

RL RF 50 Q AC	PNO: Wide	SENSE:INT	#Avg Type: RMS	11:19:24 PM Apr 23, 2019 TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 25.00 dBm	IFGain:Low	Atten: 36 dB	Mkr1	1.780 120 GHz -24.08 dBm	Auto Tuni
5.0					Center Fre 1.780000000 GH
5 00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Start Fre 1.774000000 GF
15 Q 25 Q		the "		GL1 -13.00 dBm	Stop Fre 1.786000000 GH
45.0				manne	CF Ste 1.200000 Mi Auto Ma
55 0					Freq Offs 01
Center 1.780000 GHz Res BW 180 kHz	#VBW	680 kHz	Sweep 1	Span 12.00 MHz .000 ms (1001 pts)	Scale Typ Log <u>L</u>

Plot 7-266. Upper Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-267. Upper Extended Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

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XI RL RF 50Ω AC	PNO: Fast	SENSE:INT Trig: Free Run Atten: 36 dB	#Avg Type: RMS	11:21:48 PM Apr 23, 2019 TRACE 2 3 4 5 0 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 25.00 dBm			Mkr	1 1.709 984 GHz -30.39 dBm	Auto Tuni
15,0					Center Fre 1.710000000 GH
5.00		ſ	and and an and an and a second a	Sum - Marine Con	Start Fre 1.702000000 GH
15.0		1#		DL1 -13.00 dBm	Stop Fre 1.718000000 GH
35.0 	- martin - martin - martin				CF Ste 1.600000 Mi Auto Mi
66 D					Freq Offs 0 F
∞ 0 Center 1.710000 GHz #Res BW 240 kHz	#VBW	820 kHz	Sweep	Span 16.00 MHz 1.000 ms (1001 pts)	Scale Typ Log <u>L</u>

Plot 7-268. Lower Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-269. Lower Extended Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL RF 5	50 Ω AC CORRI	EC I	SEM	SE:INT	#Avg Type:		11:28:11 PM Apr 23, 2019 TRACE 1 2 3 4 5 0	Frequency
	PNC IFGa	: Fast 😱 in:Low	Trig: Free Atten: 36		wird type.	RMJ	TYPE A WAWWAW DET A NNNNN	
0 dB/div Ref 25.0	0 dBm					Mkr1 1	755 032 GHz -25.46 dBm	Auto Tune
15.0								Center Free 1.755000000 GH
5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							Start Fre 1.747000000 GH
15.0			hu	1			DL1 -13.00 dEm	Stop Fre 1.763000000 GH
35.0						anini mana mana mana mana mana mana mana	mmmmm	CF Ste 1.600000 MH Auto Ma
55 0								Freq Offse 0 H
66.0								Scale Typ
Center 1.755000 G Res BW 240 kHz	Hz	#VBW 8	320 kHz		s	weep 1.00	Span 16.00 MHz 00 ms (1001 pts)	Log <u>Li</u>
SG						STATUS		

Plot 7-270. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-271. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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CORREC	SENSE:INT	HAVE TUPE: DHE	11:22:56 PM Apr 23, 2019	Frequency
PNO: Fast 🗭 IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TYPE A WANNAW DET A NNNNN	
		Mkr	1 1.780 208 GHz -23.14 dBm	Auto Tuni
				Center Free 1.780000000 GH
- Americano	7			Start Fre 1.772000000 GH
	the 1	- Control Walnut and and		Stop Fre 1.788000000 GH
			-man marker	CF Ste 1.600000 MH Auto Ma
				Freq Offs 0 F
				Scale Typ
#VBW	820 kHz	Sweep	Span 16.00 MHz 1.000 ms (1001 pts)	Log <u>Li</u>
	PNO: Fast (PNO: Fast C Trig: Free Run IFGein:Low Atten: 36 dB	PNO: Fast Trig: Free Run IFGein:Low Atten: 36 dB MKr	PNO: Fast Trig: Free Run Atten: 36 dB TRACE 234 50 Trie Run Atten: 36 dB Mikr1 1.780 208 GHz -23.14 dBm

Plot 7-272. Upper Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)



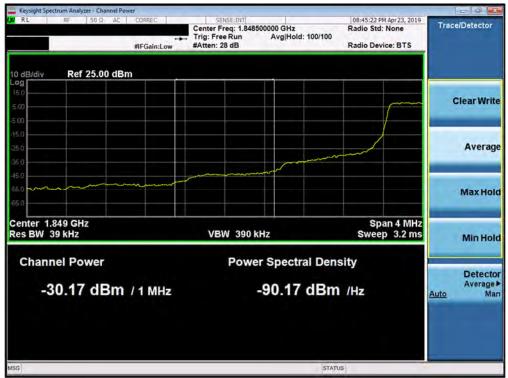
Plot 7-273. Upper Extended Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-274. Lower Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-275. Lower Extended Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dega 164 of 200		
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RL RF 50 Ω AC CORP	EC SENSE:INT		10:21:48 PM Apr 23, 2019	Frequency
PNC IFG	D: Wide Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 0 TYPE A WWWWW DET A NNNNN	Frequency
0 dB/div Ref 25.00 dBm		Mkr1	1.910 004 GHz -28.14 dBm	Auto Tun
15.0				Center Fre 1.910000000 GF
5 00				Start Fre 1.908000000 GF
50	1		CL1 -13.00 dBm	Stop Fre 1.912000000 GP
15.0 mm work /		monormany	Marken and	CF Ste 400.000 ki Auto Mi
550			and a series of the	Freq Offs 01
senter 1.910000 GHz Res BW 16 kHz	#VBW 56 kHz	Sweep 19	Span 4.000 MHz .13 ms (1001 pts)	Scale Typ

Plot 7-276. Upper Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



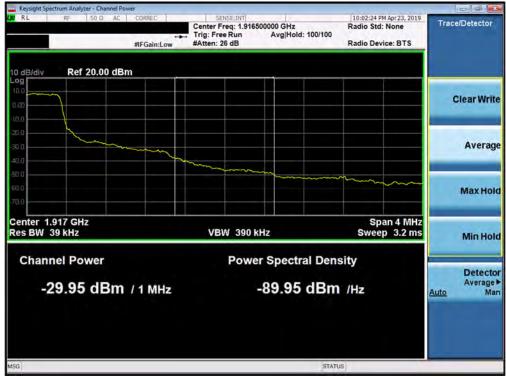
Plot 7-277. Upper Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL RF 50Ω AC	CORREC	SENSE:INT		08:45:35 PM Apr 23, 2019	Frequency
	PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 23450 TYPE A WWWW DET A NNNNN	
0 dB/div Ref 25.00 dBm			Mkr	1 1.915 000 GHz -26.19 dBm	Auto Tun
15.0					Center Fre 1.915000000 GH
5 00 	and the second second	m			Start Fre 1.913000000 GH
25.0		\'		DL1 -13 00 dBm	Stop Fre 1.917000000 GH
35.0 phone with a rate		Mr. Warren	www.www.www.		CF Ste 400.000 kH Auto Ma
55 0				mannen	Freq Offso 0 H
Center 1.915000 GHz				Span 4.000 MHz	Scale Typ
Res BW 16 kHz	#VBW	56 kHz	Sweep	19.13 ms (1001 pts)	

Plot 7-278. Upper Band Edge Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)



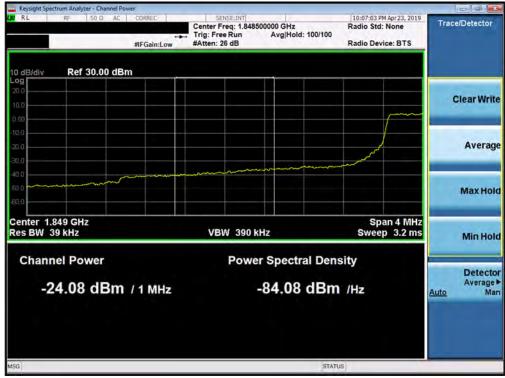
Plot 7-279. Upper Extended Band Edge Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL RF 50 Q AC	CORREC	SENSE:INT	#Avg Type: RMS	10:06:59 PM Apr 23, 2019 TRACE 1 2 3 4 5 6	Frequency
	PNO: Wide 🖵 IFGain:Low	Trig: Free Run Atten: 36 dB	ming type time	DET A NNNN	
10 dB/div Ref 25.00 dBm			Mkr	1 1.850 000 GHz -23.41 dBm	Auto Tuni
15.0					Center Free 1.850000000 GH
5.00			ann an		Start Fre 1.848000000 GH
-15.0		,		DL1-13.00 dBm	Stop Fre 1.852000000 GH
35.0					CF Ste 400.000 kH Auto Ma
65.0					Freq Offs 0 F
Center 1.850000 GHz				Span 4.000 MHz	Scale Typ
Res BW 39 kHz	#VBW	130 kHz	Sweep	3.267 ms (1001 pts)	

Plot 7-280. Lower Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



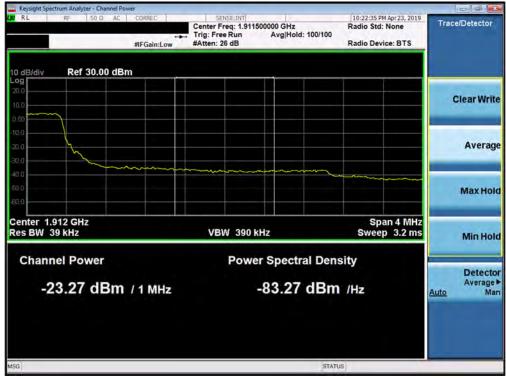
Plot 7-281. Lower Extended Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	CORREC	SENSE:INT		10:22:31 PM Apr 23, 2019	- @ ×
	PNO: Wide 😱	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 0 TYPE A WARK	Frequency
0 dB/div Ref 25.00 dBm			Mkr	1 1.910 000 GHz -23.33 dBm	Auto Tun
15.0					Center Fre 1.910000000 GH
5.00 	www.have				Start Fre 1.908000000 GF
15.0				0L1 -13 00 dBm	Stop Fre 1.912000000 GH
35.0		32	www.	man	CF Ste 400.000 kH Auto Ma
55 0					Freq Offs 01
255 0 Center 1.910000 GHz Res BW 39 kHz	41/P1M	130 kHz		Span 4.000 MHz 3.267 ms (1001 pts)	Scale Typ
SG	#VDV4	150 KHZ	Sweep		

Plot 7-282. Upper Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



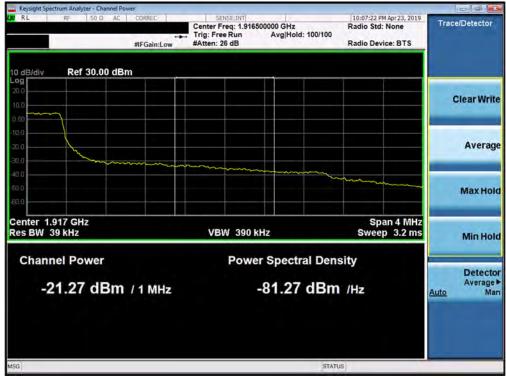
Plot 7-283. Upper Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL RF 50Ω AC	CORREC	SENSE;INT	#Avg Type: RMS	10:07:18 PM Apr 23, 2019 TRACE 1 2 3 4 5 0	Frequency
	PNO: Wide 😱 IFGain:Low	Trig: Free Run Atten: 36 dB		DET A NN NN N	
0 dB/div Ref 25.00 dBm			Mkr	1 1.915 000 GHz -22.73 dBm	Auto Tuni
15.0					Center Fre 1.915000000 GH
5.00	m	~			Start Fre 1.913000000 GH
150 250		Ly 1		DL 1 -13 00 dBm	Stop Fre 1.917000000 GH
15.0		hum	+ mining		CF Ste 400.000 kH Auto Ma
55 0.					Freq Offs 0 F
56.0					Scale Typ
enter 1.915000 GHz Res BW 39 kHz	#VBW	130 kHz	Sweep	Span 4.000 MHz 3.267 ms (1001 pts)	Log Li
50			STAT		

Plot 7-284. Upper Band Edge Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)



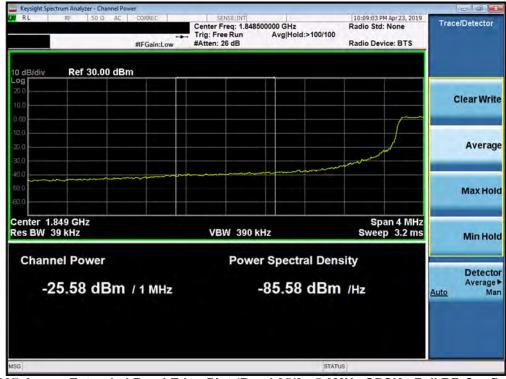
Plot 7-285. Upper Extended Band Edge Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA XI RL RF 50 Ω AC	CORREC	SENSE:INT		10:08:51 PM Apr 23, 2019	
	PNO: Wide C	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 2 3 4 5 6 TYPE A WWWWW DET A NNNN	Frequency
10 dB/div Ref 25.00 dBm			Mkr	1 1.849 988 GHz -24.08 dBm	Auto Tun
15.0					Center Fre 1.850000000 GH
5.00					Start Fre 1.848000000 GH
180 250		N.		0L1 -13 00 dBm	Stop Fre 1.852000000 GH
35.0	man				CF Ste 400.000 kH Auto Ma
55 0.					Freq Offse 0 H
65.0 Center 1.850000 GHz #Res BW 68 kHz	#VBW	220 kHz	Sweep	Span 4.000 MHz 1.067 ms (1001 pts)	Scale Typ Log <u>Li</u>
150			STAT		

Plot 7-286. Lower Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



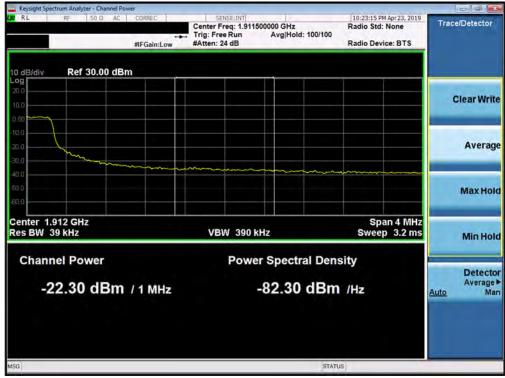
Plot 7-287. Lower Extended Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL RF 50 Q AC	CORREC	SENSE:INT	#Avg Type: RMS	10:23:11 PM Apr 23, 2019 TRACE 1 2 3 4 5 6	Frequency
6	PNO: Wide CP	Trig: Free Run Atten: 36 dB	wing type. Kins	TYPE A WWWWW DET A NNNNN	
10 dB/div Ref 25.00 dBm	1		Mkr	1 1.910 028 GHz -23.62 dBm	Auto Tune
15.0					Center Fred 1.910000000 GH
5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Start Fre 1.908000000 GH
25.0		hy 1		DL1 -13 00 dBm	Stop Fre 1.912000000 GH
35.0 45.0		~~		·····	CF Ste 400.000 kH Auto Ma
55 0.					Freq Offse 0 H
65.0					Scale Typ
Center 1.910000 GHz #Res BW 68 kHz	#VBW	220 kHz	Sweep	Span 4.000 MHz 1.067 ms (1001 pts)	
150			STAT	US	

Plot 7-288. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-289. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	10:09:17 PM Apr 23, 2019 TRACE 2 3 4 5 0	Frequency
	PNO: Wide CP	Trig: Free Run Atten: 36 dB		DET A NNNNN	
0 dB/div Ref 25.00 dBm			Mkr	1 1.915 000 GHz -23.73 dBm	Auto Tuni
15.0					Center Free 1.915000000 GH
5.00					Start Fre 1.913000000 GH
15.0		hat 1		0L1 -13.00 dBm	Stop Fre 1.917000000 GH
15.0		-Vrin	m	······	CF Ste 400.000 kH Auto Ma
55 0.					Freq Offse 0 H
56.0					Scale Typ
enter 1.915000 GHz Res BW 68 kHz	#VBW	220 kHz	Sweep	Span 4.000 MHz 1.067 ms (1001 pts)	Log Li
so			STAT		

Plot 7-290. Upper Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-291. Upper Extended Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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RL RF 50Ω AC	PNO: Wide	SENSE:INT	#Avg Type: RMS	10:11:04 PM Apr 23, 2019 TRACE 1 2 3 4 5 0 TYPE A WWW DET A NNNNN	Frequency
	IFGain:Low	Atten: 36 dB	Mkr	1 1.849 928 GHz	Auto Tun
0 dB/div Ref 25.00 dBm				-28.72 dBm	
15.0					Center Fre 1.85000000 GF
5.00			manna	a manana man Na manana mana	Start Fre 1.846000000 GI
15 Q				0L1 -13.00 dBm	Stop Fre
25.0		1			1.854000000 G
15.0	minin	www.hum			CF Ste 800,000 ki Auto Mi
50					Freq Offs 01
;6.0					Scale Ty
enter 1.850000 GHz Res BW 130 kHz	#VBW	430 kHz	Sweep	Span 8.000 MHz 1.000 ms (1001 pts)	Log L
so			STAT		

Plot 7-292. Lower Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-293. Lower Extended Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

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RL RF 50 Q AC		SENSE:INT	#Avg Type: RMS	10:23:46 PM Apr 23, 2019 TRACE 1 2 3 4 5 0 TYPE A	Frequency
	PNO: Wide CP IFGain:Low	Atten: 36 dB			
0 dB/div Ref 25.00 dBn	1		Mkr	1 1.910 160 GHz -25.43 dBm	Auto Tuni
15,0					Center Fre 1.910000000 GH
5.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	7			Start Fre 1.906000000 GH
15.0		h. •1		DL1 -13.00 dBm	Stop Fre 1.914000000 GH
35.0		and and a second			CF Ste 800.000 kF Auto Ma
55 D					Freq Offs 0 F
66.0					Scale Typ
Center 1.910000 GHz Res BW 130 kHz	#VBW	130 kHz	Sweep	Span 8.000 MHz 1.000 ms (1001 pts)	Log <u>Li</u>
SG			STAT		

Plot 7-294. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-295. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

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RL RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	10:11:23 PM Apr 23, 2019 TRACE 2 3 4 5 0	Frequency
	PNO: Wide CP IFGain:Low	Atten: 36 dB		TYPE A WWWWW	Auto Tun
0 dB/div Ref 25.00 dBm			Mkr	1 1.915 016 GHz -24.93 dBm	Auto Tuli
15.0					Center Fre 1.915000000 GH
5 00 		γ			Start Fre 1.911000000 GF
15.0		T I		0L1 -13.00 dBm	Stop Fre 1.919000000 GF
35.0		N pur wh	m		CF Ste 800.000 kH Auto Ma
55 0					Freq Offs 0 F
66.0					Scale Typ
Center 1.915000 GHz Res BW 130 kHz	#VBW	430 kHz	Sweep	Span 8.000 MHz 1.000 ms (1001 pts)	

Plot 7-296. Upper Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-297. Upper Extended Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)

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RL RF 50Ω AC		SENSE:INT	#Avg Type: RMS	10:12:55 PM Apr 23, 2019 TRACE 2 3 4 5 0	Frequency
	PNO: Wide CP IFGain:Low	Trig: Free Run Atten: 36 dB		DET A NNNN	
0 dB/div Ref 25.00 dBm			Mkr	1 1.849 868 GHz -29.63 dBm	Auto Tun
15.0					Center Fre 1.850000000 GH
5.00			and an and a second		Start Fre 1.844000000 GH
150 350		1.4		DL1 -13 00 dBm	Stop Fre 1.856000000 G
35.0 	Manna	mult			CF Ste 1.200000 Mi Auto Mi
50					Freq Offs 01
66.0					Scale Typ
enter 1.850000 GHz Res BW 180 kHz	#VBW	680 kHz	Sweep	Span 12.00 MHz 1.000 ms (1001 pts)	Log L
SG			STAT		

Plot 7-298. Lower Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-299. Lower Extended Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

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RL RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	10:24:25 PM Apr 23, 2019 TRACE 1 2 3 4 5 0	Frequency
	PNO: Wide 🖵 IFGain:Low	Trig: Free Run Atten: 36 dB		TYPE A WWWWW DET A NN NN N	
O dB/div Ref 25.00 dBm			Mkr	1 1.910 048 GHz -27.15 dBm	Auto Tune
15.0					Center Fre 1.910000000 GH
5.00	mmmm	7			Start Fre 1.904000000 GH
15.0		1		DL1 -13.00 dBm	Stop Fre 1.916000000 GH
35.0			www.www.www.	man man	CF Ste 1.200000 MH Auto Ma
55 0					Freq Offso 0 H
66.0					Scale Typ
Center 1.910000 GHz #Res BW 180 kHz	#VBW	680 kHz	Sweep	Span 12.00 MHz 1.000 ms (1001 pts)	Log <u>Li</u>
Res BW 180 KHZ	#VBW	080 KHZ	Sweep		-

Plot 7-300. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-301. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency	10:13:16 PM Apr 23, 2019 TRACE 2 3 4 5 0 TYPE A WINNNN	MS	#Avg Type		Trig: Fre	PNO: Wide	50 Ω AC	
Auto Tur	.915 000 GHz -26.62 dBm	Mkr1		36 05	Atten: 3	IFGain:Low	25.00 dBm	3/div R
Center Fre 1.915000000 GF								
Start Fre 1.909000000 GF					7	and the second	an a	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Stop Fre 1.921000000 GH	DL1-13.00 d9m			4.	1 June			
CF Ste 1.200000 MF Auto Ma	mannen	n haire	mmm	m				
Freq Offs 0 F								
Scale Typ	Span 12.00 MHz						0 GHz	ter 1.915
	00 ms (1001 pts)	status	5	łz	580 kHz	#VBW 6		s BW 18

Plot 7-302. Upper Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-303. Upper Extended Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL RF 50Ω AC	CORREC	SENSE:INT	#Avg Type: RMS	10:16:38 PM Apr 23, 2019 TRACE 1 2 3 4 5 6 TYPE A	Frequency
	PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 36 dB		DET A NNNNN	and down
0 dB/div Ref 25.00 dBm			Mkr	1 1.849 840 GHz -32.24 dBm	Auto Tun
15.0					Center Fre 1.85000000 GF
5 00		\int	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and a second	Start Fre 1.842000000 GF
15.0				CL1 -13.00 dBm	Stop Fro 1.858000000 GI
35.0 	mmmmm	n-contract			CF Ste 1.600000 MI <u>Auto</u> M
55 0					Freq Offs 01
Center 1.850000 GHz				Span 16.00 MHz	Scale Typ
Res BW 240 kHz	#VBW	320 kHz	Sweep	1.000 ms (1001 pts)	

Plot 7-304. Lower Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-305. Lower Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 170 of 200
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e Run 6 dB	#Avg Type: RM	Mkr1 1.9	TRACE 0 2 3 TYPE A WM DET A NN 10 000 C -29.13 d	Bm	Frequency Auto Tune Center Frec 910000000 GHz
		Mkr1 1.9	10 000 G -29.13 d	Bm	Center Fred 910000000 GH
				1.5	910000000 GH
					- Andrewson -
				1.9	Start Fre 902000000 GH
1			DL1 -13.0		Stop Fre 918000000 GH
·	~	man	mun		CF Ste 1.600000 MH 2 Ma
					Freq Offse 0 H
					Scale Typ
	Swe	Sp eep 1.000	an 16.00 l ms (1001	MHz Log pts)	Ц
7	2 z		Sp	z Span 16.00 z Sweep 1.000 ms (1001	Auto Span 16.00 MHz z Sweep 1.000 ms (1001 pts)

Plot 7-306. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-307. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL RF 50Ω AC	CORREC	SENSE:INT		10:19:00 PM Apr 23, 2019	Frequency
	PNO: Fast	Trig: Free Run Atten: 36 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 0 TYPE A WWWWW DET A NNNNN	
0 dB/div Ref 25.00 dBm			Mki	1 1.915 032 GHz -28.10 dBm	Auto Tuni
15.0					Center Fre 1.915000000 GH
5 00		m			Start Fre 1.907000000 GH
15.0 25.0		11		CL1 -13 00 dBm	Stop Fre 1.923000000 GH
36.0 45.0		and the second	- warman	materia and the second	CF Ste 1.600000 MH Auto Ma
55 D				ļ	Freq Offs 0 F
Center 1.915000 GHz				Span 16.00 MHz	Scale Typ
Res BW 240 kHz	#VBW \$	820 KHZ	Sweep	1.000 ms (1001 pts)	

Plot 7-308. Upper Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-309. Upper Extended Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 191 of 290
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Plot 7-310. Lower Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



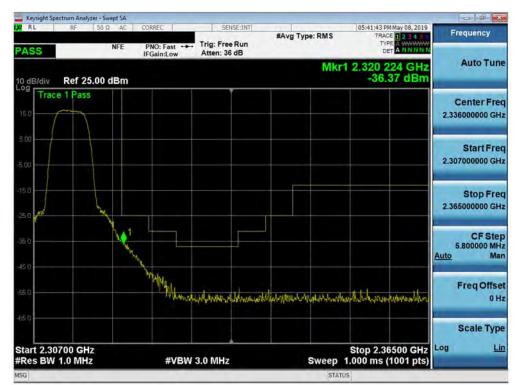
Plot 7-311. Lower Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swe RL RF 50 Ω		CORREC	SEN	SE:INT			05:40:48 P	M May 08, 2019	
	NFE	PNO: Wide		Run	#Avg Typ	e: RMS	TRA	CE 2 3 4 5 PE A WARMAN ET A NNNNN	Frequency
dB/div Ref 25.00 d	IBm					Mk	r1 2.315 -24.	00 GHz 15 dBm	Auto Tuno
5.0									Center Free 2.315000000 GH
.00	714-714 ⁻⁷ 14-714	******	81.30×14						Start Fre 2.310000000 GH
5.0				1				0L1 -15.00 dBm	Stop Fre 2.320000000 GF
50				Non and	(hilingethingengelikere	nd an single fill get by a	the state of a set	444	CF Ste 1.000000 MH Auto Ma
50								and the spectrum and spec	Freq Offse 0 H
enter 2.315000 GHz							Span 1	10.00 MHz	Scale Typ Log <u>Li</u>
Res BW 62 kHz		#VBW	220 kHz			Sweep	16.67 ms	(1001 pts)	

Plot 7-312. Upper Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



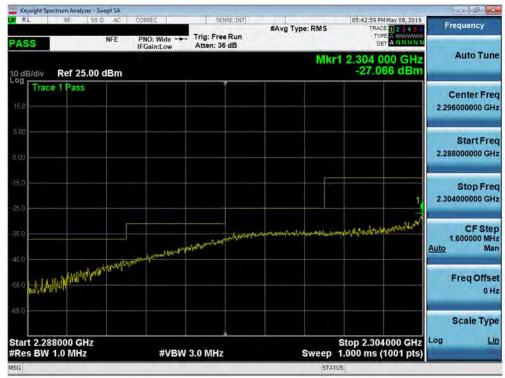
Plot 7-313. Upper Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 192 of 290
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Keysight Spectrum Analyzer - S			-				10-0-0-0		-	- 6 ×
X RL RF 50	Ω AC NFE	PNO: Wide	Trig: Free R Atten: 36 dl	un	#Avg Type:	RMS	TRAC	I May 08, 2019 E 2 3 4 5 E A WARANA T A N N N N N	F	requency
10 dB/div Ref 25.00	dBm					Mkr1	2.304 9 -28.4	68 GHz 40 dBm		Auto Tun
15.0										Center Fre
5.00				ſ	ang ya ang yang yang yang yang yang yang			**********************	2.30	Start Fre
15.0 25.0			1					01.1 -13.00 a8m	2.30	Stop Fre
35.0 46.0	and the state and	an a support	and the stand to be a stand						Auto	CF Ste 800.000 kH Ma
55.0										Freq Offs 0 H
65 0 Center 2.305000 GHz	z	43/BW	420 kHz				Span 8.	000 MHz	Log	Scale Typ 브
#Res BW 120 kHz		#VBW	430 kHz		5	STATUS	.55 ms (1001 pts)		

Plot 7-314. Lower Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



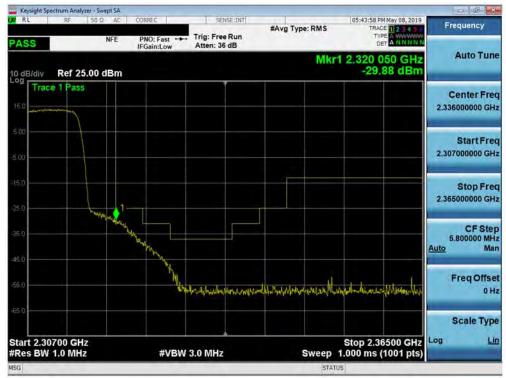
Plot 7-315. Lower Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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×	05:43:31 PM May 08, 2019		SENSE:INT	CORREC	ctrum Analyzer - Swept SA RF 50 Ω AC	Keysight Spi
Frequency	TRACE 2 2 4 TYPE A WANNAW DET A NNNNN	#Avg Type: RMS	Trig: Free Run Atten: 36 dB	PNO: Wide	NFE NFE	KL
Auto Tun	r1 2.315 01 GHz -27.69 dBm	Mk			Ref 25.00 dBm	0 dB/div
Center Fre 2.315000000 GH						15.0
Start Fre 2.310000000 GH			7		X # V # # m 1 + 49 X V 1 + 49 X X V 1 + 49 X	5.00
Stop Fre 2.32000000 GH	01.1 -13.00 aBm		1			15.0
CF Ste 1.000000 MH Auto Ma		and the second	and a start of the			¥5 0
Freq Offs 0 F						55.0
Scale Typ	Span 10.00 MHz 16.67 ms (1001 pts)	Swaan	30 14	#VBW 4	315000 GHz	Center 2.3
		Sweep	50 112	#VBVV4	120 1112	ISG

Plot 7-316. Upper Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-317. Upper Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

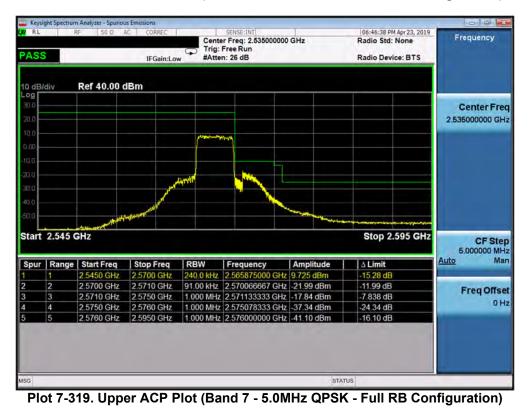
FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 195 of 290	
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Band 7

PASS	RF 50.Ω	AC CORREC	Trig:	SENSEINT Freq: 2.5350000 Free Run n: 26 dB	00 GHz	06:46:22 PM Apr 23, 2019 Radio Std: None Radio Device: BTS	Frequency
10 dB/div	Ref 40.00 (dBm					
30.0 20.0							Center Free 2.535000000 GH
10 0				handunan			
0.00 10.0							
20.0							
30.0 40.0			. harrister		Harry		
50.0		and the second s	Martin Contraction		Talling Trout		
Start 2.4	75 GHz					Stop 2.525 GHz	CF Step 5.000000 MH
Spur Ra	nge Start Freq	Stop Freq	RBW	Frequency	Amplitude	∆ Limit	Auto Mar
	2.4750 GHz	2.4905 GHz		2.490422500 GH		-27.17 dB	
1 1	2,4905 GHz	2.4960 GHz		2.495486667 GH		-25.48 dB	Freq Offse
2 2		2.4990 GHz		2.498920000 GH		-16.60 dB	0 H:
2 2 3 3	2.4960 GHz	Contraction of the local division of the loc		2 499993333 G	tz -26.93 dBm	-16.93 dB	0 Hz
2 2 3 3 4 4	2.4990 GHz	2.5000 GHz			In 0 125 dBm	15 06 40	
2 2 3 3		2.5000 GHz 2.5250 GHz		2.503875000 GH	Hz 9.135 dBm	-15.86 dB	

Plot 7-318. Lower ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)



PCTEST Approved by: MEASUREMENT REPORT FCC ID: A3LSMA102U SAMSUNG (CERTIFICATION) **Quality Manager** Test Report S/N: EUT Type: Test Dates: Page 186 of 280 1M1904030051-03.A3L 04/04/2019 - 05/15/2019 Portable Handset V 9.0 02/01/2019

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PASS	RF	50 Q A		RREC	Trig:	SENSE:INT Freq: 2.53 Free Run n: 26 dB	35000000	GHz		Radio Std Radio Dev		Free	quency
10 dB/div Log	Re	f 40.00 d	iBm										
30.0 20.0													nter Fred
10.0 0.00						from the second	Charles Interna	with					
-10.0													
30 0 40,0 50,0			بر المنظنية المنطقة المنط	للإلليني		*			www.	unstructures	Yestillegy & Mysee		
Start 2.4	75 GHz	STATISTICS.								Stop 2	.525 GHz	50	CF Step
Spur Ra	inge Sta	art Freg	Stop	Frea	RBW	Frequen	cv	Ampl	itude	∆ Limit		Auto	Mar
1 1		750 GHz	2.4905		1.000 MHz					-19.72 dE	3		
2 2	2.4	905 GHz	2.4960) GHz	1.000 MHz	2.495908	333 GHz	-33.83	dBm	-20.83 dE	3		eq Offse
	2.4	960 GHz	2.4990) GHz	1.000 MHz	2.4986050	000 GHz	-30.34	dBm	-20.34 dE	3	E.	
3 3	0.0	990 GHz	2.5000		180.0 kHz					-21.79 dE			0 H:
	2.4) GHz	240.0 kHz					-19.27 dE			

Plot 7-320. Lower ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)



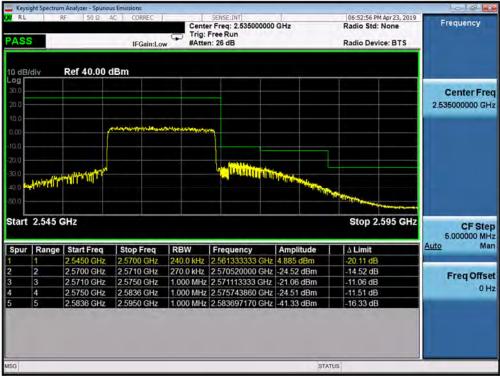
Plot 7-321. Upper ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency	06:52:41 PM Apr 23, 2019 Radio Std: None Radio Device: BTS	GHz			ain:Low		8F 50 Ω A		PAS
						dBm	Ref 40.00 c	/div	10 dB
Center Fre 2.535000000 GH									30.0 20.0
			pathierin						10.0 0.00
									10,0 - 20,0 -
	Magan graphine and a sure)	******	مىمىنىيىتىنى	فمسلسط			30.0 40.0 50.0
CF Ste	Stop 2.525 GHz						GHz	2.475 G	Start
5.000000 MHz Auto Man	∆ Limit	Amplitude	equency	V F	reg RBV	Stop F	Start Freq	Range	Spur
	-20.09 dB	-45.09 dBm	89802500 GHz	MHz 2	GHz 1.00	2.4905	2.4750 GHz	1	1
-		THE OWNER WHEN T	95550833 GHz	MHz 2	CH2 1 000	2,4960	2.4905 GHz	2	2
Eron Office	-22.30 dB	-35.30 dBm	90000833 GHZ		Griz 1.00	2.4900			
FreqOffs	-22.30 dB -22.71 dB		98735000 GHz			2.4900	2.4960 GHz	3	3
Freq Offse 0 H		-32.71 dBm		MHz 2	GHz 1.00	_	2.4960 GHz 2.4990 GHz	-	3 4

Plot 7-322. Lower ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-323. Upper ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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rice: BTS	Radio Std: Radio Devi) GHz	ENSE:INT Freq: 21.000000 ee Run 26 dB		IFGain:Low	¥F 50Ω AC		PAS
					r	Ref 40.00 dl	/div	10 dB
Center Free 21.000000000 GH2								20.0 -
	popular street	vile-menter with the state	rungand					0.00
								-20.0 -30.ά
and an and a state of the state			ed		****			-40.0 -50.0 -
1.20000000 GH	Stop 2.						2.475 0	Start
Auto Mar	∆ Limit	Amplitude	Frequency	RBW	op Freq	Start Freq	Range	Spur
	-16.12 dB	-41.12 dBm	490474167 GI	1.000 MHz	905 GHz	2.4750 GHz	1	1
Freq Offse	-21.70 dB	-34.70 dBm	495532500 G	1.000 MHz	960 GHz	2.4905 GHz	2	2
	-23.56 dB	-33.56 dBm	496985000 G	1.000 MHz	990 GHz	2.4960 GHz	3	3
0 H:	-25.48 dB	-35.48 dBm	499975000 GI	360.0 kHz	000 GHz	2.4990 GHz	4	4
	-21.45 dB	2 545 dBm	517458333 GI	240 0 kHz	250 GHz	2.5000 GHz	5	5

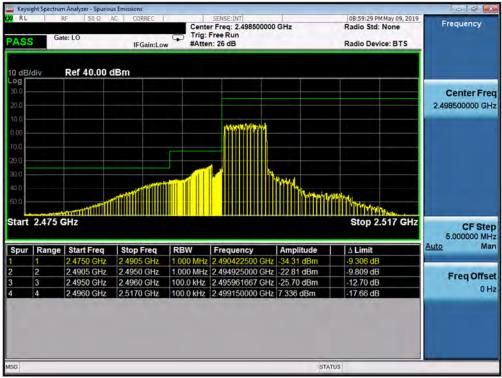
Plot 7-324. Lower ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)



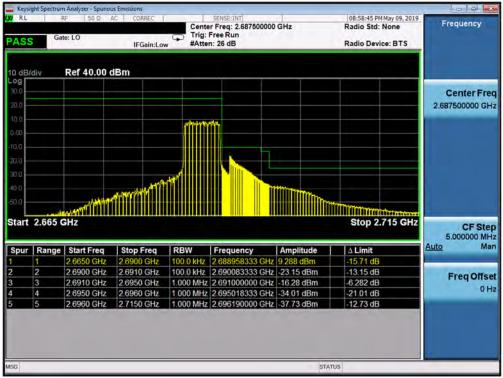
Plot 7-325. Upper ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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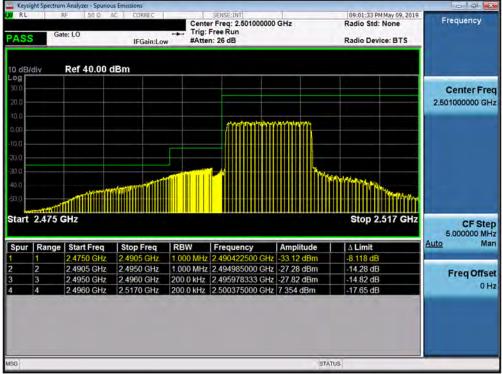
Plot 7-326. Lower ACP Plot (Band 41 PC2 - 5.0MHz QPSK - Full RB Configuration)



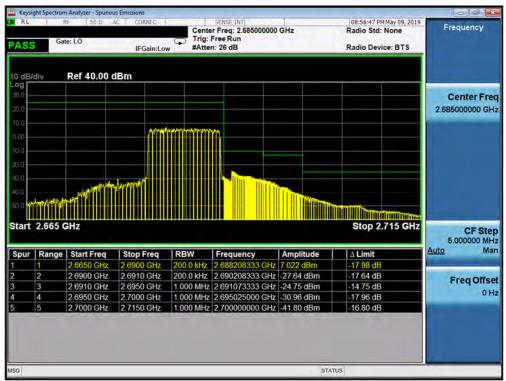
Plot 7-327. Upper ACP Plot (Band 41 PC2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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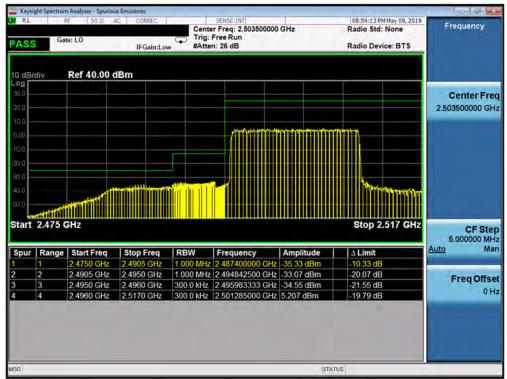
Plot 7-328. Lower ACP Plot (Band 41 PC2 - 10.0MHz QPSK - Full RB Configuration)



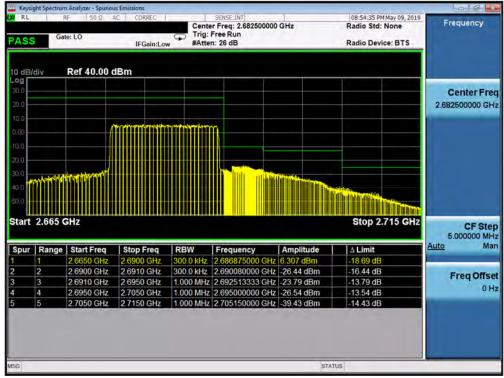
Plot 7-329. Upper ACP Plot (Band 41 PC2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-330. Lower ACP Plot (Band 41 PC2 - 15.0MHz QPSK - Full RB Configuration)



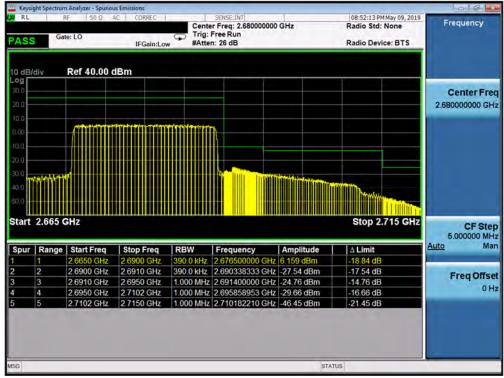
Plot 7-331. Upper ACP Plot (Band 41 PC2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-332. Lower ACP Plot (Band 41 PC2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-333. Upper ACP Plot (Band 41 PC2 - 20.0MHz QPSK - Full RB Configuration)

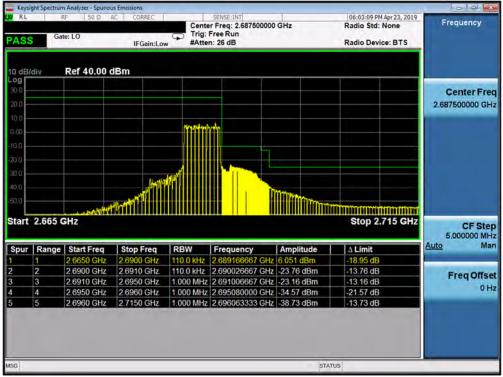
FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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200 2.49850000 100 1 2.49850000 100 1 2.49850000 200 1 1 2.49850000 200 1 1 2.49850000 200 1 1 2.49850000 200 1 1 2.49850000 200 2.49850000 1 200 2.49850000 1 200 2.49850000 1 200 2.49850000 1 200 2.49850000 1 200 2.49850000 1 200 2.49850000 1 200 2.49850000 1 200 2.4995000 1 200 2.4995000 1 200 2.4995000 1 200 2.4995000 1 200 2.4995000 1 200 2.4995000 1 200 2.4995000 1 200 2.499000000 1		RF 50 Q J	IFGain:Lov	Trig:	SENSE:INT er Freq: 2.498500000 Free Run n: 26 dB) GHz	06:02:53 PM Apr23, 201 Radio Std: None Radio Device: BTS	Frequency
100 100 <th>Log</th> <th>Ref 40.00 c</th> <th>iBm</th> <th></th> <th></th> <th></th> <th></th> <th>Center Fred</th>	Log	Ref 40.00 c	iBm					Center Fred
ID.0.0					ditional barrie			2.498500000 GH
33.0 33.0 40.0 50.0 70.0 70.0 70.0 <t< th=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>								
Start 2.475 GHz Stop Freq RBW Frequency Amplitude Δ Limit Δ Limit 1 1 2.475 GHz 11.42 dB 11.42 dB <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Spur Range Start Freq Stop Freq RBW Frequency Amplitude Δ Limit Auto 1 1 2.4750 GHz 2.4905 GHz 1.000 MHz 2.490448333 GHz -40.42 dBm -15.42 dB Auto	30.0				- AIIIIIN.			
Spur Range Start Freq Stop Freq RBW Frequency Amplitude Δ Limit Auto 1 1 2.4750 GHz 2.4905 GHz 1.000 MHz 2.490448333 GHz -40.42 dBm -15.42 dB -15.42	40,6			11		Manna		
1 1 2 4750 GHz 2 4905 GHz 1.000 MHz 2 490448333 GHz -40.42 dBm -15.42 dB	40.0 50.0	GHz		11			Stop 2.517 GH	Grate
2 2 4905 GHz 2 4950 GHz 1 000 MHz 2 49500000 GHz -29 43 dBm -16 43 dB	40.0 50.0 Start 2.475	GHZ		RBW	Frequency	Amplitude		5.000000 MH
	40.0 50.0 Start 2.475	Start Freq	Stop Freq				∆ Limit	5.000000 MH
3 3 2.4950 GHZ 2.4960 GHZ 110.0 KHZ 2.495940607 GHZ -28.05 dBm -15.05 dB	40.0 50.0 Start 2.475	Start Freq	Stop Freq 2.4905 GHz	1.000 MHz	2.490448333 GHz	-40.42 dBm	Δ Limit -15.42 dB	5.000000 MH; Auto Mar
4 2.4960 GHz 2.5170 GHz 110.0 kHz 2.499080000 GHz 6.528 dBm -18.47 dB	40.0 50.0 Start 2.475 Spur Range 1 1 2 2 3 3	Start Freq 2.4750 GHz 2.4905 GHz 2.4950 GHz	Stop Freq 2.4905 GHz 2.4950 GHz 2.4960 GHz	1.000 MHz 1.000 MHz 110.0 kHz	2.490448333 GHz 2.495000000 GHz 2.495946667 GHz	-40.42 dBm -29.43 dBm -28.65 dBm	Δ Limit -15.42 dB -16.43 dB -15.65 dB	5.000000 MH: Auto Mar
	art 2.475	Start Freq 2.4750 GHz 2.4905 GHz	Stop Freq 2.4905 GHz 2.4950 GHz	1.000 MHz 1.000 MHz 110.0 kHz	2.490448333 GHz 2.495000000 GHz 2.495946667 GHz	-40.42 dBm -29.43 dBm -28.65 dBm	∆ Limit -15.42 dB -16.43 dB	5.000000 MH Auto Mar

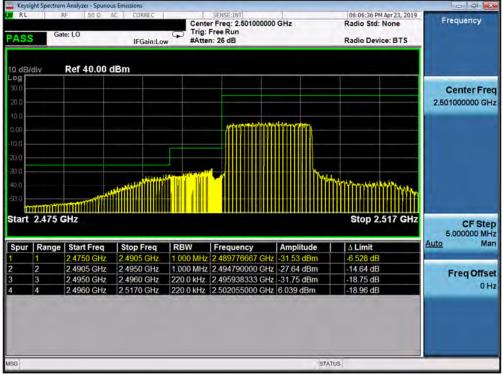
Plot 7-334. Lower ACP Plot (Band 41 PC3 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-335. Upper ACP Plot (Band 41 PC3 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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Plot 7-336. Lower ACP Plot (Band 41 PC3 - 10.0MHz QPSK - Full RB Configuration)



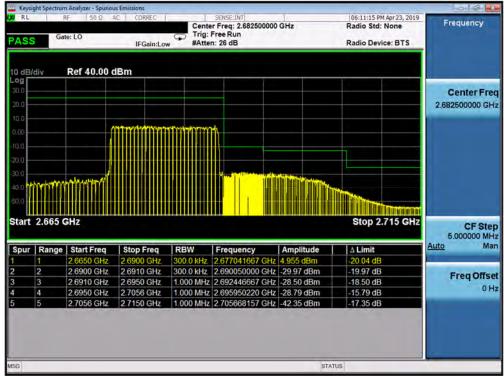
Plot 7-337. Upper ACP Plot (Band 41 PC3 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 105 of 280	
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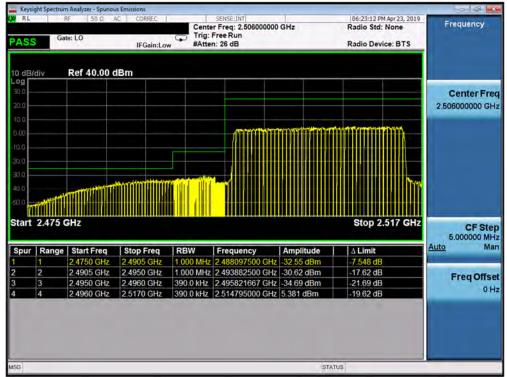
Plot 7-338. Lower ACP Plot (Band 41 PC3 - 15.0MHz QPSK - Full RB Configuration)



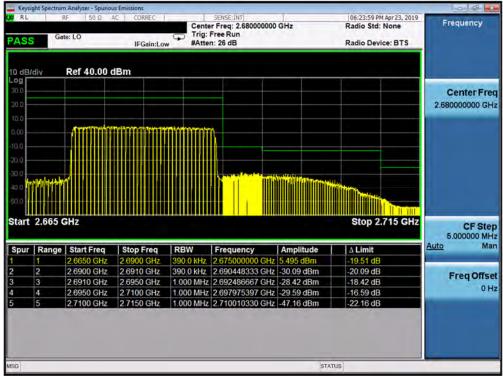
Plot 7-339. Upper ACP Plot (Band 41 PC3 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 106 of 280
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Plot 7-340. Lower ACP Plot (Band 41 PC3 - 20.0MHz QPSK - Full RB Configuration)

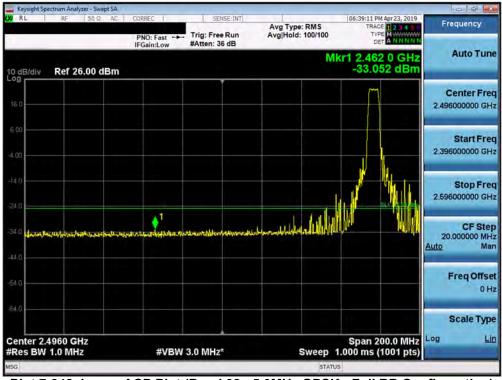


Plot 7-341. Upper ACP Plot (Band 41 PC3 - 20.0MHz QPSK - Full RB Configuration)

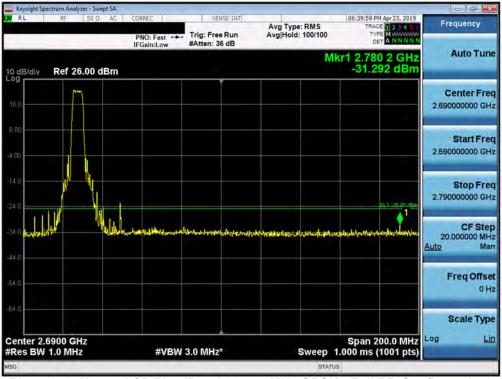
FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 38



Plot 7-342. Lower ACP Plot (Band 38 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-343. Upper ACP Plot (Band 38 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	CORREC	SENSE:INT		06:36:54 PM Apr 23, 2019	
RL RP 30.52 AL	PNO: Fast	Trig: Free Run #Atten: 32 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 0 TYPE M	Frequency
0 dB/div Ref 22.00 dBm	IFGain:Low	#Atten: 52 0D	M	r1 2.465 0 GHz -36.066 dBm	Auto Tun
120					Center Fre 2.496000000 GH
9.00					Start Fre 2.396000000 GF
18.0				phill as a shipp	Stop Fre 2.596000000 GH
^{38 0} wystadadaynadaynaddidu	nectionarul-arditabelur	an an ann an	wordentallite		CF Ste 20.000000 Mi Auto Mi
88.0					Freq Offs 01
center 2,4960 GHz				50011 200.0 MILE	Scale Typ
Res BW 1.0 MHz	#VBW	3.0 MHz*	Sweep 1	.000 ms (1001 pts)	

Plot 7-344. Lower ACP Plot (Band 38 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-345. Upper ACP Plot (Band 38 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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RL	RF 50 Ω AC	CORREC	SENSE:INT	Avg Type: RMS	06:34:52 PM Apr 23, 2019 TRACE 2 3 4 5 0	Frequency
		PNO: Fast IFGain:Low	Trig: Free Run #Atten: 32 dB	Avg Hold: 100/100	DET A NNNNN	a sector
0 dB/div	Ref 22.00 dBm			Mk	r1 2.491 4 GHz -37.219 dBm	Auto Tune
12.0					hat say the a	Center Free 2.496000000 GH
2.00 9.00						Start Fre 2.396000000 GH
18.0					MW 0.1-25 00	Stop Fre 2.596000000 GH
35.0 Angdotha	sudvyfrantsberet, musik	habiya ya Kata Lan di kasak	uner har det anverse berton	rdad a hallon best fill W		CF Ste 20.000000 MH Auto Ma
58.0.						Freq Offse 0 F
68), û						Scale Typ
Center 2.4 Res BW	4960 GHz 1.0 MHz	#VBW	3.0 MHz*	Sweep 1	Span 200.0 MHz .000 ms (1001 pts)	Log <u>Li</u>
SG				STATUS		



Plot 7-346. Lower ACP Plot (Band 38 - 15.0MHz QPSK - Full RB Configuration)

Plot 7-347. Upper ACP Plot (Band 38 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA		1					- 6 ×
α RL RF 50Ω AC		ig: Free Run	Avg Type Avg Hold:		TYPE	23450 NNNNN	Frequency
0 dB/div Ref 22.00 dBm	I Guilleon			Mk	r1 2.403 -36.721	4 GHz dBm	Auto Tune
12.0					rotra	-territe	Center Fre 2.496000000 GH
9.00							Start Fre 2.396000000 GH
18.0				1	while a	-25 60 45%	Stop Fre 2.596000000 GH
38.0 (1 (1744)191-191-191-191-191-191-191-191-191-191	yori-chilypresonanoothort	upplen Winnishama	nya tulakinar	and the state			CF Ste 20.000000 MH Auto Ma
58.0.							Freq Offs 01
Center 2.4960 GHz	#\/D\\\ 2.6				Span 200	O WINZ	Scale Typ
Res BW 1.0 MHz	#VBW 3.0	WIHZ*		Sweep 1.	000 ms (10	u'i pts)	



Plot 7-348. Lower ACP Plot (Band 38 - 20.0MHz QPSK - Full RB Configuration)

Plot 7-349. Upper ACP Plot (Band 38 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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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. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

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



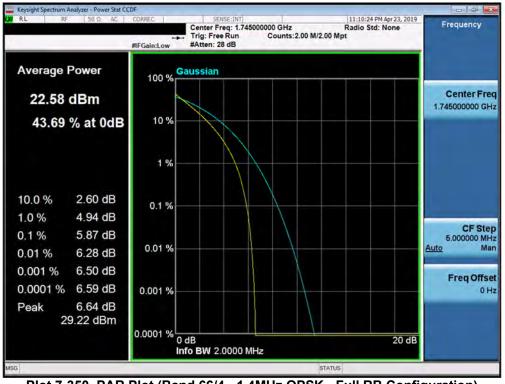
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

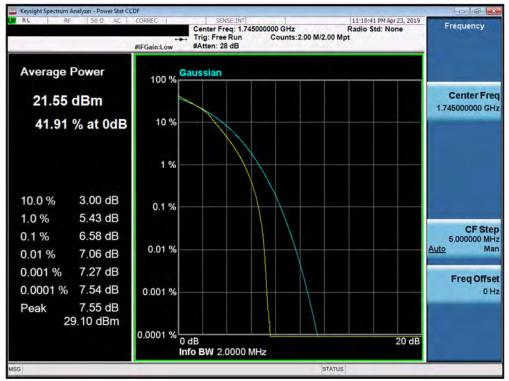
None.

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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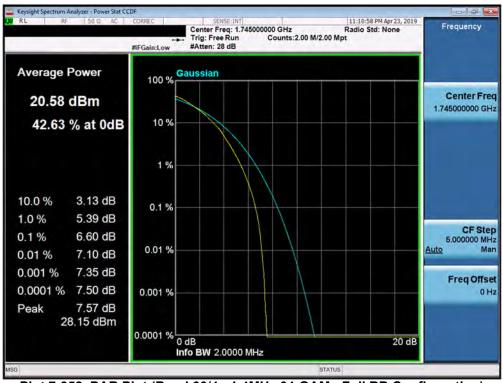


Plot 7-351. PAR Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

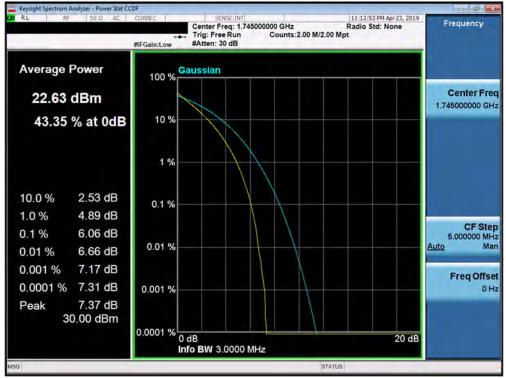
FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 202 of 200
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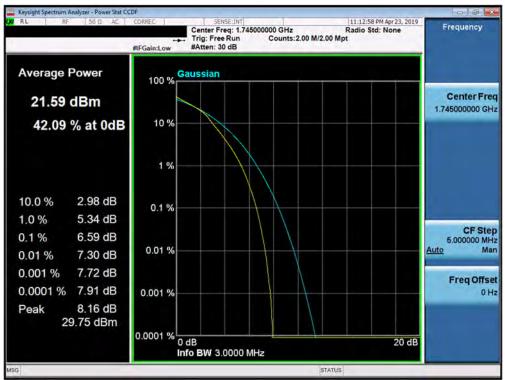
Plot 7-352. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)



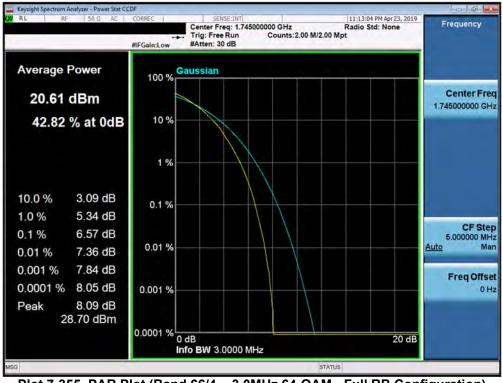
Plot 7-353. PAR Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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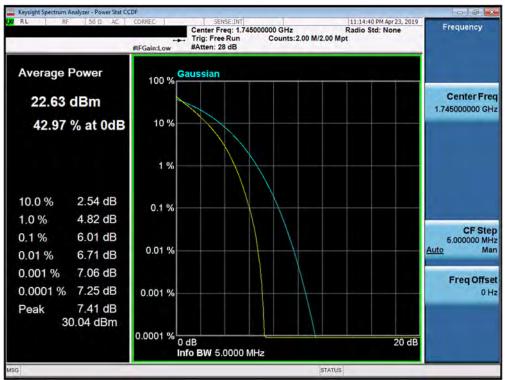


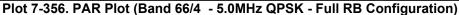


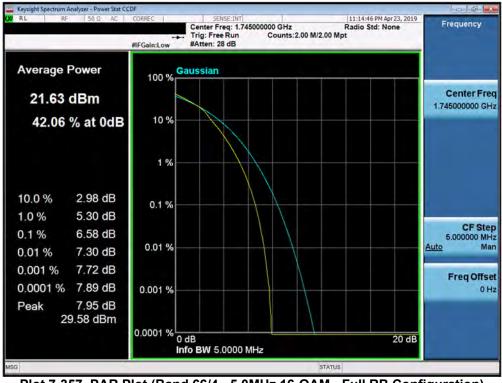
Plot 7-355. PAR Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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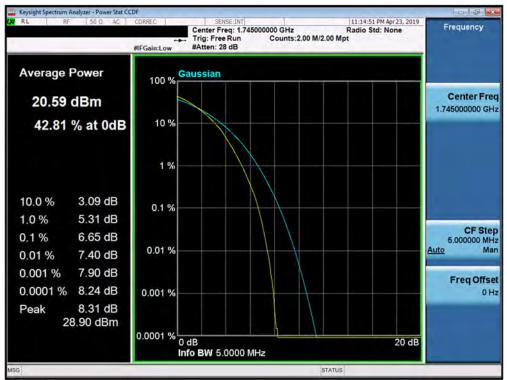




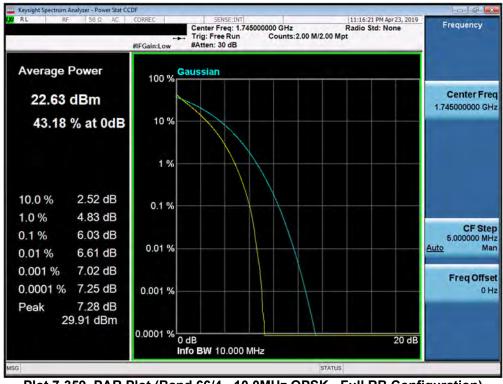
Plot 7-357. PAR Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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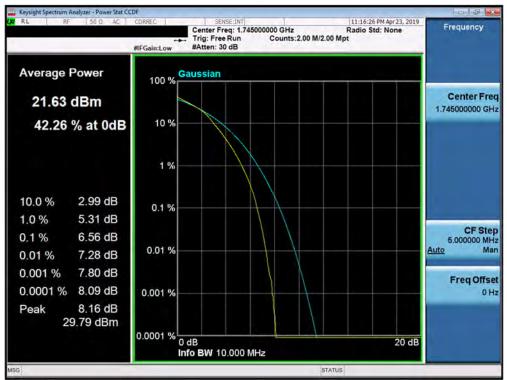




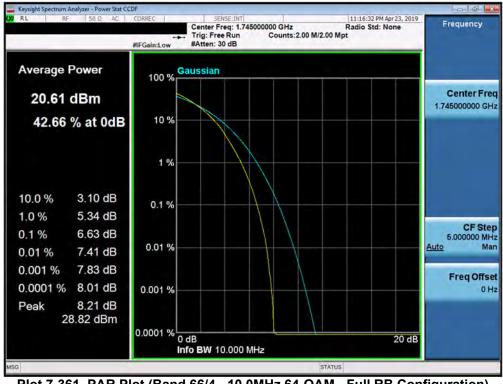
Plot 7-359. PAR Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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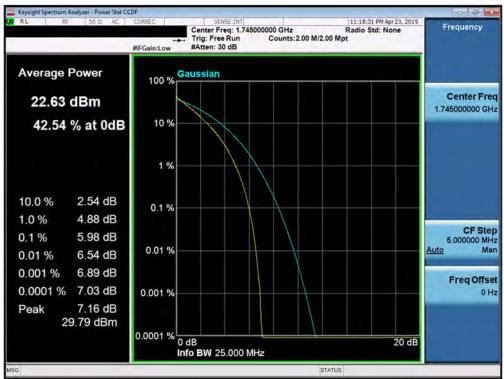


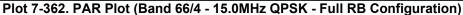


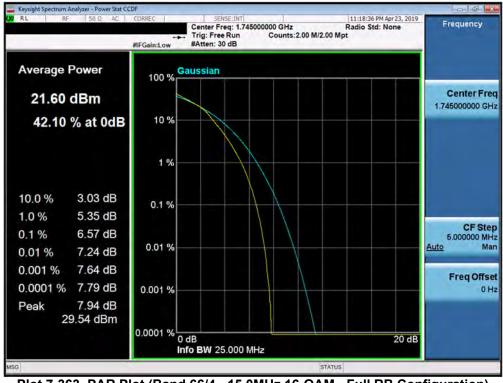
Plot 7-361. PAR Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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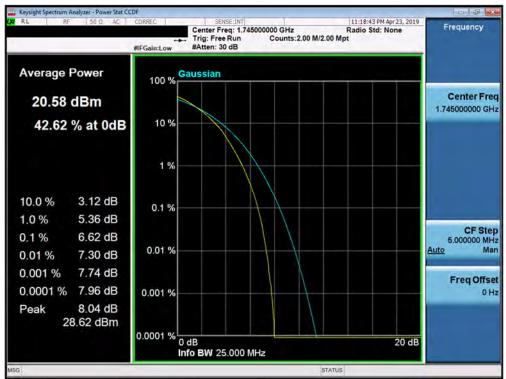




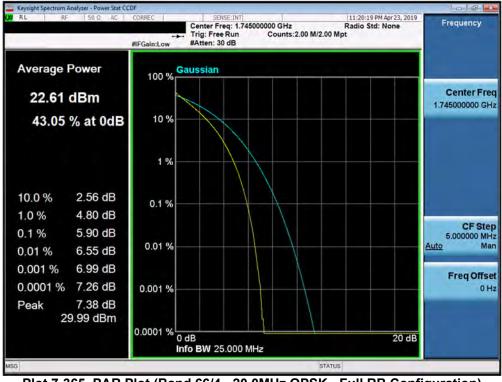
Plot 7-363. PAR Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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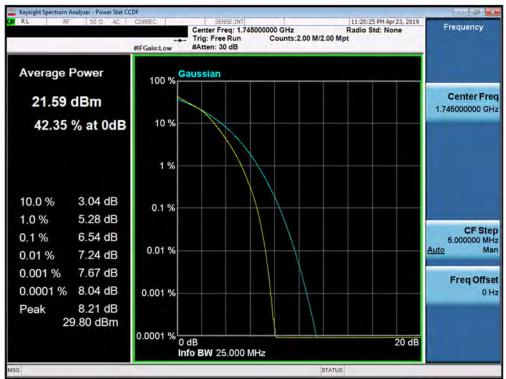




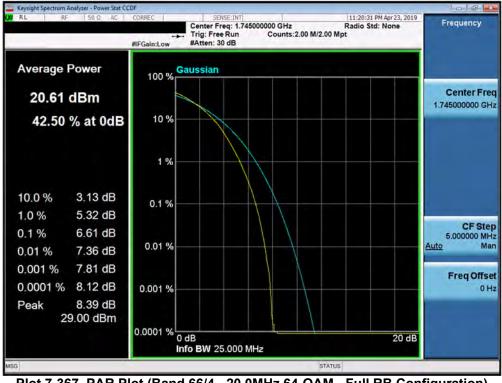
Plot 7-365. PAR Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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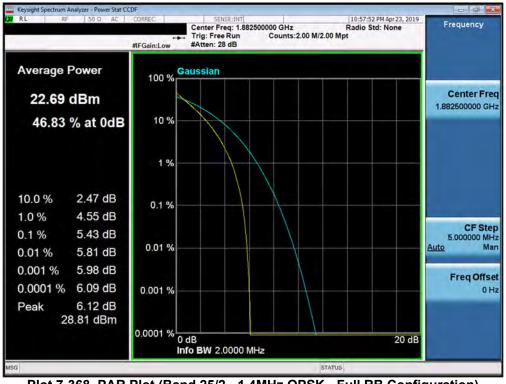




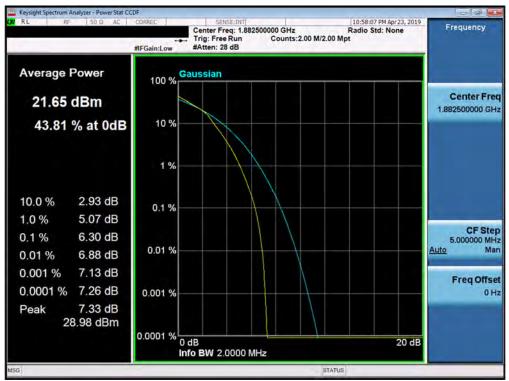
Plot 7-367. PAR Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-368. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

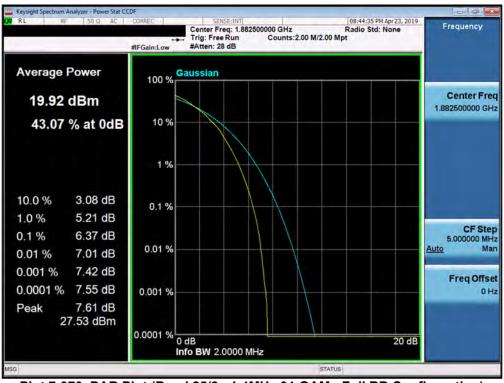


Plot 7-369. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

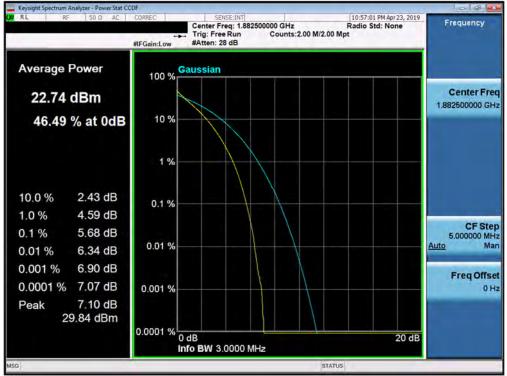
FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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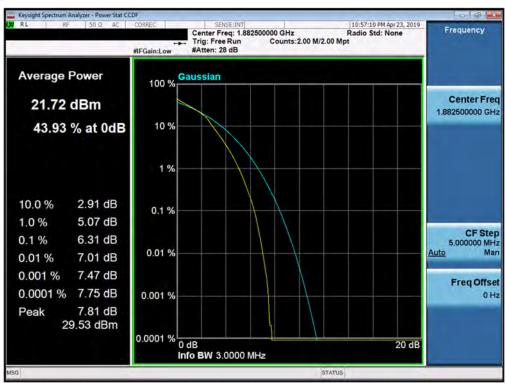
Plot 7-370. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



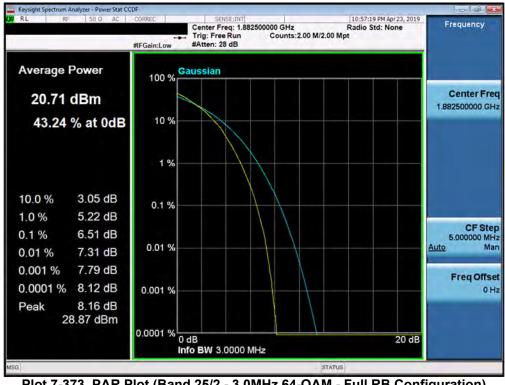
Plot 7-371. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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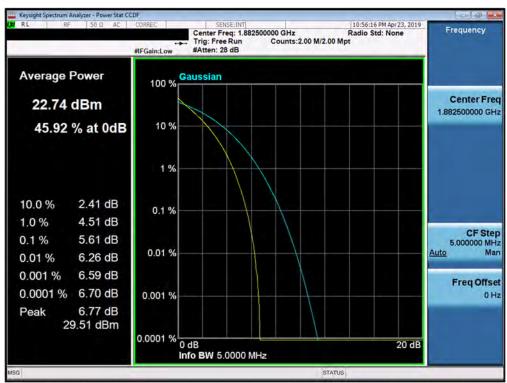




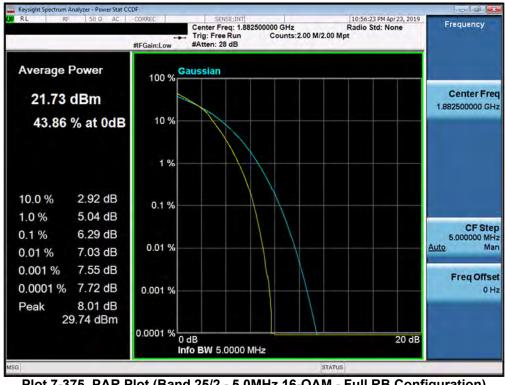
Plot 7-373. PAR Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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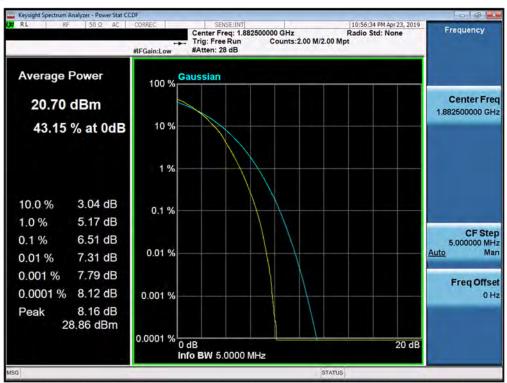




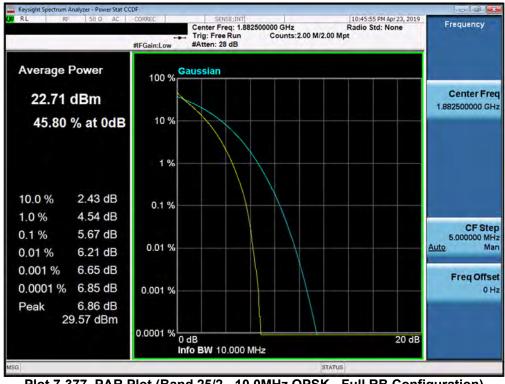
Plot 7-375. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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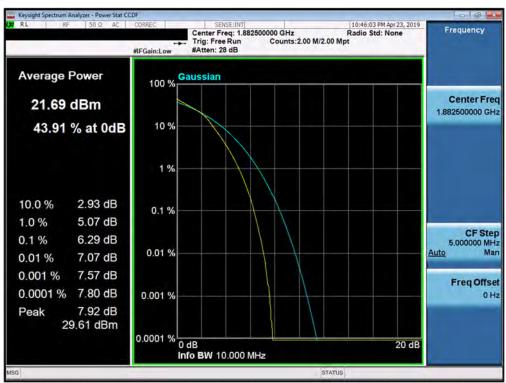




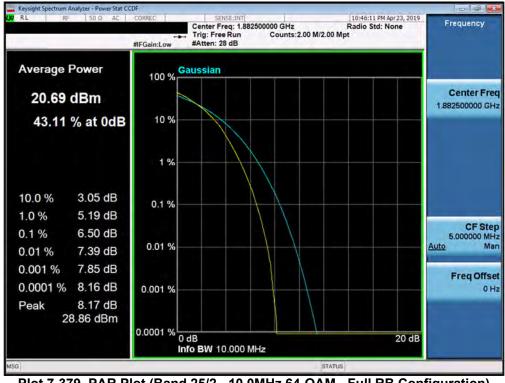
Plot 7-377. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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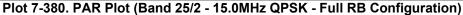


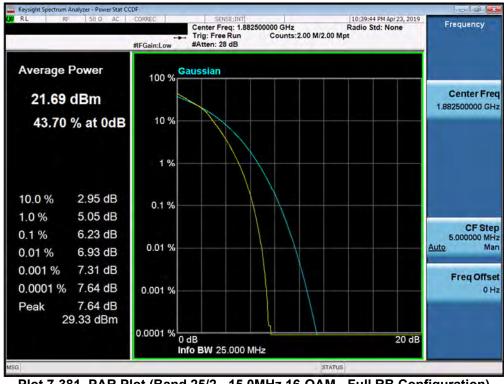
Plot 7-379. PAR Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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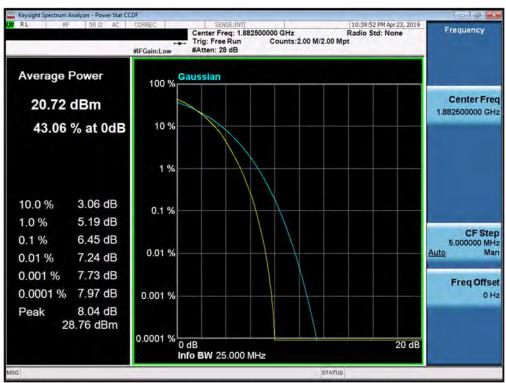




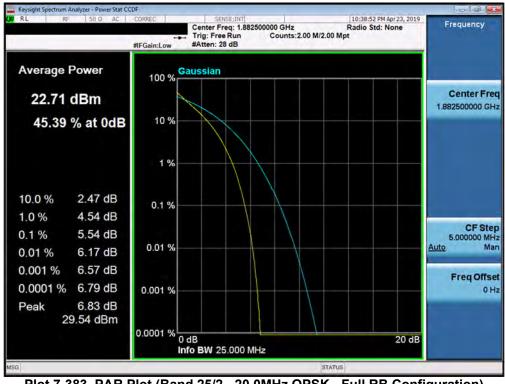
Plot 7-381. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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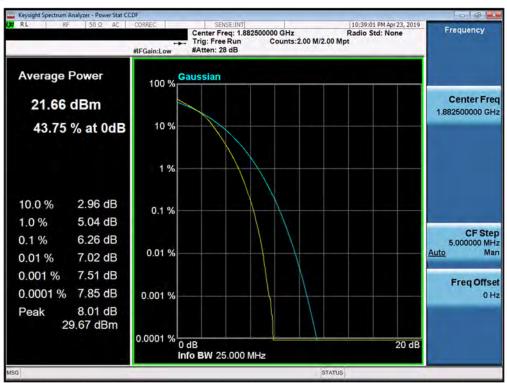




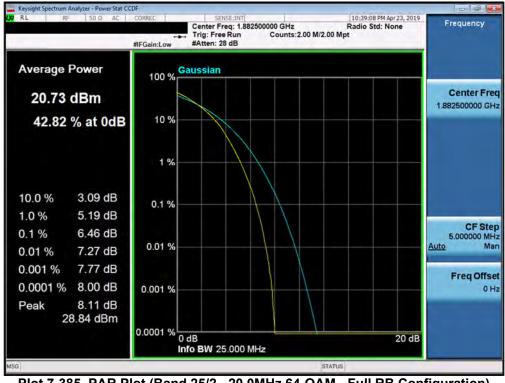
Plot 7-383. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-385. PAR Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

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7.6 Additional Maximum Power Reduction (A-MPR) §2.1046

Test Overview

A-MPR is implemented in this device when operating at Power Class 2 in LTE Band 41 per the A-MPR specification in 3GPP TS 36.101. The conducted powers are shown herein to cover the different A-MPR levels specified in the standard. Measurement equipment was set up with triggering/gating on the spectrum analyzer such that powers were measured only during the on-time of the signal.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 5.2.2

Test Settings

- 1. Span = $2 \times OBW$ to $3 \times OBW$
- 2. RBW = 1% to 5% of the OBW
- 3. Number of measurement points in sweep $\geq 2 \times \text{span} / \text{RBW}$
- 4. Sweep = auto-couple (less than transmission burst duration)
- 5. Detector = RMS (power)
- 6. Trigger was set to enable power measurements only on full power bursts
- 7. Trace was allowed to stabilize
- 8. Spectrum analyzer's "Channel Power" function was used to compute the power by integrating the spectrum across the OBW of the signal

Test Setup

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



Figure 7-5. Test Instrument & Measurement Setup

Test Notes

None.

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1 1 24.99 5 39675 249.95 249.95 24.99 24.99 24.99 24.99 24.99 24.99 24.99 24.99 24.99 1.74 2 5 39675 2498.5 16.04M 1 9 -1 0 25.65 25.00 1.92 3 - 37.00 2501 16.04M 1 0 4.1 2.2 2.0 2.0 2.0 2.0 1.0 30.0 1.0 1.0 2.0 2.0 2.0 1.0 30.0 1.0 1.0 2.0 2.0 2.0 1.0 30.0 1.0 1.0 2.0 2.0 1.0 30.0 1.0 1.0 3.0 1.0 1.0 3.00 1.0 1.0 3.00 1.0 1.0 2.0 2.0 1.0 1.0 2.0 2.0 1.0 1.0 2.0 2.0 1.0 1.0 1.0 1.0 1.0 1.0 2.0 2.0 1.0	Test Case	NS	МСС	MNC	Channel BW [MHz]	Channel Number	Channel Frequency [MHz]	Modulation	RB Size	RB Offset	MPR [dB]	A-MPR [dB]	Measured Power [dBm]	Lowest Typical Power [dBm]	Delta [dB]						
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$								QPSK			0		24.99	23.0	1.99						
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1				5	39675	2498.5		1	0		≤ 3		22.0							
2 5 39675 2496.5 16-QAM 1 9 51 0 25.6 25.0 1.50 3 3 3 10 39700 2501 16-QAM 1 0 52 22.90 21.0 1.92 4 10 39700 2501 16-QAM 1 0 52 22.90 21.0 1.93 5 10 39700 2501 16-QAM 20 0 2 22.77 21.0 1.93 6 10 39700 2501 16-QAM 20 0 2 23.77 22.0 1.91 1.1 10 39700 2501 16-QAM 25 20 0 5 23.82 23.1 23.1 23.1 23.1 23.1 23.1 1.92 1.92 25.8 23.0 1.92 1.92 25.8 23.0 2.1 23.0 23.0 1.92 1.92 23.8 23.0 1.92 1.92																					
3 10 39700 2501 64-0AM 1 0 52 25.72 24.00 1.12 10 39700 2501 675K 1 0 0 5 22.09 21.0 190 4 10 39700 2501 16-0AM 1 0 5 22.07 21.0 1.32 5 10 39700 2501 16-0AM 20 0 51 22.277 21.0 1.12 6 10 39700 2501 16-0AM 50 0 51 22.21 22.07 21.0 1.97 10 39700 2501 16-0AM 25 20 51 21.8 22.81 21.0 1.92 1.92 22.81 22.0 1.92 22.81 22.0 1.92 22.81 22.0 1.92 22.81 22.0 1.92 22.81 22.0 1.92 22.81 22.0 1.92 22.81 22.0 2.1.8 22.0																					
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3 10 39700 2801 16-QMM 1 0 ≤ 1 5 21.73 20.0 1.34 4 4 0 ≤ 2 5 21.73 20.0 1.34 4 4 0 ≤ 2 5 21.73 20.0 1.34 4 10 39700 2501 16-QMM 20 0 2 24.04 72.0 1.34 5 10 39700 2501 16-QMM 50 0 5 22.77 21.0 1.0 1.0 6 10 39700 2501 16-QMM 50 0 5 22.81 21.0 1.80																					
4 1 0 s2 20.24 19.0 1.24 4 10 39700 2501 16.0AM 20 0 5 25.05 22.07 22.10 17.7 5 10 39700 2501 16.0AM 20 0 5.1 52.2 22.77 21.0 17.7 6 10 39700 2501 16.0AM 50 0 5.1 53 22.81 21.0 11.90 6 39700 2501 16.0AM 25 20 5.1 25.00 23.02 2.06 0.0 25.99 25.0 2.0					10	00700	0504			-											
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	3				10	39700	2501			-		≤ 5									
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	4				10	20700	2501			-		< 2									
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6 64-QAM 50 0 s.2 21.80 20.0 18.00 6 0 39700 2501 16-QAM 25 20 s.1 51 25.06 23.0 20.0 19.2 7 10 39700 2501 16-QAM 1 36 0 25.65 22.0 s.1 25.1 26.00 0.51 7 10 39700 2501 16-QAM 1 36 c.1 0 25.98 28.0 0.99 9 01 310 120 15 39725 2503.5 16-QAM 1 0 s.1 s.2 23.02 21.0 2.02 19.0 1.89 10 15 39725 2503.5 16-QAM 20 0 s.2 22.0 19.0 1.80 11 39725 2503.5 16-QAM 20 0 s.4 21.90 20.0 1.90 1.90 1.90 1.90 1.90 1.	5				10	10	39700	2501			-		< 3								
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6 10 39700 2501 16-QAM 25 20 ≤1 51 25.06 23.0 20.0 21.5 7 10 39700 2501 16-QAM 1 36 0 24.15 22.0 2.15 8 10 39700 2501 16-QAM 1 36 ≤1 0 25.90 25.00 0.99 9 01 310 120 15 39725 2503.5 16-QAM 1 0 ≤1 52 21.89 20.0 1.89 10 15 39725 2503.5 16-QAM 1 0 ≤1 52 21.89 20.0 1.90 1.30 1.90										-											
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $																					
8 9 01 310 120 15 39725 2503.5 16-QAM 1 00 5 23.02 21.0 20.00 1.89 9 01 310 120 15 39725 2503.5 16-QAM 1 0 \$<1	7				10	39700	2501					0									
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$									1	36		-									
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $								QPSK	1	0	0		23.02	21.0							
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	8				15	39725	2503.5	16-QAM	1	0	≤ 1	≤ 5	21.89	20.0							
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $								64-QAM	1	0	≤ 2		20.20	19.0	1.20						
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$								QPSK	20	0	0			23.0	2.02						
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	9	01	310	120	15	39725	2503.5	16-QAM	20	0	≤ 1	≤ 2	23.97	22.0							
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $										-											
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $										-											
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	10				15	39725	15 39725	2503.5			-		≤ 4								
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	44					15 39725	00705	15 30725	0500 F												
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $					15 39725		15	15	39725	39725	39123	5 39725	15 39725	2503.5					≥ 3		
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	12				15	39725	2503 5					0									
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $.2				10	00120	2000.0					Ť									
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$																					
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	13				20	39750	2506			-		≤ 5									
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $									1	0											
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $								QPSK	20	0	0		25.03	23.0	2.03						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	14				20	39750	2506	16-QAM	20	0	≤ 1	≤ 2	24.10	22.0	2.10						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$								64-QAM	20	0	≤ 2				1.99						
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $										-											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	15				20	39750	2506			-		≤ 4									
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $																					
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	16				20	39750	2506					≤3									
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$																					
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	17				20	30750	2506					0									
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	17				20	39730	2000														
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	18	01	311	400	5	30675	2408 5		1	0		< 2									
19 01 01 01 5 39675 2498.5 16-QAM 1 0 ≤1 0 27.08 26.0 1.08	10	U1	011	-30	5	00010	2-100.0			Ŭ											
19 01 01 5 39675 2498.5 16-QAM 1 0 ≤ 1 0 26.77 25.0 1.77				<u> </u>																	
	19	19 01 001 01 5		39675	2498 5		1	0		0											
IIIIIIIIIIIIIIIIIIII25 Q2 I 24 O I 1 02	13	U1	001		5	00010	2-100.0	64-QAM		Ŭ	≤ 2	Ĭ	25.93	24.0	1.93						

Table 7-3. A-MPR Conducted Power Measurements

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7.7 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

- Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
- 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". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
- 8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
- 9. Trace mode = trace averaging (RMS) over 100 sweeps
- 10. The trace was allowed to stabilize

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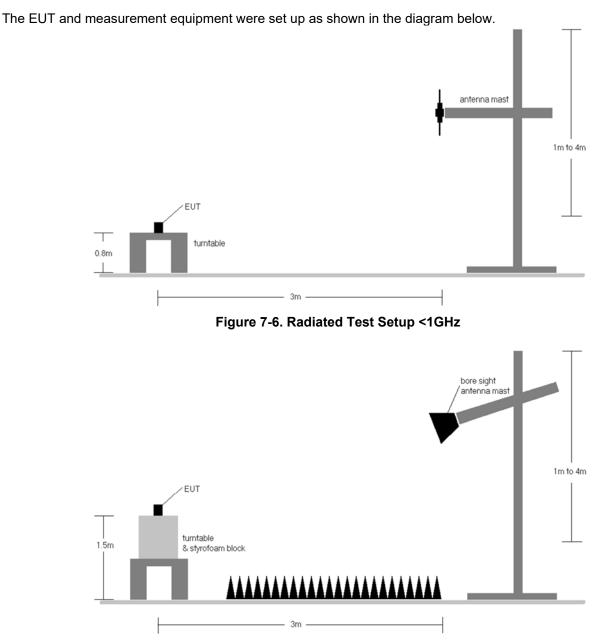


Figure 7-7. Radiated Test Setup >1GHz

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: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager						
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	н	103	182	1 / 0	18.80	2.90	19.55	0.090	34.77	-15.22
680.50	5	QPSK	Н	98	187	1 / 24	18.63	3.20	19.68	0.093	34.77	-15.09
695.50	5	QPSK	Н	102	185	1 / 0	18.62	3.30	19.77	0.095	34.77	-15.00
695.50	5	16-QAM	Н	102	185	1 / 24	13.54	3.30	14.69	0.029	34.77	-20.08
695.50	5	64-QAM	Н	102	185	1 / 0	12.48	3.30	13.63	0.023	34.77	-21.14
668.00	10	QPSK	Н	105	186	1 / 49	18.74	2.90	19.49	0.089	34.77	-15.28
680.50	10	QPSK	Н	100	180	1 / 0	18.67	3.20	19.72	0.094	34.77	-15.05
693.00	10	QPSK	Н	104	188	1 / 0	18.70	3.30	19.85	0.097	34.77	-14.92
693.00	10	16-QAM	Н	104	188	1 / 0	13.59	3.30	14.74	0.030	34.77	-20.03
693.00	10	64-QAM	Н	104	188	1 / 49	12.52	3.30	13.67	0.023	34.77	-21.10
670.50	15	QPSK	Н	103	181	1 / 0	18.47	3.00	19.32	0.086	34.77	-15.45
680.50	15	QPSK	Н	96	181	1 / 74	18.70	3.20	19.75	0.094	34.77	-15.02
690.50	15	QPSK	Н	94	179	1 / 0	18.51	3.30	19.66	0.092	34.77	-15.11
690.50	15	16-QAM	Н	94	179	1 / 0	13.72	3.30	14.87	0.031	34.77	-19.90
680.50	15	64-QAM	Н	96	181	1 / 74	12.65	3.20	13.70	0.023	34.77	-21.07
673.00	20	QPSK	Н	100	183	1 / 99	19.03	3.10	19.98	0.100	34.77	-14.79
680.50	20	QPSK	Н	100	181	1 / 99	19.03	3.20	20.08	0.102	34.77	-14.69
688.00	20	QPSK	Н	100	187	1 / 99	18.99	3.30	20.14	0.103	34.77	-14.63
680.50	20	16-QAM	Н	100	181	1 / 99	13.70	3.20	14.75	0.030	34.77	-20.02
680.50	20	64-QAM	Н	100	181	1 / 99	12.64	3.20	13.69	0.023	34.77	-21.08
688.00	20	QPSK	V	154	232	1 / 99	14.17	5.14	17.16	0.052	34.77	-17.61

Table 7-4. ERP Data (Band 71)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	Н	295	0	1 / 0	14.84	5.14	17.83	0.061	34.77	-16.94
707.50	1.4	QPSK	Н	301	356	3/2	14.90	5.19	17.94	0.062	34.77	-16.83
715.30	1.4	QPSK	н	303	358	1 / 0	14.97	5.26	18.08	0.064	34.77	-16.70
715.30	1.4	16-QAM	н	100	190	3/2	14.05	5.26	17.16	0.052	34.77	-17.62
715.30	1.4	64-QAM	н	100	190	1 / 0	13.19	5.26	16.30	0.043	34.77	-18.48
700.50	3	QPSK	н	304	353	1 / 0	14.90	5.14	17.89	0.062	34.77	-16.88
707.50	3	QPSK	Н	293	2	1 / 14	15.00	5.19	18.04	0.064	34.77	-16.73
714.50	3	QPSK	Н	295	354	1 / 0	14.98	5.25	18.08	0.064	34.77	-16.69
714.50	3	16-QAM	Н	100	184	1 / 14	13.99	5.25	17.09	0.051	34.77	-17.68
707.50	3	64-QAM	Н	101	183	1/0	13.10	5.19	16.14	0.041	34.77	-18.63

Table 7-5. 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]
701.50	5	QPSK	Н	300	6	1 / 24	14.86	5.15	17.86	0.061	34.77	-16.91
707.50	5	QPSK	н	305	9	1 / 24	15.14	5.19	18.18	0.066	34.77	-16.59
713.50	5	QPSK	Н	312	5	1 / 24	15.16	5.24	18.25	0.067	34.77	-16.52
713.50	5	16-QAM	Н	312	5	1 / 24	14.26	5.24	17.35	0.054	34.77	-17.42
713.50	5	64-QAM	н	312	5	1 / 24	13.20	5.24	16.29	0.043	34.77	-18.48
704.00	10	QPSK	н	299	359	1 / 49	15.11	5.17	18.13	0.065	34.77	-16.64
707.50	10	QPSK	Н	296	8	1 / 49	15.08	5.19	18.12	0.065	34.77	-16.65
711.00	10	QPSK	Н	311	9	1 / 49	15.19	5.22	18.26	0.067	34.77	-16.51
711.00	10	16-QAM	н	311	9	1 / 49	14.13	5.22	17.20	0.053	34.77	-17.57
711.00	10	64-QAM	Н	311	9	1 / 49	13.19	5.22	16.26	0.042	34.77	-18.51
711.00	10	QPSK	V	176	322	1 / 49	14.68	5.22	17.75	0.060	34.77	-17.02

Table 7-6. ERP Data (Band 12/17)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
779.50	5	QPSK	н	147	359	1 / 24	15.31	6.09	19.25	0.084	34.77	-15.52
782.00	5	QPSK	Н	149	5	1 / 24	15.83	6.13	19.81	0.096	34.77	-14.96
784.50	5	QPSK	Н	150	9	1 / 24	15.98	6.18	20.01	0.100	34.77	-14.76
784.50	5	16-QAM	Н	150	9	1 / 24	14.86	6.18	18.89	0.077	34.77	-15.88
784.50	5	64-QAM	Н	150	9	1 / 24	13.83	6.18	17.86	0.061	34.77	-16.91
782.00	10	QPSK	Н	148	19	1 / 49	15.64	6.13	19.62	0.092	34.77	-15.15
782.00	10	16-QAM	Н	148	19	1 / 49	14.67	6.13	18.65	0.073	34.77	-16.12
782.00	10	64-QAM	Н	148	19	1 / 49	13.43	6.13	17.41	0.055	34.77	-17.36
784.50	5	QPSK	V	313	196	1 / 24	14.19	6.18	18.22	0.066	34.77	-16.55

Table 7-7. ERP Data (Band 13)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	130	170	1 / 5	19.59	1.23	18.67	0.074	38.45	-19.78
836.50	1.4	QPSK	V	130	170	1 / 0	19.39	1.29	18.53	0.071	38.45	-19.92
848.30	1.4	QPSK	V	130	173	1 / 0	16.77	1.34	15.96	0.039	38.45	-22.49
824.70	1.4	16-QAM	V	130	170	1 / 5	18.56	1.23	17.64	0.058	38.45	-20.81
824.70	1.4	64-QAM	V	130	170	1 / 5	17.63	1.23	16.71	0.047	38.45	-21.74
825.50	3	QPSK	V	130	168	1 / 14	19.57	1.24	18.66	0.073	38.45	-19.80
836.50	3	QPSK	V	130	170	1 / 0	19.29	1.29	18.43	0.070	38.45	-20.02
847.50	3	QPSK	V	130	165	1 / 0	16.66	1.34	15.85	0.038	38.45	-22.60
825.50	3	16-QAM	V	130	168	1 / 14	18.42	1.24	17.51	0.056	38.45	-20.95
825.50	3	64-QAM	V	130	168	1 / 14	17.30	1.24	16.39	0.044	38.45	-22.07
826.50	5	QPSK	V	130	170	1 / 24	19.90	1.24	18.99	0.079	38.45	-19.46
836.50	5	QPSK	V	130	170	1 / 0	19.75	1.29	18.89	0.077	38.45	-19.56
846.50	5	QPSK	V	130	167	1 / 0	17.17	1.34	16.36	0.043	38.45	-22.10
826.50	5	16-QAM	V	130	170	1 / 24	19.02	1.24	18.11	0.065	38.45	-20.34
826.50	5	64-QAM	V	130	170	1 / 24	17.80	1.24	16.89	0.049	38.45	-21.56
829.00	10	QPSK	V	130	167	1 / 49	20.46	1.25	19.56	0.090	38.45	-18.89
836.50	10	QPSK	V	130	170	1/0	20.77	1.29	19.91	0.098	38.45	-18.54
844.00	10	QPSK	V	130	160	1/0	18.22	1.32	17.39	0.055	38.45	-21.06
836.50	10	16-QAM	V	130	170	1/0	19.62	1.29	18.76	0.075	38.45	-19.69
836.50	10	64-QAM	V	130	170	1 / 49	17.65	1.29	16.79	0.048	38.45	-21.66
836.50	10	QPSK	Н	121	201	1 / 0	11.80	7.08	16.73	0.047	38.45	-21.72

Table 7-8. ERP Data (Band 26/5)

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]
831.50	15	QPSK	V	130	175	1 / 74	18.06	1.26	17.17	0.052	38.45	-21.28
836.50	15	QPSK	V	130	175	1 / 0	18.57	1.29	17.71	0.059	38.45	-20.74
841.50	15	QPSK	V	130	175	1 / 0	18.16	1.31	17.32	0.054	38.45	-21.13
836.50	15	16-QAM	V	130	175	1 / 0	17.27	1.29	16.41	0.044	38.45	-22.04
836.50	15	64-QAM	V	130	175	1/0	16.08	1.29	15.22	0.033	38.45	-23.23

Table 7-9. ERP Data (Band 26)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	Н	140	25	1 / 0	13.66	8.48	22.14	0.164	30.00	-7.86
1745.00	1.4	QPSK	Н	140	22	1 / 0	14.05	8.38	22.43	0.175	30.00	-7.57
1779.30	1.4	QPSK	Н	140	14	1 / 0	14.30	8.29	22.59	0.181	30.00	-7.41
1779.30	1.4	16-QAM	Н	140	14	1 / 0	13.21	8.29	21.50	0.141	30.00	-8.50
1779.30	1.4	64-QAM	Н	140	14	1 / 0	12.14	8.29	20.43	0.110	30.00	-9.57
1711.50	3	QPSK	Н	140	17	1 / 0	13.81	8.48	22.29	0.169	30.00	-7.71
1745.00	3	QPSK	Н	140	20	1 / 0	14.24	8.38	22.62	0.183	30.00	-7.38
1778.50	3	QPSK	Н	140	20	1 / 0	14.72	8.29	23.01	0.200	30.00	-6.99
1778.50	3	16-QAM	Н	140	20	1 / 0	13.63	8.29	21.92	0.155	30.00	-8.08
1778.50	3	64-QAM	Н	140	20	1 / 0	12.66	8.29	20.95	0.124	30.00	-9.05
1712.50	5	QPSK	Н	140	21	1 / 0	13.88	8.48	22.36	0.172	30.00	-7.64
1745.00	5	QPSK	Н	140	23	1 / 0	14.39	8.38	22.77	0.189	30.00	-7.23
1777.50	5	QPSK	Н	140	14	1 / 0	14.46	8.29	22.75	0.188	30.00	-7.25
1777.50	5	16-QAM	Н	140	14	1 / 0	13.47	8.29	21.76	0.150	30.00	-8.24
1777.50	5	64-QAM	Н	140	14	1 / 0	13.33	8.29	21.62	0.145	30.00	-8.38
1715.00	10	QPSK	Н	140	18	1 / 0	13.98	8.46	22.44	0.176	30.00	-7.56
1745.00	10	QPSK	Н	140	20	1 / 0	14.62	8.38	23.00	0.199	30.00	-7.00
1775.00	10	QPSK	Н	140	15	1 / 0	14.32	8.29	22.61	0.182	30.00	-7.39
1745.00	10	16-QAM	Н	140	20	1 / 0	13.50	8.38	21.88	0.154	30.00	-8.12
1775.00	10	64-QAM	Н	140	15	1 / 0	12.14	8.29	20.43	0.110	30.00	-9.57
1717.50	15	QPSK	Н	140	20	1 / 0	14.03	8.45	22.48	0.177	30.00	-7.52
1745.00	15	QPSK	Н	140	25	1 / 0	14.18	8.38	22.56	0.180	30.00	-7.44
1772.50	15	QPSK	Н	140	22	1 / 0	14.31	8.30	22.61	0.182	30.00	-7.39
1772.50	15	16-QAM	Н	140	22	1 / 0	13.20	8.30	21.50	0.141	30.00	-8.50
1772.50	15	64-QAM	Н	140	22	1 / 0	12.26	8.30	20.56	0.114	30.00	-9.44
1720.00	20	QPSK	Н	140	18	1/0	14.24	8.44	22.68	0.185	30.00	-7.32
1745.00	20	QPSK	Н	140	20	1/0	14.27	8.38	22.65	0.184	30.00	-7.35
1770.00	20	QPSK	Н	140	12	1/0	14.50	8.31	22.81	0.191	30.00	-7.19
1770.00	20	16-QAM	Н	140	12	1 / 0	13.30	8.31	21.61	0.145	30.00	-8.39
1770.00	20	64-QAM	Н	140	12	1/0	12.17	8.31	20.48	0.112	30.00	-9.52
1778.50	3	QPSK	V	130	125	1 / 0	13.36	8.31	21.67	0.147	30.00	-8.33

Table 7-10. EIRP Data (Band 66/4)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)		proved by: Ility Manager
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(m)	PCTEST
	ENGINEERING EREDRATORY, INC.

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	н	120	10	1 / 0	14.33	8.27	22.60	0.182	33.01	-10.41
1882.50	1.4	QPSK	Н	120	20	1 / 0	14.34	8.29	22.63	0.183	33.01	-10.38
1914.30	1.4	QPSK	Н	120	6	1 / 0	14.24	8.33	22.57	0.181	33.01	-10.44
1882.50	1.4	16-QAM	Н	120	20	1 / 0	13.31	8.29	21.60	0.145	33.01	-11.41
1882.50	1.4	64-QAM	Н	120	20	1 / 0	12.25	8.29	20.54	0.113	33.01	-12.47
1851.50	3	QPSK	Н	120	10	1 / 0	14.35	8.27	22.62	0.183	33.01	-10.39
1882.50	3	QPSK	Н	120	17	1 / 0	14.60	8.29	22.89	0.195	33.01	-10.12
1913.50	3	QPSK	Н	120	5	1 / 0	14.35	8.33	22.68	0.185	33.01	-10.33
1882.50	3	16-QAM	Н	120	17	1 / 0	13.62	8.29	21.91	0.155	33.01	-11.10
1882.50	3	64-QAM	Н	120	17	1 / 0	12.56	8.29	20.85	0.122	33.01	-12.16
1852.50	5	QPSK	Н	120	9	1 / 0	14.35	8.27	22.62	0.183	33.01	-10.39
1882.50	5	QPSK	Н	120	19	1 / 0	14.82	8.29	23.11	0.205	33.01	-9.90
1912.50	5	QPSK	Н	120	6	1 / 0	14.14	8.32	22.46	0.176	33.01	-10.55
1882.50	5	16-QAM	Н	120	19	1 / 0	13.80	8.29	22.09	0.162	33.01	-10.92
1882.50	5	64-QAM	Н	120	19	1 / 0	12.87	8.29	21.16	0.131	33.01	-11.85
1855.00	10	QPSK	н	120	12	1 / 0	14.20	8.28	22.48	0.177	33.01	-10.53
1882.50	10	QPSK	н	120	9	1 / 0	14.79	8.29	23.08	0.203	33.01	-9.93
1910.00	10	QPSK	н	120	5	1 / 0	13.99	8.32	22.31	0.170	33.01	-10.70
1882.50	10	16-QAM	Н	120	9	1 / 0	13.62	8.29	21.91	0.155	33.01	-11.10
1882.50	10	64-QAM	Н	120	9	1 / 0	12.58	8.29	20.87	0.122	33.01	-12.14
1857.50	15	QPSK	Н	120	17	1 / 0	14.49	8.28	22.77	0.189	33.01	-10.24
1882.50	15	QPSK	н	120	15	1 / 0	14.85	8.29	23.14	0.206	33.01	-9.87
1907.50	15	QPSK	Н	120	11	1 / 0	14.17	8.31	22.48	0.177	33.01	-10.53
1882.50	15	16-QAM	Н	120	15	1 / 0	13.69	8.29	21.98	0.158	33.01	-11.03
1882.50	15	64-QAM	Н	120	15	1 / 0	12.67	8.29	20.96	0.125	33.01	-12.05
1860.00	20	QPSK	Н	120	16	1 / 0	14.64	8.28	22.92	0.196	33.01	-10.09
1882.50	20	QPSK	Н	120	17	1/0	14.84	8.29	23.13	0.206	33.01	-9.88
1905.00	20	QPSK	Н	120	13	1/0	14.79	8.30	23.09	0.204	33.01	-9.92
1905.00	20	16-QAM	Н	120	13	1/0	13.77	8.30	22.07	0.161	33.01	-10.94
1882.50	20	64-QAM	Н	120	17	1/0	12.64	8.29	20.93	0.124	33.01	-12.08
1882.50	15	QPSK	V	110	108	1 / 0	13.98	8.29	22.27	0.169	33.01	-10.74

Table 7-11. EIRP Data (Band 25/2)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	Н	110	355	1 / 24	13.50	8.71	22.21	0.166	23.98	-1.77
2312.50	5	QPSK	н	108	355	1 / 0	13.98	8.71	22.69	0.186	23.98	-1.29
2312.50	5	16-QAM	Н	108	355	1 / 12	13.87	8.71	22.58	0.181	23.98	-1.40
2312.50	5	64-QAM	Н	108	355	1 / 12	13.74	8.71	22.45	0.176	23.98	-1.53
2310.00	10	QPSK	Н	110	356	1 / 25	14.27	8.71	22.98	0.199	23.98	-1.00
2310.00	10	16-QAM	Н	110	356	1 / 25	14.16	8.71	22.87	0.194	23.98	-1.11
2310.00	10	64-QAM	Н	110	356	1 / 25	13.95	8.71	22.66	0.185	23.98	-1.32
2310.00	10	QPSK	V	102	115	1 / 25	12.34	8.71	21.05	0.127	23.98	-2.93

Table 7-12. EIRP Data (Band 30)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	V	100	322	1 / 24	13.55	8.34	21.89	0.154	33.01	-11.12
2535.00	5	QPSK	V	101	314	1 / 24	13.81	8.28	22.09	0.162	33.01	-10.92
2567.50	5	QPSK	V	107	317	1 / 24	13.67	8.17	21.84	0.153	33.01	-11.17
2502.50	5	16-QAM	V	100	322	1 / 24	12.90	8.34	21.24	0.133	33.01	-11.77
2502.50	5	64-QAM	V	100	322	1 / 0	11.64	8.34	19.98	0.100	33.01	-13.03
2505.00	10	QPSK	V	101	311	1 / 0	13.53	8.33	21.86	0.154	33.01	-11.15
2535.00	10	QPSK	V	107	323	1 / 0	13.90	8.28	22.18	0.165	33.01	-10.83
2565.00	10	QPSK	V	104	324	1 / 49	13.77	8.18	21.95	0.157	33.01	-11.06
2505.00	10	16-QAM	V	101	311	1 / 0	12.85	8.33	21.18	0.131	33.01	-11.83
2505.00	10	64-QAM	V	101	311	1/0	11.63	8.33	19.96	0.099	33.01	-13.05
2507.50	15	QPSK	V	102	319	1 / 0	13.49	8.33	21.82	0.152	33.01	-11.19
2535.00	15	QPSK	V	100	311	1 / 0	13.89	8.28	22.17	0.165	33.01	-10.84
2562.50	15	QPSK	V	101	323	1 / 74	13.76	8.19	21.95	0.157	33.01	-11.06
2507.50	15	16-QAM	V	102	319	1 / 0	13.06	8.33	21.39	0.138	33.01	-11.62
2507.50	15	64-QAM	V	102	319	1 / 0	11.62	8.33	19.95	0.099	33.01	-13.06
2510.00	20	QPSK	V	100	318	1 / 0	13.43	8.33	21.76	0.150	33.01	-11.25
2535.00	20	QPSK	V	102	303	1 / 50	13.90	8.28	22.18	0.165	33.01	-10.83
2560.00	20	QPSK	V	100	319	1 / 0	13.87	8.21	22.08	0.161	33.01	-10.93
2535.00	20	16-QAM	V	102	303	1 / 50	12.73	8.28	21.01	0.126	33.01	-12.00
2535.00	20	64-QAM	V	102	303	1 / 50	11.52	8.28	19.80	0.096	33.01	-13.21
2535.00	20	QPSK	Н	119	208	13.90	13.06	8.28	21.34	0.136	33.01	-11.67

Table 7-13. EIRP Data (Band 7)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	н	102	341	1 / 0	16.57	8.35	24.92	0.310	33.01	-8.09
2593.00	5	QPSK	Н	108	339	1 / 0	16.79	8.04	24.83	0.304	33.01	-8.18
2687.50	5	QPSK	н	111	340	1 / 0	15.79	7.94	23.73	0.236	33.01	-9.28
2498.50	5	16-QAM	н	102	341	1 / 0	16.04	8.35	24.39	0.275	33.01	-8.62
2498.50	5	64-QAM	н	102	341	1 / 0	15.61	8.35	23.96	0.249	33.01	-9.05
2501.00	10	QPSK	Н	105	338	1 / 0	16.68	8.34	25.02	0.318	33.01	-7.99
2593.00	10	QPSK	н	104	332	1 / 0	16.81	8.04	24.85	0.305	33.01	-8.16
2685.00	10	QPSK	Н	106	332	1 / 49	15.20	7.93	23.13	0.206	33.01	-9.88
2501.00	10	16-QAM	н	105	338	1 / 0	16.07	8.34	24.41	0.276	33.01	-8.60
2501.00	10	64-QAM	н	105	338	1 / 49	15.45	8.34	23.79	0.239	33.01	-9.22
2503.50	15	QPSK	н	107	344	1 / 0	16.61	8.34	24.95	0.312	33.01	-8.06
2593.00	15	QPSK	Н	106	342	1 / 0	16.73	8.04	24.77	0.300	33.01	-8.24
2682.50	15	QPSK	н	100	337	1 / 0	15.77	7.92	23.69	0.234	33.01	-9.32
2503.50	15	16-QAM	Н	107	344	1 / 0	16.20	8.34	24.54	0.284	33.01	-8.47
2503.50	15	64-QAM	н	107	344	1 / 74	15.43	8.34	23.77	0.238	33.01	-9.24
2506.00	20	QPSK	Н	105	339	1 / 50	16.26	8.33	24.59	0.288	33.01	-8.42
2593.00	20	QPSK	Н	100	338	1 / 99	16.75	8.04	24.79	0.301	33.01	-8.22
2680.00	20	QPSK	Н	100	332	1/0	15.74	7.91	23.65	0.232	33.01	-9.36
2593.00	20	16-QAM	Н	100	338	1 / 99	16.52	8.04	24.56	0.286	33.01	-8.45
2506.00	20	64-QAM	Н	105	339	1 / 50	15.40	8.33	23.73	0.236	33.01	-9.28
2501.00	10	QPSK	V	152	333	1/0	15.80	8.04	23.84	0.242	33.01	-9.17

Table 7-14. EIRP Data (Band 41 PC2)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	Н	128	337	1 / 24	14.75	8.35	23.10	0.204	33.01	-9.91
2593.00	5	QPSK	н	121	338	1 / 0	14.33	8.04	22.37	0.172	33.01	-10.64
2687.50	5	QPSK	н	127	337	1 / 0	12.17	7.94	20.11	0.103	33.01	-12.90
2498.50	5	16-QAM	Н	128	337	1 / 24	14.16	8.35	22.51	0.178	33.01	-10.50
2498.50	5	64-QAM	н	128	337	1 / 0	13.59	8.35	21.94	0.156	33.01	-11.07
2501.00	10	QPSK	Н	131	336	1 / 49	14.73	8.34	23.07	0.203	33.01	-9.94
2593.00	10	QPSK	Н	121	338	1 / 0	14.33	8.04	22.37	0.172	33.01	-10.64
2685.00	10	QPSK	Н	127	337	1 / 0	12.25	7.93	20.18	0.104	33.01	-12.83
2501.00	10	16-QAM	Н	131	336	1 / 0	13.83	8.34	22.17	0.165	33.01	-10.84
2501.00	10	64-QAM	Н	131	336	1 / 0	13.58	8.34	21.92	0.156	33.01	-11.09
2503.50	15	QPSK	Н	122	343	1 / 74	14.75	8.34	23.09	0.204	33.01	-9.92
2593.00	15	QPSK	Н	130	338	1 / 0	14.33	8.04	22.37	0.172	33.01	-10.64
2682.50	15	QPSK	Н	117	339	1 / 0	12.17	7.92	20.09	0.102	33.01	-12.92
2503.50	15	16-QAM	Н	122	343	1 / 74	14.16	8.34	22.50	0.178	33.01	-10.51
2503.50	15	64-QAM	Н	122	343	1 / 0	13.59	8.34	21.93	0.156	33.01	-11.08
2506.00	20	QPSK	Н	123	342	1 / 50	14.31	8.33	22.64	0.184	33.01	-10.37
2593.00	20	QPSK	Н	108	337	1 / 50	14.46	8.04	22.50	0.178	33.01	-10.51
2680.00	20	QPSK	Н	127	334	1 / 50	12.32	7.91	20.23	0.105	33.01	-12.78
2506.00	20	16-QAM	Н	123	342	1 / 50	13.45	8.33	21.78	0.151	33.01	-11.23
2506.00	20	64-QAM	Н	123	342	1 / 50	12.78	8.33	21.11	0.129	33.01	-11.90
2498.50	5	QPSK	V	259	238	1 / 50	14.29	8.33	22.62	0.183	33.01	-10.39

Table 7-15. EIRP Data (Band 41/38)

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7.8 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 \geq 3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points \geq 2 x span / RBW
- 5. Detector = RMS
- 6. Trace mode = Average (Max Hold for pulsed emissions)
- 7. The trace was allowed to stabilize

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EUT turntable styrofoam block 3m

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

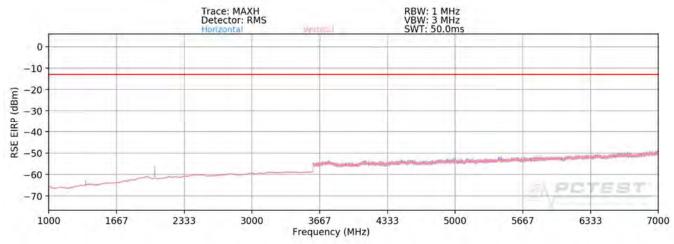
Figure 7-8. Test Instrument & Measurement Setup

Test Notes

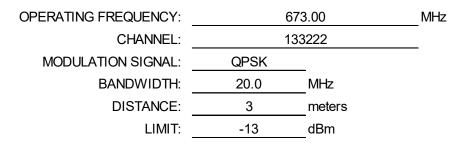
- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with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

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Plot 7-386. Radiated Spurious Plot above 1GHz (Band 71)

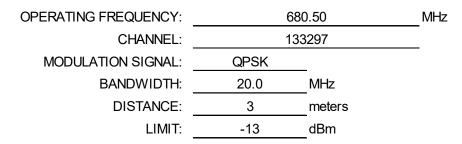


Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1346.00	Н	102	169	-66.55	3.15	-63.40	-50.4
2019.00	Н	127	159	-55.49	3.52	-51.97	-39.0
2692.00	Н	-	-	-67.01	4.77	-62.24	-49.2
3365.00	Н	-	-	-66.91	6.00	-60.92	-47.9

Table 7-16. Radiated Spurious Data (Band 71 – Low Channel)

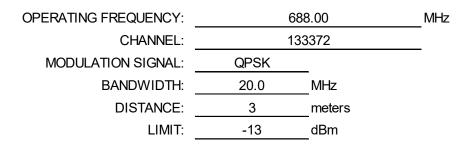
FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	Н	160	181	-65.70	3.04	-62.66	-49.7
2041.50	Н	160	326	-50.01	3.49	-46.53	-33.5
2722.00	Н	-	-	-66.93	4.83	-62.10	-49.1
3402.50	Н	-	-	-67.31	6.16	-61.15	-48.2

Table 7-17. Radiated Spurious Data (Band 71 – Mid Channel)

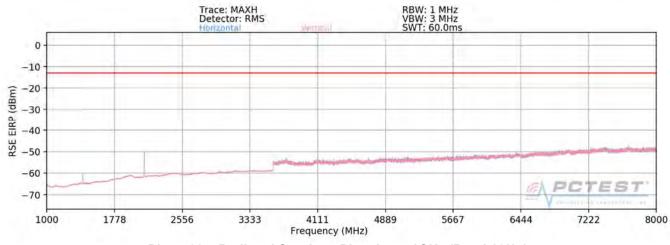


Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	Н	168	175	-67.14	2.88	-64.26	-51.3
2064.00	Н	129	332	-57.00	3.50	-53.50	-40.5
2752.00	Н	-	-	-67.03	4.88	-62.15	-49.2
3440.00	Н	-	-	-67.35	6.22	-61.13	-48.1

Table 7-18. Radiated Spurious Data (Band 71 – High Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-387. Radiated Spurious Plot above 1GHz (Band 12/17)

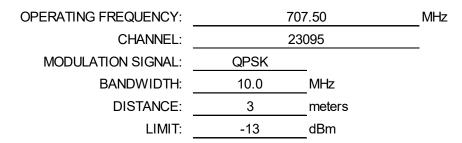
OPERATING FREQUENCY:	704	4.00	MHz
CHANNEL:	230	60.00	_
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

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]
1408.00	Н	152	329	-65.01	2.71	-62.29	-49.3
2112.00	Н	116	325	-51.27	3.57	-47.70	-34.7
2816.00	Н	-	-	-66.84	4.98	-61.86	-48.9
3520.00	Н	-	-	-67.38	6.33	-61.05	-48.1

Table 7-19. Radiated Spurious Data (Band 12/17 – Low Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	Н	160	138	-66.16	2.80	-63.36	-50.4
2122.50	Н	113	325	-48.28	3.57	-44.70	-31.7
2830.00	Н	-	-	-66.95	5.02	-61.93	-48.9
3537.50	Н	-	-	-67.65	6.31	-61.34	-48.3

Table 7-20. Radiated Spurious Data (Band 12/17 – Mid Channel)

OPERATING FREQUENCY:	71	1.00	MHz
CHANNEL:	23	_	
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

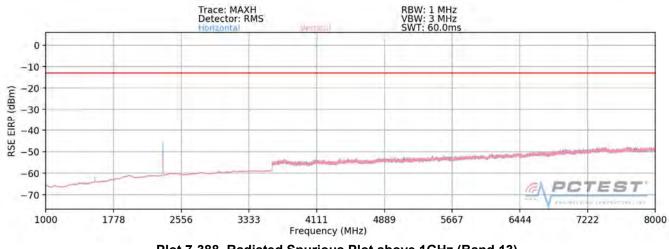
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	Н	154	323	-64.60	2.88	-61.72	-48.7
2133.00	Н	151	332	-50.97	3.58	-47.39	-34.4
2844.00	Н	-	-	-67.06	5.07	-61.99	-49.0
3555.00	Н	-	-	-67.17	6.31	-60.86	-47.9

Table 7-21. Radiated Spurious Data (Band 12/17 – High Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-388. Radiated Spurious Plot above 1GHz (Band 13)

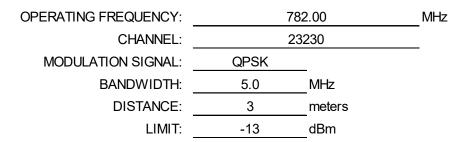
OPERATING FREQUENCY:	77	9.50	MHz
CHANNEL:	23	205	_
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	5.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	_dBm	

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]
2338.50	Н	108	328	-50.45	3.99	-46.46	-33.5
3118.00	Н	-	-	-67.02	5.37	-61.65	-48.7
3897.50	Н	-	-	-68.22	7.06	-61.16	-48.2

Table 7-22. Radiated Spurious Data (Band 13 – Low Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	Н	149	325	-49.48	4.00	-45.48	-32.5
3128.00	Н	-	-	-66.99	5.38	-61.61	-48.6
3910.00	Н	-	-	-68.37	7.09	-61.28	-48.3

Table 7-23. Radiated Spurious Data (Band 13 – Mid Channel)

OPERATING FREQUENCY:	784	4.50 N	/IHz
CHANNEL:	23	255	
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]
2353.50	Н	132	328	-48.44	4.02	-44.42	-31.4
3138.00	Н	-	-	-66.85	5.40	-61.45	-48.5
3922.50	Н	-	-	-68.31	7.13	-61.18	-48.2

Table 7-24. Radiated Spurious Data (Band 13 – High Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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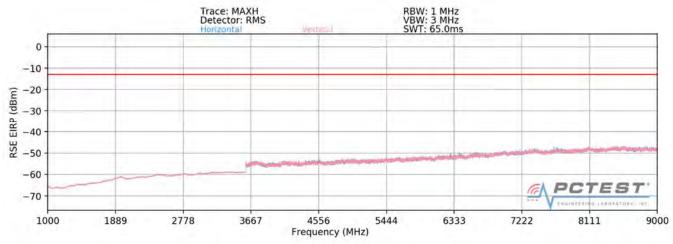
MODULATION SIGNAL:	QPSK	_
BANDWIDTH:	5.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1559.00	Н	231	20	-66.70	3.53	-63.18	-23.2
1564.00	Н	234	41	-65.97	3.53	-62.44	-22.4
1569.00	Н	130	32	-63.77	3.53	-60.24	-20.2

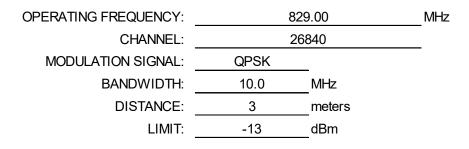
Table 7-25. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-389. Radiated Spurious Plot above 1GHz (Band 26/5)

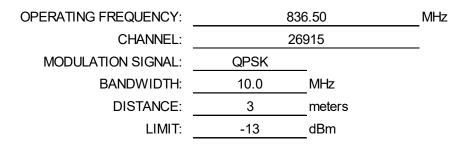


Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1658.00	Н	308	169	-64.96	3.61	-61.35	-48.4
2487.00	Н	130	9	-40.31	4.25	-36.06	-23.1
3316.00	Н	-	-	-67.06	5.83	-61.23	-48.2
4145.00	Н	209	284	-67.88	7.66	-60.21	-47.2
4974.00	Н	-	-	-68.80	8.56	-60.24	-47.2
5803.00	Н	-	-	-66.78	8.87	-57.90	-44.9

Table 7-26. Radiated Spurious Data (Band 26/5 - Low Channel)

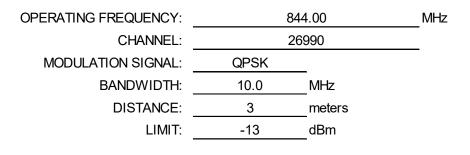
FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 244 of 290	
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	Н	381	324	-65.03	3.62	-61.41	-48.4
2509.50	Н	261	251	-47.80	4.33	-43.47	-30.5
3346.00	Н	-	-	-66.61	5.92	-60.70	-47.7
4182.50	Н	-	-	-67.98	7.69	-60.29	-47.3

Table 7-27. Radiated Spurious Data (Band 26/5 – Mid Channel)

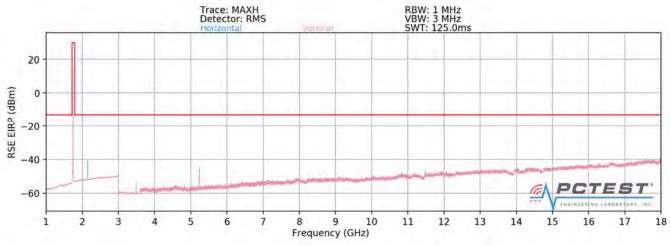


Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	Н	248	6	-61.83	3.63	-58.20	-45.2
2532.00	Н	111	36	-41.58	4.47	-37.11	-24.1
3376.00	Н	-	-	-67.23	6.05	-61.18	-48.2
4220.00	Н	146	35	-64.78	7.75	-57.03	-44.0
5064.00	Н	-	-	-68.72	8.59	-60.13	-47.1
5908.00	Н	-	-	-67.30	8.89	-58.41	-45.4

Table 7-28. Radiated Spurious Data (Band 26/5 – High Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 245 of 280
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 245 of 280
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Plot 7-390. Radiated Spurious Plot above 1GHz (Band 66/4)

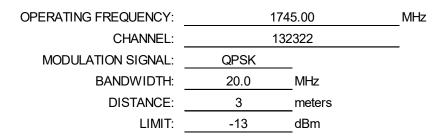
OPERATING FREQUENCY:	172	MHz	
CHANNEL:	132		
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	20.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

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]
3440.00	V	329	359	-53.57	6.22	-47.35	-34.3
5160.00	V	124	95	-48.10	8.68	-39.43	-26.4
6880.00	V	100	31	-58.56	8.76	-49.80	-36.8
8600.00	V	-	-	-64.52	9.17	-55.34	-42.3
10320.00	V	211	6	-50.45	9.64	-40.81	-27.8
12040.00	V	201	2	-58.76	9.23	-49.53	-36.5
13760.00	V	-	-	-57.90	9.01	-48.89	-35.9
15480.00	V	-	-	-55.19	8.38	-46.81	-33.8

Table 7-29. Radiated Spurious Data (Band 66/4 – Low Channel)

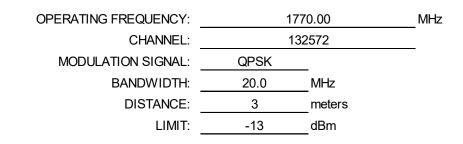
FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 246 of 290
1M1904030051-03.A3L 04/04/2019 - 05/15/20		Portable Handset	Page 246 of 280	
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	V	381	358	-49.12	6.32	-42.80	-29.8
5235.00	V	135	286	-43.60	8.71	-34.89	-21.9
6980.00	V	100	28	-55.07	8.74	-46.34	-33.3
8725.00	V	-	-	-64.76	9.42	-55.35	-42.3
10470.00	V	207	4	-53.43	9.62	-43.81	-30.8
12215.00	V	105	356	-57.86	9.09	-48.77	-35.8
13960.00	V	-	-	-57.63	8.90	-48.72	-35.7
15705.00	V	-	-	-54.18	8.15	-46.03	-33.0

Table 7-30. Radiated Spurious Data (Band 66/4 - Mid Channel)

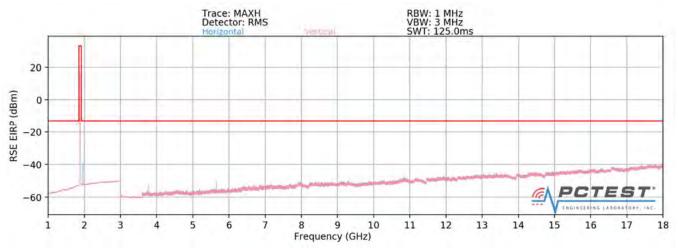


Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	V	334	350	-47.67	6.31	-41.36	-28.4
5310.00	V	114	165	-42.10	8.74	-33.37	-20.4
7080.00	V	109	355	-56.01	8.66	-47.35	-34.3
8850.00	V	-	-	-63.91	9.53	-54.38	-41.4
10620.00	V	100	4	-55.83	9.50	-46.33	-33.3
12390.00	V	236	349	-58.23	9.12	-49.10	-36.1
14160.00	V	-	-	-57.32	8.85	-48.47	-35.5
15930.00	V	-	-	-54.92	8.14	-46.78	-33.8

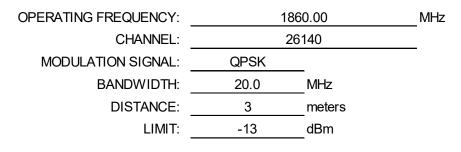
Table 7-31. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Daga 247 of 280			
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Plot 7-391. Radiated Spurious Plot above 1GHz (Band 25/2)

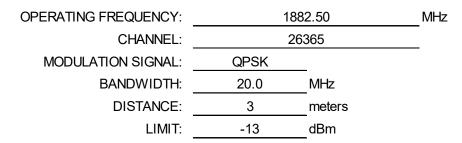


Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	V	362	356	-47.68	6.58	-41.10	-28.1
5580.00	V	100	189	-49.45	8.74	-40.72	-27.7
7440.00	V	125	27	-62.46	8.41	-54.05	-41.1
9300.00	V	-	-	-63.05	9.33	-53.72	-40.7
11160.00	V	-	-	-61.18	9.32	-51.86	-38.9

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

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 249 of 280
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	1/2019 - 05/15/2019 Portable Handset		Page 248 of 280
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	V	381	355	-49.16	6.70	-42.46	-29.5
5647.50	V	127	192	-46.19	8.83	-37.36	-24.4
7530.00	V	110	11	-61.93	8.46	-53.48	-40.5
9412.50	V	-	-	-63.25	9.32	-53.93	-40.9
11295.00	V	-	-	-61.28	9.23	-52.05	-39.1

Table 7-33. Radiated Spurious Data (Band 25/2 – Mid Channel)

QPSK

1905.00

26590

MHz

OPERATING FREQUENCY:

CHANNEL: MODULATION SIGNAL:

BANDWIDTH: DISTANCE:

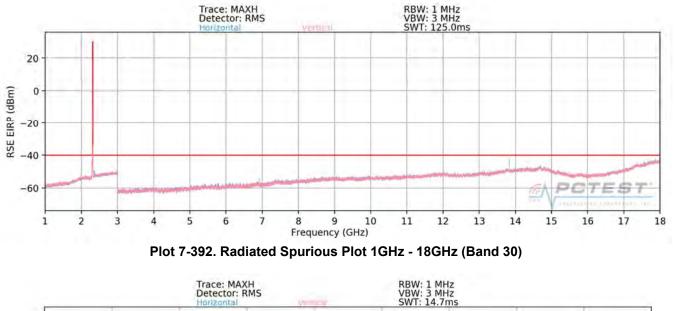
20.0 MHz 3 meters LIMIT: -13 dBm

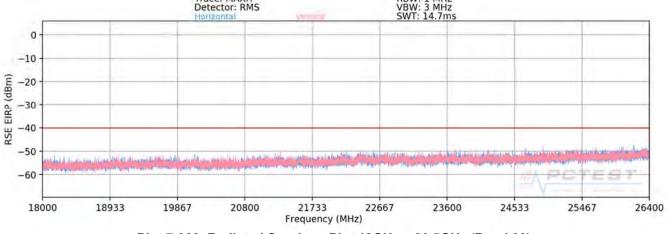
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3810.00	V	316	305	-54.39	6.94	-47.45	-34.5
5715.00	V	140	58	-44.80	8.77	-36.04	-23.0
7620.00	V	112	20	-59.73	8.51	-51.22	-38.2
9525.00	V	-	-	-63.77	9.40	-54.37	-41.4
11430.00	V	-	-	-61.04	9.19	-51.84	-38.8

Table 7-34. Radiated Spurious Data (Band 25/2 – High Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager				
Test Report S/N:	Test Dates:	EUT Type:		Daga 240 of 280				
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 249 of 280				
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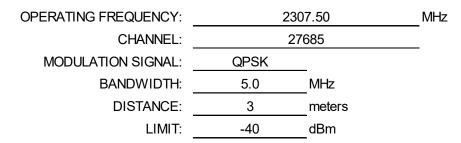




Plot 7-393. Radiated Spurious Plot 18GHz - 26.5GHz (Band 30)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 250 of 280	
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 250 of 280	
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4615.00	Н	102	329	-67.46	8.41	-59.05	-19.0
6922.50	Н	198	38	-57.47	9.39	-48.08	-8.1
9230.00	Н	162	322	-63.25	9.47	-53.78	-13.8
11537.50	Н	251	47	-58.06	9.47	-48.59	-8.6
13845.00	Н	220	58	-53.12	8.77	-44.35	-4.4
16152.50	Н	-	-	-54.37	8.39	-45.98	-6.0

Table 7-35. Radiated Spurious Data (Band 30 – Low Channel)

QPSK

5.0

3

2312.50

27735

MHz

meters

MHz

OPERATING FREQUENCY:

CHANNEL:

MODULATION SIGNAL:

BANDWIDTH:

DISTANCE:

LIMIT: -40 dBm

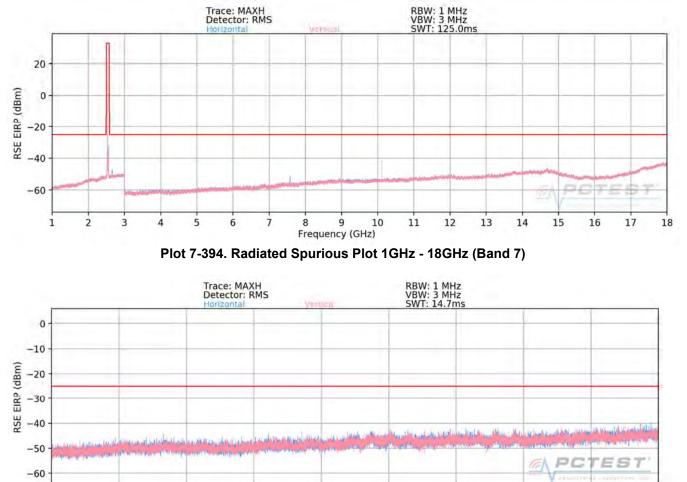
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4625.00	Н	223	25	-66.19	8.43	-57.75	-17.8
6937.50	Н	215	297	-56.20	9.38	-46.83	-6.8
9250.00	Н	105	335	-63.47	9.45	-54.02	-14.0
11562.50	Н	266	50	-58.70	9.44	-49.26	-9.3
13875.00	Н	207	68	-53.77	8.72	-45.05	-5.0
16187.50	Н	-	-	-54.19	8.41	-45.78	-5.8

Table 7-36. Radiated Spurious Data (Band 30 – High Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 251 of 290
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 251 of 280
© 2019 PCTEST Engineering Labora	atory Inc			V 9 0 02/01/2019





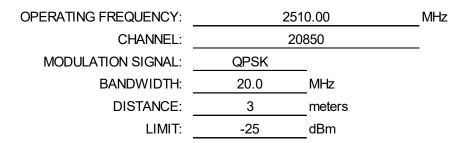


Plot 7-395. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7)

Frequency (MHz)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 252 of 290
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 252 of 280
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	Н	185	312	-67.10	8.78	-58.32	-33.3
7530.00	Н	141	356	-59.84	9.31	-50.54	-25.5
10040.00	Н	149	299	-50.23	9.78	-40.44	-15.4
12550.00	Н	-	-	-59.38	8.80	-50.58	-25.6
15060.00	Н	-	-	-56.33	8.89	-47.45	-22.4

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

2535.00

21100

MHz

OPERATING FREQUENCY:

CHANNEL:

MODULATION SIGNAL:

DISTANCE:

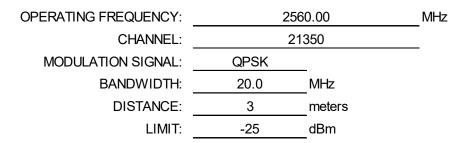
QPSK BANDWIDTH: 20.0 MHz 3 meters -25 LIMIT: dBm

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]
5070.00	Н	228	327	-67.68	8.89	-58.79	-33.8
7605.00	Н	132	304	-61.13	9.25	-51.87	-26.9
10140.00	Н	100	18	-54.79	9.75	-45.04	-20.0
12675.00	Н	-	-	-58.67	8.89	-49.79	-24.8
15210.00	Н	-	-	-55.84	8.73	-47.11	-22.1

Table 7-38. Radiated Spurious Data (Band 7 – Mid Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	G	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 252 of 290
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 253 of 280
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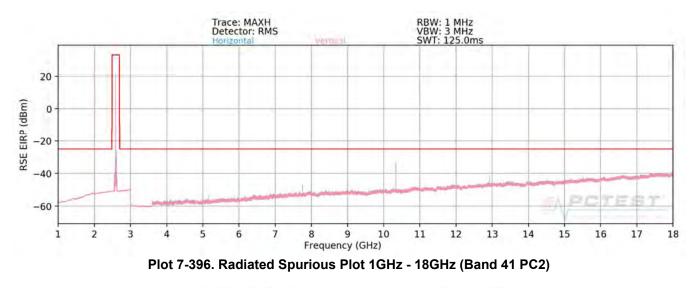


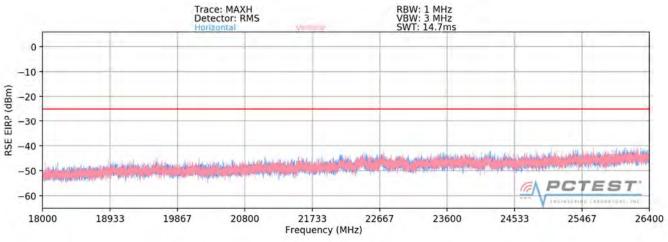
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5120.00	Н	108	321	-64.30	8.91	-55.38	-30.4
7680.00	Н	124	292	-55.51	9.28	-46.24	-21.2
10240.00	Н	144	22	-46.88	9.66	-37.22	-12.2
12800.00	Н	-	-	-58.79	8.87	-49.91	-24.9
15360.00	Н	-	-	-55.67	8.44	-47.24	-22.2

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

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 254 of 280
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 254 of 280
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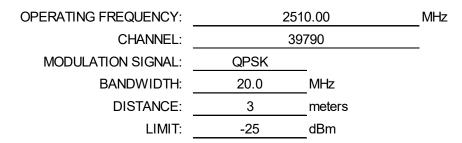




Plot 7-397. Radiated Spurious Plot 18GHz - 26.5GHz (Band 41 PC2)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 255 of 280
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 255 of 280
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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	Н	149	327	-56.03	8.78	-47.25	-22.2
7530.00	Н	117	294	-47.01	9.31	-37.71	-12.7
10040.00	Н	160	25	-39.11	9.78	-29.32	-4.3
12550.00	Н	135	328	-49.60	8.80	-40.80	-15.8
15060.00	Н	140	69	-49.50	8.89	-40.62	-15.6
17570.00	Н	-	-	-48.87	7.78	-41.09	-16.1

Table 7-40. Radiated Spurious Data (Band 41 PC2 – Low Channel)

QPSK

2593.00

40620

MHz

OPERATING FREQUENCY:

CHANNEL:

MODULATION SIGNAL:

BANDWIDTH:

20.0 MHz DISTANCE: 3 meters

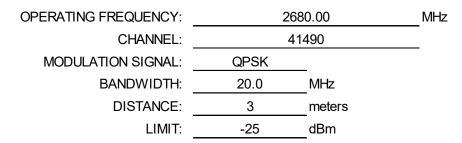
> LIMIT: -25 dBm

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]
5186.00	Н	165	317	-55.66	9.03	-46.64	-21.6
7779.00	Н	111	7	-47.70	9.29	-38.41	-13.4
10372.00	Н	163	27	-38.89	9.50	-29.38	-4.4
12965.00	Н	163	323	-52.74	8.75	-43.99	-19.0
15558.00	Н	121	39	-47.21	8.47	-38.74	-13.7

Table 7-41. Radiated Spurious Data (Band 41 PC2 – Mid Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 256 of 290
1M1904030051-03.A3L	04/04/2019 - 05/15/2019	Portable Handset		Page 256 of 280
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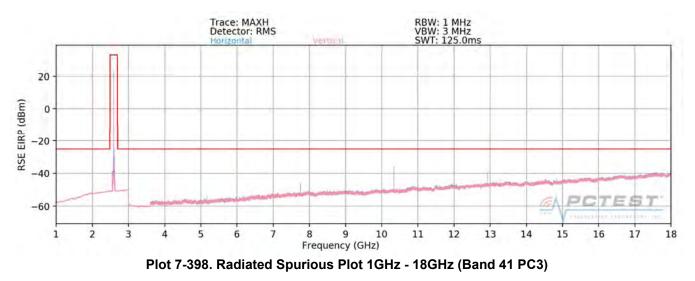


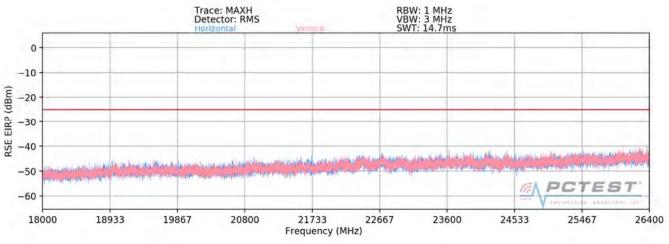
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	Н	195	28	-54.20	8.99	-45.21	-20.2
8040.00	Н	180	56	-48.78	9.35	-39.43	-14.4
10720.00	Н	198	18	-38.04	9.39	-28.65	-3.7
13400.00	Н	144	320	-40.12	8.67	-31.45	-6.4
16080.00	Н	223	315	-42.42	8.46	-33.96	-9.0

Table 7-42. Radiated Spurious Data (Band 41 PC2 – High Channel)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 257 of 280
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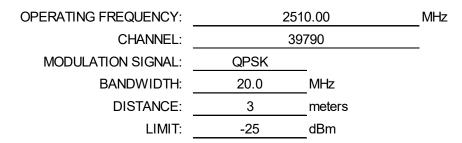




Plot 7-399. Radiated Spurious Plot 18GHz - 26.5GHz (Band 41 PC3)

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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	Н	105	323	-57.72	8.78	-48.94	-23.9
7530.00	Н	124	303	-49.73	9.31	-40.43	-15.4
10040.00	Н	100	22	-40.74	9.78	-30.95	-6.0
12550.00	Н	138	1	-51.74	8.80	-42.94	-17.9
15060.00	Н	196	36	-52.02	8.89	-43.14	-18.1
17570.00	Н	-	-	-48.61	7.78	-40.83	-15.8

Table 7-43. Radiated Spurious Data (Band 41 PC3 – Low Channel)

2593.00

40620

MHz

OPERATING FREQUENCY:

CHANNEL:

MODULATION SIGNAL:

BANDWIDTH:

QPSK 20.0 MHz DISTANCE: 3 meters

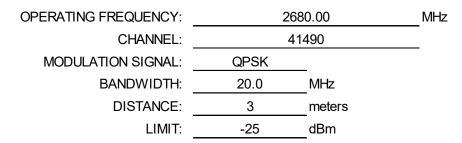
LIMIT: -25 dBm

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]
5186.00	Н	188	321	-57.60	9.03	-48.58	-23.6
7779.00	Н	108	8	-50.05	9.29	-40.76	-15.8
10372.00	Н	100	23	-40.48	9.50	-30.97	-6.0
12965.00	Н	124	321	-53.69	8.75	-44.94	-19.9
15558.00	Н	118	39	-50.27	8.47	-41.80	-16.8

Table 7-44. Radiated Spurious Data (Band 41 PC3 – Mid Channel)

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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	Н	185	25	-56.53	8.99	-47.54	-22.5
8040.00	Н	157	10	-51.97	9.35	-42.62	-17.6
10720.00	Н	220	19	-40.39	9.39	-31.00	-6.0
13400.00	Н	147	323	-37.93	8.67	-29.26	-4.3
16080.00	Н	206	32	-45.30	8.46	-36.84	-11.8

Table 7-45. Radiated Spurious Data (Band 41 PC3 – High Channel)

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7.9 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 $\pm 0.00025\%$ (± 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

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Band 71 Frequency Stability Measurements

OPERATING FREQUENCY:	680,500,000	Hz
CHANNEL:	133297	-
REFERENCE VOLTAGE:	4.31	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	680,500,126	126	0.0000185
100 %		- 20	680,500,025	25	0.0000037
100 %		- 10	680,500,103	103	0.0000151
100 %		0	680,499,851	-149	-0.0000219
100 %		+ 10	680,499,764	-236	-0.0000347
100 %		+ 20	680,500,010	10	0.0000015
100 %		+ 30	680,500,019	19	0.0000028
100 %		+ 40	680,500,008	8	0.0000012
100 %		+ 50	680,499,827	-173	-0.0000254
BATT. ENDPOINT	3.71	+ 20	680,499,874	-126	-0.0000185

Table 7-46. Frequency Stability Data (Band 71)

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.

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Band 71 Frequency Stability Measurements

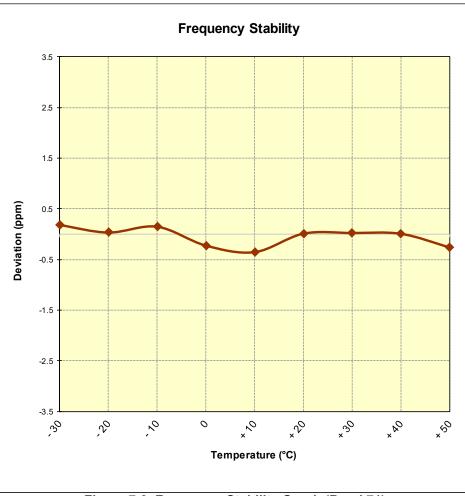


Figure 7-9. Frequency Stability Graph (Band 71)

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Band 12/17 Frequency Stability Measurements

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	-
REFERENCE VOLTAGE:	4.31	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	707,500,059	59	0.000083
100 %		- 20	707,500,012	12	0.0000017
100 %		- 10	707,499,969	-31	-0.0000044
100 %		0	707,499,869	-131	-0.0000185
100 %		+ 10	707,499,806	-194	-0.0000274
100 %		+ 20	707,499,916	-84	-0.0000119
100 %		+ 30	707,500,032	32	0.0000045
100 %		+ 40	707,499,923	-77	-0.0000109
100 %		+ 50	707,499,944	-56	-0.0000079
BATT. ENDPOINT	3.71	+ 20	707,499,806	-194	-0.0000274

Table 7-47. 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.

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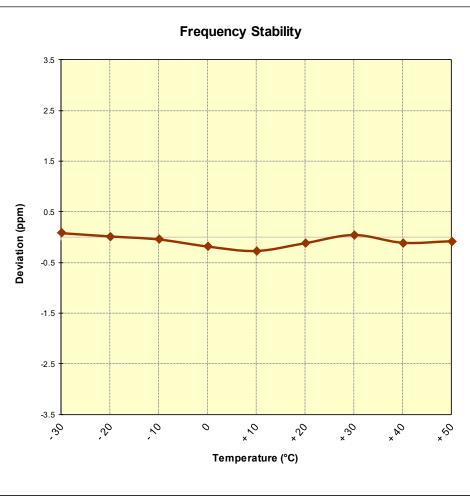


Figure 7-10. Frequency Stability Graph (Band 12/17)

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Band 13 Frequency Stability Measurements

OPERATING FREQUENCY:	782,000,000	Hz
CHANNEL:	23230	_
REFERENCE VOLTAGE:	4.31	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	781,999,945	-55	-0.0000070
100 %		- 20	781,999,953	-47	-0.0000060
100 %		- 10	782,000,042	42	0.0000054
100 %		0	782,000,193	193	0.0000247
100 %		+ 10	782,000,084	84	0.0000107
100 %		+ 20	781,999,977	-23	-0.0000029
100 %		+ 30	782,000,299	299	0.0000382
100 %		+ 40	782,000,152	152	0.0000194
100 %		+ 50	782,000,270	270	0.0000345
BATT. ENDPOINT	3.71	+ 20	781,999,814	-186	-0.0000238

Table 7-48. 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.

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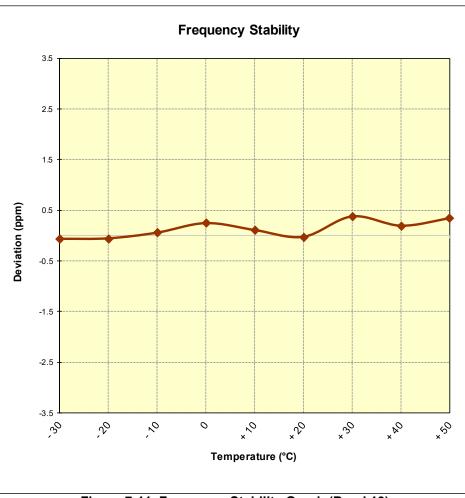


Figure 7-11. Frequency Stability Graph (Band 13)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY:	831,500,000	_Hz
CHANNEL:	26865	_
REFERENCE VOLTAGE:	4.31	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	_

VOLTAGE (%)	POWER (VDC)	ТЕМР (°С)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	831,500,047	47	0.0000057
100 %		- 20	831,500,179	179	0.0000215
100 %		- 10	831,500,159	159	0.0000191
100 %		0	831,500,026	26	0.0000031
100 %		+ 10	831,499,867	-133	-0.0000160
100 %		+ 20	831,500,287	287	0.0000345
100 %		+ 30	831,499,907	-93	-0.0000112
100 %		+ 40	831,499,583	-417	-0.0000502
100 %		+ 50	831,499,829	-171	-0.0000206
BATT. ENDPOINT	3.71	+ 20	831,500,421	421	0.0000506

Table 7-49. Frequency Stability Data (Band 26/5)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 26/5 Frequency Stability Measurements

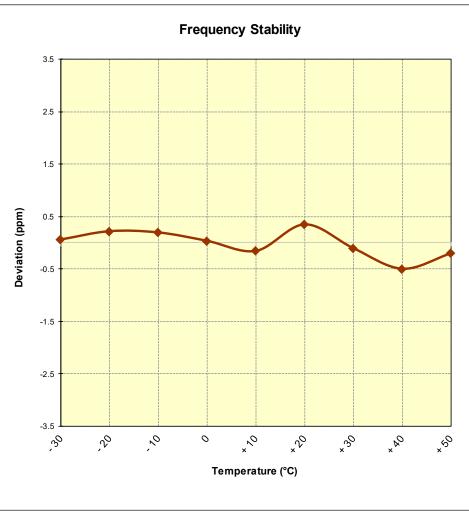


Figure 7-12. Frequency Stability Graph (Band 26/5)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY:	1,745,000,000	Hz
CHANNEL:	132322	_
REFERENCE VOLTAGE:	4.31	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	1,744,999,934	-66	-0.000038
100 %		- 20	1,744,999,815	-185	-0.0000106
100 %		- 10	1,745,000,251	251	0.0000144
100 %		0	1,744,999,821	-179	-0.0000103
100 %		+ 10	1,744,999,701	-299	-0.0000171
100 %		+ 20	1,744,999,997	-3	-0.0000002
100 %		+ 30	1,744,999,889	-111	-0.0000064
100 %		+ 40	1,744,999,929	-71	-0.0000041
100 %		+ 50	1,744,999,710	-290	-0.0000166
BATT. ENDPOINT	3.71	+ 20	1,745,000,019	19	0.0000011

Table 7-50. 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.

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Band 66/4 Frequency Stability Measurements

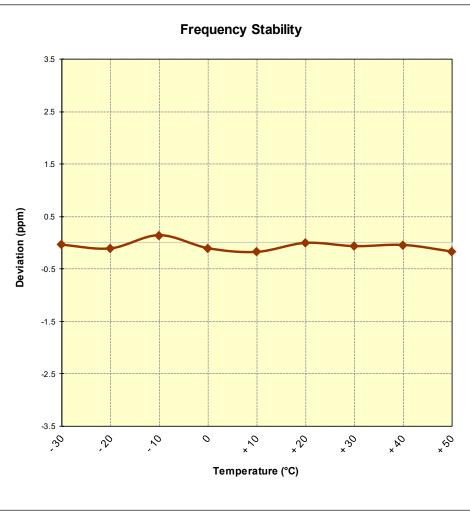


Figure 7-13. Frequency Stability Graph (Band 66/4)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY:	1,882,500,000	_Hz
CHANNEL:	26365	_
REFERENCE VOLTAGE:	4.31	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	_

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	1,882,499,855	-145	-0.0000077
100 %		- 20	1,882,500,097	97	0.0000052
100 %		- 10	1,882,500,086	86	0.0000046
100 %		0	1,882,500,163	163	0.000087
100 %		+ 10	1,882,500,085	85	0.0000045
100 %		+ 20	1,882,500,072	72	0.000038
100 %		+ 30	1,882,499,817	-183	-0.0000097
100 %		+ 40	1,882,499,826	-174	-0.0000092
100 %		+ 50	1,882,500,255	255	0.0000135
BATT. ENDPOINT	3.71	+ 20	1,882,499,829	-171	-0.0000091

Table 7-51. Frequency Stability Data (Band 25/2)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 25/2 Frequency Stability Measurements

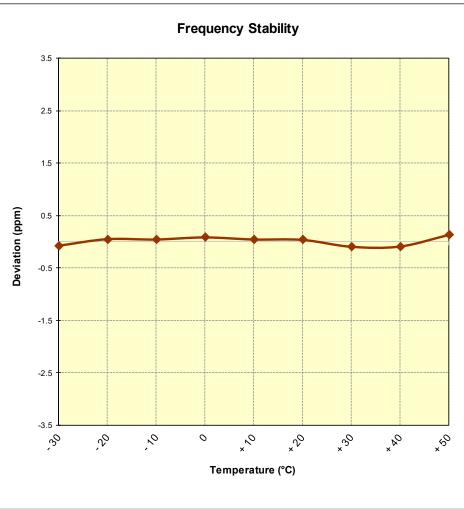


Figure 7-14. Frequency Stability Graph (Band 25/2)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 30 Frequency Stability Measurements

OPERATING FREQUENCY:	2,310,000,000	Hz
CHANNEL:	27710	
REFERENCE VOLTAGE:	4.31	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	2,309,999,985	-15	-0.0000006
100 %		- 20	2,309,999,999	-1	0.0000000
100 %		- 10	2,309,999,855	-145	-0.0000063
100 %		0	2,309,999,727	-273	-0.0000118
100 %		+ 10	2,309,999,962	-38	-0.0000016
100 %		+ 20	2,309,999,801	-199	-0.0000086
100 %		+ 30	2,310,000,270	270	0.0000117
100 %		+ 40	2,309,999,700	-300	-0.0000130
100 %		+ 50	2,310,000,218	218	0.0000094
BATT. ENDPOINT	3.71	+ 20	2,309,999,896	-104	-0.0000045

Table 7-52. 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.

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Band 30 Frequency Stability Measurements

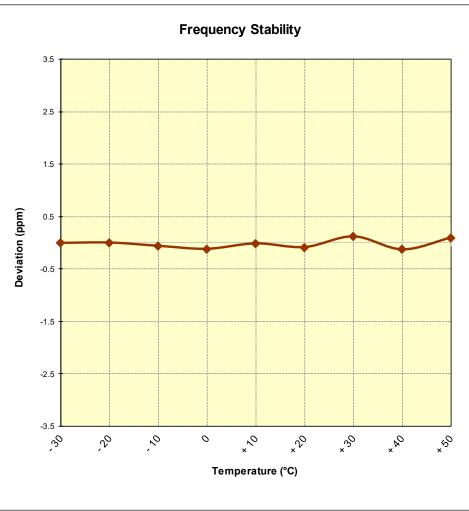


Figure 7-15. Frequency Stability Graph (Band 30)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

OPERATING FREQUENCY:	2,535,000,000	Hz
CHANNEL:	21100	_
REFERENCE VOLTAGE:	4.31	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	2,535,000,098	98	0.0000039
100 %		- 20	2,535,000,261	261	0.0000103
100 %		- 10	2,535,000,102	102	0.0000040
100 %		0	2,534,999,928	-72	-0.0000028
100 %		+ 10	2,534,999,743	-257	-0.0000101
100 %		+ 20	2,534,999,687	-313	-0.0000123
100 %		+ 30	2,535,000,139	139	0.0000055
100 %		+ 40	2,535,000,177	177	0.0000070
100 %		+ 50	2,534,999,941	-59	-0.0000023
BATT. ENDPOINT	3.71	+ 20	2,534,999,916	-84	-0.0000033

Table 7-53. 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: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

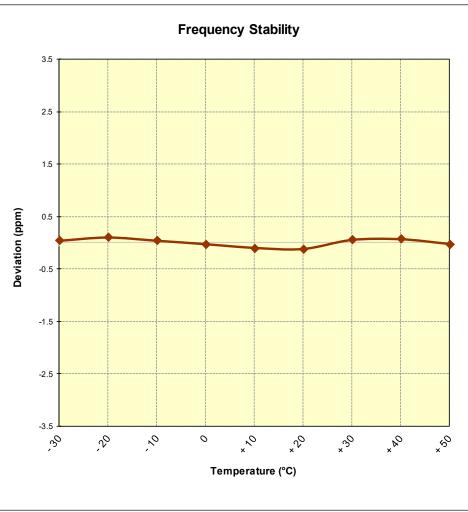


Figure 7-16. Frequency Stability Graph (Band 7)

FCC ID: A3LSMA102U		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 41 Frequency Stability Measurements

OPERATING FREQUENCY:	2,593,000,000	Hz
CHANNEL:	40620	-
REFERENCE VOLTAGE:	4.31	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	2,592,999,937	-63	-0.0000024
100 %		- 20	2,592,999,687	-313	-0.0000121
100 %		- 10	2,593,000,233	233	0.0000090
100 %		0	2,593,000,008	8	0.0000003
100 %		+ 10	2,592,999,907	-93	-0.0000036
100 %		+ 20	2,592,999,669	-331	-0.0000128
100 %		+ 30	2,592,999,629	-371	-0.0000143
100 %		+ 40	2,593,000,029	29	0.0000011
100 %		+ 50	2,593,000,153	153	0.0000059
BATT. ENDPOINT	3.71	+ 20	2,593,000,232	232	0.000089

Table 7-54. Frequency Stability Data (Band 41)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain 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.

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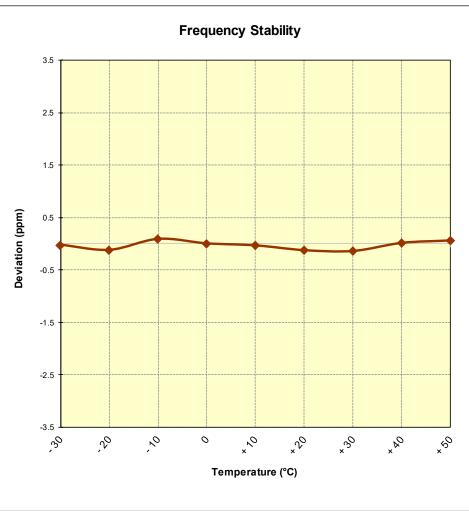


Figure 7-17. Frequency Stability Graph (Band 41)

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMA102U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

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