

TEST REPORT

FCC Sub6 n25(2) Test for SM-F761U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2504-FC072

DATE OF ISSUE
April 29, 2025

Tested by
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TEST REPORT

REPORT NO.

HCT-RF-2504-FC072

DATE OF ISSUE

April 29, 2025

Additional Model

SM-F761U1

Applicant

SAMSUNG Electronics Co., Ltd.

129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Product Name

Mobile Phone

Model Name

SM-F761U

Date of Test

February 26, 2025 ~ April 28, 2025

FCC ID

A3LSMF761U

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 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	April 29, 2025	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).

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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:	A3LSMF761U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§ 24
EUT Type:	Mobile Phone
Model(s):	SM-F761U
Additional Model	SM-F761U1
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 – 1912.5 MHz (5 MHz) (Sub6 n25(2)) 1855.0 MHz – 1910.0 MHz (10 MHz) (Sub6 n25(2)) 1857.5 MHz – 1907.5 MHz (15 MHz) (Sub6 n25(2)) 1860.0 MHz – 1905.0 MHz (20 MHz) (Sub6 n25(2)) 1862.5 MHz – 1902.5 MHz (25 MHz) (Sub6 n25(2)) 1865.0 MHz – 1900.0 MHz (30 MHz) (Sub6 n25(2)) 1867.5 MHz – 1897.5 MHz (35 MHz) (Sub6 n25(2)) 1870.0 MHz – 1895.0 MHz (40 MHz) (Sub6 n25(2))
Date(s) of Tests:	February 26, 2025 ~ April 28, 2025
Serial number:	Radiated : R3CY20BS0BY Conducted : R3CY20BS8HW Uplink Carrier Aggregation : 8caddb94573a7ece
Antenna Information	Please refer to the Antenna Specification document.

1.1. MAXIMUM OUTPUT POWER

Main 1 ANT

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n25(2) (5)	1852.5 - 1912.5	4M54G7D	PI/2 BPSK	0.303	24.82
		4M53G7D	QPSK	0.286	24.57
		4M54W7D	16QAM	0.242	23.84
		4M54W7D	64QAM	0.167	22.24
		4M54W7D	256QAM	0.105	20.23
Sub6 n25(2) (10)	1855.0 - 1910.0	9M02G7D	PI/2 BPSK	0.296	24.71
		8M99G7D	QPSK	0.295	24.70
		9M00W7D	16QAM	0.241	23.82
		9M01W7D	64QAM	0.169	22.28
		9M01W7D	256QAM	0.104	20.16
Sub6 n25(2) (15)	1857.5 - 1907.5	13M5G7D	PI/2 BPSK	0.286	24.56
		13M5G7D	QPSK	0.279	24.46
		13M5W7D	16QAM	0.219	23.40
		13M5W7D	64QAM	0.152	21.82
		13M5W7D	256QAM	0.095	19.76
Sub6 n25(2) (20)	1860.0 - 1905.0	18M0G7D	PI/2 BPSK	0.280	24.47
		17M9G7D	QPSK	0.278	24.44
		17M9W7D	16QAM	0.222	23.47
		18M0W7D	64QAM	0.159	22.01
		18M0W7D	256QAM	0.101	20.04
Sub6 n25(2) (25)	1862.5 – 1902.5	23M1G7D	PI/2 BPSK	0.311	24.93
		23M1G7D	QPSK	0.310	24.92
		23M1W7D	16QAM	0.245	23.89
		23M1W7D	64QAM	0.167	22.23
		23M0W7D	256QAM	0.108	20.33
Sub6 n25(2) (30)	1865.0 – 1900.0	28M8G7D	PI/2 BPSK	0.315	24.98
		28M8G7D	QPSK	0.311	24.93
		28M9W7D	16QAM	0.248	23.94
		28M9W7D	64QAM	0.171	22.34
		28M9W7D	256QAM	0.107	20.29
Sub6 n25(2) (35)	1867.5 – 1897.5	32M4G7D	PI/2 BPSK	0.335	25.25
		32M5G7D	QPSK	0.331	25.20
		32M4W7D	16QAM	0.264	24.21
		32M4W7D	64QAM	0.179	22.52
		32M4W7D	256QAM	0.115	20.60
Sub6 n25(2) (40)	1870.0 – 1895.0	38M8G7D	PI/2 BPSK	0.336	25.26
		38M9G7D	QPSK	0.327	25.15
		38M8W7D	16QAM	0.261	24.17
		38M9W7D	64QAM	0.183	22.62
		38M9W7D	256QAM	0.114	20.55

Sub 5 ANT

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n25(2) (5)	1852.5 - 1912.5	4M52G7D	PI/2 BPSK	0.203	23.08
		4M53G7D	QPSK	0.200	23.02
		4M53W7D	16QAM	0.156	21.92
		4M54W7D	64QAM	0.114	20.58
		4M52W7D	256QAM	0.069	18.41
Sub6 n25(2) (10)	1855.0 - 1910.0	9M02G7D	PI/2 BPSK	0.197	22.95
		9M00G7D	QPSK	0.194	22.88
		8M99W7D	16QAM	0.154	21.88
		8M99W7D	64QAM	0.109	20.36
		8M99W7D	256QAM	0.069	18.38
Sub6 n25(2) (15)	1857.5 - 1907.5	13M5G7D	PI/2 BPSK	0.198	22.96
		13M5G7D	QPSK	0.196	22.93
		13M5W7D	16QAM	0.155	21.91
		13M5W7D	64QAM	0.107	20.30
		13M4W7D	256QAM	0.069	18.38
Sub6 n25(2) (20)	1860.0 - 1905.0	17M9G7D	PI/2 BPSK	0.194	22.87
		17M9G7D	QPSK	0.193	22.85
		17M9W7D	16QAM	0.156	21.92
		17M9W7D	64QAM	0.110	20.40
		18M0W7D	256QAM	0.067	18.29
Sub6 n25(2) (25)	1862.5 – 1902.5	23M0G7D	PI/2 BPSK	0.195	22.89
		23M0G7D	QPSK	0.191	22.82
		23M0W7D	16QAM	0.152	21.81
		23M0W7D	64QAM	0.106	20.26
		23M0W7D	256QAM	0.067	18.28
Sub6 n25(2) (30)	1865.0 – 1900.0	28M8G7D	PI/2 BPSK	0.200	23.00
		28M7G7D	QPSK	0.197	22.95
		28M8W7D	16QAM	0.158	21.98
		28M8W7D	64QAM	0.112	20.49
		28M8W7D	256QAM	0.070	18.45
Sub6 n25(2) (35)	1867.5 – 1897.5	32M3G7D	PI/2 BPSK	0.214	23.31
		32M3G7D	QPSK	0.213	23.28
		32M3W7D	16QAM	0.168	22.26
		32M4W7D	64QAM	0.116	20.66
		32M4W7D	256QAM	0.074	18.72
Sub6 n25(2) (40)	1870.0 – 1895.0	38M8G7D	PI/2 BPSK	0.215	23.32
		38M8G7D	QPSK	0.209	23.20
		38M7W7D	16QAM	0.169	22.29
		39M0W7D	64QAM	0.119	20.75
		38M7W7D	256QAM	0.074	18.72

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

Please refer to the [2G3G] Test Report.

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, Republic 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
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Radiated Power	- ANSI C63.26-2015 – Section 5.2.4.4 - KDB 971168 D01 v03r01 – Section 5.8
Radiated Spurious and Harmonic Emissions	- ANSI C63.26-2015 – Section 5.5.3 - KDB 971168 D01 v03r01 – Section 5.8

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.

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 $\geq$ 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;

$$P_d \text{ (dBm)} = P_g \text{ (dBm)} - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

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.

Test Settings

1. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $> 2 \times$ 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 10th 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;

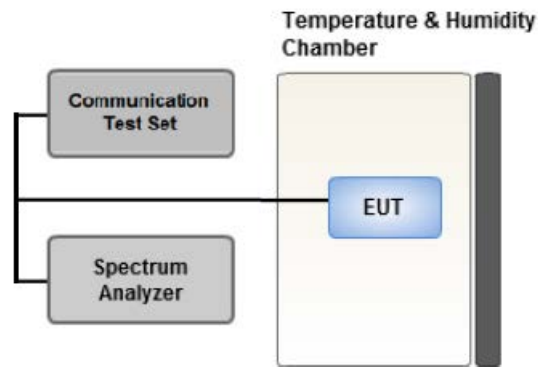
$$\text{Result}_{(\text{dBm})} = P_g_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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.

$$\text{EIRP}_{(\text{dBm})} = \text{ERP}_{(\text{dBm})} + 2.15$$

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

1. Set resolution/measurement bandwidth $\geq$ 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:

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

Test Settings(Peak Power)

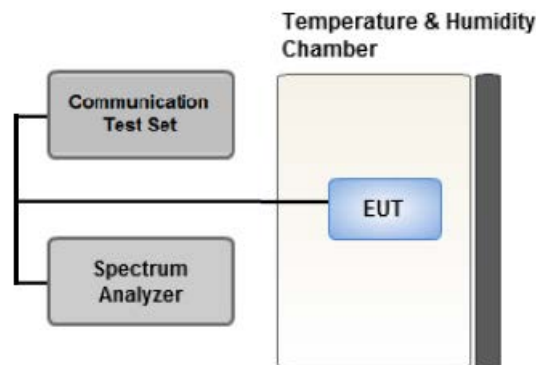
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW $\geq 3 \times$ RBW.

1. Set the RBW $\geq$ OBW.
2. Set VBW $\geq 3 \times$ RBW.
3. Set span $\geq 2 \times$ OBW.
4. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (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 $2 \times$ to $3 \times$ the OBW.
2. Set RBW $\geq$ OBW.
3. Set VBW $\geq 3 \times$ RBW.
4. Set number of measurement points in sweep $\geq 2 \times$ span / RBW.
5. Sweep time:
Set $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$ 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 $[10 \log (1/\text{duty cycle})]$ to the measured maximum power level to compute the average power during continuous transmission. For example, add $[10 \log (1/0.25)] = 6 \text{ dB}$ 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.

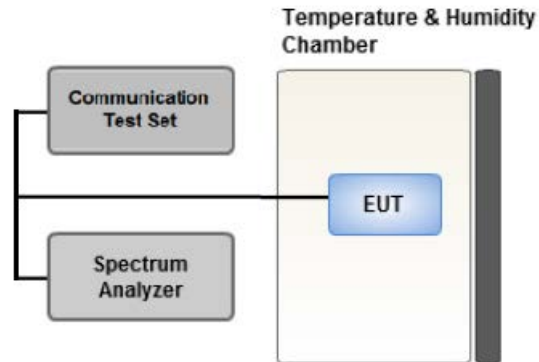
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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 $\geq$ 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

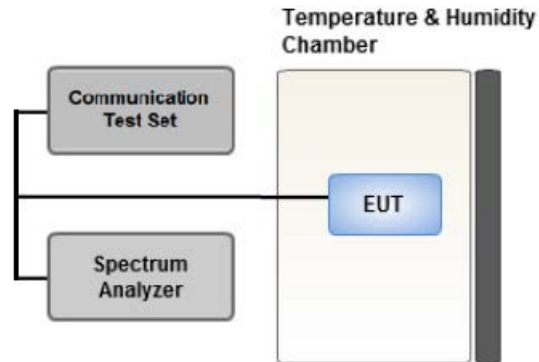
Test Overview

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 $\geq$ 3 MHz
3. Detector = Peak
4. Trace Mode = max hold
5. Sweep time = auto
6. Number of points in sweep $\geq 2 \times \text{Span} / \text{RBW}$

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 $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

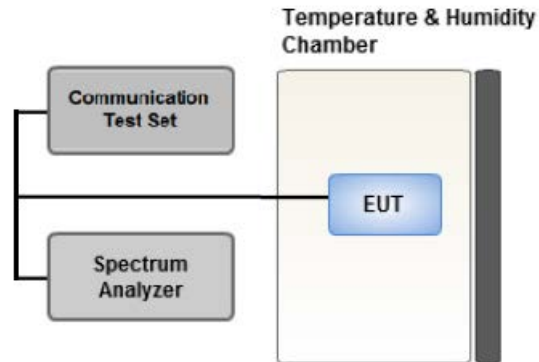
According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block 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 $10 \log(1 \text{ MHz} / \text{RB})$ 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

- The EUT was tested in three modes(Open, Half-open, Closed), the worst case configuration results are reported.

- Worst case (Equivalent Isotropic Radiated Power)

: Main 1 ANT (Half Open), Sub 5 ANT (Open)

- Worst case (Radiated Spurious Emissions)

: Main 1 ANT (Open), Sub 5 ANT (Open)

- 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 : 40 MHz)

- Sub6 n25 (1 850 – 1 915 MHz, 5/10/15/20/25/30/35/40 MHz bandwidth) overlaps the entire frequency range of Sub6 n2 (1 850 – 1 910 MHz, 5/10/15/20/25/30/35/40 MHz bandwidth).

Therefore, test data provided in this report covers Sub6 n25 as well as Sub6 n2.

- SM-F761U & additional models were tested and the worst case results are reported.

(Worst case : SM-F761U)

[Main 1 ANT Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Equivalent Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 8.1		X
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 8.2		X

[Sub 5 ANT Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Equivalent Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 9.1		X
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 9.2		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: NSA, SA
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.
- Sub6 n25 (1 850 – 1 915 MHz, 5/10/15/20/25/30/35/40 MHz bandwidth) overlaps the entire frequency range of Sub6 n2 (1 850 – 1 910 MHz, 5/10/15/20/25/30/35/40 MHz bandwidth).
Therefore, test data provided in this report covers Sub6 n25 as well as Sub6 n2.
- SM-F761U & additional models were tested and the worst case results are reported.
(Worst case : SM-F761U)

[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	04/17/2027	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/23/2027	Biennial
Loop Antenna(9 kHz~30 MHz)	FMZB1513	Rohde & Schwarz	1513-175	01/06/2027	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/05/2027	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/17/2027	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	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/19/2026	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	08/22/2025	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	02/04/2026	Annual
Chamber	SU-642	ESPEC	93008124	02/11/2026	Annual
Signal Analyzer(10 Hz~26.5 GHz)	N9020A	Agilent	MY51110063	03/21/2026	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/10/2026	Annual
Spectrum Analyzer (10 Hz~40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/04/2026	Annual
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	05/23/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	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
UXM 5G Wireless Test Platform	E7515B	KEYSIGHT	MY60101126	02/10/2026	Annual
Signal Analyzer(5 Hz~40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/10/2025	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/26/2025	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
- 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 ($\pm$ kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, $k=2$)
Frequency stability	28 (Confidence level about 95 %, $k=2$)

Parameter	Expanded Uncertainty ($\pm$ dB)
Block Edge	0.70 (Confidence level about 95 %, $k=2$)
Conducted Spurious Emissions	1.18 (Confidence level about 95 %, $k=2$)
Peak- to- Average Ratio	0.68 (Confidence level about 95 %, $k=2$)
Radiated Power	4.74 (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)	5.68 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.75 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.82 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, $k=2$)

6. SUMMARY OF TEST RESULTS

-. The decision rule applies 'simple acceptance'

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	<u>See Note1</u>
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

$$\text{ERP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 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

$$\text{EIRP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 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(Main 1 ANT)

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		PI/2 BPSK	-17.18	16.45	10.45	2.08	H	< 2.00	0.303	24.82	1	23
		QPSK	-17.43	16.20	10.45	2.08	H		0.286	24.57		
		16-QAM	-18.16	15.47	10.45	2.08	H		0.242	23.84		
		64-QAM	-19.76	13.87	10.45	2.08	H		0.167	22.24		
		256-QAM	-21.77	11.86	10.45	2.08	H		0.106	20.23		
1882.5	Sub6 n25(2)/ 5 MHz [15 kHz]	PI/2 BPSK	-18.33	15.56	10.32	2.21	H	< 2.00	0.233	23.67	1	1
		QPSK	-18.43	15.46	10.32	2.21	H		0.228	23.57		
		16-QAM	-19.31	14.58	10.32	2.21	H		0.186	22.69		
		64-QAM	-20.90	12.99	10.32	2.21	H		0.129	21.10		
		256-QAM	-22.97	10.92	10.32	2.21	H		0.080	19.03		
1912.5		PI/2 BPSK	-19.30	14.88	10.19	2.17	H	< 2.00	0.195	22.90	1	1
		QPSK	-19.37	14.81	10.19	2.17	H		0.192	22.83		
		16-QAM	-20.52	13.66	10.19	2.17	H		0.147	21.68		
		64-QAM	-21.96	12.22	10.19	2.17	H		0.106	20.24		
		256-QAM	-24.05	10.13	10.19	2.17	H		0.065	18.15		

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		PI/2 BPSK	-17.29	16.34	10.45	2.08	H	< 2.00	0.296	24.71	1	26
		QPSK	-17.30	16.33	10.45	2.08	H		0.295	24.70		
		16-QAM	-18.18	15.45	10.45	2.08	H		0.241	23.82		
		64-QAM	-19.72	13.91	10.45	2.08	H		0.169	22.28		
		256-QAM	-21.84	11.79	10.45	2.08	H		0.104	20.16		
1882.5	Sub6 n25(2)/ 10 MHz [15 kHz]	PI/2 BPSK	-18.14	15.75	10.32	2.21	H	< 2.00	0.243	23.86	1	1
		QPSK	-18.20	15.69	10.32	2.21	H		0.240	23.80		
		16-QAM	-19.11	14.78	10.32	2.21	H		0.195	22.89		
		64-QAM	-20.84	13.05	10.32	2.21	H		0.131	21.16		
		256-QAM	-22.86	11.03	10.32	2.21	H		0.082	19.14		
1910.0		PI/2 BPSK	-19.22	14.68	10.21	2.17	H	< 2.00	0.187	22.72	1	26
		QPSK	-19.28	14.62	10.21	2.17	H		0.184	22.66		
		16-QAM	-20.21	13.69	10.21	2.17	H		0.149	21.73		
		64-QAM	-21.81	12.09	10.21	2.17	H		0.103	20.13		
		256-QAM	-24.00	9.90	10.21	2.17	H		0.062	17.94		

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		PI/2 BPSK	-17.09	16.23	10.43	2.10	H	< 2.00	0.286	24.56	1	39
		QPSK	-17.19	16.13	10.43	2.10	H		0.279	24.46		
		16-QAM	-18.25	15.07	10.43	2.10	H		0.219	23.40		
		64-QAM	-19.83	13.49	10.43	2.10	H		0.152	21.82		
		256-QAM	-21.89	11.43	10.43	2.10	H		0.095	19.76		
1882.5	Sub6 n25(2)/ 15 MHz [15 kHz]	PI/2 BPSK	-18.20	15.69	10.32	2.21	H	< 2.00	0.240	23.80	1	39
		QPSK	-18.21	15.68	10.32	2.21	H		0.239	23.79		
		16-QAM	-19.29	14.60	10.32	2.21	H		0.187	22.71		
		64-QAM	-20.89	13.00	10.32	2.21	H		0.129	21.11		
		256-QAM	-22.96	10.93	10.32	2.21	H		0.080	19.04		
1907.5		PI/2 BPSK	-18.87	15.03	10.21	2.17	H	< 2.00	0.203	23.07	1	1
		QPSK	-18.88	15.02	10.21	2.17	H		0.202	23.06		
		16-QAM	-19.99	13.91	10.21	2.17	H		0.157	21.95		
		64-QAM	-21.51	12.39	10.21	2.17	H		0.110	20.43		
		256-QAM	-23.53	10.37	10.21	2.17	H		0.069	18.41		

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		PI/2 BPSK	-17.18	16.14	10.43	2.10	H	< 2.00	0.280	24.47	1	1
		QPSK	-17.21	16.11	10.43	2.10	H		0.278	24.44		
		16-QAM	-18.18	15.14	10.43	2.10	H		0.223	23.47		
		64-QAM	-19.64	13.68	10.43	2.10	H		0.159	22.01		
		256-QAM	-21.61	11.71	10.43	2.10	H		0.101	20.04		
1882.5	Sub6 n25(2)/ 20 MHz [15 kHz]	PI/2 BPSK	-18.15	15.74	10.32	2.21	H		0.243	23.85	1	1
		QPSK	-18.17	15.72	10.32	2.21	H		0.242	23.83		
		16-QAM	-19.17	14.72	10.32	2.21	H		0.192	22.83		
		64-QAM	-20.66	13.23	10.32	2.21	H		0.136	21.34		
		256-QAM	-22.88	11.01	10.32	2.21	H		0.082	19.12		
1905.0		PI/2 BPSK	-19.00	15.04	10.23	2.19	H		0.203	23.08	1	1
		QPSK	-19.02	15.02	10.23	2.19	H		0.202	23.06		
		16-QAM	-20.07	13.97	10.23	2.19	H		0.159	22.01		
		64-QAM	-21.52	12.52	10.23	2.19	H		0.114	20.56		
		256-QAM	-23.66	10.38	10.23	2.19	H		0.070	18.42		

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		PI/2 BPSK	-16.96	16.65	10.41	2.13	H	< 2.00	0.312	24.93	1	1
		QPSK	-16.97	16.64	10.41	2.13	H		0.311	24.92		
		16-QAM	-18.00	15.61	10.41	2.13	H		0.245	23.89		
		64-QAM	-19.66	13.95	10.41	2.13	H		0.167	22.23		
		256-QAM	-21.56	12.05	10.41	2.13	H		0.108	20.33		
1882.5	Sub6 n25(2)/ 25 MHz [15 kHz]	PI/2 BPSK	-17.95	15.94	10.32	2.21	H		0.254	24.05	1	1
		QPSK	-17.98	15.91	10.32	2.21	H		0.252	24.02		
		16-QAM	-18.98	14.91	10.32	2.21	H		0.200	23.02		
		64-QAM	-20.59	13.30	10.32	2.21	H		0.138	21.41		
		256-QAM	-22.58	11.31	10.32	2.21	H		0.088	19.42		
1902.5		PI/2 BPSK	-18.83	15.21	10.23	2.19	H		0.211	23.25	1	66
		QPSK	-18.89	15.15	10.23	2.19	H		0.209	23.19		
		16-QAM	-19.97	14.07	10.23	2.19	H		0.163	22.11		
		64-QAM	-21.51	12.53	10.23	2.19	H		0.114	20.57		
		256-QAM	-23.55	10.49	10.23	2.19	H		0.071	18.53		

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
1865.0		PI/2 BPSK	-16.91	16.70	10.41	2.13	H	< 2.00	0.315	24.98	1	1
		QPSK	-16.96	16.65	10.41	2.13	H		0.311	24.93		
		16-QAM	-17.95	15.66	10.41	2.13	H		0.248	23.94		
		64-QAM	-19.55	14.06	10.41	2.13	H		0.171	22.34		
		256-QAM	-21.60	12.01	10.41	2.13	H		0.107	20.29		
1882.5	Sub6 n25(2)/ 30 MHz [15 kHz]	PI/2 BPSK	-17.91	15.98	10.32	2.21	H		0.256	24.09	1	1
		QPSK	-17.93	15.96	10.32	2.21	H		0.255	24.07		
		16-QAM	-18.88	15.01	10.32	2.21	H		0.205	23.12		
		64-QAM	-20.39	13.50	10.32	2.21	H		0.145	21.61		
		256-QAM	-22.52	11.37	10.32	2.21	H		0.089	19.48		
1900.0		PI/2 BPSK	-18.58	15.59	10.25	2.20	H		0.231	23.64	1	1
		QPSK	-18.60	15.57	10.25	2.20	H		0.230	23.62		
		16-QAM	-19.62	14.55	10.25	2.20	H		0.182	22.60		
		64-QAM	-21.21	12.96	10.25	2.20	H		0.126	21.01		
		256-QAM	-23.30	10.87	10.25	2.20	H		0.078	18.92		

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		PI/2 BPSK	-16.89	17.02	10.39	2.16	H	< 2.00	0.335	25.25	1	1
		QPSK	-16.94	16.97	10.39	2.16	H		0.331	25.20		
		16-QAM	-17.93	15.98	10.39	2.16	H		0.264	24.21		
		64-QAM	-19.62	14.29	10.39	2.16	H		0.179	22.52		
		256-QAM	-21.54	12.37	10.39	2.16	H		0.115	20.60		
1882.5	Sub6 n25(2)/ 35 MHz [15 kHz]	PI/2 BPSK	-17.90	15.99	10.32	2.21	H		0.257	24.10	1	1
		QPSK	-17.93	15.96	10.32	2.21	H		0.255	24.07		
		16-QAM	-18.88	15.01	10.32	2.21	H		0.205	23.12		
		64-QAM	-20.49	13.40	10.32	2.21	H		0.142	21.51		
		256-QAM	-22.64	11.25	10.32	2.21	H		0.086	19.36		
1897.5		PI/2 BPSK	-18.57	15.60	10.25	2.20	H		0.232	23.65	1	1
		QPSK	-18.61	15.56	10.25	2.20	H		0.230	23.61		
		16-QAM	-19.65	14.52	10.25	2.20	H		0.181	22.57		
		64-QAM	-21.20	12.97	10.25	2.20	H		0.127	21.02		
		256-QAM	-23.33	10.84	10.25	2.20	H		0.078	18.89		

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		PI/2 BPSK	-16.88	17.03	10.39	2.16	H	< 2.00	0.336	25.26	1	1
		QPSK	-16.99	16.92	10.39	2.16	H		0.327	25.15		
		16-QAM	-17.97	15.94	10.39	2.16	H		0.261	24.17		
		64-QAM	-19.52	14.39	10.39	2.16	H		0.183	22.62		
		256-QAM	-21.59	12.32	10.39	2.16	H		0.114	20.55		
1882.5	Sub6 n25(2)/ 40 MHz [15 kHz]	PI/2 BPSK	-17.78	16.11	10.32	2.21	H		0.264	24.22	1	1
		QPSK	-17.91	15.98	10.32	2.21	H		0.256	24.09		
		16-QAM	-18.87	15.02	10.32	2.21	H		0.206	23.13		
		64-QAM	-20.47	13.42	10.32	2.21	H		0.142	21.53		
		256-QAM	-22.54	11.35	10.32	2.21	H		0.088	19.46		
1895.0		PI/2 BPSK	-18.47	15.71	10.28	2.20	H		0.239	23.79	1	1
		QPSK	-18.52	15.66	10.28	2.20	H		0.237	23.74		
		16-QAM	-19.50	14.68	10.28	2.20	H		0.189	22.76		
		64-QAM	-21.06	13.12	10.28	2.20	H		0.132	21.20		
		256-QAM	-23.21	10.97	10.28	2.20	H		0.080	19.05		

8.2 RADIATED SPURIOUS EMISSIONS

NR Band:	<u>N25(2)</u>
Bandwidth:	<u>40 MHz</u>
Modulation:	<u>PI/2 BPSK</u>
Distance:	<u>3 meters</u>
SCS:	<u>15 kHz</u>

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	-60.05	12.00	-59.99	3.19	V	-51.18	-13.00	1	1
	5 610.00	-62.80	12.21	-57.07	3.92	V	-48.78	-13.00		
	7 480.00	-63.29	11.45	-48.49	4.62	V	-41.66	-13.00		
376500 (1882.5)	3 765.00	-59.88	11.88	-59.27	3.11	V	-50.50	-13.00	1	1
	5 647.50	-61.54	12.11	-55.35	3.96	V	-47.20	-13.00		
	7 530.00	-62.95	11.57	-48.18	4.60	V	-41.21	-13.00		
379000 (1895.0)	3 790.00	-59.54	11.76	-58.69	3.19	V	-50.12	-13.00	1	1
	5 685.00	-62.80	12.00	-56.53	4.01	V	-48.54	-13.00		
	7 580.00	-63.67	11.61	-49.10	4.65	V	-42.14	-13.00		

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n25(2)	5 MHz	1882.5	BPSK	25	0	4.26
			QPSK			5.16
			16-QAM			5.95
			64-QAM			5.91
			256-QAM			5.92
	10 MHz		BPSK	50		4.07
			QPSK			4.89
			16-QAM			5.72
			64-QAM			5.63
			256-QAM			5.63
	15 MHz		BPSK	75		4.02
			QPSK			4.68
			16-QAM			5.54
			64-QAM			5.62
			256-QAM			5.60
	20 MHz		BPSK	100		3.92
			QPSK			4.66
			16-QAM			5.50
			64-QAM			5.61
			256-QAM			5.57

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n25(2)	25 MHz	1882.5	BPSK	128	0	4.37
			QPSK			4.90
			16-QAM			5.67
			64-QAM			5.71
			256-QAM			5.64
	30 MHz		BPSK	160		4.19
			QPSK			4.89
			16-QAM			5.70
			64-QAM			5.65
			256-QAM			5.63
	35 MHz		BPSK	180		3.97
			QPSK			4.88
			16-QAM			5.73
			64-QAM			5.61
			256-QAM			5.60
	40 MHz		BPSK	216		4.12
			QPSK			4.95
			16-QAM			5.72
			64-QAM			5.66
			256-QAM			5.66

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 73 ~ 112.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n25(2)	5 MHz	1882.5	BPSK	25	0	4.5355
			QPSK			4.5277
			16-QAM			4.5395
			64-QAM			4.5413
			256-QAM			4.5388
	10 MHz		BPSK	50		9.0186
			QPSK			8.9892
			16-QAM			9.0025
			64-QAM			9.0094
			256-QAM			9.0083
	15 MHz		BPSK	75		13.475
			QPSK			13.483
			16-QAM			13.473
			64-QAM			13.497
			256-QAM			13.458
	20 MHz		BPSK	100		17.954
			QPSK			17.938
			16-QAM			17.923
			64-QAM			17.959
			256-QAM			17.973

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n25(2)	25 MHz	1882.5	BPSK	128	0	23.069
			QPSK			23.069
			16-QAM			23.048
			64-QAM			23.088
			256-QAM			23.015
	30 MHz		BPSK	160		28.837
			QPSK			28.793
			16-QAM			28.848
			64-QAM			28.917
			256-QAM			28.923
	35 MHz		BPSK	180		32.375
			QPSK			32.458
			16-QAM			32.359
			64-QAM			32.424
			256-QAM			32.435
	40 MHz		BPSK	216		38.810
			QPSK			38.849
			16-QAM			38.762
			64-QAM			38.942
			256-QAM			38.880

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 113 ~ 152.

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 n25(2)	5	1852.5	7.1885	30.315	-62.880	-32.565	-13.00
		1882.5	3.8286	29.722	-61.073	-31.351	
		1912.5	4.0778	29.722	-62.247	-32.525	
	10	1855.0	8.8435	30.315	-60.779	-30.464	
		1882.5	3.7987	29.722	-61.357	-31.635	
		1910.0	8.6640	30.315	-61.158	-30.843	
	15	1857.5	4.9452	29.722	-61.073	-31.351	
		1882.5	3.7887	29.722	-60.953	-31.231	
		1907.5	3.7987	29.722	-61.799	-32.077	
	20	1860.0	4.9253	29.722	-60.664	-30.942	
		1882.5	3.7588	29.722	-60.783	-31.061	
		1905.0	3.8286	29.722	-60.169	-30.447	
	25	1862.5	3.7787	29.722	-60.666	-30.944	
		1882.5	3.9781	29.722	-62.197	-32.475	
		1902.5	3.7688	29.722	-61.249	-31.527	
	30	1865.0	4.0379	29.722	-61.242	-31.520	
		1882.5	4.8954	29.722	-61.766	-32.044	
		1900.0	5.1546	30.315	-61.609	-31.294	
	35	1867.5	3.8385	29.722	-62.183	-32.461	
		1882.5	3.7987	29.722	-60.292	-30.570	
		1897.5	3.7887	29.722	-61.022	-31.300	
	40	1870.0	3.9781	29.722	-61.600	-31.878	
		1882.5	6.1915	30.315	-61.385	-31.070	
		1895.0	3.7887	29.722	-60.745	-31.023	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 153 ~ 200.
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	27.012
1 – 5	29.722
5 – 10	30.315
10 – 15	30.840
15 – 20	31.213
Above 20	31.855

8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 201 ~ 248.

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. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1852.5	100 %	+20(Ref)	1852 499 998	0.0	0.000 000	0.000
	100 %	-30	1852 499 995	-3.0	0.000 000	-0.002
	100 %	-20	1852 499 996	-2.6	0.000 000	-0.001
	100 %	-10	1852 499 996	-2.2	0.000 000	-0.001
	100 %	0	1852 499 996	-1.7	0.000 000	-0.001
	100 %	+10	1852 499 997	-1.4	0.000 000	-0.001
	100 %	+30	1852 499 995	-2.9	0.000 000	-0.002
	100 %	+40	1852 499 996	-2.1	0.000 000	-0.001
	100 %	+50	1852 499 996	-2.6	0.000 000	-0.001
	Batt. Endpoint	+20	1852 499 995	-3.2	0.000 000	-0.002
1912.5	100 %	+20(Ref)	1912 499 997	0.0	0.000 000	0.000
	100 %	-30	1912 499 994	-3.0	0.000 000	-0.002
	100 %	-20	1912 499 995	-1.9	0.000 000	-0.001
	100 %	-10	1912 499 994	-3.1	0.000 000	-0.002
	100 %	0	1912 499 994	-2.6	0.000 000	-0.001
	100 %	+10	1912 499 994	-2.5	0.000 000	-0.001
	100 %	+30	1912 499 996	-0.4	0.000 000	0.000
	100 %	+40	1912 499 993	-4.3	0.000 000	-0.002
	100 %	+50	1912 499 994	-3.3	0.000 000	-0.002
	Batt. Endpoint	+20	1912 499 994	-3.3	0.000 000	-0.002

☐ BandWidth: 10 MHz
☐ Voltage(100 %): 3.880 VDC
☐ Batt. Endpoint: 3.300 VDC
☐ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1855.0	100 %	+20(Ref)	1855 000 000	0.0	0.000 000	0.000
	100 %	-30	1854 999 999	-0.7	0.000 000	0.000
	100 %	-20	1854 999 999	-0.8	0.000 000	0.000
	100 %	-10	1854 999 999	-0.4	0.000 000	0.000
	100 %	0	1855 000 000	-0.3	0.000 000	0.000
	100 %	+10	1854 999 999	-0.7	0.000 000	0.000
	100 %	+30	1855 000 000	-0.1	0.000 000	0.000
	100 %	+40	1854 999 999	-1.3	0.000 000	-0.001
	100 %	+50	1854 999 999	-0.8	0.000 000	0.000
	Batt. Endpoint	+20	1854 999 998	-2.2	0.000 000	-0.001
1910.0	100 %	+20(Ref)	1909 999 997	0.0	0.000 000	0.000
	100 %	-30	1909 999 995	-2.6	0.000 000	-0.001
	100 %	-20	1909 999 994	-3.4	0.000 000	-0.002
	100 %	-10	1909 999 994	-3.0	0.000 000	-0.002
	100 %	0	1909 999 995	-2.4	0.000 000	-0.001
	100 %	+10	1909 999 995	-2.0	0.000 000	-0.001
	100 %	+30	1909 999 996	-1.6	0.000 000	-0.001
	100 %	+40	1909 999 995	-1.8	0.000 000	-0.001
	100 %	+50	1909 999 994	-2.8	0.000 000	-0.001
	Batt. Endpoint	+20	1909 999 996	-1.1	0.000 000	-0.001

■ BandWidth:	<u>15 MHz</u>
■ Voltage(100 %):	<u>3.880 VDC</u>
■ Batt. Endpoint:	<u>3.300 VDC</u>
■ LIMIT:	<u>Emission must remain in band</u>

Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1857.5	100 %	+20(Ref)	1857 500 000	0.0	0.000 000	0.000
	100 %	-30	1857 499 997	-3.0	0.000 000	-0.002
	100 %	-20	1857 499 997	-2.9	0.000 000	-0.002
	100 %	-10	1857 499 999	-1.0	0.000 000	-0.001
	100 %	0	1857 499 997	-2.6	0.000 000	-0.001
	100 %	+10	1857 499 999	-1.0	0.000 000	-0.001
	100 %	+30	1857 499 999	-0.7	0.000 000	0.000
	100 %	+40	1857 499 997	-2.8	0.000 000	-0.002
	100 %	+50	1857 499 997	-2.6	0.000 000	-0.001
	Batt. Endpoint	+20	1857 499 999	-0.9	0.000 000	0.000
1907.5	100 %	+20(Ref)	1907 500 000	0.0	0.000 000	0.000
	100 %	-30	1907 499 999	-1.2	0.000 000	-0.001
	100 %	-20	1907 499 998	-2.1	0.000 000	-0.001
	100 %	-10	1907 500 001	0.6	0.000 000	0.000
	100 %	0	1907 499 999	-0.9	0.000 000	0.000
	100 %	+10	1907 499 999	-1.1	0.000 000	-0.001
	100 %	+30	1907 500 001	1.0	0.000 000	0.001
	100 %	+40	1907 499 997	-2.9	0.000 000	-0.001
	100 %	+50	1907 499 999	-1.5	0.000 000	-0.001
	Batt. Endpoint	+20	1907 499 999	-0.8	0.000 000	0.000

■ BandWidth:	<u>20 MHz</u>
■ Voltage(100 %):	<u>3.880 VDC</u>
■ Batt. Endpoint:	<u>3.300 VDC</u>
■ LIMIT:	<u>Emission must remain in band</u>

Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1860.0	100 %	+20(Ref)	1859 999 999	0.0	0.000 000	0.000
	100 %	-30	1859 999 999	-0.3	0.000 000	0.000
	100 %	-20	1859 999 998	-0.5	0.000 000	0.000
	100 %	-10	1860 000 000	1.5	0.000 000	0.001
	100 %	0	1859 999 999	0.4	0.000 000	0.000
	100 %	+10	1859 999 999	0.0	0.000 000	0.000
	100 %	+30	1859 999 998	-1.2	0.000 000	-0.001
	100 %	+40	1860 000 000	1.0	0.000 000	0.001
	100 %	+50	1859 999 999	0.1	0.000 000	0.000
	Batt. Endpoint	+20	1859 999 998	-0.5	0.000 000	0.000
1905.0	100 %	+20(Ref)	1905 000 000	0.0	0.000 000	0.000
	100 %	-30	1905 000 002	2.2	0.000 000	0.001
	100 %	-20	1905 000 003	2.9	0.000 000	0.002
	100 %	-10	1905 000 002	1.6	0.000 000	0.001
	100 %	0	1904 999 999	-0.6	0.000 000	0.000
	100 %	+10	1905 000 002	2.1	0.000 000	0.001
	100 %	+30	1905 000 001	0.6	0.000 000	0.000
	100 %	+40	1905 000 000	-0.2	0.000 000	0.000
	100 %	+50	1905 000 000	0.2	0.000 000	0.000
	Batt. Endpoint	+20	1904 999 999	-1.5	0.000 000	-0.001

- ▣ BandWidth: 25 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1862.5	100 %	+20(Ref)	1862 499 997	0.0	0.000 000	0.000
	100 %	-30	1862 499 997	-0.4	0.000 000	0.000
	100 %	-20	1862 499 994	-3.7	0.000 000	-0.002
	100 %	-10	1862 499 998	0.5	0.000 000	0.000
	100 %	0	1862 499 998	0.6	0.000 000	0.000
	100 %	+10	1862 499 997	-0.1	0.000 000	0.000
	100 %	+30	1862 499 995	-2.5	0.000 000	-0.001
	100 %	+40	1862 499 998	0.6	0.000 000	0.000
	100 %	+50	1862 499 997	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	1862 499 995	-2.2	0.000 000	-0.001
1902.5	100 %	+20(Ref)	1902 499 996	0.0	0.000 000	0.000
	100 %	-30	1902 499 993	-3.2	0.000 000	-0.002
	100 %	-20	1902 499 994	-2.8	0.000 000	-0.001
	100 %	-10	1902 499 993	-3.8	0.000 000	-0.002
	100 %	0	1902 499 995	-1.6	0.000 000	-0.001
	100 %	+10	1902 499 994	-2.2	0.000 000	-0.001
	100 %	+30	1902 499 997	0.8	0.000 000	0.000
	100 %	+40	1902 499 996	-0.9	0.000 000	0.000
	100 %	+50	1902 499 993	-3.2	0.000 000	-0.002
	Batt. Endpoint	+20	1902 499 994	-2.2	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. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1865.0	100 %	+20(Ref)	1865 000 001	0.0	0.000 000	0.000
	100 %	-30	1865 000 002	0.7	0.000 000	0.000
	100 %	-20	1865 000 004	2.5	0.000 000	0.001
	100 %	-10	1865 000 002	0.6	0.000 000	0.000
	100 %	0	1865 000 003	2.1	0.000 000	0.001
	100 %	+10	1865 000 003	1.5	0.000 000	0.001
	100 %	+30	1865 000 002	0.3	0.000 000	0.000
	100 %	+40	1865 000 002	1.0	0.000 000	0.001
	100 %	+50	1865 000 002	1.0	0.000 000	0.001
	Batt. Endpoint	+20	1865 000 002	1.1	0.000 000	0.001
1900.0	100 %	+20(Ref)	1900 000 001	0.0	0.000 000	0.000
	100 %	-30	1900 000 000	-0.9	0.000 000	0.000
	100 %	-20	1900 000 002	1.2	0.000 000	0.001
	100 %	-10	1900 000 002	1.2	0.000 000	0.001
	100 %	0	1900 000 003	2.2	0.000 000	0.001
	100 %	+10	1900 000 002	1.0	0.000 000	0.001
	100 %	+30	1900 000 001	0.0	0.000 000	0.000
	100 %	+40	1900 000 000	-0.9	0.000 000	0.000
	100 %	+50	1900 000 002	1.7	0.000 000	0.001
	Batt. Endpoint	+20	1900 000 000	-0.3	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. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1867.5	100 %	+20(Ref)	1867 500 000	0.0	0.000 000	0.000
	100 %	-30	1867 500 002	1.1	0.000 000	0.001
	100 %	-20	1867 500 001	0.9	0.000 000	0.000
	100 %	-10	1867 500 002	2.0	0.000 000	0.001
	100 %	0	1867 500 001	0.3	0.000 000	0.000
	100 %	+10	1867 500 003	2.4	0.000 000	0.001
	100 %	+30	1867 500 004	3.1	0.000 000	0.002
	100 %	+40	1867 500 002	1.5	0.000 000	0.001
	100 %	+50	1867 500 004	3.1	0.000 000	0.002
	Batt. Endpoint	+20	1867 500 001	0.8	0.000 000	0.000
1897.5	100 %	+20(Ref)	1897 500 001	0.0	0.000 000	0.000
	100 %	-30	1897 500 002	0.8	0.000 000	0.000
	100 %	-20	1897 500 001	0.5	0.000 000	0.000
	100 %	-10	1897 500 000	-1.1	0.000 000	-0.001
	100 %	0	1897 500 002	1.3	0.000 000	0.001
	100 %	+10	1897 500 001	0.1	0.000 000	0.000
	100 %	+30	1897 500 002	0.7	0.000 000	0.000
	100 %	+40	1897 500 002	0.9	0.000 000	0.000
	100 %	+50	1897 500 003	2.5	0.000 000	0.001
	Batt. Endpoint	+20	1897 500 002	1.0	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. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1870.0	100 %	+20(Ref)	1870 000 000	0.0	0.000 000	0.000
	100 %	-30	1869 999 996	-4.4	0.000 000	-0.002
	100 %	-20	1869 999 998	-2.1	0.000 000	-0.001
	100 %	-10	1870 000 000	0.0	0.000 000	0.000
	100 %	0	1869 999 999	-1.5	0.000 000	-0.001
	100 %	+10	1869 999 999	-1.0	0.000 000	-0.001
	100 %	+30	1869 999 999	-1.5	0.000 000	-0.001
	100 %	+40	1869 999 999	-0.8	0.000 000	0.000
	100 %	+50	1870 000 000	-0.2	0.000 000	0.000
	Batt. Endpoint	+20	1870 000 000	-0.5	0.000 000	0.000
1895.0	100 %	+20(Ref)	1894 999 996	0.0	0.000 000	0.000
	100 %	-30	1894 999 994	-2.6	0.000 000	-0.001
	100 %	-20	1894 999 994	-2.2	0.000 000	-0.001
	100 %	-10	1894 999 994	-1.8	0.000 000	-0.001
	100 %	0	1894 999 993	-2.9	0.000 000	-0.002
	100 %	+10	1894 999 991	-4.8	0.000 000	-0.003
	100 %	+30	1894 999 995	-1.2	0.000 000	-0.001
	100 %	+40	1894 999 994	-2.1	0.000 000	-0.001
	100 %	+50	1894 999 995	-1.7	0.000 000	-0.001
	Batt. Endpoint	+20	1894 999 995	-1.3	0.000 000	-0.001

8.8 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.

- N25A(Main 1)-N66A(Sub 5)

(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
N25A(Main 1)	N66A(Sub 5)	40	376500	5	355500

8.8.1 RADIATED SPURIOUS EMISSIONS

N25A(Main 1) (PCC)- N66A(Sub 5) (SCC)

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
3 765.00	-60.11	11.88	-59.50	3.11	V	-50.73	-13.00
5 647.50	-62.25	12.11	-56.06	3.96	V	-47.91	-13.00
7 530.00	-63.44	11.57	-48.67	4.60	V	-41.70	-13.00

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
3 555.00	-59.30	12.04	-60.19	3.09	V	-51.24	-13.00
5 332.50	-54.09	11.92	-48.86	3.79	H	-40.73	-13.00
7 110.00	-63.92	10.80	-49.42	4.48	V	-43.10	-13.00

9. TEST DATA(Sub 5 ANT)

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 n25(2)/ 5 MHz [15 kHz]	PI/2 BPSK	-18.92	14.71	10.45	2.08	H	< 2.00	0.203	23.08	1	12
		QPSK	-18.98	14.65	10.45	2.08	H		0.200	23.02		
		16-QAM	-20.08	13.55	10.45	2.08	H		0.156	21.92		
		64-QAM	-21.42	12.21	10.45	2.08	H		0.114	20.58		
		256-QAM	-23.59	10.04	10.45	2.08	H		0.069	18.41		
1882.5		PI/2 BPSK	-19.14	14.75	10.32	2.21	H		0.193	22.86	1	1
		QPSK	-19.21	14.68	10.32	2.21	H		0.190	22.79		
		16-QAM	-20.30	13.59	10.32	2.21	H		0.148	21.70		
		64-QAM	-21.83	12.06	10.32	2.21	H		0.104	20.17		
		256-QAM	-23.73	10.16	10.32	2.21	H		0.067	18.27		
1912.5		PI/2 BPSK	-19.92	14.26	10.19	2.17	H		0.169	22.28	1	1
		QPSK	-19.93	14.25	10.19	2.17	H		0.169	22.27		
		16-QAM	-21.01	13.17	10.19	2.17	H		0.132	21.19		
		64-QAM	-22.47	11.71	10.19	2.17	H		0.094	19.73		
		256-QAM	-24.46	9.72	10.19	2.17	H		0.060	17.74		

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		PI/2 BPSK	-19.05	14.58	10.45	2.08	H	< 2.00	0.197	22.95	1	50
		QPSK	-19.12	14.51	10.45	2.08	H		0.194	22.88		
		16-QAM	-20.12	13.51	10.45	2.08	H		0.154	21.88		
		64-QAM	-21.65	11.98	10.45	2.08	H		0.108	20.35		
		256-QAM	-23.71	9.92	10.45	2.08	H		0.068	18.29		
1882.5	Sub6 n25(2)/ 10 MHz [15 kHz]	PI/2 BPSK	-19.11	14.78	10.32	2.21	H	< 2.00	0.195	22.89	1	1
		QPSK	-19.14	14.75	10.32	2.21	H		0.193	22.86		
		16-QAM	-20.12	13.77	10.32	2.21	H		0.154	21.88		
		64-QAM	-21.64	12.25	10.32	2.21	H		0.109	20.36		
		256-QAM	-23.62	10.27	10.32	2.21	H		0.069	18.38		
1910.0		PI/2 BPSK	-19.65	14.25	10.21	2.17	H	< 2.00	0.169	22.29	1	26
		QPSK	-19.70	14.20	10.21	2.17	H		0.167	22.24		
		16-QAM	-20.91	12.99	10.21	2.17	H		0.127	21.03		
		64-QAM	-22.28	11.62	10.21	2.17	H		0.092	19.66		
		256-QAM	-24.28	9.62	10.21	2.17	H		0.058	17.66		

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		PI/2 BPSK	-19.16	14.16	10.43	2.10	H	< 2.00	0.177	22.49	1	39
		QPSK	-19.19	14.13	10.43	2.10	H		0.176	22.46		
		16-QAM	-20.22	13.10	10.43	2.10	H		0.139	21.43		
		64-QAM	-21.73	11.59	10.43	2.10	H		0.098	19.92		
		256-QAM	-23.75	9.57	10.43	2.10	H		0.062	17.90		
1882.5	Sub6 n25(2)/ 15 MHz [15 kHz]	PI/2 BPSK	-19.04	14.85	10.32	2.21	H	< 2.00	0.198	22.96	1	1
		QPSK	-19.07	14.82	10.32	2.21	H		0.196	22.93		
		16-QAM	-20.09	13.80	10.32	2.21	H		0.155	21.91		
		64-QAM	-21.70	12.19	10.32	2.21	H		0.107	20.30		
		256-QAM	-23.62	10.27	10.32	2.21	H		0.069	18.38		
1907.5		PI/2 BPSK	-19.62	14.28	10.21	2.17	H	< 2.00	0.171	22.32	1	1
		QPSK	-19.63	14.27	10.21	2.17	H		0.170	22.31		
		16-QAM	-20.75	13.15	10.21	2.17	H		0.131	21.19		
		64-QAM	-22.05	11.85	10.21	2.17	H		0.098	19.89		
		256-QAM	-24.02	9.88	10.21	2.17	H		0.062	17.92		

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		PI/2 BPSK	-18.95	14.37	10.43	2.10	H	< 2.00	0.186	22.70	1	53
		QPSK	-19.05	14.27	10.43	2.10	H		0.182	22.60		
		16-QAM	-19.93	13.39	10.43	2.10	H		0.149	21.72		
		64-QAM	-21.53	11.79	10.43	2.10	H		0.103	20.12		
		256-QAM	-23.58	9.74	10.43	2.10	H		0.064	18.07		
1882.5	Sub6 n25(2)/ 20 MHz [15 kHz]	PI/2 BPSK	-19.13	14.76	10.32	2.21	H		0.194	22.87	1	1
		QPSK	-19.15	14.74	10.32	2.21	H		0.193	22.85		
		16-QAM	-20.08	13.81	10.32	2.21	H		0.156	21.92		
		64-QAM	-21.60	12.29	10.32	2.21	H		0.110	20.40		
		256-QAM	-23.71	10.18	10.32	2.21	H		0.068	18.29		
1905.0		PI/2 BPSK	-19.57	14.47	10.23	2.19	H		0.178	22.51	1	1
		QPSK	-19.62	14.42	10.23	2.19	H		0.176	22.46		
		16-QAM	-20.56	13.48	10.23	2.19	H		0.142	21.52		
		64-QAM	-22.07	11.97	10.23	2.19	H		0.100	20.01		
		256-QAM	-24.09	9.95	10.23	2.19	H		0.063	17.99		

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		PI/2 BPSK	-19.06	14.55	10.41	2.13	H	< 2.00	0.192	22.83	1	66
		QPSK	-19.07	14.54	10.41	2.13	H		0.191	22.82		
		16-QAM	-20.08	13.53	10.41	2.13	H		0.152	21.81		
		64-QAM	-21.71	11.90	10.41	2.13	H		0.104	20.18		
		256-QAM	-23.61	10.00	10.41	2.13	H		0.067	18.28		
1882.5	Sub6 n25(2)/ 25 MHz [15 kHz]	PI/2 BPSK	-19.11	14.78	10.32	2.21	H		0.195	22.89	1	66
		QPSK	-19.19	14.70	10.32	2.21	H		0.191	22.81		
		16-QAM	-20.21	13.68	10.32	2.21	H		0.151	21.79		
		64-QAM	-21.74	12.15	10.32	2.21	H		0.106	20.26		
		256-QAM	-23.72	10.17	10.32	2.21	H		0.067	18.28		
1902.5		PI/2 BPSK	-19.62	14.42	10.23	2.19	H		0.176	22.46	1	66
		QPSK	-19.75	14.29	10.23	2.19	H		0.171	22.33		
		16-QAM	-20.62	13.42	10.23	2.19	H		0.140	21.46		
		64-QAM	-22.13	11.91	10.23	2.19	H		0.099	19.95		
		256-QAM	-24.17	9.87	10.23	2.19	H		0.062	17.91		

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		PI/2 BPSK	-18.91	14.70	10.41	2.13	H	< 2.00	0.199	22.98	1	80
		QPSK	-19.14	14.47	10.41	2.13	H		0.189	22.75		
		16-QAM	-20.05	13.56	10.41	2.13	H		0.153	21.84		
		64-QAM	-21.58	12.03	10.41	2.13	H		0.107	20.31		
		256-QAM	-23.62	9.99	10.41	2.13	H		0.067	18.27		
1882.5	Sub6 n25(2)/ 30 MHz [15 kHz]	PI/2 BPSK	-19.00	14.89	10.32	2.21	H		0.200	23.00	1	1
		QPSK	-19.05	14.84	10.32	2.21	H		0.197	22.95		
		16-QAM	-20.02	13.87	10.32	2.21	H		0.158	21.98		
		64-QAM	-21.51	12.38	10.32	2.21	H		0.112	20.49		
		256-QAM	-23.55	10.34	10.32	2.21	H		0.070	18.45		
1900.0		PI/2 BPSK	-19.29	14.88	10.25	2.20	H		0.196	22.93	1	1
		QPSK	-19.35	14.82	10.25	2.20	H		0.194	22.87		
		16-QAM	-20.24	13.93	10.25	2.20	H		0.158	21.98		
		64-QAM	-21.79	12.38	10.25	2.20	H		0.110	20.43		
		256-QAM	-23.91	10.26	10.25	2.20	H		0.068	18.31		

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
1867.5		PI/2 BPSK	-18.83	15.08	10.39	2.16	H	< 2.00	0.214	23.31	1	94
		QPSK	-18.86	15.05	10.39	2.16	H		0.213	23.28		
		16-QAM	-19.88	14.03	10.39	2.16	H		0.168	22.26		
		64-QAM	-21.48	12.43	10.39	2.16	H		0.116	20.66		
		256-QAM	-23.42	10.49	10.39	2.16	H		0.074	18.72		
1882.5	Sub6 n25(2)/ 35 MHz [15 kHz]	PI/2 BPSK	-19.11	14.78	10.32	2.21	H		0.195	22.89	1	94
		QPSK	-19.17	14.72	10.32	2.21	H		0.192	22.83		
		16-QAM	-20.17	13.72	10.32	2.21	H		0.152	21.83		
		64-QAM	-21.63	12.26	10.32	2.21	H		0.109	20.37		
		256-QAM	-23.75	10.14	10.32	2.21	H		0.067	18.25		
1897.5		PI/2 BPSK	-19.17	15.00	10.25	2.20	H		0.202	23.05	1	1
		QPSK	-19.22	14.95	10.25	2.20	H		0.200	23.00		
		16-QAM	-20.17	14.00	10.25	2.20	H		0.160	22.05		
		64-QAM	-21.68	12.49	10.25	2.20	H		0.113	20.54		
		256-QAM	-23.69	10.48	10.25	2.20	H		0.071	18.53		

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
1870.0		PI/2 BPSK	-18.82	15.09	10.39	2.16	H	< 2.00	0.215	23.32	1	108
		QPSK	-18.94	14.97	10.39	2.16	H		0.209	23.20		
		16-QAM	-19.85	14.06	10.39	2.16	H		0.170	22.29		
		64-QAM	-21.39	12.52	10.39	2.16	H		0.119	20.75		
		256-QAM	-23.54	10.37	10.39	2.16	H		0.073	18.60		
1882.5	Sub6 n25(2)/ 40 MHz [15 kHz]	PI/2 BPSK	-19.07	14.82	10.32	2.21	H		0.196	22.93	1	108
		QPSK	-19.25	14.64	10.32	2.21	H		0.188	22.75		
		16-QAM	-20.30	13.59	10.32	2.21	H		0.148	21.70		
		64-QAM	-21.67	12.22	10.32	2.21	H		0.108	20.33		
		256-QAM	-23.82	10.07	10.32	2.21	H		0.066	18.18		
1895.0		PI/2 BPSK	-19.02	15.16	10.28	2.20	H		0.211	23.24	1	1
		QPSK	-19.07	15.11	10.28	2.20	H		0.208	23.19		
		16-QAM	-20.14	14.04	10.28	2.20	H		0.163	22.12		
		64-QAM	-21.61	12.57	10.28	2.20	H		0.116	20.65		
		256-QAM	-23.54	10.64	10.28	2.20	H		0.074	18.72		

9.2 RADIATED SPURIOUS EMISSIONS

☐ NR Band: N25(2)
☐ 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	-59.88	12.00	-59.82	3.19	V	-51.01	-13.00	1	108
	5 610.00	-60.24	12.21	-54.51	3.92	V	-46.22	-13.00		
	7 480.00	-62.94	11.45	-48.14	4.62	V	-41.31	-13.00		
376500 (1882.5)	3 765.00	-59.25	11.88	-58.64	3.11	V	-49.87	-13.00	1	108
	5 647.50	-59.85	12.11	-53.66	3.96	V	-45.51	-13.00		
	7 530.00	-63.37	11.57	-48.60	4.60	V	-41.63	-13.00		
379000 (1895.0)	3 790.00	-59.50	11.76	-58.65	3.19	V	-50.08	-13.00	1	1
	5 685.00	-60.00	12.00	-53.73	4.01	V	-45.74	-13.00		
	7 580.00	-62.79	11.61	-48.22	4.65	V	-41.26	-13.00		

9.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n25(2)	5 MHz	1882.5	BPSK	25	0	4.93
			QPSK			5.63
			16-QAM			6.32
			64-QAM			6.15
			256-QAM			6.79
	10 MHz		BPSK	50		5.22
			QPSK			5.53
			16-QAM			6.07
			64-QAM			5.90
			256-QAM			6.74
	15 MHz		BPSK	75		4.23
			QPSK			5.41
			16-QAM			6.18
			64-QAM			5.77
			256-QAM			6.71
	20 MHz		BPSK	100		5.38
			QPSK			5.66
			16-QAM			6.25
			64-QAM			5.84
			256-QAM			6.79

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n25(2)	25 MHz	1882.5	BPSK	128	0	4.09
			QPSK			5.23
			16-QAM			5.93
			64-QAM			5.56
			256-QAM			6.84
	30 MHz		BPSK	160		4.93
			QPSK			5.29
			16-QAM			5.91
			64-QAM			5.51
			256-QAM			6.88
	35 MHz		BPSK	180		4.41
			QPSK			5.16
			16-QAM			5.88
			64-QAM			5.57
			256-QAM			6.77
	40 MHz		BPSK	216		4.77
			QPSK			5.26
			16-QAM			5.98
			64-QAM			5.67
			256-QAM			6.78

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 250 ~ 289.

9.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n25(2)	5 MHz	1882.5	BPSK	25	0	4.5207
			QPSK			4.5270
			16-QAM			4.5286
			64-QAM			4.5404
			256-QAM			4.5224
	10 MHz		BPSK	50		9.0145
			QPSK			8.9987
			16-QAM			8.9892
			64-QAM			8.9887
			256-QAM			8.9862
	15 MHz		BPSK	75		13.490
			QPSK			13.455
			16-QAM			13.484
			64-QAM			13.485
			256-QAM			13.427
	20 MHz		BPSK	100		17.918
			QPSK			17.924
			16-QAM			17.907
			64-QAM			17.897
			256-QAM			17.960

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n25(2)	25 MHz	1882.5	BPSK	128	0	22.991
			QPSK			22.956
			16-QAM			22.990
			64-QAM			23.007
			256-QAM			22.984
	30 MHz		BPSK	160		28.760
			QPSK			28.735
			16-QAM			28.759
			64-QAM			28.766
			256-QAM			28.762
	35 MHz		BPSK	180		32.323
			QPSK			32.331
			16-QAM			32.323
			64-QAM			32.377
			256-QAM			32.376
	40 MHz		BPSK	216		38.808
			QPSK			38.755
			16-QAM			38.685
			64-QAM			38.946
			256-QAM			38.686

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 290 ~ 329.

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 n25(2)	5	1852.5	3.7588	29.722	-60.719	-30.997	-13.00
		1882.5	8.1157	30.315	-61.903	-31.588	
		1912.5	3.7787	29.722	-59.934	-30.212	
	10	1855.0	3.7488	29.722	-60.536	-30.814	
		1882.5	6.0818	30.315	-61.695	-31.380	
		1910.0	7.2283	30.315	-61.309	-30.994	
	15	1857.5	4.9352	29.722	-61.985	-32.263	
		1882.5	8.0459	30.315	-61.008	-30.693	
		1907.5	7.1386	30.315	-61.904	-31.589	
	20	1860.0	3.7887	29.722	-60.528	-30.806	
		1882.5	4.9352	29.722	-61.285	-31.563	
		1905.0	5.2044	30.315	-61.929	-31.614	
	25	1862.5	4.5664	29.722	-61.448	-31.726	
		1882.5	5.4736	30.315	-62.033	-31.718	
		1902.5	7.4477	30.315	-61.449	-31.134	
	30	1865.0	3.7688	29.722	-61.871	-32.149	
		1882.5	8.9232	30.315	-61.654	-31.339	
		1900.0	7.1586	30.315	-60.930	-30.615	
	35	1867.5	5.9921	30.315	-61.842	-31.527	
		1882.5	5.4936	30.315	-62.059	-31.744	
		1897.5	4.9452	29.722	-61.277	-31.555	
	40	1870.0	3.7688	29.722	-61.174	-31.452	
		1882.5	4.8954	29.722	-61.738	-32.016	
		1895.0	3.7987	29.722	-60.818	-31.096	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 330 ~ 377.
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	27.012
1 – 5	27.922
5 – 10	30.315
10 – 15	30.840
15 – 20	31.213
Above 20	31.855

9.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 378 ~ 425.

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. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1852.5	100 %	+20(Ref)	1852 499 998	0.0	0.000 000	0.000
	100 %	-30	1852 499 996	-2.1	0.000 000	-0.001
	100 %	-20	1852 499 997	-1.7	0.000 000	-0.001
	100 %	-10	1852 499 996	-1.9	0.000 000	-0.001
	100 %	0	1852 499 996	-2.7	0.000 000	-0.001
	100 %	+10	1852 499 997	-1.5	0.000 000	-0.001
	100 %	+30	1852 499 997	-1.2	0.000 000	-0.001
	100 %	+40	1852 499 995	-3.3	0.000 000	-0.002
	100 %	+50	1852 499 996	-2.5	0.000 000	-0.001
	Batt. Endpoint	+20	1852 499 995	-2.8	0.000 000	-0.002
1912.5	100 %	+20(Ref)	1912 499 994	0.0	0.000 000	0.000
	100 %	-30	1912 499 989	-5.2	0.000 000	-0.003
	100 %	-20	1912 499 987	-6.8	0.000 000	-0.004
	100 %	-10	1912 499 990	-3.6	0.000 000	-0.002
	100 %	0	1912 499 991	-2.9	0.000 000	-0.002
	100 %	+10	1912 499 991	-3.1	0.000 000	-0.002
	100 %	+30	1912 499 990	-3.5	0.000 000	-0.002
	100 %	+40	1912 499 991	-3.2	0.000 000	-0.002
	100 %	+50	1912 499 991	-2.7	0.000 000	-0.001
	Batt. Endpoint	+20	1912 499 991	-3.0	0.000 000	-0.002

■ BandWidth:	<u>10 MHz</u>
■ Voltage(100 %):	<u>3.880 VDC</u>
■ Batt. Endpoint:	<u>3.300 VDC</u>
■ LIMIT:	<u>Emission must remain in band</u>

Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1855.0	100 %	+20(Ref)	1854 999 998	0.0	0.000 000	0.000
	100 %	-30	1854 999 997	-1.0	0.000 000	-0.001
	100 %	-20	1854 999 998	-0.6	0.000 000	0.000
	100 %	-10	1854 999 997	-0.9	0.000 000	0.000
	100 %	0	1854 999 996	-2.0	0.000 000	-0.001
	100 %	+10	1854 999 997	-1.3	0.000 000	-0.001
	100 %	+30	1854 999 998	-0.7	0.000 000	0.000
	100 %	+40	1854 999 998	-0.6	0.000 000	0.000
	100 %	+50	1854 999 998	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	1854 999 998	-0.8	0.000 000	0.000
1910.0	100 %	+20(Ref)	1909 999 999	0.0	0.000 000	0.000
	100 %	-30	1909 999 996	-2.5	0.000 000	-0.001
	100 %	-20	1909 999 997	-2.0	0.000 000	-0.001
	100 %	-10	1909 999 996	-2.8	0.000 000	-0.001
	100 %	0	1909 999 996	-2.5	0.000 000	-0.001
	100 %	+10	1909 999 996	-2.2	0.000 000	-0.001
	100 %	+30	1909 999 997	-1.9	0.000 000	-0.001
	100 %	+40	1909 999 996	-2.4	0.000 000	-0.001
	100 %	+50	1909 999 997	-1.5	0.000 000	-0.001
	Batt. Endpoint	+20	1909 999 997	-2.0	0.000 000	-0.001

■ BandWidth:	<u>15 MHz</u>
■ Voltage(100 %):	<u>3.880 VDC</u>
■ Batt. Endpoint:	<u>3.300 VDC</u>
■ LIMIT:	<u>Emission must remain in band</u>

Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1857.5	100 %	+20(Ref)	1857 500 000	0.0	0.000 000	0.000
	100 %	-30	1857 499 998	-2.2	0.000 000	-0.001
	100 %	-20	1857 499 997	-3.2	0.000 000	-0.002
	100 %	-10	1857 499 998	-1.4	0.000 000	-0.001
	100 %	0	1857 499 999	-0.6	0.000 000	0.000
	100 %	+10	1857 499 997	-2.9	0.000 000	-0.002
	100 %	+30	1857 499 998	-1.7	0.000 000	-0.001
	100 %	+40	1857 499 998	-2.2	0.000 000	-0.001
	100 %	+50	1857 499 997	-2.7	0.000 000	-0.001
	Batt. Endpoint	+20	1857 499 998	-1.4	0.000 000	-0.001
1907.5	100 %	+20(Ref)	1907 499 999	0.0	0.000 000	0.000
	100 %	-30	1907 499 998	-0.6	0.000 000	0.000
	100 %	-20	1907 499 998	-0.9	0.000 000	0.000
	100 %	-10	1907 499 998	-1.2	0.000 000	-0.001
	100 %	0	1907 499 999	0.2	0.000 000	0.000
	100 %	+10	1907 499 998	-0.4	0.000 000	0.000
	100 %	+30	1907 499 997	-1.4	0.000 000	-0.001
	100 %	+40	1907 499 998	-0.6	0.000 000	0.000
	100 %	+50	1907 499 998	-0.8	0.000 000	0.000
	Batt. Endpoint	+20	1907 499 999	0.1	0.000 000	0.000

■ BandWidth:	<u>20 MHz</u>
■ Voltage(100 %):	<u>3.880 VDC</u>
■ Batt. Endpoint:	<u>3.300 VDC</u>
■ LIMIT:	<u>Emission must remain in band</u>

Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1860.0	100 %	+20(Ref)	1859 999 999	0.0	0.000 000	0.000
	100 %	-30	1859 999 999	-0.9	0.000 000	0.000
	100 %	-20	1859 999 998	-1.0	0.000 000	-0.001
	100 %	-10	1859 999 999	-0.8	0.000 000	0.000
	100 %	0	1859 999 999	-0.6	0.000 000	0.000
	100 %	+10	1859 999 998	-1.1	0.000 000	-0.001
	100 %	+30	1859 999 999	-0.5	0.000 000	0.000
	100 %	+40	1859 999 999	-0.5	0.000 000	0.000
	100 %	+50	1859 999 999	-0.4	0.000 000	0.000
	Batt. Endpoint	+20	1859 999 999	-0.6	0.000 000	0.000
1905.0	100 %	+20(Ref)	1905 000 002	0.0	0.000 000	0.000
	100 %	-30	1905 000 004	2.4	0.000 000	0.001
	100 %	-20	1905 000 002	0.4	0.000 000	0.000
	100 %	-10	1905 000 003	0.8	0.000 000	0.000
	100 %	0	1905 000 002	0.4	0.000 000	0.000
	100 %	+10	1905 000 003	1.4	0.000 000	0.001
	100 %	+30	1905 000 003	1.0	0.000 000	0.001
	100 %	+40	1905 000 003	1.0	0.000 000	0.001
	100 %	+50	1905 000 002	-0.1	0.000 000	0.000
	Batt. Endpoint	+20	1905 000 002	0.3	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. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1862.5	100 %	+20(Ref)	1862 499 998	0.0	0.000 000	0.000
	100 %	-30	1862 499 997	-1.9	0.000 000	-0.001
	100 %	-20	1862 499 996	-2.4	0.000 000	-0.001
	100 %	-10	1862 499 996	-2.7	0.000 000	-0.001
	100 %	0	1862 499 997	-1.2	0.000 000	-0.001
	100 %	+10	1862 499 997	-1.1	0.000 000	-0.001
	100 %	+30	1862 499 997	-1.7	0.000 000	-0.001
	100 %	+40	1862 499 996	-2.0	0.000 000	-0.001
	100 %	+50	1862 499 996	-2.2	0.000 000	-0.001
	Batt. Endpoint	+20	1862 499 997	-1.1	0.000 000	-0.001
1902.5	100 %	+20(Ref)	1902 499 997	0.0	0.000 000	0.000
	100 %	-30	1902 499 994	-3.7	0.000 000	-0.002
	100 %	-20	1902 499 994	-3.1	0.000 000	-0.002
	100 %	-10	1902 499 994	-3.0	0.000 000	-0.002
	100 %	0	1902 499 993	-3.9	0.000 000	-0.002
	100 %	+10	1902 499 993	-4.0	0.000 000	-0.002
	100 %	+30	1902 499 993	-4.4	0.000 000	-0.002
	100 %	+40	1902 499 994	-3.1	0.000 000	-0.002
	100 %	+50	1902 499 995	-2.6	0.000 000	-0.001
	Batt. Endpoint	+20	1902 499 992	-5.0	0.000 000	-0.003

- ▣ BandWidth: 30 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1865.0	100 %	+20(Ref)	1864 999 998	0.0	0.000 000	0.000
	100 %	-30	1864 999 998	-0.9	0.000 000	0.000
	100 %	-20	1864 999 997	-1.2	0.000 000	-0.001
	100 %	-10	1864 999 997	-1.1	0.000 000	-0.001
	100 %	0	1864 999 997	-1.1	0.000 000	-0.001
	100 %	+10	1864 999 998	-0.7	0.000 000	0.000
	100 %	+30	1864 999 998	-0.7	0.000 000	0.000
	100 %	+40	1864 999 997	-1.6	0.000 000	-0.001
	100 %	+50	1864 999 998	-0.9	0.000 000	0.000
	Batt. Endpoint	+20	1864 999 998	-0.7	0.000 000	0.000
1900.0	100 %	+20(Ref)	1900 000 000	0.0	0.000 000	0.000
	100 %	-30	1900 000 002	1.3	0.000 000	0.001
	100 %	-20	1900 000 000	-0.9	0.000 000	0.000
	100 %	-10	1900 000 000	-0.5	0.000 000	0.000
	100 %	0	1899 999 999	-1.9	0.000 000	-0.001
	100 %	+10	1899 999 999	-0.9	0.000 000	0.000
	100 %	+30	1900 000 001	1.1	0.000 000	0.001
	100 %	+40	1900 000 001	0.8	0.000 000	0.000
	100 %	+50	1900 000 000	-0.4	0.000 000	0.000
	Batt. Endpoint	+20	1900 000 000	-0.7	0.000 000	0.000

- BandWidth: 35 MHz
- Voltage(100 %): 3.880 VDC
- Batt. Endpoint: 3.300 VDC
- LIMIT: Emission must remain in band

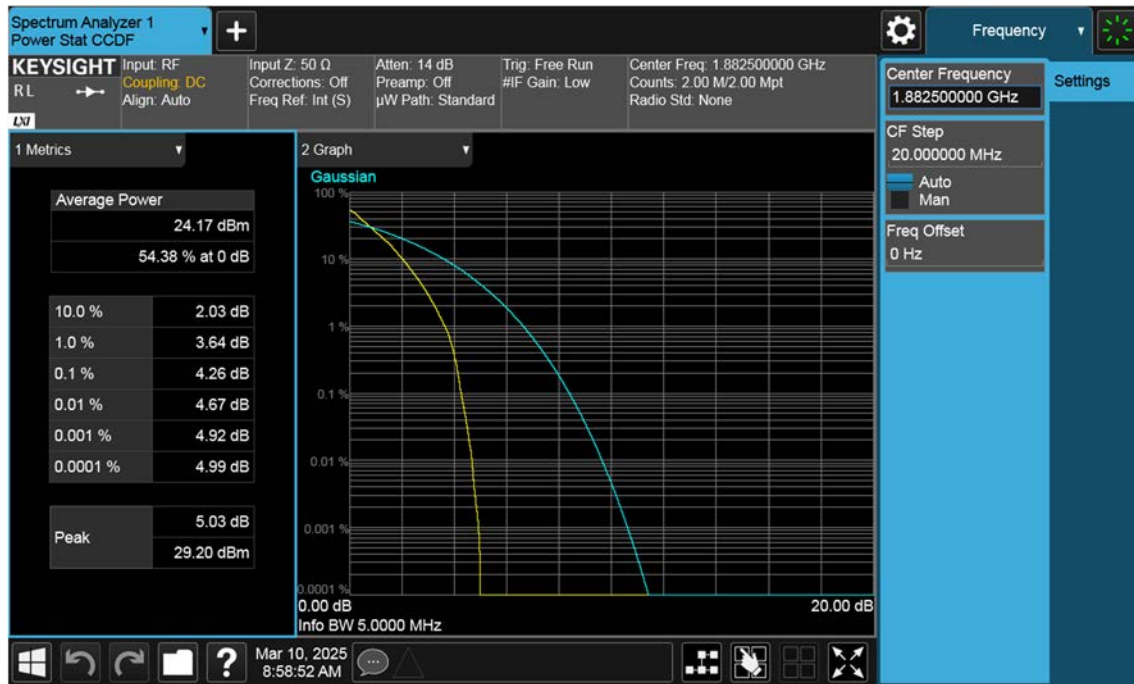
Test. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1867.5	100 %	+20(Ref)	1867 499 999	0.0	0.000 000	0.000
	100 %	-30	1867 499 998	-0.5	0.000 000	0.000
	100 %	-20	1867 499 997	-1.2	0.000 000	-0.001
	100 %	-10	1867 499 998	-0.9	0.000 000	0.000
	100 %	0	1867 499 998	-0.6	0.000 000	0.000
	100 %	+10	1867 499 998	-0.6	0.000 000	0.000
	100 %	+30	1867 499 998	-0.7	0.000 000	0.000
	100 %	+40	1867 499 997	-1.6	0.000 000	-0.001
	100 %	+50	1867 499 998	-0.9	0.000 000	0.000
	Batt. Endpoint	+20	1867 499 997	-1.4	0.000 000	-0.001
1897.5	100 %	+20(Ref)	1897 500 001	0.0	0.000 000	0.000
	100 %	-30	1897 499 999	-1.5	0.000 000	-0.001
	100 %	-20	1897 500 000	-0.5	0.000 000	0.000
	100 %	-10	1897 500 001	0.2	0.000 000	0.000
	100 %	0	1897 500 000	-0.3	0.000 000	0.000
	100 %	+10	1897 500 000	-0.9	0.000 000	0.000
	100 %	+30	1897 500 001	0.3	0.000 000	0.000
	100 %	+40	1897 500 001	0.3	0.000 000	0.000
	100 %	+50	1897 500 001	0.8	0.000 000	0.000
	Batt. Endpoint	+20	1897 500 001	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. Frequency	Voltage	Temp.	Frequency	Frequency Error	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	(Hz)	(%)	
1870.0	100 %	+20(Ref)	1869 999 999	0.0	0.000 000	0.000
	100 %	-30	1869 999 997	-1.7	0.000 000	-0.001
	100 %	-20	1869 999 999	-0.7	0.000 000	0.000
	100 %	-10	1869 999 999	-0.4	0.000 000	0.000
	100 %	0	1869 999 997	-1.8	0.000 000	-0.001
	100 %	+10	1869 999 999	-0.5	0.000 000	0.000
	100 %	+30	1869 999 998	-1.0	0.000 000	-0.001
	100 %	+40	1869 999 998	-1.5	0.000 000	-0.001
	100 %	+50	1869 999 998	-1.3	0.000 000	-0.001
	Batt. Endpoint	+20	1869 999 998	-1.5	0.000 000	-0.001
1895.0	100 %	+20(Ref)	1894 999 998	0.0	0.000 000	0.000
	100 %	-30	1894 999 997	-1.4	0.000 000	-0.001
	100 %	-20	1894 999 996	-2.1	0.000 000	-0.001
	100 %	-10	1894 999 996	-1.7	0.000 000	-0.001
	100 %	0	1894 999 997	-1.1	0.000 000	-0.001
	100 %	+10	1894 999 997	-1.0	0.000 000	-0.001
	100 %	+30	1894 999 997	-1.5	0.000 000	-0.001
	100 %	+40	1894 999 996	-1.8	0.000 000	-0.001
	100 %	+50	1894 999 997	-1.5	0.000 000	-0.001
	Batt. Endpoint	+20	1894 999 996	-2.1	0.000 000	-0.001

10. TEST PLOTS(Main 1 ANT)

NR25_5 M_PAR_Mid_BPSK_FullRB



NR25_5 M_PAR_Mid_QPSK_FullRB



NR25_5 M_PAR_Mid_16QAM_FullRB



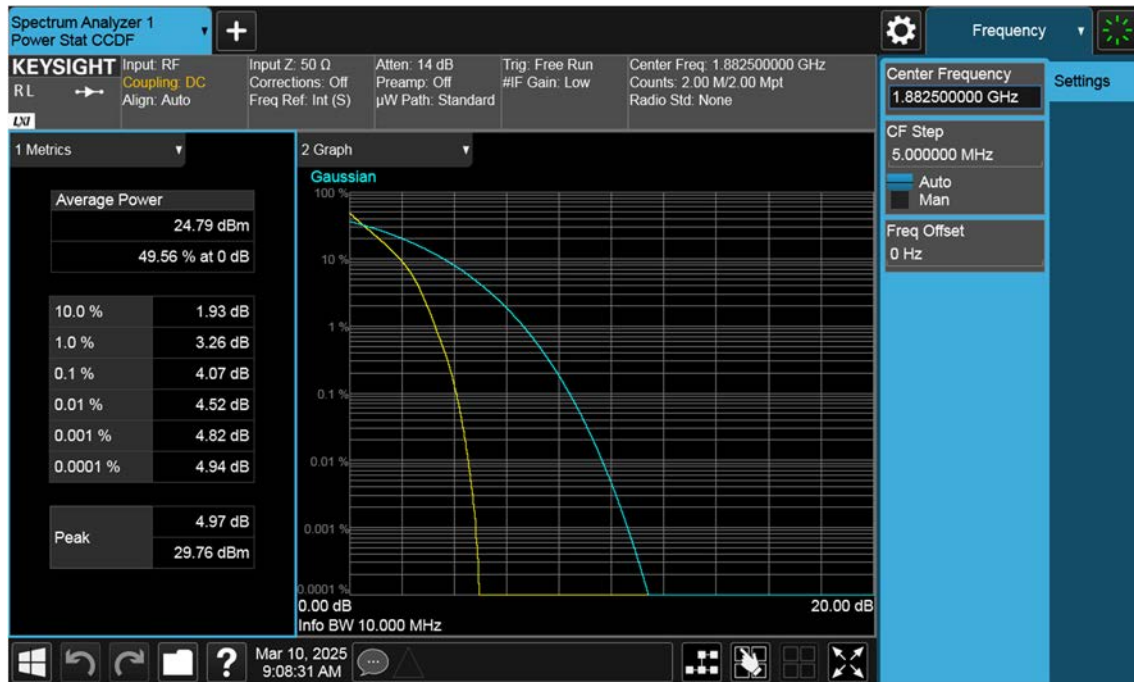
NR25_5 M_PAR_Mid_64QAM_FullRB



NR25_5 M_PAR_Mid_256QAM_FullRB



NR25_10 M_PAR_Mid_BPSK_FullRB



NR25_10 M_PAR_Mid_QPSK_FullRB



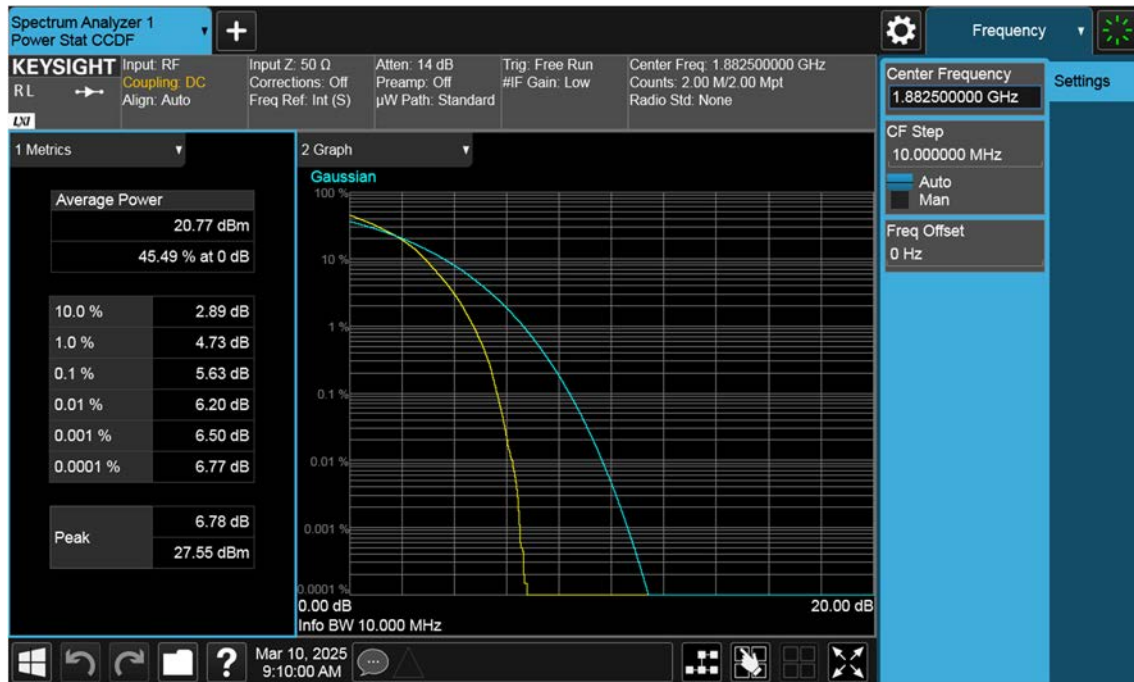
NR25_10 M_PAR_Mid_16QAM_FullRB



NR25_10 M_PAR_Mid_64QAM_FullRB



NR25_10 M_PAR_Mid_256QAM_FullRB



NR25_15 M_PAR_Mid_BPSK_FullRB



NR25_15 M_PAR_Mid_QPSK_FullRB



NR25_15 M_PAR_Mid_16QAM_FullRB



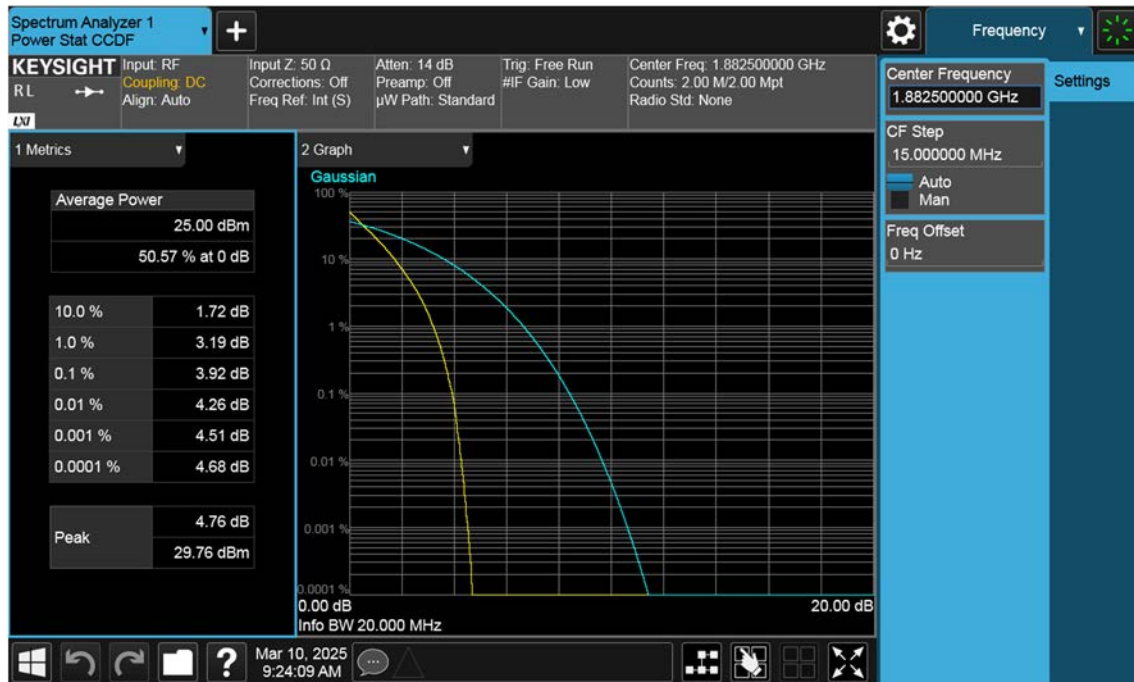
NR25_15 M_PAR_Mid_64QAM_FullRB



NR25_15 M_PAR_Mid_256QAM_FullRB



NR25_20 M_PAR_Mid_BPSK_FullRB



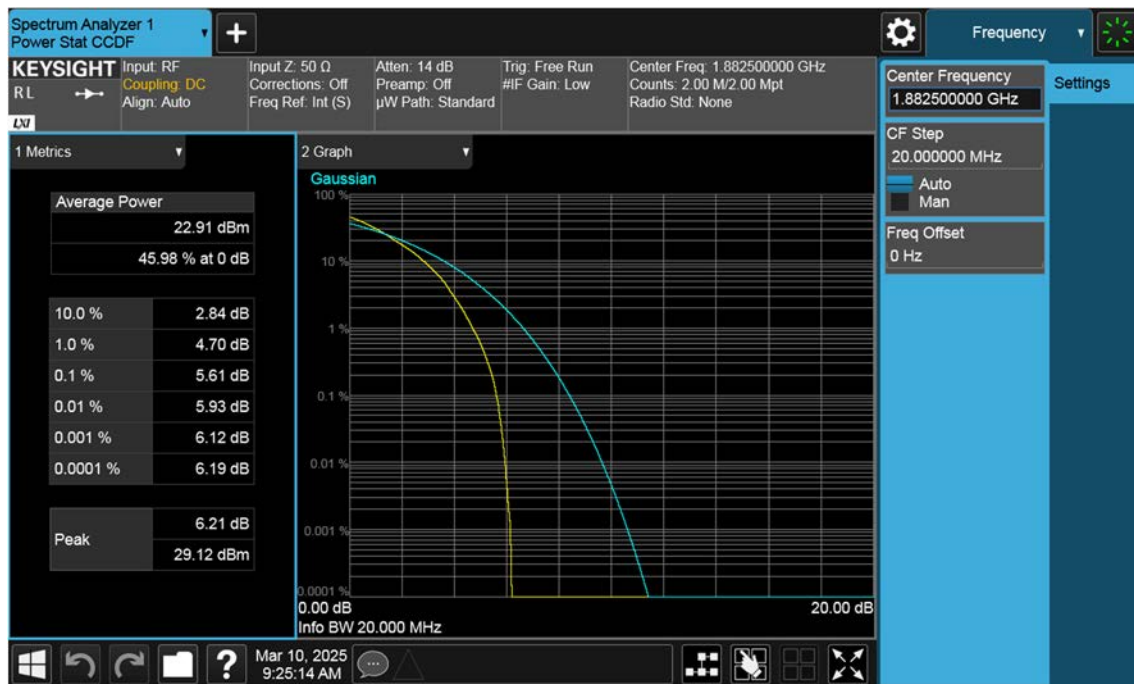
NR25_20 M_PAR_Mid_QPSK_FullRB



NR25_20 M_PAR_Mid_16QAM_FullRB



NR25_20 M_PAR_Mid_64QAM_FullRB



NR25_20 M_PAR_Mid_256QAM_FullRB



NR25_25 M_PAR_Mid_BPSK_FullRB



NR25_25 M_PAR_Mid_QPSK_FullRB



NR25_25 M_PAR_Mid_16QAM_FullRB



NR25_25 M_PAR_Mid_64QAM_FullRB



NR25_25 M_PAR_Mid_256QAM_FullRB



NR25_30 M_PAR_Mid_BPSK_FullIRB



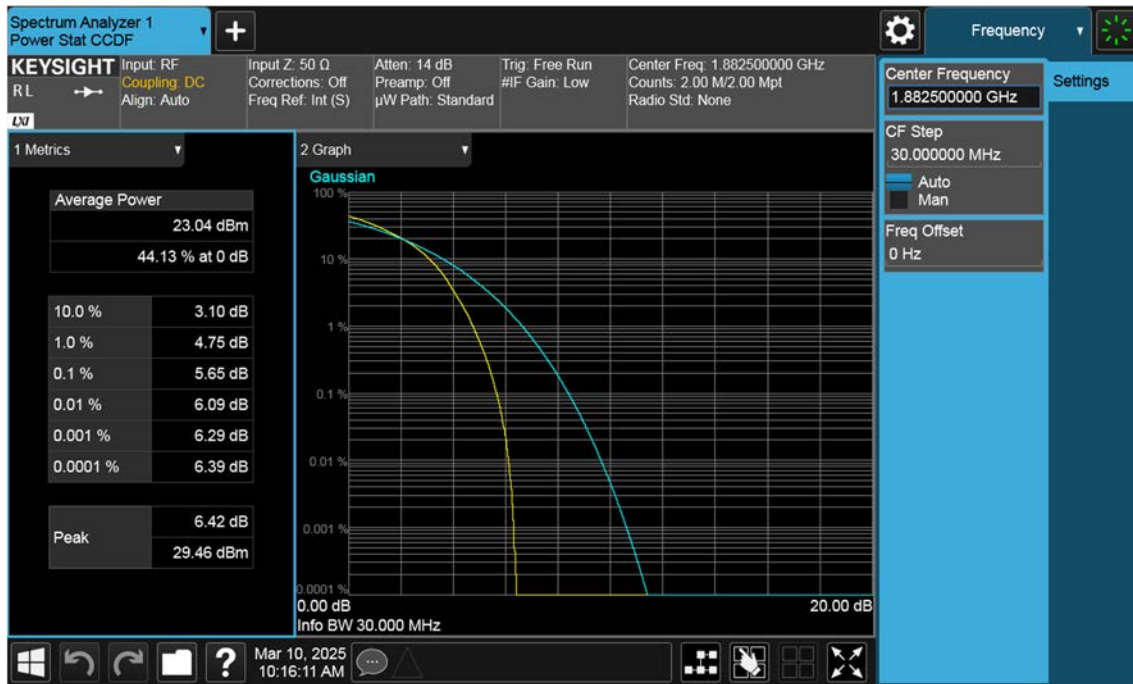
NR25_30 M_PAR_Mid_QPSK_FullRB



NR25_30 M_PAR_Mid_16QAM_FullRB



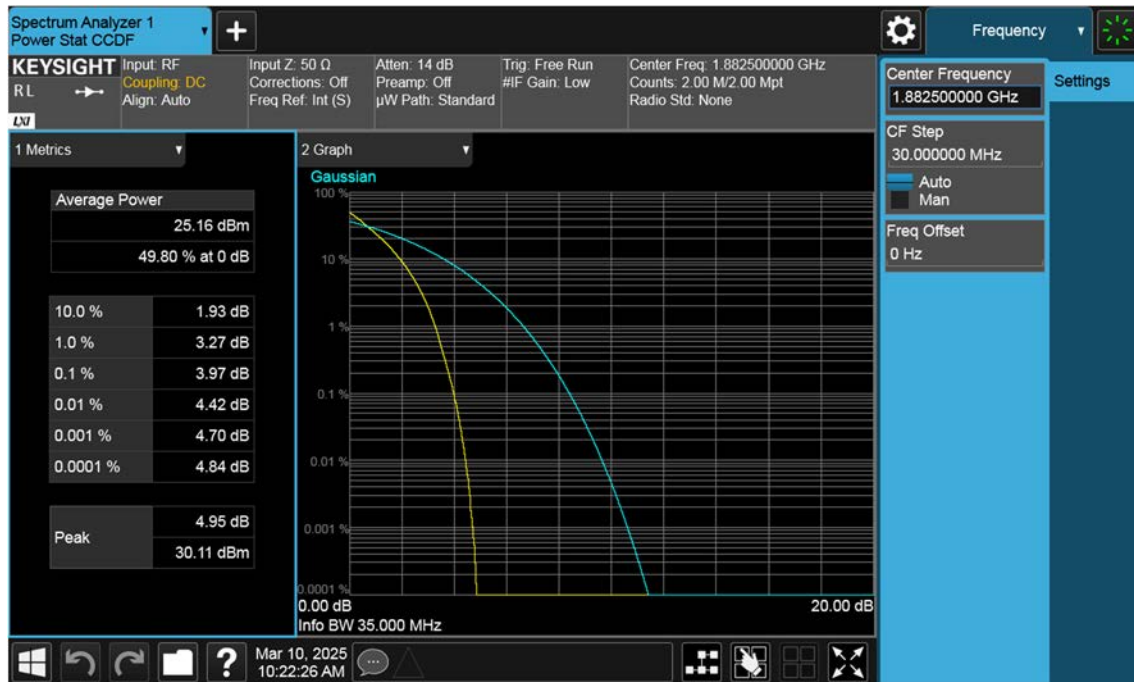
NR25_30 M_PAR_Mid_64QAM_FullRB



NR25_30 M_PAR_Mid_256QAM_FullRB



NR25_35 M_PAR_Mid_BPSK_FullRB



NR25_35 M_PAR_Mid_QPSK_FullRB



NR25_35 M_PAR_Mid_16QAM_FullRB



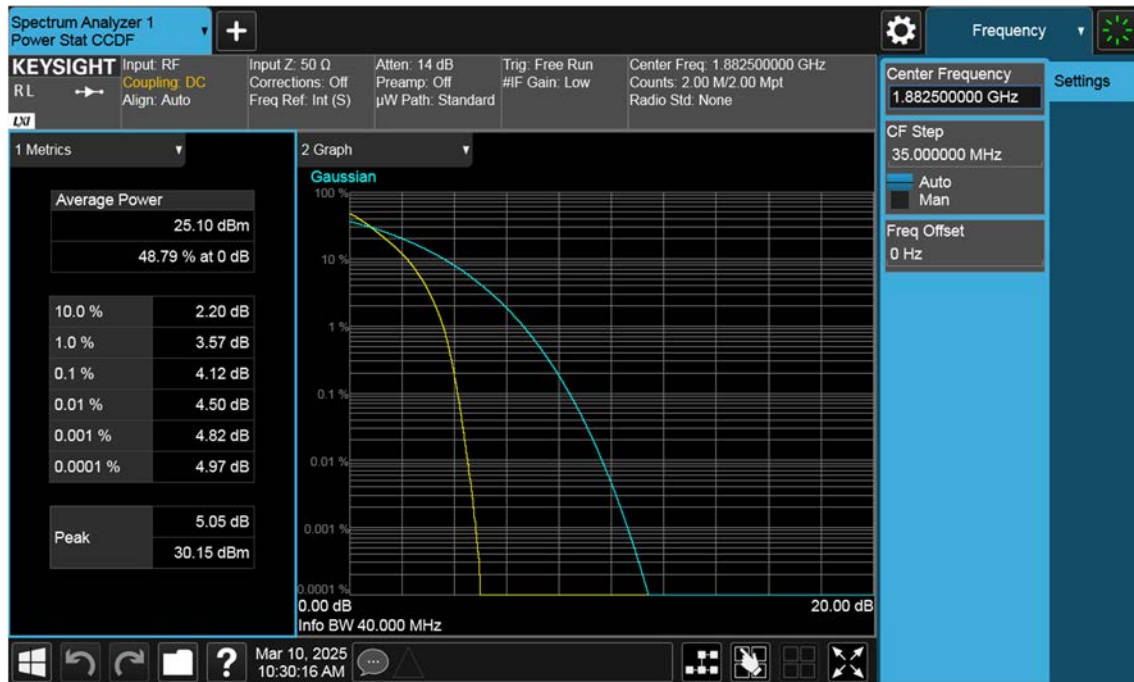
NR25_35 M_PAR_Mid_64QAM_FullRB



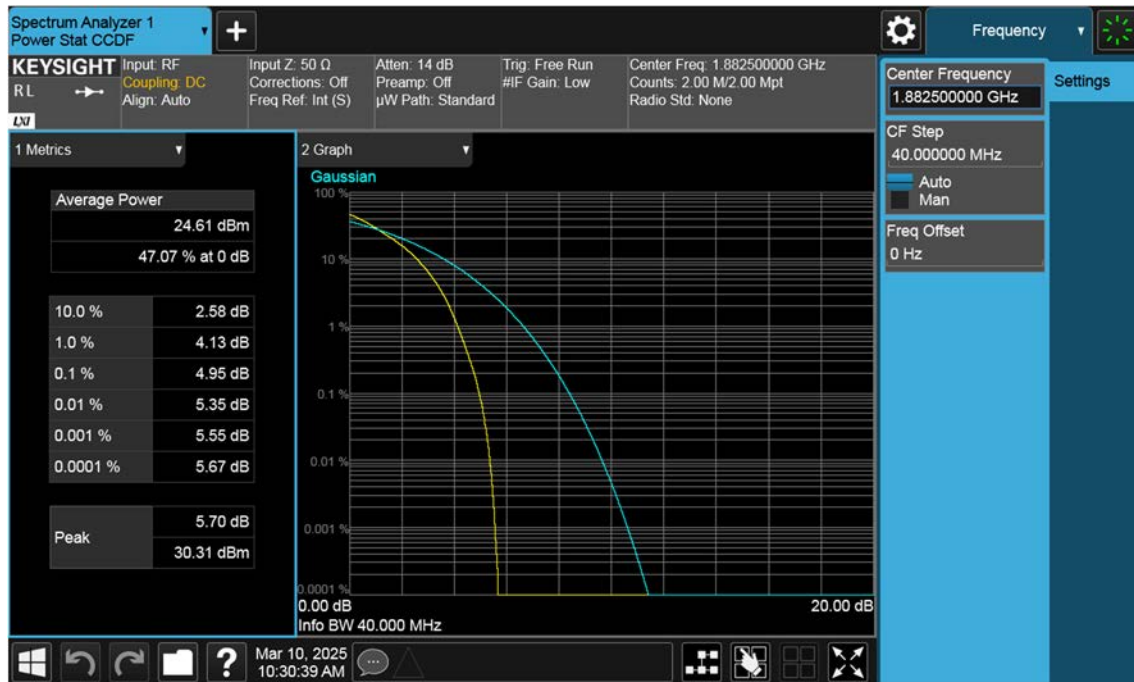
NR25_35 M_PAR_Mid_256QAM_FullRB



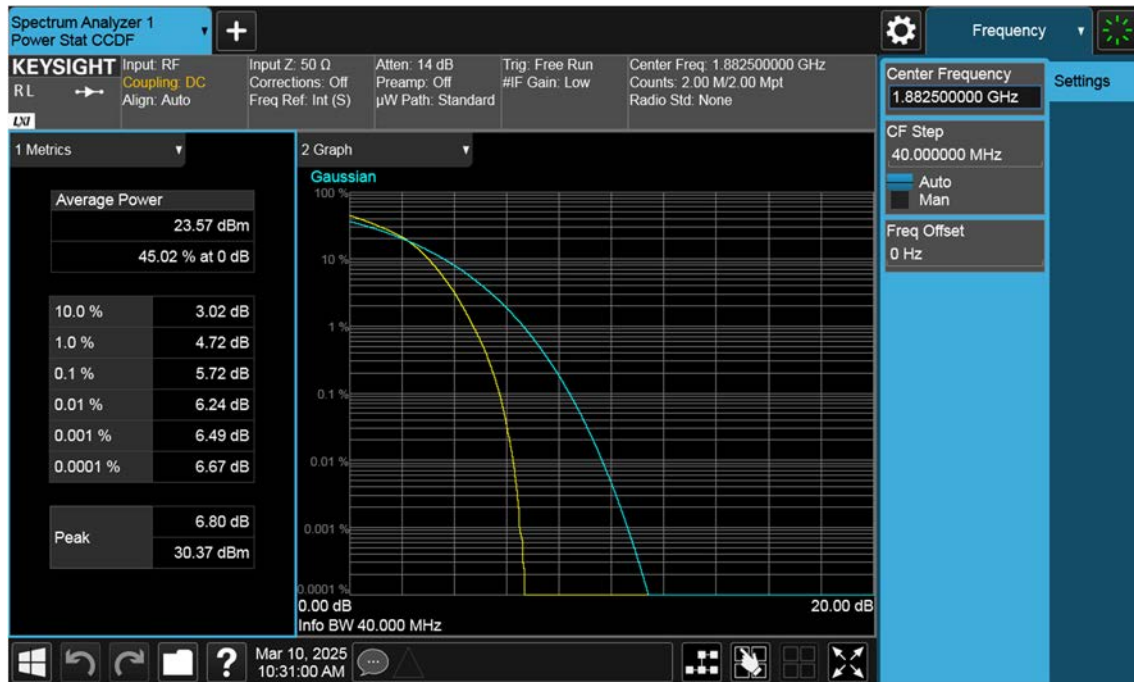
NR25_40 M_PAR_Mid_BPSK_FullRB



NR25_40 M_PAR_Mid_QPSK_FullRB



NR25_40 M_PAR_Mid_16QAM_FullRB



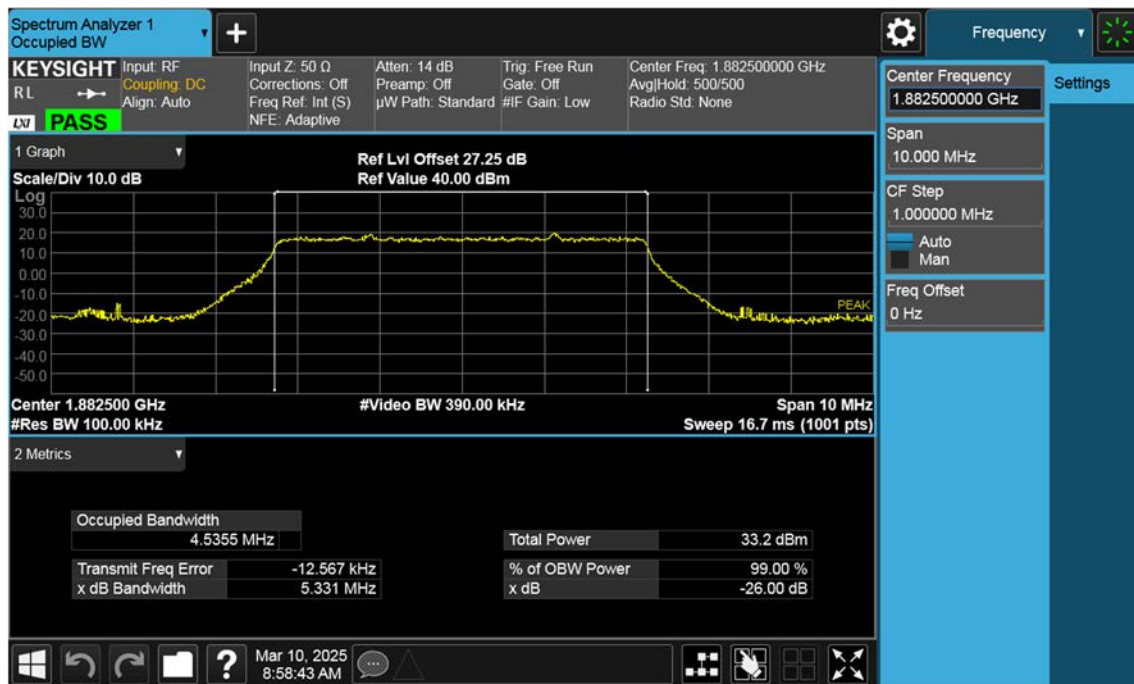
NR25_40 M_PAR_Mid_64QAM_FullRB



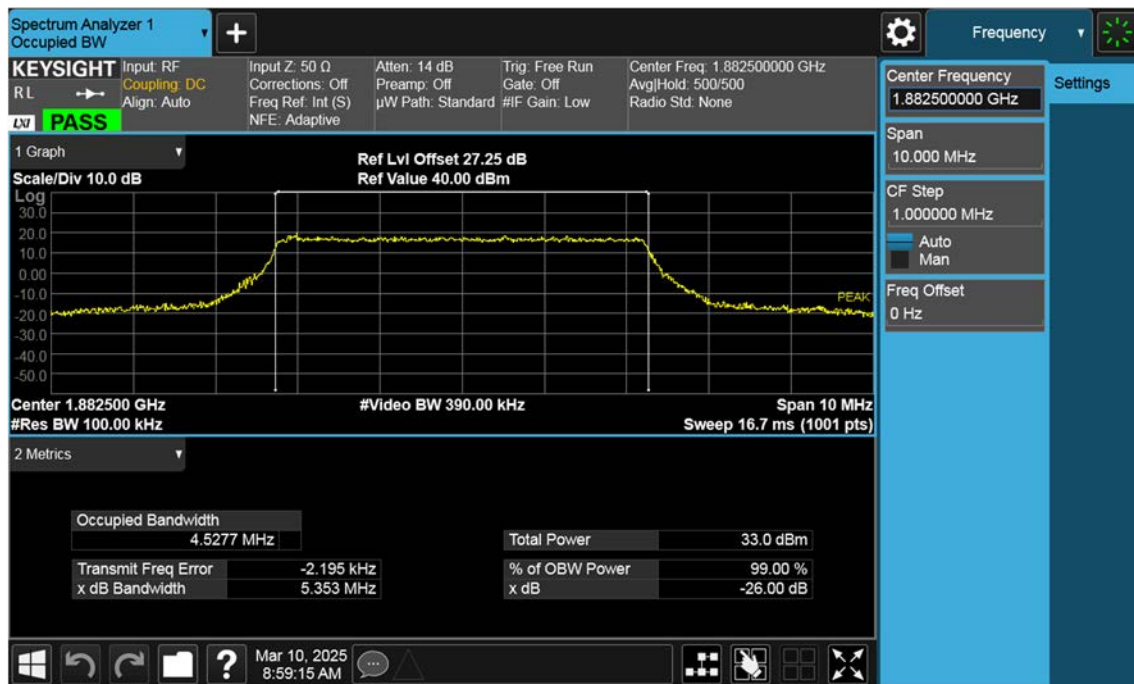
NR25_40 M_PAR_Mid_256QAM_FullRB



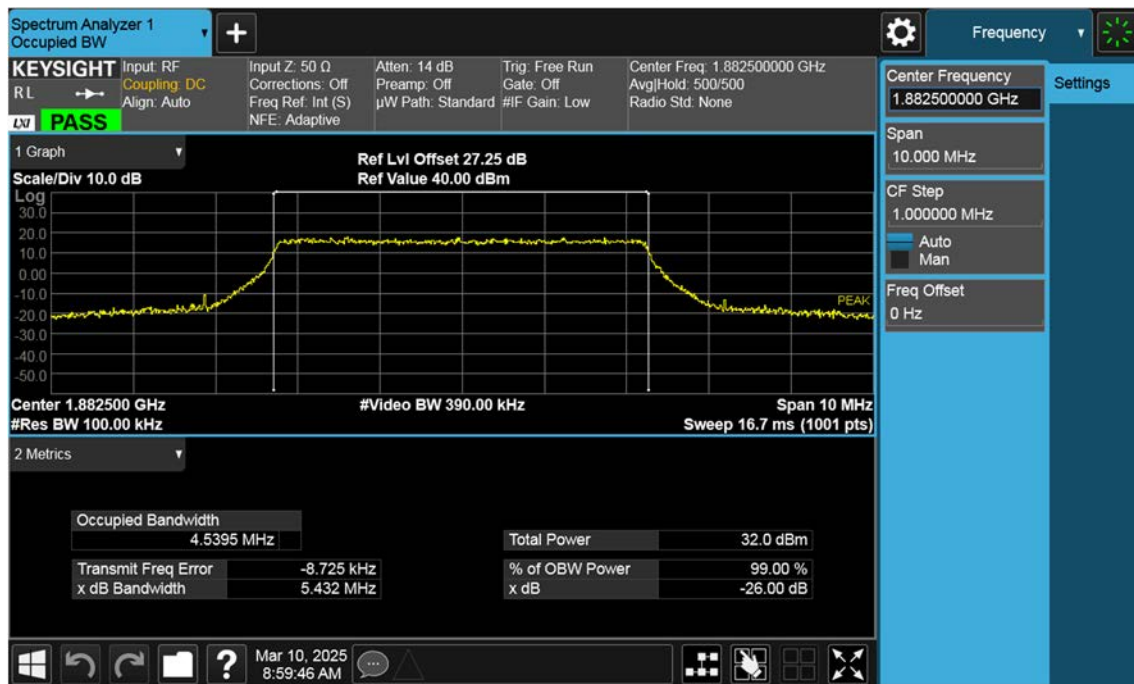
NR25_5 M_OBW_Mid_BPSK_FullRB



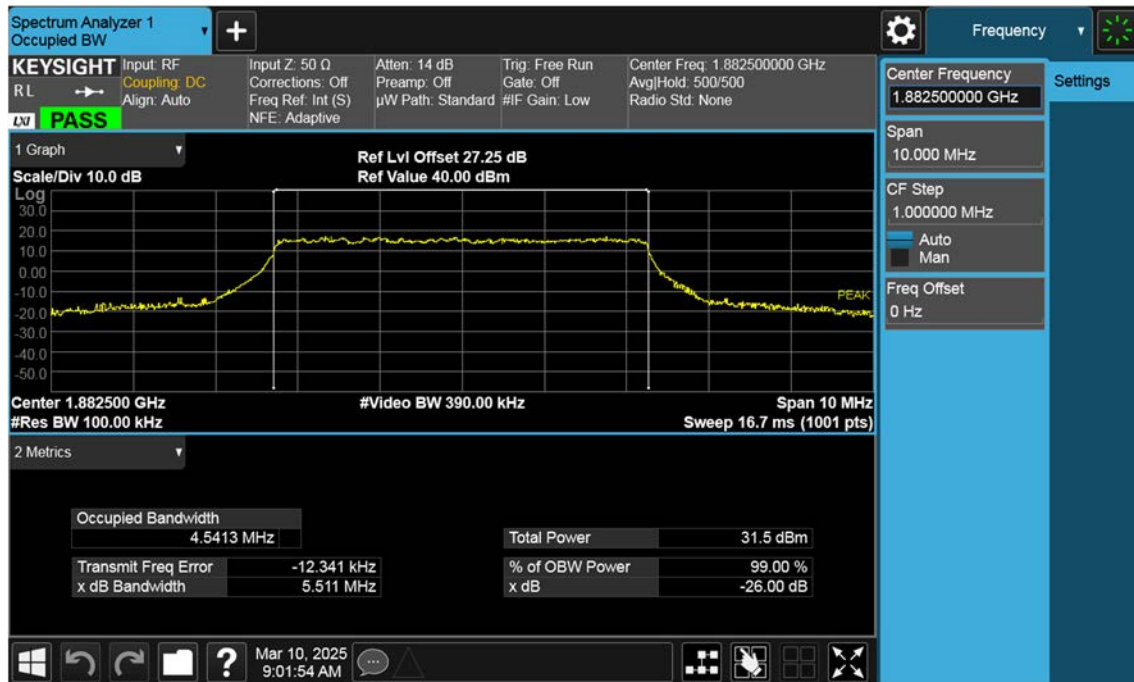
NR25_5 M_OBW_Mid_QPSK_FullRB



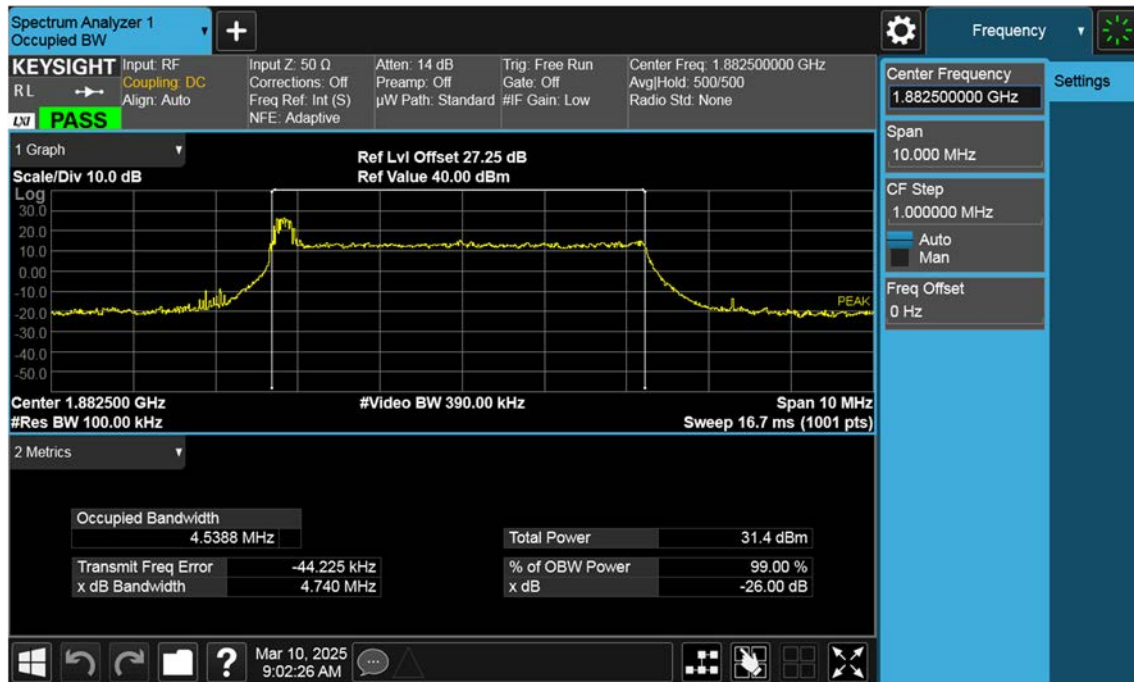
NR25_5 M_OBW_Mid_16QAM_FullRB



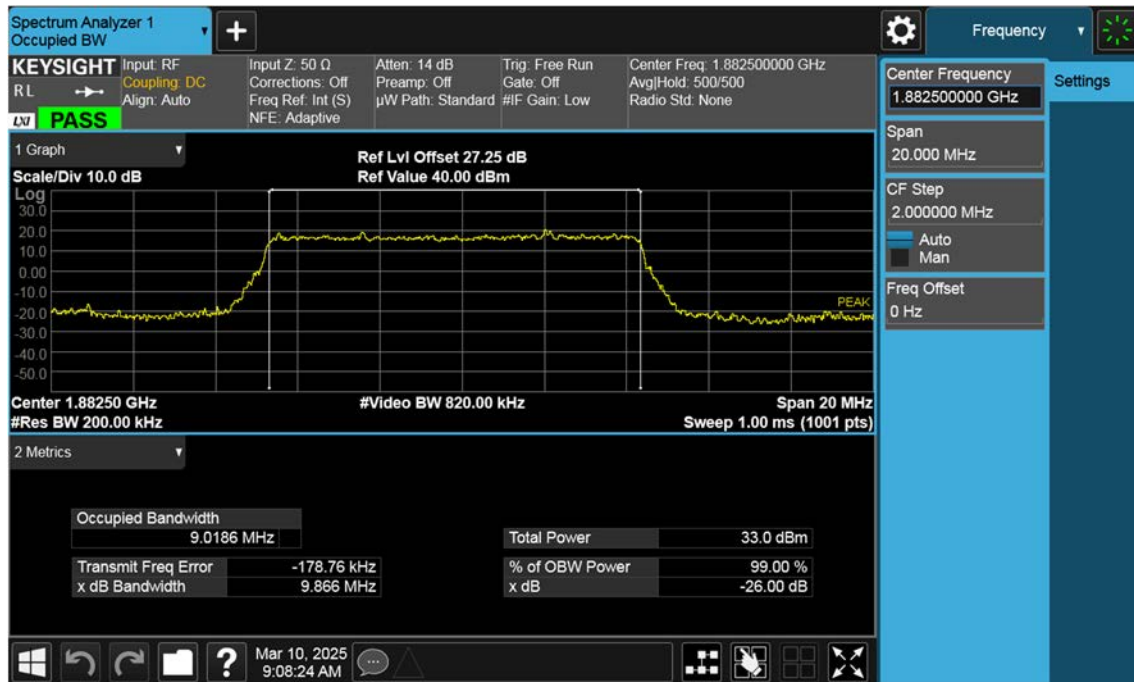
NR25_5 M_OBW_Mid_64QAM_FullRB



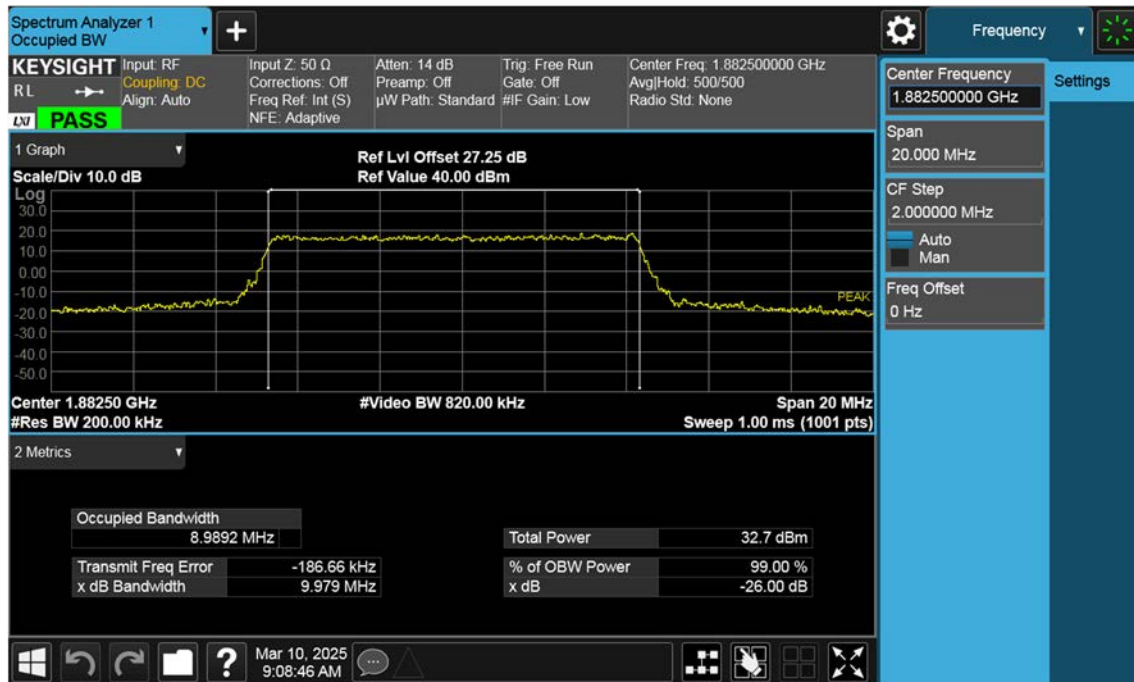
NR25_5 M_OBW_Mid_256QAM_FullRB



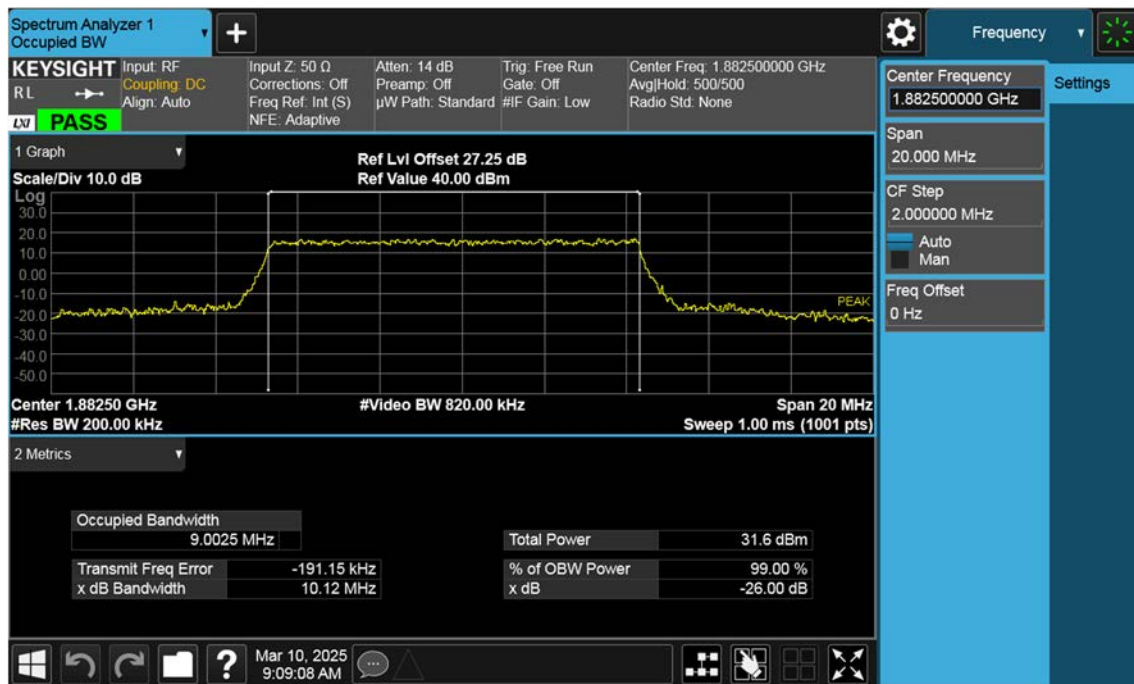
NR25_10 M_OBW_Mid_BPSK_FullRB



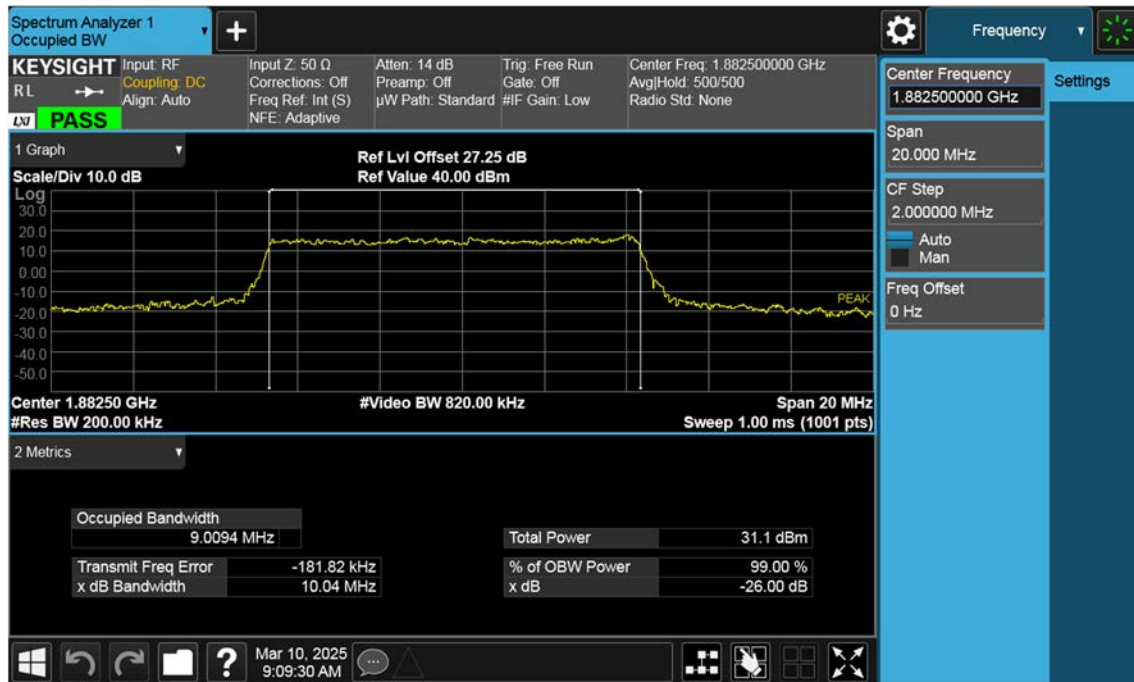
NR25_10 M_OBW_Mid_QPSK_FullRB



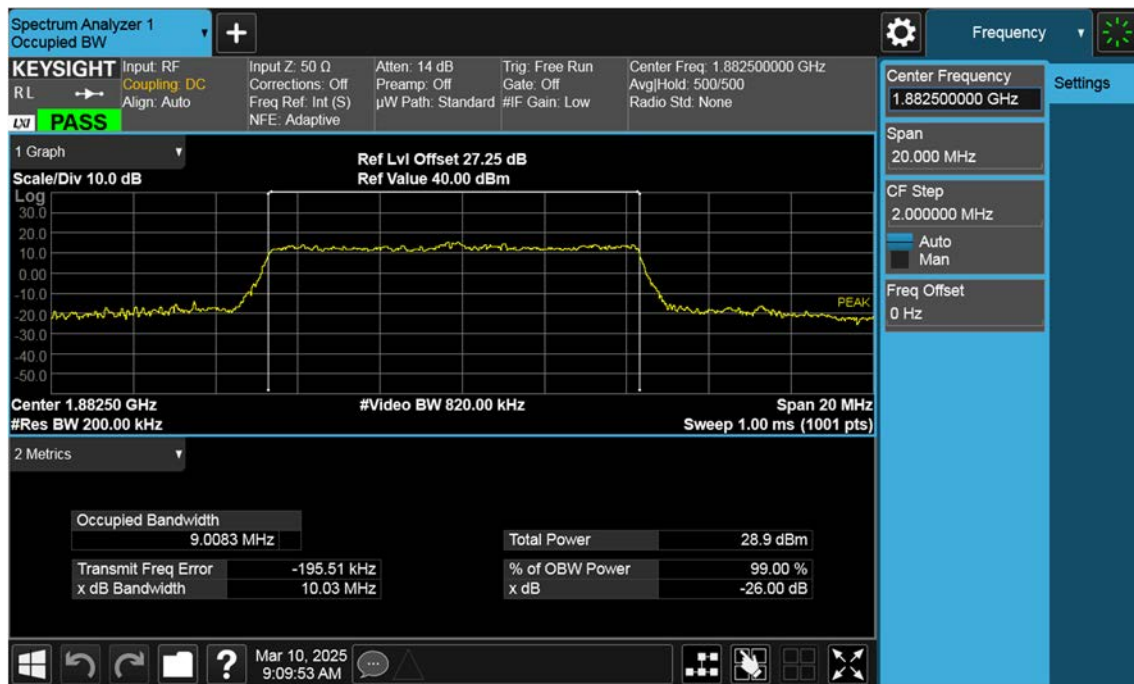
NR25_10 M_OBW_Mid_16QAM_FullRB



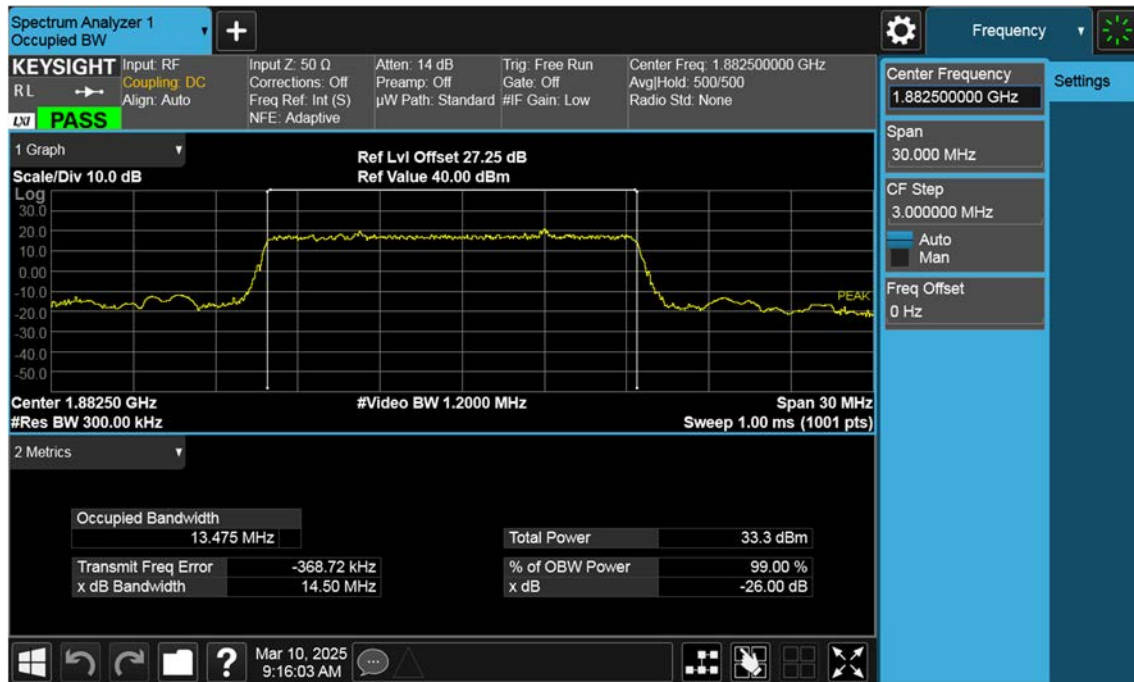
NR25_10 M_OBW_Mid_64QAM_FullRB



NR25_10 M_OBW_Mid_256QAM_FullRB



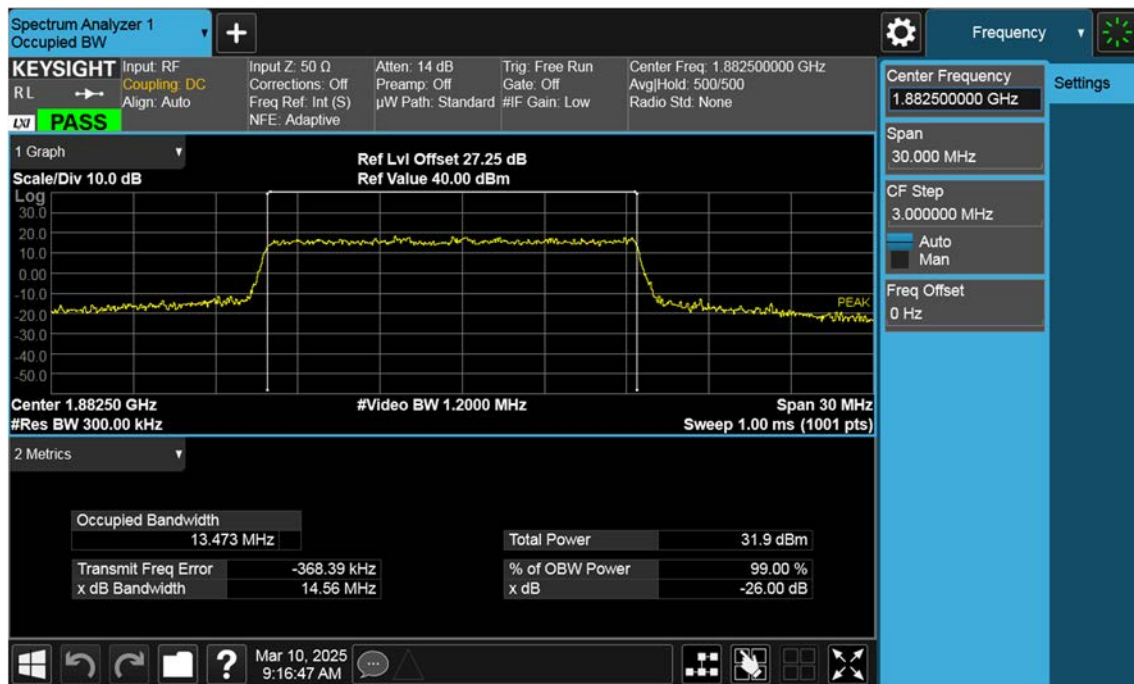
NR25_15 M_OBW_Mid_BPSK_FullRB



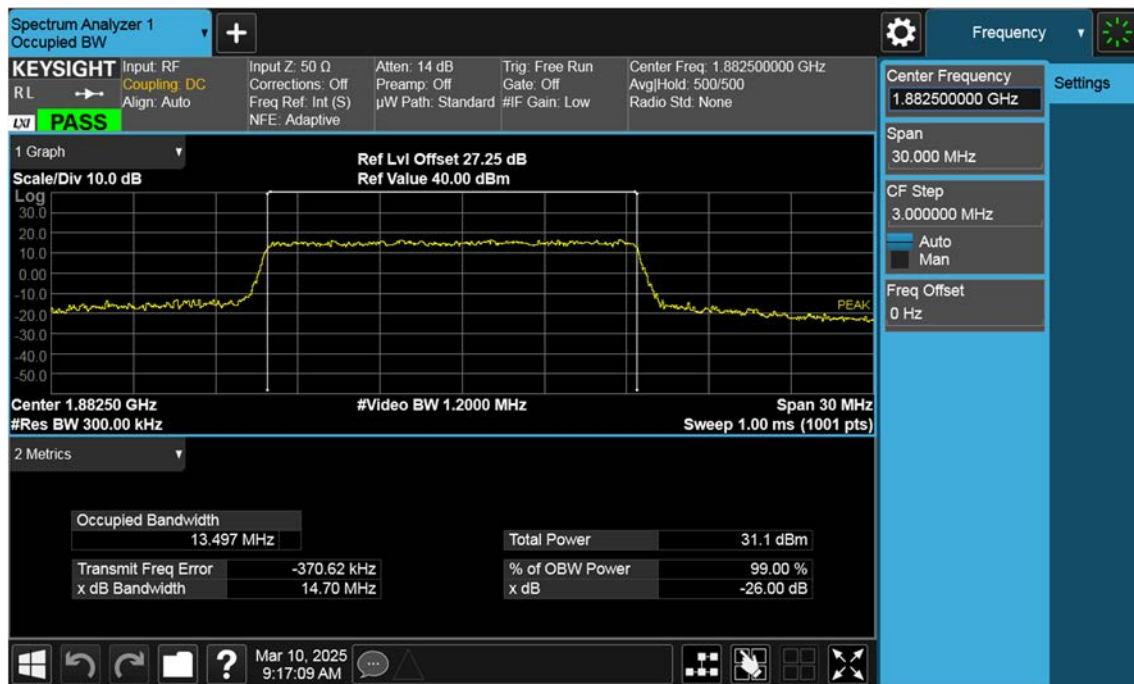
NR25_15 M_OBW_Mid_QPSK_FullRB



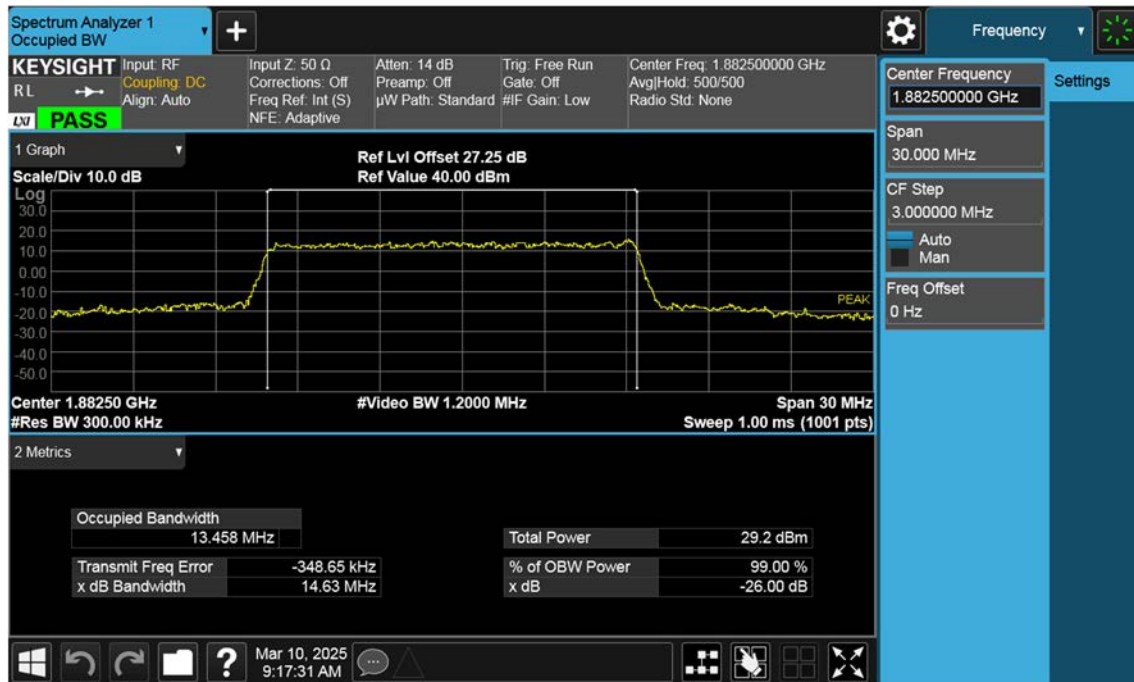
NR25_15 M_OBW_Mid_16QAM_FullRB



NR25_15 M_OBW_Mid_64QAM_FullRB



NR25_15 M_OBW_Mid_256QAM_FullRB



Spectrum Analyzer 1
Occupied BW

KEYSIGHT Input: RF
Coupling: DC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Adaptive

Atten: 14 dB
Preamp: Off
 μ W Path: Standard

Trig: Free Run
Gate: Off
#IF Gain: Low

Center Freq: 1.88250000 GHz
Avg/Hold: 500/600
Radio Std: None

Center Frequency
1.88250000 GHz

Span
40.000 MHz

CF Step
4.000000 MHz

Freq Offset
0 Hz

Settings

1 Graph
Scale/Div 10.0 dB
Log

Ref Lvl Offset 27.25 dB
Ref Value 40.00 dBm

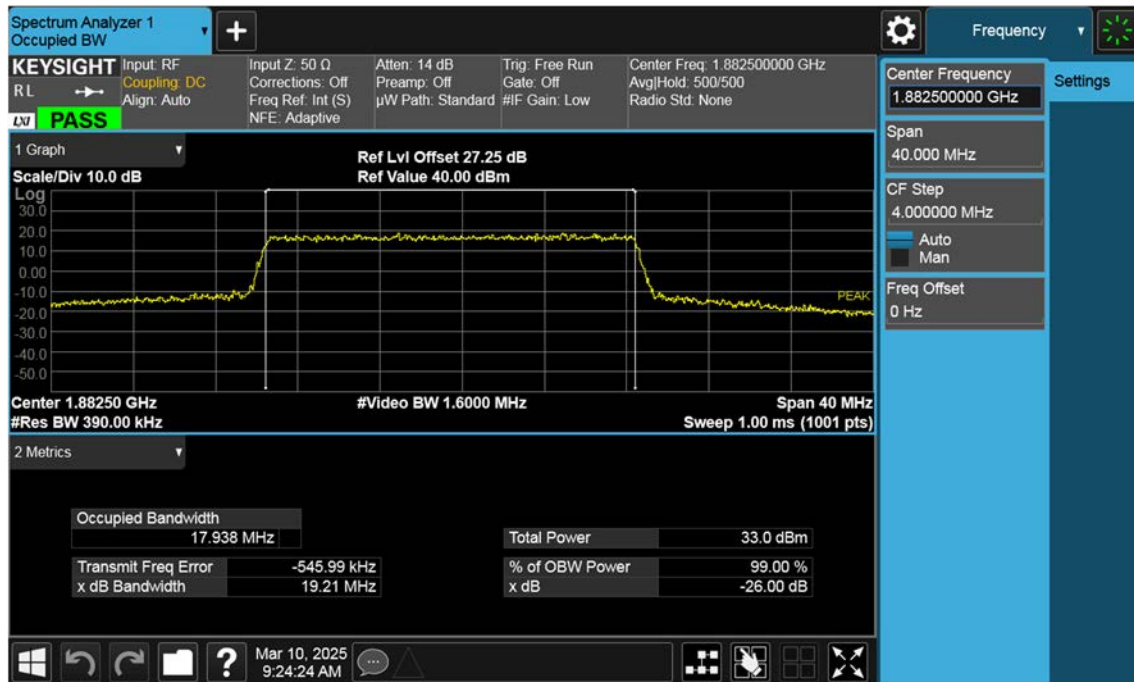
Center 1.88250 GHz
#Res BW 390.00 kHz
#Video BW 1.6000 MHz
Span 40 MHz
Sweep 1.00 ms (1001 pts)

2 Metrics

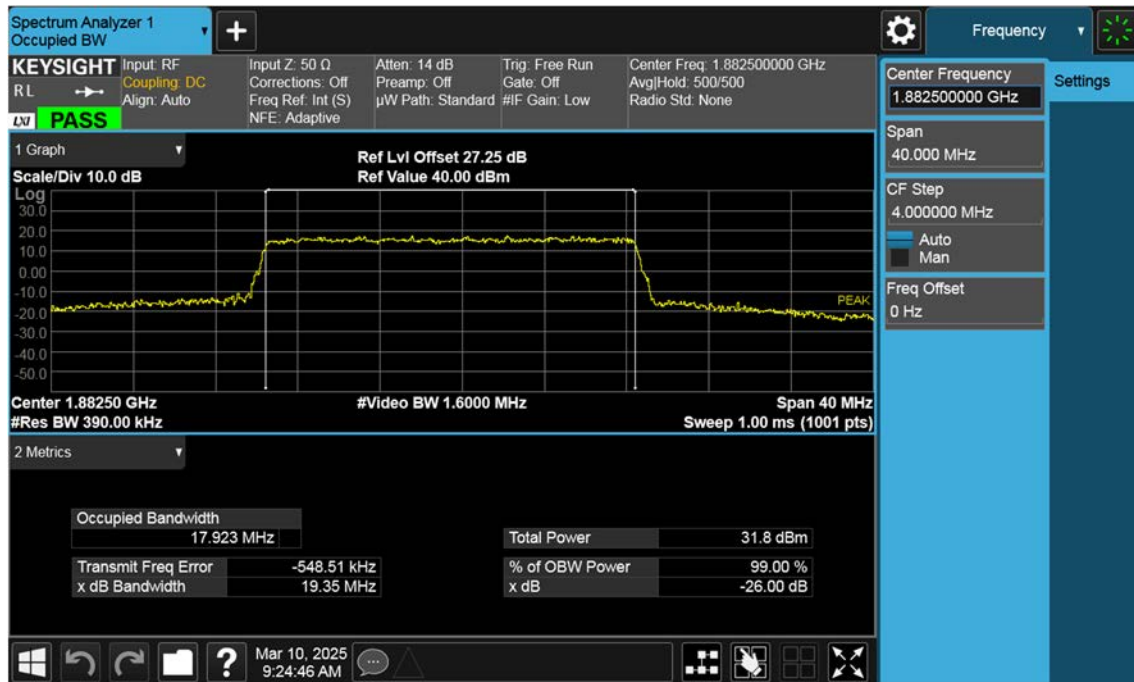
Occupied Bandwidth	17.954 MHz	Total Power	33.4 dBm
Transmit Freq Error x dB Bandwidth	-555.53 kHz 19.20 MHz	% of OBW Power x dB	99.00 % -26.00 dB

The screenshot displays a spectrum analyzer interface. The main display shows a signal centered at 1.8825 GHz with a span of 40 MHz. The signal is a narrowband peak with a peak level of approximately 20 dBm. The occupied bandwidth is 17.954 MHz. The transmit frequency error is -555.53 kHz. The total power is 33.4 dBm. The percentage of OBW power is 99.00%.

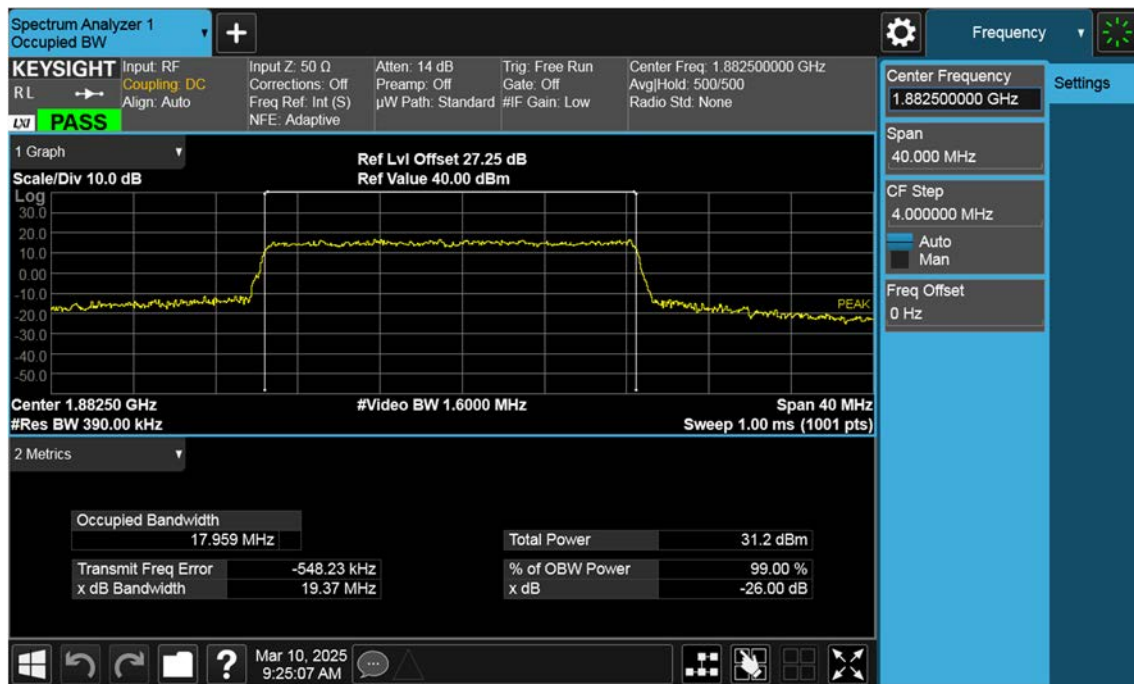
NR25_20 M_OBW_Mid_QPSK_FullRB



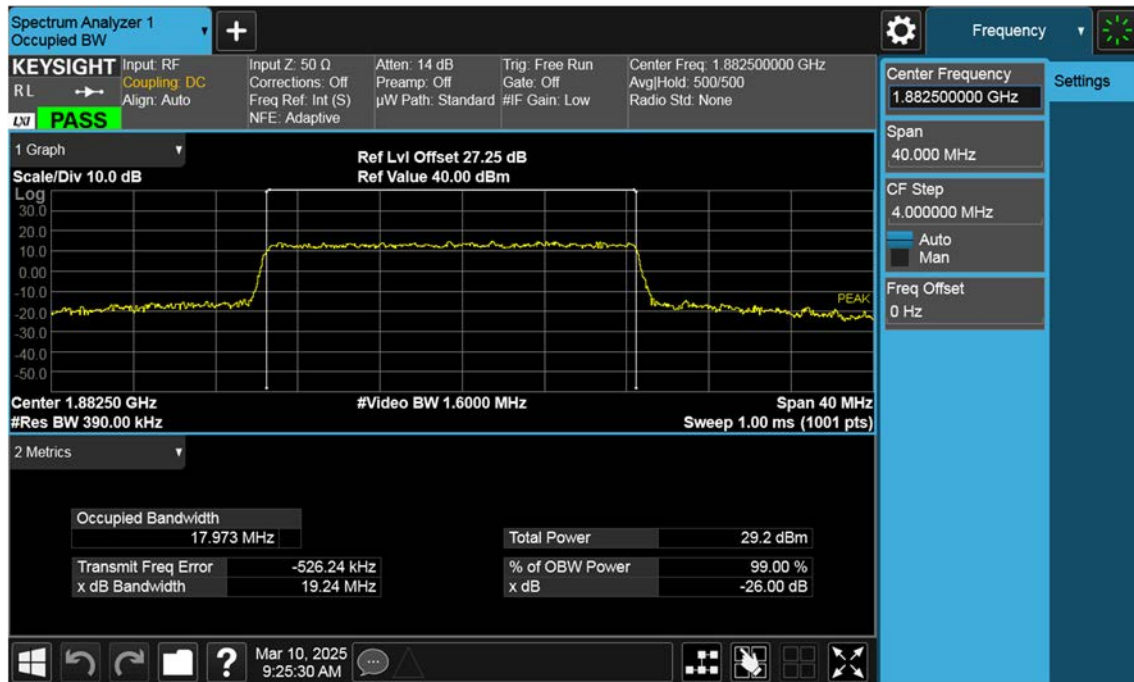
NR25_20 M_OBW_Mid_16QAM_FullRB



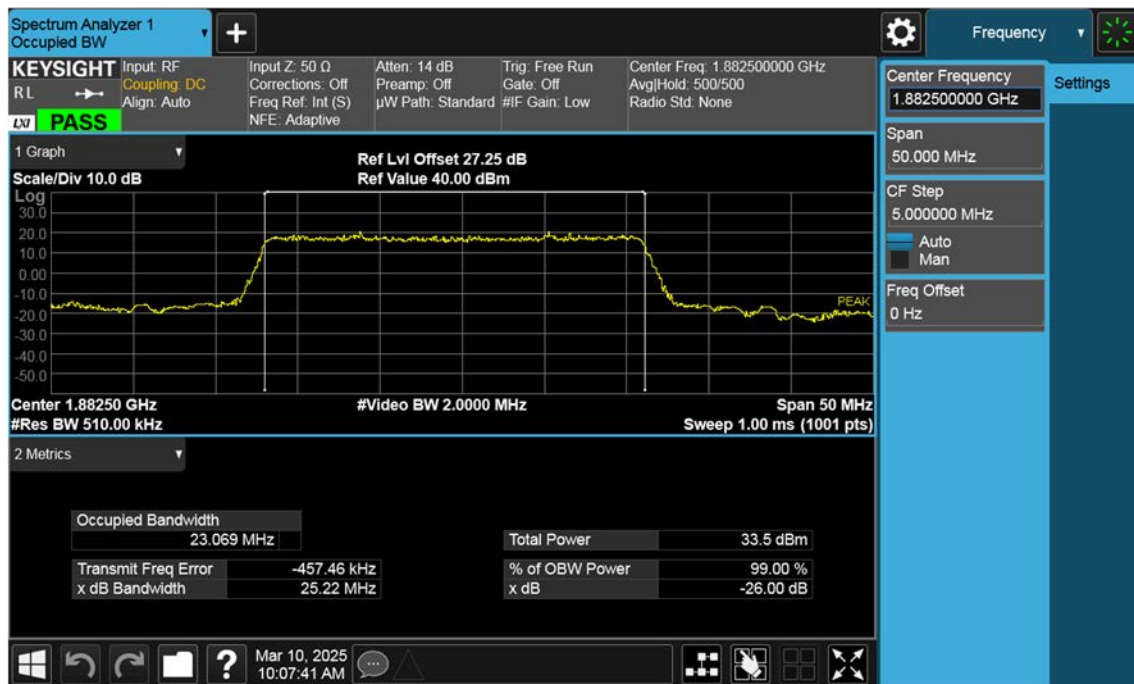
NR25_20 M_OBW_Mid_64QAM_FullRB



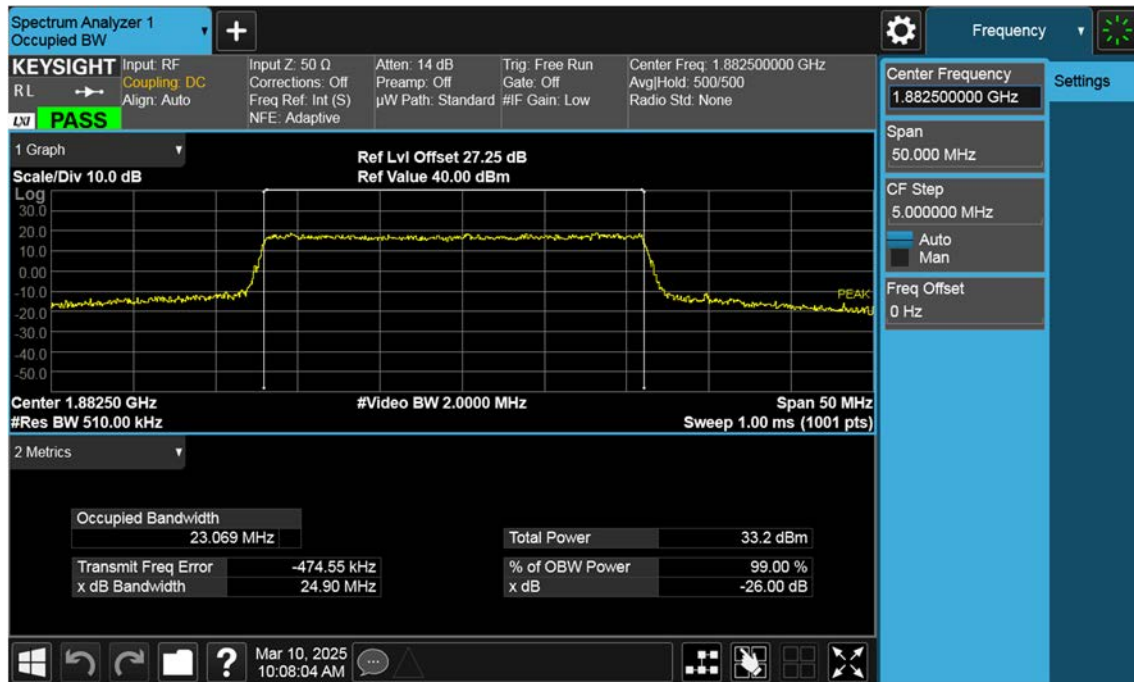
NR25_20 M_OBW_Mid_256QAM_FullRB



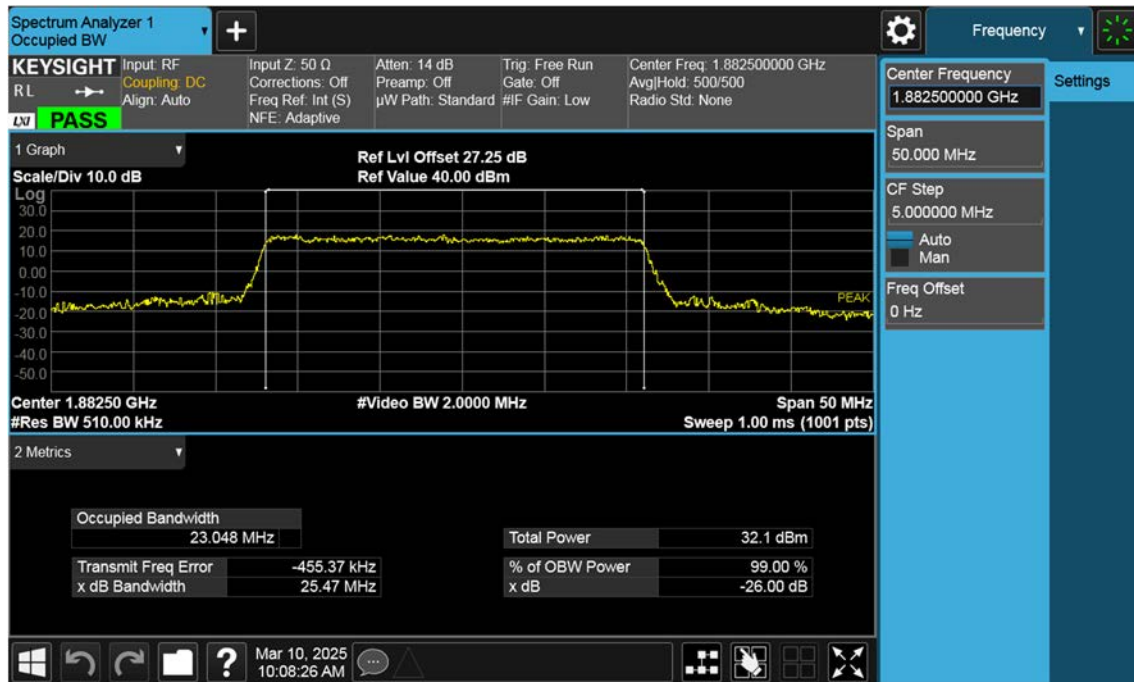
NR25_25 M_OBW_Mid_BPSK_FullRB



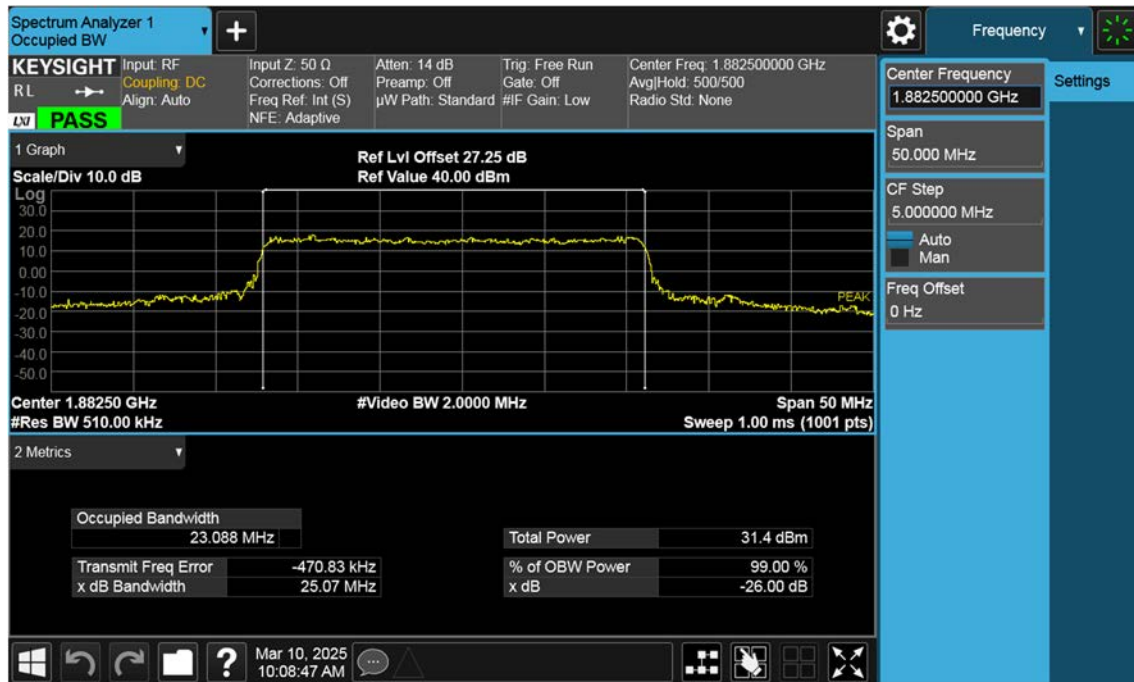
NR25_25 M_OBW_Mid_QPSK_FullRB



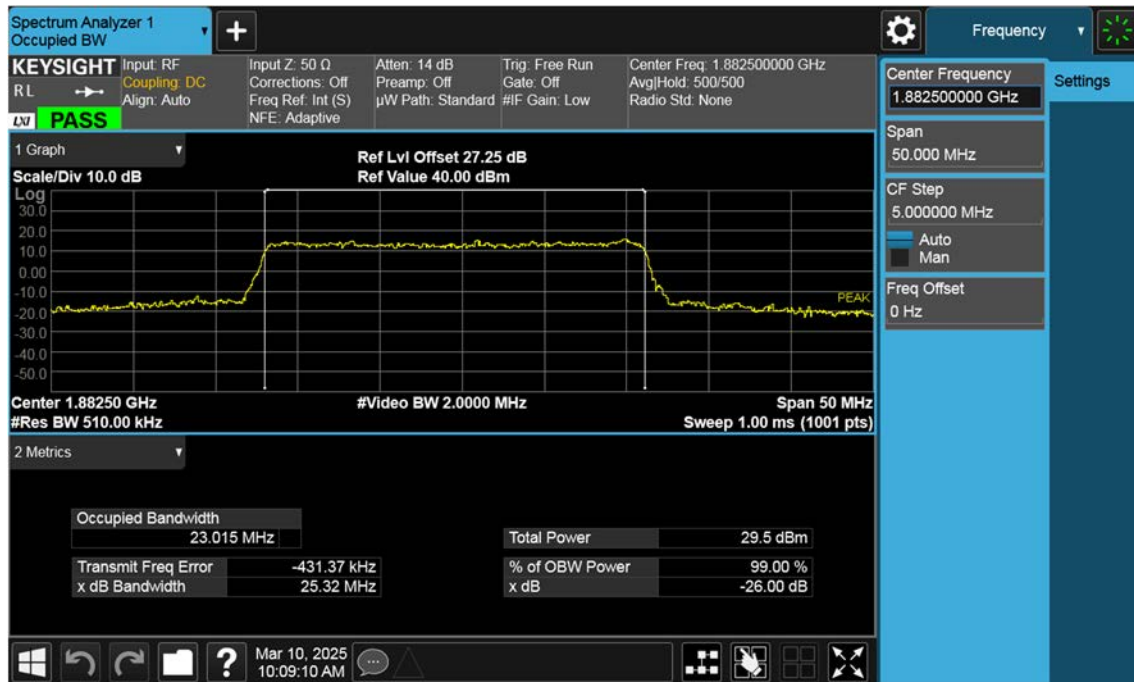
NR25_25 M_OBW_Mid_16QAM_FullRB



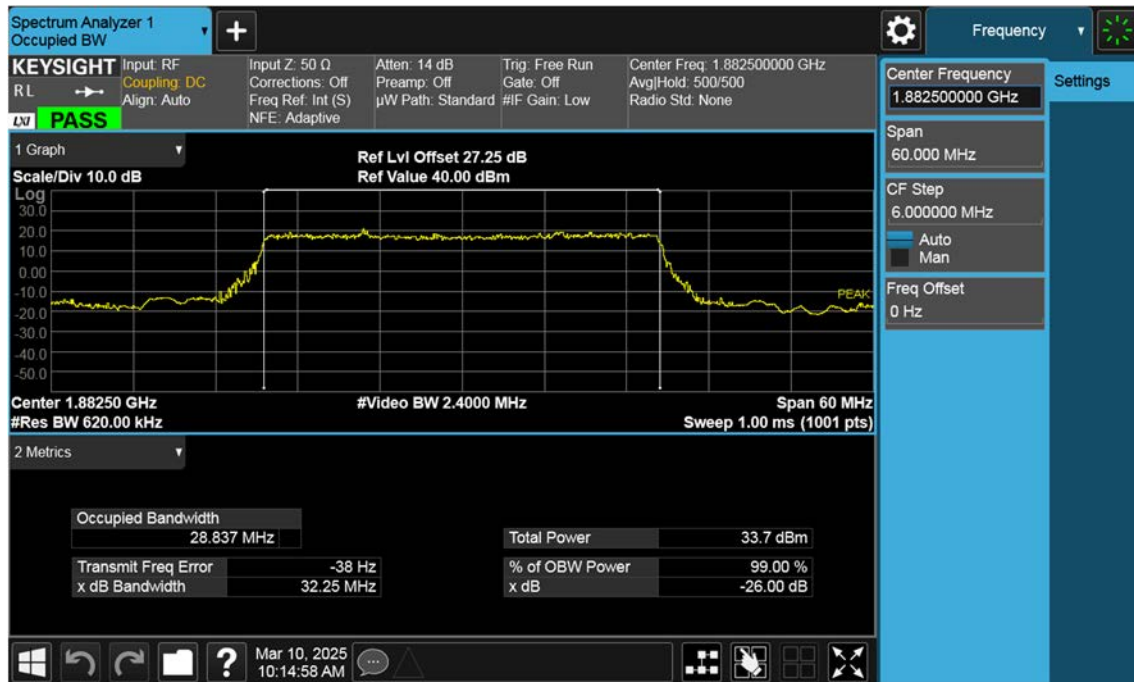
NR25_25 M_OBW_Mid_64QAM_FullRB



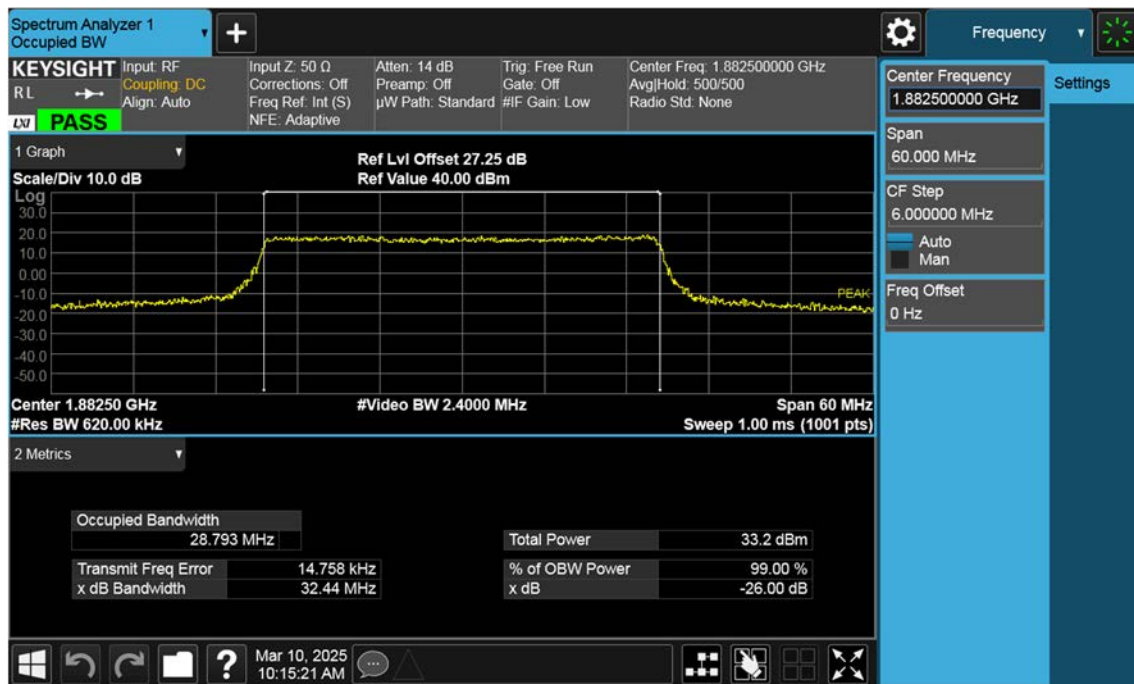
NR25_25 M_OBW_Mid_256QAM_FullRB



NR25_30 M_OBW_Mid_BPSK_FullRB



NR25_30 M_OBW_Mid_QPSK_FullRB



NR25_30 M_OBW_Mid_16QAM_FullRB



NR25_30 M_OBW_Mid_64QAM_FullRB

