# 2.14.1.2 UHF Radiated Spurious Emissions Plots

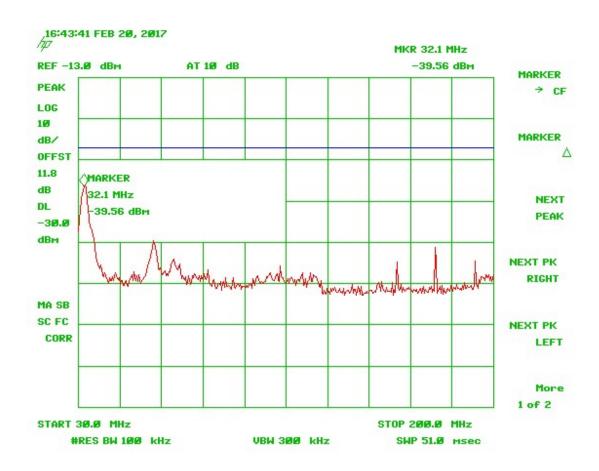


Figure 125. 450 MHz Vertical 30 - 200 MHz

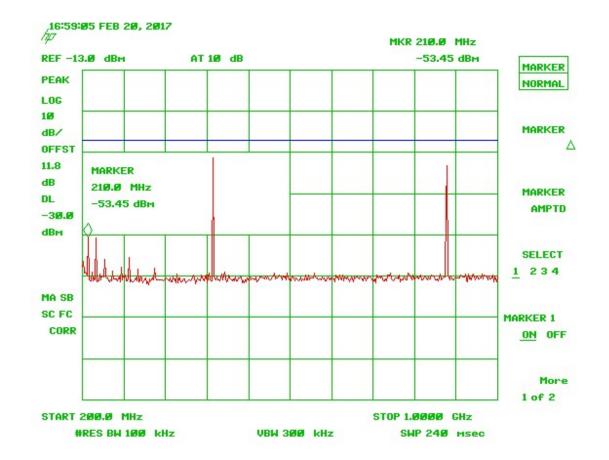


Figure 126. 450 MHz Vertical 200 – 1000 MHz

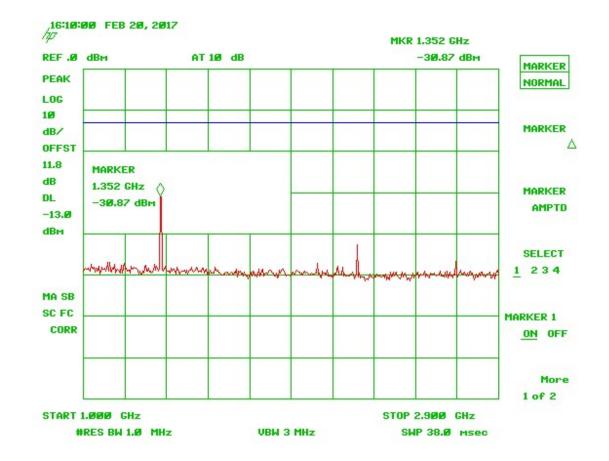


Figure 127. 450 MHz Vertical 1 – 2.9 GHz

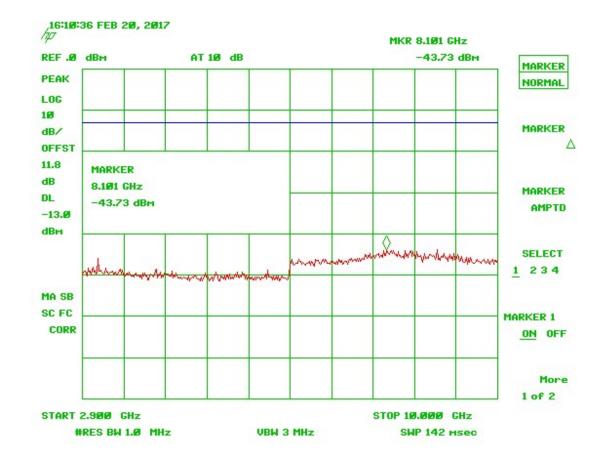


Figure 128. 450 MHz Vertical 2.9 -10 GHz

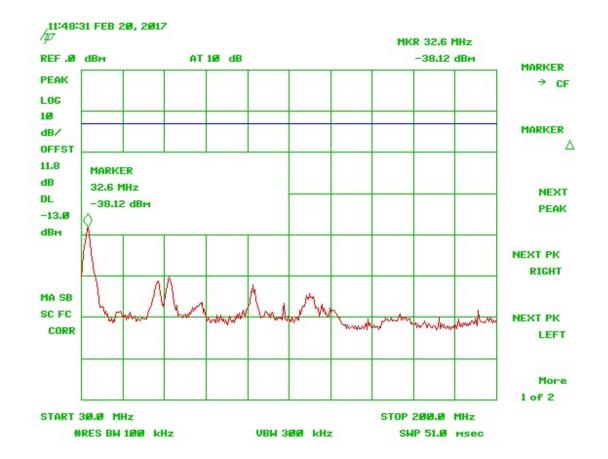
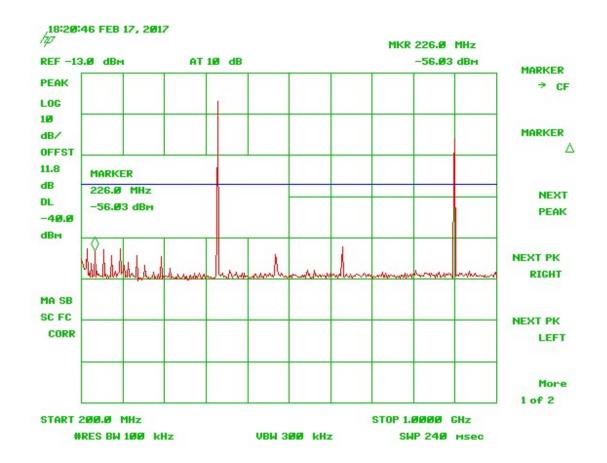


Figure 129. 459 MHz Vertical 30 - 200 MHz



#### Figure 130. 459 MHz 200 -1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

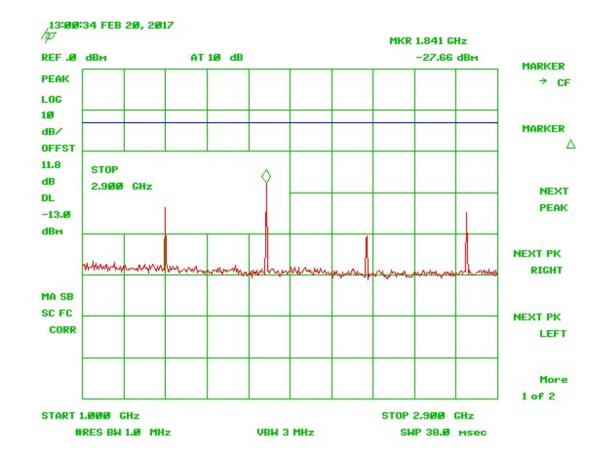


Figure 131. 459 MHz Vertical 1 -2.9 GHz

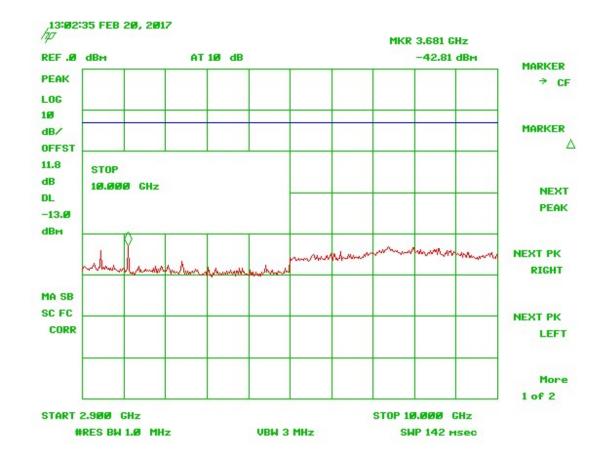


Figure 132. 459 MHz Vertical 2.9 – 10 GHz

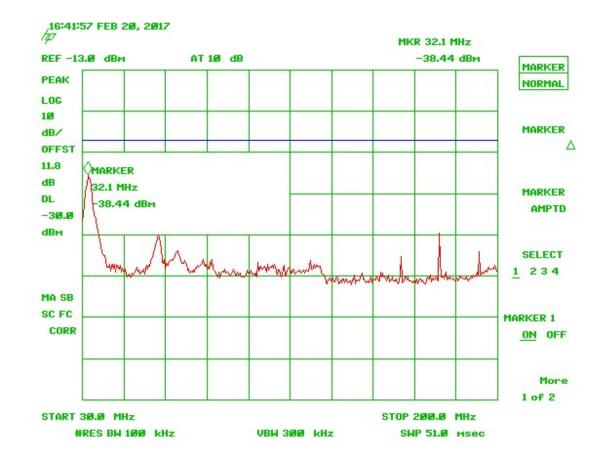


Figure 133. 490 MHz Vertical 30 - 200 MHz

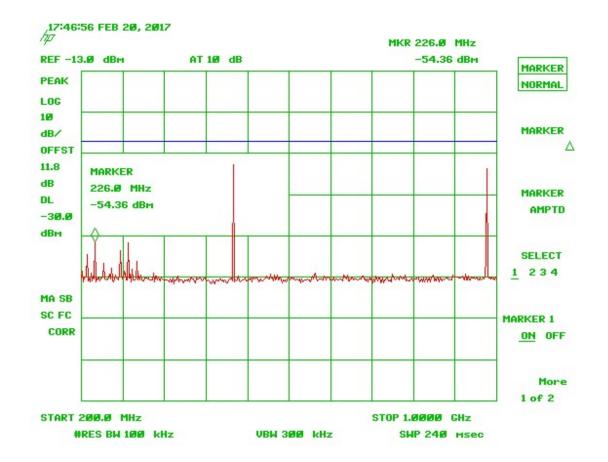


Figure 134. 490 MHz Vertical 200 - 1000 MHz

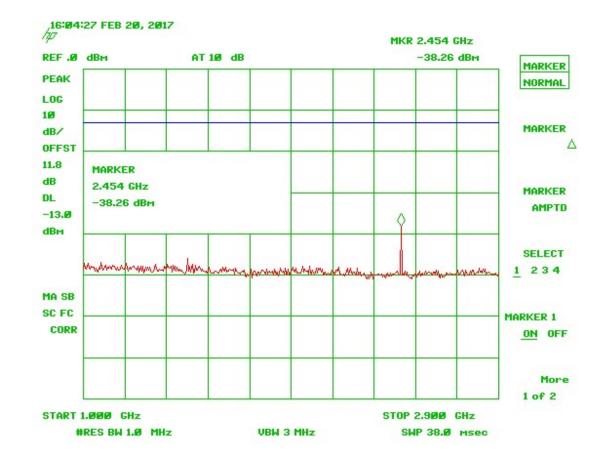


Figure 135. 490 MHz Vertical 1 - 2.9 GHz

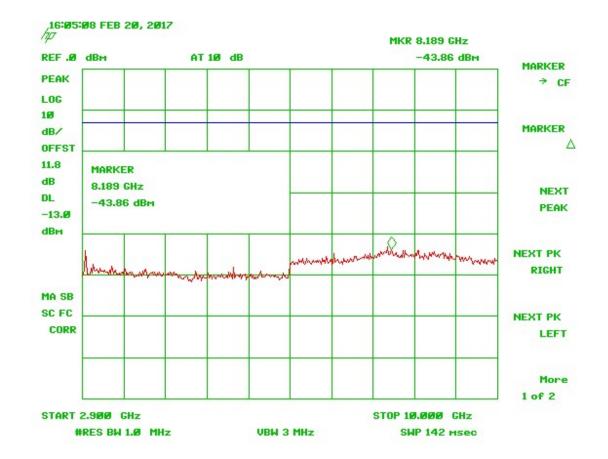


Figure 136. 490 MHz Vertical 2.9 -10 GHz

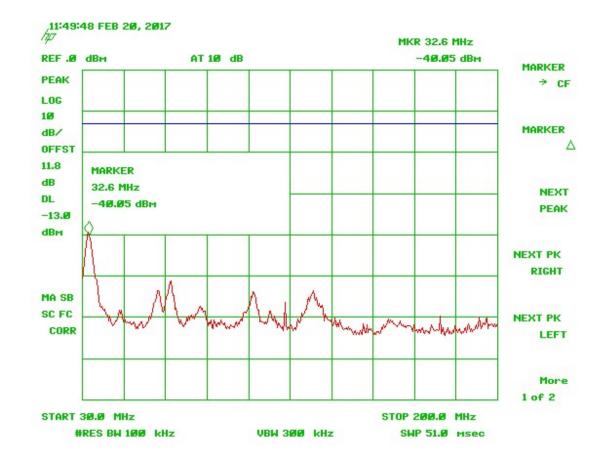
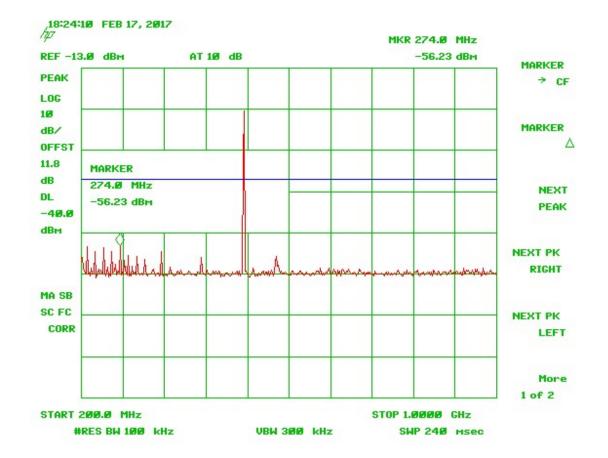


Figure 137. 512 MHz Vertical 30 - 200 MHz

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#### Figure 138. 512 MHz Vertical 200 – 1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

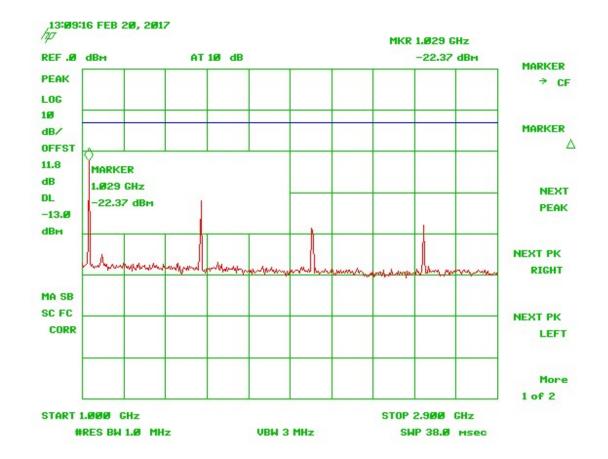


Figure 139. 512 MHz Vertical 1 -2.9 GHz

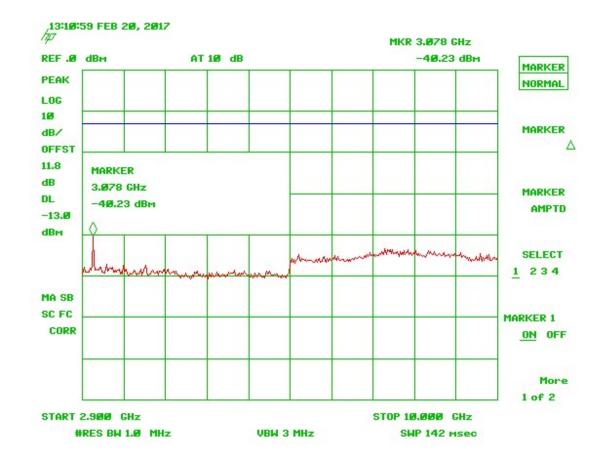


Figure 140. 512 MHz Vertical 2.9 -10 GHz

# 2.14.1.3 700 MHz Radiated Spurious Emissions Plots

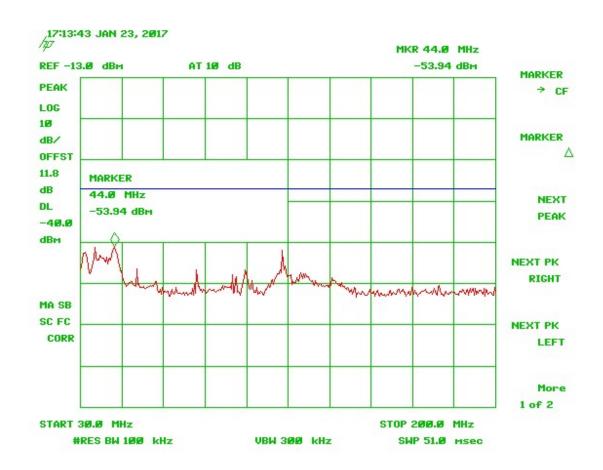
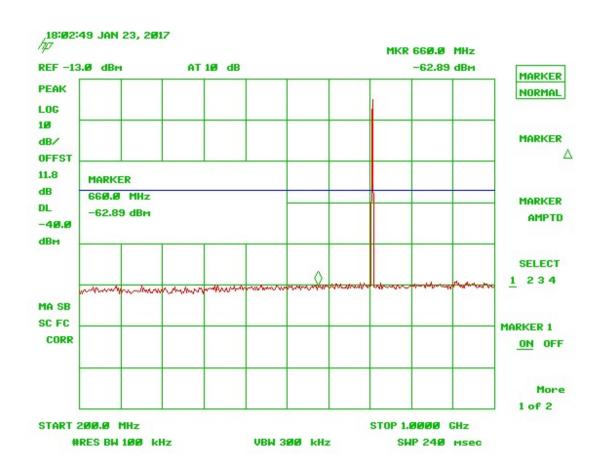


Figure 141. 763 MHz Vertical 30 - 200 MHz



### Figure 142. 763 MHz Vertical 200 - 1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

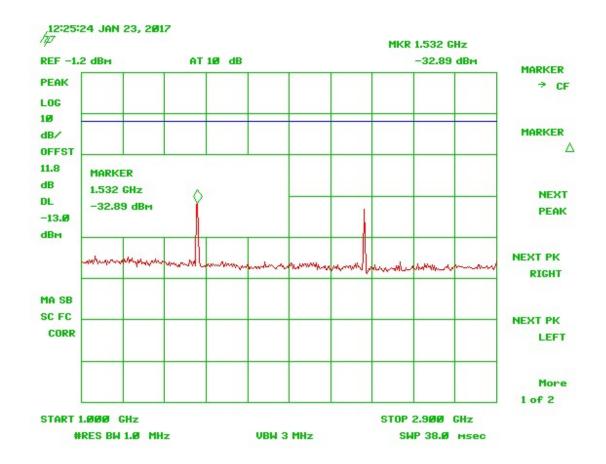


Figure 143. 763 MHz Vertical 1 – 2.9 GHz

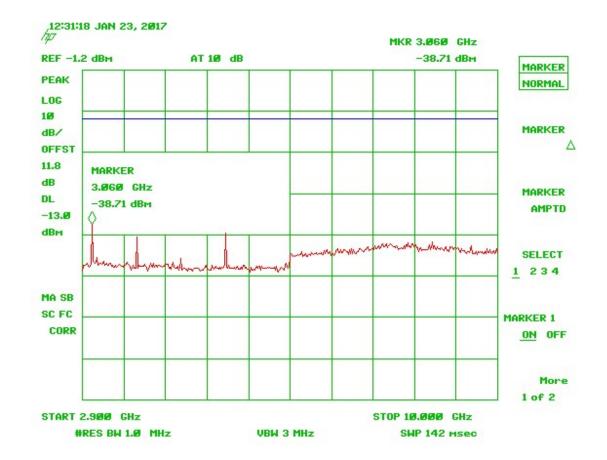


Figure 144. 763 MHz Vertical 2.9 - 10 GHz

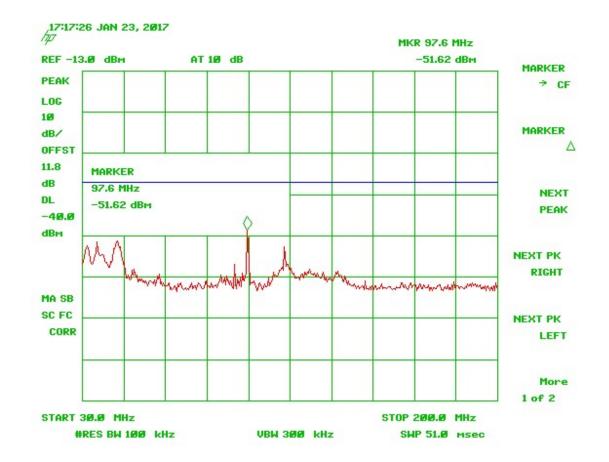
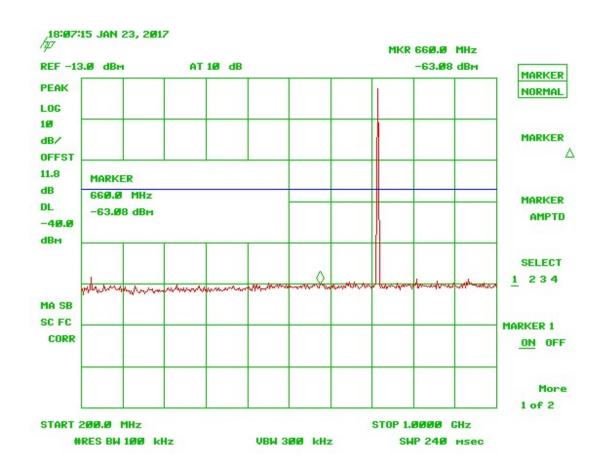


Figure 145. 768 MHz Vertical 30 – 200 MHz



### Figure 146. 768 MHz Vertical 200 -1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

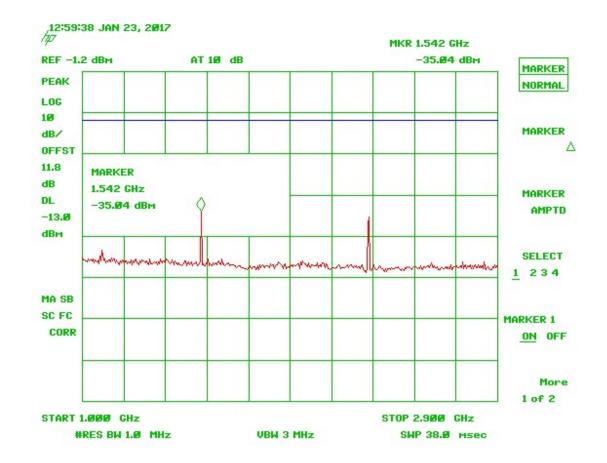


Figure 147. 768 MHz Vertical 1 – 2.9 GHz

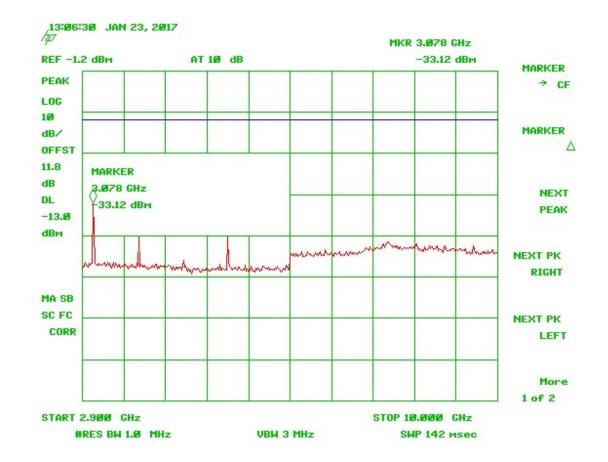


Figure 148. 768 MHz Vertical 2.9 – 10 GHz

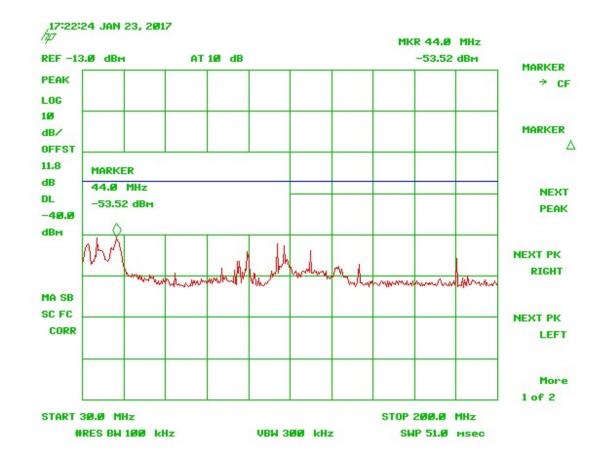
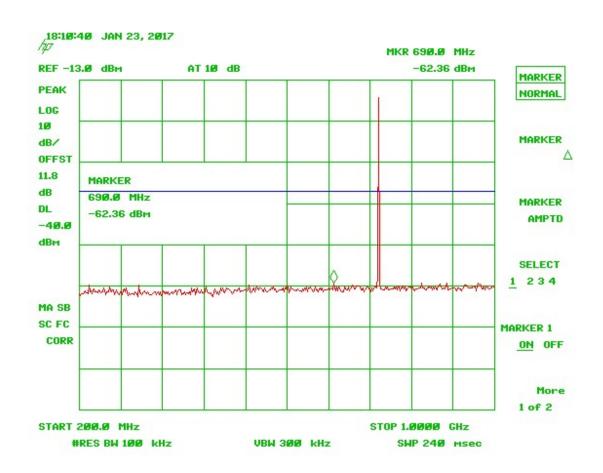


Figure 149. 774 MHz Vertical 30 - 200 MHz



### Figure 150. 774 MHz Vertical 200 -1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

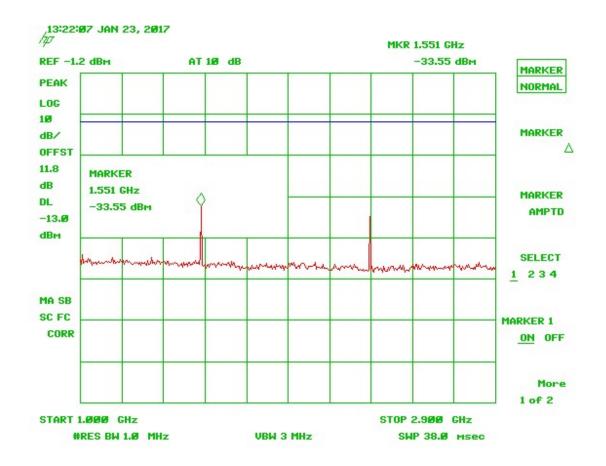


Figure 151. 774 MHz Vertical 1 - 2.9 GHz

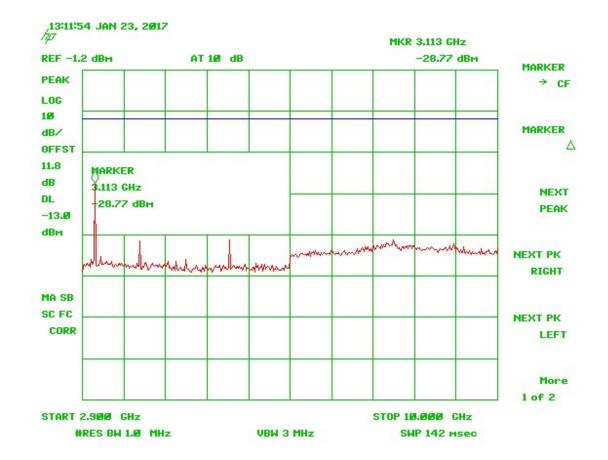


Figure 152. 774 MHz Vertical 2.9 - 10 GHz

# 2.14.1.4 800 MHz Radiated Spurious Emissions Plots

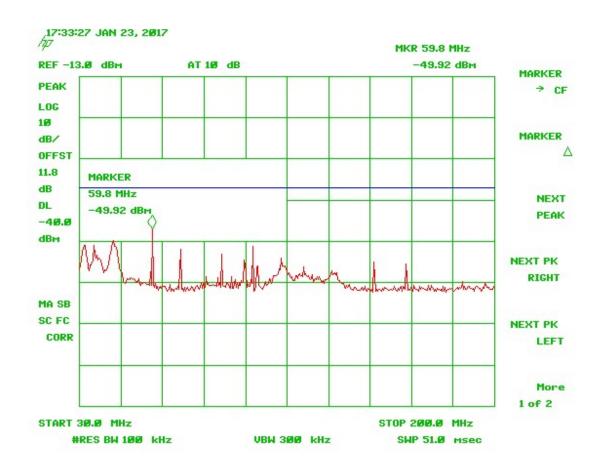
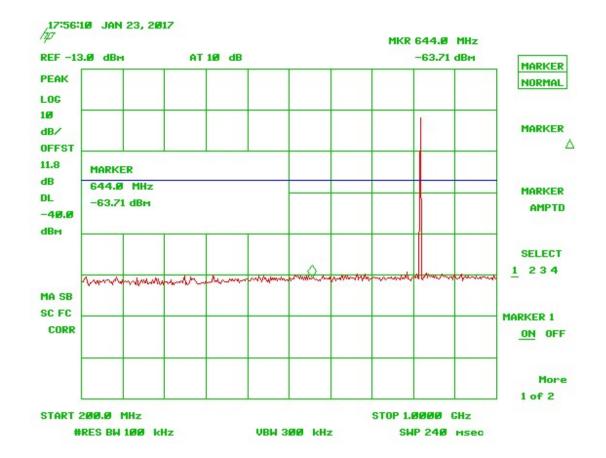


Figure 153. 851 MHz Vertical 30 – 200 MHz

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### Figure 154. 851 MHz Vertical 200 - 1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

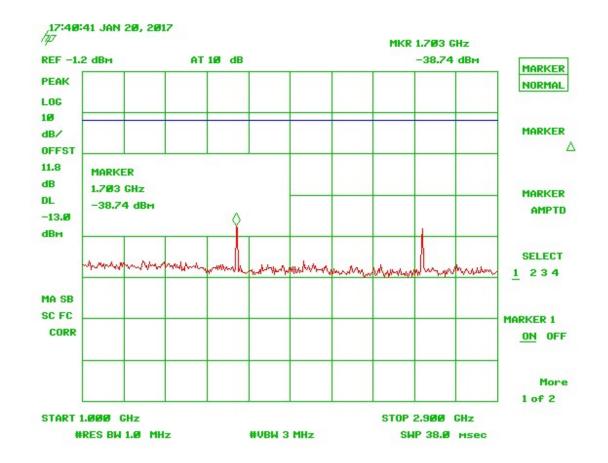


Figure 155. 851 MHz Vertical 1 – 2.9 GHz

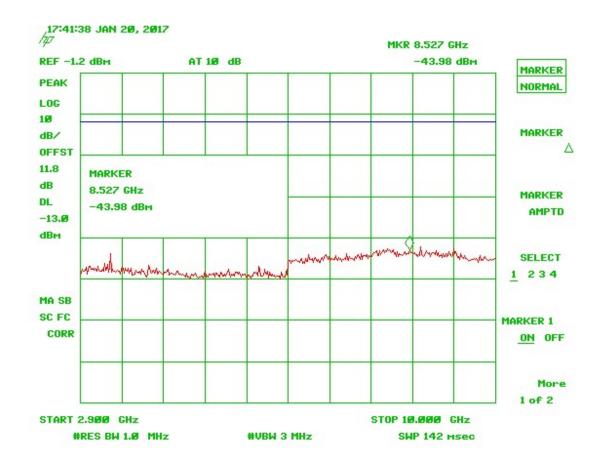


Figure 156. 851 MHz Vertical 2.9 - 10 GHz

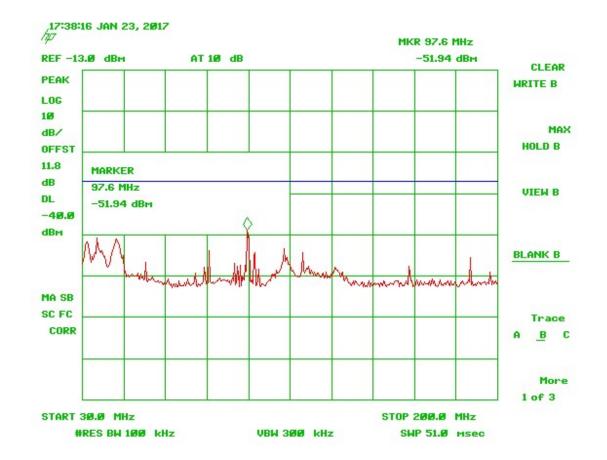
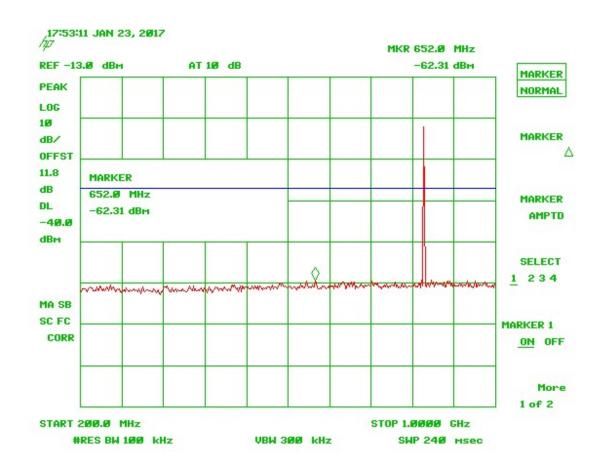


Figure 157. 860 MHz Vertical 30 - 200 MHz



### Figure 158. 860 MHz Vertical 200 – 1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

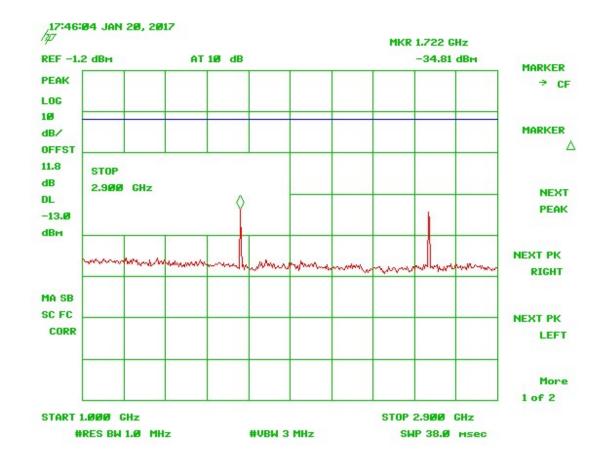


Figure 159. 860 MHz Vertical 1 – 2.9 GHz



Figure 160. 860 MHz Vertical 2.9 - 10 GHz

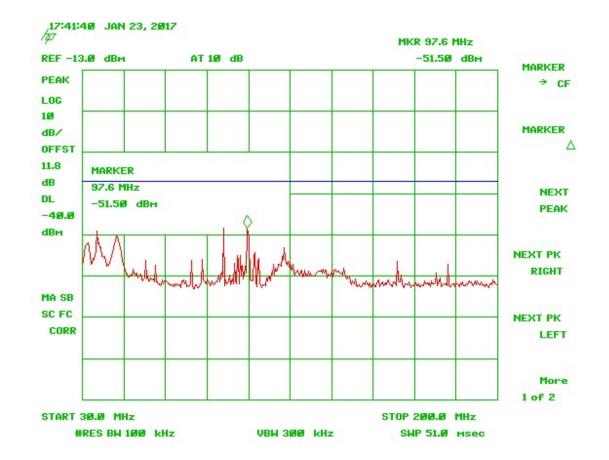
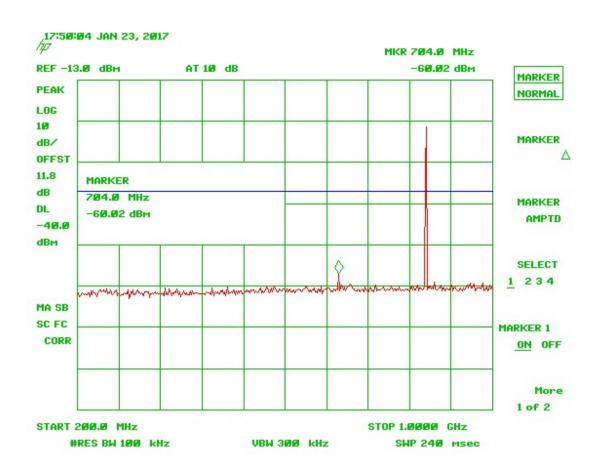


Figure 161. 869 MHz Vertical 30 - 200 MHz



### Figure 162. 869 MHz Vertical 200 - 1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

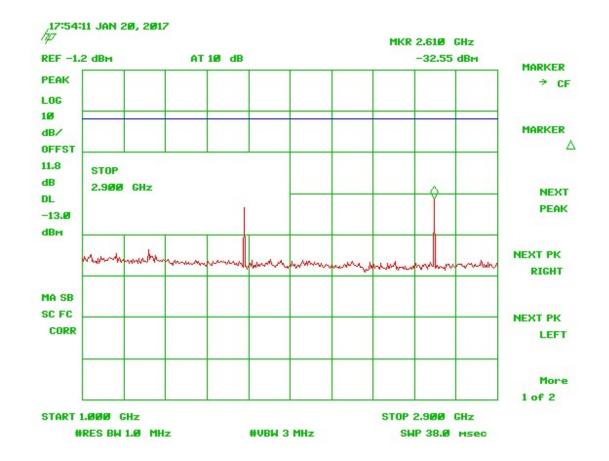


Figure 163. 869 MHz Vertical 1 - 2.9 GHz

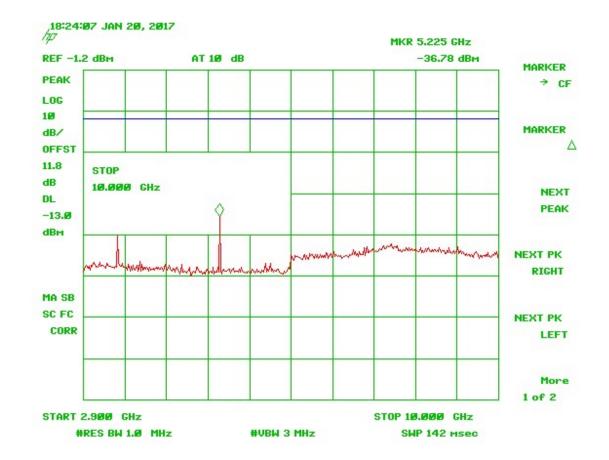


Figure 164. 869 MHz Vertical 2.9 -10 GHz

### 2.14.1.5 900 MHz Radiated Spurious Emissions Plots

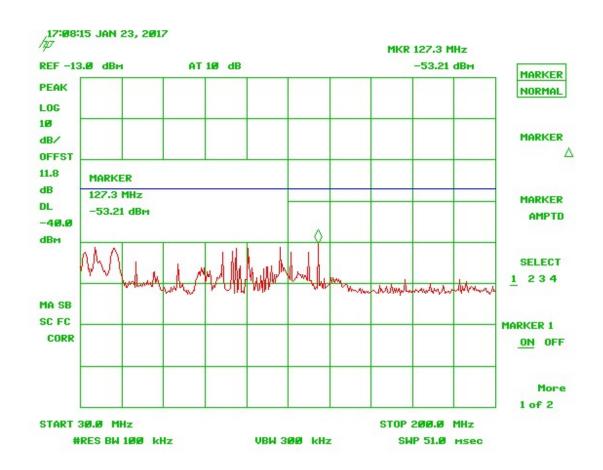
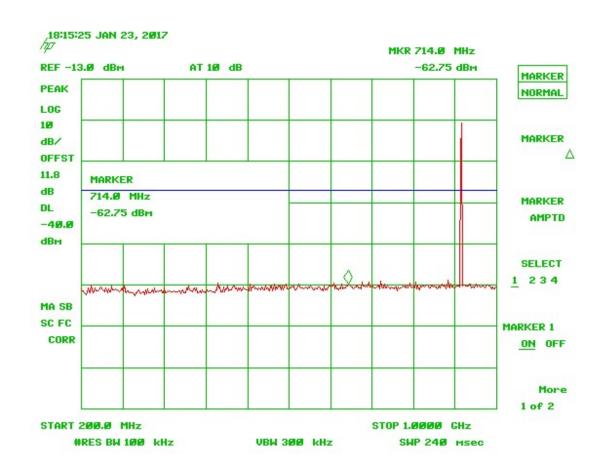


Figure 165. 929.5 MHz Vertical 30 - 200 MHz



### Figure 166. 929.5 MHz Vertical 200 - 1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

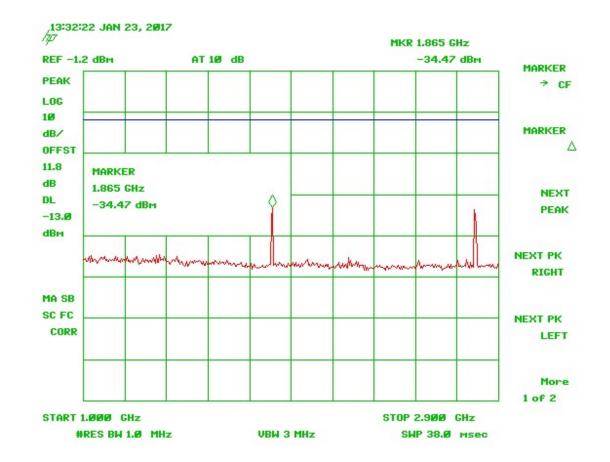


Figure 167. 929.5 MHz Vertical 1 - 2.9 GHz

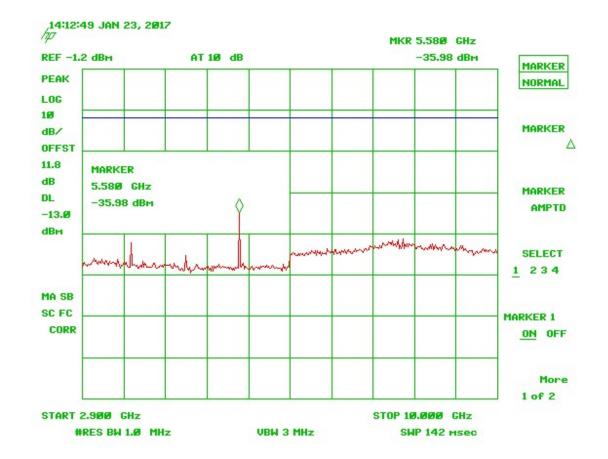


Figure 168. 929.5 MHz Vertical 2.9 - 10 GHz

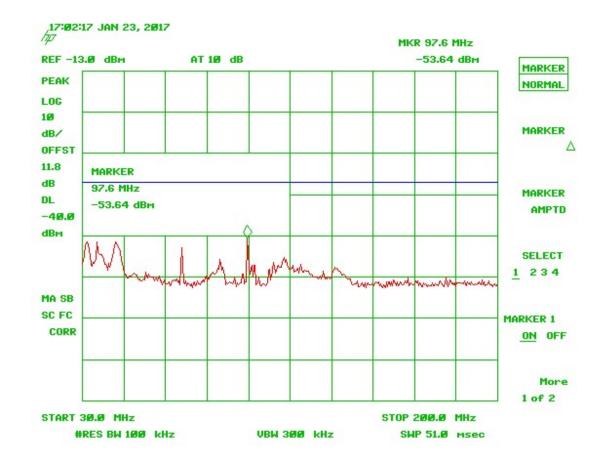
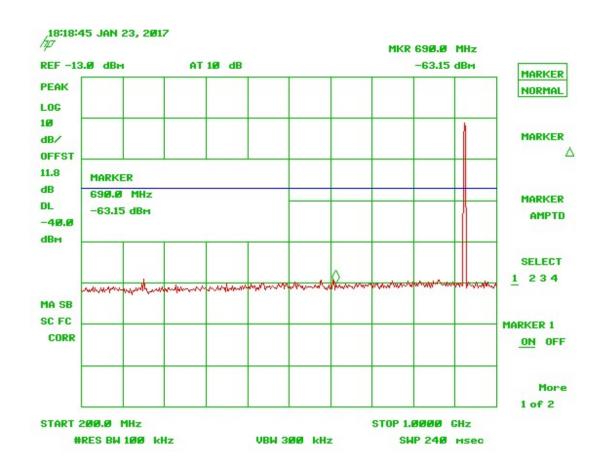


Figure 169. 937 MHz Vertical 30 - 200 MHz



### Figure 170. 937 MHz Vertical 200 - 1000 MHz

Note: All spurious emissions other than fundamental and harmonics are below the display line level.

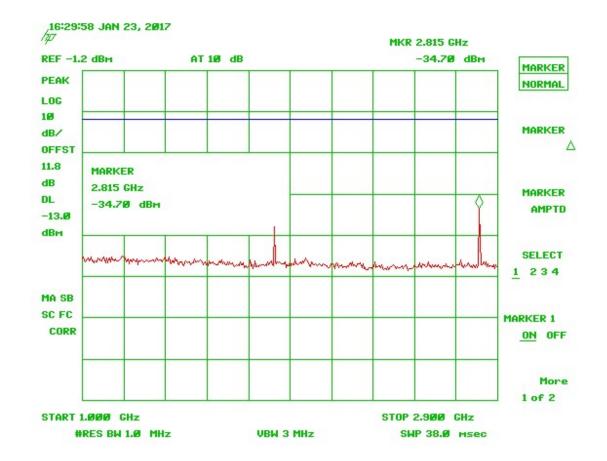


Figure 171. 937 MHz Vertical 1 - 2.9 GHz

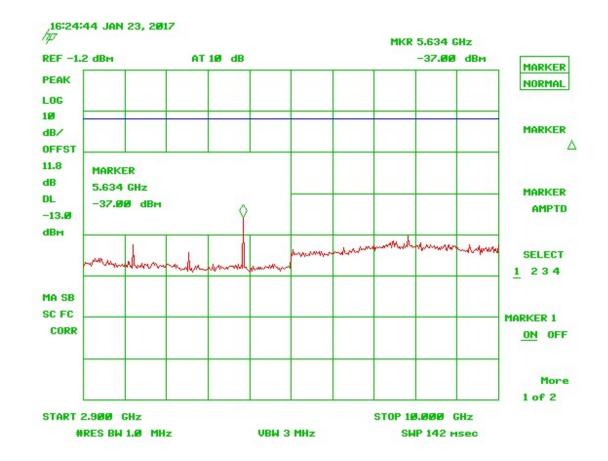


Figure 172. 937 MHz Vertical 2.9 - 10 GHz

U.S. Tech Test Report:	FCC Part 90 Certification
FCC ID:	2AKSM-SAFE1
IC:	22303-SAFE1
Report Number:	17-0001
Issue Date:	March 14, 2017
Customer:	Safe-Com Wireless
Model:	SAFE-1000

#### 2.14.2 Conducted Spurious Emissions Measurement

The EUT was connected to a spectrum analyzer through a 20 dB power attenuator. All cable and attenuator losses were input into the spectrum analyzer as a combination of reference level offset and correction factors as needed to ensure the accuracy of the readings obtained.

A CW signal was used to set the center frequency of the transmitter. The RF input signal level was set to at least 0.2 dB below the ACG threshold.

The RBW was set to 100 KHz for measurements below 1 GHz and 1 MHz for measurements above 1 GHz. The VBW was 3 times the RBW.

Limit = -13 dBm

Emissions were investigated from 30 MHz to the 10<sup>th</sup> harmonic of the applicable frequency band of concern.

The following plots show the worst-case measurements.

# 2.14.2.1 VHF Conducted Spurious Emissions

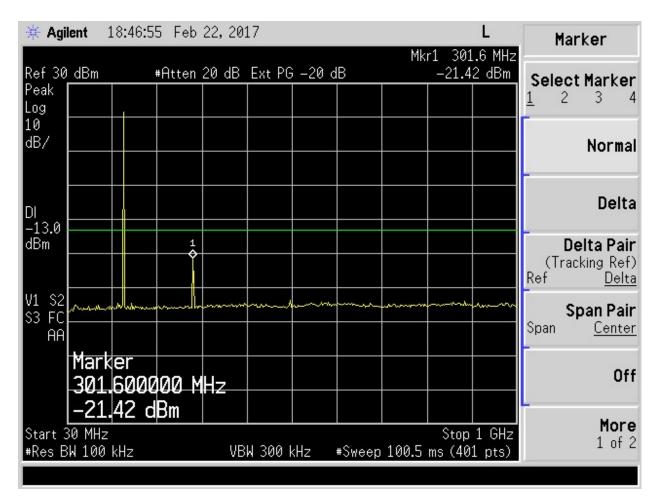


Figure 173. 150 MHz below 1 GHz

₩ Agilent         18:47:59         Feb 22, 2017         L           Mkr1         2.9800 GHz         -	Peak Search
Ref 30 dBm #Atten 20 dB Ext PG -20 dB -22.23 dBm Peak Log	Meas Tools∙
10 dB/	Next Peak
DI -13.0	Next Pk Right
dBm 1	Next Pk Left
V1 S2 S3 FC AA	Min Search
Marker 2.98000000 GHz	Pk-Pk Search
-22.23 dBm         Stop 10 GHz           Start 1 GHz         Stop 10 GHz           #Res BW 1 MHz         VBW 3 MHz         #Sweep 100.5 ms (401 pts)	<b>More</b> 1 of 2



🔆 Agi	lent 18	8:50:4	9 Feb	22, 20:	17			Miker	1 225	L .9 MHz	Peak Search
Ref 30 Peak Log	dBm		#Atten	20 dB	Ext PG	6 –20 d	B	Mkr:	-21.02		Meas Tools•
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm					3	s g					Next Pk Left
V1 S2 S3 FC AA	and the	Ulunan			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						Min Search
	Marke 325.8 -21.0	3500		Hz							Pk-Pk Search
Start 3 #Res B	L			VB	W 300 I	kHz	#Sweep	100.5 m		1 GHz L pts)	More 1 of 2

### Figure 175. 162 MHz below 1 GHz

∦ Agi	lent (	18:49:3	7 Feb	22, 20:	17			641 - 4	1	-	Peak Search
Ref 30 Peak Log	dBm		#Atten	20 dB	Ext PG	6 -20 (	я ав	MKri	2.9800 -22.72		Meas Tools⊦
10 dB/											Next Peak
DI -13.0					2						Next Pk Right
dBm		mand	1 Vinnan		Maria	-	man	nmmh	monute	-	Next Pk Left
V1 S2 S3 FC AA											Min Search
			1000 Bm	GHz							Pk-Pk Search
Start 1 #Res B				VI	BW 3 M	Hz	∎ #Sweep		Stop 10 ns (401		More 1 of 2

Figure 176. 162 MHz above 1 GHz

🔆 Agil	lent 1	8:55:5	52 Feb	22, 20:	17					L	Display
Ref 30	dBm		#Atten	20 dB	Ext PG	6 –20 c	łВ	Mkr	1 347. -24.2		
Peak Log											Full Screen
10 dB/											Display Line -13.00 dBm
											<u>On</u> Off
DI											
-13.0 dBm											
GD III				\$	3						Limits⊦
V1 S2	And	Ml		, lur	·		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		mm		Active Fctn
S3 FC AA											Position► Bottom
	Disp										Title⊦
	-13.	66 (	iBm								
Start 3						L				GHz	Preferences.
#Res B	W 100	кНz		٧B	W 300 I	KHZ	#Sweep	100.5 n	ns (401	pts)	

# Figure 177. 174 MHz below 1 GHz

🔆 Agi	lent 1	18:56:5	5 Feb	22, 203	L7				L	Marker
Ref 30	dBm		#Atten	20 dB	Ext PG	i –20 c	IB	Mkr1	2.9800 GHz -22.14 dBm	The second second second second
Peak										Select Marker
Log 10										r
dB/										Normal
DI										Delta
-13.0										
dBm			\$		:	s				<b>Delta Pair</b> (Tracking Ref)
	mand	-horas and a	and the second		-	www.www.	muw	u-m-		Def Delte
V1 S2 S3 FC										Span Pair
ÂÂ										Span <u>Center</u>
	Mark									Off
			1000	GHz						
A		.14 d	Bm							More
Start 1 #Res B		z		V	3W 3 M	Ηz	#Sweep	100.5 r	Stop 10 GHz ns (401 pts)	1 of 2

Figure 178. 174 MHz above 1 GHz

# 2.14.2.2 UHF Conducted Spurious Emissions

🔆 Agi	lent (	17:21:4	9 Feb	22, 20	17					L	Marker
D ( 00	ID			00 ID			ID.	Mk		3.8 MHz	
Ref 30 Peak	dBm	22	#Htten	20 dB 1	EXt Pl	∍ -20 ( 	ar B		-34.3 	3 dBm	Select Marker
Log											<u>1</u> 2 3 4
10 dB/											
uD7							+				Normal
											-
DI											Delta
-13.0											
dBm		s				S	: <u> </u>			2	<b>Delta Pair</b> (Tracking Ref)
											Ref <u>Delta</u>
V1 S2			man	manth	mlum	hanne	- Ann		-		- Span Pair
S3 FC AA											Span Center
	Maul										
	Mark		00 1								Off
			100 M	INZ—			+				
A		.33 d	BM							4 01	More
Start 3 #Res B				VB	W 300	kHz	#Sweep	100.5		1 GHz 1 nts)	1 of 2
	11 1 0 0						onoop	10010		- pco)	

Figure 179. 450 MHz below 1 GHz

🔆 Agi	lent 1	17:23:1	4 Feb	22, 203	17			kal a	0.05		Peak Search
Ref 30 Peak Log	dBm		#Atten	20 dB	Ext PG	6 –20 c	IB	MKri	-23.7	75 GHz 2 dBm	Meas Tools⊦
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm		and	1		and the second s	anon Anton A	and the grout	and the second second	unin	muthan	Next Pk Left
V1 S2 S3 FC AA											Min Search
			1000 Rm	GHz							Pk-Pk Search
Start 1 #Res B	GHz			VE	BW 3 MI	l	⊧ #Sweep	100.5 r		0 GHz L pts)	More 1 of 2

Figure 180. 450 MHz above 1 GHz

🔆 Agi	lent 1	17:16:0	3 Feb	22, 20	17					L	Marker
Ref 30 Peak Log	dBm		#Atten	20 dB	Ext	PG -	20 dB	3		243.4 -36.05 d	Select Marker <u>1</u> 234
10 dB/											Normal
DI -13.0											Delta
dBm											<b>Delta Pair</b> (Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC AA			<u>\$</u>		m	when		m. A.			 <b>Span Pair</b> Span <u>Center</u>
		er 4000 05 d		MHz							Off
Start 3 #Res B	30 MHz		2111	VB	W 30	0 kHz		Sweep	100.5 m	Stop 1 ( s (401 p	More 1 of 2

# Figure 181. 459 MHz below 1 GHz

🔆 Agi	lent (	17:15:0	5 Feb	22, 20:	L7			kal a	0.00		Peak Search
Ref 30 Peak Log	dBm		#Atten	20 dB	Ext PG	6 –20 d	B	Mkr1		00 GHz 4 dBm	Meas Tools⊦
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm	,	man	1 Annan				mm	www.ha	mutu	mhum	Next Pk Left
M1 S2 S3 FC AA											Min Search
			1000 Bm	GHz							Pk-Pk Search
Start 1 #Res B	GHz			VE	BW 3 MI	Ηz	Swee	p 22.5 r		.0 GHz 1 pts)	More 1 of 2

Figure 182. 459 MHz above 1 GHz

<b>₩ Agilent</b> 17:11:37 Feb	22, 2017	L Marker
Ref 30 dBm #Atter Peak Log	20 dB Ext PG -20 dB	Mkr1 294.3 MHz -35.9 dBm Select Marke <u>1</u> 2 3
10 dB/		Norm
DI -13.0		Delt
dBm		<b>Delta Pa</b> (Tracking Re Ref <u>Del</u> t
V1 S2 S3 FC AA	www.www.www.	Span Pai
Marker 294.325000 -35.9 dBm	MHz	01
Start 30 MHz #Res BW 100 kHz	VBW 300 kHz Sweep 100	Stop 1 GHz Mor 0.5 ms (401 pts)

### Figure 183. 490 MHz below 1 GHz

<b>₩ Agilent</b> 17:12:44 Feb	22, 2017	L	Marker
Ref 30 dBm #Atten ;	20 dB Ext PG –20 dB	Mkr1 2.9800 GHz –23.22 dBm	
Peak Log			<b>Select Marker</b> <u>1</u> 2 3 4
10 dB/			Normal
DI -13.0			Delta
dBm 1	where a state	homen	<b>Delta Pair</b> (Tracking Ref) Ref Delta
M1 S2 S3 FC AA			<b>Span Pair</b> Span <u>Center</u>
Marker 2.980000000 -23.22 dBm	GHz		Off
Start 1 GHz #Res BW 1 MHz	VBW 3 MHz Swee	Stop 10 GHz p 22.5 ms (401 pts)	More 1 of 2

Figure 184. 490 MHz above 1 GHz

🔆 Agi	lent 1	7:01:0	16 Feb	22, 20	17			Mkr1	1 449	L 5 MHz	Peak Search
Ref 40 Peak Log	dBm		#Atten	30 dB	Ext P(	G -20 (	B		-25.37		Meas Tools∙
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm					1						Next Pk Left
M1 S2 S3 FC AA	a constant				- ân				www	hh	Min Search
		525(	100 N	Hz_							Pk-Pk Search
Start 3 #Res B	<b>–25.</b> 30 MHz 3W 100		Bm	#VE	 3W 300	kHz	Sweep	100.5 m		L GHz pts)	<b>More</b> 1 of 2

### Figure 185. 512 MHz below 1 GHz

🔆 Agi	lent 1	17:06:2	4 Feb	22, 20:	17					L	Peak Search
Ref 30 Peak Log	dBm		#Atten	20 dB	Ext PG	i -20 d	B	Mkr1		75 GHz 3 dBm	Meas Tools⊦
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm		maria	1 Vinn	m			water		www.	a	Next Pk Left
M1 S2 S3 FC AA											Min Search
			000 Pm	GHz							Pk-Pk Search
Start 1 #Res B	GHz		pili	VI	BW 3 MI	łz	Swee	p 22.5		.0 GHz 1 pts)	<b>More</b> 1 of 2

Figure 186. 512 MHz above 1 GHz

# 2.14.2.3 700 MHz Conducted Spurious Emissions

🔆 Agil	lent 1	17:03:3	4 Jan	30,201	.7					L	Marker
Ref 38	dBm		#Atten	20 dB	Ext PG	6 –28 d	IB	М		2.5 MHz 6 dBm	
Peak Log											<u>1</u> 2 3 4
10 dB/											Normal
DI -13.0											Delta
dBm											<b>Delta Pair</b> (Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC AA	-m-m	~~~~		statement of				M	~~~	••••••	<b>Span Pair</b> Span <u>Center</u>
		er 5000 46 d		Hz							Off
Start 3 #Res B	30 MHz		DIII	VB	W 300	kHz	Sweep	155.1	Stop ms (40	1 GHz 1 pts)	<b>More</b> 1 of 2

Figure 187. 763 MHz below 1 GHz

🔆 Agi	lent 1	7:02:3	5 Jan	30,201	.7				L	Peak Search
Ref 38 Peak Log	dBm		#Atten	20 dB	Ext PG	) –28 c	IB	Mkr1	75 GHz 5 dBm	Meas Tools∙
10 dB/										Next Peak
DI -13.0										Next Pk Right
dBm	/wahn	mm	1	and the second	and the design	an de a		homen	 	Next Pk Left
M1 S2 S3 FC AA										Min Search
			000 Bm	GHz						Pk-Pk Search
Start 1 #Res B				VI	I BW 3 MI	Hz	Swee	p 22.5	.0 GHz 1 pts)	More 1 of 2

Figure 188. 763 MHz above 1 GHz

🔆 Agi	lent (	17:00:0	7 Jan	30,201	.7					L	Marker
Ref 38	dBm		#Atten	20 dB	Ext PG	6 –28 d	B	Mkr	1 362 -27.62	.2 MHz 2 dBm	Select Marker
Peak Log											<u>1</u> 2 3 4
10 dB/											Normal
DI											- Delta
-13.0 dBm											_ Delta Pair
											(Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC				*** <b>\$</b> ~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		hh	m		www.	<b>Span Pair</b> Span Center
AA	Mort					e 20					Span <u>Center</u>
	Mark 362		100 M	Hz							Off
		.62 c	Bm								L More
Start 3 #Res B				٧B	W 300 I	кНz	Sweep	155.1 r		1 GHz L pts)	1 of 2

# Figure 189. 768 MHz below 1 GHz

∦ Agil	lent 1	7:01:1:	2 Jan	30,201	.7					L	Marker
Ref 38 Peak	dBm		#Atten	20 dB	Ext PG	6 –28 d	B	Mkr1		00 GHz 3 dBm	<b>Select Marker</b> <u>1</u> 2 3 4
Log 10 dB/		2									Normal
DI -13.0											Delta
dBm		made	1 V		zandus y		مىرىمىرىي		uumu	h.	<b>Delta Pair</b> (Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC AA	Maali										<b>Span Pair</b> Span <u>Center</u>
	Mark 2.98 -15.	0000	1000 Bm	GHz							Off
Start 1 #Res B				VE	3W 3 M	Hz	Swee	p 22.5 r		l0 GHz 1 pts)	More 1 of 2

Figure 190. 768 MHz above 1 GHz

∦ Agil	lent 1	6:58:4	4 Jan	30,20	L7				4 005	L	Marker
Ref 38 Peak Log	dBm		#Atten	20 dB	Ext PG	∂ –28 c	IB	Mkr	1 335 -27.3	.6 MHz 3 dBm	<b>Select Marker</b> <u>1</u> 2 3 4
10 dB/											Normal
DI -13.0											Delta
dBm				1							<b>Delta Pair</b> (Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC AA		~~~~~	<b>h</b> araa ah	Ann		here		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~	~~~~~	<b>Span Pair</b> Span <u>Center</u>
		er 5500 33 d		Hz							Off
Start 3 #Res B	30 MHz		DIII	VB	W 300	kHz	Sweep	155.1 n		1 GHz L pts)	<b>More</b> 1 of 2



🔆 Agi	lent 1	16:57:4	1 Jan	30,201	.7					L	Peak Search
Ref 38 Peak Log	dBm		#Atten	20 dB	Ext PG	; -28 d	IB	Mkr1	2.980 -16.33		Meas Tools∙
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm	. y say to the same	-	1 ******	when		, n npana, s		<u>~~~~~</u>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	utystym	Next Pk Left
M1 S2 S3 FC AA											Min Search
			1000 Bm	GHz							Pk-Pk Search
Start 1 #Res B	GHz			VE	3W 3 MI	lz	Swee	p 22.5 r		0 GHz L pts)	More 1 of 2

Figure 192. 774 MHz above 1 GHz

# 2.14.2.4 800 MHz Conducted Spurious Emissions

🔆 Agil	lent (	16:54:3	5 Jan	30,20	17				L	Marker
Ref 38	dBm		#Atten	20 dB	Ext P(	9 –28 d	IB	Mk	8.3 MHz 13 dBm	
Peak Log										<u>1</u> 2 3 4
10 dB/										Normal
DI 12.0										- Delta
-13.0 dBm						<u> </u>				<b>Delta Pair</b> (Tracking Ref) Ref Delta
M1 S2 S3 FC AA				1 2 	bn		······		·	<b>Span Pair</b> Span <u>Center</u>
		er 2750 93 d		Hz_						Off
Start 3 #Res B	30 MHz			VE	1 300 - W	kHz	Sweep	155.1	1 GHz 1 pts)	<b>More</b> 1 of 2

Figure 193. 851 MHz below 1 GHz

🔆 Agi	lent (	16:55:4	0 Jan	30,201	.7			kil4	2 0 0 0		Peak Search
Ref 38 Peak Log	dBm		#Atten	20 dB	Ext PG	6 –28 c	B	MKL	2.980 -16.32		Meas Tools•
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm	honrom	-some and	1	hall	-mar	2-260.mar		www.www.		mm	Next Pk Left
M1 S2 S3 FC AA											Min Search
			1000 Bm	GHz							Pk-Pk Search
Start 1 #Res B	GHz			VI	BW 3 MI	Hz	Swee	p 22.5 i	Stop 1 ms (401		More 1 of 2



∦ Agil	lent 1	.6:53:0	5 Jan	30,20	L7				 L	Marker
Ref 38 Peak	dBm		#Atten	20 dB	Ext PG	6 –28 c	IB	Mkr1	1.0 MHz 2 dBm	Select Marker
Log 10 dB/										Normal
DI -13.0										Delta
dBm										<b>Delta Pair</b> (Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC AA	~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	\$				-/**		 	<b>Span Pair</b> Span <u>Center</u>
			100 M Rm	Hz_						Off
Start 3 #Res B				VB	W 300 I	kHz	Sweep	155.1 m	1 GHz 1 pts)	More 1 of 2

# Figure 195. 860 MHz below 1 GHz

🔆 Agi	lent (	16:51:4	6 Jan	30,201	.7			MI4	0.00	L	Peak Search
Ref 38 Peak Log	dBm		#Atten	20 dB	Ext PG	6 –28 c	IB	MKr1	-16.3	00 GHz 1 dBm	Meas Tools∙
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm	And	aderson de marcono	1 N	m.	mannah	a	a shift and the same	manager	mm	All Programming	Next Pk Left
M1 S2 S3 FC AA											Min Search
			1000 Bm	GHz							Pk-Pk Search
Start 1 #Res B	GHz			VI	BM 3 MI	Ηz	Swee	p 22.5 r		0 GHz l pts)	<b>More</b> 1 of 2

Figure 196. 860 MHz above 1 GHz

🔆 Agi	lent 1	16:49:2	2 Jan	30,20	17			bil	1 04	L	Tra	ce/View
Ref 38 Peak Log	dBm		#Atter	20 dB	Ext PC	<u>6 –28 c</u>	iB	MK		3.4 MHz ô5 dBm	<u>1</u>	Trace
10 dB/											С	lear Write
DI -13.0												Max Hold
dBm												Min Hold
M1 S2 S3 FC AA	^		1 	^			anna ann		n maral la			View
		er 4000 65 d		MHz								Blank
Start 3 #Res B	30 MHz			VB	W 300	kHz	Sweep	155.1		) 1 GHz )1 pts)		<b>More</b> 1 of 2

# Figure 197. 869 MHz below 1 GHz

🔆 Agi	ilent (	16:50:3	1 Jan	30,201	.7					L	Marker
Ref 38 Peak	dBm	1	#Atten	20 dB	Ext PG	6 −28 d	B	Mkr1		00 GHz 3 dBm	<b>Select Marker</b> <u>1</u> 2 3 4
Log 10 dB/											Normal
DI											Delta
–13.0 dBm	a speech	and south and	1 	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-	ankaura	en transmit	mgara sada	Jan marka	men	<b>Delta Pair</b> (Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC AA											<b>Span Pair</b> Span <u>Center</u>
			1000 Bm	GHz							Off
Start 1 #Res E				VE	3W 3 M	Hz	Swee	p 22.5		l0 GHz 1 pts)	More 1 of 2

Figure 198. 869 MHz above 1 GHz

# 2.14.2.5 900 MHz Conducted Spurious Emissions

🔆 Agi	lent 1	16:47:3	0 Jan	30,201	ι7					L	Marker
Ref 38	dPm		#0++ <u>~</u> p	20 dB	Eu+ DO	<u> </u>	1D	Mk		3.4 MHz 3 dBm	
Peak Log			*ntten			-20 (			-27.0		<b>Select Marker</b> <u>1</u> 2 3 4
10 dB/											Normal
DI											Delta
–13.0 dBm		s. 2				s					<b>Delta Pair</b> (Tracking Ref) Ref Delta
M1 S2 S3 FC AA			1 \$				····		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-	Span Pair Span <u>Center</u>
	Mark 243.	4000		Hz							Off
Start 3 #Res B		63 d <sup>kHz</sup>	Bm	VB	W 300	kHz	Sweep	155.1	Stop ms (40	1 GHz 1 pts)	More 1 of 2

Figure 199. 929.5 MHz below 1 GHz

🔆 Agi	lent 1	6:45:4	2 Jan	30,201	.7			Mkr1	2 980	L 0 GHz	Peak Search
Ref 38 Peak Log	dBm		#Atten	20 dB	Ext PG	6 –28 d	B		-15.55		Meas Tools∙
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm	, and the second	and and and	1 	urren .	***	e.a-aba.v	yhe was se pro-	mahataa	m		Next Pk Left
M1 S2 S3 FC AA											Min Search
	Mark 2.98 -15.	0000	1000 Bm	GHz							Pk-Pk Search
Start 1 #Res B				VE	3W 3 MI	Hz	Swee	p 22.5 m	Stop 1 ns (401		More 1 of 2

Figure 200. 929.5 MHz above 1 GHz

∦ Agi	lent 1	6:43:0	1 Jan	30,201	.7				4 404	L	Marker
Ref 38 Peak Log	dBm		#Atten	20 dB	Ext PG	) –28 d	B	Mkr	1 481 -27.62	.1 MHz 2 dBm	Select Marker <u>1</u> 234
10 dB/											Normal
DI -13.0											Delta
dBm											<b>Delta Pair</b> (Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC AA			******		<b>^1</b>				~~~~~~	<u>l</u>	<b>Span Pair</b> Span <u>Center</u>
		er 0500 62 d		Hz							Off
Start 3 #Res B				⊥ #VB	W 300	kHz	Sweep	155.1 ו		1 GHz L pts)	More 1 of 2

# Figure 201. 937 MHz below 1 GHz

🔆 Agi	lent 1	16:44:1	6 Jan	30,201	.7			Mi 1	2.000		Peak Search
Ref 38 Peak Log	dBm		#Atten	20 dB	Ext PG	6 –28 c	iB	MKTI	2.980 -14.98		Meas Tools∙
10 dB/											Next Peak
DI -13.0											Next Pk Right
dBm	~	Jan James and Agen	1 Ånna	strong and the second	hanning and a state of the stat	www.		man	when the	Jum	Next Pk Left
M1 S2 S3 FC AA											Min Search
			1000 Rm	GHz							Pk-Pk Search
Start 1 #Res B	GHz			VE	BW 3 MI	Hz	Swee	p 22.5 r		0 GHz . pts)	<b>More</b> 1 of 2

Figure 202. 937 MHz above 1 GHz

U.S. Tech Test Report:	FCC Part 90 Certification
FCC ID:	2AKSM-SAFE1
IC:	22303-SAFE1
Report Number:	17-0001
Issue Date:	March 14, 2017
Customer:	Safe-Com Wireless
Model:	SAFE-1000

### 2.15 Unintentional Emissions (FCC Section 15.109, 15.107 and RSS-Gen)

#### 2.15.1 Radiated Spurious Emissions

The EUT was evaluated for unintentional spurious emissions per verification procedures for the enclosure unit. Those results are presented in this section of the test report.

Frequency	Test Data	AF+CA- AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
106.10	41.41	-20.86	20.55	43.5	3m./HORZ	22.9	РК
97.60	43.21	-21.64	21.57	43.5	3m./HORZ	21.9	РК
109.63	42.78	-20.66	22.12	43.5	3m./HORZ	21.4	РК
31.30	41.45	-17.66	23.79	39.0	3m./VERT	15.2	РК
81.40	40.37	-22.31	18.06	39.0	3m./VERT	20.9	РК
97.60	37.41	-20.94	16.47	43.5	3m./VERT	27.0	РК
51.30	37.33	-21.47	15.86	39.0	3m./VERT	23.1	РК
208.13	34.44	-18.41	16.03	43.5	3m./HORZ	27.5	РК
849.05	37.89	-6.37	31.52	46.4	3m./HORZ	14.9	РК
1615.00	59.34	-17.94	41.40	49.5	3.0m./HORZ	8.1	РК
1528.00	57.04	-18.37	38.67	49.5	3.0m./HORZ	10.8	РК
2292.00	56.12	-15.38	40.74	49.5	3.0m./HORZ	8.8	РК
2422.00	57.86	-14.77	43.09	49.5	3.0m./HORZ	6.4	РК

### **Table 3. Radiated Spurious Emissions**

Sample Calculation at 106.10 MHz:

Magnitude of Measured Frequency	41.41	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	-20.86	dB/m
Corrected Result	20.55	dBuV/m

Test Date: January 18-19, 2017

 Tested By

 Signature:
 Image: George Yang

U.S. Tech Test Report:	FCC Part 90 Certification
FCC ID:	2AKSM-SAFE1
IC:	22303-SAFE1
Report Number:	17-0001
Issue Date:	March 14, 2017
Customer:	Safe-Com Wireless
Model:	SAFE-1000

#### 2.15.2 Conducted Powerline Emissions

The EUT was evaluated for conducted powerline emissions per verification procedures for the enclosure unit. Those results are presented in this section of the test report.

Frequency	Test Data	IL+CA-AMP	Results	Limits	Phase	Margin	Limits	Detector
(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	Neutral	(dB)	QP/AVG	PK/QP/AVG
0.1827	57.37	0.34	57.71	66.0	Neutral	8.3	AVG	PK
0.6017	38.33	0.20	38.53	60.0	Neutral	21.5	AVG	PK
4.5530	48.89	0.31	49.20	60.0	Neutral	10.8	AVG	PK
7.8830	50.36	0.36	50.72	60.0	Neutral	9.3	AVG	PK
10.0830	44.47	0.40	44.87	60.0	Neutral	15.1	AVG	PK
28.3160	31.23	0.79	32.02	60.0	Neutral	28.0	AVG	PK
0.1833	56.16	0.42	56.58	66.0	Phase	9.4	AVG	PK
0.5225	39.42	0.32	39.74	60.0	Phase	20.3	AVG	PK
4.7400	46.78	0.40	47.18	60.0	Phase	12.8	AVG	PK
8.1833	45.87	0.48	46.35	60.0	Phase	13.7	AVG	PK
10.4160	39.94	0.54	40.48	60.0	Phase	19.5	AVG	PK
29.2830	30.91	1.05	31.96	60.0	Phase	28.0	AVG	PK

#### **Table 4. Conducted Powerline Emissions**

SAMPLE CALCULATION at 0.1827 MHz:

Magnitude of Measured Frequency	57.37	dBuV
+ Cable Loss+ LISN Loss	0.34	dB
=Corrected Result	57.71	dBuV
Limit	66.00	dBuV
-Corrected Result	57.71	dBuV
Margin	8.30	dB

Test Date:	January 25, 2017
Tested By	M/ an
Signature:	nVY

Name<u>: George Yang</u>

### 2.16 Measurement Uncertainty

#### 2.16.1 Radiated Spurious Emissions Measurement Uncertainty

For a measurement distance of 3 m, the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is ± 5.39 dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is  $\pm$  5.18 dB

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is  $\pm$  5.21 dB (3 m distance).

#### 2.16.2 Conducted Powerline Emissions Measurement uncertainty

Measurement uncertainty (within a 95% confidence level) for this test is ± 2.78 dB.

FCC Part 90 Certification 2AKSM-SAFE1 22303-SAFE1 17-0001 March 14, 2017 Safe-Com Wireless SAFE-1000

### 3 Conclusion

### 3.1 Test Outcome

Based on the test results shown above, the EUT is deemed to comply with all relevant requirements.