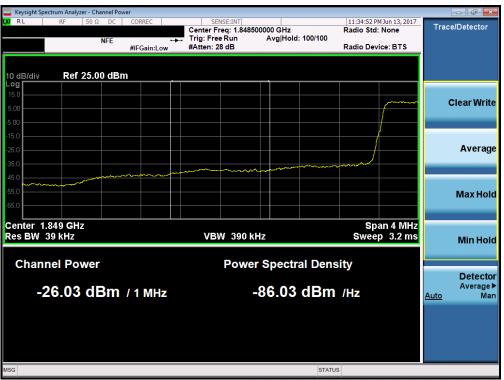


Keysight Spectrum Analyz	er - Swept SA									
🗶 RL RF		PNO: Wide	SENSE	tun	#Avg Type:	RMS	TRAC	1 Jun 13, 2017 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	Fi	equency
10 dB/div Ref 25		FGain:Low	Atten: 36 d	В		Mkr1	1.850 0	00 GHz 95 dBm		Auto Tune
15.0										Center Freq 0000000 GHz
-5.00					Judd John and a			0L1 -13.00 dBm	1.84	Start Freq 8000000 GHz
25.0									1.85	Stop Free 2000000 GH;
35.0		www.	some of the second				horp	mm	Auto	CF Step 400.000 kH: Mar
55.0										Freq Offse 0 H
-65.0										Scale Type
Center 1.850000 (#Res BW 12 kHz	GHz	#VBW	39 kHz		s	weep 10	Span 4 1.60 ms (.000 MHz 1001 pts)	Log	Lin
MSG						STATUS				

Plot 7-225. Lower Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)



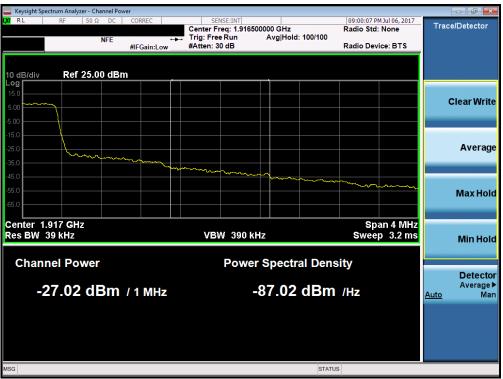
Plot 7-226. Lower Extended Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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Plot 7-227. Upper Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)



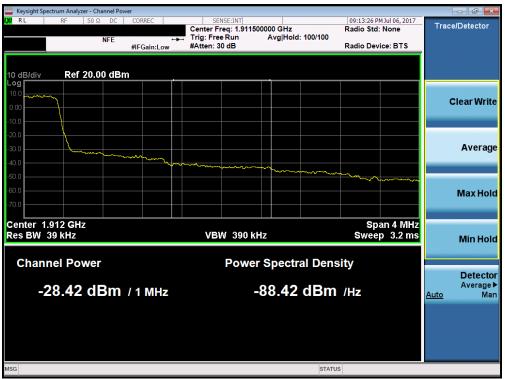
Plot 7-228. Upper Extended Band Edge Plot (Band 25 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-229. Upper Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)



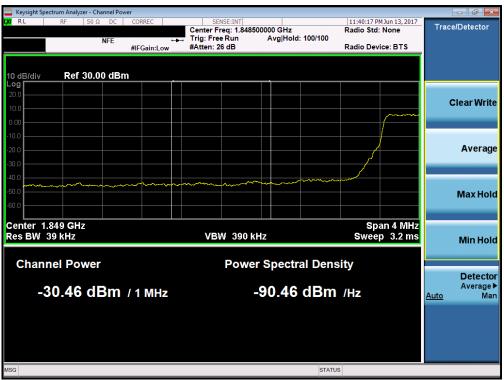
Plot 7-230. Upper Extended Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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	ctrum Analyze											
LXI RL	RF	50 Ω DC	CORRE	C		VSE:INT	#Avg Typ	e: RMS	TRAC	MJun 13, 2017 E 1 2 3 4 5 6	F	requency
		NFE		Wide 🖵 n:Low	Trig: Free Atten: 36				TYF	E A WWWW T A N N N N N		
								Mkr1	1.849 9	96 GHz 30 dBm		Auto Tune
10 dB/div Log	Ref 25.	00 dBn	n –						-21.	SU abm		
												Center Freq
15.0											1.8	50000000 GHz
5.00												
3.00						\sim						Start Freq
-5.00											1.84	48000000 GHz
										DL1 -13.00 dBm		
-15.0												Stop Freq
-25.0						1					1.8	52000000 GHz
					/	4 						
-35.0					/							CF Step 400.000 kHz
		\sim			~~~						<u>Auto</u>	Man
-45.0		~~~~~										
-55.0												Freq Offset
												0 Hz
-65.0												
												Scale Type
Center 1.8		Hz		<i>//)</i> (5)				_	Span 4	.000 MHz	Log	Lin
#Res BW	30 KHZ			#VBW	91 kHz				2.000 ms (1001 pts)		
MSG								STATU	S			

Plot 7-231. Lower Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)



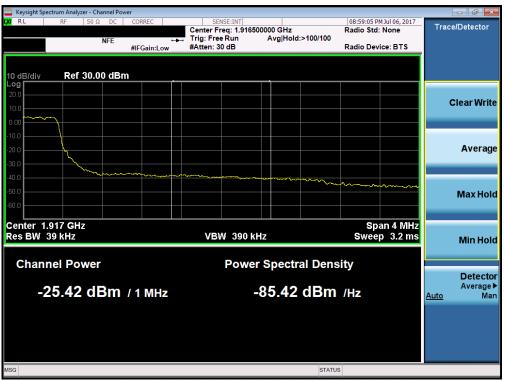
Plot 7-232. Lower Extended Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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Keysight Species	ctrum Analyz	zer - Swept SA										
LXU RL	RF	50 Ω DC	CORREC		SEI	NSE:INT	#Avg Ty	pe: RMS	TRA	PM Jul 06, 2017 CE 1 2 3 4 5 6 (PE A WWWWW DET A NNNNN	F	requency
10 dB/div Log	Ref 25	.00 dBm	IFGain:Lo	ow	Atten: 36	6 dB		Mkr	1 1.915 (000 GHz 03 dBm		Auto Tune
15.0												Center Freq 5000000 GHz
-5.00		<i>-</i>		********** 						DL1 -13.00 dBm	1.91	Start Freq 3000000 GHz
-15.0						1					1.91	Stop Freq 7000000 GHz
-35.0								~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~	<u>Auto</u>	CF Step 400.000 kHz Man
-55.0												Freq Offset 0 Hz
-65.0												Scale Type
Center 1.9 #Res BW		GHz	#		160 kHz			Sweep	Span 4 2.000 ms	4.000 MHz (1001 pts)	Log	<u>Lin</u>
MSG								STAT	US			

Plot 7-233. Upper Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)



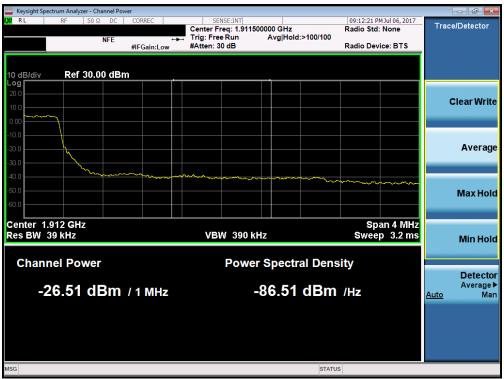
Plot 7-234. Upper Extended Band Edge Plot (Band 25 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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		trum Anal	yzer - Swept	t SA										
L <mark>XI</mark> RL		RF	50 Ω	DC	CORREC		SEI	NSE:INT	#Avg Typ	e: RMS		PM Jul 06, 2017 ACE 1 2 3 4 5 6	F	requency
			N	FE	PNO: Wi IFGain:Lo	de 🖵	Trig: Free Atten: 36				т	YPE A WWWWW		
					IFGain:Lo	W	Atten: 30	ub		Mike	4 4 040	000 GHz		Auto Tune
10 dB Log r	∕div	Ref 2	5.00 dE	3m						WIN	-27.3	363 dBm		
								Í						Center Freq
15.0														0000000 GHz
5.00	~~~~	~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	.~~~~	$\sim\sim\sim\sim$	~~~~~	\sim							Start Freq
-5.00													1.90	8000000 GHz
5.00												DL1 -13.00 dBm		
-15.0												DET -13.00 GBR		Stop Freq
								1					1.91	2000000 GHz
-25.0							¥							
-35.0								"						CF Step
								~~~~	www	mm	mm	Marine Marine Marine Marine M	Auto	400.000 kHz Man
-45.0														
														Freq Offset
-55.0														0 Hz
-65.0														
														Scale Type
Cent	er 1 9	10000	GH7								Snan	4.000 MHz	Log	Lin
		51 kHz			#	VBW	160 kHz			Sweep	2.000 ms	(1001 pts)		
MSG										STAT	rus			

Plot 7-235. Upper Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)



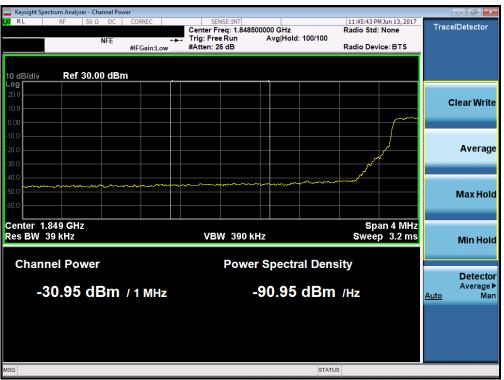
Plot 7-236. Upper Extended Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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	ectrum Analyzo										
LX/RL	RF	50 Ω DC	CORREC	SENSE	INT	#Avg Typ	e: RMS		4 Jun 13, 2017 E 1 2 3 4 5 6	F	requency
		NFE	PNO: Wide 🖵	Trig: Free R				TYP			
			IFGain:Low	Atten: 36 df	5						Auto Tune
40.151.1	D-6.05	00 dBm					MKM	1.850 0	00 GHz 86 dBm		
10 dB/div	Rel 25.	оо авт		•				20.			
											Center Freq
15.0										1.85	0000000 GHz
5.00					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Otort Enor
										10/	Start Freq 8000000 GHz
-5.00										1.04	8000000 GHZ
									DL1 -13.00 dBm		
-15.0											Stop Freq
-25.0					r					1.85	2000000 GHz
-25.0				<b>♦</b>							
-35.0				لر							CF Step
-55.0										Auto	400.000 kHz Man
-45.0	www	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~						Auto	Iviari
											-
-55.0											Freq Offset
											0 Hz
-65.0											
											Scale Type
Center 1.	850000 0							Snan /	.000 MHz	Log	Lin
#Res BW	51 kHz	9112	#VBW	160 kHz			Sweep 2	.000 ms (	1001 pts)		
MSG							STATUS				

Plot 7-237. Lower Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)



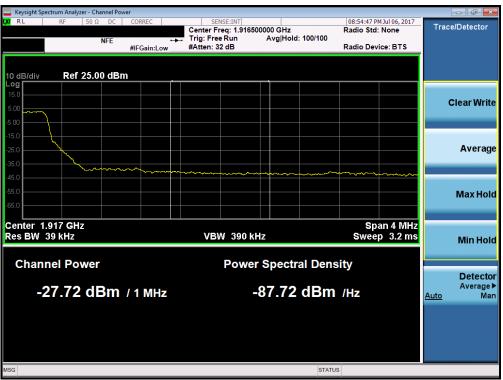
Plot 7-238. Lower Extended Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spe	ctrum Analyzer	- Swept SA									
LXU RL	RF	50 Ω DC	CORREC		SENSE:INT	#Avg Typ	e:RMS	TRAC	1 Jul 06, 2017 E 1 2 3 4 5 6 E A WWWW T A N N N N N	F	requency
10 dB/div Log	Ref 25.0		IFGain:Lo	w Atten	: 36 dB		Mkr'	1.915 0			Auto Tune
15.0											<b>Center Freq</b> 5000000 GHz
-5.00	·····		~~~~						DL1 -13.00 dBm	1.91	Start Freq 3000000 GHz
-15.0				h	1					1.91	<b>Stop Freq</b> 7000000 GHz
-35.0						~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~~~		<u>Auto</u>	CF Step 400.000 kHz Man
-55.0											Freq Offset 0 Hz
-65.0											Scale Type
Center 1.9 #Res BW		Hz	#\	/BW 160 ki	Hz		Sweep :	Span 4 2.000 ms (	.000 MHz 1001 pts)	Log	Lin
MSG							STATU	IS			

Plot 7-239. Upper Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)



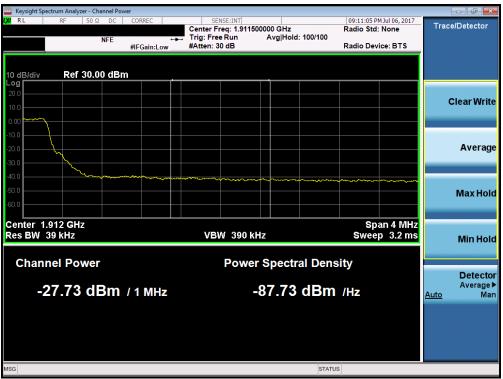
Plot 7-240. Upper Extended Band Edge Plot (Band 25 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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		nalyzer - Swept SA									
LXI RL	RF	50 Ω DC	CORREC		ISE:INT	#Avg Type	e: RMS	TRAC	MJul 06, 2017 E <b>1 2 3 4 5 6</b>	F	requency
		NFE	PNO: Wide IFGain:Low	Trig: Free Atten: 36				TYF			
							Mkr	1 1.910 0	00 GHz		Auto Tune
10 dBi Log r	/div Ref	25.00 dBm						-31.1	32 dBm		
										(	Center Freq
15.0										1.91	0000000 GHz
5.00											
0.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	m	my							Start Freq
-5.00										1.90	8000000 GHz
45.0									DL1 -13.00 dBm		
-15.0				6							Stop Freq 2000000 GHz
-25.0				- VL	1					1.91	2000000 GHZ
											CF Step
-35.0					- mar	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m				400.000 kHz
-45.0					<b>`</b>				·····	<u>Auto</u>	Man
											Freq Offset
-55.0											0 Hz
-65.0											
-05.0											Scale Type
Cent	er 1.91000							Snap /	.000 MHz	Log	Lin
	BW 51 kF		#VE	3W 160 kHz		:	Sweep	2.000 ms (	1001 pts)		
MSG							STAT				

Plot 7-241. Upper Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)



Plot 7-242. Upper Extended Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	Spectrum Analyze									
L <mark>XI</mark> RL	RF	50 Ω DC	CORREC	SENSE	:INT	#Avg Typ	e: RMS	11:48:58 PM Jun 13, 201 TRACE 1 2 3 4 5		requency
		NFE	PNO: Wide 😱 IFGain:Low	Trig: Free R Atten: 36 d				DET A NNN	N	Auto Tune
10 dB/div Log	Ref 25.	00 dBm						1.850 000 GH -33.76 dBr	1	
15.0										Center Freq
									1.8	50000000 GHz
5.00					100	engelen oppenson vite for	www.www.heeko	and the and the second of the	7	Start Freq
-5.00										46000000 GHz
-15.0					_			DL1 -13.00 dB		Stop Freq
-25.0									1.8	54000000 GHz
				<u>_</u> 1						CF Step
-35.0			allon	man man and the					Auto	800.000 kHz Man
-45.0	and a start	and on a link of								
-55.0										Freq Offset 0 Hz
-65.0										
										Scale Type
	1.850000 G N 100 kHz		#\/B\/	300 kHz			Sween A	Span 8.000 MH .000 ms (1001 pts	z Log	<u>Lin</u>
#RES DY			<i></i>	500 KH2			SWEEP 4		<u> </u>	

Plot 7-243. Lower Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

			ilyzer - Swe	ept SA										
L <mark>XI</mark> RI	L	RF	50 Ω	DC	CORREC	ide ↔	Trig: Free		#Avg Typ	e: RMS	TRA	M Jun 13, 2017 CE 1 2 3 4 5 6 PE A WWWWW	F	requency
10 dE Log	3/div	Ref 2	25.00 d		IFGain:		Atten: 36	dB		Mkr	1 1.848	992 GHz 56 dBm		Auto Tune
15.0														<b>Center Freq</b> 7000000 GHz
5.00 -5.00													1.84	Start Freq 5000000 GHz
-15.0												DL1 -13.00 dBm	1.84	<b>Stop Freq</b> 9000000 GHz
-35.0	والاصفري ورارتهم	antingal (Novely,	and the second	-3 ₂ , _{de} seri	talipper-1844 Law	(Janaa) and a start of the	-for-manuar	et yn aif yn yn yn	pound operation with a con-	aggitters ^a nyikerin	unanunalaar		<u>Auto</u>	<b>CF Step</b> 400.000 kHz Man
-55.0														Freq Offset 0 Hz
-65.0														Scale Type
	ter 1.8 s BW				-	#VBW	3.0 MHz			Sweep	Span 4 2.000 ms	.000 MHz (1001 pts)	Log	<u>Lin</u>
MSG										STAT	us			

Plot 7-244. Lower Extended Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer - Swept SA					
Center F	RF 50 Ω DC	CORREC	SENSE:INT	#Avg Type: RMS	06:41:13 PM Jul 14, 2017 TRACE 1 2 3 4 5	6 Frequency
	NFE	PNO: Wide 🖵 IFGain:Low	Trig: Free Run Atten: 36 dB			
				М	kr1 1.910 000 GHz -31.595 dBn	Auto Tune
10 dB/div	Ref 25.00 dBm		•		-31.395 UBI	
						Center Freq
15.0						1.91000000 GHz
5.00	where we are a second and	«				
						Start Freq
-5.00						1.906000000 GHz
-15.0					DL1 -13.00 dBr	
-13.0						Stop Freq 1.914000000 GHz
-25.0			<u> </u>			1.914000000 GHZ
						CF Step
-35.0				we when the approximate	and the second s	800.000 kHz Auto Man
-45.0						Auto Mari
						Freq Offset
-55.0						0 Hz
-65.0						
						Scale Type
Center 1	910000 GHz				Span 8.000 MH:	Log <u>Lin</u>
#Res BW		#VBW	300 kHz	Swee	p 4.000 ms (1001 pts	
MSG				S	TATUS	

Plot 7-245. Upper Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

	ectrum Analyzer -											
LXI RL	RF 50	)Ω DC   NFE	CORREC		sense:		#Avg Typ	e: RMS	TRA	M Jul 06, 2017 CE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	F	requency
10 dB/div	Ref 15.00		IFGain:Lo		tten: 26 dE			Mkr	1 1.911 (	004 GHz 64 dBm		Auto Tune
												<b>Center Freq</b> 3000000 GHz
-5.00										DL1 -13.00 dBm	1.91	Start Freq 1000000 GHz
-25.0	-mangalanta ang mangang mang m	**************************************	g-subbrill provide and	and the second	h-ye-shineey  e-r	الية اليكونية (المراجع)	g _e ratus ^a ndradousadous	مەرىرىكە مەرىكە مەرىكە مەرىكە مەرىكە مەرى	lands from a subscription of the second		1.91	Stop Freq 5000000 GHz
-45.0											<u>Auto</u>	CF Step 400.000 kHz Man
-65.0												Freq Offset 0 Hz
	913000 GH	Iz							Span 4	.000 MHz	Log	Scale Type Lin
#Res BW	1.0 MHz		#	VBW 3.0	MHz			Sweep	2.000 ms	(1001 pts)		

Plot 7-246. Upper Extended Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

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	ctrum Analyzer - S										
LXI RL	RF 50 9	ΩDC	CORREC	SENSE:I	NT	#Avg Typ	e: RMS	11:50:55 PM TRACE	Jun 13, 2017	Fr	equency
		NFE	PNO: Wide IFGain:Low	Trig: Free Ru Atten: 36 dB	n			TYPE DE1	A WWWWW A NNNNN		Auto Tune
10 dB/div Log	Ref 25.00	dBm				1		1.850 0 -32.0	04 dBm		
15.0											Center Freq 0000000 GHz
										1.85	0000000 GHZ
5.00					$\int dr dr$	·/~~~~	for the second s	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Start Freq
-5.00										1.84	4000000 GHz
-15.0					-				0L1 -13.00 dBm		Stop Freq
-25.0				1	<i> </i>					1.85	6000000 GHz
-35.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	man	wind the second							CF Step
-45.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~									<u>Auto</u>	Man
											Freq Offset
-55.0											0 Hz
-65.0											Scale Type
	350000 GHz	2						Span 12		Log	Lin
#Res BW			#VBW	470 kHz			Sweep 1	.000 ms (1	001 pts)		
MSG							STATUS				

Plot 7-247. Lower Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

	ectrum Analyzer - Swept SA					
Center F	RF <u>50 Ω</u> DC req 1.847000000 NFE	CORREC CORREC O GHZ PNO: Wide +++	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	11:51:09 PM Jun 13, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div Log	Ref 25.00 dBm		Allen. oo db	Mkr	1 1.848 944 GHz -26.68 dBm	Auto Tune
15.0						Center Freq 1.847000000 GHz
-5.00						Start Freq 1.845000000 GHz
-15.0					DL1 -13.00 dBm	Stop Freq 1.849000000 GHz
-35.0	gennadigtengegengengengengengengengengengengengen	Ay - ak ang	۵۰۰۹۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰۰			CF Step 400.000 kH Auto Mar
-45.0						Freq Offse 0 Hz
-65.0						Scale Type
	847000 GHz 1.0 MHz	#VBW	3.0 MHz	Sweep :	Span 4.000 MHz 2.000 ms (1001 pts)	Log <u>Lin</u>
MSG				STATU	JS	

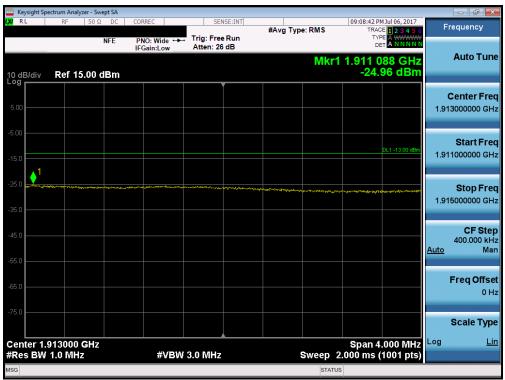
Plot 7-248. Lower Extended Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

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🔤 Keysight Sp	ectrum Analyzer - Swept SA					
Span 20.	RF 50 Ω DC .0000000 MHz NFE	CORREC	SENSE:INT	#Avg Type: RMS	06:42:51 PM Jul 14, 2017 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Span
	ni L	IFGain:Low	Atten: 36 dB			Span
10 dB/div Log	Ref 25.00 dBm			MK	r1 1.910 00 GHz -32.67 dBm	20.0000000 MHz
209			Ĭ			
15.0						
5.00	and a gradient of the second o	and the second of the second o				Full Span
-5.00					DL1 -13.00 dBm	
-15.0						Zero Span
-25.0			1			
-35.0			ham	man and a second	mont	Last Span
-45.0						
-55.0						
-65.0						
Center 1	91000 GHz				Spap 20.00 MHz	Signal Track (Span Zoom) On Off
#Res BW		#VBW	1.0 MHz	Sweep	Span 20.00 MHz 1.000 ms (1001 pts)	
MSG				STATL	IS	

Plot 7-249. Upper Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)



Plot 7-250. Upper Extended Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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NFE       PNO: Wide IFGain:Low       Trig: Free Run Atten: 36 dB       #Avg Type: RMS       TRACE TYPE       23 4 30 TYPE       Auto Tune         Mkr1 1.850 0000 GHz -27.72 dBm       OCenter Freq 1.85000000 GHz       Center Freq 1.85000000 GHz       Center Freq 1.85000000 GHz       Center Freq 1.85000000 GHz         00       Image: Comparison of the second of the		ctrum Analyze						
NFE       PNO: Wide       Trig: Free Run       Mikr1 1.850 000 GHz       Auto Tune         Mikr1 1.850 000 GHz       Mikr1 1.850 000 GHz       Genetaria       Auto Tune         Mikr1 1.850 000 GHz       Genetaria       Genetaria       Genetaria       Genetaria         Mikr1 1.850 000 GHz       Genetaria       Genetaria       Genetaria       Genetaria       Genetaria         Mikr1 1.850 000 GHz       Genetaria       Genetaria       Genetaria       Genetaria       Genetaria       Genetaria       Genetaria         Mikr1 1.850 000 GHz       Genetaria       G	L <mark>XI</mark> RL	RF	50 Ω DC	CORREC	SENSE:INT	#Avg Type: RMS	11:53:09 PM Jun 13, 2017 TRACE 1 2 3 4 5 6	Frequency
Addiving Ref 25.00 dBm Ref 25.00 dBm Center Freq 1,85000000 GHz Center Freq 1,85000000 GHz Center Freq 1,8500000 GHz Center Freq 1,8500000 GHz Center Freq 1,8500000 GHz Center Freq 1,8500000 GHz CF Step 1,600 MHz Center Freq 1,8500000 GHz Center Freq 1,8500000 GHz CF Step 1,600 MHz Center Freq 1,8500000 GHz CF Step 1,600 MHz Center Freq 1,8500000 GHz CF Step 1,600 MHz Center Freq 1,8500000 GHz CF Step 1,600 MHz Center Freq 1,8500000 GHz			NFE	PNO: Wide 🖵 IFGain:Low		0.71	TYPE A WWWWW	
Center Freq 1.8500000 GHz Center Freq 1.8500000 GHz	10 dB/div Log	Ref 25.	00 dBm			Mkı	1 1.850 000 GHz -27.72 dBm	Auto Tune
Start Freq Start Freq Start Freq Start Freq Start Freq 1.84200000 GHz Start Freq 1.85800000 GHz	15.0							Center Freq 1.85000000 GHz
Stop Freq Stop Freq 1.85800000 GHz Stop Freq 1.85800000 GHz Stop Freq 1.85800000 GHz Stop Freq 1.85800000 GHz Stop Freq 1.85800000 GHz Log Lin	-5.00					yanganana manangkana manang yang na		<b>Start Freq</b> 1.842000000 GHz
50     CF Step       50     CF Step       50     State       50     State <td>-15.0</td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td>UC1 -13.00 dem</td> <td><b>Stop Freq</b> 1.858000000 GHz</td>	-15.0				1		UC1 -13.00 dem	<b>Stop Freq</b> 1.858000000 GHz
5.0 Freq Offset 5.0 Scale Type enter 1.850000 GHz Span 16.00 MHz Log Lin	-35.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	······				CF Step 1.600000 MHz <u>Auto</u> Man
enter 1.850000 GHz Scale Type	-55.0							<b>Freq Offset</b> 0 Hz
Griter 1.000000 Griz	-65.0							Scale Type
			Hz	#VBW	620 kHz	Sweep	Span 16.00 MHz 1.000 ms (1001 pts)	Log <u>Lin</u>
G STATUS	MSG							

Plot 7-251. Lower Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

	pectrum Analyzer - Sw	rept SA									- 6 ×
Center F	RF 50 Ω Freq 1.84700	DC D0000 NFE	CORREC GHZ PNO: Wide ↔ IFGain:Low			#Avg Type	e:RMS	TRAC	I Jun 13, 2017 E 1 2 3 4 5 6 E A WWWWW T A NNNNN	Fi	equency
10 dB/div Log	Ref 25.00	dBm	II Gameon				Mkr1	1.848 8 -22.3	60 GHz 32 dBm		Auto Tune
15.0											<b>Center Freq</b> 7000000 GHz
-5.00										1.84	Start Freq 5000000 GHz
-15.0	aure a far algues free too ferror	Peddy-Songeton Large	مر المراجع الم		unter-sayer-to-some	موروند رواند و مدروند و مدرون مدروند و مدروند و مدرو	abyrgen, maleithidaan an m	Vogeney and the stand	<u>DL1-13.00 dBm</u>	1.84	<b>Stop Freq</b> 9000000 GHz
-35.0										<u>Auto</u>	<b>CF Step</b> 400.000 kHz Man
-55.0											Freq Offset 0 Hz
-65.0											Scale Type
	.847000 GHz 1.0 MHz		#VBV	V 3.0 MHz		ę	Sweep 2	Span 4 .000 ms (		Log	Lin
MSG							STATUS	3			

Plot 7-252. Lower Extended Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Plot 7-253. Upper Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

			nalyzer - Sw	/ept SA										
l <b>XI</b> R	L	RF	50 Ω	2 DC	CORREC		SEI	NSE:INT	#Avg Typ	e: RMS		PM Jul 06, 2017 ACE 1 2 3 4 5 6	F	requency
				NFE	PNO: W IFGain:L	ide ⊶⊶ ₋ow	Trig: Fre Atten: 26		0 71		Т			
10 di Log	B/div	Ref	15.00	dBm						Mki	r1 1.911 -22	180 GHz .00 dBm		Auto Tune
5.00														<b>Center Freq</b> 3000000 GHz
-5.00 -15.0	1											DL1 -13.00 dBm	1.91	Start Freq 1000000 GHz
	¥		lang ang ang ang ang ang ang ang ang ang		*******	and the second	an a	(Jane Anna Ana a	<u>\679</u> 64-%{\69864-&688384^		Netter Anglis - Art Brange	and any office and the second	1.91	Stop Freq 5000000 GHz
-45.0 -55.0													<u>Auto</u>	<b>CF Step</b> 400.000 kHz Man
														Freq Offset 0 Hz
														Scale Type
	ter 1.9 s BW		0 GHz Hz			#VBW	3.0 MHz			Sweep	Span 2.000 ms	4.000 MHz (1001 pts)	Log	<u>Lin</u>
MSG										STA	TUS			

Plot 7-254. Upper Extended Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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🔤 Keysight Spectrum Anal						
LXI RL RF	50 Ω DC	CORREC	SENSE:INT	#Avg Type: RMS	09:55:14 PM Jun 13, 2017 TRACE 1 2 3 4 5 6	Frequency
	NFE	PNO: Wide 🖵 IFGain:Low	Trig: Free Run Atten: 36 dB		TYPE A WWWW DET A N N N N 1 2.305 000 GHz	Auto Tune
10 dB/div Ref 2	5.00 dBm				-29.75 dBm	
15.0						Center Freq 2.305000000 GHz
-5.00					<u>~</u>	Start Freq 2.303000000 GHz
-15.0			1		DL1 -13.00 dBm	<b>Stop Freq</b> 2.307000000 GHz
-35.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~			<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-55.0						<b>Freq Offset</b> 0 Hz
-65.0						Scale Type
Center 2.305000 #Res BW 51 kHz		#VBW	150 kHz	Sweep	Span 4.000 MHz 2.000 ms (1001 pts)	Log <u>Lin</u>
MSG				STAT		

Plot 7-255. Lower Band Edge Plot (Band 30 – 5.0MHz QPSK – RB Size 25)



Plot 7-256. Lower Extended Band Edge Plot (Band 30 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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	ectrum Analyzer						
IXI RL	RF	50Ω DC	CORREC	SENSE:INT	#Avg Type: RMS	09:58:55 PM Jun 13, 2017 TRACE 1 2 3 4 5 6	Frequency
		NFE	PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB	• • •	DET A NNNNN	
10 dB/div Log	Ref 25.0	00 dBm			Mk	r1 2.315 00 GHz -27.937 dBm	Auto Tune
15.0							Center Freq 2.315000000 GHz
-5.00	**************************************		**************			DL1 -13.00 dBm	<b>Start Freq</b> 2.310000000 GHz
-15.0				1			<b>Stop Freq</b> 2.320000000 GHz
-35.0				himan	and the second	www.	CF Step 1.000000 MHz <u>Auto</u> Man
-55.0							Freq Offset 0 Hz
-65.0							Scale Type
Center 2.3 #Res BW		Hz	#VBW	150 kHz	Sweep 4	Span 10.00 MHz 5.000 ms (1001 pts)	Log <u>Lin</u>
MSG					STATU	s	

Plot 7-257. Upper Band Edge Plot (Band 30 – 5.0MHz QPSK – RB Size 25)



Plot 7-258. Upper Extended Band Edge Plot (Band 30 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-259. Lower Band Edge Plot (Band 30 – 10.0MHz QPSK – RB Size 50)



Plot 7-260. Lower Extended Band Edge Plot (Band 30 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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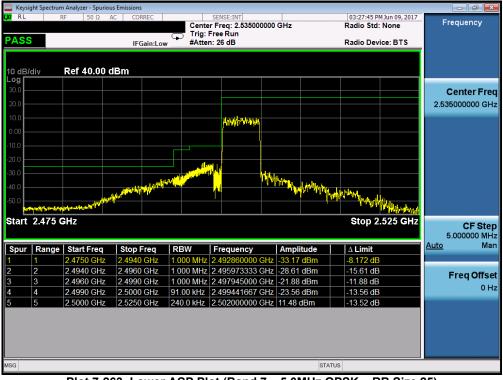
Plot 7-261. Upper Band Edge Plot (Band 30 – 10.0MHz QPSK – RB Size 50)



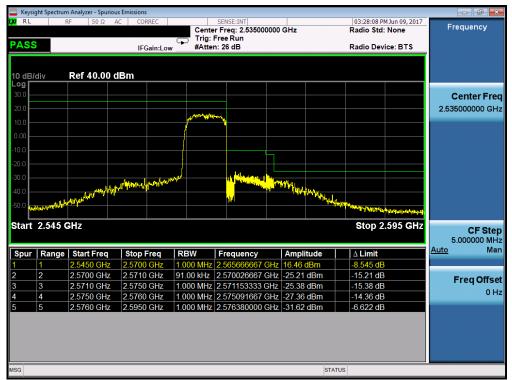
Plot 7-262. Upper Extended Band Edge Plot (Band 30 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-263. Lower ACP Plot (Band 7 – 5.0MHz QPSK – RB Size 25)



Plot 7-264. Upper ACP Plot (Band 7 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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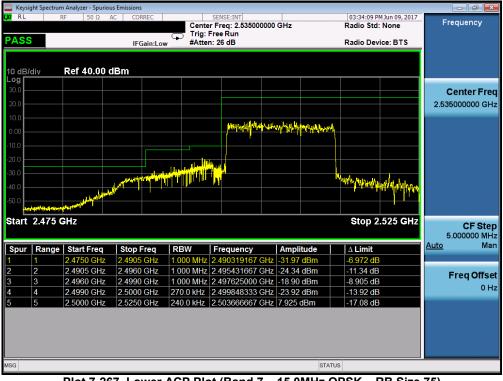
Plot 7-265. Lower ACP Plot (Band 7 – 10.0MHz QPSK – RB Size 50)



Plot 7-266. Upper ACP Plot (Band 7 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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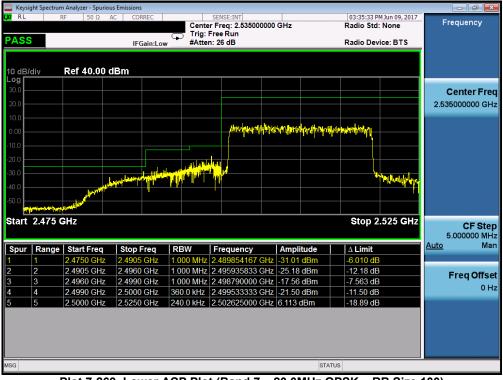
Plot 7-267. Lower ACP Plot (Band 7 – 15.0MHz QPSK – RB Size 75)



Plot 7-268. Upper ACP Plot (Band 7 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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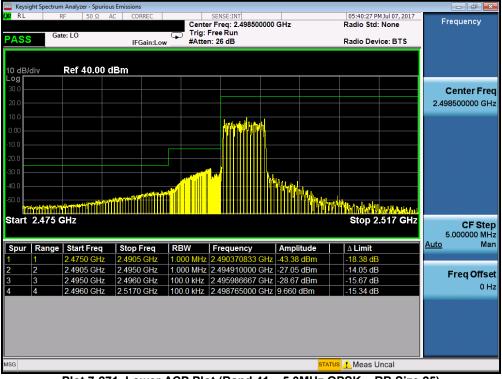
Plot 7-269. Lower ACP Plot (Band 7 – 20.0MHz QPSK – RB Size 100)



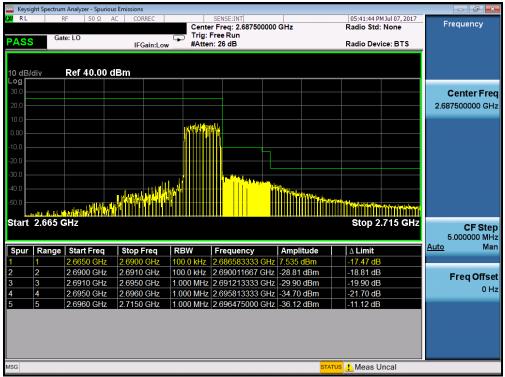
Plot 7-270. Upper ACP Plot (Band 7 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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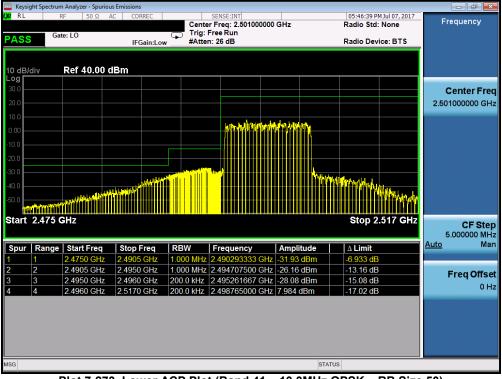
Plot 7-271. Lower ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)



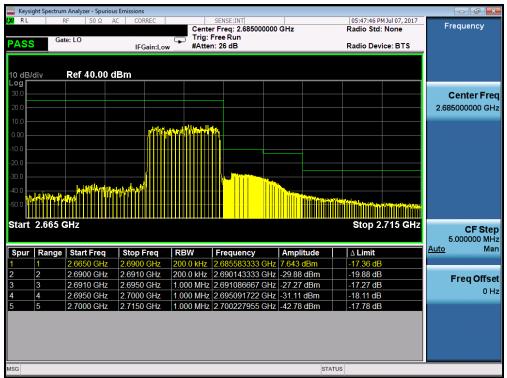
Plot 7-272. Upper ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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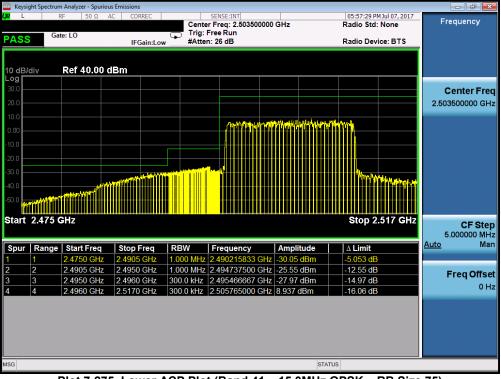
Plot 7-273. Lower ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)



Plot 7-274. Upper ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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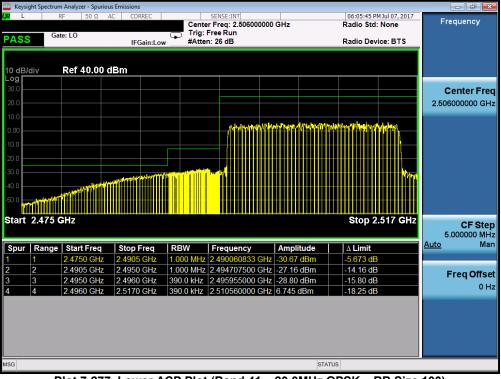
Plot 7-275. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)



Plot 7-276. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-277. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)



Plot 7-278. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# 7.5 Peak-Average Ratio §24.232(d)

#### Test Overview

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

## Test Procedure Used

KDB 971168 D01 v02r02 - Section 5.7.1

## Test Settings

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

#### Test Setup

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

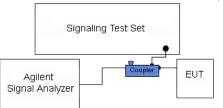


Figure 7-4. Test Instrument & Measurement Setup

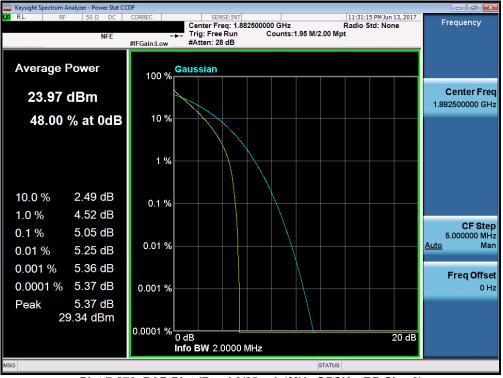
## Test Notes

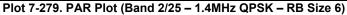
None.

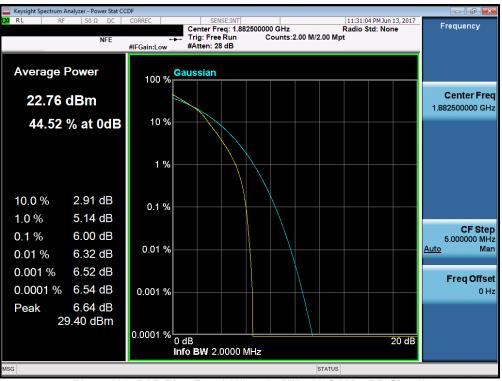
FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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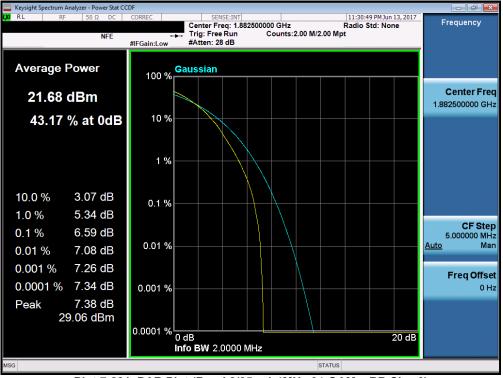


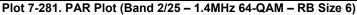


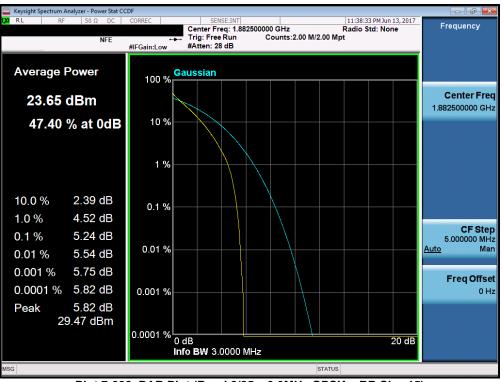
Plot 7-280. PAR Plot (Band 2/25 - 1.4MHz 16-QAM - RB Size 6)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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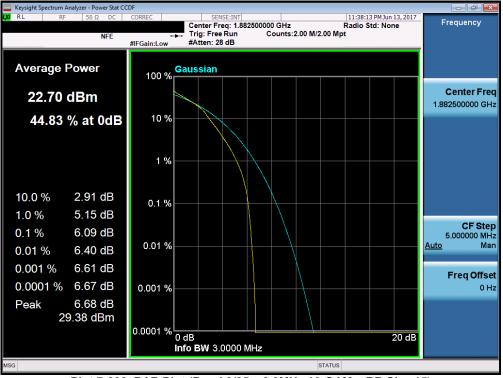


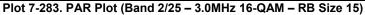


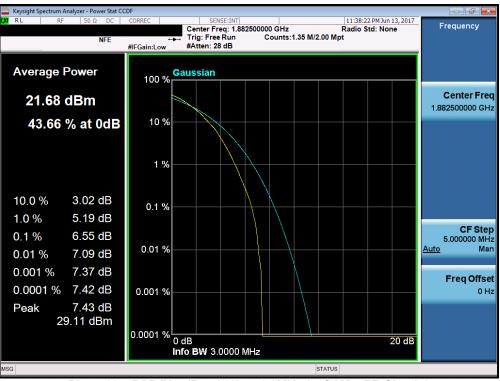
Plot 7-282. PAR Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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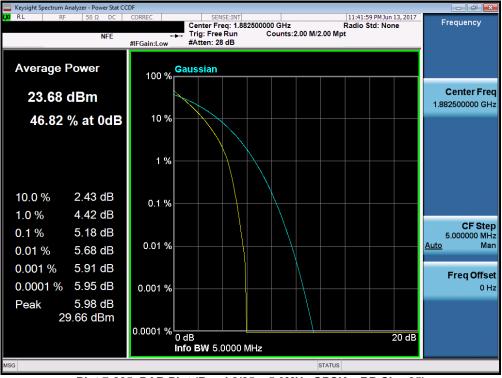




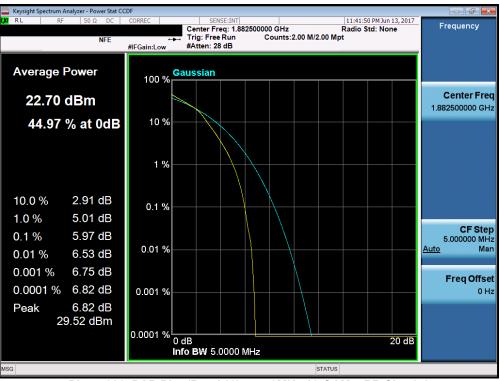
Plot 7-284. PAR Plot (Band 2/25 - 3.0MHz 64-QAM - RB Size 15)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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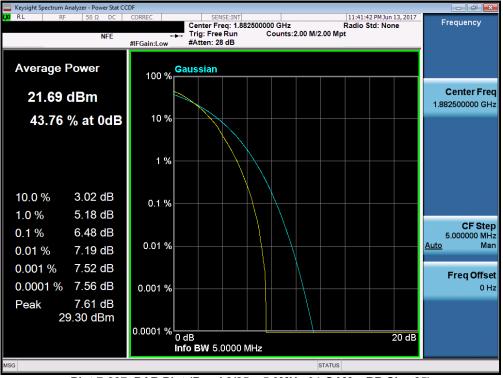
Plot 7-285. PAR Plot (Band 2/25 - 5.0MHz QPSK - RB Size 25)

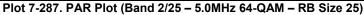


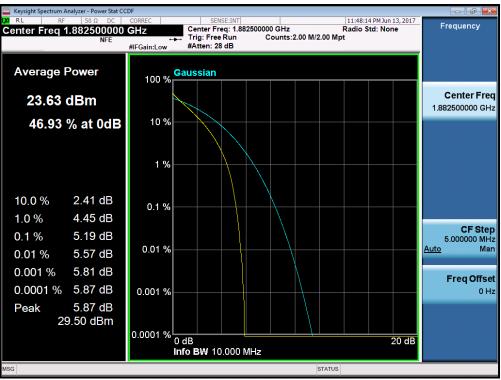
Plot 7-286. PAR Plot (Band 2/25 - 5.0MHz 16-QAM - RB Size 25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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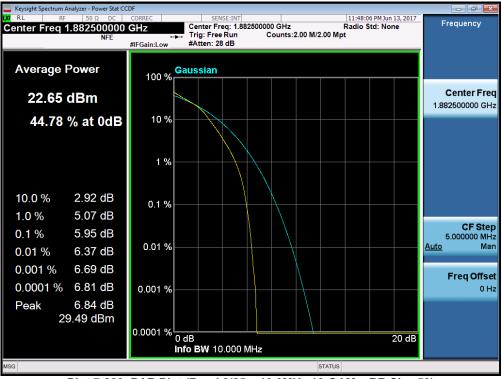


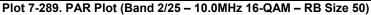


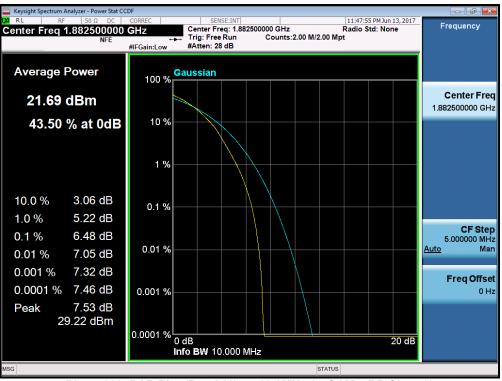
Plot 7-288. PAR Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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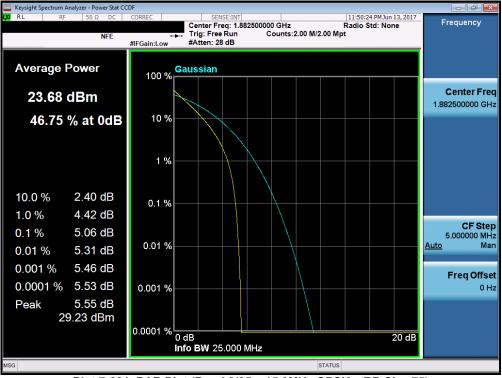


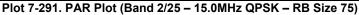


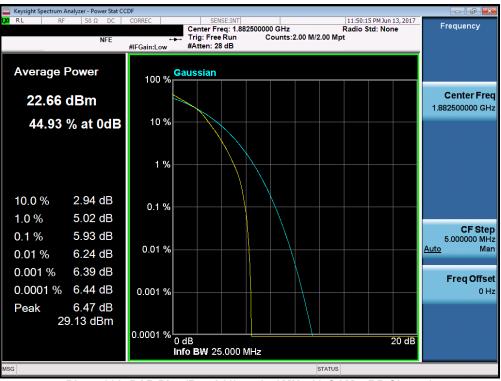
Plot 7-290. PAR Plot (Band 2/25 - 10.0MHz 64-QAM - RB Size 50)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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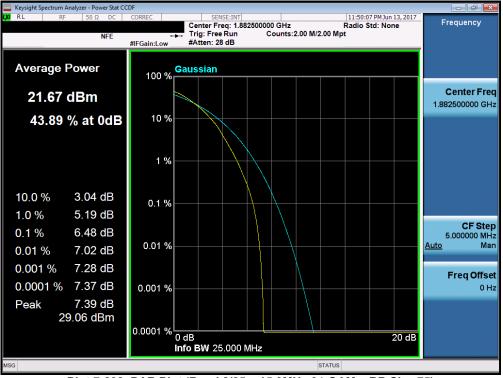


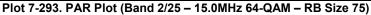


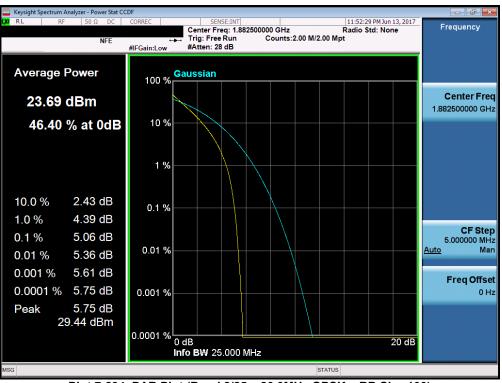
Plot 7-292. PAR Plot (Band 2/25 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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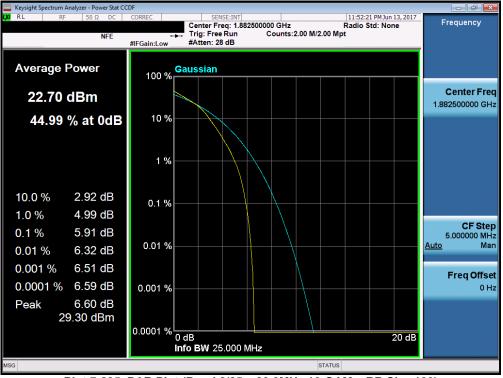


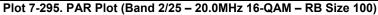


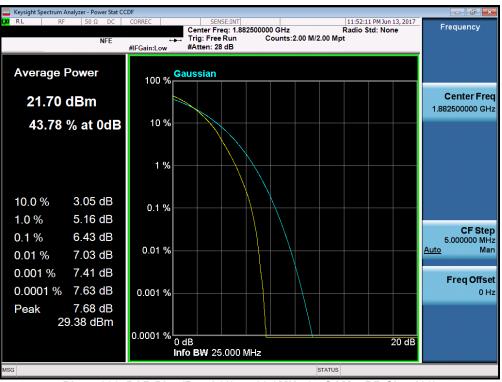
Plot 7-294. PAR Plot (Band 2/25 - 20.0MHz QPSK - RB Size 100)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Plot 7-296. PAR Plot (Band 2/25 - 20.0MHz 64-QAM - RB Size 100)

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### 7.6 Radiated Power (ERP/EIRP) §22.913(a.2) §24.232(c.2) §27.50(h.2) §27.50(b.10) §27.50(c.10) §27.50(d.4) §27.50(a.3)

#### Test Overview

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

#### Test Procedures Used

KDB 971168 D01 v02r02 - Section 5.2.1

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

#### Test Settings

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

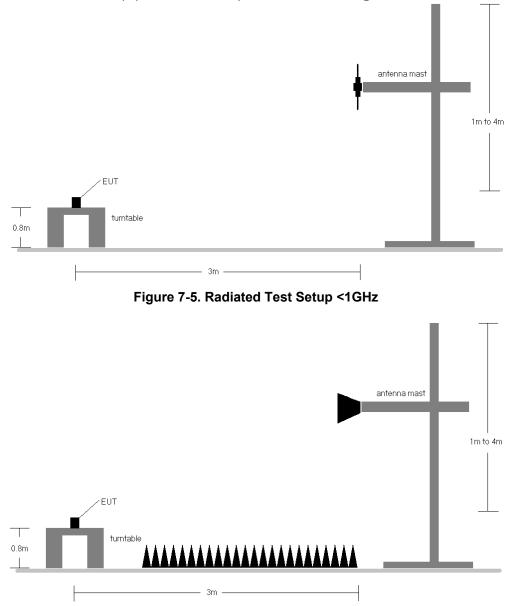


Figure 7-6. Radiated Test Setup >1GHz

### Test Notes

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

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	Н	150	176	1 / 5	17.28	-1.05	16.23	34.77	-18.54
707.50	1.4	QPSK	Н	150	175	1 / 5	17.81	-1.02	16.79	34.77	-17.98
715.30	1.4	QPSK	н	150	175	1 / 5	18.22	-0.99	17.23	34.77	-17.54
715.30	1.4	16-QAM	Н	150	175	1 / 5	17.40	-0.99	16.41	34.77	-18.36
715.30	1.4	64-QAM	Н	150	175	1 / 5	16.44	-0.99	15.45	34.77	-19.32
700.50	3	QPSK	Н	150	171	1 / 14	17.74	-1.05	16.69	34.77	-18.08
707.50	3	QPSK	Н	150	173	1 / 0	18.11	-1.02	17.09	34.77	-17.68
714.50	3	QPSK	Н	150	174	1 / 14	18.31	-0.99	17.32	34.77	-17.45
714.50	3	16-QAM	Н	150	174	1 / 14	17.59	-0.99	16.60	34.77	-18.17
714.50	3	64-QAM	Н	150	174	1 / 14	16.52	-0.99	15.53	34.77	-19.24

Table 7-2. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
701.50	5	QPSK	Н	150	174	1 / 24	17.83	-1.04	16.79	34.77	-17.99
707.50	5	QPSK	Н	150	174	1 / 0	18.19	-1.02	17.17	34.77	-17.60
713.50	5	QPSK	Н	150	174	1 / 24	18.41	-1.00	17.41	34.77	-17.36
713.50	5	16-QAM	Н	150	174	1 / 24	17.58	-1.00	16.58	34.77	-18.19
713.50	5	64-QAM	Н	150	174	1 / 24	16.61	-1.00	15.61	34.77	-19.16
704.00	10	QPSK	Н	150	175	1 / 49	18.15	-1.03	17.12	34.77	-17.65
707.50	10	QPSK	Н	150	176	1 / 0	18.09	-1.02	17.07	34.77	-17.70
711.00	10	QPSK	Н	150	176	1 / 49	18.25	-1.01	17.24	34.77	-17.53
711.00	10	16-QAM	н	150	176	1 / 49	17.46	-1.01	16.45	34.77	-18.32
711.00	10	64-QAM	Н	150	176	1 / 49	16.42	-1.01	15.41	34.77	-19.36
713.50	5	QPSK	V	150	352	1 / 0	15.86	-1.00	14.86	34.77	-19.91
713.50	5 (WCP)	QPSK	Н	150	197	1/0	13.88	-1.00	12.88	34.77	-21.89

Table 7-3. ERP Data (Band 12/17)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
779.50	5	QPSK	н	150	190	1 / 24	19.47	-0.83	18.64	34.77	-16.13
782.00	5	QPSK	Н	150	189	1 / 0	19.49	-0.82	18.67	34.77	-16.10
784.50	5	QPSK	Н	150	191	1 / 24	18.98	-0.81	18.17	34.77	-16.60
782.00	5	16-QAM	Н	150	189	1 / 0	18.89	-0.82	18.07	34.77	-16.70
782.00	5	64-QAM	Н	150	189	1 / 0	17.92	-0.82	17.10	34.77	-17.67
782.00	10	QPSK	Н	150	188	1 / 49	19.20	-0.82	18.38	34.77	-16.39
782.00	10	16-QAM	Н	150	188	1 / 49	18.54	-0.82	17.72	34.77	-17.05
782.00	10	64-QAM	Н	150	188	1 / 49	17.63	-0.82	16.81	34.77	-17.96
782.00	5	QPSK	V	150	333	1/0	17.05	-0.82	16.23	34.77	-18.54
782.00	5 (WCP)	QPSK	Н	150	165	1/0	17.62	-0.82	16.80	34.77	-17.97

Table 7-4. ERP Data (Band 13)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	н	150	181	1 / 5	17.93	-0.65	17.28	38.45	-21.17
836.50	1.4	QPSK	н	150	181	1 / 0	17.96	-0.65	17.31	38.45	-21.14
848.30	1.4	QPSK	н	150	183	1 / 5	16.71	-0.65	16.06	38.45	-22.39
836.50	1.4	16-QAM	н	150	181	1 / 0	17.06	-0.65	16.41	38.45	-22.04
836.50	1.4	64-QAM	н	150	181	1 / 0	15.96	-0.65	15.31	38.45	-23.14
825.50	3	QPSK	н	150	178	1 / 0	17.84	-0.65	17.19	38.45	-21.26
836.50	3	QPSK	н	150	183	1 / 14	17.87	-0.65	17.22	38.45	-21.23
847.50	3	QPSK	н	150	183	1 / 0	17.01	-0.65	16.36	38.45	-22.09
836.50	3	16-QAM	н	150	183	1 / 14	17.02	-0.65	16.37	38.45	-22.08
836.50	3	64-QAM	н	150	183	1 / 14	15.99	-0.65	15.34	38.45	-23.11
826.50	5	QPSK	н	150	182	1 / 24	17.92	-0.65	17.27	38.45	-21.18
836.50	5	QPSK	н	150	182	1 / 0	17.85	-0.65	17.20	38.45	-21.25
846.50	5	QPSK	н	150	182	1 / 0	17.44	-0.65	16.79	38.45	-21.66
826.50	5	16-QAM	н	150	182	1 / 24	17.11	-0.65	16.46	38.45	-21.99
826.50	5	64-QAM	н	150	182	1 / 24	16.01	-0.65	15.36	38.45	-23.09
829.00	10	QPSK	н	150	180	1 / 49	17.97	-0.65	17.32	38.45	-21.13
836.50	10	QPSK	н	150	183	1 / 0	17.86	-0.65	17.21	38.45	-21.24
844.00	10	QPSK	н	150	183	1 / 0	17.78	-0.65	17.13	38.45	-21.32
836.50	10	16-QAM	н	150	183	1 / 0	17.26	-0.65	16.61	38.45	-21.84
836.50	10	64-QAM	н	150	183	1 / 0	16.11	-0.65	15.46	38.45	-22.99
829.00	10	QPSK	V	150	322	1 / 0	15.19	-0.65	14.54	38.45	-23.91
829.00	10 (WCP)	QPSK	н	150	6	1/0	15.44	-0.65	14.79	38.45	-23.66

Table 7-5. ERP Data (Band 5)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	н	150	350	1/0	21.08	5.56	26.64	30.00	-3.36
1745.00	1.4	QPSK	н	150	349	1/0	20.54	5.32	25.86	30.00	-4.14
1779.30	1.4	QPSK	Н	150	350	1/0	20.48	5.09	25.57	30.00	-4.43
1710.70	1.4	16-QAM	Н	150	350	1/0	20.13	5.56	25.69	30.00	-4.31
1710.70	1.4	64-QAM	Н	150	350	1/0	19.28	5.56	24.84	30.00	-5.16
1711.50	3	QPSK	Н	150	347	1 / 14	20.95	5.55	26.50	30.00	-3.50
1745.00	3	QPSK	Н	150	348	1 / 14	20.70	5.32	26.02	30.00	-3.98
1778.50	3	QPSK	Н	150	348	1 / 14	20.24	5.10	25.34	30.00	-4.66
1711.50	3	16-QAM	Н	150	347	1 / 14	20.03	5.55	25.58	30.00	-4.42
1711.50	3	64-QAM	Н	150	347	1 / 14	19.20	5.55	24.75	30.00	-5.25
1712.50	5	QPSK	Н	150	342	1/0	21.39	5.55	26.94	30.00	-3.06
1745.00	5	QPSK	н	150	340	1/0	21.53	5.32	26.85	30.00	-3.15
1777.50	5	QPSK	н	150	341	1 / 24	20.62	5.10	25.72	30.00	-4.28
1712.50	5	16-QAM	н	150	342	1/0	20.96	5.55	26.51	30.00	-3.49
1712.50	5	64-QAM	н	150	342	1 / 0	20.21	5.55	25.76	30.00	-4.24
1715.00	10	QPSK	н	150	342	1 / 49	21.46	5.53	26.99	30.00	-3.01
1745.00	10	QPSK	н	150	342	1/0	21.52	5.32	26.84	30.00	-3.16
1775.00	10	QPSK	н	150	344	1/0	20.77	5.12	25.89	30.00	-4.11
1715.00	10	16-QAM	н	150	342	1 / 49	20.63	5.53	26.16	30.00	-3.84
1715.00	10	64-QAM	н	150	342	1 / 49	19.94	5.53	25.47	30.00	-4.53
1717.50	15	QPSK	н	150	340	1 / 74	21.44	5.51	26.95	30.00	-3.05
1745.00	15	QPSK	н	150	340	1/0	21.63	5.32	26.95	30.00	-3.05
1772.50	15	QPSK	н	150	343	1 / 0	21.03	5.14	26.17	30.00	-3.83
1717.50	15	16-QAM	н	150	340	1 / 74	21.00	5.51	26.51	30.00	-3.49
1717.50	15	64-QAM	н	150	340	1 / 74	19.97	5.51	25.48	30.00	-4.52
1720.00	20	QPSK	н	150	340	1 / 0	21.47	5.49	26.96	30.00	-3.04
1745.00	20	QPSK	н	150	340	1 / 0	20.93	5.32	26.25	30.00	-3.75
1770.00	20	QPSK	н	150	342	1 / 0	21.16	5.15	26.31	30.00	-3.69
1720.00	20	16-QAM	н	150	340	1 / 0	20.96	5.49	26.45	30.00	-3.55
1720.00	20	64-QAM	н	150	340	1 / 0	19.55	5.49	25.04	30.00	-4.96
1715.00	10	QPSK	V	150	259	1 / 99	17.67	5.32	22.99	30.00	-7.01
1715.00	10 (WCP)	QPSK	н	150	9	1/0	21.04	5.53	26.57	30.00	-3.43

#### Table 7-6. EIRP Data (Band 4/66)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	Н	150	350	1 / 0	20.56	4.82	25.38	33.01	-7.63
1882.50	1.4	QPSK	Н	150	349	1 / 5	20.03	4.73	24.76	33.01	-8.25
1914.30	1.4	QPSK	Н	150	353	1 / 0	20.38	4.68	25.06	33.01	-7.95
1850.70	1.4	16-QAM	Н	150	350	1 / 0	19.88	4.82	24.70	33.01	-8.31
1850.70	1.4	64-QAM	Н	150	350	1 / 0	18.73	4.82	23.55	33.01	-9.46
1851.50	3	QPSK	Н	150	348	1/0	20.61	4.82	25.43	33.01	-7.58
1882.50	3	QPSK	Н	150	351	1 / 14	20.04	4.73	24.77	33.01	-8.24
1913.50	3	QPSK	Н	150	352	1 / 0	20.46	4.68	25.14	33.01	-7.87
1851.50	3	16-QAM	Н	150	348	1/0	19.69	4.82	24.51	33.01	-8.50
1851.50	3	64-QAM	Н	150	348	1/0	18.65	4.82	23.47	33.01	-9.54
1852.50	5	QPSK	Н	150	348	1 / 0	20.79	4.81	25.60	33.01	-7.41
1882.50	5	QPSK	Н	150	349	1/0	19.95	4.73	24.68	33.01	-8.33
1912.50	5	QPSK	Н	150	352	1 / 24	20.34	4.68	25.02	33.01	-7.99
1852.50	5	16-QAM	Н	150	348	1/0	19.99	4.81	24.80	33.01	-8.21
1852.50	5	64-QAM	Н	150	348	1 / 0	18.60	4.81	23.41	33.01	-9.60
1855.00	10	QPSK	Н	150	349	1/0	20.89	4.81	25.70	33.01	-7.31
1882.50	10	QPSK	Н	150	351	1 / 0	20.23	4.73	24.96	33.01	-8.05
1910.00	10	QPSK	Н	150	348	1/0	20.43	4.68	25.11	33.01	-7.90
1855.00	10	16-QAM	Н	150	349	1 / 0	19.98	4.81	24.79	33.01	-8.22
1855.00	10	64-QAM	Н	150	349	1 / 0	19.20	4.81	24.01	33.01	-9.00
1857.50	15	QPSK	Н	150	351	1 / 0	20.72	4.80	25.52	33.01	-7.49
1882.50	15	QPSK	Н	150	350	1/0	20.37	4.73	25.10	33.01	-7.91
1907.50	15	QPSK	Н	150	348	1 / 74	20.45	4.68	25.13	33.01	-7.88
1857.50	15	16-QAM	Н	150	351	1 / 0	19.93	4.80	24.73	33.01	-8.28
1857.50	15	64-QAM	Н	150	351	1 / 0	18.80	4.80	23.60	33.01	-9.41
1860.00	20	QPSK	Н	150	350	1 / 0	20.92	4.79	25.71	33.01	-7.30
1882.50	20	QPSK	н	150	350	1 / 0	20.05	4.73	24.78	33.01	-8.23
1905.00	20	QPSK	н	150	348	1 / 0	20.24	4.68	24.92	33.01	-8.09
1860.00	20	16-QAM	н	150	350	1 / 0	20.34	4.79	25.13	33.01	-7.88
1860.00	20	64-QAM	н	150	350	1 / 0	19.09	4.79	23.88	33.01	-9.13
1860.00	20	QPSK	V	150	251	100 / 0	16.65	4.85	21.50	33.01	-11.51
1860.00	20 (WCP)	QPSK	Н	150	55	1 / 0	20.42	4.79	25.21	33.01	-7.80

#### Table 7-7. EIRP Data (Band 2/25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	Н	112	197	1 / 24	8.76	8.72	17.48	23.98	-6.50
2312.50	5	QPSK	Н	113	200	1 / 24	9.06	8.74	17.80	23.98	-6.18
2312.50	5	16-QAM	Н	113	200	1 / 24	8.99	8.74	17.73	23.98	-6.25
2312.50	5	64-QAM	н	113	200	1 / 24	7.66	8.74	16.40	23.98	-7.58
2310.00	10	QPSK	н	112	187	1 / 0	9.18	8.73	17.91	23.98	-6.07
2310.00	10	16-QAM	н	112	187	1 / 49	8.96	8.73	17.69	23.98	-6.29
2310.00	10	64-QAM	н	112	187	1 / 0	7.34	8.73	16.07	23.98	-7.91
2310.00	10	QPSK	V	235	23	1 / 0	9.10	8.73	17.83	23.98	-6.15
2310.00	10	QPSK	н	101	334	1/0	4.26	8.73	12.99	23.98	-10.99

Table 7-8. EIRP Data (Band 30)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	н	150	12	1 / 24	13.23	5.74	18.97	33.01	-14.04
2535.00	5	QPSK	н	150	11	1 / 24	15.14	5.86	21.00	33.01	-12.01
2567.50	5	QPSK	н	150	11	1 / 0	15.15	5.98	21.13	33.01	-11.88
2567.50	5	16-QAM	н	150	11	1 / 24	15.07	5.98	21.05	33.01	-11.96
2567.50	5	64-QAM	н	150	11	1 / 0	13.80	5.98	19.78	33.01	-13.23
2505.00	10	QPSK	н	150	10	1 / 49	13.85	5.75	19.60	33.01	-13.41
2535.00	10	QPSK	н	150	11	1 / 0	14.83	5.86	20.69	33.01	-12.32
2565.00	10	QPSK	н	150	14	1 / 49	15.32	5.97	21.29	33.01	-11.72
2565.00	10	16-QAM	н	150	14	1 / 49	15.20	5.97	21.17	33.01	-11.84
2565.00	10	64-QAM	Н	150	14	1 / 49	13.97	5.97	19.94	33.01	-13.07
2507.50	15	QPSK	Н	150	11	1 / 74	14.62	5.76	20.38	33.01	-12.63
2535.00	15	QPSK	н	150	12	1 / 0	15.26	5.86	21.12	33.01	-11.89
2562.50	15	QPSK	н	150	12	1 / 0	15.70	5.96	21.66	33.01	-11.35
2562.50	15	16-QAM	н	150	12	1 / 0	15.25	5.96	21.21	33.01	-11.80
2562.50	15	64-QAM	н	150	12	1 / 0	14.34	5.96	20.30	33.01	-12.71
2510.00	20	QPSK	н	150	12	1 / 99	14.75	5.77	20.52	33.01	-12.49
2535.00	20	QPSK	н	150	10	1 / 99	15.33	5.86	21.19	33.01	-11.82
2560.00	20	QPSK	н	150	13	1 / 0	15.56	5.95	21.51	33.01	-11.50
2560.00	20	16-QAM	н	150	13	1 / 0	15.40	5.95	21.35	33.01	-11.66
2560.00	20	64-QAM	н	150	13	1 / 0	14.25	5.95	20.20	33.01	-12.81
2562.50	15	QPSK	V	150	240	1 / 0	14.46	6.03	20.49	33.01	-12.52
2562.50	15 (WCP)	QPSK	н	150	19	1 / 0	14.96	5.96	20.92	33.01	-12.09

Table 7-9. EIRP Data (Band 7)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	Н	100	164	1/0	9.84	8.42	18.26	33.01	-14.75
2593.00	5	QPSK	Н	155	163	1 / 24	9.18	8.65	17.83	33.01	-15.18
2687.50	5	QPSK	Н	121	162	1 / 0	10.83	8.44	19.27	33.01	-13.74
2687.50	5	16-QAM	Н	121	162	1/0	9.81	8.44	18.25	33.01	-14.76
2687.50	5	64-QAM	Н	121	162	1 / 0	8.92	8.44	17.36	33.01	-15.65
2501.00	10	QPSK	Н	128	152	1 / 49	9.99	8.41	18.40	33.01	-14.61
2593.00	10	QPSK	Н	124	157	1/0	9.71	8.65	18.36	33.01	-14.65
2685.00	10	QPSK	Н	121	162	1/0	11.16	8.45	19.61	33.01	-13.40
2685.00	10	16-QAM	Н	121	162	1/0	10.51	8.45	18.96	33.01	-14.05
2685.00	10	64-QAM	Н	121	162	1/0	9.45	8.45	17.90	33.01	-15.11
2503.50	15	QPSK	Н	102	343	1 / 0	10.11	8.42	18.53	33.01	-14.48
2593.00	15	QPSK	Н	100	333	1/0	10.39	8.65	19.04	33.01	-13.97
2682.50	15	QPSK	Н	105	343	1/0	10.55	8.46	19.01	33.01	-14.00
2593.00	15	16-QAM	Н	100	333	1/0	9.73	8.65	18.38	33.01	-14.63
2593.00	15	64-QAM	Н	100	333	1/0	7.97	8.65	16.62	33.01	-16.39
2506.00	20	QPSK	Н	100	0	1 / 99	10.50	8.42	18.92	33.01	-14.09
2593.00	20	QPSK	Н	124	157	1 / 99	10.40	8.65	19.05	33.01	-13.96
2680.00	20	QPSK	Н	100	124	1 / 99	8.30	8.46	16.76	33.01	-16.25
2593.00	20	16-QAM	Н	124	157	1 / 99	9.30	8.65	17.95	33.01	-15.06
2593.00	20	64-QAM	Н	124	157	1 / 99	8.21	8.65	16.86	33.01	-16.15
2685.00	10	QPSK	V	100	334	1 / 99	10.33	8.45	18.78	33.01	-14.23
2685.00	10 (WCP)	QPSK	Н	208	207	1 / 0	10.55	8.45	19.00	33.01	-14.01

Table 7-10. EIRP Data (Band 41)

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### 7.7 Radiated Spurious Emissions Measurements §2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m) §27.53(a.4)

#### **Test Overview**

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

#### Test Procedures Used

KDB 971168 D01 v02r02 - Section 5.8

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

#### Test Settings

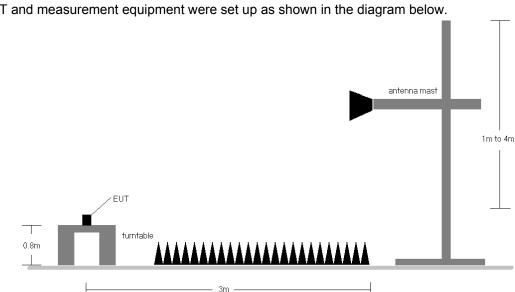
- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW  $\geq$  3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points  $\geq$  2 x span / RBW
- 5. Detector = RMS
- 6. Trace mode = Average (Max Hold for pulsed emissions)
- 7. The trace was allowed to stabilize

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

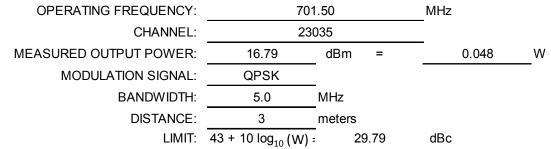
Figure 7-7. Test Instrument & Measurement Setup

### Test Notes

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

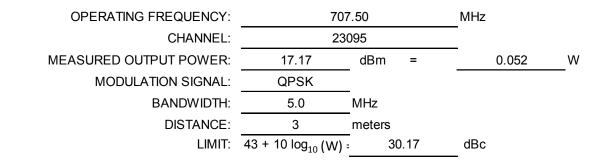
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1403.00	Н	105	187	-74.10	5.92	-68.18	85.0
2104.50	Н	112	350	-63.16	6.80	-56.36	73.1
2806.00	Н	-	-	-71.53	8.12	-63.41	80.2

Table 7-11. Radiated Spurious Data (Band 12/17 – Low Channel)



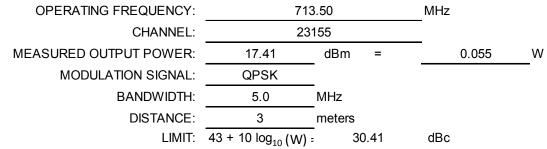
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1415.00	Н	137	0	-74.09	5.96	-68.12	85.3
2122.50	Н	267	179	-57.75	6.84	-50.90	68.1
2830.00	Н	-	-	-71.84	8.13	-63.71	80.9

Table 7-12. Radiated Spurious Data (Band 12/17 – Mid Channel)

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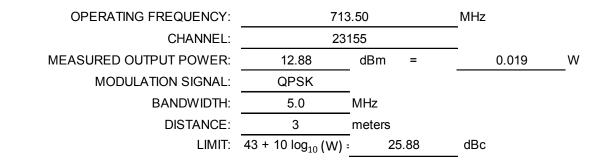
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1427.00	Н	-	-	-75.18	6.01	-69.17	86.6
2140.50	Н	210	168	-70.65	6.89	-63.76	81.2
2854.00	Н	-	-	-71.78	8.15	-63.63	81.0

Table 7-13. Radiated Spurious Data (Band 12/17 – High Channel)



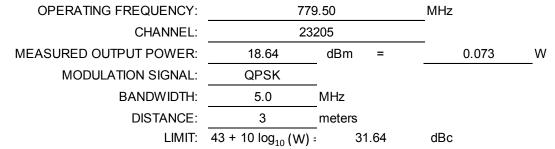
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1427.00	Н	103	155	-72.72	6.01	-66.71	79.6
2140.50	Н	107	58	-66.22	6.89	-59.33	72.2
2854.00	Н	-	-	-73.96	8.15	-65.81	78.7

Table 7-14. Radiated Spurious Data with WCP (Band 12/17 – High Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2338.50	Н	100	349	-67.52	7.01	-60.50	79.1
3118.00	Н	-	-	-71.29	7.23	-64.06	82.7

Table 7-15. Radiated Spurious Data (Band 13 – Low Channel)

OPERATING FREQUENCY:	782	2.00	MHz
CHANNEL:	232	230	
MEASURED OUTPUT POWER:	18.67	dBm =	0.074 W
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	5.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	31.67	dBc

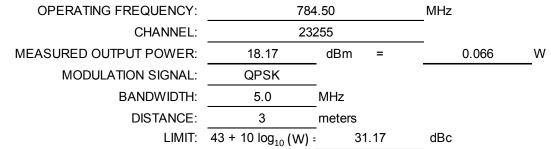
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2346.00	Н	107	351	-59.70	7.00	-52.70	71.4
3128.00	Н	-	-	-68.90	7.21	-61.69	80.4

Table 7-16. Radiated Spurious Data (Band 13 – Mid Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2353.50	Н	100	351	-62.40	6.99	-55.41	73.6
3138.00	Н	-	-	-68.60	7.20	-61.40	79.6

Table 7-17. Radiated Spurious Data (Band 13 – High Channel)

MODULATION SIGNAL:	QPSK	_
BANDWIDTH:	5.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz
-		

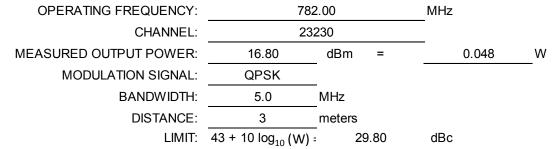
Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1559.00	Н	142	182	-60.37	6.40	-53.98	-14.0
1564.00	Н	129	353	-57.19	6.41	-50.78	-10.8
1569.00	Н	124	345	-62.02	6.42	-55.60	-15.6

Table 7-18. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2346.00	Н	105	130	-58.13	7.00	-51.13	67.9
3128.00	Н	-	-	-69.19	7.21	-61.98	78.8

Table 7-19. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

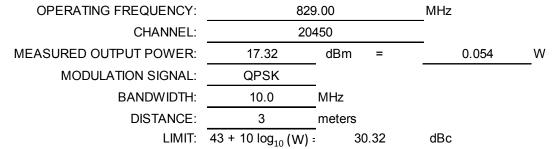
QPSK	_
5.00	MHz
3	meters
-50	dBm
-40	dBm/MHz
	5.00 3 -50

IMH7I	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	Н	107	23	-54.25	6.41	-47.84	-7.8

Table 7-20. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

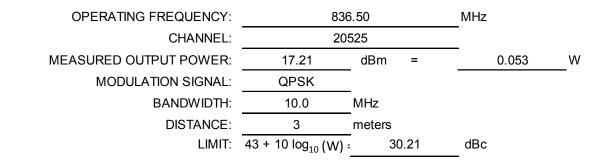
FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1658.00	Н	117	354	-68.55	6.26	-62.28	79.6
2487.00	Н	105	157	-65.37	6.84	-58.53	75.9
3316.00	Н	-	-	-68.41	7.17	-61.24	78.6

Table 7-21. Radiated Spurious Data (Band 5 – Low Channel)



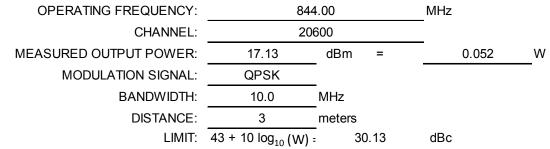
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1673.00	Н	122	352	-67.88	6.21	-61.67	78.9
2509.50	Н	122	331	-61.48	6.86	-54.62	71.8
3346.00	Н	-	-	-68.53	7.26	-61.26	78.5

Table 7-22. Radiated Spurious Data (Band 5 – Mid Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager
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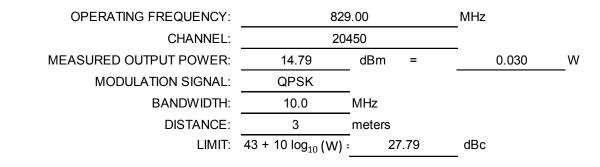
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1688.00	Н	112	353	-70.11	6.15	-63.96	81.1
2532.00	Н	117	336	-61.19	6.93	-54.27	71.4
3376.00	Н	-	-	-68.65	7.35	-61.30	78.4

Table 7-23. Radiated Spurious Data (Band 5 – High Channel)



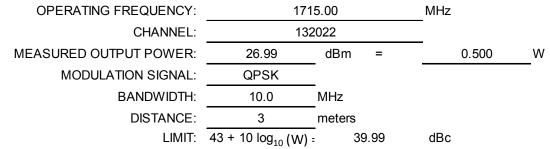
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1658.00	Н	127	28	-61.36	6.26	-55.10	69.9
2487.00	Н	112	21	-60.65	6.84	-53.81	68.6
3316.00	Н	-	-	-68.46	7.17	-61.29	76.1

Table 7-24. Radiated Spurious Data with WCP (Band 5 – Low Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager			
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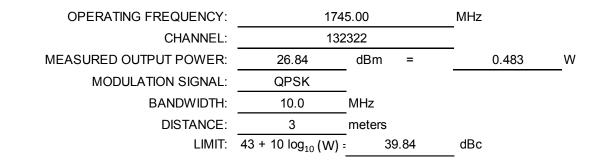
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3430.00	Н	-	-	-68.76	9.68	-59.08	86.1
5145.00	Н	129	354	-63.89	10.93	-52.96	79.9
6860.00	Н	-	-	-60.99	10.82	-50.17	77.2

Table 7-25. Radiated Spurious Data (Band 4/66 – Low Channel)



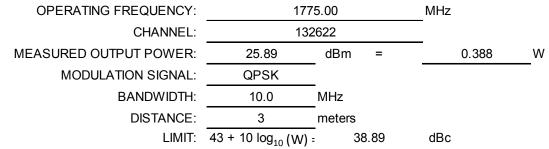
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3490.00	Н	-	-	-68.69	9.89	-58.80	85.6
5235.00	Н	132	10	-63.75	10.88	-52.87	79.7
6980.00	Н	-	-	-60.61	11.05	-49.55	76.4

Table 7-26. Radiated Spurious Data (Band 4/66 – Mid Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager		
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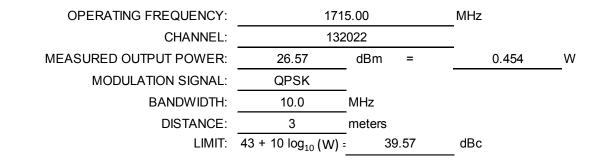
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3550.00	Н	120	0	-69.35	10.02	-59.33	85.2
5325.00	Н	159	344	-64.11	11.06	-53.05	78.9
7100.00	Н	-	-	-61.07	11.12	-49.95	75.8

Table 7-27. Radiated Spurious Data (Band 4/66 – High Channel)



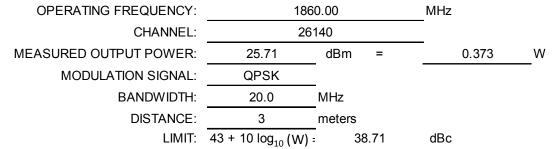
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3430.00	Н	110	174	-67.31	9.68	-57.63	84.2
5145.00	Н	154	328	-67.10	10.93	-56.17	82.7
6860.00	Н	-	-	-60.89	10.82	-50.07	76.6

Table 7-28. Radiated Spurious Data with WCP (Band 4/66 – Low Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕑 LG	Approved by: Quality Manager		
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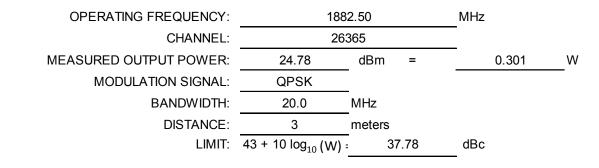
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3720.00	V	164	193	-68.83	9.99	-58.84	84.6
5580.00	V	142	270	-66.36	11.27	-55.08	80.8
7440.00	V	-	-	-60.72	10.98	-49.73	75.4

Table 7-29. Radiated Spurious Data (Band 2/25 – Low Channel)



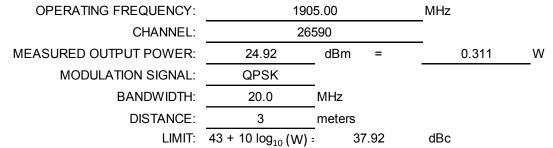
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3765.00	V	150	128	-67.29	9.78	-57.51	82.3
5647.50	V	150	357	-60.56	11.38	-49.17	74.0
7530.00	V	150	296	-54.76	11.27	-43.50	68.3

Table 7-30. Radiated Spurious Data (Band 2/25 – Mid Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3810.00	V	208	331	-67.25	9.58	-57.67	82.6
5715.00	V	129	309	-58.45	11.45	-46.99	71.9
7620.00	V	117	292	-60.42	11.50	-48.92	73.8
9525.00	V	-	-	-60.50	12.38	-48.12	73.0

Table 7-31. Radiated Spurious Data (Band 2/25 – High Channel)

OPERATING FREQUENCY:	186	0.00	MHz
CHANNEL:	26	140	
MEASURED OUTPUT POWER:	25.21	dBm =	0.332 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	38.21	dBc

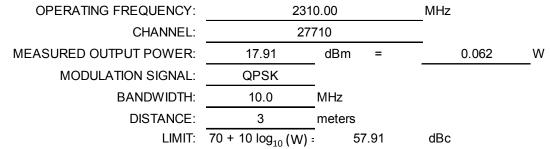
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
3720.00	Н	178	318	-64.69	9.99	-54.69	79.9
5580.00	Н	159	308	-66.54	11.27	-55.27	80.5
7440.00	Н	-	-	-60.35	10.98	-49.37	74.6

Table 7-32. Radiated Spurious Data with WCP (Band 2/25 – Low Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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F	requency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
	4620.00	Н	123	24	-69.03	10.98	-58.05	76.0
	6930.00	Н	115	309	-60.85	11.76	-49.09	67.0
	9240.00	Н	-	-	-57.87	11.52	-46.35	64.3

Table 7-33. Radiated Spurious Data (Band 30 – Mid Channel)

OPERATING FREQUENCY:	23	310.00	MHz	
CHANNEL:	2	7710		
MEASURED OUTPUT POWER:	12.99	dBm =	0.020	W
MODULATION SIGNAL:	QPSK			
BANDWIDTH:	10.0	MHz		
DISTANCE:	3	meters		
LIMIT:	-40.00	dBm		

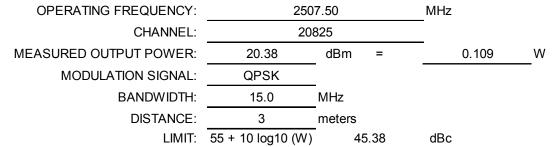
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
4620.00	Н	161	213	-69.57	10.98	-58.59	71.6
6930.00	Н	154	50	-60.88	11.76	-49.12	62.1
9240.00	Н	-	-	-59.11	11.52	-47.59	60.6

Table 7-34. Radiated Spurious Data with WCP (Band 30 – Mid Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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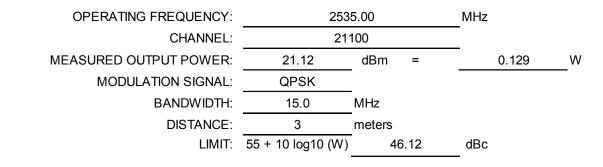
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Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5015.00	Н	142	118	-67.15	11.15	-56.00	76.4
7522.50	Н	119	292	-58.52	11.25	-47.27	67.6
10030.00	Н	-	-	-59.68	12.59	-47.10	67.5

Table 7-35. Radiated Spurious Data (Band 7 – Low Channel)



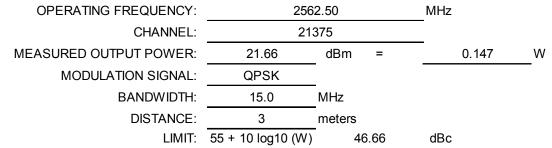
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5070.00	Н	137	353	-65.35	11.04	-54.31	75.4
7605.00	Н	137	285	-58.52	11.47	-47.05	68.2
10140.00	Н	-	-	-60.50	12.67	-47.83	68.9

Table 7-36. Radiated Spurious Data (Band 7 – Mid Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🔁 LG	Approved by: Quality Manager
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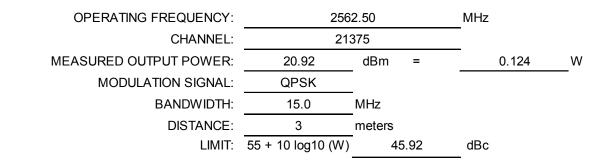
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Frequency [MHz]	Ant. Pol. [H/V]	Height	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5125.00	Н	117	2	-66.01	10.94	-55.07	76.7
7687.50	Н	139	17	-58.16	11.54	-46.62	68.3
10250.00	Н	-	-	-60.65	12.74	-47.91	69.6

Table 7-37. Radiated Spurious Data (Band 7 – High Channel)



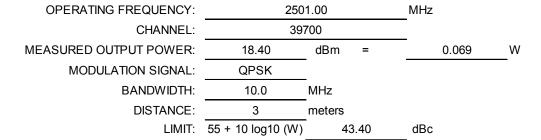
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5125.00	Н	110	30	-66.09	10.94	-55.15	76.1
7687.50	Н	110	360	-60.59	11.54	-49.05	70.0
10250.00	Н	-	-	-60.34	12.74	-47.60	68.5

Table 7-38. Radiated Spurious Data with WCP (Band 7 – High Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5002.00	V	-	-	-63.94	11.20	-52.74	71.1
7503.00	V	-	-	-57.33	11.18	-46.15	64.6

Table 7-39. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY:	259	3.00	MHz
CHANNEL:	406	620	_
MEASURED OUTPUT POWER:	18.36	dBm =	0.069 W
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	55 + 10 log10 (W)	43.36	dBc
			-

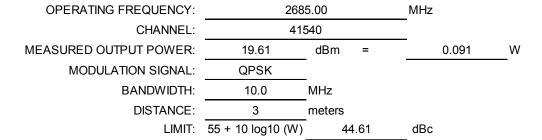
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5186.00	V	-	-	-62.94	10.84	-52.10	70.5
7779.00	V	-	-	-56.09	11.61	-44.48	62.8

Table 7-40. Radiated Spurious Data (Band 41 – Mid Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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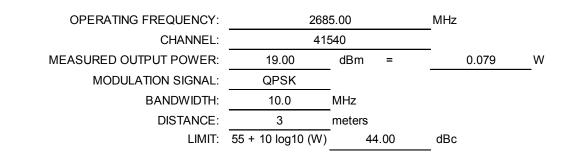
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5370.00	V	-	-	-64.16	11.12	-53.04	72.6
8055.00	V	-	-	-57.86	11.56	-46.31	65.9

Table 7-41. Radiated Spurious Data (Band 41 – High Channel)



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5370.00	Н	-	-	-63.73	11.12	-52.61	71.6
8055.00	Н	-	-	-57.47	11.56	-45.92	64.9

Table 7-42. Radiated Spurious Data with WCP (Band 41 – High Channel)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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### 7.8 Frequency Stability / Temperature Variation §2.1055 §22.355 §24.235 §27.54

#### Test Overview and Limit

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

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

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

#### Test Procedure Used

ANSI/TIA-603-D-2010

#### Test Settings

- 1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 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 12/17 Frequency Stability Measurements §2.1055 §27.54

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

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> ( [°] С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	707,500,150	150	0.0000212
100 %		- 30	707,499,830	-170	-0.0000240
100 %		- 20	707,499,970	-30	-0.0000042
100 %		- 10	707,499,814	-186	-0.0000263
100 %		0	707,499,876	-124	-0.0000175
100 %		+ 10	707,499,889	-111	-0.0000157
100 %		+ 20	707,500,320	320	0.0000452
100 %		+ 30	707,499,832	-168	-0.0000237
100 %		+ 40	707,500,004	4	0.0000006
100 %		+ 50	707,499,688	-312	-0.0000441
BATT. ENDPOINT	3.45	+ 20	707,499,678	-322	-0.0000455

Table 7-43. Frequency Stability Data (Band 12/17)

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# Band 12/17Frequency Stability Measurements §2.1055 §27.54

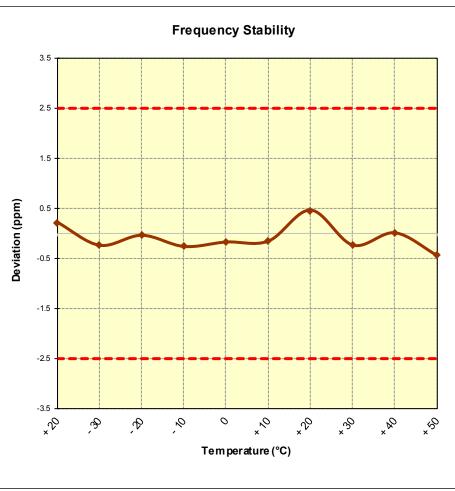


Figure 7-8. Frequency Stability Graph (Band 12/17)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Band 13 Frequency Stability Measurements §2.1055 §27.54

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

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> ( [°] С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	782,000,266	266	0.0000340
100 %		- 30	782,000,003	3	0.0000004
100 %		- 20	782,000,011	11	0.0000014
100 %		- 10	782,000,030	30	0.0000038
100 %		0	781,999,977	-23	-0.0000029
100 %		+ 10	781,999,796	-204	-0.0000261
100 %		+ 20	782,000,106	106	0.0000136
100 %		+ 30	782,000,041	41	0.0000052
100 %		+ 40	781,999,909	-91	-0.0000116
100 %		+ 50	782,000,013	13	0.0000017
BATT. ENDPOINT	3.45	+ 20	781,999,892	-108	-0.0000138

Table 7-44. Frequency Stability Data (Band 13)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Band 13 Frequency Stability Measurements §2.1055 §27.54

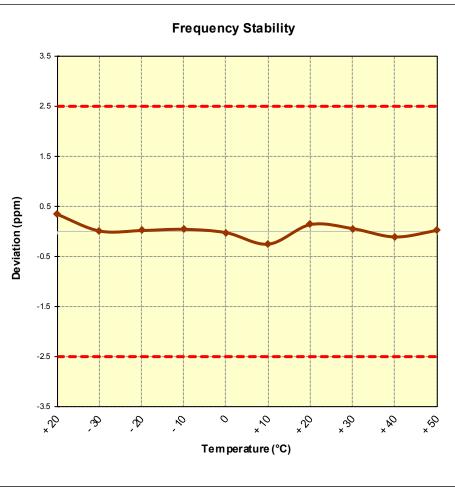


Figure 7-9. Frequency Stability Graph (Band 13)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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### Band 5 Frequency Stability Measurements §2.1055 §22.355

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

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> ( [°] С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	836,500,068	68	0.0000081
100 %		- 30	836,500,036	36	0.0000043
100 %		- 20	836,500,117	117	0.0000140
100 %		- 10	836,499,915	-85	-0.0000102
100 %		0	836,500,157	157	0.0000188
100 %		+ 10	836,499,935	-65	-0.0000078
100 %		+ 20	836,500,309	309	0.0000369
100 %		+ 30	836,500,293	293	0.0000350
100 %		+ 40	836,499,614	-386	-0.0000461
100 %		+ 50	836,499,981	-19	-0.0000023
BATT. ENDPOINT	3.45	+ 20	836,500,106	106	0.0000127

Table 7-45. Frequency Stability Data (Band 5)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
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# Band 5 Frequency Stability Measurements §2.1055 §22.355

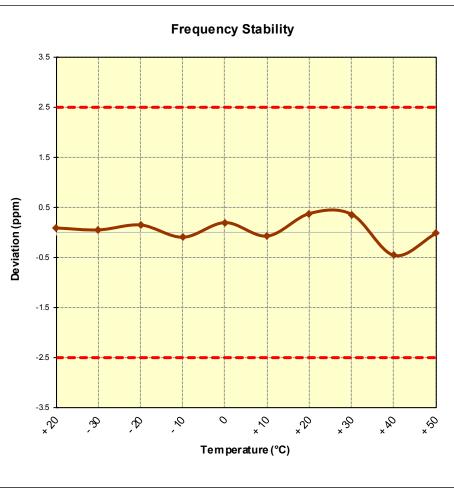


Figure 7-10. Frequency Stability Graph (Band 5)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Band 4/66 Frequency Stability Measurements §2.1055 §§27.54

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

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> ( [°] С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,745,000,095	95	0.0000054
100 %		- 30	1,745,000,059	59	0.0000034
100 %		- 20	1,745,000,461	461	0.0000264
100 %		- 10	1,745,000,031	31	0.0000018
100 %		0	1,745,000,007	7	0.0000004
100 %		+ 10	1,744,999,973	-27	-0.0000015
100 %		+ 20	1,744,999,980	-20	-0.0000011
100 %		+ 30	1,745,000,087	87	0.0000050
100 %		+ 40	1,745,000,086	86	0.0000049
100 %		+ 50	1,744,999,904	-96	-0.0000055
BATT. ENDPOINT	3.45	+ 20	1,745,000,040	40	0.0000023

Table 7-46. Frequency Stability Data (Band 4/66)

### Note:

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

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# Band 4/66 Frequency Stability Measurements §2.1055 §§27.54

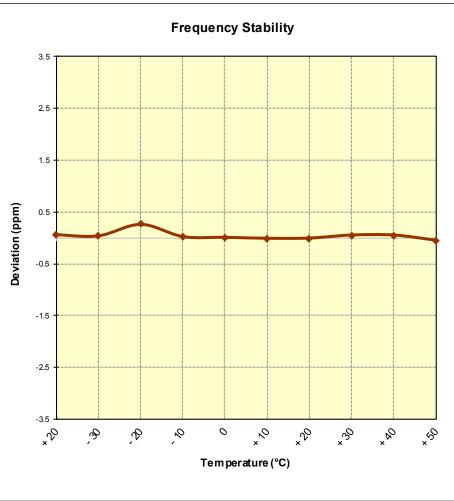


Figure 7-11. Frequency Stability Graph (Band 4/66)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Band 2/25 Frequency Stability Measurements §2.1055 §24.235

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

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> ( [°] С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,882,500,121	121	0.0000064
100 %		- 30	1,882,499,720	-280	-0.0000149
100 %		- 20	1,882,500,164	164	0.000087
100 %		- 10	1,882,500,058	58	0.0000031
100 %		0	1,882,499,647	-353	-0.0000188
100 %		+ 10	1,882,500,036	36	0.0000019
100 %		+ 20	1,882,499,956	-44	-0.0000023
100 %		+ 30	1,882,499,979	-21	-0.0000011
100 %		+ 40	1,882,500,186	186	0.0000099
100 %		+ 50	1,882,499,809	-191	-0.0000101
BATT. ENDPOINT	3.45	+ 20	1,882,500,143	143	0.0000076

Table 7-47. Frequency Stability Data (Band 2/25)

### 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 2/25 Frequency Stability Measurements §2.1055 §24.235

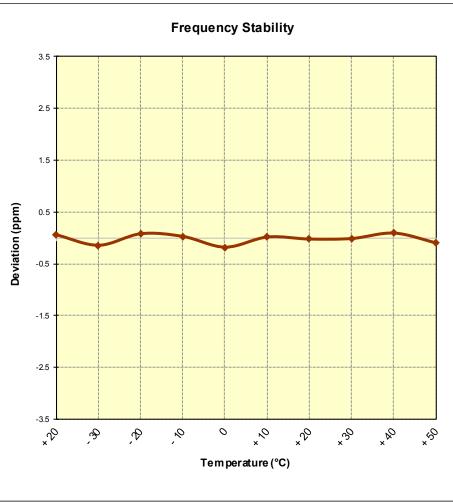


Figure 7-12. Frequency Stability Graph (Band 2/25)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Band 30 Frequency Stability Measurements §2.1055 §24.235

OPERATING FREQUENCY:	2,310,000,000	Hz
CHANNEL:	27710	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> ( [°] С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,309,999,988	-12	-0.0000005
100 %		- 30	2,310,000,121	121	0.0000052
100 %		- 20	2,309,999,617	-383	-0.0000166
100 %		- 10	2,310,000,052	52	0.0000023
100 %		0	2,309,999,923	-77	-0.0000033
100 %		+ 10	2,309,999,956	-44	-0.0000019
100 %		+ 20	2,310,000,259	259	0.0000112
100 %		+ 30	2,310,000,006	6	0.000003
100 %		+ 40	2,309,999,841	-159	-0.0000069
100 %		+ 50	2,310,000,340	340	0.0000147
BATT. ENDPOINT	3.45	+ 20	2,310,000,075	75	0.0000032

Table 7-48. Frequency Stability Data (Band 30)

### 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 30 Frequency Stability Measurements §2.1055 §24.235

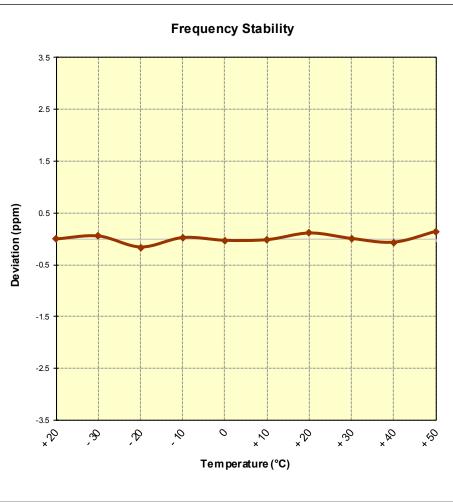


Figure 7-13. Frequency Stability Graph (Band 30)

FCC ID: ZNFV30A		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
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# Band 7 Frequency Stability Measurements §2.1055 §27.54

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

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> ( [°] С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,535,000,060	60	0.0000024
100 %		- 30	2,534,999,812	-188	-0.0000074
100 %		- 20	2,535,000,063	63	0.0000025
100 %		- 10	2,535,000,364	364	0.0000144
100 %		0	2,535,000,067	67	0.0000026
100 %		+ 10	2,534,999,860	-140	-0.0000055
100 %		+ 20	2,535,000,127	127	0.0000050
100 %		+ 30	2,534,999,701	-299	-0.0000118
100 %		+ 40	2,534,999,693	-307	-0.0000121
100 %		+ 50	2,534,999,987	-13	-0.0000005
BATT. ENDPOINT	3.45	+ 20	2,535,000,280	280	0.0000110

 Table 7-49. Frequency Stability Data (Band 7)

### Note:

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

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# Band 7 Frequency Stability Measurements §2.1055 §27.54

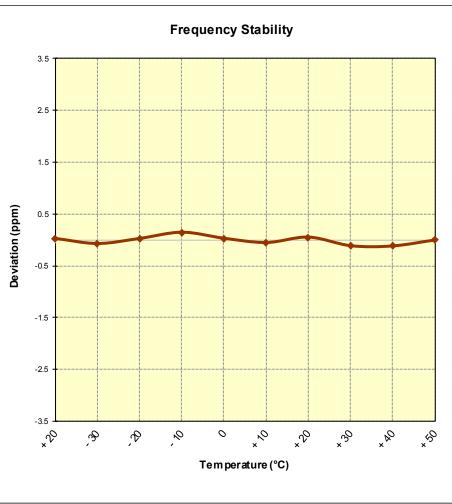


Figure 7-14. Frequency Stability Graph (Band 7)

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# Band 41 Frequency Stability Measurements §2.1055 §27.54

OPERATING FREQUENCY:	2,593,000,000	Hz
CHANNEL:	40620	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> ( [°] С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,592,999,901	-99	-0.0000038
100 %		- 30	2,593,000,341	341	0.0000132
100 %		- 20	2,593,000,176	176	0.0000068
100 %		- 10	2,593,000,086	86	0.0000033
100 %		0	2,593,000,143	143	0.0000055
100 %		+ 10	2,592,999,642	-358	-0.0000138
100 %		+ 20	2,592,999,609	-391	-0.0000151
100 %		+ 30	2,592,999,828	-172	-0.0000066
100 %		+ 40	2,592,999,650	-350	-0.0000135
100 %		+ 50	2,592,999,984	-16	-0.0000006
BATT. ENDPOINT	3.45	+ 20	2,592,999,767	-233	-0.0000090

Table 7-50. Frequency Stability Data (Band 41)

### 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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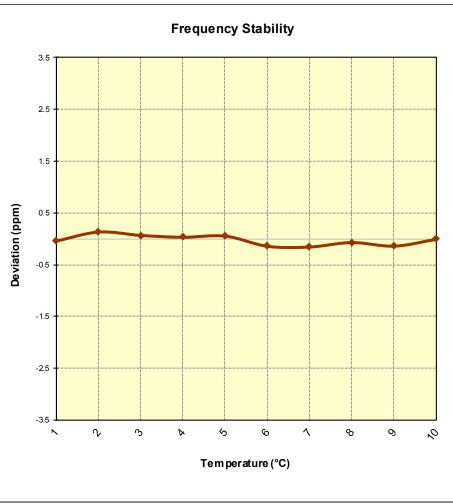


Figure 7-15. Frequency Stability Graph (Band 41)

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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: ZNFV30A** complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

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