



FCC ID:LUBD750
IC: 2925A-D750

Test Report #: 4200-1
03/26/2016

EMI TEST REPORT

FCC Part 15 Subpart C (§15.247) – Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

RSS-247 Issue 1 — Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

Prepared For:

Socket Mobile, Inc.
39700 Eureka Dr
Newark, CA 94560

Product Name :
Cordless Hand Scanner

Model Name :
D750

FCC ID : LUBD750
IC: 2925A-D750

Application Purpose :
Original

Prepared by:

EMCE Engineering, Inc.
44366 S. Grimmer Blvd.,
Fremont, CA 94538 US

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Revision History

Rev.	Issue Date	Description
1	03/26/2016	Initial Issue



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1.0 GENERAL INFORMATION

Test Laboratory:	EMCE Engineering 44366 S. Grimmer Blvd. Fremont, CA 94538 USA Tel : 510-490-4307, Fax : 510-490-3441 bob@universalcompliance.com
	FCC registration number : 743299
	Test Site : FCC : US5291, IC : 3324A
Applicant Name :	Socket Mobile, Inc. 39700 Eureka Dr Newark, CA 94560
	Contact Person: Len Ott
Application Purpose :	Original
EUT Description	Cordless Hand Scanner- Bluetooth Classic
Product Name	D750 BLE Remote Control
Model Name :	D750
Applied Standards :	FCC 47 CFR §15.209, §15.247
FCC ID :	LUBD750
IC :	IC:2925A-D750
RF Operating Frequency (ies)	2402 – 2480 MHz
Modulation	GFSK, DQPSK, 8DPSK
Emission Designator	1M03F1D,1M35G1D,1M32G1D
Receipt of EUT :	3/20/16
Date of Testing :	3/20/16 – 3/26/16
Date of Report :	3/26/16

The tests listed in this report have been completed to demonstrated compliance to the CFR 47 Section 15.247, and RSS 247 Issue 1.

Contents approved:


Name: Bob Cole Title: President



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2.0 EUT AND ACCESSORY INFORMATION

<i>EUT</i>				
<i>FCC ID</i>	LUBD750			
<i>Product Name</i>	Cordless Hand Scanner- Bluetooth Classic			
<i>Model name</i>	D750			
<i>Frequency Range</i>	TX : 2402 – 2480 MHz RX : 2402 – 2480 MHz			
<i>Max. RF Output Power</i>	Peak : 9.05dBm (8.0352 mW)			
<i>Operating Mode</i>	Bluetooth Classic			
<i>Modulation Type</i>	GFSK/DQPSK/8DPSK			
<i>Number of Channels</i>	79 Channels			
<i>Manufacturer</i>	Socket Mobile, Inc.			
<i>Power Source</i>	Battery			
<i>Antenna Specification</i>	Manufacturer : Socket Mobile, Inc. Antenna Type : Chip Peak Gain : -1.2dBi			
<i>Support Equipment</i>				
<i>Description</i>	<i>Model Number</i>	<i>Serial Number</i>	<i>Manufacturer</i>	<i>Power Cable Description</i>
NONE				
<i>Cable Description</i>				
<i>From</i>	<i>To</i>	<i>Length (Meters)</i>	<i>Shielded (Y/N)</i>	<i>Ferrite Loaded (Y/N)</i>
NONE				



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4.0 MODIFICATIONS

There were no modifications.



5.0 TEST RESULTS

5.1 CONDUCTED PEAK POWER

LIMIT

§15.247(d)

1 Watt / 30dBm

TEST PROCEDURE

The transmitter output to the antenna is connected to an ETS ENPower USB RF high-speed power sensor. Measurements made with EUT in non-hopping mode.

RF Output Power

Section	Description	Channel	Measured Value	Antenna Gain	E.I.R.P.	Limit (dBm)	Result
4.3.2.1	RF Output Power	2402 2441 2480	9.05 8.31 7.53	-1.2 -1.2 -1.2	7.85 7.11 6.33	30	Complies

RF Output Power – Extreme Temperature

Channel Frequency	Modulation	Normal 20C	-10C	50C	Maximum RF Output Power (dBm)	Antenna Gain	E.I.R.P	Limit 20 dBm
2402	GFSK	9.05	8.94	9.02	9.05	-1.2	7.85	Complies
2402	8DPSK	6.97	6.88	6.92				
2402	DQPSK	6.91	6.79	6.87				
2441	GFSK	8.31	8.22	8.26				
2441	8DPSK	5.96	5.88	5.91				
2441	DQPSK	6.57	6.46	6.54				
2480	GFSK	7.53	7.45	7.48				
2480	8DPSK	5.96	5.88	5.93				
2480	DQPSK	5.84	5.72	5.80				

All modulations (GFSK, 8PSK, QPSK) were examined using high-speed power sensor. Worst case date is presented.



5.2 20 dB BANDWIDTH

LIMIT

§15.247(2)

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 20 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

- The transmitter output is connected to the spectrum analyzer
- The RBW is set to 100KHz. The VBW is set to 100KHz. The sweep time is coupled.
- Signal Peak is detected
- Bandwidth is determined at the points 20 dB down from the peak value of the modulated carrier.

RESULTS

NO non-compliance noted.

Channel	Modulation	Measured Value (MHz)	Limit (KHz)	Result
2402	GSFK	0.9609	>=500	Complies
2402	8PSK	1.424	>=500	Complies
2402	QPSK	1.398	>=500	Complies
2441	GSFK	0.9812	>=500	Complies
2441	8PSK	1.417	>=500	Complies
2441	QPSK	1.394	>=500	Complies
2480	GSFK	0.9783	>=500	Complies
2480	8PSK	1.428	>=500	Complies
2480	QPSK	1.394	>=500	Complies

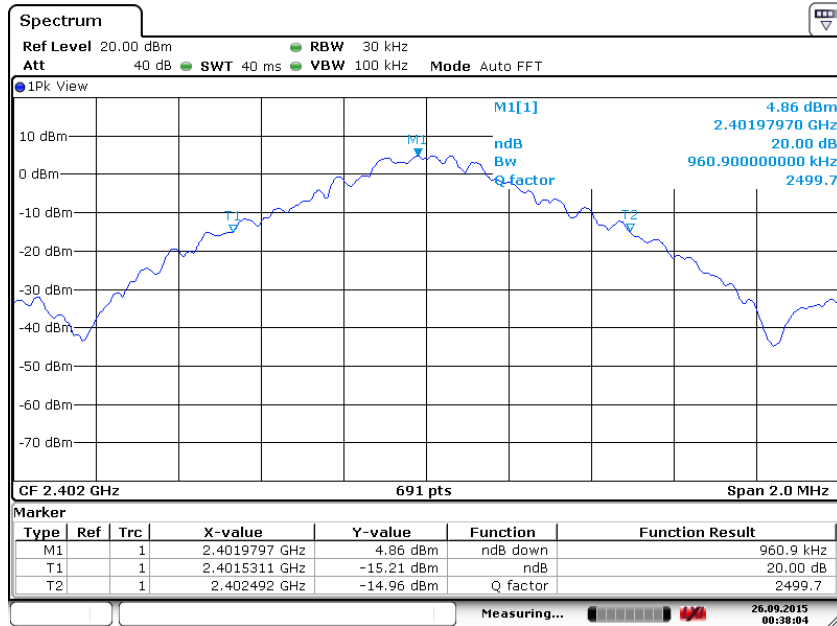
All modulations (GSFK, 8DPSK, DQPSK) were examined. Worst case data is presented.



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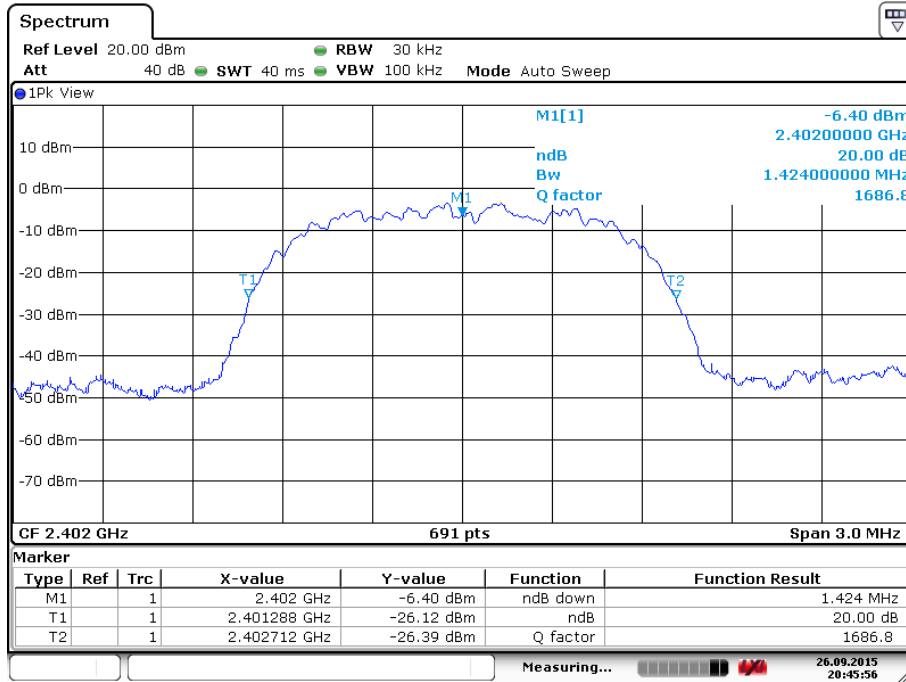
Test Report #: 4200-1
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2402 MHz / GSKF



Date: 26 SEP 2015 00:38:04

2402 MHz / 8DPSK



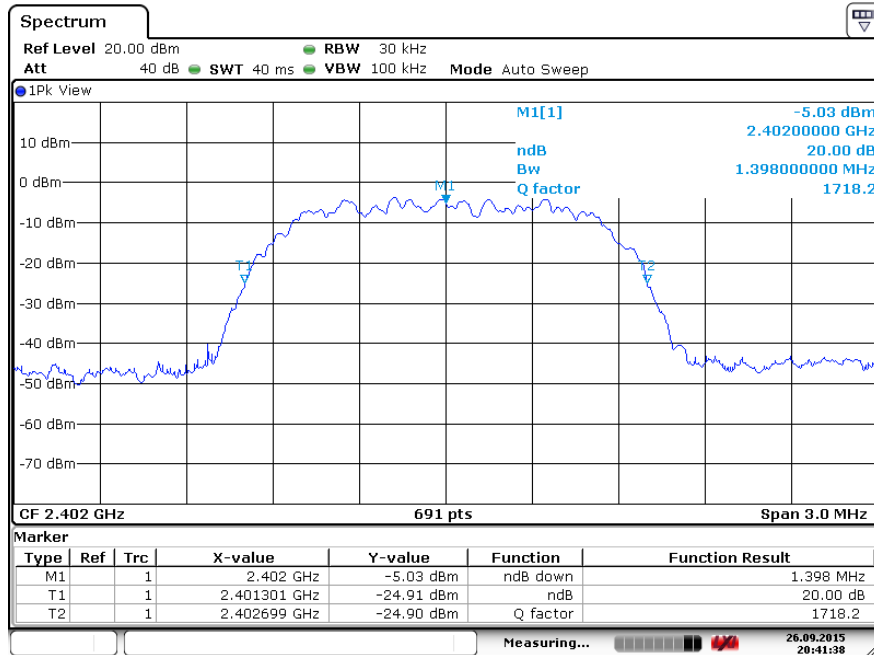
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FCC ID:LUBD750
IC: 2925A-D750

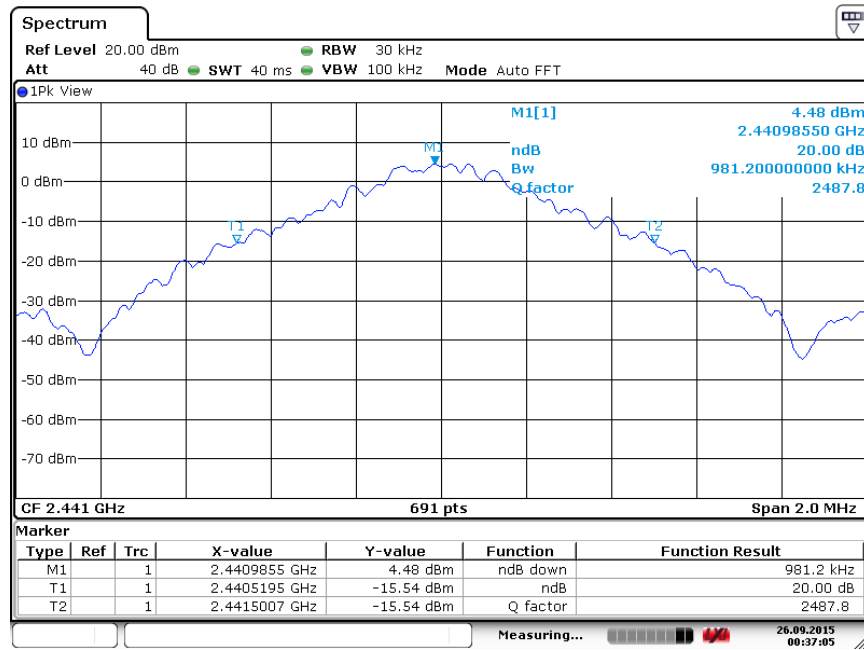
Test Report #: 4200-1
03/26/2016

2402 MHz /DQPSK



Date: 26 SEP 2015 20:41:38

2441 MHz / GSKF



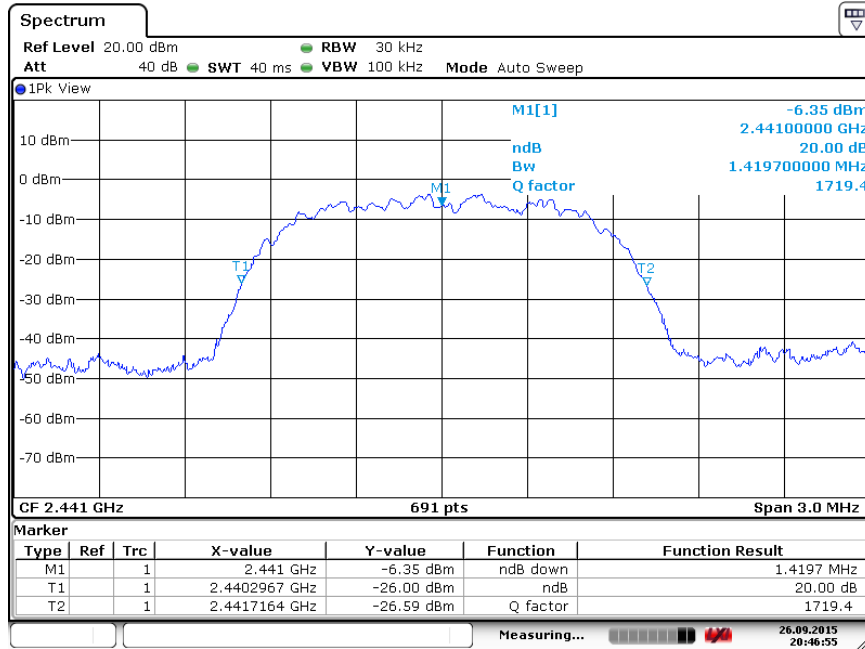
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FCC ID:LUBD750
IC: 2925A-D750

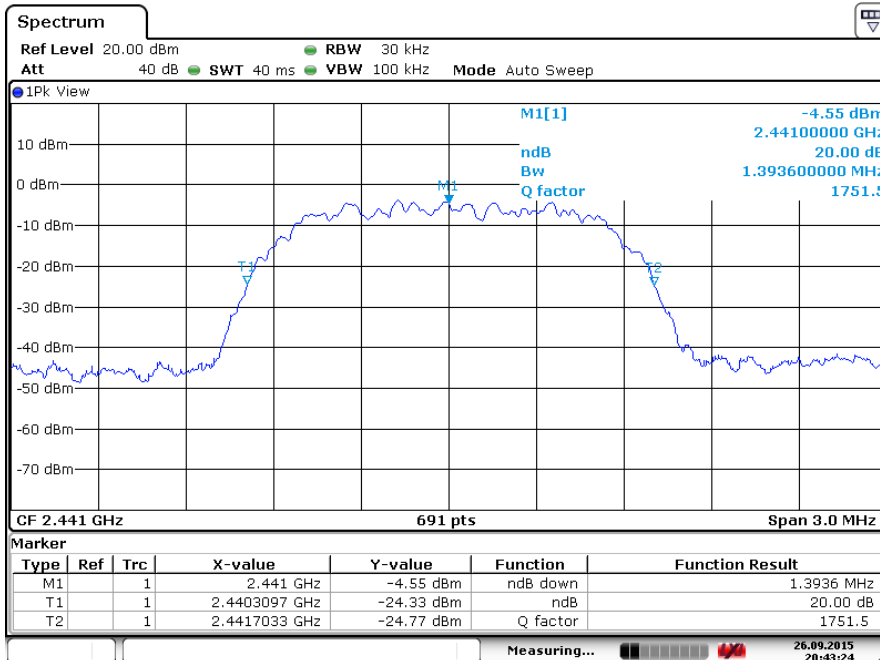
Test Report #: 4200-1
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2441 MHz / 8DPSK



Date: 26.SEP.2015 20:46:56

2441 MHz / DQPSK



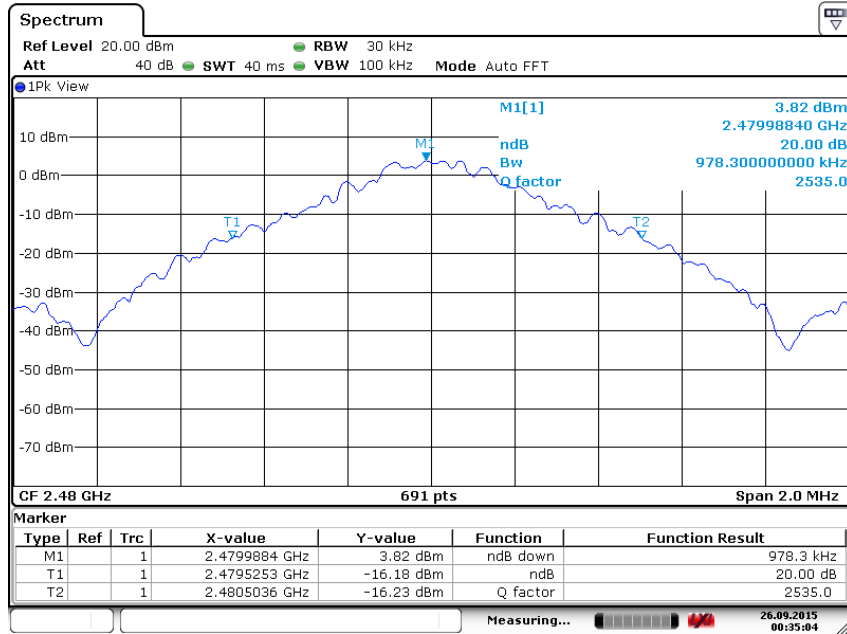
Date: 26.SEP.2015 20:43:24



FCC ID:LUBD750
IC: 2925A-D750

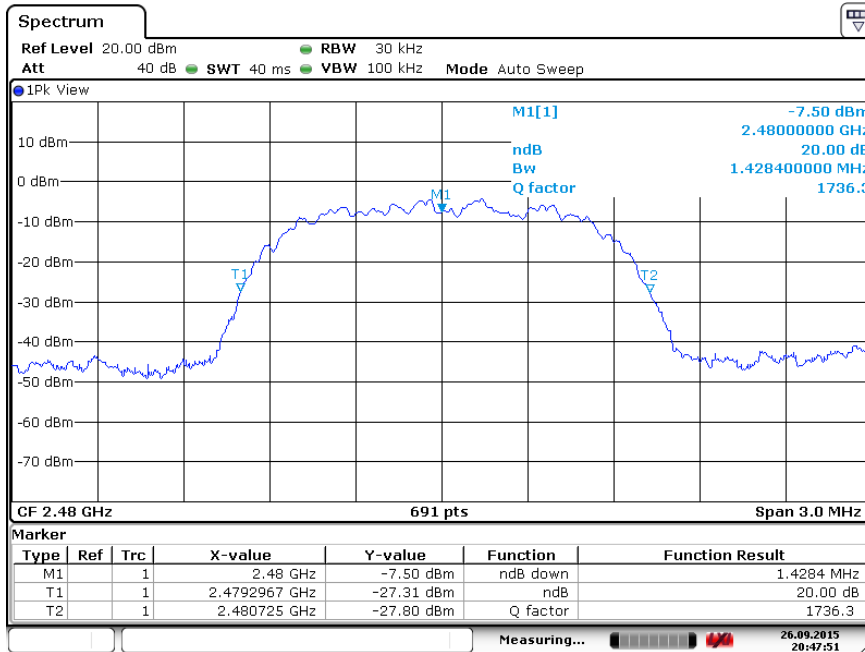
Test Report #: 4200-1
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2480 MHz / GSKF



Date: 26.SEP.2015 00:35:05

2480 MHz / 8DPSK



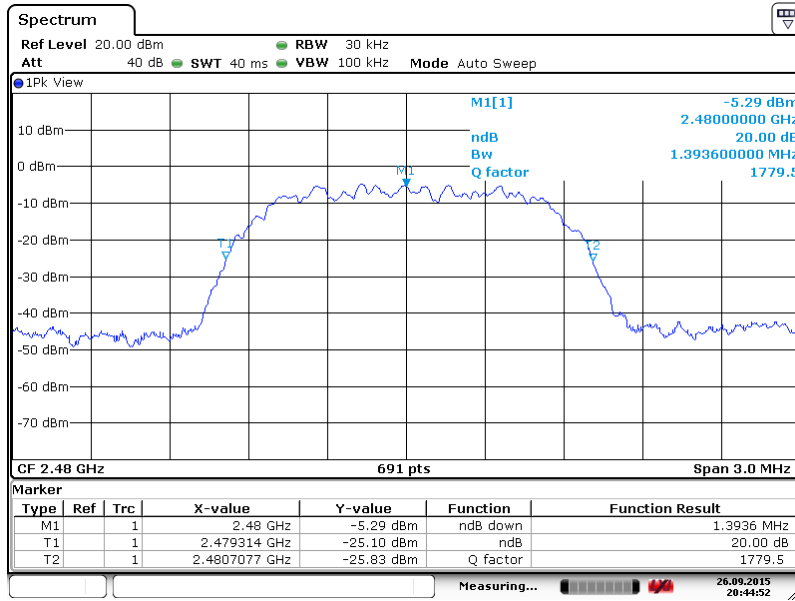
Date: 26.SEP.2015 20:47:51



FCC ID:LUBD750
IC: 2925A-D750

Test Report #: 4200-1
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2480 MHz / DQPSK



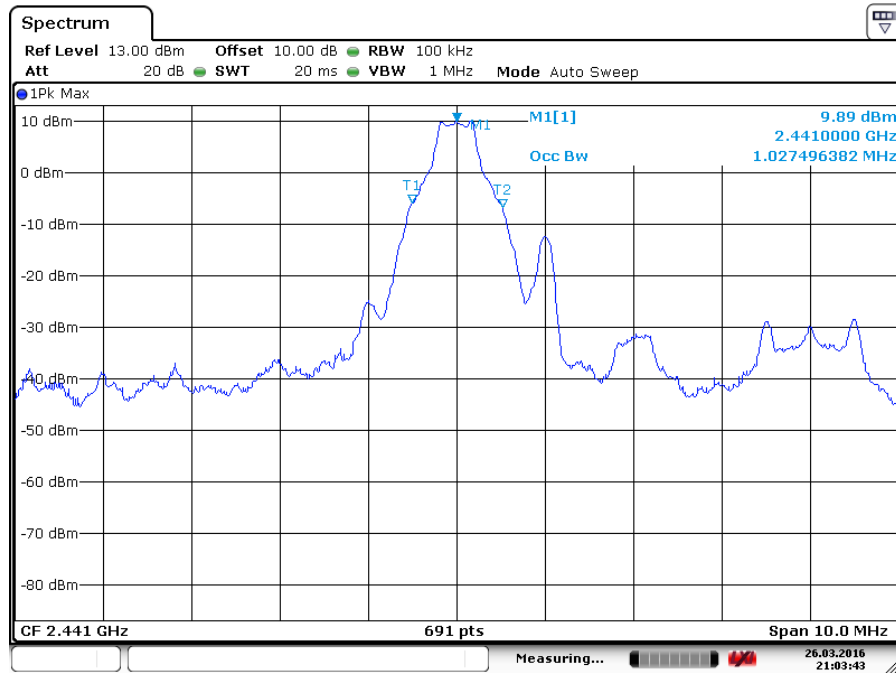
Date: 26.SEP.2015 20:44:52



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99% BANDWIDTH GSFK



Date: 26 MAR. 2016 21:03:43

DQPSK



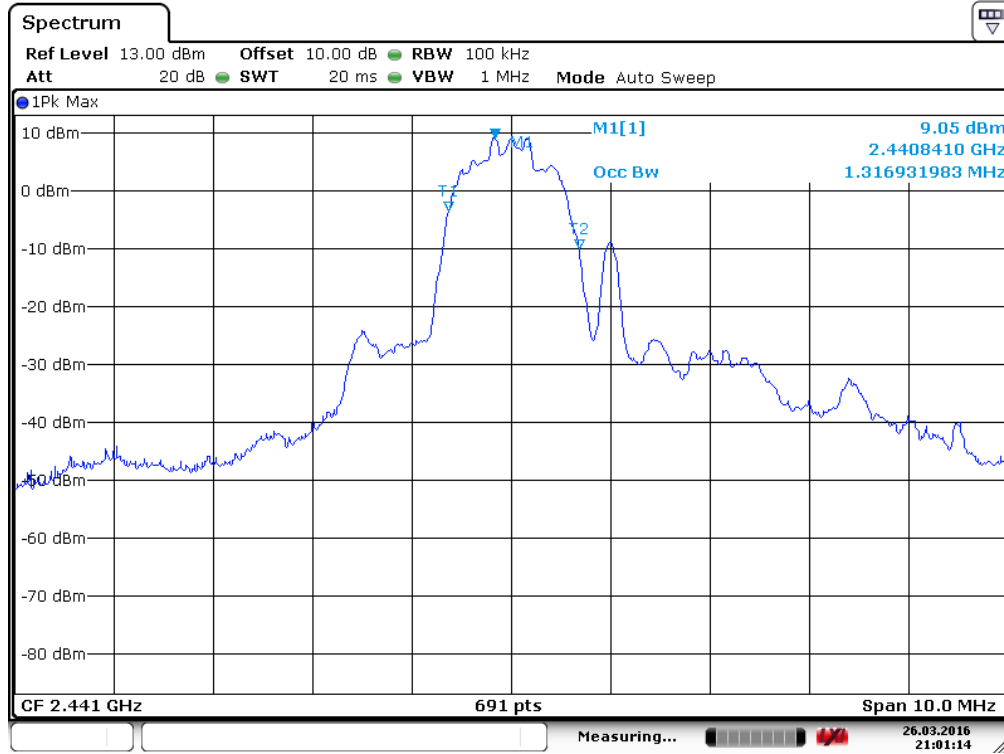
Date: 26 MAR. 2016 21:02:40



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8DPSK



Date: 26 MAR.2016 21:01:14



5.3 POWER SPECTRAL DENSITY

LIMIT

§15.247 (e)

8 dBm

TEST PROCEDURE

The transmitter antenna output is connected to a spectrum analyzer. The RBW is set to 3 KHz and the VBW is set to 10 KHz .

RESULTS

NO non-compliance noted.

Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
2402		8 dBm	N/A
2442		8 dBm	N/A
2480		8 dBm	N/A



5.4 CARRIER FREQUENCY SEPARATION

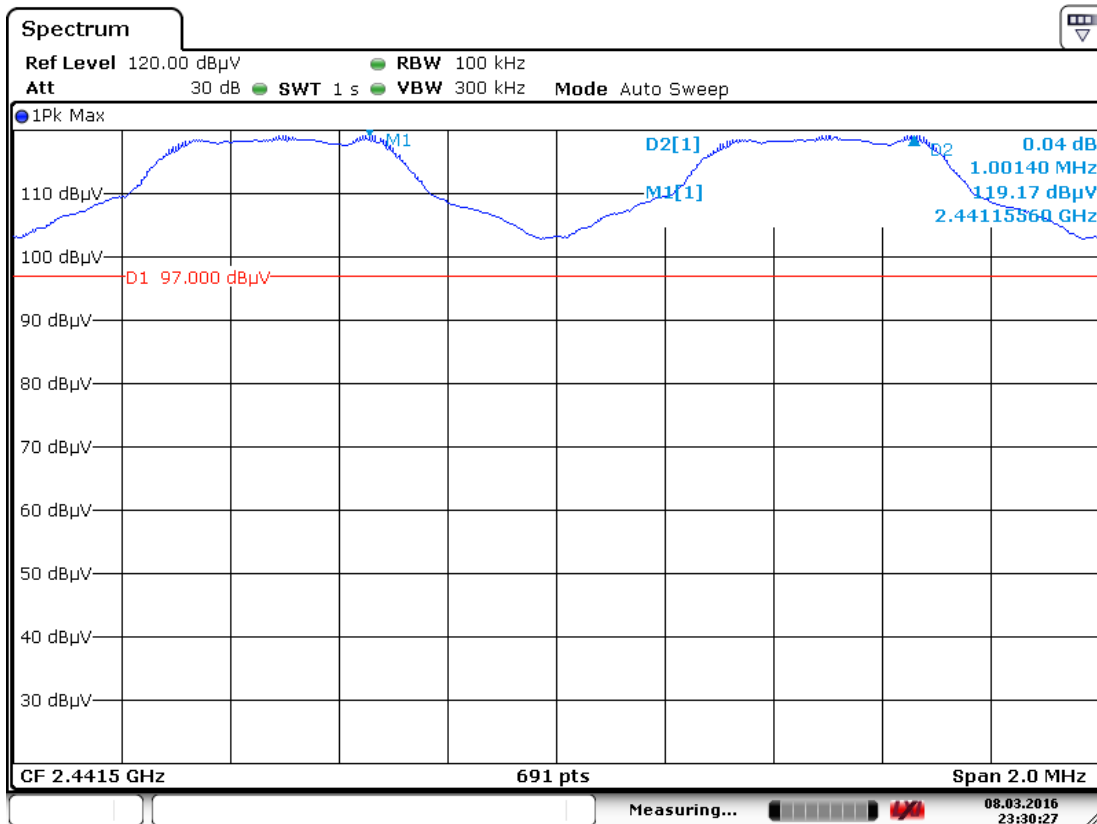
LIMIT

FCC §15.247 (a) (1) IC RSS-247 (5.1) (2) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS: PASS



Date: 8 MAR 2016 23:30:27



5.5 NUMBER OF HOPPING FREQUENCIES

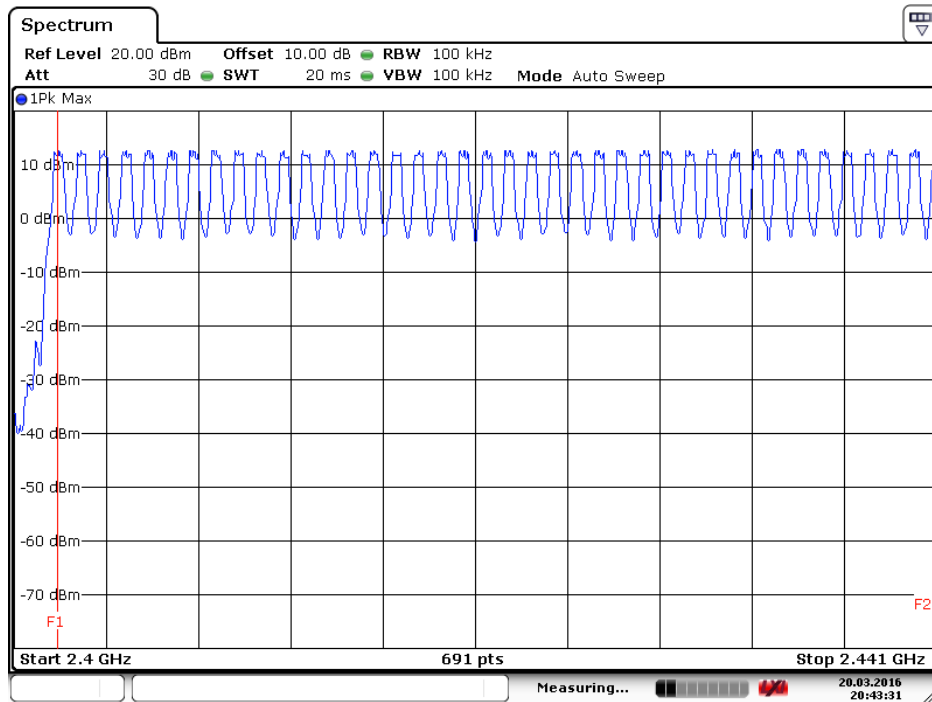
LIMIT

FCC §15.247 (a) (1) (iii) IC RSS-247 (5.1) (4) Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS: 79 Channels observed.

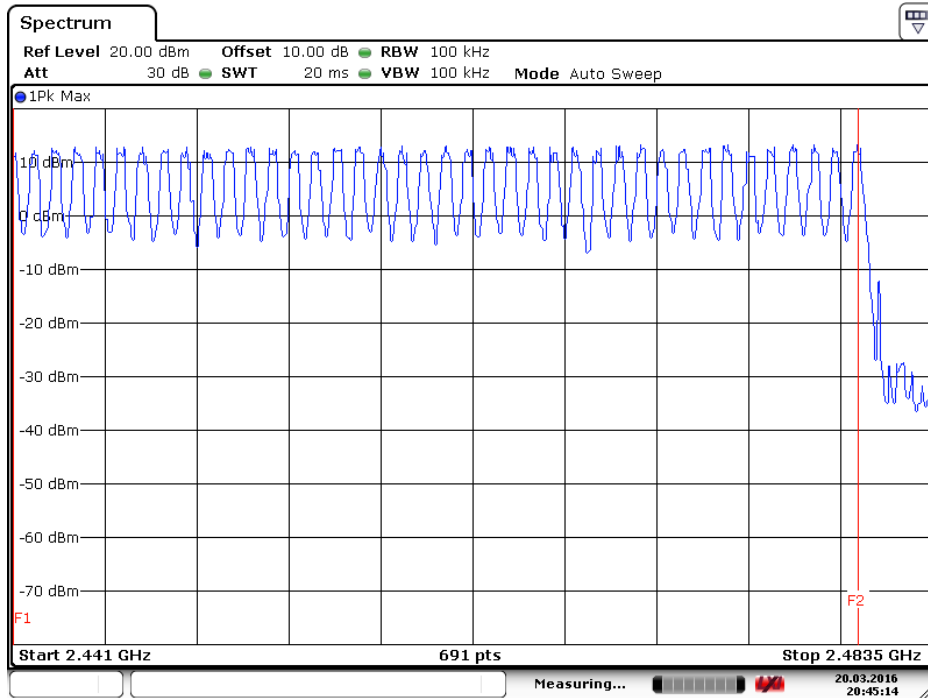


Date: 20 MAR 2016 20:43:31



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Date: 20 MAR. 2016 20:45:15



5.6 TIME OF OCCUPANCY (DWELL TIME)

LIMIT

FCC §15.247 (a) (1) (iii) IC RSS-247 (5.1) (4) The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence. The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{ pulse width}$. For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{ pulse width}$.

RESULTS

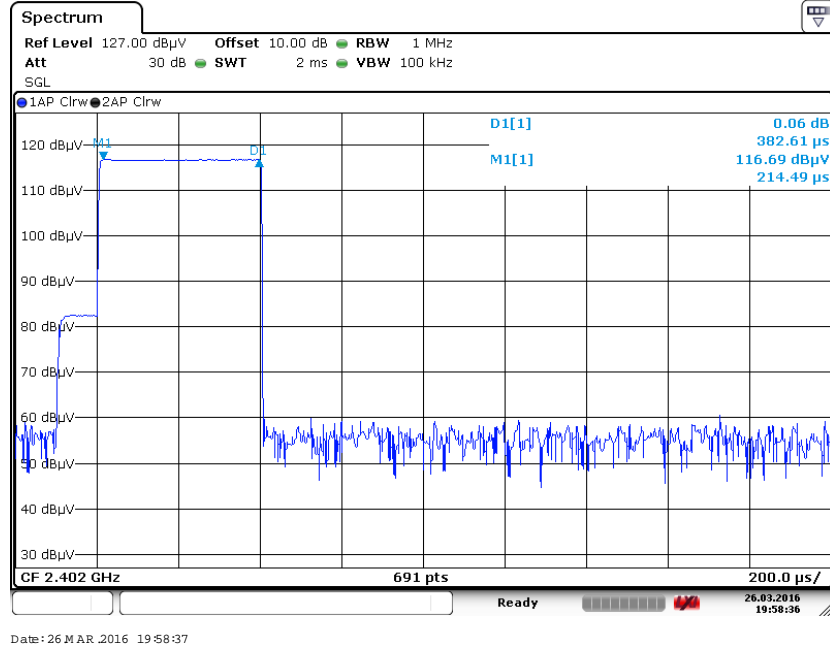
Modulation	Pulsewidth (mSec)	# Pulses in 3.16 seconds	Average Time of Occupancy (seconds)	Limit (seconds)	Margin (seconds)
GSFK	.38261	32	.122	0.400	.278
DQPSK	2.91	11	.320	0.400	.080
8DPSK	2.93	11	.322	0.400	.078



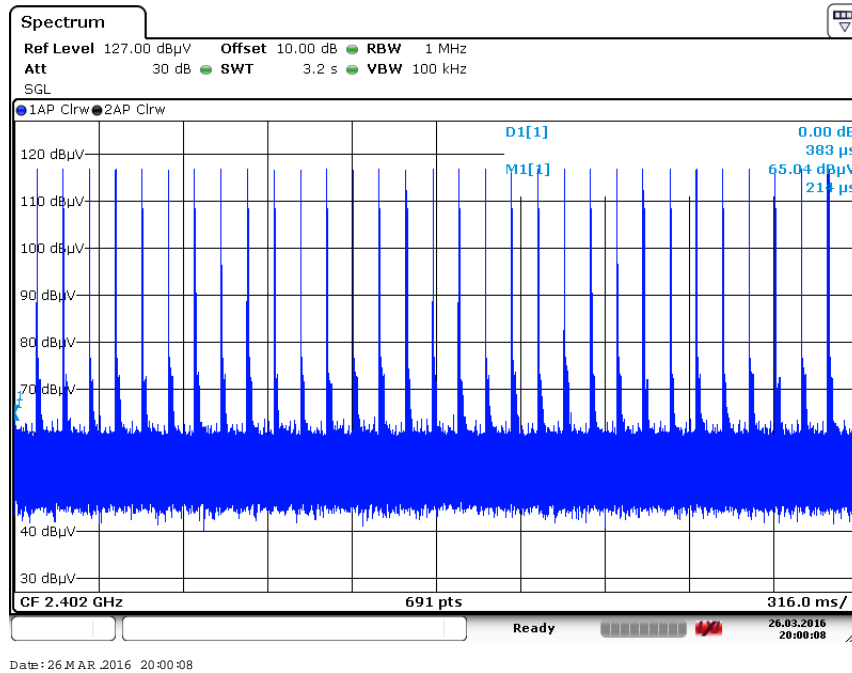
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GSFK Pulsewidth



GSFK Pulses per 3.16S

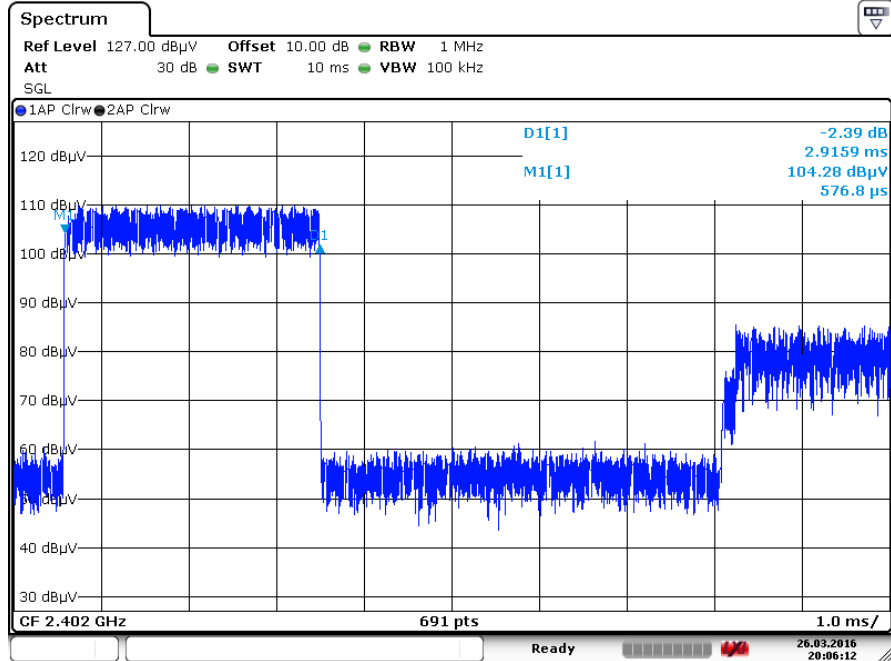




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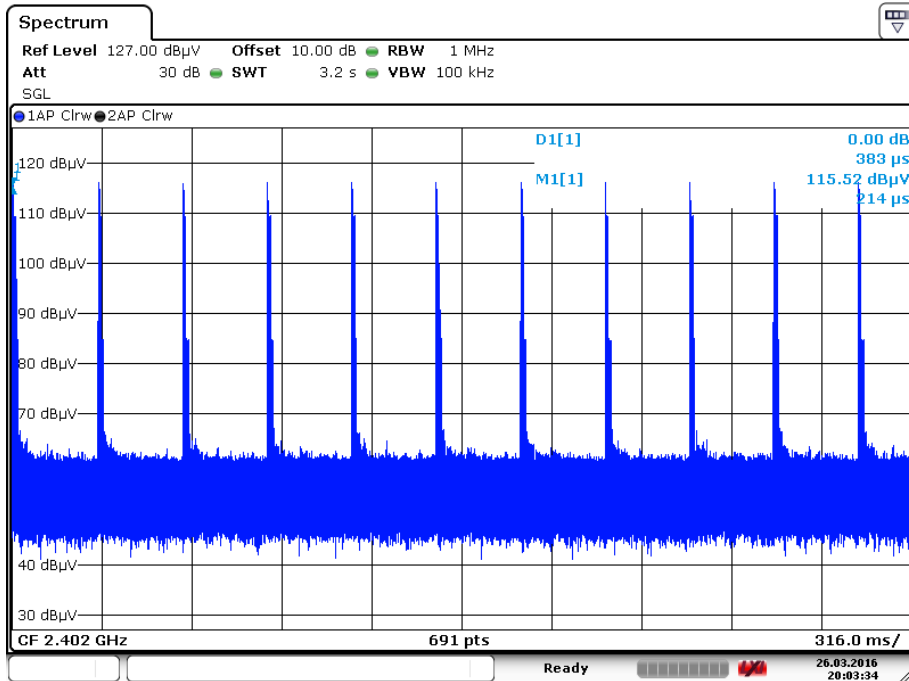
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DQPSK Pulsewidth



Date: 26 MAR. 2016 20:06:12

DQPSK Pulses per 3.16S



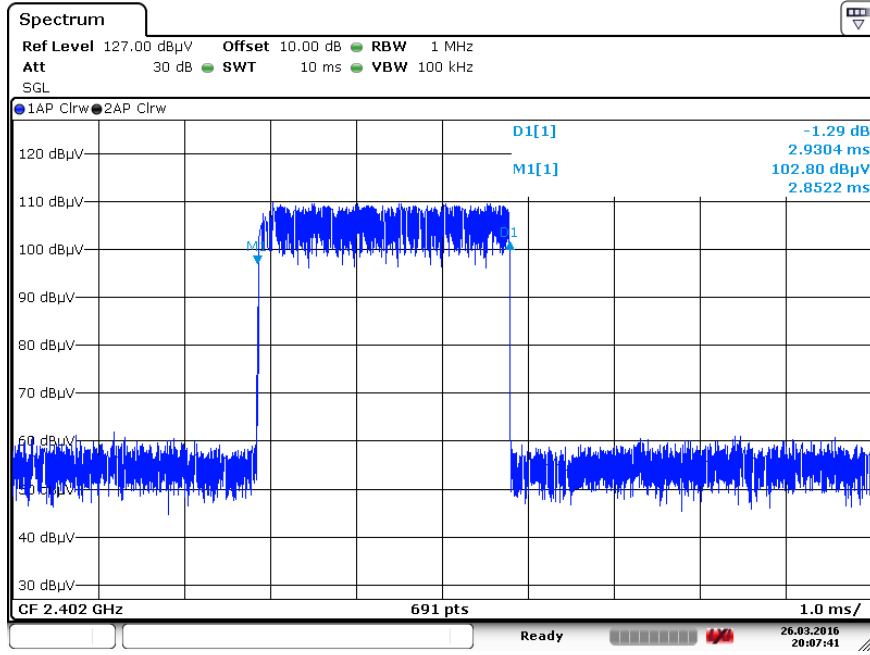
Date: 26 MAR. 2016 20:03:34



FCC ID:LUBD750
IC: 2925A-D750

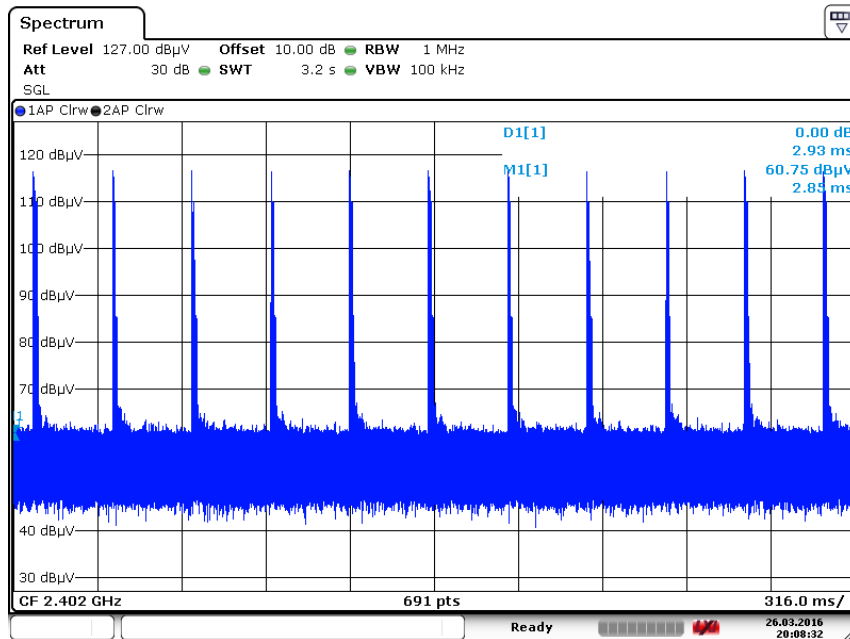
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8DPSK Pulsewidth



Date: 26 MAR 2016 20:07:41

8DPSK Pulses per 3.16S



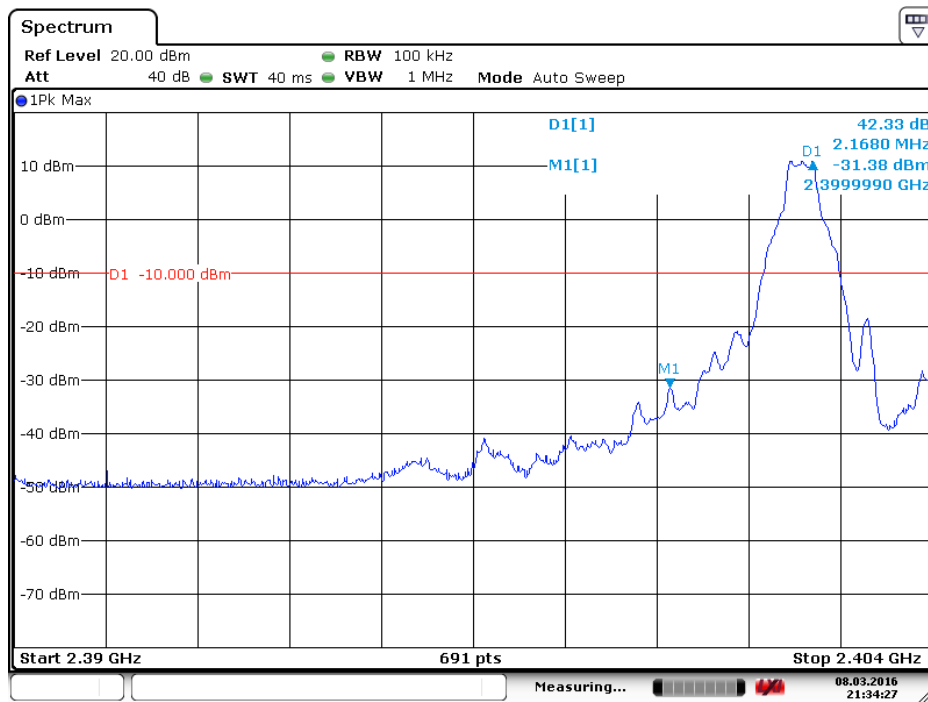
Date: 26 MAR 2016 20:08:32



5.7 CONDUCTED SPURIOUS EMISSIONS

15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement

GSFK 2402 BandEdge Delta



Date: 8 MAR. 2016 21:34:26

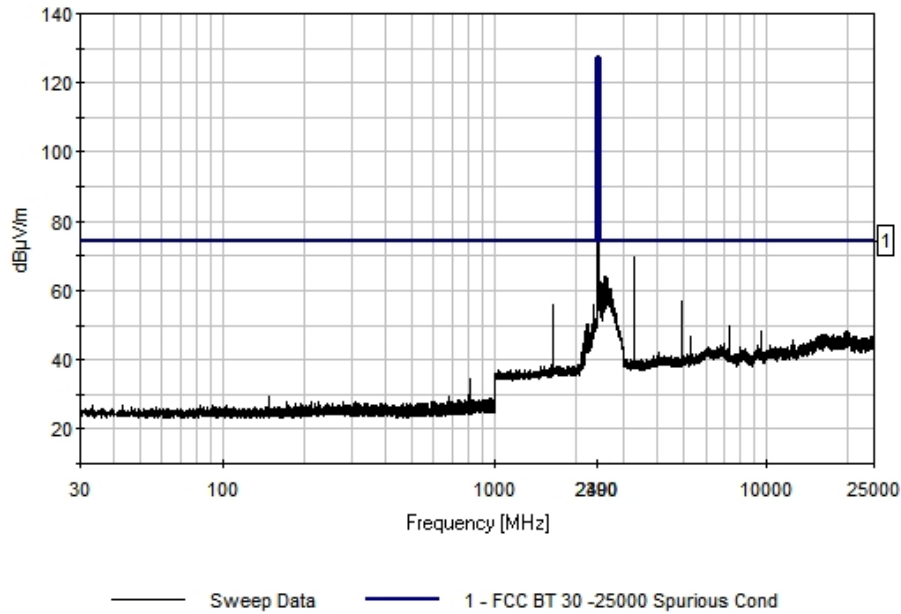


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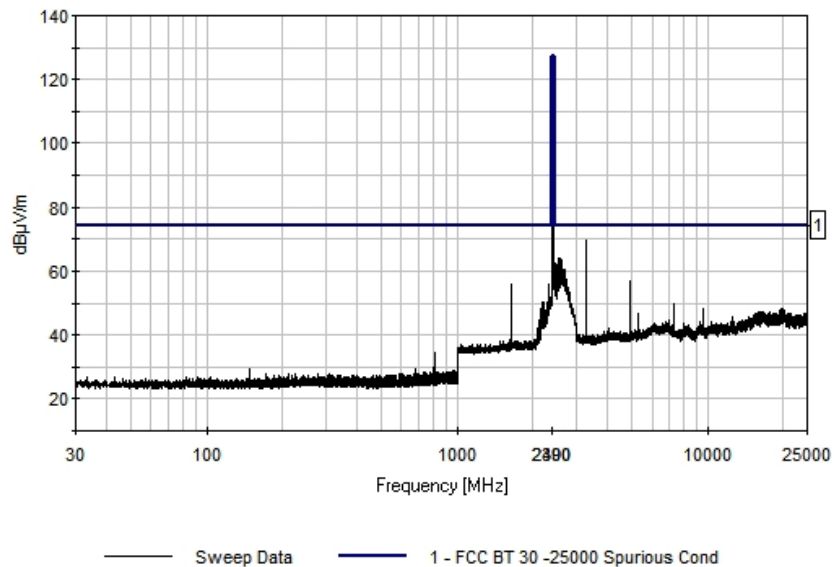
GSFK 2402 MHz Xmit Frequency

EMCE Engineering Date: 3/20/2016 Time: 1:16:25 PM Customer WO#:
FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 4 Ext ATTN: 10 dB



GSFK 2441 MHz Xmit Frequency

EMCE Engineering Date: 3/20/2016 Time: 1:16:25 PM Customer WO#:
FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 4 Ext ATTN: 10 dB



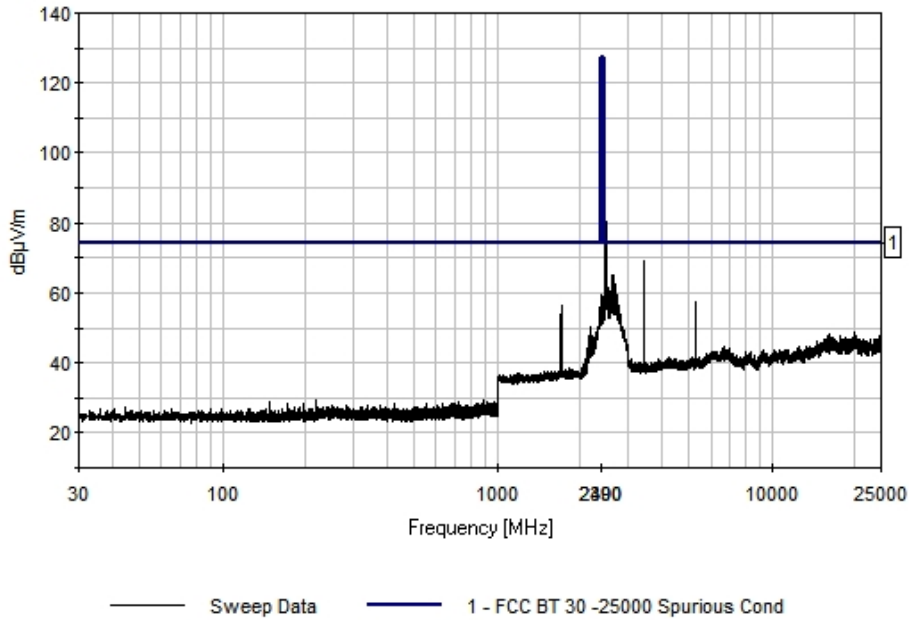


FCC ID:LUBD750
IC: 2925A-D750

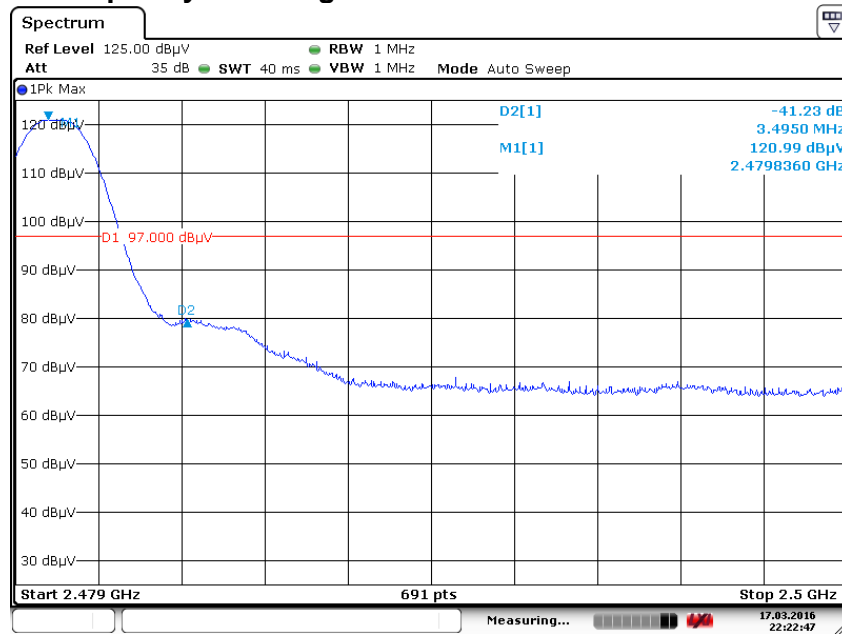
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GSFK 2480 MHz Xmit Frequency

EMCE Engineering Date: 3/20/2016 Time: 1:28:59 PM Customer WO#: FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 5 Ext ATTN: 10 dB



GSFK 2480 MHz Xmit Frequency BandEdge Delta

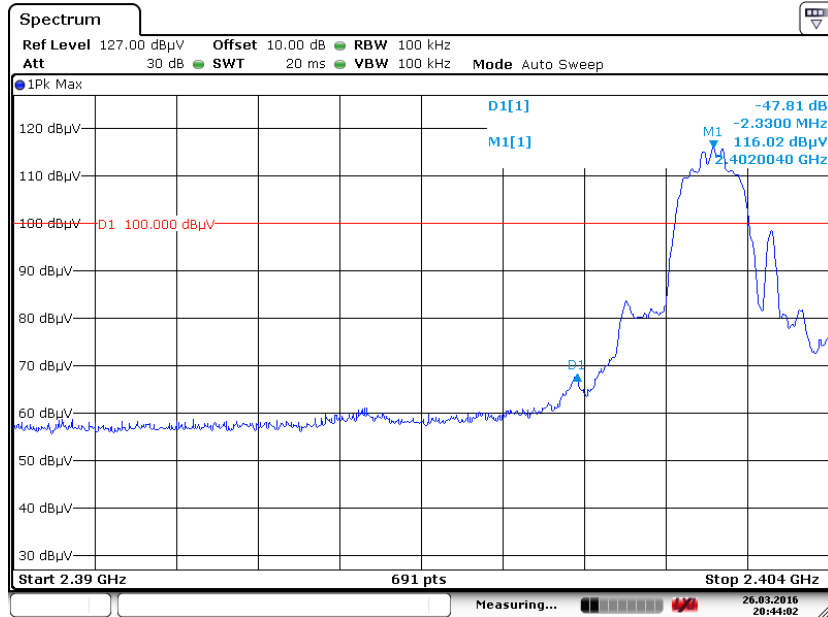




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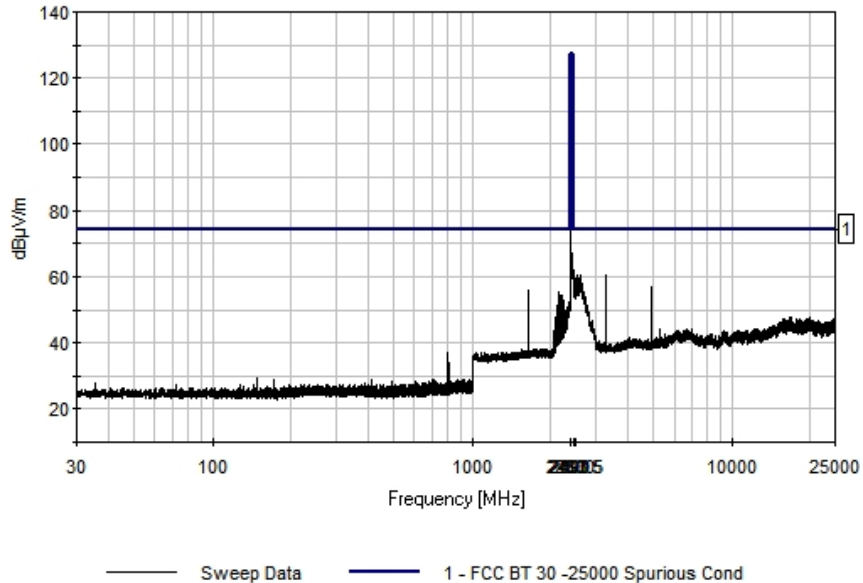
DPQSK – 2402 Xmit Frequency BandEdge Delta



Date: 26 Mar 2016 20:44:02

DPQSK – 2402 Xmit Frequency

EMCE Engineering Date: 3/20/2016 Time: 3:01:03 PM Customer WO#:
FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 13 Ext ATTN: 10 dB



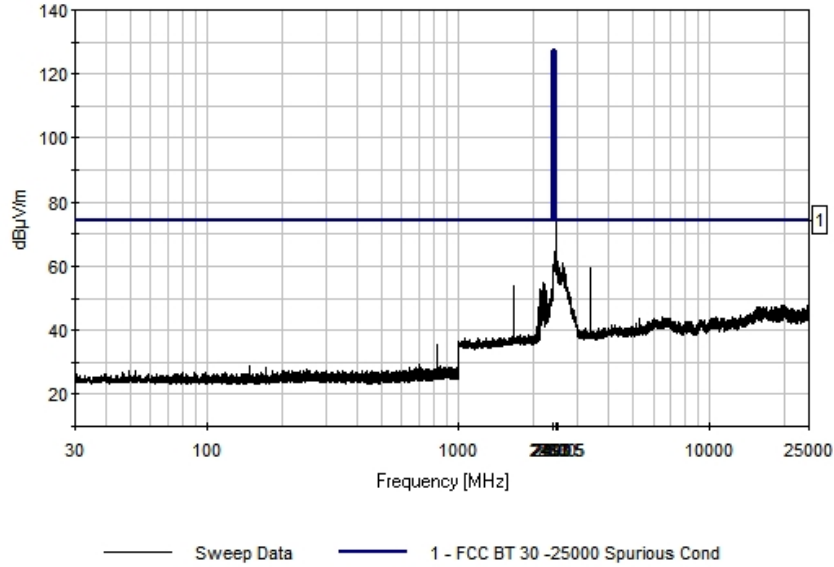


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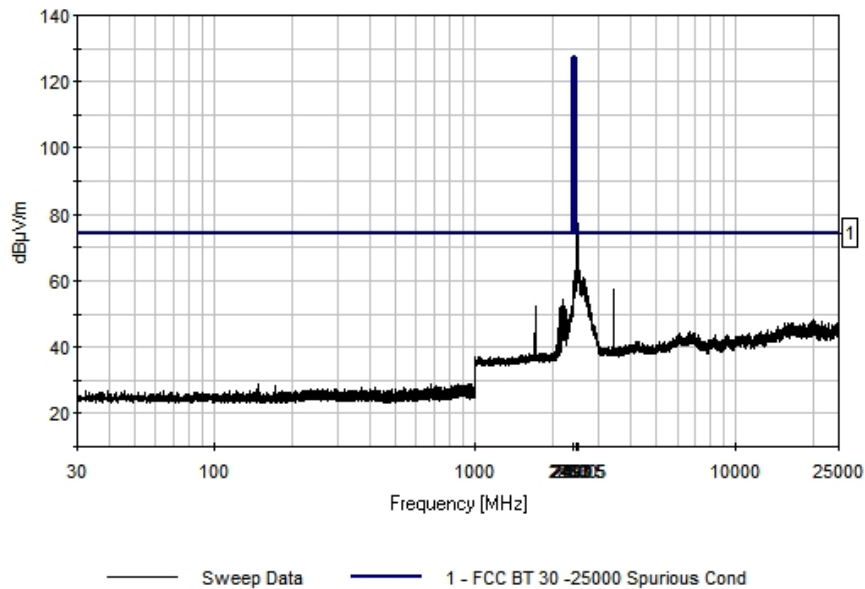
DPQSK – 2441 Xmit Frequency

EMCE Engineering Date: 3/20/2016 Time: 3:11:58 PM Customer WO#:
FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 14 Ext ATTN: 10 dB



DPQSK – 2480 Xmit Frequency

EMCE Engineering Date: 3/20/2016 Time: 2:49:47 PM Customer WO#:
FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 12 Ext ATTN: 10 dB

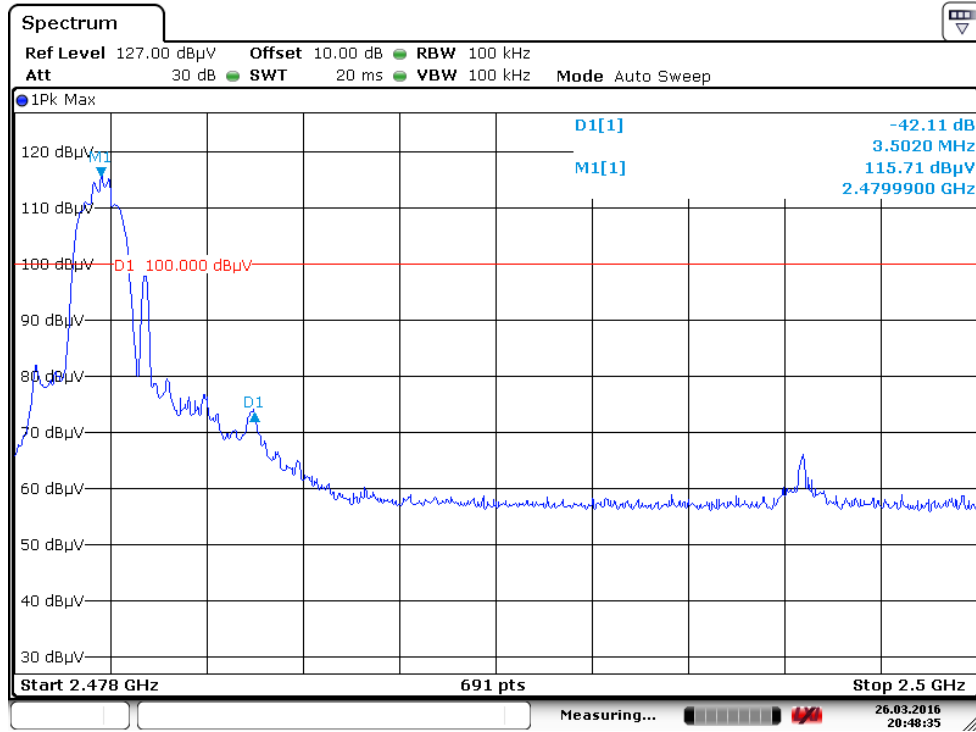




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DPQSK – 2480 Xmit Frequency BandEdge Delta



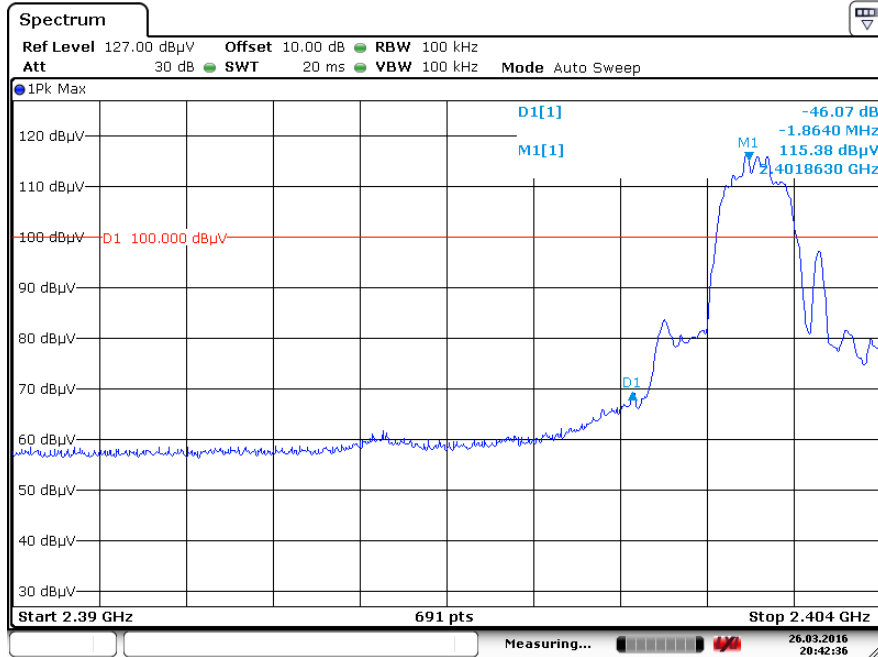
Date: 26 MAR 2016 20:48:34



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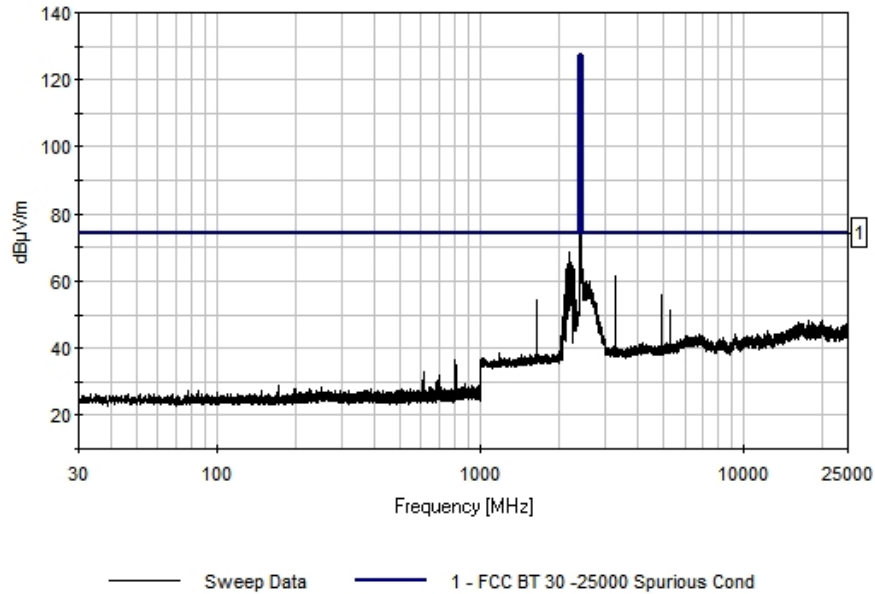
8DPSK – 2402 Xmit Frequency BandEdge Delta



Date: 26 MAR. 2016 20:42:36

8DPSK – 2402 Xmit Frequency

EMCE Engineering Date: 3/25/2016 Time: 11:42:39 AM Customer WO#: FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 7 Ext ATTN: 10 dB



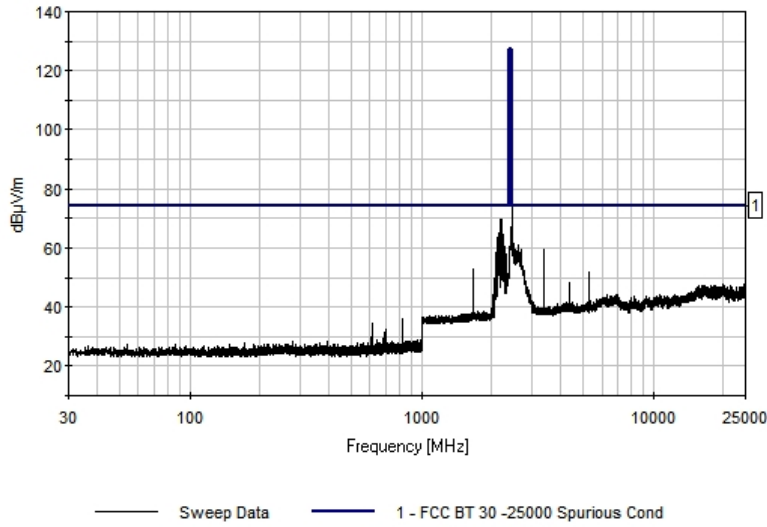


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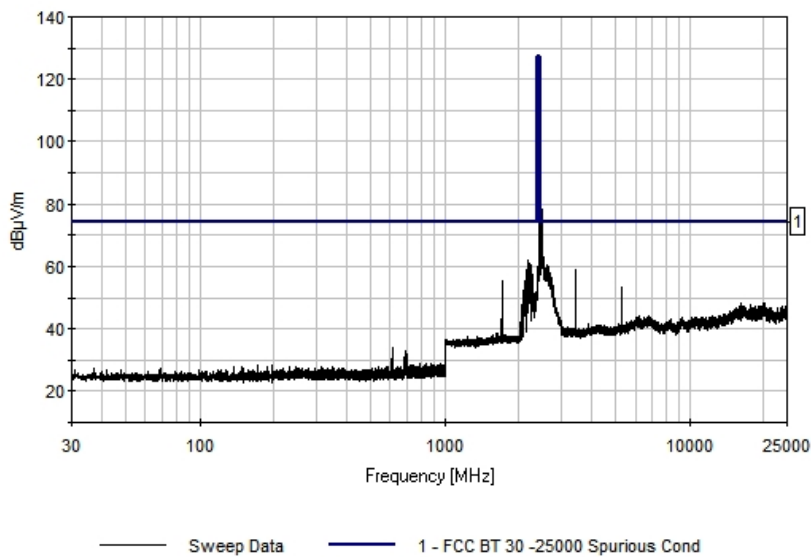
8DPSK – 2441 Xmit Frequency

EMCE Engineering Date: 3/25/2016 Time: 2:12:10 PM Customer WO#:
FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 8 Ext ATTN: 10 dB



8DPSK – 2480 Xmit Frequency

EMCE Engineering Date: 3/25/2016 Time: 10:52:25 AM Customer WO#:
FCC BT 30 -25000 Spurious Cond Test Lead: Antenna Battery Sequence#: 6 Ext ATTN: 10 dB

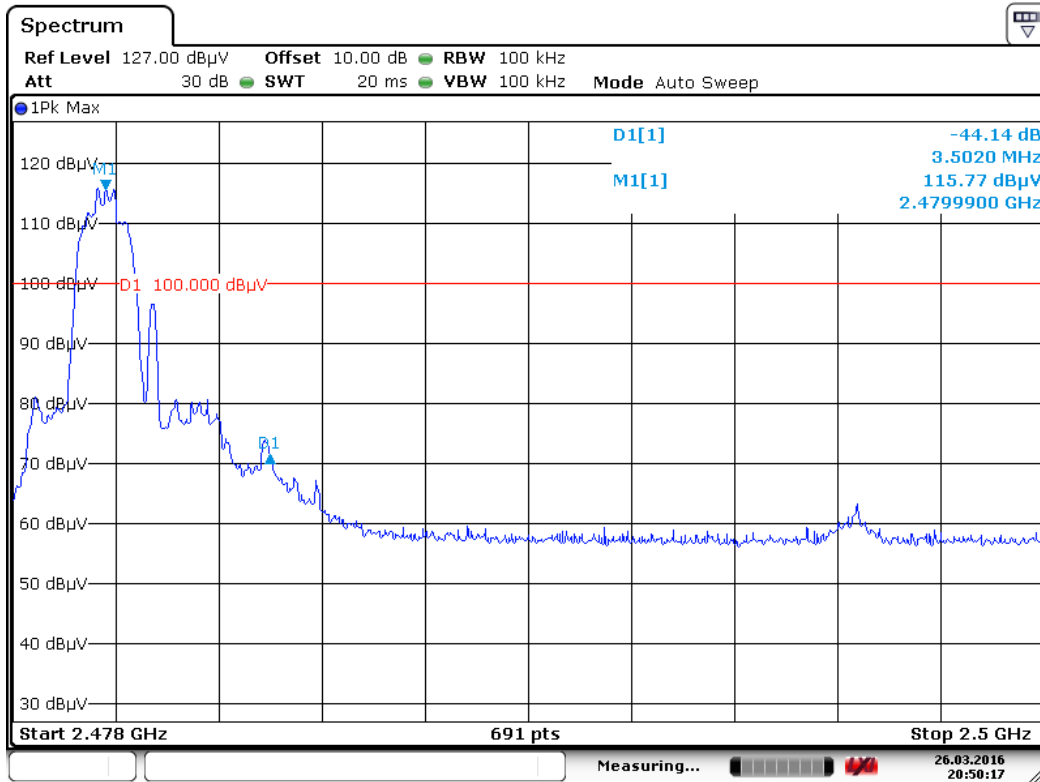




FCC ID:LUBD750
IC: 2925A-D750

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8DPSK – 2480 Xmit Frequency BandEdge Delta



Date: 26 MAR. 2016 20:50:18



5.8 TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

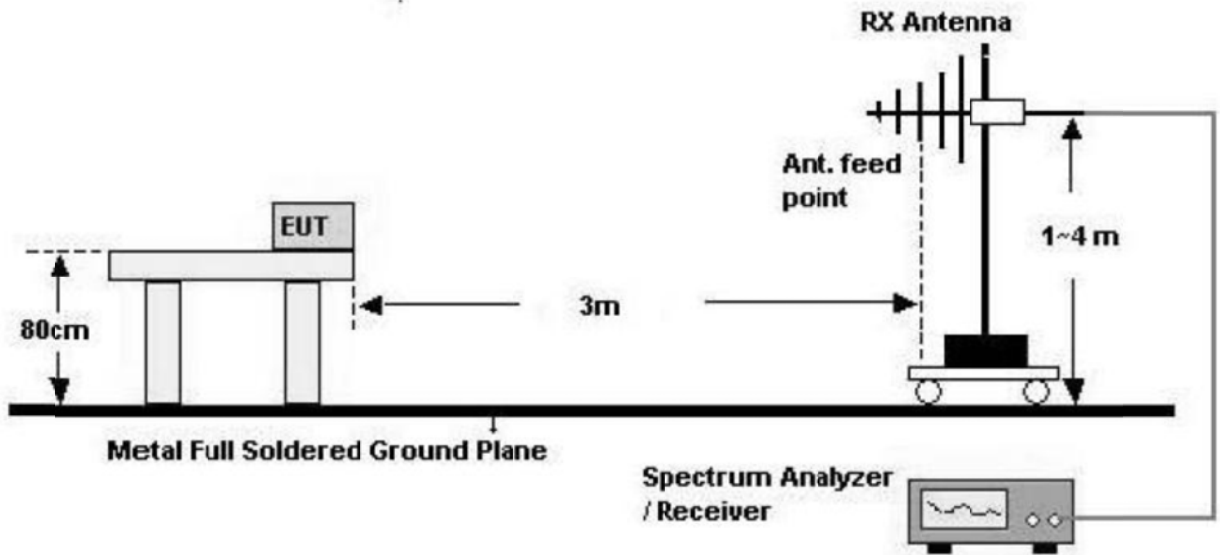
§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table ;

Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

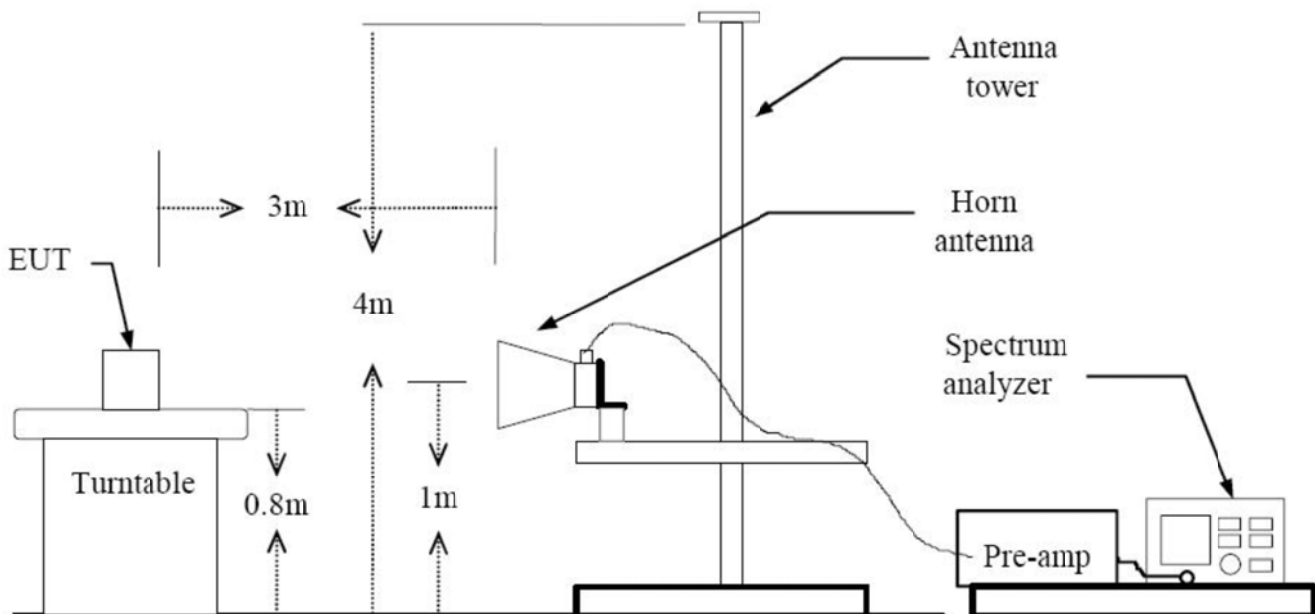
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., Sections 15.231 and 15.241

TEST CONFIGURATION

[30 MHz - 1 GHz]



[Above 1 GHz]





TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4 The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 KHz for peak detection measurements or 120 KHz or quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and VBW of 10 Hz for average measurements.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

RESULTS:

NO non-compliance noted.

Note

1. The antenna is manipulated through typical positions, polarity and length during the testing
2. The frequency range was scanned from 30 MHz to 1 GHz and the worst-case emissions are reported.
3. There is detected level above reference noise floor spectrum analyzer.

FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor.
The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF$$

where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 21.5 dBuV is obtained. The Antenna Factor of 7.4 dB/m and a Cable Factor of 1.1 dB is added. The 30 dBuV/m value is mathematically converted to its corresponding level in uV/m.

$$FS = 21.5 + 7.4 + 1.1 = 30 \text{ dBuV/m}$$



MEASUREMENT UNCERTAINTY

**Measurement Uncertainty Budget
Radiated Emissions @ 10 Meters
Per CISRP 16-4-2**

Input Quantity	Uncertainty of x_i		U(x) dB	C_i	$C_i u(x_i)$ dB
	dB	Probability Distribution Function			
Receiver Reading	+/- 0.1	K = 1	0.1	1	0.1
Attenuation, Antenna - receiver	+/- 0.1	K = 2	0.05	1	0.05
Antenna Factor	+/- 2.0	K = 2	1.0	1	1.0
Receiver Corrections					
Sine Wave Voltage	+/- 1.0	K = 1	0.5	1	0.5
Pulse Amplitude Response	+/- 1.5	Rectangular	0.87	1	0.87
Pulse Rep Rate Response	+/- 1.5	Rectangular	0.87	1	0.87
Noise Floor Proximity	+/- 0.5	K = 2	0.25	1	0.25
Mismatch Antenna – Receiver	+/- 0.9	U shaped	0.67	1	0.67
Antenna Corrections					
AF Freq Interpolation	+/- 0.3	Rectangular	0.17	1	0.17
AF Height Deviations	+/- 0.5	Rectangular	0.29	1	0.29
Balance	+/- 0.3	Rectangular	0.17	1	0.17
Site Corrections					
Site Imperfections	+/- 3.0	Rectangular	1.22	1	0.82
Separation distance	+/- 0.1	Rectangular	0.06	1	0.06
Table Height	+/- 0.1	K = 2	0.05	1	0.05
Total Measurement Uncertainty - Radiated Emissions @ 10 Meters $2U_c(E) = 4.89$					4.89



FCC ID:LUBD750
IC: 2925A-D750

Test Report #: 4200-1
03/26/2016

Radiated Spurious Emissions 30M – 25 GHz

Test Location: EMCE Engineering •44366 S. Grimmer Blvd • Fremont, CA 94538 •

Customer: **Socket Mobile, Inc.**
Specification: **FCC 15.209 30 - 25000 Limits**
Work Order #: **4200** Date: 3/21/2016
Test Type: **Radiated Scan** Time: 09.36.14 AM
Equipment: **Cordless Hand Scanner** Sequence#: 1
Manufacturer: Socket Mobile Tested By: Bob Cole
Model: D750
S/N: N/A

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
FSV40-B160 Signal Analyzer	101468	03/28/2015	03/28/2017	755
EMCO 3115 Horn	9065-5057	05/20/2015	05/20/2016	608
HP 8449B Preamp	3008A02190	05/15/2015	05/15/2016	749
EMITest Measurement Software	v4.01 Build 195	05/01/2014	05/01/2017	610

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Cordless Hand Scanner*	Socket Mobile	D750	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

GSKF, DQPSK, and 8DPSK Modes were all investigated and maximized. Worst Case Data is presented. ALL worst case radiated spurious emission resulted from GSKF modulation.

Transducer Legend:

T1=8447 Pre-Amp Asset 377	T2=25' LMR #001
T3=8449B Preamp	T4=Sunol 1GHz JB6 S/N A42610
T5=A.H. SAS-200/571 Horn	

Ext Attn: 0 Db



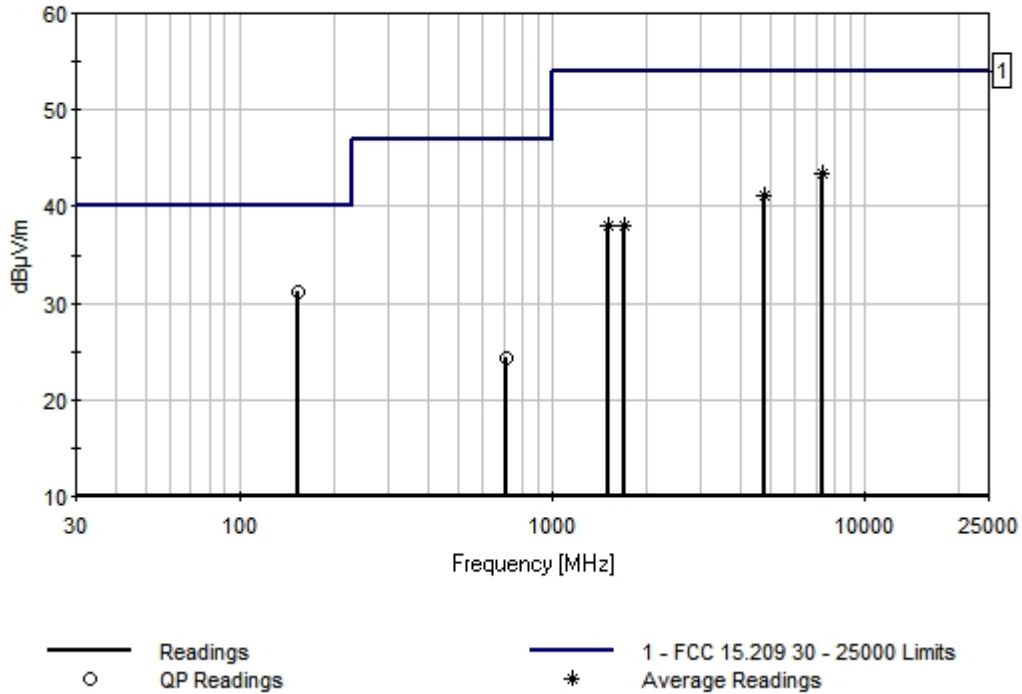
FCC ID:LUBD750
IC: 2925A-D750

Test Report #: 4200-1
03/26/2016

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	7323.580M Ave	36.1	+0.0 +34.9	+2.6	+30.2	+0.0	+0.0 62	43.4	54.0 2441 Xmit GSKF	-10.6	Vert 212
2	4804.780M Ave	34.1	+0.0 +34.7	+2.6	+30.3	+0.0	+0.0 180	41.1	54.0 7206.55 Xmit	-12.9	Vert 188
3	154.880M QP	37.1	+27.1 +0.0	+0.7	+0.0	+20.5	+0.0 271	31.2	47.0 2480 Xmit	-15.8	Vert 175
4	1511.040M Ave	38.2	+0.0 +28.3	+1.2	+29.7	+0.0	+0.0 99	38.0	54.0 2480 Xmit	-16.0	Vert 208
5	1704.760M Ave	38.9	+0.0 +27.6	+0.9	+29.4	+0.0	+0.0 228	38.0	54.0 2441 Xmit	-16.0	Vert 209
6	716.720M QP	34.3	+26.9 +0.0	+0.3	+0.0	+16.7	+0.0 158	24.4	47.0 2402 Xmit	-22.6	Vert 171

EMCE Engineering Date: 3/21/2016 Time: 09:36:14 AM Socket Mobile, Inc. WO#: 4200
FCC 15.209 30 - 25000 Limits Test Distance: 3 Meters Sequence#: 1 Ext ATTN: 0 dB





5.9 RADIATED SPURIOUS EMISSIONS – BANDEDGE

15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. **In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).**

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

RESULTS

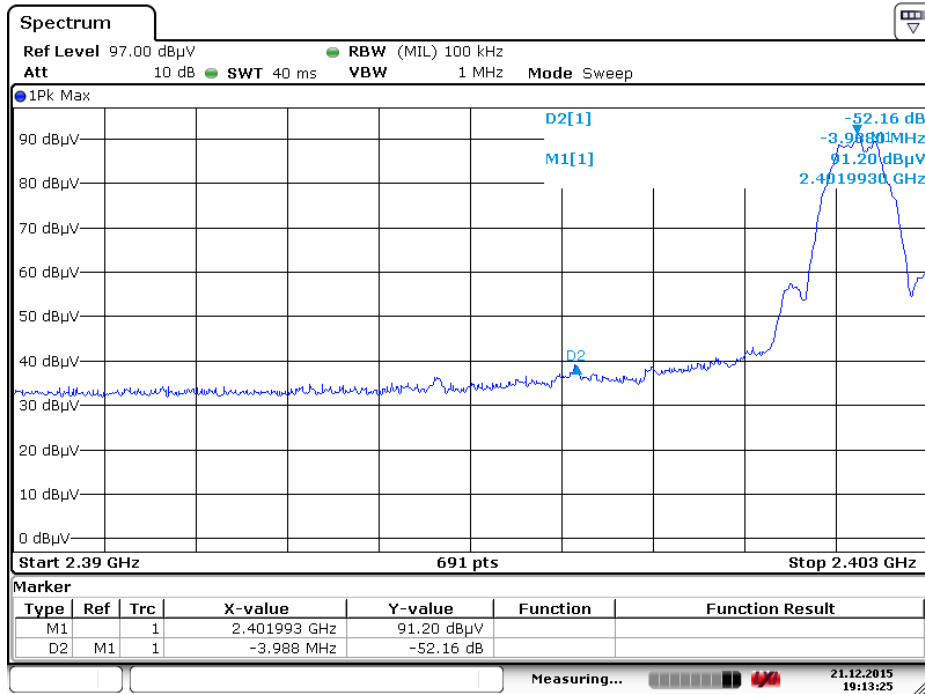
Note: GFSK, DQPSK, and 8DPSK Modes were all investigated and maximized. Worst Case Data is presented. ALL worst case radiated spurious emission resulted from GFSK modulation.

Bandedge Frequency(MHz)	Measured(dBc)	Limit (dBc)	Result
2402	52.16	>20	PASS
2480	50.87	>20	PASS

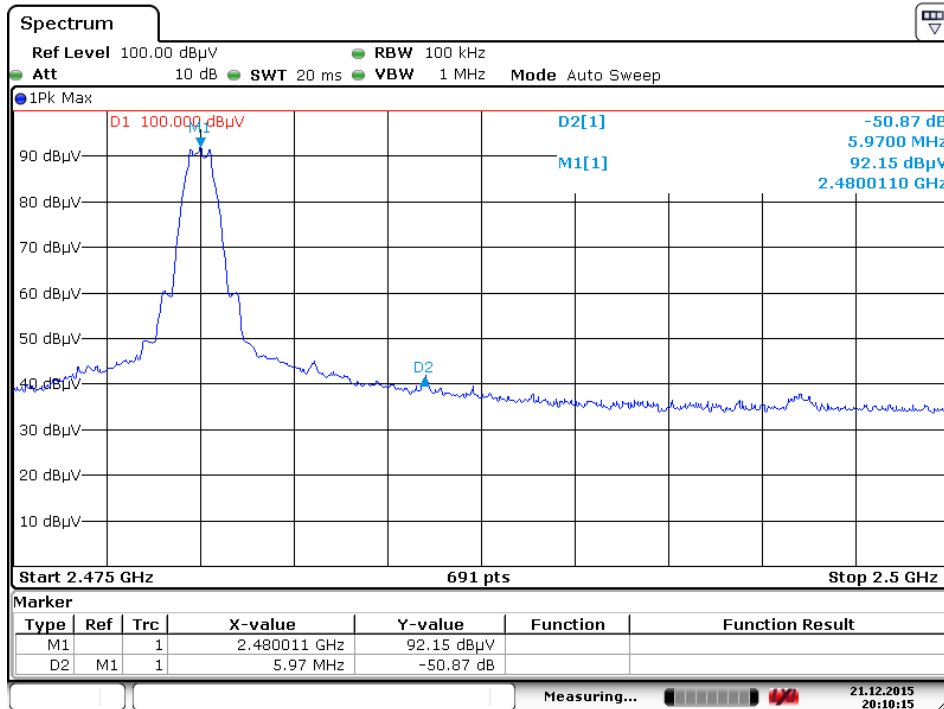


FCC ID:LUBD750
IC: 2925A-D750

Test Report #: 4200-1
03/26/2016



Date: 21 DEC 2015 19:13:25



Date: 21 DEC 2015 20:10:15



FCC ID:LUBD750
IC: 2925A-D750

Test Report #: 4200-1
03/26/2016

6.0 TEST EQUIPMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE DATE
Signal Analyzer Rohde-Schwarz	FSV40	1321.3008K40- 101424-TU	8/10/15	8/10/16
Pre-Amplifier(100KHz-1.3GHz) Hewlett-Packard	8447D	2443A03587	5/1/14	5/1/16
BiConiLog Antenna Sunol Sciences	JB6	1090	8/12/15	8/12/16
RF Signal Cable EMCE	25' LMR	N/A	8/10 /15	8/10 /16
RF Signal Cable EMCE	100' LMR	N/A	8/1 /15	8/1 /16