TEST REPORT

Report Number. : R14311589-E1

Applicant	:	Sony corporation 1-7-1 Konan Minato-ku Tokyo, 108-0075, Japan
FCC ID	:	PY7-17565F
EUT Description	:	GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC
Test Standard(s)	:	FCC CFR47 Part 2, Part 22, Part 24, Part 27

Date Of Issue:
2022-08-22

Prepared by:
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ACCREDITED
CERT #0751.06

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2022-08-02	Initial Review	Noah Bennett
V2	2022-08-17	Addressed TCB Feedback: -Added Missing Part 22 reference from Section 1 and 2. -Added Missing WCDMA 2/4 references to section 2. -Corrected Cal info in section 7. -Added some notes under tabular data noting Downlink signals from test equipment, section 10 -Revised power measurements in section 8. -Revised section 6.2	Noah Bennett
V3	2022-08-18	Updated Software Version	Noah Bennett
V4	2022-08-22	Updated Section 8, making all data a unified number of significant digits.	Noah Bennett

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	SONY CORPORATION 1-7-1 KONAN MINATO-KU TOKYO, 108-0075, JAPAN
FCC ID	PY7-17565F
EUT Description	GSM/WCDMA/LTE PHONE WITH BT, DTS/UNII A/B/G/N/AC/AX, GPS, WPT & NFC
Serial Number	QV7700B7D8, QV7700BYD8, QV77004ZD8, QV77007JD8, QV77005ED8, QV770019D8, QV77003UD8
Sample Receipt Date	2022-06-14 and 2022-06-27
Date Tested	2022-07-26 TO 2022-08-17
Applicable Standards	FCC CFR47 Part 2, Part 22, Part 24, Part 27
Test Results	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

Approved & Released By:	Reviewed By:	Prepared By:
		
Dan Coronia Operations Leader UL Verification Services Inc.	Kiya Kedida Senior Project Engineer UL Verification Services Inc.	Noah Bennett Electrical Engineer UL LLC.

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL LLC Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

Requirement Description	Band	Requirement Clause Number (FCC)	Result	Remarks
Effective Radiated Power	GSM 850	22.913 (a)(5)	Pass	None
	LTE 12	27.50 (c) (10)		
Equivalent Isotropic Radiated Power	WCDMA 4, LTE 4	27.50 (d) (4)		
	GSM 1900, WCDMA 2, LTE 2	24.232 (c)		

Requirement Description	Requirement Clause Number (FCC)	Result	Remarks
Occupied Bandwidth	2.1049	Pass	None
Band Edge and Emission Mask	2.1051, 22.917 (a), 24.238 (a), 27.53 (h), 27.53 (m)(4) & (m) (6), 27.53 (g), 27.53 (c) (f), 27.53(a), 27.53(l)	Pass	None
Out of Band Emissions	2.1051, 22.917 (a), 24.238 (a), 27.53 (h), 27.53 (g),	Pass	None
Frequency Stability	2.1055, 22.355, 24.235, 27.54	Pass	None
Peak-to-Average Ratio	22.913 (d), 24.232 (d), 27.50 (d) (5), 27.50 (j) (4)	Pass	None
Field Strength of Spurious Radiation	2.1053, 22.917 (a), 24.238 (a), 27.53 (h), 27.53 (g),	Pass	None

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following:

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 24, Part 27.
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01. Determining ERP and EIRP

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, Certificate Number 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 2800 Suite Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A	US0067	27265	825374

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%

Uncertainty figures are valid to a confidence level of 95%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC. This report covers GSM/WCDMA/LTE.

6.2. MAXIMUM OUTPUT POWER

EIRP/ERP TEST PROCEDURE
ANSI C63.26:2015
KDB 971168 D01 Section 5.6

ERP/EIRP = PMeas + GT − LC
where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

The transmitter has a maximum average conducted and ERP / EIRP output powers as follows:
GSM MODES

Part 22 850MHz

Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	32.6	-6.50	7.0	23.98	0.250	240.3	240KGXW
	EGPRS	27.2			18.51	0.071	245.1	245KG7W

Part 24 1900MHz

Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1850.2-1909.8	GPRS	26.9	-4.10	2.0	22.80	0.191	238.3	238KGXW
	EGPRS	26.4			22.30	0.170	244	244KG7W

WCDMA MODE

Part 24 Band 2

Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1852.4-1907.6	REL 99	18.5	-4.10	2.0	14.40	0.028	4150	4M15F9W
	HSDPA	17.7			13.60	0.023	4164	4M16F9W

Part 27 Band 4

Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1712.4-1752.6	REL 99	17.3	-3.80	1.0	13.50	0.022	4159	4M16F9W
	HSDPA	16.3			12.50	0.018	4161	4M16F9W

LTE BAND 2

Part 24	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	-4.10

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1850.7	1909.3	19.0	14.90	0.031	1080	1M08G7W
	64QAM			19.5	15.40	0.035	1090	1M09D7W
3.0	QPSK	1851.5	1908.5	19.1	15.00	0.032	2690	2M69G7W
	16QAM			19.5	15.40	0.035	2700	2M70D7W
5.0	QPSK	1852.5	1907.5	19.3	15.20	0.033	4490	4M49G7W
	16QAM			19.6	15.50	0.035	4490	4M49D7W
10.0	QPSK	1855.0	1905.0	19.2	15.10	0.032	8980	8M98G7W
	16QAM			19.5	15.40	0.035	8980	8M98D7W
15.0	QPSK	1857.5	1902.5	19.1	15.00	0.032	13470	13M5G7W
	16QAM			19.4	15.30	0.034	13470	13M5D7W
20.0	QPSK	1860.0	1900.0	19.1	15.04	0.032	17950	18M0G7W
	16QAM			19.4	15.30	0.034	17960	18M0D7W

LTE BAND 4

Part 27	
EIRP Limit (W)	1.00
Antenna Gain (dBi)	-3.80

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1710.7	1754.3	18.2	14.43	0.028	1090	1M09G7W
	16QAM			18.5	14.70	0.030	1090	1M09D7W
3.0	QPSK	1711.5	1753.5	18.3	14.47	0.028	2700	2M70G7W
	16QAM			18.5	14.70	0.030	2700	2M70D7W
5.0	QPSK	1712.5	1752.5	18.3	14.50	0.028	4490	4M49G7W
	16QAM			18.6	14.80	0.030	4490	4M49D7W
10.0	QPSK	1715.0	1750.0	18.3	14.50	0.028	8970	8M97G7W
	16QAM			18.5	14.70	0.030	8980	8M98D7W
15.0	QPSK	1717.5	1747.5	18.0	14.21	0.026	13460	13M5G7W
	16QAM			18.4	14.62	0.029	13450	13M5D7W
20.0	QPSK	1720.0	1745.0	18.2	14.40	0.028	17940	17M9G7W
	16QAM			18.3	14.50	0.028	17940	17M9D7W

LTE BAND 12

Part 27	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-8.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	699.7	715.3	21.2	10.45	0.011	1080	1M08G7W
	16QAM			21.6	10.85	0.012	1080	1M08D7W
3.0	QPSK	700.5	714.5	21.3	10.53	0.011	2700	2M70G7W
	16QAM			21.6	10.87	0.012	2690	2M69D7W
5.0	QPSK	701.5	713.5	21.3	10.57	0.011	4490	4M49G7W
	16QAM			21.7	10.90	0.012	4490	4M49D7W
10.0	QPSK	704.0	711.0	21.3	10.50	0.011	8970	8M97G7W
	16QAM			21.6	10.89	0.012	8960	8M96D7W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.42.

6.4. MAXIMUM ANTENNA GAIN

The antenna(s) gain and type, as provided by the manufacturer' are as follows:

Antenna	Supported Band(s)	Frequency Range (MHz)	Peak Gain (dBi)
Main Antenna 1	GSM850	824-849	-6.5
	LTE B12, B17	699-716	-8.6
	LTE B4	1710-1755	-3.8
	LTE B2	1850-1910	-4.1

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT supports LTE Bands of:
Band 2, Band 4, Band 12, and Band 17.

LTE Band 17 (704-716MHz, 5/10MHz bandwidth) is covered by LTE Band 12 because it is a subset of LTE band 12 and they have the same output power.

The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM and 64QAM modulations. It was found that QPSK and 16QAM results were worst case. All testing was performed using QPSK and 16QAM modulations to represent the worst case. All radiated testing was done at Max Bandwidth at 1RB to represent the worst case.

The EUT was investigated in three orthogonal orientations X/Y/Z for Low Band and Mid Band frequency ranges. See the below table for WC Orientations:

Antenna	Frequency Band (MHz)	Orientation
Main	Low Band (Fc<1000MHz)	Y
	Mid Band (1000MHz<Fc<3000MHz)	X

The Worst-Case scenarios for below 1GHz and above 18GHz are as follows:

Technology	Frequency Band	Modulation
GSM	850	GPRS
WCDMA	Band 2	Rel 99
LTE	Band 12	16-QAM

Simultaneous transmission worst-case modes were selected as follows:

- LTE Band 4, 20300, 1745MHz, 20MHz, 1RB and 2442MHz 11ax HE20 26T/8 C0/C1 and 5240MHz C0/C1 HE20 26T/0
- LTE Band 4, 20300, 1745MHz, 20MHz, 1RB and 2442MHz 11ax HE20 106T/R54 C0/C1
- LTE Band 4, 20300, 1745MHz, 20MHz, 1RB and 5240MHz 11ax HE20 26T/0 C0/C1
- LTE Band 17, 23780, 709MHz, 10MHz, 1RB and 2462MHz 106T/R54 C0/C1

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	Sony	XQZ-UC11-010-236-21	1821W34209742	NA

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	USB	1	USB-C	Non-Shielded	<3m	Connected to Power Supply
2	3.5mm	1	3.5mm Audio	Non-Shielded	<1m	Connected to headphones

TEST SETUP

The EUT is connected to the Test support laptop and configured to transmit at each test frequency and mode.

For Conducted Testing the EUT was powered via external DC Power Supply.

For Radiated Testing the EUT was connected to AC Mains via ACDC Adaptor and headphones were

SETUP DIAGRAMS

Please see Photos Exhibit R14311589-EP1 FCC WWAN SETUP PHOTOS EXHIBIT for Setup Diagrams and Photos.

7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
AT0067	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-05-24	2023-05-24
	Gain-Loss Chains				
C4-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-20	2023-05-20
	Receiver & Software				
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-02-15	2023-02-15
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
210642	Environmental Meter	Fisher Scientific	15-077-963	2021-08-16	2023-08-16
207620	Wideband Radio Communications Tester	Anritsu	MT8821C	2022-07-07	2023-07-07
208720	Wideband Radio Communications Tester	Rohde & Schwarz	CMW500	2022-05-02	2023-05-02
HPF012	1GHz high-pass filter, 2W, F_{high} =18GHz	Micro-Tronics	HPM18129	2022-02-17	2023-02-17
BRF008	1710-1785MHz notch filter, 2W, F_{high} = 9GHz	Micro-Tronics	BRM50713-01	2022-02-17	2023-02-17
BRF010	1.85-1.97GHz notch filter, 2W, F_{high} = 9GHz	Micro-Tronics	BRM50714-01	2022-02-17	2023-02-17

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Common Equipment				
	Conducted Room 1				
SA0026	Spectrum Analyzer	Keysight Technologies	N9030A	2021-07-26	2022-07-26
SA0025	Spectrum Analyzer	Keysight Technologies	N9030A	2022-05-02	2023-05-02
212967	Wideband Radio Communications Tester	Rohde and Schwartz	CMW500	2021-11-15	2022-11-15
HI0090	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12
MY62176088	DC Regulated Power Supply	Keysight	E3633A	NA	NA
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2022-01-25	2023-01-25
SOFTEMI	CLT Software	UL	Version 3.0(A)	NA	NA

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-03-21	2023-03-21
	Gain-Loss Chains				
C2-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-10	2023-05-10
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-03-08	2023-03-08
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
HPF004	1GHz high-pass filter, 2W, F_{high} =18GHz	Micro-Tronics	HPM50115-01	2022-02-17	2023-02-17
BRF004	5.5GHz notch filter, 2W, F_{high} =18GHz	Micro-Tronics	BRM50716-01	2022-02-17	2023-02-17
BRF008	1710-1785MHz notch filter, 2W, F_{high} = 9GHz	Micro-Tronics	BRM50713-01	2022-02-17	2023-02-17
200540	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2021-08-19	2022-08-19
	30-1000 MHz				
AT0066	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB1	2022-03-01	2023-03-01
	1-18 GHz				
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-05-11	2023-05-11
	18-40 GHz				
AT0063	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2021-11-04	2022-11-04
AT0061	Horn Antenna, 26-40GHz	ARA	MWH-2640/B	2021-11-04	2022-11-04
	Gain-Loss Chains				
C1-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2022-05-05	2023-05-05
C1-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2022-05-05	2023-05-05
C1-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-05	2023-05-05
C1-SAC04	Gain-loss string: 18-40GHz	Various	Various	2022-05-05	2023-05-05
	Receiver & Software				
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-04-14	2023-04-14
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
210922	Environmental Meter	Fisher Scientific	181474341	2021-09-27	2022-09-27
	Wideband Radio Communications Tester	Rohde & Schwarz	CMW500	2022-05-02	2023-05-02
BRF001	900MHz notch filter, 2W, F_{high} =6GHz	Micro-Tronics	BRM50706	2022-05-27	2023-05-27
LPF008	DC-1000MHz low-pass filter	Pasternack	PE8720	2022-05-27	2023-05-27

NOTES:

1. * Testing is completed before equipment expiration date.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

8. RF OUTPUT POWER VERIFICATION

CONDUCTED OUTPUT POWER MEASUREMENT PROCEDURE

All LTE bands conducted average power is obtained from the CMW500 telecommunication test set.

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS136.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS136.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS136.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36, 66, 70	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2, 6.6.3.3.19	41	5, 10, 15, 20	Table 6.2.4-4, Table 6.2.4-4a	

RESULTS

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted output powers as follows:

8.1. GSM

Using CMW500 Communication Test Set

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press **Connection control** to choose the different menus
Press **RESET** > choose all to reset all settings

Connection	Press **Signal Off** to turn off the signal and change settings Network Support > GSM+GPRS or GSM+EGPRS Main Service > Packet Data Service selection > Test Mode A – Auto Slot Config. Off	
MS Signal	Press Slot Config bottom on the right twice to select and change the number of time slots and power setting	
	> Slot configuration	> Uplink/Gamma > 33 dBm for GPRS 850/900 > 27 dBm for EGPRS 850/900 > 30 dBm for GPRS1800/1900 > 26 dBm for EGPRS1800/1900
BS Signal	Enter the same channel number for TCH channel (test channel) and BCCH channel	
	Frequency Offset >	+ 0 Hz
	Mode >	BCCH and TCH
	BCCH Level >	-85 dBm (May need to adjust if link is not stable)
	BCCH Channel >	choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]
	Channel Type >	Off
	P0 >	4 dB
	Slot Config >	Unchanged (if already set under MS Signal)
	TCH >	Choose desired test channel
	Hopping >	Off
	Main Timeslot >	3 (Default)
Network	Coding Scheme >	CS 1 (GPRS) and MCS5 (EGPRS)
	Bit Stream >	2E9-1PSR Bit Pattern
AF/RF	Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input	
Connection	Press **Signal On** to turn on the signal and change settings	

RESULT

8.1.1. GSM GSM850

Test Engineer ID:	27465	Test Date:	2022-07-26

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GPRS/EDGE (GMSK)	CS1	1	128	824.2	32.1	23.1	33.2	24.2
			190	836.6	32.2	23.2		
			251	848.8	32.6	23.6		
		2	128	824.2	28.9	22.9	30.2	24.2
			190	836.6	29.0	23.0		
			251	848.8	29.2	23.1		
		3	128	824.2	27.2	22.9	28.4	24.1
			190	836.6	27.3	23.0		
			251	848.8	27.4	23.1		
		4	128	824.2	26.1	23.1	27.2	**24.2**
			190	836.6	26.2	23.2		
			251	848.8	26.5	23.5		
EDGE (8PSK)	MCS5	1	128	824.2	26.6	17.6	27.7	18.7
			190	836.6	27.2	18.1		
			251	848.8	26.8	17.8		
		2	128	824.2	23.6	17.6	24.7	18.7
			190	836.6	23.6	17.6		
			251	848.8	23.8	17.8		
		3	128	824.2	21.8	17.6	22.9	18.6
			190	836.6	20.9	16.7		
			251	848.8	21.9	17.7		
		4	128	824.2	21.1	18.1	21.7	18.7
			190	836.6	20.9	17.8		
			251	848.8	21.7	18.7		

8.1.2. GSM GSM1900

Test Engineer ID:	27465/44389	Test Date:	2022-07-26

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GPRS/EDGE (GMSK)	CS1	1	512	1850.2	26.7	17.6	27.7	18.7
			661	1880.0	26.9	17.9		
			810	1909.8	26.8	17.8		
		2	512	1850.2	23.8	17.7	24.7	18.7
			661	1880.0	23.7	17.6		
			810	1909.8	23.8	17.7		
		3	512	1850.2	21.8	17.5	22.9	18.6
			661	1880.0	22.1	17.8		
			810	1909.8	21.9	17.6		
		4	512	1850.2	20.9	17.9	21.7	**18.7**
			661	1880.0	20.9	17.8		
			810	1909.8	21.0	17.9		
EDGE (8PSK)	MCS5	1	512	1850.2	25.9	16.9	26.7	17.7
			661	1880.0	26.3	17.2		
			810	1909.8	26.4	17.3		
		2	512	1850.2	22.7	16.7	23.7	17.7
			661	1880.0	22.8	16.7		
			810	1909.8	22.9	16.9		
		3	512	1850.2	21.0	16.7	21.9	17.6
			661	1880.0	21.5	17.3		
			810	1909.8	21.3	17.0		
		4	512	1850.2	19.4	16.4	20.7	17.7
			661	1880.0	20.2	17.2		
			810	1909.8	19.7	16.7		

8.2. WCDMA

TEST PROCEDURE

The transmitter output was connected to the input terminal of Directional Coupler via calibrated coaxial cable. The output coupling terminal of the Directional Coupler was directly connected to a spectrum analyzer while the output through terminal connected to the communication test set via calibrated coaxial cable.

The output power was measured with the spectrum analyzer at the low, middle and high channel in each band.

- Set the spectrum analyzer span wide enough or greater than the modulated signal BW.
- Set a spectrum analyzer at peak detection mode with VBW ≥ RBW.≥ 26dB BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

REL 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

HSDPA REL 5

The following 4 Sub-tests were completed according to Release 5 procedures in table C.10.1.4 of 3GPP TS 34.121-1 A summary of these settings are illustrated below:

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

HSPA REL 6 (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in table C.11.1.3 of 3GPP TS 34.121-1. A summary of these settings are illustrated below:

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c.

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

RESULT

8.2.1. WCDMA BAND 2

Test Engineer ID:	27465/44389	Test Date:	2022-07-26

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	18.5	N/A	19.7
		9400	1880.0	18.4		
		9538	1907.6	18.5		
HSDPA	Subtest 1	9262	1852.4	17.7	0	19.0
		9400	1880.0	17.4		
		9538	1907.6	17.5		
	Subtest 2	9262	1852.4	17.5	0	19.0
		9400	1880.0	17.5		
		9538	1907.6	17.5		
	Subtest 3	9262	1852.4	17.4	0.5	18.5
		9400	1880.0	17.0		
		9538	1907.6	17.0		
	Subtest 4	9262	1852.4	17.0	0.5	18.5
		9400	1880.0	16.9		
		9538	1907.6	17.0		
HSUPA	Subtest 1	9262	1852.4	17.5	0	19.0
		9400	1880.0	17.5		
		9538	1907.6	17.5		
	Subtest 2	9262	1852.4	15.8	2	17.0
		9400	1880.0	15.8		
		9538	1907.6	15.8		
	Subtest 3	9262	1852.4	16.8	1	18.0
		9400	1880.0	16.8		
		9538	1907.6	16.7		
	Subtest 4	9262	1852.4	15.8	2	17.0
		9400	1880.0	15.7		
		9538	1907.6	15.8		
	Subtest 5	9262	1852.4	17.5	0	19.0
		9400	1880.0	17.8		
		9538	1907.6	17.9		

8.2.2. WCDMA BAND 4

Test Engineer ID:	2022-07-26	Test Date:	2022-07-26

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	17.1	N/A	18.7
		1413	1732.6	17.2		
		1513	1752.6	17.3		
HSDPA	Subtest 1	1312	1712.4	16.1	0	18.0
		1413	1732.6	16.2		
		1513	1752.6	16.3		
	Subtest 2	1312	1712.4	16.1	0	18.0
		1413	1732.6	16.2		
		1513	1752.6	16.3		
	Subtest 3	1312	1712.4	15.6	0.5	17.5
		1413	1732.6	15.7		
		1513	1752.6	15.8		
	Subtest 4	1312	1712.4	15.8	0.5	17.5
		1413	1732.6	15.7		
		1513	1752.6	15.8		
HSUPA	Subtest 1	1312	1712.4	16.2	0	18.0
		1413	1732.6	16.3		
		1513	1752.6	16.7		
	Subtest 2	1312	1712.4	14.2	2	16.0
		1413	1732.6	14.8		
		1513	1752.6	14.4		
	Subtest 3	1312	1712.4	15.2	1	17.0
		1413	1732.6	15.4		
		1513	1752.6	15.3		
	Subtest 4	1312	1712.4	14.2	2	16.0
		1413	1732.6	14.7		
		1513	1752.6	14.8		
	Subtest 5	1312	1712.4	16.7	0	18.0
		1413	1732.6	16.8		
		1513	1752.6	16.8		

8.3. LTE

CONDUCTED OUTPUT POWER MEASUREMENT PROCEDURE

All LTE bands conducted average power is obtained from the CMW500 telecommunication test set.

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS136.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS136.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS136.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36, 66, 70	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2, 6.6.3.3.19	41	5, 10, 15, 20	Table 6.2.4-4, Table 6.2.4-4a	

Results

8.3.1. LTE BAND 2

Test Engineer ID:	85502/44389	Test Date:	2022-07-26

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	18.9	19.0	19.1	0	20
		1	49	19.0	19.0	19.1	0	20
		1	99	19.0	19.0	19.0	0	20
		50	0	19.0	19.1	19.0	0	20
		50	24	19.0	19.1	19.0	0	20
		50	50	19.0	19.1	19.1	0	20
		100	0	19.0	19.0	19.1	0	20
	16QAM	1	0	19.2	19.3	19.2	0	20
		1	49	19.3	19.4	19.2	0	20
		1	99	19.1	19.2	19.1	0	20
		50	0	19.0	19.1	19.1	0	20
		50	24	19.0	19.1	19.1	0	20
		50	50	19.1	19.2	19.1	0	20
		100	0	19.0	19.1	19.0	0	20
	64QAM	1	0	19.3	19.3	19.3	0	20
		1	49	19.3	19.4	19.4	0	20
		1	99	19.3	19.3	19.3	0	20
		50	0	19.0	19.0	19.1	0	20
		50	24	19.1	19.1	19.1	0	20
		50	50	19.1	19.1	19.1	0	20
		100	0	19.0	19.1	19.1	0	20

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18675	18900	19125		
				1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	18.9	18.9	19.0	0	20
		1	37	19.0	19.0	19.0	0	20
		1	74	19.0	19.0	18.9	0	20
		36	0	19.0	19.0	19.0	0	20
		36	20	19.0	19.0	19.1	0	20
		36	39	19.0	19.1	19.1	0	20
		75	0	19.0	19.0	19.1	0	20
	16QAM	1	0	19.2	19.2	19.2	0	20
		1	37	19.2	19.4	19.2	0	20
		1	74	19.3	19.2	19.2	0	20
		36	0	18.9	19.0	19.1	0	20
		36	20	19.0	19.0	19.1	0	20
		36	39	19.0	19.1	19.1	0	20
		75	0	19.1	19.0	19.1	0	20
	64QAM	1	0	19.2	19.2	19.2	0	20
		1	37	19.2	19.4	19.3	0	20
		1	74	19.3	19.3	19.2	0	20
		36	0	19.0	19.1	19.0	0	20
		36	20	19.1	19.0	19.1	0	20
		36	39	19.0	19.1	19.1	0	20
		75	0	19.0	19.1	19.1	0	20

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	19.1	19.1	19.1	0	20
		1	25	19.1	19.2	19.1	0	20
		1	49	19.1	19.1	19.1	0	20
		25	0	19.2	19.2	19.2	0	20
		25	12	19.1	19.2	19.2	0	20
		25	25	19.1	19.2	19.1	0	20
		50	0	19.2	19.1	19.1	0	20
	16QAM	1	0	19.4	19.5	19.5	0	20
		1	25	19.4	19.5	19.5	0	20
		1	49	19.3	19.5	19.5	0	20
		25	0	19.1	19.2	19.1	0	20
		25	12	19.2	19.2	19.1	0	20
		25	25	19.2	19.3	19.2	0	20
		50	0	19.1	19.1	19.1	0	20
	64QAM	1	0	19.3	19.4	19.4	0	20
		1	25	19.3	19.4	19.4	0	20
		1	49	19.3	19.5	19.4	0	20
		25	0	19.1	19.1	19.1	0	20
		25	12	19.2	19.2	19.2	0	20
		25	25	19.2	19.3	19.2	0	20
		50	0	19.1	19.1	19.1	0	20

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	19.1	19.1	19.1	0	20
		1	12	19.3	19.3	19.2	0	20
		1	24	19.1	19.1	19.1	0	20
		12	0	19.1	19.1	19.1	0	20
		12	7	19.2	19.1	19.2	0	20
		12	13	19.1	19.2	19.2	0	20
		25	0	19.1	19.1	19.1	0	20
	16QAM	1	0	19.4	19.4	19.4	0	20
		1	12	19.5	19.4	19.6	0	20
		1	24	19.4	19.4	19.4	0	20
		12	0	19.2	19.1	19.2	0	20
		12	7	19.3	19.2	19.2	0	20
		12	13	19.2	19.2	19.2	0	20
		25	0	19.1	19.1	19.2	0	20
	64QAM	1	0	19.3	19.4	19.3	0	20
		1	12	19.4	19.5	19.5	0	20
		1	24	19.3	19.5	19.4	0	20
		12	0	19.1	19.1	19.3	0	20
		12	7	19.1	19.2	19.3	0	20
		12	13	19.1	19.2	19.3	0	20
		25	0	19.1	19.1	19.2	0	20

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	18.9	18.9	18.9	0	20
		1	8	19.0	19.0	19.0	0	20
		1	14	18.8	19.0	18.9	0	20
		8	0	18.9	19.0	19.0	0	20
		8	4	19.0	19.0	19.1	0	20
		8	7	19.0	19.1	19.0	0	20
		15	0	19.0	18.9	19.0	0	20
	16QAM	1	0	19.3	19.3	19.3	0	20
		1	8	19.4	19.5	19.4	0	20
		1	14	19.3	19.3	19.3	0	20
		8	0	19.1	19.1	18.9	0	20
		8	4	19.1	19.1	19.0	0	20
		8	7	19.1	19.2	19.0	0	20
		15	0	19.0	19.0	18.9	0	20
	64QAM	1	0	19.2	19.1	19.2	0	20
		1	8	19.3	19.3	19.3	0	20
		1	14	19.1	19.2	19.3	0	20
		8	0	19.0	19.0	19.1	0	20
		8	4	19.0	19.0	19.2	0	20
		8	7	19.1	19.0	19.2	0	20
		15	0	19.0	18.9	19.1	0	20

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	19.0	19.0	19.0	0	20
		1	3	19.0	19.0	19.0	0	20
		1	5	19.0	19.0	18.9	0	20
		3	0	19.0	19.0	19.0	0	20
		3	1	19.0	19.0	19.0	0	20
		3	3	19.0	19.0	19.0	0	20
		6	0	19.0	19.0	19.0	0	20
	16QAM	1	0	19.1	19.2	19.3	0	20
		1	3	19.2	19.3	19.3	0	20
		1	5	19.2	19.2	19.3	0	20
		3	0	19.1	19.2	19.2	0	20
		3	1	19.1	19.2	19.2	0	20
		3	3	19.1	19.2	19.2	0	20
		6	0	19.1	19.1	19.1	0	20
	64QAM	1	0	19.3	19.5	19.2	0	20
		1	3	19.4	19.5	19.3	0	20
		1	5	19.3	19.4	19.3	0	20
		3	0	19.1	19.2	19.1	0	20
		3	1	19.2	19.2	19.0	0	20
		3	3	19.1	19.1	19.1	0	20
		6	0	19.1	19.1	19.0	0	20

8.3.3. LTE BAND 4

Test Engineer ID:	84740/44389	Test Date:	2022-07-26

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				20050	20175	20300	MPR	Tune-up Limit
				1720 MHz	1732.5 MHz	1745 MHz		
20 MHz	QPSK	1	0	17.8	18.1	18.0	0	19
		1	49	17.8	18.1	18.1	0	19
		1	99	17.9	18.2	18.2	0	19
		50	0	17.8	18.0	17.9	0	19
		50	24	17.9	18.0	18.0	0	19
		50	50	17.9	18.0	18.0	0	19
		100	0	17.9	17.9	17.9	0	19
	16QAM	1	0	18.2	18.1	18.2	0	19
		1	49	18.2	18.3	18.3	0	19
		1	99	18.3	18.2	18.2	0	19
		50	0	17.8	17.9	18.0	0	19
		50	24	17.9	17.9	18.0	0	19
		50	50	17.9	18.0	18.0	0	19
		100	0	17.9	17.9	17.9	0	19
	64QAM	1	0	18.2	18.1	18.3	0	19
		1	49	18.2	18.2	18.3	0	19
		1	99	18.3	18.2	18.3	0	19
		50	0	17.9	17.9	17.9	0	19
		50	24	17.9	17.9	18.1	0	19
		50	50	17.9	18.0	18.0	0	19
		100	0	17.9	17.9	17.9	0	19

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20025	20175	20325		
				1717.5 MHz	1732.5 MHz	1747.5 MHz		
15 MHz	QPSK	1	0	17.9	17.9	17.9	0	19
		1	37	18.0	17.9	17.9	0	19
		1	74	18.0	17.9	18.0	0	19
		36	0	17.9	17.9	17.9	0	19
		36	20	18.0	17.9	17.9	0	19
		36	39	18.0	18.0	18.0	0	19
		75	0	18.0	17.9	17.9	0	19
	16QAM	1	0	18.2	18.2	18.2	0	19
		1	37	18.2	18.3	18.2	0	19
		1	74	18.4	18.2	18.2	0	19
		36	0	18.0	18.0	18.0	0	19
		36	20	18.0	18.0	17.9	0	19
		36	39	18.0	18.0	18.0	0	19
		75	0	18.0	17.9	17.9	0	19
	64QAM	1	0	18.2	18.1	18.2	0	19
		1	37	18.2	18.2	18.2	0	19
		1	74	18.1	18.2	18.2	0	19
		36	0	17.8	17.9	17.9	0	19
		36	20	17.9	18.0	18.0	0	19
		36	39	17.9	18.0	18.0	0	19
		75	0	17.9	17.9	17.9	0	19

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20000	20175	20350		
				1715 MHz	1732.5 MHz	1750 MHz		
10 MHz	QPSK	1	0	18.1	18.1	18.1	0	19
		1	25	18.0	18.2	18.2	0	19
		1	49	18.0	18.2	18.1	0	19
		25	0	18.1	18.0	18.1	0	19
		25	12	18.1	18.2	18.1	0	19
		25	25	17.9	18.3	18.2	0	19
		50	0	18.1	18.0	18.0	0	19
	16QAM	1	0	18.3	18.3	18.5	0	19
		1	25	18.3	18.4	18.4	0	19
		1	49	18.4	18.5	18.4	0	19
		25	0	18.1	18.2	18.1	0	19
		25	12	18.1	18.2	18.1	0	19
		25	25	18.1	18.2	18.3	0	19
		50	0	18.0	18.1	18.2	0	19
	64QAM	1	0	18.2	18.4	18.5	0	19
		1	25	18.3	18.4	18.4	0	19
		1	49	18.4	18.4	18.3	0	19
		25	0	18.1	18.2	18.2	0	19
		25	12	18.2	18.2	18.2	0	19
		25	25	18.0	18.2	18.3	0	19
		50	0	18.1	18.1	18.2	0	19

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				19975	20175	20375	MPR	Tune-up Limit
				1712.5 MHz	1732.5 MHz	1752.5 MHz		
5 MHz	QPSK	1	0	18.0	18.1	18.1	0	19
		1	12	18.2	18.3	18.2	0	19
		1	24	18.0	18.2	18.1	0	19
		12	0	18.1	18.1	18.2	0	19
		12	7	18.1	18.2	18.2	0	19
		12	13	18.1	18.2	18.2	0	19
		25	0	18.1	18.1	18.2	0	19
	16QAM	1	0	18.3	18.4	18.5	0	19
		1	12	18.3	18.6	18.6	0	19
		1	24	18.4	18.5	18.4	0	19
		12	0	18.2	18.2	18.3	0	19
		12	7	18.2	18.2	18.4	0	19
		12	13	18.1	18.3	18.3	0	19
		25	0	18.1	18.2	18.2	0	19
	64QAM	1	0	18.3	18.5	18.4	0	19
		1	12	18.3	18.6	18.4	0	19
		1	24	18.4	18.3	18.4	0	19
		12	0	18.1	18.2	18.2	0	19
		12	7	18.2	18.2	18.1	0	19
		12	13	18.2	18.3	18.2	0	19
		25	0	18.2	18.2	18.2	0	19

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				19965	20175	20385	MPR	Tune-up Limit
				1711.5 MHz	1732.5 MHz	1753.5 MHz		
3 MHz	QPSK	1	0	18.1	18.2	18.2	0	19
		1	8	18.1	18.2	18.3	0	19
		1	14	18.1	18.2	18.1	0	19
		8	0	18.1	18.2	18.3	0	19
		8	4	18.2	18.2	18.3	0	19
		8	7	18.2	18.3	18.3	0	19
		15	0	18.1	18.2	18.2	0	19
	16QAM	1	0	18.2	18.2	18.5	0	19
		1	8	18.3	18.2	18.3	0	19
		1	14	18.4	18.5	18.2	0	19
		8	0	18.3	18.3	18.4	0	19
		8	4	18.2	18.2	18.4	0	19
		8	7	18.3	18.4	18.4	0	19
		15	0	18.2	18.1	18.3	0	19
	64QAM	1	0	18.3	18.4	18.5	0	19
		1	8	18.3	18.4	18.3	0	19
		1	14	18.4	18.5	18.4	0	19
		8	0	18.2	18.3	18.4	0	19
		8	4	18.2	18.4	18.4	0	19
		8	7	18.1	18.4	18.4	0	19
		15	0	18.2	18.2	18.3	0	19

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				19957	20175	20393		
				1710.7 MHz	1732.5 MHz	1754.3 MHz		
1.4 MHz	QPSK	1	0	18.0	18.2	18.1	0	19
		1	3	18.1	18.2	18.2	0	19
		1	5	18.1	18.2	18.1	0	19
		3	0	18.1	18.2	18.1	0	19
		3	1	18.1	18.2	18.2	0	19
		3	3	18.1	18.2	18.1	0	19
		6	0	18.1	18.1	18.2	0	19
	16QAM	1	0	18.3	18.2	18.5	0	19
		1	3	18.3	18.1	18.2	0	19
		1	5	18.2	18.2	18.4	0	19
		3	0	18.3	18.4	18.4	0	19
		3	1	18.3	18.3	18.4	0	19
		3	3	18.3	18.4	18.4	0	19
		6	0	18.2	18.2	18.3	0	19
	64QAM	1	0	18.3	18.4	18.4	0	19
		1	3	18.2	18.2	18.3	0	19
		1	5	18.4	18.5	18.3	0	19
		3	0	18.3	18.3	18.4	0	19
		3	1	18.3	18.3	18.4	0	19
		3	3	18.3	18.3	18.4	0	19
		6	0	18.1	18.2	18.2	0	19

8.3.4. LTE BAND 12

Test Engineer ID:	84740/44389	Test Date:	2022-07-26

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23060	23095	23130		
				704 MHz	707.5 MHz	711 MHz		
10 MHz	QPSK	1	0	21.2	21.1	21.2	0	22
		1	25	21.2	21.1	21.2	0	22
		1	49	21.2	21.1	21.1	0	22
		25	0	21.1	21.1	21.3	0	22
		25	12	21.2	21.1	21.2	0	22
		25	25	21.3	21.2	21.2	0	22
		50	0	21.2	21.2	21.2	0	22
	16QAM	1	0	21.6	21.6	21.6	0	22
		1	25	21.5	21.5	21.6	0	22
		1	49	21.6	21.4	21.6	0	22
		25	0	21.2	21.2	21.2	0	22
		25	12	21.3	21.1	21.2	0	22
		25	25	21.3	21.2	21.3	0	22
		50	0	21.2	21.0	21.2	0	22
	64QAM	1	0	21.3	21.5	21.5	0	22
		1	25	21.5	21.4	21.5	0	22
		1	49	21.4	21.5	21.5	0	22
		25	0	21.2	21.2	21.3	0	22
		25	12	21.2	21.2	21.3	0	22
		25	25	21.2	21.3	21.3	0	22
		50	0	21.2	21.1	21.2	0	22

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23035	23095	23155		
				701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	21.2	21.2	21.3	0	22
		1	12	21.3	21.2	21.3	0	22
		1	24	21.1	21.2	21.1	0	22
		12	0	21.2	21.2	21.2	0	22
		12	7	21.2	21.1	21.2	0	22
		12	13	21.2	21.3	21.2	0	22
		25	0	21.1	21.2	21.2	0	22
	16QAM	1	0	21.5	21.6	21.6	0	22
		1	12	21.5	21.6	21.7	0	22
		1	24	21.4	21.5	21.6	0	22
		12	0	21.2	21.2	21.3	0	22
		12	7	21.2	21.2	21.3	0	22
		12	13	21.3	21.2	21.3	0	22
		25	0	21.2	21.2	21.2	0	22
	64QAM	1	0	21.3	21.4	21.6	0	22
		1	12	21.5	21.6	21.6	0	22
		1	24	21.3	21.5	21.5	0	22
		12	0	21.2	21.2	21.1	0	22
		12	7	21.1	21.1	21.2	0	22
		12	13	21.2	21.3	21.2	0	22
		25	0	21.2	21.2	21.1	0	22

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	21.1	21.2	21.2	0	22
		1	8	21.2	21.3	21.3	0	22
		1	14	21.1	21.2	21.2	0	22
		8	0	21.2	21.1	21.2	0	22
		8	4	21.2	21.2	21.2	0	22
		8	7	21.2	21.2	21.3	0	22
		15	0	21.2	21.2	21.1	0	22
	16QAM	1	0	21.5	21.5	21.4	0	22
		1	8	21.6	21.6	21.6	0	22
		1	14	21.4	21.5	21.4	0	22
		8	0	21.2	21.3	21.2	0	22
		8	4	21.2	21.2	21.4	0	22
		8	7	21.3	21.4	21.3	0	22
		15	0	21.2	21.2	21.2	0	22
	64QAM	1	0	21.5	21.5	21.5	0	22
		1	8	21.5	21.4	21.5	0	22
		1	14	21.3	21.4	21.4	0	22
		8	0	21.2	21.3	21.2	0	22
		8	4	21.2	21.3	21.4	0	22
		8	7	21.2	21.4	21.4	0	22
		15	0	21.2	21.2	21.2	0	22

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23017	23095	23173		
				699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	21.2	21.2	21.2	0	22
		1	3	21.1	21.3	21.1	0	22
		1	5	21.2	21.3	21.2	0	22
		3	0	21.2	21.2	21.2	0	22
		3	1	21.1	21.2	21.2	0	22
		3	3	21.2	21.2	21.2	0	22
		6	0	21.1	21.1	21.2	0	22
	16QAM	1	0	21.4	21.5	21.5	0	22
		1	3	21.6	21.6	21.6	0	22
		1	5	21.5	21.6	21.5	0	22
		3	0	21.3	21.4	21.4	0	22
		3	1	21.3	21.4	21.3	0	22
		3	3	21.3	21.4	21.4	0	22
		6	0	21.2	21.2	21.2	0	22
	64QAM	1	0	21.3	21.5	21.5	0	22
		1	3	21.3	21.6	21.5	0	22
		1	5	21.3	21.5	21.5	0	22
		3	0	21.3	21.3	21.3	0	22
		3	1	21.3	21.3	21.2	0	22
		3	3	21.2	21.2	21.4	0	22
		6	0	21.2	21.1	21.2	0	22

9. CONDUCTED TEST RESULTS

9.1. OCCUPIED BANDWIDTH

RULE PART(S)
FCC: §2.1049

LIMITS
For reporting purposes only.

TEST PROCEDURE
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the middle channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

RESULTS
There is no limit required and power is the same for low, middle and high channel; therefore, only middle channel was tested. Worst-case plots (highest bandwidth) are reported only.

GSM

Band	Modulation	Channel	f(MHz)	99% BW (KHz)	-26dB BW (KHz)
GSM850	GPRS	190	836.6	240.3	316.3
	EGPRS			245.1	311
GSM1900	GPRS	661	1880.0	238.3	319.7
	EGPRS			244	309.7

WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND2	REL 99	9800	1880.0	4.1502	4.713
	HSDPA			4.1644	4.688
BAND4	REL 99	1638	1732.6	4.1593	4.714
	HSDPA			4.1613	4.702

LTE2

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 2	1.4MHz, QPSK	6/0	1880.0	1.08	1.3
	1.4MHz,16QAM			1.09	1.3
	3MHz, QPSK	15/0		2.69	2.95
	3MHz, 16QAM			2.70	2.96
	5MHz, QPSK	25/0		4.49	4.89
	5MHz, 16QAM			4.49	4.89
	10MHz, QPSK	50/0		8.98	9.56
	10MHz, 16QAM			8.98	9.57
	15MHz, QPSK	75/0		13.47	14.27
	15MHz, 16QAM			13.47	14.28
	20MHz, QPSK	100/0		17.95	18.98
	20MHz, 16QAM			17.96	19.00

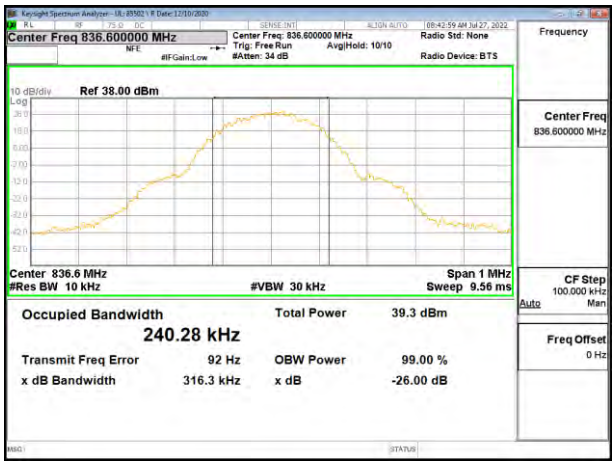
LTE4

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 4	1.4MHz, QPSK	6/0	1732.5	1.09	1.3
	1.4MHz,16QAM			1.09	1.3
	3MHz, QPSK	15/0		2.7	2.96
	3MHz, 16QAM			2.7	2.95
	5MHz, QPSK	25/0		4.49	4.89
	5MHz, 16QAM			4.49	4.87
	10MHz, QPSK	50/0		8.97	9.56
	10MHz, 16QAM			8.98	9.56
	15MHz, QPSK	75/0		13.46	14.25
	15MHz, 16QAM			13.45	14.26
	20MHz, QPSK	100/0		17.94	18.94
	20MHz, 16QAM			17.94	19.06

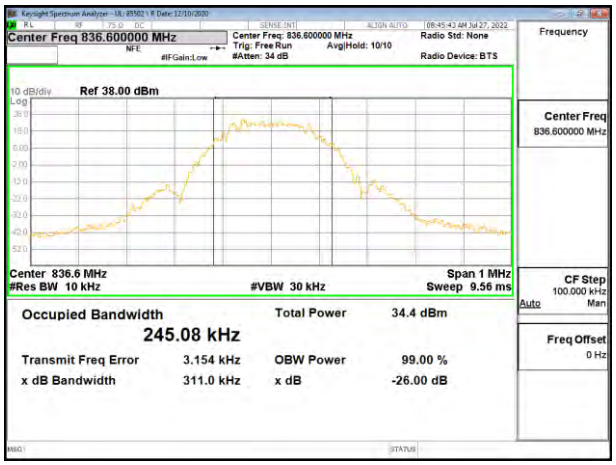
LTE12

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 12	1.4MHz, QPSK	6/0	707.5	1.08	1.3
	1.4MHz,16QAM			1.08	1.29
	3MHz, QPSK	15/0		2.7	2.94
	3MHz, 16QAM			2.69	2.95
	5MHz, QPSK	25/0		4.49	4.85
	5MHz, 16QAM			4.49	4.86
	10MHz, QPSK	50/0		8.97	9.53
	10MHz, 16QAM			8.96	9.55

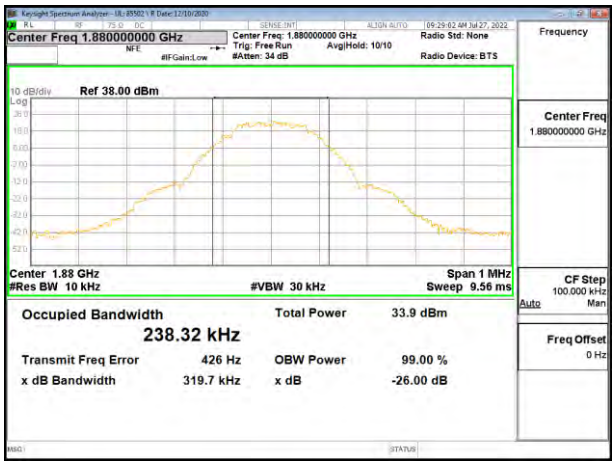
9.1.1. GSM



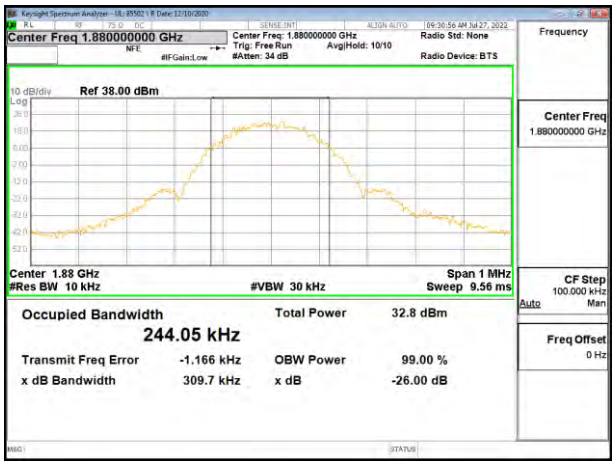
GSM850 GPRS MID Channel



GSM850 EGPRS MID Channel

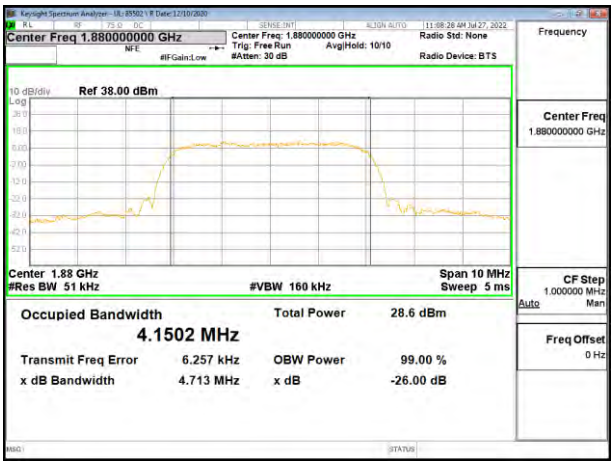


GSM1900 GPRS MID Channel

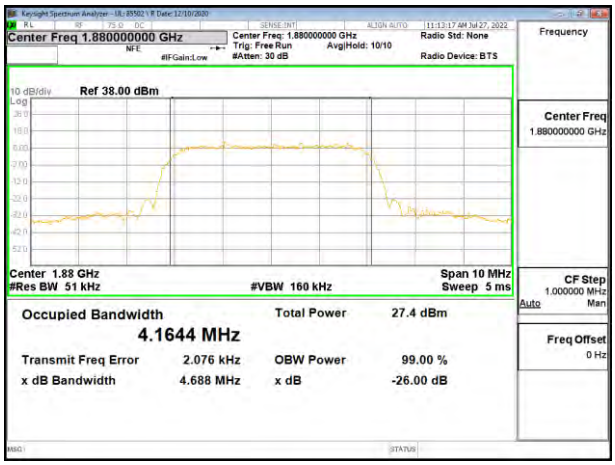


GSM1900 EGPRS MID Channel

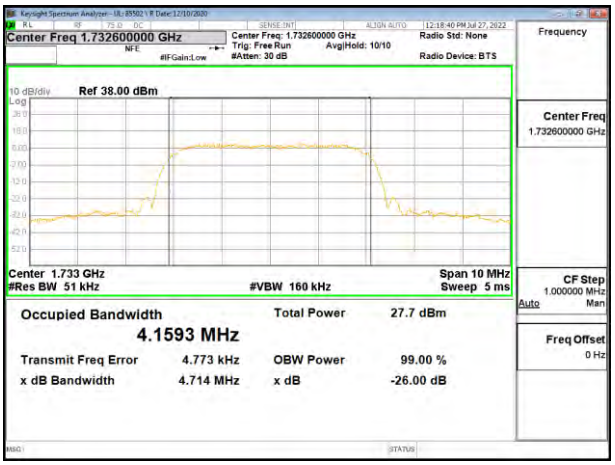
9.1.2. WCDMA



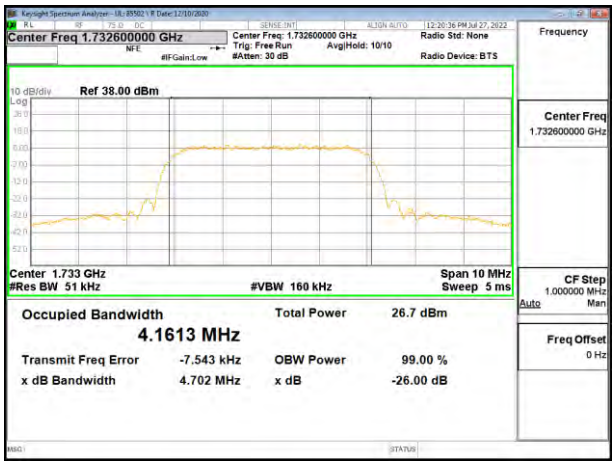
BAND 2 Rel 99 MID Channel



BAND 2 HSDPA MID Channel

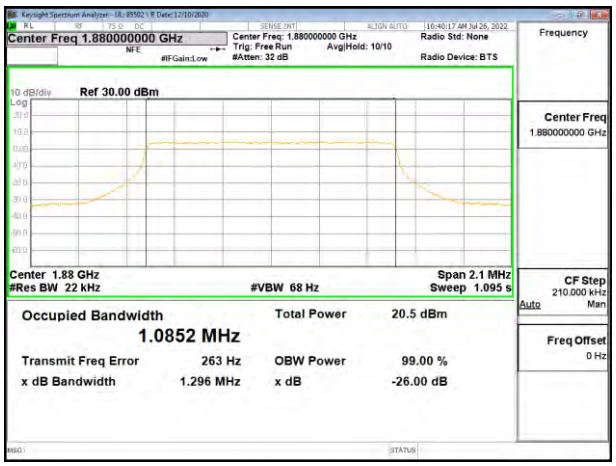


BAND 4 Rel 99 MID Channel

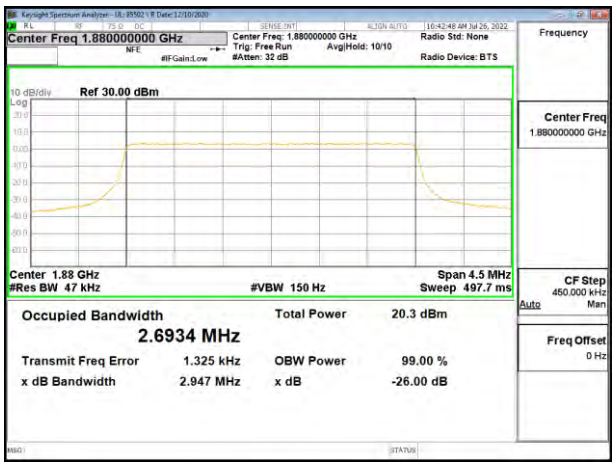


BAND 4 HSDPA MID Channel

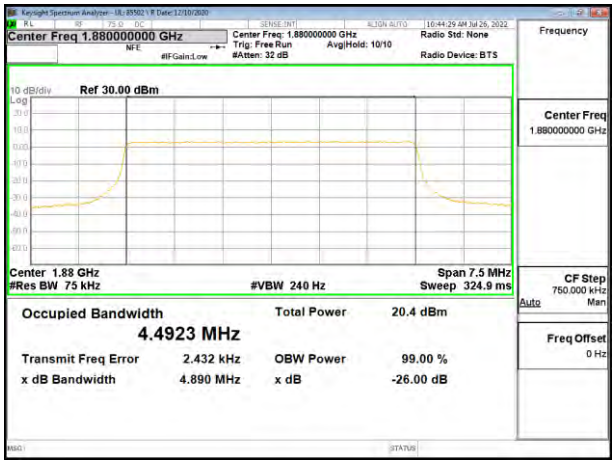
9.1.3. LTE BAND 2



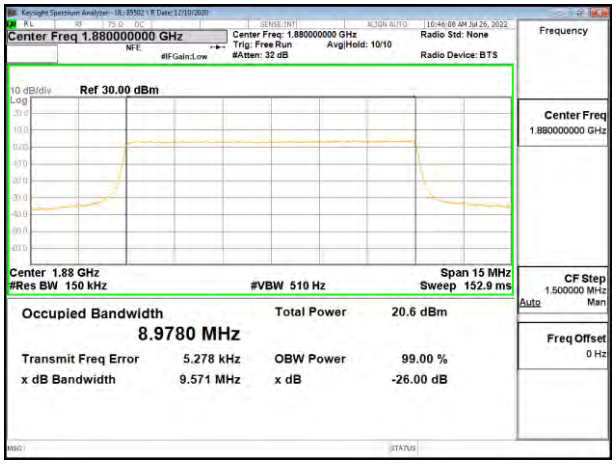
LTE2 1.4MHz QPSK MID Ch RB100-0



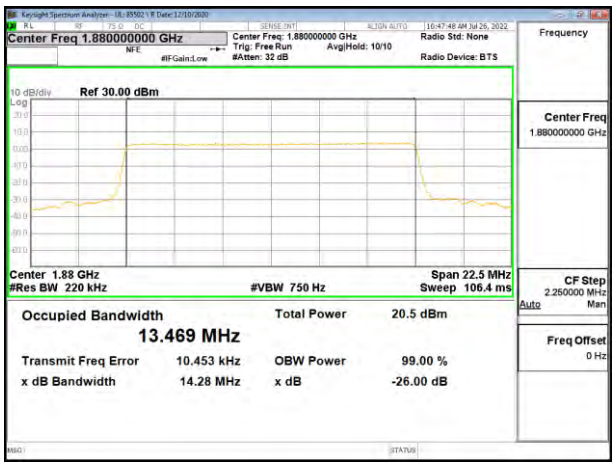
LTE2 3MHz QPSK MID Ch RB75-0



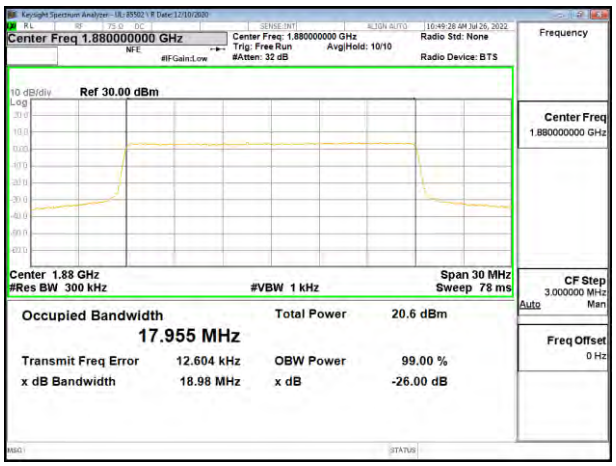
LTE2 5MHz QPSK MID Ch RB50-0



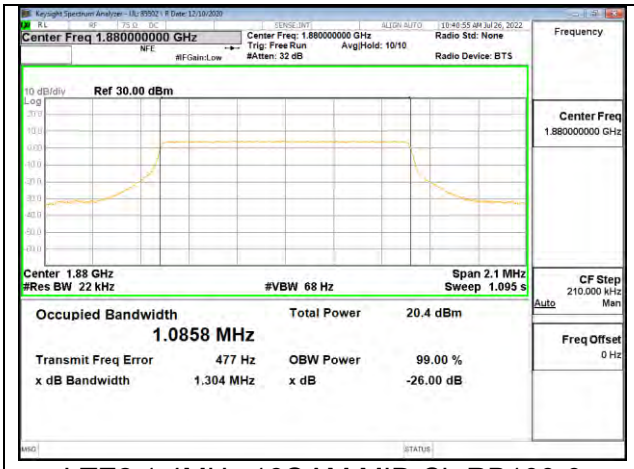
LTE2 10MHz QPSK MID Ch RB25-0



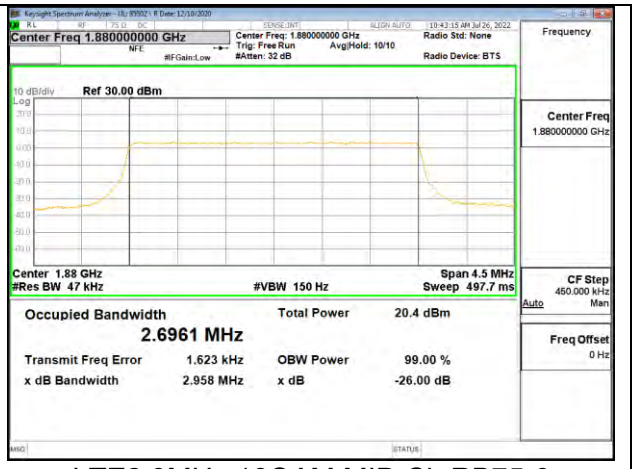
LTE2 15MHz QPSK MID Ch RB15-0



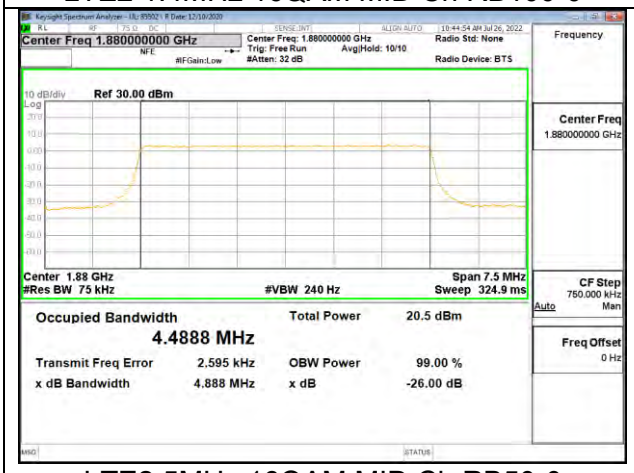
LTE2 20MHz QPSK MID Ch RB100-0



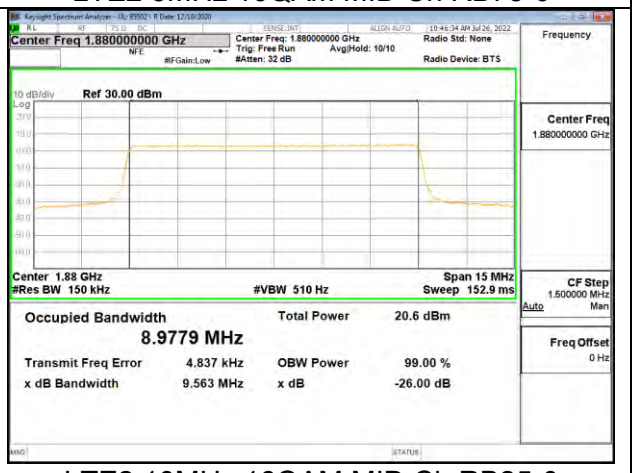
LTE2 1.4MHz 16QAM MID Ch RB100-0



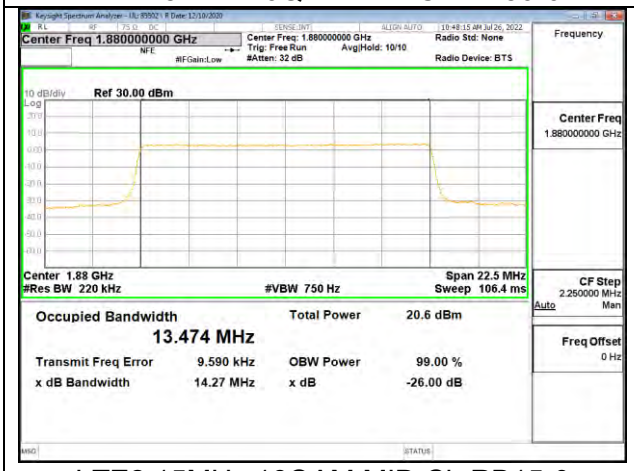
LTE2 3MHz 16QAM MID Ch RB75-0



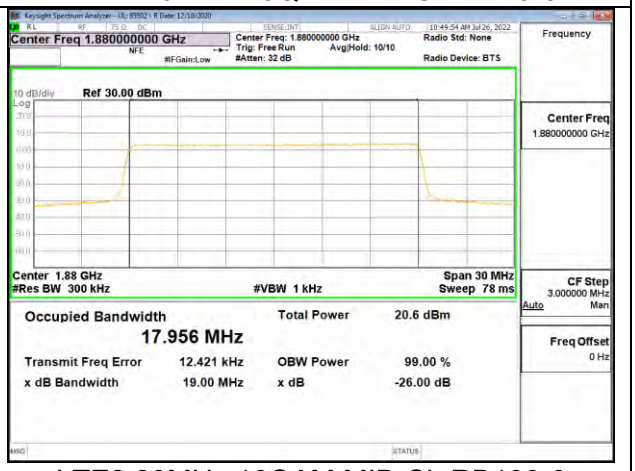
LTE2 5MHz 16QAM MID Ch RB50-0



LTE2 10MHz 16QAM MID Ch RB25-0

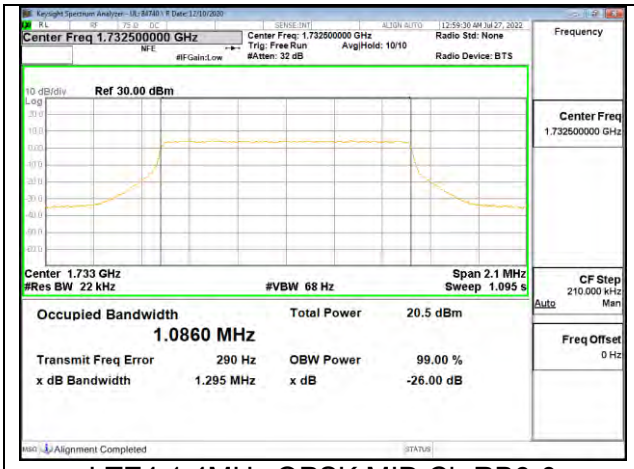


LTE2 15MHz 16QAM MID Ch RB15-0

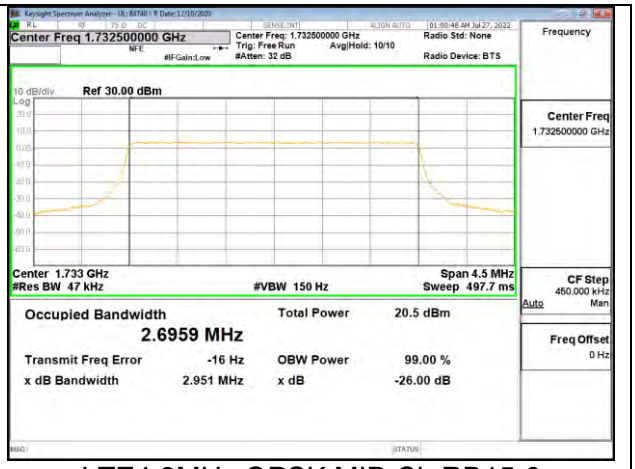


LTE2 20MHz 16QAM MID Ch RB100-0

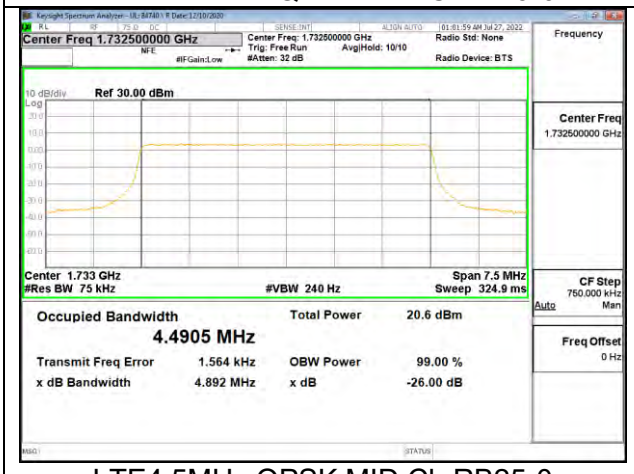
9.1.4. LTE BAND 4



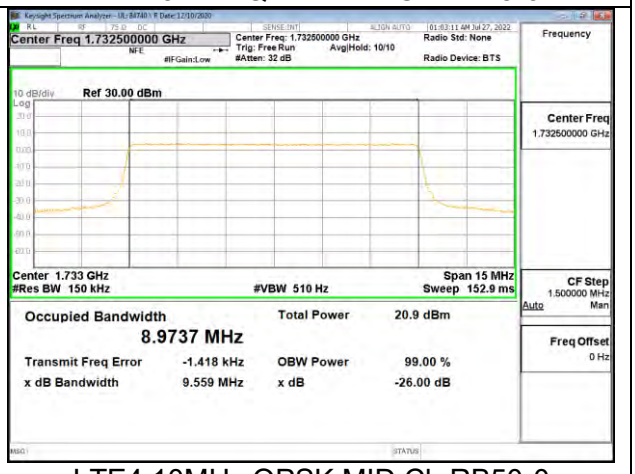
LTE4 1.4MHz QPSK MID Ch RB6-0



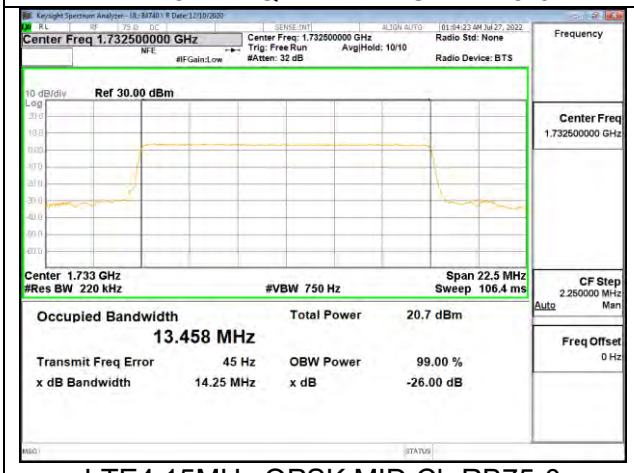
LTE4 3MHz QPSK MID Ch RB15-0



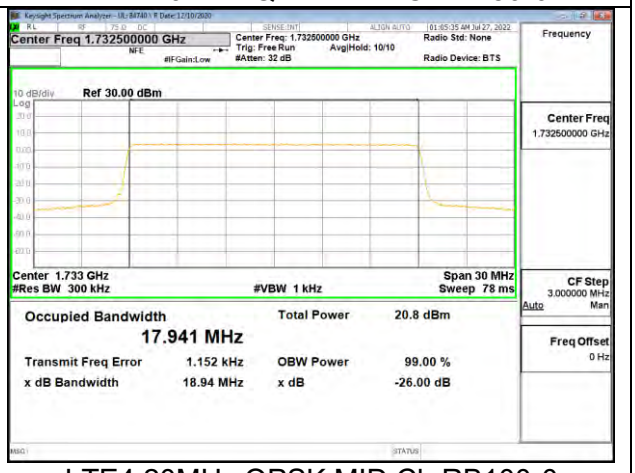
LTE4 5MHz QPSK MID Ch RB25-0



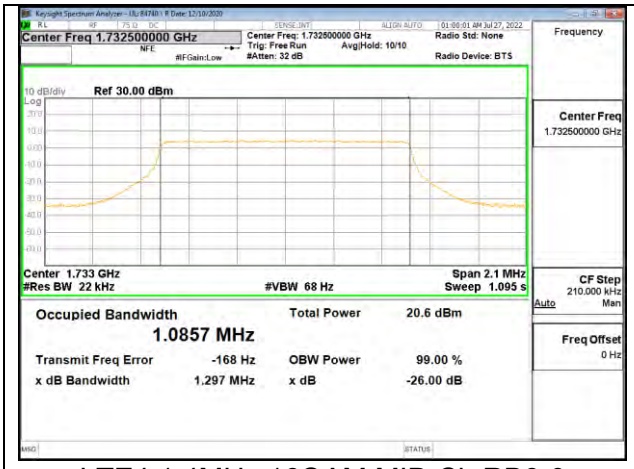
LTE4 10MHz QPSK MID Ch RB50-0



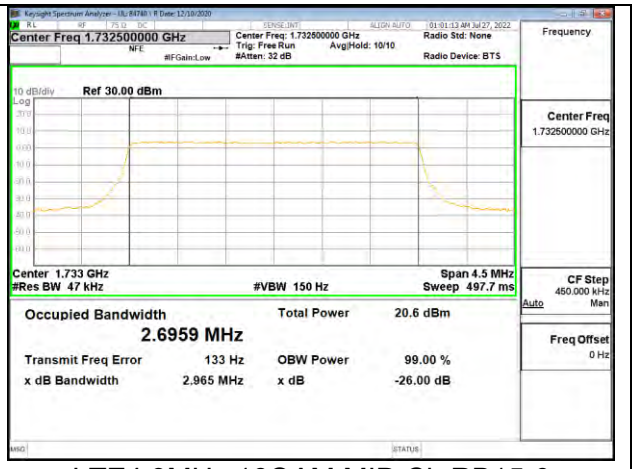
LTE4 15MHz QPSK MID Ch RB75-0



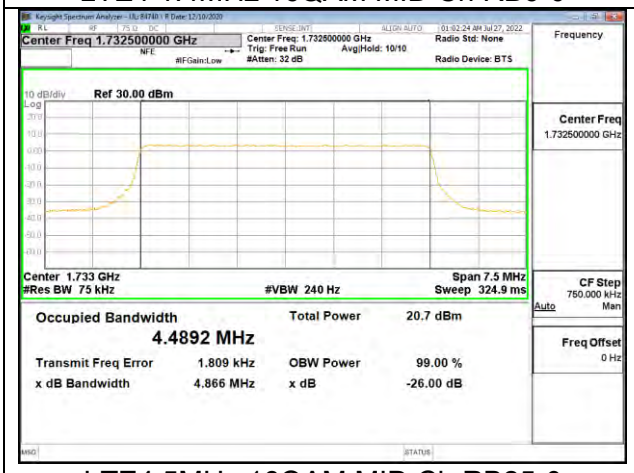
LTE4 20MHz QPSK MID Ch RB100-0



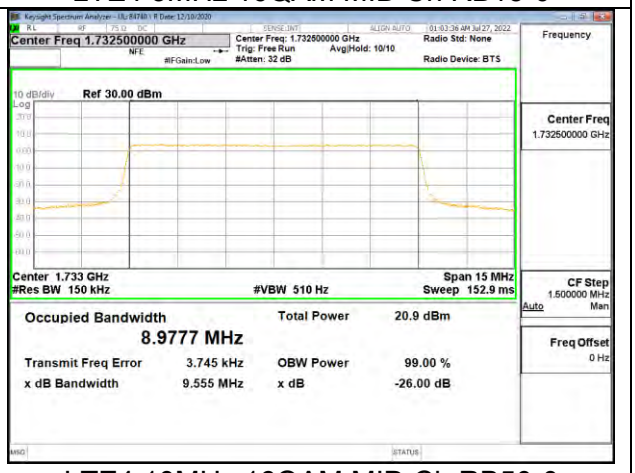
LTE4 1.4MHz 16QAM MID Ch RB6-0



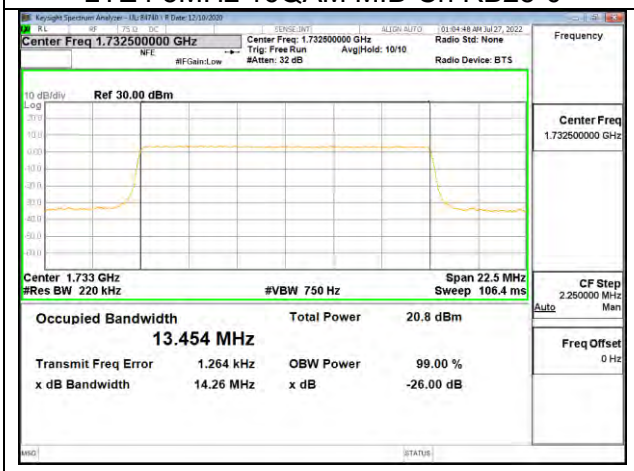
LTE4 3MHz 16QAM MID Ch RB15-0



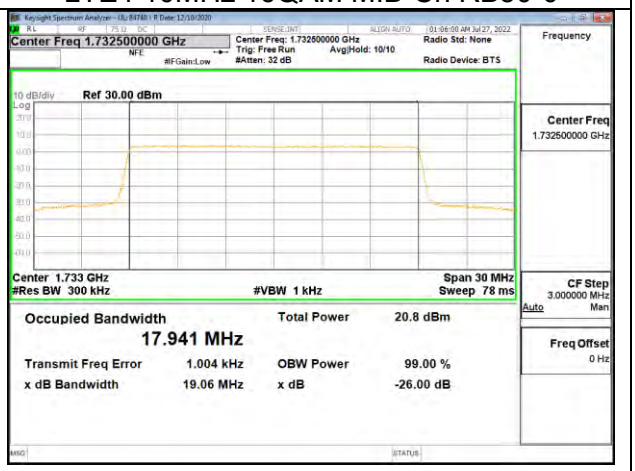
LTE4 5MHz 16QAM MID Ch RB25-0



LTE4 10MHz 16QAM MID Ch RB50-0

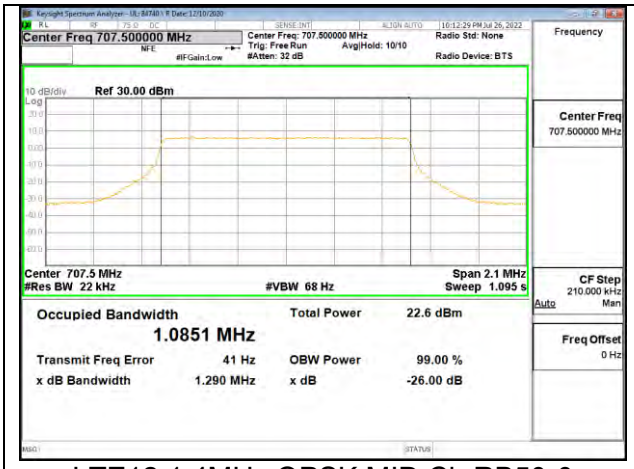


LTE4 15MHz 16QAM MID Ch RB75-0

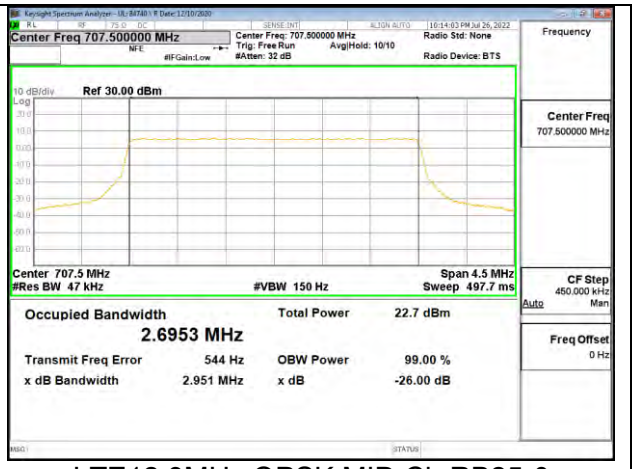


LTE4 20MHz 16QAM MID Ch RB100-0

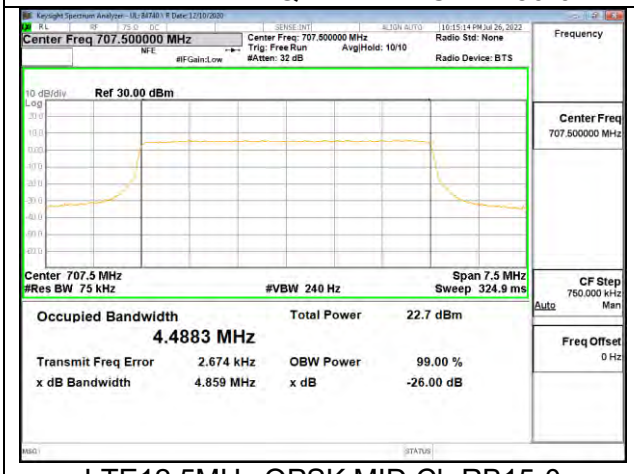
9.1.5. LTE BAND 12



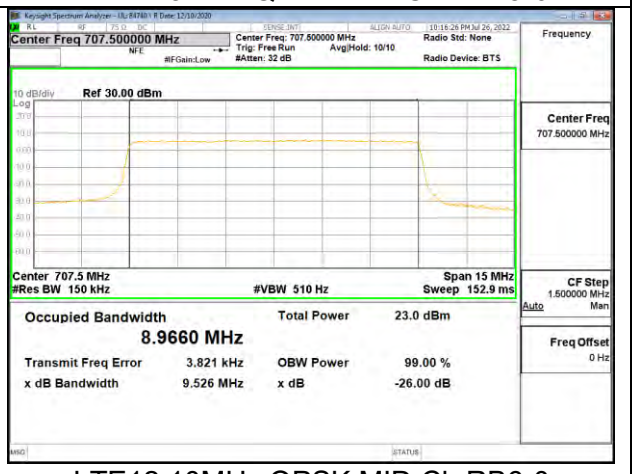
LTE12 1.4MHz QPSK MID Ch RB50-0



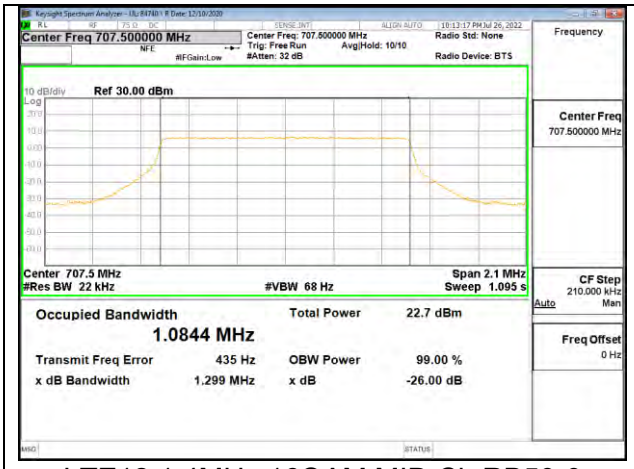
LTE12 3MHz QPSK MID Ch RB25-0



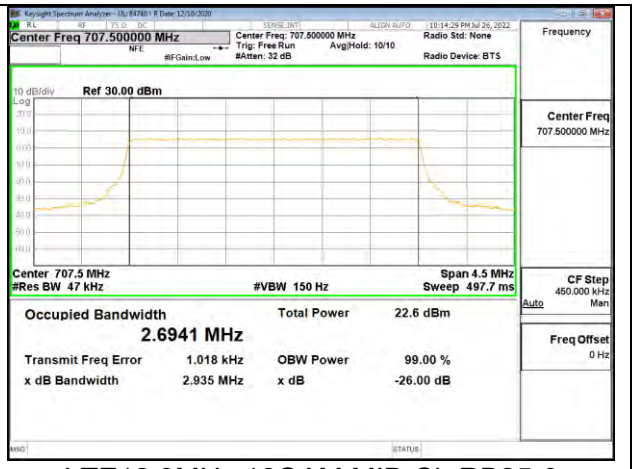
LTE12 5MHz QPSK MID Ch RB15-0



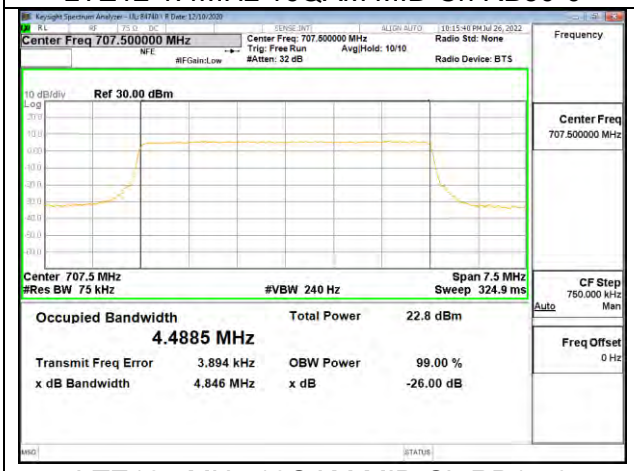
LTE12 10MHz QPSK MID Ch RB6-0



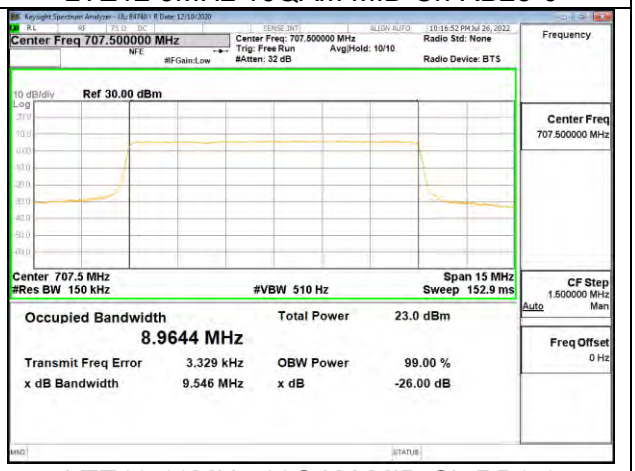
LTE12 1.4MHz 16QAM MID Ch RB50-0



LTE12 3MHz 16QAM MID Ch RB25-0



LTE12 5MHz 16QAM MID Ch RB15-0



LTE12 10MHz 16QAM MID Ch RB6-0

9.2. BAND EDGE AND EMISSION MASK

TEST PROCEDURE

The transmitter output was connected to a CMW500Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

(i) Set the spectrum analyzer span to include the block edge frequency.
(ii) Set a marker to point the corresponding band edge frequency in each test case.
(iii) Set display line at -13 dBm
(iv) Set resolution bandwidth to at least 1% of emission bandwidth.

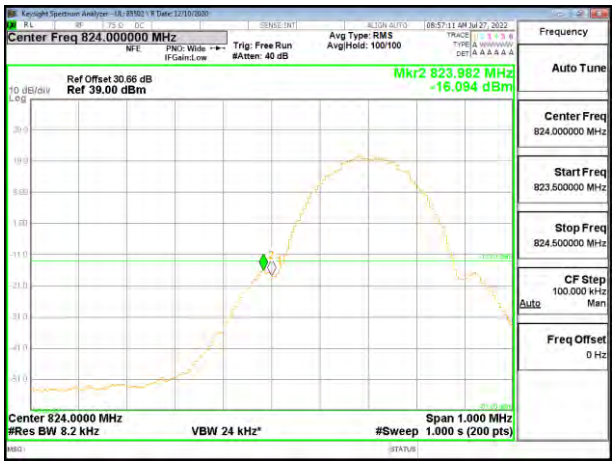
RESULTS

9.2.1. GSM GSM850

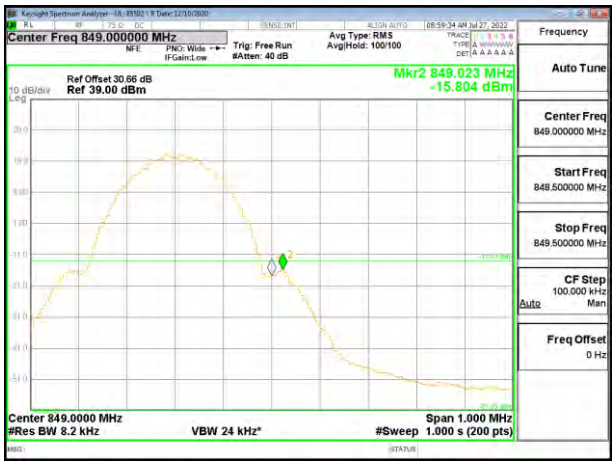
LIMITS

FCC: §22.917

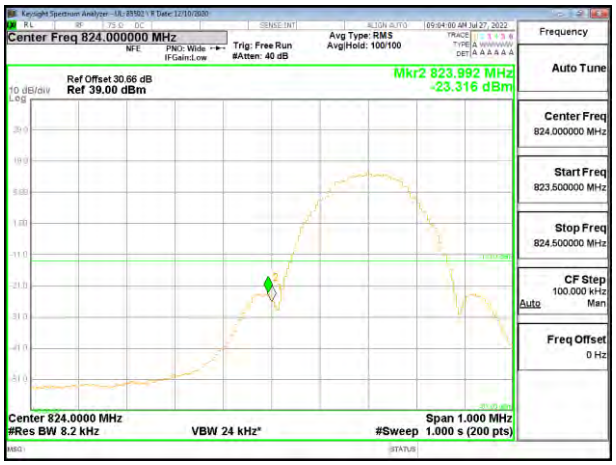
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.



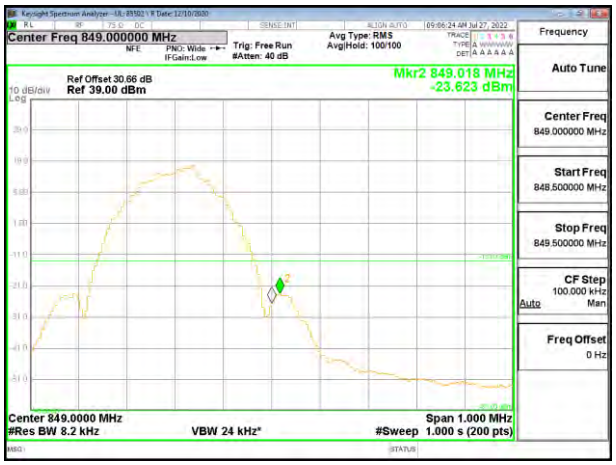
GSM850 GPRS LOW Channel



GSM850 GPRS HIGH Channel



GSM850 EGPRS LOW Channel



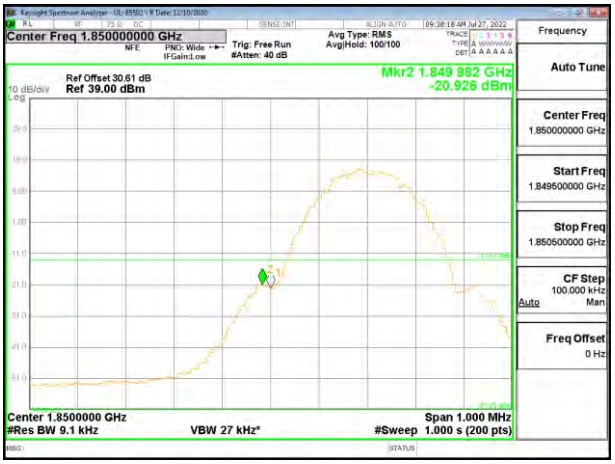
GSM850 EGPRS HIGH Channel

9.2.2. GSM GSM1900

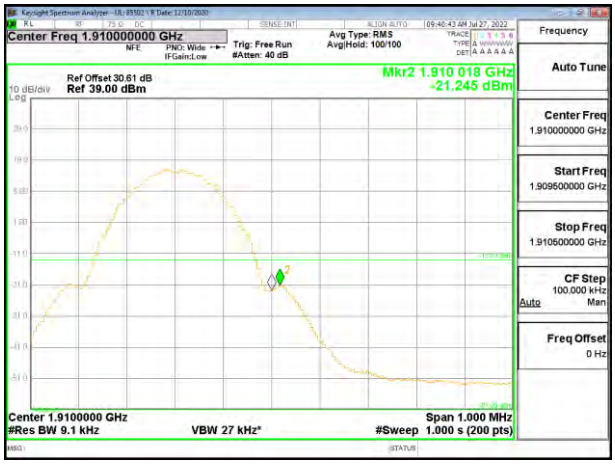
LIMITS

FCC: §24.238 (a)

The 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.

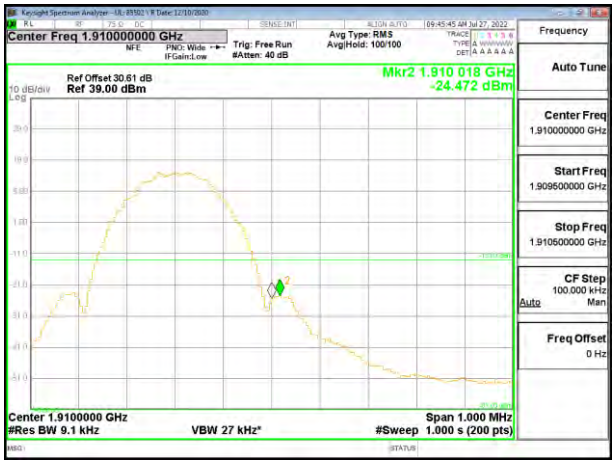


GSM1900 GPRS LOW Channel



GSM1900 GPRS HIGH Channel

GSM1900 EGPRS LOW Channel



GSM1900 EGPRS HIGH Channel

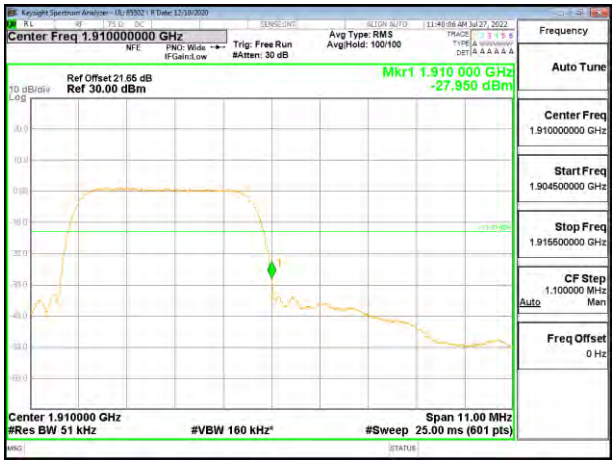
9.2.3. WCDMA BAND 2

LIMITS

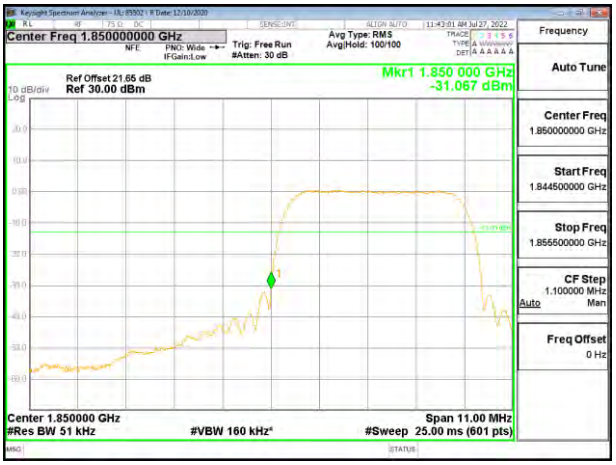
FCC: §24.238

The 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.

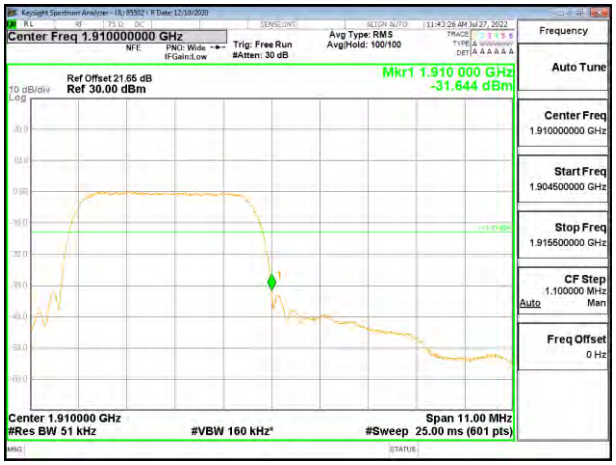
BAND 2 Rel 99 LOW Channel



BAND 2 Rel 99 HIGH Channel



BAND 2 HSDPA LOW Channel



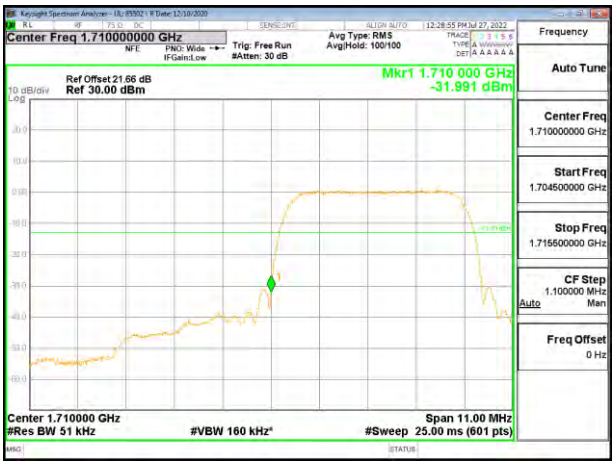
BAND 2 HSDPA HIGH Channel

9.2.4. WCDMA BAND 4

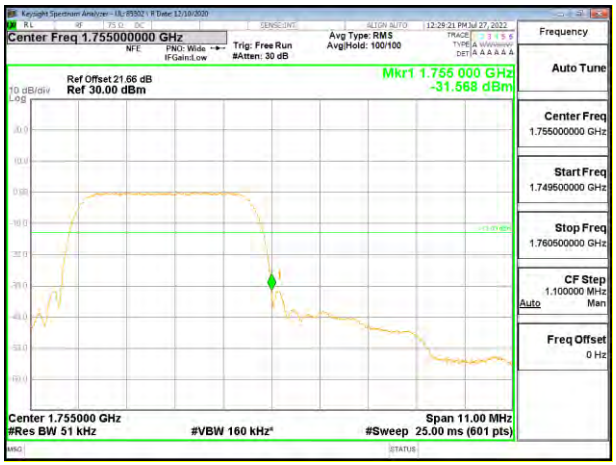
LIMITS

FCC: §27.53(h)

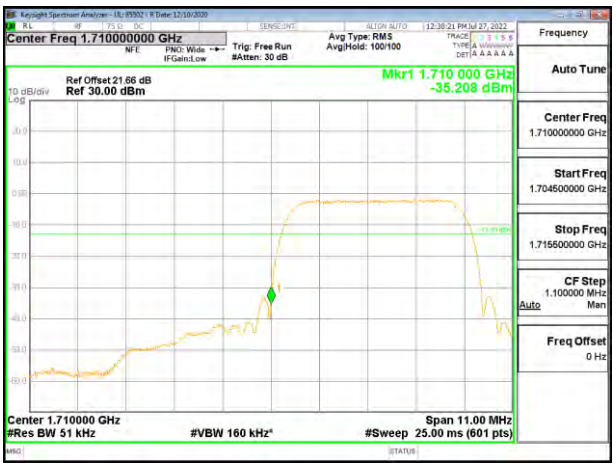
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.



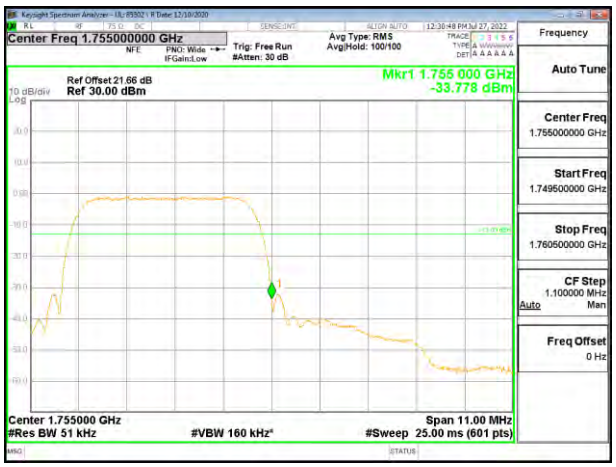
BAND 4 Rel 99 LOW Channel



BAND 4 Rel 99 HIGH Channel



BAND 4 HSDPA LOW Channel

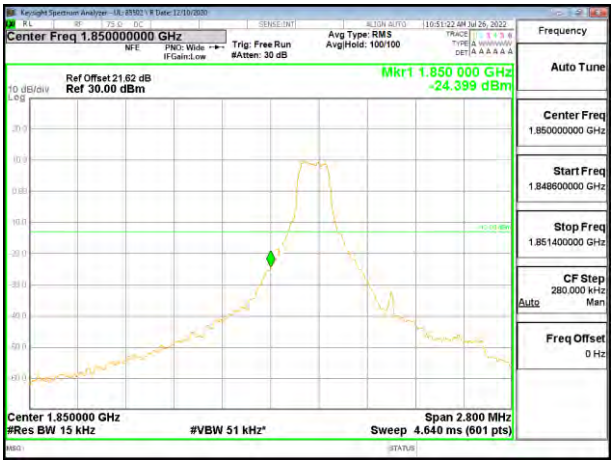


BAND 4 HSDPA HIGH Channel

9.2.5. LTE BAND 2

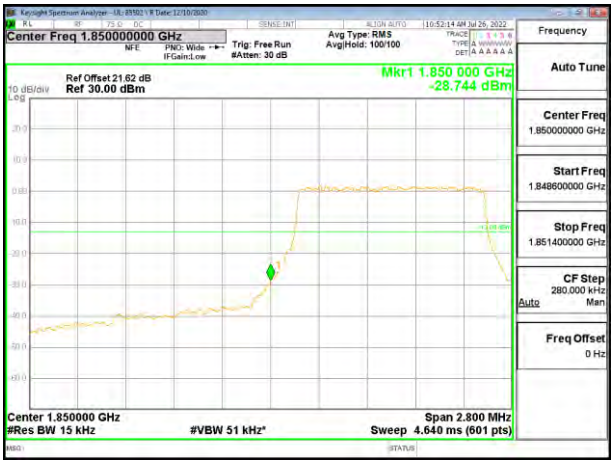
LIMITS

FCC: §24.238
The 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.



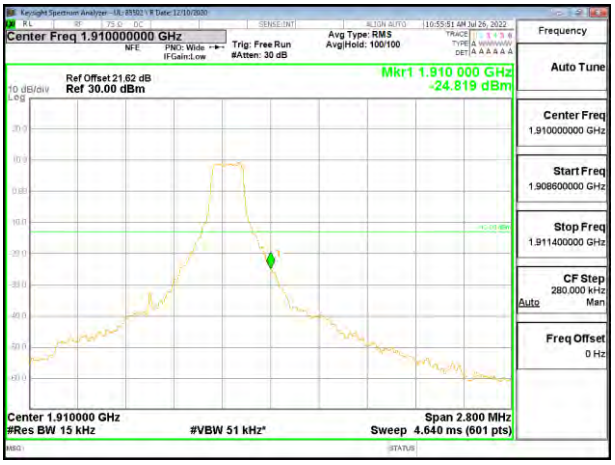
LTE2 1.4MHz QPSK LOW Ch RB1-0

LTE2 1.4MHz QPSK LOW Ch RB1-5

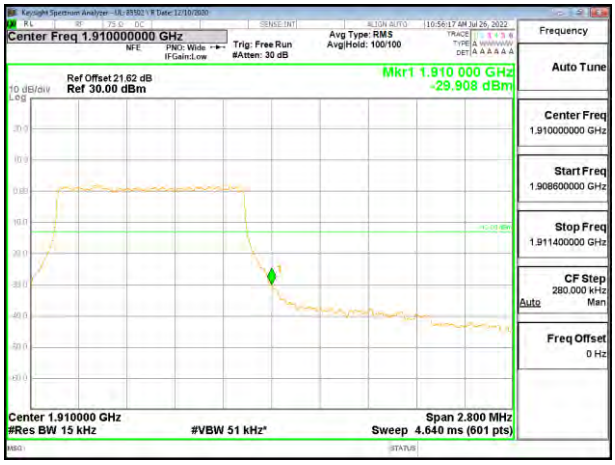


LTE2 1.4MHz QPSK LOW Ch RB6-0

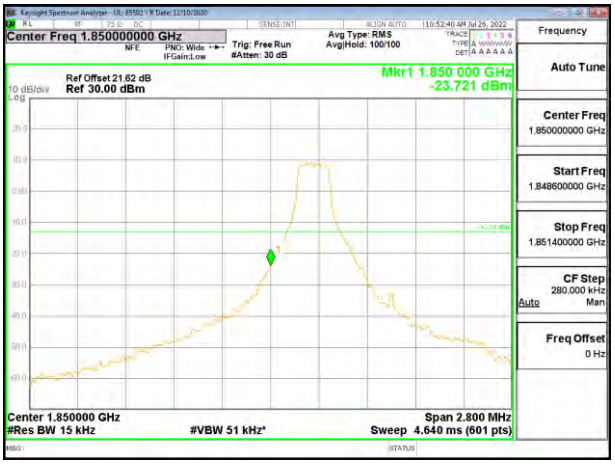
LTE2 1.4MHz QPSK HIGH Ch RB1-0



LTE2 1.4MHz QPSK HIGH Ch RB1-5

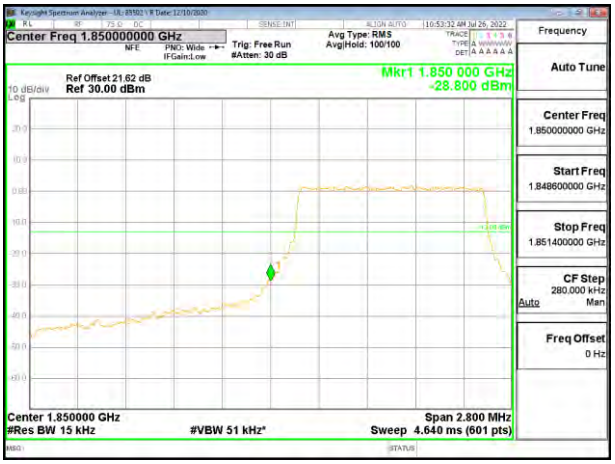


LTE2 1.4MHz QPSK HIGH Ch RB6-0



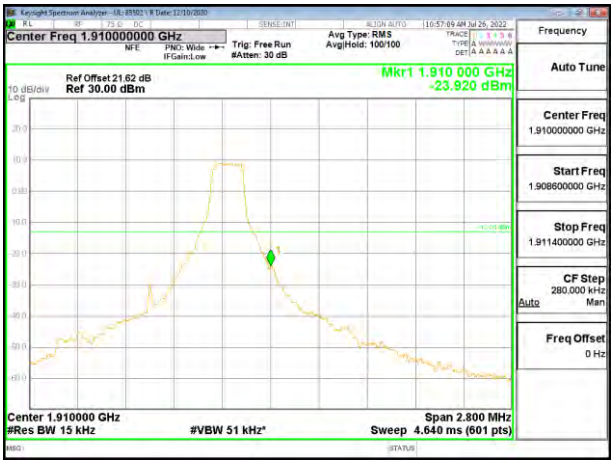
LTE2 1.4MHz 16QAM LOW Ch RB1-0

LTE2 1.4MHz 16QAM LOW Ch RB1-5

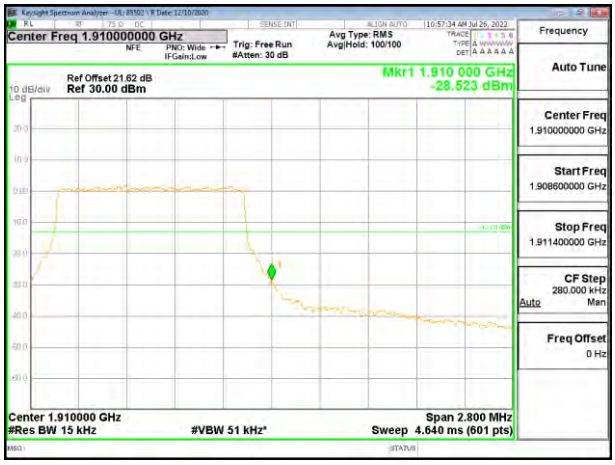


LTE2 1.4MHz 16QAM LOW Ch RB6-0

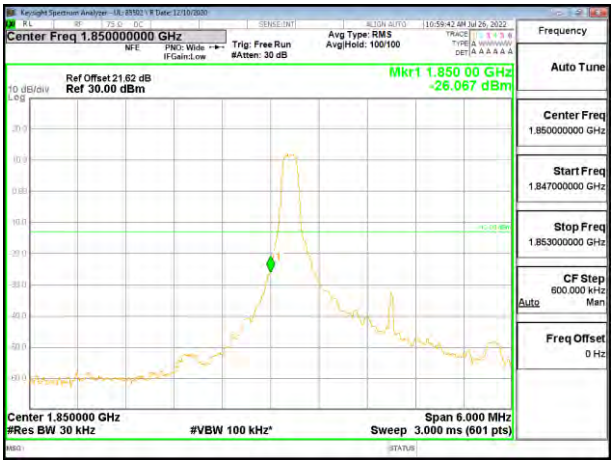
LTE2 1.4MHz 16QAM HIGH Ch RB1-0



LTE2 1.4MHz 16QAM HIGH Ch RB1-5

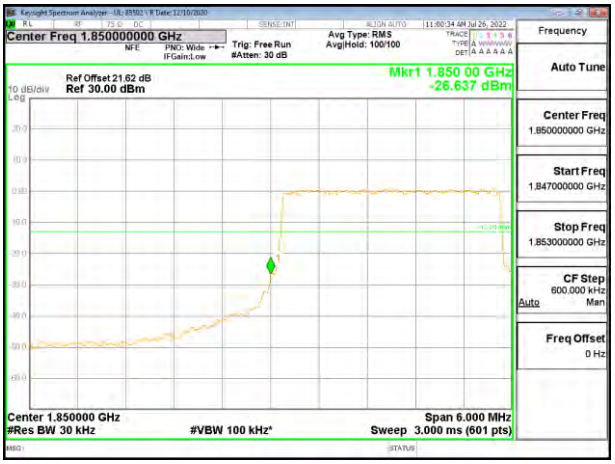


LTE2 1.4MHz 16QAM HIGH Ch RB6-0

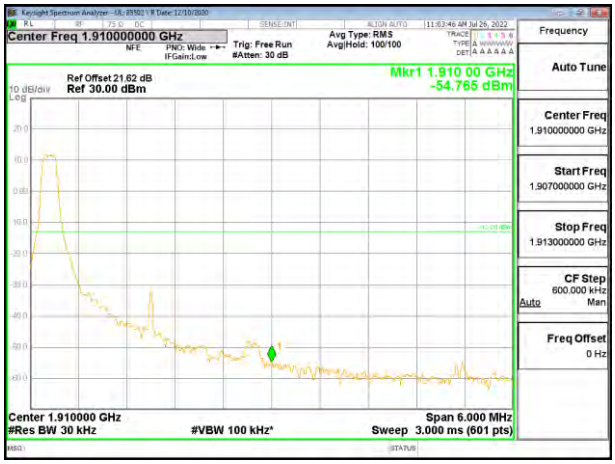


LTE2 3MHz QPSK LOW Ch RB1-0

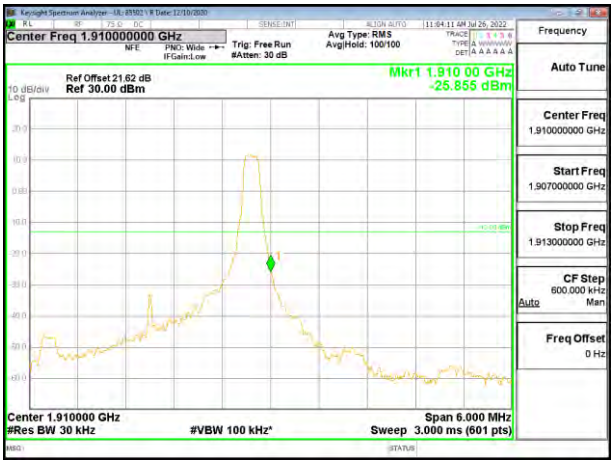
LTE2 3MHz QPSK LOW Ch RB1-14



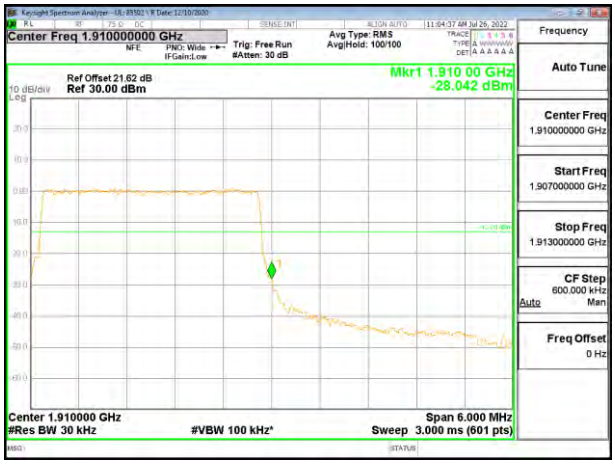
LTE2 3MHz QPSK LOW Ch RB15-0



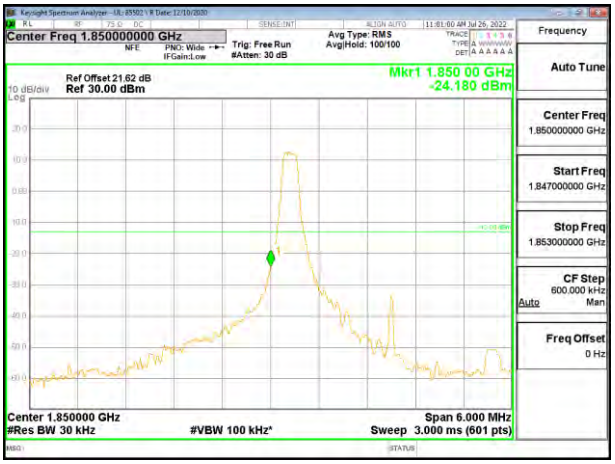
LTE2 3MHz QPSK HIGH Ch RB1-0



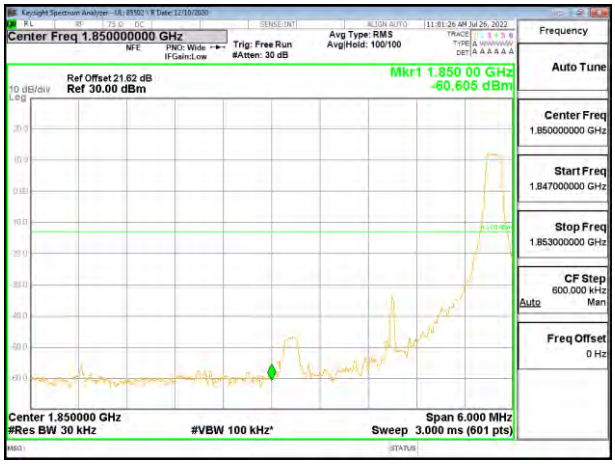
LTE2 3MHz QPSK HIGH Ch RB1-14



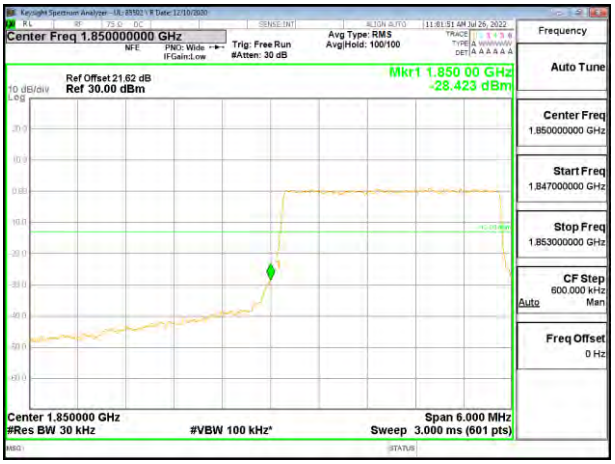
LTE2 3MHz QPSK HIGH Ch RB15-0



LTE2 3MHz 16QAM LOW Ch RB1-0

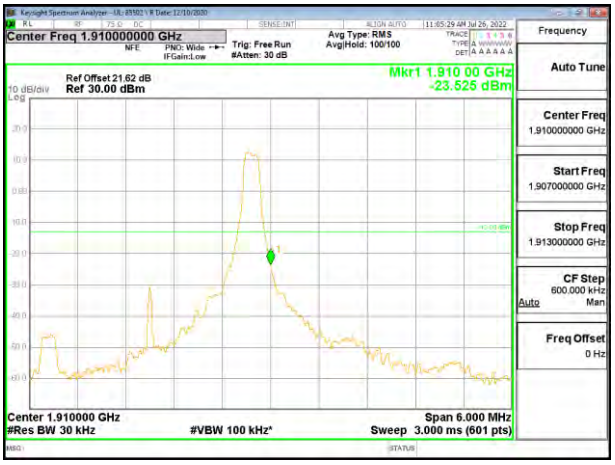


LTE2 3MHz 16QAM LOW Ch RB1-14

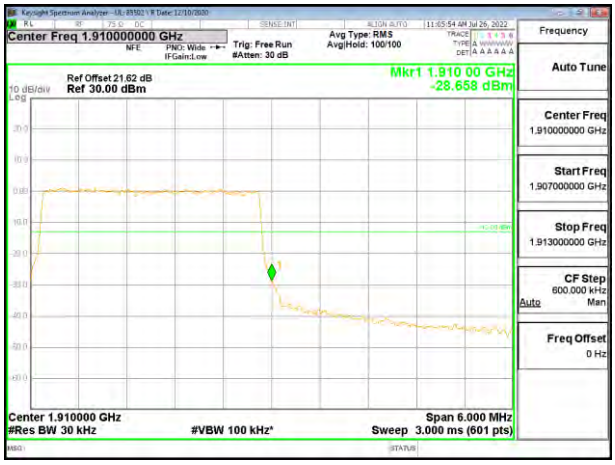


LTE2 3MHz 16QAM LOW Ch RB15-0

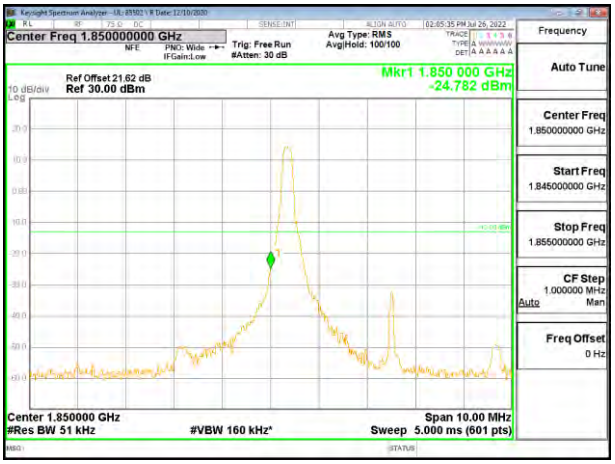
LTE2 3MHz 16QAM HIGH Ch RB1-0



LTE2 3MHz 16QAM HIGH Ch RB1-14

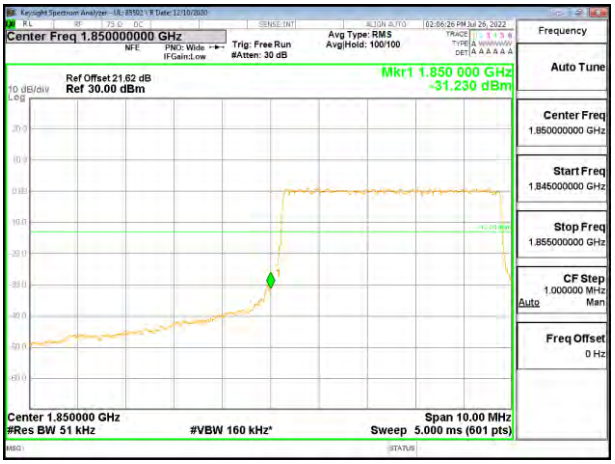


LTE2 3MHz 16QAM HIGH Ch RB15-0

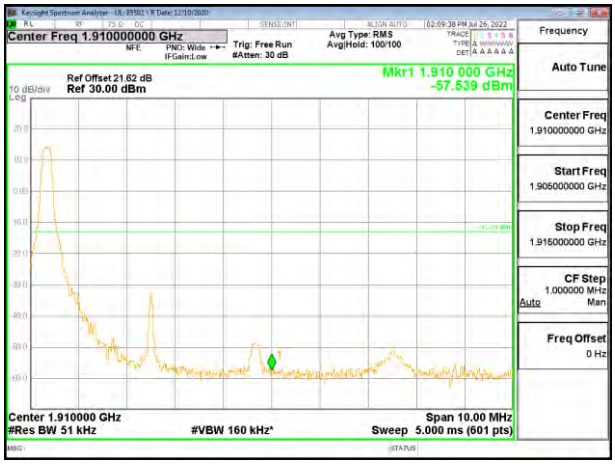


LTE2 5MHz QPSK LOW Ch RB1-0

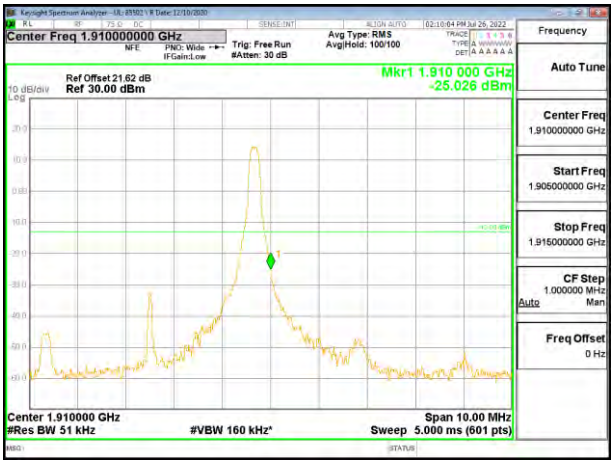
LTE2 5MHz QPSK LOW Ch RB1-24



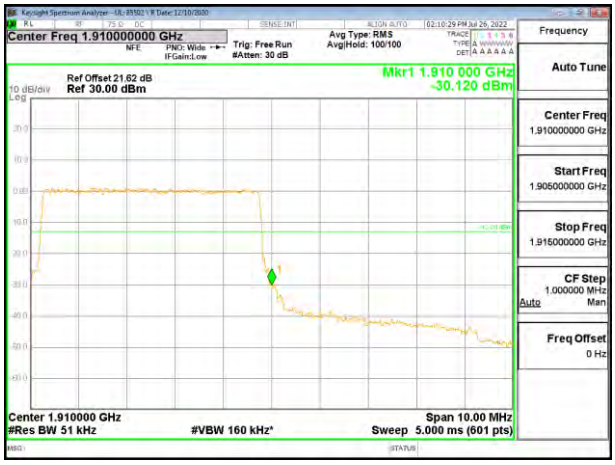
LTE2 5MHz QPSK LOW Ch RB25-0



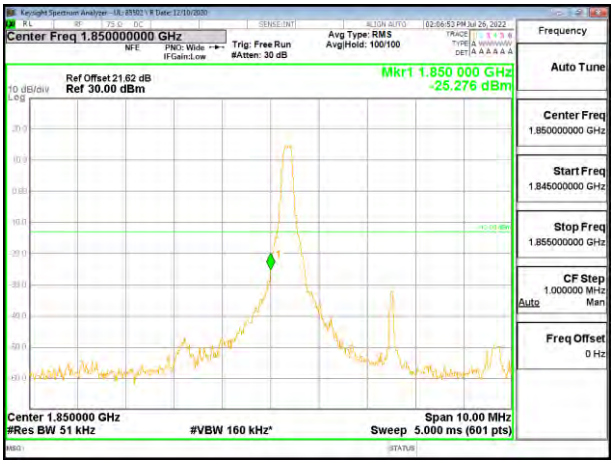
LTE2 5MHz QPSK HIGH Ch RB1-0



LTE2 5MHz QPSK HIGH Ch RB1-24

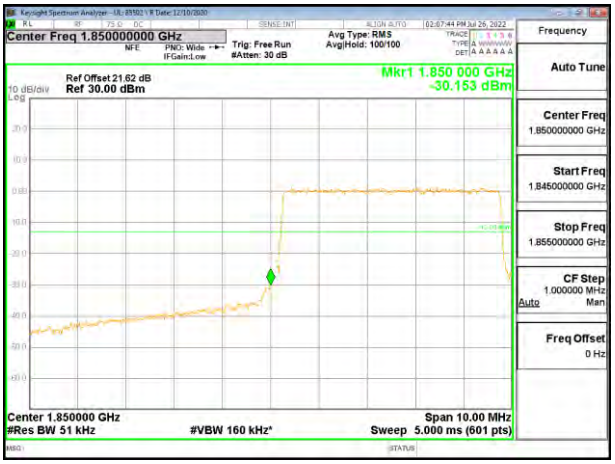


LTE2 5MHz QPSK HIGH Ch RB25-0



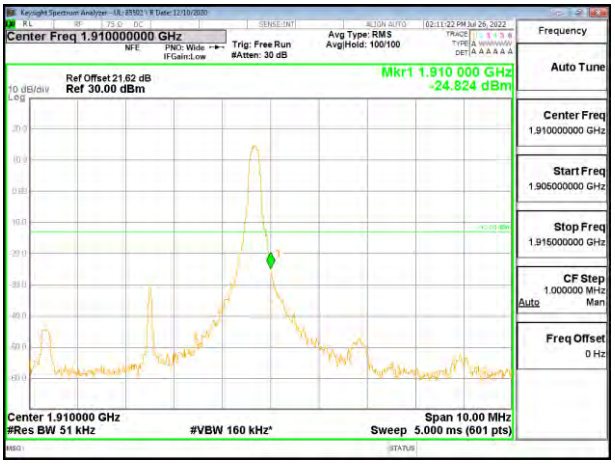
LTE2 5MHz 16QAM LOW Ch RB1-0

LTE2 5MHz 16QAM LOW Ch RB1-24



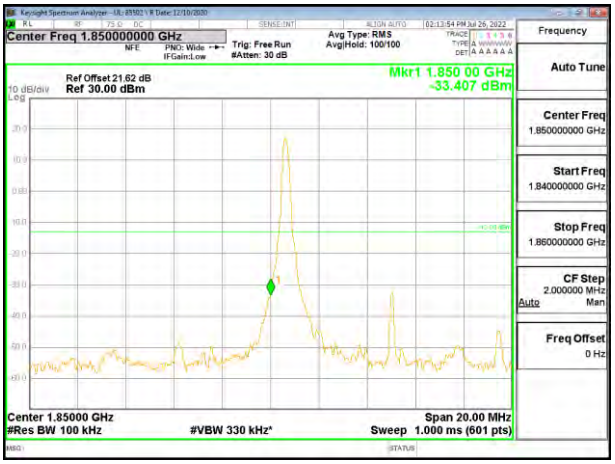
LTE2 5MHz 16QAM LOW Ch RB25-0

LTE2 5MHz 16QAM HIGH Ch RB1-0

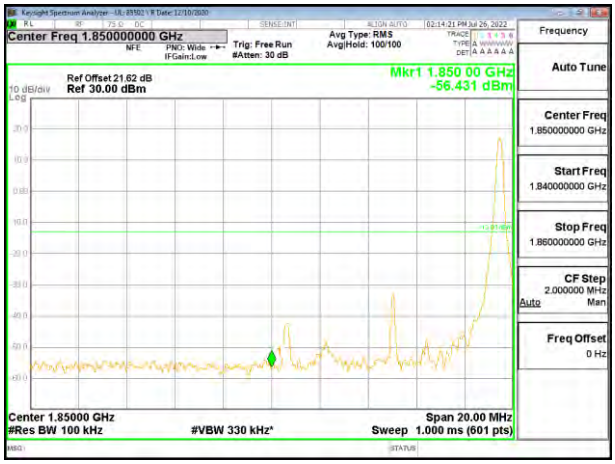


LTE2 5MHz 16QAM HIGH Ch RB1-24

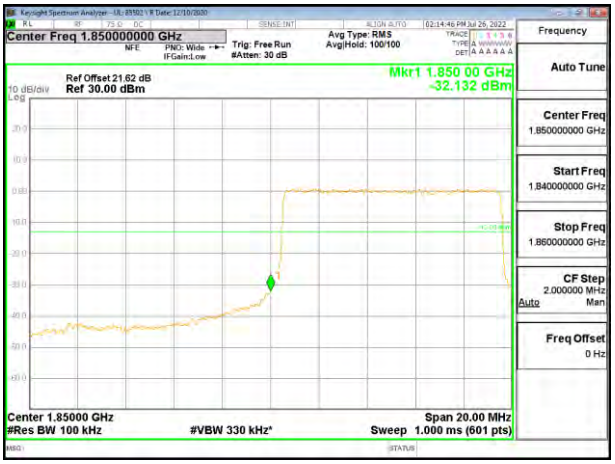
LTE2 5MHz 16QAM HIGH Ch RB25-0



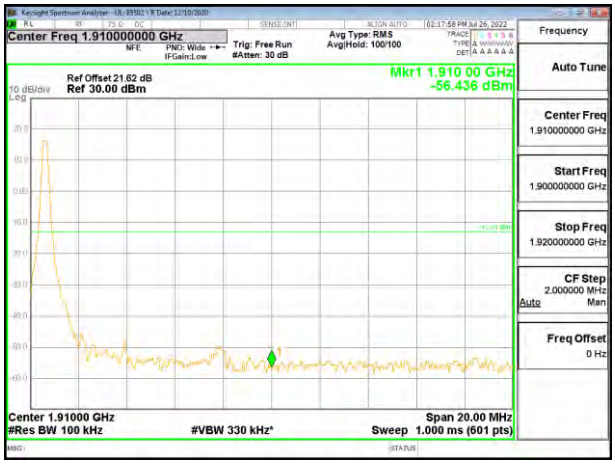
LTE2 10MHz QPSK LOW Ch RB1-0



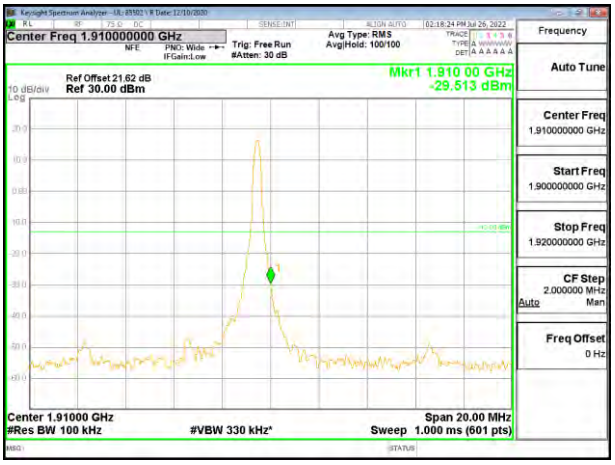
LTE2 10MHz QPSK LOW Ch RB1-49



LTE2 10MHz QPSK LOW Ch RB50-0

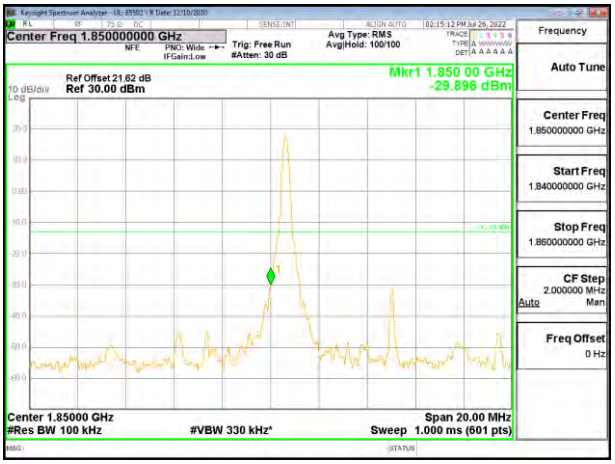


LTE2 10MHz QPSK HIGH Ch RB1-0

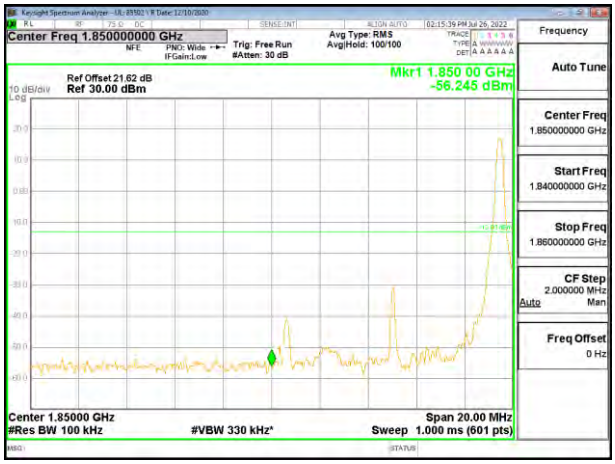


LTE2 10MHz QPSK HIGH Ch RB1-49

LTE2 10MHz QPSK HIGH Ch RB50-0

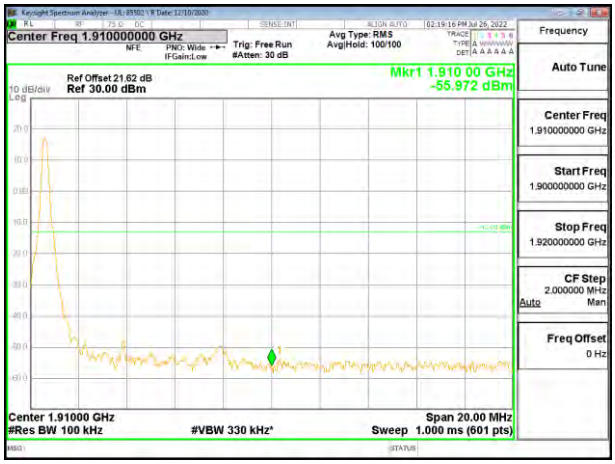


LTE2 10MHz 16QAM LOW Ch RB1-0

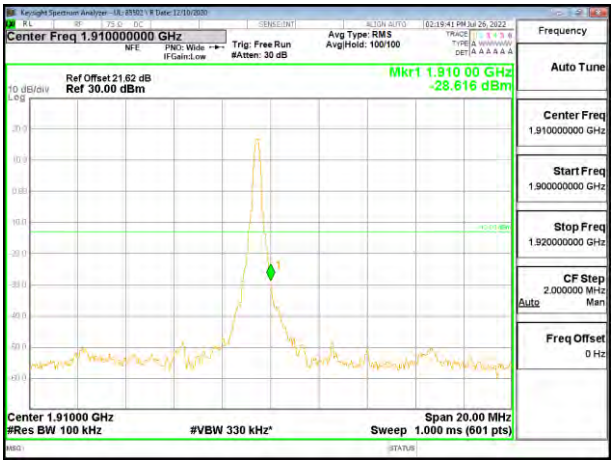


LTE2 10MHz 16QAM LOW Ch RB1-49

LTE2 10MHz 16QAM LOW Ch RB50-0

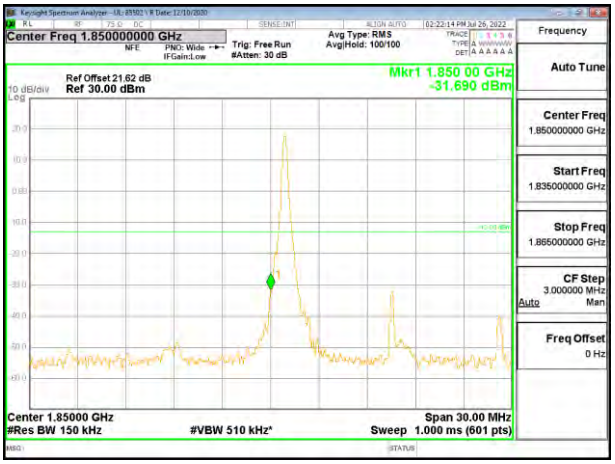


LTE2 10MHz 16QAM HIGH Ch RB1-0



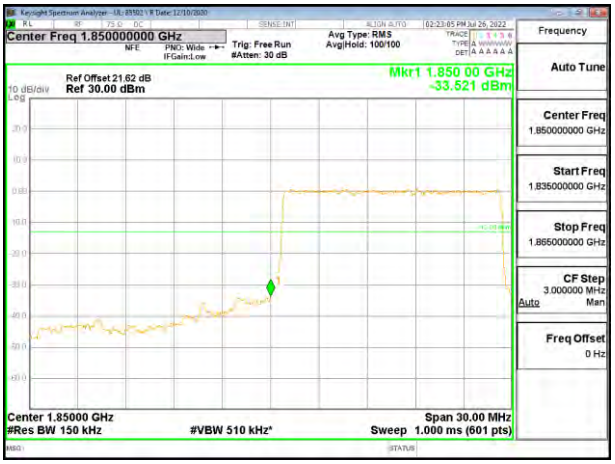
LTE2 10MHz 16QAM HIGH Ch RB1-49

LTE2 10MHz 16QAM HIGH Ch RB50-0

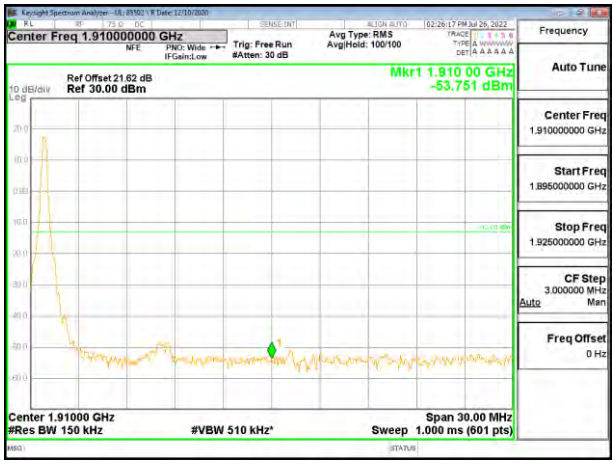


LTE2 15MHz QPSK LOW Ch RB1-0

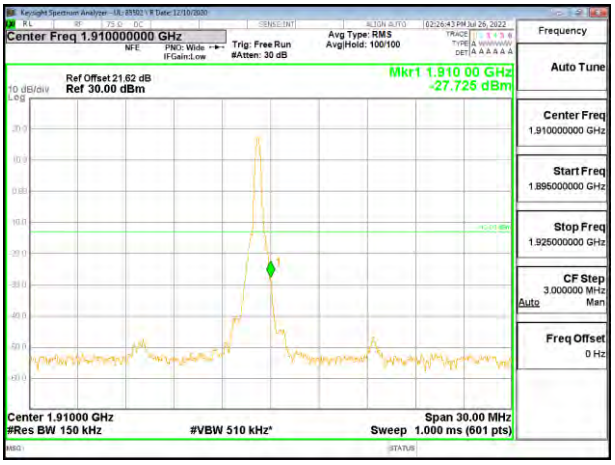
LTE2 15MHz QPSK LOW Ch RB1-74



LTE2 15MHz QPSK LOW Ch RB75-0

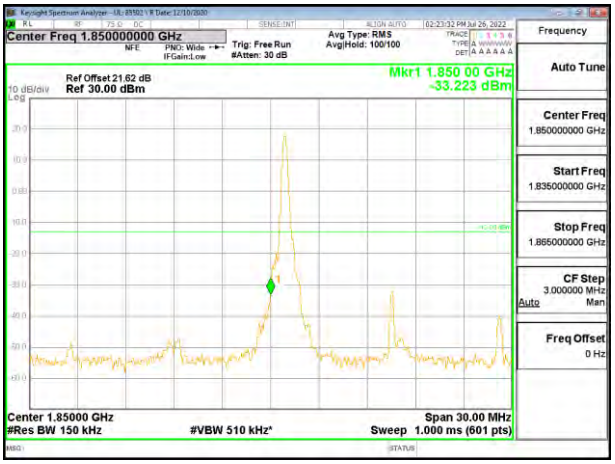


LTE2 15MHz QPSK HIGH Ch RB1-0

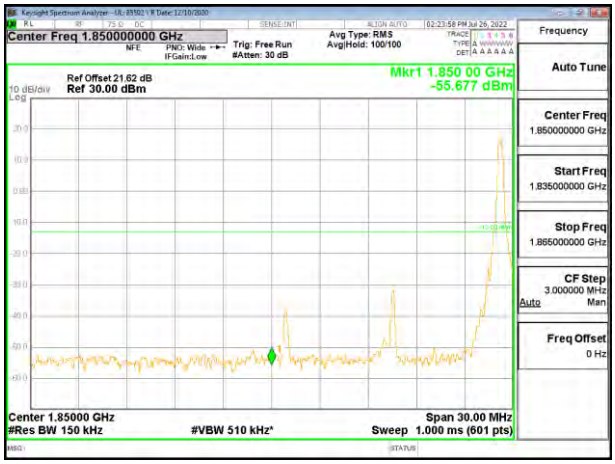


LTE2 15MHz QPSK HIGH Ch RB1-74

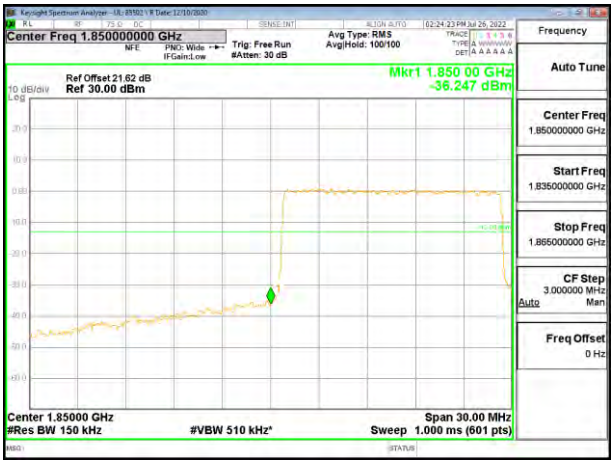
LTE2 15MHz QPSK HIGH Ch RB75-0



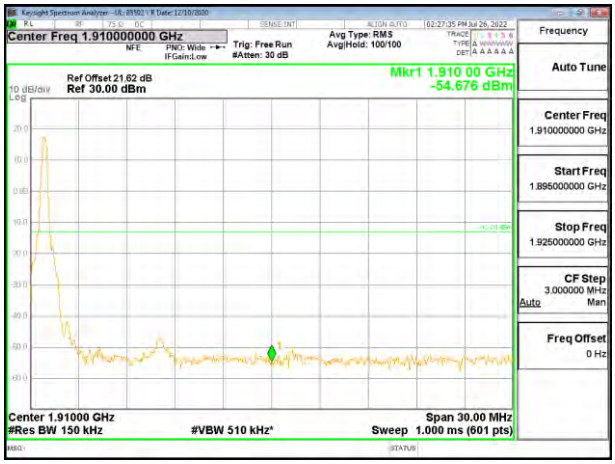
LTE2 15MHz 16QAM LOW Ch RB1-0



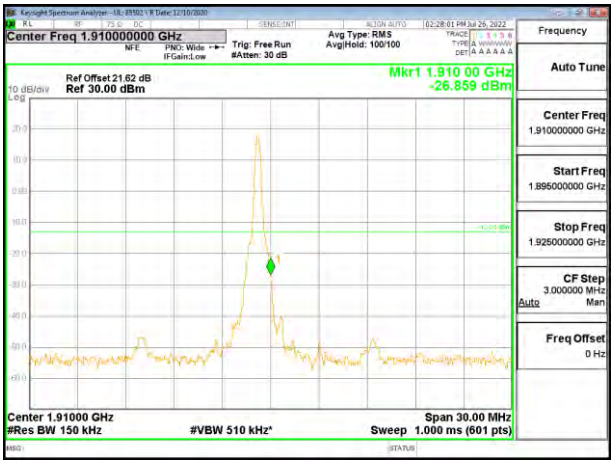
LTE2 15MHz 16QAM LOW Ch RB1-74



LTE2 15MHz 16QAM LOW Ch RB75-0

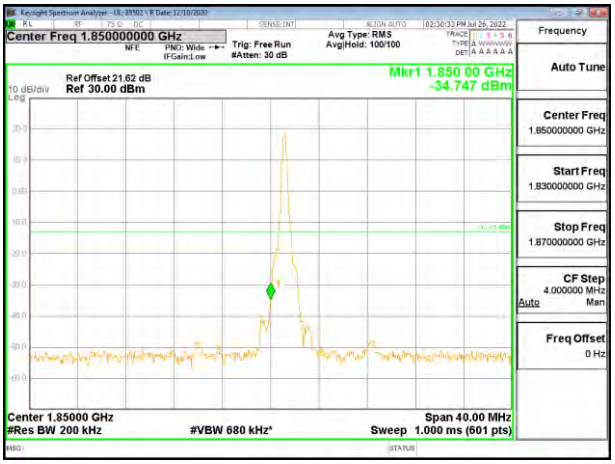


LTE2 15MHz 16QAM HIGH Ch RB1-0

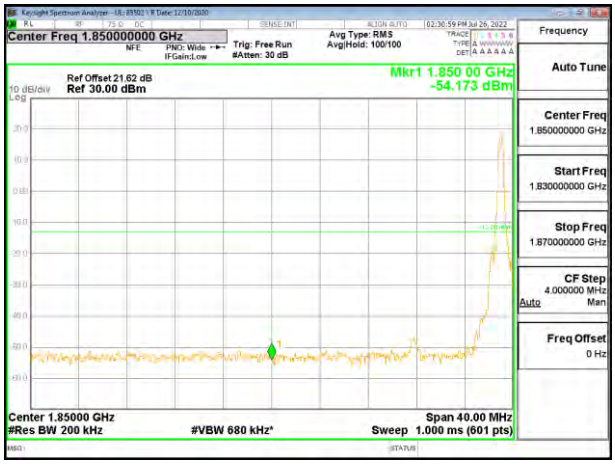


LTE2 15MHz 16QAM HIGH Ch RB1-74

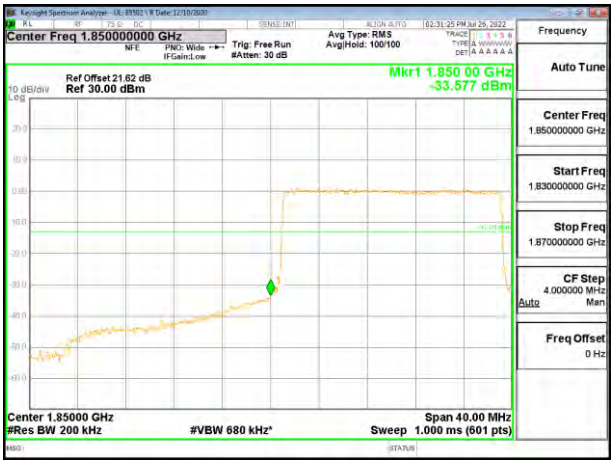
LTE2 15MHz 16QAM HIGH Ch RB75-0



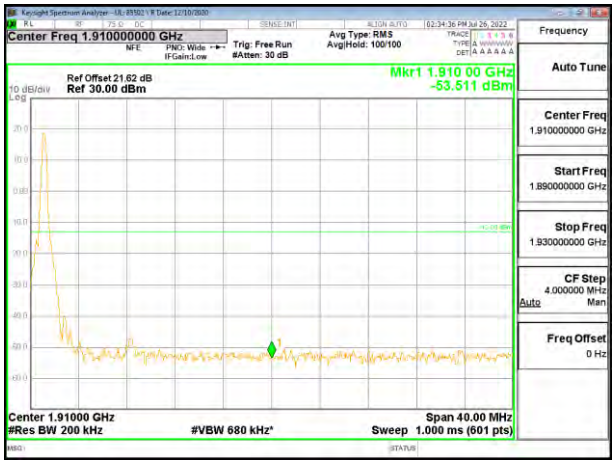
LTE2 20MHz QPSK LOW Ch RB1-0



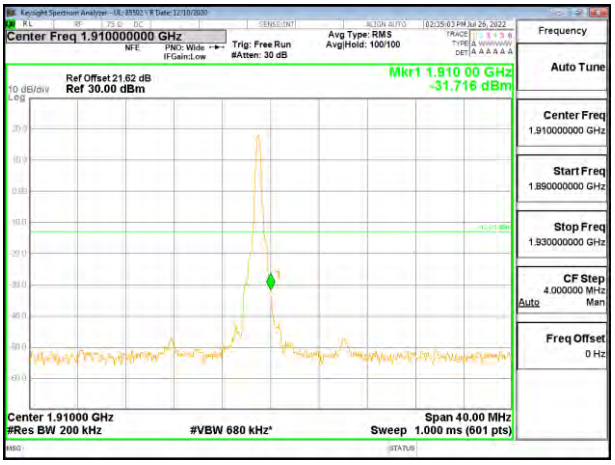
LTE2 20MHz QPSK LOW Ch RB1-99



LTE2 20MHz QPSK LOW Ch RB100-0

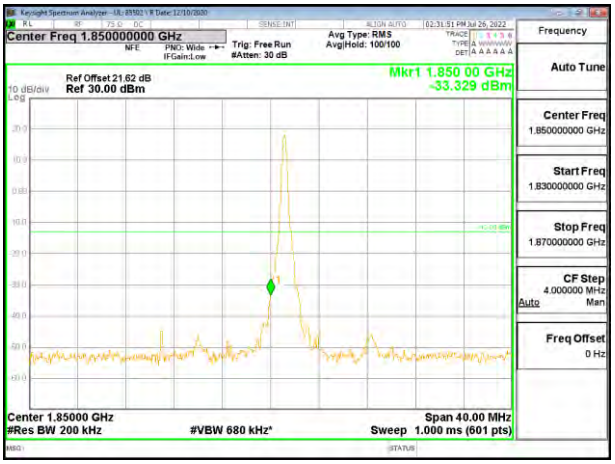


LTE2 20MHz QPSK HIGH Ch RB1-0

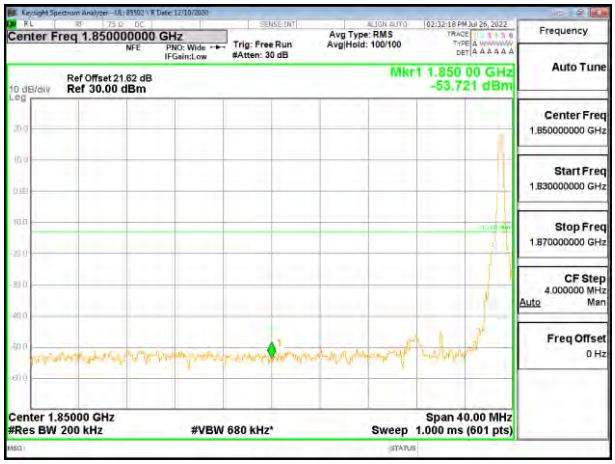


LTE2 20MHz QPSK HIGH Ch RB1-99

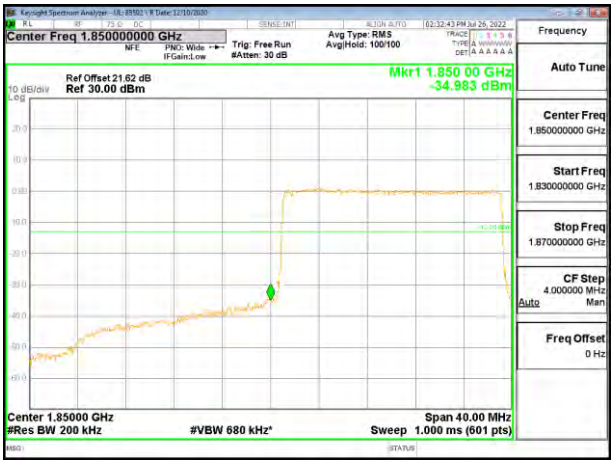
LTE2 20MHz QPSK HIGH Ch RB100-0



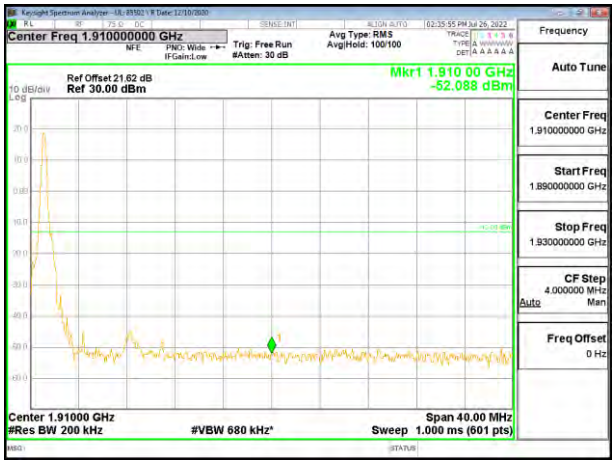
LTE2 20MHz 16QAM LOW Ch RB1-0



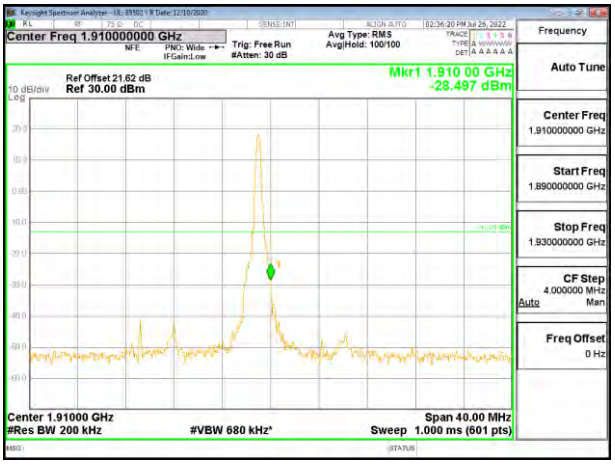
LTE2 20MHz 16QAM LOW Ch RB1-99



LTE2 20MHz 16QAM LOW Ch RB100-0



LTE2 20MHz 16QAM HIGH Ch RB1-0



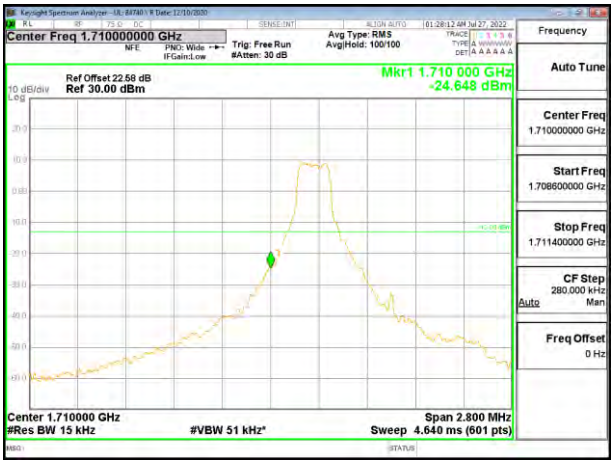
LTE2 20MHz 16QAM HIGH Ch RB1-99

LTE2 20MHz 16QAM HIGH Ch RB100-0

9.2.6. LTE BAND 4

LIMITS

FCC: §27.53(h)
The 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.

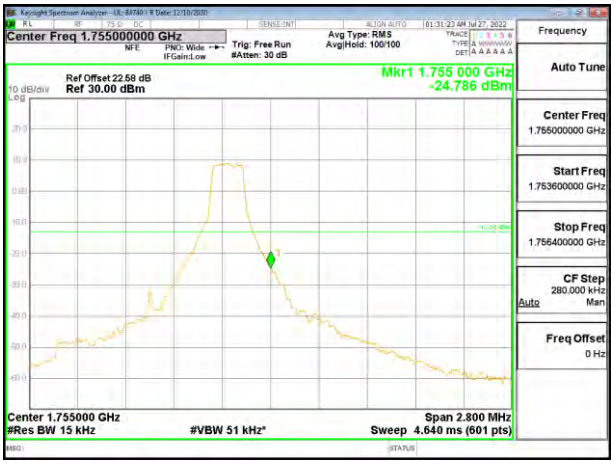


LTE4 1.4MHz QPSK LOW Ch RB1-0

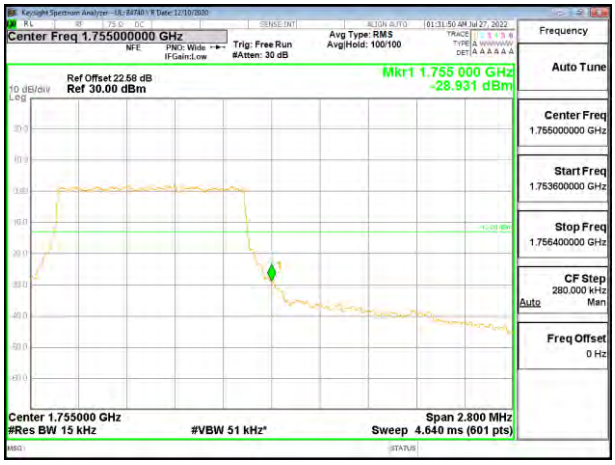
LTE4 1.4MHz QPSK LOW Ch RB1-5

LTE4 1.4MHz QPSK LOW Ch RB6-0

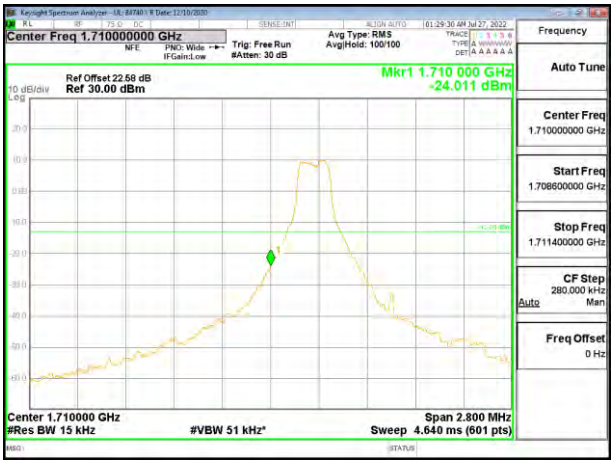
LTE4 1.4MHz QPSK HIGH Ch RB1-0



LTE4 1.4MHz QPSK HIGH Ch RB1-5

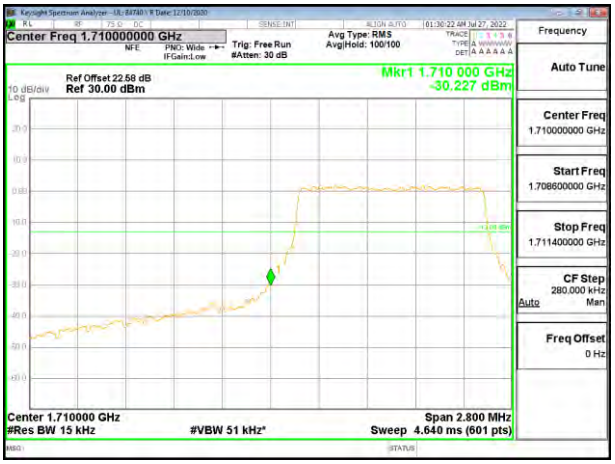


LTE4 1.4MHz QPSK HIGH Ch RB6-0



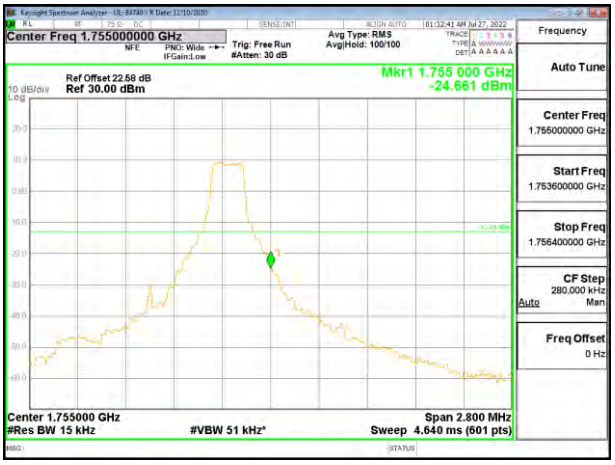
LTE4 1.4MHz 16QAM LOW Ch RB1-0

LTE4 1.4MHz 16QAM LOW Ch RB1-5



LTE4 1.4MHz 16QAM LOW Ch RB6-0

LTE4 1.4MHz 16QAM HIGH Ch RB1-0



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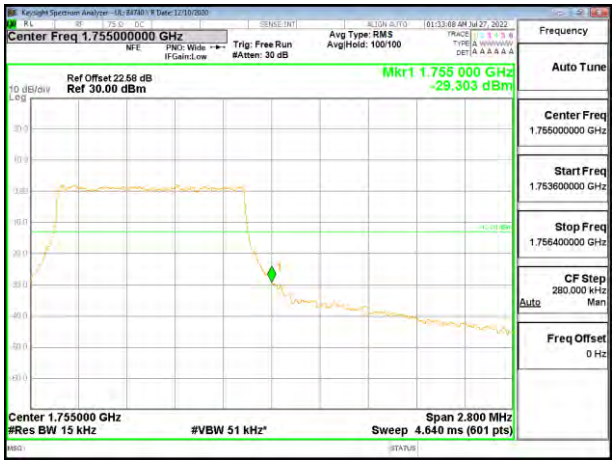
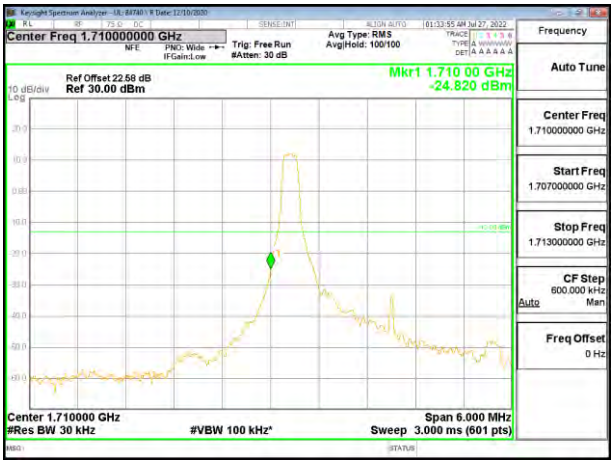
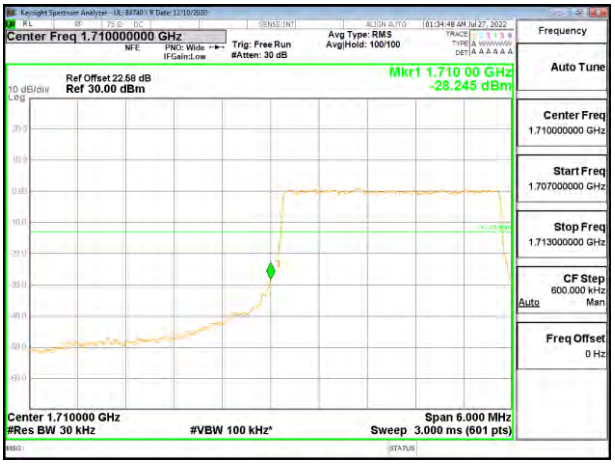


LTE4 1.4MHz 16QAM HIGH Ch RB6-0

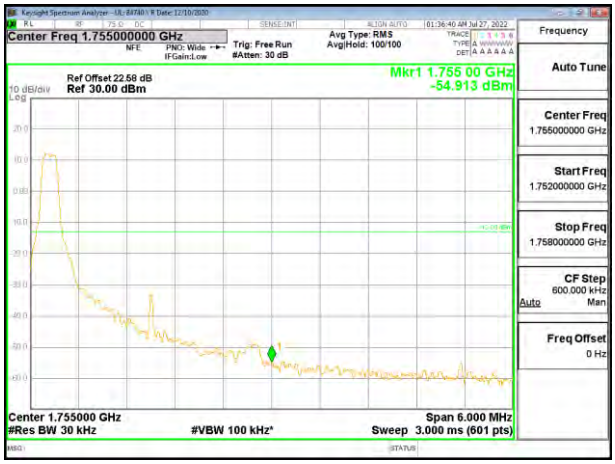


LTE4 3MHz QPSK LOW Ch RB1-0

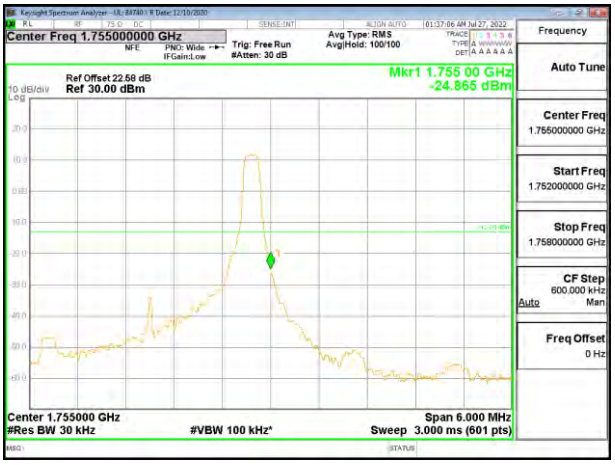
LTE4 3MHz QPSK LOW Ch RB1-14



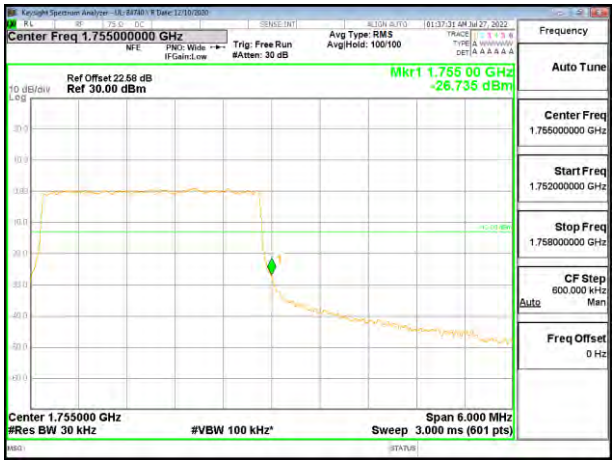
LTE4 3MHz QPSK LOW Ch RB15-0



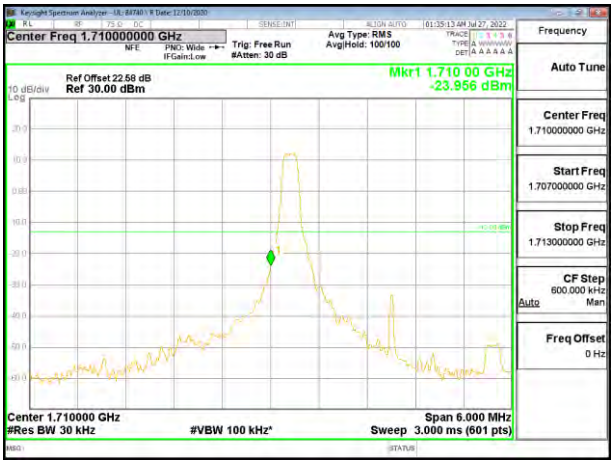
LTE4 3MHz QPSK HIGH Ch RB1-0



LTE4 3MHz QPSK HIGH Ch RB1-14



LTE4 3MHz QPSK HIGH Ch RB15-0

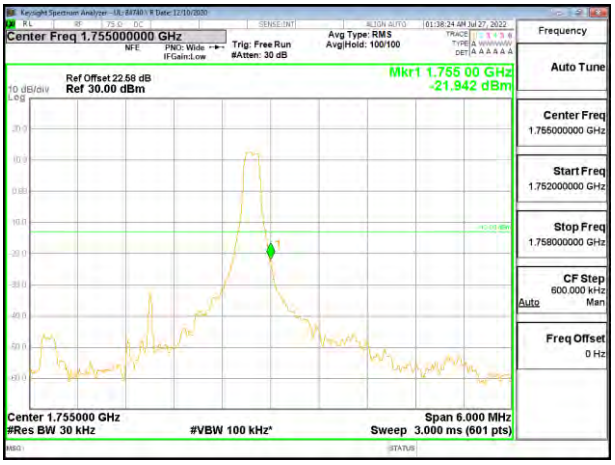


LTE4 3MHz 16QAM LOW Ch RB1-0

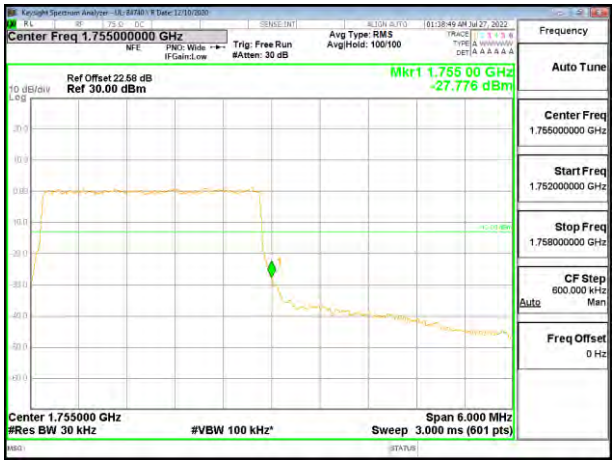
LTE4 3MHz 16QAM LOW Ch RB1-14

LTE4 3MHz 16QAM LOW Ch RB15-0

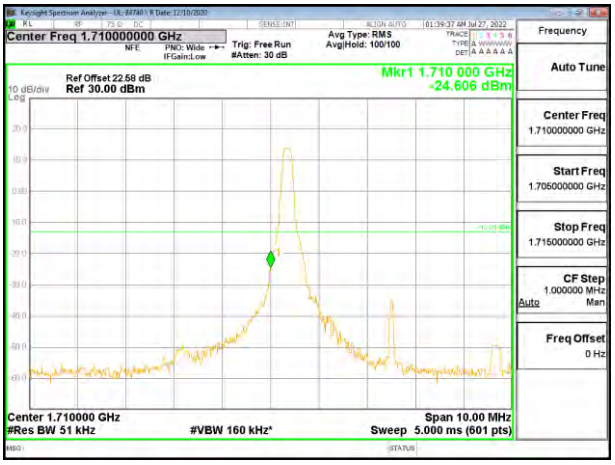
LTE4 3MHz 16QAM HIGH Ch RB1-0



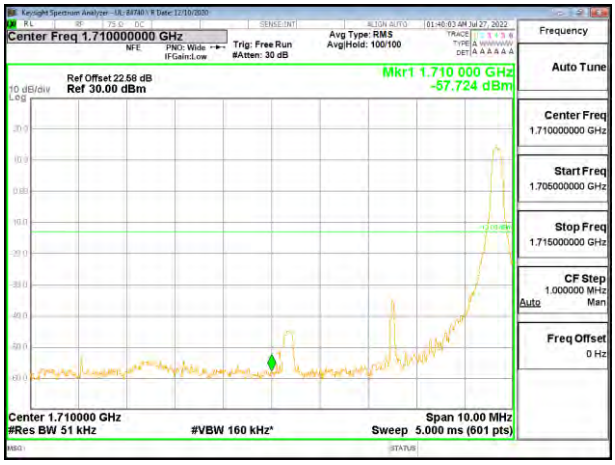
LTE4 3MHz 16QAM HIGH Ch RB1-14



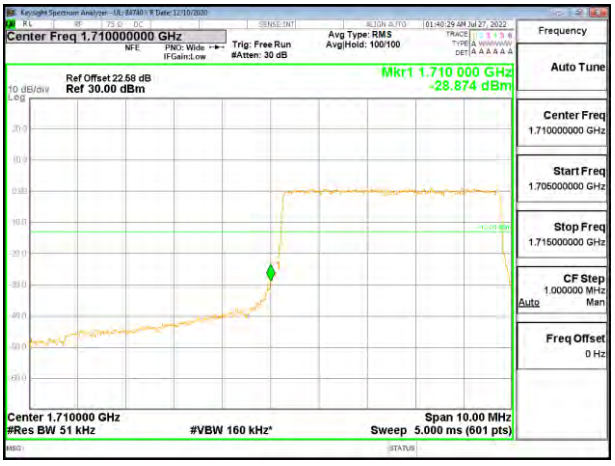
LTE4 3MHz 16QAM HIGH Ch RB15-0



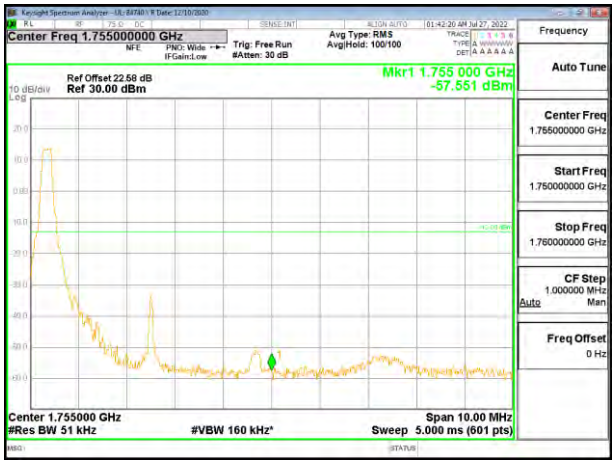
LTE4 5MHz QPSK LOW Ch RB1-0



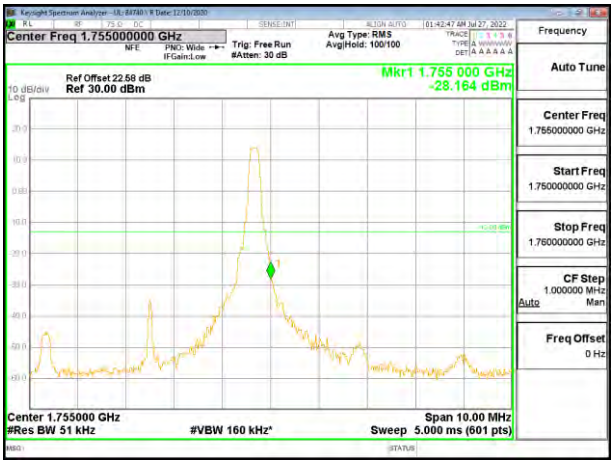
LTE4 5MHz QPSK LOW Ch RB1-24



LTE4 5MHz QPSK LOW Ch RB25-0

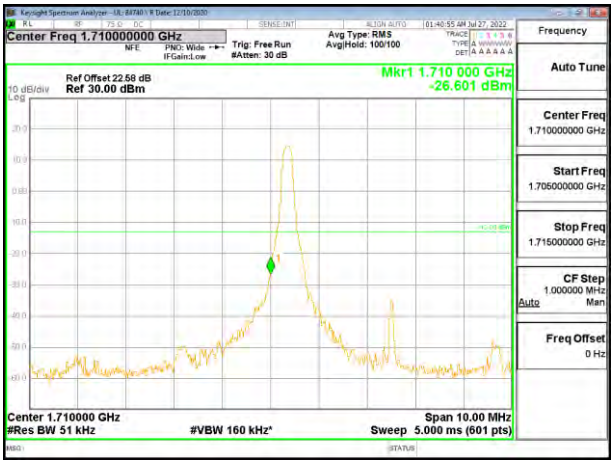


LTE4 5MHz QPSK HIGH Ch RB1-0

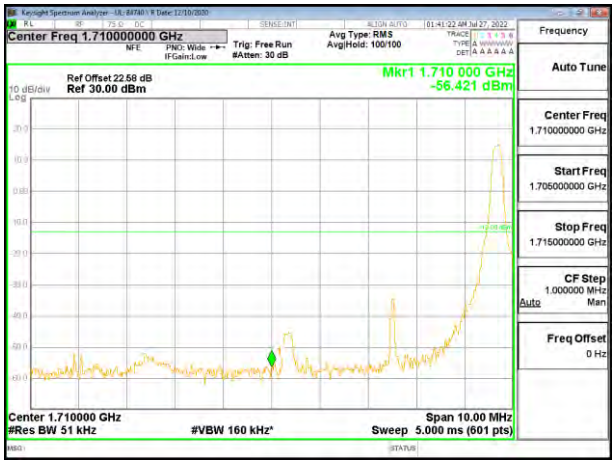


LTE4 5MHz QPSK HIGH Ch RB1-24

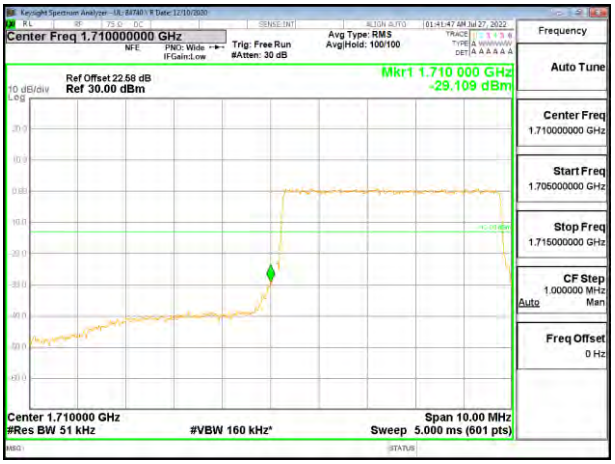
LTE4 5MHz QPSK HIGH Ch RB25-0



LTE4 5MHz 16QAM LOW Ch RB1-0

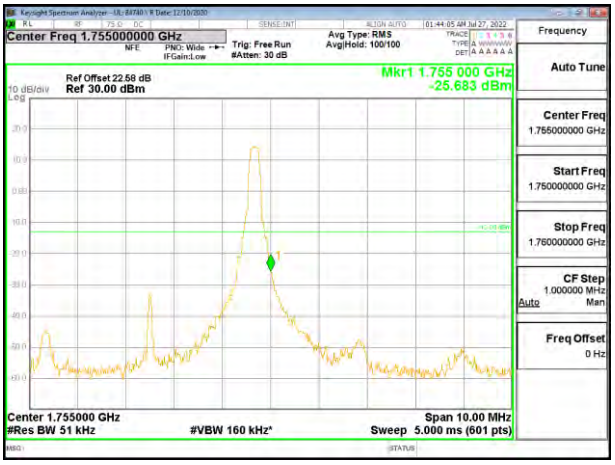


LTE4 5MHz 16QAM LOW Ch RB1-24

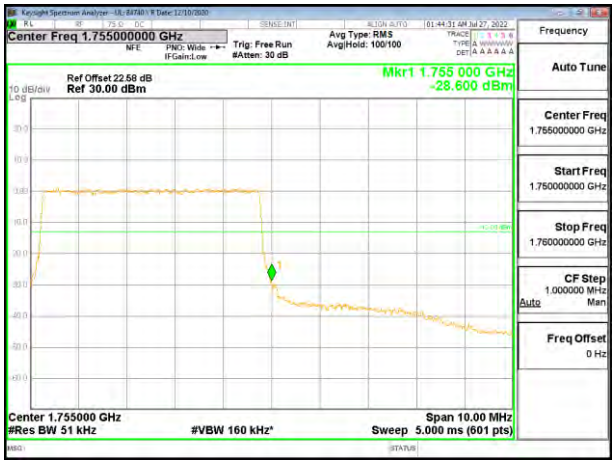


LTE4 5MHz 16QAM LOW Ch RB25-0

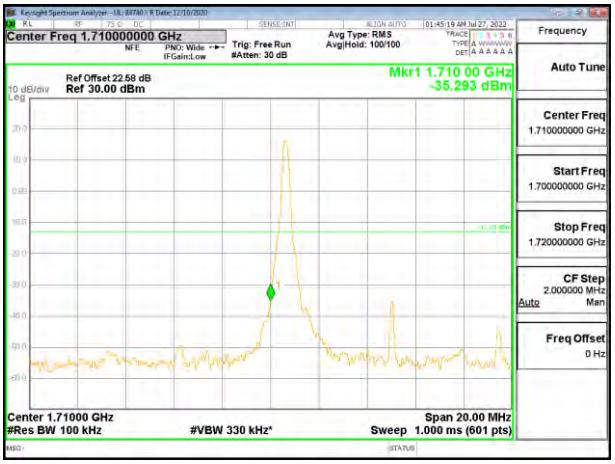
LTE4 5MHz 16QAM HIGH Ch RB1-0



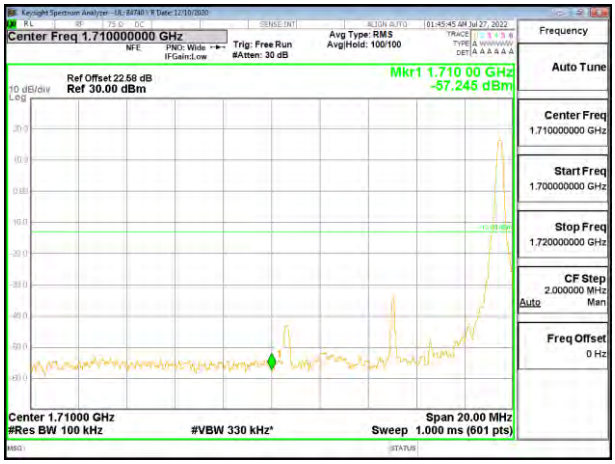
LTE4 5MHz 16QAM HIGH Ch RB1-24



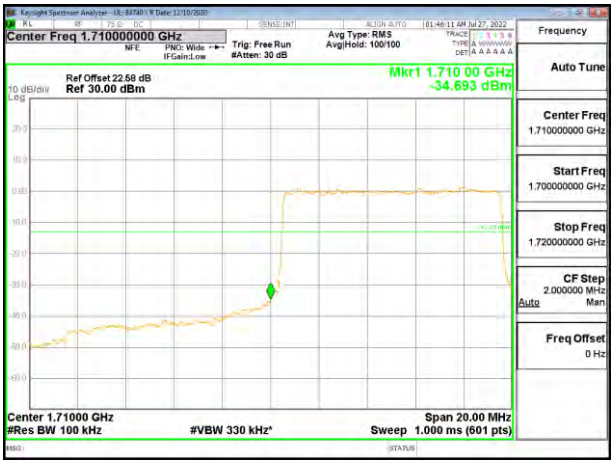
LTE4 5MHz 16QAM HIGH Ch RB25-0



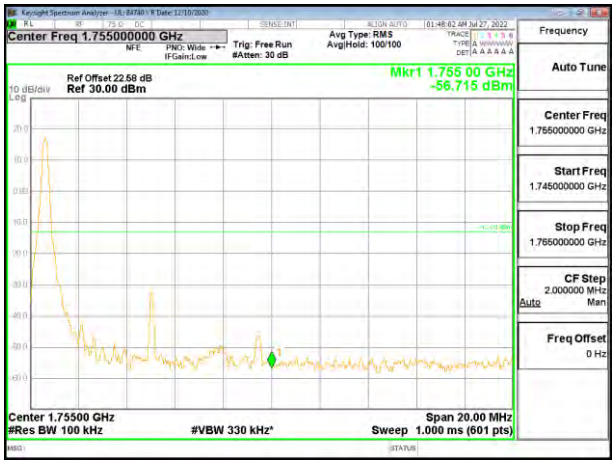
LTE4 10MHz QPSK LOW Ch RB1-0



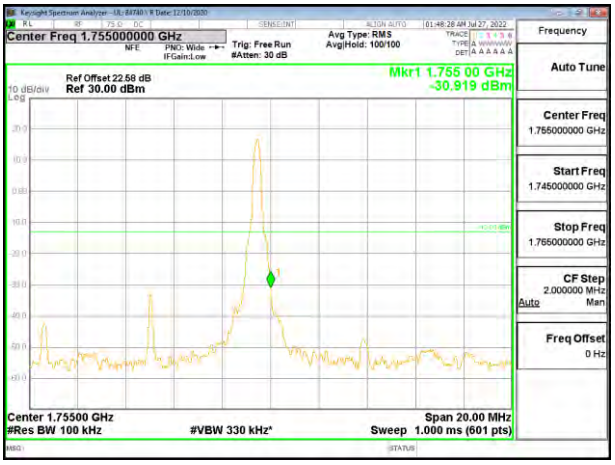
LTE4 10MHz QPSK LOW Ch RB1-49



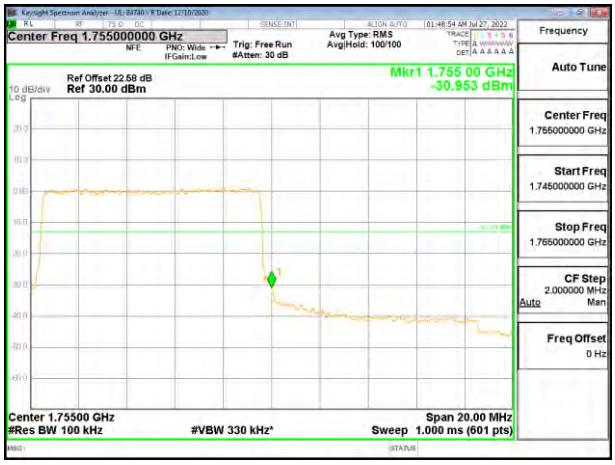
LTE4 10MHz QPSK LOW Ch RB50-0



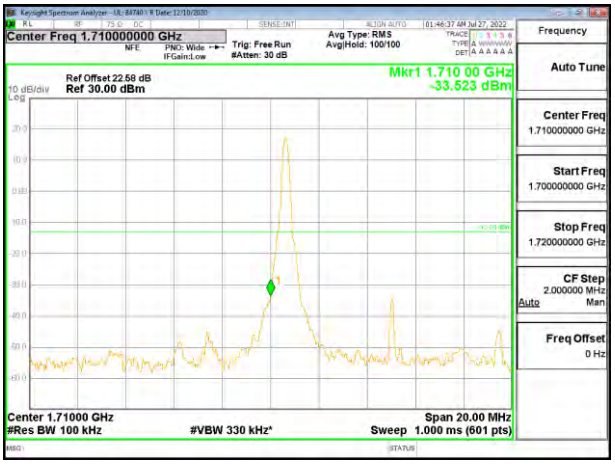
LTE4 10MHz QPSK HIGH Ch RB1-0



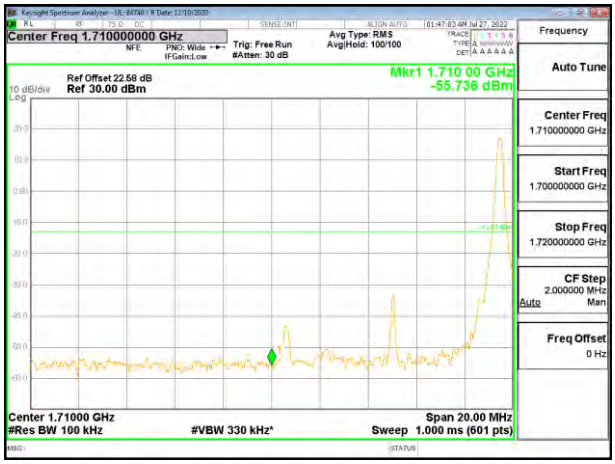
LTE4 10MHz QPSK HIGH Ch RB1-49



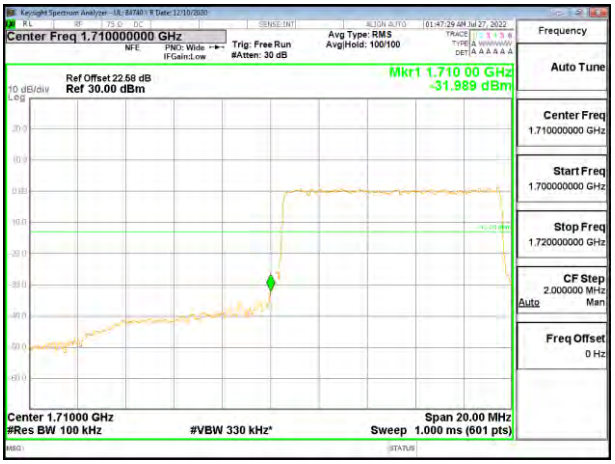
LTE4 10MHz QPSK HIGH Ch RB50-0



LTE4 10MHz 16QAM LOW Ch RB1-0

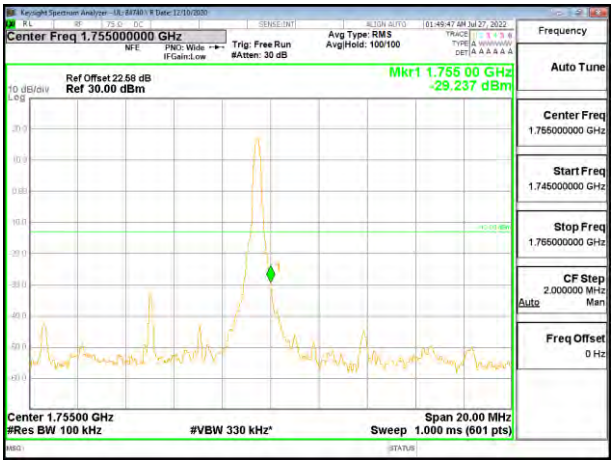


LTE4 10MHz 16QAM LOW Ch RB1-49

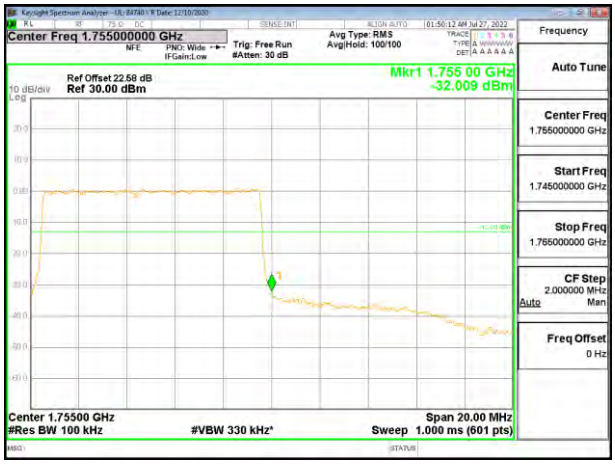


LTE4 10MHz 16QAM LOW Ch RB50-0

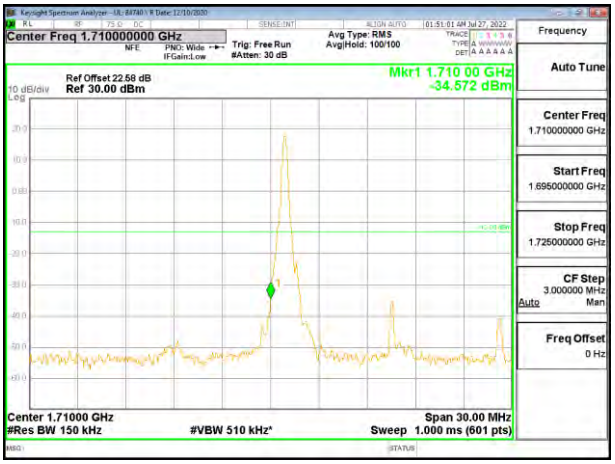
LTE4 10MHz 16QAM HIGH Ch RB1-0



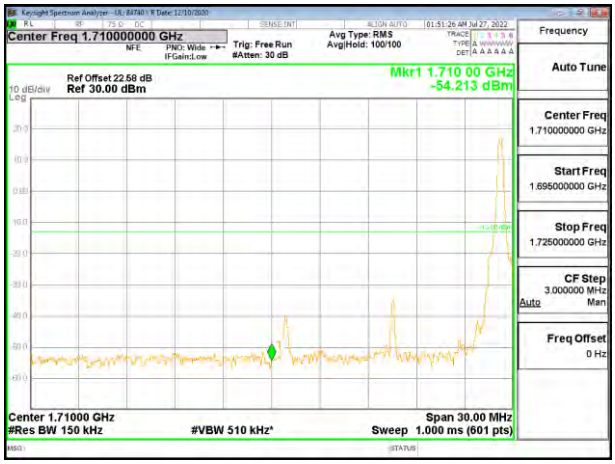
LTE4 10MHz 16QAM HIGH Ch RB1-49



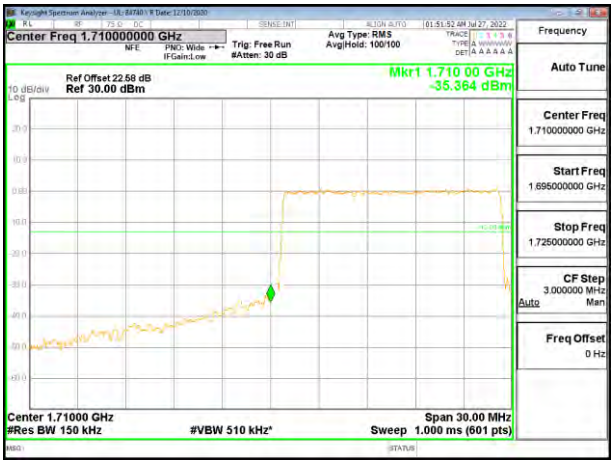
LTE4 10MHz 16QAM HIGH Ch RB50-0



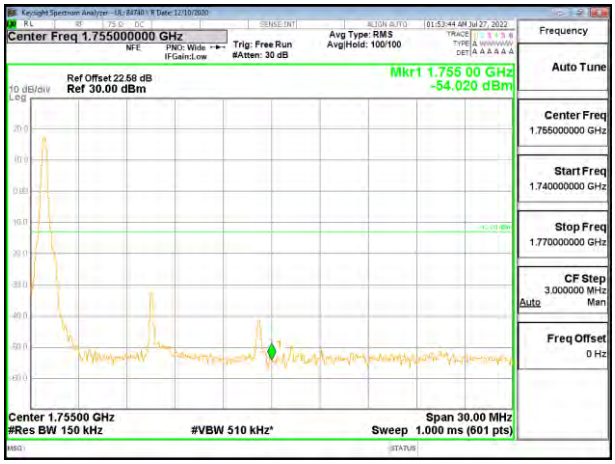
LTE4 15MHz QPSK LOW Ch RB1-0



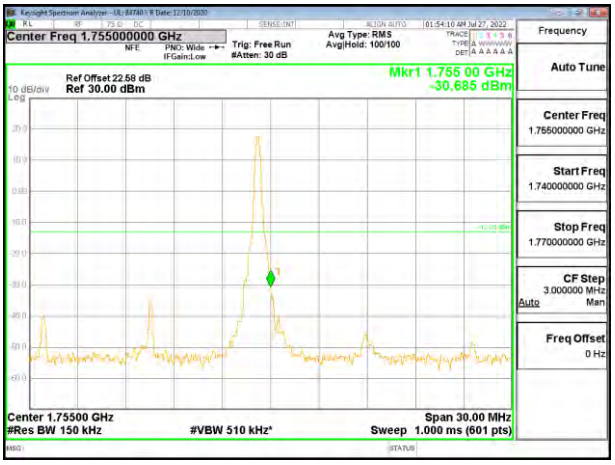
LTE4 15MHz QPSK LOW Ch RB1-74



LTE4 15MHz QPSK LOW Ch RB75-0

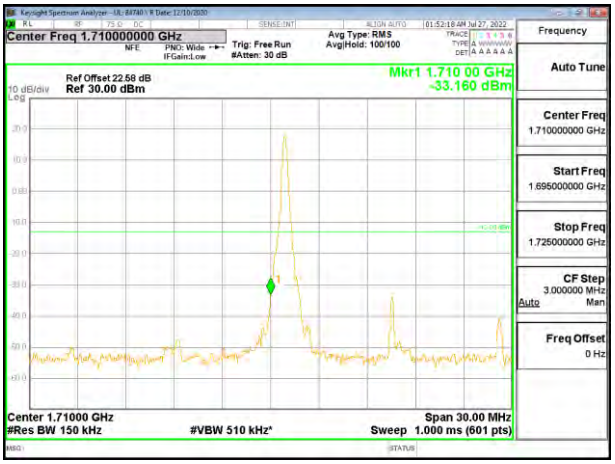


LTE4 15MHz QPSK HIGH Ch RB1-0

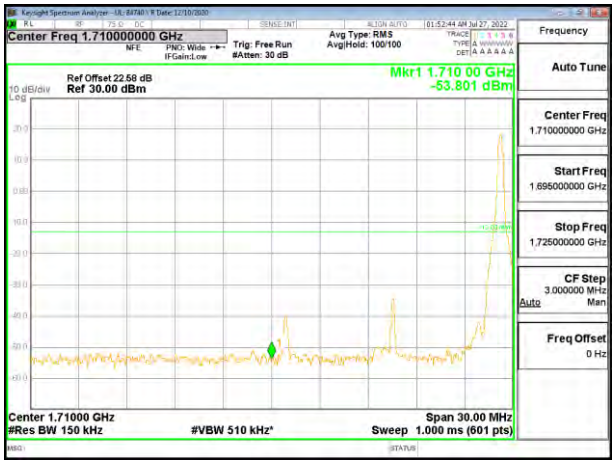


LTE4 15MHz QPSK HIGH Ch RB1-74

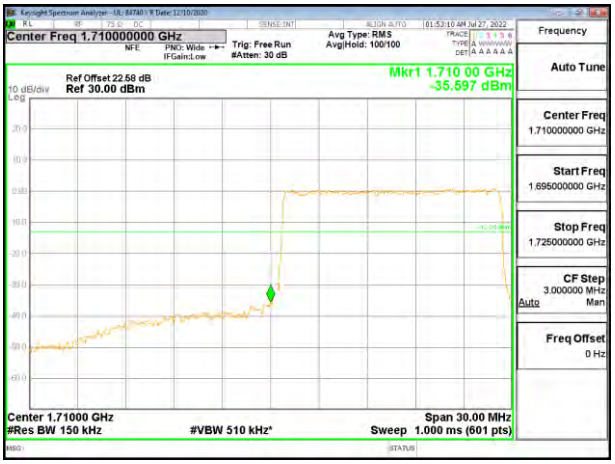
LTE4 15MHz QPSK HIGH Ch RB75-0



LTE4 15MHz 16QAM LOW Ch RB1-0

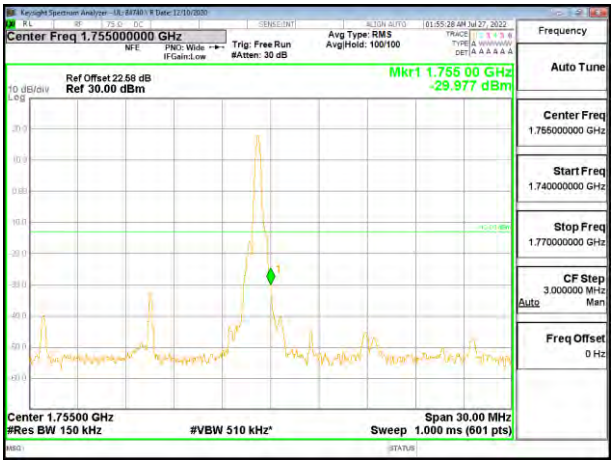


LTE4 15MHz 16QAM LOW Ch RB1-74

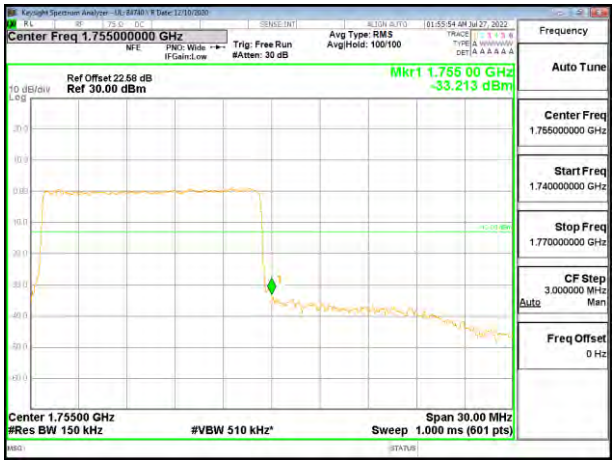


LTE4 15MHz 16QAM LOW Ch RB75-0

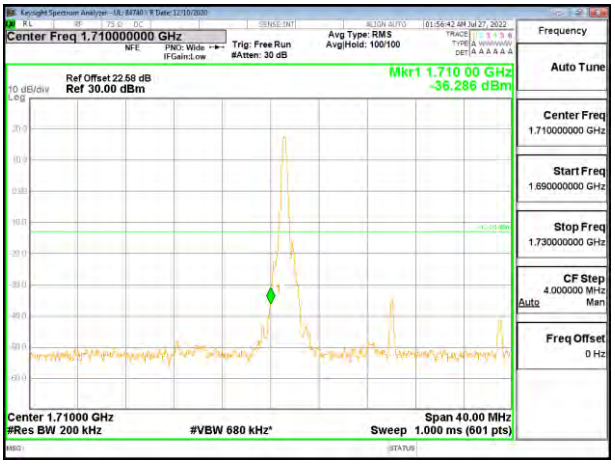
LTE4 15MHz 16QAM HIGH Ch RB1-0



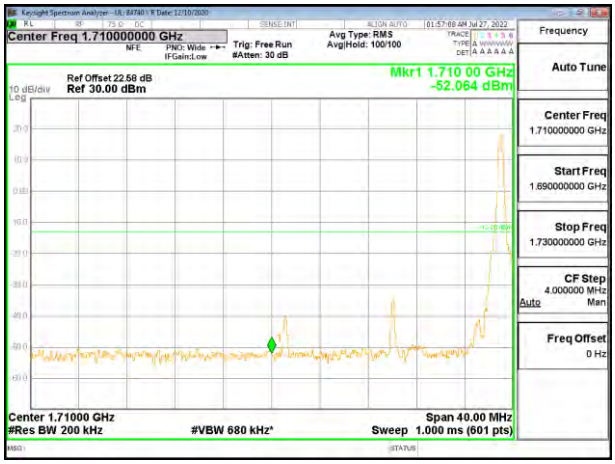
LTE4 15MHz 16QAM HIGH Ch RB1-74



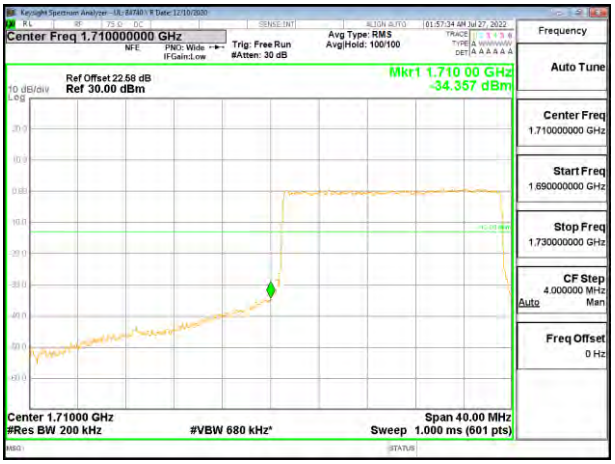
LTE4 15MHz 16QAM HIGH Ch RB75-0



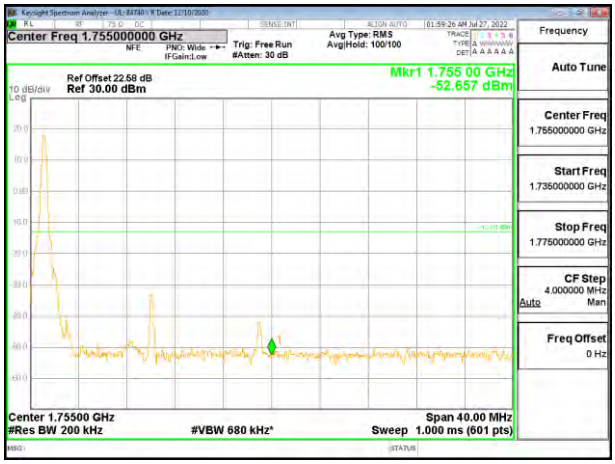
LTE4 20MHz QPSK LOW Ch RB1-0



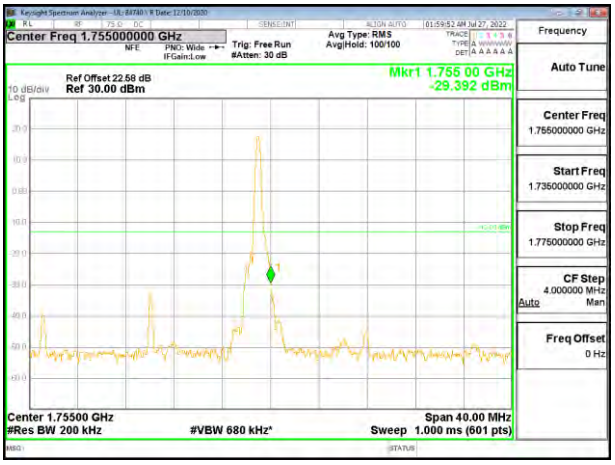
LTE4 20MHz QPSK LOW Ch RB1-99



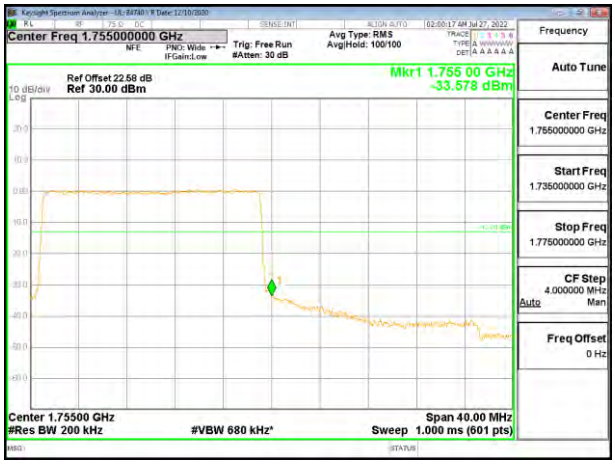
LTE4 20MHz QPSK LOW Ch RB100-0



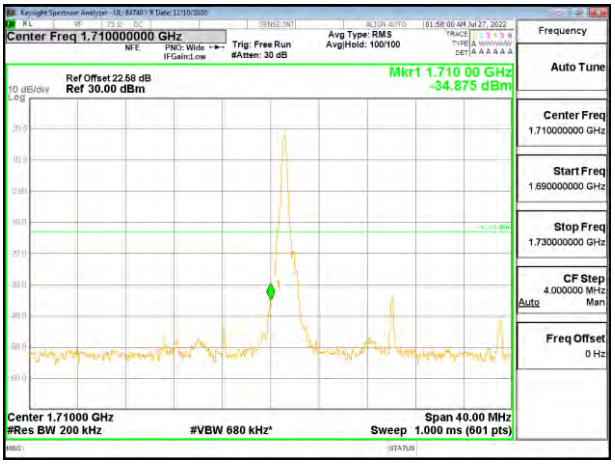
LTE4 20MHz QPSK HIGH Ch RB1-0



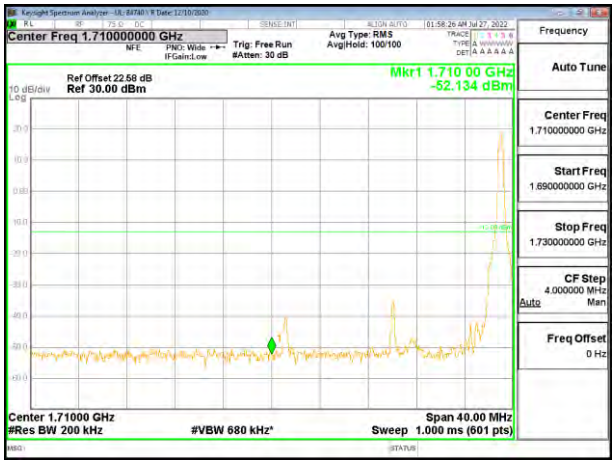
LTE4 20MHz QPSK HIGH Ch RB1-99



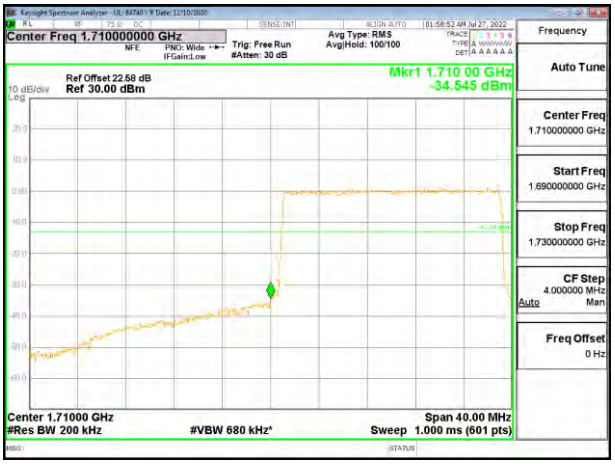
LTE4 20MHz QPSK HIGH Ch RB100-0



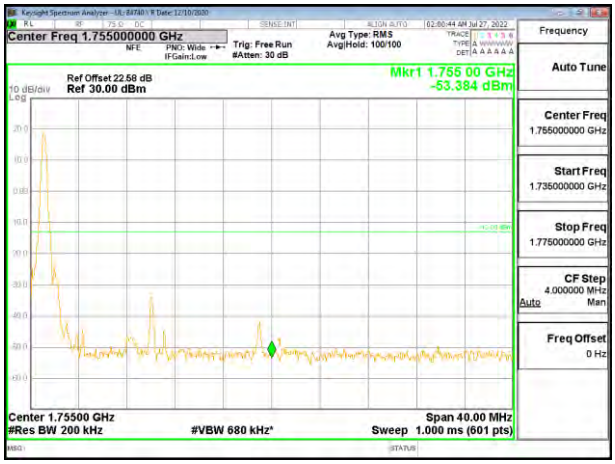
LTE4 20MHz 16QAM LOW Ch RB1-0



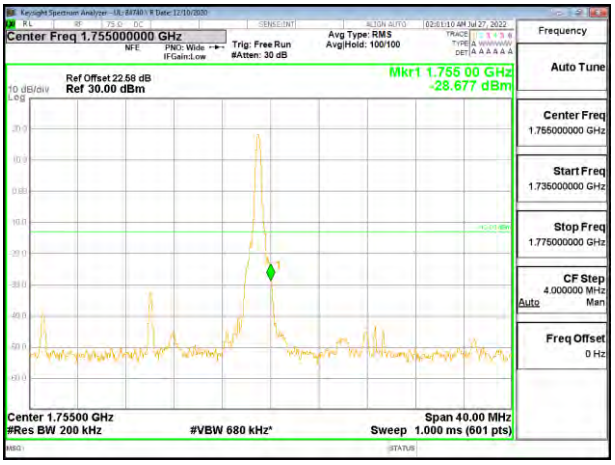
LTE4 20MHz 16QAM LOW Ch RB1-99



LTE4 20MHz 16QAM LOW Ch RB100-0



LTE4 20MHz 16QAM HIGH Ch RB1-0



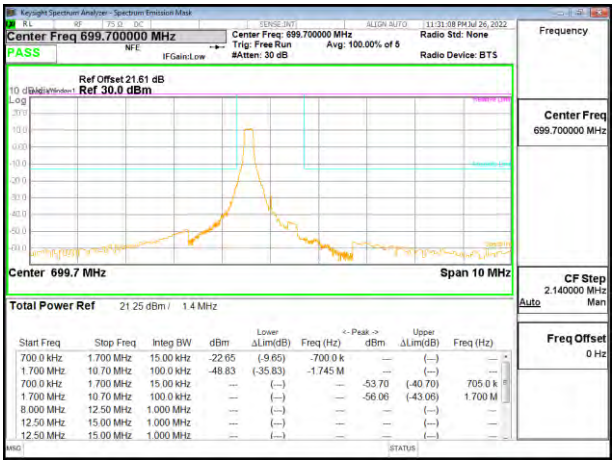
LTE4 20MHz 16QAM HIGH Ch RB1-99

LTE4 20MHz 16QAM HIGH Ch RB100-0

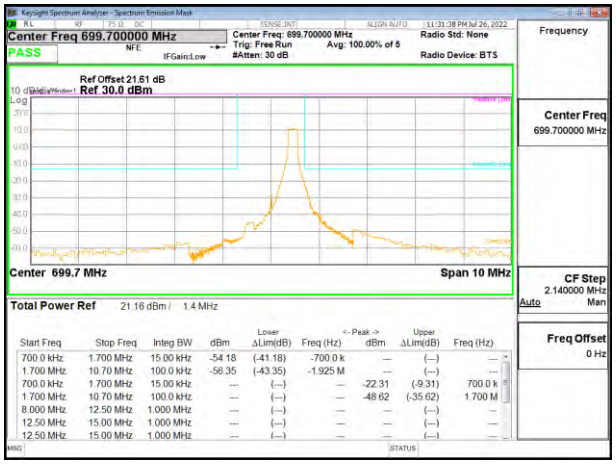
9.2.7. LTE BAND 12

LIMITS

FCC: §27.53
(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

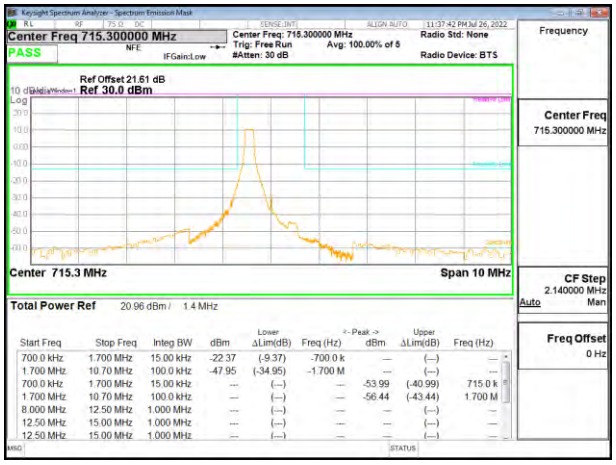


LTE12 1.4MHz QPSK LOW Ch RB1-0



LTE12 1.4MHz QPSK LOW Ch RB1-5

LTE12 1.4MHz QPSK LOW Ch RB6-0



LTE12 1.4MHz QPSK HIGH Ch RB1-0