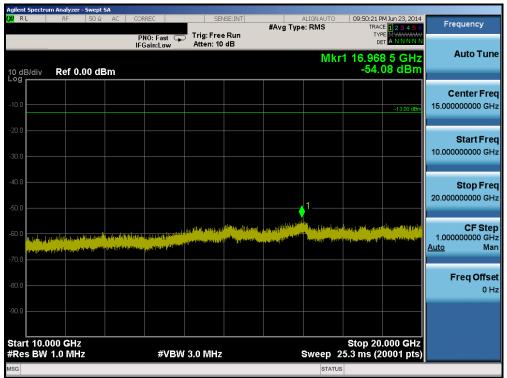


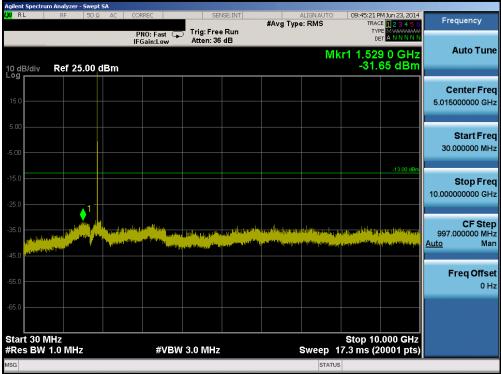
Plot 6-125. Conducted Spurious Plot (Band 25 – 1.4MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)



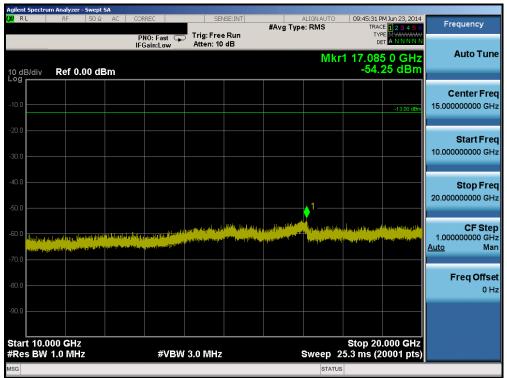
Plot 6-126. Conducted Spurious Plot (Band 25 – 1.4MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 76 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 76 of 173
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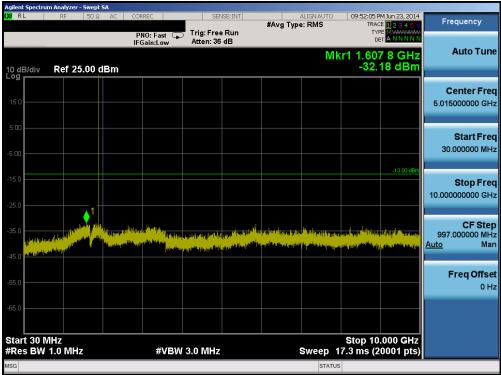
Plot 6-127. Conducted Spurious Plot (Band 25 – 1.4MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



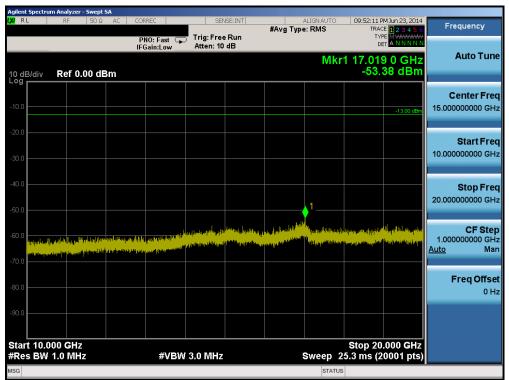
Plot 6-128. Conducted Spurious Plot (Band 25 – 1.4MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dege 77 of 172	
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 77 of 173	
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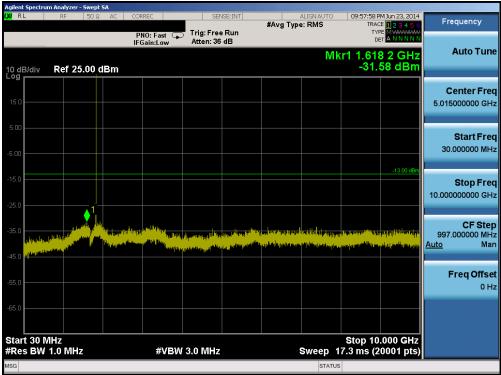
Plot 6-129. Conducted Spurious Plot (Band 25 – 1.4MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



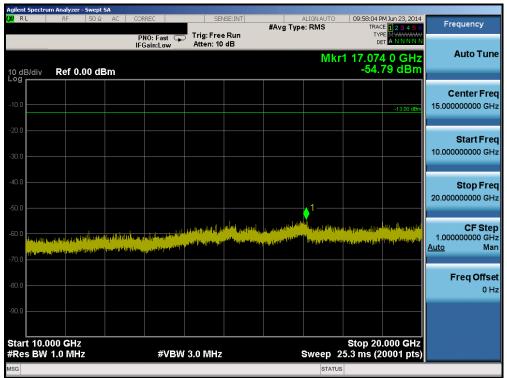
Plot 6-130. Conducted Spurious Plot (Band 25 – 1.4MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 70 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 78 of 173
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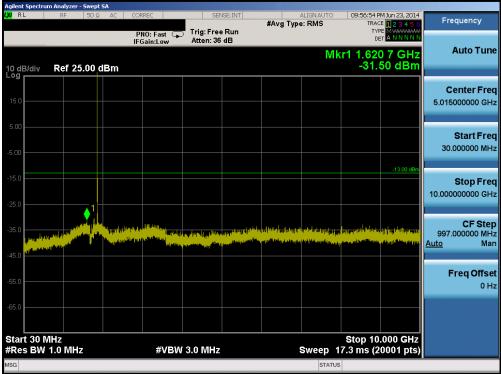
Plot 6-131. Conducted Spurious Plot (Band 25 – 3.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)



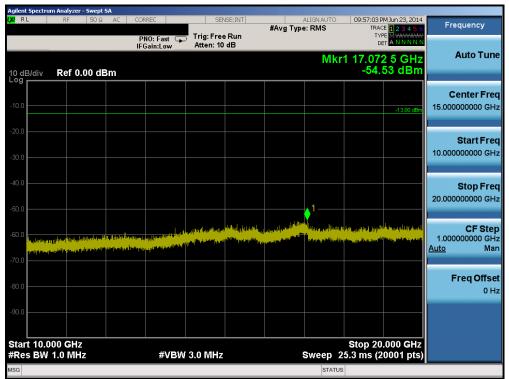
Plot 6-132. Conducted Spurious Plot (Band 25 – 3.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dega 70 of 172	
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 79 of 173	
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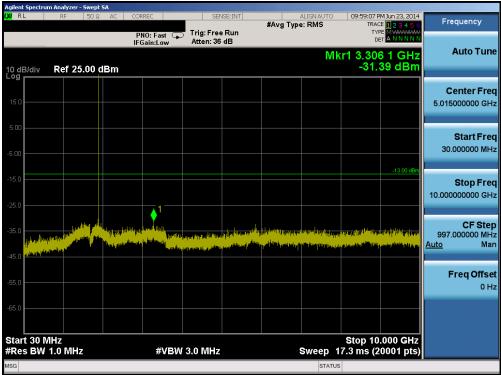
Plot 6-133. Conducted Spurious Plot (Band 25 – 3.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



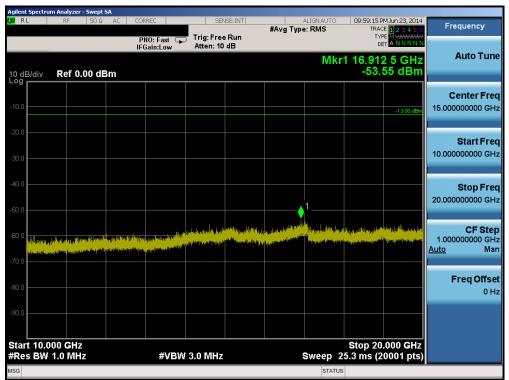
Plot 6-134. Conducted Spurious Plot (Band 25 – 3.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 90 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 80 of 173
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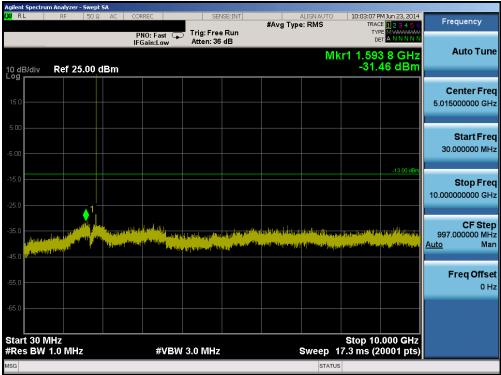
Plot 6-135. Conducted Spurious Plot (Band 25 – 3.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



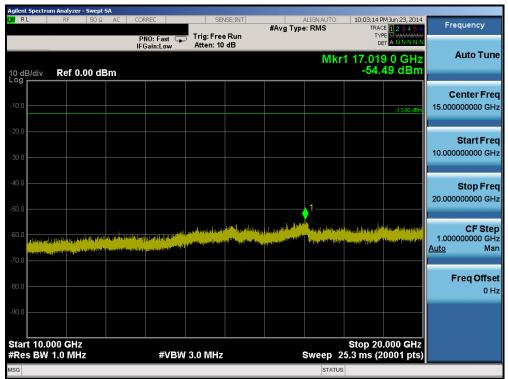
Plot 6-136. Conducted Spurious Plot (Band 25 – 3.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 91 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 81 of 173
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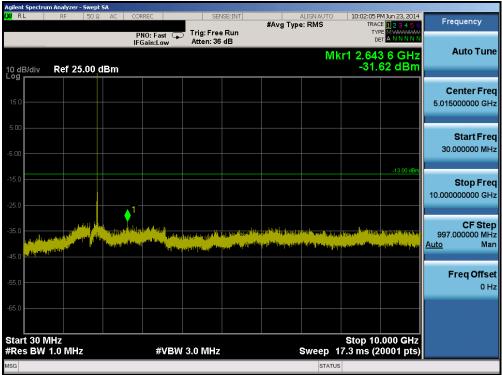
Plot 6-137. Conducted Spurious Plot (Band 25 – 5.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)



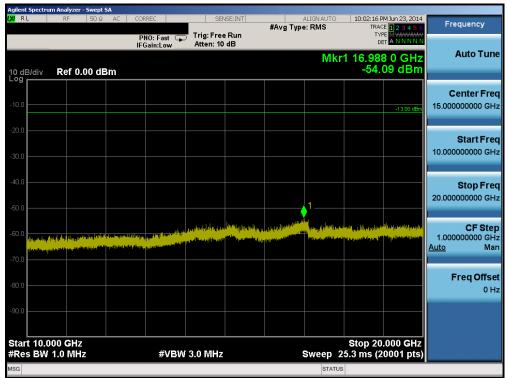
Plot 6-138. Conducted Spurious Plot (Band 25 – 5.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 92 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 82 of 173
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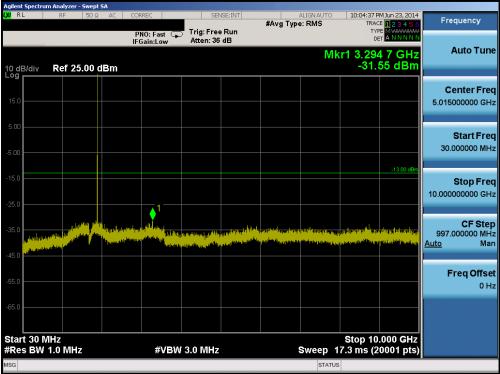
Plot 6-139. Conducted Spurious Plot (Band 25 – 5.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



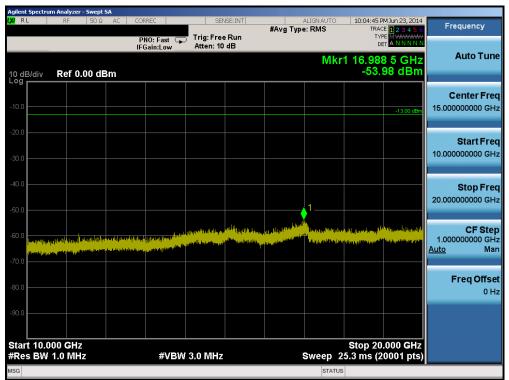
Plot 6-140. Conducted Spurious Plot (Band 25 – 5.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 92 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 83 of 173
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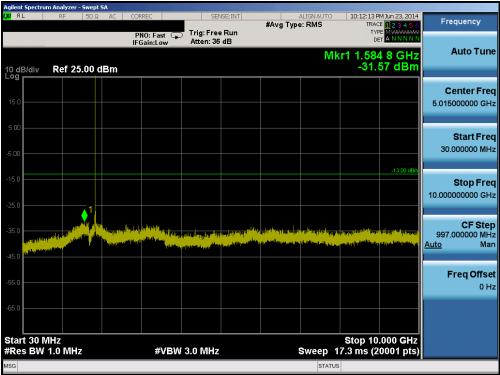
Plot 6-141. Conducted Spurious Plot (Band 25 – 5.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



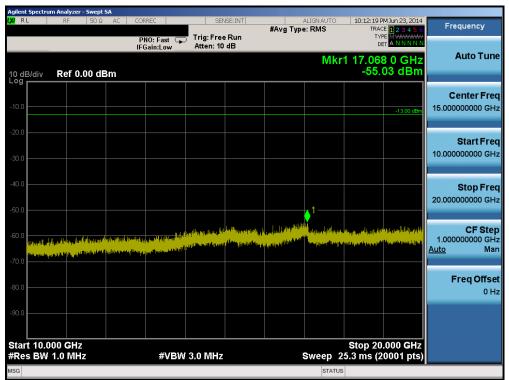
Plot 6-142. Conducted Spurious Plot (Band 25 – 5.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 94 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 84 of 173
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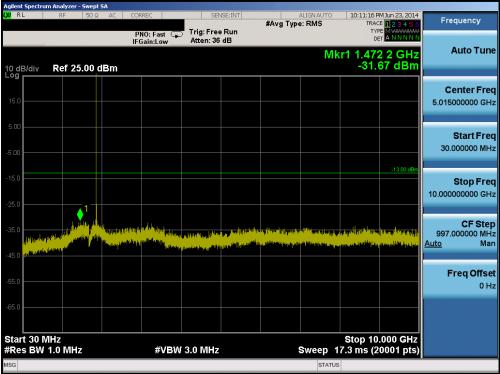
Plot 6-143. Conducted Spurious Plot (Band 25 – 10.0MHz QPSK – RB Size 1, RB Offset 0– Low Channel)



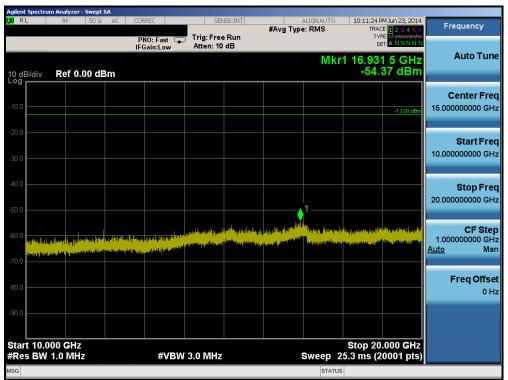
Plot 6-144. Conducted Spurious Plot (Band 25 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 95 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 85 of 173
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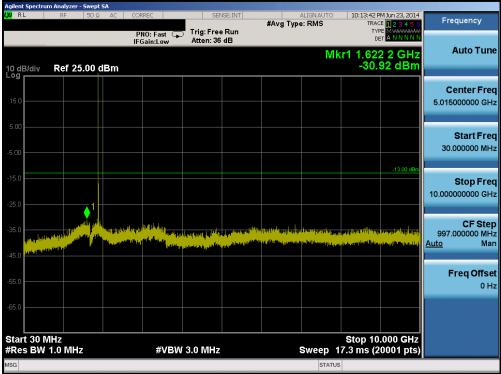
Plot 6-145. Conducted Spurious Plot (Band 25 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



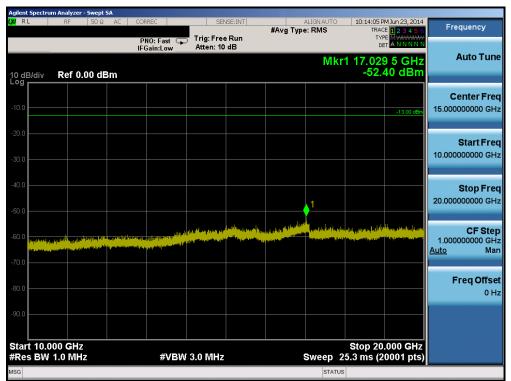
Plot 6-146. Conducted Spurious Plot (Band 25 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 96 of 172
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Plot 6-147. Conducted Spurious Plot (Band 25 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



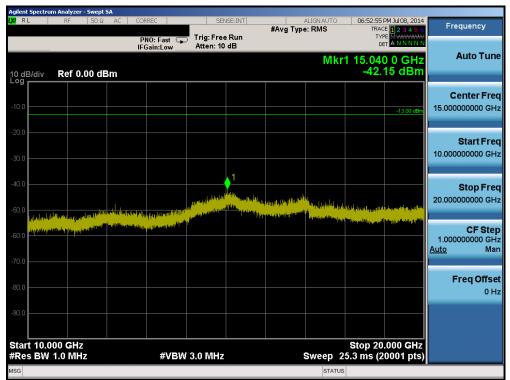
Plot 6-148. Conducted Spurious Plot (Band 25 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 97 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 87 of 173
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			zer - Swep		_								
LXI R	L	RF	50	ΩA	.C COR	REC	SEM	ISE:INT	#Avg Type	ALIGN AUTO e: RMS		PM Jul 08, 2014	Frequency
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					IFG	iain:Low	Atten: 36	ab					Auto Tune
		B . 6		-15						IVI	kr1 9.94	3 2 GHZ 81 dBm	
10 di Log	3/div	Ref	25.00	dBr	n						-24.		
													Center Freq
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													Start Freq
-5.00													30.000000 MHz
												-13.00 dBm	
-15.0													Stop Freq
												1	10.00000000 GHz
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	della station		ne wele tre				I T T SITE						<u>Auto</u> Man
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													Freq Offset
-55.0													0 Hz
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	t 30 N										Stop 10	.000 GHz	
#Re	sBW	1.0 N	lHz			#VBW	3.0 MHz			Sweep	17.3 ms (2	0001 pts)	
MSG										STAT	JS		

Plot 6-149. Conducted Spurious Plot (Band 25 – 15.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)



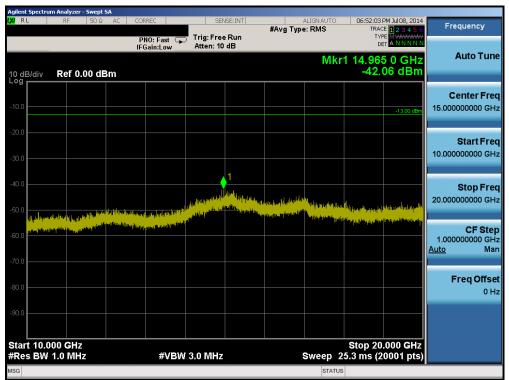
Plot 6-150. Conducted Spurious Plot (Band 25 – 15.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 99 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 88 of 173
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		n Analyzer - Sv								1		
l <b>XI</b> RI	L	RF	50Ω AC	C COR	REC	SEN	ISE:INT	#Avg Type	ALIGNAUTO		PM Jul 08, 2014 E 1 2 3 4 5 6	Frequency
				PN	IO: Fast 🔾	Trig: Free Atten: 36		•		TYP		
	_			IFG	iain:Low	Atten: 30	aD		84			Auto Tune
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10 dE Log I	siaiv r	Ref 25.0	и авп	n 								
												Center Freq
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	softwork)	AND NO TO AND A DECK			1.							<u>Auto</u> Man
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												Freq Offset
-55.0												0 Hz
07.0												
-65.0												
	t 30 N									Stop 10	.000 GHz	
#Res	s BW	1.0 MHz			#VBW	3.0 MHz			Sweep	17.3 ms (2	0001 pts)	
MSG									STATU	JS		

Plot 6-151. Conducted Spurious Plot (Band 25 – 15.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



Plot 6-152. Conducted Spurious Plot (Band 25 – 15.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 90 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 89 of 173
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			er - Swepl					1					
l <mark>XI</mark> RI	-	RF	50 Ω	AC	CORRI	EC	SEI	ISE:INT	#Avg Type	ALIGNAUTO e: RMS		PM Jul 08, 2014 E 123456	Frequency
						D: Fast 🖵	Trig: Free Atten: 36				TY	PE MWAAAAAAA ET A N N N N N	
					IFGa	in:Low	Atten: 36	dB					Auto Tune
										IVI	kr1 9.59	87 GHZ	Auto Tune
10 dE Log	3/div	Ref	25.00	dBm							-20.	50 dBm	
													Center Freq
15.0													5.015000000 GHz
													0.01000000000112
5.00													
													Start Freq
-5.00													30.000000 MHz
-15.0												-13.00 dBm	Oton From
												. 1	Stop Freq
-25.0												♦'	10.00000000 GHz
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-45.0													Auto Mari
40.0													
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00.0													0 Hz
-65.0													
-00.0													
	t 30 N										Stop 10	.000 GHz	
#Res	s BW	1.0 M	Hz			#VBW	3.0 MHz			Sweep	17.3 ms (2	0001 pts)	
MSG										STATU	s		

Plot 6-153. Conducted Spurious Plot (Band 25 – 15.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 6-154. Conducted Spurious Plot (Band 25 – 15.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 00 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 90 of 173
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	trum Analyzer - Sw					-				
L <mark>XI</mark> RL	RF 5	ΟΩ AC CC	RREC	SEM	ISE:INT	#Avg Type	ALIGNAUTO		PM Jul 08, 2014 E <mark>1 2 3 4 5 6</mark>	Frequency
			'NO: Fast 🖵	Trig: Free				TYP		
		IF	Gain:Low	Atten: 36	dB					Auto Tune
							M	kr1 8.88 -25.3	9 GHz	Autorune
10 dB/div	Ref 25.0	0 dBm						-25.	52 aBm	
										Center Freq
15.0										5.015000000 GHz
										5.01500000 GHZ
5.00										
5.00										Start Freq
-5.00										30.000000 MHz
-3.00										
45.0									-13.00 dBm	
-15.0										Stop Freq
								↓ <b>♦</b>	1	10.00000000 GHz
-25.0								بالدغامياتين	والمتعاورة الأرجاد	
		بالقرامي والقرار أو	A BARRA ALL	Lahr	and a first of the state of the	a la segura producer segurar e	na haran ana ana ana ana ana ana ana ana ana	til følgerører i som a blivatelse	ALL PARTICULAR AND A	CF Step
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	and the fight of the state of the second			1 18 <b>.1</b> a						<u>Auto</u> Man
-45.0										
										Freq Offset
-55.0										0 Hz
-65.0										
Start 30	MHZ AV 1.0 MHZ		#\/D\\	3.0 MHz			Swoon	Stop 10 17.3 ms (2	.000 GHz	
			#VDW	5.0 WHZ			-		oou r pis)	
MSG							STATU	s		

Plot 6-155. Conducted Spurious Plot (Band 25 – 20.0MHz QPSK – RB Size 1, RB Offset 0– Low Channel)



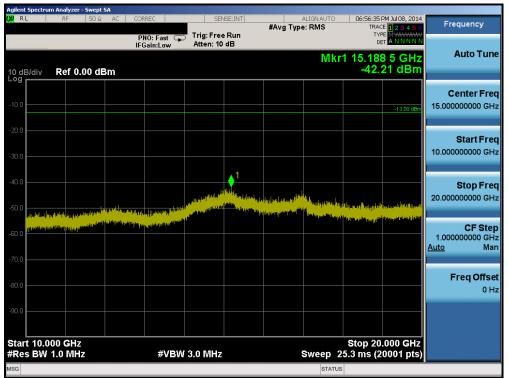
Plot 6-156. Conducted Spurious Plot (Band 25 – 20.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 01 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 91 of 173
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	m Analyzer - Swept									
(XI RL	RF 50 Ω	AC COF	REC	SEN	ISE:INT	#Avg Typ	ALIGNAUTO		M Jul 08, 2014	Frequency
			NO: Fast 🖵 Gain:Low	Trig: Free Atten: 36		#Avg typ	e. RMS	TYP		
10 dB/div Log	Ref 25.00 (	dBm					Mk	r1 8.808 -25.0	8 6 GHz 69 dBm	Auto Tune
15.0										Center Freq 5.015000000 GHz
-5.00										Start Freq 30.000000 MHz
-15.0								<b>↓</b> 1	-13.00 dBm	<b>Stop Freq</b> 10.000000000 GHz
-35.0	and a second	n de fran de l'Alexan Anne de completenting d	i ye Marik (ne Marik (ne fer Marik (ne fer)	(Mandride <sub>na</sub> dor <sup>id</sup> er Nachtele <sub>len</sub> ns <sup>dar</sup> t	an dar fan de Lagrandiska An Den feinste an de <sup>de se</sup>	na ang sasi katala pang pang pangan na pang sasi katalan ng pang pangan	n Chipang Calenga ng Chipang Calenga ng Chipang Calenga Calenga ng Chipang Calenga Calenga Calenga ng Chipang Calenga Calenga Calenga Calenga Calenga ng Chipang Calenga Calenga Ng Chipang Calenga Calenga Ng Calenga Ca	, gaar por Anta Anga waxaa waxaa waan a	nelistaggyan anna	CF Step 997.000000 MHz <u>Auto</u> Man
-55.0										<b>Freq Offset</b> 0 Hz
-65.0 Start 30 M	ЛНz							Stop 10	000 GHz	
#Res BW			#VBW	3.0 MHz			Sweep 1	7.3 ms (2	0001 pts)	
MSG							STATUS			

Plot 6-157. Conducted Spurious Plot (Band 25 – 20.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



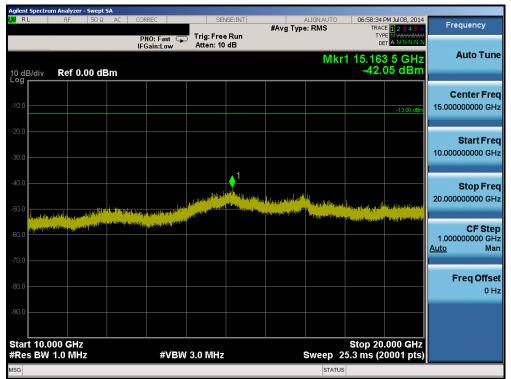
Plot 6-158. Conducted Spurious Plot (Band 25 – 20.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

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			zer - Swep								-		
L <mark>XI</mark> RL		RF	50	Ωι	AC COR	REC	SE	VSE:INT	#Avg Typ	ALIGNAUTO e: RMS		PM Jul 08, 2014 E <b>1 2 3 4 5 6</b>	Frequency
						IO: Fast 🕞	Trig: Free Atten: 36				TY		
	_				IFG	ain:Low	Atten: 36	dB					Auto Tune
										IVI	kr1 9.46	5 6 GHZ 12 dBm	Auto Fullo
10 dB Log r	3/div	Ref	25.00	dB	m						-24.		
Ŭ													Center Freq
15.0													5.015000000 GHz
5.00													
													Start Freq
-5.00													30.000000 MHz
												-13.00 dBm	
-15.0												-13.00 dBm	Stop Freq
												1	10.000000000 GHz
-25.0													10.00000000 GH2
					and a	satas s l.t.		الأسياب و	tel verses en politikan das p	a filma adulta a	a wheeled the state of the stat		
-35.0		يت أيان ا	PUDAL PUDA	<b>B</b> ala	La Maria (1100)	and the second second second	<sup>1</sup> 1 x 1 y with the left		er for e <u>n ser ser s</u> e for for en se	والمطمئلين والتماديط	وليعقاط والمعدي	and the state of the second	CF Step 997.000000 MHz
	an a	ومرادلته		با سیل	and the second second	habilta							Auto Man
-45.0	alle e la la												
													Energy Office at
-55.0													Freq Offset
													0 Hz
-65.0													
	1 30 M		411-			43 / 153 44	2.0 MU-			0	Stop 10	.000 GHz	
	s BW	T.U I	n HZ			#VBW	3.0 MHz			-	17.3 ms (2	0001 pts)	
MSG										STATU	S		

Plot 6-159. Conducted Spurious Plot (Band 25 – 20.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 6-160. Conducted Spurious Plot (Band 25 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

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# 6.4 Band Edge Emissions at Antenna Terminal §2.1051 §22.917(a) §24.238(a) §27.53(e) §27.53(f) §27.53(g)

## **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 of any spurious emission is $43 + \log_{10}(P_{[Watts]})$ , where P is the transmitter power in Watts.

## Test Procedure Used

KDB 971168 v02r01 - 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 > 1% of the emission bandwidth
- 4. VBW <u>></u> 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points  $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = max hold
- 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.

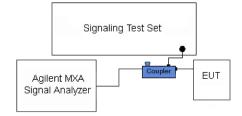


Figure 6-3. Test Instrument & Measurement Setup

#### Test Notes

Per 22.917(b) 24.238(a) 27.53(g) 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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Agilent Spectru	m Analyzer - Swept SA	6 CODD56	SENSE:INT					
L <mark>AU</mark> RL	RF 50Ω A	C CORREC		#Avg Type	ALIGN AUTO E: RMS		M Jun 23, 2014 E 1 2 3 4 5 6 E M WAAAAAAA	Frequency
		PNO: Wide 🧊 IFGain:Low	Trig: Free Run Atten: 36 dB			DE		
					Mki	1 698.0	00 MHz	Auto Tune
10 dB/div	Ref 25.00 dBr	n				-48.3	00 MHz 07 dBm	
								O a mé a a E ma
15.0								Center Fred 698.000000 MHz
								098.000000 WH2
5.00								
					N	MAGANA	an the strategies	Start Fred
-5.00					ļ ļ			696.000000 MHz
							-13.00 dBm	
-15.0								Stop Fred
					/			700.000000 MHz
-25.0					1			
-35.0								CF Step
					1			400.000 kHz Auto Mar
-45.0				water the set of the s	N <sup>utar</sup>			
		- And Mary	how when when the southers	Malin lear				Freq Offset
-55.0	, of the last and the state of	مربع المربعي ال						0 Hz
binde a	Adding and a second second							
-65.0								
	8.000 MHz					Span 4	.000 MHz	
#Res BW	15 kHz	#VBW	43 kHz		#Sweep	1.00 s (	1001 pts)	
MSG					STATUS			

Plot 6-161. Lower Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)



Plot 6-162. Lower Extended Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

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Plot 6-163. Upper Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)



Plot 6-164. Upper Extended Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Agilent Spectru	m Analyzer - Swept Si									
L <mark>AU</mark> RL	RF 50 Ω	AC CORREC		NSE:INT	#Avg Type	ALIGN AUTO e: RMS		M Jun 23, 2014 E 1 2 3 4 5 6 PE M WWWWWW	Fred	uency
		PNO: Wid IFGain:Lo					TYI Di	ET A N N N N N		
		II Gain.20	*			Mkr	1 697 9	76 MHz	A	uto Tune
10 dB/div	Ref 25.00 dl	Зm					-46.	01 dBm		
15.0										nter Freq
15.0									698.0	00000 MHz
5.00										
0.00									5	Start Freq
-5.00						ہے	and the second	ward ward ward	696.0	00000 MHz
								-13.00 dBm		
-15.0								-13.00 (10)	9	Stop Freq
										00000 MHz
-25.0										
										CF Step
-35.0						1			4	00.000 kHz
				1		MARINE			Auto	Man
-45.0	ang and an ang have and a second		Lune Al art Murth and	ange and work	Property of the owner of the other					
-55.0	work where we have a start and	of the start of the first	1000 I V						Fr	eq Offset
-55.0										0 Hz
-65.0										
Center 69 #Res BW	8.000 MHz	#	VBW 91 kHz			#Sweer	Span 4	.000 MHz 1001 pts)		
MSG	50 MHZ	#	NEW STRIIZ			STATUS		roor prs)		
Mag						STATUS				

Plot 6-165. Lower Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)



Plot 6-166. Lower Extended Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

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Agilent Spect	rum Analyzer - Swept 9 RF 50 Ω	AC COR	050	CEN	ISE:INT		ALIGNAUTO	00,00,40,5	M Jun 23, 2014		
L <mark>AN</mark> KL	KF 50 Ω					#Avg Type			CE 1 2 3 4 5 6 PE MWWWW	Frequenc	У
		PN IFC	IO: Wide 🖵 Gain:Low	Trig: Free Atten: 36				DI			
							Mkr	1 716.0	04 MHz 20 dBm	Auto <sup>-</sup>	Tune
10 dB/div Log	Ref 25.00 d	Bm						-37.	20 dBm		
										Center	Freq
15.0										716.000000	
5.00										Start	From
North Inc.	with a splan in the new fragment	hord and the game	Manhan	with states						714.000000	
-5.00											
-15.0									-13.00 dBm	Stop	Eron
										Stop 718.00000	
-25.0											
					1					CF	Step
-35.0										400.00	0 kHz
-45.0										Auto	Man
-40.0					ንምሳምዓነው	halph marker by	states and a gard	Hen is an Alter a			
-55.0								and a short	unanything of	Freq O	0ffset 0 Hz
											UHZ
-65.0											
	716.000 MHz							Span 4	.000 MHz		
	V 30 kHz		#VBW	91 kHz				1.00 s (	1001 pts)		
MSG							STATUS				

Plot 6-167. Upper Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

	ım Analyzer - Swept Si	A										
XU RL	RF 50 Ω	AC	CORREC		rig: Free		#Avg Typ	ALIGN AUTO De: RMS	TRAC	M Jun 23, 2014 E 1 2 3 4 5 6 E M WATANA T A N N N N N	F	requency
10 dB/div	Ref 25.00 dl	Зm	IFGain:Lov	N I	Atten: 36	dB		Mkr	1 716.1	00 MHz 93 dBm		Auto Tune
15.0												<b>Center Freq</b> 8.100000 MHz
-5.00											71	Start Freq 6.100000 MHz
-15.0										-13.00 dBm	72	Stop Freq 0.100000 MHz
-35.0 1	ant-an-angle Manager (194) aff - for starting	Land Soundary and the									<u>Auto</u>	CF Step 400.000 kHz Man
-55.0					Mala Caller	are ware for	ntvariante to the starting to from	ne olekazikan dari dalar	an a	n gelagit (Trapica e a a a		Freq Offsel 0 Hz
	18.100 MHz								Span 4	.000 MHz		
#Res BW	100 kHz		#\	/BW 30	00 kHz			#Sweep	3.00 s (	1001 pts)		

Plot 6-168. Upper Extended Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

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	um Analyzer - Swept S/					
LXU RL	RF 50 Ω	AC CORREC	SENSE:INT	#Avg Type: RMS		Frequency
		PNO: Wide IFGain:Low	Trig: Free Run Atten: 36 dB		DET A N N N N	
10 dB/div Log	Ref 25.00 dE	3m			Mkr1 698.000 MHz -46.380 dBm	AutoTune
15.0						Center Freq 698.000000 MHz
-5.00						Start Freq 696.000000 MHz
-15.0					-13.00 dBm	Stop Freq 700.000000 MHz
-35.0			1		and the second sec	CF Step 400.000 kHz <u>Auto</u> Man
-45.0 -55.0	ng ga ann ang an ga ang ang ang ang ang	harden over all and a set of the	engle]kikingenn och Wilson anternanskophikji	Un fandrikeling - en Conder		Freq Offset 0 Hz
-65.0						
Center 69 #Res BW	98.000 MHz 51 kHz	#VE	SW 150 kHz	#S\	Span 4.000 MHz veep 1.00 s (1001 pts)	
MSG				s	TATUS	

Plot 6-169. Lower Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)

	ım Analyzer - Sv						
L <mark>XI</mark> RL	RF 5	50Ω AC	CORREC	SENSE:INT	ALIGNAUT #Avg Type: RMS		Frequency
			PNO: Wide 🔸	Trig: Free Run	#Avg Type: RMS	TRACE <b>1 2 3 4 5 6</b> TYPE MW <del>WATAWA</del> DET <b>A</b> N N N N N	
			IFGain:Low	Atten: 36 dB		DET A N N N N	
					M	lkr1 697.896 MHz	Auto Tune
10 dB/div Log	Ref 25.0	0 dBm				-44.41 dBm	
							Center Freq
15.0							695.900000 MHz
5.00							
							Start Freq
-5.00							693.900000 MHz
						-13.00 dBm	
-15.0							Stop Freq
							697.900000 MHz
-25.0							
							CF Step
-35.0							400.000 kHz
						1	<u>Auto</u> Man
-45.0							
moverland			and a second and a second s	algeoneractive data convertiged or a second for the Bart Augurantice			Freq Offset
-55.0							0 Hz
-65.0							
Center 69	95.900 MH	z			,	Span 4.000 MHz eep 3.00 s (1001 pts)	
#Res BW	100 kHz		#VBW	300 kHz	#Swe	eep 3.00 s (1001 pts)	
MSG					STA	TUS	

Plot 6-170. Lower Extended Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Reviewed by: Quality Manager
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Agilent Spectrum Analyzer - Swept SA	CORREC SE	NSE:INT	ALIGNAUTO	09:28:49 PM Jun 23, 2014	
KL RF JUY AU		#Avg Typ		TRACE 1 2 3 4 5 6 TYPE MW////////////////////////////////////	Frequency
	PNO: Wide Trig: Fre IFGain:Low Atten: 36			DETANNNN	
10 dB/div Ref 25.00 dBm			Mkr1	716.004 MHz -37.58 dBm	Auto Tune
15.0					Center Freq 716.000000 MHz
5.00	Malmen and marked and the				Start Freq 714.000000 MHz
-15.0				-13.00 dBm	<b>Stop Freq</b> 718.000000 MHz
-35.0		1			<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-45.0		Construction of the second sec	angar waran ngalan	man VII and you and a walked	<b>Freq Offset</b> 0 Hz
-65.0					
Center 716.000 MHz #Res BW 51 kHz	#VBW 150 kHz	2	#Sweep 1	Span 4.000 MHz I.00 s (1001 pts)	
MSG			STATUS		

Plot 6-171. Upper Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)

	um Analyzer - :						
L <mark>XI</mark> RL	RF	50 Ω AC	CORREC	SENSE:INT	ALIGNAUTO	09:29:00 PM Jun 23, 2014	Frequency
			PNO: Wide ↔	, Trig: Free Run	#Avg Type: RMS	TRACE 123456 TYPE MWWWWW DET A N N N N N	rioquonoy
			IFGain:Low	Atten: 36 dB		DET A N N N N N	
					Mk	r1 716.100 MHz	Auto Tune
10 dB/div	Dof 25	.00 dBm				-39.80 dBm	
	Kel ZJ						
							Center Freq
15.0							718.100000 MHz
.0.0							7 18.100000 WHZ
5.00							
5.00							Start Freq
							716.100000 MHz
-5.00							7 10.100000 WH2
						-13.00 dBm	
-15.0							Stop Freq
							720.100000 MHz
-25.0							720.100000 WH2
20.0							
ar a 🖌							CF Step
-35.0							400.000 kHz
							<u>Auto</u> Man
-45.0	and the state of t	and the second diversion of the	and the second s				
				and the property of the second s			Freq Offset
-55.0							0 Hz
							0112
-65.0							
	18.100 M					Span 4.000 MHz	
#Res BW	/ 100 kHz		#VBW	300 kHz	#Swee	p 3.00 s (1001 pts)	
MSG					STATU	IS	

Plot 6-172. Upper Extended Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)

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Agilent Spectru	m Analyzer - Swept SA	CORDEC	SENSE:INT		ALIGN AUTO	00.00.00.0113	
KL	RF 50 Ω AC	CORREC		#Avg Type		09:32:26 PM Jun 23, 2014 TRACE 1 2 3 4 5 6 TYPE MWWWW	Frequency
		PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB			DET A N N N N N	
					Mkr	697.800 MHz	Auto Tune
10 dB/div Log	Ref 25.00 dBm	1				-44.58 dBm	
							Center Freq
15.0							698.000000 MHz
5.00							Start Freq
-5.00					Junear - Martinger gerande	minan and a second that	694.000000 MHz
0.00						-13.00 dBm	
-15.0						-13.00 0011	Stop Freq
							702.000000 MHz
-25.0							
-35.0				/			CF Step
			<b>∮</b> <sup>1</sup>				800.000 kHz <u>Auto</u> Man
-45.0	- British British - Palan	man all marting and a start	- and a start of the start of t				
سىپىرىسى -55.0							Freq Offset
							0 Hz
-65.0							
	8.000 MHz					Span 8.000 MHz	
#Res BW	100 kHz	#VBW	300 kHz			1.00 s (1001 pts)	
MSG					STATUS		

Plot 6-173. Lower Band Edge Plot (Band 12 – 10.0MHz QPSK – RB Size 50)



Plot 6-174. Lower Extended Band Edge Plot (Band 12 – 10.0MHz QPSK – RB Size 50)

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Agilent Spectru	m Analyzer - Swept SA						
L <mark>M</mark> RL	RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: R		09:35:13 PM Jun 23, 2014 TRACE 1 2 3 4 5 6	Frequency
		PNO: Wide 🧔 IFGain:Low	Trig: Free Run Atten: 36 dB			DET A N N N N	
					Mkr1	716.000 MHz -39.089 dBm	Auto Tune
10 dB/div Log	Ref 25.00 dBm					-39.089 dBm	
							Center Freq
15.0							716.000000 MHz
5.00							Oto at East
							Start Freq 712.000000 MHz
-5.00							712.000000 MIH2
45.0						-13.00 dBm	
-15.0							Stop Freq
-25.0							720.000000 MHz
			h,				
-35.0			<u> </u>				CF Step 800.000 kHz
			New Street				Auto Man
-45.0					and the state of the second		
						and the second sec	Freq Offset
-55.0							0 Hz
-65.0							
-00.0							
Center 71 #Res BW	100 KHz	#\/B\M	300 kHz		*Swoon	Span 8.000 MHz I.00 s (1001 pts)	
#Res DW	100 KH2	#VBW	500 KHZ	#	STATUS		
MSG					STATUS		

Plot 6-175. Upper Band Edge Plot (Band 12 – 10.0MHz QPSK – RB Size 50)

Agilent Spectru	ım Analyzer - Swept SA					
L <mark>XI</mark> RL	RF 50Ω AC	CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	09:35:29 PM Jun 23, 2014 TRACE 1 2 3 4 5 6	Frequency
		PNO: Wide ↔ IFGain:Low	Trig: Free Run Atten: 36 dB		TRACE 123456 TYPE MWWWWW DET A N N N N N	
10 dB/div	Ref 25.00 dBm			Mkr	1 716.100 MHz -41.92 dBm	Auto Tune
15.0						Center Freq 718.100000 MHz
-5.00						Start Freq 716.100000 MHz
-15.0					-13.00 dBm	<b>Stop Freq</b> 720.100000 MHz
-35.0						<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-45.0				v/R	-980 MM-100 Mar - 200	<b>Freq Offset</b> 0 Hz
-65.0						
Center 71 #Res BW	18.100 MHz 100 kHz	#VBW	300 kHz	#Sweep	Span 4.000 MHz 3.00 s (1001 pts)	
MSG				STATUS		

Plot 6-176. Upper Extended Band Edge Plot (Band 12 – 10.0MHz QPSK – RB Size 50)

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Plot 6-177. Lower Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)



Plot 6-178. Lower Extended Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

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Plot 6-179. Upper Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)



Plot 6-180. Upper Extended Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

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	m Analyzer - Swept SA									
L <mark>XI</mark> RL	RF 50Ω AC	CORREC	SENSE	:INT	#Avg Type	ALIGNAUTO	08:51:17 P	M Jun 23, 2014 E <mark>1 2 3 4 5 6</mark> E MWAAAAAA	Fr	equency
10 dB/div	Ref 25.00 dBm	PNO: Wide 🖵 IFGain:Low	Trig: Free R Atten: 36 dB			Mkr	DE	00 MHz 30 dBm		Auto Tune
15.0										<b>Center Freq</b> 1.000000 MHz
-5.00				for all	after and a start of the second	whennesson	ᢦᠰᡢᡗᠮᡵᢉᡅᢝᢦᡯ	-13.00 dBm	822	Start Freq 2.000000 MHz
-15.0			, / 1						826	Stop Freq 5.000000 MHz
-35.0	mar and a star and a star and a star and a star a	and the state of the							<u>Auto</u>	<b>CF Step</b> 400.000 kHz Man
-55.0									1	Freq Offset 0 Hz
-65.0	4.000 MHz						Span 4	.000 MHz		
#Res BW		#VBW	91 kHz			#Sweep	1.00 s (	1001 pts)		
MSG						STATUS				

Plot 6-181. Lower Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)



Plot 6-182. Lower Extended Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 105 of 172
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	ım Analyzer - Swept SA								
L <mark>XI</mark> RL	RF 50 Q AC	CORREC	SENS		#Avg Type	ALIGN AUTO		4 Jun 23, 2014 <b>1 2 3 4 5 6</b> E M	Frequency
		PNO: Wide 🖵 IFGain:Low	Trig: Free F Atten: 36 d				DE	TANNNN	Auto Turro
10 dB/div Log	Ref 25.00 dBm	1				Mkr	1 849.0 -31.19	00 MHz 95 dBm	Auto Tune
15.0									Center Freq 849.000000 MHz
5.00 -5.00	and an a free the second	and the and the second	NT COUNTRY						Start Freq 847.000000 MHz
-15.0								-13.00 dBm	Stop Freq 851.000000 MHz
-35.0				<sup>w</sup> urthouse	hestal (Marthanester	marthely philosophia	an a	ามละสุกษุรุญ	CF Step 400.000 kHz <u>Auto</u> Man
-45.0									Freq Offset 0 Hz
-65.0	19.000 MHz						Spop 4	000 MHz	
#Res BW		#VBW	91 kHz			#Sweep	1.00 s (	000 MH2 1001 pts)	
MSG						STATUS			

Plot 6-183. Upper Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)



Plot 6-184. Upper Extended Band Edge Plot (Band 5 – Band 5 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 106 of 172
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Plot 6-185. Lower Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

LXI RL	RF	50 Ω											
		00 3	AC	CORREC		SE	VSE:INT	#Avg Type	ALIGN AUTO	08:57:06 F	MJun 23, 2014	F	requency
				PNO: Wi		Trig: Fre	e Run	#Avg Type	E: RIVIS	TYP	E 1 2 3 4 5 6 E M <del>WMMMM</del> T A N N N N N		
				IFGain:L		Atten: 36				DE	ANNNN		
									Mkr	1 822 9	96 MHz		Auto Tune
10 dB/div	Ref 25	00 dE	2							-38	68 dBm		
	Rel 2J	.00 UE	5111										
													Center Freq
15.0													1.000000 MHz
13.0												82	1.000000 WHZ
5.00													Start Freq
-5.00												81	9.000000 MHz
											-13.00 dBm		
-15.0											-13.00 abm		
													Stop Freq
												82	3.000000 MHz
-25.0													
													CF Step
-35.0											<u> </u>		400.000 kHz
												Auto	Man
-45.0			· ·····			<u>h-18-4</u>	· · · · · · · · · · · · · · · · · · ·						
· ····································													
													Freq Offset
-55.0													0 Hz
												-	
-65.0													
										_			
Center 821										Span 4	.000 MHz		
#Res BW 1	TUO KHZ			#	VBW	300 kHz			#Sweep	3.00 s (	1001 pts)		
MSG									STATUS				

Plot 6-186. Lower Extended Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Agilent Spectru (X/ R L	m Analyzer - Swept SA RF 50 Ω AC	CORREC	CEN	ISE:INT		ALIGNAUTO	00,50,00,5	M Jun 23, 2014	
NL	KF JUW AU				#Avg Type			CE 1 2 3 4 5 6 PE MWWWWW	Frequency
		PNO: Wide 🖵 IFGain:Low	Trig: Free Atten: 36				DE	ANNNN	
						Mkr	1 849.0	00 MHz 44 dBm	Auto Tune
10 dB/div	Ref 25.00 dBm				1		-02.0		
									Center Freq
15.0									849.000000 MHz
5.00									
5.00	and the second	and a state of the second	wenty						Start Freq
-5.00									847.000000 MHz
								-13.00 dBm	
-15.0									Stop Freq
			L.						851.000000 MHz
-25.0			A.	1					
-35.0				h.,					CF Step 400.000 kHz
				Mart Martin Martin	marriel and a second	๚ํ๚๚๛๛๛๚๛๛๛๚๛๛๛	wanness of the second	15	Auto Man
-45.0								an ann an Air an Air an Air	
									Freq Offset
-55.0									0 Hz
-65.0									
Center 84	9.000 MHz						Snan 4	.000 MHz	
#Res BW		#VBW	150 kHz			#Sweep	1.00 s (	1001 pts)	
MSG						STATUS			

Plot 6-187. Upper Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

	m Analyzer - Swept SA					
L <mark>XI</mark> RL	RF 50 Ω AC	CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	08:58:14 PM Jun 23, 2014 TRACE 1 2 3 4 5 6	Frequency
		PNO: Wide ↔ IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type. RMS		
10 dB/div Log	Ref 25.00 dBm			Mkı	1 850.028 MHz -38.51 dBm	Auto Tune
15.0						Center Freq 852.000000 MHz
-5.00					-13.00 dBm	Start Freq 850.000000 MHz
-15.0					-13.00 dom	Stop Freq 854.000000 MHz
-35.0		and the state of the			and the second sec	<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
-65.0						
Center 85 #Res BW	2.000 MHz 100 kHz	#VBW	300 kHz	#Sweep	Span 4.000 MHz 3.00 s (1001 pts)	
MSG				STATUS		

Plot 6-188. Upper Extended Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Agilent Spectrum Analyzer - Swept SA							
LX/RL RF 50Ω AC	CORREC	SENSE:INT	#Avg Type	LIGNAUTO	09:01:17 PM TRACE		Frequency
	PNO: Wide Trig: IFGain:Low Atter	Free Run n: 36 dB			DET	123456 MWWWWWW ANNNNN	Auto Tune
10 dB/div Ref 25.00 dBm				Mkr	823.99 -36.0	02 MHz 0 dBm	AutoTune
15.0							Center Freq 824.000000 MHz
-5.00					n sa falansa an sa		Start Freq 820.000000 MHz
-15.0						-13.00 dBm	Stop Freq 828.000000 MHz
-35.0	ab-and and the first of a market and the market and	110					CF Step 800.000 kHz <u>Auto</u> Man
-55.0							<b>Freq Offset</b> 0 Hz
-65.0 Center 824.000 MHz					Span 8.0	00 MHz	
#Res BW 100 kHz	#VBW 300 k	Hz		#Sweep	1.00 s (1	001 pts)	
MSG				STATUS			

Plot 6-189. Lower Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)

	RF 50Ω A	PNO: Widd IFGain:Lov	, 🛶 Trig: Fre		#Avg Typ	ALIGNAUTO e: RMS	TRACE	1 Jun 23, 2014	Frequ	ency
10 dB/div R	tef 25.00 dBr		V Attent of				DET	ANNNN		
		m				Mkr	1 822.94		Au	to Tune
15.0										t <b>er Freq</b> 1000 MHz
-5.00										<b>art Freq</b> 1000 MHz
-15.0								-13.00 dBm		op Freq 1000 MHz
35.0			مور مع معاد مراجع من مراجع من مراجع من مراجع من	a hale and a star	-Approximitian-p-d-o-		n an generate figst net and fig			C <b>F Step</b> 0.000 kH: Mar
55.0									Fre	<b>q Offse</b> 0 Hi
-65.0	000 MHz						Span 4			
#Res BW 10		#\	'BW 300 kHz			#Sweep	Span 4. 3.00 s (1	000 MHz 001 pts)		

Plot 6-190. Lower Extended Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Agilent Spectru	m Analyzer - Swept SA	CORREC	CEA	ICC. INIT		ALIGNAUTO	00-00-07	Mb = 22,2014	
KL	RF 50Ω AC	CORREC		ISE:INT	#Avg Type			M Jun 23, 2014 E <b>1 2 3 4 5 6</b> E M <del>WARMAN</del>	Frequency
		PNO: Wide 🖵 IFGain:Low	Trig: Free Atten: 36				TYF		
						Mkr	1 849.0	08 MHz 13 dBm	Auto Tune
10 dB/div Log	Ref 25.00 dBm						-35.	13 dBm	
									Center Freq
15.0									849.000000 MHz
5.00									Start Freq
	an a	and and a state of the second state of the sec	m						845.000000 MHz
-5.00									
-15.0								-13.00 dBm	Oton From
									Stop Freq 853.000000 MHz
-25.0			<u> </u>						
			The second	1					CF Step
-35.0			ħ	Thurson .					800.000 kHz
-45.0					and the Brank and the second	an and a start of	www.	and the second	<u>Auto</u> Man
-43.0									
-55.0									Freq Offset 0 Hz
									0 H2
-65.0									
	9.000 MHz						Span 8	.000 MHz	
#Res BW	100 kHz	#VBW	300 kHz				1.00 s (	1001 pts)	
MSG						STATUS			

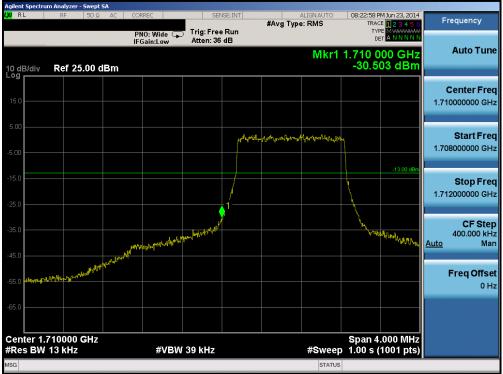
Plot 6-191. Upper Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)

	n Analyzer - Swept S	A						
X/RL	RF 50 Ω		CORREC	SENSE:INT	#Avg Type	ALIGN AUTO E: RMS	09:02:37 PM Jun 23, 2014 TRACE 1 2 3 4 5 6 TYPE MWWRAMW DET A N N N N N	Frequency
10 dB/div	Ref 25.00 d		IFGain:Low	Atten: 36 dB		Mkr	1 850.156 MHz -39.54 dBm	Auto Tune
15.0								Center Freq 852.000000 MHz
-5.00								Start Freq 850.000000 MHz
-15.0							-13.00 dBm	<b>Stop Freq</b> 854.000000 MHz
-35.0		**************************************			punting and the second second	aff self-forge-for-self (Fight-ode-	- m <sup>46-6</sup> -914-0-1-0-0-1-0-1-0-1-0-1-0-1-0-1-0-1-0-1	CF Step 400.000 kHz <u>Auto</u> Man
-45.0								Freq Offset 0 Hz
-65.0	2.000 MHz							
#Res BW			#VBW	300 kHz			Span 4.000 MHz 3.00 s (1001 pts)	
ISG						STATUS		

Plot 6-192. Upper Extended Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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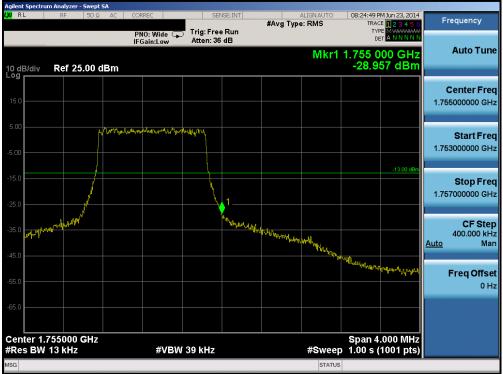
Plot 6-193. Lower Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)



Plot 6-194. Lower Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Plot 6-195. Upper Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)



Plot 6-196. Upper Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFUS990	<u>«\PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Plot 6-197. Lower Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)



Plot 6-198. Lower Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 112 of 172
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	m Analyzer - Swept S										
L <mark>XI</mark> RL	RF 50 Ω	AC COR	REC	SEI	VSE:INT	#Avg Type	ALIGNAUTO e: RMS		M Jun 23, 2014	F	requency
		PN	IO: Wide 🖵	Trig: Free Atten: 36		•		TY	PE MWARAAAA ET A N N N N N		
		IFU	Gain:Low	Atten: 30			Milard	4 755 0			Auto Tune
40.151.1	D-6 05 00 d	Date					IVIKET	-45	04 GHz 12 dBm		
10 dB/div	Ref 25.00 d	вш									
										(	Center Freq
15.0										1.75	5000000 GHz
5.00											
										4 75	Start Freq 3000000 GHz
-5.00										1.75	3000000 GHZ
									-13.00 dBm		
-15.0	1										Stop Freq
	No.									1.75	7000000 GHz
-25.0	- Ne										
	The Aller	Million .	aralle ledan araly a								CF Step
-35.0		and a state of the last	and the second	1. fame							400.000 kHz
45.0				. North Martin	1					<u>Auto</u>	Man
-45.0					ودلميموسور	Mar Mar Sugar and and	mansur				
-55.0						199 OF 64	- and ranking	warden warden	mittherester		Freq Offset
-55.0											0 Hz
-65.0											
-03.0											
	755000 GHz							Span 4	.000 MHz		
#Res BW	30 KHZ		#VBW	91 kHz			#Sweep	1.00 s (	(1001 pts)		
MSG							STATUS				

Plot 6-199. Upper Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

	m Analyzer - Swept SA					
L <mark>XI</mark> RL	RF 50Ω AC		SENSE:INT	ALIGNAUTO #Avg Type: RMS	08:32:39 PM Jun 23, 2014 TRACE 1 2 3 4 5 6	Frequency
		PNO: Fast 🔸	Atten: 36 dB		TYPE MWARAWAA DET A N N N N N	Auto Tune
10 dB/div Log	Ref 25.00 dBm	1		Mkr1	1.756 012 GHz -35.67 dBm	Auto Tune
-						Center Freq
15.0						1.758000000 GHz
5.00						Start Freq
-5.00						1.756000000 GHz
-15.0					-13.00 dBm	Stop Freq
-25.0						1.760000000 GHz
-35.0						<b>CF Step</b> 400.000 kHz
-45.0		%++/-L/25md+15mJ%2+4/12+074-1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+4+12++1244+12++12+				<u>Auto</u> Man
-55.0						Freq Offset
						0 Hz
-65.0						
	758000 GHz	#\/D\\	2.0 MHz	#6	Span 4.000 MHz 3.00 s (1001 pts)	
#Res BW	1.0 WH2	#VBW	3.0 MHz	#SWeep	5.00 S (1001 pts)	
				01A100		

Plot 6-200. Upper Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Reviewed by: Quality Manager
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Plot 6-201. Lower Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

Agilent Spectru	ım Analyzer - Swept SA					
L <mark>XI</mark> RL	RF   50 Ω Α(		SENSE:INT	ALIGNAUTO #Avg Type: RMS	08:35:50 PM Jun 23, 2014 TRACE 1 2 3 4 5 6 TYPE MIAMAMANAN	Frequency
10 dB/div	Ref 25.00 dBn	PNO: Fast ↔→→ IFGain:Low	Atten: 36 dB	Mkr1	1.709 000 GHz -17.29 dBm	Auto Tune
15.0						Center Freq 1.707000000 GHz
-5.00						Start Freq 1.705000000 GHz
-15.0					-13.00 ° 1	<b>Stop Freq</b> 1.709000000 GHz
-35.0		nyagan bagi nanga nganangan nga bang ng				CF Step 400.000 kHz <u>Auto</u> Man
-55.0						<b>Freq Offset</b> 0 Hz
-65.0 Center 1.	707000 GHz				Span 4.000 MHz	
#Res BW		#VBW	3.0 MHz	#Sweep	3.00 s (1001 pts)	

Plot 6-202. Lower Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Agilent Spectro	um Analyzer - Swept SA RF 50 Q A	C CORREC	SENSE	TATE			00-20-50 5	M3 - 22 2014	
LA KL	RF 50Ω A				#Avg Type	ALIGNAUTO RMS		M Jun 23, 2014 E 1 2 3 4 5 6 E M WWWWW	Frequency
		PNO: Wide 😱 IFGain:Low	Trig: Free R Atten: 36 dB				DE		
10 dB/div	Ref 25.00 dBr	m				Mkr1	1.755 0 -29.1	00 GHz 27 dBm	Auto Tune
15.0									Center Freq
15.0									1.755000000 GHz
5.00									
- north	and the state of t	ereeth.tuneren	~						Start Freq
-5.00									1.753000000 GHz
								-13.00 dBm	
-15.0									Stop Freq
			× 1						1.757000000 GHz
-25.0									
-35.0			مر	Auguran with a lot a	MAN PAGE OF L				CF Step
					oar ida ata	rapped a free of the	<sup></sup> ₩ <sup>₽₩₽</sup> ₩₽₽₽₩₩	- condact - for a	400.000 kHz Auto Man
-45.0									
									Freq Offset
-55.0									0 Hz
05.0									
-65.0									
Center 1. #Res BW	755000 GHz	#\/B\//	150 kHz			#Sween	Span 4	.000 MHz 1001 pts)	
#Res DW		#404	TJU KHZ			#Sweep	1.00 S (	toor pis)	
MSG						STATUS			

Plot 6-203. Upper Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)



Plot 6-204. Upper Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 116 of 172
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	n Analyzer - Swept SA					
(XI) RL	RF 50 Ω	AC CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	08:40:29 PM Jun 23, 2014	Frequency
		PNO: Wide 🖵	Trig: Free Run	worg Type. Nato	TRACE 1 2 3 4 5 6 TYPE M WWWWWW	
		IFGain:Low	Atten: 36 dB		DETANNNN	Auto Tuno
				Mkr1	1.709 992 GHz	Auto Tune
10 dB/div	Ref 25.00 dB	sm			-35.47 dBm	
						Center Freq
15.0						1.710000000 GHz
5.00						Oto at East
					method in the second	Start Freq
-5.00						1.706000000 GHz
					-13.00 dBm	
-15.0						Stop Freq
						1.714000000 GHz
-25.0			//			1.7 14000000 0112
			1 1			
-35.0						CF Step
		unepplaten adressed and the	and the way			800.000 kHz Auto Man
-45.0	and the second					Addo Mari
-40.0						
-55.0						Freq Offset
-55.0						0 Hz
05.0						
-65.0						
Center 1.7	10000 GHz				Span 8.000 MHz	
#Res BW		#VBW	300 kHz	#Sweep	1.00 s (1001 pts)	
MSG				STATUS		
				514100		

Plot 6-205. Lower Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

Agilent Spectru	m Analyzer - Swept SA					
(X/RL	RF 50Ω /	AC CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	08:40:45 PM Jun 23, 2014 TRACE 1 2 3 4 5 6	Frequency
		PNO: Fast ↔ IFGain:Low	Trig: Free Run Atten: 36 dB		TYPE MWARMAN	
10 dB/div Log	Ref 25.00 dB	m		Mkr1	1.708 992 GHz -27.53 dBm	Auto Tune
15.0						Center Freq 1.707000000 GHz
-5.00						<b>Start Freq</b> 1.705000000 GHz
-15.0					-13.00 dBm	<b>Stop Freq</b> 1.709000000 GHz
-35.0	มาสามารถ ในปีสาว "ปกร.กระ ใสระหรักป้างที่ได้	<u>ֈֈֈՠ֎֎֎֎ֈ֎֍ֈ֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎֎</u>	าง	9.00 06.00 10 00 00 00 00 00 00 00 00 00 00 00 0	York de type of a standard de trade de la factoria	CF Step 400.000 kHz <u>Auto</u> Man
-55.0						<b>Freq Offset</b> 0 Hz
-65.0						
Center 1. #Res BW	707000 GHz 1.0 MHz	#VBW	3.0 MHz	#Sweep	Span 4.000 MHz 3.00 s (1001 pts)	
MSG				STATUS		

Plot 6-206. Lower Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 117 of 172
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Agilent Spectru (X) RL	m Analyzer - Swept SA RF 50 Q AC	CORREC	CEN	SE:INT		ALIGNAUTO	00-41-54 0	Mb- 22 2014	
LA KL	RF   50 Ω AC				#Avg Type			M Jun 23, 2014 E 1 2 3 4 5 6 E M WAAAAAA	Frequency
		PNO: Wide 🖵 IFGain:Low	Trig: Free Atten: 36				DE	ANNNN	
10 dB/div Log	Ref 25.00 dBm					Mkr1	1.755 0 -32.3	16 GHz 80 dBm	Auto Tune
15.0									Center Freq 1.755000000 GHz
-5.00		-ton galanting produced produces and a second produced produced of the second produced produced of the second produced produced of the second produced pro	~						<b>Start Freq</b> 1.751000000 GHz
-15.0								-13.00 dBm	<b>Stop Freq</b> 1.759000000 GHz
-35.0			A A	1	an a	mont	Manglerthrowa	Ann Angel Ward	CF Step 800.000 kHz <u>Auto</u> Man
-45.0									<b>Freq Offset</b> 0 Hz
-65.0									
Center 1. #Res BW	755000 GHz 100 kHz	#VBW	300 kHz			#Sweep	Span 8 1.00 s (	.000 MHz 1001 pts)	
MSG						STATUS			

Plot 6-207. Upper Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

Agilent Spectru	n Analyzer - Swe	ept SA					
LXIRL	RF 50	)Ω AC	CORREC	SENSE:INT	ALIGN AUTO	08:42:09 PM Jun 23, 2014	Frequency
			PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 123456 TYPE MWWWW DET ANNNNN	
10 dB/div Log	Ref 25.0	dBm			Mkr1	1.756 004 GHz -24.97 dBm	Auto Tune
15.0							Center Freq 1.758000000 GHz
-5.00						-13.00 dBm	Start Freq 1.756000000 GHz
-15.0	*****	de de la construit		<sup>4</sup> μ <sup>0</sup> Π/μθβ <sup>+</sup> Γ <sup>+</sup> Λ <sup>+</sup> -δd <sup>+</sup> α <sup>+</sup> Γ <sup>+</sup> Λ <sup>+</sup> -σ <sub>2</sub> σ <sub>2</sub> σ <sub>2</sub> σ <sub>2</sub> σ <sub>2</sub>		-13.00 dbm	<b>Stop Freq</b> 1.76000000 GHz
-35.0						940 A A MAR A A A MAR A A A MAR A A A A MA	<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-55.0							<b>Freq Offset</b> 0 Hz
-65.0							
#Res BW	758000 GH 1.0 MHz	z	#VBW	3.0 MHz	#Swee	Span 4.000 MHz 5 3.00 s (1001 pts)	
MSG					STATUS	5	

Plot 6-208. Upper Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 119 of 172
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	n Analyzer - Swept SA					
LXU RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	06:47:16 PM Jul 08, 2014 TRACE 1 2 3 4 5 6 TYPE MWWWW	Frequency
		PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB	Mkr	DET A N N N N N	Auto Tune
10 dB/div Log	Ref 25.00 dBm	ı			1.710 000 GHz -34.190 dBm	
15.0						Center Freq 1.710000000 GHz
						1.7 1000000 GH2
5.00			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and a state of the second s		Start Freq 1.704000000 GHz
-5.00					-13.00 dBm	1.70400000 GHZ
-15.0						Stop Freq
-25.0						1.716000000 GHz
-35.0		an te der ein gestalle bester bes	A CONTRACT OF A			CF Step 1.200000 MHz
-45.0	N hashed and the for fright the second se	And a second sec				<u>Auto</u> Man
-55.0						Freq Offset
						0 Hz
-65.0						
	710000 GHz	43/P344	400 kU-	#O	Span 12.00 MHz	
#Res BW	150 KHZ	#VBW	430 kHz	#SWCC	p 1.00 s (1001 pts)	
Mod				STATU	5	

Plot 6-209. Lower Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

Agilent Spectru	ım Analyzer - Sv	vept SA									
L <mark>XI</mark> RL	RF 5	50Ω AC	CORREC	SEN	ISE:INT		ALIGN AUTO		M Jul 08, 2014	Freg	uency
			PNO: Fast ↔ IFGain:Low	Atten: 36		#Avg Typ	e: KMS	TYP	123456 MWW/W/W/ ANNNNN		
10 dB/div	Ref 25.0	0 dBm					Mkr1	1.708 9 -29.0	28 GHz )1 dBm	A	uto Tune
15.0											n <b>ter Freq</b> 00000 GHz
-5.00											<b>tart Freq</b> 00000 GHz
-15.0									-13.00 dBm		<b>top Freq</b> 00000 GHz
-35.0	<u>, , , , , , , , , , , , , , , , , , , </u>	AA-A-ARA-A	Walatha Antonio and Antonio		A.M.M.M.	.nn.h.n.h.m.h.d.	Harmanna		Mahandada	40 <u>Auto</u>	<b>CF Step</b> 00.000 kHz Man
-45.0										Fr	e <b>q Offset</b> 0 Hz
-65.0											
Center 1. #Res BW	707000 Gi 1.0 MHz	Hz	#VBV	V 3.0 MHz			#Sweep	Span 4. 3.00 s (1	000 MHz 1001 pts)		
MSG							STATUS				

Plot 6-210. Lower Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 110 of 172
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Agilent Spectru	m Analyzer - Swept SA RF 50 Ω AC	CORREC	CEN	SE:INT		ALIGNAUTO	06-40-21	PM Jul 08, 2014	
	RF JUV AU				#Avg Typ			PM Juros, 2014 CE 1 2 3 4 5 6 PE M WWWWWW	Frequency
		PNO: Wide 🧊 IFGain:Low	Trig: Free Atten: 36				DI		
10 dB/div	Ref 25.00 dBm					Mkr1	1.755 C -35.	12 GHz 18 dBm	Auto Tune
Log									Center Freq 1.755000000 GHz
-5.00	naadhinden dhe shekalad ey danaa y	عقب ما <sup>ر</sup> بو موال می رو مار و مار							Start Freq 1.749000000 GHz
-15.0								-13.00 dBm	<b>Stop Freq</b> 1.761000000 GHz
-35.0			- 4	1 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~	₠╾₰ <b>Ŀ</b> ŢĸĸڸĴ <b>Ĺ</b> ĬĬŗ <b>Ĕĸġ</b> Ŋ <i>Ŀ</i> ĬţĸĔĸ	at the second	helder-anter Rockanskan	CF Step 1.200000 MHz <u>Auto</u> Mar
-45.0									Freq Offset 0 Hz
-65.0									
Center 1.7 #Res BW	755000 GHz 150 kHz	#VBW	430 kHz			#Sweep	Span 1 1.00 s (	2.00 MHz 1001 pts)	
MSG						STATUS			

Plot 6-211. Upper Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

Agilent Spectru												
X/RL	RF	50 Ω - AC	CORREC		SEN	ISE:INT	#Avg Tv	ALIGN AUTO	06:48:431	PM Jul 08, 2014	Fr	equency
			PNO: Fa IFGain:L	150	Trig: Free Atten: 36		#AVg Ty	pe: RIVIS	TYP	E 1 2 3 4 5 6 E M WATAWA A N N N N N		
10 dB/div Log	Ref 25.	00 dBm						Mkr1	1.756 0 -28.9	04 GHz 97 dBm		Auto Tune
15.0												Center Freq 8000000 GHz
-5.00										-13.00 dBm	1.75	Start Freq 5000000 GHz
-15.0 -25.0 <mark>1</mark>										-13.00 dbm	1.76	Stop Freq
-35.0	74~~~~ <u>,</u> 85[~~184	And Analysis of the state	narun harun h	********	ኆኊ፦ሥ <u></u> ጉዯኯቝቋ፤	<b>คราส</b> ระวงรรุกษฎณ	**************************************	<sup>νας</sup> γ <sup>λητο</sup> ι/νατβλυήβοροι/γκου	มาริรูประชาญเขาสูงของ -	Lalingle in Submaker	<u>Auto</u>	CF Step 400.000 kHz Man
-55.0												F <b>req Offset</b> 0 Hz
-65.0	758000 0	Hz							Span 4	.000 MHz		
#Res BW			#	¢VBW 3	3.0 MHz			#Sweep	3.00 s (	1001 pts)		
//SG								STATUS				

Plot 6-212. Upper Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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	n Analyzer - Swept SA								
(XI RL	RF 50 Ω	AC CORREC	SE	NSE:INT	#Avg Type	ALIGN AUTO	06:41:29 PM Ju TRACE	108, 2014	Frequency
		PNO: Fast IFGain:Low	Trig: Fre Atten: 30		wing typ.		DET	23456 	
10 dB/div Log	Ref 25.00 dE	3m				Mkr1	1.707 520 -38.45	GHz dBm	Auto Tune
15.0								_	Center Freq 1.710000000 GHz
-5.00				ſ				******	Start Freq 1.702000000 GHz
-15.0								- <u>13.00 dBm</u>	<b>Stop Freq</b> 1.718000000 GHz
-35.0		1 1	n and the second states of the second se	and the second s					CF Step 1.600000 MHz <u>Auto</u> Man
-55.0									<b>Freq Offset</b> 0 Hz
	710000 GHz						Span 16.0	0 MHz	
#Res BW	200 kHz	#VE	3W 560 kHz	2			1.00 s (100	01 pts)	
MSG						STATUS			

Plot 6-213. Lower Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

Agilent Spectru	um Analyzer - Swept SA					
L <mark>XI</mark> RL	RF 50 Ω A	C CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	06:41:42 PM Jul 08, 2014	Frequency
	_	PNO: Fast 🔸	Trig: Free Run Atten: 36 dB	#Avg Type: KMS	TRACE 123456 TYPE MWWWWWW DET ANNNNN	
10 dB/div Log	Ref 25.00 dBn	n		Mkr1	1.708 920 GHz -33.00 dBm	Auto Tune
15.0						Center Freq 1.707000000 GHz
-5.00						Start Freq 1.705000000 GHz
-15.0					-13.00 dBm	<b>Stop Freq</b> 1.709000000 GHz
-35.0	<u>a</u>	มันการทำจะแมร์ก่ารึ่งไปเป็นปี เข้าที่หันงแล้งกับสุท	ىلىرىيە ئەربەلەردۇ، ئەربەلەرمەر يەرىيەر يەرىيەر يەرىيەر يەرىيەر يەرىيەر يەرىيەر يەرىيەر يەرىيەر يەرىيەر يەرىيە يەرىيە يەرىيەر	n fan fan fan fan fan fan fan fan fan fa	alasting along the state of the	CF Step 400.000 kHz <u>Auto</u> Man
-45.0						Freq Offset 0 Hz
-65.0						
Center 1. #Res BW	707000 GHz 1.0 MHz	#VBW	3.0 MHz	#Sweep	Span 4.000 MHz 3.00 s (1001 pts)	
MSG				STATUS		

Plot 6-214. Lower Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Agilent Spectru	m Analyzer - Swept SA RF 50 Q AC	00050	051	05.11.12		ALIGN AUTO	05.40.44		
L <b>AU</b> RL	RF 50Ω AC	CORREC		SE:INT	#Avg Typ		TRAC	PM Jul 08, 2014 E <b>1 2 3 4 5 6</b>	Frequency
		PNO: Fast 😱 IFGain:Low	Trig: Free Atten: 36				TYF		
		II GUILLON				Mkr1	1.755 0	16 GHz	Auto Tune
10 dB/div	Ref 25.00 dBm						-36.	16 GHz 41 dBm	
									Center Freq
15.0									1.755000000 GHz
5.00	anan and the the second s	-							Start Freq
5.00									1.747000000 GHz
-5.00									
-15.0								-13.00 dBm	Oton Error
									Stop Freq 1.763000000 GHz
-25.0									
			فمح	1					CF Step
-35.0					an grant the grant	howwww			1.600000 MHz
-45.0						1. 1. 6. 0. 0. 11. 19940	₩ĸ₹₩ <sup>₽</sup> ₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽	or how we have	<u>Auto</u> Man
-45.0									
-55.0									Freq Offset 0 Hz
									0 Hz
-65.0									
	755000 GHz						Span 1	6.00 MHz	
#Res BW	200 kHz	#VBW	560 kHz			#Sweep	1.00 s (	1001 pts)	
MSG						STATUS			

Plot 6-215. Upper Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

	n Analyzer - Swept SA						
LXIRL	RF 50 Ω AC	CORREC	SENSE:INT	ALIGN A		PM Jul 08, 2014	Frequency
		PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type: RM:	S TRA TY D	CE 123456 PE MWWWWW ET A N N N N N	
10 dB/div Log	Ref 25.00 dBm			N	lkr1 1.756 ( -30.	04 GHz 87 dBm	Auto Tune
15.0							Center Freq 1.758000000 GHz
-5.00							<b>Start Freq</b> 1.756000000 GHz
-15.0						-13.00 dBm	<b>Stop Freq</b> 1.760000000 GHz
-35.0		*******		5.55	i ya Man Man ya Mana ya		CF Step 400.000 kHz <u>Auto</u> Man
-55.0							Freq Offset 0 Hz
-65.0							
Center 1.7 #Res BW	′58000 GHz 1.0 MHz	#VBW 3	.0 MHz	#S	Span 4 weep 3.00 s	.000 MHz (1001 pts)	
MSG					STATUS		

Plot 6-216. Upper Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFUS990	<u>«NPCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
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Plot 6-217. Lower Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)



Plot 6-218. Lower Extended Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFUS990	<u>«\PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dega 102 of 172		
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Plot 6-219. Upper Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)



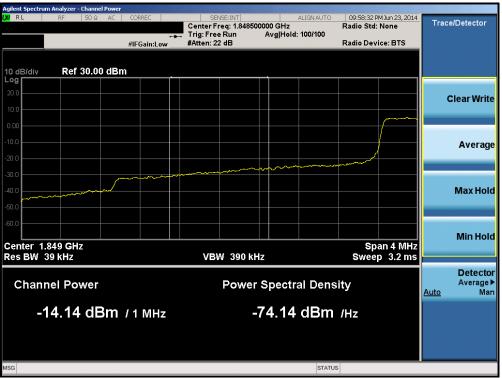
Plot 6-220. Upper Extended Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
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Plot 6-221. Lower Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)



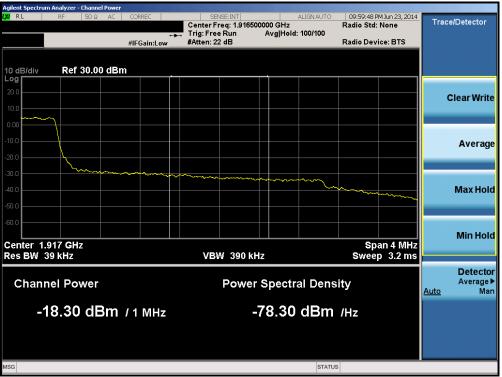
Plot 6-222. Lower Extended Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dogo 105 of 172		
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Agilent Spect	rum Analyzer - Swept SA	6 CODD56			00.50 (1.511) 00.0014	
L <mark>XI</mark> KL	RF 50 Ω A	C CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	09:59:41 PM Jun 23, 2014 TRACE 1 2 3 4 5 6 TYPE MWWWW	Frequency
		PNO: Wide 🦵 IFGain:Low	Trig: Free Run Atten: 36 dB		DET A N N N N N	
		II GUIILLON		Mkr1	1.915 008 GHz -25.17 dBm	Auto Tune
10 dB/div Log	Ref 25.00 dBn	n			-25.17 dBm	
						Center Freq
15.0						1.915000000 GHz
5.00	monwoodward	entral annual annual of	where the second s			Start Freq
						1.913000000 GHz
-5.00						
-15.0					-13.00 dBm	Oton From
			<u>لا</u> 1			Stop Freq 1.917000000 GHz
-25.0						
				and a second and the second	With Hallow and a glithe	CF Step
-35.0						400.000 kHz
-45.0						<u>Auto</u> Man
40.0						
-55.0						Freq Offset 0 Hz
						0112
-65.0						
	1.915000 GHz				Span 4.000 MHz	
	V 30 kHz	#VBW	91 kHz		1.00 s (1001 pts)	
MSG				STATUS		

Plot 6-223. Upper Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)



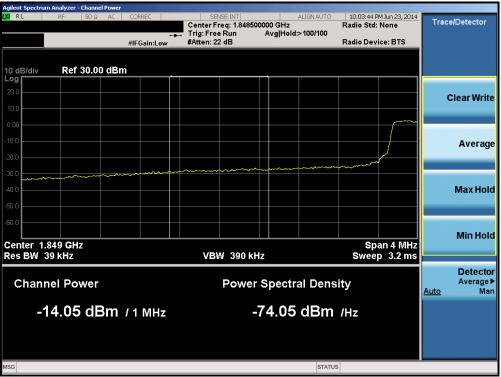
Plot 6-224. Upper Extended Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dogo 106 of 172		
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Plot 6-225. Lower Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)



Plot 6-226. Lower Extended Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
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Plot 6-227. Upper Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)



Plot 6-228. Upper Extended Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 100 of 172
0Y1406171287.ZNF	6/23-7/17/2014	Portable Handset		Page 128 of 173
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Plot 6-229. Lower Band Edge Plot (Band 25 – 10.0MHz QPSK – RB Size 50)



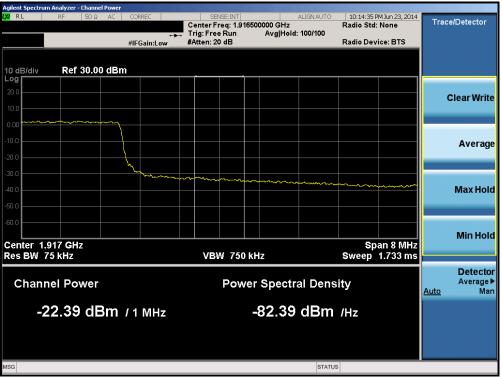
Plot 6-230. Lower Extended Band Edge Plot (Band 25 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
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Plot 6-231. Upper Band Edge Plot (Band 25 – 10.0MHz QPSK – RB Size 50)



Plot 6-232. Upper Extended Band Edge Plot (Band 25 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 120 of 172
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	n Analyzer - Swept SA					
(XI) RL	RF 50Ω AC	CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	06:53:13 PM Jul 08, 2014	Frequency
		PNO: Wide 🗔	Trig: Free Run	WAYS Type. Kino	TRACE 1 2 3 4 5 6 TYPE M WARAWAY	
		IFGain:Low	Atten: 36 dB		DET A N N N N N	Auto Tuno
				Mkr1	1.849 652 GHz	Auto Tune
10 dB/div	Ref 25.00 dBm				-26.78 dBm	
						Center Freq
15.0						1.850000000 GHz
5.00						Otant Frank
			(			Start Freq
-5.00						1.844000000 GHz
					-13.00 dBm	
-15.0						Stop Freq
						1.856000000 GHz
-25.0			\			1.00000000000000
	and a support of the support	www.www.	walk with water			
-35.0						CF Step
						1.200000 MHz Auto Man
-45.0						Auto
-+0.0						
FF 0						Freq Offset
-55.0						0 Hz
-65.0						
Center 1 8	350000 GHz				Span 12.00 MHz	
#Res BW		#VBW	430 kHz	#Sweep	1.00 s (1001 pts)	
MSG				STATUS		
mod				314103		

Plot 6-233. Lower Band Edge Plot (Band 25 – 15.0MHz QPSK – RB Size 75)

Agilent Spectru	ım Analyzer - Swept SA					
L <mark>XI</mark> RL	RF 50Ω AC	CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	06:53:26 PM Jul 08, 2014 TRACE 1 2 3 4 5 6 TYPE MWWWW DET A N N N N N	Frequency
		PNO: Fast ↔ IFGain:Low	Atten: 36 dB	Billord		Auto Tune
10 dB/div Log	Ref 25.00 dBm				1.848 976 GHz -20.07 dBm	
15.0						Center Freq 1.847000000 GHz
-5.00						<b>Start Freq</b> 1.845000000 GHz
-15:0					-13.00 dBm	Stop Freq
-25.0						CF Step
-35.0						400.000 kHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
-65.0						
Center 1. #Res BW	847000 GHz 1.0 MHz	#VBW	3.0 MHz	#Sweep	Span 4.000 MHz 3.00 s (1001 pts)	
MSG				STATUS		

Plot 6-234. Lower Extended Band Edge Plot (Band 25 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFUS990	<u>«NPCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dego 121 of 172	
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Agilent Spectrur	n Analyzer - Swept SA								
LXI RL	RF 50 Ω AC	CORREC		ISE:INT	#Avg Type	ALIGNAUTO e: RMS	TRAG	PM Jul 08, 2014 E <b>1 2 3 4 5 6</b>	Frequency
		PNO: Wide 🖵 IFGain:Low	Trig: Free Atten: 36				TY D	PE MWWWWWW ET A N N N N N	
		IFGall.LOW	Theelin oo	40		Mkr4	1 015 0	24 CH-	Auto Tune
10 dB/div	Ref 25.00 dBm					WIKIT	-30.	24 GHz 83 dBm	
15.0									Center Freq 1.915000000 GHz
15.0									1.915000000 GHZ
5.00									
			لمستع						Start Freq
-5.00									1.909000000 GHz
								-13.00 dBm	
-15.0								-13.00 0.011	Stop Freq
									1.921000000 GHz
-25.0				1					
			- Alexandre	- Marchart March	united in a				CF Step
-35.0					- Maharmana	nummer and a get	1 thomas Maria		1.200000 MHz
									<u>Auto</u> Man
-45.0									
									Freq Offset
-55.0									0 Hz
05.0									
-65.0									
	015000 GHz						Span 1	2.00 MHz	
#Res BW	150 kHz	#VBW	430 kHz			#Sweep	1.00 s (	1001 pts)	
MSG						STATUS			

Plot 6-235. Upper Band Edge Plot (Band 25 – 15.0MHz QPSK – RB Size 75)



Plot 6-236. Upper Extended Band Edge Plot (Band 25 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dego 122 of 172		
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	m Analyzer - Swept SA					
LXI RL	RF 50 Ω	AC CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	06:57:40 PM Jul 08, 2014	Frequency
		PNO: Fast 🕞	Trig: Free Run Atten: 36 dB	and grape. This	TRACE 123456 TYPE MWWWWW DET A N N N N N	
		IFGain:Low	Atten: 36 dB	Miland		Auto Tune
	B-60500.45			IVIKET	1.849 904 GHz -29.11 dBm	
10 dB/div Log	Ref 25.00 dE	∃m			-20.11 0011	
						Center Freq
15.0						1.850000000 GHz
5.00						
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		⊷,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Start Freq
-5.00						1.842000000 GHz
					-13.00 dBm	
-15.0					-10.00 dbm	Stop Freq
						1.858000000 GHz
-25.0			1			
		Americantering	and for the Robert Strengton of			0.5.01
-35.0	www.www.www.a.f.f.f.					CF Step 1.600000 MHz
						Auto Man
-45.0						
						Freq Offset
-55.0						0 Hz
						0112
-65.0						
Center 4	850000 GHz				Spap 16 00 MHz	
#Res BW		#VBW	560 kHz	#Sween	Span 16.00 MHz 1.00 s (1001 pts)	
MSG		<i>"</i> ••En		STATUS	noo o (noo n pro)	
mod				514103		

Plot 6-237. Lower Band Edge Plot (Band 25 – 20.0MHz QPSK – RB Size 100)

	um Analyzer - Swept SA					
L <mark>XI</mark> RL	RF 50Ω AC	CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	06:57:52 PM Jul 08, 2014	Frequency
		PNO: Fast ↔ IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type: KMS	TRACE 123456 TYPE MWWWWW DET ANNNNN	
10 dB/div Log	Ref 25.00 dBm			Mkr1	1.849 000 GHz -23.32 dBm	Auto Tune
15.0						Center Freq 1.847000000 GHz
-5.00					-13.00 dBm	Start Freq 1.845000000 GHz
-15.0		81.4. 181.4 million 2010 2010 2010 2010	ny classicy any classical galaxies and solaring all	ydynydybystyburten (fybytrefnytyberten) (f	-13.00 abit	<b>Stop Freq</b> 1.849000000 GHz
-35.0						<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-45.0						Freq Offset 0 Hz
-65.0						
	.847000 GHz / 1.0 MHz	#VBW	3.0 MHz	#Sweep	Span 4.000 MHz 3.00 s (1001 pts)	
MSG				STATUS		

Plot 6-238. Lower Extended Band Edge Plot (Band 25 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dega 122 of 172	
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Agilent Spectru	um Analyzer - Swept SA RF 50 Ω AC	CORREC	CEN	CE-INT			00,50,50		
LAU RL	RF 50Ω AC	CORREC		SE:INT	#Avg Type	ALIGNAUTO e: RMS	TRAC	PM Jul 08, 2014 E <b>1 2 3 4 5 6</b>	Frequency
		PNO: Fast 😱 IFGain:Low	Trig: Free Atten: 36				TYP		
						Mkr1	1.915 0	16 GHz	Auto Tune
10 dB/div	Ref 25.00 dBm						-32.	16 GHz 34 dBm	
									Center Freq
15.0									1.915000000 GHz
									1.51000000 0112
5.00									
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						Start Freq 1.907000000 GHz
-5.00									1.907000000 GHZ
								-13.00 dBm	
-15.0									Stop Freq
-25.0									1.923000000 GHz
-23.0			Ľ,	1					
-35.0			لغر	Ref. Concellegeries Survey	Coloris and the state of the st	Charles -			CF Step 1.600000 MHz
						and the state of the same		Marrie Branch	Auto Man
-45.0									
									Freq Offset
-55.0									0 Hz
-65.0									
	915000 GHz	43 (D1A)				#Curoen	Span 1	6.00 MHz 1001 pts)	
#Res BW	200 KH2	#VBW	560 kHz			#Sweep	1.00 S (	Too T pts)	
MSG						STATUS			

Plot 6-239. Upper Band Edge Plot (Band 25 – 20.0MHz QPSK – RB Size 100)

	trum Analyzer -						
L <mark>XI</mark> RL	RF	50 Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	06:59:02 PM Jul 08, 2014	Frequency
			PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type: Rivio	TRACE 123456 TYPE MWWWWW DET ANNNNN	
10 dB/div Log	Ref 25	.00 dBm			Mkr	1 1.916 036 GHz -27.17 dBm	Auto Tune
15.0							Center Freq 1.918000000 GHz
-5.00						-13.00 dBm	Start Freq 1.916000000 GHz
-15.0	nježije las forsyste kad prijaka je dan najv					-13.00 08/1	<b>Stop Freq</b> 1.920000000 GHz
-35.0						·····	CF Step 400.000 kHz <u>Auto</u> Man
-55.0							<b>Freq Offset</b> 0 Hz
-65.0	1.918000 (	247				Spap 4 000 MHz	
	1.918000 0 W 1.0 MHz		#VBW	3.0 MHz	#Swee	Span 4.000 MHz ep 3.00 s (1001 pts)	
MSG					STAT	JS	

Plot 6-240. Upper Extended Band Edge Plot (Band 25 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
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# 6.5 Peak-Average Ratio §24.232(d) §27.50(d.5)

### **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 v02r01 - 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. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

#### Test Setup

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

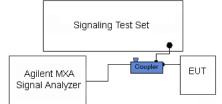


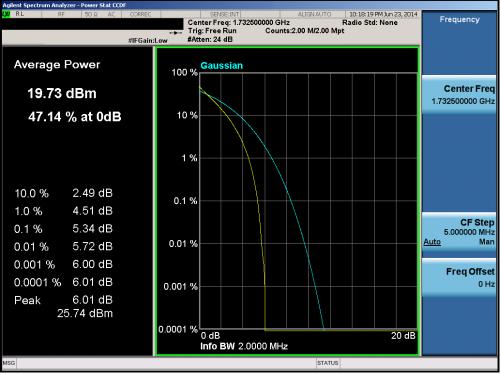
Figure 6-4. Test Instrument & Measurement Setup

## Test Notes

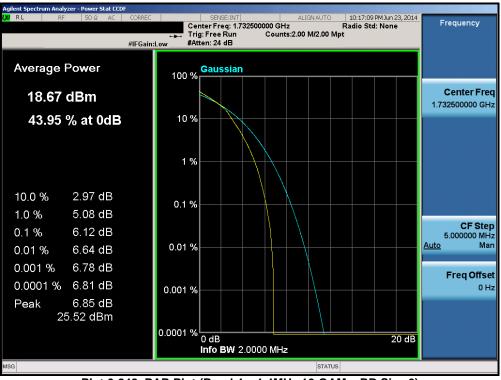
None.

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
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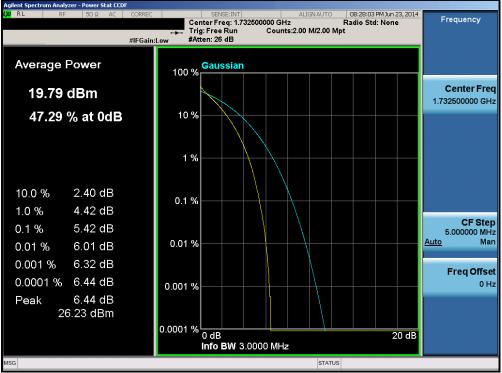
Plot 6-241. PAR Plot (Band 4 – 1.4MHz QPSK – RB Size 6)



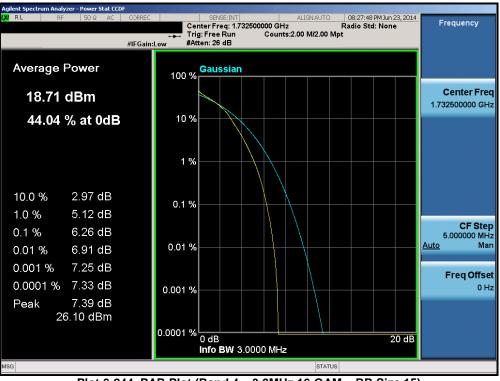
Plot 6-242. PAR Plot (Band 4 – 1.4MHz 16-QAM – RB Size 6)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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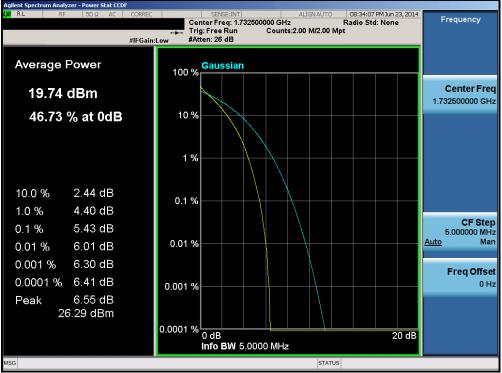
Plot 6-243. PAR Plot (Band 4 – 3.0MHz QPSK – RB Size 15)



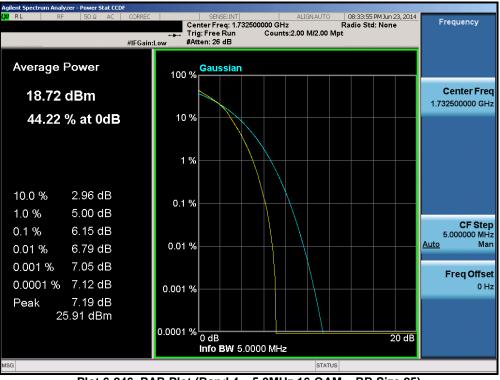
Plot 6-244. PAR Plot (Band 4 – 3.0MHz 16-QAM – RB Size 15)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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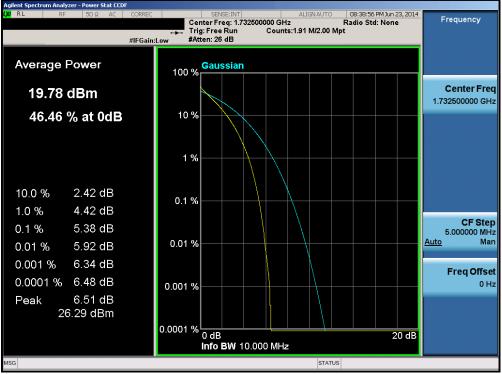
Plot 6-245. PAR Plot (Band 4 – 5.0MHz QPSK – RB Size 25)



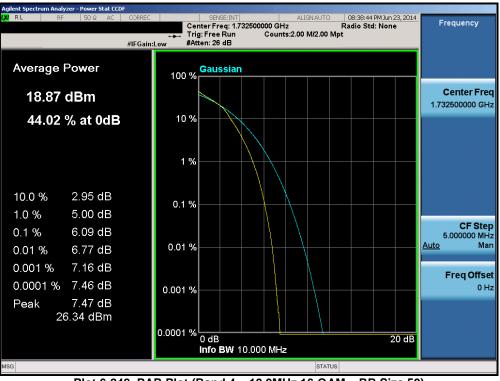
Plot 6-246. PAR Plot (Band 4 – 5.0MHz 16-QAM – RB Size 25)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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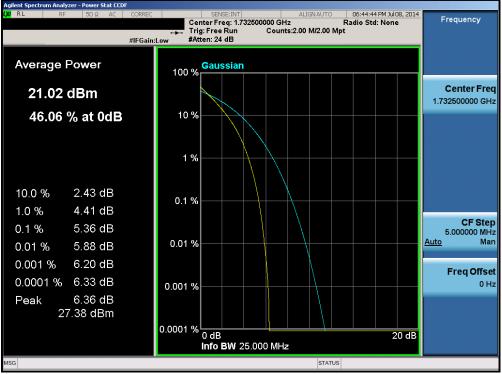
Plot 6-247. PAR Plot (Band 4 – 10.0MHz QPSK – RB Size 50)



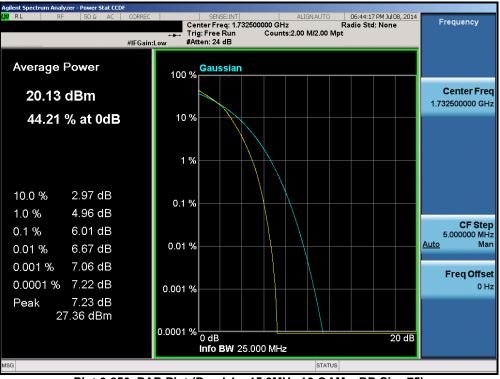
Plot 6-248. PAR Plot (Band 4 – 10.0MHz 16-QAM – RB Size 50)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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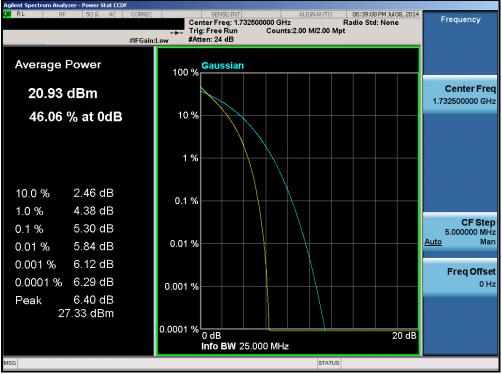
Plot 6-249. PAR Plot (Band 4 – 15.0MHz QPSK – RB Size 75)



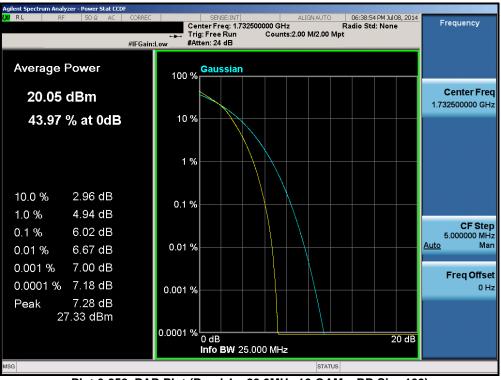
Plot 6-250. PAR Plot (Band 4 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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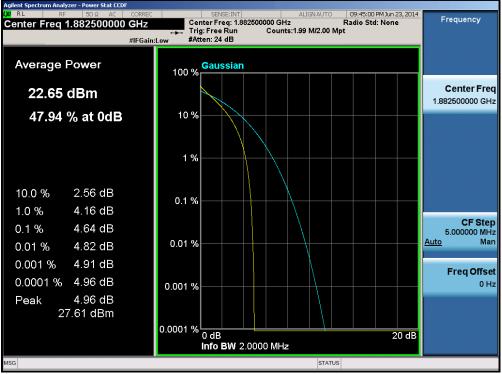
Plot 6-251. PAR Plot (Band 4 – 20.0MHz QPSK – RB Size 100)



Plot 6-252. PAR Plot (Band 4 – 20.0MHz 16-QAM – RB Size 100)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	💽 LG	Reviewed by: Quality Manager	
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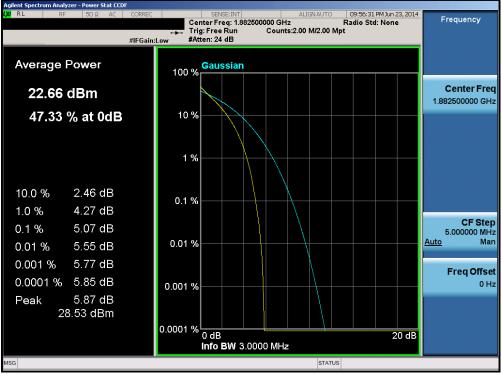
Plot 6-253. PAR Plot (Band 25 – 1.4MHz QPSK – RB Size 6)

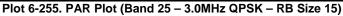


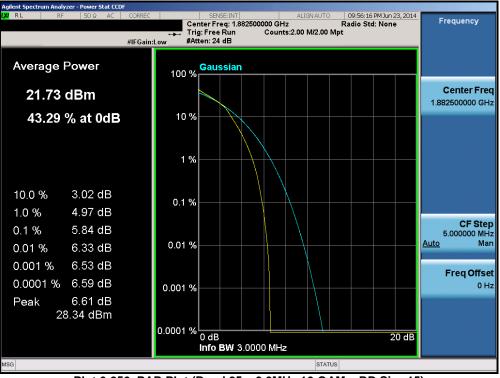
Plot 6-254. PAR Plot (Band 25 - 1.4MHz 16-QAM - RB Size 6)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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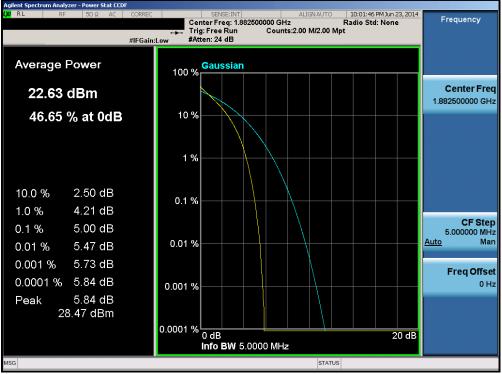


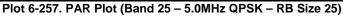


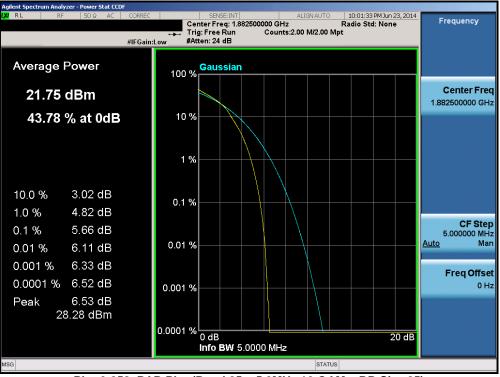
Plot 6-256. PAR Plot (Band 25 - 3.0MHz 16-QAM - RB Size 15)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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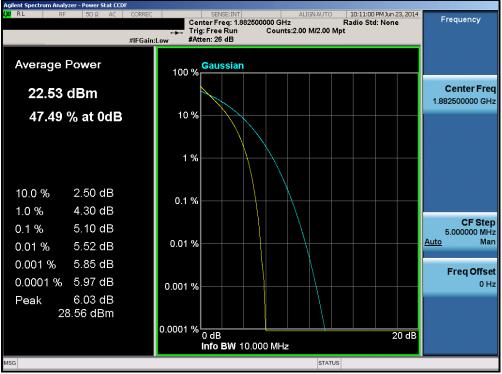




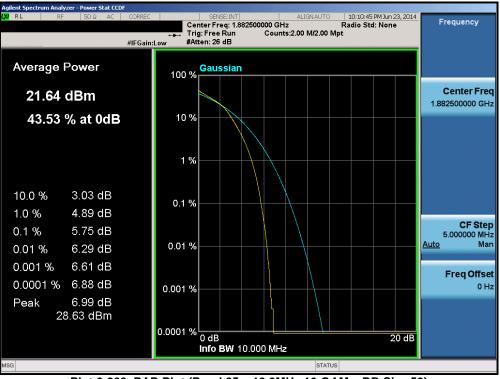
Plot 6-258. PAR Plot (Band 25 - 5.0MHz 16-QAM - RB Size 25)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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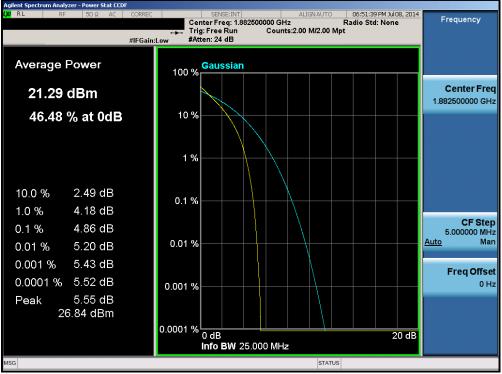
Plot 6-259. PAR Plot (Band 25 – 10.0MHz QPSK – RB Size 50)



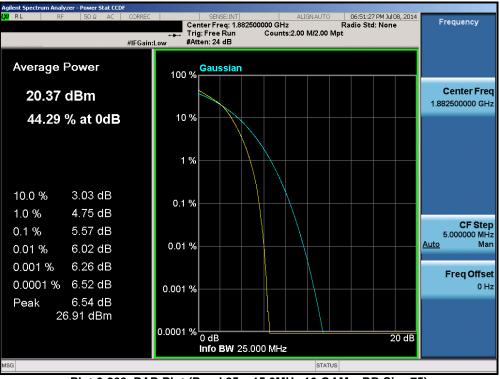
Plot 6-260. PAR Plot (Band 25 - 10.0MHz 16-QAM - RB Size 50)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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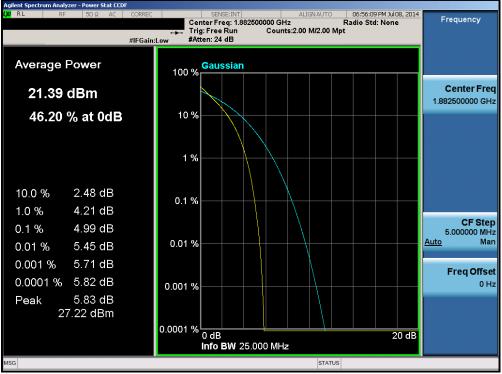
Plot 6-261. PAR Plot (Band 25 – 15.0MHz QPSK – RB Size 75)



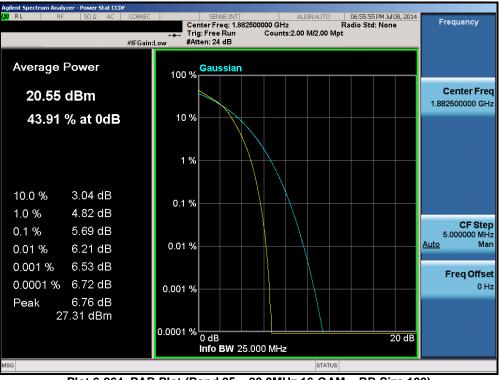
Plot 6-262. PAR Plot (Band 25 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Plot 6-263. PAR Plot (Band 25 - 20.0MHz QPSK - RB Size 100)



Plot 6-264. PAR Plot (Band 25 - 20.0MHz 16-QAM - RB Size 100)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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#### 6.6 Radiated Power (ERP/EIRP) §22.913(a.2) §24.232(c) §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-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically 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 v02r01 – Section 5.2.1

ANSI/TIA-603-C-2004 - Section 2.2.17

#### Test Settings

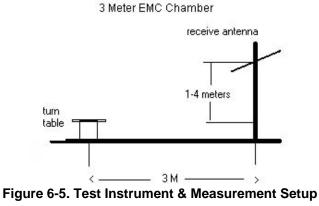
- Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
- 2. RBW = 1 5% of the expected OBW, not 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". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
- 8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
- 9. Trace mode = trace averaging (RMS) over 100 sweeps
- 10. The trace was allowed to stabilize

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#### Test Setup

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



#### Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) The EUT is supplied with a new/fully-recharged battery. The battery for this model BL-53YH contains an embedded NFC antenna.

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery Cover	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	Ant. Pol. [H/V]	EUT Pol.	ERP [dBm]	ERP [Watts]	Margin [dB]
699.70	1.4	QPSK	Standard	1 / 0	16.89	2.71	V	V	19.60	0.091	-15.17
707.50	1.4	QPSK	Standard	1 / 0	16.65	2.71	V	V	19.36	0.086	-15.41
715.30	1.4	QPSK	Standard	1 / 0	16.04	2.71	V	V	18.75	0.075	-16.02
699.70	1.4	16-QAM	Standard	1 / 5	15.68	2.71	V	V	18.39	0.069	-16.38
707.50	1.4	16-QAM	Standard	1 / 0	15.64	2.71	V	V	18.35	0.068	-16.42
715.30	1.4	16-QAM	Standard	1 / 5	15.24	2.71	V	V	17.95	0.062	-16.82
700.50	3	QPSK	Standard	1 / 0	16.38	2.71	V	V	19.09	0.081	-15.68
707.50	3	QPSK	Standard	1 / 0	16.24	2.71	V	V	18.95	0.079	-15.82
714.50	3	QPSK	Standard	1 / 0	15.60	2.71	V	V	18.31	0.068	-16.46
700.50	3	16-QAM	Standard	1 / 0	15.29	2.71	V	V	18.00	0.063	-16.77
707.50	3	16-QAM	Standard	1 / 0	14.95	2.71	V	V	17.66	0.058	-17.11
714.50	3	16-QAM	Standard	1 / 14	14.47	2.71	V	V	17.18	0.052	-17.59
701.50	5	QPSK	Standard	1 / 0	16.96	2.71	V	V	19.67	0.093	-15.10
707.50	5	QPSK	Standard	1 / 0	16.81	2.71	V	V	19.52	0.090	-15.25
713.50	5	QPSK	Standard	1 / 0	16.31	2.71	V	V	19.02	0.080	-15.75
701.50	5	16-QAM	Standard	1 / 0	15.68	2.71	V	V	18.39	0.069	-16.38
707.50	5	16-QAM	Standard	1 / 0	15.53	2.71	V	V	18.24	0.067	-16.53
713.50	5	16-QAM	Standard	1 / 24	15.11	2.71	V	V	17.82	0.061	-16.95
704.00	10	QPSK	Standard	1 / 0	16.80	2.71	V	V	19.51	0.089	-15.26
707.50	10	QPSK	Standard	1/0	16.58	2.71	V	V	19.29	0.085	-15.48
711.00	10	QPSK	Standard	1/0	16.84	2.71	V	V	19.55	0.090	-15.22
704.00	10	16-QAM	Standard	1/0	15.76	2.71	V	V	18.47	0.070	-16.30
707.50	10	16-QAM	Standard	1/0	15.03	2.71	V	V	17.74	0.059	-17.03
711.00	10	16-QAM	Standard	1/0	15.95	2.71	V	V	18.66	0.073	-16.11
701.50	5	QPSK	WCC	1 / 0	7.86	2.71	V	Н	10.57	0.011	-24.20

Table 6-2. ERP Data (Band 12)

FCC ID: ZNFUS990	A PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery Cover	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	Ant. Pol. [H/V]	EUT Pol.	ERP [dBm]	ERP [Watts]	Margin [dB]
824.70	1.4	QPSK	Standard	1/0	16.29	4.60	V	V	20.89	0.123	-17.56
836.50	1.4	QPSK	Standard	1 / 5	15.88	4.82	V	V	20.70	0.118	-17.75
848.30	1.4	QPSK	Standard	1 / 0	15.81	5.04	V	V	20.85	0.122	-17.60
824.70	1.4	16-QAM	Standard	1 / 0	15.10	4.60	V	V	19.70	0.093	-18.75
836.50	1.4	16-QAM	Standard	1 / 0	14.68	4.82	V	V	19.50	0.089	-18.95
848.30	1.4	16-QAM	Standard	1 / 5	14.67	5.04	V	V	19.71	0.094	-18.74
825.50	3	QPSK	Standard	1 / 14	15.88	4.62	V	V	20.50	0.112	-17.95
836.50	3	QPSK	Standard	1 / 0	16.36	4.82	V	V	21.18	0.131	-17.27
847.50	3	QPSK	Standard	1 / 0	16.23	5.02	V	V	21.25	0.133	-17.20
825.50	3	16-QAM	Standard	1 / 14	14.72	4.62	V	V	19.34	0.086	-19.11
836.50	3	16-QAM	Standard	1 / 0	15.14	4.82	V	V	19.96	0.099	-18.49
847.50	3	16-QAM	Standard	1 / 14	15.11	5.02	V	V	20.13	0.103	-18.32
826.50	5	QPSK	Standard	1 / 24	15.47	4.64	V	V	20.11	0.102	-18.34
836.50	5	QPSK	Standard	1 / 0	15.88	4.82	V	V	20.70	0.118	-17.75
846.50	5	QPSK	Standard	1 / 24	15.76	5.01	V	V	20.77	0.119	-17.68
826.50	5	16-QAM	Standard	1 / 24	14.20	4.64	V	V	18.84	0.077	-19.61
836.50	5	16-QAM	Standard	1 / 0	14.61	4.82	V	V	19.43	0.088	-19.02
846.50	5	16-QAM	Standard	1 / 24	14.56	5.01	V	V	19.57	0.091	-18.88
829.00	10	QPSK	Standard	1 / 49	15.92	4.68	V	V	20.60	0.115	-17.85
836.50	10	QPSK	Standard	1/0	15.93	4.82	V	V	20.75	0.119	-17.70
844.00	10	QPSK	Standard	1/0	15.46	4.96	V	V	20.42	0.110	-18.03
829.00	10	16-QAM	Standard	1 / 49	14.72	4.68	V	V	19.40	0.087	-19.05
836.50	10	16-QAM	Standard	1/0	14.68	4.82	V	V	19.50	0.089	-18.95
844.00	10	16-QAM	Standard	1/0	14.30	4.96	V	V	19.26	0.084	-19.19
847.50	3	QPSK	WCC	1 / 0	4.73	5.02	V	Н	9.75	0.009	-28.70

Table 6-3. ERP Data (Band 5)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery Cover	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EUT Pol.	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1710.70	1.4	QPSK	Standard	1 / 5	7.22	9.89	V	V	17.11	0.051	-12.89
1732.50	1.4	QPSK	Standard	1 / 5	9.08	9.85	V	V	18.93	0.078	-11.07
1754.30	1.4	QPSK	Standard	1 / 5	12.59	9.80	V	V	22.39	0.174	-7.61
1710.70	1.4	16-QAM	Standard	1 / 5	6.01	9.89	V	v	15.90	0.039	-14.10
1732.50	1.4	16-QAM	Standard	1 / 5	8.76	9.85	V	v	18.61	0.073	-11.39
1754.30	1.4	16-QAM	Standard	1 / 5	11.38	9.80	V	V	21.18	0.131	-8.82
1711.50	3	QPSK	Standard	1 / 0	6.79	9.89	V	V	16.68	0.047	-13.32
1732.50	3	QPSK	Standard	1 / 14	7.31	9.85	V	V	17.16	0.052	-12.84
1753.50	3	QPSK	Standard	1 / 14	12.73	9.81	V	V	22.54	0.179	-7.46
1711.50	3	16-QAM	Standard	1 / 14	5.55	9.89	V	V	15.44	0.035	-14.56
1732.50	3	16-QAM	Standard	1 / 14	6.88	9.85	V	V	16.73	0.047	-13.27
1753.50	3	16-QAM	Standard	1 / 14	11.43	9.81	V	V	21.24	0.133	-8.76
1712.50	5	QPSK	Standard	1 / 0	7.26	9.89	V	V	17.15	0.052	-12.85
1732.50	5	QPSK	Standard	1 / 24	9.11	9.85	V	V	18.96	0.079	-11.04
1752.50	5	QPSK	Standard	1 / 24	13.43	9.81	V	V	23.24	0.211	-6.76
1712.50	5	16-QAM	Standard	1 / 0	5.88	9.89	V	V	15.77	0.038	-14.23
1732.50	5	16-QAM	Standard	1 / 24	7.88	9.85	V	V	17.73	0.059	-12.27
1752.50	5	16-QAM	Standard	1 / 24	12.02	9.81	V	V	21.83	0.152	-8.17
1715.00	10	QPSK	Standard	1 / 0	6.13	9.88	V	V	16.01	0.040	-13.99
1732.50	10	QPSK	Standard	1 / 49	3.16	9.85	V	v	13.01	0.020	-16.99
1750.00	10	QPSK	Standard	1 / 49	12.32	9.81	V	v	22.13	0.163	-7.87
1715.00	10	16-QAM	Standard	1 / 0	4.74	9.88	V	V	14.62	0.029	-15.38
1732.50	10	16-QAM	Standard	1 / 49	2.53	9.85	V	V	12.38	0.017	-17.62
1750.00	10	16-QAM	Standard	1 / 49	10.99	9.81	V	V	20.80	0.120	-9.20
1717.50	15	QPSK	Standard	1 / 74	11.97	9.88	V	V	21.85	0.153	-8.15
1732.50	15	QPSK	Standard	1 / 0	11.98	9.85	V	V	21.83	0.152	-8.17
1747.50	15	QPSK	Standard	1 / 0	10.59	9.82	V	V	20.41	0.110	-9.59
1717.50	15	16-QAM	Standard	1 / 74	10.80	9.88	V	V	20.68	0.117	-9.32
1732.50	15	16-QAM	Standard	1/0	10.84	9.85	V	V	20.69	0.117	-9.31
1747.50	15	16-QAM	Standard	1 / 74	9.34	9.82	V	v	19.16	0.082	-10.84
1720.00	20	QPSK	Standard	1 / 99	12.50	9.87	V	V	22.37	0.173	-7.63
1732.50	20	QPSK	Standard	1/0	12.07	9.85	V	V	21.92	0.155	-8.08
1745.00	20	QPSK	Standard	1/0	11.99	9.82	V	v	21.81	0.152	-8.19
1720.00	20	16-QAM	Standard	1 / 99	11.48	9.87	V	v	21.35	0.137	-8.65
1732.50	20	16-QAM	Standard	1/0	10.84	9.85	v	v	20.69	0.117	-9.31
1745.00	20	16-QAM	Standard	1/0	10.87	9.82	v	v	20.69	0.117	-9.31
1752.50	5	QPSK	WCC	1/0	7.52	7.66	V	н	15.18	0.033	-14.82

#### Table 6-4. EIRP Data (Band 4)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery Cover	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EUT Pol.	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1850.70	1.4	QPSK	Standard	1 / 5	9.55	9.60	V	H2	19.15	0.082	-13.86
1882.50	1.4	QPSK	Standard	1/0	11.83	9.53	V	H2	21.36	0.137	-11.65
1914.30	1.4	QPSK	Standard	1 / 0	10.93	9.47	V	H2	20.40	0.110	-12.61
1850.70	1.4	16-QAM	Standard	1 / 5	8.98	9.60	V	H2	18.58	0.072	-14.43
1882.50	1.4	16-QAM	Standard	1 / 0	10.73	9.53	V	H2	20.26	0.106	-12.75
1914.30	1.4	16-QAM	Standard	1 / 0	9.91	9.47	V	H2	19.38	0.087	-13.63
1851.50	3	QPSK	Standard	1 / 14	13.03	9.60	V	H2	22.62	0.183	-10.39
1882.50	3	QPSK	Standard	1 / 14	14.96	9.53	V	H2	24.49	0.281	-8.52
1913.50	3	QPSK	Standard	1/0	13.86	9.47	V	H2	23.33	0.215	-9.68
1851.50	3	16-QAM	Standard	1 / 14	12.43	9.60	V	H2	22.03	0.159	-10.98
1882.50	3	16-QAM	Standard	1 / 0	13.68	9.53	V	H2	23.21	0.209	-9.80
1913.50	3	16-QAM	Standard	1 / 0	12.55	9.47	V	H2	22.02	0.159	-10.99
1852.50	5	QPSK	Standard	1 / 24	11.57	9.59	V	H2	21.16	0.131	-11.85
1882.50	5	QPSK	Standard	1 / 24	12.79	9.53	V	H2	22.32	0.170	-10.69
1912.50	5	QPSK	Standard	1/0	13.65	9.47	V	H2	23.12	0.205	-9.89
1852.50	5	16-QAM	Standard	1 / 24	10.44	9.59	V	H2	20.03	0.101	-12.98
1882.50	5	16-QAM	Standard	1 / 0	11.47	9.53	V	H2	21.00	0.126	-12.01
1912.50	5	16-QAM	Standard	1 / 0	12.55	9.47	V	H2	22.02	0.159	-10.99
1855.00	10	QPSK	Standard	1 / 49	11.54	9.59	V	H2	21.13	0.130	-11.88
1882.50	10	QPSK	Standard	1/0	12.65	9.53	V	H2	22.18	0.165	-10.83
1910.00	10	QPSK	Standard	1 / 49	13.50	9.47	V	H2	22.97	0.198	-10.04
1855.00	10	16-QAM	Standard	1 / 49	10.28	9.59	V	H2	19.87	0.097	-13.14
1882.50	10	16-QAM	Standard	1 / 0	11.49	9.53	V	H2	21.02	0.126	-11.99
1910.00	10	16-QAM	Standard	1 / 0	12.19	9.47	V	H2	21.66	0.147	-11.35
1857.50	15	QPSK	Standard	1 / 74	8.42	9.58	V	H2	18.00	0.063	-15.01
1882.50	15	QPSK	Standard	1/0	8.86	9.53	V	H2	18.39	0.069	-14.62
1907.50	15	QPSK	Standard	1 / 74	7.78	9.48	V	H2	17.26	0.053	-15.75
1857.50	15	16-QAM	Standard	1 / 74	7.37	9.58	V	H2	16.95	0.050	-16.06
1882.50	15	16-QAM	Standard	1/0	7.86	9.53	V	H2	17.39	0.055	-15.62
1907.50	15	16-QAM	Standard	1 / 74	6.64	9.48	V	H2	16.12	0.041	-16.89
1860.00	20	QPSK	Standard	1 / 99	9.46	9.58	V	H2	19.04	0.080	-13.97
1882.50	20	QPSK	Standard	1 / 99	9.19	9.53	V	H2	18.72	0.074	-14.29
1905.00	20	QPSK	Standard	1/0	9.96	9.48	V	H2	19.44	0.088	-13.57
1860.00	20	16-QAM	Standard	1 / 99	6.49	9.58	V	H2	16.07	0.040	-16.94
1882.50	20	16-QAM	Standard	1 / 99	8.05	9.53	V	H2	17.58	0.057	-15.43
1905.00	20	16-QAM	Standard	1/0	8.88	9.48	V	H2	18.36	0.069	-14.65
1882.50	3	QPSK	WCC	1/0	2.98	7.38	V	н	10.36	0.011	-22.65
			Table	6-5 FIR	P Data	(Bar	nd 24	5)			

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#### 6.7 Radiated Spurious Emissions Measurements §2.1053 §22.917(a) §24.238(a) §27.53(e) §27.53(f) §27.53(g)

#### **Test Overview**

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

#### **Test Procedures Used**

KDB 971168 v02r01 - Section 5.8

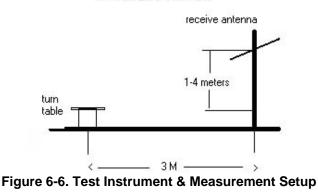
ANSI/TIA-603-C-2004 – Section 2.2.12

#### **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  $\geq$  2 x span / RBW
- 5. Detector = Peak
- 6. Trace mode = max hold
- 7. The trace was allowed to stabilize

#### Test Setup

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



3 Meter EMC Chamber

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#### Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. 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) The EUT is supplied with a new/fully-recharged battery. The battery for this model BL-53YH contains an embedded NFC antenna.
- 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.

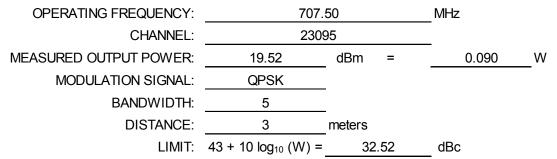
OPERATING FREQUENCY:	701.	MHz	
CHANNEL:	2303	35	_
MEASURED OUTPUT POWER:	19.67	dBm =	0.093 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	5.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	32.67	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1403.00	-52.82	5.66	-47.16	V	V	66.8
2104.50	-56.41	6.63	-49.78	V	V	69.4
2806.00	-60.56	7.84	-52.73	V	V	72.4

Table 6-6. Radiated Spurious Data (Band 12 – Low Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	IdRei
1415.00	-58.85	5.73	-53.12	V	V	72.6
2122.50	-62.11	6.73	-55.38	V	V	74.9
2830.00	-61.69	7.80	-53.90	V	V	73.4

 Table 6-7. Radiated Spurious Data (Band 12 – Mid Channel)

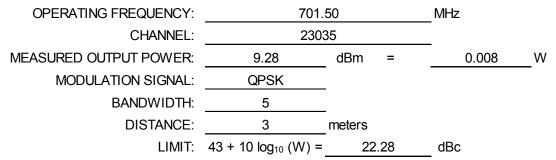
OPERATING FREQUENCY:	713.	50	MHz
CHANNEL:	2315	55	_
MEASURED OUTPUT POWER:	19.02	dBm =	0.080 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	5		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	32.02	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	IdRCI
1427.00	-57.28	5.80	-51.48	V	V	70.5
2140.50	-61.95	6.83	-55.12	V	V	74.1
2854.00	-60.22	7.76	-52.46	V	V	71.5

Table 6-8. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]		EUT Pol. [H/H2/V]	[dBc]
1403.00	-49.31	5.66	-43.65	Н	Н	52.9
2104.50	-52.66	6.63	-46.03	Н	Н	55.3
2806.00	-54.39	7.84	-46.56	Н	Н	55.8

Table 6-9. Radiated Spurious Data with WCC (Band 12 – 23035)

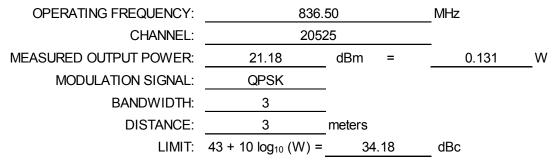
OPERATING FREQUENCY:	825.	50	MHz
CHANNEL:	204	15	_
MEASURED OUTPUT POWER:	20.50	dBm =	0.112 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	3.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	33.50	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1651.00	-52.07	6.56	-45.51	Н	H2	66.0
2476.50	-49.61	7.30	-42.31	Н	H2	62.8
3302.00	-48.21	7.37	-40.84	Н	H2	61.3

Table 6-10. Radiated Spurious Data (Band 5 – Low Channel)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1673.00	-54.29	6.55	-47.74	Н	H2	68.9
2509.50	-50.21	7.34	-42.86	Н	H2	64.0
3346.00	-50.00	7.44	-42.56	Н	H2	63.7

Table 6-11. Radiated Spurious Data (Band 5 – Mid Channel)

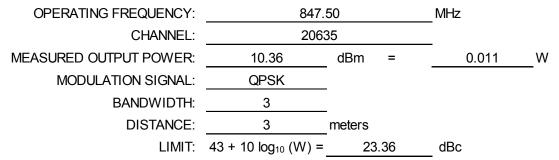
OPERATING FREQUENCY:		50	MHz
CHANNEL:	2063	35	_
MEASURED OUTPUT POWER:	21.25	dBm =	0.133 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	3		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	34.25	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1695.00	-52.41	6.55	-45.86	Н	H2	67.1
2542.50	-50.78	7.36	-43.42	Н	H2	64.7
3390.00	-56.90	7.51	-49.39	Н	H2	70.6

Table 6-12. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1695.00	-50.23	6.55	-43.68	Н	Н	54.0
2542.50	-57.16	7.36	-49.80	Н	Н	60.2
3390.00	-60.56	7.51	-53.05	Н	Н	63.4

Table 6-13. Radiated Spurious Data with WCC (Band 5 – 20635)

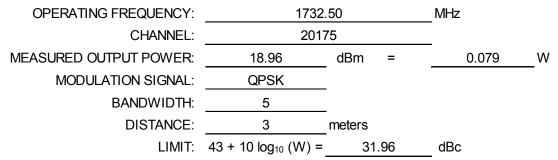
OPERATING FREQUENCY:	1712	.50	MHz
CHANNEL:	199	75	_
MEASURED OUTPUT POWER:	17.15	dBm =	0.052 W
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	5.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	30.15	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
3425.00	-44.41	9.68	-34.72	Н	Н	51.9
5137.50	-45.62	10.68	-34.94	Н	Н	52.1
6850.00	-51.74	11.74	-40.00	Н	Н	57.1

Table 6-14. Radiated Spurious Data (Band 4 – Low Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
3465.00	-42.62	9.71	-32.91	Н	Н	51.9
5197.50	-46.57	10.59	-35.99	Н	Н	54.9
6930.00	-50.76	11.75	-39.01	Н	Н	58.0

Table 6-15. Radiated Spurious Data (Band 4 – Mid Channel)

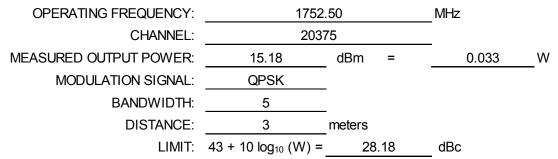
OPERATING FREQUENCY:	1752.	.50	MHz
CHANNEL:	2037	75	_
MEASURED OUTPUT POWER:	23.24	dBm =	0.211 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	5		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	36.24	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
3505.00	-44.09	9.73	-34.37	Н	Н	57.6
5257.50	-42.21	10.64	-31.57	Н	Н	54.8
7010.00	-50.91	11.75	-39.16	Н	Н	62.4

Table 6-16. Radiated Spurious Data (Band 4 – High Channel)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
3505.00	-46.87	9.73	-37.15	Н	Н	60.4
5257.50	-52.39	10.64	-41.75	Н	Н	65.0
7010.00	-46.84	11.75	-35.09	Н	Н	58.3

Table 6-17. Radiated Spurious Data with WCC (Band 4 – 20375)

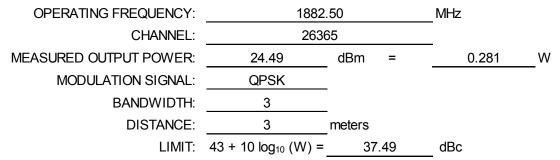
OPERATING FREQUENCY:	1851.50		MHz
CHANNEL:	260	55	_
MEASURED OUTPUT POWER:	22.62	dBm =	0.183 W
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	3.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	35.62	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
3703.00	-46.95	9.43	-37.52	Н	Н	60.1
5554.50	-42.01	10.79	-31.22	Н	Н	53.8
7406.00	-44.77	10.70	-34.07	Н	Н	56.7

Table 6-18. Radiated Spurious Data (Band 25 – Low Channel)

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
3765.00	-44.77	9.27	-35.50	Н	Н	60.0
5647.50	-44.20	11.06	-33.14	Н	Н	57.6
7530.00	-45.96	10.99	-34.97	Н	Н	59.5

 Table 6-19. Radiated Spurious Data (Band 25 – Mid Channel)

OPERATING FREQUENCY:	1913.50		MHz
CHANNEL:	26675		_
MEASURED OUTPUT POWER:	23.33	dBm =	0.215 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	3		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	36.33	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	IdRCI
3827.00	-45.18	9.20	-35.98	Н	Н	59.3
5740.50	-46.20	11.30	-34.89	Н	Н	58.2
7654.00	-40.07	11.19	-28.89	Н	Н	52.2

Table 6-20. Radiated Spurious Data (Band 25 – High Channel)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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OPERATING FREQUENCY:	1882.50		MHz
CHANNEL:	2636		
MEASURED OUTPUT POWER:	10.36	dBm =	0.011 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	3		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log <sub>10</sub> (W) =	23.36	dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
3765.00	-44.56	9.27	-35.29	Н	Н	45.6
5647.50	-41.78	11.06	-30.72	Н	Н	41.1
7530.00	-44.50	10.99	-33.51	Н	Н	43.9

Table 6-21. Radiated Spurious Data with WCC (Band 25 – 26365)

FCC ID: ZNFUS990	<u>PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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#### 6.8 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-C-2004. The frequency stability of the transmitter is measured by:

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

For Part 22, the frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  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-C-2004

#### Test Settings

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

#### Test Setup

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

#### **Test Notes**

None

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## Band 12 Frequency Stability Measurements §2.1055 §27.54

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	_
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	707,500,019	19	0.0000027
100 %		- 30	707,499,972	-28	-0.0000040
100 %		- 20	707,500,017	17	0.0000024
100 %		- 10	707,500,021	21	0.0000030
100 %		0	707,499,972	-28	-0.0000040
100 %		+ 10	707,500,023	23	0.0000033
100 %		+ 20	707,499,984	-16	-0.0000023
100 %		+ 30	707,500,024	24	0.0000034
100 %		+ 40	707,499,977	-23	-0.0000033
100 %		+ 50	707,500,015	15	0.0000021
115 %	4.37	+ 20	707,499,972	-28	-0.0000040
BATT. ENDPOINT	3.50	+ 20	707,499,975	-25	-0.0000035

Table 6-22. Frequency Stability Data (Band 12)

#### 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 12 Frequency Stability Measurements §2.1055 §27.54

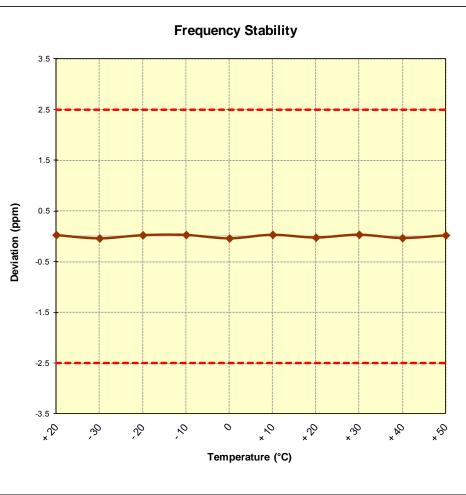


Figure 6-7. Frequency Stability Graph (Band 12)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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# Band 5 Frequency Stability Measurements §2.1055 §22.355

OPERATING FREQUENCY:	836,500,000	Hz
CHANNEL:	20525	
REFERENCE VOLTAGE:	3.80	VDC
<b>DEVIATION LIMIT:</b>	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	836,500,019	19	0.0000023
100 %		- 30	836,499,982	-18	-0.0000022
100 %		- 20	836,500,020	20	0.0000024
100 %		- 10	836,500,030	30	0.0000036
100 %		0	836,499,978	-22	-0.0000026
100 %		+ 10	836,500,019	19	0.0000023
100 %		+ 20	836,499,983	-17	-0.0000020
100 %		+ 30	836,500,024	24	0.0000029
100 %		+ 40	836,499,974	-26	-0.0000031
100 %		+ 50	836,500,017	17	0.0000020
115 %	4.37	+ 20	836,499,981	-19	-0.0000023
BATT. ENDPOINT	3.50	+ 20	836,499,985	-15	-0.0000018

Table 6-23. Frequency Stability Data (Band 5)

FCC ID: ZNFUS990	A PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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# Band 5 Frequency Stability Measurements §2.1055 §22.355

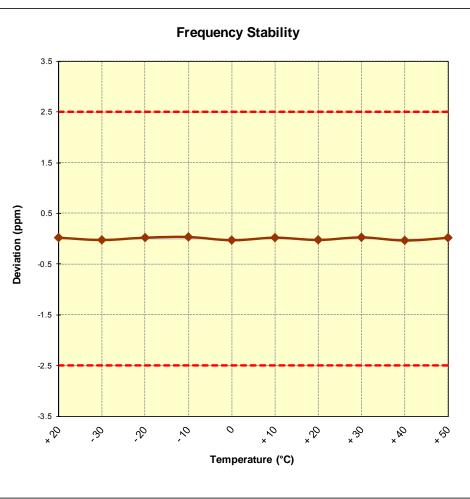


Figure 6-8. Frequency Stability Graph (Band 5)

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed 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:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,732,500,016	16	0.0000009
100 %		- 30	1,732,499,975	-25	-0.0000014
100 %		- 20	1,732,500,021	21	0.0000012
100 %		- 10	1,732,500,023	23	0.0000013
100 %		0	1,732,499,973	-27	-0.0000016
100 %		+ 10	1,732,500,028	28	0.0000016
100 %		+ 20	1,732,499,984	-16	-0.0000009
100 %		+ 30	1,732,500,016	16	0.0000009
100 %		+ 40	1,732,499,970	-30	-0.0000017
100 %		+ 50	1,732,500,019	19	0.0000011
115 %	4.37	+ 20	1,732,499,981	-19	-0.0000011
BATT. ENDPOINT	3.50	+ 20	1,732,499,973	-27	-0.0000016

Table 6-24. 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.

FCC ID: ZNFUS990		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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# Band 4 Frequency Stability Measurements §2.1055 §§27.54

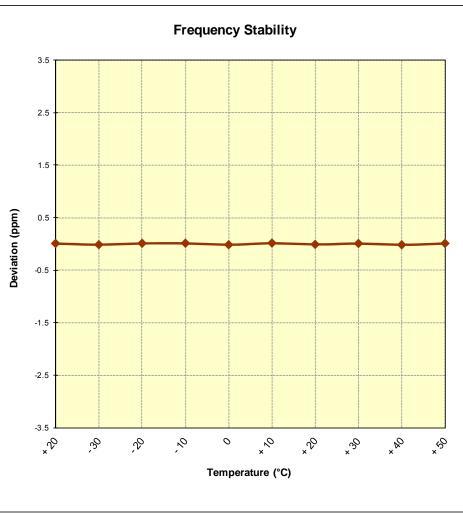


Figure 6-9. Frequency Stability Graph (Band 4)

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## Band 25 Frequency Stability Measurements §2.1055 §24.235

OPERATING FREQUENCY:	1,882,500,000	Hz
CHANNEL:	26365	_
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,882,500,015	15	0.0000008
100 %		- 30	1,882,499,981	-19	-0.0000010
100 %		- 20	1,882,500,027	27	0.0000014
100 %		- 10	1,882,500,025	25	0.0000013
100 %		0	1,882,499,976	-24	-0.0000013
100 %		+ 10	1,882,500,027	27	0.0000014
100 %		+ 20	1,882,499,977	-23	-0.0000012
100 %		+ 30	1,882,500,022	22	0.0000012
100 %		+ 40	1,882,499,976	-24	-0.0000013
100 %		+ 50	1,882,500,017	17	0.0000009
115 %	4.37	+ 20	1,882,499,979	-21	-0.0000011
BATT. ENDPOINT	3.50	+ 20	1,882,499,985	-15	-0.0000008

Table 6-25. Frequency Stability Data (Band 25)

#### 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.

FCC ID: ZNFUS990	A PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Reviewed by: Quality Manager
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### Band 25 Frequency Stability Measurements §2.1055 §24.235

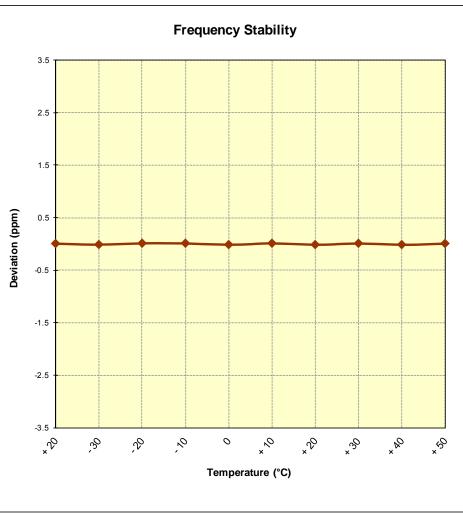


Figure 6-10. Frequency Stability Graph (Band 25)

FCC ID: ZNFUS990	<u> PCTEST</u>	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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### 7.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFUS990** complies with all the requirements of Parts 2, 22, 24, 27 of the FCC rules for LTE operation only.

FCC ID: ZNFUS990	PCTEST	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
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