

TEST REPORT

FCC Test for RT8808-77A
Class II Permissive Change

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2306-FC002

DATE OF ISSUE
June 19, 2023

Tested by
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TEST REPORT

FCC Test for
RT8808-77A

REPORT NO.

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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(RT8808)
RT8808-77A

FCC ID

A3LRT8808-77A

Date of Test

April 24, 2023 ~ June 14, 2023

FCC Rule Parts:

CFR 47 Part 2, Part 27

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	June 19, 2023	Initial Release

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

CONTENTS

1. GENERAL INFORMATION	5
1.1. APPLICANT INFORMATION	5
1.2. PRODUCT INFORMATION	5
1.3. TEST INFORMATION	5
2. FACILITIES AND ACCREDITATIONS	6
2.1. FACILITIES	6
2.2. EQUIPMENT	6
3. TEST SPECIFICATIONS	7
3.1. STANDARDS	7
3.2. ADDITIONAL DESCRIPTIONS ABOUT TEST	8
3.3. MAXIMUM MEASUREMENT UNCERTAINTY	17
3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS	17
3.5. TEST DIAGRAMS	18
4. TEST EQUIPMENTS	20
5. TEST RESULT	21
5.1. RF OUTPUT POWER and PSD	21
5.2. PAPR	68
5.3. OCCUPIED BANDWIDTH	85
5.4. OUT-OF-BAND UNWANTED EMISSIONS	102
5.5. SPURIOUS UNWANTED EMISSIONS	121
5.6. RADIATED EMISSIONS	167
5.7. FREQUENCY STABILITY	170
6. Annex B_EUT AND TEST SETUP PHOTO	174

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(RT8808)					
EUT Serial Number	S617718742					
Power Supply	-48 VDC					
Output Power	Band	Carrier	Bandwidth	Power		
	3.7 GHz Service	1	40 MHz	40 W/path, Total: 320 W		
	3.7 GHz Service	1	60 MHz	40 W/path, Total: 320 W		
	3.7 GHz Service	1	80 MHz	40 W/path, Total: 320 W		
	3.7 GHz Service	1	100 MHz	40 W/path, Total: 320 W		
	3.7 GHz Service	2	100 MHz + 40 MHz	40 W/path, Total: 320 W		
	3.7 GHz Service	2	100 MHz + 100 MHz	40 W/path, Total: 320 W		
Frequency Range	3.7 GHz Service: 3 700 MHz ~ 3 900 MHz					
Emission Designator	Mode	Bandwidth	Emission Designator			
			QPSK (G7D)	Conducted (W)	16/64/256 QAM (W7D)	Conducted (W)
	3.7 GHz Service	40 MHz	38M0G7D	272.82	38M1W7D	277.71
	3.7 GHz Service	60 MHz	58M0G7D	292.08	58M0W7D	291.61
	3.7 GHz Service	80 MHz	77M6G7D	277.79	77M8W7D	277.61
	3.7 GHz Service	100 MHz	97M6G7D	287.30	97M6W7D	288.42
	3.7 GHz Service	100 MHz + 40 MHz	137MG7D	271.77	137MW7D	264.70
	3.7 GHz Service	100 MHz + 100 MHz	197MG7D	272.82	197MW7D	277.15
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM					

1.3. TEST INFORMATION

FCC Rule Parts	CFR 47 Part 2, Part 27
Measurement standards	ANSI C63.26-2015, KDB 662911 D01 v02r01, KDB 971168 D01 v03r01
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 27

Description	Reference	Results
RF Output Power	§ 2.1046, § 27.50(j)(2)	Compliant
PAPR	§ 27.50(j)(4)	Compliant
Occupied Bandwidth	§ 2.1049	Compliant
Out-of-band Unwanted Emissions	§ 2.1051, § 27.53(l)(1)	Compliant
Spurious Unwanted Emissions		Compliant
Radiated Emissions	§ 2.1053, § 27.53(l)(1)	Compliant
Frequency Stability	§ 2.1055, § 27.54	Compliant

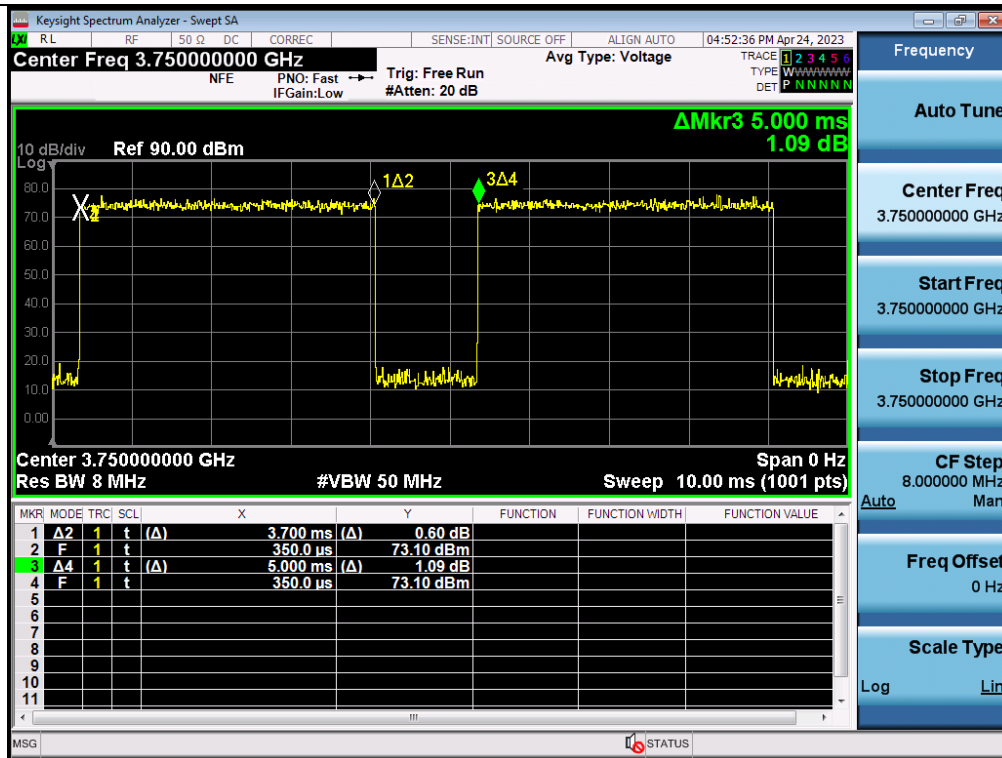
Note:

1. The equipment changes of C2PC models does not degrade the data reported to the Commission in original application report listed below.
FCC ID: A3LRT8808-77A previous report.
 - Original equipment report no. HCT-RF-2108-FC003
2. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the test result.
3. Output power was verified to be within the expected tune up tolerances prior to performing the spot checks for radiated spurious emissions.

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 5G NR modulation types (QPSK, 16QAM, 64QAM, 256QAM) supported by the EUT have been tested.
- The measurement has been performed for NR carrier in the mode of full resource Block size as the worst case to transmit maximum output power.
- The dummy loads were connected to the RF output ports for radiated spurious emission testing.
- In the case of 2CC, it is only contiguous mode and 1CC(100 MHz) is located from 3 700 MHz.
- Because of the EUT using TDD technology, it cannot be configured to transmit continuously and measurement instrument cannot be configured to measure only during active transmissions. So, we performed the measurement using duty cycle method.

Measurement Result of RT8808-77A Transmit On/Off Timing



- The EUT duty cycle is calculated according to ANSI C63.26 - 5.2.4.3.4.

$$\text{Duty Cycle} = \text{On-time} / \text{Transmitter period} = 3.70 \text{ ms} / 5.00 \text{ ms} = 0.74$$

$$\text{Duty Correction} = 10 \log (1/\text{duty cycle}) = 10 \log (1/0.74) = 1.308 \text{ dB}$$

- 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.

ANT0

Correction factor table			
Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
400	30.125	11 000	27.083
600	30.369	12 000	27.378
800	30.659	13 000	26.922
1 000	30.806	14 000	27.614
1 200	31.094	15 000	27.780
1 400	31.262	16 000	28.269
1 600	31.379	17 000	29.397
1 800	31.585	18 000	29.304
2 000	31.869	19 000	28.564
2 200	32.015	20 000	29.331
2 400	32.227	21 000	29.383
2 600	32.398	22 000	30.341
2 800	32.450	23 000	30.864
3 000	32.673	24 000	30.965
3 100	32.781	25 000	31.502
3 200	32.905	26 000	31.024
3 300	33.029	27 000	24.410
3 400	33.033	28 000	24.583
3 500	33.272	29 000	24.997
3 600	33.129	30 000	24.932
3 700	32.904	31 000	26.509
3 800	32.896	32 000	26.470
3 900	33.037	33 000	26.028
4 000	32.941	34 000	25.002
5 000	35.851	35 000	25.252
6 000	35.835	36 000	25.519
7 000	37.511	37 000	25.499
8 000	38.208	38 000	25.594
9 000	39.703	39 000	25.889
10 000	26.806	40 000	25.108

ANT1

Correction factor table

Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
400	30.195	11 000	26.043
600	30.494	12 000	26.405
800	30.764	13 000	26.490
1 000	30.944	14 000	27.100
1 200	31.235	15 000	27.124
1 400	31.424	16 000	27.816
1 600	31.543	17 000	28.569
1 800	31.790	18 000	28.296
2 000	32.075	19 000	28.366
2 200	32.172	20 000	28.925
2 400	32.413	21 000	29.248
2 600	32.704	22 000	30.014
2 800	32.636	23 000	30.198
3 000	32.878	24 000	29.439
3 100	33.054	25 000	30.515
3 200	33.013	26 000	30.320
3 300	33.204	27 000	24.480
3 400	33.260	28 000	24.653
3 500	33.431	29 000	25.067
3 600	33.420	30 000	25.002
3 700	33.237	31 000	26.579
3 800	33.364	32 000	26.540
3 900	33.487	33 000	26.098
4 000	33.263	34 000	25.072
5 000	34.963	35 000	25.322
6 000	35.949	36 000	25.589
7 000	37.629	37 000	25.569
8 000	38.019	38 000	25.664
9 000	39.479	39 000	25.959
10 000	25.611	40 000	25.178

ANT2

Correction factor table

Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
400	29.213	11 000	26.696
600	29.559	12 000	27.057
800	29.884	13 000	27.485
1 000	30.065	14 000	28.111
1 200	30.290	15 000	28.374
1 400	30.547	16 000	28.956
1 600	30.709	17 000	29.924
1 800	30.850	18 000	29.711
2 000	31.180	19 000	29.307
2 200	31.450	20 000	30.254
2 400	31.573	21 000	29.626
2 600	31.644	22 000	30.719
2 800	32.105	23 000	31.170
3 000	32.021	24 000	30.583
3 100	32.877	25 000	31.376
3 200	32.326	26 000	31.047
3 300	32.583	27 000	24.174
3 400	33.189	28 000	24.347
3 500	32.591	29 000	24.761
3 600	32.885	30 000	24.696
3 700	33.197	31 000	26.273
3 800	32.592	32 000	26.234
3 900	32.842	33 000	25.792
4 000	34.052	34 000	24.766
5 000	36.127	35 000	25.016
6 000	36.894	36 000	25.283
7 000	38.980	37 000	25.263
8 000	40.249	38 000	25.358
9 000	41.322	39 000	25.653
10 000	26.282	40 000	24.872

ANT3

Correction factor table

Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
400	30.109	11 000	26.879
600	30.390	12 000	27.293
800	30.676	13 000	27.447
1 000	30.824	14 000	28.180
1 200	31.067	15 000	28.537
1 400	31.279	16 000	29.076
1 600	31.429	17 000	29.757
1 800	31.631	18 000	29.741
2 000	31.904	19 000	29.600
2 200	32.055	20 000	30.268
2 400	32.288	21 000	29.269
2 600	32.480	22 000	30.473
2 800	32.538	23 000	30.464
3 000	32.750	24 000	30.565
3 100	32.906	25 000	31.102
3 200	32.998	26 000	30.624
3 300	33.110	27 000	24.123
3 400	33.203	28 000	24.296
3 500	33.290	29 000	24.710
3 600	33.237	30 000	24.645
3 700	33.038	31 000	26.222
3 800	33.040	32 000	26.183
3 900	33.254	33 000	25.741
4 000	33.042	34 000	24.715
5 000	35.010	35 000	24.965
6 000	35.922	36 000	25.232
7 000	37.695	37 000	25.212
8 000	38.215	38 000	25.307
9 000	39.406	39 000	25.602
10 000	26.205	40 000	24.821

ANT4

Correction factor table

Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
400	31.699	11 000	26.549
600	31.915	12 000	26.915
800	32.187	13 000	26.249
1 000	32.303	14 000	26.618
1 200	32.482	15 000	27.144
1 400	32.716	16 000	27.577
1 600	32.946	17 000	28.857
1 800	33.101	18 000	28.802
2 000	33.272	19 000	28.173
2 200	33.540	20 000	29.179
2 400	33.782	21 000	28.798
2 600	33.915	22 000	29.899
2 800	33.834	23 000	30.672
3 000	33.860	24 000	30.750
3 100	34.096	25 000	31.288
3 200	33.957	26 000	30.674
3 300	34.158	27 000	23.740
3 400	34.283	28 000	23.913
3 500	34.190	29 000	24.327
3 600	34.261	30 000	24.262
3 700	33.965	31 000	25.839
3 800	33.927	32 000	25.800
3 900	34.196	33 000	25.358
4 000	34.017	34 000	24.332
5 000	35.731	35 000	24.582
6 000	36.126	36 000	24.849
7 000	37.482	37 000	24.829
8 000	37.720	38 000	24.924
9 000	39.044	39 000	25.219
10 000	26.116	40 000	24.438

ANT5

Correction factor table

Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
400	32.104	11 000	26.467
600	32.108	12 000	26.961
800	32.210	13 000	26.634
1 000	32.343	14 000	27.662
1 200	32.543	15 000	28.028
1 400	32.781	16 000	27.875
1 600	32.885	17 000	28.609
1 800	33.016	18 000	29.197
2 000	33.238	19 000	28.395
2 200	33.323	20 000	29.765
2 400	33.564	21 000	29.950
2 600	33.732	22 000	30.126
2 800	33.823	23 000	30.865
3 000	34.031	24 000	29.673
3 100	34.134	25 000	31.319
3 200	34.131	26 000	30.698
3 300	34.201	27 000	22.614
3 400	34.265	28 000	22.787
3 500	34.259	29 000	23.201
3 600	34.347	30 000	23.136
3 700	34.130	31 000	24.713
3 800	33.975	32 000	24.674
3 900	34.251	33 000	24.232
4 000	34.101	34 000	23.206
5 000	35.971	35 000	23.456
6 000	36.243	36 000	23.723
7 000	37.439	37 000	23.703
8 000	38.025	38 000	23.798
9 000	38.600	39 000	24.093
10 000	25.746	40 000	23.312

ANT6

Correction factor table

Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
400	33.234	11 000	25.754
600	33.348	12 000	26.127
800	33.304	13 000	26.596
1 000	33.672	14 000	27.584
1 200	33.993	15 000	28.308
1 400	34.312	16 000	28.919
1 600	34.466	17 000	29.580
1 800	34.678	18 000	28.864
2 000	34.954	19 000	29.200
2 200	35.317	20 000	29.314
2 400	35.571	21 000	29.474
2 600	35.580	22 000	30.024
2 800	35.532	23 000	30.738
3 000	35.738	24 000	30.061
3 100	35.857	25 000	30.857
3 200	35.732	26 000	30.984
3 300	35.956	27 000	23.623
3 400	35.925	28 000	23.796
3 500	35.974	29 000	24.210
3 600	36.117	30 000	24.145
3 700	35.747	31 000	25.722
3 800	35.793	32 000	25.683
3 900	35.976	33 000	25.241
4 000	35.750	34 000	24.215
5 000	37.853	35 000	24.465
6 000	37.667	36 000	24.732
7 000	39.465	37 000	24.712
8 000	38.942	38 000	24.807
9 000	40.519	39 000	25.102
10 000	25.475	40 000	24.321

ANT7

Correction factor table

Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
400	30.460	11 000	26.652
600	30.828	12 000	27.073
800	31.128	13 000	26.518
1 000	31.380	14 000	27.545
1 200	31.700	15 000	28.356
1 400	31.979	16 000	28.188
1 600	32.121	17 000	29.029
1 800	32.422	18 000	29.310
2 000	32.731	19 000	28.623
2 200	32.771	20 000	29.553
2 400	33.090	21 000	28.445
2 600	33.382	22 000	29.647
2 800	33.424	23 000	30.064
3 000	33.622	24 000	29.861
3 100	33.740	25 000	30.515
3 200	33.999	26 000	30.386
3 300	34.114	27 000	22.636
3 400	34.102	28 000	22.809
3 500	34.399	29 000	23.223
3 600	34.199	30 000	23.158
3 700	34.208	31 000	24.735
3 800	34.265	32 000	24.696
3 900	34.274	33 000	24.254
4 000	34.343	34 000	23.228
5 000	36.438	35 000	23.478
6 000	37.682	36 000	23.745
7 000	38.586	37 000	23.725
8 000	40.004	38 000	23.820
9 000	41.189	39 000	24.115
10 000	25.609	40 000	23.334

3.3. MAXIMUM MEASUREMENT UNCERTAINTY

Description	Condition	Uncertainty
Radiated Disturbance	9 kHz ~ 30 MHz	4.14 dB
	30 MHz ~ 1 GHz	5.82 dB
	1 GHz ~ 18 GHz	5.74 dB
	18 GHz ~ 40 GHz	5.76 dB

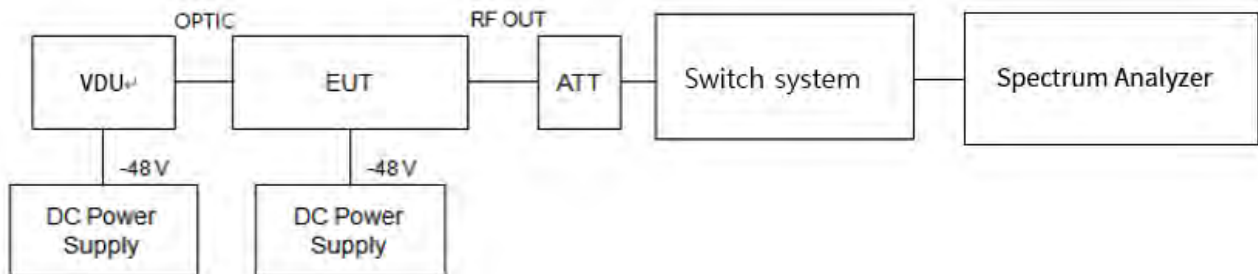
Coverage factor $k=2$, Confidence levels of 95 %

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

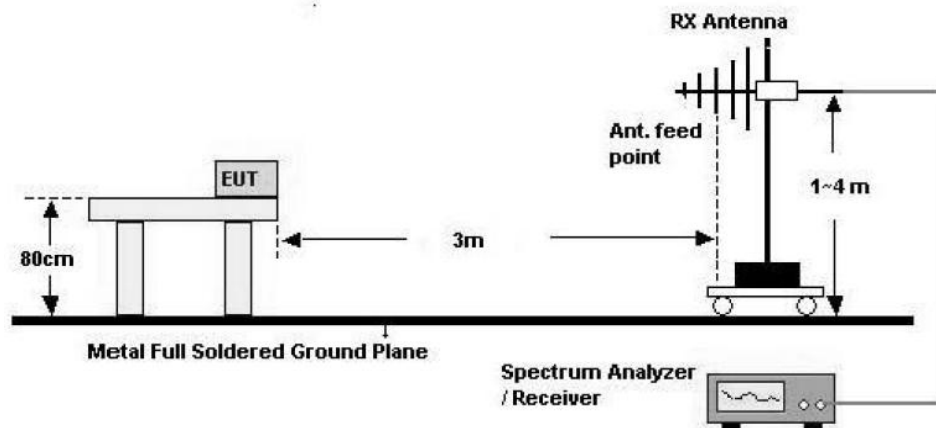
3.5. TEST DIAGRAMS

Conducted Test

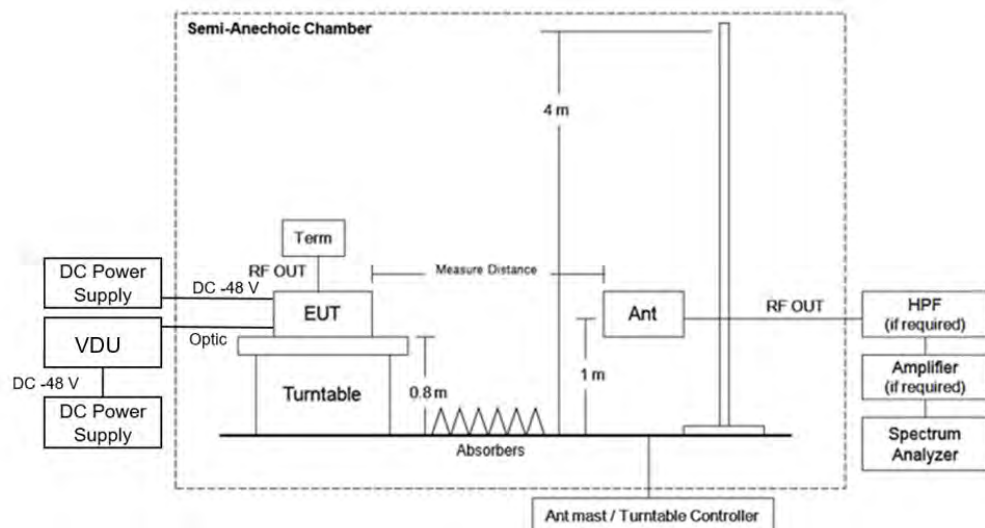


Radiated Test

30 MHz ~ 1 GHz

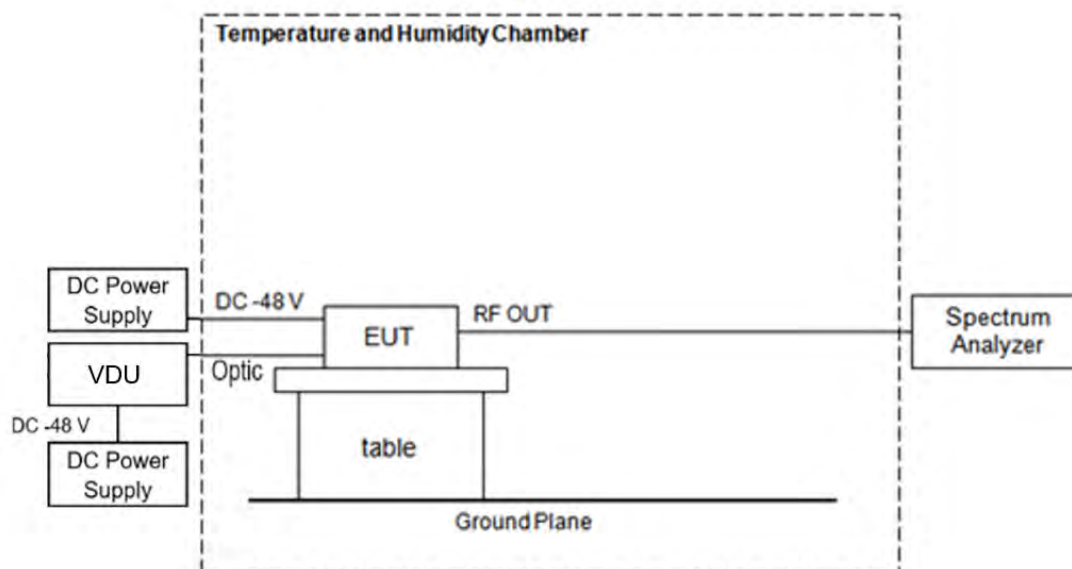


Above 1 GHz



***Note:** Measure Distance for Above 1 GHz is 3 m.

Frequency Stability



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

4. TEST EQUIPMENTS

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
PXA Signal Analyzer	N9030A	Keysight	MY49431434	2024-01-02	Annual
MXA Signal Analyzer	N9020A	Agilent	MY46471250	2023-07-22	Annual
RF Switch System	TMX0132C	TNM System	TM21100002	N/A	N/A
*30 dB Attenuator	TWAN-300-18G	Teleworld	N/A	2023-08-22	Annual
*50Ω Termination	908A	H.P.	N/A	N/A	N/A
*30 dB Attenuator	WA93-30-33	Weinschel, Inc.	0184	2023-11-21	Annual
Coaxial Attenuator	FAS-23-20	MCLI	103756	2024-01-03	Annual
DC Power Supply	PCR4000M	KIKUSUI	VM002269	2023-09-30	Annual
DC Power Supply	6674A	Agilent	MY41003340	2023-07-06	Annual
Temperature and Humidity Chamber	NY-THR18750	NANGYEAL	NY-200912201A	2024-01-26	Annual
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM20090002	N/A	N/A
Controller(Antenna mast & Turn Table)	CO3000	Innco systems	CO3000/1251/48920320/P	N/A	N/A
Antenna Position Tower	MA4640/800-XP-ET	Innco systems	N/A	N/A	N/A
Turn Table	DS2000-S	Innco systems	N/A	N/A	N/A
Turn Table	Turn Table	Ets	N/A	N/A	N/A
Loop Antenna	FMZB 1513	Schwarzbeck	1513-333	2024-03-17	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	01039	2023-07-14	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02296	2024-05-18	Biennial
Horn Antenna(15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	2024-09-29	Biennial
RF Switching System	FBSR-04C (7G HPF+LNA)	T&M SYSTEM	S4L5	2023-08-23	Annual
Power Amplifier	CBL18265035	CERNEX	22966	2023-12-01	Annual
Power Amplifier	CBL26405040	CERNEX	25956	2024-03-02	Annual

*This equipment has been used to each port, but we only listed one equipment for simplicity.

Note:

- Equipment listed above that calibrated during the testing period was set for test after the calibration.
- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date, or will be tested after the calibration is completed.

5. TEST RESULT

5.1. RF OUTPUT POWER and PSD

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.

§ 27.50 Power limits and duty cycle.

- (j) The following power requirements apply to stations transmitting in the 3700-3980 MHz band:
 - (2) The power of each fixed or base station transmitting in the 3700-3980 MHz band and situated in any geographic location other than that described in paragraph (j)(1) of this section is limited to an EIRP of 1640 Watts/MHz. This limit applies to the aggregate power of all antenna elements in any given sector of a base station.

Test Procedures:

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

The EUT is considered to transmit continuously if it can be configured to transmit at a burst duty cycle of greater than or equal to 98 % throughout the duration of the measurement. If this condition can be achieved, then the following procedure can be used to measure the average output power of the EUT.

- a) Set span to $2 \times$ to $3 \times$ the OBW.
- b) Set RBW = 1 % to 5 % of the OBW.
- c) Set VBW $\geq 3 \times$ RBW.
- d) Set number of measurement points in sweep $\geq 2 \times$ span / RBW.
- e) Sweep time:
 - 1) Set = auto-couple, or
 - 2) Set $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$ for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.
- 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.

The PSD measurement is performed in accordance with Section 5.2.4.5 of ANSI C63.26.

Some regulatory requirements specify the RF output power limits in terms of maximum or average PSD, (i.e., the output power or unwanted emissions power limits are defined within a specified reference bandwidth).

When average PSD limits are specified, the same fundamental measurement condition applies as previously discussed (i.e., averaging is to be performed only over durations of active transmissions at maximum output power level). Thus, when performing this measurement, the EUT must either be configured to transmit continuously at full power while the compliance measurement is performed, or else the measurement instrumentation must be configured to acquire data only over durations when the EUT is actively transmitting at full power. In circumstances where neither of these conditions can be realized, then alternative procedures are provided for both constant duty cycle and non-constant duty cycle transmissions.

The PSD is measured following the same procedures described in 5.2.4.4 for measuring the total average power, but with the RBW set to the reference bandwidth specified by the applicable regulatory requirement, and by using the marker function to identify the maximum PSD instead of summing the power across the OBW. If the fundamental measurement condition cannot be realized, then one of the alternative procedures in 5.2.4.4.2 or 5.2.4.4.3 should be selected, based on whether the transmitter duty cycle is constant (variations $\leq \pm 2\%$) or non-constant (variations $> \pm 2\%$), respectively.

Note: The results of the Conducted output power and PSD 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
(8 Port) 5G NR n77 40 MHz [1 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
0	QPSK	Low	3 720.00	45.05	31.98
		Middle	3 800.00	45.06	32.04
		High	3 880.00	45.38	34.52
	16QAM	Low	3 720.00	45.28	33.69
		Middle	3 800.00	45.03	31.86
		High	3 880.00	45.31	33.95
	64QAM	Low	3 720.00	45.34	34.17
		Middle	3 800.00	45.16	32.80
		High	3 880.00	45.35	34.28
	256QAM	Low	3 720.00	45.27	33.67
		Middle	3 800.00	45.03	31.82
		High	3 880.00	45.44	34.96
1	QPSK	Low	3 720.00	45.14	32.70
		Middle	3 800.00	45.10	32.39
		High	3 880.00	45.33	34.13
	16QAM	Low	3 720.00	45.30	33.88
		Middle	3 800.00	45.05	32.00
		High	3 880.00	45.18	32.95
	64QAM	Low	3 720.00	45.31	33.92
		Middle	3 800.00	45.16	32.79
		High	3 880.00	45.28	33.71
	256QAM	Low	3 720.00	45.33	34.11
		Middle	3 800.00	45.06	32.06
		High	3 880.00	45.32	34.00

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
2	QPSK	Low	3 720.00	45.98	39.62
		Middle	3 800.00	45.20	33.14
		High	3 880.00	45.13	32.61
	16QAM	Low	3 720.00	46.10	40.78
		Middle	3 800.00	45.11	32.40
		High	3 880.00	45.21	33.18
	64QAM	Low	3 720.00	46.14	41.11
		Middle	3 800.00	45.15	32.74
		High	3 880.00	45.23	33.34
	256QAM	Low	3 720.00	46.20	41.73
		Middle	3 800.00	45.16	32.82
		High	3 880.00	45.27	33.67
3	QPSK	Low	3 720.00	45.02	31.78
		Middle	3 800.00	45.02	31.80
		High	3 880.00	45.29	33.78
	16QAM	Low	3 720.00	45.08	32.20
		Middle	3 800.00	45.09	32.26
		High	3 880.00	45.28	33.69
	64QAM	Low	3 720.00	45.20	33.10
		Middle	3 800.00	45.14	32.63
		High	3 880.00	45.31	34.00
	256QAM	Low	3 720.00	45.17	32.89
		Middle	3 800.00	45.05	31.96
		High	3 880.00	45.20	33.14
4	QPSK	Low	3 720.00	45.17	32.86
		Middle	3 800.00	45.03	31.86
		High	3 880.00	45.31	33.95
	16QAM	Low	3 720.00	45.12	32.49
		Middle	3 800.00	45.08	32.23
		High	3 880.00	45.29	33.83
	64QAM	Low	3 720.00	45.19	33.05
		Middle	3 800.00	45.03	31.86
		High	3 880.00	45.30	33.92
	256QAM	Low	3 720.00	45.23	33.33
		Middle	3 800.00	45.03	31.81
		High	3 880.00	45.26	33.60

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
5	QPSK	Low	3 720.00	45.30	33.91
		Middle	3 800.00	45.03	31.86
		High	3 880.00	45.32	34.04
	16QAM	Low	3 720.00	45.22	33.27
		Middle	3 800.00	45.07	32.16
		High	3 880.00	45.26	33.56
	64QAM	Low	3 720.00	45.25	33.47
		Middle	3 800.00	45.05	31.98
		High	3 880.00	45.32	34.03
	256QAM	Low	3 720.00	45.29	33.80
		Middle	3 800.00	45.03	31.83
		High	3 880.00	45.20	33.12
6	QPSK	Low	3 720.00	45.28	33.70
		Middle	3 800.00	45.20	33.14
		High	3 880.00	45.42	34.86
	16QAM	Low	3 720.00	45.14	32.67
		Middle	3 800.00	45.24	33.45
		High	3 880.00	45.37	34.43
	64QAM	Low	3 720.00	45.30	33.89
		Middle	3 800.00	45.24	33.40
		High	3 880.00	45.43	34.92
	256QAM	Low	3 720.00	45.28	33.73
		Middle	3 800.00	45.20	33.09
		High	3 880.00	45.41	34.73
7	QPSK	Low	3 720.00	45.20	33.14
		Middle	3 800.00	45.19	33.04
		High	3 880.00	45.43	34.93
	16QAM	Low	3 720.00	45.29	33.81
		Middle	3 800.00	45.24	33.44
		High	3 880.00	45.33	34.12
	64QAM	Low	3 720.00	45.32	34.05
		Middle	3 800.00	45.19	33.01
		High	3 880.00	45.45	35.08
	256QAM	Low	3 720.00	45.37	34.43
		Middle	3 800.00	45.19	33.01
		High	3 880.00	45.41	34.75

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W			
3 720.00	269.68	272.78	276.75	277.71
3 800.00	259.26	259.79	261.21	258.40
3 880.00	272.82	269.71	273.27	271.97

(8 Port) 5G NR n77 60 MHz [1 Carrier] (Low Ch.)

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
1	16QAM	Low	3 730.00	45.59	36.22

(8 Port) 5G NR n77 60 MHz [1 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
0	QPSK	Middle	3 800.00	45.35	34.29
		High	3 870.00	45.71	37.24
	16QAM	Middle	3 800.00	45.33	34.10
		High	3 870.00	45.60	36.32
	64QAM	Middle	3 800.00	45.33	34.10
		High	3 870.00	45.68	36.96
	256QAM	Middle	3 800.00	45.35	34.24
		High	3 870.00	45.69	37.06
1	QPSK	Middle	3 800.00	45.46	35.17
		High	3 870.00	45.58	36.11
	16QAM	Middle	3 800.00	45.48	35.33
		High	3 870.00	45.48	35.36
	64QAM	Middle	3 800.00	45.45	35.06
		High	3 870.00	45.57	36.04
	256QAM	Middle	3 800.00	45.46	35.17
		High	3 870.00	45.56	35.96
2	QPSK	Middle	3 800.00	45.22	33.28
		High	3 870.00	45.40	34.71
	16QAM	Middle	3 800.00	45.21	33.21
		High	3 870.00	45.35	34.25
	64QAM	Middle	3 800.00	45.20	33.14
		High	3 870.00	45.41	34.73
	256QAM	Middle	3 800.00	45.24	33.40
		High	3 870.00	45.41	34.77
3	QPSK	Middle	3 800.00	45.22	33.24
		High	3 870.00	45.48	35.35
	16QAM	Middle	3 800.00	45.24	33.40
		High	3 870.00	45.46	35.14
	64QAM	Middle	3 800.00	45.20	33.13
		High	3 870.00	45.49	35.43
	256QAM	Middle	3 800.00	45.21	33.21
		High	3 870.00	45.48	35.32

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
4	QPSK	Middle	3 800.00	45.45	35.07
		High	3 870.00	45.62	36.44
	16QAM	Middle	3 800.00	45.44	34.96
		High	3 870.00	45.53	35.72
	64QAM	Middle	3 800.00	45.45	35.07
		High	3 870.00	45.62	36.44
	256QAM	Middle	3 800.00	45.45	35.12
		High	3 870.00	45.61	36.43
5	QPSK	Middle	3 800.00	45.38	34.55
		High	3 870.00	45.76	37.67
	16QAM	Middle	3 800.00	45.38	34.52
		High	3 870.00	45.72	37.33
	64QAM	Middle	3 800.00	45.37	34.40
		High	3 870.00	45.75	37.56
	256QAM	Middle	3 800.00	45.35	34.28
		High	3 870.00	45.75	37.63
6	QPSK	Middle	3 800.00	45.49	35.40
		High	3 870.00	45.78	37.87
	16QAM	Middle	3 800.00	45.50	35.45
		High	3 870.00	45.70	37.13
	64QAM	Middle	3 800.00	45.48	35.35
		High	3 870.00	45.75	37.61
	256QAM	Middle	3 800.00	45.49	35.42
		High	3 870.00	45.75	37.62
7	QPSK	Middle	3 800.00	45.45	35.05
		High	3 870.00	45.65	36.69
	16QAM	Middle	3 800.00	45.44	35.01
		High	3 870.00	45.62	36.46
	64QAM	Middle	3 800.00	45.44	34.97
		High	3 870.00	45.66	36.78
	256QAM	Middle	3 800.00	45.46	35.13
		High	3 870.00	45.66	36.83

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W			
3 800.00	276.05	275.99	275.23	275.98
3 870.00	292.08	287.69	291.55	291.61

(8 Port) 5G NR n77 80 MHz [1 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
0	QPSK	Low	3 740.00	45.38	34.52
		Middle	3 800.00	45.22	33.24
		High	3 860.00	45.32	34.06
	16QAM	Low	3 740.00	45.34	34.21
		Middle	3 800.00	45.26	33.56
		High	3 860.00	45.43	34.88
	64QAM	Low	3 740.00	45.31	33.98
		Middle	3 800.00	45.14	32.65
		High	3 860.00	45.34	34.23
	256QAM	Low	3 740.00	45.31	33.99
		Middle	3 800.00	45.15	32.73
		High	3 860.00	45.29	33.81
1	QPSK	Low	3 740.00	45.34	34.22
		Middle	3 800.00	45.26	33.58
		High	3 860.00	45.23	33.36
	16QAM	Low	3 740.00	45.30	33.87
		Middle	3 800.00	45.24	33.40
		High	3 860.00	45.33	34.08
	64QAM	Low	3 740.00	45.32	34.02
		Middle	3 800.00	45.10	32.38
		High	3 860.00	45.21	33.17
	256QAM	Low	3 740.00	45.25	33.49
		Middle	3 800.00	45.24	33.38
		High	3 860.00	45.21	33.18

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
2	QPSK	Low	3 740.00	46.02	40.04
		Middle	3 800.00	45.41	34.79
		High	3 860.00	45.29	33.81
	16QAM	Low	3 740.00	46.04	40.14
		Middle	3 800.00	45.32	34.03
		High	3 860.00	45.21	33.20
	64QAM	Low	3 740.00	46.06	40.39
		Middle	3 800.00	45.18	32.96
		High	3 860.00	45.23	33.37
	256QAM	Low	3 740.00	46.05	40.28
		Middle	3 800.00	45.23	33.33
		High	3 860.00	45.24	33.40
3	QPSK	Low	3 740.00	45.21	33.22
		Middle	3 800.00	45.19	33.01
		High	3 860.00	45.25	33.50
	16QAM	Low	3 740.00	45.22	33.24
		Middle	3 800.00	45.17	32.89
		High	3 860.00	45.34	34.23
	64QAM	Low	3 740.00	45.19	33.01
		Middle	3 800.00	45.06	32.03
		High	3 860.00	45.24	33.38
	256QAM	Low	3 740.00	45.19	33.00
		Middle	3 800.00	45.14	32.65
		High	3 860.00	45.25	33.52
4	QPSK	Low	3 740.00	45.21	33.23
		Middle	3 800.00	45.11	32.47
		High	3 860.00	45.19	33.01
	16QAM	Low	3 740.00	45.21	33.20
		Middle	3 800.00	45.11	32.46
		High	3 860.00	45.25	33.49
	64QAM	Low	3 740.00	45.22	33.24
		Middle	3 800.00	45.03	31.82
		High	3 860.00	45.08	32.23
	256QAM	Low	3 740.00	45.23	33.37
		Middle	3 800.00	45.11	32.45
		High	3 860.00	45.17	32.92

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
5	QPSK	Low	3 740.00	45.29	33.78
		Middle	3 800.00	45.20	33.14
		High	3 860.00	45.38	34.48
	16QAM	Low	3 740.00	45.27	33.64
		Middle	3 800.00	45.17	32.86
		High	3 860.00	45.37	34.43
	64QAM	Low	3 740.00	45.30	33.91
		Middle	3 800.00	45.06	32.03
		High	3 860.00	45.20	33.13
	256QAM	Low	3 740.00	45.29	33.81
		Middle	3 800.00	45.19	33.02
		High	3 860.00	45.35	34.25
6	QPSK	Low	3 740.00	45.33	34.10
		Middle	3 800.00	45.34	34.21
		High	3 860.00	45.42	34.86
	16QAM	Low	3 740.00	45.35	34.25
		Middle	3 800.00	45.36	34.33
		High	3 860.00	45.29	33.81
	64QAM	Low	3 740.00	45.34	34.19
		Middle	3 800.00	45.26	33.59
		High	3 860.00	45.34	34.21
	256QAM	Low	3 740.00	45.35	34.26
		Middle	3 800.00	45.32	34.00
		High	3 860.00	45.52	35.61
7	QPSK	Low	3 740.00	45.40	34.67
		Middle	3 800.00	45.31	33.99
		High	3 860.00	45.20	33.12
	16QAM	Low	3 740.00	45.45	35.06
		Middle	3 800.00	45.32	34.05
		High	3 860.00	45.30	33.92
	64QAM	Low	3 740.00	45.40	34.69
		Middle	3 800.00	45.24	33.39
		High	3 860.00	45.23	33.32
	256QAM	Low	3 740.00	45.43	34.88
		Middle	3 800.00	45.31	33.98
		High	3 860.00	45.40	34.68

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W			
3 740.00	277.79	277.61	277.42	277.09
3 800.00	268.43	267.56	260.85	265.54
3 860.00	270.21	272.05	267.04	271.37

(8 Port) 5G NR n77 100 MHz [1 Carrier] (Low Ch.)

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
2	QPSK	Low	3 750.00	45.48	35.32

(8 Port) 5G NR n77 100 MHz [1 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
0	QPSK	Middle	3 800.00	45.48	35.32
		High	3 850.00	45.65	36.69
	16QAM	Middle	3 800.00	45.51	35.55
		High	3 850.00	45.61	36.36
	64QAM	Middle	3 800.00	45.45	35.06
		High	3 850.00	45.61	36.40
	256QAM	Middle	3 800.00	45.47	35.22
		High	3 850.00	45.62	36.48
1	QPSK	Middle	3 800.00	45.48	35.30
		High	3 850.00	45.59	36.21
	16QAM	Middle	3 800.00	45.54	35.84
		High	3 850.00	45.65	36.69
	64QAM	Middle	3 800.00	45.49	35.38
		High	3 850.00	45.61	36.37
	256QAM	Middle	3 800.00	45.50	35.49
		High	3 850.00	45.57	36.10
2	QPSK	Middle	3 800.00	45.35	34.27
		High	3 850.00	45.38	34.55
	16QAM	Middle	3 800.00	45.42	34.83
		High	3 850.00	45.48	35.33
	64QAM	Middle	3 800.00	45.37	34.42
		High	3 850.00	45.36	34.36
	256QAM	Middle	3 800.00	45.38	34.48
		High	3 850.00	45.33	34.14
3	QPSK	Middle	3 800.00	45.27	33.64
		High	3 850.00	45.44	35.03
	16QAM	Middle	3 800.00	45.32	34.08
		High	3 850.00	45.48	35.35
	64QAM	Middle	3 800.00	45.29	33.84
		High	3 850.00	45.40	34.71
	256QAM	Middle	3 800.00	45.28	33.73
		High	3 850.00	45.41	34.72

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
4	QPSK	Middle	3 800.00	45.51	35.53
		High	3 850.00	45.55	35.88
	16QAM	Middle	3 800.00	45.54	35.79
		High	3 850.00	45.61	36.35
	64QAM	Middle	3 800.00	45.52	35.61
		High	3 850.00	45.56	35.97
	256QAM	Middle	3 800.00	45.51	35.56
		High	3 850.00	45.56	35.95
5	QPSK	Middle	3 800.00	45.45	35.10
		High	3 850.00	45.60	36.28
	16QAM	Middle	3 800.00	45.48	35.29
		High	3 850.00	45.57	36.08
	64QAM	Middle	3 800.00	45.45	35.11
		High	3 850.00	45.59	36.20
	256QAM	Middle	3 800.00	45.48	35.29
		High	3 850.00	45.62	36.46
6	QPSK	Middle	3 800.00	45.57	36.02
		High	3 850.00	45.63	36.56
	16QAM	Middle	3 800.00	45.62	36.47
		High	3 850.00	45.63	36.58
	64QAM	Middle	3 800.00	45.60	36.27
		High	3 850.00	45.62	36.47
	256QAM	Middle	3 800.00	45.57	36.07
		High	3 850.00	45.62	36.51
7	QPSK	Middle	3 800.00	45.51	35.55
		High	3 850.00	45.58	36.11
	16QAM	Middle	3 800.00	45.54	35.83
		High	3 850.00	45.52	35.69
	64QAM	Middle	3 800.00	45.53	35.72
		High	3 850.00	45.57	36.06
	256QAM	Middle	3 800.00	45.51	35.55
		High	3 850.00	45.59	36.19

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W			
3 800.00	280.74	283.68	281.41	281.40
3 850.00	287.30	288.42	286.53	286.56

Tabular Data of RF Contiguous output power

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
0	QPSK	Low	3 770.00	45.32	34.06
	16QAM	Low	3 770.00	45.21	33.17
	64QAM	Low	3 770.00	45.22	33.24
	256QAM	Low	3 770.00	45.19	33.01
1	QPSK	Low	3 770.00	45.28	33.74
	16QAM	Low	3 770.00	45.15	32.73
	64QAM	Low	3 770.00	45.18	32.92
	256QAM	Low	3 770.00	45.14	32.66
2	QPSK	Low	3 770.00	45.53	35.69
	16QAM	Low	3 770.00	45.35	34.28
	64QAM	Low	3 770.00	45.44	34.96
	256QAM	Low	3 770.00	45.36	34.34
3	QPSK	Low	3 770.00	45.13	32.58
	16QAM	Low	3 770.00	45.11	32.40
	64QAM	Low	3 770.00	45.09	32.26
	256QAM	Low	3 770.00	45.04	31.90
4	QPSK	Low	3 770.00	45.22	33.27
	16QAM	Low	3 770.00	45.11	32.44
	64QAM	Low	3 770.00	45.07	32.14
	256QAM	Low	3 770.00	45.03	31.82
5	QPSK	Low	3 770.00	45.25	33.54
	16QAM	Low	3 770.00	45.08	32.19
	64QAM	Low	3 770.00	45.08	32.25
	256QAM	Low	3 770.00	45.04	31.90
6	QPSK	Low	3 770.00	45.41	34.72
	16QAM	Low	3 770.00	45.30	33.86
	64QAM	Low	3 770.00	45.18	32.95
	256QAM	Low	3 770.00	45.16	32.83
7	QPSK	Low	3 770.00	45.34	34.17
	16QAM	Low	3 770.00	45.27	33.61
	64QAM	Low	3 770.00	45.15	32.71
	256QAM	Low	3 770.00	45.20	33.11

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W			
3 770.00	271.77	264.70	263.43	261.57

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier]

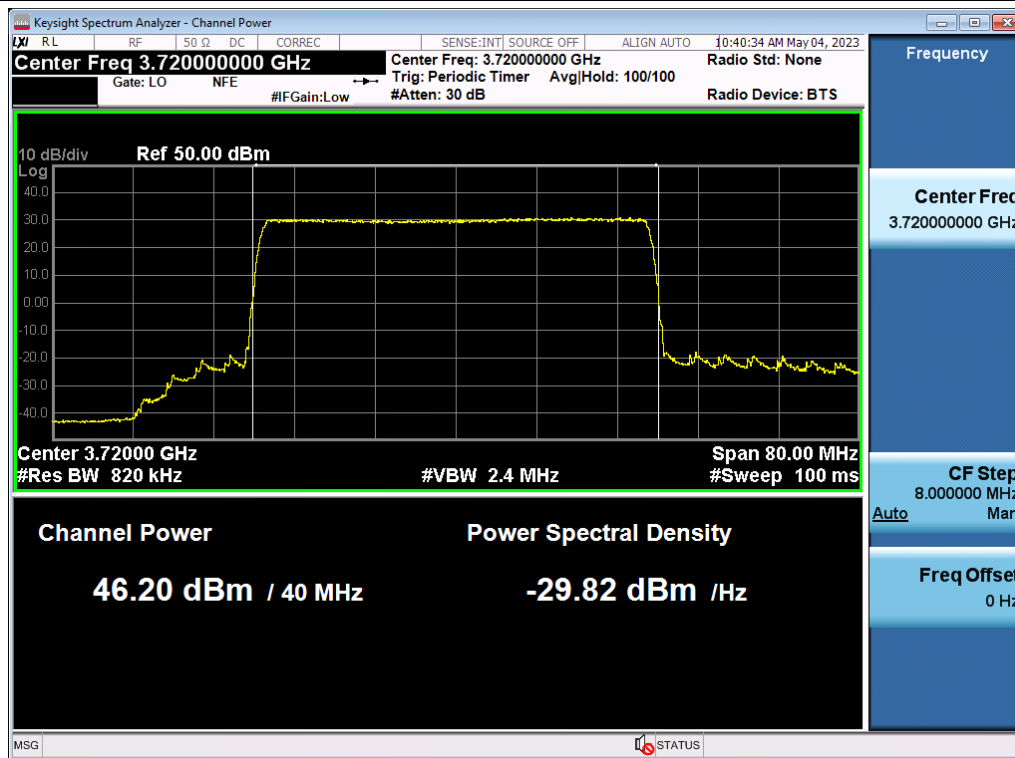
Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
0	QPSK	Low	3 800.00	45.29	33.78
	16QAM	Low	3 800.00	45.29	33.80
	64QAM	Low	3 800.00	45.32	34.07
	256QAM	Low	3 800.00	45.37	34.43
1	QPSK	Low	3 800.00	45.35	34.27
	16QAM	Low	3 800.00	45.31	33.99
	64QAM	Low	3 800.00	45.36	34.40
	256QAM	Low	3 800.00	45.42	34.80
2	QPSK	Low	3 800.00	45.34	34.22
	16QAM	Low	3 800.00	45.37	34.40
	64QAM	Low	3 800.00	45.39	34.58
	256QAM	Low	3 800.00	45.42	34.79
3	QPSK	Low	3 800.00	45.32	34.00
	16QAM	Low	3 800.00	45.35	34.25
	64QAM	Low	3 800.00	45.36	34.32
	256QAM	Low	3 800.00	45.37	34.45
4	QPSK	Low	3 800.00	45.21	33.20
	16QAM	Low	3 800.00	45.23	33.37
	64QAM	Low	3 800.00	45.26	33.60
	256QAM	Low	3 800.00	45.27	33.67
5	QPSK	Low	3 800.00	45.34	34.23
	16QAM	Low	3 800.00	45.37	34.40
	64QAM	Low	3 800.00	45.38	34.54
	256QAM	Low	3 800.00	45.42	34.83
6	QPSK	Low	3 800.00	45.41	34.75
	16QAM	Low	3 800.00	45.44	34.96
	64QAM	Low	3 800.00	45.45	35.11
	256QAM	Low	3 800.00	45.48	35.36
7	QPSK	Low	3 800.00	45.36	34.37
	16QAM	Low	3 800.00	45.36	34.33
	64QAM	Low	3 800.00	45.44	34.96
	256QAM	Low	3 800.00	45.42	34.81

Sum Data of Port 0 ~ Port 7

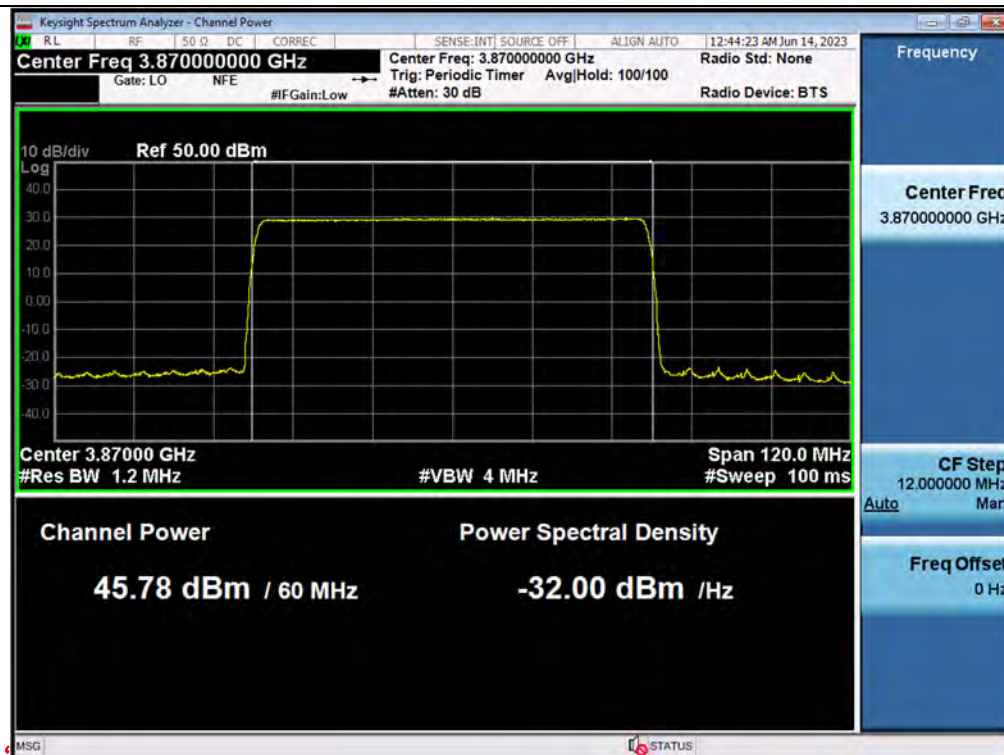
Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W			
3 800.00	272.82	273.51	275.58	277.15

Plot Data of RF Output Power

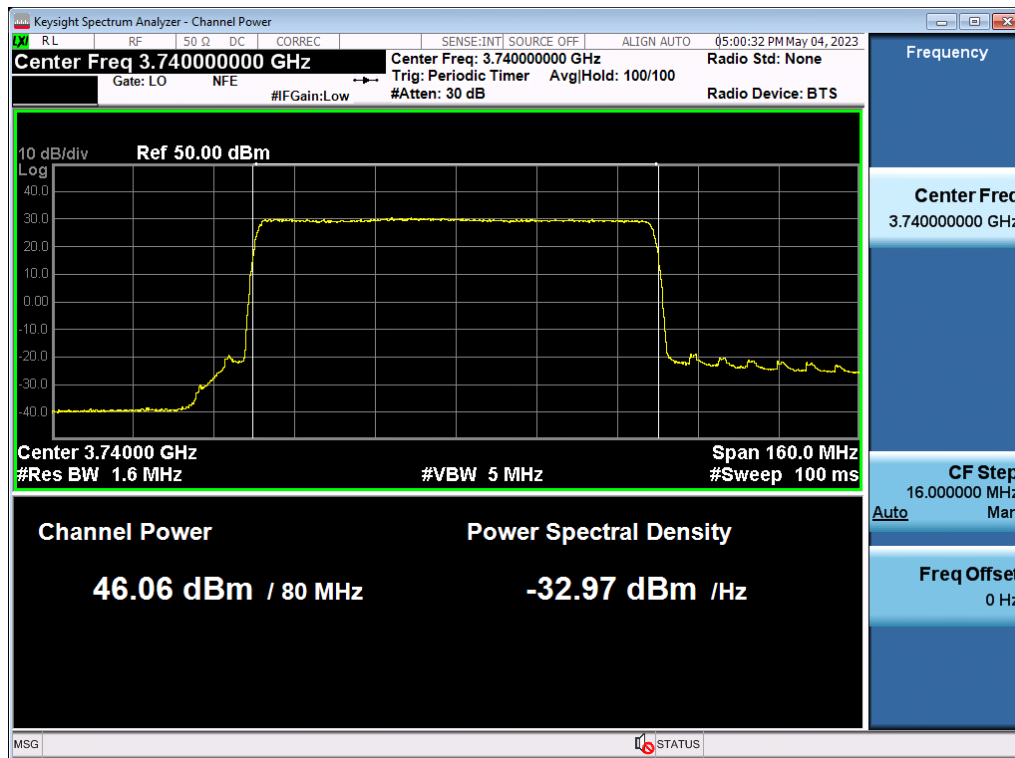
Antenna 2 / (8 Port) 5G NR n77 40 MHz [1 Carrier] / 256QAM / Low



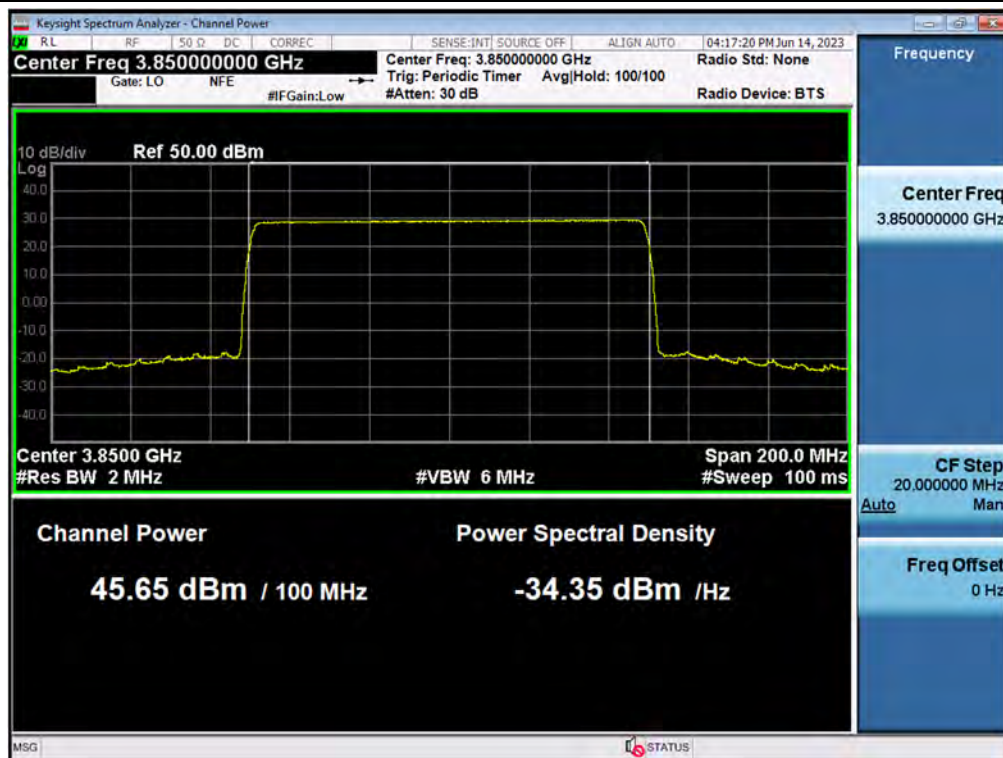
Antenna 6 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / QPSK / High



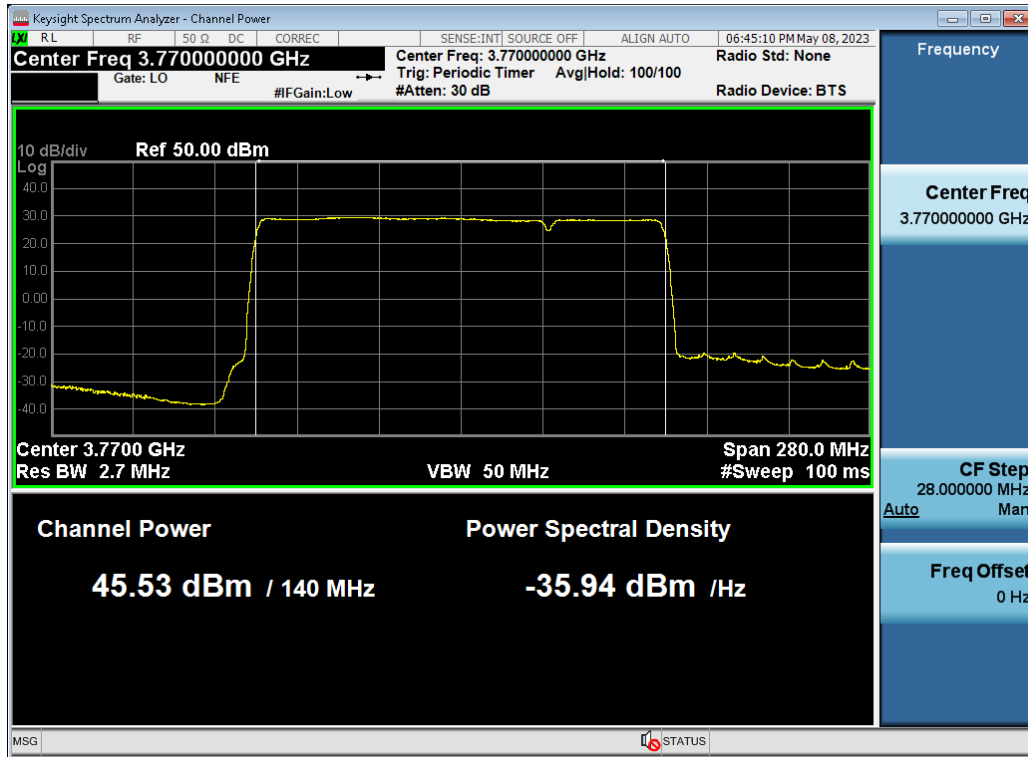
Antenna 2 / (8 Port) 5G NR n77 80 MHz [1 Carrier] / 64QAM / Low



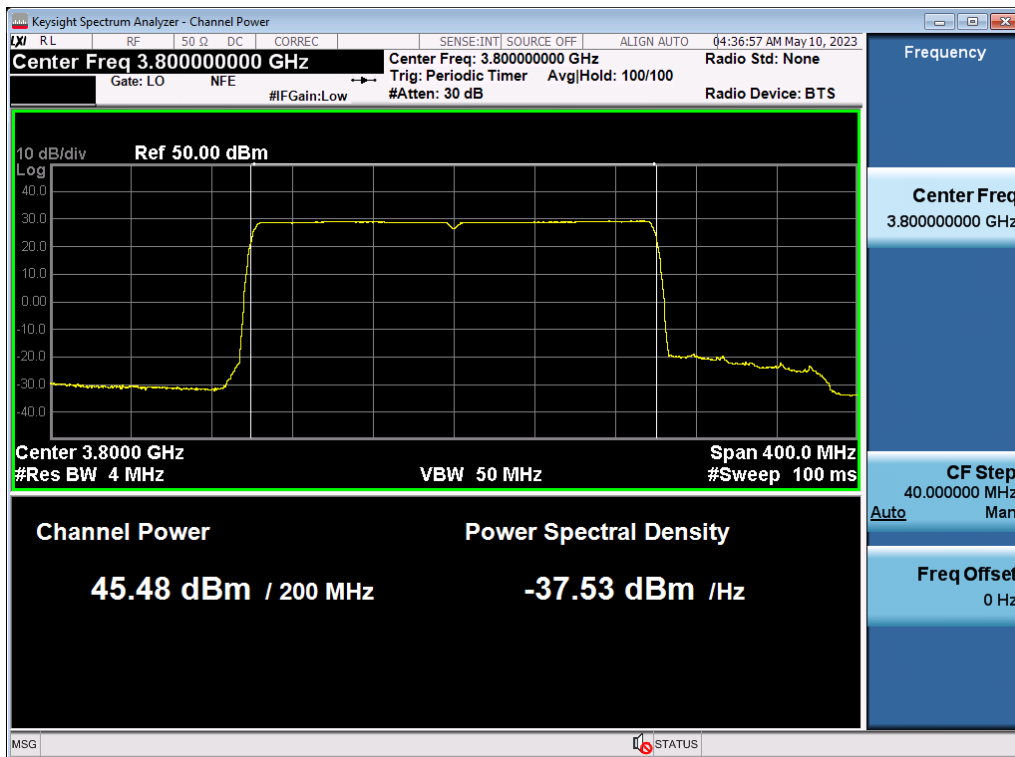
Antenna 0 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / QPSK / High



Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / QPSK / Low / Contiguous



Antenna 6 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 256QAM / Low / Contiguous



Tabular Data of PSD

(8 Port) 5G NR n77 40 MHz [1 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm/MHz)	Calculated (W/MHz)
0	QPSK	Low	3 720.00	29.99	1.00
		Middle	3 800.00	29.96	0.99
		High	3 880.00	30.35	1.08
	16QAM	Low	3 720.00	30.56	1.14
		Middle	3 800.00	30.17	1.04
		High	3 880.00	30.47	1.11
	64QAM	Low	3 720.00	30.45	1.11
		Middle	3 800.00	30.27	1.06
		High	3 880.00	30.44	1.11
	256QAM	Low	3 720.00	30.39	1.09
		Middle	3 800.00	30.14	1.03
		High	3 880.00	30.56	1.14
1	QPSK	Low	3 720.00	30.06	1.01
		Middle	3 800.00	29.95	0.99
		High	3 880.00	30.18	1.04
	16QAM	Low	3 720.00	30.35	1.08
		Middle	3 800.00	30.27	1.07
		High	3 880.00	30.31	1.07
	64QAM	Low	3 720.00	30.42	1.10
		Middle	3 800.00	30.28	1.07
		High	3 880.00	30.40	1.10
	256QAM	Low	3 720.00	30.42	1.10
		Middle	3 800.00	30.21	1.05
		High	3 880.00	30.29	1.07

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm/MHz)	Calculated (W/MHz)
2	QPSK	Low	3 720.00	31.16	1.30
		Middle	3 800.00	29.95	0.99
		High	3 880.00	30.19	1.05
	16QAM	Low	3 720.00	31.36	1.37
		Middle	3 800.00	30.21	1.05
		High	3 880.00	30.53	1.13
	64QAM	Low	3 720.00	31.51	1.41
		Middle	3 800.00	30.17	1.04
		High	3 880.00	30.46	1.11
	256QAM	Low	3 720.00	31.65	1.46
		Middle	3 800.00	30.29	1.07
		High	3 880.00	30.48	1.12
3	QPSK	Low	3 720.00	29.95	0.99
		Middle	3 800.00	29.87	0.97
		High	3 880.00	30.18	1.04
	16QAM	Low	3 720.00	30.19	1.05
		Middle	3 800.00	30.22	1.05
		High	3 880.00	30.35	1.08
	64QAM	Low	3 720.00	30.29	1.07
		Middle	3 800.00	30.14	1.03
		High	3 880.00	30.42	1.10
	256QAM	Low	3 720.00	30.35	1.08
		Middle	3 800.00	30.14	1.03
		High	3 880.00	30.33	1.08
4	QPSK	Low	3 720.00	30.01	1.00
		Middle	3 800.00	29.93	0.98
		High	3 880.00	30.27	1.06
	16QAM	Low	3 720.00	30.31	1.07
		Middle	3 800.00	30.26	1.06
		High	3 880.00	30.40	1.10
	64QAM	Low	3 720.00	30.20	1.05
		Middle	3 800.00	30.24	1.06
		High	3 880.00	30.39	1.09
	256QAM	Low	3 720.00	30.43	1.10
		Middle	3 800.00	30.25	1.06
		High	3 880.00	30.44	1.11

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm/MHz)	Calculated (W/MHz)
5	QPSK	Low	3 720.00	30.24	1.06
		Middle	3 800.00	29.87	0.97
		High	3 880.00	30.12	1.03
	16QAM	Low	3 720.00	30.39	1.09
		Middle	3 800.00	30.10	1.02
		High	3 880.00	30.22	1.05
	64QAM	Low	3 720.00	30.37	1.09
		Middle	3 800.00	30.15	1.03
		High	3 880.00	30.40	1.10
	256QAM	Low	3 720.00	30.41	1.10
		Middle	3 800.00	30.04	1.01
		High	3 880.00	30.24	1.06
6	QPSK	Low	3 720.00	30.17	1.04
		Middle	3 800.00	30.03	1.01
		High	3 880.00	30.35	1.08
	16QAM	Low	3 720.00	30.23	1.05
		Middle	3 800.00	30.36	1.09
		High	3 880.00	30.51	1.12
	64QAM	Low	3 720.00	30.40	1.10
		Middle	3 800.00	30.23	1.06
		High	3 880.00	30.51	1.12
	256QAM	Low	3 720.00	30.47	1.11
		Middle	3 800.00	30.32	1.08
		High	3 880.00	30.45	1.11
7	QPSK	Low	3 720.00	30.05	1.01
		Middle	3 800.00	29.99	1.00
		High	3 880.00	30.28	1.07
	16QAM	Low	3 720.00	30.42	1.10
		Middle	3 800.00	30.33	1.08
		High	3 880.00	30.55	1.13
	64QAM	Low	3 720.00	30.44	1.11
		Middle	3 800.00	30.19	1.04
		High	3 880.00	30.43	1.11
	256QAM	Low	3 720.00	30.63	1.16
		Middle	3 800.00	30.28	1.07
		High	3 880.00	30.49	1.12

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	PSD (Conducted)			
	QPSK	16QAM	64QAM	256QAM
	W/MHz			
3 720.00	8.41	8.96	9.03	9.22
3 800.00	7.90	8.46	8.39	8.39
3 880.00	8.45	8.81	8.84	8.79

(8 Port) 5G NR n77 60 MHz [1 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
0	QPSK	Middle	3 800.00	28.42	0.69
		High	3 870.00	28.89	0.77
	16QAM	Middle	3 800.00	28.57	0.72
		High	3 870.00	29.01	0.80
	64QAM	Middle	3 800.00	28.40	0.69
		High	3 870.00	28.89	0.78
	256QAM	Middle	3 800.00	28.46	0.70
		High	3 870.00	28.90	0.78
1	QPSK	Middle	3 800.00	28.52	0.71
		High	3 870.00	28.66	0.73
	16QAM	Middle	3 800.00	28.78	0.76
		High	3 870.00	28.92	0.78
	64QAM	Middle	3 800.00	28.51	0.71
		High	3 870.00	28.63	0.73
	256QAM	Middle	3 800.00	28.53	0.71
		High	3 870.00	28.63	0.73
2	QPSK	Middle	3 800.00	28.31	0.68
		High	3 870.00	28.84	0.77
	16QAM	Middle	3 800.00	28.73	0.75
		High	3 870.00	28.95	0.78
	64QAM	Middle	3 800.00	28.32	0.68
		High	3 870.00	28.87	0.77
	256QAM	Middle	3 800.00	28.35	0.68
		High	3 870.00	28.87	0.77
3	QPSK	Middle	3 800.00	28.25	0.67
		High	3 870.00	28.60	0.72
	16QAM	Middle	3 800.00	28.40	0.69
		High	3 870.00	28.82	0.76
	64QAM	Middle	3 800.00	28.29	0.68
		High	3 870.00	28.60	0.72
	256QAM	Middle	3 800.00	28.28	0.67
		High	3 870.00	28.57	0.72

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
4	QPSK	Middle	3 800.00	28.68	0.74
		High	3 870.00	28.68	0.74
	16QAM	Middle	3 800.00	28.69	0.74
		High	3 870.00	28.83	0.76
	64QAM	Middle	3 800.00	28.50	0.71
		High	3 870.00	28.72	0.74
	256QAM	Middle	3 800.00	28.52	0.71
		High	3 870.00	28.76	0.75
5	QPSK	Middle	3 800.00	28.49	0.71
		High	3 870.00	28.82	0.76
	16QAM	Middle	3 800.00	28.67	0.74
		High	3 870.00	29.03	0.80
	64QAM	Middle	3 800.00	28.46	0.70
		High	3 870.00	28.81	0.76
	256QAM	Middle	3 800.00	28.48	0.70
		High	3 870.00	28.82	0.76
6	QPSK	Middle	3 800.00	28.57	0.72
		High	3 870.00	28.95	0.79
	16QAM	Middle	3 800.00	28.74	0.75
		High	3 870.00	28.89	0.78
	64QAM	Middle	3 800.00	28.57	0.72
		High	3 870.00	28.94	0.78
	256QAM	Middle	3 800.00	28.60	0.72
		High	3 870.00	28.92	0.78
7	QPSK	Middle	3 800.00	28.46	0.70
		High	3 870.00	28.82	0.76
	16QAM	Middle	3 800.00	28.81	0.76
		High	3 870.00	28.80	0.76
	64QAM	Middle	3 800.00	28.53	0.71
		High	3 870.00	28.74	0.75
	256QAM	Middle	3 800.00	28.53	0.71
		High	3 870.00	28.72	0.74

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W			
3 800.00	5.62	5.90	5.60	5.63
3 870.00	6.05	6.22	6.04	6.03

(8 Port) 5G NR n77 80 MHz [1 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm/MHz)	Calculated (W/MHz)
0	QPSK	Low	3 740.00	27.27	0.53
		Middle	3 800.00	27.22	0.53
		High	3 860.00	27.34	0.54
	16QAM	Low	3 740.00	27.44	0.55
		Middle	3 800.00	27.30	0.54
		High	3 860.00	27.69	0.59
	64QAM	Low	3 740.00	27.43	0.55
		Middle	3 800.00	27.25	0.53
		High	3 860.00	27.65	0.58
	256QAM	Low	3 740.00	27.36	0.54
		Middle	3 800.00	27.24	0.53
		High	3 860.00	27.65	0.58
1	QPSK	Low	3 740.00	27.15	0.52
		Middle	3 800.00	27.17	0.52
		High	3 860.00	26.99	0.50
	16QAM	Low	3 740.00	27.30	0.54
		Middle	3 800.00	27.14	0.52
		High	3 860.00	27.35	0.54
	64QAM	Low	3 740.00	27.52	0.56
		Middle	3 800.00	27.29	0.54
		High	3 860.00	27.32	0.54
	256QAM	Low	3 740.00	27.23	0.53
		Middle	3 800.00	27.27	0.53
		High	3 860.00	27.33	0.54

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm/MHz)	Calculated (W/MHz)
2	QPSK	Low	3 740.00	28.09	0.64
		Middle	3 800.00	27.60	0.58
		High	3 860.00	27.55	0.57
	16QAM	Low	3 740.00	28.34	0.68
		Middle	3 800.00	27.56	0.57
		High	3 860.00	27.64	0.58
	64QAM	Low	3 740.00	28.40	0.69
		Middle	3 800.00	27.44	0.56
		High	3 860.00	27.78	0.60
	256QAM	Low	3 740.00	28.33	0.68
		Middle	3 800.00	27.72	0.59
		High	3 860.00	27.76	0.60
3	QPSK	Low	3 740.00	27.09	0.51
		Middle	3 800.00	27.08	0.51
		High	3 860.00	27.17	0.52
	16QAM	Low	3 740.00	27.23	0.53
		Middle	3 800.00	27.16	0.52
		High	3 860.00	27.41	0.55
	64QAM	Low	3 740.00	27.29	0.54
		Middle	3 800.00	27.13	0.52
		High	3 860.00	27.25	0.53
	256QAM	Low	3 740.00	27.26	0.53
		Middle	3 800.00	27.34	0.54
		High	3 860.00	27.34	0.54
4	QPSK	Low	3 740.00	27.02	0.50
		Middle	3 800.00	27.00	0.50
		High	3 860.00	27.32	0.54
	16QAM	Low	3 740.00	27.28	0.54
		Middle	3 800.00	27.16	0.52
		High	3 860.00	27.37	0.55
	64QAM	Low	3 740.00	27.34	0.54
		Middle	3 800.00	27.13	0.52
		High	3 860.00	27.33	0.54
	256QAM	Low	3 740.00	27.38	0.55
		Middle	3 800.00	27.23	0.53
		High	3 860.00	27.48	0.56

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm/MHz)	Calculated (W/MHz)
5	QPSK	Low	3 740.00	27.13	0.52
		Middle	3 800.00	27.04	0.51
		High	3 860.00	27.13	0.52
	16QAM	Low	3 740.00	27.30	0.54
		Middle	3 800.00	27.15	0.52
		High	3 860.00	27.37	0.55
	64QAM	Low	3 740.00	27.43	0.55
		Middle	3 800.00	27.09	0.51
		High	3 860.00	27.23	0.53
	256QAM	Low	3 740.00	27.29	0.54
		Middle	3 800.00	27.24	0.53
		High	3 860.00	27.31	0.54
6	QPSK	Low	3 740.00	27.15	0.52
		Middle	3 800.00	27.13	0.52
		High	3 860.00	27.45	0.56
	16QAM	Low	3 740.00	27.41	0.55
		Middle	3 800.00	27.30	0.54
		High	3 860.00	27.53	0.57
	64QAM	Low	3 740.00	27.47	0.56
		Middle	3 800.00	27.32	0.54
		High	3 860.00	27.42	0.55
	256QAM	Low	3 740.00	27.34	0.54
		Middle	3 800.00	27.38	0.55
		High	3 860.00	27.56	0.57
7	QPSK	Low	3 740.00	27.29	0.54
		Middle	3 800.00	27.26	0.53
		High	3 860.00	26.95	0.50
	16QAM	Low	3 740.00	27.51	0.56
		Middle	3 800.00	27.43	0.55
		High	3 860.00	27.31	0.54
	64QAM	Low	3 740.00	27.57	0.57
		Middle	3 800.00	27.36	0.54
		High	3 860.00	27.35	0.54
	256QAM	Low	3 740.00	27.51	0.56
		Middle	3 800.00	27.39	0.55
		High	3 860.00	27.54	0.57

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	PSD (Conducted)			
	QPSK	16QAM	64QAM	256QAM
	W/MHz			
3 740.00	4.28	4.49	4.57	4.47
3 800.00	4.19	4.27	4.25	4.35
3 860.00	4.24	4.46	4.42	4.50

(8 Port) 5G NR n77 100 MHz [1 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
0	QPSK	Middle	3 800.00	26.43	0.44
		High	3 850.00	26.70	0.47
	16QAM	Middle	3 800.00	26.61	0.46
		High	3 850.00	26.95	0.50
	64QAM	Middle	3 800.00	26.44	0.44
		High	3 850.00	26.67	0.46
	256QAM	Middle	3 800.00	26.35	0.43
		High	3 850.00	26.62	0.46
1	QPSK	Middle	3 800.00	26.53	0.45
		High	3 850.00	26.39	0.44
	16QAM	Middle	3 800.00	26.65	0.46
		High	3 850.00	26.66	0.46
	64QAM	Middle	3 800.00	26.52	0.45
		High	3 850.00	26.36	0.43
	256QAM	Middle	3 800.00	26.49	0.45
		High	3 850.00	26.33	0.43
2	QPSK	Middle	3 800.00	26.45	0.44
		High	3 850.00	26.65	0.46
	16QAM	Middle	3 800.00	26.63	0.46
		High	3 850.00	26.98	0.50
	64QAM	Middle	3 800.00	26.45	0.44
		High	3 850.00	26.65	0.46
	256QAM	Middle	3 800.00	26.46	0.44
		High	3 850.00	26.63	0.46
3	QPSK	Middle	3 800.00	26.32	0.43
		High	3 850.00	26.26	0.42
	16QAM	Middle	3 800.00	26.46	0.44
		High	3 850.00	26.56	0.45
	64QAM	Middle	3 800.00	26.32	0.43
		High	3 850.00	26.20	0.42
	256QAM	Middle	3 800.00	26.35	0.43
		High	3 850.00	26.19	0.42

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm)	Calculated (W)
4	QPSK	Middle	3 800.00	26.50	0.45
		High	3 850.00	26.61	0.46
	16QAM	Middle	3 800.00	26.55	0.45
		High	3 850.00	26.77	0.48
	64QAM	Middle	3 800.00	26.39	0.44
		High	3 850.00	26.44	0.44
	256QAM	Middle	3 800.00	26.44	0.44
		High	3 850.00	26.60	0.46
5	QPSK	Middle	3 800.00	26.39	0.44
		High	3 850.00	26.35	0.43
	16QAM	Middle	3 800.00	26.53	0.45
		High	3 850.00	26.55	0.45
	64QAM	Middle	3 800.00	26.40	0.44
		High	3 850.00	26.47	0.44
	256QAM	Middle	3 800.00	26.42	0.44
		High	3 850.00	26.50	0.45
6	QPSK	Middle	3 800.00	26.45	0.44
		High	3 850.00	26.57	0.45
	16QAM	Middle	3 800.00	26.69	0.47
		High	3 850.00	26.87	0.49
	64QAM	Middle	3 800.00	26.48	0.44
		High	3 850.00	26.57	0.45
	256QAM	Middle	3 800.00	26.48	0.44
		High	3 850.00	26.57	0.45
7	QPSK	Middle	3 800.00	26.58	0.46
		High	3 850.00	26.53	0.45
	16QAM	Middle	3 800.00	26.65	0.46
		High	3 850.00	26.58	0.45
	64QAM	Middle	3 800.00	26.62	0.46
		High	3 850.00	26.52	0.45
	256QAM	Middle	3 800.00	26.58	0.45
		High	3 850.00	26.54	0.45

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W			
3 800.00	3.54	3.65	3.53	3.53
3 850.00	3.58	3.78	3.56	3.57

Tabular Data of Contiguous PSD

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier]

Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm/MHz)	Calculated (W/MHz)
0	QPSK	Low	3 770.00	24.80	0.30
	16QAM	Low	3 770.00	24.69	0.29
	64QAM	Low	3 770.00	24.78	0.30
	256QAM	Low	3 770.00	25.04	0.32
1	QPSK	Low	3 770.00	24.74	0.30
	16QAM	Low	3 770.00	24.63	0.29
	64QAM	Low	3 770.00	24.65	0.29
	256QAM	Low	3 770.00	25.00	0.32
2	QPSK	Low	3 770.00	25.53	0.36
	16QAM	Low	3 770.00	25.25	0.34
	64QAM	Low	3 770.00	25.32	0.34
	256QAM	Low	3 770.00	25.35	0.34
3	QPSK	Low	3 770.00	24.63	0.29
	16QAM	Low	3 770.00	24.63	0.29
	64QAM	Low	3 770.00	24.60	0.29
	256QAM	Low	3 770.00	24.72	0.30
4	QPSK	Low	3 770.00	24.79	0.30
	16QAM	Low	3 770.00	24.68	0.29
	64QAM	Low	3 770.00	24.65	0.29
	256QAM	Low	3 770.00	24.74	0.30
5	QPSK	Low	3 770.00	24.77	0.30
	16QAM	Low	3 770.00	24.55	0.29
	64QAM	Low	3 770.00	24.55	0.29
	256QAM	Low	3 770.00	24.81	0.30
6	QPSK	Low	3 770.00	24.96	0.31
	16QAM	Low	3 770.00	24.88	0.31
	64QAM	Low	3 770.00	24.74	0.30
	256QAM	Low	3 770.00	24.81	0.30
7	QPSK	Low	3 770.00	24.84	0.30
	16QAM	Low	3 770.00	24.86	0.31
	64QAM	Low	3 770.00	24.63	0.29
	256QAM	Low	3 770.00	25.04	0.32

Sum Data of Port 0 ~ Port 7

Frequency (MHz)	PSD (Conducted)			
	QPSK	16QAM	64QAM	256QAM
	W/MHz			
3 770.00	2.47	2.40	2.39	2.50

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier]

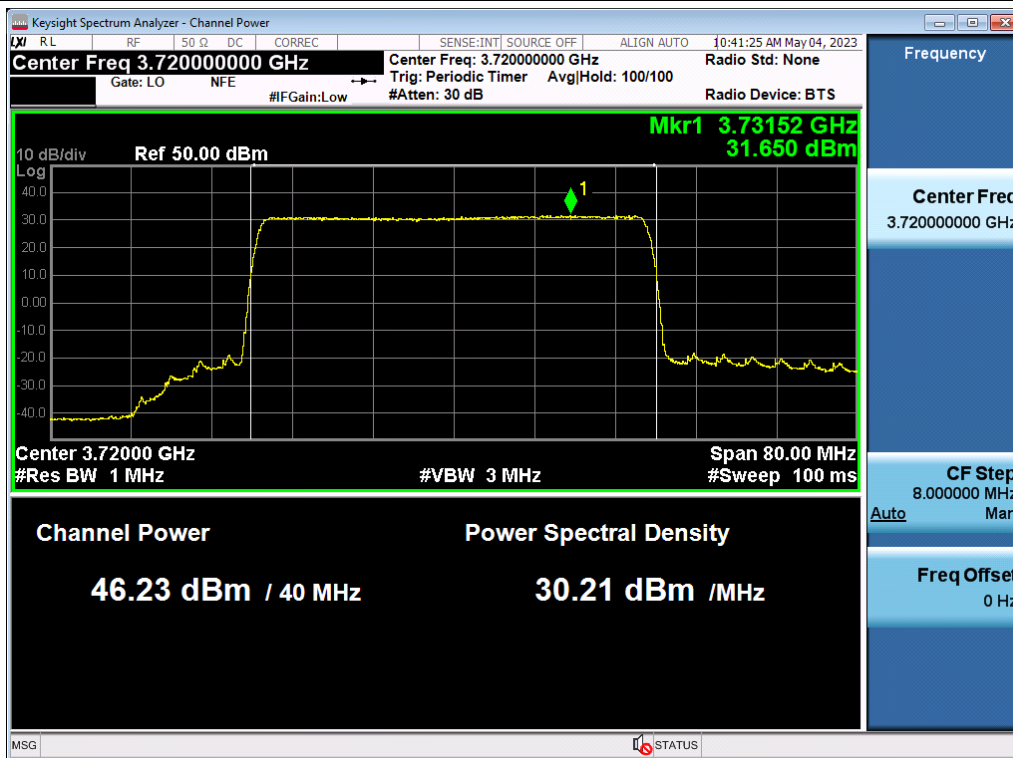
Ant.	Mod	Ch	Frequency (MHz)	Measured Value (dBm/MHz)	Calculated (W/MHz)
0	QPSK	Low	3 800.00	23.19	0.21
	16QAM	Low	3 800.00	23.19	0.21
	64QAM	Low	3 800.00	23.20	0.21
	256QAM	Low	3 800.00	23.58	0.23
1	QPSK	Low	3 800.00	23.21	0.21
	16QAM	Low	3 800.00	23.19	0.21
	64QAM	Low	3 800.00	23.19	0.21
	256QAM	Low	3 800.00	23.21	0.21
2	QPSK	Low	3 800.00	23.64	0.23
	16QAM	Low	3 800.00	23.84	0.24
	64QAM	Low	3 800.00	23.89	0.25
	256QAM	Low	3 800.00	23.73	0.24
3	QPSK	Low	3 800.00	23.08	0.20
	16QAM	Low	3 800.00	23.27	0.21
	64QAM	Low	3 800.00	23.13	0.21
	256QAM	Low	3 800.00	23.15	0.21
4	QPSK	Low	3 800.00	23.38	0.22
	16QAM	Low	3 800.00	23.15	0.21
	64QAM	Low	3 800.00	23.41	0.22
	256QAM	Low	3 800.00	23.14	0.21
5	QPSK	Low	3 800.00	23.30	0.21
	16QAM	Low	3 800.00	23.19	0.21
	64QAM	Low	3 800.00	23.21	0.21
	256QAM	Low	3 800.00	23.23	0.21
6	QPSK	Low	3 800.00	23.51	0.22
	16QAM	Low	3 800.00	23.26	0.21
	64QAM	Low	3 800.00	23.28	0.21
	256QAM	Low	3 800.00	23.58	0.23
7	QPSK	Low	3 800.00	23.27	0.21
	16QAM	Low	3 800.00	23.40	0.22
	64QAM	Low	3 800.00	23.33	0.22
	256QAM	Low	3 800.00	23.33	0.22

Sum Data of Port 0 ~ Port 7

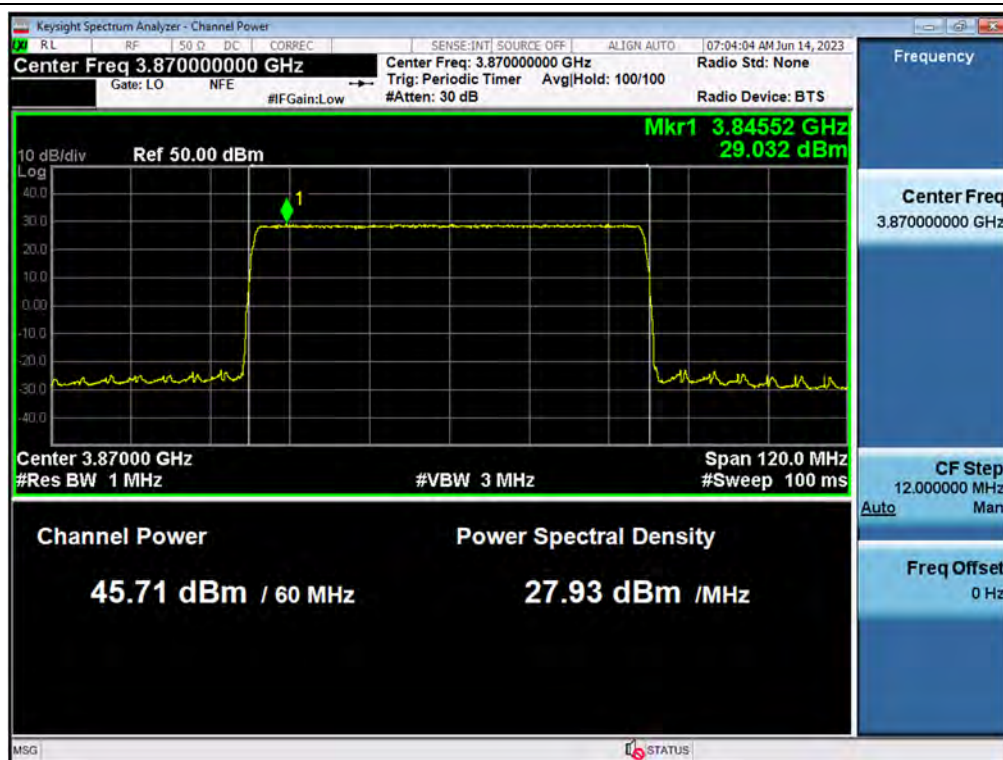
Frequency (MHz)	PSD (Conducted)			
	QPSK	16QAM	64QAM	256QAM
	W/MHz			
3 800.00	1.72	1.72	1.73	1.74

Plot Data of PSD

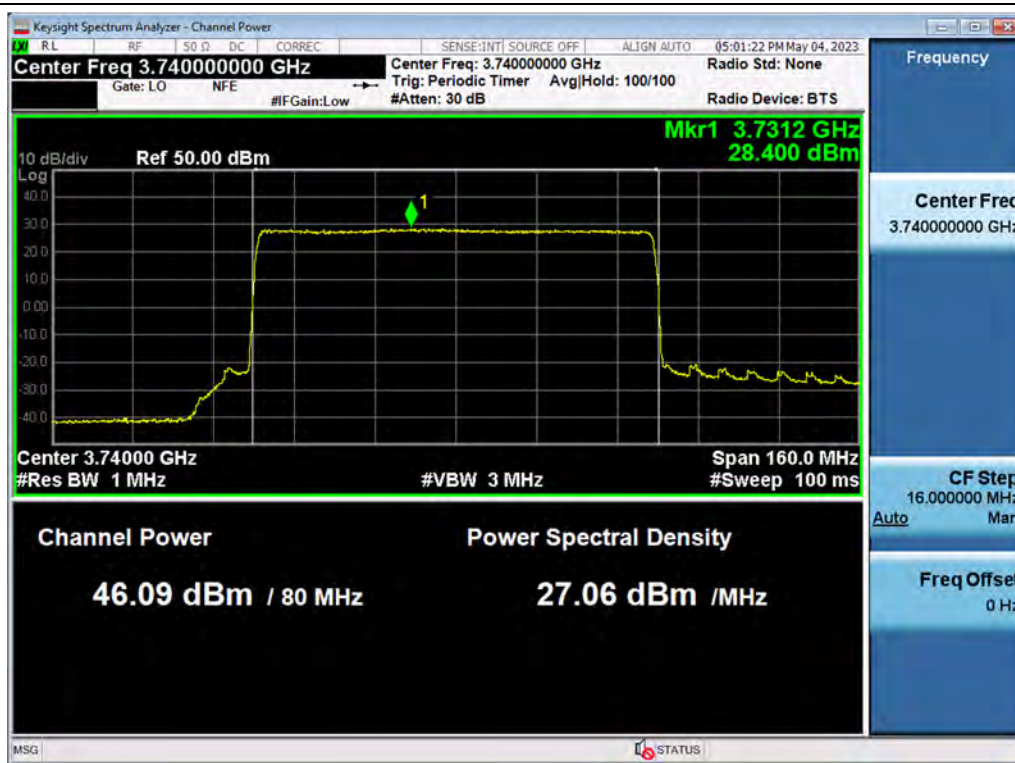
Antenna 2 / (8 Port) 5G NR n77 40 MHz [1 Carrier] / 256QAM / Low



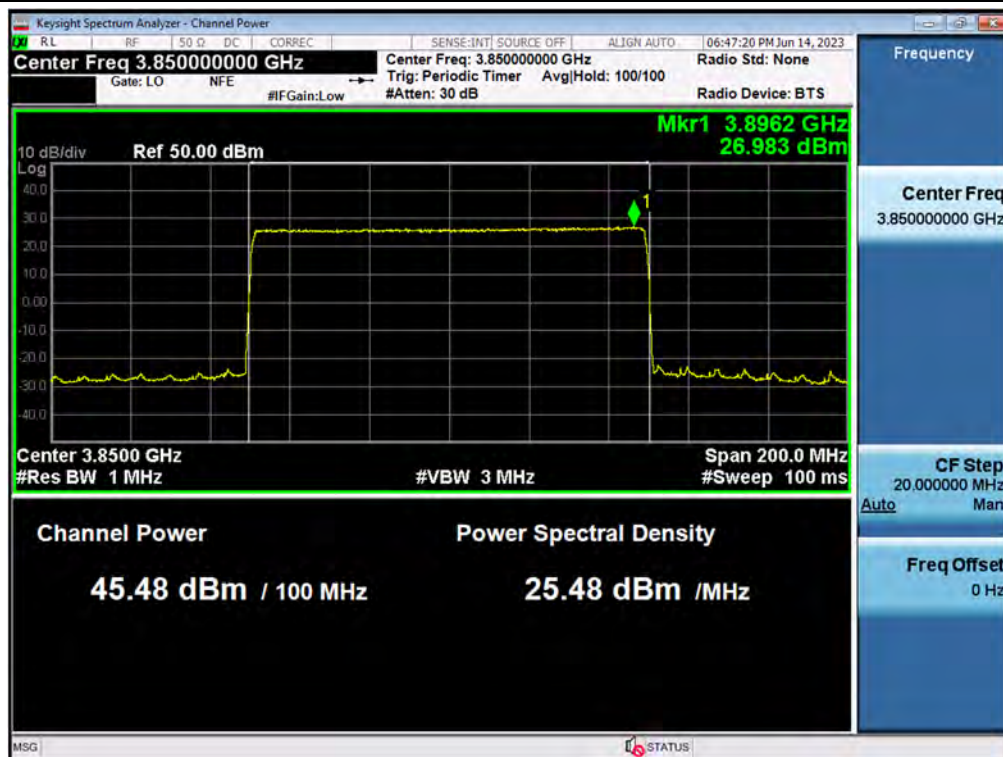
Antenna 5 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / 16QAM / High



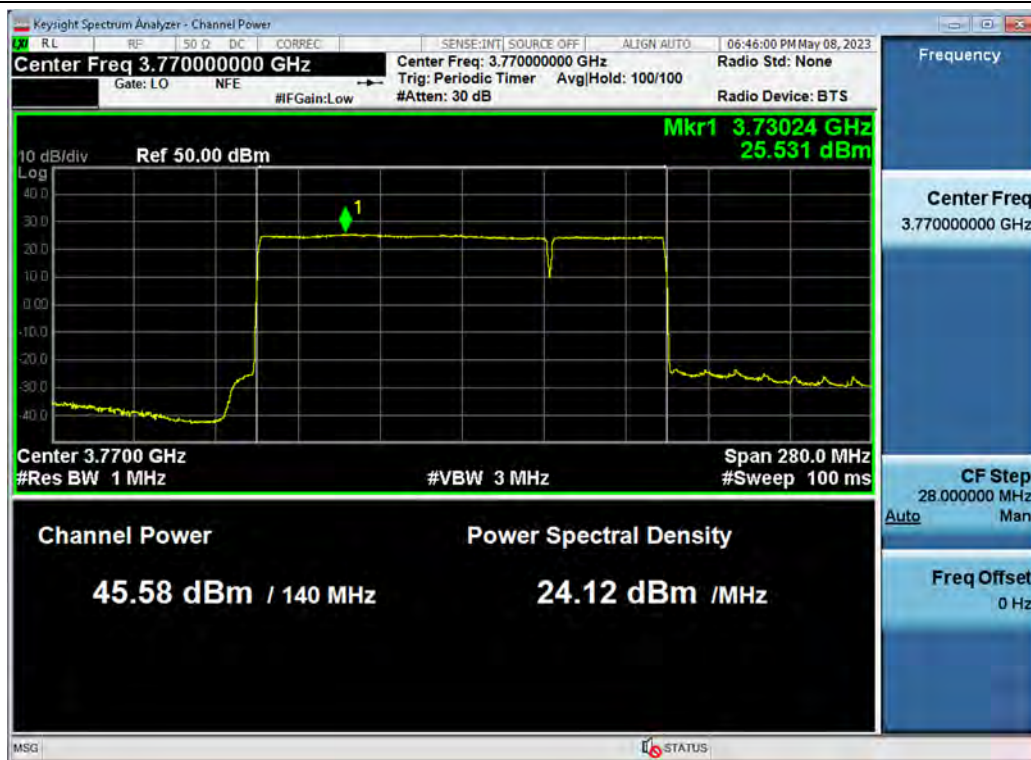
Antenna 2 / (8 Port) 5G NR n77 80 MHz [1 Carrier] / 64QAM / Low



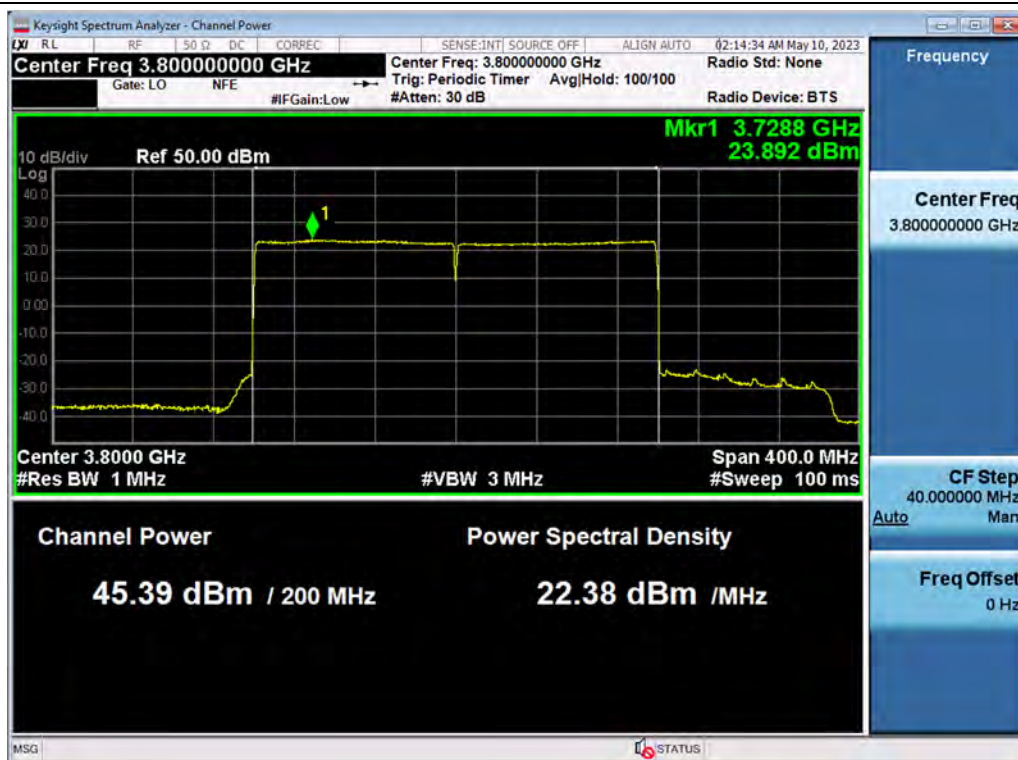
Antenna 2 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / 16QAM / High



Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / QPSK / Low / Contiguous



Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 64QAM / Low / Contiguous



5.2. PAPR

Test Requirements:

§ 27.50 Power limits and duty cycle.

- (j) The following power requirements apply to stations transmitting in the 3700-3980 MHz band:
 - (4) Equipment employed must be authorized in accordance with the provisions of § 27.51. 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 (j)(5) of this section. 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.

Test Procedures:

The measurement is performed in accordance with Section 5.2.3.4 of ANSI C63.26.

The following guidelines are offered for performing a CCDF measurement.

- a) Set resolution/measurement bandwidth $\geq$ OBW or specified reference bandwidth.
- b) Set the number of counts to a value that stabilizes the measured CCDF curve.
- c) Set the measurement interval as follows:
 - 1) For continuous transmissions, set to the greater of $[10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})]$ or 1 ms.
 - 2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration.
 - 3) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers.
- d) Record the maximum PAPR level associated with a probability of 0.1%.
- e) The peak power level is calculated from the sum of the PAPR value from step d) to the measured average power.

Note: The results of the PAPR 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.

Tabular data of PAR

(8 Port) 5G NR n77 40 MHz [1 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	3 720.00	7.66
		Middle	3 800.00	7.68
		High	3 880.00	7.62
	16QAM	Low	3 720.00	7.68
		Middle	3 800.00	7.70
		High	3 880.00	7.64
	64QAM	Low	3 720.00	7.68
		Middle	3 800.00	7.64
		High	3 880.00	7.60
	256QAM	Low	3 720.00	7.64
		Middle	3 800.00	7.66
		High	3 880.00	7.60
1	QPSK	Low	3 720.00	7.65
		Middle	3 800.00	7.67
		High	3 880.00	7.61
	16QAM	Low	3 720.00	7.73
		Middle	3 800.00	7.69
		High	3 880.00	7.64
	64QAM	Low	3 720.00	7.69
		Middle	3 800.00	7.67
		High	3 880.00	7.61
	256QAM	Low	3 720.00	7.69
		Middle	3 800.00	7.65
		High	3 880.00	7.60

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
2	QPSK	Low	3 720.00	7.66
		Middle	3 800.00	7.68
		High	3 880.00	7.61
	16QAM	Low	3 720.00	7.67
		Middle	3 800.00	7.69
		High	3 880.00	7.65
	64QAM	Low	3 720.00	7.65
		Middle	3 800.00	7.66
		High	3 880.00	7.60
	256QAM	Low	3 720.00	7.65
		Middle	3 800.00	7.65
		High	3 880.00	7.60
3	QPSK	Low	3 720.00	7.65
		Middle	3 800.00	7.67
		High	3 880.00	7.63
	16QAM	Low	3 720.00	7.72
		Middle	3 800.00	7.66
		High	3 880.00	7.64
	64QAM	Low	3 720.00	7.69
		Middle	3 800.00	7.65
		High	3 880.00	7.60
	256QAM	Low	3 720.00	7.65
		Middle	3 800.00	7.66
		High	3 880.00	7.60
4	QPSK	Low	3 720.00	7.68
		Middle	3 800.00	7.68
		High	3 880.00	7.63
	16QAM	Low	3 720.00	7.71
		Middle	3 800.00	7.69
		High	3 880.00	7.64
	64QAM	Low	3 720.00	7.68
		Middle	3 800.00	7.66
		High	3 880.00	7.63
	256QAM	Low	3 720.00	7.67
		Middle	3 800.00	7.64
		High	3 880.00	7.61

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
5	QPSK	Low	3 720.00	7.60
		Middle	3 800.00	7.68
		High	3 880.00	7.61
	16QAM	Low	3 720.00	7.70
		Middle	3 800.00	7.68
		High	3 880.00	7.62
	64QAM	Low	3 720.00	7.68
		Middle	3 800.00	7.69
		High	3 880.00	7.62
	256QAM	Low	3 720.00	7.65
		Middle	3 800.00	7.65
		High	3 880.00	7.60
6	QPSK	Low	3 720.00	7.64
		Middle	3 800.00	7.66
		High	3 880.00	7.63
	16QAM	Low	3 720.00	7.70
		Middle	3 800.00	7.69
		High	3 880.00	7.64
	64QAM	Low	3 720.00	7.65
		Middle	3 800.00	7.67
		High	3 880.00	7.61
	256QAM	Low	3 720.00	7.67
		Middle	3 800.00	7.66
		High	3 880.00	7.61
7	QPSK	Low	3 720.00	7.63
		Middle	3 800.00	7.65
		High	3 880.00	7.63
	16QAM	Low	3 720.00	7.70
		Middle	3 800.00	7.69
		High	3 880.00	7.64
	64QAM	Low	3 720.00	7.66
		Middle	3 800.00	7.67
		High	3 880.00	7.60
	256QAM	Low	3 720.00	7.66
		Middle	3 800.00	7.65
		High	3 880.00	7.61

(8 Port) 5G NR n77 60 MHz [1 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Middle	3 800.00	7.64
		High	3 870.00	7.63
	16QAM	Middle	3 800.00	7.66
		High	3 870.00	7.64
	64QAM	Middle	3 800.00	7.67
		High	3 870.00	7.61
	256QAM	Middle	3 800.00	7.65
		High	3 870.00	7.63
1	QPSK	Middle	3 800.00	7.63
		High	3 870.00	7.61
	16QAM	Middle	3 800.00	7.64
		High	3 870.00	7.62
	64QAM	Middle	3 800.00	7.65
		High	3 870.00	7.61
	256QAM	Middle	3 800.00	7.63
		High	3 870.00	7.60
2	QPSK	Middle	3 800.00	7.66
		High	3 870.00	7.63
	16QAM	Middle	3 800.00	7.66
		High	3 870.00	7.63
	64QAM	Middle	3 800.00	7.66
		High	3 870.00	7.61
	256QAM	Middle	3 800.00	7.65
		High	3 870.00	7.63
3	QPSK	Middle	3 800.00	7.65
		High	3 870.00	7.62
	16QAM	Middle	3 800.00	7.68
		High	3 870.00	7.62
	64QAM	Middle	3 800.00	7.66
		High	3 870.00	7.62
	256QAM	Middle	3 800.00	7.65
		High	3 870.00	7.63

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
4	QPSK	Middle	3 800.00	7.64
		High	3 870.00	7.62
	16QAM	Middle	3 800.00	7.65
		High	3 870.00	7.62
	64QAM	Middle	3 800.00	7.66
		High	3 870.00	7.62
	256QAM	Middle	3 800.00	7.66
		High	3 870.00	7.62
5	QPSK	Middle	3 800.00	7.65
		High	3 870.00	7.62
	16QAM	Middle	3 800.00	7.64
		High	3 870.00	7.64
	64QAM	Middle	3 800.00	7.65
		High	3 870.00	7.64
	256QAM	Middle	3 800.00	7.64
		High	3 870.00	7.61
6	QPSK	Middle	3 800.00	7.65
		High	3 870.00	7.62
	16QAM	Middle	3 800.00	7.67
		High	3 870.00	7.63
	64QAM	Middle	3 800.00	7.66
		High	3 870.00	7.62
	256QAM	Middle	3 800.00	7.64
		High	3 870.00	7.62
7	QPSK	Middle	3 800.00	7.65
		High	3 870.00	7.62
	16QAM	Middle	3 800.00	7.67
		High	3 870.00	7.64
	64QAM	Middle	3 800.00	7.66
		High	3 870.00	7.62
	256QAM	Middle	3 800.00	7.65
		High	3 870.00	7.62

(8 Port) 5G NR n77 80 MHz [1 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	3 740.00	7.77
		Middle	3 800.00	7.65
		High	3 860.00	7.65
	16QAM	Low	3 740.00	7.75
		Middle	3 800.00	7.66
		High	3 860.00	7.63
	64QAM	Low	3 740.00	7.79
		Middle	3 800.00	7.69
		High	3 860.00	7.62
	256QAM	Low	3 740.00	7.80
		Middle	3 800.00	7.69
		High	3 860.00	7.62
1	QPSK	Low	3 740.00	7.80
		Middle	3 800.00	7.64
		High	3 860.00	7.64
	16QAM	Low	3 740.00	7.77
		Middle	3 800.00	7.64
		High	3 860.00	7.63
	64QAM	Low	3 740.00	7.83
		Middle	3 800.00	7.68
		High	3 860.00	7.64
	256QAM	Low	3 740.00	7.82
		Middle	3 800.00	7.66
		High	3 860.00	7.63

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
2	QPSK	Low	3 740.00	7.83
		Middle	3 800.00	7.69
		High	3 860.00	7.63
	16QAM	Low	3 740.00	7.76
		Middle	3 800.00	7.65
		High	3 860.00	7.63
	64QAM	Low	3 740.00	7.81
		Middle	3 800.00	7.69
		High	3 860.00	7.66
	256QAM	Low	3 740.00	7.80
		Middle	3 800.00	7.69
		High	3 860.00	7.63
3	QPSK	Low	3 740.00	7.81
		Middle	3 800.00	7.66
		High	3 860.00	7.65
	16QAM	Low	3 740.00	7.76
		Middle	3 800.00	7.64
		High	3 860.00	7.61
	64QAM	Low	3 740.00	7.83
		Middle	3 800.00	7.68
		High	3 860.00	7.66
	256QAM	Low	3 740.00	7.83
		Middle	3 800.00	7.67
		High	3 860.00	7.65
4	QPSK	Low	3 740.00	7.81
		Middle	3 800.00	7.67
		High	3 860.00	7.62
	16QAM	Low	3 740.00	7.76
		Middle	3 800.00	7.65
		High	3 860.00	7.66
	64QAM	Low	3 740.00	7.80
		Middle	3 800.00	7.67
		High	3 860.00	7.65
	256QAM	Low	3 740.00	7.83
		Middle	3 800.00	7.69
		High	3 860.00	7.62

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
5	QPSK	Low	3 740.00	7.78
		Middle	3 800.00	7.68
		High	3 860.00	7.64
	16QAM	Low	3 740.00	7.75
		Middle	3 800.00	7.67
		High	3 860.00	7.63
	64QAM	Low	3 740.00	7.82
		Middle	3 800.00	7.67
		High	3 860.00	7.65
	256QAM	Low	3 740.00	7.81
		Middle	3 800.00	7.67
		High	3 860.00	7.65
6	QPSK	Low	3 740.00	7.79
		Middle	3 800.00	7.66
		High	3 860.00	7.64
	16QAM	Low	3 740.00	7.75
		Middle	3 800.00	7.65
		High	3 860.00	7.64
	64QAM	Low	3 740.00	7.81
		Middle	3 800.00	7.67
		High	3 860.00	7.65
	256QAM	Low	3 740.00	7.82
		Middle	3 800.00	7.68
		High	3 860.00	7.64
7	QPSK	Low	3 740.00	7.79
		Middle	3 800.00	7.65
		High	3 860.00	7.63
	16QAM	Low	3 740.00	7.74
		Middle	3 800.00	7.65
		High	3 860.00	7.63
	64QAM	Low	3 740.00	7.81
		Middle	3 800.00	7.67
		High	3 860.00	7.65
	256QAM	Low	3 740.00	7.79
		Middle	3 800.00	7.67
		High	3 860.00	7.65

(8 Port) 5G NR n77 100 MHz [1 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Middle	3 800.00	7.69
		High	3 850.00	7.63
	16QAM	Middle	3 800.00	7.68
		High	3 850.00	7.64
	64QAM	Middle	3 800.00	7.68
		High	3 850.00	7.64
	256QAM	Middle	3 800.00	7.68
		High	3 850.00	7.65
1	QPSK	Middle	3 800.00	7.69
		High	3 850.00	7.61
	16QAM	Middle	3 800.00	7.66
		High	3 850.00	7.63
	64QAM	Middle	3 800.00	7.68
		High	3 850.00	7.61
	256QAM	Middle	3 800.00	7.69
		High	3 850.00	7.62
2	QPSK	Middle	3 800.00	7.69
		High	3 850.00	7.65
	16QAM	Middle	3 800.00	7.67
		High	3 850.00	7.66
	64QAM	Middle	3 800.00	7.70
		High	3 850.00	7.64
	256QAM	Middle	3 800.00	7.68
		High	3 850.00	7.66
3	QPSK	Middle	3 800.00	7.68
		High	3 850.00	7.64
	16QAM	Middle	3 800.00	7.68
		High	3 850.00	7.65
	64QAM	Middle	3 800.00	7.68
		High	3 850.00	7.66
	256QAM	Middle	3 800.00	7.69
		High	3 850.00	7.66

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
4	QPSK	Middle	3 800.00	7.68
		High	3 850.00	7.65
	16QAM	Middle	3 800.00	7.70
		High	3 850.00	7.67
	64QAM	Middle	3 800.00	7.69
		High	3 850.00	7.66
	256QAM	Middle	3 800.00	7.69
		High	3 850.00	7.65
5	QPSK	Middle	3 800.00	7.70
		High	3 850.00	7.65
	16QAM	Middle	3 800.00	7.69
		High	3 850.00	7.67
	64QAM	Middle	3 800.00	7.70
		High	3 850.00	7.66
	256QAM	Middle	3 800.00	7.69
		High	3 850.00	7.65
6	QPSK	Middle	3 800.00	7.69
		High	3 850.00	7.66
	16QAM	Middle	3 800.00	7.69
		High	3 850.00	7.66
	64QAM	Middle	3 800.00	7.68
		High	3 850.00	7.67
	256QAM	Middle	3 800.00	7.68
		High	3 850.00	7.66
7	QPSK	Middle	3 800.00	7.69
		High	3 850.00	7.66
	16QAM	Middle	3 800.00	7.67
		High	3 850.00	7.67
	64QAM	Middle	3 800.00	7.68
		High	3 850.00	7.67
	256QAM	Middle	3 800.00	7.69
		High	3 850.00	7.67

Tabular data of Contiguous PAPR

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier]

Ant.	Modulation	Channel	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	3 770.00	8.03
	16QAM	Low	3 770.00	8.01
	64QAM	Low	3 770.00	8.01
	256QAM	Low	3 770.00	7.98
1	QPSK	Low	3 770.00	8.09
	16QAM	Low	3 770.00	8.06
	64QAM	Low	3 770.00	8.07
	256QAM	Low	3 770.00	8.02
2	QPSK	Low	3 770.00	7.99
	16QAM	Low	3 770.00	8.03
	64QAM	Low	3 770.00	8.02
	256QAM	Low	3 770.00	8.01
3	QPSK	Low	3 770.00	8.07
	16QAM	Low	3 770.00	8.07
	64QAM	Low	3 770.00	8.05
	256QAM	Low	3 770.00	8.04
4	QPSK	Low	3 770.00	8.03
	16QAM	Low	3 770.00	8.03
	64QAM	Low	3 770.00	8.04
	256QAM	Low	3 770.00	8.00
5	QPSK	Low	3 770.00	8.06
	16QAM	Low	3 770.00	8.03
	64QAM	Low	3 770.00	8.04
	256QAM	Low	3 770.00	8.03
6	QPSK	Low	3 770.00	8.03
	16QAM	Low	3 770.00	8.03
	64QAM	Low	3 770.00	8.03
	256QAM	Low	3 770.00	8.02
7	QPSK	Low	3 770.00	8.03
	16QAM	Low	3 770.00	8.02
	64QAM	Low	3 770.00	8.02
	256QAM	Low	3 770.00	7.99

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier]

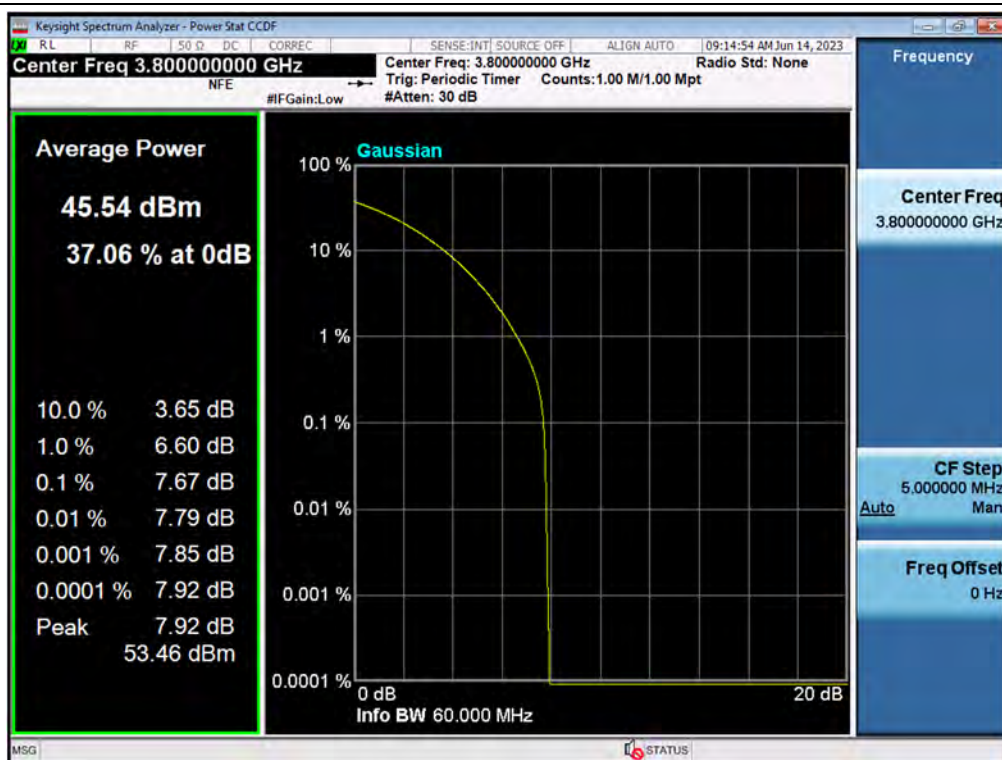
Ant.	Modulation	Channel	1 Carrier		2 Carrier	
			Frequency (MHz)	0.1 % PAPR (dB)	Frequency (MHz)	0.1 % PAPR (dB)
0	QPSK	Low	3 750.00	8.24	3 850.00	8.19
	16QAM	Low	3 750.00	8.26	3 850.00	8.22
	64QAM	Low	3 750.00	8.26	3 850.00	8.23
	256QAM	Low	3 750.00	8.23	3 850.00	8.25
1	QPSK	Low	3 750.00	8.24	3 850.00	8.22
	16QAM	Low	3 750.00	8.25	3 850.00	8.22
	64QAM	Low	3 750.00	8.26	3 850.00	8.22
	256QAM	Low	3 750.00	8.25	3 850.00	8.17
2	QPSK	Low	3 750.00	8.24	3 850.00	8.24
	16QAM	Low	3 750.00	8.26	3 850.00	8.20
	64QAM	Low	3 750.00	8.25	3 850.00	8.25
	256QAM	Low	3 750.00	8.25	3 850.00	8.25
3	QPSK	Low	3 750.00	8.28	3 850.00	8.21
	16QAM	Low	3 750.00	8.29	3 850.00	8.19
	64QAM	Low	3 750.00	8.26	3 850.00	8.15
	256QAM	Low	3 750.00	8.26	3 850.00	8.20
4	QPSK	Low	3 750.00	8.24	3 850.00	8.22
	16QAM	Low	3 750.00	8.26	3 850.00	8.19
	64QAM	Low	3 750.00	8.26	3 850.00	8.21
	256QAM	Low	3 750.00	8.25	3 850.00	8.27
5	QPSK	Low	3 750.00	8.27	3 850.00	8.18
	16QAM	Low	3 750.00	8.26	3 850.00	8.23
	64QAM	Low	3 750.00	8.26	3 850.00	8.21
	256QAM	Low	3 750.00	8.25	3 850.00	8.19
6	QPSK	Low	3 750.00	8.26	3 850.00	8.16
	16QAM	Low	3 750.00	8.27	3 850.00	8.19
	64QAM	Low	3 750.00	8.27	3 850.00	8.22
	256QAM	Low	3 750.00	8.27	3 850.00	8.22
7	QPSK	Low	3 750.00	8.26	3 850.00	8.21
	16QAM	Low	3 750.00	8.26	3 850.00	8.17
	64QAM	Low	3 750.00	8.27	3 850.00	8.23
	256QAM	Low	3 750.00	8.26	3 850.00	8.22

Plot Data of PAPR

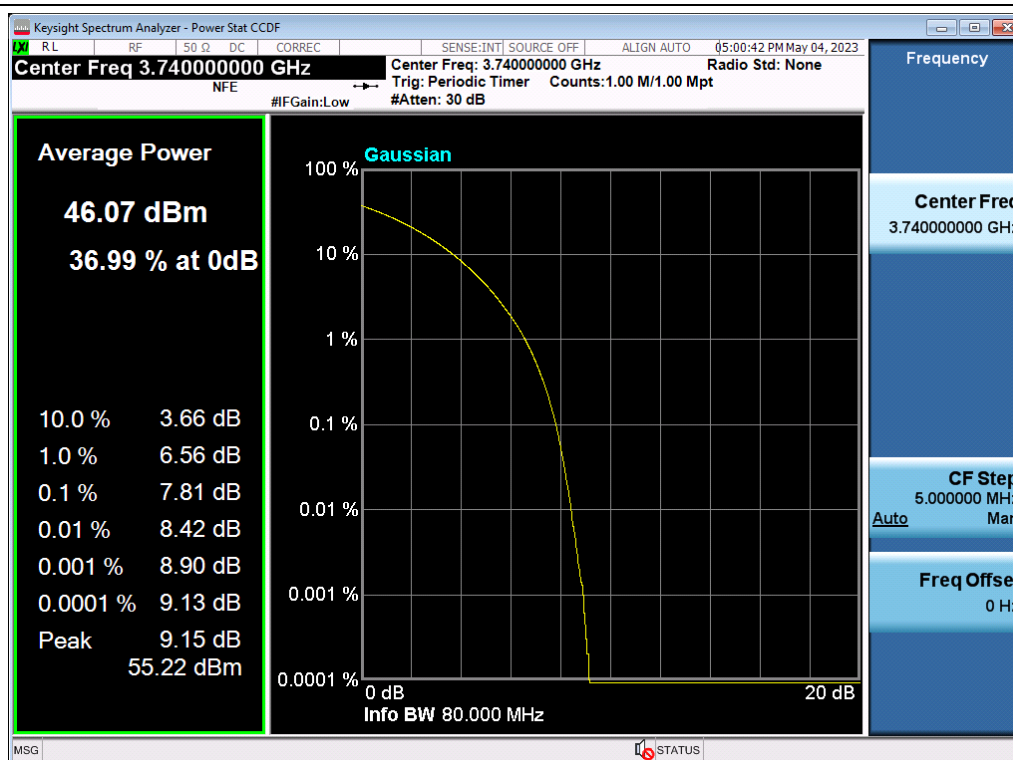
Antenna 2 / (8 Port) 5G NR n77 40 MHz [1 Carrier] / 256QAM / Low



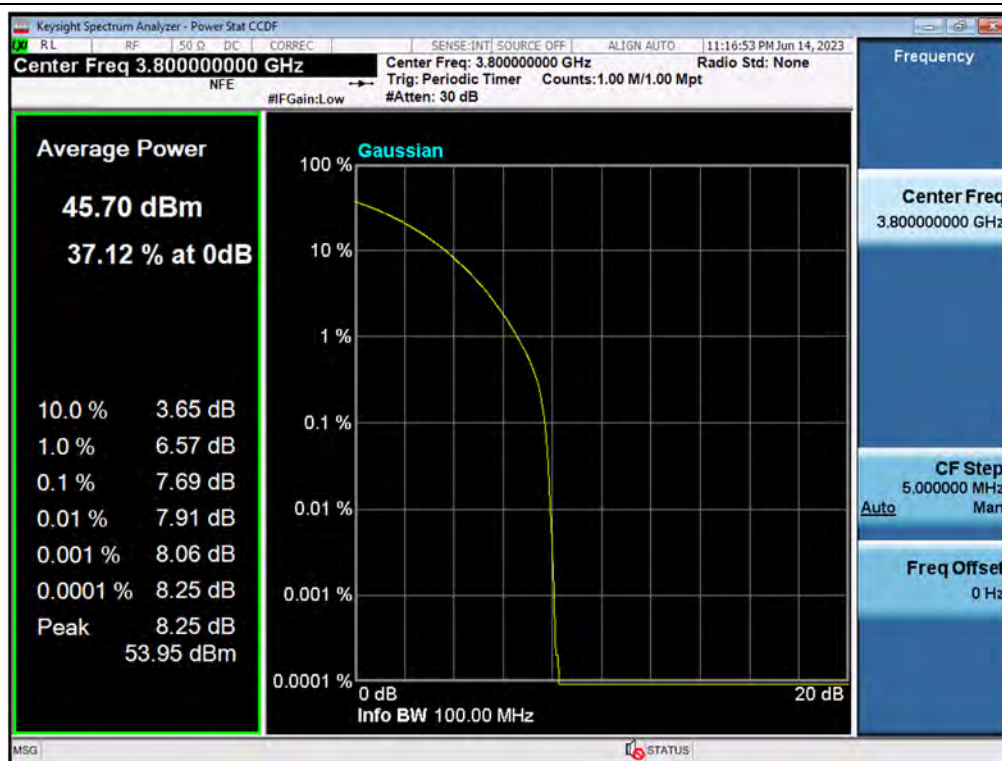
Antenna 6 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / 16QAM / Middle



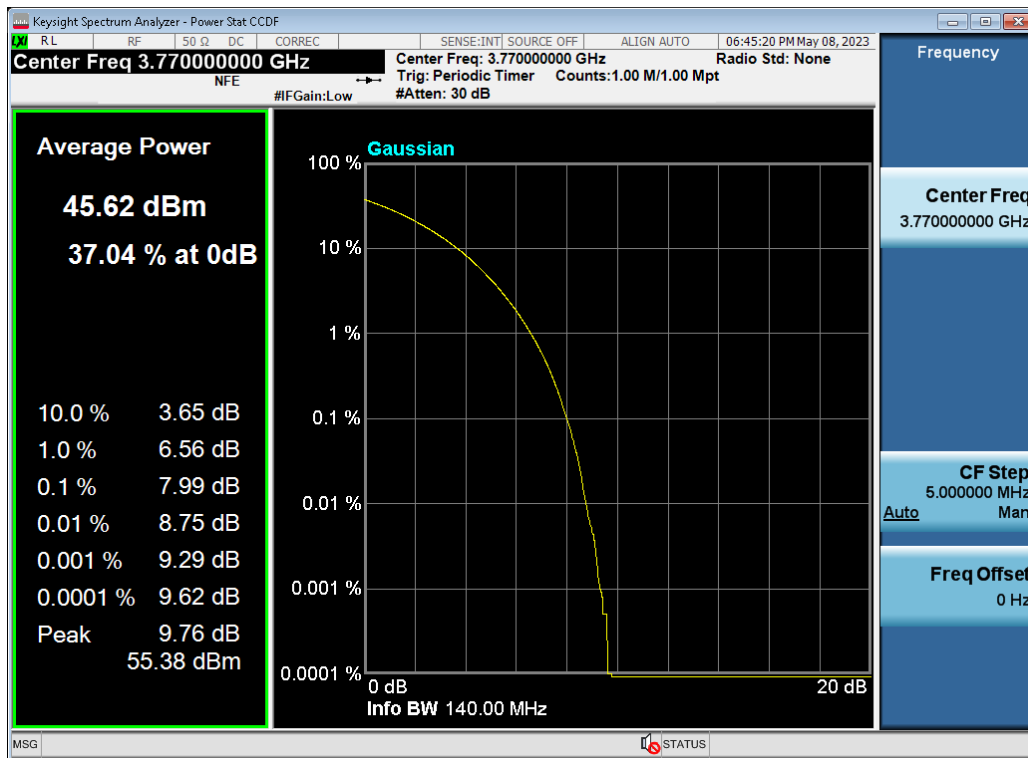
Antenna 2 / (8 Port) 5G NR n77 80 MHz [1 Carrier] / 64QAM / Low



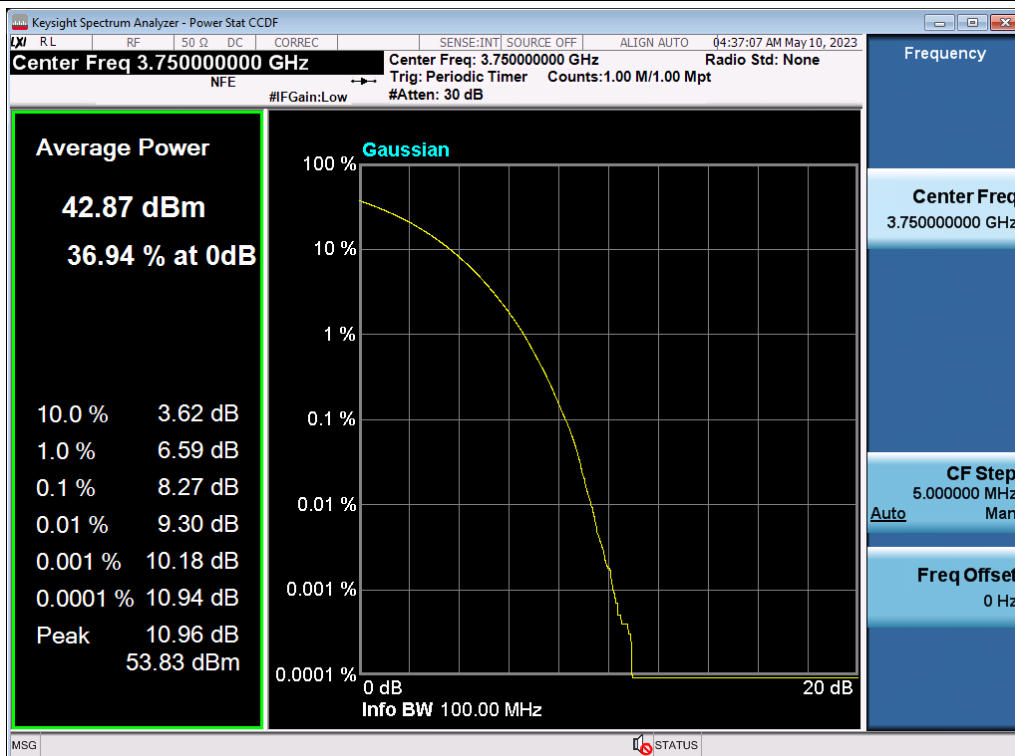
Antenna 6 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / 16QAM / Middle



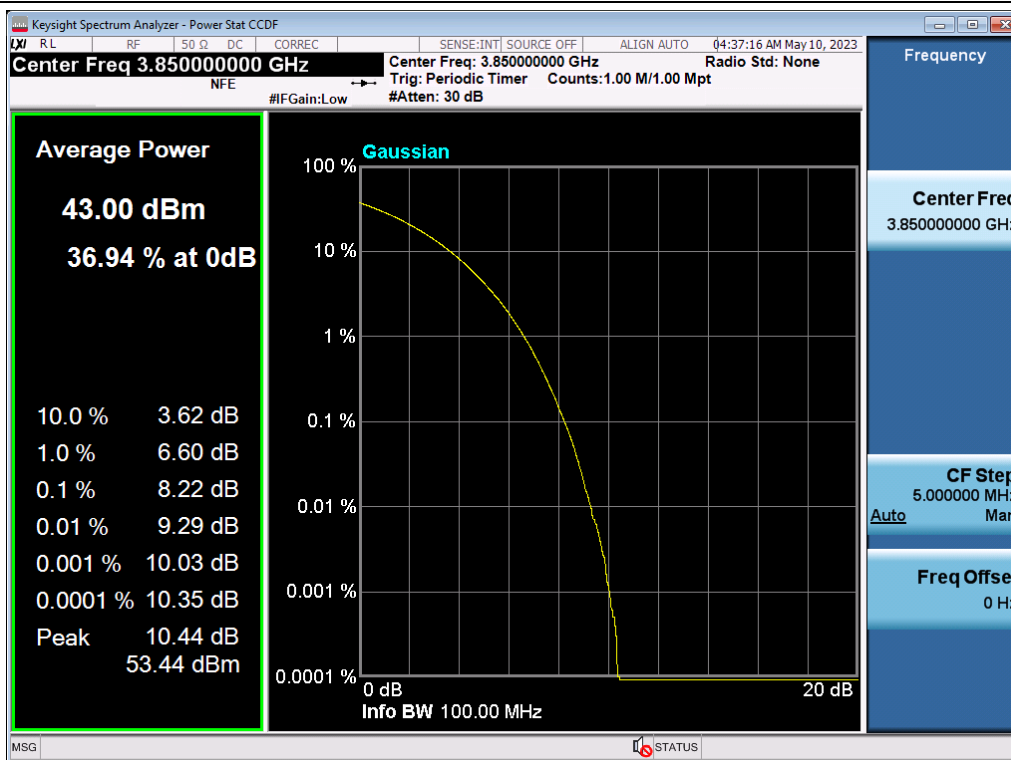
Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / QPSK / Low / Contiguous



Antenna 6 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 1 Carrier / 256QAM / Low / Contiguous



Antenna 6 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 2 Carrier / 256QAM / Low / Contiguous



5.3. 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

The OBW is measured as the width of the spectral envelope of the modulated signal, at an amplitude level reduced from a reference value by a specified ratio (or in decibels, a specified number of dB down from the reference value). The typical ratio for transmitters is –26 dB, corresponding to the 26 dB BW; however, other ratios can be specified. In this subclause, the ratio is designated by “–X dB.”

- 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 $\geq 3 \times \text{RBW}$.
- 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

The OBW is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

The following procedure shall be used for measuring (99%) power bandwidth:

- 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 $1.5 \times \text{OBW}$ 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 $\geq 3 \times \text{RBW}$.
- 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
(8 Port) 5G NR n77 40 MHz [1 Carrier]

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	3 720.00	37.974
		Middle	3 800.00	38.006
		High	3 880.00	38.009
	16QAM	Low	3 720.00	37.793
		Middle	3 800.00	37.791
		High	3 880.00	37.745
	64QAM	Low	3 720.00	38.045
		Middle	3 800.00	38.062
		High	3 880.00	38.042
	256QAM	Low	3 720.00	37.876
		Middle	3 800.00	37.837
		High	3 880.00	37.861
1	QPSK	Low	3 720.00	37.965
		Middle	3 800.00	37.999
		High	3 880.00	37.967
	16QAM	Low	3 720.00	37.753
		Middle	3 800.00	37.786
		High	3 880.00	37.791
	64QAM	Low	3 720.00	38.022
		Middle	3 800.00	38.065
		High	3 880.00	38.041
	256QAM	Low	3 720.00	37.860
		Middle	3 800.00	37.831
		High	3 880.00	37.895

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
2	QPSK	Low	3 720.00	38.032
		Middle	3 800.00	37.998
		High	3 880.00	38.010
	16QAM	Low	3 720.00	37.810
		Middle	3 800.00	37.752
		High	3 880.00	37.755
	64QAM	Low	3 720.00	38.054
		Middle	3 800.00	38.052
		High	3 880.00	38.013
	256QAM	Low	3 720.00	37.890
		Middle	3 800.00	37.833
		High	3 880.00	37.879
3	QPSK	Low	3 720.00	38.017
		Middle	3 800.00	37.960
		High	3 880.00	37.961
	16QAM	Low	3 720.00	37.758
		Middle	3 800.00	37.780
		High	3 880.00	37.788
	64QAM	Low	3 720.00	38.032
		Middle	3 800.00	38.049
		High	3 880.00	38.058
	256QAM	Low	3 720.00	37.885
		Middle	3 800.00	37.831
		High	3 880.00	37.895
4	QPSK	Low	3 720.00	38.013
		Middle	3 800.00	37.997
		High	3 880.00	38.021
	16QAM	Low	3 720.00	37.786
		Middle	3 800.00	37.747
		High	3 880.00	37.765
	64QAM	Low	3 720.00	38.036
		Middle	3 800.00	38.020
		High	3 880.00	38.044
	256QAM	Low	3 720.00	37.864
		Middle	3 800.00	37.806
		High	3 880.00	37.886

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
5	QPSK	Low	3 720.00	38.030
		Middle	3 800.00	37.961
		High	3 880.00	37.961
	16QAM	Low	3 720.00	37.799
		Middle	3 800.00	37.754
		High	3 880.00	37.749
	64QAM	Low	3 720.00	38.053
		Middle	3 800.00	38.033
		High	3 880.00	38.060
	256QAM	Low	3 720.00	37.877
		Middle	3 800.00	37.838
		High	3 880.00	37.876
6	QPSK	Low	3 720.00	38.020
		Middle	3 800.00	37.952
		High	3 880.00	37.967
	16QAM	Low	3 720.00	37.765
		Middle	3 800.00	37.747
		High	3 880.00	37.788
	64QAM	Low	3 720.00	38.046
		Middle	3 800.00	38.052
		High	3 880.00	38.036
	256QAM	Low	3 720.00	37.891
		Middle	3 800.00	37.826
		High	3 880.00	37.872
7	QPSK	Low	3 720.00	38.025
		Middle	3 800.00	38.004
		High	3 880.00	38.004
	16QAM	Low	3 720.00	37.808
		Middle	3 800.00	37.754
		High	3 880.00	37.744
	64QAM	Low	3 720.00	38.046
		Middle	3 800.00	38.034
		High	3 880.00	38.036
	256QAM	Low	3 720.00	37.889
		Middle	3 800.00	37.823
		High	3 880.00	37.866

(8 Port) 5G NR n77 60 MHz [1 Carrier]

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Middle	3 800.00	57.929
		High	3 870.00	57.985
	16QAM	Middle	3 800.00	57.621
		High	3 870.00	57.652
	64QAM	Middle	3 800.00	57.996
		High	3 870.00	57.918
	256QAM	Middle	3 800.00	57.921
		High	3 870.00	57.997
1	QPSK	Middle	3 800.00	57.997
		High	3 870.00	57.948
	16QAM	Middle	3 800.00	57.620
		High	3 870.00	57.588
	64QAM	Middle	3 800.00	57.917
		High	3 870.00	58.010
	256QAM	Middle	3 800.00	57.988
		High	3 870.00	58.010
2	QPSK	Middle	3 800.00	57.965
		High	3 870.00	57.929
	16QAM	Middle	3 800.00	57.647
		High	3 870.00	57.578
	64QAM	Middle	3 800.00	57.970
		High	3 870.00	58.003
	256QAM	Middle	3 800.00	57.965
		High	3 870.00	57.995
3	QPSK	Middle	3 800.00	57.992
		High	3 870.00	57.942
	16QAM	Middle	3 800.00	57.680
		High	3 870.00	57.587
	64QAM	Middle	3 800.00	57.918
		High	3 870.00	57.932
	256QAM	Middle	3 800.00	57.999
		High	3 870.00	58.010

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
4	QPSK	Middle	3 800.00	57.981
		High	3 870.00	57.899
	16QAM	Middle	3 800.00	57.595
		High	3 870.00	57.616
	64QAM	Middle	3 800.00	57.903
		High	3 870.00	57.903
	256QAM	Middle	3 800.00	57.903
		High	3 870.00	57.904
5	QPSK	Middle	3 800.00	57.982
		High	3 870.00	57.995
	16QAM	Middle	3 800.00	57.656
		High	3 870.00	57.583
	64QAM	Middle	3 800.00	57.907
		High	3 870.00	57.923
	256QAM	Middle	3 800.00	57.979
		High	3 870.00	57.999
6	QPSK	Middle	3 800.00	57.903
		High	3 870.00	57.996
	16QAM	Middle	3 800.00	57.593
		High	3 870.00	57.563
	64QAM	Middle	3 800.00	57.982
		High	3 870.00	57.994
	256QAM	Middle	3 800.00	57.972
		High	3 870.00	57.918
7	QPSK	Middle	3 800.00	57.921
		High	3 870.00	57.920
	16QAM	Middle	3 800.00	57.677
		High	3 870.00	57.643
	64QAM	Middle	3 800.00	57.925
		High	3 870.00	57.919
	256QAM	Middle	3 800.00	57.997
		High	3 870.00	57.992

(8 Port) 5G NR n77 80 MHz [1 Carrier]

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	3 740.00	77.405
		Middle	3 800.00	77.452
		High	3 860.00	77.432
	16QAM	Low	3 740.00	77.319
		Middle	3 800.00	77.450
		High	3 860.00	77.358
	64QAM	Low	3 740.00	77.684
		Middle	3 800.00	77.755
		High	3 860.00	77.725
	256QAM	Low	3 740.00	77.215
		Middle	3 800.00	77.296
		High	3 860.00	77.281
1	QPSK	Low	3 740.00	77.411
		Middle	3 800.00	77.500
		High	3 860.00	77.427
	16QAM	Low	3 740.00	77.310
		Middle	3 800.00	77.406
		High	3 860.00	77.373
	64QAM	Low	3 740.00	77.657
		Middle	3 800.00	77.737
		High	3 860.00	77.710
	256QAM	Low	3 740.00	77.198
		Middle	3 800.00	77.253
		High	3 860.00	77.247

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
2	QPSK	Low	3 740.00	77.366
		Middle	3 800.00	77.608
		High	3 860.00	77.428
	16QAM	Low	3 740.00	77.269
		Middle	3 800.00	77.447
		High	3 860.00	77.452
	64QAM	Low	3 740.00	77.634
		Middle	3 800.00	77.802
		High	3 860.00	77.740
	256QAM	Low	3 740.00	77.177
		Middle	3 800.00	77.393
		High	3 860.00	77.341
3	QPSK	Low	3 740.00	77.350
		Middle	3 800.00	77.521
		High	3 860.00	77.417
	16QAM	Low	3 740.00	77.276
		Middle	3 800.00	77.426
		High	3 860.00	77.382
	64QAM	Low	3 740.00	77.693
		Middle	3 800.00	77.820
		High	3 860.00	77.731
	256QAM	Low	3 740.00	77.197
		Middle	3 800.00	77.298
		High	3 860.00	77.243
4	QPSK	Low	3 740.00	77.431
		Middle	3 800.00	77.430
		High	3 860.00	77.431
	16QAM	Low	3 740.00	77.307
		Middle	3 800.00	77.416
		High	3 860.00	77.361
	64QAM	Low	3 740.00	77.718
		Middle	3 800.00	77.766
		High	3 860.00	77.706
	256QAM	Low	3 740.00	77.209
		Middle	3 800.00	77.330
		High	3 860.00	77.214

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
5	QPSK	Low	3 740.00	77.441
		Middle	3 800.00	77.498
		High	3 860.00	77.453
	16QAM	Low	3 740.00	77.317
		Middle	3 800.00	77.407
		High	3 860.00	77.352
	64QAM	Low	3 740.00	77.669
		Middle	3 800.00	77.808
		High	3 860.00	77.773
	256QAM	Low	3 740.00	77.200
		Middle	3 800.00	77.320
		High	3 860.00	77.257
6	QPSK	Low	3 740.00	77.360
		Middle	3 800.00	77.505
		High	3 860.00	77.382
	16QAM	Low	3 740.00	77.296
		Middle	3 800.00	77.414
		High	3 860.00	77.374
	64QAM	Low	3 740.00	77.683
		Middle	3 800.00	77.758
		High	3 860.00	77.721
	256QAM	Low	3 740.00	77.195
		Middle	3 800.00	77.313
		High	3 860.00	77.224
7	QPSK	Low	3 740.00	77.437
		Middle	3 800.00	77.465
		High	3 860.00	77.456
	16QAM	Low	3 740.00	77.300
		Middle	3 800.00	77.435
		High	3 860.00	77.341
	64QAM	Low	3 740.00	77.652
		Middle	3 800.00	77.765
		High	3 860.00	77.700
	256QAM	Low	3 740.00	77.205
		Middle	3 800.00	77.340
		High	3 860.00	77.238

(8 Port) 5G NR n77 100 MHz [1 Carrier]

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Middle	3 800.00	97.573
		High	3 850.00	97.522
	16QAM	Middle	3 800.00	97.375
		High	3 850.00	97.266
	64QAM	Middle	3 800.00	97.561
		High	3 850.00	97.532
	256QAM	Middle	3 800.00	97.562
		High	3 850.00	97.530
1	QPSK	Middle	3 800.00	97.511
		High	3 850.00	97.518
	16QAM	Middle	3 800.00	97.324
		High	3 850.00	97.326
	64QAM	Middle	3 800.00	97.532
		High	3 850.00	97.494
	256QAM	Middle	3 800.00	97.519
		High	3 850.00	97.514
2	QPSK	Middle	3 800.00	97.552
		High	3 850.00	97.601
	16QAM	Middle	3 800.00	97.377
		High	3 850.00	97.378
	64QAM	Middle	3 800.00	97.535
		High	3 850.00	97.586
	256QAM	Middle	3 800.00	97.539
		High	3 850.00	97.603
3	QPSK	Middle	3 800.00	97.546
		High	3 850.00	97.529
	16QAM	Middle	3 800.00	97.355
		High	3 850.00	97.335
	64QAM	Middle	3 800.00	97.533
		High	3 850.00	97.527
	256QAM	Middle	3 800.00	97.548
		High	3 850.00	97.532

Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
4	QPSK	Middle	3 800.00	97.553
		High	3 850.00	97.537
	16QAM	Middle	3 800.00	97.362
		High	3 850.00	97.315
	64QAM	Middle	3 800.00	97.553
		High	3 850.00	97.529
	256QAM	Middle	3 800.00	97.557
		High	3 850.00	97.511
5	QPSK	Middle	3 800.00	97.559
		High	3 850.00	97.494
	16QAM	Middle	3 800.00	97.366
		High	3 850.00	97.293
	64QAM	Middle	3 800.00	97.561
		High	3 850.00	97.511
	256QAM	Middle	3 800.00	97.548
		High	3 850.00	97.512
6	QPSK	Middle	3 800.00	97.553
		High	3 850.00	97.522
	16QAM	Middle	3 800.00	97.357
		High	3 850.00	97.326
	64QAM	Middle	3 800.00	97.550
		High	3 850.00	97.541
	256QAM	Middle	3 800.00	97.552
		High	3 850.00	97.528
7	QPSK	Middle	3 800.00	97.535
		High	3 850.00	97.501
	16QAM	Middle	3 800.00	97.370
		High	3 850.00	97.285
	64QAM	Middle	3 800.00	97.541
		High	3 850.00	97.497
	256QAM	Middle	3 800.00	97.533
		High	3 850.00	97.497

Tabular Data of Contiguous Occupied Bandwidth

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier]

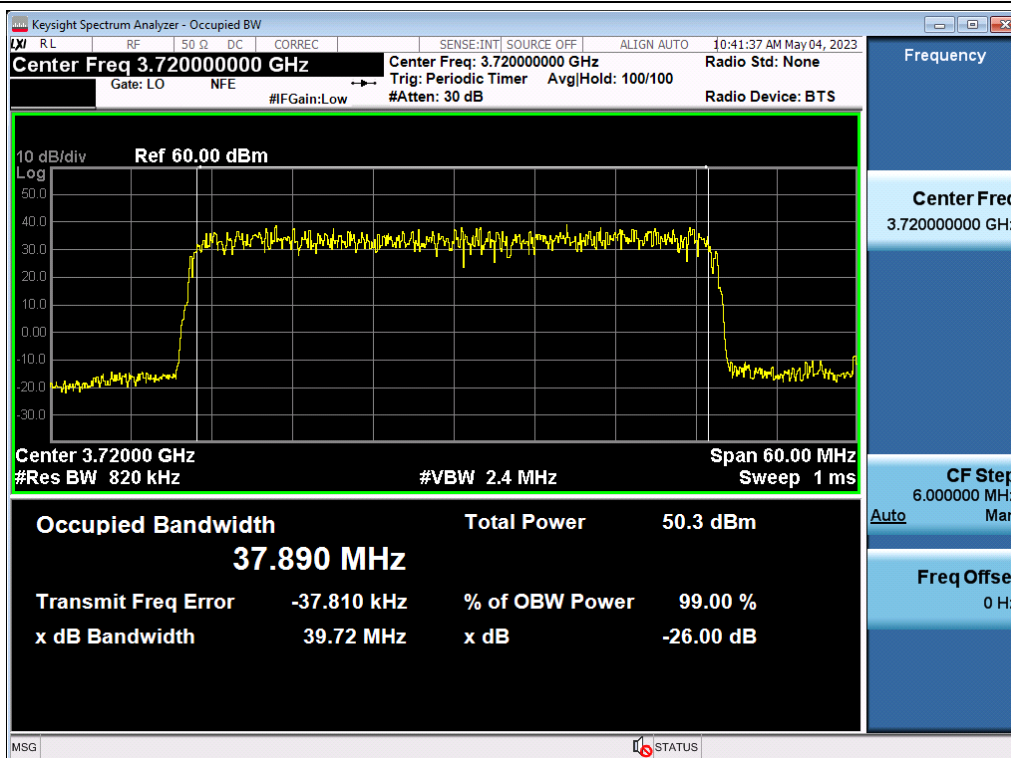
Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	3 770.00	137.16
	16QAM	Low	3 770.00	137.02
	64QAM	Low	3 770.00	137.03
	256QAM	Low	3 770.00	136.74
1	QPSK	Low	3 770.00	137.24
	16QAM	Low	3 770.00	137.24
	64QAM	Low	3 770.00	137.24
	256QAM	Low	3 770.00	136.77
2	QPSK	Low	3 770.00	137.15
	16QAM	Low	3 770.00	137.10
	64QAM	Low	3 770.00	137.09
	256QAM	Low	3 770.00	136.81
3	QPSK	Low	3 770.00	137.07
	16QAM	Low	3 770.00	137.05
	64QAM	Low	3 770.00	137.24
	256QAM	Low	3 770.00	136.77
4	QPSK	Low	3 770.00	137.05
	16QAM	Low	3 770.00	137.06
	64QAM	Low	3 770.00	137.05
	256QAM	Low	3 770.00	136.78
5	QPSK	Low	3 770.00	137.07
	16QAM	Low	3 770.00	137.06
	64QAM	Low	3 770.00	137.19
	256QAM	Low	3 770.00	136.71
6	QPSK	Low	3 770.00	137.04
	16QAM	Low	3 770.00	137.04
	64QAM	Low	3 770.00	137.04
	256QAM	Low	3 770.00	136.77
7	QPSK	Low	3 770.00	137.18
	16QAM	Low	3 770.00	137.07
	64QAM	Low	3 770.00	137.26
	256QAM	Low	3 770.00	136.70

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier]

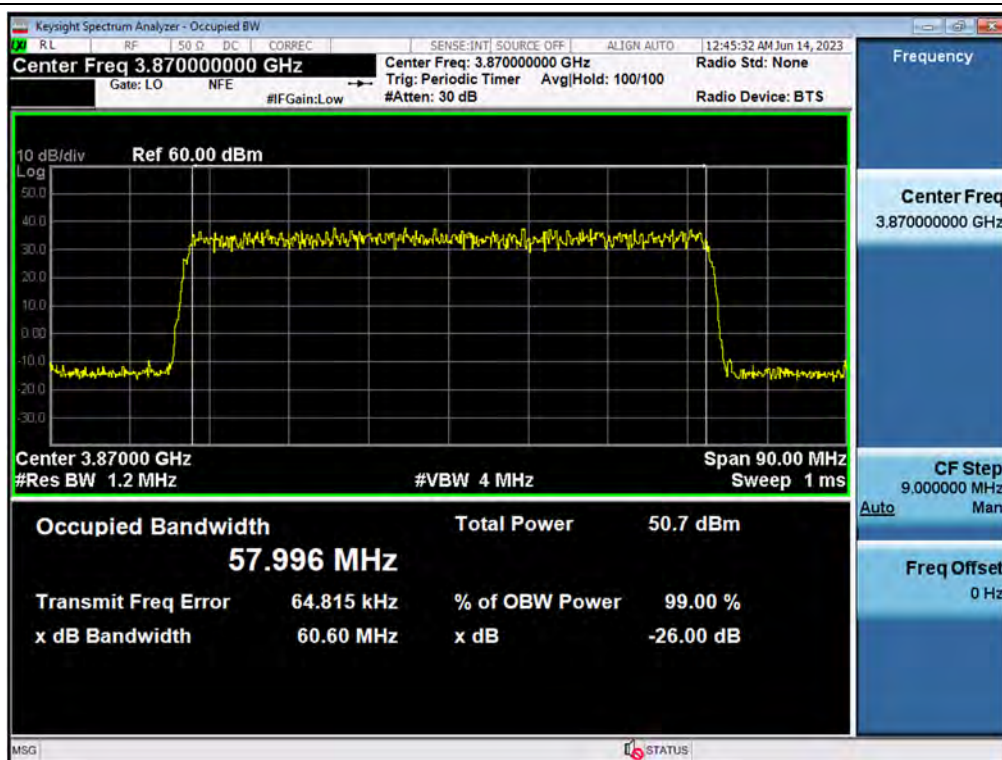
Ant	Mod	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	QPSK	Low	3 800.00	196.65
	16QAM	Low	3 800.00	196.65
	64QAM	Low	3 800.00	196.66
	256QAM	Low	3 800.00	196.90
1	QPSK	Low	3 800.00	196.94
	16QAM	Low	3 800.00	196.63
	64QAM	Low	3 800.00	196.81
	256QAM	Low	3 800.00	196.90
2	QPSK	Low	3 800.00	196.88
	16QAM	Low	3 800.00	196.89
	64QAM	Low	3 800.00	197.21
	256QAM	Low	3 800.00	196.90
3	QPSK	Low	3 800.00	196.87
	16QAM	Low	3 800.00	196.66
	64QAM	Low	3 800.00	196.97
	256QAM	Low	3 800.00	196.94
4	QPSK	Low	3 800.00	197.00
	16QAM	Low	3 800.00	197.01
	64QAM	Low	3 800.00	196.69
	256QAM	Low	3 800.00	196.70
5	QPSK	Low	3 800.00	196.85
	16QAM	Low	3 800.00	196.86
	64QAM	Low	3 800.00	196.86
	256QAM	Low	3 800.00	196.65
6	QPSK	Low	3 800.00	196.95
	16QAM	Low	3 800.00	196.71
	64QAM	Low	3 800.00	196.69
	256QAM	Low	3 800.00	196.70
7	QPSK	Low	3 800.00	196.84
	16QAM	Low	3 800.00	196.65
	64QAM	Low	3 800.00	196.65
	256QAM	Low	3 800.00	196.65

Plot Data of Occupied bandwidth

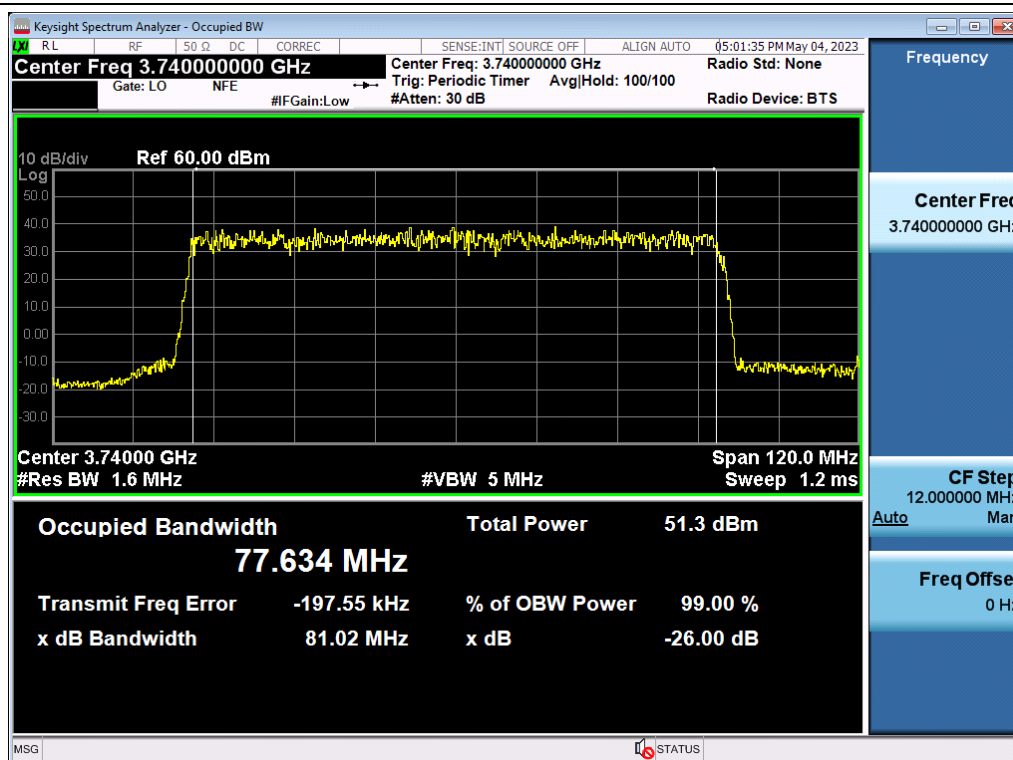
Antenna 2 / (8 Port) 5G NR n77 40 MHz [1 Carrier] / 256QAM / Low



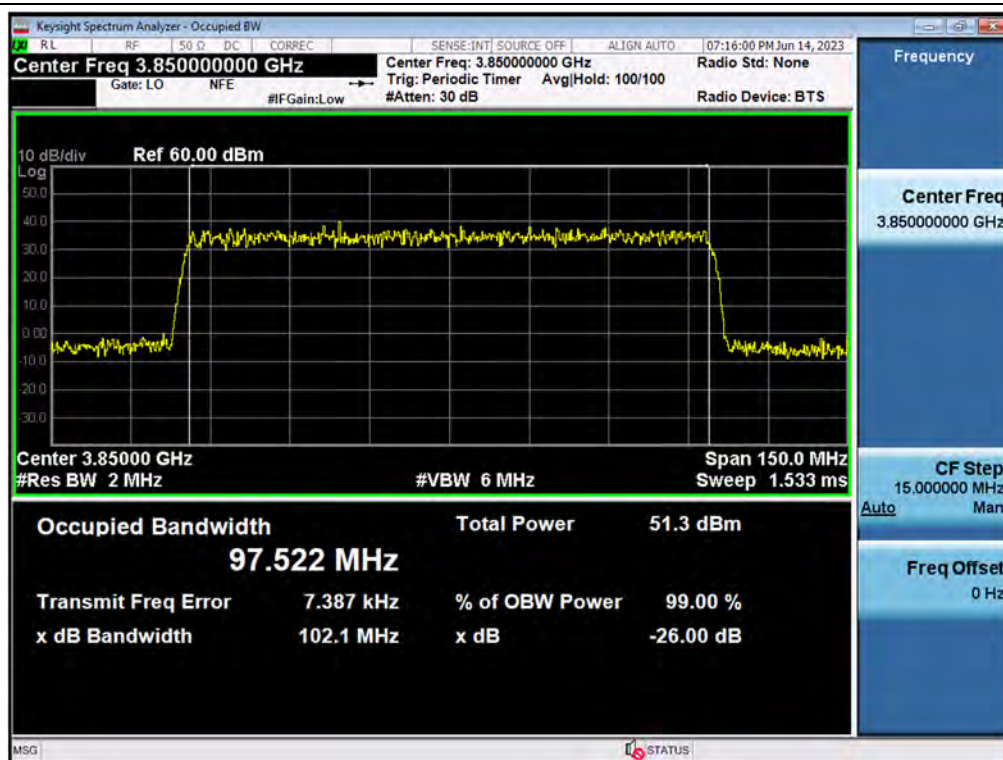
Antenna 6 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / QPSK / High



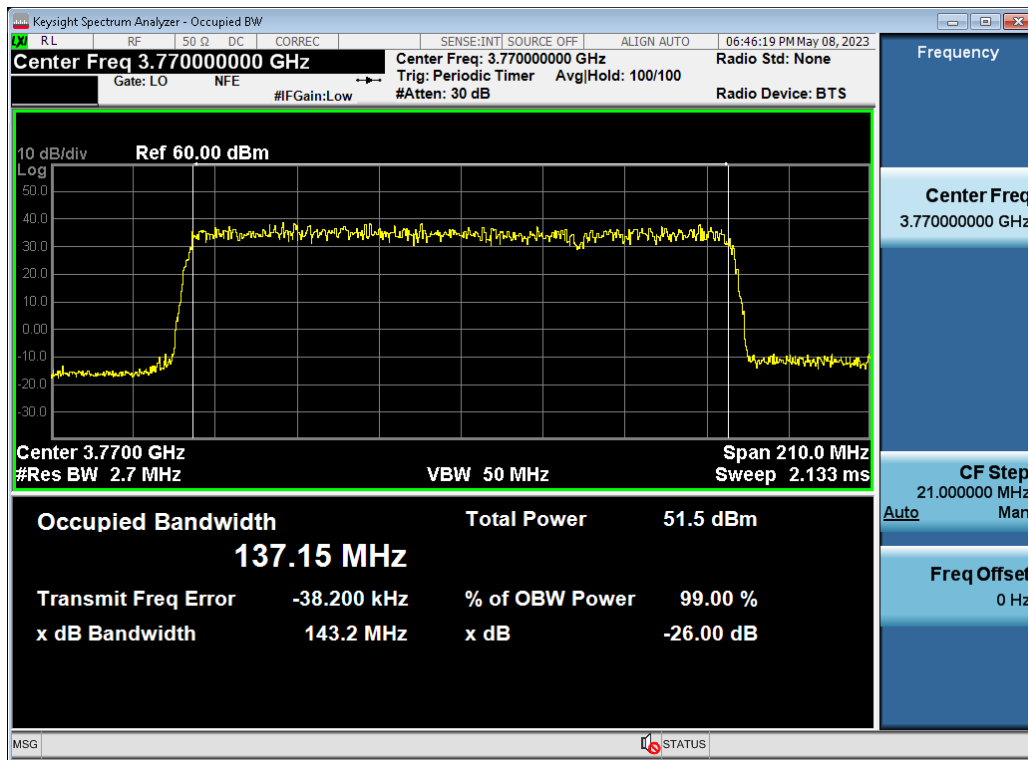
Antenna 2 / (8 Port) 5G NR n77 80 MHz [1 Carrier] / 64QAM / Low



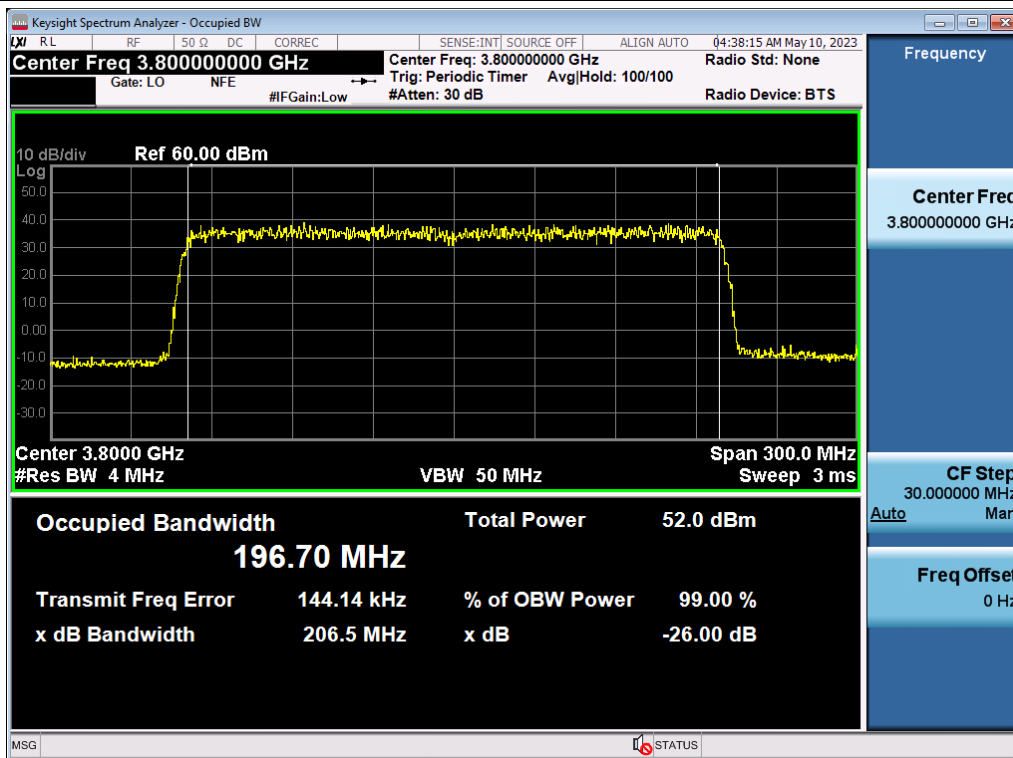
Antenna 0 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / QPSK / High



Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / QPSK / Low / Contiguous



Antenna 6 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 256QAM / Low / Contiguous



5.4. OUT-OF-BAND UNWANTED 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.

§ 27.53 Emission limits.

(I) 3.7 GHz Service. The following emission limits apply to station transmitting in the 3700-3980 MHz band:

- (1) For base station operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (I)(1) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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.

Test Procedures:

The measurement is performed in accordance with Section 5.7.2, 5.7.3 of ANSI C63.26.

5.7.2 Basic guidelines for unwanted emissions conducted measurements

- a) For improvement of the accuracy in the measurement of the average power of a noise-like emission, a RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the OBW), provided that a subsequent integration is performed over the full required measurement bandwidth. This integration should be performed using the spectrum analyzer's channel power, adjacent channel power, or band power functions. When using the integration method at the channel/block/band edge, the starting frequency of the integration shall be centered at one-half of the RBW away from the band/channel/block edge.

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 $\geq 2 \times \text{span} / \text{RBW}$.
- 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 $\geq 98\%$), set the (sweep time) $>$ (number of points in sweep) $\times$ (symbol period) (e.g., by a factor of $10 \times$ symbol period $\times$ 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) $\times$ (transmitter period) (i.e., the transmit on-time + the off-time). The spectrum analyzer readings shall subsequently be corrected by $[10 \log (1/\text{duty cycle})]$. This assumes that the transmission period and duty cycle is relatively constant (duty cycle variation $\leq \pm 2\%$).
- 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) $\times$ (transmitter period) (i.e., the transmit on-time + the off-time). The spectrum analyzer readings shall subsequently be corrected by $[10 \log (1/\text{duty cycle})]$. This assumes that the transmission period and duty cycle is relatively constant (duty cycle variation $\leq \pm 2\%$).
- 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 $> \pm 2\%$), set the sweep time so that the averaging is performed over the on-period by setting the sweep time $>$ (symbol period) $\times$ (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.

Note:

1. Due to MIMO operations, a correction has been added to the limit according to KDB 662911 D01 v02r01.
 - 8Tx MIMO correction: $10 \log(N_{\text{ANT}}) = 10 \log(8) = 9.03 \text{ dB} // -13 \text{ dBm} - 9.03 \text{ dB} = -22.03 \text{ dBm}$
2. Sample Calculations:
 - -24.62 dBm (Measured value) $+ 1.308 \text{ dB}$ (Duty cycle factor) $= -23.31 \text{ dBm}$
3. The results of the Out-of-band Unwanted Emissions 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 Out-of-band Unwanted Emissions
(8 Port) 5G NR n77 40 MHz [1 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
0	QPSK	Low	3 699.80	-24.59
		High	3 900.20	-25.47
	16QAM	Low	3 699.80	-23.65
		High	3 900.20	-23.87
	64QAM	Low	3 699.80	-23.64
		High	3 900.20	-24.55
	256QAM	Low	3 699.80	-24.14
		High	3 900.20	-24.84
1	QPSK	Low	3 699.80	-25.13
		High	3 900.20	-24.37
	16QAM	Low	3 699.80	-24.45
		High	3 900.20	-26.04
	64QAM	Low	3 699.80	-24.04
		High	3 900.20	-25.62
	256QAM	Low	3 699.80	-25.17
		High	3 900.20	-25.30
2	QPSK	Low	3 699.80	-23.70
		High	3 900.20	-23.95
	16QAM	Low	3 699.80	-23.45
		High	3 900.20	-24.79
	64QAM	Low	3 699.80	-23.76
		High	3 900.20	-25.46
	256QAM	Low	3 699.80	-23.31
		High	3 900.20	-24.97
3	QPSK	Low	3 699.80	-25.11
		High	3 900.20	-25.70
	16QAM	Low	3 699.80	-25.41
		High	3 900.20	-25.75
	64QAM	Low	3 699.80	-24.77
		High	3 900.20	-25.92
	256QAM	Low	3 699.80	-25.29
		High	3 900.20	-25.91

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
4	QPSK	Low	3 699.80	-23.37
		High	3 900.20	-25.33
	16QAM	Low	3 699.80	-24.09
		High	3 900.20	-26.01
	64QAM	Low	3 699.80	-24.46
		High	3 900.20	-26.07
	256QAM	Low	3 699.80	-24.39
		High	3 900.20	-25.83
5	QPSK	Low	3 699.80	-24.39
		High	3 900.20	-25.81
	16QAM	Low	3 699.80	-25.12
		High	3 900.20	-26.14
	64QAM	Low	3 699.80	-25.04
		High	3 900.20	-26.06
	256QAM	Low	3 699.80	-25.17
		High	3 900.20	-26.05
6	QPSK	Low	3 699.80	-24.51
		High	3 900.20	-25.64
	16QAM	Low	3 699.80	-25.22
		High	3 900.20	-25.93
	64QAM	Low	3 699.80	-24.99
		High	3 900.20	-26.10
	256QAM	Low	3 699.80	-25.08
		High	3 900.20	-25.89
7	QPSK	Low	3 699.80	-23.98
		High	3 900.20	-25.16
	16QAM	Low	3 699.80	-23.95
		High	3 900.20	-25.26
	64QAM	Low	3 699.80	-24.16
		High	3 900.20	-25.60
	256QAM	Low	3 699.80	-23.84
		High	3 900.20	-25.21

(8 Port) 5G NR n77 60 MHz [1 Carrier] (Low Ch.)

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
1	16QAM	Low	3 699.70	-25.02

(8 Port) 5G NR n77 60 MHz [1 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
0	QPSK	High	3 900.30	-24.19
	16QAM	High	3 900.30	-25.11
	64QAM	High	3 900.30	-25.53
	256QAM	High	3 900.30	-25.86
1	QPSK	High	3 900.30	-25.65
	16QAM	High	3 900.30	-25.11
	64QAM	High	3 900.30	-25.41
	256QAM	High	3 900.30	-25.65
2	QPSK	High	3 900.30	-25.40
	16QAM	High	3 900.30	-25.45
	64QAM	High	3 900.30	-25.46
	256QAM	High	3 900.30	-25.44
3	QPSK	High	3 900.30	-25.78
	16QAM	High	3 900.30	-26.28
	64QAM	High	3 900.30	-25.75
	256QAM	High	3 900.30	-25.74
4	QPSK	High	3 900.30	-25.16
	16QAM	High	3 900.30	-25.50
	64QAM	High	3 900.30	-25.20
	256QAM	High	3 900.30	-25.16
5	QPSK	High	3 900.30	-25.79
	16QAM	High	3 900.30	-25.87
	64QAM	High	3 900.30	-25.71
	256QAM	High	3 900.30	-25.84
6	QPSK	High	3 900.30	-25.82
	16QAM	High	3 900.30	-26.25
	64QAM	High	3 900.30	-25.72
	256QAM	High	3 900.30	-25.76
7	QPSK	High	3 900.30	-25.04
	16QAM	High	3 900.30	-25.51
	64QAM	High	3 900.30	-25.07
	256QAM	High	3 900.30	-25.13

(8 Port) 5G NR n77 80 MHz [1 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
0	QPSK	Low	3 699.60	-25.02
		High	3 900.40	-24.87
	16QAM	Low	3 699.60	-25.08
		High	3 900.40	-25.74
	64QAM	Low	3 699.60	-25.33
		High	3 900.40	-24.68
	256QAM	Low	3 699.60	-25.63
		High	3 900.40	-24.82
1	QPSK	Low	3 699.60	-26.33
		High	3 900.40	-25.32
	16QAM	Low	3 699.60	-26.44
		High	3 900.40	-25.69
	64QAM	Low	3 699.60	-26.72
		High	3 900.40	-25.87
	256QAM	Low	3 699.60	-26.48
		High	3 900.40	-26.04
2	QPSK	Low	3 699.60	-24.47
		High	3 900.40	-25.50
	16QAM	Low	3 699.60	-23.29
		High	3 900.40	-25.15
	64QAM	Low	3 699.60	-23.32
		High	3 900.40	-24.45
	256QAM	Low	3 699.60	-23.84
		High	3 900.40	-25.13
3	QPSK	Low	3 699.60	-26.49
		High	3 900.40	-26.29
	16QAM	Low	3 699.60	-26.56
		High	3 900.40	-26.39
	64QAM	Low	3 699.60	-26.62
		High	3 900.40	-26.59
	256QAM	Low	3 699.60	-26.66
		High	3 900.40	-26.53

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
4	QPSK	Low	3 699.60	-24.11
		High	3 900.40	-24.35
	16QAM	Low	3 699.60	-24.13
		High	3 900.40	-24.51
	64QAM	Low	3 699.60	-24.28
		High	3 900.40	-24.72
	256QAM	Low	3 699.60	-23.92
		High	3 900.40	-24.56
5	QPSK	Low	3 699.60	-26.61
		High	3 900.40	-23.38
	16QAM	Low	3 699.60	-26.64
		High	3 900.40	-26.80
	64QAM	Low	3 699.60	-26.69
		High	3 900.40	-27.19
	256QAM	Low	3 699.60	-26.71
		High	3 900.40	-26.92
6	QPSK	Low	3 699.60	-26.23
		High	3 900.40	-26.38
	16QAM	Low	3 699.60	-26.16
		High	3 900.40	-26.73
	64QAM	Low	3 699.60	-26.12
		High	3 900.40	-26.70
	256QAM	Low	3 699.60	-26.27
		High	3 900.40	-26.44
7	QPSK	Low	3 699.60	-25.12
		High	3 900.40	-25.29
	16QAM	Low	3 699.60	-25.12
		High	3 900.40	-25.10
	64QAM	Low	3 699.60	-25.17
		High	3 900.40	-25.52
	256QAM	Low	3 699.60	-25.07
		High	3 900.40	-25.00

(8 Port) 5G NR n77 100 MHz [1 Carrier] (Low Ch.)

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
2	QPSK	Low	3 699.50	-25.50

(8 Port) 5G NR n77 100 MHz [1 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
0	QPSK	High	3 900.50	-25.97
	16QAM	High	3 900.50	-24.86
	64QAM	High	3 900.50	-26.03
	256QAM	High	3 900.50	-26.15
1	QPSK	High	3 900.50	-24.65
	16QAM	High	3 900.50	-24.62
	64QAM	High	3 900.50	-24.84
	256QAM	High	3 900.50	-24.85
2	QPSK	High	3 900.50	-25.39
	16QAM	High	3 900.50	-24.95
	64QAM	High	3 900.50	-25.54
	256QAM	High	3 900.50	-25.43
3	QPSK	High	3 900.50	-25.77
	16QAM	High	3 900.50	-25.65
	64QAM	High	3 900.50	-25.32
	256QAM	High	3 900.50	-25.91
4	QPSK	High	3 900.50	-24.05
	16QAM	High	3 900.50	-23.64
	64QAM	High	3 900.50	-23.97
	256QAM	High	3 900.50	-24.05
5	QPSK	High	3 900.50	-26.10
	16QAM	High	3 900.50	-25.67
	64QAM	High	3 900.50	-26.22
	256QAM	High	3 900.50	-26.28
6	QPSK	High	3 900.50	-25.92
	16QAM	High	3 900.50	-25.37
	64QAM	High	3 900.50	-25.59
	256QAM	High	3 900.50	-25.72
7	QPSK	High	3 900.50	-24.65
	16QAM	High	3 900.50	-24.57
	64QAM	High	3 900.50	-24.75
	256QAM	High	3 900.50	-24.67

Tabular Data of Contiguous Out-of-band Unwanted Emissions

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
0	QPSK	Low	3 699.50	-25.54
	16QAM	Low	3 699.50	-25.31
	64QAM	Low	3 699.50	-25.80
	256QAM	Low	3 699.50	-23.66
1	QPSK	Low	3 699.50	-25.80
	16QAM	Low	3 699.50	-25.93
	64QAM	Low	3 699.50	-26.06
	256QAM	Low	3 699.50	-25.10
2	QPSK	Low	3 699.50	-24.80
	16QAM	Low	3 699.50	-24.96
	64QAM	Low	3 699.50	-25.00
	256QAM	Low	3 699.50	-24.69
3	QPSK	Low	3 699.50	-26.36
	16QAM	Low	3 699.50	-26.37
	64QAM	Low	3 699.50	-26.51
	256QAM	Low	3 699.50	-26.07
4	QPSK	Low	3 699.50	-23.16
	16QAM	Low	3 699.50	-23.17
	64QAM	Low	3 699.50	-23.11
	256QAM	Low	3 699.50	-23.17
5	QPSK	Low	3 699.50	-26.00
	16QAM	Low	3 699.50	-26.19
	64QAM	Low	3 699.50	-26.28
	256QAM	Low	3 699.50	-25.96
6	QPSK	Low	3 699.50	-25.77
	16QAM	Low	3 699.50	-25.96
	64QAM	Low	3 699.50	-26.24
	256QAM	Low	3 699.50	-25.78
7	QPSK	Low	3 699.50	-25.09
	16QAM	Low	3 699.50	-25.36
	64QAM	Low	3 699.50	-25.55
	256QAM	Low	3 699.50	-25.12

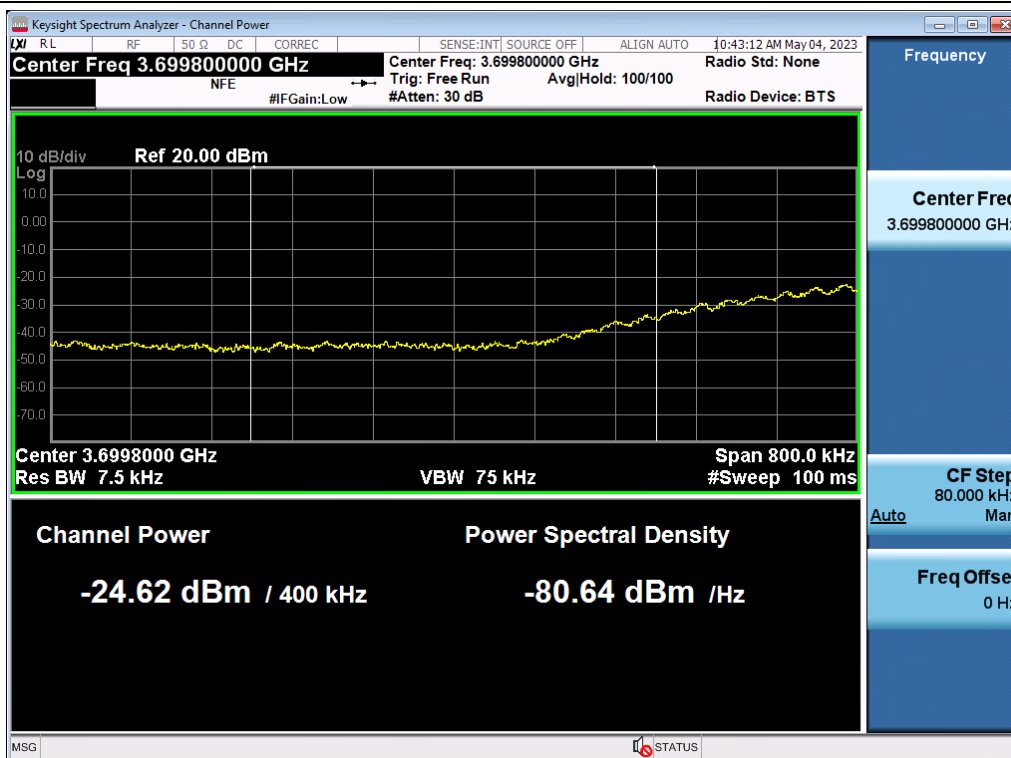
(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier]

Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
0	QPSK	Low	3 699.50	-26.05
		High	3 900.50	-25.24
	16QAM	Low	3 699.50	-26.05
		High	3 900.50	-25.22
	64QAM	Low	3 699.50	-26.05
		High	3 900.50	-25.31
	256QAM	Low	3 699.50	-25.92
		High	3 900.50	-25.33
1	QPSK	Low	3 699.50	-26.10
		High	3 900.50	-25.31
	16QAM	Low	3 699.50	-26.06
		High	3 900.50	-25.28
	64QAM	Low	3 699.50	-26.01
		High	3 900.50	-25.13
	256QAM	Low	3 699.50	-25.94
		High	3 900.50	-25.13
2	QPSK	Low	3 699.50	-25.42
		High	3 900.50	-25.30
	16QAM	Low	3 699.50	-25.39
		High	3 900.50	-25.20
	64QAM	Low	3 699.50	-25.26
		High	3 900.50	-25.18
	256QAM	Low	3 699.50	-25.23
		High	3 900.50	-25.12
3	QPSK	Low	3 699.50	-26.50
		High	3 900.50	-25.34
	16QAM	Low	3 699.50	-26.51
		High	3 900.50	-25.18
	64QAM	Low	3 699.50	-26.53
		High	3 900.50	-25.35
	256QAM	Low	3 699.50	-26.42
		High	3 900.50	-25.28

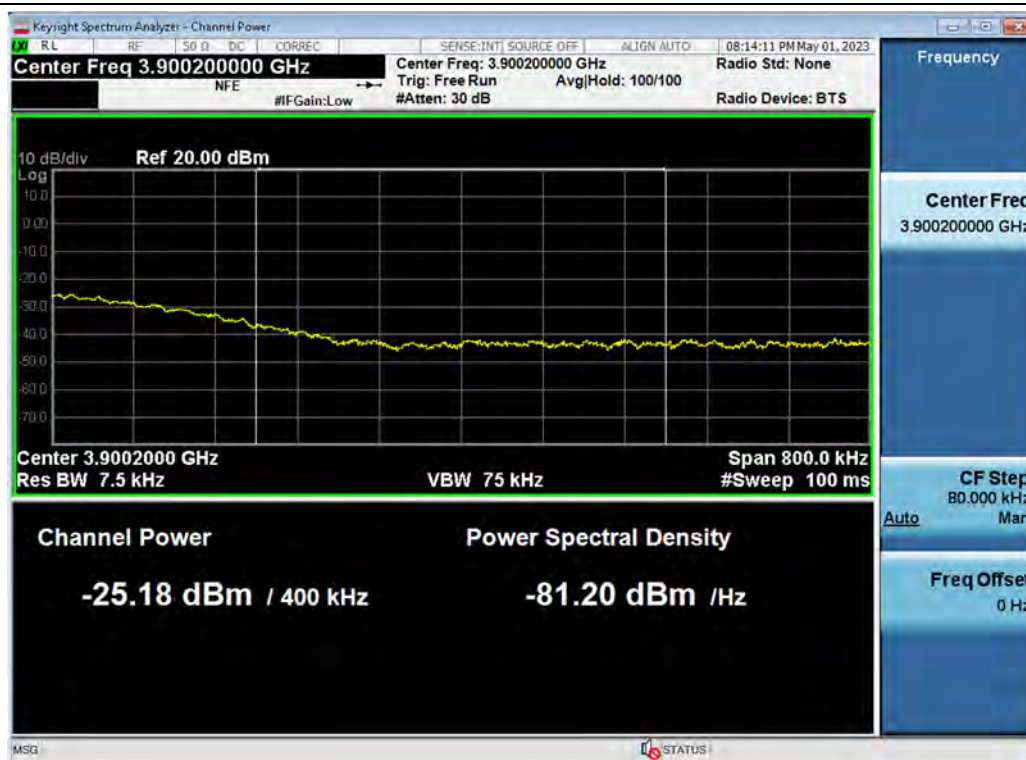
Ant.	Mod.	Channel	Frequency (MHz)	Measured Value (dBm)
4	QPSK	Low	3 699.50	-23.24
		High	3 900.50	-23.22
	16QAM	Low	3 699.50	-23.19
		High	3 900.50	-23.26
	64QAM	Low	3 699.50	-23.18
		High	3 900.50	-23.27
	256QAM	Low	3 699.50	-23.16
		High	3 900.50	-23.11
5	QPSK	Low	3 699.50	-26.29
		High	3 900.50	-25.83
	16QAM	Low	3 699.50	-26.17
		High	3 900.50	-25.80
	64QAM	Low	3 699.50	-26.26
		High	3 900.50	-25.89
	256QAM	Low	3 699.50	-26.15
		High	3 900.50	-25.79
6	QPSK	Low	3 699.50	-26.19
		High	3 900.50	-25.62
	16QAM	Low	3 699.50	-26.03
		High	3 900.50	-25.49
	64QAM	Low	3 699.50	-26.09
		High	3 900.50	-25.46
	256QAM	Low	3 699.50	-25.98
		High	3 900.50	-25.33
7	QPSK	Low	3 699.50	-25.52
		High	3 900.50	-25.17
	16QAM	Low	3 699.50	-25.42
		High	3 900.50	-25.20
	64QAM	Low	3 699.50	-25.40
		High	3 900.50	-25.02
	256QAM	Low	3 699.50	-25.36
		High	3 900.50	-25.04

Plot Data of Out-of-band Unwanted Emissions

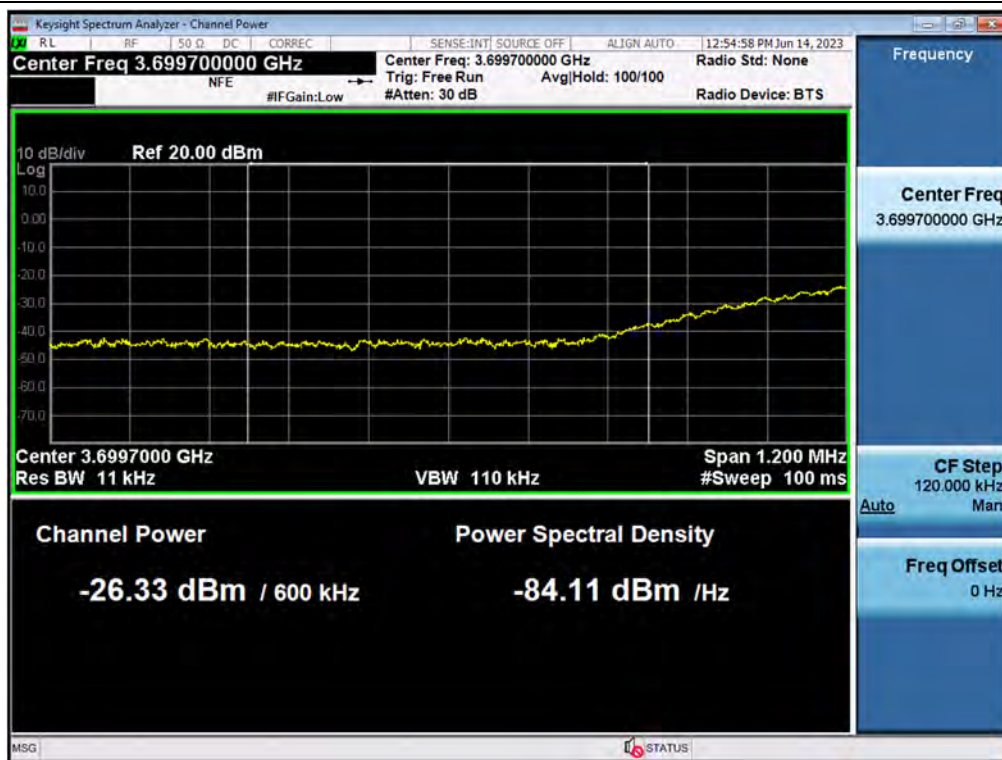
Antenna 2 / (8 Port) 5G NR n77 40 MHz [1 Carrier] / 256QAM / Low



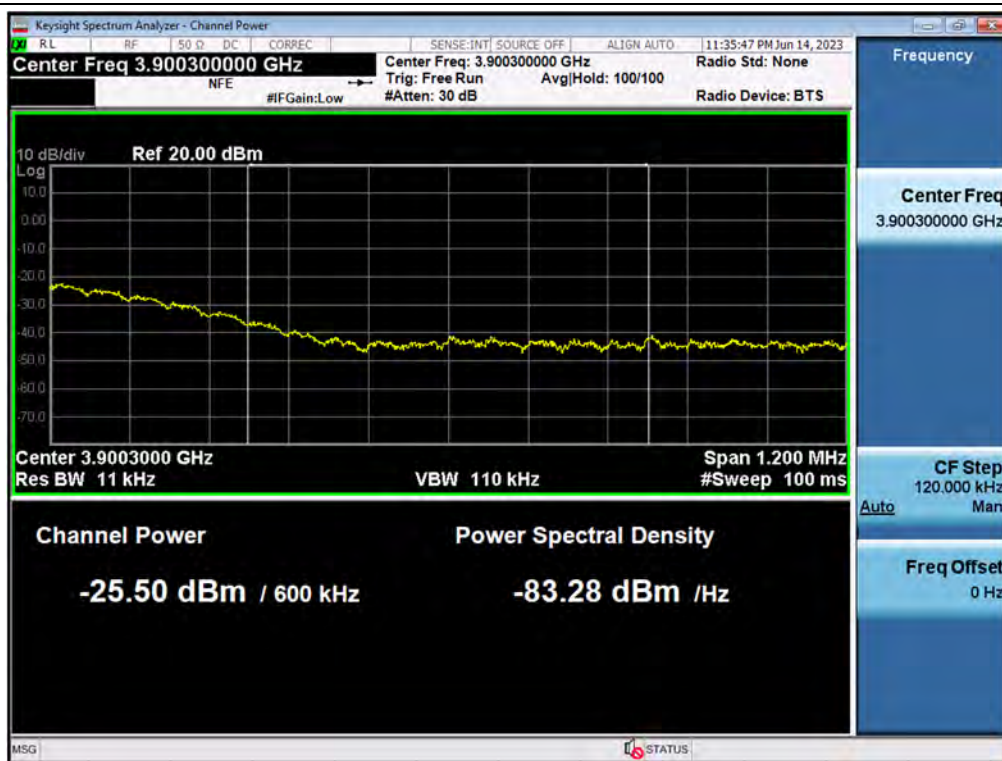
Antenna 0 / (8 Port) 5G NR n77 40 MHz [1 Carrier] / 16QAM / High



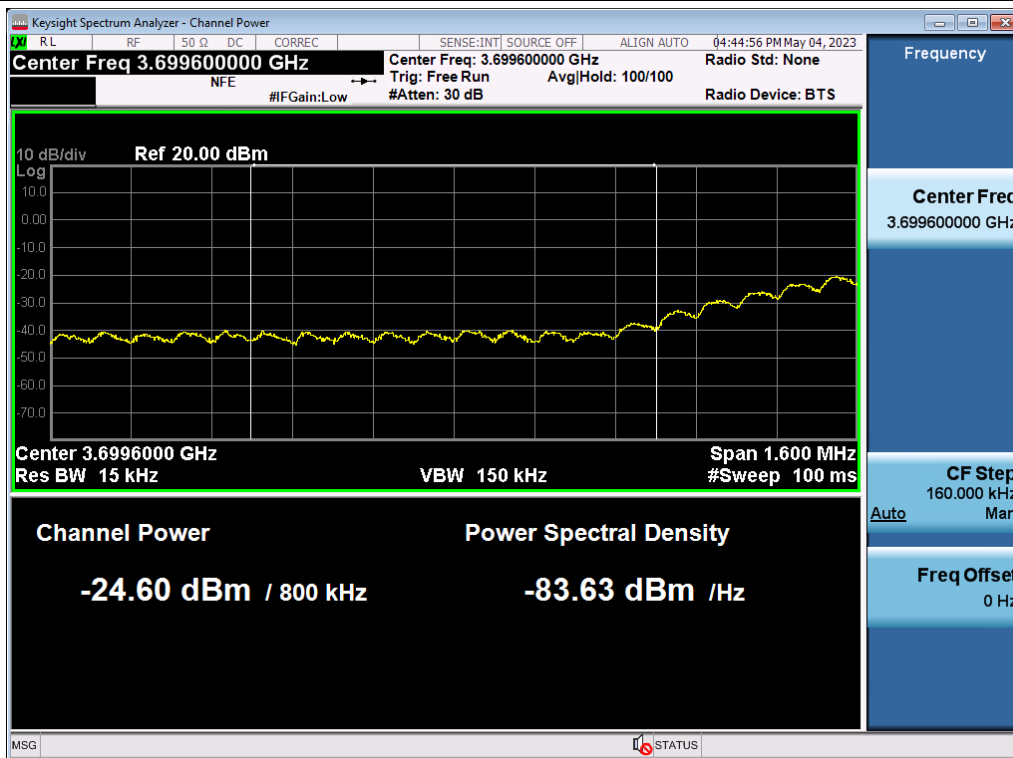
Antenna 1 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / 16QAM / Low



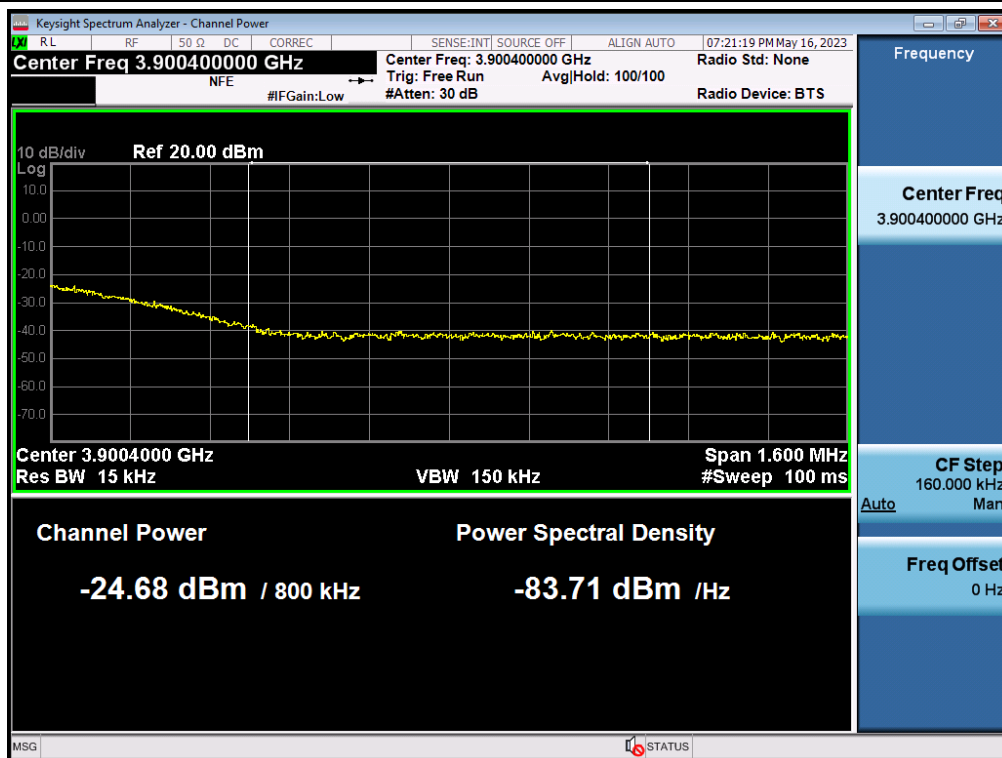
Antenna 0 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / QSPK / High



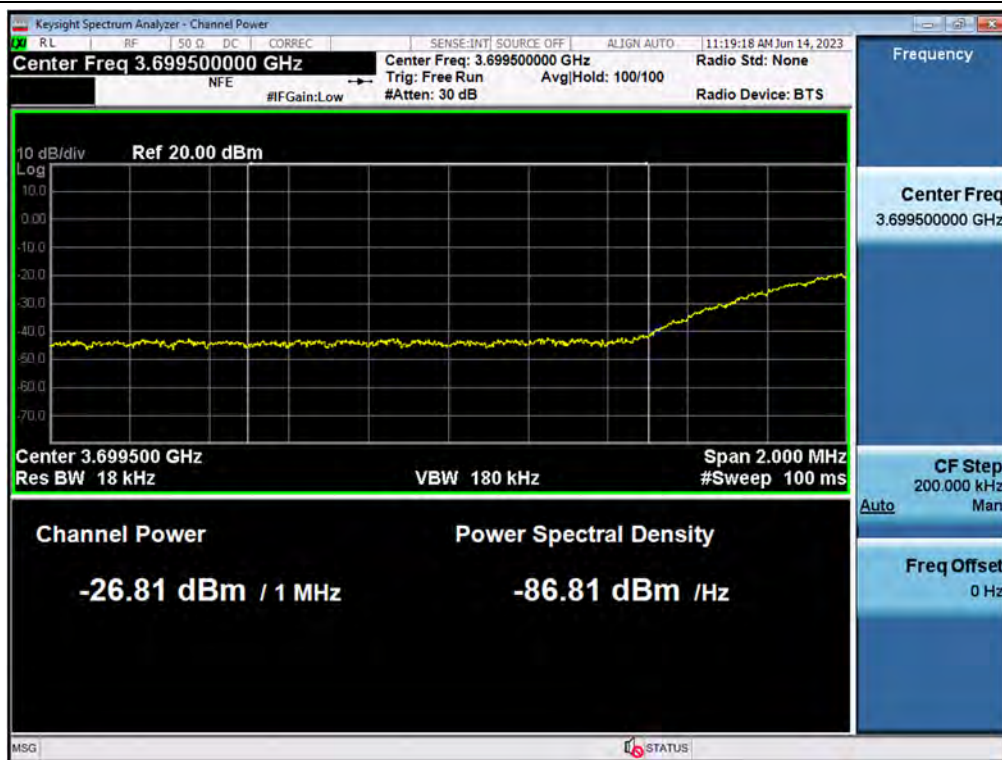
Antenna 2 / (8 Port) 5G NR n77 80 MHz [1 Carrier] / 16QAM / Low



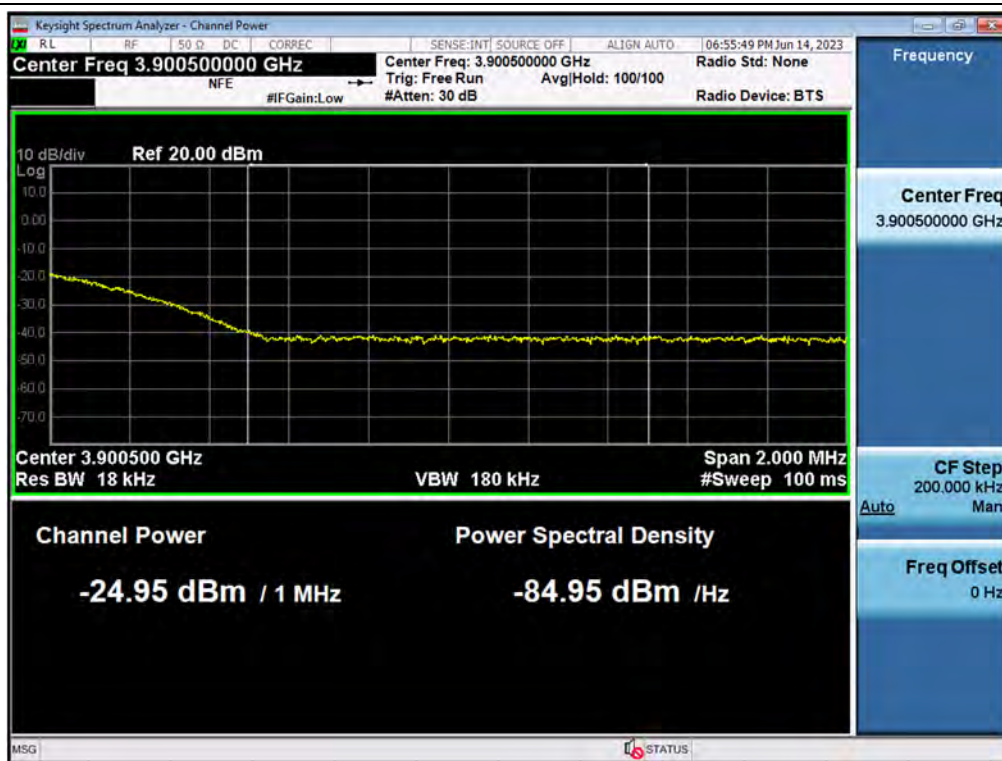
Antenna 5 / (8 Port) 5G NR n77 80 MHz [1 Carrier] / QPSK / High



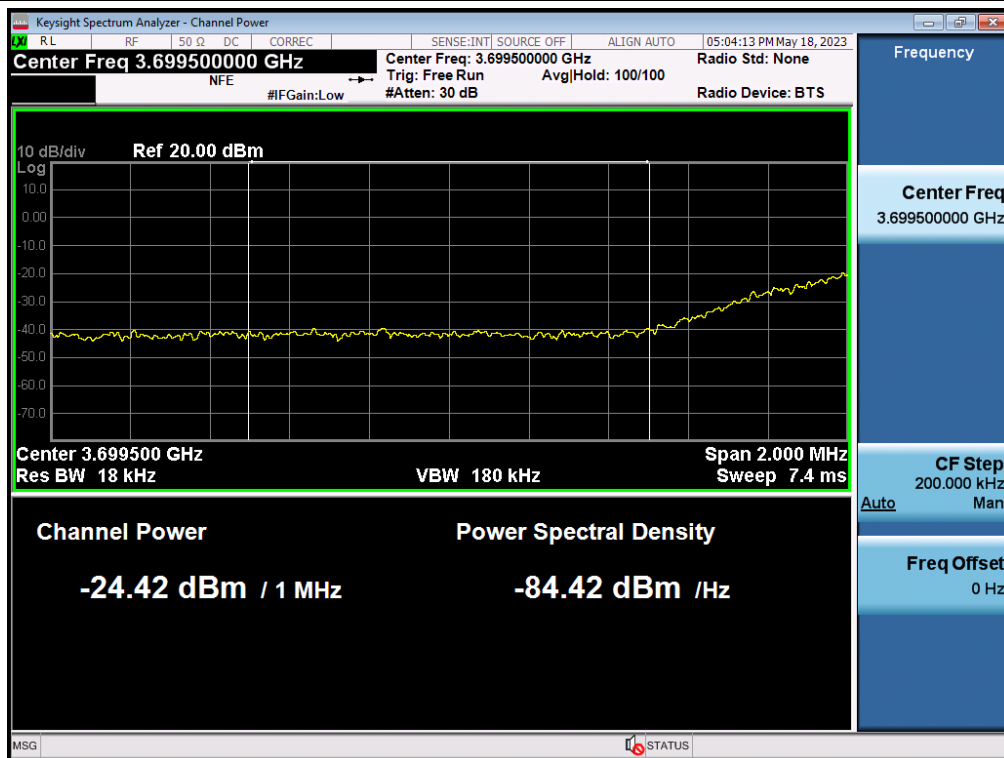
Antenna 2 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / QPSK / Low



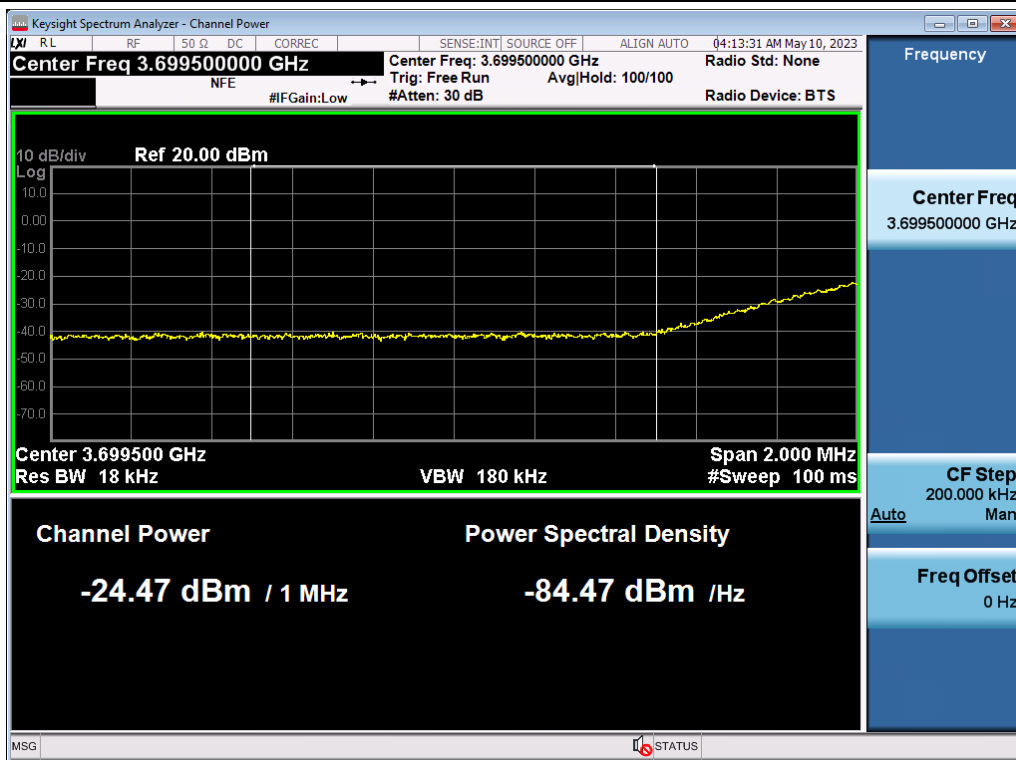
Antenna 4 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / 16QAM / High



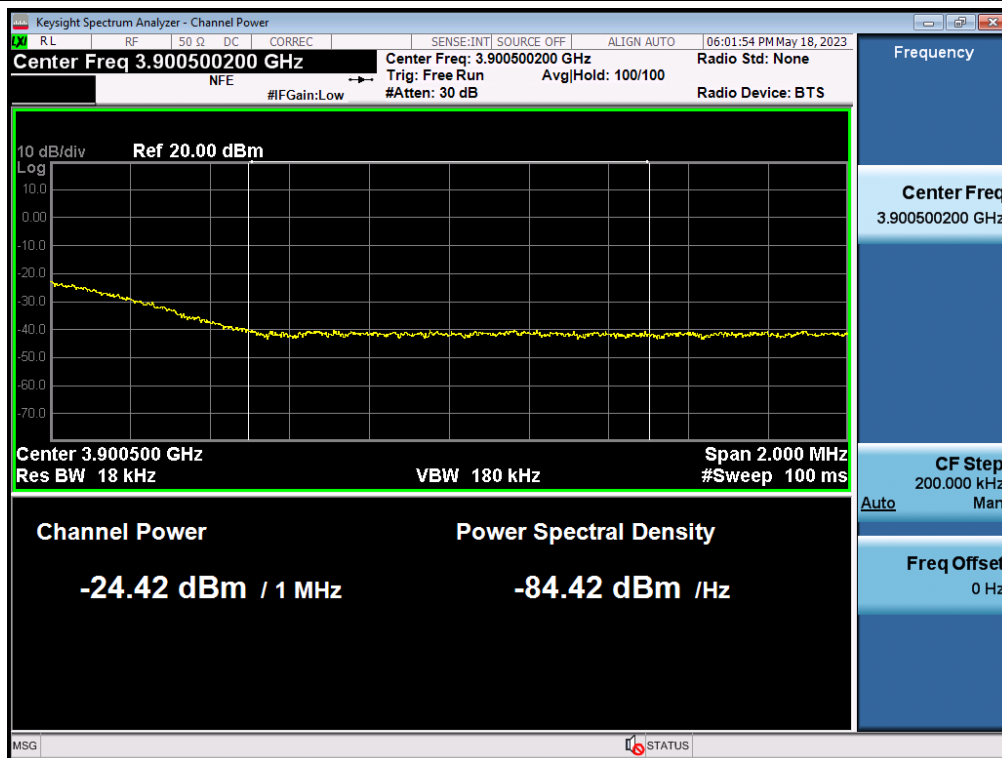
Antenna 4 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / 64QAM / Low / Contiguous



Antenna 4 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 256QAM / Low / Contiguous



Antenna 4 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 256QAM / High / Contiguous



5.5. SPURIOUS UNWANTED 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.

§ 27.53 Emission limits.

(l) 3.7 GHz Service. The following emission limits apply to station transmitting in the 3700-3980 MHz band:

- (1) For base station operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (l)(1) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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.

Test Procedures:

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

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 $\geq 2 \times (\text{span} / \text{RBW})$. 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, $10 \log (1\ kHz / 1\ MHz) = -30\ dB$
: 150 kHz to 30 MHz applied 10 kHz RBW, $10 \log (10\ kHz / 1\ MHz) = -20\ dB$
: From Band Edge to Edge $\pm 100\ MHz$, $10 \log (100\ kHz / 1\ MHz) = -10\ dB$
- 2. Due to MIMO operations, a correction has been added to the limit according to KDB 662911 D01 v02r01.
 - 8Tx MIMO correction: $10 \log(N_{ANT}) = 10 \log(8) = 9.03\ dB // -13\ dBm - 9.03\ dB = -22.03\ dBm$
- 3. Sample Calculations:
 - $-60.947\ dBm\ (Measured\ value) + 30\ dB\ (RBW\ correction) + 1.308\ dB\ (Duty\ cycle\ factor)$
 $= -29.639\ dBm\ (Calculated\ value)$
- 4. The results of the Spurious Unwanted Emissions 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 Spurious Unwanted Emissions

(8 Port) 5G NR n77 40 MHz [1 Carrier]

Test Result for Output Port 0

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.126	-37.827	-38.315	-27.010	-30.305	-24.615	-28.519	-31.612
	Middle	-30.657	-36.564	-38.689	-26.990	-27.328	-24.239	-29.984	-32.061
	High	-30.110	-36.397	-44.078	-28.321	-23.045	-23.132	-30.177	-30.631
16QAM	Low	-30.826	-37.242	-38.396	-30.544	-27.883	-24.707	-29.755	-31.636
	Middle	-31.028	-35.051	-38.417	-27.181	-27.453	-24.455	-29.744	-31.676
	High	-29.868	-36.148	-43.926	-29.348	-23.394	-23.381	-29.525	-29.995
64QAM	Low	-30.311	-34.426	-39.107	-30.656	-26.632	-24.632	-29.183	-31.868
	Middle	-29.956	-36.605	-43.559	-27.188	-27.090	-23.400	-30.531	-31.730
	High	-30.529	-37.143	-43.581	-27.284	-23.210	-23.165	-29.220	-29.930
256QAM	Low	-30.233	-34.694	-38.180	-31.397	-27.230	-24.222	-29.530	-31.036
	Middle	-30.333	-35.850	-43.857	-27.437	-26.792	-23.415	-30.873	-32.135
	High	-30.175	-36.527	-43.896	-27.494	-23.215	-23.621	-28.854	-30.016

Test Result for Output Port 1

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.543	-41.006	-39.015	-33.336	-30.017	-24.534	-30.982	-32.148
	Middle	-31.476	-42.032	-38.775	-26.583	-27.498	-24.778	-30.322	-32.077
	High	-30.115	-44.897	-43.757	-27.853	-23.231	-23.835	-30.211	-30.920
16QAM	Low	-30.323	-42.370	-38.177	-28.291	-28.134	-24.246	-29.931	-32.217
	Middle	-31.236	-41.655	-38.921	-26.956	-27.752	-24.490	-30.802	-31.624
	High	-30.305	-43.609	-43.160	-28.921	-23.280	-23.564	-30.598	-30.966
64QAM	Low	-31.572	-41.932	-39.055	-28.592	-27.272	-24.317	-29.643	-31.624
	Middle	-30.348	-43.332	-41.862	-27.125	-27.391	-23.382	-30.435	-32.093
	High	-30.630	-44.855	-43.867	-28.391	-23.148	-23.560	-30.010	-30.380
256QAM	Low	-29.639	-41.928	-38.894	-30.207	-27.958	-24.958	-29.789	-31.798
	Middle	-30.874	-44.759	-43.882	-27.341	-27.140	-23.160	-31.251	-31.818
	High	-30.390	-43.850	-43.677	-28.470	-23.380	-23.511	-29.979	-29.837

Test Result for Output Port 2

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-34.583	-41.486	-40.172	-27.369	-25.768	-23.532	-29.334	-31.702
	Middle	-34.674	-42.384	-38.737	-26.436	-23.532	-23.234	-29.383	-31.465
	High	-35.341	-42.213	-39.220	-28.712	-23.055	-23.061	-29.163	-35.426
16QAM	Low	-34.641	-42.167	-38.298	-28.025	-24.412	-23.389	-29.323	-31.158
	Middle	-34.063	-42.839	-39.443	-26.666	-23.816	-24.711	-30.158	-37.961
	High	-34.867	-42.595	-38.598	-28.443	-23.247	-23.113	-29.751	-35.415
64QAM	Low	-34.280	-42.658	-38.854	-28.083	-24.060	-25.306	-29.343	-38.041
	Middle	-34.338	-43.091	-40.338	-26.167	-23.818	-23.601	-29.725	-37.328
	High	-34.905	-42.719	-39.981	-27.457	-23.165	-23.101	-29.453	-35.883
256QAM	Low	-34.693	-42.405	-39.143	-30.031	-23.902	-23.444	-28.770	-31.035
	Middle	-35.183	-42.688	-39.196	-26.210	-23.921	-23.113	-30.081	-38.199
	High	-34.991	-42.284	-40.239	-27.340	-23.108	-23.125	-29.718	-35.957

Test Result for Output Port 3

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.123	-40.318	-39.090	-29.988	-28.482	-24.487	-30.046	-31.564
	Middle	-31.139	-41.858	-38.982	-26.912	-26.387	-25.026	-30.477	-31.951
	High	-30.499	-45.019	-43.237	-29.632	-23.176	-23.625	-30.426	-30.959
16QAM	Low	-30.691	-41.834	-37.452	-33.051	-25.314	-25.208	-30.594	-31.135
	Middle	-31.114	-41.950	-38.900	-26.818	-26.662	-24.543	-30.530	-32.395
	High	-30.513	-45.460	-43.047	-29.160	-23.064	-23.407	-30.445	-30.959
64QAM	Low	-31.111	-41.834	-38.273	-32.330	-25.072	-24.457	-29.998	-31.785
	Middle	-30.410	-44.957	-43.007	-27.211	-25.809	-23.131	-30.864	-32.304
	High	-30.489	-44.908	-43.967	-28.360	-23.344	-23.304	-30.263	-30.606
256QAM	Low	-29.732	-40.613	-39.041	-32.729	-25.607	-25.085	-30.321	-31.928
	Middle	-30.728	-44.689	-43.770	-27.216	-26.004	-23.515	-31.144	-31.761
	High	-30.430	-44.465	-43.020	-28.974	-23.446	-23.531	-30.699	-31.580

Test Result for Output Port 4

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.150	-40.693	-37.931	-30.088	-30.097	-24.829	-30.556	-32.266
	Middle	-31.725	-41.733	-36.821	-27.113	-25.752	-25.523	-30.904	-32.369
	High	-30.888	-45.949	-42.609	-28.544	-23.300	-23.907	-30.709	-31.997
16QAM	Low	-30.722	-40.751	-37.657	-31.614	-26.412	-25.517	-30.063	-32.597
	Middle	-31.249	-40.468	-36.087	-26.667	-25.934	-25.196	-30.708	-31.932
	High	-31.037	-45.232	-42.606	-28.488	-23.095	-23.859	-30.018	-32.019
64QAM	Low	-30.037	-40.066	-37.522	-31.182	-25.539	-25.490	-30.301	-32.491
	Middle	-30.967	-44.382	-42.834	-26.840	-24.847	-24.130	-31.432	-32.318
	High	-30.942	-45.061	-42.755	-28.355	-23.450	-23.786	-30.252	-31.363
256QAM	Low	-31.281	-40.698	-37.613	-28.275	-25.976	-25.425	-29.633	-31.875
	Middle	-31.199	-44.773	-42.999	-26.673	-26.149	-23.333	-30.816	-32.274
	High	-30.444	-44.601	-43.003	-28.617	-23.066	-24.759	-30.141	-32.070

Test Result for Output Port 5

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.753	-36.362	-37.650	-28.864	-30.369	-24.756	-29.963	-31.981
	Middle	-31.632	-36.737	-37.612	-27.323	-29.642	-25.338	-30.576	-31.304
	High	-31.004	-42.042	-42.522	-28.160	-23.274	-23.434	-29.720	-31.231
16QAM	Low	-31.081	-36.658	-36.655	-33.472	-28.952	-25.358	-29.308	-31.328
	Middle	-30.837	-36.427	-37.578	-26.744	-29.209	-25.108	-29.813	-31.177
	High	-31.377	-40.625	-42.234	-28.549	-23.373	-23.466	-29.915	-30.412
64QAM	Low	-30.581	-34.982	-37.876	-29.524	-28.206	-25.459	-29.242	-30.801
	Middle	-30.977	-40.853	-42.708	-26.470	-28.178	-24.162	-25.992	-31.674
	High	-31.189	-42.241	-42.632	-27.431	-23.417	-23.757	-29.704	-30.190
256QAM	Low	-30.733	-35.147	-37.958	-33.018	-28.737	-24.918	-30.013	-31.126
	Middle	-31.301	-41.793	-42.605	-26.959	-28.357	-23.855	-30.617	-31.767
	High	-31.126	-42.302	-42.624	-28.169	-23.266	-24.019	-29.788	-30.583

Test Result for Output Port 6

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.461	-33.289	-35.193	-27.514	-31.510	-23.446	-30.598	-31.844
	Middle	-30.778	-34.024	-36.122	-26.778	-26.926	-23.298	-30.635	-32.225
	High	-30.917	-39.222	-41.171	-27.395	-23.136	-25.905	-30.082	-31.963
16QAM	Low	-31.292	-33.379	-36.080	-33.373	-26.127	-23.744	-29.902	-31.590
	Middle	-31.495	-33.363	-36.111	-25.734	-26.679	-23.566	-30.320	-31.677
	High	-31.276	-40.190	-39.946	-26.938	-23.041	-26.555	-30.398	-31.686
64QAM	Low	-30.758	-33.836	-36.294	-32.548	-25.709	-24.134	-29.405	-31.607
	Middle	-30.967	-39.478	-40.869	-25.062	-25.373	-23.122	-29.663	-32.207
	High	-31.430	-40.085	-40.503	-26.985	-23.468	-23.073	-30.440	-31.830
256QAM	Low	-31.372	-34.686	-36.657	-32.707	-26.164	-23.516	-28.292	-30.679
	Middle	-30.975	-39.729	-40.013	-25.744	-26.701	-23.050	-30.573	-32.184
	High	-31.347	-40.489	-41.354	-25.596	-24.249	-23.494	-30.304	-32.038

Test Result for Output Port 7

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.502	-41.893	-36.215	-30.870	-31.145	-23.305	-30.451	-32.549
	Middle	-30.997	-40.850	-37.892	-27.155	-26.004	-23.441	-30.628	-32.837
	High	-30.683	-45.510	-42.463	-28.383	-23.292	-25.228	-30.831	-32.568
16QAM	Low	-30.989	-41.364	-36.079	-31.127	-26.824	-23.172	-30.639	-32.722
	Middle	-31.318	-42.044	-36.791	-26.571	-26.090	-23.132	-31.192	-32.333
	High	-30.762	-44.232	-42.711	-27.921	-23.392	-23.335	-31.323	-32.354
64QAM	Low	-31.318	-41.950	-38.611	-31.087	-26.628	-23.076	-30.763	-32.255
	Middle	-30.515	-45.149	-43.416	-26.500	-26.065	-24.521	-30.971	-33.060
	High	-30.821	-45.087	-41.573	-28.014	-23.142	-24.544	-30.319	-32.351
256QAM	Low	-30.778	-41.389	-38.282	-27.681	-26.771	-23.175	-30.622	-32.149
	Middle	-30.739	-44.971	-43.187	-25.908	-26.048	-25.017	-30.851	-32.939
	High	-30.531	-44.491	-42.534	-27.265	-23.075	-25.165	-26.852	-32.245

(8 Port) 5G NR n77 60 MHz [1 Carrier] (Low Ch.)

Test Result for Output Port 1

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
16QAM	Low	-27.432	-41.285	-38.033	-24.281	-26.552	-23.722	-29.107	-30.754

(8 Port) 5G NR n77 60 MHz [1 Carrier]

Test Result for Output Port 0

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-30.740	-35.909	-38.695	-26.688	-29.033	-24.944	-28.504	-31.876
	High	-33.147	-36.677	-38.012	-26.623	-24.358	-24.399	-28.998	-30.615
16QAM	Middle	-32.754	-35.796	-39.409	-26.808	-29.578	-24.876	-29.884	-31.296
	High	-32.210	-37.057	-38.384	-27.175	-23.812	-24.535	-29.697	-31.365
64QAM	Middle	-32.276	-36.731	-39.483	-27.516	-29.493	-24.741	-29.369	-31.566
	High	-33.189	-35.181	-38.249	-27.305	-24.729	-24.174	-29.365	-31.106
256QAM	Middle	-31.124	-37.649	-39.415	-27.457	-29.658	-24.761	-29.538	-31.203
	High	-33.146	-36.043	-38.574	-27.461	-24.513	-24.035	-29.532	-31.130

Test Result for Output Port 1

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-33.334	-41.980	-38.545	-27.092	-28.741	-24.894	-30.083	-32.007
	High	-30.756	-42.173	-39.113	-27.559	-24.544	-25.095	-29.832	-31.882
16QAM	Middle	-30.741	-42.290	-37.886	-27.133	-28.659	-24.450	-30.291	-31.602
	High	-28.148	-41.833	-38.851	-27.203	-23.251	-25.455	-30.298	-31.474
64QAM	Middle	-32.326	-41.972	-39.207	-26.812	-28.875	-25.145	-30.310	-31.805
	High	-27.458	-42.184	-38.490	-27.265	-24.019	-24.621	-30.288	-31.922
256QAM	Middle	-33.425	-42.504	-38.212	-26.667	-29.094	-24.870	-29.016	-31.682
	High	-33.188	-42.560	-38.434	-26.638	-24.598	-24.719	-30.100	-31.180

Test Result for Output Port 2

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-32.234	-43.321	-40.047	-27.192	-26.898	-23.494	-29.530	-37.751
	High	-32.465	-41.547	-39.234	-26.786	-24.214	-23.056	-29.194	-36.836
16QAM	Middle	-30.312	-42.238	-40.215	-26.783	-26.484	-23.688	-29.717	-38.396
	High	-31.947	-42.768	-38.497	-26.654	-24.315	-23.335	-29.243	-37.306
64QAM	Middle	-32.007	-41.682	-38.616	-27.048	-27.248	-23.321	-30.008	-37.872
	High	-33.027	-43.599	-39.903	-26.623	-23.505	-23.104	-29.369	-36.580
256QAM	Middle	-32.658	-42.741	-39.272	-26.772	-27.214	-23.346	-28.036	-38.349
	High	-32.838	-41.589	-39.576	-26.829	-24.106	-23.261	-29.153	-36.588

Test Result for Output Port 3

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-33.715	-42.503	-39.642	-27.584	-27.859	-24.804	-30.551	-32.078
	High	-32.536	-41.988	-39.168	-27.793	-24.264	-24.416	-29.179	-31.519
16QAM	Middle	-31.844	-42.322	-38.260	-27.501	-28.135	-25.079	-30.090	-31.854
	High	-31.768	-42.623	-38.656	-27.791	-25.012	-24.875	-30.130	-32.064
64QAM	Middle	-30.428	-43.442	-38.747	-26.883	-27.599	-24.483	-29.978	-30.541
	High	-32.807	-42.118	-38.830	-27.867	-24.029	-24.906	-29.672	-31.579
256QAM	Middle	-31.870	-42.135	-39.000	-27.597	-28.115	-25.197	-29.840	-32.088
	High	-32.935	-42.992	-39.651	-27.494	-24.710	-24.845	-29.615	-31.696

Test Result for Output Port 4

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-32.110	-42.151	-37.034	-27.208	-29.087	-25.260	-29.385	-31.996
	High	-33.876	-41.445	-37.318	-26.869	-23.213	-25.495	-29.860	-31.936
16QAM	Middle	-33.729	-41.137	-37.908	-27.224	-28.318	-25.935	-30.648	-31.846
	High	-33.963	-40.947	-37.965	-27.089	-24.353	-24.374	-29.577	-31.183
64QAM	Middle	-31.492	-41.766	-38.082	-26.131	-28.798	-25.724	-29.931	-32.093
	High	-32.924	-40.959	-38.685	-27.553	-23.784	-25.347	-29.423	-31.586
256QAM	Middle	-31.056	-41.327	-38.418	-26.909	-28.077	-25.211	-30.397	-31.652
	High	-33.782	-40.157	-38.097	-27.347	-23.994	-25.234	-29.946	-31.310

Test Result for Output Port 5

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-32.486	-36.662	-38.216	-26.998	-29.701	-25.091	-28.982	-31.501
	High	-30.384	-36.233	-37.970	-27.260	-24.503	-25.325	-29.718	-30.971
16QAM	Middle	-30.335	-35.348	-38.229	-26.816	-29.700	-24.923	-29.790	-31.250
	High	-33.497	-35.612	-37.858	-26.456	-24.295	-25.250	-28.865	-31.100
64QAM	Middle	-32.879	-34.698	-37.817	-27.228	-29.548	-25.066	-29.654	-31.380
	High	-30.247	-35.392	-37.977	-26.893	-24.384	-25.235	-28.497	-30.707
256QAM	Middle	-31.876	-37.208	-39.302	-27.461	-29.530	-25.671	-28.724	-30.357
	High	-34.209	-36.533	-37.882	-27.104	-24.188	-25.337	-29.186	-31.173

Test Result for Output Port 6

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-34.231	-31.130	-36.338	-25.351	-29.388	-23.864	-30.164	-39.369
	High	-32.758	-29.824	-35.656	-26.467	-24.725	-23.832	-29.320	-38.402
16QAM	Middle	-33.803	-29.730	-36.602	-25.998	-29.618	-23.892	-29.875	-38.735
	High	-32.644	-29.607	-36.676	-26.328	-25.138	-24.077	-29.183	-38.593
64QAM	Middle	-33.254	-30.337	-35.738	-25.689	-29.297	-23.379	-29.726	-38.845
	High	-34.389	-31.095	-36.567	-26.544	-24.770	-24.037	-29.849	-38.648
256QAM	Middle	-33.235	-29.573	-35.580	-26.098	-29.507	-24.209	-29.705	-38.767
	High	-34.926	-29.621	-35.408	-25.496	-25.027	-23.739	-29.477	-38.782

Test Result for Output Port 7

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-33.648	-42.184	-37.328	-25.724	-29.308	-23.199	-30.581	-32.752
	High	-34.045	-41.071	-38.629	-26.964	-23.813	-23.044	-30.330	-32.491
16QAM	Middle	-32.615	-41.465	-36.739	-25.868	-28.620	-23.219	-30.594	-32.166
	High	-32.992	-42.306	-38.277	-26.528	-23.631	-23.415	-30.312	-32.811
64QAM	Middle	-33.466	-42.231	-37.402	-26.323	-28.903	-23.468	-30.312	-31.995
	High	-33.778	-42.001	-37.269	-27.000	-23.673	-23.088	-30.407	-32.129
256QAM	Middle	-32.476	-42.977	-38.135	-27.087	-29.055	-23.087	-30.518	-31.957
	High	-32.200	-42.591	-38.522	-26.720	-23.815	-23.097	-29.828	-32.503

(8 Port) 5G NR n77 80 MHz [1 Carrier]
Test Result for Output Port 0

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.379	-36.423	-43.489	-26.452	-27.316	-23.399	-29.833	-31.746
	Middle	-30.421	-36.351	-44.417	-26.723	-26.020	-23.634	-29.304	-32.004
	High	-29.686	-38.364	-38.851	-26.846	-23.532	-24.735	-29.303	-31.291
16QAM	Low	-30.416	-36.662	-44.439	-26.612	-26.560	-23.396	-29.807	-31.572
	Middle	-30.771	-36.865	-43.900	-28.187	-26.057	-23.628	-29.393	-31.018
	High	-34.740	-35.820	-37.733	-27.191	-24.920	-24.804	-29.988	-31.312
64QAM	Low	-29.998	-36.249	-43.888	-26.240	-26.723	-23.286	-30.080	-31.445
	Middle	-30.519	-35.909	-38.664	-26.556	-27.196	-24.958	-29.345	-31.749
	High	-30.201	-36.695	-39.877	-27.786	-23.240	-24.859	-30.508	-31.195
256QAM	Low	-30.111	-36.794	-43.362	-26.447	-27.028	-23.083	-29.705	-31.707
	Middle	-30.066	-35.356	-39.451	-28.176	-23.170	-23.965	-28.849	-31.477
	High	-30.937	-36.759	-38.373	-28.013	-23.121	-24.366	-30.224	-31.664

Test Result for Output Port 1

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.607	-44.151	-43.753	-27.204	-26.596	-23.358	-29.950	-31.655
	Middle	-30.945	-43.520	-43.944	-27.166	-26.538	-23.119	-29.682	-30.576
	High	-30.065	-41.930	-38.765	-25.607	-23.497	-25.003	-30.558	-31.830
16QAM	Low	-30.483	-45.577	-43.967	-27.355	-26.858	-23.381	-29.464	-32.051
	Middle	-30.704	-45.089	-42.963	-25.535	-26.568	-23.171	-29.886	-31.293
	High	-35.213	-42.132	-39.571	-26.667	-24.256	-24.939	-30.194	-32.142
64QAM	Low	-30.752	-45.208	-43.837	-27.086	-27.129	-23.279	-30.250	-31.312
	Middle	-31.830	-42.401	-38.543	-27.183	-27.182	-25.398	-30.240	-32.281
	High	-30.457	-42.432	-38.855	-26.240	-23.875	-24.344	-30.031	-32.139
256QAM	Low	-30.451	-44.312	-43.104	-27.363	-26.580	-23.521	-29.235	-31.980
	Middle	-30.736	-42.210	-39.371	-28.062	-26.200	-25.109	-29.403	-31.578
	High	-29.820	-41.892	-38.119	-27.022	-24.413	-25.208	-30.189	-32.361

Test Result for Output Port 2

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-32.646	-43.553	-38.026	-25.330	-23.179	-23.389	-29.166	-38.389
	Middle	-34.604	-43.300	-38.629	-27.151	-23.205	-23.665	-29.285	-38.163
	High	-34.809	-43.186	-40.495	-25.397	-23.481	-23.352	-29.728	-38.146
16QAM	Low	-34.720	-42.303	-39.400	-25.432	-23.651	-23.498	-29.521	-38.167
	Middle	-34.622	-42.490	-39.100	-26.663	-24.982	-23.349	-29.762	-37.777
	High	-35.598	-42.790	-39.209	-25.933	-23.437	-23.121	-29.911	-37.774
64QAM	Low	-35.314	-42.199	-37.858	-25.202	-23.502	-23.400	-28.956	-38.039
	Middle	-34.504	-43.058	-39.339	-28.233	-24.667	-23.624	-29.472	-38.388
	High	-34.687	-42.596	-39.688	-26.583	-23.602	-23.249	-29.186	-38.406
256QAM	Low	-34.670	-42.122	-40.008	-25.271	-23.137	-23.053	-29.495	-38.258
	Middle	-34.796	-43.396	-39.351	-27.942	-25.065	-23.489	-29.991	-38.320
	High	-29.820	-41.892	-38.119	-27.022	-24.413	-25.208	-30.189	-32.361

Test Result for Output Port 3

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.605	-44.643	-42.578	-27.036	-25.642	-23.247	-29.554	-31.959
	Middle	-30.498	-44.593	-43.778	-27.522	-24.862	-23.537	-29.293	-32.147
	High	-30.937	-41.365	-38.723	-26.827	-24.783	-24.546	-29.797	-32.430
16QAM	Low	-30.574	-44.567	-43.436	-27.204	-26.053	-23.305	-29.916	-32.223
	Middle	-30.746	-44.496	-44.041	-28.281	-26.831	-23.649	-30.239	-32.227
	High	-35.079	-42.026	-38.493	-27.375	-25.036	-25.046	-29.563	-32.280
64QAM	Low	-30.330	-45.049	-43.805	-27.061	-25.356	-23.535	-29.655	-31.360
	Middle	-30.476	-42.043	-38.665	-28.154	-25.943	-24.693	-30.030	-32.499
	High	-29.887	-42.794	-38.264	-27.385	-24.912	-24.709	-30.509	-32.376
256QAM	Low	-30.735	-45.119	-42.381	-26.841	-25.659	-23.431	-30.022	-32.043
	Middle	-31.194	-42.007	-38.995	-28.332	-25.944	-24.937	-30.009	-31.973
	High	-30.939	-42.102	-38.652	-27.988	-24.440	-24.305	-30.376	-31.869

Test Result for Output Port 4

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.984	-45.053	-42.109	-27.874	-25.134	-23.953	-29.994	-32.075
	Middle	-31.149	-44.480	-42.331	-27.296	-25.047	-24.420	-30.242	-31.980
	High	-30.267	-41.304	-37.301	-27.378	-23.261	-24.844	-30.680	-32.370
16QAM	Low	-30.589	-45.015	-41.992	-27.733	-25.523	-24.217	-29.983	-31.731
	Middle	-31.479	-44.419	-43.131	-26.987	-24.784	-24.015	-29.877	-31.769
	High	-36.598	-41.447	-37.636	-27.330	-23.107	-25.532	-30.395	-32.145
64QAM	Low	-30.859	-45.167	-43.129	-27.443	-26.285	-23.379	-29.771	-31.979
	Middle	-30.326	-41.256	-36.997	-27.358	-25.189	-25.695	-30.637	-32.110
	High	-30.892	-41.810	-36.748	-28.119	-23.181	-25.684	-29.932	-32.174
256QAM	Low	-30.716	-44.307	-43.108	-27.534	-25.397	-23.964	-30.211	-31.488
	Middle	-30.840	-41.685	-38.110	-26.619	-25.037	-25.805	-30.399	-31.433
	High	-30.865	-41.228	-37.196	-28.149	-23.142	-25.092	-29.747	-32.251

Test Result for Output Port 5

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.980	-41.201	-43.116	-27.927	-27.617	-23.720	-29.503	-31.080
	Middle	-30.955	-41.221	-43.107	-25.951	-27.536	-23.398	-29.174	-30.721
	High	-35.608	-35.725	-37.793	-26.364	-23.670	-25.594	-29.680	-31.475
16QAM	Low	-31.287	-41.489	-41.773	-27.644	-27.956	-23.459	-29.561	-30.876
	Middle	-31.415	-41.577	-43.139	-26.339	-27.425	-23.214	-29.287	-30.605
	High	-35.369	-35.310	-36.925	-27.291	-25.335	-25.646	-28.732	-31.264
64QAM	Low	-30.755	-41.704	-42.465	-27.601	-27.634	-23.925	-29.367	-30.958
	Middle	-31.257	-35.325	-37.765	-28.281	-28.220	-25.746	-29.706	-31.456
	High	-30.905	-36.020	-37.475	-27.844	-25.201	-25.696	-29.556	-31.451
256QAM	Low	-31.147	-41.679	-42.321	-27.829	-27.534	-24.158	-29.981	-31.481
	Middle	-30.105	-36.127	-37.198	-27.370	-28.463	-25.392	-29.822	-30.213
	High	-29.740	-36.114	-37.069	-27.283	-25.016	-25.012	-28.574	-31.058

Test Result for Output Port 6

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-31.083	-39.843	-41.225	-29.194	-26.870	-23.163	-30.053	-31.899
	Middle	-31.163	-39.918	-40.766	-24.682	-26.204	-24.970	-29.975	-31.101
	High	-36.196	-30.385	-36.372	-27.359	-24.635	-24.230	-29.978	-39.043
16QAM	Low	-31.020	-39.222	-41.047	-29.127	-26.192	-23.041	-28.718	-31.749
	Middle	-30.970	-39.609	-40.684	-25.857	-26.391	-25.322	-30.075	-31.327
	High	-31.022	-33.659	-36.414	-27.533	-24.608	-24.466	-29.846	-28.411
64QAM	Low	-30.910	-39.564	-41.940	-28.740	-26.003	-23.156	-30.141	-31.655
	Middle	-30.986	-33.855	-35.937	-26.204	-27.079	-24.073	-29.749	-31.468
	High	-30.111	-34.910	-36.344	-27.413	-24.642	-24.056	-30.255	-32.129
256QAM	Low	-31.335	-39.533	-40.981	-29.150	-26.646	-25.006	-30.069	-31.808
	Middle	-30.107	-34.937	-36.540	-26.050	-26.713	-24.081	-30.045	-31.240
	High	-30.643	-34.077	-36.208	-26.705	-24.400	-23.720	-29.450	-31.515

Test Result for Output Port 7

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.873	-45.413	-42.313	-27.612	-26.121	-23.380	-30.514	-32.360
	Middle	-30.654	-44.836	-42.845	-26.997	-25.942	-23.757	-30.347	-32.655
	High	-29.238	-42.386	-36.174	-27.355	-23.555	-23.349	-30.726	-32.713
16QAM	Low	-31.000	-44.641	-43.252	-27.698	-26.144	-23.040	-30.208	-32.747
	Middle	-31.154	-44.600	-42.451	-25.506	-26.001	-23.201	-31.096	-32.789
	High	-30.622	-42.476	-36.275	-27.115	-23.354	-23.044	-30.318	-32.580
64QAM	Low	-30.604	-45.116	-42.330	-27.512	-26.411	-23.305	-30.503	-32.725
	Middle	-29.819	-40.912	-38.375	-27.493	-25.971	-23.038	-30.243	-31.954
	High	-31.051	-42.385	-37.459	-27.459	-23.263	-23.360	-31.364	-32.709
256QAM	Low	-30.573	-45.386	-41.756	-27.670	-26.009	-23.231	-29.699	-32.779
	Middle	-30.850	-40.918	-38.637	-27.248	-25.840	-23.232	-30.382	-29.982
	High	-30.165	-41.864	-37.046	-26.824	-23.361	-23.169	-30.462	-32.241

(8 Port) 5G NR n77 100 MHz [1 Carrier] (Low Ch.)

Test Result for Output Port 2

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Low	-30.185	-41.285	-38.440	-25.861	-27.254	-24.215	-30.002	-31.436

(8 Port) 5G NR n77 100 MHz [1 Carrier]

Test Result for Output Port 0

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-32.015	-36.378	-39.138	-26.537	-27.636	-24.927	-29.556	-31.720
	High	-31.697	-36.574	-39.339	-27.678	-24.309	-24.662	-29.574	-31.894
16QAM	Middle	-34.169	-36.037	-38.886	-24.163	-24.114	-24.343	-29.111	-31.141
	High	-33.177	-37.167	-39.191	-26.231	-23.213	-24.392	-29.465	-31.576
64QAM	Middle	-31.801	-36.252	-37.742	-26.542	-27.583	-24.855	-29.422	-31.418
	High	-28.238	-36.776	-39.456	-27.533	-24.922	-24.721	-29.300	-31.915
256QAM	Middle	-31.755	-35.578	-38.844	-27.008	-27.950	-25.067	-29.714	-31.627
	High	-30.103	-36.788	-38.859	-27.643	-25.008	-24.475	-29.465	-31.773

Test Result for Output Port 1

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-32.470	-42.350	-39.022	-27.055	-27.438	-25.212	-30.263	-32.086
	High	-28.847	-41.571	-39.374	-27.586	-23.688	-25.102	-30.022	-32.304
16QAM	Middle	-31.114	-43.149	-39.395	-25.922	-27.121	-24.712	-30.172	-31.686
	High	-32.965	-42.475	-38.831	-25.939	-23.453	-24.646	-29.046	-31.373
64QAM	Middle	-33.064	-42.222	-38.501	-27.658	-27.484	-24.503	-29.549	-30.835
	High	-28.691	-41.831	-39.361	-27.888	-24.107	-25.059	-30.016	-31.798
256QAM	Middle	-32.562	-41.735	-39.821	-25.487	-27.385	-24.455	-29.894	-31.685
	High	-30.913	-42.998	-38.456	-28.153	-24.028	-25.256	-29.841	-31.563

Test Result for Output Port 2

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-32.061	-43.137	-39.172	-26.091	-26.142	-23.502	-29.517	-38.039
	High	-31.281	-43.226	-39.194	-27.517	-24.109	-23.454	-29.609	-38.010
16QAM	Middle	-30.979	-42.969	-39.718	-24.661	-25.469	-23.285	-28.969	-37.828
	High	-32.494	-42.342	-39.838	-26.630	-23.676	-23.106	-28.676	-37.627
64QAM	Middle	-32.602	-42.373	-37.936	-26.110	-25.860	-23.463	-28.943	-38.105
	High	-32.201	-43.906	-39.606	-27.638	-24.761	-23.035	-29.766	-38.184
256QAM	Middle	-31.906	-41.971	-39.381	-25.930	-26.175	-23.302	-29.186	-37.843
	High	-31.873	-42.673	-38.777	-27.635	-24.633	-23.141	-29.396	-38.594

Test Result for Output Port 3

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-32.329	-40.713	-38.012	-27.391	-26.974	-24.882	-30.266	-31.703
	High	-31.368	-43.224	-39.057	-28.530	-24.237	-24.982	-30.699	-31.857
16QAM	Middle	-32.332	-42.313	-39.475	-26.530	-27.045	-24.899	-29.883	-31.966
	High	-32.580	-42.331	-39.609	-27.294	-24.922	-24.733	-29.513	-30.999
64QAM	Middle	-33.279	-42.815	-39.548	-27.193	-27.364	-24.926	-29.887	-31.290
	High	-31.874	-43.365	-39.117	-28.738	-24.993	-24.882	-30.372	-32.445
256QAM	Middle	-31.927	-42.312	-39.071	-26.608	-27.182	-24.830	-29.339	-31.952
	High	-32.704	-43.460	-39.459	-28.786	-24.091	-24.768	-29.983	-32.320

Test Result for Output Port 4

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-32.236	-40.575	-38.651	-25.746	-26.900	-25.433	-29.947	-32.069
	High	-33.541	-41.542	-38.173	-27.512	-23.074	-25.472	-30.424	-32.229
16QAM	Middle	-33.716	-40.746	-37.216	-25.696	-27.024	-25.573	-29.520	-32.150
	High	-35.330	-41.548	-37.243	-27.270	-23.102	-25.806	-30.448	-31.890
64QAM	Middle	-34.999	-40.469	-37.694	-25.462	-27.179	-25.526	-29.952	-31.814
	High	-32.555	-41.535	-36.179	-26.863	-23.209	-24.975	-30.581	-32.191
256QAM	Middle	-33.729	-41.420	-38.148	-25.652	-27.040	-25.592	-28.875	-32.066
	High	-31.744	-42.299	-37.417	-27.760	-23.103	-24.920	-30.142	-32.224

Test Result for Output Port 5

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-33.114	-36.635	-37.714	-27.030	-28.235	-25.179	-29.436	-30.879
	High	-32.224	-37.252	-37.985	-28.012	-24.992	-25.094	-30.004	-31.623
16QAM	Middle	-30.884	-36.252	-37.823	-26.269	-27.548	-24.631	-29.000	-30.621
	High	-34.890	-37.217	-37.592	-27.187	-24.671	-25.301	-29.320	-30.940
64QAM	Middle	-34.657	-35.600	-37.079	-26.945	-27.936	-24.778	-29.872	-31.012
	High	-33.515	-37.072	-37.534	-27.645	-24.539	-25.443	-29.879	-31.107
256QAM	Middle	-34.264	-35.016	-37.639	-25.931	-28.102	-25.215	-29.922	-30.824
	High	-33.364	-35.145	-38.263	-27.386	-24.933	-25.143	-28.764	-30.874

Test Result for Output Port 6

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-33.557	-29.129	-36.542	-25.686	-27.752	-24.205	-29.670	-38.523
	High	-32.755	-31.417	-35.766	-27.306	-24.159	-24.022	-29.921	-38.767
16QAM	Middle	-33.809	-30.935	-36.725	-25.097	-27.946	-23.782	-29.409	-38.234
	High	-34.374	-29.741	-36.396	-26.650	-24.575	-24.107	-29.140	-38.750
64QAM	Middle	-34.115	-30.153	-36.441	-24.852	-28.148	-24.055	-29.665	-38.651
	High	-33.092	-30.637	-36.854	-26.830	-24.537	-24.143	-29.885	-38.217
256QAM	Middle	-33.353	-30.652	-35.966	-24.832	-27.911	-24.040	-29.343	-38.785
	High	-33.553	-31.481	-35.582	-27.683	-24.469	-23.895	-30.093	-38.891

Test Result for Output Port 7

Mod.	Channel	Calculated Value (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	26.5 GHz ~ 40 GHz
QPSK	Middle	-34.971	-42.519	-37.631	-25.982	-27.960	-23.048	-30.306	-32.400
	High	-32.041	-42.731	-37.967	-27.216	-23.994	-23.301	-30.955	-32.322
16QAM	Middle	-34.009	-42.457	-38.341	-25.623	-27.916	-23.130	-30.019	-32.447
	High	-33.155	-42.209	-38.656	-27.295	-23.463	-23.264	-30.877	-32.779
64QAM	Middle	-32.662	-41.782	-36.537	-25.562	-27.737	-23.116	-29.780	-32.115
	High	-33.404	-42.154	-36.574	-27.532	-23.731	-23.118	-30.596	-32.575
256QAM	Middle	-33.407	-42.225	-39.119	-24.905	-28.088	-23.185	-30.484	-32.627
	High	-34.015	-42.455	-37.857	-27.054	-23.537	-23.137	-30.396	-32.513

Tabular Data of RF Contiguous Spurious Unwanted Emissions

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier]

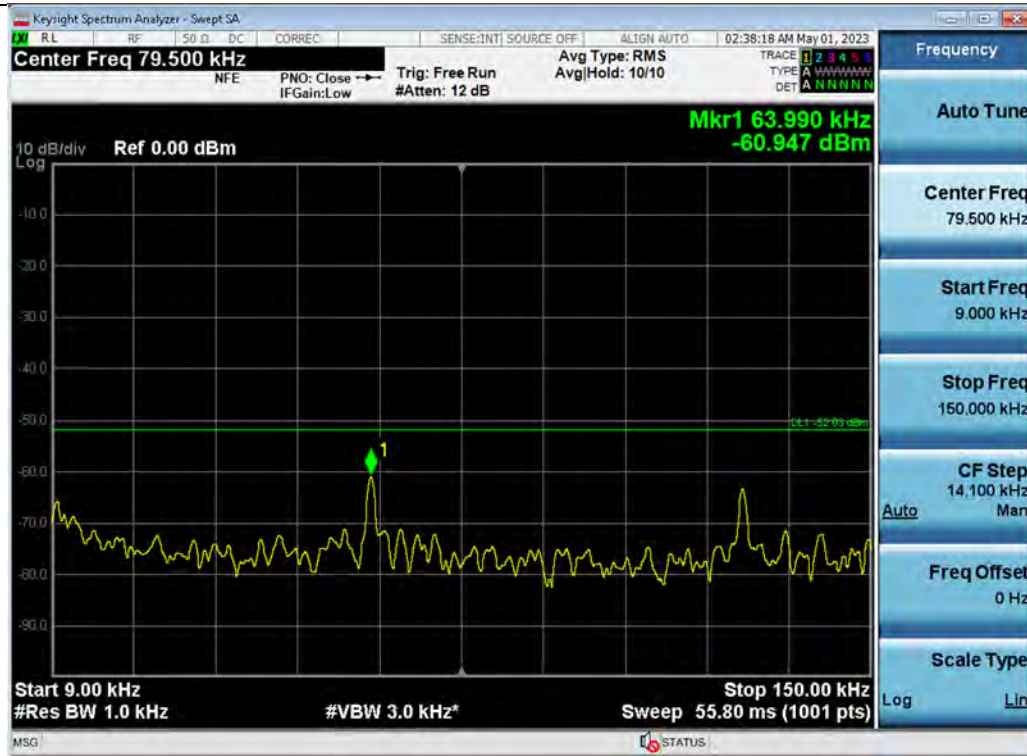
Ant.	Mod.	Channel	Calculated Value (dBm)							
			9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge ~ 100 MHz	Low Edge ~ 100 MHz ~ Low Edge	High Edge ~ High Edge + 100 MHz	High Edge + 100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz	26.5 GHz ~ 40 GHz
0	QPSK	Low	-34.593	-36.009	-38.512	-26.657	-27.849	-24.340	-28.907	-31.381
	16QAM	Low	-35.770	-37.061	-39.488	-26.926	-28.050	-25.095	-29.759	-31.860
	64QAM	Low	-35.775	-38.412	-38.401	-27.044	-28.151	-23.608	-29.797	-31.755
	256QAM	Low	-34.877	-35.512	-39.709	-25.914	-26.702	-25.099	-30.052	-31.704
1	QPSK	Low	-35.041	-43.178	-37.478	-27.311	-27.054	-24.429	-30.100	-31.795
	16QAM	Low	-34.896	-42.088	-39.486	-27.461	-27.074	-25.163	-30.646	-31.949
	64QAM	Low	-35.687	-43.161	-38.778	-27.481	-27.057	-24.434	-29.882	-31.401
	256QAM	Low	-35.299	-42.319	-39.847	-27.091	-27.171	-24.442	-29.995	-31.699
2	QPSK	Low	-35.352	-42.417	-39.005	-25.920	-24.915	-23.053	-28.983	-37.489
	16QAM	Low	-34.015	-43.545	-38.891	-25.683	-24.790	-23.641	-28.509	-38.197
	64QAM	Low	-35.100	-42.411	-39.426	-25.955	-24.638	-23.241	-29.963	-37.952
	256QAM	Low	-34.311	-42.213	-38.707	-26.093	-25.280	-23.775	-29.347	-38.435
3	QPSK	Low	-35.614	-42.186	-39.463	-27.351	-26.312	-24.662	-30.203	-31.377
	16QAM	Low	-35.636	-42.889	-38.372	-27.358	-26.632	-24.442	-30.007	-31.863
	64QAM	Low	-34.994	-42.489	-38.937	-27.624	-25.991	-25.005	-30.362	-32.272
	256QAM	Low	-35.772	-42.135	-38.914	-27.611	-25.989	-25.282	-29.645	-32.090
4	QPSK	Low	-36.082	-41.621	-37.109	-27.081	-25.316	-24.839	-30.214	-32.188
	16QAM	Low	-35.802	-41.494	-37.278	-25.867	-25.323	-25.669	-30.314	-32.049
	64QAM	Low	-35.809	-41.778	-38.011	-27.355	-25.524	-25.488	-30.715	-32.144
	256QAM	Low	-35.841	-39.496	-37.783	-25.885	-25.793	-25.968	-30.440	-32.249
5	QPSK	Low	-35.411	-36.084	-37.551	-27.727	-27.858	-24.658	-29.724	-30.616
	16QAM	Low	-36.146	-36.623	-37.021	-28.436	-28.428	-24.965	-29.535	-31.398
	64QAM	Low	-35.424	-36.268	-37.888	-28.189	-28.371	-25.698	-29.549	-31.781
	256QAM	Low	-35.267	-36.668	-38.083	-28.206	-28.048	-25.489	-29.973	-31.091
6	QPSK	Low	-36.070	-34.883	-37.066	-29.295	-26.908	-23.819	-29.642	-30.905
	16QAM	Low	-35.827	-34.466	-35.880	-29.521	-27.789	-23.682	-29.693	-32.041
	64QAM	Low	-36.223	-34.381	-35.550	-29.771	-27.240	-24.140	-30.135	-32.113
	256QAM	Low	-35.727	-34.209	-36.162	-29.456	-28.196	-23.824	-29.914	-31.851
7	QPSK	Low	-34.815	-42.632	-38.391	-28.038	-27.061	-23.060	-30.628	-32.668
	16QAM	Low	-35.577	-42.885	-37.257	-28.418	-26.545	-23.052	-30.601	-31.628
	64QAM	Low	-35.398	-42.981	-38.126	-28.574	-27.123	-23.440	-30.853	-32.727
	256QAM	Low	-36.453	-42.945	-37.923	-28.413	-26.798	-23.466	-30.697	-32.979

(8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier]

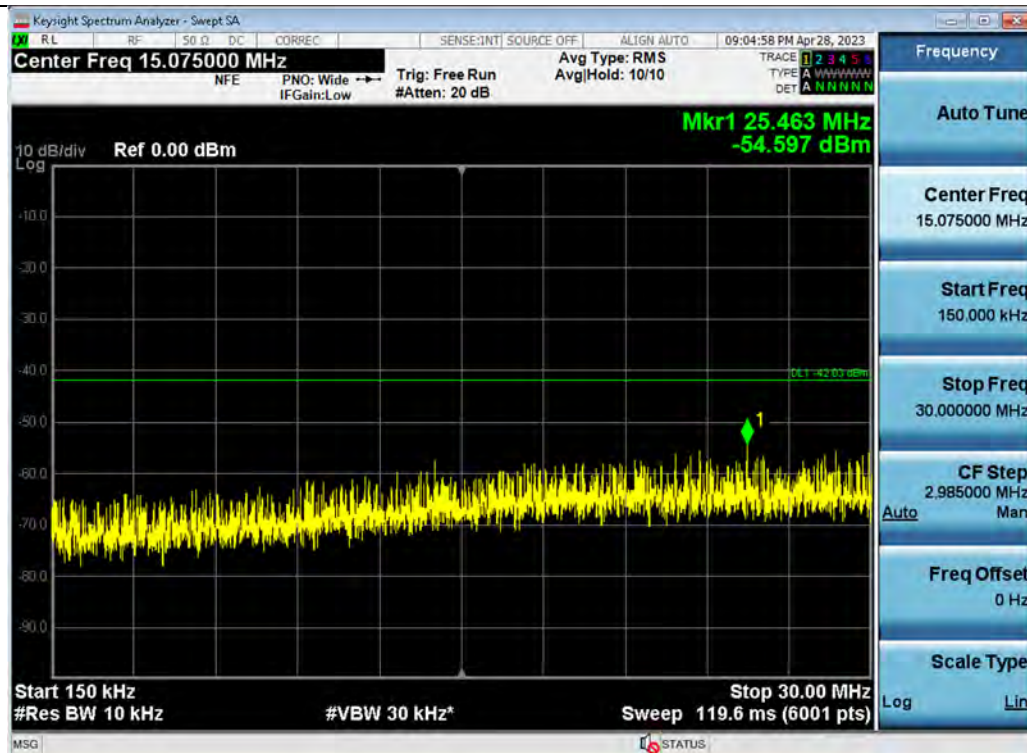
Ant.	Mod.	Channel	Calculated Value (dBm)							
			9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ Low Edge – 100 MHz	Low Edge – 100 MHz ~ Low Edge	High Edge ~ High Edge + 100 MHz	High Edge + 100 MHz ~ 10 GHz	10 GHz ~ 26.5 GHz	26.5 GHz ~ 40 GHz
0	QPSK	Low	-34.406	-36.456	-39.738	-29.067	-24.291	-24.898	-29.682	-32.022
	16QAM	Low	-34.055	-36.642	-38.962	-29.110	-24.106	-24.567	-29.655	-31.815
	64QAM	Low	-35.535	-37.342	-38.455	-28.147	-24.316	-24.754	-29.429	-31.544
	256QAM	Low	-35.097	-37.063	-38.208	-29.004	-23.969	-24.087	-29.179	-31.289
1	QPSK	Low	-35.674	-42.546	-39.110	-29.497	-24.137	-25.124	-29.585	-31.716
	16QAM	Low	-35.181	-41.107	-38.127	-29.502	-24.177	-25.258	-29.716	-32.223
	64QAM	Low	-35.293	-43.039	-37.843	-29.287	-24.304	-24.686	-29.770	-31.812
	256QAM	Low	-35.581	-41.996	-38.606	-29.268	-24.071	-24.932	-30.182	-31.828
2	QPSK	Low	-34.347	-41.247	-39.155	-28.038	-23.563	-23.206	-29.276	-38.330
	16QAM	Low	-35.248	-42.854	-37.515	-27.189	-23.757	-23.354	-29.217	-38.164
	64QAM	Low	-34.981	-42.702	-39.197	-28.161	-23.780	-23.451	-29.079	-37.785
	256QAM	Low	-35.044	-42.306	-39.553	-28.026	-23.300	-23.211	-28.769	-37.937
3	QPSK	Low	-35.876	-42.184	-39.211	-28.469	-24.204	-24.939	-29.687	-31.885
	16QAM	Low	-35.958	-41.721	-38.904	-29.123	-24.867	-24.583	-29.775	-31.695
	64QAM	Low	-35.752	-41.473	-38.516	-29.098	-24.189	-24.004	-30.123	-31.378
	256QAM	Low	-35.213	-42.439	-38.867	-29.233	-24.354	-24.791	-29.846	-31.636
4	QPSK	Low	-34.870	-40.243	-37.720	-28.544	-24.492	-25.270	-30.010	-32.281
	16QAM	Low	-36.416	-41.151	-37.842	-28.609	-34.147	-25.381	-29.586	-31.838
	64QAM	Low	-36.434	-40.956	-38.022	-26.988	-24.386	-25.113	-29.690	-31.687
	256QAM	Low	-35.835	-40.832	-37.842	-26.964	-24.252	-25.168	-29.916	-31.397
5	QPSK	Low	-35.652	-35.750	-37.637	-29.763	-24.678	-25.690	-29.934	-31.246
	16QAM	Low	-37.069	-34.877	-38.158	-29.692	-24.949	-25.188	-29.336	-31.076
	64QAM	Low	-36.351	-36.627	-37.117	-29.565	-24.529	-25.272	-29.644	-31.156
	256QAM	Low	-36.752	-35.577	-39.303	-29.631	-24.881	-25.197	-29.726	-31.418
6	QPSK	Low	-35.148	-33.031	-35.327	-30.784	-24.413	-24.095	-29.981	-32.042
	16QAM	Low	-36.546	-34.168	-35.219	-30.784	-24.489	-24.027	-29.436	-31.956
	64QAM	Low	-35.842	-33.121	-36.419	-29.518	-24.662	-23.854	-29.122	-31.378
	256QAM	Low	-36.958	-33.429	-34.914	-30.803	-24.534	-23.342	-29.748	-31.773
7	QPSK	Low	-35.766	-42.511	-37.499	-28.441	-24.042	-23.086	-30.555	-32.156
	16QAM	Low	-35.981	-42.145	-37.293	-28.431	-24.165	-23.544	-30.195	-32.847
	64QAM	Low	-34.691	-41.774	-37.656	-29.778	-23.907	-23.037	-30.404	-32.070
	256QAM	Low	-36.326	-42.275	-37.486	-29.619	-23.920	-23.224	-30.231	-31.419

Plot Data of Spurious Unwanted Emissions

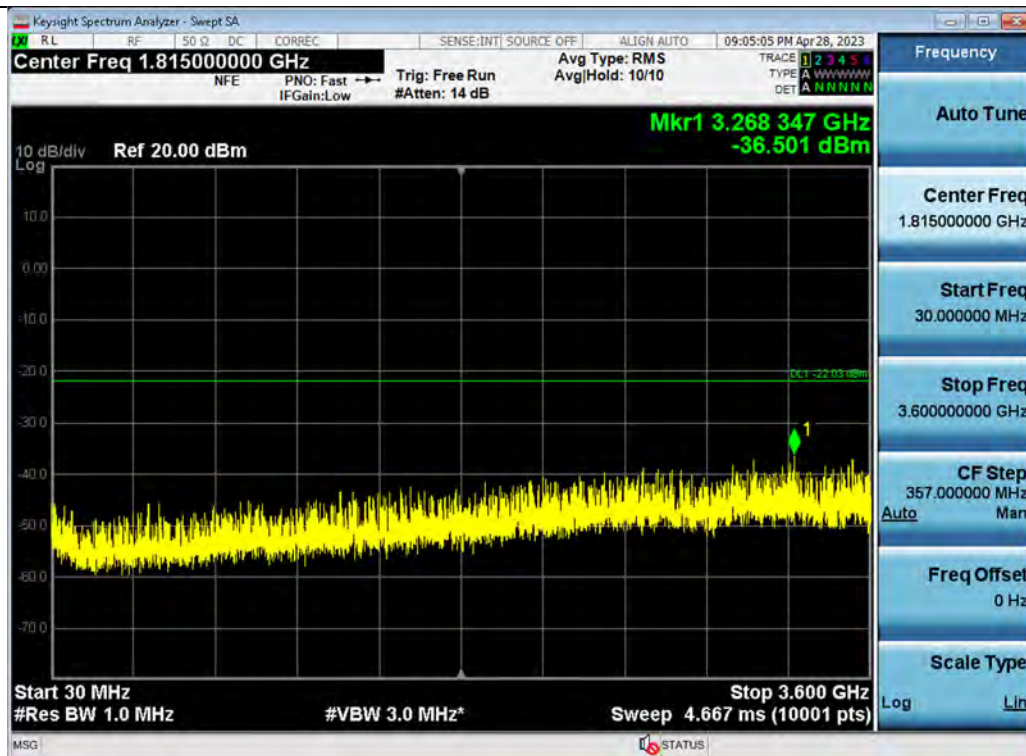
Antenna 1 / (8 Port) 5G NR 40 MHz 1 Carrier / 9 kHz ~ 150 kHz / 256QAM / Low



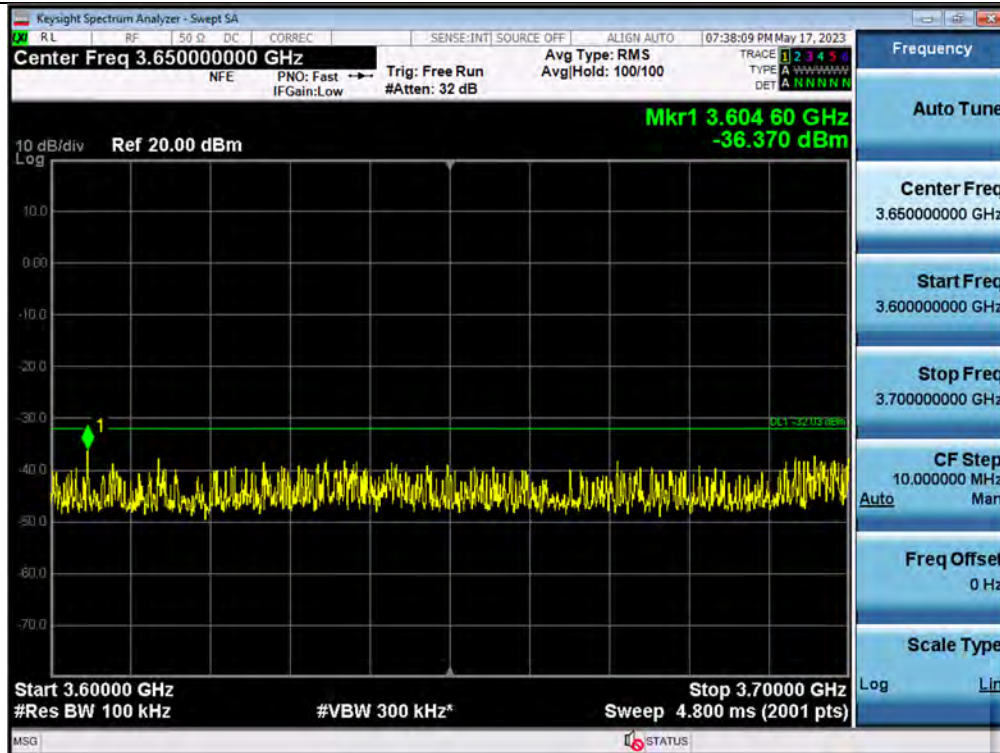
Antenna 6 / (8 Port) 5G NR 40 MHz 1 Carrier / 150 kHz ~ 30 MHz / QPSK / Low



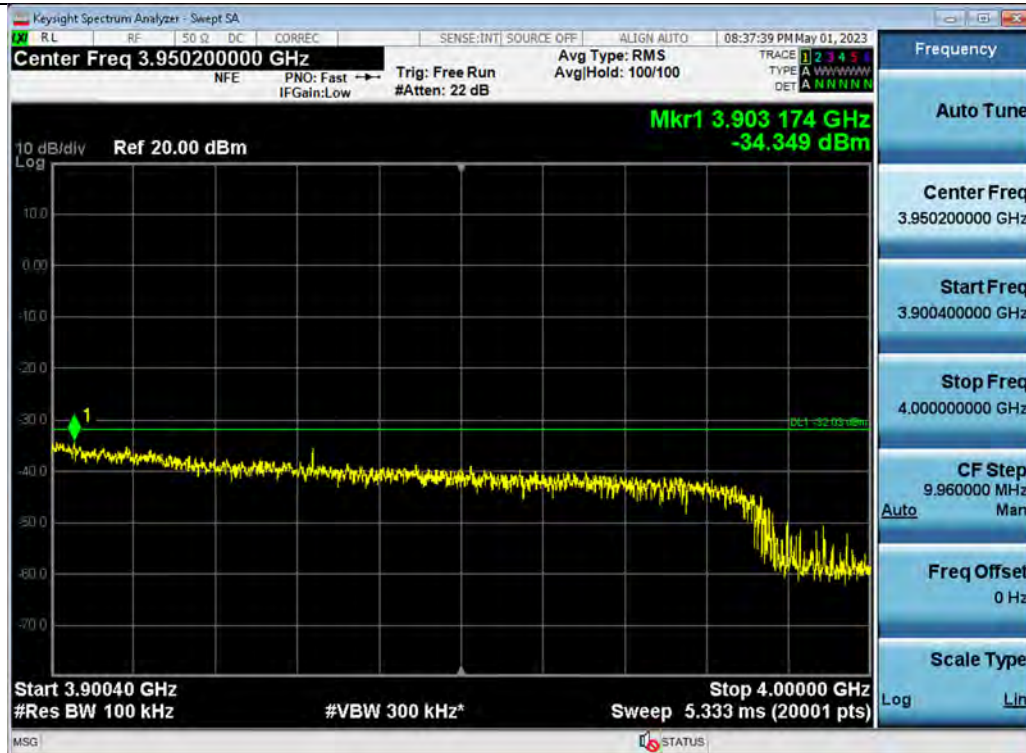
Antenna 6 / (8 Port) 5G NR 40 MHz 1 Carrier / 30 MHz ~ Low Edge - 100 MHz / QPSK / Low



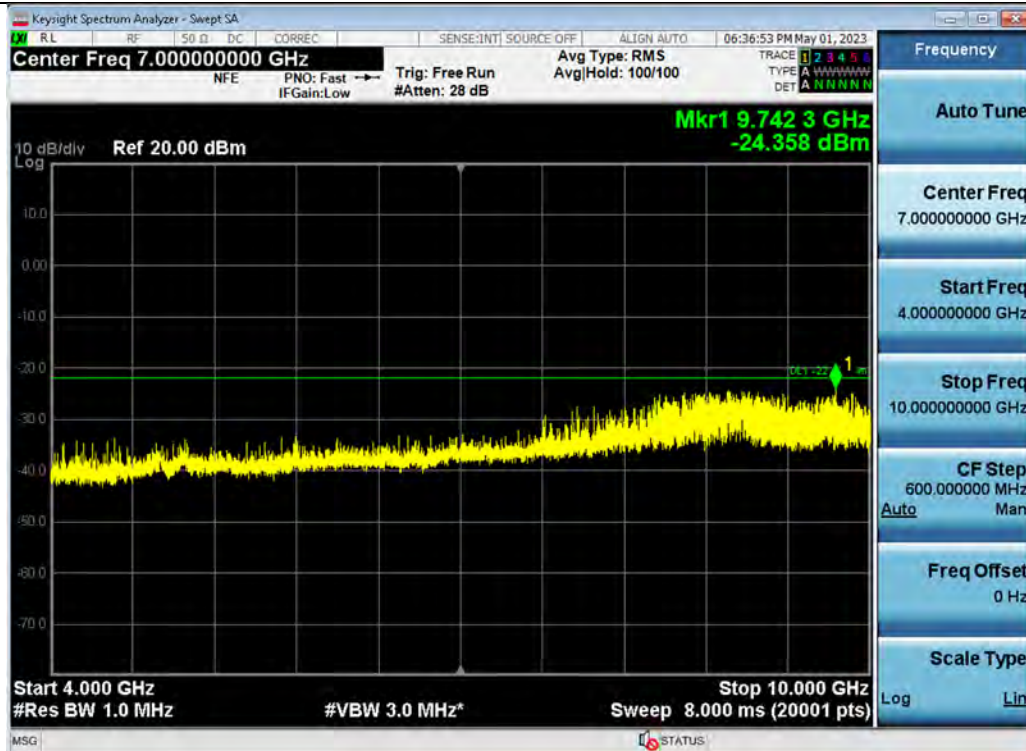
Antenna 6 / (8 Port) 5G NR 40 MHz 1 Carrier / Low Edge - 100 MHz ~ Low Edge / 64QAM / Middle



Antenna 6 / (8 Port) 5G NR 40 MHz 1 Carrier / High Edge ~ High Edge + 100 MHz / 16QAM / High



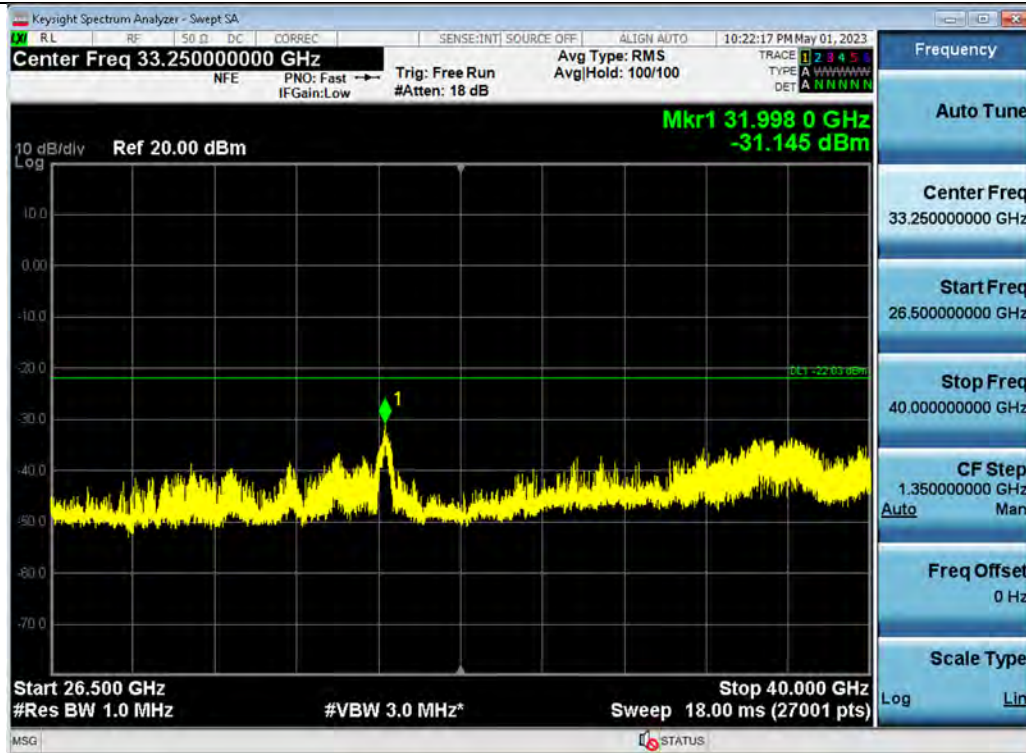
Antenna 6 / (8 Port) 5G NR 40 MHz 1 Carrier / High Edge + 100 MHz ~ 10 GHz / 256QAM / Middle



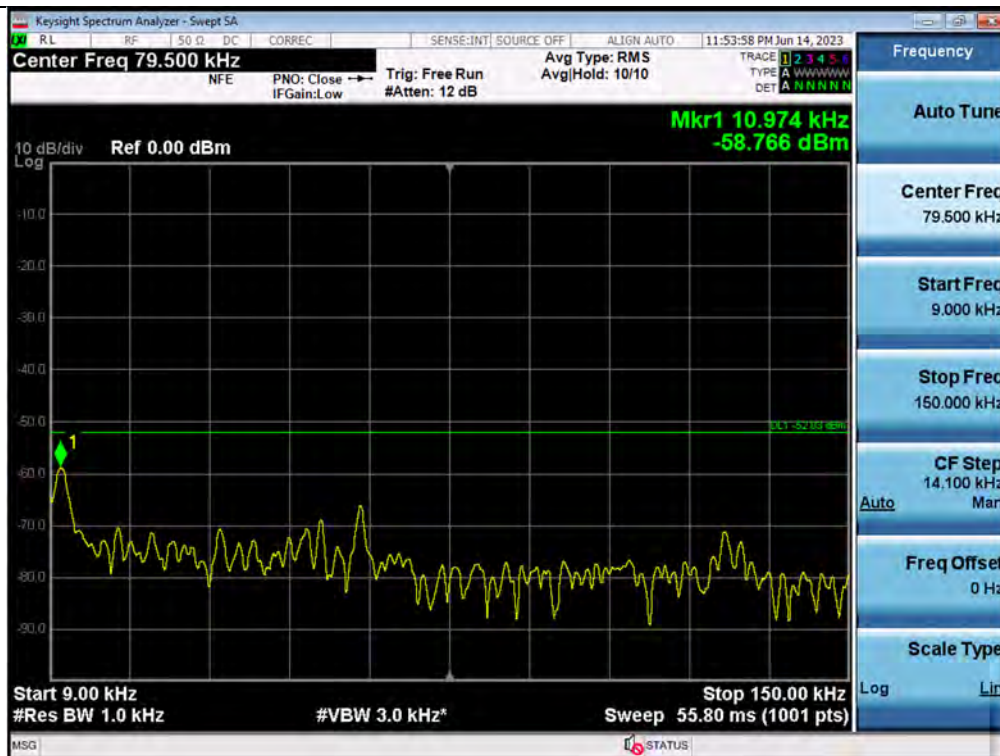
Antenna 5 / (8 Port) 5G NR 40 MHz 1 Carrier / 10 GHz ~ 26.5 GHz / 64QAM / Middle



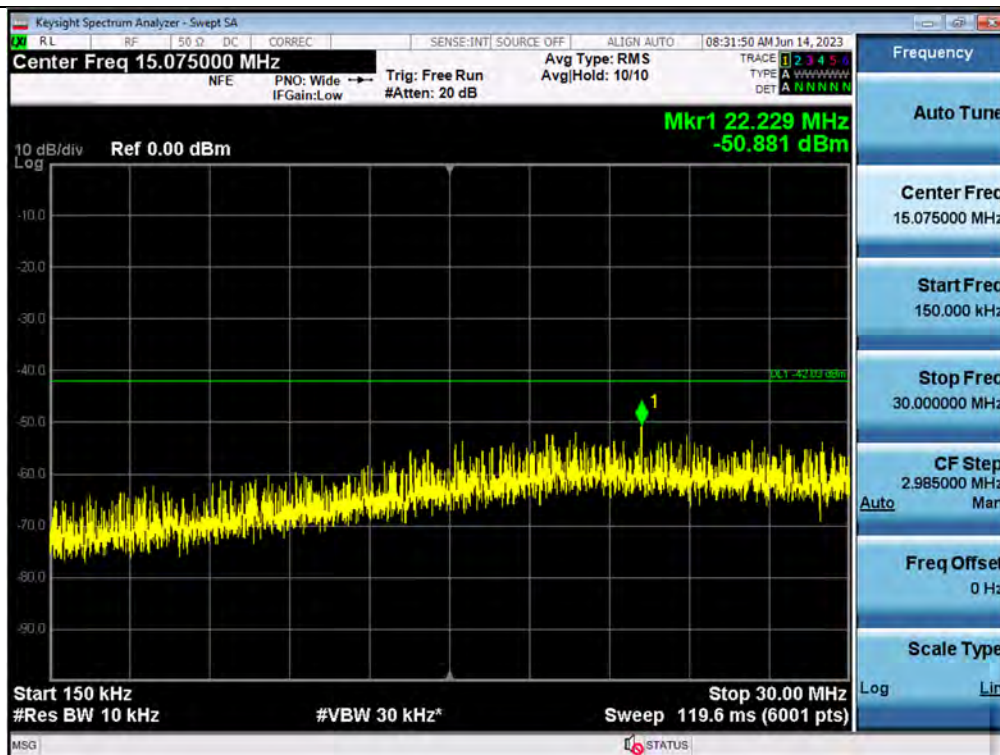
Antenna 1 / (8 Port) 5G NR 40 MHz 1 Carrier / 26.5 GHz ~ 40 GHz / 256QAM / High



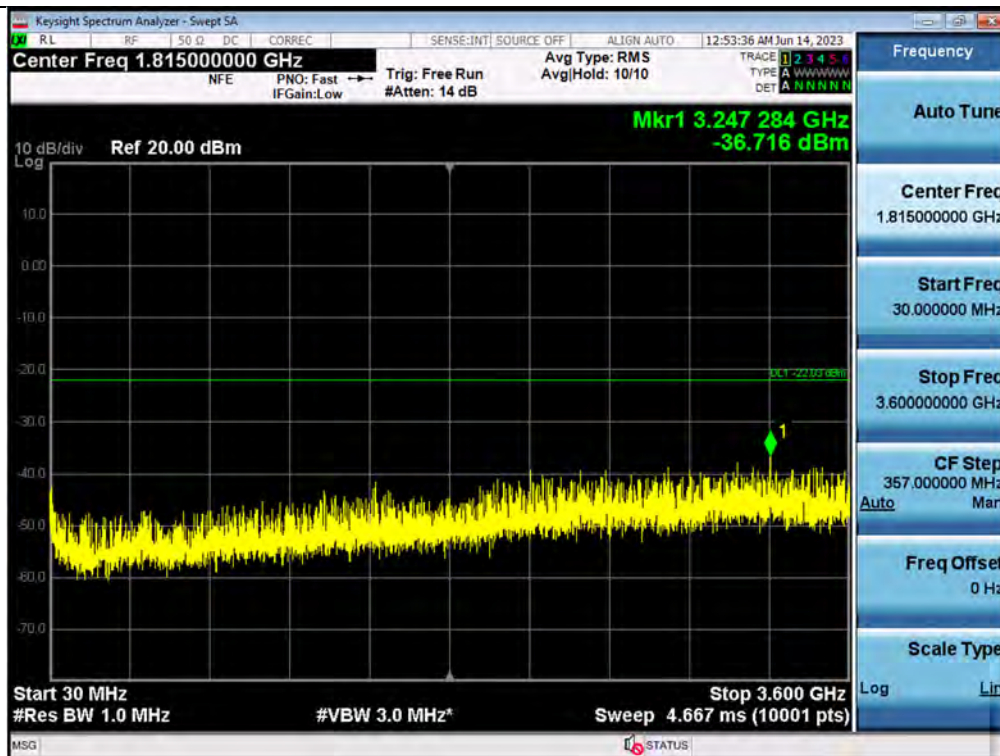
Antenna 1 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / 9 kHz ~ 150 kHz / 64QAM / High



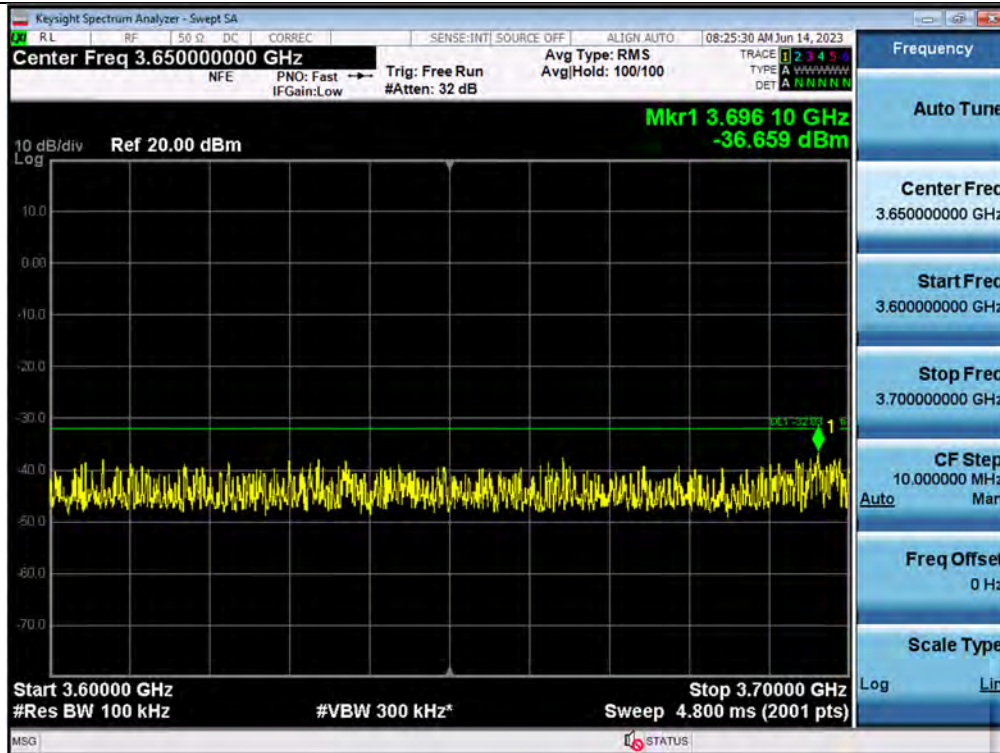
Antenna 6 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / 150 kHz ~ 30 MHz / 256QAM / Middle



Antenna 6 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / 30 MHz ~ Low Edge - 100 MHz / 256QAM / High



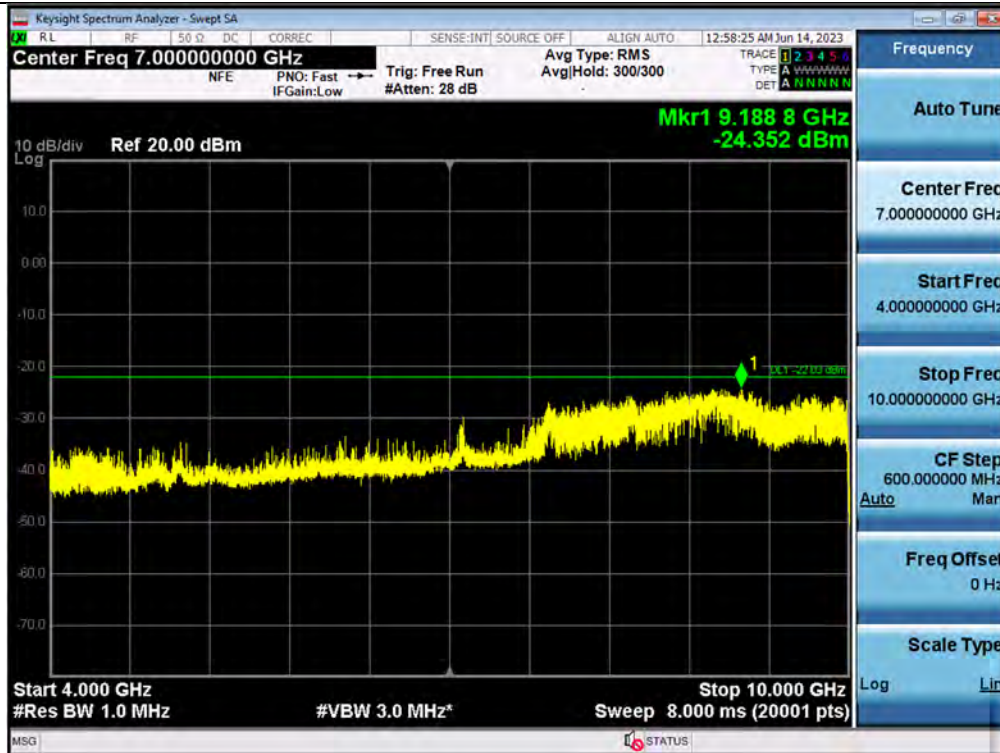
Antenna 6 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / Low Edge - 100 MHz ~ Low Edge / QPSK / Middle



Antenna 4 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / High Edge ~ High Edge + 100 MHz / QPSK / High



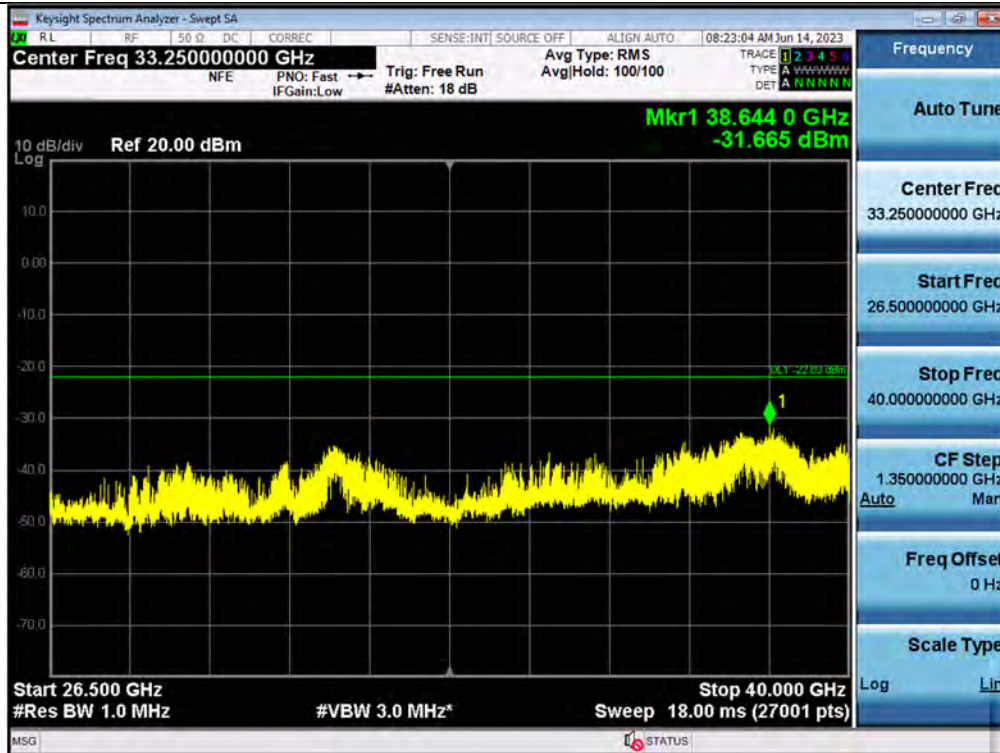
Antenna 7 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / High Edge + 100 MHz ~ 10 GHz / QPSK / High



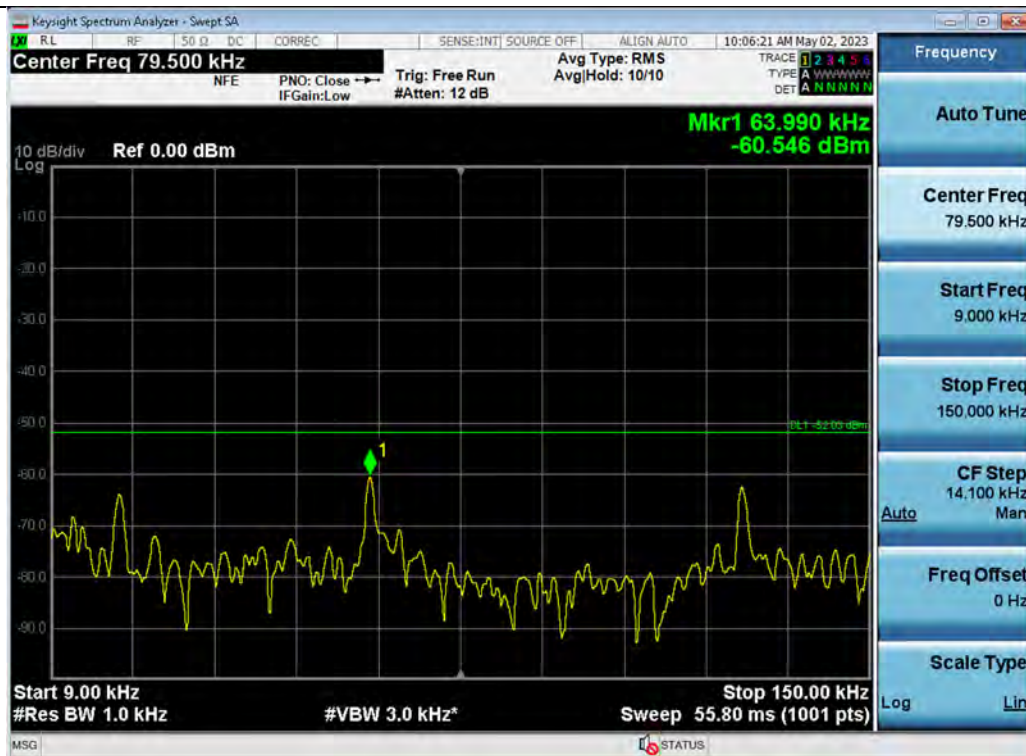
Antenna 2 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / 10 GHz ~ 26.5 GHz / 256QAM / Middle



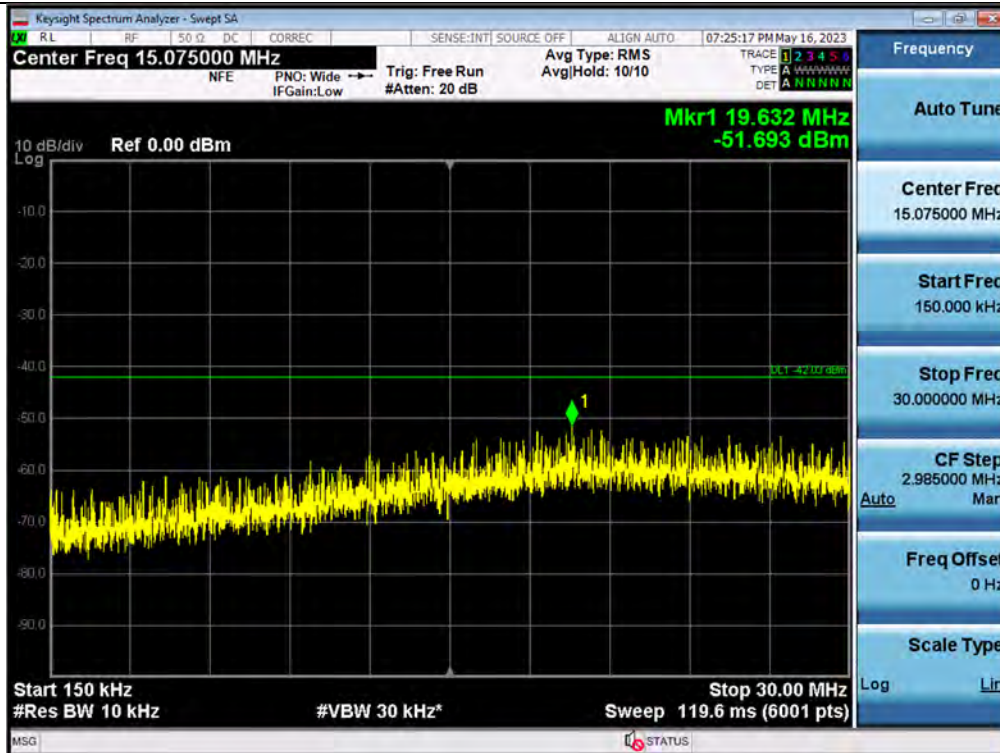
Antenna 5 / (8 Port) 5G NR n77 60 MHz [1 Carrier] / 26.5 GHz ~ 40 GHz / 256QAM / Middle



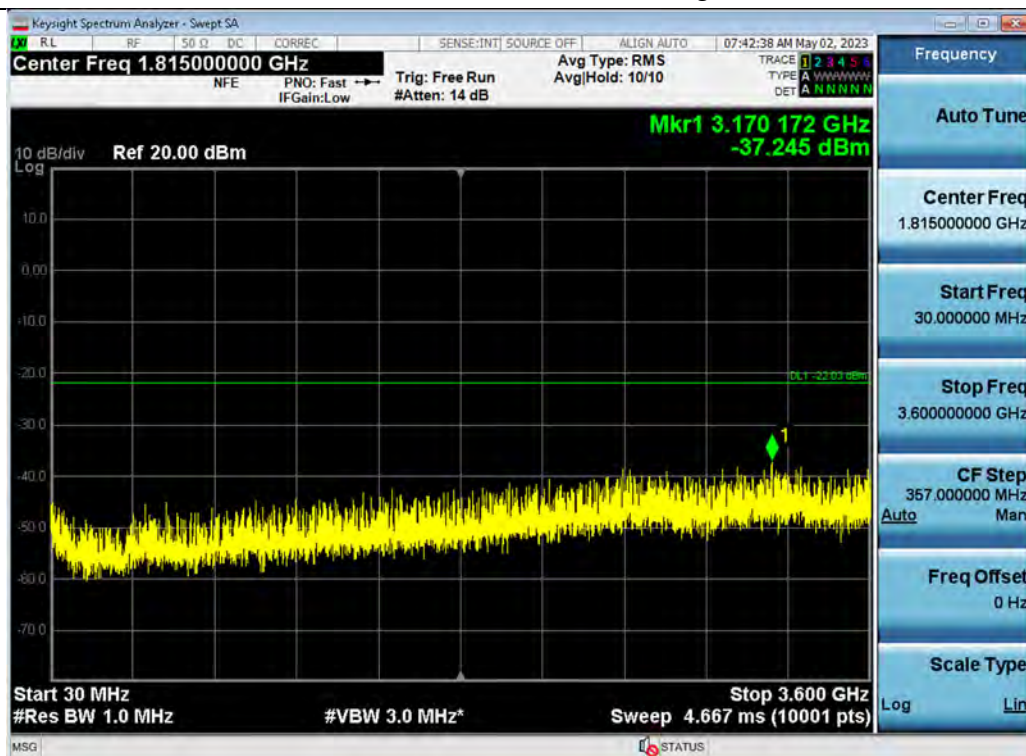
Antenna 7 / (8 Port) 5G NR 80 MHz 1 Carrier / 9 kHz ~ 150 kHz / QPSK / High



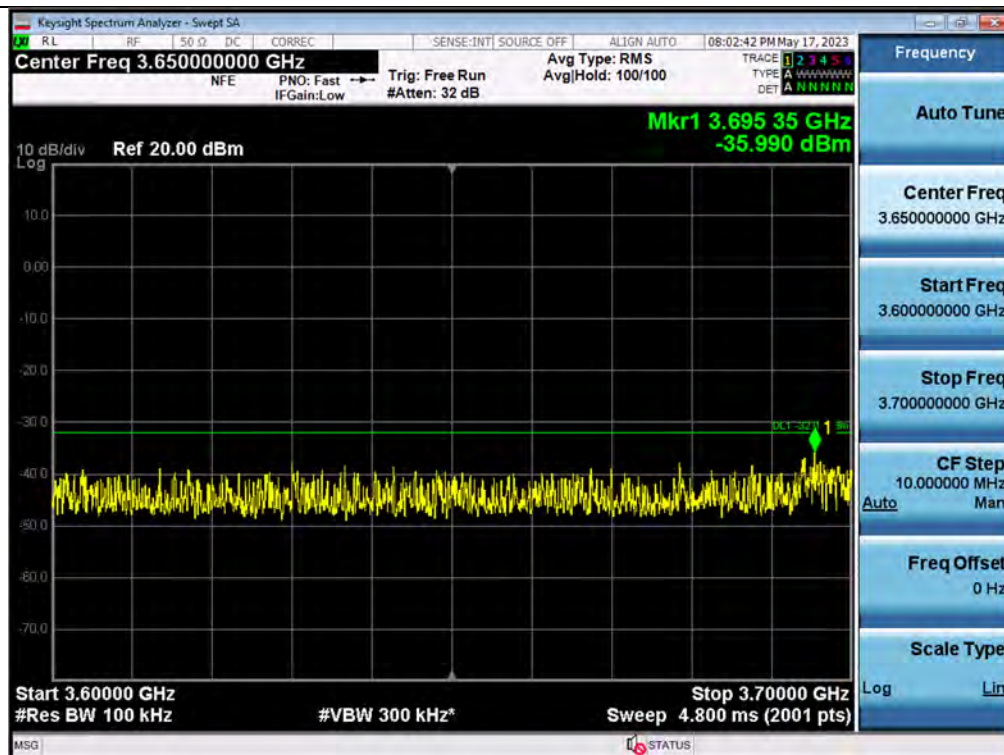
Antenna 6 / (8 Port) 5G NR 80 MHz 1 Carrier / 150 kHz ~ 30 MHz / QPSK / High



Antenna 6 / (8 Port) 5G NR 80 MHz 1 Carrier / 30 MHz ~ Low Edge - 100 MHz / 64QAM / Middle



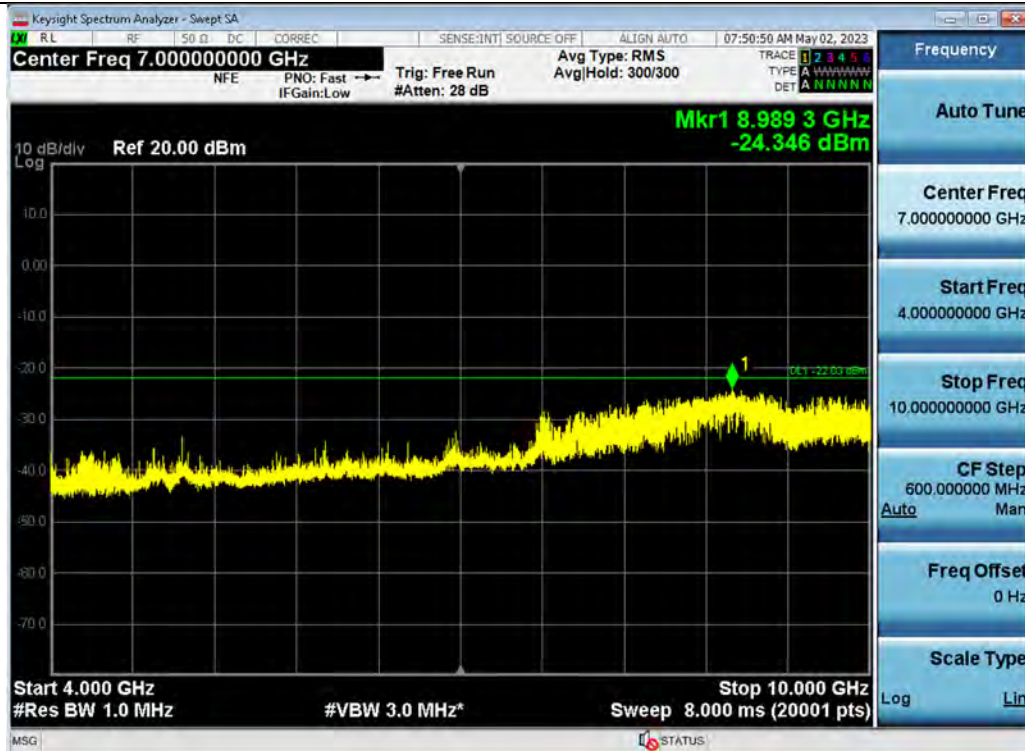
Antenna 6 / (8 Port) 5G NR 80 MHz 1 Carrier / Low Edge - 100 MHz ~ Low Edge / QPSK / Middle



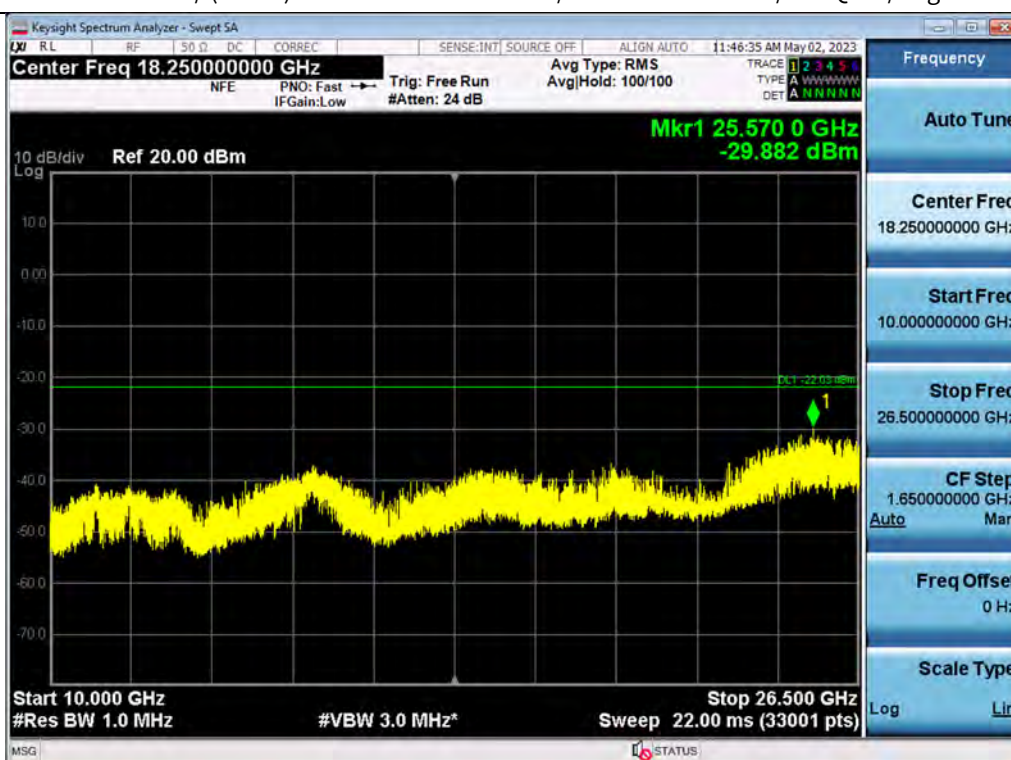
Antenna 4 / (8 Port) 5G NR 80 MHz 1 Carrier / High Edge ~ High Edge + 100 MHz / 16QAM / High



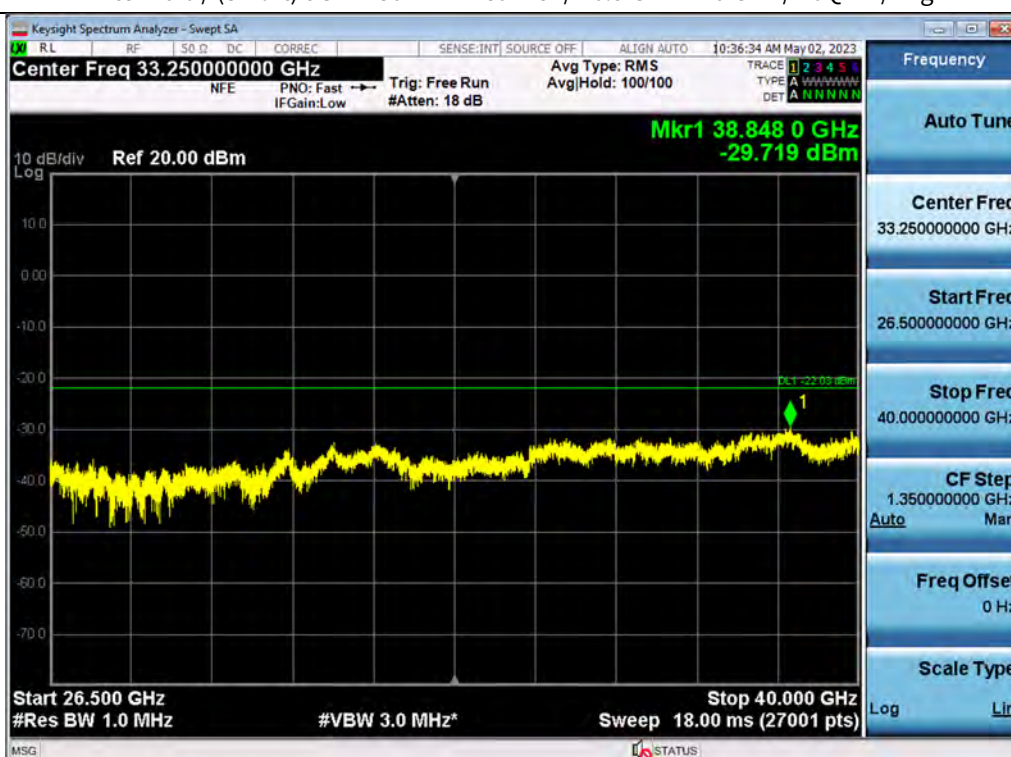
Antenna 7 / (8 Port) 5G NR 80 MHz 1 Carrier / High Edge + 100 MHz ~ 10 GHz / 64QAM / Middle



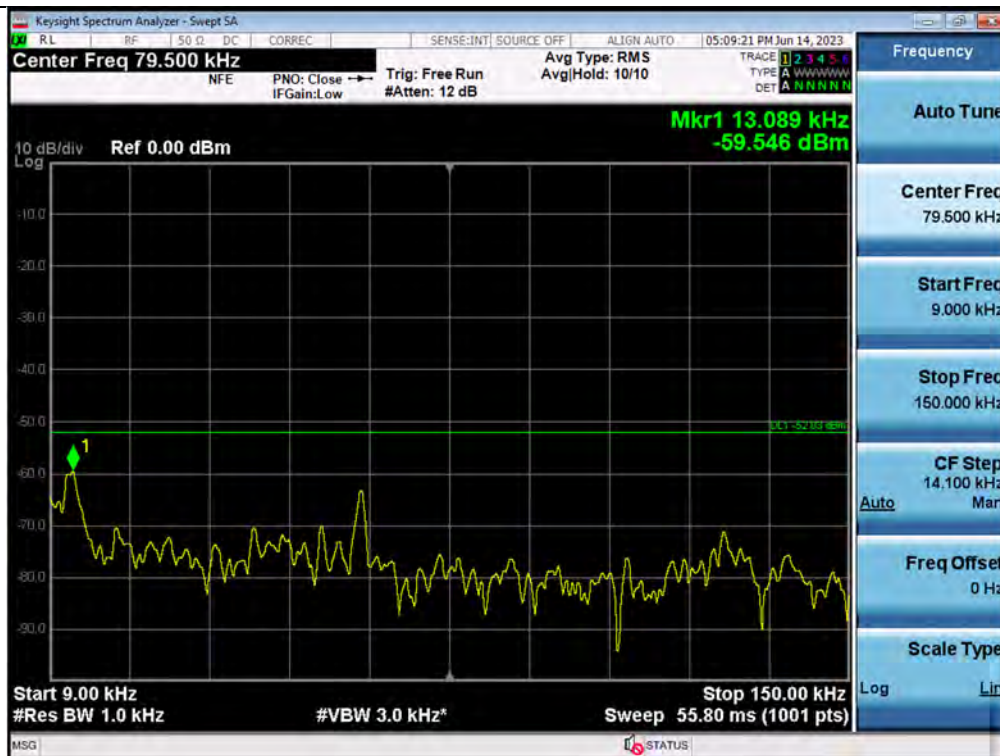
Antenna 5 / (8 Port) 5G NR 80 MHz 1 Carrier / 10 GHz ~ 26.5 GHz / 256QAM / High



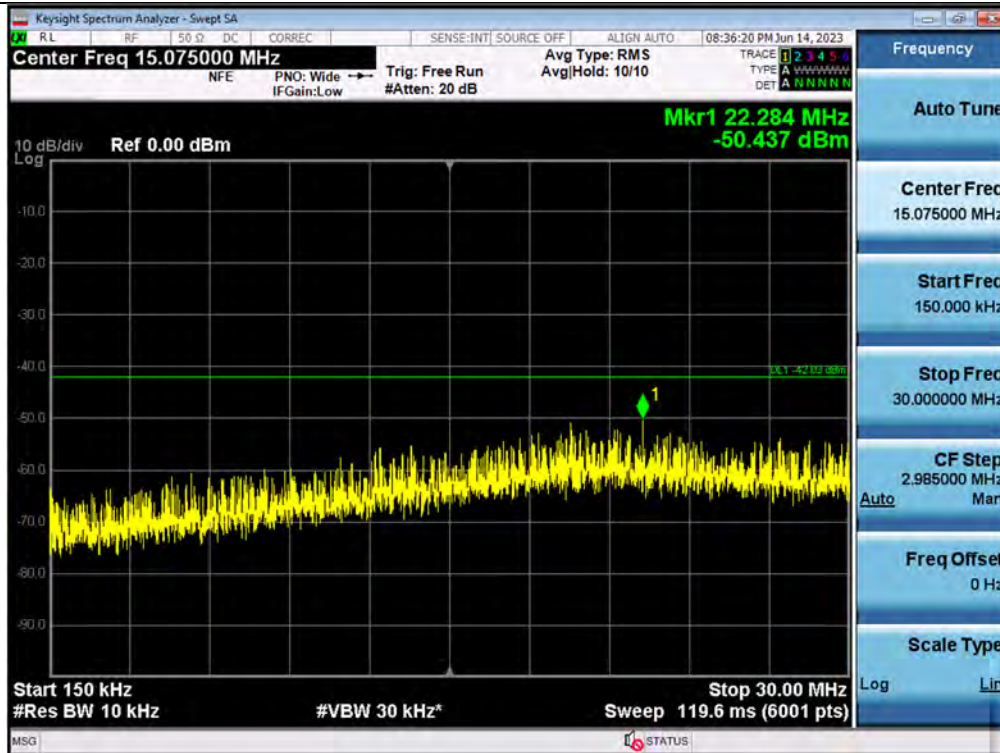
Antenna 6 / (8 Port) 5G NR 80 MHz 1 Carrier / 26.5 GHz ~ 40 GHz / 16QAM / High



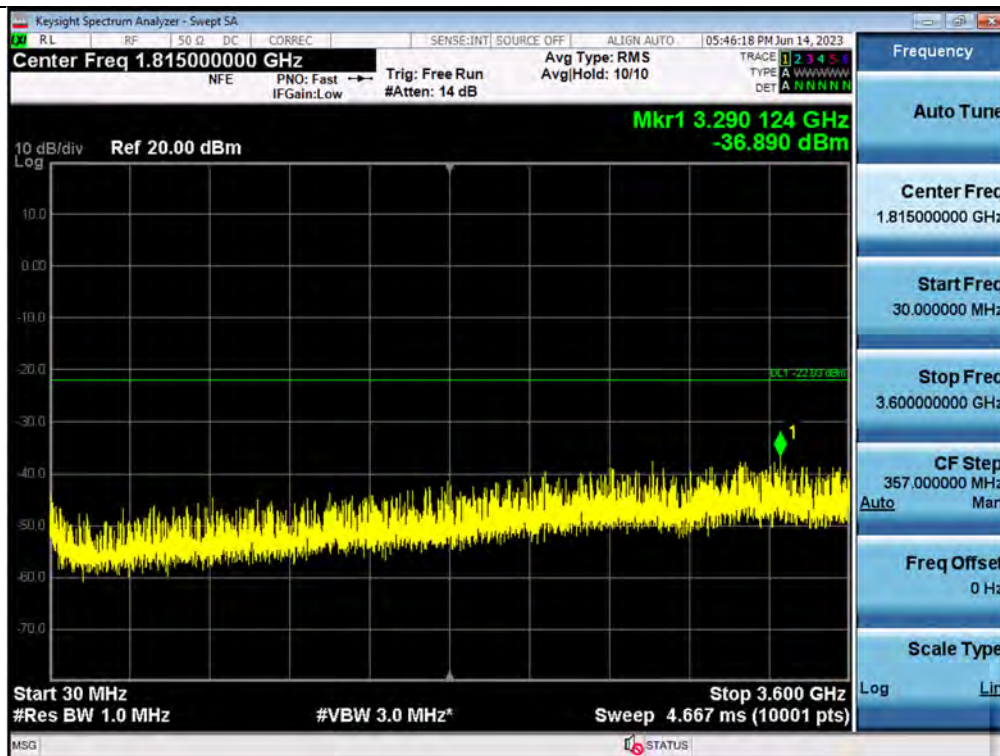
Antenna 0 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / 9 kHz ~ 150 kHz / 64QAM / High



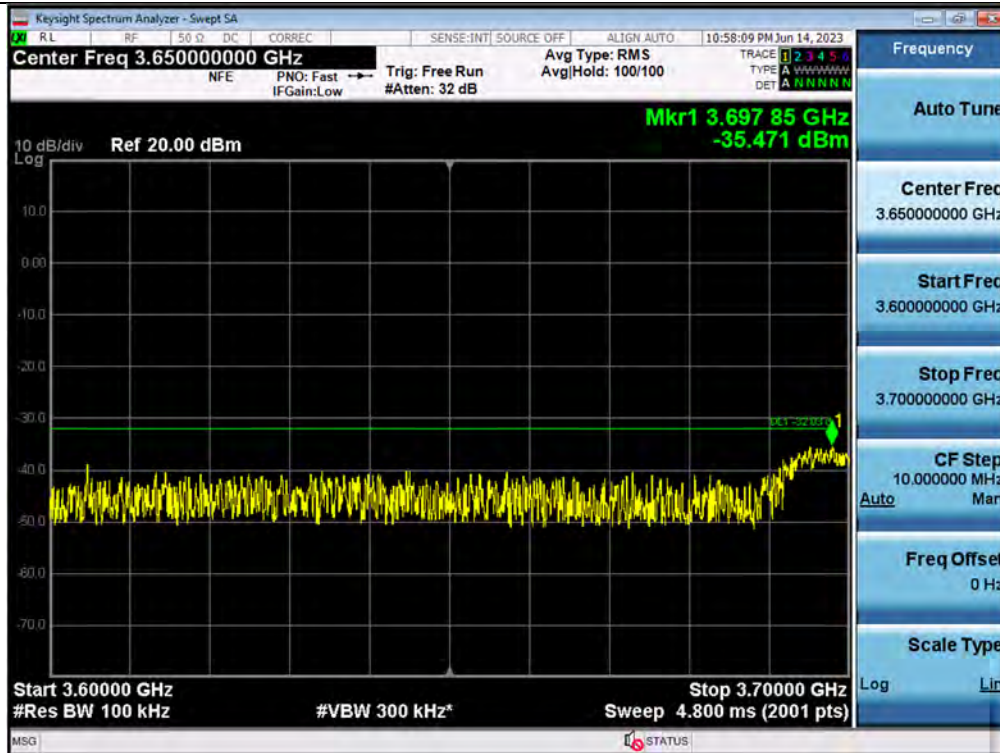
Antenna 6 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / 150 kHz ~ 30 MHz / QPSK / Middle



Antenna 6 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / 30 MHz ~ Low Edge - 100 MHz / 256QAM / High



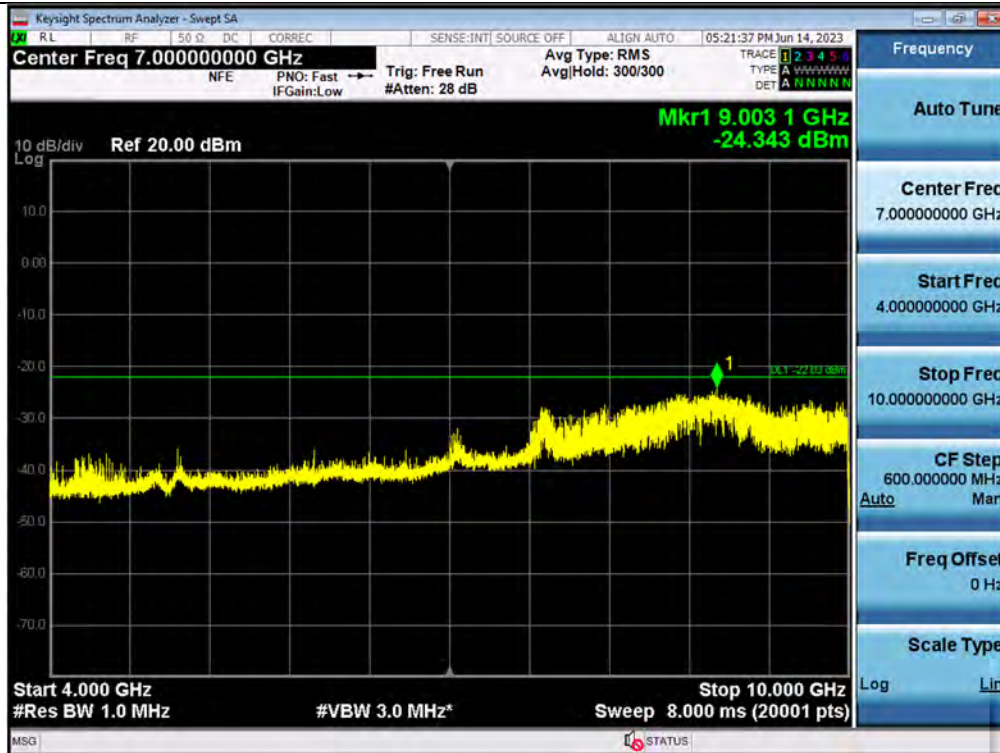
Antenna 0 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / Low Edge - 100 MHz ~ Low Edge / 16QAM / Middle



Antenna 4 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / High Edge ~ High Edge + 100 MHz / QPSK / High



Antenna 2 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / High Edge + 100 MHz ~ 10 GHz / 64QAM / High



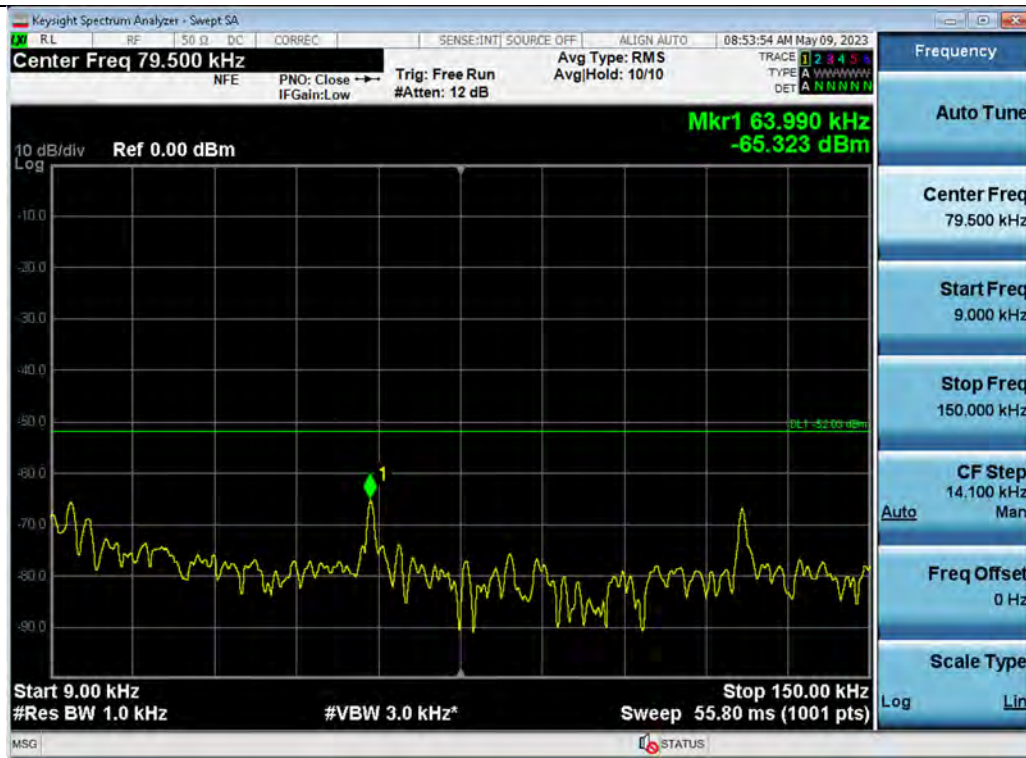
Antenna 2 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / 10 GHz ~ 26.5 GHz / 16QAM / High



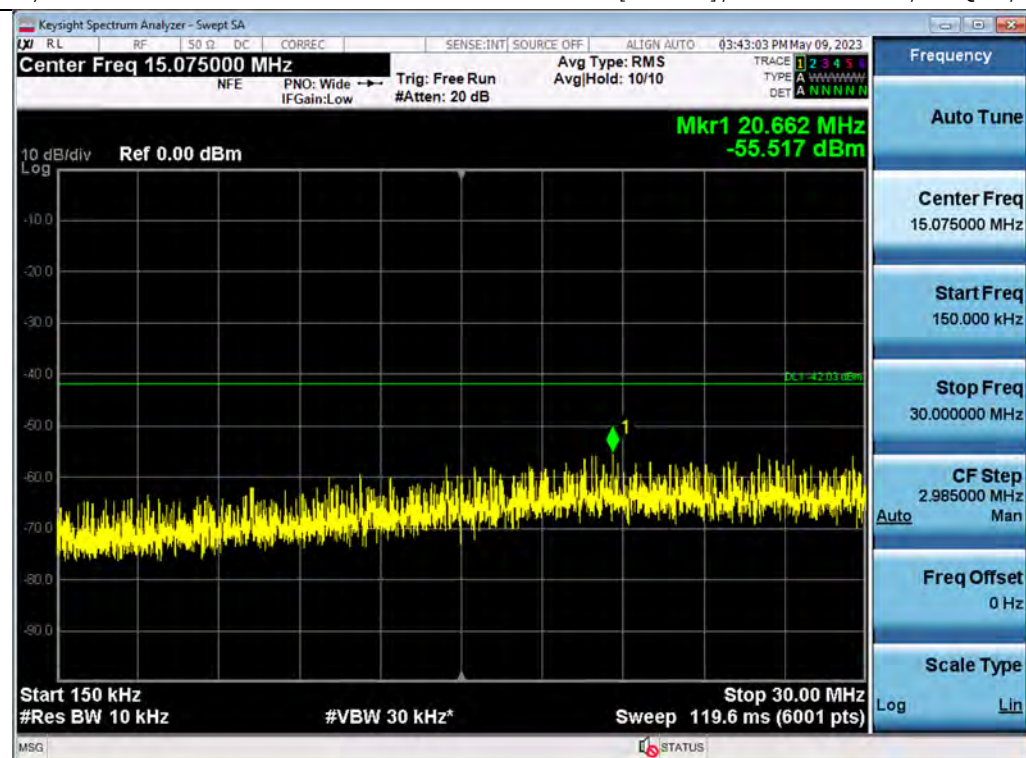
Antenna 5 / (8 Port) 5G NR n77 100 MHz [1 Carrier] / 26.5 GHz ~ 40 GHz / 16QAM / Middle



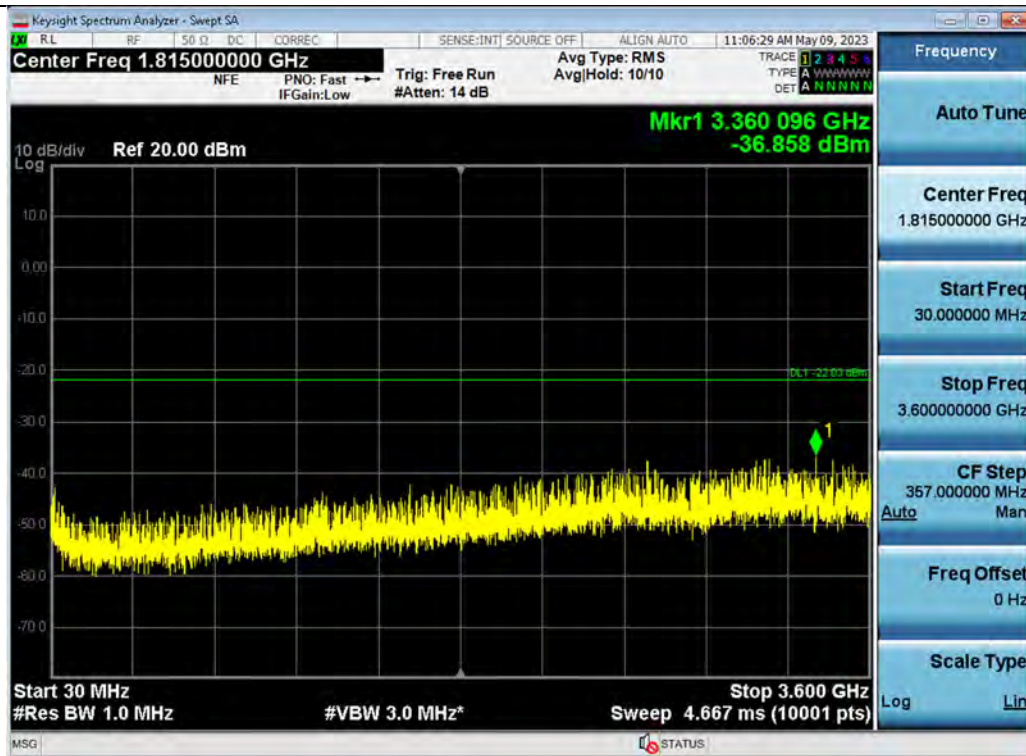
Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / 9 kHz ~ 150 kHz / 16QAM / Low / Contiguous



Antenna 6 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / 150 kHz ~ 30 MHz / 256QAM / Low / Contiguous



Antenna 6 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / 30 MHz ~ Low Edge - 100 MHz / 64QAM / Low / Contiguous



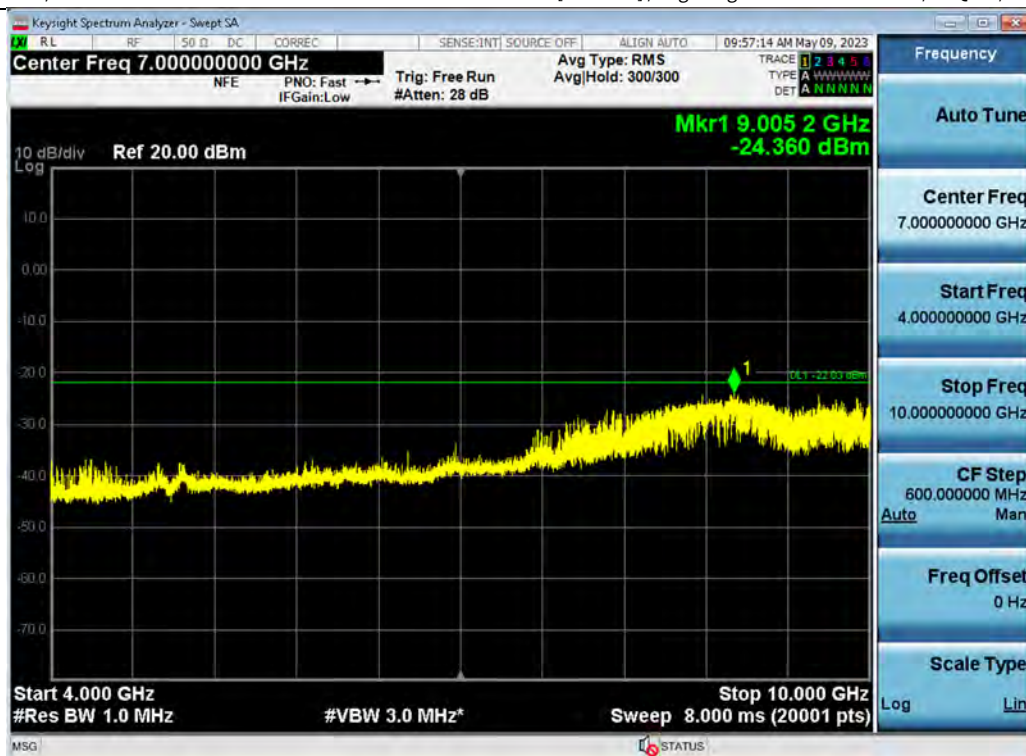
Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / Low Edge - 100 MHz ~ Low Edge / 16QAM / Low / Contiguous



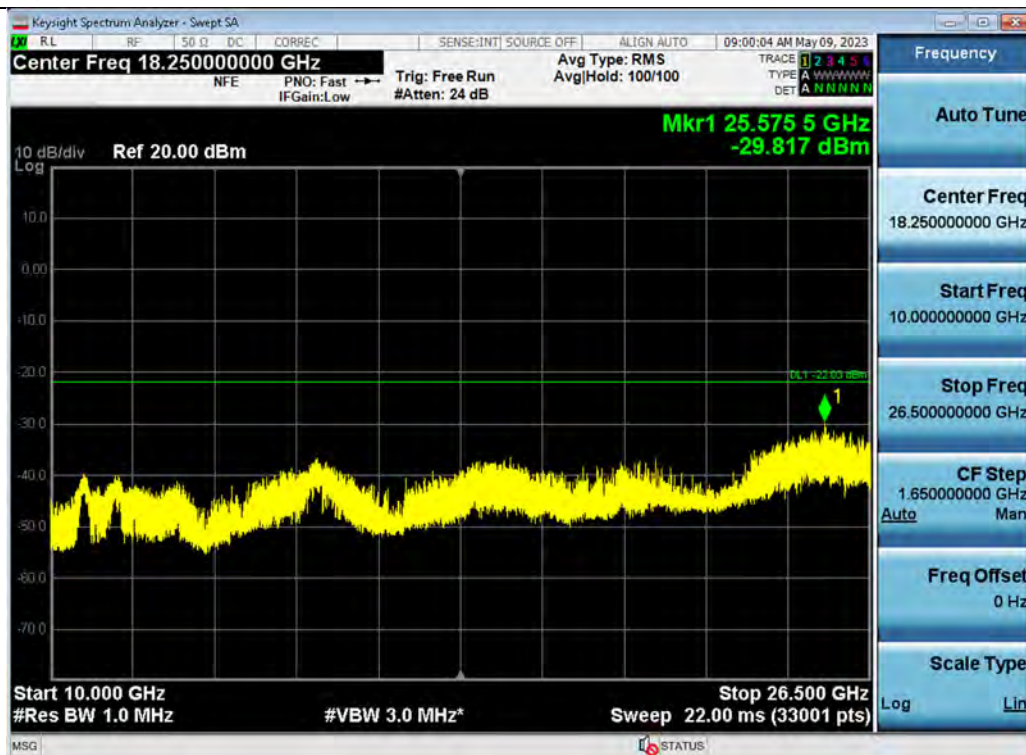
Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / High Edge ~ High Edge + 100 MHz / 64QAM / Low / Contiguous



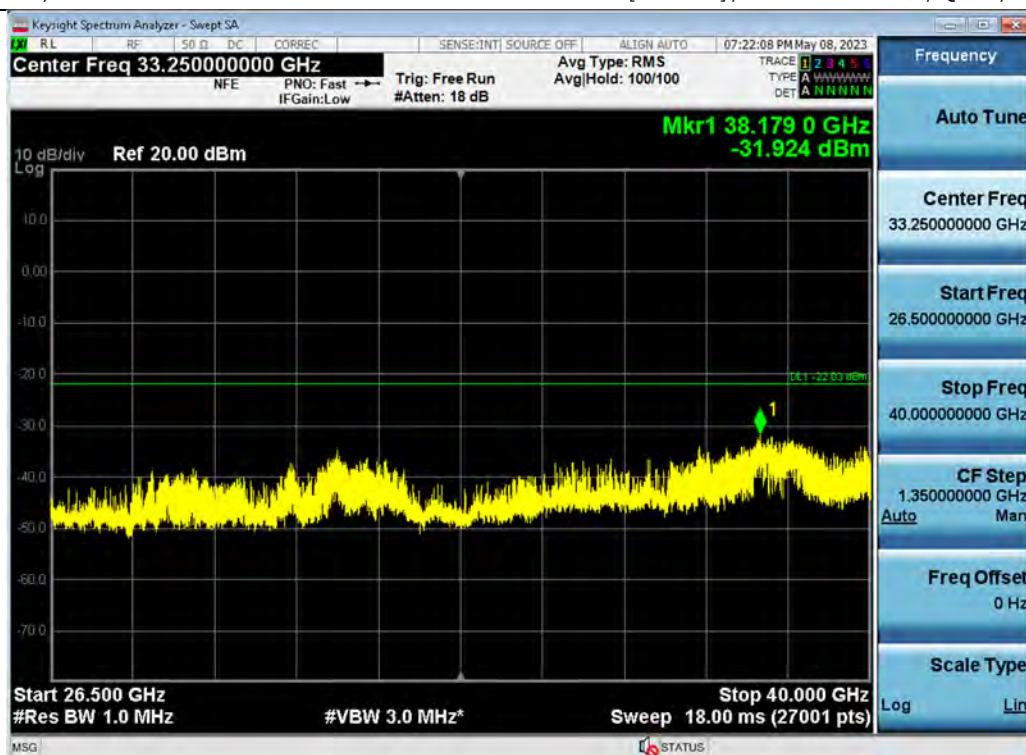
Antenna 7 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / High Edge + 100 MHz ~ 10 GHz / 16QAM / Low / Contiguous



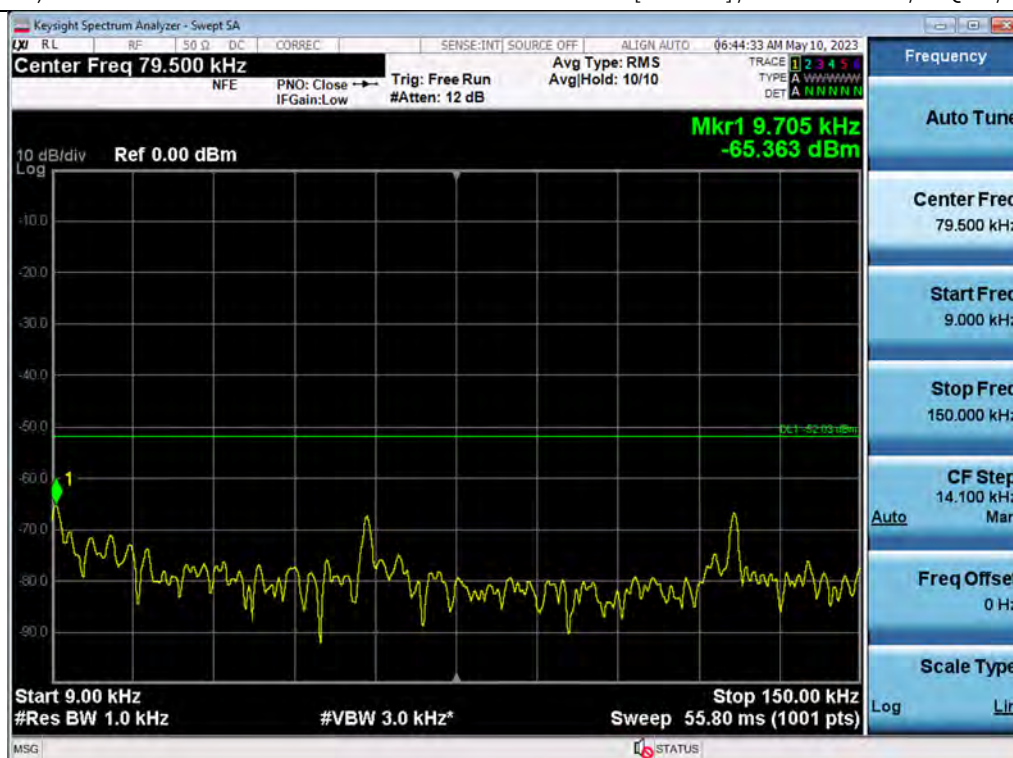
Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / 10 GHz ~ 26.5 GHz / 16QAM / Low / Contiguous



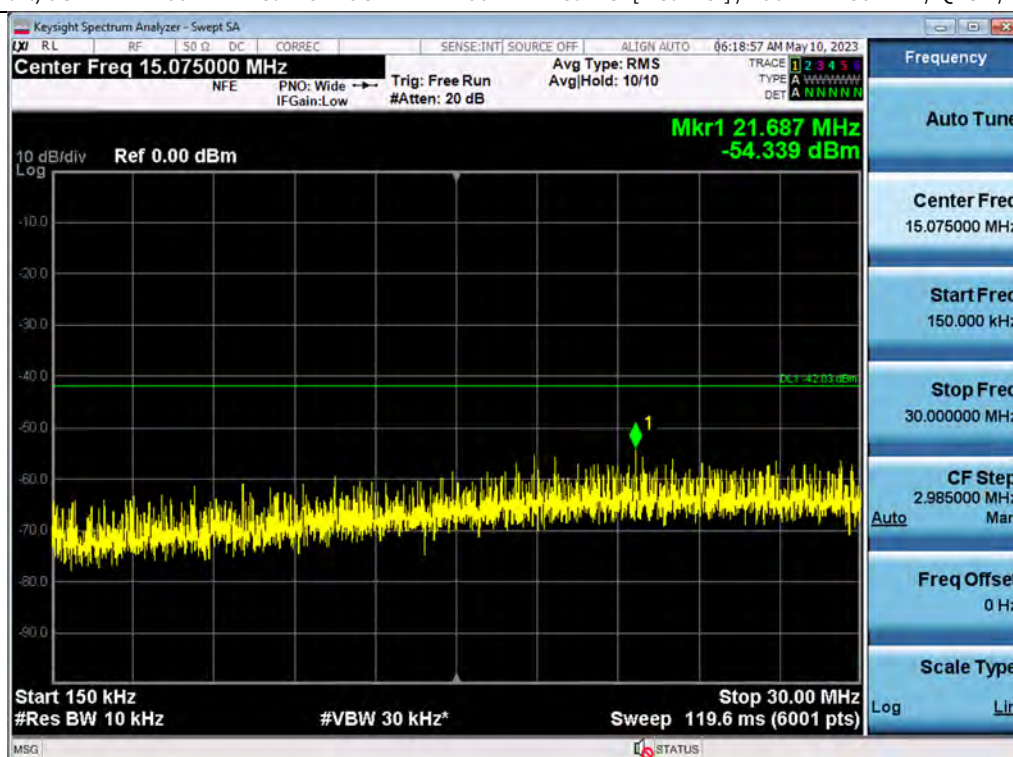
Antenna 5 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 40 MHz 1 Carrier [2 Carrier] / 26.5 GHz ~ 40 GHz / QPSK / Low / Contiguous



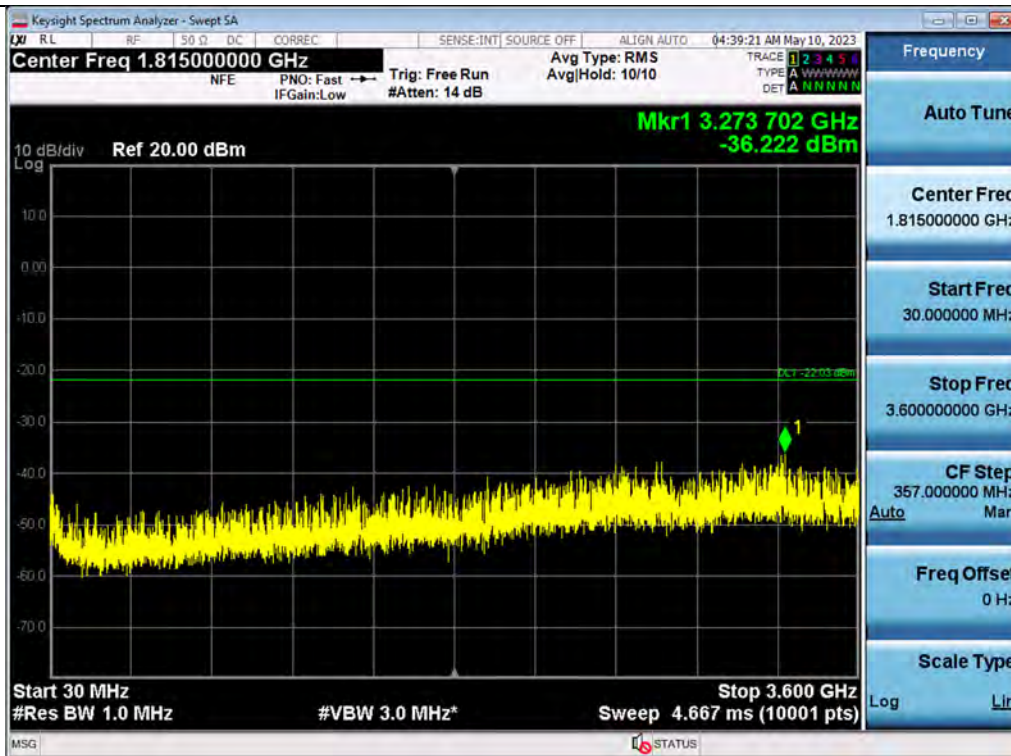
Antenna 0 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 9 kHz ~ 150 kHz / 16QAM / Low / Contiguous



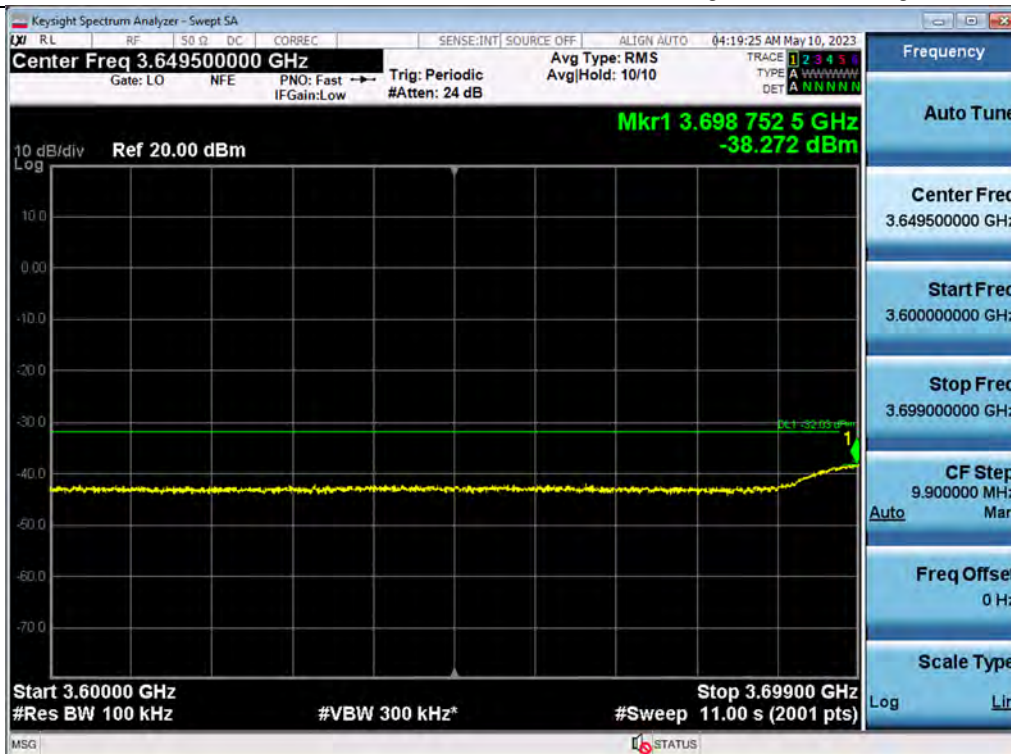
Antenna 6 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 150 kHz ~ 30 MHz / QPSK / Low / Contiguous



Antenna 6 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 30 MHz ~ Low Edge - 100 MHz / 256QAM / Low / Contiguous



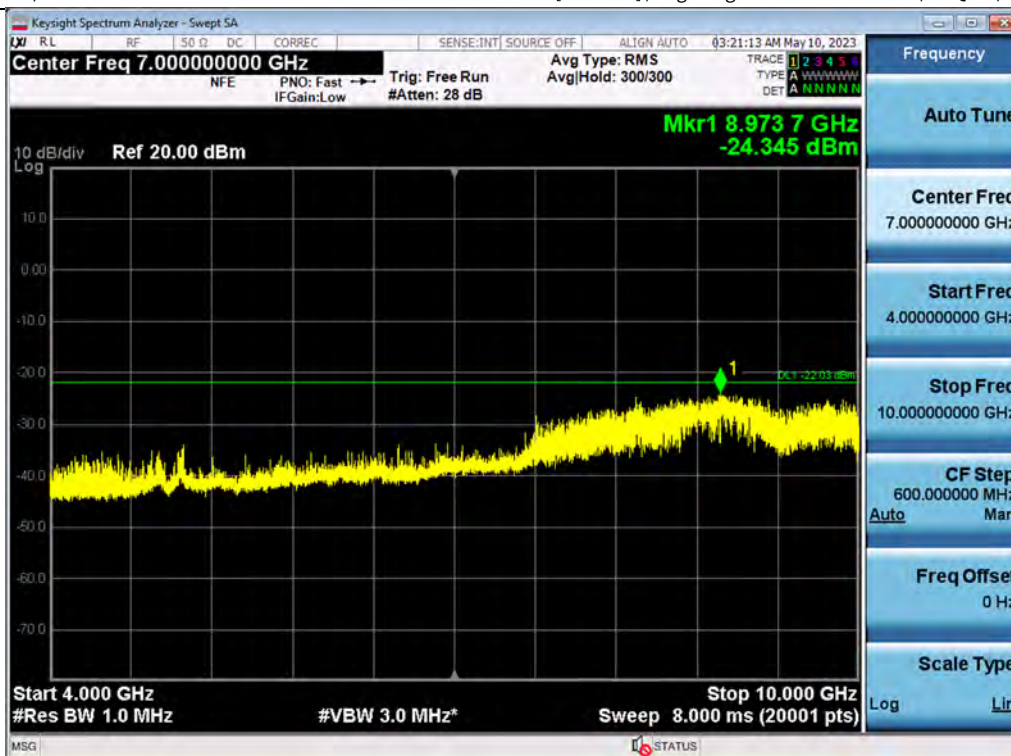
Antenna 4 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / Low Edge - 100 MHz ~ Low Edge / 256QAM / Low / Contiguous



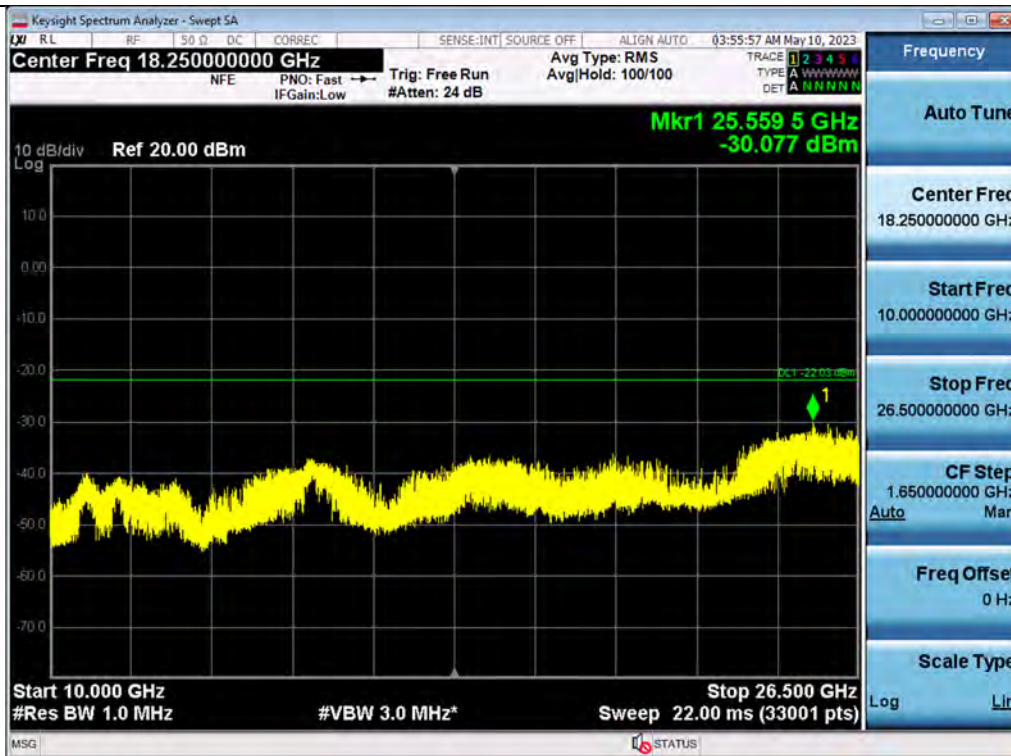
Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / High Edge ~ High Edge + 100 MHz / 256QAM / Low / Contiguous



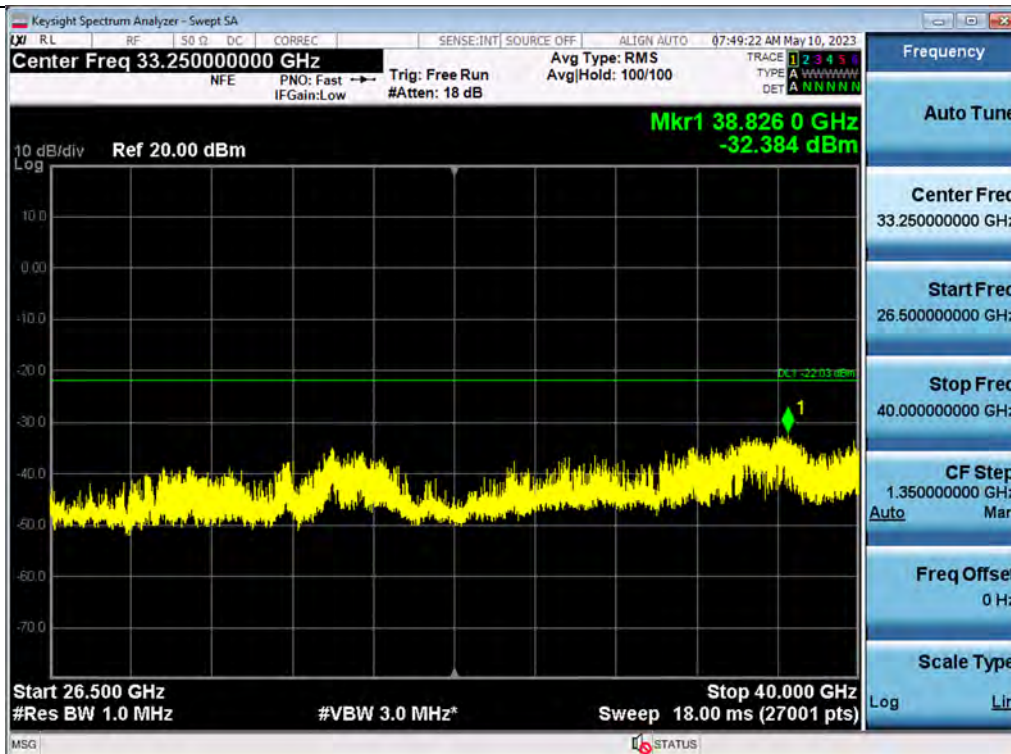
Antenna 7 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / High Edge + 100 MHz ~ 10 GHz / 64QAM / Low / Contiguous



Antenna 2 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 10 GHz ~ 26.5 GHz / 256QAM / Low / Contiguous



Antenna 5 / (8 Port) 5G NR n77 100 MHz 1 Carrier + 5G NR n77 100 MHz 1 Carrier [2 Carrier] / 26.5 GHz ~ 40 GHz / 16QAM / Low / Contiguous



5.6. RADIATED EMISSIONS

Test Requirements:

§ 2.1053 Measurements required: Field strength of spurious radiation.

- (a) Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of § 2.1049, as appropriate. For equipment operating on frequencies below 890 MHz, an open field test is normally required, with the measuring instrument antenna located in the far-field at all test frequencies. In the event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurements will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from halfwave dipole antennas.
- (b) The measurements specified in paragraph (a) of this section shall be made for the following equipment:
- (1) Those in which the spurious emissions are required to be 60 dB or more below the mean power of the transmitter.
 - (2) All equipment operating on frequencies higher than 25 MHz.
 - (3) All equipment where the antenna is an integral part of, and attached directly to the transmitter.
 - (4) Other types of equipment as required, when deemed necessary by the Commission.

§ 27.53 Emission limits.

- (l) 3.7 GHz Service. The following emission limits apply to station transmitting in the 3700-3980 MHz band:
- (1) For base station operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (l)(1) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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.

Test Procedures:

The measurement is performed in accordance with Section 5.5.3.2 of ANSI C63.26.

- a) Place the EUT in the center of the turntable. The EUT shall be configured to transmit into the standard non-radiating load (for measuring radiated spurious emissions), connected with cables of minimal length unless specified otherwise. If the EUT uses an adjustable antenna, the antenna shall be positioned to the length that produces the worst case emission at the fundamental operating frequency.
- b) Each emission under consideration shall be evaluated:
 - 1) Raise and lower the measurement antenna in accordance 5.5.2, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
 - 2) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
 - 3) Return the turntable to the azimuth where the highest emission amplitude level was observed.
 - 4) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
 - 5) Record the measured emission amplitude level and frequency using the appropriate RBW.
- c) Repeat step b) for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
- d) ~ j) Omitted
- k) Provide the complete measurement results as a part of the test report.

Note:

1. We have done horizontal and vertical polarization in detecting antenna.
2. The amplitude of the spurious domain emission attenuated by more than 20 dB over the permissible value was not recorded according to ANSI C63.26, clause 5.1.1., c).
3. The results of the Radiated Emissions test shown above are measured at maximum power, and data values are attached only in the worst case.
4. Measure distance = 3 m

Test Results:

Freq.(MHz)	Measured Level	Ant. Factor	A.G.+C.L.+H.P.F.	Pol.	Measured Power	Result
	[dBuV]				[dBm]	

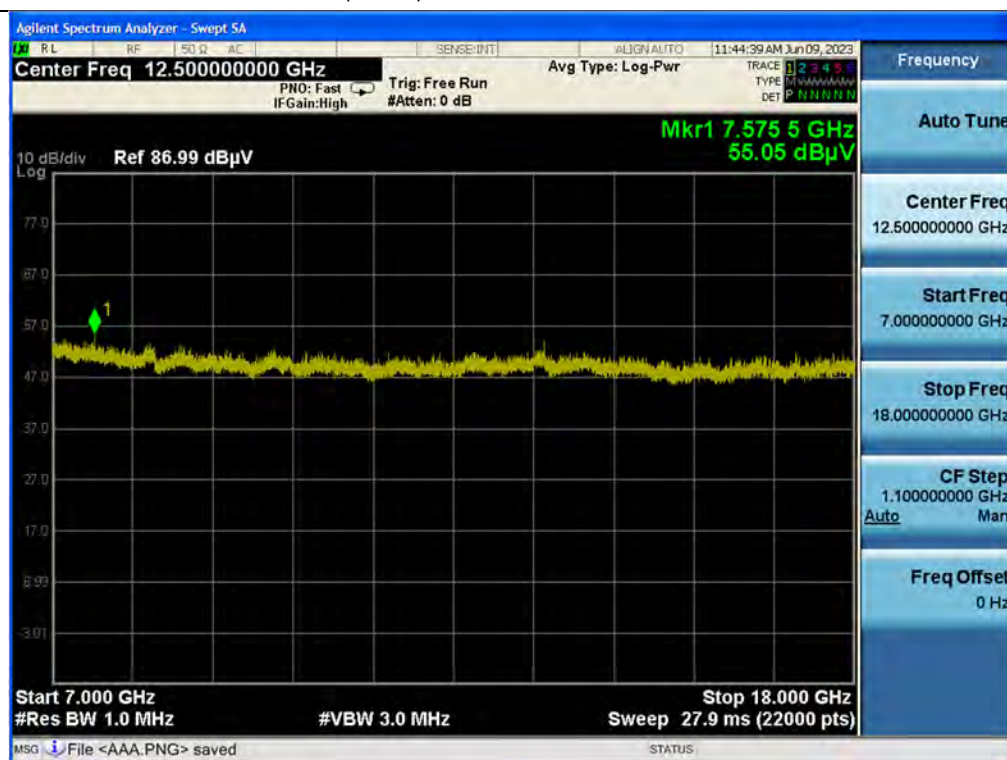
No Critical Peaks Found.

* C.L.: Cable Loss / A.G.: Amp Gain / H.P.F.: High Pass Filter

*Result: (Measured Level – 95.2) + Ant. Factor – (A.G.+C.L.+H.P.F.)

Plot data of Radiated Emissions

(8 Port) 5G NR 40 MHz 1 Carrier



Note: Only the worst case plots for Radiated Spurious Emissions.

5.7. FREQUENCY STABILITY

Test Requirements:

§ 2.1055 Measurements required: Frequency stability.

(a) The frequency stability shall be measured with variation of ambient temperature as follows:

- (1) From -30° to $+50^{\circ}$ centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.

§ 27.54 Frequency stability.

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Test Procedures:

The measurement is performed in accordance with Section 5.6.3, 5.6.4 and 5.6.5 of ANSI C63.26.

5.6.3 Procedure for frequency stability testing

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at $+20^{\circ}\text{C}$ and rated supply voltage.

The operating carrier frequency shall be set up in accordance with the manufacturer's published operation and instruction manual prior to the commencement of these tests. No adjustment of any frequency determining circuit element shall be made subsequent to this initial set-up. Frequency stability is tested:

- a) At 10°C intervals of temperatures between -30°C and $+50^{\circ}\text{C}$ at the manufacturer's rated supply voltage, and
- b) At $+20^{\circ}\text{C}$ temperature and $\pm 15\%$ supply voltage variations. If a product is specified to operate over a range of input voltage then the -15% variation is applied to the lowermost voltage and the $+15\%$ is applied to the uppermost voltage.

During the test all necessary settings, adjustments and control of the EUT have to be performed without disturbing the test environment, i.e., without opening the environmental chamber. The frequency stabilities can be maintained to a lesser temperature range provided that the transmitter is automatically inhibited from operating outside the lesser temperature range. For handheld equipment that is only capable of operating from internal batteries and the supply voltage cannot be varied, the frequency stability tests shall be performed at the nominal battery voltage and the battery end point voltage specified by the manufacturer. An external supply voltage can be used and set at the internal battery nominal voltage, and again at the battery operating end point voltage which shall be specified by the equipment manufacturer.

If an unmodulated carrier is not available, the mean frequency of a modulated carrier can be obtained by using a frequency counter with gating time set to an appropriately large multiple of bit periods (gating time depending on the required accuracy). Full details on the choice of values shall be included in the test report.

5.6.4 Frequency stability over variations in temperature

- a) Supply the EUT with a nominal 60 Hz ac voltage, dc voltage, or install a new or fully charged battery in the EUT.
- b) If possible a dummy load should be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, the EUT should be placed in the center of the chamber with the antenna adjusted to the shortest length

possible.

- c) Turn on the EUT, and tune it to the center frequency of the operating band.
- d) Couple the transmitter output to the measuring instrument through a suitable attenuator and coaxial cable. If connection to the EUT output is not possible, make the measurement by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away).
NOTE—An instrument that has an adequate level of accuracy as specified by the procuring or regulatory authority is the recommended measuring instrument.
- e) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument, but is strong enough to allow measurement of the operating or fundamental frequency of the EUT). Adjust the detector bandwidth and span settings to achieve a resolution capable of accurate frequency measurements over the applicable frequency stability limits.
- f) Turn the EUT off, and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.
- g) Set the temperature control on the chamber to the Highest temperature specified in the regulatory requirements for the type of device, and allow the oscillator heater and the chamber temperature to stabilize. Unless otherwise instructed by the regulatory authority, this temperature should be 50 °C.
- h) While maintaining a constant temperature inside the environmental chamber, turn on the EUT and allow sufficient time for the EUT temperature to stabilize.
- i) Measure the frequency.
- j) Switch off the EUT, but do not switch off the oscillator heater.
- k) Lower the chamber temperature to the next level that is required by the standard and allow the temperature inside the chamber to stabilize. Unless otherwise instructed by the regulators, this temperature step should be 10 °C.
- l) Repeat step h) through step k) down to the lowest specified temperature. Unless otherwise instructed by the regulators, this temperature should be –30 °C. When the frequency stability limit is stated as being sufficient such that the fundamental emissions stay within the authorized bands of operation, a reference point shall be established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard. These reference points measured using the lowest and Highest channel of operation shall be identified as f_L and f_H respectively. The worst-case frequency offset determined in the above methods shall be added or subtracted from the values of f_L and f_H and the resulting frequencies must remain within the band.
- m) Omitted

5.6.5 Frequency stability when varying supply voltage

- a) Couple the transmitter output to the measuring instrument through a suitable attenuator and coaxial cable. If connection to the EUT output is not possible make the measurement by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away)
- b) Supply the EUT with nominal ac or dc voltage. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and

at each extreme also shall be shown.

- c) Turn on the EUT, and couple its output to a frequency counter or other frequency-measuring instrument.
- d) Tune the EUT to the center frequency of the operating band. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument, but is strong enough to allow measurement of the operating or fundamental frequency of the EUT). Adjust the detector bandwidth and span settings to achieve a resolution capable of accurate frequency measurements over the applicable frequency stability limits.

NOTE—An instrument that has an adequate level of accuracy as specified by the procuring or regulatory authority is the recommended measuring instrument.

- e) Measure the frequency.
- f) Unless otherwise specified, vary primary supply voltage from 85% to 115% of the nominal value for other than hand carried battery equipment.
- g) For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
- h) Repeat the frequency measurement.

NOTE—For band-edge compliance, it can be required to make these measurements at the low and High channel of the operating band.

Note: The results of the frequency stability test shown above the frequency deviation measured values are very small and similar trend for each port, so we are attached only the worst case data.

Test Results:

Reference: - 48 Vdc at 20°C Freq. = 3,800,000,000 Hz

Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(°C)	(Hz)	Error (Hz)	(Hz)	
100 %	+20(Ref)	3 800 000 000.479	0.479	0.000	0.00000
	-30	3 800 000 003.433	3.433	2.953	0.00078
	-20	3 800 000 000.937	0.937	0.458	0.00012
	-10	3 800 000 003.934	3.934	3.455	0.00091
	0	3 800 000 006.612	6.612	6.133	0.00161
	+10	3 800 000 005.825	5.825	5.346	0.00141
	+30	3 800 000 002.691	2.691	2.211	0.00058
	+40	3 800 000 002.868	2.868	2.388	0.00063
	+50	3 800 000 002.890	2.890	2.411	0.00063
115 %	+20	3 800 000 004.639	4.639	4.159	0.00109
85 %	+20	3 800 000 008.482	8.482	8.002	0.00211

Note: The results of the frequency stability test shown above the frequency deviation measured values are very small and similar trend for each port, so attached datas were only the port 0.

6. Annex B_EUT AND TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2306-FC002-P