TEST REPORT

FCC Sub6 n2 Test for SM-S721U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2407-FC038

DATE OF ISSUE
July 23, 2024

Tested by
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TEST REPORT

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HCT-RF-2407-FC038

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Additional Model
SM-S721U1

Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Mobile Phone SM-S721U
Date of Test	May 21, 2024 ~ July 19, 2024
FCC ID	A3LSMS721U
Location of Test	■ Permanent Testing Lab ☐ On Site Testing (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 Republic of Korea)
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Test Standard Used	FCC Rule Part: § 24
Test Results	PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	July 23, 2024	Initial Release

Notice

Content
The measurements shown in this report were made in accordance with the procedures specified in CFR47 section § 2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)
The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s).
The laboratory is not accredited for the test results marked *. Information provided by the applicant is marked **. Test results provided by external providers are marked ***.
When confirmation of authenticity of this test report is required, please contact www.hct.co.kr
The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMS721U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§ 24
EUT Type:	Mobile phone
Model(s):	SM-S721U
Additional Model(s)	SM-S721U1
SCS(kHz):	15
Bandwidth(MHz):	5, 10, 15, 20, 25, 30, 35, 40
Waveform:	CP-OFDM, DFT-S-OFDM
Modulation:	DFT-S-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM
Tx Frequency:	1852.5 MHz – 1907.5 MHz (Sub6 n2 (5 MHz)) 1855.0 MHz – 1905.0 MHz (Sub6 n2 (10 MHz)) 1857.5 MHz – 1902.5 MHz (Sub6 n2 (15 MHz)) 1860.0 MHz – 1900.0 MHz (Sub6 n2 (20 MHz)) 1862.5 MHz – 1897.5 MHz (Sub6 n2 (25 MHz)) 1865.0 MHz – 1895.0 MHz (Sub6 n2 (30 MHz)) 1867.5 MHz – 1892.5 MHz (Sub6 n2 (35 MHz)) 1870.0 MHz – 1890.0 MHz (Sub6 n2 (40 MHz))
Date(s) of Tests:	May 21, 2024 ~ July 19, 2024
Serial number:	Radiated : 67d50ecc63197ece Conducted : R3CX40SV7PD

1.1. MAXIMUM OUTPUT POWER

ANT A

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n2 (5)	1852.5 – 1907.5	4M53G7D	PI/2 BPSK	0.119	20.76
		4M53G7D	QPSK	0.117	20.67
		4M52W7D	16QAM	0.096	19.81
		4M52W7D	64QAM	0.068	18.30
		4M57W7D	256QAM	0.043	16.30
Sub6 n2 (10)	1855.0 - 1905.0	8M98G7D	PI/2 BPSK	0.117	20.67
		9M01G7D	QPSK	0.116	20.65
		8M98W7D	16QAM	0.091	19.61
		9M01W7D	64QAM	0.064	18.08
		8M99W7D	256QAM	0.043	16.31
Sub6 n2 (15)	1857.5 – 1902.5	13M5G7D	PI/2 BPSK	0.116	20.65
		13M5G7D	QPSK	0.115	20.62
		13M5W7D	16QAM	0.091	19.58
		13M5W7D	64QAM	0.065	18.12
		13M4W7D	256QAM	0.042	16.20
Sub6 n2 (20)	1860.0 – 1900.0	17M9G7D	PI/2 BPSK	0.117	20.70
		17M9G7D	QPSK	0.117	20.69
		17M9W7D	16QAM	0.091	19.61
		18M0W7D	64QAM	0.067	18.24
		17M9W7D	256QAM	0.043	16.30
Sub6 n2 (25)	1862.5 – 1897.5	23M0G7D	PI/2 BPSK	0.127	21.03
		23M0G7D	QPSK	0.124	20.94
		23M0W7D	16QAM	0.098	19.93
		23M0W7D	64QAM	0.069	18.40
		22M9W7D	256QAM	0.046	16.63
Sub6 n2 (30)	1865.0 – 1895.0	28M8G7D	PI/2 BPSK	0.127	21.03
		28M7G7D	QPSK	0.125	20.98
		28M7W7D	16QAM	0.098	19.90
		28M8W7D	64QAM	0.071	18.53
		28M7W7D	256QAM	0.045	16.53
Sub6 n2 (35)	1867.5 – 1892.5	32M4G7D	PI/2 BPSK	0.132	21.22
		32M4G7D	QPSK	0.128	21.07
		32M3W7D	16QAM	0.103	20.11
		32M4W7D	64QAM	0.072	18.60
		32M4W7D	256QAM	0.047	16.70
Sub6 n2 (40)	1870.0 – 1890.0	38M8G7D	PI/2 BPSK	0.132	21.19
		38M8G7D	QPSK	0.129	21.11
		38M8W7D	16QAM	0.101	20.06
		38M8W7D	64QAM	0.071	18.54
		38M9W7D	256QAM	0.046	16.63

ANT F

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n2 (5)	1852.5 – 1907.5	4M52G7D	PI/2 BPSK	0.129	21.12
		4M54G7D	QPSK	0.123	20.91
		4M55W7D	16QAM	0.101	20.03
		4M53W7D	64QAM	0.074	18.69
		4M53W7D	256QAM	0.047	16.70
Sub6 n2 (10)	1855.0 - 1905.0	8M99G7D	PI/2 BPSK	0.121	20.84
		9M00G7D	QPSK	0.120	20.79
		8M99W7D	16QAM	0.094	19.72
		9M00W7D	64QAM	0.067	18.28
		8M99W7D	256QAM	0.043	16.33
Sub6 n2 (15)	1857.5 – 1902.5	13M5G7D	PI/2 BPSK	0.119	20.75
		13M5G7D	QPSK	0.119	20.74
		13M5W7D	16QAM	0.092	19.66
		13M5W7D	64QAM	0.068	18.32
		13M5W7D	256QAM	0.043	16.34
Sub6 n2 (20)	1860.0 – 1900.0	17M9G7D	PI/2 BPSK	0.121	20.82
		17M9G7D	QPSK	0.121	20.81
		17M9W7D	16QAM	0.094	19.73
		17M9W7D	64QAM	0.066	18.17
		17M9W7D	256QAM	0.042	16.28
Sub6 n2 (25)	1862.5 – 1897.5	23M0G7D	PI/2 BPSK	0.138	21.40
		23M0G7D	QPSK	0.136	21.32
		23M0W7D	16QAM	0.109	20.36
		22M9W7D	64QAM	0.079	18.98
		23M0W7D	256QAM	0.049	16.93
Sub6 n2 (30)	1865.0 – 1895.0	28M7G7D	PI/2 BPSK	0.130	21.13
		28M8G7D	QPSK	0.126	21.02
		28M7W7D	16QAM	0.101	20.05
		28M7W7D	64QAM	0.071	18.52
		28M8W7D	256QAM	0.045	16.57
Sub6 n2 (35)	1867.5 – 1892.5	32M3G7D	PI/2 BPSK	0.127	21.04
		32M3G7D	QPSK	0.126	21.02
		32M4W7D	16QAM	0.102	20.08
		32M3W7D	64QAM	0.074	18.68
		32M4W7D	256QAM	0.046	16.65
Sub6 n2 (40)	1870.0 – 1890.0	38M7G7D	PI/2 BPSK	0.139	21.43
		38M8G7D	QPSK	0.138	21.41
		38M7W7D	16QAM	0.111	20.46
		38M8W7D	64QAM	0.077	18.86
		38M7W7D	256QAM	0.050	16.97

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub 6, mmWave.
It also supports IEEE 802.11 a/b/g/n/ac/ax (20/40/80/160 MHz), Bluetooth(iPA, ePA), BT LE(iPA, ePA), NFC, WPT, WIFI 6E.

2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.3. TEST FACILITY

The Fully-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.**

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- N/A (See SAR Report)
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4 - ANSI C63.26-2015 – Section 5.2.6(only GSM)
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

3.2 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.
The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-E-2016 Clause 2.2.17.

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5 % of the expected OBW, not to exceed 1 MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points > 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Note

1. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission.
2. A half wave dipole is then substituted in place of the EUT. For emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.
   The power is calculated by the following formula;

$$P_{d\ (dBm)} = Pg_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dB)}$$

   Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.
3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value.
   These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration
4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.
Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA-603-E-2016.

Test Settings

1. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points > 2 x span / RBW
5. Detector = Peak
6. Trace mode = Max Hold
7. The trace was allowed to stabilize
8. Test channel : Low/ Middle/ High
9. Frequency range : We are performed all frequency to 10^{th} harmonics from 9 kHz.

Test Note

1. Measurements value show only up to 3 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
2. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the test data
3. For spurious emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated. The spurious emissions is calculated by the following formula;

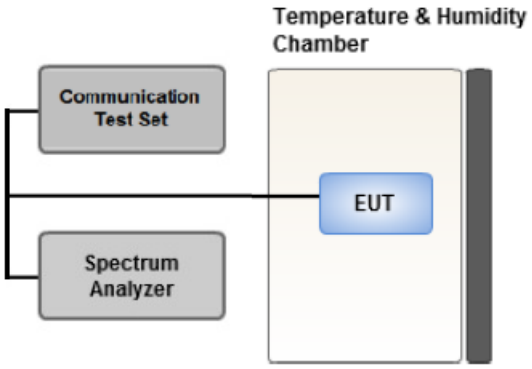
$$\text{Result}_{(dBm)} = Pg_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

Where: P_g is the generator output power into the substitution antenna.

If the fundamental frequency is below 1 GHz, RF output power has been converted to EIRP.

$$EIRP_{(dBm)} = ERP_{(dBm)} + 2.15$$

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Set the measurement interval as follows:
   .- for continuous transmissions, set to 1 ms,
   .- or 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 and set the measurement interval to a time that is less than or equal to the burst duration.
4. Record the maximum PAPR level associated with a probability of 0.1 %.

② Alternate Procedure for PAPR

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as P_{Pk}. Use one of the applicable procedures presented 5.2(ANSI C63.26-2015) to measure the total average power and record as P_{Avg}. Determine the P.A.R. from:

$$P.A.R_{(dB)} = P_{Pk\ (dBm)} - P_{Avg\ (dBm)}\ (P_{Avg} = \text{Average Power} + \text{Duty cycle Factor})$$

Test Settings(Peak Power)

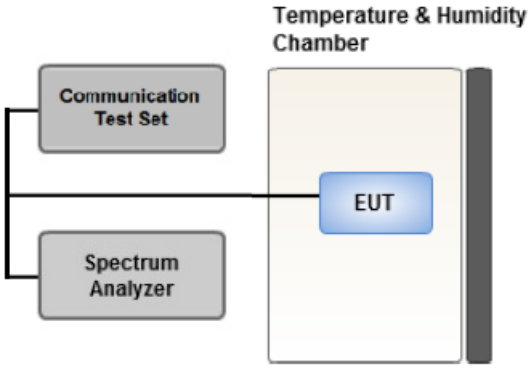
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

1. Set the RBW ≥ OBW.
2. Set VBW ≥ 3 × RBW.
3. Set span ≥ 2 × OBW.
4. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period).
5. Detector = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the peak amplitude level.

Test Settings(Average Power)

1. Set span to 2 × to 3 × the OBW.
2. Set RBW ≥ OBW.
3. Set VBW ≥ 3 × RBW.
4. Set number of measurement points in sweep ≥ 2 × span / RBW.
5. Sweep time:
   Set ≥ [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. The transmission period is the (on + off) time.
6. Detector = power averaging (rms).
7. Set sweep trigger to "free run."
8. 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 the on and off period of the transmitter, 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.)
9. Use the peak marker function to determine the maximum amplitude level.
10. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25 %.

3.5 OCCUPIED BANDWIDTH.



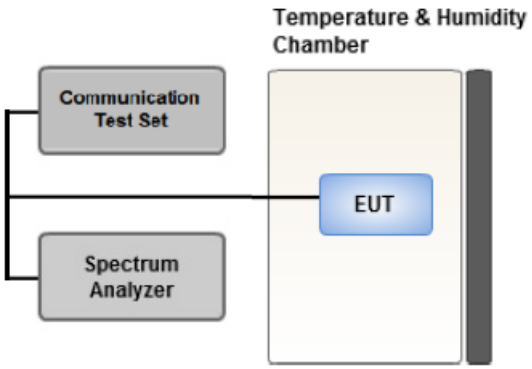
Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.
The EUT makes a call to the communication simulator.
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99 % occupied bandwidth and the 26 dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5 % of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5 % of the 99 % occupied bandwidth observed in Step 7

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

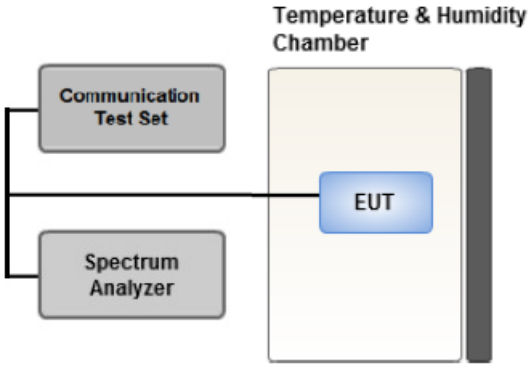
Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = RMS
4. Trace Mode = trace average
5. Sweep time = auto
6. Number of points in sweep ≥ 2 x Span / RBW

3.7 BAND EDGE



Test setup

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

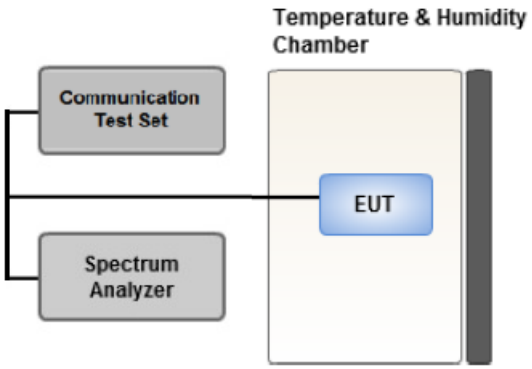
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW > 1 % of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.
All measurements were done at 2 channels(low and high operational frequency range.)
The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

Where Margin < 1 dB the emission level is either corrected by 10 log(1 MHz/ RB) or the emission is integrated over a 1 MHz bandwidth to determine the final result. When using the integration method the integration window is either centered on the emission or, for emissions at the band edge, centered by an offset of 500 kHz from the block edge so that the integration window is the 1 MHz adjacent to the block edge.

3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015.
The frequency stability of the transmitter is measured by:

1. Temperature:
   The temperature is varied from -30 °C to +50 °C in 10 °C increments using an environmental chamber.
2. Primary Supply Voltage:
   .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.
   .- 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.

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20 °C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter.
   Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

3.9 WORST CASE(RADIATED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.
  (Worst case: DFT-S-OFDM)
- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.
  Mode: NSA, SA
  Worst case: SA
  Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
  Worst case : Stand alone
- All simultaneous transmission scenarios of operation were investigated, and the test results showed no additional significant emissions relative to the least restrictive limit were observed.
  Therefore, only the worst case(stand-alone) results were reported.
- Radiated Spurious emissions are measured while operating in EN-DC mode with Sub 6 NR carrier as well as an LTE carrier (anchor).
  All EN-DC mode of operation (=anchor) were investigated and the test results were measured No Peak Found.
  The test results which are attenuated more than 20 dB below the permissible value, so it was not reported.
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
  Please refer to the table below.
- In the case of radiated spurious emissions, all bandwidth of operation was investigated and the worst case bandwidth results are reported. (Worst case : 35 MHz(Ant A), 40 MHz(Ant F))
- SM-S721U & additional models were tested and the worst case results are reported.
  (Worst case : SM-S721U)

[ANT A Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 8.1		Z
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 8.1		X

[ANT F Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 8.1		Z
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 8.1		X

3.10 WORST CASE(CONDUCTED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.
  (Worst case: DFT-S-OFDM)
- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported.
  (Worst case: PI/2 BPSK)
- All modes of operation were investigated and the worst case configuration results are reported.
  Mode: SA, NSA
  Worst case: SA
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
  Please refer to the table below.
- SM-S721U & additional models were tested and the worst case results are reported.
  (Worst case : SM-S721U)

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth, Peak-To-Average Ratio	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	5, 10, 15, 20, 25,30, 35, 40	Mid	Full RB	0
Band Edge	PI/2 BPSK	5	Low	1	0
			High	1	24
		10	Low	1	0
			High	1	51
		15	Low	1	0
			High	1	78
		20	Low	1	0
			High	1	105
		25	Low	1	0
			High	1	132
		30	Low	1	0
			High	1	159
		35	Low	1	0
			High	1	187
		40	Low	1	0
			High	1	215
		5, 10, 15, 20, 25,30, 35, 40	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	5, 10, 15, 20, 25,30, 35, 40	Low, Mid, High	1	1

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacture	Serial No.	Due to Calibration	Calibration Interval
Precision Dipole Antenna	UHAP	Schwarzbeck	01273	03/10/2026	Biennial
Precision Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	02289	02/14/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1299	04/27/2025	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Loop Antenna(9 kHz~30 MHz)	FMZB1513	Rohde & Schwarz	1513-175	01/16/2025	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/09/2025	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/24/2025	Biennial
RF Switching System	FBSR-06B (1G HPF + LNA)	T&M SYSTEM	F3L1	05/14/2025	Annual
RF Switching System	FBSR-06B (3G HPF + LNA)	T&M SYSTEM	F3L2	05/14/2025	Annual
RF Switching System	FBSR-06B (6G HPF + LNA)	T&M SYSTEM	F3L3	05/14/2025	Annual
RF Switching System	FBSR-06B (LNA)	T&M SYSTEM	F3L4	05/14/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/17/2024	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	08/25/2024	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	02/29/2025	Annual
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Signal Analyzer(10 Hz~26.5 GHz)	N9020A	Agilent	MY51110063	04/04/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz~40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/13/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/10/2024	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/16/2025	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6262302511	05/14/2025	Annual
Signal Analyzer(5 Hz~40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/19/2024	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

1. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
2. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014.

All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, k=2)

6. SUMMARY OF TEST RESULTS

6.1 Test Condition: Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 24.238(a)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	See Note1
Peak- to- Average Ratio	§ 24.232(d)	< 13 dB	PASS
Frequency stability / variation of ambient temperature	§ 24.235	Emission must remain in band	PASS

Note:

1. See SAR Report

2. All conducted tests were tested using 5G Wireless Tester.

6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§ 24.232(c)	< 2 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 24.238(a)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

Note:

1. Radiated tests were tested using 5G Wireless Tester.

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	ERP	
channel	Freq.(MHz)						W	dBm
128	824.20	-21.37	38.40	-10.61	0.95	H	0.483	26.84

ERP = Substitute LEVEL(dBm) + Ant. Gain – CL(Cable Loss)

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
2) During the test, the turn table is rotated until the maximum signal is found.
3) Record the field strength meter's level.
4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power.

7.2 EIRP Sample Calculation

Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	EIRP	
channel	Freq.(MHz)						W	dBm
20175	1,732.50	-15.75	18.45	9.90	1.76	H	0.456	26.59

EIRP = Substitute LEVEL(dBm) + Ant. Gain – CL(Cable Loss)

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
2) During the test, the turn table is rotated until the maximum signal is found.
3) Record the field strength meter's level.
4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
6) The signal generator output level with Ant. Gain and cable loss are the rating of equivalent isotropic radiated power.

7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW
GSM BW = 249 kHz
G = Phase Modulation
X = Cases not otherwise covered
W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W
GSM BW = 249 kHz
G = Phase Modulation
7 = Quantized/Digital Info
W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W
WCDMA BW = 4.17 MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D
LTE BW = 4.48 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission; telemetry; telecommand

QAM Modulation

Emission Designator = 4M48W7D
LTE BW = 4.48 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission; telemetry; telecommand

8. TEST DATA(Ant A)

8.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1852.5	Sub6 n2/ 5 MHz [15 kHz]	PI/2 BPSK	-20.94	12.88	10.00	2.12	V	< 2.00	0.119	20.76	1	12
		QPSK	-21.03	12.79	10.00	2.12	V		0.117	20.67		
		16-QAM	-21.89	11.93	10.00	2.12	V		0.096	19.81		
		64-QAM	-23.40	10.42	10.00	2.12	V		0.068	18.30		
		256-QAM	-25.40	8.42	10.00	2.12	V		0.043	16.30		
1880.0		PI/2 BPSK	-21.00	12.60	10.00	2.21	V		0.109	20.39	1	12
		QPSK	-21.02	12.58	10.00	2.21	V		0.109	20.37		
		16-QAM	-22.01	11.59	10.00	2.21	V		0.087	19.38		
		64-QAM	-23.56	10.04	10.00	2.21	V		0.061	17.83		
		256-QAM	-25.37	8.23	10.00	2.21	V		0.040	16.02		
1907.5		PI/2 BPSK	-21.22	12.80	10.01	2.11	V		0.117	20.70	1	12
		QPSK	-21.38	12.64	10.01	2.11	V		0.113	20.54		
		16-QAM	-22.31	11.71	10.01	2.11	V		0.091	19.61		
		64-QAM	-23.74	10.28	10.01	2.11	V		0.066	18.18		
		256-QAM	-25.74	8.28	10.01	2.11	V		0.042	16.18		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1855.0	Sub6 n2/ 10 MHz [15 kHz]	PI/2 BPSK	-21.05	12.54	10.00	2.15	V	< 2.00	0.109	20.39	1	1
		QPSK	-21.10	12.49	10.00	2.15	V		0.108	20.34		
		16-QAM	-22.14	11.45	10.00	2.15	V		0.085	19.30		
		64-QAM	-23.46	10.13	10.00	2.15	V		0.063	17.98		
		256-QAM	-25.47	8.12	10.00	2.15	V		0.040	15.97		
1880.0		PI/2 BPSK	-21.02	12.58	10.00	2.21	V		0.109	20.37	1	26
		QPSK	-21.04	12.56	10.00	2.21	V		0.108	20.35		
		16-QAM	-21.97	11.63	10.00	2.21	V		0.088	19.42		
		64-QAM	-23.37	10.23	10.00	2.21	V		0.063	18.02		
		256-QAM	-25.39	8.21	10.00	2.21	V		0.040	16.00		
1905.0		PI/2 BPSK	-21.18	12.79	10.01	2.13	V		0.117	20.67	1	1
		QPSK	-21.20	12.77	10.01	2.13	V		0.116	20.65		
		16-QAM	-22.24	11.73	10.01	2.13	V		0.091	19.61		
		64-QAM	-23.77	10.20	10.01	2.13	V		0.064	18.08		
		256-QAM	-25.54	8.43	10.01	2.13	V		0.043	16.31		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1857.5	Sub6 n2/ 15 MHz [15 kHz]	PI/2 BPSK	-21.12	12.22	10.00	2.17	V	< 2.00	0.101	20.05	1	1
		QPSK	-21.13	12.21	10.00	2.17	V		0.101	20.04		
		16-QAM	-22.15	11.19	10.00	2.17	V		0.080	19.02		
		64-QAM	-23.58	9.76	10.00	2.17	V		0.057	17.59		
		256-QAM	-25.48	7.86	10.00	2.17	V		0.037	15.69		
1880.0		PI/2 BPSK	-20.86	12.74	10.00	2.21	V		0.113	20.53	1	77
		QPSK	-21.01	12.59	10.00	2.21	V		0.109	20.38		
		16-QAM	-22.00	11.60	10.00	2.21	V		0.087	19.39		
		64-QAM	-23.43	10.17	10.00	2.21	V		0.063	17.96		
		256-QAM	-25.30	8.30	10.00	2.21	V		0.041	16.09		
1902.5		PI/2 BPSK	-21.12	12.79	10.01	2.15	V		0.116	20.65	1	1
		QPSK	-21.15	12.76	10.01	2.15	V		0.115	20.62		
		16-QAM	-22.19	11.72	10.01	2.15	V		0.091	19.58		
		64-QAM	-23.65	10.26	10.01	2.15	V		0.065	18.12		
		256-QAM	-25.57	8.34	10.01	2.15	V		0.042	16.20		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1860.0	Sub6 n2/ 20 MHz [15 kHz]	PI/2 BPSK	-20.98	12.36	10.00	2.17	V	< 2.00	0.105	20.19	1	53
		QPSK	-21.00	12.34	10.00	2.17	V		0.104	20.17		
		16-QAM	-22.09	11.25	10.00	2.17	V		0.081	19.08		
		64-QAM	-23.42	9.92	10.00	2.17	V		0.060	17.75		
		256-QAM	-25.30	8.04	10.00	2.17	V		0.039	15.87		
1880.0		PI/2 BPSK	-21.00	12.60	10.00	2.21	V		0.109	20.39	1	1
		QPSK	-21.02	12.58	10.00	2.21	V		0.109	20.37		
		16-QAM	-22.03	11.57	10.00	2.21	V		0.086	19.36		
		64-QAM	-23.48	10.12	10.00	2.21	V		0.062	17.91		
		256-QAM	-25.38	8.22	10.00	2.21	V		0.040	16.01		
1900.0		PI/2 BPSK	-21.07	12.84	10.01	2.15	V		0.117	20.70	1	1
		QPSK	-21.08	12.83	10.01	2.15	V		0.117	20.69		
		16-QAM	-22.16	11.75	10.01	2.15	V		0.091	19.61		
		64-QAM	-23.53	10.38	10.01	2.15	V		0.067	18.24		
		256-QAM	-25.47	8.44	10.01	2.15	V		0.043	16.30		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1862.5	Sub6 n2/ 25 MHz [15 kHz]	PI/2 BPSK	-21.06	12.28	10.00	2.17	V	< 2.00	0.103	20.11	1	1
		QPSK	-21.07	12.27	10.00	2.17	V		0.102	20.10		
		16-QAM	-22.02	11.32	10.00	2.17	V		0.082	19.15		
		64-QAM	-23.51	9.83	10.00	2.17	V		0.058	17.66		
		256-QAM	-25.48	7.86	10.00	2.17	V		0.037	15.69		
1880.0		PI/2 BPSK	-20.85	12.75	10.00	2.21	V		0.113	20.54	1	66
		QPSK	-20.93	12.67	10.00	2.21	V		0.111	20.46		
		16-QAM	-21.87	11.73	10.00	2.21	V		0.090	19.52		
		64-QAM	-23.38	10.22	10.00	2.21	V		0.063	18.01		
		256-QAM	-25.26	8.34	10.00	2.21	V		0.041	16.13		
1897.5		PI/2 BPSK	-20.90	13.18	10.01	2.16	V		0.127	21.03	1	1
		QPSK	-20.99	13.09	10.01	2.16	V		0.124	20.94		
		16-QAM	-22.00	12.08	10.01	2.16	V		0.098	19.93		
		64-QAM	-23.53	10.55	10.01	2.16	V		0.069	18.40		
		256-QAM	-25.30	8.78	10.01	2.16	V		0.046	16.63		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1865.0	Sub6 n2/ 30 MHz [15 kHz]	PI/2 BPSK	-21.08	12.55	10.00	2.19	V	< 2.00	0.109	20.36	1	1
		QPSK	-21.10	12.53	10.00	2.19	V		0.108	20.34		
		16-QAM	-22.14	11.49	10.00	2.19	V		0.085	19.30		
		64-QAM	-23.58	10.05	10.00	2.19	V		0.061	17.86		
		256-QAM	-25.46	8.17	10.00	2.19	V		0.040	15.98		
1880.0		PI/2 BPSK	-20.90	12.70	10.00	2.21	V		0.112	20.49	1	158
		QPSK	-20.93	12.67	10.00	2.21	V		0.111	20.46		
		16-QAM	-21.90	11.70	10.00	2.21	V		0.089	19.49		
		64-QAM	-23.33	10.27	10.00	2.21	V		0.064	18.06		
		256-QAM	-25.30	8.30	10.00	2.21	V		0.041	16.09		
1895.0		PI/2 BPSK	-20.90	13.18	10.01	2.16	V		0.127	21.03	1	80
		QPSK	-20.95	13.13	10.01	2.16	V		0.125	20.98		
		16-QAM	-22.03	12.05	10.01	2.16	V		0.098	19.90		
		64-QAM	-23.40	10.68	10.01	2.16	V		0.071	18.53		
		256-QAM	-25.40	8.68	10.01	2.16	V		0.045	16.53		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1867.5	Sub6 n2/ 35 MHz [15 kHz]	PI/2 BPSK	-21.05	12.58	10.00	2.19	V	< 2.00	0.109	20.39	1	1
		QPSK	-21.15	12.48	10.00	2.19	V		0.107	20.29		
		16-QAM	-22.08	11.55	10.00	2.19	V		0.086	19.36		
		64-QAM	-23.57	10.06	10.00	2.19	V		0.061	17.87		
		256-QAM	-25.46	8.17	10.00	2.19	V		0.040	15.98		
1880.0		PI/2 BPSK	-20.78	12.82	10.00	2.21	V		0.115	20.61	1	94
		QPSK	-21.03	12.57	10.00	2.21	V		0.109	20.36		
		16-QAM	-22.04	11.56	10.00	2.21	V		0.086	19.35		
		64-QAM	-23.38	10.22	10.00	2.21	V		0.063	18.01		
		256-QAM	-25.44	8.16	10.00	2.21	V		0.039	15.95		
1892.5		PI/2 BPSK	-20.71	13.37	10.01	2.16	V		0.132	21.22	1	94
		QPSK	-20.86	13.22	10.01	2.16	V		0.128	21.07		
		16-QAM	-21.82	12.26	10.01	2.16	V		0.103	20.11		
		64-QAM	-23.33	10.75	10.01	2.16	V		0.072	18.60		
		256-QAM	-25.23	8.85	10.01	2.16	V		0.047	16.70		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1870.0	Sub6 n2/ 40 MHz [15 kHz]	PI/2 BPSK	-21.07	12.84	10.00	2.21	V	< 2.00	0.116	20.63	1	1
		QPSK	-21.09	12.82	10.00	2.21	V		0.115	20.61		
		16-QAM	-22.05	11.86	10.00	2.21	V		0.092	19.65		
		64-QAM	-23.55	10.36	10.00	2.21	V		0.065	18.15		
		256-QAM	-25.49	8.42	10.00	2.21	V		0.042	16.21		
1880.0		PI/2 BPSK	-20.95	12.65	10.00	2.21	V		0.111	20.44	1	108
		QPSK	-20.96	12.64	10.00	2.21	V		0.110	20.43		
		16-QAM	-21.88	11.72	10.00	2.21	V		0.089	19.51		
		64-QAM	-23.45	10.15	10.00	2.21	V		0.062	17.94		
		256-QAM	-25.30	8.30	10.00	2.21	V		0.041	16.09		
1890.0		PI/2 BPSK	-20.90	13.37	10.00	2.18	V		0.132	21.19	1	108
		QPSK	-20.98	13.29	10.00	2.18	V		0.129	21.11		
		16-QAM	-22.03	12.24	10.00	2.18	V		0.101	20.06		
		64-QAM	-23.55	10.72	10.00	2.18	V		0.071	18.54		
		256-QAM	-25.46	8.81	10.00	2.18	V		0.046	16.63		

8.2 RADIATED SPURIOUS EMISSIONS

▣ NR Band: N2
▣ Bandwidth: 35 MHz
▣ Modulation: PI/2 BPSK
▣ Distance: 3 meters
▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
373500 (1867.5)	3 735.00	-34.17	11.40	-35.29	3.12	H	-27.01	-13.00	1	1
	5 602.50	-51.28	11.90	-46.28	3.79	V	-38.17	-13.00		
	7 470.00	-64.24	10.90	-49.92	4.49	H	-43.51	-13.00		
376000 (1880.0)	3 760.00	-51.21	11.30	-51.34	3.07	H	-43.11	-13.00	1	94
	5 640.00	-62.78	11.90	-57.18	3.89	H	-49.17	-13.00		
	7 520.00	-64.94	11.10	-50.71	4.51	H	-44.12	-13.00		
378500 (1892.5)	3 785.00	-52.76	11.30	-52.98	3.16	H	-44.84	-13.00	1	94
	5 677.50	-62.59	11.80	-56.31	3.88	V	-48.39	-13.00		
	7 570.00	-64.91	11.10	-50.97	4.53	V	-44.40	-13.00		

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n2	5 MHz	1880.0	BPSK	25	0	4.34
			QPSK			5.24
			16-QAM			5.87
			64-QAM			6.18
			256-QAM			6.57
	10 MHz		BPSK	50		4.25
			QPSK			5.12
			16-QAM			5.74
			64-QAM			6.01
			256-QAM			6.26
	15 MHz		BPSK	75		4.39
			QPSK			5.06
			16-QAM			5.67
			64-QAM			5.90
			256-QAM			6.23
	20 MHz		BPSK	100		4.13
			QPSK			5.08
			16-QAM			5.65
			64-QAM			5.95
			256-QAM			6.29

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n2	25 MHz	1880.0	BPSK	128	0	4.71
			QPSK			5.14
			16-QAM			5.72
			64-QAM			6.00
			256-QAM			6.29
	30 MHz		BPSK	160		4.43
			QPSK			5.16
			16-QAM			5.80
			64-QAM			5.99
			256-QAM			6.31
	35 MHz		BPSK	180		4.23
			QPSK			5.18
			16-QAM			5.81
			64-QAM			5.99
			256-QAM			6.41
	40 MHz		BPSK	216		4.40
			QPSK			5.21
			16-QAM			5.81
			64-QAM			6.02
			256-QAM			6.45

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 72 ~ 111.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n2	5 MHz	1880.0	BPSK	25	0	4.5301
			QPSK			4.5256
			16-QAM			4.5244
			64-QAM			4.5236
			256-QAM			4.5728
	10 MHz		BPSK	50		8.9797
			QPSK			9.0109
			16-QAM			8.9838
			64-QAM			9.0073
			256-QAM			8.9928
	15 MHz		BPSK	75		13.447
			QPSK			13.469
			16-QAM			13.469
			64-QAM			13.484
			256-QAM			13.418
	20 MHz		BPSK	100		17.898
			QPSK			17.929
			16-QAM			17.901
			64-QAM			17.961
			256-QAM			17.932

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n2	25 MHz	1880.0	BPSK	128	0	23.002
			QPSK			23.019
			16-QAM			23.036
			64-QAM			22.981
			256-QAM			22.940
	30 MHz		BPSK	160		28.766
			QPSK			28.735
			16-QAM			28.703
			64-QAM			28.746
			256-QAM			28.743
	35 MHz		BPSK	180		32.377
			QPSK			32.348
			16-QAM			32.332
			64-QAM			32.424
			256-QAM			32.351
	40 MHz		BPSK	216		38.818
			QPSK			38.808
			16-QAM			38.785
			64-QAM			38.788
			256-QAM			38.896

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 112 ~ 151.

8.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n2	5	1852.5	4.0300	29.800	-69.724	-39.924	-13.00
		1880.0	4.0464	29.800	-69.598	-39.798	
		1907.5	4.0369	29.800	-69.863	-40.063	
	10	1855.0	3.7887	29.800	-69.656	-39.856	
		1880.0	3.7653	29.800	-69.472	-39.672	
		1905.0	4.0409	29.800	-69.382	-39.582	
	15	1857.5	3.7742	29.800	-69.598	-39.798	
		1880.0	4.0245	29.800	-69.378	-39.578	
		1902.5	9.9840	30.415	-69.373	-38.958	
	20	1860.0	3.7967	29.800	-69.080	-39.280	
		1880.0	3.8111	29.800	-69.584	-39.784	
		1900.0	4.0703	29.800	-69.667	-39.867	
	25	1862.5	3.7902	29.800	-69.046	-39.246	
		1880.0	3.7912	29.800	-69.519	-39.719	
		1897.5	4.0474	29.800	-69.427	-39.627	
	30	1865.0	3.8046	29.800	-69.412	-39.612	
		1880.0	3.8017	29.800	-69.519	-39.719	
		1895.0	3.8146	29.800	-69.493	-39.693	
	35	1867.5	9.6979	30.415	-69.419	-39.004	
		1880.0	9.7353	30.415	-69.529	-39.114	
		1892.5	3.7598	29.800	-69.597	-39.797	
	40	1870.0	4.9642	29.800	-69.502	-39.702	
		1880.0	3.7603	29.800	-69.553	-39.753	
		1890.0	3.7997	29.800	-69.642	-39.842	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 152 ~ 199.
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. Factor(dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.094
1 – 5	29.800
5 – 10	30.415
10 – 15	30.940
15 – 20	31.313
Above 20	31.955

8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 200 ~ 247.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ BandWidth: 5 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1852.5	100 %	+20(Ref)	1852 499 998	0.0	0.000 000	0.000
	100 %	-30	1852 499 997	-1.3	0.000 000	-0.001
	100 %	-20	1852 499 998	-0.6	0.000 000	0.000
	100 %	-10	1852 499 998	-0.4	0.000 000	0.000
	100 %	0	1852 499 998	-0.2	0.000 000	0.000
	100 %	+10	1852 499 997	-0.9	0.000 000	0.000
	100 %	+30	1852 499 997	-0.6	0.000 000	0.000
	100 %	+40	1852 499 999	0.4	0.000 000	0.000
	100 %	+50	1852 499 998	0.3	0.000 000	0.000
	Batt. Endpoint	+20	1852 499 997	-1.0	0.000 000	-0.001
1907.5	100 %	+20(Ref)	1907 500 000	0.0	0.000 000	0.000
	100 %	-30	1907 500 001	0.5	0.000 000	0.000
	100 %	-20	1907 499 999	-0.9	0.000 000	0.000
	100 %	-10	1907 500 000	0.3	0.000 000	0.000
	100 %	0	1907 500 000	-0.3	0.000 000	0.000
	100 %	+10	1907 500 000	-0.2	0.000 000	0.000
	100 %	+30	1907 500 000	-0.6	0.000 000	0.000
	100 %	+40	1907 499 999	-1.1	0.000 000	-0.001
	100 %	+50	1907 499 999	-1.4	0.000 000	-0.001
	Batt. Endpoint	+20	1907 499 999	-1.1	0.000 000	-0.001

▣ BandWidth: 10 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1855.0	100 %	+20(Ref)	1855 000 000	0.0	0.000 000	0.000
	100 %	-30	1855 000 000	0.0	0.000 000	0.000
	100 %	-20	1855 000 000	0.8	0.000 000	0.000
	100 %	-10	1855 000 001	1.0	0.000 000	0.001
	100 %	0	1855 000 000	0.1	0.000 000	0.000
	100 %	+10	1854 999 999	-0.1	0.000 000	0.000
	100 %	+30	1855 000 001	1.4	0.000 000	0.001
	100 %	+40	1855 000 000	-0.1	0.000 000	0.000
	100 %	+50	1855 000 000	0.0	0.000 000	0.000
	Batt. Endpoint	+20	1855 000 000	0.2	0.000 000	0.000
1905.0	100 %	+20(Ref)	1905 000 001	0.0	0.000 000	0.000
	100 %	-30	1905 000 001	0.4	0.000 000	0.000
	100 %	-20	1905 000 001	0.6	0.000 000	0.000
	100 %	-10	1905 000 001	0.1	0.000 000	0.000
	100 %	0	1905 000 000	-0.3	0.000 000	0.000
	100 %	+10	1905 000 001	-0.1	0.000 000	0.000
	100 %	+30	1905 000 000	-0.7	0.000 000	0.000
	100 %	+40	1905 000 002	1.1	0.000 000	0.001
	100 %	+50	1905 000 002	1.0	0.000 000	0.001
	Batt. Endpoint	+20	1905 000 001	0.3	0.000 000	0.000

▣ BandWidth: 15 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1857.5	100 %	+20(Ref)	1857 499 999	0.0	0.000 000	0.000
	100 %	-30	1857 499 997	-2.1	0.000 000	-0.001
	100 %	-20	1857 499 997	-1.4	0.000 000	-0.001
	100 %	-10	1857 499 998	-1.0	0.000 000	-0.001
	100 %	0	1857 499 997	-1.3	0.000 000	-0.001
	100 %	+10	1857 499 996	-2.9	0.000 000	-0.002
	100 %	+30	1857 499 996	-3.0	0.000 000	-0.002
	100 %	+40	1857 499 997	-1.5	0.000 000	-0.001
	100 %	+50	1857 499 998	-0.6	0.000 000	0.000
	Batt. Endpoint	+20	1857 499 996	-2.7	0.000 000	-0.001
1902.5	100 %	+20(Ref)	1902 500 000	0.0	0.000 000	0.000
	100 %	-30	1902 499 999	-0.8	0.000 000	0.000
	100 %	-20	1902 499 999	-0.4	0.000 000	0.000
	100 %	-10	1902 499 999	-0.3	0.000 000	0.000
	100 %	0	1902 499 998	-1.8	0.000 000	-0.001
	100 %	+10	1902 499 999	-0.3	0.000 000	0.000
	100 %	+30	1902 500 000	0.7	0.000 000	0.000
	100 %	+40	1902 499 999	-1.0	0.000 000	-0.001
	100 %	+50	1902 499 999	-0.8	0.000 000	0.000
	Batt. Endpoint	+20	1902 499 999	-0.8	0.000 000	0.000

▣ BandWidth: 20 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1860.0	100 %	+20(Ref)	1860 000 000	0.0	0.000 000	0.000
	100 %	-30	1859 999 999	-1.1	0.000 000	-0.001
	100 %	-20	1860 000 000	0.1	0.000 000	0.000
	100 %	-10	1859 999 999	-0.1	0.000 000	0.000
	100 %	0	1859 999 999	-1.0	0.000 000	-0.001
	100 %	+10	1859 999 998	-2.1	0.000 000	-0.001
	100 %	+30	1859 999 999	-0.9	0.000 000	0.000
	100 %	+40	1859 999 999	-1.0	0.000 000	-0.001
	100 %	+50	1860 000 000	0.1	0.000 000	0.000
	Batt. Endpoint	+20	1860 000 000	0.4	0.000 000	0.000
1900.0	100 %	+20(Ref)	1900 000 001	0.0	0.000 000	0.000
	100 %	-30	1900 000 001	0.1	0.000 000	0.000
	100 %	-20	1900 000 000	-1.2	0.000 000	-0.001
	100 %	-10	1900 000 000	-0.6	0.000 000	0.000
	100 %	0	1900 000 000	-1.3	0.000 000	-0.001
	100 %	+10	1900 000 000	-0.8	0.000 000	0.000
	100 %	+30	1900 000 002	0.9	0.000 000	0.000
	100 %	+40	1900 000 002	1.0	0.000 000	0.001
	100 %	+50	1900 000 001	-0.2	0.000 000	0.000
	Batt. Endpoint	+20	1900 000 000	-0.8	0.000 000	0.000

▣ BandWidth: 25 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1862.5	100 %	+20(Ref)	1862 500 000	0.0	0.000 000	0.000
	100 %	-30	1862 499 997	-2.7	0.000 000	-0.001
	100 %	-20	1862 499 999	-0.3	0.000 000	0.000
	100 %	-10	1862 499 999	-0.5	0.000 000	0.000
	100 %	0	1862 499 998	-1.6	0.000 000	-0.001
	100 %	+10	1862 499 998	-1.6	0.000 000	-0.001
	100 %	+30	1862 500 000	-0.1	0.000 000	0.000
	100 %	+40	1862 499 998	-1.8	0.000 000	-0.001
	100 %	+50	1862 499 999	-1.1	0.000 000	-0.001
	Batt. Endpoint	+20	1862 499 999	-0.9	0.000 000	0.000
1897.5	100 %	+20(Ref)	1897 499 999	0.0	0.000 000	0.000
	100 %	-30	1897 499 998	-1.0	0.000 000	-0.001
	100 %	-20	1897 499 998	-1.0	0.000 000	-0.001
	100 %	-10	1897 499 999	0.1	0.000 000	0.000
	100 %	0	1897 499 999	0.1	0.000 000	0.000
	100 %	+10	1897 499 998	-0.8	0.000 000	0.000
	100 %	+30	1897 499 999	-0.2	0.000 000	0.000
	100 %	+40	1897 499 999	-0.6	0.000 000	0.000
	100 %	+50	1897 499 998	-1.0	0.000 000	-0.001
	Batt. Endpoint	+20	1897 500 000	0.7	0.000 000	0.000

▣ BandWidth: 30 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1865.0	100 %	+20(Ref)	1865 000 001	0.0	0.000 000	0.000
	100 %	-30	1865 000 000	-0.9	0.000 000	0.000
	100 %	-20	1864 999 999	-1.1	0.000 000	-0.001
	100 %	-10	1865 000 000	-0.8	0.000 000	0.000
	100 %	0	1865 000 002	1.6	0.000 000	0.001
	100 %	+10	1865 000 000	-0.6	0.000 000	0.000
	100 %	+30	1865 000 001	0.0	0.000 000	0.000
	100 %	+40	1865 000 000	-0.9	0.000 000	0.000
	100 %	+50	1865 000 000	-0.2	0.000 000	0.000
	Batt. Endpoint	+20	1865 000 002	1.1	0.000 000	0.001
1895.0	100 %	+20(Ref)	1894 999 998	0.0	0.000 000	0.000
	100 %	-30	1894 999 999	1.1	0.000 000	0.001
	100 %	-20	1894 999 999	0.5	0.000 000	0.000
	100 %	-10	1894 999 999	0.5	0.000 000	0.000
	100 %	0	1894 999 998	-0.2	0.000 000	0.000
	100 %	+10	1894 999 997	-0.9	0.000 000	0.000
	100 %	+30	1894 999 999	0.5	0.000 000	0.000
	100 %	+40	1894 999 997	-1.0	0.000 000	-0.001
	100 %	+50	1894 999 998	-0.2	0.000 000	0.000
	Batt. Endpoint	+20	1894 999 998	0.4	0.000 000	0.000

▣ BandWidth: 35 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1867.5	100 %	+20(Ref)	1867 500 000	0.0	0.000 000	0.000
	100 %	-30	1867 500 000	-0.2	0.000 000	0.000
	100 %	-20	1867 499 998	-1.8	0.000 000	-0.001
	100 %	-10	1867 500 000	0.2	0.000 000	0.000
	100 %	0	1867 499 999	-1.0	0.000 000	-0.001
	100 %	+10	1867 499 999	-0.5	0.000 000	0.000
	100 %	+30	1867 499 999	-0.8	0.000 000	0.000
	100 %	+40	1867 500 000	0.2	0.000 000	0.000
	100 %	+50	1867 499 999	-0.8	0.000 000	0.000
	Batt. Endpoint	+20	1867 500 000	-0.1	0.000 000	0.000
1892.5	100 %	+20(Ref)	1892 499 998	0.0	0.000 000	0.000
	100 %	-30	1892 499 997	-1.3	0.000 000	-0.001
	100 %	-20	1892 499 998	-0.2	0.000 000	0.000
	100 %	-10	1892 499 997	-0.9	0.000 000	0.000
	100 %	0	1892 499 996	-1.8	0.000 000	-0.001
	100 %	+10	1892 499 997	-1.4	0.000 000	-0.001
	100 %	+30	1892 499 997	-0.8	0.000 000	0.000
	100 %	+40	1892 499 996	-2.0	0.000 000	-0.001
	100 %	+50	1892 499 997	-1.4	0.000 000	-0.001
	Batt. Endpoint	+20	1892 499 997	-1.7	0.000 000	-0.001

▣ BandWidth: 40 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1870.0	100 %	+20(Ref)	1870 000 000	0.0	0.000 000	0.000
	100 %	-30	1870 000 000	-0.6	0.000 000	0.000
	100 %	-20	1869 999 999	-1.3	0.000 000	-0.001
	100 %	-10	1870 000 000	-0.4	0.000 000	0.000
	100 %	0	1869 999 999	-1.4	0.000 000	-0.001
	100 %	+10	1870 000 000	-0.2	0.000 000	0.000
	100 %	+30	1870 000 001	0.7	0.000 000	0.000
	100 %	+40	1870 000 000	-0.7	0.000 000	0.000
	100 %	+50	1869 999 998	-2.1	0.000 000	-0.001
	Batt. Endpoint	+20	1870 000 001	0.2	0.000 000	0.000
1890.0	100 %	+20(Ref)	1890 000 000	0.0	0.000 000	0.000
	100 %	-30	1890 000 001	0.4	0.000 000	0.000
	100 %	-20	1890 000 000	0.0	0.000 000	0.000
	100 %	-10	1890 000 000	-0.6	0.000 000	0.000
	100 %	0	1890 000 000	-0.2	0.000 000	0.000
	100 %	+10	1889 999 999	-1.3	0.000 000	-0.001
	100 %	+30	1890 000 000	-0.2	0.000 000	0.000
	100 %	+40	1889 999 999	-1.2	0.000 000	-0.001
	100 %	+50	1890 000 000	-0.5	0.000 000	0.000
	Batt. Endpoint	+20	1889 999 999	-1.5	0.000 000	-0.001

9. TEST DATA(Ant F)

9.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1852.5	Sub6 n2/ 5 MHz [15 kHz]	PI/2 BPSK	-20.58	13.24	10.00	2.12	H	< 2.00	0.129	21.12	1	12
		QPSK	-20.79	13.03	10.00	2.12	H		0.123	20.91		
		16-QAM	-21.67	12.15	10.00	2.12	H		0.101	20.03		
		64-QAM	-23.01	10.81	10.00	2.12	H		0.074	18.69		
		256-QAM	-25.00	8.82	10.00	2.12	H		0.047	16.70		
1880.0		PI/2 BPSK	-20.58	13.02	10.00	2.21	H		0.121	20.81	1	1
		QPSK	-20.59	13.01	10.00	2.21	H		0.120	20.80		
		16-QAM	-21.60	12.00	10.00	2.21	H		0.095	19.79		
		64-QAM	-23.08	10.52	10.00	2.21	H		0.068	18.31		
		256-QAM	-25.05	8.55	10.00	2.21	H		0.043	16.34		
1907.5		PI/2 BPSK	-21.04	12.98	10.01	2.11	H		0.123	20.88	1	12
		QPSK	-21.08	12.94	10.01	2.11	H		0.121	20.84		
		16-QAM	-22.06	11.96	10.01	2.11	H		0.097	19.86		
		64-QAM	-23.66	10.36	10.01	2.11	H		0.067	18.26		
		256-QAM	-25.52	8.50	10.01	2.11	H		0.044	16.40		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1855.0	Sub6 n2/ 10 MHz [15 kHz]	PI/2 BPSK	-20.76	12.83	10.00	2.15	H	< 2.00	0.117	20.68	1	50
		QPSK	-20.77	12.82	10.00	2.15	H		0.117	20.67		
		16-QAM	-21.78	11.81	10.00	2.15	H		0.092	19.66		
		64-QAM	-23.22	10.37	10.00	2.15	H		0.066	18.22		
		256-QAM	-25.28	8.31	10.00	2.15	H		0.041	16.16		
1880.0		PI/2 BPSK	-20.55	13.05	10.00	2.21	H		0.121	20.84	1	26
		QPSK	-20.60	13.00	10.00	2.21	H		0.120	20.79		
		16-QAM	-21.67	11.93	10.00	2.21	H		0.094	19.72		
		64-QAM	-23.11	10.49	10.00	2.21	H		0.067	18.28		
		256-QAM	-25.06	8.54	10.00	2.21	H		0.043	16.33		
1905.0		PI/2 BPSK	-21.10	12.87	10.01	2.13	H		0.119	20.75	1	50
		QPSK	-21.15	12.82	10.01	2.13	H		0.117	20.70		
		16-QAM	-22.19	11.78	10.01	2.13	H		0.092	19.66		
		64-QAM	-23.61	10.36	10.01	2.13	H		0.067	18.24		
		256-QAM	-25.56	8.41	10.01	2.13	H		0.043	16.29		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1857.5	Sub6 n2/ 15 MHz [15 kHz]	PI/2 BPSK	-20.83	12.51	10.00	2.17	H	< 2.00	0.108	20.34	1	77
		QPSK	-20.84	12.50	10.00	2.17	H		0.108	20.33		
		16-QAM	-21.90	11.44	10.00	2.17	H		0.085	19.27		
		64-QAM	-23.34	10.00	10.00	2.17	H		0.061	17.83		
		256-QAM	-25.27	8.07	10.00	2.17	H		0.039	15.90		
1880.0		PI/2 BPSK	-20.64	12.96	10.00	2.21	H		0.119	20.75	1	39
		QPSK	-20.65	12.95	10.00	2.21	H		0.119	20.74		
		16-QAM	-21.73	11.87	10.00	2.21	H		0.092	19.66		
		64-QAM	-23.07	10.53	10.00	2.21	H		0.068	18.32		
		256-QAM	-25.05	8.55	10.00	2.21	H		0.043	16.34		
1902.5		PI/2 BPSK	-21.18	12.73	10.01	2.15	H		0.115	20.59	1	77
		QPSK	-21.19	12.72	10.01	2.15	H		0.114	20.58		
		16-QAM	-22.26	11.65	10.01	2.15	H		0.089	19.51		
		64-QAM	-23.86	10.05	10.01	2.15	H		0.062	17.91		
		256-QAM	-25.65	8.26	10.01	2.15	H		0.041	16.12		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1860.0	Sub6 n2/ 20 MHz [15 kHz]	PI/2 BPSK	-20.54	12.80	10.00	2.17	H	< 2.00	0.116	20.63	1	104
		QPSK	-20.55	12.79	10.00	2.17	H		0.115	20.62		
		16-QAM	-21.65	11.69	10.00	2.17	H		0.090	19.52		
		64-QAM	-23.08	10.26	10.00	2.17	H		0.064	18.09		
		256-QAM	-25.07	8.27	10.00	2.17	H		0.041	16.10		
1880.0		PI/2 BPSK	-20.68	12.92	10.00	2.21	H		0.118	20.71	1	1
		QPSK	-20.75	12.85	10.00	2.21	H		0.116	20.64		
		16-QAM	-21.70	11.90	10.00	2.21	H		0.093	19.69		
		64-QAM	-23.23	10.37	10.00	2.21	H		0.066	18.16		
		256-QAM	-25.11	8.49	10.00	2.21	H		0.042	16.28		
1900.0		PI/2 BPSK	-20.95	12.96	10.01	2.15	H		0.121	20.82	1	1
		QPSK	-20.96	12.95	10.01	2.15	H		0.121	20.81		
		16-QAM	-22.04	11.87	10.01	2.15	H		0.094	19.73		
		64-QAM	-23.60	10.31	10.01	2.15	H		0.066	18.17		
		256-QAM	-25.58	8.33	10.01	2.15	H		0.042	16.19		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1862.5	Sub6 n2/ 25 MHz [15 kHz]	PI/2 BPSK	-20.66	12.68	10.00	2.17	H	< 2.00	0.113	20.51	1	131
		QPSK	-20.67	12.67	10.00	2.17	H		0.112	20.50		
		16-QAM	-21.79	11.55	10.00	2.17	H		0.087	19.38		
		64-QAM	-23.25	10.09	10.00	2.17	H		0.062	17.92		
		256-QAM	-25.15	8.19	10.00	2.17	H		0.040	16.02		
1880.0		PI/2 BPSK	-20.60	13.00	10.00	2.21	H		0.120	20.79	1	66
		QPSK	-20.80	12.80	10.00	2.21	H		0.115	20.59		
		16-QAM	-21.66	11.94	10.00	2.21	H		0.094	19.73		
		64-QAM	-23.15	10.45	10.00	2.21	H		0.067	18.24		
		256-QAM	-25.05	8.55	10.00	2.21	H		0.043	16.34		
1897.5		PI/2 BPSK	-20.53	13.55	10.01	2.16	H		0.138	21.40	1	1
		QPSK	-20.61	13.47	10.01	2.16	H		0.136	21.32		
		16-QAM	-21.57	12.51	10.01	2.16	H		0.109	20.36		
		64-QAM	-22.95	11.13	10.01	2.16	H		0.079	18.98		
		256-QAM	-25.00	9.08	10.01	2.16	H		0.049	16.93		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1865.0	Sub6 n2/ 30 MHz [15 kHz]	PI/2 BPSK	-20.59	13.04	10.00	2.19	H	< 2.00	0.122	20.85	1	158
		QPSK	-20.61	13.02	10.00	2.19	H		0.121	20.83		
		16-QAM	-21.68	11.95	10.00	2.19	H		0.095	19.76		
		64-QAM	-23.11	10.52	10.00	2.19	H		0.068	18.33		
		256-QAM	-25.09	8.54	10.00	2.19	H		0.043	16.35		
1880.0		PI/2 BPSK	-20.79	12.81	10.00	2.21	H		0.115	20.60	1	80
		QPSK	-20.85	12.75	10.00	2.21	H		0.113	20.54		
		16-QAM	-21.73	11.87	10.00	2.21	H		0.092	19.66		
		64-QAM	-23.22	10.38	10.00	2.21	H		0.066	18.17		
		256-QAM	-25.14	8.46	10.00	2.21	H		0.042	16.25		
1895.0		PI/2 BPSK	-20.80	13.28	10.01	2.16	H		0.130	21.13	1	1
		QPSK	-20.91	13.17	10.01	2.16	H		0.126	21.02		
		16-QAM	-21.88	12.20	10.01	2.16	H		0.101	20.05		
		64-QAM	-23.41	10.67	10.01	2.16	H		0.071	18.52		
		256-QAM	-25.36	8.72	10.01	2.16	H		0.045	16.57		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1867.5	Sub6 n2/ 35 MHz [15 kHz]	PI/2 BPSK	-20.66	12.97	10.00	2.19	H	< 2.00	0.120	20.78	1	94
		QPSK	-20.68	12.95	10.00	2.19	H		0.119	20.76		
		16-QAM	-21.58	12.05	10.00	2.19	H		0.097	19.86		
		64-QAM	-22.99	10.64	10.00	2.19	H		0.070	18.45		
		256-QAM	-25.04	8.59	10.00	2.19	H		0.044	16.40		
1880.0		PI/2 BPSK	-20.79	12.81	10.00	2.21	H		0.115	20.60	1	94
		QPSK	-20.87	12.73	10.00	2.21	H		0.113	20.52		
		16-QAM	-21.75	11.85	10.00	2.21	H		0.092	19.64		
		64-QAM	-23.16	10.44	10.00	2.21	H		0.067	18.23		
		256-QAM	-25.17	8.43	10.00	2.21	H		0.042	16.22		
1892.5		PI/2 BPSK	-20.89	13.19	10.01	2.16	H		0.127	21.04	1	94
		QPSK	-20.91	13.17	10.01	2.16	H		0.126	21.02		
		16-QAM	-21.85	12.23	10.01	2.16	H		0.102	20.08		
		64-QAM	-23.25	10.83	10.01	2.16	H		0.074	18.68		
		256-QAM	-25.28	8.80	10.01	2.16	H		0.046	16.65		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1870.0	Sub6 n2/ 40 MHz [15 kHz]	PI/2 BPSK	-20.38	13.53	10.00	2.21	H	< 2.00	0.136	21.32	1	108
		QPSK	-20.50	13.41	10.00	2.21	H		0.132	21.20		
		16-QAM	-21.41	12.50	10.00	2.21	H		0.107	20.29		
		64-QAM	-22.88	11.03	10.00	2.21	H		0.076	18.82		
		256-QAM	-24.94	8.97	10.00	2.21	H		0.047	16.76		
1880.0		PI/2 BPSK	-20.62	12.98	10.00	2.21	H		0.119	20.77	1	1
		QPSK	-20.82	12.78	10.00	2.21	H		0.114	20.57		
		16-QAM	-21.74	11.86	10.00	2.21	H		0.092	19.65		
		64-QAM	-23.17	10.43	10.00	2.21	H		0.066	18.22		
		256-QAM	-25.19	8.41	10.00	2.21	H		0.042	16.20		
1890.0		PI/2 BPSK	-20.66	13.61	10.00	2.18	H		0.139	21.43	1	1
		QPSK	-20.68	13.59	10.00	2.18	H		0.138	21.41		
		16-QAM	-21.63	12.64	10.00	2.18	H		0.111	20.46		
		64-QAM	-23.23	11.04	10.00	2.18	H		0.077	18.86		
		256-QAM	-25.12	9.15	10.00	2.18	H		0.050	16.97		

9.2 RADIATED SPURIOUS EMISSIONS

▣ NR Band: N2
▣ Bandwidth: 40 MHz
▣ Modulation: PI/2 BPSK
▣ Distance: 3 meters
▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
374000 (1870.0)	3 740.00	-62.02	11.40	-63.24	3.10	V	-54.94	-13.00	1	108
	5 610.00	-63.47	11.90	-58.39	3.79	V	-50.28	-13.00		
	7 480.00	-65.20	10.90	-50.83	4.49	V	-44.42	-13.00		
376000 (1880.0)	3 760.00	-60.28	11.30	-60.41	3.07	V	-52.18	-13.00	1	1
	5 640.00	-62.06	11.90	-56.46	3.89	V	-48.45	-13.00		
	7 520.00	-64.36	11.10	-50.13	4.51	V	-43.54	-13.00		
378000 (1890.0)	3 780.00	-60.42	11.30	-60.54	3.15	V	-52.39	-13.00	1	1
	5 670.00	-63.16	11.80	-57.36	3.86	V	-49.42	-13.00		
	7 560.00	-64.85	11.10	-50.73	4.51	V	-44.14	-13.00		

9.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n2	5 MHz	1880.0	BPSK	25	0	4.28
			QPSK			5.38
			16-QAM			5.92
			64-QAM			6.09
			256-QAM			6.27
	10 MHz		BPSK	50		4.11
			QPSK			5.19
			16-QAM			5.79
			64-QAM			5.89
			256-QAM			5.95
	15 MHz		BPSK	75		3.94
			QPSK			5.10
			16-QAM			5.74
			64-QAM			5.99
			256-QAM			5.94
	20 MHz		BPSK	100		4.48
			QPSK			5.09
			16-QAM			5.68
			64-QAM			5.90
			256-QAM			5.92

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n2	25 MHz	1880.0	BPSK	128	0	4.04
			QPSK			5.18
			16-QAM			5.84
			64-QAM			5.93
			256-QAM			6.00
	30 MHz		BPSK	160		4.10
			QPSK			5.14
			16-QAM			5.79
			64-QAM			5.93
			256-QAM			6.06
	35 MHz		BPSK	180		4.31
			QPSK			5.14
			16-QAM			5.76
			64-QAM			5.88
			256-QAM			6.06
	40 MHz		BPSK	216		4.06
			QPSK			5.12
			16-QAM			5.71
			64-QAM			5.83
			256-QAM			5.97

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 249 ~ 288.

9.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n2	5 MHz	1880.0	BPSK	25	0	4.5232
			QPSK			4.5352
			16-QAM			4.5447
			64-QAM			4.5292
			256-QAM			4.5262
	10 MHz		BPSK	50		8.9912
			QPSK			8.9999
			16-QAM			8.9926
			64-QAM			9.0038
			256-QAM			8.9936
	15 MHz		BPSK	75		13.455
			QPSK			13.484
			16-QAM			13.468
			64-QAM			13.464
			256-QAM			13.487
	20 MHz		BPSK	100		17.938
			QPSK			17.935
			16-QAM			17.916
			64-QAM			17.865
			256-QAM			17.895

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n2	25 MHz	1880.0	BPSK	128	0	22.972
			QPSK			22.992
			16-QAM			22.970
			64-QAM			22.941
			256-QAM			22.982
	30 MHz		BPSK	160		28.724
			QPSK			28.774
			16-QAM			28.715
			64-QAM			28.710
			256-QAM			28.764
	35 MHz		BPSK	180		32.286
			QPSK			32.334
			16-QAM			32.382
			64-QAM			32.333
			256-QAM			32.379
	40 MHz		BPSK	216		38.705
			QPSK			38.761
			16-QAM			38.736
			64-QAM			38.749
			256-QAM			38.725

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 289 ~ 328.

9.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n2	5	1852.5	3.7952	29.800	-69.627	-39.827	-13.00
		1880.0	3.7982	29.800	-69.644	-39.844	
		1907.5	4.0369	29.800	-69.345	-39.545	
	10	1855.0	3.7742	29.800	-69.320	-39.520	
		1880.0	3.7772	29.800	-69.407	-39.607	
		1905.0	4.0145	29.800	-69.713	-39.913	
	15	1857.5	4.0170	29.800	-69.644	-39.844	
		1880.0	4.0025	29.800	-69.505	-39.705	
		1902.5	3.7663	29.800	-69.504	-39.704	
	20	1860.0	3.7962	29.800	-69.522	-39.722	
		1880.0	3.8091	29.800	-69.616	-39.816	
		1900.0	3.7897	29.800	-69.251	-39.451	
	25	1862.5	3.7947	30.200	-69.577	-39.377	
		1880.0	3.7777	30.200	-69.504	-39.304	
		1897.5	4.9632	30.200	-69.520	-39.320	
	30	1865.0	3.7717	30.200	-69.096	-38.896	
		1880.0	4.0419	30.200	-69.310	-39.110	
		1895.0	9.9746	30.415	-69.400	-38.985	
	35	1867.5	3.7782	30.200	-69.539	-39.339	
		1880.0	3.7922	30.200	-69.180	-38.980	
		1892.5	3.7967	30.200	-69.747	-39.547	
	40	1870.0	3.7872	30.200	-69.605	-39.405	
		1880.0	3.8041	30.200	-69.426	-39.226	
		1890.0	4.0469	30.200	-69.643	-39.443	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 329 ~ 376.
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. Factor(dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.094
1 – 5	29.800
5 – 10	30.415
10 – 15	30.940
15 – 20	31.313
Above 20	31.955

9.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 377 ~ 424.

9.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ BandWidth: 5 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1852.5	100 %	+20(Ref)	1852 499 997	0.0	0.000 000	0.000
	100 %	-30	1852 499 995	-1.9	0.000 000	-0.001
	100 %	-20	1852 499 995	-2.2	0.000 000	-0.001
	100 %	-10	1852 499 996	-1.1	0.000 000	-0.001
	100 %	0	1852 499 996	-1.1	0.000 000	-0.001
	100 %	+10	1852 499 995	-2.2	0.000 000	-0.001
	100 %	+30	1852 499 997	-0.4	0.000 000	0.000
	100 %	+40	1852 499 996	-1.9	0.000 000	-0.001
	100 %	+50	1852 499 994	-3.1	0.000 000	-0.002
	Batt. Endpoint	+20	1852 499 994	-3.4	0.000 000	-0.002
1907.5	100 %	+20(Ref)	1907 499 998	0.0	0.000 000	0.000
	100 %	-30	1907 499 998	-0.8	0.000 000	0.000
	100 %	-20	1907 499 997	-1.0	0.000 000	-0.001
	100 %	-10	1907 499 998	-0.6	0.000 000	0.000
	100 %	0	1907 499 997	-1.1	0.000 000	-0.001
	100 %	+10	1907 499 998	-0.5	0.000 000	0.000
	100 %	+30	1907 499 997	-1.3	0.000 000	-0.001
	100 %	+40	1907 499 997	-1.1	0.000 000	-0.001
	100 %	+50	1907 499 997	-1.3	0.000 000	-0.001
	Batt. Endpoint	+20	1907 499 997	-1.4	0.000 000	-0.001

▣ BandWidth: 10 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1855.0	100 %	+20(Ref)	1854 999 999	0.0	0.000 000	0.000
	100 %	-30	1855 000 000	0.5	0.000 000	0.000
	100 %	-20	1854 999 999	-0.2	0.000 000	0.000
	100 %	-10	1854 999 999	-0.6	0.000 000	0.000
	100 %	0	1854 999 999	-0.3	0.000 000	0.000
	100 %	+10	1854 999 999	0.2	0.000 000	0.000
	100 %	+30	1854 999 999	-0.2	0.000 000	0.000
	100 %	+40	1854 999 999	-0.4	0.000 000	0.000
	100 %	+50	1854 999 999	0.1	0.000 000	0.000
	Batt. Endpoint	+20	1854 999 999	0.2	0.000 000	0.000
1905.0	100 %	+20(Ref)	1905 000 000	0.0	0.000 000	0.000
	100 %	-30	1905 000 001	1.3	0.000 000	0.001
	100 %	-20	1905 000 001	0.9	0.000 000	0.000
	100 %	-10	1905 000 000	0.7	0.000 000	0.000
	100 %	0	1905 000 001	0.8	0.000 000	0.000
	100 %	+10	1905 000 001	1.2	0.000 000	0.001
	100 %	+30	1904 999 999	-0.5	0.000 000	0.000
	100 %	+40	1905 000 001	1.1	0.000 000	0.001
	100 %	+50	1904 999 999	-0.4	0.000 000	0.000
	Batt. Endpoint	+20	1905 000 000	0.4	0.000 000	0.000

▣ BandWidth: 15 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1857.5	100 %	+20(Ref)	1857 499 998	0.0	0.000 000	0.000
	100 %	-30	1857 499 995	-3.0	0.000 000	-0.002
	100 %	-20	1857 499 996	-2.0	0.000 000	-0.001
	100 %	-10	1857 499 996	-2.5	0.000 000	-0.001
	100 %	0	1857 499 997	-1.3	0.000 000	-0.001
	100 %	+10	1857 499 997	-1.5	0.000 000	-0.001
	100 %	+30	1857 499 996	-1.7	0.000 000	-0.001
	100 %	+40	1857 499 995	-2.8	0.000 000	-0.001
	100 %	+50	1857 499 996	-1.7	0.000 000	-0.001
	Batt. Endpoint	+20	1857 499 996	-2.4	0.000 000	-0.001
1902.5	100 %	+20(Ref)	1902 500 001	0.0	0.000 000	0.000
	100 %	-30	1902 500 001	0.2	0.000 000	0.000
	100 %	-20	1902 500 001	-0.1	0.000 000	0.000
	100 %	-10	1902 500 000	-0.8	0.000 000	0.000
	100 %	0	1902 500 001	0.1	0.000 000	0.000
	100 %	+10	1902 500 001	-0.3	0.000 000	0.000
	100 %	+30	1902 500 001	-0.4	0.000 000	0.000
	100 %	+40	1902 500 001	0.1	0.000 000	0.000
	100 %	+50	1902 500 001	0.2	0.000 000	0.000
	Batt. Endpoint	+20	1902 500 001	-0.4	0.000 000	0.000

▣ BandWidth: 20 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1860.0	100 %	+20(Ref)	1860 000 000	0.0	0.000 000	0.000
	100 %	-30	1860 000 000	0.5	0.000 000	0.000
	100 %	-20	1859 999 998	-1.4	0.000 000	-0.001
	100 %	-10	1859 999 999	-1.2	0.000 000	-0.001
	100 %	0	1859 999 999	-0.8	0.000 000	0.000
	100 %	+10	1859 999 999	-0.3	0.000 000	0.000
	100 %	+30	1859 999 998	-1.5	0.000 000	-0.001
	100 %	+40	1859 999 999	-0.9	0.000 000	0.000
	100 %	+50	1860 000 001	0.8	0.000 000	0.000
	Batt. Endpoint	+20	1859 999 999	-1.2	0.000 000	-0.001
1900.0	100 %	+20(Ref)	1900 000 000	0.0	0.000 000	0.000
	100 %	-30	1900 000 000	0.0	0.000 000	0.000
	100 %	-20	1899 999 999	-0.6	0.000 000	0.000
	100 %	-10	1899 999 999	-1.0	0.000 000	-0.001
	100 %	0	1900 000 001	1.5	0.000 000	0.001
	100 %	+10	1900 000 002	1.8	0.000 000	0.001
	100 %	+30	1900 000 001	1.2	0.000 000	0.001
	100 %	+40	1900 000 001	0.9	0.000 000	0.000
	100 %	+50	1899 999 999	-1.2	0.000 000	-0.001
	Batt. Endpoint	+20	1899 999 999	-0.8	0.000 000	0.000

▣ BandWidth: 25 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1862.5	100 %	+20(Ref)	1862 499 999	0.0	0.000 000	0.000
	100 %	-30	1862 499 998	-1.2	0.000 000	-0.001
	100 %	-20	1862 499 999	0.4	0.000 000	0.000
	100 %	-10	1862 499 999	0.4	0.000 000	0.000
	100 %	0	1862 499 998	-0.6	0.000 000	0.000
	100 %	+10	1862 499 999	-0.2	0.000 000	0.000
	100 %	+30	1862 499 999	-0.3	0.000 000	0.000
	100 %	+40	1862 499 997	-1.6	0.000 000	-0.001
	100 %	+50	1862 499 997	-1.7	0.000 000	-0.001
	Batt. Endpoint	+20	1862 499 998	-1.2	0.000 000	-0.001
1897.5	100 %	+20(Ref)	1897 500 000	0.0	0.000 000	0.000
	100 %	-30	1897 500 000	0.2	0.000 000	0.000
	100 %	-20	1897 499 999	-1.0	0.000 000	-0.001
	100 %	-10	1897 499 999	-1.0	0.000 000	-0.001
	100 %	0	1897 500 000	0.0	0.000 000	0.000
	100 %	+10	1897 500 000	0.0	0.000 000	0.000
	100 %	+30	1897 500 000	-0.1	0.000 000	0.000
	100 %	+40	1897 500 000	0.2	0.000 000	0.000
	100 %	+50	1897 500 001	0.4	0.000 000	0.000
	Batt. Endpoint	+20	1897 499 999	-1.2	0.000 000	-0.001

▣ BandWidth: 30 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1865.0	100 %	+20(Ref)	1865 000 000	0.0	0.000 000	0.000
	100 %	-30	1864 999 999	-0.7	0.000 000	0.000
	100 %	-20	1864 999 999	-0.8	0.000 000	0.000
	100 %	-10	1865 000 000	0.4	0.000 000	0.000
	100 %	0	1864 999 999	-1.2	0.000 000	-0.001
	100 %	+10	1864 999 998	-1.6	0.000 000	-0.001
	100 %	+30	1864 999 999	-0.7	0.000 000	0.000
	100 %	+40	1864 999 999	-1.1	0.000 000	-0.001
	100 %	+50	1864 999 999	-1.2	0.000 000	-0.001
	Batt. Endpoint	+20	1864 999 999	-1.2	0.000 000	-0.001
1895.0	100 %	+20(Ref)	1895 000 000	0.0	0.000 000	0.000
	100 %	-30	1894 999 999	-0.9	0.000 000	0.000
	100 %	-20	1895 000 000	0.6	0.000 000	0.000
	100 %	-10	1894 999 999	-0.5	0.000 000	0.000
	100 %	0	1894 999 998	-1.2	0.000 000	-0.001
	100 %	+10	1894 999 998	-1.7	0.000 000	-0.001
	100 %	+30	1894 999 998	-1.5	0.000 000	-0.001
	100 %	+40	1894 999 999	-0.9	0.000 000	0.000
	100 %	+50	1894 999 999	-0.8	0.000 000	0.000
	Batt. Endpoint	+20	1894 999 999	-0.9	0.000 000	0.000

▣ BandWidth: 35 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1867.5	100 %	+20(Ref)	1867 500 000	0.0	0.000 000	0.000
	100 %	-30	1867 499 998	-1.4	0.000 000	-0.001
	100 %	-20	1867 499 998	-1.4	0.000 000	-0.001
	100 %	-10	1867 499 998	-2.1	0.000 000	-0.001
	100 %	0	1867 499 999	-1.2	0.000 000	-0.001
	100 %	+10	1867 499 999	-0.8	0.000 000	0.000
	100 %	+30	1867 499 997	-2.7	0.000 000	-0.001
	100 %	+40	1867 499 998	-1.6	0.000 000	-0.001
	100 %	+50	1867 499 998	-1.9	0.000 000	-0.001
	Batt. Endpoint	+20	1867 499 999	-0.4	0.000 000	0.000
1892.5	100 %	+20(Ref)	1892 499 999	0.0	0.000 000	0.000
	100 %	-30	1892 499 996	-2.7	0.000 000	-0.001
	100 %	-20	1892 499 999	0.2	0.000 000	0.000
	100 %	-10	1892 499 998	-0.3	0.000 000	0.000
	100 %	0	1892 499 998	-0.4	0.000 000	0.000
	100 %	+10	1892 499 996	-2.2	0.000 000	-0.001
	100 %	+30	1892 499 999	0.1	0.000 000	0.000
	100 %	+40	1892 499 998	-0.8	0.000 000	0.000
	100 %	+50	1892 499 998	-0.8	0.000 000	0.000
	Batt. Endpoint	+20	1892 499 998	-0.6	0.000 000	0.000

▣ BandWidth: 40 MHz

▣ Voltage(100 %): 3.880 VDC

▣ Batt. Endpoint: 3.300 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1870.0	100 %	+20(Ref)	1869 999 999	0.0	0.000 000	0.000
	100 %	-30	1869 999 999	-0.2	0.000 000	0.000
	100 %	-20	1870 000 000	0.3	0.000 000	0.000
	100 %	-10	1870 000 001	1.3	0.000 000	0.001
	100 %	0	1870 000 000	0.8	0.000 000	0.000
	100 %	+10	1870 000 000	0.3	0.000 000	0.000
	100 %	+30	1870 000 000	0.6	0.000 000	0.000
	100 %	+40	1869 999 999	-0.2	0.000 000	0.000
	100 %	+50	1869 999 999	0.2	0.000 000	0.000
	Batt. Endpoint	+20	1869 999 999	-0.7	0.000 000	0.000
1890.0	100 %	+20(Ref)	1890 000 001	0.0	0.000 000	0.000
	100 %	-30	1890 000 002	0.8	0.000 000	0.000
	100 %	-20	1890 000 000	-1.2	0.000 000	-0.001
	100 %	-10	1890 000 000	-1.1	0.000 000	-0.001
	100 %	0	1890 000 001	0.3	0.000 000	0.000
	100 %	+10	1890 000 001	-0.1	0.000 000	0.000
	100 %	+30	1889 999 999	-2.0	0.000 000	-0.001
	100 %	+40	1890 000 000	-1.4	0.000 000	-0.001
	100 %	+50	1890 000 000	-1.2	0.000 000	-0.001
	Batt. Endpoint	+20	1890 000 001	0.2	0.000 000	0.000

10. UPLINK CARRIER AGGREGATION

Test Note

1. All tests were evaluated for the two bands using various combinations of RB size, RB offset, modulation, and channel bandwidth.
2. All modes of operation were investigated and the worst case configuration results are reported in this section. Please refer to the table below.
3. The worst case is reported with the modulations, RB sizes and offsets.
   - N2A(ANT A)-N12A(ANT A)
     (PCC - Modulation: BPSK, RB: 1, RB Offset: 1, SCC - Modulation: BPSK, RB: 1, RB Offset: 12)

Radiated Spurious Emissions

PCC	SCC	PCC		SCC	
		BW(MHz)	Channel	BW(MHz)	Channel
N2A(ANT A)	N12A(ANT F)	35	373500	5	140300

10.1 RADIATED SPURIOUS EMISSIONS

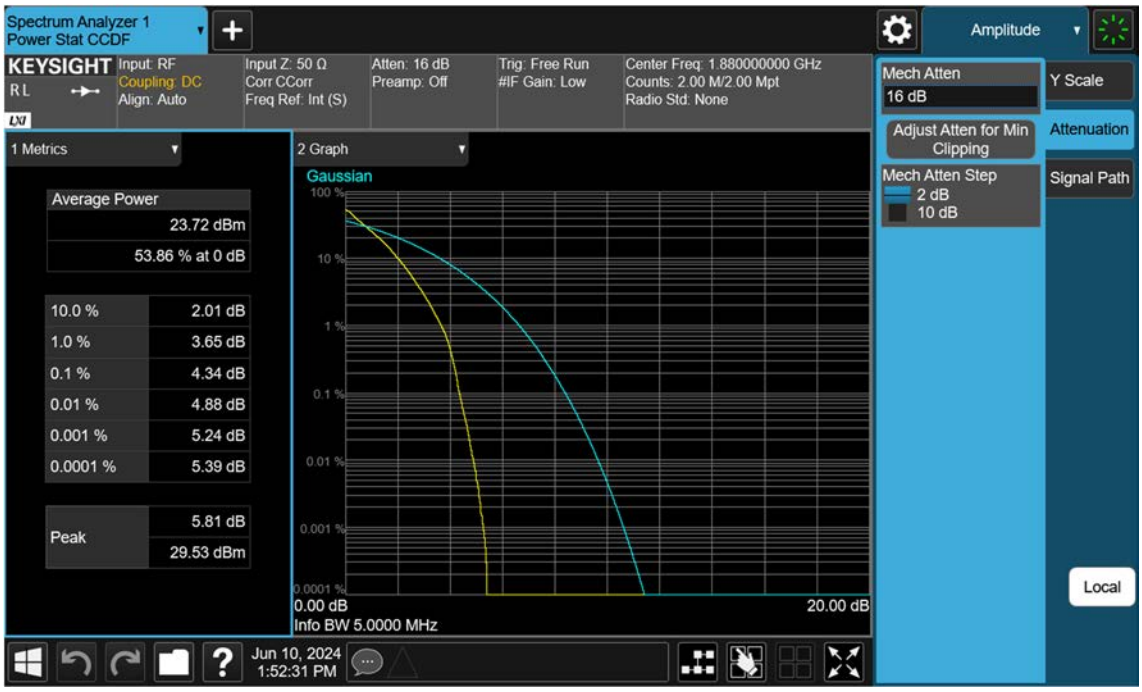
N2A(ANT A)(PCC)- N12A(ANT A)(SCC)

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
3 735.00	-55.37	11.40	-56.49	3.12	H	-48.21	-13.00
5 602.50	-58.92	11.90	-53.92	3.79	V	-45.81	-13.00
7 470.00	-65.61	10.90	-51.29	4.49	V	-44.88	-13.00

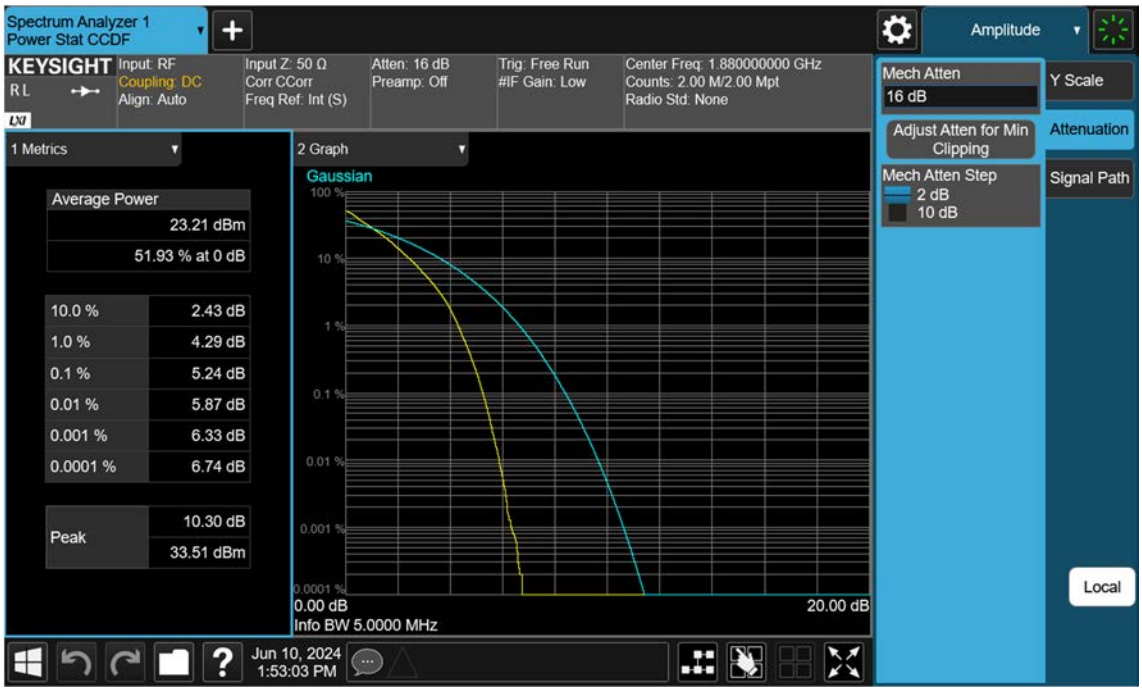
Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
1 403.00	-52.22	7.40	-57.83	1.80	V	-52.23	-13.00
2 104.50	-57.99	9.10	-63.80	2.28	H	-56.98	-13.00
2 806.00	-59.38	10.30	-63.33	2.69	H	-55.72	-13.00

11. TEST PLOTS(ANT A)

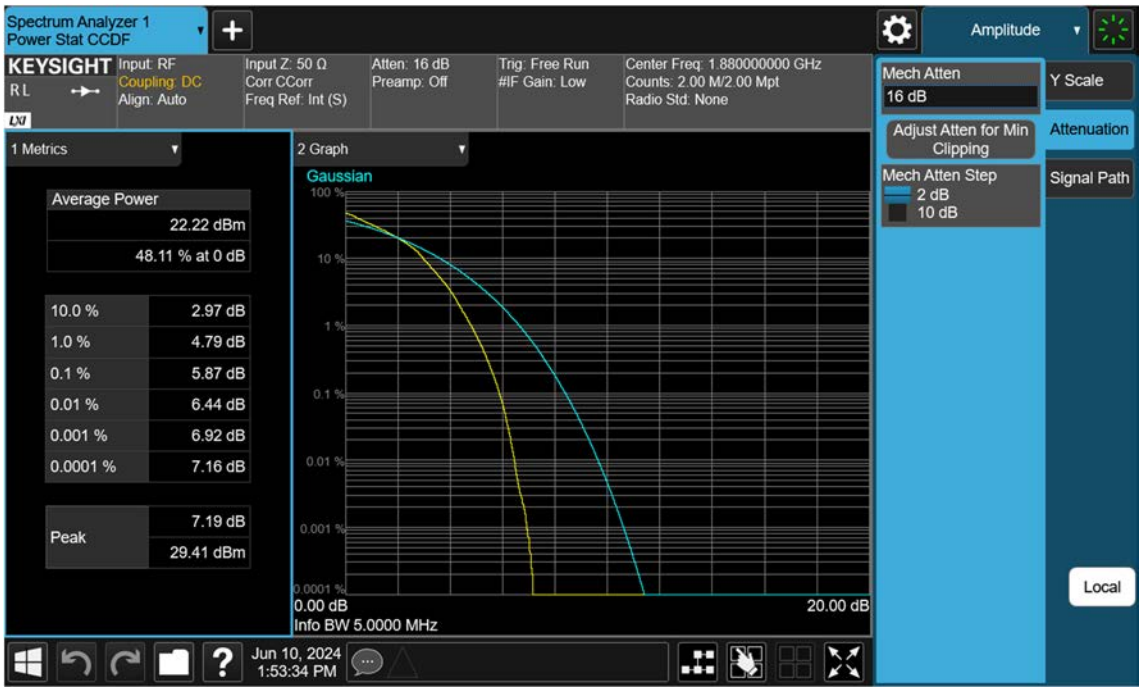
5 M_PAR_Mid_BPSK_FullRB



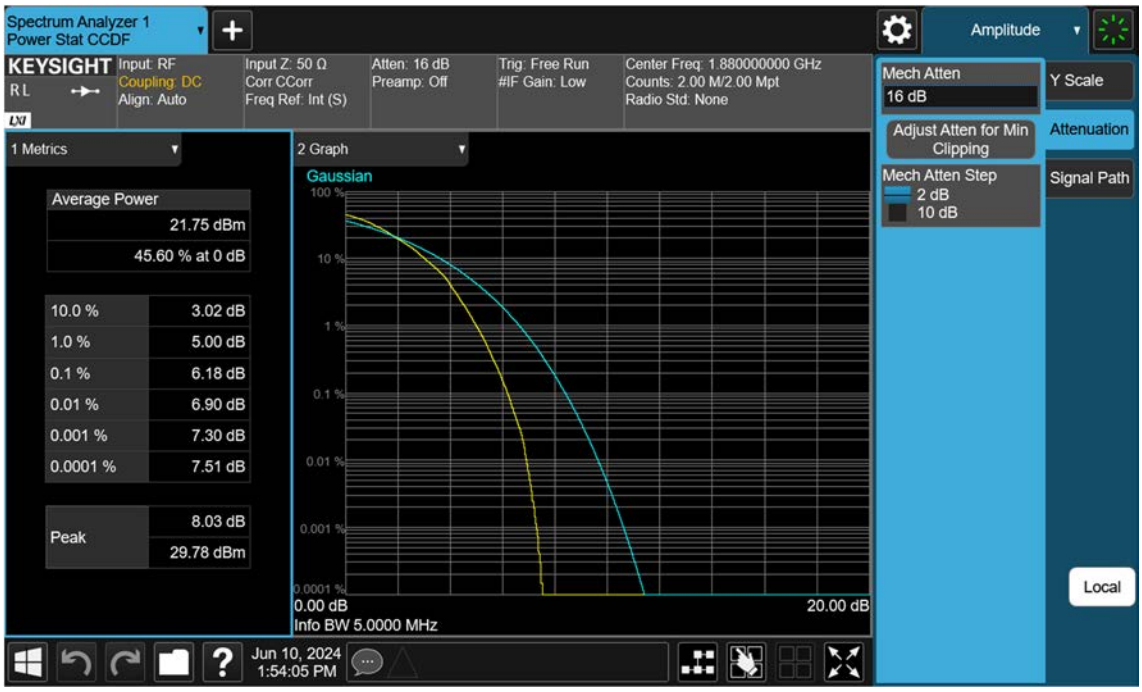
5 M_PAR_Mid_QPSK_FullRB



5 M_PAR_Mid_16QAM_FullRB

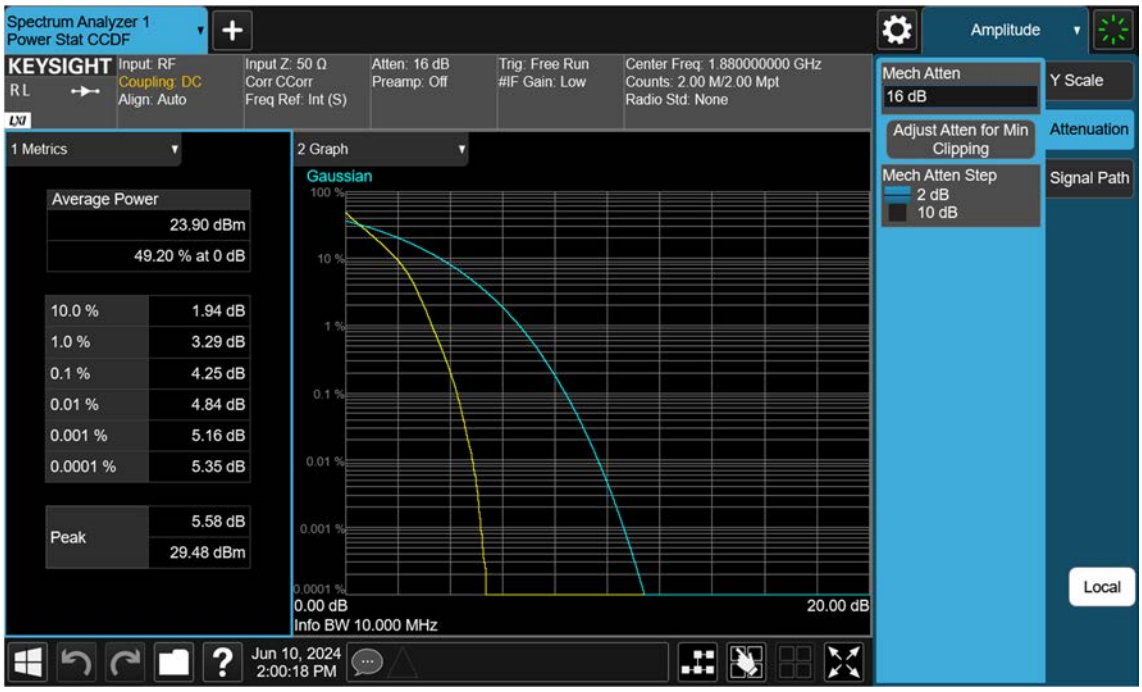


5 M_PAR_Mid_64QAM_FullRB

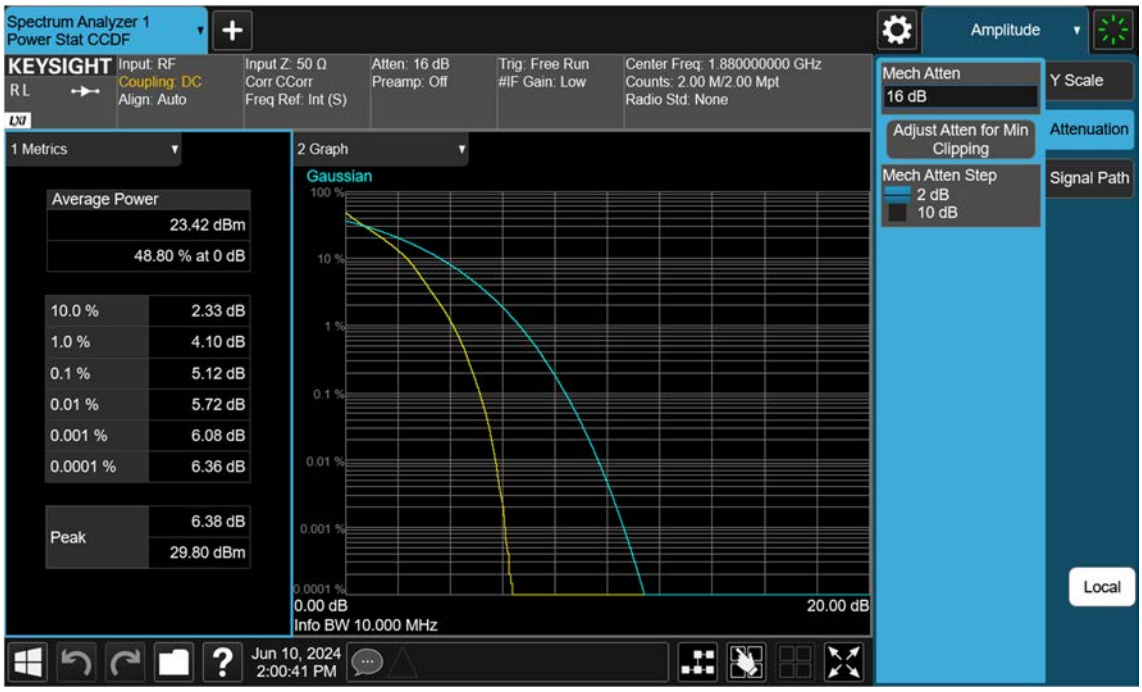


5 M_PAR_Mid_256QAM_FullRB

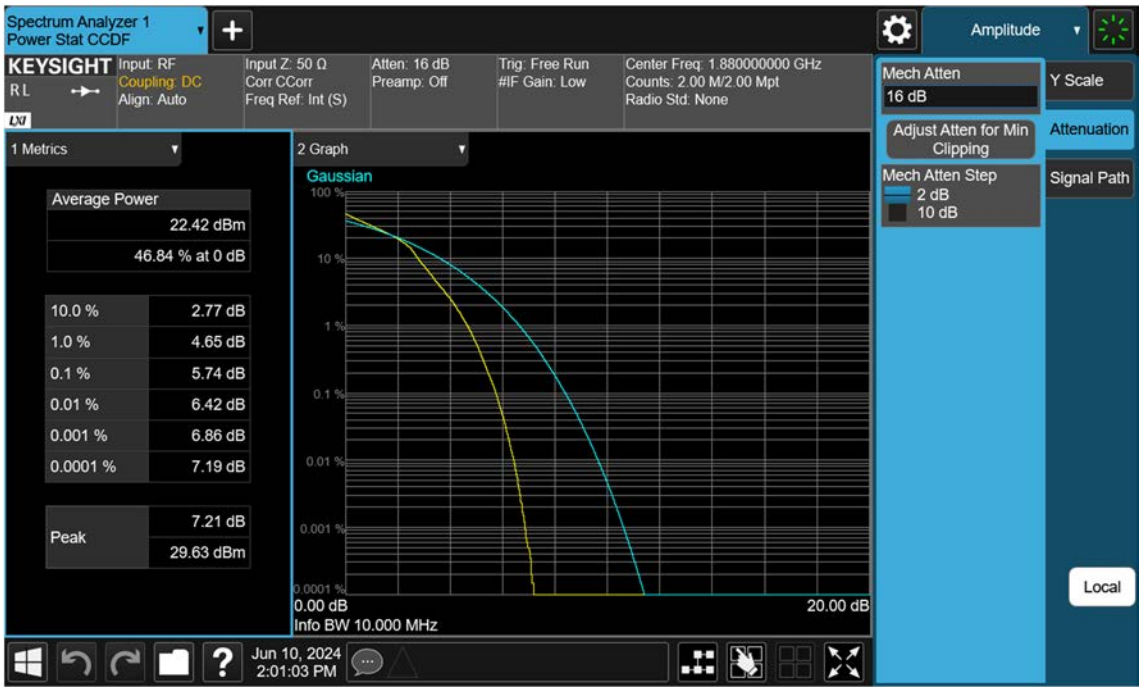
10 M_PAR_Mid_BPSK_FullRB



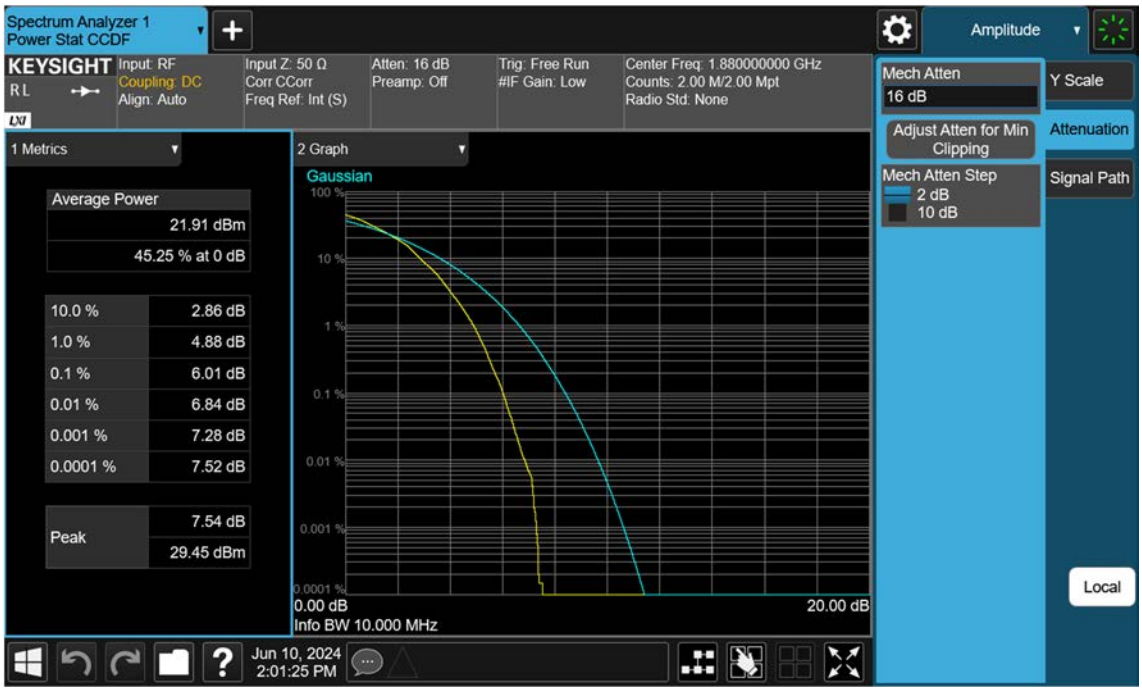
10 M_PAR_Mid_QPSK_FullRB



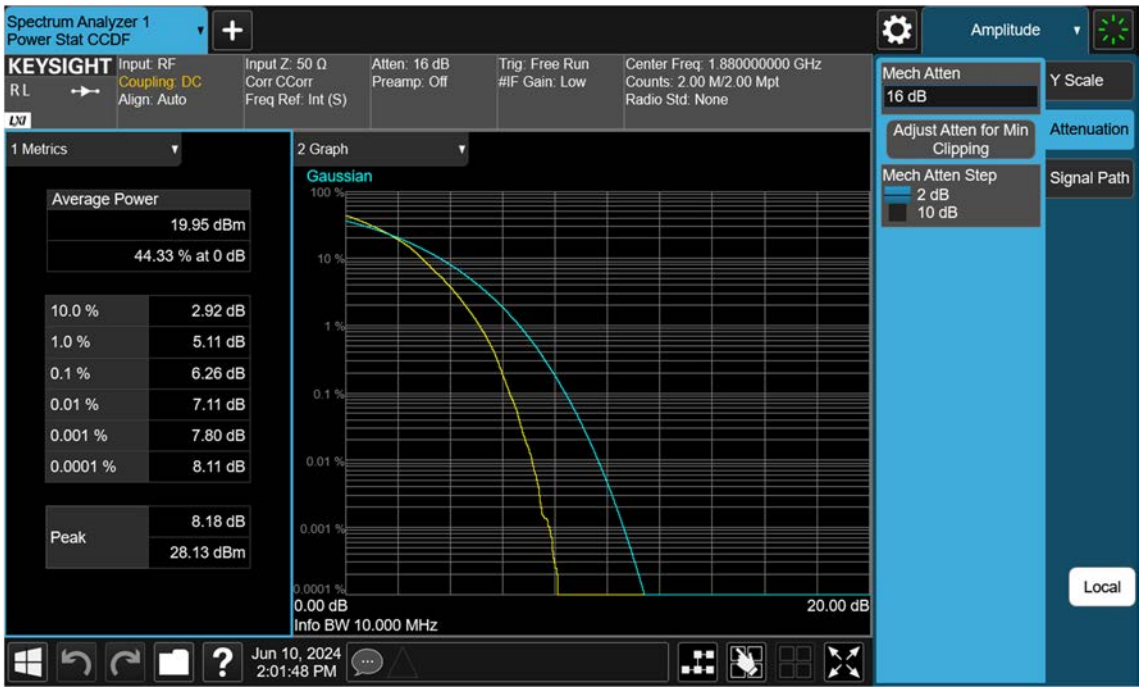
10 M_PAR_Mid_16QAM_FullRB



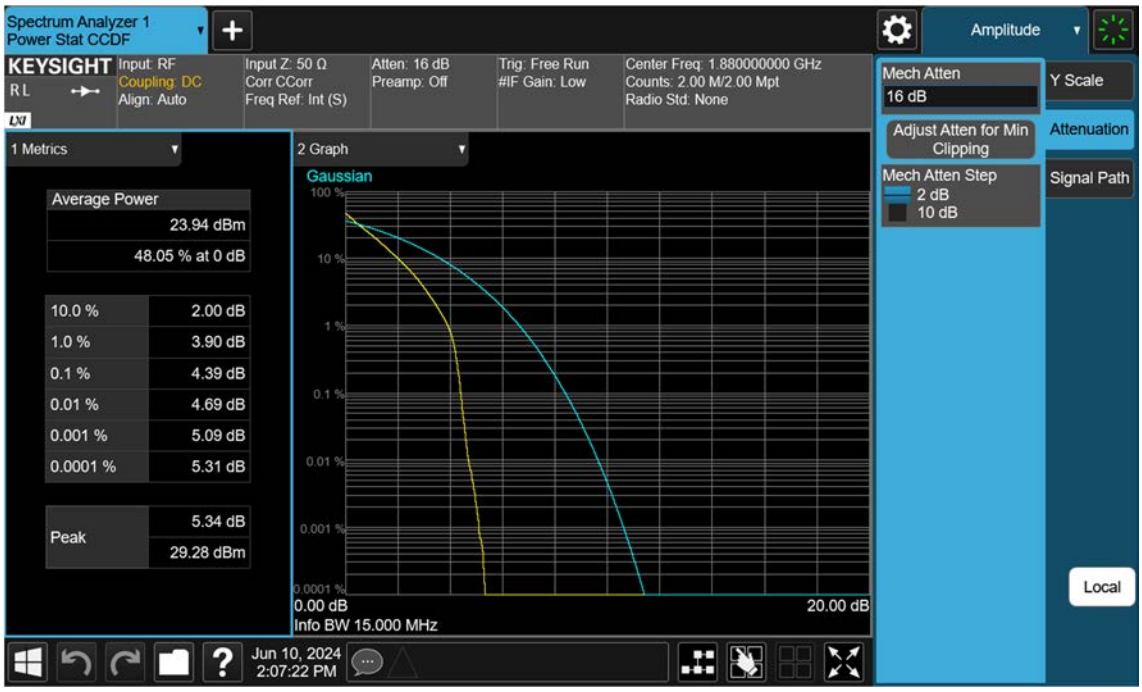
10 M_PAR_Mid_64QAM_FullRB



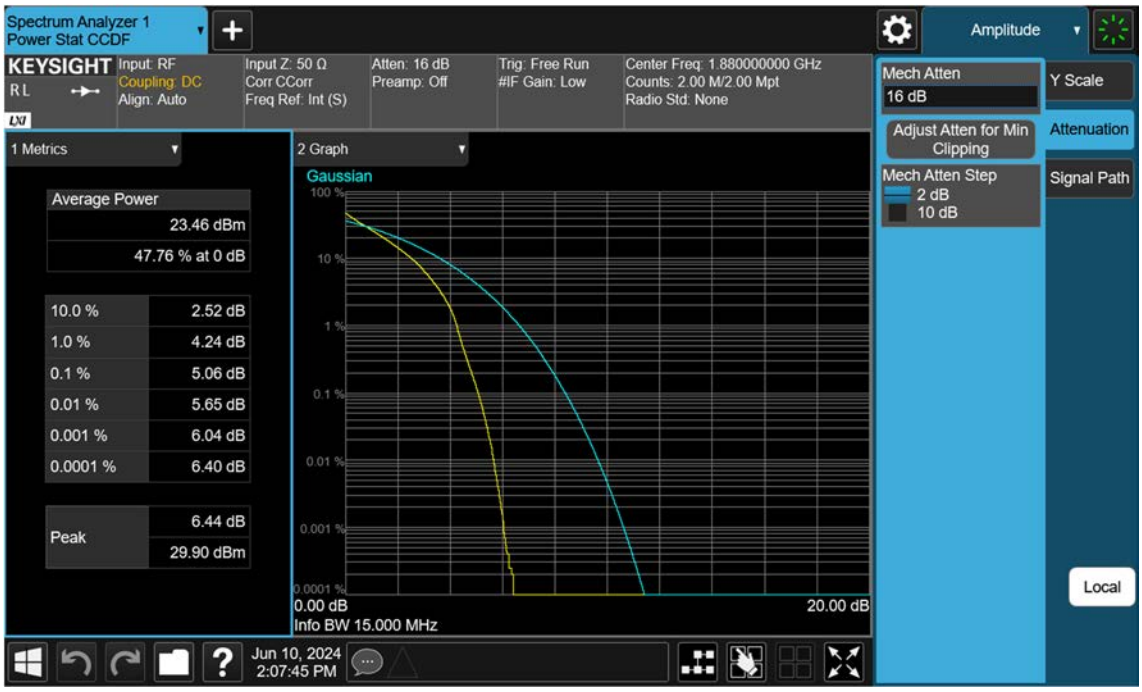
10 M_PAR_Mid_256QAM_FullRB



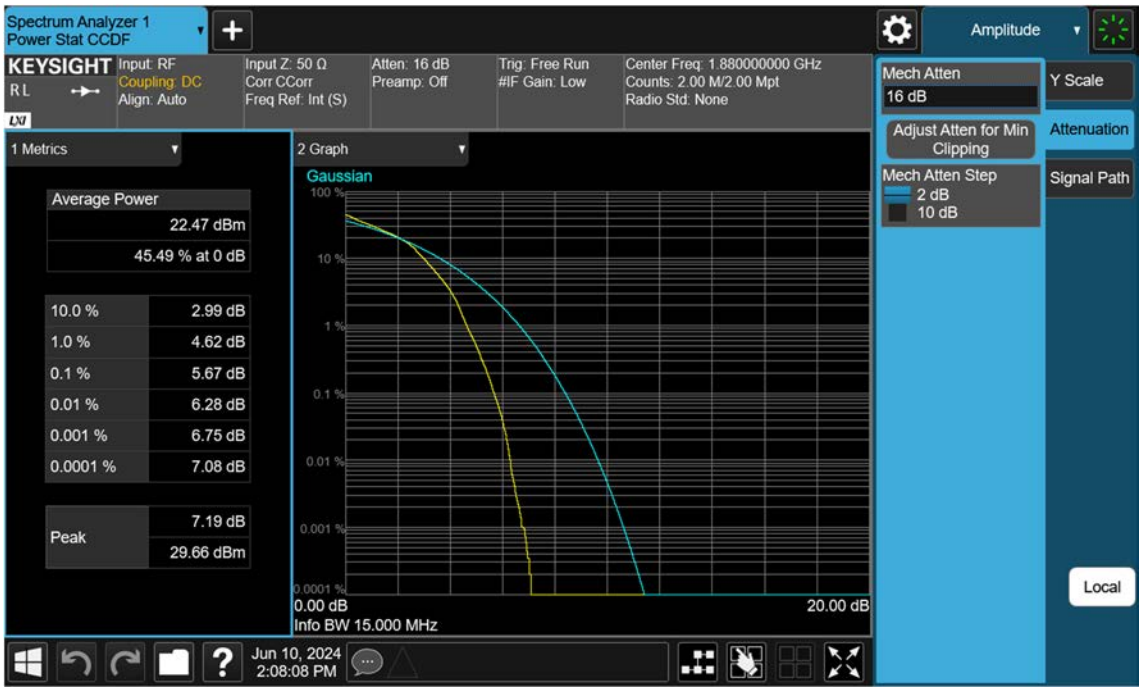
15 M_PAR_Mid_BPSK_FullRB



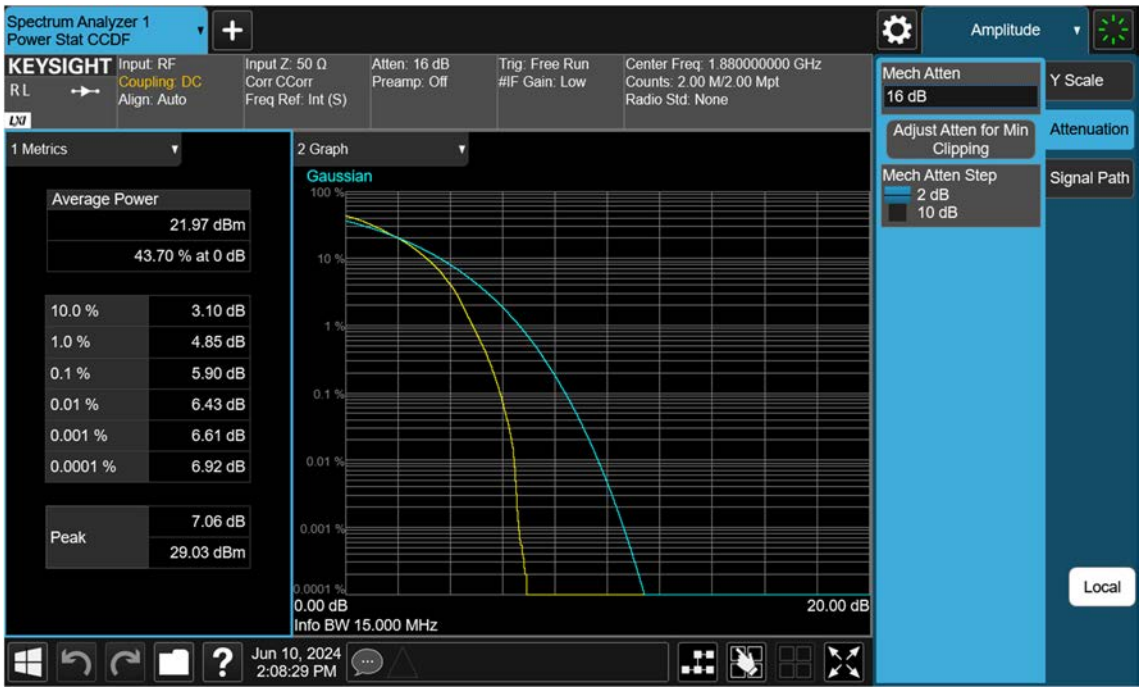
15 M_PAR_Mid_QPSK_FullRB



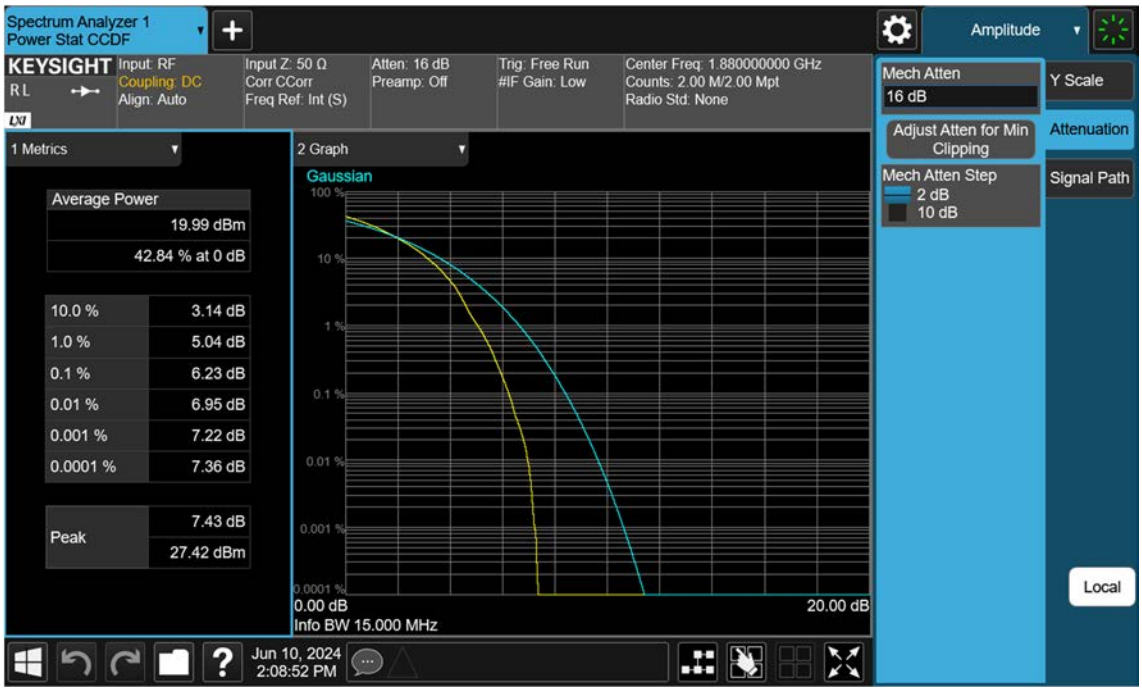
15 M_PAR_Mid_16QAM_FullRB



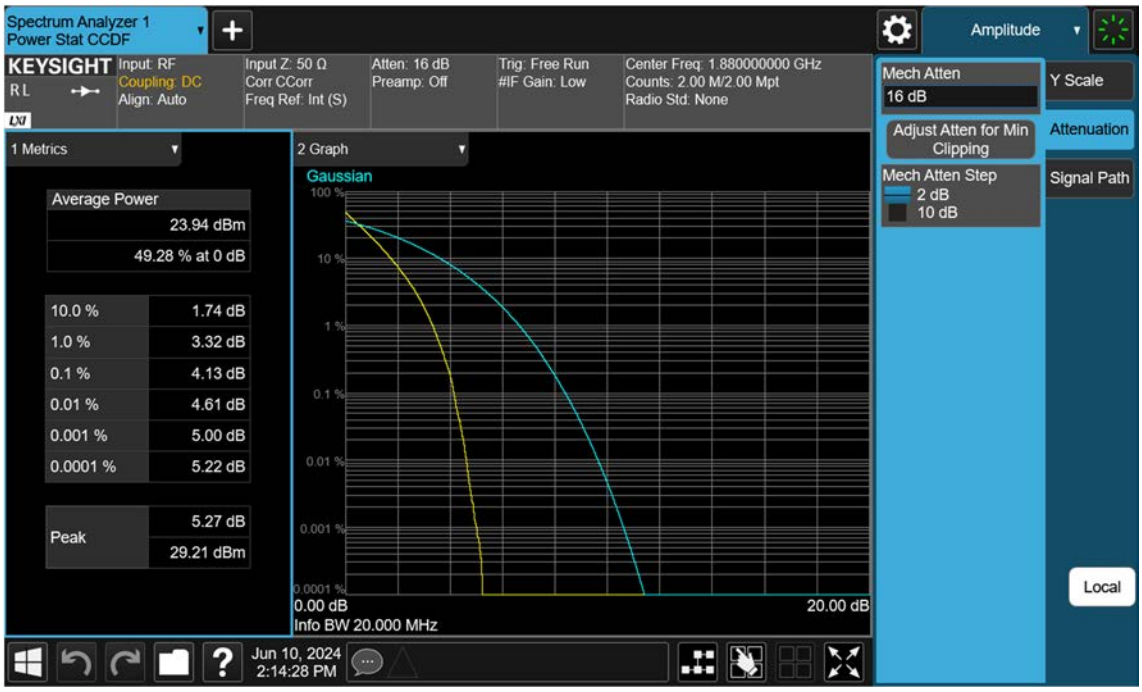
15 M_PAR_Mid_64QAM_FullRB



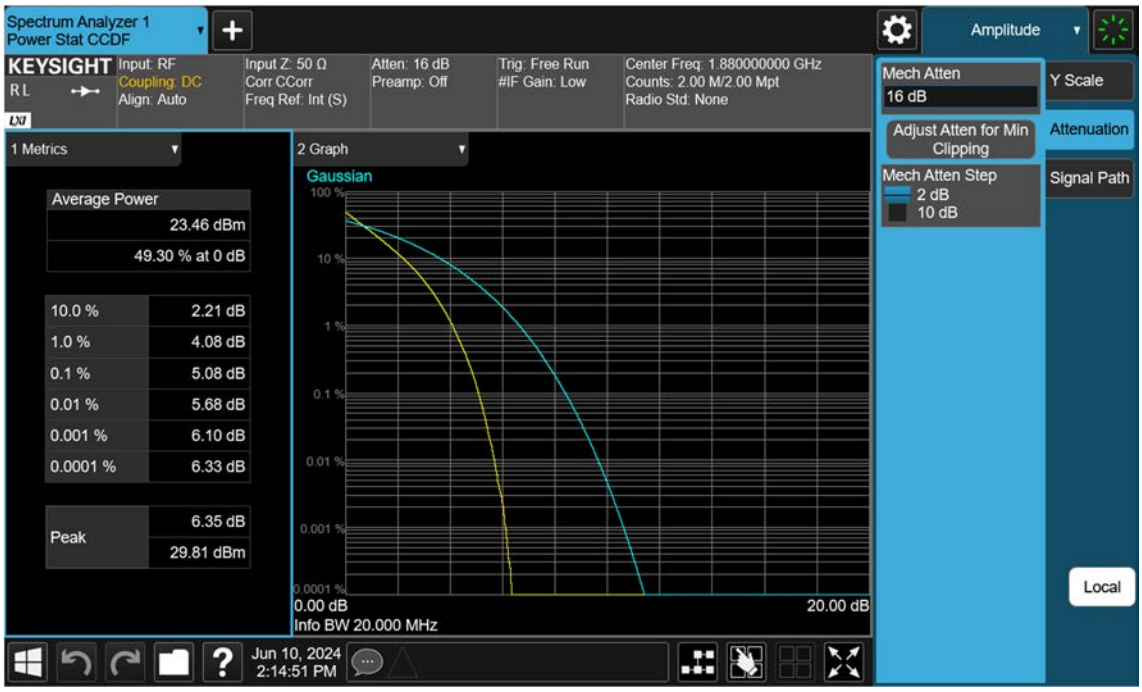
15 M_PAR_Mid_256QAM_FullRB



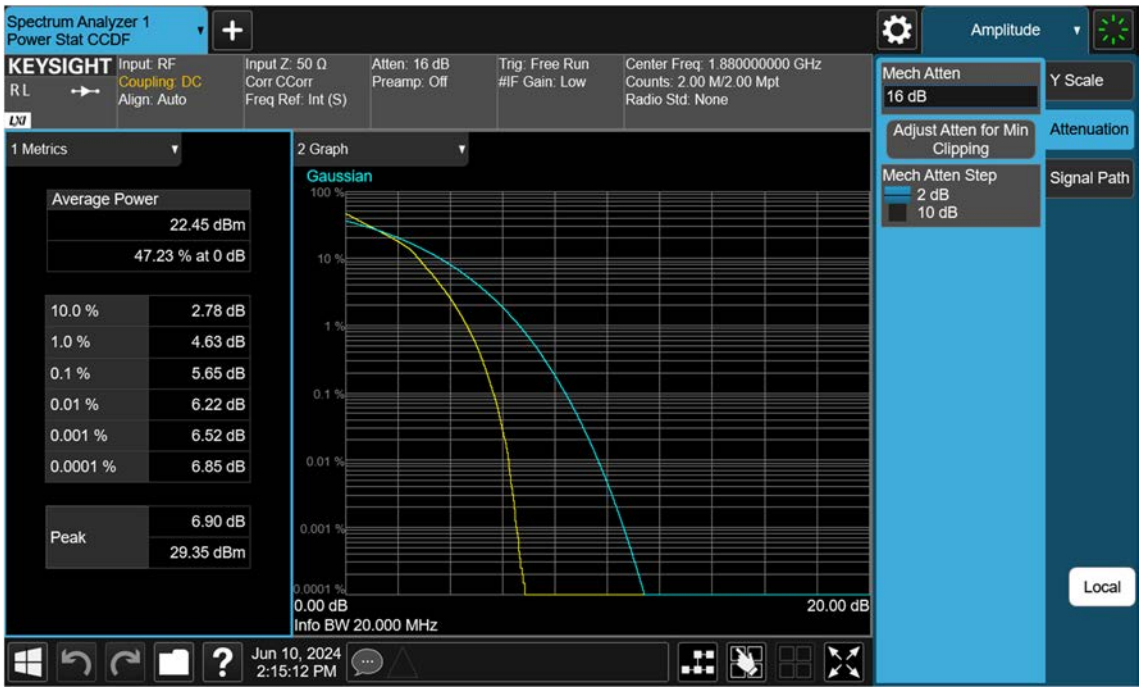
20 M_PAR_Mid_BPSK_FullRB



20 M_PAR_Mid_QPSK_FullRB



20 M_PAR_Mid_16QAM_FullRB



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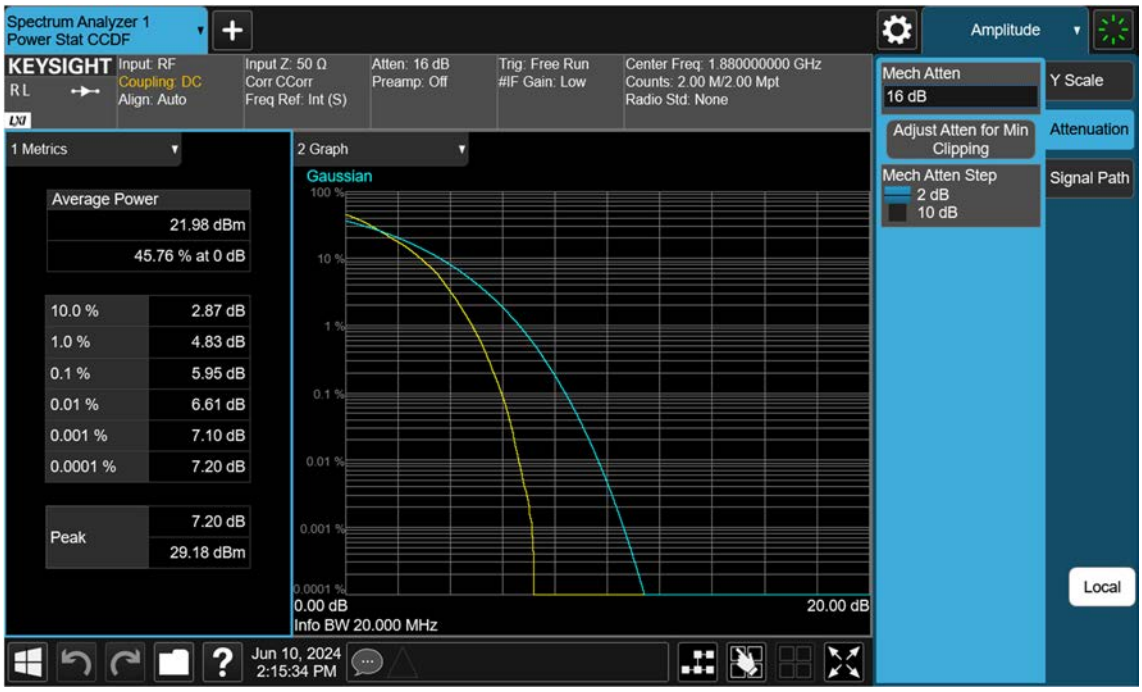
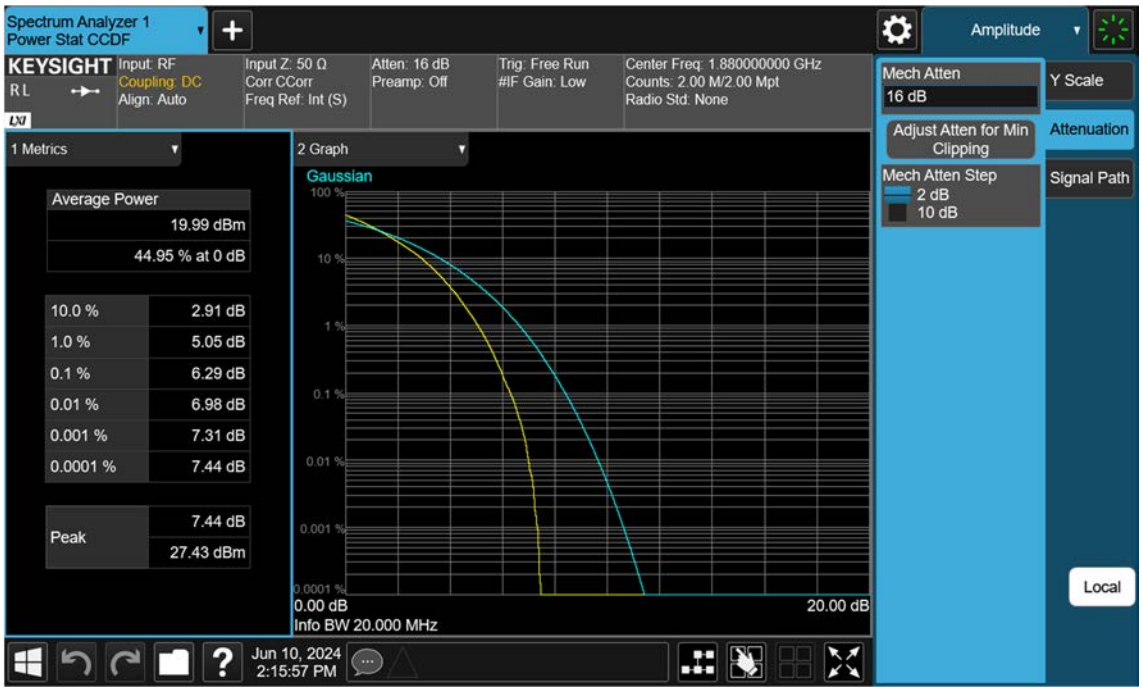
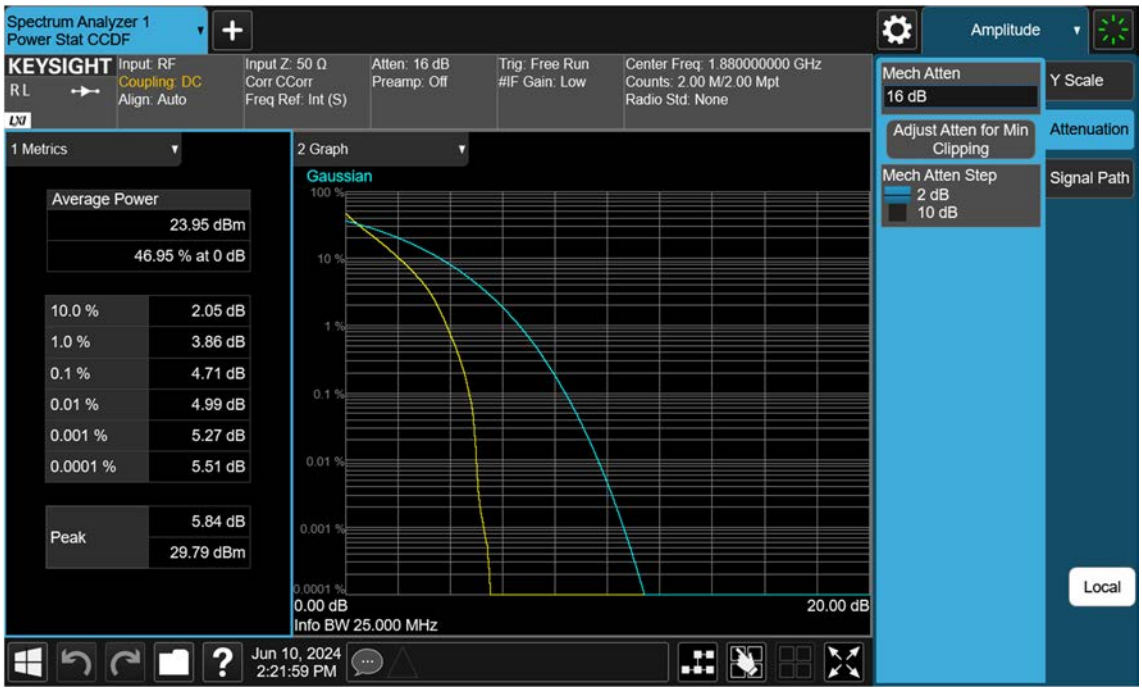


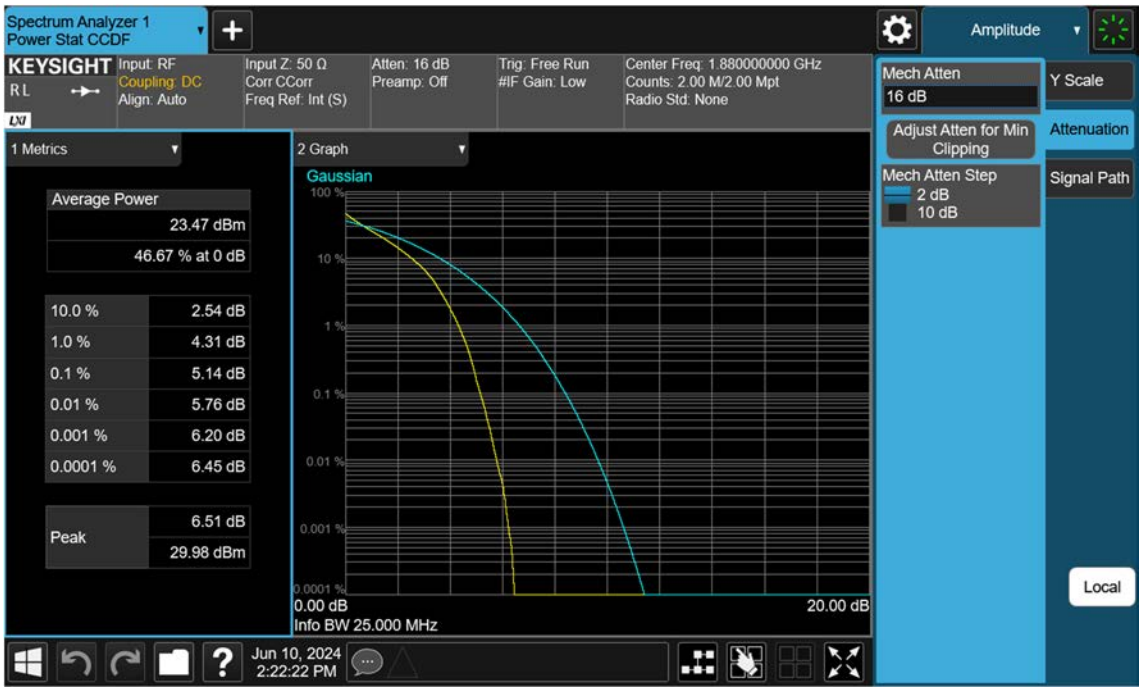
20 M_PAR_Mid_256QAM_FullRB



25 M_PAR_Mid_BPSK_FullRB



25 M_PAR_Mid_QPSK_FullRB



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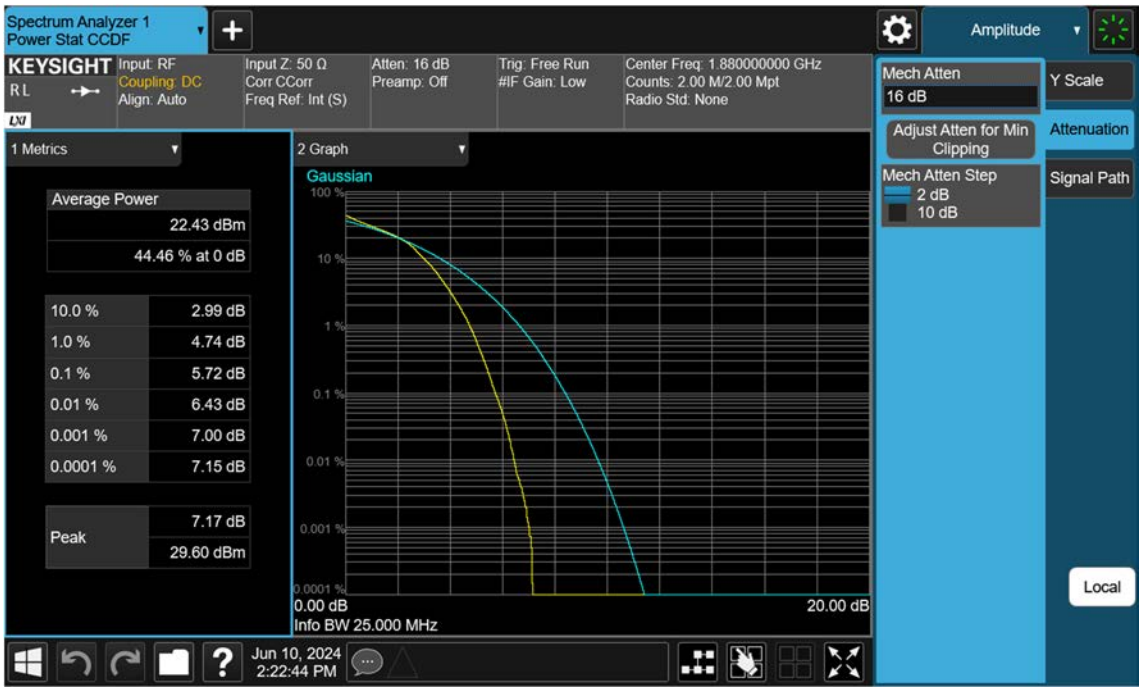

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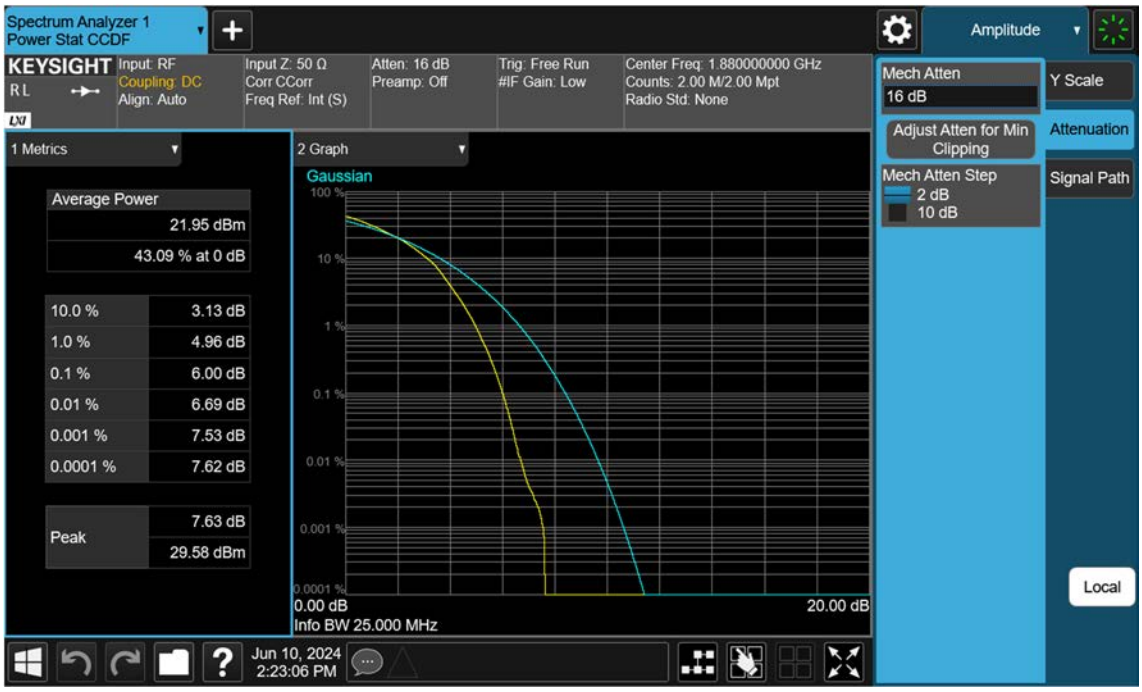

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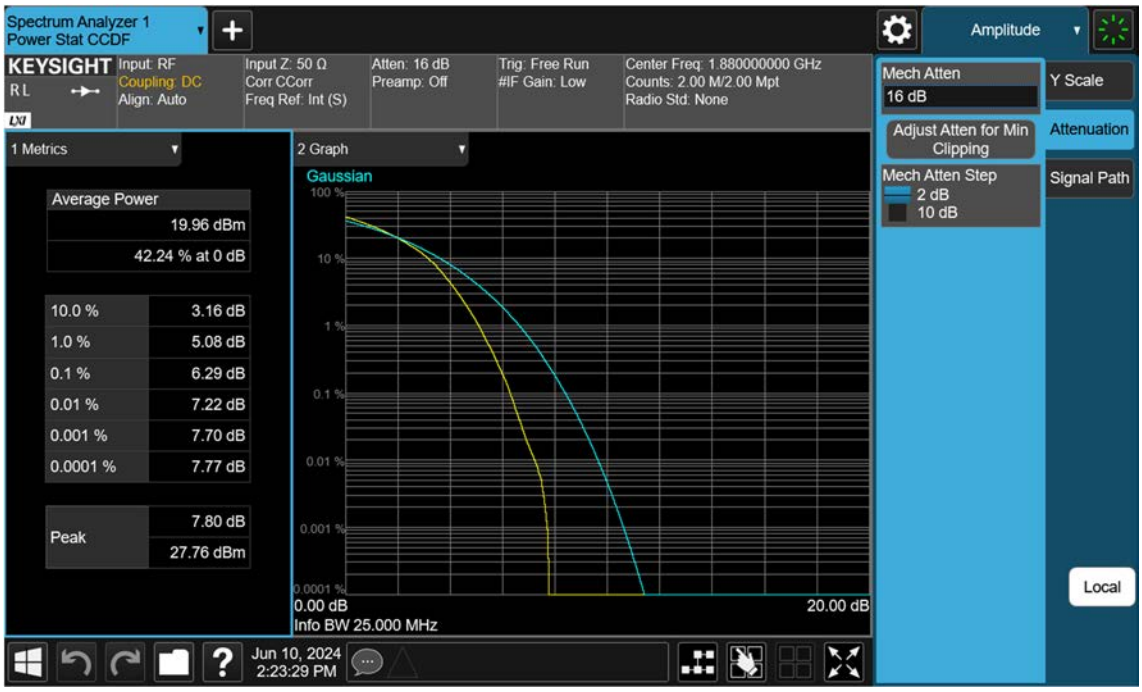

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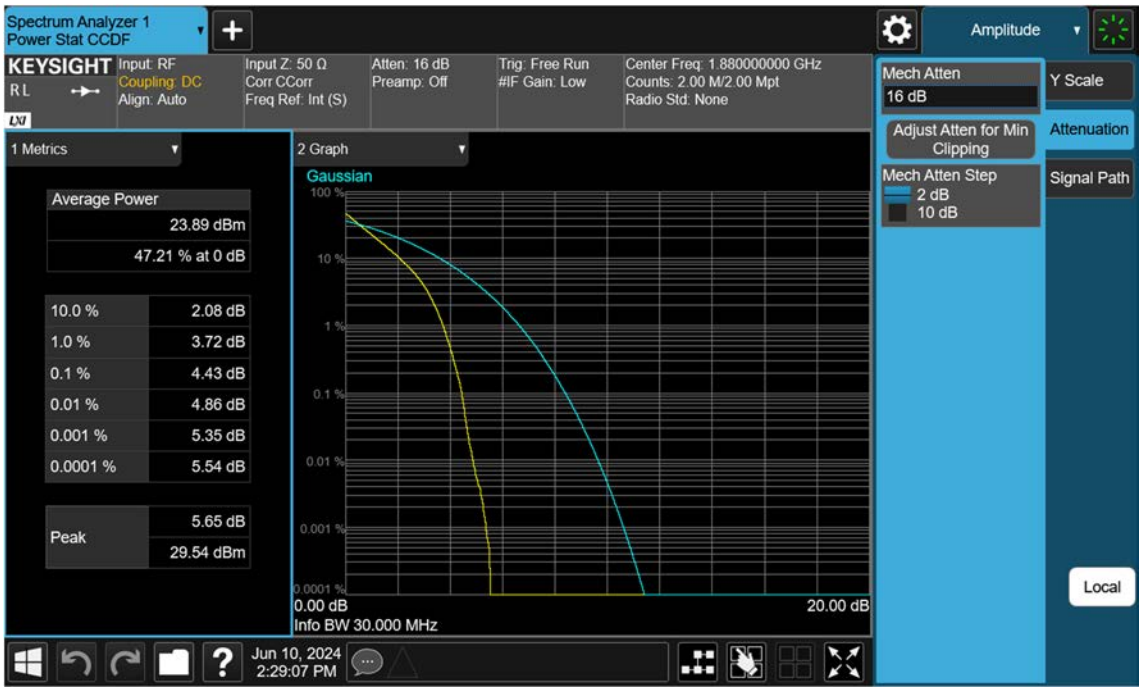

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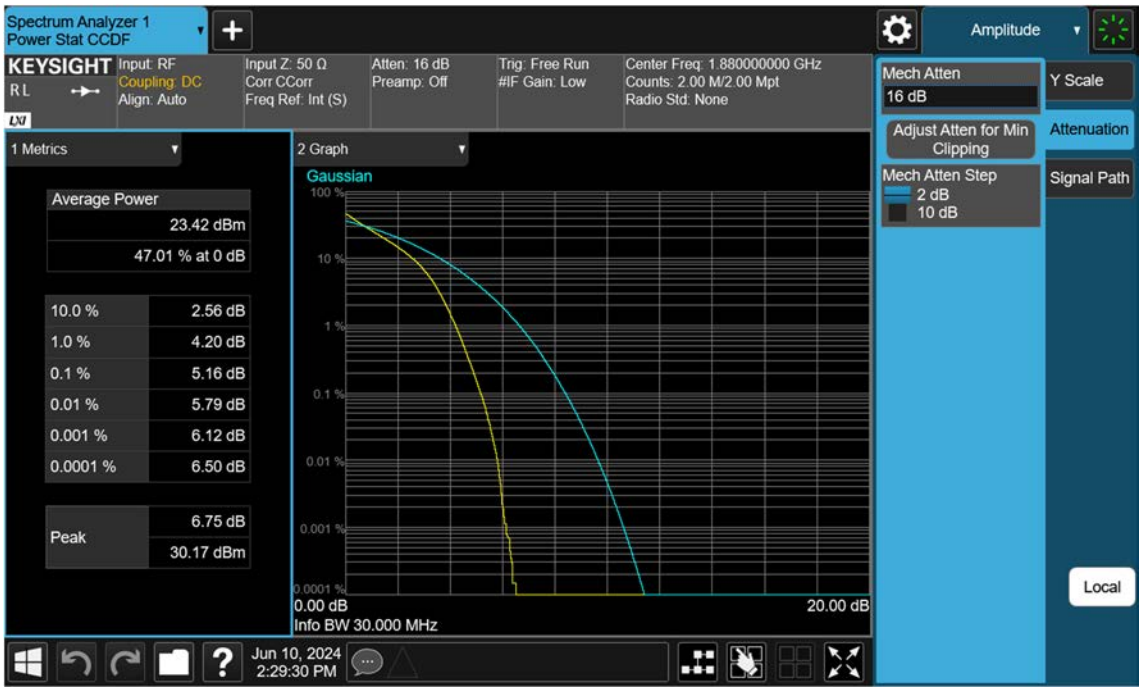

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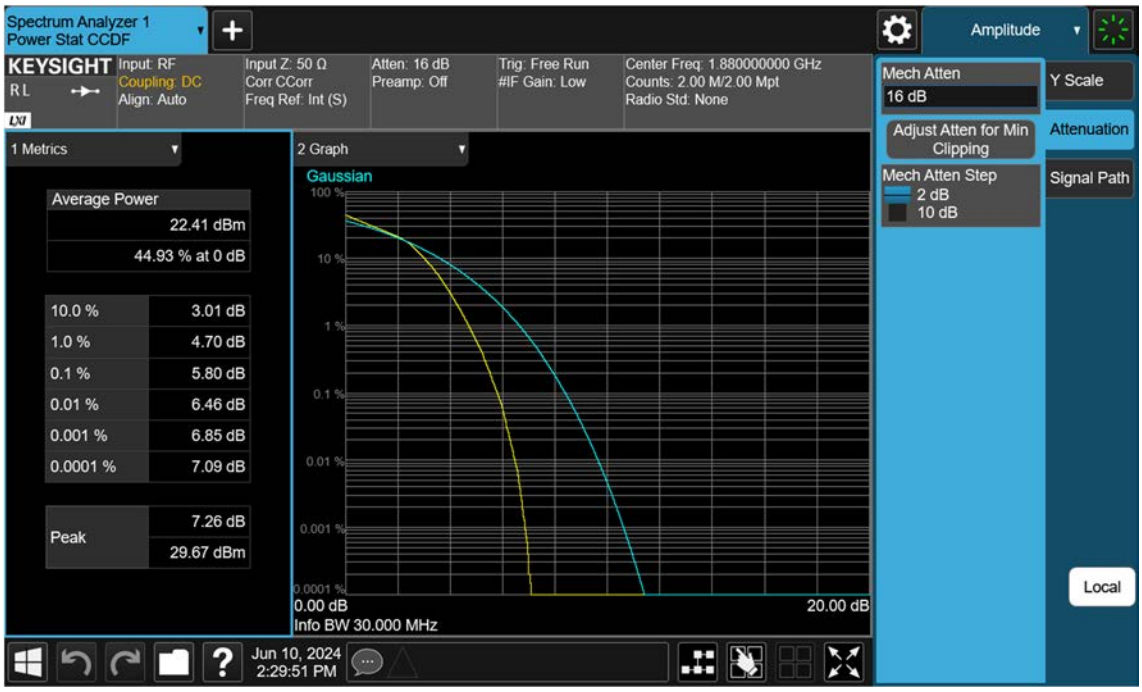

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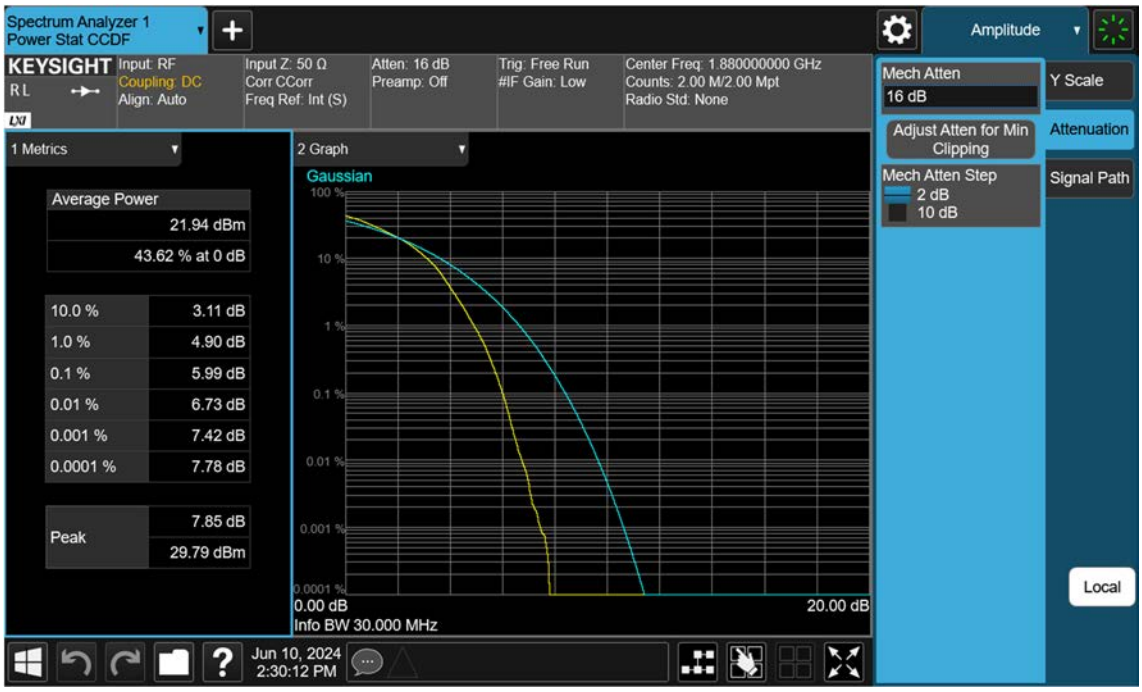

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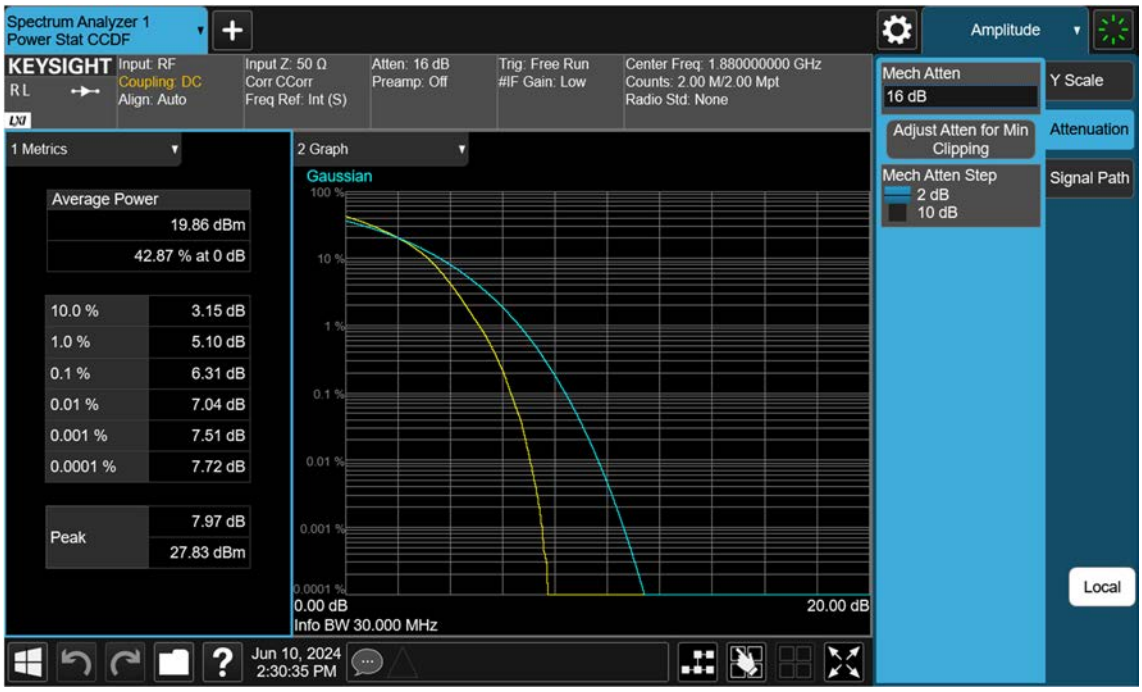
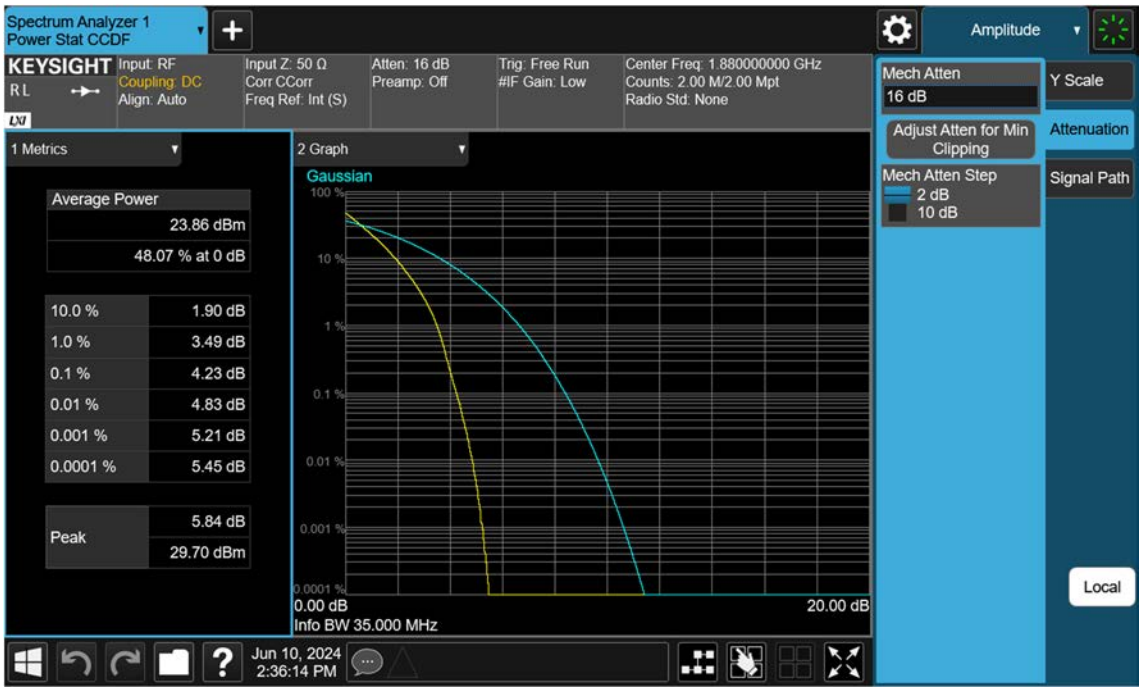


35 M_PAR_Mid_BPSK_FullRB



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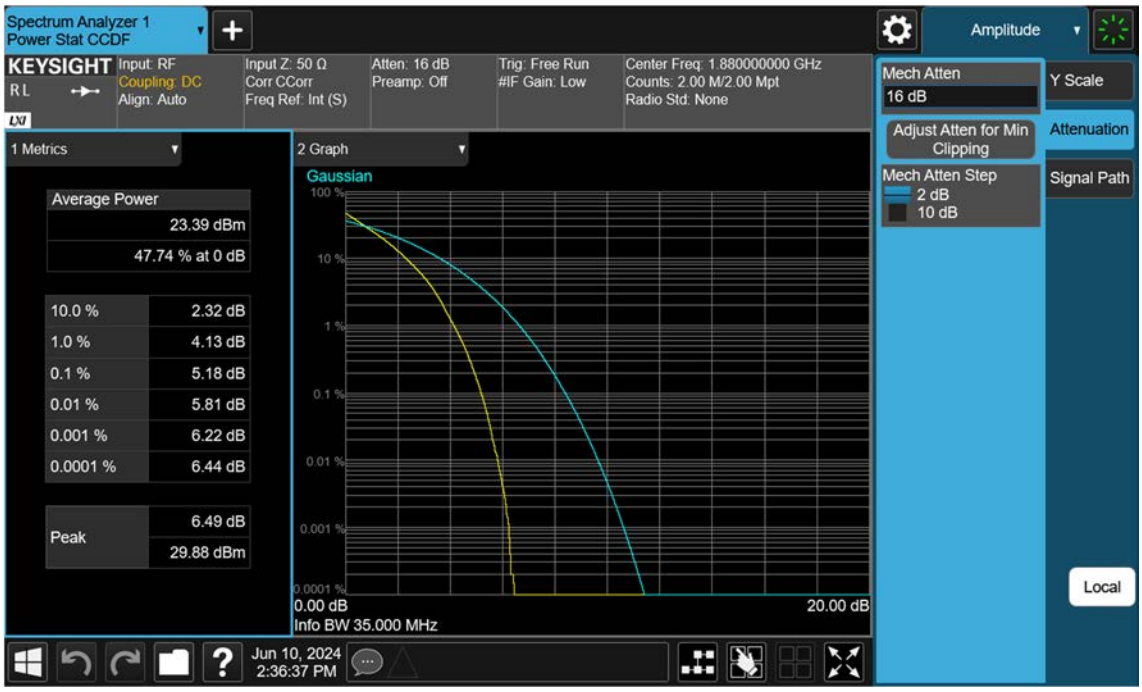

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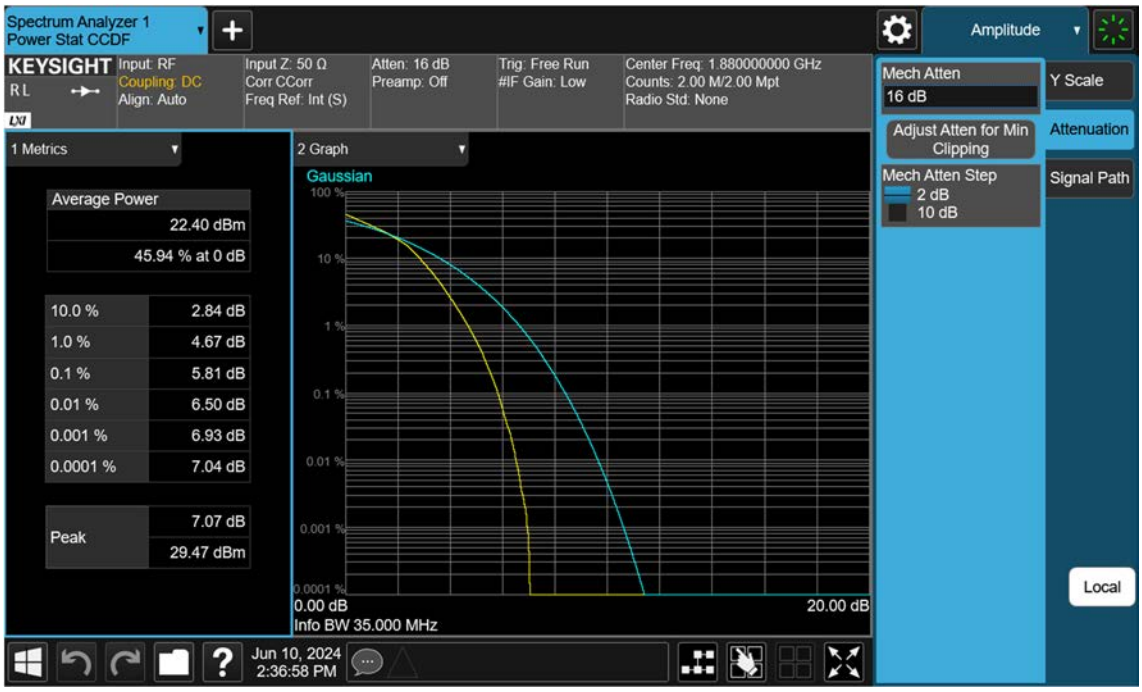
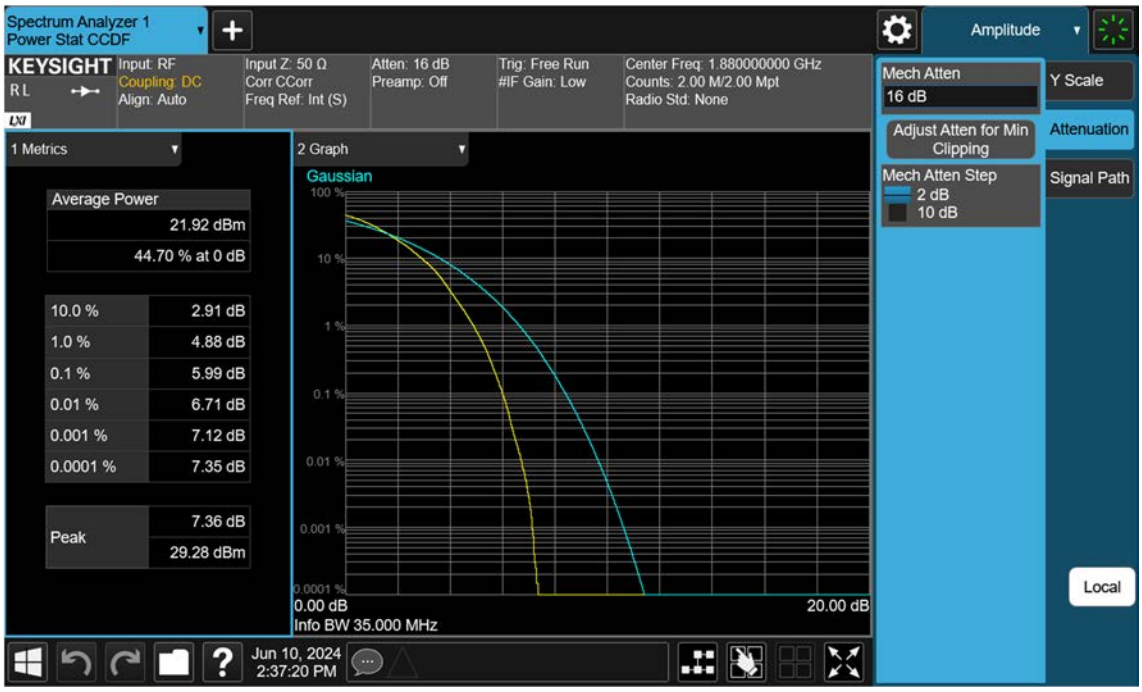
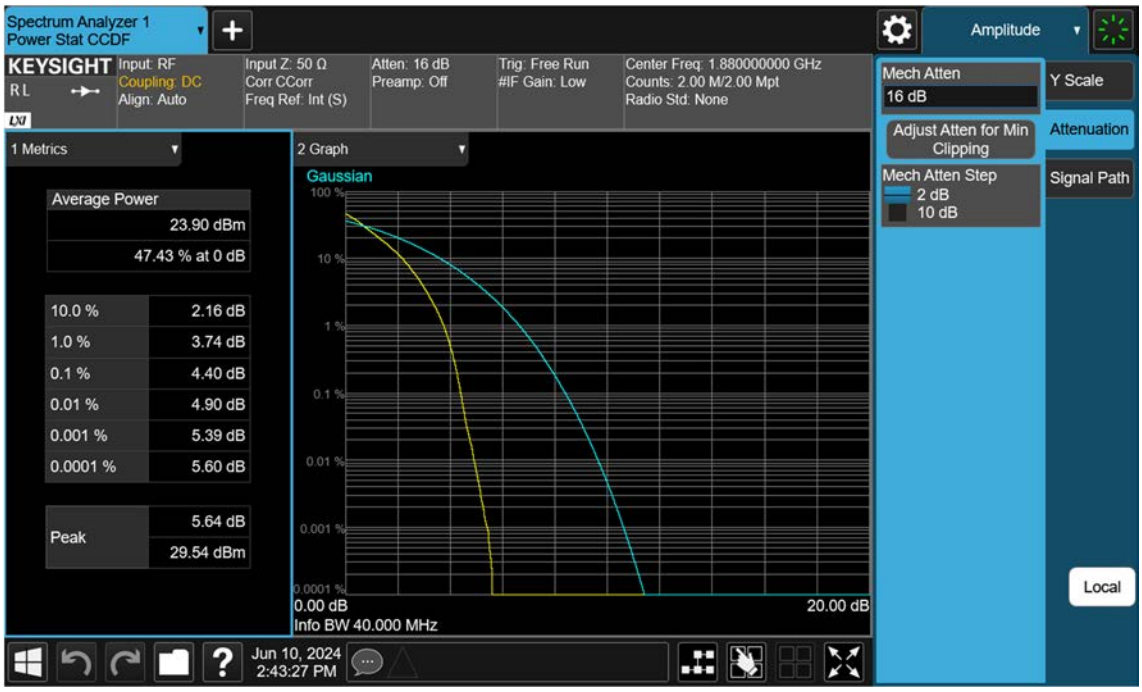


35 M_PAR_Mid_64QAM_FullRB



35 M_PAR_Mid_256QAM_FullRB

40 M_PAR_Mid_BPSK_FullRB



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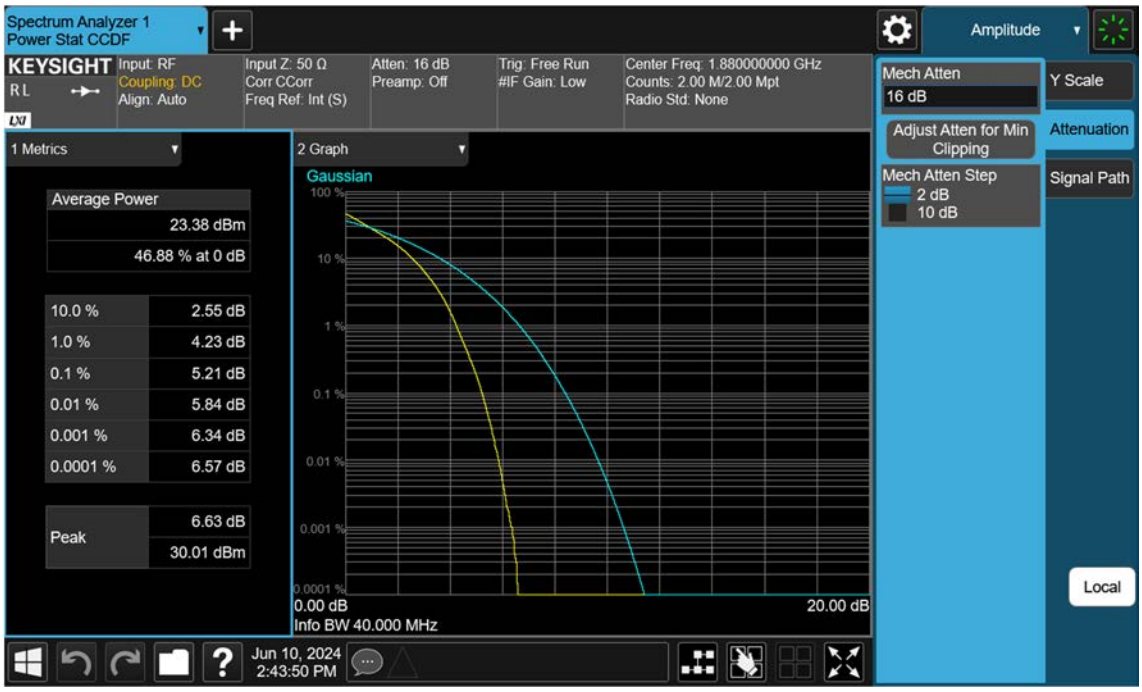

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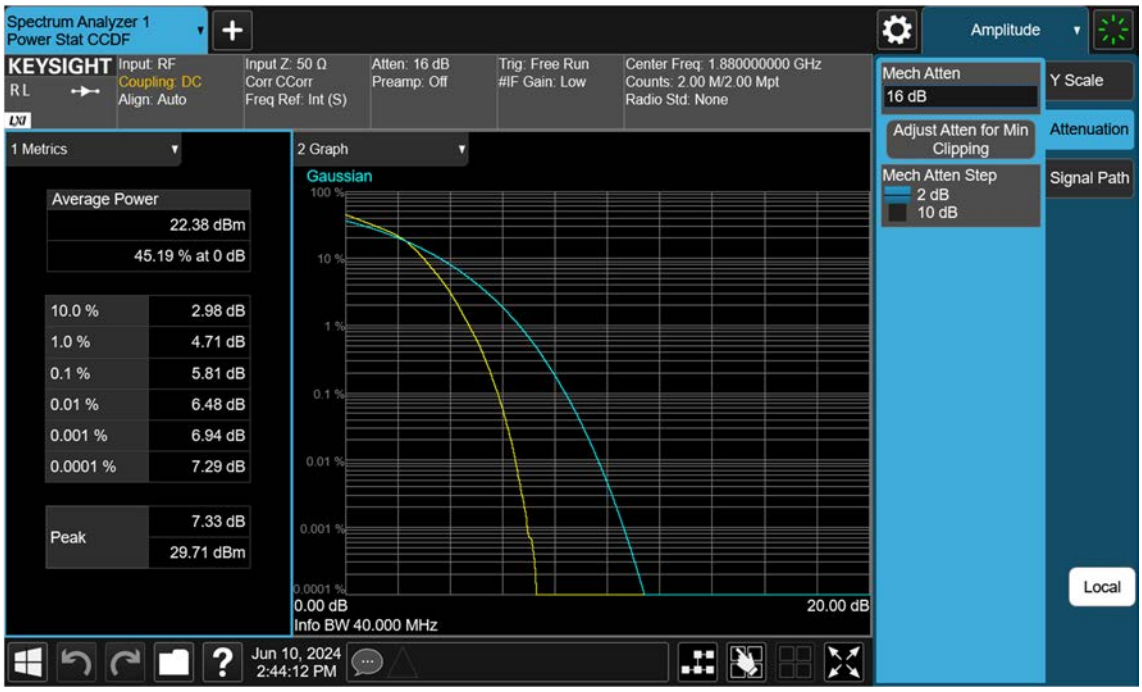

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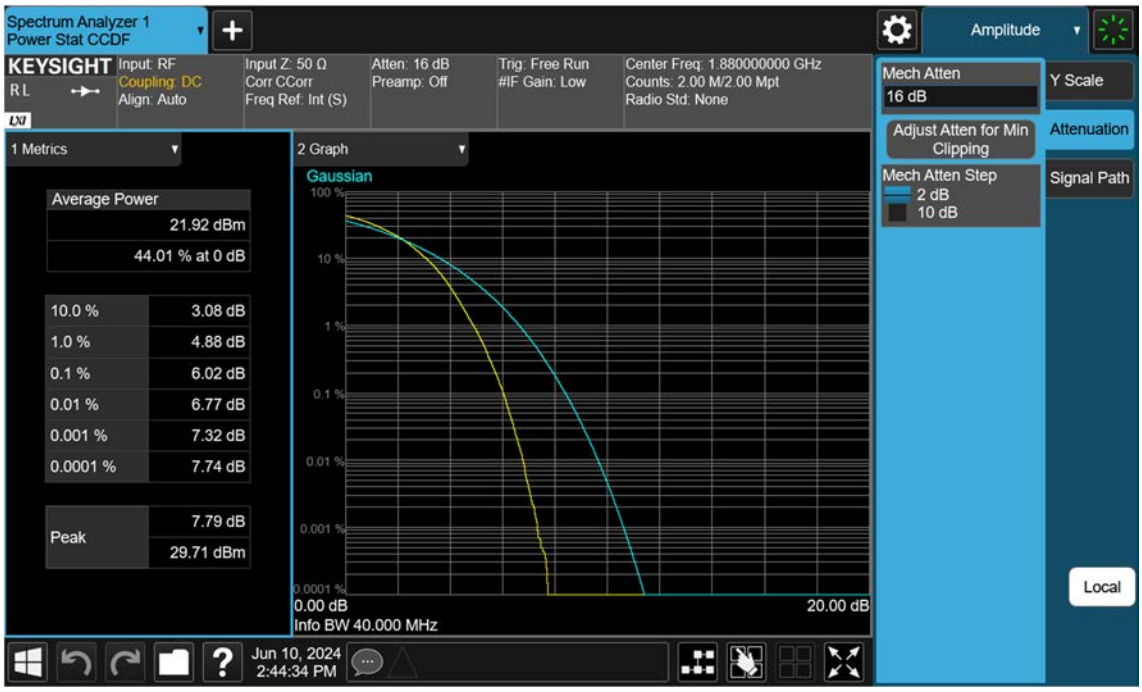

40 M_PAR_Mid_256QAM_FullRB

5 M_OBW_Mid_BPSK_FullRB

5 M_OBW_Mid_QPSK_FullRB

5 M_OBW_Mid_16QAM_FullRB

5 M_OBW_Mid_64QAM_FullRB

5 M_OBW_Mid_256QAM_FullRB

10 M_OBW_Mid_BPSK_FullRB

10 M_OBW_Mid_QPSK_FullRB

10 M_OBW_Mid_16QAM_FullRB

10 M_OBW_Mid_64QAM_FullRB

10 M_OBW_Mid_256QAM_FullRB

15 M_OBW_Mid_BPSK_FullRB

15 M_OBW_Mid_QPSK_FullRB

15 M_OBW_Mid_16QAM_FullRB

15 M_OBW_Mid_64QAM_FullRB

15 M_OBW_Mid_256QAM_FullRB

20 M_OBW_Mid_BPSK_FullRB

20 M_OBW_Mid_QPSK_FullRB

20 M_OBW_Mid_16QAM_FullRB

20 M_OBW_Mid_64QAM_FullRB

20 M_OBW_Mid_256QAM_FullRB

25 M_OBW_Mid_BPSK_FullRB

25 M_OBW_Mid_QPSK_FullRB

25 M_OBW_Mid_16QAM_FullRB

25 M_OBW_Mid_64QAM_FullRB

25 M_OBW_Mid_256QAM_FullRB

30 M_OBW_Mid_BPSK_FullRB

30 M_OBW_Mid_QPSK_FullRB

30 M_OBW_Mid_16QAM_FullRB