

7.3 Spurious and Harmonic Emissions at Antenna Terminal §2.1051 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h) §27.53(m) §27.53(a)(4)

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

For Band 30, the minimum permissible attenuation level of any spurious emission <2288MHz and >2365MHz is 70 + log10(P[Watts]).

For Band 7, 38, and 41, the minimum permissible attenuation level of any spurious emission is $55 + \log_{10}(P_{[Watts]})$.

Test Procedure Used

KDB 971168 D01 v03 – Section 6.0

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 4. Sweep time = auto couple
- 5. The trace was allowed to stabilize
- 6. Please see test notes below for RBW and VBW settings

Test Setup

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

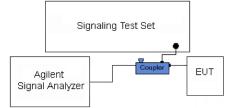


Figure 7-2. Test Instrument & Measurement Setup

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 94 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 84 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



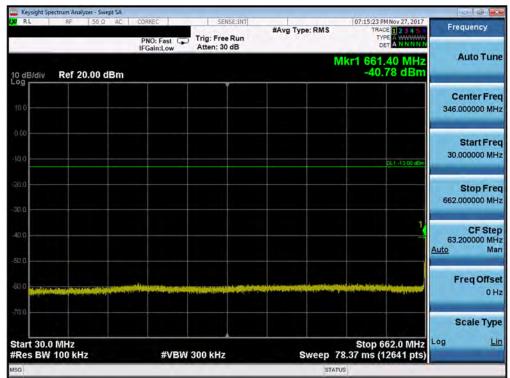
Test Notes

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

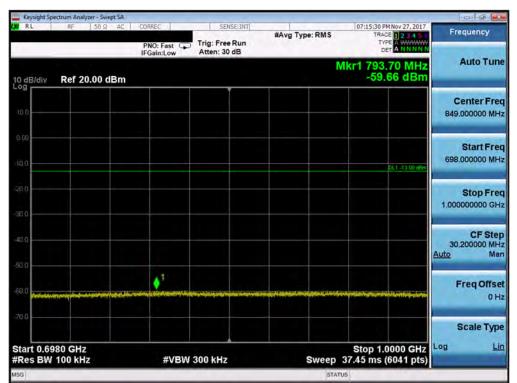
FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 85 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 85 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



Band 71



Plot 7-130. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-131. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

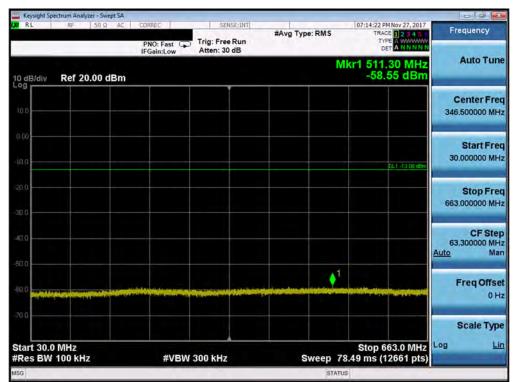
FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 86 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 86 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			

V 7.1 10/25/2017



Keysight Spectrum Analyzer - Swept SA				the second second second	- 6 -×
	PNO: Fast	SENSE:INT Trig: Free Run Atten: 30 dB	#Avg Type: RMS	07:15:43 PM Nov 27, 2017 TRACE 2 3 4 5.6 TYPE A W100000 DET A NNNNN	Frequency
10 dB/div Ref 20.00 dBm			М	kr1 9.354 0 GHz -43.63 dBm	Auto Tuni
10.0					Center Free 5.500000000 GH
0 00 10 0				DL1-13,00 dBm	Start Fre 1.000000000 GH
20.0					Stop Fre 10.000000000 GH
		-			CF Ste 900.000000 MH Auto Ma
50 0					Freq Offse 0 F
700 Start 1.000 GHz				SLUD 10.000 GHZ	Scale Typ
#Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 1	5.60 ms (18001 pts)	

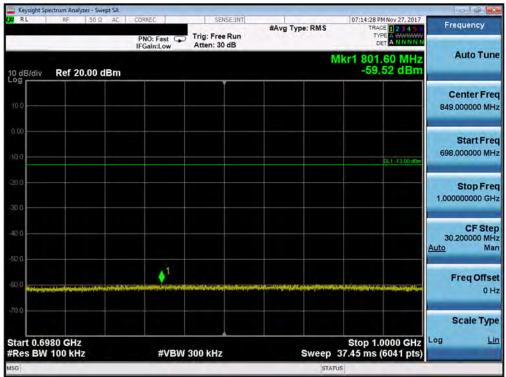
Plot 7-132. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-133. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 97 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 87 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			





Plot 7-134. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



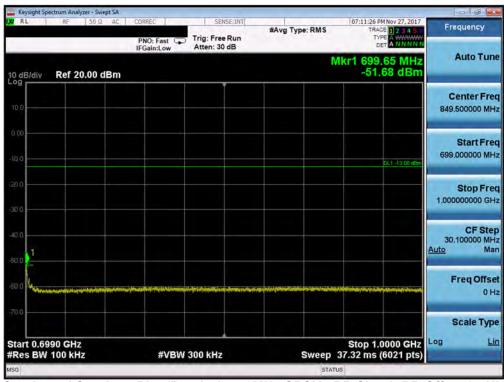
Plot 7-135. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 99 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 88 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			





Plot 7-136. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-137. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 90 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 89 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



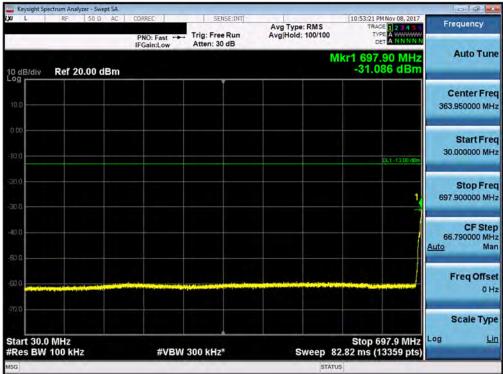
Keysight Spectrum Analyzer - Swept				A second s	- 6 ×
XI RL RF 50Ω	AC CORREC PNO: Fast	SENSE:INT Trig: Free Run Atten: 30 dB	#Avg Type: RMS	07:11:46 PM Nov 27, 2017 TRACE 1 2 3 4 5.6 TYPE A WWWWW DET A NNNNN	Frequency
10 dB/div Ref 20.00 dB	m		М	kr1 9.450 5 GHz -43.14 dBm	Auto Tune
10.0					Center Fred 5.500000000 GHz
10.0				0L1 -13.00 dBm	Start Fred 1.000000000 GHz
30.0					Stop Fred 10.000000000 GH;
	and the second second second	-			CF Step 900.000000 MH Auto Mar
60.0					Freq Offset 0 Ha
30.0 Start 1.000 GHz				Stop 10.000 GHZ	Scale Type
#Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 1	5.60 ms (18001 pts)	
SG			STATU	IS	

Plot 7-138. Conducted Spurious Plot (Band 71 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

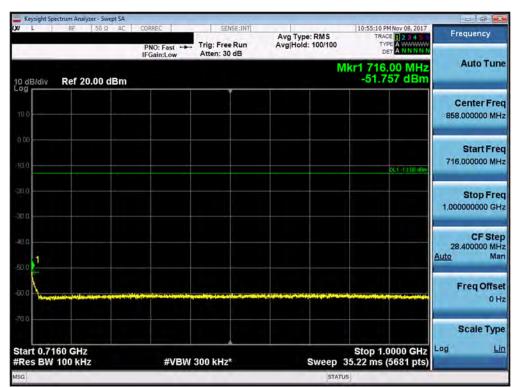
FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dege 00 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 90 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



Band 12/17



Plot 7-139. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



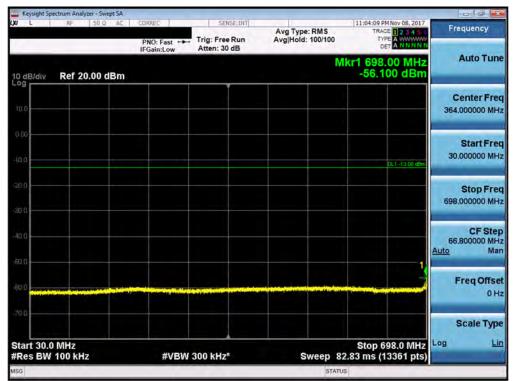
Plot 7-140. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 01 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 91 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



Keysight Spectrum Analyzer - Swept SA	-	-			- 6 ×
XIL RF 50Ω AC	PNO: Fast	SENSE:INT Trig: Free Run Atten: 30 dB	Avg Type: RMS Avg[Hold: 100/100	11:05:41 PM Nov 08, 2017 TRACE 1 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 20.00 dBm			M	43.520 dBm	Auto Tun
10.0					Center Free 5.500000000 GH
10 0				DL1-13.00 dBn	Start Free 1.000000000 GH
20.0					Stop Fre 10.000000000 GH
40 0				¹	CF Ste 900.000000 MH <u>Auto</u> Ma
50 C					Freq Offse 0 H
700 Start 1.000 GHz				SLUD 10.000 GHZ	Scale Typ
#Res BW 1.0 MHz	#VBW 3	3.0 MHz*	Sweep 15	i.60 ms (18001 pts)	

Plot 7-141. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-142. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 02 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 92 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



Keysight Spectrum Analyzer - Swept		SENSE:INT		11:03:04 PM Nov 08, 2017	- 6 ×
	PNO: Fast		Avg Type: RMS Avg Hold: 100/100	TRACE 2 2 3 4 5 5 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 20.00 dB	m		М	kr1 716.10 MHz -57.271 dBm	Auto Tune
10.0					Center Free 858.000000 MH
100				DL1 -13 00 dBm	Start Free 716.000000 MH
an a					Stop Fre 1.000000000 GH
υα 					CF Ste 28.400000 MH Auto Ma
ie a Manusidentinia generation	an a	A bell system a floor of the system and	uranyaa aqoonda kuugu kuya aya	and a state of the	Freq Offse 0 H
700 Start 0.7160 GHz Res BW 100 kHz	#VBW	300 kHz*	Sween 3	Stop 1.0000 GHz 5.22 ms (5681 pts)	Scale Typ Log <u>Li</u>
sg			STATUS		

Plot 7-143. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



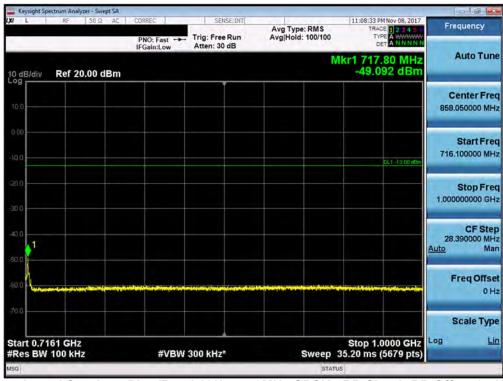
Plot 7-144. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 02 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 93 of 295
© 2018 PCTEST Engineering Labo	ratory, Inc.	•		V 7.1 10/25/2017



Keysight Spectrum Analyzer - Swept S		L orner urd			- 6 - 2
X/L RF 50Ω A	C CORREC PNO: Fast	SENSE:INT Trig: Free Run Atten: 30 dB	Avg Type: RMS Avg Hold: 100/100	11:09:21 PM Nov 08, 2017 TRACE 1 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
IO dB/div Ref 20.00 dBr			M	kr1 696.25 MHz -58.780 dBm	Auto Tun
10.0					Center Free 364.000000 MH
ο co jα 0				0L1 -13:00 dBm	Start Fre 30.000000 MH
an 0 30.0					Stop Fre 698.000000 MH
10 0					CF Ste 66.800000 MH Auto Ma
0.0				1	Freq Offs 0 H
70.0 Start 30.0 MHz Res BW 100 kHz	#)/BW	300 kHz*	Swoon - 92	Stop 098.0 Minz	Scale Typ
	#VBVV	300 KH2	Sweep 82	.83 ms (13361 pts)	

Plot 7-145. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-146. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 04 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 94 of 295	
© 2018 PCTEST Engineering Labo	2018 PCTEST Engineering Laboratory, Inc.				





Plot 7-147. Conducted Spurious Plot (Band 12/17 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 05 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 95 of 295
© 2018 PCTEST Engineering Labo	ratory. Inc.			V 7.1 10/25/2017



Band 13

Image: NFE PNO: Fast Trig: Free Run Atten: 30 dB Trag: Free Run Det Atten: 777.00 MHz -277.65 dBm Auto Tu 10 dB/div Ref 20.00 dBm Center F 403.500000 M 403.500000 M 30.00000 M 30.0000 M 30.00	RL	Spectrum A		DC	CORREC		SEM	ISE:INT			08:45:04 P	M Nov 21, 2017	-	- 4
Mikit / 77.000 Mikit Odd/dv Ref 20.00 dBm -27.65 dBm 00 -27.65 dBm -27.65 dBm 0100 -27.65 dBm -27.65 dBm 020 -27.65 dBm				NFE	PNO: IFGair	Fast G			#Avg Typ	e: RMS	TRA	CE 1 2 3 4 5 1	Fre	quency
100 Center F 100 Conter F <th></th> <th>Ref</th> <th>20.00 (</th> <th>dBm</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>N</th> <th></th> <th></th> <th></th> <th>Auto Tun</th>		Ref	20.00 (dBm						N				Auto Tun
Start Fi 100 0.1.1300.000 100 <														
30 0 1 Stop F 777.00000 M 2 2 80 0 2 2 80 0 2 2 50 0 2 2 50 0 2 2 50 0 2 2												0L1 -13:00 dBm		Start Fre
200 0 74.700000 M 50 0 Freq Off 60 0 Freq Off 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0												1		Stop Fre
ER O Freq Off White any investigation of the second state of the s														CF Ste 700000 MH Ma
			interestation	and the second						Antoine ministre	winstead	-	F	req Offs 0 H
	70.0												S	cale Typ
Start 30.0 MHz Stop 777.0 MHz Log Res BW 100 kHz #VBW 300 kHz Sweep 35.86 ms (14941 pts)						#VBW	300 kHz		s	weep 3	Stop 7 5.86 ms (1	77.0 MHz 4941 pts)	1000	L

Plot 7-148. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

	CORREC	SENSE:INT	#Avg Type: RMS	08:45:09 PM Nov 21, 2017 TRACE 1 2 3 4 5 6 TYPE A	Frequency
NFE	PNO: Fast 😱 IFGain:Low	Atten: 30 dB	N	Ikr1 787.00 MHz	Auto Tuni
O dB/div Ref 20.00 dBm				-25.52 dBm	
10.0					Center Fre 893.500000 MH
10.0				0(1-13(0 dBm	Start Fre 787.000000 MH
20.0 - 1					Stop Fre 1.000000000 GH
46 0					CF Ste 21.300000 MH Auto Ma
60.0		My68/mily12/purs/pilling/s/MMM/ANJ/Pation	and the state of the	Ngaan tura di palani katani mara pat	Freq Offse 0 H
70.0					Scale Typ
Start 0.7870 GHz #Res BW 100 kHz	#VBW	300 kHz	Sweep	Stop 1.0000 GHz 10.22 ms (4261 pts)	Log <u>Li</u>

Plot 7-149. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 06 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset	Page 96 of 295
© 2019 DOTEST Engineering Labo	roton/ Inc		V 7 1 10/25/2017

V 7.1 10/25/2017



Keysight Spectrum Analyzer - Swept SA					- 5 ×
RL RF 50Ω DO		SENSE:INT Trig: Free Run #Atten: 30 dB	#Avg Type: RMS	08:45:26 PM Nov 21, 2017 TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 10.00 dBn			м	kr1 9.762 0 GHz -41.11 dBm	Auto Tun
0.00					Center Free 5.500000000 GH
20.0				DL1 -13 00 dBm	Start Fre 1.000000000 GH
30 0				1	Stop Fre 10.000000000 GH
					CF Ste 900.000000 MH <u>Auto</u> Ma
70.0.					Freq Offse 0 H
Start 1.000 GHz Res BW 1.0 MHz	#\/B\//	3.0 MHz	Swoon 1	Stop 10.000 GHz 5.60 ms (18001 pts)	Scale Type
SG	#VDVV	5.0 WINZ	Sweep		

Plot 7-150. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

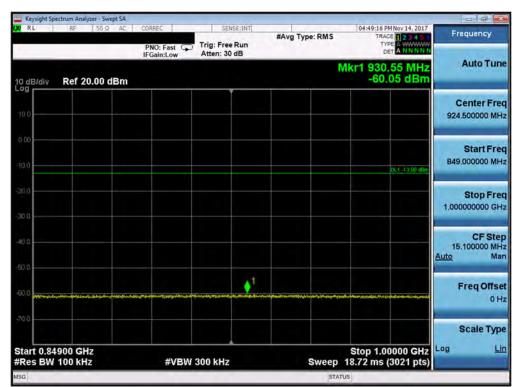
FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 07 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 97 of 295
© 2018 PCTEST Engineering Labo	ratory. Inc.			V 7.1 10/25/2017



Band 26/5



Plot 7-151. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



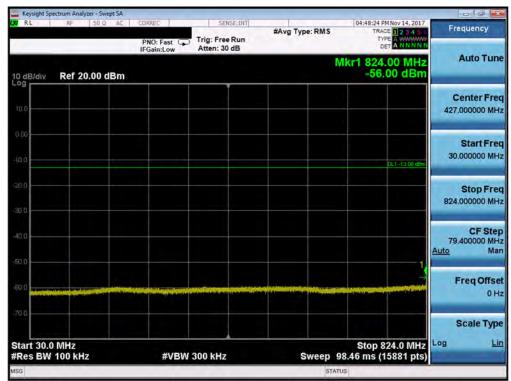
Plot 7-152. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dage 09 of 205		
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 98 of 295		
© 2018 PCTEST Engineering Labo	2018 PCTEST Engineering Laboratory, Inc.					





Plot 7-153. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-154. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dame 00 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset	Page 99 of 295
© 2018 PCTEST Engineering Labor	ratory, Inc.	·	V 7.1 10/25/2017



Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω A		SENSE:INT		04:48:29 PM Nov 14, 2017	
	PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 0 TYPE A WWWWW DET A NNNNN	Frequency
10 dB/div Ref 20.00 dBn	n		M	lkr1 849.40 MHz -59.62 dBm	Auto Tune
10.0					Center Free 924.500000 MH
0.00 10.0				DL1 -13 00 dBm	Start Free 849.000000 MH
30.0					Stop Fre 1.000000000 GH
40 G					CF Ste 15.100000 MH Auto Ma
50 0 1		angaran Manghathiyaraa	₩₩₩₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽	96 - 1969 - 1974 - 1989 - 1980 - 1980 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1	Freq Offse 0 H
70.0 Start 0.84900 GHz #Res BW 100 kHz	#)(P)//	300 kHz	Sugar	Stop 1.00000 GHZ	Scale Type
	#VBW	500 KH2	Sweep	18.72 ms (3021 pts)	

Plot 7-155. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



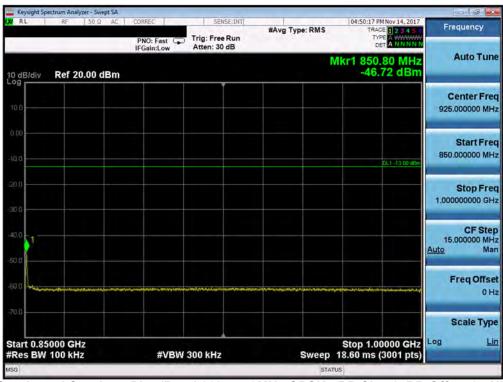
Plot 7-156. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 100 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 100 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



Keysight Spectrum Analyzer - Swept SA					- 6 -
KI RF 50Ω A	PNO: Fast	SENSE:INT Trig: Free Run Atten: 30 dB	#Avg Type: RMS	04:50:06 PM Nov 14, 2017 TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 20.00 dBn	n		M	kr1 814.55 MHz -58.70 dBm	Auto Tun
10.0					Center Fre 427.000000 MH
0.00 10.0				DL1 -13 00 dBm	Start Fre 30.000000 MH
80.0					Stop Fre 824.000000 MH
ю с					CF Ste 79.400000 MH Auto Ma
					Freq Offs 0 F
5tart 30.0 MHz Res BW 100 kHz	#\/B\M	300 kHz	Swaan Di	Stop 824.0 MHz 8.46 ms (15881 pts)	Scale Typ Log <u>L</u>
SG	# 4 B 44	500 MHZ	SWEEP S		

Plot 7-157. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-158. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 101 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 101 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				





Plot 7-159. Conducted Spurious Plot (Band 26/5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 102 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 102 of 295	
© 2018 PCTEST Engineering Labo	ratory. Inc.			V 7.1 10/25/2017	



Band 66/4

Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	CORREC	SENSE:INT		04:53:20 PM Dec 04, 2017	
NG 12 30.32 PG	PNO: Fast	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 N TYPE A WWWW DET A NNNNN	Frequency
O dB/div Ref 20.00 dBm			N	lkr1 1.709 0 GHz -30.93 dBm	Auto Tun
10.0					Center Fre 869.500000 MH
a.oo				0L1 -13 00 dBm	Start Fre 30.000000 MH
no				1	Stop Fre 1.709000000 GI
0.0			and the second designed of the second designed of the second designed des		CF Ste 167.900000 MI Auto M
0.0					Freq Offs 01
tart 0.0300 GHz				Stop 1.7090 GHz	Scale Typ Log <u>L</u>
Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep	2.239 ms (3359 pts)	

Plot 7-160. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-161. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 103 of 295
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset	andset	
© 2018 PCTEST Engineering Labor	V 7.1 10/25/2017			



Keysight Spectrum Analyzer - Swept SA					X
RL RF 50 Q AC	PNO: Fast	SENSE:INT Trig: Free Run Atten: 10 dB	#Avg Type: RMS	04:53:51 PM Dec 04, 2017 TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 0.00 dBm			Mk	1 16.992 5 GHz -57.69 dBm	Auto Tun
(0,0				DL1 -13,00 dBm	Center Fre 15.000000000 GH
200					Start Fre 10.000000000 GH
10 0					Stop Fre 20.000000000 GH
00				~_~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	CF Ste 1.000000000 GF <u>Auto</u> Ma
20.0					Freq Offs 0 F
tart 10.000 GHz Res BW 1.0 MHz	#\/P\W	3.0 MHz		Stop 20.000 GHz 5.33 ms (20001 pts)	Scale Typ

Plot 7-162. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



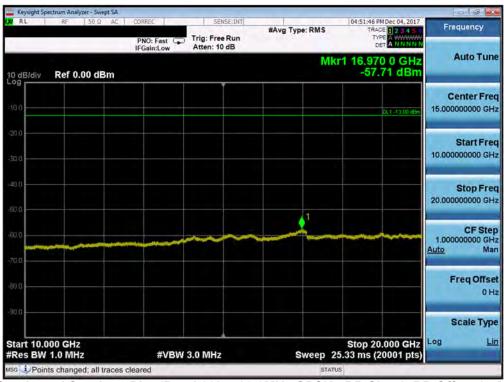
Plot 7-163. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	NG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 104 of 295
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			





Plot 7-164. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



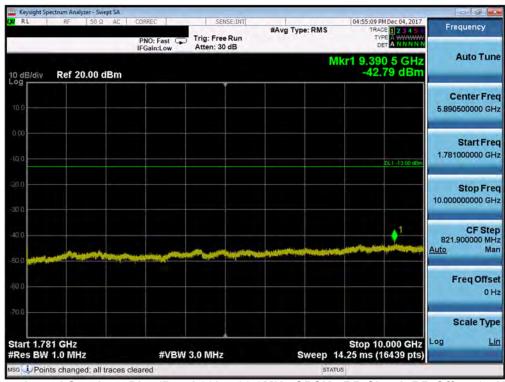
Plot 7-165. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 105 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 105 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



- 6 - 2					Keysight Spectrum Ar
Frequency	04:55:02 PM Dec 04, 2017 TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	#Avg Type: RMS	SENSE:INT Trig: Free Run Atten: 30 dB	S0 Ω AC CORREC PNO: Fast IFGain:Low	X RL RF
Auto Tune	kr1 1.699 0 GHz -47.94 dBm	М		0.00 dBm	10 dB/div Ref
Center Fred 870.000000 MHz					10.0
Start Free 30.000000 MH2	0L1 -13 00 dBm				ο.co :iù 0
Stop Fred 1.710000000 GH2					-30.0
CF Step 168.000000 MH: Auto Mar	1				-40.0
Freq Offse 0 Ha				an a	.60.0
Scale Type Log <u>Lin</u>	Stop 1.7100 GHz 2.240 ms (3361 pts)	Sweep	3.0 MHz		Start 0.0300 GH#Res BW 1.0 M
		STAT			MSG

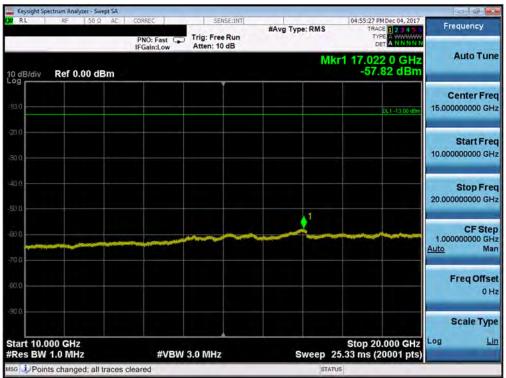
Plot 7-166. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-167. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 106 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 106 of 295	
© 2018 PCTEST Engineering Labor	V 7.1 10/25/2017				





Plot 7-168. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 107 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 107 of 295
2018 PCTEST Engineering Laboratory. Inc.			V 7.1 10/25/2017	



Band 25/2

Keysight Spectrum Analyzer - Swept SA				- 4
RL RF 50Ω AC	PNO: Fast IFGain:Low Atten: 30 dB	#Avg Type: RMS	12:59:02 AM Nov 15, 2017 TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 20.00 dBm	Position Contraction	M	kr1 1.849 0 GHz -25.31 dBm	Auto Tun
10.0				Center Fre 939.500000 MH
10.00			0(.1 -13.00 dBm	Start Fre 30.000000 MH
30.0			1	Stop Fre 1.849000000 GH
10.0		المراجع		CF Ste 181.900000 Mi Auto Mi
30.0				Freq Offs 0 F
70.0 Start 0.0300 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 2	Stop 1.8490 GHz 2.425 ms (3639 pts)	Scale Typ
SG		STATU		

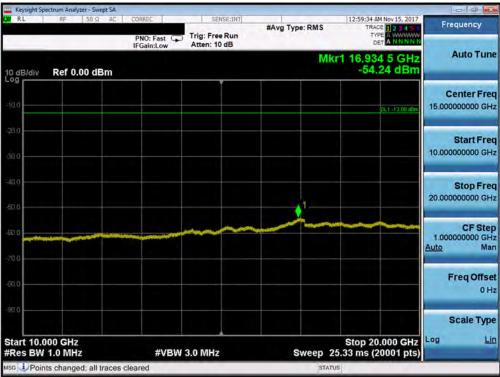
Plot 7-169. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



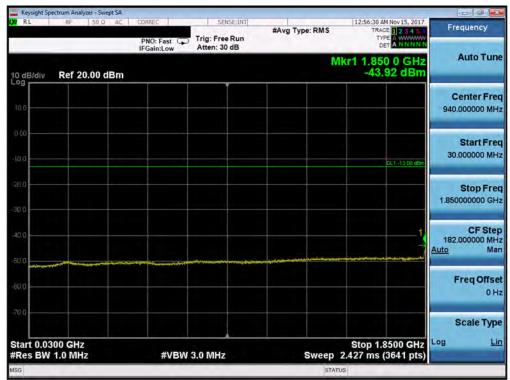
Plot 7-170. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 109 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 108 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-171. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



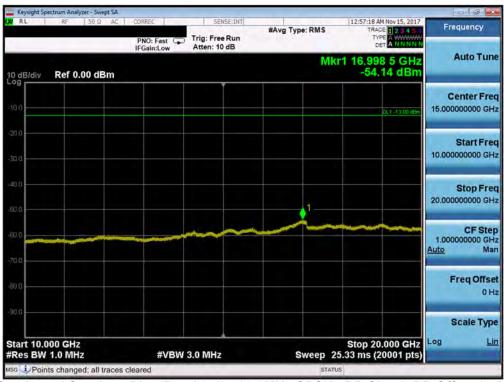
Plot 7-172. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 100 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 109 of 295
2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-173. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-174. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 110 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 110 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017



- 6 - 2				ectrum Analyzer - Swept SA	
Frequency	01:00:06 AM Nov 15, 2017 TRACE 2 3 4 5 6 TYPE A HANNAN DET A NNNNN	#Avg Type: RMS	SENSE:INT Trig: Free Run Atten: 30 dB	RF 50 Q AC CORREC	XI RL RF
Auto Tune	kr1 1.847 5 GHz -47.79 dBm	M		Ref 20.00 dBm	10 dB/div Ref 2
Center Freq 940.000000 MHz					100
Start Freq 30.000000 MHz	DL1 -13 00 dBm				0.00 -10.0
Stop Fred 1.850000000 GHz					30.0
CF Step 182.000000 MH2 Auto Mar	1				40.0
Freq Offse 0 Ha				galagan (1994 kanaya Ayungan antara (1990 and 1990 and 19	60,0
Scale Type Log <u>Lin</u>	Stop 1.8500 GHz 2.427 ms (3641 pts)	Sweep	3.0 MHz		Start 0.0300 GH
		STAT			ISG

Plot 7-175. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-176. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 111 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 111 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			





Plot 7-177. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 112 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 112 of 295
2018 PCTEST Engineering Laboratory. Inc.			V 7.1 10/25/2017	



Band 30 – Antenna A



Plot 7-178. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna A)



Plot 7-179. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna A)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 112 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 113 of 295
0 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-180. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna A)



Plot 7-181. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna A)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 114 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 114 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-182. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna A)



Plot 7-183. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna A)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 115 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 115 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017



Band 30 – Antenna B



Plot 7-184. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna B)



Plot 7-185. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna B)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 116 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 116 of 295
2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-186. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna B)



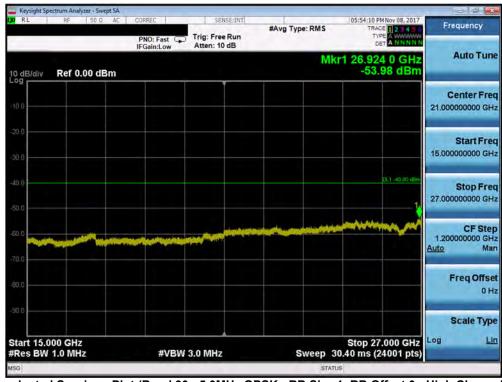
Plot 7-187. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna B)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 117 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 117 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-188. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna B)



Plot 7-189. Conducted Spurious Plot (Band 30 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna B)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 119 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 118 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017



Band 7 – Antenna A



Plot 7-190. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna A)



Plot 7-191. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - Antenna A)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 119 of 295
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			





Plot 7-192. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna A)



Plot 7-193. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Antenna A)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 120 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 120 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-194. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - Antenna A)



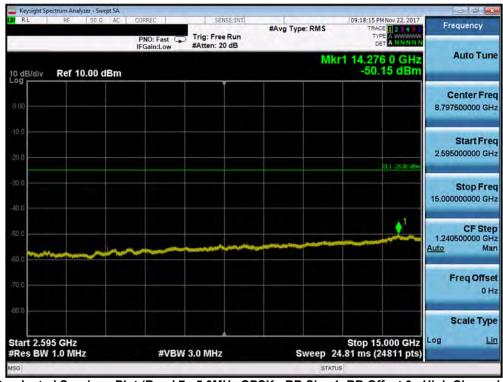
Plot 7-195. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Antenna A)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 101 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 121 of 295
2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017



Keysight Spectrum Analyzer - Swept S			the second second second	- 8 ×
χ RL RF S0.Ω A	PNO: Fast 😱 Trig: Free Run	#Avg Type: RMS	09:17:56 PM Nov 22, 2017 TRACE 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
10 dB/div Ref 10.00 dBr	in Guineon	M	lkr1 2.144 5 GHz -57.31 dBm	Auto Tune
000				Center Freq 1.265000000 GHz
20.0			0L1-25.00 65m	Start Free 30.000000 MHz
30.0				Stop Free 2.500000000 GH:
50.0		and an a start of the	1	CF Step 247.000000 MH: Auto Mar
70.0				Freq Offse 0 H
80 0 Start 0.030 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	Sween	Stop 2.500 GHz 3.293 ms (4941 pts)	Scale Type Log <u>Lin</u>
ISG		STAT		

Plot 7-196. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Antenna A)



Plot 7-197. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna A)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 102 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset	Page 122 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017		





Plot 7-198. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Antenna A)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 102 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 123 of 295
2018 PCTEST Engineering Laboratory. Inc.				V 7.1 10/25/2017



Band 7 – Antenna B



Plot 7-199. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna B)



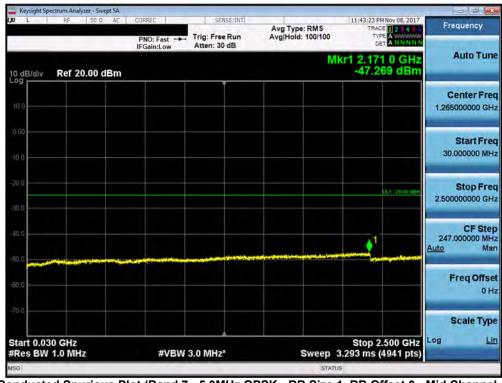
Plot 7-200. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna B)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 124 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 124 of 295
2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-201. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Antenna B)



Plot 7-202. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Antenna B)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 125 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 125 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017





Plot 7-203. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - Antenna B)



Plot 7-204. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Antenna B)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 126 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 126 of 295
2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017



L RF 50 Ω AC	CORREC SENSE:INT		11:48:30 PM Nov 08, 2017	and the second second
	PNO: Fast Trig: Free Run IFGain:Low Atten: 30 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
0 dB/div Ref 20.00 dBm	irgain:Low Atten: 50 dB	M	r1 2.133 0 GHz -47.100 dBm	Auto Tune
og				Center Fred 1.265000000 GHz
0.0				Start Free 30,000000 MH:
ου 			Ct. 1 -25 00 48m	Stop Free 2.500000000 GH:
10 0			•1	CF Ster 247.000000 MH Auto Mar
0.0				Freq Offse 0 H
tart 0.030 GHz			Stop 2.300 GHZ	Scale Type
Res BW 1.0 MHz	#VBW 3.0 MHz*	Sweep 3	.293 ms (4941 pts)	

Plot 7-205. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Antenna B)



Plot 7-206. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna B)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 107 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 127 of 295
© 2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017



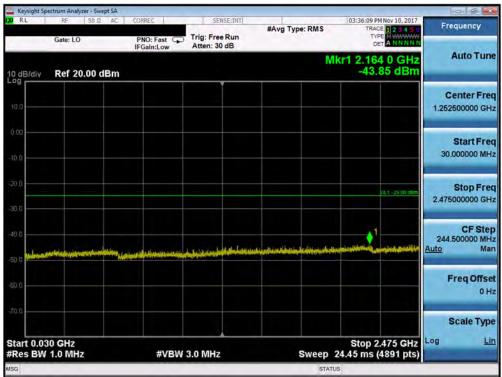


Plot 7-207. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Antenna B)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 129 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 128 of 295
2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017



Band 41



Plot 7-208. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



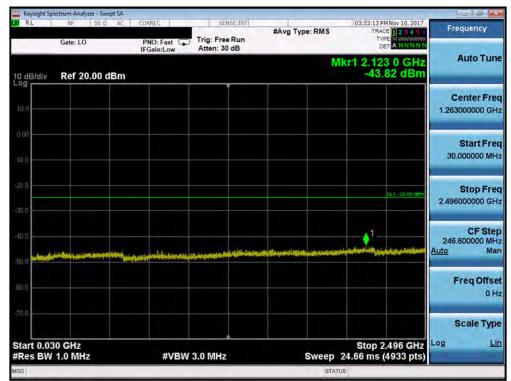
Plot 7-209. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 120 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 129 of 295
2018 PCTEST Engineering Laboratory, Inc.				V 7.1 10/25/2017



- 6 S					m Analyzer - Swept SA	
Frequency	03:48:48 PM Nov 10, 2017 TRACE 1 2 3 4 5 6 TYPE MWWWW DET A N N N N	#Avg Type: RMS	SENSE:INT Trig: Free Run Atten: 10 dB	PNO: Fast	RF 50.Ω AC]	RL
Auto Tune	1 26.892 5 GHz -49.12 dBm	Mki		in Gam. Low	ef 0.00 dBm	0 dB/div
Center Freq 21.000000000 GHz						10.0
Start Fred 15.00000000 GH;	01.1 -25.00 dBm					20.0
Stop Free 27.000000000 GH	and a man and					10 0 50.0
CF Ster 1.200000000 GH Auto Mar			and the second second second			50.0
Freq Offse 0 H						30.0
Scale Type Log <u>Lir</u>	Stop 27.000 GHz \$0.0 ms (24001 pts)	Sween 24	3.0 MHz	#VBW :		tart 15.0
		STATU				SG

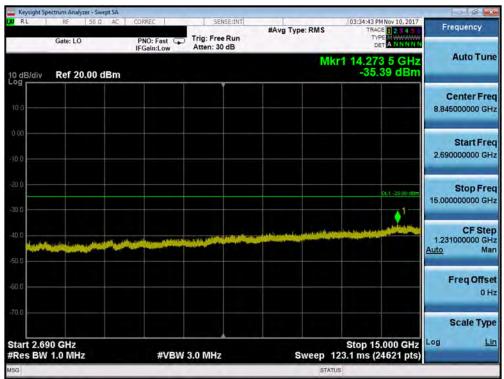
Plot 7-210. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-211. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 120 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset	Page 130 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017		





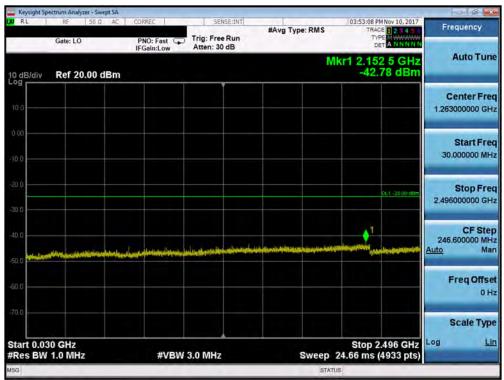
Plot 7-212. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



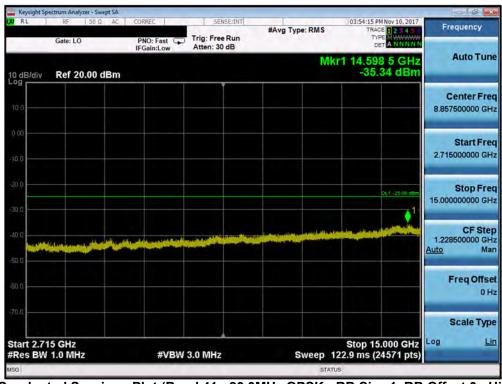
Plot 7-213. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 121 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 131 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			





Plot 7-214. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-215. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 122 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 132 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



RL RL	m Analyzer - Swept SA RF S0 Ω AC	CORREC	SENSE:INT		03:54:47 PM Nov 10, 2017	
	Sate: LO	PNO: Fast	Trig: Free Run Atten: 10 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE M	Frequency
10 dB/div	Ref 0.00 dBm			Mkr	1 26.917 5 GHz -48.98 dBm	Auto Tune
10.0						Center Free 21.000000000 GH
0.0					0Ú.1 -25.00 dēm	Start Free 15.00000000 GH
10 0 50.0						Stop Free 27.000000000 GH
50,0 20,0	an a	da adda a dan da da an	and the second	and an of the second	and the second	CF Ste 1.200000000 GH <u>Auto</u> Ma
80.0						Freq Offse 0 H
Start 15.000					Stop 27.000 GHZ	Scale Type
Start 15.000		#VBW :	3.0 MHz	Sweep 24	Stop 27.000 GHz 0.0 ms (24001 pts)	Scale T

Plot 7-216. Conducted Spurious Plot (Band 41 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dega 122 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 133 of 295	
© 2018 PCTEST Engineering Labo	ratory. Inc.			V 7.1 10/25/2017	



7.4 Band Edge Emissions at Antenna Terminal §2.1051 §22.917(a) §24.238(a) §27.53(c) §27.53(g) §27.53(h) §27.53(m) §27.53(a)(4)

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 30 is > 43 + 10log10 (P[Watts] at 2300-2305MHz & 2345-2360MHz, > 55 + 10log10 (P[Watts]) at 2320-2324MHz & 2341-2345MHz, > 61 + 10log10 (P[Watts]) at 2324-2328MHz & 2337-2341MHz, > 67 + 10log10 (P[Watts]) at 2288-2292MHz & 2328-2337MHz, and > 70 + 10log10 (P[Watts]) at frequencies < 2288MHz & >2365MHz.

The minimum permissible attenuation level for Band 7, 38, and 41 is as noted in the Test Notes on the following page.

Test Procedure Used

KDB 971168 D01 v03 – Section 6.0

Test Settings

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

Test Setup

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

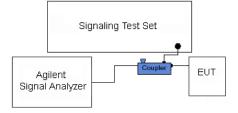


Figure 7-3. Test Instrument & Measurement Setup

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 124 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 134 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



Test Notes

Per 22.917(b) 24.238(a) 27.53(h) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Per 27.53(g) for operations in the 600MHz band and 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

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

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

Per 27.53(a)(5) in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P) dB$ on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P) dB$ on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that $43 + 10 \log (P) dB$ on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 125 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 135 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



Band 71

RL RF 50Ω AC	CORREC	SENSE:INT		07:15:57 PM Nov 27, 2017	Frequency
	PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	
0 dB/div Ref 25.00 dBm			Mk	r1 663.000 MHz -24.51 dBm	Auto Tun
15.0					Center Fre 663.000000 MH
5.00					Start Fre 661.000000 MH
15.0		¢1		0L1 -13 00 dEm	Stop Fre 665.000000 Mi
15.0	~~~~~				CF Sto 400.000 k Auto M
56.0					Freq Offs 01
56 0 Center 663.000 MHz Res BW 100 kHz	#)(B)	300 kHz		Span 4.000 MHz 1.000 ms (1001 pts)	Scale Typ Log <u>L</u>

Plot 7-217. Lower Band Edge Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-218. Upper Band Edge Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 126 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 136 of 295	
© 2018 PCTEST Engineering Labo	ratory. Inc.	•		V 7.1 10/25/2017	



XI RL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	07:18:21 PM Nov 27, 2017 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 25.00 dBm			Mk	r1 663.000 MHz -30.11 dBm	Auto Tune
15.0					Center Free 663.000000 MH
\$.00				-~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Start Free 659.000000 MH
15.0		10		0L1 -13.00 dBm	Stop Fre 667.000000 MH
35.0		~~~			CF Stej 800.000 kH Auto Ma
55 0					Freq Offse 0 H
66 0 Center 663.000 MHz #Res BW 100 kHz	#)/B)//	300 kHz	Sugar	Span 8.000 MHz .000 ms (1001 pts)	Scale Typ

Plot 7-219. Lower Band Edge Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-220. Upper Band Edge Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 127 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset Pag		Page 137 of 295
© 2018 PCTEST Engineering Labor	V 7.1 10/25/2017			



XI RL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	07:26:13 PM Nov 27, 2017 TRACE 2 3 4 5 0 TYPE 4 WWWW DET A NN NN N	Frequency
O dB/div Ref 25.00 dBm			M	cr1 663.000 MHz -25.64 dBm	Auto Tune
15.0					Center Free 663.000000 MH
5.00		ſ			Start Free 657.000000 MH
15.0		1.1		0L1 -13.00 dBm	Stop Fre 669.000000 MH
25.0					CF Ste 1.200000 MH <u>Auto</u> Ma
55.0					Freq Offse 0 H
65 0 Center 663.000 MHz #Res BW 150 kHz		470 kHz		Span 12.00 MHz 1.000 ms (1001 pts)	Scale Type

Plot 7-221. Lower Band Edge Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-222. Upper Band Edge Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 120 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 138 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



α RL RF 50Ω AC	PNO: Fast	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	06:55:38 PM Nov 27, 2017 TRACE 1 2 3 4 5 6 TYPE A	Frequency
IO dB/div Ref 25.00 dBm	IFGain:Low	Atten: 36 dB	Mki	1 662.904 MHz -21.64 dBm	Auto Tune
-og 15.0					Center Free 663.000000 MH
5.00		(- Marine Marine Marine	and a second	Start Fre 655.000000 MH
25:0		min		0L1 -13.00 dBm	Stop Fre 671.000000 MH
35.0					CF Ste 1.600000 MH Auto Ma
55.0					Freq Offse 0 H
66 0 Center 663.000 MHz				Span 16.00 MHz .000 ms (1001 pts)	Scale Typ

Plot 7-223. Lower Band Edge Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)

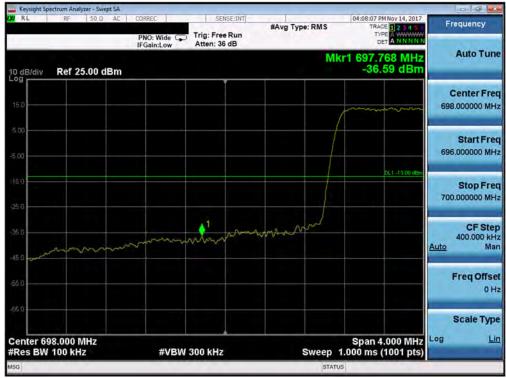


Plot 7-224. Upper Band Edge Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 120 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 139 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



Band 12/17



Plot 7-225. Lower Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-226. Upper Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 140 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 140 of 295	
© 2018 PCTEST Engineering Labo	2018 PCTEST Engineering Laboratory, Inc.				



RL RF 50 Q AC	CORREC	SENSE:1NT	#Avg Type: RMS	04:04:02 PM Nov 14, 2017	Frequency
	PNO: Wide 🗭 IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 23456 TYPE A WANNER DET ANNNN	
dB/div Ref 25.00 dBm			M	cr1 697.812 MHz -32.02 dBm	Auto Tun
5.0					Center Fre 698.000000 MF
00					Start Fre 696.000000 MH
5.0				CL1 -13.00 σBm	Stop Fre 700.000000 MH
50	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				CF Ste 400.000 kł <u>Auto</u> Mi
5.0.					Freq Offs 0 F
enter 698.000 MHz Res BW 100 kHz	#VBW	300 kHz	Sweep	Span 4.000 MHz 1.000 ms (1001 pts)	Scale Typ Log <u>L</u>

Plot 7-227. Lower Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-228. Upper Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 141 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 141 of 295
© 2018 PCTEST Engineering Labo	ratory. Inc.	•		V 7.1 10/25/2017



XIRL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:00:20 PM Nov 14, 2017 TRACE 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
10 dB/div Ref 25.00 dBm			M	471 697.824 MHz -32.37 dBm	Auto Tune
15.0					Center Free 698.000000 MH
5.00					Start Fre 696.000000 MH
15.0				0L1 -13.00 dBm	Stop Fre 700.000000 MH
35.0		1			CF Ste 400.000 kH Auto Ma
55 0					Freq Offse 0 H
©5 0 Center 698.000 MHz #Res BW 100 kHz	#VBW 3	300 kHz	Sween	Span 4.000 MHz 1.000 ms (1001 pts)	Scale Type Log <u>Li</u> i

Plot 7-229. Lower Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



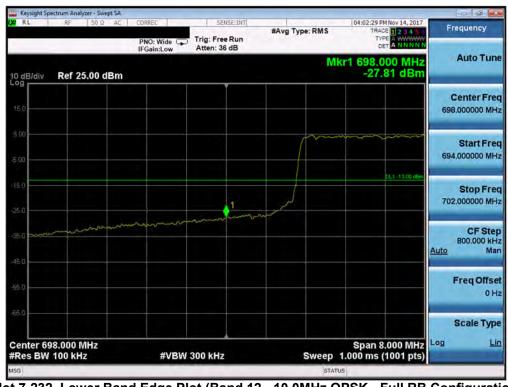
Plot 7-230. Lower Band Edge Plot (Band 17 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 142 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 142 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



RL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:00:38 PM Nov 14, 2017 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 25.00 dBm			Mki	1 716.000 MHz -24.86 dBm	Auto Tune
15.0					Center Free 716.000000 MH
5.00					Start Fre 714.000000 MH
15.0 25.0		1		0L1 -13.00 dBm	Stop Fre 718.000000 MH
36.0 45.0				······	CF Ste 400.000 kH Auto Ma
55 0					Freq Offse 0 H
65 0 Center 716.000 MHz #Res BW 100 kHz	#\/B\/	300 kHz	Swoen	Span 4.000 MHz .000 ms (1001 pts)	Scale Typ

Plot 7-231. Upper Band Edge Plot (Band 12/17 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-232. Lower Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dega 142 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 143 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



XIRL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:16:23 PM Nov 14, 2017 TRACE 1 2 3 4 5 0 TYPE A WAYNAW DET A NN NN N	Frequency
10 dB/div Ref 25.00 dBm			M	kr1 704.000 MHz -25.40 dBm	Auto Tune
15.0					Center Free 704.000000 MH
5.00					Start Free 700.000000 MH
25.0		1		DL1 -13 00 dBm	Stop Fre 708.000000 MH
25.0		hand			CF Ste 800.000 kH Auto Ma
55 ()					Freq Offse 0 H
65 0 Center 704.000 MHz #Res BW 100 kHz	#VBW	300 kHz	Sweep	Span 8.000 MHz 1.000 ms (1001 pts)	Scale Typ Log <u>Li</u>

Plot 7-233. Lower Band Edge Plot (Band 17 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-234. Upper Band Edge Plot (Band 12/17 - 10.0MHz QPSK - Full RB Configuration)

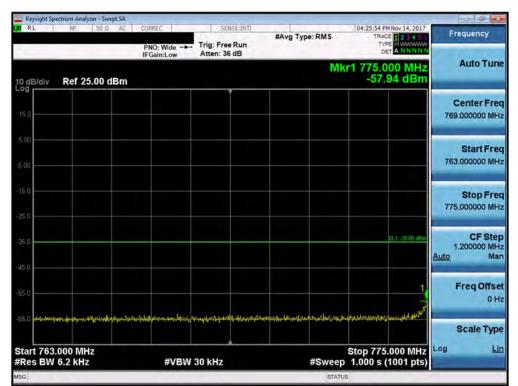
FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 111 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 144 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



Band 13



Plot 7-235. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

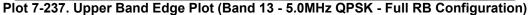


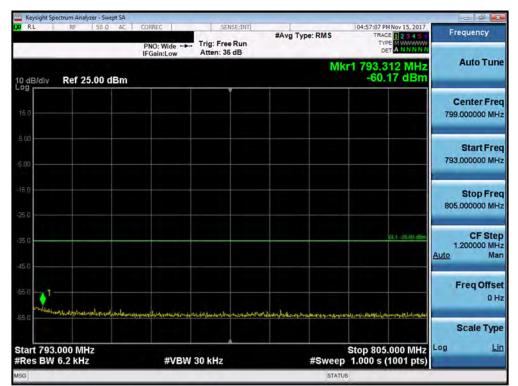
Plot 7-236. Lower Emission Mask Edge Plot (Band 13 – 5.0MHz QPSK – Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 145 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 145 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



RL RF 50 Q AC	CORREC	SENSE:INT	AAL THE DATE	04:54:21 PM Nov 15, 2017	Frequency
	PNO: Wide C	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 0 TYPE A WANNAW DET A NNNNN	
O dB/div Ref 25.00 dBm			Mk	r1 787.000 MHz -28.33 dBm	Auto Tun
15.0					Center Fre 787.000000 MH
5,00					Start Fre 785.000000 MH
150 hrann	im			041-13-00 dBm	Stop Fre 789.000000 MH
150		Jun -			CF Ste 400.000 kH Auto Ma
жб0					Freq Offs 0 I
enter 787.000 MHz Res BW 100 kHz	#VBW	300 kHz	Sween	Span 4.000 Min 12	Scale Typ Log <u>L</u>
enter 787.000 MHz Res BW 100 kHz	#VBW	300 kHz	Sweep 1	1.000 ms (1001 pts)	Log



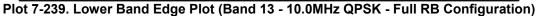


Plot 7-238. Lower Emission Mask Edge Plot (Band 13 – 5.0MHz QPSK – Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dego 146 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 146 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				







Frequency	04:20:07 PM Nov 14, 2017	1	ENSE:INT	SEN	CORREC		trum Analyzer - Sw RF 50 Ω	RL
	TYPE MWWWW DET ANNNNN	Avg Type: RMS		Trig: Free Atten: 36	PNO: Wide +++			
Auto Tun	r1 774.964 MHz -54.90 dBm	Mk				dBm	Ref 25.00 (dB/div
Center Fre 769.000000 MH								9 .0
Start Fre 763,000000 MH								00 00
Stop Fre 775.000000 MH								.0 .0
CF Ste 1.200000 MH Auto Ma	. QL (-35.01) dBm							.o.
Freq Offse 0 H	Duide and a support	1.1.1.1						
Scale Typ	Stop 775.000 MHz 1.000 s (1001 pts)				natalantalantik #VBW :	lalan yang bergener birtis	00 MHz	

Plot 7-240. Lower Emission Mask Edge Plot (Band 13 – 10.0MHz QPSK – Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dego 147 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 147 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



RL RF 50Ω AC CO	DRREC	SENSE:INT	#Avg Type: RMS	04:20:17 PM Nov 14, 2017 TRACE 1 2 3 4 5 0	Frequency
F	PNO: Wide 😱 FGain:Low	Trig: Free Run Atten: 36 dB	wavg Type. Kino		
0 dB/div Ref 25.00 dBm			Mk	r1 787.000 MHz -25.64 dBm	Auto Tun
15.0					Center Fre 787.000000 MH
5.00		γ			Start Fre 783,000000 MH
15.0		h 1		GL1 -13.00 dBm	Stop Fre 791.000000 MF
45.0					CF Ste 800.000 kH Auto Ma
55.0					Freq Offs 0 F
enter 787.000 MHz Res BW 100 kHz	#VBW	300 kHz	Sweep 1	Span 8.000 MHz .000 ms (1001 pts)	Scale Typ Log <u>L</u>





Plot 7-242. Lower Emission Mask Edge Plot (Band 13 – 10.0MHz QPSK – Full RB Configuration)

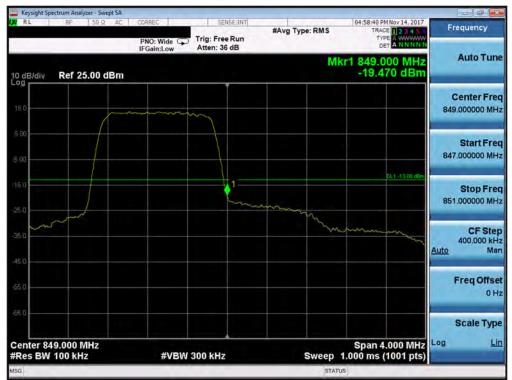
FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 149 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	ortable Handset		Page 148 of 295	
© 2018 PCTEST Engineering Labor	V 7.1 10/25/2017				



Band 26/5



Plot 7-243. Lower Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-244. Upper Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 140 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	ortable Handset		Page 149 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



RL RF 50 Q AC	CORREC	SENSE:INT		04:55:39 PM Nov 14, 2017	Frequency	
	PNO: Wide C	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Auto Tun	
10 dB/div Ref 25.00 dBm -19.14 dBm						
15.0		~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Center Fre 824.000000 MF	
5.00					Start Fre 822.000000 Mi	
50		1		0.1 -13.00 dBm	Stop Fre 826.000000 Mi	
15 0	man	~~/			CF Ste 400.000 ki <u>Auto</u> Mi	
5.0					Freq Offs 01	
enter 824.000 MHz Res BW 100 kHz	#VBW	300 kHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	Scale Tyr Log <u>L</u>	

Plot 7-245. Lower Band Edge Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)

Keysight Spectrum Analyzer - Swept SA		I management			
RL RF 50Ω AC	PNO: Wide	SENSE: DNT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:56:02 PM Nov 14, 2017 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
dB/div Ref 25.00 dBm	IP Gall.Low		Mk	r1 849.000 MHz -18.59 dBm	Auto Tun
s 0 	~~~~~~	~			Center Fre 849.000000 MH
00					Start Fre 847.000000 MH
0		1	~~~	0L1 -13.00 dBm	Stop Fre 851.000000 MH
.0					CF Ste 400.000 ki Auto Ma
.0					Freq Offs 01
enter 849.000 MHz				Span 4.000 MHz	Scale Typ
tes BW 100 kHz	#VBW :	300 kHz	Sweep	1.000 ms (1001 pts)	

Plot 7-246. Upper Band Edge Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 150 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 150 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



K RL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:49:39 PM Nov 14, 2017 TRACE 1 2 3 4 5 0 TYPE A WWWW DET A NN NN N	Frequency
10 dB/div Ref 25.00 dBm			MI	cr1 824.000 MHz -23.00 dBm	Auto Tune
15.0					Center Free 824.000000 MH
5.00					Start Fre 822.000000 MH
25:0		₹ ²		0C1 -13.00 dBm	Stop Fre 826.000000 MH
45.0		~/			CF Ste 400.000 kH Auto Ma
55 0					Freq Offse 0 H
∝ 0 Center 824.000 MHz #Res BW 100 kHz	#VBW	300 kHz	Sweep	Span 4.000 MHz 1.000 ms (1001 pts)	Scale Typ Log <u>Li</u>

Plot 7-247. Lower Band Edge Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-248. Upper Band Edge Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 151 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 151 of 295
© 2018 PCTEST Engineering Labor	V 7.1 10/25/2017			



RL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:51:56 PMNov 14, 2017 TRACE 1 2 3 4 5.6 TYPE A WWWW DET A NNNNN	Frequency
O dB/div Ref 25.00 dBm			M	cr1 823.984 MHz -26.81 dBm	Auto Tune
15.0					Center Free 824.000000 MH
5.00			mont	and the second	Start Fre 820.000000 MH
15.0		1		CL1 -13.00 dBm	Stop Fre 828.000000 MH
35.0 x		- sol			CF Ste 800.000 kF Auto Ma
55 0					Freq Offse 0 H
66 0 Center 824.000 MHz #Res BW 100 kHz		300 kHz		Span 8.000 MHz 1.000 ms (1001 pts)	Scale Typ

Plot 7-249. Lower Band Edge Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-250. Upper Band Edge Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 152 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 152 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



XI RL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:53:33 PM Nov 14, 2017 TRACE 1 2 3 4 5 0 TYPE A WWWWW DET A NNNNN	Frequency
0 dB/div Ref 25.00 dBm			M	cr1 824.000 MHz -23.93 dBm	Auto Tune
15.Q					Center Free 824.000000 MH
5.00				and the second	Start Fre 818.000000 MH
25.0		ind		DL1 -13.00 dBm	Stop Fre 830,000000 MH
25.0					CF Ste 1.200000 MH Auto Ma
55.0					Freq Offse 0 H
© 0 Center 824.000 MHz #Res BW 150 kHz	#\/B\M	470 kHz	Swaan	Span 12.00 MHz 1.000 ms (1001 pts)	Scale Typ Log <u>Li</u>

Plot 7-251. Lower Band Edge Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-252. Upper Band Edge Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)

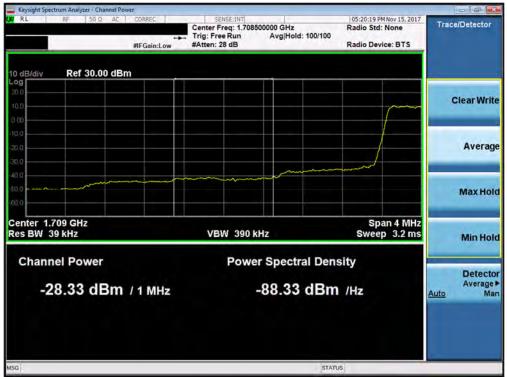
FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 152 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 153 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



Band 66/4



Plot 7-253. Lower Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-254. Lower Extended Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 154 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 154 of 295
© 2018 PCTEST Engineering Labo	V 7 1 10/25/2017			



Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω DC	L coore 1	L oralise aver		107.10.00.0111. 01.0017	- 6 2
KL KE SUS DC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	07:43:30 PM Nov 21, 2017 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 25.00 dBm			Mki	1 1.755 000 GHz -30.097 dBm	Auto Tur
(5.0 Jan		~			Center Fre 1.755000000 GH
.00					Start Fre 1.753000000 G
5.0		1		DL1 -13.00 σBm	Stop Fr 1.757000000 G
5.0		him		man m	CF Ste 400,000 k Auto M
5.0					Freq Offs 0
enter 1.755000 GHz Res BW 51 kHz	#VBW	160 kHz	Sweep	Span 4.000 MHz 2.000 ms (1001 pts)	Scale Ty
G			STAT		-

Plot 7-255. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



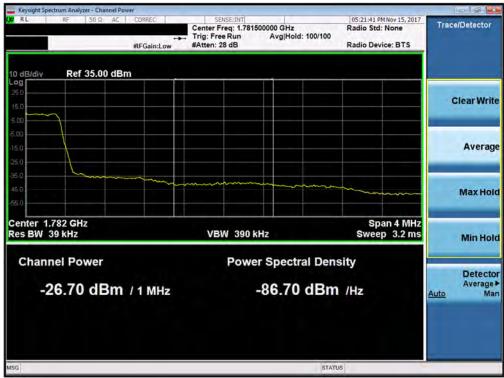
Plot 7-256. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 155 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 155 of 295	
© 2018 PCTEST Engineering Labor	V 7.1 10/25/2017				



RL RF 50 Q AC	CORREC	SENSE:INT		05:21:33 PM Nov 15, 2017	Frequency
	PNO: Wide 😱	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TYPE A WANNER	requercy
0 dB/div Ref 25.00 dBm			Mkr	1.780 000 GHz -37.56 dBm	Auto Tune
15.0					Center Free 1.780000000 GH
5.00	mannana	~~~			Start Fre 1.778000000 GH
15.0				DL1 -13.00 dBm	Stop Fre 1.782000000 GH
5.0		1 Minu	refunder of the second	in the second second second	CF Ste 400.000 kF Auto Ma
55 0					Freq Offse 0 H
≝ 0 Senter 1.780000 GHz Res BW 12 kHz	#VBW	20 14	Swoon	Span 4.000 MHz 34.13 ms (1001 pts)	Scale Typ

Plot 7-257. Upper Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)



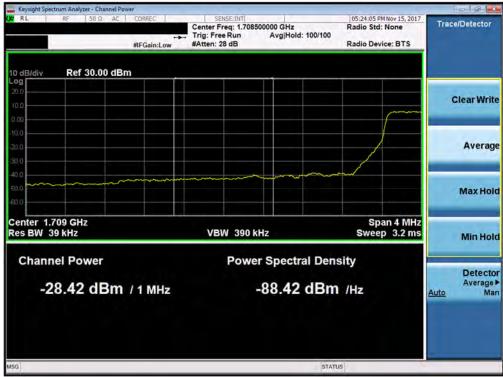
Plot 7-258. Upper Extended Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dege 156 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 156 of 295	
© 2018 PCTEST Engineering Labo	ratory, Inc.			V 7.1 10/25/2017	



XIRL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	05:23:56 PM Nov 15, 2017 TRACE 2 3 4 5 6 TYPE A WANNER DET A NNNNN	Frequency
10 dB/div Ref 25.00 dBm	in Gameow		Mkr	1 1.710 000 GHz -25.58 dBm	Auto Tune
15.0					Center Free 1.710000000 GH
5.00		\int	and the second	an the contraction of the contra	Start Fre 1.708000000 GH
25.0		↓ 1		DL1 -13.00 dBm	Stop Fre 1.712000000 GH
35.0		~			CF Ste 400.000 kH Auto Ma
55 D					Freq Offse 0 H
© 0 Center 1.710000 GHz Res BW 30 kHz	#VBW			Span 4.000 MHz 5.533 ms (1001 pts)	Scale Typ

Plot 7-259. Lower Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-260. Lower Extended Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 157 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 157 of 295
© 2018 PCTEST Engineering Labor	ratory, Inc.			V 7.1 10/25/2017



RL RF 50 Q DC CORREC	SENSE:INT		07:44:33 PM Nov 21, 2017	Contractor and the
NFE PNO: Wi IFGain:Li	de 🕞 Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 5 TYPE A WWWWW DET A N N N N	Frequency
0 dB/div Ref 25.00 dBm		Mkr	1 1.755 000 GHz -21.453 dBm	Auto Tuno
15.0				Center Fre 1.755000000 GH
500				Start Fre 1.753000000 GH
5.0			01.1-13.00 dBm	Stop Fre 1.757000000 GF
150			m	CF Ste 400.000 kF Auto Ma
50				Freq Offs 01
Senter 1.755000 GHz Res BW 51 kHz #	VBW 160 kHz	Sween	Span 4.000 MHz 2.000 ms (1001 pts)	Scale Typ

Plot 7-261. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



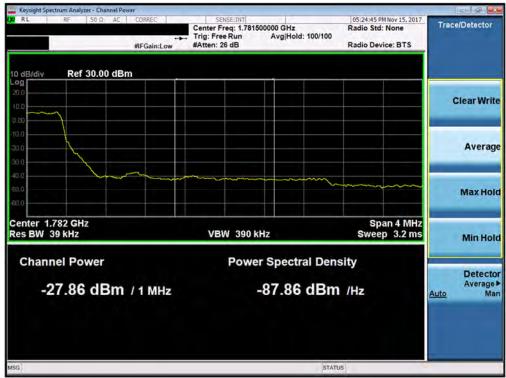
Plot 7-262. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 159 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 158 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			





Plot 7-263. Upper Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-264. Upper Extended Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 150 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 159 of 295	
© 2018 PCTEST Engineering Labo	ratory, Inc.			V 7.1 10/25/2017	



α RL RF 50 Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	05:30:34 PM Nov 15, 2017 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
IO dB/div Ref 25.00 dBm			M	kr1 1.710 000 GHz -27.16 dBm	Auto Tune
15.0					Center Fred 1.710000000 GH
5.00			m		Start Fre 1.708000000 GH
15.0 25.0		/		CL1 -13.00 dBm	Stop Fre 1.712000000 GH
25.0 		~			CF Ste 400.000 kF Auto Ma
56 Q					Freq Offse 0 H
Center 1.710000 GHz Res BW 51 kHz	#\/B\M	160 kHz	Swee	Span 4.000 MHz p 1.933 ms (1001 pts)	Scale Typ

Plot 7-265. Lower Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



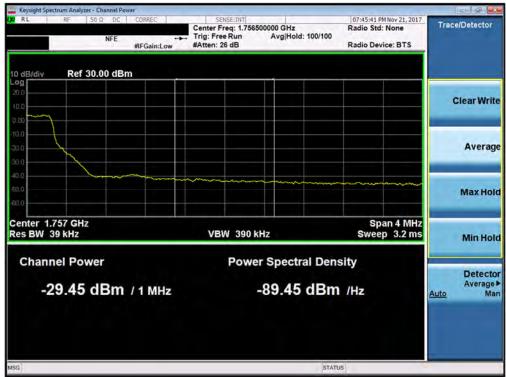
Plot 7-266. Lower Extended Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 160 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 160 of 295
© 2018 PCTEST Engineering Labo	ratory, Inc.			V 7.1 10/25/2017



XIRL RF 56Ω DC NFE	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	07:45:29 PM Nov 21, 2017 TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 25.00 dBm			Mkr	1 1.755 000 GHz -26.99 dBm	Auto Tune
15.0					Center Free 1.755000000 GH
5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	γ			Start Fre 1.753000000 GH
250		1		DL1 -13.00 dBm	Stop Fre 1.757000000 GH
36.0		-	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		CF Ste 400.000 kH <u>Auto</u> Ma
55.0					Freq Offse 0 H
Center 1.755000 GHz #Res BW 51 kHz	#VBM	160 kHz	Sween	Span 4.000 MHz 2.000 ms (1001 pts)	Scale Type

Plot 7-267. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



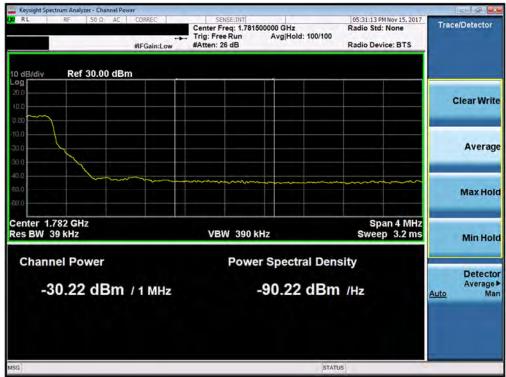
Plot 7-268. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 161 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 161 of 295
© 2018 PCTEST Engineering Labo	ratory, Inc.			V 7.1 10/25/2017



XI RL RF 505	PNO: Wide G	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	05:31:06 PM Nov 15, 2017 TRACE 2 3 4 5.6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 25.00	dBm		Mkr1	1.780 000 GHz -27.57 dBm	Auto Tune
15.0					Center Fred 1.780000000 GH
5.00					Start Fre 1.778000000 GH
25.0		1		DL1 -13.00 dBm	Stop Fre 1.782000000 GH
36.0			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		CF Ste 400.000 kH <u>Auto</u> Ma
55.0					Freq Offse 0 H
©5 0 Center 1.780000 GHz #Res BW 51 kHz		N 160 kHz	Sweep	Span 4.000 MHz I.933 ms (1001 pts)	Scale Type

Plot 7-269. Upper Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)



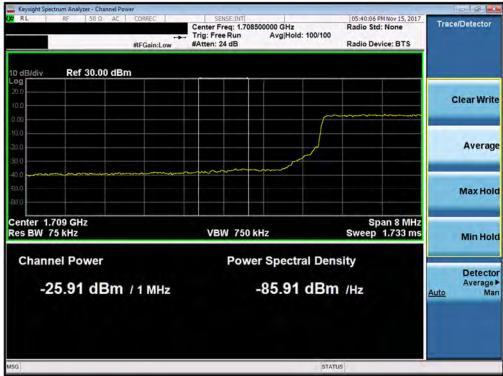
Plot 7-270. Upper Extended Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dege 162 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 162 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



PNO: Wide CP	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
		Mkr	1 1.710 000 GHz -27.17 dBm	Auto Tune
				Center Free 1.710000000 GH
			an a	Start Fre 1.706000000 GH
	1.1		DL1 -13.00 dBm	Stop Fre 1.714000000 GH
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	_			CF Ste 800.000 kH Auto Ma
				Freq Offse 0 H
			Span 0.000 Minz	Scale Typ
		#VBW 360 kHz		Figure 1.000   Children 2000     Mkr1 1.710   000   GHz     -27.17   dBm     -27.17   dBm <t< td=""></t<>

Plot 7-271. Lower Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



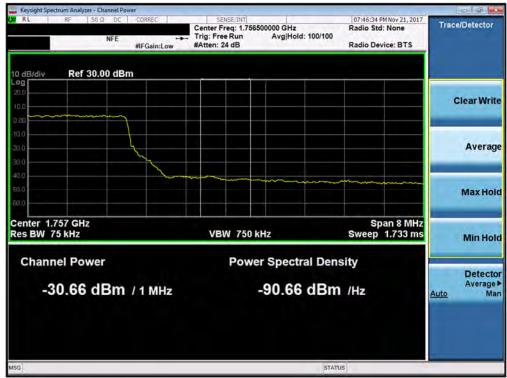
Plot 7-272. Lower Extended Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 162 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 163 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



RL RF 56Ω DC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	07:46:19 PM Nov 21, 2017 TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 25.00 dBm			Mkr	1.755 000 GHz -31.25 dBm	Auto Tune
15.0					Center Free 1.755000000 GH
5.00 .00 5.00	a magazina a sa	7			Start Fre 1.751000000 GH
150 350		h. 1		DL1 -13.00 dBm	Stop Fre 1.759000000 GH
45.0		W.	munina	with the second second	CF Ste 800.000 kH Auto Ma
55.0				a santa santa santa sa	Freq Offse 0 H
66 0 Center 1.755000 GHz #Res BW 51 kHz	#VBM	160 kHz	Sween	Span 8.000 MHz I.000 ms (1001 pts)	Scale Typ Log <u>Li</u>

Plot 7-273. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



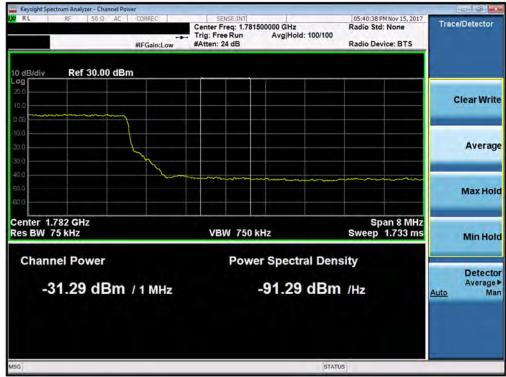
Plot 7-274. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 164 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 164 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



α RL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	05:40:30 PMNov 15, 2017 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
IO dB/div Ref 25.00 dBm			Mkr1	1.780 000 GHz -29.30 dBm	Auto Tune
15.0					Center Fred 1.780000000 GH
5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\gamma$			Start Fre 1.776000000 GH
25.0		h 1_		0L1 -13.00 dBm	Stop Fre 1.784000000 GH
36.0		- The	Marine and Marine		CF Ste 800.000 kH <u>Auto</u> Ma
55.0					Freq Offse 0 H
66 0 Center 1.780000 GHz #Res BW 110 kHz	#VBW	360 kHz	Sween 1	Span 8.000 MHz .000 ms (1001 pts)	Scale Typ Log <u>Li</u>

Plot 7-275. Upper Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)



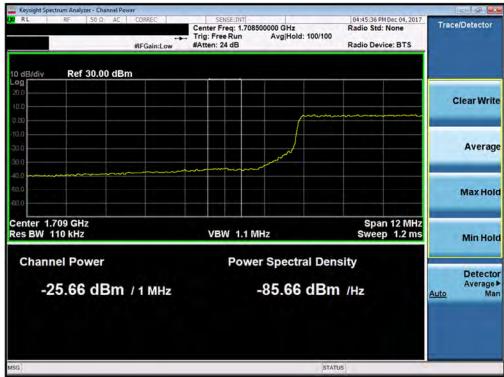
Plot 7-276. Upper Extended Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 165 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 165 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



XI RL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:45:30 PM Dec 04, 2017 TRACE 2 3 4 5 0 TYPE A WANNEN DET A NNNNN	Frequency
10 dB/div Ref 25.00 dBm			Mkr	1 1.710 000 GHz -26.90 dBm	Auto Tune
15.0					Center Fred 1.710000000 GH
\$00			anan ang ang ang ang ang ang ang ang ang		Start Free 1.704000000 GH
25.0		1		DL1 -13.00 dBm	Stop Fre 1.716000000 GH
35.0					<b>CF Ste</b> 1.200000 MH <u>Auto</u> Ma
ş5 0.					Freq Offse 0 H
66 0 Center 1.710000 GHz #Res BW 150 kHz		470 kHz		Span 12.00 MHz 1.000 ms (1001 pts)	Scale Typ

Plot 7-277. Lower Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



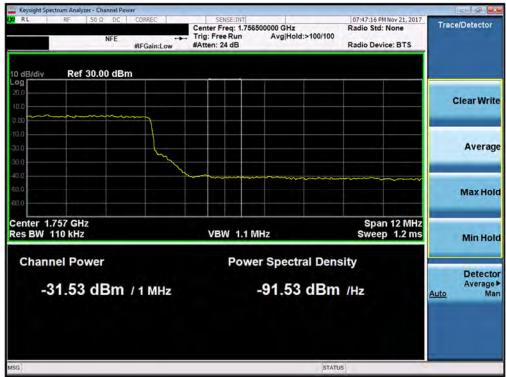
Plot 7-278. Lower Extended Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 166 of 205
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 166 of 295
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017			



RL RF 50Ω DC NFE	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Typ		07:47:09 PM Nov 21, 2017 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
IO dB/div Ref 25.00 dBm				Mkr1 1	.755 000 GHz -34.46 dBm	Auto Tune
15.0						Center Fred 1.755000000 GH
5.00 5.00 5.00	- Marine Ma Marine Marine Mari	~				Start Free 1.749000000 GH
250					DL1 -13.00 dBm	Stop Fre 1.761000000 GH
26.0					the second second second	CF Ste 1.200000 MH <u>Auto</u> Ma
55.0						Freq Offse 0 H
∝ 0 Center 1.755000 GHz Res BW 51 kHz	#VBW	160 kHz		Sweep 19	Span 12.00 MHz 33 ms (1001 pts)	Scale Type Log <u>Li</u>

Plot 7-279. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



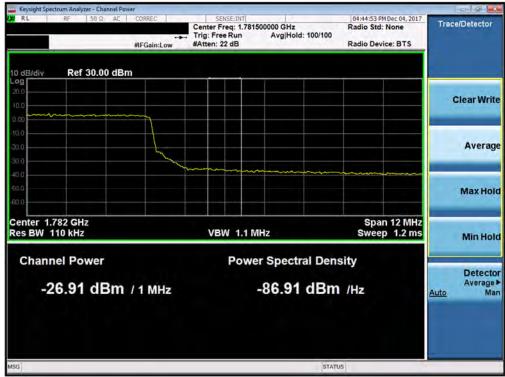
Plot 7-280. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dega 167 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 167 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



XIRL RF 50Ω AC	PNO: Wide	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:44:47 PM Dec 04, 2017 TRACE 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
IO dB/div Ref 25.00 dBm			Mkr1	1.780 000 GHz -29.13 dBm	Auto Tune
15.0					Center Fred 1.780000000 GH
5 00	m	~			Start Free 1.774000000 GH
15.0 25.0		h_ 1_		0L1 -13:00 dBm	Stop Fre 1.786000000 GH
35.0		himi	Anno marine	man	CF Ste 1.200000 MH <u>Auto</u> Ma
55.0					Freq Offse 0 H
©5 0 Center 1.780000 GHz #Res BW 150 kHz	#\/B\\(	170 kHz	Sweep 1	Span 12.00 MHz .000 ms (1001 pts)	Scale Type

Plot 7-281. Upper Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)



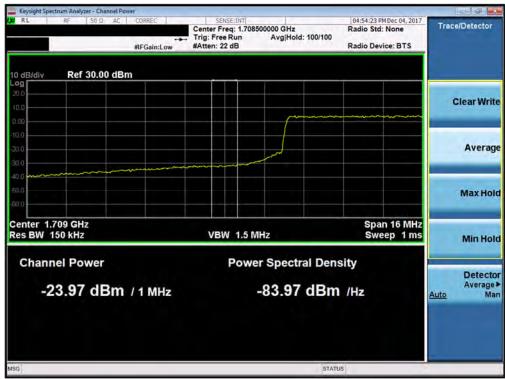
Plot 7-282. Upper Extended Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dego 169 of 205	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset		Page 168 of 295	
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				



RL RF 50 Q AC	PNO: Fast	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	04:54:18 PM Dec 04, 2017 TRACE 2 3 4 5 0 TYPE A WARNEN DET A NNNNN	Frequency
O dB/div Ref 25.00 dBm			Mkr	1.710 000 GHz -26.39 dBm	Auto Tune
15.0					Center Fred 1.710000000 GH
5.00				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Start Free 1.702000000 GH
25:0		1.00		DL1 -13.00 dBm	Stop Fre 1.718000000 GH
35.0		vurgen Alexand			<b>CF Ste</b> 1.600000 MH <u>Auto</u> Ma
55.0					Freq Offse 0 H
Center 1.710000 GHz				Span 16.00 MHz	Scale Typ
Res BW 200 kHz	#VBW	620 kHz	Sweep	1.000 ms (1001 pts)	

Plot 7-283. Lower Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-284. Lower Extended Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG965U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Page 169 of 295	
1M1711060289-03-R4.A3L	11/6-12/19/2017	Portable Handset			
© 2018 PCTEST Engineering Labo	V 7.1 10/25/2017				