

PCTEST ENGINEERING LABORATORY, INC.

7185 Oakland Mills Road, Columbia, MD 21046 USA Tel. 410.290.6652 / Fax 410.290.6654 http://www.pctest.com



MEASUREMENT REPORT

LTE

Applicant Name:

LG Electronics MobileComm U.S.A 1000 Sylvan Avenue Englewood Cliffs, NJ 07632 United States

Date of Testing: March 15 - April 4, 2018 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M1803120039-03.ZNF

FCC ID:

ZNFV350A

APPLICANT:

LG Electronics MobileComm U.S.A

Application Type:	Certification
Model:	LM-V350AWM
Additional Model(s):	LMV350AWM, V350AWM, LM-V350AWA, LMV350AWA, V350AWA,
	LM-V350AWS, LMV350AWS, V350AWS, LM-V350ULA, LMV350ULA,
	V350ULA, LM-V350ULM, LMV350ULM, V350ULM, LM-V350ULS,
	LMV350ULS, V350ULS
EUT Type:	Portable Handset
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	22, 24, & 27
Test Procedure(s):	ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03,
	KDB 648474 D03 v01r04

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



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MEASUREMENT REPORT FCC Part 22, 24, & 27



			E	RP	EI	RP		
Mode	FCC Rule Part	Tx Frequency (MHz)	Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)	Emission Designator	Modulation
LTE Band 12	27	699.7 - 715.3	0.063	17.96	0.103	20.11	1M10G7D	QPSK
LTE Band 12	27	699.7 - 715.3	0.060	17.78	0.098	19.93	1M10W7D	16QAM
LTE Band 12	27	699.7 - 715.3	0.057	17.54	0.093	19.69	1M10W7D	64QAM
LTE Band 12	27	700.5 - 714.5	0.064	18.08	0.105	20.23	2M71G7D	QPSK
LTE Band 12	27	700.5 - 714.5	0.057	17.58	0.094	19.73	2M71W7D	16QAM
LTE Band 12	27	700.5 - 714.5	0.048	16.84	0.079	18.99	2M71W7D	64QAM
LTE Band 12/17	27	701.5 - 713.5	0.077	18.87	0.126	21.02	4M51G7D	QPSK
LTE Band 12/17	27	701.5 - 713.5	0.059	17.73	0.097	19.88	4M52W7D	16QAM
LTE Band 12/17	27	701.5 - 713.5	0.047	16.74	0.078	18.89	4M52W7D	64QAM
LTE Band 12/17	27	704 - 711	0.065	18.15	0.107	20.30	9M04G7D	QPSK
LTE Band 12/17	27	704 - 711	0.063	17.98	0.103	20.13	8M99W7D	16QAM
LTE Band 12/17	27	704 - 711	0.059	17.69	0.096	19.84	9M03W7D	64QAM
LTE Band 13	27	779.5 - 784.5	0.048	16.77	0.078	18.92	4M46G7D	QPSK
LTE Band 13	27	779.5 - 784.5	0.045	16.52	0.074	18.67	4M45W7D	16QAM
LTE Band 13	27	779.5 - 784.5	0.041	16.12	0.067	18.27	4M44W7D	64QAM
LTE Band 13	27	782	0.047	16.75	0.078	18.90	8M95G7D	QPSK
LTE Band 13	27	782	0.045	16.51	0.073	18.66	8M97W7D	16QAM
LTE Band 13	27	782	0.042	16.28	0.070	18.43	8M90W7D	64QAM
LTE Band 26/5	22H	824.7 - 848.3	0.036	15.56	0.059	17.71	1M08G7D	QPSK
LTE Band 26/5	22H	824.7 - 848.3	0.035	15.45	0.058	17.60	1M08W7D	16QAM
LTE Band 26/5	22H	824.7 - 848.3	0.034	15.28	0.055	17.43	1M08W7D	64QAM
LTE Band 26/5	22H	825.5 - 847.5	0.037	15.69	0.061	17.84	2M72G7D	QPSK
LTE Band 26/5	22H	825.5 - 847.5	0.036	15.56	0.059	17.71	2M71W7D	16QAM
LTE Band 26/5	22H	825.5 - 847.5	0.034	15.27	0.055	17.42	2M72W7D	64QAM
LTE Band 26/5	22H	826.5 - 846.5	0.038	15.75	0.062	17.90	4M54G7D	QPSK
LTE Band 26/5	22H	826.5 - 846.5	0.037	15.72	0.061	17.87	4M52W7D	16QAM
LTE Band 26/5	22H	826.5 - 846.5	0.033	15.18	0.054	17.33	4M53W7D	64QAM
LTE Band 26/5	22H	829 - 844	0.036	15.57	0.059	17.72	9M01G7D	QPSK
LTE Band 26/5	22H	829 - 844	0.036	15.56	0.059	17.71	9M01W7D	16QAM
LTE Band 26/5	22H	829 - 844	0.033	15.16	0.054	17.31	9M00W7D	64QAM
LTE Band 26	22H	831.5 - 841.5	0.038	15.77	0.062	17.92	13M5G7D	QPSK
LTE Band 26	22H	831.5 - 841.5	0.037	15.70	0.061	17.85	13M5W7D	16QAM
LTE Band 26	22H	831.5 - 841.5	0.033	15.14	0.054	17.29	13M5W7D	64QAM

EUT Overview (<1GHz)

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		EIRP				
Mode	FCC Rule Part	Tx Frequency (MHz)	Max. Power (W)	Max. Power (dBm)	Emission Designator	Modulation
LTE Band 4/66	27	1710.7 - 1779.3	0.200	23.00	1M10G7D	QPSK
LTE Band 4/66	27	1710.7 - 1779.3	0.165	22.17	1M10W7D	16QAM
LTE Band 4/66 LTE Band 4/66	27 27	<u>1710.7 - 1779.3</u> 1711.5 - 1778.5	0.132	21.20 22.97	1M10W7D 2M70G7D	64QAM QPSK
LTE Band 4/66	27	1711.5 - 1778.5	0.164	22.15	2M71W7D	16QAM
LTE Band 4/66	27	1711.5 - 1778.5	0.117	20.68	2M71W7D	64QAM
LTE Band 4/66	27	1712.5 - 1777.5	0.202	23.05	4M51G7D	QPSK
LTE Band 4/66	27	1712.5 - 1777.5	0.168	22.25	4M51W7D	16QAM
LTE Band 4/66 LTE Band 4/66	27 27	<u>1712.5 - 1777.5</u> 1715 - 1775	0.126	20.99 22.93	4M52W7D 9M01G7D	64QAM QPSK
LTE Band 4/66	27	1715 - 1775	0.190	22.93	8M98W7D	16QAM
LTE Band 4/66	27	1715 - 1775	0.115	20.62	9M01W7D	64QAM
LTE Band 4/66	27	1717.5 - 1772.5	0.206	23.13	13M5G7D	QPSK
LTE Band 4/66	27	1717.5 - 1772.5	0.173	22.37	13M5W7D	16QAM
LTE Band 4/66	27	1717.5 - 1772.5	0.134	21.27	13M5W7D	64QAM
LTE Band 4/66	27	1720 - 1770	0.208	23.18	18M0G7D	QPSK 1600M
LTE Band 4/66 LTE Band 4/66	27 27	<u> 1720 - 1770</u> 1720 - 1770	0.164 0.130	22.15 21.13	18M0W7D 18M0W7D	16QAM 64QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.217	23.36	1M10G7D	QPSK
LTE Band 25/2	24E	1850.7 - 1914.3	0.175	22.43	1M10W7D	16QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.143	21.54	1M10W7D	64QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.216	23.35	2M70G7D	QPSK
LTE Band 25/2 LTE Band 25/2	24E 24E	<u> 1851.5 - 1913.5</u> 1851.5 - 1913.5	0.184 0.147	22.64 21.67	2M71W7D 2M71W7D	16QAM 64QAM
LTE Band 25/2	24E 24E	1852.5 - 1912.5	0.147	23.74	4M51G7D	QPSK
LTE Band 25/2	24E	1852.5 - 1912.5	0.198	22.97	4M52W7D	16QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.153	21.85	4M53W7D	64QAM
LTE Band 25/2	24E	1855 - 1910	0.240	23.81	9M05G7D	QPSK
LTE Band 25/2	24E	1855 - 1910	0.194	22.88	8M98W7D	16QAM
LTE Band 25/2 LTE Band 25/2	24E 24E	<u>1855 - 1910</u> 1857.5 - 1907.5	0.150 0.261	21.75 24.17	9M02W7D 13M5G7D	64QAM QPSK
LTE Band 25/2	24E	1857.5 - 1907.5	0.201	23.33	13M5W7D	16QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.171	22.34	13M5W7D	64QAM
LTE Band 25/2	24E	1860 - 1905	0.248	23.94	18M0G7D	QPSK
LTE Band 25/2	24E	1860 - 1905	0.209	23.21	18M0W7D	16QAM
LTE Band 25/2 LTE Band 30	24E 27	1860 - 1905 2307.5 - 2312.5	0.168	22.26 20.68	18M0W7D 4M52G7D	64QAM QPSK
LTE Band 30	27	2307.5 - 2312.5	0.100	20.00	4M52W7D	16QAM
LTE Band 30	27	2307.5 - 2312.5	0.088	19.44	4M52W7D	64QAM
LTE Band 30	27	2310	0.101	20.06	9M02G7D	QPSK
LTE Band 30	27	2310	0.082	19.16	9M03W7D	16QAM
LTE Band 30 LTE Band 7	27 27	2310 2502.5 - 2567.5	0.069	18.41 18.97	9M02W7D 4M52G7D	64QAM QPSK
LTE Band 7	27	2502.5 - 2567.5	0.079	18.17	4M52W7D	16QAM
LTE Band 7	27	2502.5 - 2567.5	0.051	17.10	4M52W7D	64QAM
LTE Band 7	27	2505 - 2565	0.080	19.05	9M02G7D	QPSK
LTE Band 7	27	2505 - 2565	0.065	18.16	8M98W7D	16QAM
LTE Band 7 LTE Band 7	27 27	2505 - 2565 2507.5 - 2562.5	0.050 0.083	17.02 19.20	9M00W7D 13M5G7D	64QAM QPSK
LTE Band 7	27	2507.5 - 2562.5	0.063	19.20	13M5W7D	16QAM
LTE Band 7	27	2507.5 - 2562.5	0.053	17.25	13M5W7D	64QAM
LTE Band 7	27	2510 - 2560	0.089	19.47	18M0G7D	QPSK
LTE Band 7	27	2510 - 2560	0.065	18.14	18M0W7D	16QAM
LTE Band 7 LTE Band 41	27 27	2510 - 2560	0.053	17.21 22.72	18M0W7D 4M53G7D	64QAM QPSK
LTE Band 41	27	2498.5 - 2687.5 2498.5 - 2687.5	0.187 0.147	22.72	4M53W7D	16QAM
LTE Band 41	27	2498.5 - 2687.5	0.147	20.59	4M52W7D	64QAM
LTE Band 41	27	2501 - 2685	0.156	21.92	9M00G7D	QPSK
LTE Band 41	27	2501 - 2685	0.091	19.59	9M04W7D	16QAM
LTE Band 41 LTE Band 41	27	2501 - 2685	0.073	18.63	9M02W7D 13M5G7D	64QAM
LTE Band 41	27 27	2503.5 - 2682.5 2503.5 - 2682.5	0.130	21.13 20.75	13M5G7D 13M5W7D	QPSK 16QAM
LTE Band 41	27	2503.5 - 2682.5	0.093	19.68	13M5W7D	64QAM
LTE Band 41	27	2506 - 2680	0.276	24.41	18M0G7D	QPSK
LTE Band 41	27	2506 - 2680	0.245	23.88	18M0W7D	16QAM
LTE Band 41	27	2506 - 2680	0.193	22.85	18M0W7D	64QAM
		EUT Overvie	w (\1G	H7)		

EUT Overview (>1GHz)

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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 Engineering Laboratory, Inc. 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 17025-2005 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 **LG Portable Handset FCC ID: ZNFV350A**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 01455, 00156, 01570, 01455

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ac WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), NFC

LTE Band 12 (698 - 716 MHz) overlaps the entire frequency range of LTE Band 17 (704 - 716 MHz). Therefore, test data provided in this report covers Band 17 as well as Band 12.

LTE Band 26 (814.7 – 849 MHz) overlaps the entire frequency range of LTE Band 5 (824 – 849 MHz). Therefore, test data provided in this report covers Band 5 and the portion of Band 26 subject to Part 22.

LTE Band 66 (1710 - 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 - 1755 MHz). Therefore, test data provided in this report covers Band 4 as well as Band 66.

LTE Band 25 (1850 - 1915 MHz) overlaps the entire frequency range of LTE Band 2 (1850 - 1910 MHz). Therefore, test data provided in this report covers Band 2 as well as Band 25.

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 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 Measurement Procedure

The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03) were used in the measurement of the EUT.

3.2 Block C Frequency Range

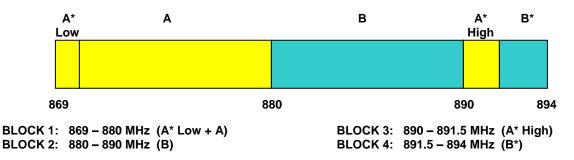
Two paired channels of 11 megahertz each are available for assignment in Block C in the 746-757 MHz and 776-787 MHz bands. In the event that no licenses for two channels in this Block C are assigned based on the results of the first auction in which such licenses were offered because the auction results do not satisfy the applicable reserve price, the spectrum in the 746-757 MHz and 776-787 MHz bands will instead be made available for assignment at a subsequent auction as follows: (i) Two paired channels of 6 megahertz each available for assignment in Block C1 in the 746-752 MHz and 776-782 MHz bands. (ii) Two paired channels of 5 megahertz each available for assignment in Block C2 in the 752-757 MHz and 782-787 MHz bands.

3.3 Block A Frequency Range

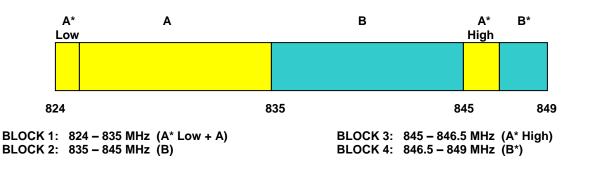
<u>698-746 MHz band</u>. The following frequencies are available for licensing pursuant to this part in the 698-746 MHz band: (1) Three paired channel blocks of 12 megahertz each are available for assignment as follows:

Block A: 698-704 MHz and 728-734 MHz; Block B: 704-710 MHz and 734-740 MHz; and Block C: 710-716 MHz and 740-746 MHz.

3.4 Cellular - Base Frequency Blocks

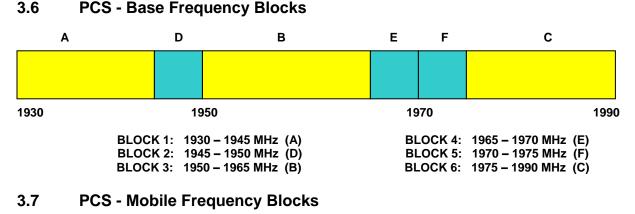


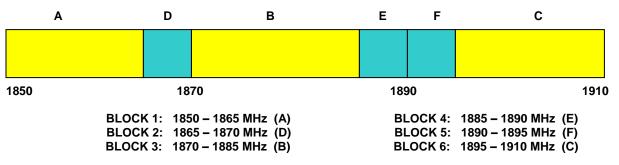
3.5 Cellular - Mobile Frequency Blocks



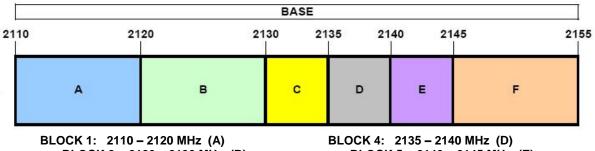
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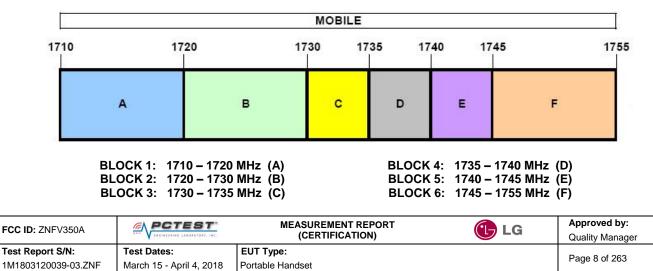


3.8 **AWS - Base Frequency Blocks**



BLOCK 2: 2120 - 2130 MHz (B) BLOCK 3: 2130 - 2135 MHz (C) BLOCK 5: 2140 - 2145 MHz (E) BLOCK 6: 2145 – 2155 MHz (F)

3.9 **AWS - Mobile Frequency Blocks**



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3.10 WCS – Mobile/Base Frequency Blocks

The following frequencies are available for WCS in the 2305-2320 MHz and 2345-2360 MHz bands:

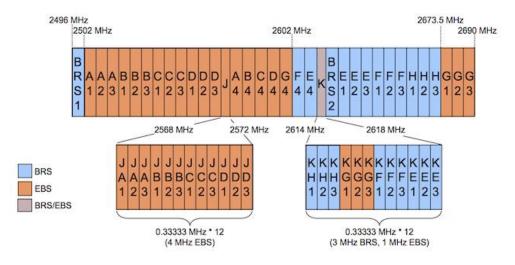
BLOCK 1: 2305-2310 and 2350-2355 MHz (A)

BLOCK 2: 2310-2315 and 2355-236 MHz (B)

BLOCK 3: 2315-2320 MHz (C)

BLOCK 4: 2345-2350 MHz (D)

3.11 BRS/EBS Frequency Block



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3.12 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 integral 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. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v03.

Per the guidance of ANSI/TIA-603-E-2016, a half-wave dipole is then 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:

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 $P_{g [dBm]}$ – cable loss [dB].

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10log₁₀(Power [Watts]). For Band 7 and 41, the calculated P_d levels are compared to the absolute spurious emission limit of -25dBm which is equivalent to the required minimum attenuation of 55 + 10log₁₀(Power [Watts]). For Band 30, the calculated P_d levels are compared to the absolute spurious emission limit of -40dBm which is equivalent to the required minimum attenuation of 70 + 10log₁₀(Power [Watts]).

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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
-	LTx2	Licensed Transmitter Cable Set	8/10/2017	Annual	8/10/2018	LTx2
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	Annual	1/24/2019	US46470561
Agilent	N9038A	MXE EMI Receiver	4/26/2017	Annual	4/26/2018	MY51210133
Agilent	N9030A	PXA Signal Analyzer (26.5GHz)	8/28/2017	Annual	8/28/2018	MY49432391
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2017	Biennial	10/10/2019	121034
Com-Power	PAM-118A	Pre-Amplifier	6/21/2017	Annual	6/21/2018	551042
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	6/21/2017	Annual	6/21/2018	441119
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/23/2016	Biennial	8/23/2018	135427
Espec	ESX-2CA	Environmental Chamber	3/28/2018	Annual	3/28/2019	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	12/1/2016	Biennial	12/1/2018	125518
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/28/2018	Biennial	3/28/2020	128337
Mini Circuits	TVA-11-422	RF Power Amp		N/A		QA1317001
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/30/2018	Annual	3/30/2019	11401010036
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		11208010032
Mini-Circuits	PWR-SEN-4RMS	USB Power Sensor	3/30/2018	Annual	3/30/2019	11210140001
Mini-Circuits	TVA-11-422	RF Power Amp		N/A		QA1303002
Rohde & Schwarz	CMW500	Radio Communication Tester	11/3/2017	Annual	11/3/2018	100976
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/11/2017	Annual	5/11/2018	100040
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	4/19/2017	Annual	4/19/2018	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	7/31/2017	Annual	7/31/2018	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/11/2017	Annual	8/11/2018	103200
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102135
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102134
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102133
Sunol	DRH-118	Horn Antenna (1-18GHz)	8/11/2017	Biennial	8/11/2019	A050307

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

Emission Designator

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 – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average 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 1564 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

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7.0 TEST RESULTS

7.1 Summary

Company Name:	LG Electronics MobileComm U.S.A
FCC ID:	ZNFV350A
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)

Mode(s):

LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A		PASS	Section 7.2
2.1051 2.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Out of Band Emissions	> 43 + 10log ₁₀ (P[Watts]) at Band Edge and for all out-of- band emissions			Section 7.3, 7.4
27.53(m)	Out of Band Emissions	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.3, 7.4
27.53(a)	Out of Band Emissions	Undesirable emissions must meet the limits detailed in 27.53(a)			Section 7.3, 7.4
24.232(d)	Peak-Average Ratio	< 13 dB	CONDUCTED		Section 7.5
2.1046	Transmitter Conducted Output Power	N/A			See RF Exposure Report
2.1055 22.355 24.235 27.54	Frequency Stability	< 2.5 ppm (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27)			Section 7.11

Table 7-1. Summary of Conducted Test Results

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FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a)(5)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 26/5)	< 7 Watts max. ERP			Section 7.6
27.50(b)(10) 27.50(c)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 12/17, 13)	< 3 Watts max. ERP			Section 7.6
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 25/2, 7, 41)	< 2 Watts max. EIRP			Section 7.6
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 66/4)	< 1 Watts max. EIRP			Section 7.6
27.50(a)(3)	Equivalent Isotropic Radiated Power (Band 30)	< 0.25 Watts max. EIRP	RADIATED	PASS	Section 7.6
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions	> 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions			Section 7.9
27.53(f)	Undesirable Emissions (Band 13)	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 – 1610 MHz			Section 7.9
27.53(a)	Undesirable Emissions (Band 30)	> 70 + 10log ₁₀ (P[Watts])			Section 7.9
27.53(m)	Undesirable Emissions	Undesirable emissions must meet the limits detailed in 27.53(m) 7-2. Summary of Radiated Tes			Section 7.9

Table 7-2. Summary of Radiated 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 (Sections 7.2, 7.3, 7.4, 7.5) 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) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "LTE Automation," Version 4.8.
- 5) For operation <1GHz, the EIRP limits in the table above are referenced to the specifications written in the relevant Radio Standards Specifications for Innovation, Science, and Economic Development Canada.

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7.2 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 v03 - 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.

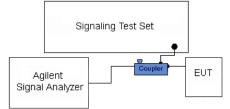


Figure 7-1. Test Instrument & Measurement Setup

Test Notes

None.

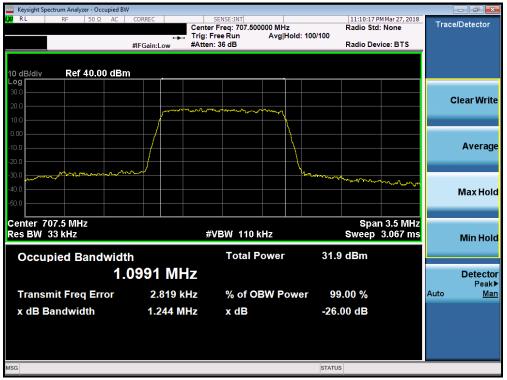
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Band 12/17



Plot 7-1. Occupied Bandwidth Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



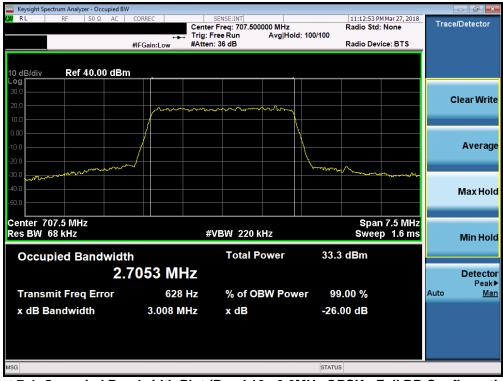
Plot 7-2. Occupied Bandwidth Plot (Band 12 - 1.4MHz 16-QAM - Full RB Configuration)

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Keysight Spectrum Analyzer - Occupied BW					
LXI RL RF 50Ω AC		SENSE:INT r Freg: 707.500000 MHz	11:10:25 Pt Radio Std:	Mar 27, 2018 None	Trace/Detector
		Free Run Avg Hold: n: 36 dB	100/100 Radio Dev	ice: BTS	
	an ouncer				
10 dB/div Ref 40.00 dBm	<u> </u>				
Log 30.0					
20.0					Clear Write
10.0	moundan	montant			
0.00					
-10.0					Average
-20.0					
-30.0	Num		Monnorthan	Annon	
-40.0					Max Hold
-50.0					
Center 707.5 MHz				3.5 MHz	
Res BW 33 kHz	#	VBW 110 kHz	Sweep	3.067 ms	Min Hold
Occupied Bandwidt	h	Total Power	30.8 dBm		
	0979 MHz				Detector
					Peak►
Transmit Freq Error	1.656 kHz	% of OBW Powe	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	1.237 MHz	x dB	-26.00 dB		
			1		
MSG			STATUS		

Plot 7-3. Occupied Bandwidth Plot (Band 12 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-4. Occupied Bandwidth Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

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🤤 Keysight Spectrum Analyzer - Occupied					- đ	×
LXI RE 50Ω AC		SENSE:INT r Freg: 707.500000 MHz	11:13:02 PM M Radio Std: N		Trace/Detecto	or
	Trig: F	Free Run Avg Hold: 1 n: 36 dB				
	#IFGain:Low #Present	1: 30 00	Radio Device	e: 013		
10 dB/div Ref 40.00 dE	2m_					
Log						
30.0					Clear W	rite
20.0	mann				orear	
10.0						
0.00					-	
-10.0					Avera	age
-20.0	~~		manna			-
- Charles and a second se				·····		
-40.0					Max H	old
-50.0						
Center 707.5 MHz				7.5 MHz		
Res BW 68 kHz	#	VBW 220 kHz	Sweep	1.6 ms	Min H	old
Occupied Bandwic	dth	Total Power	32.4 dBm			
	2.7079 MHz				Deteo	etor
					Pe	ak▶
Transmit Freq Error	3.838 kHz	% of OBW Power	99.00 %		Auto <u>I</u>	Man
x dB Bandwidth	3.025 MHz	x dB	-26.00 dB			
MSG			STATUS			

Plot 7-5. Occupied Bandwidth Plot (Band 12 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-6. Occupied Bandwidth Plot (Band 12 - 3.0MHz 64-QAM - Full RB Configuration)

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-60.0						
-60.0						
-50.0						Max Hold
00.0						
-20.0			Anna and	mmmm		
-20.0	hand		have a second			Average
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-10.0						
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-30.0						
-30.0						
-30.0						
-36.0						
40.0						
-40.0						
-40.0						
-40.0						
50.0						
-50.0						Maxilald
-30.0						Max Hold
						Max noiu
50.0						
-60.0						
-00.0						
Contor 707.6 MHz			Span	12.5 MHz		
Center 707.5 MHz			Span	12.5 MHz		
				12.5 MHz		
	#	VBW 390 kHz				
Center 707.5 MHz Res BW 120 kHz	#	VBW 390 kHz		12.5 MHz eep 1 ms		Min Hold
	#	VBW 390 kHz				Min Hold
	#	VBW 390 kHz				Min Hold
	#	VBW 390 kHz				Min Hold
Res BW 120 kHz			Sw			Min Hold
Res BW 120 kHz			Sw			Min Hold
Res BW 120 kHz						Min Hold
Res BW 120 kHz		VBW 390 kHz Total Power	Sw			Min Hold
			Sw			Min Hold
Res BW 120 kHz Occupied Bandwidt	th		Sw			Min Hold
Res BW 120 kHz Occupied Bandwidt	th		Sw			
Res BW 120 kHz Occupied Bandwidt	th		Sw			
Res BW 120 kHz Occupied Bandwidt	th		Sw			Min Hold
Res BW 120 kHz Occupied Bandwidt			Sw			Detector
Res BW 120 kHz Occupied Bandwidt	th		Sw			Detector
Res BW 120 kHz Occupied Bandwidt	th		Sw			
Res BW 120 kHz Occupied Bandwidf 4.	th 5137 MHz	Total Power	33.3 dBm	eep 1 ms		Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4.	th 5137 MHz	Total Power	33.3 dBm	eep 1 ms	A 4 -	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4.	th 5137 MHz	Total Power	33.3 dBm	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4.	th		33.3 dBm	eep 1 ms	Auto	Detector
Res BW 120 kHz Occupied Bandwidt	th 5137 MHz	Total Power	33.3 dBm	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4.	th 5137 MHz	Total Power	33.3 dBm	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4.	th 5137 MHz	Total Power	33.3 dBm	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error x dB Bandwidth	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 % -26.00 dB	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error x dB Bandwidth	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 % -26.00 dB	eep 1 ms	Auto	Detector Peak▶
Res BW 120 kHz Occupied Bandwidf 4. Transmit Freq Error	th 5137 MHz 5.585 kHz	Total Power % of OBW Power	Sw 33.3 dBm r 99.00 %	eep 1 ms	Auto	Detector Peak▶

Plot 7-7. Occupied Bandwidth Plot (Band 12/17 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-8. Occupied Bandwidth Plot (Band 12/17 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied BW							
LX/RL RF 50Ω AC		SENSE:INT Freq: 707.500000 MHz		1:15:34 PM Ma dio Std: No		Trace	/Detector
	🛶 Trig: F		d: 100/100	dio Device:			
	#IFGain:Low #Atten	: 36 dB	Ra	alo Device:	ыз		
10 dB/div Ref 30.00 dBm							
20.0							
10.0						C	lear Write
0.00			\				
-10.0	_/		<u>\</u>				
-20.0			howana				Average
-30.0 www.howman			· ···		mm		
-40.0							
-50.0							Max Hold
-60.0							Maxilola
Center 707.5 MHz Res BW 120 kHz	-441	VBW 390 kHz		Span 12	.5 MHz 0 1 ms		
Res Boy 120 KHz	#			Sweep			Min Hold
Occupied Bandwidth	1	Total Power	31.4 di	Зm			
	5214 MHz						Detector
4.							Peak►
Transmit Freq Error	-358 Hz	% of OBW Pow	ver 99.00) %		Auto	<u>Man</u>
x dB Bandwidth	5.022 MHz	x dB	-26.00	dB			
MSG			STATUS				

Plot 7-9. Occupied Bandwidth Plot (Band 12/17 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-10. Occupied Bandwidth Plot (Band 12/17 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dara 04 at 000	
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🧱 Keysight Spectrum Analyzer - Occupied	BW				
LX/RL RF 50Ω AC		SENSE:INT nter Freg: 707.500000 MHz	11:31:35 P Radio Std	M Mar 27, 2018	Trace/Detector
	Tri	g: Free Run Avg Hol	d: 100/100		
	#IFGain:Low #At	tten: 36 dB	Radio Dev	vice: BTS	
10 dB/div Ref 40.00 dE	3m				
Log 30.0					
20.0					Clear Write
	por and the second	and way was a second and a second			
10.0					
0.00			1		
-10.0			marine da		Average
-20.0			hours all and a second	the way way and	
-30.0 Munum server				V 44-4	
-40.0					Max Hold
-50.0					
Center 707.5 MHz			C no	n Of Milla	
Res BW 240 kHz		#VBW 750 kHz		n 25 MHz ep 1 ms	
				sob into	Min Hold
Occupied Bandwic	lth	Total Power	32.7 dBm		
	.9860 MHz				Detector
0					Peak►
Transmit Freq Error	15.273 kHz	% of OBW Pow	ver 99.00 %		Auto <u>Man</u>
x dB Bandwidth	9.851 MHz	x dB	-26.00 dB		
			074710		
MSG			STATUS		

Plot 7-11. Occupied Bandwidth Plot (Band 12/17 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-12. Occupied Bandwidth Plot (Band 12/17 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Band 13



Plot 7-13. Occupied Bandwidth Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-14. Occupied Bandwidth Plot (Band 13 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		
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Plot 7-15. Occupied Bandwidth Plot (Band 13 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-16. Occupied Bandwidth Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-17. Occupied Bandwidth Plot (Band 13 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-18. Occupied Bandwidth Plot (Band 13 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
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Band 26/5



Plot 7-19. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-20. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-21. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-22. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A	ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 07 of 000
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Keysight Spectrum Analyzer - Occupied BW							
LXI RL RF 50 Ω AC	CORREC Cen	SENSE:INT ter Freg: 836.500000 M	Hz	12:08:58 Pf Radio Std:	Mar 31, 2018	Trac	e/Detector
	Trig		Hold: 100/100				
	#IFGain:Low #Att	en: 36 dB		Radio Dev	ICE: BIS		
10 dB/div Ref 35.00 dBm			<u> </u>				
25.0							
15.0	man	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~			(Clear Write
5.00			<u>_</u>				
-5.00							
-15.0							Average
-25.0	J		mmm		And the second		
-35.0							
-45.0							Max Hold
-55.0							maxinoia
					7.6.001		
Center 836.5 MHz Res BW 68 kHz		#VBW 220 kHz			n 7.5 MHz p 1.6 ms		
Nes DW 08 KHZ		#4044 220 KHZ		GWCC	5 1.0 1115		Min Hold
Occupied Bandwidth	1	Total Powe	r 32.1	l dBm			
27	′118 MHz						Detector
							Peak▶
Transmit Freq Error	-1.776 kHz	% of OBW I	ower 99	0.00 %		Auto	<u>Man</u>
x dB Bandwidth	3.051 MHz	x dB	-26.	00 dB			
MSG			STATU	S			

Plot 7-23. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-24. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 of 000	
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Keysight Spectrum Analyzer - Occupied BW							- 6 ×
IXI RL RF 50Ω AC		SENSE:INT		Radio Std:	Mar 31, 2018 None	Trace	/Detector
		rig: Free Run Atten: 36 dB	Avg Hold: 100/1	00 Radio Devi	ice: BTS		
10 dB/div Ref 40.00 dBm							
30.0							
20.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				c	lear Write
10.0							
0.00	_/		\				
-10.0			\				Average
-20.0	<u>ل</u> مہ		han	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
-30.0							
-40.0							Max Hold
-50.0							
Center 836.5 MHz					12.5 MHz		
Res BW 120 kHz		#VBW 390 ki	HZ	Swe	ep 1 ms		Min Hold
Occupied Bandwidth	า	Total Po	ower	33.5 dBm			
4.5	5385 MHz						Detector
	5.842 kHz		W Power	99.00 %		Auto	Peak▶ Man
Transmit Freq Error						Auto	Intari
x dB Bandwidth	5.001 MHz	z xdB		-26.00 dB			
MSG			s	STATUS			

Plot 7-25. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-26. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
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🧱 Keysight Spectrum Analyzer - Occupied BW					
LX RL RF 50Ω AC	CORREC	SENSE:INT r Freg: 836.500000 MHz	12:15:05 F Radio Std	M Mar 31, 2018	Trace/Detector
		Free Run Avg Hold: n: 36 dB	: 100/100 Radio Dev	vice: BTS	
	#IFGain:Low #Atter	1. 30 00	Radio De	vice. B13	
10 dB/div Ref 40.00 dBm					
30.0					Clear Writ
20.0	- wrannen - v	mm ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
10.0					
0.00					_
-10.0					Averag
-20.0	nul .		home	mannon	
-30.0					
-40.0					Max Hol
-50.0					
Center 836.5 MHz			Span	12.5 MHz	
Res BW 120 kHz	#	VBW 390 kHz		eep 1 ms	Min Hol
Occurried Bondwidth		Total Power	31.2 dBm		
Occupied Bandwidth			51.2 dBm		
4.5	5318 MHz				Detecto Peak
Transmit Freq Error	4.547 kHz	% of OBW Powe	er 99.00 %		Auto <u>Ma</u>
x dB Bandwidth	5.021 MHz	x dB	-26.00 dB		
	0.021 1112	A GB	20.00 48		
MSG			STATUS		

Plot 7-27. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz 64-QAM - Full RB Configuration)



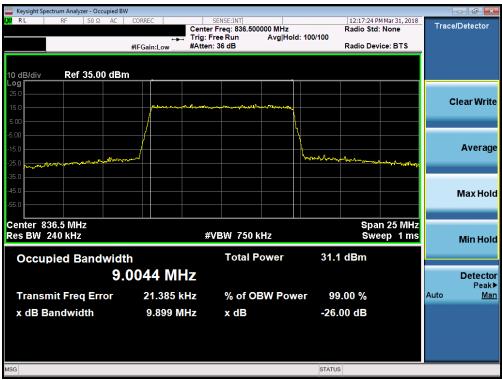
Plot 7-28. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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🔤 Keysight Spectrum Analyzer - Occupied BW	1				
LXI RE 50Ω AC		SENSE:INT r Freq: 836.500000 MHz Free Run Avg Hold	Radio Std	M Mar 31, 2018 : None	Trace/Detector
		n: 36 dB	Radio Dev	vice: BTS	
10 dB/div Ref 35.00 dBm	۱				
25.0 15.0		and many production of the state of the stat			Clear Write
5.00		h			
-5.00 -15.0 -25.0			han manager and have	- Marina	Average
-35.0 -45.0 -55.0					Max Hold
Center 836.5 MHz Res BW 240 kHz	#	VBW 750 kHz		n 25 MHz eep 1 ms	Min Hold
Occupied Bandwidt	h	Total Power	32.3 dBm		
9.0	0145 MHz				Detector Peak▶
Transmit Freq Error	17.528 kHz	% of OBW Powe	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	9.938 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-29. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-30. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied BW				
💢 RL RF 50Ω AC		SENSE:INT r Freg: 836.500000 MHz	12:20:57 PM Mar 31, 2018 Radio Std: None	Trace/Detector
	🛶 Trig: F	Free Run Avg Hold: 10	0/100	
	#IFGain:Low #Atten	1: 36 dB	Radio Device: BTS	ī
10 dB/div Ref 40.00 dBm				
30.0				
20.0	and the state of t	arely have the second		Clear Write
10.0				
0.00	/			
-10.0				Average
-20.0		\ \	Martine and a demand	
-30.0			My may have	
-40.0			\	Max Hold
-50.0				
Center 836.5 MHz			Span 37.5 MHz	
Res BW 360 kHz	#	VBW 1.1 MHz	Sweep 1 ms	
				Min Hold
Occupied Bandwidth	า	Total Power	33.0 dBm	
13	.505 MHz			Detector
				Peak►
Transmit Freq Error	9.653 kHz	% of OBW Power	99.00 %	Auto <u>Man</u>
x dB Bandwidth	14.81 MHz	x dB	-26.00 dB	
MSG			STATUS	

Plot 7-31. Occupied Bandwidth Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-32. Occupied Bandwidth Plot (Band 26 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager		
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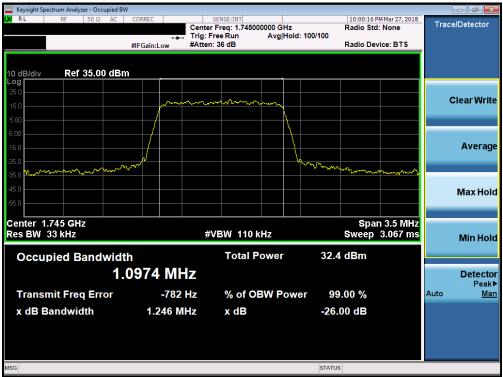
Clear Wri Clear Wri Clear Wri Average Max Ho Span 37.5 MHz S BW 360 kHz #VBW 1.1 MHz Sweep 1 ms Clear Wri Average Max Ho Span 37.5 MHz Sweep 1 ms 13.483 MHz Transmit Freq Error 5.283 kHz % of OBW Power 99.00 %	_ Keysight Spectrum Analyzer - Occupied BW Ø RL RF 50 Ω AC	Trig:	SENSE:INT r Freq: 836.500000 MHz Free Run Avg Hold: n: 36 dB	Radio St 100/100	PM Mar 31, 2018 d: None vice: BTS	Trace/Detector
Average Average Average Average Average Max Ho Span 37.5 MHz Sweep 1 ms Occupied Bandwidth 13.483 MHz Transmit Freq Error 5.283 kHz % of OBW Power 99.00 %	10 dB/div Ref 40.00 dBm					Clear Writ
Image: Constraint of the second se	10.0					Averag
s BW 360 kHz #VBW 1.1 MHz Sweep 1 ms Occupied Bandwidth Total Power 31.2 dBm 13.483 MHz Detect Transmit Freq Error 5.283 kHz % of OBW Power 99.00 %	0.0 			مى مەرىپىدىكى بىرىكى بىرىك يەرىكى بىرىكى		Max Ho
13.483 MHz Detect Transmit Freq Error 5.283 kHz % of OBW Power 99.00 %	Center 836.5 MHz Res BW 360 kHz			Sw		Min Ho
			Total Power	31.2 dBM		Detect Peal
	Transmit Freq Error x dB Bandwidth				Α	Nuto <u>M</u> a

Plot 7-33. Occupied Bandwidth Plot (Band 26 - 15.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
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Band 66/4



Plot 7-34. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-35. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
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Plot 7-36. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-37. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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🤤 Keysight Spectrum Analyzer - Occupied B					
LX/RL RF 50Ω AC		SENSE:INT Freg: 1.745000000 GHz		0:03:11 PM Mar 27, 2018 dio Std: None	Trace/Detector
	🛶 Trig: F		d: 100/100	dio Device: BTS	
,	#IFGain:Low #Atten	. 30 dB	Ra	dio Device. B13	
10 dB/div Ref 30.00 dB					
20.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Clear Writ
10.0					Clear writ
0.00			\		
-10.0	/		<u>}</u>		
-20.0					Averag
-30.0	~~~~		mann	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
-40.0					
-50.0					Max Hol
-60.0					
Center 1.745 GHz				Span 7.5 MHz	
Res BW 68 kHz	#	VBW 220 kHz		Sweep 1.6 ms	Min Hol
					MITHO
Occupied Bandwid	th	Total Power	32.0 dE	3m	
2	.7090 MHz				Detecto
		0/ - 5 ODM D		0/	Peak Auto Ma
Transmit Freq Error	4.735 kHz	% of OBW Pow			Auto <u>Ma</u>
x dB Bandwidth	3.028 MHz	x dB	-26.00	dB	
MSG			STATUS		

Plot 7-38. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)



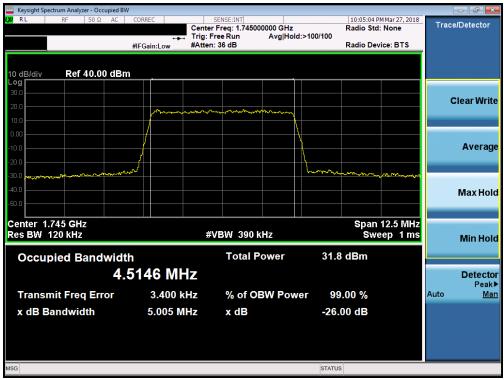
Plot 7-39. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
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Center Freq: 1.74500000 GHz Radio Std: None Trace/Detector I0 dB/div Ref 40.00 dBm Avg Hold: 100/100 Radio Device: BTS Clear Write 0 dB/div Ref 40.00 dBm Avg Hold: 100/100 Radio Device: BTS Clear Write 0 dB/div Ref 40.00 dBm Avg Hold: 100/100 Radio Device: BTS Clear Write 0 dB/div Ref 40.00 dBm Avg Hold: 100/100 Avg Hold: 100/100 Radio Device: BTS
Image: Constraint of the second se
10 dB/div Ref 40.00 dBm Clear Write 200
Log
Log 300 200 200 100 100 -000
20.0
200
0.00 10.0 20.0
10.0 20.0 30.0
30.0 minungeneration of the second se
-40.0 Max Hold
Maxilou
-50.0
Center 1.745 GHz Span 12.5 MHz
Res BW 120 kHz #VBW 390 kHz Sweep 1 ms Min Hold
4.5120 MHz Detector
Transmit Freq Error 5.114 kHz % of OBW Power 99.00 % Auto Man
x dB Bandwidth 5.027 MHz x dB -26.00 dB
MSG STATUS

Plot 7-40. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-41. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dega 27 of 262		
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🧫 Keysight Spectrum Analyzer - Occupied BW							
LX RL RF 50Ω AC	CORREC Cen	SENSE:INT ter Freg: 1.745000000 G	Hz	10:05:10 PI Radio Std:	Mar 27, 2018 None	Trace	/Detector
		:FreeRun Avg en:36 dB	Hold: 100/100	Radio Dev	ion: BTS		
	#IFGain:Low #Au	en. 36 dB		Radio Dev	ice. BT3		
10 dB/div Ref 40.00 dBm							
30.0							lear Write
20.0	Anna	we want when man the	~				
10.0							
0.00							_
-10.0							Average
-20.0	~		hann	Marina			
50.0							
-40.0							Max Hold
-50.0							
Center 1.745 GHz					12.5 MHz		
Res BW 120 kHz		#VBW 390 kHz		Swe	ep 1 ms		Min Hold
Occupied Bandwidth	1	Total Power	30.8	dBm			
	5179 MHz						Detector
							Peak►
Transmit Freq Error	4.366 kHz	% of OBW P	ower 99	0.00 %		Auto	<u>Man</u>
x dB Bandwidth	4.984 MHz	x dB	-26.	00 dB			
MSG			STATUS	5			

Plot 7-42. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-43. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied BV	N				
LXI RL RF 50Ω AC	CORREC	SENSE:INT nter Freg: 1.745000000 GHz		01 PM Mar 27, 2018 Std: None	Trace/Detector
	Tri	g:FreeRun Avg Ho	old: 100/100		
	#IFGain:Low #At	tten: 36 dB	Radio I	Device: BTS	
10 dB/div Ref 40.00 dBn	n				
30.0					
20.0					Clear Write
10.0	12h mar Monor	hunder water of the	<u>\</u>		
0.00					
-10.0			Υ.		Average
-20.0					Arenuge
-30.0 mart where the south of the	w		manunfrom	and the there are	
-40.0					
					Max Hold
-50.0					
Center 1.745 GHz			S	pan 25 MHz	
Res BW 240 kHz		#VBW 750 kHz	s	weep 1 ms	Min Hold
		Total Power	32.0 dBm		
Occupied Bandwidt		TOTALLEOME	52.0 UBIII		
8.	9840 MHz				Detector
Transmit Freq Error	12.796 kHz	% of OBW Po	wer 99.00 %		Peak▶ Auto <u>Man</u>
x dB Bandwidth	9.834 MHz	x dB	-26.00 dB		
MSG			STATUS		
MSG			STATUS		

Plot 7-44. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-45. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 262	
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Keysight Spectrum Analyzer - Occupied BW	/			
LX RL RF 50Ω AC		SENSE:INT	10:11:25 PM Mar 27, 2018 Radio Std: None	Trace/Detector
		ree Run Avg Hold:>10 : 36 dB	00/100 Radio Device: BTS	
	#IFGain:Low #Atten	. 36 08	Radio Device: B13	T
10 dB/div Ref 40.00 dBn				
30.0				Clear Write
20.0	man marken warmen	and the second second second second		Clear write
10.0				
0.00	/			
-10.0				Average
-20.0			multiment and dearbar	
-30.0 managent managent	<u>ل</u> هايم		March	
-40.0				Max Hold
-50.0				
Center 1.745 GHz			Span 37.5 MHz	
Res BW 360 kHz	#	VBW 1.1 MHz	Sweep 1 ms	
				Will Hold
Occupied Bandwidt		Total Power	32.9 dBm	
13	3.494 MHz			Detector
	43.290 kHz	% of OBW Power	99.00 %	Peak► Auto Man
Transmit Freq Error				Adto <u>Man</u>
x dB Bandwidth	14.74 MHz	x dB	-26.00 dB	
MSG			STATUS	

Plot 7-46. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



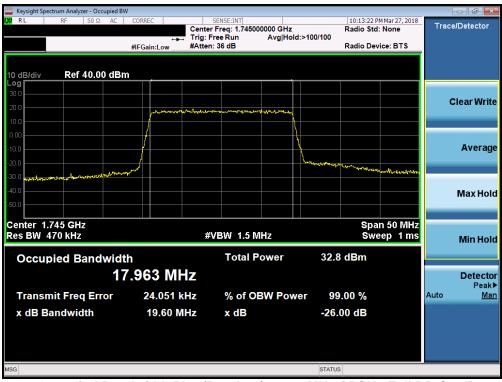
Plot 7-47. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 40 of 262	
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🔤 Keysight Spectrum Analyzer - Occupied B	W					
LXI RE 50 Ω AC	CORREC	SENSE:INT Center Freg: 1.745000000	2H7	10:11:41 PM Mar Radio Std: Nor		Trace/Detector
		Trig: Free Run Ave	g Hold: 100/100			
	#IFGain:Low	#Atten: 36 dB		Radio Device:	BTS	
10 dB/div Ref 40.00 dB	m					
Log 30.0						
20.0						Clear Write
10.0	mon	wifed and we also and an all have been a	may			
0.00	1		\			
-10.0			l.			Average
	<mark>,</mark>					Average
-20.0 -30.0 milled selander month martine	man l		hoursonand	Manshapan how	Arr. Malura	
-40.0						Max Hold
-50.0						
Center 1.745 GHz				Span 37.	5 MHz	
Res BW 360 kHz		#VBW 1.1 MHz		Sweep		Min Hold
		Tetel Deve	- 20.0	-1D		
Occupied Bandwid		Total Powe	r 30.9	dBm		
1	3.481 MH	Z				Detector
Transmit Freq Error	20.375 kl	Hz % of OBW I	Power 00	.00 %	0	Peak► Nuto Man
					ŕ	
x dB Bandwidth	14.77 MI	Hz x dB	-26.0	00 dB		
MSG			STATUS			

Plot 7-48. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-49. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 44 of 000	
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🔤 Keysight Spectrum Analyzer - Occupied BW 💿 🚱 💌					
LX/ RL RF 50 Ω	AC CORREC	SENSE:INT Center Freg: 1.74500	0000 GHz	10:13:28 PM Mar 27, 2018 Radio Std: None	Trace/Detector
	4	Trig: Free Run	Avg Hold: 100/100		
	#IFGain:Low	#Atten: 36 dB		Radio Device: BTS	
10 dB/div Ref 40.00	dBm				
Log 30.0					
20.0					Clear Write
10.0	former	and the second s	to have a post of the second		
0.00			N N		
-10.0	/		l l		Average
-20.0			¥		Average
-20.0 uppermanter to provide the second	Maria Maria		- Marine	warmer and will and the worker	
30.0					
-40.0					Max Hold
-50.0					
Center 1.745 GHz				Span 50 MHz	
Res BW 470 kHz		#VBW 1.5 N	1Hz	Sweep 1 ms	Min Hold
		T - 4 - 1 B		4	
Occupied Bandw		Total P	ower 32.	1 dBm	
	18.007 M	Hz			Detector
Transmit Freq Erro	r 4.788		BW Power 99	9.00 %	Peak▶ Auto Man
					Auto <u>man</u>
x dB Bandwidth	19.55	MHz xdB	-26	.00 dB	
MSG			STATU	IS	

Plot 7-50. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-51. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 42 of 202	
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Band 25/2



Plot 7-52. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-53. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 42 ef 262
1M1803120039-03.ZNF	March 15 - April 4, 2018	Portable Handset		Page 43 of 263
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Plot 7-54. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-55. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 44 of 202	
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Keysight Spectrum Analyzer - Occupied B	W					
LX/RL RF 50Ω AC	CORREC	SENSE:INT Freg: 1.882500000 GHz	09:34:25 P Radio Std	M Mar 27, 2018	Trace/Det	ector
	+++ Trig: I	Free Run Avg Hold:>	100/100			
	#IFGain:Low #Atter	n: 36 dB	Radio Dev	ice: BTS		
10 dB/div Ref 30.00 dBr	m					
20.0						
10.0	p. m.	- here when here and			Clear	Write
0.00						_
-10.0						
-20.0					Av	erage
	m		March March			cruge
-30.0				ᠣᠴᢦᠰᠣᢦᡳᡎᡊ᠊ᡗ		
-50.0					Ма	x Hold
-60.0					_	_
Center 1.883 GHz			Spar	17.5 MHz		
Res BW 68 kHz	#	¢VBW 220 kHz		p 1.6 ms	Mi	n Hold
		Total Power	31.8 dBm			
Occupied Bandwid		Total Power	31.8 dBm			
2.	.7075 MHz				De	tector
Transmit Freq Error	1.219 kHz	% of OBW Powe	r 99.00 %		Auto	Peak▶ Man
					Auto	
x dB Bandwidth	3.018 MHz	x dB	-26.00 dB			
MSG			STATUS			

Plot 7-56. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-57. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dege 45 of 262		
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🤤 Keysight Spectrum Analyzer - Occupied BW	1				
ΙΧΊ R L RF 50 Ω AC		SENSE:INT enter Freq: 1.882500000 GHz ig: Free Run Avg Hol	09:37:25 F Radio Sto d: 100/100	PM Mar 27, 2018 1: None	Trace/Detector
	#IFGain:Low #A	Atten: 36 dB	Radio De	vice: BTS	
10 dB/div Ref 35.00 dBn	1 <u>,</u>	, , , , ,			
25.0 15.0		Laura Antonia			Clear Write
5.00					
-15.0					Average
-35.0 man mar			Manan	men m	
-55.0					Max Hold
Center 1.883 GHz Res BW 120 kHz		#VBW 390 kHz		12.5 MHz eep 1 ms	Min Hold
Occupied Bandwidt	h	Total Power	32.8 dBm		
4.	5132 MHz				Detector Peak▶
Transmit Freq Error	1.924 kHz	% of OBW Pow	ver 99.00 %		Auto <u>Man</u>
x dB Bandwidth	5.042 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-58. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



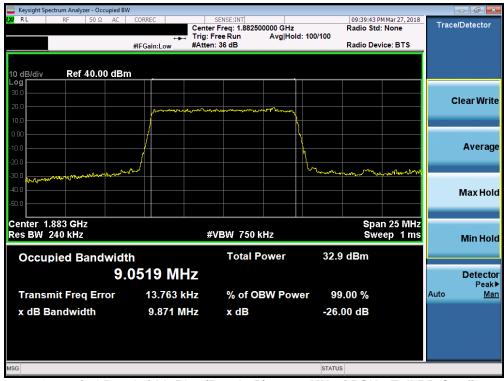
Plot 7-59. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 40 at 000	
1M1803120039-03.ZNF	March 15 - April 4, 2018	Portable Handset		Page 46 of 263	
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Keysight Spectrum Analyzer - Occupied BW						-	
(X) RL RF 50 Ω AC		SENSE:INT Center Freq: 1.88250		Radio Std:	Mar 27, 2018 None	Trace	/Detector
		Trig: Free Run #Atten: 36 dB	Avg Hold: 100/100	Radio Dev	ice: BTS		
10 dB/div Ref 35.00 dBm							
25.0							
15.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mm			С	lear Write
5.00			<u> </u>				
-5.00	<u>/</u>		\				
-15.0	_		<u>\</u>				Average
-25.0			hourse	man	mm		
-35.0							
-45.0							Max Hold
-55.0							
Center 1.883 GHz				Span	12.5 MHz		
Res BW 120 kHz		#VBW 390 k	Hz		ep 1 ms		Min Hold
Occupied Bandwidth		Total P	ower 3'	1.0 dBm			
	5270 MH						Detector
4.:		Z					Detector Peak►
Transmit Freq Error	-1.109 k⊦	Iz % of OE	BW Power	99.00 %		Auto	<u>Man</u>
x dB Bandwidth	5.028 MF	lz xdB	-2	6.00 dB			
MSG			STA	ATUS			

Plot 7-60. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)



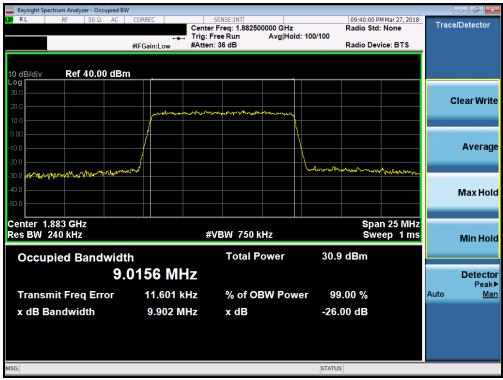
Plot 7-61. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕞 LG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dana 47 af 000		
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🔤 Keysight Spectrum Analyzer - Occupied BW	/					_	
LXI RL RF 50Ω AC	CORREC	SENSE:INT Center Freg: 1.88250	0000 GHz	09:39:53 PM Radio Std:	Mar 27, 2018	Tracel	Detector
		Trig: Free Run	Avg Hold: 100/1	100			
	#IFGain:Low	#Atten: 36 dB		Radio Devi	ce: BTS		
10 dB/div Ref 40.00 dBm	າ						
Log 30.0							
20.0						CI	ear Write
	mound	a manage and a second and a s	e - mm				
10.0							
0.00							
-10.0							Average
-20.0			have	n. mar			
30.0 April Marin M							
-40.0						1	Max Hold
-50.0							
					05 5411-		
Center 1.883 GHz Res BW 240 kHz		#VBW 750 k	H 7		n 25 MHz ep 1 ms		
Res DW 240 KHZ		#4044 750 K	.112	046	ep i llis		Min Hold
Occupied Bandwidt	h	Total P	ower	32.2 dBm			
		-					Detector
0.	3032 IVIN	2					Detector Peak►
Transmit Freq Error	16.717 ki	lz % of OE	3W Power	99.00 %		Auto	Man
x dB Bandwidth	9.874 MI	lz xdB		-26.00 dB			
MSG			-	STATUS			

Plot 7-62. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-63. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 49 of 202	
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Keysight Spectrum Analyzer - Occupied BW					
LXX RL RF 50Ω AC		SENSE:INT r Freq: 1.882500000 GHz Free Run Avg Hold:>	Radio Std:	Mar 27, 2018 None	Trace/Detector
		n: 36 dB	Radio Devi	ce: BTS	
10 dB/div Ref 40.00 dBm Log					
30.0					
20.0		man martleter and martleter			Clear Write
10.0					
0.00	/				
-10.0					Average
-20.0			Mr. martin and a star of the		
-30.0			a way along the second of the second	kirwan an a	
-40.0					Max Hold
-50.0					Maxiloid
Center 1.883 GHz Res BW 360 kHz	-4	VBW 1.1 MHz		87.5 MHz ep 1 ms	
Res BW 300 KH2	#		Swei	ep mis	Min Hold
Occupied Bandwidt	h	Total Power	32.8 dBm		
	.480 MHz				Detector
					Peak►
Transmit Freq Error	21.691 kHz	% of OBW Power	r 99.00 %		Auto <u>Man</u>
x dB Bandwidth	14.76 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-64. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-65. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager		
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XX RF 50 Ω AC CORREC SENSE:INT 09:44:20 PM Mar 27, 2018 Trace/Detect Center Free 1.882500000 GHz Radio Std: None Trig: Free Run Avg Hold: 100/100	
	tor
#IFGain:Low #Atten: 36 dB Radio Device: BTS	
10 dB/div Ref 40.00 dBm	
30.0	
20.0 Clear W	Irite
	_
-10.0 Aver	rage
-20.0	-
- 30.0 malagereight mouse while a second and	
-40.0 Max H	Ind
-50.0	1010
Center 1.883 GHz Span 37.5 MHz	
Res BW 360 kHz #VBW 1.1 MHz Sweep 1 ms Min H	lold
Occupied Bandwidth Total Power 30.9 dBm	
	atar
	ctor eak►
Transmit Freq Error 18.580 kHz % of OBW Power 99.00 % Auto	<u>Man</u>
x dB Bandwidth 14.75 MHz x dB -26.00 dB	
MSG STATUS	

Plot 7-66. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-67. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spectrum Analyzer - Occupied B	W				
LXIRL RF 50Ω AC	CORREC	SENSE:INT ter Freg: 1.882500000 GHz	09:48:07 PM Radio Std:	Mar 27, 2018 None	Trace/Detector
	🛶 Trig	j: Free Run Avg Hold:	: 100/100		
	#IFGain:Low #At	ten: 36 dB	Radio Devid	ce: BTS	
10 dB/div Ref 40.00 dBi	m				
30.0					
20.0	days and here and	warmer esteralization allowed allowed and			Clear Write
10.0					
0.00	/	\ \			
-10.0					Average
-20.0				and the second second	
-20.0 mphonestypet for more water					
-40.0					Max Hold
-50.0					maxitora
Center 1.883 GHz Res BW 470 kHz		#VBW 1.5 MHz		ep 1 ms	
			GNC		Min Hold
Occupied Bandwid	th	Total Power	32.2 dBm		
1	8.029 MHz				Detector
					Peak▶
Transmit Freq Error	13.321 kHz	% of OBW Powe	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	19.51 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-68. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-69. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Band 30



Plot 7-70. Occupied Bandwidth Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

Keysight Spectrum Analyzer - Occupied BW					- 6 -
X RL RF 50Ω AC	i i i i i i i i i i i i i i i i i i i	SENSE:INT enter Freq: 2.310000000 GHz ig: Free Run Avg Ho Atten: 36 dB	old: 100/100	08:49:48 PM Mar 29, 2018 Radio Std: None Radio Device: BTS	Trace/Detector
10 dB/div Ref 35.00 dBm		-maril 20 provide source			Clear Writ
5.00 5.00 15.0 25.0 			brown	My Multin American	Averag
45.0					Max Hol
Center 2.31 GHz Res BW 120 kHz		#VBW 390 kHz Total Power	31.4 (Span 12.5 MHz Sweep 1 ms	Min Hol
Occupied Bandwidth 4.5	5154 MHz		31.4 (16111	Detecto Peak
Transmit Freq Error x dB Bandwidth	1.489 kHz 4.983 MHz		wer 99.0 -26.00	00 %) dB	Auto <u>Ma</u>
6G			STATUS		

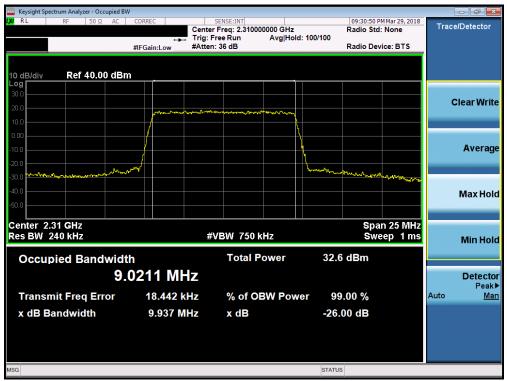
Plot 7-71. Occupied Bandwidth Plot (Band 30 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-72. Occupied Bandwidth Plot (Band 30 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-73. Occupied Bandwidth Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 52 of 262
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Keysight Spectrum Analyzer - Occupied B\					
LX RL RF 50Ω AC		SENSE:INT r Freg: 2.310000000 GHz		30:58 PM Mar 29, 2018 io Std: None	Trace/Detector
		Free Run Avg Hol 1: 36 dB	d:>100/100 Rad	io Device: BTS	
	#IFGalli.Low #/ tter		Ruu	o Bernae: B To	
10 dB/div Ref 40.00 dBr	n				
Log					
30.0					Clear Write
20.0	Manna	- marine and a marine			Cical Millo
10.0					
0.00					•
-10.0					Average
-20.0	wpwl		Murrennen		
-30.0				Carlo - Carlo Maria	
-40.0					Max Hold
-50.0					
Center 2.31 GHz				Span 25 MHz	
Res BW 240 kHz	#	VBW 750 kHz		Sweep 1 ms	Min Hold
Occupied Bandwidt	th	Total Power	31.9 dB	m	
	 0318 MHz				Detector
9.					Peak
Transmit Freq Error	18.318 kHz	% of OBW Pow	ver 99.00	%	Auto <u>Man</u>
x dB Bandwidth	9.891 MHz	x dB	-26.00 d	В	
MSG			STATUS		

Plot 7-74. Occupied Bandwidth Plot (Band 30 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-75. Occupied Bandwidth Plot (Band 30 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage E4 of 202
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Band 7



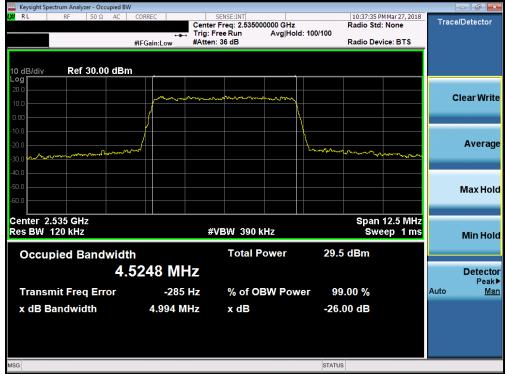
Plot 7-76. Occupied Bandwidth Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

Keysight Spectrum Analyzer - Occupied BW χ RL RF 50 Ω AC	🛶 Trig	SENSE:INT ter Freq: 2.535000000 G j: Free Run Avg ten: 36 dB	iHz Hold: 100/100	10:37:27 PM Mar 27, 201 Radio Std: None Radio Device: BTS	B Trace/Detector
10 dB/div Ref 30.00 dBm Log 20.0 10.0 0.00		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~		Clear Write
-10.0 -20.0 -30.0			homen	hundred	Average
-60.0					Max Hold
Center 2.535 GHz Res BW 120 kHz Occupied Bandwidth		#VBW 390 kHz Total Power	30.3	Span 12.5 MH Sweep 1 m 3 dBm	
	5164 MHz				Detecto
Transmit Freq Error x dB Bandwidth	2.939 kHz 5.001 MHz	% of OBW F x dB		9.00 % .00 dB	Auto <u>Mar</u>
SG			STATU	S	

Plot 7-77. Occupied Bandwidth Plot (Band 7 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-78. Occupied Bandwidth Plot (Band 7 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-79. Occupied Bandwidth Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spectrum Analyzer - Occupied BW					
LXI RL RF 50Ω AC		SENSE:INT enter Freq: 2.535000		10:43:52 PM Mar 27, Radio Std: None	,2018 Trace/Detector
		rig: Free Run Atten: 36 dB	Avg Hold: 100/100	Radio Device: BT	s
,					
10 dB/div Ref 30.00 dBm					
20.0					
10.0	munnon	warmen and a second and the	Mrcharman		Clear Write
0.00					
-10.0	/				
-20.0					Average
-30.0 montal Manual Contraction				and and an an and a start a start a start a start a	-Muale
-40.0					
-50.0					Max Hold
-60.0					
Center 2.535 GHz				Span 25 ľ	MHz
Res BW 240 kHz		#VBW 750 kł	lz	Sweep 1	
Occupied Bandwidt	b	Total Po	wer 30 f	5 dBm	
					Detector
Ö.					Detector Peak
Transmit Freq Error	14.173 kHz	% of OB	W Power 99	9.00 %	Auto <u>Mar</u>
x dB Bandwidth	9.823 MHz	x dB	-26.	00 dB	
MSG			STATU	S	

Plot 7-80. Occupied Bandwidth Plot (Band 7 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-81. Occupied Bandwidth Plot (Band 7 - 10.0MHz 64-QAM - Full RB Configuration)

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Keysight Spectrum Analyzer - Occupied E	W				
LXU RL RF 50Ω AC		SENSE:INT enter Freq: 2.535000000 ig: Free Run Av		0:45:29 PM Mar 27, 2018 dio Std: None	Trace/Detector
	#IFGain:Low #A	tten: 36 dB	Ra	dio Device: BTS	
10 dB/div Ref 30.00 dB	m				
20.0 10.0	Andrea and a second	and the second and the second s	~~~		Clear Write
-10.0					
-20.0 comprometer the March and	promotion in the second		and make you and	www.annowsaylijian	Average
-40.0					Max Hold
-60.0 Center 2.535 GHz				Span 37.5 MHz	
Res BW 360 kHz		#VBW 1.1 MHz		Sweep 1 ms	Min Hold
Occupied Bandwid	th 3.489 MHz	Total Powe	er 31.4 dE	sm	Detector
Transmit Freq Error	22.633 kHz		Power 99.00	%	Peak▶ Auto <u>Man</u>
x dB Bandwidth	14.75 MHz	x dB	-26.00	dB	
MSG			STATUS		

Plot 7-82. Occupied Bandwidth Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-83. Occupied Bandwidth Plot (Band 7 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager		
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Keysight Spectrum Analyzer - Occupied B\	N					_	
XXIRL RF 50Ω AC	CORREC	SENSE:INT Center Freq: 2.535000 Trig: Free Run	0000 GHz Avg Hold: 100/1	Radio Std:		Tracel	Detector
	#IFGain:Low	#Atten: 36 dB		Radio Dev	ce: BTS		
10 dB/div Ref 30.00 dBr Log	n						
20.0 10.0	monun	per-mit-setter	rundersey			с	ear Write
-10.0							
-20.0	~~~~~		hun	www.turnerlandum.dum	-month and have a second		Average
-40.0							Max Hold
-60.0 Center 2.535 GHz				Snan	37.5 MHz		
Res BW 360 kHz		#VBW 1.1 M		Swe	ep 1 ms		Min Hold
Occupied Bandwidt	th	Total Po	ower	29.3 dBm			
	3.494 MH						Detector Peak▶
Transmit Freq Error	15.369 kl	Hz % of OE	3W Power	99.00 %		Auto	<u>Man</u>
x dB Bandwidth	14.72 Mł	Hz xdB		-26.00 dB			
MSG				STATUS			

Plot 7-84. Occupied Bandwidth Plot (Band 7 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-85. Occupied Bandwidth Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager			
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Keysight Spectrum Analyzer - Occupied BW							
LXI RL RF 50Ω AC	CORREC	SENSE:INT Center Freq: 2.53500	0000 GHz	11:01:17 PM Radio Std:	1 Mar 27, 2018 None	Trace/D	etector
	↔ #IFGain:I ow	Trig: Free Run #Atten: 36 dB	Avg Hold: 100/	/100 Radio Devi	ce: BTS		
	In Gam. Low						
10 dB/div Ref 30.00 dBm							
Log 20.0							
10.0	an and the second second	๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛	Munanya.			Cle	ear Write
0.00							
-10.0	/		<u> </u>				
-20.0							Average
-30.0 Hardlander and the				and the second second	Ammini		-
-40.0							
-50.0							lax Hold
-60.0							iux noiu
				0	CO MUL		
Center 2.535 GHz Res BW 470 kHz		#VBW 1.5 M	Hz		n 50 MHz ep 1 ms		din Hald
							Vin Hold
Occupied Bandwidt	h	Total P	ower	30.5 dBm			
17	.984 M⊦	lz				I	Detector
Transmit Freq Error	12.221 k	Hz % of OE	3W Power	99.00 %		Auto	Peak▶ <u>Man</u>
x dB Bandwidth	19.50 M	Hz x dB		-26.00 dB			
X db Ballamati	10.00 11			20100 02			
MSG				STATUS			

Plot 7-86. Occupied Bandwidth Plot (Band 7 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-87. Occupied Bandwidth Plot (Band 7 - 20.0MHz 64-QAM - Full RB Configuration)

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Band 41



Plot 7-88. Occupied Bandwidth Plot (Band 41 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-89. Occupied Bandwidth Plot (Band 41 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
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Plot 7-90. Occupied Bandwidth Plot (Band 41 - 5.0MHz 64-QAM - Full RB Configuration)



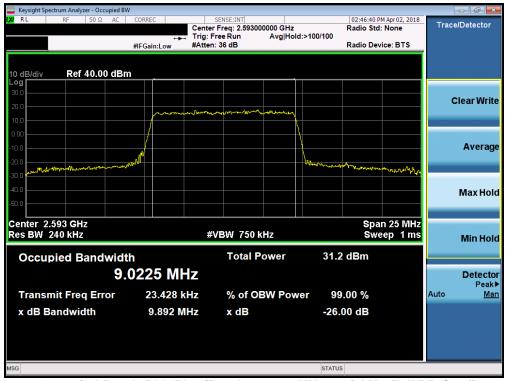
Plot 7-91. Occupied Bandwidth Plot (Band 41 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spectrum Analyzer - Occupied BW						
LX RL RF 50Ω AC	CORREC Cente	SENSE:INT Freg: 2.593000000 GHz		08 PM Apr 02, 2018 Std: None	Trace/I	Detector
	🛶 Trig: I		d: 100/100	Device: BTS		
	#IFGain:Low #Atter	n. 36 dB	Radio	Device: B13		
10 dB/div Ref 40.00 dBm						
30.0						
20.0		and the second development of			CI	ear Write
10.0						
0.00	/					
-10.0			<u>\</u>			Average
-20.0	л¶ — — —		hummer	20		
-30.0				- Canal Martin and		
-40.0						Max Hold
-50.0						nux noru
Center 2.593 GHz Res BW 240 kHz		VBW 750 kHz		pan 25 MHz weep 1 ms		
Res BW 240 KH2	#			weep ms		Min Hold
Occupied Bandwidth	1	Total Power	32.4 dBm			
)402 MHz					Detector
						Peak►
Transmit Freq Error	11.258 kHz	% of OBW Pow	er 99.00 %		Auto	Man
x dB Bandwidth	9.906 MHz	x dB	-26.00 dB			
MSG			STATUS			

Plot 7-92. Occupied Bandwidth Plot (Band 41 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-93. Occupied Bandwidth Plot (Band 41 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied BV	v .					
LXX RL RF 50Ω AC		SENSE:INT r Freg: 2.593000000 GHz	02:47:19 Pf Radio Std:	4 Apr 02, 2018 None	Trace/D	etector
	🛶 Trig: F	Free Run Avg Hold: 10 n: 36 dB				
	#IFGain:Low #Atten	1: 36 dB	Radio Dev	ICE: DIS		
10 dB/div Ref 40.00 dBn	n					
30.0					Cla	ar Write
20.0		and and the second and			Cie	arwrite
10.0						
0.00						
-10.0					1	Average
-20.0 -30.0 with monoral and a first and a first and a first a	M		- Anna Marriell	montingunt		
-30.0 Anthe American and American and American and American and American and American Ameri American American A						
-40.0					N	lax Hold
-50.0						
Center 2.593 GHz			Span	37.5 MHz		
Res BW 360 kHz	#	VBW 1.1 MHz		ep 1ms	Ν	/lin Hold
	-	Total Power	33.1 dBm			
Occupied Bandwidt		Total Power	55.1 UBIII			
13	3.517 MHz				ſ	Detector Peak►
Transmit Freq Error	16.913 kHz	% of OBW Power	99.00 %		Auto	Peak► <u>Man</u>
x dB Bandwidth	14.87 MHz	x dB	-26.00 dB			
	14.07 1112	X db	-20.00 UD			
MSG			STATUS			

Plot 7-94. Occupied Bandwidth Plot (Band 41 - 15.0MHz QPSK - Full RB Configuration)



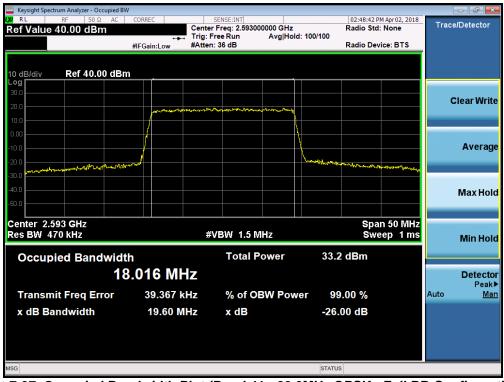
Plot 7-95. Occupied Bandwidth Plot (Band 41 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
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Keysight Spectrum Analyzer - Occupied	BW			
LXI RL RF 50Ω AC		SENSE:INT Freg: 2.593000000 GHz	02:47:44 PM Apr 02, 2018 Radio Std: None	Trace/Detector
	🛶 Trig: F	ree Run Avg Hold: 10 : 36 dB		
	#IFGain:Low #Atten	: 36 dB	Radio Device: B 1 S	
10 dB/div Ref 40.00 dB	sm			
30.0				
20.0	a some has some harred	n a mout all all all and all and a look and a		Clear Write
10.0				
0.00				
-10.0	<u>{ </u>			Average
-20.0	m-Nula		man the balance march 1	
-30.0 Argenter and				
-40.0				Max Hold
-50.0				
Center 2.593 GHz			Span 37.5 MHz	
Res BW 360 kHz	#	VBW 1.1 MHz	Sweep 1 ms	Min Hold
		T-4-1 D-mar	24.4 JDm	
Occupied Bandwid		Total Power	31.1 dBm	
1	3.494 MHz			Detector
Transmit Freq Error	12.481 kHz	% of OBW Power	99.00 %	Peak▶ Auto <u>Man</u>
x dB Bandwidth	14.74 MHz	x dB	-26.00 dB	
	14.74 WIF12	X UB	-20.00 08	
MSG			STATUS	

Plot 7-96. Occupied Bandwidth Plot (Band 41 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-97. Occupied Bandwidth Plot (Band 41 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager			
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🔤 Keysight Spectrum Analyzer - Occupied BW						
(X) RL RF 50 Ω AC Ref Value 40.00 dBm	Center	SENSE:INT Freq: 2.593000000 GHz	02:48:53 F Radio Std	PM Apr 02, 2018 I: None	Trace/Det	ector
		ree Run Avg Hold: : 36 dB	>100/100 Radio Dev	vice: BTS		
,						
10 dB/div Ref 40.00 dBm						
Log 30.0						
20.0	and an a seal of the second se				Clea	r Write
10.0	hourselene	nonter for the section of the former of				
0.00		\				
-10.0					A	verage
-20.0 Any of allow Mary and	and		Hand between the strategic marketing	maningen		
-30.0						
-40.0					Ма	x Hold
Center 2.593 GHz Res BW 470 kHz	-#1	/BW 1.5 MHz		n 50 MHz eep 1 ms		
Res DW 470 KHZ	77			eep mis	Mi	n Hold
Occupied Bandwidth	1	Total Power	32.2 dBm			
18	.001 MHz				D	etector
Transmit Freq Error	7.340 kHz	% of OBW Powe	r 99.00 %		Auto	Peak▶ <u>Man</u>
x dB Bandwidth	19.53 MHz	x dB	-26.00 dB			
			Loto dB			
MSG			STATUS			

Plot 7-98. Occupied Bandwidth Plot (Band 41 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-99. Occupied Bandwidth Plot (Band 41 - 20.0MHz 64-QAM - Full RB Configuration)

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7.3 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 its maximum duty cycle, 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 $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

For Band 30, the minimum permissible attenuation level of any spurious emission <2288MHz and >2365MHz is 70 + log10(P[Watts]).

For Band 7 and 41, the minimum permissible attenuation level of any spurious emission is $55 + log_{10}(P_{[Watts]})$.

Test Procedure Used

KDB 971168 D01 v03 - Section 6.0

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (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.

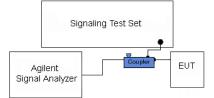


Figure 7-2. Test Instrument & Measurement Setup

Test Notes

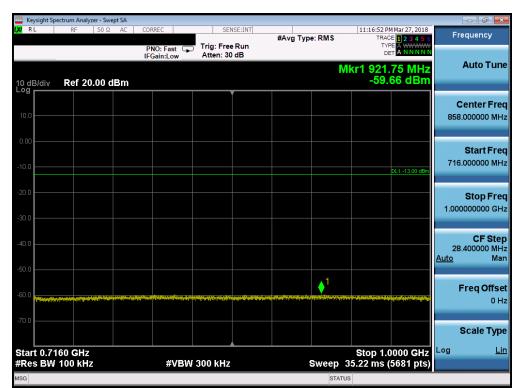
Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the 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.

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		ctrum Ana	lyzer - Swep											
l,XI F	RL	RF	50 Ω	AC	CORREC			NSE:INT	#Avg Typ	e: RMS	TRAC	Mar 27, 2018 E 1 2 3 4 5 6 E A WWWW	F	requency
	B/div	Ref 2	:0.00 dl	Bm	PNO: I IFGain	Fast 🖵 n:Low	Atten: 30			Γ	DE Mkr1 697.			Auto Tune
Log 10.0														Center Freq 3.950000 MHz
0.00 -10.0												DL1 -13.00 dBm	30	Start Freq 0.000000 MHz
-20.0													69	Stop Freq 7.900000 MHz
-40.0												1	60 <u>Auto</u>	CF Step 6.790000 MHz Man
-60.0		enne anglister ang see	e tepel e se de la stale e	gant the latin Anne parties	ada tada at la sana a da sa da sa sa sa	abaa daa siina daa saa y Xiyy Maxaa daa ka daxa		, the local state is a second	n a film an	ingen og þá skalafar sk Ingen og þa skalari fri	tinte en skiepstynsjogener Gjys Hinselinischer gegenerij	en politica e economica Politica la president des		Freq Offset 0 Hz
-70.0														Scale Type
	rt 30.0 Is BW	MHz 100 kH	z			#VBW	/ 300 kHz		s	weep 8	8 Stop 1) Stop	97.9 MHz 3359 pts)	Log	<u>Lin</u>
MSG				_	_	_				STAT				

Plot 7-100. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-101. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

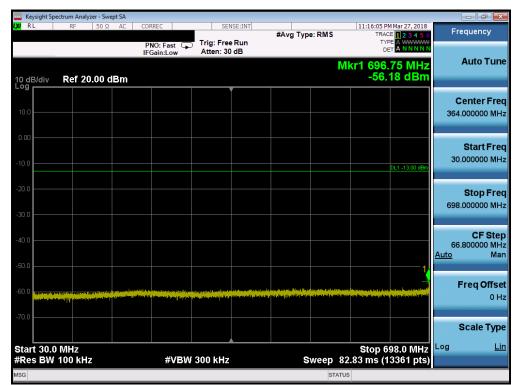
FCC ID: ZNFV350A		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	pectrum Analyzer - Sv	vept SA									×
LXI RL	RF 50 S	AC (CORREC	SEN	SE:INT	#Avg Typ	e: RMS		Mar 27, 2018	Frequency	у
	_		PNO: Fast IFGain:Low	Trig: Free #Atten: 30				TYP		Auto T	iune
10 dB/div Log	Ref 0.00 d	Bm						-42.	97 dBm		
										Center I	
-10.0									DL1 -13.00 dBm	5.500000000	GHz
-20.0											
-30.0										Start F 1.000000000	
-30.0											
-40.0								├─ � ¹ ─		Stop F	Freq
-50.0		alessa katabada Magazita di Kita	film of the group of the second s			Patricia International Anticipation of the patrice	(hand the second de		a statistica de la com	10.000000000	GHz
and the second second										CFS	Sten
-60.0										900.000000	
-70.0										Auto	wan
-80.0										Freq Of	ffset
-80.0											0 Hz
-90.0										Scale T	Type
Start 1.0 #Res BW			#VBW	3.0 MHz		s	weep 1	Stop 10 5.60 ms (1	000 0112	Log	Lin
MSG							STATU				

Plot 7-102. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-103. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

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