TEST REPORT

Report Number: 15496249-E25V1

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 25 ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-170 ISSUE 4

Date Of Issue:
2025-07-30

Prepared by:
UL Verification Services Inc.
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CERT #0751.05

Revision History

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

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TABLE OF CONTENTS

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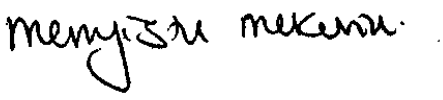
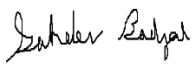
1. ATTESTATION OF TEST RESULTS

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 2025-07-08
Applicable Standards	FCC 47 CFR PART 2, PART 25 ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-170 ISSUE 4
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:
		
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2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer, which can impact the validity of the 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
RF Conducted Output Power	25.149 (c)(4)(iii)	RSS-170§ 5.4; SMSE-009-20 Annex A 9.d	Complies	
Equivalent Isotropic Radiated	25.149 (c)(4)(iii)	RSS-170§ 5.4; SMSE-009-20 Annex A 9.e	Complies	
Maximum Power Spectral Density	25.149 (c)(4)(iv)	SMSE-009-20 Annex A 9.f	Complies	
Duty Cycle	Reporting purpose	Reporting purpose	Complies	
Occupied Bandwidth	2.1049	RSS-Gen	Complies	
6 dB Bandwidth	25.149 (c)(4) (ii)	SMSE-009-20 Annex A 9.c	Complies	
Bandedge and EIRP Density	2.1051, 25.149 (c) (4) (v), (vi)	RSS-170§ 5.7.3; SMSE-009-20 Annex A 9.g and h	Complies	
Out of Band Emissions	2.1051, 25.149 (c) (4) (v), (vi)	RSS-170§ 5.7.3; SMSE-009-20 Annex A 9.g, h, and i	Complies	
Frequency Stability	25.202 (d)	RSS-170§ 5.3	Complies	
Field Strength of Spurious Radiation	2.1053, 25.149 (c) (4) (v), (vi)	RSS-170§ 5.7.3; SMSE-009-20 Annex A 9.g, h, and i	Complies	

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 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-170 ISSUE 4, SMSE-009-20

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			

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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

LIMITS

FCC: §25.149 (c)(4) (iii): The maximum transmit power is no more than 1 W (30dBm) with a peak EIRP of no more than 6 dBW (36dBm or 3.98W).

ISED: SMSE-009-20 Annex A 9.d: Transmitter output power shall not exceed 0 dBW (30dBm).

ISED: SMSE-009-20 Annex A 9.e: The maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 6 dBW (36dBm or 3.98W).

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 peak EIRP output powers as follows:

LTE BAND 53

FCC Part 25/ RSS-170	
Peak EIRP Limit (W)	3.98
Conducted Average Limit (W)	1.00
Antenna Gain (dBi) (Ant 4)	-0.80

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
1.4	QPSK	2484.2	2494.3	20.70	19.90	0.098	1.089	1089	1M09G7W
	16QAM			20.70	19.90	0.098	1.090	1090	1M09D7W
3.0	QPSK	2485.0	2493.5	20.70	19.90	0.098	2.698	2698	2M70G7W
	16QAM			20.70	19.90	0.098	2.701	2701	2M70D7W
5.0	QPSK	2486.0	2492.5	20.70	19.90	0.098	4.497	4497	4M50G7W
	16QAM			20.70	19.90	0.098	4.491	4491	4M49D7W
10.0	QPSK	2488.5	2490.0	20.70	19.90	0.098	9.009	9009	9M01G7W
	16QAM			20.00	19.20	0.083	9.014	9014	9M01D7W

5G NR n53

FCC Part 25 / RSS-170	
Peak EIRP Limit (W)	3.98
Conducted Average Limit (W)	1.00
Antenna Gain (dBi) (Ant 4)	-0.80

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
10.0	BPSK	2488.5	2490.0	20.70	19.90	0.098	8.654	8654	8M65G7W
	QPSK			20.70	19.90	0.098	8.665	8665	8M67G7W
	16QAM			20.56	19.76	0.095	8.670	8670	8M67D7W

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 53 / 5G NR n53	2483.5 - 2495	ANT1			
		ANT2			
		ANT3	-1.70	20.70	19.00
		ANT4	-0.80	20.70	**19.90**

6.5. WORST-CASE CONFIGURATION AND MODE

This report covers the following technologies:

- LTE Band 53, 5G NR n53

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. All modulations had the same target power for the worst-case antenna, so QPSK and BPSK were used to represent the worst mode for LTE bands and 5G NR bands respectively and were set for all conducted and radiated tests. 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 because it has the highest conducted power. The worst-case antenna is shown in the table below.

LTE and 5G NR Bands	Worst case Antenna Port
LTE Band 53 and 5G NR n53	Ant 3

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

ANT3	ANT4
Y	Y

Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 18GHz. There were no emissions found with less than 20dB of margin from 9kHz to 30MHz, 30MHz-1GHz and above 18GHz.

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.

7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was 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
Antenna, Horn 1-18GHz	ETS Lindgren	3117	250003	2026-02-28
RF Filter Box, 1-18GHz, 12 Port	UL-FR1	Frankenstein	231876	2026-04-30
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	223459	2026-02-27
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
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	262735	2026-03-30
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	231912	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	10-31-2025
Directional Coupler	KRYTAR	101040010K	254458	10-30-2025
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.2023 11.21.0 & .2024.3.20.0	
Conducted Software	UL	Power Measurement	Ver 2023.08.14	
Conducted Software	UL	Antenna Port	Ver.2022.8.16	
Conducted Software	UL	Station Tool	Ver. 3.0 & 4.1 & 6.0	
Radiated Software	UL	UL EMC	Ver 9.5, May 1, 2023	

8. RF OUTPUT POWER MEASUREMENTS

LIMITS

FCC: §25.149 (c)(4) (iii): The maximum transmit power is no more than 1 W (30dBm) with a peak EIRP of no more than 6 dBW (36dBm or 3.98W).

ISED: SMSE-009-20 Annex A 9.d: Transmitter output power shall not exceed 0 dBW (30dBm).

ISED: SMSE-009-20 Annex A 9.e: The maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 6 dBW (36dBm or 3.98W).

AVERAGE OUTPUT POWER TEST PROCEDURE

The transmitter output is connected to a power meter.

The power output was measured on the EUT antenna port using SMA cable with directional coupler connected to a power meter via wideband average power sensor. Gated average output power was read directly from power meter.

PEAK OUTPUT POWER TEST PROCEDURE

The transmitter output is connected to a power meter.

The power output was measured on the EUT antenna port using SMA cable with directional coupler connected to a power meter via wideband peak power sensor. Peak output power was read directly from power meter.

RESULTS

The 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.

8.1. LTE BAND 53

Test Engineer ID:	27342	Test Date:	2025-06-10

OUTPUT POWER FOR LTE BAND 53 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 4		
				Conducted Average (dBm)			Conducted Average (dBm)		
				60147	60195	60248	60147	60195	60248
				2484.2 MHz	2489.0 MHz	2494.3 MHz	2484.2 MHz	2489.0 MHz	2494.3 MHz
1.4	QPSK	1	0	20.68	**20.70**	**20.70**	**20.70**	**20.70**	20.69
		1	2	20.59	20.65	20.68	20.46	20.56	20.67
		1	5	20.67	20.67	20.69	20.53	20.63	20.64
		3	0	20.64	20.68	20.63	20.54	20.61	**20.70**
		3	1	20.60	20.63	20.62	20.50	20.50	20.63
		3	2	20.61	20.61	20.60	20.48	20.56	20.62
		6	0	20.61	20.61	20.60	20.55	20.45	20.53
	16QAM	1	0	20.58	20.59	20.58	20.60	20.59	**20.70**
		1	2	20.58	20.62	20.52	20.54	20.53	20.60
		1	5	**20.70**	20.65	20.61	**20.70**	**20.70**	20.65
		3	0	20.65	20.57	20.66	20.57	20.49	20.61
		3	1	20.59	20.62	20.58	20.55	20.49	20.64
		3	2	20.57	20.58	20.55	20.55	20.51	20.66
		6	0	20.44	20.56	20.48	20.55	20.45	20.53
	64QAM	1	0	20.62	20.56	20.68	20.68	20.64	**20.70**
		1	2	20.65	**20.70**	20.65	20.69	20.69	20.49
		1	5	**20.70**	20.62	**20.70**	**20.70**	**20.70**	20.60
		3	0	20.54	20.53	20.59	20.62	20.58	20.48
		3	1	20.55	20.56	20.56	20.69	20.55	20.57
		3	2	20.52	15.90	15.91	20.62	20.59	20.51
		6	0	20.45	20.42	20.62	20.64	20.47	20.48
	256QAM	1	0	20.59	20.67	**20.70**	20.59	20.67	20.69
		1	2	20.55	**20.70**	20.68	20.66	20.59	20.60
		1	5	**20.70**	20.68	20.59	20.64	20.65	20.58
		3	0	20.56	20.59	20.59	20.65	**20.70**	20.67
		3	1	20.53	20.64	20.55	**20.70**	20.61	20.69
		3	2	20.45	20.45	20.66	20.65	20.67	20.69
		6	0	20.51	20.54	20.46	20.68	20.63	**20.70**

OUTPUT POWER FOR LTE BAND 53 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 4		
				Conducted Average (dBm)			Conducted Average (dBm)		
				60155	60195	60240	60155	60195	60240
				2485.0 MHz	2489.0 MHz	2493.5 MHz	2485.0 MHz	2489.0 MHz	2493.5 MHz
3.0	QPSK	1	0	20.53	20.56	20.61	20.63	20.61	20.69
		1	7	**20.70**	**20.70**	20.64	**20.70**	**20.70**	**20.70**
		1	14	20.58	20.59	20.54	20.62	20.54	20.53
		8	0	20.42	20.41	20.49	20.54	20.43	20.55
		8	4	20.43	20.48	20.50	20.57	20.44	20.50
		8	7	20.46	20.49	20.46	20.52	20.45	20.42
		15	0	20.63	**20.70**	20.66	20.51	20.37	20.51
	16QAM	1	0	20.55	20.59	20.56	20.58	**20.70**	20.64
		1	7	**20.70**	**20.70**	**20.70**	**20.70**	20.69	**20.70**
		1	14	20.52	20.66	20.45	20.51	20.60	20.50
		8	0	20.48	20.52	20.49	20.52	20.58	20.59
		8	4	20.54	20.66	20.53	20.53	20.61	20.59
		8	7	20.52	20.67	20.49	20.50	20.57	20.49
		15	0	20.66	20.45	20.50	20.52	20.57	20.58
	64QAM	1	0	20.63	20.50	20.54	20.65	20.66	20.67
		1	7	**20.70**	**20.70**	**20.70**	**20.70**	**20.70**	**20.70**
		1	14	20.64	20.59	20.51	20.57	20.62	20.59
		8	0	20.48	20.48	20.49	20.52	20.51	20.55
		8	4	20.46	20.55	20.49	20.56	20.52	20.55
		8	7	20.45	20.66	20.45	20.54	20.48	20.44
		15	0	20.41	20.39	20.45	20.55	20.47	20.50
	256QAM	1	0	20.51	20.49	20.60	20.53	20.60	20.58
		1	7	**20.70**	**20.70**	**20.70**	**20.70**	**20.70**	**20.70**
		1	14	20.59	20.64	20.57	20.50	20.56	20.44
		8	0	20.42	20.40	20.51	20.49	20.47	20.56
		8	4	20.49	20.51	20.51	20.56	20.49	20.54
		8	7	20.55	20.45	20.69	20.53	20.46	20.48
		15	0	20.42	20.40	20.48	20.53	20.48	20.55

OUTPUT POWER FOR LTE BAND 53 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 4		
				Conducted Average (dBm)			Conducted Average (dBm)		
				60165	60195	60230	60165	60195	60230
				2486.0 MHz	2489.0 MHz	2492.5 MHz	2486.0 MHz	2489.0 MHz	2492.5 MHz
5.0	QPSK	1	0	20.55	20.64	20.67	20.64	**20.70**	20.65
		1	12	**20.70**	**20.70**	**20.70**	**20.70**	20.69	**20.70**
		1	24	20.62	20.62	20.56	20.49	20.46	20.53
		12	0	20.51	20.39	20.48	20.61	20.64	20.68
		12	6	20.49	20.43	20.48	20.68	20.62	20.68
		12	11	20.50	20.42	20.48	20.63	20.63	20.64
		25	0	20.66	20.45	20.58	20.61	20.62	20.66
	16QAM	1	0	20.59	20.57	**20.70**	**20.70**	**20.70**	**20.70**
		1	12	**20.70**	**20.70**	**20.70**	20.68	20.65	20.66
		1	24	20.62	20.56	20.59	20.61	20.49	20.52
		12	0	20.52	20.41	20.57	20.53	20.52	20.55
		12	6	20.51	20.44	20.53	20.57	20.62	20.55
		12	11	20.52	20.46	20.50	20.53	20.47	20.54
		25	0	20.45	20.49	20.36	20.56	20.45	20.36
	64QAM	1	0	20.58	20.52	20.65	20.62	20.69	20.60
		1	12	**20.70**	**20.70**	**20.70**	**20.70**	**20.70**	**20.70**
		1	24	20.65	20.53	20.61	20.50	20.68	20.52
		12	0	20.36	20.38	20.54	20.40	20.54	20.48
		12	6	20.40	20.36	20.57	20.47	20.63	20.47
		12	11	20.43	20.48	20.36	20.46	20.58	20.46
		25	0	20.35	20.35	20.47	20.42	20.58	20.45
	256QAM	1	0	20.43	20.36	20.56	20.66	20.55	20.68
		1	12	**20.70**	**20.70**	**20.70**	**20.70**	**20.70**	**20.70**
		1	24	20.61	20.53	20.47	20.56	20.57	20.58
		12	0	20.47	20.34	20.42	20.44	20.50	20.56
		12	6	20.51	20.37	20.46	20.50	20.58	20.56
		12	11	20.56	20.44	20.36	20.44	20.53	20.51
		25	0	20.49	20.32	20.41	20.47	20.55	20.52

OUTPUT POWER FOR LTE BAND 53 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 4		
				Conducted Average (dBm)			Conducted Average (dBm)		
				60190	60195	60205	60190	60195	60205
				2488.5 MHz	2489.0 MHz	2490.0 MHz	2488.5 MHz	2489.0 MHz	2490.0 MHz
10.0	QPSK	1	0	20.61	20.61	**20.70**	**20.70**	20.60	20.59
		1	24	**20.70**	**20.70**	20.51	20.69	**20.70**	**20.70**
		1	49	20.58	20.56	20.44	20.62	20.54	20.59
		25	0	20.44	20.43	20.48	19.64	19.56	19.63
		25	12	20.57	20.43	20.50	19.78	19.66	19.66
		25	24	20.54	20.43	20.49	19.75	19.66	19.62
		50	0	20.51	20.44	20.52	19.65	19.59	19.61
	16QAM	1	0	19.99	**20.00**	**20.00**	19.77	19.66	19.67
		1	24	**20.00**	19.96	19.94	19.96	**20.00**	19.98
		1	49	19.88	19.97	19.92	19.74	19.60	19.76
		25	0	18.88	18.85	18.90	18.67	18.57	18.63
		25	12	18.97	18.87	18.93	18.78	18.73	18.68
		25	24	18.91	18.84	18.88	18.80	18.71	18.65
		50	0	18.88	18.83	18.91	18.70	18.57	18.64
	64QAM	1	0	19.95	19.90	19.98	18.95	18.79	18.89
		1	24	19.96	**20.00**	**20.00**	19.94	**19.96**	19.89
		1	49	19.91	19.92	19.98	18.93	18.74	18.87
		25	0	18.86	18.87	18.93	17.77	17.68	17.72
		25	12	18.99	18.86	18.93	17.87	17.76	17.75
		25	24	18.96	18.81	18.94	17.86	17.79	17.75
		50	0	18.98	18.84	18.92	17.80	17.67	17.73
	256QAM	1	0	19.85	19.78	19.88	18.95	18.79	18.89
		1	24	19.90	19.87	**20.00**	19.94	**19.96**	19.89
		1	49	19.79	19.71	19.74	18.93	18.74	18.87
		25	0	19.76	19.72	19.80	17.77	17.68	17.72
		25	12	19.83	19.75	19.81	17.87	17.76	17.75
		25	24	19.81	19.72	19.81	17.86	17.79	17.75
		50	0	19.82	19.72	19.81	17.80	17.67	17.73

8.2. 5G NR n53

Test Engineer ID:	16080	Test Date:	2025-06-10

OUTPUT POWER FOR 5G NR n53 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 3			Ant 4		
				Conducted Average (dBm)			Conducted Average (dBm)		
				497700	497800	498000	497700	497800	498000
				2488.5 MHz	2489.0 MHz	2490.0 MHz	2488.5 MHz	2489.0 MHz	2490.0 MHz
10.0	BPSK	1	0	20.52	20.57	20.58	20.01	20.20	20.23
		1	1	**20.70**	**20.70**	**20.70**	20.28	20.37	20.39
		1	22	20.65	20.58	20.59	**20.70**	**20.70**	**20.70**
		1	23	20.47	20.49	20.47	20.56	20.57	20.54
		12	6	20.61	20.53	20.60	20.44	20.50	20.56
		24	0	20.54	20.46	20.51	20.29	20.34	20.38
	QPSK	1	0	20.55	20.51	20.59	20.19	20.14	20.22
		1	1	**20.66**	**20.64**	**20.67**	20.17	20.33	20.42
		1	22	20.64	20.62	20.66	**20.70**	**20.68**	**20.68**
		1	23	20.50	20.45	20.46	20.56	20.57	20.55
		12	6	20.57	20.60	20.63	20.48	20.58	20.54
		24	0	20.45	20.39	20.43	20.40	20.44	20.45
	16QAM	1	0	20.54	20.40	20.47	19.84	20.08	20.08
		1	1	**20.57**	20.44	20.51	20.00	20.19	20.19
		1	22	20.47	20.44	**20.52**	**20.53**	**20.56**	**20.50**
		1	23	20.39	20.27	20.28	20.49	20.48	20.39
		12	6	20.39	20.40	20.50	20.28	20.28	20.32
		24	0	20.42	**20.45**	20.46	20.29	20.26	20.33
	64QAM	1	0	20.44	20.38	20.47	19.87	19.97	20.21
		1	1	20.52	**20.47**	**20.52**	19.93	20.09	20.20
		1	22	20.49	20.46	20.43	20.42	20.48	**20.54**
		1	23	20.45	20.46	20.38	**20.57**	**20.49**	20.42
		12	6	**20.54**	20.38	20.43	20.30	20.34	20.39
		24	0	20.54	20.42	20.47	20.29	20.27	20.37
	256QAM	1	0	**20.63**	20.54	20.46	20.05	20.07	20.19
		1	1	20.47	**20.60**	**20.61**	20.10	20.12	20.31
		1	22	20.61	20.41	20.46	**20.51**	20.39	**20.69**
		1	23	20.43	20.44	20.32	20.46	**20.42**	20.53
		12	6	20.55	20.48	20.43	20.30	20.24	20.47
		24	0	20.53	20.45	20.50	20.31	20.25	20.45

9. CONDUCTED TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Band	RB Allocation / Offset	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
LTE Band 53	1 / 0	0.996	5.004	0.20	19.90	7.01
LTE Band 53	50 / 0	0.996	5.004	0.20	19.90	7.01
5G NR n53	1 / 1	N.A.	N.A.	1.00	100.00	0.00
5G NR n53	24 / 0	N.A.	N.A.	1.00	100.00	0.00

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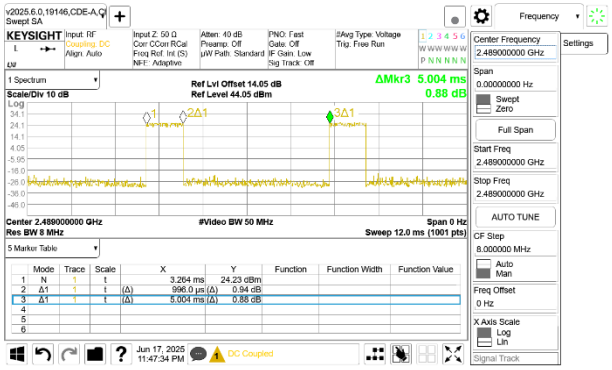
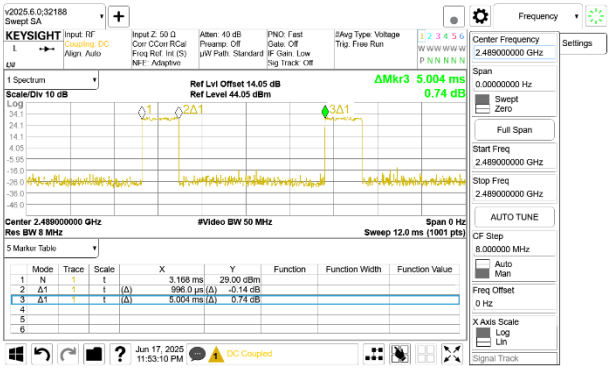
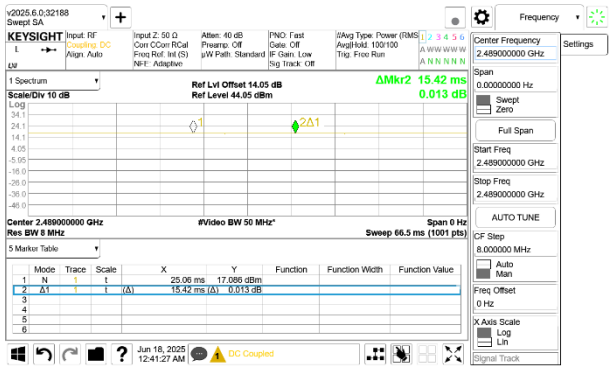


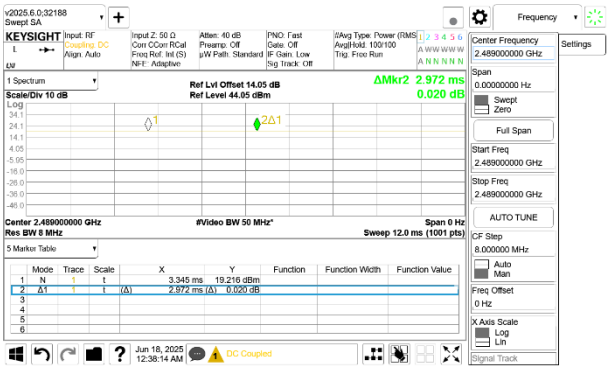
LTE Band 53 RB1-0



LTE Band 53 RB50-0



5G NR n53 RB1-0



5G NR n53 RB24-0

9.2. 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.

Test Engineer ID:	39004	Test Date:	2025-04-18

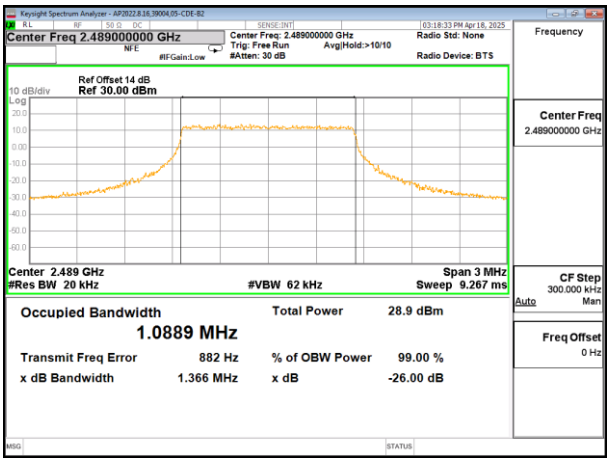
LTE BAND 53

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 53	1.4MHz, QPSK	6/0	2489.0	1.089	1.37
	1.4MHz,16QAM			1.090	1.36
	3MHz, QPSK	15/0		2.698	3.04
	3MHz, 16QAM			2.701	3.05
	5MHz, QPSK	25/0		4.497	5.13
	5MHz, 16QAM			4.491	5.16
	10MHz, QPSK	50/0		9.009	9.83
	10MHz, 16QAM			9.014	10.16
	10MHz, QPSK	1/0		0.266	0.42

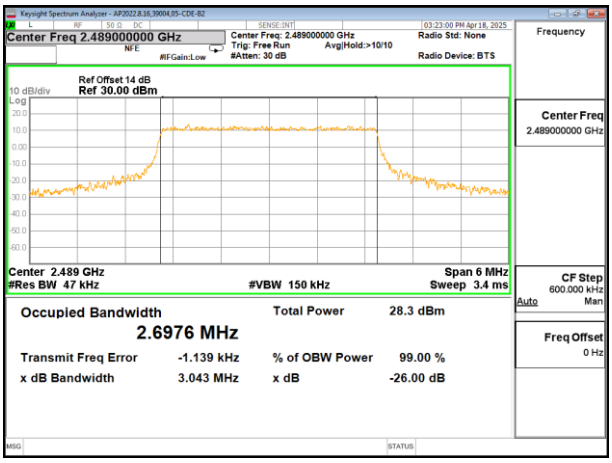
5G NR n53

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
5G NR n53	10MHz, BPSK	24/0	2489.0	8.654	10.07
	10MHz, QPSK			8.665	10.17
	10MHz, 16QAM			8.670	10.18
	10MHz, BPSK	1/0		0.488	0.79

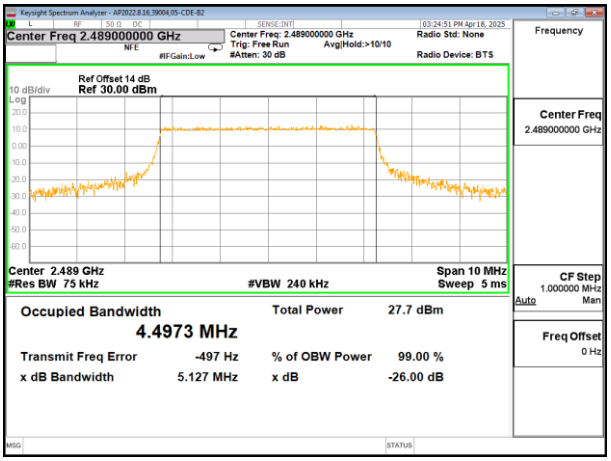
9.2.1. LTE BAND 53



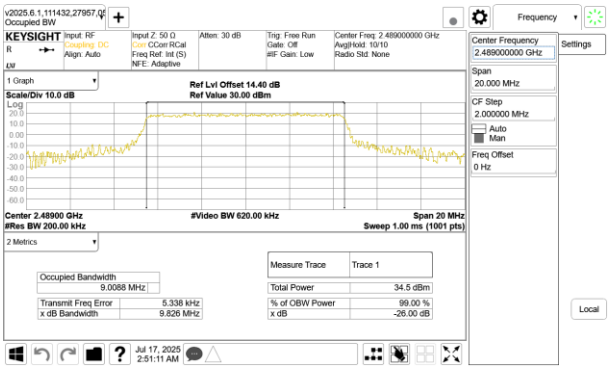
LTE B53 1.4MHz QPSK Middle Channel RB6-0



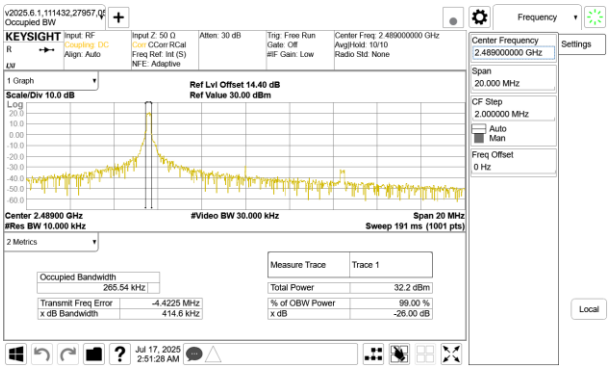
LTE B53 3MHz QPSK Middle Channel RB15-0



LTE B53 5MHz QPSK Middle Channel RB25-0



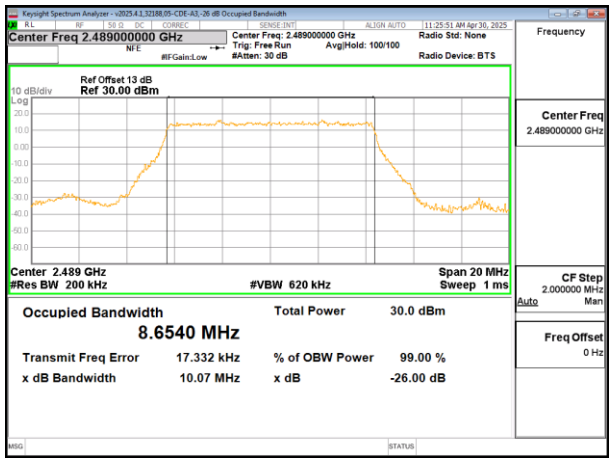
LTE B53 10MHz QPSK Middle Channel RB50-0



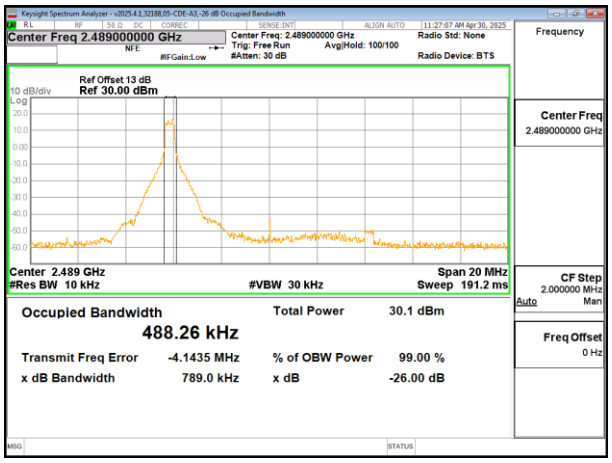
LTE B53 10MHz QPSK Middle Channel RB1-0

Intentionally Blank

9.2.2. 5G NR n53



5G NR n53 10MHz BPSK Middle Channel RB24-0



5G NR n53 10MHz BPSK Middle Channel RB1-0

9.3. MAXIMUM POWER SPECTRAL DENSITY

LIMITS

FCC: §25.149 (c)(4) (iv) : The maximum power spectral density conducted to the antenna is not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission;

ISED: SMSE-009-20 Annex A 9.f: The equipment's maximum power spectral density conducted to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

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 PSD was measured with the spectrum analyzer at the low/ middle/high channel in each band where RBW=3kHz, VBW ≥ 3 * RBW, detector= RMS (power averaging).

RESULTS

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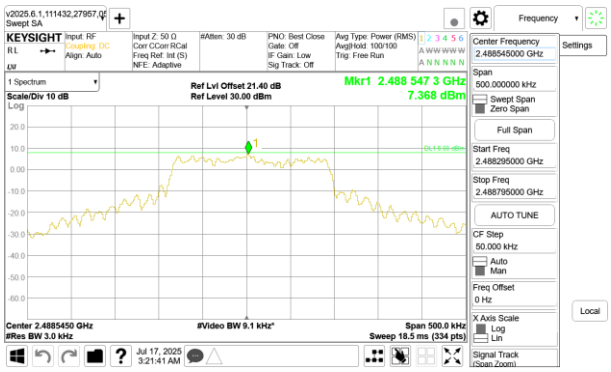
LTE BAND 53

Band	Mode	RB Allocation/RB Offset	f(MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)
LTE BAND 53	1.4MHz, QPSK	1/0	2484.2	7.223	8.0
			2489.0	7.368	
			2494.3	7.245	
	3MHz, QPSK	1/0	2485.0	7.114	
			2489.0	7.143	
			2493.5	7.104	
	5MHz, QPSK	1/0	2486.0	7.284	
			2489.0	7.231	
			2492.5	7.386	
	10MHz, QPSK	1/0	2488.5	7.479	
			2489.0	7.506	
			2490.0	7.450	
		50/0	2488.5	-7.825	
			2489.0	-8.514	
			2490.0	-8.329	

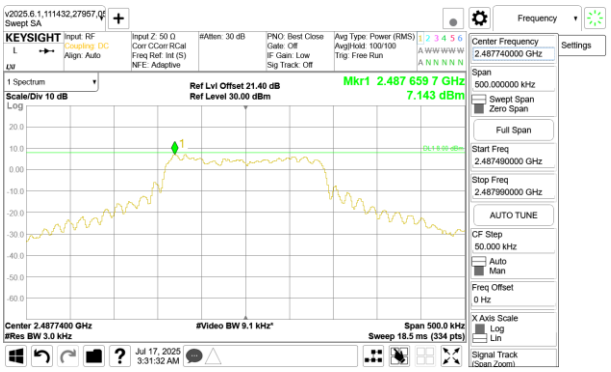
5G NR n53

Band	Mode	RB Allocation/RB Offset	f(MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)
5G NR n53	10MHz, BPSK	1/1	2488.5	7.008	8.0
			2489.0	7.184	
			2490.0	7.237	
		24/0	2488.5	-6.114	
			2489.0	-5.755	
			2490.0	-6.237	

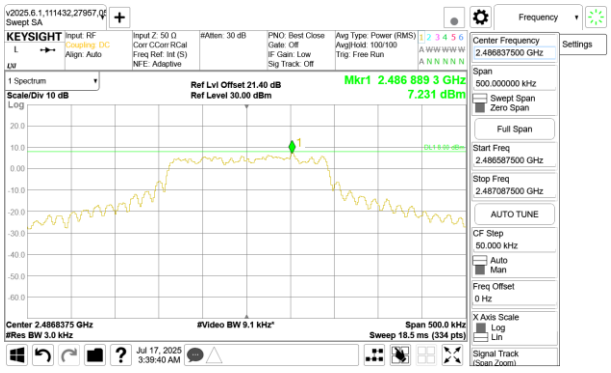
9.3.1. LTE BAND 53



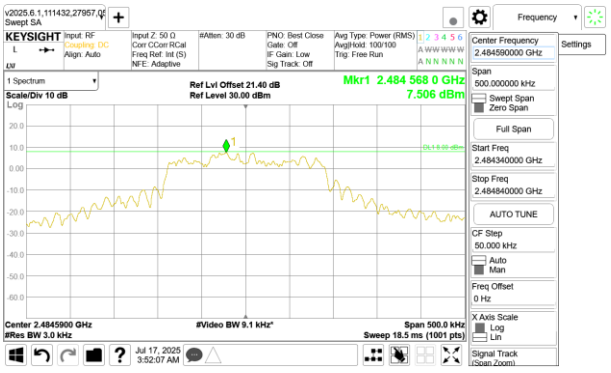
LTE B53 1.4MHz QPSK Middle Channel RB1-0



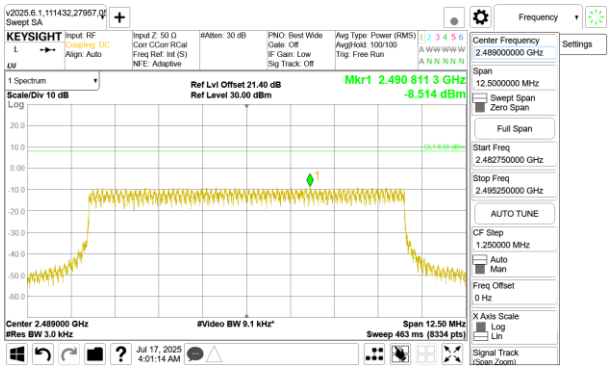
LTE B53 3MHz QPSK Middle Channel RB1-0



LTE B53 5MHz QPSK Middle Channel RB1-0



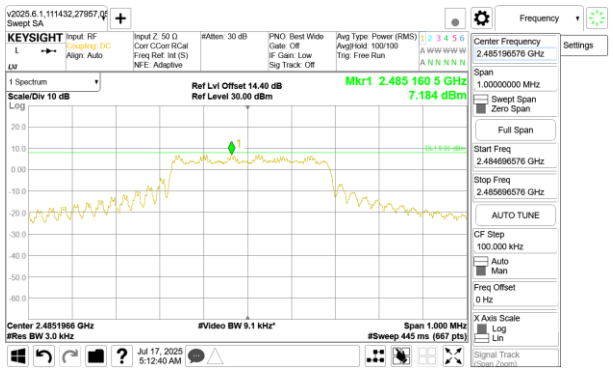
LTE B53 10MHz QPSK Middle Channel RB1-0



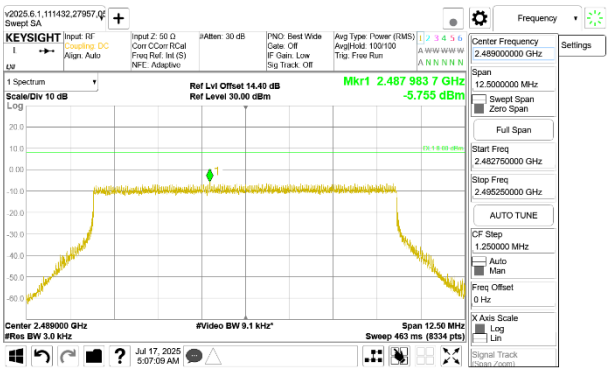
LTE B53 10MHz QPSK Middle Channel RB50-0

Intentionally Blank

9.3.2. 5G NR n53



5G NR n53 10MHz BPSK Middle Channel RB1-1



5G NR n53 10MHz BPSK Middle Channel RB24-0

9.4. 6dB BANDWIDTH

LIMITS

FCC: §25.149 (c)(4) (ii): The 6 dB bandwidth is at least 500 kHz.

ISED: SMSE-009-20 Annex A 9.c: The 6 dB bandwidth shall be at least 500 kHz.

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 6dB bandwidth was measured with the spectrum analyzer at the low/ middle/high channel in each band where RBW is 1%-5% of EBW, VBW ≥ 3 * RBW, Peak detector and max hold.

RESULTS

LTE BAND 53

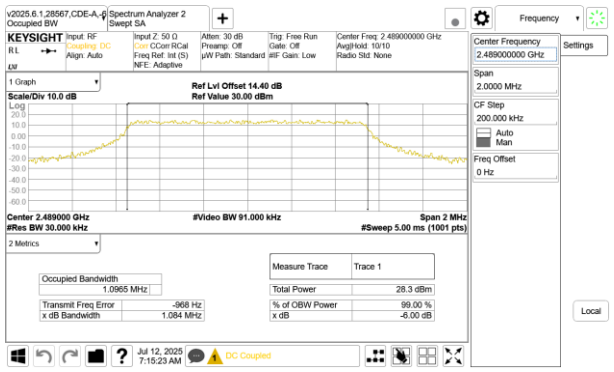
Band	Mode	RB Allocation/RB Offset	f(MHz)	6dB BW (MHz)	6dB BW Minimum Limit (MHz)
LTE BAND 53	1.4MHz, QPSK	6/0	2489.0	1.084	0.5
	1.4MHz,16QAM			1.086	
	3MHz, QPSK	15/0		2.708	
	3MHz, 16QAM			2.702	
	5MHz, QPSK	25/0		4.509	
	5MHz, 16QAM			4.496	
	10MHz, QPSK	50/0		8.983	
	10MHz, 16QAM			9.069	

5G NR n53

Band	Mode	RB Allocation/RB Offset	f(MHz)	6dB BW (MHz)	6dB BW Minimum Limit (MHz)
5G NR n53	10MHz, BPSK	24/0	2489.0	8.600	0.5
	10MHz, QPSK	24/0		8.635	
	10MHz, 16QAM	24/0		8.661	

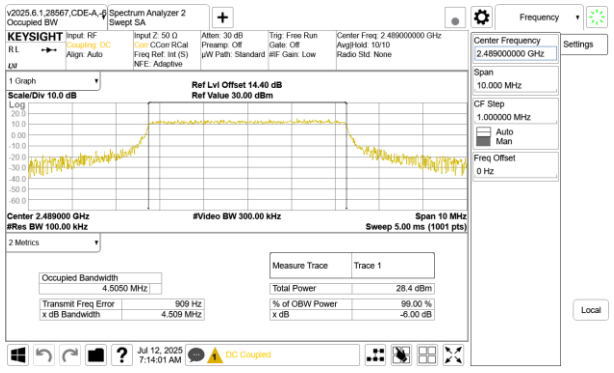
UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

9.4.1. LTE BAND 53

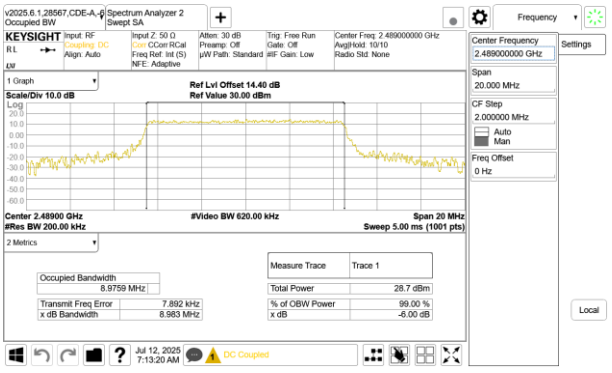


LTE B53 1.4MHz QPSK Middle Channel RB6-0

LTE B53 3MHz QPSK Middle Channel RB15-0

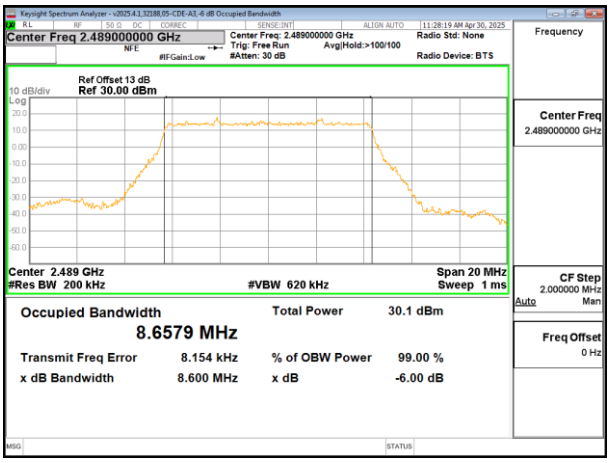


LTE B53 5MHz QPSK Middle Channel RB25-0



LTE B53 10MHz QPSK Middle Channel RB50-0

9.4.2. 5G NR n53



5G NR n53 10MHz BPSK Middle Channel RB24-0

Intentionally Blank

9.5. BANDEDGE AND EIRP DENSITY

LIMITS

FCC: §25.149

(c) Equipment certification. (4) Applications for equipment authorization of terrestrial low-power system equipment that will operate in the 2483.5-2495 MHz band shall demonstrate the following:

(v) Emissions below 2483.5 MHz are attenuated below the transmitter power (P) measured in watts by a factor of at least 40 + 10 log (P) dB at the channel edge at 2483.5 MHz, 43 + 10 log (P) dB at 5 MHz from the channel edge, and 55 + 10 log (P) dB at X MHz from the channel edge where X is the greater of 6 MHz or the actual emission bandwidth.

(vi) Emissions above 2495 MHz are attenuated below the transmitter power (P) measured in watts by a factor of at least 43 + 10 log (P) dB on all frequencies between the channel edge at 2495 MHz and X MHz from this channel edge and 55 + 10 log (P) dB on all frequencies more than X MHz from this channel edge, where X is the greater of 6 MHz or the actual emission bandwidth;

ISED: SMSE-900-20 Annex A 9:

(g) For the unwanted emission below 2483.5 MHz, the ATC system's transmitter power, P (Watt), shall be attenuated by at least:

i. 40 + 10 log(P) dB at the channel edge at 2483.5 MHz
ii. 43 + 10 log(P) dB at 5 MHz from the channel edge
iii. 55 + 10 log(P) dB at X MHz from the channel edge

where X is the greater of 6 MHz or the actual emission bandwidth.

(h) For the unwanted emission above 2495 MHz, the ATC system's transmitter power, P (Watt), shall be attenuated by at least:

i. 43 + 10 log(P) dB on all frequencies between the channel edge at 2495 MHz and X MHz from this channel edge
ii. 55 + 10 log(P) dB on all frequencies more than X MHz from this channel edge

where X is the greater of 6 MHz or the actual emission bandwidth.

Notwithstanding the above requirements, the e.i.r.p. density of the ATC system's unwanted emission shall not exceed:

i. -44.1 dBW/30 kHz measured from the edge of the equipment channel bandwidth.
ii. -70 dBW/MHz for broadband emissions and -80 dBW/kHz for discrete emissions in the band 1559-1610 MHz

TEST PROCEDURE FOR UNWANTED EMISSIONS

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 Emission Mask measurement:

1. Set the spectrum analyzer span to include the block edge frequency.
2. Set the Spectrum Emission Mask to cover all frequencies at their respective limits
3. Set the Spectrum Emission Mask to use the required Measurement Bandwidth
4. Set resolution bandwidth to at least 1% of emission bandwidth.

TEST PROCEDURE For EIRP DENSITY LIMIT

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.

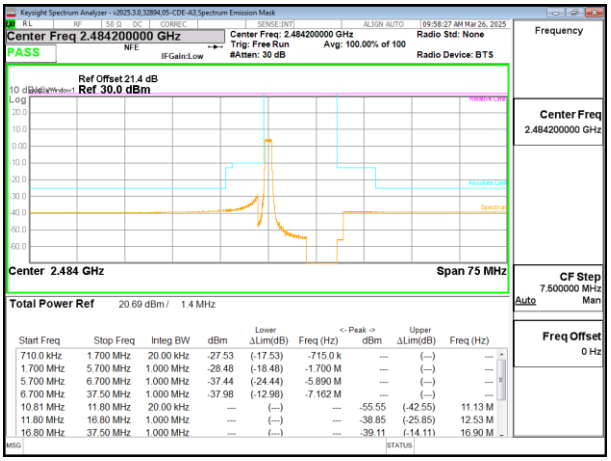
For each Emission Mask measurement:

1. Set the Spectrum analyzer span to include the block edge frequency.
2. Set the Spectrum Emission Mask to cover all frequencies at their respective limits
3. Set the Spectrum Emission Mask to use the Measurement Bandwidth of 30kHz

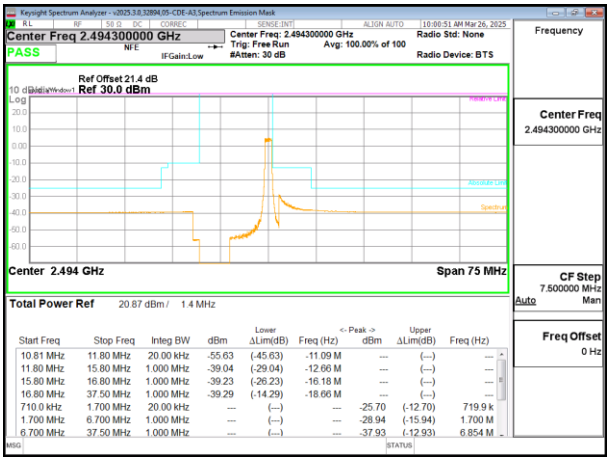
RESULTS

9.5.1. LTE BAND 53

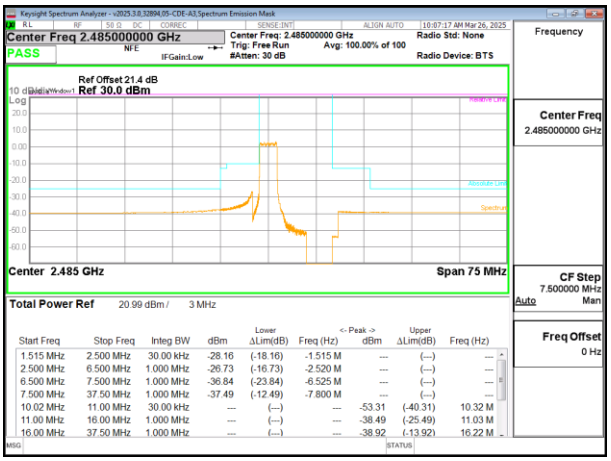
LTE BAND 53 BANDEGE



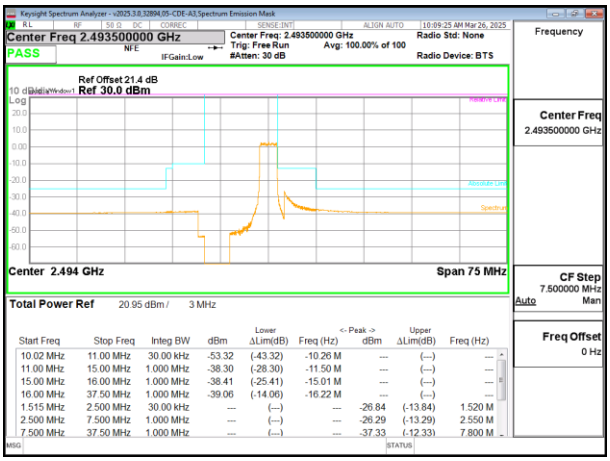
LTE B53 1.4MHz QPSK Low Channel RB6-0



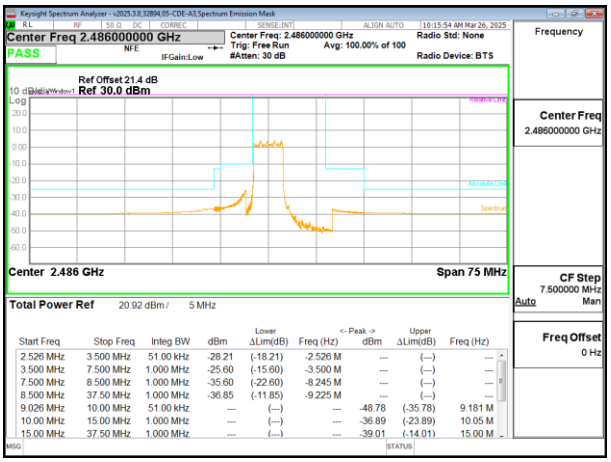
LTE B53 1.4MHz QPSK High Channel RB6-0



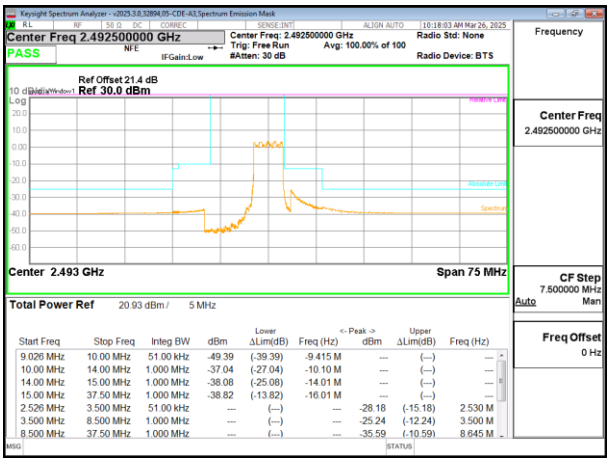
LTE B53 3MHz QPSK Low Channel RB15-0



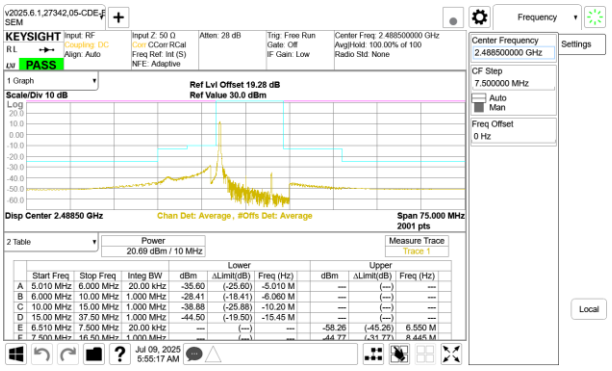
LTE B53 3MHz QPSK High Channel RB15-0



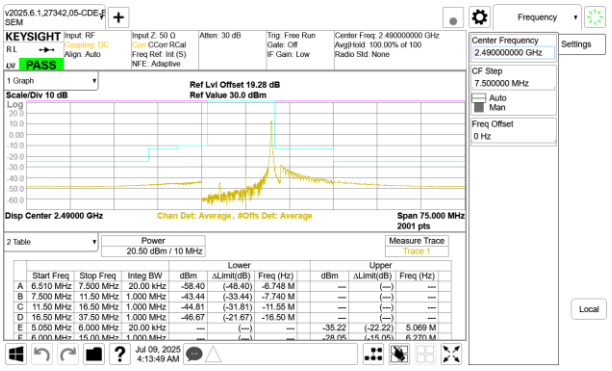
LTE B53 5MHz QPSK Low Channel RB25-0



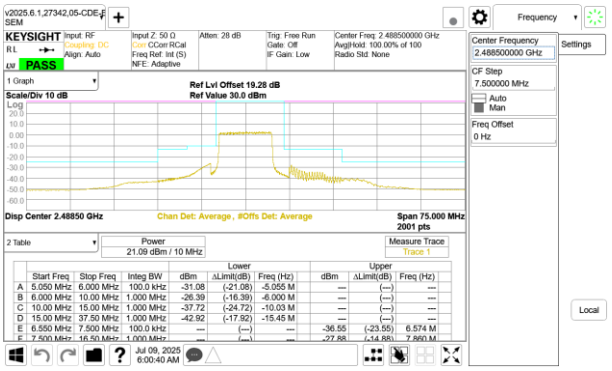
LTE B53 5MHz QPSK High Channel RB25-0



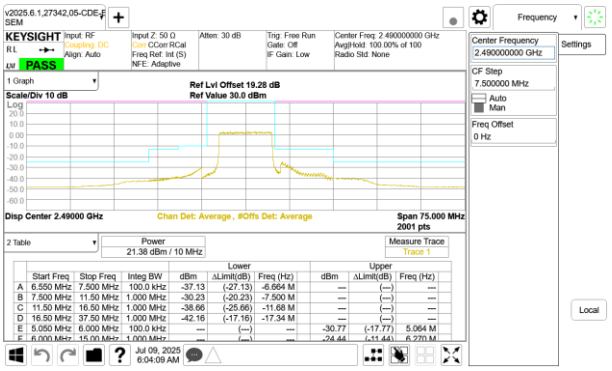
LTE B53 10MHz QPSK Low Channel RB1-0



LTE B53 10MHz QPSK High Channel RB1-49



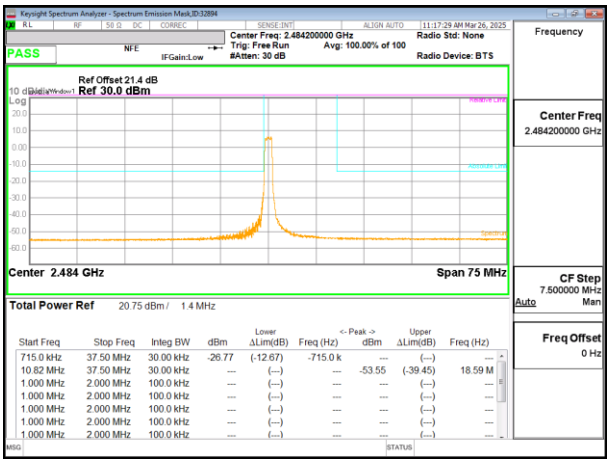
LTE B53 10MHz QPSK Low Channel RB50-0



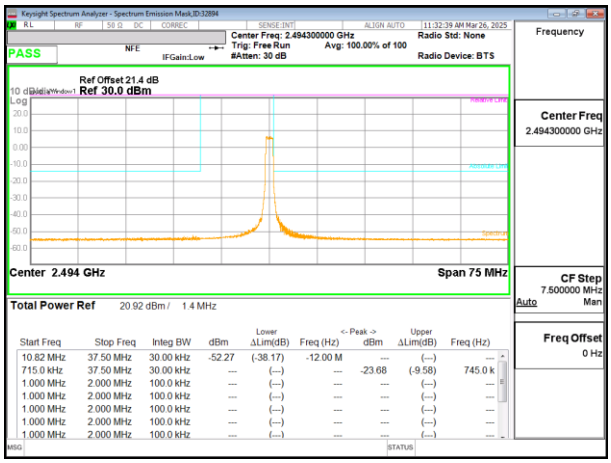
LTE B53 10MHz QPSK High Channel RB50-0

LTE BAND 53 EIRP DENSITY

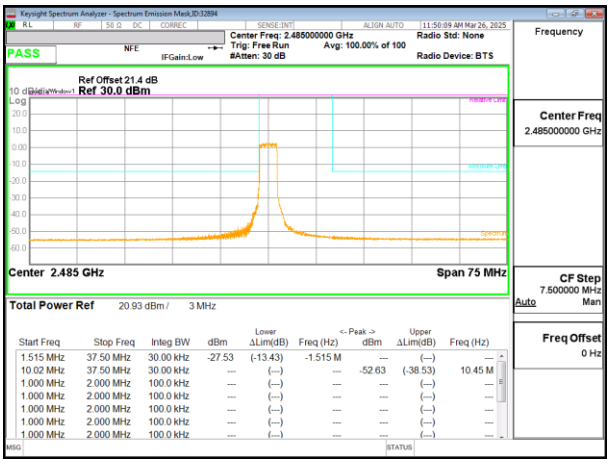
Band	Mode	RB Allocation/ RB Offset	Freq (MHz)	Highest Cond Power Density (dBm/30kHz)	Highest Antenna Gain (dBi)	Highest EIRP Density (dBm/30kHz)	EIRP Density Limit (dBm/30kHz)
LTE Band 53	1.4MHz, QPSK	1/0	2484.2	-21.97	-0.8	-22.77	-14.1
		6/0	2484.2	-26.77		-27.57	
		1/5	2494.3	-20.33		-21.13	
		6/0	2494.3	-23.68		-24.48	
	3MHz, QPSK	1/0	2485.0	-25.03		-25.83	
		15/0	2485.0	-27.53		-28.33	
		1/14	2493.5	-22.57		-23.37	
		15/0	2493.5	-25.04		-25.84	
	5MHz, QPSK	1/0	2486.0	-27.97		-28.77	
		25/0	2486.0	-31.31		-32.11	
		1/24	2492.5	-24.47		-25.27	
		25/0	2492.5	-29.94		-30.74	
	10MHz, QPSK	1/0	2488.5	-33.86		-34.66	
		50/0	2488.5	-36.28		-37.08	
		1/49	2490.0	-32.81		-33.61	
		50/0	2490.0	-33.97		-34.77	



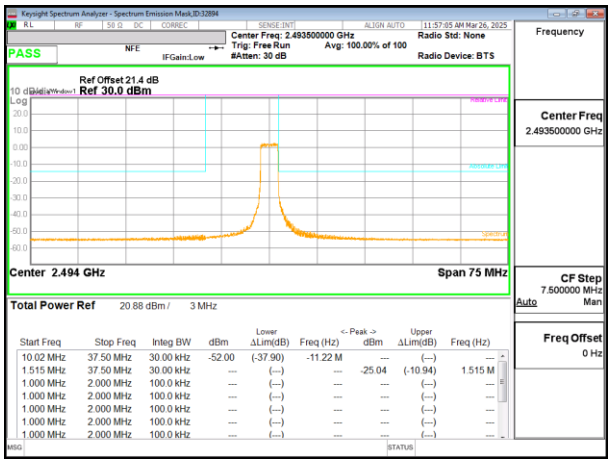
LTE B53 1.4MHz QPSK Low Channel RB6-0



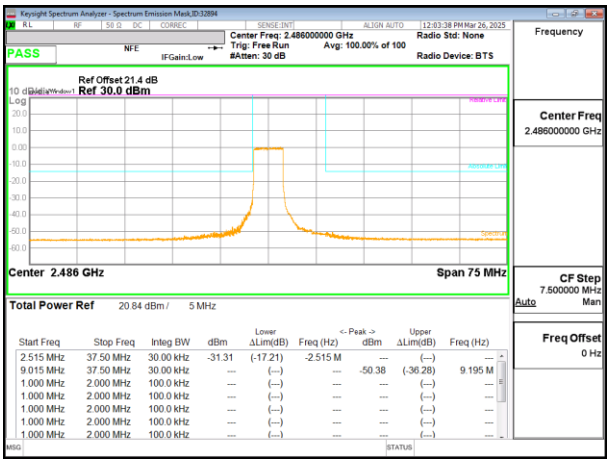
LTE B53 1.4MHz QPSK High Channel RB6-0



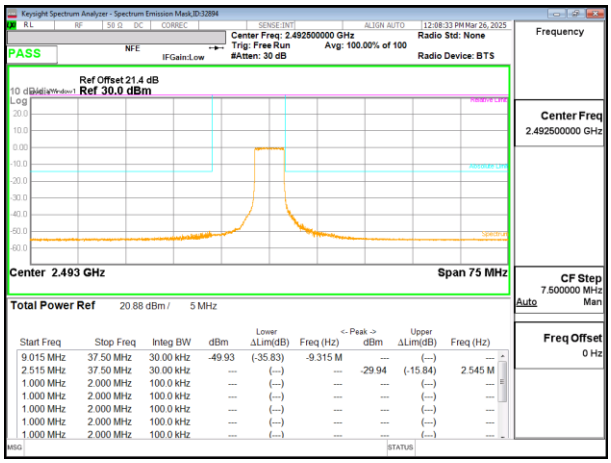
LTE B53 3MHz QPSK Low Channel RB15-0



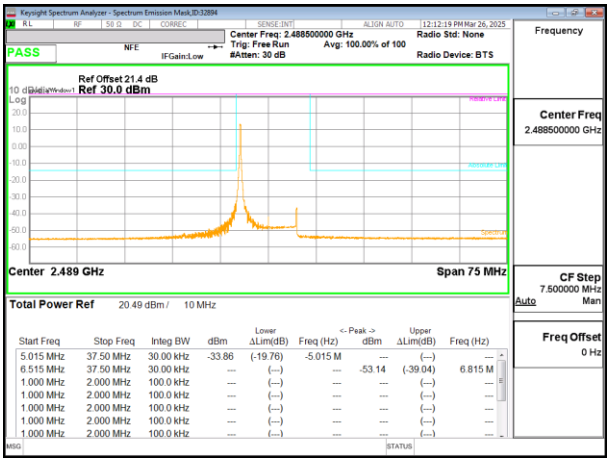
LTE B53 3MHz QPSK High Channel RB15-0



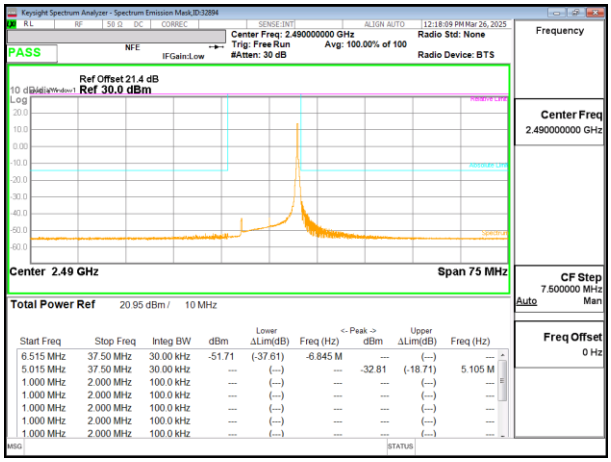
LTE B53 5MHz QPSK Low Channel RB25-0



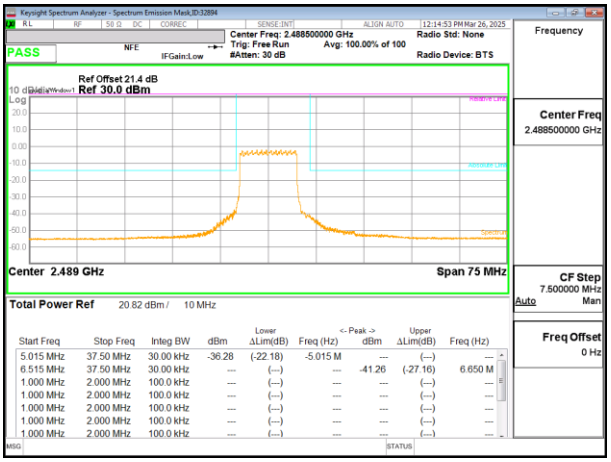
LTE B53 5MHz QPSK High Channel RB25-0



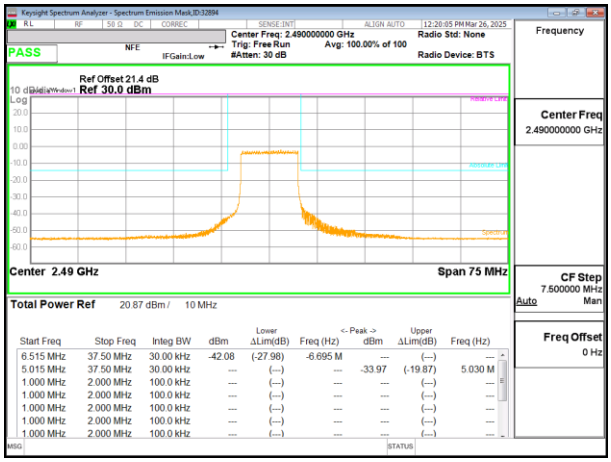
LTE B53 10MHz QPSK Low Channel RB1-0



LTE B53 10MHz QPSK High Channel RB1-49



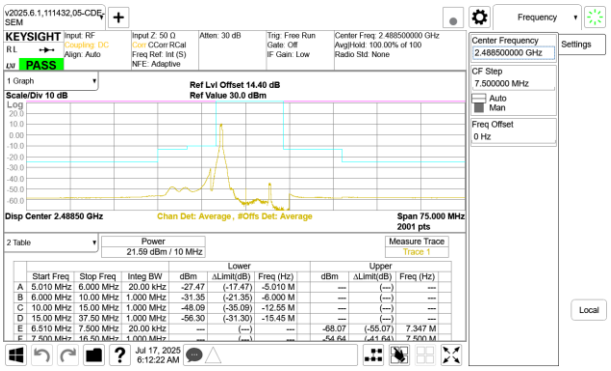
LTE B53 10MHz QPSK Low Channel RB50-0



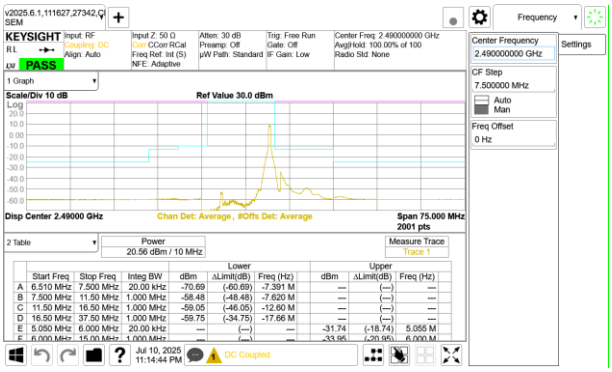
LTE B53 10MHz QPSK High Channel RB50-0

9.5.2 5G NR n53

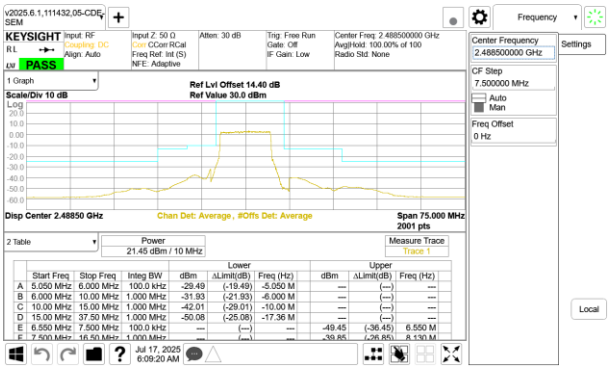
5G NR n53 BANDEDGE



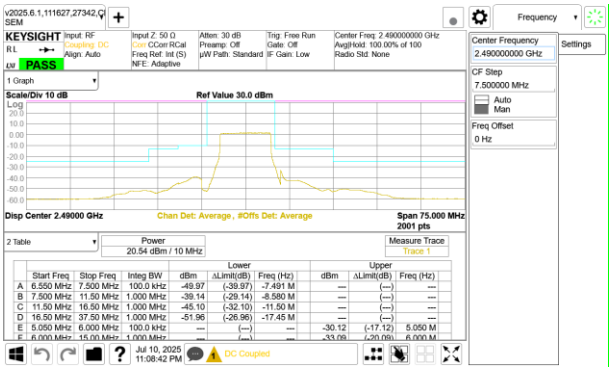
5G NR n53 10MHz BPSK Low Channel RB1-0



5G NR n53 10MHz BPSK High Channel RB1-23



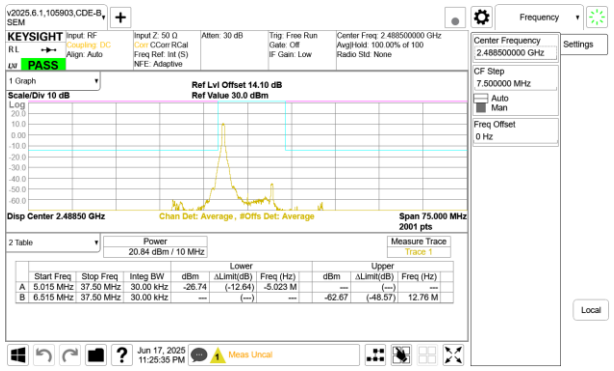
5G NR n53 10MHz BPSK Low Channel RB24-0



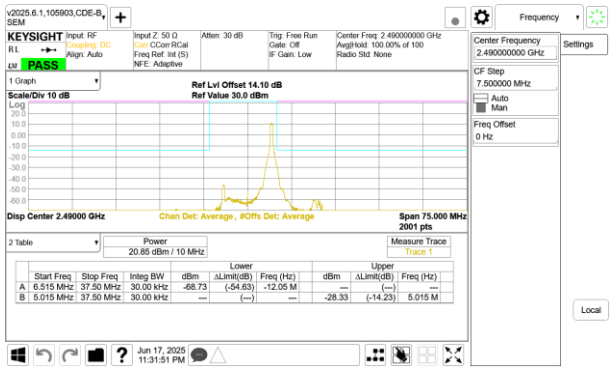
5G NR n53 10MHz BPSK High Channel RB24-0

5G NR n53 EIRP DENSITY

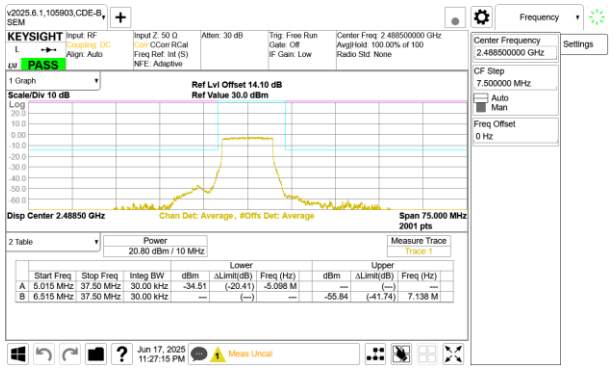
Band	Mode	RB Allocation/ RB Offset	Freq (MHz)	Highest Cond Power Density (dBm/30kHz)	Highest Antenna Gain (dBi)	Highest EIRP Density (dBm/30kHz)	EIRP Density Limit (dBm/30kHz)
5G NR n53	10MHz, BPSK	1/0	2488.5	-26.74	-0.8	-27.54	-14.1
		24/0	2488.5	-34.51		-35.31	
		1/23	2490.0	-28.33		-29.13	
		24/0	2490.0	-33.80		-34.60	



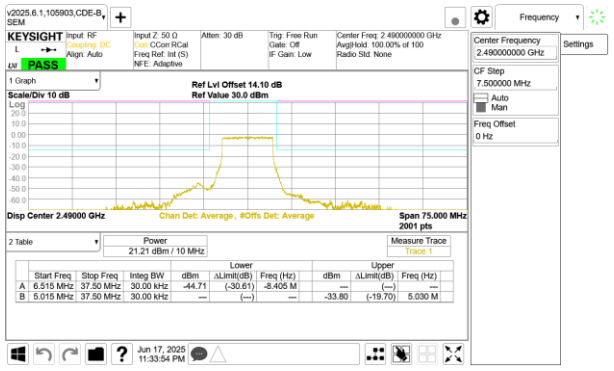
5G NR n53 10MHz BPSK Low Channel RB1-0



5G NR n53 10MHz BPSK High Channel RB1-23



5G NR n53 10MHz BPSK Low Channel RB24-0



5G NR n53 10MHz BPSK High Channel RB24-0

9.6. OUT OF BAND EMISSIONS

LIMITS

FCC: §25.149 (c)(4)
The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.

ISED: SMSE-900-20 Annex A 9.g, h
The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.

TEST PROCEDURE

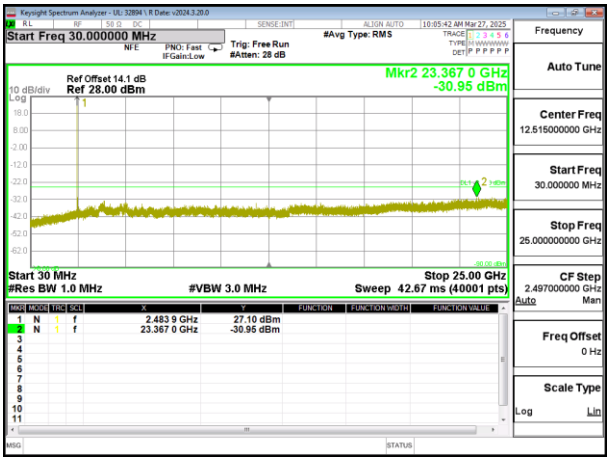
The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case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

For each out of band emissions measurement:

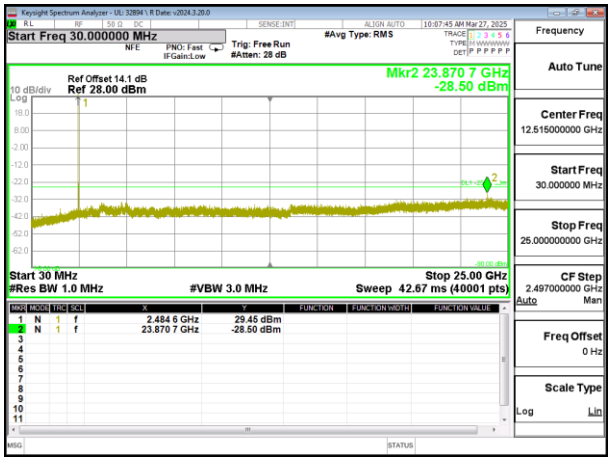
- Set display line at -25dBm according to the band Limit
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

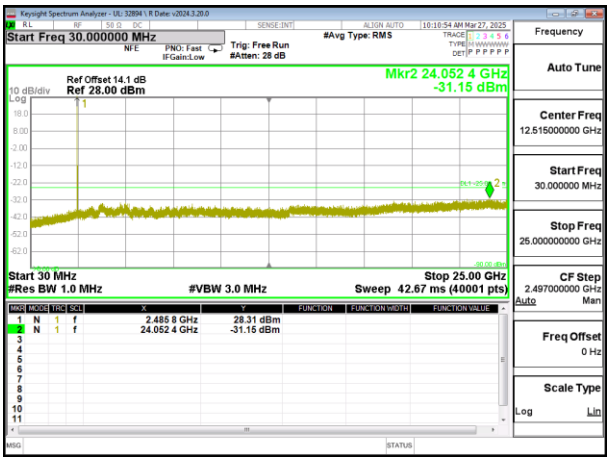
9.6.1. LTE BAND 53



LTE B53 10MHz QPSK Low Channel RB1-0



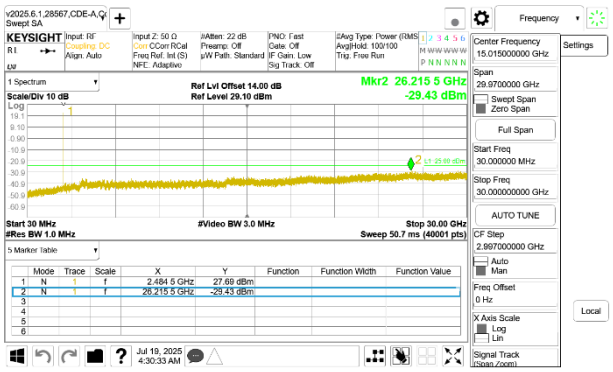
LTE B53 10MHz QPSK Middle Channel RB1-0



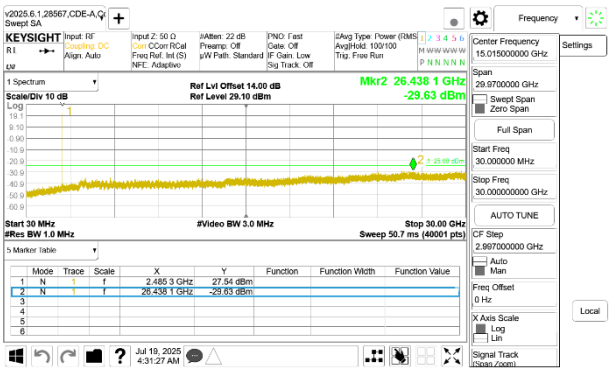
LTE B53 10MHz QPSK High Channel RB1-0

Intentionally Blank

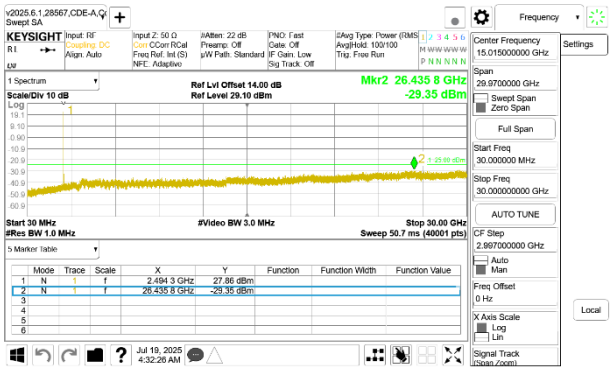
9.6.2. 5G NR 53



5G NR n53 10MHz BPSK Low Channel RB1-0



5G NR n53 10MHz BPSK Mid Channel RB1-1



5G NR n53 10MHz BPSK High Channel RB1-23

Intentionally Blank

9.7. FREQUENCY STABILITY

LIMITS

FCC: §25.202 (d)
(d) Frequency tolerance, Earth stations. The carrier frequency of each earth station transmitter authorized in these services shall be maintained within 0.001 percent of the reference frequency.

ISED: RSS 170§ 5.3
For all other ATC equipment, the carrier frequency shall not drift from the reference frequency in excess of ±2.5 ppm for mobile equipment.

TEST PROCEDURE

Use CMW 500 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, 2.90VDC.

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.

9.7.1. LTE BAND 53 QPSK (10MHz BANDWIDTH)

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

Band	53	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2483.5	2495		10	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)		2483.8250	2494.5398			
Extreme (50°C)		2483.8250	2494.5398	-0.8	0.000	Yes
Extreme (40°C)		2483.8250	2494.5398	-0.9	0.000	Yes
Extreme (30°C)		2483.8250	2494.5398	-0.8	0.000	Yes
Extreme (10°C)	Normal	2483.8250	2494.5398	-1.2	0.000	Yes
Extreme (0°C)		2483.8250	2494.5398	-4.0	-0.002	Yes
Extreme (-10°C)		2483.8250	2494.5398	-2.5	-0.001	Yes
Extreme (-20°C)		2483.8250	2494.5398	-2.1	-0.001	Yes
Extreme (-30°C)		2483.8250	2494.5398	-5.3	-0.002	Yes
20°C	15%	2483.8250	2494.5398	2.1	0.001	Yes
	-15%	2483.8250	2494.5398	-2.9	-0.001	Yes
	End Point Voltage	2483.8250	2494.5398	-3.1	-0.001	Yes

9.7.2. 5G NR n53 BPSK (10MHz BANDWIDTH)

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

Band	53	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2483.5	2495		10	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)		2484.1845	2494.2748			
Extreme (50°C)		2484.1845	2494.2748	1.04	0.000	Yes
Extreme (40°C)		2484.1845	2494.2748	2.61	0.001	Yes
Extreme (30°C)		2484.1845	2494.2748	7.03	0.003	Yes
Extreme (10°C)	Normal	2484.1845	2494.2748	-3.83	-0.002	Yes
Extreme (0°C)		2484.1845	2494.2748	-6.13	-0.002	Yes
Extreme (-10°C)		2484.1845	2494.2748	-0.61	0.000	Yes
Extreme (-20°C)		2484.1845	2494.2748	7.85	0.003	Yes
Extreme (-30°C)		2484.1845	2494.2748	6.48	0.003	Yes
20°C	15%	2484.1845	2494.2748	2.15	0.001	Yes
	-15%	2484.1845	2494.2748	5.58	0.002	Yes
	End Point Voltage	2484.1845	2494.2748	-1.44	-0.001	Yes

10. RADIATED TEST RESULTS

LIMITS

FCC: §25.149 (c)(4)
The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.

ISED: SMSE-900-20 Annex A 9.g, h
The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.

ISED: SMSE-900-20 Annex A 9.i
(ii) -70 dBW/MHz for broadband emissions and -80 dBW/kHz for discrete emissions in the band 1559-1610 MHz.

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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.

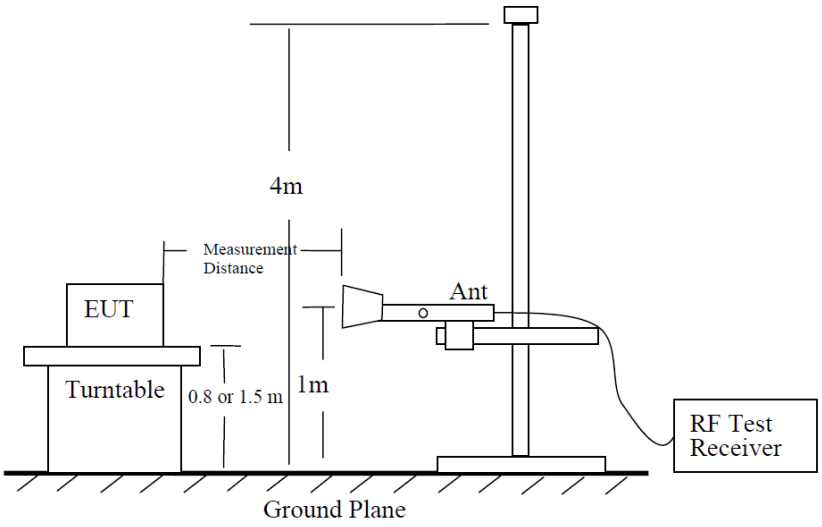


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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.

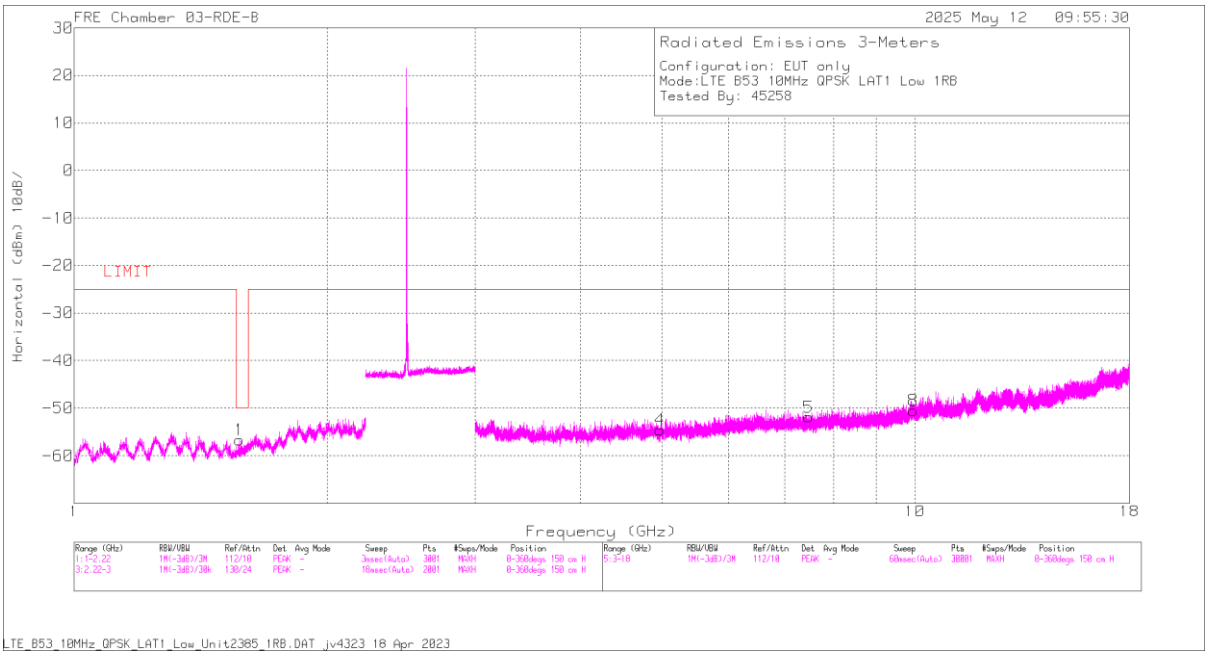
So, from d)

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

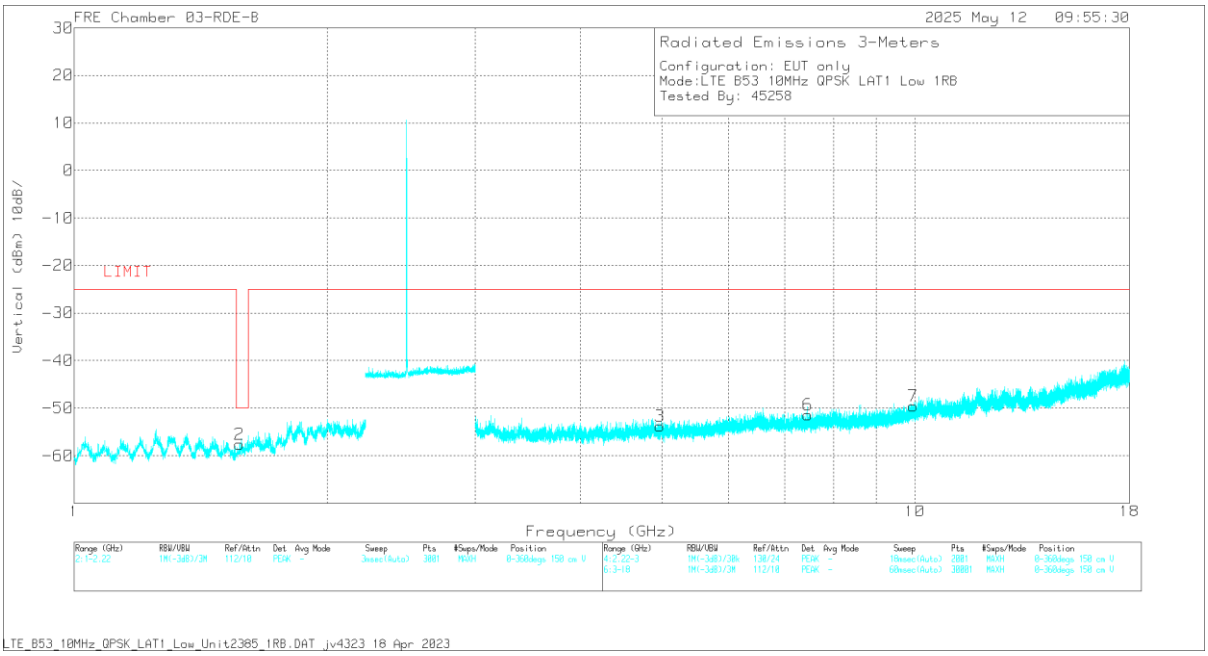
Then, EIRP (dBm) = E (dBμV/m) + 9.5424 − 104.8 = E (dBμV/m) – 95.2576

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.

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	Margin (dB)	Polarity
1.572994	59.98	Pk	28.1	-95.2	-49.6	-56.72	-50	-6.72	H
1.572587	59.04	Pk	28.1	-95.2	-49.6	-57.66	-50	-7.66	V
4.976500	55.78	Pk	33.9	-95.2	-49.05	-54.57	-25	-29.57	H
4.977000	56.55	Pk	33.9	-95.2	-49	-53.75	-25	-28.75	V
7.468000	55.62	Pk	35.7	-95.2	-48	-51.88	-25	-26.88	H
7.464000	56.11	Pk	35.7	-95.2	-48	-51.39	-25	-26.39	V

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, Ant 3

TEST PROCEDURE

KDB 971168 D01 /D02

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

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.

FCC: §25.149 (c)(4)
(vii) Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately above and adjacent to the 2495 MHz a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. If 1 percent of the emission bandwidth of the fundamental emission is less than 1 MHz, the power measured must be integrated over the required measurement bandwidth of 1 MHz. A resolution bandwidth narrower than 1 MHz is permitted to improve measurement accuracy, provided the measured power is integrated over the full required measurement bandwidth (*i.e.,* 1 MHz). The emission bandwidth of the fundamental emission of a transmitter is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

ISED: SMSE-009-20 Annex A 9
j. Compliance with this limit may be based on the use of a measurement resolution bandwidth of at least 1% of the occupied bandwidth. If 1% of the occupied bandwidth is less than 1 MHz, the power measured shall be integrated over the required measurement bandwidth of 1 MHz.

RESULTS

10.1.1. LTE BAND 53

QPSK LTE BAND 53 (10.0MHZ BANDWIDTH), 1 RB

Date:	2025-05-12
Test Engineer:	45258
Configuration:	EUT Only
Mode:	LTE B53 QPSK 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
Low Channel, 2488.5MHz									
1.572994	59.98	Pk	28.1	-95.2	-49.6	-56.72	-50	-6.72	H
1.572587	59.04	Pk	28.1	-95.2	-49.6	-57.66	-50	-7.66	V
4.976500	55.78	Pk	33.9	-95.2	-49.1	-54.57	-25	-29.57	H
4.977000	56.55	Pk	33.9	-95.2	-49.0	-53.75	-25	-28.75	V
7.468000	55.62	Pk	35.7	-95.2	-48.0	-51.88	-25	-26.88	H
7.464000	56.11	Pk	35.7	-95.2	-48.0	-51.39	-25	-26.39	V
Mid Channel, 2489MHz									
1.586820	59.96	Pk	28.2	-95.2	-49.8	-56.84	-50	-6.84	H
1.576654	60.19	Pk	28.2	-95.2	-49.7	-56.51	-50	-6.51	V
4.977000	55.89	Pk	33.9	-95.2	-49.0	-54.41	-25	-29.41	H
4.978000	56.42	Pk	33.9	-95.2	-48.9	-53.78	-25	-28.78	V
7.468000	54.69	Pk	35.7	-95.2	-48.0	-52.81	-25	-27.81	H
7.468000	54.20	Pk	35.7	-95.2	-48.0	-53.30	-25	-28.30	V
High Channel, 2490MHz									
1.592107	60.10	Pk	28.3	-95.2	-49.7	-56.50	-50	-6.50	H
1.594954	60.66	Pk	28.3	-95.2	-49.7	-55.94	-50	-5.94	V
4.980000	55.18	Pk	33.9	-95.2	-48.8	-54.92	-25	-29.92	H
4.979500	56.19	Pk	33.9	-95.2	-48.9	-53.96	-25	-28.96	V
7.469500	55.76	Pk	35.7	-95.2	-48.0	-51.74	-25	-26.74	H
7.471000	56.85	Pk	35.7	-95.2	-48.0	-50.65	-25	-25.65	V

QPSK LTE BAND 53 (10.0MHZ BANDWIDTH), 50 RB

Date:	2025-05-12
Test Engineer:	45258
Configuration:	EUT Only
Mode:	LTE B53 QPSK 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
Low Channel, 2488.5MHz									
1.563234	59.81	Pk	28.1	-95.2	-49.68	-56.97	-50	-6.97	H
1.576654	59.32	Pk	28.2	-95.2	-49.70	-57.38	-50	-7.38	V
4.977500	55.56	Pk	33.9	-95.2	-48.95	-54.69	-25	-29.69	H
4.979000	56.60	Pk	33.9	-95.2	-48.90	-53.60	-25	-28.60	V
7.465500	54.54	Pk	35.7	-95.2	-47.95	-52.91	-25	-27.91	H
7.468000	56.52	Pk	35.7	-95.2	-48.00	-50.98	-25	-25.98	V
Mid Channel, 2489MHz									
1.579500	59.57	Pk	28.2	-95.2	-49.70	-57.13	-50	-7.13	H
1.597394	60.01	Pk	28.4	-95.2	-49.80	-56.59	-50	-6.59	V
4.977500	56.69	Pk	33.9	-95.2	-48.95	-53.56	-25	-28.56	H
4.978500	55.66	Pk	33.9	-95.2	-48.90	-54.54	-25	-29.54	V
7.468500	55.86	Pk	35.7	-95.2	-48.00	-51.64	-25	-26.64	H
7.469000	55.68	Pk	35.7	-95.2	-48.00	-51.82	-25	-26.82	V
High Channel, 2490MHz									
1.582754	59.10	Pk	28.2	-95.2	-49.68	-57.58	-50	-7.58	H
1.582347	59.73	Pk	28.2	-95.2	-49.63	-56.90	-50	-6.90	V
4.980000	57.90	Pk	33.9	-95.2	-48.80	-52.20	-25	-27.20	H
4.979500	55.88	Pk	33.9	-95.2	-48.85	-54.27	-25	-29.27	V
7.470500	55.11	Pk	35.7	-95.2	-48.00	-52.39	-25	-27.39	H
7.473000	56.82	Pk	35.7	-95.2	-47.90	-50.58	-25	-25.58	V

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10.1.2. 5G NR n53

BPSK 5G NR n53 (10.0MHZ BANDWIDTH), 1 RB

Date:	2025-03-27
Test Engineer:	32440
Configuration:	EUT Only
Mode:	5G NR n53 BPSK 10MHz
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
Low Channel, 2488.5MHz									
1.584380	58.80	Pk	28.1	-95.2	-48.85	-57.15	-50	-7.15	H
1.581940	57.92	Pk	28.1	-95.2	-48.89	-58.07	-50	-8.07	V
4.966000	55.76	Pk	34.1	-95.2	-48.33	-53.67	-25	-28.67	H
4.966500	55.92	Pk	34.1	-95.2	-48.38	-53.56	-25	-28.56	V
7.448000	54.34	Pk	35.7	-95.2	-46.72	-51.88	-25	-26.88	H
7.451000	53.48	Pk	35.7	-95.2	-46.66	-52.68	-25	-27.68	V
Mid Channel, 2489MHz									
1.587634	57.72	Pk	28.1	-95.2	-48.81	-58.19	-50	-8.19	H
1.590480	58.78	Pk	28.1	-95.2	-48.93	-57.25	-50	-7.25	V
4.948000	57.93	Pk	34.1	-95.2	-48.52	-51.69	-25	-26.69	H
4.943500	56.89	Pk	34.1	-95.2	-48.56	-52.77	-25	-27.77	V
7.404500	54.64	Pk	35.6	-95.2	-46.35	-51.31	-25	-26.31	H
7.434500	54.46	Pk	35.6	-95.2	-46.52	-51.66	-25	-26.66	V
High Channel, 2490MHz									
1.566487	58.45	Pk	28	-95.2	-49.04	-57.79	-50	-7.79	H
1.565267	59.58	Pk	28	-95.2	-48.98	-56.60	-50	-6.60	V
4.961000	56.40	Pk	34.1	-95.2	-48.43	-53.13	-25	-28.13	H
4.958000	55.86	Pk	34.1	-95.2	-48.51	-53.75	-25	-28.75	V
7.442000	55.35	Pk	35.6	-95.2	-46.61	-50.86	-25	-25.86	H
7.440500	55.05	Pk	35.6	-95.2	-46.61	-51.16	-25	-26.16	V

BPSK 5G NR n53 (10.0MHZ BANDWIDTH), 24 RB

Date:	2025-07-07
Test Engineer:	45258
Configuration:	EUT Only
Mode:	5G NR n53 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
Low Channel, 2488.5MHz									
1.591700	59.29	Pk	28.3	-95.2	-49.73	-57.34	-50	-7.34	H
1.595767	58.55	Pk	28.4	-95.2	-49.70	-57.95	-50	-7.95	V
4.978000	55.75	Pk	33.9	-95.2	-48.90	-54.45	-25	-29.45	H
4.975500	55.54	Pk	33.9	-95.2	-49.05	-54.81	-25	-29.81	V
7.462500	54.78	Pk	35.7	-95.2	-48.00	-52.72	-25	-27.72	H
7.465500	54.87	Pk	35.7	-95.2	-47.95	-52.58	-25	-27.58	V
Mid Channel, 2489MHz									
1.576247	59.34	Pk	28.2	-95.2	-49.70	-57.36	-50	-7.36	H
1.579500	58.93	Pk	28.2	-95.2	-49.70	-57.77	-50	-7.77	V
4.978000	55.67	Pk	33.9	-95.2	-48.90	-54.53	-25	-29.53	H
4.977500	55.34	Pk	33.9	-95.2	-48.95	-54.91	-25	-29.91	V
7.468000	54.68	Pk	35.7	-95.2	-48.00	-52.82	-25	-27.82	H
7.468000	55.26	Pk	35.7	-95.2	-48.00	-52.24	-25	-27.24	V
High Channel, 2490MHz									
1.606137	59.13	Pk	28.5	-95.2	-49.89	-57.46	-50	-7.46	H
1.608781	60.14	Pk	28.5	-95.2	-49.80	-56.36	-50	-6.36	V
4.977000	56.36	Pk	33.9	-95.2	-49.00	-53.94	-25	-28.94	H
4.980000	55.99	Pk	33.9	-95.2	-48.80	-54.11	-25	-29.11	V
7.469500	55.54	Pk	35.7	-95.2	-48.00	-51.96	-25	-26.96	H
7.468000	55.26	Pk	35.7	-95.2	-48.00	-52.24	-25	-27.24	V

10.2. FIELD STRENGTH OF SPURIOUS RADIATION Ant 4

10.2.1. LTE BAND 53

QPSK LTE BAND 53 (10.0MHZ BANDWIDTH), 1 RB

Date:	2025-05-12
Test Engineer:	45258
Configuration:	EUT Only
Mode:	LTE B53 10MHz QPSK
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
Low Channel, 2488.5MHz									
1.595767	59.64	Pk	28.4	-95.2	-49.70	-56.86	-50	-6.86	H
1.575027	59.12	Pk	28.1	-95.2	-49.70	-57.68	-50	-7.68	V
4.980000	58.14	Pk	33.9	-95.2	-48.80	-51.96	-25	-26.96	H
4.976500	55.91	Pk	33.9	-95.2	-49.05	-54.44	-25	-29.44	V
7.464000	54.59	Pk	35.7	-95.2	-48.00	-52.91	-25	-27.91	H
7.465000	54.55	Pk	35.7	-95.2	-48.00	-52.95	-25	-27.95	V
Mid Channel, 2489MHz									
1.603087	60.09	Pk	28.4	-95.2	-49.89	-56.60	-50	-6.60	H
1.588040	59.03	Pk	28.3	-95.2	-49.80	-57.67	-50	-7.67	V
4.977000	56.78	Pk	33.9	-95.2	-49.00	-53.52	-25	-28.52	H
4.979000	55.84	Pk	33.9	-95.2	-48.90	-54.36	-25	-29.36	V
7.965500	54.63	Pk	35.9	-95.2	-46.65	-51.32	-25	-26.32	H
7.968500	53.45	Pk	35.9	-95.2	-46.70	-52.55	-25	-27.55	V
High Channel, 2490MHz									
1.599427	59.11	Pk	28.4	-95.2	-49.76	-57.45	-50	-7.45	H
1.584787	59.53	Pk	28.2	-95.2	-49.78	-57.25	-50	-7.25	V
4.981000	56.45	Pk	33.9	-95.2	-48.80	-53.65	-25	-28.65	H
4.980000	56.33	Pk	33.9	-95.2	-48.80	-53.77	-25	-28.77	V
7.467000	54.90	Pk	35.7	-95.2	-48.00	-52.60	-25	-27.60	H
7.470500	55.66	Pk	35.7	-95.2	-48.00	-51.84	-25	-26.84	V

QPSK LTE BAND 53 (10.0MHZ BANDWIDTH), 50 RB

Date:	2025-05-12
Test Engineer:	45258
Configuration:	EUT Only
Mode:	LTE B53 QPSK 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
Low Channel, 2488.5MHz									
1.596580	59.03	Pk	28.4	-95.2	-49.76	-57.53	-50	-7.53	H
1.605121	59.70	Pk	28.5	-95.2	-49.81	-56.81	-50	-6.81	V
4.977500	56.85	Pk	33.9	-95.2	-48.95	-53.40	-25	-28.40	H
4.979000	56.03	Pk	33.9	-95.2	-48.90	-54.17	-25	-29.17	V
7.468000	55.56	Pk	35.7	-95.2	-48.00	-51.94	-25	-26.94	H
7.464000	55.35	Pk	35.7	-95.2	-48.00	-52.15	-25	-27.15	V
Mid Channel, 2489MHz									
1.596987	59.70	Pk	28.4	-95.2	-49.80	-56.90	-50	-6.90	H
1.598614	58.68	Pk	28.4	-95.2	-49.80	-57.92	-50	-7.92	V
4.977000	55.41	Pk	33.9	-95.2	-49.00	-54.89	-25	-29.89	H
4.979000	55.77	Pk	33.9	-95.2	-48.90	-54.43	-25	-29.43	V
7.463500	56.28	Pk	35.7	-95.2	-48.00	-51.22	-25	-26.22	H
7.468000	54.48	Pk	35.7	-95.2	-48.00	-53.02	-25	-28.02	V
High Channel, 2490MHz									
1.575840	59.46	Pk	28.2	-95.2	-49.70	-57.24	-50	-7.24	H
1.572587	59.14	Pk	28.1	-95.2	-49.60	-57.56	-50	-7.56	V
4.980500	55.14	Pk	33.9	-95.2	-48.80	-54.96	-25	-29.96	H
4.979500	55.36	Pk	33.9	-95.2	-48.85	-54.79	-25	-29.79	V
7.469500	55.33	Pk	35.7	-95.2	-48.00	-52.17	-25	-27.17	H
7.468000	54.86	Pk	35.7	-95.2	-48.00	-52.64	-25	-27.64	V

10.2.2. 5G NR n53

BPSK 5G NR n53 (10.0MHZ BANDWIDTH), 1 RB

Date:	2025-03-27
Test Engineer:	32440
Configuration:	EUT Only
Mode:	5G NR n53 BPSK 10MHz
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
Low Channel, 2488.5MHz									
1.601867	59.43	Pk	28.2	-95.2	-48.77	-56.34	-50	-6.34	H
1.604307	58.58	Pk	28.2	-95.2	-48.94	-57.36	-50	-7.36	V
4.940000	57.41	Pk	34.1	-95.2	-48.44	-52.13	-25	-27.13	H
4.946500	57.27	Pk	34.1	-95.2	-48.57	-52.40	-25	-27.40	V
7.468500	54.84	Pk	35.7	-95.2	-46.64	-51.30	-25	-26.30	H
7.469000	54.49	Pk	35.7	-95.2	-46.64	-51.65	-25	-26.65	V
Mid Channel, 2489MHz									
1.607154	58.09	Pk	28.2	-95.2	-49.01	-57.92	-50	-7.92	H
1.606341	59.44	Pk	28.2	-95.2	-48.97	-56.53	-50	-6.53	V
4.890500	58.49	Pk	34.1	-95.2	-48.28	-50.89	-25	-25.89	H
4.916000	56.75	Pk	34.1	-95.2	-48.33	-52.68	-25	-27.68	V
7.415000	55.58	Pk	35.6	-95.2	-46.45	-50.47	-25	-25.47	H
7.415500	54.27	Pk	35.6	-95.2	-46.43	-51.76	-25	-26.76	V
High Channel, 2490MHz									
1.564047	59.63	Pk	28	-95.2	-49.03	-56.60	-50	-6.60	H
1.561200	59.03	Pk	28	-95.2	-49.04	-57.21	-50	-7.21	V
4.949500	57.67	Pk	34.1	-95.2	-48.5	-51.93	-25	-26.93	H
4.970000	56.97	Pk	34.1	-95.2	-48.53	-52.66	-25	-27.66	V
7.464000	54.68	Pk	35.7	-95.2	-46.73	-51.55	-25	-26.55	H
7.437500	54.95	Pk	35.6	-95.2	-46.56	-51.21	-25	-26.21	V

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

BPSK 5G NR n53 (10.0MHZ BANDWIDTH), 24 RB

Date:	2025-07-08
Test Engineer:	45258
Configuration:	EUT Only
Mode:	5G NR n53 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
Low Channel, 2488.5MHz									
1.606341	59.04	Pk	28.5	-95.2	-49.87	-57.53	-50	-7.53	H
1.599834	59.47	Pk	28.4	-95.2	-49.72	-57.05	-50	-7.05	V
4.976000	55.33	Pk	33.9	-95.2	-49.10	-55.07	-25	-30.07	H
4.978000	55.77	Pk	33.9	-95.2	-48.90	-54.43	-25	-29.43	V
7.464500	54.97	Pk	35.7	-95.2	-48.00	-52.53	-25	-27.53	H
7.464500	54.31	Pk	35.7	-95.2	-48.00	-53.19	-25	-28.19	V
Mid Channel, 2489MHz									
1.599020	59.85	Pk	28.4	-95.2	-49.80	-56.75	-50	-6.75	H
1.585194	59.15	Pk	28.2	-95.2	-49.80	-57.65	-50	-7.65	V
4.979500	56.15	Pk	33.9	-95.2	-48.85	-54.00	-25	-29.00	H
4.979000	55.65	Pk	33.9	-95.2	-48.90	-54.55	-25	-29.55	V
7.469000	54.85	Pk	35.7	-95.2	-48.00	-52.65	-25	-27.65	H
7.467000	54.23	Pk	35.7	-95.2	-48.00	-53.27	-25	-28.27	V
High Channel, 2490MHz									
1.580314	59.9	Pk	28.2	-95.2	-49.70	-56.80	-50	-6.80	H
1.567707	59.38	Pk	28.1	-95.2	-49.60	-57.32	-50	-7.32	V
4.987000	57.01	Pk	33.9	-95.2	-48.90	-53.19	-25	-28.19	H
4.982000	56.1	Pk	33.9	-95.2	-48.90	-54.10	-25	-29.10	V
7.471500	54.79	Pk	35.7	-95.2	-47.95	-52.66	-25	-27.66	H
7.471000	54.74	Pk	35.7	-95.2	-48.00	-52.76	-25	-27.76	V

11. SETUP PHOTOS

Refer to 15496224-EP1V1 for setup photos.

END OF REPORT

UL VERIFICATION SERVICES INC.
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