

TEST REPORT

Report Number: R15980274-E13c

Applicant : Samsung Electronics Co Ltd
129, Samsung-ro, Yeongtong-gu, Suwon-si,
Gyeonggi-do, 16677, Rep. of Korea

Model : SC-51G, SCG36

FCC ID : A3LSMS942JPN

EUT Description : GSM/WCDMA/LTE/NR Phone + BT/BLE, DTS/UNII
a/b/g/n/ac/ax/be, WPT and NFC

Test Standard(s) : FCC 47 CFR PART 2, PART 24E, PART 25
ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-133 ISSUE 7

Date Of Issue:
2025-12-27

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Samsung Electronics Co Ltd
129, Samsung-ro, Yeongtong-gu, Suwon-si,
Gyeonggi-do, 16677, Rep. of Korea

EUT DESCRIPTION: GSM/WCDMA/LTE/NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax/be, WPT
and NFC

SERIAL NUMBERS: YHI0909M, YHK0046M, YHK0177M, YKA2427M

SAMPLE RECEIVE DATE: 2025-09-11, 2025-10-07, 2025-11-19

DATE TESTED: 2025-09-11 to 2025-12-23

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47 CFR PART 2, PART 24E, PART 25	Complies
ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-133 ISSUE 7	

UL LLC 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 LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released For
UL LLC By:



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UL Korea Ltd

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Consumer Technology Division
UL LLC

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL LLC is only responsible for correctly integrating customer-provided data with measurements performed by UL LLC.

Requirement Description	Requirement Clause Number (FCC)	Requirement Clause Number (ISED)	Result	Remarks
Equivalent Isotropic Radiated Power	24.232 (c)	RSS133§5.5	Complies	None.
Occupied Bandwidth	2.1049	RSS-GEN§6.7, RSS133	Complies	None.
Band Edge and Emission Mask	2.1051, 24.238 (a)	RSS133§5.6	Complies	None.
Out of Band Emissions	2.1051, 24.238 (a)	RSS133§5.6	Complies	None.
Frequency Stability	2.1055, 24.235	RSS133§5.4	Complies	None.
Peak-to-Average Ratio	24.232 (d)	RSS133§5.5	Complies	None.
Field Strength of Spurious Radiation	2.1053, 24.238 (a)	RSS133§5.6	Complies	None.

3. TEST METHODOLOGY

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

FCC published lists of [measurement procedures](#) for compliance testing.

ISED published lists of [normative test standards and acceptable alternatives procedures](#).

- ANSI C63.26:2015
- ANSI/TIA-603-E (2016)
- FCC 47 CFR Part 2, Part 24E, Part 25
- [FCC KDB 971168 D01](#): Power Meas License Digital Systems (ISED acceptable alternative procedure)
- [FCC KDB 971168 D02](#): Misc Rev Approv License Devices
- [FCC KDB 412172 D01](#): Determining ERP and EIRP
- ISED RSS-Gen Issue 5 + A1 + A2, RSS-133 Issue 7

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #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.	S0067	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}
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.24 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.37 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.17 dB
Occupied Channel Bandwidth	±0.39 %
Temperature	±0.9 °C
Supply voltages	±0.45 %
Time	±0.02 %

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

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE/NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax/be, WPT and NFC.

The EUT supports the following LTE B2 and their antenna configurations:

LTE & 5G NR Bands	Config 0	Config 1
LTE B2	ANT A	-

6.2. MAXIMUM OUTPUT POWER

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 Section 5.6

$ERP/EIRP = P_{Meas} + GT - LC$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as P_{Meas}, typically dBW or dBm);

P_{Meas} = 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.

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

LTE BAND 2 CONFIG 0

Part 24 / RSS 133								
EIRP Limit (W)		2.00						
Bandwidth (MHz)	Modulation	Low Frequency	Upper Frequency	EIRP Average	EIRP Average	99% BW (MHz)	99% BW (kHz)	Emission Designator
3.0	16QAM	1851.5	1908.5	21.75	0.150	2.704	2704	2M70D7W
20.0	QPSK	1860.0	1900.0	20.52	0.113	17.954	17954	18M0G7W
	16QAM			20.60	0.115	17.930	17930	17M9D7W

6.3. WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based upon an engineering evaluation made on conducted average power provided by the manufacturer. The modulations with the highest output power were selected as worst-case. Conducted tests were performed on the worst-case antenna port per band. Full radiated Emissions Testing on each antenna was performed and reported.

The following is the worst-case antenna port, and modulation, as tested:

LTE & 5G NR Bands	Worst-Case Antenna Port	Worst-Case Modulation
LTE B2	ANT A	LTE B2 (QPSK)

The EUT was investigated in three orthogonal orientations X/Y/Z on both Low Band (Fundamental Below 1GHz) Mid Band (Fundamental between 1-3GHz) and High Band (Fundamental above 3GHz) over all antennas to find the worst-case orientation. For Simultaneous Tx scans in which there are two or more F_c ranges with different worst-case orientations, scans were performed in the orientation with the highest output power, and sufficient margin was added to cover other orientations. The following are the worst-case orientations:

LTE Band	Config 0 Orientation	Config 1 Orientation
Low Band ($F_c < 1\text{GHz}$)	-	-
Mid Band ($1\text{GHz} < F_c < 3\text{GHz}$)	Z	-
High Band ($F_c > 3\text{GHz}$)	-	-

The EUT was tested while connected to AC Lines via charging cable and brick to represent worst case emissions.

Worst Case emissions from 9kHz-30Mhz, 30-1000MHz, 18-26.5GHz, and 26.5GHz-40GHz were done on the modes with the highest pre-tuned conducted average power per antenna. No emissions within 20dB were observed.

This report covers 2 models, the model differences and the representative model is shown below:

Representative Model	Difference	Derivative Model
		SCG36
SC-51G	Hardware	Same as SC-51G
	Software	Different UI

6.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Power Adapter	Flextronics	G-1000-US	Na	na

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB-C	1	USB-C	Shielded	<3m	Phone to power adapter

TEST SETUP

The EUT was connected to a base station simulator and set to transmit at max power for GSM/WCDMA testing

SETUP DIAGRAM

Please see R15980274-EP1c for Setup Diagrams and Setup Photos.

7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Wireless Conducted Measurement Equipment

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Conducted Room 1				
CBL036	N-Male to SMA-Male, 6Ft	Times Microwave	LMR-240 Coax Cable CBL036	2025-01-04	2026-01-04
208721	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2025-09-10	2026-09-10
213025	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2025-01-04	2026-01-04
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2025-01-15	2026-01-15
179892	Environmental Meter	Fisher Scientific	15-077-963	2025-08-05	2026-08-05
90416	Spectrum Analyzer	Keysight Technologies	N9030A	2025-07-25	2026-07-25
76022	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
CBL010	Micro-Coax UTiFLEX Cable Assembly, Low Loss	Carlisle Interconnect Technologies	UFB293C-0-2400- 300300	2025-06-06	2026-06-06
Pad II	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C27S-10	2025-05-20	2026-05-20

Test Equipment Used – Radiated Disturbance Emissions Morrisville – Chamber 1

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	18-40 GHz				
91186	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2024-05-16	2026-05-16
91187	Horn Antenna, 26-40GHz	ARA	MWH-2640/B	2024-05-17	2026-05-17
	Gain-Loss Chains				
135999	Gain-loss string: 18-40GHz	Various	Various	2025-05-31	2026-05-31
	Receiver & Software				
206459	Spectrum Analyzer	Rohde & Schwarz	FSW	2025-09-15	2026-09-15
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
241205	Environmental Meter	Fisher Scientific	15-077-963	2025-08-05	2027-08-05
212967	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2025-02-07	2026-02-07

Test Equipment Used – Radiated Disturbance Emissions Morrisville – Chamber 4

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	2024-04-09	2026-04-09
	Gain-Loss Chains				
207640	Gain-loss string: 1-18GHz	Various	Various	2025-06-13	2026-06-13
	Receiver & Software				
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-04-21	2026-04-21
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
241204	Environmental Meter	Fisher Scientific	15-077-963	2025-08-05	2027-08-05
212967	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2025-02-07	2026-02-07
212166	Wideband Radio Communications Tester	Anritsu	MT8821C	2025-01-20	2026-01-20
198917	1GHz high-pass filter, 2W, Fhigh = 18GHz	Micro-Tronics	HPM18129-02	2025-03-13	2026-03-13
169108 (BRF010)	1.85-1.97GHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50714-01	2025-03-13	2026-03-13
169106 (BRF008)	1710-1785MHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50713-01	2025-03-13	2026-03-13
231408 (BRF011)	2.495-2.690GHz notch filter, 2W, Fhigh = 18GHz	Micro-Tronics	BRM50709-01	2025-03-13	2026-03-13

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. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

ISED: RSS133

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.

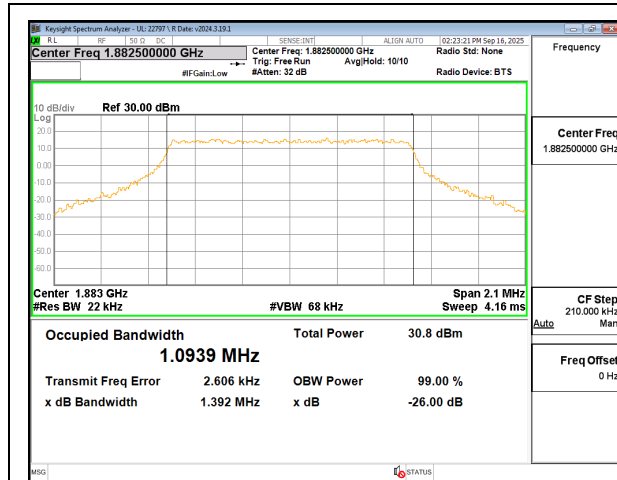
RESULTS

There is no limit required and power is the same for low, middle and high channel; therefore, only middle channel was tested.

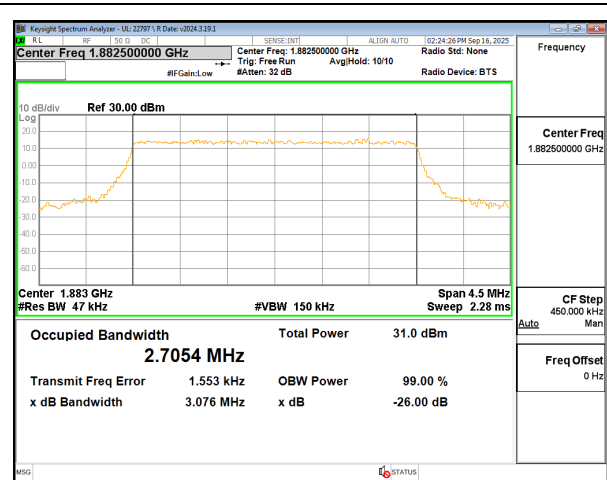
LTE BAND 2

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 2	1.4MHz, QPSK	6/0	1882.5	1.094	1.39
	1.4MHz, 16QAM			1.096	1.38
	3MHz, QPSK	15/0		2.705	3.08
	3MHz, 16QAM			2.704	3.05
	5MHz, QPSK	25/0		4.501	5.10
	5MHz, 16QAM			4.501	5.16
	10MHz, QPSK	50/0		9.004	10.03
	10MHz, 16QAM			8.986	10.01
	15MHz, QPSK	75/0		13.49	14.82
	15MHz, 16QAM			13.47	14.87
	20MHz, QPSK	100/0		17.95	19.74
	20MHz, 16QAM			17.93	19.64
	20MHz, QPSK	1/0		0.274	0.46

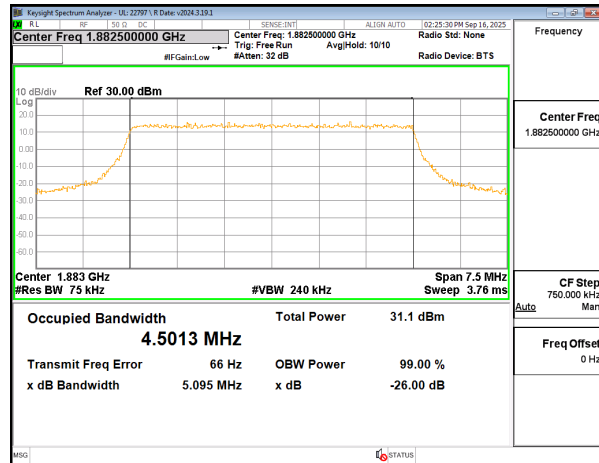
8.1.1. LTE BAND 2



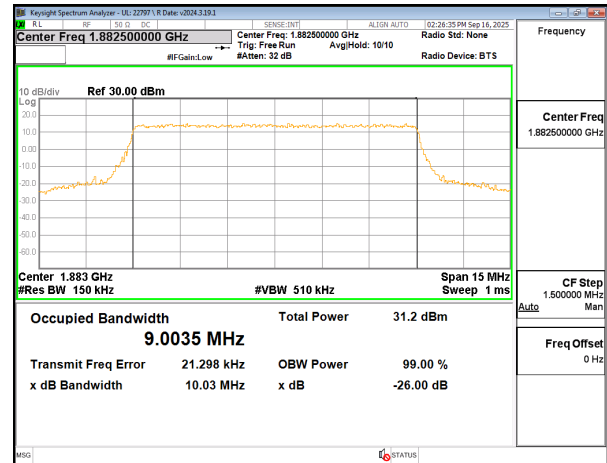
LTE B2 1.4MHz QPSK Middle Channel RB6-0



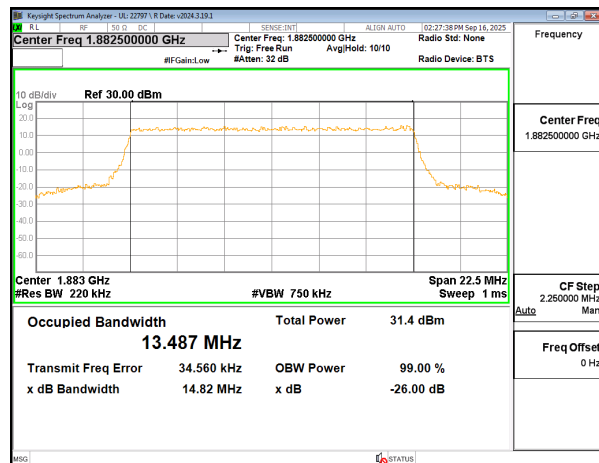
LTE B2 3MHz QPSK Middle Channel RB15-0



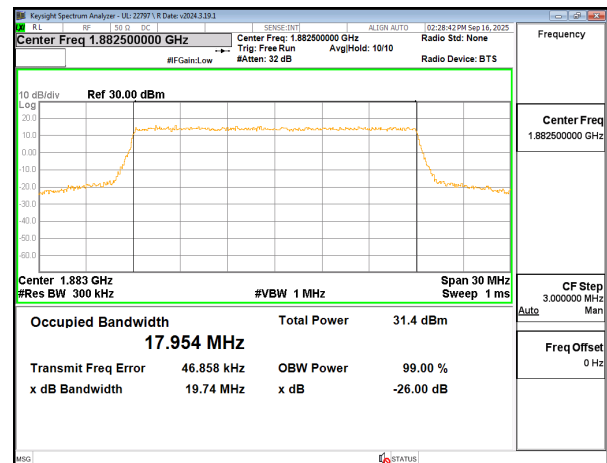
LTE B2 5MHz QPSK Middle Channel RB25-0



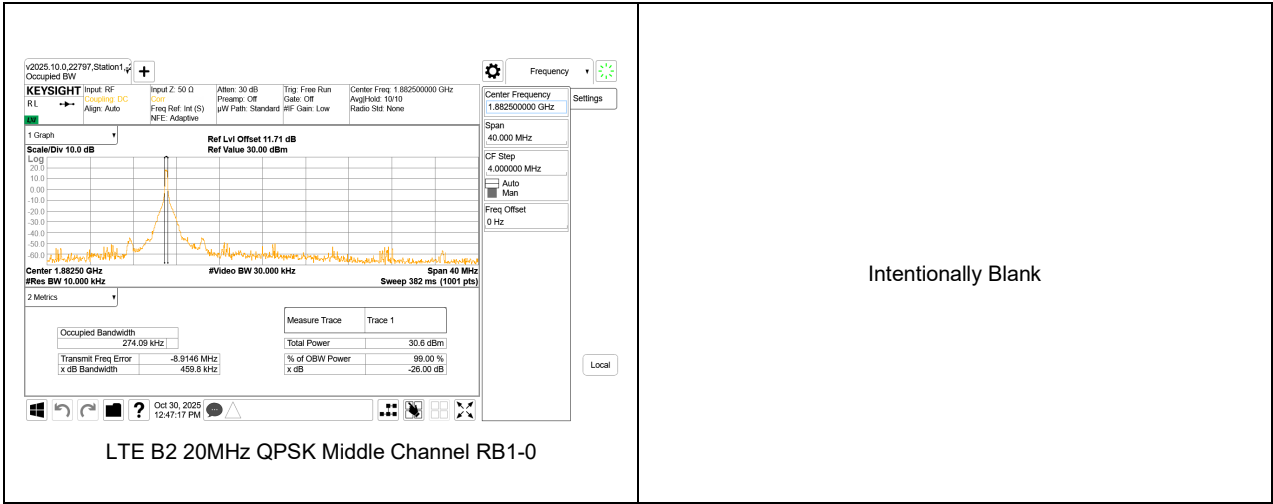
LTE B2 10MHz QPSK Middle Channel RB50-0



LTE B2 15MHz QPSK Middle Channel RB75-0



LTE B2 20MHz QPSK Middle Channel RB100-0



8.2. EMISSION MASK AND ADJACENT CHANNEL POWER

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.

ISED: RSS133§5.6

For all equipment, the TRP or total conducted power (sum of conducted power across all antenna connectors), where applicable, of the unwanted emissions outside the frequency block or frequency block group shall not exceed the limits shown in the table 3.

Table 3: Unwanted emission limits for all equipment	
Offset frequency from the edge of the frequency block group (MHz)	Unwanted emission limit
≤ 1	-13 dBm/(1% of OBW)
> 1	-13 dBm/MHz

TEST PROCEDURE

For Spectrum Emission Mask plots, the spectrum analyzer is configured to sweep with a moving integration window, the width of which can be adjusted to different sizes across the sweep. The window width is configured to be greater than or equal to the required reference bandwidth. The center frequencies of the integration window for the different integration windows was set such that the upper and lower edges of the windows are aligned with the transition points in the reference bandwidths. This is achieved by setting the start / stop frequencies of the window with an offset equal to the reference bandwidth / 2 from the transition point.

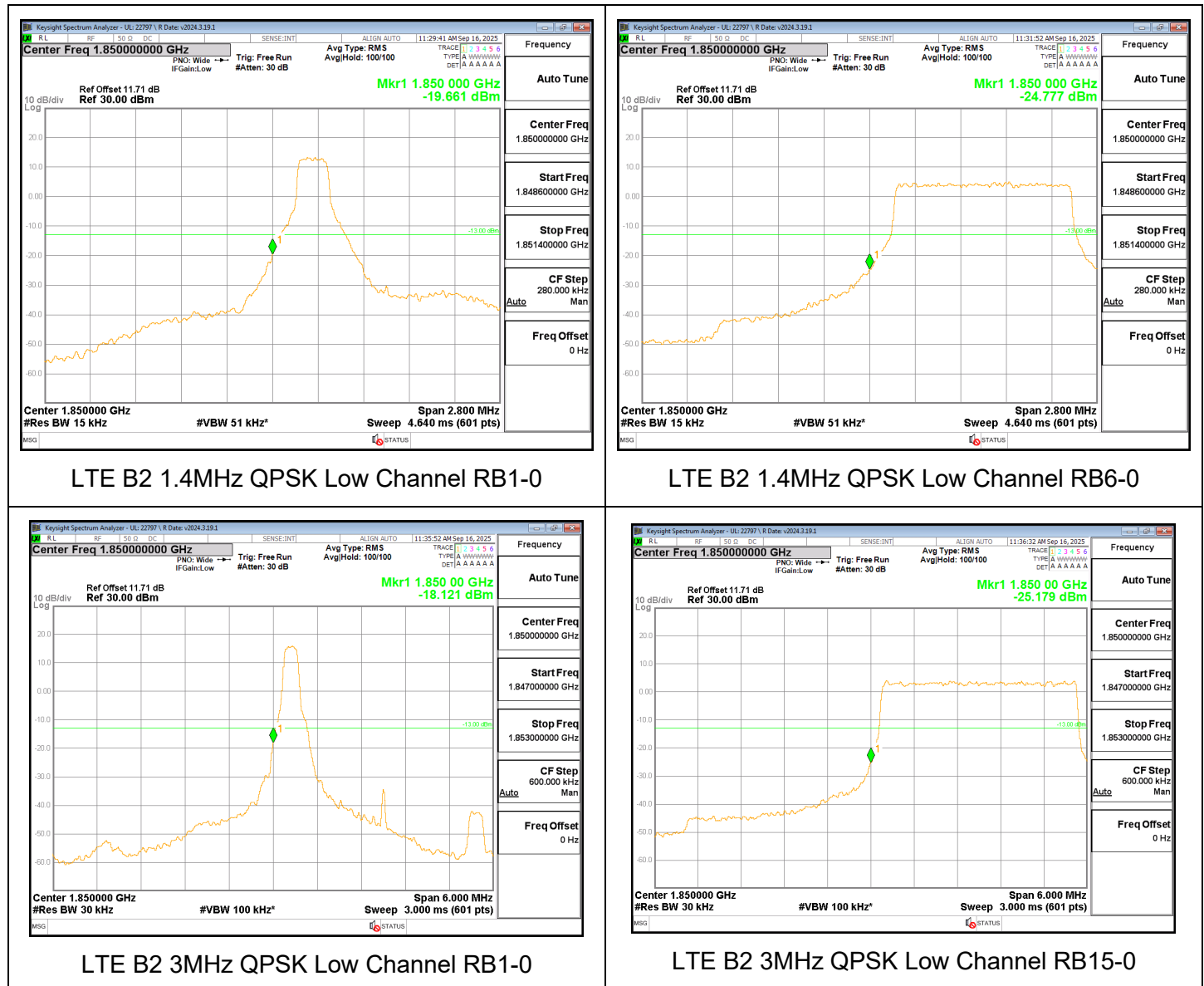
The transmitter output was connected to a base station simulator and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

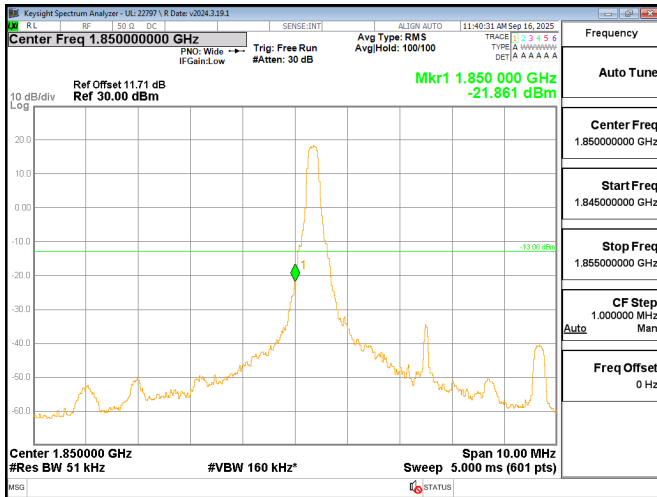
For each band edge measurement:

1. Set the spectrum analyzer span to include the block edge frequency.
2. Set a marker to point the corresponding band edge frequency in each test case.
3. Set display line at -13 dBm
4. Set resolution bandwidth to at least 1% of emission bandwidth.

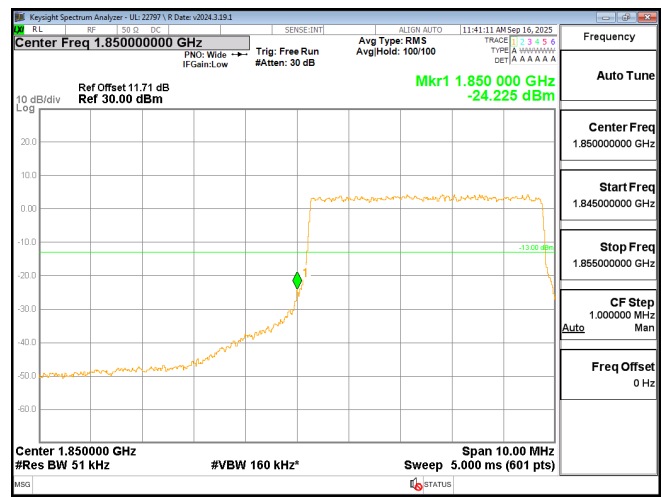
RESULTS

8.2.1. LTE Band 2

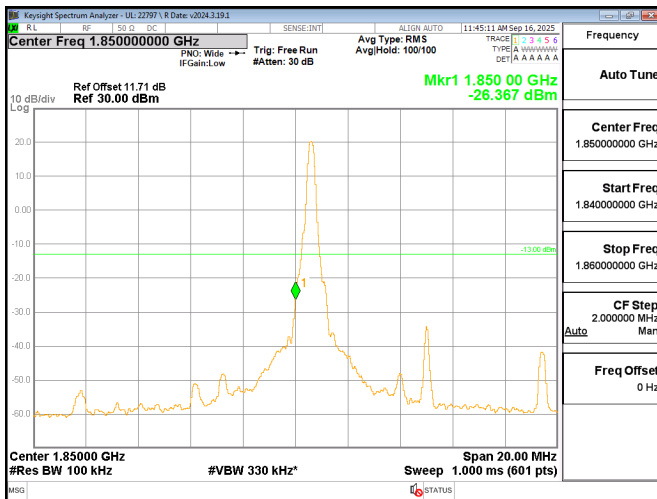




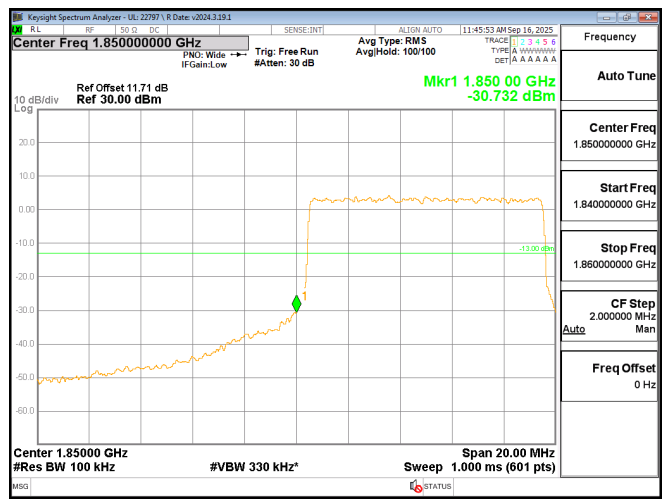
LTE B2 5MHz QPSK Low Channel RB1-0



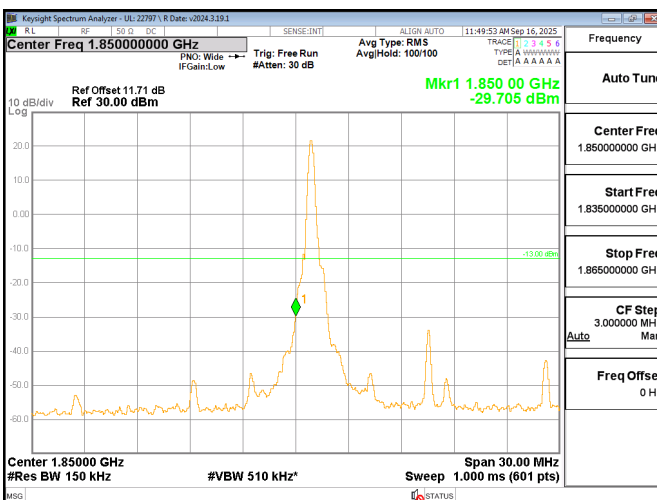
LTE B2 5MHz QPSK Low Channel RB25-0



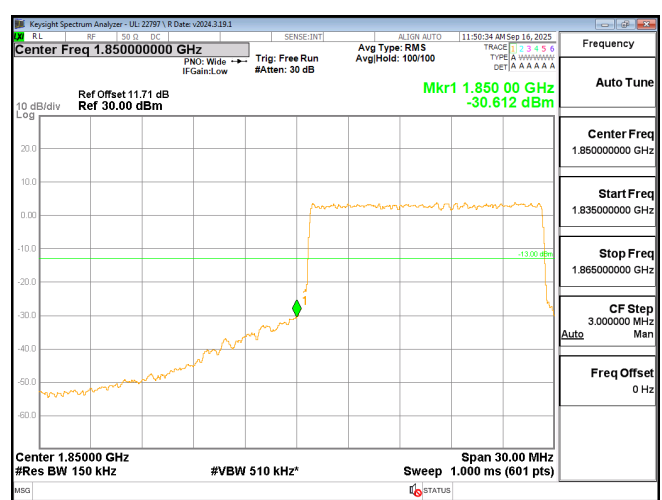
LTE B2 10MHz QPSK Low Channel RB1-0



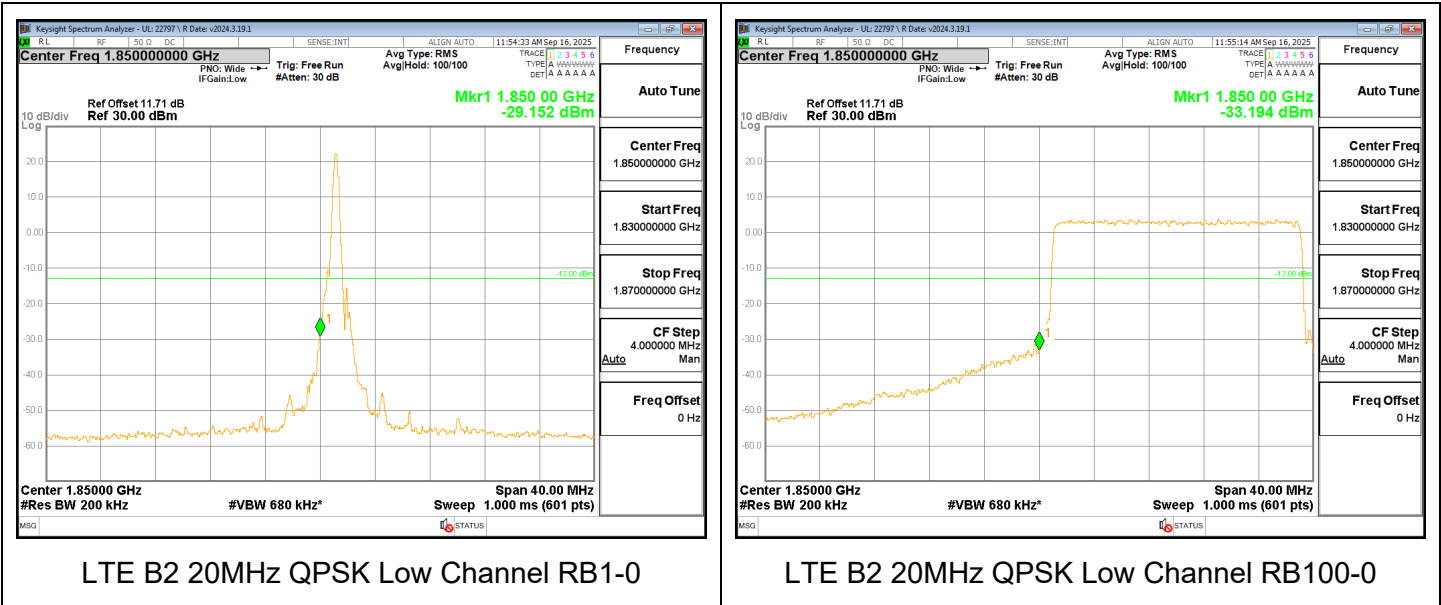
LTE B2 10MHz QPSK Low Channel RB50-0

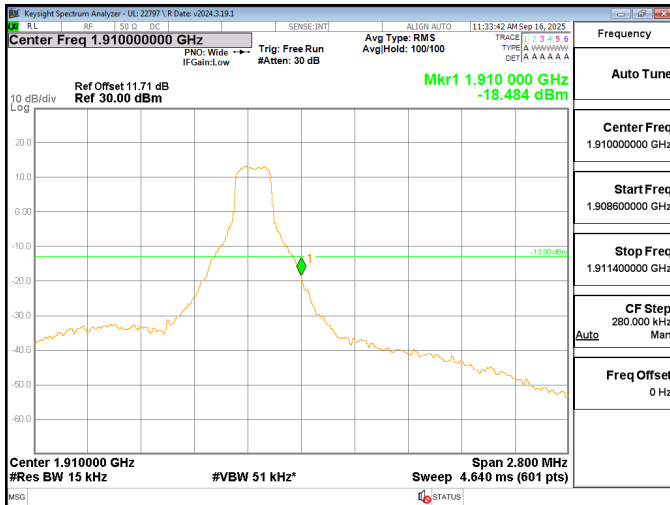


LTE B2 15MHz QPSK Low Channel RB1-0

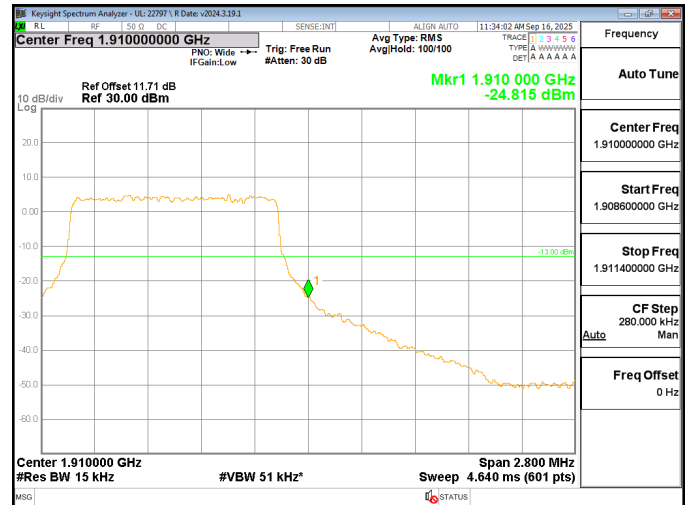


LTE B2 15MHz QPSK Low Channel RB75-0

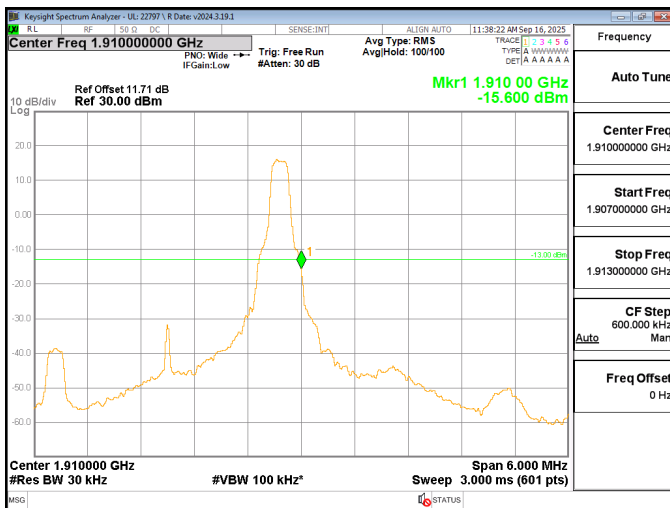




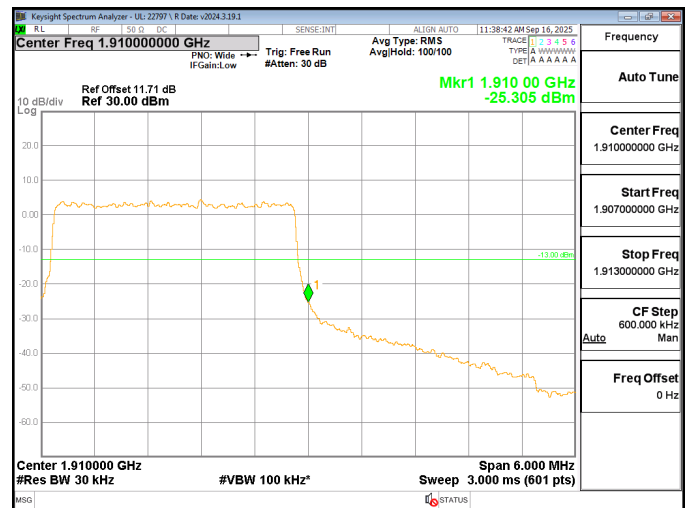
LTE B2 1.4MHz QPSK High Channel RB1-5



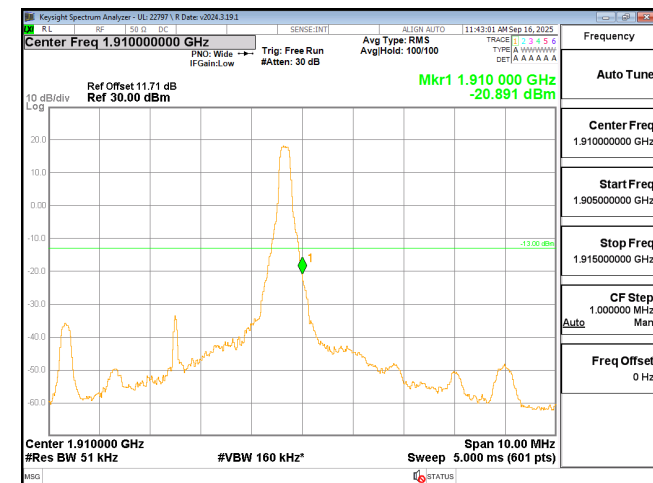
LTE B2 1.4MHz QPSK High Channel RB6-0



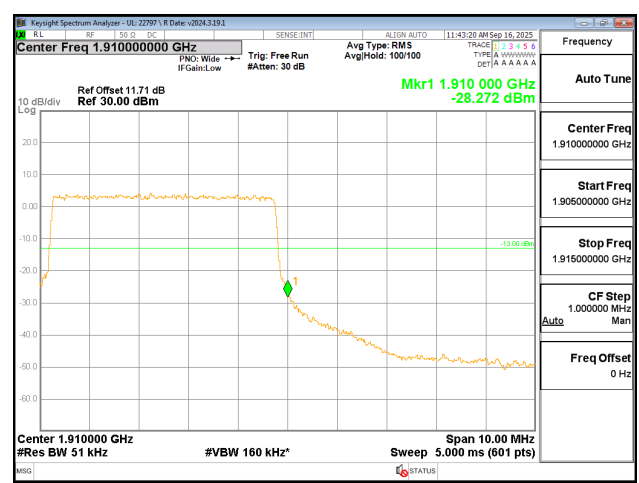
LTE B2 3MHz QPSK High Channel RB1-14



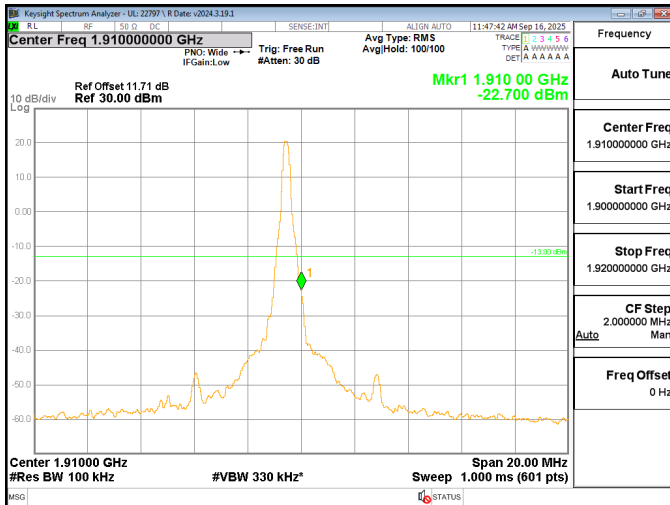
LTE B2 3MHz QPSK High Channel RB15-0



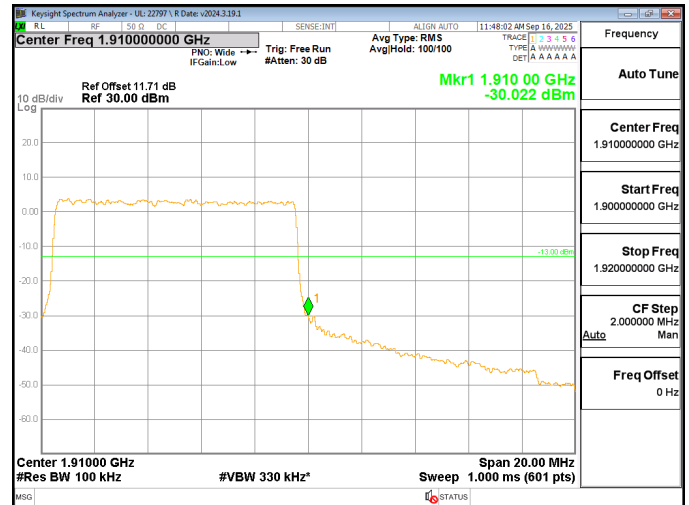
LTE B2 5MHz QPSK High Channel RB1-24



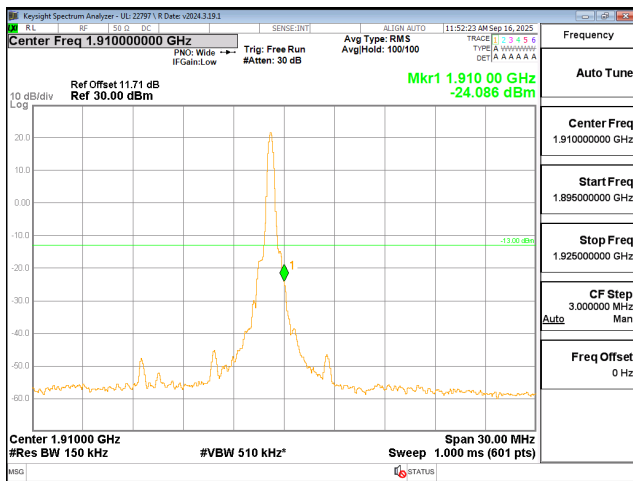
LTE B2 5MHz QPSK High Channel RB25-0



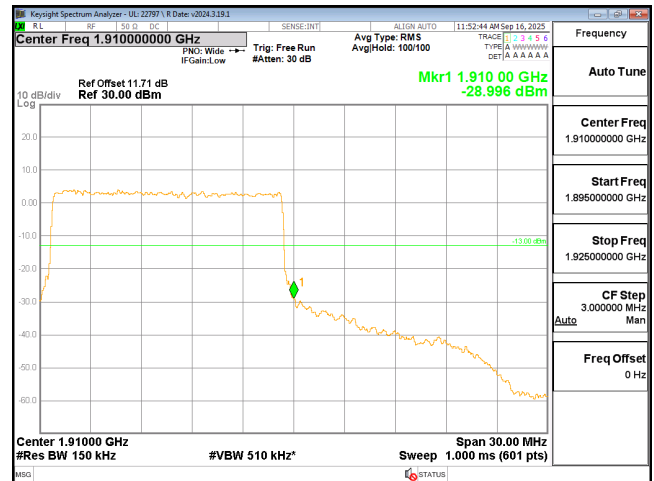
LTE B2 10MHz QPSK High Channel RB1-49



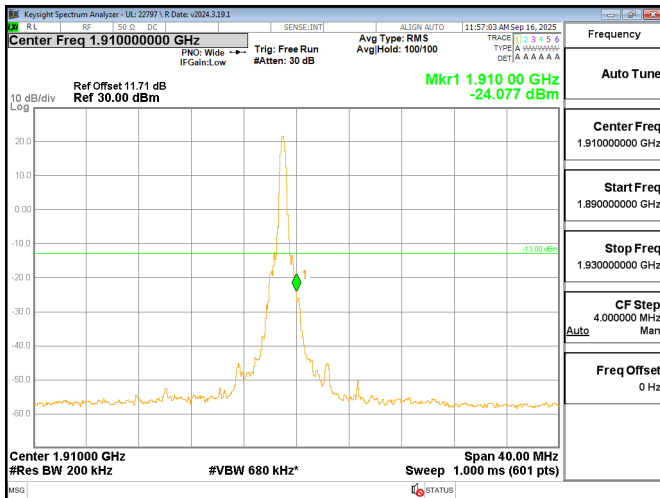
LTE B2 10MHz QPSK High Channel RB50-0



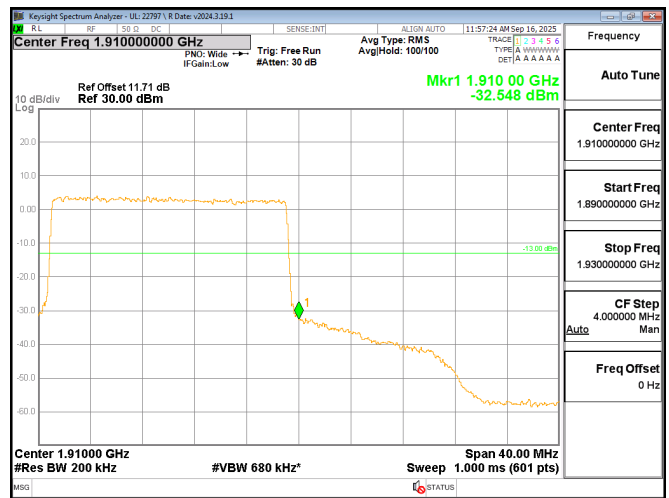
LTE B2 15MHz QPSK High Channel RB1-0



LTE B2 15MHz QPSK High Channel RB75-0



LTE B2 20MHz QPSK High Channel RB1-0



LTE B2 20MHz QPSK High Channel RB100-0

8.3. OUT OF BAND EMISSIONS

LIMITS

FCC: §24.238 (a)

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.

ISED: RSS133§5.6

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

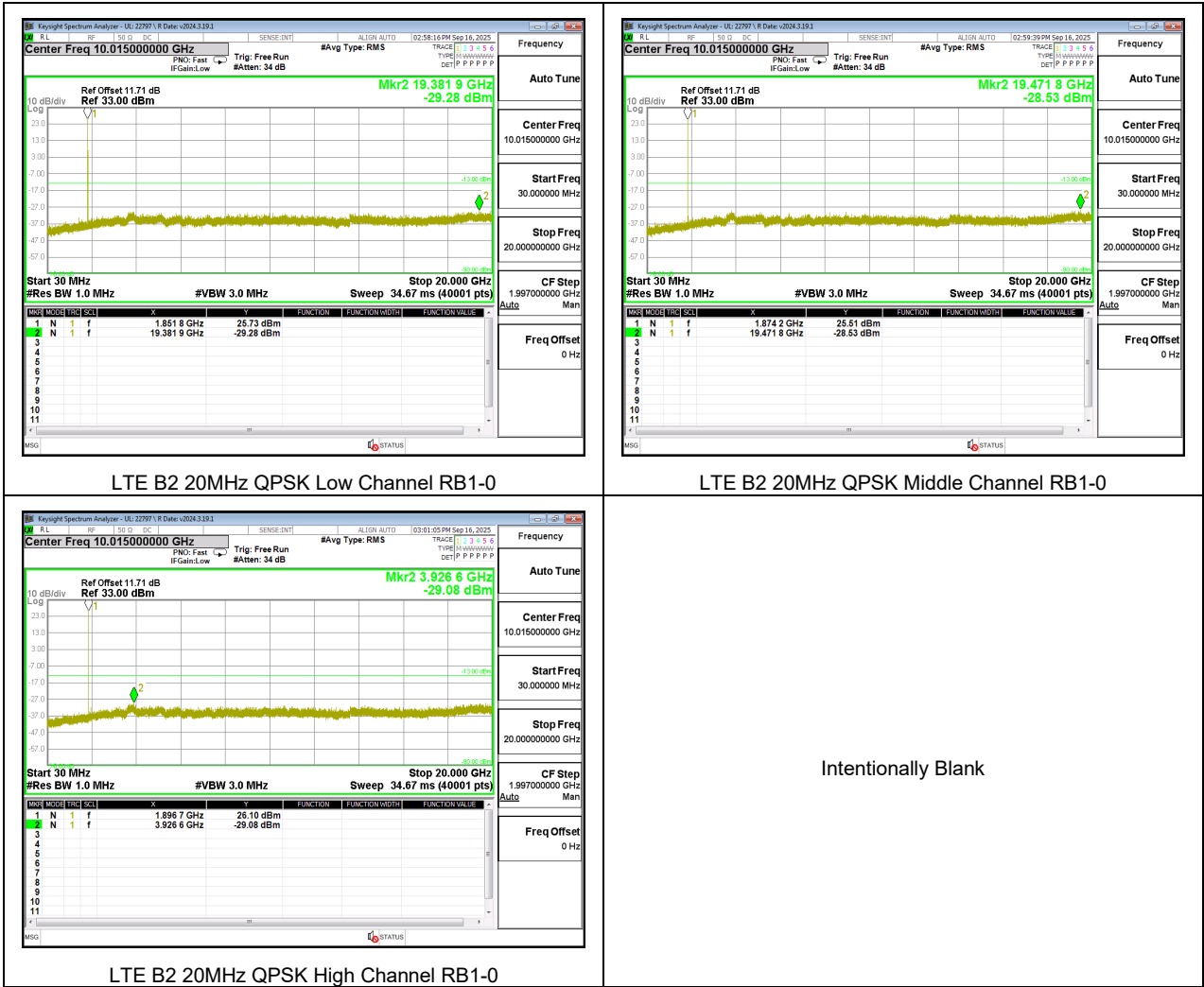
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

QPSK with 1RB is the highest power to all bandwidth. 1RB has the same frequency and power to all bandwidth. Therefore, QPSK with 1RB and wider bandwidths results are reported as worst case for LTE bands.

BPSK with 1RB is the highest power to all bandwidth. 1RB has the same frequency and power to all bandwidth. Therefore, BPSK with 1RB and wider bandwidths results are reported as worst case for 5G NRs.

8.3.1. LTE BAND 2



8.4. FREQUENCY STABILITY

LIMITS

FCC: §24.235

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

ISED: RSS133§5.4

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block or frequency block group when tested to the temperature and supply voltage variations specified in RSS-Gen.

TEST PROCEDURE

Use base station simulator with Frequency Error measurement capability.

- Temp. = -30°C to +50°C
- Voltage = (85% - 115%)
Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.
End Voltage, 3.2VDC.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50°C is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

RESULTS

See the following pages.

8.4.1. LTE BAND 2 (QPSK 20MHz BANDWIDTH)

Test Engineer ID:	105900	Test Date:	2025-10-15 2025-12-19
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Band	2	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1850	1910		2.5	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	1850.8350	1909.1750			
Extreme (50°C)		1850.8350	1909.1750	4.38	0.002	Yes
Extreme (40°C)		1850.8350	1909.1750	-7.71	-0.004	Yes
Extreme (30°C)		1850.8350	1909.1750	-5.36	-0.003	Yes
Extreme (10°C)		1850.8350	1909.1750	-4.17	-0.002	Yes
Extreme (0°C)		1850.8350	1909.1750	-5.02	-0.003	Yes
Extreme (-10°C)		1850.8350	1909.1750	-3.23	-0.002	Yes
Extreme (-20°C)		1850.8350	1909.1750	-4.26	-0.002	Yes
Extreme (-30°C)		1850.8350	1909.1750	2.02	0.001	Yes
20°C	End Point Voltage	1850.8350	1909.1750	-3.88	-0.002	Yes

8.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

FCC: §24.232 (d)

In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

ISED: RSS133§5.5

In addition, the peak-to-average power ratio (PAPR) of the equipment shall not exceed 13 dB for more than 0.1% of the time, using a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULT

The worst-case antenna port for conducted power shown. Config 0 was used to measure as the worst case; full resource block (FRB) for each bandwidth was used to measure as the worst case. The results from all CCDF measurements are passed with 13dB peak-to-average power ratio criteria.

Test Procedure

The EUT was connected to a Wideband Power Sensor to measure Peak and Average Conducted output power.

8.5.1. LTE BAND 2

Test Engineer ID:	33499	Test Date:	2025-10-10
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Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
LTE Band 2	1.4MHz	1882.5	6	0	QPSK	25.94	21.49	4.45
					16QAM	25.90	20.53	5.37
	3MHz		15	0	QPSK	26.09	21.55	4.54
					16QAM	26.14	20.61	5.53
	5MHz		25	0	QPSK	26.20	21.54	4.66
					16QAM	26.30	20.56	5.74
	10MHz		50	0	QPSK	26.01	21.58	4.43
					16QAM	26.04	20.59	5.45
	15MHz		75	0	QPSK	26.13	21.55	4.58
					16QAM	26.28	20.6	5.68
	20MHz		100	0	QPSK	26.52	21.57	4.95
					16QAM	26.44	20.54	5.90
Duty Cycle Correction Factor (dB) =			0.00					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9. RADIATED TEST RESULTS

Radiated measurement using the Field Strength Method

Using the test configuration shown in Figure 6 below, the radiated emissions is measured directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits. As stated in 5.5.1 of ANSI C63.26-2015, the field strength measurement method using a test site validated to the requirements of ANSI C63.4 is an alternative to the substitution measurement.

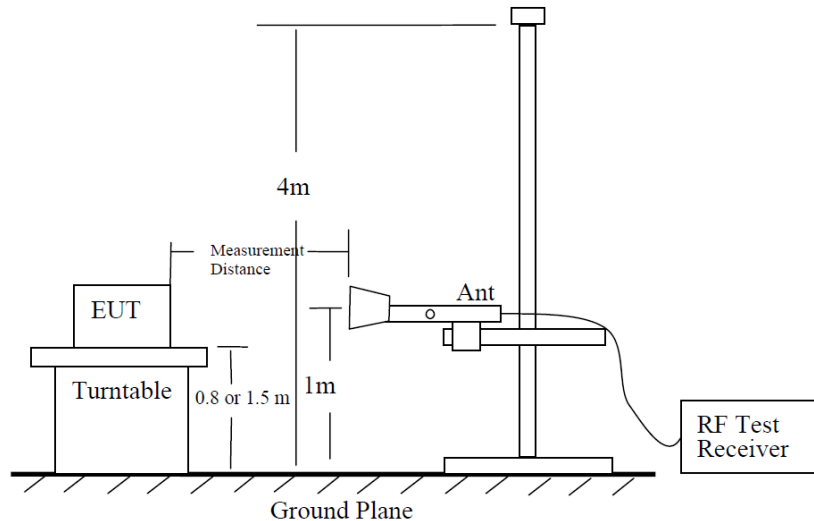


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

Radiated Power Measurement Calculation According to ANSI C63.26-2015

- a) $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- b) $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- c) $E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20\log(D) + 104.8$; where D is the measurement distance (in the far field region) in m.
- d) $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.

So, from d)

The measuring distance is usually at 3m, then $20 \cdot \log(3) = 9.5424$

Then, $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

Note: Confidence check of each chamber is performed daily to see if any degradation from expected/normal reading reference data. Ambient check of each chamber is performed monthly.

9.1.1. EFFECTIVE RADIATED POWER ERP/EIRP

RULE PART(S)

FCC: §2.1046, §24.232 (c)
RSS133§5.5

LIMITS

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

RSS133§5.5 - The maximum power spectral density of this equipment, measured in terms of average values, shall not exceed 3280 W/MHz e.i.r.p for the purpose of certification and may not apply to all deployment scenarios. Consult SRSP-510 for more deployment details in the band 1930-1995 MHz.

Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p. The equipment shall employ means to limit the power to the minimum necessary for successful communication.

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603-E (2016), Clause 2.2.17; PSA setting reference to 971168 D01

For average power measurements:

- a) Set span to at least 1.5 times the OBW;
- b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz;
- c) Set VBW $\geq 3 \times$ RBW;
- d) Set number of points in sweep $\geq 2 \times$ span / RBW;
- e) Sweep time = auto-couple;
- f) Detector = RMS (power averaging);
- g) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- h) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

TEST RESULTS

9.1.2. LTE BAND 2

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	DCCF (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
1882.50	24.32	H	8.63	4.83		20.52	33.01	-12.49	RB1-0
1882.50	23.42	V	8.63	4.83		19.62	33.01	-13.39	RB1-0

Rev. 10.17.25

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	DCCF (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
1882.50	25.55	H	8.63	4.83		21.75	33.01	-11.26	RB1-0
1882.50	21.24	V	8.63	4.83		17.44	33.01	-15.57	RB1-0

Rev. 10.17.25

High Frequency Substitution Measurement UL Morrisville Chamber 4 Company: Samsung Electronics Co., Ltd. Project #: 15980274 Date: 12/23/25 Test Engineer: 19289 Configuration: EUT Only Mode: 1TX, LTE2, 1882.5MHz, 20M, 16QAM									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	DCCF (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
1882.50	24.40	H	8.63	4.83		20.60	33.01	-12.41	RB1-0
1882.50	22.51	V	8.63	4.83		18.71	33.01	-14.30	RB1-0
Rev. 10.17.25									
CONFIG 0									

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

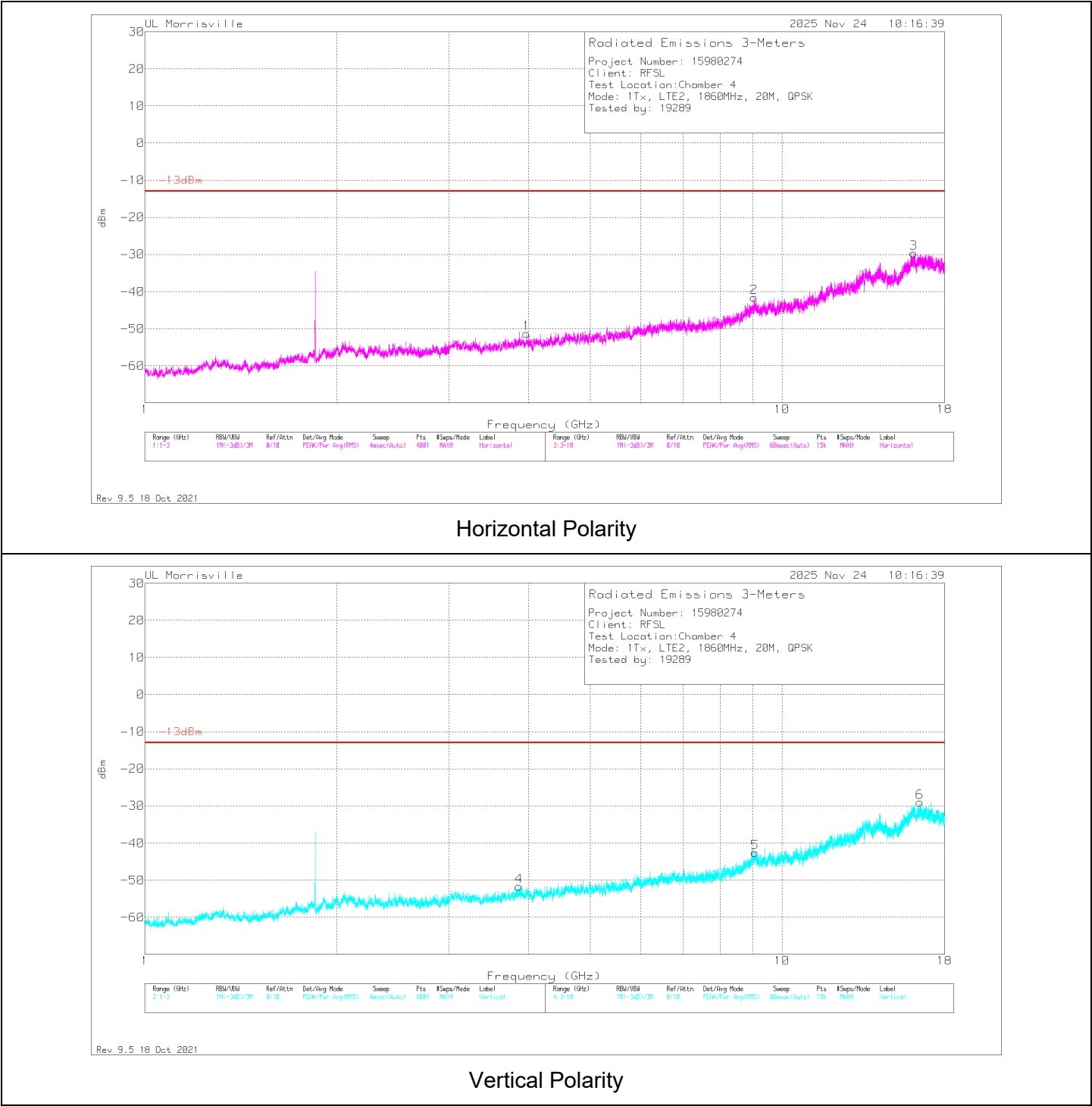
LIMITS

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.

ISED: RSS133§5.6
For all equipment, the TRP or total conducted power (sum of conducted power across all antenna connectors), where applicable, of the unwanted emissions outside the frequency block or frequency block group shall not exceed the limits shown in the table 3.

Table 3: Unwanted emission limits for all equipment	
Offset frequency from the edge of the frequency block group (MHz)	Unwanted emission limit
≤ 1	-13 dBm/(1% of OBW)
> 1	-13 dBm/MHz

Example Plot



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	3.867	-63.58	Pk	33.5	-33.4	11.8	0	-51.68	-13	-38.68	0-360	300	V
1	3.974	-63.98	Pk	33.4	-32.5	11.8	0	-51.28	-13	-38.28	0-360	200	H
2	9.048	-65.22	Pk	36	-24.1	11.8	0	-41.52	-13	-28.52	0-360	100	H
5	9.068	-66.03	Pk	36	-24.3	11.8	0	-42.53	-13	-29.53	0-360	300	V
3	16.098	-67.58	Pk	40.8	-14.6	11.8	0	-29.58	-13	-16.58	0-360	100	H
6	16.457	-65.08	Pk	41.1	-16.8	11.8	0	-28.98	-13	-15.98	0-360	200	V

TEST PROCEDURE

KDB 971168 D01 /D02

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz

RESULTS

9.2.1. LTE BAND 2

LTE BAND 2 (QPSK 20.0MHZ BANDWIDTH, ANT A (Config 0))

Date:	2025-11-24
Test Engineer:	19289
Configuration:	EUT Only
Mode:	LTE2, 20M, QPSK
Chamber #:	Chamber 4

Frequency (GHz)	Meter Reading (dBuV)	Det	88761 (dB/m)	CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT (dBm)	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.867	-63.58	Pk	33.5	-33.4	11.8	0	-51.68	-13	-38.68
3.974	-63.98	Pk	33.4	-32.5	11.8	0	-51.28	-13	-38.28
9.048	-65.22	Pk	36	-24.1	11.8	0	-41.52	-13	-28.52
9.068	-66.03	Pk	36	-24.3	11.8	0	-42.53	-13	-29.53
16.098	-67.58	Pk	40.8	-14.6	11.8	0	-29.58	-13	-16.58
16.457	-65.08	Pk	41.1	-16.8	11.8	0	-28.98	-13	-15.98
Mid Channel, 1880MHz									
3.975	-65.17	Pk	33.4	-32.5	11.8	0	-52.47	-13	-39.47
3.981	-64.9	Pk	33.4	-32.3	11.8	0	-52	-13	-39
8.951	-65.6	Pk	36	-25.4	11.8	0	-43.2	-13	-30.2
9.107	-65.25	Pk	36	-23.8	11.8	0	-41.25	-13	-28.25
16.099	-66.09	Pk	40.8	-14.7	11.8	0	-28.19	-13	-15.19
16.364	-64.86	Pk	41	-16.9	11.8	0	-28.96	-13	-15.96
High Channel, 1905MHz									
4.831	-64.77	Pk	34	-31.7	11.8	0	-50.67	-13	-37.67
5.348	-64.26	Pk	34.4	-31.8	11.8	0	-49.86	-13	-36.86
9.056	-66.42	Pk	36	-23.5	11.8	0	-42.12	-13	-29.12
9.153	-66.93	Pk	36.2	-24.4	11.8	0	-43.33	-13	-30.33
16.102	-67.56	Pk	40.8	-14.9	11.8	0	-29.86	-13	-16.86
16.399	-65.32	Pk	41.1	-16.6	11.8	0	-29.02	-13	-16.02

10. SETUP PHOTOS

Refer to R15980274-EP1c for setup photos.

END OF REPORT