TEST REPORT

FCC LTE B13 Test for TFGMEIBBCD4
Class II Permissive Change

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2406-FC012

DATE OF ISSUE
September 26, 2024

Tested by
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Additional Model
TFGMEIBBCD5, TFGMEIBBCD6, TFGMEIBBCD7, TFGMEIBBCD8, TFGMEIBBCD9, TFGMEIBBCDA, TFGMEIBBCDB, TFGMEIBBCDC

Applicant	**LG Electronics Inc.** 10, MagokJungang-ro, Gangseo-gu, Seoul 07796, Republic of Korea
Product Name Model Name	GM Onstar Gen12 ROW TFGMEIBBCD4
Date of Test	May 07, 2024 ~ June 19, 2024
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	BEJTFGMEIBBCD4
FCC Classification	PCS Licensed Transmitter (PCB)
Test Standard Used	FCC Rule Part(s) : § 27
Test Results	PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	September 26, 2024	Initial Release

Notice

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

CONTENTS

MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	LG Electronics Inc..
Address:	10, Magok Jungang-ro, Gangseo-gu, Seoul 07796, Republic of Korea
FCC ID:	BEJTFGMEIBBCD4
Application Type:	Class II Permissive Change
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 27
EUT Type:	GM Onstar Gen12 ROW
Model(s):	TFGMEIBBCD4
Additional Model(s)	TFGMEIBBCD5,TFGMEIBBCD6,TFGMEIBBCD7,TFGMEIBBCD8, TFGMEIBBCD9, TFGMEIBBCDA, TFGMEIBBCDB, TFGMEIBBCDC
Tx Frequency:	779.5 MHz –784.5 MHz (LTE – Band 13 (5 MHz)) 782 MHz (LTE – Band 13 (10 MHz))
Date(s) of Tests:	May 07, 2024 ~ June 19, 2024
Serial number:	Radiated : EBR36018942_#30 Conducted : EBR36018942K_#30 UPLINK CARRIER AGGREGATION : EBR36018942K_#14
External Antenna Information	ANT5 : 86531607 ANT4 : 86575530 DUT4 : 85608774

1.1. MAXIMUM OUTPUT POWER

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	ERP External Antenna		ERP Internal Antenna	
				Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)
LTE – Band13 (5)	779.5 –784.5	4M52G7D	QPSK	0.251	24.00	0.352	25.46
		4M51W7D	16QAM	0.209	23.20	0.312	24.94
		4M51W7D	64QAM	0.169	22.27	0.244	23.88
		8M97G7D	256QAM	0.083	19.20	0.124	20.93
LTE – Band13 (10)	782.0	8M93G7D	QPSK	0.243	23.86	0.354	25.49
		8M72W7D	16QAM	0.210	23.23	0.286	24.57
		4M51W7D	64QAM	0.157	21.96	0.169	22.27
		8M95G7D	256QAM	0.080	19.03	0.114	20.58

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a GM Onstar Gen12 ROW with GSM/GPRS/EGPRS/UMTS and LTE, Sub6.

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

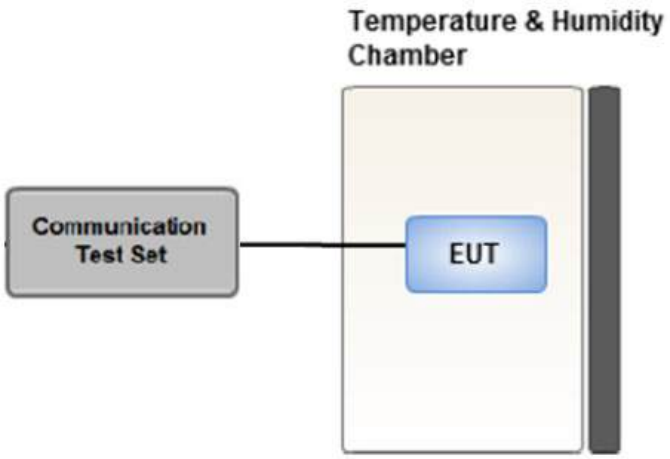
The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea

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	- KDB 971168 D01 v03r01 – Section 5.2
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
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

3.2 CONDUCTED OUTPUT POWER



Test setup

Test Overview

When an average power meter is used to perform RF output power measurements, the fundamental condition that measurements be performed only over durations of active transmissions at maximum output power level applies.

Conducted Output Power was tested in accordance with KDB971168 D01 Power Meas License Digital Systems v03r01, Section 5.2.

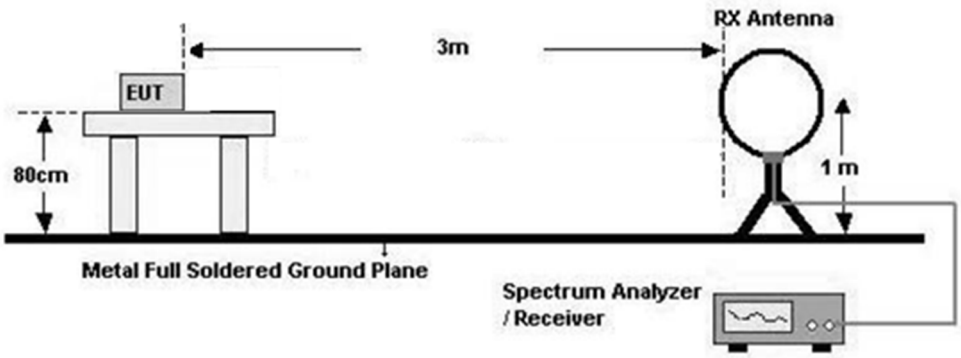
3.3 RADIATED TEST

Test Overview

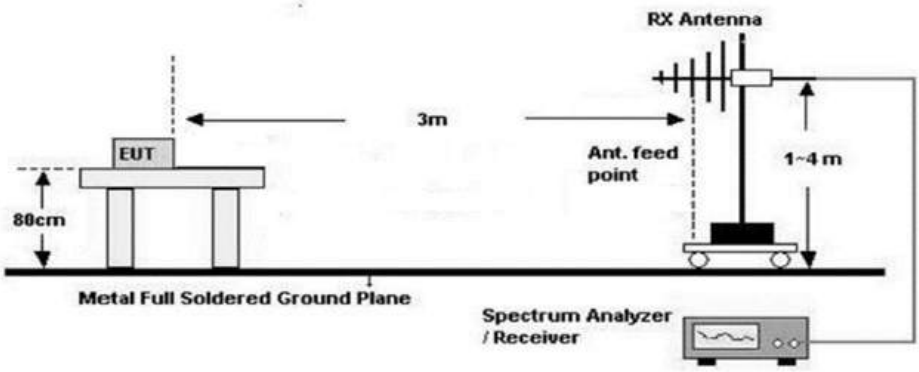
Radiated tests are performed in the semi-anechoic chamber. The equipment under test is placed on a non-conductive table on semi-anechoic chamber.

Test Configuration

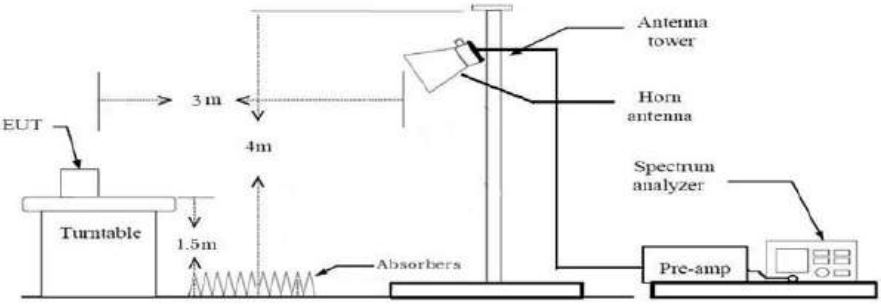
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



3.3.1 RADIATED POWER

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)

3.3.2 RADIATED SPURIOUS EMISSIONS

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 10th harmonics from 9 kHz.

Test Note

1. 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
2. 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.

Below 30 MHz

1. The loop antenna was placed at a location 3 m from the EUT
2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. Distance Correction Factor(0.009 MHz – 0.490 MHz) = 40log(3 m/300 m) = - 80 dB
   Measurement Distance : 3 m
6. Distance Correction Factor(0.490 MHz – 30 MHz) = 40log(3 m/30 m) = - 40 dB
   Measurement Distance : 3 m
7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) + 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)

KDB 414788 OFS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

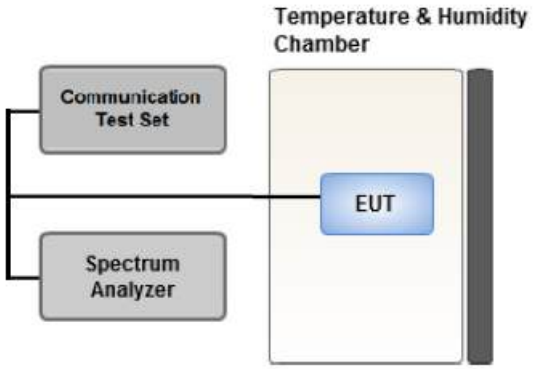
Below 1 GHz

1. The EUT is placed on a turntable, which is 0.8 m above ground plane.
2. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
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. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)
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)

Above 1 GHz

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. 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.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. Total(dBμV/m) = Measured Value(dBμV) + Cable Loss(dB) + Antenna Factor(dB/m) + Distance Factor(D.F)
   + H.P.F(dB) - Amp Gain(dB)
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)

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

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

② Alternate Procedure for PAPR

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as 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)

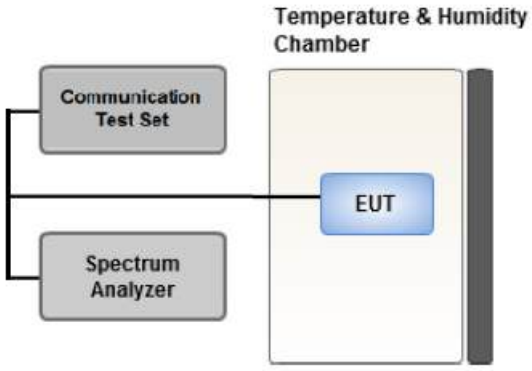
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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

Test Settings(Average Power)

1. Set span to 2 × to 3 × the OBW.
2. Set RBW ≥ OBW.
3. Set VBW ≥ 3 × RBW.
4. Set number of measurement points in sweep ≥ 2 × span / RBW.
5. Sweep time:
   Set ≥ [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. The transmission period is the (on + off) time.
6. Detector = power averaging (rms).
7. Set sweep trigger to “free run.”
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. (To accurately determine the average power over the on and off period of the transmitter, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.)
9. Use the peak marker function to determine the maximum amplitude level.
10. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25 %.

3.5 OCCUPIED BANDWIDTH.



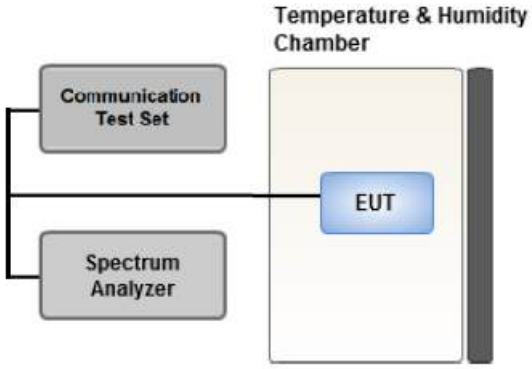
Test setup

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

Test Settings

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

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

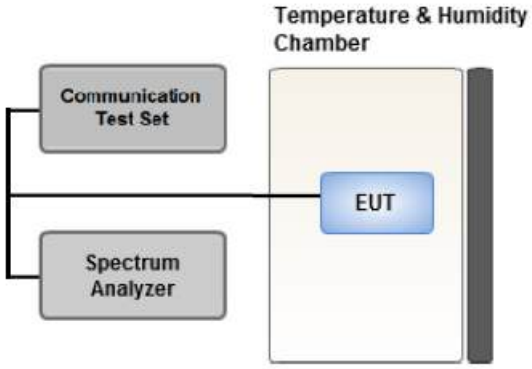
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

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

3.7 BAND EDGE



Test setup

Test Overview

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

Test Settings

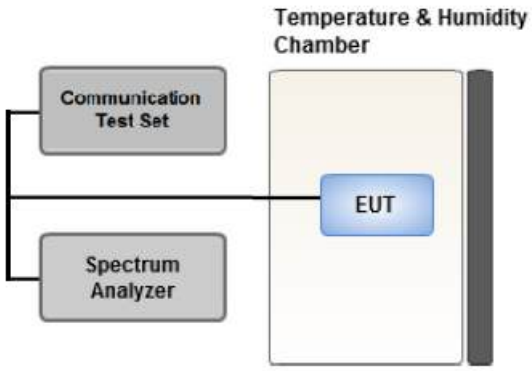
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW > 1 % of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW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

Test Notes

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

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

3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015.

The frequency stability of the transmitter is measured by:

1. Temperature:

   The temperature is varied from -30 °C to +50 °C in 10 °C increments using an environmental chamber.

2. Primary Supply Voltage:

   .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.

   .- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

Test Settings

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

3.9 WORST CASE(RADIATED TEST)

- 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 : Internal Antenna, External Antenna (ANT 5, ANT 4, DUT 4)

  Worst case : Internal Antenna, External Antenna (ANT 5)
- 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.
- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported.

  (External Antenna Worst case : 5 MHz)

  (Internal Antenna Worst case : 10 MHz)
- TFGMEIBBCD4 & additional models were tested and the worst case results are reported.

(Worst case : TFGMEIBBCD4)

[External Antenna Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	QPSK, 16QAM, 64QAM 256QAM	See Section 8.2.1		Only X
Radiated Spurious and Harmonic Emissions	QPSK	See Section 8.3.1		Only X

[Internal Antenna Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	QPSK, 16QAM, 64QAM 256QAM	See Section 8.2.2		Z
Radiated Spurious and Harmonic Emissions	QPSK	See Section 8.3.2		Y

3.10 WORST CASE(CONDUCTED TEST)

- All modes of operation were investigated and the worst case configuration results are reported.
- TFGMEIBBCD4 & additional models were tested and the worst case results are reported.
  (Worst case : TFGMEIBBCD4)

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth	QPSK, 16QAM, 64QAM 256QAM	5, 10	Mid	Full RB	0
Band Edge	QPSK	5	Low	1	0
			High	1	24
		10	Low	1	0
			High	1	49
		5, 10	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	QPSK	5, 10	Low, Mid, High	1	0

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Antenna Position Tower	MA4640/800-XP-ET	Innco systems	N/A	N/A	N/A
Turn Table	DS2000-S	Innco systems	N/A	N/A	N/A
Turn Table	Turn Table	Ets	N/A	N/A	N/A
Controller (Antenna mast & Turn Table)	CO3000	Innco systems	CO3000/1542/ 57580623/G	N/A	N/A
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM20090001	N/A	N/A
RF Switch System	TMX0132C	TNM System	TM21100002	N/A	N/A
RF Switch System	FBSR-04C HPF1	TNM System	S5L1	03/12/2025	Annual
RF Switch System	FBSR-04C LNA1	TNM System	S5L4	03/12/2025	Annual
RF Switch System	FBSR-04C HPF2	TNM System	S5L5	03/12/2025	Annual
HIGHPASS FILTER	WHKX10-900-1000-15000-40SS	WAINWRIGHT INSTRUMENTS	16	07/24/2025	Annual
HIGHPASS FILTER	WHNX6.0/26.5G-6SS	WAINWRIGHT INSTRUMENTS	1	12/11/2024	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/17/2024	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
Loop Antenna (9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Horn Antenna(1 ~ 18 GHz)	HF907	ROHDE & SCHWARZ	103224	05/07/2026	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/09/2025	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/24/2025	Biennial
Trilog Broadband Antenna	VULB 9168	Schwarzbeck	1135	08/19/2026	Biennial
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	02/19/2025	Annual
DC Power Supply	E3632A	Hewlett Packard	KR01009150	04/18/2025	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/10/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	ROHDE & SCHWARZ	101510	03/28/2025	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
Signal Analyzer (10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/19/2025	Annual
Signal Analyzer (5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

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

5. MEASUREMENT UNCERTAINTY

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

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

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

6. SUMMARY OF TEST RESULTS

6.1 Test Condition: Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 27.53(c)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
On all frequencies between 763-775 MHz and 793-805 MHz.	§ 27.53(c)(4)	< 65 + 10log10 (P[Watts])	PASS (See Note1)
Conducted Output Power	§ 2.1046	N/A	PASS
Frequency stability / variation of ambient temperature	§ 2.1055, § 27.54	Emission must remain in band	PASS

Note:

1. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance.

6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Effective Radiated Power	§ 27.50(b)(10)	< 3 Watts max. ERP	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 27.53(c)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS
Undesirable Emissions in the 1559 – 1610 MHz band	§ 2.1053, 27.53(f)	< -70dBW/MHz EIRP (wideband) < -80dBW EIRP (narrowband)	PASS

7. 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

8.1 Conducted Output Power

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				23205	23230	23255
				779.5 MHz	782 MHz	784.5 MHz
5 MHz	QPSK	1	0	23.59	23.52	23.46
		1	12	23.55	23.58	23.56
		1	24	23.43	23.50	23.40
		12	0	22.82	22.69	22.59
		12	6	22.78	22.67	22.69
		12	11	22.72	22.67	22.61
		25	0	22.84	22.70	22.69
	16QAM	1	0	22.76	22.87	22.81
		1	12	22.91	22.87	22.86
		1	24	22.85	22.69	22.80
		12	0	21.81	21.76	21.64
		12	6	21.79	21.73	21.78
		12	11	21.79	21.70	21.69
		25	0	21.83	21.75	21.68
	64QAM	1	0	21.23	21.60	21.94
		1	12	21.86	21.36	21.82
		1	24	21.81	21.79	21.80
		12	0	20.76	20.22	20.66
		12	6	20.86	20.23	20.67
		12	11	20.78	20.21	20.78
		25	0	20.19	20.21	20.70
	256QAM	1	0	19.24	18.73	18.90
		1	12	18.78	18.82	18.57
		1	24	18.80	18.95	18.70
		12	0	18.79	18.75	18.63
		12	6	18.80	18.73	18.61
		12	11	18.76	18.66	18.70
		25	0	18.80	18.82	18.71

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
				23230
				782 MHz
10 MHz	QPSK	1	0	23.72
		1	24	23.44
		1	49	23.46
		25	0	22.77
		25	12	22.79
		25	24	22.66
		50	0	22.74
	16QAM	1	0	22.87
		1	24	23.12
		1	49	22.78
		25	0	21.80
		25	12	21.72
		25	24	21.67
		50	0	21.83
	64QAM	1	0	20.93
		1	24	21.51
		1	49	21.77
		25	0	20.44
		25	12	20.48
		25	24	20.67
		50	0	20.43
	256QAM	1	0	18.97
		1	24	18.74
		1	49	18.68
		25	0	18.75
		25	12	18.78
		25	24	18.80
		50	0	18.78

8.2 EFFECTIVE RADIATED POWER

8.2.1 External Antenna

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBμV)	A.F+C.L+D.F (dB/m)	Total (dBμV/m)	Pol	Limit	ERP		RB	
							W	W	dBm	Size	Offset
779.5	LTE B13 (5 MHz)	QPSK	91.14	30.11	121.25	V	< 3.00	0.245	23.90	1	12
		16-QAM	90.31	30.11	120.42	V		0.203	23.07		
		64-QAM	89.51	30.11	119.62	V		0.169	22.27		
		256-QAM	86.43	30.11	116.54	V		0.083	19.19		
782.0		QPSK	91.24	30.11	121.35	V		0.251	24.00	1	0
		16-QAM	90.44	30.11	120.55	V		0.209	23.20		
		64-QAM	89.40	30.11	119.51	V		0.164	22.16		
		256-QAM	86.44	30.11	116.55	V		0.083	19.20		
784.5		QPSK	90.95	30.11	121.06	V		0.235	23.71	1	0
		16-QAM	90.33	30.11	120.44	V		0.204	23.09		
		64-QAM	89.37	30.11	119.48	V		0.163	22.13		
		256-QAM	86.25	30.11	116.36	V		0.080	19.01		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBμV)	A.F+C.L+D.F (dB/m)	Total (dBμV/m)	Pol	Limit	ERP		RB	
							W	W	dBm	Size	Offset
782.0	LTE B13 (10 MHz)	QPSK	91.10	30.11	121.21	V	< 3.00	0.243	23.86	1	0
		16-QAM	90.47	30.11	120.58	V		0.210	23.23		
		64-QAM	89.20	30.11	119.31	V		0.157	21.96		
		256-QAM	86.27	30.11	116.38	V		0.080	19.03		

8.2.2 Internal Antenna

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBμV)	A.F+C.L+D.F (dB/m)	Total (dBμV/m)	Pol	Limit	ERP		RB	
							W	W	dBm	Size	Offset
779.5	LTE B13 (5 MHz)	QPSK	92.62	30.11	122.73	H	< 3.00	0.345	25.38	1	12
		16-QAM	92.18	30.11	122.29	H		0.312	24.94		
		64-QAM	91.12	30.11	121.23	H		0.244	23.88		
		256-QAM	88.17	30.11	118.28	H		0.124	20.93		
782.0		QPSK	92.70	30.11	122.81	H		0.352	25.46	1	0
		16-QAM	92.10	30.11	122.21	H		0.306	24.86		
		64-QAM	90.93	30.11	121.04	H		0.234	23.69		
		256-QAM	88.05	30.11	118.16	H		0.120	20.81		
784.5		QPSK	92.42	30.11	122.53	H		0.329	25.18	1	0
		16-QAM	91.77	30.11	121.88	H		0.284	24.53		
		64-QAM	90.14	30.11	120.25	H		0.195	22.90		
		256-QAM	87.85	30.11	117.96	H		0.115	20.61		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBμV)	A.F+C.L+D.F (dB/m)	Total (dBμV/m)	Pol	Limit	ERP		RB	
							W	W	dBm	Size	Offset
782.0	LTE B13 (10 MHz)	QPSK	92.73	30.11	122.84	0	< 3.00	0.354	25.49	1	0
		16-QAM	91.81	30.11	121.92	0		0.286	24.57		
		64-QAM	89.51	30.11	119.62	0		0.169	22.27		
		256-QAM	87.82	30.11	117.93	0		0.114	20.58		

8.3 RADIATED SPURIOUS EMISSIONS

8.3.1 External Antenna

▣ MODE: LTE B13

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 3 meters

Ch	Freq (MHz)	Measured Level (dBµV)	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBµV/m)	Pol	Result (dBm)	Limit (dBm)	RB	
								Size	Offset
23205 (779.5)	1 559 ~ 1610	54.49	-16.52	37.97	V	-57.23	-40.00	1	12
	1559.0	54.58	-16.52	38.06	V	-57.14	-40.00		
	2 338.5	57.25	-12.81	44.44	V	-50.76	-13.00		
	3 118.0	53.61	-9.22	44.39	V	-50.81	-13.00		
	3 897.5	64.46	-6.80	57.66	V	-37.54	-13.00		
	4 677.0	50.68	-4.94	45.74	V	-49.46	-13.00		
23230 (782.0)	1 559 ~ 1610	54.89	-16.13	38.76	V	-56.44	-40.00	1	0
	1564.0	55.05	-16.45	38.60	V	-56.60	-40.00		
	2 346.0	56.61	-12.90	43.71	V	-51.49	-13.00		
	3 128.0	54.43	-9.07	45.36	V	-49.84	-13.00		
	3 910.0	61.10	-6.80	54.30	V	-40.90	-13.00		
	4 692.0	50.18	-4.87	45.31	V	-49.89	-13.00		
23255 (784.5)	1 559 ~ 1610	55.49	-16.52	38.97	V	-56.23	-40.00	1	0
	1569.0	54.81	-16.38	38.43	V	-56.77	-40.00		
	2 353.5	56.72	-12.99	43.74	V	-51.47	-13.00		
	3 138.0	54.39	-8.94	45.45	V	-49.75	-13.00		
	3 922.5	57.30	-6.80	50.50	V	-44.70	-13.00		
	4 707.0	50.10	-4.84	45.26	V	-49.94	-13.00		

▣ MODE: LTE B13

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 3 meters

Ch	Freq (MHz)	Measured Level (dBμV)	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol	Result (dBm)	Limit (dBm)	RB	
								Size	Offset
23230 (782.0)	1 559 ~ 1610	55.66	-16.13	39.53	V	-55.67	-40.00	1	0
	1569.0	55.79	-16.45	39.34	V	-55.86	-40.00		
	2,346.0	56.03	-12.90	43.13	V	-52.07	-13.00		
	3,128.0	53.77	-9.07	44.70	V	-50.50	-13.00		
	3,910.0	58.85	-6.80	52.05	V	-43.15	-13.00		
	4,692.0	49.68	-4.87	44.81	V	-50.39	-13.00		

8.3.2 Internal Antenna

▣ MODE: LTE B13

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 3 meters

Ch	Freq (MHz)	Measured Level (dBμV)	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol	Result (dBm)	Limit (dBm)	RB	
								Size	Offset
23205 (779.5)	1 559 ~ 1610	57.84	-16.52	41.32	H	-53.88	-40.00	1	12
	1,559.0	58.23	-16.52	41.71	H	-53.49	-40.00		
	2 338.5	57.71	-12.81	44.90	H	-50.30	-13.00		
	3 118.0	53.24	-9.22	44.02	H	-51.18	-13.00		
	3 897.5	59.79	-6.80	52.99	H	-42.21	-13.00		
	4 677.0	49.06	-4.94	44.12	H	-51.08	-13.00		
23230 (782.0)	1 559 ~ 1610	57.68	-16.45	41.23	H	-53.97	-40.00	1	0
	1,564.0	58.26	-16.45	41.81	H	-53.39	-40.00		
	2 346.0	57.56	-12.90	44.66	H	-50.54	-13.00		
	3 128.0	53.35	-9.07	44.28	H	-50.92	-13.00		
	3 910.0	64.95	-6.80	58.15	H	-37.05	-13.00		
	4 692.0	50.30	-4.87	45.43	H	-49.77	-13.00		
23255 (784.5)	1 559 ~ 1610	57.55	-16.38	41.17	H	-54.03	-40.00	1	0
	1,569.0	57.63	-16.38	41.25	H	-53.95	-40.00		
	2 353.5	56.21	-12.99	43.23	H	-51.98	-13.00		
	3 138.0	53.60	-8.94	44.66	H	-50.54	-13.00		
	3 922.5	64.58	-6.80	57.78	H	-37.42	-13.00		
	4 707.0	50.48	-4.84	45.64	H	-49.56	-13.00		

▣ MODE: LTE B13

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 3 meters

Ch	Freq (MHz)	Measured Level (dBμV)	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol	Result (dBm)	Limit (dBm)	RB	
								Size	Offset
23230 (782.0)	1 559 ~ 1610	58.05	-16.46	41.59	H	-53.61	-40.00	1	0
	1,564.0	58.18	-16.45	41.73	H	-53.47	-40.00		
	2 346.0	58.99	-12.90	46.09	H	-49.11	-13.00		
	3 128.0	53.55	-9.07	44.48	H	-50.72	-13.00		
	3 910.0	57.93	-6.80	51.13	V	-44.07	-13.00		
	4 692.0	49.45	-4.87	44.58	H	-50.62	-13.00		

8.4 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
13	5 MHz	782.0	QPSK	25	0	5.16
			16-QAM			5.89
			64-QAM			6.45
			256-QAM			6.48
	10 MHz		QPSK	50		5.21
			16-QAM			5.98
			64-QAM			6.53
			256-QAM			6.45

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 53 ~ 60.

8.5 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
13	5 MHz	782.0	QPSK	25	0	4.5197
			16-QAM			4.5135
			64-QAM			4.5133
			256-QAM			4.5066
	10 MHz		QPSK	50		8.9282
			16-QAM			8.9722
			64-QAM			8.9652
			256-QAM			8.9508

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 45 ~ 52.

8.6 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
13	5	779.5	3.1875	29.976	-67.450	-37.474	-13.00
		782.0	3.6910	29.976	-67.286	-37.310	
		784.5	3.7010	29.976	-67.185	-37.209	
	10	782.0	3.7020	29.976	-67.224	-37.248	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 61 ~ 64.
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 + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.270
1 – 5	29.976
5 – 10	30.591
10 – 15	31.116
15 – 20	31.489
Above 20(26.5)	32.131

8.7 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 65 ~ 76.

8.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ MODE: LTE 13

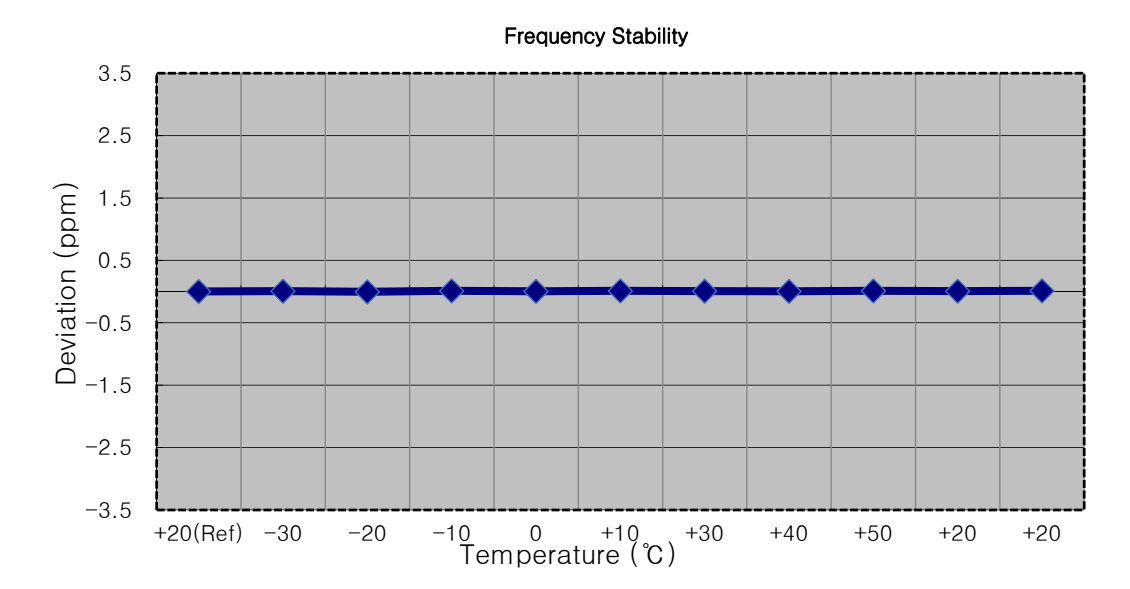
▣ OPERATING FREQUENCY: 779,500,000 Hz

▣ CHANNEL: 23205 (5 MHz)

▣ REFERENCE VOLTAGE: 13.500 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	13.500	+20(Ref)	779 499 998	0.00	0.000 000	0.0000
100 %		-30	779 500 003	5.50	0.000 001	0.0071
100 %		-20	779 499 995	-2.80	0.000 000	-0.0036
100 %		-10	779 500 006	8.00	0.000 001	0.0103
100 %		0	779 500 000	2.40	0.000 000	0.0031
100 %		+10	779 500 006	8.20	0.000 001	0.0105
100 %		+30	779 500 003	5.20	0.000 001	0.0067
100 %		+40	779 499 999	1.80	0.000 000	0.0023
100 %		+50	779 500 006	8.40	0.000 001	0.0108
85 %	11.475	+20	779 500 001	3.90	0.000 001	0.0050
115%	15.525	+20	779 500 006	8.90	0.000 001	0.0114



▣ MODE: LTE 13

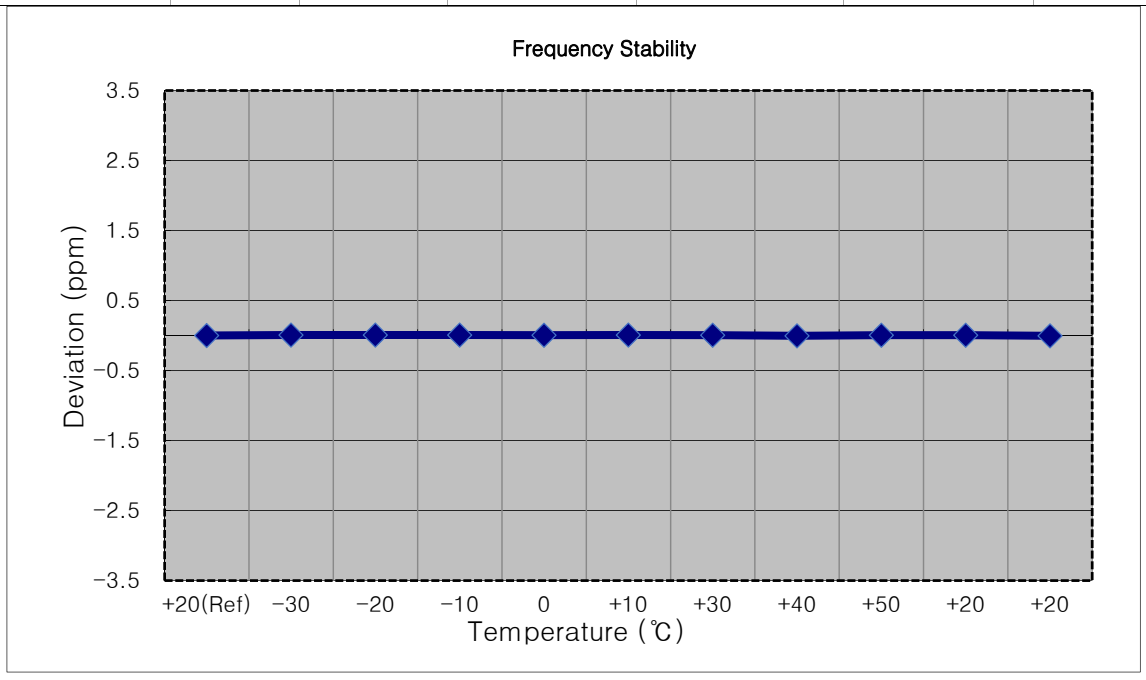
▣ OPERATING FREQUENCY: 782,000,000 Hz

▣ CHANNEL: 23230 (5 MHz)

▣ REFERENCE VOLTAGE: 13.500 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	13.500	+20(Ref)	782 000 005	0.00	0.000 000	0.0000
100 %		-30	782 000 010	5.30	0.000 001	0.0068
100 %		-20	782 000 010	5.20	0.000 001	0.0066
100 %		-10	782 000 010	4.70	0.000 001	0.0060
100 %		0	782 000 009	4.10	0.000 001	0.0052
100 %		+10	782 000 009	4.30	0.000 001	0.0055
100 %		+30	782 000 008	2.60	0.000 000	0.0033
100 %		+40	782 000 002	-3.10	0.000 000	-0.0040
100 %		+50	782 000 009	3.90	0.000 000	0.0050
85 %	11.475	+20	782 000 008	2.70	0.000 000	0.0035
115%	15.525	+20	782 000 002	-3.40	0.000 000	-0.0043



▣ MODE: LTE 13

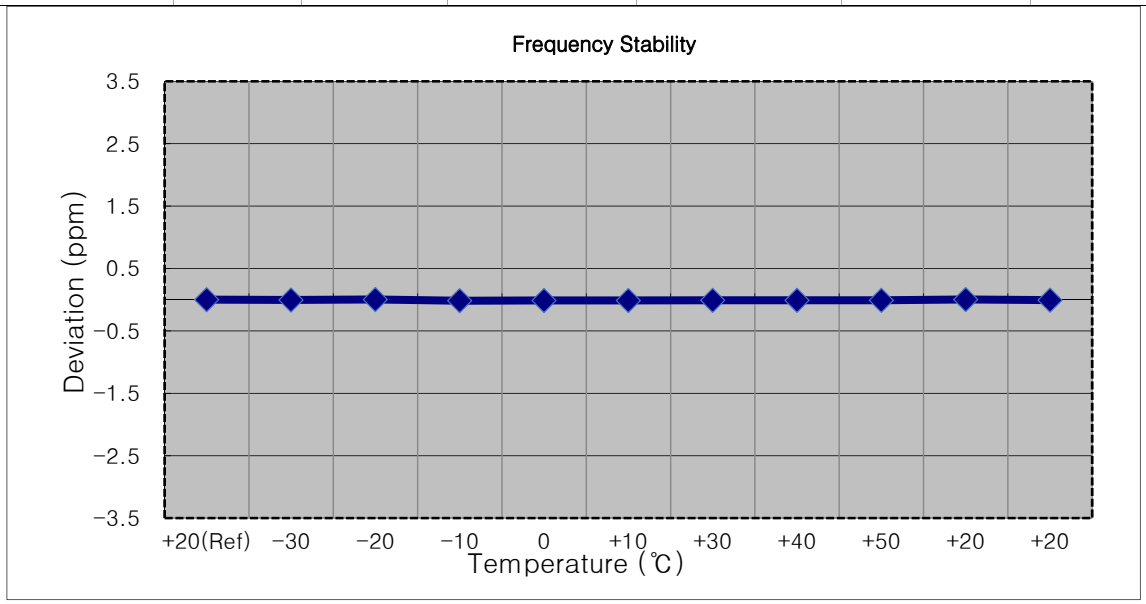
▣ OPERATING FREQUENCY: 784,500,000 Hz

▣ CHANNEL: 23255 (5 MHz)

▣ REFERENCE VOLTAGE: 13.500 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	13.500	+20(Ref)	784 499 995	0.00	0.000 000	0.0000
100 %		-30	784 499 992	-3.30	0.000 000	-0.0042
100 %		-20	784 499 998	3.10	0.000 000	0.0040
100 %		-10	784 499 983	-12.20	-0.000 002	-0.0156
100 %		0	784 499 986	-9.30	-0.000 001	-0.0119
100 %		+10	784 499 986	-9.10	-0.000 001	-0.0116
100 %		+30	784 499 986	-8.90	-0.000 001	-0.0113
100 %		+40	784 499 986	-8.90	-0.000 001	-0.0113
100 %		+50	784 499 988	-7.00	-0.000 001	-0.0089
85 %	11.475	+20	784 499 996	1.10	0.000 000	0.0014
115%	15.525	+20	784 499 989	-6.10	-0.000 001	-0.0078



▣ MODE: LTE 13

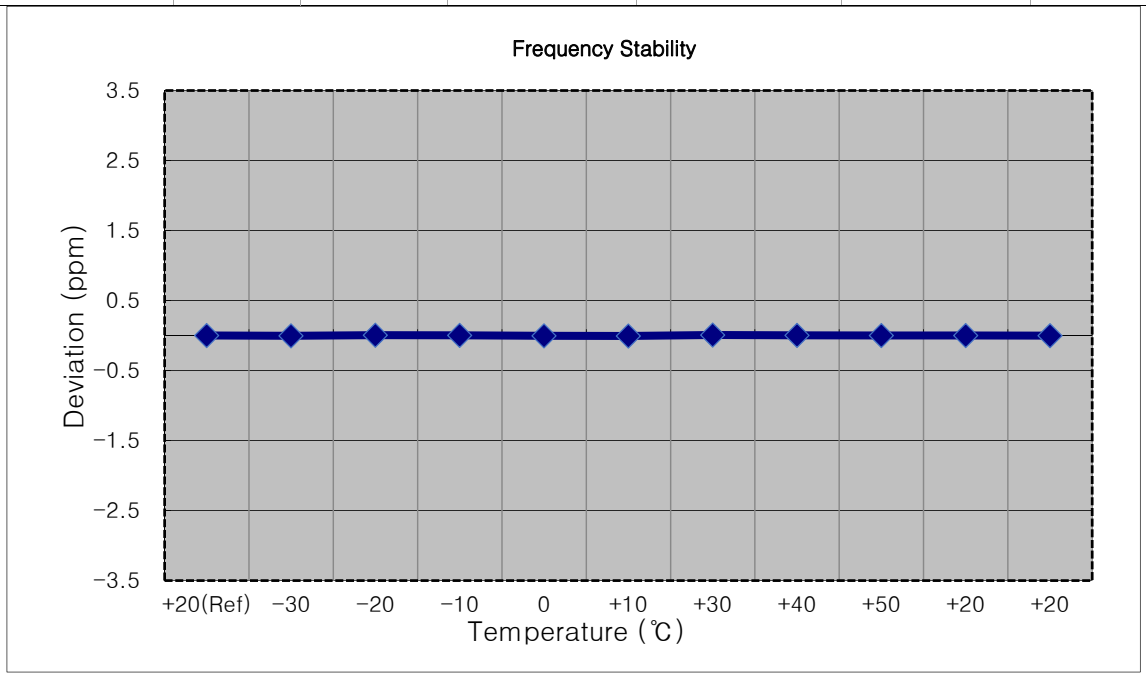
▣ OPERATING FREQUENCY: 782,000,000 Hz

▣ CHANNEL: 23230 (10 MHz)

▣ REFERENCE VOLTAGE: 13.500 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	13.500	+20(Ref)	782 000 003	0.00	0.000 000	0.0000
100 %		-30	782 000 000	-3.80	0.000 000	-0.0049
100 %		-20	782 000 007	3.10	0.000 000	0.0040
100 %		-10	782 000 005	2.00	0.000 000	0.0026
100 %		0	782 000 000	-3.30	0.000 000	-0.0042
100 %		+10	781 999 998	-5.20	-0.000 001	-0.0066
100 %		+30	782 000 009	5.10	0.000 001	0.0065
100 %		+40	782 000 005	1.90	0.000 000	0.0024
100 %		+50	782 000 002	-1.00	0.000 000	-0.0013
85 %	11.475	+20	782 000 003	-0.50	0.000 000	-0.0006
115%	15.525	+20	782 000 001	-2.40	0.000 000	-0.0031



9. TEST DATA(INTERNAL & EXTERNAL)

9.1 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.
   - (INTERNAL)
   2A-13A (PCC - Modulation: BPSK, RB: 1, RB Offset: 13, SCC - Modulation: BPSK, RB: 1, RB Offset: 0)
   - (EXTERNAL)
   2A-13A (PCC - Modulation: BPSK, RB: 1, RB Offset: 0, SCC - Modulation: BPSK, RB: 1, RB Offset: 0)

Radiated Spurious Emissions

PCC	SCC	PCC		SCC	
		BW(MHz)	Channel	BW(MHz)	Channel
2A	13A	5	18625	10	23230
2A	13A	10	18900	5	23230

9.1.1 RADIATED SPURIOUS EMISSIONS

Internal

2A(PCC)- 13A(SCC)

Freq.(MHz)	Measured Level [dBµV]	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBµV/m)	Pol.	Result (dBm)	Limit (dBm)	Detector
3 705.00	63.15	-6.49	56.66	H	-38.54	-13.00	Peak
5 557.50	61.85	-2.09	59.76	H	-35.44	-13.00	Peak
7 410.00	48.41	0.44	48.85	V	-46.35	-13.00	Peak

Freq.(MHz)	Measured Level [dBµV]	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBµV/m)	Pol.	Result (dBm)	Limit (dBm)	Detector
Narrow Band 1559~1610	64.74	-16.46	48.28	H	-46.92	-40.00	Peak
1 564.00	61.27	-16.45	44.82	V	-50.38	-40.00	Peak
2 346.00	59.23	-12.90	46.33	H	-48.87	-13.00	Peak
3 128.00	54.81	-9.07	45.74	V	-49.46	-13.00	Peak
3 910.00	57.53	-6.80	50.73	V	-44.47	-13.00	Peak
4 692.00	51.07	-4.87	46.20	H	-49.00	-13.00	Peak

External

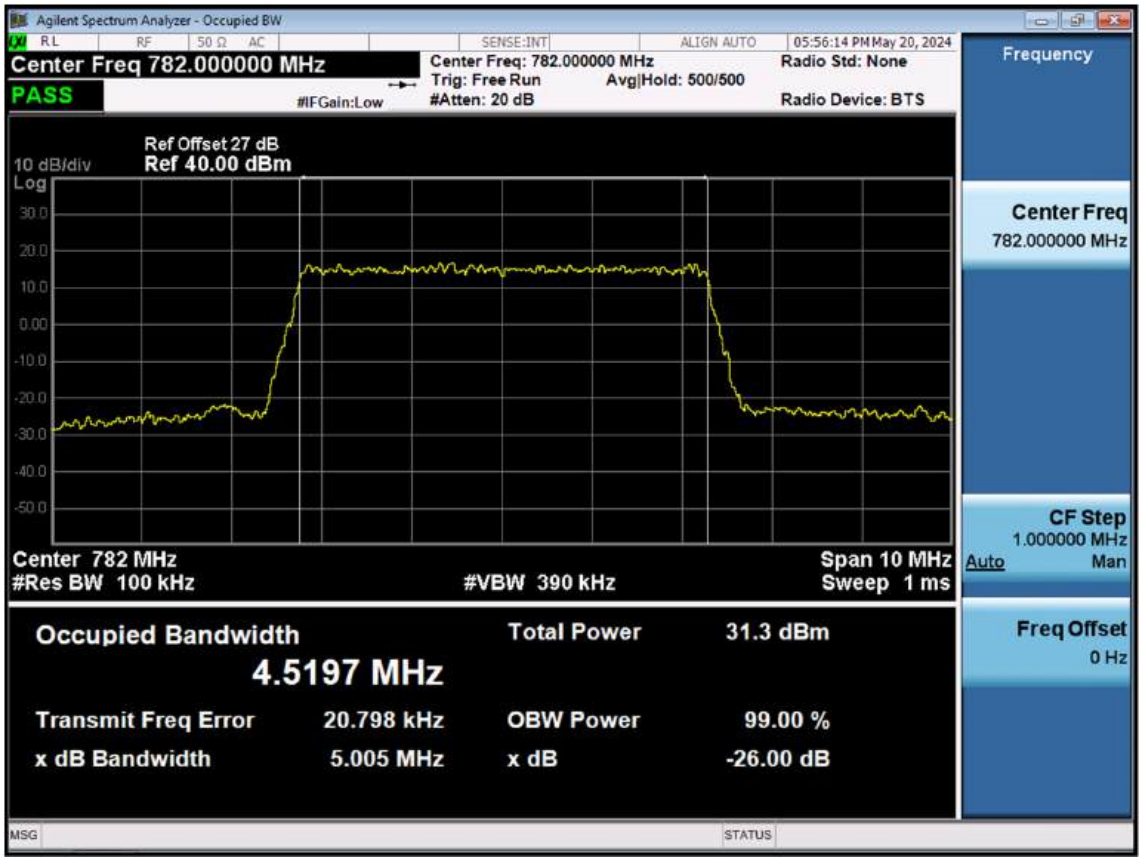
2A(PCC)- 13A(SCC)

Freq.(MHz)	Measured Level [dBμV]	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol.	Result (dBm)	Limit (dBm)	Detector
3 760.00	62.76	-6.18	56.58	V	-38.62	-13.00	Peak
5 640.00	59.86	-2.26	57.60	V	-37.60	-13.00	Peak
7 520.00	47.03	0.99	48.02	V	-47.18	-13.00	Peak

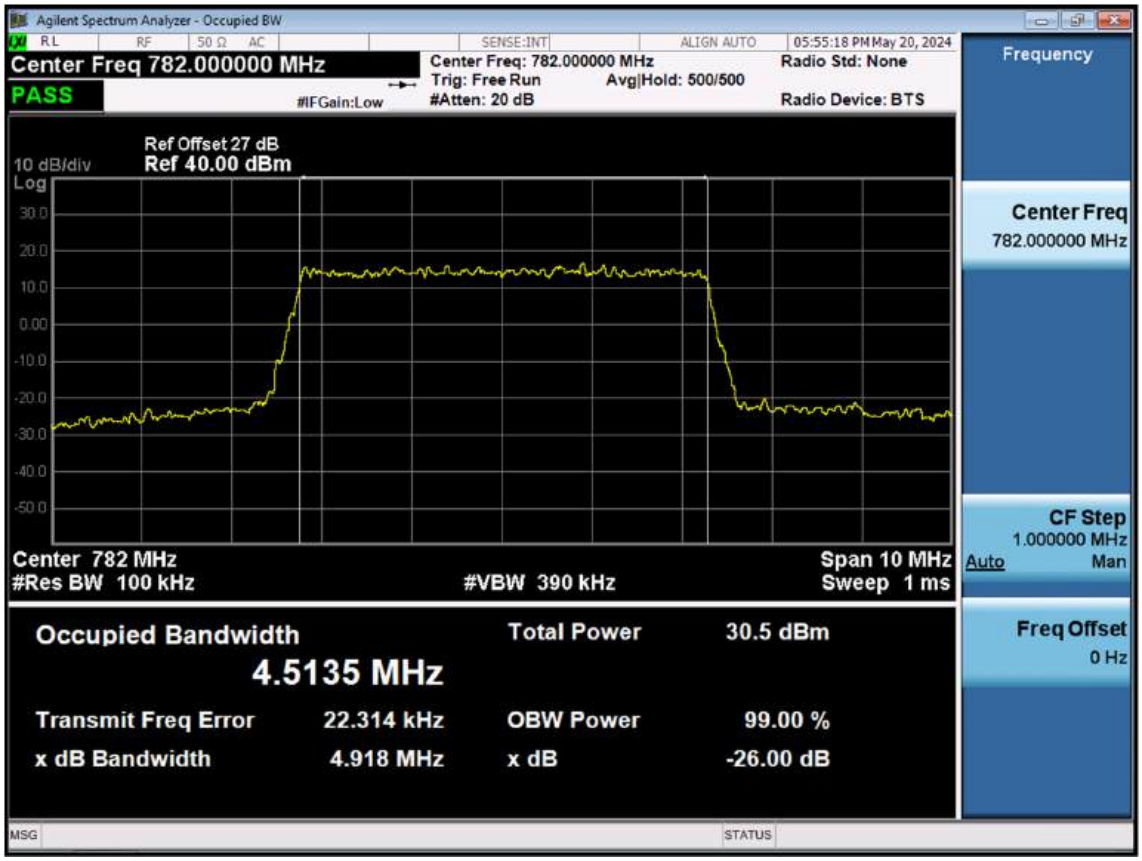
Freq.(MHz)	Measured Level [dBμV]	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol.	Result (dBm)	Limit (dBm)	Detector
Narrow Band 1559~1610	62.26	-16.46	45.80	V	-49.40	-40.00	Average
1 564.00	62.07	-16.45	45.62	V	-49.58	-40.00	Average
2 346.00	75.20	-12.90	62.30	V	-32.90	-13.00	Peak
3 128.00	60.10	-9.07	51.03	V	-44.17	-13.00	Peak
3 910.00	64.87	-6.80	58.07	V	-37.13	-13.00	Peak
4 692.00	51.30	-4.87	46.43	V	-48.77	-13.00	Peak

10. TEST PLOTS

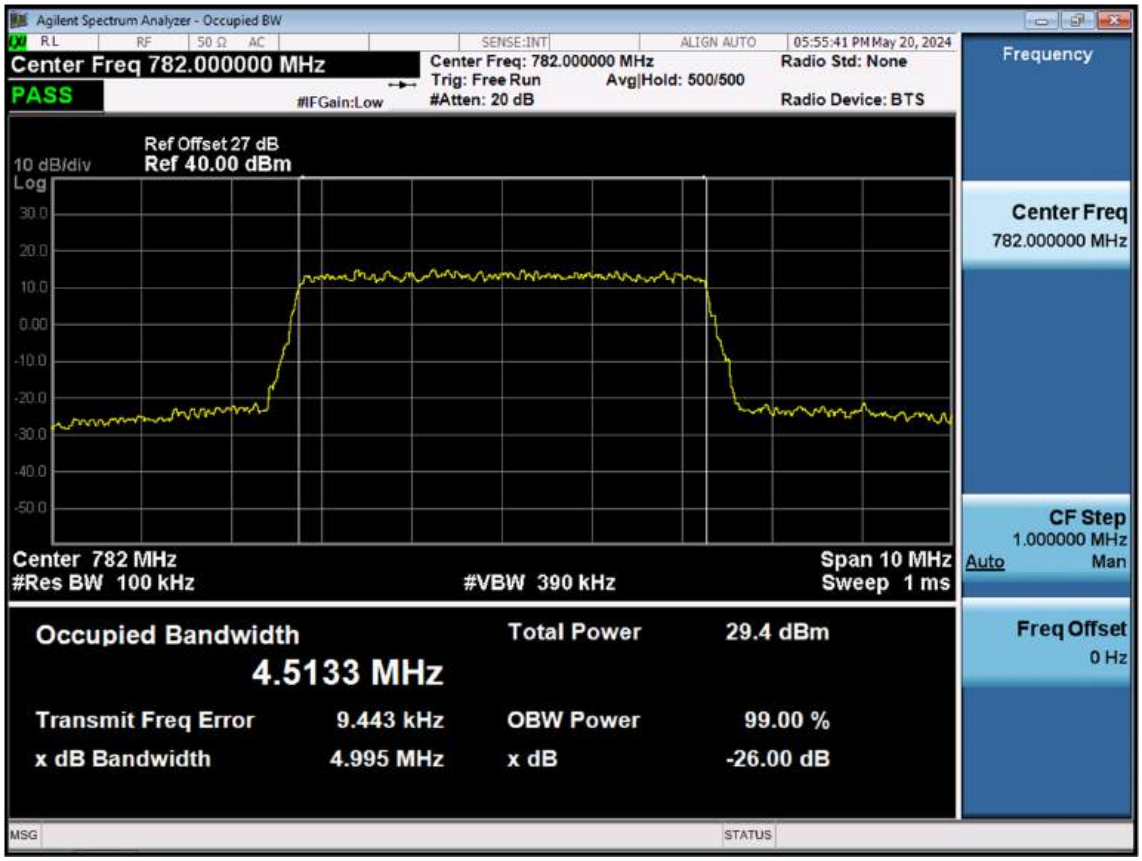
LTE B13_5 M_OBW_Mid_QPSK_FullRB



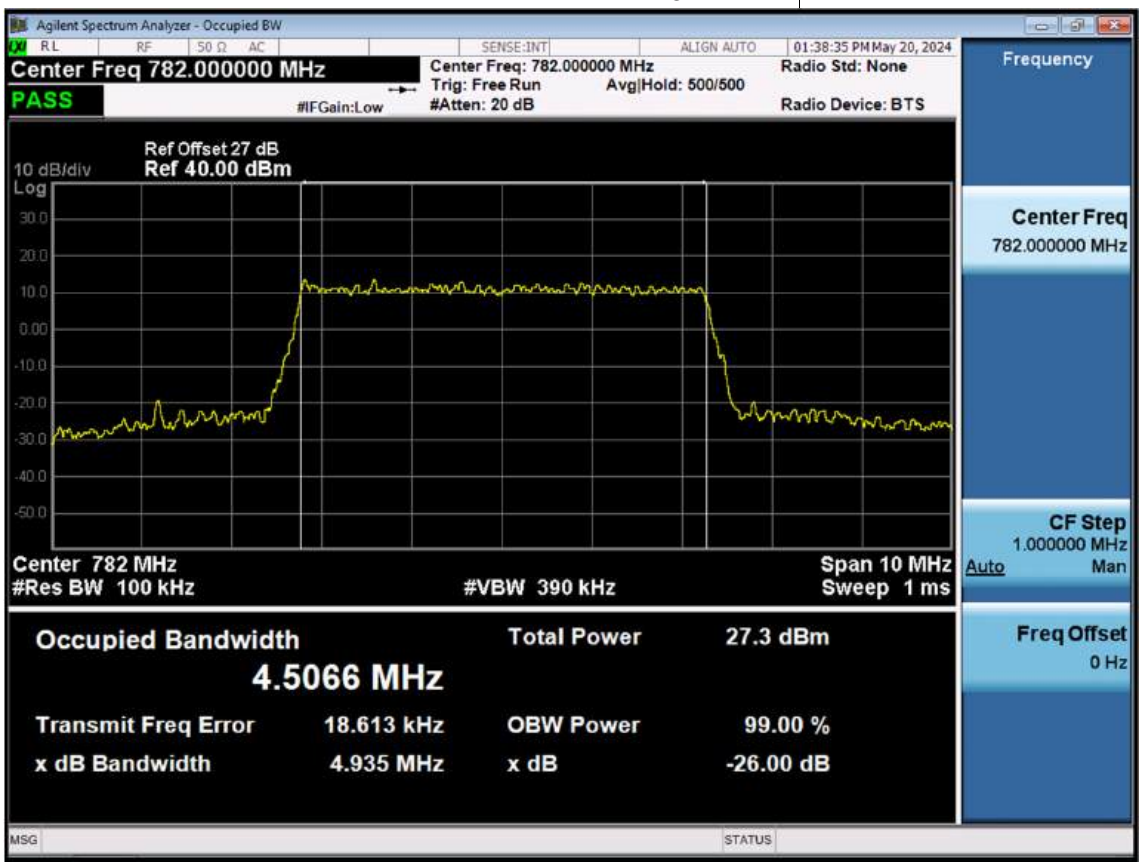
LTE B13_5 M_OBW_Mid_16QAM_FullRB



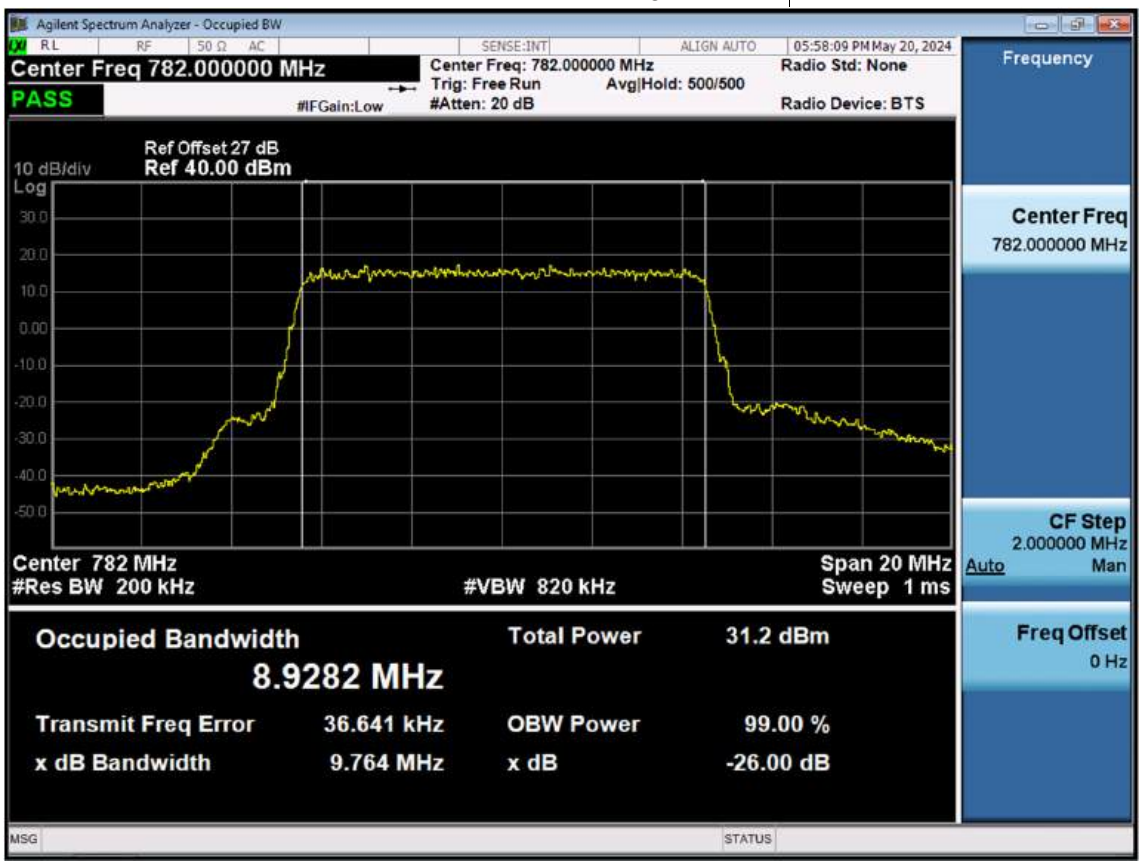
LTE B13_5 M_OBW_Mid_64QAM_FullRB



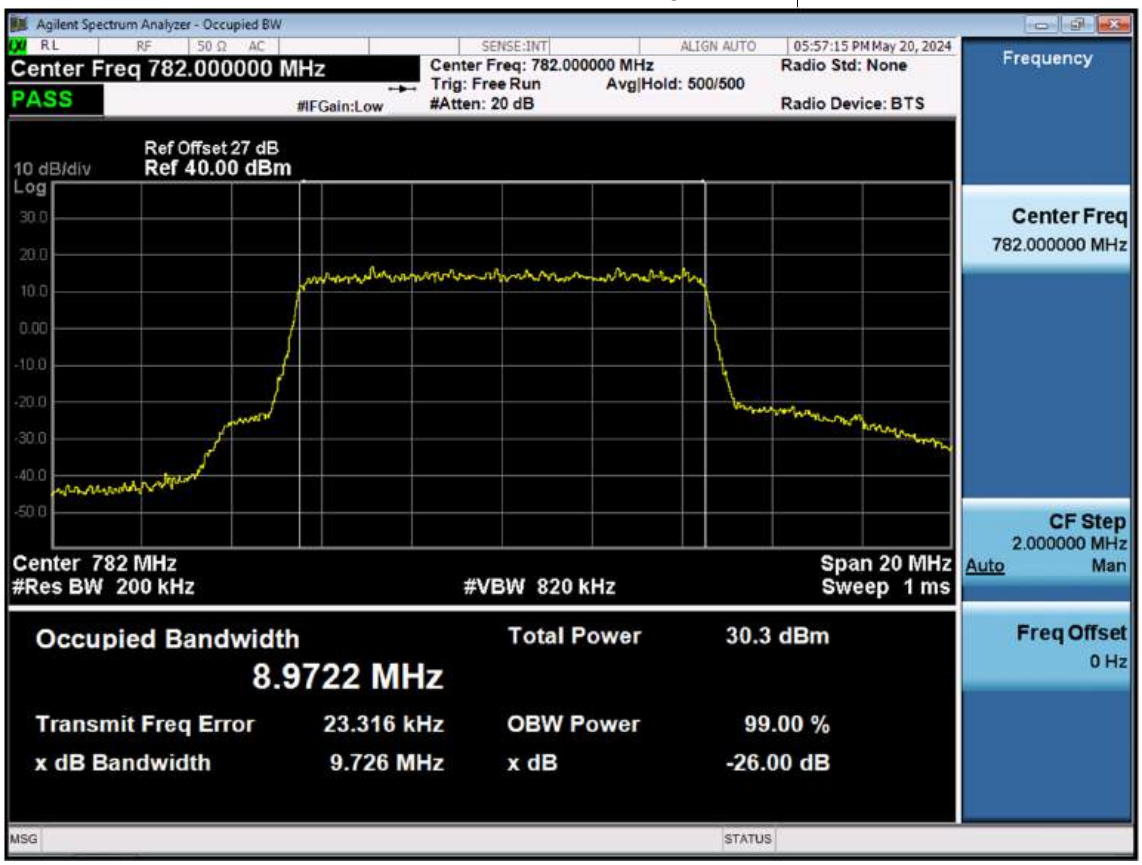
LTE B13_5 M_OBW_Mid_256 QAM_FullRB



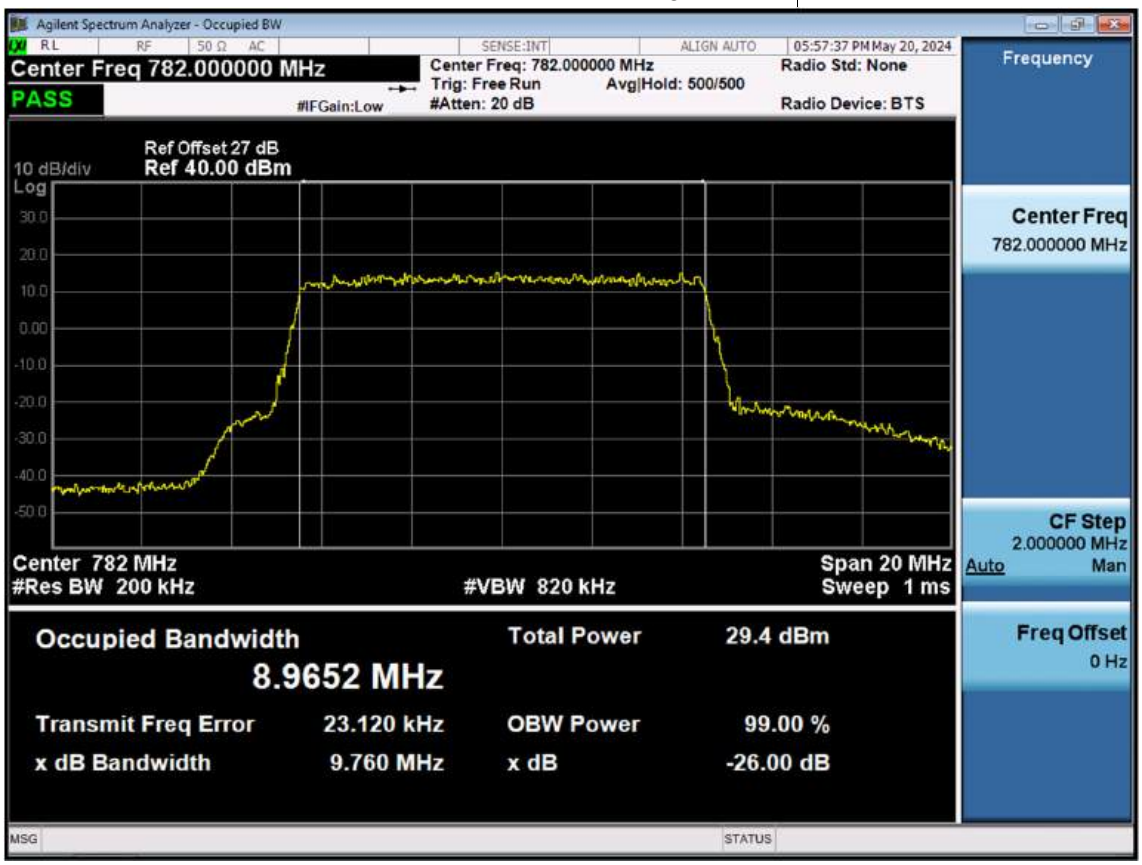
LTE B13_10 M_OBW_Mid_QPSK_FullRB



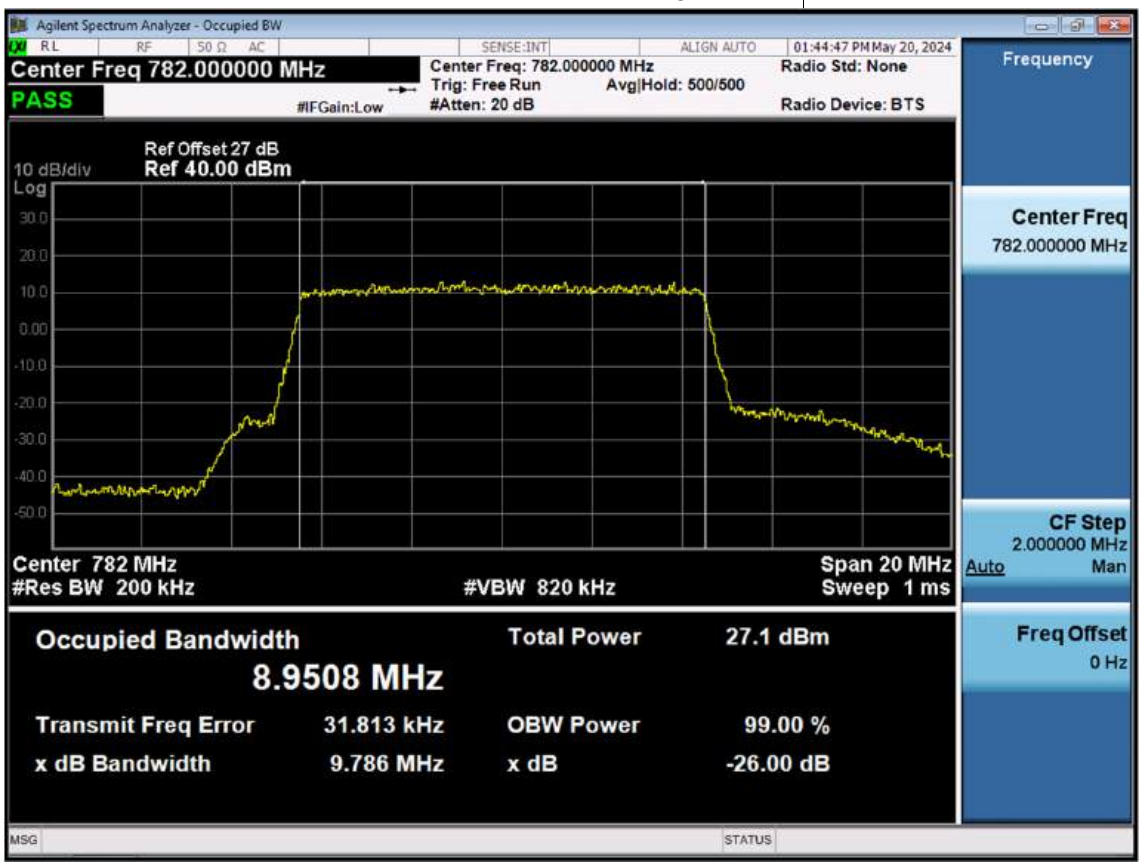
LTE B13_10 M_OBW_Mid_16QAM_FullRB



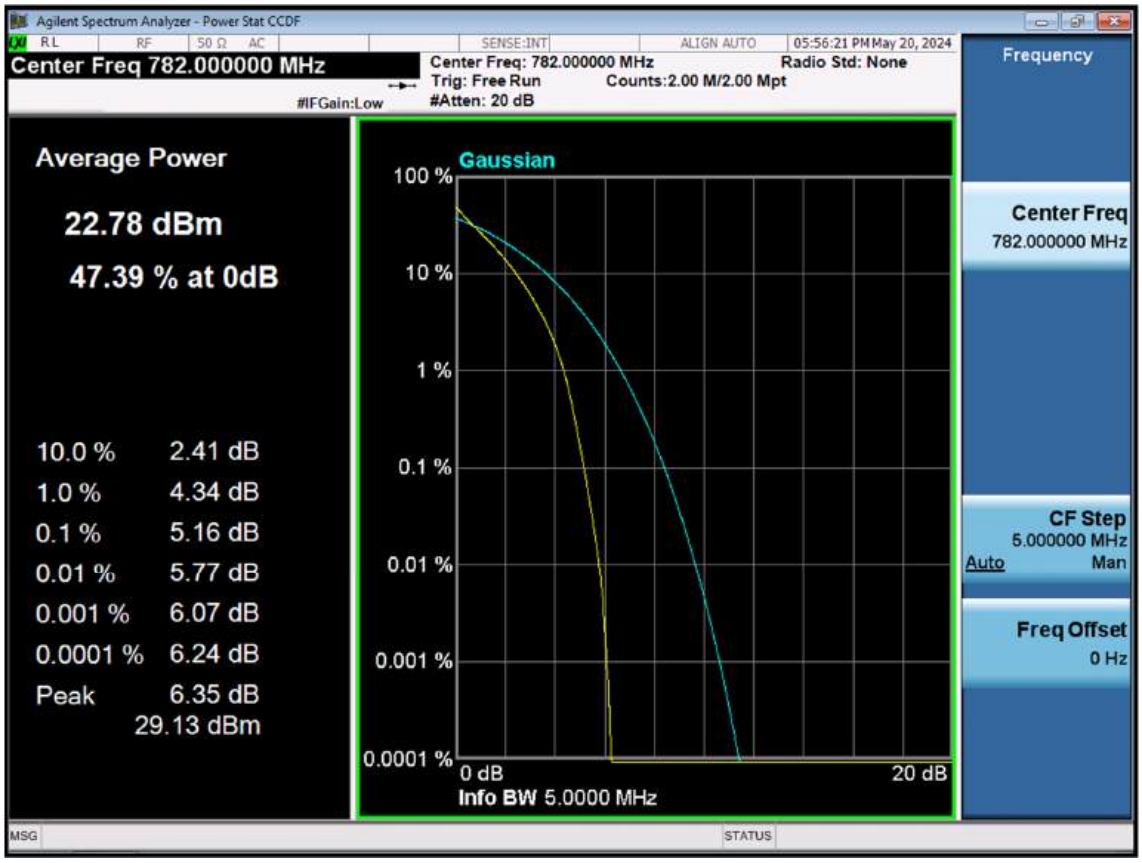
LTE B13_10 M_OBW_Mid_64QAM_FullRB



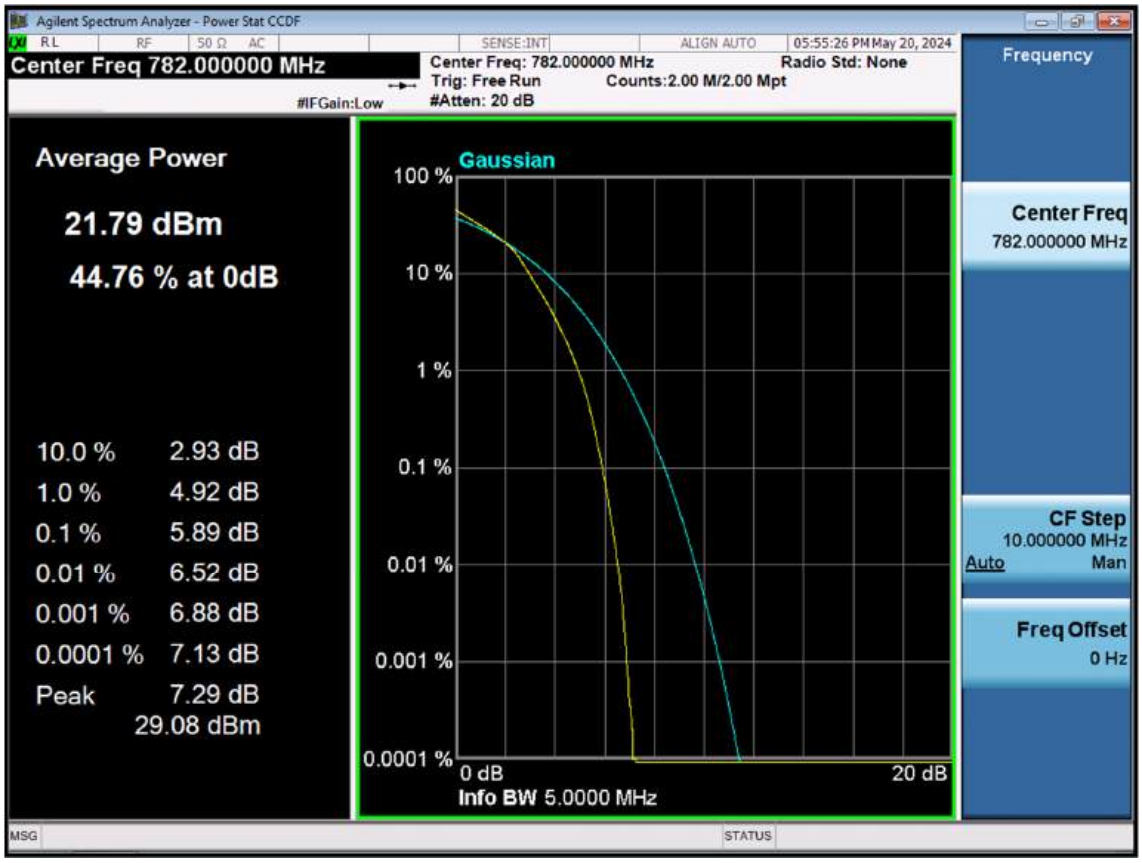
LTE B13_10 M_OBW_Mid_256QAM_FullRB



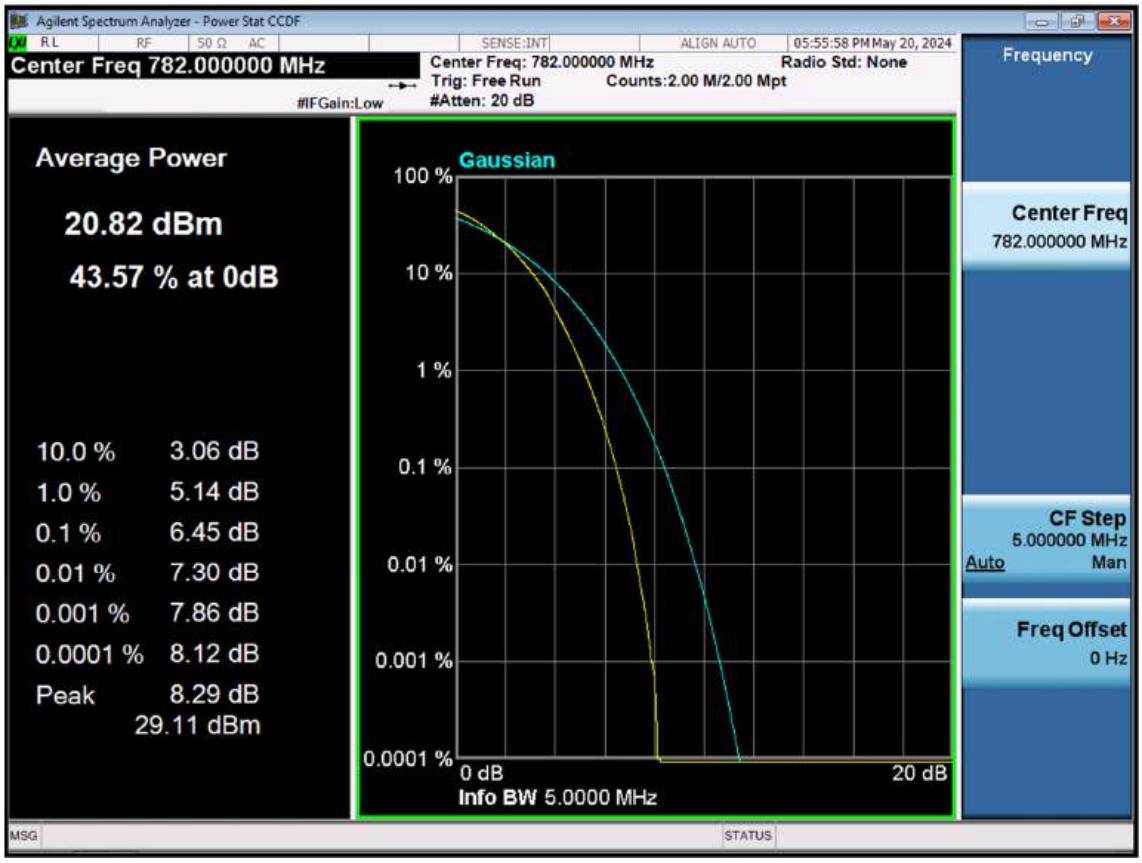
5 M_PAR_Mid Channel_QPSK_FullRB



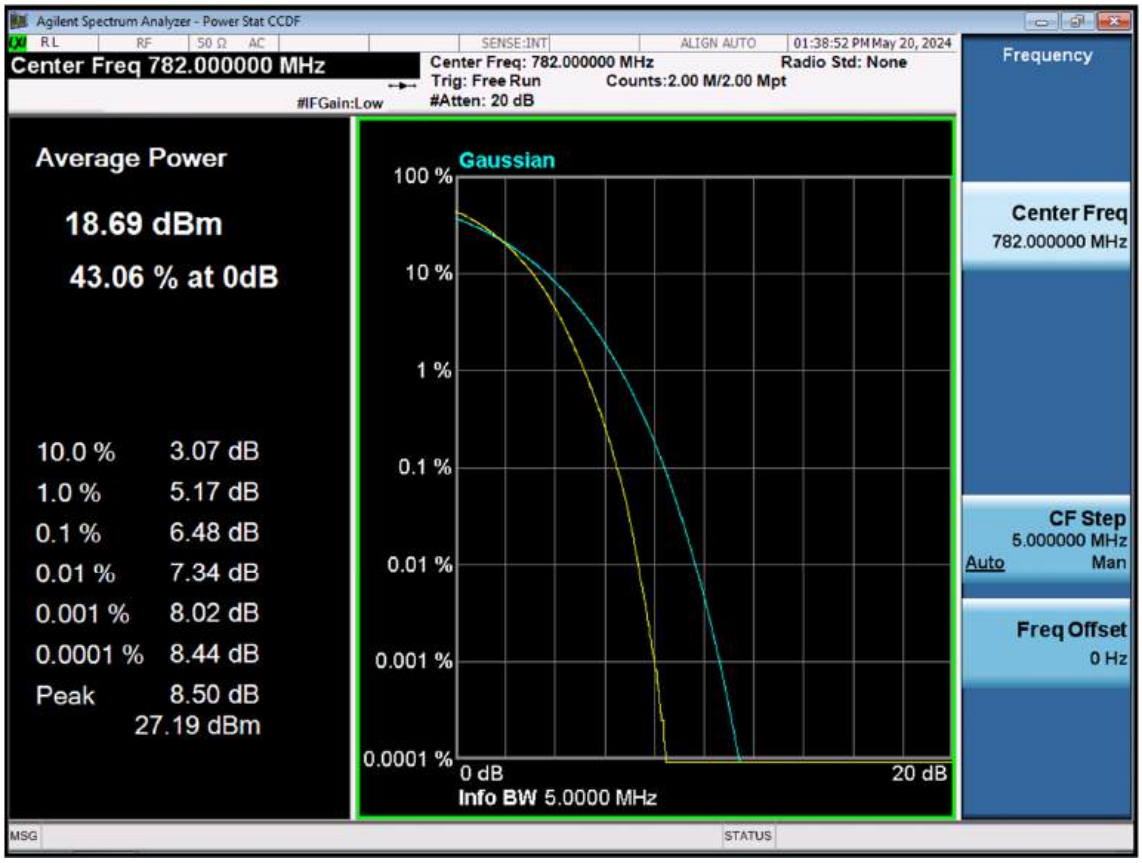
5 M_PAR_Mid Channel_16QAM_FullRB



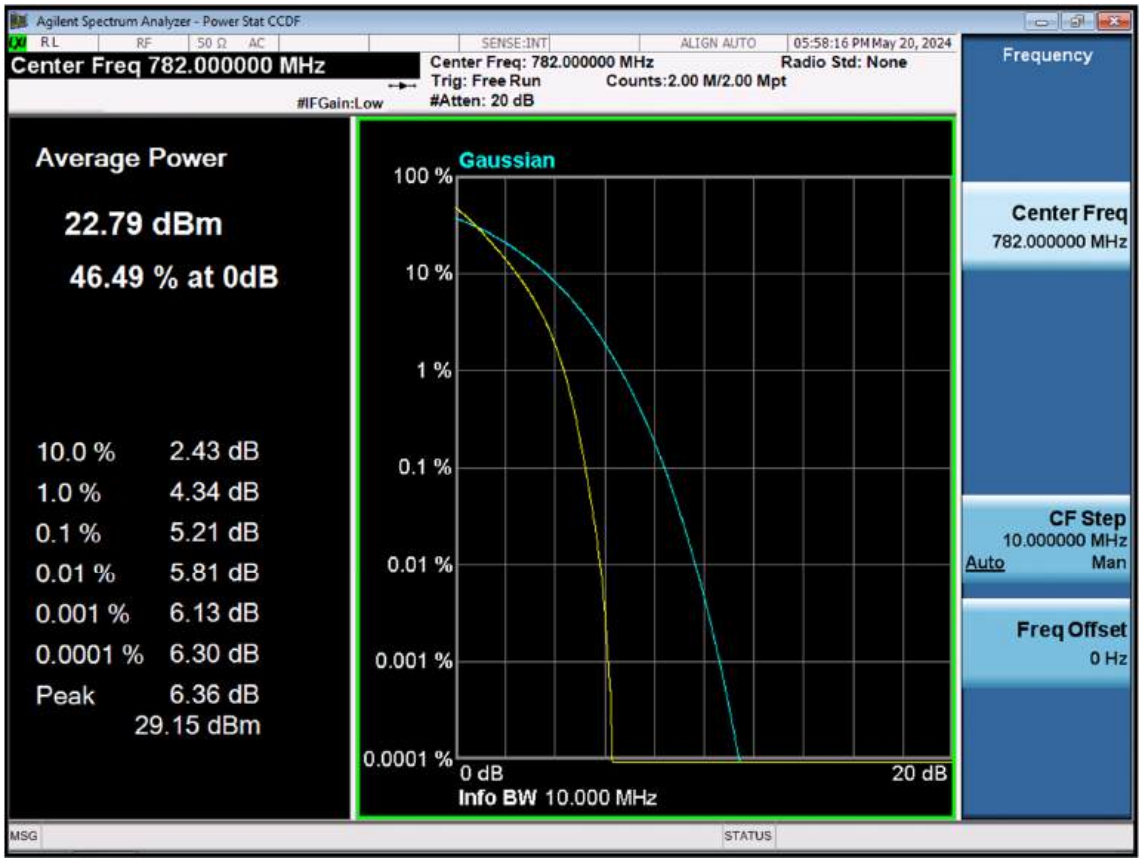
5 M_PAR_Mid Channel_64QAM_FullRB



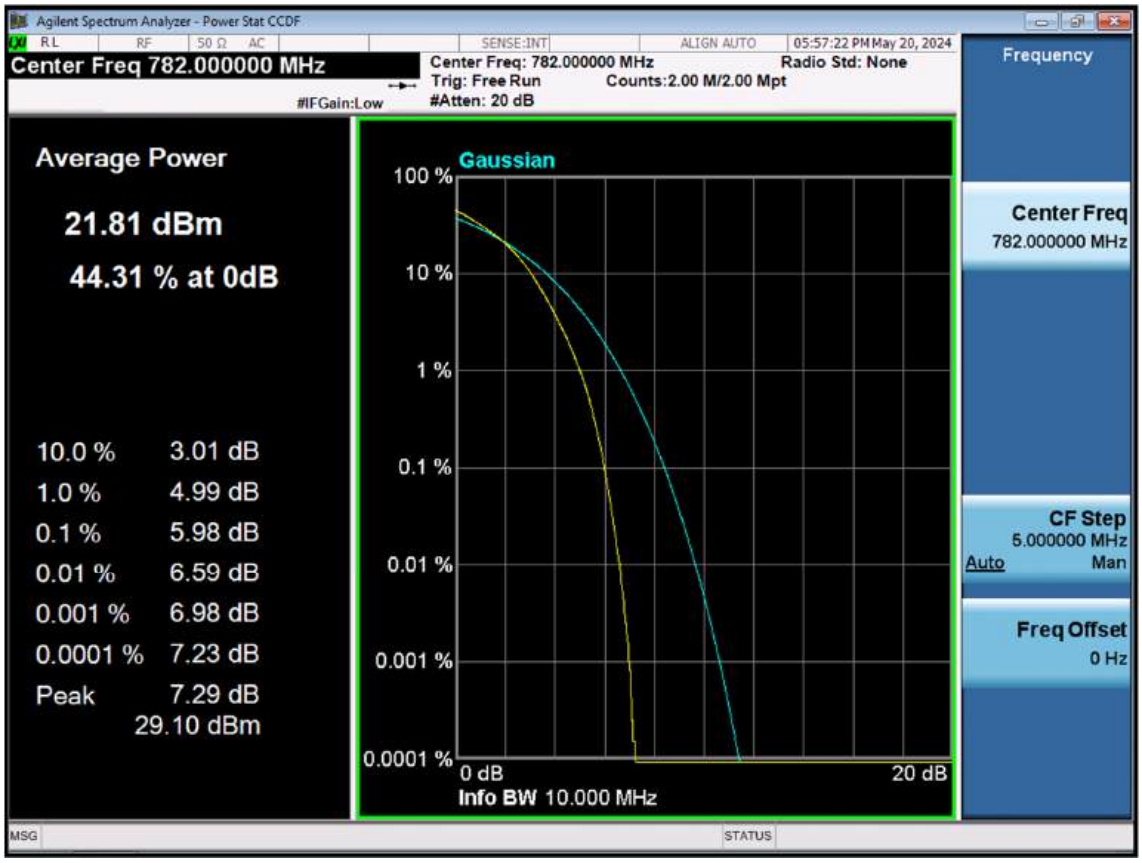
5 M_PAR_Mid Channel_256QAM_FullRB



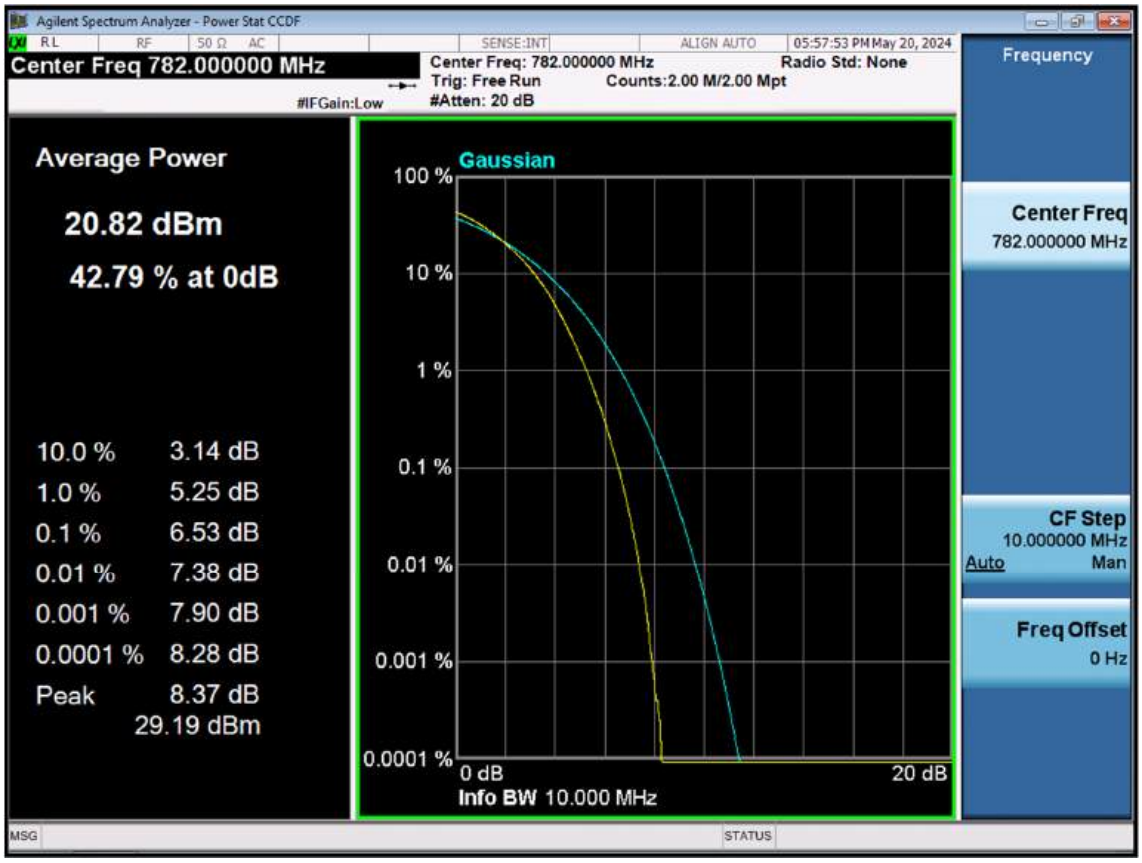
10 M_PAR_Mid Channel_QPSK_FullRB



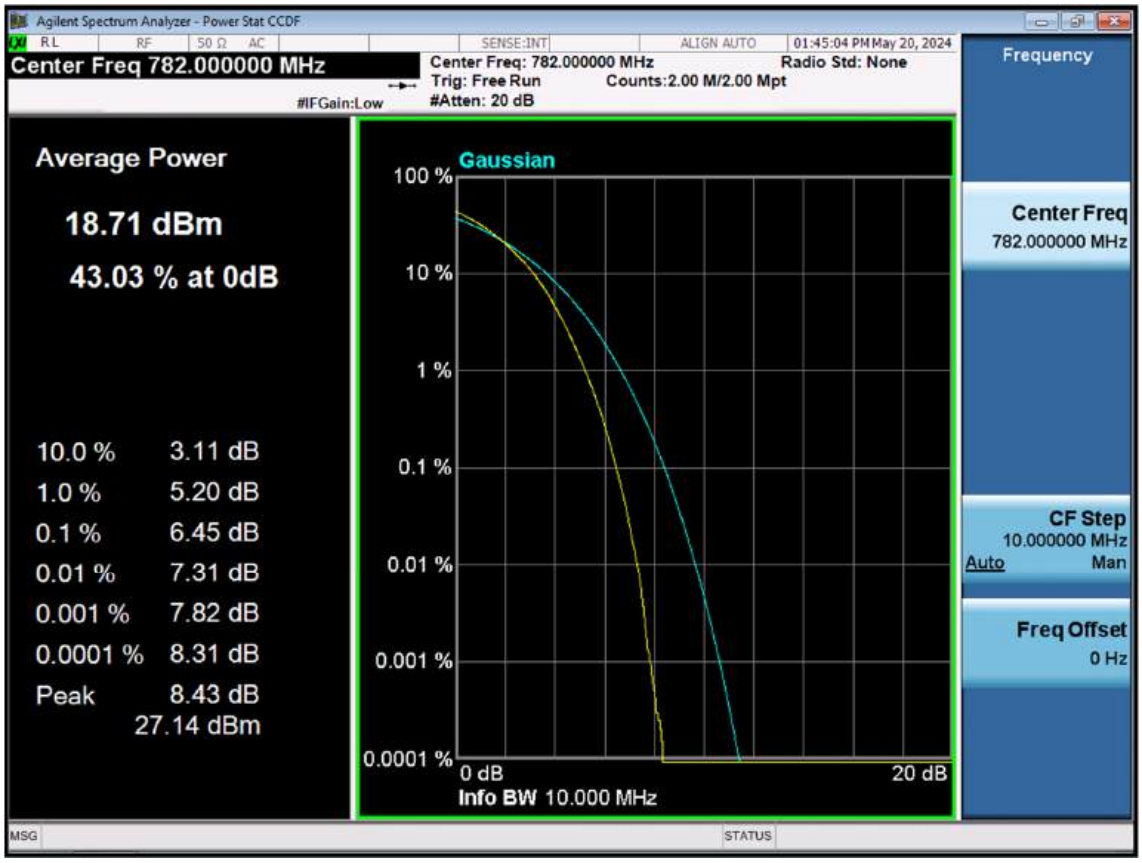
10 M_PAR_Mid Channel_16QAM_FullRB



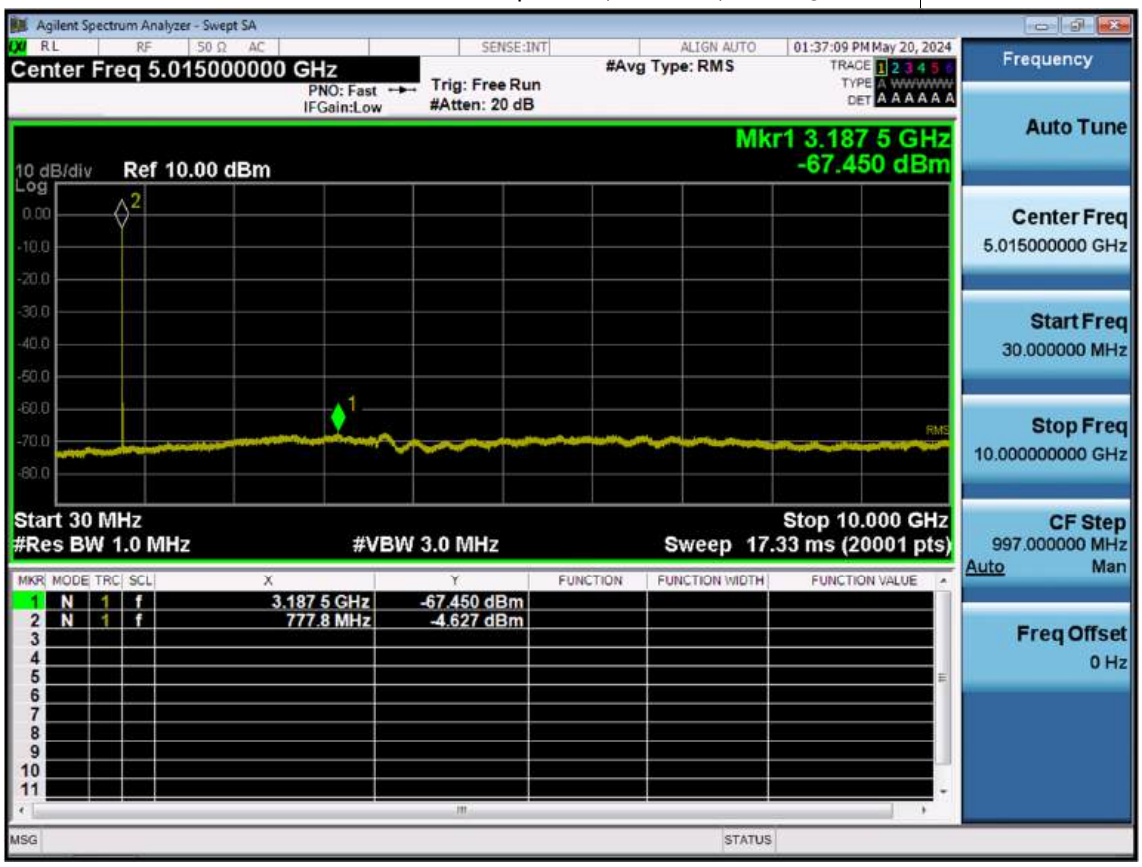
10 M_PAR_Mid Channel_64QAM_FullRB



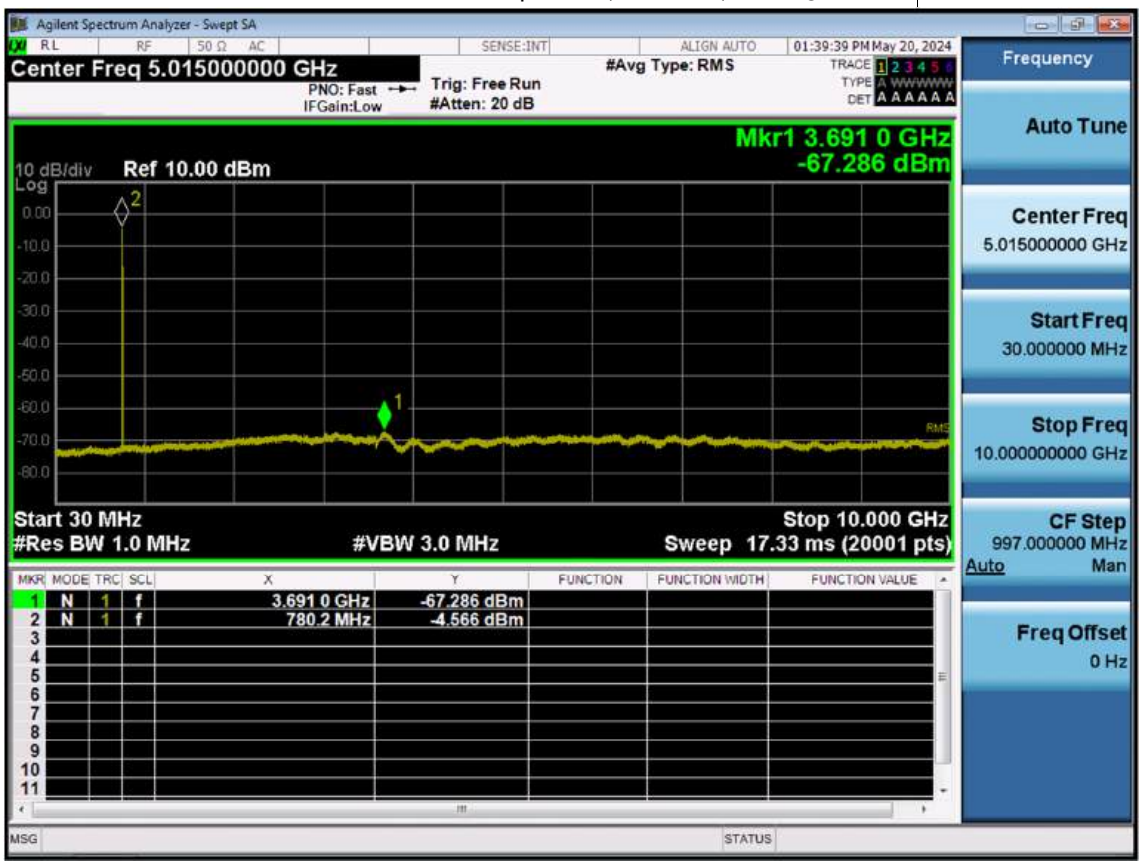
10 M_PAR_Mid Channel_256QAM_FullRB



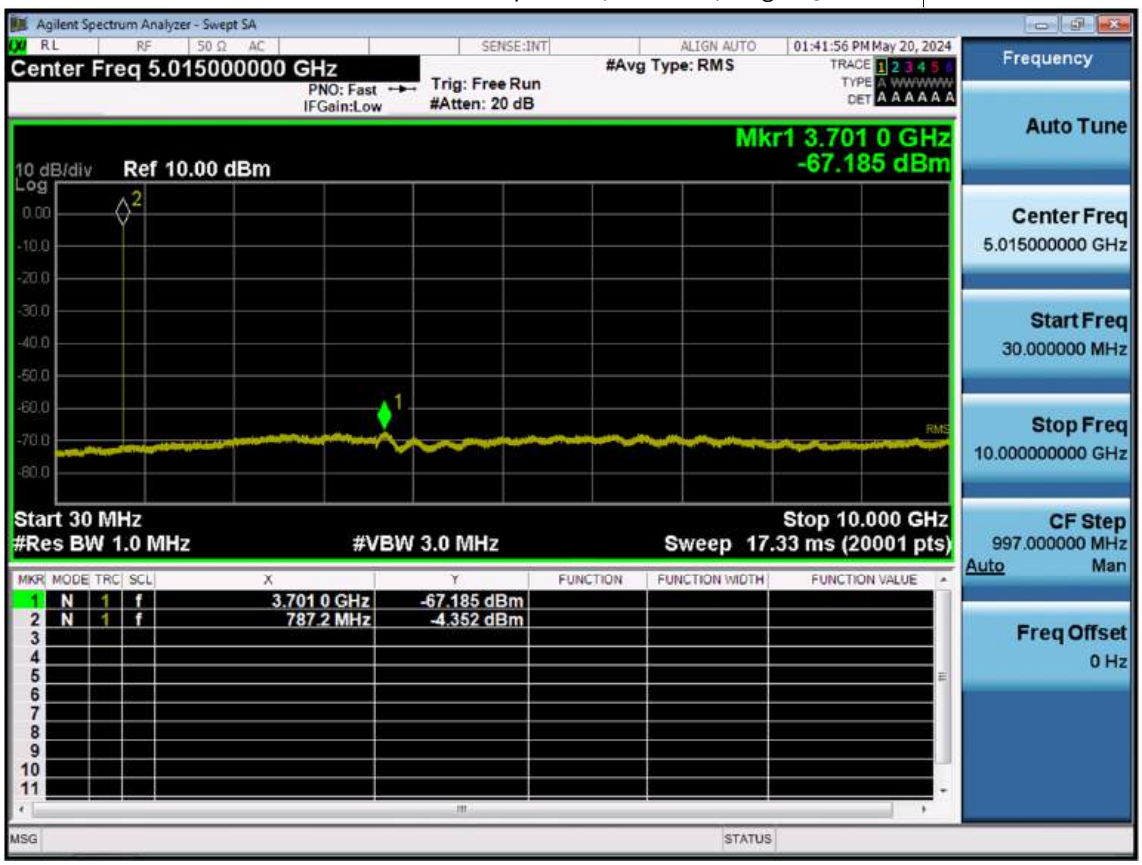
LTE B13_5 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



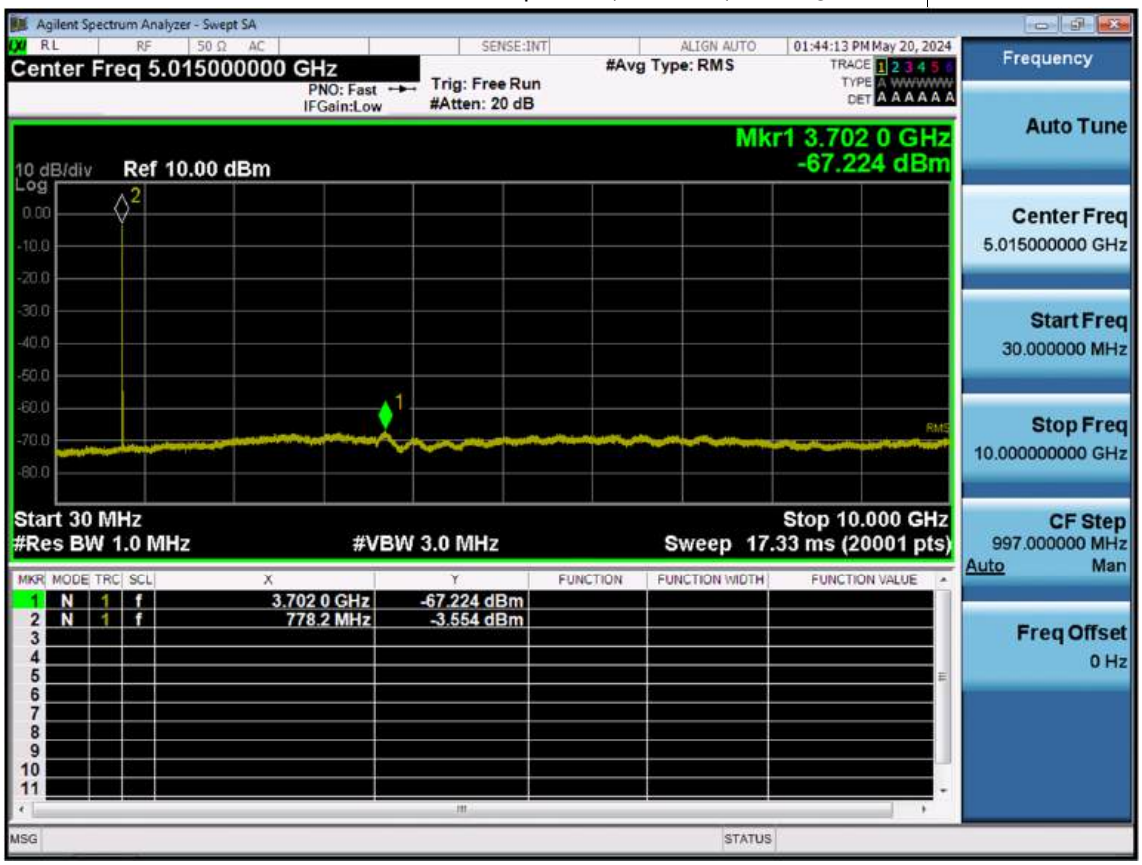
LTE B13_5 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



LTE B13_5 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



LTE B13_10 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



LTE B13_5 M_Band Edge_Low_QPSK_1RB

LTE B13_5 M_Band Edge_Low_QPSK_FullRB

LTE B13_5 M_Extended Band Edge_Low_QPSK_FullRB

LTE B13_5 M_Band Edge_High_QPSK_1RB

LTE B13_5 M_Band Edge_High_QPSK_FullRB

LTE B13_5 M_Extended Band Edge_High_QPSK_FullRB

LTE B13_10 M_Band Edge_Low_QPSK_1RB

LTE B13_10 M_Band Edge_Low_QPSK_FullRB

LTE B13_10 M_Extended Band Edge_Low_QPSK_FullRB

LTE B13_10 M_Band Edge_High_QPSK_1RB

LTE B13_10 M_Band Edge_High_QPSK_FullRB

LTE B13_10 M_Extended Band Edge_High_QPSK_FullRB

11. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2406-FC012-P