

RF TEST REPORT

Applicant	Asiatelco Technologies Co.
FCC ID	XYO-AMA01R
Product	LTE Cellular Module
Brand	ATEL
Model	AMA-01R
Report No.	R2401A0042-R3
Issue Date	February 26, 2024

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2023)/ FCC CFR47 Part 27C (2023)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Zhu Chentao

Approved by: Xu Kai

TA Technology (Shanghai) Co., Ltd.

Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

1	Test Laboratory	4
1.1	Notes of the Test Report	4
1.2.	Test facility	4
1.3	Testing Location	4
2	General Description of Equipment under Test	5
2.1	Applicant and Manufacturer Information	5
2.2	General information	5
3	Applied Standards	6
4	Test Configuration	7
5	Test Case	8
5.1	RF Power Output and Effective Isotropic Radiated Power	8
5.2	Occupied Bandwidth	10
5.3	Band Edge Compliance	11
5.4	Peak-to-Average Power Ratio (PAPR)	13
5.5	Frequency Stability	14
5.6	Spurious Emissions at Antenna Terminals	15
5.7	Radiated Spurious Emission	17
6	Test Results	20
6.1	RF Power Output and Effective Isotropic Radiated Power	20
6.2	Occupied Bandwidth	30
6.3	Band Edge Compliance	42
6.4	Peak-to-Average Power Ratio (PAPR)	56
6.5	Frequency Stability	58
6.6	Spurious Emissions at Antenna Terminals	63
6.7	Radiated Spurious Emission	68
7	Main Test Instruments	71
ANNEX A: The EUT Appearance		72
ANNEX B: Test Setup Photos		73

Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Isotropic Radiated Power	2.1046 27.50(d)(4) 27.50(h)(2)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	27.53(h) 27.53(m)	PASS
4	Peak-to-Average Power Ratio	27.50(d)/KDB971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 27.54	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 27.53(h) 27.53(m)	PASS
7	Radiated Spurious Emission	2.1053 27.53(h) 27.53(m)	PASS

Date of Testing: January 16, 2024 ~ January 27, 2024

Date of Sample Received: January 11, 2024

Note: PASS: The EUT complies with the essential requirements in the standard.

FAIL: The EUT does not comply with the essential requirements in the standard.

All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	https://www.eurofins.com/electrical-and-electronics
E-mail:	Kain.Xu@cpt.eurofinscn.com

2 General Description of Equipment under Test

2.1 Applicant and Manufacturer Information

Applicant	Asiatelco Technologies Co.
Applicant address	#68 HuaTuo Road, Building-8, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201204, China
Manufacturer	Asiatelco Technologies Co.
Manufacturer address	#68 HuaTuo Road, Building-8, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201204, China

2.2 General information

EUT Description			
Model	AMA-01R		
Lab internal SN	R2404A0042/S01		
Hardware Version	p2		
Software Version	v1.002.015		
Power Supply	External power supply		
Antenna Type	External Antenna		
Test Mode(s)	LTE Band 4/7		
Test Modulation	(LTE) QPSK, 16QAM;		
LTE Category	1		
Maximum E.I.R.P./ E.R.P.	LTE Band 4	26.32dBm	
	LTE Band 7	23.95dBm	
Rated Power Supply Voltage	3.8V		
Operating Voltage	Minimum: 3.4V		Maximum: 4.2V
Operating Temperature	Lowest: -20°C		Highest: +55°C
Testing Temperature	Lowest: -30°C		Highest: +50°C
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 7	2500 ~ 2570	2620 ~ 2690
Auxiliary Test Equipment			
Antenna	Manufacturer:	Asiatelco Technologies Co.	
	Model:	N12-7088-ROA	
	Gain:	LTE Band 4: 3.83 dBi LTE Band 7: 2.37 dBi	
Note:			
1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			

3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 27C (2023)

FCC CFR47 Part 2 (2023)

Reference standard:

ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

4 Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (vertical), lie-down position (horizontal). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (vertical , vertical polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

The following testing in LTE is set based on the maximum RF Output Power.

The following testing in different Bandwidth is set to detail in the following table:

Test modes are chosen to be reported as the worst case configuration below for LTE Band 4/7:

Test items	Modes	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
RF Power Output and Effective Isotropic radiated Power	LTE 4	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 4	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 4	O	O	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 7	-	-	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 4	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 4	O	O	O	O	O	O	O	O	O	-	-	-	O	-
	LTE 7	-	-	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	LTE 4	O	O	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 7	-	-	O	O	O	O	O	-	O	-	-	O	O	O
Radiated Spurious Emission	LTE 4	O	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 7	-	-	O	-	-	O	O	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.														

5 Test Case

5.1 RF Power Output and Effective Isotropic Radiated Power

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

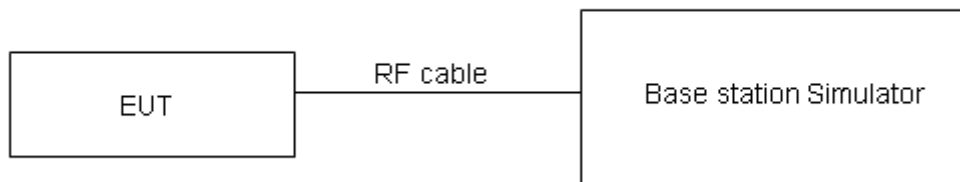
During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:

$EIRP \text{ (dBm)} = \text{Output Power (dBm)} + \text{Antenna Gain (dBi)}$

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

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 27.50(d) (4) specifies that “Fixed, mobile and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”

Rule Part 27.50(h) (2) specifies that “Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.”

Part 27.50(d)(4)Limit	$\leq 1 \text{ W}$ (30 dBm)
Part 27.50(h)(2) Limit	$\leq 2 \text{ W}$ (33 dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U=0.4$ dB for RF power output, $k = 2$, $U= 1.19$ dB for ERP/EIRP.

Test Results

Refer to the section 6.1 of this report for test data.

5.2 Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

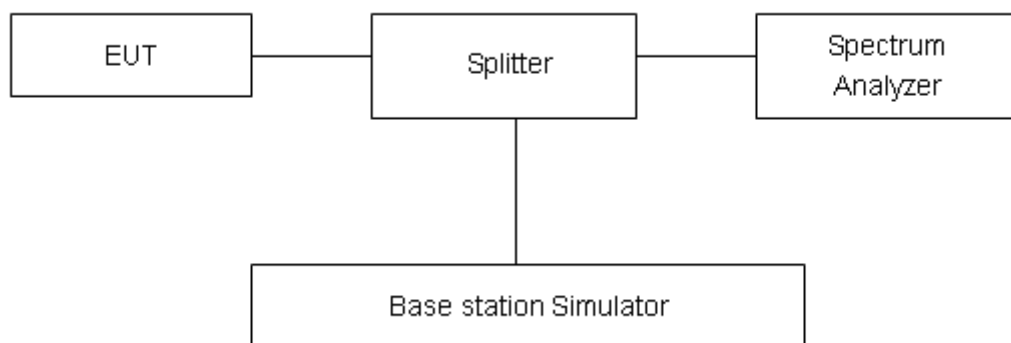
Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to $\geq 1\%EBW$, VBW is set to 3x RBW.

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U=624\text{Hz}$.

Test Results

Refer to the section 6.2 of this report for test data.

5.3 Band Edge Compliance

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured.

The testing follows KDB 971168 D01 v03r01 Section 6.0

The EUT was connected to spectrum analyzer and system simulator via a power divider.

The band edges of low and high channels for the highest RF powers were measured.

For LTE Band 7 set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.

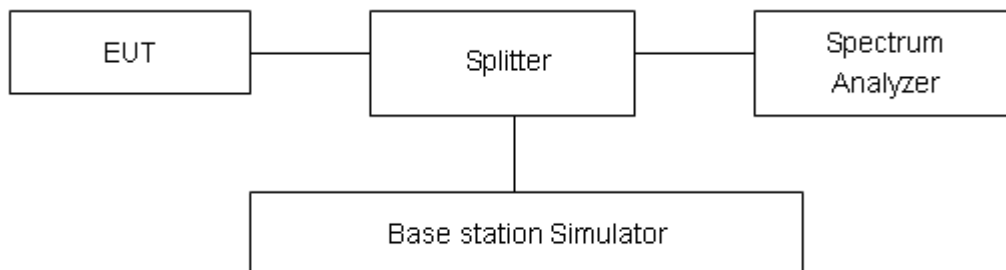
RBW is set to $\geq 1\%$ EBW, VBW is set to 3x RBW on spectrum analyzer.

Set spectrum analyzer with RMS detector.

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

Checked that all the results comply with the emission limit line.

Test Setup



Limits

Rule Part 27.53(i) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz.

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB”

Rule Part 27.53(m) (4) specifies that “for BRS and EBS stations. For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual

emission bandwidth as defined in paragraph (m)(4) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Example:

The limit line is derived from $43 + 10 \log (P)$ dB below the transmitter power P (Watts)

$= P(W) - [43 + 10 \log (P)]$ (dB)

$= [30 + 10 \log (P)]$ (dBm) - $[43 + 10 \log (P)]$ (dB) = -13dBm.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684$ dB.

Test Results

Refer to the section 6.3 of this report for test data.

5.4 Peak-to-Average Power Ratio (PAPR)

Ambient condition

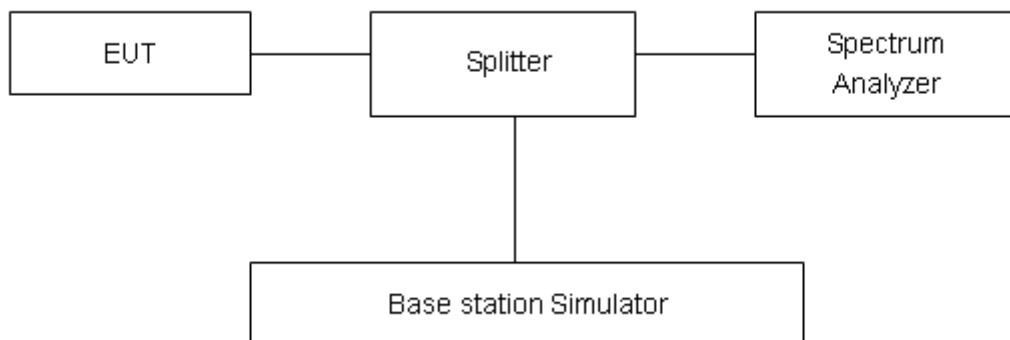
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

Measure the total peak power and record as PPK. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

Test Setup



Limits

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

Test Results

Refer to the section 6.4 of this report for test data.

5.5 Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size.

(1) With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

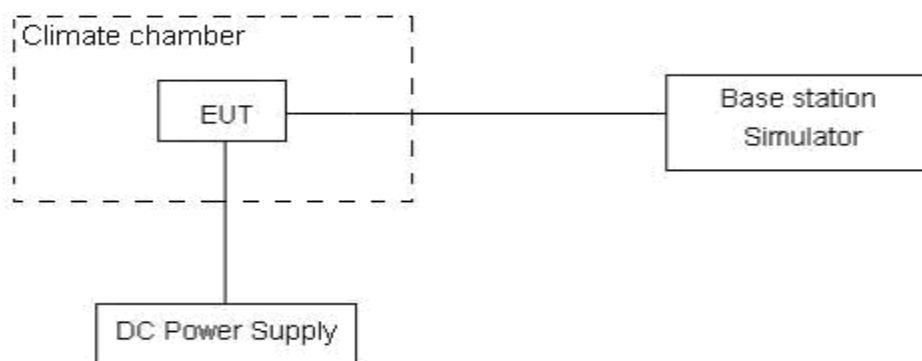
Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.4 V and 4.2 V, with a nominal voltage of 3.8V.

Test setup



Limits

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

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3$, $U = 0.01\text{ppm}$.

Test Results

Refer to the section 6.5 of this report for test data.

5.6 Spurious Emissions at Antenna Terminals

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

RBW is set to 100 kHz (30MHz~1000 MHz)

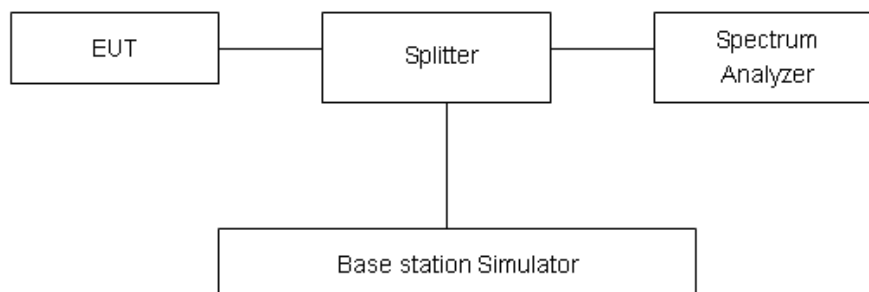
RBW is set to 1000 kHz (above 1000MHz)

Sweep is set to AUTO.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB..”

Rule Part 27.53(m) $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

Part 27.53(h)/(g) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-26.5GHz	1.407 dB

Test Results

Refer to the section 6.6 of this report for test data.

5.7 Radiated Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

- The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26-2015.
- Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
- A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100kHz, VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, and the maximum value of the receiver should be recorded as (Pr).
- The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
- A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAG) should be recorded after test.
- The measurement results are obtained as described below:

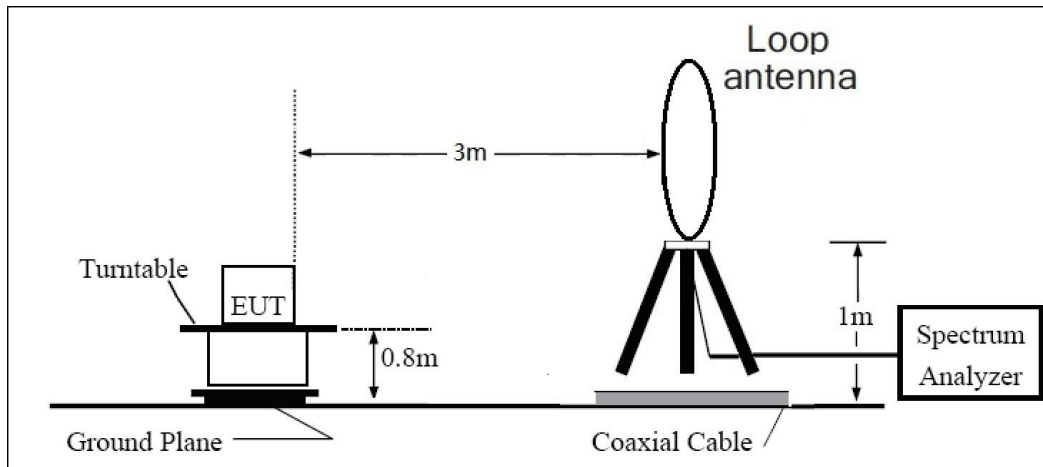
$$\text{Power(EIRP)} = \text{PMea} - \text{PAG} - \text{Pcl} + \text{Ga}$$
The measurement results are amend as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dB}$.

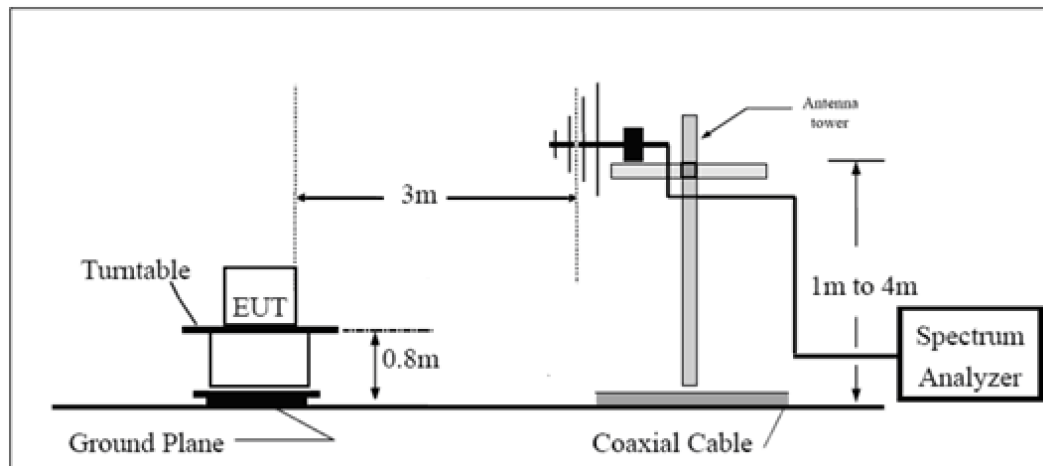
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

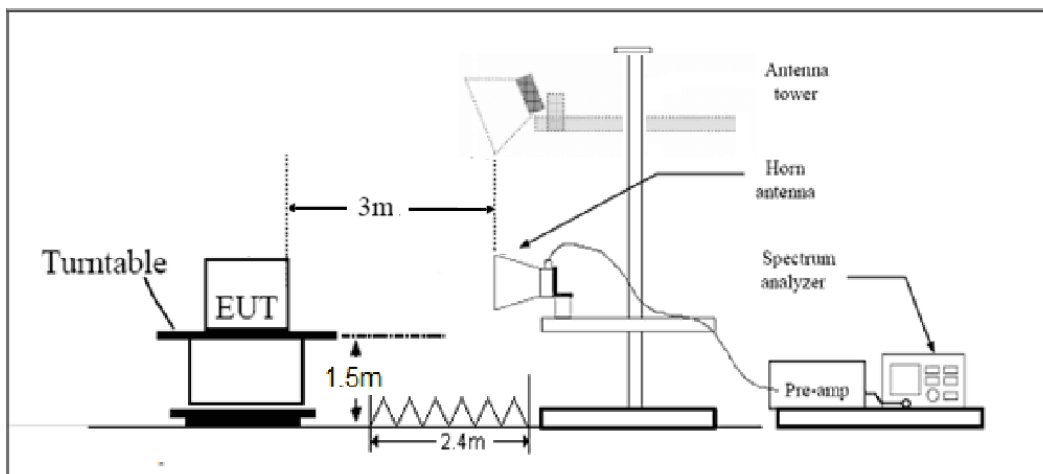
9KHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.”

Rule Part 27.53(m) $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

Part 27.53 (h)/(g) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = \pm 1.96$, $U = \pm 3.55$ dB.

Test Results

Refer to the section 6.7 of this report for test data.

6 Test Results

6.1 RF Power Output and Effective Isotropic Radiated Power

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	EIRP (dBm)
LTE Band4	1.4	19957	1	#0	QPSK	22.31	26.14
LTE Band4	1.4	19957	1	#Mid	QPSK	22.18	26.01
LTE Band4	1.4	19957	1	#Max	QPSK	22.28	26.11
LTE Band4	1.4	19957	3	#0	QPSK	22.03	25.86
LTE Band4	1.4	19957	3	#Mid	QPSK	22.03	25.86
LTE Band4	1.4	19957	3	#Max	QPSK	22.05	25.88
LTE Band4	1.4	19957	6	#0	QPSK	21.14	24.97
LTE Band4	1.4	19957	1	#0	16QAM	21.20	25.03
LTE Band4	1.4	19957	1	#Mid	16QAM	21.15	24.98
LTE Band4	1.4	19957	1	#Max	16QAM	21.32	25.15
LTE Band4	1.4	19957	3	#0	16QAM	21.30	25.13
LTE Band4	1.4	19957	3	#Mid	16QAM	21.30	25.13
LTE Band4	1.4	19957	3	#Max	16QAM	21.33	25.16
LTE Band4	1.4	19957	6	#0	16QAM	20.25	24.08
LTE Band4	1.4	20175	1	#0	QPSK	22.46	26.29
LTE Band4	1.4	20175	1	#Mid	QPSK	22.36	26.19
LTE Band4	1.4	20175	1	#Max	QPSK	22.49	26.32
LTE Band4	1.4	20175	3	#0	QPSK	22.39	26.22
LTE Band4	1.4	20175	3	#Mid	QPSK	22.39	26.22
LTE Band4	1.4	20175	3	#Max	QPSK	22.36	26.19
LTE Band4	1.4	20175	6	#0	QPSK	21.43	25.26
LTE Band4	1.4	20175	1	#0	16QAM	21.73	25.56
LTE Band4	1.4	20175	1	#Mid	16QAM	21.57	25.40
LTE Band4	1.4	20175	1	#Max	16QAM	21.76	25.59
LTE Band4	1.4	20175	3	#0	16QAM	21.44	25.27
LTE Band4	1.4	20175	3	#Mid	16QAM	21.49	25.32
LTE Band4	1.4	20175	3	#Max	16QAM	21.43	25.26
LTE Band4	1.4	20175	6	#0	16QAM	20.50	24.33
LTE Band4	1.4	20393	1	#0	QPSK	22.24	26.07
LTE Band4	1.4	20393	1	#Mid	QPSK	22.18	26.01
LTE Band4	1.4	20393	1	#Max	QPSK	22.31	26.14
LTE Band4	1.4	20393	3	#0	QPSK	22.12	25.95
LTE Band4	1.4	20393	3	#Mid	QPSK	22.11	25.94
LTE Band4	1.4	20393	3	#Max	QPSK	22.11	25.94
LTE Band4	1.4	20393	6	#0	QPSK	21.14	24.97
LTE Band4	1.4	20393	1	#0	16QAM	21.11	24.94

LTE Band4	1.4	20393	1	#Mid	16QAM	21.06	24.89
LTE Band4	1.4	20393	1	#Max	16QAM	21.18	25.01
LTE Band4	1.4	20393	3	#0	16QAM	21.08	24.91
LTE Band4	1.4	20393	3	#Mid	16QAM	21.08	24.91
LTE Band4	1.4	20393	3	#Max	16QAM	21.13	24.96
LTE Band4	1.4	20393	6	#0	16QAM	20.19	24.02
LTE Band4	3	19965	1	#0	QPSK	22.02	25.85
LTE Band4	3	19965	1	#Mid	QPSK	22.02	25.85
LTE Band4	3	19965	1	#Max	QPSK	22.02	25.85
LTE Band4	3	19965	8	#0	QPSK	21.13	24.96
LTE Band4	3	19965	8	#Mid	QPSK	21.13	24.96
LTE Band4	3	19965	8	#Max	QPSK	21.15	24.98
LTE Band4	3	19965	15	#0	QPSK	21.17	25.00
LTE Band4	3	19965	1	#0	16QAM	21.34	25.17
LTE Band4	3	19965	1	#Mid	16QAM	21.40	25.23
LTE Band4	3	19965	1	#Max	16QAM	21.37	25.20
LTE Band4	3	19965	8	#0	16QAM	20.19	24.02
LTE Band4	3	19965	8	#Mid	16QAM	20.20	24.03
LTE Band4	3	19965	8	#Max	16QAM	20.22	24.05
LTE Band4	3	19965	15	#0	16QAM	20.18	24.01
LTE Band4	3	20175	1	#0	QPSK	22.41	26.24
LTE Band4	3	20175	1	#Mid	QPSK	22.40	26.23
LTE Band4	3	20175	1	#Max	QPSK	22.32	26.15
LTE Band4	3	20175	8	#0	QPSK	21.41	25.24
LTE Band4	3	20175	8	#Mid	QPSK	21.42	25.25
LTE Band4	3	20175	8	#Max	QPSK	21.38	25.21
LTE Band4	3	20175	15	#0	QPSK	21.40	25.23
LTE Band4	3	20175	1	#0	16QAM	21.58	25.41
LTE Band4	3	20175	1	#Mid	16QAM	21.58	25.41
LTE Band4	3	20175	1	#Max	16QAM	21.50	25.33
LTE Band4	3	20175	8	#0	16QAM	20.53	24.36
LTE Band4	3	20175	8	#Mid	16QAM	20.54	24.37
LTE Band4	3	20175	8	#Max	16QAM	20.50	24.33
LTE Band4	3	20175	15	#0	16QAM	20.45	24.28
LTE Band4	3	20385	1	#0	QPSK	22.00	25.83
LTE Band4	3	20385	1	#Mid	QPSK	22.06	25.89
LTE Band4	3	20385	1	#Max	QPSK	22.11	25.94
LTE Band4	3	20385	8	#0	QPSK	20.97	24.80
LTE Band4	3	20385	8	#Mid	QPSK	20.97	24.80
LTE Band4	3	20385	8	#Max	QPSK	21.08	24.91
LTE Band4	3	20385	15	#0	QPSK	21.09	24.92
LTE Band4	3	20385	1	#0	16QAM	20.79	24.62
LTE Band4	3	20385	1	#Mid	16QAM	20.98	24.81

LTE Band4	3	20385	1	#Max	16QAM	21.01	24.84
LTE Band4	3	20385	8	#0	16QAM	20.02	23.85
LTE Band4	3	20385	8	#Mid	16QAM	20.03	23.86
LTE Band4	3	20385	8	#Max	16QAM	20.14	23.97
LTE Band4	3	20385	15	#0	16QAM	20.17	24.00
LTE Band4	5	19975	1	#0	QPSK	22.00	25.83
LTE Band4	5	19975	1	#Mid	QPSK	22.15	25.98
LTE Band4	5	19975	1	#Max	QPSK	22.10	25.93
LTE Band4	5	19975	12	#0	QPSK	21.03	24.86
LTE Band4	5	19975	12	#Mid	QPSK	21.03	24.86
LTE Band4	5	19975	12	#Max	QPSK	21.19	25.02
LTE Band4	5	19975	25	#0	QPSK	21.22	25.05
LTE Band4	5	19975	1	#0	16QAM	21.30	25.13
LTE Band4	5	19975	1	#Mid	16QAM	21.51	25.34
LTE Band4	5	19975	1	#Max	16QAM	21.48	25.31
LTE Band4	5	19975	12	#0	16QAM	20.08	23.91
LTE Band4	5	19975	12	#Mid	16QAM	20.05	23.88
LTE Band4	5	19975	12	#Max	16QAM	20.21	24.04
LTE Band4	5	19975	25	#0	16QAM	20.24	24.07
LTE Band4	5	20175	1	#0	QPSK	22.33	26.16
LTE Band4	5	20175	1	#Mid	QPSK	22.39	26.22
LTE Band4	5	20175	1	#Max	QPSK	22.26	26.09
LTE Band4	5	20175	12	#0	QPSK	21.41	25.24
LTE Band4	5	20175	12	#Mid	QPSK	21.42	25.25
LTE Band4	5	20175	12	#Max	QPSK	21.38	25.21
LTE Band4	5	20175	25	#0	QPSK	21.37	25.20
LTE Band4	5	20175	1	#0	16QAM	21.54	25.37
LTE Band4	5	20175	1	#Mid	16QAM	21.63	25.46
LTE Band4	5	20175	1	#Max	16QAM	21.51	25.34
LTE Band4	5	20175	12	#0	16QAM	20.48	24.31
LTE Band4	5	20175	12	#Mid	16QAM	20.50	24.33
LTE Band4	5	20175	12	#Max	16QAM	20.46	24.29
LTE Band4	5	20175	25	#0	16QAM	20.50	24.33
LTE Band4	5	20375	1	#0	QPSK	21.85	25.68
LTE Band4	5	20375	1	#Mid	QPSK	21.93	25.76
LTE Band4	5	20375	1	#Max	QPSK	21.96	25.79
LTE Band4	5	20375	12	#0	QPSK	20.88	24.71
LTE Band4	5	20375	12	#Mid	QPSK	20.88	24.71
LTE Band4	5	20375	12	#Max	QPSK	20.99	24.82
LTE Band4	5	20375	25	#0	QPSK	20.97	24.80
LTE Band4	5	20375	1	#0	16QAM	21.02	24.85
LTE Band4	5	20375	1	#Mid	16QAM	21.20	25.03
LTE Band4	5	20375	1	#Max	16QAM	21.26	25.09

LTE Band4	5	20375	12	#0	16QAM	19.96	23.79
LTE Band4	5	20375	12	#Mid	16QAM	19.98	23.81
LTE Band4	5	20375	12	#Max	16QAM	20.10	23.93
LTE Band4	5	20375	25	#0	16QAM	20.02	23.85
LTE Band4	10	20000	1	#0	QPSK	21.68	25.51
LTE Band4	10	20000	1	#Mid	QPSK	21.99	25.82
LTE Band4	10	20000	1	#Max	QPSK	21.86	25.69
LTE Band4	10	20000	25	#0	QPSK	20.84	24.67
LTE Band4	10	20000	25	#Mid	QPSK	20.84	24.67
LTE Band4	10	20000	25	#Max	QPSK	20.90	24.73
LTE Band4	10	20000	50	#0	QPSK	20.88	24.71
LTE Band4	10	20000	1	#0	16QAM	20.97	24.80
LTE Band4	10	20000	1	#Mid	16QAM	21.38	25.21
LTE Band4	10	20000	1	#Max	16QAM	21.27	25.10
LTE Band4	10	20000	25	#0	16QAM	19.97	23.80
LTE Band4	10	20000	25	#Mid	16QAM	19.93	23.76
LTE Band4	10	20000	25	#Max	16QAM	20.05	23.88
LTE Band4	10	20000	50	#0	16QAM	19.93	23.76
LTE Band4	10	20175	1	#0	QPSK	22.06	25.89
LTE Band4	10	20175	1	#Mid	QPSK	22.20	26.03
LTE Band4	10	20175	1	#Max	QPSK	21.89	25.72
LTE Band4	10	20175	25	#0	QPSK	21.08	24.91
LTE Band4	10	20175	25	#Mid	QPSK	21.09	24.92
LTE Band4	10	20175	25	#Max	QPSK	21.03	24.86
LTE Band4	10	20175	50	#0	QPSK	21.08	24.91
LTE Band4	10	20175	1	#0	16QAM	21.25	25.08
LTE Band4	10	20175	1	#Mid	16QAM	21.43	25.26
LTE Band4	10	20175	1	#Max	16QAM	21.10	24.93
LTE Band4	10	20175	25	#0	16QAM	20.23	24.06
LTE Band4	10	20175	25	#Mid	16QAM	20.24	24.07
LTE Band4	10	20175	25	#Max	16QAM	20.17	24.00
LTE Band4	10	20175	50	#0	16QAM	20.19	24.02
LTE Band4	10	20350	1	#0	QPSK	21.61	25.44
LTE Band4	10	20350	1	#Mid	QPSK	21.81	25.64
LTE Band4	10	20350	1	#Max	QPSK	21.77	25.60
LTE Band4	10	20350	25	#0	QPSK	20.54	24.37
LTE Band4	10	20350	25	#Mid	QPSK	20.55	24.38
LTE Band4	10	20350	25	#Max	QPSK	20.64	24.47
LTE Band4	10	20350	50	#0	QPSK	20.64	24.47
LTE Band4	10	20350	1	#0	16QAM	20.42	24.25
LTE Band4	10	20350	1	#Mid	16QAM	20.71	24.54
LTE Band4	10	20350	1	#Max	16QAM	20.64	24.47
LTE Band4	10	20350	25	#0	16QAM	19.56	23.39

LTE Band4	10	20350	25	#Mid	16QAM	19.58	23.41
LTE Band4	10	20350	25	#Max	16QAM	19.70	23.53
LTE Band4	10	20350	50	#0	16QAM	19.70	23.53
LTE Band4	15	20025	1	#0	QPSK	21.87	25.70
LTE Band4	15	20025	1	#Mid	QPSK	22.17	26.00
LTE Band4	15	20025	1	#Max	QPSK	22.16	25.99
LTE Band4	15	20025	36	#0	QPSK	21.01	24.84
LTE Band4	15	20025	36	#Mid	QPSK	21.00	24.83
LTE Band4	15	20025	36	#Max	QPSK	21.19	25.02
LTE Band4	15	20025	75	#0	QPSK	21.14	24.97
LTE Band4	15	20025	1	#0	16QAM	21.15	24.98
LTE Band4	15	20025	1	#Mid	16QAM	21.54	25.37
LTE Band4	15	20025	1	#Max	16QAM	21.53	25.36
LTE Band4	15	20025	36	#0	16QAM	20.14	23.97
LTE Band4	15	20025	36	#Mid	16QAM	20.14	23.97
LTE Band4	15	20025	36	#Max	16QAM	20.37	24.20
LTE Band4	15	20025	75	#0	16QAM	20.27	24.10
LTE Band4	15	20175	1	#0	QPSK	22.20	26.03
LTE Band4	15	20175	1	#Mid	QPSK	22.30	26.13
LTE Band4	15	20175	1	#Max	QPSK	21.89	25.72
LTE Band4	15	20175	36	#0	QPSK	21.25	25.08
LTE Band4	15	20175	36	#Mid	QPSK	21.21	25.04
LTE Band4	15	20175	36	#Max	QPSK	21.12	24.95
LTE Band4	15	20175	75	#0	QPSK	21.16	24.99
LTE Band4	15	20175	1	#0	16QAM	21.37	25.20
LTE Band4	15	20175	1	#Mid	16QAM	21.48	25.31
LTE Band4	15	20175	1	#Max	16QAM	21.12	24.95
LTE Band4	15	20175	36	#0	16QAM	20.32	24.15
LTE Band4	15	20175	36	#Mid	16QAM	20.34	24.17
LTE Band4	15	20175	36	#Max	16QAM	20.24	24.07
LTE Band4	15	20175	75	#0	16QAM	20.29	24.12
LTE Band4	15	20325	1	#0	QPSK	21.88	25.71
LTE Band4	15	20325	1	#Mid	QPSK	21.87	25.70
LTE Band4	15	20325	1	#Max	QPSK	21.89	25.72
LTE Band4	15	20325	36	#0	QPSK	20.78	24.61
LTE Band4	15	20325	36	#Mid	QPSK	20.80	24.63
LTE Band4	15	20325	36	#Max	QPSK	20.86	24.69
LTE Band4	15	20325	75	#0	QPSK	20.86	24.69
LTE Band4	15	20325	1	#0	16QAM	20.86	24.69
LTE Band4	15	20325	1	#Mid	16QAM	20.90	24.73
LTE Band4	15	20325	1	#Max	16QAM	20.99	24.82
LTE Band4	15	20325	36	#0	16QAM	19.83	23.66
LTE Band4	15	20325	36	#Mid	16QAM	19.86	23.69

LTE Band4	15	20325	36	#Max	16QAM	19.90	23.73
LTE Band4	15	20325	75	#0	16QAM	19.93	23.76
LTE Band4	20	20050	1	#0	QPSK	21.79	25.62
LTE Band4	20	20050	1	#Mid	QPSK	22.14	25.97
LTE Band4	20	20050	1	#Max	QPSK	22.05	25.88
LTE Band4	20	20050	50	#0	QPSK	20.97	24.80
LTE Band4	20	20050	50	#Mid	QPSK	20.96	24.79
LTE Band4	20	20050	50	#Max	QPSK	21.10	24.93
LTE Band4	20	20050	100	#0	QPSK	21.10	24.93
LTE Band4	20	20050	1	#0	16QAM	21.01	24.84
LTE Band4	20	20050	1	#Mid	16QAM	21.46	25.29
LTE Band4	20	20050	1	#Max	16QAM	21.32	25.15
LTE Band4	20	20050	50	#0	16QAM	20.06	23.89
LTE Band4	20	20050	50	#Mid	16QAM	20.06	23.89
LTE Band4	20	20050	50	#Max	16QAM	20.33	24.16
LTE Band4	20	20050	100	#0	16QAM	20.32	24.15
LTE Band4	20	20175	1	#0	QPSK	22.29	26.12
LTE Band4	20	20175	1	#Mid	QPSK	22.35	26.18
LTE Band4	20	20175	1	#Max	QPSK	21.82	25.65
LTE Band4	20	20175	50	#0	QPSK	21.14	24.97
LTE Band4	20	20175	50	#Mid	QPSK	21.15	24.98
LTE Band4	20	20175	50	#Max	QPSK	21.02	24.85
LTE Band4	20	20175	100	#0	QPSK	21.05	24.88
LTE Band4	20	20175	1	#0	16QAM	21.12	24.95
LTE Band4	20	20175	1	#Mid	16QAM	21.23	25.06
LTE Band4	20	20175	1	#Max	16QAM	20.72	24.55
LTE Band4	20	20175	50	#0	16QAM	20.23	24.06
LTE Band4	20	20175	50	#Mid	16QAM	20.24	24.07
LTE Band4	20	20175	50	#Max	16QAM	20.06	23.89
LTE Band4	20	20175	100	#0	16QAM	20.19	24.02
LTE Band4	20	20300	1	#0	QPSK	22.06	25.89
LTE Band4	20	20300	1	#Mid	QPSK	21.87	25.70
LTE Band4	20	20300	1	#Max	QPSK	21.82	25.65
LTE Band4	20	20300	50	#0	QPSK	20.72	24.55
LTE Band4	20	20300	50	#Mid	QPSK	20.75	24.58
LTE Band4	20	20300	50	#Max	QPSK	20.78	24.61
LTE Band4	20	20300	100	#0	QPSK	20.77	24.60
LTE Band4	20	20300	1	#0	16QAM	20.80	24.63
LTE Band4	20	20300	1	#Mid	16QAM	20.71	24.54
LTE Band4	20	20300	1	#Max	16QAM	20.62	24.45
LTE Band4	20	20300	50	#0	16QAM	19.87	23.70
LTE Band4	20	20300	50	#Mid	16QAM	19.90	23.73
LTE Band4	20	20300	50	#Max	16QAM	19.89	23.72

LTE Band4	20	20300	100	#0	16QAM	19.91	23.74
-----------	----	-------	-----	----	-------	-------	-------

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	EIRP (dBm)
LTE Band7	5	20775	1	#0	QPSK	21.33	23.70
LTE Band7	5	20775	1	#Mid	QPSK	21.58	23.95
LTE Band7	5	20775	1	#Max	QPSK	21.52	23.89
LTE Band7	5	20775	12	#0	QPSK	20.60	22.97
LTE Band7	5	20775	12	#Mid	QPSK	20.60	22.97
LTE Band7	5	20775	12	#Max	QPSK	20.67	23.04
LTE Band7	5	20775	25	#0	QPSK	20.60	22.97
LTE Band7	5	20775	1	#0	16QAM	20.59	22.96
LTE Band7	5	20775	1	#Mid	16QAM	20.78	23.15
LTE Band7	5	20775	1	#Max	16QAM	20.74	23.11
LTE Band7	5	20775	12	#0	16QAM	19.50	21.87
LTE Band7	5	20775	12	#Mid	16QAM	19.52	21.89
LTE Band7	5	20775	12	#Max	16QAM	19.58	21.95
LTE Band7	5	20775	25	#0	16QAM	19.58	21.95
LTE Band7	5	21100	1	#0	QPSK	21.18	23.55
LTE Band7	5	21100	1	#Mid	QPSK	21.15	23.52
LTE Band7	5	21100	1	#Max	QPSK	21.01	23.38
LTE Band7	5	21100	12	#0	QPSK	20.29	22.66
LTE Band7	5	21100	12	#Mid	QPSK	20.29	22.66
LTE Band7	5	21100	12	#Max	QPSK	20.15	22.52
LTE Band7	5	21100	25	#0	QPSK	20.24	22.61
LTE Band7	5	21100	1	#0	16QAM	20.46	22.83
LTE Band7	5	21100	1	#Mid	16QAM	20.55	22.92
LTE Band7	5	21100	1	#Max	16QAM	20.34	22.71
LTE Band7	5	21100	12	#0	16QAM	19.33	21.70
LTE Band7	5	21100	12	#Mid	16QAM	19.35	21.72
LTE Band7	5	21100	12	#Max	16QAM	19.22	21.59
LTE Band7	5	21100	25	#0	16QAM	19.26	21.63
LTE Band7	5	21425	1	#0	QPSK	21.58	23.95
LTE Band7	5	21425	1	#Mid	QPSK	21.58	23.95
LTE Band7	5	21425	1	#Max	QPSK	21.26	23.63
LTE Band7	5	21425	12	#0	QPSK	20.62	22.99
LTE Band7	5	21425	12	#Mid	QPSK	20.62	22.99
LTE Band7	5	21425	12	#Max	QPSK	20.41	22.78
LTE Band7	5	21425	25	#0	QPSK	20.51	22.88
LTE Band7	5	21425	1	#0	16QAM	20.89	23.26
LTE Band7	5	21425	1	#Mid	16QAM	20.87	23.24
LTE Band7	5	21425	1	#Max	16QAM	20.48	22.85
LTE Band7	5	21425	12	#0	16QAM	19.63	22.00

LTE Band7	5	21425	12	#Mid	16QAM	19.68	22.05
LTE Band7	5	21425	12	#Max	16QAM	19.48	21.85
LTE Band7	5	21425	25	#0	16QAM	19.69	22.06
LTE Band7	10	20800	1	#0	QPSK	21.12	23.49
LTE Band7	10	20800	1	#Mid	QPSK	21.49	23.86
LTE Band7	10	20800	1	#Max	QPSK	21.41	23.78
LTE Band7	10	20800	25	#0	QPSK	20.25	22.62
LTE Band7	10	20800	25	#Mid	QPSK	20.26	22.63
LTE Band7	10	20800	25	#Max	QPSK	20.43	22.80
LTE Band7	10	20800	50	#0	QPSK	20.38	22.75
LTE Band7	10	20800	1	#0	16QAM	20.02	22.39
LTE Band7	10	20800	1	#Mid	16QAM	20.36	22.73
LTE Band7	10	20800	1	#Max	16QAM	20.26	22.63
LTE Band7	10	20800	25	#0	16QAM	19.33	21.70
LTE Band7	10	20800	25	#Mid	16QAM	19.34	21.71
LTE Band7	10	20800	25	#Max	16QAM	19.47	21.84
LTE Band7	10	20800	50	#0	16QAM	19.43	21.80
LTE Band7	10	21100	1	#0	QPSK	20.95	23.32
LTE Band7	10	21100	1	#Mid	QPSK	21.04	23.41
LTE Band7	10	21100	1	#Max	QPSK	20.68	23.05
LTE Band7	10	21100	25	#0	QPSK	20.10	22.47
LTE Band7	10	21100	25	#Mid	QPSK	20.11	22.48
LTE Band7	10	21100	25	#Max	QPSK	19.91	22.28
LTE Band7	10	21100	50	#0	QPSK	19.99	22.36
LTE Band7	10	21100	1	#0	16QAM	20.27	22.64
LTE Band7	10	21100	1	#Mid	16QAM	20.45	22.82
LTE Band7	10	21100	1	#Max	16QAM	20.09	22.46
LTE Band7	10	21100	25	#0	16QAM	19.17	21.54
LTE Band7	10	21100	25	#Mid	16QAM	19.18	21.55
LTE Band7	10	21100	25	#Max	16QAM	18.96	21.33
LTE Band7	10	21100	50	#0	16QAM	19.00	21.37
LTE Band7	10	21400	1	#0	QPSK	21.33	23.70
LTE Band7	10	21400	1	#Mid	QPSK	21.53	23.90
LTE Band7	10	21400	1	#Max	QPSK	21.02	23.39
LTE Band7	10	21400	25	#0	QPSK	20.33	22.70
LTE Band7	10	21400	25	#Mid	QPSK	20.31	22.68
LTE Band7	10	21400	25	#Max	QPSK	20.27	22.64
LTE Band7	10	21400	50	#0	QPSK	20.35	22.72
LTE Band7	10	21400	1	#0	16QAM	20.40	22.77
LTE Band7	10	21400	1	#Mid	16QAM	20.68	23.05
LTE Band7	10	21400	1	#Max	16QAM	20.21	22.58
LTE Band7	10	21400	25	#0	16QAM	19.44	21.81
LTE Band7	10	21400	25	#Mid	16QAM	19.43	21.80

LTE Band7	10	21400	25	#Max	16QAM	19.41	21.78
LTE Band7	10	21400	50	#0	16QAM	19.36	21.73
LTE Band7	15	20825	1	#0	QPSK	21.08	23.45
LTE Band7	15	20825	1	#Mid	QPSK	21.47	23.84
LTE Band7	15	20825	1	#Max	QPSK	21.42	23.79
LTE Band7	15	20825	36	#0	QPSK	20.44	22.81
LTE Band7	15	20825	36	#Mid	QPSK	20.45	22.82
LTE Band7	15	20825	36	#Max	QPSK	20.57	22.94
LTE Band7	15	20825	75	#0	QPSK	20.47	22.84
LTE Band7	15	20825	1	#0	16QAM	20.42	22.79
LTE Band7	15	20825	1	#Mid	16QAM	20.82	23.19
LTE Band7	15	20825	1	#Max	16QAM	20.72	23.09
LTE Band7	15	20825	36	#0	16QAM	19.47	21.84
LTE Band7	15	20825	36	#Mid	16QAM	19.49	21.86
LTE Band7	15	20825	36	#Max	16QAM	19.66	22.03
LTE Band7	15	20825	75	#0	16QAM	19.56	21.93
LTE Band7	15	21100	1	#0	QPSK	21.08	23.45
LTE Band7	15	21100	1	#Mid	QPSK	21.09	23.46
LTE Band7	15	21100	1	#Max	QPSK	20.82	23.19
LTE Band7	15	21100	36	#0	QPSK	20.23	22.60
LTE Band7	15	21100	36	#Mid	QPSK	20.24	22.61
LTE Band7	15	21100	36	#Max	QPSK	20.01	22.38
LTE Band7	15	21100	75	#0	QPSK	20.05	22.42
LTE Band7	15	21100	1	#0	16QAM	20.29	22.66
LTE Band7	15	21100	1	#Mid	16QAM	20.36	22.73
LTE Band7	15	21100	1	#Max	16QAM	20.12	22.49
LTE Band7	15	21100	36	#0	16QAM	19.30	21.67
LTE Band7	15	21100	36	#Mid	16QAM	19.31	21.68
LTE Band7	15	21100	36	#Max	16QAM	19.05	21.42
LTE Band7	15	21100	75	#0	16QAM	19.13	21.50
LTE Band7	15	21375	1	#0	QPSK	20.92	23.29
LTE Band7	15	21375	1	#Mid	QPSK	21.51	23.88
LTE Band7	15	21375	1	#Max	QPSK	21.22	23.59
LTE Band7	15	21375	36	#0	QPSK	20.30	22.67
LTE Band7	15	21375	36	#Mid	QPSK	20.26	22.63
LTE Band7	15	21375	36	#Max	QPSK	20.43	22.80
LTE Band7	15	21375	75	#0	QPSK	20.39	22.76
LTE Band7	15	21375	1	#0	16QAM	19.89	22.26
LTE Band7	15	21375	1	#Mid	16QAM	20.57	22.94
LTE Band7	15	21375	1	#Max	16QAM	20.22	22.59
LTE Band7	15	21375	36	#0	16QAM	19.36	21.73
LTE Band7	15	21375	36	#Mid	16QAM	19.35	21.72
LTE Band7	15	21375	36	#Max	16QAM	19.57	21.94

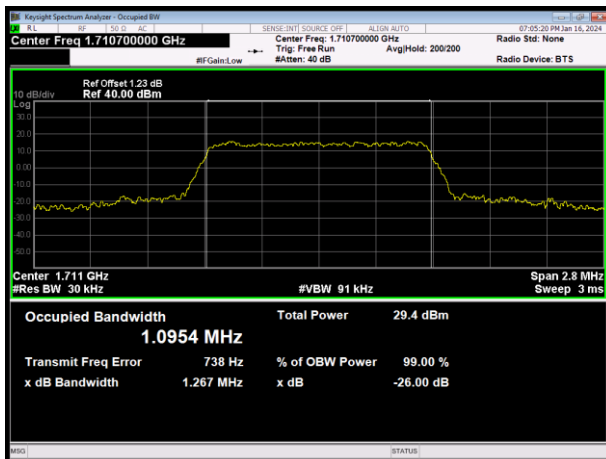
LTE Band7	15	21375	75	#0	16QAM	19.51	21.88
LTE Band7	20	20850	1	#0	QPSK	21.09	23.46
LTE Band7	20	20850	1	#Mid	QPSK	21.49	23.86
LTE Band7	20	20850	1	#Max	QPSK	21.27	23.64
LTE Band7	20	20850	50	#0	QPSK	20.31	22.68
LTE Band7	20	20850	50	#Mid	QPSK	20.31	22.68
LTE Band7	20	20850	50	#Max	QPSK	20.45	22.82
LTE Band7	20	20850	100	#0	QPSK	20.38	22.75
LTE Band7	20	20850	1	#0	16QAM	20.34	22.71
LTE Band7	20	20850	1	#Mid	16QAM	20.75	23.12
LTE Band7	20	20850	1	#Max	16QAM	20.50	22.87
LTE Band7	20	20850	50	#0	16QAM	19.43	21.80
LTE Band7	20	20850	50	#Mid	16QAM	19.44	21.81
LTE Band7	20	20850	50	#Max	16QAM	19.49	21.86
LTE Band7	20	20850	100	#0	16QAM	19.50	21.87
LTE Band7	20	21100	1	#0	QPSK	21.17	23.54
LTE Band7	20	21100	1	#Mid	QPSK	21.18	23.55
LTE Band7	20	21100	1	#Max	QPSK	20.86	23.23
LTE Band7	20	21100	50	#0	QPSK	20.14	22.51
LTE Band7	20	21100	50	#Mid	QPSK	20.15	22.52
LTE Band7	20	21100	50	#Max	QPSK	19.89	22.26
LTE Band7	20	21100	100	#0	QPSK	19.94	22.31
LTE Band7	20	21100	1	#0	16QAM	20.04	22.41
LTE Band7	20	21100	1	#Mid	16QAM	20.10	22.47
LTE Band7	20	21100	1	#Max	16QAM	19.76	22.13
LTE Band7	20	21100	50	#0	16QAM	19.18	21.55
LTE Band7	20	21100	50	#Mid	16QAM	19.20	21.57
LTE Band7	20	21100	50	#Max	16QAM	18.94	21.31
LTE Band7	20	21100	100	#0	16QAM	19.03	21.40
LTE Band7	20	21350	1	#0	QPSK	20.73	23.10
LTE Band7	20	21350	1	#Mid	QPSK	21.49	23.86
LTE Band7	20	21350	1	#Max	QPSK	21.20	23.57
LTE Band7	20	21350	50	#0	QPSK	19.88	22.25
LTE Band7	20	21350	50	#Mid	QPSK	19.84	22.21
LTE Band7	20	21350	50	#Max	QPSK	20.35	22.72
LTE Band7	20	21350	100	#0	QPSK	20.31	22.68
LTE Band7	20	21350	1	#0	16QAM	19.47	21.84
LTE Band7	20	21350	1	#Mid	16QAM	20.30	22.67
LTE Band7	20	21350	1	#Max	16QAM	19.99	22.36
LTE Band7	20	21350	50	#0	16QAM	19.04	21.41
LTE Band7	20	21350	50	#Mid	16QAM	19.03	21.40
LTE Band7	20	21350	50	#Max	16QAM	19.49	21.86
LTE Band7	20	21350	100	#0	16QAM	19.44	21.81

6.2 Occupied Bandwidth

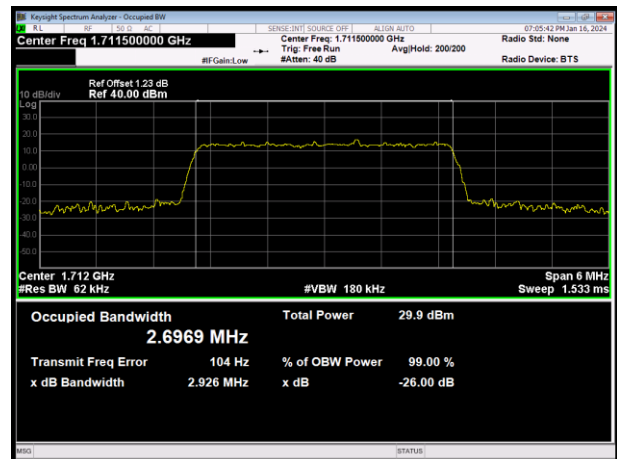
Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	99% OBW (MHz)	-26dB EBW (MHz)
LTE Band4	1.4	19957	6	#0	QPSK	1.095	1.267
LTE Band4	1.4	19957	6	#0	16QAM	1.112	1.266
LTE Band4	1.4	20175	6	#0	QPSK	1.095	1.261
LTE Band4	1.4	20175	6	#0	16QAM	1.102	1.271
LTE Band4	1.4	20393	6	#0	QPSK	1.104	1.260
LTE Band4	1.4	20393	6	#0	16QAM	1.100	1.264
LTE Band4	3	19965	15	#0	QPSK	2.697	2.926
LTE Band4	3	19965	15	#0	16QAM	2.696	2.933
LTE Band4	3	20175	15	#0	QPSK	2.703	2.917
LTE Band4	3	20175	15	#0	16QAM	2.697	2.930
LTE Band4	3	20385	15	#0	QPSK	2.708	2.935
LTE Band4	3	20385	15	#0	16QAM	2.690	2.938
LTE Band4	5	19975	25	#0	QPSK	4.514	4.878
LTE Band4	5	19975	25	#0	16QAM	4.507	4.856
LTE Band4	5	20175	25	#0	QPSK	4.488	4.856
LTE Band4	5	20175	25	#0	16QAM	4.524	4.875
LTE Band4	5	20375	25	#0	QPSK	4.515	4.864
LTE Band4	5	20375	25	#0	16QAM	4.504	4.899
LTE Band4	10	20000	50	#0	QPSK	8.969	9.677
LTE Band4	10	20000	50	#0	16QAM	8.968	9.529
LTE Band4	10	20175	50	#0	QPSK	8.979	9.582
LTE Band4	10	20175	50	#0	16QAM	8.961	9.576
LTE Band4	10	20350	50	#0	QPSK	8.983	9.606
LTE Band4	10	20350	50	#0	16QAM	8.996	9.629
LTE Band4	15	20025	75	#0	QPSK	13.477	14.458
LTE Band4	15	20025	75	#0	16QAM	13.455	14.406
LTE Band4	15	20175	75	#0	QPSK	13.427	14.384
LTE Band4	15	20175	75	#0	16QAM	13.445	14.377
LTE Band4	15	20325	75	#0	QPSK	13.465	14.456
LTE Band4	15	20325	75	#0	16QAM	13.469	14.366
LTE Band4	20	20050	100	#0	QPSK	17.965	19.517
LTE Band4	20	20050	100	#0	16QAM	17.937	19.734
LTE Band4	20	20175	100	#0	QPSK	17.932	19.488
LTE Band4	20	20175	100	#0	16QAM	17.889	19.475
LTE Band4	20	20300	100	#0	QPSK	18.010	19.271
LTE Band4	20	20300	100	#0	16QAM	17.989	19.439

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	99% OBW (MHz)	-26dB EBW (MHz)
LTE Band7	5	20775	25	#0	QPSK	4.506	4.840
LTE Band7	5	20775	25	#0	16QAM	4.505	4.882
LTE Band7	5	21100	25	#0	QPSK	4.510	4.893
LTE Band7	5	21100	25	#0	16QAM	4.510	4.876
LTE Band7	5	21425	25	#0	QPSK	4.509	4.864
LTE Band7	5	21425	25	#0	16QAM	4.504	4.872
LTE Band7	10	20800	50	#0	QPSK	8.965	9.633
LTE Band7	10	20800	50	#0	16QAM	8.966	9.624
LTE Band7	10	21100	50	#0	QPSK	8.951	9.603
LTE Band7	10	21100	50	#0	16QAM	8.976	9.566
LTE Band7	10	21400	50	#0	QPSK	8.966	9.668
LTE Band7	10	21400	50	#0	16QAM	8.959	9.618
LTE Band7	15	20825	75	#0	QPSK	13.457	14.407
LTE Band7	15	20825	75	#0	16QAM	13.497	14.444
LTE Band7	15	21100	75	#0	QPSK	13.436	14.320
LTE Band7	15	21100	75	#0	16QAM	13.426	14.363
LTE Band7	15	21375	75	#0	QPSK	13.462	14.474
LTE Band7	15	21375	75	#0	16QAM	13.437	14.369
LTE Band7	20	20850	100	#0	QPSK	17.953	19.551
LTE Band7	20	20850	100	#0	16QAM	17.961	19.451
LTE Band7	20	21100	100	#0	QPSK	17.896	19.259
LTE Band7	20	21100	100	#0	16QAM	17.929	19.651
LTE Band7	20	21350	100	#0	QPSK	17.935	19.429
LTE Band7	20	21350	100	#0	16QAM	18.001	19.341

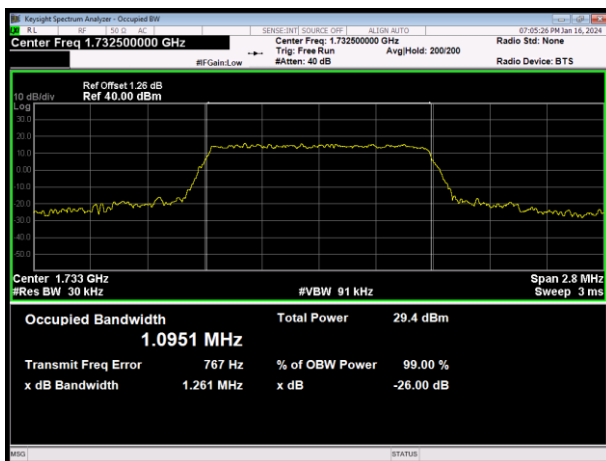
LTE Band 4 QPSK 1.4MHz CH-Low



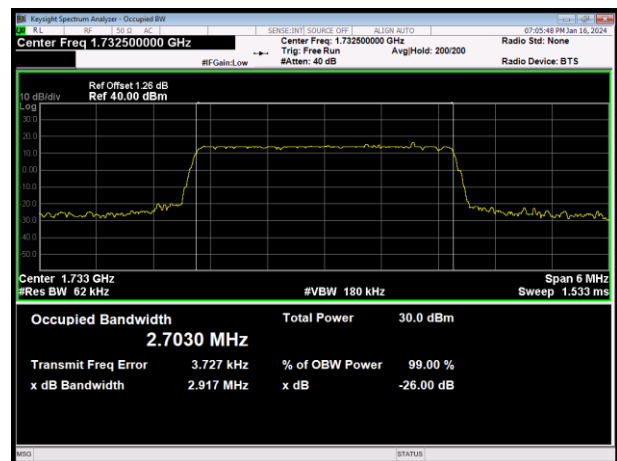
LTE Band 4 QPSK 3MHz CH-Low



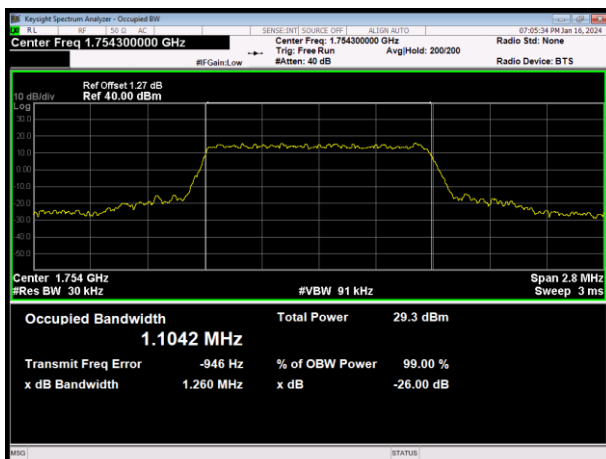
LTE Band 4 QPSK 1.4MHz CH-Middle



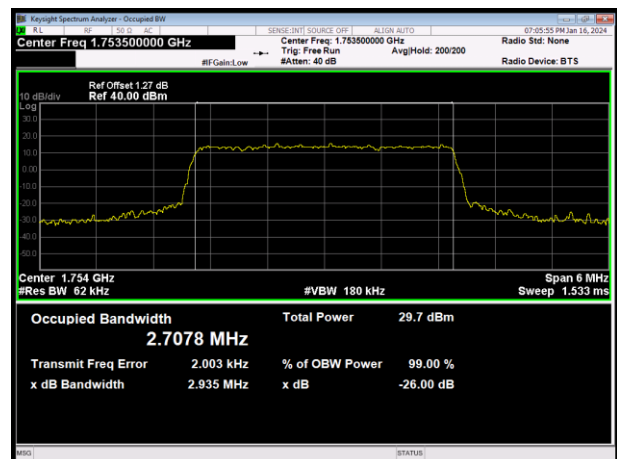
LTE Band 4 QPSK 3MHz CH-Middle



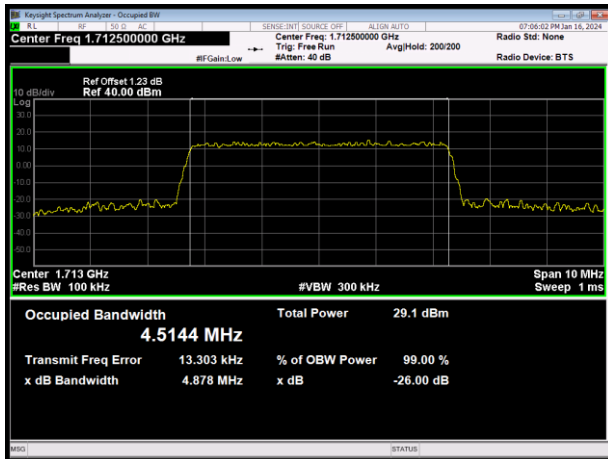
LTE Band 4 QPSK 1.4MHz CH-High



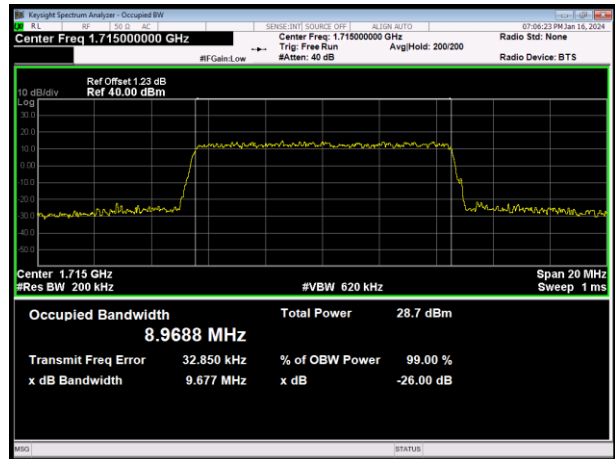
LTE Band 4 QPSK 3MHz CH-High



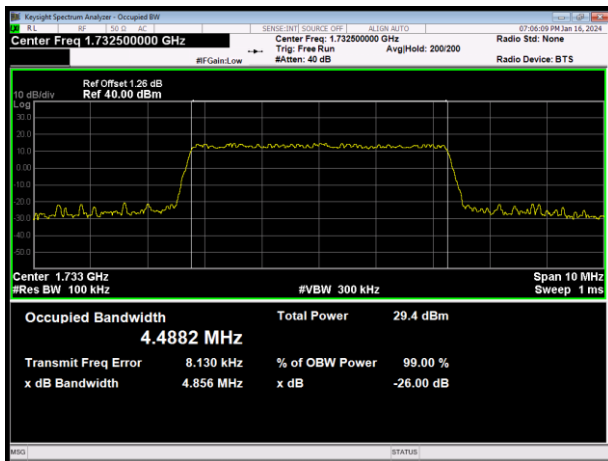
LTE Band 4 QPSK 5MHz CH-Low



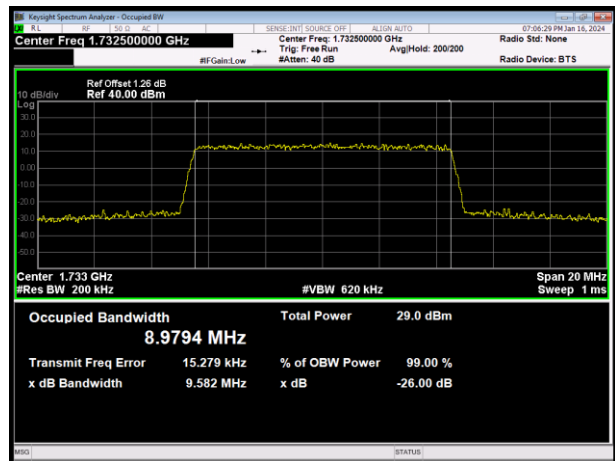
LTE Band 4 QPSK 10MHz CH-Low



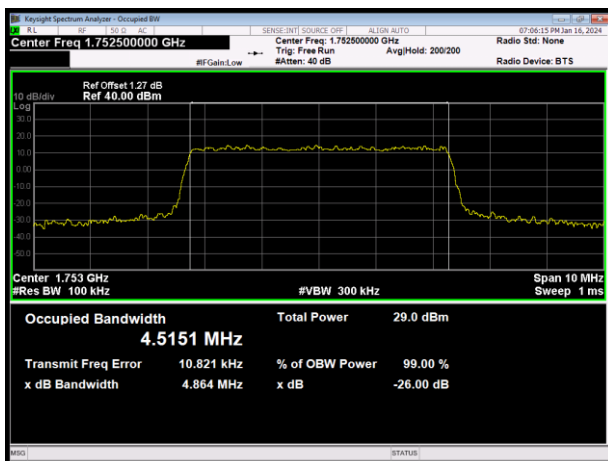
LTE Band 4 QPSK 5MHz CH-Middle



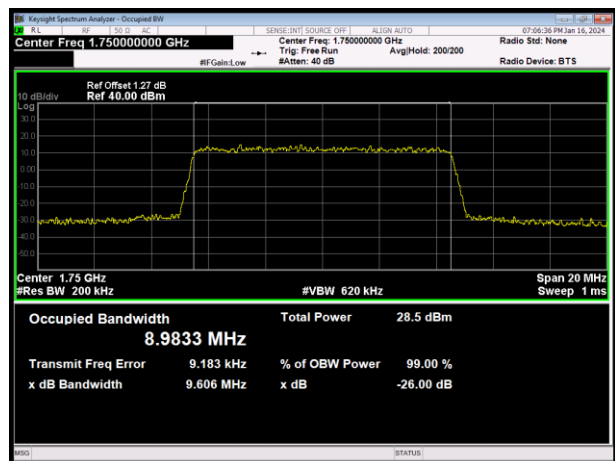
LTE Band 4 QPSK 10MHz CH-Middle



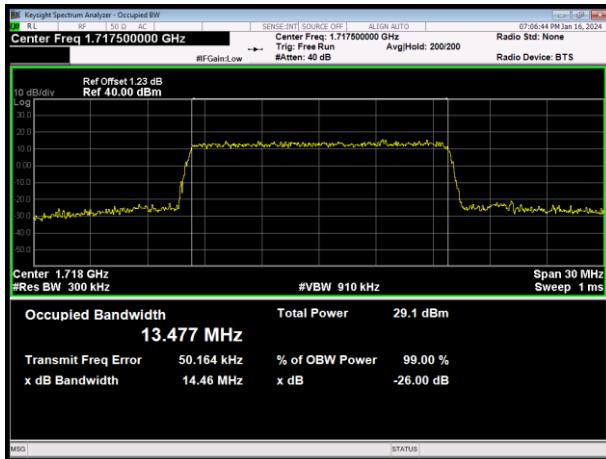
LTE Band 4 QPSK 5MHz CH-High



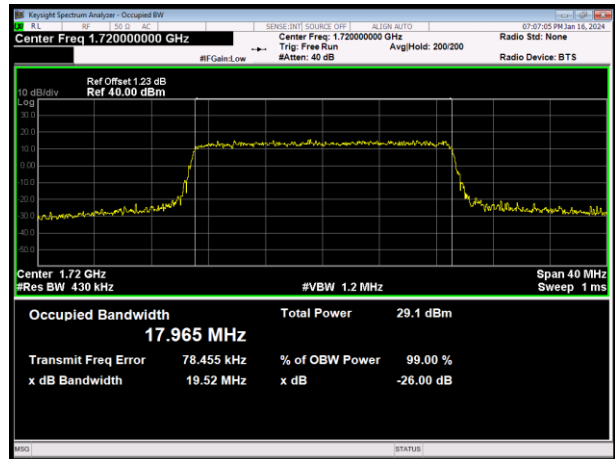
LTE Band 4 QPSK 10MHz CH-High



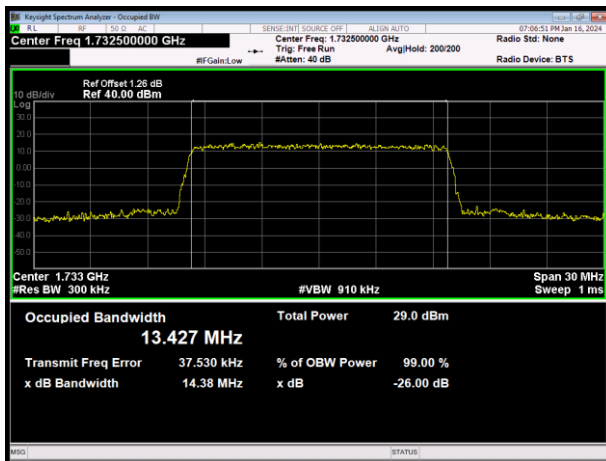
LTE Band 4 QPSK 15MHz CH-Low



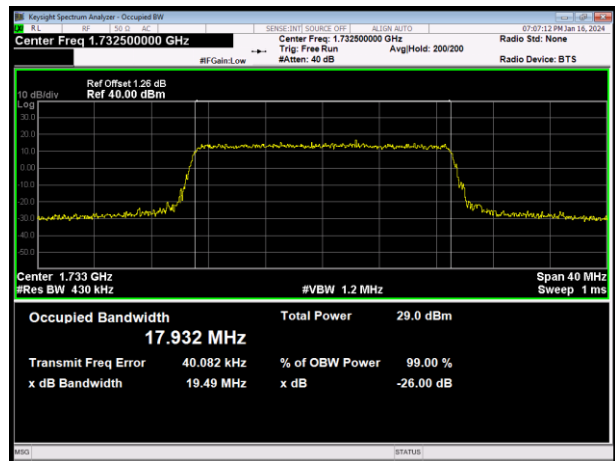
LTE Band 4 QPSK 20MHz CH-Low



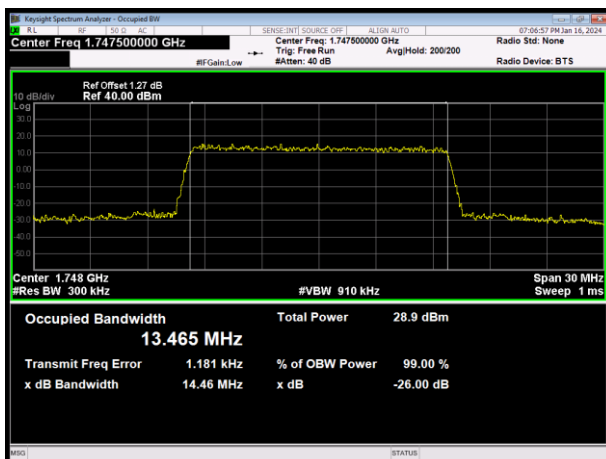
LTE Band 4 QPSK 15MHz CH-Middle



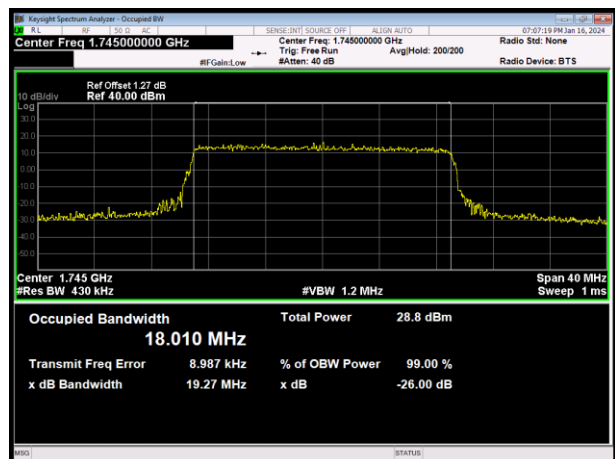
LTE Band 4 QPSK 20MHz CH-Middle



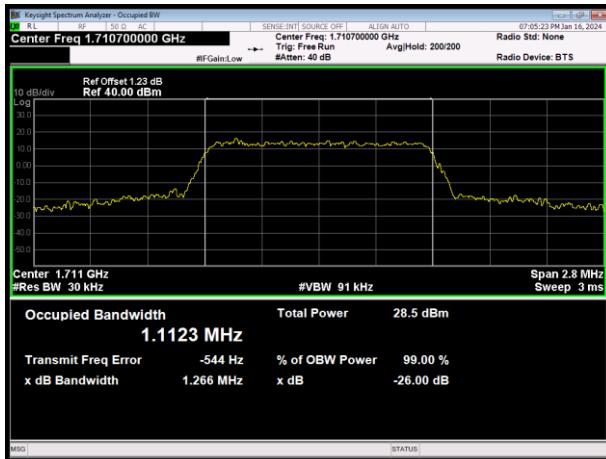
LTE Band 4 QPSK 15MHz CH-High



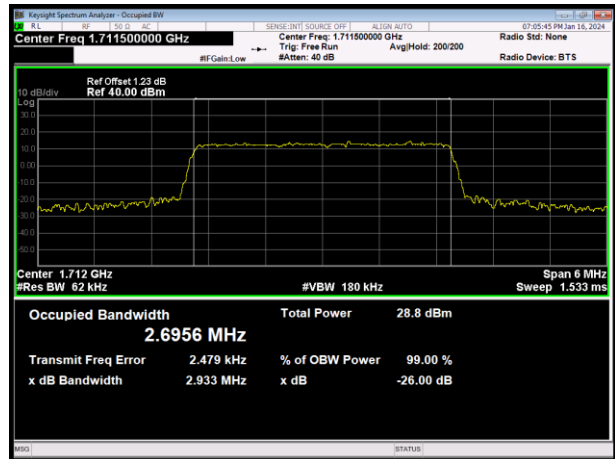
LTE Band 4 QPSK 20MHz CH-High



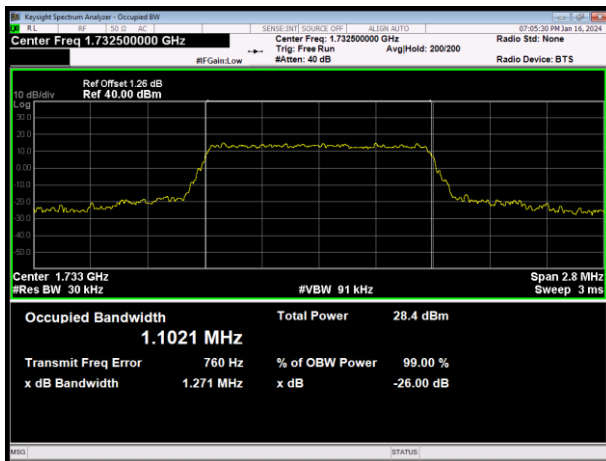
LTE Band 4 16QAM 1.4MHz CH-Low



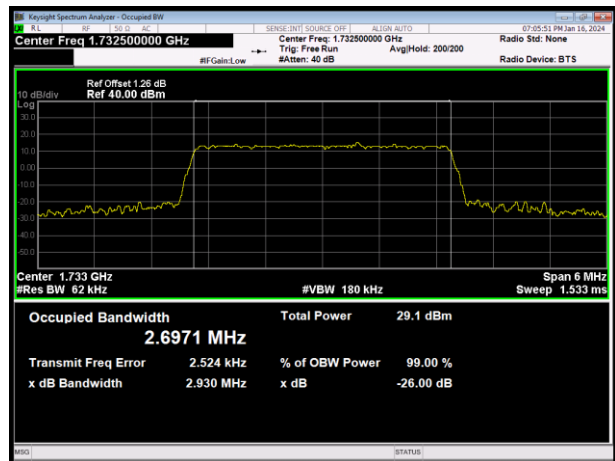
LTE Band 4 16QAM 3MHz CH-Low



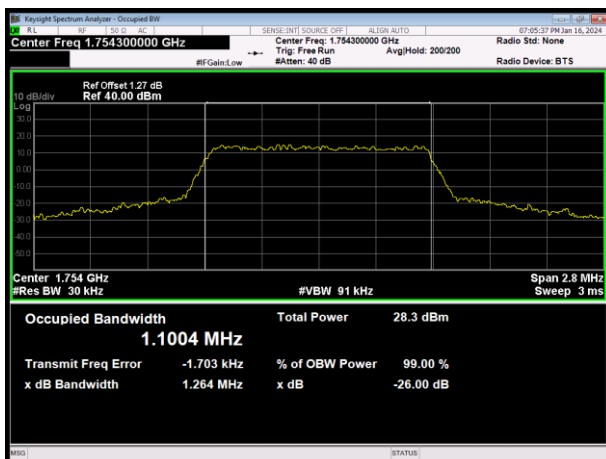
LTE Band 4 16QAM 1.4MHz CH-Middle



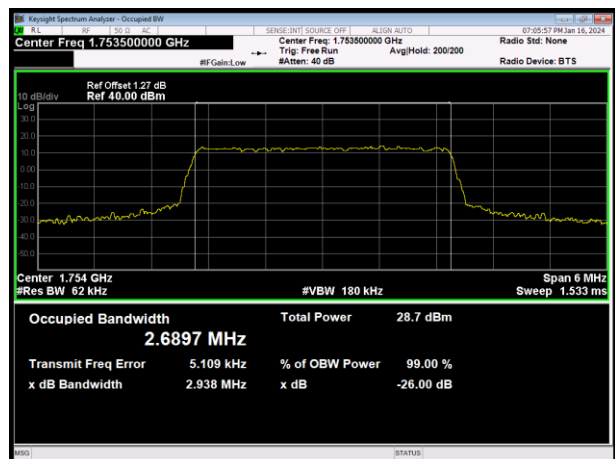
LTE Band 4 16QAM 3MHz CH-Middle



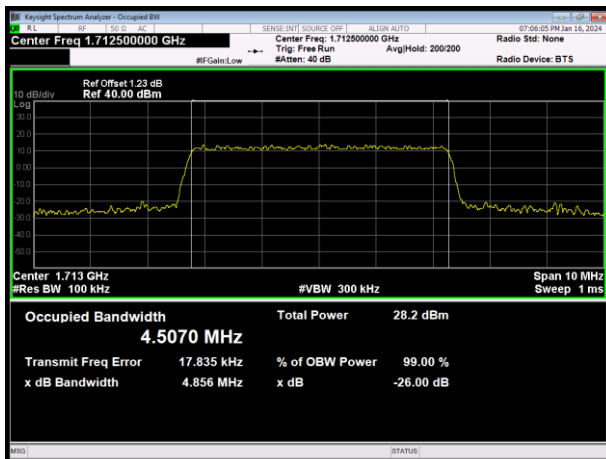
LTE Band 4 16QAM 1.4MHz CH-High



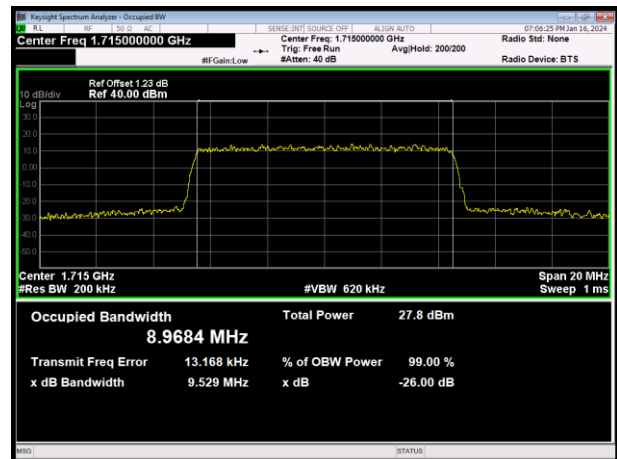
LTE Band 4 16QAM 3MHz CH-High



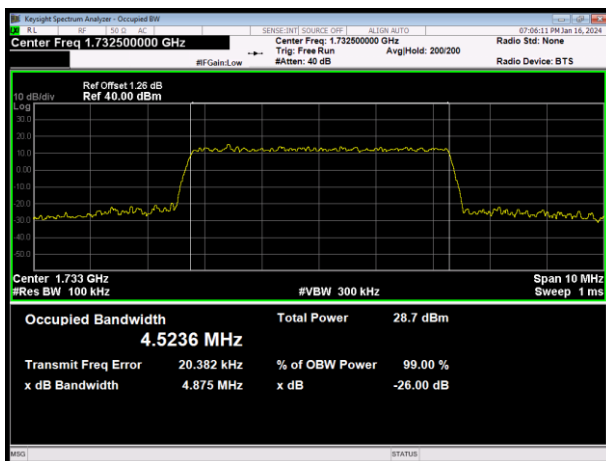
LTE Band 4 16QAM 5MHz CH-Low



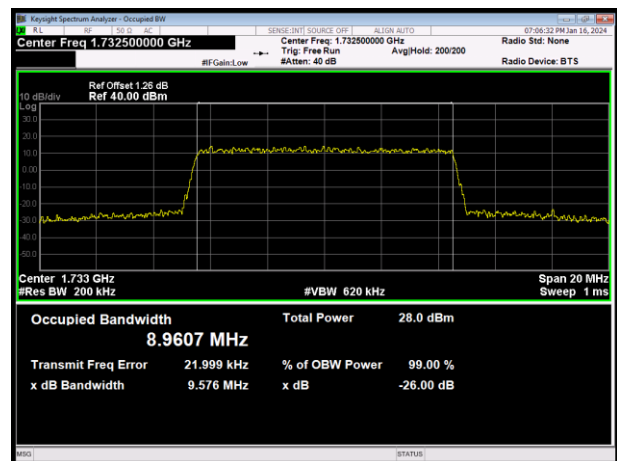
LTE Band 4 16QAM 10MHz CH-Low



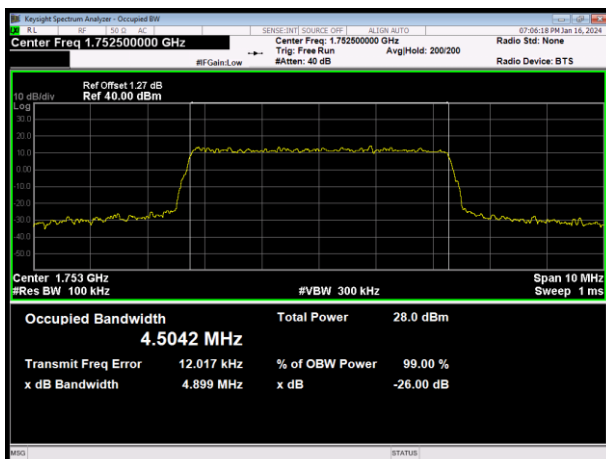
LTE Band 4 16QAM 5MHz CH-Middle



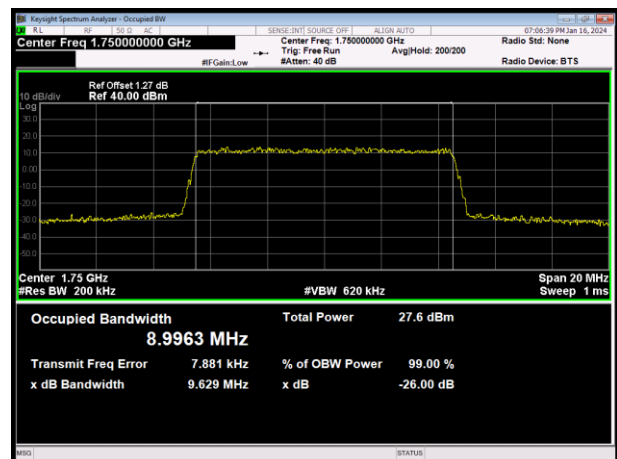
LTE Band 4 16QAM 10MHz CH-Middle



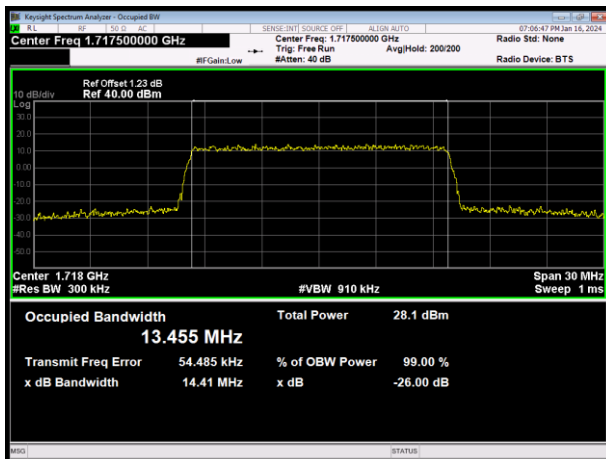
LTE Band 4 16QAM 5MHz CH-High



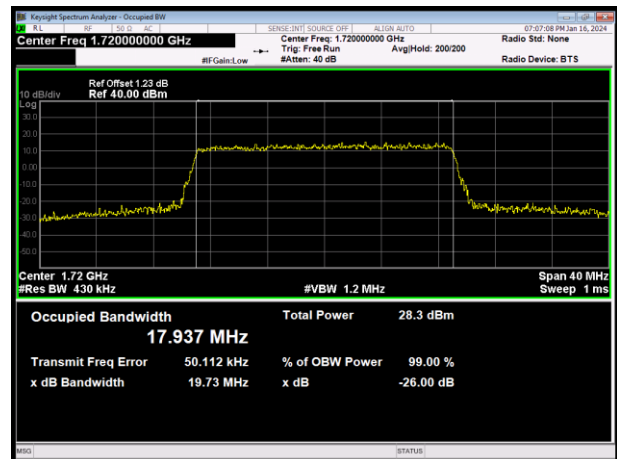
LTE Band 4 16QAM 10MHz CH-High



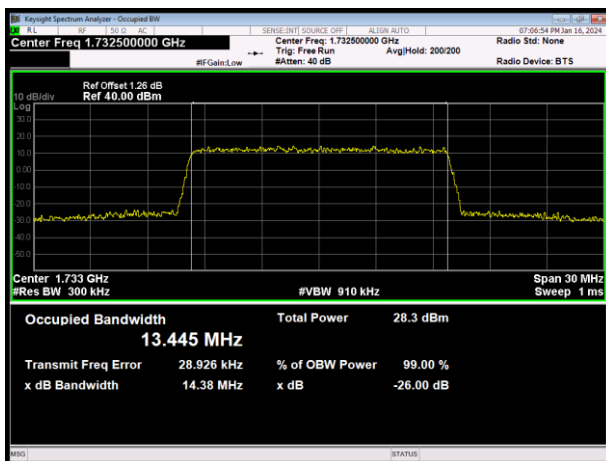
LTE Band 4 16QAM 15MHz CH-Low



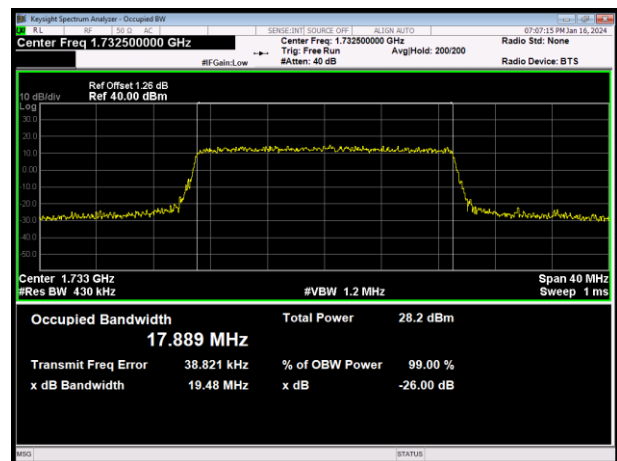
LTE Band 4 16QAM 20MHz CH-Low



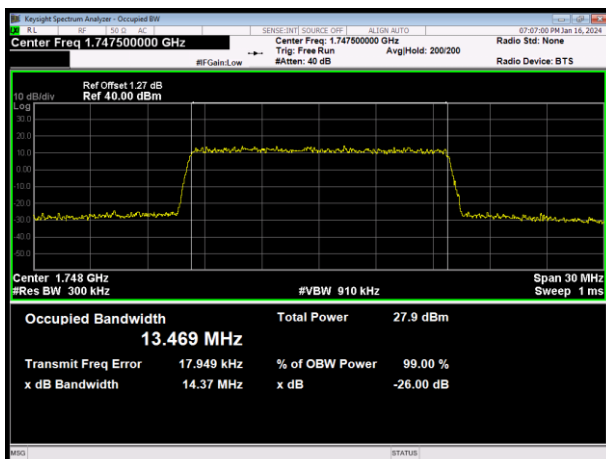
LTE Band 4 16QAM 15MHz CH-Middle



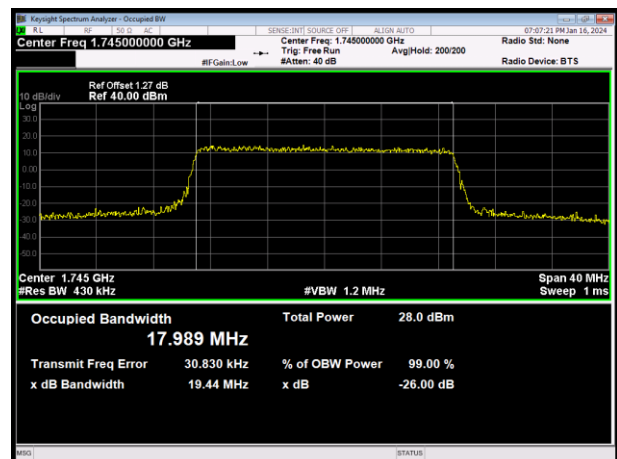
LTE Band 4 16QAM 20MHz CH-Middle



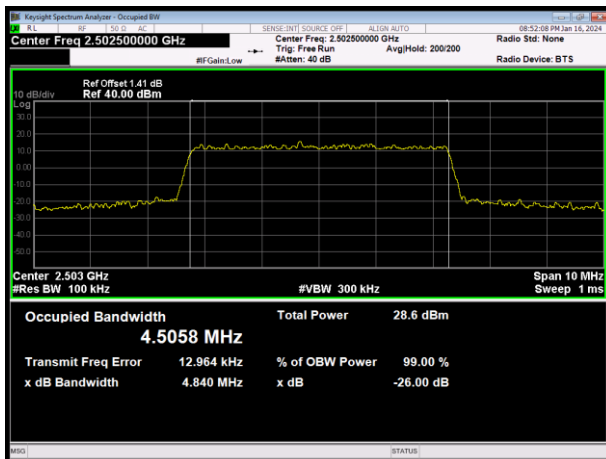
LTE Band 4 16QAM 15MHz CH-High



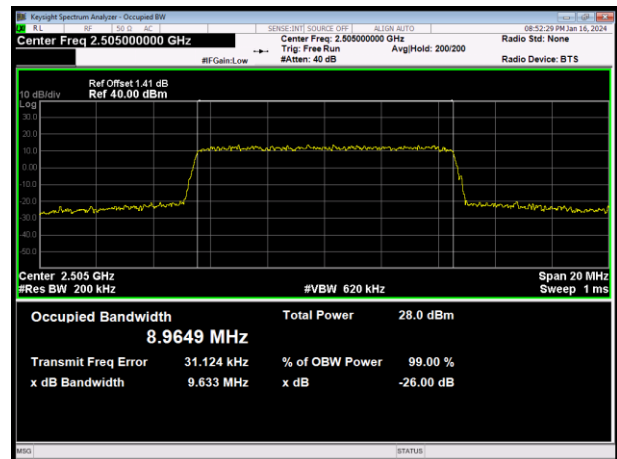
LTE Band 4 16QAM 20MHz CH-High



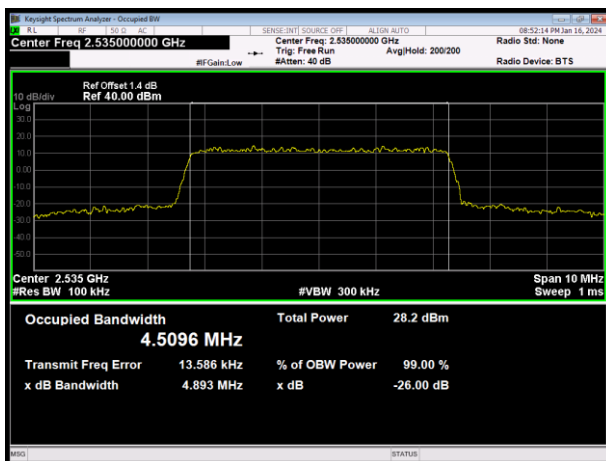
LTE Band 7 QPSK 5MHz CH-Low



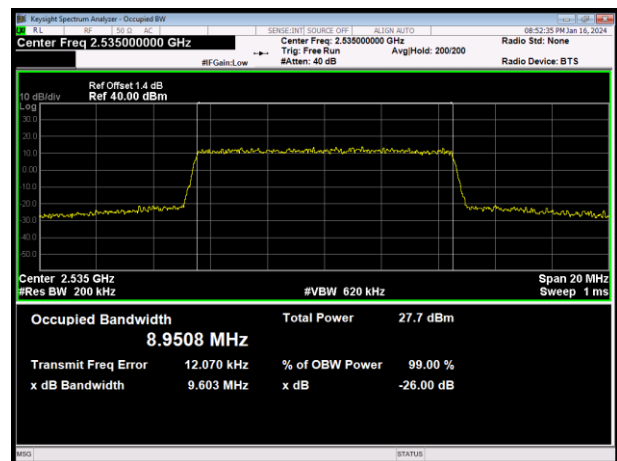
LTE Band 7 QPSK 10MHz CH-Low



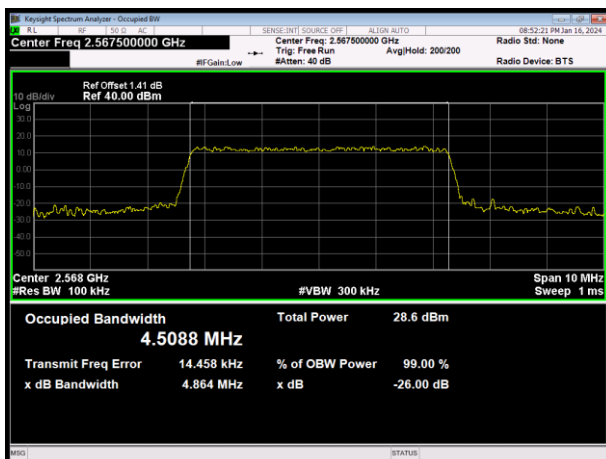
LTE Band 7 QPSK 5MHz CH-Middle



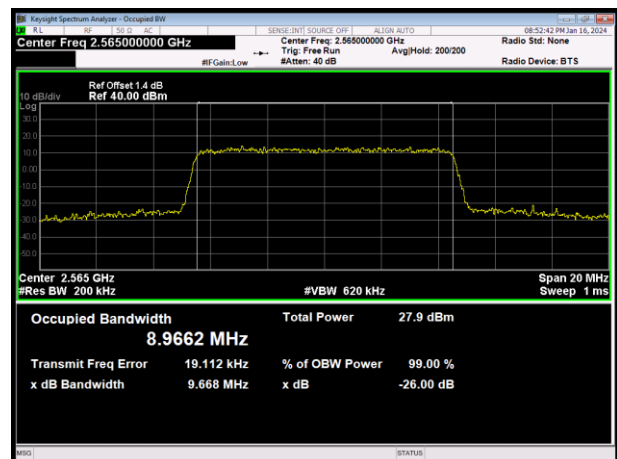
LTE Band 7 QPSK 10MHz CH-Middle



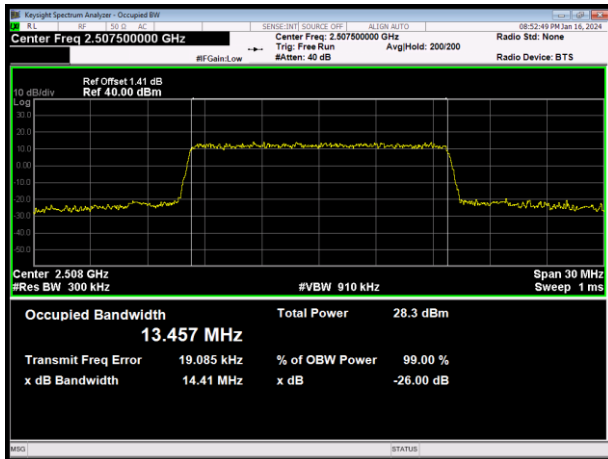
LTE Band 7 QPSK 5MHz CH-High



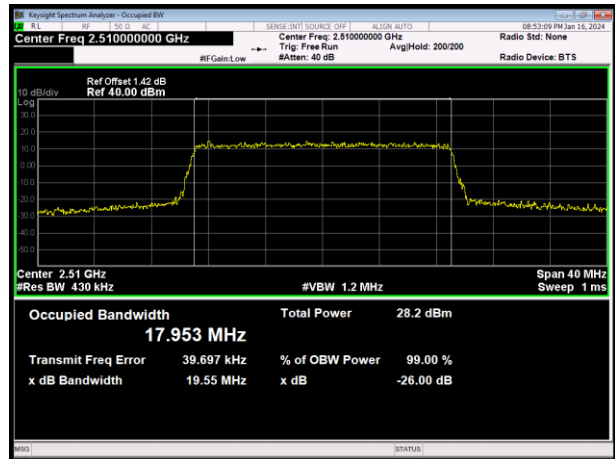
LTE Band 7 QPSK 10MHz CH-High



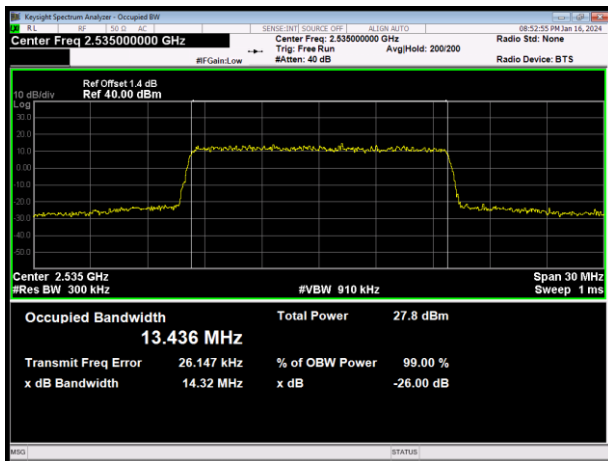
LTE Band 7 QPSK 15MHz CH-Low



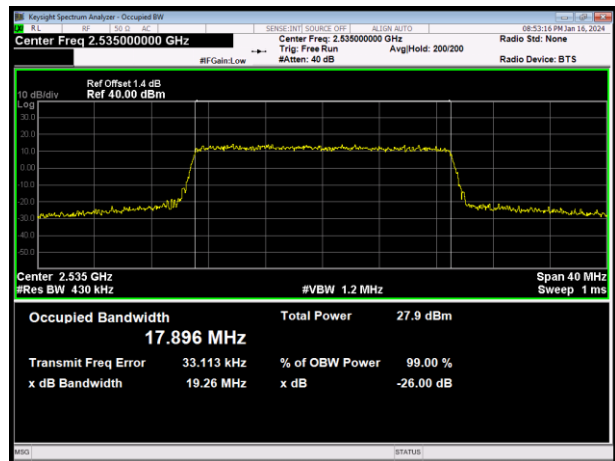
LTE Band 7 QPSK 20MHz CH-Low



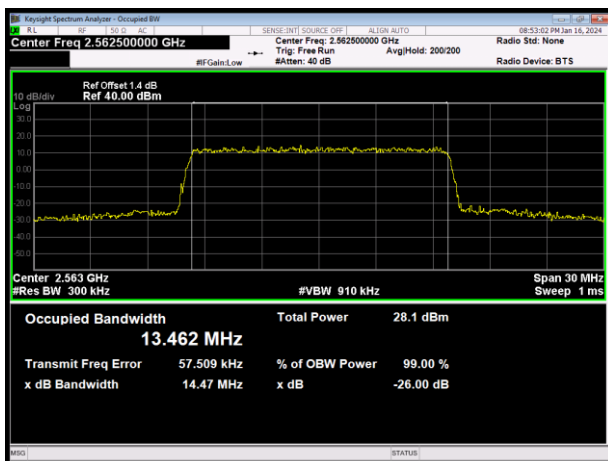
LTE Band 7 QPSK 15MHz CH-Middle



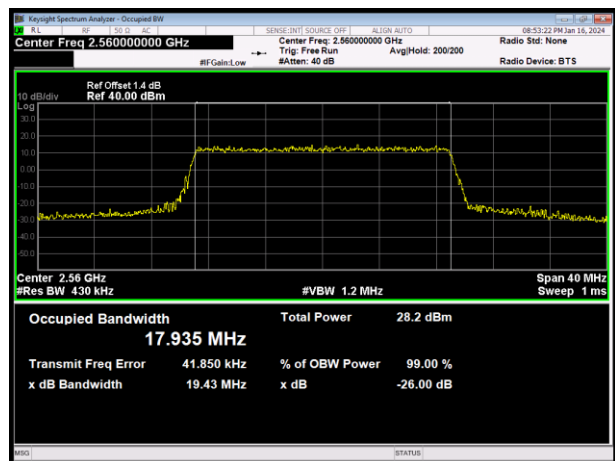
LTE Band 7 QPSK 20MHz CH-Middle



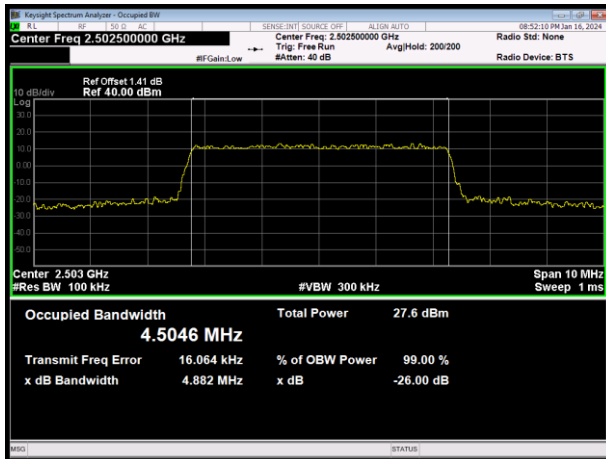
LTE Band 7 QPSK 15MHz CH-High



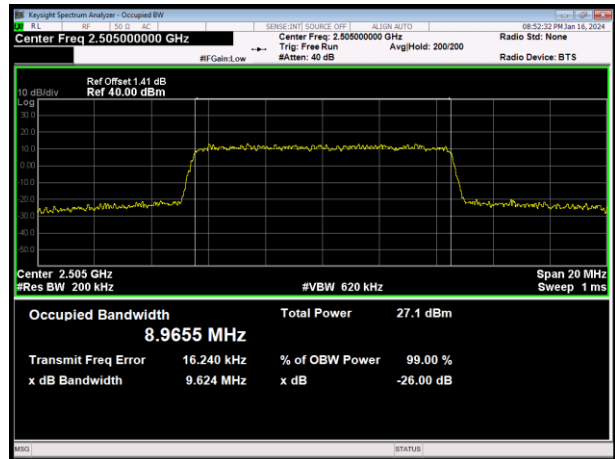
LTE Band 7 QPSK 20MHz CH-High



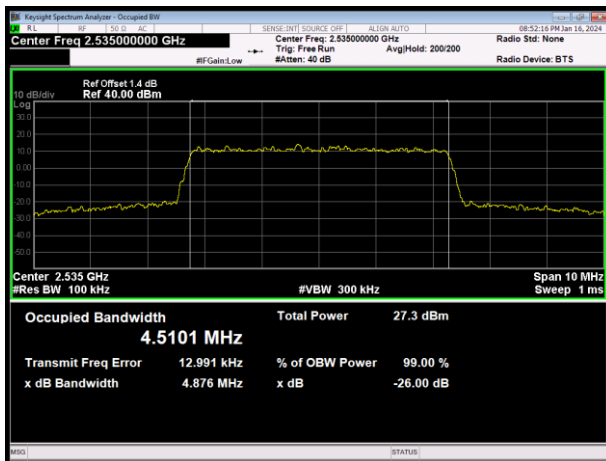
LTE Band 7 16QAM 5MHz CH-Low



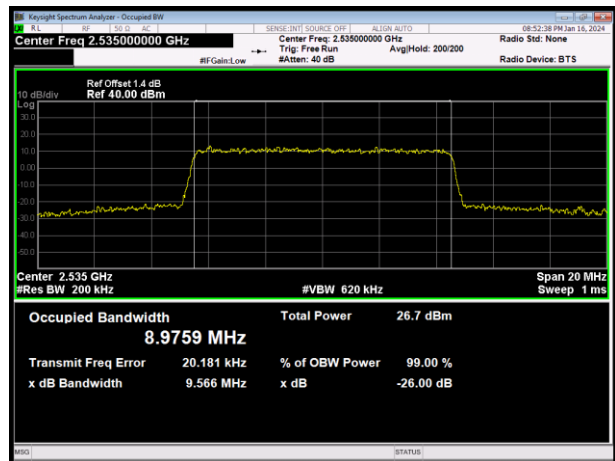
LTE Band 7 16QAM 10MHz CH-Low



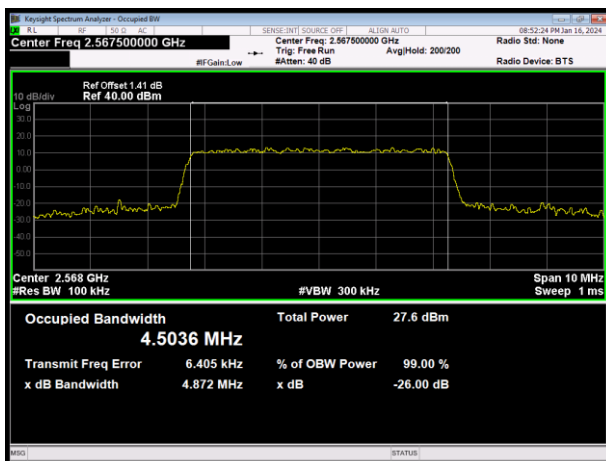
LTE Band 7 16QAM 5MHz CH-Middle



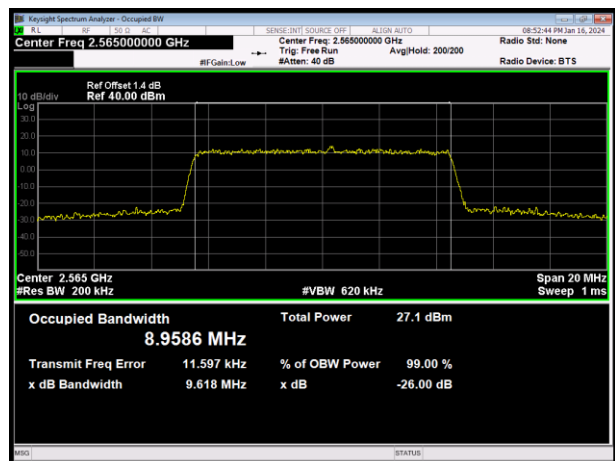
LTE Band 7 16QAM 10MHz CH-Middle



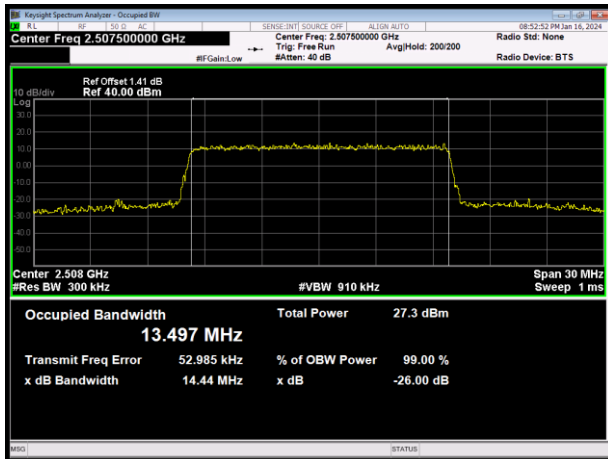
LTE Band 7 16QAM 5MHz CH-High



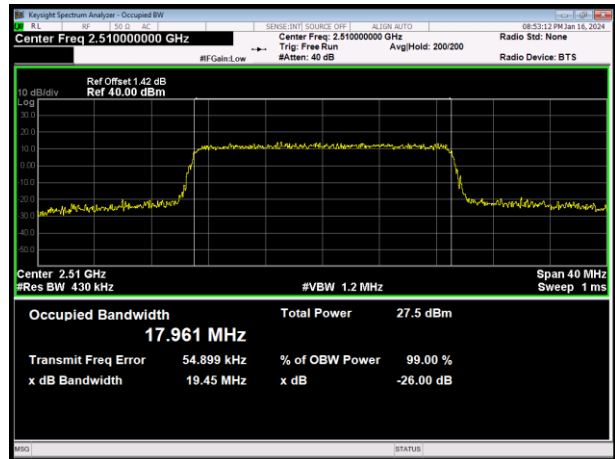
LTE Band 7 16QAM 10MHz CH-High



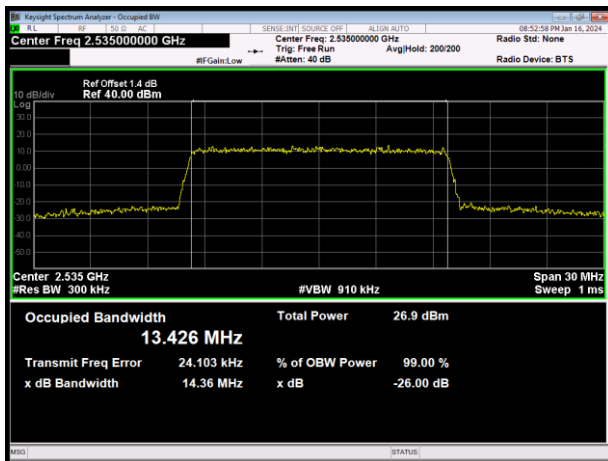
LTE Band 7 16QAM 15MHz CH-Low



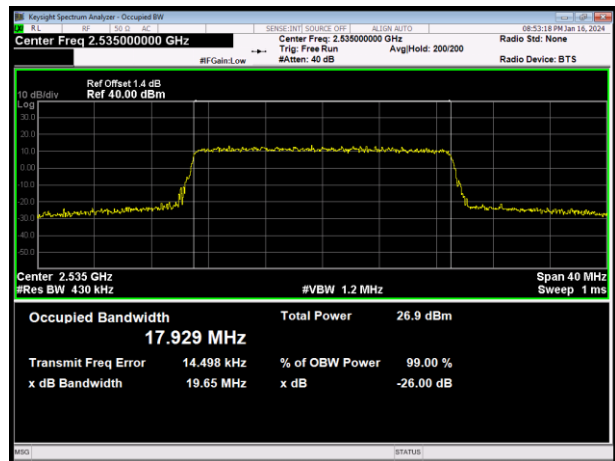
LTE Band 7 16QAM 20MHz CH-Low



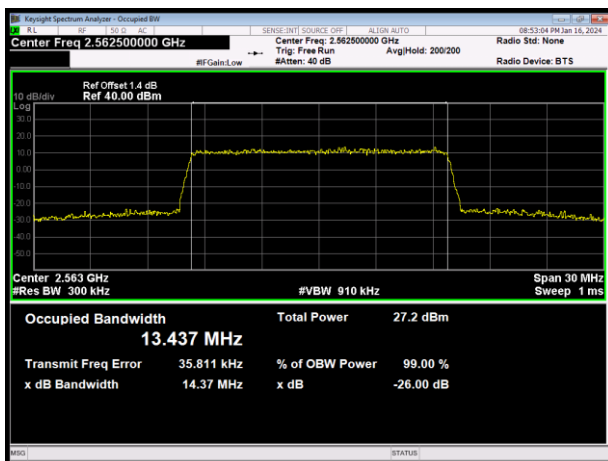
LTE Band 7 16QAM 15MHz CH-Middle



LTE Band 7 16QAM 20MHz CH-Middle



LTE Band 7 16QAM 15MHz CH-High



LTE Band 7 16QAM 20MHz CH-High

