

🔤 Keysight Spectrum An										
LX/RL RF	50 Ω AC	CORREC	SENS	E:INT	#Avg Typ	ALIGN AUTO	06:31:56 PM	Jan 17, 2017	Fr	equency
		PNO: Fast C IFGain:Low	Trig: Free F Atten: 30 c		#Avg Typ	e. KWS	TYPE	1 2 3 4 5 6 A WWWWW A N N N N N		
10 dB/div Ref 2	20.00 dBm					Mk	r1 2.399 -45.3	0 GHz 33 dBm		Auto Tune
10.0										Center Fred 2500000 GHz
-10.0									30	Start Fred
-20.0								DL1 -25.00 dBm	2.47	Stop Free
-40.0						and a second	a daga kata aya kata kata	1	244 <u>Auto</u>	CF Stej .500000 MH Mai
-60.0	1999 - 1999 -									F req Offse 0 H
-70.0										Scale Type
Start 0.030 GHz #Res BW 1.0 M		#\/BI	N 3.0 MHz			Sween 3	.260 ms (4	475 GHz	Log	Lir
#RES DW 1.0 WI	12	#VD	N-5.0 WH12			Sweep 5		r o s r pis)		

Plot 7-115. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0– Low Channel)



Plot 7-116. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

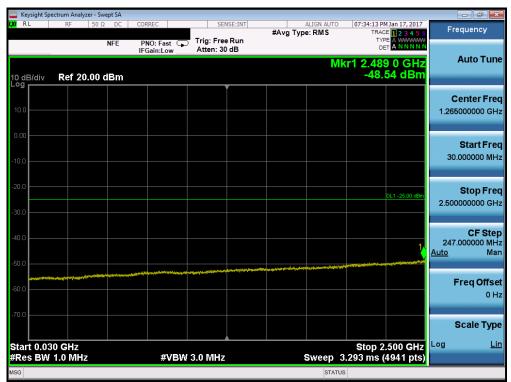
FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-117. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)



Plot 7-118. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer -	Swept SA							
L <mark>XI</mark> RL	RF 5	0Ω DC	CORREC	SENSE		ALIGN		4:24 PM Jan 17, 2017 TRACE 1 2 3 4 5 6	Frequency
		NFE	PNO: Fast IFGain:Low	Trig: Free F Atten: 30 d	un	• ,.			B
10 dB/div Log	Ref 20.0	0 dBm					Mkr1 14	.959 5 GHz ·38.34 dBm	Auto Tu
10.0									Center Fr 8.785000000 G
-10.0									Start Fr 2.570000000 G
-20.0								DL1 -25.00 dBm	Stop Fr 15.000000000 G
-40.0	J.	~~~~							CF Sto 1.243000000 G <u>Auto</u> M
-60.0									Freq Offs 0
-70.0									Scale Ty
Start 2.57 #Res BW			#VBW	3.0 MHz		Swee	Sto p. 21.55 n	p 15.000 GHz is (24861 pts)	Log <u>l</u>
MSG	1.0-11112		<i>"</i> • • • • •				STATUS	ie (Ereor pro)	

Plot 7-119. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



Plot 7-120. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Sp	ectrum Analyzer -	- Swept SA					
X/RL	RF 5	0Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	06:30:38 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW	Frequency
10 dB/div Log	Ref 20.0	0 dBm	PNO: Fast IFGain:Low	Atten: 30 dB	MI	cr1 2.494 5 GHz -44.78 dBm	Auto Tune
10.0							Center Freq 1.265000000 GHz
-10.00							Start Free 30.000000 MH;
-20.0						DL1 -25.00 dBm	Stop Free 2.500000000 GH:
-40.0				مىلى بىلارىدۇر بىلار بىلەر			CF Step 247.000000 MH <u>Auto</u> Mar
-60.0							Freq Offse 0 H
-70.0						Ston 2 500 Olla	Scale Type
Start 0.03 #Res BW			#VBW	3.0 MHz	-	3.293 ms (4941 pts)	
MSG					STATU	5	

Plot 7-121. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-122. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-123. Conducted Spurious Plot (Band 7 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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7.4 Band Edge Emissions at Antenna Terminal

§2.1051 §22.917(a) §24.238(a) §27.53(c) §27.53(g) §27.53(h) §27.53(m) §27.53(a.4)

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at 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 for Band 7 is as noted in the Test Notes on the following page.

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 v02r02 - Section 6.0

Test Settings

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

Test Setup

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

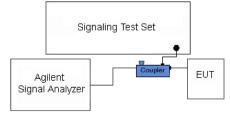


Figure 7-3. Test Instrument & Measurement Setup

Test Notes

1. Per 22.917(b) 24.238(a) 27.53(h) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

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Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is $65 + 10log_{10}(P) = -35dBm$ in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.

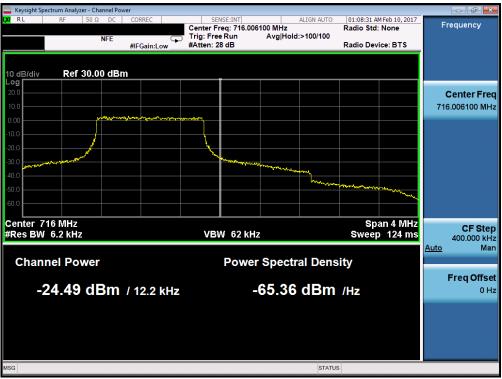
2. For some of the extended band edge plots, the VBW is slightly lesser than what should have been used. However, this deviation does not create any noticeable difference to the data provided.



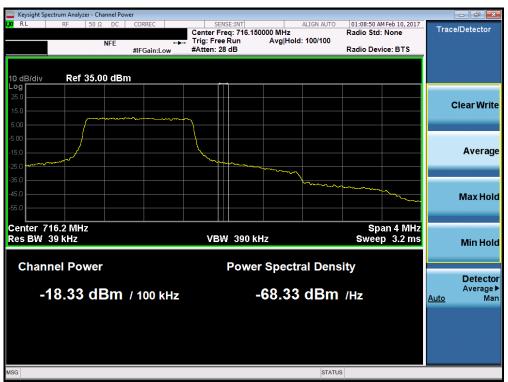
Plot 7-124. Lower Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

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Plot 7-125. Upper Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)



Plot 7-126. Upper Extended Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

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	ectrum Analyzer - Sw										- ē 💌
XI RL	RF 50 S	2 AC	CORREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO e: RMS		M Jan 17, 2017 E <mark>1 2 3 4 5 6</mark>	F	requency
			PNO: Wide IFGain:Low	Trig: Fre Atten: 3		• ,,		TYI Di			
10 dB/div Log	Ref 25.00	dBm					Mk	r1 697.9 -24.	52 MHz 52 dBm		Auto Tune
15.0											Center Free 8.000000 MH
-5.00										69	Start Free 6.000000 MH
-15.0					1				DL1 -13.00 dBm	70	Stop Free 0.000000 MH
-35.0	~~~~									<u>Auto</u>	CF Stej 400.000 kH Mar
55.0											Freq Offse 0 H
-65.0											Scale Typ
Center 69 Res BW	08.000 MHz 100 kHz		#V	BW 300 kHz			Sweep 1	Span 4 .000 ms (.000 MHz 1001 pts)	Log	Li
ISG							STATUS				

Plot 7-127. Lower Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)



Plot 7-128. Upper Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer - Swe										
XI RL Center F	RF 50 Ω req 698.000	000 MH	RREC Z NO: Wide C			#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Jan 17, 2017 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	F	requency
10 dB/div	Ref 25.00 c		Gam.Low	, and the second			Mk	1 697.9 -25.	56 MHz 54 dBm		Auto Tune
15.0											Center Freq 8.000000 MHz
-5.00										69	Start Fred 6.000000 MHz
-15.0					1	- Argenter and			DL1 -13.00 dBm	70	Stop Freq 0.000000 MHz
-35.0										<u>Auto</u>	CF Step 400.000 kHz Mar
-55.0											Freq Offse 0 H
-65.0											Scale Type
Center 69 #Res BW	8.000 MHz 100 kHz		#VBW	300 kHz			Sweep 1	Span 4 .000 ms (.000 MHz 1001 pts)	Log	Lir
ISG							STATUS				

Plot 7-129. Lower Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)



Plot 7-130. Upper Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)

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	ectrum Analyzer - S										
X/RL	RF 50 9	Ω AC	CORREC	SENSE	un	#Avg Typ	ALIGN AUTO e: RMS	07:21:17 PM TRACE TYPE	Jan 17, 2017 1 2 3 4 5 6 A WWWWW A N N N N N	F	requency
10 dB/div	Ref 25.00	dBm	IFGain:Low	Atten: 36 d	8		Mkr	1 697.8			Auto Tune
15.0											Center Fred B.000000 MH:
-5.00								~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	DL1 -13.00 dBm	69	Start Fred 4.000000 MH:
-15.0					~~~~				211-13:00 (15)	70	Stop Fred 2.000000 MH;
45.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~									<u>Auto</u>	CF Step 800.000 kH Mar
55.0											Freq Offse 0 H
-65.0											Scale Type
Center 69 #Res BW	8.000 MHz 100 kHz		#VBW	300 kHz			Sweep 1	Span 8. .000 ms (1	000 1911 12	Log	<u>Lir</u>
SG							STATUS				

Plot 7-131. Lower Band Edge Plot (Band 12 – 10.0MHz QPSK – RB Size 50)



Plot 7-132. Upper Band Edge Plot (Band 12 – 10.0MHz QPSK – RB Size 50)

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Keysight Spectrum Ar	nalyzer - Swept SA						
XU RL RF	50 Ω DC	CORREC	SENSE:IN	#Avg Typ	ALIGN AUTO e: RMS	01:10:52 AM Mar 07, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div Ref	25.00 dBm	IFGain:Low	Atten: 36 dB		Mkı	1 776.980 MHz -24.76 dBm	Auto Tune
15.0						a mar and marked and and and and and and and and and an	Center Fred 777.000000 MH;
-5.00				/ mdreg on A growingh		DL1 -13.00 dBm	Start Free 775.000000 MH:
-15.0			1.1				Stop Free 779.000000 MH:
-35.0		North Contraction of the second					CF Step 400.000 kH Auto Mar
-55.0	Wardana						Freq Offse 0 H
-65.0							Scale Type
Center 777.000 #Res BW 100 k		#VBW	300 kHz		Sweep 2	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lir</u>
MSG					STATUS		

Plot 7-133. Lower Band Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

	ectrum Analyzer -										- Ø 💌
<mark>(</mark> RL	RF 50	Ω DC	CORREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	Mar 07, 2017 E 1 2 3 4 5 6	Fre	equency
		NFE	PNO: Wide ↔→ IFGain:Low	Trig: Free Atten: 36				DE			
0 dB/div	Ref 25.00) dBm					Mkr1 774.976 MHz -62.14 dBm				Auto Tun
				,						с	enter Fre
15.0										769.	000000 MH
5.00											Start Fre
5.00										763.	000000 MH
15.0											Stop Fre
25.0										775.	000000 MH
35.0									DL1 -35.00 dBm		CF Ste
15.0										1. <u>Auto</u>	200000 MH Ma
+5.0										F	req Offse
55.0									1		0 H
65.0	uhuhumah	humunuh	pypherithericalize/feat	attantion of the	H. Margara	Mohntenthelinth	พากสะสะนิปกินปกิน เราะะะะะะะะะะะะะะะะะะะะะะะะะะะะะะะะะะะะ	an and the second second	War office and the	9	Scale Typ
		Local states to	. h i	, tran 11 alla a	C PROVING	of the state and		1		Log	Li
	.000 MHz 6.2 kHz		#VBW	30 kHz			#Sweep	Stop 775 1.000 s (.000 MHz 1001 pts)	Log	
SG							STATUS	3			

Plot 7-134. Lower Emission Mask Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

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	ectrum Analyz										
XI RL	RF	50Ω DC NFE	CORREC	Trig: Free		#Avg Typ	ALIGN AUTO e: RMS	TRAC	Mar 07, 2017 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	F	requency
10 dB/div Log	Ref 25	.00 dBm	IFGain:Low	Atten: 36	dB		Mki	r1 787.0			Auto Tune
15.0											Center Fred 7.000000 MH:
5.00	~~~~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							78	Start Fre
-15.0					1				DL1 -13.00 dBm	789	Stop Fre 9.000000 MH
35.0						./~f.»~A-Dueny~_d	many	······	and and a second se	<u>Auto</u>	CF Ste 400.000 k⊢ Ma
45.0 55.0 											Freq Offs 0 H
65.0											Scale Typ
Center 78 ≇Res BW			#VBV	V 300 kHz			Sweep 2	Span 4. .000 ms (.000 MHz 1001 pts)	Log	Li
ISG							STATUS				

Plot 7-135. Upper Band Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

	ectrum Analyzer - S										
0 RL	RF 50	Ω DC	PNO: Wide ↔ IFGain:Low			#Avg Typ	ALIGN AUTO De: RMS	TRAC	M Mar 07, 2017 E 1 2 3 4 5 6 E M WWWWW T A N N N N N		quency
0 dB/div	Ref 25.00	dBm					Mkr1 800.332 MHz -65.55 dBm				Auto Tun
15.0											enter Fre 000000 MH
5.00											Start Fre
25.0										805.	Stop Fre 000000 M⊦
15.0 									DL1 -35.00 dBm	1. <u>Auto</u>	CF Ste 200000 M⊦ Ma
i5.0						<u> </u>				F	req Offso 0 ⊦
65.0 million		naphartan	huladymphonia	rpythelatyran	untradiated	And I should be an					cale Typ
tart 793. Res BW	.000 MHz 6.2 kHz		#VBW	30 kHz					.000 MHz 1001 pts)	Log	Li
SG							STATUS	;			

Plot 7-136. Upper Emission Mask Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyz										
XI RL	RF	50 Ω DC	CORREC	SENS	E:INT	#Avg Type	ALIGN AUTO e: RMS	01:23:47 AM TRACE	123456	F	requency
		NFE	PNO: Wide 🕞	Trig: Free F Atten: 36 c				TYPE DET	A WWWWW A N N N N N		
10 dB/div Log	Ref 25.	.00 dBm					Mkr	1 776.99 -32.7	92 MHz 6 dBm		Auto Tune
15.0											Center Fred 7.000000 MHz
-5.00					, in the second	Ayartan Maran Perfe	degth.tr.tyarretyldylindry	alter grother that		77:	Start Fred 3.000000 MH
-15.0									L1 -13.00 dBm	78 [.]	Stop Fred 1.000000 MH;
-35.0				And Martin Contract	. I					<u>Auto</u>	CF Stej 800.000 kH Mai
	J.J. J. S. J. S. J. S. J. S.	Manananana	An and the second	en ^e							Freq Offse 0 H
-65.0											Scale Type
Center 77 #Res BW			#VBW	300 kHz			Sweep 4	Span 8.0 .000 ms (1	000 MHz 001 pts)	Log	Lir
MSG							STATUS				

Plot 7-137. Lower Band Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

	ectrum Analyzer	- Swept SA								_	
X/RL	RF 5	OΩ DC	CORREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Mar 07, 2017 E <mark>1 2 3 4 5 6</mark>	Fr	requency
		NFE	PNO: Wide ↔ IFGain:Low	Trig: Free Atten: 36				TYI Di			
I0 dB/div	Ref 25.0	0 dBm					Mk		92 MHz 51 dBm		Auto Tune
.og										(Center Free
15.0										769	9.000000 MH
5.00											Start Fre
-5.00										763	8.000000 MH
15.0											Stop Fre
25.0										775	5.000000 MH
35.0									DL1 -35.00 dBm		CF Ste
15.0										Auto	I.200000 M⊢ Ma
											Freq Offse
55.0									1		он
65.0 Natronali	n <mark>hana</mark> na.ha	unturyhaaded	quliling pressively and the second second	erone altered where y	ugh participation of the	higher the states of the second states of the secon	-	poplation	ormiseteellikep ^b		Scale Typ
	.000 MHz							Stop 775	.000 MHz	Log	Li
Res BW	6.2 kHz		#VBW	30 kHz			#Sweep		(1001 pts)		

Plot 7-138. Lower Emission Mask Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyze	er - Swept SA									
XI RL	RF	50 Ω DC NFE	CORREC	Trig: Fre		#Avg Typ	ALIGN AUTO De: RMS	TRACE	Mar 07, 2017 1 2 3 4 5 6 A WWWWWW A N N N N N	F	requency
10 dB/div Log	Ref 25.	00 dBm	IFGain:Low	Atten: 36	6 dB		Mk	r1 787.0			Auto Tune
15.0											Center Fred 7.000000 MHz
5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Marina Marina	Many providence							783	Start Fred 3.000000 MH:
-15.0					1				DL1 -13.00 dBm	79 [.]	Stop Fred 1.000000 MH;
-35.0					And the second	որեշրությունը Արգերությունը	an and the second second	-r-when reals	Many Maria	<u>Auto</u>	CF Step 800.000 kH Mar
.55.0											Freq Offse 0 H
-65.0											Scale Type
Center 78 #Res BW			#VE	3W 300 kHz			Sweep 4	Span 8. /000 ms (000 MHz 1001 pts)	Log	Lir
MSG							STATUS	;			

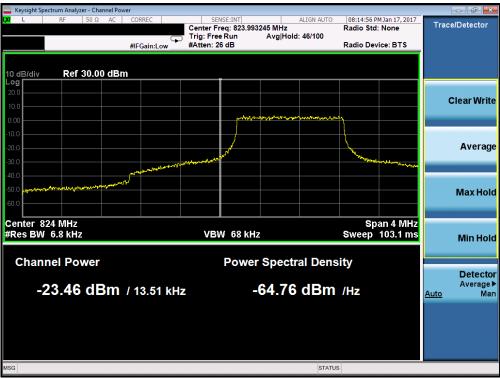
Plot 7-139. Upper Band Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

						um Analyzer - Sw	
	ALIGN AUTO #Avg Type: RMS			RREC Z NO:Wide ↔ Gain:Low	NFE P	RF 50 Ω q 799.000	L Iter Fre
Mkr1 800.656 MHz -65.99 dBm	Mk	U UD	Atten. or	Sam:Low		Ref 25.00 (B/div
Cent 799.000							
Sta 793.000							
Std 805.000							
0 <u>L1 -35:00 dBm</u> 1.200 <u>Auto</u>							
Free	<u>1</u>						
հետի ունի ինչին հետություն Stop 805.000 MHz Log		ympr4rydnia	mulanhanha	pole prostil for the	Y I/11114/114/14/14	ጠቀቀቀ በ MHz	<mark>ትጣኮ</mark> /ሶም/ t 793.00
weep 1.000 s (1001 pts)			30 kHz	#VBW			s BW 6.

Plot 7-140. Upper Emission Mask Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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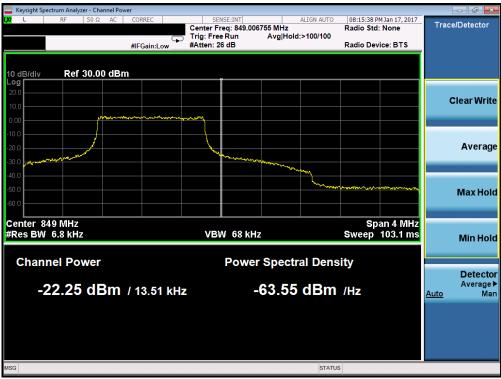
Plot 7-141. Lower Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)



Plot 7-142. Lower Extended Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-143. Upper Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)



Plot 7-144. Upper Extended Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	um Analyzer - Sv										
XV RL	RF 50 \$	AC	CORREC		E:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	1 Jan 17, 2017 E 1 2 3 4 5 6	F	requency
10 dB/div	Ref 25.00	dBm	PNO: Wide ↔ IFGain:Low	Atten: 36			Mki	1 824.0	00 MHz 95 dBm		Auto Tune
15.0					,				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Center Free 4.000000 MH
-5.00										82	Start Fre 2.000000 MH
-15.0	~~~~~		~~~~~		I				DL1 -13.00 dBm	82	Stop Fre 6.000000 MH
-35.0										<u>Auto</u>	CF Ste 400.000 kH Ma
55.0											Freq Offs 0 ⊦
65.0											Scale Typ
Center 824. #Res BW 10			#VBW	/ 300 kHz			Sweep 1	Span 4 .000 ms (.000 MHz 1001 pts)	Log	Li
MSG							STATUS				

Plot 7-145. Lower Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)



Plot 7-146. Upper Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	trum Analyzer:						
XI RL	RF	50 Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	08:28:20 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div Log	Ref 25.0	00 dBm	IFGain:Low	Atten: 36 dB	Mk	r1 823.960 MHz -19.81 dBm	Auto Tun
15.0							Center Fre 824.000000 MH
5.00						DL1 -13.00 dBm	Start Fre 822.000000 M⊦
25.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		1			Stop Fre 826.000000 M⊦
45.0							CF Ste 400.000 kH <u>Auto</u> Ma
55.0							Freq Offs 0 F
65.0							Scale Typ
Center 824 Res BW		z	#VBI	V 300 kHz	Sweep 7	Span 4.000 MHz I.000 ms (1001 pts)	Log <u>Li</u>
SG					STATU	s	

Plot 7-147. Lower Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)



Plot 7-148. Upper Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer						
XI RL	RF	50 Ω AC	CORREC	Trig: Free Run	#Avg Type: RI	NAUTO 08:37:04 PM Jan 17, 2017 MS TRACE 12345 TYPE A WWWW DET A NNNN	6 Frequency
10 dB/div	Ref 25.0)0 dBm	IFGain:Low	Atten: 36 dB		Mkr1 823.952 MH: -23.92 dBn	Auto Tun
15.0							Center Fre 824.000000 MH
5.00						DL1 -13.00 dBr	Start Fre 820.000000 MH
25.0				1			Stop Fre 828.000000 M⊦
45.0							CF Ste 800.000 kH <u>Auto</u> Ma
55.0							Freq Offs 0 ⊦
65.0							Scale Typ
enter 82 Res BW	4.000 MH 100 kHz	z	#VBV	/ 300 kHz	Swe	Span 8.000 MH; eep 1.000 ms (1001 pts	z Log <u>L</u> i)
SG						STATUS	

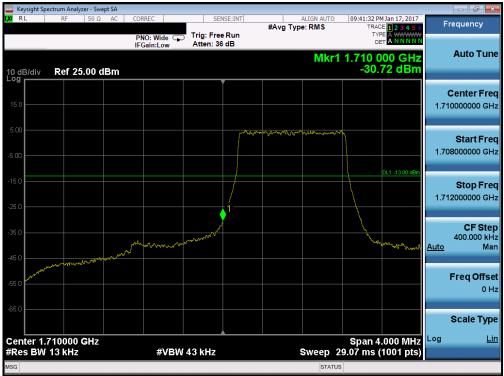
Plot 7-149. Lower Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)



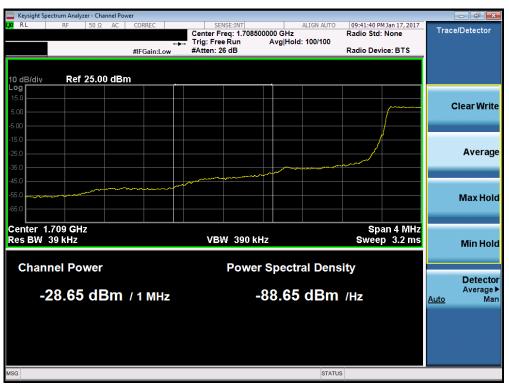
Plot 7-150. Upper Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-151. Lower Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)



Plot 7-152. Lower Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Sp	ectrum Analyzer -	Swept SA								
LXI RL	RF 50	Ω AC	CORREC		SENSE:INT	#Avg Typ	ALIGN AUTO	09:41:59 PM Jan TRACE	17,2017 2 3 4 5 6	Frequency
			PNO: Wi IFGain:L		Free Run n: 36 dB	**** 9 1 JP				Auto Tune
10 dB/div Log	Ref 25.0) dBm					Mkr1	1.755 000 -26.564	GHz dBm	Auto Tulle
15.0										Center Freq 1.755000000 GHz
-5.00		/ when when	www.pr.wr	mon				01	-13.00 dBm	Start Fred 1.753000000 GHz
-15.0					1					Stop Fred 1.757000000 GH;
-35.0	Munder				North North	Real March March	m			CF Step 400.000 kH Auto Mar
-55.0							and the second s	and the second second	Murrow	Freq Offset 0 Hz
-65.0										Scale Type
	755000 GH	z						Span 4.00		.og <u>Lir</u>
#Res BW	13 KHZ		#	VBW 43 ki	IZ			9.07 ms (10	01 pts)	
ISG							STATUS			

Plot 7-153. Upper Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)



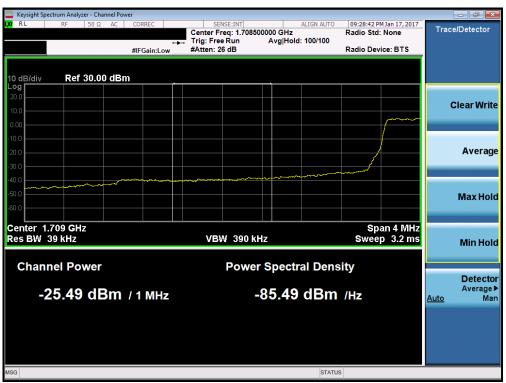
Plot 7-154. Upper Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spec	trum Analyzer - S	Swept SA									
LXI RL	RF 50	Ω AC	CORREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO	09:28:24 PM TRACE	Jan 17, 2017 1 2 3 4 5 6	F	requency
			PNO: Wide G	Trig: Free Atten: 36		a)P		TYPE DET	A WWWWW A NNNNN		Auto Tune
10 dB/div Log	Ref 25.00	dBm					Mkr1	1.710 0 -29.13	00 GHz 5 dBm		Auto Tune
15.0											Center Freq 0000000 GHz
-5.00								m. n.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1.70	Start Freq 8000000 GHz
-15.0					1				DL1 -13.00 dBm	1.71	Stop Freq 2000000 GHz
-35.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		m m							<u>Auto</u>	CF Step 400.000 kHz Mar
-55.0											Freq Offse 0 Hz
-65.0											Scale Type
Center 1.7		Z	<i>4</i> 0 (B 14)					Span 4.	000 MHz	Log	Lin
#Res BW 3	U KHZ		#VBW	91 kHz				.533 ms (1	001 pts)		
G							STATUS	•			

Plot 7-155. Lower Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)



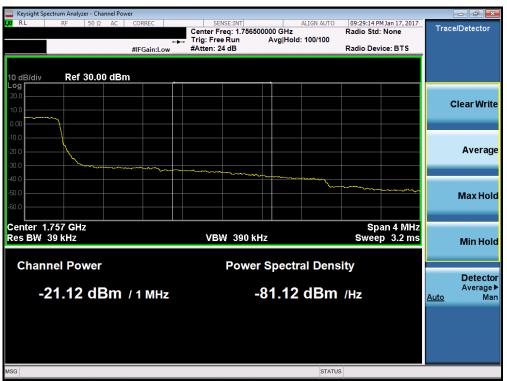
Plot 7-156. Lower Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spe	ectrum Analyz	er - Swept SA										
X/RL	RF	50 Ω AC				NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	4 Jan 17, 2017 E 1 2 3 4 5 6 E A WWWWW	F	requency
10 dB/div	Ref 25	.00 dBm	IFGa): Wide ⊊ ain:Low	Atten: 3			Mkr1	1.755 0			Auto Tun
- og 15.0												Center Fre 5000000 GH
5.00	/	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	مىلىمى مەرمىر مەرمىيە بىرىمى	mm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					DL1 -13.00 dBm	1.75	Start Fre 3000000 GH
25.0						1					1.75	Stop Fre 7000000 GH
45.0						Ym		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	······································	<u>Auto</u>	CF Ste 400.000 kH Ma
55.0												Freq Offs 0 H
65.0												Scale Typ
Center 1.7 Res BW		GHz		#VBW	91 kHz			Sweep 5	Span 4 5.533 ms (.000 MHz 1001 pts)	Log	L
SG								STATUS	3			

Plot 7-157. Upper Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)



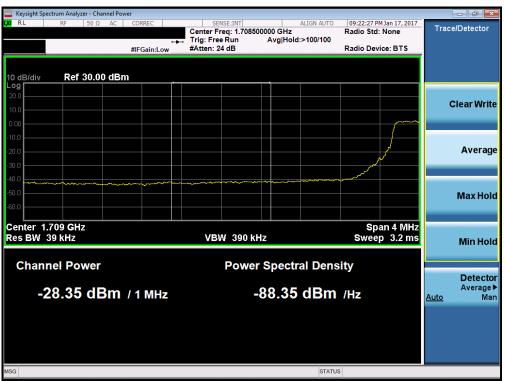
Plot 7-158. Upper Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ctrum Analyze										
X/RL	RF	50 Ω AC	CORREC		SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	MJan 17, 2017 E 1 2 3 4 5 6	Fi	requency
			PNO: Wide G	Trig: Free Atten: 36				TYP			
							Mkr1	1.710 0	00 GHz		Auto Tune
10 dB/div Log	Ref 25.	00 dBm						-30.	81 dBm		
-09										(Center Fred
15.0											0000000 GH
5.00						~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					Start Free
-5.00										1.70	8000000 GHz
									DL1 -13.00 dBm		
-15.0											Stop Free
-25.0										1.71	2000000 GHz
-25.0					1						
-35.0				/							CF Step 400.000 kHz
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	non						<u>Auto</u>	400.000 km
-45.0											
-55.0											Freq Offse
											0 H:
-65.0											
											Scale Type
Center 1.7	10000 0	SHz						Span 4		Log	Lin
#Res BW	51 kHz		#VBV	V 150 kHz			Sweep 1	.933 ms (	1001 pts)		
ISG							STATUS				

Plot 7-159. Lower Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)



Plot 7-160. Lower Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyze	- Swept SA									
LXU RL	RF	50 Ω AC	CORREC PNO: Wide		Run	#Avg Typ	ALIGN AUTO e: RMS	TRAC	I Jan 17, 2017 E 1 2 3 4 5 6 E A WWWW A NNNNN	F	requency
10 dB/div Log r	Ref 25.0	00 dBm	IFGain:Low				Mkr1	1.755 0			Auto Tune
15.0											Center Freq 5000000 GHz
-5.00	~~~~		·····	~						1.75	Start Freq 3000000 GHz
-15.0				- t	1				DL1 -13.00 dBm	1.75	<b>Stop Fred</b> 7000000 GHz
-35.0						~~~~~	·			<u>Auto</u>	CF Step 400.000 kH Mar
-45.0											Freq Offse 0 Hi
-65.0											Scale Type
Center 1.7 #Res BW		Hz	#VI	BW 150 kHz			Sweep 1	Span 4. .933 ms (	000 MHz 1001 pts)	Log	Lin
MSG							STATUS				

Plot 7-161. Upper Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)



Plot 7-162. Upper Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer							
LXI RL	RF 5	50Ω AC	CORREC	SENSE:INT	#Avg Typ	ALIGN AUTO	08:55:37 PM Jan 17, 2017 TRACE 1 2 3 4 5	Frequency
			PNO: Wide 🕞 IFGain:Low	Trig: Free Run Atten: 36 dB			TYPE A WWWW DET A NNNN	V N
10 dB/div Log	Ref 25.0	0 dBm				Mkr1	1.710 000 GH: -32.38 dBn	Auto Tune
15.0								Center Free 1.710000000 GH
-5.00							han an a	Start Free 1.706000000 GH
-15.0							DL1 -13.00 dBr	<b>Stop Fre</b> 1.714000000 GH
35.0	~~~~~	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1				CF Ste 800.000 kH <u>Auto</u> Ma
-45.0								Freq Offse 0 H
-65.0								Scale Typ
Center 1.7 #Res BW	710000 GI 100 kHz	Hz	#VBV	/ 300 kHz		Sweep 1	Span 8.000 MH: .000 ms (1001 pts	Log <u>Li</u> i
MSG						STATUS		

Plot 7-163. Lower Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

	ectrum Analyzer - Swept	t SA								- 0 ×
LXI RL	RF 50 Ω	AC CORREC	SEN	SE:INT	#Avg Type			Jan 17, 2017	Fr	equency
		PNO: Fast IFGain:Low			#Avg Type		TYP			
10 dB/div	Ref 25.00 dE	3m				Mkr1	1.709 0 -25.7	00 GHz /1 dBm		Auto Tune
				·						
15.0										Center Freq 7000000 GHz
									1.70	7000000 0112
5.00										
									4 70	Start Freq 5000000 GHz
-5.00									1.70	5000000 GHZ
-15.0								DL1 -13.00 dBm		
-15.0										Stop Freq
-25.0									1.70	9000000 GHz
and the second	at marine and a		₽₽₽₽ſ\$₽₽₩₩₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽	enterent and a second	haden and and the states of th	manageroppin	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	an and a start of the start of		
-35.0										CF Step 400.000 kHz
									<u>Auto</u>	Man
-45.0										
-55.0										Freq Offset
-35.0										0 Hz
-65.0										
										Scale Type
Center 1	707000 GHz						Snan 4	000 MHz	Log	Lin
#Res BW		#V	BW 3.0 MHz		9	weep 1	.000 ms (	1001 pt <u>s)</u>		
MSG						STATUS				

Plot 7-164. Lower Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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	ctrum Analyzer - Swe	ept SA								
RL	RF 50 Ω		PNO: Wide		#Avg Typ	ALIGN AUTO De: RMS	TYPE	Jan 17, 2017 <b>1 2 3 4 5</b> 6 A WWWWW A N N N N N	Fr	requency
10 dB/div Log	Ref 25.00 d					Mkr1	1.755 00 -31.8	00 GHz 8 dBm		Auto Tune
15.0										Center Freq 5000000 GHz
-5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~	~~~~~						1.75	Start Fred 1000000 GH:
25.0							C	0L1 -13.00 dBm	1.75	Stop Fred 9000000 GH
-35.0					 m		·····	~~~~	<u>Auto</u>	CF Step 800.000 kH Mar
45.0 <b></b> 55.0 <b></b>										Freq Offse 0 H
-65.0										Scale Type
Center 1.7 #Res BW	'55000 GHz 100 kHz		#VB\	N 300 kHz		Sweep 1	Span 8.0 .000 ms (1	000 MHz 001 pts)	Log	Lir
MSG						STATUS				

Plot 7-165. Upper Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

	ectrum Analyzer - Swept SA					
<mark>XI</mark> RL	RF 50 Ω AC	CORREC PNO: Fast ↔→→ IFGain:Low	SENSE:INT Trig: Free Run Atten: 36 dB	ALIGN AUTO #Avg Type: RMS	08:58:21 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div	Ref 25.00 dBm			Mkr1	1.756 000 GHz -24.11 dBm	Auto Tune
15.0						Center Freq 1.758000000 GHz
5.00						Start Freq 1.756000000 GHz
15.0 1 25.0	n mynai fwad de wed de ywaar ywaa aan ywaar y	experist the second states and second	montheatter, New 2011, and a star be		DL1 -13.00 dBm	<b>Stop Fred</b> 1.760000000 GHz
45.0			Provedy at the Art of Constant of Art		han have been all and have been all and the second s	CF Step 400.000 kH <u>Auto</u> Mar
55.0						Freq Offse 0 H
-65.0						Scale Type
Center 1.7 #Res BW	758000 GHz 1.0 MHz	#VBW	3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lin</u>
ISG				STATUS	3	

Plot 7-166. Upper Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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	ectrum Analyze								
LXI RL	RF	50 Ω AC	CORREC	SENSE:II	ALIGN ALIGN	AUTO 09:12:35 I S TRA	PM Jan 17, 2017 ACE <b>1 2 3 4 5 6</b>	Freque	ncy
			PNO: Wide 🕞	Trig: Free Run Atten: 36 dB	•	רד ז			_
10 dB/div Log	Ref 25.	00 dBm			N	lkr1 1.709 -34	976 GHz .05 dBm	Auto	o Tune
15.0								Cente 1.7100000	e <b>r Freq</b> 100 GHz
-5.00					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Sta 1.7040000	rt Freq 00 GHz
-15.0							DL1 -13.00 dBm	<b>Sto</b> 1.7160000	<b>p Freq</b> 00 GHz
-35.0	~~~~~	m	an and a star and a star						F Step 00 MHz Mar
-55.0								Freq	Offset 0 Hz
-65.0									е Туре
Center 1.7			-41/014		0	Span '	12.00 MHz	Log	Lin
#Res BW	T50 KHZ		#VBW	470 kHz		ep 1.000 ms	(1001 pts)		
SG					 	STATUS			

Plot 7-167. Lower Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

🦲 Keysight Spectrum Analyze	er - Swept SA				
LXURL RF	50 Ω AC CORREC PNO: Fas IFGain:Lo		ALIGN AUTO #Avg Type: RMS	09:12:45 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div Ref 25.	00 dBm	W Atten: 30 dB	Mkr1	1.709 000 GHz -29.15 dBm	Auto Tune
15.0					Center Freq 1.707000000 GHz
-5.00					<b>Start Freq</b> 1.705000000 GHz
-15.0				DL1 -13.00 dBm	<b>Stop Freq</b> 1.709000000 GHz
-35.0	un and a second s				CF Step 400.000 kHz <u>Auto</u> Man
-55.0					Freq Offset 0 Hz
-65.0					Scale Type
Center 1.707000 G #Res BW 1.0 MHz		/BW 3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lin</u>
MSG			STATUS	3	

Plot 7-168. Lower Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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	trum Analyzer - Swept S	5A				
XI RL	RF 50 Ω A	AC CORREC PNO: Wide C	SENSE:INT Trig: Free Run Atten: 36 dB	ALIGN AUTO #Avg Type: RMS	09:13:20 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Log	Ref 25.00 dBi		Atten: 36 db	Mkr1	1.755 036 GHz -31.66 dBm	Auto Tune
15.0						Center Freq 1.755000000 GHz
5.00			~			Start Fred 1.749000000 GH2
-15.0					DL1 -13.00 dBm	Stop Free 1.761000000 GH
35.0			- Martin	man and a second se	and the second	CF Step 1.200000 MH <u>Auto</u> Ma
55.0						Freq Offse 0 H
-65.0						Scale Type
Center 1.7 #Res BW 1	55000 GHz 150 kHz	#VBW	470 kHz	Sweep 1	Span 12.00 MHz .000 ms (1001 pts)	Log <u>Lir</u>
ISG				STATUS		

Plot 7-169. Upper Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

	ectrum Analyzer - Swept SA					
I <mark>XI</mark> RL	RF 50 Ω AC	PNO: Fast ↔→	SENSE:INT Trig: Free Run Atten: 36 dB	ALIGN AUTO #Avg Type: RMS	09:13:30 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div	Ref 25.00 dBm	IFGain:Low	Atten. 00 db	Mkr1	1.756 560 GHz -25.60 dBm	Auto Tune
15.0						Center Freq 1.758000000 GHz
-5.00						<b>Start Freq</b> 1.756000000 GHz
-15.0		المراجع			DL1 -13.00 dBm	<b>Stop Freq</b> 1.760000000 GHz
-35.0						CF Step 400.000 kHz <u>Auto</u> Mar
-55.0						Freq Offset 0 Hz
-65.0						Scale Type
Center 1. #Res BW	758000 GHz 1.0 MHz	#VBW	3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lin</u>
MSG				STATUS	3	

Plot 7-170. Upper Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dego 104 of 179		
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Keysight Spectrum Analyzer - Swept					
🕻 RL RF 50 Ω	AC CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	09:15:41 PM Jan 17, 2017 TRACE 1 2 3 4 5 6	Frequency
	PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 36 dB		TYPE A WWWWW DET A NNNN	Auto Turo
10 dB/div Ref 25.00 dB	3m		Mkr1	1.709 984 GHz -30.49 dBm	Auto Tune
		Ĭ			Center Free
15.0					1.710000000 GH:
5.00		pm.	here was a second and the second s	mann	Start Free
5.00				DL1 -13.00 dBm	1.702000000 GHz
15.0				UC1 -13.00 dBm	Stop Free
25.0		1,			1.718000000 GH
35.0		And the second s			CF Step 1.600000 MH
45.0					<u>Auto</u> Mai
55.0					Freq Offse
					0 H
65.0					Scale Type
Center 1.710000 GHz #Res BW 200 kHz	#VBW (	20 kHz	Swoon 4	Span 16.00 MHz .000 ms (1001 pts)	Log <u>Lir</u>
	#VBW	020 KH2	Sweep		

Plot 7-171. Lower Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

	ectrum Analyzer - Swept SA					
X/RL	RF 50 Ω AC	PNO: Fast	SENSE:INT Trig: Free Run Atten: 36 dB	ALIGN AUTO #Avg Type: RMS	09:15:53 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNN	Frequency
I0 dB/div	Ref 25.00 dBm	1		Mkr1	1.708 984 GHz -25.91 dBm	Auto Tune
15.0						Center Free 1.707000000 GH
5.00						<b>Start Fre</b> 1.705000000 GH
25.0					DL1 -13.00 dBm	<b>Stop Fre</b> 1.709000000 GH
35.0		Jane 1900 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1				CF Ste 400.000 kH <u>Auto</u> Ma
55.0						Freq Offs 0 H
65.0						Scale Typ
	707000 GHz 1.0 MHz	#VBW	3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Li</u>
ISG				STATUS	3	

Plot 7-172. Lower Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA				
<b>XU</b> RL RF 50 Ω AC	PNO: Fast Trig: Free IFGain:Low Atten: 36		09:16:56 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 25.00 dBm	II OUIII-LOW		1 1.755 000 GHz -29.97 dBm	Auto Tune
15.0				Center Fred 1.755000000 GH;
5.00				Start Fred 1.747000000 GH:
-15.0		,1	DL1 -13.00 dBm	<b>Stop Fred</b> 1.763000000 GH:
45.0		man man and a second		CF Stej 1.600000 MH <u>Auto</u> Ma
55.0				Freq Offse 0 H
.65.0				Scale Type
Center 1.755000 GHz #Res BW 200 kHz	#VBW 620 kHz	Sweep	Span 16.00 MHz 1.000 ms (1001 pts)	Log <u>Lir</u>
ISG		STAT	JS	

Plot 7-173. Upper Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

	ectrum Analyzer - Swept SA					
X/RL	RF 50 Ω AC	CORREC PNO: Fast ↔→→ IFGain:Low	SENSE:INT Trig: Free Run Atten: 36 dB	ALIGN AUTO #Avg Type: RMS	09:17:06 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNN	Frequency
10 dB/div	Ref 25.00 dBm	IPGall.LOw	Autor of all	Mkr1	1.756 032 GHz -23.81 dBm	Auto Tune
15.0						Center Fred 1.758000000 GHz
5.00						Start Fred 1.756000000 GH
-15.0	and and a second se	enolDangaenajilayenhadhaunlin	andra and a state of the state	San dago ga stalla stratistica de la casa de	DL1 -13.00 dBm	Stop Fred 1.760000000 GH:
45.0						<b>CF Ste</b> 400.000 kH <u>Auto</u> Ma
55.0						Freq Offse 0 H
-65.0						Scale Type
Center 1.∄ ≇Res BW	758000 GHz 1.0 MHz	#VBW	3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lir</u>
ISG				STATUS	5	

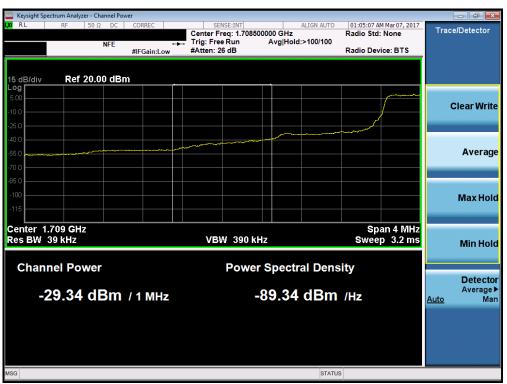
Plot 7-174. Upper Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Plot 7-175. Lower Band Edge Plot (Band 66 – 1.4MHz QPSK – RB Size 6)



Plot 7-176. Lower Extended Band Edge Plot (Band 66 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Keysight Sp	ectrum Analyzer -	Swept SA									
X/RL	RF 5(	NFE	CORREC		SENSE:INT	#Avg Typ	ALIGN AUTO De: RMS	TRAC	M Mar 07, 2017 E <b>1 2 3 4 5 6</b> E A WWWWW	F	requency
10 dB/div Log	Ref 25.0		IFGain:Lo	ow Atter	: 36 dB		Mkr1	1.780 0	08 GHz 47 dBm		Auto Tune
15.0											Center Fred 0000000 GH:
-5.00		f and the second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						1.77	Start Free 8000000 GH
-15.0	لم الم				1				DL1 -13.00 dBm	1.78	<b>Stop Fre</b> 2000000 GH
35.0 Januar 45.0	ponter NorrNV					Marrie Marrie	m			<u>Auto</u>	CF Stej 400.000 kH Ma
-55.0								hmm	www		Freq Offse 0 H
-65.0											Scale Typ
Center 1. #Res BW	780000 GH 13 kHz	z	#	VBW 39 kH	z		Sweep 9	Span 4 ).533 ms (	.000 MHz 1001 pts)	Log	<u>Lir</u>
ISG							STATU	5			

Plot 7-177. Upper Band Edge Plot (Band 66 – 1.4MHz QPSK – RB Size 6)



Plot 7-178. Upper Extended Band Edge Plot (Band 66 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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	ectrum Analyze	er - Swept SA									
LXI RL	RF	50 Ω DC	CORREC	SENS	SE:INT	#Avg Typ	ALIGN AUTO	01:00:42 AM M	Mar 07, 2017	Fi	equency
		NFE	PNO: Wide 😱	Trig: Free Atten: 36		#Avg Typ	e. RWS	TYPE DET	A WWWWW A NNNNN		
10 dB/div Log	Ref 25.	.00 dBm					Mkr1	1.710 00 -28.25	0 GHz 0 dBm		Auto Tune
15.0											<b>Center Freq</b> 0000000 GHz
-5.00							·····	~~~~~~		1.70	Start Freq 8000000 GHz
-15.0					1					1.71	<b>Stop Freq</b> 2000000 GHz
-35.0	~~~~									<u>Auto</u>	CF Step 400.000 kHz Man
-55.0											Freq Offsel 0 Hz
-65.0											Scale Type
Center 1.		GHz	#\/B\M				Buroon 3	Span 4.0	VV 191112	Log	<u>Lin</u>
#Res BW	JU KHZ		#VBW	91 kHz				.000 ms (1	oon pts)		
30							STATUS				

Plot 7-179. Lower Band Edge Plot (Band 66 – 3.0MHz QPSK – RB Size 15)



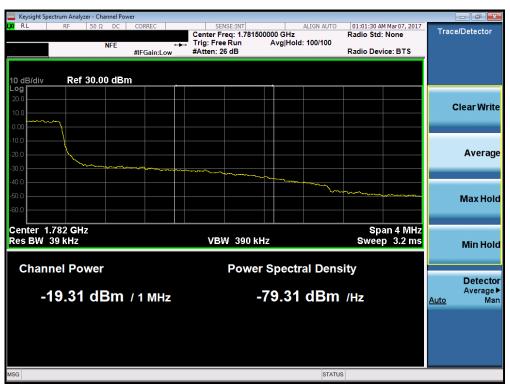
Plot 7-180. Lower Extended Band Edge Plot (Band 66 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyze										
XI RL	RF	50 Ω DC	CORREC	SE	NSE:INT	#Avg Ty	ALIGN AUTO		M Mar 07, 2017 CE <mark>1 2 3 4 5 6</mark>	Fr	equency
		NFE	PNO: Wide IFGain:Low	Trig: Fre Atten: 3		#/( <b>1</b> 91)	-	TY D			Auto Tun
10 dB/div Log	Ref 25.	00 dBm					MKF1	1.780 ( -25.	008 GHz 47 dBm		
15.0											Center Fre 0000000 GH
5.00	~~~~	~~~~	~~~~~	~~~						1.77	<b>Start Fre</b> 8000000 G⊦
25.0					1				DL1 -13.00 dBm	1.78	<b>Stop Fre</b> 2000000 G⊦
35.0							·····	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	www.	<u>Auto</u>	CF Ste 400.000 kH Ma
55.0											Freq Offs 0 F
65.0											Scale Typ
enter 1. Res BW	780000 G 30 kHz	Hz	#V	BW 91 kHz			Sweep 2	Span 4 .000 ms	.000 MHz (1001 pts)	Log	L
ISG							STATUS				

Plot 7-181. Upper Band Edge Plot (Band 66 – 3.0MHz QPSK – RB Size 15)



Plot 7-182. Upper Extended Band Edge Plot (Band 66 – 3.0MHz QPSK – RB Size 15)

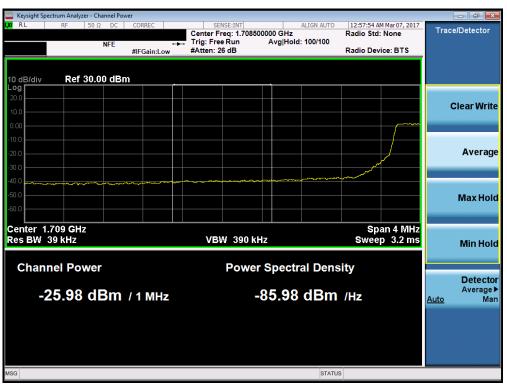
FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ctrum Analyze							
X/RL	RF	50 Ω DC	CORREC	SENSE:IN	#A	ALIGN AUTO	12:57:39 AM Mar 07, 2017 TRACE 1 2 3 4 5 6	Frequency
10 dB/div	Ref 25.	NFE 00 dBm	PNO: Wide ⊂ IFGain:Low	Atten: 36 dB		Mkr1	1.709 996 GHz -29.71 dBm	Auto Tune
15.0								Center Freq 1.710000000 GHz
-5.00							DL1 -13.00 dBm	Start Freq 1.708000000 GHz
-15.0				1/			0.1 - 13.00 080	<b>Stop Freq</b> 1.712000000 GHz
-35.0	······		~~~~~~	~~~~~				CF Step 400.000 kH <u>Auto</u> Mar
-55.0								Freq Offse 0 H:
-65.0								Scale Type
Center 1.7 #Res BW		iHz	#VB	N 150 kHz		Sweep 2	Span 4.000 MHz 2.000 ms (1001 pts)	Log <u>Lin</u>
MSG						STATU	S	

Plot 7-183. Lower Band Edge Plot (Band 66 – 5.0MHz QPSK – RB Size 25)



Plot 7-184. Lower Extended Band Edge Plot (Band 66 – 5.0MHz QPSK – RB Size 25)

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	ectrum Analyzer -										
XI RL	RF 50	Ω DC	CORREC			#Avg Ty	ALIGN AUTO pe: RMS	TRACI	Mar 07, 2017 1 2 3 4 5 6 A WWWW	Fr	equency
		NFE	PNO: Wide G	Atten: 36			Mkr1	DE	ANNNN		Auto Tune
10 dB/div Log	Ref 25.00	) dBm						-27.39	98 dBm		
				,						c	Center Freq
15.0										1.78	0000000 GHz
5.00	·····		· ······	ny							Start Freq
5.00										1.77	8000000 GHz
15.0									DL1 -13.00 dBm		
				L L	1					1.78	Stop Freq 2000000 GHz
-25.0				<b>1</b>	m	~~~~1					
-35.0										<u>Auto</u>	CF Step 400.000 kHz Man
-45.0											
-55.0										I	Freq Offset 0 Hz
65.0											
											Scale Type
Center 1. #Res BW	780000 GH	z	#\/R\A	/ 150 kHz			Sween 2	Span 4. .000 ms ('	000 10112	Log	Lir
ISG	<b>V F M12</b>		<i>#</i> <b>U</b> U V				SWEEP Z	_	roorpisj		

Plot 7-185. Upper Band Edge Plot (Band 66 – 5.0MHz QPSK – RB Size 25)



Plot 7-186. Upper Extended Band Edge Plot (Band 66 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer										
X RL	RF	50Ω DC	CORREC	SENSE		#Avg Type	ALIGN AUTO	12:43:07 AM	Mar 07, 2017 1 2 3 4 5 6	Fi	requency
	_	NFE	PNO: Wide G	Trig: Free R Atten: 36 d	un	and a type		TYPE	A WWWWW A NNNNN		
10 dB/div Log	Ref 25.0	00 dBm					Mkr1	1.709 99 -31.8	2 GHz 2 dBm		Auto Tune
15.0											Center Fred 0000000 GH
-5.00						And Manager And	arlynger-farkefalgebe			1.70	Start Free 6000000 GH
-15.0				1	*				L1-13.00 0BM	1.71	<b>Stop Fre</b> 4000000 GH
35.0 	and the second and the	eren agentaren	forman and the second states	up	/ ^p					<u>Auto</u>	CF Ste 800.000 k⊢ Ma
55.0											Freq Offs 0 F
65.0											Scale Typ
	710000 G 100 kHz	Hz	#VB\	V 300 kHz			Sweep 4.	Span 8.0 000 ms (1	000 MHz 001 pts)	Log	Li
ASG							STATUS				

Plot 7-187. Lower Band Edge Plot (Band 66 – 10.0MHz QPSK – RB Size 50)

	ectrum Analyzer - Swept SA					
LXU RL	RF 50 Ω DC		SENSE:INT	ALIGN AUTO #Avg Type: RMS	12:43:48 AM Mar 07, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW	Frequency
	NFE	PNO: Wide ↔↔ IFGain:Low	Trig: Free Run Atten: 36 dB		DET A NNNN	
10 dB/div Log	Ref 25.00 dBm	1		Mkr1	1.708 996 GHz -24.61 dBm	Auto Tune
			ľ			Center Freq
15.0						1.707000000 GHz
5.00						Start Freq
-5.00						1.705000000 GHz
-15.0					DL1 -13.00 dBm	Stop Freq
-25.0					1	1.709000000 GHz
-35.0		and a second	angan ( angan da angan da karina da panagan da pangan da pangan da pangan da pangan da pangan da pangan da pan	ر		CF Step
-45.0						400.000 kHz <u>Auto</u> Man
						Freq Offset
-55.0						0 Hz
-65.0						Scale Type
Center 1.	707000 GHz				Span 4.000 MHz	Log <u>Lin</u>
#Res BW		#VBW	3.0 MHz		2.000 ms (1001 pts)	
MSG				STATUS	3	

Plot 7-188. Lower Extended Band Edge Plot (Band 66 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ctrum Analyzer - S	wept SA									
X/ RL	RF 50 9	Ω DC	CORREC PNO: Wide	Trig: Fre		#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Mar 07, 2017 DE <b>1 2 3 4 5</b> 6 DE A WWWW T A N N N N N	F	requency
10 dB/div Log	Ref 25.00	dBm	IFGain:Low	Atten: 36	dB		Mkr1	1.780 0	32 GHz 36 dBm		Auto Tune
15.0											Center Freq 0000000 GHz
5.00 <b></b>	⁹⁴ 00,092,092,092,007	n an	M ^a smused Whee							1.77	Start Free 6000000 GH:
-15.0					. 1				DL1 -13.00 dBm	1.78	<b>Stop Fred</b> 4000000 GH:
-35.0					and the second second	All margeners	www.mervina.com	Marthanner	when the second water on	<u>Auto</u>	CF Step 800.000 kH Mai
55.0											Freq Offse 0 H
-65.0											Scale Type
Center 1.7 #Res BW	80000 GHz 100 kHz	2	#VE	3W 300 kHz			Sweep 4	Span 8 .000 ms (	.000 MHz 1001 pts)	Log	Lir
MSG							STATUS	;			

Plot 7-189. Upper Band Edge Plot (Band 66 – 10.0MHz QPSK – RB Size 50)

	ectrum Analyzer - Swept SA					
RL	RF 50 Ω DC	CORREC PNO: Wide ↔→→ IFGain:Low	SENSE:INT Trig: Free Run Atten: 36 dB	ALIGN AUTO #Avg Type: RMS	12:45:58 AM Mar07, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNN	Frequency
10 dB/div Log	Ref 25.00 dBm			Mkr1	1.781 000 GHz -23.75 dBm	Auto Tune
15.0						Center Freq 1.783000000 GHz
-5.00						Start Freq 1.781000000 GHz
-15.0	Mart-sep-algeretality-for faith-sequence of applications of the sequence of a polymeric of a pol	A straining and section and a section of the sectio	han malamente atoma e		DL1 -13.00 dBm	<b>Stop Fred</b> 1.785000000 GHz
-35.0					apart - and an and a	CF Step 400.000 kH Auto Mar
-55.0						Freq Offse 0 H:
-65.0						Scale Type
Center 1.7 #Res BW	783000 GHz 1.0 MHz	#VBW	3.0 MHz	Sweep 2	Span 4.000 MHz 2.000 ms (1001 pts)	Log <u>Lir</u>
ISG				STATUS	3	

Plot 7-190. Upper Extended Band Edge Plot (Band 66 – 10.0MHz QPSK – RB Size 50)

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	ectrum Analyzer -	Swept SA					
XI RL	RF 50	Ω DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	12:49:54 AM Mar 07, 2017 TRACE 123456	Frequency
		NFE	PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB		DET A NNNN	
10 dB/div Log	Ref 25.00	) dBm			Mkr1	1.710 000 GHz -31.954 dBm	Auto Tune
15.0							Center Freq 1.710000000 GHz
-5.00						0L1 -13.00 dBm	Start Freq 1.704000000 GHz
-15.0				1			Stop Fred 1.716000000 GHz
35.0	M.A.	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				CF Step 1.200000 MH <del>/</del> <u>Auto</u> Mar
55.0							Freq Offse 0 H
-65.0							Scale Type
	710000 GH 150 kHz	Z	#VBW	430 kHz	Sweep	Span 12.00 MHz .000 ms (1001 pts)	Log <u>Lin</u>
MSG					STATU	5	

Plot 7-191. Lower Band Edge Plot (Band 66 – 15.0MHz QPSK – RB Size 75)

	Spectrum Analyzer - Swept SA					
(XV) RL	RF 50 Ω DC		SENSE:INT	ALIGN AUTO #Avg Type: RMS	12:50:11 AM Mar 07, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
		PNO: Wide ↔ IFGain:Low	Atten: 36 dB		DETANNNN	Auto Tune
10 dB/div Log	Ref 25.00 dBm			Mkr1	1.708 980 GHz -25.77 dBm	Auto Tune
						Center Freq
15.0						1.707000000 GHz
5.00						Start Freq
-5.00						1.705000000 GHz
-15.0					DL1 -13.00 dBm	Stop Freq
-25.0					1	1.709000000 GHz
-35.0	ĨĸĸĸĸŧĸġĊĸŎĊĸĊŎĊĬŢŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎ	fa-son parto and second second and and	and the most share of the second s	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		CF Step
						400.000 kHz <u>Auto</u> Man
-45.0						Freq Offset
-55.0						0 Hz
-65.0						Scale Type
Contor 1	.707000 GHz				Span 4.000 MHz	Log <u>Lin</u>
	V 1.0 MHz	#VBW 3	3.0 MHz	Sweep 2	2.000 ms (1001 pts)	
MSG				STATU	S	

Plot 7-192. Lower Extended Band Edge Plot (Band 66 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	trum Analyzer	- Swept SA									- # ×
I <mark>XI</mark> RL	RF 5	0Ω DC	CORREC	Trig: Free		#Avg Typ	ALIGN AUTO e: RMS	TRACI	Mar 07, 2017 <b>1 2 3 4 5 6</b> E A WWWWW A N N N N N	Fr	equency
10 dB/div Log	Ref 25.0	0 dBm	IFGain:Low _	Atten: 36	dB		Mkr1	1.780 0	.,		Auto Tune
15.0											Center Fred 0000000 GH2
5.00		~~~~~~	manna							1.774	Start Free 4000000 GH
-15.0					- 1				DL1 -13.00 dBm	1.78	Stop Free
35.0				×4.	· · · · · · · · · · · · · · · · · · ·	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	<u> </u>	wenter mark		1 <u>Auto</u>	<b>CF Stej</b> .200000 MH Ma
45.0 <b></b> 55.0 <b></b>											F <b>req Offse</b> 0 H
65.0											Scale Typ
Center 1.7 #Res BW 1		lz	#VB	W 430 kHz			Sweep_1	Span 12 .000 ms (*	2.00 MHz 1001 pts)	Log	<u>Lir</u>
MSG							STATUS	;			

Plot 7-193. Upper Band Edge Plot (Band 66 – 15.0MHz QPSK – RB Size 75)

	ctrum Analyzer - Swept SA					
LX/RL	RF 50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	12:50:52 AM Mar 07, 2017 TRACE 1 2 3 4 5 6	Frequency
	NFE	PNO: Wide ↔↔ IFGain:Low	Trig: Free Run Atten: 36 dB			
10 dB/div Log	Ref 25.00 dBm	1		Mkr1	1.781 312 GHz -25.02 dBm	Auto Tune
15.0						Center Freq 1.783000000 GHz
-5.00						<b>Start Freq</b> 1.781000000 GHz
-15.0	▶ ¹	and all and a state of the same and a	~?~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		DL1 -13.00 dBm	<b>Stop Freq</b> 1.785000000 GHz
-35.0						<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-55.0						<b>Freq Offset</b> 0 Hz
-65.0						Scale Type
Center 1.7 #Res BW	783000 GHz 1.0 MHz	#VBW :	3.0 MHz	Sweep 2	Span 4.000 MHz 2.000 ms (1001 pts)	Log <u>Lin</u>
MSG				STATUS	3	

Plot 7-194. Upper Extended Band Edge Plot (Band 66 – 15.0MHz QPSK – RB Size 75)

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	pectrum Analyz										JX
🗶 RL	RF	50 Ω DC	CORREC	S	ENSE:INT	#Avg Typ	ALIGN AUTO e: RMS	12:53:32 AM M TRACE	23456	Frequenc	су
		NFE	PNO: Wide IFGain:Lov	Trig: Fr Atten:		• //		TYPE / DET	A NNNNN		_
10 dB/div Log	Ref 25	.00 dBm					Mkr1	1.709 96 -31.73	8 GHz 8 dBm	Auto	Tune
15.0										Center 1.71000000	
-5.00						······································	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		and the second	Start 1.70200000	
-15.0									1 -13.00 dBm	<b>Stop</b> 1.71800000	
35.0 45.0	m	whenman	- 1. or a for the second s	ne me						CF 1.60000 <u>Auto</u>	Ste 0 MH Ma
55.0										Freq C	Offse 0⊢
65.0										Scale	Тур
Center 1. Res BW	.710000 ( 200 kHz	GHz	#\	/BW 620 kH	z		Sweep 1	Span 16. .000 ms (10	00 MHz 101 pts)	Log	Li
ISG							STATUS				

Plot 7-195. Lower Band Edge Plot (Band 66 – 20.0MHz QPSK – RB Size 100)

	ctrum Analyze	er - Swept SA					
LXI RL	RF	50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	12:53:44 AM Mar07, 2017 TRACE 1 2 3 4 5 6	Frequency
		NFE	PNO: Wide ↔ IFGain:Low	<ul> <li>Trig: Free Run Atten: 36 dB</li> </ul>	#Avg Type: RMS	TYPE A WWWWW DET A NNNN	
10 dB/div Log	Ref 25.	00 dBm			Mkı	1 1.708 956 GHz -26.13 dBm	Auto Tune
15.0							Center Freq 1.707000000 GHz
-5.00							<b>Start Freq</b> 1.705000000 GHz
-15.0							<b>Stop Freq</b> 1.709000000 GHz
-35.0	UN6-20-41-55-64[7	2000-0000-000-000000000000000000000000					CF Step 400.000 kHz <u>Auto</u> Man
-55.0							<b>Freq Offset</b> 0 Hz
-65.0							Scale Type
Center 1.7 #Res BW			#VBW	3.0 MHz	Sweep	Span 4.000 MHz 2.000 ms (1001 pts)	Log <u>Lin</u>
MSG					STAT	rus	

Plot 7-196. Lower Extended Band Edge Plot (Band 66 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	pectrum Analyz	er - Swept SA					- 6
X/RL	RF	50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	12:54:12 AM Mar 07, 2017 TRACE 1 2 3 4 5 6	Frequency
		NFE	PNO: Wide 🕞	Trig: Free Run Atten: 36 dB	#Avg Type. Amo		
10 dB/div	Ref 25	.00 dBm			Mkr1	1.780 208 GHz -29.99 dBm	Auto Tune
15.0							Center Free 1.780000000 GH
5.00	Marine Constant		www.			DL1 -13.00 dBm	Start Fre 1.772000000 GH
-15.0							<b>Stop Fre</b> 1.788000000 GH
35.0				Mar	man man		<b>CF Ste</b> 1.600000 MH <u>Auto</u> Ma
55.0							Freq Offso 0 ⊦
65.0							Scale Typ
	.780000 ( 200 kHz		#VBV	/ 620 kHz	Sweep 1	Span 16.00 MHz I.000 ms (1001 pts)	Log <u>Li</u>
ISG					STATU	S	

Plot 7-197. Upper Band Edge Plot (Band 66 – 20.0MHz QPSK – RB Size 100)

		ctrum Anal	lyzer - Swept SA										
<b>l,XI</b> RI	L	RF	50 Ω DC NFE	PNO: W		Trig: Free		#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Mar 07, 2017 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	F	requency
10 dE Log	3/div	Ref 2	5.00 dBm	IFGain:	Low	Atten: 36	dB		Mkr1	1.781 1	84 GHz 13 dBm		Auto Tune
15.0													<b>Center Freq</b> 33000000 GHz
5.00 -5.00												1.78	Start Freq 31000000 GHz
-15.0 -25.0			hosmushhajm gui son.	***********************				and on the second second	and the state of the second states	و مراسب المحمد الم	DL1 -13.00 dBm	1.78	Stop Freq 5000000 GHz
-35.0 -45.0												<u>Auto</u>	<b>CF Step</b> 400.000 kHz Man
-55.0													Freq Offset 0 Hz
-65.0													Scale Type
		'83000 1.0 MH			#VBW 3	.0 MHz			Sweep 2	Span 4 .000 ms (	.000 MHz 1001 pts)	Log	<u>Lin</u>
MSG									STATUS	3			

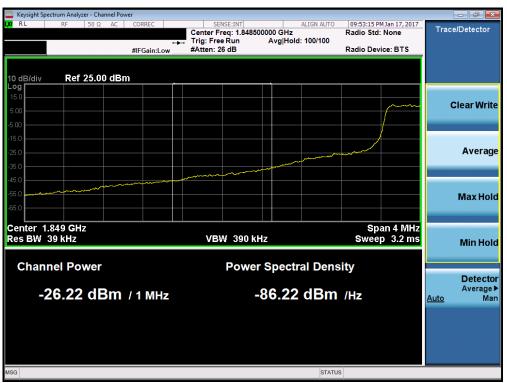
Plot 7-198. Upper Extended Band Edge Plot (Band 66 – 20.0MHz QPSK – RB Size 100)

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Plot 7-199. Lower Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)



Plot 7-200. Lower Extended Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

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Keysight Spectrum Analyzer - Swept SA	Ą			
<b>X¹ RL</b> RF 50 Ω A(	C CORREC SEI		09:53:39 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
10 dB/div Ref 25.00 dBn		Mkr	1 1.910 000 GHz -27.679 dBm	Auto Tun
15.0				<b>Center Fre</b> 1.910000000 GH
5.00	and and a second se		DL1 -13.00 dBm	<b>Start Fre</b> 1.908000000 GH
25.0		1		<b>Stop Fre</b> 1.912000000 G⊦
35.0 mannananananananananananananananananana		Marine and a strategy of the s	hat we have a second and the second	CF Ste 400.000 kH <u>Auto</u> Ma
56.0				Freq Offso 0 ⊦
65.0				Scale Typ
Center 1.910000 GHz Res BW 13 kHz	#VBW 43 kHz	Sweep	Span 4.000 MHz 29.07 ms (1001 pts)	Log <u>L</u> i
SG		STAT	US	

Plot 7-201. Upper Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)



Plot 7-202. Upper Extended Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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		er - Swept SA									
LXI RL	RF	50 Ω AC	CORREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO	10:00:02 PM. TRACE	Jan 17, 2017 1 2 3 4 5 6	F	requency
			PNO: Wie IFGain:Lo	le 🕞 Trig: Fre ow Atten: 3		#rtvg i yp		DET	A WWWWWW A N N N N N		
10 dB/div Log	Ref 25	.00 dBm					Mkr1	1.850 00 -26.3	00 GHz 8 dBm		Auto Tune
15.0											Center Freq 0000000 GHz
-5.00						un ann			)L1 -13.00 dBm	1.84	Start Freq 8000000 GHz
-15.0					↓ 1				LT-13.00 (BM)	1.85	Stop Freq 2000000 GHz
-35.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	M. Jan Marine	www.www.www.						<u>Auto</u>	CF Step 400.000 kHz Mar
-55.0											Freq Offset 0 Hz
-65.0											Scale Type
Center 1.8		GHz	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					Span 4.	000 MHz	Log	Lin
#Res BW	30 KHZ		#	VBW 91 kHz				.533 ms (1	001 pts)		
ISG							STATUS				

Plot 7-203. Lower Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)



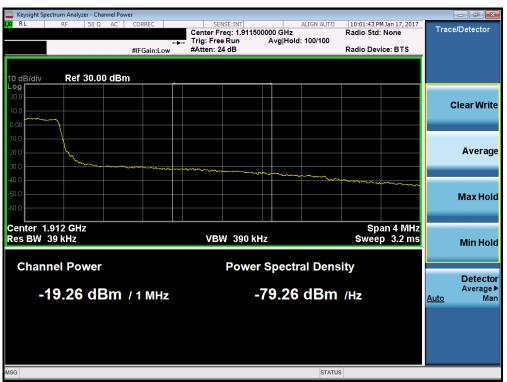
Plot 7-204. Lower Extended Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

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PNO: Wide         Trig: Free Run         #Avg Type: RMS         TRACE         P2 4 4 51         Frequence           10 dB/div         Ref 25.00 dBm	🔤 Keysight Spectrum Analyzer -									- • •
Mkr1 1.910 000 GHz       Auto         10 dB/div       Ref 25.00 dBm       -24.429 dBm       Center         150       -24.429 dBm       -24.429 dBm       Start         500       -00       -01.1300 dBm       -24.429 dBm       Start         500       -01.1300 dBm       -01.1300 dBm       -24.429 dBm       -24.429 dBm         500       -01.1300 dBm       -01.1300 dBm       -24.429 dBm       -24.429 dBm         500       -01.1300 dBm       -01.1300 dBm       -24.429 dBm       -24.429 dBm         -100       -01.1300 dBm       -01.1300 dBm       -24.429 dBm       -24.429 dBm         -100       -01.1300 dBm       -01.1300 dBm       -24.429 dBm       -24.429 dBm       -24.429 dBm         -100       -100       -11.1300 dBm       -24.429 dBm       -24.429 dBm       -24.429 dBm         -100       -11.1300 dBm       -11.1300 dBm       -24.429 dBm       -24.429 dBm       -24.429 dBm         -11.1900 dBm       -11.1300 dBm       -11.13	XXX RL RF 5		PNO: Wide 🗔	Trig: Free	Run		TRAC TYP	E 1 2 3 4 5 6 E A WWWW	Fr	requency
16.0       Center         500       Start         500       D.1-13004bm         500	10 dB/div Ref 25.0		FGain:Low	Atten: 36	dB	Mkr1	1.910 0	00 GHz		Auto Tune
-500         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0										Center Fred 0000000 GH:
15.0       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1		m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~					1.90	Start Fre 8000000 GH
400.00 450 650 650 650 Center 1.910000 GHz Span 4.000 MHz Log					1			DL1 -13.00 dBm	1.91	<b>Stop Fre</b> 2000000 GH
55.0 Freq O 65.0 Scale Center 1.910000 GHz Span 4.000 MHz					· ·····	 	mark	Contraction of the second s	<u>Auto</u>	<b>CF Ste</b> 400.000 kH Ma
Center 1.910000 GHz Span 4.000 MHz										FreqOffso 0⊦
										Scale Typ
	#Res BW 30 kHz	lz	#VBW	91 kHz			.533 ms (		Log	Lii

Plot 7-205. Upper Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)



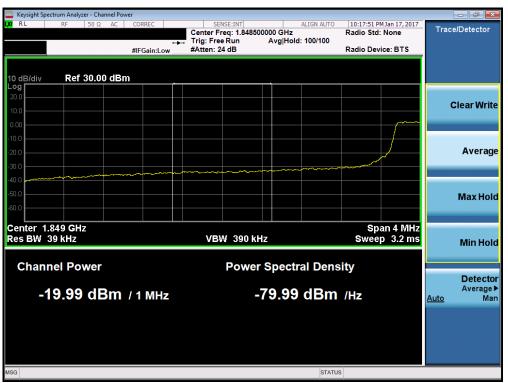
Plot 7-206. Upper Extended Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer	- Swept SA									
L <mark>XI</mark> RL	RF	50 Ω AC	CORREC	SENS	:INT	#Avg Typ	ALIGN AUTO	10:17:42 PM	Jan 17, 2017	F	requency
			PNO: Wide 🕞 IFGain:Low	Trig: Free F Atten: 36 d		#7118 1.JP		TYP DE			
10 dB/div Log	Ref 25.0	0 dBm					Mkr1	1.850 0 -26.0	00 GHz )5 dBm		Auto Tune
15.0											Center Freq 0000000 GHz
-5.00							~~~~~		~~~~	1.84	Start Freq 8000000 GHz
-15.0					ار ار 1				DL1 -13.00 dBm	1.85	<b>Stop Fred</b> 2000000 GH2
-35.0		~~~~	~~~~~							<u>Auto</u>	CF Step 400.000 kH Mar
-55.0											Freq Offse 0 H
-65.0											Scale Type
Center 1. #Res BW	850000 G 51 kHz	Hz	#VBV	v 150 kHz		-	Sweep 1	Span 4. .933 ms (′	000 MHz 1001 pts)	Log	Lin
MSG							STATUS				

Plot 7-207. Lower Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)



Plot 7-208. Lower Extended Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

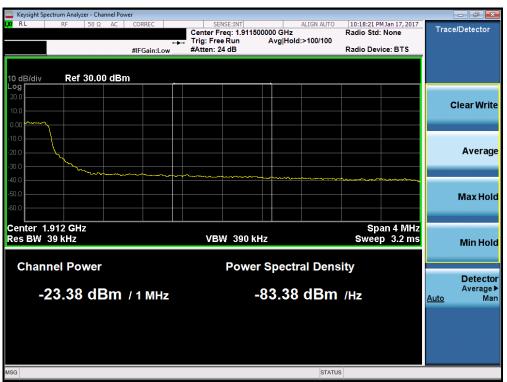
FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 102 of 170
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	ctrum Analyzer - S	Swept SA						
X/RL	RF 50	Ω AC	CORREC	SENSE:II	#Avg 1	ALIGN AUTO	10:18:14 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div	Ref 25.00	dBm	IFGain:Low	Atten: 36 dB		Mkr1	1.910 000 GHz -27.32 dBm	Auto Tune
15.0								Center Free 1.910000000 GH
-5.00	·	~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				DL1 -13 00 dBm	<b>Start Fre</b> 1.908000000 GH
-15.0								<b>Stop Fre</b> 1.912000000 GH
35.0					~~~~~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	<b>CF Ste</b> 400.000 kH <u>Auto</u> Ma
45.0 55.0								Freq Offse 0 ⊢
65.0								Scale Typ
Center 1.9 #Res BW :	10000 GH 51 kHz	z	#VBW	150 kHz		Sweep 1	Span 4.000 MHz .933 ms (1001 pts)	Log <u>Li</u>
ISG						STATUS	3	

Plot 7-209. Upper Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)



Plot 7-210. Upper Extended Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spe	ctrum Analyze	r - Swept S/	A									
LXI RL	RF	50 Ω A	C CORR	EC	SEN	NSE:INT	#Avg Typ	ALIGN AUTO		4 Jan 17, 2017 E <b>1 2 3 4 5 6</b>	F	requency
				):Wide 🖵 ain:Low	Trig: Free Atten: 36		#Avg iyp	e. RING	TYF	E A WWWWW T A N N N N N		
			IFG	am.Low	/ tter. oc	ub .		Mkr1	1 8/9 9	68 GHz		Auto Tune
10 dB/div Log	Ref 25.	00 dBr	n						-29.3	27 dBm		
209						Í						Center Freq
15.0												0000000 GHz
5.00							~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	·/····		Start Freq
-5.00											1.84	6000000 GHz
-0.00												
-15.0										DL1 -13.00 dBm		Stop Freq
											1.85	4000000 GHz
-25.0						1_/						
		0-0			~~~~~	- A -						CF Step
-35.0	~~~~~	~~										800.000 kHz
-45.0											<u>Auto</u>	Man
-40.0												
-55.0												Freq Offset
												0 Hz
-65.0												
												Scale Type
Center 1.8		Hz							Span 8	2000 10112	Log	Lin
#Res BW	100 kHz			#VBW	300 kHz			Sweep 1	.000 ms (	1001 pts)		
MSG								STATUS	5			

Plot 7-211. Lower Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

PNO: Fast PNO: Fast Frequency Auto Tune Auto Tune Auto Tune Auto Tune Auto Tune Center Freq 1.84700000 GH 1.84700000 GH 1.84500000 GH 1.84500000 GH 1.84500000 GH 1.84500000 GH Center Freq 1.84500000 GH Center Freq 1.845000000 GH Center Freq 1.84500000 GH Center Freq Center Freq Center Freq Center Freq Center Freq Center Freq Center Freq C		ectrum Analyzer - Swept SA					
Instantion         Mikr1 1.848 992 GHz -21.07 dBm         Auto Tune           0 dB/div         Ref 25.00 dBm         Center Freq 1.84700000 GHz         Center Freq 1.84700000 GHz           500         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	LXU RL	RF 50 Ω AC	PNO: Fast ++	Trig: Free Run		TRACE 1 2 3 4 5 6	Frequency
15.0       Center Free         15.0       Start Free <td< th=""><th>10 dB/div</th><th>Ref 25.00 dBm</th><th>IFGain:Low</th><th>Atten: 36 dB</th><th>Mkr1</th><th>1.848 992 GHz</th><th>Auto Tune</th></td<>	10 dB/div	Ref 25.00 dBm	IFGain:Low	Atten: 36 dB	Mkr1	1.848 992 GHz	Auto Tune
Start Fred Start	15.0						Center Freq 1.847000000 GHz
5.0       Stop Free         5.0       Stop Free <td< td=""><td>-5.00</td><td></td><td></td><td></td><td></td><td></td><td>Start Freq 1.845000000 GHz</td></td<>	-5.00						Start Freq 1.845000000 GHz
5.0     400.000 kH       5.0     Freq Offse       5.0     0       5.0     Scale Type	-15.0	Market and and a second and a	**************************************	مەر ئەر مەر مەر مەر مەر مەر مەر مەر مەر مەر م	Marcharthaller March Street Courter		Stop Freq 1.849000000 GHz
55.0 0 H: 55.0 0	-45.0						CF Step 400.000 kH Auto Mar
Scale Type	55.0						Freq Offse 0 H:
enter 1.847000 GHz Span 4.000 MHz	-65.0						Scale Type
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.000 ms (1001 pts)			#VBW	3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lin</u>

Plot 7-212. Lower Extended Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🚾 Keysight Spectrum Analyzer - Swept SA 🚽				
XIRL RF 50Ω AC	CORREC SENSE:INT PNO: Wide Trig: Free Run	ALIGN AUTO #Avg Type: RMS	10:32:25 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 25.00 dBm	IFGain:Low Atten: 36 dB	Mkr1	1.910 000 GHz -30.55 dBm	Auto Tune
15.0				Center Fred 1.910000000 GHz
5.00				Start Free 1.906000000 GH
-15.0			DL1 -13.00 dBm	Stop Free 1.914000000 GH:
-35.0			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	CF Stej 800.000 kH <u>Auto</u> Ma
55.0				Freq Offse 0 H
-65.0				Scale Type
Center 1.910000 GHz #Res BW 100 kHz	#VBW 300 kHz	Sweep 1.	Span 8.000 MHz 000 ms (1001 pts)	Log <u>Lir</u>
MSG		STATUS		

Plot 7-213. Upper Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

Keysight Spectrum Analyz	er - Swept SA					
LXI RL RF	50 Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	10:32:38 PM Jan 17, 2017 TRACE 1 2 3 4 5 6	Frequency
		PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 36 dB	• /	TYPE A WWWW DET A NNNN	
10 dB/div Ref 25	.00 dBm			Mkr1	1.911 004 GHz -21.43 dBm	Auto Tune
15.0						Center Freq 1.913000000 GHz
-5.00					DL1 -13.00 dBm	<b>Start Freq</b> 1.911000000 GHz
-15.0 1 -25.0	and the product of the second s	กสถาประกับไรก็กรูปสุดปัญญา	n-W-W-W-Mang-Jon-1	and and and a second	Chine and a contraction of the second s	<b>Stop Freq</b> 1.915000000 GHz
-35.0						CF Step 400.000 kHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
-65.0						Scale Type
Center 1.913000 ( #Res BW 1.0 MHz		#VBW	3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lin</u>
MSG				STATUS	3	

Plot 7-214. Upper Extended Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyz												
(XI RL	RF	50 Ω	AC	CORREC		SE	NSE:INT	#Avg Typ	ALIGN AUTO	10:37:22 P	M Jan 17, 2017 CE <mark>1 2 3 4 5 6</mark>	F	requency
				PNO: W IFGain:L		Trig: Fre Atten: 3		****8*JP		TY D			
10 dB/div Log	Ref 25	.00 dB	sm						Mkr1	1.849 8 -28.	380 GHz 99 dBm		Auto Tune
15.0							• 						<b>Center Freq</b> 60000000 GHz
-5.00							$\int$	,	4./	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		1.84	Start Freq 4000000 GHz
-15.0							1_				DL1 -13.00 dBm	1.85	Stop Freq 6000000 GHz
-35.0 000000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~			an mar and a second						<u>Auto</u>	<b>CF Step</b> 1.200000 MHz Man
-55.0													Freq Offset 0 Hz
-65.0													Scale Type
Center 1.8										Span 1	2.00 MHz	Log	Lin
#Res BW	150 KHz			7	VBW	470 kHz					(1001 pts)		
MSG									STATUS				

Plot 7-215. Lower Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

Keysight Spectrum Analyzer - Swept SA					
XU RL RF 50Ω AC	CORREC PNO: Fast ↔→→	SENSE:INT Trig: Free Run Atten: 36 dB	ALIGN AUTO #Avg Type: RMS	10:37:30 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div Ref 25.00 dBm	IFGain:Low	Atten: 36 db	Mkr1	1.848 852 GHz -22.07 dBm	Auto Tune
15.0					Center Freq 1.847000000 GHz
-5.00					Start Freq 1.845000000 GHz
-15.0		and a stand and	ar faretartur and a start and the start and the start		<b>Stop Freq</b> 1.849000000 GHz
45.0					CF Step 400.000 kHz <u>Auto</u> Mar
55.0					Freq Offset 0 Hz
-65.0					Scale Type
Center 1.847000 GHz #Res BW 1.0 MHz	#VBW 3	3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lin</u>
SG			STATUS	3	

Plot 7-216. Lower Extended Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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🔤 Keysight Spectrum Analyzer - Swept SA 🚽			
XIRL RF 50Ω AC	CORREC SENSE:INT PNO: Wide IEGain: I ow Atten: 36 dB	ALIGN AUTO 10:37:47 PM Jan 17, #Avg Type: RMS TRACE 1 23 TYPE A DET A NN	456 WWW
10 dB/div Ref 25.00 dBm	IFGain:Low Atten: 36 dB	Mkr1 1.910 012 G -31.41 dl	iHz Auto Tune Bm
15.0			Center Fred 1.910000000 GH;
5.00			Start Fred 1.904000000 GH
25.0		DL1-130	<b>Stop Fre</b> 1.916000000 GH
45.0			CF Ste 1.200000 MH <u>Auto</u> Ma
55.0			Freq Offse 0 H
65.0			Scale Typ
Center 1.910000 GHz #Res BW 150 kHz	#VBW 470 kHz	Span 12.00 M Sweep 1.000 ms (1001	VIHZ ^{Log <u>Lir</u> pts)}

Plot 7-217. Upper Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

	ctrum Analyzer - Swept SA									
LXI RL	RF 50 Ω AC	CORREC		E:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Jan 17, 2017 E <mark>1 2 3 4 5</mark> 6	F	requency
		PNO: Fast ++++ IFGain:Low	Trig: Free F Atten: 36 c				TYI Di			
						Mkr1	1.911 2	60 GHz		Auto Tune
10 dB/div Log	Ref 25.00 dBm		v		1		-24.	61 dBm		
										Center Freq
15.0									1.91	13000000 GHz
5.00										
									1.01	Start Freq 11000000 GHz
-5.00									1.5	1000000 GHZ
-15.0								DL1 -13.00 dBm		Stop Freq
	1								1.91	15000000 GHz
-25.0	and a second	an and a second second second	an a faith of the growth of the	<b>╾</b> ┓┹╈╱╏┹ᢤᡬ᠕ᡎᢜᢌ <i>ᢤ</i>	Margine against	have have been a factor of the second se	****	- metylandy		
-35.0										CF Step 400.000 kHz
									<u>Auto</u>	Man
-45.0										
-55.0										Freq Offset 0 Hz
										0 HZ
-65.0										Scale Type
Contor 4.0	13000 GHz						- Snor		Log	Lin
#Res BW		#VBW	3.0 MHz			Sweep ′	<del>sp</del> an 4 1.000 m <u>s (</u>	.000 MHz 1001 pts)		
MSG						STATU	s			

Plot 7-218. Upper Extended Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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	ectrum Analyze											
XIRL	RF	50 Ω AC	CORREC		SEI	ISE:INT	#Avg Typ	ALIGN AUTO	10:40:31 P	M Jan 17, 2017 E <mark>1 2 3 4 5 6</mark>	Fi	equency
			PNO: F IFGain:	ast 😱 Low	Trig: Free Atten: 36		#7(18))P		TYI Di			
10 dB/div Log	Ref 25.	00 dBm						Mkr1	1.849 8 -29.	840 GHz 37 dBm		Auto Tune
											(	Center Fred
15.0											1.85	0000000 GH:
5.00							~~~~~~	-		man		Start Free
-5.00											1.84	2000000 GHz
										DL1 -13.00 dBm		
-15.0											1.85	Stop Fred 8000000 GH;
-25.0					•	1_1						
35.0	m	, and the second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m								CF Step 1.600000 MH
-45.0											<u>Auto</u>	Mar
												Freq Offse
-55.0												0 Hz
-65.0												Scale Type
												Scale Type
Center 1.3 #Res BW	200 kHz	iHz		#VBW (	620 kHz			Sweep 1	Span 1 .000 ms (	6.00 MHz (1001 pts)	Log	
ISG								STATUS				

Plot 7-219. Lower Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

	ectrum Analyzer - Swept SA					
XU RL	RF 50 Ω AC	PNO: Fast ++ IFGain:Low	SENSE:INT Trig: Free Run Atten: 36 dB	ALIGN AUTO #Avg Type: RMS	10:40:38 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div	Ref 25.00 dBm	1		Mkr1	1.848 960 GHz -24.01 dBm	Auto Tune
15.0						Center Fred 1.847000000 GH:
-5.00						Start Fred 1.845000000 GH:
-15.0	June of the second seco	- Aller of the contraction of the contraction	and the second	And the state of t	DL1 -13.00 dBm	<b>Stop Fred</b> 1.849000000 GH:
45.0						<b>CF Ste</b> 400.000 kH <u>Auto</u> Ma
55.0						Freq Offse 0 H
65.0						Scale Type
	847000 GHz 1.0 MHz	#VBW	3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lir</u>
ISG				STATUS	3	

Plot 7-220. Lower Extended Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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	Analyzer - Swept SA					
X/RL R	F 50 Ω AC	CORREC PNO: Fast	SENSE:INT	ALIGN AUTO #Avg Type: RMS	10:40:58 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Re	f 25.00 dBm	IFGain:Low	Atten: 36 dB	Mkr1	1.910 096 GHz -29.33 dBm	Auto Tune
15.0						Center Fred 1.910000000 GHz
5.00 <b></b>	M. C. Marine and M. C. Marine and M. C. Marine and M. C. Marine and M. Marine and M. Marine and M. Marine and M	han an a	~			Start Fred 1.902000000 GH
-15.0					DL1 -13.00 dBm	Stop Fred 1.918000000 GH;
-35.0			· Marine	······································	······································	CF Step 1.600000 MH Auto Mar
55.0						Freq Offse 0 H
-65.0						Scale Type
Center 1.9100 #Res BW 200		#VBW	620 kHz	Sweep 1	Span 16.00 MHz .000 ms (1001 pts)	Log <u>Lir</u>
MSG				STATUS	3	

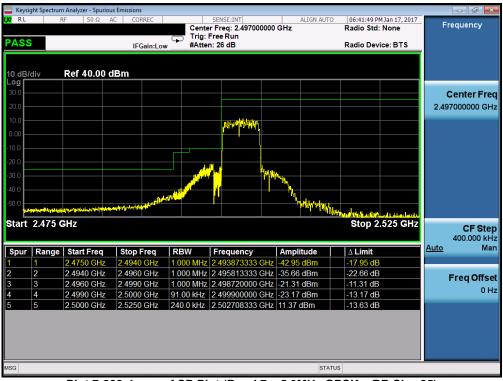
Plot 7-221. Upper Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

UMU RL RF	50 Ω AC CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	10:41:05 PM Jan 17, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div Ref 25	IFGain:Low	Atten: 36 dB	Mkr1	1.911 232 GHz -24.15 dBm	Auto Tune
15.0					Center Freq 1.913000000 GHz
-5.00					<b>Start Freq</b> 1.911000000 GHz
-15.0 -25.0			**************************************	DL1 -13.00 dBm	<b>Stop Freq</b> 1.915000000 GHz
-35.0					CF Step 400.000 kHz <u>Auto</u> Man
-55.0					<b>Freq Offset</b> 0 Hz
-65.0					Scale Type
Center 1.913000 ( #Res BW 1.0 MHz	GHz #VE	3W 3.0 MHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Log <u>Lin</u>
ISG			STATUS	3	

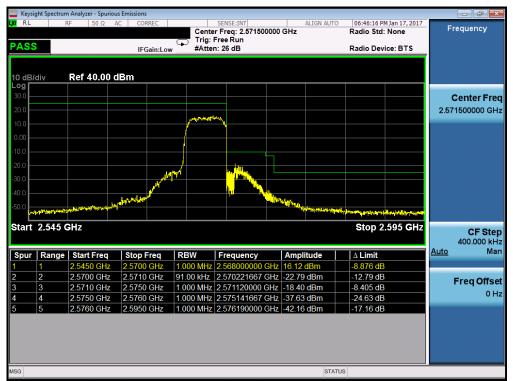
Plot 7-222. Upper Extended Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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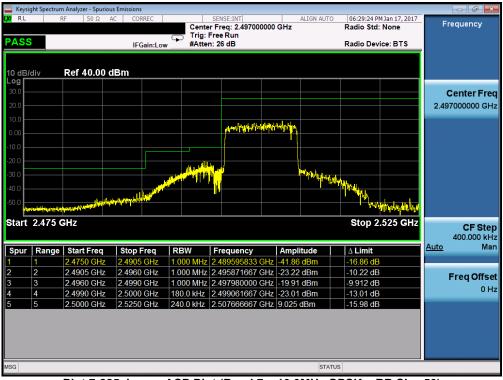


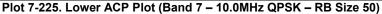


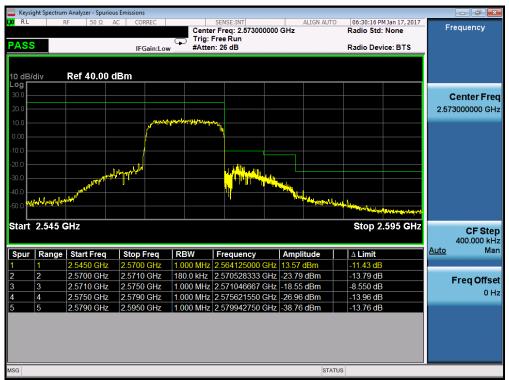
Plot 7-224. Upper ACP Plot (Band 7 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 121 of 179
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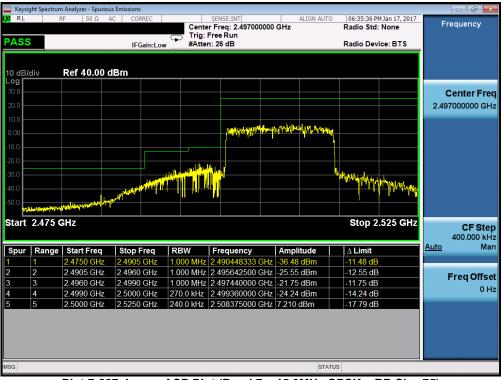


Plot 7-226. Upper ACP Plot (Band 7 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 122 of 179
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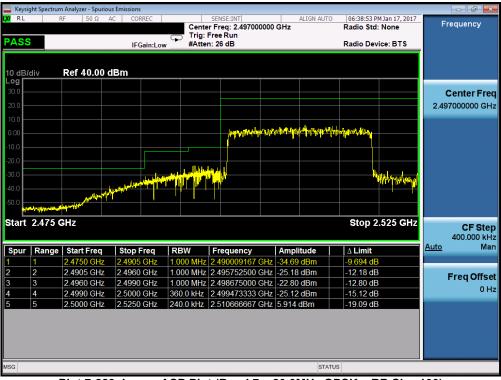
Plot 7-227. Lower ACP Plot (Band 7 – 15.0MHz QPSK – RB Size 75)

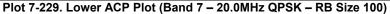


Plot 7-228. Upper ACP Plot (Band 7 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-230. Upper ACP Plot (Band 7 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dego 124 of 179	
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# 7.5 Peak-Average Ratio §24.232(d)

## Test Overview

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

## Test Procedure Used

KDB 971168 D01 v02r02 - Section 5.7.1

## Test Settings

- 1. The signal analyzer's CCDF measurement profile is enabled
- 2. Frequency = carrier center frequency
- 3. Measurement BW > Emission bandwidth of signal
- 4. The signal analyzer was set to collect one million samples to generate the CCDF curve
- 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms.

## Test Setup

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

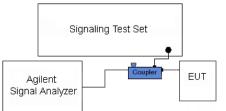


Figure 7-4. Test Instrument & Measurement Setup

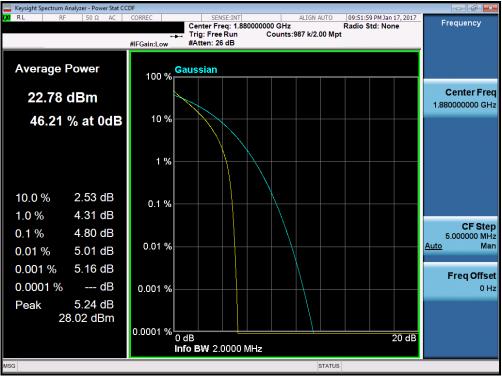
## Test Notes

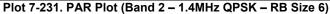
None.

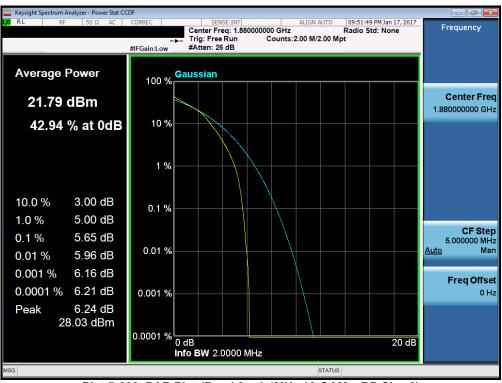
FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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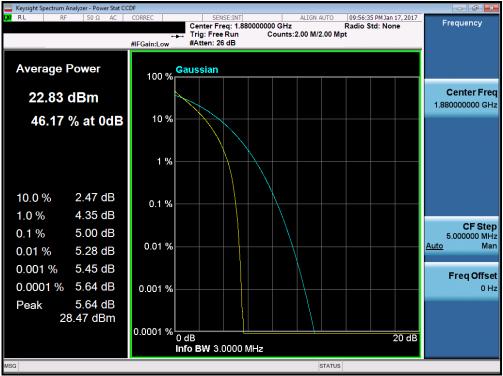


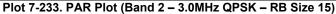


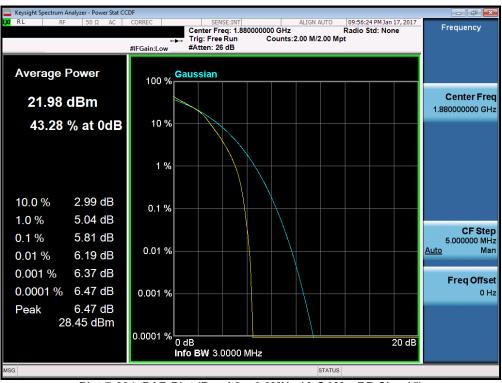
Plot 7-232. PAR Plot (Band 2 – 1.4MHz 16-QAM – RB Size 6)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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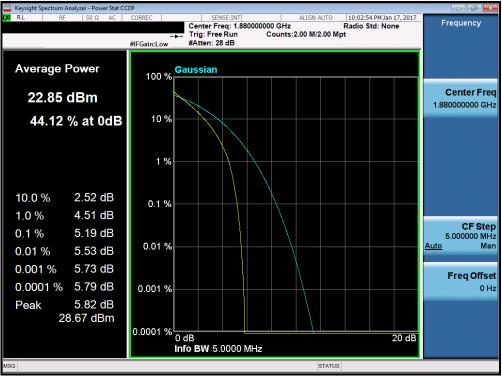


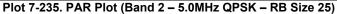


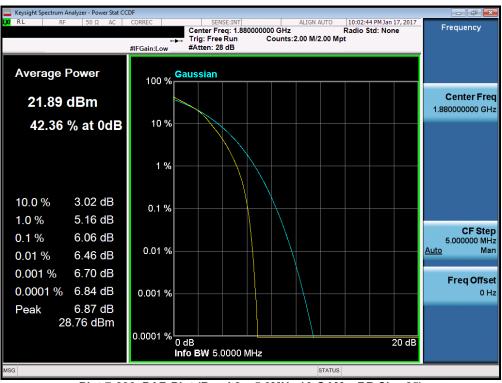
Plot 7-234. PAR Plot (Band 2 - 3.0MHz 16-QAM - RB Size 15)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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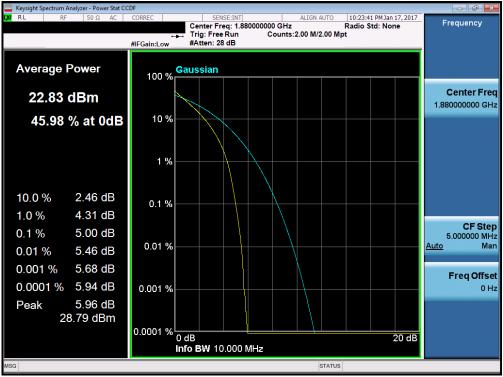




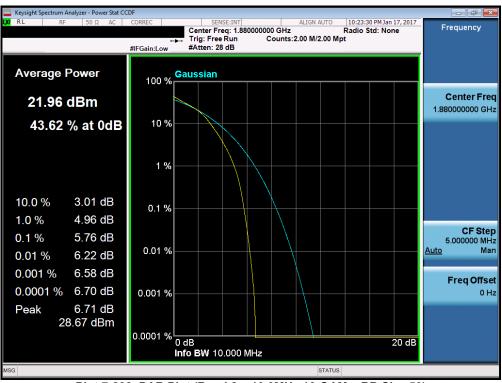
Plot 7-236. PAR Plot (Band 2 - 5.0MHz 16-QAM - RB Size 25)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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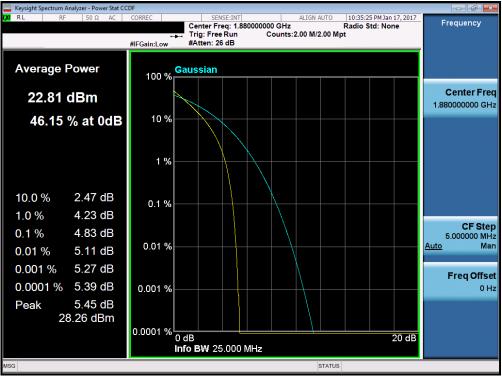




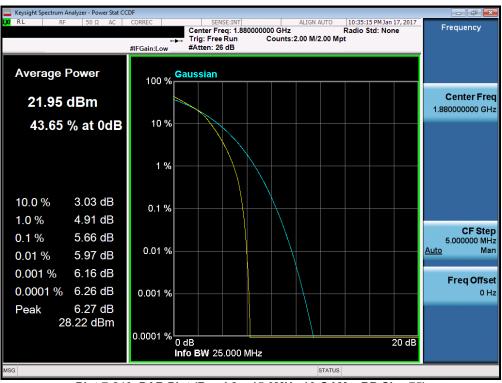
Plot 7-238. PAR Plot (Band 2 - 10.0MHz 16-QAM - RB Size 50)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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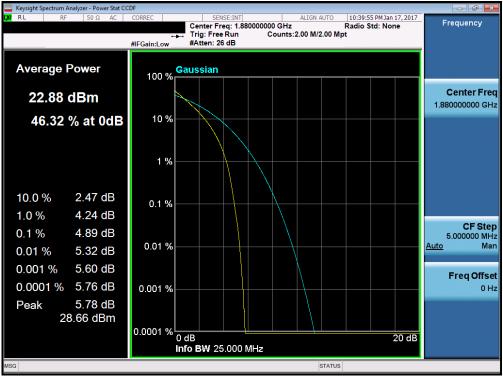


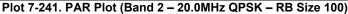


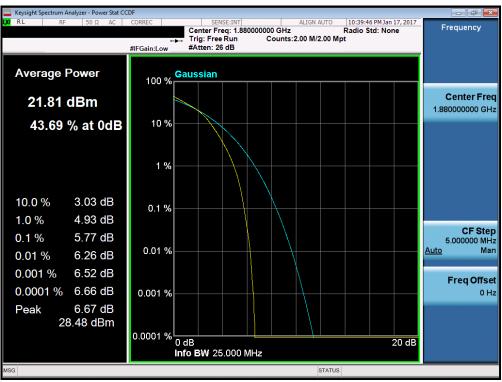
Plot 7-240. PAR Plot (Band 2 - 15.0MHz 16-QAM - RB Size 75)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager			
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Plot 7-242. PAR Plot (Band 2 - 20.0MHz 16-QAM - RB Size 100)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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## 7.6 Radiated Power (ERP/EIRP) §22.913(a.2) §24.232(c.2) §27.50(h.2) §27.50(b.10) §27.50(c.10) §27.50(d.4)

## **Test Overview**

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### Test Procedures Used

KDB 971168 D01 v02r02 - Section 5.2.1

ANSI/TIA-603-D-2010 - Section 2.2.17

### Test Settings

- 1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
- 2. RBW = 1 5% of the expected OBW, not to exceed 1MHz
- 3. VBW  $\geq$  3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points > 2 x span / RBW
- 6. Detector = RMS
- 7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
- 8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
- 9. Trace mode = trace averaging (RMS) over 100 sweeps
- 10. The trace was allowed to stabilize

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## <u>Test Setup</u>

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

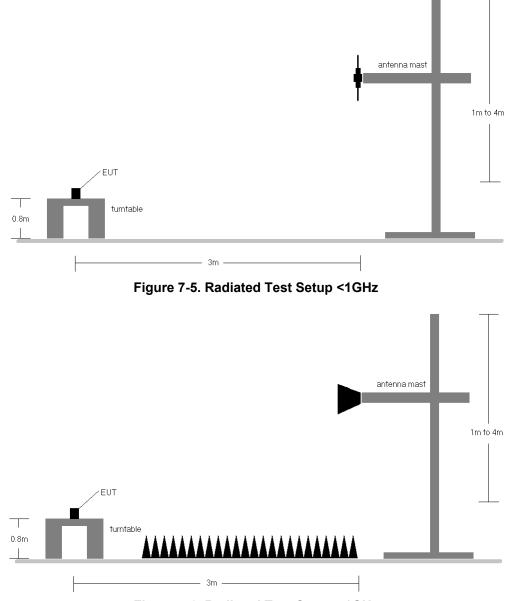


Figure 7-6. Radiated Test Setup >1GHz

### Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	Н	360	105	1 / 5	17.10	-1.05	16.05	34.77	-18.72
707.50	1.4	QPSK	Н	360	108	1 / 0	17.39	-1.02	16.37	34.77	-18.40
715.30	1.4	QPSK	Н	360	104	1 / 5	17.42	-0.99	16.43	34.77	-18.34
699.70	1.4	16-QAM	Н	360	105	1 / 5	15.82	-1.05	14.77	34.77	-20.00
707.50	1.4	16-QAM	Н	360	108	1 / 0	16.35	-1.02	15.33	34.77	-19.44
715.30	1.4	16-QAM	Н	360	104	1 / 5	16.55	-0.99	15.56	34.77	-19.21
700.50	3	QPSK	Н	360	99	1 / 14	17.02	-1.05	15.97	34.77	-18.80
707.50	3	QPSK	Н	360	102	1 / 0	17.60	-1.02	16.58	34.77	-18.19
714.50	3	QPSK	Н	360	100	1 / 14	17.75	-0.99	16.76	34.77	-18.01
700.50	3	16-QAM	Н	360	99	1 / 14	15.85	-1.05	14.80	34.77	-19.97
707.50	3	16-QAM	Н	360	102	1 / 0	16.45	-1.02	15.43	34.77	-19.34
714.50	3	16-QAM	Н	360	100	1 / 0	16.45	-0.99	15.46	34.77	-19.31
701.50	5	QPSK	Н	360	100	1 / 24	17.89	-1.04	16.85	34.77	-17.93
707.50	5	QPSK	Н	360	106	1 / 0	18.40	-1.02	17.38	34.77	-17.39
713.50	5	QPSK	Н	347	107	1 / 0	18.30	-1.00	17.30	34.77	-17.47
701.50	5	16-QAM	Н	360	100	1 / 24	16.75	-1.04	15.71	34.77	-19.07
707.50	5	16-QAM	Н	360	106	1 / 0	16.92	-1.02	15.90	34.77	-18.87
713.50	5	16-QAM	Н	347	107	1 / 0	17.05	-1.00	16.05	34.77	-18.72
704.00	10	QPSK	Н	360	105	1 / 49	18.55	-1.03	17.52	34.77	-17.25
707.50	10	QPSK	Н	360	102	1 / 49	18.45	-1.02	17.43	34.77	-17.34
711.00	10	QPSK	Н	360	104	1 / 49	18.30	-1.01	17.29	34.77	-17.48
704.00	10	16-QAM	Н	360	105	1 / 49	16.95	-1.03	15.92	34.77	-18.85
707.50	10	16-QAM	Н	360	102	1 / 49	16.96	-1.02	15.94	34.77	-18.83
711.00	10	16-QAM	Н	360	104	1 / 49	16.85	-1.01	15.84	34.77	-18.93
704.00	10	QPSK	V	360	105	1 / 74	18.46	-1.03	17.43	34.77	-17.34

Table 7-2. ERP Data (Band 12)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
779.50	5	QPSK	Н	150	81	1 / 0	20.32	-0.83	19.49	34.77	-15.28
782.00	5	QPSK	Н	150	79	1 / 0	20.30	-0.82	19.48	34.77	-15.29
784.50	5	QPSK	Н	150	83	1 / 0	20.20	-0.81	19.39	34.77	-15.38
779.50	5	16-QAM	Н	150	81	1 / 0	20.15	-0.83	19.32	34.77	-15.45
782.00	5	16-QAM	Н	150	79	1 / 0	19.38	-0.82	18.56	34.77	-16.21
784.50	5	16-QAM	Н	150	83	1 / 0	19.18	-0.81	18.37	34.77	-16.40
782.00	10	QPSK	Н	150	82	1 / 0	20.44	-0.82	19.62	34.77	-15.15
782.00	10	16-QAM	н	150	82	1 / 0	19.64	-0.82	18.82	34.77	-15.95
782.00	10	QPSK	V	150	71	1/0	19.19	-0.82	18.37	34.77	-16.40

Table 7-3. ERP Data (Band 13)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	н	150	92	1 / 5	20.46	-0.65	19.81	38.45	-18.64
836.50	1.4	QPSK	н	150	99	1 / 5	20.51	-0.65	19.86	38.45	-18.59
848.30	1.4	QPSK	н	150	97	1 / 5	20.30	-0.65	19.65	38.45	-18.80
824.70	1.4	16-QAM	н	150	92	1 / 5	19.30	-0.65	18.65	38.45	-19.80
836.50	1.4	16-QAM	н	150	99	1 / 5	19.23	-0.65	18.58	38.45	-19.87
848.30	1.4	16-QAM	Н	150	97	1 / 5	18.75	-0.65	18.10	38.45	-20.35
825.50	3	QPSK	н	150	90	1 / 0	20.90	-0.65	20.25	38.45	-18.20
836.50	3	QPSK	Н	150	84	1 / 0	21.05	-0.65	20.40	38.45	-18.05
847.50	3	QPSK	н	150	95	1 / 0	20.66	-0.65	20.01	38.45	-18.44
825.50	3	16-QAM	н	150	90	1 / 0	19.30	-0.65	18.65	38.45	-19.80
836.50	3	16-QAM	Н	150	84	1 / 0	19.60	-0.65	18.95	38.45	-19.50
847.50	3	16-QAM	Н	150	95	1 / 0	19.47	-0.65	18.82	38.45	-19.63
826.50	5	QPSK	Н	150	88	1 / 0	21.59	-0.65	20.94	38.45	-17.51
836.50	5	QPSK	Н	150	93	1 / 0	21.83	-0.65	21.18	38.45	-17.27
846.50	5	QPSK	Н	150	92	1 / 0	21.54	-0.65	20.89	38.45	-17.56
826.50	5	16-QAM	Н	150	88	1 / 0	20.05	-0.65	19.40	38.45	-19.05
836.50	5	16-QAM	н	150	93	1 / 0	20.40	-0.65	19.75	38.45	-18.70
846.50	5	16-QAM	Н	150	92	1 / 0	19.95	-0.65	19.30	38.45	-19.15
829.00	10	QPSK	Н	150	88	1 / 49	21.76	-0.65	21.11	38.45	-17.34
836.50	10	QPSK	Н	150	92	1 / 49	21.80	-0.65	21.15	38.45	-17.30
844.00	10	QPSK	Н	150	91	1 / 49	21.35	-0.65	20.70	38.45	-17.75
829.00	10	16-QAM	н	150	88	1 / 49	20.13	-0.65	19.48	38.45	-18.97
836.50	10	16-QAM	н	150	92	1 / 49	20.10	-0.65	19.45	38.45	-19.00
844.00	10	16-QAM	Н	150	91	1 / 49	19.74	-0.65	19.09	38.45	-19.36
836.50	5	QPSK	V	150	337	1/0	18.86	-0.65	18.21	38.45	-20.24

Table 7-4. ERP Data (Band 5)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	н	150	46	1 / 0	17.43	5.56	22.99	30.00	-7.01
1732.50	1.4	QPSK	н	150	43	1/0	17.12	5.41	22.53	30.00	-7.47
1754.30	1.4	QPSK	н	150	43	1/0	16.77	5.26	22.03	30.00	-7.97
1710.70	1.4	16-QAM	Н	150	46	1/0	15.88	5.56	21.44	30.00	-8.56
1732.50	1.4	16-QAM	н	150	43	1 / 0	15.75	5.41	21.16	30.00	-8.84
1754.30	1.4	16-QAM	н	150	43	1/0	15.52	5.26	20.78	30.00	-9.22
1711.50	3	QPSK	н	150	96	1/0	17.47	5.55	23.02	30.00	-6.98
1732.50	3	QPSK	н	150	46	1 / 0	17.73	5.41	23.14	30.00	-6.86
1753.50	3	QPSK	н	150	94	1 / 14	17.15	5.26	22.41	30.00	-7.59
1711.50	3	16-QAM	н	150	96	1 / 0	15.58	5.55	21.13	30.00	-8.87
1732.50	3	16-QAM	Н	150	46	1 / 0	16.18	5.41	21.59	30.00	-8.41
1753.50	3	16-QAM	н	150	94	1 / 14	15.80	5.26	21.06	30.00	-8.94
1712.50	5	QPSK	Н	150	44	1 / 24	18.36	5.55	23.91	30.00	-6.09
1732.50	5	QPSK	Н	150	44	1 / 24	18.45	5.41	23.86	30.00	-6.14
1752.50	5	QPSK	Н	150	91	1 / 24	17.80	5.27	23.07	30.00	-6.93
1712.50	5	16-QAM	н	150	44	1 / 24	16.56	5.55	22.11	30.00	-7.89
1732.50	5	16-QAM	н	150	44	1 / 24	16.52	5.41	21.93	30.00	-8.07
1752.50	5	16-QAM	н	150	91	1 / 24	16.28	5.27	21.55	30.00	-8.45
1715.00	10	QPSK	Н	150	95	1 / 49	18.08	5.53	23.61	30.00	-6.39
1732.50	10	QPSK	Н	150	47	1 / 49	18.76	5.41	24.17	30.00	-5.83
1750.00	10	QPSK	н	150	96	1 / 49	18.40	5.29	23.69	30.00	-6.31
1715.00	10	16-QAM	Н	150	95	1 / 49	16.38	5.53	21.91	30.00	-8.09
1732.50	10	16-QAM	н	150	47	1 / 49	16.65	5.41	22.06	30.00	-7.94
1750.00	10	16-QAM	Н	150	96	1 / 49	17.08	5.29	22.37	30.00	-7.63
1717.50	15	QPSK	н	150	97	1 / 74	18.14	5.51	23.65	30.00	-6.35
1732.50	15	QPSK	н	150	96	1 / 0	17.96	5.41	23.37	30.00	-6.63
1747.50	15	QPSK	Н	150	98	1 / 0	18.11	5.31	23.42	30.00	-6.58
1717.50	15	16-QAM	н	150	97	1 / 74	16.68	5.51	22.19	30.00	-7.81
1732.50	15	16-QAM	н	150	96	1/0	16.56	5.41	21.97	30.00	-8.03
1747.50	15	16-QAM	Н	150	98	1 / 0	18.20	5.31	23.51	30.00	-6.49
1720.00	20	QPSK	н	150	96	1/0	18.07	5.49	23.56	30.00	-6.44
1732.50	20	QPSK	н	150	98	1 / 99	18.10	5.41	23.51	30.00	-6.49
1745.00	20	QPSK	Н	150	93	1/0	18.07	5.32	23.39	30.00	-6.61
1720.00	20	16-QAM	Н	150	96	1 / 99	16.48	5.49	21.97	30.00	-8.03
1732.50	20	16-QAM	Н	150	98	1 / 99	16.42	5.41	21.83	30.00	-8.17
1745.00	20	16-QAM	н	150	93	1/0	16.64	5.32	21.96	30.00	-8.04
1732.50	10	QPSK	V	150	310	1 / 0	16.26	5.41	21.67	30.00	-8.33

### Table 7-5. EIRP Data (Band 4)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	н	150	14	1/0	17.45	5.56	23.01	30.00	-6.99
1745.00	1.4	QPSK	н	150	20	1/0	16.78	5.32	22.10	30.00	-7.90
1779.30	1.4	QPSK	н	150	18	1/5	16.94	5.09	22.03	30.00	-7.97
1710.70	1.4	16-QAM	н	150	14	1/0	16.38	5.56	21.94	30.00	-8.06
1745.00	1.4	16-QAM	н	150	20	1/0	16.06	5.32	21.38	30.00	-8.62
1779.30	1.4	16-QAM	н	150	18	1/5	16.38	5.09	21.47	30.00	-8.53
1711.50	3	QPSK	н	150	8	1 / 14	17.13	5.55	22.68	30.00	-7.32
1745.00	3	QPSK	н	150	19	1 / 14	17.28	5.32	22.60	30.00	-7.40
1778.50	3	QPSK	н	150	16	1/0	17.28	5.10	22.38	30.00	-7.62
1711.50	3	16-QAM	н	150	8	1 / 14	16.08	5.55	21.63	30.00	-8.37
1745.00	3	16-QAM	н	150	19	1 / 14	16.33	5.32	21.65	30.00	-8.35
1778.50	3	16-QAM	н	150	16	1 / 0	16.76	5.10	21.86	30.00	-8.14
1712.50	5	QPSK	н	150	20	1 / 24	18.81	5.55	24.36	30.00	-5.64
1745.00	5	QPSK	н	150	18	1 / 0	18.76	5.32	24.08	30.00	-5.92
1777.50	5	QPSK	н	150	38	1 / 24	17.93	5.10	23.03	30.00	-6.97
1712.50	5	16-QAM	н	150	20	1 / 24	17.68	5.55	23.23	30.00	-6.77
1745.00	5	16-QAM	н	150	18	1 / 0	17.43	5.32	22.75	30.00	-7.25
1777.50	5	16-QAM	н	150	38	1 / 24	16.98	5.10	22.08	30.00	-7.92
1715.00	10	QPSK	н	150	9	1/0	19.02	5.53	24.55	30.00	-5.45
1745.00	10	QPSK	н	150	21	1/0	18.68	5.32	24.00	30.00	-6.00
1775.00	10	QPSK	н	150	25	1 / 49	18.18	5.12	23.30	30.00	-6.70
1715.00	10	16-QAM	н	150	9	1 / 0	17.68	5.53	23.21	30.00	-6.79
1745.00	10	16-QAM	н	150	21	1/0	16.38	5.32	21.70	30.00	-8.30
1775.00	10	16-QAM	н	150	25	1 / 49	17.38	5.12	22.50	30.00	-7.50
1717.50	15	QPSK	н	150	25	1/0	18.46	5.51	23.97	30.00	-6.03
1745.00	15	QPSK	н	150	23	1/0	18.10	5.32	23.42	30.00	-6.58
1772.50	15	QPSK	н	150	29	1 / 74	17.93	5.14	23.07	30.00	-6.93
1717.50	15	16-QAM	н	150	25	1/0	17.68	5.51	23.19	30.00	-6.81
1745.00	15	16-QAM	н	150	23	1 / 0	17.18	5.32	22.50	30.00	-7.50
1772.50	15	16-QAM	н	150	29	1 / 74	17.28	5.14	22.42	30.00	-7.58
1720.00	20	QPSK	н	160	16	1/0	18.91	5.49	24.40	30.00	-5.60
1745.00	20	QPSK	н	150	22	1/0	18.16	5.32	23.48	30.00	-6.52
1770.00	20	QPSK	н	150	27	1 / 99	18.18	5.15	23.33	30.00	-6.67
1720.00	20	16-QAM	н	160	16	1/0	18.08	5.49	23.57	30.00	-6.43
1745.00	20	16-QAM	н	150	22	1/0	17.38	5.32	22.70	30.00	-7.30
1770.00	20	16-QAM	н	150	27	1 / 99	17.38	5.15	22.53	30.00	-7.47
1715.00	10	QPSK	v	150	341	1/0	16.58	5.53	22.11	30.00	-7.89

### Table 7-6. EIRP Data (Band 66)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	н	150	93	1 / 0	16.68	4.82	21.50	33.01	-11.51
1880.00	1.4	QPSK	Н	150	93	1 / 5	16.77	4.74	21.51	33.01	-11.50
1909.30	1.4	QPSK	Н	150	97	1 / 5	17.19	4.68	21.87	33.01	-11.14
1850.70	1.4	16-QAM	Н	150	93	1 / 0	16.07	4.82	20.89	33.01	-12.12
1880.00	1.4	16-QAM	н	150	93	1 / 5	16.27	4.74	21.01	33.01	-12.00
1909.30	1.4	16-QAM	н	150	97	1 / 5	16.70	4.68	21.38	33.01	-11.63
1851.50	3	QPSK	н	150	93	1 / 14	16.68	4.82	21.50	33.01	-11.51
1880.00	3	QPSK	н	150	95	1 / 0	16.97	4.74	21.71	33.01	-11.30
1908.50	3	QPSK	Н	150	50	1 / 14	17.24	4.68	21.92	33.01	-11.09
1851.50	3	16-QAM	н	150	93	1 / 14	16.12	4.82	20.94	33.01	-12.07
1880.00	3	16-QAM	Н	150	95	1 / 0	16.22	4.74	20.96	33.01	-12.05
1908.50	3	16-QAM	н	150	50	1 / 14	16.65	4.68	21.33	33.01	-11.68
1852.50	5	QPSK	Н	150	95	1 / 0	17.42	4.81	22.23	33.01	-10.78
1880.00	5	QPSK	н	150	94	12 / 6	17.57	4.74	22.31	33.01	-10.70
1907.50	5	QPSK	Н	150	98	1 / 24	17.57	4.68	22.25	33.01	-10.76
1852.50	5	16-QAM	Н	150	95	1 / 24	16.57	4.81	21.38	33.01	-11.63
1880.00	5	16-QAM	н	150	94	1 / 0	16.87	4.74	21.61	33.01	-11.40
1907.50	5	16-QAM	Н	150	98	1 / 24	16.67	4.68	21.35	33.01	-11.66
1855.00	10	QPSK	н	100	308	1 / 0	16.85	4.81	21.66	33.01	-11.35
1880.00	10	QPSK	Н	100	340	50 / 0	17.35	4.74	22.09	33.01	-10.92
1905.00	10	QPSK	н	103	343	1 / 0	17.45	4.68	22.13	33.01	-10.88
1855.00	10	16-QAM	Н	100	308	1 / 0	16.05	4.81	20.86	33.01	-12.15
1880.00	10	16-QAM	н	100	340	1 / 49	16.75	4.74	21.49	33.01	-11.52
1905.00	10	16-QAM	Н	103	343	1 / 0	16.65	4.68	21.33	33.01	-11.68
1857.50	15	QPSK	Н	150	91	75 / 0	17.25	4.80	22.05	33.01	-10.96
1880.00	15	QPSK	н	150	95	1 / 74	17.72	4.74	22.46	33.01	-10.55
1902.50	15	QPSK	Н	150	93	1 / 0	17.38	4.69	22.07	33.01	-10.94
1857.50	15	16-QAM	н	150	91	75 / 0	16.33	4.80	21.13	33.01	-11.88
1880.00	15	16-QAM	Н	150	95	1 / 74	16.91	4.74	21.65	33.01	-11.36
1902.50	15	16-QAM	Н	150	93	1 / 0	16.70	4.69	21.39	33.01	-11.62
1860.00	20	QPSK	Н	150	93	100 / 0	17.57	4.79	22.36	33.01	-10.65
1880.00	20	QPSK	Н	150	93	50 / 25	17.69	4.74	22.43	33.01	-10.58
1900.00	20	QPSK	н	150	93	50 / 25	17.45	4.69	22.14	33.01	-10.87
1860.00	20	16-QAM	Н	150	93	100 / 0	16.49	4.79	21.28	33.01	-11.73
1880.00	20	16-QAM	н	150	93	50 / 25	17.70	4.74	22.44	33.01	-10.57
1900.00	20	16-QAM	н	150	93	1/0	16.79	4.69	21.48	33.01	-11.53
1880.00	15	QPSK	V	150	41	1/0	13.65	4.74	18.39	33.01	-14.62

#### Table 7-7. EIRP Data (Band 2)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	Н	150	105	1 / 24	14.77	5.74	20.51	33.01	-12.50
2535.00	5	QPSK	Н	150	38	1 / 24	14.72	5.86	20.58	33.01	-12.43
2567.50	5	QPSK	Н	150	42	1 / 24	15.36	5.98	21.34	33.01	-11.67
2502.50	5	16-QAM	Н	150	105	1 / 24	13.67	5.74	19.41	33.01	-13.60
2535.00	5	16-QAM	Н	150	38	1 / 24	13.69	5.86	19.55	33.01	-13.46
2567.50	5	16-QAM	Н	150	42	1 / 24	14.47	5.98	20.45	33.01	-12.56
2505.00	10	QPSK	Н	150	106	1 / 49	15.72	5.75	21.47	33.01	-11.54
2535.00	10	QPSK	Н	150	102	1 / 49	14.85	5.86	20.71	33.01	-12.30
2565.00	10	QPSK	Н	150	102	1 / 49	14.78	5.97	20.75	33.01	-12.26
2505.00	10	16-QAM	Н	150	106	1 / 49	14.00	5.75	19.75	33.01	-13.26
2535.00	10	16-QAM	Н	150	102	1 / 49	13.75	5.86	19.61	33.01	-13.40
2565.00	10	16-QAM	Н	150	102	1 / 49	13.75	5.97	19.72	33.01	-13.29
2507.50	15	QPSK	Н	150	103	1 / 74	15.65	5.76	21.41	33.01	-11.60
2535.00	15	QPSK	Н	150	102	1 / 74	14.70	5.86	20.56	33.01	-12.45
2562.50	15	QPSK	Н	150	106	1 / 74	14.02	5.96	19.98	33.01	-13.03
2507.50	15	16-QAM	Н	150	103	1 / 74	14.10	5.76	19.86	33.01	-13.15
2535.00	15	16-QAM	Н	150	102	1 / 74	13.66	5.86	19.52	33.01	-13.49
2562.50	15	16-QAM	Н	150	106	1 / 74	13.12	5.96	19.08	33.01	-13.93
2510.00	20	QPSK	Н	150	105	1 / 99	15.39	5.77	21.16	33.01	-11.85
2535.00	20	QPSK	Н	150	105	100 / 0	14.62	5.86	20.48	33.01	-12.53
2560.00	20	QPSK	Н	150	105	1 / 0	14.87	5.95	20.82	33.01	-12.19
2510.00	20	16-QAM	Н	150	105	1 / 99	14.50	5.77	20.27	33.01	-12.74
2535.00	20	16-QAM	Н	150	105	100 / 0	13.64	5.86	19.50	33.01	-13.51
2560.00	20	16-QAM	Н	150	105	1/0	13.67	5.95	19.62	33.01	-13.39
2505.00	10	QPSK	V	150	323	1/0	12.79	5.75	18.54	33.01	-14.47

Table 7-8. EIRP Data (Band 7)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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### 7.7 Radiated Spurious Emissions Measurements §2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m) §27.53(a.4)

### Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

#### Test Procedures Used

KDB 971168 D01 v02r02 - Section 5.8

ANSI/TIA-603-D-2010 - Section 2.2.12

#### **Test Settings**

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

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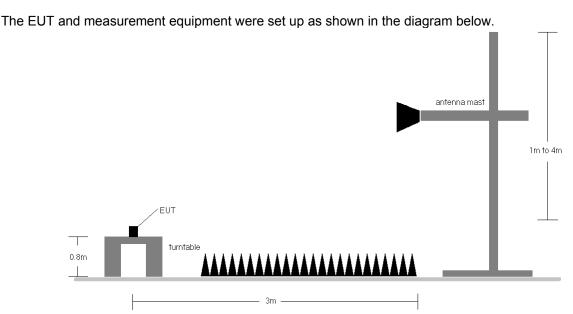


Figure 7-7. Test Instrument & Measurement Setup

### Test Notes

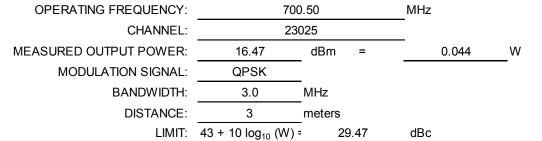
- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1401.00	Н	100	270	-63.96	5.91	-58.05	74.5
2101.50	Н	120	189	-68.75	6.79	-61.96	78.4
2802.00	Н	-	-	-72.37	8.12	-64.25	80.7

Table 7-9. Radiated Spurious Data (Band 12 – Low Channel)

OPERATING FREQUENCY:	707	MHz	
CHANNEL:	230	-	
MEASURED OUTPUT POWER:	17.20	dBm =	0.052 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	3.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	30.20	dBc

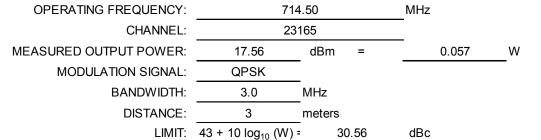
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1415.00	Н	120	200	-64.16	5.96	-58.19	75.4
2122.50	Н	180	150	-70.12	6.84	-63.27	80.5
2830.00	Н	-	-	-72.19	8.13	-64.06	81.3

Table 7-10. Radiated Spurious Data (Band 12 – Mid Channel)

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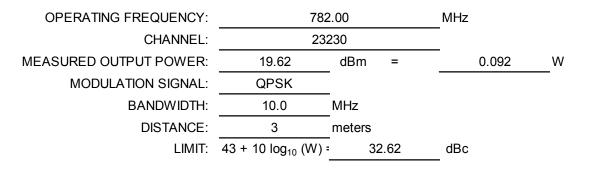
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1429.00	Н	112	110	-64.92	6.02	-58.90	76.5
2143.50	Н	200	150	-71.21	6.90	-64.32	81.9
2858.00	Н	-	-	-72.10	8.15	-63.95	81.5

Table 7-11. Radiated Spurious Data (Band 12 – High Channel)



Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2346.00	101	37	-61.16	7.00	-54.16	73.8

Table 7-12. Radiated Spurious Data (Band 13 – Mid Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
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MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	116	62	-73.19	6.41	-66.78	-26.8

Table 7-13. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

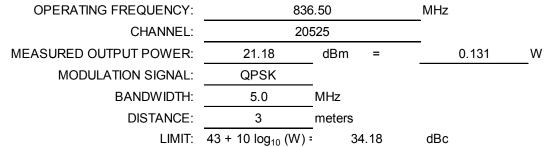
OPERATING FREQUENCY:	826	6.50	MHz
CHANNEL:	204	425	
MEASURED OUTPUT POWER:	20.94	dBm =	0.124 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	5.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	33.94	dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1653.00	Н	122	230	-74.47	6.28	-68.19	89.1
2479.50	Н	100	221	-68.38	6.84	-61.53	82.5
3306.00	Н	-	-	-68.74	7.14	-61.59	82.5

Table 7-14. Radiated Spurious Data (Band 5 – Low Channel)

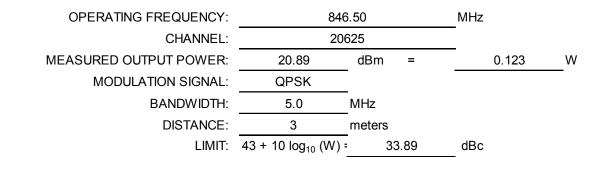
FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1673.00	Н	134	69	-73.00	6.21	-66.79	88.0
2509.50	Н	100	124	-50.18	6.86	-43.32	64.5
3346.00	Н	-	-	-68.80	7.26	-61.53	82.7

Table 7-15. Radiated Spurious Data (Band 5 – Mid Channel)



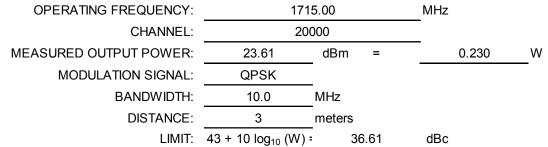
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1693.00	Н	112	150	-73.61	6.14	-67.47	88.4
2539.50	Н	200	100	-46.82	6.95	-39.87	60.8
3386.00	Н	-	-	-68.96	7.38	-61.58	82.5

Table 7-16. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3430.00	Н	101	171	-67.17	9.67	-57.50	81.1
5145.00	Н	108	167	-64.03	10.90	-53.13	76.7

Table 7-17. Radiated Spurious Data (Band 4 – Low Channel)

OPERATING FREQUENCY:	173	2.50	MHz
CHANNEL:	20	175	
MEASURED OUTPUT POWER:	24.17	dBm =	0.261 W
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	37.17	dBc

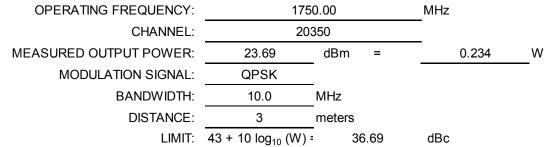
Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3465.00	Н	101	340	-66.98	9.77	-57.20	81.4
5197.50	Н	-	-	-66.99	10.81	-56.18	80.3

Table 7-18. Radiated Spurious Data (Band 4 – Mid Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	equency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3	3500.00	Н	-	-	-69.04	9.88	-59.16	82.8

Table 7-19. Radiated Spurious Data (Band 4 – High Channel)

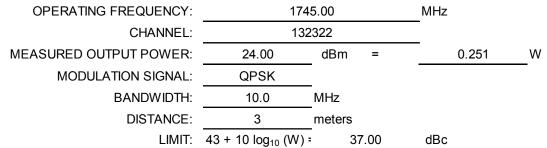
OPERATING FREQUENCY:	171	5.00	MHz
CHANNEL:	132	022	_
MEASURED OUTPUT POWER:	24.55	dBm =	0.285 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	37.55	dBc

Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3430.00	Н	-	-	-68.92	9.67	-59.25	83.8

Table 7-20. Radiated Spurious Data (Band 66 – Low Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3490.00	Н	100	158	-68.49	9.85	-58.64	82.6
5235.00	Н	-	-	-66.72	10.88	-55.84	79.8

Table 7-21. Radiated Spurious Data (Band 66 – Mid Channel)

OPERATING FREQUENCY:	177	5.00	MHz
CHANNEL:	132	622	
MEASURED OUTPUT POWER:	23.30	dBm =	0.214 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	36.30	dBc

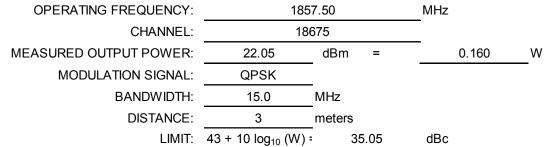
Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3550.00	Н	-	-	-68.85	9.96	-58.89	82.2

Table 7-22. Radiated Spurious Data (Band 66 – High Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3715.00	Н	112	270	-69.56	9.97	-59.59	81.6
5572.50	Н	-	-	-67.43	11.23	-56.20	78.2

Table 7-23. Radiated Spurious Data (Band 2 – Low Channel)

OPERATING FREQUENCY:	188	0.00	MHz
CHANNEL:	189	900	
MEASURED OUTPUT POWER:	22.46	dBm =	0.176 W
MODULATION SIGNAL:	QPSK	-	
BANDWIDTH:	15.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	35.46	dBc

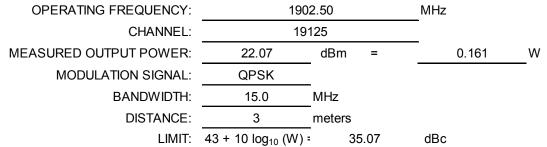
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3760.00	Н	110	215	-68.67	9.79	-58.88	81.3
5640.00	Н	-	-	-67.56	11.35	-56.21	78.7

Table 7-24. Radiated Spurious Data (Band 2 – Mid Channel)

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Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3805.00	Н	114	210	-67.42	9.61	-57.82	79.9
5707.50	Н	-	-	-67.61	11.43	-56.18	78.2

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

OPERATING FREQUENCY:	250	5.00	MHz
CHANNEL:	208	300	
MEASURED OUTPUT POWER:	21.47	dBm =	0.140 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	55 + 10 log10 (W)	46.47	dBc

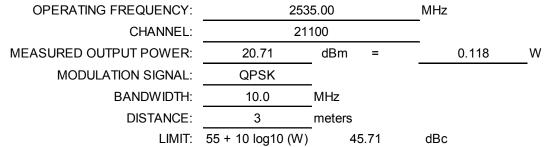
Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5010.00	Н	-	-	-69.27	11.17	-58.10	79.6

Table 7-26. Radiated Spurious Data (Band 7 – Low Channel)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5070.00	Н	100	127	-65.22	11.04	-54.18	74.9
7605.00	Н	-	-	-62.48	11.47	-51.01	71.7

Table 7-27. Radiated Spurious Data (Band 7 – Mid Channel)

OPERATING FREQUENCY:	256	5.00	MHz
CHANNEL:	214	400	_
MEASURED OUTPUT POWER:	20.75	dBm =	0.119 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	55 + 10 log10 (W)	45.75	dBc

Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5130.00	Н	115	200	-65.72	10.92	-54.79	75.5
7695.00	Н	-	-	-61.63	11.55	-50.08	70.8

Table 7-28. Radiated Spurious Data (Band 7 – High Channel)

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#### 7.8 Frequency Stability / Temperature Variation §2.1055 §22.355 §24.235 §27.54

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

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-D-2010. The frequency stability of the transmitter is measured by:

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

For Part 22, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Part 24 and Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### **Test Procedure Used**

ANSI/TIA-603-D-2010

#### Test Settings

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

#### Test Setup

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

#### Test Notes

None

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## Band 12 Frequency Stability Measurements §2.1055 §27.54

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	707,499,930	-70	-0.0000099
100 %		- 30	707,499,860	-140	-0.0000198
100 %		- 20	707,499,867	-133	-0.0000188
100 %		- 10	707,499,828	-172	-0.0000242
100 %		0	707,499,815	-185	-0.0000261
100 %		+ 10	707,499,999	-1	-0.0000001
100 %		+ 20	707,499,847	-153	-0.0000217
100 %		+ 30	707,499,901	-99	-0.0000140
100 %		+ 40	707,499,823	-177	-0.0000251
100 %		+ 50	707,499,920	-80	-0.0000113
BATT. ENDPOINT	3.45	+ 20	707,499,829	-171	-0.0000242

Table 7-29. Frequency Stability Data (Band 12)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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## Band 12 Frequency Stability Measurements §2.1055 §27.54

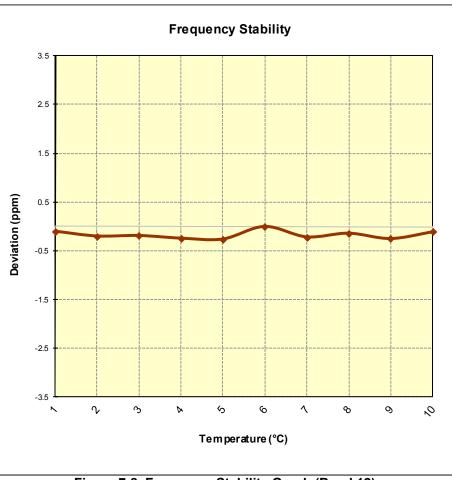


Figure 7-8. Frequency Stability Graph (Band 12)

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## Band 13 Frequency Stability Measurements §2.1055 §27.54

OPERATING FREQUENCY:	782,000,000	Hz
CHANNEL:	23230	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	781,999,919	-81	-0.0000104
100 %		- 30	781,999,977	-23	-0.0000029
100 %		- 20	781,999,862	-138	-0.0000176
100 %		- 10	781,999,842	-158	-0.0000202
100 %		0	781,999,820	-180	-0.0000230
100 %		+ 10	781,999,973	-27	-0.0000034
100 %		+ 20	781,999,929	-71	-0.0000090
100 %		+ 30	781,999,983	-17	-0.0000022
100 %		+ 40	781,999,846	-154	-0.0000196
100 %		+ 50	781,999,849	-151	-0.0000193
BATT. ENDPOINT	3.45	+ 20	781,999,911	-89	-0.0000114

 Table 7-30. Frequency Stability Data (Band 13)

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# Band 13 Frequency Stability Measurements §2.1055 §27.54

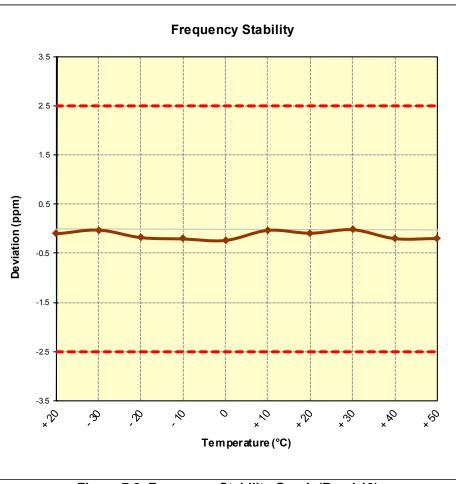


Figure 7-9. Frequency Stability Graph (Band 13)

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### Band 5 Frequency Stability Measurements §2.1055 §22.355

OPERATING FREQUENCY:	836,500,000	Hz
CHANNEL:	20525	_
REFERENCE VOLTAGE:	3.85	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	836,499,815	-185	-0.0000221
100 %		- 30	836,499,964	-36	-0.0000043
100 %		- 20	836,499,844	-156	-0.0000187
100 %		- 10	836,499,820	-180	-0.0000216
100 %		0	836,499,984	-16	-0.0000020
100 %		+ 10	836,499,971	-29	-0.0000035
100 %		+ 20	836,499,820	-180	-0.0000215
100 %		+ 30	836,499,827	-173	-0.0000207
100 %		+ 40	836,499,810	-190	-0.0000227
100 %		+ 50	836,499,972	-28	-0.0000034
BATT. ENDPOINT	3.45	+ 20	836,499,911	-89	-0.0000107

Table 7-31. Frequency Stability Data (Band 5)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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## Band 5 Frequency Stability Measurements §2.1055 §22.355

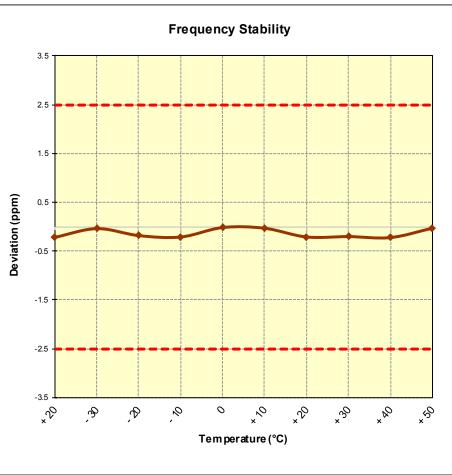


Figure 7-10. Frequency Stability Graph (Band 5)

FCC ID: ZNFM710H		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Band 4 Frequency Stability Measurements §2.1055 §§27.54

OPERATING FREQUENCY:	1,732,500,000	Hz
CHANNEL:	20175	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,732,499,807	-193	-0.0000111
100 %		- 30	1,732,499,939	-61	-0.0000035
100 %		- 20	1,732,499,962	-38	-0.0000022
100 %		- 10	1,732,499,812	-188	-0.0000108
100 %		0	1,732,499,858	-142	-0.0000082
100 %		+ 10	1,732,499,843	-157	-0.0000091
100 %		+ 20	1,732,499,944	-56	-0.0000032
100 %		+ 30	1,732,499,988	-12	-0.0000007
100 %		+ 40	1,732,499,809	-191	-0.0000110
100 %		+ 50	1,732,499,904	-96	-0.0000056
BATT. ENDPOINT	3.45	+ 20	1,732,499,977	-23	-0.0000013

 Table 7-32. Frequency Stability Data (Band 4)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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## Band 4 Frequency Stability Measurements §2.1055 §§27.54

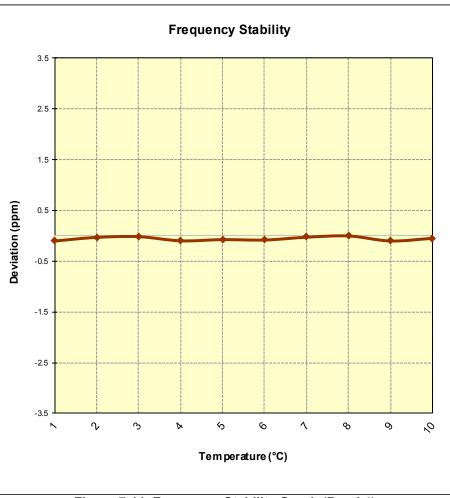


Figure 7-11. Frequency Stability Graph (Band 4)

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# Band 66 Frequency Stability Measurements §2.1055 §§27.54

OPERATING FREQUENCY:	1,745,000,000	Hz
CHANNEL:	132322	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,744,999,939	-61	-0.0000035
100 %		- 30	1,744,999,816	-184	-0.0000106
100 %		- 20	1,744,999,957	-43	-0.0000025
100 %		- 10	1,744,999,974	-26	-0.0000015
100 %		0	1,744,999,808	-192	-0.0000110
100 %		+ 10	1,744,999,980	-20	-0.0000011
100 %		+ 20	1,744,999,979	-21	-0.0000012
100 %		+ 30	1,744,999,836	-164	-0.0000094
100 %		+ 40	1,744,999,836	-164	-0.0000094
100 %		+ 50	1,744,999,954	-46	-0.0000027
BATT. ENDPOINT	3.45	+ 20	1,744,999,976	-24	-0.0000014

Table 7-33. Frequency Stability Data (Band 66)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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## Band 66 Frequency Stability Measurements §2.1055 §§27.54

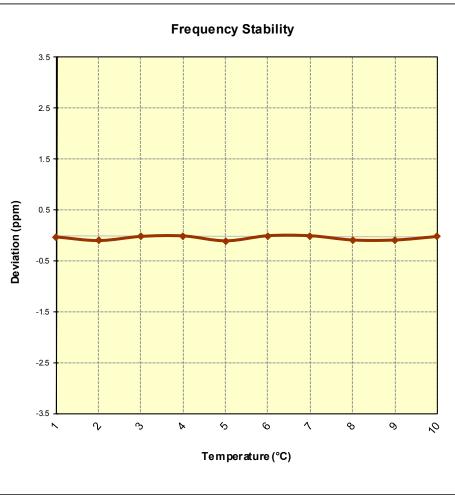


Figure 7-12. Frequency Stability Graph (Band 66)

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# Band 2 Frequency Stability Measurements §2.1055 §24.235

OPERATING FREQUENCY:	1,880,000,000	Hz
CHANNEL:	18900	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,879,999,890	-110	-0.0000059
100 %		- 30	1,879,999,898	-102	-0.0000054
100 %		- 20	1,879,999,907	-93	-0.0000049
100 %		- 10	1,879,999,970	-30	-0.0000016
100 %		0	1,879,999,871	-129	-0.0000069
100 %		+ 10	1,879,999,872	-128	-0.0000068
100 %		+ 20	1,879,999,810	-190	-0.0000101
100 %		+ 30	1,879,999,978	-22	-0.0000012
100 %		+ 40	1,879,999,830	-170	-0.0000090
100 %		+ 50	1,879,999,877	-123	-0.0000065
BATT. ENDPOINT	3.45	+ 20	1,879,999,879	-121	-0.0000064

Table 7-34. Frequency Stability Data (Band 2)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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### Band 2 Frequency Stability Measurements §2.1055 §24.235

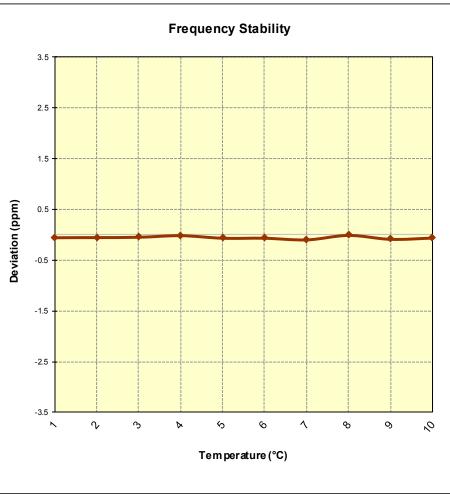


Figure 7-13. Frequency Stability Graph (Band 2)

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# Band 7 Frequency Stability Measurements §2.1055 §27.54

OPERATING FREQUENCY:	2,535,000,000	Hz
CHANNEL:	21100	_
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,534,999,883	-117	-0.0000046
100 %		- 30	2,534,999,991	-9	-0.0000004
100 %		- 20	2,534,999,853	-147	-0.0000058
100 %		- 10	2,534,999,932	-68	-0.0000027
100 %		0	2,534,999,839	-161	-0.0000064
100 %		+ 10	2,534,999,841	-159	-0.0000063
100 %		+ 20	2,534,999,988	-12	-0.0000005
100 %		+ 30	2,534,999,808	-192	-0.0000076
100 %		+ 40	2,534,999,914	-86	-0.0000034
100 %		+ 50	2,534,999,901	-99	-0.0000039
BATT. ENDPOINT	3.45	+ 20	2,534,999,803	-197	-0.0000078

 Table 7-35. Frequency Stability Data (Band 7)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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### Band 7 Frequency Stability Measurements §2.1055 §27.54

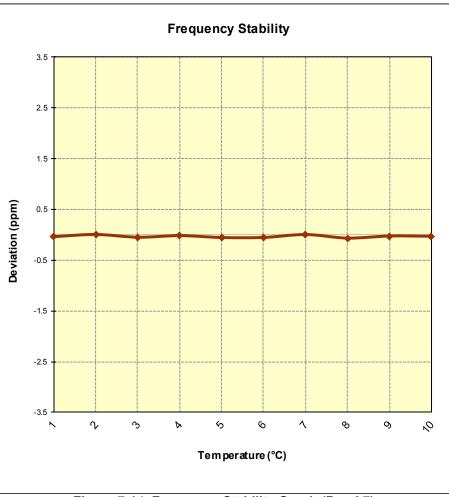


Figure 7-14. Frequency Stability Graph (Band 7)

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### 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the LGE Portable Handset FCC ID: ZNFM710H complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

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