File #: MC15343 Page 100 of 264

Agilent Spectrum Analyzer - Swept SA					
RF 50 Ω DC		SENSE:INT		11:14:10 AM Sep 25, 2012	Marker
Marker 3 Δ 1.01000 ms	PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB	Avg Type: Log-Pwr	TYPE WWWWWW DET N N N N N N	Select Marker
10 dB(div Ref 0.00 dBm			Δ١	Mkr3 1.010 ms 27.93 dB	3
Log					
-10.0					Normal
-20.0					Norma
-30.0	. 140				
-40.0			<mark>3∆4</mark>	7710.111	
-50.0					Delta
-60.0					
70.0					
	فتطواقه وأخال وأخرر وتلاب	4	وحاله والمراجع والمراجع والمراجع	a de sustan	
-80.0					Fixed⊳
	and the failed of	r kuun	an det to differen	أباسعيه	
Cepter 315 000000 MHz				Snan 0 Hz	
Res BW 3.0 MHz	#VBW	3.0 MHz	Sweep 5.0	000 ms (1001 pts)	Off
MKR MODE TRC SCL X		Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
$1 \Delta 2 1 t (\Delta)$	510.0 μs (Δ) 870.0 μs	33.60 dB -76.02 dBm			
3 Δ4 1 t (Δ)	1.010 ms (Δ)	27.93 dB			<b>B</b>
4 F 1 t	2.360 ms	-74.29 dBm			Properties►
6					
8					
9					More
10					1 of 2
12					
MSG			STATUS		
Pulse Duration: 0 51mS	Short 1 01	mS Medium	II		·
=	, • .				

File #: MC15343 Page 101 of 264

Agilent Spectru	m Analyzer - Swept SA						
IXI Morkor 1	RF 50 Ω DC		SENSE:INT		ARTIAL 11:12:	11 AM Sep 25, 2012	Marker
Marker I	Δ 1.50000 ms	PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB	g .ypc. 20g			Select Marker
					∆Mkr1	1.500 ms	1
10 dB/div	Ref 0.00 dBm					30.64 dB	
Log							
-10.0							Normal
-20.0							
-30.0			1Δ2				
-40.0			V			TRIG LVL	
-50.0							Delta
-60.0							
-70.0			والمراجع الأوراق الأرار والم	hale cale transition is a large	ال الله	المربط المربط المراجع	
-80.0	w_						Fixed⊳
-90.0	II. and		البر بالحد	and a second		de toto e con	
Contor 24			No. Mandala a ci il se	inin salat i dila subditi di s		Chap 0 Hz	
Res BW 3	3.000000 WHZ	#VRW	3.0 MHz	Swee	en 5.000 m	Span u nz	
		<i>"</i> • • • • •					ОП
$1 \Delta 2 1$	$t (\Delta)$	1.500 ms (Δ)	30.64 dB	CHON FUNCTION			
2 F 1	t	870.0 µs	-72.74 dBm				
4							Properties►
5							-
7							
8							More
10							1 of 2
12							
MSG					STATUS		
	ration: 1 Empl	000					
ruise Du	11a11011. 1.31115 L	ung					

File #: MC15343 Page 102 of 264

Agilent Spectrum Analyzer - Swept SA					
ΙΧ         RF         50 Ω         DC           Marker 1 41 4000 ms	SE Trig Dela	NSE:INT	ALIGN PARTIAL	11:07:27 AM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
	PNO: Fast ↔ Trig: Vid FGain:Low Atten: 10	eo ) dB	5 · ), - · - · 3 · · · ·	TYPE WWWWWWW DET N N N N N N	Select Marker
10 dB/div Ref 0.00 dBm				Mkr1 41.40 ms -73.43 dBm	1
-10.0					
-20.0					Normal
-30.0					
				TRIG LVL	Delta
-50.0					Della
			and the second		
-80.0					Fixed⊳
-90.0					
Center 315.000000 MHz Res BW 3.0 MHz	#VBW 3.0 MHz		Sweep 4	Span 0 Hz 5.00 ms (1001 pts)	Off
MKR MODE TRC SCL X	Y 140 ma 72.42 d	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	
2 3	1.40 ms -75.45 d	DIII			
4					Properties►
6					
8					More
10 11					1 of 2
12					
MSG			STATUS	6	
Number of message pulse	s: 7 Short, 4 Me	dium, 10 Lo	ng		

File #: MC15343 Page 103 of 264



#### 4.5.8 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.						
Basic Standa	ard	47 CFR Part 15 sub	part C,	and RSS-210		
UL LPG		80-EM	-S0029	)		
		Frequency range		Measurement Point		
Fully configu	ired sample scanned	30MHz – 1GHz		3 meter distance		
over the follo	owing frequency range	1GHz – 4GHz		3 meter distance		
		<b>Restricted Band Limits</b>				
		Limit (dB	Limit (dBµV/m)			
Freq	juency (MHz)	Quasi-Peak		Peak		
	30 - 88	40.00		NA		
	88 - 216	43.52		NA		
	216 - 960	46.02	NA			
9	60 - 1000	54	NA			
Abov	e 1000 (FCC)	NA	54 (at 3-meter)			
	Fundamental Freq	uency Limits and Non-restricted bar	nd Har	monic Limits		
	Limit (dBµV/m) @ 3m distance					
Frequency (MHz)		All harmonics except those in restricted bands must be attenuated by 20dB or more				
		Average - Fundamental		Peak - Fundamental		
	315	75.62 95.62				
Supplementary information: See section 4.5.7 for duty cycle information.						

File #: MC15343 Page 105 of 264





File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*nat saved\*

File #: MC15343 Page 106 of 264





Chamberlain												
KLIK2C Transmit	tter											
315MHz, Config	3, Program <sup>-</sup>	Гуре 4										
9VDC Battery												
Red=Horizontal	Green=Verti	cal		-	-	1	-		1	1	-	-
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
315.013603	66.71	PK	14.2	2.1	83.01	-12.63	70.38	75.62	-5.24	354	102	Horz
315.013603	67.59	PK	14.2	2.1	83.89	-12.63	71.26	75.62	-4.36	264	155	Vert
630.026769	8.71	PK	20.6	3	32.31	-12.63	19.68	46	-26.32	89	135	Horz
630.026769	12.76	PK	20.6	3	36.36	-12.63	23.73	46	-22.27	79	104	Vert
945.040792	20.21	PK	23.6	3.8	47.61	-12.63	34.98	46	-11.02	6	273	Horz
945.040792	23.39	PK	23.6	3.8	50.79	-12.63	38.16	46	-7.84	98	111	Vert
1260.173	69.12	PK	25.1	-56.92	37.3	-12.63	24.67	54	-29.33	*	103	Horz
1574.383	68.5	PK	25.3	-55.3	38.5	-12.63	25.87	54	-28.13	*	125	Horz
1890.594	68.33	PK	27.4	-54.32	41.41	-12.63	28.78	54	-25.22	*	103	Horz
3151.434	63.63	PK	30.6	-51.71	42.52	-12.63	29.89	54	-24.11	*	103	Horz
1260.173	71.57	PK	25.1	-56.92	39.75	-12.63	27.12	54	-26.88	*	125	Vert
1574.383	69.2	PK	25.3	-55.3	39.2	-12.63	26.57	54	-27.43	*	100	Vert
1890.001	79.59	PK	27.4	-54.31	52.68	-12.63	40.05	54	-13.95	189	101	Vert
3151.434	66.08	PK	30.6	-51.71	44.97	-12.63	32.34	54	-21.66	*	100	Vert
* Peak prescan d	ata, not max	kimized										

#### **Configuration 5# Test Data** 4.6

#### 4.6.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.				
Basic Standard 47 CFR Part 15.231(c)					
Occupied Bandwidth Limits					
0.25% of Center Frequency (315MHz: 787.5kHz)					

#### **Table 45 Occupied Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #		
1	1	1		
Supplementary information: None				

#### Table 46 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements				
	dBc	% PWR			
10kHz	-20	99			
Supplementary information: None					

# Table 47 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
315MHz	52.72	105.22

#### Figure 37 – Bandwidth Graph



### 4.6.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the transmission time measured with the spectrum analyzer set to zero span at the fundamental frequency.				
Basic Standard 47 CFR Part 15.231(a)					
	Cease Operation Limits				
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.					

#### **Table 48 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

# Figure 38 Cease Operation Graph

Agilent Spectr	um Analyze	er - Swept S	5A								
LXI L	RF	50 Ω	DC		SEI	VSE:INT		\Lambda ALIGN PARTIAL	02:18:57 F	M Sep 25, 2012	Markar
Marker '	1 800.0	)00 ms	5				Avg 1	Гуре: Log-Pwr	TRA	CE <u>1 2 3 4 5 6</u>	warker
				PNO: Fast ↔ IFGain:Low	Trig: Vide Atten: 10	o dB			TY D Mkr1 8		Select Marker
									70	50.0 ms	1
10 dB/div	Ref	0.00 dE	<u>sm</u>						-70.	So ubili	
10.0										· ·	
-10.0											Normal
-20.0											Norma
20.0										· ·	
-30.0											
-40.0										I	
-50.0											Delta
-30.0										TRIG LVL	20114
-60.0	1										
-70.0 📙 🔽											
-80.0											Fixed⊳
-90.0											
Center 3	15.000	000 MH	lz						S	Span 0 Hz	
Res BW	3.0 MH	<b>Z</b>		VBW 3	.0 MHz			Sweep	20.00 s (	(1001 pts)	05
		-									ОП
MKR MODE 1	TRC SCL		×		Y	F	UNCTION	FUNCTION WIDTH	FUNCTI	ON VALUE	
1 N	1 t			800.0 ms	-70.58 dE	3m					
2											
4											Properties►
5											
6											
7											
8											More
10											4 - 50
11											1 of 2
12											
MEG								CTATUS			
MaG								STATUS			

### 4.6.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.				
Basic Stand	ard	FCC Part 15 Subpart A, 15.35			
Pulse Train Limits					
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.					

#### **Table 49 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #		
1	1	1		
Supplementary information: None				

#### Table 50 Pulse Train Calculation

		Total Transmission	DC Correction Factor (dB)			
TX Frequency	Total TX time mS	period or 100ms whichever is lesser	$20\log\left(\frac{PulseWidth}{Period} ight)$			
315MHz	(27x0.210)+(47x0.408)+0.168+0.320	100ms	-11.9			
Worst Case Duty Cycle: Worst case duty cycle was calculated over 100mS and it includes the tuning pulses. Manufacturer declared the worst case duty cycle at -12.36dB. Calculated duty cycle is used for Radiated Emissions.						

# Figure 39 Pulse Train Graphs

.000 µs	Trig Dela	ay: -1.000 ms Avg Ty	pe: Log-Pwr	TRACE 1 2 3 4 5 6	Marker
PNO: F IFGain:I	ast ⊶⊶ Trig: vid Low Atten: 10	eo ) dB	Δ	Mkr1 168.0 μs	Select Marker
.00 dBm				66.09 ḋB	
	1∆2				Norma
					Norma
				TRIG LVL	Delt
	, , , , , , , , , , , , , , , , , , , ,				
lande de la de La de la d	2 Philphone day	a na an	a an	 	Fixed
ullik ku muhi üldu kasi	i dd co blad	e la di de la ditetadi ne eta	du a stratas site	AL HAL WALLARD IN THE REAL	
00 MHz	VBW 3.0 MHz		Sweep 3.0	Span 0 Hz (1001 pts) 000 ms	o
X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1
) 168.0   984.0	us (∆) 66.09 us -75.05 d	0 dB Bm			Properties
					Moi 1 of
			STATUS		
	.000 μs PNO: F IFGain: .00 dBm .00	.000 μs     Ing Deal       PN0: Fast +++     Trig: Vid       .00 dBm     1Δ2       .00 dBm     .00 dBm       .00 dBm     .0	.000 μs     Ing Delay: -1.000 ms     Avg Ty       PN0: Fast     Trig: Video       .00 dBm     1Δ2       .00 dBm     1Δ3       .00 dBm     1Δ4       .00 dBm     .00 dBm       .00 dBm     .00 dBm    <	1000 μs     Trig Delay: -1.00 ms     Avg Type: Log-Pwr       PN0: Fast →→ IFGain:Low     Trig: Video       .00 dBm     1Δ2       .00 dBm       <	OUD μs         Ing Delay: -1.000 ms         Avg type: Log-PWr         Inve [winner]         Dial of the period           IFGain:Low         Atten: 10 dB         ΔMkr1 168.0 μs         66.09 dB         66.09 dB           .00 dBm         1Δ2

File #: MC15343 Page 114 of 264

Agilent Spectrum Analyzer - Swept SA				
X         L         RF         50 Ω         DC         DC           Marker 1 A 320 000 μc	SENSE:INT		02:13:52 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB			Select Marker
to JELU - Bot 0.00 dBm		4	Mikr1 320.0 μs 64 59 dB	1
			04.00 0D	
-10.0				Normal
-20.0				Norma
-30.0				
-40.0				
-50.0				Delta
-60.0				
-70.0				
	an na shari an a	1997 <b>1</b> 77 <b>1</b> 7		Fixed⊳
-90.0				TIACUP
al a chian bhile bha Allacana ann a' suairte an Allachteacha	A nienikaliera it the	ind the first of the second	ALL ALL ALL ALL	
Center 315.000000 MHz	2 0 844-7	Swoon 5	Span 0 Hz	
		Sweep 5.	000 ms (1001 pts)	Off
MKR MODE TRC SCL X 1 $\Delta 2$ 1 t ( $\Delta$ ) 320 0 µs ( $\Delta$ )	64.59 dB	TION FUNCTION WIDTH	FUNCTION VALUE	
2 F 1 t 1.160 ms	-75.71 dBm			
4				Properties▶
5				
7				
9				More
10				1 of 2
12				
MSG		STATUS		]
Second tuning pulse duration: 0.32	0mS	I	1	

File #: MC15343 Page 115 of 264

Agilent Spectrum Analyzer - Swept SA				
μ         RF         50 Ω         DC         Image: Constraint of the second secon	SENSE:INT Trig Delay: 29.00 ms Trig: Video	ALIGN PARTIAL	02:15:53 PM Sep 25, 2012 TRACE 1 2 3 4 5 6 TYPE Wateholder	Marker
PN0: Fast ↔→ IFGain:Low	Atten: 10 dB		DETNNNNN	Select Marker
10 dB/dig Def 0.00 dBm		Δ	Mkr3 408.0 µs 60.39 dB	3
		<u></u> 1Δ2	3∆4	
-10.0				Normal
-30.0				
-40.0				
-50.0			TRIG LVL	Delta
-60.0				
-70.0 The units in a color of the second of	2	num date du tatte 4	and the	
-90.0				Fixed⊳
		lanta i ad di kanada i		
Res BW 3.0 MHz VBW 3	.0 MHz	Sweep 3.0	Span 0 Hz 000 ms (1001 pts)	Off
MKR MODE TRC SCL X	Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
1         Δ2         1         t         Δ2         1         t         210.0 μs         (Δ)         2         C         Δ2         T         1         t         1.681 ms         T         1.681 ms         T	62.00 dB -74.23 dBm			
3         Δ4         1         t         (Δ)         408.0 μs         (Δ)         4         4         F         1         t         2.280 ms         (Δ)         4         5         1         1         1         2.280 ms         (Δ)         1 <th1< th=""> <th1< th=""> <th1< th=""> <th1< td=""><td>60.39 dB -72.73 dBm</td><td></td><td></td><td>Properties►</td></th1<></th1<></th1<></th1<>	60.39 dB -72.73 dBm			Properties►
5 6				_
8				
9 10				More 1 of 2
11 12				
MSG		STATUS		
Pulse Duration: 0.210mS Short, 0.4	08mS Long			

File #: MC15343 Page 116 of 264







Г

#### 4.6.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Test Description Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.					
Basic Standa	ard	47 CFR Part 15 sub	part C,	and RSS-210		
UL LPG		80-EM	-S0029	)		
		Frequency range		Measurement Point		
Fully configu	ired sample scanned	30MHz – 1GHz		3 meter distance		
over the folic	owing frequency range	1GHz – 4GHz		3 meter distance		
		<b>Restricted Band Limits</b>				
		Limit (dB	Limit (dBµV/m)			
Freq	luency (MHZ)	Quasi-Peak		Peak		
	30 - 88	40.00	40.00			
	88 - 216	43.52		NA		
2	216 - 960	46.02		NA		
9	60 - 1000	54		NA		
Abov	re 1000 (FCC)	NA		54 (at 3-meter)		
	Fundamental Frequencies	ency Limits and Non-restricted bar	nd Har	monic Limits		
		Limit (dBµV/m) 🤅	🗊 3m d	listance		
Frequency (MHz)		All harmonics except those in restric 20dB or	All harmonics except those in restricted bands must be attenuated by 20dB or more			
		Average - Fundamental		Peak - Fundamental		
	315	75.62	55.62			
Supplementary information: See section 4.6.3 for duty cycle information.						

File #: MC15343 Page 119 of 264





File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*nat saved\*

File #: MC15343 Page 120 of 264





# Table 51 - Radiated Emissions Data Points

Configuration #5 Chamberlain KLIK2C 315MHz, Config 9VDC Battery	5, Туре 4											
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
315.012	68.54	PK	14.2	2.1	84.84	-11.93	72.91	75.62	-2.71	342	103	Horz
315.012	69.13	PK	14.2	2.1	85.43	-11.93	73.5	75.62	-2.12	260	153	Vert
630.024039	18.56	PK	20.6	3	42.16	-11.93	30.23	46	-15.77	203	100	Vert
630.024039	16.06	PK	20.6	3	39.66	-11.93	27.73	46	-18.27	237	125	Horz
945.034192	23.77	PK	23.6	3.8	51.17	-11.93	39.24	46	-6.76	355	259	Horz
945.034192	26.66	PK	23.6	3.8	54.06	-11.93	42.13	46	-3.87	265	102	Vert
1260.173	69.53	PK	25.1	-56.92	37.71	-11.93	25.78	54	-28.22	*	99	Horz
1574.383	69.8	PK	25.3	-55.3	39.8	-11.93	27.87	54	-26.13	*	125	Horz
1890.594	69.07	PK	27.4	-54.32	42.15	-11.93	30.22	54	-23.78	*	125	Horz
2831.221	63.37	PK	29.1	-50.93	41.54	-11.93	29.61	54	-24.39	*	125	Horz
1260.173	72.68	PK	25.1	-56.92	40.86	-11.93	28.93	54	-25.07	*	125	Vert
1574.383	69.95	PK	25.3	-55.3	39.95	-11.93	28.02	54	-25.98	*	125	Vert
1890.0331	81.74	PK	27.4	-54.31	54.83	-11.93	42.9	54	-11.1	189	100	Vert
2521.014	63.88	PK	28.9	-52.19	40.59	-11.93	28.66	54	-25.34	*	102	Vert
3151.434	67.6	PK	30.6	-51.71	46.49	-11.93	34.56	54	-19.44	*	125	Vert
* Peak prescan d	* Peak prescan data, not maximized											

# 4.7 Configuration 12# Test Data

#### 4.7.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.				
Basic Stand	ard	47 CFR Part 15.231(c)			
Occupied Bandwidth Limits					
0.25% of Center Frequency (315MHz: 787.5kHz)					

#### **Table 52 Occupied Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #		
1	1	1		
Supplementary information: None				

#### Table 53 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements				
	dBc	% PWR			
10kHz	-20	99			
Supplementary information: None					

**Table 54 Occupied Bandwidth Test Result Summary** 

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
315MHz	52.95	102.91

#### Figure 42 – Bandwidth Graph



### 4.7.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the transmission time measured with the spectrum analyzer set to zero span at the fundamental frequency.						
Basic Stand	ard	47 CFR Part 15.231(a)					
Cease Operation Limits							
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.							

#### **Table 55 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #						
1	1	1						
Supplementary information: None								

# Figure 43 Cease Operation Graph

Agilent Spectr	um Analyzei	- Swept SA								
LXI L	RF	50 Ω DC		SENS	SE:INT	Δ	ALIGN PARTIAL	11:45:02 A	M Sep 26, 2012	Marker
Marker '	1 650.000 ms		50.000 ms Avg Type: Log-Pw				e: Log-Pwr	TRAC	E 1 2 3 4 5 6	warker
			PNO: Fast ↔↔ IFGain:Low	<sup>a</sup> Trig: Video Atten: 10 d	B			TYI Di		Select Marker
								Mkr1 6	50.0 ms	1
10 dD/diu	Dof (	00 dBm						-70.	01 dBm	-
Log	Kei u									
-10.0										
20.0										Normal
-20.0										
-30.0										
-40.0									TRIG LVL	
40.0										Dalta
-50.0 —										Dena
-60.0										
-70 0 📿										
10.0										
-80.0										Fixed⊳
-90.0										
Center 3	15.0000	00 MHz						S	span 0 Hz	
Res BW	3.0 MHz	2	VBW 3	.0 MHz	0 MHz Sweep 20.00 s (1001 pts					0ff
							•			011
MKR MODE		×	650.0 mm	Y 70.04 JD	FUN	CTION FL	NCTION WIDTH	FUNCTIO	JN VALUE	
2 N	1 τ		650.0 ms	-70.01 dBi	m					
3										
4										Properties►
5										
7										
8										
9										More
10										1 of 2
12										
MSG							STATUS			

### 4.7.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.						
Basic Stand	ard	FCC Part 15 Subpart A, 15.35					
Pulse Train Limits							
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.							

#### **Table 56 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #		
1	1	1		
Supplementary information: None				

#### Table 57 Pulse Train Calculation

		Total Transmission	DC Correction Factor (dB)					
TX Frequency	Total TX time	period or 100ms whichever is lesser	$20\log\left(\frac{PulseWidth}{Period} ight)$					
315MHz	(2x0.996)+(9x2.994)	78.6mS	-8.67					
Worst Case Duty Cycle: Worst case duty cycle was calculated over single period between messages and it did not include the tuning pulses. The manufacturer declares the duty cycle at -9.13dB. The measured duty cycle was								

used for all radiated emissions data.

File #: MC15343 Page 127 of 264

#### Figure 44 Pulse Train Graphs

jilent Spectrum Analyzer - Swept SA				
	SENSE:INT		11:41:24 AM Sep 26, 2012	Marker
IARKER 1 Δ 162.000 μS PNO: Fast ↔ IFGain:Low	Atten: 10 dB	Avg Type. Log-Fwi	TYPE WWWWWWW DET N N N N N N	Select Marker
		Δ	Mkr1 162.0 µs	1
0 dB/div Ref 0.00 dBm			47.22 dB	
og				
10.0	140			Norma
20.0				
30.0				
40.0			TRIG LVL	
50.0				Delta
60.0				
70.0				
		and calles and the state in call	i calles de la la la la companya de	Fixed
90.0				Fixed
, datal, but alat ta Milada ndi sun Didia, kikua	t. Lucha at a bandla , Militaria ad Ana a	المكري والالكان للكنا وليطاله	al til die blie der bles	
enter 315.000000 MHz			Span 0 Hz	
Res BW 3.0 MHz VBW	3.0 MHz	Sweep 3.0	100 ms (1001 pts)	Off
IKR MODE TRC SCL X	Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
1 Δ2 1 t (Δ) 162.0 μs (Δ)	47.22 dB			
2 F 1 t 990.0 μs	-75.07 dBm			
5				Properties ►
6				
8				
9				More
10				1 of 2
12				
SG		STATUS	I	
	0			

File #: MC15343 Page 128 of 264

Agilent Spectrum Analyzer - Swept SA				
$\square$ L RF 50 $\Omega$ DC Marker 1 $\Lambda$ 350 000 us	SENSE:INT Trig Delay: 4.000 ms	Avg Type: Log-Pwr	11:42:09 AM Sep 26, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast ↔→ IFGain:Low	Trig: Video Atten: 10 dB	5 // 5	TYPE WWWWWW DET N N N N N N	Select Marker
		Δ	Mkr1 350.0 µs	1
			L.LL GD	
-10.0				
-20.0				Norma
-30.0				
-40.0			TRIG LVL	
-50.0				Delta
-60.0				
-70.0	1Δ2			
-sn n	the subscription base to defect	ethetista administration	have the set of the start of the set	Firedb
-90.0				Fixed
substatistics and a sample fill a second by the state	a nina, dan ta ka bahara, bahari sa	The lost hand the lost land as a set	ne sekiniki siti kakasa	
Center 315.000000 MHz			Span 0 Hz	
Res BW 3.0 MHz VBW 3	8.0 MHz	Sweep 5.	000 ms (1001 pts)	Off
MKR MODE TRC SCL X	Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
$2 + 1 + (\Delta) = 350.0  \mu s (\Delta)$ 2 F 1 t 1.602 ms	-76.08 dBm			
3				Properties >
5				Fioperacov
6 7				
8				More
10				1 of 2
11				
MSG		STATUS		
Second tuning pulse duration: 0.350	JmS			

File #: MC15343 Page 129 of 264

_					ım Analyzer - Swept SA	Agilent Spectru
Marker	11:43:28 AM Sep 26, 2012 TRACE 1 2 3 4 5 6		SENSE:INT		RF 50 Ω DC	<mark>X/</mark> ⊥ Markor 3
Select Marker			Trig: Video Atten: 10 dB	PNO: Fast ↔↔ IFGain:Low	Δ 2.33400 115	
3	Vkr3 2.994 ms 46.99 dB	Δ١			Ref 0.00 dBm	10 dB/div
						-10.0
Norma	34			1Δ2		-20.0
						-40.0
Delta						-50.0
			il			-70.0
Fixed⊳						-80.0
	Span 0 Hz		a i kiele "t	<mark>dia adhaas</mark>	ետ լիվլ 15.000000 MHz	Center 31
Off	000 ms (1001 pts)	Sweep 6.0	.0 MHz	VBW 3	3.0 MHz	Res BW 3
	FUNCTION VALUE	ION FUNCTION WIDTH	Y FUNC 46.72 dB	996.0 μs (Δ)	RC SCL Χ	MKR MODE T
Properties►			-74.23 dBm 46.99 dB -74.64 dBm	902.0 μs 2.994 ms (Δ) 2.892 ms	t t (Δ) t	2 F 3 ∆4 4 F 5 6
More 1 of 2						7 8 9 10 11 12
		STATUS				MSG
		4mS	6mS, Long 2.99	: Short 0.99	e pulse duration	<i>Aessage</i>

File #: MC15343 Page 130 of 264

Marker	11:38:18 AM Sep 26, 2012 TRACE 1 2 3 4 5 6	LIGN PARTIAL Log-Pwr	Ауд Тур	1.000 ms	SENSE Delay:	Trig D			οΩ DC ms	.0000	5 90	er
Select Marke	Vikr5 90.00 ms	N		3	video :: 10 dE	Atten:	Fast ↔ ::Low	PNO: IFGair				
	-72.80 dBm								dBm	ef 0.00	R	/div
Norm												
Del											2	4
		a kalenda kana da	n the feet to our		-			r r			<u> </u>	<u>}_</u>
Fixe						H						
c	Span 0 Hz 0.0 ms (1001 pts)	weep 10			Iz	8.0 MH	VBW 3		MHz	00000 MHz	15.0 3.0 M	er 3 BW
	FUNCTION VALUE	CTION WIDTH	rion Fi	FUNC	o dDa	Y		0.40.0	X	CL	TRC SO	ODE
Properties				1 1 1 1	9 dBm 1 dBm 9 dBm 6 dBm 0 dBm	-71.89 -71.81 -72.59 -71.96 -72.80	µs ms ms ms ms	646.0 6.200 11.40 52.80 90.00			1 t 1 t 1 t 1 t 1 t	N N N N
Ma												
1 o												
			1							1		_

Г

#### 4.7.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.							
Basic Standa	ard	47 CFR Part 15 sub	part C,	and RSS-210				
UL LPG		80-EM	-S0029	)				
		Frequency range		Measurement Point				
Fully configu	red sample scanned	30MHz – 1GHz		3 meter distance				
over the folic	wing frequency range	1GHz – 4GHz		3 meter distance				
Restricted Band Limits								
E		Limit (dB	Limit (dBµV/m)					
Freq	uency (MHZ)	Quasi-Peak	Peak					
	30 - 88	40.00		NA				
	88 - 216	43.52		NA				
2	216 - 960	46.02		NA				
9	60 - 1000	54	NA					
Abov	e 1000 (FCC)	NA		54 (at 3-meter)				
	Fundamental Freq	uency Limits and Non-restricted bar	nd Har	monic Limits				
		Limit (dBµV/m) @	🕑 3m d	listance				
Freq	uency (MHz)	All harmonics except those in restric 20dB or	All harmonics except those in restricted bands must be attenuated by 20dB or more					
		Average - Fundamental		Peak - Fundamental				
	315	75.62	95.62					
Supplementary information: See section 4.7.3 for duty cycle information.								

File #: MC15343 Page 132 of 264





File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*not saved\*

File #: MC15343 Page 133 of 264

#### Figure 46 Radiated Emissions Graph (Above 1GHz)



Table 58 - Radiat	ted Emissions	Data	<b>Points</b>
-------------------	---------------	------	---------------

Chamberlain												
KLIK2C Transmitter												
315MHz, Conf	315MHz, Config 12, Type 1											
9VDC Battery												
Red: Horizonta	al Green: Ve	ertical										
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Deas]	Height [cm]	Polarity
315.0144	65.61	PK	14.2	2.1	81.91	-8.67	73.24	75.62	-2.38	169	102	Horz
315.0144	66.55	PK	14.2	2.1	82.85	-8.67	74.18	75.62	-1.44	87	153	Vert
630.030449	7.65	PK	20.6	3	31.25	-8.67	22.58	46	-23.42	267	122	Horz
630.028846	13.59	PK	20.6	3	37.19	-8.67	28.52	46	-17.48	250	105	Vert
945.03948	19.26	PK	23.6	3.8	46.66	-8.67	37.99	46	-8.01	193	274	Horz
945.041082	22.52	PK	23.6	3.8	49.92	-8.67	41.25	46	-4.75	258	112	Vert
1260.173	68.22	PK	25.1	-56.92	36.4	-8.67	27.73	54	-26.27	*	100	Horz
1574.383	67.29	PK	25.3	-55.3	37.29	-8.67	28.62	54	-25.38	*	125	Horz
1890.594	67.04	PK	27.4	-54.32	40.12	-8.67	31.45	54	-22.55	*	125	Horz
1574.383	68.88	PK	25.3	-55.3	38.88	-8.67	30.21	54	-23.79	*	100	Vert
1889.9329	77.78	PK	27.4	-54.31	50.87	-8.67	42.2	54	-11.8	196	103	Vert
3151.434	65	PK	30.6	-51.71	43.89	-8.67	35.22	54	-18.78	*	100	Vert
* Peak prescan data, not maximized												

# 4.8 Configuration 1# Test Data

#### 4.8.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.				
Basic Standard 47 CFR Par		47 CFR Part 15.231(c)			
Occupied Bandwidth Limits					
0.25% of Center Frequency (318MHz: 795.0kHz)					

#### **Table 59 Occupied Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #		
1	1	1		
Supplementary information: None				

#### Table 60 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements			
	dBc	% PWR		
10kHz	-20	99		
Supplementary information: None				

# Table 61 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
318MHz	52.47	103.14
### Figure 47 – Bandwidth Graph



### 4.8.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made tuned to the transmit freque was operated and the trans span at the fundamental fre	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The device smission time measured with the spectrum analyzer set to zero equency.				
Basic Stand	ard	47 CFR Part 15.231(a)				
	Cease Operation Limits					
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.						

### **Table 62 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

## Figure 48 Cease Operation Graph

Agilent Spectrum Analyzer - Swept SA				
IXI RF 50 Ω DC	SENSE:INT		10:17:56 AM Sep 25, 2012	Marker
Marker 1 Δ 1.24033 s	Tuine Mida a	Avg Type: Log-Pwr		Marker
PNO: Fast ↔ →→ IFGain:Low	Atten: 10 dB		DET N N N N N N	Select Marker
			∆Mkr1 1.240 s	1
10 dB/div Bef 0 00 dBm			34.37 dB	
Log				
-10.0				
				Normal
-20.0				
-30.0				
-40.0				
			TRIG LVL	Dolta
-50.0				Dena
-60.0				
-70.0				
-80.0				Fixed⊳
-90.0				
<u>~</u>				
Center 318.000000 MHz			Span 0 Hz	
Res BW 3.0 MHz #VBW 3	3.0 MHz	Sweep	20.00 s (1001 pts)	Off
	Y I ELINI	TION L FUNCTION WIDTH		•
$1 \Delta 2 1 t (\Delta)$ 1240 s ( $\Delta$ )	34.37 dB			
2 F 1 t 1.016 ms	-104.77 dBm			
3				Busustias
4				Properties►
6				
7				
8				More
9				1-50
11				1 of 2
12				
MSG		STATUS		uJ

### 4.8.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made tuned to the transmit freque train was measured with th	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The pulse e spectrum analyzer set to zero span at the fundamental frequency.			
Basic Stand	ard	FCC Part 15 Subpart A, 15.35			
Pulse Train Limits					
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied o the measured peak radiated emissions results.					

### **Table 63 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

### Table 64 Pulse Train Calculation

TX Frequency	Total TX time	Total Transmission Period or 100ms whichever is lesser	DC Correction Factor (dB) $20 \log \left(\frac{PulseWidth}{Period}\right)$					
318MHz	16.32mS	100ms	-15.7					
Worst Case Duty Cycle: Measured worst case duty cycle was -15.7dB over message pulses, not including tuning pulses. Manufacturer declares the worst case duty cycle at -15.39dB. The declared duty cycle is used for all radiated emissions data.								

File #: MC15343 Page 140 of 264

### Figure 49 Pulse Train Graphs

Agilent Spectrum Analyzer - Swept SA				
IXI RF 50Ω DC	SENSE:INT		10:08:32 AM Sep 25, 2012	Marker
Marker 1 Δ 153.000 μs	Trig Delay: -1.000 ms Trig: Video	Avg Type: Log-Pwr		
IFGain:Low	Atten: 10 dB		DET N N N N N N	Select Marker
		٨	Mkr1 153 0 us	
		4	56 30 dB	1
10 dB/div Ref U.UU dBm			00.00 GD	
-10.0				
				Normal
-20.0				
-30.0	2			
-40.0			TRICLUZ	
-50.0			TRIGEVE	Delta
-60.0				
	and associate the second state	data fasta anno 199	والعام أقدر العاري بالمامين	
-80.0	a an sua na manana fan a sa mana dan f	al state of the second second second second	an a chronith dan 1 a chai	Fixed⊳
-90.0			at the first second	T IACUP
1 Martin Mathematical Lange 2 - Jul	alla bite bie velet it. Lite eret	Band indudie bildu ber	a di Jaha Mana da Kata Jah	
Center 318.000000 MHz			Span 0 Hz	
Res BW 3.0 MHz #VBW 3	3.0 MHz	Sweep 3.0	)00 ms (1001 pts)	Off
				011
$1 \Delta 2 1 t (\Delta)$ 153.0 us ( $\Delta$ )	56.30 dB			
2 F 1 t 963.0 µs	-98.38 dBm			
3				Bronarties N
5				Flopelues
6				
7				
9				More
10				1 of 2
11				
MSG		STATUS		
First Tuning Pulse duration: 0.153m	S			

File #: MC15343 Page 141 of 264

Agilent Spec	trum Analyzer -	Swept SA								
Marker	RF 1 Δ 325.0	50Ω DC		SENSE: Trig Delay: 6	INT .000 ms	Avg Typ	ALIGN PARTIAL e: Log-Pwr	10:14:43 A TRAC	M Sep 25, 2012 E 1 2 3 4 5 6	Marker
			PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB			Δ	Mkr1 3	≊₩₩₩₩₩₩ ■ 25.0 μs	Select Marker
10 dB/div	/ Ref 0.0	00 dBm						6	2.63 ḋB	
-10.0									*	
-20.0 ——										Normal
-30.0			▲1 <u>△</u> 2							
-40.0			<b>y</b>					-	TRIG LVL	Delta
-50.0										Dena
-70.0					1.1.ml	_				
-80.0	ante e compara		Ale III - Jeans, Ian	a i la marchi publicitata	ta bara ti kato	- Triburi			inal (Speak) ()	Fixed⊳
-90.0 L	المهر والمرأول		al data data data da	na na sana la mat		at h		ur di	به ماله مه ال	
Center	318.00000	0 MHz						S	pan 0 Hz	
Res BW	/ 3.0 MHz		#VB	N 3.0 MHz			Sweep 5.	000 ms (	1001 pts)	Off
	TRC SCL	×	325.0 µs (A	Y ) 62.63 dB	FUNC	TION FL	INCTION WIDTH	FUNCTIO	IN VALUE	
2 F 3	1 t		1.016 ms	-104.77 dBm						
4										Properties►
6										
8										More
10										1 of 2
12										
MSG							STATUS			
Second	d Tuning	Pulse dı	uration: 0.3	325mS						

File #: MC15343 Page 142 of 264

Agilent Spectrum Analyzer - Swept SA			
M         RF         50 Ω         DC           Marker 1 Λ 1 02000 ms         ms         ms	SENSE:INT	Marker	
PNO: Fast +>+ IFGain:Low	Trig: Video Atten: 10 dB	TYPE WWWWWWW DET N N N N N	Select Marker
		ΔMkr1 1.020 ms	1
10 dB/div Ref 0.00 dBm		54.36 GB	
-10.0		*	
-20.0			Normal
-30.0			
-40.0			
-50.0			Delta
-60.0			
-70.0			
-80.0		ed i gebre konserption keinen met eilen trop	Fixed
-90.0			Fixeu⊵
a search a set 🔀 🔤 dar i state a state a	المعروبة أأساليه ا	the second s	
Center 318.000000 MHz	3 0 MH-2	Span 0 Hz Sween 20.00 mc (1001 ptc)	
Res BW J.0 MHZ #VBW			Off
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Y FUNC 54.36 dB	TION FUNCTION WIDTH FUNCTION VALUE	
2 F 1 t 3.096 ms	-97.14 dBm		
4			Properties►
6			
7			
9			More
10			1 of 2
12			
MSG		STATUS	
Message Pulse Duration:1.020mS			



## 4.8.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Measurements were 16/ANSI C63.4:2003 EUT separation dist with the receive ante Final measurements EUT 360° and adjus investigated in both	leasurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 6/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to UT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth ith the receive antenna located at various heights in both horizontal and vertical polarities. inal measurements (quasi-peak or average as noted) were then performed by rotating the UT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were vestigated in both horizontal and vertical antenna polarity, where applicable.							
Basic Standa	ird	47 CFR Part 15 sub	part C,	and RSS-210					
UL LPG		80-EM	-S0029	)					
		Frequency range		Measurement Point					
Fully configu	red sample scanned	30MHz – 1GHz		3 meter distance					
over the follo	wing frequency range	1GHz – 4GHz		3 meter distance					
Restricted Band Limits									
Frequency (MHz)		Limit (dBµV/m)							
		Quasi-Peak		Peak					
	30 - 88	40.00	NA						
ł	88 - 216	43.52		NA					
2	216 - 960	46.02		NA					
90	60 - 1000	54		NA					
Above	e 1000 (FCC)	NA		54 (at 3-meter)					
	Fundamental Freq	uency Limits and Non-restricted ba	nd Har	monic Limits					
		Limit (dBµV/m) (	@ 3m c	listance					
Frequency (MHz)		All harmonics except those in restric 20dB or	All harmonics except those in restricted bands must be attenuated by 20dB or more						
		Average - Fundamental		Peak - Fundamental					
	318	75.80		95.80					
Supplementa	ry information: See s	ection 4.8.3 for duty cycle information.							

File #: MC15343 Page 145 of 264

Figure 50 Radiated Emissions Graph (Below 1GHz)



File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*not saved\*

File #: MC15343 Page 146 of 264





Chamberlain												
KLIK2C Transmit	ter	T										
318IVIHZ, Config	1, Program	i ype 4										
Bed Horizontal	2roon Vortic	al										
Red. Honzontal, C						Duty						
Test	Meter		Antenna	Path		Cvcle	Level with	l imit @				
Frequency	Reading		Factor	Loss	Level	Factor	Duty Cycle	3m	Margin	Azimuth	Height	
MHz	dBuV	Detector	dB	Gain dB	dBuV/m	dB	dBuV/m	dBuV/m	dB	[Degs]	[cm]	Polarity
318.0104	68.24	PK	14.4	2.1	84.74	-15.39	69.35	75.8	-6.45	25	102	Horz
318.0104	70	PK	14.4	2.1	86.5	-15.39	71.11	75.8	-4.69	118	155	Vert
636.019231	14.05	PK	20.6	3.1	37.75	-15.39	22.36	46	-23.64	186	184	Horz
636.019231	23.38	PK	20.6	3.1	47.08	-15.39	31.69	46	-14.31	290	175	Vert
954.038462	21.3	PK	24	3.9	49.2	-15.39	33.81	46	-12.19	222	280	Horz
954.035256	24.45	PK	24	3.9	52.35	-15.39	36.96	46	-9.04	286	114	Vert
1272.181	69.57	PK	25.2	-56.79	37.98	-15.39	22.59	54	-31.41	*	101	Horz
1590.394	71.11	PK	25.3	-54.9	41.51	-15.39	26.12	54	-27.88	*	125	Horz
1908.606	70.31	PK	27.4	-54.46	43.25	-15.39	27.86	54	-26.14	*	101	Horz
3181.454	65.04	PK	30.7	-51.64	44.1	-15.39	28.71	54	-25.29	*	101	Horz
1272.181	72.72	PK	25.2	-56.79	41.13	-15.39	25.74	54	-28.26	*	125	Vert
1590.394	73.57	PK	25.3	-54.9	43.97	-15.39	28.58	54	-25.42	*	125	Vert
1908.0461	82.82	PK	27.4	-54.46	55.76	-15.39	40.37	54	-13.63	192	100	Vert
2545.03	65.93	PK	28.9	-52.04	42.79	-15.39	27.4	54	-26.6	*	100	Vert
3181.454	68.36	PK	30.7	-51.64	47.42	-15.39	32.03	54	-21.97	*	125	Vert
* Peak prescan d	ata, not max	kimized										

## 4.9 Configuration 9# Test Data

### 4.9.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.				
Basic Standard		47 CFR Part 15.231(c)			
	Occupied Bandwidth Limits				
	0.25% of Center Frequency (372.5MHz: 931.256kHz)				

### Table 66 Occupied Bandwidth Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #	
1	1	1	
Supplementary information: None			

### Table 67 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements		
	dBc	% PWR	
10kHz	-20	99	
Supplementary information: None			

## Table 68 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
372.5MHz	53.85	104.77

### Figure 52 – Bandwidth Graph



# 4.9.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made tuned to the transmit freque was operated and the trans span at the fundamental fre	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The device smission time measured with the spectrum analyzer set to zero equency.			
Basic Standard		47 CFR Part 15.231(a)			
	Cease Operation Limits				
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.					

## Table 69 Cease Operation Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #	
1	1	1	
Supplementary information: None			

### Figure 53 Cease Operation Graph



### 4.9.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.				
Basic Standard		FCC Part 15 Subpart A, 15.35			
Pulse Train Limits					
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied of the measured peak radiated emissions results.					

#### **Table 70 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #	
1	1	1	
Supplementary information: None			

### Table 71 Pulse Train Calculation

TX Frequency	Total TX time	Total Transmission period or 100ms whichever is lesser	DC Correction Factor (dB) $20 \log \left( \frac{PulseWidth}{Period} \right)$			
372.5MHz	(42x0.202)+(31x0.404)+0.192+0.365	100ms	-13.32			
Worst Case Duty Cycle: Worst case duty cycle was calculated over 100mS including the tuning pulses.						

Manufacturer declared worst case duty cycle is -12.36dB and it is used for radiated emissions data.

File #: MC15343 Page 153 of 264

### Figure 54 Pulse Train Graphs

Agilent Spectrum Analyzer - Swept SA				
🗶 L RF 50 Ω DC	SENSE:INT	ALIGN PARTIAL	02:48:57 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast ↔→ IFGain:Low	Trig: Video Atten: 10 dB			Select Marker
		2	Mkr1 192.0 µs	1▶
10 dB/div Ref 0.00 dBm			53.66 dB	
-10.0				
-20.0	Δ2			Normal
20.0				
40.0				
-40.0				Dolta
-50.0			TRIG LVL	Della
-60.0				
	المرجب المار أمراك ومصرفة أ	والمتعدية ومستحصيتهم ومليهم والمحافظ	the later stress liters by the liters	
-80.0				Fixed⊳
<sup>-90.0</sup> ditilitation tionalistation a solidation tion and	an the state of the second	d, haarse heer too Um differ fo	in the new second excel	
Center 372 500000 MHz			Snan 0 Hz	
Res BW 3.0 MHz VBW 3	.0 MHz	Sweep 3.	000 ms (1001 pts)	Off
MKBI MODEL TBCI SCLI	Y EUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
<b>1</b> Δ2 1 t (Δ) 192.0 μs (Δ)	53.66 dB			
2 F 1 t 990.0 µs	-74.98 dBm			
4				Properties►
6				
7				
9				More
10				1 of 2
12				
MSG		STATUS	,	
First tuning pulse duration: 0 192mS		I	1	

File #: MC15343 Page 154 of 264

Agilent Spectrum Analyzer - Swept SA				
Marker 1 Δ 365.000 μs	SENSE:INT Trig Delay: 18.00 ms	ALIGN PARTIAL	02:50:59 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
PN0: Fast ↔ IFGain:Low	Atten: 10 dB		Mkr1 365.0 µs 52.54 dB	Select Marker 1 <sup>▶</sup>
				Normal
-40.0 -50.0 -60.0			TRIG LVL	Delta
-70.0 -80.0 -90.0 41 Jatah Ulatah Ulatah Ita Jatah Jat	ng tha sea ha an		india and and a second	Fixed⊳
Center 372.500000 MHz Res BW 3.0 MHz VBW 3	.0 MHz	Sweep 5.	Span 0 Hz 000 ms (1001 pts) FUNCTION VALUE	Off
2     F     1     t     305.0 μs (Δ)       3     4     1.140 ms       5     6       7     7	-74.07 dBm			Properties►
, 9 10 11 12				More 1 of 2
MSG		STATUS		
Second tuning pulse duration: 0.365	imS			

Agilent Spectrum Analyzer - Swept SA				
Marker 3 Δ 202.000 μs	SENSE:INT Trig Delay: 29.00 ms	ALIGN PARTIAL 02:5	52:21 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast ↔ IFGain:Low	<sup>1</sup> Trig: Video Atten: 10 dB	ΔΜκ	r3 202.0 µs 49.54 dB	Select Marker
-10.0 -20.0 -30.0		1∆2	3∆4	Normal
-40.0			TRIG LVL	Delta
-70.0 -80.0 -90.0	halanda Hadan			Fixed⊳
Center 372.500000 MHz Res BW 3.0 MHz VBW 3 MKR MODE TRC SCL ×	.0 MHz	Sweep 2.000 I	Span 0 Hz ms (1001 pts) unction value	Off
1       Δ2       1       t       (Δ)       404.0 μs       (Δ)         2       F       1       t       1.032 ms       (Δ)         3       Δ4       1       t       (Δ)       202.0 μs       (Δ)         4       F       1       t       1.632 ms       (Δ)         5       6       6       6       6       6	44.76 dB -74.78 dBm 49.54 dB -73.59 dBm			Properties►
7 8 9 10 11 12				More 1 of 2
MSG		STATUS		]
Message Pulse Duration: Short 0.20	2mS, Long 0.4	04mS		

File #: MC15343 156 of 264 Page







Г

### 4.9.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.						
Basic Standa	ard	47 CFR Part 15 sub	part C,	and RSS-210			
UL LPG		80-EM	-S0029	)			
		Frequency range		Measurement Point			
Fully configu	red sample scanned	30MHz – 1GHz		10 meter distance			
over the folic	owing frequency range	1GHz – 4GHz		3 meter distance			
Restricted Band Limits							
		Limit (dBµV/m)					
Freq	uency (MHZ)	Quasi-Peak		Peak			
30 - 88		40.00		NA			
	88 - 216	43.52	NA				
2	216 - 960	46.02 NA		NA			
9	60 - 1000	54		NA			
Abov	e 1000 (FCC)	NA 54 (at 3-met		54 (at 3-meter)			
	Fundamental Freq	uency Limits and Non-restricted bar	nd Har	monic Limits			
		Limit (dBµV/m) 🤅	Limit (dBµV/m) @ 3m distance				
Frequency (MHz)		All harmonics except those in restricted bands must be attenuated by 20dB or more					
		Average - Fundamental		Peak - Fundamental			
	372.5	78.52 98.52		98.52			
Supplementa	ary information: See s	ection 4.9.3 for duty cycle information.					

File #: MC15343 Page 159 of 264

Figure 55 Radiated Emissions Graph (Below 1GHz)



File: RE 30-1000 MHz 10m using FCC 3m Class B.TST

File #: MC15343 Page 160 of 264

### Figure 56 Radiated Emissions Graph (Above 1GHz)



Table 72 - Radiated Emiss	sions Data	Points
---------------------------	------------	--------

KLIK2C Transmit	tter												
372.5MHz, Confi	g 9, Program	n 4											
9VDC Battery Red Horizontal (	Green Vertic	al											
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Distance correction 10m to 3m dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
372.5216	83.8	QP	15.1	-32.4	10.5	77	-12.36	64.64	78.52	-13.88	289	327	Horz
372.5216	83.92	PK	15.1	-32.4	10.5	77.12	-12.36	64.76	78.52	-13.76	289	327	Horz
372.5216	89.06	QP	15.1	-32.4	10.5	82.26	-12.36	69.9	78.52	-8.62	202	400	Vert
372.5216	89.18	PK	15.1	-32.4	10.5	82.38	-12.36	70.02	78.52	-8.5	202	400	Vert
745.0432	36.27	QP	20.6	-31.3	10.5	36.07	-12.36	23.71	46	-22.29	339	370	Horz
745.0432	40.16	PK	20.6	-31.3	10.5	39.96	-12.36	27.6	46	-18.4	339	370	Horz
745.0432	49.82	QP	20.6	-31.3	10.5	49.62	-12.36	37.26	46	-8.74	11	193	Vert
745.0432	51.19	PK	20.6	-31.3	10.5	50.99	-12.36	38.63	46	-7.37	11	193	Vert
1118.079	81.65	PK	24.5	-57.49	N/A	48.66	-12.36	36.3	54	-17.7	*	124	Horz
1492.328	65.15	PK	25.2	-55.69	N/A	34.66	-12.36	22.3	54	-31.7	*	124	Horz
1117.5782	98	PK	24.5	-57.49	N/A	65.01	-12.36	52.65	54	-1.35	158	133	Vert
1490.327	74.63	PK	25.2	-55.64	N/A	44.19	-12.36	31.83	54	-22.17	*	102	Vert
* Peak prescan data, not maximized													

### Configuration 2# Test Data

### 4.9.5 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.					
Basic Stand	ard	47 CFR Part 15.231(c)				
Occupied Bandwidth Limits						
0.25% of Center Frequency (390MHz: 975.0kHz)						

### **Table 73 Occupied Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

### Table 74 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements				
	dBc	% PWR			
10kHz	-20	99			
Supplementary information: None					

Table 75 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
390MHz	53.70	102.94

### Figure 57 – Bandwidth Graph



### 4.9.6 Test Conditions and Results – Cease Operation

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the transmission time measured with the spectrum analyzer set to zero span at the fundamental frequency.						
Basic Stand	ard	47 CFR Part 15.231(a)					
	Cease Operation Limits						
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.							

### **Table 76 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

## Figure 58 Cease Operation Graph

Agilent Spectrum Analyzer - Swept SA				
💢 RF 50Ω DC	SENSE:INT	\Lambda ALIGN PARTIAL	10:56:21 AM Sep 25, 2012	Marker
Marker 1 760.000 ms		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6	WIAINCI
PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB			Select Marker
			Mkr1 760.0 ms	1
10 dB/div Ref 0.00 dBm			-38.24 dBm	
10.0				
-10.0				Normal
-20.0				Norma
-30.0 1				
-40.0			TRIG LVL	
-50.0				Delta
-60.0				
.70.0				
10.0				
-80.0				Fixed⊳
-90.0				
Center 390.000000 MHz		_	Span 0 Hz	
Res BW 3.0 MHz #VBW 3	3.0 MHz	Sweep	20.00 s (1001 pts)	Off
MKR MODE TRC SCL X	Y FUN	CTION FUNCTION WIDTH	FUNCTION VALUE	
1 N 1 t 760.0 ms	-38.24 dBm			
2				
4				Properties▶
5				
6				
8				
9				More
10				1 of 2
11				
MSG		STATUS		

### 4.9.7 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.							
Basic Standard FCC Part 15 Subpart A, 15.35								
Pulse Train Limits								
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.								

### **Table 77 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #				
1	1	1				
Supplementary information: None						

### Table 78 Pulse Train Calculation

		Total Transmission	DC Correction Factor (dB)
TX Frequency	Total TX time	Period or 100ms whichever is lesser	$20\log\left(rac{PulseWidth}{Period} ight)$
390MHz	(7x0.510)+(8x1.0)+(6x1.51)	97.2ms	-13.46
Worst Case Manufacture emissions.	Duty Cycle: -13.46, Calculated over 97.2mS per declares worst case duty cycle as -13.55dB.	eriod that does not include Calculated duty cycle is us	the tuning pulses. ed for all radiated

File #: MC15343 Page 167 of 264

### Figure 59 Pulse Train Graphs

Agilent Spec	ctrum Analy	/zer - Swept SA								
	RF	50 Ω		SEI	ISE:INT			10:38:56 AM	Sep 25, 2012	Marker
marker	r 1 Δ 1	80.000 µs	S PNO: East	Trig: Vide	71.000 ms 0	Avgiyp	e. Log-Pwr	TYPE	123456 W <del>WWWWW</del>	
			IFGain:Low	Atten: 10	dB			DET	NNNNN	Select Marker
							Δ	Mkr1 18	0.0 µs	1
10 dB/di	v Ref	f 0.00 dBr	n					34	.64 ḋB	
Log										
-10.0										Normal
-20.0										Normai
-30.0				<b>π</b> 1Λ2 ——						
40.0										
-40.0									TRIG LVL	Dalta
-50.0										Deita
-60.0										
-70.0					1 I.a.a.	a da				
-80.0	<b>HARRIN</b>		10110101/2 <u>12</u>	. a balance				n a chairte ann an tha an that an that an that an that an that	(1997) - 19	Fixed
-90.0				w.	aiting for	trigger				FIXEU
14	والمرا فعكرك	a la Clarina I (b	la a tanàn 1947	The states which a		THE CONTRACTOR	inde de la constante de la cons	والمرافع الأربي	ut lau L	
Center	390.00	0000 MHz	· · · · · · · · · · · · · · · · · · ·					Sp	an 0 Hz	
Res BV	V 3.0 M	Hz	#VE	SW 3.0 MHz		:	Sweep 3.	000 ms (1	001 pts)	Off
MKBL MODE	el troi sol		×	Ŷ	FUNC	TION FU	INCTION WIDTH	FUNCTION	VALUE	•
<b>1</b> Δ2	1 t	(Δ)	180.0 µs (,	Δ) 34.64	dB					
2 F	1 t		960.0 µs	-74.45 dE	3m					
4										Properties►
5										
6										
8										
9										More
11										1 of 2
12										
MSG							STATUS			
	uning	Duloo du	ration: 0.19	ງພຽ						
LISUI	uning i	ruise au	11alion. U. 180	SUIS						

File #: MC15343 Page 168 of 264

Agilent Spectrum Analyzer - Swept	t SA				
Marker 1 Λ 354 000		SENSE:INT	ALIGN PARTIAL Avg Type: Log-Pwr	10:54:02 AM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
	PNO: Fast ↔→ IFGain:Low	Trig: Video Atten: 10 dB	• •	TYPE WWWWWWW DET N N N N N N	Select Marker
			2	Mkr1 354.0 µs	1
10 dB/div Ref 0.00 d	Bm			35.90 dB	
-10.0					
-20.0					Normal
20.0		142			
-30.0					
-40.0				TRIG LVL	Dalta
-50.0					Della
-60.0					
-70.0		A CONTRACTOR OF THE PARTY OF THE	ورائد والمراجع والمراجع والمراجع والمراجع والمراجع	المؤارسا الرواح ومراسرها والرادة	
-80.0	<u> </u>				Fixed⊳
-90.0 <mark>dillor dita dalah bitatu adati</mark>	la ka da ika i	والمستعلقات والمستعد	أأسفيا والمقافين أأدرها	it is a flat de at fan die merken	
Cepter 390 000000 M				Snan 0 Hz	
Res BW 3.0 MHz	#VBW	3.0 MHz	Sweep 3.	000 ms (1001 pts)	Off
MKR MODE TRC SCL	X	Y FUN	CTION FUNCTION WIDTH	FUNCTION VALUE	0.1
$1 \Delta 2 1 t (\Delta)$	354.0 μs (Δ)	35.90 dB			
2 F 1 t	846.0 µs	-/4.44 dBm			
4					Properties►
6					
8					
9					More
11					1 of 2
12					
MSG			STATUS		
Second Tunina Pul	se duration: 0.35	4mS			
5					

File #: MC15343 Page 169 of 264

Agilent Spe	ectrum /	Analy:	er - Swep	t SA							-			
Marke	er 1 4	RF	<u> 50 ន</u>			Т	rig Delay:	E:INT  20.00 ms	Avg Typ	ALIGN PARTIA	AL  10:51:	57 AM Sep 25, 20 TRACE <mark>1 2 3 4 5</mark>	12 5 6	Marker
					PNO: Fast IFGain:Low	T A	rig: Video Atten: 10 d	3			A B.Allend		1 N 1 N	Select Marker
10 dB/d	liv	Ref	0.00 d	Bm								35.74 d	B	1
-10.0		_												
-20.0 —		_											╢	Norma
-30.0							<b></b>	1∆2 —					╞	
-40.0												TRIG L	VL.	Delta
-60.0 —		_										_	╢	
-70.0	والمعلو	وملله	لل بعد الله الله	and a first	a sa sa sa si li ka				la hit alay i	•••		and the second second		
-80.0						// <u>w</u> 2								Fixed⊳
-90.0	الاسلام	i lita	lan di bi	և տեսու	an dua.	n <b>uli</b>	,	a lucal.	Jaclint	h		addinada	<u>1</u>	
Center Res Bi	r 390 W 3.0	.000 MH	1000 M Iz	Hz	#VE	SW 3.(	0 MHz			Sweep	5.000 m	Span 0 F s (1001 pt	lz s)	Off
	)e  TRC	SCL	(A)	×	540.0 mg (	A.)	Y 25.74 di	FUN	CTION F	UNCTION WIDT	H FUN	ICTION VALUE		
1 Δ2 2 F	1	t	(Δ)	:	2.010 ms	<u>ل</u> م -7	35.74 di 74.27 dBr	3						
4														Properties►
6														
8														More
10 11														1 of 2
12										07.17				
<sup>MsG</sup>		otic	n: 0 5	10m0	Short					STAT	US			
- 1156	Dula	ลแบ	n. u.o	010113	SHULL									

File #: MC15343 Page 170 of 264

CM         RF         50.9         DC         SENSE:INT         ΔALIGNPARTIAL         D0:50:72MSsp25,2012         Marker           Marker 3 Δ 1.51000 ms         Trig Delay: 20.00 ms         Avg Type: Log-Pwr         TRACE         12.34.5.6         Marker           PN0: Fast         Frig Delay: 20.00 ms         Avg Type: Log-Pwr         Trig Delay: 20.00 ms         Select Marker         Selec
Marker 3 Δ 1.51000 ms         Trig Delay: 20.00 ms         Avg Type: Log-Pwr         Trid Delay: 23.456         Select Marker           PR0: Fast ++         Trig Video         ΔMkr3 1.510 ms         Select Marker         3           10 dB/div         Ref 0.00 dBm         35.62 dB         Select Marker         3           10 dB/div         Ref 0.00 dBm         30.4         Normal         Select Marker         3           20.0         10.0         14.2         3Δ4         Trio Ulu         Fixed         Select Marker         3           30.0         14.2         3Δ4         Trio Ulu         Fixed         Fixed         Select Marker         3           30.0         14.2         3Δ4         Trio Ulu         Fixed         Delta         5
PN0: Fast →       Ing. video IFGainLow       Atten: 10 dB       Select Marker 3         10 dB/div       Ref 0.00 dBm       35.62 dB       Normal         10 dB/div       Ref 0.00 dBm       35.62 dB       Normal         300       10.20       30.4       Img. video 35.62 dB       Normal         300       10.2       30.4       Img. video 35.62 dB       Img. video 35.62 dB       Normal         300       10.2       10.2       30.4       Img. video 30.4       Img. video 3
ΔMkr3 1.510 ms 35.62 dB         3           10 dB/div         Ref 0.00 dBm         35.62 dB         3           10 dB/div         Ref 0.00 dBm         35.62 dB         Normal           200         400         42         3Δ4         Delta           300         42         3Δ4         Delta         Delta           400         400         42         3Δ4         Delta           400         400         400         Fixed         Delta           400         400         400         Fixed         Delta           400         400         400         Fixed         Fixed           400         400         400         Fixed         Fixed           400         400         400         400         Fixed         Fixed
10 dB/div       Ref 0.00 dBm       35.62 dB         10 dB/div       Ref 0.00 dBm       35.62 dB         10 dB/div       10 dB/div       10 dB/div         20 dB/div       10 dB/div       10 dB/div         30 dB/div       10 dB/div       10 dB/div         30 dB/div       10 dB/div       10 dB/div         40 dB/div       10 dB/div<
Log
-10.0       -20.0       3Δ4       -40.0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $
-30.0       -40.0         -40.0       -40.0         -50.0       -10.2         -50.0       -10.0         -60.0       -10.0         -70.0       -10.0         -80.0       -10.0         -70.0       -10.0         -80.0       -10.0         -90.0       -10.0         -10.0       -10.0         -80.0       -10.0         -80.0       -10.0         -90.0       -10.0         -90.0       -10.0         -10.0       -10.0         -10.0       -10.0         -10.0       -10.0         -10.0       -10.0         -10.0       -10.0         -10.0       -10.0         -10.0       -10.0         -10.0       -75.47 dBm
$\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 $
-50.0       -60.0       <
$ \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 $
Mile         Autom         Autom <th< td=""></th<>
Center 390.000000 MHz         Span 0 Hz           Res BW 3.0 MHz         #VBW 3.0 MHz         Sweep 5.000 ms (1001 pts)           MKR MODE TRC SCL         ×         Y         FUNCTION         FUNCTION width         FUNCTION value           1         Δ2         1         t         (Δ)         36.60 dB         -         -           2         F         1         t         410.0 μs         -75.47 dBm         -         -           3         Δ4         1         t         (Δ)         35.62 dB         -         -
Res BW 3.0 MHz         #VBW 3.0 MHz         Sweep 5.000 ms (1001 pts)         Off           MKR MODE         TRC SCL         ×         Y         FUNCTION         FUNCTION WIDTH         FUNCTION VALUE           1         Δ2         1         t         (Δ)         36.60 dB
MKR       MODE       TRC       SCL       X       Y       FUNCTION       FUNCTION WIDTH       FUNCTION VALUE         1 $\Delta 2$ 1       t       ( $\Delta$ )       1.000 ms       ( $\Delta$ )       36.60 dB
1       Δ2       1       t       (Δ)       36.60 dB         2       F       1       t       410.0 $\mu$ s       -75.47 dBm         3       Δ4       1       t       (Δ)       35.62 dB         4       F       1       t       400 mm (Δ)       374.49 dBm
$\begin{array}{cccccccccccccccccccccccccccccccccccc$
4 F I L 1.900 ms -/4.48 aBm Properues P
5
7
8 More
10 1 1 1 2
MSG STATUS
Pulse Duration: 1.0mS Medium, 1.510mS Long


File #: MC15343 Page 172 of 264



Г

#### 4.9.8 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.								
Basic Standa	ard	47 CFR Part 15 sub	part C,	and RSS-210					
UL LPG		80-EM	-S0029	)					
		Frequency range		Measurement Point					
Fully configu	red sample scanned	30MHz – 1GHz		3 meter distance					
over the folic	owing frequency range	1GHz – 4GHz		3 meter distance					
Restricted Band Limits									
		Limit (dB	Limit (dBµV/m)						
Freq	uency (MHZ)	Quasi-Peak		Peak					
30 - 88		40.00		NA					
	88 - 216	43.52		NA					
2	216 - 960	46.02		NA					
9	60 - 1000	54		NA					
Abov	e 1000 (FCC)	NA	NA						
	Fundamental Freq	uency Limits and Non-restricted bar	nd Har	monic Limits					
	Limit (dBµV/m) @ 3m distance								
Frequency (MHz)		All harmonics except those in restricted bands must be attenuated by 20dB or more							
		Average - Fundamental		Peak - Fundamental					
	390	79.24 99.24							
Supplementary information: See section 4.9.7 for duty cycle information.									

File #: MC15343 Page 174 of 264





File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*nat saved\*

File #: MC15343 Page 175 of 264

## Figure 61 Radiated Emissions Graph (Above 1GHz)



Table /9 - Radiated Emissions Data Poin
---

Chamberlain												
KLIK2C Transmit	tter 2 Brogrom /	4										
9VDC Battery	z, Program 4	+										
Red:Horizontal, (	Green:Vertic	al										
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
390.014423	64.67	QP	16.1	2.3	83.07	-13.46	69.61	79.24	-9.63	25	102	Horz
390.014423	65.07	PK	16.1	2.3	83.47	-13.46	70.01	79.24	-9.23	25	102	Horz
390.014423	70.22	QP	16.1	2.3	88.62	-13.46	75.16	79.24	-4.08	113	128	Vert
390.014423	70.61	PK	16.1	2.3	89.01	-13.46	75.55	79.24	-3.69	113	128	Vert
780.028846	14.33	QP	21.8	3.4	39.53	-13.46	26.07	46	-19.93	61	117	Horz
780.028846	16.74	PK	21.8	3.4	41.94	-13.46	28.48	46	-17.52	61	117	Horz
780.028846	30.73	QP	21.8	3.4	55.93	-13.46	42.47	46	-3.53	83	140	Vert
780.028846	31.81	PK	21.8	3.4	57.01	-13.46	43.55	46	-2.45	83	140	Vert
1169.9649	91.28	PK	24.8	-57.24	58.84	-13.46	45.38	54	-8.62	41	218	Horz
1170.0371	94.64	PK	24.8	-57.24	62.2	-13.46	48.74	54	-5.26	41	131	Vert
1560.374	76.37	PK	25.2	-55.65	45.92	-13.46	32.46	54	-21.54	*	100	Vert
1948.632	66.11	PK	27.4	-54.39	39.12	-13.46	25.66	54	-28.34	*	125	Vert
3121.414	65.49	PK	30.6	-51.41	44.68	-13.46	31.22	54	-22.78	*	100	Vert
* Peak prescan d	* Peak prescan data, not maximized											

# 4.10 Configuration 6# Test Data

# 4.10.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.						
Basic Standard 47 CFR Part 15.231(c)							
Occupied Bandwidth Limits							
0.25% of Center Frequency (390MHz: 975.0kHz)							

# Table 80 Occupied Bandwidth Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

# Table 81 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements					
	dBc	% PWR				
10kHz	-20	99				
Supplementary information: None						

# Table 82 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
390MHz	53.14	106.34

## Figure 62 – Bandwidth Graph



## 4.10.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made tuned to the transmit freque was operated and the trans span at the fundamental fre	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The device smission time measured with the spectrum analyzer set to zero equency.					
Basic Stand	ard	47 CFR Part 15.231(a)					
	Cease Operation Limits						
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.							

#### **Table 83 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #						
1	1	1						
Supplementary information: None								

# Figure 63 Cease Operation Graph

Agilent Spectr	um Analyze	r - Swept SA								
LXI L	RF	50 Ω DC		SEN	ISE:INT		ALIGNPARTIAL	02:29:32 F	M Sep 25, 2012	Marker
Marker '	<u>1 800.0</u>	00 ms		Tuine Mida	_	Avg Typ	e: Log-Pwr	TRA(		Marker
			PNO: Fast	Atton: 10	4B 0			D	ETNNNNN	
			IFGain:Low	Attent IV	40					Select Marker
								Mkr1 8	00.0 ms	1
10 dB/div	Ref (	00 dBm						-69.	93 dBm	
Log										
-10.0										
									· ·	Normal
-20.0										
-30.0										
40.0										
-40.0										
-50.0									TRICLEM	Delta
-60.0	1								TRIGEVE	
<b>.</b>	•									
-70.0										
-80.0										Fixed⊳
-90 N										T IXOUP
-50.0										
Center 3	00 000								nan 0 Hz	
Dec BW	2 0 840-	700 1911 12	V/DM/ 2	O BALLA			Swaan	20.00 - /	1001 pto	
RES DW	3.0 IVIH	2	ADMA 3	.0 19162			Sweep	20.00 5 (	1001 pts)	Off
MKR MODE	TRC SCL	×		Y	FU	NCTION FU	INCTION WIDTH	FUNCTI	DN VALUE	
1 N	1 t		800.0 ms	-69.93 dE	3m					
2										
3										Broportios
5										Fiopences
6										
7										
8										More
9										WOIC
11										1 of 2
12										
MSC							CTATUS			L]
M3G							STATUS			

## 4.10.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made tuned to the transmit freque train was measured with th	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The pulse e spectrum analyzer set to zero span at the fundamental frequency.			
Basic Standard FCC Part 15 Subpart A, 15.35					
Pulse Train Limits					
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.					

#### **Table 84 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

### Table 85 Pulse Train Calculation

TX Frequency	Total TX time mS	Total Transmission time or 100ms whichever is lesser	DC Correction Factor (dB) $20 \log \left(\frac{PulseWidth}{Period}\right)$		
390MHz	(27x0.204)+(47x0.411)+0.186+0.342	100ms	-11.92		
Worst Case Duty Cycle: The worst case duty cycle is calculated as worst case over 100mS. Manufacturer declared worst case duty cycle is -12.36dB and its used for all emissions data.					

File #: MC15343 Page 182 of 264

#### Figure 64 Pulse Train Graphs

Marker 1 Δ 186.000 μs      Tig: Video (FGain:Low)      Tig: Video Attransaction      Automarktul By Delta: 1.000 ms      Avg Type: Log-Pwr (FGain:Low)      Marker (Fract: [] 2:30,000      Marker        10 dB/div      Ref 0.00 dBm      Colored (FGain:Low)      Tig: Video Atten: 10 dB      Automarktul By Delta: 1.000 ms      Avg Type: Log-Pwr (FGain:Low)      Marker      Select Marker (FGain:Low)      Marker        10 dB/div      Ref 0.00 dBm      Colored (FGain:Low)      Tig: Video Atten: 10 dB      Colored (FGain:Low)      Normal        300      100      102      Colored (FGain:Low)	Agilent Spectrum Analyzer - Swept SA					
Marker 1 Δ 186.000 μs      PN0: Fast → IFG sint.ow      Project Fast → IFG sint.ow      IFG sint.ow      Project Fast → IFG si	L RF 50Ω DC		SENSE:INT		02:24:08 PM Sep 25, 2012	Marker
Pro: Fast    Atten: 10 dB    Der[N NNNN    Select Marker, 1      10 dB/div    Ref 0.00 dBm    60.85 dB    60.85 dB    1      10 dB/div    Ref 0.00 dBm    10.2    Image: Comparison of the second of th	Marker 1 Δ 186.000 μs		Trig Delay: -1.000 ms Trig: Video	Avg Type: Log-Pwr		
ΔMkr1 186.0 μg    Bitect Make      10    10.0		IFGain:Low	Atten: 10 dB		DET N N N N N N	Select Marker
Children 100,004Bm    60.85 dB    1      100    102    102    104    10				^	Mkr1 186 0 us	
10 dB/div    Ker 0.00 dB/m    1Δ2    Image: Constraint of the second of th				-	60.85 dB	1
1Δ2	10 dB/div Ref U.UU dBm				00.00 0D	
20.0    Image: Section sectin sectin section section sectin section section sectio	-10.0	1	Δ2			
-200    -200						Normal
30.0    40.0	-20.0					
40.0	-30.0					
-60.0    -10.0 <t< th=""><th>-40.0</th><td></td><td></td><td></td><td></td><td></td></t<>	-40.0					
60.0    TR0 LVL    TR0 LVL    TR0 LVL    Fixed >      -00.0	-50.0					Delta
-70.0    -70.0 <t< th=""><th></th><th></th><th></th><th></th><th>TRIG LVL</th><th></th></t<>					TRIG LVL	
-70.0    -80.0    -10.1 <t< th=""><th>-60.0</th><th></th><th></th><th></th><th></th><th></th></t<>	-60.0					
-80.0    -111 - 11 - 11 - 11 - 11 - 11 - 11 - 1			du andara dan ara-	la deservationes de la contra de	a data and a tak a s	
30.0    11 μ1 μ	-80.0	<u> </u>	a navi a 116. a selata a considerativa.	of the case of the second s	n olivati da CANDON - dale a sedera	Fived⊳
Conter 390.000000 MHz    Span 0 Hz      Res BW 3.0 MHz    VBW 3.0 MHz    Sweep 3.000 ms (1001 pts)      MKR MODE    FUNCTION    FUNCTION WIDTH    FUNCTION VALUE      1    Δ2    1    t    984.0 µs    -75.79 dBm    Properties >      3    3    4	.90.0				1	I IACUP
Center 390.000000 MHz      VBW 3.0 MHz      Span 0 Hz      Span 0 Hz      Span 0 Hz      Span 0 Hz      Off        MKR MODE      TRC SCL      X      Y      FUNCTION      FUNCTION width      FUNCTION value      Off        1      Δ2      1      t      (Δ)      186.0 μs      (Δ)      60.85 dB	a second and the second s	UUUUU - 11	a blad of a state	ניאר הלאמות או	h dalaha mini kani ka kan kala ka 🔒	
Res BW 3.0 MHz    VBW 3.0 MHz    Sweep 3.000 ms (1001 pts)    Off      MKR MODE    TRC SCL    ×    Y    FUNCTION    FUNCTION WIDTH    FUNCTION VALUE      1    Δ2    1    t    (Δ)    186.0 µs    (Δ)    60.85 dB    -    -      2    F    1    t    984.0 µs    -75.79 dBm    -    -    -    -    -    Properties>      5    -    -    -    -    -    -    -    -    -    Properties>      8    -    -    -    -    -    -    -    -    -    10    -    -    -    10    -    -    -    10    -    -    -    10    -    -    -    10    -    -    -    10    -    -    -    10    -    -    -    -    10    10    -    10    -    -    -    -    -    10    -    -    -    -    -    -    10    -    -    -    -	Center 390.000000 MHz				Span 0 Hz	
MKR  MODE  TRC  SCL  ×  Y  FUNCTION  FUNCTION WIDTH  FUNCTION VALUE    1  Δ2  1  t  (Δ)  186.0 μs  (Δ)  60.85 dB  -    2  F  1  t  984.0 μs  -75.79 dBm  -  -    3  -  -  -  -  -  -    4  -  -  -  -  -  -    5  -  -  -  -  -  -    6  -  -  -  -  -  -    7  -  -  -  -  -  -    9  -  -  -  -  -  -    10  -  -  -  -  -  1 of 2    11  -  -  -  -  -  -	Res BW 3.0 MHz	VBW 3	.0 MHz	Sweep 3.	000 ms (1001 pts)	Off
MARE Mode    THC SLC    X    Y    FUNCTION    FUNCTION WIDTH    FUNCTION VALUE      1    Δ2    1    t    (Δ)    186.0 μs    (Δ)    60.85 dB    -    -    -    -    Properties ►    1 of 2    -						
2    F    1    t    984.0 µs    -75.79 dBm    Properties>      3    4    5    5    6    Properties>      5    6    6    6    6    6    6      7    7    7    7    7    7    7    10 </th <th><math display="block">\frac{1}{1}  A2  \frac{1}{1}  t  (A)</math></th> <th>186.0 us (A)</th> <th>60.85 dB</th> <th>CHON FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> <th></th>	$\frac{1}{1}  A2  \frac{1}{1}  t  (A)$	186.0 us (A)	60.85 dB	CHON FUNCTION WIDTH	FUNCTION VALUE	
3    4     Properties ▶      5         6         7         9         10         11          12	2 F 1 t	984.0 µs	-75.79 dBm			
4  Froperues    5  6    7  7    8  9    10  1    11  1    12  1	3					Dreparticab
6	4					Properues
7  8  9  More    9  10  10  10    11  11  10  10	6					
8  9  More    10  1  1 of 2    12  1  1	7					
10 11 12 12	9					More
	10					1 of 2
	11					
	12					
MSG STATUS	MSG			STATUS		
First tuning pulse duration: 0 186mS	First tuning pulse duration	n <sup>.</sup> 0 186mS				

File #: MC15343 Page 183 of 264

Agilent Spectrum Analyzer - Swept SA		1 1 -		
Marker 1 $\triangle$ 342.000 us	SENSE:I Trig Delay: 18	UT   ALIGN PARTIAL	02:26:44 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
	PNO: Fast +++ Trig: Video FGain:Low Atten: 10 dB		TYPE WWWWWWW DET NNNNN	Select Marker
10 dB/div Ref 0.00 dBm		Δ	Mkr1 342.0 µs 60.49 dB	1
Log	<b>1</b>	Δ2		
-10.0				Normal
30.0				
-40.0				
-50.0				Delta
-60.0			TRIG LVL	
-70.0				
-80.0	n and a state of the second			Fixed
-90.0		the second second to a different	ւ ու ու ա	T IACU
	lahan Industati 💷 💷	LAN KAR JANKUNG MANAKANI.		
Res BW 3.0 MHz	VBW 3.0 MHz	Sweep 3.	Span U HZ 000 ms (1001 pts)	05
	×			011
$\begin{array}{c} 1  \Delta 2  1  \mathbf{t}  (\Delta) \qquad \qquad 3 \end{array}$	342.0 μs (Δ) 60.49 dB			
2 F 1 t 1.	.194 ms -/5.58 dBm			
5				Properties►
6				
8				More
10				1 of 2
11 12				
MSG		STATUS		
Second tuning pulse durati	ion: 0 342mS			

Agilent Spectru	m Analyzer - Swept SA					
wµ⊥ Marker 3	RF 50 Ω DC		SENSE:INT Trig Delay: 29.00 ms	ALIGN PARTIAL	02:27:49 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
		PNO: Fast ↔↔ IFGain:Low	Trig: Video Atten: 10 dB		TYPE WWWWWWW DET NNNNN	Select Marker
10 dB/div	Ref 0.00 dBm			L	ΔMkr3 204.0 μs 59.20 dB	3
Log				∆1 <u>∆2</u>	<u>∧3∆4</u>	
-10.0				Y		Normal
-20.0						
-30.0						
-40.0						Dalta
-50.0						Deita
-60.0						
-70.0	d. Instru	and the second			And R. Catholical	
-80.0						Fixed⊳
-90.0	li te di sta	1.11				
Center 39	0.000000 MHz				Span 0 Hz	
Res BW 3	3.0 MHz	VBW 3	.0 MHz	Sweep 3	.000 ms (1001 pts)	Off
MKR MODE TH	RC SCL X		Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
1 Δ2 1 2 F 1	t (Δ) t	411.0 μs (Δ) 1.614 ms	59.83 dB -74.44 dBm			
<b>3</b> ∆4 1	t (Δ)	204.0 μs (Δ)	59.20 dB			Properties •
5		2.220 1115	-75.01 0.011			Froperaes
6						
8						More
10						1 of 2
11						
MSG				STATUS	3	<u> </u>
	ration: 0.204m	S Short 0.4	11mS Long			
		5 5101, 0.4				

File #: MC15343 Page 185 of 264







г

#### 4.10.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Test Description Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.					
Basic Standa	ard	47 CFR Part 15 subp	oart C,	and RSS-210		
UL LPG		80-EM-	-S0029	)		
		Frequency range		Measurement Point		
Fully configu	red sample scanned	30MHz – 1GHz		3 meter distance		
over the folic	wing frequency range	1GHz – 4GHz		3 meter distance		
Restricted Band Limits						
E		Limit (dBµV/m)				
Freq	uency (MHZ)	Quasi-Peak		Peak		
	30 - 88	40.00		NA		
	88 - 216	43.52		NA		
2	216 - 960	46.02		NA		
9	60 - 1000	54		NA		
Abov	e 1000 (FCC)	NA		54 (at 3-meter)		
	Fundamental Freq	uency Limits and Non-restricted bar	nd Har	monic Limits		
		Limit (dBµV/m) @	Limit (dBµV/m) @ 3m distance			
Frequency (MHz)		All harmonics except those in restric 20dB or	All harmonics except those in restricted bands must be attenuated b 20dB or more			
		Average - Fundamental		Peak - Fundamental		
	390	79.24		99.24		
Supplementa	Supplementary information: See section 4.10.3 for duty cycle information.					

File #: MC15343 Page 188 of 264

Figure 65 Radiated Emissions Graph (Below 1GHz)



File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*not saved\*

File #: MC15343 Page 189 of 264

## Figure 66 Radiated Emissions Graph (Above 1GHz)



# Table 86 - Radiated Emissions Data Points

Chamberlain KLIK2C Transmitter 390MHz, Config 6, Program 4 9VDC Battery Red:Horizontal, Green:Vertical												
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
390.0144	64.44	PK	16.1	2.3	82.84	-11.92	70.92	79.24	-8.32	26	347	Horz
390.0144	69.39	PK	16.1	2.3	87.79	-11.92	75.87	79.24	-3.37	114	121	Vert
780.030449	15.48	PK	21.8	3.4	40.68	-11.92	28.76	46	-17.24	79	118	Horz
780.028846	30.53	PK	21.8	3.4	55.73	-11.92	43.81	46	-2.19	85	142	Vert
1169.9549	90.59	PK	24.8	-57.24	58.15	-11.92	46.23	54	-7.77	29	225	Horz
1169.9729	93.56	PK	24.8	-57.24	61.12	-11.92	49.2	54	-4.8	43	130	Vert
1560.0752	79.64	PK	25.2	-55.66	49.18	-11.92	37.26	54	-16.74	213	100	Vert

## **Configuration 19# Test Data**

## 4.10.5 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made tuned to the transmit freque was operated and the spec standard.	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The device ctrum analyzer resolution bandwidth set per the appropriate			
Basic Stand	ard	47 CFR Part 15.231(c)			
Occupied Bandwidth Limits					
0.25% of Center Frequency (390MHz: 975.0kHz)					

#### **Table 87 Occupied Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #				
1	1	1				
Supplementary information: None						

#### Table 88 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements				
	dBc	% PWR			
10kHz	-20	99			
Supplementary information: None					

# Table 89 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
390MHz	51.36	104.03

## Figure 67 – Bandwidth Graph



## 4.10.6 Test Conditions and Results – Cease Operation

Test Description	Measurements were made tuned to the transmit freque was operated and the trans span at the fundamental fre	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The device smission time measured with the spectrum analyzer set to zero equency.			
Basic Stand	ard	47 CFR Part 15.231(a)			
	Cease Operation Limits				
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.					

#### **Table 90 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #				
1	1	1				
Supplementary information: None						

# Figure 68 Cease Operation Graph

gilent Spect	trum Anal	yzer - Swept SA								
<mark>XI</mark>	RF	: 50Ω D(		SEN	SE:INT		ALIGN PARTIAL	02:32:19 F	M Oct 02, 2012	Marker
Marker	1 650	).000 ms		Tuinu Minter		Avg Type	e: Log-Pwr	TRAC		Marker
			PNO: Fast ↔ IFGain:Low	Atten: 10 o	, 18			Di		Select Marker
								WIKET 6	50.0 ms	1
10 dB/div	Re	f 0.00 dBm						-69.	71 aBm	
-10.0										Nerwool
-20.0										Normai
20.0										
-30.0										
-40.0										
-50.0										Delta
									TRIG LVL	
-60.0	1 — †									
-70.0 🛛 🤨									lange and	
-80.0										Firedb
00.0										Fixed⊳
-90.0										
-								-		
Center .	390.00						•		span u Hz	
Res BW	3.0 1	HZ	VBW ;	3.0 MHZ			Sweep	20.00 s (	1001 pts)	Off
MKR MODE	TRC SCL		×	Y	FUN	ICTION FU	NCTION WIDTH	FUNCTIO	ON VALUE	
1 N	1 t		650.0 ms	-69.71 dB	m					
2										
3										Properties >
4										Fiopences
6										
7										
8										More
10										1
11										1012
12										
ISG							STATUS			,

## 4.10.7 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.							
Basic Stand	ard	FCC Part 15 Subpart A, 15.35						
Pulse Train Limits								
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.								

#### **Table 91 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #						
1	1	1						
Supplementary information: None								

## Table 92 Pulse Train Calculation

TX Frequency	Total TX time	Total Transmission period or 100ms whichever is lesser	DC Correction Factor (dB) $20 \log \left( \frac{PulseWidth}{Period} \right)$				
390MHz	(4x1.020)+(7x3.000)	78.4mS	-9.89				
Worst Case Duty Cycle: Worst case duty cycle was calculated over one message period. Manufacturer declared worst case duty cycle is -10.4. Measured duty cycle is used for all radiated emissions data.							

File #: MC15343 Page 196 of 264

## Figure 69 Pulse Train Graphs

Agilent Spectr	um Analyzer - Swe	pt SA								
<mark>IXI</mark> Morkor (	RF 50			SENS	E:INT			02:28:33 PM TRACE	4 Oct 02, 2012	Marker
marker	ΙΔ 165.000	ΣμS PNO IFGa	:Fast ↔ in:Low	Trig: Video Atten: 10 d	B	ULA LING	. LV9-1 WI	TYPE DE1		Select Marker
							Δ	Mkr1 1	83.0 µs	1
10 dB/div	Ref 0.00	dBm						26	6.41 dB	
Log										
-10.0										Normal
-20.0										
-30.0				140						
-40.0										
-50.0										Delta
-60.0									TRIG LVL	
-70.0			w							
.80.0	htelefense	nd dates and differ	///2 /	and the first state of the	an sand	high mine in the	In Contractor		dikana karp	
-00.0										Fixed
-90.0	and a based of	4m, <b>. 4</b> .0. d. (10)	N 4	la Jul 1 date	dia alut at	Libball, ibi	l la cultura da	hai dinka at	Ja, 61, 64,	
Center 3	90.000000 M	ИHz						S	pan 0 Hz	
Res BW	3.0 MHz		VBW 3	3.0 MHz		\$	Sweep 3.	000 ms (1	001 pts)	Off
MKR MODE 1	TRC SCL	×		Y	FUNC	TION FUI	NCTION WIDTH	FUNCTIO	N VALUE	
<u>1</u> Δ2	1 t (Δ)	183.	0 μs (Δ)	26.41 d	В					
2 F 3	1 t	984.	0 µs	-72.22 dBr	n					
4										Properties►
6										
7										
9										More
10										1 of 2
11										
MEG							STATUS			
MaG				-			STATUS			
First tun	ing pulse (	duration: 0	.183mS	S						

File #: MC15343 Page 197 of 264

Agilent Spectrum Analyzer - Swept SA				
IX      RF      50 Ω      DC      IX        Marker 1 Δ 360 000 μs      IX      IX	SENSE:INT		02:30:48 PM Oct 02, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast +++ IFGain:Low	Trig: Video Atten: 10 dB		TYPE WWWWWWW DET N N N N N N	Select Marker
		Δ	Mkr1 360.0 µs	1
10 dB/div Ref 0.00 dBm			14.42 UB	
-10.0				
-20.0				Normal
-30.0				
-40.0				
-50.0				Delta
-60.0			TRIG LVL	
-70.0		L the shear a	at domestic and the second	
-80.0	here have a standard from the second s		eranderika atalaharahara ser	Fixed⊳
-90.0	an an air an Airr an an	and the first of a	a Harata (Karata) a	
	in 11.00 all all a dhathathatha	a fan de la centre de la service de la s		
Res BW 3.0 MHz VBW 3	.0 MHz	Sweep 3.0	Span v Hz 000 ms (1001 pts)	
				ОП
-1 Δ2 1 t (Δ) 360.0 μs (Δ)	14.42 dB	FONCTION WIDTH	FONCTION VALUE	
2 F 1 t 600.0 µs	-74.58 dBm			
4				Properties►
6				
8				
9				More
10				1 of 2
12				
MSG		STATUS		
Second tuning pulse duration: 0.360	)mS			

File #: MC15343 Page 198 of 264

Agilent Spectrum Analyzer - Swept SA				
μ      RF      50 Ω      DC		ALIGN PARTIAL	02:30:01 PM Oct 02, 2012	Marker
Marker 3 ∆ 3.00000 ms PNO: Fast ↔ IFGain:Low	Trig Delay: 10.00 ms Trig: Video Atten: 10 dB	Avg Type: Log-Pwr	TYPE WWWWWW DET N N N N N N	Select Marker
10 dB/div Ref 0.00 dBm		Δ١	Mkr3 3.000 ms 25.53 dB	3
-10.0 -20.0				Normal
-30.0 -40.0 -50.0 -60.0		3∆4	TRIG LV	Delta
-70.0 -80.0 -90.0				Fixed⊳
Center 390.000000 MHz Res BW 3.0 MHz VBW 3	.0 MHz	Sweep 10	Span 0 Hz 0.00 ms (1001 pts)	Off
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	27.44 dB -73.58 dBm	CTION FUNCTION WIDTH	FUNCTION VALUE	
4      F      1      t      (Δ)      3.000 ms      (Δ)        4      F      1      t      2.900 ms      5      5      6      6      6      7	-71.82 dBm			Properties►
7 8 9 10 11 12				More 1 of 2
MSG		STATUS		
Short Pulse: 1.020mS, Long Pulse:	3.00mS	I		





File #: MC15343 Page 200 of 264

Image: Marker 7 169.600 ms  Trig Delay: -1.000 ms  Aug Type: Log-Pwr  TRACE 1 2 3 4 5 6    Trig: Video  Trig: Video
Marker / 169.600 ms Ing Delay1.000 ms Avg Type. Log-Pwr Type Water 12.3456
IFGain:Low Atten: 10 dB
10 dB/div Ref 0.00 dBm -71.64 dBm
Log
-30.0 -40.0 -50.0 -60.0
-70.0 2 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
Center 390.000000 MHz Span 0 Hz Res BW 3.0 MHz VBW 3.0 MHz Sweep 200.0 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION WIDTH FUNCTION VALUE
1    N    1    t    400.0 µs    -72.84 dBm      2    N    1    t    5.600 ms    -71.63 dBm      3    N    1    t    11.20 ms    -70.97 dBm      4    N    1    t    52.80 ms    -73.21 dBm      5    N    1    t    89.60 ms    -72.31 dBm      6    N    1    t    131.2 ms    -72.36 dBm
7      N      1      t      169.6 ms      -71.64 dBm        8      9         M        10        1      1      1        11         1      1        12
MSG STATUS
Period sweep

#### 4.10.8 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.								
Basic Standa	ard	47 CFR Part 15 subp	oart C,	and RSS-210					
UL LPG		80-EM-	-S0029	)					
		Frequency range		Measurement Point					
Fully configu	red sample scanned	30MHz – 1GHz		3 meter distance					
over the folic	owing frequency range	1GHz – 4GHz		3 meter distance					
Restricted Band Limits									
E		Limit (dB	Limit (dBµV/m)						
Freq	uency (MHZ)	Quasi-Peak		Peak					
	30 - 88	40.00		NA					
	88 - 216	43.52		NA					
2	216 - 960	46.02		NA					
9	60 - 1000	54		NA					
Abov	e 1000 (FCC)	NA		54 (at 3-meter)					
	Fundamental Freq	uency Limits and Non-restricted ban	ld Hari	monic Limits					
		Limit (dBµV/m) @	🕑 3m d	istance					
Frequency (MHz)		All harmonics except those in restric 20dB or	All harmonics except those in restricted bands must be attenuated by 20dB or more						
		Average - Fundamental		Peak - Fundamental					
	390	79.24		99.24					
Supplementary information: See section 4.10.7 for duty cycle information.									

File #: MC15343 Page 202 of 264





File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*not saved\*

Page 203 of 264

# Figure 71 Radiated Emissions Graph (Above 1GHz)



# Table 93 - Radiated Emissions Data Points

Chamberlain KLIK2C Transmitter 390MHz, Config 19, Type 1 9VDC Battery Red: Horizontal Green: Vertical												
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
390.016	62.66	QP	16.1	2.3	81.06	-9.89	71.17	79.24	-8.07	265	318	Horz
390.016	63.02	PK	16.1	2.3	81.42	-9.89	71.53	79.24	-7.71	265	318	Horz
390.017628	66.78	QP	16.1	2.3	85.18	-9.89	75.29	79.24	-3.95	338	124	Vert
390.017628	67.1	PK	16.1	2.3	85.5	-9.89	75.61	79.24	-3.63	338	124	Vert
780.033654	11.47	QP	21.8	3.4	36.67	-9.89	26.78	46	-19.22	79	116	Horz
780.032051	14.32	PK	21.8	3.4	39.52	-9.89	29.63	46	-16.37	79	116	Horz
780.032051	26.33	QP	21.8	3.4	51.53	-9.89	41.64	46	-4.36	282	133	Vert
780.032051	27.42	PK	21.8	3.4	52.62	-9.89	42.73	46	-3.27	282	133	Vert
1170.1473	88.35	PK	24.8	-57.23	55.92	-9.89	46.03	54	-7.97	202	225	Horz
1170.0812	93.67	PK	24.8	-57.24	61.23	-9.89	51.34	54	-2.66	259	132	Vert
1560.374	74.17	PK	25.2	-55.65	43.72	-9.89	33.83	54	-20.17	*	100	Vert
* Peak prescan d	lata, not max	kimized										

## 4.11 Configuration 15# Test Data

## 4.11.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.						
Basic Stand	ard	47 CFR Part 15.231(c)					
Occupied Bandwidth Limits							
0.25% of Center Frequency (390MHz: 975.0kHz)							

#### **Table 94 Occupied Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #						
1	1	1						
Supplementary information: None								

#### Table 95 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements		
	dBc	% PWR	
10kHz	-20	99	
Supplementary information: None			

# Table 96 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
390MHz	50.94	100.86

## Figure 72 – Bandwidth Graph



## 4.11.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the transmission time measured with the spectrum analyzer set to zero span at the fundamental frequency.			
Basic Standard		47 CFR Part 15.231(a)		
Cease Operation Limits				
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.				

#### **Table 97 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		
# Figure 73 Cease Operation Graph

Agilent Spectre	um Analyzer - Swept SA					
LXI	RF 50Ω D	)C	SENSE:INT	\Lambda ALIGN PARTIAL	01:56:14 PM Oct 02, 2012	Manlan
Marker 1	1 630.000 ms			Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6	Marker
		PNO: Fast ↔ IFGain:Low	┘ Trig: Video Atten: 10 dB			Select Marker
					-70 53 dBm	'
10 dB/div	Ref 0.00 dBm	<b>)</b>			-70.00 UBIII	
10.0					· · · ·	
-10.0						Normal
-20.0						Norma
20.0						
-30.0						
-40.0						
-50.0						Delta
					TRIG LVL	
-60.0						
-70.0	alar a bandar		heli an			
. 80.0						
-00.0						Fixed⊵
-90.0						
					<u>,</u>	
Center 3	90.000000 MHz				Span 0 Hz	
Res BW 🛛	3.0 MHz	VBW 3	3.0 MHz	Sweep	20.00 s (1001 pts)	Off
	rpel eei l	<u> </u>	V   F			•
		630.0 ms	-70.53 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	
2		000.0 ms	-70.00 0.011			
3						
4						Properties►
5						
7						
8						
9						More
10						1 of 2
11						
MSG				STATUS		
L					1	

## 4.11.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.						
Basic Stand	ard	FCC Part 15 Subpart A, 15.35					
Pulse Train Limits							
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.							

#### **Table 98 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #					
1	1	1					
Supplementary information: None							

#### Table 99 Pulse Train Calculation

TX Frequency	Total TX time	Total Transmission period or 100ms whichever is lesser	DC Correction Factor (dB) $20 \log \left( \frac{PulseWidth}{Period} \right)$			
390MHz	(3x1.020)+(8x3.02)	78.2	-9.16dB			
Worst Case Duty Cycle: Worst case duty cycle was calculated over normal period of 78.2mS not including the tuning pulses. The manufacturer declared duty cycle as -9.75. Calculated duty cycle is used for all radiated emissions data.						

## Figure 74 Pulse Train Graphs

							yzer - Swept SA	pectrum Anal	Agilent S
Marker	:54:34 PM Oct 02, 2012			NSE:INT	SEI Tria Dolor		50 Ω DC	RF	<mark>XI</mark>
Select Marker		Log-rwi	Arg type	eo ⊧dB	Trig: Vide Atten: 10	PNO: Fast ↔→ IFGain:Low	80.000 µs	er 1 A 1	Mark
1	(r1 180.0 µs 30 64 dB	ΔN					6 0 00 dDm	ana Dei	
	00.04 00						r v.vv aBm	div Re	10 dB/ Log <b>F</b>
									-10.0 -
Norma									-20.0
									-30.0
					1Δ2				40.0
Dolta									-40.0
Della									-50.0
									-60.0 =
	and a state of the state	وريان المربعة المع	al a state to the	المحد المحال	san alah a		till at an an a difference of	ي بيالي م	-70.0
Fixed	and the second	t the state has been	ne an an an An An	and a second data	la control de la	<mark>///2</mark> _	an activity of the constant of	a forma de service	-80.0
	an an an An Anta	and the first		and the state of the	ation and		والمتحد والمتحد والمتحد		-90.0
		di kalili di sasihi	PARTIN.			a ta da ser a s	alite a la destructura de la compañía de la compañí	<b>llud</b> illi	Ľ
	Span 0 Hz						00000 MHz	er 390.00	Cente
Of	ms (1001 pts)	weep 3.00			S.U IVIMZ	VBW 3	HZ	SWV 3.U IVI	Res E
	FUNCTION VALUE	CTION WIDTH	TION FU	FUNC	Y		. ×	IDE TRC SCL	MKR MO
				dB Bm	-75.91 dE	180.0 μs (Δ) 990.0 μs	(Δ)	21 t 51 t	1 Δ 2 F
<b>B</b>									3
Properties									4
									6
									7
More									9
1 of 2									10 11
									12
<u> </u>		STATUS							ISG
					2	n: 0 100mC	vulao duratia		irot (
					כ		uise uuralic	սոոց բ	1131

File #: MC15343 Page 211 of 264

Agilent Spectrum Analyzer - Swept SA				
$\begin{array}{c c c c c c c c c } K & RF & 50 \Omega & DC & \\ \hline Markor 1 & 254 & 000 & uc & \\ \hline \end{array}$	SENSE:INT		01:53:42 PM Oct 02, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB	111g 1 ypc. 20g 1 m		Select Marker
		Δ	Mkr1 354.0 µs	1
10 dB/div Ref 0.00 dBm			18.84 ḋB	
Log				
-10.0				Normal
-20.0				
-30.0				
-40.0				
l -50.0 −−−−− − − − − − − − − − − − − − − −				Delta
-60.0			TRIG LVL	
-70.0				
-80.0		And the set of the set of		Fixed
-90.0				Fixeu
, the set of the set o	lil klahom La Klavana dia di	. الشاري يتبادله الشيخ . البطر شمار ال	وفالأ الاراطا لويافيه مقالا وها	
Center 390.000000 MHz			Span 0 Hz	
Res BW 3.0 MHz VBW 3	8.0 MHz	Sweep 3.	000 ms (1001 pts)	Off
MKR MODE TRC SCL X	Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
<b>1</b> Δ2 1 t (Δ) 354.0 $\mu$ s (Δ)	18.84 dB			
3	-70.05 dBm			
5				Properties►
6				
8				
9				More
				1 of 2
12				
MSG		STATUS		
Second tuning pulse duration: 0.354	lmS			
cocona taning paloo daration. 0.00-				

File #: MC15343 Page 212 of 264

Agilent Spectrum Analyzer - Swept SA			
K         RF         50 Ω         DC           Marker 3 Δ 3 02000 ms         10000 ms         10000 ms         10000 ms	SENSE:INT ALIGN PARTIAL	02:01:35 PM Oct 02, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB		Select Marker
10 dB/div Ref 0.00 dBm	Δ	Mkr3 3.020 ms 25.85 dB	3
Log			
-10.0			Normal
-20.0			
-30.0	- 204		
-40.0			<b>D</b> - 14 -
-50.0			Deita
-60.0			
-70.0	and the second se		
-80.0			Fixed⊳
	Luciation .		
Center 390.000000 MHz		Span 0 Hz	
Res BW 3.0 MHz VBW 3	.0 MHz Sweep 1	0.00 ms (1001 pts)	Off
MKR MODE TRC SCL X	Y FUNCTION FUNCTION WIDTH	FUNCTION VALUE	
1 Δ2 1 t (Δ) 1.020 ms (Δ) 2 F 1 t 760.0 μs	-72.67 dB		
<b>3</b> Δ4 1 t (Δ) 3.020 ms (Δ) 4 F 1 t 2740 ms	25.85 dB -72 79 dBm		Properties ▶
5			Troperacos
7			
9			More
10			1 of 2
12			
MSG	STATUS	;	]
Pulse Duration: Short Pulse 1.020m	S, Long Pulse 3.020mS	1	

File #: MC15343 Page 213 of 264

Agilent Spectrum Analyzer - Swept SA					
K RF 50 Ω DC		SENSE:INT	ALIGN PARTIAL Ava Type: Loa-Pwr	01:57:53 PM Oct 02, 2012 TRACE 1 2 3 4 5 6	Marker
	PNO: Fast ↔→ IFGain:Low	Trig: Video Atten: 10 dB			Select Marker
10 dB/dia Bef 0 00 dBm				-71.97 dBm	5
-10.0					Normal
-20.0					Norma
-30.0					
-40.0					
-50.0				TPICILY	Delta
		<u>4</u>		5	
-70.0 V V V		r e ville stratuter	the states of the base back descent		
-80.0					Fixed⊳
-90.0					
Center 390.000000 MHz				Span 0 Hz	
Res BW 3.0 MHz	VBW 3	.0 MHz	Sweep 1	00.0 ms (1001 pts)	Off
MKR MODE TRC SCL X		Y FUN	CTION FUNCTION WIDTH	FUNCTION VALUE	
1 N 1 t 2 N 1 t	600.0 µs 6.400 ms	-71.57 dBm -72.26 dBm			
3 N 1 t	11.60 ms	-72.49 dBm			Properties >
5 N 1 t	89.80 ms	-71.97 dBm			Fiopenies
6 7					
8					More
10					1 of 2
11 12					
MSG			STATUS	]	
Number of Pulses: 3 Sh	ort 8 l ong	and period sca	<u> </u>		
	ort, o cong,	and period 30d			

г

#### 4.11.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.							
Basic Standa	ard	47 CFR Part 15 sub	part C,	and RSS-210				
UL LPG		80-EM	-S0029	)				
		Frequency range		Measurement Point				
Fully configu	ired sample scanned	30MHz – 1GHz		3 meter distance				
over the folic	owing frequency range	1GHz – 4GHz		3 meter distance				
Restricted Band Limits								
		Limit (dB	Limit (dBµV/m)					
Freq	luency (MHZ)	Quasi-Peak		Peak				
30 - 88		40.00		NA				
	88 - 216	43.52		NA				
	216 - 960	46.02		NA				
9	60 - 1000	54		NA				
Abov	e 1000 (FCC)	NA		54 (at 3-meter)				
	Fundamental Freq	uency Limits and Non-restricted bar	nd Har	monic Limits				
		Limit (dBµV/m) @	🕑 3m d	istance				
Freq	juency (MHz)	All harmonics except those in restric 20dB or	ted ba more	nds must be attenuated by				
		Average - Fundamental		Peak - Fundamental				
390		79.24	99.24					
Supplementa	ary information: See s	ection 4.11.3 for duty cycle information	).					

File #: MC15343 Page 215 of 264





File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*not saved\*

File #: MC15343 Page 216 of 264





Table 100 - Radiated Emissions Data Points	Table	100	- Radiated	Emissions	Data	Points
--	-------	-----	------------	-----------	------	--------

Chamberlain KLIK2C Transmitter 390MHz, Config 15, Type 1 9VDC Battery Red: Horizontal Green: Vertical												
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
390.016026	62.29	PK	16.1	2.3	80.69	-9.16	71.53	79.24	-7.71	264	319	Horz
390.016026	66.97	PK	16.1	2.3	85.37	-9.16	76.21	79.24	-3.03	335	122	Vert
780.032051	13.34	PK	21.8	3.4	38.54	-9.16	29.38	46	-16.62	45	115	Horz
780.032051	26.92	PK	21.8	3.4	52.12	-9.16	42.96	46	-3.04	282	130	Vert
1170.0992	88.02	PK	24.8	-57.24	55.58	-9.16	46.42	54	-7.58	218	225	Horz
1170.0631	93.18	PK	24.8	-57.24	60.74	-9.16	51.58	54	-2.42	288	129	Vert
1560.374	74.63	PK	25.2	-55.65	44.18	-9.16	35.02	54	-18.98	*	101	Vert
* Peak prescan data, not maximized												

# 4.12 Configuration 11# Test Data

## 4.12.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.					
Basic Stand	ard	47 CFR Part 15.231(c)				
Occupied Bandwidth Limits						
0.25% of Center Frequency (390MHz: 975.0kHz)						

#### **Table 101 Occupied Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #	
1	1	1	
Supplementary information: None			

#### Table 102 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements					
	dBc	% PWR				
10kHz	-20	99				
Supplementary information: None						

## Table 103 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
390MHz	54.29	104.96

## Figure 77 – Bandwidth Graph



## 4.12.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made tuned to the transmit freque was operated and the trans span at the fundamental fre	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The device smission time measured with the spectrum analyzer set to zero equency.		
Basic Stand	ard	47 CFR Part 15.231(a)		
Cease Operation Limits				
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.				

#### **Table 104 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

# Figure 78 Cease Operation Graph

Agilent Spect	rum A	nalyze	er - Swept	SA								
	1.0	RF	50 Ω	DC			ENSE:INT	<u>^</u>	ALIGNPARTIAL	11:19:44 /	M Sep 26, 2012	Marker
Marker	18	80.(	000 m	S	PNO: Fast ↔ IFGain:Low	→ Trig: Vid Atten: 10	eo )dB	Avg Typ	e: Log-Pwr	۳۲ Mkr1 8 -69	80.0 ms	Select Marker 1
Log	ŀ	ker i	0.00 a	BM						-00.		
-10.0		_										
-20.0												Normal
20.0												
-30.0											TRICLEVI	
-40.0											TRIGLYL	
-50.0												Delta
-60.0	<u> 1 –</u>	_										
-70.0	<u>/</u>											
-80.0												Fixed
90.0												Fixed
-50.0												
Center 3	390.	000	000 M	Hz						ę	Span 0 Hz	
Res BW	3.0	MH	z		VBW	3.0 MHz			Sweep	20.00 s (	(1001 pts)	Off
MKR MODE	TRC	SCL		X		Y	F	UNCTION FL	JNCTION WIDTH	FUNCTI	ON VALUE	•
1 N	1	t			880.0 ms	-69.98 d	Bm					
2												
4												Properties▶
5												
7												
8												More
10												1 of 2
11												. 012
										1		
MSG									STATUS			

## 4.12.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made tuned to the transmit freque train was measured with th	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The pulse e spectrum analyzer set to zero span at the fundamental frequency.		
Basic Standard FCC Part 15 Subpart A, 15.35				
Pulse Train Limits				
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.				

#### **Table 105 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

#### Table 106 Pulse Train Calculation

		Total Transmission	DC Correction Factor (dB)				
TX Frequency	Total TX time	whichever is lesser	$20\log\left(rac{PulseWidth}{Period} ight)$				
390MHz	(2x1.02)+(9x3.04)	78.6	-8.54				
Worst Case Duty Cycle: Worst case duty cycle was calculated over one period of 78.6mS and it did not include the tuning pulses. Manufacturer declared duty cycle was -9.13dB. The measured duty cycle is used for all radiated emissions data.							

File #: MC15343 Page 223 of 264

#### Figure 79 Pulse Train Graphs

Agilent Spectrum Anal	yzer - Swept SA					
L RF	= 50 Ω DC		SENSE:INT	ALIGN PARTIAL	11:26:10 AM Sep 26, 2012	Marker
Marker 1 $\Delta$ 1	86.000 µs		Trig Delay: -1.000	ms Avg Type: Log-Pwr		
	1	PNU: ⊦ast ↔⊷ FGain:Low	Atten: 10 dB		DET N N N N N N	Soloct Markor
					AMkr1 196 0 us	
_				4	47.50 dB	1
10 dB/div Re	f 0.00 dBm				47.30 UB	
-10.0						
-10.0		4	4.0			Normal
-20.0		<u> </u>	Δ2			
-30.0		┼──╔┲╼╃─				
-40.0		U			TRIG LVL	
50.0						Delta
-50.0						Dena
-60.0						
-70.0						
-80.0		<u> </u>			new sector a president sector de la sector de	<b>-</b>
00.0						Fixed⊳
-90.0 July a Harach	ապես ենել հետոն	di la	فاستأد وبالتأري تشاويه والربية	and the state of this constant of the state	ան նին նեն և ներեցել են է ի	
Contor 200.00					Spop 0 Hz	
Dec BW 3.0 M	10000 IVIEZ		2 0 MU-2	Swoon 3	5µaii 0 fiz	
Res BW J.0 W		V DVV .		Sweep J		Off
MKR MODE TRC SCI	_ ×		Y	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	
$1 \Delta 2 1 t$	(Δ)	186.0 μs (Δ)	47.50 dB			
2 F 1 t	2	954.0 μs	-75.32 dBm			
4						Properties▶
5						-
7						
8						
9						More
10						1 of 2
12						
NEC				OTATIV		
				STATU	3	
First tuning p	oulse duration	: 0.186mS	5			

File #: MC15343 Page 224 of 264

Agilent Spectrum Analyzer - Swept SA			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	SENSE:INT	ALIGN PARTIAL 11:29:31 AM Sep 26, 2012	Marker
PNO: Fast ↔→ IFGain:Low	Trig: Video Atten: 10 dB		Select Marker
		ΔMkr1 354.0 με	1
10 dB/div Ref 0.00 dBm		47.62 de	
Log			
-10.0		140	Normal
-20.0			
-30.0			
-40.0			
-50.0			Delta
-60.0			
-70.0	ale to all the or t		
-80.0	2	and the second secon	Fixed⊳
-90.0 The second state of the second	Lakar et di	an an indunation with	T IAGU
and a little confect which is a finder the big data is so to be real or due to be the state of the state of the	, NA BARANA, IYA IYA ANA	nal (Bandh), Madah ak 🛙 Kabihadi dalam da bihang	
Center 390.000000 MHz	0 MIL-	Span 0 Hz	
	.0 MHZ	Sweep 3.000 ms (1001 pts	Off
	Y FUNCTION	FUNCTION WIDTH FUNCTION VALUE	
2 + 1 + 1 = 1.692  ms	-75.76 dBm		
3			Properties >
5			Troperacov
6			
8			More
10			1 of 2
11			1012
12			
MSG		STATUS	
Second tuning pulse duration: 0.354	mS		

File #: MC15343 Page 225 of 264

Agilent Spectrum Analyzer - Swept SA			
Image: Marker 2 A 2 04000 mag	SENSE:INT ALIGN PARTIAL	11:28:33 AM Sep 26, 2012	Marker
PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB		Select Marker
	۵	Mkr3 3.040 ms	3
10 dB/div Ref 0.00 dBm		46.44 aB	
-10.0			
-20.0	<b>3∆4</b>		Normal
-30.0		TRIGUM	
-40.0			Dalta
-50.0			Deita
-60.0			
	Long Mark	<u></u>	
-80.0			Fixed⊳
-90.0			
Contor 200 000000 MHz	dan se reduiner	Spop 0 Hz	
Res BW 3.0 MHz VBW 3	.0 MHz Sweep 1	0.00 ms (1001 pts)	Off
MKR MODE TRC SCL ×	Y FUNCTION FUNCTION WIDTH	FUNCTION VALUE	0.1
$1 \Delta 2 1 t (\Delta)$ 1.020 ms (Δ)	46.57 dB -74.32 dBm		
<b>3</b> Δ4 1 t (Δ) 3.040 ms (Δ)	46.44 dB		
4 F 1 t 2.720 ms	-74.12 dBm		Properties►
6			
8			
9			More
11			1 of 2
12			
MSG	STATUS	5	
Message pulse duration: Short Puls	e 1.020mS, Long Pulse 3.040	nS	



pt SA	
Ω DC SENSE:INT ALIGN PARTIAL 11:27:00 AM Sep 26, 2012 Trig Delay: -1.000 ms Avg Type: Log-Pwr TRACE 12.3.4.5.6	Marker
PNO: Fast + Trig: Video IFGain:Low Atten: 10 dB Det NNNN Sel	ect Marker
	Norma
	Delta
	Fixed▷
VIHz     Span 0 Hz       VBW 3.0 MHz     Sweep 55.00 ms (1001 pts)       ×     Y	Of
	Properties)
	More 1 of 2
STATUS	
: 2 Short, 9 Long	

File #: MC15343 Page 227 of 264

Agilent Spectrum Analyzer - Swept SA				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	SENSE:INT		11:23:16 AM Sep 26, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast +++ IFGain:Low	Trig: Video Atten: 10 dB	nig type. Log t ni		Select Marker
10 dB/div Ref 0.00 dBm		N	72.57 dBm	5
-20.0				Normal
-30.0 -40.0 -50.0 -60.0				Delta
-70.0 2				Fixed⊳
Center 390.000000 MHz Res BW 3.0 MHz VBW 3	3.0 MHz	Sweep 10	Span 0 Hz 0.0 ms (1001 pts)	Off
	Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
2     N     1     t     400.0 ms       2     N     1     t     6.200 ms       3     N     1     t     11.40 ms       4     N     1     t     52.60 ms       5     N     1     t     90.00 ms       6	-72.76 dBm -72.46 dBm -72.28 dBm -72.57 dBm			Properties▶
7 8 9 10 11 12				More 1 of 2
MSG		STATUS		
Period scan		I		

#### 4.12.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.							
Basic Standa	ard	47 CFR Part 15 sub	part C,	and RSS-210			
UL LPG		80-EM	-S0029	)			
		Frequency range		Measurement Point			
Fully configu	ired sample scanned	30MHz – 1GHz		3 meter distance			
over the follo	owing frequency range	1GHz – 4GHz		3 meter distance			
		<b>Restricted Band Limits</b>					
		Limit (dBµV/m)					
Freq	luency (MHZ)	Quasi-Peak		Peak			
	30 - 88	40.00		NA			
	88 - 216	43.52		NA			
	216 - 960	46.02		NA			
9	60 - 1000	54		NA			
Abov	e 1000 (FCC)	NA		54 (at 3-meter)			
	Fundamental Freq	uency Limits and Non-restricted bar	nd Har	monic Limits			
		Limit (dBµV/m) (	🗊 3m d	listance			
Freq	juency (MHz)	All harmonics except those in restric 20dB or	I harmonics except those in restricted bands must be attenuated by 20dB or more				
		Average - Fundamental		Peak - Fundamental			
<u> </u>			99.24				
Supplementa	ary information: See s	ection 4.12.3 for duty cycle information	1.				

File #: MC15343 Page 229 of 264

Figure 80 Radiated Emissions Graph (Below 1GHz)



File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*nat saved\*

File #: MC15343 Page 230 of 264

#### Figure 81 Radiated Emissions Graph (Above 1GHz)



Chamberlain												
KLIK2C Transmi	tter											
390MHz, Config 11, Type 3												
9VDC Battery												
Red: Horizontal Green: Vertical												
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
390.015995	61.45	QP	16.1	2.3	79.85	-8.54	71.31	79.24	-7.93	264	320	Horz
390.015995	61.77	PK	16.1	2.3	80.17	-8.54	71.63	79.24	-7.61	264	320	Horz
390.015995	65.6	QP	16.1	2.3	84	-8.54	75.46	79.24	-3.78	336	123	Vert
390.015995	65.89	PK	16.1	2.3	84.29	-8.54	75.75	79.24	-3.49	336	123	Vert
780.033654	11.02	QP	21.8	3.4	36.22	-8.54	27.68	46	-18.32	107	112	Horz
780.033654	13.86	PK	21.8	3.4	39.06	-8.54	30.52	46	-15.48	107	112	Horz
780.033654	25.28	QP	21.8	3.4	50.48	-8.54	41.94	46	-4.06	267	131	Vert
780.033654	26.53	PK	21.8	3.4	51.73	-8.54	43.19	46	-2.81	267	131	Vert
1170.0251	87.55	PK	24.8	-57.24	55.11	-8.54	46.57	54	-7.43	23	225	Horz
1169.8707	92.43	PK	24.8	-57.24	59.99	-8.54	51.45	54	-2.55	91	130	Vert
1560.374	73.95	PK	25.2	-55.65	43.5	-8.54	<u>34.9</u> 6	54	-19.04	*	100	Vert
* Peak prescan data, not maximized												

# 4.13 Configuration 4# Test Data

## 4.13.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.					
Basic Stand	ard	47 CFR Part 15.231(c)				
Occupied Bandwidth Limits						
0.25% of Center Frequency (390MHz: 975.0kHz)						

#### **Table 108 Occupied Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

#### Table 109 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements				
	dBc	% PWR			
10kHz	-20	99			
Supplementary information: None					

# Table 110 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
390MHz	53.11	102.75

### Figure 82 – Bandwidth Graph



## 4.13.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made tuned to the transmit freque was operated and the trans span at the fundamental fre	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The device smission time measured with the spectrum analyzer set to zero equency.		
Basic Stand	ard	47 CFR Part 15.231(a)		
Cease Operation Limits				
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.				

#### **Table 111 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

# Figure 83 Cease Operation Graph

Agilent Spectrum Analyzer - Swept SA				
L RF 50Ω DC	SENSE:INT	\Lambda ALIGN PARTIAL	01:56:22 PM Sep 25, 2012	Marker
Marker 1 569.968 ms		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6	WIAIKCI
PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB			Select Marker
			Mkr1 570.0 ms	1
10 dB/div Ref 0.00 dBm			-21.41 dBm	
-10.0				
				Normal
-20.0				
-30.0				
-40.0				
				D - 14 -
-50.0			TRIGTVL	Deita
-60.0				
70.0				
-80.0				Fixed⊳
-90.0				
Center 390.000000 MHz			Span 0 Hz	
Res BW 3.0 MHz VBW	3.0 MHz	Sweep	20.00 s (1001 pts)	
		- 100p	20100 0 (1001 ptc)	ΟΠ
MKR MODE TRC SCL X	Y FU	NCTION FUNCTION WIDTH	FUNCTION VALUE	
1 N 1 t 570.0 ms	-21.41 dBm			
3				
4				Properties►
5				•
6				
0				
9				More
10				1 of 2
11				1012
12				
MSG		STATUS		

## 4.13.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.					
Basic Standard		FCC Part 15 Subpart A, 15.35				
Pulse Train Limits						
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.						

#### **Table 112 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #		
1	1	1		
Supplementary information: None				

#### Table 113 Pulse Train Calculation

TX Frequency	Total TX time	Total Transmission Period or 100ms whichever is lesser	DC Correction Factor (dB) $20 \log \left( \frac{PulseWidth}{Period} \right)$				
390MHz	(7x1.02mS)+(2x2.0mS)+(2x3.00mS)	82mS	-13.5				
Worst Case Duty Cycle: Worst case was calculated using transmit time over 82mS not including tuning pulses. Manufacturer declares worst case duty cycle as -6.74dB and this will be used for emission level calculation.							

File #: MC15343 Page 237 of 264

## Figure 84 Pulse Train Graphs

								m Analyzer - Swept SA	gilent Spectr
Marker	M Sep 25, 2012	01:46:45P			NSE:INT	SEI		RF 50 Ω DC	( <mark>     L</mark> Aarkar (
Select Marker		TY	. Log-r wi	ULA INA	dB	Trig: Vide Atten: 10	PNO: Fast ↔ IFGain:Low	Δ 192.000 μs	harker
1	92.0 µs 3.85 dB	Mkr1 1	Δ					Ref 0.00 dBm	0 dB/div
									og
Norma									10.0
Norma									20.0
									80.0
									io.o
Delt									50.0
	TRIG LVL								60.0
						1Δ2			70.0
Fixed	terne ter	al kana	and a start of the party	postadio		history and the second second		Manage the physical strength	80.0
i ixea	1					. ariir		i i i i i i i	30.0
	hill, all a		din Alianda (da.	A LANDAR	lille stable		ka a Jin 🔰 🕴	and a block of the dealer of the later of the	
	pan 0 Hz	5						0.000000 MHz	enter 3
0	1001 pts)	uuu ms (	sweep 3.			3.U IVIMZ	VBW 3	3.U IVIMZ	es BW
	IN VALUE	FUNCTI	ICTION WIDTH	rion Fui	FUNC	Y 2.05	400.0	RC SCL X	KR MODE
					aB 3m	-77.86 dE	192.0 μs (Δ) 990.0 μs	τ (Δ) t	1 <u>77</u> 2 F
Broportios									3
Properues									4 5
									6
									8
Mor									9
1 of									1
									12
			STATUS						3G
			i			S	n <sup>.</sup> 0 192mS	na pulse duratio	rst tun

File #: MC15343 Page 238 of 264

Agilent Spectrum Analyzer - Swept SA				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	SENSE:INT	ALIGN PARTIAL	01:54:07 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
PNO: Fast ↔→ IFGain:Low	Trig: Video Atten: 10 dB			Select Marker
		۱Δ	<u> Mkr1 336.0 μs</u>	1
10 dB/div Ref 0.00 dBm			51.59 dB	
_10.0				
20.0				Normal
-20.0				
-30.0				
-40.0				<b>D</b> - 14 -
-50.0			TRIG LVL	Delta
-60.0				
		مريال المنار الرجم أرب بالمشار	مرويد ليأد بناأن جمارة لمرد أشما الم	
-80.0				Fixed⊳
- <sup>900</sup> and a strategic density of the second strategic density of the	isterio di di d	istan in the	وروار وأروا أوروا والمرور والا	
		Line has an call which		
Res BW 3.0 MHz VBW 3	.0 MHz	Sweep 3.0	5pan 0 H2 00 ms (1001 pts)	
				οπ
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	51.59 dB	IUN FUNCTION WIDTH	FUNCTION VALUE	
2 F 1 t 1.632 ms	-73.09 dBm			
4				Properties►
5				
7				
8				More
10				1 of 2
11 12				
MSG		STATUS		
Second tuning pulse duration: 0.336	oms			

Agilent Spectrum Analyzer - Swept SA							
Marker 3 Δ 2.00000 ms	SENSE:INT Trig Delay: 99.00 ms	Avg Type: Log-Pwr	01:53:00 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker			
PNO: Fast ↔ IFGain:Low	Atten: 10 dB		DET N N N N N N	Select Marker			
10 dB/div Ref 0.00 dBm		ΔM	kr3 2.000 ms 51.77 dB	3			
-10.0	A1A2		3/4				
-20.0				Normal			
-30.0							
-40.0				Delta			
-50.0			TRIG LVL	Dena			
	Literal shifts and shifts at the		a terrestitudi essette este de altre				
-80.0		<sup>44</sup>		Fixed⊳			
-90.0	an del hol accordinate		hat i sural mu				
Center 390.000000 MHz		II	Span 0 Hz				
Res BW 3.0 MHz VBW	3.0 MHz	Sweep 10.0	0 ms (1001 pts)	Off			
MKR         MODE         TRC         SCL         ×           1         Δ2         1         t         (Δ)         1.020 ms         (Δ)	Y FUNCTIO 51.74 dB	N FUNCTION WIDTH	FUNCTION VALUE				
2 F 1 t 3.300 ms 3 Δ4 1 t (Δ) 2.000 ms (Δ)	-73.38 dBm 51.77 dB						
4 F 1 t 6.300 ms	-73.39 dBm			Properties►			
6 7							
8 9				More			
10				1 of 2			
12							
MSG							
Message pulse duration: 1.020mS	Short, 2.0mS Med	num					

File #: MC15343 Page 240 of 264

Agilent Spectrum Analyzer - Swept SA					
μ         RF         50 Ω         DC           Marker 3 Δ         1.02000 ms		SENSE:INT Trig Delay: 87.00 ms	ALIGN PARTIAL Avg Type: Log-Pwr	01:49:53 PM Sep 25, 2012 TRACE 1 2 3 4 5 6	Marker
	PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB		TYPE WWWWWWW DET N N N N N N	Select Marker
10 dB/div Ref 0.00 dBm			۵	Mkr3 1.020 ms 52.11 dB	3
-10.0		1.0			
-20.0				304	Normal
-30.0					
-40.0					
-50.0					Delta
-60.0				TRIG LVL	
-70.0					
-80.0			<u> </u>		Fixed
-90.0					I IACU/
collineate treat le		ենային հայնքների	dan adatan	L.a., bille	
Center 390.000000 MHz Res BW 3.0 MHz	VBW 3	.0 MHz	Sweep 1	Span 0 Hz 0.00 ms (1001 pts)	Off
MKRI MODEL TRCI SCLI X		Y FUN	TION FUNCTION WIDTH	FUNCTION VALUE	
1 Δ2 1 t (Δ)	3.000 ms (∆)	52.27 dB			
2 + 1 t <b>3</b> $\Delta 4$ 1 t ( $\Delta$ )	1.040 ms 1.020 ms (Δ)	-73.66 dBm 52.11 dB			
4 F 1 t	7.020 ms	-73.50 dBm			Properties►
6					
8					
9					More 1 of 2
11					1 01 2
MSG	<u> </u>			S	
Message Pulse duration:	3.000mS L	.ong			



File #: MC15343 Page 242 of 264



#### 4.13.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Measurements were 16/ANSI C63.4:2003 EUT separation dist with the receive ante Final measurements EUT 360° and adjust investigated in both	surements were made in a 10-meter semi-anechoic chamber that complies to CISPR NSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth the receive antenna located at various heights in both horizontal and vertical polarities. I measurements (quasi-peak or average as noted) were then performed by rotating the 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were stigated in both horizontal and vertical antenna polarity, where applicable.					
Basic Standa	ard	47 CFR Part 15 subp	47 CFR Part 15 subpart C, and RSS-210				
UL LPG		80-EM-	80-EM-S0029				
		Frequency range		Measurement Point			
Fully configu	red sample scanned	30MHz – 1GHz		3 meter distance			
over the folic	owing frequency range	1GHz – 4GHz		3 meter distance			
		<b>Restricted Band Limits</b>					
		Limit (dBj	Limit (dBµV/m)				
Freq	uency (MHZ)	Quasi-Peak		Peak			
30 - 88		40.00		NA			
	88 - 216	43.52		NA			
2	216 - 960	46.02		NA			
9	60 - 1000	54		NA			
Abov	e 1000 (FCC)	NA		54 (at 3-meter)			
	Fundamental Freq	uency Limits and Non-restricted ban	d Harı	monic Limits			
		Limit (dBµV/m) @ 3m distance					
Frequency (MHz)		All harmonics except those in restricted bands must be attenuated 20dB or more					
		Average - Fundamental		Peak - Fundamental			
	390	79.24		99.24			
Supplementary information: See section 4.13.3 for duty cycle information.							
File #: MC15343 Page 244 of 264

Figure 85 Radiated Emissions Graph (Below 1GHz)



File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*not saved\*

File #: MC15343 Page 245 of 264

### Figure 86 Radiated Emissions Graph (Above 1GHz)



	Table 1	14 -	Radiated	Emissions	Data	<b>Points</b>
--	---------	------	----------	-----------	------	---------------

Chamberlain	Chamberlain											
KLIK2C Transmit	KLIK2C Transmitter											
390MHz, Contig	4, Program 4	4										l
9VDC Battery	Croon Nortio	al										
Red:Honzontai, C	Jreen: veruci	ai	1	1	1	1	1	<del></del>	1	<b></b>	1	<u> </u>
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity
390.012821	58.43	PK	16.1	2.3	76.83	-6.74	70.09	79.24	-9.15	25	348	Horz
390.012821	63.79	PK	16.1	2.3	82.19	-6.74	75.45	79.24	-3.79	113	128	Vert
780.024039	11.94	PK	21.8	3.4	37.14	-6.74	30.4	46	-15.6	81	115	Horz
780.024039	26.15	РК	21.8	3.4	51.35	-6.74	44.61	46	-1.39	74	139	Vert
1170.113	74	PK	24.8	-57.24	41.56	-6.74	34.82	54	-19.18	*	125	Horz
1169.9689	90.12	РК	24.8	-57.24	57.68	-6.74	50.94	54	-3.06	119	130	Vert
1560.374	70.9	PK	25.2	-55.65	40.45	-6.74	33.71	54	-20.29	*	100	Vert
* Peak prescan d	lata, not max	ximized										

# 4.14 Configuration 13# Test Data

## 4.14.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.			
Basic Standard		47 CFR Part 15.231(c)		
Occupied Bandwidth Limits				
0.25% of Center Frequency (390MHz: 975.0kHz)				

### Table 115 Occupied Bandwidth Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #	
1	1	1	
Supplementary information: None			

## Table 116 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth	Occupied Bandwidth Requirements				
	dBc	% PWR			
10kHz	-20	99			
Supplementary information: None					

# Table 117 Occupied Bandwidth Test Result Summary

Center Frequency	20dB BW Measured (kHz)	99% BW Measured (kHz)
390MHz	137.9	274.75

### Figure 87 – Bandwidth Graph



### 4.14.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the transmission time measured with the spectrum analyzer set to zero span at the fundamental frequency.				
Basic Standard		47 CFR Part 15.231(a)			
	Cease Operation Limits				
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.					

### **Table 118 Cease Operation Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #	
1	1	1	
Supplementary information: None			

## Figure 88 Cease Operation Graph

Agilent Spectru	ım Analyzer	- Swept SA								
LXI	RF	50Ω DC		SEI	VSE:INT		ALIGN PARTIAL	01:42:20	PM Oct 02, 2012	Maulson
Marker 1	394.00	0 ms				Avg Ty	pe: Log-Pwr	TRA	CE 123456	Marker
			PNO: Fast ↔↔ IFGain:Low	<sup>1</sup> Trig: Vide Atten: 10	o dB			TY D	PE WWWWWWW ET N N N N N N	Select Marker
								Mkr1_3	94.0 ms	1
10 dB/div	Ref 0.	00 dBm						-70.	19 dBm	
.10.0										
10.0										Normal
-20.0										
-30.0										
-40.0										
-50.0									TRICLIVI	Delta
-60.0 🔼 1 =									INGEVE	
-70.0										
-80.0										Fixed⊳
-90.0										
								_		
Center 39	90.00000 3 0 MHz	DO MHZ		0 MH2			Swoon	20.00 c /	Span 0 Hz	
RES DW	J.0 10112		4D14 J	.0 101112			Sweep	20.00 5 (	1001 pts)	Off
MKR MODE T		X	394.0 ms	-70 19 dF	FUN Rom	CTION F	UNCTION WIDTH	FUNCTI	ON VALUE	
2			004.0 1113	-10.15 02	5111					
4										Properties►
5										
7										
8										More
10										1 of 2
11										
MEC							CTATUS			
Mag							STATUS			

#### 4.14.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made tuned to the transmit freque train was measured with th	in the laboratory environment. A Dipole (or equivalent) antenna ency was attached to the input of a spectrum analyzer. The pulse e spectrum analyzer set to zero span at the fundamental frequency.		
Basic Standard		FCC Part 15 Subpart A, 15.35		
Pulse Train Limits				
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.				

#### **Table 119 Pulse Train Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

#### Table 120 Pulse Train Calculation

TX Frequency	Total TX time	Total Transmission time or 100ms whichever is lesser	DC Correction Factor (dB) $20 \log \left( \frac{PulseWidth}{Period} \right)$
390MHz	See below	100ms	-5.16dB

Worst Case Duty Cycle: Because of design the transmitter transmits very short on and off pulses where its not possible to capture a plot showing number of pulses over 100mS. The measured individual pulses show short pulse on time of 0.0288mS and long pulse on time of 0.0540mS. Respectively the off time between the short pulses is 0.0216mS and long pulses 0.0468mS. The number of short pulses is 32 where in the same amount of time the number of long pulses is 16. The on time of short pulses in first section is 0.9216mS and on time of long pulses in first section is 0.8640mS. In the same time the off time between short pulses is 0.6912mS and off time between long pulses is 0.7584mS. The total on time of short and long pulses is 1.728mS and off time in the same section is 1.4976mS. This makes the estimated on time of 53.7% and it does not include the very short dip between series of bursts. Worst case duty cycle is calculated using the 55.2% on time over 100mS and its considered worst case and its used for all radiated emissions data. Manufacturer declared duty cycle is 6dB.

## Figure 89 Pulse Train Graphs

Agilent	Spect	trum	Analy	zer - Swe	ept SA									
Mark	ker	14	RF	50 77.00	ο μς Ο μς			S Trig Del Triau Via	ENSE:INT ay: -1.000 ms	s Avg Typ	ALIGN PARTIAL	01:01:48F	M Oct 02, 2012	Marker
						PNO: F IFGain:	∃ast ⊶ Low	Atten: 1	0 dB			Mkr1 1	77.0 μs	Select Marker
10 dE	3/div	,	Ref	F 0.00	dBm							2	5.90 ḋB	
Log														
-10.0	-													Normo
-20.0														Norma
-30.0														
-40.0								142						
70.0							_ 👤							Delta
-50.0													TRIG LVL	Delta
-60.0														
-70.0		ايە		للمحمد	a., .,			ال المالة من ال	s Istra di	و بر بالد به		http://www.	المالية مرالة	
-80.0		. 1.1	n lean.	. a diminuta d	n an teach an		2	a na an an ann a	and a star of all of	a. de constan	a Madai Jaca I	l alla di cole anto e	ւ ներաներ։	Fixed⊵
-90.0				1.1.1.1						in in		u ii i		- Indu
	1,11	ËĽ,	44			ilde deka		and the parties	a a chail tha a shafe		dalarik bilanda di	n de la série de	ألابها فلقد بألا	
Cent	ter :	390	0.00	0000 I	MHz							S	pan 0 Hz	
Res	BW	1 3.0	0 M	Hz		1	VBW	3.0 MHz			Sweep 3.	.000 ms (	1001 pts)	Off
MKR M	MODE	TRC	SCL		×			Y	FUN	ICTION F	UNCTION WIDTH	FUNCTIO	IN VALUE	
1	Δ2	1	t	(Δ)		177.0	μs (Δ	) 25.9	) dB					
2	F		t			959.0	μs	-75.76 (	IBm					
4														Properties▶
5														
7														
8														More
10														1 of 2
11														1012
12														
MSG											STATUS			
irst	tun	ind	ם ו	Ise: 0	.177mS	;								

File #: MC15343 Page 253 of 264

Agilent Spectrum Analyzer - Swept SA				
IX RF 50 Ω DC   Markar 4 A 248 000 μa Image: A 248 000 μa Image: A 248 000 μa Image: A 248 000 μa	SENSE:INT		01:22:06 PM Oct 02, 2012 TRACE 1 2 2 4 5 6	Marker
PNO: Fast ↔ IFGain:Low	Trig: Video Atten: 10 dB	ing type. Log i wi	TYPE WWWWWWWW DET N N N N N N	Select Marker
10 dB(div Ref 0 00 dBm		Ĺ	Mkr1 348.0 µs∆ 28.69 dB	1
-10.0				Normal
-20.0				Norma
-30.0				
-40.0				
-50.0	<u>וח</u>		179990000000000000000000000000000000000	Delta
-60.0			Í	
-70.0				
	stendelster ditensfille	IN VERENE VE		<b></b> IN
	and the second			Fixed⊳
-90.0	i de salland dian de ser	▝▝▝▝▝▝		
Center 390.000000 MHz			Span 0 Hz	
Res BW 3.0 MHz VBW 3	3.0 MHz	Sweep 3.	.000 ms (1001 pts)	Off
MKR MODE TRC SCL X	Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
<b>1</b> Δ2 1 t (Δ) 348.0 μs (Δ)	28.69 dB			
2 F t 480.0 µs	-73.87 aBm			
4				Properties►
6				
8				
9				More
10				1 of 2
12				
MSG		STATUS	;	
Second tuning pulse: 0.348mS		I		
¥ i				

File #: MC15343 Page 254 of 264

	M Oct 02, 2012	01:25:39 P	LIGNPARTIAL		NSE:INT	SE		ESA DC	zer - Swep 50 Ω	n Analyz RF	pectrum	lent !
Marker	2E 1 2 3 4 5 6 PE WWWWWWW TNNNNN	TRAC TYP DE	: Log-Pwr	Avg Type	y:20.00 ms o dB	Trig Dela Trig: Vide Atten: 10	PNO: Fast +>	5	800 µ:	487.	er 7	ark
Select Marke	87.8 μs 92 dBm	Mkr7 4					ii Gam.cow	Bm	0.00 d	Pof	(diu	
									0.00 u	KCI	aiv	'g [
Norn												.0 -
NOT												0
												0
		<b>.</b>										þ
De								+ + -				
	TRIG LVL									_		
		7	6	5	4							o  -
Eivo		Y had to be	<u> </u>	<u> </u>		<u>Viv v</u>	(		11.1.1	<u>1-1</u>		2
FIXe	<b>T</b>		, <mark>  </mark>		din <mark>d</mark> i je k	┦╢┺		- <sup>4</sup> hil	-	-		0
	pan 0 Hz	S 00.0 us (	Sween 6		I	3 0 MHz	VBM	Hz	)000 M	0.000 0 MH	er 390 BMC 3	nt e l
(		οο.ο μο (				5.0 191112	1011		12			
	JN VALUE	FUNCTI	ICTION WIDTH		3m	-80.01 dł	237.0 µs	X		t	N 1	M
					3m	-78.09 dF	258.6 µs			t	N 1	
Propertie					sm 3m	-78.47 di -78.20 di	287.4 µs 334.2 µs			t	N 1	
					Зm	-78.40 di	388.2 µs			t	N 1	
					3m 2m	-77.36 dF	435.0 µs			t	N 1	
					2111	-77.92 di	407.0 µS				N I	
M												
1 0												
	]		STATUS									
			SIAIUS									





г

### 4.14.4 Test Conditions and Results – RADIATED EMISSIONS Fundamental and Spurious

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.								
Basic Standa	ard	47 CFR Part 15 sub	part C,	and RSS-210					
UL LPG		80-EM	-S0029	)					
		Frequency range		Measurement Point					
Fully configu	ired sample scanned	30MHz – 1GHz		3 meter distance					
over the folic	owing frequency range	1GHz – 4GHz		3 meter distance					
Restricted Band Limits									
E.e.e		Limit (dB	Limit (dBµV/m)						
Freq	luency (MHZ)	Quasi-Peak	Peak						
	30 - 88	40.00		NA					
	88 - 216	43.52	NA						
2	216 - 960	46.02	NA						
9	60 - 1000	54		NA					
Abov	re 1000 (FCC)	NA		54 (at 3-meter)					
	Fundamental Frequencies	uency Limits and Non-restricted bar	nd Har	monic Limits					
	Limit (dBµV/m) @ 3m distance								
Freq	juency (MHz)	All harmonics except those in restric 20dB or	All harmonics except those in restricted bands must be attenuated by 20dB or more						
		Average - Fundamental	verage - Fundamental Peak - Fundament						
	390	79.24	79.24 99.24						
Supplementa	Supplementary information: See section 4.14.3 for duty cycle information.								

File #: MC15343 Page 257 of 264

Figure 90 Radiated Emissions Graph (Below 1GHz)



File: RE 30-1000 MHz 10m using FCC 3m Class B.TST\*not saved\*

File #: MC15343 Page 258 of 264

### Figure 91 Radiated Emissions Graph (Above 1GHz)



Chamberlain													
KLIK2C Transmitter													
390MHz, Config 13, Type 2													
9VDC Battery													
Red: Horizontal Green: Vertical													
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss Gain dB	Level dBuV/m	Duty Cycle Factor dB	Level with Duty Cycle dBuV/m	Limit @ 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity	
390.017597	60.83	QP	16.1	2.3	79.23	-5.16	74.07	79.24	-5.17	173	319	Horz	
390.017597	59.96	PK	16.1	2.3	78.36	-5.16	73.2	79.24	-6.04	173	319	Horz	
390.017597	64.76	QP	16.1	2.3	83.16	-5.16	78	79.24	-1.24	75	124	Vert	
390.017597	63.87	PK	16.1	2.3	82.27	-5.16	77.11	79.24	-2.13	75	124	Vert	
780.033623	10.62	QP	21.8	3.4	35.82	-5.16	30.66	46	-15.34	14	118	Horz	
780.033623	12.79	PK	21.8	3.4	37.99	-5.16	32.83	46	-13.17	14	118	Horz	
780.033623	25.59	QP	21.8	3.4	50.79	-5.16	45.63	46	-0.37	150	134	Vert	
780.033623	25.65	PK	21.8	3.4	50.85	-5.16	45.69	46	-0.31	150	134	Vert	
1169.9549	86.2	PK	24.8	-57.24	53.76	-5.16	48.6	54	-5.4	216	225	Horz	
1170.0391	91.08	PK	24.8	-57.24	58.64	-5.16	53.48	54	-0.52	294	131	Vert	
1560.374	71.93	PK	25.2	-55.65	41.48	-5.16	36.32	54	-17.68	*	102	Vert	
* Peak prescan d	lata, not max	kimized											

## Appendix A

## **Test Equipment Used**

Test Equipment Used for Near Field Measurements										
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date					
Spectrum analyzer	Agilent	PXA	EMC4360	20120515	20130515					
Generic Loop Antenna	-	-	-	-	-					

Test Equipment Used for Radiated Emissions											
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due Date						
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323	20111228	20121231						
Bicon Antenna	Chase	VBA6106A	EMC4078	20120117	20130131						
Log-P Antenna	Chase	UPA6109	EMC4258	20110927	20120928						
Log-P Antenna	Chase	UPA6109	EMC4313	20120807	20130831						
Spectrum Analyzer	Rhode & Schwarz	FSEK	EMC4182	20111227	20121231						
Antenna Array	UL	BOMS	EMC4276	20111227	20121231						

Project #: 12CA44791 File #: MC15343 Page 261 of 264

## Appendix B

# **Test Setup Photos**





File #: MC15343 Page 263 of 264

Job #: 1001542838Project #: 12CA44791Model Number:KLIK2CClient Name:Chamberlain Group Inc.

# Appendix C

Accreditations and Authorizations

NVLAP Lab code: 100414-0

NVLAP: The National Institute of Standards and Technology (NIST) administers the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP is comprised of laboratory accreditation programs (LAPs) which are established on the basis of requests and demonstrated need. Each LAP includes specific calibration and/or test standards and related methods and protocols assembled to satisfy the unique needs for accreditation in a field of testing or calibration. NVLAP accredits public and private laboratories based on evaluation of their technical qualifications and competence to carry out specific calibrations or tests. Accreditation criteria are established in accordance with the U.S. Code of Federal Regulations (CFR, Title 15, Part 285), NVLAP Procedures and General Requirements, and encompass the requirements of ISO/IEC 17025. For a full scope listing see http://ts.nist.gov/standards/scopes/1004140.htm



FCC: Details of the measurement facilities used for these tests have been filed with the Federal Communications Commission's Laboratory in Columbia, Maryland (Ref. No. 91044).



Industry Canada Industrie Canada

Industry of Canada: Accredited by Industry Canada for performance of radiated measurements. Our test site complies with RSP 100, Issue 7, Section 3.3. File #: IC 2180



VCCI: Accepted as an Associate Member to the VCCI. The measurement facilities detailed in this test report have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. Registration Nos.: Radiated Emissions R-621, Conducted Emissions C-642.



ICASA: ICASA (Independent Communications Authority of South Africa) has appointed UL as a Designated Test Laboratory to test Telecommunications equipment for type approval in compliance with CISPR 22 to assist in fulfilling its mandate under section 54(1) of the Telecommunications Act, 1996 (Act 103 of 1996).





NIST/CAB: Validated by the European Commission as a U.S. Conformity Assessment Body (CAB) of the U.S.-EU Mutual Recognition Agreement (MRA) for the Electromagnetic Compatibility - Council Directive 2004/108/EC, Annex III (2-3). Also validated for the Telecommunication Equipment-Council Directive 99/5/EC, Annex III and IV, Identification Number: 0983.

NIST/CAB: Provisioned to act as a U.S. Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the Asia Pacific Economic Cooperation (APEC) MRA between the American Institute in Taiwan (AIT) and the United States. Our laboratory is considered qualified to test equipment subject to the applicable EMC regulations of the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) which require testing to CNS 13438 (CISPR 22).

NIST/CAB: Recognized by the Infocomm Development Authority of Singapore (IDA) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Our laboratory is provisionally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA. Our scope of designation includes IDA TS EMC (CISPR 22), IEC 61000-4-2, -4-3, -4-4, -4-5, and -4-6