

www.www.com.com.com.com.com.com.com.com.com.com	SA				- • ×
<mark>Ι XI</mark> RL RF 50 Ω	AC CORREC	SENSE:INT	#Avg Type: RMS	01:31:32 AM Feb 06, 2020 TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 25.00 dB	PNO: Wide 🖵 IFGain:Low	Trig: Free Run Atten: 36 dB	Mk	r1 703.984 MHz -26.42 dBm	Auto Tune
15.0					Center Freq 704.000000 MHz
-5.00			an a	8-6-38-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-00-75-0 	Start Freq 700.000000 MHz
-15.0		1 M		DL1 -13.00 abm	Stop Freq 708.000000 MHz
-35.0	aaaaadaa ay dhad go bola aa dhaday dha				CF Step 800.000 kHz <u>Auto</u> Man
-55.0					Freq Offset 0 Hz
Center 704.000 MHz #Res BW 100 kHz	#VBW	300 kHz	Sweep 1	Span 8.000 MHz 3.33 ms (1001 pts)	Scale Type Log <u>Lin</u>
MSG			STATU	S	

Plot 7-116. Lower Band Edge Plot (Band 17 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-117. Upper Band Edge Plot (Band 12/17 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 91 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 81 of 175
© 2020 PCTEST		·	V 9.0 02/01/2019



## Band 13



Plot 7-118. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-119. Lower Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Prous to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 92 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 82 01 175
© 2020 PCTEST		•	V 9.0 02/01/2019



www.ceysight	Spectrum	n Analyze	r - Swep	t SA										- • •
LXI RL		RF	50 Ω	AC	CORREC		SE	NSE:INT	#Avg Ty	e: RMS	12:54:03 A TRAC	M Feb 06, 2020	Fr	equency
					PNO: W IFGain:	lide 🖵 Low	Trig: Fre Atten: 3	e Run 6 dB			TY D			
10 dB/di	v R	ef 25.	00 d	Bm						MI	kr1 787.0 -27.	00 MHz 04 dBm		Auto Tune
15.0								Ĭ					(	Center Freq
10.0	ᠵ᠂ᡐᡗᢩᡱᠾᡇᠰᠨ	more	******		mahanal	ᠬᠬᢛᡒᡘᡎᠮᡐ	and the state of t						787	.000000 MHz
5.00													704	Start Freq
-5.00												DL1 -13.00 dBm	/ 60	
-15.0								1					780	Stop Freq
-25.0							۲.	a have been a second					100	
-35.0											<del>๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛</del>	an a	Auto	CF Step 400.000 kHz
-45.0													Auto	Wan
-55.0														Freq Offset 0 Hz
-65.0														Deele Trra
Center	787 0	00 M	47								Snan /	000 MHz		scale Type
#Res B	W 10	0 kHz	112		-	#VBW	/ 300 kHz			Sweep	6.667 ms (	(1001 pts)	Log	Lin
MSG										STAT	US			

Plot 7-120. Upper Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-121. Upper Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 02 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 83 of 175
© 2020 PCTEST	•			V 9.0 02/01/2019





Plot 7-122. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-123. Lower Emission Mask Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 04 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 84 01 175
© 2020 PCTEST	•		V 9.0 02/01/2019



www.com Keysight Spect	trum Analyzer - Swept SA					- • •
L <mark>XI</mark> RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	01:03:48 AM Feb 06, 2020 TRACE 1 2 3 4 5 6	Frequency
		PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB		TYPE A WWWWW DET A N N N N N	
10 dB/div	Ref 25.00 dBm			Mł	r1 787.008 MHz -32.81 dBm	Auto Tune
15.0						Center Freq 787.000000 MHz
5.00	nden van de de verseer geveen de	unantana) (kan gi Gampuna) mbar vya				Start Freq 783.000000 MHz
-15.0			1 1			Stop Freq 791.000000 MHz
-35.0				and the second	ารที่รับการที่หลายสามรับการที่สามราชระสงกฎการก	CF Step 800.000 kHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
Center 787	7.000 MHz				Span 8.000 MHz	Scale Type
#Res BW '	100 kHz	#VBW	300 kHz	Sweep	13.33 ms (1001 pts) Js	

Plot 7-124. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-125. Upper Emission Mask Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

Band 5

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 95 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 85 01 175
© 2020 PCTEST			V 9.0 02/01/2019









Plot 7-127. Upper Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 00 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 86 of 175
© 2020 PCTEST		•	V 9.0 02/01/2019



	ctrum Analyzer - Swept SA					
LXI RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	12:37:51 AM Feb 06, 2020	Frequency
		PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB	M		Auto Tune
10 dB/div	Ref 25.00 dBm				-22.079 dBm	
15.0			مىر	and a second second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Center Freq 824.000000 MHz
-5.00						Start Freq 822.000000 MHz
-15.0			1		DL1 -13.00 dBm	Stop Freq 826.000000 MHz
-35.0 -45.0	man fresherbingstreether	aliter and a second	արտա շրջերու			CF Step 400.000 kHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
-65.0					Spop 4 000 MHz	Scale Type
#Res BW	100 kHz	#VBW	300 kHz	Sweep	6.667 ms (1001 pts)	Log <u>Lin</u>
MSG				STAT	US	

Plot 7-128. Lower Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-129. Upper Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 07 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 87 of 175
© 2020 PCTEST			V 9.0 02/01/2019



🧫 Keysight Spe	ctrum Analyzer - Swept SA					
LXI RL	RF 50 Ω AC	CORREC	SENSE:INT	#Ava Type: RMS	12:40:23 AM Feb 06, 2020	Frequency
		PNO: Wide 🖵 IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type. Rind	TYPE A WWWW DET A NNNNN	
10 dB/div	Ref 25.00 dBm			Mk	r1 823.996 MHz -26.43 dBm	Auto Tune
15.0					مر مردم التروي بالمردم بالمردم التروي	Center Freq 824.000000 MHz
-5.00						Start Freq 822.000000 MHz
-15.0			1		UL1 -13.00 dBm	Stop Freq 826.000000 MHz
-35.0	- And and a start and a start and a start and a start a	www.	Abort Manager and a			CF Step 400.000 kHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
-65.0						Scale Type
#Res BW	4.000 MHZ 100 kHz	#VBW	300 kHz	Sweep	Span 4.000 MHz 6.667 ms (1001 pts)	Log <u>Lin</u>
MSG				STATU	IS	

Plot 7-130. Lower Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-131. Upper Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 99 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 88 01 175
© 2020 PCTEST		•	V 9.0 02/01/2019



🔤 Keysight Spect	trum Analyzer - Swept SA					
LXI RL	RF 50 Ω AC	CORREC	SENSE:INT	#Ava Type: BMS	12:43:10 AM Feb 06, 2020	Frequency
		PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type. RM3		
10 dB/div	Ref 25.00 dBm			Mk	r1 823.968 MHz -32.54 dBm	Auto I une
15.0						Center Freq 824.000000 MHz
-5.00				บปะเทราะปรุปเทราใหม่สุดารสะระดูร	WHAT HE WAS AN A STATE AND A	Start Freq 820.000000 MHz
-15.0					DL1 -13.00 dBm	Stop Freq
-25.0			1 M			CF Step
-45.0	Land Brief Hall Hard Angle Springer Control	HANKEN I I				800.000 kHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
-65.0						Scale Type
Center 824 #Res BW 1	1.000 MHz 100 kHz	#VBW	300 kHz	Sweep	Span 8.000 MHz 13.33 ms (1001 pts)	Log <u>Lin</u>
MSG				STATU	IS	

Plot 7-132. Lower Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-133. Upper Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Houd to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 90 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 89 01 175
© 2020 PCTEST			V 9.0 02/01/2019



## Band 66/4



Plot 7-134. Lower Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-135. Lower Extended Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 00 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 90 01 175
© 2020 PCTEST	•	·	V 9.0 02/01/2019



www.com was seen was see	ım Analyzer - Swept SA									
LXI RL	RF 50 Ω AC	CORREC	SENSE	E:INT	#Avg Type	E: RMS	12:15:37 AM	1 Feb 06, 2020	F	requency
		PNO: Wide 😱	Trig: Free R	Run			TYP			
		IFGain:Low	Atten: 36 d	в						Auto Tune
						MKL	11.7550	00 GHZ		
10 dB/div	Ref 25.00 dBm						-01.	+0 UBIII		
										Center Frea
15.0									1.75	5000000 GHz
5.00	June	· ····································	www.							
										Start Freq
-5.00									1.75	3000000 GHz
								DL1 -13.00 dBm		
-15.0										Stop Freq
25.0									1.75	7000000 GHz
-25.0			V1							
-35.0				_						CE Sten
~~~~	-		v	m h	ma an					400.000 kHz
-45.0					- ~~~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	$\sim \sim $	man A		<u>Auto</u>	Man
-55.0										Freq Offset
										0 Hz
-65.0										
										Scale Type
Center 1.75	5000 GHz						Snan 4	000 MHz		
#Res BW 10	6 kHz	#VBW :	56 kHz		5	sweep	6.667 m <u>s (</u>	1001 pt <u>s)</u>	Log	Lin
MSG						STATU	JS			

Plot 7-136. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-137. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dago 01 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 91 01 175
© 2020 PCTEST			V 9.0 02/01/2019





Plot 7-138. Upper Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-139. Upper Extended Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 00 of 475
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 92 of 175
© 2020 PCTEST			V 9.0 02/01/2019



🔤 Keysi	ight Spec	trum An	alyzer - Swe	ept SA									
LXI RL		RF	50 Ω	AC	CORREC	SE	NSE:INT	#Ava Tvp		11:52:59 PI	M Feb 05, 2020	F	requency
					PNO: Wide IFGain:Low	Trig: Fre Atten: 3	e Run 6 dB	#748 19P	Mkr	TYF DE 1 1.709 9			Auto Tune
10 dB	/div	Ref	25.00 (	dBm						-30.	98 dBm		
15.0												( 1.71	Center Freq 0000000 GHz
5.00							M	~I~AAII~~~A~A~A~A	an for the second	Mart Japane	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1.70	Start Freq 8000000 GHz
-15.0											DL1 -13.00 dBm		Stop Frog
-25.0												1.71	2000000 GHz
-35.0	موريد المراجع	www	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and war and a second	1 million and a second second	MAN MANY MANY						Auto	CF Step 400.000 kHz Man
-45.0												<u>//uto</u>	Erog Offect
-55.0													0 Hz
													Scale Type
Cento #Res	er 1.7 BW	1000 36 kH	U GHZ Z		#V	BW 120 kHz			Sweep	Span 4 6.667 m <u>s (</u>	.000 MHz 1001 pt <u>s)</u>	Log	<u>Lin</u>
MSG									STATU	JS			

Plot 7-140. Lower Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-141. Lower Extended Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 02 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 93 01 175
© 2020 PCTEST			V 9.0 02/01/2019



- Keysight S	pectrum Analyzer - Swept S	Α							- • •
l <mark>XI</mark> RL	RF 50 Ω /	AC CORREC	SENSE	#Avg Typ	e: RMS	12:16:21 AM TRACE	Feb 06, 2020	Fr	equency
	_	PNO: Wide 🖵 IFGain:Low	Trig: Free R Atten: 36 df	un B	Mkr1	TYP DE 1 755 0			Auto Tune
10 dB/div	Ref 25.00 dB	m				-31.64	49 dBm		
15.0			Ĭ					C	enter Freq
5.00								1./5	5000000 GHZ
-5.00	hand the second s	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						1.75	Start Freq 3000000 GHz
-15.0							DL1 -13.00 dBm		
-25.0								1.75	Stop Freq 7000000 GHz
-35.0				at port to company					CF Step
-45.0				and and a firm and the	hand	M.	www.	<u>Auto</u>	400.000 kHz Man
-55.0									Freq Offset
-65.0									0 Hz
									Scale Type
Center 1 #Res BV	I.755000 GHz V 36 kHz	#VBW	130 kHz		Sweep 6.	Span 4. 667 ms (′	000 MHz 1001 pts)	Log	Lin
MSG					STATUS				

Plot 7-142. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-143. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 04 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 94 01 175
© 2020 PCTEST			V 9.0 02/01/2019



www.com analyzer - Swept SA					
<mark>(X)</mark> RL RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	11:53:39 PM Feb 05, 2020	Frequency
	PNO: Wide 🖵 IFGain:Low	Trig: Free Run Atten: 36 dB	mitg type this		
10 dB/div Ref 25.00 dBm			Mkr	1.780 000 GHz -31.25 dBm	Auto Tune
15.0		Ĭ			Center Freq 1.780000000 GHz
5.00	www.www.www.www.ww	www.			Start Freq 1.778000000 GHz
-15.0				DL1 -13.00 dBm	Stop Freq 1.782000000 GHz
-35.0		hand april 1	al and	a manana mayan ya	CF Step 400.000 kHz <u>Auto</u> Man
-45.0					Freq Offset 0 Hz
-65.0					Scale Type
Center 1.780000 GHz #Res BW 36 kHz	#VBW	120 kHz	Sweep (	Span 4.000 MHz 6.667 ms (1001 pts) s	Log <u>Lin</u>

Plot 7-144. Upper Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-145. Upper Extended Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege OF of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 95 01 175
© 2020 PCTEST			V 9.0 02/01/2019



🔤 Keysight Spe	ctrum Analyzer - Swept SA									- • ×
L <mark>XI</mark> RL	RF 50 Ω AC	CORREC	SEN	SE:INT	#Ava Type:	RMS	11:55:56 PM TRACE	Feb 05, 2020	Fi	requency
		PNO: Wide IFGain:Low	Trig: Free Atten: 36	Run dB		Mkr4 4	TYPE DET			Auto Tune
10 dB/div	Ref 25.00 dBm						-24.9	8 dBm		
15.0									( 1.71	Center Freq 0000000 GHz
-5.00					horner and the second	Man Northe	ᠾ᠆ᡏᡝᠰ᠋ᠯᡗᡃ᠋ᠶᠧᢛᡧᡬᢇᢦ	and an angle and a second and a s	1.70	Start Freq 8000000 GHz
-15.0				1,**			C	)L1 -13.00 dBm	1.71	Stop Freq 2000000 GHz
-35.0	www.wearenerselectual.en.	and the second	Arrive and the						<u>Auto</u>	CF Step 400.000 kHz Man
-55.0										Freq Offset 0 Hz
-65.0	710000 GHz						Snan /	000 MHz		Scale Type
#Res BW	62 kHz	#VBW	220 kHz		Sv	veep 6.6	<del>3pan</del> 4. 67 ms <u>(</u> 1	001 pt <u>s)</u>	Log	<u>Lin</u>
MSG						STATUS				

Plot 7-146. Lower Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-147. Lower Extended Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dage 06 of 175			
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 96 01 175			
2020 PCTEST V 9.0 02/01/2019						



🔤 Keysight Spectrum Analyzer - Swept SA					
<b>LXI</b> RL RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	12:17:04 AM Feb 06, 2020	Frequency
	PNO: Wide Trig: IFGain:Low Atter	Free Run n: 36 dB	mitig type. tuno	TYPE A WWWW DET A NNNN	
10 dB/div Ref 25.00 dBm			Mkr	1 1.755 024 GHz -31.16 dBm	Auto Tune
15.0					Center Freq 1.755000000 GHz
5.00 mummun	- man man and a second and a				Start Freq
-15.0				DL1 -13.00 dBm	Stop Freq
-25.0		h h h h h h h h h h h h h h h h h h h			1.757000000 GHz
-35.0			And and a second se	and and a stand and a stand and a stand	400.000 kHz Auto Man
-55.0					Freq Offset 0 Hz
-65.0					Scale Type
Center 1.755000 GHz #Res BW 62 kHz	#VBW 220 k	ίHz	Sweep	Span 4.000 MHz 6.667 ms (1001 pts)	Log <u>Lin</u>

Plot 7-148. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-149. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 07 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 97 01 175
© 2020 PCTEST			V 9.0 02/01/2019



www.www.com.com.com.com.com.com.com.com.com.com						
LXU RL RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	11:56:28 PM F TRACE	eb 05, 2020	Frequency
	PNO: Wide Trig: I IFGain:Low Atten	Free Run : 36 dB		TYPE DET	A WWWWW A N N N N N	
10 dB/div Ref 25.00 dBm			Mki	1 1.780 03 -24.8	6 GHz 8 dBm	Auto Tune
15.0						Center Freq 1.78000000 GHz
-5.00	magness of the second					Start Freq 1.778000000 GHz
-15.0	h	'n <sub>\u</sub> 1		DL	L1 -13.00 dBm	Stop Freq 1.78200000 GHz
-35.0		Will Willing	anner an	margaretare	anger and an and an	CF Step 400.000 kHz <u>Auto</u> Man
-45.0						Freq Offset 0 Hz
-65.0						Scale Type
Center 1.780000 GHz #Res BW 62 kHz	#VBW 220 k	Hz	Sweep	Span 4.0 6.667 ms (10	000 MHz 001 pts)	Log <u>Lin</u>

Plot 7-150. Upper Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-151. Upper Extended Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 00 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 98 01 175
© 2020 PCTEST			V 9.0 02/01/2019



www.com Keysight Spec	ctrum Analyzer - Swept SA					- • •
LXI RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	12:02:00 AM Feb 06, 2020 TRACE 1 2 3 4 5 6	Frequency
		PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB			
10 dB/div	Ref 25.00 dBm			MKM	-29.82 dBm	
15.0						Center Freq 1.710000000 GHz
-5.00				mananan ayan ayan ayan ayan ayan ayan ay		Start Freq 1.706000000 GHz
-15.0			1. al			Stop Freq 1.714000000 GHz
-35.0	e-113hz-arib,	Produce and the second second second	and a state of the			CF Step 800.000 kHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
Center <u>1.</u>	710000 GHz				Span 8.000 MHz	Scale Type
#Res BW	120 kHz	#VBW	430 kHz	Sweep 1	13.33 ms (1001 pts)	Log <u>Lin</u>
MSG				STATU	IS	

Plot 7-152. Lower Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-153. Lower Extended Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 00 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 99 of 175
© 2020 PCTEST			V 9.0 02/01/2019



OR         RL         RF         50.0         AC         CORREC         SENSE.INT         IL2:1:35 AMFeb 06, 2020           PNO: Wide         Trig: Free Run IFGain:Low         Trig: Free Run Atten: 36 dB         Trig: Tree Run -33.66 d Bm         Tree III 300 GHZ         Auto Tur           10 dB/div         Ref 25.00 dBm         Center Free         1.75500000 GHZ         Start Free           150         Image: Sense:	Keysight Spect	rum Analyzer - Swept SA									- • ×
PNC: Wide Frequent         Trig: Freq Run Atten: 36 dB         Mkr1 1.755 008 GHz Atten: 753.66 dBm         Auto Tur           10 dB/div         Ref 25.00 dBm         -33.66 dBm         -1.7550000 GH         -33.66 dBm         -1.7550000 GH         -33.66 dBm         -33.66 dBm         -33.66 dBm         -33.66 dBm	LXI RL	RF 50 Ω AC	CORREC	SEN	ISE:INT	#Avg Type	RMS	12:17:35 AM TRAC	Feb 06, 2020	Fi	requency
Mkr1 1.755 008 GHz -33.66 dBm         Auto Tur           10 dB/div         Ref 25.00 dBm         Center Fre           150         Image: Center Fre         1.75500000 GHz           500         Image: Center Fre         1.75500000 GHz           500         Image: Center Fre         1.75500000 GHz           500         Image: Center Fre         1.7550000 GHz           500         Image: Center Fre         1.7550000 GHz			PNO: Wide 😱 IFGain:Low	Trig: Free Atten: 36	Run dB			TYP DE			
150       Center Fre         150       Center Fre         150       Start Fre         150       0.(1-1300 dbm         150	10 dB/div	Ref 25.00 dBm					Mkr1	1.755 0 -33.0	08 GHz 66 dBm		Auto Tune
5.00       Start Freq         6.00       0.1-13.00 dem         15.0       0.1-13.00 dem         25.0       0.1-13.00 dem         35.0       0.1-13.00 dem <td>15.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>( 1.75</td> <td>Center Freq 5000000 GHz</td>	15.0									( 1.75	Center Freq 5000000 GHz
500       0.1.751000000 GHz         150       0.1.751000000 GHz         150       0.1.751000000 GHz         150       0.1.751000000 GHz         1751000000 GHz       0.1.751000000 GHz	5.00	hnesighterselingerieser	www.comention.com	~							Start Freq
Stop Fre           250         1           350         1           350         1           450         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1           550         1	-5.00								DL1 -13.00 dBm	1.75	1000000 GHz
35.0	-25.0									1.75	Stop Freq 9000000 GHz
-45.0 -55.0 -65.0 -65.0 Center 1.755000 GHz Span 8.000 MHz	-35.0				1 Some south of the	ىلى <sup>يەر ي</sup> ۇھەرلىكىرىمە	yl BARKAN MARKAN	annik-marita	المراجع الم	Auto	CF Step 800.000 kHz Man
-65.0 Center 1.755000 GHz Span 8.000 MHz	-45.0										Freq Offset
Center 1.755000 GHz Span 8.000 MHz	-65.0										0 Hz Scale Type
#Res BW 120 kHz #VBW 430 kHz Sweep 13.33 ms (1001 pts)	Center 1.7 #Res BW 1	55000 GHz 20 kHz	#VBW 4	130 kHz		s	weep 1	Span 8 3.33 ms (	.000 MHz 1001 pts)	Log	Lin

Plot 7-154. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-155. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 100 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 100 01 175
© 2020 PCTEST				V 9.0 02/01/2019



🔤 Keysight Spe	trum Analyzer - Swept SA					- • •
LXI RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	12:02:38 AM Feb 06, 2020 TRACE 1 2 3 4 5 6	Frequency
		PNO: Wide T IFGain:Low	rig: Free Run Atten: 36 dB	Mkr1	TYPE A WWWW DET A NNNNN	Auto Tune
10 dB/div	Ref 25.00 dBm				-28.20 dBm	
15.0			Ĭ			Center Freq 1.780000000 GHz
5.00		allers and the second second second second				
-5.00						Start Freq 1.776000000 GHz
45.0					DL1 -13.00 dBm	
-15.0			1			Stop Freq 1.784000000 GHz
			William			
-35.0			"hile-young)	مى مەركىيە ئەركىيە ئەرك ئەركىيە ئەركىيە	hanne sit on the another put sporters.	CF Step 800.000 kHz <u>Auto</u> Man
-45.0						
-55.0						Freq Offset
-65.0						0 Hz
						Scale Type
Center 1. #Res BW	780000 GHz 120 kHz	#VBW 43	B0 kHz	Sweep <sup>7</sup>	Span 8.000 MHz 13.33 ms (1001 pts)	Log <u>Lin</u>
MSG				STATU	IS	

Plot 7-156. Upper Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-157. Upper Extended Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 101 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 101 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



www.com Keysight Spe	Keysight Spectrum Analyzer - Swept SA										
LXI RL	RF 50 \$	AC C	ORREC	SEI	NSE:INT	#Ava Tvpe	RMS	12:04:34 AM TRAC	Feb 06, 2020	Fr	equency
		F	PNO: Wide 😱 FGain:Low	Trig: Free Atten: 36	e Run i dB	0 ,1		TYP DE			Auto Tuno
10 dB/div	Ref 25.00	dBm					Mkr1	1.709 9 -30.8	52 GHz 34 dBm		Auto Tune
15.0										C 1.71	Center Freq 0000000 GHz
-5.00						part and the second	w			1.70	Start Freq 4000000 GHz
-15.0					1.					1.71	Stop Freq 6000000 GHz
-35.0	~~~~~		Salanan and a	www.	<i>.</i>					1 <u>Auto</u>	CF Step .200000 MHz Man
-55.0											Freq Offset 0 Hz
Center 1.	710000 GHz							Span 1	2.00 MHz		Scale Type
#Res BW	180 kHz		#VBW	620 kHz		\$	Sweep 1	.000 ms (	1001 pts)	Log	Lin
MSG							STATUS	5			

Plot 7-158. Lower Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-159. Lower Extended Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 100 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 102 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



🔤 Keysight Spe	ctrum Analyzer - Swept SA						
LXI RL	RF 50 Ω A	CORREC	SENSE	HAVG TVD	e: RMS	12:18:23 AM Feb 06, 2020 TRACE 1 2 3 4 5	Frequency
		PNO: Wide 🖵 IFGain:Low	Trig: Free R Atten: 36 dB	un 3		TYPE A WWWW DET A NNNN	
10 dB/div	Ref 25.00 dBr	n			Mkr1	1.755 000 GHz -31.96 dBm	Auto Tune
15.0							Center Freq 1.755000000 GHz
5.00 -5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~				Start Freq 1.749000000 GHz
-15.0						DL1 -13.00 dBm	Stop Freq 1.761000000 GHz
-35.0			My And I	man and a starter of a		men and a second se	CF Step 1.200000 MHz <u>Auto</u> Man
-45.0							Freq Offset 0 Hz
-65.0							Scale Type
Center 1. #Res BW	755000 GHz 180 kHz	#VBW	620 kHz		Sweep 1	Span 12.00 MHz .000 ms (1001 pts	Log <u>Lin</u>
MSG					STATUS	3	

Plot 7-160. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-161. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 102 of 175
1M2001290013-03.ZNF 02/03 - 03/06/2020 Portable Handset		Portable Handset		Page 103 01 175
© 2020 PCTEST				V 9.0 02/01/2019



🔤 Keysight Spe	seysight Spectrum Analyzer - Swept SA									
LXI RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	12:05:06 AM Feb 06, 2020 TRACE 1 2 3 4 5 6	Frequency				
10 dB/div	Ref 25.00 dBm	PNO: Wide Company Ing IFGain:Low Att	en: 36 dB	Mkr	1 1.780 036 GHz -31.03 dBm	Auto Tune				
15.0						Center Freq 1.780000000 GHz				
-5.00	and the second se				Di 1.13.00 dBm	Start Freq 1.774000000 GHz				
-15.0			Vin1			Stop Freq 1.786000000 GHz				
-35.0			- Minner	have have here here here here here here here he	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	CF Step 1.200000 MHz <u>Auto</u> Man				
-55.0						Freq Offset 0 Hz				
Center 1. #Res BW	780000 GHz 180 kHz	#VBW 620	kHz	Sweep	Span 12.00 MHz 1.000 ms (1001 pts)	Scale Type Log <u>Lin</u>				
MSG				STAT	US					

Plot 7-162. Upper Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-163. Upper Extended Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 104 of 175
1M2001290013-03.ZNF 02/03 - 03/06/2020		Portable Handset	Page 104 01 175
© 2020 PCTEST			V 9.0 02/01/2019



www.www.com.com.com.com.com.com.com.com.com.com					
LXIRL RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	12:08:02 AM Feb 06, 2020 TRACE 1 2 3 4 5 6	Frequency
	PNO: Wide 😱 Trig IFGain:Low Att	g: Free Run en: 36 dB			
10 dB/div Ref 25.00 dBm			MKr	-34.04 dBm	
15.0					Center Freq 1.710000000 GHz
-5.00					Start Freq 1.702000000 GHz
-15.0		+1.0			Stop Freq 1.718000000 GHz
-36.0		www.			CF Step 1.600000 MHz <u>Auto</u> Man
-55.0					Freq Offset 0 Hz
Center 1.710000 GHz				Span 16.00 MHz	Scale Type
#Res BW 240 kHz	#VBW 820	kHz	Sweep '	1.000 ms (1001 pts) s	

Plot 7-164. Lower Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-165. Lower Extended Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 105 of 175
1M2001290013-03.ZNF 02/03 - 03/06/2020 Portable Handset		Portable Handset	Page 105 01 175
© 2020 PCTEST			V 9.0 02/01/2019



Key:	sight Spee	trum Ana	lyzer - Swe	pt SA										- • •
L <mark>XI</mark> RI		RF	50 Ω	AC	CORREC		SEN	NSE:INT	#Ava Tv	pe: RMS	12:19:39 A TRA	M Feb 06, 2020	Fr	equency
					PNO: Wide		: Free	Run			TY	PE A WWWWW ET A N N N N N		
					IFGain:Low	Au	iii. 30	ub		Miles	4 4 755 (			Auto Tune
10 dE	Udiv	Ref 2	25 <u>00</u> c	Bm						IVINI	-35.	25 dBm		
Log														
													( C	Center Freq
15.0													1.75	5000000 GHz
5.00														
5.00	- m	men Ma	/~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m								Start Freq
-5.00													1.74	7000000 GHz
												DI 1 -13 00 dBm		
-15.0														Stop Erog
													1 76	3000000 GHz
-25.0							<u>ң</u>						1.10	
25.0							M.	1						CESton
-39.0								mont	-tomore mar	many many	manner	minun	1	.600000 MHz
-45.0													<u>Auto</u>	Man
-55.0														Freq Offset
														0 Hz
-65.0														
														Scale Type
Cent	ter 1.7	255000	) GHz						_		Span ′	6.00 MHz	Log	Lin
#Res	s BW	240 ki	IZ		#V	BW 820	kHz			Sweep	1.000 ms	(1001 pts)	LUg	<u></u>
MSG										STAT	TUS			

Plot 7-166. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-167. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 100 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 106 of 175	
© 2020 PCTEST				V 9.0 02/01/2019	



www.com Keysight Spe	💶 Keysight Spectrum Analyzer - Swept SA 💦 💼 📼									
LX/RL	RF 50 Ω AC	CORREC	SEN	ISE:INT	#Ava Tvp	e: RMS	12:08:41 AN TRAC	Feb 06, 2020	Fre	equency
		PNO: Wide 😱 IFGain:Low	Trig: Free Atten: 36	Run dB		Mkr1	TYP DE			Auto Tune
10 dB/div	Ref 25.00 dBm						-33.0	00 dBm		
15.0									C 1.780	enter Freq
-5.00	an and the second second	www.www.www.	~						1.772	Start Freq 2000000 GHz
-15.0								DL1 -13.00 dBm	1.788	Stop Freq 8000000 GHz
-35.0			W.W.	1	an a	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Manual and	1 Auto	CF Step .600000 MHz Map
-45.0									F	Freq Offset 0 Hz
-65.0										Scale Type
Center 1. #Res BW	780000 GHz 240 kHz	#VBW	820 kHz			Sweep 1	Span 1 .000 ms (	6.00 MHz 1001 pts)	Log	<u>Lin</u>
MSG						STATU	S			

Plot 7-168. Upper Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-169. Upper Extended Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST* Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dege 107 of 175	
1M2001290013-03.ZNF	.ZNF 02/03 - 03/06/2020 Portable Handset		Page 107 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



## Band 2



Plot 7-170. Lower Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-171. Lower Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 100 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 108 01 175
© 2020 PCTEST	•		V 9.0 02/01/2019



www.ceysight S	pectrum Analyzer - Swe	ept SA									
()XI RL	RF 50 Ω	AC		SE Trig: Free		#Avg Typ	e: RMS	11:10:14 Pf TRAC TYF	4 Feb 05, 2020 E 1 2 3 4 5 6 E A WWWW	F	requency
			IFGain:Low	Atten: 36	dB			DE			
10 dB/div	Ref 25.00 (	dBm					Mkr	1 1.910 0 -30.8	00 GHz 92 dBm		Auto Tulle
										(	Center Freq
15.0										1.91	0000000 GHz
5.00		marrow	www.www	~~~							
				~~~							Start Freq
-5.00										1.90	8000000 GHz
-15.0	/			=					DL1 -13.00 dBm		Oton Erog
										1.91	2000000 GHz
-25.0					1						
-35.0	~~~~~~~				man	Vmmm	- m				CF Step
-45.0							Jow ~	-Mara		<u>Auto</u>	400.000 kHz Man
45.0									m		
-55.0											Freq Offset
-65.0											UHZ
											Scale Type
Center	1.910000 GHz							Span 4	.000 MHz	Loa	Lin
#Res BV	N 16 kHz		#VBW	56 kHz			Sweep	6.667 ms (	1001 pts)		
MSG							STATI	US			

Plot 7-172. Upper Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-173. Upper Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 100 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 109 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



🔤 Key	sight Spe	trum Ana	lyzer - Swe	ept SA									- • ×
LXI RI	L	RF	50 Ω	AC (	CORREC	SE	NSE:INT	#Ava Tva	e RMS	11:13:37 PI TRAC	4 Feb 05, 2020	F	requency
					PNO: Wide G IFGain:Low	Trig: Free Atten: 36	eRun ∂dB			TYF DE			
10 dB	3/div	Ref 2	25.00 (	dBm					Mkr	1 1.850 0 -31.	00 GHz 80 dBm		Auto Tune
15.0												1.85	Center Freq 60000000 GHz
5.00 -5.00								and the second s		and the second sec	ᡔᢘᢑᢞᠧ᠋ᡔᡯᡒᡁᠵᠺ	1.84	Start Freq 8000000 GHz
-15.0 -25.0							1				DL1 -13.00 dBm	1.85	Stop Freq 2000000 GHz
-35.0 -45.0	ᠾ᠆᠆ᠰᢏᡗ᠆ᡙ	~~~~~	᠕ᠬᢩ᠕ᡔᠰ᠕ᡔᡥ	angenean	where we	Made and a start of the start o						<u>Auto</u>	CF Step 400.000 kHz Man
-55.0													Freq Offset 0 Hz
-65.0	tor 1.9	25000								Snap 4	000 MHz		Scale Type
#Re	s BW	36 kH	z		#VB\	V 120 kHz			Sweep	6.667 ms (	1001 pts)	Log	Lin
MSG									STAT	US			

Plot 7-174. Lower Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-175. Lower Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 110 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 110 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



									- • ×
LX/ RL RF 50Ω AC	CORREC	SEN	SE:INT			11:14:24 PI	1 Feb 05, 2020	F	requency
	PNO: Wide 🖵 IFGain:Low	Trig: Free Atten: 36	Run dB	#rig iyp	2. 1413	TYF			
10 dB/div Ref 25.00 dBm					Mkr1	1.910 0 -30.	00 GHz 54 dBm		Auto Tune
15.0								( 1.91	Center Freq 0000000 GHz
5.00 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm	en an	Varment						1.90	Start Freq 8000000 GHz
-15.0			1				DL1 -13.00 dBm	1.91	Stop Freq 2000000 GHz
-35.0			mmunn	when	ليەقتىم كىمىيەتى سەللە	wy and an along the	hunnyuy	<u>Auto</u>	CF Step 400.000 kHz Man
-55.0									Freq Offset 0 Hz
-65.0									Scale Type
Center 1.910000 GHz #Res BW 36 kHz	#VBW	120 kHz		ę	Sweep 6	Span 4 .667 ms (	.000 MHz 1001 pts)	Log	Lin

Plot 7-176. Upper Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-177. Upper Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	Pctest *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 111 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 111 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



🔤 Key	sight Spe	trum Ana	ilyzer - Sw	ept SA									
LXI RI	L	RF	50 Ω	AC	CORREC	SE	NSE:INT	#Ava Tvp		11:26:26 PI	1 Feb 05, 2020	F	requency
					PNO: Wide O IFGain:Low	Trig: Free Atten: 36	e Run i dB	#rtig iyp	e. Ring	TYF	E A WWWWW T A NNNNN		
10 dB	3/div	Ref	25.00	dBm					Mkr	1 1.849 9 -30.3	92 GHz 39 dBm		Auto Tune
15.0												1.85	Center Freq 50000000 GHz
5.00 -5.00								nahanadi hakara da ha Internet da hakara da	an a	and	age of the second s	1.84	Start Freq 8000000 GHz
-15.0 -25.0							1				DL1 -13.00 dBm	1.85	Stop Freq 2000000 GHz
-35.0	เกาะเหลาไห	مراب بوسانين الم ال	ĸ₽₩ĸġŗŗŶĬţŶĬĸĬĸĸ	a Na Marina	Myradian and an and a state of the second stat	and the second second second	AND .					<u>Auto</u>	CF Step 400.000 kHz Man
-55.0													Freq Offset 0 Hz
-65.0	tor 1.9	25000								Snap 4	000 MHz		Scale Type
#Res	s BW	62 kH	z Z		#VB	W 220 kHz			Sweep	span 4 6.667 ms (	1001 pts)	Log	Lin
MSG									STAT	US			

Plot 7-178. Lower Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-179. Lower Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 110 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 112 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



www.www.com.com.com.com.com.com.com.com.com.com					
LXI RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	11:26:55 PM Feb 05, 2020	Frequency
	PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type. Nm3		
10 dB/div Ref 25.00 dBm			Mkr1	1.910 024 GHz -30.38 dBm	Auto Tune
15.0					Center Freq 1.91000000 GHz
5.00 Manufacture of the state o	John Press, South and Souther and Marcel				Start Freq 1.908000000 GHz
-15.0				DL1 -13.00 dBm	Stop Freq 1.912000000 GHz
-36.0		Mur mar	Ammanna.	an frank start and a start and the start	CF Step 400.000 kHz Auto Man
-45.0					Freq Offset
-65.0					Scale Type
Center 1.910000 GHz #Res BW 62 kHz	#VBW 2	220 kHz	Sweep 6	Span 4.000 MHz 5.667 ms (1001 pts)	Log <u>Lin</u>

Plot 7-180. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-181. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 112 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 113 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



🔤 Key	sight Spec	trum An	alyzer - Sw	ept SA										- • ×
LXI R		RF	50 Ω	AC	CORREC		SENSE:INT		#Ava Tvp	e RMS	11:29:08 PI TRAC	4 Feb 05, 2020	F	requency
					PNO: Wide IFGain:Lov	Trig: Atter	Free Run I: 36 dB				TYF DE			Auto 7
10 di	3/div	Ref	25.00	dBm						Mkr1	1.850 0 -32.0	00 GHz 46 dBm		Auto I une
15.0													1.85	Center Freq 50000000 GHz
5.00 -5.00								Prom	an f faith ann an fhan an fhail an fhai	an a	and and a second se	janan nadit (n ( <sup>3</sup> 8n) ng ng 1,9	1.84	Start Freq 6000000 GHz
-15.0 -25.0												DL1 -13.00 dBm	1.85	Stop Freq 54000000 GHz
-35.0 -45.0	en portes			No.	ماد مدار الروانياني الروانياني	ulersky deerster for the							<u>Auto</u>	CF Step 800.000 kHz Man
-55.0														Freq Offset 0 Hz
-65.0 Cen	ter 1.8	35000	0 GHz								Span 8	.000 MHz		Scale Type
#Re	s BW	120 k	Hz		#V	'BW 430 k	Hz		\$	Sweep ′	13.33 ms (	1001 pts)	Log	Lin
MSG										STATU	IS			

Plot 7-182. Lower Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-183. Lower Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 114 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 114 01 175
© 2020 PCTEST			V 9.0 02/01/2019



W         RL         RF         S 0.0         AC         CORREC         SENSE:INT         IL29:38 MHeb 05, 200         Frequency           #Avg Type: RMS         TMACE         Det Aviantition         Trace	🔤 Keysigł	ht Spect	rum Anal	yzer - Swe	pt SA										- • ×
PNO: Wide Trig: Free Run Atten: 36 dB       Mkr1 1.910 032 GHz -31.48 dBm       Auto Tune         10 dB/div       Ref 25.00 dBm       31.48 dBm       Center Freq         150       0       0       0       0       0       0       0         500       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	LXI RL		RF	50 Ω	AC	CORREC		SEI	NSE:INT	#Ava Tvi	e RMS	11:29:38 P	M Feb 05, 2020	F	requency
Mkr1 1.910 032 GHz         Auto Tune           10 dB/div         Ref 25.00 dBm         -31.48 dBm           150         -         -         -           500         -         -         -         -           500         -         -         -         -         -           150         -         -         -         -         -         -           150         -         -         -         -         -         -         -           150         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -						PNO: Wid IFGain:Lo	e 구 w	Trig: Free Atten: 36	e Run i dB	#/(B))	Je. Hand	TY D			
Start Freq           150         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <t< th=""><th>10 dB/d</th><th>liv</th><th>Ref 2</th><th>25.00 c</th><th>iBm</th><th></th><th></th><th></th><th></th><th></th><th>Mkr</th><th>1 1.910 ( -31.</th><th>)32 GHz 48 dBm</th><th></th><th>Auto Tune</th></t<>	10 dB/d	liv	Ref 2	25.00 c	iBm						Mkr	1 1.910 ( -31.	)32 GHz 48 dBm		Auto Tune
5.00	15.0													1.91	Center Freq 0000000 GHz
5.00       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	5.00	*****	an Arraylanda	Yangi yang yang yang yang yang yang yang yang	alla alama	Jahodyan Afrikana.	سيعوم	*****							Start Freq
150       Stop Freq         250       Stop Freq         350       Stop Freq         450       Stop Freq         550       Stop Freq         650       Stop Freq <td< td=""><td>-5.00</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>DL1 -13.00 dBm</td><td>1.90</td><td>6000000 GHz</td></td<>	-5.00												DL1 -13.00 dBm	1.90	6000000 GHz
-350     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360     -360	-15.0							h.	- 1					1.91	Stop Freq 4000000 GHz
450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450       -450	-35.0							llever.	1 Inclusion of the second	an an ann an Anna an A	- allow - Marcado	and the second	an a	Auto	CF Step 800.000 kHz Man
-65 0 Center 1.910000 GHz #Res BW 120 kHz #VBW 430 kHz Sweep 13.33 ms (1001 pts)	-45.0														Freq Offset
Center 1.910000 GHz #Res BW 120 kHz #VBW 430 kHz Sweep 13.33 ms (1001 pts)	-65.0 —														0 Hz
Center 1.910000 GHz         Span 8.000 MHz         Log         Lin           #Res BW 120 kHz         #VBW 430 kHz         Sweep 13.33 ms (1001 pts)         Log         Lin															Scale Type
071710	Center #Res I	r 1.9 BW 1	10000 20 ki	GHz Iz		#\	/BW	430 kHz			Sweep	Span 8 13.33 ms	.000 MHz (1001 pts)	Log	<u>Lin</u>

Plot 7-184. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-185. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 115 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 115 01 175
© 2020 PCTEST		·	V 9.0 02/01/2019



🔤 Keysight Spe	ectrum Analyzer - Sv	vept SA									- • •
L <mark>XI</mark> RL	RF 50	Ω AC C	ORREC	SE	NSE:INT	#Ava Type	RMS	11:31:41 PM TRAC	Feb 05, 2020	Fr	equency
		Ĩ	PNO: Wide 🖵 FGain:Low	Trig: Free Atten: 36	e Run 6 dB			TYP DE			Auto Tuno
10 dB/div	Ref 25.00	dBm					Mkr1	1.847 0 -29.	00 GHz 56 dBm		Auto Tune
15.0										C 1.850	enter Freq
-5.00						and a second	₩~ <del>~</del> ₩ <del>^_</del>		gamen and they	1.844	Start Freq 4000000 GHz
-15.0		1-							DL1 -13.00 dBm	1.850	Stop Freq 5000000 GHz
-35.0	·····		whent	~~~~~~						1 <u>Auto</u>	CF Step .200000 MHz Man
-55.0										F	Freq Offset 0 Hz
-65.0	950000 CH							Snop 1			Scale Type
#Res BW	180 kHz		#VBW	620 kHz		5	Sweep 1	span 1 .000 ms (	2.00 MHZ 1001 pts)	Log	<u>Lin</u>
MSG							STATUS	5			

Plot 7-186. Lower Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-187. Lower Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dege 110 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 116 01 175	
© 2020 PCTEST				V 9.0 02/01/2019	


🧫 Keysight S	pectrum Analyzer - Swept SA					- • •
l <mark>XI</mark> RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	11:32:23 PM Feb 05, 2020 TRACE 1 2 3 4 5 6	Frequency
	_	PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB		TYPE A WWWWW DET A NNNN	
10 dB/div	Ref 25.00 dBm			Mkı	1 1.910 576 GHz -30.39 dBm	Auto Tune
15.0						Center Freq 1.91000000 GHz
5.00,		more and and and and and	~			Start Freq
-5.00					DL1 -13.00 dBm	1.904000000 GHz
-25.0			hun (	1		Stop Freq 1.916000000 GHz
-35.0				man man	monum	CF Step 1.200000 MHz <u>Auto</u> Man
-55.0						Freq Offset
-65.0						0 Hz
Center 1 #Res BV	I.910000 GHz V 180 kHz	#VBW 6	20 kHz	Sweep	Span 12.00 MHz 1.000 ms (1001 pts)	Log <u>Lin</u>
MSG				STA	rus	

Plot 7-188. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-189. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST* Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 117 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 117 01 175
© 2020 PCTEST				V 9.0 02/01/2019



Key	sight Spec	trum An	alyzer - Sw	ept SA										- • •
<b>lxi</b> ri		RF	50 Ω	AC	CORREC		SEI	NSE:INT	#Ava Tvp	e RMS	11:34:21 PI TRAC	1 Feb 05, 2020	Fn	equency
					PNO: Wid IFGain:Lo	de 🖵 ow	Trig: Free Atten: 36	e Run i dB	"a)P		TYF De			
10 dE	3/div	Ref	25.00	dBm						Mkr	1 1.849 6 -32.	00 GHz 17 dBm		Auto Tune
15.0													C 1.850	enter Freq 0000000 GHz
5.00 -5.00									harmen an de Malancia an Andréa	ay or * org	<u></u>	Kana Marana M	1.842	Start Freq 2000000 GHz
-15.0 -25.0												DL1 -13.00 dBm	1.85	Stop Freq 3000000 GHz
-35.0	an a	alo atom	Warden Charles	Ang Barge Art		ᡃᠰᠰᡵᠧ		~~ <sup>M</sup>					1 <u>Auto</u>	CF Step .600000 MHz Man
-45.0														Freq Offset 0 Hz
-65.0	tor 4.0	5000									- Chon 1			Scale Type
#Res	s BW	240 k	u GHZ Hz		#	VBW	820 kHz			Sweep	span 1 1.000 ms (	<del>0.00</del> MHZ 1001 pts)	Log	Lin
MSG										STAT	JS			

Plot 7-190. Lower Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-191. Lower Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager			
Test Report S/N: Test Dates:		EUT Type:	Degs 110 of 175			
1M2001290013-03.ZNF	02/03 - 03/06/2020 Portable Handset		Page 118 of 175			
> 2020 PCTEST V 9.0 02/01/2019						



🔤 Keysight Sp	ectrum Analyzer - Swept SA					
IXI RL	RF 50 Ω AC	CORREC SI	ENSE:INT #A	va Type: RMS	11:35:04 PM Feb 05, 2020 TRACE 1 2 3 4 5 6	Frequency
		PNO: Wide Trig: Fre	e Run 6 dB		TYPE A WWWWW DET A NNNNN	
10 dB/div	Ref 25.00 dBm			Mkr1	1.910 336 GHz -31.99 dBm	Auto Tune
15.0			Ĭ			Center Freq 1.910000000 GHz
5.00	amonthy and the amount	www.www.				Start Freq
-5.00					DL1 -13.00 dBm	Stop Fred
-25.0			1 1			1.918000000 GHz
-35.0			Verney	Laget was showed by when	ang the second	CF Step 1.600000 MHz <u>Auto</u> Man
-55.0						Freq Offset
-65.0						0 HZ Scale Type
Center 1. #Res BW	910000 GHz 240 kHz	#VBW 820 kHz	2	Sweep 1	Span 16.00 MHz 000 ms (1001 pts)	Log <u>Lin</u>
MSG				STATUS		

Plot 7-192. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-193. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dage 110 of 175			
1M2001290013-03.ZNF	01290013-03.ZNF 02/03 - 03/06/2020 Portable Handset		Page 119 of 175			
2020 PCTEST V 9.0 02/01/2019						



## Band 30



Plot 7-194. Lower Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-195. Lower Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 100 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 120 01 175
© 2020 PCTEST			V 9 0 02/01/2019



🔤 Key	rsight Spe	ctrum Anal	/zer - Swej	pt SA									_	
<b>l,XI</b> RI	L	RF	50 Ω	AC	CORREC		S	ENSE:INT	#Avg Typ	e: RMS	09:38:39 P TRAC	M Feb 05, 2020 CE 1 2 3 4 5 6	Freq	uency
					PNO: Wie IFGain:Le	de 🖵 ow	Trig: Fr Atten: 3	ee Run 36 dB		Mire			A	uto Tune
10 dB	3/div	Ref 2	5.00 d	Bm						IVIN	-28.	38 dBm		
209													Ce	nter Freq
15.0													2.3150	00000 GHz
5.00	Mine	y warde with	termeter	₩₩ <b>₩₩₽₩</b>	nakatride d <sup>e en</sup> llementer	unter and a	and the second second						s	start Freq
-5.00							\ \						2.3100	00000 GHz
-15.0												DL1 -13.00 dBm		ton Frog
-25.0	1						1	1					2.3200	00000 GHz
	(							human	-looped the maple	Alexandre a				05.04.4
-35.0										C. Sector and Conference	harding ter Marganeses	-	1.00	DO000 MHz
-45.0												Murgel Contraction	Auto	Ivian
-55.0													Fr	eq Offset
-65.0														0 HZ
													So	ale Type
Cen #Res	ter 2.3 s BW	315000 62 kHz	GHz		#	VBW	200 kH	z		Sweep 1	Span 1 6.67 ms	0.00 MHz (1001 pts)	Log	Lin
MSG										STATU	S			





Plot 7-197. Upper Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 101 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 121 of 175
© 2020 PCTEST	•	·	V 9.0 02/01/2019



www.commanalyzer - Swept SA				- • •
IXI RL RF 50Ω AC	CORREC SEI	Avg Type:	09:49:34 PM Feb 05, 2020 RMS TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 25.00 dBm	PNO: Wide C Ing: Free IFGain:Low Atten: 36	e Run 6 dB	Mkr1 2.304 976 GHz -30.86 dBm	Auto Tune
15.0				Center Freq 2.305000000 GHz
-5.00				Start Freq 2.301000000 GHz
-15.0		11		Stop Freq 2.309000000 GHz
-35.0	and and a second second and a second			CF Step 800.000 kHz <u>Auto</u> Man
-55.0				Freq Offset 0 Hz
Center 2.305000 GHz	#\/P\\/ 420 kHz		Span 8.000 MHz	Scale Type Log <u>Lin</u>
MSG	#VBW 430 KHZ	5	STATUS	

Plot 7-198. Lower Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-199. Lower Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: Test Dates:		EUT Type:	Dogo 100 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 122 01 175
© 2020 PCTEST			V 9.0 02/01/2019



🔤 Keysight Spe	trum Analyzer - Swept SA					
LXI RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	09:50:22 PM Feb 05, 2020 TRACE 1 2 3 4 5 6	Frequency
10 dB/div	Ref 25.00 dBm	PNO: Wide IFGain:Low	Trig: Free Run Atten: 36 dB	М	kr1 2.315 01 GHz -28.93 dBm	Auto Tune
15.0						Center Freq 2.315000000 GHz
-5.00		9844			DL1 -13 00 dBm	Start Freq 2.310000000 GHz
-15.0			1_			Stop Freq 2.320000000 GHz
-35.0					lan harran dasar dan dasar da	CF Step 1.000000 MHz <u>Auto</u> Man
-55.0						Freq Offset 0 Hz
Center 2.3 #Res BW	315000 GHz 120 kHz	#VBW 4	130 kHz	Sweep	Span 10.00 MHz 16.67 ms (1001 pts)	Scale Type Log <u>Lin</u>
MSG				STA	TUS	

Plot 7-200. Upper Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-201. Upper Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Houd to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dago 102 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 123 01 175
© 2020 PCTEST			V 9.0 02/01/2019



# Band 7



Plot 7-202. Lower ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-203. Upper ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Proud to be part of () element	MEASUREMENT REPORT (CERTIFICATION)	🕒 LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 104 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 124 01 175
© 2020 PCTEST				V 9 0 02/01/2019



🔤 Keysight Spectrum Analyzer - Spurious Emissions													
LXI RL	F	F 50 Ω	AC CO	RREC	Conto	SENSE:INT	0000 G			09:20:23 P	M Feb 05, 2020	Fi	requency
			NEF		Trig: F	Free Run	0000 G			Raulo Stu	. None		
PASS	<u> </u>		IFO	Gain:Low	#Atter	: 26 dB				Radio Dev	rice: BTS		
10 48	dio	Pef 40.00	dBm										
		KCI 40.00											
30.0												0	Center Freq
20.0												2.53	5000000 GHz
10.0													
0.00						Paradile (price	whereman	willing					
0.00						1							
-10.0													
-20.0													
-30.0						<b>.</b>			Deteter				
-40.0								r.	100	the share and			
-50.0			and the second second							<u> </u>	Change and		
		A STREET, STREE									THE WAY		
Start	2.475 C	Hz								Stop 2	.525 GHz		
													CF Step
Sour	Range	Start Fred	Stop	Freg	RBW	Frequency		Amplit	ude	A Limit		Auto	5.000000 MHZ
1	1	2 4750 GH	7 2 4 9 0 5	GHz	1 000 MHz	2 490345000	GHz -4	41 01 0	dBm	-16 01 d	3	Auto	Wall
2	2	2.4905 GH	z 2.4960	) GHz	1.000 MHz	2.495633333	GHz -:	30.74 (	dBm	-17.74 dl	3		
3	3	2.4960 GH	z 2.4990	) GHz	1.000 MHz	2.498940000	GHz -:	28.25 (	dBm	-18.25 d	3		Freq Offset
4	4	2.4990 GH	z 2.5000	) GHz	180.0 kHz	2.499858333	GHz -:	31.40 (	dBm	-21.40 d	3		0 Hz
5	5	2.5000 GH	z 2.5250	) GHz	240.0 kHz	2.507500000	GHz 5	5. <b>742</b> d	Bm	-19.26 d	3		
MSG									STATU	S			
				_				_					





Plot 7-205. Upper ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 105 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 125 01 175
© 2020 PCTEST			V 9.0 02/01/2019





Plot 7-206. Lower ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-207. Upper ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 126 01 175
© 2020 PCTEST			V 9.0 02/01/2019





Plot 7-208. Lower ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-209. Upper ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 107 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 127 01 175
© 2020 PCTEST			V 9.0 02/01/2019



# 7.5 Peak-Average Ratio

### **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 v03r01 - Section 5.7.1

### **Test Settings**

- 1. The signal analyzer's CCDF measurement profile is enabled
- 2. Frequency = carrier center frequency
- 3. Measurement BW ≥ OBW or specified reference bandwidth
- 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: ZNFK410WM	PCTEST Proud to be part of Selement	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dega 120 of 175		
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 128 01 175		
© 2020 PCTEST V 9.0 02/01/2019					



## Band 2







#### Plot 7-211. PAR Plot (Band 2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 100 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 129 01 175
© 2020 PCTEST				\/ 9 0 02/01/2019









Plot 7-213. PAR Plot (Band 2 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 120 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 130 01 175
© 2020 PCTEST				V 9.0 02/01/2019









Plot 7-215. PAR Plot (Band 2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 121 of 175		
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 131 01 175		
2020 PCTEST V 9.0 02/01/2019					









Plot 7-217. PAR Plot (Band 2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 122 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 132 01 175
© 2020 PCTEST			V 9.0 02/01/2019









Plot 7-219. PAR Plot (Band 2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK410WM	Pctest *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 122 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 133 01 175
© 2020 PCTEST			V 9.0 02/01/2019









Plot 7-221. PAR Plot (Band 2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 124 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 134 01 175
© 2020 PCTEST			V 9.0 02/01/2019



# 7.6 Radiated Power (ERP/EIRP)

## **Test Overview**

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized tuned 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 v03r01 - Section 5.2.1

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

### Test Settings

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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 125 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 135 01 175
© 2020 PCTEST			V 9.0 02/01/2019



## Test Setup



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.

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved Quality Ma	<b>by:</b> nager
Test Report S/N:	Test Dates:	EUT Type:	Daga 126 a	475
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 136 C	51175
© 2020 PCTEST	and a fifth of the second of the formation of the	and the second second second the second s	V	9.0 02/01/2019



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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	н	127	13	1 / 5	16.50	3.40	17.75	0.060	34.77	-17.02	19.90	0.098	36.99	-17.09
707.50	1.4	QPSK	н	121	12	3/2	16.58	3.65	18.08	0.064	34.77	-16.69	20.23	0.105	36.99	-16.76
715.30	1.4	QPSK	н	110	22	1 / 0	16.69	3.70	18.24	0.067	34.77	-16.53	20.39	0.109	36.99	-16.60
715.30	1.4	16-QAM	н	110	22	3/2	16.26	3.70	17.81	0.060	34.77	-16.96	19.96	0.099	36.99	-17.03
700.50	3	QPSK	н	119	4	1/0	16.32	3.40	17.57	0.057	34.77	-17.20	19.72	0.094	36.99	-17.27
707.50	3	QPSK	н	111	22	1/0	16.42	3.65	17.92	0.062	34.77	-16.85	20.07	0.102	36.99	-16.92
714.50	3	QPSK	н	102	25	1 / 14	16.67	3.70	18.22	0.066	34.77	-16.55	20.37	0.109	36.99	-16.62
714.50	3	16-QAM	н	102	25	1 / 14	16.06	3.70	17.61	0.058	34.77	-17.16	19.76	0.095	36.99	-17.23

Table 7-3. 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 [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
701.50	5	QPSK	н	125	12	1/0	16.39	3.40	17.64	0.058	34.77	-17.13	19.79	0.095	36.99	-17.20
707.50	5	QPSK	н	117	19	1/0	16.48	3.65	17.98	0.063	34.77	-16.79	20.13	0.103	36.99	-16.86
713.50	5	QPSK	н	113	27	1 / 24	16.73	3.70	18.28	0.067	34.77	-16.49	20.43	0.110	36.99	-16.56
713.50	5	16-QAM	н	113	27	1 / 24	16.12	3.70	17.67	0.058	34.77	-17.10	19.82	0.096	36.99	-17.17
704.00	10	QPSK	н	120	9	1 / 49	16.24	3.50	17.59	0.057	34.77	-17.18	19.74	0.094	36.99	-17.25
707.50	10	QPSK	н	117	15	1 / 49	16.39	3.65	17.89	0.062	34.77	-16.88	20.04	0.101	36.99	-16.95
711.00	10	QPSK	н	107	24	1 / 49	16.59	3.70	18.14	0.065	34.77	-16.63	20.29	0.107	36.99	-16.70
711.00	10	16-QAM	н	107	24	1 / 49	15.69	3.70	17.24	0.053	34.77	-17.53	19.39	0.087	36.99	-17.60
713.50	5	QPSK	V	171	32	1 / 24	16.17	3.70	17.72	0.059	34.77	-17.05	19.87	0.097	36.99	-17.12

## Table 7-4. ERP Data (Band 12/17)

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	202	119	1/0	13.26	5.70	16.81	0.048	34.77	-17.96	18.96	0.079	36.99	-18.03
782.00	5	QPSK	V	197	130	1/0	12.65	5.80	16.30	0.043	34.77	-18.47	18.45	0.070	36.99	-18.54
784.50	5	QPSK	V	216	116	1 / 0	12.92	5.80	16.57	0.045	34.77	-18.20	18.72	0.074	36.99	-18.27
779.50	5	16-QAM	V	202	119	1 / 0	12.45	5.70	16.00	0.040	34.77	-18.77	18.15	0.065	36.99	-18.84
782.00	10	QPSK	V	194	130	1/0	13.49	5.80	17.14	0.052	34.77	-17.63	19.29	0.085	36.99	-17.70
782.00	10	16-QAM	V	194	130	1 / 0	12.64	5.80	16.29	0.043	34.77	-18.48	18.44	0.070	36.99	-18.55
782.00	10	QPSK	н	232	35	1 / 0	13.13	5.80	16.78	0.048	34.77	-17.99	18.93	0.078	36.99	-18.06

Table 7-5. ERP Data (Band 13)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 107 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 137 01 175
© 2020 PCTEST				V 9.0 02/01/2019



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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	145	188	3/2	13.64	6.30	17.79	0.060	38.45	-20.66	19.94	0.099	40.61	-20.67
836.50	1.4	QPSK	V	152	177	1 / 5	13.61	6.40	17.86	0.061	38.45	-20.59	20.01	0.100	40.61	-20.60
848.30	1.4	QPSK	V	151	177	3/2	13.61	6.50	17.96	0.063	38.45	-20.49	20.11	0.103	40.61	-20.50
836.50	1.4	16-QAM	V	152	177	3/2	12.36	6.40	16.61	0.046	38.45	-21.84	18.76	0.075	40.61	-21.85
825.50	3	QPSK	V	143	174	1 / 0	13.72	6.30	17.87	0.061	38.45	-20.58	20.02	0.100	40.61	-20.59
836.50	3	QPSK	V	153	177	1 / 0	13.61	6.40	17.86	0.061	38.45	-20.59	20.01	0.100	40.61	-20.60
847.50	3	QPSK	V	142	169	1 / 0	13.66	6.50	18.01	0.063	38.45	-20.44	20.16	0.104	40.61	-20.45
847.50	3	16-QAM	V	142	169	1 / 0	12.12	6.50	16.47	0.044	38.45	-21.98	18.62	0.073	40.61	-21.99
826.50	5	QPSK	V	141	176	1 / 24	13.40	6.30	17.55	0.057	38.45	-20.90	19.70	0.093	40.61	-20.91
836.50	5	QPSK	V	157	170	1 / 0	13.54	6.40	17.79	0.060	38.45	-20.66	19.94	0.099	40.61	-20.67
846.50	5	QPSK	V	155	177	1 / 24	13.50	6.50	17.85	0.061	38.45	-20.60	20.00	0.100	40.61	-20.61
826.50	5	16-QAM	V	141	176	1 / 24	12.27	6.30	16.42	0.044	38.45	-22.03	18.57	0.072	40.61	-22.04
829.00	10	QPSK	V	144	181	1 / 49	13.51	6.30	17.66	0.058	38.45	-20.79	19.81	0.096	40.61	-20.80
836.50	10	QPSK	V	150	176	1 / 0	13.54	6.40	17.79	0.060	38.45	-20.66	19.94	0.099	40.61	-20.67
844.00	10	QPSK	V	149	170	1 / 0	13.40	6.40	17.65	0.058	38.45	-20.80	19.80	0.095	40.61	-20.81
836.50	10	16-QAM	V	150	176	1 / 0	12.34	6.40	16.59	0.046	38.45	-21.86	18.74	0.075	40.61	-21.87
847.50	3	QPSK	Н	220	301	1/0	12.77	6.70	17.32	0.054	38.45	-21.13	19.47	0.089	40.61	-21.14

Table 7-6. ERP Data (Band 5)

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ clement	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 120 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 138 01 175
© 2020 PCTEST	•		V 9.0 02/01/2019



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 [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	Н	180	227	3/2	14.09	9.44	23.53	0.226	30.00	-6.47
1745.00	1.4	QPSK	Н	175	24	1 / 5	13.79	9.23	23.02	0.200	30.00	-6.98
1779.30	1.4	QPSK	Н	183	30	3/2	14.04	9.26	23.30	0.214	30.00	-6.70
1710.70	1.4	16-QAM	Н	180	227	1 / 5	13.24	9.44	22.68	0.185	30.00	-7.32
1711.50	3	QPSK	Н	189	234	1 / 0	14.03	9.44	23.47	0.222	30.00	-6.53
1745.00	3	QPSK	Н	178	15	1 / 0	13.88	9.23	23.11	0.205	30.00	-6.89
1778.50	3	QPSK	Н	178	31	1 / 0	13.96	9.26	23.22	0.210	30.00	-6.78
1711.50	3	16-QAM	Н	189	234	1 / 0	13.27	9.44	22.71	0.187	30.00	-7.29
1712.50	5	QPSK	Н	190	226	1 / 0	13.96	9.43	23.39	0.218	30.00	-6.61
1745.00	5	QPSK	Н	169	15	1 / 0	13.56	9.23	22.79	0.190	30.00	-7.21
1777.50	5	QPSK	Н	178	22	1 / 24	13.86	9.26	23.12	0.205	30.00	-6.88
1712.50	5	16-QAM	н	190	226	1 / 0	13.26	9.43	22.69	0.186	30.00	-7.31
1715.00	10	QPSK	Н	194	235	1 / 0	14.10	9.42	23.52	0.225	30.00	-6.48
1745.00	10	QPSK	Н	174	16	1 / 0	13.70	9.23	22.93	0.196	30.00	-7.07
1775.00	10	QPSK	Н	170	25	1 / 49	13.82	9.25	23.07	0.203	30.00	-6.93
1715.00	10	16-QAM	Н	194	235	1 / 0	13.43	9.42	22.85	0.193	30.00	-7.15
1717.50	15	QPSK	Н	188	224	1 / 0	13.79	9.40	23.19	0.208	30.00	-6.81
1745.00	15	QPSK	Н	177	12	1 / 0	13.64	9.23	22.87	0.194	30.00	-7.13
1772.50	15	QPSK	Н	183	22	1 / 74	13.75	9.25	23.00	0.199	30.00	-7.00
1717.50	15	16-QAM	Н	188	224	1 / 0	13.03	9.40	22.43	0.175	30.00	-7.57
1720.00	20	QPSK	Н	187	229	1 / 99	13.82	9.38	23.20	0.209	30.00	-6.80
1745.00	20	QPSK	Н	175	18	1 / 0	13.50	9.23	22.73	0.188	30.00	-7.27
1770.00	20	QPSK	Н	176	27	1 / 99	13.57	9.24	22.81	0.191	30.00	-7.19
1720.00	20	16-QAM	Н	187	229	1 / 99	13.12	9.38	22.50	0.178	30.00	-7.50
1710.70	1	QPSK	V	117	101	3/2	12.41	9.11	21.52	0.142	30.00	-8.48

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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 120 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 139 01 175
© 2020 PCTEST				V 9.0 02/01/2019



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 [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	V	107	83	3/2	12.66	9.88	22.54	0.179	33.01	-10.47
1880.00	1.4	QPSK	V	110	94	1 / 5	13.35	10.10	23.45	0.222	33.01	-9.56
1909.30	1.4	QPSK	V	109	78	3/2	13.65	10.31	23.96	0.249	33.01	-9.05
1909.30	1.4	16-QAM	V	109	78	1 / 5	12.71	10.31	23.02	0.200	33.01	-9.99
1851.50	3	QPSK	V	103	89	1 / 14	12.76	9.88	22.64	0.184	33.01	-10.37
1880.00	3	QPSK	V	104	93	1 / 0	13.30	10.10	23.40	0.219	33.01	-9.61
1908.50	3	QPSK	V	107	85	1 / 0	13.67	10.30	23.97	0.250	33.01	-9.04
1908.50	3	16-QAM	V	107	85	1 / 14	12.75	10.30	23.05	0.202	33.01	-9.96
1852.50	5	QPSK	V	100	83	1 / 0	12.54	9.89	22.43	0.175	33.01	-10.58
1880.00	5	QPSK	V	103	90	1 / 0	13.10	10.10	23.20	0.209	33.01	-9.81
1907.50	5	QPSK	V	113	87	1 / 0	13.47	10.30	23.77	0.238	33.01	-9.24
1880.00	5	16-QAM	V	103	90	1 / 0	12.73	10.10	22.83	0.192	33.01	-10.18
1855.00	10	QPSK	V	106	80	1 / 0	12.75	9.91	22.66	0.185	33.01	-10.35
1880.00	10	QPSK	V	102	92	1 / 0	13.29	10.10	23.39	0.218	33.01	-9.62
1905.00	10	QPSK	V	111	85	1 / 49	13.46	10.28	23.74	0.237	33.01	-9.27
1905.00	10	16-QAM	V	111	85	1 / 0	12.86	10.28	23.14	0.206	33.01	-9.87
1857.50	15	QPSK	V	100	84	1 / 0	12.40	9.93	22.33	0.171	33.01	-10.68
1880.00	15	QPSK	V	103	85	1 / 0	13.20	10.10	23.30	0.214	33.01	-9.71
1902.50	15	QPSK	V	110	81	1 / 74	13.39	10.27	23.66	0.232	33.01	-9.35
1902.50	15	16-QAM	V	110	81	1 / 0	12.80	10.27	23.07	0.203	33.01	-9.94
1860.00	20	QPSK	V	102	83	1 / 99	12.49	9.95	22.44	0.175	33.01	-10.57
1880.00	20	QPSK	V	104	87	1 / 99	13.14	10.10	23.24	0.211	33.01	-9.77
1900.00	20	QPSK	V	109	85	1 / 0	13.21	10.26	23.47	0.222	33.01	-9.54
1900.00	20	16-QAM	V	109	85	1 / 0	12.49	10.26	22.75	0.188	33.01	-10.26
1908.50	3	QPSK	Н	110	243	1 / 0	13.21	10.18	23.39	0.218	33.01	-9.62

Table 7-8. EIRP Data (Band 2)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Ap Qu	proved by: uality Manager
Test Report S/N:	Test Dates:	EUT Type:	De	an 140 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Ра	ge 140 01 175
© 2020 PCTEST				V 9.0 02/01/2019



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 [Watts]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	Н	115	204	1 / 24	9.68	10.31	19.99	0.100	23.98	-3.99
2312.50	5	QPSK	Н	116	209	12/6	10.16	10.31	20.47	0.111	23.98	-3.51
2312.50	5	16-QAM	Н	116	209	12/6	9.17	10.31	19.48	0.089	23.98	-4.50
2310.00	10	QPSK	Н	121	202	1 / 49	10.83	10.31	21.14	0.130	23.98	-2.84
2310.00	10	16-QAM	Н	121	202	1 / 49	10.00	10.31	20.31	0.107	23.98	-3.67
2310.00	10	QPSK	V	191	252	1 / 49	10.54	10.22	20.76	0.119	23.98	-3.22

Table 7-9. EIRP Data (Band 30)

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 [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	н	128	240	1 / 0	9.71	9.43	19.14	0.082	33.01	-13.87
2535.00	5	QPSK	н	126	222	1 / 0	9.42	9.39	18.81	0.076	33.01	-14.20
2567.50	5	QPSK	н	125	239	1 / 24	10.97	9.45	20.42	0.110	33.01	-12.59
2567.50	5	16-QAM	н	125	239	1 / 0	9.96	9.45	19.41	0.087	33.01	-13.60
2505.00	10	QPSK	н	131	229	1 / 0	9.85	9.43	19.28	0.085	33.01	-13.73
2535.00	10	QPSK	н	122	222	1 / 0	9.60	9.39	18.99	0.079	33.01	-14.02
2565.00	10	QPSK	н	120	226	1 / 49	10.90	9.44	20.34	0.108	33.01	-12.67
2565.00	10	16-QAM	н	120	226	1 / 49	10.29	9.44	19.73	0.094	33.01	-13.28
2507.50	15	QPSK	н	119	233	1 / 0	9.55	9.42	18.97	0.079	33.01	-14.04
2535.00	15	QPSK	н	127	232	1 / 0	9.51	9.39	18.90	0.078	33.01	-14.11
2562.50	15	QPSK	н	118	229	1 / 74	10.81	9.43	20.24	0.106	33.01	-12.77
2562.50	15	16-QAM	н	118	229	1 / 74	10.39	9.43	19.82	0.096	33.01	-13.19
2510.00	20	QPSK	н	126	233	1 / 99	9.51	9.42	18.93	0.078	33.01	-14.08
2535.00	20	QPSK	н	121	224	1 / 99	9.38	9.39	18.77	0.075	33.01	-14.24
2560.00	20	QPSK	н	118	233	1 / 99	10.68	9.42	20.10	0.102	33.01	-12.91
2560.00	20	16-QAM	Н	118	233	1 / 99	9.86	9.42	19.28	0.085	33.01	-13.73
2567.50	5	QPSK	V	136	267	1 / 24	8.45	9.42	17.87	0.061	33.01	-15.14

Table 7-10. EIRP Data (Band 7)

FCC ID: ZNFK410WM	PCTEST Proud to be part of () element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 141 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 141 01 175
© 2020 PCTEST		·	V 9.0 02/01/2019



## 7.7 Radiated Spurious Emissions Measurements

### **Test Overview**

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using 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 v03r01 - Section 5.8

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

#### **Test Settings**

- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW  $\ge$  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

FCC ID: ZNFK410WM	PCTEST * Prous to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 142 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 142 01 175
© 2020 PCTEST			V 9.0 02/01/2019



## Test Setup



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.

FCC ID: ZNFK410WM	PCTEST Hous to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 142 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 143 01 175
© 2020 PCTEST			V 9.0 02/01/2019



# Band 12/17



Plot 7-222. Radiated Spurious Plot above 1GHz (Band 12/17)

70	4.00	MHz
QPSK	_	
10.0	MHz	
3	meters	
-13	_dBm	
	70. QPSK 10.0 3 -13	704.00   QPSK MHz   10.0 MHz   3 meters   -13 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]	Margin [dB]
1408.00	Н	186	149	-60.34	2.71	-57.62	-44.6
2112.00	Н	305	148	-58.28	3.57	-54.71	-41.7
2816.00	Н	318	315	-58.05	4.98	-53.07	-40.1
3520.00	Н	-	-	-55.79	6.33	-49.46	-36.5
4224.00	Н	-	-	-59.06	7.75	-51.30	-38.3
4928.00	Н	-	-	-58.52	8.56	-49.96	-37.0
5632.00	Н	-	-	-57.55	8.80	-48.75	-35.7
6336.00	Н	-	-	-55.85	9.01	-46.84	-33.8
7040.00	Н	-	-	-55.55	8.73	-46.82	-33.8

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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 111 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 144 01 175
© 2020 PCTEST			V 9.0 02/01/2019



OPERATING FREQUENCY:	70	7.50 MHz
MODULATION SIGNAL:	QPSK	_
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	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]	Margin [dB]
1415.00	Н	116	259	-60.74	2.80	-57.94	-44.9
2122.50	Н	186	173	-58.04	3.57	-54.46	-41.5
2830.00	Н	156	18	-57.42	5.02	-52.40	-39.4
3537.50	Н	136	291	-54.76	6.31	-48.45	-35.5
4245.00	Н	-	-	-59.75	7.80	-51.95	-38.9
4952.50	Н	-	-	-58.21	8.56	-49.64	-36.6

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

OPERATING FREQUENCY:

MODULATION SIGNAL:

BANDWIDTH:

QPSK 10.0 MHz DISTANCE: 3 meters LIMIT: -13 dBm

711.00

MHz

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]	Margin [dB]
1422.00	Н	398	343	-60.71	2.88	-57.83	-44.8
2133.00	Н	208	177	-57.12	3.58	-53.54	-40.5
2844.00	Н	302	130	-58.05	5.07	-52.98	-40.0
3555.00	Н	-	-	-55.00	6.31	-48.69	-35.7
4266.00	Н	-	-	-58.91	7.84	-51.07	-38.1
4977.00	Н	-	-	-57.69	8.56	-49.13	-36.1

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

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 145 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 145 01 175
© 2020 PCTEST	•	•	V 9.0 02/01/2019



# Band 13





77	79.50	MHz
QPSK		
5.0	MHz	
3	meters	
-13	dBm	
	77 QPSK 5.0 3 -13	779.50   QPSK   5.0 MHz   3 meters   -13 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]	Margin [dB]
2338.50	Н	185	89	-61.19	3.53	-57.66	-44.7
3118.00	Н	235	221	-58.34	4.00	-54.34	-41.3
3897.50	Н	336	79	-56.33	5.38	-50.95	-37.9
4677.00	Н	-	-	-57.84	7.09	-50.75	-37.7
5456.50	Н	-	-	-59.92	8.37	-51.55	-38.6
6236.00	Н	-	-	-57.11	8.73	-48.38	-35.4

Table 7-14. Radiated Spurious Data (Band 13 – Low Channel)

FCC ID: ZNFK410WM	Pctest *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 146 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 146 of 175	
© 2020 PCTEST			V 9.0 02/01/2019	



OPERATING FREQUENCY:	782	2.00 MHz
MODULATION SIGNAL:	QPSK	_
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	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]	Margin [dB]
2346.00	Н	264	316	-57.84	4.00	-53.84	-40.8
3128.00	Н	157	309	-56.02	5.38	-50.64	-37.6
3910.00	Н	173	63	-51.78	7.09	-44.69	-31.7
4692.00	Н	-	-	-57.55	8.37	-49.18	-36.2
5474.00	Н	-	-	-55.97	8.73	-47.24	-34.2
6256.00	Н	-	-	-56.04	9.00	-47.04	-34.0
7038.00	Н	-	-	-55.13	8.73	-46.40	-33.4

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

784.50

5.0

784.50

MHz

meters

MHz

OPERATING FREQUENCY:

MODULATION SIGNAL:

BANDWIDTH:

DISTANCE: 3

LIMIT: <u>-13</u>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]	Margin [dB]
2353.50	Н	354	175	-56.63	4.00	-52.63	-39.6
3138.00	Н	195	165	-56.27	5.38	-50.89	-37.9
3922.50	Н	202	354	-58.68	7.09	-51.59	-38.6
4707.00	Н	-	-	-58.73	8.37	-50.36	-37.4
5491.50	Н	-	-	-57.27	8.73	-48.54	-35.5
6276.00	Н	-	-	-55.85	9.00	-46.85	-33.8

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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 147 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 147 01 175
© 2020 PCTEST	•		V 9.0 02/01/2019



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

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]	Margin [dB]
1559.00	Н	169	147	-75.39	3.53	-71.86	-31.9
1564.00	Н	184	54	-74.97	3.53	-71.44	-31.4
1569.00	Н	398	52	-75.56	3.53	-72.03	-32.0

Table 7-17. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ clement	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 149 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 148 01 175
© 2020 PCTEST			V 9.0 02/01/2019



# Band 5





**OPERATING FREQUENCY:** 

ERATING FREQUENCY:	82	9.00	MHz
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	_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]	Margin [dB]
1658.00	Н	205	327	-59.61	3.61	-56.00	-43.0
2487.00	H	-	-	-57.55	4.25	-53.31	-40.3
3316.00	Н	-	-	-58.95	5.83	-53.13	-40.1
4145.00	Н	-	-	-60.14	7.66	-52.48	-39.5

Table 7-18. Radiated Spurious Data (Band 5 – Low Channel)

FCC ID: ZNFK410WM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 140 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 149 01 175
© 2020 PCTEST			V 9.0 02/01/2019



OPERATING FREQUENCY:	830	6.50 MHz	<u>′</u>
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	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]	Margin [dB]
1673.00	Н	113	341	-59.46	3.62	-55.84	-42.8
2509.50	Н	-	-	-56.80	4.33	-52.46	-39.5
3346.00	Н	-	-	-58.48	5.92	-52.56	-39.6
4182.50	Н	-	-	-59.38	7.69	-51.69	-38.7

Table 7-19. Radiated Spurious Data (Band 5 – Mid Channel)

OPERATING FREQUENCY:	84	MHz	
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	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]	Margin [dB]
1688.00	Н	211	-1	-59.35	3.63	-55.72	-42.7
2532.00	Н	-	-	-57.41	4.47	-52.94	-39.9
3376.00	Н	-	-	-58.42	6.05	-52.38	-39.4
4220.00	Н	-	-	-59.95	7.75	-52.20	-39.2

Table 7-20. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 150 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 150 01 175
© 2020 PCTEST			V 9.0 02/01/2019



# Band 66/4







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]	Margin [dB]
3440.00	Н	113	141	-68.20	6.22	-61.98	-49.0
5160.00	Н	-	-	-70.02	8.68	-61.35	-48.3
6880.00	Н	249	50	-68.85	8.76	-60.09	-47.1
8600.00	Н	-	-	-68.55	9.17	-59.38	-46.4
10320.00	Н	-	-	-65.33	9.64	-55.69	-42.7

Table 7-21. Radiated Spurious Data (Band 66/4 - Low Channel)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 151 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 151 01 175
© 2020 PCTEST			V 9.0 02/01/2019



OPERATING FREQUENCY:	1745.00		
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	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]	Margin [dB]
3490.00	Н	115	51	-67.51	6.32	-61.18	-48.2
5235.00	Н	-	-	-70.02	8.71	-61.30	-48.3
6980.00	Н	238	56	-68.37	8.74	-59.64	-46.6
8725.00	Н	-	-	-67.33	9.42	-57.92	-44.9
10470.00	Н	-	-	-64.69	9.62	-55.07	-42.1

Table 7-22. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:1770.00MHzMODULATION SIGNAL:QPSKBANDWIDTH:20.0MHzDISTANCE:3metersLIMIT:-13dBm

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]	Margin [dB]
3540.00	Н	114	54	-64.03	6.31	-57.72	-44.7
5310.00	Н	-	-	-70.70	8.74	-61.96	-49.0
7080.00	Н	-	-	-69.19	8.66	-60.53	-47.5
8850.00	Н	-	-	-67.38	9.53	-57.85	-44.8

Table 7-23. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 152 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	
© 2020 PCTEST			V 9.0 02/01/2019








OPERATING FREQUENCY:	186	MHz	
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	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]	Margin [dB]
3720.00	Н	117	152	-68.51	6.58	-61.93	-48.9
5580.00	Н	-	-	-69.54	8.74	-60.80	-47.8
7440.00	Н	-	-	-68.64	8.41	-60.22	-47.2

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

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 152 of 175		
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 153 01 175		
© 2020 PCTEST V 9.0 02/01/2019					



OPERATING FREQUENCY:	1880.00		
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	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]	Margin [dB]
3760.00	Н	109	199	-65.48	6.67	-58.81	-45.8
5640.00	Н	-	-	-70.57	8.81	-61.76	-48.8
7520.00	н	-	-	-68.79	8.48	-60.31	-47.3

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

1900.00

MHz

OPERATING FREQUENCY:

MODULATION SIGNAL:

ATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
	_	

DISTANCE: <u>3</u> meters LIMIT: <u>-13</u> 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]	Margin [dB]
3800.00	Н	109	359	-62.98	6.87	-56.11	-43.1
5700.00	Н	-	-	-70.92	8.76	-62.15	-49.2
7600.00	Н	-	-	-67.90	8.47	-59.43	-46.4

Table 7-26. Radiated Spurious Data (Band 2 – High Channel)

FCC ID: ZNFK410WM	PCTEST Prous to be part of element	MEASUREMENT REPORT (CERTIFICATION)	ì	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 154 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 154 01 175
© 2020 PCTEST				V 9.0 02/01/2019



# Band 30

-60

Frequency (MHz) Plot 7-228. Radiated Spurious Plot 18GHz - 26.5GHz (Band 30)



FCC ID: ZNFK410WM	PCTEST Prous to be part of the idensent	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 155 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 155 01 175
© 2020 PCTEST			V 9.0 02/01/2019



OPERATING FREQUENCY:	231	MHz	
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-40	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]	Margin [dB]
4620.00	Н	-	-	-72.71	8.26	-64.45	-24.4
6930.00	Н	127	91	-66.72	8.72	-58.00	-18.0
9240.00	Н	-	-	-69.46	9.49	-59.97	-20.0
11550.00	Н	-	-	-67.36	9.19	-58.17	-18.2

Table 7-27. Radiated Spurious Data (Band 30)

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 156 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 156 01 175
© 2020 PCTEST			V 9.0 02/01/2019



## Band 7



Plot 7-230. Radiated	Spurious	Plot 18GHz –	26.5GHz	(Band 7	')
----------------------	----------	--------------	---------	---------	----

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 157 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 157 01 175	
© 2020 PCTEST V 9.0 02/01/2019				



OPERATING FREQUENCY:	251	0.00 MHz	
MODULATION SIGNAL:	QPSK		
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-25	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]	Margin [dB]
5020.00	Н	-	-	-73.49	8.56	-64.92	-39.9
7530.00	Н	-	-	-69.78	8.46	-61.32	-36.3
10040.00	н	-	-	-69.77	9.85	-59.92	-34.9

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

2535.00

MHz

**OPERATING FREQUENCY:** 

MODULATION SIGNAL: **QPSK** BANDWIDTH: 20.0

MHz DISTANCE: 3 meters -25 LIMIT: dBm

Antenna Turntable Substitute Ant. Spurious Frequency Level at Antenna Margin **Emission Level** Pol. Height Azimuth Antenna Gain [MHz] Terminals [dBm] [dB] [H/V] [cm] [degree] [dBi] [dBm] 5070.00 Н -73.99 8.60 -65.39 -40.4 --7605.00 142 40 -69.73 8.48 -61.25 Н -36.3 --68.86 9.78 10140.00 Н --59.08 -34.1

Table 7-29. Radiated Spurious Data (Band 7 – Mid Channel)

FCC ID: ZNFK410WM	PCTEST Proud to be part of Sciencent	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 159 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 158 01 175
© 2020 PCTEST			V 9.0 02/01/2019



OPERATING FREQUENCY:	256	MHz	
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-25	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]	Margin [dB]
5120.00	Н	-	-	-73.08	8.66	-64.43	-39.4
7680.00	Н	-	-	-69.83	8.58	-61.26	-36.3
10240.00	н	-	-	-69.14	9.65	-59.49	-34.5

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

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ clement	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 150 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 159 01 175
© 2020 PCTEST			V 9.0 02/01/2019



## 7.8 Frequency Stability / Temperature Variation

### **Test Overview and Limit**

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

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

For Part 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, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### Test Procedure Used

ANSI/TIA-603-E-2016

#### Test Settings

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

#### Test Setup

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

#### Test Notes

None

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 160 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 160 01 175	
2 2020 PCTEST V 9.0 02/01/2019				



## **Band 12/17 Frequency Stability Measurements**

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	-
REFERENCE VOLTAGE:	4.39	VDC

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> (°С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	707,499,869	-131	-0.0000185
100 %		- 20	707,499,987	-13	-0.0000018
100 %		- 10	707,500,154	154	0.0000218
100 %		0	707,499,642	-358	-0.0000506
100 %		+ 10	707,499,881	-119	-0.0000168
100 %		+ 20	707,499,990	-10	-0.0000014
100 %		+ 30	707,499,889	-111	-0.0000157
100 %		+ 40	707,500,203	203	0.0000287
100 %		+ 50	707,500,064	64	0.0000090
BATT. ENDPOINT	3.48	+ 20	707,499,730	-270	-0.0000382

Table 7-31. Frequency Stability Data (Band 12/17)

## 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 in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFK410WM	PCTEST Prous to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 161 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 161 01 175
© 2020 PCTEST				V 9.0 02/01/2019







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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 162 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 162 01 175
© 2020 PCTEST			V 9.0 02/01/2019



## **Band 13 Frequency Stability Measurements**

OPERATING FREQUENCY:	782,000,000	Hz
CHANNEL:	23230	
REFERENCE VOLTAGE:	4.39	VDC

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> (°С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	781,999,800	-200	-0.0000256
100 %		- 20	781,999,730	-270	-0.0000345
100 %		- 10	782,000,111	111	0.0000142
100 %		0	781,999,951	-49	-0.0000063
100 %		+ 10	781,999,871	-129	-0.0000165
100 %		+ 20	782,000,013	13	0.0000017
100 %		+ 30	782,000,073	73	0.0000093
100 %		+ 40	782,000,079	79	0.0000101
100 %		+ 50	781,999,836	-164	-0.0000210
BATT. ENDPOINT	3.48	+ 20	782,000,298	298	0.0000381

Table 7-32. Frequency Stability Data (Band 13)

## 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 in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 162 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 163 01 175
© 2020 PCTEST			V 9.0 02/01/2019





**Band 13 Frequency Stability Measurements** 

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

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 104 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 164 01 175
© 2020 PCTEST			V 9.0 02/01/2019



## **Band 5 Frequency Stability Measurements**

 OPERATING FREQUENCY:
 836,500,000
 Hz

 CHANNEL:
 20525

 REFERENCE VOLTAGE:
 4.39
 VDC

 DEVIATION LIMIT:
 ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> (°С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	836,499,989	-11	-0.0000013
100 %		- 20	836,499,812	-188	-0.0000225
100 %		- 10	836,500,096	96	0.0000115
100 %		0	836,499,936	-64	-0.0000077
100 %		+ 10	836,500,184	184	0.0000220
100 %		+ 20	836,500,260	260	0.0000311
100 %		+ 30	836,500,255	255	0.0000305
100 %		+ 40	836,500,142	142	0.0000170
100 %		+ 50	836,500,165	165	0.0000197
BATT. ENDPOINT	3.48	+ 20	836,500,308	308	0.0000368

Table 7-33. Frequency Stability Data (Band 5)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 105 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 165 01 175
© 2020 PCTEST			V 9.0 02/01/2019





**Band 5 Frequency Stability Measurements** 

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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 100 01 175
© 2020 PCTEST V 9.0 02/01/2019			



## **Band 66/4 Frequency Stability Measurements**

OPERATING FREQUENCY:	1,745,000,000	Hz
CHANNEL:	132322	_
REFERENCE VOLTAGE:	4.39	VDC

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> (°С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	1,745,000,336	336	0.0000193
100 %		- 20	1,745,000,337	337	0.0000193
100 %		- 10	1,745,000,009	9	0.0000005
100 %		0	1,744,999,967	-33	-0.0000019
100 %		+ 10	1,744,999,746	-254	-0.0000146
100 %		+ 20	1,745,000,025	25	0.0000014
100 %		+ 30	1,745,000,183	183	0.0000105
100 %		+ 40	1,745,000,024	24	0.0000014
100 %		+ 50	1,744,999,960	-40	-0.0000023
BATT. ENDPOINT	3.48	+ 20	1,745,000,123	123	0.0000070

Table 7-34. Frequency Stability Data (Band 66/4)

## Note:

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

FCC ID: ZNFK410WM	PCTEST Proud to be part of () element	MEASUREMENT REPORT (CERTIFICATION)	ì	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 167 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 167 01 175
© 2020 PCTEST				V 9.0 02/01/2019





# **Band 66/4 Frequency Stability Measurements**

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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 100 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 168 01 175
© 2020 PCTEST			V 9.0 02/01/2019



## **Band 2 Frequency Stability Measurements**

 OPERATING FREQUENCY:
 1,880,000,000
 Hz

 CHANNEL:
 18900

 REFERENCE VOLTAGE:
 4.39
 VDC

 DEVIATION LIMIT:
 ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> (°С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	1,880,000,057	57	0.0000030
100 %		- 20	1,879,999,577	-423	-0.0000225
100 %		- 10	1,880,000,077	77	0.0000041
100 %		0	1,880,000,248	248	0.0000132
100 %		+ 10	1,880,000,044	44	0.0000023
100 %		+ 20	1,879,999,984	-16	-0.0000009
100 %		+ 30	1,879,999,950	-50	-0.0000027
100 %		+ 40	1,879,999,700	-300	-0.0000160
100 %		+ 50	1,880,000,362	362	0.0000193
BATT. ENDPOINT	3.48	+ 20	1,880,000,182	182	0.0000097

Table 7-35. Frequency Stability Data (Band 2)

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 160 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 169 01 175
© 2020 PCTEST			V 9.0 02/01/2019





**Band 2 Frequency Stability Measurements** 

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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 170 of 175	
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 170 01 175	
© 2020 PCTEST V 9.0 02/01/2019				



## **Band 30 Frequency Stability Measurements**

OPERATING FREQUENCY:	2,310,000,000	Hz
CHANNEL:	27710	_
REFERENCE VOLTAGE:	4.39	VDC

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> (°С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	2,309,999,927	-73	-0.0000032
100 %		- 20	2,310,000,328	328	0.0000142
100 %		- 10	2,310,000,320	320	0.0000139
100 %		0	2,310,000,230	230	0.0000100
100 %		+ 10	2,309,999,822	-178	-0.0000077
100 %		+ 20	2,309,999,903	-97	-0.0000042
100 %		+ 30	2,310,000,101	101	0.0000044
100 %		+ 40	2,309,999,992	-8	-0.0000003
100 %		+ 50	2,310,000,068	68	0.0000029
BATT. ENDPOINT	3.48	+ 20	2,309,999,696	-304	-0.0000132

Table 7-36. 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 in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 171 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 171 01 175
© 2020 PCTEST			V 9.0 02/01/2019





# **Band 30 Frequency Stability Measurements**

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

FCC ID: ZNFK410WM	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	ì	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 170 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 172 01 175
© 2020 PCTEST				V 9.0 02/01/2019



# **Band 7 Frequency Stability Measurements**

OPERATING FREQUENCY:	2,535,000,000	Hz
CHANNEL:	21100	_
REFERENCE VOLTAGE:	4.39	VDC

VOLTAGE (%)	POWER (VDC)	<b>ТЕМР</b> (°С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	2,535,000,198	198	0.0000078
100 %		- 20	2,535,000,066	66	0.0000026
100 %		- 10	2,535,000,417	417	0.0000164
100 %		0	2,534,999,973	-27	-0.0000011
100 %		+ 10	2,534,999,777	-223	-0.0000088
100 %		+ 20	2,535,000,117	117	0.0000046
100 %		+ 30	2,534,999,648	-352	-0.0000139
100 %		+ 40	2,534,999,803	-197	-0.0000078
100 %		+ 50	2,534,999,861	-139	-0.0000055
BATT. ENDPOINT	3.48	+ 20	2,534,999,964	-36	-0.0000014

Table 7-37. 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 in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFK410WM	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 172 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 173 01 175
© 2020 PCTEST			V 9.0 02/01/2019





# **Band 7 Frequency Stability Measurements**

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

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 174 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset	Page 174 01 175
© 2020 PCTEST			V 9.0 02/01/2019



# 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFK410WM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: ZNFK410WM	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 175 of 175
1M2001290013-03.ZNF	02/03 - 03/06/2020	Portable Handset		Page 175 01 175
© 2020 PCTEST				V 9.0 02/01/2019