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http://www.pctest.com PART 24 / RSS-133 MEASUREMENT REPORT

Applicant Name:

Telit Communications S.p.A Viale Stazione di Prosecco 5/b 34010, Trieste, Italy

Date of Testing: 5/12 - 6/1/2021 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M2106040065-05.RI7

FCC ID: IC:

Applicant Name:

RI7LE910CXWWX 5131A-LE910CXWWX

Telit Communications S.p.A

Application Type: Model/HVIN: Additional Model/HVIN (s): EUT Type: FCC Classification: FCC Rule Part: ISED Specification:

Test Procedure(s):

Certification LE910C4-WWX LE910C1-WWX Data Terminal Module PCS Licensed Transmitter (PCB) 24 RSS-133 Issue 6 Amendment 1, SRSP-510 Issue 5 ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Randy Ortanez President

ACCREDITED CERT #2041.01

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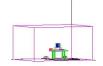


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				EI	RP	Emission
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Designator
GSM/GPRS	-	- GMSK		1.394	31.44	246KGXW
EDGE	-	8-PSK	1850.2 - 1909.8	0.580	27.63	243KG7W
WCDMA	-	Spread Spectrum	1852.4 - 1907.6	0.398	25.99	4M14F9W
	20 MHz	QPSK	1860 - 1905	0.323	25.09	18M0G7D
	20 10112	16QAM	1860 - 1905	0.265	24.24	18M0W7D
	15 MHz	QPSK	1857.5 - 1907.5	0.355	25.50	13M5G7D
		16QAM	1857.5 - 1907.5	0.282	24.51	13M5W7D
	10 MHz	QPSK	1855 - 1910	0.361	25.57	9M01G7D
LTE Band 25/2		16QAM	1855 - 1910	0.277	24.43	9M00W7D
LTE Dariu 20/2		QPSK	1852.5 - 1912.5	0.353	25.48	4M59G7D
		16QAM	1852.5 - 1912.5	0.284	24.53	4M54W7D
	3 MHz	QPSK	1851.5 - 1913.5	0.351	25.45	2M72G7D
		16QAM	1851.5 - 1913.5	0.275	24.39	2M72W7D
	1.4 MHz	QPSK	1850.7 - 1914.3	0.345	25.38	1M10G7D
		16QAM	1850.7 - 1914.3	0.269	24.30	1M11W7D

EUT Overview

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Telit Communications S.p.A Data Terminal Module FCC ID: RI7LE910CXWWX / IC:5131A-LE910CXWWX**.. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 24 & RSS-133.

This FCC and IC ID covers operations for two different versions of this module. The LE910C4-WWX is the Cat. 4 LTE version module and the LE910C1-WWX is the Cat. 1 LTE version of this module. Cat. 1 and Cat. 4 LTE only differ in the speed/throughput and have not been noted to have any impact on the RF itself. Both modules were investigated and the LE910C4-WWX was tested fully to represent both versions of the module.

Test Device Serial No.: 96014, 95001

2.2 Device Capabilities

This device contains the following capabilities:

GSM/GPRS/EDGE, WCDMA/HSPA, LTE

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

2.4 Software and Firmware

The test was conducted with firmware version M0F.503003 for LE910C4-WWX and M0F.103003 for LE910C1-WWX installed on the EUT.

2.5 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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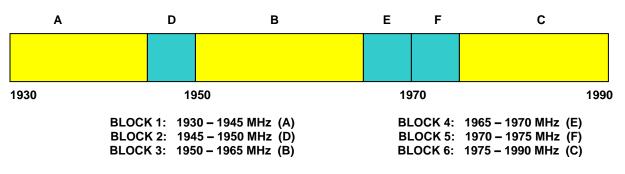
3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

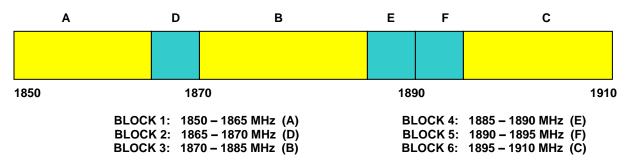
The measurement procedures described in the "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Measurement Guidance for Certification of Licensed Digital Transmitters" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

3.2 PCS - Base Frequency Blocks



3.3 PCS - Mobile Frequency Blocks



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3.4 Radiated Power and Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its external antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

For radiated power measurements, substitution method is used per the guidance of ANSI/TIA-603-E-2016. A halfwave dipole is substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$P_{d [dBm]} = P_{g [dBm]} - cable loss [dB] + antenna gain [dBd/dBi];$

where P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g \text{ [dBm]}}$ – cable loss [dB].

For radiated spurious emissions measurements and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. Field Strength (EIRP) is calculated using the following formulas:

 $E_{[dB\mu V/m]} =$ Measured amplitude level_[dBm] + 107 + Cable Loss_[dB] + Antenna Factor_[dB/m] And EIRP_[dBm] = E_[dB\mu V/m] + 20logD - 104.8; where D is the measurement distance in meters.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 414788 D01.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/TIA-603-E-2016.

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	AP1	EMC Cable and Switch System	3/9/2021	Annual	3/9/2022	AP1
-	ETS	EMC Cable and Switch System	3/4/2021	Annual	3/4/2022	ETS
-	LTx4	Licensed Transmitter Cable Set	3/12/2021	Annual	3/12/2022	LTx4
-	LTx5	LIcensed Transmitter Cable Set	3/3/2021	Annual	3/3/2022	LTx5
Agilent	E5515C	Wireless Communications Test Set		N/A		GB45360985
Anritsu	MT8820C	Radio Communication Analyzer		N/A		6201300731
Anritsu	MT8821C	Radio Communication Analyzer		N/A		
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
Emco	3116	Horn Antenna (18 - 40GHz)	8/7/2018	Triennial	8/7/2021	9203-2178
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/12/2020	Biennial	3/12/2022	128337
Keysight Technologies	N9020A	MXA Signal Analyzer	9/22/2020	Annual	9/22/2021	MY54500644
Keysight Technologies	N9030A	PXA Signal Analyzer	10/16/2020	Annual	10/16/2021	MY54490576
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		11403100002
Rohde & Schwarz	CMU200	Base Station Simulator		N/A		836536/0005
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A		112347	
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	7/15/2020	Annual	7/15/2021	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/9/2020	Annual	9/9/2021	100348
Rohde & Schwarz	ESW44	EMI Test Receiver 2Hz to 44 GHz	1/21/2021	Annual	1/21/2022	101716
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/27/2020	Biennial	7/27/2022	A051107

Table 5-1. Test Equipment

Notes:

- 1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
- 2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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6.0 SAMPLE CALCULATIONS

GSM Emission Designator

Emission Designator = 250KGXW GSM BW = 250 kHz

G = Phase Modulation X = Cases not otherwise coveredW = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 250KG7W EDGE BW = 250 kHz G = Phase Modulation 7 = Quantized/Digital Info

7 = Quantized/Digital Info W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M16F9W WCDMA BW = 4.16 MHz F = Frequency Modulation 9 = Composite Digital Info W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz G = Phase Modulation 7 = Quantized/Digital Info D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D LTE BW = 8.45 MHz W = Amplitude/Angle Modulated 7 = Quantized/Digital Info D = Data transmission, telemetry, telecommand

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm -(-24.80) = 50.3 dBc.

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7.0 TEST RESULTS

7.1 Summary

Company Name:	Telit Communications S.p.A
FCC ID:	RI7LE910CXWWX
IC:	5131A-LE910CXWWX
FCC Classification:	PCS Licensed Transmitter (PCB)
Mode(s):	GSM/GPRS/EDGE/WCDMA/LTE

Test Condition	Test Description	FCC Part Section(s)	RSS Section(s)	Test Limit	Test Result	Reference
	Transmitter Conducted Output Power / Equivalent Isotropic Radiated Power	2.1046, 24.232(c)	RSS-133(4.1), RSS-133(6.4)	< 2 Watts max. EIRP	PASS	Section 7.2
ED	Occupied Bandwidth	2.1049	RSS-Gen(6.7)	N/A	PASS	Section 7.3
CONDUCTED	Conducted Band Edge / Spurious Emissions	2.1051, 24.238(a)	RSS-133(6.5)	> 43 + 10log10(P[Watts]) at Band Edge and for all out-of- band emissions	PASS	Sections 7.4, 7.5
CO	Peak-Average Ratio	24.232(d)	RSS-133(6.4)	< 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 24.235	RSS-133(6.3)	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
VTED	Radiated Spurious Emissions	2.1053, 24.238(a)	RSS-133(6.5)	> 43 + 10 log10 (P[Watts]) for all out-of-band emissions	PASS	Section 7.7
RADIATED	Receiver Radiated Spurious Emissions	N/A	RSS-Gen(7.3), RSS-133 (6.6)	Spurious emissions from receivers shall not exceed the radiated emissions limits detailed in RSS-Gen(7.3)	PASS	Section 7.7

Table 7-1. Summary of Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST EMC Software Tool V1.1.

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7.2 Transmitter Conducted Output Power/ Equivalent Isotropic Radiated Power

Test Overview

The transmitter conducted output power is a measure of the total average power contained within an allocated channel bandwidth. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

ANSI C63.26-2015 - Section 5.2.4.2

Test Settings

All conducted powers were measured using the R&S CMW500's Channel Measurement function.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

The Maximum Effective Isotropic Radiated Power (EIRP) is calculated by adding the declared maximum antenna gain(dBi)

EIRP = Conducted Power(dBm) + Antenna Gain(dBi)

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
		26140	1860.0	1 / 50	23.41	1.68	25.09	0.323	33.01	-7.92
N	QPSK	26365	1882.5	1 / 50	23.37	1.68	25.05	0.320	33.01	-7.96
20 MHz		26590	1905.0	1 / 50	23.40	1.68	25.08	0.322	33.01	-7.93
01		26140	1860.0	1 / 50	22.56	1.68	24.24	0.265	33.01	-8.77
2	16-QAM	26365	1882.5	1 / 50	22.45	1.68	24.13	0.259	33.01	-8.88
		26590	1905.0	1 / 50	22.16	1.68	23.84	0.242	33.01	-9.17
		26115	1857.5	1 / 37	23.82	1.68	25.50	0.355	33.01	-7.51
Z	QPSK	26365	1882.5	1 / 37	23.71	1.68	25.40	0.347	33.01	-7.61
МН		26615	1907.5	1 / 37	23.57	1.68	25.25	0.335	33.01	-7.76
15 MHz		26115	1857.5	1 / 37	22.75	1.68	24.43	0.278	33.01	-8.58
—	16-QAM	26365	1882.5	1 / 0	22.83	1.68	24.51	0.282	33.01	-8.50
		26615	1907.5	1 / 37	22.74	1.68	24.42	0.277	33.01	-8.59
		26090	1855.0	1 / 25	23.56	1.68	25.24	0.334	33.01	-7.77
Z	QPSK	26365	1882.5	1 / 25	23.89	1.68	25.57	0.361	33.01	-7.44
МН		26640	1910.0	1 / 25	23.31	1.68	25.00	0.316	33.01	-8.02
10 MHz		26090	1855.0	1 / 25	22.65	1.68	24.34	0.271	33.01	-8.67
L L	16-QAM	26365	1882.5	1 / 25	22.75	1.68	24.43	0.277	33.01	-8.58
		26640	1910.0	1 / 25	22.34	1.68	24.02	0.252	33.01	-8.99
		26065	1852.5	1 / 12	23.79	1.68	25.48	0.353	33.01	-7.53
Z	QPSK	26365	1882.5	1 / 12	23.37	1.68	25.06	0.321	33.01	-7.95
5 MHz		26665	1912.5	1 / 12	23.15	1.68	24.84	0.305	33.01	-8.17
2 1		26065	1852.5	1 / 12	22.70	1.68	24.38	0.274	33.01	-8.63
	16-QAM	26365	1882.5	1 / 12	22.85	1.68	24.53	0.284	33.01	-8.48
		26665	1912.5	1 / 12	22.58	1.68	24.26	0.267	33.01	-8.75
		26055	1851.5	1 / 7	23.57	1.68	25.26	0.336	33.01	-7.75
N	QPSK	26365	1882.5	1 / 7	23.76	1.68	25.45	0.351	33.01	-7.56
MHz		26675	1913.5	1 / 7	23.63	1.68	25.31	0.340	33.01	-7.70
3 N		26055	1851.5	1 / 7	22.59	1.68	24.28	0.268	33.01	-8.73
	16-QAM	26365	1882.5	1 / 7	22.63	1.68	24.31	0.270	33.01	-8.70
	26675	1913.5	1 / 14	22.71	1.68	24.39	0.275	33.01	-8.62	
		26047	1850.7	1/3	23.70	1.68	25.38	0.345	33.01	-7.63
ž	N QPSK	26365	1882.5	1/3	23.49	1.68	25.18	0.329	33.01	-7.83
4. 16.00M	26683	1914.3	1/3	23.31	1.68	25.00	0.316	33.01	-8.01	
4		26047	1850.7	1/3	22.62	1.68	24.30	0.269	33.01	-8.71
	16-QAM	26365	1882.5	1/5	22.58	1.68	24.27	0.267	33.01	-8.75
		26683	1914.3	1/0	22.14	1.68	23.83	0.241	33.01	-9.18

Table 7-2. EIRP Data (LTE Band 25/2)

Mode	Channel	Frequency [MHz]	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
	512	1850.2	29.48	1.68	31.16	1.306	33.01	-1.85
GSM	661	1880.0	29.62	1.68	31.31	1.351	33.01	-1.71
	810	1909.8	29.74	1.68	31.42	1.388	33.01	-1.59
	512	1850.2	29.33	1.68	31.01	1.263	33.01	-2.00
GPRS	661	1880.0	29.59	1.68	31.28	1.342	33.01	-1.73
	810	1909.8	29.76	1.68	31.44	1.394	33.01	-1.57
	512	1850.2	25.72	1.68	27.40	0.550	33.01	-5.61
EDGE	661	1880.0	25.83	1.68	27.51	0.564	33.01	-5.50
	810	1909.8	25.95	1.68	27.63	0.580	33.01	-5.38

Table 7-3. EIRP Data (GPRS PCS)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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Mode	Channel	Frequency [MHz]	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
	9262	1852.4	24.31	1.68	25.99	0.398	33.01	-7.02
WCDMA (RMC)	9400	1880.0	24.15	1.68	25.83	0.383	33.01	-7.18
(RIVIC)	9538	1907.6	23.86	1.68	25.54	0.358	33.01	-7.47
WCDMA	9262	1852.4	23.86	1.68	25.54	0.358	33.01	-7.47
(AMR)	9400	1880.0	23.73	1.68	25.41	0.348	33.01	-7.60
(/ ((())))	9538	1907.6	23.85	1.68	25.53	0.358	33.01	-7.48
HSDPA	9262	1852.4	22.82	1.68	24.50	0.282	33.01	-8.51
(Subtest1)	9400	1880.0	22.78	1.68	24.46	0.280	33.01	-8.55
(Oublest)	9538	1907.6	22.65	1.68	24.33	0.271	33.01	-8.68
HSDPA	9262	1852.4	22.83	1.68	24.51	0.283	33.01	-8.50
(Subtest2)	9400	1880.0	22.73	1.68	24.41	0.276	33.01	-8.60
(Oublesiz)	9538	1907.6	22.68	1.68	24.36	0.273	33.01	-8.65
HSDPA	9262	1852.4	22.29	1.68	23.97	0.250	33.01	-9.04
(Subtest3)	9400	1880.0	22.33	1.68	24.01	0.252	33.01	-9.00
(Oublesio)	9538	1907.6	22.13	1.68	23.81	0.241	33.01	-9.20
HSDPA	9262	1852.4	22.24	1.68	23.92	0.247	33.01	-9.09
(Subtest4)	9400	1880.0	22.30	1.68	23.98	0.250	33.01	-9.03
(00010314)	9538	1907.6	22.07	1.68	23.75	0.237	33.01	-9.26
HSUPA	9262	1852.4	22.71	1.68	24.39	0.275	33.01	-8.62
(Subtest1)	9400	1880.0	22.77	1.68	24.45	0.279	33.01	-8.56
(Oubicsiti)	9538	1907.6	22.77	1.68	24.45	0.279	33.01	-8.56
HSUPA	9262	1852.4	21.74	1.68	23.42	0.220	33.01	-9.59
(Subtest2)	9400	1880.0	21.85	1.68	23.53	0.226	33.01	-9.48
(00010312)	9538	1907.6	21.76	1.68	23.44	0.221	33.01	-9.57
HSUPA	9262	1852.4	21.76	1.68	23.44	0.221	33.01	-9.57
(Subtest3)	9400	1880.0	21.32	1.68	23.00	0.200	33.01	-10.01
(Sublesis)	9538	1907.6	21.73	1.68	23.41	0.219	33.01	-9.60
HSUPA (Subtest4)	9262	1852.4	22.15	1.68	23.83	0.242	33.01	-9.18
	9400	1880.0	22.23	1.68	23.91	0.246	33.01	-9.10
(Oublesi4)	9538	1907.6	22.28	1.68	23.96	0.249	33.01	-9.05
HSUPA	9262	1852.4	23.09	1.68	24.77	0.300	33.01	-8.24
(Subtest5)	9400	1880.0	22.92	1.68	24.60	0.289	33.01	-8.41
(Sublesis)	9538	1907.6	22.82	1.68	24.50	0.282	33.01	-8.51

Table 7-4. EIRP Data (WCDMA PCS)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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7.3 Occupied Bandwidth

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 4.2

Test Settings

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5% of the expected OBW
- 3. VBW \geq 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. The trace was allowed to stabilize
- 8. If necessary, steps 2 7 were repeated after changing the RBW such that it would be within
 - 1-5% of the 99% occupied bandwidth observed in Step 7

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	POLTEST* Poud to be part of @ element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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LTE Band 25/2

Keysight Spectrum Analyzer	- Occupied B\	N				
LXURL RF 5	0Ω AC	CORREC ↔ #IFGain:Low	SENSE:INT Center Freq: 1.8825 → Trig: Free Run #Atten: 36 dB	ALIGN AUTO 00000 GHz Avg Hold: 100/100	07:24:21 PM May 17, 2021 Radio Std: None Radio Device: BTS	Trace/Detector
Log	0.00 dBr	n				
30.0 20.0 10.0			Mary market and	un and a state of the state of		Clear Write
-10.00					har an	Average
-30.0						Max Hold
Center 1.88250 GH Res BW 470 kHz	Z		#VBW 1.5 M		Span 50.00 MHz Sweep 1 ms	Min Hold
Occupied Ba		th 7.993 M	Total F HZ	ower 31	.9 dBm	Detector Peak▶
Transmit Freq x dB Bandwidt		7.471 19.71 M			99.00 % 5.00 dB	Auto <u>Man</u>
MSG				STAT	US	

Plot 7-1. Occupied Bandwidth Plot (LTE Band 25/2 - 20MHz QPSK - Full RB)

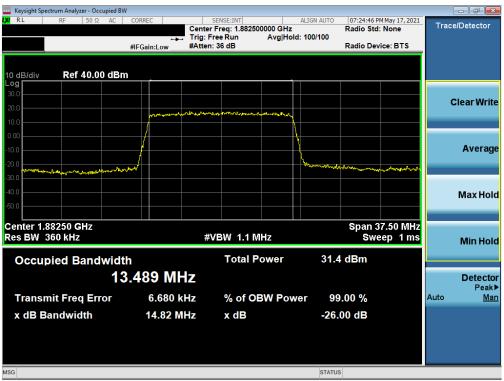


Plot 7-2. Occupied Bandwidth Plot (LTE Band 25/2 - 20MHz 16-QAM - Full RB)

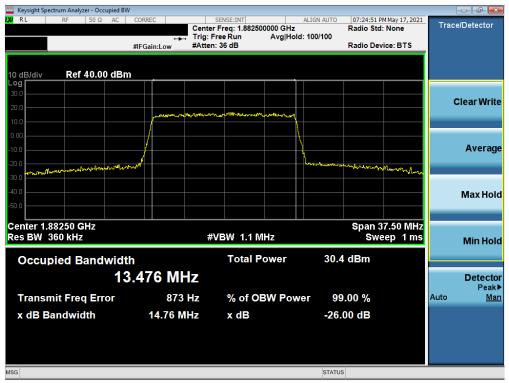
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-3. Occupied Bandwidth Plot (LTE Band 25/2 - 15MHz QPSK - Full RB)



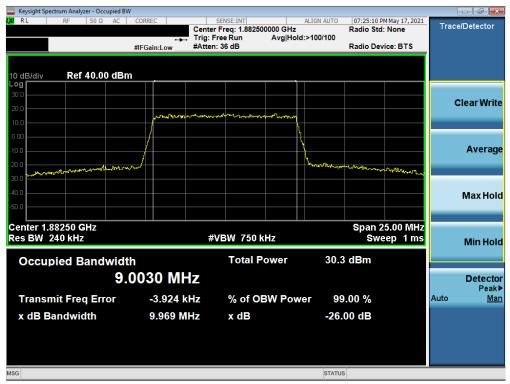
Plot 7-4. Occupied Bandwidth Plot (LTE Band 25/2 - 15MHz 16-QAM - Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	V				
KL RF 50Ω AC	the Tr	SENSE:INT enter Freq: 1.882500000 GH ig: Free Run Avg H itten: 36 dB	ALIGN AUTO Iz Iold: 100/100	07:25:04 PM May 17, 202 Radio Std: None Radio Device: BTS	Trace/Detector
10 dB/div Ref 40.00 dBn	n				
30.0 20.0 10.0		and the second s	· · · · · · · · · · · · · · · · · · ·		Clear Write
0.00 -10.0 -20.0	~		h	hallingen willing and Work and any	Average
-30.0					Max Hold
Center 1.88250 GHz Res BW 240 kHz		#VBW 750 kHz		Span 25.00 MH: Sweep 1 ms	
Occupied Bandwidt		Total Power	31.1	dBm	
9.	0076 MHz				Detector Peak
Transmit Freq Error	4.051 kHz	% of OBW Pc	ower 99	0.00 %	Auto <u>Man</u>
x dB Bandwidth	9.991 MHz	x dB	-26.	00 dB	
ISG			STATU	5	

Plot 7-5. Occupied Bandwidth Plot (LTE Band 25/2 - 10MHz QPSK - Full RB)



Plot 7-6. Occupied Bandwidth Plot (LTE Band 25/2 - 10MHz 16-QAM - Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	Poud to be part of @ element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-7. Occupied Bandwidth Plot (LTE Band 25/2 - 5MHz QPSK - Full RB)



Plot 7-8. Occupied Bandwidth Plot (LTE Band 25/2 - 5MHz 16-QAM - Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-9. Occupied Bandwidth Plot (LTE Band 25/2 - 3MHz QPSK - Full RB)



Plot 7-10. Occupied Bandwidth Plot (LTE Band 25/2 - 3MHz 16-QAM - Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST* Proud to be part of @ element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-12. Occupied Bandwidth Plot (LTE Band 25/2 - 1.4MHz 16-QAM - Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	Poud to be part of @ element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
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GSM/GPRS PCS



Plot 7-13. Occupied Bandwidth Plot (GPRS, Ch. 661)



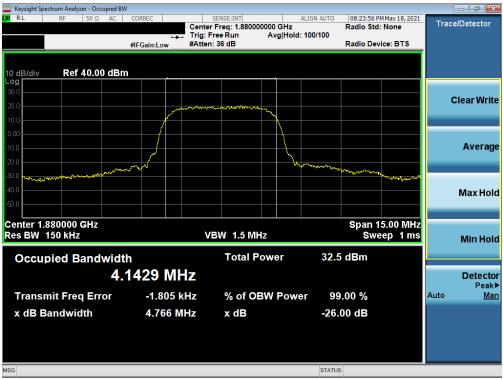
Plot 7-14. Occupied Bandwidth Plot (EDGE, Ch. 661)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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WCDMA PCS



Plot 7-15. Occupied Bandwidth Plot (WCDMA, Ch. 9400)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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7.4 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + 10 \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to 20GHz (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 4. Sweep time = auto couple
- 5. The trace was allowed to stabilize
- 6. Please see test notes below for RBW and VBW settings

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

Per Part 24 and RSS-133, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1MHz for measurements above 1GHz.. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth 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 emission are attenuated at least 26 dB below the transmitter power.

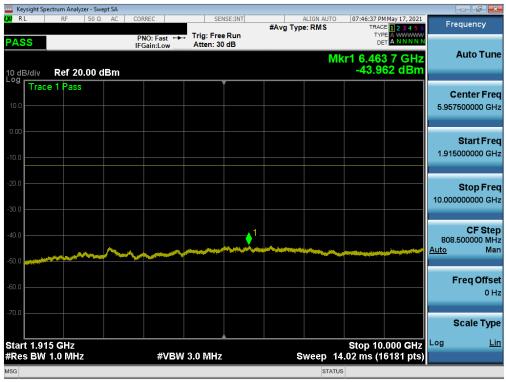
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	Postest*	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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LTE Band 25/2

weysight Spectrum Analyzer - Swept SA								x
LX RL RF 50Ω AC	CORREC	SENSE:INT	#Avg Typ	ALIGN AUTO e: RMS		May 17, 2021	Frequency	
PASS		rig: Free Run tten: 30 dB	0,1		TYP			
10 dB/div Ref 20.00 dBm				Μ	kr1 1.84 -48.	6 5 GHz 84 dBm	Auto Tu	ine
Log Trace 1 Pass		Ĭ					Center Fr	rea
10.0							939.500000 N	
0.00								
							Start Fr	
-10.0							30.000000 N	IHz
-20.0							Stop Fr	
							1.849000000 G	
-30.0								
-40.0							CF St 181.900000 N	
						1		/lar
-50.0		r	and a second	1				
-60.0							Freq Off	set Hz
-70.0								
-70.0							Scale Ty	pe
Start 0.0300 GHz					Stop 1.8	8490 GHz	Log	Lin
#Res BW 1.0 MHz	#VBW 3.0	MHz		Sweep	2.425 ms (3639 pts)		
MSG				STATU	JS			





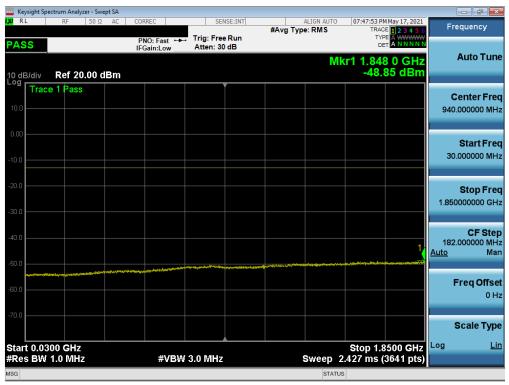
Plot 7-17. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Low Channel)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST* Proud to be part of @element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 25 of 86	
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	ectrum Analyzer - Sw										
LXU RL	RF 50 S		ORREC		ISE:INT	#Avg Typ	ALIGN AUTO	TRAC	M May 17, 2021	Fre	quency
PASS			PNO: Fast 🔸 FGain:Low	Trig: Free Atten: 10				DE			
10 dB/div	Ref 0.00 d	Bm					Mk	r1 18.26 -53.9	6 5 GHz 80 dBm		Auto Tune
Log Trac	e 1 Pass									C	enter Freq
-10.0										15.000	000000 GHz
-20.0											Start Freq
-30.0											000000 GHz
-40.0											
-40.0											Stop Freq
-50.0											
-60.0		معامدهسا	-		~~~~~	-					CF Step
-70.0										<u>Auto</u>	Man
-80.0										F	req Offset
											0 Hz
-90.0										S	cale Type
Start 10.0	000 GHz							Stop 20	.000 GHZ	Log	Lin
#Res BW	1.0 MHz		#VBW	3.0 MHz		s	weep 2	5.33 ms (2	0001 pts)		
MSG							STATU	s			

Plot 7-18. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Low Channel)



Plot 7-19. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Mid Channel)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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🚾 Keysight Spectrum Analyzer - Swept SA					
LX RL RF 50Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	07:48:04 PM May 17, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS		Trig: Free Run Atten: 30 dB	- //	DET A NNNNN	
			Mk	r1 6.456 7 GHz	Auto Tune
10 dB/div Ref 20.00 dBm				-43.912 dBm	
Log Trace 1 Pass		Ĭ			Center Freq
10.0					5.957500000 GHz
0.00					Start Freq
-10.0					1.915000000 GHz
-10.0					
-20.0					Stop Freq
					10.000000000 GHz
-30.0					
(0.0)		.1			CF Step
-40.0					808.500000 MHz <u>Auto</u> Man
-50.0	\sim				Auto Mari
					Freq Offset
-60.0					0 Hz
70.0					
-70.0					Scale Type
Start 1.915 GHz #Res BW 1.0 MHz	#VBW 3	.0 MHz	Sween 14	Stop 10.000 GHz .02 ms (16181 pts)	
MSG			STATUS		

Plot 7-20. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Mid Channel)



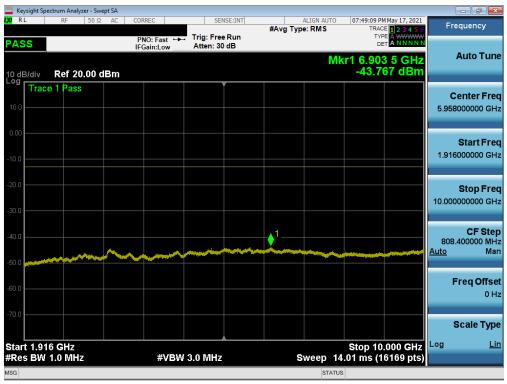
Plot 7-21. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Mid Channel)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	Potest (electered	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 27 of 96
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🔤 Keysight Spectrum Analyzer						
LXIRL RF 5	0Ω AC CORREC	SENS	E:INT #Ava	ALIGN AUTO Type: RMS	07:48:57 PM May 17, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS	PNO: Fa IFGain:L	ast ↔ Trig: Free ow Atten: 30 o	Run	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
10 dB/div Ref 20.0	0 dBm			Mk	r1 1.847 0 GHz -48.82 dBm	Auto Tune
10.0 Trace 1 Pass						Center Freq 940.000000 MHz
-10.0						Start Freq 30.000000 MHz
-20.0						Stop Freq 1.85000000 GHz
-30.0					1	CF Step 182.000000 MHz <u>Auto</u> Man
-50.0	and a state of the	Anne-alterian formular rankon and	en og synderson og gynder om ander for synderska	jewiekowi zajęce opierał w dowielemieja	an a	Freq Offset 0 Hz
-70.0						Scale Type
Start 0.0300 GHz #Res BW 1.0 MHz	#	VBW 3.0 MHz		Sweep 2	Stop 1.8500 GHz .427 ms (3641 pts)	
MSG				STATUS		

Plot 7-22. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - High Channel)



Plot 7-23. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - High Channel)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of the element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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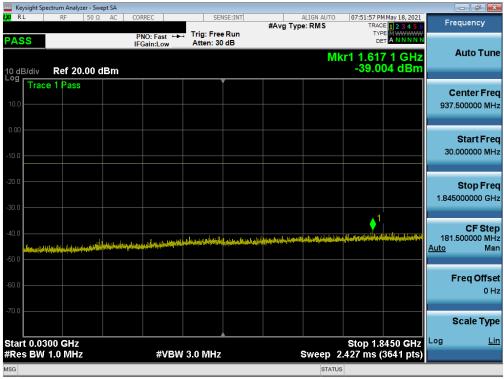
🚾 Keysight Spectrum Analyzer - Sv					
LXU RL RF 50 S	2 AC CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	07:49:23 PM May 17, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS	PNO: Fast ++ IFGain:Low	Trig: Free Run Atten: 10 dB			
10 dB/div Ref 0.00 d	Bm		Mkr	1 18.313 5 GHz -53.943 dBm	Auto Tune
-10.0					Center Freq 15.00000000 GHz
-20.0					Start Freq 10.000000000 GHz
-40.0				1	Stop Freq 20.00000000 GHz
-60.0	n an				CF Step 1.00000000 GHz <u>Auto</u> Man
-80.0					Freq Offset 0 Hz
-90.0					Scale Type
Start 10.000 GHz #Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 25	Stop 20.000 GHz 5.33 ms (20001 pts)	
MSG			STATUS		

Plot 7-24. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - High Channel)

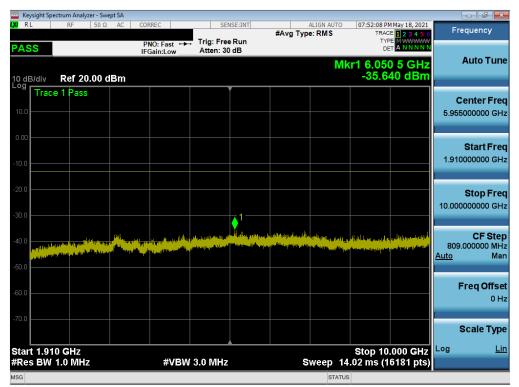
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	Poud to be past of @ element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 29 of 86
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GSM/GPRS PCS



Plot 7-25. Conducted Spurious Plot (GPRS Ch. 512)



Plot 7-26. Conducted Spurious Plot (GPRS Ch. 512)

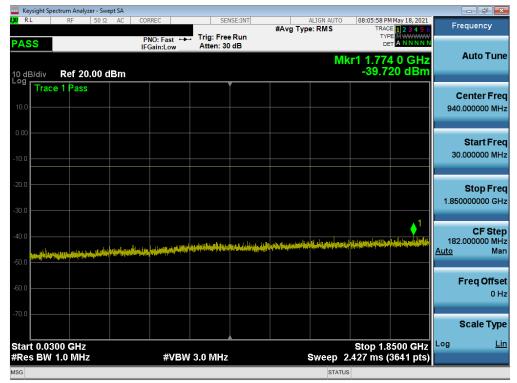
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Swept SA						
XIRL RF 50Ω AC	CORREC	SENSE:INT	ALIGN AU #Avg Type: RMS	TRAC	May 18, 2021	Frequency
PASS		: Free Run ten: 30 dB				
			N	lkr1 18.70	7 0 GHz	Auto Tune
10 dB/div Ref 0.00 dBm				-26.1	49 dBm	
Trace 1 Pass		Ĭ				Center Fred
-10.0						15.00000000 GH
-20.0				1		Start Fred
-30.0			A statistical sector	alasan kilalaring produjes	and the light of the statest	10.00000000 GHz
	A REAL PROPERTY AND A REAL				and the second	
-40.0	a la se de constitue de la dela della d					Stop Fred
						20.00000000 GH
-50.0						
-60.0						CF Step
						1.000000000 GH Auto Mar
-70.0						
						Freq Offse
-80.0						он:
-90.0						
						Scale Type
Start 10.000 GHz				Stop 20	.000 GHz	Log <u>Lir</u>
#Res BW 1.0 MHz	#VBW 3.01	MHz	Sweep	25.33 ms (2	0001 pts)	
MSG			ST	ATUS		





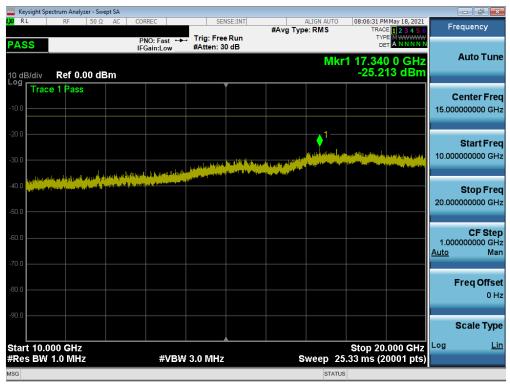
Plot 7-28. Conducted Spurious Plot (GPRS Ch. 661)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ctrum Analyze		SA								
L <mark>XI</mark> RL	RF	50Ω A	AC CO	RREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	May 18, 2021	Frequency
PASS				NO:Fast ↔ Gain:Low	Trig: Fre Atten: 3				DE		Auto Tun
10 dB/div Log	Ref 20.0	00 dBi	m					M	(r1 3.64) -35.5	3 0 GHz 35 dBm	Auto Tun
Trace	e 1 Pass					Ĭ					Center Fre
10.0											5.955000000 GH
0.00											Start Fre
-10.0											1.910000000 GH
-20.0											Stop Fre
-30.0			1								10.00000000 GH
-40.0	a a da serie a da serie da se	Contra Co		i e _{terri} elimitere d ^{et}		i kapifaliyini surah		an a	, Januar, jasa	and the second thread	CF Ste
-50.0	and the second second		and the second	(Mandi Shinghadi)							<u>Auto</u> Ma
-60.0											Freq Offse
-70.0											0 H
-7010											Scale Typ
Start 1.91 #Res BW				#VB۱	V 3.0 MHz		s	weep 14	Stop 10 .02 ms (1	.000 GHz 6181 pts)	Log <u>Li</u>
MSG								STATU			

Plot 7-29. Conducted Spurious Plot (GPRS Ch. 661)



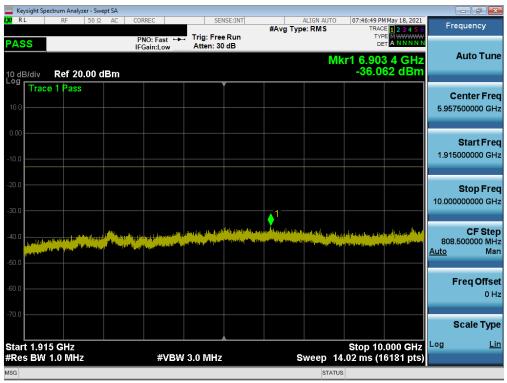
Plot 7-30. Conducted Spurious Plot (GPRS Ch. 661)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	POLICE ST.	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analyzer - Swept										
L <mark>XI</mark> RL	RF 50 Ω	AC CORF	REC	SEI	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS		MMay 18, 2021	Freque	ncy
PASS			O: Fast ↔ ain:Low	Trig: Free Atten: 30				TYP			
10 dB/div Log	Ref 20.00 dE	3m					M	kr1 1.24 -39.8	1 0 GHz 94 dBm	Auto	o Tune
10.0	e 1 Pass									Cento 940.0000	e r Freq 100 MHz
-10.0											rt Freq 100 MHz
-20.0										Sto 1.8500000	p Freq 000 GHz
-40.0		ps, ighti kapang juga	and the second secon	dimpilizati la tu	in the statistic for the statistic statistics of the state of the stat	1 Antipersonal Particular Antipersonal Particular	an in the state of the	ling and the second	folgesky steensbyld	C 182.0000 <u>Auto</u>	F Step 00 MHz Man
-60.0										Freq	Offset 0 Hz
-70.0 Start 0.03								Stop 1.8	3500 GHz		e Type <u>Lin</u>
#Res BW	1.0 MHz		#VBW	/ 3.0 MHz				_	3641 pts)		
MSG							STATU	s			

Plot 7-31. Conducted Spurious Plot (GPRS Ch. 810)





FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	POLICE ST.	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	pectrum Analy		pt SA										d x
X/RL	RF	50 Ω	AC	CORREC		SEN	SE:INT	#Avg Ty	ALIGN AUTO	TRAC	MMay 18, 2021	Freque	ency
PASS				PNO: F IFGain:l	ast ↔→ ₋ow_	Trig: Free #Atten: 30		- //		TY			
10 dB/div	Ref 0.	00 dB	m						MI	(r1 17.49) -26.2	2 0 GHz 14 dBm	Au	to Tune
- ^{og} Tra	ce 1 Pass	;										Cent	ter Fre
-10.0												15.000000	000 GH
20.0									L				
									• • • • • • • • • • • • • • • • • • •	and the particulation of the		Sta 10.000000	art Free
-30.0					اس من	and the state of the	nya kanan ingi ya Manan ka	an (dan yang di katang mengerakan) An sebagai katang di katang mengerakan An sebagai katang di katang mengerakan				10.000000	000 GH
40.0	adha daatad	an an Arail An Anna Arail	an Kurda Van Kar	andra internation and an internation	ine of the last	und particular	1997 U. 1. 9 (81)					St	op Fre
												20.000000	
50.0													
-60.0												(1.000000	CF Ste
-70.0												<u>Auto</u>	Ма
70.0												Ero	q Offse
80.0												FIE	0 H 0
-90.0													
												Sca	le Typ
	000 GHz										.000 GHZ	Log	Li
#Res BW	1.0 MH	z		3	#VBW	3.0 MHz			Sweep 2	25.33 ms (2	0001 pts)		
SG									STAT	ับร			

Plot 7-33. Conducted Spurious Plot (GPRS Ch. 810)

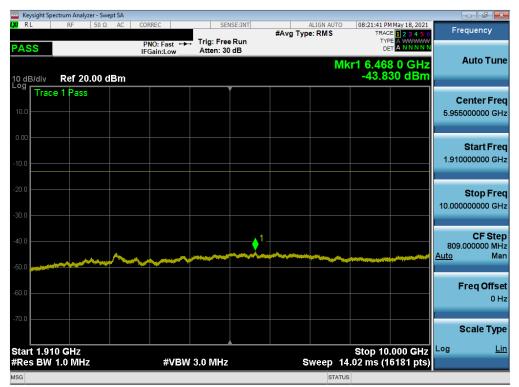
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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WCDMA PCS

	ctrum Analyz	er - Swep	ot SA										
XU RL	RF	50 Ω	AC	CORREC	ast ↔	Trig: Free		#Avg Typ	ALIGN AUTO e: RMS	TRAC	MMay 18, 2021 E 1 2 3 4 5 6 PE A WWWWW T A N N N N N	Fr	equency
PASS	Ref 20	.00 dl	Bm	IFGain:I	ow	Atten: 30) dB		M	(r1 1.84	4 5 GHz 78 dBm		Auto Tune
Log Trace	e 1 Pass												Center Fred 500000 MH
10.00												30	Start Free
30.0												1.84	Stop Fre 5000000 GH
40.0											1 →	181 <u>Auto</u>	CF Stej .500000 MH Ma
60.0	لياند عامج مراميد وردو زعدا	angel and ages			and an	1440 ⁶ -880-994999						_	F req Offse 0 H
70.0 Start 0.03 #Res BW					έVΒ\Δ	3.0 MHz			Sween_2	Stop 1.3	3450 GHz (3641 pts)	Log	Scale Type Lir
ISG	110 11112					010-11112			STATUS		oo in proj		

Plot 7-34. Conducted Spurious Plot (WCDMA Ch. 9262)



Plot 7-35. Conducted Spurious Plot (WCDMA Ch. 9262)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analy		pt SA										
KI RL	RF	50 Ω	AC	CORREC		SEN	ISE:INT	#Avg Typ	ALIGN AUT		TRACE 1 2 3 4 5 6	Fr	equency
PASS				PNO: F IFGain:I	ast ↔ Low	Trig: Free Atten: 10		• ,,			TYPE A WWWWW DET A NNNN		
									Μ	kr1 18.	269 5 GHz		Auto Tune
l0 dB/div _og	Ref 0.		m						-	-ə.	3.879 dBm		
Irac	e 1 Pass											c	enter Fre
-10.0												15.000	0000000 GH
-20.0													
-20.0													Start Free
30.0												10.000	0000000 GH
-40.0													Stop Fre
-50.0										1_		20.000	0000000 GH
60.0						and the second division of the second divisio	~~~~	-		<u> </u>		1.000	CF Ste 0000000 GH
-		~~~			and a second second							Auto	Ma
70.0													
80.0												1	Freq Offse
00.0													0 H
-90.0													
													Scale Typ
Start 10.0										Stop	20.000 GHZ	Log	Li
#Res BW	1.0 MHz	Z			#VBW	3.0 MHz		S	weep	25.33 m	s (20001 pts)		
ISG									ST	ATUS			





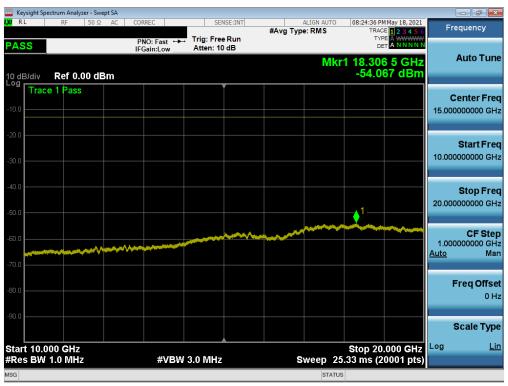
Plot 7-37. Conducted Spurious Plot (WCDMA Ch. 9400)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
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	ectrum Analyzer									
LX/IRL	RF 5	OΩ AC	CORREC		SENSE:INT	#Avg Tv	ALIGN AUTO		May 18, 2021	Frequency
PASS			PNO: Fast IFGain:Lov		: Free Run en: 30 dB	• • •		TYP		
10 dB/div Log	Ref 20.0	0 dBm					Μ	kr1 6.468 -44.0	3 0 GHz 53 dBm	Auto Tune
10.0	e 1 Pass									Center Freq 5.955000000 GHz
-10.0										Start Freq 1.910000000 GHz
-20.0										Stop Freq 10.000000000 GHz
-40.0	and a second	_~_	~~~	~~~						CF Step 809.00000 MHz <u>Auto</u> Man
-60.0										Freq Offset 0 Hz
-70.0 Start 1.91	0 GH7							Stop 10	.000 GHz	Scale Type
#Res BW			#V	'BW 3.0 I	٧Hz		Sweep 1	4.02 ms (1	000 0112	
MSG							STATU	IS		

Plot 7-38. Conducted Spurious Plot (WCDMA Ch. 9400)



Plot 7-39. Conducted Spurious Plot (WCDMA Ch. 9400)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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		nalyzer - Swe										_	
L <mark>XI</mark> RL	RF	50 Ω	AC	CORREC		SEI	ISE:INT	#Avg	ALIGN AUTO Type: RMS		M May 18, 2021	Fre	quency
PASS				PNO: Fa		Trig: Free Atten: 30				TY D			Auto Tune
10 dB/div Log	Ref	20.00 d	IBm						M	kr1 1.81 -49.	4 0 GHz 20 dBm	,	auto i une
Tra	ice 1 Pa	ass										C	enter Freg
10.0												940.0	000000 MHz
0.00													
0.00													Start Freq
-10.0												30.0	00000 MHz
-20.0													
20.0													Stop Freq
-30.0													
-40.0													CF Step
											4	182.0 <u>Auto</u>	000000 MHz Man
-50.0		۲۰۰۶، مقیمت			محرفي منتقاربتها	and the second	and the first state of the stat	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	and the second	ayyyyaana faataana ahayy	an a		_
-60.0												F	r eq Offset 0 Hz
													0112
-70.0												s	cale Type
Start 0.0										Stop 1.3	8500 GHz	Log	Lin
#Res BV	N 1.0 N	lHz		#	¢VB₩	3.0 MHz			Sweep	2.427 ms ((3641 pts)		
MSG									STATU	s			

Plot 7-40. Conducted Spurious Plot (WCDMA Ch. 9538)





FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
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Keysight Spectrun										
XI RL F	RF 50 Ω	AC CO	IRREC	SEI	ISE:INT	#Avg Typ	ALIGN AUT		M May 18, 2021	Frequency
PASS			NO:Fast ↔ Gain:Low	Trig: Free Atten: 10		- //		TY D		Auto Tur
10 dB/div Ro	ef 0.00 dB	m					Μ	kr1 18.29 -53.8	4 5 GHz 75 dBm	Auto Tun
Trace 1	Pass									Center Fre
-10.0										15.00000000 GH
-20.0										
										Start Fre 10.000000000 GH
-30.0										10.00000000 GH
-40.0										Stop Fre
								. 1		20.000000000 GH
-50.0										
-60.0					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and the second designed the second designed and the se				CF Ste 1.00000000 GH
-70.0		~~~								<u>Auto</u> Ma
										Freq Offse
-80.0										0 Н
-90.0										
										Scale Typ
Start 10.000 #Res BW 1.0			#\/P)	V 3.0 MHz			ween	Stop 20 25.33 ms (2	.000 GHZ	Log <u>Li</u>
WSG			7# V D V	V D.V IVINZ					20001 pts)	

Plot 7-42. Conducted Spurious Plot (WCDMA Ch. 9538)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of the element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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7.5 Band Edge Emissions at Antenna Terminal

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + 10 \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW \geq 1% of the emission bandwidth
- 4. VBW \geq 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-4. Test Instrument & Measurement Setup

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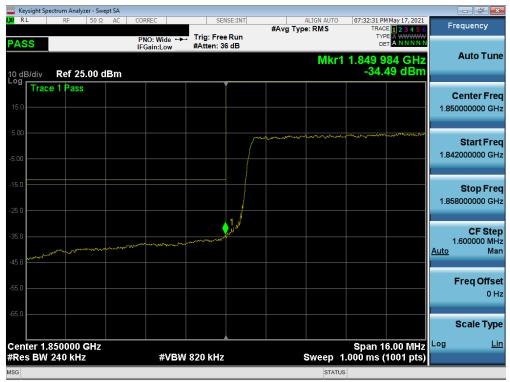
Test Notes

Per 24.238(a) and RSS-133(6.5), in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth 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 emission are attenuated at least 26 dB below the transmitter power.

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LTE Band 25/2



Plot 7-43. Lower Band Edge Plot (LTE Band 25/2 - 20MHz QPSK - Full RB)



Plot 7-44. Extended Lower Band Edge Plot (LTE Band 25/2 - 20MHz QPSK - Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST* Proud to be part of @eliterarti	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analyze												
X/RL	RF	50 Ω	AC	CORREC		SEI	ISE:INT	#Avg Typ	ALIGN AUTO		M May 17, 2021	Fr	equency
PASS				PNO: W IFGain:I	lide ↔ ∟ow	Trig: Free #Atten: 3				TYI DI			
10 dB/div	Ref 25.	00 dE	3m						Mkr	1 1.910 0 -30.	00 GHz 46 dBm		Auto Tune
Log Trac	e 1 Pass					· · · · · · · · · · · · · · · · · · ·						c	enter Freq
15.0												1.910	000000 GHz
5.00	mmm	ma	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mm	᠕ᠰ᠆᠕ᡟ	M							Start Free
-5.00												1.902	2000000 GH2
-15.0													Stop Free
-25.0						ł	4					1.918	8000000 GH
						Myr.	www.comercomerce	MANA AN					CF Ster
-35.0											- When	1 <u>Auto</u>	.600000 MH: Mar
-45.0													
-55.0												F	Freq Offse 0 Hi
-65.0													
													Scale Type
Center 1. #Res BW		Hz			#VBW	820 kHz			Sweep	Span 1 1.000 ms (6.00 MHz 1001 pts)	Log	Lir
ASG	ETV KIIZ					020 MI12			STAT		reer proj		

Plot 7-45. Upper Band Edge Plot (LTE Band 2 - 20MHz QPSK - Full RB)



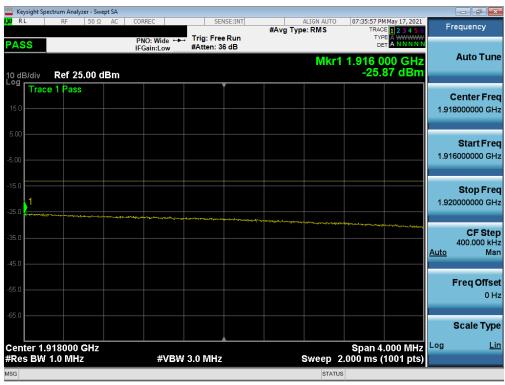
Plot 7-46. Extended Upper Band Edge Plot (LTE Band 2 - 20MHz QPSK - Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of @ element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
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	ectrum Analyzer - S									
LXI RL	RF 50	Ω AC	CORREC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO		May 17, 2021	Frequency
PASS			PNO: Wide ++ IFGain:Low	Trig: Free #Atten: 3				TYPE		
10 dB/div Log	Ref 25.00	dBm					Mkr1	1.915 0 -30.4	64 GHz I8 dBm	Auto Tune
15.0 Trac	e 1 Pass									Center Freq 1.915000000 GHz
-5.00	and the second sec	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	no mar nome							Start Freq 1.907000000 GHz
-15.0					<u> </u>					Stop Freq 1.923000000 GHz
-35.0				· · · · · · · · · · · · · · · · · · ·		m		Hard Margan Contra	When the second se	CF Step 1.600000 MHz <u>Auto</u> Man
-55.0										Freq Offset 0 Hz
-65.0										Scale Type
Center 1. #Res BW	915000 GH: 240 kHz	Z	#VBW	/ 820 kHz			Sweep 1	Span 16 000 ms (1	5.00 MHz 1001 pts)	Log <u>Lin</u>
MSG							STATUS			

Plot 7-47. Upper Band Edge Plot (LTE Band 25 - 20MHz QPSK - Full RB)



Plot 7-48. Extended Upper Band Edge Plot (LTE Band 25 - 20MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of the element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analyz											×
L <mark>XI</mark> RL	RF	50Ω A	AC CO	RREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO	07:36:12 PM TRACE	May 17, 2021	Frequency	
PASS				NO: Wide ↔ Gain:Low	, Trig: Fre #Atten: 3		#118 JP		TYPE DET	A WWWWW A N N N N N	Auto To	
10 dB/div	Ref 25	.00 dBi	m					Mkr1	1.849 98 -34.6	88 GHz 8 dBm	Auto Tu	ine
Log Trac	e 1 Pass					Ĭ					Center Fi	ron
15.0											1.850000000	
5.00						m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Start Fr	req
-5.00											1.844000000	;Hz
-15.0											Stop Fr	req
-25.0											1.856000000 0	
-23.0						1 1						
-35.0					and and and the	<u>/</u>					CF St 1.20000 M	
-45.0	warman and the second s		garant ye									Man
-45.0												
-55.0											Freq Off	
											0	Hz
-65.0											Scale Ty	/De
											-	
Center 1. #Res BW				#)(B)4	/ 620 kHz			Swoon-4	Span 12 .000 ms (1	2.00 MHz	Log	Lin
#Res BW	TOU KHZ			#VBV	Y UZU KHZ			Sweep		oo r pis)		
Nou								STATUS				

Plot 7-49. Lower Band Edge Plot (LTE Band 25/2 - 15MHz QPSK - Full RB)



Plot 7-50. Extended Lower Band Edge Plot (LTE Band 25/2 - 15MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of the element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analyz												J X
XI RL	RF	50 Ω	AC	CORREC		SE	ISE:INT	#Avg Ty	ALIGN AUTO		M May 17, 2021	Frequen	су
PASS				PNO: W IFGain:l	lide ↔ ₋ow	Trig: Fre #Atten: 3				TY D		0	T
10 dB/div	Ref 25	.00 dE	Зm						Mkr	1.910 (-30.)36 GHz 27 dBm	Auto	Tune
Trace	e 1 Pass											Cente	r Frea
15.0												1.9100000	
5.00													
5.00	m	~~~~~	\sim	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	my						Star	t Freq
-5.00												1.90400000	00 GHz
-15.0													Freq
-25.0							1					1.91600000	00 GHz
							mary		m.			CE	Step
35.0							·				hora and	1.20000	DO MHZ
45.0												<u>Auto</u>	Man
												Freq	Offect
55.0												Fiequ	0 Hz
65.0													_
												Scale	туре
Center 1.9	010000 (247								Snan 1	2.00 MHz	Log	Lin
#Res BW				1	#VBW	620 kHz			Sweep	1.000 ms	(1001 pts)		
ISG									STATU	IS			

Plot 7-51. Upper Band Edge Plot (LTE Band 2 - 15MHz QPSK - Full RB)



Plot 7-52. Extended Upper Band Edge Plot (LTE Band 2 - 15MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analyz												
X/RL	RF	50 Ω	AC	CORREC			ISE:INT	#Avg	ALIGN AUTO Type: RMS	TRA	CE 1 2 3 4 5 6	Fr	equency
PASS				PNO: Wi IFGain:L	ide ↔ .ow	Trig: Fre #Atten: 3				C			Auto Tune
10 dB/div Log	Ref 25	.00 dE	3m						Mkr	1 1.915 (-29.	012 GHz 44 dBm		Auto Tune
Trac	e 1 Pass											c	enter Freq
15.0												1.91	5000000 GHz
5.00		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	,	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m							Start Freq
-5.00												1.909	9000000 GHz
15.0													_
-15.0												1.92	Stop Freq 1000000 GHz
-25.0						why	1						
-35.0								~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	Mar Mary		1	CF Step .200000 MHz
-45.0												<u>Auto</u>	Man
55.0													Freq Offset
-55.0													0 Hz
-65.0													Scale Type
Center 1.	915000.0	SH7								Snan	12.00 MHz		Lin
#Res BW				#	VBW	620 kHz			Sweep	1.000 ms	(1001 pts)		
MSG									STAT	US			

Plot 7-53. Upper Band Edge Plot (LTE Band 25 - 15MHz QPSK - Full RB)



Plot 7-54. Extended Upper Band Edge Plot (LTE Band 25 - 15MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ctrum Analyzer -									
XIRL	RF 5	OΩ AC	CORREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO	07:39:08 PM May TRACE		Frequency
PASS			PNO: Wide ↔ IFGain:Low	Trig: Fre #Atten: 3		#/ (8 1) P				
10 dB/div Log	Ref 25.0	0 dBm					Mkr1	1.849 968 -31.35	GHz dBm	Auto Tune
Trace	e 1 Pass				Í					Center Freq
15.0										1.850000000 GHz
5.00										
5.00					~~~	and the set of the		and warmen and a set	man	Start Freq
-5.00										1.846000000 GHz
-15.0										Stop Freq
-25.0					<u> </u>					1.854000000 GHz
-23.0					1 8 2					
-35.0			mare and	and and a start of the start of	1'					CF Step 800.000 kHz
and the second sec	and marked and	No terre a	Constant of the second s						4	Auto Man
-45.0										
-55.0										Freq Offset
										0 Hz
-65.0										
										Scale Type
Center 1.8		z			•			Span 8.00	0 MHz	_og <u>Lin</u>
#Res BW	120 kHz		#VBW	/ 430 kHz			Sweep 4	.000 ms (100	1 pts)	
MSG							STATUS	3		

Plot 7-55. Lower Band Edge Plot (LTE Band 25/2 - 10MHz QPSK - Full RB)



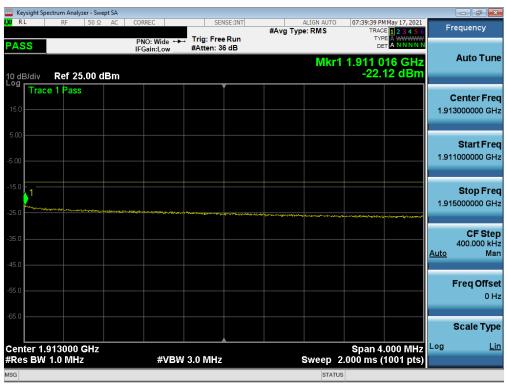
Plot 7-56. Extended Lower Band Edge Plot (LTE Band 25/2 - 10MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of the element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	pectrum Analyze	er - Swept S/	A										
K <mark>I</mark> RL	RF	50 Ω A	C COR	REC		SEI	ISE:INT	#Avg Tv	ALIGN AUTO		M May 17, 2021	F	requency
PASS			PN IFC	IO: Wide Sain:Low		ig: Free tten: 3		• •		TY	PE A WWWWW ET A N N N N N		
I0 dB/div	Ref 25.	00 dBn	n						Mkr	1 1.910 (-30.1	00 GHz 28 dBm		Auto Tune
og Trac	e 1 Pass												Center Fred
5.00	anad Marcandar		softwork and the second se	ner (trading and the	many							1.90	Start Free 6000000 GH
-15.0						In the second se	×1					1.91	Stop Fred 4000000 GH
35.0							and a strate	nter the states	Mananana	and and the production of the second se	a kangalan na padaw	<u>Auto</u>	CF Step 800.000 kH Mar
45.0 <u></u> 55.0 <u></u>													Freq Offse 0 H
65.0													Scale Type
	.910000 G 120 kHz			#VE	3W 430) kHz			Sweep	Span 8 4.000 ms (.000 MHz (1001 pts)	Log	Lir
ISG									STATU				

Plot 7-57. Upper Band Edge Plot (LTE Band 2 - 10MHz QPSK - Full RB)



Plot 7-58. Extended Upper Band Edge Plot (LTE Band 2 - 10MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ctrum Analyz												
X/RL	RF	50 Ω	AC	CORREC		SEI	ISE:INT	#Avg Ty	ALIGN AUTO		May 17, 2021	Fr	equency
PASS				PNO: W IFGain:L	ide ↔ .ow_	Trig: Free #Atten: 3			Mice	TYF DE			Auto Tune
10 dB/div Log	Ref 25.	.00 dE	3m						WIKI	1 1.915 0 -28.	78 dBm		
Trace	e 1 Pass											C	enter Freq
15.0												1.91	5000000 GHz
5.00 mph/htm	and a construction of the second s	s and the second se	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	water and	man	min							Start Freq
-5.00												1.91	1000000 GHz
-15.0													Stop Freq
-25.0						<u>لم</u>	1					1.91	9000000 GHz
						. 16	hallow allow and	L					CF Step
35.0										Variation and Mark	non man men	<u>Auto</u>	800.000 kHz Mar
-45.0													
-55.0													F req Offset 0 Hz
65.0													
													Scale Type
Center 1.9 #Res BW				#	¢VBW	430 kHz			Sweep	Span 8 4.000 ms (.000 MHz 1001 pts)	Log	<u>Lin</u>
MSG									STATU				

Plot 7-59. Upper Band Edge Plot (LTE Band 25 - 10MHz QPSK – Full RB)



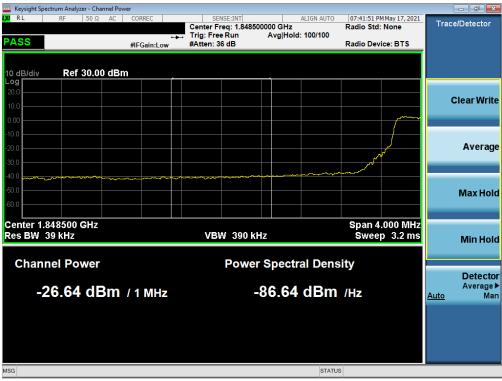
Plot 7-60. Extended Upper Band Edge Plot (LTE Band 25 - 10MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of the element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ctrum Analyz												- 0 ×
X/RL	RF	50 Ω	AC	CORREC		SEI	NSE:INT	#Avg Typ	ALIGN AUTO		May 17, 2021	Fr	equency
PASS				PNO: W IFGain:	/ide ↔ Low	Trig: Free #Atten: 3		#7 (* B ·) -		TYF De			Auto Tune
10 dB/div Log	Ref 25.	00 dE	3m						Mkr1	1.849 9 -27.	92 GHz 53 dBm		Auto Tune
Trace	e 1 Pass						Í					c	enter Freg
15.0													0000000 GHz
5.00													
5.00										har war			Start Freq
-5.00												1.848	8000000 GHz
-15.0													Stop Freq
-25.0							1/					1.852	2000000 GHz
23.0													
-35.0					~~~~	\sim							CF Step 400.000 kHz
~~~~	$\sim \sim \sim$	~~~~										<u>Auto</u>	Mar
-45.0													
-55.0												F	req Offset
													0 Hz
-65.0													
													Scale Type
Center 1.8		Hz								Span 4	000 101112	Log	Lin
#Res BW	62 kHz				#VBW	220 kHz			Sweep 2	.000 ms (	1001 pts)		
MSG									STATUS	6			

Plot 7-61. Lower Band Edge Plot (LTE Band 25/2 - 5MHz QPSK - Full RB)



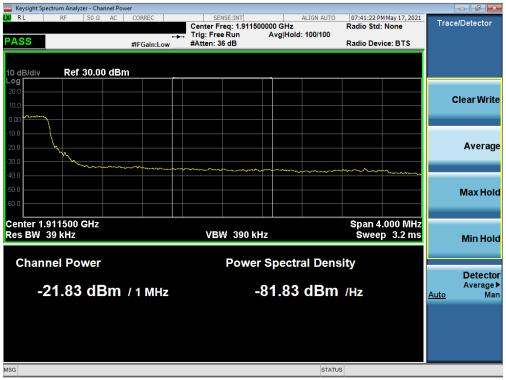
Plot 7-62. Extended Lower Band Edge Plot (LTE Band 25/2 - 5MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analy												
RL	RF	50 Ω	AC	CORREC		SE	NSE:INT	#Avg Typ	ALIGN AUTO		M May 17, 2021	F	requency
ASS				PNO: IFGain	Wide ↔ ∺Low	Trig: Fre #Atten: 3				TY			
dB/div	Ref 25	5.00 d	Bm						Mkr	1.910 ( -27.	)04 GHz 68 dBm		Auto Tui
Trac	e 1 Pass	;					Ĭ						0 <b>.</b>
5.0													Center Fr 10000000 G
												1.9	0000000
	$\sqrt{-1}$	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~							
													Start Fr
00						$\rightarrow$						1.90	8000000 G
5.0													Stop Fr
						vy	1					1.91	2000000 G
i.0						h	m.						
5.0							"h~~~~	mon	h	m			CF St
												Auto	400.000 k M
5.0												<u>/(uto</u>	
													Freq Offs
5.0													0
5.0													Scale Tr
													Scale Ty
	910000	GHz									.000 101112	Log	ļ
tes BW	62 kHz				#VBW	220 kHz			Sweep 🛛	2.000 ms (	(1001 pts)		
3									STATU	IS			





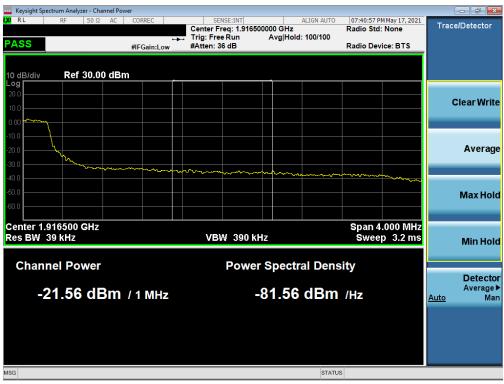
Plot 7-64. Extended Upper Band Edge Plot (LTE Band 2 - 5MHz QPSK - Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST* Proud to be part of @element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analy												
URL	RF	50 Ω	AC	CORREC		SEI	NSE:INT	#Avg Typ	ALIGN AUTO		May 17, 2021	Fi	requency
PASS				PNO: W IFGain:L	ide ↔ .ow	Trig: Free #Atten: 3		" <b>ə</b> . yr		TYP			
0 dB/div	Ref 25	i.00 dl	Bm						Mkr1	1.915 0 -26.	04 GHz 39 dBm		Auto Tun
og Trac	e 1 Pass												Center Fre 5000000 GH
5.00	~~~~~	~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	·····	~~~~							1.91	<b>Start Fre</b> 3000000 GH
25.0							1					1.91	<b>Stop Fre</b> 7000000 GH
15.0							- Marine Contraction	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		m	<u>Auto</u>	CF Ste 400.000 kH Ma
5.0													Freq Offs 0 F
65.0													Scale Typ
enter 1.9 Res BW		GHz		4	ένΒ₩	220 kHz			Sweep 2	Span 4 2.000 ms (	.000 MHz 1001 pts)	Log	Li
SG									STATU		Prov		

Plot 7-65. Upper Band Edge Plot (LTE Band 25 - 5MHz QPSK - Full RB)



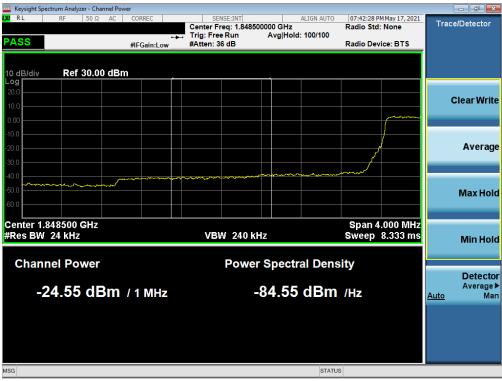
Plot 7-66. Extended Upper Band Edge Plot (LTE Band 25 - 5MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of the element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analyz	er - Swept SA	4									
XI RL	RF	50 Ω AC	C CORF	EC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO		May 17, 2021	F	requency
PASS				):Wide ↔ ain:Low	Trig: Free #Atten: 3		#Avg typ	e. RWS	TYP			
10 dB/div Log	Ref 25.	00 dBn	n					Mkr	1 1.849 9 -28.	96 GHz 18 dBm		Auto Tune
15.0	e 1 Pass											Center Freq 0000000 GHz
-5.00							~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			~~~~~	1.84	Start Fred 8000000 GHz
-15.0						1					1.85	<b>Stop Fred</b> 2000000 GHz
35.0	~~~~~	~~~~~	~~~~	^ <u>`</u>							<u>Auto</u>	CF Step 400.000 kH Mar
55.0												Freq Offse 0 H
-65.0												Scale Type
Center 1.8 #Res BW		Hz		#VBW	120 kHz			Sweep	9 Span 2.000 ms (	000 191112	Log	Lir
ISG								STATU				

Plot 7-67. Lower Band Edge Plot (LTE Band 25/2 - 3MHz QPSK - Full RB)



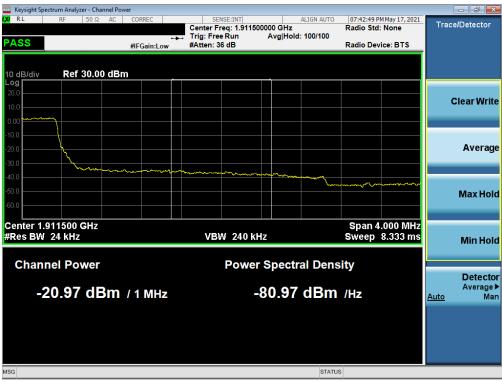
Plot 7-68. Extended Lower Band Edge Plot (LTE Band 25/2 - 3MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	Pout to be part of @ element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analy:	zer - Swep	t SA										
(RL	RF	50 Ω	AC	CORREC				#Avg Typ	ALIGN AUTO	TRAC	May 17, 2021	F	requency
PASS				PNO: W IFGain:L	ide ↔ ow	#Atten: 3			Micu				Auto Tun
0 dB/div	Ref 25	.00 dE	3m						WIKI	1 1.910 0 -27.	93 dBm		
Trac	e 1 Pass												Center Fre
15.0												1.91	0000000 GH
5.00	$\sim\sim\sim\sim\sim$	~~~~	v~~~⁄	$\sim$	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~								Start Fre
5.00												1.90	8000000 GH
15.0													Stop Fre
25.0 ——							1					1.91	2000000 GH
							how	~~~ ~ ~ ~	~~~ ~				CF Ste
35.0										~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		<u>Auto</u>	400.000 kH Ma
15.0													
55.0													Freq Offse 0 H
i5.0													
													Scale Typ
enter 1. Res BW		GHz		;	≠VBW	120 kHz			Sweep	9 Span 2.000 ms (	.000 1911 12	Log	Li
SG									STATU	JS		_	

Plot 7-69. Upper Band Edge Plot (LTE Band 2 - 3MHz QPSK - Full RB)



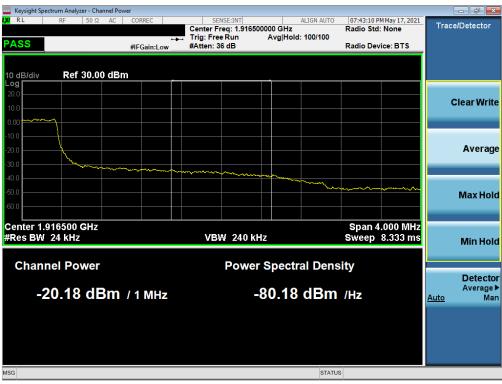
Plot 7-70. Extended Upper Band Edge Plot (LTE Band 2 - 3MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	Pout to be part of @elecent	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analy		ot SA									_	
a RL	RF	50 Ω	AC	CORREC		SEI	NSE:INT	#Avg Ty	ALIGN AUTO		May 17, 2021	F	requency
ASS				PNO: W IFGain:L	ide ↔ .ow	Trig: Free #Atten: 3				TYP			
0 dB/div	Ref 25	.00 dl	Bm						Mkr1	1.915 0 -25.	04 GHz 43 dBm		Auto Tune
.og Trac	e 1 Pass												Center Free 5000000 GH
5.00	~~~~	~~~	~~~	~~~	~~~~							1.91	<b>Start Fre</b> 3000000 GH
25.0							1					1.91	<b>Stop Fre</b> 7000000 GH
45.0								·	·····			<u>Auto</u>	CF Ste 400.000 k⊢ Ma
5.0													Freq Offs 0 F
65.0													Scale Typ
enter 1.9 Res BW		GHz		4	≠VB₩	120 kHz			Sweep 2	Span 4 000 ms (	.000 MHz 1001 pts)	Log	Li
sg									STATU				

Plot 7-71. Upper Band Edge Plot (LTE Band 25 - 3MHz QPSK - Full RB)



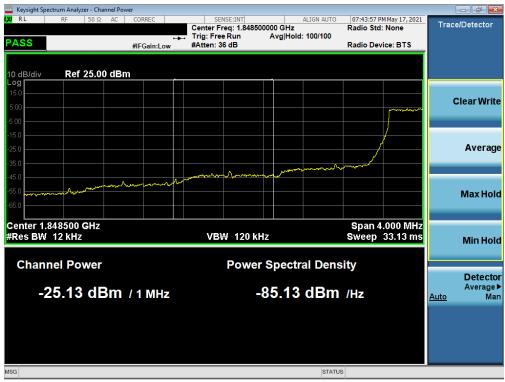
Plot 7-72. Extended Upper Band Edge Plot (LTE Band 25 - 3MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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	rum Analyzer - S	wept SA									
LXU RL	RF 50	Ω AC	CORREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO		M May 17, 2021	Fr	equency
PASS			PNO: Wide ++- IFGain:Low	Trig: Fre #Atten: 3		#/18/JP		TY			
10 dB/div Log	Ref 25.00	dBm					Mkr1	1.849 9 -30.	96 GHz 00 dBm		Auto Tune
15.0 Trace	1 Pass										<b>Center Freq</b> 0000000 GHz
-5.00						~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				1.84	Start Freq B000000 GHz
-15.0					1					1.85	<b>Stop Freq</b> 2000000 GHz
-35.0	wint		m						m. M.	<u>Auto</u>	<b>CF Step</b> 400.000 kHz Man
-55.0											Freq Offset 0 Hz
-65.0									000 541		Scale Type Lin
Center 1.8 #Res BW 1			#VBW	56 kHz			Sweep 4	span 4 .800 ms (	.000 MHz 1001 pts)	209	
MSG							STATUS	3		_	

Plot 7-73. Lower Band Edge Plot (LTE Band 25/2 - 1.4MHz QPSK - Full RB)



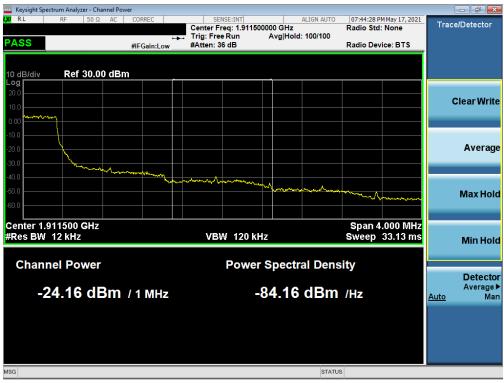
Plot 7-74. Extended Lower Band Edge Plot (LTE Band 25/2 – 1.4MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 57 of 96
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	pectrum Analyz		t SA										
L <mark>XI</mark> RL	RF	50 Ω	AC	CORREC		SE	NSE:INT	#Ava Tu	ALIGN AUTO		May 17, 2021	Fr	equency
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-5.00			/~	~~~~^A	~~~							1.90	Start Freq 8000000 GHz
-15.0							1					1.91	<b>Stop Freq</b> 2000000 GHz
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-55.0													F <b>req Offsel</b> 0 Hz
-65.0													Scale Type
Center 1. #Res BW		GHz		#	VBW	56 kHz			Sweep 4	Span 4 800 ms (	.000 MHz 1001 pts)	Log	Lin
MSG									STATUS				

Plot 7-75. Upper Band Edge Plot (LTE Band 2 – 1.4MHz QPSK – Full RB)



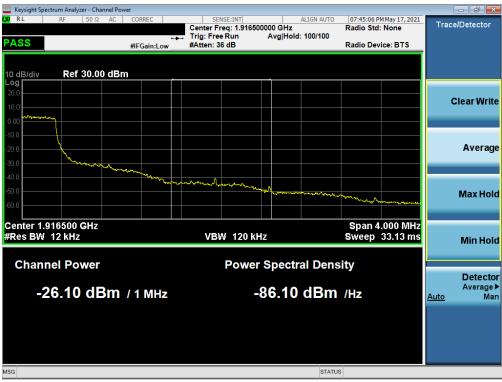
Plot 7-76. Extended Upper Band Edge Plot (LTE Band 2 – 1.4MHz QPSK – Full RB)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 50 of 90
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	ectrum Analyzei												e X
X/RL	RF	50 Ω	AC	CORREC		SE	NSE:INT	#Avg T	ALIGN AUTO		M May 17, 2021	Frequer	icy
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10 dB/div Log	Ref 25.	00 dE	3m					_		-26.	58 dBm		
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5.00			~~~~	~~~~~								<b>Star</b> 1.9130000	t <b>Free</b> 00 GH
-15.0							↓ ¹					<b>Stoj</b> 1.9170000	р <b>Frec</b> 00 GH:
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MSG									STATU	JS			

Plot 7-77. Upper Band Edge Plot (LTE Band 25 – 1.4MHz QPSK – Full RB)

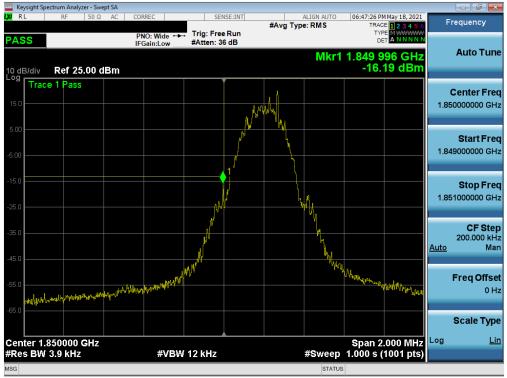


Plot 7-78. Extended Upper Band Edge Plot (LTE Band 25 – 1.4MHz QPSK – Full RB)

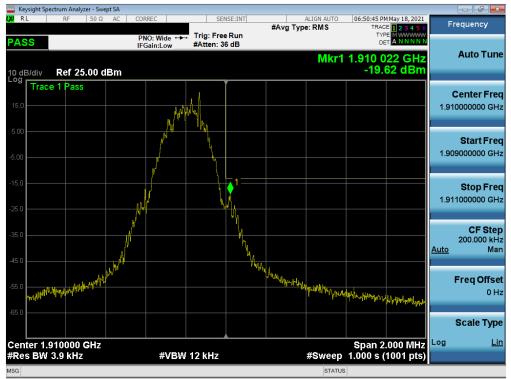
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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## **GSM/GPRS PCS**



Plot 7-79. Lower Band Edge Plot (GPRS PCS - Ch. 512)

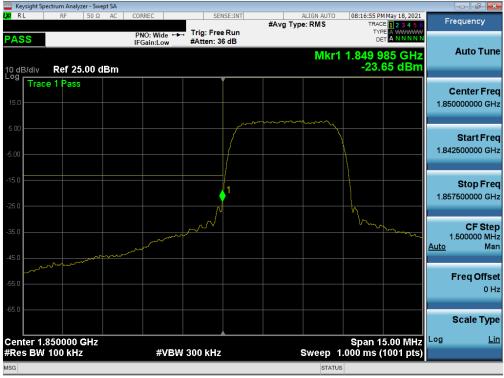


#### Plot 7-80. Upper Band Edge Plot (GPRS PCS - Ch. 810)

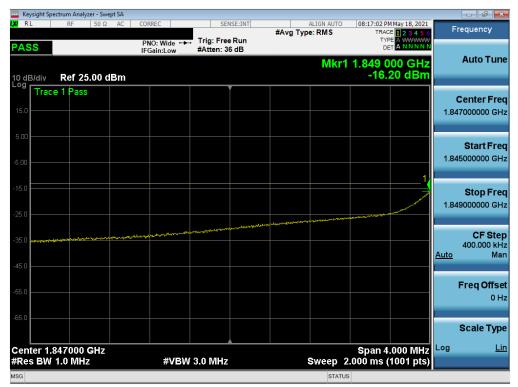
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	Poul to be part of & element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 60 of 96
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## WCDMA PCS



Plot 7-81. Lower Band Edge Plot (WCDMA PCS - Ch. 9262)



#### Plot 7-82. Extended Lower Band Edge Plot (WCDMA PCS - Ch. 9262)

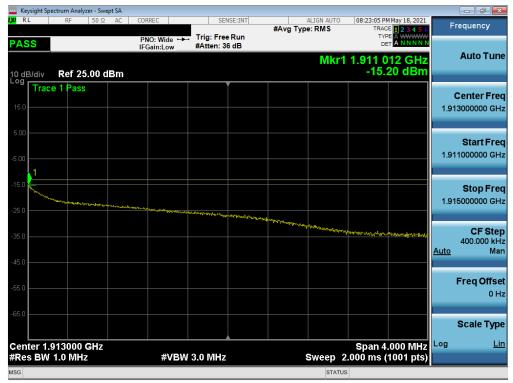
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST* Proud to be part of @element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 61 of 96
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ASS PNO: Wide $\rightarrow$ Trig: Free Run IFGain:Low #Atten: 36 dB Mkr1 1.910 015 GHz -21.96 dBm Center Fre 1.91000000 GF 1.91000000 GF 1.91750000 GF 1.90750000 GF 1.91750000 GF 1.917500000 GF 1.917500000 GF 1.917500000 GF 1.91750000 GF 1.917		ectrum Analyzer											_	
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					-	¢VB₩	300 kHz			Sweep	1.000 ms	(1001 pts)		





Plot 7-84. Extended Upper Band Edge Plot (WCDMA PCS - Ch. 9538)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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## 7.6 Peak-Average Ratio

## **Test Overview**

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

### Test Procedure Used

KDB 971168 D01 v03r01 - Section 5.7.1

## Test Settings

- 1. The signal analyzer's CCDF measurement profile is enabled
- 2. Frequency = carrier center frequency
- 3. Measurement BW ≥ OBW or specified reference bandwidth
- 4. The signal analyzer was set to collect one million samples to generate the CCDF curve
- 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

#### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-5. Test Instrument & Measurement Setup

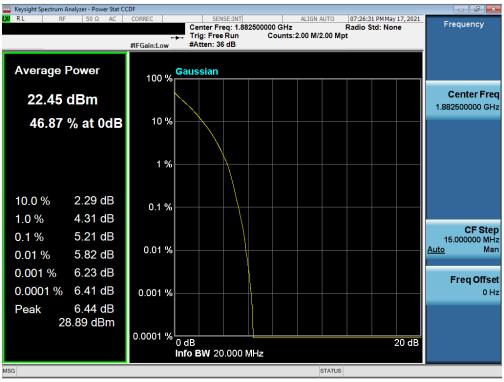
#### Test Notes

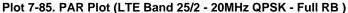
None.

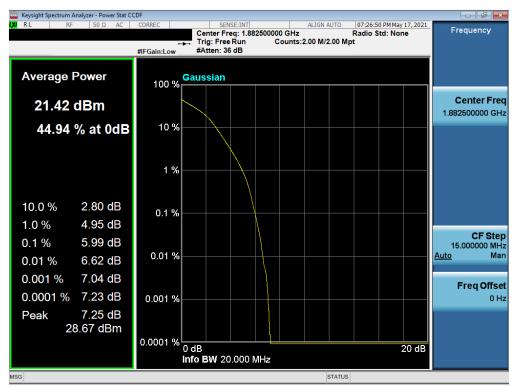
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 62 of 86
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# LTE Band 25/2





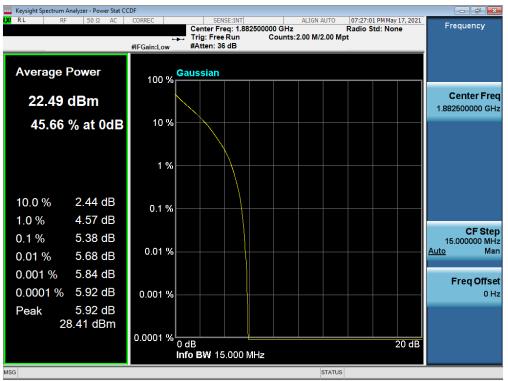


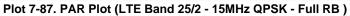
#### Plot 7-86. PAR Plot (LTE Band 25/2 - 20MHz 16-QAM - Full RB )

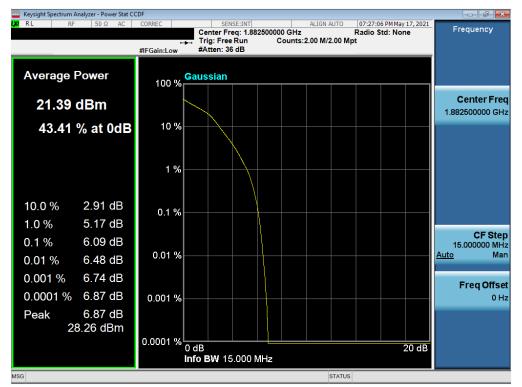
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 64 of 96
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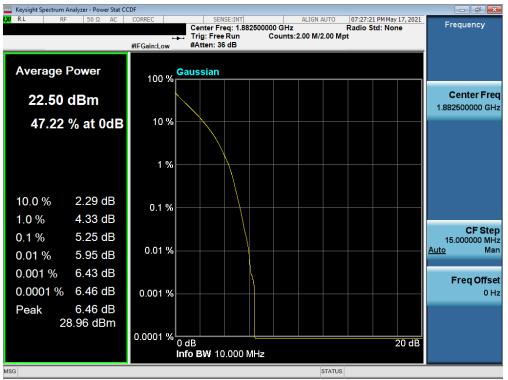


#### Plot 7-88. PAR Plot (LTE Band 25/2 - 15MHz 16-QAM - Full RB )

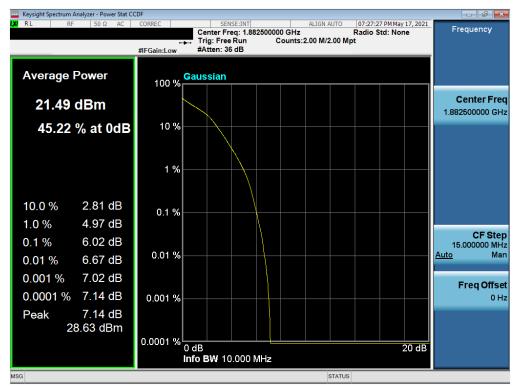
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
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Plot 7-89. PAR Plot (LTE Band 25/2 - 10MHz QPSK - Full RB)

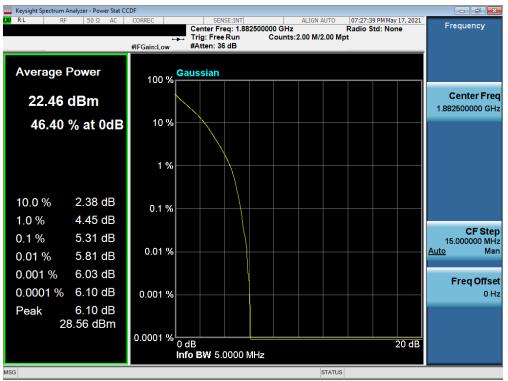


#### Plot 7-90. PAR Plot (LTE Band 25/2 - 10MHz 16-QAM - Full RB)

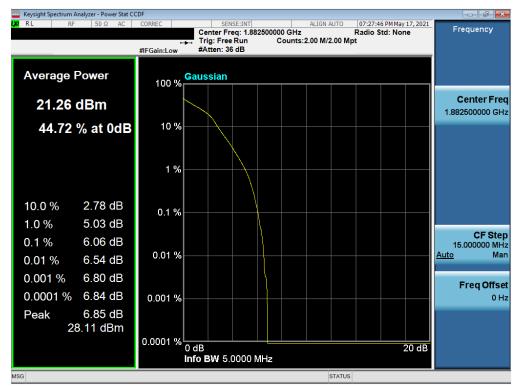
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 66 of 96	
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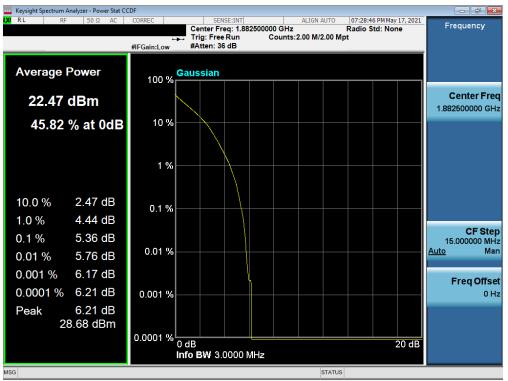


#### Plot 7-92. PAR Plot (LTE Band 25/2 - 5MHz 16-QAM - Full RB)

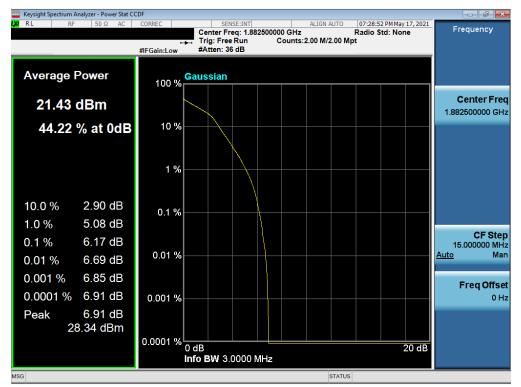
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Degre 67 of 96
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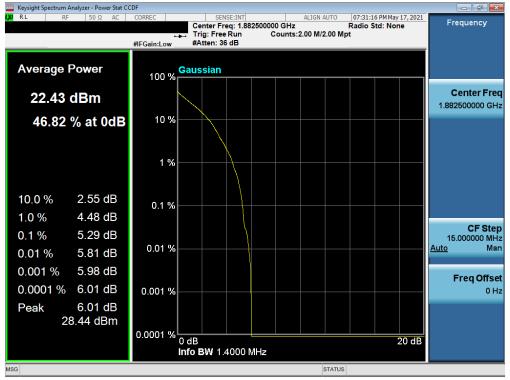


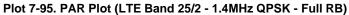
#### Plot 7-94. PAR Plot (LTE Band 25/2 - 3MHz 16-QAM - Full RB)

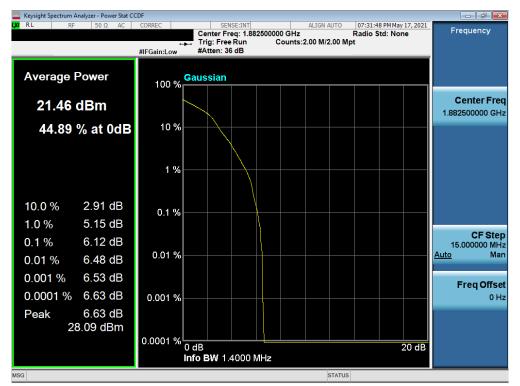
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
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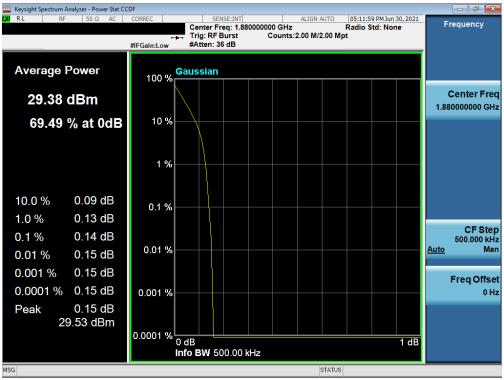


Plot 7-96. PAR Plot (LTE Band 25/2 - 1.4MHz 16-QAM - Full RB)

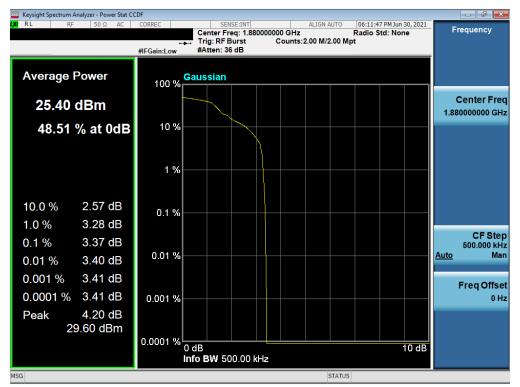
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 69 of 86	
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# **GSM/GPRS PCS**







Plot 7-98. PAR Plot (EDGE, Ch. 661)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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# WCDMA PCS

RL RF 50 Ω AC					
RE RF 50 12 AC	CORREC	SENSE:INT Center Freg: 1.880000000 GHz	ALIGN AUTO	08:24:47 PM May 18, 2021 Radio Std: None	Frequency
		Trig: Free Run Counts:	2.00 M/2.00 M		
	#IFGain:Low	#Atten: 36 dB			
		• · · · • · · · ·			
Average Power	100 %	Gaussian			
23.72 dBm					<b>Center Freq</b> 1.88000000 GHz
53.06 % at 0dE	10 %				
	1 %				
10.0 % 1.70 dB	0.1 %				
1.0 % 2.67 dB	0.1 /0				
0.1 % 3.18 dB					CF Step
	0.01 %				5.000000 MHz Auto Man
0.01 % 3.46 dB					
0.001 % 3.56 dB					Freq Offset
0.0001 % 3.61 dB	0.001 %				0 Hz
Peak 3.61 dB 27.33 dBm					
		0 dB Info BW 5.0000 MHz		20 dB	
G			STATUS	5	

Plot 7-99. PAR Plot (WCDMA, Ch. 9400)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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## 7.7 Radiated Spurious Emissions Measurements

## **Test Overview**

Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 with the EUT transmitting into an external antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

#### **Test Procedures Used**

KDB 971168 D01 v03r01 - Section 5.8

#### **Test Settings**

- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW  $\geq$  3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points > 2 x span / RBW
- 5. Detector = RMS
- 6. Trace mode = Average (Max Hold for pulsed emissions)
- 7. The trace was allowed to stabilize

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

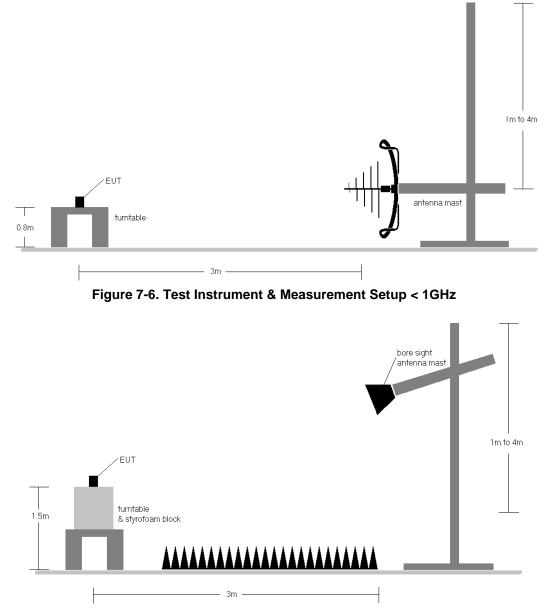


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager	
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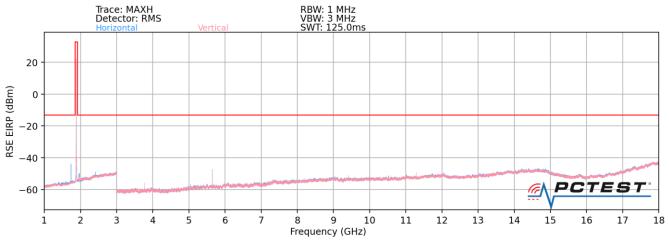
#### Test Notes

- Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
   b) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
   d) EIRP (dBm) = E(dBµV/m) + 20logD 104.8; where D is the measurement distance in meters.
- 2) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is reported in GPRS mode while transmitting with one slot active.
- 3) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 4) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 5) This unit was tested while powered by an DC power source.
- 6) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 7) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 8) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 9) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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## LTE Band 25/2



Plot 7-100. Radiated Spurious Plot (LTE Band 25/2)

Bandwidth (MHz):	20
Frequency (MHz):	1860.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3720.0	V	111	3	-68.34	2.44	41.10	-54.15	-13.00	-41.15
5580.0	V	226	55	-69.92	5.41	42.49	-52.77	-13.00	-39.77
7440.0	V	372	272	-78.08	8.71	37.63	-57.62	-13.00	-44.62
9300.0	V	392	7	-74.14	10.96	43.82	-51.44	-13.00	-38.44
11160.0	V	272	176	-68.77	12.45	50.68	-44.58	-13.00	-31.58
13020.0	V	271	327	-78.65	14.48	42.83	-52.43	-13.00	-39.43
14880.0	V	351	150	-80.63	17.05	43.42	-51.84	-13.00	-38.84
16740.0	V	-	-	-81.88	15.60	40.72	-54.54	-13.00	-41.54

Table 7-5. Radiated Spurious Data (LTE Band 25/2 – Low Channel)

20
1882.5
1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3765.0	V	122	13	-72.19	2.88	37.69	-57.57	-13.00	-44.57
5647.5	V	250	52	-65.72	5.56	46.84	-48.42	-13.00	-35.42
7530.0	V	289	273	-78.49	8.99	37.50	-57.76	-13.00	-44.76
9412.5	V	361	7	-72.17	11.54	46.37	-48.89	-13.00	-35.89
11295.0	V	278	177	-68.15	12.43	51.28	-43.98	-13.00	-30.98
13177.5	V	261	328	-75.81	14.30	45.49	-49.76	-13.00	-36.76
15060.0	V	-	-	-80.98	15.38	41.40	-53.86	-13.00	-40.86
16942.5	V	-	-	-81.43	16.69	42.26	-52.99	-13.00	-39.99

Table 7-6. Radiated Spurious Data (LTE Band 25/2 – Mid Channel)

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Bandwidth (MHz):	20
Frequency (MHz):	1905.0
RB / Offset:	1 / 50

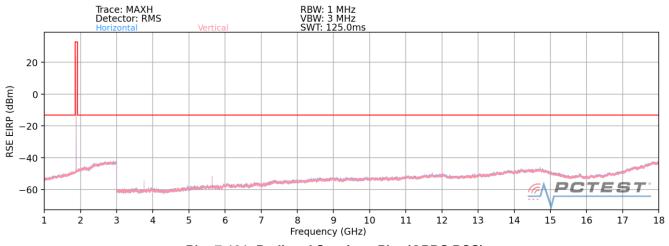
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3810.00	V	123	10	-68.08	2.30	41.22	-54.04	-13.00	-41.04
5715.00	V	231	60	-61.58	5.47	50.89	-44.36	-13.00	-31.36
7620.00	V	194	275	-77.77	8.88	38.11	-57.15	-13.00	-44.15
9525.00	V	390	12	-69.06	11.06	49.00	-46.25	-13.00	-33.25
11430.00	V	281	175	-69.31	13.50	51.19	-44.07	-13.00	-31.07
13335.00	V	254	312	-72.18	14.71	49.53	-45.73	-13.00	-32.73
15240.00	V	292	278	-79.52	14.59	42.07	-53.19	-13.00	-40.19
17145.00	V	-	-	-81.45	17.88	43.43	-51.83	-13.00	- <mark>38.8</mark> 3

Table 7-7. Radiated Spurious Data (LTE Band 25/2 – High Channel)

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### **GSM/GPRS PCS**



Plot 7-101. Radiated Spurious Plot (GPRS PCS)

: GPRS 1 Tx Slot	Mode:		
: 512	Channel:		
: 1850.2	Frequency (MHz):		

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3700.4	Н	374	305	-63.33	2.42	46.09	-49.17	-13.00	-36.17
5550.6	Н	238	66	-66.21	5.17	45.96	-49.30	-13.00	-36.30
7400.8	Н	-	-	-75.38	9.26	40.88	-54.38	-13.00	-41.38
9251.0	Н	-	-	-75.84	10.41	41.57	-53.69	-13.00	-40.69

Table 7-8. Radiated Spurious Data (GPRS PCS - Low Channel)

Mode:	GPRS 1 Tx Slot
Channel:	661
Frequency (MHz):	1880

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	Н	387	310	-62.75	2.86	47.11	-48.15	-13.00	-35.15
5640.0	H	227	70	-62.46	5.65	50.19	-45.07	-13.00	-32.07
7520.0	Н	-	-	-74.74	8.87	41.13	-54.13	-13.00	-41.13
9400.0	Н	-	-	-76.60	11.83	42.23	-53.03	-12.00	-41.03

Table 7-9. Radiated Spurious Data (GPRS PCS – Mid Channel)

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX	PCTEST Proud to be part of the element	PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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7639.2

9549.0

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Н

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Mode:	GPRS 1	Tx Slot							
Channel:	8	10							
Frequency (MHz):	190	9.8							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3819.6	Н	373	93	-65.54	2.35	43.81	-51.45	-13.00	-38.45
5729.4	Н	185	58	-60.22	5.37	52.15	-43.11	-13.00	-30.11

11.11 41.50 -53.76 Table 7-10. Radiated Spurious Data (GPRS PCS – High Channel)

9.30

40.36

-54.89

-13.00

-13.00

-41.89

-40.76

-75.94

-76.61

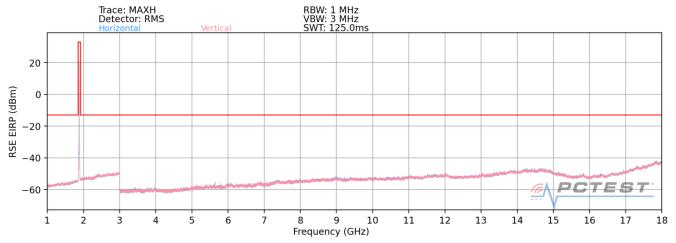
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FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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# WCDMA PCS



Plot 7-102. Radiated Spurious Plot (WCDMA PCS)

Mode:	WCDMA RMC
Channel:	9262
Frequency (MHz):	1852.4
Frequency (MHz):	1852.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3704.8	Н	133	28	-75.30	2.41	34.11	-61.15	-13.00	-48.15
5557.2	Н	280	63	-73.50	5.13	38.63	-56.63	-13.00	-43.63
7409.6	Н	-	-	-79.41	9.01	36.60	-58.65	-13.00	-45.65
9262.0	Н	-	-	-80.09	10.48	37.39	-57.87	-13.00	-44.87

Table 7-11. Radiated Spurious Data (WCDMA PCS – Low Channel)

Mode:	WCDMA RMC
Channel:	9400
Frequency (MHz):	1880

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	Н	399	299	-73.51	2.86	36.35	-58.91	-13.00	-45.91
5640.0	Н	400	62	-71.22	5.65	41.43	-53.83	-13.00	-40.83
7520.0	Н	-	-	-79.26	8.87	36.61	-58.65	-13.00	-45.65
9400.0	Н	-	-	-80.39	11.83	38.44	-56.82	-13.00	-43.82

Table 7-12. Radiated Spurious Data (WCDMA PCS – Mid Channel)

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Channel:         9538           Frequency (MHz):         1907.6	Mode:	WCDMA RMC
Frequency (MHz): 1907.6	Channel:	9538
	Frequency (MHz):	1907.6

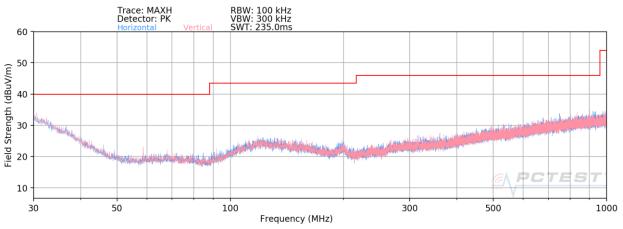
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3815.2	Н	111	50	-73.29	2.33	36.04	-59.22	-13.00	-46.22
5722.8	Н	172	334	-71.26	5.43	41.17	-54.09	-13.00	-41.09
7630.4	Н	-	-	-79.52	9.06	36.54	-58.72	-13.00	-45.72
9538.0	Н	-	-	-79.81	11.00	38.19	-57.07	-13.00	-44.07

Table 7-13. Radiated Spurious Data (WCDMA PCS – High Channel)

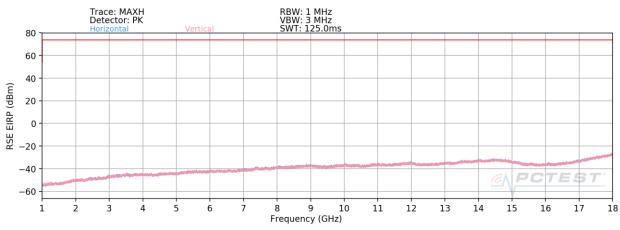
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## **Receiver Radiated Emissions**







Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
48.31	Quasi-Peak	Н	396	139	-96.76	14.10	24.34	40.00	-15.66
57.58	Quasi-Peak	V	259	135	-96.49	12.45	22.96	40.00	-17.04
85.66	Quasi-Peak	Н	396	107	-97.33	12.74	22.41	40.00	-17.59
194.98	Quasi-Peak	V	264	241	-96.88	16.49	26.61	43.52	-16.91
362.01	Quasi-Peak	Н	211	129	-97.01	18.63	28.62	46.02	-17.41
783.69	Quasi-Peak	Н	195	209	-95.30	24.20	35.90	46.02	-10.12
903.48	Quasi-Peak	V	125	46	-95.49	24.89	36.40	46.02	-9.62

#### Table 7-14. Radiated Measurements at 3-meters

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## 7.8 Frequency Stability / Temperature Variation

#### **Test Overview and Limit**

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

#### Test Procedure Used

ANSI/TIA-603-E-2016

#### **Test Settings**

- 1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

#### Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

#### Test Notes

None

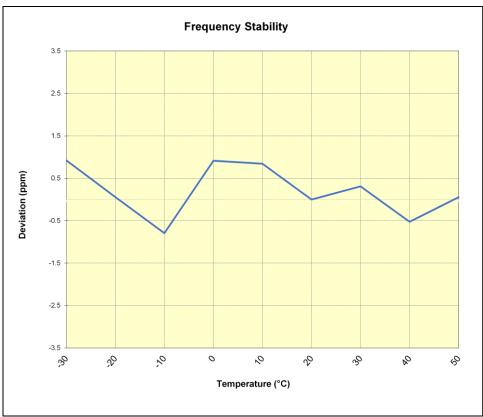
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## LTE Band 25/2

LTE Band 25/2							
	Operating F	requency (Hz):	1,882,5	600,000			
	Ref.	Voltage (VDC):	3.	80			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	1,882,501,807	1,738	0.0000923		
		- 20	1,882,500,177	108	0.0000057		
		- 10	1,882,498,571	-1,498	-0.0000796		
		0	1,882,501,789	1,720	0.0000913		
100 %	3.80	+ 10	1,882,501,655	1,586	0.0000843		
		+ 20 (Ref)	1,882,500,069	0	0.0000000		
		+ 30	1,882,500,653	584	0.0000310		
		+ 40	1,882,499,082	-987	-0.0000525		
		+ 50	1,882,500,166	97	0.0000051		
<mark>85 %</mark>	3.23	+ 20	1,882,501,643	1,574	0.0000836		
115 %	4.37	+ 20	1,882,499,829	-240	-0.0000128		

Table 7-15. LTE Band 25/2 Frequency Stability Data



Plot 7-105. LTE Band 25/2 Frequency Stability Chart

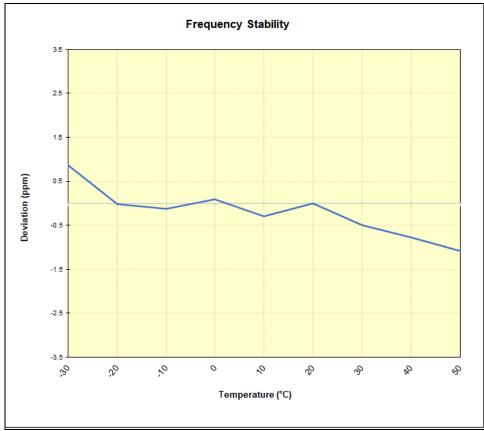
FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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# **GSM/GPRS PCS**

GSM/GPRS PCS							
	Operating F	requency (Hz):	1,880,0	00,000			
	Ref.	Voltage (VDC):	3.6	80	]		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	1,880,003,175	1,622	0.0000863		
		- 20	1,880,001,535	-18	-0.0000010		
		- 10	1,880,001,331	-222	-0.0000118		
		0	1,880,001,741	188	0.0000100		
100 %	3.80	+ 10	1,880,001,000	-553	-0.0000294		
		+ 20 (Ref)	1,880,001,553	0	0.0000000		
		+ 30	1,880,000,628	-925	-0.0000492		
		+ 40	1,880,000,110	-1,443	-0.0000768		
		+ 50	1,879,999,516	- <mark>2,</mark> 038	-0.0001084		
85 %	3.23	+ 20	1,880,003,028	1,475	0.0000785		
115 %	4.37	+ 20	1,880,000,604	-949	-0.0000505		

Table 7-16. GSM/GPRS PCS Frequency Stability Data



### Plot 7-106. GSM/GPRS PCS Frequency Stability Chart

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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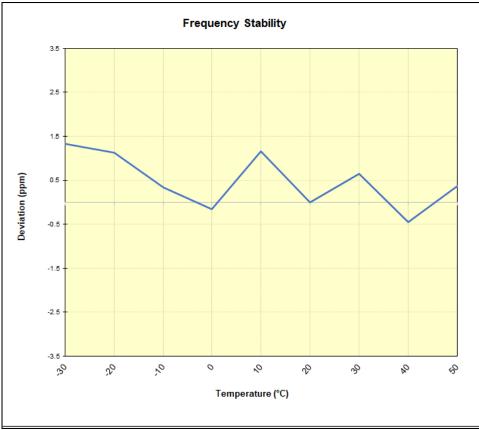
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# WCDMA PCS

WCDMA PCS							
	Operating F	requency (Hz):	1,880,0	00,000			
	Ref.	Voltage (VDC):	3.6	80	]		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	1,880,000,415	2,500	0.0001330		
		- 20	1,880,000,052	2,137	0.0001136		
		- 10	1,879,998,561	646	0.0000344		
		0	1,879,997,631	-285	-0.0000151		
100 %	3.80	+ 10	1,880,000,097	2,182	0.0001161		
		+ 20 (Ref)	1,879,997,915	0	0.0000000		
		+ 30	1,879,999,136	1,221	0.0000650		
		+ 40	1,879,997,065	-850	-0.0000452		
		+ 50	1,879,998,600	685	0.0000364		
85 %	3.23	+ 20	1,879,997,279	-637	-0.0000339		
115 %	4.37	+ 20	1,879,998,233	318	0.0000169		

 Table 7-17. WCDMA PCS Frequency Stability Data



### Plot 7-107. WCDMA PCS Frequency Stability Chart

FCC ID: RI7LE910CXWWX IC:5131A-LE910CXWWX		PART 24 / RSS-133 MEASUREMENT REPORT	Approved by: Technical Manager
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# 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Telit Communications S.p.A Data Terminal Module FCC ID: RI7LE910CXWWX / IC:5131A-LE910CXWWX** complies with all the requirements of Part 24 of the FCC rules and RSS-133 rules.

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