

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: 4/24 - 5/9/2018 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M1804200078-03.ZNF

### FCC ID:

APPLICANT:

#### ZNFX410CS

LG Electronics MobileComm U.S.A

Application Type: Model: Additional Model(s): EUT Type: FCC Classification: FCC Rule Part(s): Test Procedure(s): Certification LM-X410CS LMX410CS, X410CS 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.

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.



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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 12	27	699.7 - 715.3	0.124	20.92	0.203	23.07	1M11G7D	QPSK
LTE Band 12	27	699.7 - 715.3	0.093	19.70	0.153	21.85	1M11W7D	16QAM
LTE Band 12	27	700.5 - 714.5	0.125	20.96	0.205	23.11	2M72G7D	QPSK
LTE Band 12	27	700.5 - 714.5	0.083	19.17	0.136	21.32	2M72W7D	16QAM
LTE Band 12	27	701.5 - 713.5	0.122	20.87	0.201	23.02	4M54G7D	QPSK
LTE Band 12	27	701.5 - 713.5	0.083	19.18	0.136	21.33	4M54W7D	16QAM
LTE Band 12	27	704 - 711	0.119	20.76	0.196	22.91	9M02G7D	QPSK
LTE Band 12	27	704 - 711	0.088	19.46	0.145	21.61	9M00W7D	16QAM
LTE Band 5	22H	824.7 - 848.3	0.117	20.70	0.193	22.85	1M11G7D	QPSK
LTE Band 5	22H	824.7 - 848.3	0.089	19.51	0.147	21.66	1M11W7D	16QAM
LTE Band 5	22H	825.5 - 847.5	0.119	20.75	0.195	22.90	2M72G7D	QPSK
LTE Band 5	22H	825.5 - 847.5	0.091	19.60	0.150	21.75	2M72W7D	16QAM
LTE Band 5	22H	826.5 - 846.5	0.106	20.24	0.173	22.39	4M56G7D	QPSK
LTE Band 5	22H	826.5 - 846.5	0.077	18.85	0.126	21.00	4M53W7D	16QAM
LTE Band 5	22H	829 - 844	0.108	20.33	0.177	22.48	9M01G7D	QPSK
LTE Band 5	22H	829 - 844	0.081	19.07	0.132	21.22	9M00W7D	16QAM

### EUT Overview (<1GHz)

				RP		
Mode	FCC Rule Part	Tx Frequency (MHz)	Max. Power (W)	Max. Power (dBm)	Emission Designator	Modulation
LTE Band 4	27	1710.7 - 1754.3	0.208	23.19	1M11G7D	QPSK
LTE Band 4	27	1710.7 - 1754.3	0.155	21.90	1M11W7D	16QAM
LTE Band 4	27	1711.5 - 1753.5	0.211	23.25	2M71G7D	QPSK
LTE Band 4	27	1711.5 - 1753.5	0.169	22.28	2M71W7D	16QAM
LTE Band 4	27	1712.5 - 1752.5	0.205	23.12	4M54G7D	QPSK
LTE Band 4	27	1712.5 - 1752.5	0.147	21.66	4M54W7D	16QAM
LTE Band 4	27	1715 - 1750	0.238	23.77	9M02G7D	QPSK
LTE Band 4	27	1715 - 1750	0.173	22.39	9M03W7D	16QAM
LTE Band 4	27	1717.5 - 1747.5	0.226	23.54	13M5G7D	QPSK
LTE Band 4	27	1717.5 - 1747.5	0.168	22.25	13M5W7D	16QAM
LTE Band 4	27	1720 - 1745	0.158	21.98	17M9G7D	QPSK
LTE Band 4	27	1720 - 1745	0.128	21.09	17M9W7D	16QAM
LTE Band 2	24E	1850.7 - 1909.3	0.174	22.41	1M10G7D	QPSK
LTE Band 2	24E	1850.7 - 1909.3	0.136	21.32	1M11W7D	16QAM
LTE Band 2	24E	1851.5 - 1908.5	0.164	22.16	2M72G7D	QPSK
LTE Band 2	24E	1851.5 - 1908.5	0.126	21.02	2M71W7D	16QAM
LTE Band 2	24E	1852.5 - 1907.5	0.203	23.07	4M54G7D	QPSK
LTE Band 2	24E	1852.5 - 1907.5	0.153	21.85	4M53W7D	16QAM
LTE Band 2	24E	1855 - 1905	0.186	22.68	9M00G7D	QPSK
LTE Band 2	24E	1855 - 1905	0.148	21.69	9M04W7D	16QAM
LTE Band 2	24E	1857.5 - 1902.5	0.177	22.47	13M5G7D	QPSK
LTE Band 2	24E	1857.5 - 1902.5	0.147	21.66	13M5W7D	16QAM
LTE Band 2	24E	1860 - 1900	0.178	22.50	17M9G7D	QPSK
LTE Band 2	24E	1860 - 1900	0.138	21.40	17M9W7D	16QAM
		EUT Overvie	w (>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: ZNFX410CS**. The test data contained in pthis report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 00367, 00383, 00425, 00525

### 2.2 Device Capabilities

This device contains the following capabilities:

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

### 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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#### **DESCRIPTION OF TESTS** 3.0

#### 3.1 Measurement Procedure

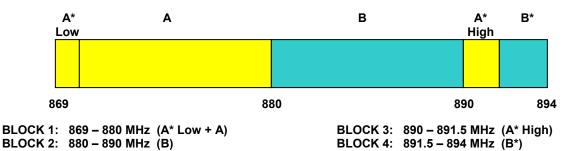
The measurement procedures described in the document titled "Land Mobile FM or PM - Communications Equipment - Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

#### 3.2 Block A Frequency Range

698-746 MHz band. 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.

#### 3.3 **Cellular - Base Frequency Blocks**



#### 3.4 **Cellular - Mobile Frequency Blocks**

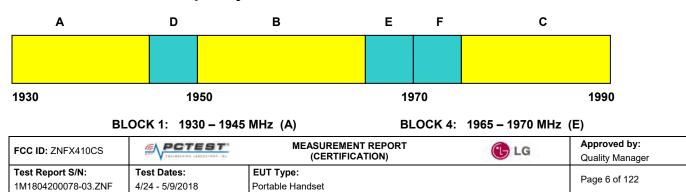


BLOCK 1: 824 - 835 MHz (A\* Low + A) BLOCK 2: 835 – 845 MHz (B)

BLOCK 3: 845 - 846.5 MHz (A\* High) BLOCK 4: 846.5 - 849 MHz (B\*)

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#### 3.5 **PCS - Base Frequency Blocks**



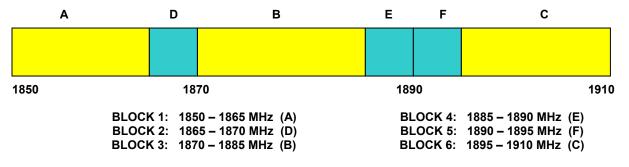
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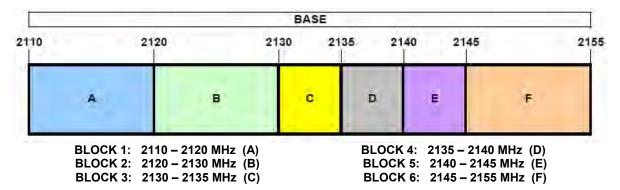
BLOCK 2: 1945 – 1950 MHz (D) BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 5:	1970 – 1975 MHz (F	;)
BLOCK 6:	1975 – 1990 MHz (C	;)

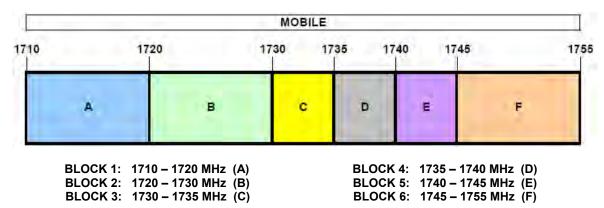
#### 3.6 PCS - Mobile Frequency Blocks







### 3.8 AWS - Mobile Frequency Blocks



### 3.9 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

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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:

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

Where,  $P_d$  is the dipole equivalent power,  $P_g$  is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to  $P_{g [dBm]}$  – 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 + 10log<sub>10</sub>(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  $U_{\text{CISPR}}$  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
-	LTx3	LIcensed Transmitter Cable Set	8/10/2017	Annual	8/10/2018	LTx3
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	6/21/2017	Annual	6/21/2018	RE1
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	Annual	1/24/2019	US46470561
Agilent	N9030A	PXA Signal Analyzer (26.5GHz)	8/28/2017	Annual	8/28/2018	MY49432391
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	12/1/2016	Biennial	12/1/2018	125518
ETS-Lindgren	3164-10	Quad Ridge Horn 400MHz - 10000MHz	12/14/2016	Biennial	12/14/2018	166283
Keysight Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	3Hz-44GHz PXA Signal Analyzer 3/20/2018 Annual 3/20		3/20/2019	MY49430494
Mini Circuits	TVA-11-422	RF Power Amp	RF Power Amp N/A		N/A	QA1317001
Mini-Circuits	PWR-SEN-4RMS	USB Power Sensor	USB Power Sensor 3/30/2018 Annual		3/30/2019	11210140001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A		N/A	11208010032
Rohde & Schwarz	CMU200	Base Station Simulator	N/A			836536/0005
Rohde & Schwarz	CMW500	Radio Communication Tester	11/3/2017	Annual	11/3/2018	100976
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	5/19/2017	Annual	5/19/2018	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	7/31/2017	Annual	7/31/2018	100348
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
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/11/2017	Annual	5/11/2018	100040
Rohde & Schwarz	TS-PR40	26.5-40 GHz Pre-Amplifier	5/11/2017	Annual	5/11/2018	100037
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	1/22/2018	Annual	1/22/2019	N/A
Sunol	DRH-118	Horn Antenna (1-18GHz)	8/11/2017	Biennial	8/11/2019	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107

#### 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 2<sup>nd</sup> 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 analzyer. 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:	ZNFX410CS
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			Section 7.2
2.1051 2.917(a) 24.238(a) 27.53(g) 27.53(h)	Out of Band Emissions	> 43 + 10log₁₀ (P[Watts]) at Band Edge and for all out-of- band emissions			Section 7.3, 7.4
24.232(d)	Peak-Average Ratio	< 13 dB	CONDUCTED	PASS	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 7.8

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 5)	< 7 Watts max. ERP			Section 7.6
27.50(c)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 12)	< 3 Watts max. ERP		PASS	Section 7.6
24.232(c)	Equivalent Isotropic Radiated Power (Band 2)	< 2 Watts max. EIRP	RADIATED		Section 7.6
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	< 1 Watts max. EIRP			Section 7.6
2.1053 22.917(a) 24.238(a) 27.53(g) 27.53(h)	Undesirable Emissions	> 43 + 10log₁₀ (P[Watts]) for all out-of-band emissions			Section 7.7

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 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 12



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



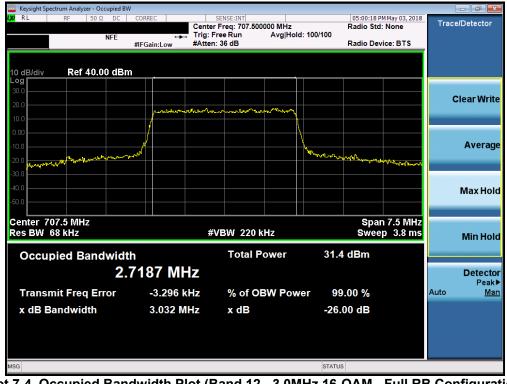
Plot 7-2. Occupied Bandwidth Plot (Band 12 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied	IBW				
<mark>(X)</mark> RL RF 50Ω DC		SENSE:INT r Freg: 707.500000 MHz	05:00:08 PM Ma Radio Std: No		Trace/Detector
NFE	🛶 Trig: F	Free Run Avg Hold: 1	00/100		
	#IFGain:Low #Atten	n: 36 dB	Radio Device:	BTS	
10 dB/div Ref 40.00 dl	3m				
Log 30.0					
20.0					Clear Write
10.0	www.www.mo	m hours when the horiz			
0.00	/				
					Average
mound	when the second		mulan many mark		Average
-20.0					
-40.0					Max Hold
-50.0					
Center 707.5 MHz			Span 7.	5 MHz	
Res BW 68 kHz	#	VBW 220 kHz	Sweep 3		Min Hold
		T-4-1 D-mar			
Occupied Bandwi		Total Power	32.5 dBm		
	2.7201 MHz				Detector
Transmit Freq Error	5.758 kHz	% of OBW Power	99.00 %	•	Peak▶ uto Man
x dB Bandwidth	3.024 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-3. Occupied Bandwidth Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



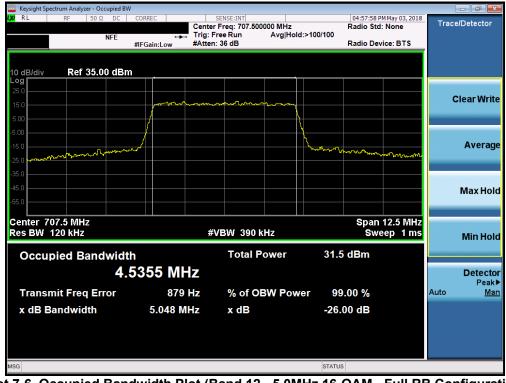
Plot 7-4. Occupied Bandwidth Plot (Band 12 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied B R R S0 Ω DC	CORREC	SENSE:INT	04:57:45	PM May 03, 2018	
		r Freq: 707.500000 MHz	Radio St	d: None	Trace/Detector
NFE		Free Run Avg Hold n: 36 dB		evice: BTS	
	#IFGalli.Low #/teel	1. 00 05	Rudio B.	evice. Bite	
0 dB/div Ref 35.00 dB	m				
.og 25.0					
		many			Clear Wri
15.0					
5.00	/				
5.00	/				
15.0	مم الم		margan prove		Avera
25.0				······································	
35.0					
45.0					Max Ho
55.0					
				10.5.8811	
enter 707.5 MHz tes BW 120 kHz		VBW 390 kHz		12.5 MHz	
	#	VOV J90 KHZ	51	/eep 1 ms	Min Ho
Occupied Bandwid	th	Total Power	32.8 dBm		
		rotarr offor	olio abiii		
4	.5410 MHz				Detect
Transmit From Error	-5.122 kHz	% of OBW Pow	er 99.00 %	,	Pea Auto M
Transmit Freq Error	-3.122 KHZ	% OF OBW POW	er 99.00 %	<i>_</i>	4010 <u>M</u>
x dB Bandwidth	5.110 MHz	x dB	-26.00 dB		
SG			STATUS		

Plot 7-5. Occupied Bandwidth Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-6. Occupied Bandwidth Plot (Band 12 - 5.0MHz 16-QAM - Full RB Configuration)

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RL RF 50Ω DC		SENSE:INT r Freq: 707.500000 MHz	Radio St	PM May 03, 2018 d: None	Trace/Detector
NFE		Free Run Avg Hold n: 36 dB		evice: BTS	
0 dB/div Ref 40.00 dBm					
30.0					
20.0					Clear Wri
10.0					
10.0	_/		<u></u>		Avera
20.0 martin martin again and have been and			monour	لىسىلىيەرىيەر مەربىلىيە بىرەر يە	
30.0					
40.0					Max Ho
50.0					
enter 707.5 MHz			Sn	an 25 MHz	
tes BW 240 kHz	#	VBW 750 kHz	Sw	veep 1 ms	Min Ho
Occupied Bandwidth		Total Power	32.8 dBm		
	) 171 MHz				Detect
					Pea
Transmit Freq Error	4.312 kHz	% of OBW Powe	er 99.00 %	A	Auto <u>M</u>
x dB Bandwidth	10.08 MHz	x dB	-26.00 dB		

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

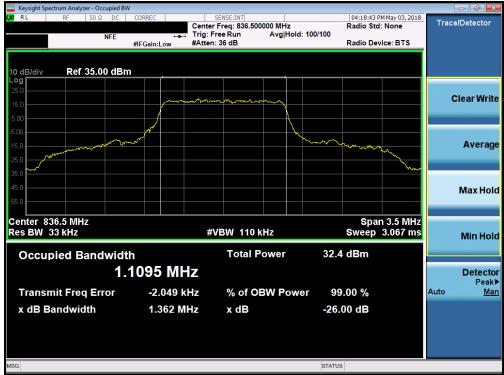


Plot 7-8. Occupied Bandwidth Plot (Band 12 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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#### Band 5



Plot 7-9. Occupied Bandwidth Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



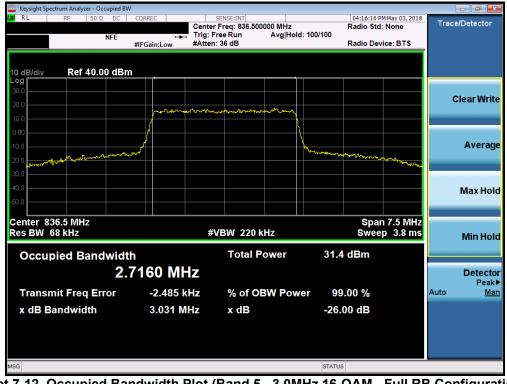
Plot 7-10. Occupied Bandwidth Plot (Band 5 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied BW					-	- • •
LXX/RL RF 50Ω DC 0		SENSE:INT	04:16:03 Radio Sto	PM May 03, 2018	Trace/	Detector
NFE	Trig: F	ree Run Avg Hold	: 100/100			
#	#FGain:Low #Atten	:: 36 dB	Radio De	vice: BTS		
10 dB/div Ref 40.00 dBm						
30.0						
20.0					CI	ear Write
10.0		and the second second second				_
0.00		\ \ \ \ \ \ \_				
-10.0						Average
-10.0 -20.0			and we appeared the second	- Margarethan		_
-30.0						
-40.0						Max Hold
-50.0						
Center 836.5 MHz		VBW 220 kHz		n 7.5 MHz		
Res BW 68 kHz	#		Swee	ep 3.8 ms		Min Hold
Occupied Bandwidth		Total Power	32.7 dBm			
	166 MHz					Detector
2.1						Peak
Transmit Freq Error	4.332 kHz	% of OBW Powe	er 99.00 %		Auto	<u>Man</u>
x dB Bandwidth	3.044 MHz	x dB	-26.00 dB			
MSG			STATUS			

Plot 7-11. Occupied Bandwidth Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



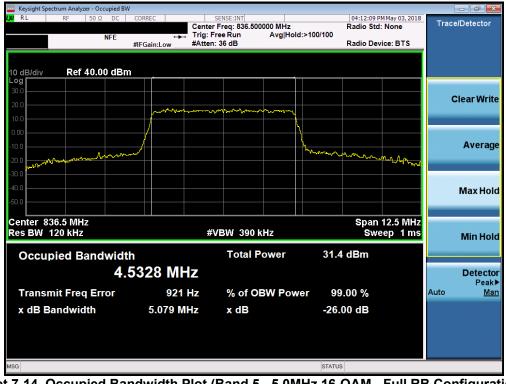
Plot 7-12. Occupied Bandwidth Plot (Band 5 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupie Keysight Spectrum Analyzer - Occupie Keysight Spectrum Analyzer - Occupie		SENSE:INT	04:11:57 PM May 03, 2018	
10 001 0	Cente	r Freq: 836.500000 MHz	Radio Std: None	Trace/Detector
NFE		Free Run Avg Hold: 1 n: 36 dB	100/100 Radio Device: BTS	
,	#IFGain:Low #Atter	n: 36 dB	Radio Device: B I S	-
0 dB/div Ref 40.00 d	Bm			
- <b>°g</b> 30.0				
				Clear Wri
20.0	mont	monomon		
10.0				
0.00				
10.0		\	Martine and a second se	Avera
20.0				
30.0				
40.0				
				Max Ho
50.0				
Center 836.5 MHz			Span 12.5 MHz	
les BW 120 kHz	#	VBW 390 kHz	Sweep 1 ms	
Occupied Bandwi	dth	Total Power	32.8 dBm	
	4.5649 MHz			Detect
				Pea
Transmit Freq Error	-10.617 kHz	% of OBW Power	99.00 %	Auto M
x dB Bandwidth	5.126 MHz	x dB	-26.00 dB	
	5.120 MHZ	X UB	-20.00 aB	
SG			STATUS	

Plot 7-13. Occupied Bandwidth Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-14. Occupied Bandwidth Plot (Band 5 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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RL RF 50Ω DC	CORREC	SENSE:INT	04:06:37 PM May 03,	, 2018 Trace/Detector
NFE	↔ Trig:	er Freq: 836.500000 MHz Free Run Avg Hold: 1		
	#IFGain:Low #Atte	n: 36 dB	Radio Device: BT	s
0 dB/div Ref 40.00 dB	m			
30.0				
20.0				Clear Wr
10.0	and a second			
0.00	/	<b>\</b>		
10.0		\		Avera
- normaler m	man		makennestration	
20.0				
40.0				
50.0				Max Ho
Center 836.5 MHz			Span 25 M	/IHz
tes BW 240 kHz	#	VBW 750 kHz	Sweep 1	ms Min Ho
Occupied Bandwid	th	Total Power	32.9 dBm	
				_
9	0057 MHz			Detect
Transmit Freq Error	14.165 kHz	% of OBW Power	99.00 %	Auto <u>M</u>
x dB Bandwidth	9.988 MHz	x dB	-26.00 dB	
	5.500 MHZ			

Plot 7-15. Occupied Bandwidth Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



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

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#### Band 4



Plot 7-17. Occupied Bandwidth Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



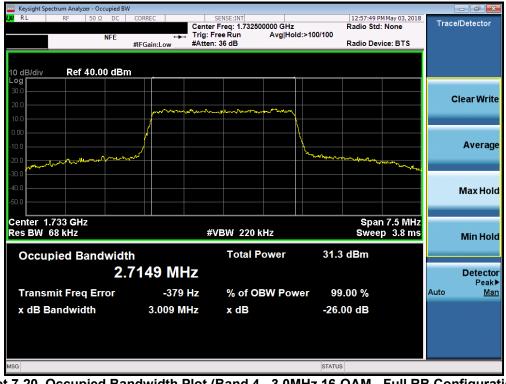
Plot 7-18. Occupied Bandwidth Plot (Band 4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied BW RL RF 50 Ω DC	CORREC	SENSE:INT		12:57:36 PM May		ace/Detector
	Cente →→ Trig: I	r Freq: 1.732500000 GHz	l:>100/100	Radio Std: No	ne 🛛 🕅	ace/Detector
NFE		n: 36 dB		Radio Device:	BTS	
0 dB/div Ref 40.00 dBm						
.og						
30.0						Clear Wri
20.0	All and a second and	man Hallenna - 1 the annu rahana				Clear with
10.0						
0.00	/		L			
10.0			<u>\</u>			Avera
20.0			Wer way of here	mmmmm		
30.0					- march	
40.0						
						Max Ho
50.0						
Center 1.733 GHz				Span 7.	5 MHz	
les BW 68 kHz	#	VBW 220 kHz		Sweep 3		Min Ho
						Milling
Occupied Bandwidth	1	Total Power	32.2	dBm		
2.7	7115 MHz					Detect
				/		Pea
Transmit Freq Error	2.841 kHz	% of OBW Pow	er 99.0	00 %	Auto	M
x dB Bandwidth	3.036 MHz	x dB	-26.0	0 dB		

Plot 7-19. Occupied Bandwidth Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



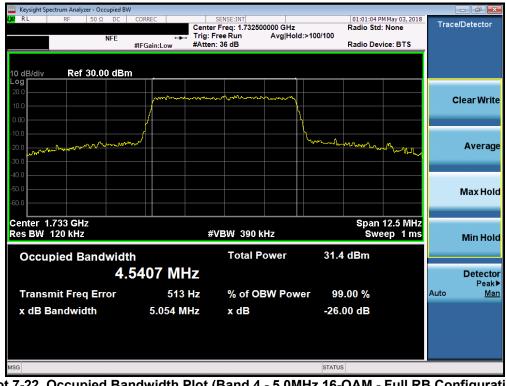
Plot 7-20. Occupied Bandwidth Plot (Band 4 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied BW						_	- 6 .
LXI RL RF 50Ω DC	CORREC	SENSE:INT Center Freg: 1.73250	0000 GHz	01:00:51 Pf Radio Std:	MMay 03, 2018	Tracel	Detector
NFE		Trig: Free Run	Avg Hold: 100/10	0			
	#IFGain:Low	#Atten: 36 dB		Radio Dev	ice: BTS		
10 dB/div Ref 30.00 dBm							
20.0							
10.0	from					C	ear Write
0.00	/		Δ.				
-10.0			<u>۱</u>				
-20.0	~~ I		m	mann	~~~.		Average
-30.0							Average
-40.0							
-50.0							Max Hold
-60.0							
Center 1.733 GHz				Span	12.5 MHz		
Res BW 120 kHz		#VBW 390 k	Hz		ep 1 ms		Min Hold
Occupied Bandwidth		Total P	ower 3	82.8 dBm			
4.5	6422 MH	z					Detector
	0.400.1			00.00.00		A	Peak►
Transmit Freq Error	-3.422 k	HZ % OF OF	3W Power	99.00 %		Auto	Man
x dB Bandwidth	5.089 M	Hz xdB	-	26.00 dB			
MSG			ST	TATUS			

Plot 7-21. Occupied Bandwidth Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-22. Occupied Bandwidth Plot (Band 4 - 5.0MHz 16-QAM - Full RB Configuration)

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🥁 Keysight Spectrum Analyzer - Occupied BW XI RL RF 50 Ω DC		SENSE:INT r Freq: 1.732500000 GHz Free Run Avg Hold	Rad	:03:27 PM May 03, 2018 lio Std: None	Trace/Detect	
NFE		n: 36 dB		lio Device: BTS		
10 dB/div Ref 40.00 dBm						
30.0					Clear W	Irit
20.0		man			Clear W	
10.0						
0.00	/	<b>b</b>				
سمېرىيى 10.0	~~^		munsummer	in	Aver	a
20.0 month and a start and a start and a start				and the second s		
30.0						
40.0					MaxH	10
50.0						
Center 1.733 GHz				Span 25 MHz		
tes BW 240 kHz	#	VBW 750 kHz		Sweep 1 ms	Min H	10
Occupied Bandwidt	า	Total Power	32.9 dB	m		
9 (	)180 MHz				Dete	ct
					Pe	al
Transmit Freq Error	-932 Hz	% of OBW Powe	er 99.00	%	Auto	M
x dB Bandwidth	10.01 MHz	x dB	-26.00 c	iB		
SG			STATUS			

Plot 7-23. Occupied Bandwidth Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-24. Occupied Bandwidth Plot (Band 4 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	Approv Quality	<b>ved by:</b> Manager
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🔤 Keysight Spectrum Analyzer - Occupied BW	
X         RF         50 Ω         CORREC         SENSE:INT         01:11:45 PM May 03, 2018           Center Freq:         1.732500000 GHz         Radio Std: None	Trace/Detector
NFE Trig: Free Run Avg Hold: 100/100	
#IFGain:Low #Atten: 36 dB Radio Device: BTS	
10 dB/div Ref 40.00 dBm	
30.0	
20.0	Clear Write
-10.0	Average
200 minuter marken and	
-30.0	
-40.0	
50.0	Max Hold
Center 1.733 GHz Span 37.5 MHz	
Res BW 360 kHz #VBW 1.1 MHz Sweep 1 ms	Min Hold
Occupied Bandwidth Total Power 33.1 dBm	
13.488 MHz	Detector Peak▶
Transmit Freq Error -10.290 kHz % of OBW Power 99.00 %	Auto <u>Man</u>
x dB Bandwidth 14.90 MHz x dB -26.00 dB	
MSG STATUS	

Plot 7-25. Occupied Bandwidth Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-26. Occupied Bandwidth Plot (Band 4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🤤 Keysight Spectrum Analyzer - Occupied B	W				- 6 -
LXI RL RF 50Ω DC	CORREC	SENSE:INT nter Freg: 1.732500000 GHz		5:42 PM May 03, 2018 Std: None	Trace/Detector
NFE	+++ Trig	g:FreeRun Avg Ho	ld:>100/100		
	#IFGain:Low #At	ten: 36 dB	Radio	Device: BTS	
10 dB/div Ref 40.00 dB	m				
30.0					
20.0	manshallow	ternen the second and the			Clear Write
10.0					
0.00			\		
-10.0			Married and a la		Average
-20.0 almountain the and a second			and the second s	mol man	
-30.0					
-40.0					Max Hold
-50.0					
Center 1.733 GHz				2non 50 Milia	
Res BW 470 kHz		#VBW 1.5 MHz		Span 50 MHz Sweep 1 ms	Min Hold
					Min Hold
Occupied Bandwid	th	Total Power	33.2 dBn	า	
1	7.933 MHz				Detector
				,	Peak►
Transmit Freq Error	4.973 kHz	% of OBW Pov	ver 99.00 %	0	Auto <u>Man</u>
x dB Bandwidth	19.60 MHz	x dB	-26.00 di	3	
MSG			STATUS		

Plot 7-27. Occupied Bandwidth Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

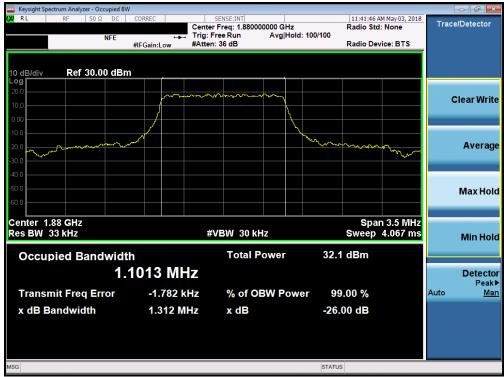


Plot 7-28. Occupied Bandwidth Plot (Band 4 - 20.0MHz 16-QAM - Full RB Configuration)

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#### Band 2



Plot 7-29. Occupied Bandwidth Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



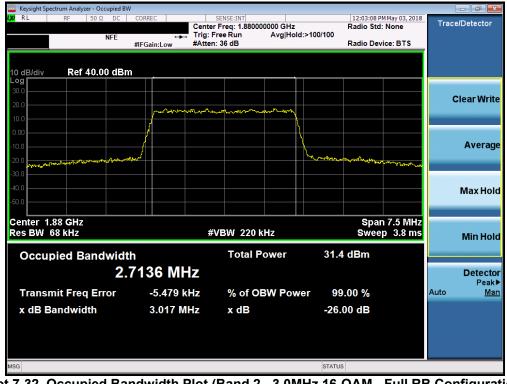
Plot 7-30. Occupied Bandwidth Plot (Band 2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spectrum Analyzer - Occupied BW 🗶 RL RF 50 Ω DC	CORREC	SENSE:INT r Freq: 1.880000000 GHz		12:02:53 PM May Radio Std: Nor		race/Detector
NFE		Free Run Avg Hold n: 36 dB		Radio Device:	втя	
10 dB/div Ref 40.00 dBn						
30.0						Clear Writ
20.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Clear wri
10.0						
0.00	_/					_
10.0						Avera
20.0	~				~~~~	
30.0						
40.0						Max Ho
50.0						
Center 1.88 GHz				Span 7.		
Res BW 68 kHz	#	VBW 220 kHz		Sweep 3	3.8 ms	Min Ho
Occupied Bandwidt	h	Total Power	33.1	dBm		
	7222 MHz					Detect
						Peal
Transmit Freq Error	-1.072 kHz	% of OBW Powe	er 99.0	00 %	Auto	о <u>М</u>
x dB Bandwidth	3.015 MHz	x dB	-26.0	0 dB		
SG			STATUS			

Plot 7-31. Occupied Bandwidth Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



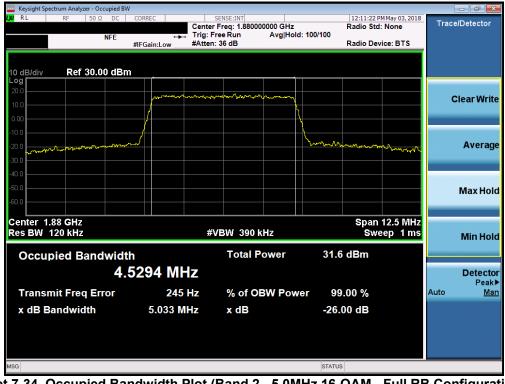
Plot 7-32. Occupied Bandwidth Plot (Band 2 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied BW	1				
LX/RL RF 50Ω DC	CORREC	SENSE:INT Center Freg: 1.880000	000 GHz	12:11:09 PM May 03, 2 Radio Std: None	2018 Trace/Detector
NFE	• <b>•</b> •	Trig: Free Run	Avg Hold: 100/100		
	#IFGain:Low	#Atten: 36 dB		Radio Device: BTS	
10 dB/div Ref 30.00 dBm Log	<u> </u>				
20.0					
10.0	mm	man have			Clear Write
0.00					
-10.0					
-20.0	and the second s		human		Average
-30.0					Average
-40.0					
-50.0					Max Hold
-60.0					
Center 1.88 GHz				Span 12.5 M	Hz
Res BW 120 kHz		#VBW 390 kH	łz	Sweep 1	
		<b>T</b> - 4 - 1 <b>D</b> -			
Occupied Bandwidt		Total Po	wer 33.0	) dBm	
4.5	5389 MH:	Ζ			Detector
Transmit Frag Freez	12 H	= % of OB	W Power 99	0.00 %	Peak▶ Auto Man
Transmit Freq Error					Auto <u>Ivian</u>
x dB Bandwidth	5.038 MH	z xdB	-26.	00 dB	
MSG			STATUS	5	

Plot 7-33. Occupied Bandwidth Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



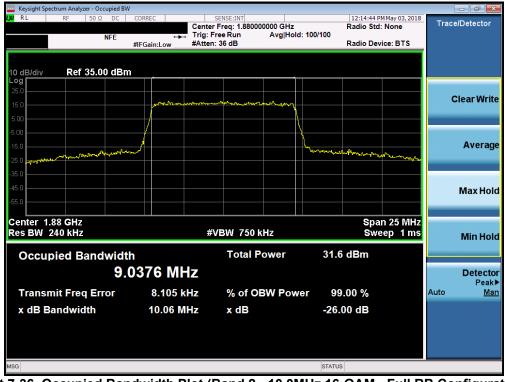
Plot 7-34. Occupied Bandwidth Plot (Band 2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied BW	1				
IXI RL RF 50 Ω DC		SENSE:INT Iter Freq: 1.880000000 GHz I: Free Run Avg Ho		PM May 03, 2018 d: None	Trace/Detector
NFE		ten: 36 dB		evice: BTS	
10 dB/div Ref 35.00 dBm	1				
25.0	pergenande	mithen and a second state			Clear Write
5.00					
-15.0	not		M management and a support		Average
-35.0					Maylield
-55.0					Max Hold
Center 1.88 GHz Res BW 240 kHz		#VBW 750 kHz		an 25 MHz /eep 1 ms	Min Hold
Occupied Bandwidt	h	Total Power	32.7 dBm		
	0001 MHz				Detector Peak▶
Transmit Freq Error	-1.288 kHz	% of OBW Po	wer 99.00 %		Auto <u>Man</u>
x dB Bandwidth	9.950 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-35. Occupied Bandwidth Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



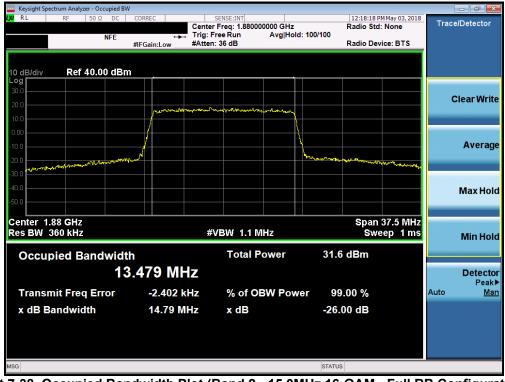
Plot 7-36. Occupied Bandwidth Plot (Band 2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 22 of 122	
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Keysight Spectrum Analyzer - Occupied B RL RF 50 Ω DC	CORREC	SENSE:INT	12:18:03 PM May 03, 2018	
		r Freq: 1.880000000 GHz Free Run Avg Hold: 100	Radio Std: None	Trace/Detector
NFE		n: 36 dB Avg Hold: 100	Radio Device: BTS	
	in dameon			
0 dB/div Ref 40.00 dBr				
30.0				
20.0				Clear Wr
0.0	particular and the second of the	market and a start and and		
0.00	/			
				A
10.0			how the second s	Avera
20.0 month along hannahore			and the second	
30.0				
40.0				Max Ho
50.0				
Center 1.88 GHz			Span 37.5 MHz	
es BW 360 kHz	#	VBW 1.1 MHz	Sweep 1 ms	Min Ho
Occupied Bandwidt	h	Total Power	33.0 dBm	
			55.0 dBm	
13	3.504 MHz			Detect
Transmit Freq Error	5.390 kHz	% of OBW Power	99.00 %	Pea Auto M
				Auto <u>m</u>
x dB Bandwidth	14.96 MHz	x dB	-26.00 dB	
			STATUS	

Plot 7-37. Occupied Bandwidth Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-38. Occupied Bandwidth Plot (Band 2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager	
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Keysight Spectrum Analyzer - Occupied BW	1					
LXI RL RF 50 Ω DC		SENSE:INT Freq: 1.880000000 GHz Free Run Avg Hold	Radio Std	M May 03, 2018 : None	Trace/D	Detector
NFE		n: 36 dB	Radio Dev	vice: BTS		
10 dB/div Ref 40.00 dBn	n					
Log 30.0						
20.0		~~~***********************************			Cle	ear Write
10.0	and the second second	and a second				
0.00	/					
-10.0			l			Average
-20.0 altor manufacture of the second			* yun to be the providence of the second	matterner have		
-30.0						
-40.0					N	/lax Hold
-50.0						
Center 1.88 GHz				n 50 MHz		
Res BW 470 kHz	#	VBW 1.5 MHz	Swe	eep 1 ms	1	Min Hold
Occupied Bandwidt	h	Total Power	33.0 dBm			
17	.936 MHz					Detector
Transmit Freq Error	10.150 kHz	% of OBW Pow	er 99.00 %		Auto	Peak▶ <u>Man</u>
x dB Bandwidth	19.64 MHz	x dB	-26.00 dB			
MSG			STATUS			

Plot 7-39. Occupied Bandwidth Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-40. Occupied Bandwidth Plot (Band 2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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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 10<sup>th</sup> 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.

#### Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

#### Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to at least 10 \* the fundamental frequency (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = trace average
- 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

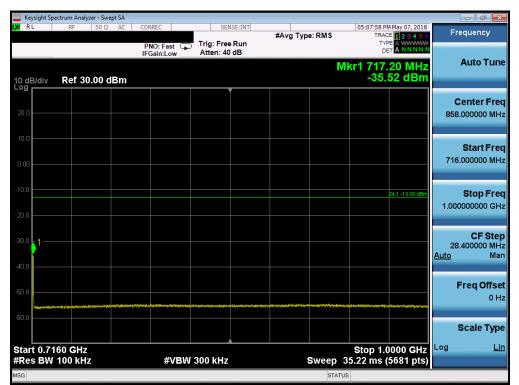
Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the 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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	Spectrum Analyzer -										
l <mark>xi</mark> RL	RF 5	0Ω AC	CORREC	SEI	NSE:INT	#Avg Typ	e: RMS	TRAC	May 07, 2018	Fre	equency
			PNO: Fast IFGain:Low	Trig: Fre Atten: 40				TYF DE			
10 dB/div Log	Ref 30.0	0 dBm					Μ	kr1 690. -44.	80 MHz 64 dBm		Auto Tune
20.0											enter Freq 950000 MHz
10.0 0.00										30.	Start Freq 000000 MHz
-10.0									DL1 -13.00 dBm	697.	<b>Stop Freq</b> 900000 MHz
-30.0										66. <u>Auto</u>	<b>CF Step</b> 790000 MHz Man
-40.0											F <b>req Offset</b> 0 Hz
-60.0	data yang mendapaten yang beraktik menangapaten beraktikan yang beraktika						a land and a second data to be a land		and by the party of the first stream to	ę	Scale Type
Start 30 #Res BV	.0 MHz № 100 kHz		#VBW	/ 300 kHz		s	weep 8:	2.82 ms (1	97.9 MHz 3359 pts)	Log	Lin

Plot 7-41. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



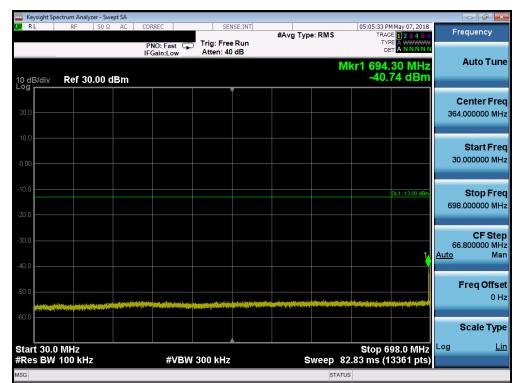
Plot 7-42. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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	ef 30.00 dBi	NC CORREC PNO: Fa IFGain:L	ast 😱 Trig: Fre		#Avg Type		TRAC TYI DI	MMay 07, 2018 PE 1 2 3 4 5 6 A WWWWW T A N N N N N 3 0 GHz 07 dBm	Amplitude Ref Level 30.00 dBm
20.0	ef 30.00 dBi	IFGain:L				MI			
20.0	ef 30.00 dBi	m		Ĭ.		MI	kr1 8.69 -38.	3 0 GHz 07 dBm	
20.0									
									Attenuation [40 dB]
									Scale/Div 10 dB
-10.0								DL1 -13.00 dBm	Scale Type Log Lin
-30.0							↓ <sup>1</sup>		Presel Cente
-40.0									Presel Adjus 0 Hz
-60.0 Start 1.000 G #Res BW 1.0			≠VBW 3.0 MHz				Stop 10	.000 GHz 8001 pts)	More 1 of 2
#Res DW 1.0	IWINZ	#			5	weep 1	0.000 H S L		

Plot 7-43. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



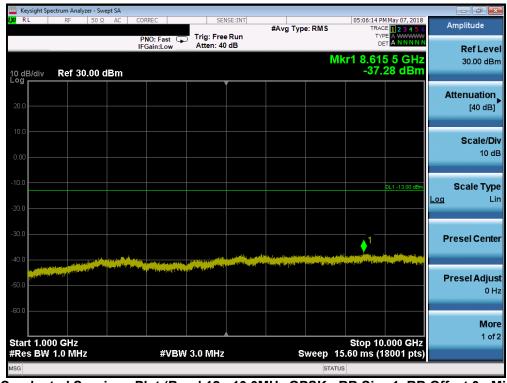
Plot 7-44. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager	
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PNO: Fast IFGain:Low         Trig: Free Run Atten: 40 dB         Trace Type: RMS         I ZAGE Type: RMS         I ZAGE         I ZAGE <thi th="" zage<=""> <thi th="" zage<=""></thi></thi>		ectrum Analyzer - Swept					
PNO: Fast       Trig: Free Run Atten: 40 dB       Mkr1 720.65 MHz -44.18 dBm       Auto Tune         00 dB/div       Ref 30.00 dBm       Center Freq 958.00000 MHz       Center Freq 958.00000 MHz       Start Freq 716.00000 MHz         100       00       00       00       00       00       Start Freq 716.00000 MHz         100       00       00       00       00       00       00       00         100       00       00       00       00       00       00       00       00         100       00 <td< td=""><td>LXI RL</td><td>RF 50 Ω</td><td>AC CORREC</td><td>SENSE:INT</td><td>#Avg Type: RMS</td><td>05:05:45 PM May 07, 2018 TRACE 1 2 3 4 5 6</td><td>Frequency</td></td<>	LXI RL	RF 50 Ω	AC CORREC	SENSE:INT	#Avg Type: RMS	05:05:45 PM May 07, 2018 TRACE 1 2 3 4 5 6	Frequency
NIKE / 720.00 MHz         Add.18 dBm         Center Freq         Start Freq			PNO: Fast 😱 IFGain:Low		• //	TYPE A WWWWW	
Image: Start Frequencies       Center Frequencies         10.0       Start Frequencies <td>10 dB/div</td> <td>Ref 30.00 dB</td> <td>3m</td> <td></td> <td>N</td> <td>/kr1 720.65 MHz -44.18 dBm</td> <td>Auto Tune</td>	10 dB/div	Ref 30.00 dB	3m		N	/kr1 720.65 MHz -44.18 dBm	Auto Tune
10.0							Center Freq
0.00     Start Freq 716.00000 MHz       100     0.111300000 MHz       200     0.111300000 MHz       300     0.111300000 MHz       100     0.111300000 MHz       200     0.1111000000 MHz       200     0.1111000000 MHz       200     0.11110000000 MHz       200     0.111100000000 MHz       200     0.11110000000000 MHz       200     0.111100000000000000000000000000000000	20.0						858.000000 MHz
0.00	10.0						
000 000 000 000 000 000 000 000 000 00							<b>Start Freq</b> 716.000000 MHz
20.0 30.0 40.0 ↓1	0.00						
20.0 20.0 CF Step 20.0 28.40000 MHz 40.0 1 20.0 28.40000 MHz Auto Man	-10.0					DL1 -13.00 dBm	Stop Freq
30.0 CF Step 28.400000 MHz 40.0 1	-20.0						1.000000000 GHz
40.0 1 28.400000 MHz Auto Man	20.0						05.01
40.0	-30.0						28.400000 MHz
	-40.0 _1						<u>Auto</u> Man
Freq Offset	l I						Freq Offset
	-50.0		Na second Annal St. Smith Shift Shifts and a second s	And a state of the			0 Hz
	-60.0						
Scale Type							Scale Type
Start 0.7160 GHz Stop 1.0000 GHz Log Lin #Res BW 100 kHz #VBW 300 kHz Sweep 35.22 ms (5681 pts)			#\/B\/	200 64-	Swoon		Log <u>Lin</u>
	#Res DW		#VBW	500 MH2			

Plot 7-45. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-46. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕕 LG	Approved by: Quality Manager
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	ectrum Analyze											
L <mark>XI</mark> RL	RF	50 Ω AC	CORRE	C	SEN	ISE:INT	#Avg Typ	e: RMS	TRA	M May 07, 2018 CE 1 2 3 4 5 6	Ar	nplitude
			PNC IFGa	):Fast 🕞 in:Low	Trig: Free Atten: 40				T) [			Ref Level
10 dB/div Log	Ref 30.	00 dBm	ı						Mkr1 697 -39	.80 MHz .68 dBm		30.00 dBm
											At	tenuation
20.0												[40 dB]
10.0												Scale/Div
0.00												10 dB
-10.0										DL1 -13.00 dBm		Scale Type
-20.0											<u>Log</u>	Lin
-30.0										1	Pr	
-40.0										<del>`</del>		
-50.0				Bulles a bake a manadale ka a mana	. It also to reference soluti	أسريف فحر وقياميد وتسبي	فلعفاز لحقا والمحاد	والمعروبة ومراورات	And in the second s	a	Pr	
-60.0			concernent alle BS Dife filme	direction of the power,	and a second	and a second state of the second state	(not-special originality	and through a state	liname destartidat de la desta	har na mai kaling ja bar pang pikalar		
												More 1 of 2
Start 30.0 #Res BW				#VBW	300 kHz		s	weep	ا Stop ) 82.83 ms	698.0 MHz 13361 pts)		
MSG								STA	TUS			

Plot 7-47. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-48. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	ectrum Analyze	er - Swept									
XI RL	RF	50 Ω		RREC	Trig: Free		#Avg Typ	e: RMS	TRAC	MMay 07, 2018 E 1 2 3 4 5 6 E A WWWW A N N N N N	Frequency
10 dB/div Log	Ref 30.	.00 dB	IF	Gain:Low	Atten: 40	dB		M	kr1 8.66 -38.		Auto Tune
20.0											<b>Center Freq</b> 5.500000000 GHz
0.00											Start Fred 1.000000000 GHz
-10.0										DL1 -13.00 dBm	Stop Fred 10.000000000 GHz
-30.0									↓ <sup>1</sup>		CF Step 900.000000 MH: <u>Auto</u> Mar
-40.0											Freq Offse 0 H:
-60.0											Scale Type
Start 1.00 #Res BW	1.0 GHz 1.0 MHz			#VBW	/ 3.0 MHz		s	weep 1	Stop 10 5.60 ms (1	.000 GHz 8001 pts)	Log <u>Lir</u>
MSG								STATU	s		

Plot 7-49. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

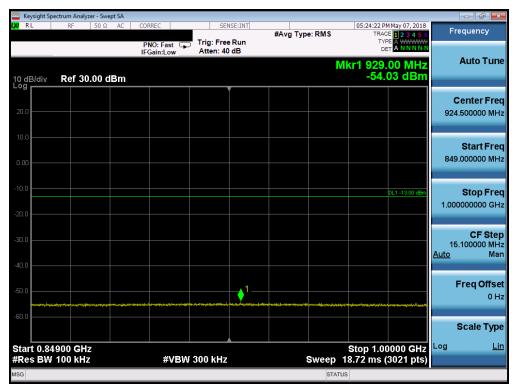
FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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## Band 5

Keysight Spectrum Analyzer - Swept SA				
RL RF 50Ω AC	PNO: Fast Figain:Low Atten: 40 dl	#Avg Type: RMS un	05:23:54 PM May 07, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
0 dB/div Ref 30.00 dBm	IFGam:Low Attent 40 th	_	Mkr1 815.80 MHz -44.08 dBm	Auto Tune
20.0				Center Free 426.500000 MH
0.00				Start Fre 30.000000 MH
20.0			DL1 -13.00 dBm	Stop Fre 823.000000 MH
40.0			1	CF Ste 79.300000 MH <u>Auto</u> Ma
50.0	alterna filo bossina kan ni olar kan kan kan kan sa Kibara da kan sa Kibara da kan sa Kibara da kan sa Kibara Manga gana da yana kan kan kan kan kan kan kan kan kan	na na sa	na princi da secono con stanci a con secono da sec	Freq Offs 0 ⊦
60.0			Stop 823.0 MHz	Scale Typ
Res BW 100 kHz	#VBW 300 kHz		98.33 ms (15861 pts)	

Plot 7-50. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-51. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyz		it SA									
LXI RL	RF	50 Ω	AC	CORREC			NSE:INT	#Avg Typ	e: RMS	TRA	PM May 07, 2018 CE 1 2 3 4 5 6	Frequency
				PNO: F IFGain:	ast 🖵 Low	Trig: Fre Atten: 4						
10 dB/div Log	Ref 30	.00 dl	Зm						N	lkr1 8.68 -38	3 5 GHz .40 dBm	Auto Tun
20.0												Center Fre
												5.500000000 GH
10.0												Start Free 1.000000000 GH
0.00												
-10.0											DL1 -13.00 dBm	Stop Free 10.000000000 GH
-20.0												05.04
-30.0										<b>↓</b> <sup>1</sup>		CF Step 900.000000 MH <u>Auto</u> Mar
-40.0			and the Party of the			and the second day is a second day of the second						
-50.0												Freq Offse 0 H
-60.0												Scale Type
Start 1.00	0 GH7									Stop 1	0.000 GHz	Log Li
#Res BW		:			#VBW	3.0 MHz		s	weep	15.60 ms (	18001 pts)	
MSG									STAT	US		

Plot 7-52. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-53. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager	
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	ectrum Analyzer -										
L <mark>XI</mark> RL	RF 50	Ω AC	CORREC		SE:INT	#Avg Typ	e: RMS	TRAC	MMay 07, 2018 E 1 2 3 4 5 6 E A WWWW A N N N N N	Fr	equency
	Ref 30.00	) dBm	IFGain:Low	Atten: 40			N	lkr1 849.			Auto Tune
20.0											<b>Center Freq</b> .500000 MHz
0.00										849	Start Freq .000000 MHz
-10.0									DL1 -13.00 dBm	1.00	Stop Freq 0000000 GHz
-30.0										15 <u>Auto</u>	<b>CF Step</b> .100000 MH: Mar
-50.0	LI 61-116-113-20,	17-1910-0-17-10-00	yana ya ya ka ya wanga wada	and a market and a market	والإعتبار ومعتار ومعتار ومعتار			performant and a start fragments	เกราะจากไรการไปการใจก่านๆณะ	1	F <b>req Offse</b> 0 Ha
-60.0 Start 0.84	000 CH2							Stop 1.0	0000 GHz		Scale Type
#Res BW			#VBW	/ 300 kHz				18.72 ms (	0000 0112		
MSG							STATU	JS			

Plot 7-54. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



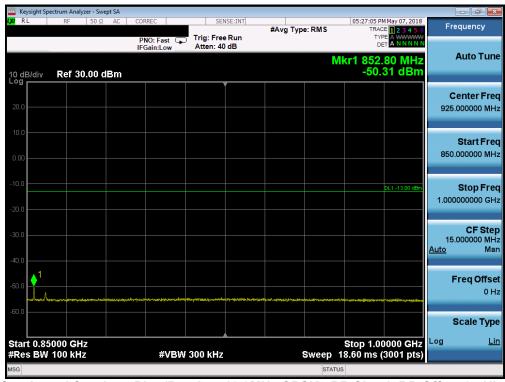
Plot 7-55. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Log       Center Freq         20.0       Center Freq         10.0       Start Freq         0.00       Start Freq         10.0       OLL-13.00 dem         20.0       Stop Freq         20.0       CE Step         20.0       CE Step		ectrum Analyzer									_	
PNO: Fast (FGain:Low)       Trig: Free Run Atten: 40 dB       Mikr1 822.00 MHz -49.56 dBm       Auto Tune         00 dD/div       Ref 30.00 dBm       -49.56 dBm       -49.56 dBm       Center Freq 427.00000 MHz         00 dD/div       Ref 30.00 dBm       -49.56 dBm       -49.56 dBm       Start Freq 30.00000 MHz         00 dD/div       Ref 30.00 dBm       -49.56 dBm       -49.56 dBm       Start Freq 427.000000 MHz         00 dD/div       -49.56 dBm       -49.56 dBm       -49.56 dBm       -49.56 dBm         00 dD/div       -49.56 dBm       -49.56 dBm       -49.56 dBm       -49.56 dBm         00 dD/div       -49.56 dBm       -49.56 dBm       -49.56 dBm       -49.56 dBm         00 dD/div       -49.56 dBm       -49.56 dBm       -49.56 dBm       -49.56 dBm         00 dD/div       -49.56 dBm       -49.56 dBm       -49.56 dBm       -50.56 Bm       -50.56 Bm         -40.0       -49.56 dBm       -49.56 dBm       -49.56 dBm       -50.56 Bm	LXI RL	RF 5	50Ω AC	CORREC	SEI	NSE:INT	#Avg Typ	e: RMS			Fre	equency
Mkr1 822.00 MHz   100 GM/div Ref 30.00 dBm   200				PNO: Fast					TYP	E A WWWWW		
100 EX/UV Ref 30.00 dBm     200     200     200     200     200     200     200     200     200     200     200     200     200     200     200     200     201        201           201   <				II Gain.cow	,			Ν	lkr1 822.	00 MHz		Auto Tune
200       Center Freq         200       Start Freq         100       Start Freq         000       Start Freq         100       Start Start Freq         100       Start Start Freq         100       Start Start Freq         100       Start Sta	10 dB/div	Ref 30.0	0 dBm									
200       427.00000 MHz         100       Start Freq         000       0         100												
100       Image: Constraint of the second of t	20.0											
000       Image: start Freq       30.000000 MHz         100       Image: start Freq       30.000000 MHz         100       Image: start Freq       30.000000 MHz         200       Image: start Freq       30.00000 MHz         200       Image:	20.0										421.	
0.00       0.00       0.01       0.00000 MHz         100       0.11       0.11       0.11       0.11         200       0.11       0.11       0.11       0.11       0.11         200       0.11       0.11       0.11       0.11       0.11       0.11         200       0.11       0.11       0.11       0.11       0.11       0.11       0.11         300       0.11 <t< td=""><td>10.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	10.0											
1000       0011-1300 dem       Stop Freq         100       0011-1300 dem       Stop Freq         200       0011-1300 dem       CF Step         3000       0011-1300 dem       CF Step         4000       0011-1300 dem       CF Step         4000       0011-1300 dem       1         40000       0011-13												
Image: Stop Freq     Stop Freq       200     Stop Freq       300     Stop Freq       400     Stop Stop Stop Stop Stop Stop Stop Stop	0.00										30.	.000000 MHz
Image: Stop Freq     Stop Freq       200     Stop Freq       300     Stop Freq       400     Stop Stop Stop Stop Stop Stop Stop Stop												
200 200 200 200 200 200 200 200 200 200	-10.0									DL1 -13.00 dBm		
<ul> <li>CF Step 79.40000 MHz</li> <li>CF Step 79.40000 MHz</li> <li>CF Step 79.40000 MHz</li> </ul>	.20.0										824.	.000000 MHz
3000       3000       1       79.400000 MHz         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1         4000       1       1       1       1         4000       1       1       1       1         4000       1       1       1       1         4000       1       1       1       1       1         4000       1       1       1       1       1	20.0											
40.0 4	-30.0										70	
-50.0 -5												
-500 and the set of th	-40.0											
-60.0 And the second of the se										1	F	req Offset
-50.0 A sector to any place this following the data of the sector with a sector of the	-50.0	L. Markey and black	والم وأطعان والمحجو أسرون	والمحافظ وال	المراجع ومعمد المادي	(helper plantare plan	(Minister Manager 1	أحبار المعط وجور والتكاف	مالى مى المارى م	- A loss of the loss of the loss		0 Hz
Start 30.0 MHz Stop 824.0 MHz Log Lin	-60.0	all all a state of the literature of the		an a di Manadara da manda	Alsh administration	Numerican Street	vintegel in Diseason	(induktion)	والمراجع والملالي وروار والملاحظ	an a		
											\$	Scale Type
	<b>O</b> t-14 00-0	DALL-							01		Log	Lin
				#VBM	/ 300 kHz		s	weep_9	Stop 8: 8.46 ms (1	24.0 MHz 5881 pts)	209	<u></u>
ASG STATUS	MSG								· ·			

Plot 7-56. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-57. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

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	ectrum Analyz	zer - Swep	t SA										
LXU RL	RF	50 Ω	AC	CORREC	ast 🕞	Trig: Fre		#Avg Typ	e:RMS	TRA	M May 07, 2018 CE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	Fr	equency
10 dB/div	Ref 30	.00 dE	3m	IFGain:	Low	Atten: 40	) dB		N	/kr1 8.69			Auto Tune
20.0													<b>Center Freq</b> 0000000 GHz
0.00												1.00	<b>Start Freq</b> 0000000 GHz
-10.0											DL1 -13.00 dBm	10.00	Stop Freq
-30.0										↓ <sup>1</sup>		900 <u>Auto</u>	<b>CF Step</b> 0.000000 MH; Mar
-40.0													Freq Offse 0 H;
-60.0												Log	Scale Type
Start 1.00 #Res BW		z			#VBW	3.0 MHz		9	weep	Stop 10 15.60 ms (1	.000 GHz 8001 pts)	Log	
MSG									STA	TUS			

Plot 7-58. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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## Band 4

🔤 Keysight Spectrum Analyzer - Swept SA 👘				
KI RF 50Ω AC	PNO: Fast Trig: Free Run IFGain:Low Atten: 30 dB	#Avg Type: RMS	06:03:11 PM May 07, 2018 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 20.00 dBm		MI	kr1 1.702 0 GHz -25.91 dBm	Auto Tune
10.0				Center Freq 868.500000 MHz
-10.0			DL1 -13.00 dBm	Start Free 30.000000 MHz
-20.0			<u>1</u>	Stop Fred 1.707000000 GHz
-40.0				CF Step 167.700000 MH <u>Auto</u> Mar
-60.0	nan sen an			Freq Offse 0 H:
Start 0.0300 GHz			Stop 1.7070 GHz	Scale Type
#Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 2	2.239 ms (3359 pts)	

Plot 7-59. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-60. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyz		t SA										
X/RL	RF	50 Ω	AC	CORREC		SEI	ISE:INT	#Avg Typ	e: RMS	TRAC	M May 07, 2018	Frequ	ency
				PNO: F IFGain:	Fast 🖵 :Low	Trig: Free Atten: 10				TY D	PE A WWWWW ET A N N N N N		
									Mk	1 16.98	3 0 GHz	Au	to Tune
10 dB/div Log	Ref 0.0	00 dBi	m					_		-61.	46 dBm		
							Í					Cen	ter Freq
-10.0											DL1 -13.00 dBm	15.00000	0000 GHz
-20.0													
-20.0												St	art Freq
-30.0												10.00000	0000 GHz
-40.0													op Freq
-50.0												20.00000	0000 GHz
									1				
-60.0									<u>,</u>			1.000000	CF Step
-70.0						and the second s						<u>Auto</u>	Man
-70.0												_	
-80.0												Fre	<b>q Offset</b> 0 Hz
													0 H2
-90.0												Sca	le Type
Start 10.0 #Res BW					#VRM	3.0 MHz			ween 2	Stop 20	.000 GHz 20001 pts)	Log	Lin
MSG	1.0 10112				#VDVV	5.0 WH12			STATU		ooon pis)		
SG									STATU	S			

Plot 7-61. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



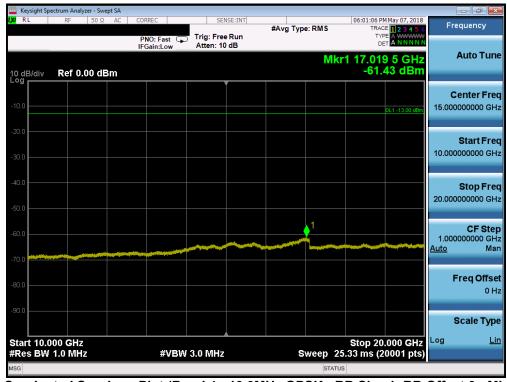
Plot 7-62. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	ht Spectrum Anal	yzer - Swej	pt SA										
l <b>XI</b> RL	RF	50 Ω	AC	CORREC			ISE:INT	#Avg Typ	e: RMS	06:00	TRACE 1 2 3 4 5 6		requency
				PNO: F IFGain:	ast Ģ Low	Trig: Free Atten: 30					TYPE A WWWWW DET A N N N N N		
				iii Galilii	2011					Mkr1 1	.755 0 GHz		Auto Tune
10 dB/d Log	iv Ref 2	0.00 d	Bm							-	41.54 dBm		
													Center Freq
10.0													7500000 GHz
0.00													Start Freq
-10.0											DL1 -13.00 dBm	1.75	5000000 GHz
											DL1 -13.00 08m		
-20.0													Stop Freq
-30.0												10.00	0000000 GHz
-30.0													
-40.0												82	CF Step 4.500000 MHz
												<u>Auto</u>	Mar
-50.0			-			and the second second							
-60.0													Freq Offset
													0 Hz
-70.0													0
													Scale Type
	.755 GHz									Sto	o 10.000 GHz	Log	Lin
	3W 1.0 MH	Z			#VBW	3.0 MHz		5			is (16491 pts)		
MSG									51/	ATUS			

Plot 7-63. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-64. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	ectrum Analyze										
LXI RL	RF	50 Ω AC	CORREC	SE	NSE:INT	#Avg Typ	e: RMS		May 07, 2018	Fr	equency
			PNO: Fas IFGain:Lo	t 🕞 Trig: Fre w Atten: 3				TYF De			Auto Tune
10 dB/div Log	Ref 20.	00 dBm					M	kr1 1.60 -51.	5 0 GHz 95 dBm		Autorune
					Ĭ					c	enter Freq
10.0										870	.000000 MHz
0.00											
										30	Start Freq .000000 MHz
-10.0									DL1 -13.00 dBm		
-20.0											Stop Freq
										1.710	000000 GHz
-30.0											
-40.0										168	CF Step
-50.0									▲1	<u>Auto</u>	Man
-30.0	and a design of the second	****				the second s	And and the second second	****	1497-98-3 <b>5</b> 89-91-81-82		
-60.0										F	Freq Offset 0 Hz
70.0											
-70.0											Scale Type
Start 0.03	IOO GHZ							Stop 1 7	7100 GHz	Log	Lin
#Res BW			#	VBW 3.0 MH;	2		Sweep	2.240 ms (	3361 pts)		
MSG							STATU	JS			

Plot 7-65. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



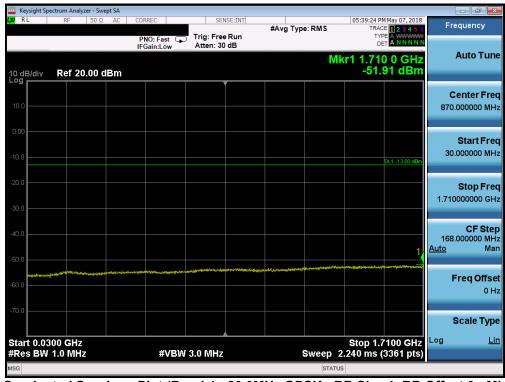
Plot 7-66. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	Spectrum Analyzer -									
l <b>xi</b> Rl	RF 50	Ω AC	CORREC	SEI	NSE:INT	#Avg Typ	e: RMS		M May 07, 2018	Frequency
			PNO: Fast IFGain:Low	Trig: Free Atten: 10				TY	ET A WWWWW	
			in Gameon				M	kr1 16.99	2 0 GHz	Auto Tune
10 dB/div Log	Ref 0.00	dBm						-61.	45 dBm	
Log					Í .					Center Freq
-10.0									DL1 -13.00 dBm	15.00000000 GHz
-20.0										Start Freq
-30.0										10.00000000 GHz
-40.0										Stop Freq
-50.0										20.00000000 GHz
-30.0							4			
-60.0							<u>}</u>			CF Step 1.00000000 GHz
				- and the second se						<u>Auto</u> Man
-70.0										
-80.0										Freq Offset
										0 Hz
-90.0										Scale Type
	.000 GHz		-41/1014	0 0 MU-		_		Stop 20	.000 GHz	Log <u>Lin</u>
#Res BV	V 1.0 MHz		#VBW	/ 3.0 MHz		5	weep	25.33 ms (2	toour pts)	
							314	100		

Plot 7-67. Conducted Spurious Plot (Band 4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



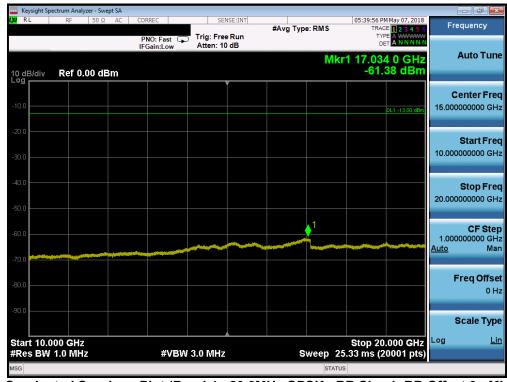
Plot 7-68. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	pectrum Analyzer									
(XI) RL	RF	50Ω AC	CORREC	SE	NSE:INT	#Avg Typ	e: RMS		PM May 07, 2018 ACE 1 2 3 4 5 6	Frequency
			PNO: Fast IFGain:Low	Trig: Fre				T	YPE A WWWWW DET A NNNNN	
			II Guill.201				I	/kr1 8.69	92 0 GHz	Auto Tune
10 dB/div Log	Ref 20.0	00 dBm						-48	.40 dBm	
					Ĭ					Center Free
10.0										5.877500000 GH
0.00										Start Free
-10.0										1.755000000 GH
									DL1 -13.00 dBm	
-20.0										Stop Free
20.0										10.00000000 GH
-30.0										
-40.0										CF Step 824.500000 MH
								<b>∮</b> 1		Auto Mar
-50.0		and the second designed	The second s	~~~~				Charles in the second second		
-60.0										Freq Offse
										0 H
-70.0										
										Scale Type
Start 1.7								Stop 1	0.000 GHz	Log <u>Lir</u>
	/ 1.0 MHz		#VI	BW 3.0 MHz		S			16491 pts)	
MSG							STA	TUS		

Plot 7-69. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-70. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

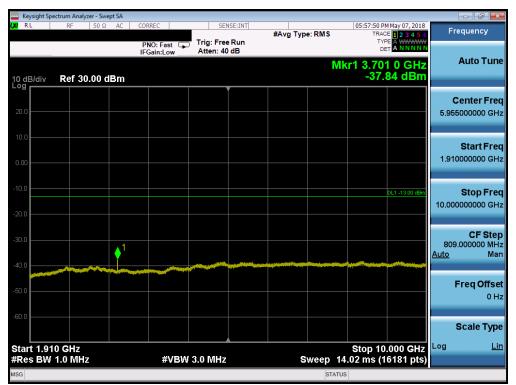
FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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## Band 2

	ectrum Analyze							
I <mark>XI</mark> RL	RF	50 Ω AC	PNO: Fast	Trig: Free F Atten: 30 d	#Avg	J Type: RMS	05:57:32 PM May 07, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div	Ref 20.0	00 dBm	IFGain.Low	Atten: 00 d	5	М	kr1 1.846 5 GHz -25.69 dBm	Auto Tune
10.0								Center Fred 939.000000 MHz
-10.0							DL1 -13.00 dBm	Start Free 30.000000 MHz
-20.0								Stop Fred 1.848000000 GH;
-40.0								CF Step 181.800000 MH Auto Mar
60.0		and water out of the second	998) mill diret och på skiller af for døje besk for døje och for skiller och for døje besk for døje for skille 		allen allen eller minnen beskillet sin som der	galgan gala kan di di sebelar di sebelar pengan pengan pengan pengan pengan pengan pengan pengan pengan pengan Pengan pengan	an a gan gan an a	Freq Offse 0 H
-70.0								Scale Type
Start 0.03 #Res BW			#VB\	V 3.0 MHz		Sweep	Stop 1.8480 GHz 2.425 ms (3639 pts)	
//SG						STATU	JS	

Plot 7-71. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-72. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Sp	ectrum Analy:	zer - Swept	t SA										
LXI RL	RF	50 Ω	AC	CORREC		SE	NSE:INT	#Avg Typ	e RMS		M May 07, 2018	Fr	equency
	_			PNO: F IFGain:	ast 🖵 Low	Trig: Fre Atten: 10				TY D			
10 dB/div Log	Ref 0.0	00 dBr	n						Mk	r1 17.03 -61.	3 0 GHz 49 dBm		Auto Tune
-10.0											DL1 -13.00 dBm		<b>Center Freq</b> 0000000 GHz
-20.0												10.00	Start Freq 0000000 GHz
-40.0												20.00	Stop Freq 0000000 GHz
-60.0							_		1			1.00 <u>Auto</u>	CF Step 0000000 GHz Man
-80.0													Freq Offsel 0 Hz
-90.0													Scale Type
Start 10.0 #Res BW		2			#VBW	3.0 MHz		s	weep 2	Stop 20 5.33 ms (2	.000 GHz 20001 pts)	Log	<u>Lin</u>
MSG									STATU	IS			

Plot 7-73. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-74. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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	ectrum Analyze		1							
X/RL	RF	50 Ω AC	CORREC		SE:INT	#Avg Typ	e: RMS	TRAC	May 07, 2018	Amplitude
			PNO: Fast IFGain:Low	Trig: Free Atten: 40				TYF DE		RefLeve
10 dB/div Log	Ref 30.	00 dBm					Μ	kr1 8.927 -37.0	7 0 GHz 05 dBm	30.00 dBr
.09										Attenuation
20.0										[40 dB]
10.0										0
0.00										Scale/Di 10 d
0.00										
-10.0									DL1 -13.00 dBm	Scale Typ
20.0										<u>Log</u> Li
30.0										
-30.0								↓ <sup>1</sup>		Presel Cente
-40.0				Anna an		da ya midila da ka yak wata ya kazarta da Tangar			en (1919-1979) en filmente en filmen (1919-1979) en filmen (1919-1979)	
-50.0										Presel Adjus 0 H
~ ~ ~										UH
-60.0										Mor
Start 1.91								Stop 10	000 GHz	1 of
#Res BW	1.0 MHz		#V	BW 3.0 MHz		\$	weep 1	4.02 ms (1	6181 pts)	
ISG							STATU	S		

Plot 7-75. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



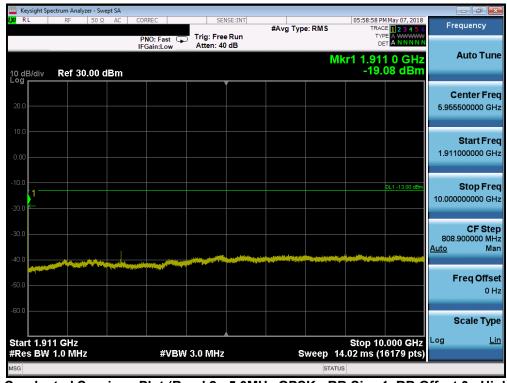
Plot 7-76. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 54 of 100
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L <mark>XI</mark> RL	RF	50 Ω	AC	CORREC	ast 🗔	Trig: Free		#Avg Typ	e: RMS	TRAC	M May 07, 2018 CE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	F	requency
10 dB/div Log	Ref 20	.00 dE	3m	IFGain:	Low	Atten: 30	dB		M	⊳ 1kr1 1.59 -51.			Auto Tune
10.0													Center Freq 0.000000 MHz
-10.0											DL1 -13.00 dBm	30	Start Freq 0.000000 MHz
-20.0												1.85	Stop Fred
-40.0										<b>↓</b> 1		182 <u>Auto</u>	<b>CF Step</b> 2.000000 MH: Mar
-60.0	and the second	and the state of the	aller and the second	et a for the desired and		y, eye bilite, eige eige fan de finderen e		1999-1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1 			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Freq Offse 0 Hi
-70.0 Start 0.03	300 GHz									Stop 1.3	8500 GHz		Scale Type Lin
#Res BW					#VBW	3.0 MHz				2.427 ms	(3641 pts)		
MSG									STAT	05			

Plot 7-77. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-78. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager				
Test Report S/N: Test Dates:		EUT Type:		Dage FE of 100				
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📱 Keysight Spectrum Analyzer - Swept SA 🛛 👘 🗃 🗃												
LXI RL	RF	50 Ω	ſ	PRREC	Trig: Fre		#Avg Typ	e: RMS	TRAC	M May 07, 2018 E 1 2 3 4 5 6 E A WWWW A N N N N N	Fre	equency
10 dB/div	Ref 0.0	)0 dBn		Gain:Low	Atten: 10	) dB		Mk	r1 16.96			Auto Tune
-10.0										DL1 -13.00 dBm		<b>enter Freq</b> 000000 GHz
-20.0												Start Freq 000000 GHz
-40.0											20.000	Stop Fred
-60.0								1			1.000 <u>Auto</u>	CF Step 000000 GH: Mar
-80.0											F	F <b>req Offse</b> 0 Ha
-90.0	000 GHz								Stop 20	.000 GHz	s Log	Scale Type Lin
#Res BW		:		#VB	W 3.0 MHz		S	weep 2	5.33 ms (2	0001 pts)		
MSG								STATU	JS			

Plot 7-79. Conducted Spurious Plot (Band 2 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFX410CS		MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager	
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