



Plot 6-117. Lower Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)



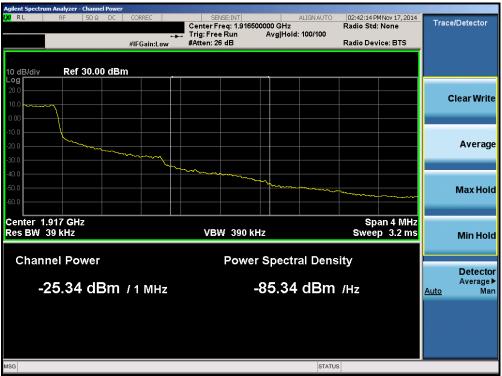
Plot 6-118. Lower Extended Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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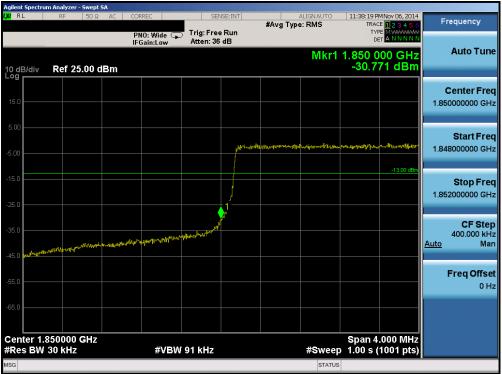
Plot 6-119. Upper Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)



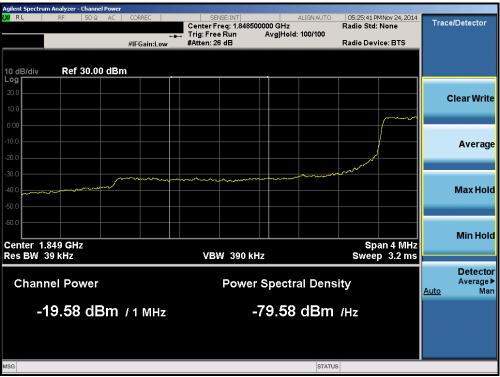
Plot 6-120. Upper Extended Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)

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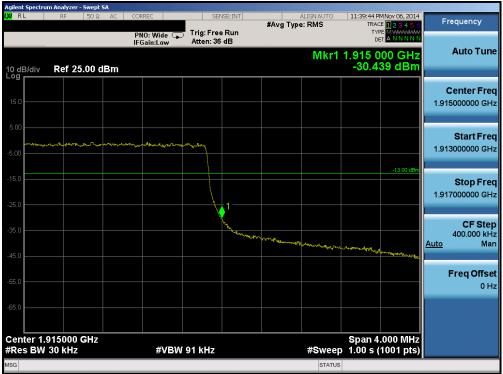
Plot 6-121. Lower Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)



Plot 6-122. Lower Extended Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)

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Plot 6-123. Upper Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)

Agilent Spectr		Swept SA											
<mark>X/</mark> RL	RF	50Ω A					NSE:INT	#Avg	ALIGNAUTO Type: RMS	TRAC	MNov 06, 2014	Fr	equency
			P1 IFC	10: Fast Sain:Lov		Trig: Fre Atten: 36							Auto Tune
10 dB/div Log	Ref 25	.00 dBr	m						Mkr1	1.916 (-13.	00 GHz 59 dBm		Auto Tune
												(Center Freq
15.0												1.91	8000000 GHz
5.00													Start Freq
-5.00												1.91	6000000 GHz
-15.0											-13.00 dBm		Stop Freq
-25.0												1.92	0000000 GHz
35.0													CF Step 400.000 kHz
45.0									<u> </u>		· · · · · · · · · · · · · · · · · · ·	<u>Auto</u>	Mar
													Freq Offset
-55.0													0 Hz
-65.0													
	.918000 ((D)(())				"O wers	Span 4	.000 MHz		
#Res BW	1.0 MHz			#V	лым з	6.0 MHz			#Sweep		(1001 pts)		

Plot 6-124. Upper Extended Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)

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Plot 6-125. Lower Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)

	trum Analyzer -	Swept SA									
L <mark>XI</mark> RL	RF	50Ω AC	PNO: Fast	SENSE	lun	#Avg Typ	ALIGN AUTO e: RMS	TRAC	MNOV 06, 2014 1 2 3 4 5 6 E MWWWWWW T A N N N N N	F	equency
10 dB/di	v Ref 25	.00 dBm	IFGain:Low	Atten: 36 dl	B		Mkr1	1.849 0	00 GHz 14 dBm		Auto Tune
15.0											Center Freq 7000000 GHz
-5.00										1.84	Start Freq 5000000 GHz
-15.0							and a constant constant descence of a standard	and and the former and prover and the second se	-13.00 6 1	1.84	Stop Freq 9000000 GHz
-35.0			and a stand of the							Auto	CF Step 400.000 kHz Man
-55.0											Freq Offset 0 Hz
-65.0											
	1.847000 (W 1.0 MHz		#VBW	3.0 MHz			#Sweep	Span 4. 3.00 s (000 MHz 1001 pts)		
MSG							STATUS				

Plot 6-126. Lower Extended Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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Plot 6-127. Upper Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)

Agilent Spectru										
L <mark>XI</mark> RL	RF	50Ω AC	CORREC		#Avg Typ	ALIGNAUTO De: RMS	11:45:22 Pf TRAC	MNov 06, 2014 E 1 2 3 4 5 6 M M M M M M M T A N N N N N	Fred	quency
10 dB/div	Ref 25	.00 dBm	PNO: Fast IFGain:Low	Atten: 36		Mkr1	1.916 0	00 GHz 26 dBm	4	uto Tune
15.0										e nter Freq 00000 GHz
-5.00								-13.00 dBm		Start Freq 00000 GHz
-15.0 1								-10.00 0.0m		Stop Freq 00000 GHz
-35.0				****	Alphanen - Angelander				4 <u>Auto</u>	CF Step 00.000 kHz Man
-55.0									Fr	r eq Offset 0 Hz
-65.0 Center 1.							Span 4	.000 MHz		
#Res BW	1.0 MHz		#VE	3W 3.0 MHz		-	3.00 s (1001 pts)		
MSG						STATUS				

Plot 6-128. Upper Extended Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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	m Analyzer - Swept S						1		
L <mark>XI</mark> RL	RF 50 Ω	AC CORREC		SENSE:INT	#Avg Typ	ALIGNAUTO	11:50:16 PMN TRACE	ov 06, 2014	Frequency
		PNO: W IFGain:		Free Run n: 36 dB	• •		TYPE		
		IFGain:	Low Alle	n. 50 ab		Miked	1 950 00		Auto Tune
10 dB/div	Ref 25.00 dl	Bm					1.850 00 -35.438	dBm	
									Center Freq
15.0									1.85000000 GHz
5.00								I	
					"Constitute in the second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Start Freq 1.846000000 GHz
-5.00									1.846000000 GHZ
								-13.00 dBm	
-15.0									Stop Freq
-25.0									1.854000000 GHz
-20.0				4 1					
-35.0				مربع المربع الم					CF Step
	www.wath	www.er.er.er.er.er.er.er.er.er	station of the second	and the second					800.000 kHz Auto Man
-45.0									
									Freq Offset
-55.0									0 Hz
-65.0									
	350000 GHz						Span 8.0	00 MHz	
#Res BW	100 kHz		#VBW 300	kHz		#Sweep	1.00 s (10	01 pts)	
MSG						STATUS			

Plot 6-129. Lower Band Edge Plot (Band 25 – 10.0MHz QPSK – RB Size 50)

Agilent Spectru	ım Analyzer -	Swept SA									
(X) RL	RF	50Ω A	AC COR			#Avg Typ	ALIGN AUTO e: RMS	TRAC	MNov 06, 2014 E 1 2 3 4 5 6 E MWWWWWW T A N N N N N	F	requency
			IFG	lO: Fast ↔ ain:Low	Atten: 36		Miced		96 GHz		Auto Tune
10 dB/div Log	Ref 25	.00 dBi	m					-26.	36 GH2 34 dBm		
											Center Freq
15.0										1.84	7000000 GHz
5.00											Start Freq
-5.00										1.84	5000000 GHz
-15.0									-13.00 dBm		Stop Freq
									1,	1.84	9000000 GHz
-25.0				1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			ally for the start of the start of some starts		are to all of the second second		CF Step
-35.0										Auto	400.000 kHz Man
-45.0											marr
-55.0											Freq Offset 0 Hz
-65.0											0112
Center 1. #Res BW				#\/B\A	3.0 MHz		#Sween	Span 4	.000 MHz 1001 pts)		
MSG				# V D V	- 3.0 19112		status	J.00 S (roor pis)		

Plot 6-130. Lower Extended Band Edge Plot (Band 25 – 10.0MHz QPSK – RB Size 50)

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Plot 6-131. Upper Band Edge Plot (Band 25 – 10.0MHz QPSK – RB Size 50)

	um Analyzer - Sv	vept SA									
L XI RL	RF 5	50Ω AC	CORREC		BE:INT	#Avg Typ	ALIGN AUTO e: RMS	11:52:07 P	MNOV 06, 2014 E 1 2 3 4 5 6 E MWWWWW A N N N N N	Fr	equency
10 dB/div	Ref 25.0	0 dBm	PNO: Fast ↔ IFGain:Low	Atten: 36			Mkr1	1.916 0	04 GHz 28 dBm		Auto Tune
15.0											Center Freq B000000 GHz
-5.00									-13.00 dBm	1.91	Start Freq 6000000 GHz
-15.0 -25.0 <mark>1</mark> —									-13.00 081	1.92	Stop Freq 0000000 GHz
-35.0			ne dan galan gang dan ng Para ang kana	Le d	SAR an dhealarthis Londover	11.7 	Translation de conservaciones de la conservaciones de la conservaciones de la conservaciones de la conservacion	Selection (selection sergion)	Nadarda (Karlanda (Karlanda)	<u>Auto</u>	CF Step 400.000 kHz Man
-55.0										I	Freq Offset 0 Hz
-65.0	.918000 GI	Hz						Span 4	.000 MHz		
	/ 1.0 MHz		#VBW	3.0 MHz			#Sweep	3.00 s (1001 pts)		
MSG							STATUS				

Plot 6-132. Upper Extended Band Edge Plot (Band 25 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Plot 6-133. Lower Band Edge Plot (Band 25 – 15.0MHz QPSK – RB Size 75)

Agilent Spectru										
L XI RL	RF	50 Ω AC	CORREC	SENSE	#Avg Type	ALIGNAUTO E: RMS	11:55:59 PM TRACI	1Nov 06, 2014 1 2 3 4 5 6 MWWWWW A N N N N N	Fr	equency
			PNO: Fast ↔ IFGain:Low	Trig: Free F Atten: 36 d			DE	ANNNN		
10 dB/div Log	Ref 25.	00 dBm				Mkr1	1.848 9 -29.2	36 GHz 23 dBm		Auto Tune
15.0										Center Freq 7000000 GHz
-5.00								-13.00 dBm	1.845	Start Freq 5000000 GHz
-15.0								-13.00 dBm	1.849	Stop Freq 9000000 GHz
-35.0					******	909-1-1-20-09-09-1-2-19-09-09-09-09-09-09-09-09-09-09-09-09-09		n in an that the second and the second	<u>Auto</u>	CF Step 400.000 kHz Man
-55.0									i	Freq Offset 0 Hz
-65.0										
Center 1. #Res BW		iΗz	#VB\	N 3.0 MHz		#Sweep	Span 4. 3.00 s ('	000 MHz 1001 pts)		
MSG						STATUS				

Plot 6-134. Lower Extended Band Edge Plot (Band 25 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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Plot 6-135. Upper Band Edge Plot (Band 25 – 15.0MHz QPSK – RB Size 75)

Agilent Spectru											
L <mark>XI</mark> RL	RF	50 Ω AC	CORREC	SEN	ISE:INT	#Avg Typ	ALIGNAUTO e: RMS	11:57:12 P	MNov 06, 2014	Freque	ncy
			PNO: Fast IFGain:Low	Atten: 36		•		TYF	E 123456 E M M M M M M T A N N N N N		
			IF Galli.LUW	Theen. oo			Mkr1		12 GHz	Aut	o Tune
10 dB/div Log	Ref 25	.00 dBm						-30.	95 dBm		
										Cente	er Freg
15.0										1.9180000	
5.00											
5.00										Sta	rt Freq
-5.00										1.9160000	000 GHz
									-13.00 dBm		
-15.0											p Freq
-25.0 - 1										1.9200000	00 GHz
-25.0											
-35.0				To film of the Conference of the descent	******		·····	lelamogra-loylananaoj			F Step
										Auto	Man
-45.0											
-55.0										Freq	Offset
											0 Hz
-65.0											
Center 1.								Span 4	.000 MHz		
#Res BW	1.0 MHz		#VE	3W 3.0 MHz				3.00 s (1001 pts)		
MSG							STATUS				

Plot 6-136. Upper Extended Band Edge Plot (Band 25 – 15.0MHz QPSK – RB Size 75)

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PN0: Fast Trig: Free Run Atten: 36 dB #Avg Type: RMS Trig: Frequency Mkr1 1.849 952 GHz -36.36 dBm Auto Tune 0 dB/div Ref 25.00 dBm Center Frequency 150 -36.36 dBm -36.36 dBm 150 -36.36 dBm -36.36 dBm 150 -36.36 dBm -300 dBm 150 -300 dBm -300 dBm 160 -300 dBm -300 dBm 1.500000 GHz -3		m Analyzer - Swept SA				-	
Pho: Fast Trig: Free Run Atten: 36 dB Mkr1 1.849 952 GHz -36.36 dBm Auto Tune 0 dB/div Ref 25.00 dBm -36.36 dBm Center Freq 1.85000000 GHz 0 dB/div Ref 25.00 dBm -36.36 dBm Center Freq 1.85000000 GHz 0 dB/div Ref 25.00 dBm -36.36 dBm Center Freq 1.85000000 GHz 0 dB/div Ref 25.00 dBm -36.36 dBm Center Freq 1.85000000 GHz 0 dB/div Ref 25.00 dBm -36.36 dBm Center Freq 1.85000000 GHz 0 dB/div Ref 25.00 dBm -30.00 m -30.00 m 10 dB/div -30.00 m -30.00 m -30.00 m <t< td=""><td>LX/RL</td><td>RF 50 Ω A</td><td>C CORREC</td><td>SENSE:INT</td><td>ALIGNAUTO #Avg Type: RMS</td><td>12:00:21 AMNov 07, 2014 TRACE 1 2 3 4 5 6</td><td>Frequency</td></t<>	LX/RL	RF 50 Ω A	C CORREC	SENSE:INT	ALIGNAUTO #Avg Type: RMS	12:00:21 AMNov 07, 2014 TRACE 1 2 3 4 5 6	Frequency
O dB/div Ref 25.00 dBm .36.36 dBm .36.36 dBm .36.36 dBm .36.36 dBm .35000000 GHz .3004 .3004 .300000 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .3004 .						TYPE MWWWWWW DET A N N N N N	
Center Freq 150 Center Freq 1.8500000 GHz Center 1.850000 GHz WEW 560 KHz WEW 560 KHz WEW 560 KHz WEW 560 KHz WEW 560 KHz WEW 200 KHz WEW 560 KHz WEW 200 KHz WEW	10 dB/div Log	Ref 25.00 dBn	n		Mkr1	1.849 952 GHz -36.36 dBm	Auto Tune
500 500 500 500 500 500 500 500	15.0						Center Freq 1.85000000 GHz
15.0 Stop Freq 25.0 1 36.0 1 45.0 1	-5.00					and the second	Start Freq 1.842000000 GHz
35.0 41.600000 MHz 45.0 41.600000 MHz 55.0 41.60000 MHz 56.0 41.60000 MHz 56.0 50.0 57.0 50.0 57.0 50.0 57.0 50.0 57.0 50.0 57.0 50.0 57.0 50.0 57.0 50.0 57.0 50.0 57.0 50.0 57.0 50.0	-15.0					-13.00 dBm	Stop Freq 1.858000000 GHz
650 60	-35.0		nggan fa Franka Sangan Sang	1 and			CF Step 1.600000 MHz <u>Auto</u> Man
Center 1.850000 GHz Span 16.00 MHz Res BW 200 kHz #VBW 560 kHz #Sweep 1.00 s (1001 pts)	-55.0						Freq Offset 0 Hz
rRes BW 200 kHz #VBW 560 kHz #Sweep 1.00 s (1001 pts)	-65.0					Spap 16 00 MHz	
202			#VBW	560 kHz	#Sweep	5 1.00 s (1001 pts)	
	MSG				STATUS		

Plot 6-137. Lower Band Edge Plot (Band 25 – 20.0MHz QPSK – RB Size 100)

Agilent Spectru											
L <mark>XI</mark> RL	RF	50Ω AC	CORREC		Run	#Avg Typ	ALIGN AUTO e: RMS	12:00:30 AM TRACE TYPE	Nov 07, 2014 1 2 3 4 5 6 MWWWWW A N N N N N	Fre	equency
10 dB/div	Ref 25.	00 dBm	IFGain:Low	Atten: 36			Mkr1	1.848 96			Auto Tune
15.0											enter Freq 000000 GHz
-5.00									-13.00 dBm	1.845	Start Freq
-15.0									-13.00 40	1.849	Stop Freq 000000 GHz
-35.0	u de stadio de la desta de se	and dealers and the second		@rughtprofe-15-dz-di-finite-finite-	\~#~\~~	-4.9 x 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	90 agtagtagtagtagtagtagtagtagtagtagtagtagta	and Angelet and Alfred Angelet		<u>Auto</u>	CF Step 400.000 kHz Man
-55.0										F	F req Offset 0 Hz
-65.0											
Center 1. #Res BW		SHz	#VB	W 3.0 MHz			#Sweep	Span 4.0 3.00 s (1	000 MHz 001 pt <u>s</u>)		
MSG							STATUS				

Plot 6-138. Lower Extended Band Edge Plot (Band 25 – 20.0MHz QPSK – RB Size 100)

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		Analyzer - Swept S									
l <mark>XI</mark> RI	-	RF 50 Ω	AC	CORREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	MNov 07, 2014 E 1 2 3 4 5 6	Frequency
				PNO: Fast 🖵 IFGain:Low	Trig: Free Atten: 36				TYI Di		
				II Gain.cow				Mkr1	1 915 0	00 GHz	Auto Tune
10 dE	3/div	Ref 25.00 d	Bm						-37.5	00 GHz 34 dBm	
Log											
											Center Freq
15.0											1.915000000 GHz
5.00											
5.60											Start Freq
-5.00		**************************************	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	wywładio menastrijania w state da w	*******						1.907000000 GHz
										-13.00 dBm	
-15.0										-13.00 dbm	Stop Freq
											1.923000000 GHz
-25.0											
					×.	1					CF Step
-35.0					- the	-					1.600000 MHz
15.0							and the second	approximation of the bound		Warning .	<u>Auto</u> Man
-45.0										a name a state	
-55.0											Freq Offset
											0 Hz
-65.0											
Con	for 1 0	15000 GHz							Snop 4	6 00 MU-	
		200 kHz		#VBW	560 kHz			#Sween	1.00 s í	6.00 MHz 1001 pts)	
MSG								STATUS		/	

Plot 6-139. Upper Band Edge Plot (Band 25 – 20.0MHz QPSK – RB Size 100)

	ım Analyzer - Swe	pt SA									
(XVI RL	RF 50	Ω AC	CORREC		SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	MNov 07, 2014 E 1 2 3 4 5 6	Fr	equency
			PNO: Fast 🔸	Trig: Free Atten: 36							Auto Tuno
10 dB/div Log	Ref 25.00	dBm					Mkr1	1.916 0 -32.0	40 GHz 00 dBm		Auto Tune
15.0											enter Freq 8000000 GHz
-5.00										1.916	Start Freq
-15.0									-13.00 dBm	1.920	Stop Freq
-25.0	the Berry Welling - Margare And A	he de de ster son an de	0-015-0-00-00-00-00-00-00-00-00-00-00-00-00-	an a	\$\$*\$**\$*\$#\$\$#\$\$#\$\$#	#* * **********************************	ŊŶŶŦĨŦĬŦĬĊĸŢŎĸĬŢĬĊĸĿĬŎĬŎĸĬŎ		Domotively designed where	<u>Auto</u>	CF Step 400.000 kHz Man
-45.0										i	F req Offset 0 Hz
-65.0											
Center 1. #Res BW	918000 GH 1.0 MHz	Z	#VBW	3.0 MHz			#Sweep		.000 MHz 1001 pts)		
MSG							STATUS				

Plot 6-140. Upper Extended Band Edge Plot (Band 25 – 20.0MHz QPSK – RB Size 100)

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6.5 Peak-Average Ratio §24.232(d)

Test Overview

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

Test Procedure Used

KDB 971168 v02r02 - Section 5.7.1

Test Settings

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

Test Setup

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

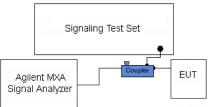


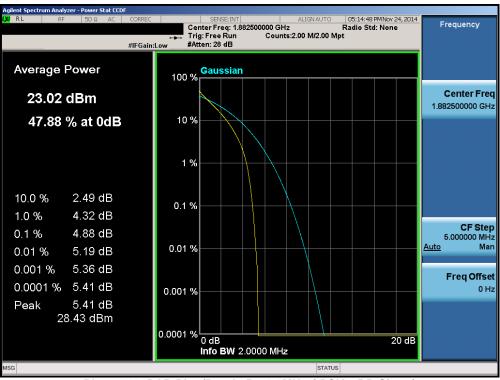
Figure 6-4. Test Instrument & Measurement Setup

Test Notes

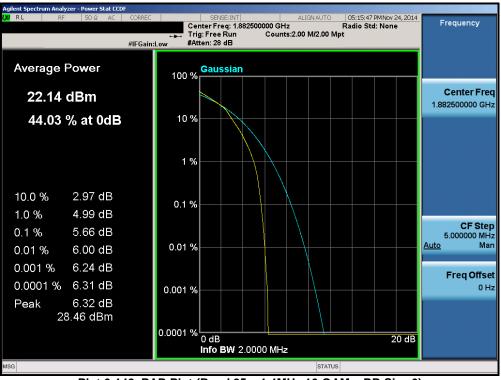
None.

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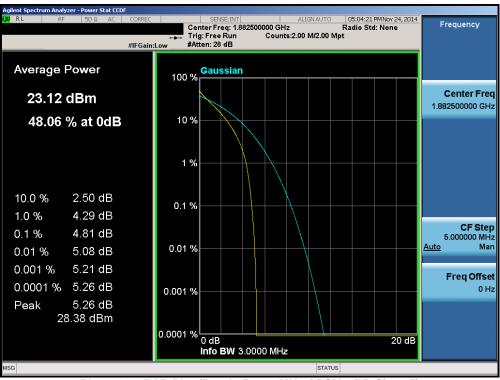
Plot 6-141. PAR Plot (Band 25 – 1.4MHz QPSK – RB Size 6)

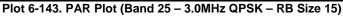


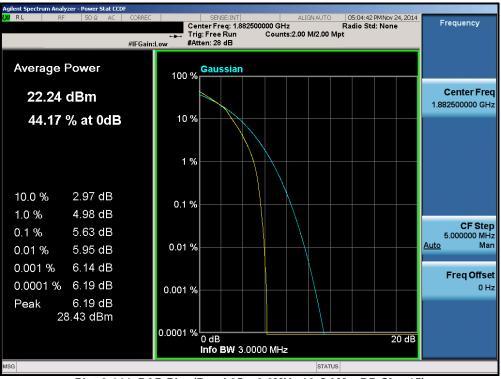
Plot 6-142. PAR Plot (Band 25 - 1.4MHz 16-QAM - RB Size 6)

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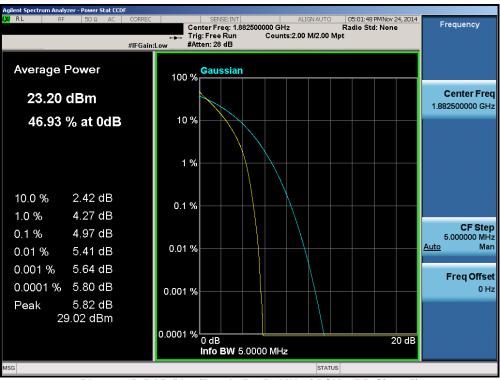


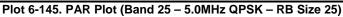


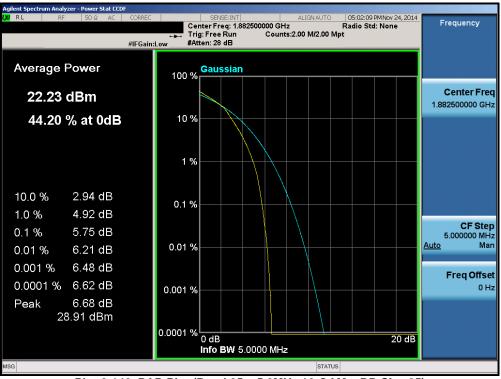
Plot 6-144. PAR Plot (Band 25 - 3.0MHz 16-QAM - RB Size 15)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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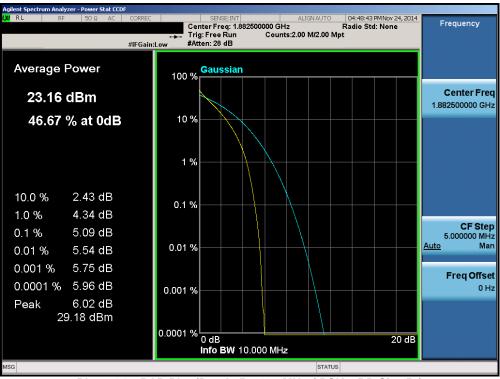




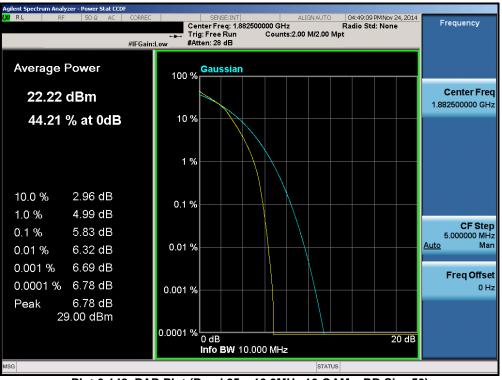
Plot 6-146. PAR Plot (Band 25 - 5.0MHz 16-QAM - RB Size 25)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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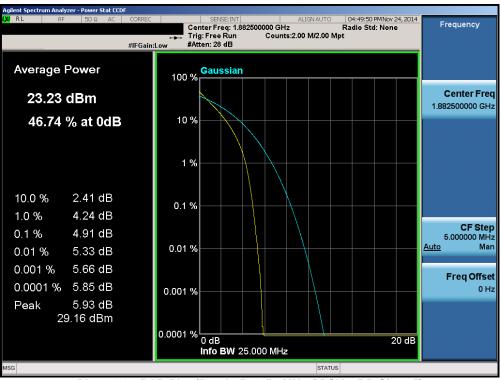
Plot 6-147. PAR Plot (Band 25 – 10.0MHz QPSK – RB Size 50)



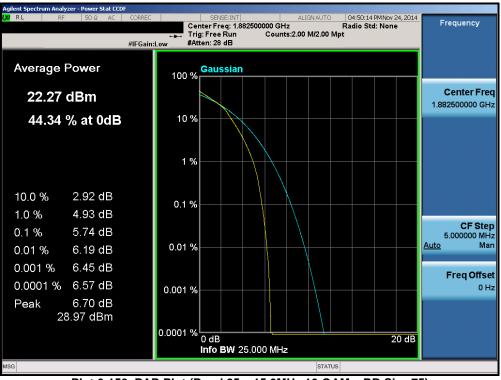
Plot 6-148. PAR Plot (Band 25 - 10.0MHz 16-QAM - RB Size 50)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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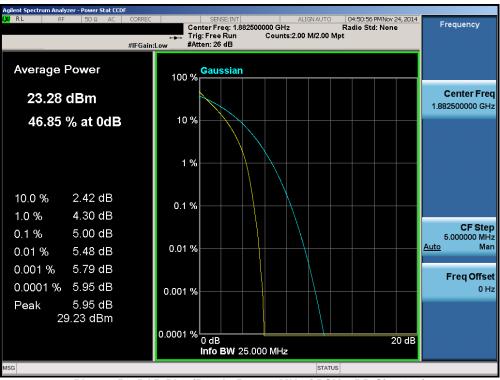
Plot 6-149. PAR Plot (Band 25 – 15.0MHz QPSK – RB Size 75)



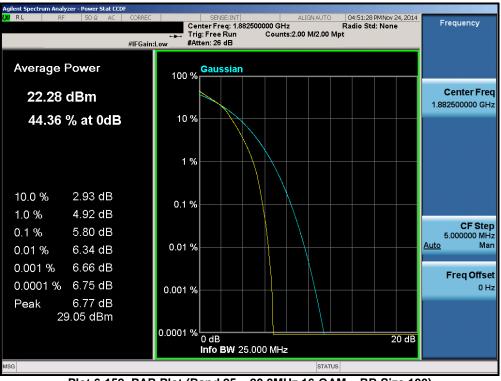
Plot 6-150. PAR Plot (Band 25 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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Plot 6-151. PAR Plot (Band 25 - 20.0MHz QPSK - RB Size 100)



Plot 6-152. PAR Plot (Band 25 - 20.0MHz 16-QAM - RB Size 100)

FCC ID: ZNFUS995		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.2) §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 v02r02 - Section 5.2.1

ANSI/TIA-603-C-2004 – Section 2.2.17

Test Settings

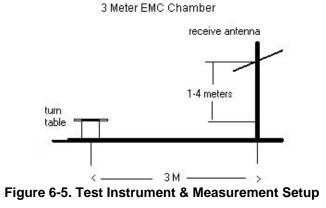
- 1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
- 2. RBW = 1 5% of the expected OBW, not to exceed 1MHz
- 3. VBW \ge 3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points > 2 x span / RBW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

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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 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) This unit was tested with its standard battery.

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	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	3 / 2	16.39	2.71	V	V	19.10	0.081	-15.67
707.50	1.4	QPSK	Standard	1 / 0	17.20	2.71	V	V	19.91	0.098	-14.86
715.30	1.4	QPSK	Standard	3 / 2	18.30	2.71	V	V	21.01	0.126	-13.76
699.70	1.4	16-QAM	Standard	3 / 2	15.43	2.71	V	V	18.14	0.065	-16.63
707.50	1.4	16-QAM	Standard	1 / 0	16.48	2.71	V	V	19.19	0.083	-15.58
715.30	1.4	16-QAM	Standard	3 / 2	17.60	2.71	V	V	20.31	0.107	-14.46
700.50	3	QPSK	Standard	1 / 0	16.62	2.71	V	V	19.33	0.086	-15.44
707.50	3	QPSK	Standard	1 / 0	18.07	2.71	V	V	20.78	0.120	-13.99
714.50	3	QPSK	Standard	1 / 14	17.81	2.71	V	V	20.52	0.113	-14.25
700.50	3	16-QAM	Standard	1 / 0	16.15	2.71	V	V	18.86	0.077	-15.91
707.50	3	16-QAM	Standard	1 / 0	17.35	2.71	V	V	20.06	0.101	-14.71
714.50	3	16-QAM	Standard	1 / 14	17.22	2.71	V	V	19.93	0.098	-14.84
701.50	5	QPSK	Standard	1 / 24	16.79	2.71	V	V	19.50	0.089	-15.27
707.50	5	QPSK	Standard	1 / 0	17.08	2.71	V	V	19.79	0.095	-14.98
713.50	5	QPSK	Standard	1 / 24	17.66	2.71	V	V	20.37	0.109	-14.40
701.50	5	16-QAM	Standard	1 / 24	16.06	2.71	V	V	18.77	0.075	-16.00
707.50	5	16-QAM	Standard	1 / 0	16.40	2.71	V	V	19.11	0.081	-15.66
713.50	5	16-QAM	Standard	1 / 24	17.02	2.71	V	V	19.73	0.094	-15.04
704.00	10	QPSK	Standard	1 / 0	15.78	2.71	V	V	18.49	0.071	-16.28
707.50	10	QPSK	Standard	1 / 49	16.45	2.71	V	V	19.16	0.082	-15.61
711.00	10	QPSK	Standard	1 / 49	17.70	2.71	V	V	20.41	0.110	-14.36
704.00	10	16-QAM	Standard	1/0	15.00	2.71	V	V	17.71	0.059	-17.06
707.50	10	16-QAM	Standard	1 / 49	15.73	2.71	V	V	18.44	0.070	-16.33
711.00	10	16-QAM	Standard	1 / 49	17.06	2.71	V	V	19.77	0.095	-15.00

Table 6-2. ERP Data (Band 12)

FCC ID: ZNFUS995		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	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	3 / 2	16.95	3.01	V	V	19.96	0.099	-18.50
836.50	1.4	QPSK	Standard	1 / 0	16.63	3.15	V	V	19.78	0.095	-18.68
848.30	1.4	QPSK	Standard	1 / 0	16.12	3.28	V	V	19.40	0.087	-19.05
824.70	1.4	16-QAM	Standard	3 / 2	15.94	3.01	V	V	18.95	0.078	-19.51
836.50	1.4	16-QAM	Standard	1 / 0	15.91	3.15	V	V	19.06	0.080	-19.40
848.30	1.4	16-QAM	Standard	1 / 0	15.45	3.28	V	V	18.73	0.075	-19.72
825.50	3	QPSK	Standard	1 / 14	14.98	3.02	V	V	18.00	0.063	-20.46
836.50	3	QPSK	Standard	1 / 0	12.54	3.15	V	V	15.69	0.037	-22.77
847.50	3	QPSK	Standard	1 / 0	12.93	3.27	V	V	16.20	0.042	-22.25
825.50	3	16-QAM	Standard	1 / 14	14.23	3.02	V	V	17.25	0.053	-21.21
836.50	3	16-QAM	Standard	1 / 0	11.81	3.15	V	V	14.96	0.031	-23.50
847.50	3	16-QAM	Standard	1 / 0	12.25	3.27	V	V	15.52	0.036	-22.93
826.50	5	QPSK	Standard	1 / 24	14.74	3.03	V	V	17.77	0.060	-20.68
836.50	5	QPSK	Standard	1 / 0	13.03	3.15	V	V	16.18	0.041	-22.28
846.50	5	QPSK	Standard	1 / 0	12.62	3.26	V	V	15.88	0.039	-22.57
826.50	5	16-QAM	Standard	1 / 24	14.02	3.03	V	V	17.05	0.051	-21.40
836.50	5	16-QAM	Standard	1 / 0	10.74	3.15	V	V	13.89	0.024	-24.57
846.50	5	16-QAM	Standard	1 / 0	11.85	3.26	V	V	15.11	0.032	-23.34
829.00	10	QPSK	Standard	1 / 0	14.65	3.06	V	V	17.71	0.059	-20.74
836.50	10	QPSK	Standard	1/0	14.47	3.15	V	V	17.62	0.058	-20.84
844.00	10	QPSK	Standard	1/0	12.33	3.23	V	V	15.56	0.036	-22.89
829.00	10	16-QAM	Standard	1/0	13.90	3.06	V	V	16.96	0.050	-21.49
836.50	10	16-QAM	Standard	1/0	13.72	3.15	V	V	16.87	0.049	-21.59
844.00	10	16-QAM	Standard	1/0	10.99	3.23	V	V	14.22	0.026	-24.23

Table 6-3. ERP Data (Band 5)

FCC ID: ZNFUS995		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	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	6 / 0	5.89	9.29	V	H2	21.28	0.134	-8.72
1732.50	1.4	QPSK	Standard	3 / 2	5.25	9.34	V	H2	20.69	0.117	-9.31
1754.30	1.4	QPSK	Standard	6 / 0	4.33	9.38	V	H2	19.81	0.096	-10.19
1710.70	1.4	16-QAM	Standard	6 / 0	3.85	9.29	V	H2	19.24	0.084	-10.76
1732.50	1.4	16-QAM	Standard	3 / 2	4.27	9.34	V	H2	19.71	0.094	-10.29
1754.30	1.4	16-QAM	Standard	6 / 0	3.27	9.38	V	H2	18.75	0.075	-11.25
1711.50	3	QPSK	Standard	1 / 14	5.37	9.30	V	H2	20.77	0.119	-9.23
1732.50	3	QPSK	Standard	1 / 0	4.98	9.34	V	H2	20.42	0.110	-9.58
1753.50	3	QPSK	Standard	1 / 14	4.08	9.38	V	H2	19.56	0.090	-10.44
1711.50	3	16-QAM	Standard	1 / 14	4.73	9.30	V	H2	20.13	0.103	-9.87
1732.50	3	16-QAM	Standard	1 / 0	4.28	9.34	V	H2	19.72	0.094	-10.28
1753.50	3	16-QAM	Standard	1 / 14	3.51	9.38	V	H2	18.99	0.079	-11.01
1712.50	5	QPSK	Standard	1 / 24	5.63	9.30	V	H2	21.03	0.127	-8.97
1732.50	5	QPSK	Standard	1 / 0	5.15	9.34	V	H2	20.59	0.115	-9.41
1752.50	5	QPSK	Standard	1 / 24	4.54	9.38	V	H2	20.02	0.100	-9.98
1712.50	5	16-QAM	Standard	1 / 24	4.96	9.30	V	H2	20.36	0.109	-9.64
1732.50	5	16-QAM	Standard	1 / 0	4.49	9.34	V	H2	19.93	0.098	-10.07
1752.50	5	16-QAM	Standard	1 / 24	3.79	9.38	V	H2	19.27	0.084	-10.73
1715.00	10	QPSK	Standard	1 / 0	5.84	9.30	V	H2	21.24	0.133	-8.76
1732.50	10	QPSK	Standard	1 / 0	5.69	9.34	V	H2	21.13	0.130	-8.87
1750.00	10	QPSK	Standard	1 / 0	5.07	9.37	V	H2	20.54	0.113	-9.46
1715.00	10	16-QAM	Standard	1 / 0	5.11	9.30	V	H2	20.51	0.113	-9.49
1732.50	10	16-QAM	Standard	1 / 0	4.89	9.34	V	H2	20.33	0.108	-9.67
1750.00	10	16-QAM	Standard	1 / 0	4.35	9.37	V	H2	19.82	0.096	-10.18
1717.50	15	QPSK	Standard	1 / 0	6.11	9.31	V	H2	21.52	0.142	-8.48
1732.50	15	QPSK	Standard	1 / 0	6.89	9.34	V	H2	22.33	0.171	-7.67
1747.50	15	QPSK	Standard	1 / 0	6.16	9.37	V	H2	21.63	0.145	-8.37
1717.50	15	16-QAM	Standard	1 / 0	5.46	9.31	V	H2	20.87	0.122	-9.13
1732.50	15	16-QAM	Standard	1 / 0	6.16	9.34	V	H2	21.60	0.144	-8.40
1747.50	15	16-QAM	Standard	1 / 0	5.48	9.37	V	H2	20.95	0.124	-9.05
1720.00	20	QPSK	Standard	1 / 0	6.39	9.31	V	H2	21.80	0.151	-8.20
1732.50	20	QPSK	Standard	1 / 0	7.07	9.34	V	H2	22.51	0.178	-7.49
1745.00	20	QPSK	Standard	1 / 0	6.57	9.36	V	H2	22.03	0.160	-7.97
1720.00	20	16-QAM	Standard	1 / 0	5.77	9.31	V	H2	21.18	0.131	-8.82
1732.50	20	16-QAM	Standard	1 / 0	6.45	9.34	v	H2	21.89	0.154	-8.11
1745.00	20	16-QAM	Standard	1 / 0	5.79	9.36	v	H2	21.25	0.133	-8.75

Table 6-4. EIRP Data (Band 4)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	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	3 / 2	8.78	9.38	V	H2	23.46	0.222	-9.55
1882.50	1.4	QPSK	Standard	3 / 2	8.99	9.33	V	H2	23.62	0.230	-9.39
1914.30	1.4	QPSK	Standard	3 / 2	6.58	9.28	v	H2	21.16	0.131	-11.85
1850.70	1.4	16-QAM	Standard	3 / 2	7.24	9.38	v	H2	21.92	0.156	-11.09
1882.50	1.4	16-QAM	Standard	3 / 2	8.62	9.33	V	H2	23.25	0.211	-9.76
1914.30	1.4	16-QAM	Standard	3 / 2	6.45	9.28	v	H2	21.03	0.127	-11.98
1851.50	3	QPSK	Standard	1 / 14	7.59	9.38	V	H2	22.27	0.169	-10.74
1882.50	3	QPSK	Standard	1 / 0	7.36	9.33	V	H2	21.99	0.158	-11.02
1913.50	3	QPSK	Standard	1 / 0	8.65	9.28	V	H2	23.23	0.211	-9.78
1851.50	3	16-QAM	Standard	1 / 14	6.79	9.38	V	H2	21.47	0.140	-11.54
1882.50	3	16-QAM	Standard	1 / 0	6.54	9.33	V	H2	21.17	0.131	-11.84
1913.50	3	16-QAM	Standard	1 / 0	7.79	9.28	V	H2	22.37	0.173	-10.64
1852.50	5	QPSK	Standard	1 / 24	8.52	9.38	V	H2	23.20	0.209	-9.81
1882.50	5	QPSK	Standard	1 / 0	7.66	9.33	V	H2	22.29	0.169	-10.72
1912.50	5	QPSK	Standard	1 / 24	8.60	9.29	v	H2	23.19	0.208	-9.83
1852.50	5	16-QAM	Standard	1 / 24	7.66	9.38	V	H2	22.34	0.171	-10.67
1882.50	5	16-QAM	Standard	1 / 0	6.80	9.33	V	H2	21.43	0.139	-11.58
1912.50	5	16-QAM	Standard	1 / 24	7.67	9.29	V	H2	22.26	0.168	-10.76
1855.00	10	QPSK	Standard	1/0	8.67	9.37	V	H2	23.34	0.216	-9.67
1882.50	10	QPSK	Standard	1 / 0	7.86	9.33	V	H2	22.49	0.177	-10.52
1910.00	10	QPSK	Standard	1 / 49	8.54	9.29	V	H2	23.13	0.205	-9.88
1855.00	10	16-QAM	Standard	1 / 0	7.80	9.37	V	H2	22.47	0.177	-10.54
1882.50	10	16-QAM	Standard	1 / 0	7.15	9.33	V	H2	21.78	0.151	-11.23
1910.00	10	16-QAM	Standard	1 / 49	7.71	9.29	V	H2	22.30	0.170	-10.71
1857.50	15	QPSK	Standard	1 / 0	8.56	9.37	V	H2	23.23	0.210	-9.78
1882.50	15	QPSK	Standard	1 / 0	7.98	9.33	V	H2	22.61	0.182	-10.40
1907.50	15	QPSK	Standard	1 / 0	7.75	9.29	V	H2	22.34	0.171	-10.67
1857.50	15	16-QAM	Standard	1 / 0	7.91	9.37	V	H2	22.58	0.181	-10.43
1882.50	15	16-QAM	Standard	1 / 0	7.41	9.33	V	H2	22.04	0.160	-10.97
1907.50	15	16-QAM	Standard	1/0	7.00	9.29	v	H2	21.59	0.144	-11.42
1860.00	20	QPSK	Standard	1/0	8.88	9.37	V	H2	23.55	0.226	-9.46
1882.50	20	QPSK	Standard	1/0	8.06	9.33	V	H2	22.69	0.186	-10.32
1905.00	20	QPSK	Standard	1 / 99	8.54	9.29	V	H2	23.13	0.206	-9.88
1860.00	20	16-QAM	Standard	1/0	8.11	9.37	v	H2	22.78	0.190	-10.23
1882.50	20	16-QAM	Standard	1/0	7.34	9.33	v	H2	21.97	0.157	-11.04
1905.00	20	16-QAM	Standard	1 / 99	7.81	9.29	v	H2	22.40	0.174	-10.61

Table 6-5. EIRP Data (Band 25)

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6.7 Radiated Spurious Emissions Measurements §2.1053 §22.917(a) §24.238(a) §27.53(g) §27.53(h)

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 horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as 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 v02r02 - Section 5.8

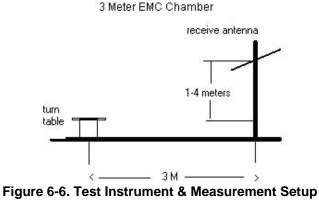
ANSI/TIA-603-C-2004 – Section 2.2.12

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.



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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) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

OPERATING FREQUENCY:	699.	70	MHz
CHANNEL:	2302	17	
MEASURED OUTPUT POWER:	19.10	dBm =	0.081 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	1.4	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	32.10	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]
1399.40	-65.96	5.64	-60.32	Н	Н	79.4
2099.10	-64.77	6.61	-58.17	Н	Н	77.3
2798.80	-66.08	7.84	-58.24	Н	Н	77.3
3498.50	-63.18	7.57	-55.61	Н	Н	74.7
4198.20	-62.01	8.25	-53.76	Н	Н	72.9

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

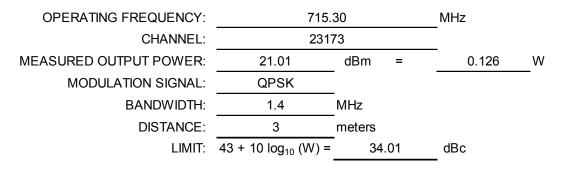
FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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OPERATING FREQUENCY:	707.	50	MHz
CHANNEL:	2309	95	
MEASURED OUTPUT POWER:	19.91	dBm =	0.098 W
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	1.4	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	32.91	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]
1415.00	-64.88	5.73	-59.14	Н	Н	79.1
2122.50	-64.08	6.73	-57.35	Н	Н	77.3
2830.00	-66.07	7.80	-58.27	Н	Н	78.2
3537.50	-63.46	7.59	-55.87	Н	Н	75.8
4245.00	-62.30	8.41	-53.90	Н	Н	73.8
4952.50	-61.60	8.74	-52.85	Н	Н	72.8

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

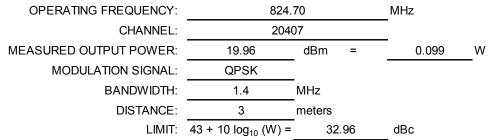


Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1430.60	-59.12	5.82	-53.30	Н	Н	74.3
2145.90	-62.58	6.86	-55.72	Н	Н	76.7
2861.20	-65.79	7.75	-58.04	Н	Н	79.0
3576.50	-62.27	7.60	-54.67	Н	Н	75.7
4291.80	-62.58	8.56	-54.01	Н	Н	75.0

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

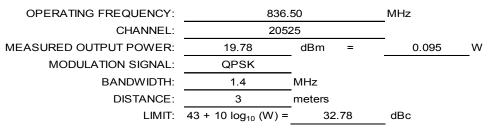
FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager		
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1649.40	-56.52	6.56	-49.97	Н	Н	69.9
2474.10	-31.04	7.30	-23.74	Н	Н	43.7
3298.80	-63.27	7.37	-55.91	Н	Н	75.9
4123.50	-47.77	8.02	-39.75	Н	Н	59.7
4948.20	-61.47	8.74	-52.73	Н	Н	72.7
5772.90	-56.29	9.20	-47.08	Н	Н	67.0
6597.60	-57.92	9.87	-48.05	Н	Н	68.0
7422.30	-57.84	8.59	-49.24	Н	Н	69.2
8247.00	-59.76	9.03	-50.73	Н	Н	70.7

Table 6-9. Radiated Spurious Data (Band 5 – Low Channel)

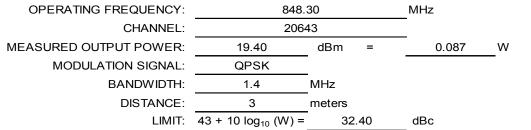


Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1673.00	-64.57	6.55	-58.02	Н	Н	77.8
2509.50	-40.94	7.34	-33.60	Н	Н	53.4
3346.00	-63.96	7.44	-56.53	Н	Н	76.3
4182.50	-57.60	8.20	-49.40	Н	Н	69.2
5019.00	-62.43	8.74	-53.69	Н	Н	73.5
5855.50	-61.20	9.29	-51.91	Н	Н	71.7
6692.00	-62.85	9.65	-53.21	Н	Н	73.0
7528.50	-58.99	8.84	-50.15	Н	Н	69.9
8365.00	-59.46	9.00	-50.46	Н	Н	70.2

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

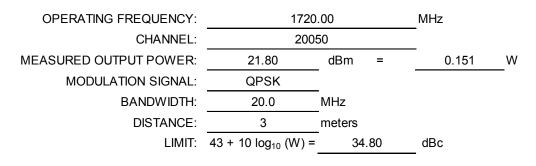
FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
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Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	[dBc]
1696.60	-57.91	6.55	-51.37	Н	Н	70.8
2544.90	-29.70	7.36	-22.34	Н	Н	41.7
3393.20	-63.61	7.51	-56.10	Н	Н	75.5
4241.50	-61.92	8.39	-53.53	Н	Н	72.9
5089.80	-62.19	8.61	-53.59	Н	Н	73.0
5938.10	-62.52	9.26	-53.26	Н	Н	72.7
6786.40	-61.31	9.59	-51.72	Н	Н	71.1
7634.70	-60.42	9.02	-51.40	Н	Н	70.8
8483.00	-58.04	8.93	-49.11	Н	Н	68.5

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



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]		EUT Pol. [H/H2/V]	[dBc]	
3440.00	-52.34	9.69	-42.65	Н	н	64.5	
5160.00	-58.11	10.64	-47.47	Н	Н	69.3	
6880.00	-62.01	11.75	-50.26	Н	Н	72.1	
8600.00	-53.10	11.04	-42.06	Н	Н	63.9	
10320.00	-49.89	12.31	-37.58	Н	Н	59.4	
12040.00	-57.31	12.60	-44.71	Н	Н	66.5	
13760.00	-53.89	12.01	-41.88	Н	Н	63.7	
Table 6-12 Radiated Sourious Data (Band 4 – Low Channel)							

Table 6-12. Radiated Spurious Data (Band 4 – Low Channel)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager	
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OPERATING FREQUENCY:	1732.50		MHz
CHANNEL:	201	75	
MEASURED OUTPUT POWER:	22.51	dBm =	0.178 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	35.51	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]
3465.00	-52.90	9.71	-43.19	Н	Н	65.7
5197.50	-62.10	10.59	-51.51	Н	Н	74.0
6930.00	-58.55	11.75	-46.80	Н	Н	69.3
8662.50	-48.40	11.06	-37.33	Н	Н	59.8
10395.00	-44.73	12.37	-32.35	Н	Н	54.9
12127.50	-56.49	12.83	-43.66	Н	Н	66.2
13860.00	-53.33	11.85	-41.49	Н	Н	64.0

Table 6-13. Radiated Spurious Data (Band 4 – Mid Channel)

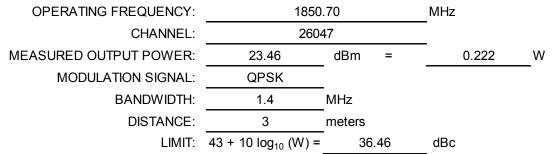
OPERATING FREQUENCY:	1745.00		MHz
CHANNEL:	2030	00	
MEASURED OUTPUT POWER:	22.03	dBm =	0.160 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	35.03	dBc

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]
3490.00	-60.55	9.72	-50.83	Н	Н	72.9
5235.00	-61.49	10.62	-50.87	Н	Н	72.9
6980.00	-58.45	11.76	-46.70	Н	Н	68.7
8725.00	-48.03	11.05	-36.99	Н	Н	59.0
10470.00	-48.86	12.45	-36.42	Н	Н	58.5
12215.00	-54.94	13.02	-41.93	Н	Н	64.0
13960.00	-52.43	11.58	-40.85	Н	Н	62.9
15705.00	-61.06	16.62	-44.44	Н	Н	66.5
17450.00	-52.80	12.25	-40.55	Н	Н	62.6

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

FCC ID: ZNFUS995		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]
3701.40	-57.05	9.44	-47.61	Н	Н	71.1
5552.10	-60.71	10.79	-49.92	Н	Н	73.4
7402.80	-46.61	10.69	-35.92	Н	Н	59.4
9253.50	-45.94	11.58	-34.36	Н	Н	57.8
11104.20	-55.06	12.79	-42.27	Н	Н	65.7
12954.90	-58.18	13.18	-44.99	Н	Н	68.5
14805.60	-54.72	12.12	-42.60	Н	Н	66.1
16656.30	-58.41	15.27	-43.15	Н	Н	66.6

Table 6-15. Radiated Spurious Data (Band 25 – Low Channel)

OPERATING FREQUENCY:	1882.50		MHz
CHANNEL:	2636	_	
MEASURED OUTPUT POWER:	23.62	dBm =	0.230 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	1.4	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	36.62	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]
3765.00	-57.77	9.27	-48.50	H	Н	72.1
5647.50	-60.81	11.06	-49.75	Н	Н	73.4
7530.00	-57.77	10.99	-46.78	Н	Н	70.4
9412.50	-50.03	11.55	-38.47	Н	Н	62.1
11295.00	-58.69	12.70	-45.99	Н	Н	69.6

Table 6-16. Radiated Spurious Data (Band 25 – Mid Channel)

FCC ID: ZNFUS995		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Reviewed by: Quality Manager
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OPERATING FREQUENCY:	1914.30		MHz
CHANNEL:	26683		
MEASURED OUTPUT POWER:	21.16	dBm =	0.131 W
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	1.4	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	34.16	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]
3828.60	-58.35	9.20	-49.15	Н	Н	70.3
5742.90	-61.05	11.31	-49.74	Н	Н	70.9
7657.20	-47.35	11.19	-36.16	Н	Н	57.3
9571.50	-45.93	11.90	-34.03	Н	Н	55.2
11485.80	-58.17	12.69	-45.47	Н	Н	66.6
13400.10	-55.21	12.42	-42.80	Н	Н	64.0
15314.40	-59.10	15.12	-43.98	Н	Н	65.1

 Table 6-17. Radiated Spurious Data (Band 25 – High Channel)

FCC ID: ZNFUS995		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 $\pm 0.00025\%$ (± 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:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	707,499,986	-14	-0.0000019
100 %		- 30	707,499,992	-8	-0.0000012
100 %		- 20	707,499,995	-5	-0.0000007
100 %		- 10	707,499,987	-13	-0.0000018
100 %		0	707,499,987	-13	-0.0000019
100 %		+ 10	707,499,982	-18	-0.0000026
100 %		+ 20	707,499,994	-6	-0.0000009
100 %		+ 30	707,499,996	-4	-0.0000005
100 %		+ 40	707,499,993	-7	-0.0000009
100 %		+ 50	707,499,991	-9	-0.0000012
BATT. ENDPOINT	3.40	+ 20	707,499,994	-6	-0.000008

Table 6-18. 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

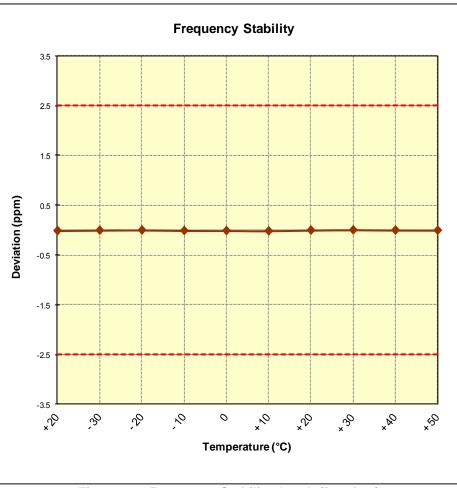


Figure 6-7. Frequency Stability Graph (Band 12)

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Band 5 Frequency Stability Measurements §2.1055 §22.355

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	836,499,985	-15	-0.0000017
100 %		- 30	836,499,982	-18	-0.0000021
100 %		- 20	836,499,985	-15	-0.0000017
100 %		- 10	836,499,991	-9	-0.0000011
100 %		0	836,499,986	-14	-0.0000017
100 %		+ 10	836,499,994	-6	-0.0000008
100 %		+ 20	836,499,981	-19	-0.0000023
100 %		+ 30	836,499,999	-1	-0.0000001
100 %		+ 40	836,499,994	-6	-0.0000007
100 %		+ 50	836,499,997	-3	-0.0000004
BATT. ENDPOINT	3.40	+ 20	836,499,987	-13	-0.0000016

Table 6-19. Frequency Stability Data (Band 5)

FCC ID: ZNFUS995		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

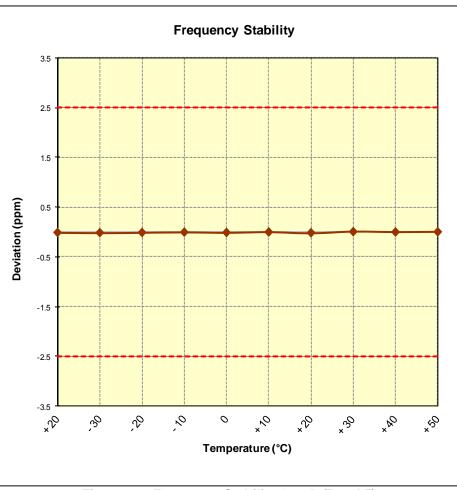


Figure 6-8. Frequency Stability Graph (Band 5)

FCC ID: ZNFUS995		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:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,732,499,995	-5	-0.0000003
100 %		- 30	1,732,499,987	-13	-0.0000008
100 %		- 20	1,732,499,984	-16	-0.0000009
100 %		- 10	1,732,499,983	-17	-0.0000010
100 %		0	1,732,499,992	-8	-0.0000005
100 %		+ 10	1,732,499,988	-12	-0.0000007
100 %		+ 20	1,732,499,998	-2	-0.0000001
100 %		+ 30	1,732,499,987	-13	-0.0000007
100 %		+ 40	1,732,499,988	-12	-0.0000007
100 %		+ 50	1,732,499,980	-20	-0.0000011
BATT. ENDPOINT	3.40	+ 20	1,732,499,987	-13	-0.0000008

Table 6-20. Frequency Stability Data (Band 4)

Note:

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

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Band 4 Frequency Stability Measurements §2.1055 §§27.54

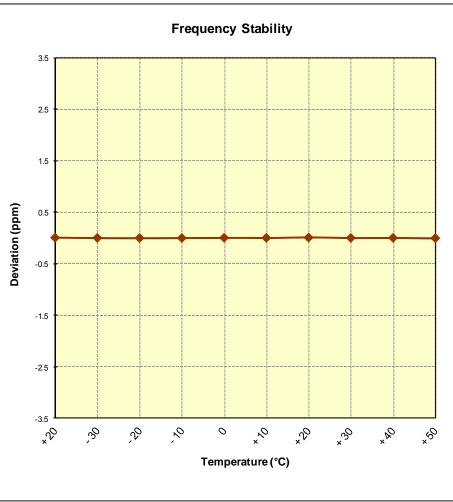


Figure 6-9. Frequency Stability Graph (Band 4)

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Band 25 Frequency Stability Measurements §2.1055 §24.235

OPERATING FREQUENCY:	1,882,500,000	Hz
CHANNEL:	26365	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,882,499,996	-4	-0.0000002
100 %		- 30	1,882,499,987	-13	-0.0000007
100 %		- 20	1,882,499,982	-18	-0.0000010
100 %		- 10	1,882,499,982	-18	-0.0000010
100 %		0	1,882,499,985	-15	-0.0000008
100 %		+ 10	1,882,499,993	-7	-0.0000004
100 %		+ 20	1,882,499,982	-18	-0.0000010
100 %		+ 30	1,882,499,999	-1	0.0000000
100 %		+ 40	1,882,499,992	-8	-0.0000004
100 %		+ 50	1,882,499,986	-14	-0.000008
BATT. ENDPOINT	3.40	+ 20	1,882,499,984	-16	-0.0000008

Table 6-21. 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.

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Band 25 Frequency Stability Measurements §2.1055 §24.235

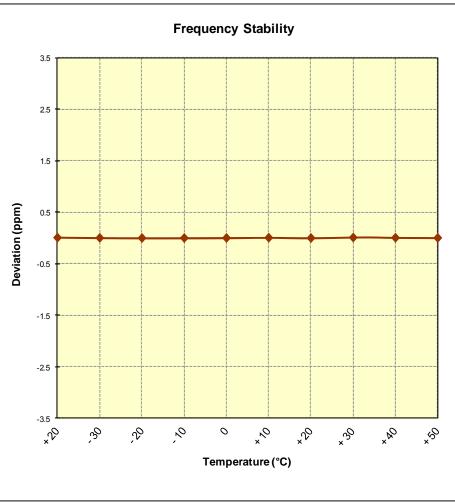


Figure 6-10. Frequency Stability Graph (Band 25)

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7.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the LGE Portable Handset FCC ID: ZNFUS995 complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

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