Testing and Certification

TEST REPORT

FCC LTE B26(5)(Part22) Test for TM18FNNABM0
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2506-FC057

DATE OF ISSUE
June 17, 2025

Tested by
Jae Ryang Do

Technical Manager
Jong Seok Lee

Accredited by KOLAS, Republic of KOREA

HCT CO., LTD.
BongJai Huh / CEO

HCT CO., LTD. 2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea Tel. +82 31 645 6300 Fax. +82 31 645 6401

HCT CO.,LTD.
2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea
Tel. +82 31 645 6300 Fax. +82 31 645 6401

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Applicant	LG Electronics Inc. 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
Product Name Model Name	Telematics TM18FNNABM0
Date of Test	February 08, 2025 ~ June 17, 2025
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 ID	2BO3LTM18FNNABM0
FCC Classification:	PCS Licensed Transmitter (PCB)
Test Standard Used	FCC Rule Part: § 22
Test Results	PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	June 17, 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).

CONTENTS

MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	LG Electronics Inc.
Address:	128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
FCC ID:	2BO3LTM18FNNABM0
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 22
EUT Type:	Telematics
Model(s):	TM18FNNABM0
Voltage:	4.2V
Tx Frequency:	824.7 MHz – 848.3 MHz (LTE – Band 26(5) (1.4 MHz)) 825.5 MHz – 847.5 MHz (LTE – Band 26(5) (3 MHz)) 826.5 MHz – 846.5 MHz (LTE – Band 26(5) (5 MHz)) 829.0 MHz – 844.0 MHz (LTE – Band 26(5) (10 MHz)) 831.5 MHz – 841.5 MHz (LTE – Band 26 (15 MHz))
Date(s) of Tests:	February 08, 2025 ~ June 17, 2025
EUT Serial number:	Radiated : BMW ICON-25SF Radiated #6 Conducted : BMW ICON-25SF Conducted #5
Antenna Information	Please refer to the Antenna Specification document.

1.1. SUPPORTED BANDS PER ANTENNA PORT

Antenna Port	Supported bands
MIMO 1	- WCDMA: B2, 5 - LTE: B2, 4, 5, 7, 12, 13, 17, 25, 66, 26, 38, 42, 48, 71 - NR: n2, 5, 7, 12, 25, 41, 48, 66, 71, 77, 78
MIMO 2	- LTE: B42, 48 - NR: n48, 77, 78
MIMO 3	Only RX
MIMO 4	Only RX
Int. BUA (Back Up Antenna)	- WCDMA: B2, 5 - LTE: B2, 4, 5, 7, 25, 26, 38, 66 - NR: n2, 5, 7, 25, 41, 66

Note:

1. Since the Int. BUA uses the same antenna port as MIMO1, only radiated testing was performed.

1.2 MAXIMUM OUTPUT POWER

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Conducted output power	
				Max. Power (W)	Max. Power (dBm)
LTE – Band 26(5) (1.4)	824.7 – 848.3	1M10G7D	QPSK	0.244	23.87
		1M09W7D	16QAM	0.212	23.27
		1M09W7D	64QAM	0.161	22.08
		1M09W7D	256QAM	0.079	18.98
LTE – Band 26(5) (3)	825.5 – 847.5	2M70G7D	QPSK	0.244	23.87
		2M69W7D	16QAM	0.210	23.22
		2M70W7D	64QAM	0.164	22.16
		2M70W7D	256QAM	0.079	18.97
LTE – Band 26(5) (5)	826.5 – 846.5	4M50G7D	QPSK	0.248	23.94
		4M48W7D	16QAM	0.213	23.28
		4M49W7D	64QAM	0.165	22.18
		4M50W7D	256QAM	0.081	19.08
LTE – Band 26(5) (10)	829.0 – 844.0	8M99G7D	QPSK	0.248	23.95
		8M97W7D	16QAM	0.211	23.25
		8M98W7D	64QAM	0.164	22.15
		8M96W7D	256QAM	0.081	19.07
LTE – Band 26 (15)	831.5 – 841.5	13M4G7D	QPSK	0.245	23.90
		13M4W7D	16QAM	0.207	23.17
		13M5W7D	64QAM	0.164	22.14
		13M4W7D	256QAM	0.079	18.96

2. INTRODUCTION

2.1 DESCRIPTION OF EUT

Please refer to the [3G] 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
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
Conducted Output Power	- N/A (See SAR Report)
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	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

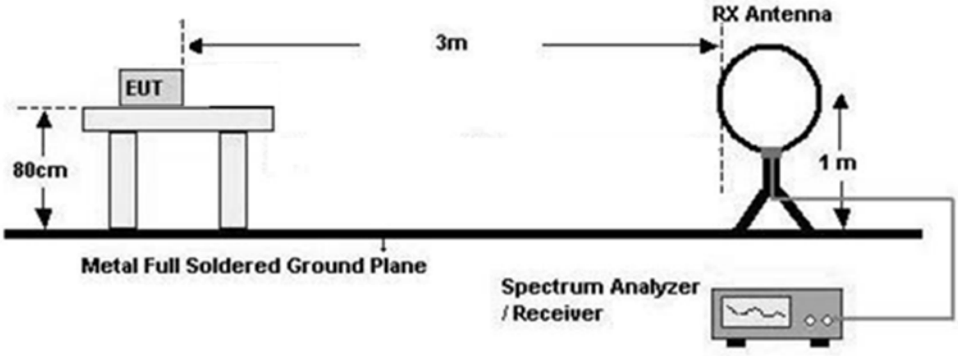
3.2 RADIATED POWER

Test Overview

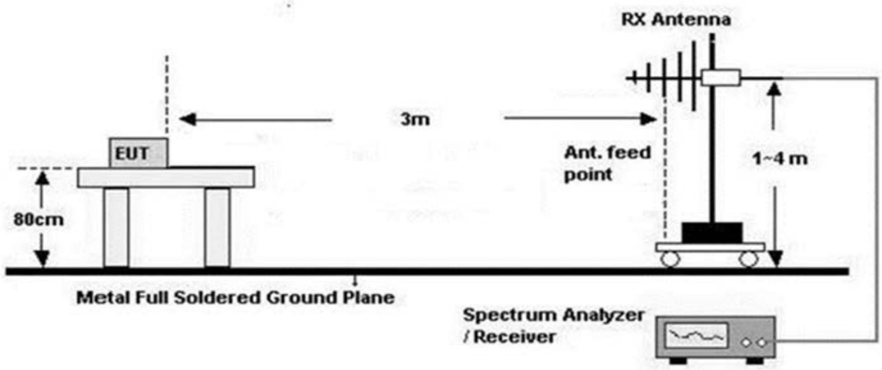
Radiated tests are performed in the semi-anechoic chamber. The equipment under test is placed on a non-conductive table on semi-anechoic chamber.

Test Configuration

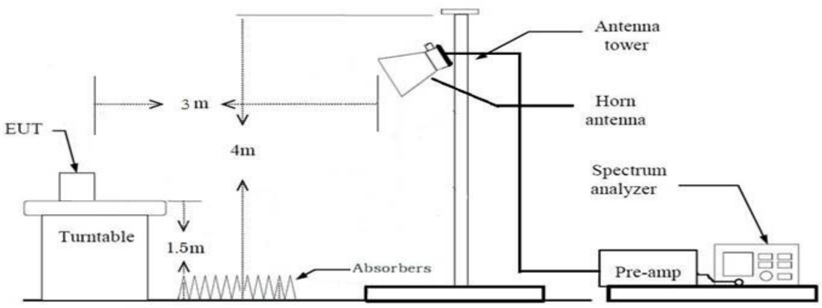
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



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 EUT is placed on a turntable, which is 0.8 m above ground plane. (Below 1 GHz)
2. The EUT is placed on a turntable, which is 1.5 m above ground plane. (Above 1 GHz)
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
6. 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.
7. Total(dBμV/m) = Measured Value(dBμV) + Cable Loss(dB) + Antenna Factor(dB/m) + Distance Factor(D.F)
8. EIRP (dBm)
   = Total (dBμV/m) + 20 log D − 104.8 (where D is the measurement distance in meters. D=3)
   = Total (dBμV/m) - 95.2(dB)
9. ERP(dBm) = EIRP(dBm) - 2.15(dB)

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;

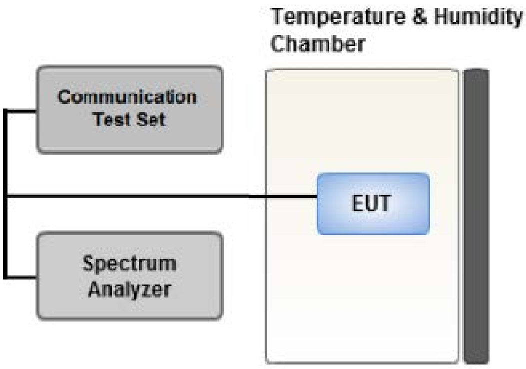
   $$Result_{(dBm)} = Pg_{(dBm)} - cable\ loss_{(dB)} + antenna\ gain_{(dBi)}$$

   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



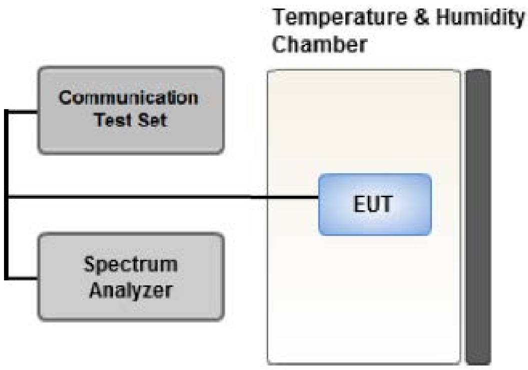
Test setup

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 %.

3.5 OCCUPIED BANDWIDTH.



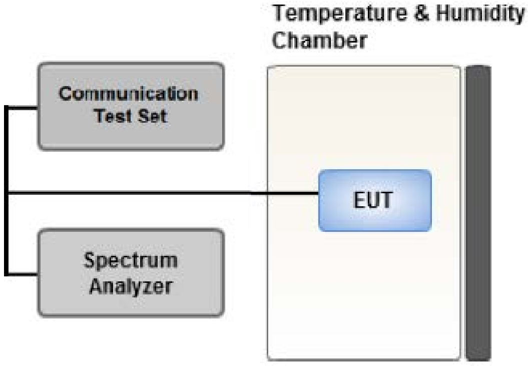
Test setup

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.

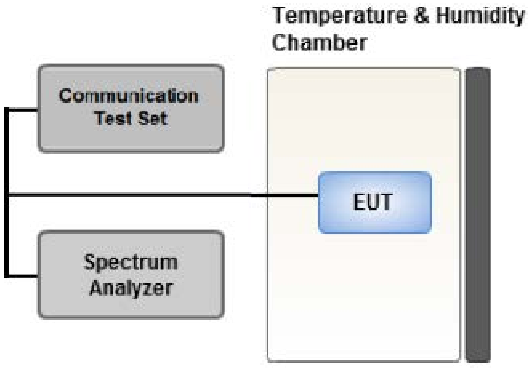
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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 = Peak
4. Trace Mode = Max hold
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

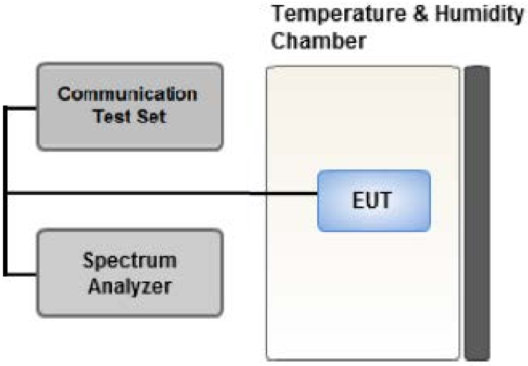
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW > 1 % of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW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

- 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.
- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported. (Worst case : 10 MHz)
- LTE Band 26(1.4 M/3 M/5 M/10 M) overlaps the entire frequency range of LTE Band 5(1.4 M/3 M/5 M/10 M) and they have the same Tune-up power.
  Therefore, test data provided in this report covers Band 5 as well as Band 26.
- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data. Please refer to the table below.
- MIMO3 and MIMO4 have three types of Rx antennas. Operating modes were investigated for all Rx antennas, and the worst-case configuration results were reported.
  (Worst-case: HKL antenna(Maximum gain: 5dBi))

[External(MIMO1) Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	See Section 8.1		Z
Radiated Spurious and Harmonic Emissions	QPSK	See Section 8.2		Z

[Internal(BUA) Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	See Section 9.1		Z
Radiated Spurious and Harmonic Emissions	QPSK	See Section 9.2		Z

3.10 WORST CASE(CONDUCTED TEST)

- All modes of operation were investigated and the worst case configuration results are reported.
- Both 85% and 115% conditions were measured for the Frequency Stability test, and results for the worst-case configuration (85%) were reported.
- In accordance with the customer's specification of 3.7V as the lowest operating voltage, testing was performed at 3.7V instead of 85% (3.57V).

[Worst case]

<table>
<tr><th>Test Description</th><th>Modulation</th><th>Bandwidth (MHz)</th><th>Frequency</th><th>RB size</th><th>RB offset</th></tr>
<tr><td>Occupied Bandwidth</td><td>QPSK, 16QAM, 64QAM, 256QAM</td><td>1.4, 3, 5, 10, 15</td><td>Mid</td><td>Full RB</td><td>0</td></tr>
<tr><td>Peak-To-Average Ratio</td><td>QPSK, 16QAM, 64QAM, 256QAM</td><td>1.4, 3, 5, 10, 15</td><td>Mid</td><td>Full RB</td><td>0</td></tr>
<tr><td rowspan="11">Band Edge</td><td rowspan="11">QPSK</td><td rowspan="2">1.4</td><td>Low</td><td>1</td><td>0</td></tr>
<tr><td>High</td><td>1</td><td>5</td></tr>
<tr><td rowspan="2">3</td><td>Low</td><td>1</td><td>0</td></tr>
<tr><td>High</td><td>1</td><td>14</td></tr>
<tr><td rowspan="2">5</td><td>Low</td><td>1</td><td>0</td></tr>
<tr><td>High</td><td>1</td><td>24</td></tr>
<tr><td rowspan="2">10</td><td>Low</td><td>1</td><td>0</td></tr>
<tr><td>High</td><td>1</td><td>49</td></tr>
<tr><td rowspan="2">15</td><td>Low</td><td>1</td><td>0</td></tr>
<tr><td>High</td><td>1</td><td>74</td></tr>
<tr><td>1.4, 3, 5, 10, 15</td><td>Low, High</td><td>Full RB</td><td>0</td></tr>
<tr><td>Spurious and Harmonic Emissions at Antenna Terminal</td><td>QPSK</td><td>1.4, 3, 5, 10, 15</td><td>Low, Mid, High</td><td>1</td><td>0</td></tr>
</table>

4. LIST OF TEST EQUIPMENT

[Radiated]

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
RF Switch System	FBSR-04C(3G HPF+LNA)	TNM System	S4L1	03/12/2026	Annual
RF Switch System	FBSR-04C(7G HPF+LNA)	TNM System	S4L5	03/12/2026	Annual
RF Switch System	FBSR-04C(LNA)	TNM System	S4L4	03/12/2026	Annual
RF Switch System	FBSR-04C(Thru)	TNM System	S4L6	03/12/2026	Annual
Antenna Position Tower	MA4640	Innco systems	S4AM	08/07/2025	Annual
Turn Table	DS2000-S	Innco systems	N/A	N/A	-
Controller (Antenna mast & Turn Table)	CO3000	Innco systems	CO3000/1251/48 920320/P	N/A	-
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM20090002	N/A	-
RF Switching System	Switch box(1 G HPF+LNA)	HCT CO., LTD.,	F2L2	12/12/2025	Annual
RF Switching System	Switch box(3 G HPF+LNA)	HCT CO., LTD.,	F2L3	12/12/2025	Annual
RF Switching System	Switch box(LNA)	HCT CO., LTD.,	F2L5	12/12/2025	Annual
RF Switching System	Switch box(6 G HPF+LNA)	HCT CO., LTD.,	F2L14	12/12/2025	Annual
HIGHPASS FILTER	WHKX10-900-1000-15000-40SS	WAINWRIGHT INSTRUMENTS	16	07/24/2025	Annual
LOW NOISE AMPLIFIER	310N	SONOMA Instrument	186169	02/05/2026	Annual
LOW NOISE AMPLIFIER	TK-PA1840H	TESTEK	170011-L	10/11/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/19/2026	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/10/2026	Annual
DC Power Supply	E3632A	Agilent	MY40010147	08/06/2025	Annual
Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Dipole Antenna	UHAP	Schwarzbeck	01288	08/07/2026	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	03197	11/28/2025	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	03201	11/28/2025	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120	Schwarzbeck	937	02/07/2027	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/23/2027	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	ROHDE & SCHWARZ	101733	09/19/2025	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	05/27/2026	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Trilog Broadband Antenna	VULB 9168	Schwarzbeck	9168-0895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	08/19/2026	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/14/2026	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6272613402	08/28/2025	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/26/2025	Annual
Automation Software	FCC LTE Radiated	HCT CO., LTD	-	-	-
Automation Software	FCC NR Radiated	HCT CO., LTD	-	-	-

[Conducted]

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Power Splitter (DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/10/2026	Annual
DC Power Supply	E3632A	Agilent	MY40010147	08/06/2025	Annual
Chamber	SU-642	ESPEC	93008124	02/11/2026	Annual
ATTENUATOR (20 dB)	8493C	Hewlett Packard	17280	04/10/2026	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/13/2025	Annual
UXM 5G Wireless Test Platform	E7515B	KEYSIGHT	MY60101126	02/10/2026	Annual
Signal Analyzer (2 Hz ~ 50.0 GHz)	N9030B	KEYSIGHT	MY56320554	02/03/2026	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.	-	-	-
Automation Software	FCC 2G/3G/4G Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC NR Conducted	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 (±kHz)**
Occupied Bandwidth	95 (Confidence level about 95 %, *k*=2)
Frequency stability	28 (Confidence level about 95 %, *k*=2)

Parameter	**Expanded Uncertainty (±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, § 22.917(a)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	Note[1]
Peak- to- Average Ratio	§ 22.913(d)	< 13 dB	PASS
Frequency stability / variation of ambient temperature	§ 2.1055, § 22.355	< 2.5 ppm	PASS

Note:

1. Refer to the SAR report.

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Effective Radiated Power	§ 22.913(a)(5)	< 7 Watts max. ERP	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 22.917(a)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

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(MIMO1)

8.1 EFFECTIVE RADIATED POWER

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
824.7	LTE 26/5 (1.4 MHz)	QPSK	91.20	30.04	2.63	123.87	H	< 7.00	0.449	26.52	1	0
		16-QAM	90.65	30.04	2.63	123.32	H		0.395	25.97		
		64-QAM	89.49	30.04	2.63	122.16	H		0.303	24.81		
		256-QAM	86.55	30.04	2.63	119.22	H		0.154	21.87		
836.5		QPSK	92.38	30.14	2.66	125.18	H		0.607	27.83	1	5
		16-QAM	91.78	30.14	2.66	124.58	H		0.528	27.23		
		64-QAM	90.61	30.14	2.66	123.41	H		0.403	26.06		
		256-QAM	87.54	30.14	2.66	120.34	H		0.199	22.99		
848.3		QPSK	91.08	30.24	2.67	123.99	H		0.462	26.64	1	0
		16-QAM	90.98	30.24	2.67	123.89	H		0.451	26.54		
		64-QAM	89.99	30.24	2.67	122.90	H		0.359	25.55		
		256-QAM	86.85	30.24	2.67	119.76	H		0.174	22.41		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
825.5	LTE 26/5 (3 MHz)	QPSK	91.42	30.04	2.63	124.09	H	< 7.00	0.472	26.74	1	14
		16-QAM	91.14	30.04	2.63	123.81	H		0.442	26.46		
		64-QAM	90.05	30.04	2.63	122.72	H		0.344	25.37		
		256-QAM	86.85	30.04	2.63	119.52	H		0.165	22.17		
836.5		QPSK	92.53	30.14	2.66	125.33	H		0.628	27.98	1	14
		16-QAM	91.77	30.14	2.66	124.57	H		0.527	27.22		
		64-QAM	90.76	30.14	2.66	123.56	H		0.418	26.21		
		256-QAM	87.60	30.14	2.66	120.40	H		0.202	23.05		
847.5		QPSK	91.58	30.24	2.67	124.49	H		0.517	27.14	1	0
		16-QAM	91.27	30.24	2.67	124.18	H		0.482	26.83		
		64-QAM	89.77	30.24	2.67	122.68	H		0.341	25.33		
		256-QAM	86.82	30.24	2.67	119.73	H		0.173	22.38		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBµV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBµV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
826.5	LTE 26/5 (5 MHz)	QPSK	91.08	30.04	2.63	123.75	H	< 7.00	0.437	26.40	1	0
		16-QAM	90.77	30.04	2.63	123.44	H		0.406	26.09		
		64-QAM	89.63	30.04	2.63	122.30	H		0.313	24.95		
		256-QAM	86.55	30.04	2.63	119.22	H		0.154	21.87		
836.5		QPSK	92.43	30.14	2.66	125.23	H		0.614	27.88	1	13
		16-QAM	91.63	30.14	2.66	124.43	H		0.511	27.08		
		64-QAM	90.58	30.14	2.66	123.38	H		0.401	26.03		
		256-QAM	87.45	30.14	2.66	120.25	H		0.195	22.90		
846.5		QPSK	91.33	30.24	2.67	124.24	H		0.489	26.89	1	13
		16-QAM	90.99	30.24	2.67	123.90	H		0.451	26.55		
		64-QAM	89.93	30.24	2.67	122.84	H		0.354	25.49		
		256-QAM	86.92	30.24	2.67	119.83	H		0.177	22.48		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBµV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBµV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
829.0	LTE 26/5 (10 MHz)	QPSK	92.28	30.04	2.63	124.95	H	< 7.00	0.575	27.60	1	49
		16-QAM	91.66	30.04	2.63	124.33	H		0.499	26.98		
		64-QAM	90.46	30.04	2.63	123.13	H		0.379	25.78		
		256-QAM	87.51	30.04	2.63	120.18	H		0.192	22.83		
836.5		QPSK	92.47	30.14	2.66	125.27	H		0.620	27.92	1	25
		16-QAM	91.86	30.14	2.66	124.66	H		0.538	27.31		
		64-QAM	90.64	30.14	2.66	123.44	H		0.406	26.09		
		256-QAM	87.48	30.14	2.66	120.28	H		0.197	22.93		
844.0		QPSK	92.51	30.24	2.67	125.42	H		0.641	28.07	1	0
		16-QAM	91.80	30.24	2.67	124.71	H		0.545	27.36		
		64-QAM	90.73	30.24	2.67	123.64	H		0.426	26.29		
		256-QAM	87.69	30.24	2.67	120.60	H		0.211	23.25		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBµV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBµV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
831.5	LTE 26 (15 MHz)	QPSK	92.42	30.04	2.63	125.09	H	< 7.00	0.594	27.74	1	74
		16-QAM	91.75	30.04	2.63	124.42	H		0.509	27.07		
		64-QAM	90.63	30.04	2.63	123.30	H		0.394	25.95		
		256-QAM	87.77	30.04	2.63	120.44	H		0.204	23.09		
836.5		QPSK	92.55	30.14	2.66	125.35	H		0.631	28.00	1	38
		16-QAM	91.85	30.14	2.66	124.65	H		0.537	27.30		
		64-QAM	90.52	30.14	2.66	123.32	H		0.395	25.97		
		256-QAM	87.46	30.14	2.66	120.26	H		0.195	22.91		
841.5		QPSK	92.49	30.24	2.67	125.40	H		0.638	28.05	1	0
		16-QAM	91.86	30.24	2.67	124.77	H		0.552	27.42		
		64-QAM	90.57	30.24	2.67	123.48	H		0.411	26.13		
		256-QAM	87.53	30.24	2.67	120.44	H		0.204	23.09		

8.2 RADIATED SPURIOUS EMISSIONS

- MODE: LTE 26
- MODULATION SIGNAL: 10 MHz QPSK
- DISTANCE: 3 meters

Ch	Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	**Result (dBm)**	Limit	RB	
									Size	Offset
26840 (829.0)	1 658.00	-51.21	9.51	-66.33	2.03	V	-58.85	-13.00	1	49
	2 487.00	-49.73	10.31	-60.91	2.53	V	-53.13	-13.00		
	3 316.00	-53.86	11.09	-62.23	2.99	V	-54.13	-13.00		
	4 145.00	-54.36	11.71	-60.47	3.37	H	-52.13	-13.00		
	4 974.00	-56.42	11.22	-57.99	3.68	H	-50.45	-13.00		
26915 (836.5)	1 673.00	-51.98	9.60	-67.25	2.05	V	-59.70	-13.00	1	25
	2 509.50	-46.69	10.26	-57.97	2.51	H	-50.22	-13.00		
	3 346.00	-53.80	11.10	-62.46	2.96	V	-54.32	-13.00		
	4 182.50	-54.63	11.72	-60.29	3.40	H	-51.97	-13.00		
	5 019.00	-55.79	11.15	-56.89	3.69	V	-49.43	-13.00		
26990 (844.0)	1 688.00	-51.93	9.70	-67.21	2.06	H	-59.57	-13.00	1	0
	2 532.00	-48.30	10.25	-59.57	2.54	V	-51.86	-13.00		
	3 376.00	-54.27	11.15	-63.24	2.98	V	-55.07	-13.00		
	4 220.00	-50.57	11.70	-56.23	3.42	V	-47.95	-13.00		
	5 064.00	-55.28	11.15	-56.60	3.79	V	-49.24	-13.00		

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
26/5	1.4 MHz	836.5	QPSK	6	0	5.97
			16-QAM			6.61
			64-QAM			7.00
			256-QAM			6.75
	3 MHz		QPSK	15		5.89
			16-QAM			6.62
			64-QAM			6.90
			256-QAM			6.72
	5 MHz		QPSK	25		5.83
			16-QAM			6.51
			64-QAM			6.68
			256-QAM			6.70
	10 MHz		QPSK	50		5.94
			16-QAM			6.53
			64-QAM			6.70
			256-QAM			6.71
26	15 MHz		QPSK	75		5.70
			16-QAM			6.41
			64-QAM			6.61
			256-QAM			6.74

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 45 ~ 64.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
26/5	1.4 MHz	836.5	QPSK	6	0	1.0950
			16-QAM			1.0891
			64-QAM			1.0926
			256-QAM			1.0885
	3 MHz		QPSK	15		2.7031
			16-QAM			2.6924
			64-QAM			2.6954
			256-QAM			2.6988
	5 MHz		QPSK	25		4.4991
			16-QAM			4.4791
			64-QAM			4.4942
			256-QAM			4.5008
	10 MHz		QPSK	50		8.9903
			16-QAM			8.9725
			64-QAM			8.9779
			256-QAM			8.9608
26	15 MHz		QPSK	75		13.445
			16-QAM			13.444
			64-QAM			13.458
			256-QAM			13.429

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 65 ~ 84.

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)
26/5	1.4	824.7	1.6451	29.320	-65.909	-36.589	-13.00
		836.5	1.6751	29.320	-65.675	-36.355	
		848.3	1.6950	29.320	-66.581	-37.261	
	3	826.5	3.7388	29.320	-66.856	-37.536	
		836.5	1.6751	29.320	-65.600	-36.280	
		846.5	8.1655	29.910	-66.319	-36.409	
	5	826.5	1.6451	29.320	-65.663	-36.343	
		836.5	1.6651	29.320	-63.485	-34.165	
		846.5	1.6950	29.320	-64.826	-35.506	
	10	829.0	1.6451	29.320	-66.151	-36.831	
		836.5	3.7887	29.320	-64.204	-34.884	
		844.0	4.0579	29.320	-66.103	-36.783	
26	15	831.5	1.6451	29.320	-66.135	-36.815	
		836.5	1.6551	29.320	-66.430	-37.110	
		841.5	4.9253	29.320	-66.870	-37.550	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 85 ~ 99.
2. Conducted Spurious Emissions was tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
3. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
4. Factor (dB) = Cable Loss + Ext. Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.250
1 – 5	29.320
5 – 10	29.910
10 – 15	30.530
15 – 20	31.840
Above 20(26.5)	32.520

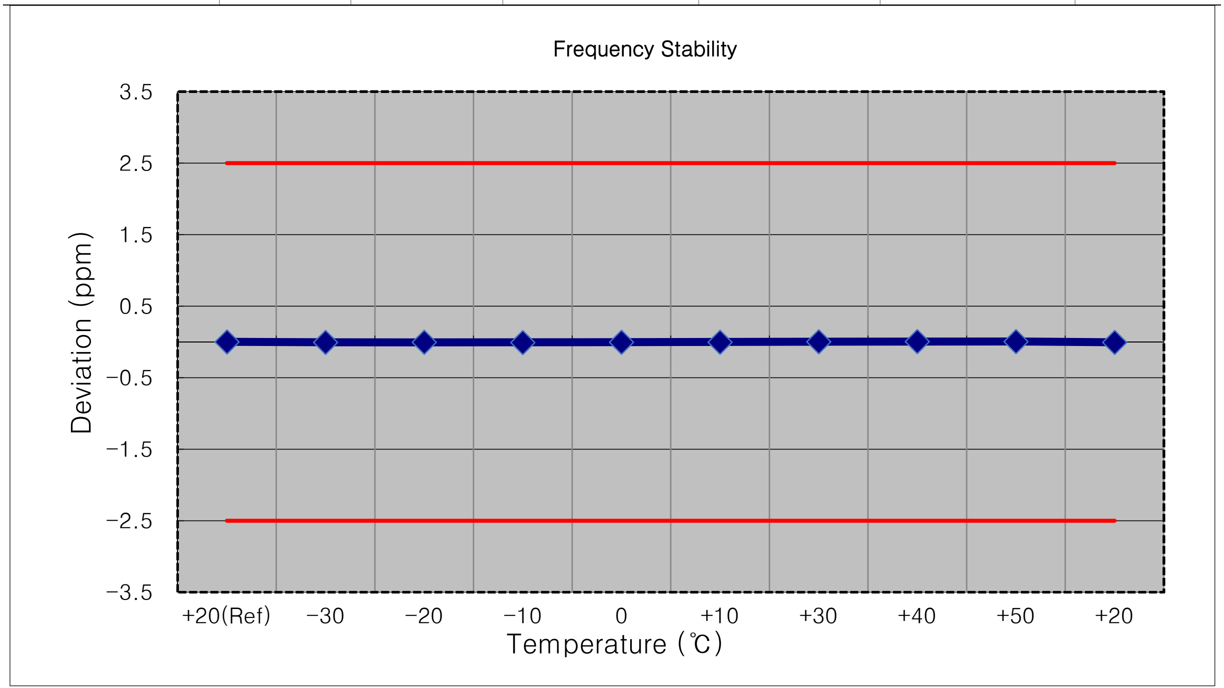
8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 100 ~ 129.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

- MODE: LTE 26/5
- OPERATING FREQUENCY: 836,500,000 Hz
- CHANNEL: 26915 (1.4 MHz)
- REFERENCE VOLTAGE: 4.200 VDC
- DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	836 499 996	0.0	0.000 000	0.000
100 %		-30	836 499 992	-4.7	-0.000 001	-0.006
100 %		-20	836 499 992	-4.2	-0.000 001	-0.005
100 %		-10	836 499 990	-6.7	-0.000 001	-0.008
100 %		0	836 499 993	-3.3	0.000 000	-0.004
100 %		+10	836 499 993	-3.5	0.000 000	-0.004
100 %		+30	836 499 999	3.1	0.000 000	0.004
100 %		+40	836 500 000	3.4	0.000 000	0.004
100 %		+50	836 500 001	4.7	0.000 001	0.006
Lowest voltage	3.700	+20	836 499 991	-5.6	-0.000 001	-0.007



▣ MODE: LTE 26/5

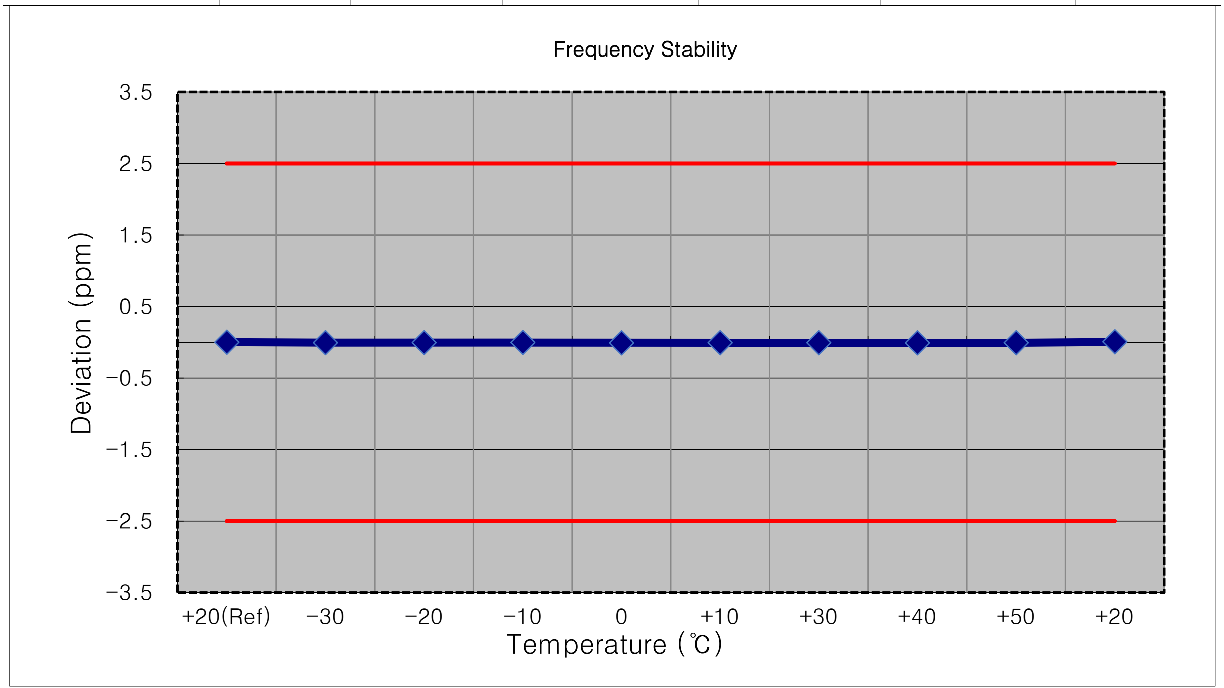
▣ OPERATING FREQUENCY: 836,500,000 Hz

▣ CHANNEL: 26915 (3 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	836 499 995	0.0	0.000 000	0.000
100 %		-30	836 499 989	-5.6	-0.000 001	-0.007
100 %		-20	836 499 990	-5.5	-0.000 001	-0.007
100 %		-10	836 499 992	-3.4	0.000 000	-0.004
100 %		0	836 499 989	-6.0	-0.000 001	-0.007
100 %		+10	836 499 989	-5.8	-0.000 001	-0.007
100 %		+30	836 499 989	-6.1	-0.000 001	-0.007
100 %		+40	836 499 989	-6.5	-0.000 001	-0.008
100 %		+50	836 499 989	-6.3	-0.000 001	-0.008
Lowest voltage	3.700	+20	836 499 999	3.9	0.000 000	0.005



▣ MODE: LTE 26/5

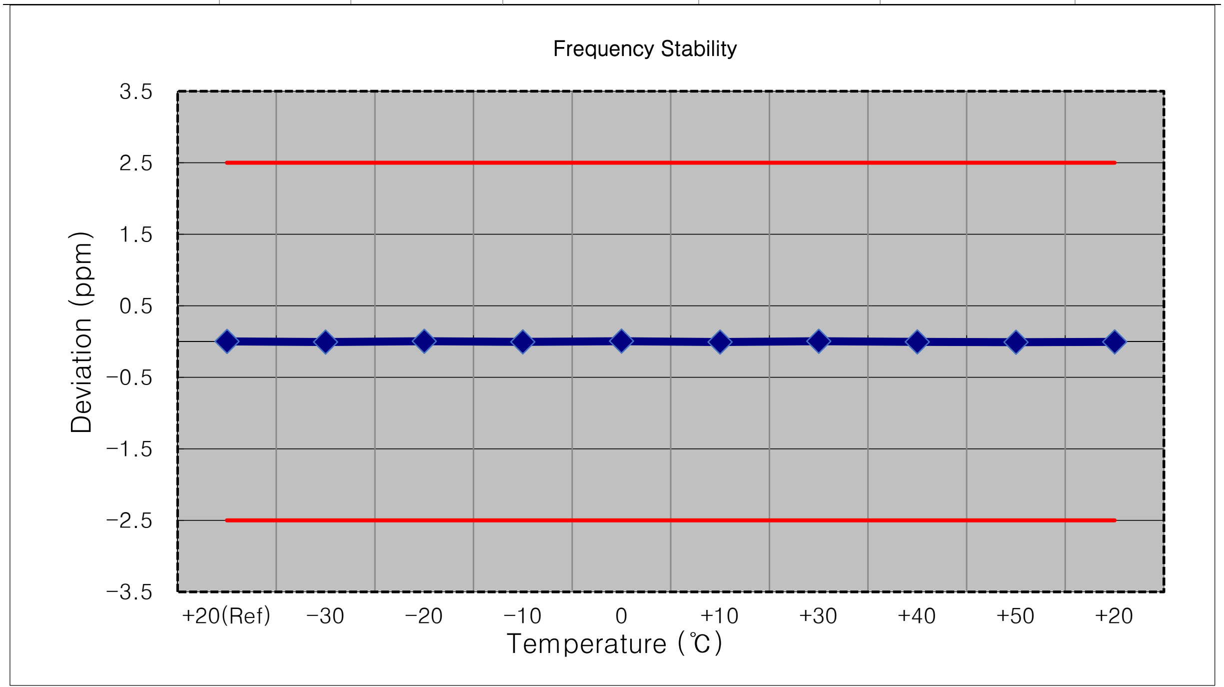
▣ OPERATING FREQUENCY: 836,500,000 Hz

▣ CHANNEL: 26915 (5 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	836 499 994	0.0	0.000 000	0.000
100 %		-30	836 499 988	-6.4	-0.000 001	-0.008
100 %		-20	836 499 996	2.1	0.000 000	0.003
100 %		-10	836 499 990	-4.3	-0.000 001	-0.005
100 %		0	836 499 998	4.0	0.000 000	0.005
100 %		+10	836 499 988	-6.1	-0.000 001	-0.007
100 %		+30	836 499 997	3.1	0.000 000	0.004
100 %		+40	836 499 990	-4.5	-0.000 001	-0.005
100 %		+50	836 499 986	-7.9	-0.000 001	-0.009
Lowest voltage	3.700	+20	836 499 990	-4.3	-0.000 001	-0.005



▣ MODE: LTE 26/5

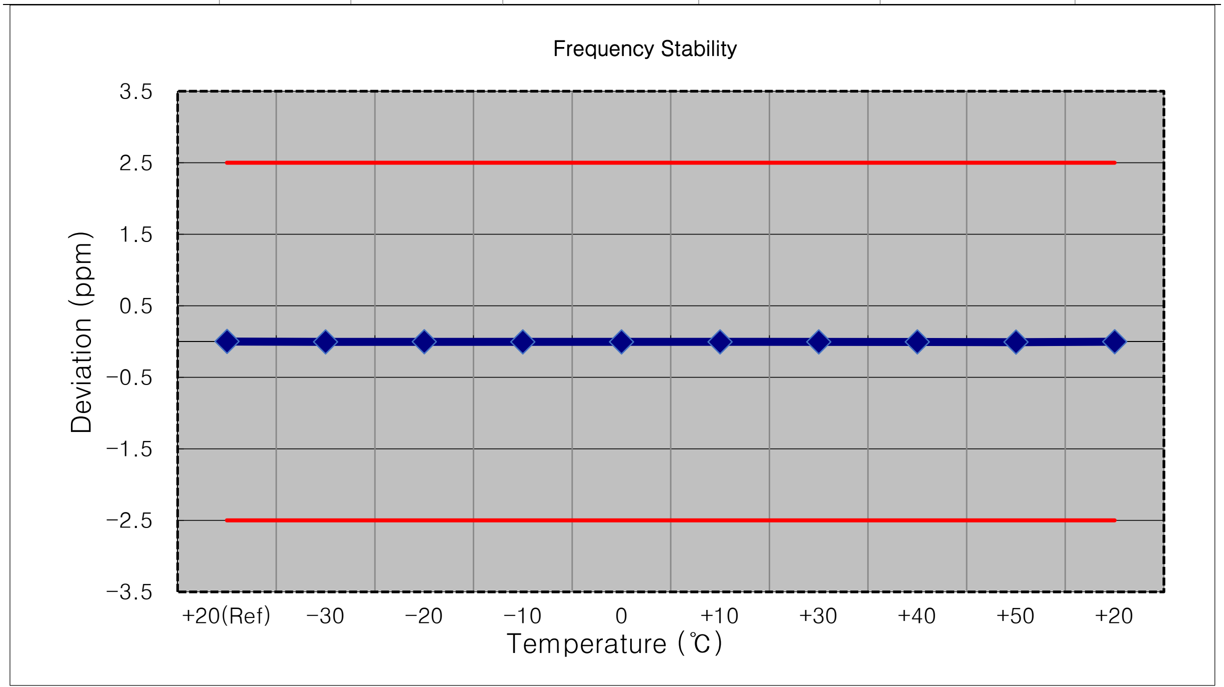
▣ OPERATING FREQUENCY: 836,500,000 Hz

▣ CHANNEL: 26915 (10 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	836 499 995	0.0	0.000 000	0.000
100 %		-30	836 499 989	-5.2	-0.000 001	-0.006
100 %		-20	836 499 991	-3.3	0.000 000	-0.004
100 %		-10	836 499 990	-4.3	-0.000 001	-0.005
100 %		0	836 499 990	-4.1	0.000 000	-0.005
100 %		+10	836 499 990	-5.0	-0.000 001	-0.006
100 %		+30	836 499 990	-4.6	-0.000 001	-0.005
100 %		+40	836 499 989	-5.5	-0.000 001	-0.007
100 %		+50	836 499 987	-7.4	-0.000 001	-0.009
Lowest voltage	3.700	+20	836 499 992	-2.7	0.000 000	-0.003



■ MODE: LTE 26

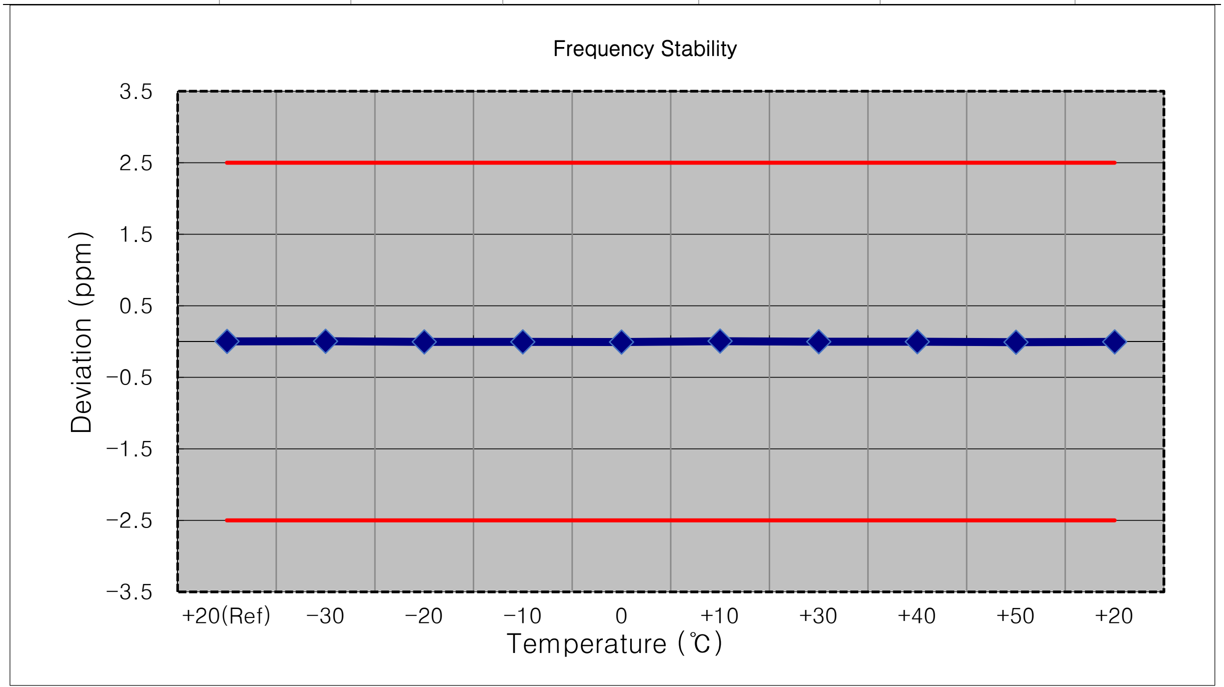
■ OPERATING FREQUENCY: 836,500,000 Hz

■ CHANNEL: 26915 (15 MHz)

■ REFERENCE VOLTAGE: 4.200 VDC

■ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	836 499 992	0.0	0.000 000	0.000
100 %		-30	836 499 998	3.1	0.000 000	0.004
100 %		-20	836 499 989	-5.1	-0.000 001	-0.006
100 %		-10	836 499 990	-4.3	-0.000 001	-0.005
100 %		0	836 499 988	-6.6	-0.000 001	-0.008
100 %		+10	836 499 999	4.5	0.000 001	0.005
100 %		+30	836 499 992	-2.5	0.000 000	-0.003
100 %		+40	836 499 991	-3.8	0.000 000	-0.005
100 %		+50	836 499 986	-8.5	-0.000 001	-0.010
Lowest voltage	3.700	+20	836 499 990	-4.4	-0.000 001	-0.005



9. TEST DATA(Internal(BUA))

9.1 EFFECTIVE RADIATED POWER

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
824.7	LTE 26/5 (1.4 MHz)	QPSK	84.56	30.04	2.63	117.23	H	< 7.00	0.097	19.88	1	5
		16-QAM	83.63	30.04	2.63	116.30	H		0.078	18.95		
		64-QAM	82.62	30.04	2.63	115.29	H		0.062	17.94		
		256-QAM	79.58	30.04	2.63	112.25	H		0.031	14.90		
836.5		QPSK	84.71	30.14	2.66	117.51	H		0.104	20.16	1	5
		16-QAM	84.09	30.14	2.66	116.89	H		0.090	19.54		
		64-QAM	83.14	30.14	2.66	115.94	H		0.072	18.59		
		256-QAM	79.74	30.14	2.66	112.54	H		0.033	15.19		
848.3		QPSK	83.99	30.24	2.67	116.90	H		0.090	19.55	1	0
		16-QAM	83.32	30.24	2.67	116.23	H		0.077	18.88		
		64-QAM	82.10	30.24	2.67	115.01	H		0.058	17.66		
		256-QAM	78.90	30.24	2.67	111.81	H		0.028	14.46		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
825.5	LTE 26/5 (3 MHz)	QPSK	84.54	30.04	2.63	117.21	H	< 7.00	0.097	19.86	1	8
		16-QAM	83.70	30.04	2.63	116.37	H		0.080	19.02		
		64-QAM	82.66	30.04	2.63	115.33	H		0.063	17.98		
		256-QAM	79.61	30.04	2.63	112.28	H		0.031	14.93		
836.5		QPSK	84.77	30.14	2.66	117.57	H		0.105	20.22	1	14
		16-QAM	84.44	30.14	2.66	117.24	H		0.098	19.89		
		64-QAM	83.10	30.14	2.66	115.90	H		0.072	18.55		
		256-QAM	79.93	30.14	2.66	112.73	H		0.035	15.38		
847.5		QPSK	83.88	30.24	2.67	116.79	H		0.088	19.44	1	0
		16-QAM	83.61	30.24	2.67	116.52	H		0.083	19.17		
		64-QAM	82.37	30.24	2.67	115.28	H		0.062	17.93		
		256-QAM	79.32	30.24	2.67	112.23	H		0.031	14.88		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBµV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBµV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
826.5	LTE 26/5 (5 MHz)	QPSK	85.11	30.04	2.63	117.78	H	< 7.00	0.111	20.43	1	24
		16-QAM	84.39	30.04	2.63	117.06	H		0.094	19.71		
		64-QAM	83.23	30.04	2.63	115.90	H		0.072	18.55		
		256-QAM	80.25	30.04	2.63	112.92	H		0.036	15.57		
836.5		QPSK	84.89	30.14	2.66	117.69	H		0.108	20.34	1	24
		16-QAM	84.32	30.14	2.66	117.12	H		0.095	19.77		
		64-QAM	83.06	30.14	2.66	115.86	H		0.071	18.51		
		256-QAM	79.96	30.14	2.66	112.76	H		0.035	15.41		
846.5		QPSK	84.36	30.24	2.67	117.27	H		0.098	19.92	1	0
		16-QAM	83.74	30.24	2.67	116.65	H		0.085	19.30		
		64-QAM	82.54	30.24	2.67	115.45	H		0.065	18.10		
		256-QAM	79.65	30.24	2.67	112.56	H		0.033	15.21		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBµV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBµV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
829.0	LTE 26/5 (10 MHz)	QPSK	85.14	30.04	2.63	117.81	H	< 7.00	0.111	20.46	1	25
		16-QAM	84.23	30.04	2.63	116.90	H		0.090	19.55		
		64-QAM	83.25	30.04	2.63	115.92	H		0.072	18.57		
		256-QAM	80.27	30.04	2.63	112.94	H		0.036	15.59		
836.5		QPSK	84.82	30.14	2.66	117.62	H		0.106	20.27	1	0
		16-QAM	84.43	30.14	2.66	117.23	H		0.097	19.88		
		64-QAM	83.42	30.14	2.66	116.22	H		0.077	18.87		
		256-QAM	80.27	30.14	2.66	113.07	H		0.037	15.72		
844.0		QPSK	84.80	30.24	2.67	117.71	H		0.109	20.36	1	0
		16-QAM	84.03	30.24	2.67	116.94	H		0.091	19.59		
		64-QAM	82.75	30.24	2.67	115.66	H		0.068	18.31		
		256-QAM	80.05	30.24	2.67	112.96	H		0.036	15.61		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L (dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
831.5	LTE 26 (15 MHz)	QPSK	84.72	30.04	2.63	117.39	H	< 7.00	0.101	20.04	1	38
		16-QAM	84.62	30.04	2.63	117.29	H		0.099	19.94		
		64-QAM	83.34	30.04	2.63	116.01	H		0.073	18.66		
		256-QAM	80.23	30.04	2.63	112.90	H		0.036	15.55		
836.5		QPSK	84.95	30.14	2.66	117.75	H		0.110	20.40	1	0
		16-QAM	84.25	30.14	2.66	117.05	H		0.093	19.70		
		64-QAM	83.34	30.14	2.66	116.14	H		0.076	18.79		
		256-QAM	80.29	30.14	2.66	113.09	H		0.038	15.74		
841.5		QPSK	84.51	30.24	2.67	117.42	H		0.102	20.07	1	38
		16-QAM	84.05	30.24	2.67	116.96	H		0.092	19.61		
		64-QAM	82.69	30.24	2.67	115.60	H		0.067	18.25		
		256-QAM	79.71	30.24	2.67	112.62	H		0.034	15.27		

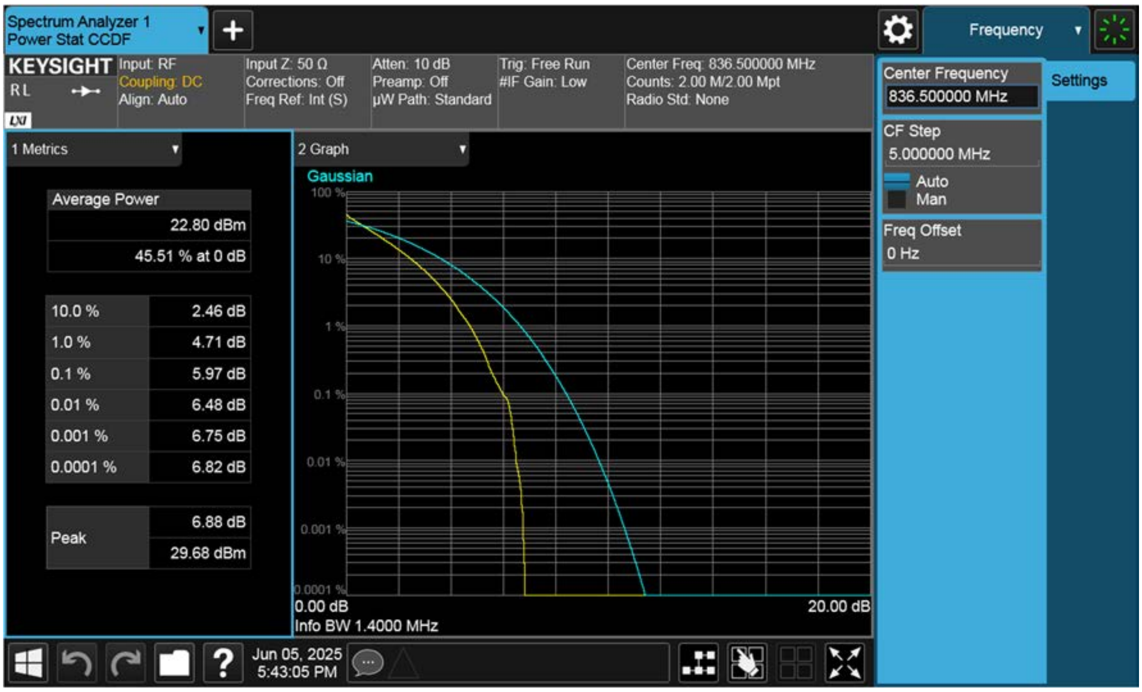
9.2 RADIATED SPURIOUS EMISSIONS

- MODE: LTE 26
- MODULATION SIGNAL: 10 MHz QPSK
- DISTANCE: 3 meters

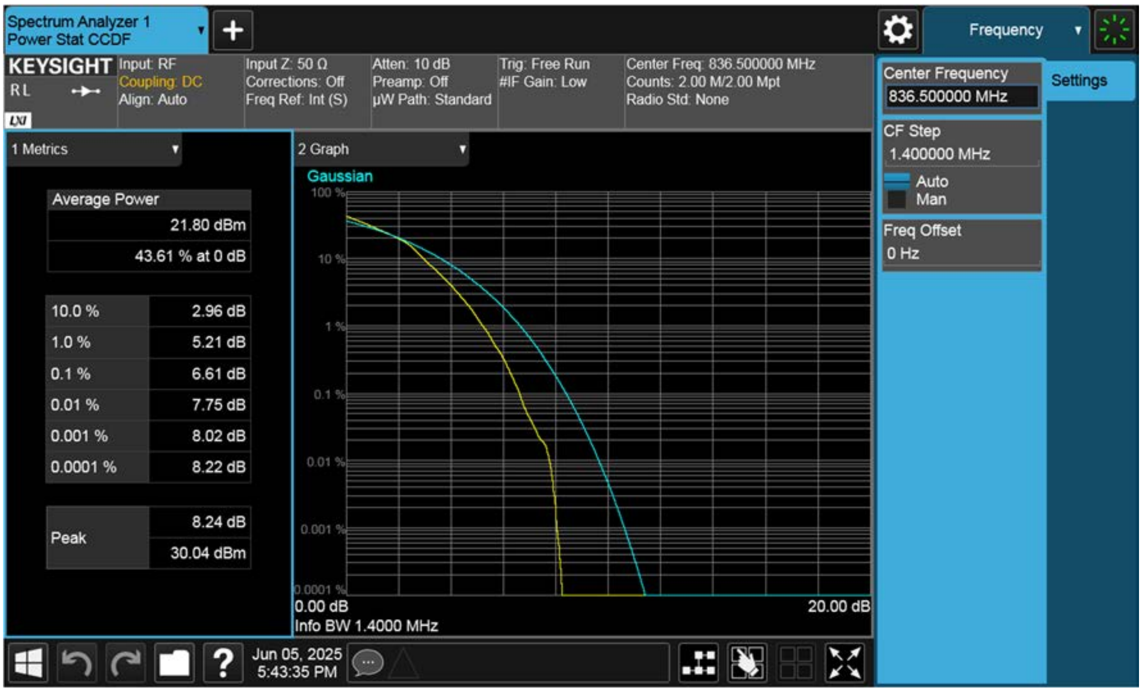
Ch	Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	**Result (dBm)**	Limit	RB	
									Size	Offset
26840 (829.0)	1 658.00	-51.95	9.51	-67.07	2.03	H	-59.59	-13.00	1	25
	2 487.00	-51.79	10.31	-62.97	2.53	H	-55.19	-13.00		
	3 316.00	-54.79	11.09	-63.16	2.99	H	-55.06	-13.00		
	4 145.00	-54.10	11.71	-60.21	3.37	H	-51.87	-13.00		
	4 974.00	-55.92	11.22	-57.49	3.68	H	-49.95	-13.00		
26915 (836.5)	1 673.00	-51.89	9.60	-67.16	2.05	H	-59.61	-13.00	1	0
	2 509.50	-52.41	10.26	-63.69	2.51	H	-55.94	-13.00		
	3 346.00	-54.40	11.10	-63.06	2.96	H	-54.92	-13.00		
	4 182.50	-54.25	11.72	-59.91	3.40	H	-51.59	-13.00		
	5 019.00	-55.72	11.15	-56.82	3.69	H	-49.36	-13.00		
26990 (844.0)	1 688.00	-50.91	9.70	-66.19	2.06	H	-58.55	-13.00	1	0
	2 532.00	-52.88	10.25	-64.15	2.54	H	-56.44	-13.00		
	3 376.00	-54.12	11.15	-63.09	2.98	V	-54.92	-13.00		
	4 220.00	-54.80	11.70	-60.46	3.42	V	-52.18	-13.00		
	5 064.00	-55.76	11.15	-57.08	3.79	V	-49.72	-13.00		

10. TEST PLOTS

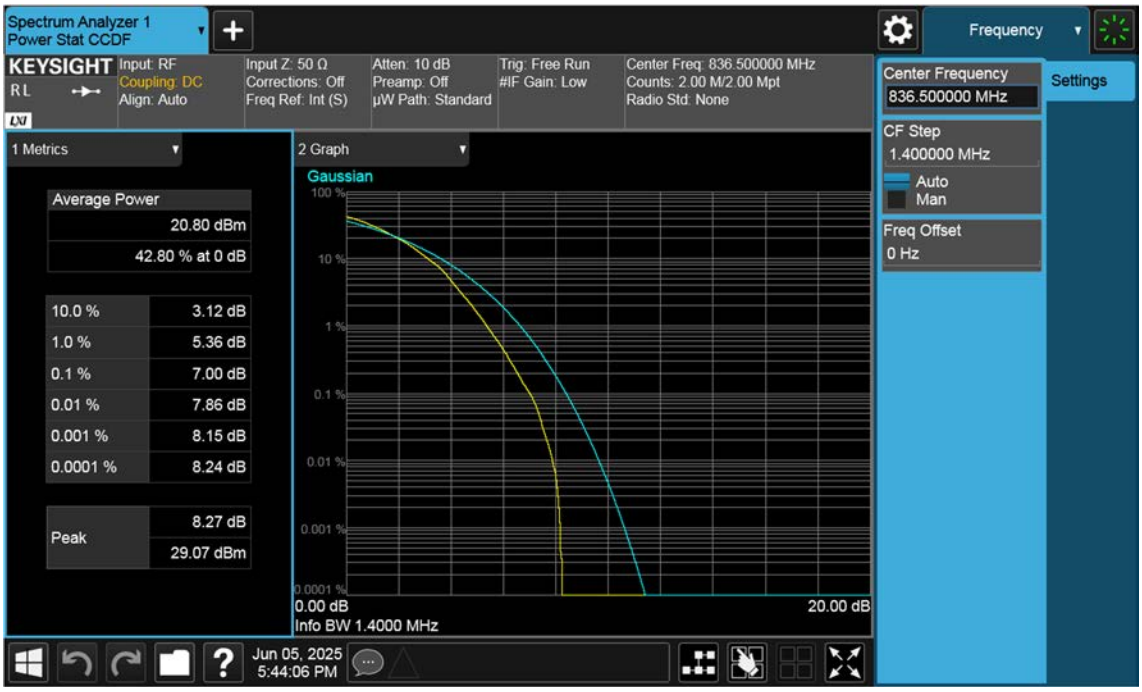
LTE B26_1.4M_PAR_Mid_QPSK_FullRB



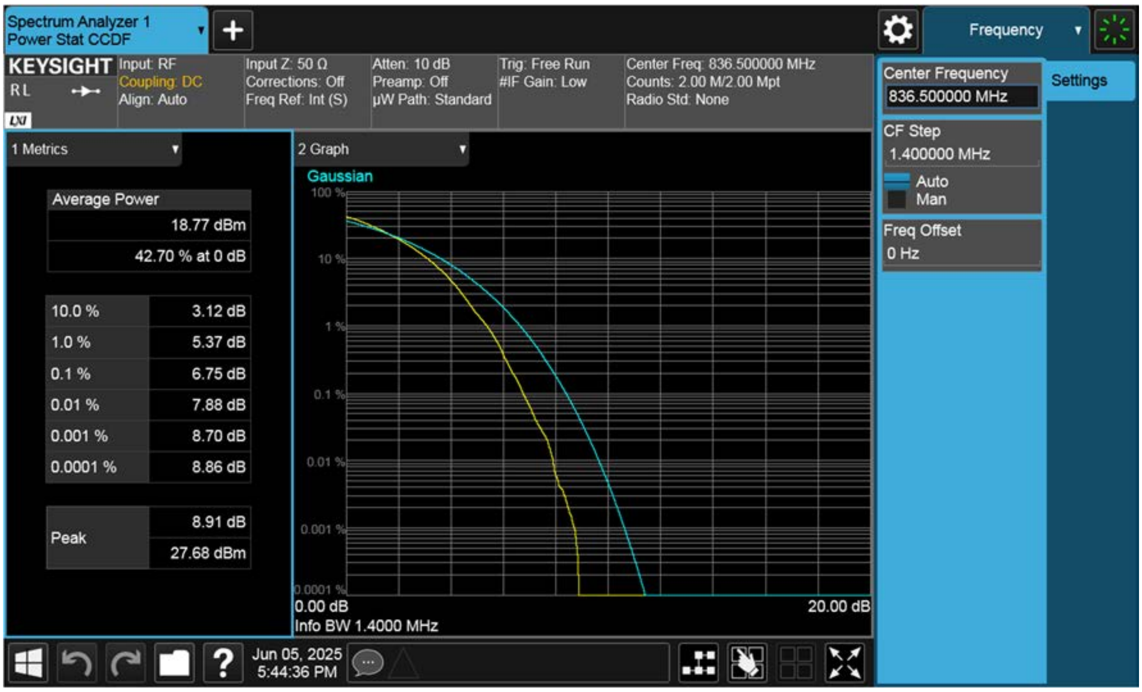
LTE B26_1.4M_PAR_Mid_16QAM_FullRB



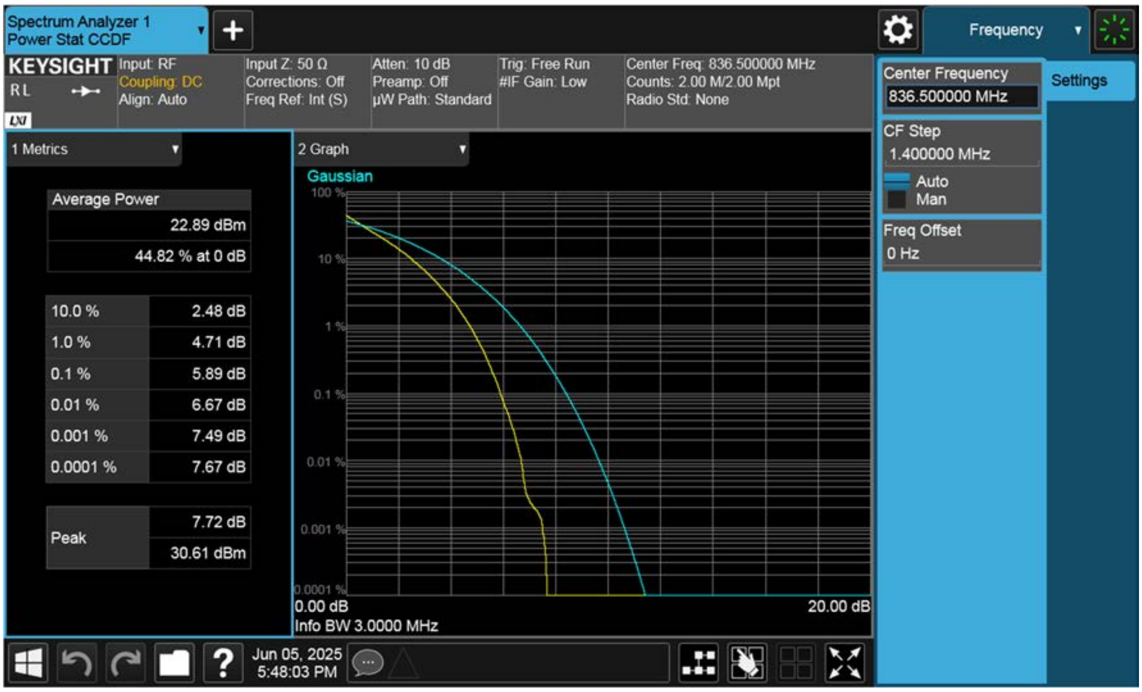
LTE B26_1.4M_PAR_Mid_64QAM_FullRB



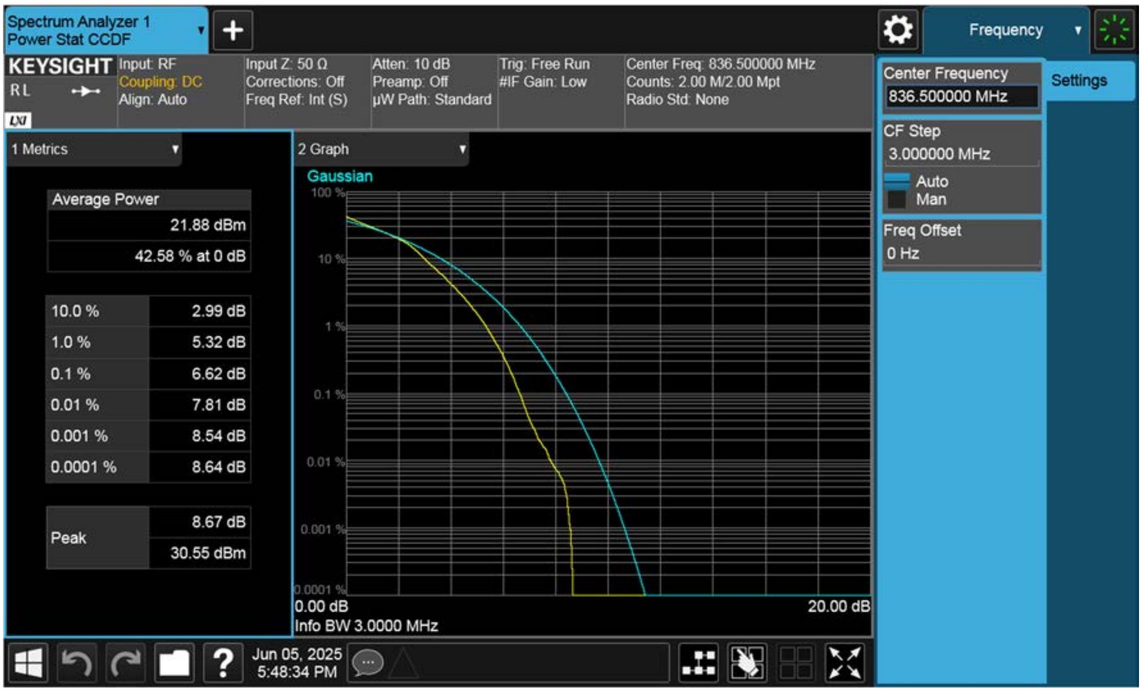
LTE B26_1.4M_PAR_Mid_256QAM_FullRB



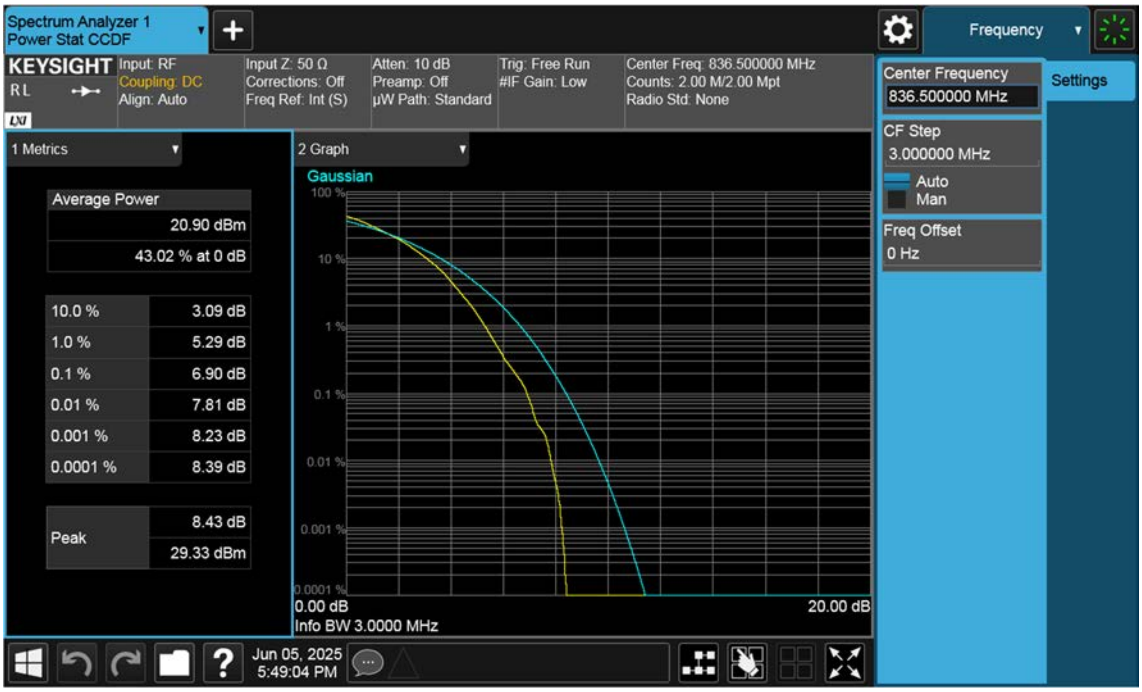
LTE B26_3 M_PAR_Mid_QPSK_FullRB



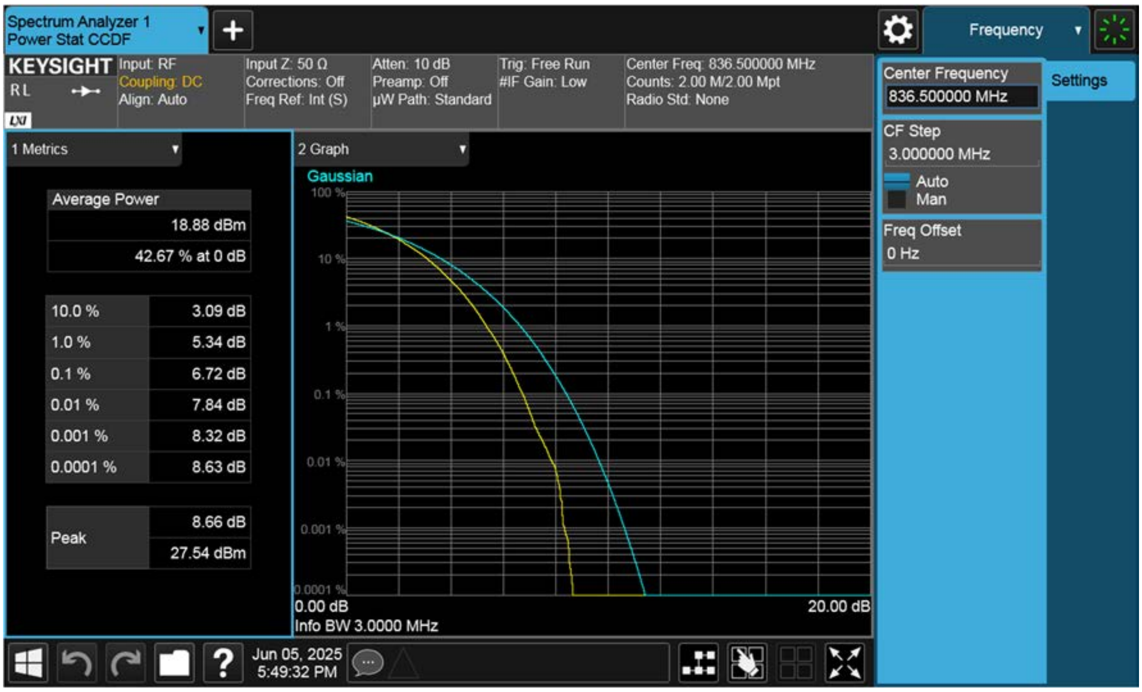
LTE B26_3 M_PAR_Mid_16QAM_FullRB



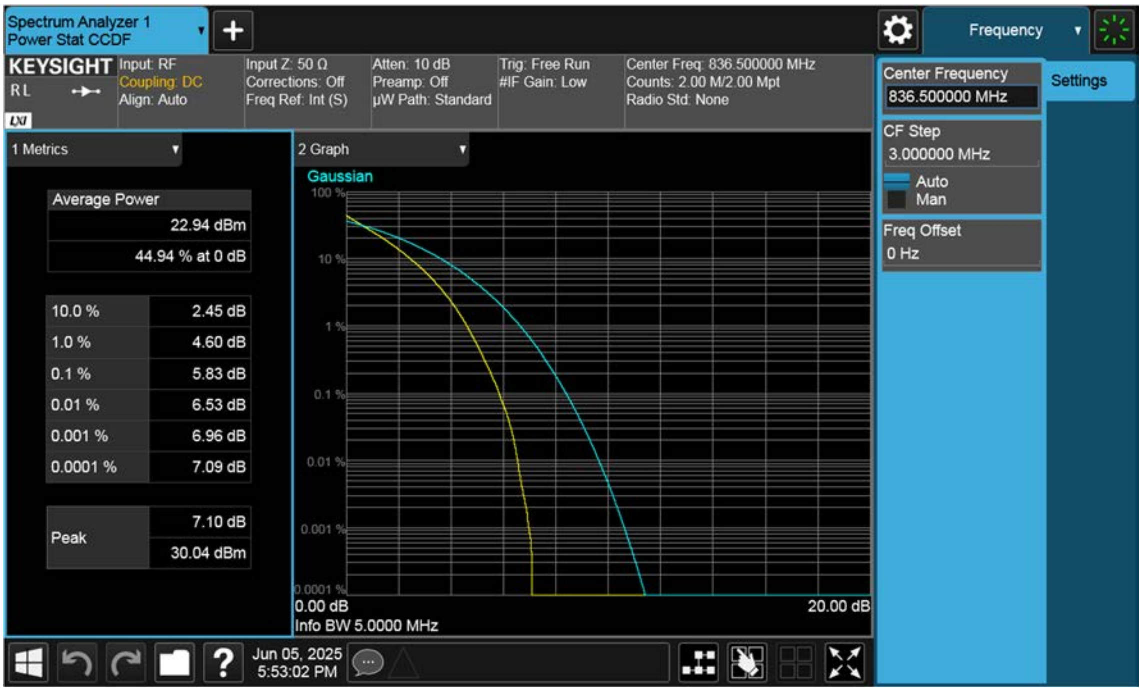
LTE B26_3 M_PAR_Mid_64QAM_FullRB



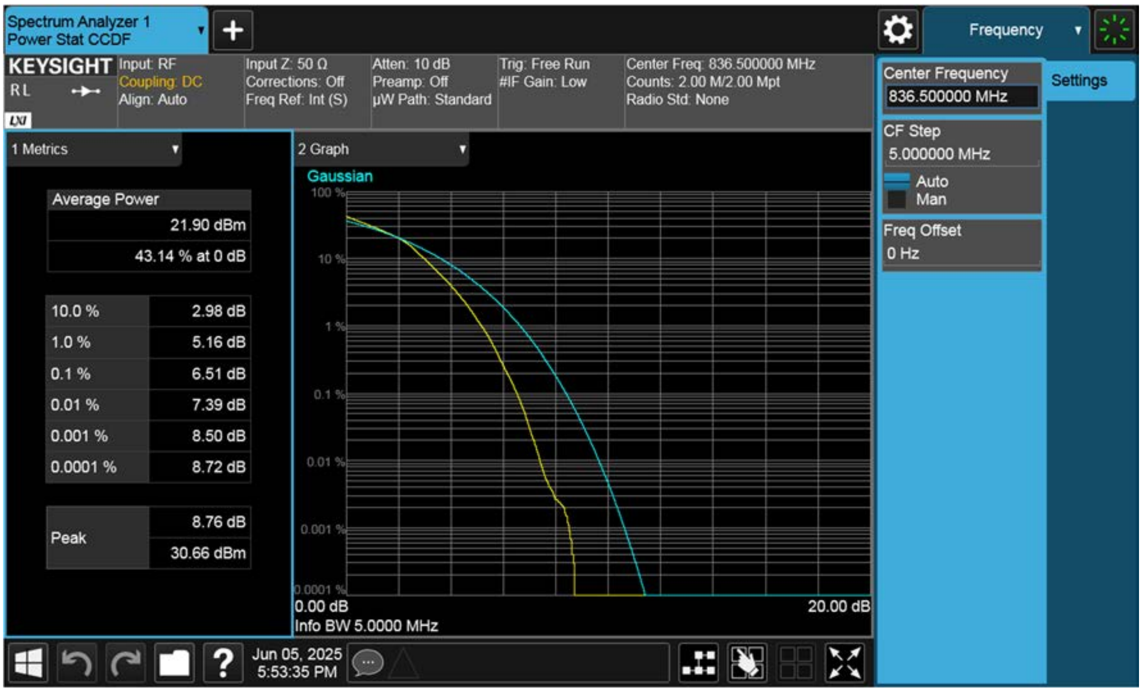
LTE B26_3 M_PAR_Mid_256QAM_FullRB



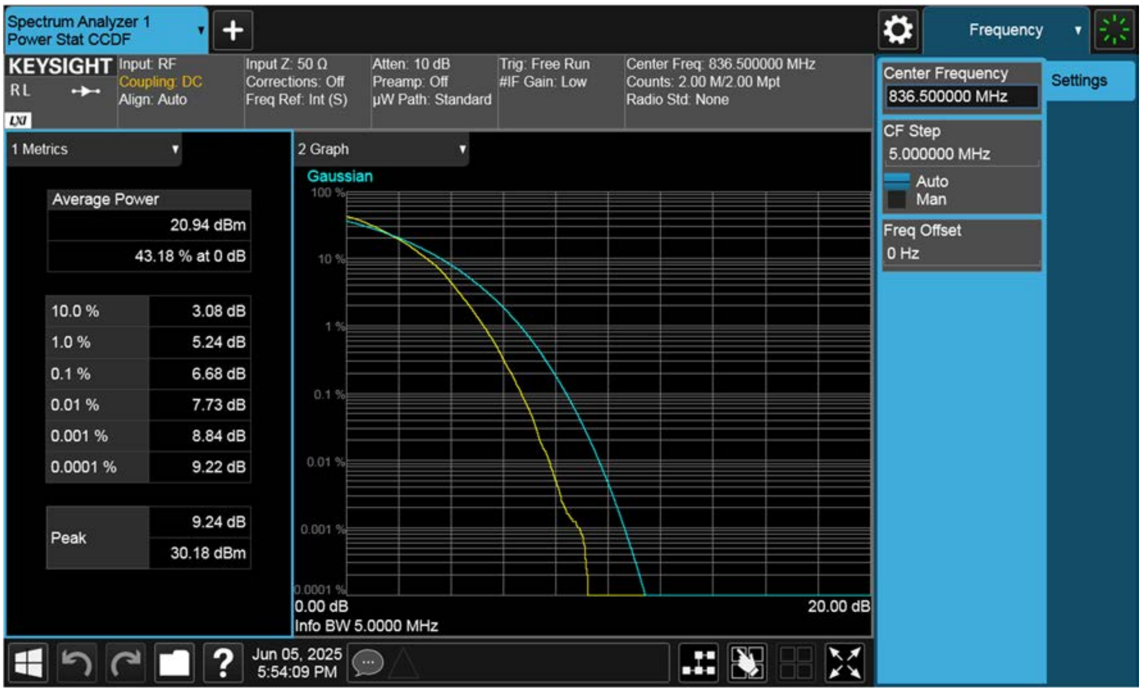
LTE B26_5 M_PAR_Mid_QPSK_FullRB



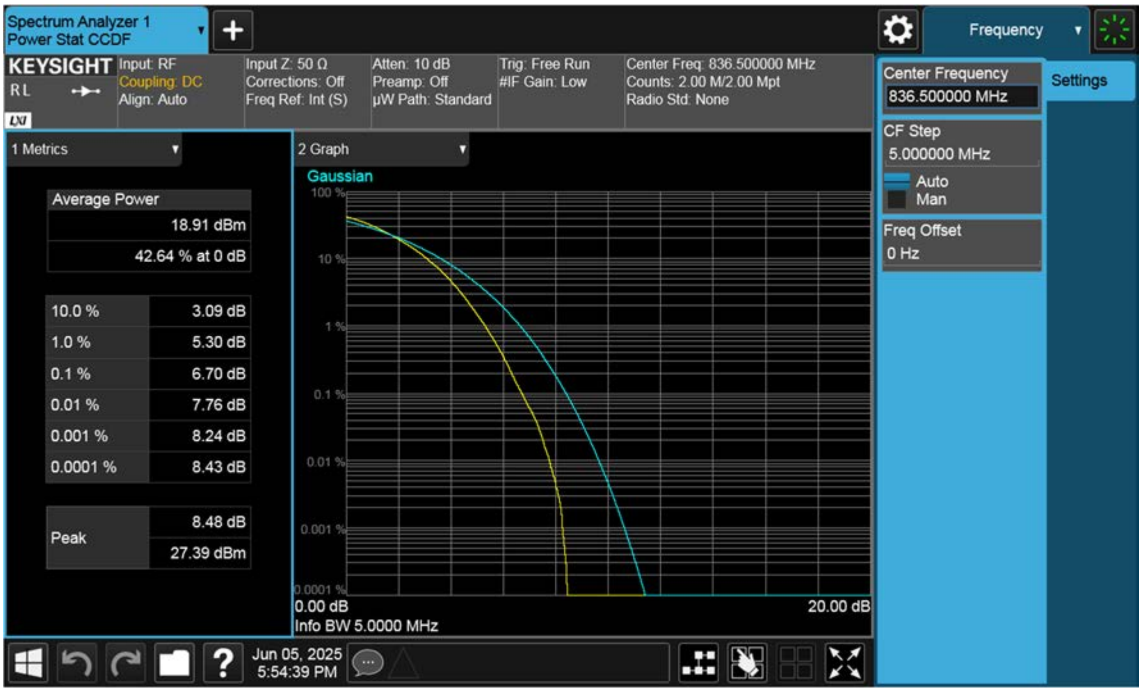
LTE B26_5 M_PAR_Mid_16QAM_FullRB



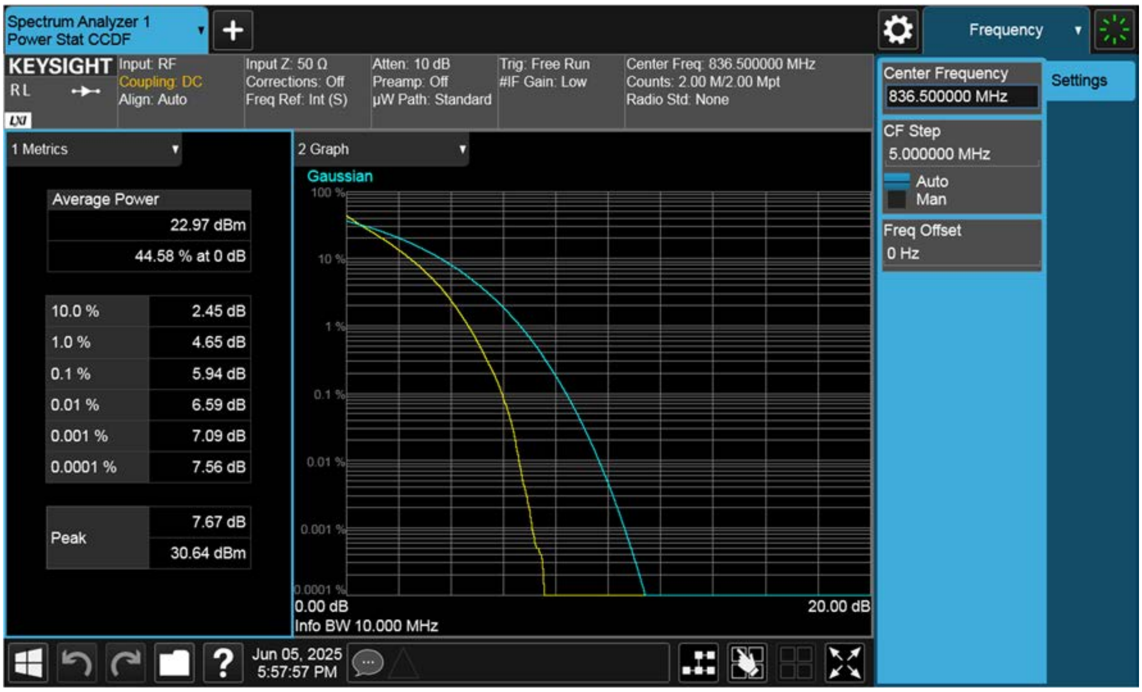
LTE B26_5 M_PAR_Mid_64QAM_FullRB



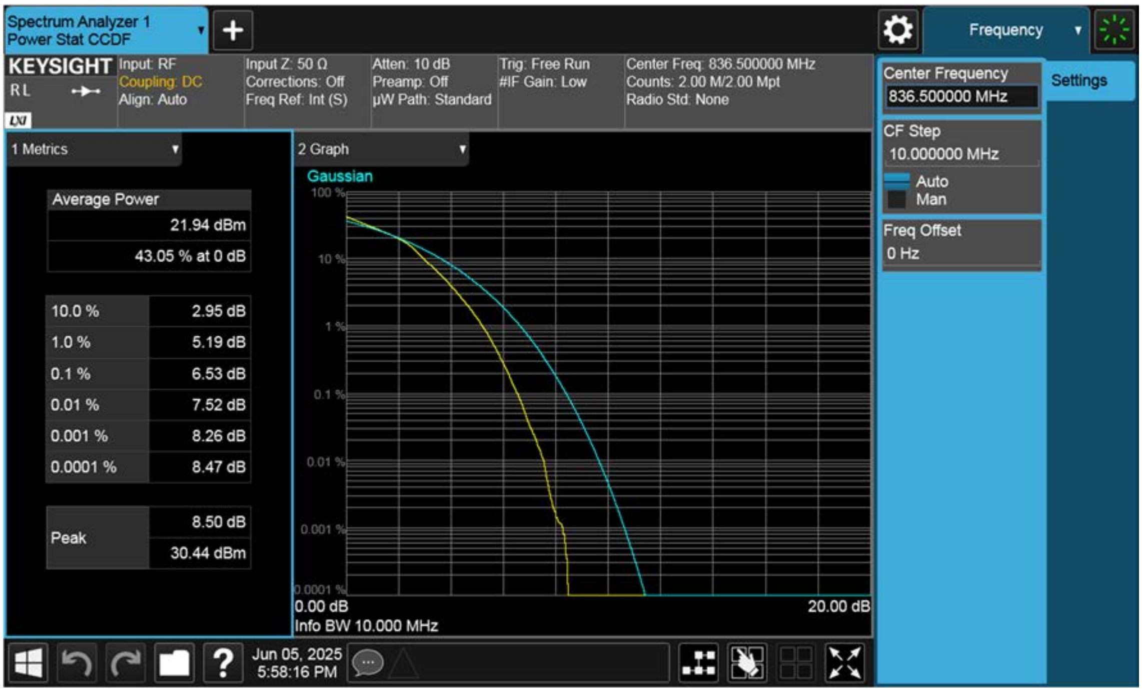
LTE B26_5 M_PAR_Mid_256QAM_FullRB



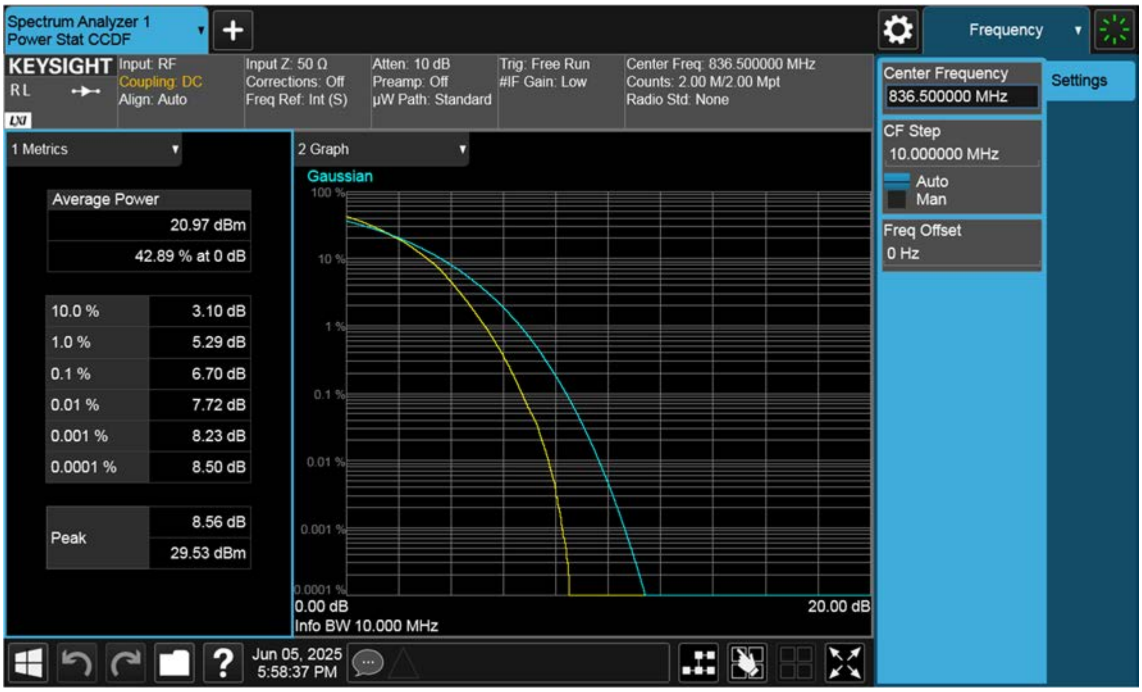
LTE B26_10 M_PAR_Mid_QPSK_FullRB



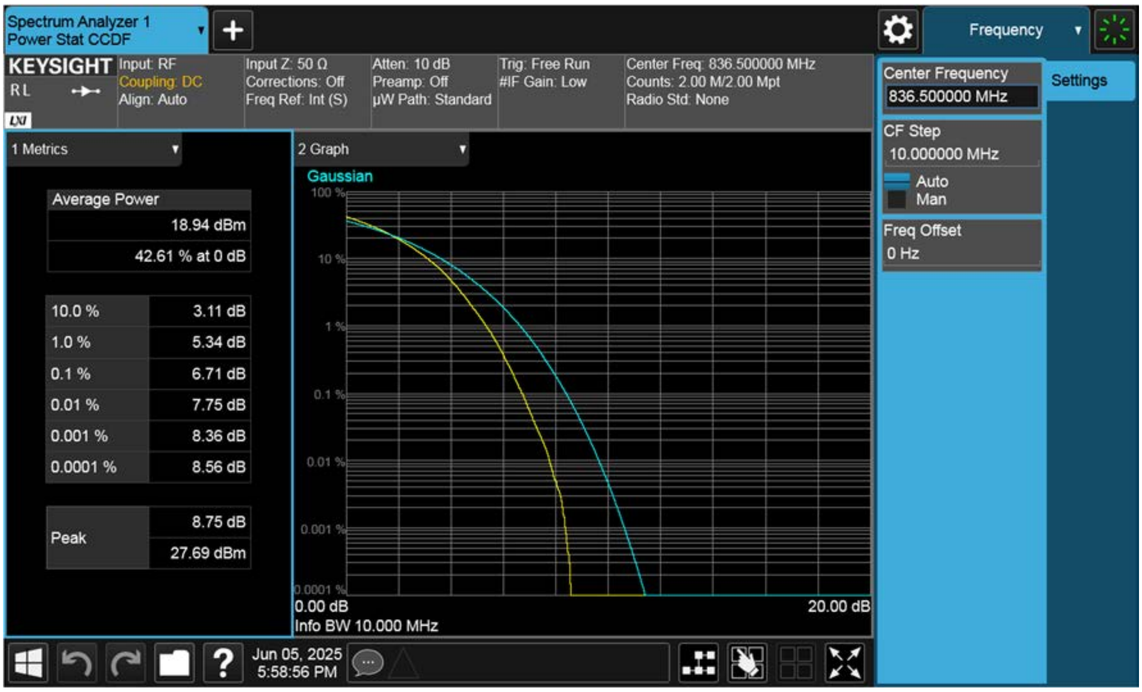
LTE B26_10 M_PAR_Mid_16QAM_FullRB



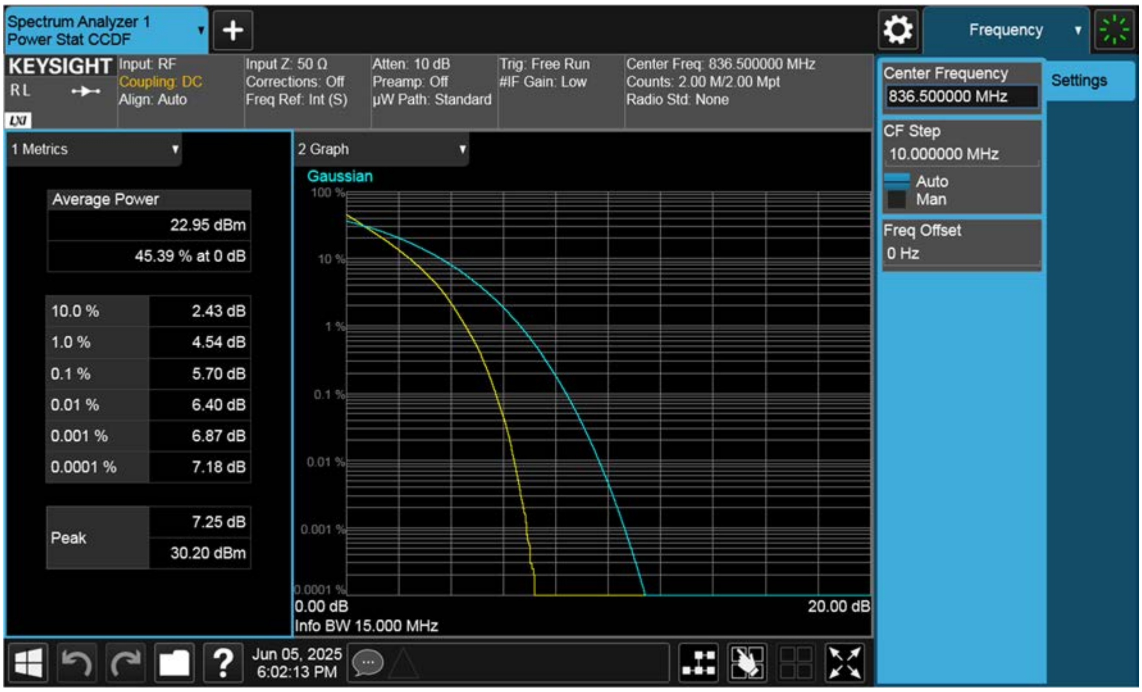
LTE B26_10 M_PAR_Mid_64QAM_FullRB



LTE B26_10 M_PAR_Mid_256QAM_FullRB

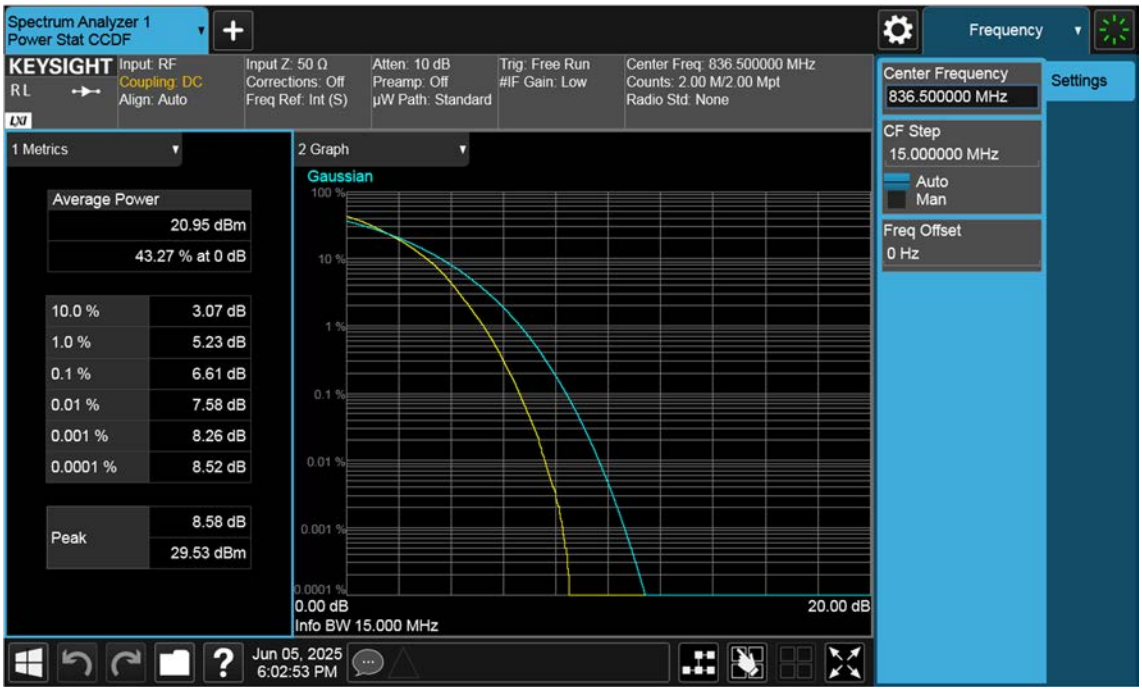


LTE B26_15 M_PAR_Mid_QPSK_FullRB

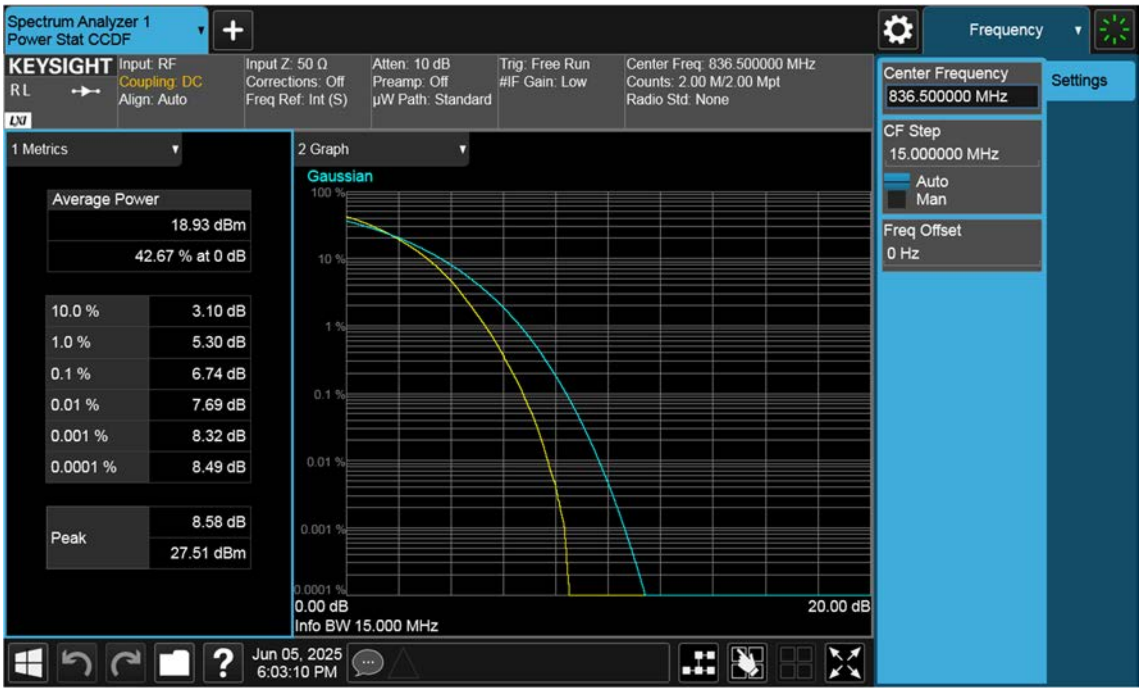


LTE B26_15 M_PAR_Mid_16QAM_FullRB

LTE B26_15 M_PAR_Mid_64QAM_FullRB



LTE B26_15 M_PAR_Mid_256QAM_FullRB



LTE B26_1.4M_OBW_Mid_QPSK_FullRB

LTE B26_1.4M_OBW_Mid_16QAM_FullRB

LTE B26_1.4M_OBW_Mid_64QAM_FullRB

LTE B26_1.4M_OBW_Mid_256QAM_FullRB

LTE B26_3 M_OBW_Mid_QPSK_FullRB

LTE B26_3 M_OBW_Mid_16QAM_FullRB

LTE B26_3 M_OBW_Mid_64QAM_FullRB

LTE B26_3 M_OBW_Mid_256QAM_FullRB

LTE B26_5 M_OBW_Mid_QPSK_FullRB

LTE B26_5 M_OBW_Mid_16QAM_FullRB

LTE B26_5 M_OBW_Mid_64QAM_FullRB

LTE B26_5 M_OBW_Mid_256QAM_FullRB

LTE B26_10 M_OBW_Mid_QPSK_FullRB

LTE B26_10 M_OBW_Mid_16QAM_FullRB

LTE B26_10 M_OBW_Mid_64QAM_FullRB

LTE B26_10 M_OBW_Mid_256QAM_FullRB

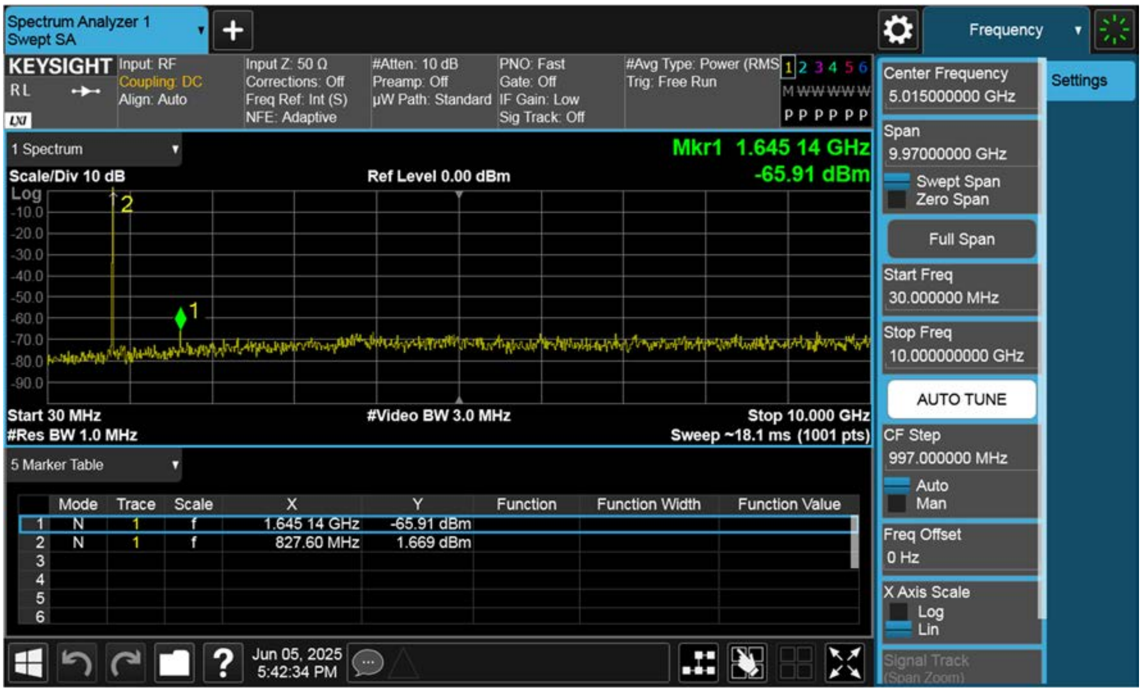
LTE B26_15 M_OBW_Mid_QPSK_FullRB

LTE B26_15 M_OBW_Mid_16QAM_FullRB

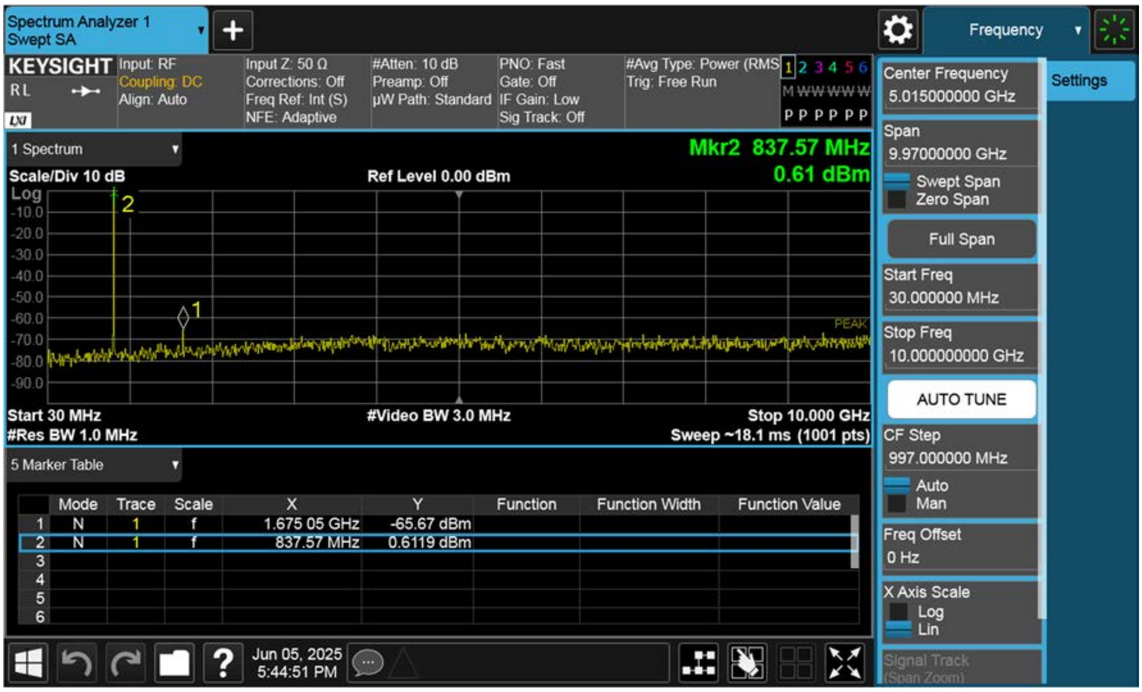
LTE B26_15 M_OBW_Mid_64QAM_FullRB

LTE B26_15 M_OBW_Mid_256QAM_FullRB

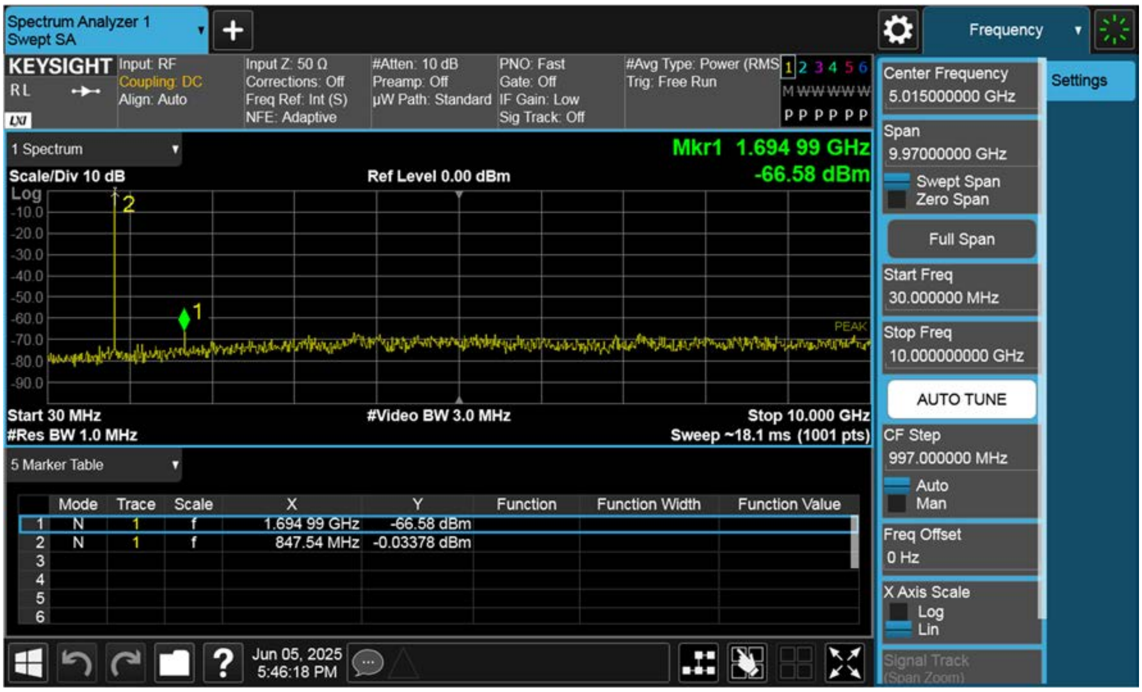
LTE B26_1.4M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



LTE B26_1.4M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB

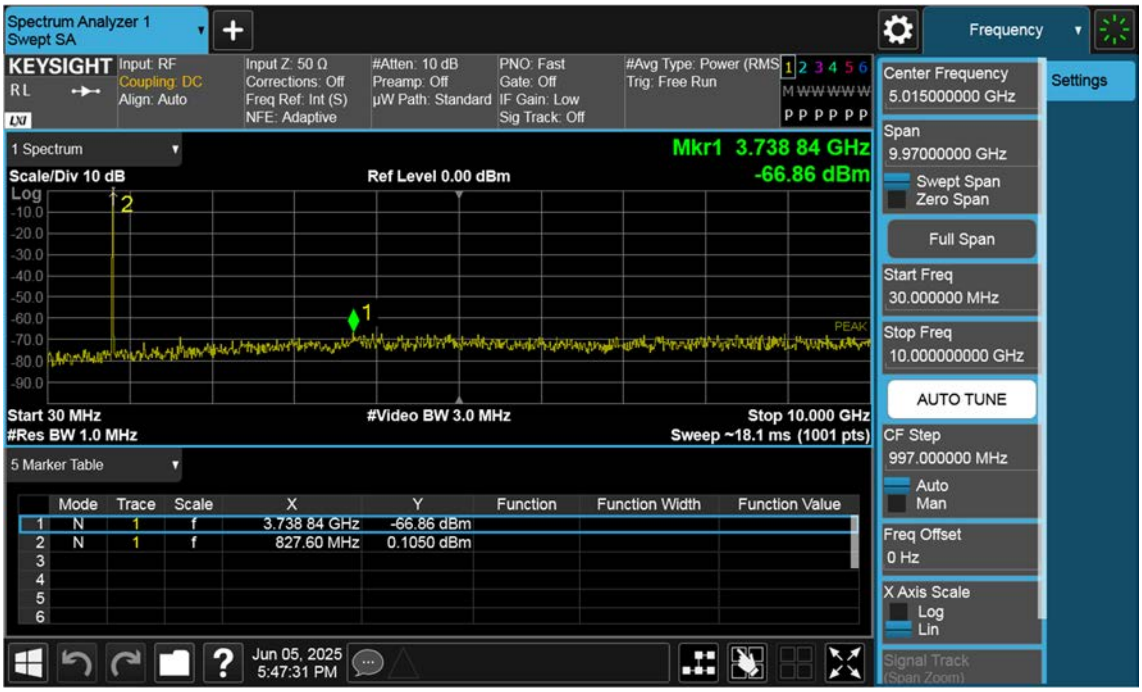


LTE B26_1.4M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB

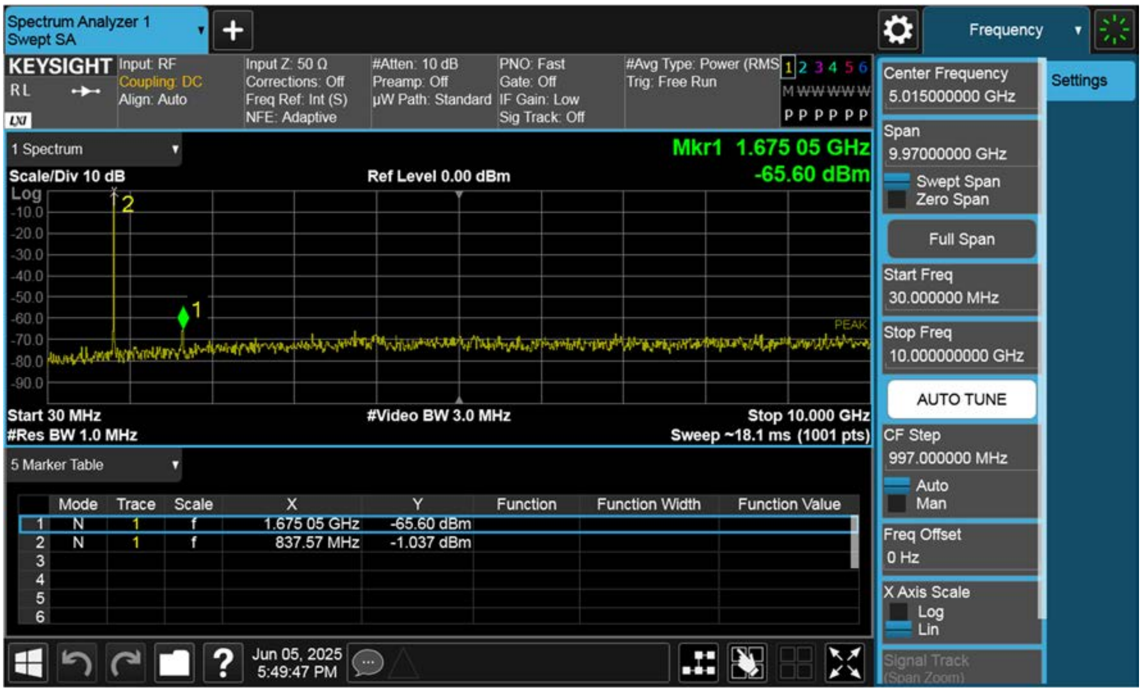


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	1.694 99 GHz	-66.58 dBm			
2	N	1	f	847.54 MHz	-0.03378 dBm			
3								
4								
5								
6								

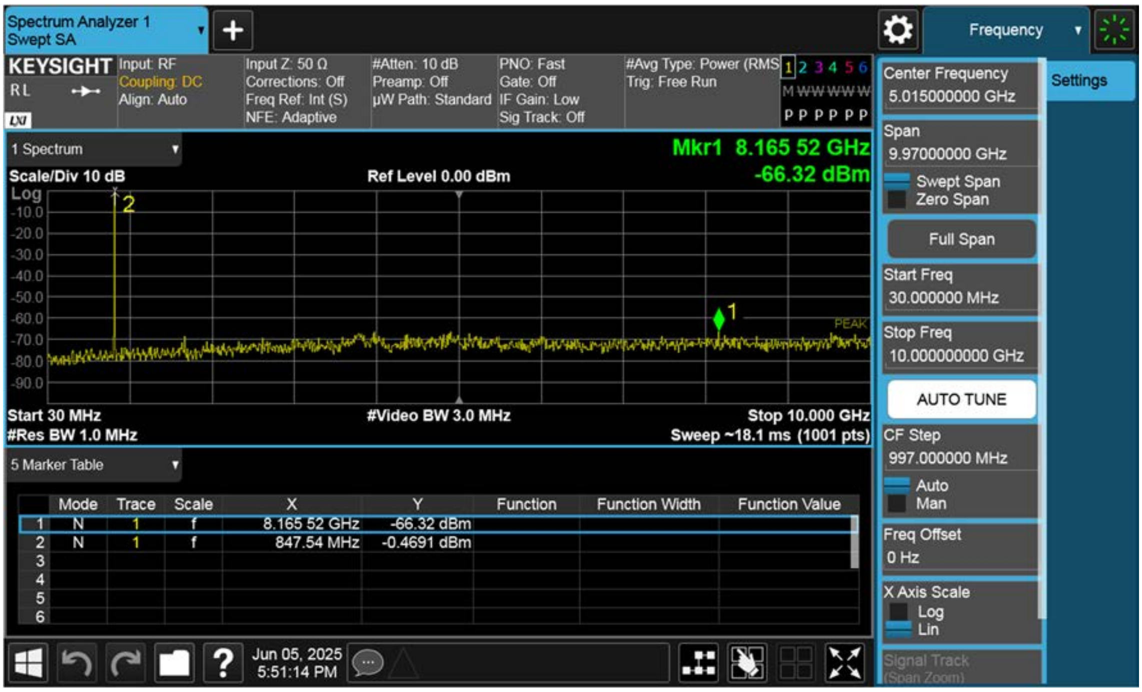
LTE B26_3 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



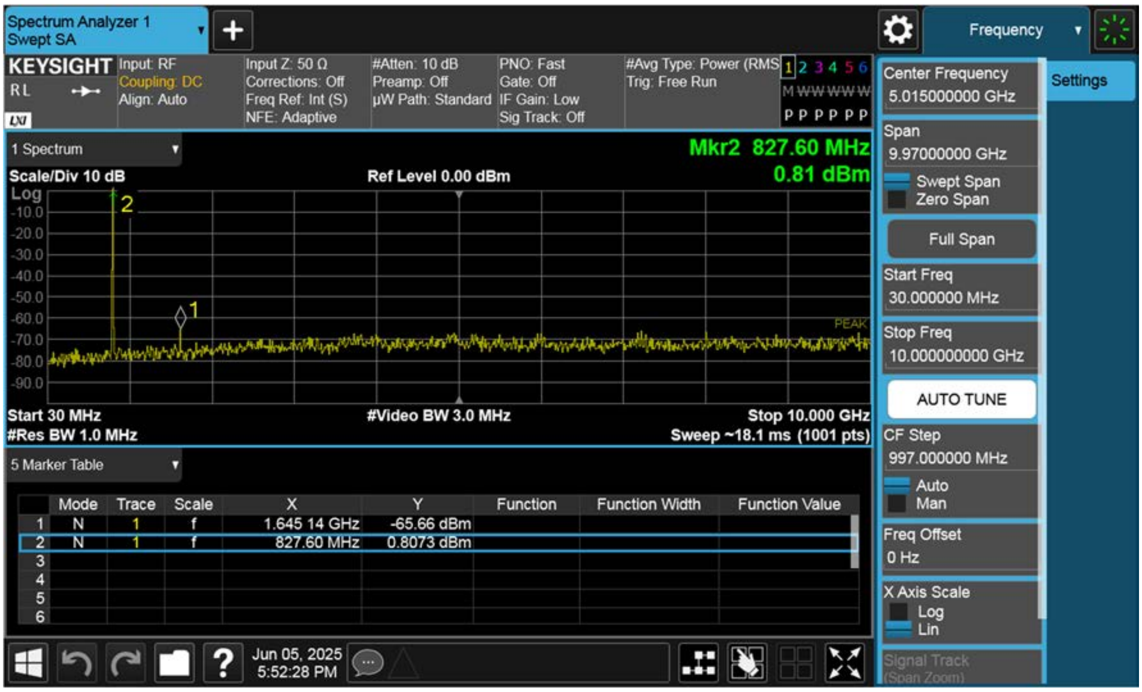
LTE B26_3 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



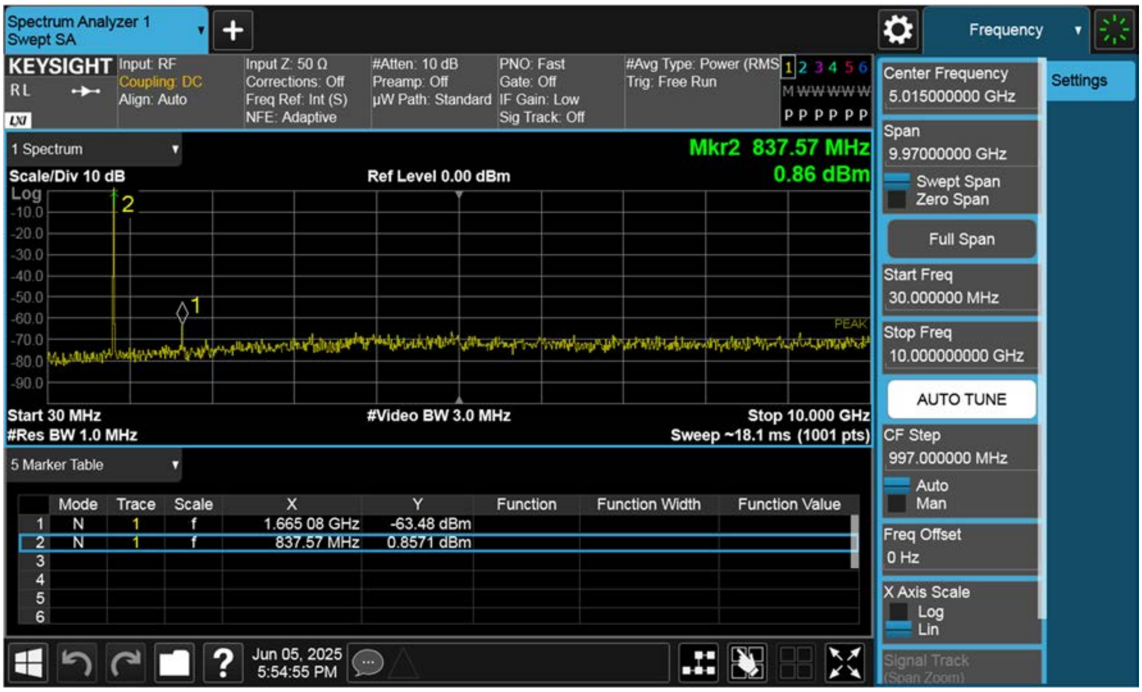
LTE B26_3 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



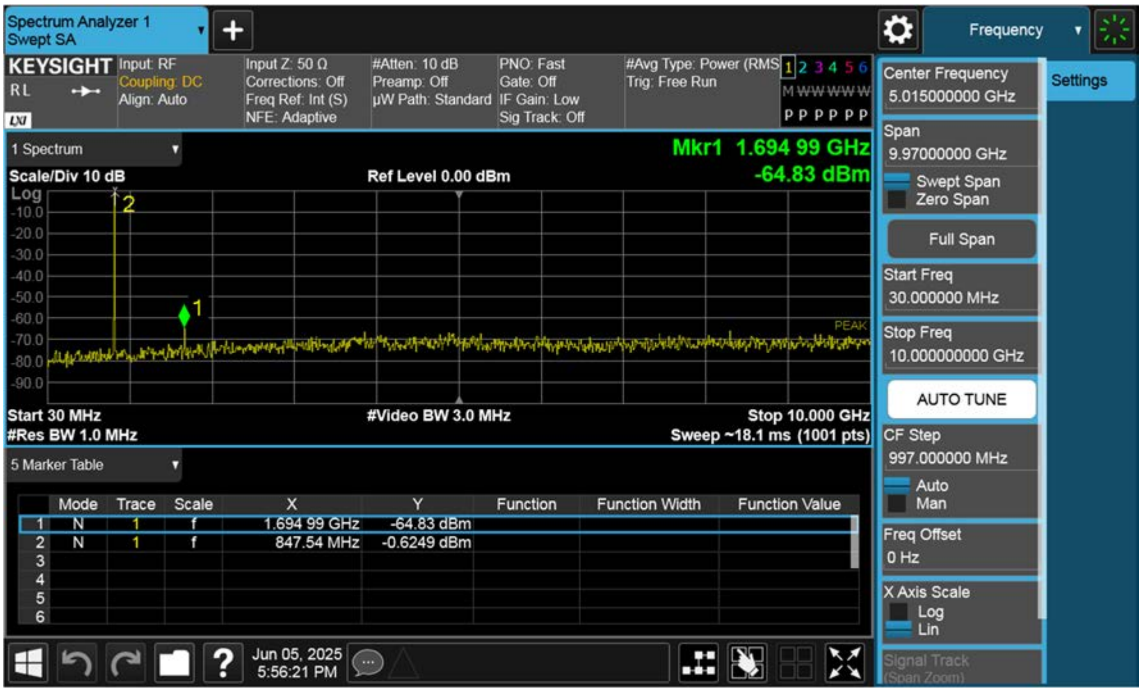
LTE B26_5 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



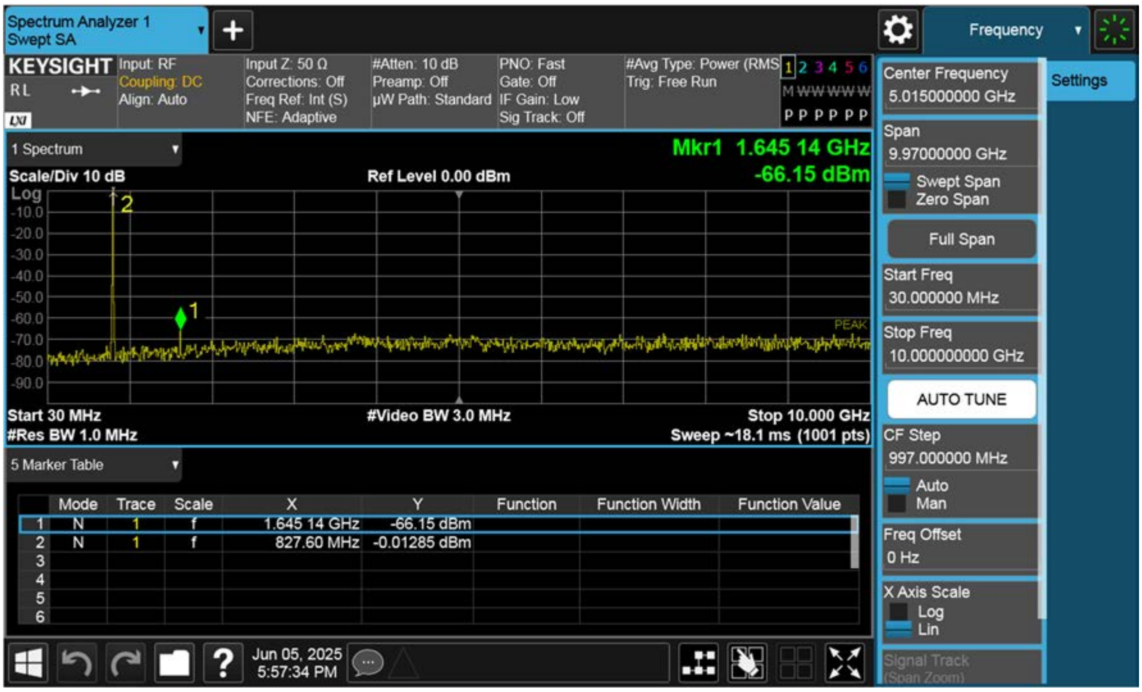
LTE B26_5 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



LTE B26_5 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB

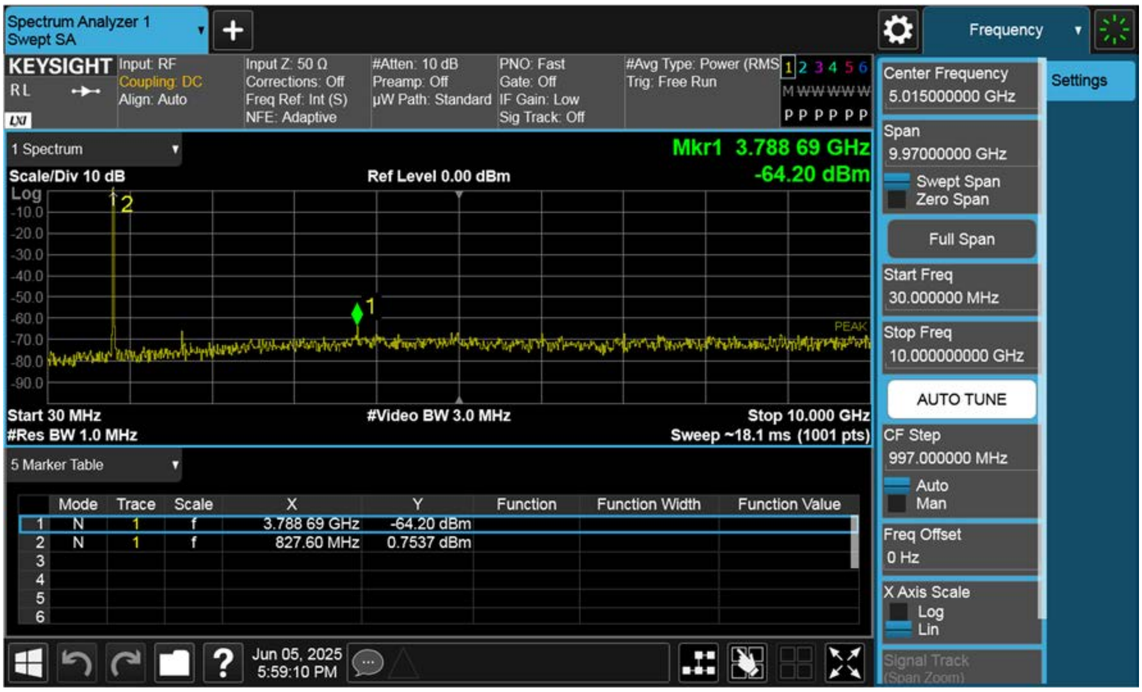


LTE B26_10 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



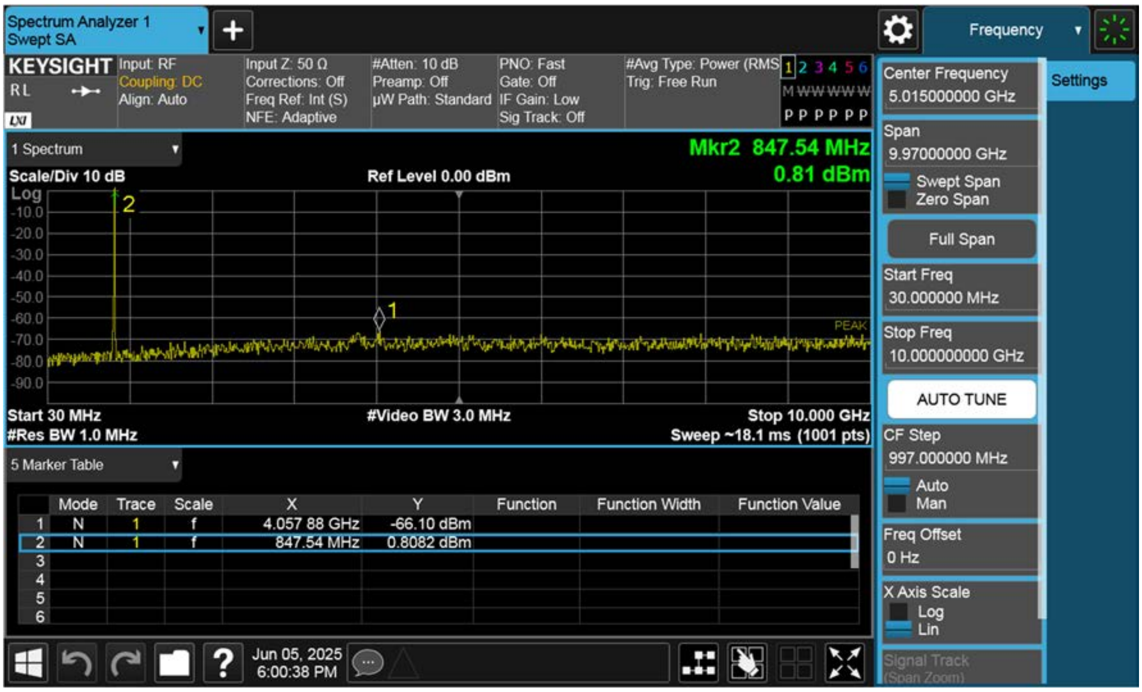
	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	1.645 14 GHz	-66.15 dBm			
2	N	1	f	827.60 MHz	-0.01285 dBm			
3								
4								
5								
6								

LTE B26_10 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB

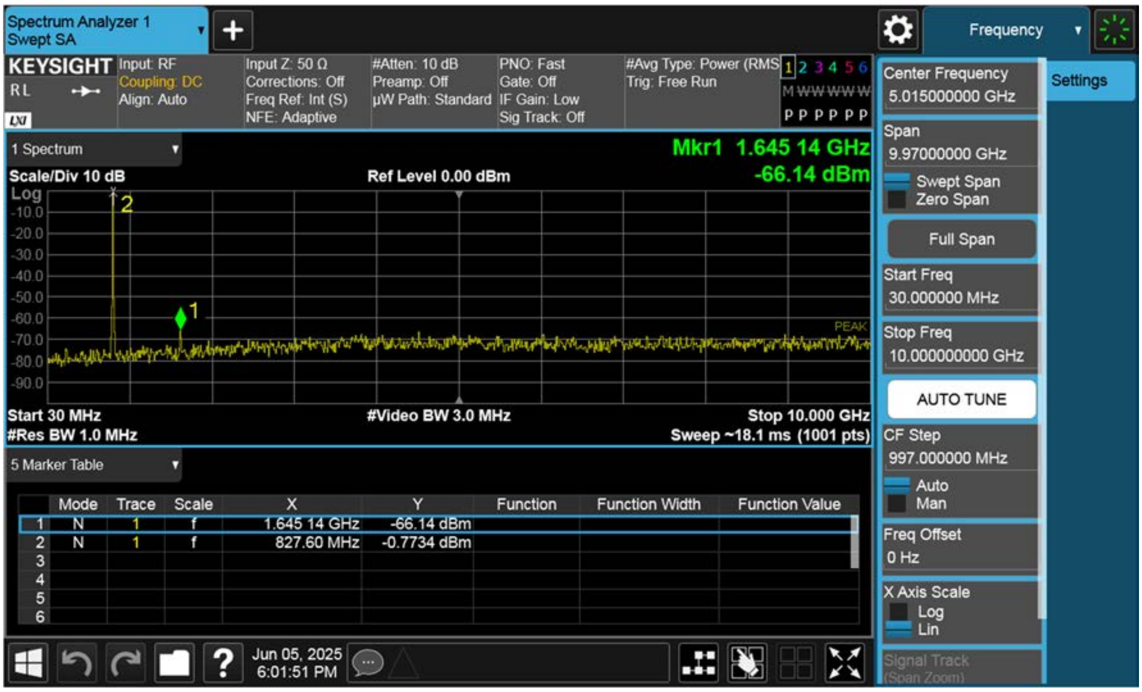


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.788 69 GHz	-64.20 dBm			
2	N	1	f	827.60 MHz	0.7537 dBm			
3								
4								
5								
6								

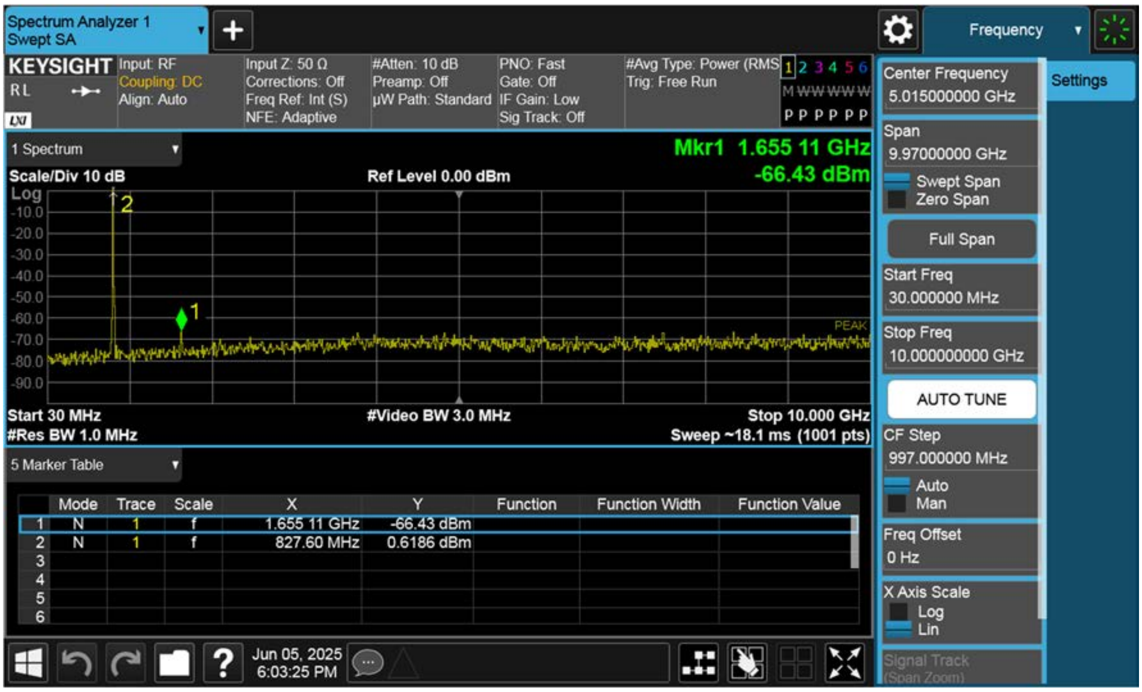
LTE B26_10 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



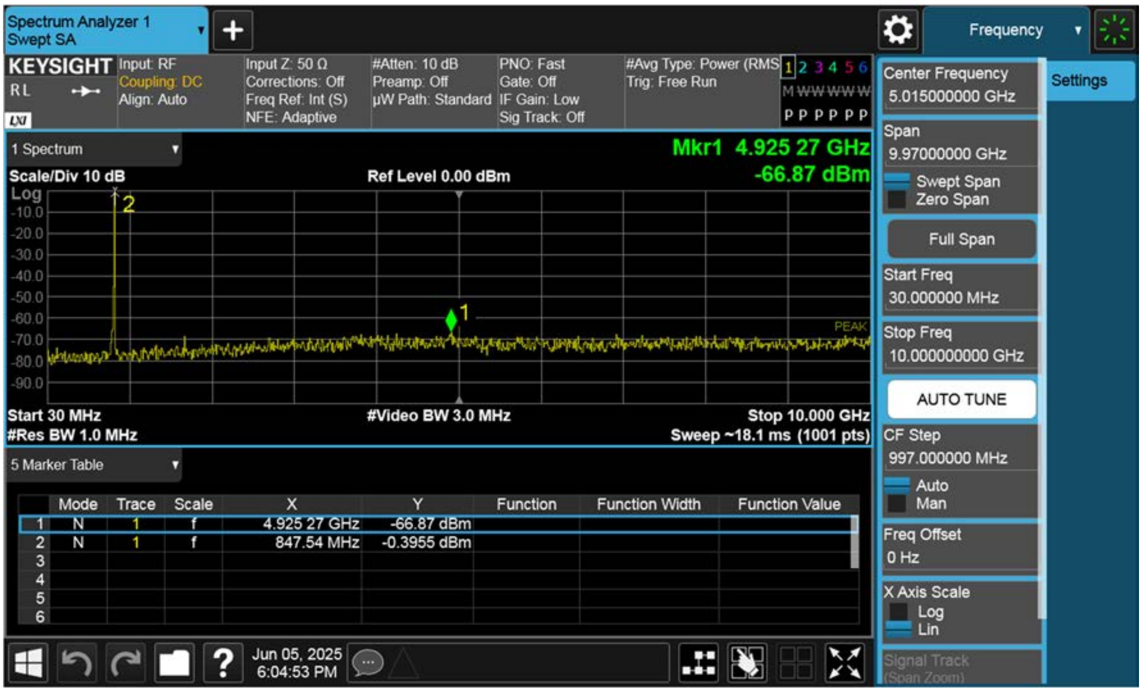
LTE B26_15 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



LTE B26_15 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



LTE B26_15 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



LTE B26_ Lower Band Edge Plot (1.4 M BW Ch.26797 QPSK_RB1_Offset 0)

LTE B26_ Lower Band Edge Plot (1.4 M BW Ch.26797 QPSK_RB6_Offset 0)