

	ctrum Analyze						
<mark>X/</mark> RL	RF	50 Ω DC	CORREC PNO: Fast	Trig: Free Run Atten: 20 dB	#Avg Type: RM	08:57:57 AM May 07, 2020 S TRACE 2 3 4 5 6 TYPE A WWWW DET A N N N N	Frequency
10 dB/div	Ref 10.	.00 dBm				Mkr1 19.544 5 GHz -46.62 dBm	Auto Tune
0.00							Center Fred 15.000000000 GHz
20.0						DL1 -13.00 dBm	Start Free 10.000000000 GH:
40.0							Stop Free 20.000000000 GH:
50.0	~~~~~		~~~~				CF Stej 1.000000000 GH <u>Auto</u> Ma
70.0							Freq Offse 0 H
80.0							Scale Type
Start 10.0 #Res BW			#VB	N 3.0 MHz	Swee	Stop 20.000 GHz p 17.33 ms (20001 pts)	
isg 🌵 Point	s changed	d; all traces	cleared			STATUS	

Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel)

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7.4 Band Edge Emissions at Antenna Terminal

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 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 $43 + 10 \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

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

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

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Test Notes

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

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

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

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

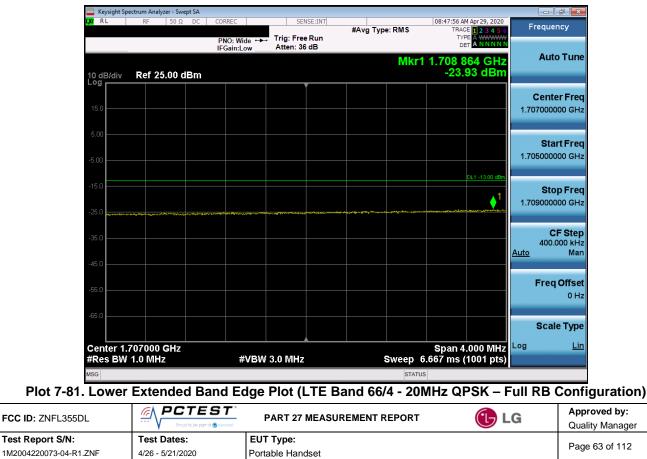
FCC ID: ZNFL355DL	PCTEST	PART 27 MEASUREMENT REPORT	G	Approved by:
	Proud to be part of 🖲 element			Quality Manager
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LTE Band 66/4



Plot 7-80. Lower Band Edge Plot (LTE Band 66/4 - 20MHz QPSK - Full RB Configuration)



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	ctrum Analyzer - Swe										
LXI RL	RF 50 Ω	DC	CORREC	SEN	ISE:INT	#Avg Typ	e: RMS	TRAC	1 Apr 29, 2020	Fr	equency
			PNO: Wide IFGain:Low	Trig: Free Atten: 36		• //		TYP DE			
10 dB/div Log	Ref 25.00 d	Bm					Mkr	1 1.756 0 -29.9	24 GHz 93 dBm		Auto Tune
15.0											Center Freq 5000000 GHz
-5.00	&~gy,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	**************************************							1.74	Start Freq 7000000 GHz
-15.0					1				DL1 -13.00 dBm	1.76	Stop Freq 3000000 GHz
-35.0				Mr.n	and and the	Longen and	tornorm	Mannahan	www.entra	1 <u>Auto</u>	CF Step .600000 MHz Mar
-45.0											F req Offse 0 Hz
-65.0											Scale Type
Center 1.7 #Res BW 3	′55000 GHz 240 kHz		#VBW	820 kHz			Sweep	Span 1 1.000 ms (6.00 MHz 1001 pts)	Log	<u>Lin</u>
MSG							STATU	IS			

Plot 7-82. Upper Band Edge Plot (LTE Band 4 - 20MHz QPSK - Full RB Configuration)



Plot 7-83. Upper Extended Band Edge Plot (LTE Band 4 - 20MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL		PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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RL F	KF 50 Ω	DC	CORREC		SENSE:INT			08:56:03 AM Apr 29, 2	
			PNO: Wide IFGain:Low		g: Free Run ien: 36 dB	#Avg Ty	/pe: RMS	TRACE 1 2 3 4 TYPE A WWW DET A N N N	AVAN
0 dB/div Re	ef 25.00 d	Bm					Mkr	1 1.780 000 G -35.80 dE	Hz Auto Tun Sm
15.0									Center Fre 1.780000000 G⊢
5.00		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		m					Start Fre 1.772000000 GH
25.0								DL1 -13.00	5000 Stop Fre
45.0					1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		And the second	CF Ste 1.600000 MH Auto Ma
55.0									Freq Offs 0 H
65.0									Scale Typ
enter 1.780 Res BW 62			#V	BW 220	kHz		Sweep	Span 16.00 M 1.800 ms (1001 p	Hz Log L ts)

Plot 7-84. Upper Band Edge Plot (LTE Band 66 - 20MHz QPSK – Full RB Configuration)



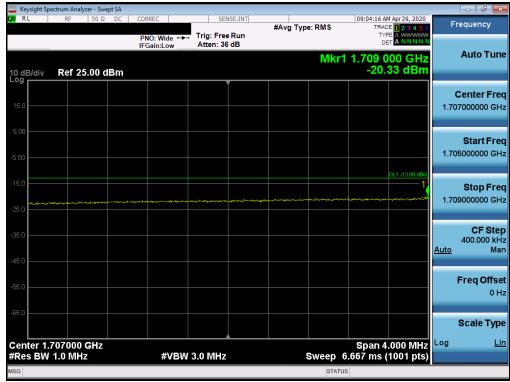
Plot 7-85. Channel Edge Plot (LTE Band 66 - 20MHz QPSK – Full RB Conifiguration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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PNO: Wide Trig: Free Run IFGain:Low Trig: Free Run Atten: 36 dB Mkr1 1.710 000 GHz -26.67 dBm Center F 1.71000000 500 500 500 500 500 500 5	Keysight Spectrum Analyzer - Swe					
NRKT 1.7 10000 GHz Center F 150 -26.67 dBm 151 -26.67 dBm 152 -26.67 dBm 153 -26.67 dBm 154 -26.67 dBm 156 <td< th=""><th>RL RF 50 Ω</th><th>PNO: Wide 🔾</th><th></th><th>#Avg Type: RMS</th><th>TYPE A WAAWAAAAA</th><th>Frequency</th></td<>	RL RF 50 Ω	PNO: Wide 🔾		#Avg Type: RMS	TYPE A WAAWAAAAA	Frequency
Center F 150 500 500 500 500 500 500 500	0 dB/div Ref 25.00 d	Bm		Mkr	1 1.710 000 GHz -26.67 dBm	Auto Tur
500 0	15.0					Center Fre 1.710000000 GF
50 50 50 50 50 50 50 50 50 50						Start Fre 1.704000000 GF
30 Auto 50 Image: Strain Stra			1.1		DL1 -13.00 dbm	Stop Fr 1.716000000 G
50 50 enter 1.710000 GHz Span 12.00 MHz Log						CF Ste 1.200000 M <u>Auto</u> M
enter 1.710000 GHz Scale T						Freq Offs 0
					Spap 12 00 MHz	Scale Typ
SG STATUS	Res BW 180 kHz	#VBW	620 kHz		1.000 ms (1001 pts)	

Plot 7-86. Lower Band Edge Plot (LTE Band 66/4 - 15MHz QPSK - Full RB Configuration)



Plot 7-87. Lower Extended Band Edge Plot (LTE Band 66/4 - 15MHz QPSK - Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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	ectrum Analyze											
U RL	RF	50 Ω DC	CORREC PNO: W		rig: Free		#Avg Ty	pe:RMS	TR	AM Apr 29, 2020 ACE 1 2 3 4 5 6 YPE A WWWWW DET A NNNNN	Fre	equency
0 dB/div	Ref 25.	00 dBm	IFGain:L	ow A	tten: 36	dB		Mkr	1 1.755	012 GHz .29 dBm		Auto Tun
15.0												enter Fre 000000 GH
5.00	~~^^_^	www.	un march	m						DL1 -13.00 dBm	1.749	Start Fre
25.0					- La Como	1					1.761	Stop Fre 000000 GF
5.0										~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1. <u>Auto</u>	CF Ste 200000 Mi Ma
5.0											F	F req Offs 0 I
65.0												Scale Typ
	755000 G 180 kHz	HZ	#	VBW 62	0 kHz			Sweep		12.00 MHz (1001 pts)	LUg	<u> </u>

Plot 7-88. Upper Band Edge Plot (LTE Band 4 - 15MHz QPSK - Full RB Configuration)



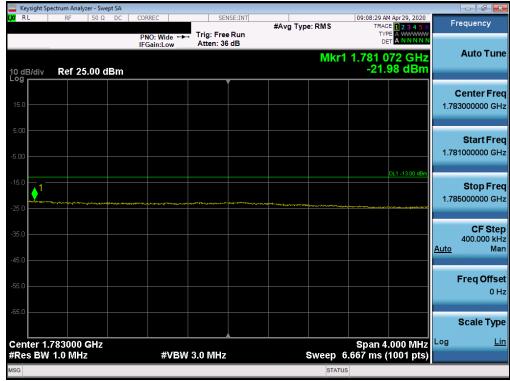
Plot 7-89. Upper Extended Band Edge Plot (LTE Band 4 - 15MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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	Analyzer - Swept SA					
C RL RF	50 Ω DC	PNO: Wide	SENSE:INT	#Avg Type: RMS	09:08:18 AM Apr 29, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
0 dB/div Re	f 25.00 dBm	IFGain:Low	Atten: 36 dB	Mkr	1 1.780 588 GHz -28.83 dBm	Auto Tun
15.0						Center Fre 1.780000000 GF
5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	www.www.www.w	m		DL1 -13.00 dBm	Start Fre 1.774000000 GF
25.0					DL1 - 13:00 dDn1	Stop Fre 1.786000000 GF
5.0				Marine and a second	www.www.ww	CF Ste 1.20000 Mi <u>Auto</u> Ma
5.0						Freq Offs 01
6.0					Spop 12 00 MHz	Scale Typ
enter 1.7800 Res BW 180		#VBW	620 kHz	Sweep	Span 12.00 MHz 1.000 ms (1001 pts)	

Plot 7-90. Upper Band Edge Plot (LTE Band 66 - 15MHz QPSK – Full RB Configuration)



Plot 7-91. Upper Extended Band Edge Plot (LTE Band 66 - 15MHz QPSK – Full RB Conifiguration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum An		CORREC	CENCE INT		00.1 (-00.411.4-	- 20 2020
RL RF	50 Ω DC	CORREC PNO: Wide	Trig: Free Run Atten: 36 dB	#Avg Type:	TYPE	
	25.00 dBm	II Guilleow			Mkr1 1.709 952 -26.41	2 GHz Auto Tun dBm
15.0						Center Fre 1.710000000 GF
5.00				period of the second	م روی در میکند. میکند میکند (۲۰۰۰ میکند) میکند میکند (۲۰۰۰ میکند) میکند میکند (۲۰۰۰ میکند) میکند (۲۰۰۰ میکند) میکند (۲۰۰۰ میکن میکند (۲۰۰۰ میکند) (۲	Start Fre 1.706000000 GH
25.0			1			1300 dBm 1.714000000 GH
35.0 	man and a second s	nelennen frei steren eine state s				CF Ste 800.000 ki <u>Auto</u> M
5.0						Freq Offs 0
35.0						Scale Typ
enter 1.71000 Res BW 120 k		#VBV	V 430 kHz	Sv	Span 8.00 veep 13.33 ms (10	00 MHz ^{Log L} 01 pts)

Plot 7-92. Lower Band Edge Plot (LTE Band 66/4 - 10MHz QPSK – Full RB Configuration)



Plot 7-93. Lower Extended Band Edge Plot (LTE Band 66/4 - 10MHz QPSK - Full RB Configuration)

FCC ID: ZNFL355DL	Pour to be part of element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swe					
<mark>α RL</mark> RF 50 Ω	DC CORREC PNO: Wide IFGain:Low	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	10:16:35 AM Apr 29, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 25.00 d			Mkr	1 1.755 000 GHz -31.11 dBm	Auto Tun
15.0					Center Fre 1.755000000 G⊦
5.00	and and an	rent .			Start Fre 1.751000000 GF
5.0				DL1 -13.00 dBm	Stop Fre 1.759000000 GF
15.0		1 July Contraction	Multiply and		CF Ste 800.000 kł <u>Auto</u> Ma
5.0					Freq Offs 0 I
5.0					Scale Typ
enter 1.755000 GHz Res BW 120 kHz	#VBW	430 kHz	Sweep	Span 8.000 MHz 13.33 ms (1001 pts)	Log <u>L</u>

Plot 7-94. Upper Band Edge Plot (LTE Band 4 - 10MHz QPSK - Full RB Configuration)



Plot 7-95. Upper Extended Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum An						
RL RF	50 Ω DC	CORREC	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	09:23:12 AM Apr 29, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
0 dB/div Ref	25.00 dBm	IFGain:Low	Atten: 36 db	Mkr	1 1.780 000 GHz -27.891 dBm	Auto Tun
15.0						Center Fre 1.780000000 GF
5.00 	9.94-99.00 / PUT Jac 79.0 / Put Pa	12-++++ ₁₁₄ 414-4344-94-94-94-94-94-94-94-94-94-94-94-94				Start Fre 1.776000000 GF
25.0					DL1 -13.00 dBm	Stop Fre 1.784000000 GH
5.0			- Winternat	1-12-12-12-12-12-12-12-12-12-12-12-12-12	Manager and a star and a	CF Ste 800.000 kl <u>Auto</u> M
5.0						Freq Offs 0
65.0						Scale Typ
enter 1.78000 Res BW 120 k		#VBW	430 kHz	Sweep	Span 8.000 MHz 13.33 ms (1001 pts)	Log <u>L</u>

Plot 7-96. Upper Band Edge Plot (LTE Band 66 - 10MHz QPSK – Full RB Configuration)



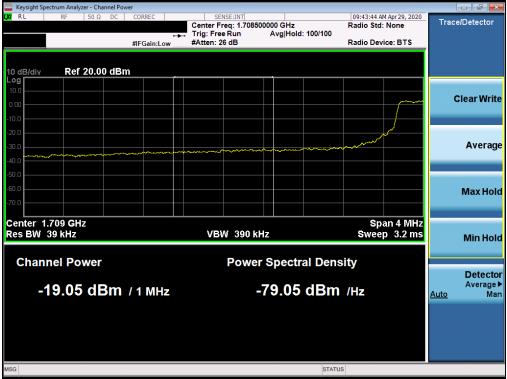
Plot 7-97. Upper Extended Band Edge Plot (LTE Band 66 - 10MHz QPSK – Full RB Conifiguration)

FCC ID: ZNFL355DL		PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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Keysight Spectrum Analyze		000050	0.51	05 107			00.00.00			
K RL RF	50 Ω DC	PNO: Wide	Trig: Free		#Avg Typ	e: RMS	TRAC	Apr 29, 2020 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	F	requency
IO dB/div Ref 25.	00 dBm	IFGain:Low	Atten: 36	dB		Mkr1	1.710 0			Auto Tun
15.0										Center Fre 0000000 G⊦
5.00				, put	urner labor of p		un and an and an	พงใบระชาติสมุณ DL1 -13.00 dBm	1.70	Start Fre 8000000 GH
25.0			www.morasd.wood	1					1.71	Stop Fre 2000000 GF
35.0	mlunnum	LANAN CARTENN							<u>Auto</u>	CF Ste 400.000 kH Ma
5.0										Freq Offs 0 I
enter 1.710000 G	Hz						Span 4	.000 MHz	Log	Scale Typ L
Res BW 62 kHz		#VBW	220 kHz			Sweep 6	.667 ms (1001 pts)		
SG						STATU	5			

Plot 7-98. Lower Band Edge Plot (LTE Band 66/4 - 5MHz QPSK - Full RB Configuration)



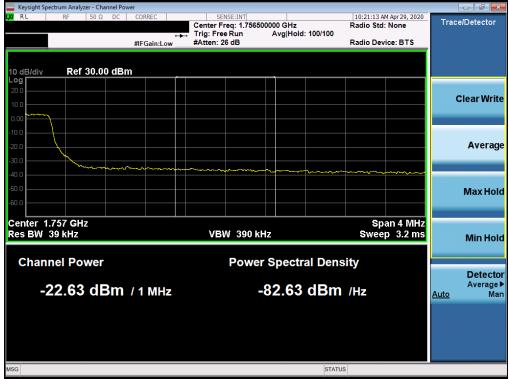
Plot 7-99. Lower Extended Band Edge Plot (LTE Band 66/4 - 5MHz QPSK - Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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Keysight S R L	pectrum Analyzer RF		CORDEC	0.51	CE-INT			10.01.05	M 420 2020	_	
KL	RF .	50 Ω DC	CORREC PNO: Wide			#Avg Typ	e: RMS	TRAC	M Apr 29, 2020 DE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	Fi	requency
0 dB/div	Ref 25.0	00 dBm	IFGain.Low	, and the second			Mkr	1 1.755 0 -29.5	000 GHz 86 dBm		Auto Tun
15.0											Center Fre 5000000 G⊦
5.00 ~ ~ ^		ar and the stand of	anna a fairte a fairte anna						DL1 -13.00 dBm	1.75	Start Fre 3000000 GF
5.0					1					1.75	Stop Fre 7000000 Gi
5.0					Maralanananananananananananananananananan	apana yora	~ጭ ያትሴ ንፈንዲታላለያ	hterringen and	≠ ^{q\$}∼≜} ₩₽₽-₫ [₽] ₽₩₽₽	<u>Auto</u>	CF Ste 400.000 kł Ma
5.0											Freq Offs 01
5.0											Scale Typ
	.755000 G / 62 kHz	Hz	#VBN	/ 220 kHz			Sweep	Span 4 6.667 ms (.000 MHz (1001 pts)	Log	Ŀ
G							STATU	IS			

Plot 7-100. Upper Band Edge Plot (LTE Band 4 - 5MHz QPSK - Full RB Configuration)



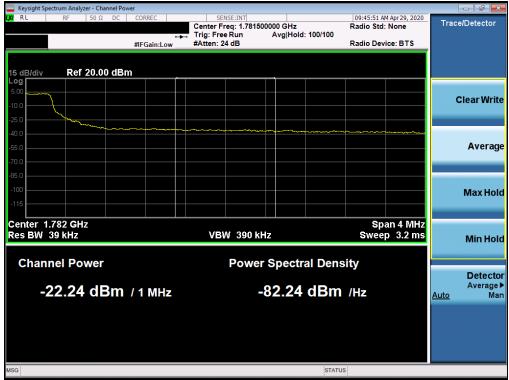
Plot 7-101. Upper Extended Band Edge Plot (LTE Band 4 - 5MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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	pectrum Analyzer -										
<mark>()</mark> RL	RF 5	0Ω DC	CORREC		Run	#Avg Typ	e: RMS	TRA	M Apr 29, 2020 CE 1 2 3 4 5 6 (PE A WWWWW	Fr	equency
	_		PNO: Wide 🖵 IFGain:Low	Atten: 36				D			
0 dB/div	Ref 25.0	0 dBm					Mkr	1 1.780 (-24.4	000 GHz 107 dBm		Auto Tun
.og										(Center Fre
15.0											0000000 GH
5.00 <mark></mark>	and have a short of the	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and the second	M							Start Fre
5.00										1.77	8000000 GH
									DL1 -13.00 dBm		
15.0				ч Ч.	1					4 70	Stop Fre
25.0				P/4	N.					1.70	2000000 Gr
35.0					" Human	www.weardawedaya	en when has did	-then the state of	u da da la como como como como como como como com		CF Ste
15.0									an a bad	<u>Auto</u>	400.000 kł Ma
10.0											-
5.0											F req Offs ۱۱
i5.0											
											Scale Typ
	.780000 GF	Iz						Span 4	1.000 101112	Log	L
Res BV	/ 62 kHz		#VBW	220 kHz			Sweep	6.667 ms	(1001 pts)		

Plot 7-102. Upper Band Edge Plot (LTE Band 66 - 5MHz QPSK - Full RB Configuration)



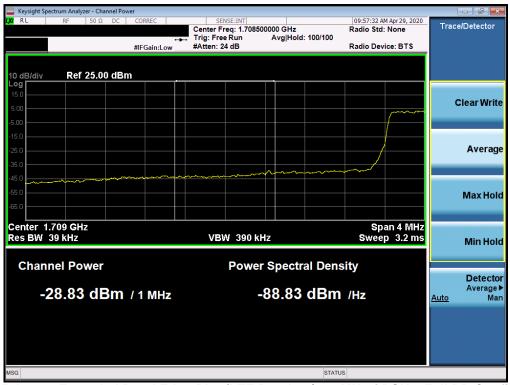
Plot 7-103. Upper Extended Band Edge Plot (LTE Band 66 - 5MHz QPSK – Full RB Conifiguration)

FCC ID: ZNFL355DL	PCTEST " Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dara 74 at 440
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RL	RF	5	0Ω	DC	CORRE	C		SE	NSE:IN	Т				AM Apr 29, 2020	-	
						:Wide(n:Low		'rig: Fre Atten: 3			#Avg Typ	e:RMS	AT I	ACE 1 2 3 4 5 6 YPE A WWWW DET A N N N N N	F	requency
0 dB/div	Ref	25.0	0 dE	3m								Mkr	1 1.710 -35.	000 GHz 603 dBm		Auto Tur
15.0																Center Fre 0000000 GH
5.00										man	And and a second	n and a second sec	war war war		1.70	Start Fr 8000000 G
25.0														DL1 -13.00 dBm	1.71	Stop Fr 2000000 G
15.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ᠰᠵᠬᡟᡗᠬ	*****	w	when	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~	amento de la compañía	1						<u>Auto</u>	CF Ste 400.000 k M
5.0																Freq Offs 0
65.0																Scale Ty
enter Res BV	1.7100 N 36 k		z			#VB	W 12	20 kHz	,			Sweep	Span 6.667 ms	4.000 MHz (1001 pts)	Log	L

Plot 7-104. Lower Band Edge Plot (LTE Band 66/4 - 3MHz QPSK - Full RB Configuration)



Plot 7-105. Lower Extended Band Edge Plot (LTE Band 66/4 - 3MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of () element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 75 at 140
1M2004220073-04-R1.ZNF	4/26 - 5/21/2020	Portable Handset		Page 75 of 112
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	ectrum Analyze											_	
RL	RF	50 Ω		CORREC PNO: W	ide 🖵			#Avg Ty	pe:RMS		10 AM Apr 29, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	F	requency
) dB/div	Ref 25.	00 dB		Guine					Mk	r1 1.75	5 000 GHz 31.00 dBm		Auto Tur
5.0													Center Fre
.00		the second se	<u>,</u> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Ann w	way wa	~~~~						1.7	Start Fre 53000000 GR
5.0							1				DL1 -13.00 dBm	1.75	Stop Fr 57000000 G
5.0							hours	en and the second	hmitten	wannant	www.	<u>Auto</u>	CF Ste 400.000 k M
5.0													Freq Offs 0
5.0	755000 0									- Sno	n 4 000 MHz	Loa	Scale Typ
enter 1. Res BW		TZ		#	VBW	120 kH:	2		Sweep	6.667 n	n 4.000 MHz ns (1001 pts)		_
G									STA				

Plot 7-106. Upper Band Edge Plot (LTE Band 4 - 3MHz QPSK - Full RB Configuration)



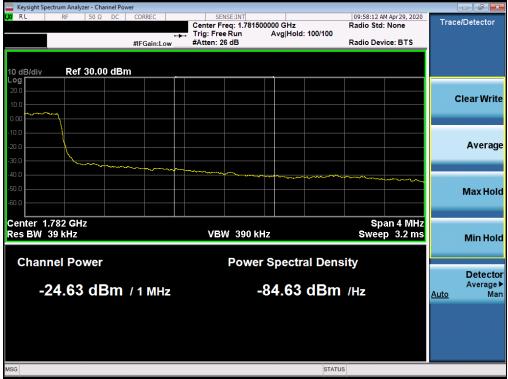
Plot 7-107. Upper Extended Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL		— PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dana 70 at 440
1M2004220073-04-R1.ZNF	4/26 - 5/21/2020	Portable Handset		Page 76 of 112
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	pectrum Analyz									_	
XU RL	RF	50 Ω DC	PNO: Wide	Trig: Fre		#Avg Type	e: RMS	TRAC	M Apr 29, 2020 CE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	F	requency
0 dB/div	Ref 25	.00 dBm	IFGain:Lov	V Atten: 3	6 dB		Mkr	1 1.780 0	-		Auto Tun
15.0											Center Fre 0000000 G⊦
5.00	manstructor	www.	Markanan	mont					DL1 -13.00 dBm	1.77	Start Fre 8000000 GH
5.0 25.0					1				DE1 -13:00 (dBhi)	1.78	Stop Fre 2000000 GF
5.0					Warning	M M Marcan Mar	mmm	how when the second	ahungung wan	<u>Auto</u>	CF Ste 400.000 kH Ma
5.0											Freq Offs 01
enter 1	.780000 (2H7						Snap 4	.000 MHz		Scale Typ ∟
	/ 36 kHz	5112	#\	/BW 120 kHz	2		Sweep	6.667 ms (
SG							STAT	US			

Plot 7-108. Upper Band Edge Plot (LTE Band 66 - 3MHz QPSK - Full RB Configuration)



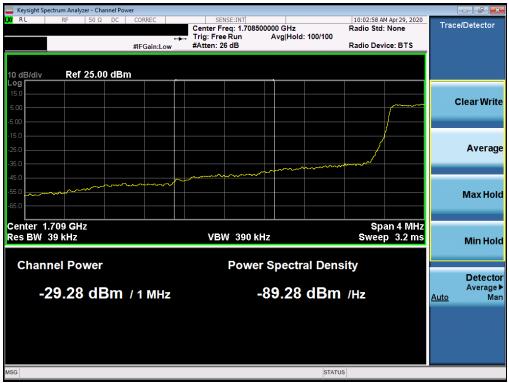
Plot 7-109. Upper Extended Band Edge Plot (LTE Band 66 - 3MHz QPSK – Full RB Conifiguration)

FCC ID: ZNFL355DL	PCTEST " Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dana 77 of 440
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Plot 7-110. Lower Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB Configuration)



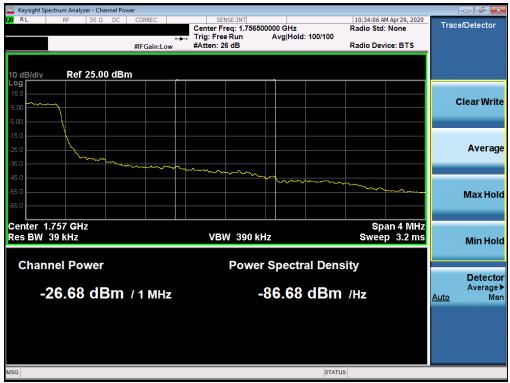
Plot 7-111. Lower Extended Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dava 70 af 440
1M2004220073-04-R1.ZNF	4/26 - 5/21/2020	Portable Handset		Page 78 of 112
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Plot 7-112. Upper Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB Configuration)



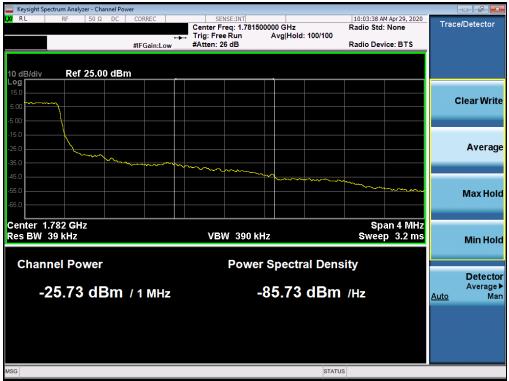
Plot 7-113. Upper Extended Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST " Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 70 of 110
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Plot 7-114. Upper Band Edge Plot (LTE Band 66 – 1.4MHz QPSK – Full RB Configuration)

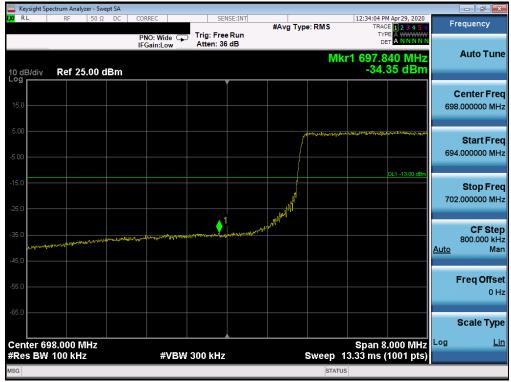


Plot 7-115. Upper Extended Band Edge Plot (LTE Band 66 – 1.4MHz QPSK – Full RB Conifiguration)

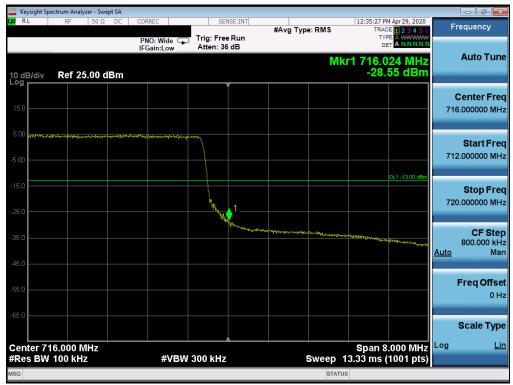
FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 80 of 112
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LTE Band 12



Plot 7-116. Lower Band Edge Plot (LTE Band 12 - 10MHz QPSK - Full RB Configuration)



Plot 7-117. Upper Band Edge Plot (LTE Band 12 - 10MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 91 of 112
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RL RF	alyzer - Swept SA 50 Ω DC	CORREC	SENSE:INT		12:42:41 PM Apr 29, 2020	Frequency
		PNO: Wide G	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 123456 TYPE A WWWWW DET A NNNNN	
	25.00 dBm			М	kr1 697.780 MHz -32.30 dBm	Auto Tun
og 15.0						Center Fre 698.000000 M⊦
5.00						Start Fre 696.000000 MH
5.0			.1	a word Hall	DL1 -13.00 dBm	Stop Fre 700.000000 Mi
5.0 	ادر ارمی <mark>ایموری</mark> و میروند او میر	le appente la presidente	new mar and the	and the second state of th		CF Ste 400.000 kł <u>Auto</u> Ma
5.0						Freq Offs 01
65.0						Scale Typ
enter 698.000 Res BW 100 kl	MHz Iz	#VBI	AV 300 kHz	Sweep	Span 4.000 MHz 6.667 ms (1001 pts)	Log <u>L</u>

Plot 7-118. Lower Band Edge Plot (LTE Band 12 - 5MHz QPSK – Full RB Configuration)



Plot 7-119. Upper Band Edge Plot (LTE Band 12 - 5MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 92 of 112
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Keysight: CRL	Spectrum Analy: RF	zer - Swep 50 Ω	DC	CORREC	1	CEN	SE:INT			12:40:00 D	M Apr 29, 2020	_	
	N.	1 20 35	DC	PNO: Wie		Frig: Free Atten: 36	Run	#Avg Typ	e:RMS	TRAC	DE 1 2 3 4 5 6 PE A WWWW FT A NNNN	F	requency
0 dB/div	Ref 25	i.00 di	3m	IFGain:Lo	w	Aπen: 36	dB		Mk	r1 697.9	52 MHz 13 dBm		Auto Tun
15.0										and the second	لمو الموجوة المحمد الموجوة الم		Center Fre 3.000000 M⊢
5.00											DL1 -13.00 dBm	69	Start Fre 5.000000 M⊦
25.0							1					70	Stop Fre 0.000000 M⊦
35.0 ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	why the second	ՠ՟ֈՠՠՠՠ	and and a second se	a the second	المراجع	ver inter	Suran and a set	for a series and the series of				<u>Auto</u>	CF Ste 400.000 kł Ma
i5.0 ——													Freq Offs 0 I
65.0													Scale Typ
	598.000 M V 100 kHz			#	VBW 3	00 kHz			Sweep 6	Span 4 667 ms (.000 MHz (1001 pts)	Log	L
SG									STATU	5			

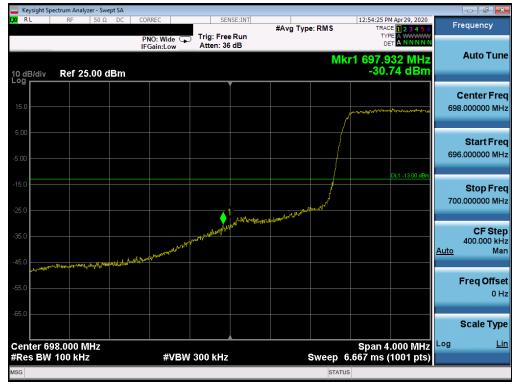
Plot 7-120. Lower Band Edge Plot (LTE Band 12 - 3MHz QPSK – Full RB Configuration)



Plot 7-121. Upper Band Edge Plot (LTE Band 12 - 3MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST [®] Proud to be part of ® element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 92 of 112
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Plot 7-122. Lower Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB Configuration)

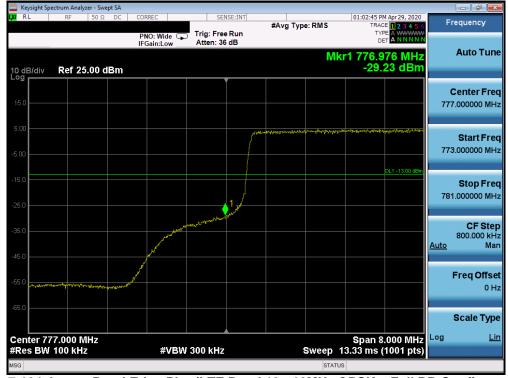


Plot 7-123. Upper Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 84 of 112
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LTE Band 13



Plot 7-124. Lower Band Edge Plot (LTE Band 13 - 10MHz QPSK – Full RB Configuration)



Plot 7-125. Lower Emission Mask Plot (LTE Band 13 - 10MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of (*) element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 95 of 110
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C RL	ectrum Analy RF	/zer - Swej 50 Ω		CORREC	1	C	NSE:INT			01:02:24 0	M Apr 29, 2020	_	
	10	30.32	be	PNO: W	ide 🖵	Trig: Fre	e Run	#Avg Ty	e:RMS	TRAC	E 1 2 3 4 5 6 E A WWWW T A NNNN	Fi	requency
0 dB/div	Ref 2:	5.00 d	Bm	I Guille					M	(r1 787.1 -27.	12 MHz 45 dBm		Auto Tun
og 15.0													Center Fre 7.000000 M⊦
5.00 	a harden ale	erte filteren er	-242-04-07-99	trategra and a second	and and a second se	mit,						783	Start Fre 3.000000 MH
25.0						- L	♦ ¹				DL1 -13.00 dBm	79 [,]	Stop Fre
45.0							1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	₩ Λ ₩₩₽ ^Δ 1,00 ³ ₩9 ⁴ 9 ⁴ 0010949	an Warth Maria Sayon	and and a second	MAN-1-5-744184474	<u>Auto</u>	CF Ste 800.000 kH Ma
55.0													Freq Offs 0 I
65.0													Scale Typ
enter 73 Res BW				#	¢VBW	300 kH;	2		Sweep	Span 8 13.33 ms (Log	L

Plot 7-126. Upper Band Edge Plot (LTE Band 13 - 10MHz QPSK – Full RB Configuration)



Plot 7-127. Upper Emission Mask Plot (LTE Band 13 - 10MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL		PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 96 of 112
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Keysight Spectrum			RREC	SEI	NSE:INT				4 Apr 29, 2020	-	
		D	NO: Wide 🗔	Trig: Free	Run	#Avg Typ	e: RMS	TYP	E 1 2 3 4 5 6 E A WWWW	F	requency
		LE LE	Gain:Low	Atten: 36					ANNNN		
							Mk	r1 777.0	00 MHz		Auto Tun
0 dB/div Re	f 25.00 d	Bm						-28.5	31 dBm		
					ĺ						Center Fre
15.0											7.000000 MH
5.00					يعقر	h gh pilalprogramming ang ang ang ang ang ang ang ang ang a		hall and a second s	and a second		Oterst Eng
										77	Start Fre 5.000000 MH
5.00											5.000000 Wir
(5.0					}				DL1 -13.00 dBm		
15.0											Stop Fre
25.0					1					779	9.000000 MH
20.0					A ^M						
35.0				A AL THE MERINE							CF Ste 400.000 kH
		Jos Marine South	nanannanna	Jord Marchan						Auto	400.000 Ki
45.0	- Marken Mark										
and works	¥***										Freq Offs
55.0											010
65.0											Scale Typ
enter 777.00								Span 4	.000 MHz	Log	Ŀ
Res BW 100	KHZ		#VBV	V 300 kHz			Sweep (6.667 ms (1001 pts)		
SG							STATU	s			

Plot 7-128. Lower Band Edge Plot (LTE Band 13 - 5MHz QPSK - Full RB Configuration)



Plot 7-129. Lower Emission Mask Plot (LTE Band 13 - 5MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of (*) element	PART 27 MEASUREMENT REPORT	🕞 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 07 of 110
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Keysight Spect											
0 RL	RF 5	0Ω DC	CORREC			#Avg Typ	e: RMS	TRAC	M Apr 29, 2020 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	Fr	equency
0 dB/div	Ref 25.0	0 dBm	IFGain:Low	Atten: 36	dВ		M	kr1 787.0			Auto Tun
15.0											Center Fre .000000 M⊦
i.00	*****		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						DL1 -13.00 dBm	785	Start Fre .000000 Mi
5.0					1				UL1 -13.00 dBm	789	Stop Fre
5.0					and	n fall i sen gen de nang	en fonten	Mart Martin	Mununyan	<u>Auto</u>	CF Ste 400.000 kl Mi
5.0											Freq Offs
enter 787	000 144	,						Snap 4	000 MHz		Scale Typ ∟
Res BW 1			#VBV	/ 300 kHz			Sweep	Span 4 6.667 ms (1001 pts)		_
G							STAT	US			

Plot 7-130. Upper Band Edge Plot (LTE Band 13 - 5MHz QPSK – Full RB Configuration)



Plot 7-131. Upper Emission Mask Plot (LTE Band 13 - 5MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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LTE Band 71



Plot 7-132. Lower Band Edge Plot (LTE Band 71 - 20MHz QPSK – Full RB Configuration)



Plot 7-133. Upper Band Edge Plot (LTE Band 71 - 20MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 90 of 110
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Keysight Spectrum Analyzer - Swept SA K RL RF 50 Ω DC	CORREC	SENSE:INT		12:02:48 PM Apr 29, 2020	- # *
		j: Free Run en: 36 dB	#Avg Type: RMS	TRACE 123456 TYPE A WWWW DET A NNNN	Frequency
0 dB/div Ref 25.00 dBm			M	kr1 661.080 MHz -29.90 dBm	Auto Tun
15.0					Center Fre 663.000000 M⊦
5.00					Start Fre 657.000000 M⊦
25.0	1			DL1 -13.00 dBm	Stop Fre 669.000000 M⊦
35.0					CF Ste 1.200000 MH <u>Auto</u> Ma
55.0					Freq Offs 0 F
35.0					Scale Typ
enter 663.000 MHz Res BW 100 kHz	#VBW 300	kHz	Sweep	Span 12.00 MHz 1.000 ms (1001 pts)	Log <u>L</u>
	#VBW 300	KHZ	Sweep		

Plot 7-134. Lower Band Edge Plot (LTE Band 71 - 15MHz QPSK – Full RB Configuration)



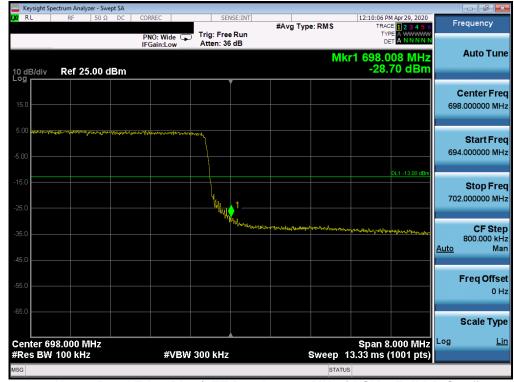
Plot 7-135. Upper Band Edge Plot (LTE Band 71 - 15MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL		PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 00 of 112
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RL RL	ight Spectru	RF	50 Ω		CORRE	C		SENSE:INT	•			12:00:36	PM Apr 29, 2020	_	
			0032	be	PNO	:Wide G		ree Run	1	#Avg Typ	e: RMS	TRA	ACE 1 2 3 4 5 6 YPE A WWWW DET A NNNNN	F	requency
10 dB/	div R	lef 2:	5.00 d	Bm		2011					Mk	(r1 662. -27	968 MHz .97 dBm		Auto Tun
15.0 -															Center Fre 3.000000 M⊦
5.00 -										ىلىمەركىلىكىلىكىلىكىلىكىكىكىكىكىكىكىكىكىكىكىك	and a start of a	unantur shaka'ya	DL1 -13.00 dBm	65	Start Fre 9.000000 M⊦
15.0 - 25.0 -								1 dd	[66	Stop Fre 7.000000 Mł
35.0 😾	derangele esteral	her and a second se	ميداديمون	hillion	mpereta		n and the second s							<u>Auto</u>	CF Ste 800.000 kł Ma
55.0 -															Freq Offs 0 F
65.0 -	er 663.(100 5	1H7									Snan	8.000 MHz	Log	Scale Typ
	BW 10					#VB\	V 300 kl	łz			Sweep	13.33 ms	(1001 pts)		
SG											STATU	JS			

Plot 7-136. Lower Band Edge Plot (LTE Band 71 - 10MHz QPSK – Full RB Configuration)



Plot 7-137. Upper Band Edge Plot (LTE Band 71 - 10MHz QPSK – Full RB Configuration)

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 01 of 112
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RL RL	Spectrum Analy RF	yzer - Swep 50 Ω		CORREC	1	SEN	ISE:INT			12-10-15 D	M Apr 29, 2020	_	
	Tu .	0012	00	PNO: Wi		Trig: Free Atten: 36	Run	#Avg Typ	e:RMS	TRAC	E 1 2 3 4 5 6 E A WWWWW A N N N N N	Fr	equency
0 dB/div	Ref 2	5.00 d	Bm	IFGain:L	ow	Atten. 30	uD		Mk	r1 662.9			Auto Tun
- og								Warmerson	420, 23, 6-201740 4.17	al Maria Marilan Jacoba	and solution		Center Fre
5.00								Line and Anna and			DL1 -13.00 dBm	661	Start Fre
25.0						WW WORNNY	1					665	Stop Fre
35.0 	and an and the starts	and the second		dree and	hadres for the	wp."						<u>Auto</u>	CF Ste 400.000 kł Ma
55.0												1	F req Offs 0 I
	663.000 N									Span 4	.000 MHz		Scale Typ
Res BV	V 100 kH	Z		#	VBW	300 kHz			Sweep 6	6.667 ms (1001 pts)		

Plot 7-138. Lower Band Edge Plot (LTE Band 71 - 5MHz QPSK – Full RB Configuration)

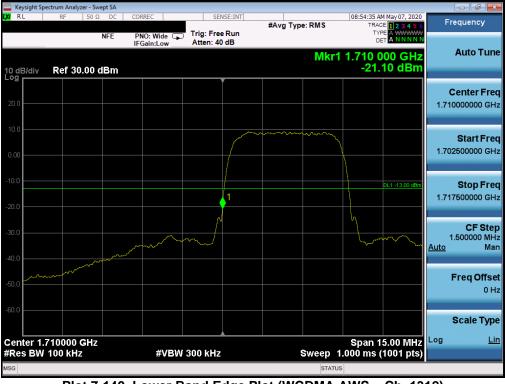


Plot 7-139. Upper Band Edge Plot (LTE Band 71 - 5MHz QPSK – Full RB Configuration)

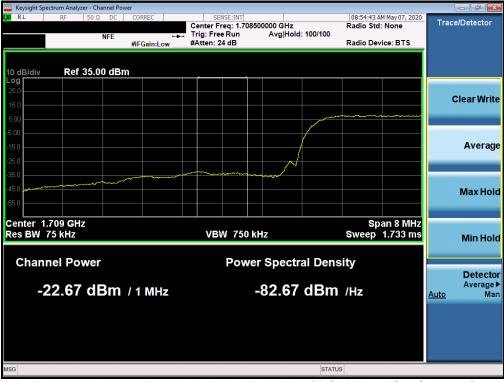
FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 02 of 112
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WCDMA AWS



Plot 7-140. Lower Band Edge Plot (WCDMA AWS – Ch. 1312)



Plot 7-141. Lower Extended Band Edge Plot (WCDMA AWS - Ch. 1312)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of (*) element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 02 of 112
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🔤 Keysight Spectrum Analyzer - Swept SA 🚽				- 6
XIRL RF 50Ω DC NFE	CORREC SENSE:IN PNO: Wide Trig: Free Run	#Avg Type: RMS	08:56:44 AM May 07, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
I0 dB/div Ref 30.00 dBm	IFGain:Low Atten: 40 dB	Mkı	r1 1.755 015 GHz -22.47 dBm	Auto Tuno
20.0				Center Free 1.755000000 GH
0.00				Start Fre 1.747500000 GH
20.0	•1		DL1 -13.00 dBm	Stop Fre 1.762500000 GH
		John Market		CF Ste 1.50000 M⊢ <u>Auto</u> Ma
50.0				Freq Offse 0 ⊢
60.0 Center 1.755000 GHz			Span 15 00 MHz	Scale Typ
Res BW 100 kHz	#VBW 300 kHz	Sweep	Span 15.00 MHz 1.000 ms (1001 pts)	

Plot 7-142. Upper Band Edge Plot (WCDMA AWS - Ch. 1513)



Plot 7-143. Upper Extended Band Edge Plot (WCDMA AWS – Ch. 1513)

FCC ID: ZNFL355DL	PCTEST Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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7.5 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 - Section 5.2.1

ANSI/TIA-603-E-2016 - Section 2.2.17

Test Settings

- 1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
- 2. RBW = 1 5% of the expected OBW, not to exceed 1MHz
- 3. VBW \geq 3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points $\geq 2 \times \text{span} / \text{RBW}$
- 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.

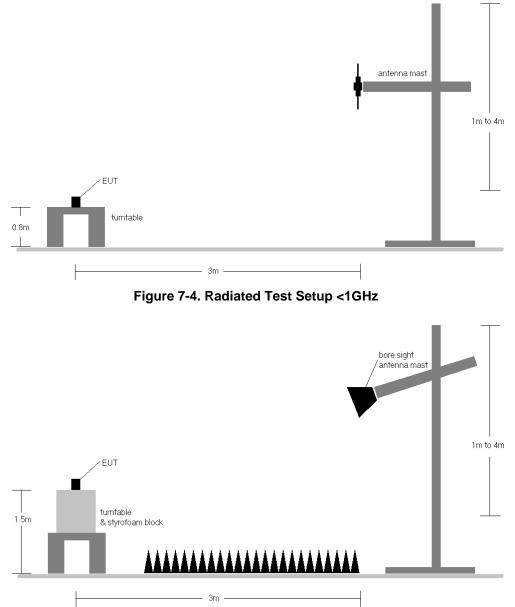


Figure 7-5. Radiated Test Setup >1GHz

Test Notes

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

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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
		1720.0	V	201.0	301.0	9.31	1 / 99	11.76	21.07	0.128	30.00	-8.93
F	QPSK	1745.0	V	215.0	134.0	9.14	1 / 99	12.72	21.86	0.153	30.00	-8.14
20 MHz		1770.0	V	269.0	284.0	9.17	1 / 50	12.53	21.70	0.148	30.00	-8.30
20	16-QAM	1745.0	V	215.0	134.0	9.14	1 / 50	11.88	21.02	0.126	30.00	-8.98
	64-QAM	1745.0	V	215.0	134.0	9.14	1 / 50	10.97	20.11	0.103	30.00	-9.89
		1717.5	V	201.0	301.0	9.33	1 / 37	11.86	21.19	0.132	30.00	-8.81
15 MHz	QPSK	1745.0	V	215.0	134.0	9.14	1 / 37	12.78	21.92	0.156	30.00	-8.08
Σ		1772.5	V	269.0	284.0	9.18	1 / 37	12.52	21.70	0.148	30.00	-8.30
15	16-QAM	1745.0	V	215.0	134.0	9.14	1 / 37	11.86	21.00	0.126	30.00	-9.00
	64-QAM	1745.0	V	215.0	134.0	9.14	1 / 37	10.99	20.13	0.103	30.00	-9.87
		1715.0	V	201.0	301.0	9.35	1 / 25	11.90	21.25	0.133	30.00	-8.75
문	QPSK	1745.0	V	215.0	134.0	9.14	1 / 25	12.89	22.03	0.160	30.00	-7.97
10 MHz		1775.0	V	269.0	284.0	9.18	1 / 25	12.64	21.83	0.152	30.00	-8.17
10	16-QAM	1745.0	V	215.0	134.0	9.14	1 / 25	11.95	21.09	0.128	30.00	-8.91
	64-QAM	1745.0	V	215.0	134.0	9.14	1 / 25	11.02	20.16	0.104	30.00	-9.84
		1712.5	V	201.0	301.0	9.37	1 / 0	11.83	21.19	0.132	30.00	-8.81
₽	QPSK	1745.0	V	215.0	134.0	9.14	1 / 12	12.77	21.91	0.155	30.00	-8.09
5 MHz		1777.5	V	269.0	284.0	9.19	1 / 12	12.59	21.78	0.151	30.00	-8.22
5	16-QAM	1745.0	V	215.0	134.0	9.14	1 / 12	11.88	21.02	0.126	30.00	-8.98
	64-QAM	1745.0	V	215.0	134.0	9.14	1 / 12	10.98	20.12	0.103	30.00	-9.88
		1711.5	V	201.0	301.0	9.37	1 / 0	11.52	20.89	0.123	30.00	-9.11
3 MHz	QPSK	1745.0	V	215.0	134.0	9.14	1/7	12.55	21.69	0.147	30.00	-8.31
Ē		1778.5	V	269.0	284.0	9.20	1/7	12.34	21.54	0.143	30.00	-8.46
e	16-QAM	1745.0	V	215.0	134.0	9.14	1/7	11.67	20.81	0.120	30.00	-9.19
	64-QAM	1745.0	V	215.0	134.0	9.14	1/7	10.80	19.94	0.099	30.00	-10.06
N		1710.7	V	201.0	301.0	9.38	1 / 0	11.57	20.95	0.125	30.00	-9.05
1.4 MHz	QPSK	1745.0	V	215.0	134.0	9.14	1 / 0	12.53	21.67	0.147	30.00	-8.33
2		1779.3	V	269.0	284.0	9.20	1 / 0	12.34	21.54	0.143	30.00	-8.46
1.	16-QAM	1745.0	V	215.0	134.0	9.14	1 / 0	11.57	20.71	0.118	30.00	-9.29
	64-QAM	1745.0	V	215.0	134.0	9.14	1/0	10.57	19.71	0.093	30.00	-10.29
	Opposite Pol.	1745.0	Н	129.0	177.0	9.14	1 / 99	12.36	21.50	0.141	30.00	-8.50

Table 7-144. EIRP Data (LTE Band 66/4)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
		704.0	Н	176.0	182.0	4.58	1 / 25	15.13	19.71	0.094	36.99	-17.28	17.56	0.057	34.77	-17.21
MHz	QPSK	707.5	Н	177.0	188.0	4.62	1/0	14.64	19.26	0.084	36.99	-17.73	17.11	0.051	34.77	-17.66
		711.0	н	181.0	175.0	4.67	1 / 49	14.78	19.45	0.088	36.99	-17.54	17.30	0.054	34.77	-17.47
10	16-QAM	704.0	н	176.0	182.0	4.58	1/0	14.09	18.67	0.074	36.99	-18.32	16.52	0.045	34.77	-18.25
	64-QAM	704.0	н	176.0	182.0	4.58	1/0	13.07	17.65	0.058	36.99	-19.34	15.50	0.035	34.77	-19.27
		701.5	н	176.0	182.0	4.60	1 / 12	15.27	19.87	0.097	36.99	-17.12	17.72	0.059	34.77	-17.05
MHz	QPSK	707.5	н	177.0	188.0	4.62	1 / 12	14.67	19.29	0.085	36.99	-17.70	17.14	0.052	34.77	-17.63
		713.5	н	181.0	175.0	4.70	1/12	14.84	19.54	0.090	36.99	-17.45	17.39	0.055	34.77	-17.38
5	16-QAM	701.5	н	176.0	182.0	4.60	1 / 12	14.03	18.63	0.073	36.99	-18.36	16.48	0.044	34.77	-18.29
	64-QAM	701.5	н	176.0	182.0	4.60	1 / 12	13.16	17.76	0.060	36.99	-19.23	15.61	0.036	34.77	-19.16
		700.5	Н	176.0	182.0	4.59	1/7	15.10	19.69	0.093	36.99	-17.30	17.54	0.057	34.77	-17.23
보	QPSK	707.5	н	177.0	188.0	4.62	1/7	14.58	19.20	0.083	36.99	-17.79	17.05	0.051	34.77	-17.72
MHz		714.5	н	181.0	175.0	4.71	1/7	14.75	19.46	0.088	36.99	-17.53	17.31	0.054	34.77	-17.46
3	16-QAM	700.5	Н	176.0	182.0	4.59	1/7	13.96	18.55	0.072	36.99	-18.44	16.40	0.044	34.77	-18.37
	64-QAM	700.5	н	176.0	182.0	4.59	1/7	13.17	17.76	0.060	36.99	-19.23	15.61	0.036	34.77	-19.16
		699.7	Н	176.0	182.0	4.56	1/0	15.04	19.60	0.091	36.99	-17.39	17.45	0.056	34.77	-17.32
MHz	QPSK	707.5	н	177.0	188.0	4.62	1/0	14.42	19.04	0.080	36.99	-17.95	16.89	0.049	34.77	-17.88
		715.3	Н	181.0	175.0	4.72	1/3	14.57	19.29	0.085	36.99	-17.70	17.14	0.052	34.77	-17.63
1.4	16-QAM	699.7	Н	176.0	182.0	4.56	1/0	13.91	18.47	0.070	36.99	-18.52	16.32	0.043	34.77	-18.45
	64-QAM	699.7	Н	176.0	182.0	4.56	1/0	13.05	17.61	0.058	36.99	-19.38	15.46	0.035	34.77	-19.31
	QPSK (Opp. Pol.)	704.0	V	296.0	121.0	4.62	1 / 25	9.07	13.69	0.023	36.99	-23.30	11.54	0.014	34.77	-23.23

Table 7-145. ERP Data (LTE Band 12)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of (*) element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
커	QPSK	782.0	Н	158.0	17.0	5.89	1 / 25	13.58	19.47	0.089	36.99	-17.52	17.32	0.054	34.77	-17.45
WH	16-QAM	782.0	Η	158.0	17.0	5.89	1 / 25	12.75	18.64	0.073	36.99	-18.35	16.49	0.045	34.77	-18.28
10	64-QAM	782.0	Н	158.0	17.0	5.89	1 / 25	11.75	17.64	0.058	36.99	-19.35	15.49	0.035	34.77	-19.28
		779.5	Н	158.0	17.0	5.82	1 / 12	13.73	19.54	0.090	36.99	-17.45	17.39	0.055	34.77	-17.38
보	QPSK	782.0	Н	158.0	17.0	5.89	1 / 12	13.69	19.58	0.091	36.99	-17.41	17.43	0.055	34.77	-17.34
ž		784.5	Н	158.0	17.0	5.92	1 / 12	13.63	19.55	0.090	36.99	-17.44	17.40	0.055	34.77	-17.37
5	16-QAM	779.5	Н	158.0	17.0	5.82	1 / 12	12.84	18.65	0.073	36.99	-18.34	16.50	0.045	34.77	-18.27
	64-QAM	782.0	Н	158.0	17.0	5.89	1 / 12	11.76	17.65	0.058	36.99	-19.34	15.50	0.036	34.77	-19.27
	Opposite Pol.	782.0	V	327.0	349.0	5.89	1 / 25	8.12	14.01	0.025	36.99	-22.98	11.86	0.015	34.77	-22.91

Table 7-146. ERP Data (LTE Band 13)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
		673.0	н	177.0	193.0	4.09	1/99	15.04	19.13	0.082	36.99	-17.86	16.98	0.050	34.77	-17.79
MHz	QPSK	680.5	н	179.0	195.0	4.24	1 / 50	15.96	20.20	0.105	36.99	-16.79	18.05	0.064	34.77	-16.73
		688.0	н	182.0	195.0	4.48	1/0	15.45	19.93	0.098	36.99	-17.06	17.78	0.060	34.77	-16.99
50	16-QAM	680.5	Н	179.0	195.0	4.24	1 / 50	15.07	19.31	0.085	36.99	-17.68	17.16	0.052	34.77	-17.62
	64-QAM	680.5	Н	179.0	195.0	4.24	1 / 50	14.08	18.32	0.068	36.99	-18.67	16.17	0.041	34.77	-18.61
		670.5	Н	177.0	193.0	3.96	1/37	15.25	19.21	0.083	36.99	-17.78	17.06	0.051	34.77	-17.71
MHz	QPSK	680.5	Н	179.0	195.0	4.24	1/37	16.00	20.24	0.106	36.99	-16.75	18.09	0.064	34.77	-16.69
		690.5	Н	182.0	195.0	4.41	1/37	15.58	19.99	0.100	36.99	-17.00	17.84	0.061	34.77	-16.93
15	16-QAM	680.5	Н	179.0	195.0	4.24	1/37	15.01	19.25	0.084	36.99	-17.74	17.10	0.051	34.77	-17.68
	64-QAM	680.5	H	179.0	195.0	4.24	1/37	14.12	18.36	0.068	36.99	-18.63	16.21	0.042	34.77	-18.57
		668.0	H	177.0	193.0	3.82	1 / 25	15.29	19.12	0.082	36.99	-17.87	16.97	0.050	34.77	-17.80
MHz	QPSK	680.5	Н	179.0	195.0	4.24	1 / 25	15.92	20.16	0.104	36.99	-16.83	18.01	0.063	34.77	-16.77
		693.0	н	182.0	195.0	4.44	1 / 25	15.45	19.89	0.098	36.99	-17.10	17.74	0.059	34.77	-17.03
9	16-QAM	680.5	H	179.0	195.0	4.24	1 / 25	14.94	19.18	0.083	36.99	-17.81	17.03	0.050	34.77	-17.75
	64-QAM	680.5	н	179.0	195.0	4.24	1 / 25	13.96	18.20	0.066	36.99	-18.79	16.05	0.040	34.77	-18.73
		665.5	Н	177.0	193.0	3.79	1 / 12	15.24	19.03	0.080	36.99	-17.96	16.88	0.049	34.77	-17.89
부	QPSK	680.5	н	179.0	195.0	4.24	1 / 12	15.86	20.10	0.102	36.99	-16.89	17.95	0.062	34.77	-16.83
MHz		695.5	H	182.0	195.0	4.58	1 / 12	15.16	19.73	0.094	36.99	-17.26	17.58	0.057	34.77	-17.19
9	16-QAM	680.5	н	179.0	195.0	4.24	1 / 12	14.84	19.08	0.081	36.99	-17.91	16.93	0.049	34.77	-17.85
	64-QAM	680.5	н	179.0	195.0	4.24	1 / 12	13.83	18.07	0.064	36.99	-18.92	15.92	0.039	34.77	-18.86
	Opposite Pol.	680.5	V	120.0	332.0	4.24	1 / 50	14.39	18.63	0.073	36.99	-18.36	16.48	0.044	34.77	-18.30
					Talala	7 4 4 7		Data /1	TE D	l 7 4	1					

Table 7-147. ERP Data (LTE Band 71)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	Н	141	216	13.23	9.46	22.69	0.186	30.00	-7.31
1732.60	WCDMA1700	Н	109	307	13.24	9.34	22.58	0.181	30.00	-7.42
1752.60	WCDMA1700	Н	101	307	13.54	9.24	22.78	0.190	30.00	-7.22
1752.60	WCDMA1700	V	153	9	12.05	9.24	21.29	0.135	30.00	-8.71

Table 7-148. EIRP Data (WCDMA AWS)

FCC ID: ZNFL355DL		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
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7.6 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally 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 maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 - Section 5.8

ANSI/TIA-603-E-2016 - Section 2.2.12

Test Settings

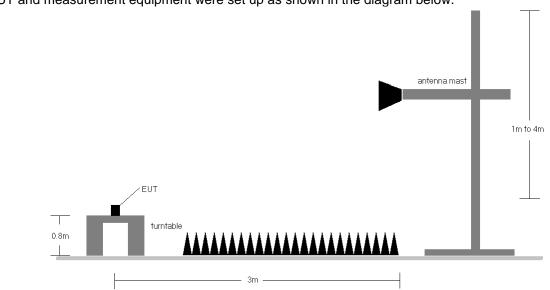
- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW \geq 3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points $\geq 2 \times \text{span} / \text{RBW}$
- 5. Detector = RMS
- 6. Trace mode = Average (Max Hold for pulsed emissions)
- 7. The trace was allowed to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

FCC ID: ZNFL355DL	PCTEST [®] Proud to be part of ® element	PART 27 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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Test Setup



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

Figure 7-6. Test Instrument & Measurement Setup

Test Notes

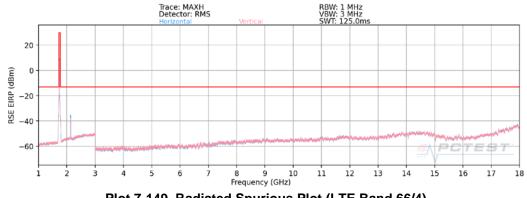
- 1. This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 2. For LTE mode, the device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with 1 RB.
- 3. This unit was tested with its standard battery.
- 4. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 5. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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	Proud to be part of 🕲 element		Quality Manager
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LTE Band 66/4





Bandwidth (MHz):	20
Frequency (MHz):	1720.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3440.0	V	400	304	-67.12	1.29	41.17	-54.09	-13.00	-41.09
5160.0	V	-	-	-70.73	4.50	40.77	-54.48	-13.00	-41.48
6880.0	V	-	-	-69.98	7.76	44.78	-50.48	-13.00	-37.48
8600.0	V	-	-	-70.07	10.47	47.40	-47.86	-13.00	-34.86

Table 7-2. Radiated Spurious Data (LTE Band 66/4 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1745.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.0	V	377	294	-67.91	1.11	40.20	-55.06	-13.00	-42.06
5235.0	V	-	-	-69.81	4.96	42.15	-53.11	-13.00	-40.11
6980.0	V	-	-	-70.00	6.31	43.31	-51.95	-13.00	-38.95
8725.0	V	-	-	-70.02	10.78	47.76	-47.49	-13.00	-34.49
10470.0	V	396	183	-68.48	11.65	50.17	-45.09	-13.00	-32.09

Table 7-3. Radiated Spurious Data (LTE Band 66/4 – Mid Channel)

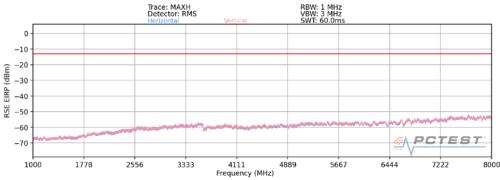
Bandwidth (MHz): Frequency (MHz): RB / Offset:	177	0 70.0 50							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.00	V	400	308	-67.35	1.42	41.07	-54.18	-13.00	-41.18
5310.00	V	-	-	-69.68	4.99	42.31	-52.94	-13.00	-39.94
7080.00	V	-	-	-69.79	6.30	43.51	-51.74	-13.00	-38.74
8850.00	V	-	-	-70.03	10.46	47.43	-47.82	-13.00	-34.82

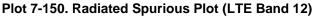
Table 7-4. Radiated Spurious Data (LTE Band 66/4 – High Channel)

FCC ID: ZNFL355DL	PCTEST * Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕞 LG	Approved by: Quality Manager
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LTE Band 12





Bandwidth (MHz):	1	0							
Frequency (MHz):	70	4.0							
RB / Offset:	1/	25							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1408.0	V	398	55	-74.20	-5.99	26.81	-68.45	-13.00	-55.45
2112.0	V	121	103	-68.23	-2.77	36.00	-59.26	-13.00	-46.26
2816.0	V	-	-	-73.64	-1.85	31.51	-63.75	-13.00	-50.75
3520.0	V	-	-	-73.60	1.65	35.05	-60.20	-13.00	-47.20

Table 7-5. Radiated Spurious Data (LTE Band 12 – Low Channel)

Bandwidth (MHz):	10
Frequency (MHz):	707.5
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1415.0	V	129	295	-72.69	-5.96	28.35	-66.91	-13.00	-53.91
2122.5	V	112	104	-68.29	-2.79	35.92	-59.34	-13.00	-46.34
2830.0	V	-	-	-73.79	-1.47	31.74	-63.52	-13.00	-50.52

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

Bandwidth (MHz):	1	0							
Frequency (MHz):	711.0								
RB / Offset:	1 /	25							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1422.0	V	121	302	-72.42	-5.96	28.62	-66.64	-13.00	-53.64
2133.0	V	119	107	-68.12	-3.20	35.68	-59.58	-13.00	-46.58
2844.0	V	-	-	-73.62	-1.37	32.01	-63.25	-13.00	-50.25
3555.0	V	-	-	-73.52	1.28	34.76	-60.49	-13.00	-47.49

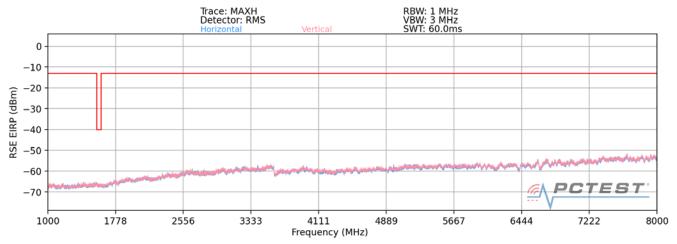
Table 7-7. Radiated Spurious Data (LTE Band 12 – High Channel)

FCC ID: ZNFL355DL	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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LTE Band 13



Plot 7-151	. Radiated	Spurious	Plot	(LTE	Band '	13)
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Bandwidth (MHz):	10
Frequency (MHz):	782.0
RB / Offset:	1 / 25

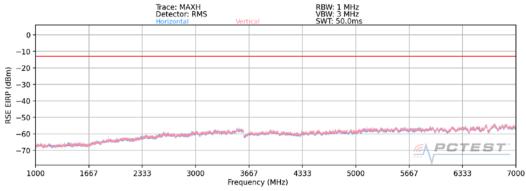
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1564.0	V	128	194	-51.01	-5.95	50.04	-45.22	-40.00	-5.22
2346.0	V	-	-	-74.07	-2.90	30.03	-65.23	-13.00	-52.23
3128.0	V	396	125	-75.93	-0.17	30.90	-64.36	-13.00	-51.36
3910.0	V	-	-	-77.12	2.86	32.74	-62.52	-13.00	-49.52
4692.0	V	-	-	-77.96	3.26	32.30	-62.96	-13.00	-49.96
5474.0	V	-	-	-78.09	5.25	34.16	-61.10	-13.00	-48.10

Table 7-8. Radiated Spurious Data (LTE Band 13)

FCC ID: ZNFL355DL		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
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LTE Band 71





Bandwidth (MHz):	10
Frequency (MHz):	668.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1336.0	Н	-	-	-70.10	-6.45	30.45	-64.81	-13.00	-51.81
2004.0	Н	-	-	-69.98	-4.16	32.86	-62.40	-13.00	-49.40

Table 7-9. Radiated Spurious Data (LTE Band 71 – Low Channel)

Bandwidth (MHz):	10
Frequency (MHz):	680.5
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1361.0	Н	396	194	-70.56	-6.38	30.06	-65.20	-13.00	-52.20
2041.5	Н	-	-	-69.64	-3.65	33.71	-61.55	-13.00	-48.55
2722.0	Н	-	-	-69.27	-1.61	36.12	-59.14	-13.00	-46.14

Table 7-10. Radiated Spurious Data (LTE Band 71 – Mid Channel)

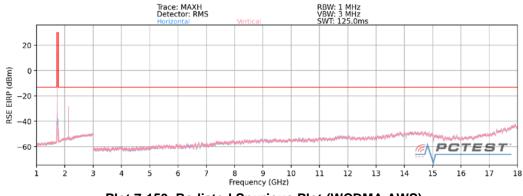
Bandwidth (MHz):									
Frequency (MHz):									
RB / Offset:	1 / 50								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1386.0	Н	-	-	-70.84	-6.15	30.01	-65.24	-13.00	-52.24
2079.0	Н	136	174	-68.49	-3.49	35.02	-60.23	-13.00	-47.23
2772.0	Н	-	-	-69.40	-1.90	35.70	-59.55	-13.00	-46.55

Table 7-11. Radiated Spurious Data (LTE Band 71 – High Channel)

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WCDMA AWS





Mode:	WCDMA RMC
Channel:	1312
Frequency (MHz):	1712.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3424.8	V	301	345	-64.53	1.64	44.11	-51.14	-13.00	-38.14
5137.2	V	-	-	-69.55	4.59	42.04	-53.22	-13.00	-40.22
6849.6	V	-	-	-69.68	7.58	44.90	-50.35	-13.00	-37.35

Table 7-12. Radiated Spurious Data (WCDMA AWS – Low Channel)

Mode:	WCDMA RMC
Channel:	1413
Frequency (MHz):	1732.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3465.2	V	337	97	-68.21	1.16	39.95	-55.31	-13.00	-42.31
5197.8	V	-	-	-69.59	4.89	42.30	-52.95	-13.00	-39.95
6930.4	V	-	-	-69.71	7.22	44.51	-50.75	-13.00	-37.75

Table 7-13. Radiated Spurious Data (WCDMA AWS – Mid Channel)

Mode:	WCDMA RMC
Channel:	1513
Frequency (MHz):	1752.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3505.2	V	322	18	-68.51	0.96	39.45	-55.81	-13.00	-42.81
5257.8	V	-	-	-70.14	4.99	41.85	-53.41	-13.00	-40.41
7010.4	V	-	-	-69.89	7.46	44.57	-50.69	-13.00	-37.69

Table 7-14. Radiated Spurious Data (WCDMA AWS – High Channel)

FCC ID: ZNFL355DL	Pctest Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕞 LG	Approved by: Quality Manager
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Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. 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 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-E-2016

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

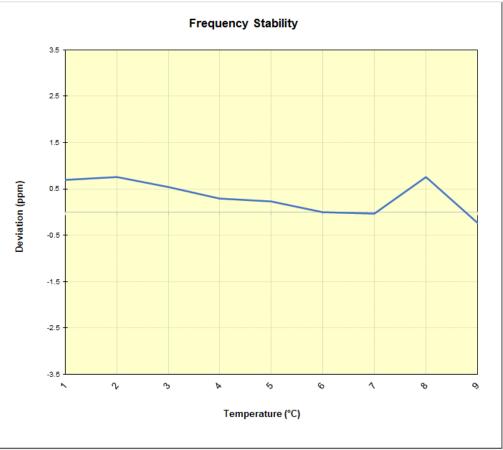
None

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LTE Band 66/4							
	Operating F	requency (Hz):	1,745,0	00,000			
	Ref. Voltage (VDC):		3.8	85			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	1,745,000,802	1,223	0.0000701		
		- 20	1,745,000,912	1,333	0.0000764		
		- 10	1,745,000,522	943	0.0000540		
		0	1,745,000,085	506	0.0000290		
100 %	3.85	+ 10	1,744,999,987	408	0.0000234		
		+ 20 (Ref)	1,744,999,579	0	0.0000000		
		+ 30	1,744,999,519	-60	-0.000034		
		+ 40	1,745,000,914	1,335	0.0000765		
		+ 50	1,744,999,181	-398	-0.0000228		
Battery Endpoint	3.11	+ 20	1,744,999,894	315	0.0000181		

Table 7-9. LTE Band 66/4 Frequency Stability Data





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LTE Band 12							
	Operating F	requency (Hz):	707,50	00,000			
	Ref.	Voltage (VDC):	3.	85			
					-		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	707,500,068	42	0.0000059		
		- 20	707,499,978	-48	-0.000068		
		- 10	707,499,853	-173	-0.0000245		
		0	707,500,127	101	0.0000143		
100 %	3.85	+ 10	707,499,528	-498	-0.0000704		
		+ 20 (Ref)	707,500,026	0	0.0000000		
		+ 30	707,500,115	89	0.0000126		
		+ 40	707,499,856	-170	-0.0000240		
		+ 50	707,500,143	117	0.0000165		
Battery Endpoint	3.11	+ 20	707,500,181	155	0.0000219		

Table 7-9. LTE Band 12 Frequency Stability Data

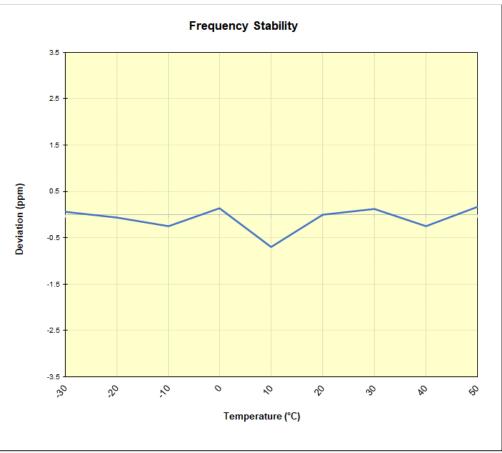


Table 7-9. LTE Band 12 Frequency Stability Chart

FCC ID: ZNFL355DL	PCTEST *	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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LTE Band 13							
	Operating F	requency (Hz):	782,00	00,000			
	Ref. Voltage (VDC):		3.	85			
					-		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	782,000,182	513	0.0000656		
		- 20	781,999,588	-81	-0.0000104		
		- 10	782,000,033	364	0.0000465		
		0	782,000,154	485	0.0000620		
100 %	3.85	+ 10	781,999,698	29	0.000037		
		+ 20 (Ref)	781,999,669	0	0.0000000		
		+ 30	781,999,961	292	0.0000373		
		+ 40	781,999,947	278	0.0000355		
		+ 50	782,000,114	445	0.0000569		
Battery Endpoint	3.11	+ 20	782,000,321	652	0.0000834		

Table 7-9. LTE Band 13 Frequency Stability Data

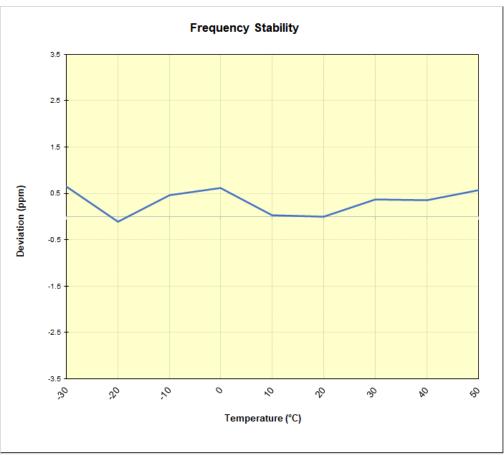


Table 7-9. LTE Band 13 Frequency Stability Chart

FCC ID: ZNFL355DL	PCTEST * Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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LTE Band 71								
	Operating F	requency (Hz):	680,50	00,000				
	Ref. Voltage (VDC):		3.	85				
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)			
		- 30	680,500,197	146	0.0000215			
		- 20	680,500,497	446	0.0000655			
		- 10	680,499,938	-113	-0.0000166			
		0	680,500,493	442	0.0000650			
100 %	3.85	+ 10	680,499,538	-513	-0.0000754			
		+ 20 (Ref)	680,500,051	0	0.0000000			
		+ 30	680,500,030	-21	-0.000031			
		+ 40	680,499,982	-69	-0.0000101			
		+ 50	680,499,672	-379	-0.0000557			
Battery Endpoint	3.11	+ 20	680,500,119	68	0.0000100			

Table 7-9. LTE Band 71 Frequency Stability Data

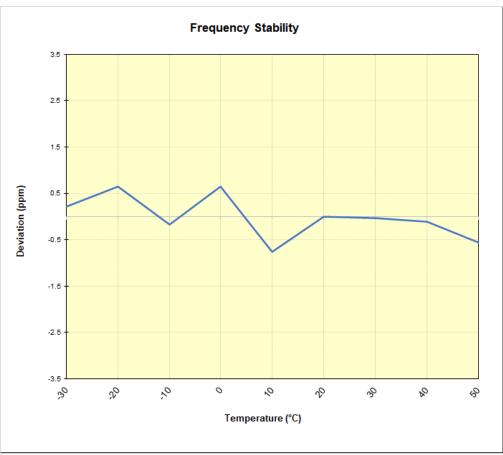


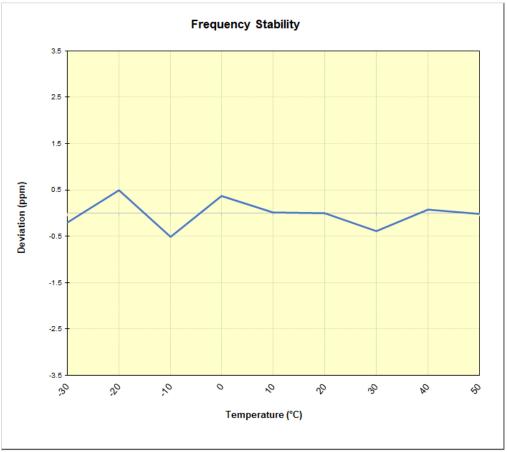
Table 7-9. LTE Band 71 Frequency Stability Chart

FCC ID: ZNFL355DL	PCTEST * Proud to be part of @ element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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WCDMA AWS							
	Operating F	requency (Hz):	1,732,6	00,000]		
	Ref. Voltage (VDC):		3.8	85			
					-		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	1,732,599,741	-350	-0.0000202		
		- 20	1,732,600,951	860	0.0000496		
		- 10	1,732,599,216	-875	-0.0000505		
		0	1,732,600,732	641	0.0000370		
100 %	3.85	+ 10	1,732,600,124	33	0.0000019		
		+ 20 (Ref)	1,732,600,091	0	0.0000000		
		+ 30	1,732,599,430	-661	-0.0000382		
		+ 40	1,732,600,224	133	0.0000077		
		+ 50	1,732,600,058	-33	-0.0000019		
Battery Endpoint	3.11	+ 20	1,732,600,960	869	0.0000502		

Table 7-9. WCDMA AWS Frequency Stability Data





FCC ID: ZNFL355DL	PCTEST * Proud to be part of (*) element	PART 27 MEASUREMENT REPORT	🕒 LG	Approved by: Quality Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the LG Portable Handset FCC ID: ZNFL355DL complies with all the requirements of Parts 27 of the FCC rules.

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