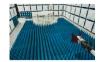


PCTEST

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 USA, Inc. 1000 Sylvan Avenue Englewood Cliffs, NJ 07632 United States

Date of Testing:

2/24 – 4/10/2020 **Test Site/Location:** PCTEST Lab. Columbia, MD, USA **Test Report Serial No.:** 1M2002250026-02-R1.ZNF

FCC ID:

ZNFK300TM

Certification

APPLICANT:

LG Electronics USA, Inc.

Application Type: Model: Additional Model(s):

EUT Type: FCC Classification: FCC Rule Part(s): Test Procedure(s): LM-K300TM LM-K300TMS, LMK300TM, LMK300TMS, K300TM, K300TMS, LM-K300MM, LMK300MM, K300MM Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 22, 24, & 27 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.

This revised Test Report (S/N: 1M2002250026-02-R1.FCC Report SNs) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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



			ERP		EIRP				
Mode	FCC Rule Part	Tx Frequency (MHz)	Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)	Emission Designator	Modulation	
LTE Band 71	27	665.5 - 695.5	0.063	17.98			4M54G7D	QPSK	
LTE Band 71	27	665.5 - 695.5	0.053	17.27			4M53W7D	16QAM	
LTE Band 71	27	665.5 - 695.5	0.030	15.99			4M55W7D	64QAM	
LTE Band 71	27	668 - 693	0.040	17.93			9M06G7D	QPSK	
LTE Band 71	27	668 - 693	0.052	17.18			9M02W7D	16QAM	
LTE Band 71	27	668 - 693	0.039	15.90			9M06W7D	64QAM	
LTE Band 71	27	670.5 - 690.5	0.059	17.70			13M5G7D	QPSK	
LTE Band 71	27	670.5 - 690.5	0.052	17.12			13M5W7D	16QAM	
LTE Band 71	27	670.5 - 690.5	0.032	15.96			13M5W7D	64QAM	
LTE Band 71	27	673 - 688	0.062	17.90			18M0G7D	QPSK	
LTE Band 71	27	673 - 688	0.048	16.80			18M1W7D	16QAM	
LTE Band 71	27	673 - 688	0.048	15.73			18M0W7D	64QAM	
LTE Band 12	27	699.7 - 715.3	0.037	15.64	0.060	17.79	1M10G7D	QPSK	
LTE Band 12	27	699.7 - 715.3	0.037	14.40	0.080	16.55	1M10G7D	16QAM	
LTE Band 12	27	699.7 - 715.3	0.028	13.92	0.045	16.07	1M10W7D	64QAM	
LTE Band 12	27	700.5 - 714.5	0.025	15.69	0.040	17.84	2M69G7D	QPSK	
LTE Band 12	27	700.5 - 714.5	0.037	15.69	0.061	17.04	2M69W7D	16QAM	
	27					17.12		64QAM	
LTE Band 12		700.5 - 714.5	0.031	14.97	0.052	17.12	2M70W7D	QPSK	
LTE Band 12	27 27	701.5 - 713.5	0.038	15.82	0.063	17.89	4M55G7D		
LTE Band 12	27	701.5 - 713.5 701.5 - 713.5	0.037	15.74 14.74	0.062	16.89	4M54W7D	16QAM 64QAM	
LTE Band 12					0.049		4M54W7D	QPSK	
LTE Band 12	27 27	704 - 711 704 - 711	0.075	18.77		20.92	9M07G7D		
LTE Band 12 LTE Band 12	27	704 - 711	0.056	17.52 16.31	0.093	19.67 18.46	9M02W7D 9M05W7D	16QAM 64QAM	
	27	779.5 - 784.5				20.50		QPSK	
LTE Band 13			0.068	18.35	0.112		4M52G7D		
LTE Band 13	27 27	779.5 - 784.5 779.5 - 784.5	0.057	17.56	0.094	19.71	4M51W7D	16QAM	
LTE Band 13			0.044	16.48	0.073	18.63	4M52W7D	64QAM	
LTE Band 13	27 27	782	0.071	18.54	0.117	20.69	9M00G7D	QPSK 1000M	
LTE Band 13	27	782	0.054	17.32 16.22	0.089	19.47	8M99W7D	16QAM	
LTE Band 13		782	0.042		0.069	18.37	9M00W7D	64QAM	
LTE Band 26/5	22H 22H	824.7 - 848.3	0.076	18.82	0.125	20.97 20.10	1M10G7D	QPSK 1004M	
LTE Band 26/5	22H 22H	824.7 - 848.3	0.062	17.95	0.102		1M11W7D	16QAM	
LTE Band 26/5		824.7 - 848.3	0.047	16.68	0.076	18.83	1M10W7D	64QAM	
LTE Band 26/5 LTE Band 26/5	22H 22H	825.5 - 847.5	0.075	18.77 17.92	0.124	20.92 20.07	2M69G7D	QPSK 1000M	
		825.5 - 847.5	1				2M69W7D	16QAM	
LTE Band 26/5	22H	825.5 - 847.5	0.050	17.00	0.082	19.15	2M69W7D	64QAM	
LTE Band 26/5	22H 22H	826.5 - 846.5	0.078	18.90	0.127	21.05	4M51G7D	QPSK 160AM	
LTE Band 26/5		826.5 - 846.5	0.062	17.93	0.102	20.08	4M51W7D	16QAM	
LTE Band 26/5	22H 22H	826.5 - 846.5	0.050	16.95	0.081	19.10 21.05	4M52W7D	64QAM QPSK	
LTE Band 26/5		829 - 844	0.078	18.90			9M10G7D		
LTE Band 26/5	22H	829 - 844	0.062	17.94	0.102	20.09	9M01W7D	16QAM	
LTE Band 26/5	22H	829 - 844	0.048	16.79	0.078	18.94	9M01W7D	64QAM	
LTE Band 26	22H	831.5 - 841.5	0.078	18.92	0.128	21.07	13M5G7D	QPSK 1004M	
LTE Band 26	22H	831.5 - 841.5	0.060	17.76	0.098	19.91	13M5W7D	16QAM	
LTE Band 26	22H	831.5 - 841.5	0.048	16.83	0.079	18.98	13M5W7D	64QAM	

EUT Overview (<1 GHz)

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			EI	RP		
Mode	FCC Rule Part	Tx Frequency (MHz)	Max. Power (W)	Max. Power (dBm)	Emission Designator	Modulation
LTE Band 66/4	27	1710.7 - 1779.3	0.153	21.84	1M10G7D	QPSK
LTE Band 66/4	27	1710.7 - 1779.3	0.114	20.55	1M10W7D	16QAM
LTE Band 66/4	27	1710.7 - 1779.3	0.095	19.80	1M10W7D	64QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.153	21.86	2M69G7D	QPSK
LTE Band 66/4	27	1711.5 - 1778.5	0.117	20.67	2M69W7D	16QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.099	19.94	2M70W7D	64QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.154	21.87	4M53G7D	QPSK
LTE Band 66/4	27	1712.5 - 1777.5	0.122	20.85	4M53W7D	16QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.095	19.80	4M55W7D	64QAM
LTE Band 66/4	27	1715 - 1775	0.154	21.88	9M09G7D	QPSK
LTE Band 66/4	27	1715 - 1775	0.120	20.80	9M02W7D	16QAM
LTE Band 66/4	27	1715 - 1775	0.094	19.75	9M04W7D	64QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.154	21.88	13M6G7D	QPSK
LTE Band 66/4	27	1717.5 - 1772.5	0.118	20.72	13M5W7D	16QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.094	19.71	13M5W7D	64QAM
LTE Band 66/4	27	1720 - 1770	0.155	21.91	18M0G7D	QPSK
LTE Band 66/4	27	1720 - 1770	0.124	20.93	18M0W7D	16QAM
LTE Band 66/4	27	1720 - 1770	0.098	19.91	18M1W7D	64QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.185	22.66	1M10G7D	QPSK
LTE Band 25/2	24E	1850.7 - 1914.3	0.151	21.78	1M10W7D	16QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.119	20.77	1M10W7D	64QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.185	22.68	2M69G7D	QPSK
LTE Band 25/2	24E	1851.5 - 1913.5	0.153	21.84	2M69W7D	16QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.121	20.81	2M70W7D	64QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.187	22.72	4M54G7D	QPSK
LTE Band 25/2	24E	1852.5 - 1912.5	0.150	21.77	4M52W7D	16QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.121	20.84	4M54W7D	64QAM
LTE Band 25/2	24E	1855 - 1910	0.187	22.72	9M05G7D	QPSK
LTE Band 25/2	24E	1855 - 1910	0.150	21.76	9M02W7D	16QAM
LTE Band 25/2	24E	1855 - 1910	0.121	20.83	9M04W7D	64QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.187	22.72	13M6G7D	QPSK
LTE Band 25/2	24E	1857.5 - 1907.5	0.153	21.84	13M5W7D	16QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.122	20.85	13M5W7D	64QAM
LTE Band 25/2	24E	1860 - 1905	0.187	22.73	18M0G7D	QPSK
LTE Band 25/2	24E	1860 - 1905	0.137	21.38	18M0W7D	16QAM
LTE Band 25/2	24E	1860 - 1905	0.112	20.51	18M0W7D	64QAM

EUT Overview (Mid Bands)

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			EIRP			
Mode	FCC Rule Part	Tx Frequency (MHz)	Max. Power (W)	Max. Power (dBm)	Emission Designator	Modulation
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.394	25.96	4M51G7D	QPSK
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.325	25.12	4M52W7D	16QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.252	24.02	4M53W7D	64QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.404	26.06	9M05G7D	QPSK
LTE Band 41 (PC2)	27	2501 - 2685	0.338	25.29	9M01W7D	16QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.255	24.06	9M00W7D	64QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.385	25.85	13M5G7D	QPSK
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.322	25.08	13M5W7D	16QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.243	23.85	13M5W7D	64QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.406	26.08	18M0G7D	QPSK
LTE Band 41 (PC2)	27	2506 - 2680	0.333	25.22	17M9W7D	16QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.283	24.51	18M0W7D	64QAM
LTE Band 41 (PC3)	27	2498.5 - 2687.5	0.201	23.04	4M51G7D	QPSK
LTE Band 41 (PC3)	27	2498.5 - 2687.5	0.162	22.09	4M52W7D	16QAM
LTE Band 41 (PC3)	27	2498.5 - 2687.5	0.121	20.83	4M51W7D	64QAM
LTE Band 41 (PC3)	27	2501 - 2685	0.200	23.00	9M02G7D	QPSK
LTE Band 41 (PC3)	27	2501 - 2685	0.155	21.90	9M02W7D	16QAM
LTE Band 41 (PC3)	27	2501 - 2685	0.118	20.71	9M02W7D	64QAM
LTE Band 41 (PC3)	27	2503.5 - 2682.5	0.201	23.03	13M5G7D	QPSK
LTE Band 41 (PC3)	27	2503.5 - 2682.5	0.158	21.98	13M5W7D	16QAM
LTE Band 41 (PC3)	27	2503.5 - 2682.5	0.118	20.71	13M5W7D	64QAM
LTE Band 41 (PC3)	27	2506 - 2680	0.207	23.16	18M0G7D	QPSK
LTE Band 41 (PC3)	27	2506 - 2680	0.179	22.53	18M0W7D	16QAM
LTE Band 41 (PC3)	27	2506 - 2680	0.146	21.64	18M0W7D	64QAM

EUT Overview (High Bands)

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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 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: ZNFK300TM**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 10169, 10177, 10276, 10284, 10292, 10300

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A (BC0, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multiband LTE, 802.11b/g/n WLAN,802.11a/n/ac UNII, Bluetooth (1x, EDR, LE).

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 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

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 v03r01) were used in the measurement of the EUT.

3.2 Block C Frequency Range

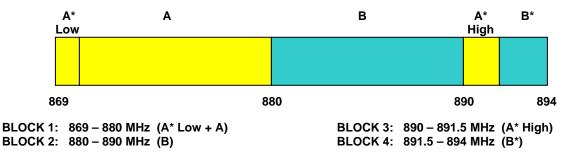
Two paired channels of 11 megahertz each are available for assignment in Block C in the 746-757 MHz and 776-787 MHz bands. In the event that no licenses for two channels in this Block C are assigned based on the results of the first auction in which such licenses were offered because the auction results 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

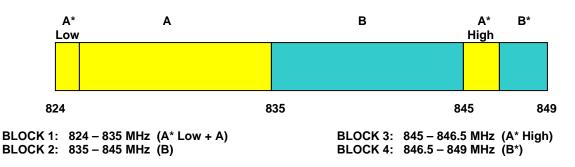
<u>698-746 MHz band</u>. The following frequencies are available for licensing pursuant to this part in the 698-746 MHz band: (1) Three paired channel blocks of 12 megahertz each are available for assignment as follows:

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



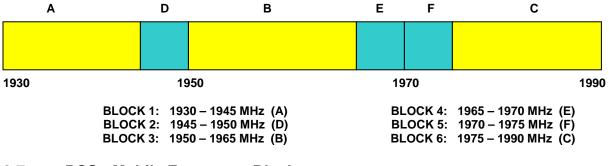
3.5 Cellular - Mobile Frequency Blocks



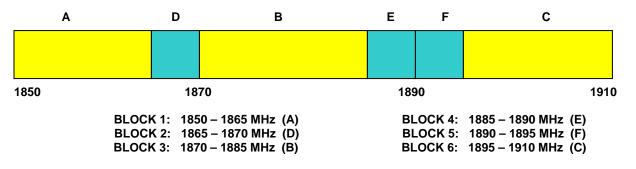
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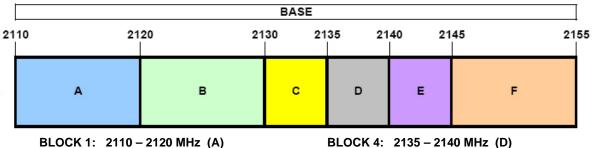
3.6 PCS - Base Frequency Blocks



3.7 PCS - Mobile Frequency Blocks

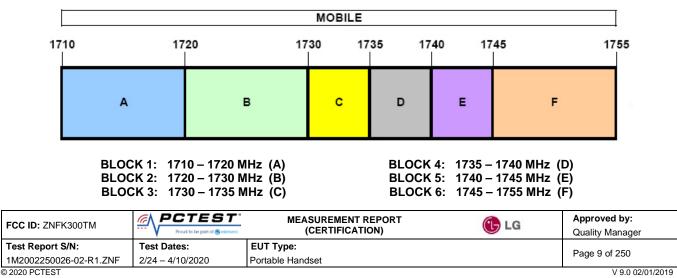


3.8 AWS - Base Frequency Blocks



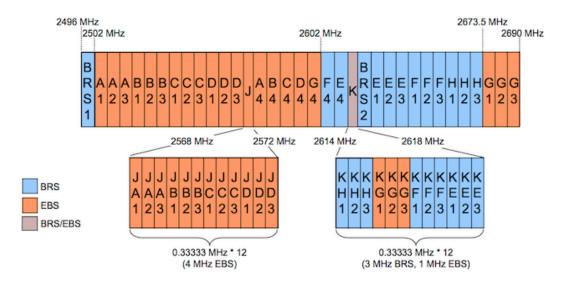
BLOCK 2: 2120 – 2130 MHz (R) BLOCK 2: 2120 – 2130 MHz (B) BLOCK 3: 2130 – 2135 MHz (C) BLOCK 4: 2135 – 2140 MHz (D) BLOCK 5: 2140 – 2145 MHz (E) BLOCK 6: 2145 – 2155 MHz (F)

3.9 AWS - Mobile Frequency Blocks





3.10 BRS/EBS Frequency Block



3.11 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 v03r01.

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:

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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 + 10 log₁₀(Power [Watts]). For Band 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 + 10 log₁₀(Power [Watts]).

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 474788 D01.

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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
-	LTx1	Licensed Transmitter Cable Set	6/4/2019	Annual	6/4/2020	LTx1
-	LTx2	Licensed Transmitter Cable Set	10/30/2019	Annual	10/30/2020	LTx2
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	4/20/2020	US46470561
Agilent	N9038A	MXE EMI Receiver	7/17/2019	Annual	7/17/2020	MY51210133
Agilent	N9030A	PXA Signal Analyzer (44GHz)	6/12/2019	Annual	6/12/2020	MY52350166
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2019	Biennial	10/10/2021	121034
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	5/10/2019	Annual	5/10/2020	441112
Espec	ESX-2CA	Environmental Chamber	6/13/2019	Annual	6/13/2020	17620
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	4/19/2019	Annual	4/19/2020	11401010036
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		11208010032
Rohde & Schwarz	CMW500	Radio Communication Tester		N/A		100976
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	6/5/2019	Annual	6/5/2020	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/23/2019	Annual	9/23/2020	100348
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/11/2019	Annual	7/11/2020	102134
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/8/2019	Annual	7/8/2020	102133
Sunol	DRH-118	Horn Antenna (1-18GHz)	10/3/2019	Biennial	10/3/2021	A050307

Table 5-1. Test Equipment

Notes:

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 USA, Inc.
FCC ID:	ZNFK300TM
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	<u>LTE</u>

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A			Section 7.2
2.1051 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Out of Band Emissions	> 43 + 10 log ₁₀ (P[Watts]) at Band Edge and for all out-of- band emissions		PASS	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
24.232(d) 27.50	Peak-Average Ratio	< 13 dB	CONDUCTED		Section 7.5
2.1046	Transmitter Conducted Output Power	N/A			See RF Exposure Report
27.53(m)	Uplink Carrier Aggregation	>43 + 10log(P[Watts]) at Band Edge and for all out-of-band emissions			Section 7.6
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 7.10

Table 7-1. Summary of Conducted Test Results

FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager	
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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 5/26)	< 7 Watts max. ERP			Section 7.6
27.50(b)(10) 27.50(c)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 71, 12, 13)	< 3 Watts max. ERP			Section 7.6
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2/25, 71, 41)	< 2 Watts max. EIRP			Section 7.6
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4/66)	< 1 Watts max. EIRP		PASS	Section 7.6
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions (Band 12, 13, 26/5 ,66/4 , 25/2)	> 43 + 10 log ₁₀ (P[Watts]) for all out-of-band emissions	RADIATED		Section 7.8
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 7.8
27.53(m)	Undesirable Emissions (Band 71)	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.8
27.53(m)	Uplink Carrier Aggregation	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.8

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 5.3.

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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 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 7-1. Test Instrument & Measurement Setup

Test Notes

None.

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Band 71



Plot 7-1. Occupied Bandwidth Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-2. Occupied Bandwidth Plot (Band 71 - 5.0MHz 16-QAM - Full RB Configuration)

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Keysight Spectrum Analyzer - Occupied BW					
LXU RL RF 50Ω DC		SENSE:INT nter Freq: 680.500000 MI g: Free Run Avg		5:10 PM Feb 25, 2020 5 Std: None	Trace/Detector
		tten: 36 dB		Device: BTS	
10 dB/div Ref 40.00 dBm					
30.0 20.0		an Marine Marine C			Clear Write
10.0					
-10.0 -20.0 -30.0			- A.	᠕ᠰᠰᠰ᠋ᠵ᠘	Average
-30.0					Max Hold
Center 680.500 MHz Res BW 120 kHz		#VBW 390 kHz		an 12.50 MHz Sweep 1 ms	Min Hold
Occupied Bandwidth		Total Power	r 30.9 dBn	n	
4.5	495 MHz				Detector Peak▶
Transmit Freq Error	-4.920 kHz	% of OBW F	ower 99.00 %	6	Auto <u>Man</u>
x dB Bandwidth	5.199 MHz	x dB	-26.00 di	3	
MSG			STATUS		

Plot 7-3. Occupied Bandwidth Plot (Band 71 - 5.0MHz 64-QAM - Full RB Configuration)



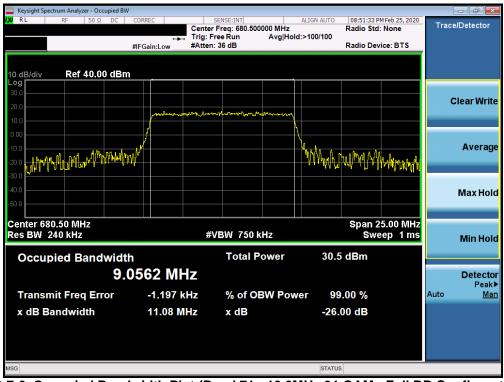
Plot 7-4. Occupied Bandwidth Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)

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Keysight Spectrum Analyzer - Occupied B	W				
UX RL RF 50 Ω DC	Center Trig: F	SENSE:INT r Freq: 680.500000 MHz Free Run Avg Hold: n: 36 dB	Radio Std:		Trace/Detector
10 dB/div Ref 40.00 dBr	m				
30.0 20.0	jon warmen a worker of	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Clear Write
10.0 0.00 -10.0 -20.0	And a second		humbergen man	all free on the second	Average
-40.0					Max Hold
Center 680.50 MHz Res BW 240 kHz		VBW 750 kHz	Swe	5.00 MHz ep 1 ms	Min Hold
	Occupied Bandwidth Total Power 31.7 dBm 9.0155 MHz				
Transmit Freq Error x dB Bandwidth	9.226 kHz 10.02 MHz	% of OBW Powe x dB	₽r 99.00 % -26.00 dB		Peak≯ Auto <u>Man</u>
MSG			STATUS		

Plot 7-5. Occupied Bandwidth Plot (Band 71 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-6. Occupied Bandwidth Plot (Band 71 - 10.0MHz 64-QAM - Full RB Configuration)

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Keysight Spectrum Analyzer - Occupied BW								
LXU RE 50Ω DC	CORREC	SENSE:INT enter Freg: 680.500			08:54:03 PN adio Std:	1Feb 25, 2020	Trace	/Detector
	Tr	ig: Free Run	Avg Hold:	100/100				
	#IFGain:Low #A	Atten: 36 dB		к	adio Devi	ce: BTS		
10 dB/div Ref 40.00 dBm								
30.0								
20.0	Alter Denselberg	an a long the second	de se entre				C	lear Write
10.0								
0.00	/		\					
-10.0	/							Average
-20.0				When my marine	me marily	barler/Milliographics		
-30.0								
-40.0								Max Hold
-50.0								wax noiu
Center 680.50 MHz Res BW 360 kHz		#VBW 1.1 №	1.J			7.50 MHz		
Res BW 300 KH2		#VOVV 1.1 IV	INZ		Swe	ep 1 ms		Min Hold
Occupied Bandwidth		Total P	ower	32.6 d	Bm			
	519 MHz							Detector
								Peak►
Transmit Freq Error	27.829 kHz	% of O	BW Powe	r 99.0	0 %		Auto	<u>Man</u>
x dB Bandwidth	15.20 MHz	x dB		-26.00	dB			
MSG				STATUS				

Plot 7-7. Occupied Bandwidth Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)



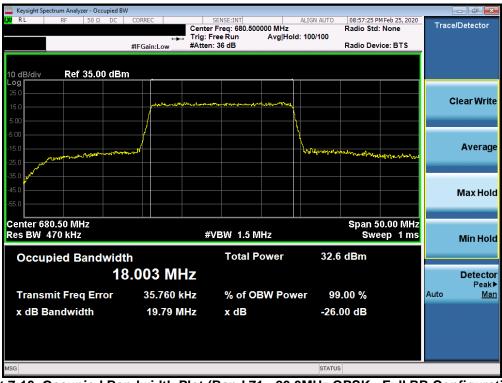
Plot 7-8. Occupied Bandwidth Plot (Band 71 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	Pctest* Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied B	W					
[X] RL RF 50 Ω DC		SENSE:INT Center Freq: 680.50000 Trig: Free Run Atten: 36 dB	ALIGN AUTO 0 MHz Avg Hold:>100/100	08:54:30 PM Fe Radio Std: No Radio Device	one	Trace/Detector
10 dB/div Ref 40.00 dB	m					
20.0						Clear Write
0.00						
-10.0 -20.0					m.MM.Au	Average
-30.0						Max Hold
Center 680.50 MHz				Span 37.		
Res BW 360 kHz Occupied Bandwid	th	#VBW 1.1 MH		Sweep / dBm	o 1 ms	Min Hold
	13.541 MHz					Detector Peak►
Transmit Freq Error	9.803 kHz			0.00 %	A	uto <u>Man</u>
x dB Bandwidth	17.24 MH	z x dB	-26.	00 dB		
MSG			STATU	5		

Plot 7-9. Occupied Bandwidth Plot (Band 71 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-10. Occupied Bandwidth Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)

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Keysight Spectrum Analyzer - Occupied B\	V				
XX RL RF 50Ω DC	Trig		Radio Sto Id:>100/100		Trace/Detector
	#IFGain:Low #Atte	en: 36 dB	Radio De	vice: BTS	
10 dB/div Ref 35.00 dBr	n				
25.0		waysonantical distance			Clear Write
-5.00					
-15.0 -25.0			Jacker Mr. Aplantication of the	Mur Mun Ma	Average
-35.0					Max Hold
-55.0					
Center 680.50 MHz Res BW 470 kHz		#VBW 1.5 MHz		50.00 MHz eep 1 ms	Min Hold
Occupied Bandwidt	th	Total Power	31.4 dBm		
	3.050 MHz				Detector Peak▶
Transmit Freq Error	14.584 kHz	% of OBW Pov	ver 99.00 %		Auto <u>Man</u>
x dB Bandwidth	19.75 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-11. Occupied Bandwidth Plot (Band 71 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-12. Occupied Bandwidth Plot (Band 71 - 20.0MHz 64-QAM - Full RB Configuration)

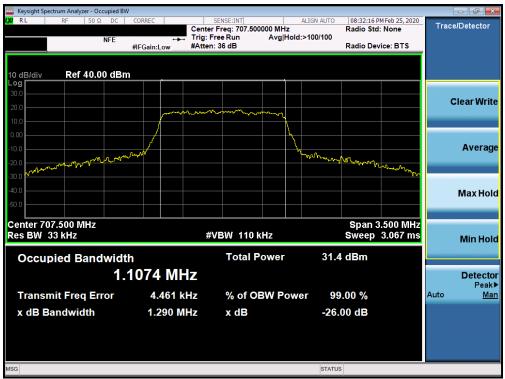
FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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Band 12



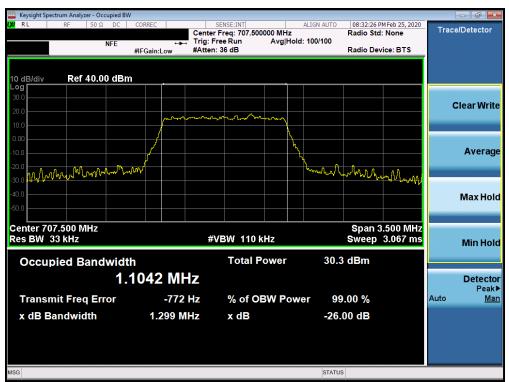
Plot 7-13. Occupied Bandwidth Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-14. Occupied Bandwidth Plot (Band 12 - 1.4MHz 16-QAM - Full RB Configuration)

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Plot 7-15. Occupied Bandwidth Plot (Band 12 - 1.4MHz 64-QAM - Full RB Configuration)



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

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Keysight Spectrum Analyzer - Occupied BW							
LX/ RL RF 50 Ω DC CO	RREC	SENSE:INT er Freg: 707.500000 MH	ALIGN AUTO	08:35:16 P	M Feb 25, 2020	Tracel	Detector
NFE	Trig:	Free Run Avg	lold: 100/100				
#IF	Gain:Low #Atte	en: 36 dB		Radio Dev	ice: BTS		
10 dB/div Ref 40.00 dBm							
Log 30.0							
20.0						CI	ear Write
10.0	mannon	man from and more and the	2				
0.00							
	1						Average
-10.0			howhere				Average
-20.0 mound month of and the second				and Colonical States	Murin march		
-30.0							
-40.0						1	Max Hold
-50.0							
Center 707.500 MHz				Snan 7	.500 MHz		
Res BW 68 kHz	\$	#VBW 220 kHz			p 3.8 ms		Min Hold
							MITTIOIG
Occupied Bandwidth		Total Power	31.	3 dBm			
2.68	91 MHz						Detector
							Peak▶
Transmit Freq Error	502 Hz	% of OBW Po	ower 99	9.00 %		Auto	<u>Man</u>
x dB Bandwidth	2.933 MHz	x dB	-26	.00 dB			
MSG			STATU	s			

Plot 7-17. Occupied Bandwidth Plot (Band 12 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-18. Occupied Bandwidth Plot (Band 12 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	Pctest* Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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🔤 Keysight Spectrum Analyzer - Occupie	ed BW				
LX RL RF 50Ω D	C 		Radio Sto old: 100/100		Trace/Detector
	#IFGain:Low #/	Atten: 36 dB	Radio De	vice: BTS	
10 dB/div Ref 30.00 d	IBm				
20.0	mm	manna	1		Clear Write
0.00					
-10.0 -20.0				harm	Average
-30.0					
-50.0					Max Hold
Center 707.500 MHz Res BW 120 kHz		#VBW 390 kHz		12.50 MHz eep 1 ms	Min Hold
Occupied Bandwi		Total Power	32.9 dBm		
	4.5546 MHz				Detector Peak▶
Transmit Freq Error	5.774 kHz	% of OBW Po	wer 99.00 %		Auto <u>Man</u>
x dB Bandwidth	5.224 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-19. Occupied Bandwidth Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-20. Occupied Bandwidth Plot (Band 12 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	Pctest* Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Plot 7-21. Occupied Bandwidth Plot (Band 12 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-22. Occupied Bandwidth Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	Proud to be part of (a) element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 28 of 250
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Keysight Spectrum Analyzer - Occupied B	W				- ē 🔀
IX RL RF 50Ω DC	Center Trig: F	r Freq: 707.500000 MHz	Radio Std:		Trace/Detector
10 dB/div Ref 40.00 dB	m				
20.0		annonally			Clear Write
10.0 0.00 -10.0 -20.0	n n		1 MMV&MMJUS	Y MAY MAY	Average
-40.0 -50.0					Max Hold
Center 707.50 MHz Res BW 240 kHz	#	VBW 750 kHz		5.00 MHz ep 1 ms	Min Hold
Occupied Bandwid	th .0155 MHz	Total Power	31.8 dBm		Detector Peak▶
Transmit Freq Error x dB Bandwidth	11.208 kHz 9.997 MHz	% of OBW Powe x dB	er 99.00 % -26.00 dB		Auto <u>Man</u>
			OT AT NO		
MSG			STATUS		

Plot 7-23. Occupied Bandwidth Plot (Band 12 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-24. Occupied Bandwidth Plot (Band 12 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 29 of 250
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Band 13



Plot 7-25. Occupied Bandwidth Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



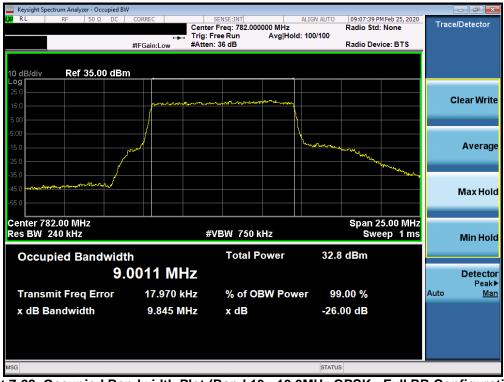
Plot 7-26. Occupied Bandwidth Plot (Band 13 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 250	
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Keysight Spectrum Analyzer - Occupied BW							
LXU RL RF 50Ω DC		SENSE:INT er Freq: 782.000000 MH Free Run Avg	ALIGN AUTO	09:03:41 P Radio Std:	MFeb 25, 2020 None	Trace	Detector
		en: 36 dB		Radio Dev	ice: BTS		
Log 30.0 20.0						с	lear Write
10.0	mon	will have marked and the second	~				
-10.0							Average
-20.0 -30.0 -40.0 -50.0					ᢝᡣᡅᠬᠬᡁᠬᢢ		Max Hold
Center 782.000 MHz Res BW 120 kHz		¢VB₩ 390 kHz			2.50 MHz ep 1 ms		Min Hold
Occupied Bandwidt	า	Total Power	30.	7 dBm			
	5185 MHz						Detector Peak▶
Transmit Freq Error	4.625 kHz	% of OBW P	ower 99	9.00 %		Auto	<u>Man</u>
x dB Bandwidth	4.944 MHz	x dB	-26	.00 dB			
MSG			STATU	s			

Plot 7-27. Occupied Bandwidth Plot (Band 13 - 5.0MHz 64-QAM - Full RB Configuration)



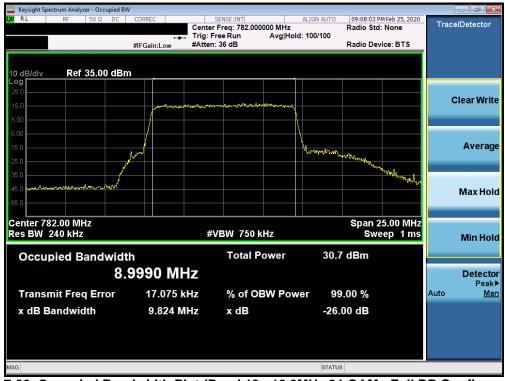
Plot 7-28. Occupied Bandwidth Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	Proud to be part of (a) element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Plot 7-29. Occupied Bandwidth Plot (Band 13 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-30. Occupied Bandwidth Plot (Band 13 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 22 of 250	
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Band 26/5



Plot 7-31. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-32. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 22 of 250		
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Keysight Spectrum Analyzer - Occupied	BW				
IXI RL RF 50 Ω DC	Cen →→ Trig	SENSE:INT Iter Freq: 836.500000 MHz g: Free Run Avg Ho ten: 36 dB	Radio 9 old: 100/100	67 PM Feb 25, 2020 Std: None Device: BTS	Trace/Detector
10 dB/div Ref 40.00 dE	3m				
30.0 20.0					Clear Write
0.00					
-10.0 -20.0 -30.0	·····		h	man	Average
-40.0					Max Hold
Center 836.500 MHz Res BW 33 kHz		#VBW 110 kHz		n 3.500 MHz p 3.067 ms	Min Hold
Occupied Bandwid	ath .1038 MHz	Total Power	30.2 dBm		Detector
Transmit Freq Error	1.250 kHz	% of OBW Po	wer 99.00 %		Detector Peak► Auto <u>Man</u>
x dB Bandwidth	1.290 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-33. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz 64-QAM - Full RB Configuration)



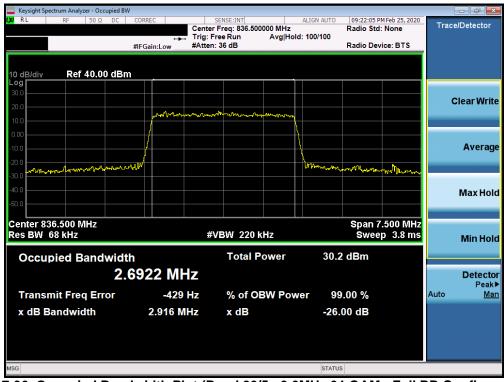
Plot 7-34. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied E	3W				- ē 🔀
XX RL RF 50Ω DC	Trig:	SENSE:INT er Freq: 836.500000 MHz Free Run Avg Holo n: 36 dB	ALIGN AUTO 09:21:56 P Radio Std d: 100/100 Radio Dev		Trace/Detector
10 dB/div Ref 40.00 dB	m				
30.0	[ግሊ]ቢሌቢሎል/ካጮብላሪ				Clear Write
10.0	fund blir densen andre	and an an an and a second second			
-10.0	and and a second		Mannanda		Average
-20.0 -30.0			ally the second se	Man Mathen Con	
-40.0					Max Hold
Center 836.500 MHz Res BW 68 kHz	#	≇VBW 220 kHz		.500 MHz p 3.8 ms	Min Hold
Occupied Bandwid	th	Total Power	31.5 dBm		
2	.6944 MHz				Detector Peak▶
Transmit Freq Error	3.349 kHz	% of OBW Pow	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	2.939 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-35. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-36. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	.G	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 25 of 250
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Keysight Spectrum Analyzer - Occupied BW							d X
(X) RL RF 50Ω DC		SENSE:INT ter Freq: 836.500000 MHz : Free Run Avg H	ALIGN AUTO z łold: 100/100	09:24:38 PMI Radio Std: N		Trace/D	etector
	#IFGain:Low #Att	en: 36 dB		Radio Devic	e: BTS		
10 dB/div Ref 40.00 dBm			_				
30.0						Cle	ar Write
10.0	how	men and a second	~				
0.00	/						
-10.0			1 1				Average
-20.0 Jummer Manuter			monno	monto -	who -		Average
-30.0							
-40.0						_	
-50.0						N	lax Hold
Center 836.500 MHz				Span 12			
Res BW 120 kHz		#VBW 390 kHz		Swee	p 1 ms	Ν	/lin Hold
Occupied Bandwidth		Total Power	32.8	dBm			
	5120 MHz					I	Detector Peak▶
Transmit Freq Error	156 Hz	% of OBW Po	ower 99.	.00 %		Auto	Peak ₽ <u>Man</u>
x dB Bandwidth	4.975 MHz	x dB	-26.0	00 dB			
MSG			STATUS				

Plot 7-37. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-38. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied	BW				
KX RL RF 50Ω DC	Trig: I	SENSE:INT r Freq: 836.500000 MHz Free Run Avg Hold: 1: 36 dB	Radio Std:		Trace/Detector
	#IFGain:Low #Atter	1: 36 dB	Radio Dev	ICE: BTS	
10 dB/div Ref 40.00 dB	3m				
Log 30.0					
20.0					Clear Write
10.0	howen	mmm			
0.00					
-10.0					Average
-20.0			how when the start and		
-30.0			1. 1+m-1 10.040	·	
-40.0					Max Hold
-50.0					
Center 836.500 MHz			Onon 4	2.50 MH-	
Res BW 120 kHz	#	VBW 390 kHz		2.50 MHz ep 1 ms	Min Hold
Occupied Bandwid	ith	Total Power	30.6 dBm		
4	.5225 MHz				Detector Peak▶
Transmit Freq Error	-1.491 kHz	% of OBW Powe	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	4.952 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-39. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-40. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager		
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Keysight Spectrum Analyzer - Occupied BW							
K RL RF 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO	09:28:17 P Radio Std	M Feb 25, 2020	Trac	e/Detector
		er Freq: 836.500000 MH Free Run Avg	rz Hold: 100/100	Radio Sta	None		
		en: 36 dB		Radio Dev	ice: BTS		
10 dB/div Ref 40.00 dBm							
Log							
30.0							
20.0	mannen	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					Clear Write
10.0			~				
0.00							
-10.0			N				Average
	. Im		Warthang				Arenuge
-20.0 Montrow fich When The work Mark Mark				A MARINE AND	and mentioned by		
-30.0							
-40.0							Max Hold
-50.0							
Center 836.50 MHz Res BW 240 kHz		#VBW 750 kHz			5.00 MHz		
Res BW 240 KHZ		#VBW 750 KHZ		SWE	ep 1 ms		Min Hold
Occupied Bandwidth	h	Total Power	31.	6 dBm			
9.0	0094 MHz						Detector Peak▶
Transmit Freq Error	-2.120 kHz	% of OBW P	ower 9	9.00 %		Auto	Peak► <u>Man</u>
x dB Bandwidth	9.833 MHz	x dB	-26	.00 dB			
MSG			STATU	S			

Plot 7-41. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-42. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied B\ RL RF 50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO	09:30:45 PM Feb 25, 2020	
10 50 12 50	Cente	r Freq: 836.500000 MHz		Radio Std: None	Trace/Detector
	· · · · · · · · · · · · · · · · · · ·	FreeRun Avg Ho n:36dB	old: 100/100	Radio Device: BTS	
	#IFGain:Low #Atter	1: 36 dB		Radio Device: BTS	r
0 dB/div Ref 35.00 dBr	n				
og 5.0					
	Mathing				Clear Wri
5.0					
.00			<u>h</u>		
i.00			H		
5.0 A Montal	wn		hunghung	where a	Avera
5.0 United the second s					
5.0				- Ny	
5.0					
5.0					Max Ho
6.0					
enter 836.50 MHz				Span 37.50 MHz	
es BW 360 kHz	#	VBW 1.1 MHz		Sweep 1 ms	Min Ho
Occupied Bandwidt	h	Total Power	32.7	′ dBm	
13	3.518 MHz				Detect
					Pea
Transmit Freq Error	16.917 kHz	% of OBW Po	wer 99	.00 %	Auto <u>M</u>
x dB Bandwidth	14.68 MHz	x dB	-26	00 dB	
G			STATUS		

Plot 7-43. Occupied Bandwidth Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-44. Occupied Bandwidth Plot (Band 26 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied BW					
X RL RF 50Ω DC	CORREC	SENSE:INT Center Freg: 836.5000	ALIGN AUTO	09:31:06 PM Feb 25, 2 Radio Std: None	Trace/Detector
	#IFGain:Low	Trig: Free Run #Atten: 36 dB	Avg Hold: 100/100	Radio Device: BTS	_
10 dB/div Ref 35.00 dBm					
25.0					Clear Writ
5.00	- Jowerson	WWARNIN CONTRACTOR	ourse what		
5.00					
5.0 5.0 martine martine and and a start a start and a st	~~		1 minarial and	Murmunority	Averag
5.0				and the second have and mining and	M.
5.0					Max Ho
enter 836.50 MHz				Span 37.50 M	Hz
es BW 360 kHz		#VBW 1.1 M	Hz	Sweep 1	
Occupied Bandwidt	h	Total Po	ower 30.	7 dBm	
13	.483 MH	Z			Detecto
Transmit Freq Error	-2.862 kł	Hz % of OB	W Power 9	9.00 %	Auto <u>Ma</u>
x dB Bandwidth	14.79 MH	lz xdB	-26	.00 dB	
iG			STATU	JS	

Plot 7-45. Occupied Bandwidth Plot (Band 26 - 15.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	.G	Approved by: Quality Manager
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Band 66/4

Keysight Spectrum Analyzer - Occupied BW					
XIRL RF 50Ω DC	Trig	SENSE:INT ter Freq: 1.745000000 G : Free Run Avg en: 36 dB	ALIGN AUTO Hz Hold: 100/100	09:55:29 PM Feb 25 Radio Std: None Radio Device: BT	Trace/Detector
10 dB/div Ref 30.00 dBm					
10.0					Clear Write
20.0 30.0 40.0				mun won	Averag
60.0					Max Hol
Center 1.745000 GHz Res BW 33 kHz		#VBW 30 kHz Total Powe		Span 3.500 Sweep 4.067	
Occupied Bandwidth	977 MHz	Total Powe	31.0	o abm	Detecto
Transmit Freq Error	-1.894 kHz	% of OBW F	ower 99	0.00 %	Auto <u>Ma</u>
x dB Bandwidth	1.270 MHz	x dB	-26.	00 dB	
SG			STATUS	3	

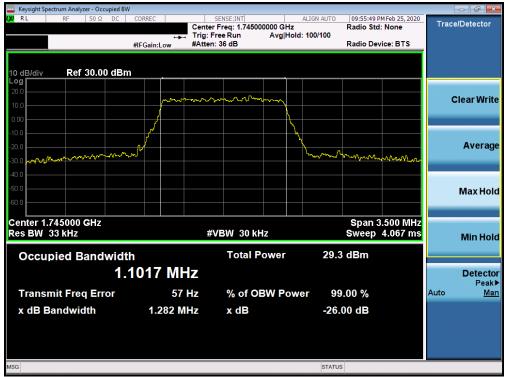
Plot 7-46. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-47. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Plot 7-48. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-49. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied E	W				
LXU RL RF 50Ω DC		SENSE:INT enter Freq: 1.745000000 ig: Free Run Avg	ALIGN AUTO GHz gHold: 100/100	09:58:52 PM Feb 25, 20 Radio Std: None	Trace/Detector
		tten: 36 dB		Radio Device: BTS	
10 dB/div Ref 30.00 dB	m				
Log 20.0 10.0	mannt	Mm Man Mar	~~		Clear Write
-10.0					
-20.0 -30.0 -30.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		hitem (samper	and and a man the constitution	Average
-40.0					Max Hold
Center 1.745000 GHz				Span 7.500 MH	
Res BW 68 kHz	th	#VBW 220 kHz	r 31 (Sweep 3.8 m	ns Min Hold
Occupied Bandwid	.6935 MHz				Detector Peak▶
Transmit Freq Error	286 Hz	% of OBW I	ower 99	.00 %	Auto <u>Man</u>
x dB Bandwidth	2.932 MHz	x dB	-26.	00 dB	
MSG			STATUS	3	

Plot 7-50. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-51. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-52. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-53. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	Proud to be part of (a) element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Center 1.7450000 GHz #VEW 390 kHz Center 1.7450000 GHz #Atten: 38 dB Center 1.745000 GHz Radio Std: None Radio	Keysight Spectrum Analyzer - Occupied B ¹	W				
10 dB/div Ref 40.00 dBm 10 dB/div Ref 40.00 dBm 10 dB/div Ref 40.00 dBm 10 dD/du	ΙΧΊ R L RF 50 Ω DC	Cente	er Freq: 1.745000000 GHz	Radio Std		Trace/Detector
Log Image: Clear Write 20 Image:		#IFGain:Low #Atte	n: 36 dB	Radio Dev	vice: BTS	
30 30 <td< td=""><td></td><td>n</td><td></td><td></td><td></td><td></td></td<>		n				
200 00 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td></t<>						
Image: Context 1.745000 GHz #VBW 390 KHz Span 12.50 MHz Max Hold Center 1.745000 GHz #VBW 390 KHz Span 12.50 MHz Min Hold Center 1.745000 GHz #VBW 390 KHz Sweep 1 ms Min Hold Coccupied Bandwidth Total Power 30.3 dBm Detector Y Y SWeep 1 ms Min Hold Max Hold Min Hold Min Hold Max Max Hold Min Hold Min Hold Min Hold Min Hold Man 5.236 MHz x dB -26.00 dB	20.0					Clear Write
000 000	10.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	man man			
10.0 Average 20.0 Average 30.0 Average 40.0 Span 12.50 MHz 20.0 Max Hold Center 1.745000 GHz Res BW 120 kHz Span 12.50 MHz Span 12.50 MHz Sweep 1 ms Occupied Bandwidth Total Power 30.3 dBm 4.5473 MHz % of OBW Power 99.00 % x dB Bandwidth 5.236 MHz x dB -26.00 dB	0.00					
20.0						Average
40.0 40.0		1				
40.0 40.0	20.0 grand march the and the	w ^r		walnow marked war	www.www.	
20.0 Center 1.745000 GHz Res BW 120 kHz Span 12.50 MHz Sweep 1 ms Min Hold Occupied Bandwidth 4.5473 MHz Total Power 30.3 dBm Detector Peak ▶ Transmit Freq Error -6.139 kHz % of OBW Power 99.00 % Auto Man x dB Bandwidth 5.236 MHz x dB -26.00 dB Min Hold						
Center 1.745000 GHz Res BW 120 kHz Span 12.50 MHz Sweep 1 ms Min Hold Occupied Bandwidth 4.5473 MHz Total Power 30.3 dBm Transmit Freq Error -6.139 kHz % of OBW Power 99.00 % x dB Bandwidth 5.236 MHz x dB -26.00 dB						Max Hold
Res BW 120 kHz #VBW 390 kHz Sweep 1 ms Occupied Bandwidth Total Power 30.3 dBm 4.5473 MHz Detector Transmit Freq Error -6.139 kHz % of OBW Power 99.00 % x dB Bandwidth 5.236 MHz x dB -26.00 dB	-50.0					
Occupied Bandwidth Total Power 30.3 dBm 4.5473 MHz Detector Transmit Freq Error -6.139 kHz % of OBW Power 99.00 % x dB Bandwidth 5.236 MHz x dB -26.00 dB	Center 1.745000 GHz			Span 1	2.50 MHz	
4.5473 MHz Detector Transmit Freq Error -6.139 kHz % of OBW Power 99.00 % x dB Bandwidth 5.236 MHz x dB -26.00 dB	Res BW 120 kHz	#	¢VBW 390 kHz	Sw	eep 1 ms	Min Hold
Transmit Freq Error -6.139 kHz % of OBW Power 99.00 % x dB Bandwidth 5.236 MHz x dB -26.00 dB			Total Power	30.3 dBm		
Transmit Freq Error -6.139 kHz % of OBW Power 99.00 % Auto Man x dB Bandwidth 5.236 MHz x dB -26.00 dB Image: Comparison of the second sec	4.	5473 MHz				
	Transmit Freq Error	-6.139 kHz	% of OBW Powe	er 99.00 %		
	x dB Bandwidth	5.236 MHz	x dB	-26.00 dB		
MSG STATUS	MSG			STATUS		

Plot 7-54. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-55. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occu	pied BW					
μXI RL RF 50 Ω	DC CORREC # #FGain:Low	SENSE:INT Center Freq: 1.74500 Trig: Free Run #Atten: 36 dB	ALIGN 0000 GHz Avg Hold: 100/	Radio Std:		Trace/Detector
10 dB/div Ref 40.00	dBm					
Log 30.0 20.0	8A A Alward		arth-arthba			Clear Write
10.0						
0.00 -10.0 -20.0	-relifinger			bour for the sources		Average
-30.0					a have really and	
-40.0						Max Hold
Center 1.74500 GHz Res BW 240 kHz		#VBW 750 k	ïHz		5.00 MHz ep 1 ms	Min Hold
Occupied Bandy	vidth	Total P	ower	31.0 dBm		
	9.0197 MH					Detector Peak▶
Transmit Freq Erro			3W Power	99.00 %		Auto <u>Man</u>
x dB Bandwidth	10.03 M	Hz x dB		-26.00 dB		
MSG				STATUS		

Plot 7-56. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)



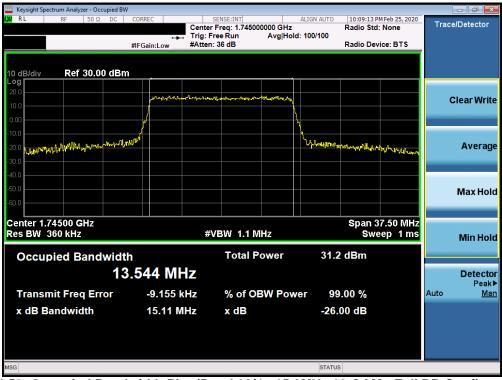
Plot 7-57. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied	BW				
IX RL RF 50Ω DC		SENSE:INT Center Freq: 1.745000000 GH Frig: Free Run Avg H		PM Feb 25, 2020 d: None	Trace/Detector
	#IFGain:Low #	Atten: 36 dB	Radio De	vice: BTS	
10 dB/div Ref 30.00 dB	m				
20.0	manamana	r-andressing for a france of the formation of the formati			Clear Write
0.00					
-20.0	harry of fe ^{rf}		Marsh and a hope of the speech	المرابعين مريحي مريحي المريحي	Average
-40.0					Max Hold
-60.0					Max Hold
Center 1.74500 GHz Res BW 360 kHz		#VBW 1.1 MHz		37.50 MHz eep 1 ms	Min Hold
Occupied Bandwic		Total Power	32.1 dBm		
1	3.567 MHz				Detector Peak▶
Transmit Freq Error	13.673 kH	z % of OBW Po	ower 99.00 %		Auto <u>Man</u>
x dB Bandwidth	15.21 MH	z x dB	-26.00 dB		
MSG			STATUS		

Plot 7-58. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-59. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied	BW				
UXIRL RF 50Ω DC	Trig:	SENSE:INT er Freq: 1.745000000 GHz Free Run Avg Hold n: 36 dB	ALIGN AUTO 10:09:24 F Radio Std 1: 100/100 Radio Dev		Trace/Detector
10 dB/div Ref 30.00 dE	3m				
20.0	and the second s				Clear Write
-10.0	mp.		A Compare the second se		Average
-20.0 -30.0 -40.0			I In markeyeder	and the second sec	
-50.0					Max Hold
Center 1.74500 GHz Res BW 360 kHz		VBW 1.1 MHz		87.50 MHz eep 1 ms	Min Hold
	3.521 MHz				Detector Peak►
Transmit Freq Error x dB Bandwidth	5.627 kHz 15.14 MHz	% of OBW Pow x dB	er 99.00 % -26.00 dB		Auto <u>Man</u>
MSG			STATUS		

Plot 7-60. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-61. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied B	W					_	
(X) RL RF 50 Ω DC	Trig:	SENSE:INT er Freq: 1.745000000 GH Free Run Avg H en: 36 dB	ALIGN AUTO z old: 100/100	10:11:46 PM Radio Std: Radio Devi		Trace	Detector
10 dB/div Ref 40.00 dBi	m						
30.0 20.0	nalaning menang	ve-ph/pen-phone-	• •			с	lear Write
0.00			N.				
-10.0 -20.0	Med		h Norradianadorea	hvis ^a htelterity	Millional		Average
-30.0							Max Hold
Center 1.74500 GHz Res BW 470 kHz		#VBW 1.5 MHz			0.00 MHz ep 1 ms		
Occupied Bandwid		Total Power	31.1	dBm			Min Hold
18	8.006 MHz						Detector Peak▶
Transmit Freq Error	-14.092 kHz	% of OBW Po	wer 99	.00 %		Auto	Man
x dB Bandwidth	19.88 MHz	x dB	-26.0	00 dB			
MSG			STATUS				

Plot 7-62. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-63. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager
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Band 25/2

Keysight Spectrum Analyzer - Occupied BW					- ē <u>-</u>
X RL RF 50Ω DC	🛶 Trig: I	SENSE:INT er Freq: 1.882500000 G Free Run Avg n: 36 dB	ALIGN AUTO Hz Hold: 100/100	10:57:46 PM Feb 2 Radio Std: Non Radio Device: E	e Trace/Detector
10 dB/div Ref 30.00 dBm _og					
10.0 0.00 10.0					Clear Writ
20.0 mm					Averag
50.0 50.0 Center 1.882500 GHz				Span 3.500	Max Hol
Occupied Bandwidth		VBW 110 kHz Total Power	31.9	Sweep 3.06	
1.0	990 MHz				Detect
Transmit Freq Error	-1.923 kHz	% of OBW P	ower 99	.00 %	Auto <u>Ma</u>
x dB Bandwidth	1.277 MHz	x dB	-26.	00 dB	
G			STATUS	3	

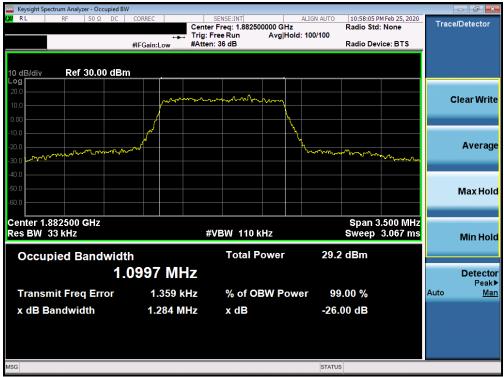
Plot 7-64. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-65. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 50 of 250	
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Plot 7-66. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-67. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga E1 of 2E0	
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Keysight Spectrum Analyzer - Occupied	BW				
LXI RL RF 50Ω DC	CORREC	SENSE:INT Center Freq: 1.882500 Trig: Free Run	ALIGN AUTO 0000 GHz Avg Hold: 100/100	11:00:49 PM Feb 25, 20 Radio Std: None	Trace/Detector
	#IFGain:Low	#Atten: 36 dB		Radio Device: BTS	
10 dB/div Ref 40.00 dB	im				
30.0	Aughter Aug				Clear Write
10.0	Contraction of the second s	marcher and an and			
-10.0					Average
Contraction of the second second	have a second			- menter of all and the second	Ma.
-30.0					Max Hold
Center 1.882500 GHz Res BW 68 kHz		#VBW 220 ki	Hz	Span 7.500 MH Sweep 3.8 m	
Occupied Bandwid		Total Po	ower 30.	8 dBm	
2	.6906 MH	Z			Detector
Transmit Freq Error	421	Hz % of OB	W Power 9	9.00 %	Peak▶ Auto <u>Man</u>
x dB Bandwidth	2.936 MI	Hz xdB	-26	.00 dB	
MSG			STATU	JS	

Plot 7-68. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-69. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Page 52 of 250	
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Keysight Spectrum Analyzer - Occupied B\	V				
(20) RL RF 50Ω DC		SENSE:INT enter Freq: 1.882500 rig: Free Run Atten: 36 dB	ALIGN AUTO 000 GHz Avg Hold:>100/100	11:03:00 PM Feb 25, 2 Radio Std: None Radio Device: BTS	Trace/Detector
10 dB/div Ref 30.00 dBr	an dunied an				
20.0 10.0	Jurmin	n marine and a second	m.m.		Clear Write
0.00 -10.0 -20.0	~~~~		- hourson	mar and the second	Average
-30.0 -40.0 -50.0					MaxHold
-60.0 Center 1.882500 GHz				Span 12.50 M	Hz
Res BW 120 kHz Occupied Bandwidt	h	#VBW 390 kH		Sweep 1 r 1 dBm	ns Min Hold
4.	5391 MHz				Detector Peak►
Transmit Freq Error x dB Bandwidth	-1.361 kHz 5.202 MHz			9.00 % .00 dB	Auto <u>Man</u>
	5.202 MH2	X dB	-20	00 dB	
MSG			STATU	S	

Plot 7-70. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-71. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	Proud to be part of (a) element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga E2 of 250	
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Plot 7-72. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-73. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	.G	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:			
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Keysight Spectrum Analyzer - Occupied	BW				- ē x
IXIRL RF 50Ω DC	Cen Trig	SENSE:INT ter Freq: 1.882500000 GHz : Free Run Avg Holo en: 36 dB	ALIGN AUTO 11:05:39 PM Radio Std: d: 100/100 Radio Devi		Trace/Detector
10 dB/div Ref 40.00 dE	3m				
					Clear Write
10.0	programme and a second	mannen			
-10.0					Average
-20.0 -20.0 -30.0	Mrw W		how and the particulation	NAN WINN	
-40.0					Max Hold
Center 1.88250 GHz			Span 2	5.00 MHz	
Res BW 240 kHz		#VBW 750 kHz		ep 1 ms	Min Hold
Occupied Bandwig		Total Power	31.3 dBm		Detector
Transmit Freq Error	0.0171 MHz 12.562 kHz	% of OBW Pow	er 99.00 %	А	Detector Peak▶ uto Man
x dB Bandwidth	10.09 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-74. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-75. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied BW	/				
LX/RL RF 50Ω DC	CORREC	SENSE:INT er Freq: 1.882500000 GHz	ALIGN AUTO 11:07:57 P Radio Std	M Feb 25, 2020 : None	Trace/Detector
	🛶 Trig:	Free Run Avg Hold	d: 100/100 Radio Dev	tion: BTS	
	#IFGain:Low #Atte	En. 30 dD	Radio Dev	ACE. DT3	
10 dB/div Ref 40.00 dBn					
10 dB/div Ref 40.00 dBn					
30.0					Clear Write
20.0	and the second stands	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Clear Write
10.0					
0.00					
-10.0	v1/M ^{BL}		1		Average
-20.0 market and the second and the second s			"how have been seen to be	man when the	
-30.0					
-40.0					Max Hold
-50.0					
Center 1.88250 GHz			Span 3	7.50 MHz	
Res BW 360 kHz		#VBW 1.1 MHz	Swe	eep 1 ms	Min Hold
Occupied Bandwidt	h	Total Power	32.2 dBm		
	8.564 MHz				Detector Peak►
Transmit Freq Error	15.996 kHz	% of OBW Pow	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	15.28 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-76. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



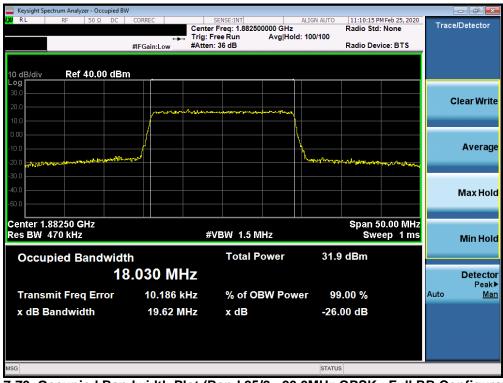
Plot 7-77. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST [®] Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied	1 BW				
LX RL RF 50Ω DC		SENSE:INT		8:17 PM Feb 25, 2020 Std: None	Trace/Detector
		ter Freq: 1.882500000 GHz : Free Run Avg Ho	d: 100/100	o sta: None	
		en: 36 dB		Device: BTS	
10 dB/div Ref 40.00 dl	Bm				
Log					
30.0					
20.0					Clear Write
10.0	manner	งม <i>ารส</i> . ใปมาใช้เว _{าสู่} ร้างการสารสร้างให้สุดไปเล			
0.00					
	5		Ϋ́,		Average
-10.0	. /		1		Average
-20.0			mon that the way	Warman and and and and and and and and and a	
-30.0					
-40.0					Max Hold
-50.0					maxitora
Center 1.88250 GHz				an 37.50 MHz	
Res BW 360 kHz		#VBW 1.1 MHz		Sweep 1 ms	Min Hold
	141	Total Power	30.1 dBr		
Occupied Bandwi		Total Power	30.1 GBI	1	
13.523 MHz					Detector
					Peak▶
Transmit Freq Error	1.117 kHz	% of OBW Po	wer 99.00 %	6	Auto <u>Man</u>
x dB Bandwidth	15.25 MHz	x dB	-26.00 d	в	
MSG			STATUS		

Plot 7-78. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)



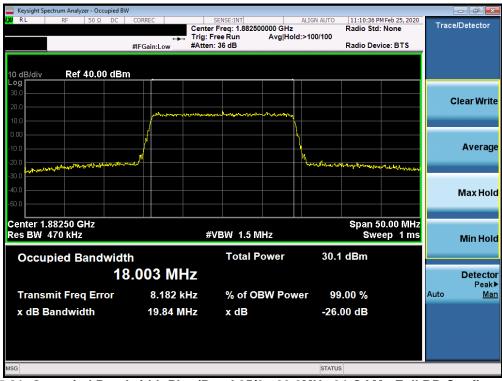
Plot 7-79. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager	
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🔤 Keysight Spectrum Analyzer - Occupied BW 👘 👘 🔤						
(X) RL RF 50 Ω D	C CORREC	SENSE:INT Center Freq: 1.88250 Trig: Free Run #Atten: 36 dB		Radio Std:		Trace/Detector
10 dB/div Ref 40.00 d	IBm		· · · · ·			
30.0						Clear Write
10.0		warse-particular and and and	human			
0.00						Average
-20.0 Annow Myrun Man Parker Miller				Maser and particular and the	may of working	
-30.0						Max Hold
Center 1.88250 GHz Res BW 470 kHz		#VBW 1.5 M	IHz		0.00 MHz ep 1 ms	Min Hold
Occupied Bandwi	idth	Total P	ower	31.0 dBm		
18.037 MHz						Detector Peak▶
Transmit Freq Error	-15.379 k	Hz % of O	3W Power	99.00 %		Auto <u>Man</u>
x dB Bandwidth	19.76 M	Hz x dB		-26.00 dB		
MSG				STATUS		

Plot 7-80. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)

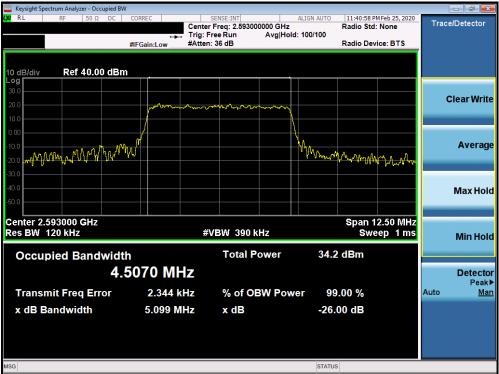


Plot 7-81. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Approved by: Quality Manager	
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Band 41 PC2



Plot 7-82. Occupied Bandwidth Plot (Band 41 PC2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-83. Occupied Bandwidth Plot (Band 41 PC2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK300TM	Pctest* Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 50 of 250
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