

🔤 Key	sight Spe	ctrum Ar	nalyzer - Sv	vept SA										f X
<b>lxi</b> Rl		RF	50 \$	DC DC	CORRE	EC	SE	NSE:INT	#Avg Ty	e: RMS	10:33:08 TR	PM Mar 10, 2020 ACE 1 2 3 4 5 6	Frequen	су
10 dE	/div	Ref	0.00 d	NFE Bm	PNC IFGa	): Fast ⊆ in:Low	Atten: 1	0 dB		М	kr1 19.52 -55	23 0 GHz .64 dBm	Auto	Tune
-10.0												DL1 -13.00 dBm	Cente 15.00000000	<b>r Freq</b> 00 GHz
-20.0 -30.0													Star 10.00000000	<b>t Freq</b> 00 GHz
-40.0 -50.0												1-	<b>Stop</b> 20.00000000	<b>) Freq</b> )0 GHz
-60.0 ;			t hay of the galleng (Terry of Name y John				a an an Antonio a Marcanta An an an Antonio (a particular a second	a station geponye. A station data a station	ng hing die anterna anterna die son ges and die an y die dae 1 Military anterna an				CF 1.00000000 <u>Auto</u>	<b>Step</b> 00 GHz Man
-80.0													Freq	Offset 0 Hz
-90.0	10.00		17								Stop 2		Scale	<b>Type</b> Lin
#Res	BW 2	1.0 M	Hz			#VBV	V 3.0 MHz		ę	weep	17.33 ms (	20001 pts)		
MSG										STA	TUS			

Plot 7-90. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

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# Band 41

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LXI RL	RF 50 Ω DC	CORREC	SEN	SE:INT	#Ava Typ	ALIGN AUTO	08:15:39 PM	Oct 21, 2019	Frequency
		PNO: Fast 😱	Trig: Free	Run	#A 48 1 9 P		TYPE	M WWWWW	
		IFGain:Low	#Atten: 20	dB			DE		
						Mk	r1 2.378	5 GHz	Autorune
10 dB/div	Ref 20.00 dBm						-49.0	и авш	
			Ĭ						Center Freq
10.0									1.252500000 GHz
0.00									
									Start Freq
-10.0									30.000000 MHz
-20.0									Stop Freq
							(	0L1 -25.00 dBm	2.475000000 GHz
-30.0									
									CE Sten
-40.0									244.500000 MHz
								♦'	<u>Auto</u> Man
-50.0		a sala da takan sa a	literaria a contra Li <b>te</b> rat	line handlander	a familia par per per	part from the feat			
		AL PROPERTY AND A DESCRIPTION OF A DESCR	States and States	البالغالم ويعقرهم	and the second secon	and the second second second			Freq Offset
-60.0									0 Hz
70.0									
-70.0									Scale Type
Start 0.03	30 GHz						Stop 2.	475 GHz	Log <u>Lin</u>
#Res BW	1.0 MHz	#VBW	3.0 MHz			Sweep 3	.260 ms (4	891 pts)	
MSG						STATUS			

Plot 7-91. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-92. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG986JPN	<u>PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
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🔤 Keysight Sp	ectrum Analyzer - Sw	ept SA							
LXI RL	RF 50 Ω	DC CORREC	SE	NSE:INT	#Avg Type	LIGN AUTO	08:16:59 PM TRAC	1 Oct 21, 2019 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref 0.00 di	PNO: F IFGain: SM	ast Trig: Fre Low #Atten: 2	e Run 0 dB		Mkr	1 26.480 -33.0	6 0 GHz 89 dBm	Auto Tuno
-10.0									Center Free 21.000000000 GH
-20.0							. do come	DL1 -25.00 dBm	Start Free 15.000000000 GH
-40.0 -50.0	arte parte d'Anna d'Antil des d' Anna antiga esta contracta d'An	g <mark>pa pa telan a trigta da para artikanan yang batan batan</mark>	n adapta king ngangkang nanguna nangung ngang ngang ngang ngang ngang ngang ngang ngang	in the product of the second secon	gener (n. gener in die generalie generaliefen e. Det Standig verminie generaliefen	na se na su presidente de la construcción de la construcción de la construcción de la construcción de la const La construcción de la construcción d	ale suite din anni anni anni anni anni anni anni		<b>Stop Free</b> 27.000000000 GH
-60.0									<b>CF Step</b> 1.200000000 GH <u>Auto</u> Mar
-80.0									Freq Offse 0 H
-90.0	000 CH7						Stop 27	000 CHz	Scale Type
#Res BW	1.0 MHz		#VBW 3.0 MHz		SI	weep 20	.80 ms (2	4001 pts)	
MSG						STATUS			

Plot 7-93. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-94. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

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Keysight Spectrum Analyzer -	Swept SA				
LXI RE 51	DΩ DC CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	08:12:34 PM Oct 21, 2019 TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 20.00	PNO: Fast IFGain:Low	#Atten: 28 dB	Mkr	1 14.046 5 GHz -31.79 dBm	Auto Tune
10.0					Center Freq 8.845000000 GHz
-10.0					<b>Start Freq</b> 2.690000000 GHz
-20.0				DL1 -25.00 dBm	<b>Stop Freq</b> 15.000000000 GHz
-40.0	a line of an internet to the second	gen gentle en en en en en de la der besterne de de en	V prove the second sec second second sec		<b>CF Step</b> 1.231000000 GHz <u>Auto</u> Man
-60.0					<b>Freq Offset</b> 0 Hz
					Scale Type
Start 2.690 GHz #Res BM 1.0 MHz	#VBM	3.0 MHz	Sween 21	Stop 15.000 GHz	
MSG	<i>"v</i> <sub>0</sub> <i>v</i>		STATU	s	

Plot 7-95. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-96. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG986JPN	<u><i>CPCTEST</i></u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
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🤤 Keysight Spectrum Analyzer - Swept SA 👘				
LXX RL RF 50Ω DC	CORREC SENS	SE:INT ALIG #Avg Type: R	SN AUTO 08:23:19 PM Oct 21, 2019 CMS TRACE 1 2 3 4 5 6	Frequency
	PNO: Fast IFGain:Low Atten: 30	Run dB		
10 dB/div Ref 20.00 dBm			Mkr1 2.443 5 GHz -38.30 dBm	Auto Tune
10.0				Center Freq 1.263000000 GHz
-10.0				Start Freq 30.000000 MHz
-20.0			DL1 -25.00 dBm	<b>Stop Freq</b> 2.496000000 GHz
-40.0	a felometer	terrenen filmet her en stelle som en stel Terrenen som en stelle som e	and the state of the	CF Step 246.600000 MHz <u>Auto</u> Man
-60.0				Freq Offset 0 Hz
-70.0				Scale Type
Start 0.030 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	Sw	Stop 2.496 GHz eep 3.288 ms (4933 pts)	Log <u>Lin</u>

Plot 7-97. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 99 - High Channel)



Plot 7-98. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 99 – High Channel)

FCC ID: A3LSMG986JPN	<u> PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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L <mark>XI</mark> RL		RF	50 Ω DC	CORREC	0	SEN	ISE:INT		ALIGN AUTO	08:26:52 P	M Oct 21, 2019	Frequency
						Trig: Free	Dun	#Avg Typ	e:RMS	TRAC		ricqueriey
				PNO: IEGair	Fast 🖵	#Atten: 2	0 dB			DI	ANNNN	
				II Ouli	1.201							Auto Tune
									IVIP	CT 20.88	8 0 GHZ	
10 dB/c	div F	tef 0.0	0 dBm							-34.	60 aBm	
Γ												
												Center Free
-10.0												21.000000000 GH;
-20.0												
											DL1 -25.00 dBm	Start Free
											1	15.000000000 GH;
-30,0											👌	
								ي السابية ال		والأعالية بالاردياء والم	publication (profile	
-40.0	منافد أحمد	لفناه والسأوب	A DESCRIPTION OF A DESC	and the second	in an	د اولی داله (۲۰۱۹)	ייינער גיינערעייןניי יייאנער גיינערעיינייי	nalitä metterä saatu eläessa n	, standing and a	فتقطعه والعليات ولله	A REPORT OF A	Stop Fred
1.00	h and the second second	in a station of states	And the local division of the local division	and the second second second		فأعالماه والدوال المكافر بال	in the shift of the second	and the second				27 00000000 GH
-50.0												27.00000000000000
												CF Step
-60.0												1.200000000 GH
												<u>Auto</u> Mar
-70.0												
												-
-80.0												Frequise
												0 H:
-90.0												Coolo Turo
												Scale Type
Stort .	15 000	CH-								Oton 07		Log Lir
Start #Bool		GHZ			#\/D\/	2.0 MIL-			woon	510p 2/	.000 GHZ	
#Res	-142 1.	J WINZ			#VDW	3.0 MHZ		5	weep 2	20.80 ms (2	4001 pts)	
MSG									STAT	us		

Plot 7-99. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 99 - High Channel)

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# 7.4 Band Edge Emissions at Antenna Terminal

### **Test Overview**

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

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

# The minimum permissible attenuation level for Band 41 is as noted in the Test Notes on the following page.

## Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

## Test Settings

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

#### Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

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## Test Notes

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

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

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

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

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

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# Band 12



Plot 7-100. Lower Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-101. Upper Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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l <b>,XI</b> R	L	RF	50 Ω DC	CORREC	SEI	ISE:INT	#Avg Type	ALIGN AUTO e: RMS	03:06:13 PI TRAC	MOct 23, 2019	F	requency
				PNO: Wide ↔ IFGain:Low	Trig: Free Atten: 36	e Run i dB		Mk	TYF DE r1 697 7			Auto Tune
10 di	B/div	Ref 25.	00 dBm						-35.	86 dBm		
LOG												Center Freq
15.0											69	8.000000 MHz
5.00								/	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
0.00												Start Freq
-5.00	<u> </u>										69	6.000000 MHz
-15.0										DL1 -13.00 dBm		Stop Erog
											70	0.000000 MHz
-25.0								1				
-35.0						A	- And and and and	/				CF Step
		and the second	mm	well are the as							<u>Auto</u>	Man
-45.0	0000000	-v-r										
-55.0	<u> </u>											Freq Offset
05.0												0112
-65.U												Scale Type
Cen	ter 60	2 000 M	H7						Snan 4	000 MHz	Log	Lin
#Re	s BW	100 kHz	1-	#VBV	V 300 kHz		5	Sweep 2	.000 ms (	1001 pts)		
MSG								STATUS				

Plot 7-102. Lower Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-103. Upper Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u><i>CPCTEST</i></u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Keysight Specific Control	ectrum Analyzer - Swept SA							- 6	X
(X) RL	RF 50 Ω DC	CORREC	SENSE:INT	#Avg Type	ALIGN AUTO E: RMS	03:08:19 PM TRACE TYPE	Oct 23, 2019	Frequenc	y
10 dB/div	Ref 25.00 dBm	IFGain:Low	Atten: 36 dB		Mki	DET 1 697.92 -38.5	ANNNN 28 MHz 0 dBm	Auto	Tune
15.0						and the second	~~~~~~	Center 698.000000	Freq MHz
-5.00					/		I 1 12:00 dBm	Start 696.000000	Freq MHz
-15.0					N			<b>Stop</b> 700.000000	Freq MHz
-35.0	mmmmmm	man Malana dan dari dari dari dari dari dari dari dari	1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~			CF 400.000 <u>Auto</u>	Step <sup>0</sup> kHz Man
-55.0								Freq O	o <b>ffset</b> 0 Hz
-65.0								Scale '	Type
Center 69 #Res BW	8.000 MHz 100 kHz	#VBW 3	00 kHz		Sweep 2	Span 4.0 000 ms (1	000 MHz 001 pts)	LUg	Lin
MSG					STATUS				

Plot 7-104. Lower Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-105. Upper Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)

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Keysight Spectrum Analyzer - Swept SA				
<b>μχα RL</b> RF 50Ω DC	CORREC SEN	#Avg Type	ALIGN AUTO 03:11:21 PM e: RMS TRAC	I Oct 23, 2019         Frequency           E         1 2 3 4 5 6
10 dB/div Ref 25.00 dBm	PNO: Wide Trig: Free IFGain:Low Atten: 36	a Run 3 dB	Mkr1 695.5 -44.	Auto Tune
15.0				Center Freq 698.000000 MHz
-5.00			mm <sub>and h</sub> agedown (Malaingado	594.000000 MHz
-15.0				<b>Stop Freq</b> 702.000000 MHz
-35.0 -45.0		apartan and a start and a start and a start and a start		CF Step 800.000 kHz <u>Auto</u> Man
-55.0				Freq Offset 0 Hz
Center 698.000 MHz #Res BW 100 kHz	#VBW 300 kHz		Span 8 Sweep 4.000 ms (	000 MHz Log Lin 1001 pts)
MSG			STATUS	

Plot 7-106. Lower Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-107. Upper Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

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# Band 13



Plot 7-108. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

Keysight Spectrum Analyzer - Swept SA							- 6	×
LX/ RF 50 Ω DC	CORREC	SENSE:INT		LIGN AUTO	06:44:19 PM TRACE	Oct 22, 2019	Frequency	
	PNO: Wide ↔ Trig: IFGain:Low #Atte	Free Run en: 36 dB	Avg Hold:	100/100	TYPE	AWWWWW		
10 dB/div Ref 10.00 dBm				Mkr	1 775.00 -66.33	00 MHz 7 dBm	Auto Tur	ie
0.00							Center Fre 769.000000 M⊦	eq Hz
-10.0							Start Fre 763.000000 M⊦	eq Hz
-30.0					C	DL1 -35:00 dBm	Stop Fre 775.000000 M⊦	eq Hz
-40.0							CF Ste 1.200000 MH	p Iz
-60.0						1	Auto Ma Freg Offs	et
-70.0 -70.0	na data ang kana na		angan ya Malanan ayaada	alan sindap dan serien sinda	#15/Network(Network)	ALL AND A	01	Ηz
							Scale Typ	ie in
Start 763.000 MHz #Res BW 6.2 kHz	#VBW 30 kH	lz*	S	weep 9	Stop 775. 4.20 ms (1	000 MHz 001 pts)		

Plot 7-109. Lower Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

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Plot 7-110. Upper Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-111. Upper Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

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Plot 7-112. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-113. Lower Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

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L <mark>XI</mark>	RF 50 S	2 DC	CORREC	SEN	ISE:INT	#Ava Tvp	ALIGN AUTO	05:01:51 PI	1 Oct 22, 2019	Fr	requency
		NFE	PNO: Wide ↔ IFGain:Low	. Trig: Free #Atten: 3	eRun 6 dB	Avg Hold	: 100/100	TYF	A NNNNN		Auto Tuno
10 dB/div	Ref 25.00	dBm					Mk	1 787.0 -29.1	24 MHz 38 dBm		Auto Tune
15.0										<b>(</b> 787	Center Freq 2.000000 MHz
5.00	and an and an all and	n marine (n	harr - ha altr - hadaran							783	Start Freq 3.000000 MHz
-15.0					1				DL1 -13.00 dBm	791	Stop Freq 1.000000 MHz
-35.0				here a	and the second s	- Simple and	and the start of the	and the second	an mine vin han a	<u>Auto</u>	<b>CF Step</b> 800.000 kHz Man
-45.0											Freq Offset 0 Hz
-65.0											Scale Type
Center 78	7.000 MHz		#\/B\/	300 kHz	*		Sween A	Span 8	.000 MHz	Log	Lin
MSG	100 KH2		<i></i>	500 KHZ			eratus		roor pis)		
MSG							STATUS	1			

Plot 7-114. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-115. Upper Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u>PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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## Band 5



Plot 7-116. Lower Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-117. Upper Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u> PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dego 77 of 129	
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🔤 Keysight Spe	ctrum Analyzer - Swept SA								_	
LXI RL	RF 50 Ω DC	CORREC	SEN	ISE:INT	#Ava Tvp	ALIGN AUTO	05:51:02 PI	MOct 23, 2019	F	requency
		PNO: Wide ↔ IFGain:Low	Trig: Free Atten: 36	e Run dB	0 ,1		TYF De			
10 dB/div	Ref 25.00 dBm					Mki	1 824.0 -18.	00 MHz 94 dBm		Auto Tune
45.0										Center Freq
15.0				m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	wwwwww	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	n.m.m.m.m.	82	4.000000 MHz
5.00										Start Freq
-5.00				1				DL1 -13.00 dBm	82.	2.000000 MHZ
-15.0				1					0.0	Stop Freq
-25.0	Volume and	www.www.where	and the second						82	5.000000 WH2
-35.0										CF Step 400.000 kHz
-45.0									<u>Auto</u>	Man
-55.0										Freq Offset
-65.0										0112
										Scale Type
Center 824 #Res BW	4.000 MHz 100 kHz	#VBW	300 kHz			Sweep 2	Span 4 .000 ms (	.000 MHz 1001 pt <u>s)</u>	Log	Lin
MSG						STATUS	•			

Plot 7-118. Lower Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-119. Upper Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA					
LXX RL RF 50Ω DC	CORREC SE	NSE:INT #Avo	ALIGN AUTO	05:43:48 PM Oct 23, 2019 TRACE 1 2 3 4 5 6	Frequency
	PNO: Wide +++ Trig: Fre	eRun 6 dB	, ,,,	TYPE A WWWWW DET A NNNNN	
10 dB/div Ref 25.00 dBm	I GAILLOW		Mki	1 823.976 MHz -24.62 dBm	Auto Tune
15.0					Center Freq 824.000000 MHz
-5.00					Start Freq 822.000000 MHz
-15.0		1 //		DL1-13.00 4041	Stop Freq 826.000000 MHz
-35.0					<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-55.0					Freq Offset 0 Hz
					Scale Type
#Res BW 100 kHz	#VBW 30 <u>0 kHz</u>		Sweep 2	.000 ms (1001 <u>pts)</u>	
MSG			STATUS		

Plot 7-120. Lower Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-121. Upper Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u>PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 70 of 129	
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🔤 Keysight Spe	ectrum Analyzer - Swept SA									
LXI RL	RF 50 Ω DC	CORREC	SEN	NSE:INT	#Ava Typ	ALIGN AUTO	05:35:27 PI	1 Oct 23, 2019	Fr	equency
		PNO: Wide ↔↔ IFGain:Low	Trig: Free Atten: 36	e Run i dB	#/18 1.)b	e. King	TYF			
10 dB/div	Ref 25.00 dBm					Mk	r1 824.0 -29.0	00 MHz 53 dBm		Auto Tune
15.0									<b>(</b> 824	Center Freq 1.000000 MHz
-5.00							**************************************	agung a san ging di ga da ag	820	Start Freq 0.000000 MHz
-15.0				1				DL1 -13.00 dBm	828	Stop Freq 3.000000 MHz
-35.0 <b>- 35.0</b>	all the second of the second	en laire rhafterar far sinesarar	alphones and						<u>Auto</u>	CF Step 800.000 kHz Man
-45.0										Freq Offset 0 Hz
-65.0									1.00	Scale Type
Center 82	4.000 MHz	#\/B\M	300 647			Sween A	Span 8	.000 MHz	Log	Lin
#Res DW	100 KH2	#VDVV	300 KHZ			Sweep 4		roor pis)		
MSG						STATUS	5			

Plot 7-122. Lower Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-123. Upper Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u>PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 90 of 120
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## Band 4



Plot 7-124. Lower Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-125. Lower Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u> PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 01 of 120
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W         RL         RF         50 Ω         DC         CORREC         SENSE:INT         ALION AUTO         D1:59:57 AH Oct 22, 2019         Frequency           PNO: Wide → IFGainLow         Trig: Free Run Atten: 36 dB         Trig: Free Run Atten: 36 dB         Trig: Tree Run -35, 035 dBm         Tree Run -35, 035 dBm         Auto Tune           10 dB/div         Ref 25.00 dBm         Center Freq 1.75500000 GHz         Center Freq 1.75500000 GHz         Center Freq 1.75500000 GHz         Start Freq 1.75700000 GHz           500         0	🔤 Keysight Spectr	um Analyzer - Swept SA									
PNO: Wide         Trig: Free Run         Mkr1 1.755 024 GHz         Auto Tune           10 dB/div         Ref 25.00 dBm         -35.035 dBm         Center Freq         1.75500000 GHz           150	LXI RL	RF 50 Ω DC	CORREC	SEN	ISE:INT	#Avg Tvp	ALIGN AUTO e: RMS	01:59:57 A	MOct 22, 2019	Fi	equency
O dB/div         Ref 25.00 dBm        35.035 dBm           150        35.035 dBm        35.035 dBm           150			PNO: Wide ↔→ IFGain:Low	Trig: Free Atten: 36	Run dB	0 ,1	Mkr1	TYF DE			Auto Tune
Solution         Center Freq           150         1.75500000 GHz           500         0.1.1300 GHz	10 dB/div	Ref 25.00 dBm						-35.0	35 dBm		
5.00       0	15.0									( 1.75	<b>Center Freq</b> 5000000 GHz
15.0         0:1-1300 dbn           25.0         1           35.0         1           45.0         1	5.00		n har a contraction of the contr	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						1.75	Start Freq 3000000 GHz
250         1         CF Step           350         1         1         1           450         1         1         1         1           450         1         1         1         1         1           550         1	-15.0								DL1 -13.00 dBm	1.75	Stop Freq 7000000 GHz
450     Freq Offset       550     Freq Offset       660     Scale Type       Center 1.755000 GHz     Span 4.000 MHz       #Res BW 16 kHz     Sween 5 667 ms (1001 nts)	-35.0	~~~~			1	mm	m			<u>Auto</u>	<b>CF Step</b> 400.000 kHz Man
-65.0 Center 1.755000 GHz #VBW 56 kHz Sween 5 667 ms (1001 nts)	-45.0						- www.	·····	una na A		Freq Offset 0 Hz
Center 1.755000 GHz Span 4.000 MHz Log Lin #Res BW 16 kHz Sweep 5 667 ms (1001 nts)	-65.0										Scale Type
	Center 1.75 #Res BW 10	5000 GHz 6 kHz	#VBW	56 kHz			Sweep 5	Span 4 .667 ms (	.000 MHz 1001 pts)	Log	Lin

Plot 7-126. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-127. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u><u><u></u><u>PCTEST</u></u></u>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 92 of 129
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Keysight Spectrum Analyzer - Swept SA					
X RL RF 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO	01:07:38 AM Oct 22, 2019 TRACE 1 2 3 4 5 6	Frequency
	PNO: Wide	rig: Free Run Atten: 36 dB	Mkr4		Auto Tune
10 dB/div Ref 25.00 dBm				-26.615 dBm	
15.0					Center Freq
5.00					
-5.00					<b>Start Freq</b> 1.708000000 GHz
-15.0				DL1 -13.00 dBm	Oton From
-25.0		1			1.712000000 GHz
-36.0					CF Step
-45.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~			400.000 kHz <u>Auto</u> Man
-55.0					Freq Offset
					0 Hz
-00.0					Scale Type
Center 1.710000 GHz	#\/B\M 43		Swoon 2	Span 4.000 MHz	Log <u>Lin</u>
	#VDVV 13		Sweep 2		

Plot 7-128. Lower Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-129. Lower Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u><u><u></u><u>PCTEST</u></u></u>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 92 of 129
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🔤 Keysight Spo	ctrum Analyzer - Swept SA									
LXI RL	RF 50 Ω DC	CORREC	SEN	NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	01:56:59 A	M Oct 22, 2019	F	requency
10 dB/div	Ref 25.00 dBm	PNO: Wide ↔ IFGain:Low	Atten: 36	e Run 6 dB		Mkr1	1.755 0 -26.6	04 GHz 14 dBm		Auto Tune
15.0									( 1.75	<b>Center Freq</b> 5000000 GHz
-5.00		man - Maria						DI 1 -13 00 dBm	1.75	Start Freq 3000000 GHz
-15.0				1					1.75	<b>Stop Freq</b> 7000000 GHz
-35.0								·····	<u>Auto</u>	<b>CF Step</b> 400.000 kHz Man
-55.0										Freq Offset 0 Hz
Center 1.	755000 GHz 36 kHz	#VBW	130 kHz			Sweep_2	Span 4	.000 MHz 1001 pts)	Log	Scale Type <u>Lin</u>
MSG		<i>"</i> •••••••	TO O INTIZ			STATUS	3	100 PC3)		

Plot 7-130. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-131. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u><i>CPCTEST</i></u>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dega 04 of 120	
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🔤 Keysight Spectrum Analyzer	- Swept SA				
LXIRL RF !	50 Ω DC CORREC	SENSE:INT	ALIGN AUTO	01:02:16 AM Oct 22, 2019	Frequency
	PNO:Wide ↔►	Trig: Free Run Atten: 36 dB	with the the	TYPE A WWWW DET A N N N N N	
10 dB/div Ref 25.0	00 dBm		Mkr1	1.709 996 GHz -29.601 dBm	Auto Tune
15.0					Center Freq 1.710000000 GHz
-5.00					<b>Start Freq</b> 1.708000000 GHz
-15.0		1			<b>Stop Freq</b> 1.712000000 GHz
-35.0 -45.0	hummon	~~~~			<b>CF Step</b> 400.000 kHz <u>Auto</u> Man
-55.0					Freq Offset 0 Hz
-65.0					Scale Type
Center 1.710000 G #Res BW 62 kHz	HZ #VBW	220 kHz	Sweep 2	Span 4.000 MHz .000 ms (1001 pts)	
MSG			STATUS		

Plot 7-132. Lower Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-133. Lower Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<i>PCTEST</i>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 05 of 120	
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🔤 Keysight Spe	ctrum Analyzer - Swept SA									
L <mark>XI</mark> RL	RF 50 Ω DC	CORREC	SEN	SE:INT	#Avg Type	ALIGN AUTO e: RMS	01:55:46 A	M Oct 22, 2019 E <b>1 2 3 4 5 6</b>	Fi	requency
		PNO: Wide +++ IFGain:Low	Trig: Free Atten: 36	Run dB		Micad				Auto Tune
10 dB/div Log	Ref 25.00 dBm						-30.8	87 dBm		
15.0									(	Center Freq
5.00	10000 111000 m. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.		<b></b>						1.70	
-5.00			$\int$						1.75	Start Freq 3000000 GHz
15.00								DL1 -13.00 dBm		
25.0			N.						1.75	<b>Stop Freq</b> 7000000 GHz
-25.0			Y	1						CF Step
-35.0				mur	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	×~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	umm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	<u>Auto</u>	400.000 kHz Man
-45.0										Fred Offset
-55.0										0 Hz
-65.0										Scale Type
Center 1.7	755000 GHz						Span 4	.000 MHz	Log	<u>Lin</u>
#Res BW	OZ KHZ	#VBW 2	220 KHZ			sweep 2.	000 ms (	1001 pts)		
MSG						STATUS				

Plot 7-134. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-135. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u><u><u></u><u>PCTEST</u></u></u>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 96 of 129
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🔤 Keysight Spe	ectrum Analyzer - Swept SA						
(XVI RL	RF 50 Ω DC	CORREC	SENSE:INT	#Avg Typ	ALIGN AUTO e: RMS	12:57:21 AM Oct 22, 2019 TRACE 2 3 4 5 6	Frequency
10 dB/div	Ref 25.00 dBm	PNO: Wide ↔ IFGain:Low	Atten: 36 dB		Mkr1	1.709 984 GHz -32.625 dBm	Auto Tune
15.0							Center Freq 1.710000000 GHz
-5.00			(	Proppet Served That COLINE Program	Pertent og kjeret sød s	01 1 .13 00 dBm	<b>Start Freq</b> 1.706000000 GHz
-15.0			14				<b>Stop Freq</b> 1.714000000 GHz
-35.0 -45.0	renation and an and the second and the	monormany	usprestively				CF Step 800.000 kHz <u>Auto</u> Man
-55.0							<b>Freq Offset</b> 0 Hz
Center 1	710000 GH7					Spap 8 000 MHz	Scale Type
#Res BW	120 kHz	#VBW	430 kHz		Sweep 4	.000 ms (1001 pts)	
MSG					STATUS	;	

Plot 7-136. Lower Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-137. Lower Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u>PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	•	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dege 97 of 129	
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🔤 Keysight Spe	ectrum Analyzer - Swept SA									
LXI RL	RF 50 Ω DC	CORREC	SEN	ISE:INT	#Ava Tvp	ALIGN AUTO	01:52:11 A	1 Oct 22, 2019	Fr	requency
		PNO: Wide ++ IFGain:Low	Trig: Free Atten: 36	Run dB	#7(18) JP		TYF De			
10 dB/div	Ref 25.00 dBm					Mkr1	1.755 0	32 GHz 91 dBm		Auto Tulle
15.0									( 1.75	<b>Center Freq</b> 5000000 GHz
-5.00	na ayaaliyey saraanii aa faraf	149 <sup>00</sup> 2000 (1004) (1003) (1003)	~					DI 4, 42.00 #Em	1.75	Start Freq 1000000 GHz
-15.0			har a start where the start wh						1.75	<b>Stop Freq</b> 9000000 GHz
-35.0			U Vy	had and a grad a feature	U Jarty and Strategic Strategics	i a successforder for	<sup>۲۰۰</sup> ۹ <sub>۲</sub> ۶۹۵۰ هر <sup>۵</sup> ۵۰۹ آواېمه	hrig-Pheelouthorn M	<u>Auto</u>	<b>CF Step</b> 800.000 kHz Man
-55.0										Freq Offset 0 Hz
-65.0									1.00	Scale Type
Center 1.7	755000 GHz	#\/P\M	130 kHz			Sween_4	Span 8	.000 MHz	Log	Lin
MEG	120 MIZ	#0000	430 KHZ			etatus	.000 ms (	roo r pts)		
MSG						STATUS				

Plot 7-138. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-139. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u>PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept S	A				- 6 -
<b>LX </b> RL RF 50Ω D	C CORREC	SENSE:INT	ALIGN AUTO	12:53:50 AM Oct 22, 2019 TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 25.00 dBr	PNO: Wide ↔ Ti IFGain:Low A	rig: Free Run Atten: 36 dB	Mkr1	1.709 940 GHz -31.721 dBm	Auto Tune
					Center Freq 1.710000000 GHz
-5.00			nere for an		Start Freq 1.704000000 GHz
-15.0		17			<b>Stop Freq</b> 1.716000000 GHz
-35.0	man man	ungung der			<b>CF Step</b> 1.200000 MHz <u>Auto</u> Man
-55.0					Freq Offset 0 Hz
-65.0					Scale Type
Center 1.710000 GHz #Res BW 180 kHz	#VBW 62	0 kHz	Sweep 1	Span 12.00 MHz .000 ms (1001 pts)	
MSG			STATUS		

Plot 7-140. Lower Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-141. Lower Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u> <u> <u> </u> <u> PCTEST</u> </u></u>	MEASUREMENT REPORT (CERTIFICATION)	UNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 90 of 120
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🔤 Keysight Spe	ctrum Analyzer - Swept SA								- 6 -
LXI RL	RF 50 Ω DC	CORREC	SEN	ISE:INT	#Ava Tvp	ALIGN AUTO	01:50:56 AM	Oct 22, 2019	Frequency
10 dB/div	Ref 25.00 dBm	PNO: Wide ↔ IFGain:Low	. Trig: Free Atten: 36	Run dB		Mkr1	TYPE DE 1.755 0 -32.0	48 GHz 3 dBm	Auto Tune
15.0			`						Center Freq 1.755000000 GHz
-5.00	and a second	and the second second						0L1 -13.00 dBm	Start Freq 1.749000000 GHz
-15.0			h <sub>ay</sub>	.1					<b>Stop Freq</b> 1.761000000 GHz
-35.0			برا 					<del>∿∽<sub>┲</sub>₀∽∽₩∂∂⋗∽</del>	<b>CF Step</b> 1.200000 MHz <u>Auto</u> Man
-55.0									Freq Offset 0 Hz
Center 1.7	755000 GHz						Span 12	2.00 MHz	<b>Scale Type</b> Log <u>Lin</u>
#Res BW	180 kHz	#VBW	620 kHz			Sweep 1	.000 ms (1	1001 pts)	
MSG						STATUS	;		

Plot 7-142. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-143. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u>PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA					
LX/RL RF 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO	12:45:30 AM Oct 22, 2019 TRACE 1 2 3 4 5 6	Frequency
	PNO: Wide ↔ Tri IFGain:Low At	ig: Free Run Iten: 36 dB	"	TYPE A WWWWW DET A NNNNN	Auto Tupe
10 dB/div Ref 25.00 dBm			MKr1	1.709 888 GHz -32.520 dBm	
15.0					Center Freq 1.710000000 GHz
-5.00			an <sup>ter</sup> and an and a second provided and a second		Start Freq 1.702000000 GHz
-15.0				UL1 -13.00 dBm	<b>Stop Freq</b> 1.718000000 GHz
-35.0	man and and and				CF Step 1.600000 MHz <u>Auto</u> Man
-45.0					Freq Offset 0 Hz
-65.0					Scale Type
Center 1.710000 GHz #Res BM 240 kHz	#\/B\\/ 92(	) kHz	Sween	Span 16.00 MHz	Log <u>Lin</u>
MSG	#VBV 820	2 11112	STATU	s	

Plot 7-144. Lower Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-145. Lower Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u>PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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🔤 Keysight Spe	ctrum Analyzer - Swept SA								- ē 🔀
L <mark>XI</mark> RL	RF 50 Ω DC	CORREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	01:48:59 AM TRACE	Oct 22, 2019	Frequency
		PNO: Wide ↔→ IFGain:Low	Trig: Free Atten: 36	Run dB		Mkr1	1.755 0	32 GHz	Auto Tune
10 dB/div Log	Ref 25.00 dBm						-32.16	68 dBm	
15.0									Center Freq 1.755000000 GHz
5.00		and free to the fr	~						Start Freq 1.747000000 GHz
-15.0								0L1 -13.00 dBm	<b>Stop Freq</b> 1.763000000 GHz
-35.0			and the second	1	a and and a data a	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mmmente	an an the second se	CF Step 1.600000 MHz <u>Auto</u> Man
-45.0									Freq Offset 0 Hz
-65.0									Scale Type
Center 1.7 #Res BW	755000 GHz 240 kHz	#VBW	820 kHz			Sweep_1	Span 16	6.00 MHz 1001 pts)	Log <u>Lin</u>
MSG						STATUS			

Plot 7-146. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-147. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

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# Band 41



Plot 7-148. Lower ACP Plot at 2496 MHz (Band 41 - 5.0MHz QPSK - Full RB Configuration)



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Plot 7-150. Lower ACP Plot at 2496 MHz (Band 41 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-151. Upper ACP Plot (Band 41 - 10.0MHz QPSK - Full RB Configuration)

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Plot 7-152. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-153. Upper ACP Plot (Band 41 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	<u><i>CPCTEST</i></u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Plot 7-154. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-155. Upper ACP Plot (Band 41 - 20.0MHz QPSK - Full RB Configuration)

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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.

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## Band 4







#### Plot 7-157. PAR Plot (Band 4 - 1.4MHz 16-QAM - Full RB Configuration)

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Plot 7-161. PAR Plot (Band 4 - 3.0MHz 64-QAM - Full RB Configuration)

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Plot 7-169. PAR Plot (Band 4 - 15.0MHz 16-QAM - Full RB Configuration)

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# 7.6 Radiated Power (ERP/EIRP)

## Test Overview

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

## Test Procedures Used

KDB 971168 D01 v03r01 - Section 5.2.1

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

## Test Settings

- 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 > 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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## Test Setup





Figure 7-6. Radiated Test Setup >1GHz

## Test Notes

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

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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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	н	141	301	1 / 2	14.50	3.40	15.75	0.038	34.77	-19.02	17.90	0.062	36.99	-19.09
707.50	1.4	QPSK	н	152	311	1 / 5	14.24	3.65	15.74	0.037	34.77	-19.03	17.89	0.062	36.99	-19.10
715.30	1.4	QPSK	н	148	300	1 / 2	14.17	3.70	15.72	0.037	34.77	-19.05	17.87	0.061	36.99	-19.12
699.70	1.4	16-QAM	н	141	301	1 / 2	13.93	3.40	15.18	0.033	34.77	-19.59	17.33	0.054	36.99	-19.66
707.50	1.4	64-QAM	н	152	311	1 / 5	12.54	3.65	14.04	0.025	34.77	-20.73	16.19	0.042	36.99	-20.80
700.50	3	QPSK	н	155	279	1 / 0	14.51	3.40	15.76	0.038	34.77	-19.01	17.91	0.062	36.99	-19.08
707.50	3	QPSK	н	146	310	1 / 14	14.32	3.65	15.82	0.038	34.77	-18.95	17.97	0.063	36.99	-19.02
714.50	3	QPSK	н	159	312	1 / 7	14.34	3.70	15.89	0.039	34.77	-18.88	18.04	0.064	36.99	-18.95
714.50	3	16-QAM	н	159	312	1 / 7	13.38	3.70	14.93	0.031	34.77	-19.84	17.08	0.051	36.99	-19.91
714.50	3	64-QAM	н	159	312	1 / 7	12.51	3.70	14.06	0.025	34.77	-20.71	16.21	0.042	36.99	-20.78
701.50	5	QPSK	н	144	289	1 / 12	14.48	3.40	15.73	0.037	34.77	-19.04	17.88	0.061	36.99	-19.11
707.50	5	QPSK	н	150	322	1 / 12	14.21	3.65	15.71	0.037	34.77	-19.06	17.86	0.061	36.99	-19.13
713.50	5	QPSK	н	148	289	1 / 12	14.41	3.70	15.96	0.039	34.77	-18.81	18.11	0.065	36.99	-18.88
701.50	5	16-QAM	н	144	289	1 / 12	13.96	3.40	15.21	0.033	34.77	-19.56	17.36	0.054	36.99	-19.63
713.50	5	64-QAM	н	148	289	1 / 12	12.71	3.70	14.26	0.027	34.77	-20.51	16.41	0.044	36.99	-20.58
704.00	10	QPSK	н	139	289	1 / 25	14.92	3.50	16.27	0.042	34.77	-18.50	18.42	0.070	36.99	-18.57
707.50	10	QPSK	н	142	300	1 / 0	15.03	3.65	16.53	0.045	34.77	-18.24	18.68	0.074	36.99	-18.31
711.00	10	QPSK	н	152	299	1 / 0	14.67	3.70	16.22	0.042	34.77	-18.55	18.37	0.069	36.99	-18.62
707.50	10	16-QAM	н	142	300	1 / 0	14.27	3.65	15.77	0.038	34.77	-19.00	17.92	0.062	36.99	-19.07
707.50	10	64-QAM	н	142	300	1 / 0	13.17	3.65	14.67	0.029	34.77	-20.10	16.82	0.048	36.99	-20.17
707.50	10	QPSK	V	169	298	1 / 0	13.63	4.60	16.08	0.041	34.77	-18.69	18.23	0.067	36.99	-18.76
707.50	10 (WCP)	QPSK	V	163	109	1 / 0	10.58	4.60	13.03	0.020	34.77	-21.74	15.18	0.033	36.99	-21.81

Table 7-3. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	173	299	1 / 24	12.62	5.70	16.17	0.041	34.77	-18.60	18.32	0.068	36.99	-18.67
782.00	5	QPSK	v	155	280	1 / 24	12.59	5.80	16.24	0.042	34.77	-18.53	18.39	0.069	36.99	-18.60
784.50	5	QPSK	v	171	289	1/0	12.63	5.80	16.28	0.042	34.77	-18.49	18.43	0.070	36.99	-18.56
779.50	5	16-QAM	V	173	299	1 / 24	12.05	5.70	15.60	0.036	34.77	-19.17	17.75	0.060	36.99	-19.24
784.50	5	64-QAM	V	171	289	1 / 0	11.55	5.80	15.20	0.033	34.77	-19.57	17.35	0.054	36.99	-19.64
782.00	10	QPSK	V	169	289	1 / 0	13.09	5.80	16.74	0.047	34.77	-18.03	18.89	0.077	36.99	-18.10
782.00	10	16-QAM	V	169	289	1/0	12.36	5.80	16.01	0.040	34.77	-18.76	18.16	0.065	36.99	-18.83
782.00	10	64-QAM	V	169	289	1 / 0	11.26	5.80	14.91	0.031	34.77	-19.86	17.06	0.051	36.99	-19.93
782.00	10	QPSK	н	101	290	1/0	12.64	5.80	16.29	0.043	34.77	-18.48	18.44	0.070	36.99	-18.55
782.00	10 (WCP)	QPSK	н	144	164	1/0	8.76	5.80	12.41	0.017	34.77	-22.36	14.56	0.029	36.99	-22.43

Table 7-4. ERP Data (Band 13)

FCC ID: A3LSMG986JPN	<u><i>CPCTEST</i></u>	MEASUREMENT REPORT (CERTIFICATION)	MSUNG	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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	116	261	1 / 5	12.30	6.30	16.45	0.044	38.45	-22.00	18.60	0.072	40.61	-22.01
836.50	1.4	QPSK	V	156	211	1/2	12.30	6.40	16.47	0.044	38.45	-21.98	18.62	0.073	40.61	-21.99
848.30	1.4	QPSK	V	155	247	1 / 5	12.30	6.50	16.39	0.044	38.45	-22.06	18.54	0.071	40.61	-22.07
836.50	1.4	16-QAM	V	156	211	1/2	12.30	6.40	15.77	0.038	38.45	-22.68	17.92	0.062	40.61	-22.69
824.70	1.4	64-QAM	V	116	261	1 / 5	12.30	6.30	14.77	0.030	38.45	-23.68	16.92	0.049	40.61	-23.69
825.50	3	QPSK	V	146	253	1 / 7	12.30	6.30	16.49	0.045	38.45	-21.96	18.64	0.073	40.61	-21.97
836.50	3	QPSK	V	146	255	1 / 14	12.30	6.40	16.53	0.045	38.45	-21.92	18.68	0.074	40.61	-21.93
847.50	3	QPSK	V	156	253	1 / 7	12.30	6.50	16.41	0.044	38.45	-22.04	18.56	0.072	40.61	-22.05
836.50	3	16-QAM	V	146	255	1 / 14	12.30	6.40	15.78	0.038	38.45	-22.67	17.93	0.062	40.61	-22.68
825.50	3	64-QAM	V	146	253	1 / 7	12.30	6.30	14.76	0.030	38.45	-23.69	16.91	0.049	40.61	-23.70
826.50	5	QPSK	V	141	250	1 / 24	12.30	6.30	16.60	0.046	38.45	-21.85	18.75	0.075	40.61	-21.86
836.50	5	QPSK	V	136	236	1 / 24	12.30	6.40	16.39	0.044	38.45	-22.06	18.54	0.071	40.61	-22.07
846.50	5	QPSK	V	155	251	1 / 0	12.30	6.50	16.39	0.044	38.45	-22.06	18.54	0.071	40.61	-22.07
826.50	5	16-QAM	V	141	250	1 / 24	12.30	6.30	15.97	0.040	38.45	-22.48	18.12	0.065	40.61	-22.49
826.50	5	64-QAM	V	141	250	1 / 24	12.30	6.30	14.87	0.031	38.45	-23.58	17.02	0.050	40.61	-23.59
829.00	10	QPSK	V	136	247	1 / 49	12.85	6.30	17.00	0.050	38.45	-21.45	19.15	0.082	40.61	-21.46
836.50	10	QPSK	V	142	248	1 / 25	12.97	6.40	17.22	0.053	38.45	-21.23	19.37	0.086	40.61	-21.24
844.00	10	QPSK	V	147	248	1 / 0	12.85	6.40	17.10	0.051	38.45	-21.35	19.25	0.084	40.61	-21.36
836.50	10	16-QAM	V	142	248	1 / 25	12.15	6.40	16.40	0.044	38.45	-22.05	18.55	0.072	40.61	-22.06
836.50	10	64-QAM	V	142	248	1 / 25	11.21	6.40	15.46	0.035	38.45	-22.99	17.61	0.058	40.61	-23.00
836.50	10	QPSK	Н	224	287	1 / 25	11.11	6.40	15.36	0.034	38.45	-23.09	17.51	0.056	40.61	-23.10
836.50	10 (WCP)	QPSK	V	136	156	1 / 25	7.85	6.40	12.10	0.016	38.45	-26.35	14.25	0.027	40.61	-26.36

Table 7-5. ERP Data (Band 5)

FCC ID: A3LSMG986JPN	PCTEST	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	V	151	14	1 / 5	12.30	9.35	21.65	0.146	30.00	-8.35
1732.50	1.4	QPSK	V	136	15	1 / 0	12.55	9.20	21.75	0.150	30.00	-8.25
1754.30	1.4	QPSK	V	137	29	1/2	12.81	9.09	21.90	0.155	30.00	-8.10
1754.30	1.4	16-QAM	V	137	29	1/2	11.50	9.09	20.59	0.115	30.00	-9.41
1754.30	1.4	64-QAM	V	137	29	1/2	10.62	9.09	19.71	0.094	30.00	-10.29
1711.50	3	QPSK	V	151	14	1 / 14	12.52	9.34	21.86	0.153	30.00	-8.14
1732.50	3	QPSK	V	136	15	1/0	12.71	9.20	21.91	0.155	30.00	-8.09
1753.50	3	QPSK	V	137	29	1 / 7	12.56	9.09	21.65	0.146	30.00	-8.35
1732.50	3	16-QAM	V	136	15	1/0	11.92	9.20	21.12	0.129	30.00	-8.88
1732.50	3	64-QAM	V	136	15	1 / 0	10.70	9.20	19.90	0.098	30.00	-10.10
1712.50	5	QPSK	V	151	14	1 / 12	12.56	9.34	21.90	0.155	30.00	-8.10
1732.50	5	QPSK	V	136	15	1/0	12.82	9.20	22.02	0.159	30.00	-7.98
1752.50	5	QPSK	V	137	29	1 / 12	12.92	9.08	22.00	0.158	30.00	-8.00
1732.50	5	16-QAM	V	136	15	1/0	12.19	9.20	21.39	0.138	30.00	-8.61
1712.50	5	64-QAM	V	151	14	1 / 12	10.78	9.34	20.12	0.103	30.00	-9.88
1715.00	10	QPSK	V	151	14	1/0	12.40	9.32	21.72	0.149	30.00	-8.28
1732.50	10	QPSK	V	136	15	1 / 50	12.81	9.20	22.01	0.159	30.00	-7.99
1750.00	10	QPSK	V	137	29	1 / 50	12.84	9.07	21.91	0.155	30.00	-8.09
1732.50	10	16-QAM	V	136	15	1 / 50	12.17	9.20	21.37	0.137	30.00	-8.63
1732.50	10	64-QAM	V	136	15	1 / 50	11.23	9.20	20.43	0.110	30.00	-9.57
1717.50	15	QPSK	V	151	14	1 / 74	12.97	9.30	22.27	0.169	30.00	-7.73
1732.50	15	QPSK	V	136	15	1 / 36	13.20	9.20	22.40	0.174	30.00	-7.60
1747.50	15	QPSK	V	137	29	1 / 36	13.17	9.09	22.26	0.168	30.00	-7.74
1717.50	15	16-QAM	V	151	14	1 / 74	12.07	9.30	21.37	0.137	30.00	-8.63
1732.50	15	64-QAM	V	136	15	1 / 36	11.18	9.20	20.38	0.109	30.00	-9.62
1720.00	20	QPSK	V	151	14	1 / 25	13.21	9.28	22.49	0.178	30.00	-7.51
1732.50	20	QPSK	V	136	15	1 / 25	13.19	9.20	22.39	0.173	30.00	-7.61
1745.00	20	QPSK	V	137	29	1/0	12.89	9.11	22.00	0.158	30.00	-8.00
1720.00	20	16-QAM	V	151	14	1/25	12.50	9.28	21.78	0.151	30.00	-8.22
1720.00	20	64-QAM	V	151	14	1/25	11.50	9.28	20.78	0.120	30.00	-9.22
1720.00	20	QPSK	Н	360	301	1/25	12.69	9.20	21.89	0.154	30.00	-8.11
1720.00	20 (WCP)	QPSK	V	161	229	1/25	11.99	9.20	21.19	0.131	30.00	-8.81

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

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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	159	231	1 / 12	14.61	9.43	24.04	0.254	33.01	-8.97
2593.00	5	QPSK	Н	143	249	1 / 24	14.45	9.55	24.00	0.251	33.01	-9.01
2687.50	5	QPSK	Н	123	210	1 / 24	14.02	9.82	23.84	0.242	33.01	-9.17
2498.50	5	16-QAM	Н	159	231	1 / 12	13.75	9.43	23.18	0.208	33.01	-9.83
2498.50	5	64-QAM	Н	159	231	1 / 12	12.69	9.43	22.12	0.163	33.01	-10.89
2501.00	10	QPSK	Н	160	243	1 / 49	14.64	9.43	24.07	0.255	33.01	-8.94
2593.00	10	QPSK	Н	121	241	1 / 25	14.42	9.55	23.97	0.249	33.01	-9.04
2685.00	10	QPSK	Н	119	229	1 / 25	14.22	9.82	24.04	0.254	33.01	-8.97
2501.00	10	16-QAM	Н	160	243	1 / 49	13.16	9.43	22.59	0.182	33.01	-10.42
2501.00	10	64-QAM	Н	160	243	1 / 49	12.13	9.43	21.56	0.143	33.01	-11.45
2503.50	15	QPSK	Н	151	240	1 / 0	14.57	9.43	24.00	0.251	33.01	-9.01
2593.00	15	QPSK	Н	116	231	1 / 36	14.41	9.55	23.96	0.249	33.01	-9.05
2682.50	15	QPSK	Н	116	218	1 / 36	14.12	9.83	23.95	0.248	33.01	-9.06
2503.50	15	16-QAM	Н	151	240	1 / 0	13.84	9.43	23.27	0.212	33.01	-9.74
2503.50	15	64-QAM	Н	151	240	1 / 0	12.60	9.43	22.03	0.160	33.01	-10.98
2506.00	20	QPSK	Н	147	223	1 / 50	14.65	9.42	24.07	0.256	33.01	-8.94
2593.00	20	QPSK	Н	112	226	1 / 0	14.05	9.55	23.60	0.229	33.01	-9.41
2680.00	20	QPSK	Н	114	229	1 / 50	13.79	9.83	23.62	0.230	33.01	-9.39
2680.00	20	16-QAM	Н	114	229	1 / 50	13.00	9.83	22.83	0.192	33.01	-10.18
2593.00	20	64-QAM	Н	112	226	1 / 0	12.45	9.55	22.00	0.159	33.01	-11.01
20.00	QPSK	Н	V	153	320	1 / 50	13.78	9.42	23.20	0.209	33.01	-9.81
20.00	QPSK (WCP	Н	V	162	222	1 / 50	14.12	9.42	23.54	0.226	33.01	-9.47

Table 7-7. EIRP Data (Band 41 – PC3)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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# 7.7 Radiated Spurious Emissions Measurements

## **Test Overview**

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

## **Test Procedures Used**

KDB 971168 D01 v03r01 - Section 5.8

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

## Test Settings

- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW  $\geq$  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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## Test Setup



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

Figure 7-7. Test Instrument & Measurement Setup

## Test Notes

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

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# Band 12



Plot 7-174. Radiated Spurious Plot above 1GHz (Band 12)

	704.00	MHz
QPSK		
10.0	MHz	
3	meters	
-13	dBm	
	QPSK 10.0 3 -13	704.00           QPSK         MHz           10.0         MHz           3         meters           -13         dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1408.00	Н	-	-	-61.98	2.71	-59.27	-46.3
2112.00	Н	-	-	-59.27	3.57	-55.70	-42.7
2816.00	Н	-	-	-58.81	4.98	-53.83	-40.8

Table 7-8. Radiated Spurious Data (Band 12 – Low Channel)

FCC ID: A3LSMG986JPN	<u><i>CPCTEST</i></u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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OPERATING FREQUENCY:707.50MHzMODULATION SIGNAL:QPSKBANDWIDTH:10.0MHzDISTANCE:3metersLIMIT:-13dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	Н	-	-	-62.83	2.80	-60.03	-47.0
2122.50	Н	-	-	-60.04	3.57	-56.47	-43.5
2830.00	Н	-	-	-58.85	5.02	-53.83	-40.8

Table 7-9. Radiated Spurious Data (Band 12 – Mid Channel)

711.00

MHz

meters

MHz

OPERATING FREQUENCY:

MODULATION SIGNAL: QPSK BANDWIDTH: 10.0

DISTANCE: 3

LIMIT: <u>-13</u>dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	Н	-	-	-62.51	2.88	-59.62	-46.6
2133.00	Н	-	-	-60.13	3.58	-56.55	-43.6
2844.00	Н	-	-	-59.37	5.07	-54.30	-41.3

Table 7-10. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: A3LSMG986JPN	<u> PCTEST</u>	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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OPERATING FREQUENCY:	70	7.50	MHz
MODULATION SIGNAL:	QPSK	_	
BANDWIDTH:	10.0	MHz	
DISTANCE:	3	meters	
LIMIT:	-13	dBm	

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	Н	-	-	-63.99	2.80	-61.19	-48.2
2122.50	Н	-	-	-60.16	3.57	-56.59	-43.6
2830.00	Н	-	-	-59.12	5.02	-54.10	-41.1

Table 7-11. Radiated Spurious Data with WCP (Band 12 – Mid Channel)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	•	Approved by: Quality Manager
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# Band 13



Plot 7-175. Radiated Spurious Plot above 1GHz (Band 13)

78	2.00 MHz
QPSK	_
10.0	MHz
3	meters
-13	dBm
	78. QPSK 10.0 3 -13

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	V	161	262	-57.31	4.00	-53.30	-40.3
3128.00	V	-	-	-58.42	5.38	-53.03	-40.0
3910.00	V	-	-	-58.98	7.09	-51.89	-38.9

Table 7-12. Radiated Spurious Data (Band 13 – Mid Channel)

FCC ID: A3LSMG986JPN	<u><i>CPCTEST</i></u>	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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MODULATION SIGNAL:	QPSK	_
BANDWIDTH:	10.00	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]
1564.00	V	-	-	-62.46	3.53	-58.93	-18.9

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

QPSK

OPERATING FREQUENCY:

782.00

MHz

MODULATION SIGNAL:

BANDWIDTH:

ANDWIDTH: 10.0 MHz DISTANCE: 3 meters

LIMIT: \_\_\_\_\_dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	enna dBm] Substitute Spurious Antenna Gain Emission Lev [dBi] [dBm]		Margin [dB]
2346.00	V	149	244	-57.37	4.00	-53.36	-40.4
3128.00	V	-	-	-59.36	5.38	-53.97	-41.0
3910.00	V	-	-	-59.08	7.09	-51.99	-39.0

Table 7-14. Radiated Spurious Data with WCP (Band 13 - Mid Channel)

FCC ID: A3LSMG986JPN	<u><i>CPCTEST</i></u>	MEASUREMENT REPORT (CERTIFICATION)	NG	Approved by: Quality Manager
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