TEST REPORT

Report Number: 15496249-E33V1

Applicant	:	APPLE, INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	:	A3257
Brand	:	APPLE
FCC ID	:	BCG-E8950A
IC	:	579C-E8950A
EUT Description	:	SMARTPHONE
Test Standard(s)	:	FCC 47 CFR PART 2, PART 90, PART 25 ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-140 ISSUE 1

Date Of Issue:
2025-07-30

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888

CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2025-07-30	Initial Review	--

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

TABLE OF CONTENTS

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

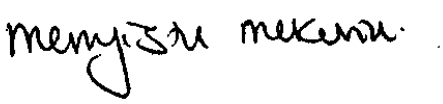
1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	A3257
Brand	APPLE
FCC ID	BCG-E8950A
IC	579C-E8950A
EUT Description	SMARTPHONE
Serial Number	Radiated: HM7J7JQX6J, LFJJGD2VPV. GMHVQR27VP Conducted: HVHHH5000AY000122J, HVHHH50002D0000YE7 HVHHD20009U0000YE7
Sample Receipt Date	2025-02-28
Date Tested	2025-03-31 to 2025-07-25
Applicable Standards	FCC 47 CFR PART 2, PART 90, PART 25 ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-140 ISSUE 1
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:
		
Mengistu Mekuria Staff Laboratory Engineer UL Verification Services Inc.	Eric Ting Senior Test Engineer UL Verification Services Inc.	Carlos D. Caudana Laboratory Engineer UL Verification Services Inc.

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

2. SUMMARY OF TEST RESULTS

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

Below is a list of the data provided by the customer:

1. Antenna gain and type (see section 6.4.)

Requirement Description	Requirement Clause Number (FCC)	Requirement Clause Number (ISED)	Result	Remarks
Effective Radiated Power	90.541 (d)	RSS140§4.3	Complies	
Occupied Bandwidth	2.1049	RSS-GEN§6.7, RSS140	Complies	
Band Edge and Emission Mask	2.1051, 90.543 (e)(f)	RSS140§4.4	Complies	
Out of Band Emissions	2.1051, 90.543 (e)(f)	RSS140§4.4	Complies	
Frequency Stability	2.1055, 90.539	RSS140§4.2	Complies	
Peak-to-Average Ratio	-	RSS140§4.3	Complies	
Field Strength of Spurious Radiation	2.1053, 90.543 (e)(f)	RSS140§4.4	Complies	

SUPPLEMENTAL COVERAGE FROM SPACE (SCS)

Under section § 25.109 (f) of the FCC rules Space and SCS earth stations providing SCS are subject to technical rules in parts 2, 22, 24, and 27 of this chapter based on the operating frequency band. Section § 25.204 (g) specifies that earth stations providing SCS pursuant to §§ 25.125 and 25.115 shall comply with the power requirements and out-of-band emission limits corresponding to devices operating in parts 22, 24, or 27 of this chapter (e.g., §§ 22.913, 24.232, 27.50), as required for their operating frequencies. We have clarified through KDB inquiry that the technical requirements from Part 90R should be applied for SCS operations in the 700 MHz Public Safety Band.

The table below identifies the SCS frequencies available for use and, for each band, the applicable FCC Part 22, 24, 27, and 90R technical requirements, the air interfaces supported by the device for SCS use.

The bands available for SCS and the bands supported by the devices in the scope of this report are:

	Frequency		Part 22/24/27/90 Rule parts	3GPP Band	Supported	Applicable to This Report
Band	DL (MHz)	UL (MHz)				
600 MHz:	614-652	663-698	27.5 (c) 27.50 (c) 27.53 (g)	71/n71	Yes	No
700 MHz:	729 – 746	699 –716	27.5 (c) 27.50 (c) 27.53 (g)	12/n12 17	Yes	No
	746 – 756	777 – 787	27.5 (b) 27.50 (b) 27.53 (f)	13/n13	Yes	No
	758-769	788-799	90R Note 1	14 / n14	Yes	Yes
	805-806 MHz				No	
800 MHz:	869-894	824-849	22H	WCDMA 5 5/n5 26/N26	Yes	No
Broadband PCS:	1930-1995	1850-1915	24E 24E	WCDMA 2 2/n2 25/n25	Yes	No
Note 1: Clarified through KDB inquiry that the technical requirements from Part 90R should be applied for SCS operations in the 700 MHz Public Safety Band.						

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 90, 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
- FCC KDB 273109 D02: Part 25 SCS and CMRS-Bands
- ISED RSS-Gen Issue 5 + A1 + A2, RSS-140 Issue 1

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, 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 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☐	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☒	Building 3: 843 Auburn Court, Fremont, CA 94538, USA			
☐	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
☒	Building 5: 47670 Kato Rd, Fremont, CA 94538, USA			

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

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}
Conducted Antenna Port Emission Measurement	1.940 dB
Power Spectral Density	2.466 dB
Time Domain Measurements Using SA	3.39 %
RF Power Measurement Direct Method Using Power Meter	0.450 dB Ave. 1.300 dB Peak
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

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 Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5GNR1, 5GNR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB), Wireless Power Transfer (WPT) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

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.

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 and ERP/EIRP output powers as follows:

LTE BAND 14

Part 90R / RSS 140	
ERP Limit (W)	3.00
Antenna Gain (dBi) (Ant 3)	-5.10

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
5.0	QPSK	790.5	795.5	25.70	18.45	0.070	4.474	4474	4M47G7W
	16QAM			25.20	17.95	0.062	4.484	4484	4M48D7W
10.0	QPSK	793.0	793.0	25.70	18.45	0.070	8.936	8936	8M94G7W
	16QAM			25.14	17.89	0.062	8.983	8983	8M98D7W

5G NR n14

Part 90R/ RSS 140	
ERP Limit (W)	3.00
Antenna Gain (dBi) (Ant 3)	-5.10

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
5.0	BPSK	790.5	795.5	25.68	18.43	0.070	4.503	4503	4M50G7W
	QPSK			25.70	18.45	0.070	4.496	4496	4M50G7W
	16QAM			25.40	18.15	0.065	4.485	4485	4M49D7W
10.0	BPSK	793.0	793.0	25.70	18.45	0.070	8.987	8987	8M99G7W
	QPSK			25.40	18.15	0.065	8.955	8955	8M96G7W
	16QAM			25.09	17.84	0.061	8.985	8985	8M99D7W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.80.00.

6.4. MAXIMUM ANTENNA GAIN AND MAXIMUM ALLOWED OUTPUT POWER

The IFA antenna(s) gain/ allowed output power, as provided by the manufacturer' are as follows:

Bands	Frequency Range (MHz)	Antenna	Gain (dBi)	Max Allowed Conducted Output Power (dBm)	ERP/EIRP (dBm)
LTE Band 14 / 5G NR n14	788 - 798	ANT1			
		ANT2	-5.80	25.2	19.40
		ANT3	-5.10	25.7	**20.60**
		ANT4			

6.5. WORST-CASE CONFIGURATION AND MODE

This report covers the following technologies:

- LTE Band 14, 5G NR n14

For 5G NRs, conducted spurious emission tests were conducted on wider bandwidth with inner 1RB since this is the worst bandwidth and the highest output power.

BPSK modulation applied only for 5G NR frequencies and has the same tune up power as QPSK modulations.

The DFT-s-OFDM and CP-OFDM waveforms were investigated, and DFT-s-OFDM was found to be the worst case.

The worst-case scenario for all measurements is based on an engineering evaluation made on different modulations. Then, QPSK and BPSK were observed as the worst mode to LTE bands and 5G NR bands respectively and set for all conducted and radiated. Output power measurements were measured on BPSK, QPSK, 16QAM, 64QAM, and 256QAM modulations. For testing purposes emissions on section 9 were measured while QPSK/BPSK was set at or above target power for all bands. Conducted tests were performed on the worst-case antenna port because it has the highest conducted power. The worst-case antenna port is shown in the table below.

LTE and 5G NR Bands	Worst case Antenna Port
LTE Band 14, 5G NR n14	Ant 3

The EUT was investigated in three orthogonal orientations X/Y/Z on all available antennas to determine the worst-case orientation. The following table exhibits the worst-case orientation. The full tests of the EUT have made upon the orientations that shown in the table below.

Frequency Range	ANT3	ANT2
663 – 849 MHz	X	Y

Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

For simultaneous transmission of multiple channels in the 2.4GHz/5GHz WLAN, UWB, and Cellular bands, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

6.6. DESCRIPTION OF TEST SETUP

Refer to Appendix A for description of test setup.

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

7. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Wideband Communication Test Set, Call Box	R&S GmbH & Co.	CMW500	85723	2026-02-28
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169936	2026-02-28
Antenna, Horn 1-18GHz	ETS Lindgren	3117	200897	2026-04-30
RF Filter Box, 1-18GHz, 12 Port	UL-FR1	Frankenstein	217255	2026-01-31
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	223460	2026-02-28
RF Filter Box, 1-18GHz, 17 Port	UL-FR1	RATS 2	236726	2025-10-31
Antenna, Horn 1-18GHz	ETS Lindgren	3117	80403	2026-08-31
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	171863	2026-11-30
Amplifier 9 KHz - 1 GHz	SONOMA INSTRUMENT	310N	224490	2026-05-06
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO-METRICS	EM-6871	170013	2025-07-31
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO-METRICS	EM-6872	170015	2025-07-31
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	262735	2026-03-30
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	231912	2026-04-30
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	172353	2025-08-31
Link File, RF Amplifier Assembly, 18-26.5GHz, 60dB Gain	AMPLICAL	AMP18G26.5-60	220194	2026-04-29
Antenna, Horn 26.5-40GHz	A.R.A	MWH-2640/B	81105	2025-08-31
Link File, RF Amplifier Assembly, 26.5-40GHz, 65dB Gain	Amplical	AMP26G40-65	220193	2026-04-30
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	259079	2026-02-28
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	262734	2026-04-30
Wideband Communication Call Box	Rohde & Schwarz	CMW500	230298	2026-02-28
Wideband Communication Call Box	Rohde & Schwarz	CMW500	85943	2026-02-28
Wideband Communication Call Box	Rohde & Schwarz	CMW500	262742	2027-02-11
Wideband Communication Call Box	Rohde & Schwarz	CMW500	262741	2027-02-11
Conducted Switch Box	N/A	CSB	221008	2026-04-30
Conducted Switch Box	N/A	CSB	262354	2026-04-30
Filter, BRF 3400-3800MHz, 18GHz max	Micro-Tronics	BRM50711	217364	2025-09-30
Filter, BRF 2305-2315	Micro-Tronics	BRC20553	224186	2026-06-29
Directional Coupler	KRYTAR	152610	254457	2025-10-31
Directional Coupler	KRYTAR	101040010K	254458	2025-10-30
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90718	2026-03-31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	257704	2026-03-31
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	89097	2025-10-31

UL AUTOMATION SOFTWARE			
Conducted Software	UL	CLT	Ver.v2023.3.3.0 & v2024.3.20.0
Conducted Software	UL	Antenna Port	Ver.2022.8.16
Conducted Software	UL	Station Tool	Ver v2025.3.0 & v2025.5.3
Radiated Software	UL	UL EMC	Ver 9.5, May 1, 2023

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

8. RF OUTPUT POWER VERIFICATION

CONDUCTED OUTPUT POWER MEASUREMENT PROCEDURE

All bands conducted average power is obtained from the base station simulator.

The following tests were conducted according to the test requirements outlined in ANSI C63.26 Section 5.2.

RESULTS

EUT has different power levels for head use configuration and body use configuration. All measurements are made with the device operating at the highest average conducted output powers.

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

8.1. LTE BAND 14

Test Engineer ID:	27957	Test Date:	2025-03-20

OUTPUT POWER FOR LTE BAND 14 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23305	23330	23355	23305	23330	23355
				790.5 MHz	793.0 MHz	795.5 MHz	790.5 MHz	793.0 MHz	795.5 MHz
5.0	QPSK	1	0	25.63	25.60	**25.67**	**25.20**	**25.20**	**25.20**
		1	12	25.62	**25.64**	25.62	25.14	25.08	24.68
		1	24	**25.70**	**25.64**	25.66	25.11	24.87	23.85
		12	0	25.36	25.36	25.32	24.38	24.35	24.39
		12	6	25.45	25.36	25.37	24.47	24.38	24.02
		12	11	25.37	25.41	25.40	24.40	24.37	23.47
		25	0	25.37	25.31	25.32	24.41	24.33	24.02
	16QAM	1	0	25.06	**25.20**	25.17	**24.67**	**24.65**	**24.65**
		1	12	**25.08**	25.13	25.07	24.57	24.59	23.92
		1	24	25.06	25.09	**25.20**	24.52	24.31	23.02
		12	0	23.86	23.84	23.84	23.43	23.41	23.40
		12	6	23.98	23.89	23.88	23.55	23.43	23.11
		12	11	23.92	23.93	23.92	23.44	23.40	22.53
		25	0	23.89	23.85	23.84	23.42	23.33	23.04
	64QAM	1	0	24.10	24.18	24.18	**23.63**	23.57	**23.53**
		1	12	**24.19**	24.26	24.18	23.61	**23.60**	23.19
		1	24	24.18	**24.28**	**24.23**	23.50	23.41	22.06
		12	0	22.88	22.82	22.89	22.43	22.45	22.43
		12	6	22.98	22.88	22.95	22.52	22.42	22.26
		12	11	22.92	22.90	22.95	22.46	22.44	21.73
		25	0	22.91	22.85	22.84	22.44	22.39	22.24
	256QAM	1	0	20.90	20.99	21.01	20.52	20.45	**20.53**
		1	12	**21.06**	**21.15**	**21.17**	**20.56**	**20.55**	20.53
		1	24	20.92	21.09	21.00	20.49	20.38	19.35
		12	0	20.84	20.85	20.85	20.42	20.46	20.44
		12	6	20.96	20.93	20.91	20.50	20.40	20.30
		12	11	20.91	20.95	20.92	20.43	20.41	19.83
		25	0	20.91	20.83	20.83	20.43	20.37	20.34

OUTPUT POWER FOR LTE BAND 14 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				N/A	23330	N/A	N/A	23330	N/A
				N/A	793.0 MHz	N/A	N/A	793.0 MHz	N/A
10.0	QPSK	1	0		25.67			**25.20**	
		1	24		**25.70**			25.12	
		1	49		25.66			24.03	
		25	0		25.38			24.42	
		25	12		25.46			24.35	
		25	24		25.50			24.23	
		50	0		25.40			24.41	
	16QAM	1	0		25.10			**24.67**	
		1	24		**25.14**			24.60	
		1	49		25.11			23.34	
		25	0		23.91			23.43	
		25	12		23.93			23.42	
		25	24		24.03			23.32	
		50	0		23.89			23.40	
	64QAM	1	0		24.19			**23.69**	
		1	24		24.22			23.66	
		1	49		**24.27**			22.56	
		25	0		22.94			22.42	
		25	12		22.95			22.42	
		25	24		23.05			22.42	
		50	0		22.92			22.42	
	256QAM	1	0		20.96			20.48	
		1	24		**21.18**			**20.66**	
		1	49		21.03			19.74	
		25	0		20.91			20.39	
		25	12		20.93			20.38	
		25	24		21.01			20.40	
		50	0		20.92			20.37	

8.2. 5G NR n14

Test Engineer ID:	27957	Test Date:	2025-03-06

OUTPUT POWER FOR 5G NR n14 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				158100	158600	159100	158100	158600	159100
				790.5 MHz	793.0 MHz	795.5 MHz	790.5 MHz	793.0 MHz	795.5 MHz
5.0	BPSK	1	0	23.69	23.64	23.70	23.20	23.20	23.20
		1	1	25.36	25.46	25.54	**25.20**	25.17	**25.16**
		1	23	**25.68**	**25.70**	**25.67**	24.99	25.04	25.04
		1	24	23.70	23.70	23.69	23.18	23.20	23.19
		12	6	25.64	25.65	**25.67**	25.11	**25.18**	25.15
		25	0	25.46	25.45	25.51	24.94	24.99	25.01
	QPSK	1	0	23.65	23.63	23.69	23.20	23.20	23.20
		1	1	25.20	25.02	25.53	25.01	**25.20**	**25.20**
		1	23	**25.70**	**25.67**	25.17	24.99	25.05	24.50
		1	24	23.65	23.67	23.68	23.18	23.19	23.17
		12	6	24.78	25.53	**25.70**	**25.12**	**25.20**	25.18
		25	0	24.00	25.25	25.38	24.99	25.08	24.40
	16QAM	1	0	23.68	23.69	23.68	23.20	23.20	23.20
		1	1	24.26	23.98	**25.29**	24.19	**25.17**	**25.02**
		1	23	**25.34**	**25.40**	24.50	24.86	24.75	23.55
		1	24	23.69	23.67	23.66	23.17	23.20	23.17
		12	6	23.70	25.24	**25.29**	**24.95**	25.01	24.45
		25	0	22.94	24.24	24.24	24.36	24.52	23.52
	64QAM	1	0	23.18	23.18	23.20	22.68	22.70	22.70
		1	1	22.95	22.43	23.65	22.64	**24.09**	**24.02**
		1	23	**23.82**	**23.92**	23.12	23.85	23.46	22.19
		1	24	23.15	23.17	23.18	22.70	22.70	22.66
		12	6	22.16	23.69	**23.77**	**23.91**	24.01	23.11
		25	0	22.37	23.72	**23.77**	23.87	24.04	23.08
	256QAM	1	0	21.20	21.19	21.20	20.66	20.70	20.70
		1	1	21.40	21.08	21.75	21.12	**22.16**	**22.10**
		1	23	**21.94**	**21.74**	21.69	**21.94**	21.94	20.78
		1	24	21.15	21.18	21.17	20.70	20.69	20.65
		12	6	20.63	21.68	**21.78**	**21.94**	22.07	21.69
		25	0	20.87	21.67	21.71	21.87	21.98	21.64

OUTPUT POWER FOR 5G NR n14 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				N/A	158600	N/A	N/A	158600	N/A
				N/A	793.0 MHz	N/A	N/A	793.0 MHz	N/A
10.0	BPSK	1	0		23.70			23.20	
		1	1		25.19			**25.20**	
		1	50		**25.70**			24.99	
		1	51		23.68			23.19	
		25	12		25.48			24.96	
		50	0		25.32			24.94	
	QPSK	1	0		23.69			23.20	
		1	1		24.92			**25.09**	
		1	50		25.36			24.32	
		1	51		23.70			23.20	
		25	12		**25.40**			25.01	
		50	0		25.15			24.84	
	16QAM	1	0		23.69			23.19	
		1	1		23.94			24.25	
		1	50		24.55			23.42	
		1	51		23.66			23.18	
		25	12		**25.09**			**24.86**	
		50	0		24.12			24.04	
	64QAM	1	0		23.20			22.69	
		1	1		22.61			22.77	
		1	50		23.25			22.07	
		1	51		23.19			22.68	
		25	12		**23.62**			**23.84**	
		50	0		**23.62**			23.54	
	256QAM	1	0		21.20			20.69	
		1	1		21.17			21.20	
		1	50		**21.84**			20.68	
		1	51		21.15			20.68	
		25	12		21.56			**21.93**	
		50	0		21.56			21.83	

9. CONDUCTED TEST RESULTS

9.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
ISED: RSS140

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.

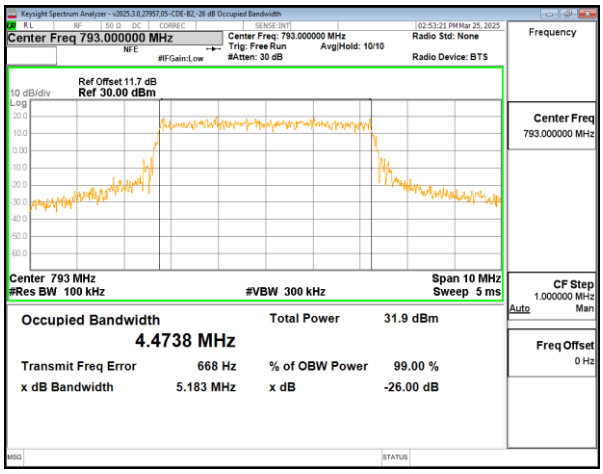
LTE BAND 14

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 14	5MHz, QPSK	25/0	793.0	4.474	5.183
	5MHz, 16QAM			4.484	4.982
	10MHz, QPSK	50/0		8.936	9.656
	10MHz, 16QAM			8.983	9.523
	10MHz, QPSK	1/0		0.245	0.43

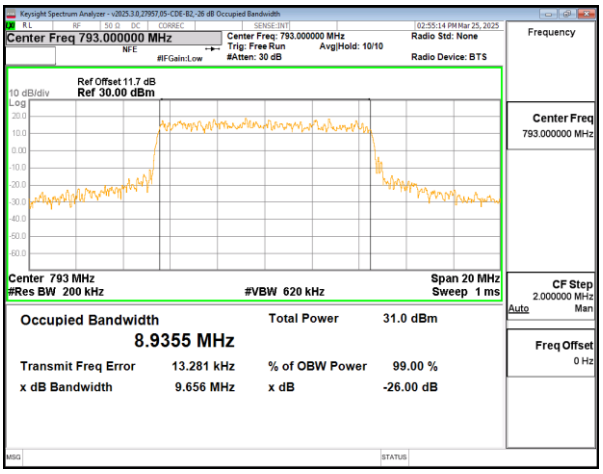
5G NR n14

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
5G NR n14	5MHz, BPSK	25/0	793.0	4.503	5.130
	5MHz, QPSK			4.496	5.114
	5MHz, 16QAM			4.485	5.155
	10MHz, BPSK	50/0		8.987	9.678
	10MHz, QPSK			8.955	9.788
	10MHz, 16QAM			8.985	9.771
	10MHz, BPSK	1/0		0.232	0.385

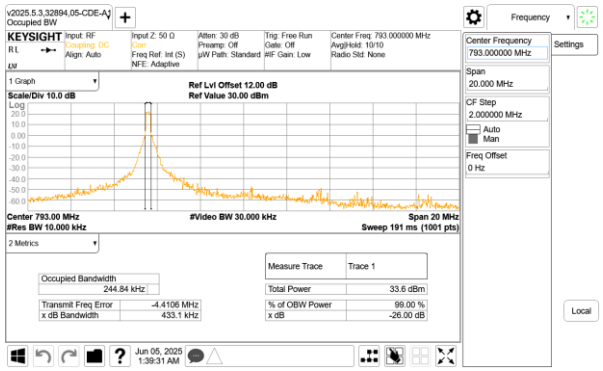
9.1.1. LTE BAND 14



LTE B14 5MHz QPSK Middle Channel RB25-0



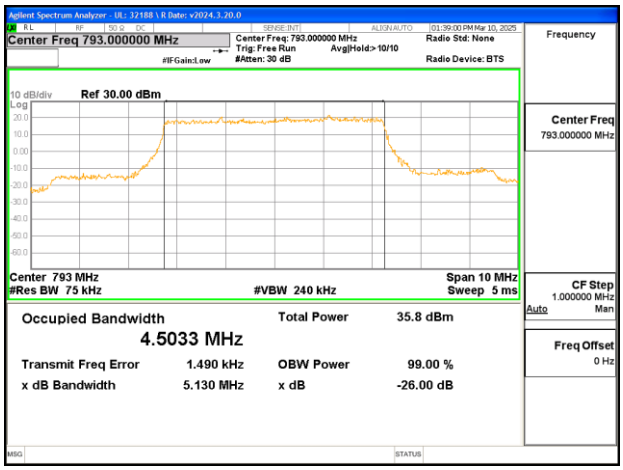
LTE B14 10MHz QPSK Middle Channel RB50-0



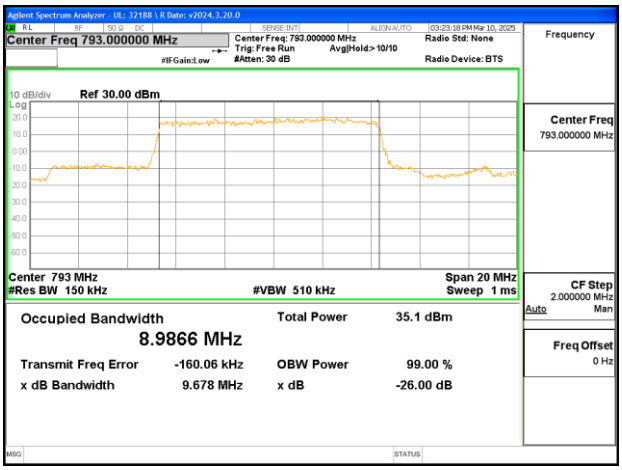
LTE B14 10MHz QPSK Middle Channel RB1-0

Intentionally Blank

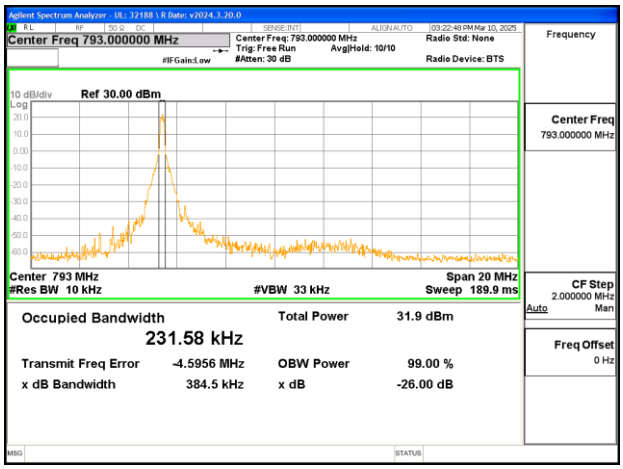
9.1.2. 5G NR n14



5G NR n14 5MHz BPSK Middle Channel RB25-0



5G NR n14 10MHz BPSK Middle Channel RB50-0



5G NR n14 10MHz BPSK Middle Channel RB1-0

Intentionally Blank

9.2. EMISSION MASK AND ADJACENT CHANNEL POWER

LIMITS

FCC: §90.543 Emission Limitations.
(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

The RSS-140 the limit of -35dBm / 6.25 kHz is extended out to 806 MHz. The FCC Part 90 limit from 805 MHz to 806 MHz is -13dBm measured in 100kHz. The 6.25kHz measurement is a more stringent limit (equivalent to -25dBm / 100kHz) and therefore demonstrates compliance with both limits.

ISED: RSS140§4.4
The power of any unwanted emission outside the bands 758-768 MHz and788-798 MHz shall be attenuated below the transmitter output power P in dBW as follows, where p is the transmitter output power in watts:

a. For any frequency between 769-775 MHz and 799-806 MHz:
    i. 76 + 10 log (p), dB in a 6.25 kHz band for fixed and base station equipment
    ii. 65 + 10 log (p), dB in a 6.25 kHz band for mobile and portable/hand-held equipment
b. For any frequency between 775-788 MHz, above 806 MHz, and below 758 MHz: 43 + 10 log (p), dB in a bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency bands 758-768 MHz and 788-798 MHz, a resolution bandwidth of 30 kHz may be employed.

In addition, the equivalent isotropically radiated power (e.i.r.p.) of all emissions, including harmonics in the band 1559-1610 MHz, shall not exceed −70 dBW/MHz for wideband emissions, and −80 dBW/kHz for discrete emissions of less than 700 Hz bandwidth.

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 required limit.
4. Set resolution bandwidth to at least 1% of emission bandwidth.

TEST PROCEDURE (BAND 14)

(b)ACP measurement procedure. The following are the procedures for making the transmitter ACP measurements. For all measurements modulate the transmitter as it would be modulated in normal operating conditions. For time division multiple access (TDMA) systems, the measurements are to be made under TDMA operation only during time slots when the transmitter is active. All measurements are made at the transmitter's output port. If a transmitter has an integral antenna, a suitable power coupling device shall be used to couple the RF signal to the measurement instrument. The coupling device shall substantially maintain the proper transmitter load impedance. The ACP measurements may be made with a spectrum analyzer capable of making direct ACP measurements. “Measurement bandwidth”, as used for non-swept measurements, implies an instrument that measures the power in many narrow bandwidths equal to the nominal resolution bandwidth and integrates these powers to determine the total power in the specified measurement bandwidth.

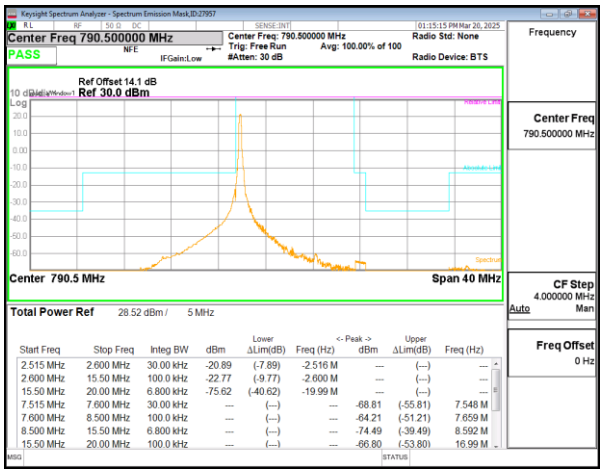
(1)Setting reference level. Set transmitter to maximum output power. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. For example, for a 6.25 kHz transmitter set the measurement bandwidth to 6.25 kHz. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the instrument to the assigned center frequency to measure the average power level of the transmitter. Record this power level in dBm as the “reference power level.”

(2)Non-swept power measurement. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth and frequency offset from the assigned center frequency as shown in the tables in §90.543 (a) above. Any value of resolution bandwidth may be used as long as it does not exceed 2 percent of the specified measurement bandwidth. Measure the power level in dBm. These measurements should be made at maximum power. Calculate ACP by subtracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

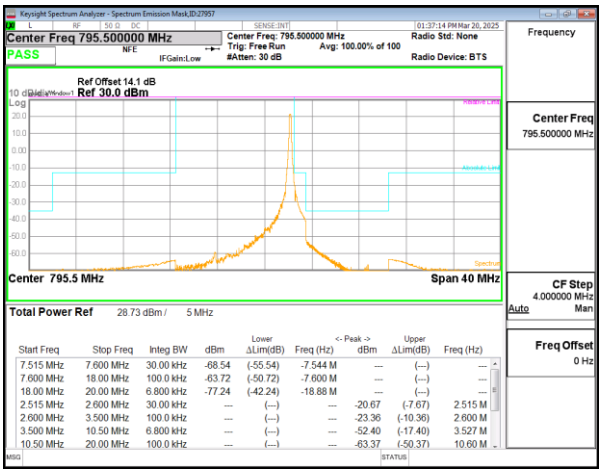
(3)Swept power measurement. Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and average, sample, or RMS detection. Set the reference level of the spectrum analyzer to the RMS value of the transmitter power. Sweep above and below the carrier frequency to the limits defined in the tables. Calculate ACP by subtracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

RESULTS

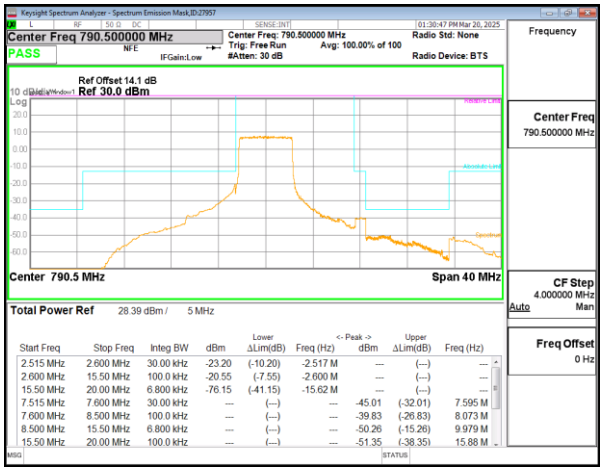
9.2.1. LTE BAND 14



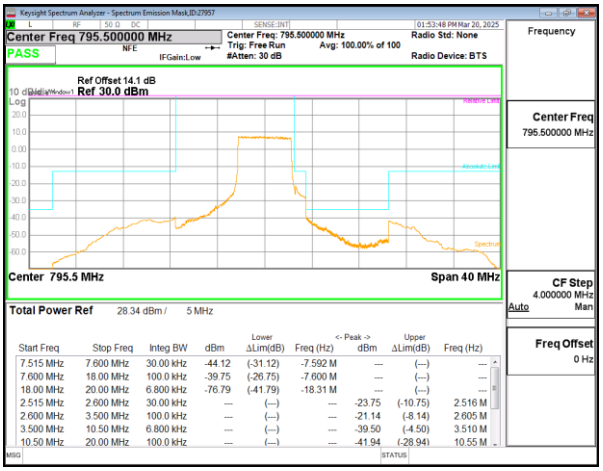
LTE B14 5MHz QPSK Low Channel RB1-0



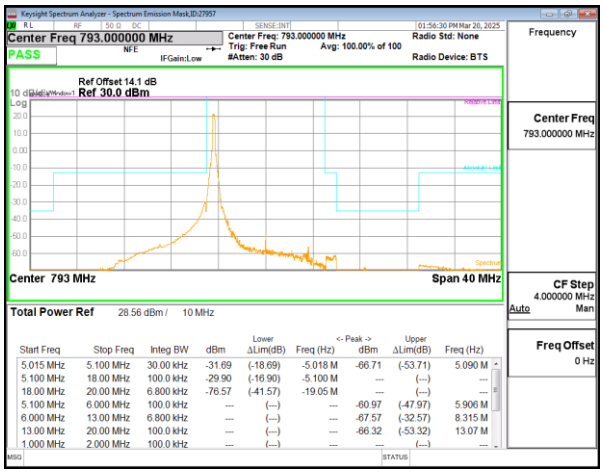
LTE B14 5MHz QPSK High Channel RB1-24



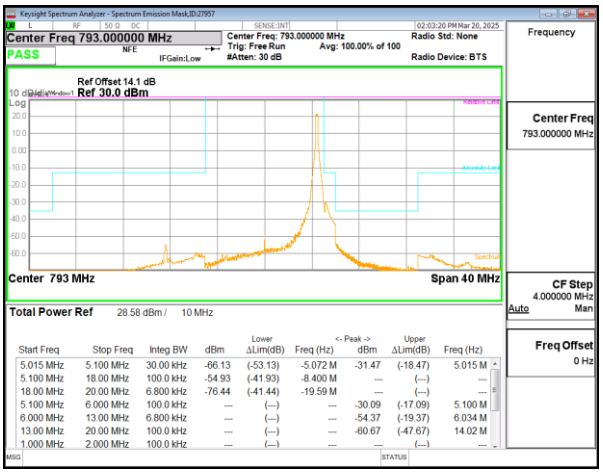
LTE B14 5MHz QPSK Low Channel RB25-0



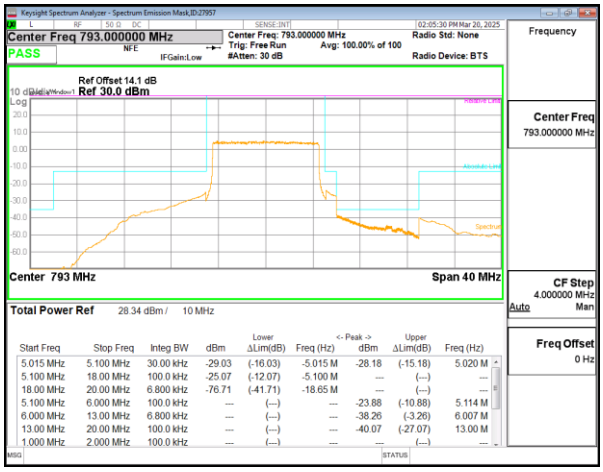
LTE B14 5MHz QPSK High Channel RB25-0



LTE B14 10MHz QPSK Middle Channel RB1-0



LTE B14 10MHz QPSK Middle Channel RB1-49

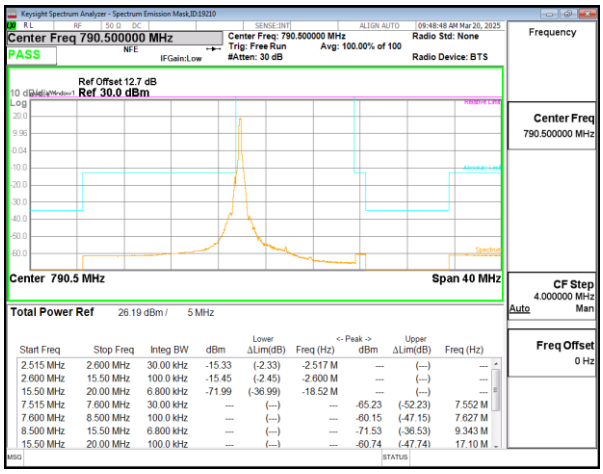


LTE B14 10MHz QPSK Middle Channel RB50-0

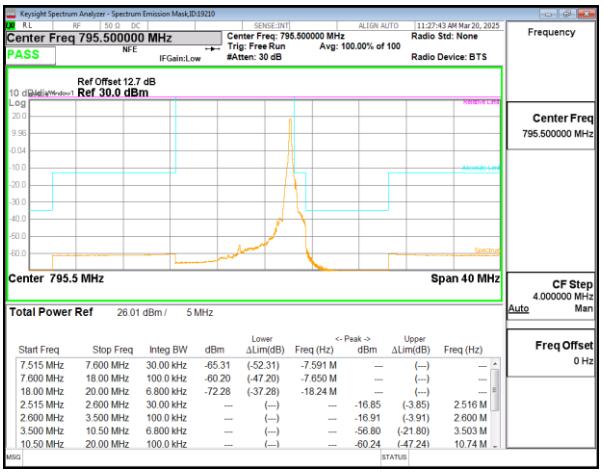
Intentionally Blank

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

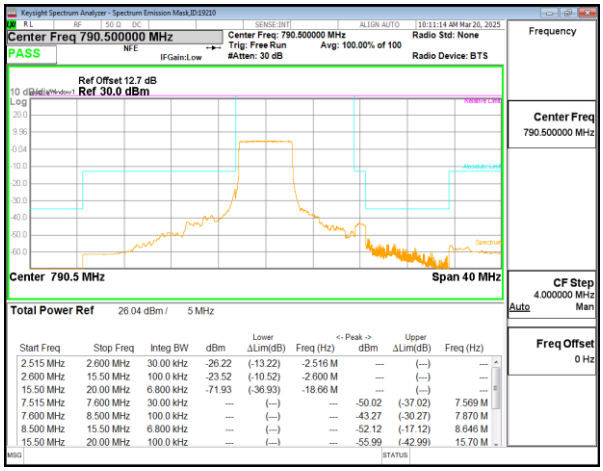
9.2.2. 5G NR n14



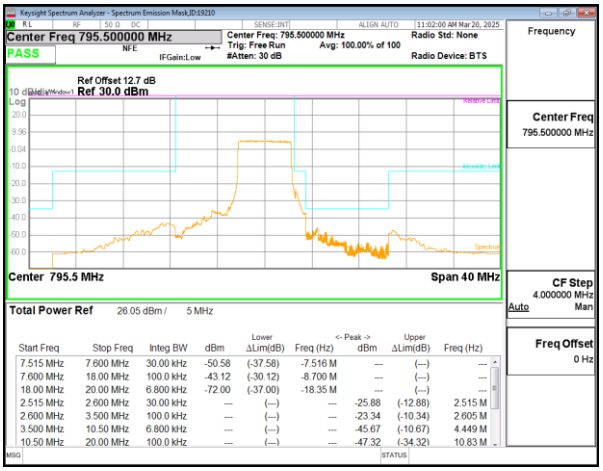
5G NR n14 5MHz BPSK Low Channel RB1-0



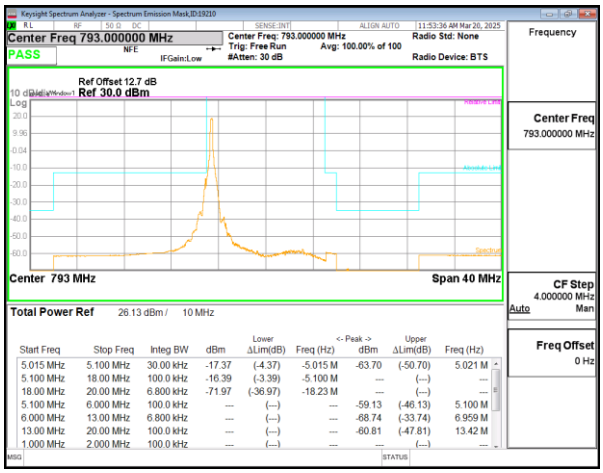
5G NR n14 5MHz BPSK High Channel RB1-24



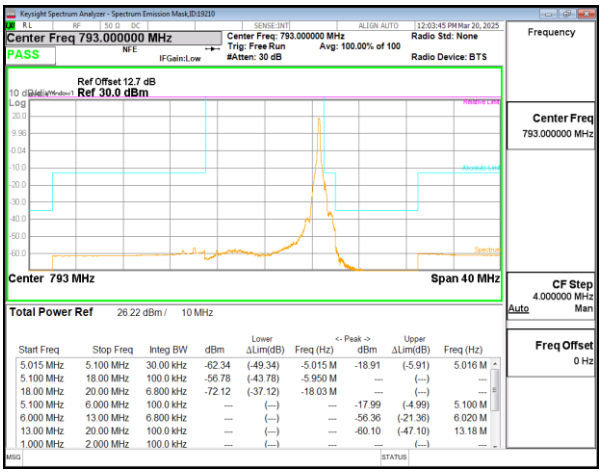
5G NR n14 5MHz BPSK Low Channel RB25-0



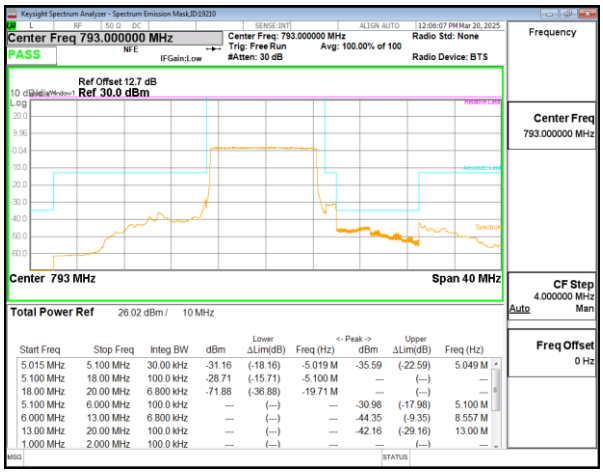
5G NR n14 5MHz BPSK High Channel RB25-0



5G NR n14 10MHz BPSK Middle Channel RB1-0



5G NR n14 10MHz BPSK Middle Channel RB1-51



5G NR n14 10MHz BPSK Middle Channel RB50-0

Intentionally Blank

9.3. OUT OF BAND EMISSIONS

LIMITS

FCC: §90.543 (e), (f)
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts. The band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

Note: Radiated data in section 10.1 confirms a compliance for the emissions in GPS 1559-1610 MHz band were wideband emissions therefore the -40dBm/MHz limit was used.

ISED: RSS140§4.4
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.
The power of any unwanted emission outside the bands 758-768 MHz and788-798 MHz shall be attenuated below the transmitter output power P in dBW as follows, where p is the transmitter output power in watts:

a. For any frequency between 769-775 MHz and 799-806 MHz:
    i. 76 + 10 log (p), dB in a 6.25 kHz band for fixed and base station equipment
    ii. 65 + 10 log (p), dB in a 6.25 kHz band for mobile and portable/hand-held equipment
b. For any frequency between 775-788 MHz, above 806 MHz, and below 758 MHz: 43 + 10 log (p), dB in a bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency bands 758-768 MHz and 788-798 MHz, a resolution bandwidth of 30 kHz may be employed.

In addition, the equivalent isotropically radiated power (e.i.r.p.) of all emissions, including harmonics in the band 1559-1610 MHz, shall not exceed −70 dBW/MHz for wideband emissions, and −80 dBW/kHz for discrete emissions of less than 700 Hz bandwidth.

Note: Radiated data in section 10.1 confirms a compliance for the emissions in GPS 1559-1610 MHz band were wideband emissions therefore the -40dBm/MHz limit was used.

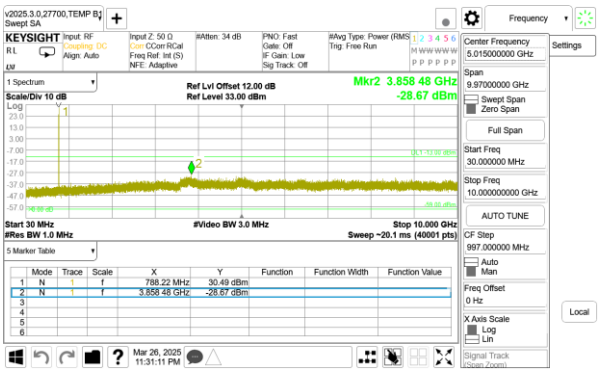
TEST PROCEDURE

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.

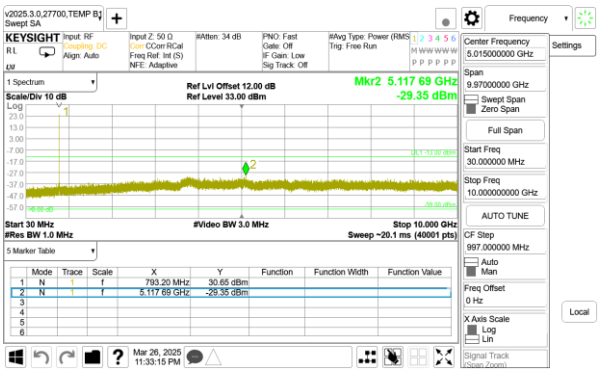
For each out of band emissions measurement:
- Set display line at required limit.
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

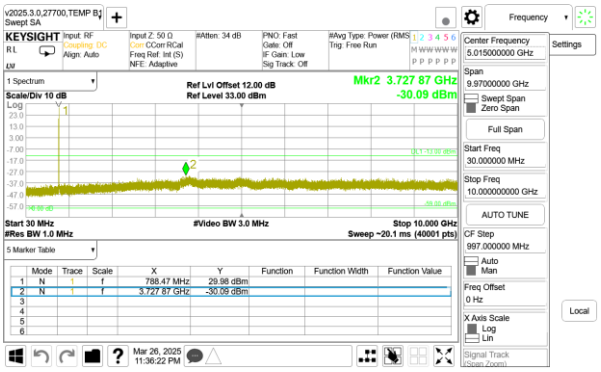
9.3.1. LTE BAND 14



LTE B14 5MHz QPSK Low Channel RB1-0



LTE B14 5MHz QPSK High Channel RB1-0

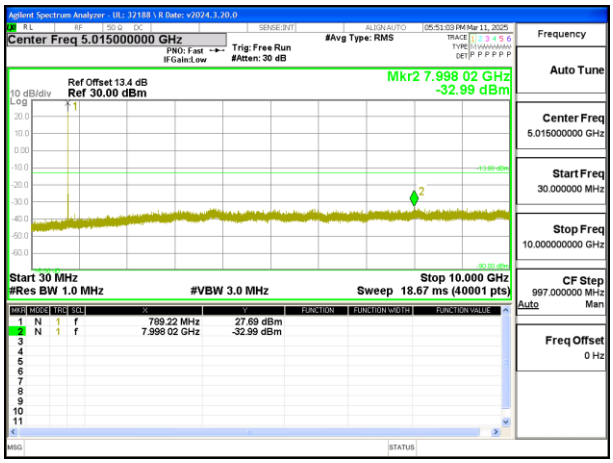


LTE B14 10MHz QPSK Middle Channel RB1-0

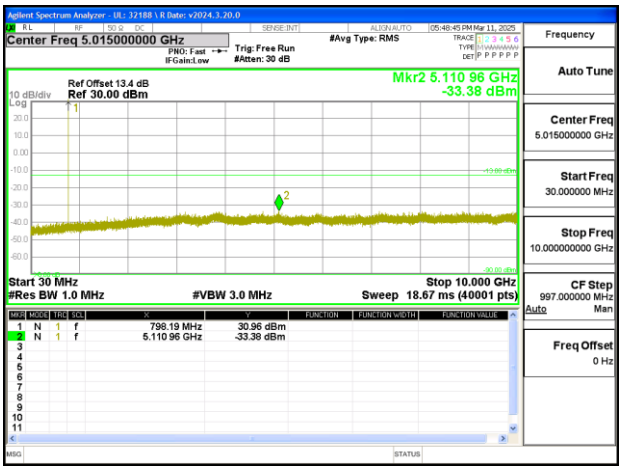
Intentionally Blank

Note: Radiated data in section 10.1.1 confirms a compliance with narrowband limits for GPS1559-1610 MHz band.

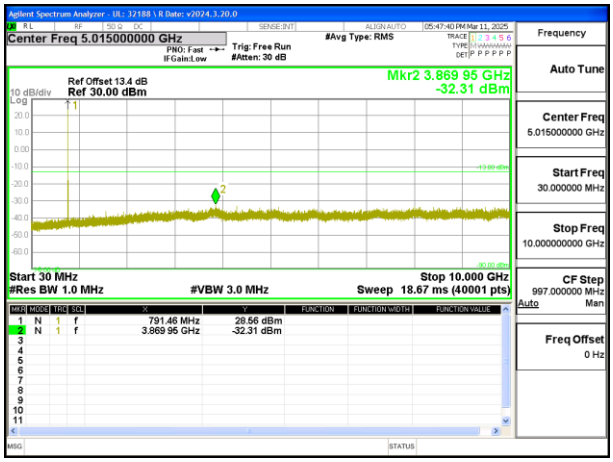
9.3.2. 5G NR n14



5G NR n14 5MHz BPSK Low Channel RB1-1



5G NR n14 5MHz BPSK High Channel RB1-24



5G NR n14 10MHz BPSK Middle Channel RB1-1

Intentionally Blank

Note: Radiated data in section 10.1.2 confirms a compliance with narrowband limits for GPS1559-1610 MHz band.

9.4. FREQUENCY STABILITY

LIMITS

FCC: §90.539
(e) The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 ppm or better when AFC is locked to a base station, and 5 ppm or better when AFC is not locked.

ISED: RSS140§4.2
The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block 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 place inside a temperature chamber. The temperature is set to 20ºC 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 +50ºC is reached.

Frequency Stability vs Voltage:
The peak frequency error is recorded (worst-case).

RESULTS

See the following pages.

9.4.1. LTE BAND 14 (QPSK 10MHz BANDWIDTH)

Test Engineer ID:	27700	Test Date:	2025-04-04

Band	14	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		788	798			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	788.5173	797.4781			
Extreme (50°C)		788.5173	797.4781	0.8	0.001	Yes
Extreme (40°C)		788.5173	797.4781	2.4	0.003	Yes
Extreme (30°C)		788.5173	797.4781	-0.2	0.000	Yes
Extreme (10°C)		788.5173	797.4781	0.7	0.001	Yes
Extreme (0°C)		788.5173	797.4781	-0.9	-0.001	Yes
Extreme (-10°C)		788.5173	797.4781	1.4	0.002	Yes
Extreme (-20°C)		788.5173	797.4781	2.0	0.003	Yes
Extreme (-30°C)		788.5173	797.4781	-1.3	-0.002	Yes
20°C	15%	788.5173	797.4781	1.1	0.001	Yes
	-15%	788.5173	797.4781	0.9	0.001	Yes
	End Point Voltage	788.5173	797.4781	1.7	0.002	Yes

9.4.2. 5G NR n14 (BPSK 10MHz BANDWIDTH)

Test Engineer ID:	27700	Test Date:	2025-03-31

Band	14	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		788	798			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	788.0875	797.5500			
Extreme (50°C)		788.0875	797.5500	0.75	0.001	Yes
Extreme (40°C)		788.0875	797.5500	0.51	0.001	Yes
Extreme (30°C)		788.0875	797.5500	0.87	0.001	Yes
Extreme (10°C)		788.0875	797.5500	0.48	0.001	Yes
Extreme (0°C)		788.0875	797.5500	1.59	0.002	Yes
Extreme (-10°C)		788.0875	797.5500	0.36	0.000	Yes
Extreme (-20°C)		788.0875	797.5500	0.81	0.001	Yes
Extreme (-30°C)		788.0875	797.5500	-0.42	-0.001	Yes
20°C	15%	788.0875	797.5500	0.9	0.001	Yes
	-15%	788.0875	797.5500	-0.53	-0.001	Yes
	End Point Voltage	788.0875	797.5500	1.21	0.002	Yes

9.5. PEAK-TO-AVERAGE POWER RATIO

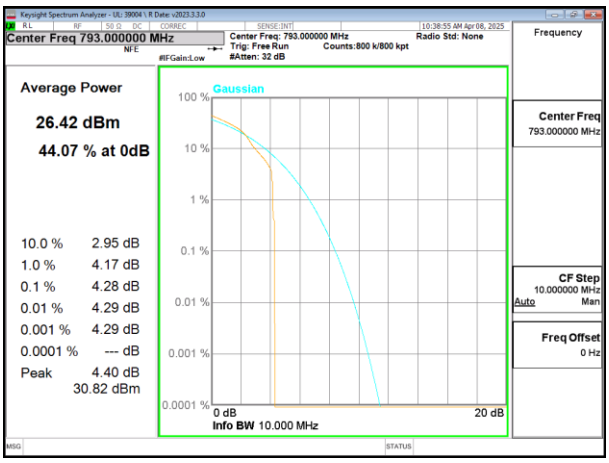
LIMIT

ISED: RSS140§4.3
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 that corresponds to the highest PAPR during periods of continuous transmission.

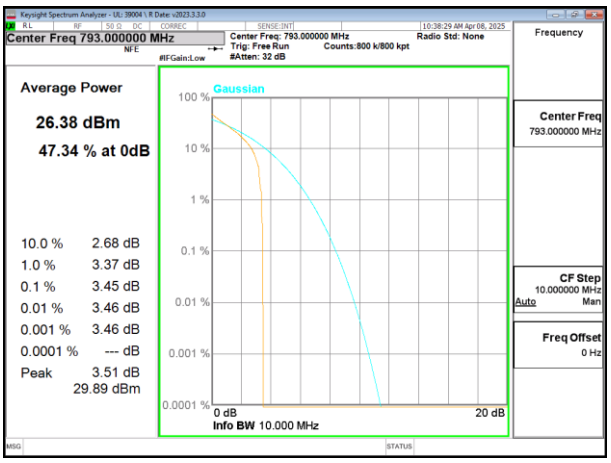
RESULT

Antenna 3 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.

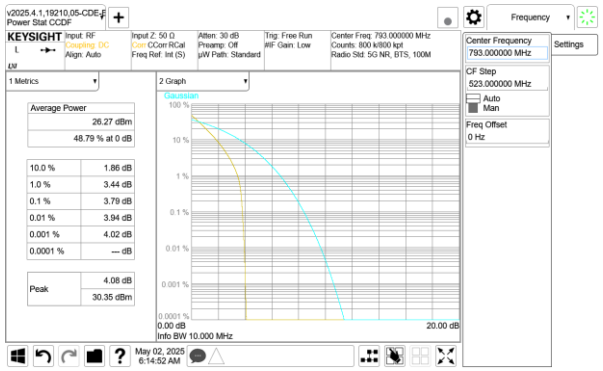
Example Plots: FULL RB



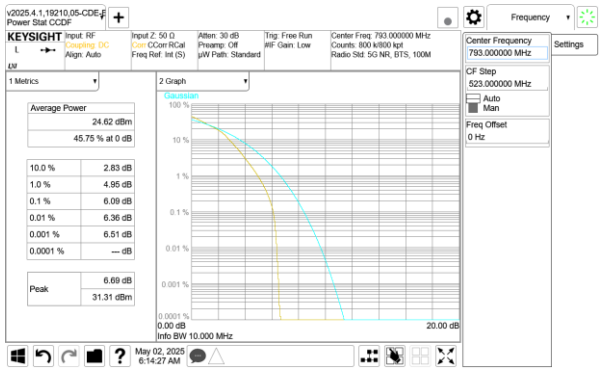
LTE B14 10MHz QPSK Middle Channel



LTE B14 10MHz 16QAM Middle Channel



5G NR n14 10MHz BPSK Middle Channel



5G NR n14 10MHz 16QAM Middle Channel

9.5.1. LTE BAND 14

Test Engineer ID:	39004	Test Date:	2025-04-08

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
LTE Band 14	5MHz	793.0	25	0	QPSK	31.05	26.4	4.65
					16QAM	29.94	26.4	3.54
	10MHz		50	0	QPSK	30.82	26.42	4.40
					16QAM	29.89	26.38	3.51
Duty Cycle Correction Factor (dB) =			0.00					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9.5.2. 5G NR n14

Test Engineer ID:	19210	Test Date:	2025-05-01

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
5G NR n14	5MHz	793.0	25	0	BPSK	30.49	26.26	4.23
					16QAM	31.31	24.71	6.60
	10MHz		50	0	BPSK	30.35	26.27	4.08
					16QAM	31.31	24.62	6.69
Duty Cycle Correction Factor (dB) =			0.00					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

10. RADIATED TEST RESULTS

LIMITS

FCC: §90.543 Emission Limitations. (Band 14)
(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:
(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation

RSS140§4.4
The power of any unwanted emission outside the bands 758-768 MHz and788-798 MHz shall be attenuated below the transmitter output power P in dBW as follows, where p is the transmitter output power in watts:

a. For any frequency between 769-775 MHz and 799-806 MHz:

   i. 76 + 10 log (p), dB in a 6.25 kHz band for fixed and base station equipment
   ii. 65 + 10 log (p), dB in a 6.25 kHz band for mobile and portable/hand-held equipment

b. For any frequency between 775-788 MHz, above 806 MHz, and below 758 MHz: 43 + 10 log (p), dB in a bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency bands 758-768 MHz and 788-798 MHz, a resolution bandwidth of 30 kHz may be employed.

In addition, the equivalent isotropically radiated power (e.i.r.p.) of all emissions, including harmonics in the band 1559-1610 MHz, shall not exceed −70 dBW/MHz for wideband emissions, and −80 dBW/kHz for discrete emissions of less than 700 Hz bandwidth.

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

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.

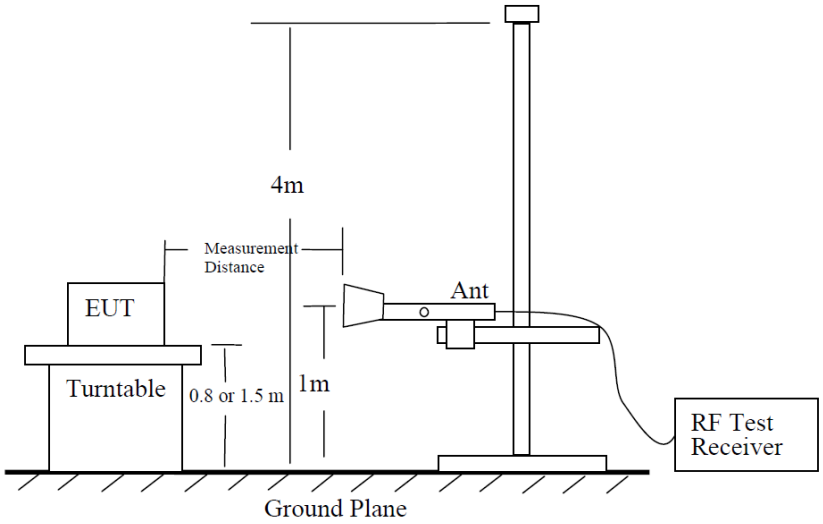


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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

a) E (dBµV/m) = Measured amplitude level (dBµV) + Cable Loss (dB) + Antenna Factor (dB/m).
b) E (dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m).
c) E (dBµV/m) = EIRP (dBm) − 20log(D) + 104.8; where D is the measurement distance (in the far field region) in m.
d) EIRP (dBm) = E (dBµV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m.

So, from d)

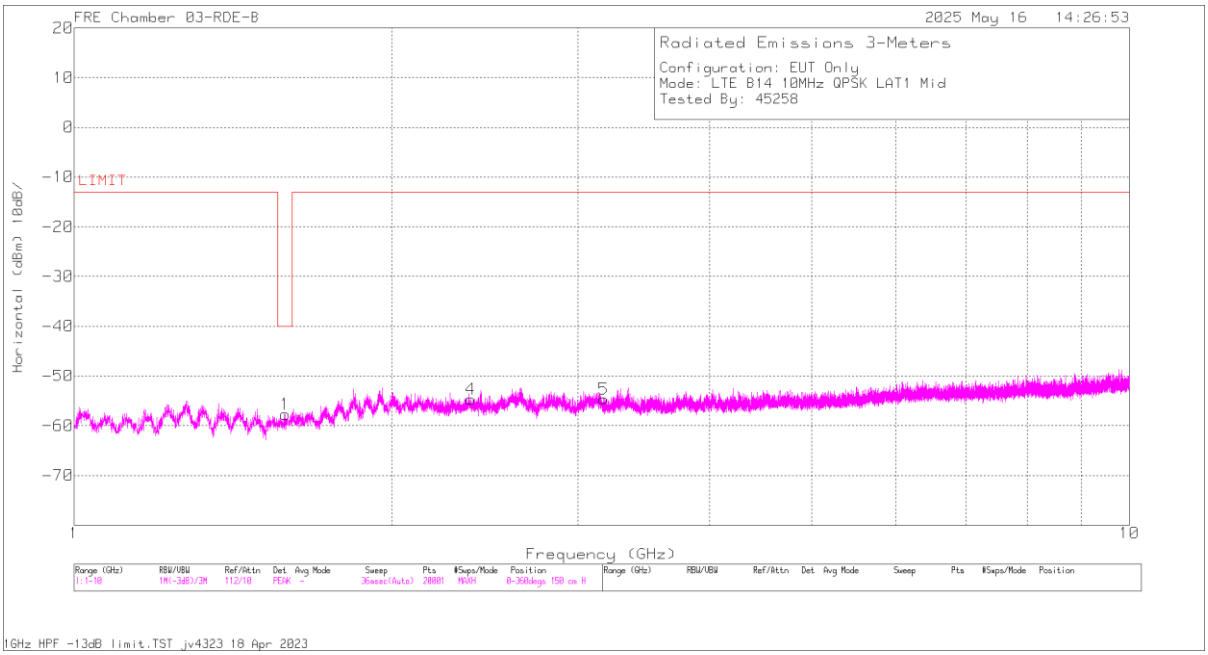
The measuring distance is usually at 3m, then 20*Log(3)=9.5424

Then, EIRP (dBm) = E (dBµV/m) + 9.5424 − 104.8 = E (dBµV/m) – 95.2576

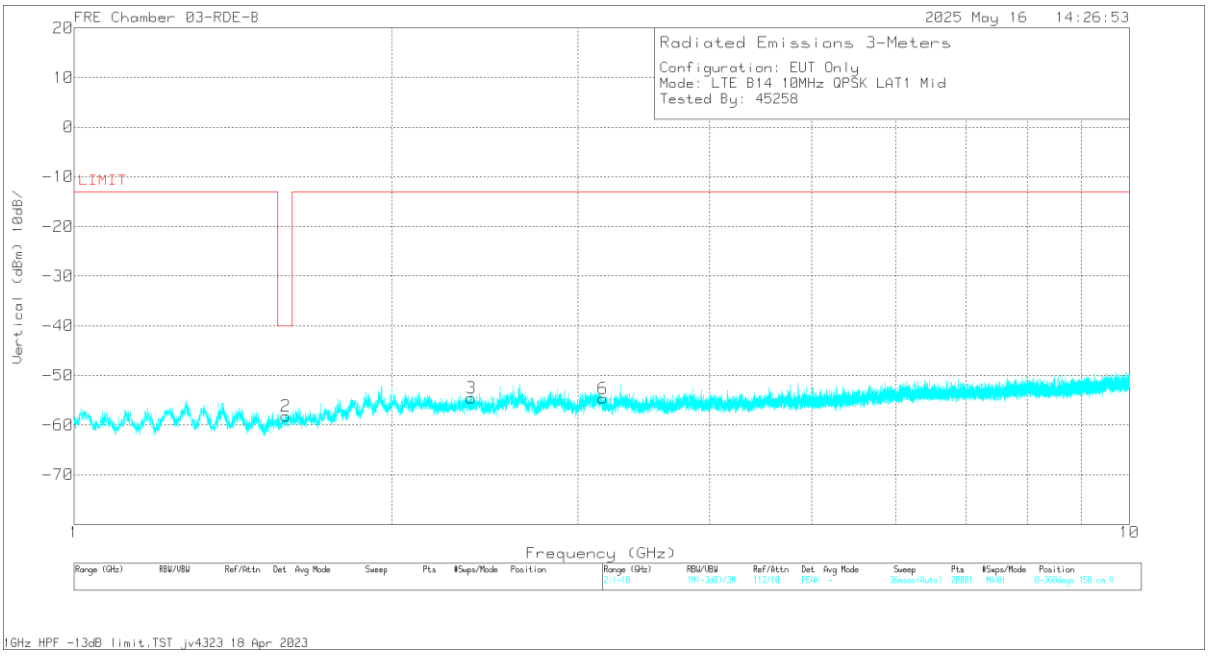
Note: Confidence check of each chamber is performed daily to see if any degradation from expected/normal reading reference data. Ambient check of each chamber is performed monthly.

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

Example Plot



Horizontal Polarity



Vertical Polarity

Trace Markers

Frequency (GHz)	Meter Reading (dBuV)	Det	223084 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT (dBm)	Margin (dB)	Polarity
1.584100	59.02	Pk	28.2	-95.2	-49.7	-57.68	-40	-17.68	H
1.586800	58.57	Pk	28.2	-95.2	-49.78	-58.21	-40	-18.21	V
2.374750	58.93	Pk	31.7	-95.2	-50.1	-54.67	-13	-41.67	H
2.379250	59.04	Pk	31.7	-95.2	-50.1	-54.56	-13	-41.56	V
3.175750	55.59	Pk	32.9	-95.2	-47.9	-54.61	-13	-41.61	H
3.171700	55.42	Pk	32.9	-95.2	-47.73	-54.61	-13	-41.61	V

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz

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

10.1.1. LTE BAND 14

LTE BAND 14 (QPSK 10.0MHZ BANDWIDTH, ANT 3)

Date:	2025-05-16
Test Engineer:	45258
Configuration:	EUT Only
Mode:	LTE B14 10MHz QPSK
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)	Polarity
Mid Channel, 793MHz									
1.584100	59.02	Pk	28.2	-95.2	-49.7	-57.68	-40	-17.68	H
1.586800	58.57	Pk	28.2	-95.2	-49.78	-58.21	-40	-18.21	V
2.374750	58.93	Pk	31.7	-95.2	-50.1	-54.67	-13	-41.67	H
2.379250	59.04	Pk	31.7	-95.2	-50.1	-54.56	-13	-41.56	V
3.175750	55.59	Pk	32.9	-95.2	-47.9	-54.61	-13	-41.61	H
3.171700	55.42	Pk	32.9	-95.2	-47.73	-54.61	-13	-41.61	V

*** Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used.**

LTE BAND 14 (QPSK 10.0MHZ BANDWIDTH, ANT 2)

Date:	2025-04-10
Test Engineer:	32440
Configuration:	EUT Only
Mode:	LTE B14 10MHz QPSK
Chamber #:	05-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	226672 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)	Polarity
Mid Channel, 793MHz									
1.576900	62.96	Pk	28	-95.2	-48.91	-53.15	-40	-13.15	H
1.576900	61.97	Pk	28	-95.2	-48.91	-54.14	-40	-14.14	V
2.365300	61.18	Pk	31.9	-95.2	-49.6	-51.72	-13	-38.72	H
2.365750	61.12	Pk	31.9	-95.2	-49.63	-51.81	-13	-38.81	V
3.159100	54.96	Pk	33	-95.2	-46.89	-54.13	-13	-41.13	H
3.150100	54.94	Pk	33	-95.2	-46.98	-54.24	-13	-41.24	V

*** Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used.**

10.1.2. 5G NR n14

5G NR n14 (BPSK 10.0MHZ BANDWIDTH, ANT 3)

Date:	2025-07-03
Test Engineer:	45258
Configuration:	EUT Only
Mode:	5G NR n14 BPSK 10MHz
Chamber #:	03-RDE-B

Frequency (MHz)	Meter Reading (dBuV)	Det	223084 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)	Polarity
Mid Channel, 793MHz									
1.585000	57.79	Pk	28.2	-95.2	-49.70	-58.91	-40	-18.91	H
1.587700	58.53	Pk	28.3	-95.2	-49.80	-58.17	-40	-18.17	V
2.380600	58.64	Pk	31.7	-95.2	-50.10	-54.96	-13	-41.96	H
2.378350	58.33	Pk	31.7	-95.2	-50.17	-55.34	-13	-42.34	V
3.182500	55.28	Pk	32.8	-95.2	-47.95	-55.07	-13	-42.07	H
3.181600	54.76	Pk	32.8	-95.2	-47.90	-55.54	-13	-42.54	V

*** Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used.**

5G NR n14 (BPSK 10.0MHZ BANDWIDTH, ANT 2)

Date:	2025-07-17
Test Engineer:	45258
Configuration:	EUT Only
Mode:	5G NR n14 BPSK 10MHz
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	223084 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)	Polarity
Mid Channel, 793MHz									
1.585000	58.61	Pk	28.2	-95.2	-49.7	-58.09	-40	-18.09	H
1.582750	59.41	Pk	28.2	-95.2	-49.7	-57.29	-40	-17.29	V
2.380150	58.48	Pk	31.7	-95.2	-50.1	-55.12	-13	-42.12	H
2.379250	58.43	Pk	31.7	-95.2	-50.1	-55.17	-13	-42.17	V
3.173050	54.96	Pk	32.9	-95.2	-47.9	-55.24	-13	-42.24	H
3.171250	55.39	Pk	32.9	-95.2	-47.78	-54.69	-13	-41.69	V

*** Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used.**

11. SETUP PHOTOS

Refer to 15496249-EP1V1 for setup photos.

END OF REPORT

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888