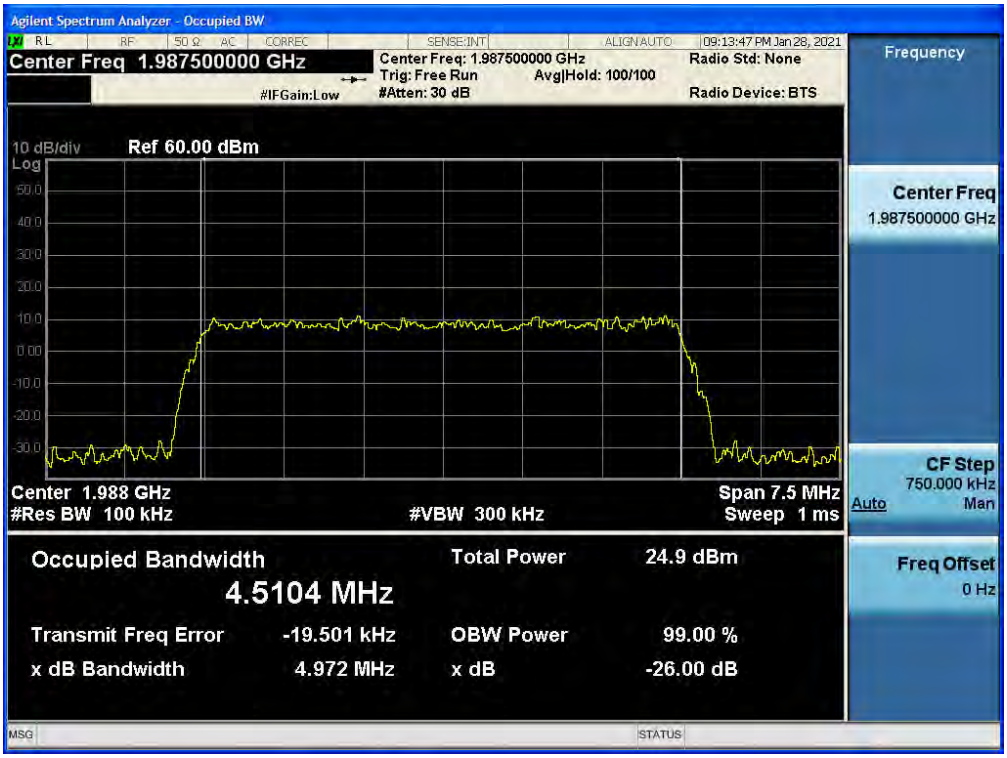
Antenna 1 / 5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / Contiguous / 16QAM / Low



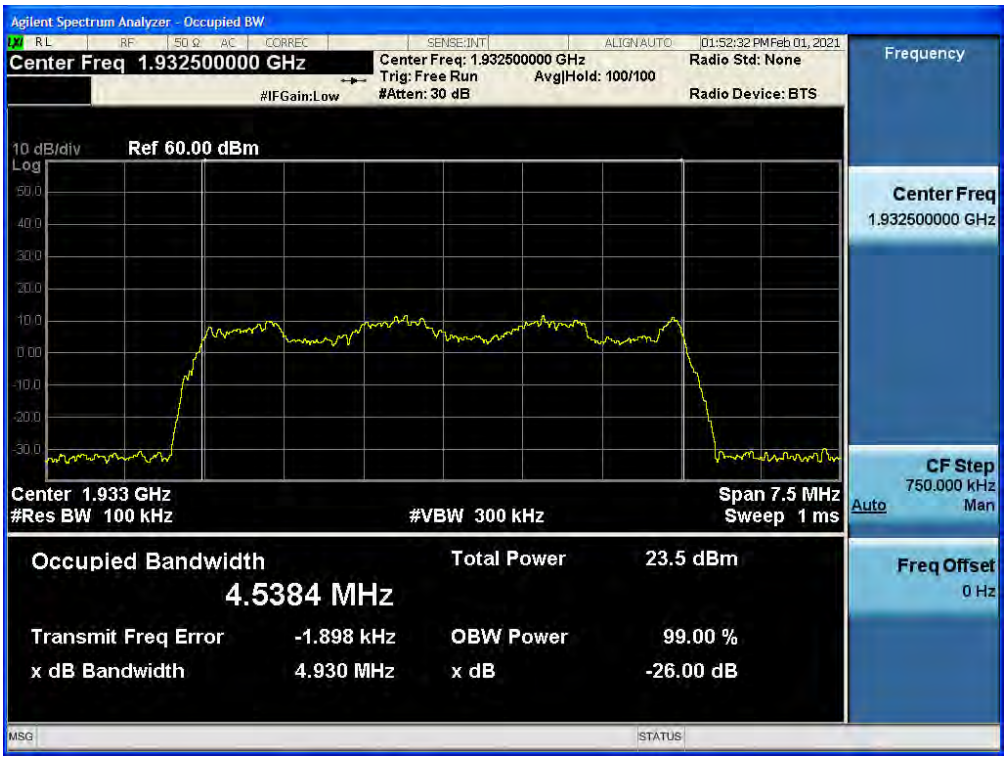
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier / 2 Carrier / [5 MHz] (Non-Contiguous) / QPSK / Low



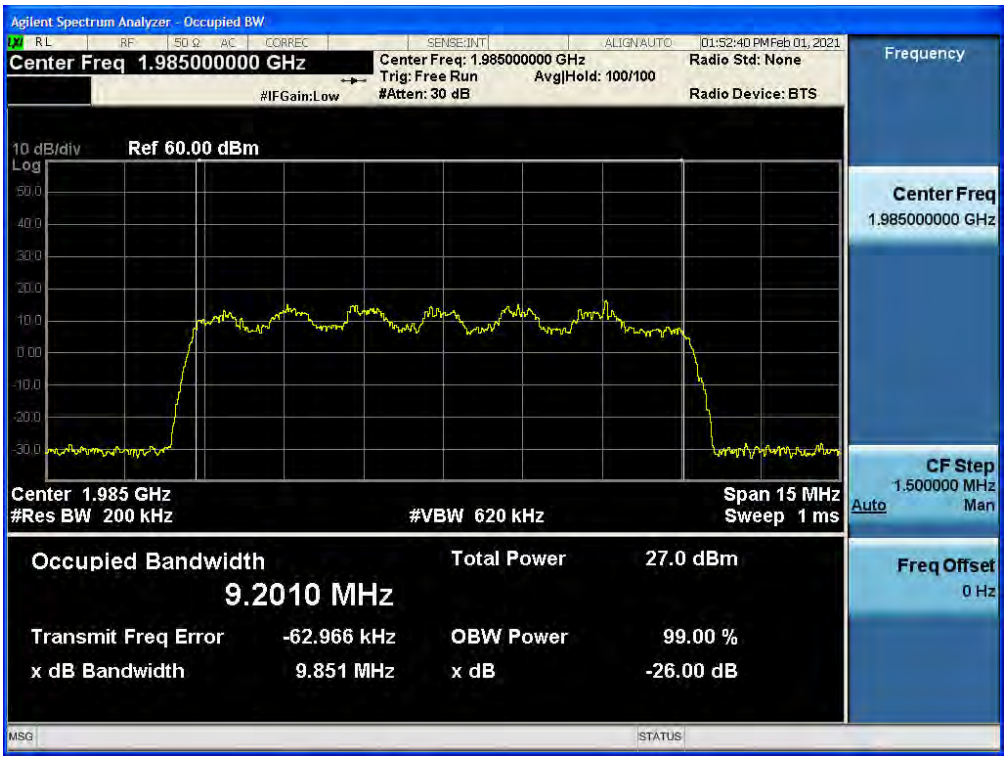
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier / 2 Carrier / [5 MHz] (Non-Contiguous) / QPSK / High



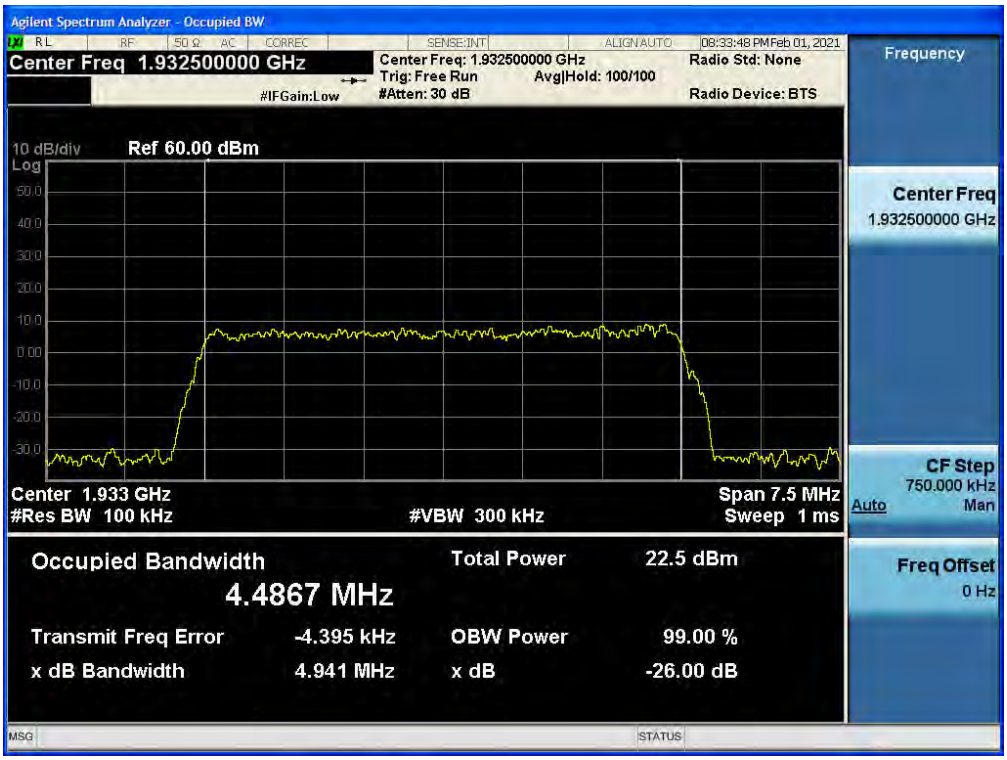
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / [5 MHz] (Non-Contiguous) / 16QAM / Low



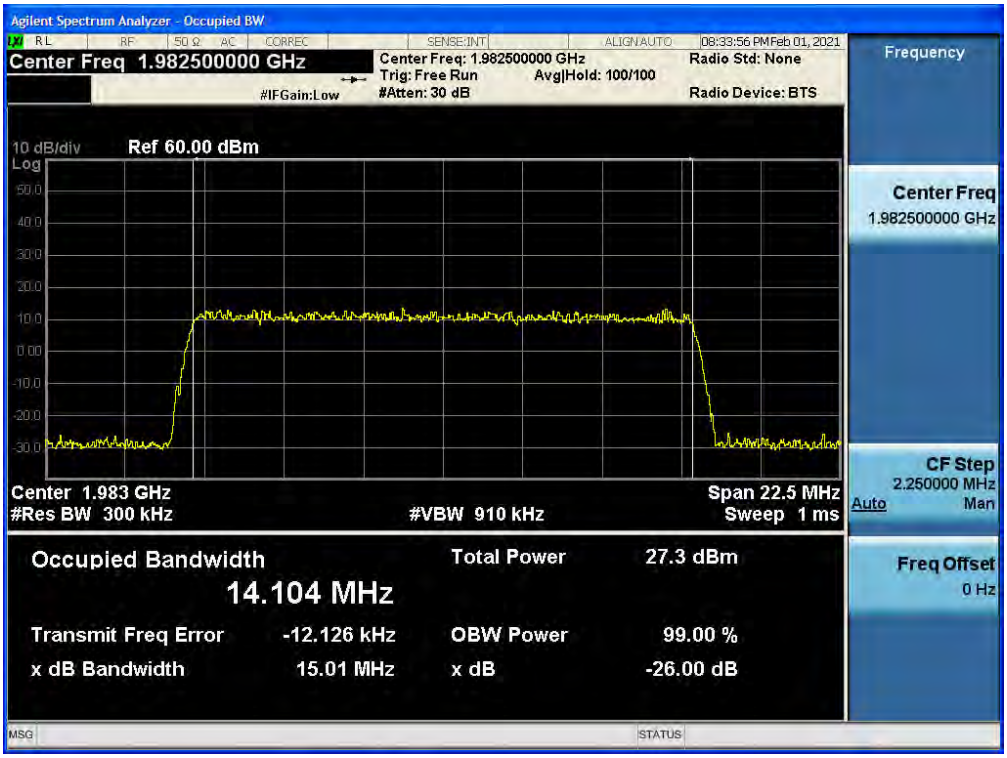
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / [10 MHz] (Non-Contiguous) / 16QAM / High



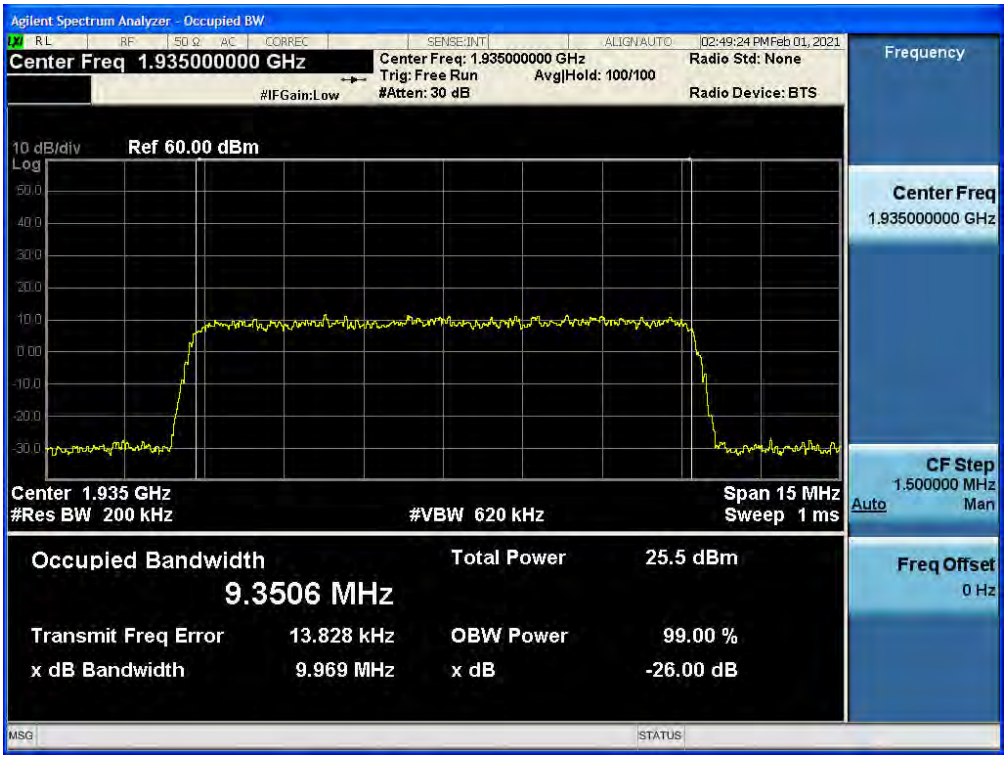
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier / 2 Carrier / [5 MHz] (Non-Contiguous) / QPSK / Low



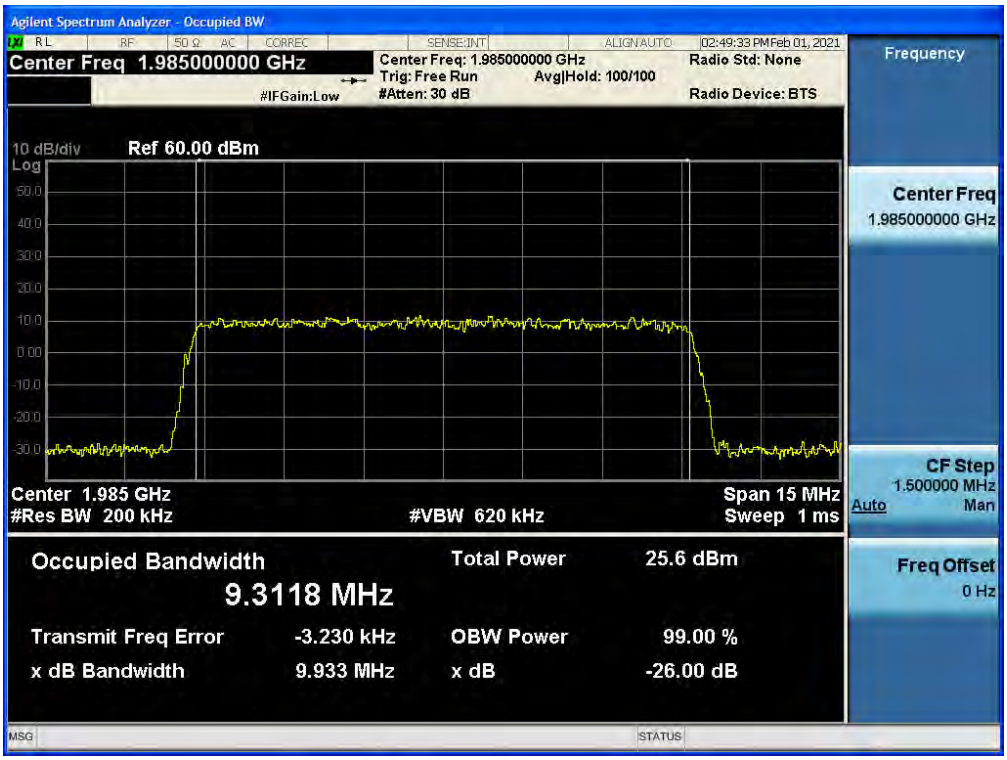
Antenna 0 / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier / 2 Carrier / [15 MHz] (Non-Contiguous) / QPSK / High



Antenna 0 / 5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / [10 MHz] (Non-Contiguous) / QPSK / Low



Antenna 0 / 5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier / 2 Carrier / [10 MHz] (Non-Contiguous) / QPSK / High



5.3. UNWANTED CONDUCTED EMISSIONS

Test Requirements:

§ 2.1051 Measurements required: Spurious emissions at antenna terminals.

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in § 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

§ 22.917 Emission limitations for cellular equipment.

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.

(a) *Out of band emissions.* The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a reference bandwidth as follows:

(1) In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(2) In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz.

(c) *Alternative out of band emission limit.* Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

(d) *Interference caused by out of band emissions.* If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.

§ 24.238 Emission limitations for Broadband PCS equipment.

The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.

(a) *Out of band emissions.* The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

(b) *Measurement procedure.* Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.* 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(c) *Alternative out of band emission limit.* Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

(d) *Interference caused by out of band emissions.* If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.

Test Procedures:

The measurement is performed in accordance with Section 5.7.3 and 5.7.4 of ANSI C63.26.

5.7.3 Out-of-band unwanted emissions measurements

a) Set the spectrum analyzer center frequency to the block, band, or channel edge frequency.

b) Set the span wide enough to capture the fundamental emission closest to the authorized block or band edge, and to include all modulation products that spill into the immediately adjacent frequency band. In some cases, it may be possible to set the center frequency and span so as to encompass the fundamental emission and the unwanted out-of-band (band-edge) emissions on either side of the authorized block, band, or channel. This can be accomplished with a single (slow) sweep, if adequate overload protection and sufficient dynamic range can be maintained.

c) Set the number of points in sweep ≥ 2 × span / RBW.

d) Sweep time should be auto for peak detection. For rms detection the sweep time should be set as follows:

1) If the device can be configured to transmit continuously (duty cycle ≥ 98%), set the (sweep time) > (number of points in sweep) × (symbol period) (e.g., by a factor of 10 × symbol period × number of points). Increasing the sweep time (i.e., slowing the sweep speed) will allow for averaging over multiple symbols

2) If the device cannot be configured to transmit continuously (duty cycle < 98%) and a freerunning sweep must be used, set the sweep time so that the averaging is performed over multiple on/off cycles by setting the sweep time > (number of points in sweep) × (transmitter period) (i.e., the transmit on-time + the off-time). The spectrum analyzer readings shall subsequently be corrected by [10 log (1/duty cycle)]. This assumes that the transmission period and duty cycle is relatively constant (duty cycle variation ≤ ±2%).

3) If the device cannot be configured to transmit continuously (duty cycle < 98%) and a freerunning sweep must be used, set the sweep time so that the averaging is performed over multiple on/off cycles by setting the sweep time > (number of points in sweep) × (transmitter period) (i.e., the transmit on-time + the off-time). The spectrum analyzer readings shall subsequently be corrected by [10 log (1/duty cycle)]. This assumes that the transmission period and duty cycle is relatively constant (duty cycle variation ≤ ±2%).

4) If the device cannot be configured to transmit continuously and a free-running sweep must be used, and if the transmissions exhibit a non-constant duty cycle (duty cycle variations > ±2%), set the sweep time so that the averaging is performed over the on-period by setting the sweep time > (symbol period) × (number of points), while also maintaining the sweep time < (transmitter on-time). The trace mode shall be set to max hold, since not every display point will be averaged only over just the on-time. Thus, multiple sweeps (e.g., 100) in maximum hold are necessary to ensure that the maximum power is measured.

e) The test report shall include the plots of the measuring instrument display and the measured data.

f) See Annex I for example emission mask plots.

5.7.4 Spurious unwanted emission measurements

a) Set the spectrum analyzer start frequency to the lowest frequency generated by the EUT, without going below 9 kHz, and the stop frequency to the lower frequency covered by the measurements previously performed in 5.7.3. As an alternative, the stop frequency can be set to the value specified in 5.1.1, depending on the EUT operating range, if the resulting plot can

clearly demonstrate compliance for all frequencies not addressed by the out-of-band emissions measurements performed as per 5.7.3.

b) When using an average power (rms) detector, ensure that the number of points in the sweep ≥ 2 × (span / RBW). This may require that the measurement range defined by the start and stop frequencies be subdivided, depending on the spectrum analyzer capabilities. This requirement does not apply to peak-detected power measurements. When average power is specified by the applicable regulation, a peak-detector can be utilized for preliminary measurements to accommodate wider frequency spans. Any emissions found in the preliminary measurement to exceed the applicable limit(s) shall be further examined using a power averaging (rms) detector with the minimum number of measurement points as defined above.

c) The sweep time should be set to auto-couple for performing peak-detector measurements. For measurements that use a power averaging (rms) detector, the sweep time shall be set as described for out-of-band emissions measurements in item d) of 5.7.3.

d) Identify and measure the Highest spurious emission levels in each frequency range. It is not necessary to re-measure the out-of-band emissions as a part of this test. Record the frequencies and amplitudes corresponding to the measured emissions and capture the data plots.

e) Repeat step b) through step d) for the upper spurious emission frequency range if not already captured by a wide span measurement performed as per the alternative provided in step a). The upper frequency for this measurement is defined in 5.1.1 as a function of the EUT operating range.

f) Compare the results with the corresponding limit in the applicable regulation.

g) The test report shall include the data plots of the measuring instrument display and the measured data.

Note:

1) In 9 kHz to 30 MHz band, RBW narrower than reference bandwidth is used. So following correction factor is applied.

- 10 log [(reference bandwidth)/(resolution bandwidth)]

- 9 kHz to 150 kHz applied 1 kHz RBW, 10 log (1 kHz / 100 kHz) = - 20 dB

10 log (1 kHz / 1 MHz) = - 30 dB

- 150 kHz to 30 MHz applied 10 kHz RBW, 10 log (10 kHz / 100 kHz) = - 10 dB

10 log (10 kHz / 1 MHz) = - 20 dB

2) Due to MIMO operations, a correction has been added to the limit according to KDB 662911 D01 v02r01.

*- 2Tx MIMO correction: 10 log(N_{ANT}) = 10 log(2) = 3.01 dB / -16.01 dBm (-13 dBm – 10*log (2))*

Note:

The results of the Band Edge test shown above the frequency measured values are very small and similar trend for each port, so we are attached only the worst case plot.

Test Results:

Tabular Data of Radiated Spurious Emissions

5G NR n2 5 MHz 1 Carrier

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-20.886	-29.296	-36.571	-29.891	-29.528	-31.448	-26.186
	Middle	-22.147	-38.279	-36.340	-29.777	-29.129	-31.260	-27.213
	High	-19.850	-38.685	-35.835	-29.894	-29.302	-31.117	-25.720
16QAM	Low	-20.834	-29.257	-36.280	-29.902	-29.469	-30.527	-26.861
	Middle	-21.514	-37.376	-36.618	-29.538	-29.320	-31.478	-26.276
	High	-20.295	-37.782	-36.712	-29.654	-29.045	-31.322	-26.795
64QAM	Low	-20.791	-29.725	-36.336	-30.024	-29.565	-31.251	-26.832
	Middle	-22.071	-38.209	-36.472	-29.584	-29.134	-31.201	-26.281
	High	-20.090	-39.332	-36.484	-29.874	-29.377	-31.083	-26.499
256QAM	Low	-21.105	-28.600	-36.599	-29.802	-29.556	-31.096	-27.060
	Middle	-20.818	-38.629	-36.267	-29.732	-29.382	-31.285	-26.256
	High	-21.601	-38.763	-36.008	-29.776	-29.458	-31.230	-26.170

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-21.439	-37.638	-36.528	-29.581	-29.377	-30.574	-26.276
	Middle	-23.784	-38.686	-36.233	-29.671	-29.027	-31.059	-25.629
	High	-21.672	-38.067	-36.599	-29.817	-29.046	-31.289	-26.499
16QAM	Low	-23.114	-38.275	-36.694	-29.612	-29.335	-31.189	-26.452
	Middle	-20.690	-39.158	-36.680	-29.906	-29.174	-31.741	-27.001
	High	-23.877	-37.816	-36.074	-29.521	-29.246	-30.922	-25.869
64QAM	Low	-22.335	-38.078	-36.407	-29.879	-29.151	-30.504	-26.792
	Middle	-22.401	-37.986	-36.347	-29.412	-29.168	-30.788	-25.587
	High	-23.055	-38.582	-36.174	-29.423	-29.239	-30.630	-26.158
256QAM	Low	-21.850	-38.851	-35.975	-29.728	-29.462	-31.159	-26.715
	Middle	-22.833	-38.381	-36.680	-29.570	-29.171	-31.209	-25.716
	High	-21.150	-37.791	-36.200	-29.570	-29.030	-30.015	-25.447

5G NR n2 10 MHz 1 Carrier

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-26.407	-37.360	-36.142	-29.769	-29.406	-30.649	-27.018
	Middle	-24.600	-36.282	-36.831	-29.917	-29.424	-31.476	-26.247
	High	-25.837	-37.292	-36.287	-29.818	-29.170	-30.666	-26.408
16QAM	Low	-25.453	-37.941	-36.338	-29.761	-29.385	-31.283	-26.690
	Middle	-25.856	-37.700	-36.264	-29.941	-29.513	-30.641	-25.985
	High	-25.657	-37.574	-35.934	-29.814	-29.362	-30.978	-26.429
64QAM	Low	-25.666	-36.826	-36.477	-29.764	-29.245	-31.404	-26.671
	Middle	-25.399	-38.012	-36.356	-29.658	-29.395	-30.705	-26.664
	High	-25.187	-37.292	-36.570	-29.821	-29.404	-31.238	-25.789
256QAM	Low	-26.205	-37.819	-36.614	-29.784	-29.475	-31.432	-26.812
	Middle	-25.196	-38.262	-35.414	-29.738	-29.368	-31.584	-25.741
	High	-25.386	-38.583	-36.794	-29.777	-29.533	-31.457	-26.057

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-27.287	-39.344	-36.363	-29.835	-29.526	-30.992	-26.252
	Middle	-26.278	-39.007	-36.526	-29.849	-29.391	-31.128	-26.968
	High	-25.456	-37.645	-36.473	-29.886	-29.291	-31.342	-26.546
16QAM	Low	-25.926	-36.742	-35.877	-29.661	-29.398	-31.225	-26.614
	Middle	-25.421	-38.604	-37.125	-29.711	-29.545	-31.126	-26.160
	High	-25.049	-37.189	-36.128	-29.944	-29.342	-30.881	-26.466
64QAM	Low	-25.609	-37.844	-35.750	-29.746	-29.481	-30.924	-26.563
	Middle	-26.103	-38.265	-36.187	-29.700	-29.311	-31.396	-27.184
	High	-25.871	-38.298	-36.488	-29.929	-29.240	-31.350	-25.589
256QAM	Low	-26.167	-38.194	-36.156	-29.583	-29.477	-31.527	-26.538
	Middle	-24.889	-37.977	-36.590	-29.957	-29.452	-31.274	-26.254
	High	-26.403	-37.297	-36.036	-29.914	-29.303	-30.970	-26.529

5G NR n2 15 MHz 1 Carrier

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-23.863	-37.995	-36.424	-29.599	-29.345	-31.145	-26.308
	Middle	-25.923	-38.694	-36.475	-29.793	-29.331	-30.923	-25.940
	High	-25.895	-37.893	-36.532	-29.685	-29.270	-31.266	-26.737
16QAM	Low	-24.697	-37.129	-36.142	-29.812	-29.329	-30.585	-26.879
	Middle	-25.872	-37.145	-35.915	-29.695	-29.397	-31.052	-26.403
	High	-25.768	-38.126	-36.391	-29.751	-29.270	-30.874	-26.983
64QAM	Low	-25.912	-38.025	-35.972	-29.880	-29.491	-31.292	-25.430
	Middle	-25.107	-37.338	-36.159	-29.953	-29.143	-31.007	-25.907
	High	-24.218	-37.304	-35.927	-29.651	-29.328	-31.406	-26.226
256QAM	Low	-26.068	-37.050	-36.319	-29.640	-29.144	-31.368	-26.716
	Middle	-27.008	-38.656	-36.077	-29.824	-29.421	-30.910	-26.616
	High	-25.517	-37.392	-36.368	-29.652	-29.081	-31.371	-25.890

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-26.794	-37.896	-35.793	-29.821	-29.379	-31.011	-26.427
	Middle	-25.728	-36.811	-36.056	-29.834	-29.292	-31.220	-25.867
	High	-25.732	-37.469	-36.215	-29.644	-29.335	-30.966	-26.273
16QAM	Low	-24.185	-38.437	-35.172	-29.566	-29.184	-31.325	-26.017
	Middle	-25.680	-38.518	-35.073	-29.748	-29.281	-31.151	-26.062
	High	-24.995	-37.213	-36.224	-29.696	-29.368	-31.178	-26.457
64QAM	Low	-26.273	-37.537	-35.766	-29.946	-29.496	-31.082	-26.225
	Middle	-25.989	-37.871	-36.155	-29.715	-29.477	-31.125	-26.047
	High	-25.249	-37.722	-36.108	-29.727	-29.186	-30.702	-24.819
256QAM	Low	-25.493	-38.958	-35.502	-29.892	-29.528	-31.305	-26.837
	Middle	-26.063	-38.176	-36.033	-29.722	-29.309	-31.050	-26.535
	High	-23.782	-38.475	-35.606	-29.770	-29.257	-31.066	-26.406

5G NR n2 20 MHz 1 Carrier

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-25.564	-38.563	-36.553	-29.725	-29.434	-31.413	-27.064
	Middle	-25.867	-37.645	-36.283	-29.886	-29.416	-30.441	-25.935
	High	-26.148	-37.786	-34.819	-29.674	-29.129	-31.107	-26.404
16QAM	Low	-25.486	-37.961	-36.639	-30.000	-29.366	-30.817	-26.340
	Middle	-25.792	-37.343	-36.272	-29.753	-29.368	-30.989	-26.747
	High	-26.894	-37.710	-35.974	-29.625	-29.387	-30.632	-26.462
64QAM	Low	-26.811	-37.671	-36.125	-29.860	-29.224	-31.118	-26.528
	Middle	-25.801	-39.278	-36.625	-29.470	-29.324	-31.225	-26.671
	High	-25.496	-37.308	-36.397	-29.875	-29.160	-31.414	-26.465
256QAM	Low	-25.306	-38.577	-35.898	-29.659	-29.387	-31.132	-26.511
	Middle	-26.621	-38.482	-36.180	-29.753	-29.277	-30.940	-26.151
	High	-25.448	-38.742	-36.435	-29.654	-29.191	-30.157	-26.004

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-25.770	-37.729	-36.301	-29.838	-29.378	-30.540	-26.919
	Middle	-24.217	-38.352	-35.945	-29.934	-29.556	-31.047	-26.105
	High	-27.088	-37.608	-36.289	-29.914	-29.444	-31.474	-26.514
16QAM	Low	-25.834	-37.162	-36.689	-29.966	-29.579	-30.909	-25.967
	Middle	-25.173	-37.965	-36.228	-29.996	-29.132	-31.021	-26.791
	High	-26.977	-37.985	-36.076	-29.965	-29.261	-31.282	-26.311
64QAM	Low	-25.617	-38.503	-36.098	-29.732	-29.337	-31.422	-26.657
	Middle	-24.421	-37.554	-36.482	-29.851	-29.563	-31.590	-26.893
	High	-24.504	-37.837	-36.641	-29.759	-29.413	-30.267	-25.995
256QAM	Low	-26.068	-39.322	-36.292	-29.977	-29.196	-30.908	-26.938
	Middle	-26.235	-37.777	-36.154	-29.964	-29.538	-31.246	-26.687
	High	-25.386	-38.719	-36.574	-29.522	-29.324	-31.223	-26.693

5G NR n5 5 MHz 1 Carrier
Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)				
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge -100 MHz	Low Edge -100 MHz ~ Low Edge	High Edge ~ 1 GHz
QPSK	Low	-34.469	-47.251	-48.068	-41.511	-41.005
	Middle	-35.948	-48.085	-48.199	-41.485	-41.114
	High	-35.020	-48.497	-47.933	-41.280	-41.035
16QAM	Low	-35.931	-49.096	-47.854	-41.532	-41.075
	Middle	-35.686	-48.483	-47.739	-41.238	-40.919
	High	-35.296	-47.890	-48.249	-41.425	-41.108
64QAM	Low	-35.757	-48.316	-47.943	-41.466	-41.021
	Middle	-37.158	-47.442	-48.398	-41.429	-41.056
	High	-34.827	-48.144	-47.962	-41.591	-40.938
256QAM	Low	-36.357	-46.985	-48.134	-41.496	-41.104
	Middle	-35.148	-48.375	-48.110	-41.419	-40.944
	High	-36.180	-47.217	-48.162	-41.374	-40.983

Mod.	Channel	Measured Level (dBm)				
		1 GHz ~ 10 GHz	2 GHz ~ 4 GHz	4 GHz ~ 6 GHz	6 GHz ~ 8 GHz	8 GHz ~ 10 GHz
QPSK	Low	-31.396	-62.954	-60.218	-59.590	-59.018
	Middle	-31.201	-63.177	-59.761	-60.226	-59.134
	High	-31.002	-63.154	-59.989	-59.925	-59.160
16QAM	Low	-30.904	-63.387	-59.990	-60.029	-59.514
	Middle	-31.700	-63.459	-59.745	-59.662	-59.303
	High	-29.673	-62.839	-59.712	-60.101	-58.644
64QAM	Low	-31.544	-63.086	-59.945	-60.068	-59.345
	Middle	-31.523	-63.216	-60.074	-60.025	-59.166
	High	-30.737	-63.175	-59.883	-60.001	-58.968
256QAM	Low	-31.471	-63.036	-59.826	-59.842	-59.480
	Middle	-31.316	-63.037	-59.554	-59.249	-59.284
	High	-31.327	-62.946	-59.990	-60.194	-59.173

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)				
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge -100 MHz	Low Edge -100 MHz ~ Low Edge	High Edge ~ 1 GHz
QPSK	Low	-37.481	-47.527	-47.932	-41.396	-41.135
	Middle	-35.712	-46.822	-47.985	-41.368	-40.999
	High	-34.239	-49.083	-47.755	-41.391	-40.975
16QAM	Low	-35.365	-46.824	-48.469	-41.446	-40.846
	Middle	-34.918	-47.759	-47.795	-41.541	-40.983
	High	-36.704	-48.049	-47.885	-41.355	-40.904
64QAM	Low	-36.949	-49.329	-47.427	-41.351	-40.851
	Middle	-36.728	-47.464	-47.738	-41.086	-40.830
	High	-35.121	-48.749	-48.439	-41.299	-40.908
256QAM	Low	-35.815	-47.876	-48.060	-41.328	-40.962
	Middle	-35.834	-48.694	-47.984	-41.278	-40.834
	High	-35.958	-48.468	-47.969	-41.454	-41.164

Mod.	Channel	Measured Level (dBm)				
		1 GHz ~ 10 GHz	2 GHz ~ 4 GHz	4 GHz ~ 6 GHz	6 GHz ~ 8 GHz	8 GHz ~ 10 GHz
QPSK	Low	-31.446	-61.906	-59.675	-59.565	-59.395
	Middle	-31.070	-62.189	-59.633	-60.747	-58.956
	High	-31.145	-62.396	-59.485	-59.916	-58.832
16QAM	Low	-31.432	-61.994	-59.936	-60.243	-59.052
	Middle	-31.567	-60.774	-59.961	-60.088	-58.928
	High	-31.218	-62.809	-59.812	-60.642	-59.232
64QAM	Low	-31.641	-60.710	-59.684	-60.205	-59.174
	Middle	-31.169	-61.207	-60.375	-60.482	-59.070
	High	-31.077	-61.284	-59.827	-60.451	-58.760
256QAM	Low	-31.363	-61.710	-59.678	-60.422	-59.500
	Middle	-31.391	-61.065	-60.061	-60.698	-58.908
	High	-31.356	-62.102	-59.804	-60.290	-59.190

5G NR n5 10 MHz 1 Carrier

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)				
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge -100 MHz	Low Edge -100 MHz ~ Low Edge	High Edge ~ 1 GHz
QPSK	Low	-30.688	-29.327	-44.422	-41.545	-40.816
	Middle	-30.168	-33.616	-42.747	-41.452	-40.970
	High	-30.434	-37.748	-42.087	-41.488	-40.892
16QAM	Low	-30.868	-37.734	-42.503	-41.415	-40.963
	Middle	-30.647	-38.932	-43.293	-41.204	-40.750
	High	-31.478	-38.856	-42.310	-41.341	-41.052
64QAM	Low	-30.709	-28.482	-41.650	-41.425	-41.007
	Middle	-30.455	-38.338	-43.796	-41.198	-40.868
	High	-30.748	-37.946	-42.859	-41.368	-40.774
256QAM	Low	-30.887	-32.885	-44.356	-41.470	-40.936
	Middle	-31.031	-38.680	-43.398	-41.347	-40.696
	High	-30.772	-38.506	-42.701	-41.345	-41.139

Mod.	Channel	Measured Level (dBm)				
		1 GHz ~ 10 GHz	2 GHz ~ 4 GHz	4 GHz ~ 6 GHz	6 GHz ~ 8 GHz	8 GHz ~ 10 GHz
QPSK	Low	-31.265	-62.690	-60.017	-60.234	-59.168
	Middle	-31.018	-62.691	-59.730	-60.528	-59.313
	High	-31.642	-63.437	-59.382	-60.505	-59.256
16QAM	Low	-31.227	-62.732	-59.277	-60.198	-58.918
	Middle	-31.688	-62.478	-59.675	-59.616	-59.040
	High	-31.451	-62.829	-59.209	-60.532	-59.063
64QAM	Low	-31.380	-62.953	-59.589	-60.481	-59.017
	Middle	-31.402	-62.738	-59.906	-60.720	-59.076
	High	-31.485	-63.172	-59.775	-60.163	-59.002
256QAM	Low	-31.088	-63.104	-60.075	-60.379	-59.090
	Middle	-30.706	-63.319	-59.488	-60.242	-59.126
	High	-31.212	-62.762	-59.855	-60.445	-58.915

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)				
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge -100 MHz	Low Edge -100 MHz ~ Low Edge	High Edge ~ 1 GHz
QPSK	Low	-36.961	-47.808	-47.472	-41.500	-41.005
	Middle	-36.003	-47.445	-47.963	-41.350	-40.698
	High	-37.127	-47.102	-48.274	-41.415	-41.223
16QAM	Low	-36.871	-47.191	-48.103	-41.516	-41.037
	Middle	-36.252	-48.213	-47.838	-41.437	-40.312
	High	-36.013	-48.476	-47.602	-41.322	-41.128
64QAM	Low	-36.426	-48.653	-47.788	-41.427	-40.880
	Middle	-34.865	-47.035	-47.163	-41.198	-41.002
	High	-35.013	-48.165	-48.095	-41.412	-41.087
256QAM	Low	-36.097	-48.788	-47.907	-41.393	-41.069
	Middle	-35.177	-47.515	-48.240	-41.294	-41.128
	High	-36.010	-46.799	-48.022	-41.302	-40.845

Mod.	Channel	Measured Level (dBm)				
		1 GHz ~ 10 GHz	2 GHz ~ 4 GHz	4 GHz ~ 6 GHz	6 GHz ~ 8 GHz	8 GHz ~ 10 GHz
QPSK	Low	-31.364	-62.680	-60.038	-60.319	-58.847
	Middle	-31.753	-63.097	-59.694	-60.019	-58.946
	High	-31.499	-63.135	-59.846	-60.021	-58.851
16QAM	Low	-31.197	-62.433	-59.993	-60.234	-59.404
	Middle	-31.512	-62.088	-59.792	-60.308	-59.151
	High	-31.212	-62.882	-60.089	-60.104	-58.990
64QAM	Low	-31.250	-62.744	-60.219	-60.411	-59.190
	Middle	-31.425	-63.254	-57.864	-59.683	-59.026
	High	-31.073	-62.772	-59.716	-60.013	-59.252
256QAM	Low	-31.509	-62.444	-59.755	-60.590	-58.930
	Middle	-31.528	-63.099	-60.102	-59.810	-58.959
	High	-31.707	-63.169	-59.807	-59.939	-59.424

Tabular Data of Contiguous Unwanted Emissions

5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier]

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-26.268	-38.227	-35.649	-29.796	-29.366	-31.162	-26.613
	Middle	-26.386	-38.014	-36.434	-29.844	-29.431	-31.258	-26.736
	High	-24.824	-38.143	-36.583	-30.004	-29.639	-31.390	-26.921
16QAM	Low	-26.386	-39.239	-36.792	-29.884	-29.679	-31.248	-26.990
	Middle	-26.607	-40.147	-36.513	-29.968	-29.362	-31.595	-26.668
	High	-26.809	-37.580	-36.269	-30.091	-29.509	-31.371	-26.673
64QAM	Low	-26.215	-38.527	-36.351	-29.866	-29.533	-31.450	-26.260
	Middle	-26.684	-38.265	-36.807	-29.494	-29.364	-31.113	-26.019
	High	-25.084	-37.754	-36.501	-29.950	-29.470	-30.813	-27.542
256QAM	Low	-26.578	-37.778	-36.063	-29.936	-29.408	-31.052	-26.817
	Middle	-25.978	-38.386	-36.221	-29.871	-29.496	-31.427	-26.824
	High	-26.345	-36.806	-36.017	-29.885	-29.584	-31.492	-26.295

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-24.378	-38.691	-36.138	-29.840	-29.349	-31.393	-26.177
	Middle	-26.336	-37.890	-35.686	-29.719	-29.393	-30.993	-26.596
	High	-25.437	-36.953	-36.162	-29.641	-29.089	-31.204	-26.276
16QAM	Low	-25.986	-38.722	-36.621	-29.777	-29.335	-31.007	-26.401
	Middle	-26.064	-39.012	-36.093	-29.796	-29.308	-31.183	-25.887
	High	-26.393	-39.474	-36.483	-29.937	-29.414	-30.721	-26.470
64QAM	Low	-25.256	-37.354	-36.578	-29.442	-29.241	-30.630	-26.735
	Middle	-27.147	-37.499	-36.817	-29.958	-29.236	-31.293	-26.669
	High	-27.103	-38.976	-36.173	-29.604	-29.231	-31.439	-26.487
256QAM	Low	-27.650	-38.908	-36.141	-29.818	-29.587	-30.890	-26.445
	Middle	-26.272	-36.560	-35.176	-29.845	-29.515	-31.278	-26.488
	High	-25.988	-38.096	-35.837	-29.625	-28.848	-31.088	-25.762

5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-26.325	-38.319	-36.017	-29.399	-29.391	-31.336	-26.490
	Middle	-26.996	-37.792	-36.439	-29.855	-29.204	-30.599	-26.037
	High	-26.066	-37.460	-36.617	-29.801	-29.435	-31.179	-26.289
16QAM	Low	-26.111	-37.274	-36.324	-29.639	-29.444	-30.411	-26.238
	Middle	-26.847	-37.975	-36.075	-29.614	-29.224	-30.845	-25.865
	High	-26.390	-38.385	-36.685	-29.747	-29.088	-31.031	-26.611
64QAM	Low	-25.747	-39.353	-36.343	-29.245	-29.433	-31.468	-26.179
	Middle	-25.264	-38.882	-36.247	-29.608	-29.396	-30.819	-26.578
	High	-26.049	-38.616	-36.779	-29.807	-29.333	-31.063	-25.500
256QAM	Low	-27.498	-38.002	-36.538	-29.841	-29.468	-30.927	-26.336
	Middle	-24.272	-38.615	-36.307	-29.801	-29.156	-30.634	-26.662
	High	-26.551	-37.672	-36.305	-29.890	-29.150	-31.372	-26.153

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-24.953	-39.169	-36.685	-29.614	-29.374	-31.444	-27.042
	Middle	-25.375	-37.581	-36.023	-29.778	-29.454	-31.127	-26.746
	High	-26.624	-38.847	-36.449	-29.648	-29.310	-30.752	-26.962
16QAM	Low	-27.658	-37.068	-36.625	-29.524	-29.375	-31.323	-25.534
	Middle	-24.458	-38.150	-36.583	-29.734	-29.495	-30.967	-26.276
	High	-24.899	-38.028	-36.820	-29.965	-29.244	-31.546	-26.544
64QAM	Low	-24.648	-37.728	-35.876	-29.940	-29.416	-31.153	-26.006
	Middle	-25.667	-37.780	-36.178	-29.881	-29.298	-31.199	-26.768
	High	-24.665	-38.707	-35.831	-29.800	-29.364	-30.874	-26.762
256QAM	Low	-26.393	-37.746	-36.738	-29.590	-29.444	-30.282	-25.823
	Middle	-26.420	-38.393	-35.833	-29.924	-29.480	-31.524	-26.709
	High	-25.984	-37.782	-36.370	-29.930	-29.187	-31.526	-27.043

5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier]

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-26.032	-37.787	-36.265	-29.757	-29.518	-30.828	-27.454
	Middle	-25.859	-37.910	-36.536	-30.078	-29.629	-31.605	-26.998
	High	-26.636	-37.927	-36.679	-29.579	-29.413	-30.907	-26.425
16QAM	Low	-25.648	-39.020	-36.163	-29.699	-29.508	-31.512	-26.345
	Middle	-26.960	-38.236	-36.050	-30.036	-29.591	-30.882	-26.736
	High	-25.920	-40.461	-36.635	-30.036	-29.439	-31.724	-26.773
64QAM	Low	-25.511	-38.115	-36.763	-30.095	-29.633	-31.206	-26.350
	Middle	-25.915	-38.025	-35.653	-30.170	-29.643	-31.391	-26.743
	High	-25.981	-38.411	-36.119	-30.045	-29.581	-31.492	-26.393
256QAM	Low	-25.678	-39.036	-36.656	-30.023	-29.631	-31.548	-26.862
	Middle	-26.995	-38.199	-36.519	-30.114	-29.476	-31.157	-26.931
	High	-26.968	-39.000	-36.387	-29.774	-29.533	-31.574	-26.737

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-27.095	-37.932	-37.012	-30.034	-29.580	-30.471	-27.040
	Middle	-27.019	-38.499	-36.703	-29.984	-29.674	-31.788	-27.013
	High	-26.625	-38.571	-36.187	-29.967	-29.588	-31.245	-26.601
16QAM	Low	-27.289	-38.386	-35.632	-29.931	-29.536	-31.385	-27.194
	Middle	-27.303	-39.347	-36.778	-30.052	-29.819	-31.177	-26.539
	High	-26.746	-37.505	-36.739	-30.046	-29.365	-30.624	-27.090
64QAM	Low	-25.915	-39.358	-35.870	-29.989	-29.639	-31.178	-27.151
	Middle	-26.250	-38.029	-36.926	-29.860	-29.591	-31.633	-26.538
	High	-26.479	-39.496	-36.351	-29.931	-29.651	-31.291	-26.888
256QAM	Low	-25.555	-37.896	-36.780	-30.005	-29.638	-31.379	-26.277
	Middle	-26.309	-36.616	-36.408	-30.154	-29.648	-31.174	-27.104
	High	-25.373	-37.450	-36.527	-30.028	-29.352	-31.058	-26.829

5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Test Result for Output Port 0

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-25.502	-37.354	-36.298	-30.092	-29.410	-30.904	-27.145
	Middle	-25.087	-38.195	-36.633	-29.871	-29.293	-30.992	-27.206
	High	-25.560	-37.734	-36.644	-29.843	-29.012	-30.928	-26.601
16QAM	Low	-26.476	-37.742	-36.695	-29.761	-29.624	-31.185	-27.292
	Middle	-26.670	-38.445	-36.018	-30.070	-29.757	-31.509	-26.997
	High	-27.003	-38.562	-36.267	-30.008	-29.096	-30.972	-26.581
64QAM	Low	-26.370	-39.740	-36.038	-29.844	-29.531	-31.022	-26.301
	Middle	-26.258	-37.757	-36.339	-29.991	-29.430	-31.615	-26.176
	High	-25.465	-39.998	-36.018	-29.950	-29.357	-31.311	-26.865
256QAM	Low	-25.702	-37.603	-35.998	-30.016	-29.541	-31.252	-26.996
	Middle	-25.645	-38.423	-36.541	-30.068	-29.544	-31.501	-26.195
	High	-26.065	-37.703	-36.350	-29.925	-29.255	-31.577	-26.949

Test Result for Output Port 1

Mod.	Channel	Measured Level (dBm)						
		9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	Low	-26.167	-38.483	-36.630	-29.959	-29.497	-31.092	-26.400
	Middle	-25.590	-38.146	-35.842	-29.768	-29.536	-30.966	-26.432
	High	-25.111	-37.567	-36.317	-29.772	-29.508	-31.436	-27.166
16QAM	Low	-26.300	-36.547	-36.532	-29.877	-29.583	-31.526	-27.536
	Middle	-24.230	-37.488	-36.673	-29.789	-29.506	-31.310	-26.697
	High	-26.650	-39.824	-36.855	-29.895	-29.398	-31.008	-26.975
64QAM	Low	-25.997	-38.118	-36.292	-29.641	-29.460	-31.127	-27.075
	Middle	-25.886	-37.516	-35.062	-29.889	-29.452	-30.988	-25.968
	High	-25.360	-37.646	-36.381	-29.743	-29.379	-30.938	-26.725
256QAM	Low	-25.347	-38.634	-36.398	-30.002	-29.432	-30.963	-26.564
	Middle	-24.888	-36.643	-36.494	-29.905	-29.651	-31.211	-26.687
	High	-25.089	-37.940	-36.600	-30.018	-29.425	-31.293	-26.683

Tabular Data of Non-Contiguous Unwanted Emissions

5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier]

Test Result for Output Port 0

Mod.	Measured Level (dBm)						
	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	-26.340	-38.160	-36.105	-30.208	-21.217	-30.894	-27.319
16QAM	-25.080	-36.776	-36.504	-30.283	-19.135	-31.010	-27.187
64QAM	-26.245	-38.548	-36.702	-30.136	-20.132	-31.009	-26.383
256QAM	-26.561	-37.162	-36.475	-30.066	-22.560	-30.591	-27.053

Test Result for Output Port 1

Mod.	Measured Level (dBm)						
	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	-26.827	-39.153	-36.855	-30.082	-18.915	-31.521	-26.587
16QAM	-26.115	-39.099	-36.659	-30.064	-17.508	-31.375	-27.317
64QAM	-25.130	-37.738	-37.038	-30.202	-20.298	-31.457	-27.018
256QAM	-25.824	-37.889	-35.639	-30.179	-19.012	-31.679	-27.207

5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Test Result for Output Port 0

Mod.	Measured Level (dBm)						
	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	-26.494	-39.019	-36.632	-29.973	-25.909	-31.078	-26.841
16QAM	-25.345	-37.886	-36.563	-29.951	-28.674	-31.242	-26.407
64QAM	-27.250	-37.705	-36.845	-30.222	-26.957	-30.748	-27.065
256QAM	-26.076	-39.296	-36.192	-29.916	-25.537	-31.728	-26.526

Test Result for Output Port 1

Mod.	Measured Level (dBm)						
	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	-26.152	-38.764	-36.545	-30.046	-26.689	-31.436	-27.370
16QAM	-25.848	-38.761	-36.906	-29.866	-27.534	-31.623	-25.808
64QAM	-27.072	-38.185	-36.174	-29.988	-26.155	-31.415	-27.408
256QAM	-25.368	-37.827	-36.883	-30.092	-27.501	-31.539	-26.873

5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier]

Test Result for Output Port 0

Mod.	Measured Level (dBm)						
	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	-25.849	-38.777	-36.839	-25.818	-29.499	-30.998	-26.443
16QAM	-26.032	-38.177	-35.698	-29.910	-29.306	-31.445	-27.440
64QAM	-24.969	-40.121	-37.257	-26.113	-29.562	-31.303	-27.533
256QAM	-25.961	-37.664	-36.456	-23.382	-29.295	-30.962	-27.503

Test Result for Output Port 1

Mod.	Measured Level (dBm)						
	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	-25.750	-37.661	-36.691	-30.109	-29.666	-31.451	-26.722
16QAM	-26.078	-37.667	-36.835	-29.965	-29.590	-31.648	-26.716
64QAM	-26.078	-37.667	-36.835	-29.965	-29.590	-31.648	-26.716
256QAM	-27.628	-37.442	-36.436	-30.131	-29.535	-31.044	-26.806

5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier]

Test Result for Output Port 0

Mod.	Measured Level (dBm)						
	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	-26.042	-38.863	-36.316	-27.929	-29.525	-31.147	-27.195
16QAM	-26.316	-36.619	-35.775	-30.043	-28.178	-31.698	-26.954
64QAM	-25.938	-39.445	-36.451	-29.370	-29.301	-31.215	-27.470
256QAM	-26.229	-38.338	-36.840	-29.133	-29.550	-31.044	-26.826

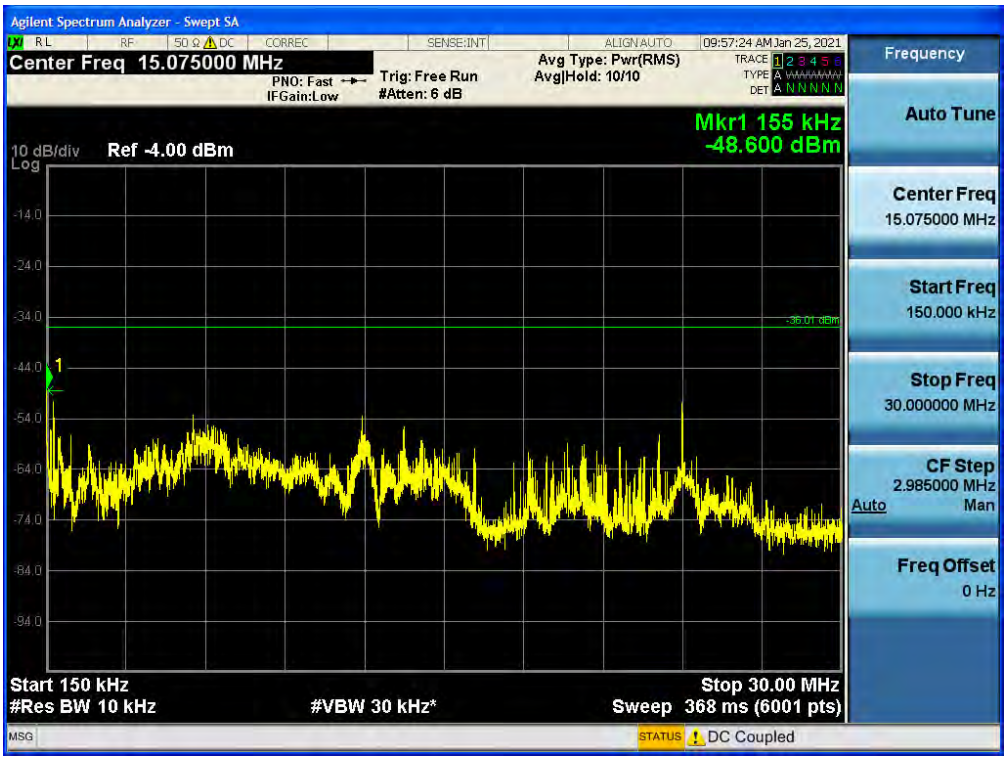
Test Result for Output Port 1

Mod.	Measured Level (dBm)						
	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge-100 MHz	Low Edge-100 MHz ~ Low Edge	High Edge ~ High Edge +100 MHz	High Edge +100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz
QPSK	-26.040	-38.246	-36.152	-29.888	-27.703	-31.020	-26.773
16QAM	-24.952	-37.164	-36.852	-29.880	-28.668	-31.187	-26.491
64QAM	-26.802	-39.099	-36.776	-30.074	-27.669	-31.298	-27.034
256QAM	-27.168	-38.446	-35.876	-30.060	-27.407	-31.885	-27.011

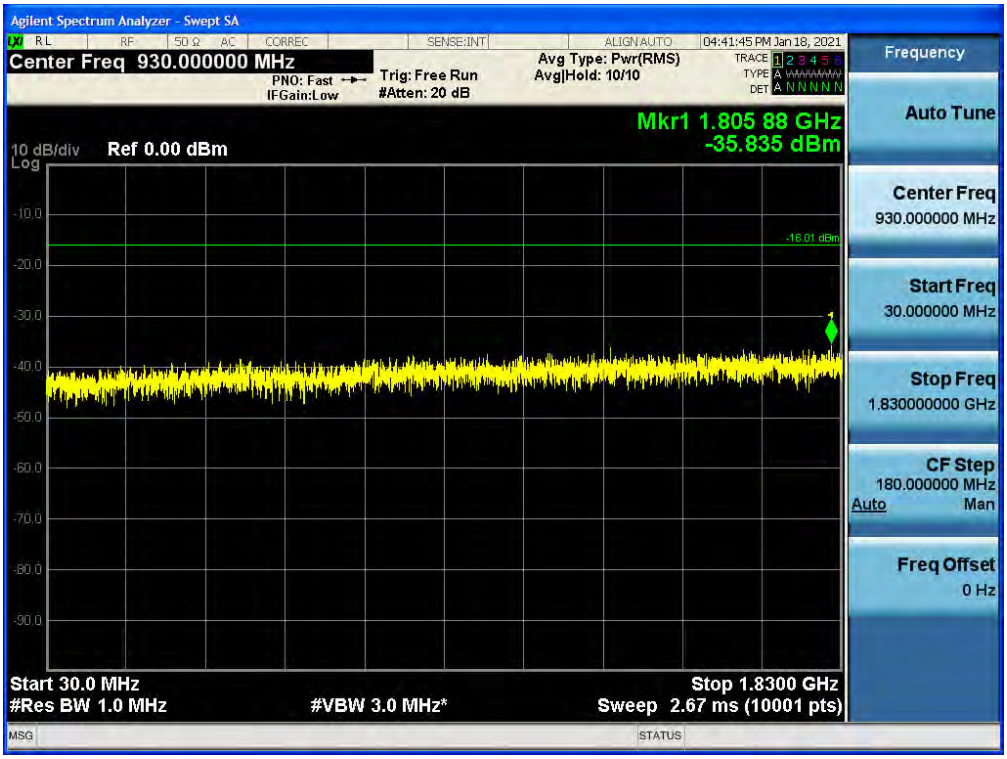
Plot Data of Conducted Spurious Emissions

Antenna 0 / 9 kHz ~ 150 kHz / 5G NR n2 5 MHz 1 Carrier / QPSK / High

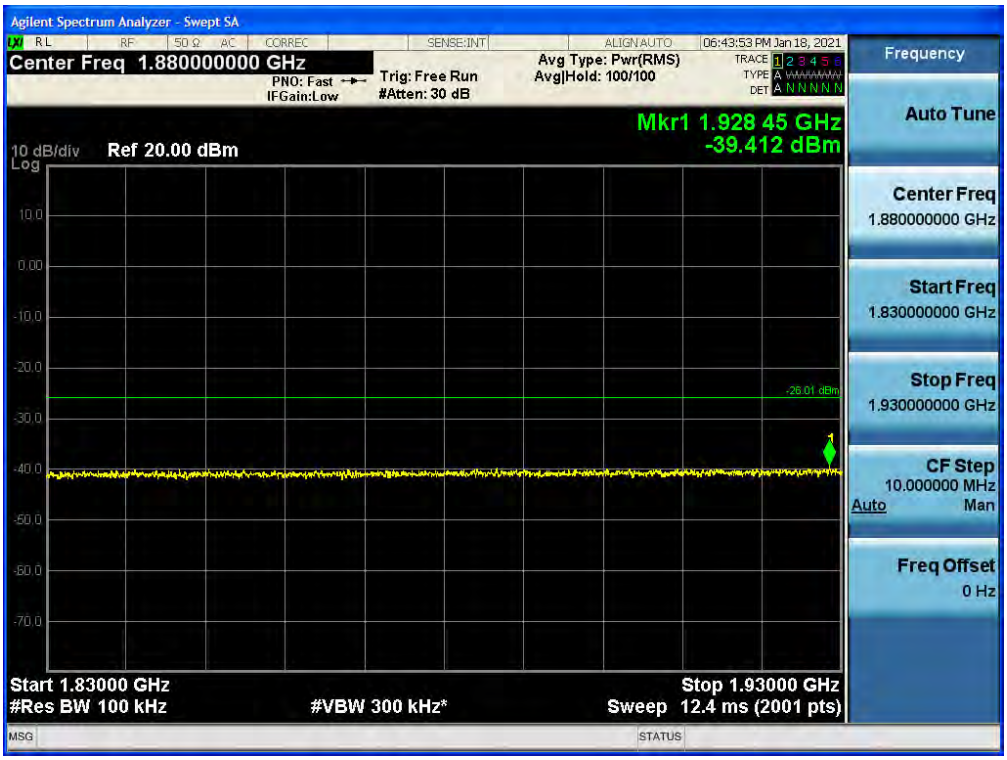
Antenna 0 / 150 kHz ~ 30 MHz / 5G NR n2 5 MHz 1 Carrier / 256QAM / Low



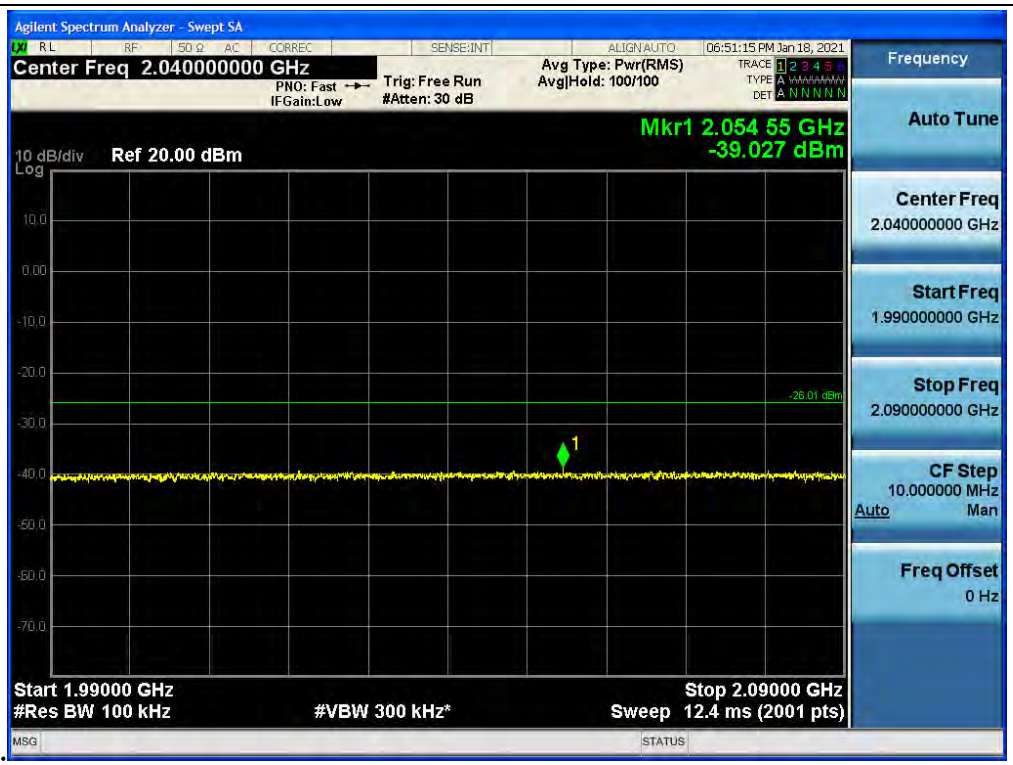
Antenna 0 / 30 MHz ~ Low Edge-100 MHz / 5G NR n2 5 MHz 1 Carrier / QPSK / High



Antenna 1 / Low Edge-100 MHz ~ Low Edge / 5G NR n2 5 MHz 1 Carrier / 64QAM / Middle



Antenna 1 / High Edge ~ High Edge+100 MHz / 5G NR n2 5 MHz 1 Carrier / QPSK / Middle

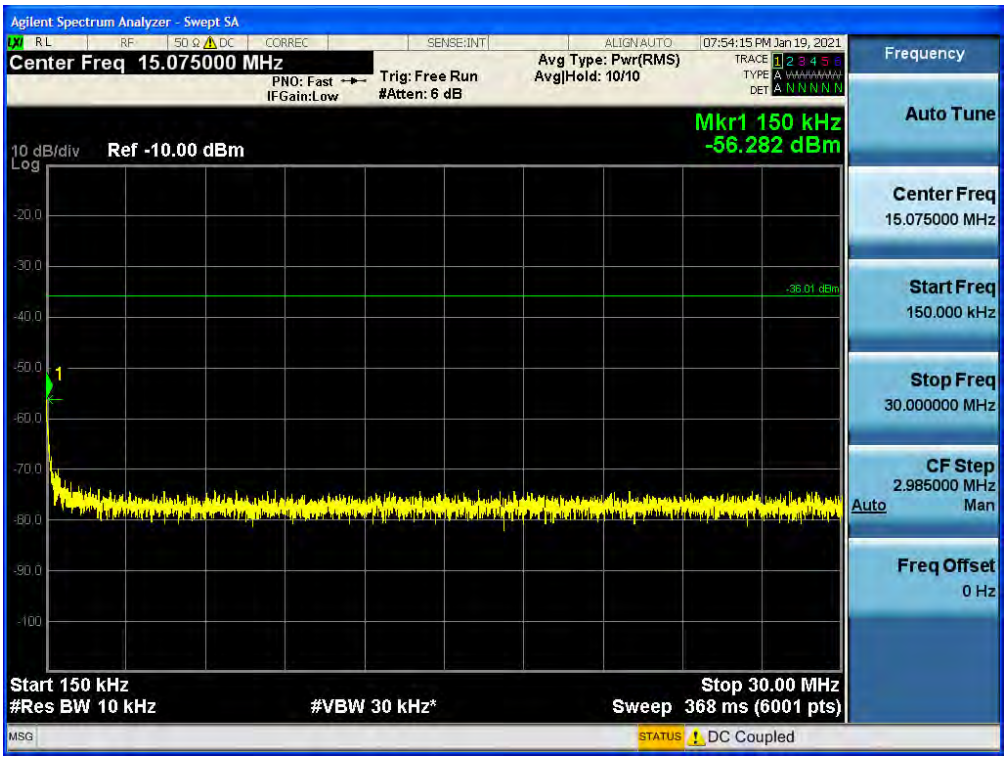


Antenna 1 / High Edge+100 MHz ~ 10 GHz / 5G NR n2 5 MHz 1 Carrier / 256QAM / High

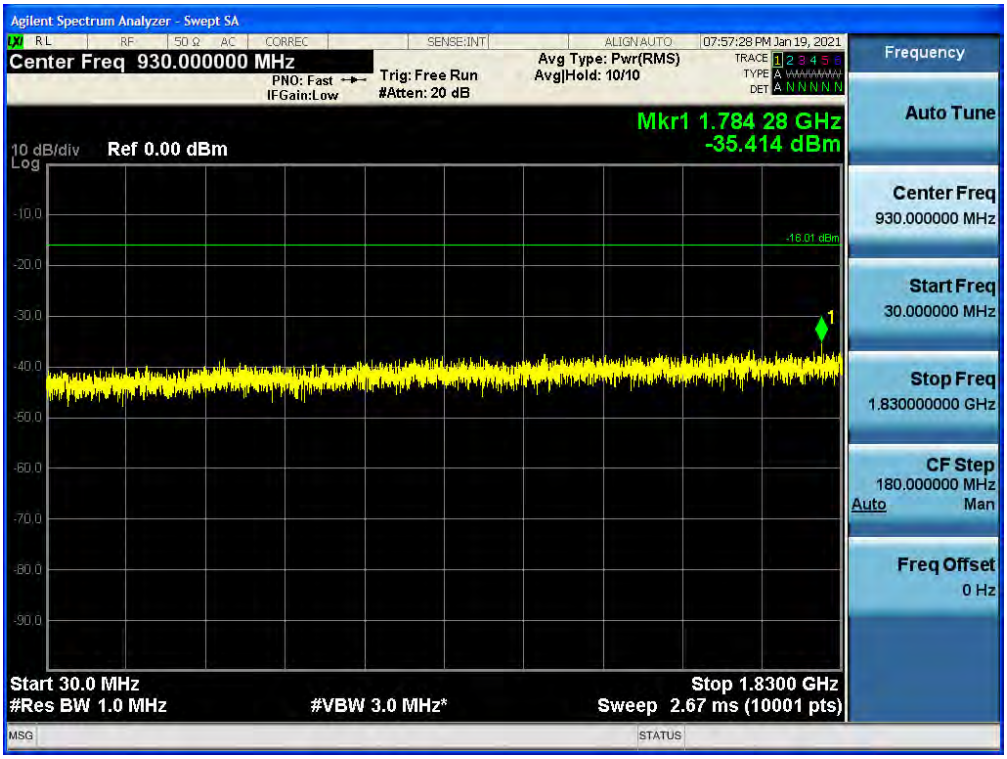
Antenna 1 / 10 GHz ~ 26.5 GHz/ 5G NR n2 5 MHz 1 Carrier / 256QAM / High

Antenna 0 / 9 kHz ~ 150 kHz / 5G NR n2 10 MHz 1 Carrier / QPSK / Middle

Antenna 0 / 150 kHz ~ 30 MHz / 5G NR n2 10 MHz 1 Carrier / QPSK / Middle

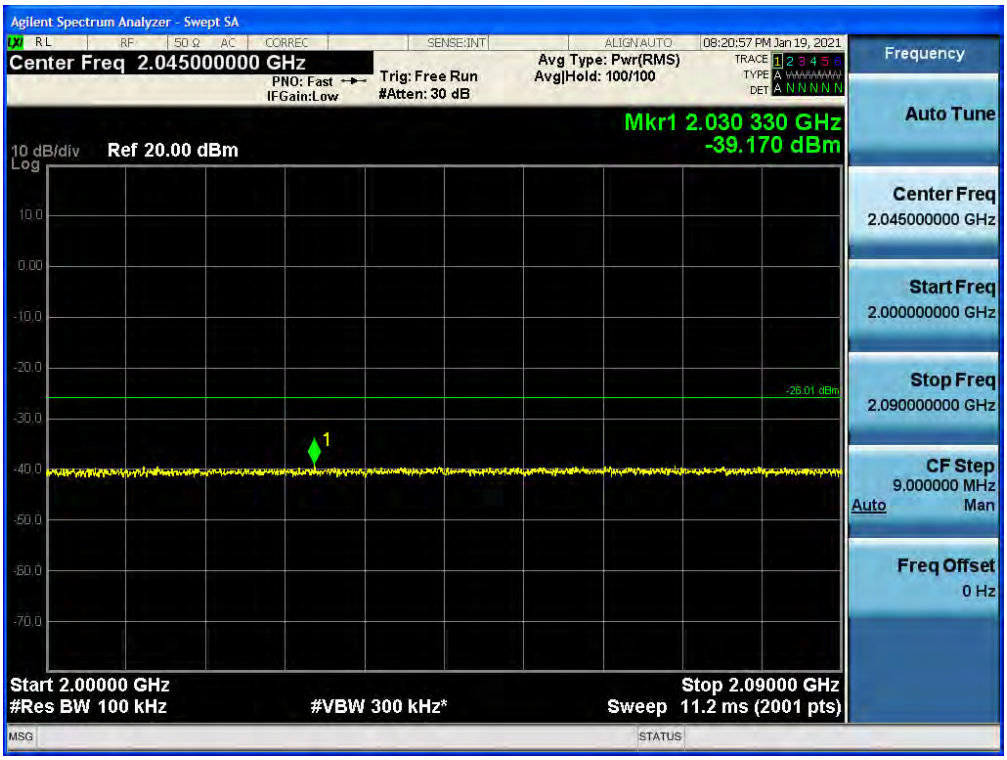


Antenna 0 / 30 MHz ~ Low Edge-100 MHz / 5G NR n2 10 MHz 1 Carrier / 256QAM / Middle



Antenna 1 / Low Edge-100 MHz ~ Low Edge / 5G NR n2 10 MHz 1 Carrier / 256QAM / Low

Antenna 0 / High Edge ~ High Edge+100 MHz / 5G NR n2 10 MHz 1 Carrier / QPSK / High

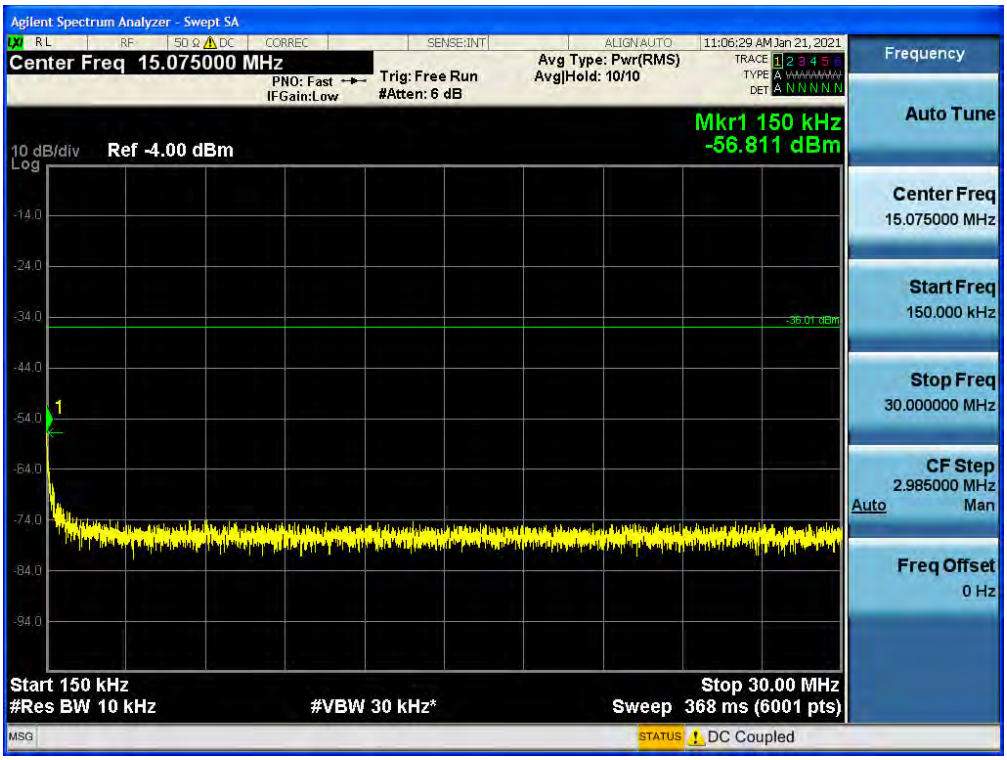


Antenna 0 / High Edge+100 MHz ~ 10 GHz / 5G NR n2 10 MHz 1 Carrier / 16QAM / Middle

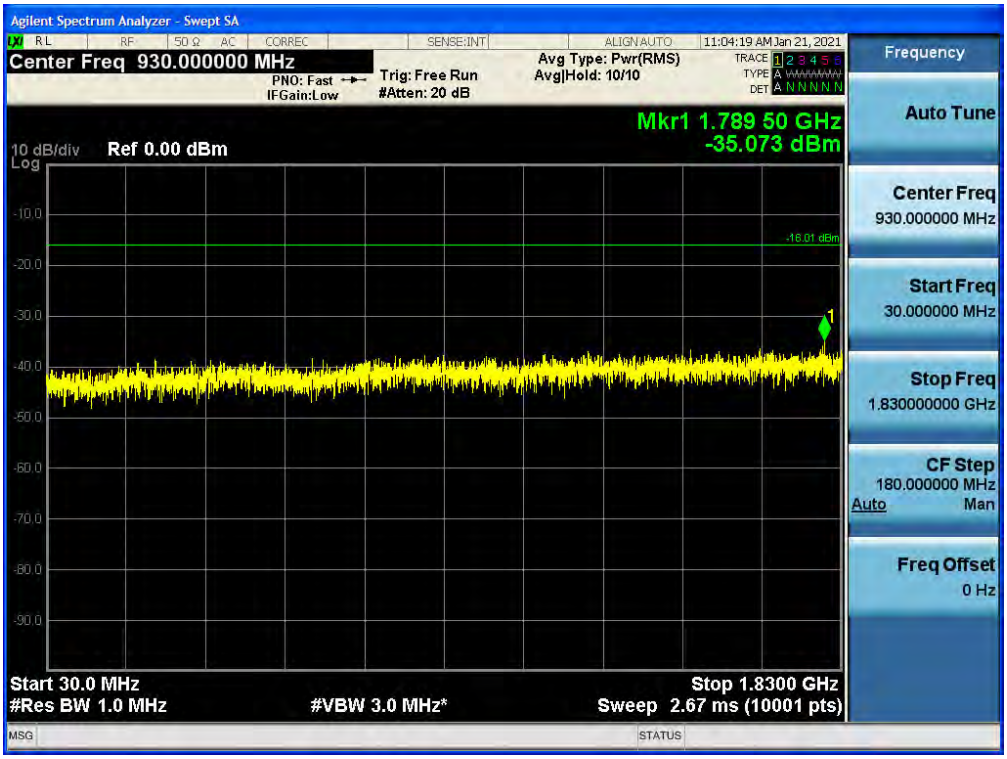
Antenna 1 / 10 GHz ~ 26.5 GHz / 5G NR n2 10 MHz 1 Carrier / 64QAM / High

Antenna 1 / 9 kHz ~ 150 kHz / 5G NR n2 15 MHz 1 Carrier / 256QAM / High

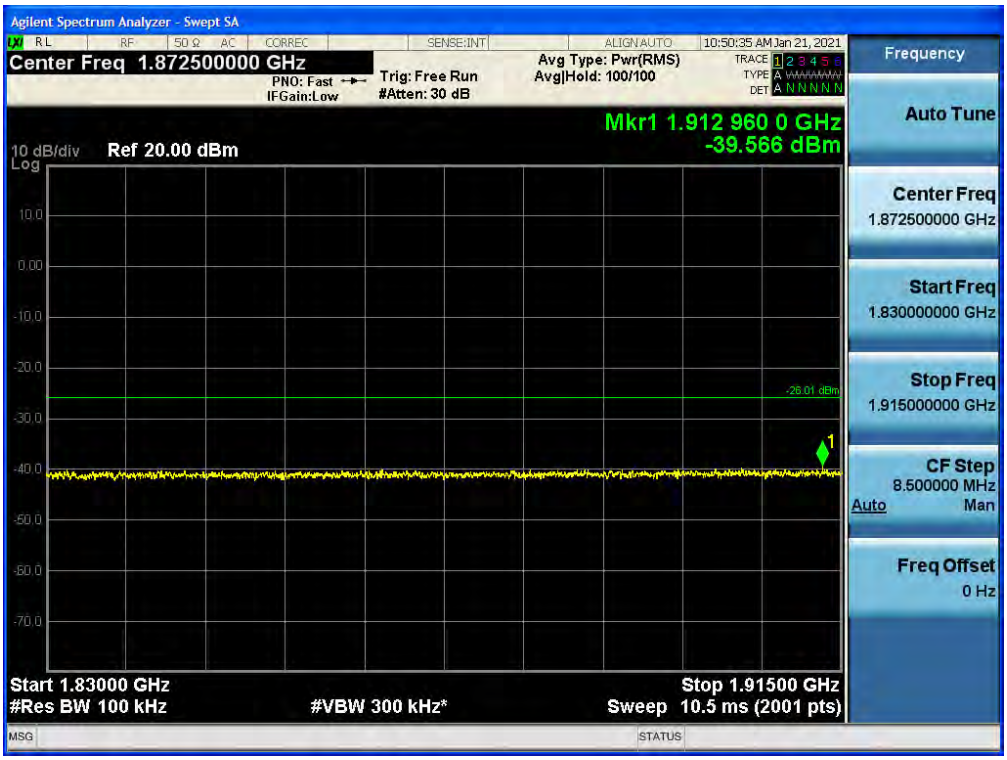
Antenna 1 / 150 kHz ~ 30 MHz / 5G NR n2 15 MHz 1 Carrier / QPSK / Middle



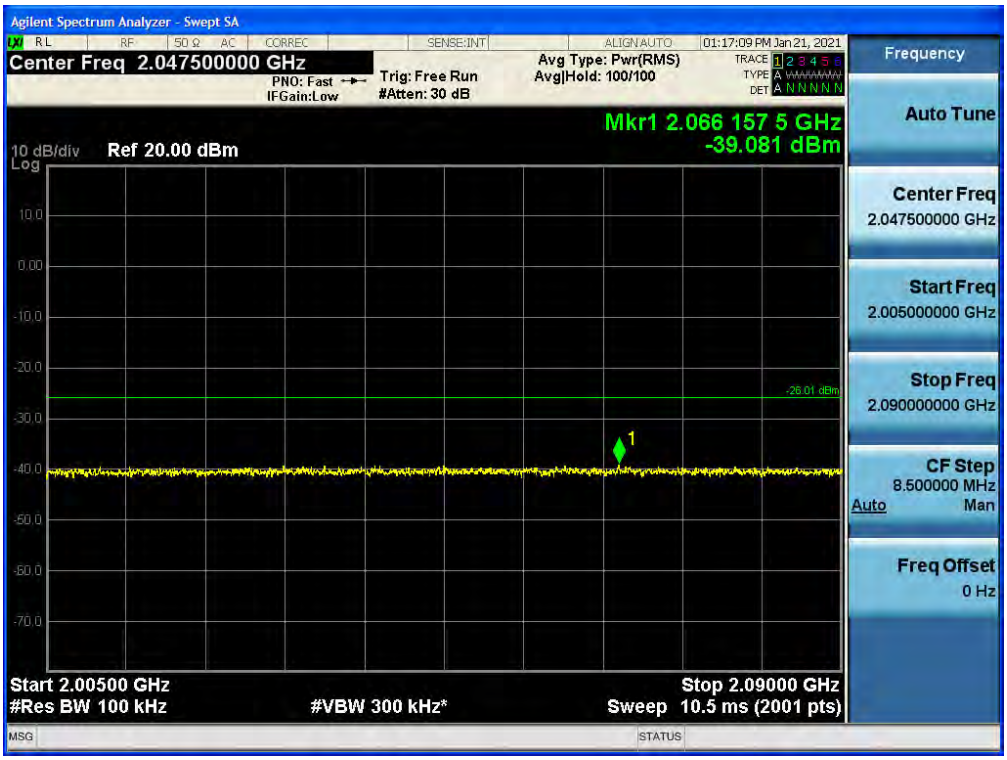
Antenna 1 / 30 MHz ~ Low Edge-100 MHz / 5G NR n2 15 MHz 1 Carrier / 16QAM / Middle



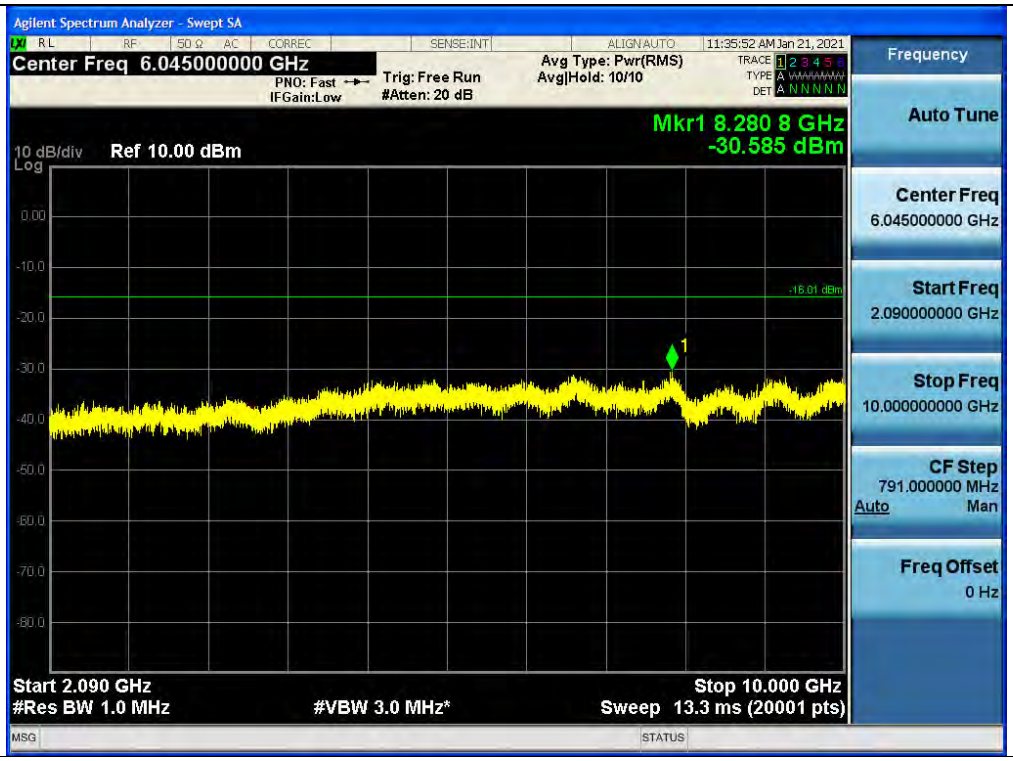
Antenna 1 / Low Edge-100 MHz ~ Low Edge / 5G NR n2 15 MHz 1 Carrier / 16QAM / Low



Antenna 0 / High Edge ~ High Edge+100 MHz / 5G NR n2 15 MHz 1 Carrier / 256QAM / High



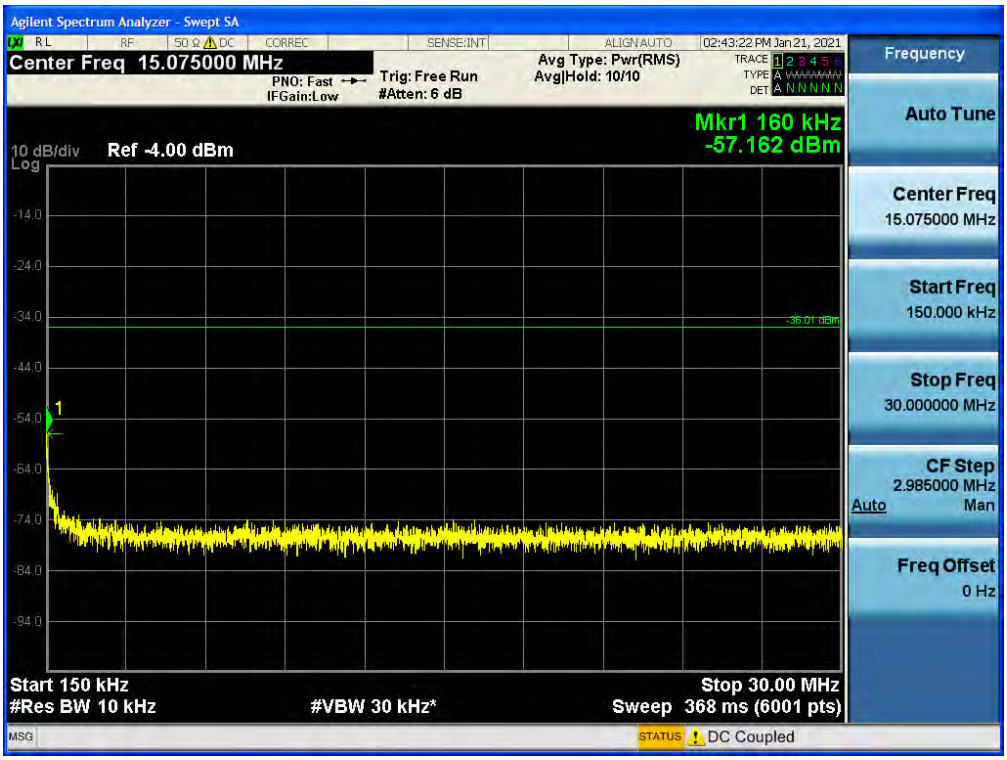
Antenna 0 / High Edge+100 MHz ~ 10 GHz / B29 LTE Band 5 MHz 1 Carrier / 16QAM / Low



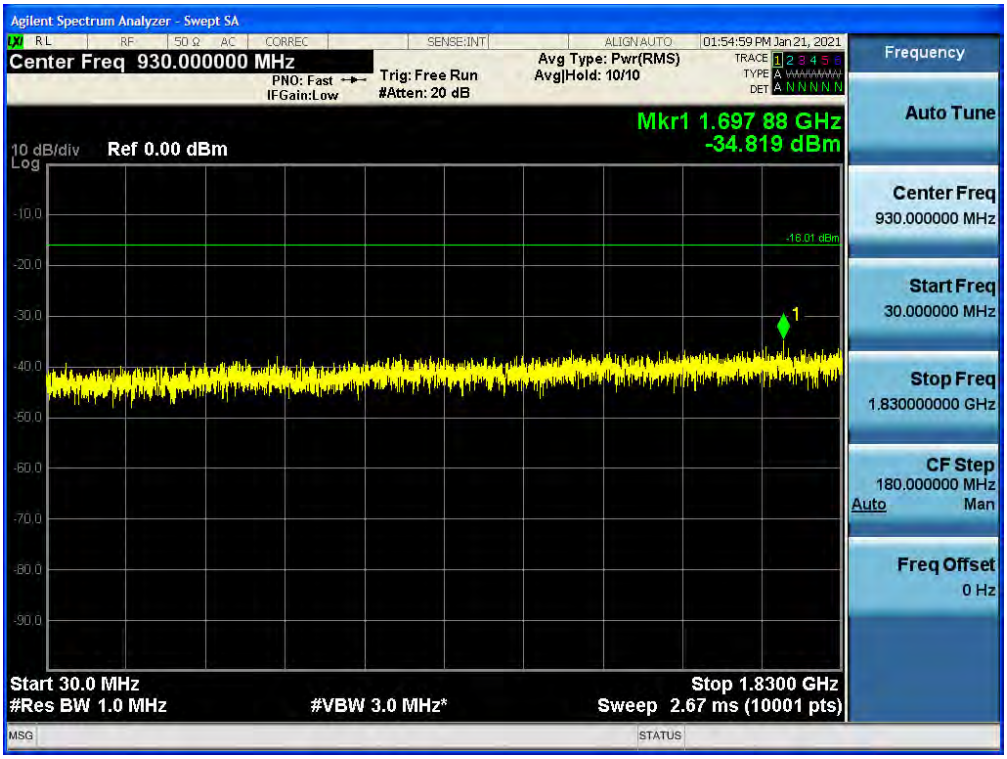
Antenna 1 / 10 GHz ~ 26.5 GHz/ 5G NR n2 15 MHz 1 Carrier / 64QAM / High

Antenna 1 / 9 kHz ~ 150 kHz / 5G NR n2 20 MHz 1 Carrier / QPSK / Middle

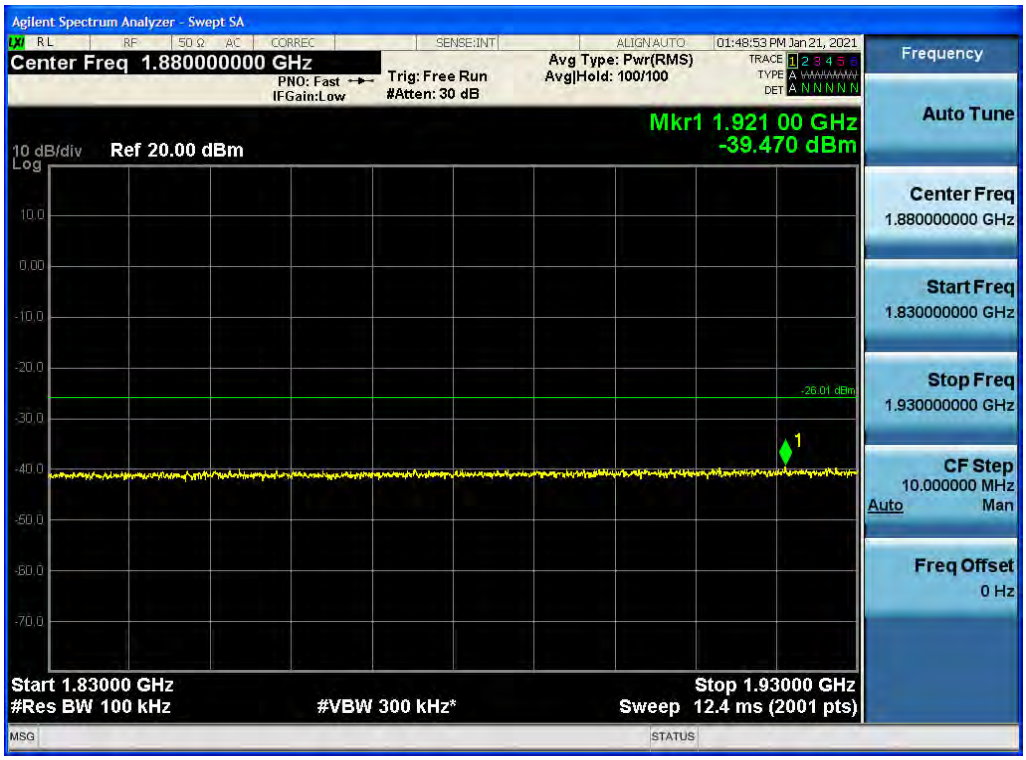
Antenna 1 / 150 kHz ~ 30 MHz / 5G NR n2 20 MHz 1 Carrier / 16QAM / Low



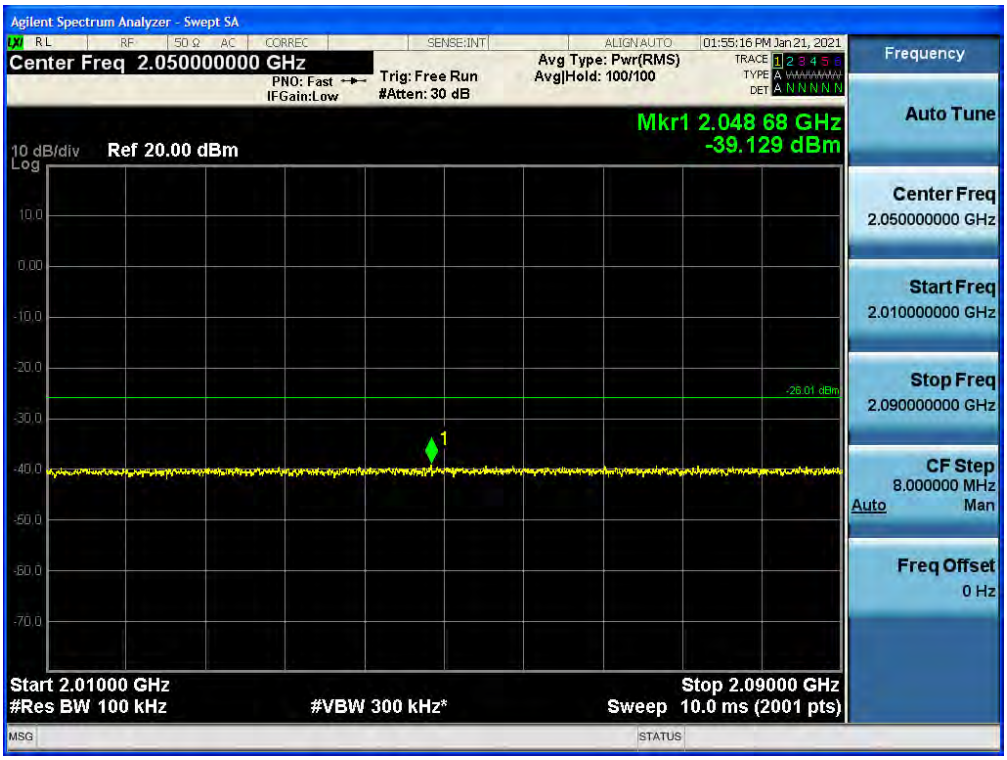
Antenna 0 / 30 MHz ~ Low Edge-100 MHz / 5G NR n2 20 MHz 1 Carrier / QPSK / High



Antenna 0 / Low Edge-100 MHz ~ Low Edge / 5G NR n2 20 MHz 1 Carrier / 64QAM / Middle



Antenna 0 / High Edge ~ High Edge+100 MHz / 5G NR n2 20 MHz 1 Carrier / QPSK / High

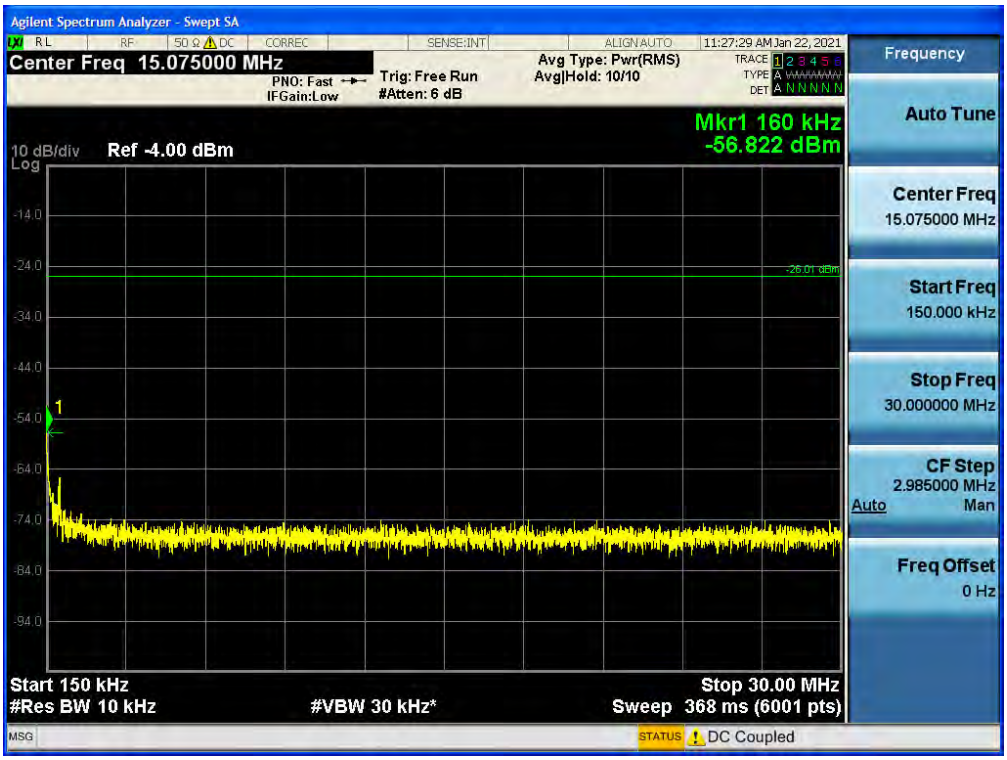


Antenna 0 / High Edge+100 MHz ~ 10 GHz / 5G NR n2 20 MHz 1 Carrier / 256QAM / High

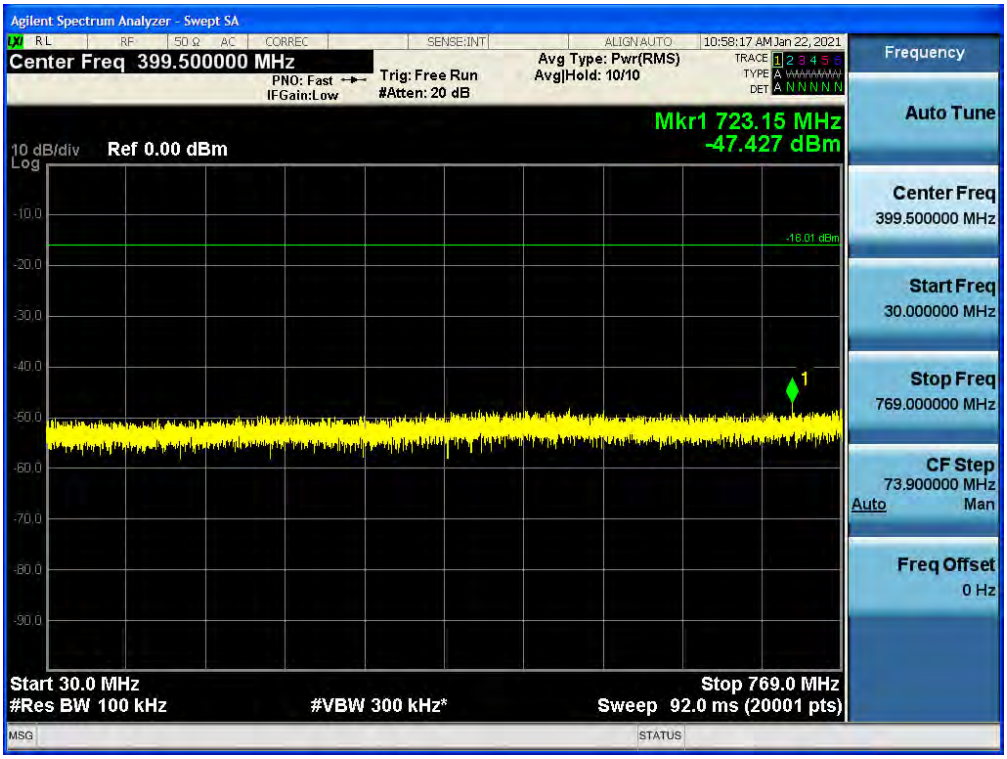
Antenna 0 / 10 GHz ~ 26.5 GHz / 5G NR n2 20 MHz 1 Carrier / QPSK / Middle

Antenna 1 / 9 kHz ~ 150 kHz / 5G NR n5 5 MHz 1 Carrier / QPSK / High

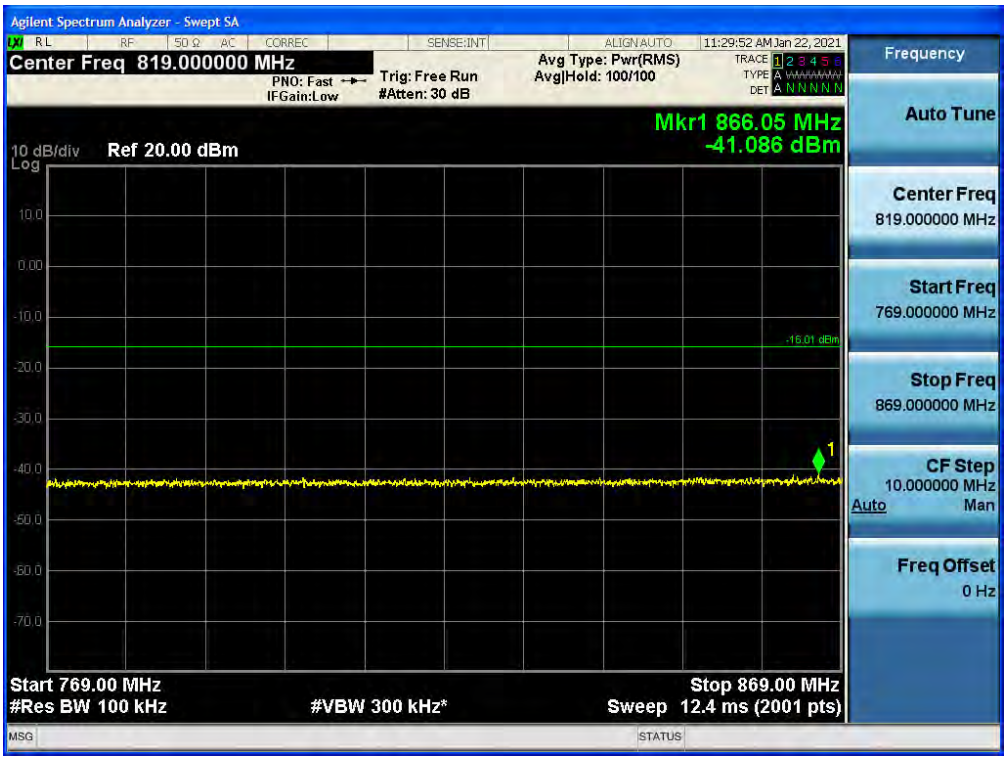
Antenna 1 / 150 kHz ~ 30 MHz / 5G NR n5 5 MHz 1 Carrier / QPSK / Middle



Antenna 0 / 30 MHz ~ Low Edge-100 MHz / 5G NR n5 5 MHz 1 Carrier / 64QAM / Low



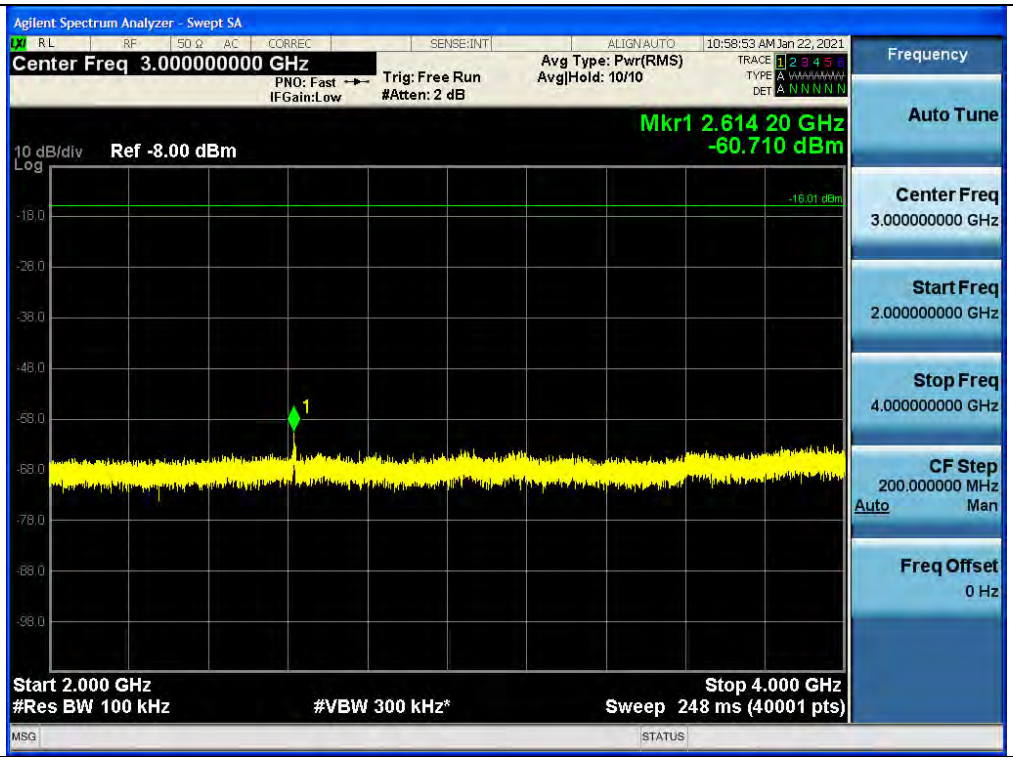
Antenna 1 / Low Edge-100 MHz ~ Low Edge / 5G NR n5 5 MHz 1 Carrier / 64QAM / Middle



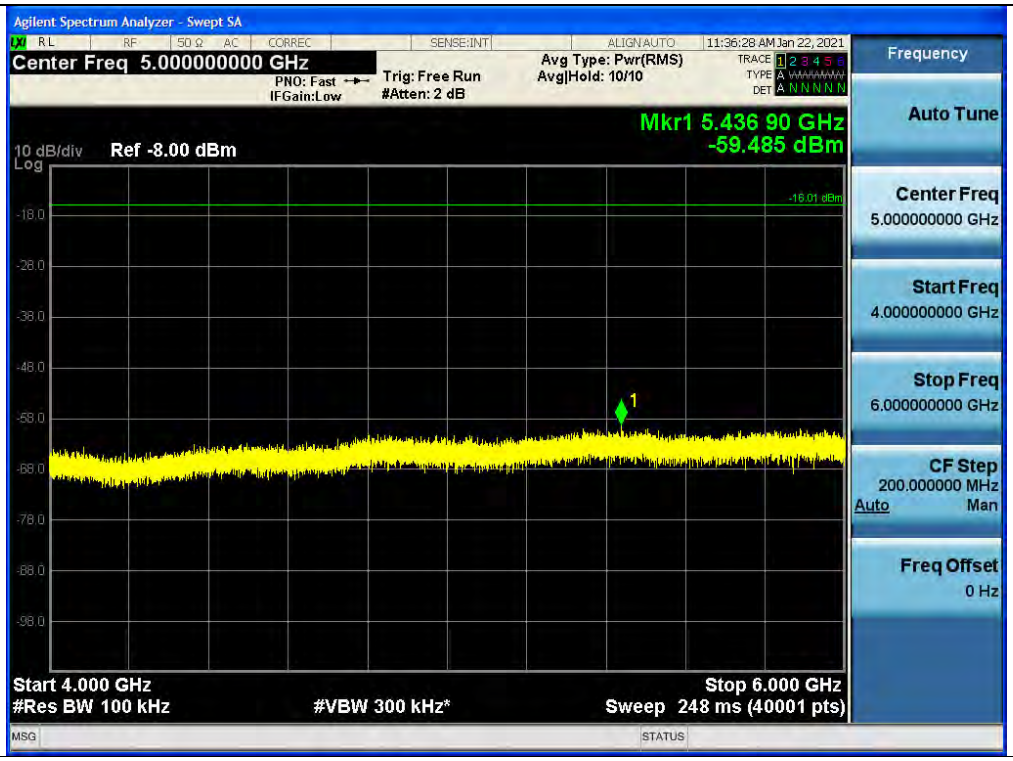
Antenna 1 / High Edge ~ 1 GHz / 5G NR n5 5 MHz 1 Carrier / 64QAM / Middle

Antenna 0 / 1 GHz ~ 10 GHz / 5G NR n5 5 MHz 1 Carrier / 16QAM / High

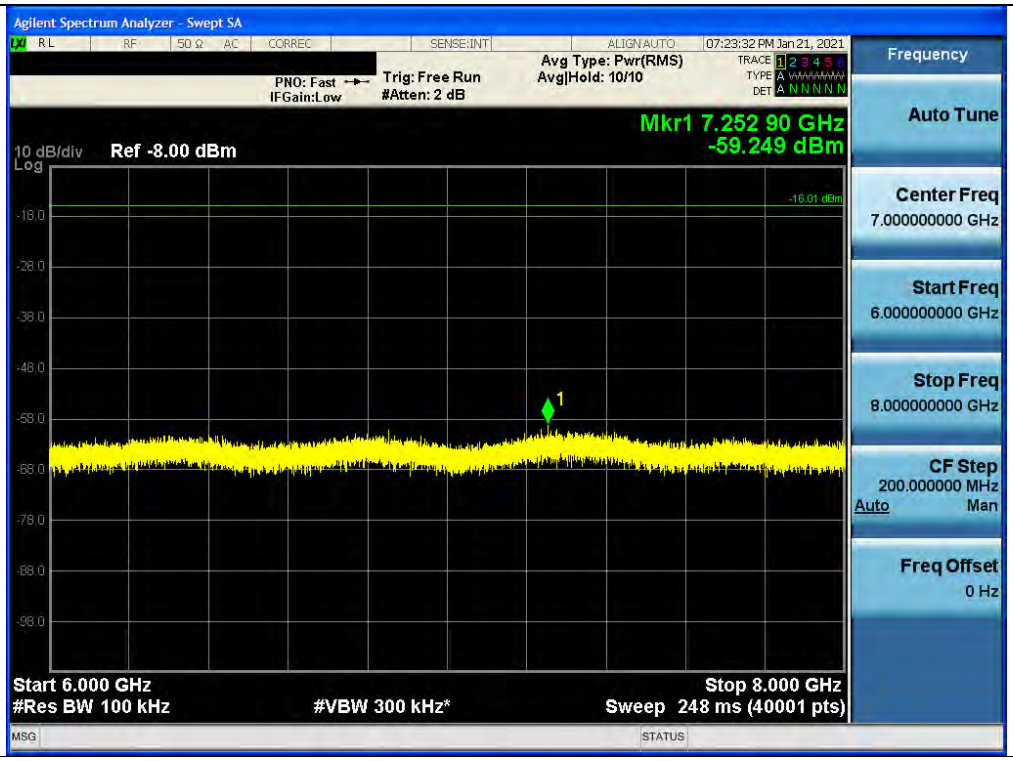
Antenna 1 / 2 GHz ~ 4 GHz / 5G NR n5 5 MHz 1 Carrier / 64QAM / Low



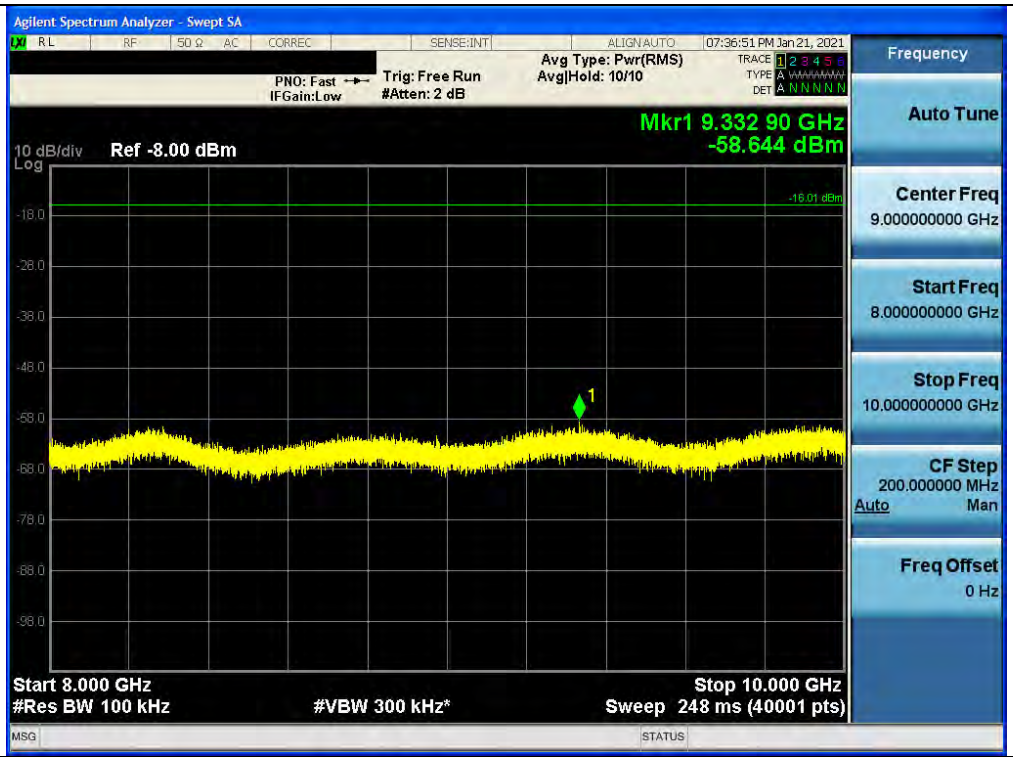
Antenna 1 / 4 GHz ~ 6 GHz / 5G NR n5 5 MHz 1 Carrier / QPSK / High



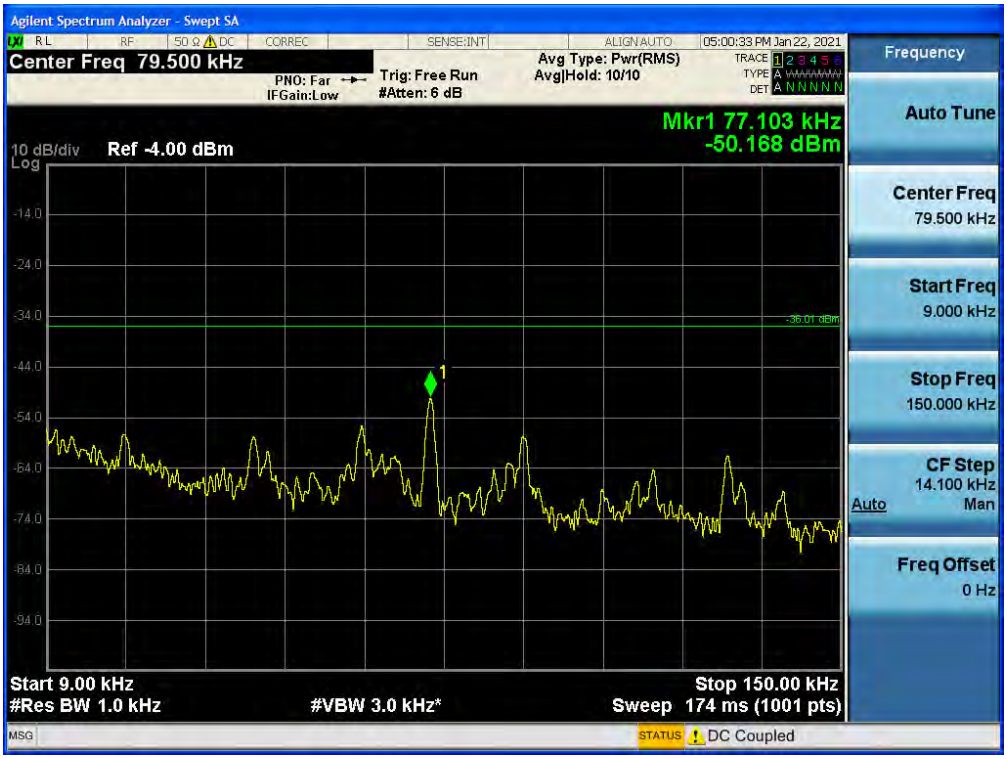
Antenna 0 / 6 GHz ~ 8 GHz / 5G NR n5 5 MHz 1 Carrier / 256QAM / Middle



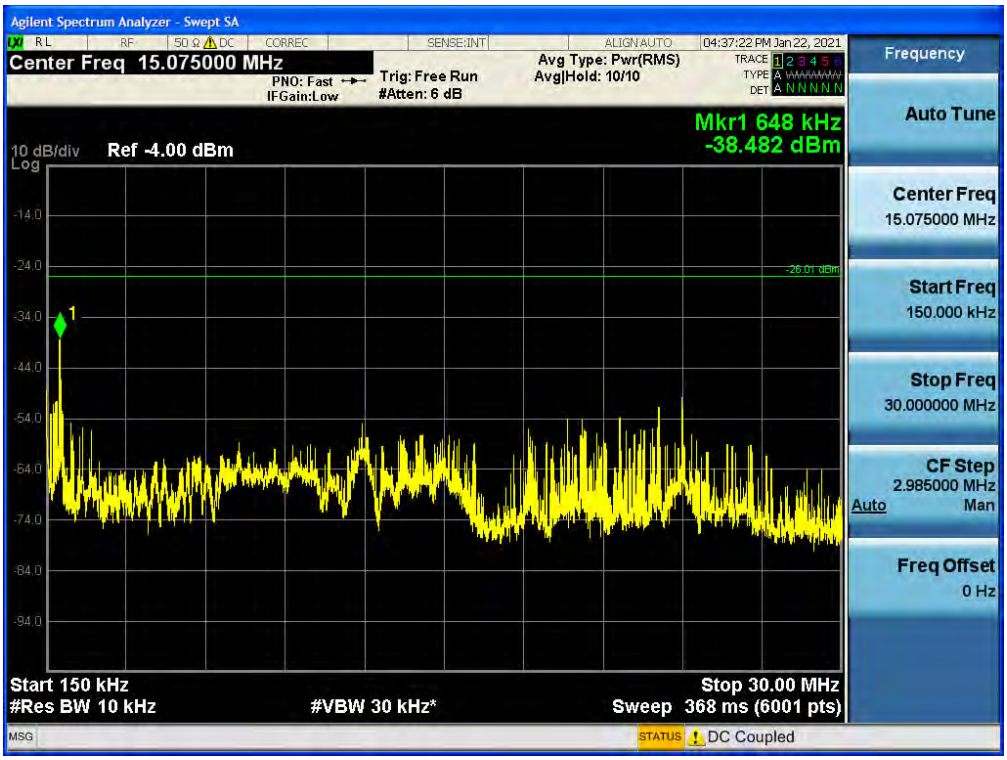
Antenna 0 / 8 GHz ~ 10 GHz / 5G NR n5 5 MHz 1 Carrier / 16QAM / High



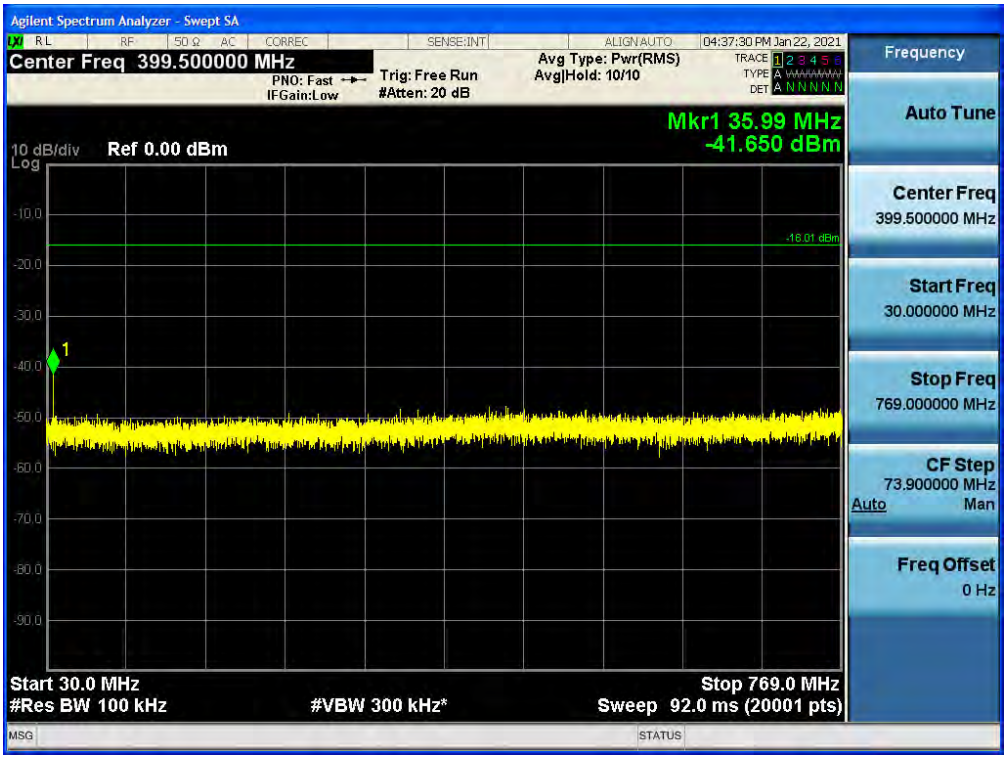
Antenna 0 / 9 kHz ~ 150 kHz / 5G NR n5 10 MHz 1 Carrier / QPSK / Middle



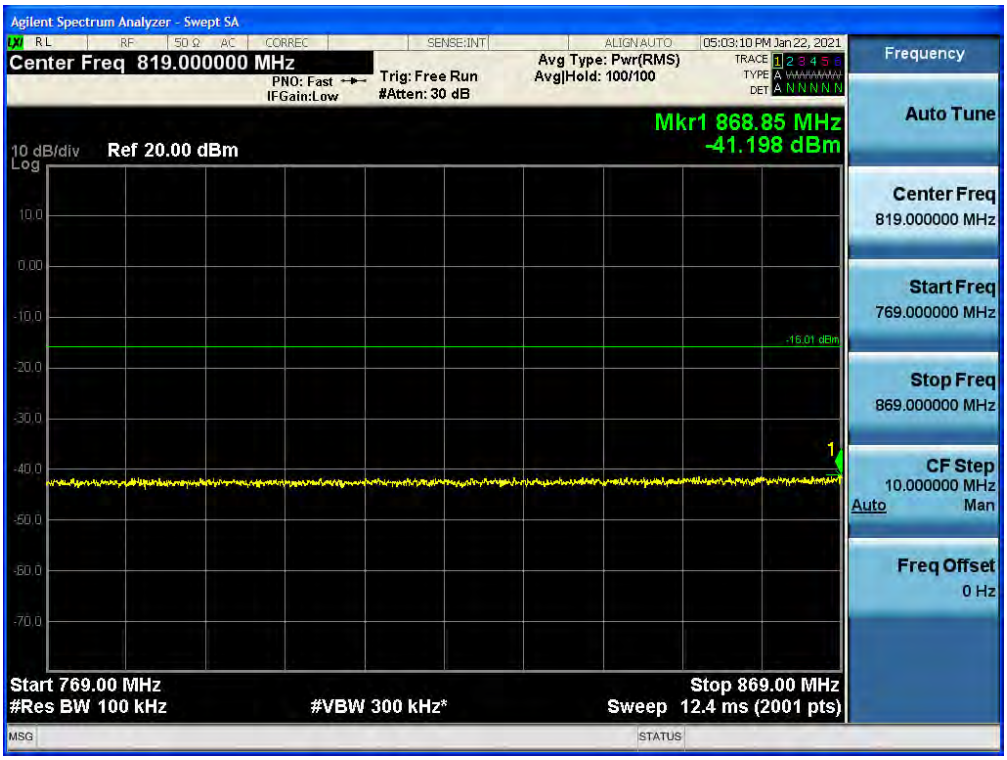
Antenna 0 / 150 kHz ~ 30 MHz / 5G NR n5 10 MHz 1 Carrier / 64QAM / Low



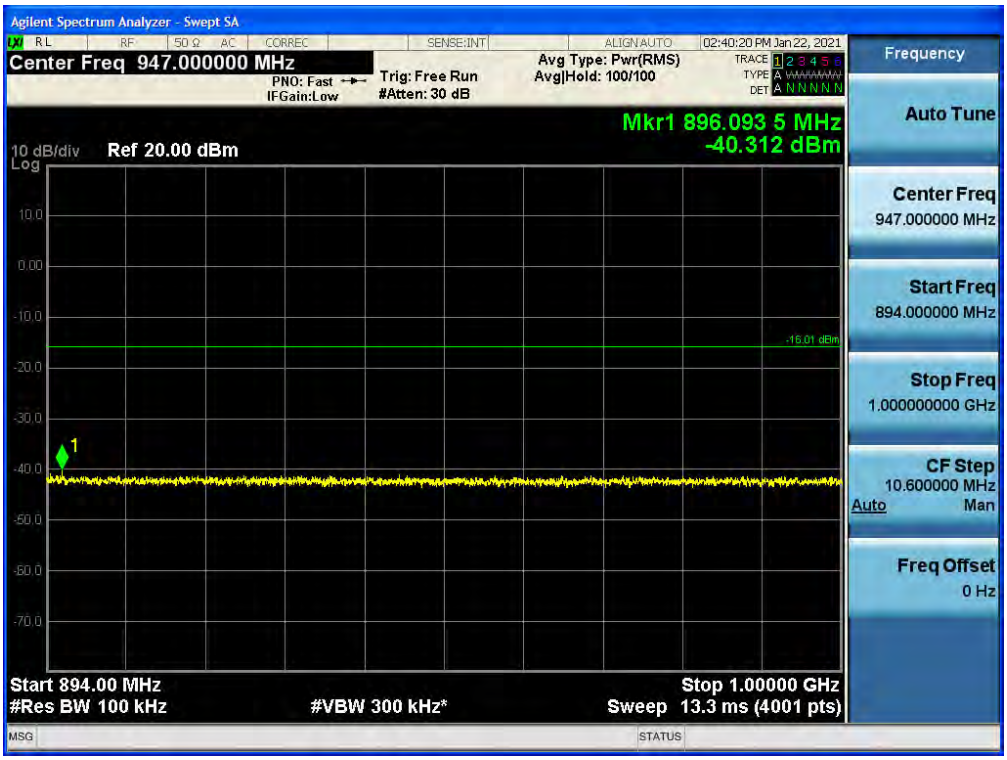
Antenna 0 / 30 MHz ~ Low Edge-100 MHz / 5G NR n5 10 MHz 1 Carrier / 64QAM / Low



Antenna 0 / Low Edge-100 MHz ~ Low Edge / 5G NR n5 10 MHz 1 Carrier / 64QAM / Middle

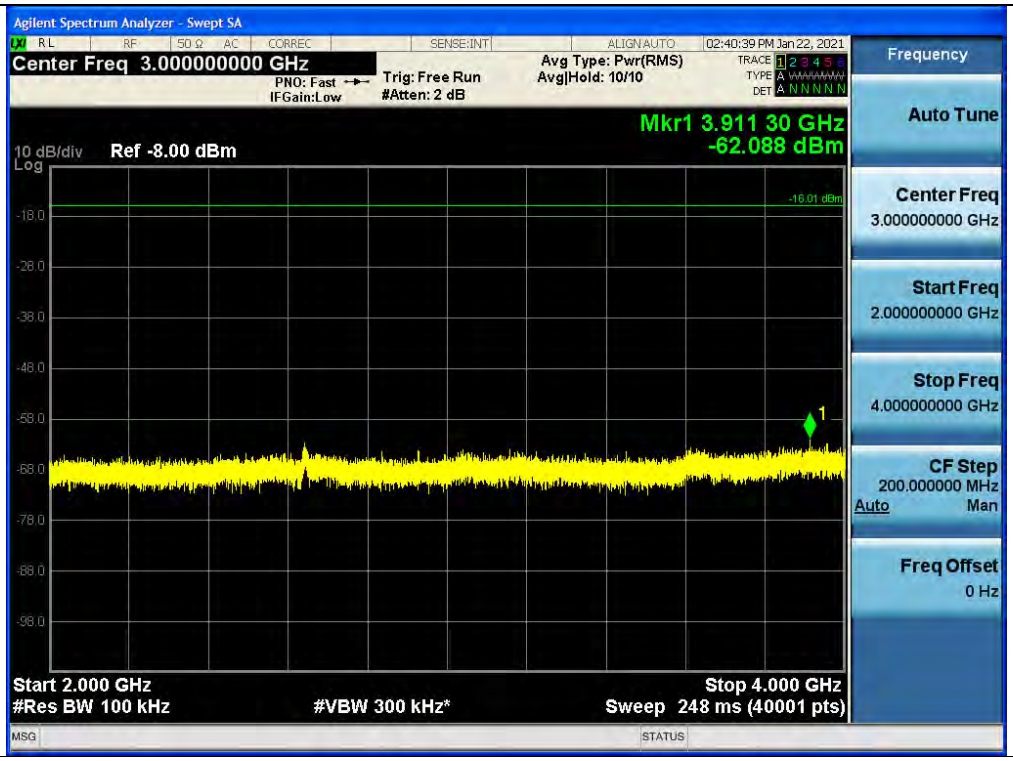


Antenna 1 / High Edge ~ 1 GHz / 5G NR n5 10 MHz 1 Carrier / 16QAM / Middle

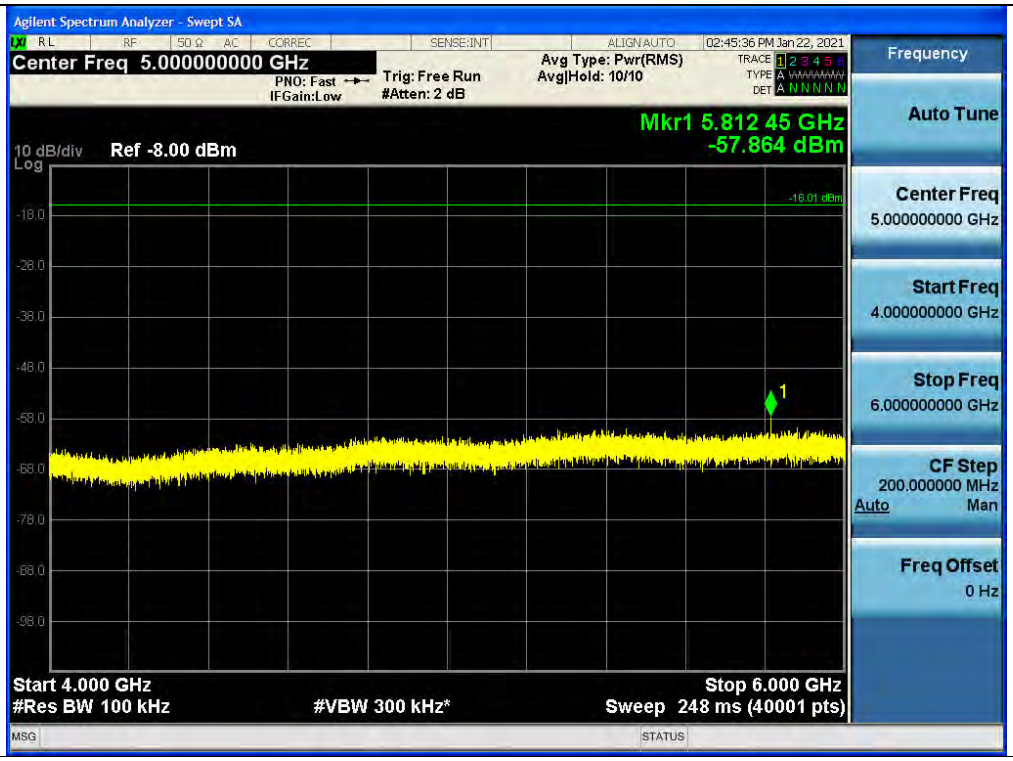


Antenna 0 / 1 GHz ~ 10 GHz / 5G NR n5 10 MHz 1 Carrier / 256QAM / Middle

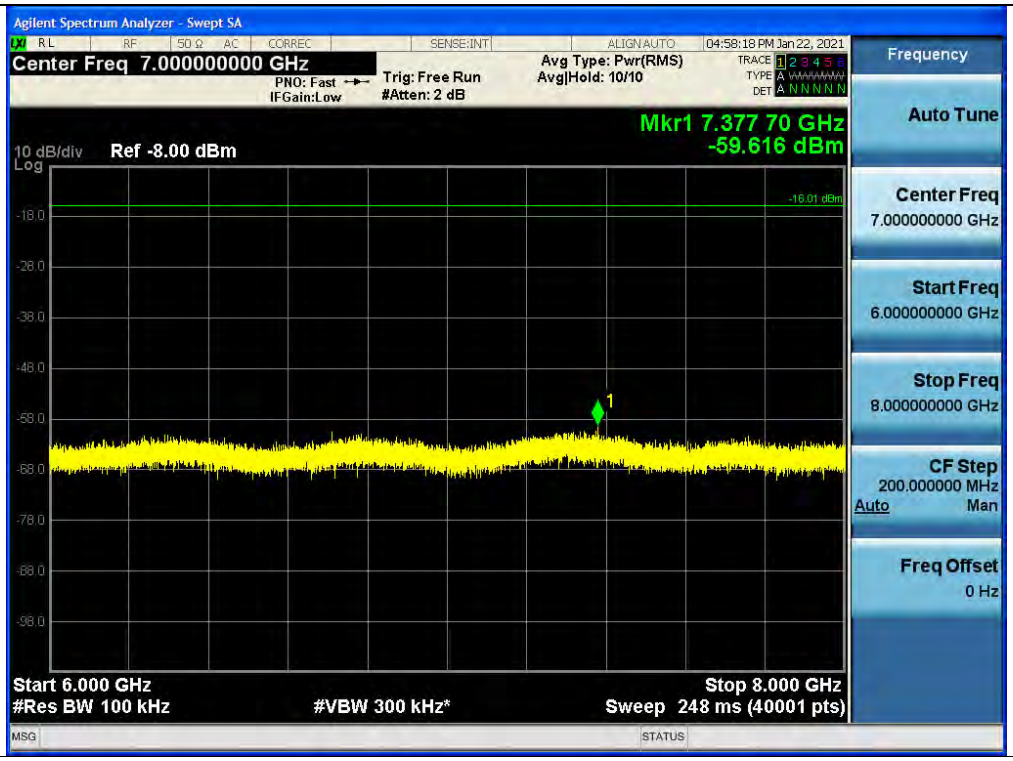
Antenna 1 / 2 GHz ~ 4 GHz / 5G NR n5 10 MHz 1 Carrier / 16QAM / Middle



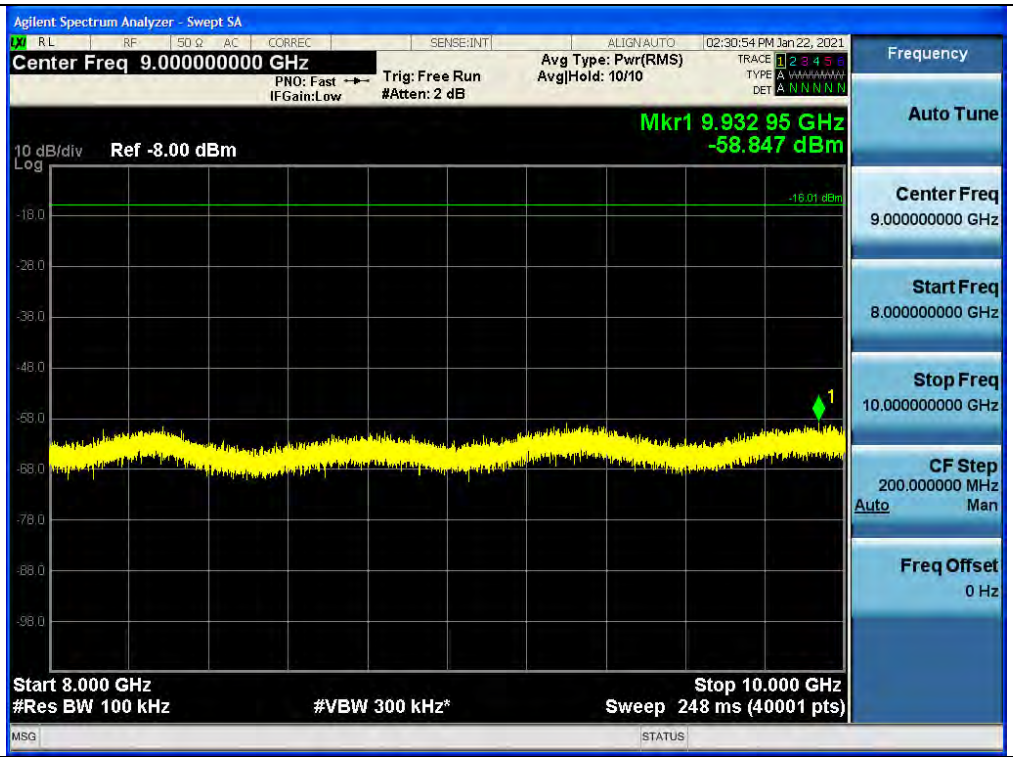
Antenna 1 / 4 GHz ~ 6 GHz / 5G NR n5 10 MHz 1 Carrier / 64QAM / Middle



Antenna 0 / 6 GHz ~ 8 GHz / 5G NR n5 10 MHz 1 Carrier / 16QAM / Middle

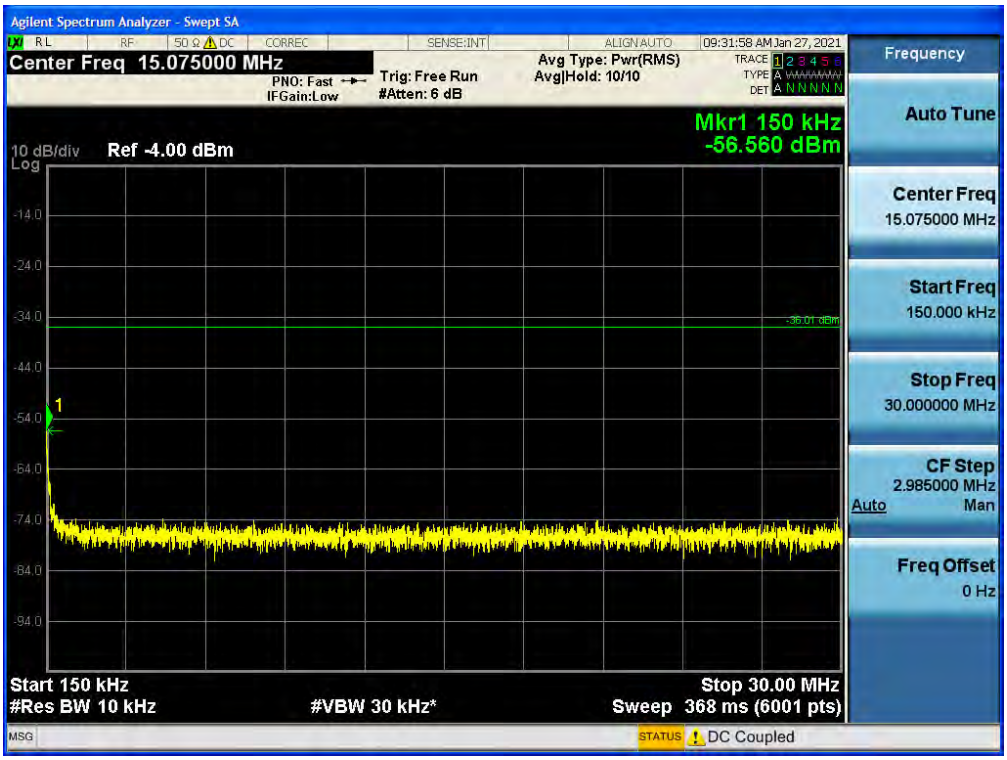


Antenna 1 / 8 GHz ~ 10 GHz / 5G NR n5 10 MHz 1 Carrier / QPSK / Low

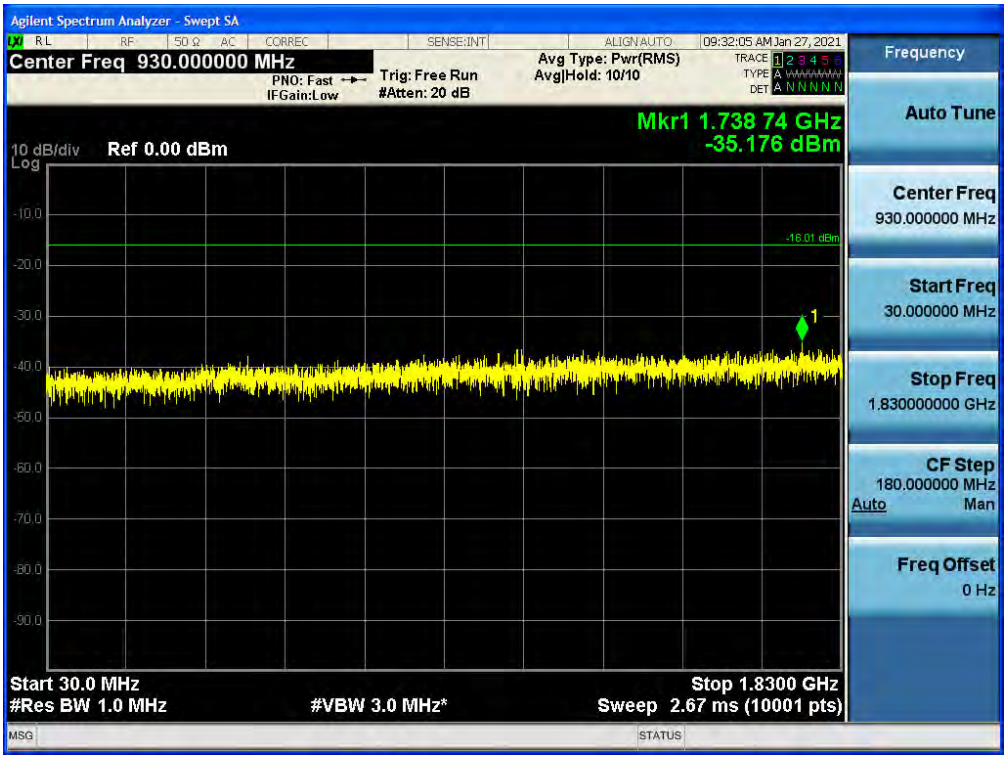


Antenna 1 / 9 kHz ~ 150 kHz / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz / Contiguous / QPSK / Low

Antenna 1 / 150 kHz ~ 30 MHz / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz / Contiguous / 256QAM / Middle



Antenna 1 / 30 MHz ~ Low Edge-100 MHz / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz / Contiguous / 256QAM / Middle

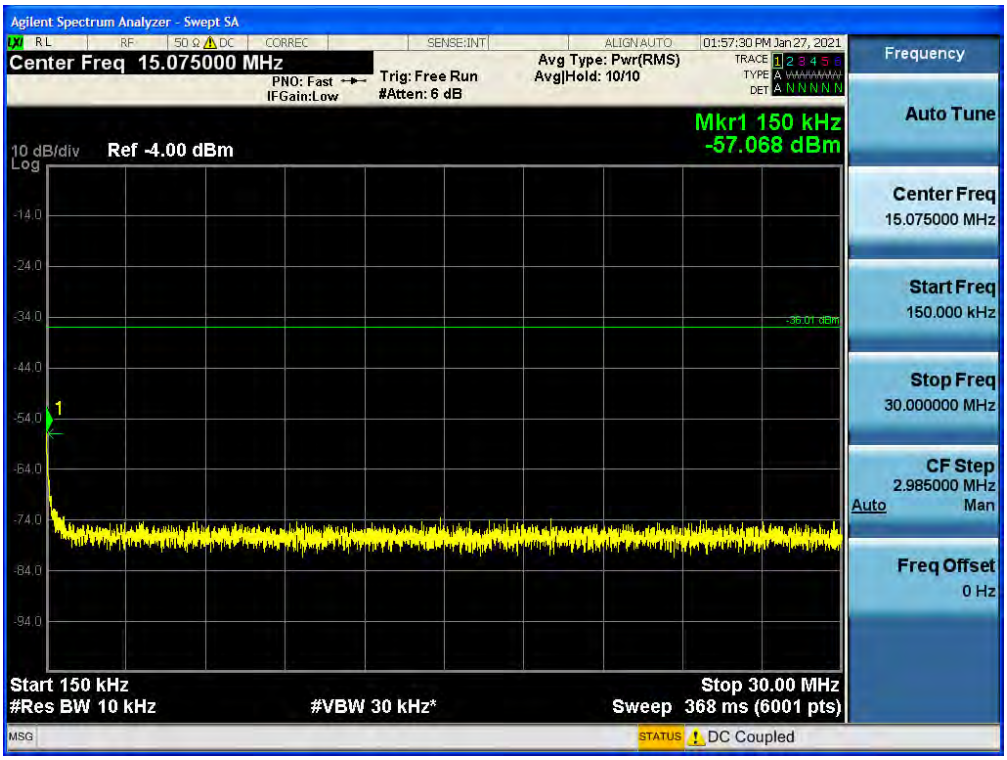


Antenna 1 / Low Edge-100 MHz ~ Low Edge / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz / Contiguous / 64QAM / Low

Antenna 0 / High Edge ~ High Edge+100 MHz / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz / Contiguous / 256QAM / High

Antenna 1 / High Edge+100 MHz ~ 10 GHz / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz / Contiguous / 64QAM / Low

Antenna 1 / 10 GHz ~ 26.5 GHz / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz / Contiguous / 256QAM / High

Antenna 0 / 9 kHz ~ 150 kHz / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz / Contiguous / 256QAM / Middle

Antenna 1 / 150 kHz ~ 30 MHz / 5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz / Contiguous / 16QAM / Low