ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

Product Name:	**Data and Audio Transmitter**
Brand Name:	**Gomet**
Model No.:	**GWD915T, GWD910T**
Model Difference:	**Different Color and Function of Motion Sensor**
FCC ID:	**QS6-GWD915T**
Report No.:	**ER/2015/C0054**
Issue Date:	**Feb. 16, 2016**
FCC Rule Part:	**§15.247, Cat: DTS**
Prepared for:	**Taiwan Gomet Tech. Co., Ltd. 2F., No.8-1, Ln.212, Sec.1, Zhongshan N. Rd., Tamsui Dist., New Taipei City, 251 Taiwan**
Prepared by:	**SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803**

Testing Laboratory
0513

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VERIFICATION OF COMPLIANCE

Applicant:	Taiwan Gomet Tech. Co., Ltd. 2F., No.8-1, Ln.212, Sec.1, Zhongshan N. Rd., Tamsui Dist., New Taipei City, 251 Taiwan
Product Name:	Data and Audio Transmitter
Brand Name:	Gomet
Model No.:	GWD915T, GWD910T
Model Difference:	Different Color and Function of Motion Sensor
FCC ID:	QS6-GWD915T
Report Number:	ER/2015/C0054
Date of test:	Dec. 14, 2015 ~ Feb. 02, 2016
Date of EUT Received:	Dec. 14, 2015

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.
The test results of this report relate only to the tested sample identified in this report.

Test By:	Marcus Tseng	***Date:***	Feb. 16, 2016
	Marcus Tseng / Engineer		
Prepared By:	Violetta Tang	***Date:***	Feb. 16, 2016
	Violetta Tang / Clerk		
Approved By:	Jim Chang	***Date:***	Feb. 16, 2016
	Jim Chang / Asst. Manager		

Revision History

Report Number	Revision	Description	Issue Date
ER/2015/C0054	Rev.00	Initial creation of document	Feb. 16, 2016

CONTENTS

1 GENERAL INFORMATION

1.1 Product description

General:

Product Name:	Data and Audio Transmitter	
Brand Name:	Gomet	
Model No.:	GWD915T, GWD910T	
Model Difference:	Different Color and Function of Motion Sensor	
Hardware Version:	05	
Software Version:	05	
Simple Hands-Free:	Model No.: GWD915G, Supplier: Gomet	
Pouch:	Model No.: Leather Pouch, Supplier: Gomet	
Lapel Microphone: (with GPS function)	Model No.: GWD915G, Supplier: Gomet	
Power Supply:	3.6Vdc form Rechargeable Li-ion Battery or 12V from AC/DC Adapter	
	Battery:	Model No.: BP01; Supplier: Gomet
	Adapter:	Model No.: GF12-US1210; Supplier: JET

Wireless:

Operation Frequency:	904~926MHz
Channel number:	20 channels
Channel list:	904MHz, 904.5MHz, 906MHz, 907.5MHz 908MHz, 910MHz, 910.5MHz, 912MHz 913.5MHz, 914MHz, 916MHz, 916.5MHz 918MHz, 919.5MHz, 920MHz, 922MHz 922.5MHz, 924MHz, 925.5MHz, 926MHz
Modulation Type:	DSSS
Rated Power:	21.711dBm (Peak)
Antenna Designation:	Wire Antenna, Gain: 4.4dBi

1.2 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 DTS Meas. Guidance V03r04

ANSI C63.10:2013

Note:

1. All test items have been performed and record as per the above standards.
2. The composite system is compliance with FCC Subpart B is authorized under a DoC procedure.

1.3 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan. (TAF code 0513)

FCC Registration Numbers are: 990257

Canada Registration Number: 4620A-5.

1.4 Special Accessories

There are no special accessories used while test was conducted.

1.5 Equipment Modifications

There was no modification incorporated into the EUT.

2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz,. The CISPR Quasi-Peak and Average detector mode is employed according to §15.207. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

Note: The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation example with cable loss 10.5.

2.5 Configuration of Tested System

Fig. 2-1 Radiated & Conducted Emission

Fig. 2-2 AC Power Line Conducted Emission

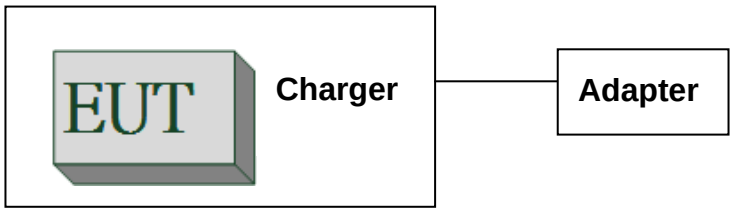


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Wireless Test Software	N/A	N/A	N/A	N/A	N/A

3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	Peak Output Power	Compliant
§15.247(a)(2)	6dB Emission Bandwidth	Compliant
§15.247(d)	Conducted Band Edge and Spurious Emission	Compliant
§15.247(d)	Radiated Band Edge and Spurious Emission	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.203 §15.247(b)	Antenna Requirement	Compliant

4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.
Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel low (904MHz)、mid (916MHz) and high (926MHz) with highest data rate are chosen for full testing.

5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
Peak Output Power	+/- 0.84 dB
6dB Bandwidth	+/- 51.33 Hz
100 KHz Bandwidth Of Frequency Band Edges	+/- 0.84 dB
Peak Power Density	+/- 1.3 dB
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission:

Measurement uncertainty (Polarization : **Vertical**)	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

Measurement uncertainty (Polarization : **Horizontal**)	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

6 CONDUCTED EMISSION TEST

6.1 Standard Applicable

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

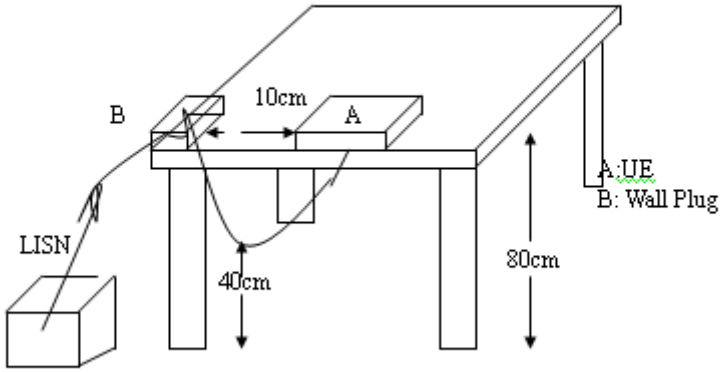
6.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCI7	100760	05/04/2015	05/03/2016
LISN	SCHWARZBECK	NSLK 8127	8127-649	05/15/2015	05/14/2016
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	03/13/2015	03/12/2016
Coaxial Cables	N/A	WK CE Cable	N/A	11/26/2015	11/25/2016

6.3 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

6.4 Test SET-UP (Block Diagram of Configuration)



6.5 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed

6.6 Measurement Result

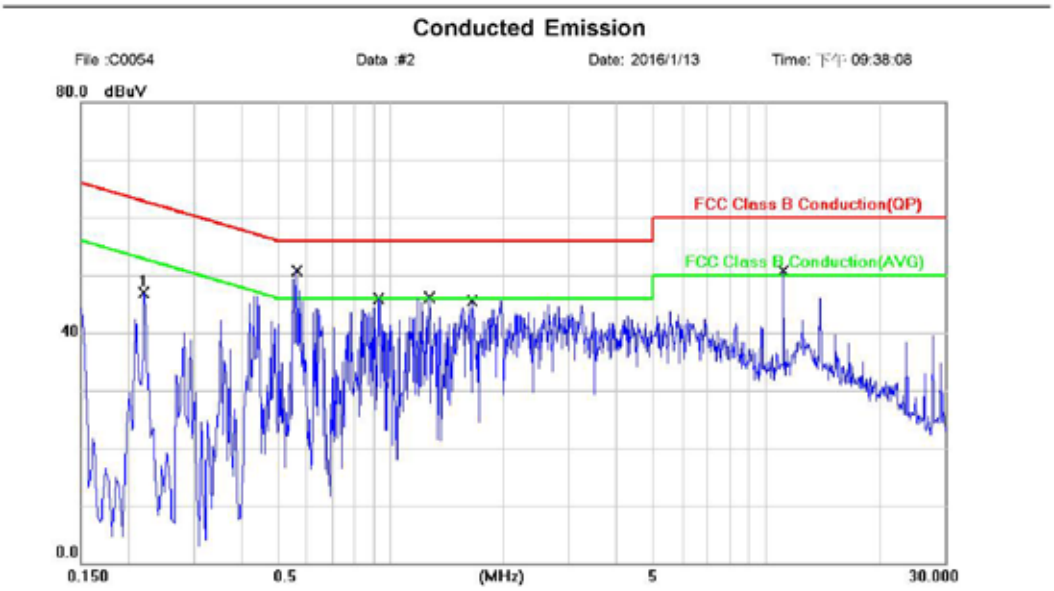
AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation mode			Test Date:	Jan. 13, 2016
Temperature:	22 ℃	Humidity:	70 %	Test By:	Marcus
				Probe:	L1

Site Conduction Room
Limit: FCC Class B Conduction(QP)
Mode: Charging
Note: Adapter:GF12-US1210

Phase: L1
Power: AC 120V/60Hz

Temperature: 22 ℃
Humidity: 70 %



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2220	46.89	0.03	46.92	62.74	-15.82	peak	
2		0.5660	47.60	0.03	47.63	56.00	-8.37	QP	
3		0.5660	32.10	0.03	32.13	46.00	-13.87	AVG	
4		0.9300	40.40	0.04	40.44	56.00	-15.56	QP	
5		0.9300	24.40	0.04	24.44	46.00	-21.56	AVG	
6		1.2700	39.80	0.05	39.85	56.00	-16.15	QP	
7		1.2700	22.90	0.05	22.95	46.00	-23.05	AVG	
8		1.6580	39.10	0.05	39.15	56.00	-16.85	QP	
9		1.6580	21.00	0.05	21.05	46.00	-24.95	AVG	
10		11.1500	48.40	0.31	48.71	60.00	-11.29	QP	
11	*	11.1500	42.50	0.31	42.81	50.00	-7.19	AVG	

Operation Mode:	Operation mode			Test Date:	Jan. 13, 2016
Temperature:	22 ℃	Humidity:	70 %	Test By:	Marcus
				Probe:	N

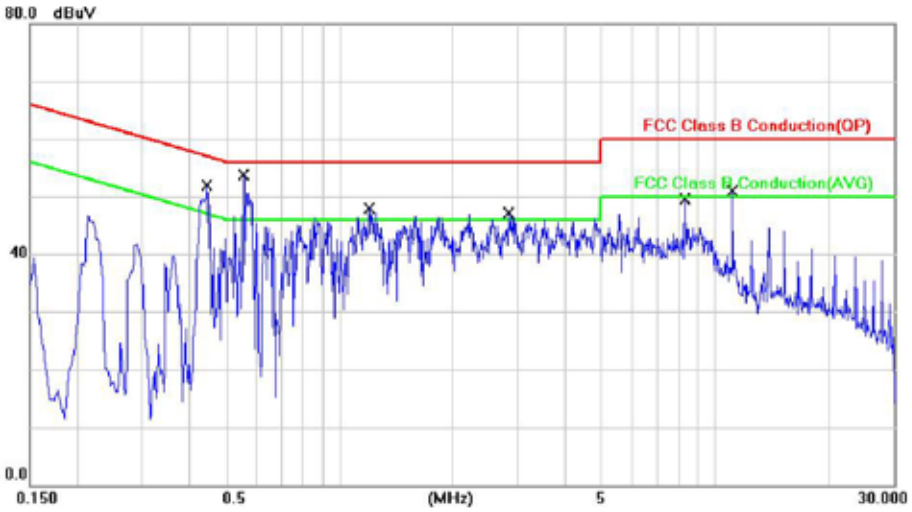
Site Conduction Room
Limit: FCC Class B Conduction(QP)
Mode: Charging
Note: Adapter:GF12-US1210

Phase: N
Power: AC 120V/60Hz

Temperature: 22 ℃
Humidity: 70 %

Conducted Emission

File :C0054 Data :#1 Date: 2016/1/13 Time: 下午 09:35:00



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4460	49.00	0.03	49.03	56.95	-7.92	QP	
2		0.4460	34.00	0.03	34.03	46.95	-12.92	AVG	
3		0.5580	48.80	0.03	48.83	56.00	-7.17	QP	
4		0.5580	33.20	0.03	33.23	46.00	-12.77	AVG	
5		1.2060	43.30	0.04	43.34	56.00	-12.66	QP	
6		1.2060	30.70	0.04	30.74	46.00	-15.26	AVG	
7		2.8380	41.00	0.10	41.10	56.00	-14.90	QP	
8		2.8380	28.40	0.10	28.50	46.00	-17.50	AVG	
9		8.3620	50.50	0.27	50.77	60.00	-9.23	QP	
10	*	8.3620	46.60	0.27	46.87	50.00	-3.13	AVG	
11		11.1580	45.60	0.31	45.91	60.00	-14.09	QP	
12		11.1580	34.80	0.31	35.11	50.00	-14.89	AVG	

7 DUTY CYCLE OF TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

Formula:

Duty Cycle = Ton / (Ton+Toff)

Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

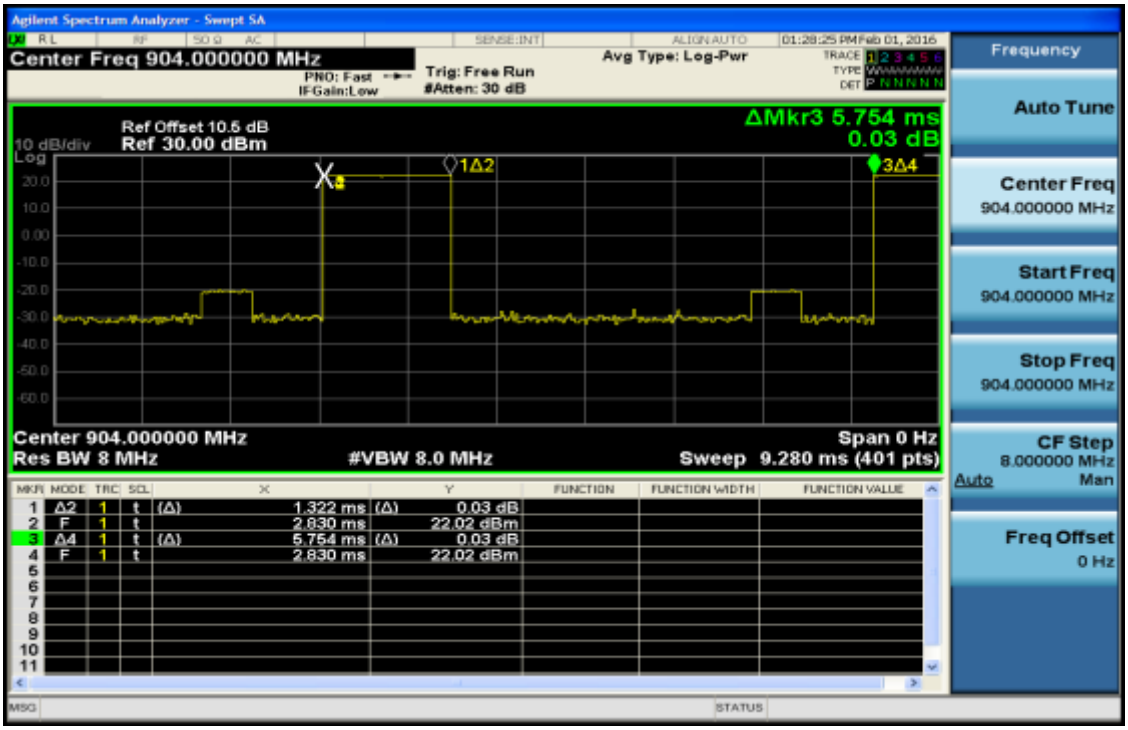
Duty Cycle:

Duty Cycle	Duty Factor (dBm)
0.23	6.38

Duty Cycle Factor: 10 * log (1/Duty cycle)

10 * log (1/0.23)=6.38

7.1 DUTY CYCLE TEST SIGNAL Measurement Result



8 PEAK OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

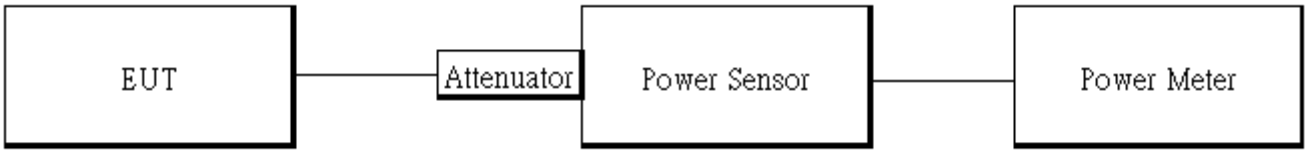
In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

8.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Power Meter	Anritsu	ML2495A	1005007	12/09/2015	12/08/2016
Power Sensor	Anritsu	MA2411B	917032	12/09/2015	12/08/2016
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/02/2016	01/01/2017
Spectrum Analyzer	Agilent	E4440A	MY45304525	05/05/2015	05/04/2016
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2016	01/01/2017
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017

8.3 Test Set-up

Power Meter:



8.4 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance V03r04.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.
   Power Meter:
   It is used as the auxiliary test equipment to conduct the output power measurement.
4. Record the max. Reading as observed from Spectrum or Power Meter.

8.5 Measurement Result

Frequency (MHz)	Peak Power Output (dBm)	Required Limit
904	**21.711**	**1 Watt = 30 dBm**
916	21.695	**1 Watt = 30 dBm**
926	21.256	**1 Watt = 30 dBm**

Frequency (MHz)	Average Power Output (dBm)	Required Limit
904	21.583	**1 Watt = 30 dBm**
916	21.515	**1 Watt = 30 dBm**
926	21.089	**1 Watt = 30 dBm**

**** Note:***

1. The duty cycle factor is compensated back to obtain the maximum value of the measurement in average.

9 6dB BANDWIDTH MEASUREMENT

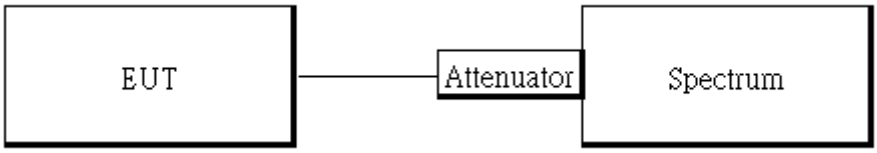
9.1 Standard Applicable

The minimum 6 dB bandwidth shall be at least 500 kHz.

9.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Power Meter	Anritsu	ML2495A	1005007	12/09/2015	12/08/2016
Power Sensor	Anritsu	MA2411B	917032	12/09/2015	12/08/2016
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/02/2016	01/01/2017
Spectrum Analyzer	Agilent	E4440A	MY45304525	05/05/2015	05/04/2016
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2016	01/01/2017
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017

9.3 Test Set-up



9.4 Measurement Procedure

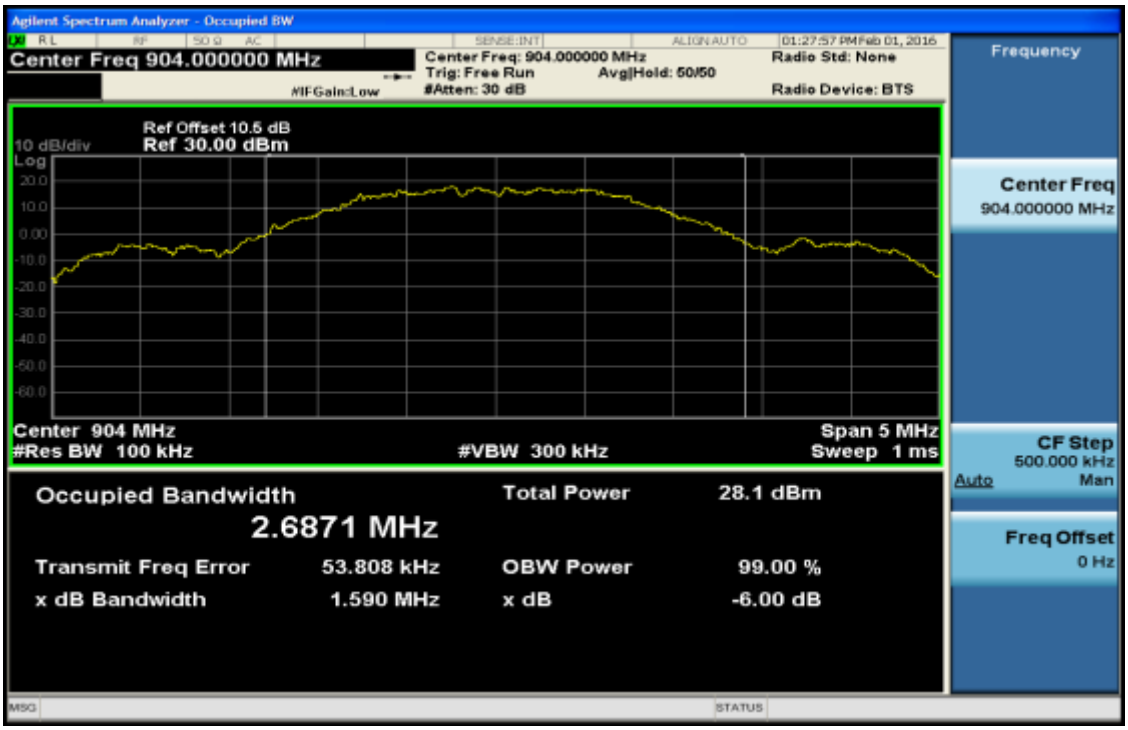
1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance V03r04.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set the spectrum analyzer as RBW = 100 kHz, VBW = 3*RBW, Span = 30M/50MHz, Detector=peak, Sweep=auto.
5. Mark the peak frequency and –6dB (upper and lower) frequency.

9.5 Measurement Result

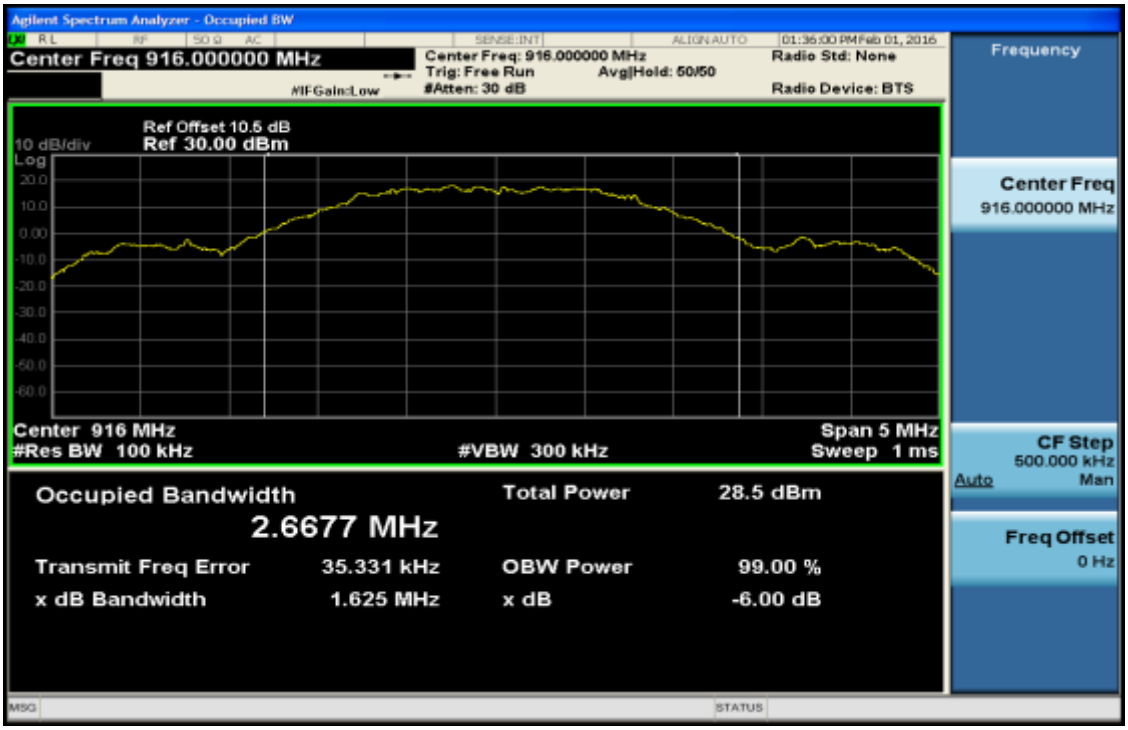
Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
904	1590	> 500	PASS
916	1625	> 500	PASS
926	1604	> 500	PASS

**Refer to next page for plots*

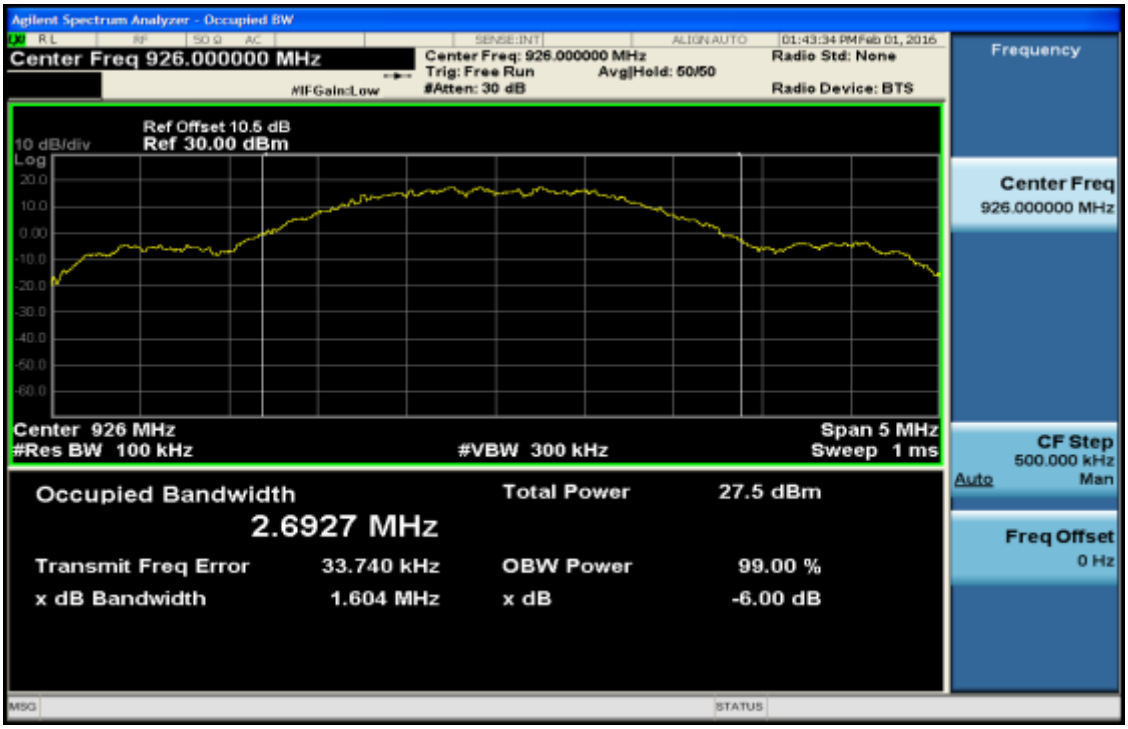
6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid



6dB Band Width Test Data CH-High



10 CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT

10.1 Standard Applicable

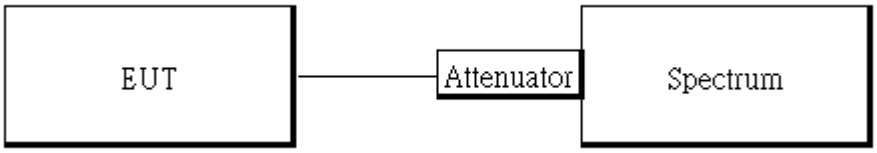
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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. 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).

If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

10.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Power Meter	Anritsu	ML2495A	1005007	12/09/2015	12/08/2016
Power Sensor	Anritsu	MA2411B	917032	12/09/2015	12/08/2016
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/02/2016	01/01/2017
Spectrum Analyzer	Agilent	E4440A	MY45304525	05/05/2015	05/04/2016
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2016	01/01/2017
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017

10.3 Test SET-UP



10.3.1 Measurement Procedure

Conducted Band Edge:

1. To connect Antenna Port of EUT to Spectrum.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance V03r04.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set start to edge frequency, and stop frequency of spectrum analyzer so as to encompass the spectrum to be examined.
5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Detector = Peak, Sweep = auto
6. Mark the highest reading of the emission as the reference level measurement.
7. Set DL as the limit = reading on marker 1 – 20dBm
8. Marker on frequency, 2.3999GHz and 2.4836GHz, and examine shall 100 kHz immediately outside the authorized (2400~2483.5) be attenuated by 20dB at least relative to the maximum emission of power.
9. Repeat above procedures until all default test channel (low, middle, and high) was complete.

Conducted Spurious Emission:

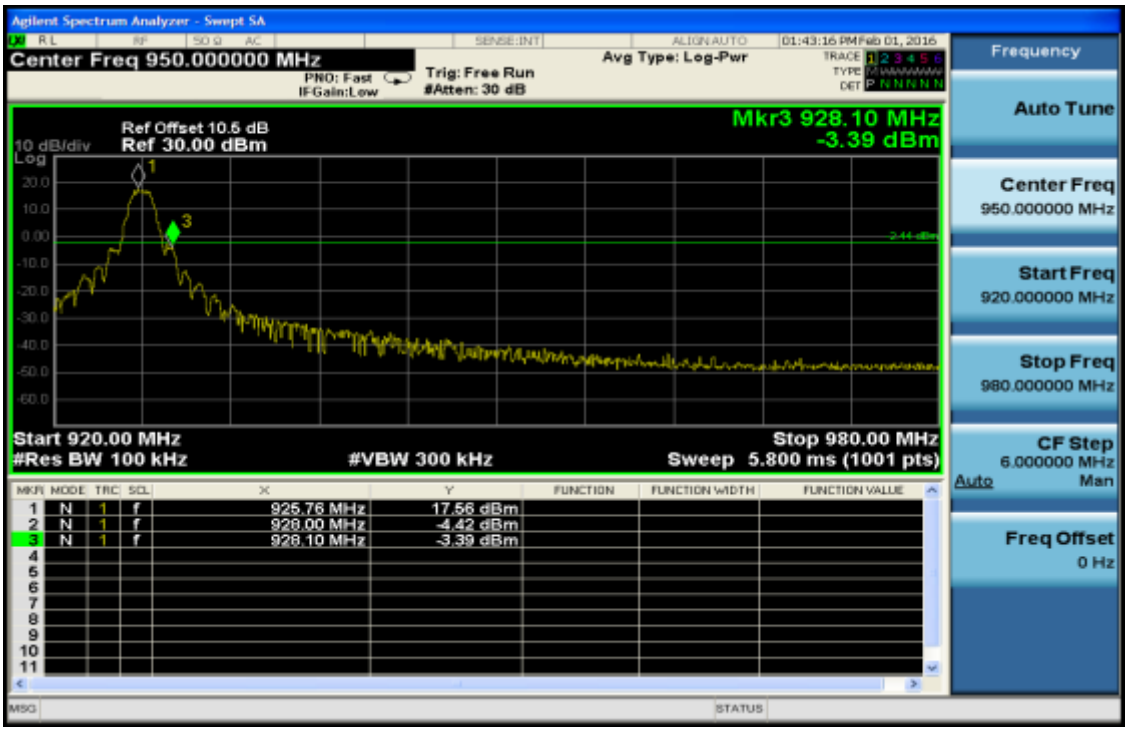
1. To connect Antenna Port of EUT to Spectrum
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance V03r04.
3. Set RBW = 100 kHz & VBW= 300 kHz, Detector =Peak, Sweep = Auto.
4. Allow trace to fully stabilize.
5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. Repeat above procedures until all default test channel measured were complete.

10.4 Measurement Result

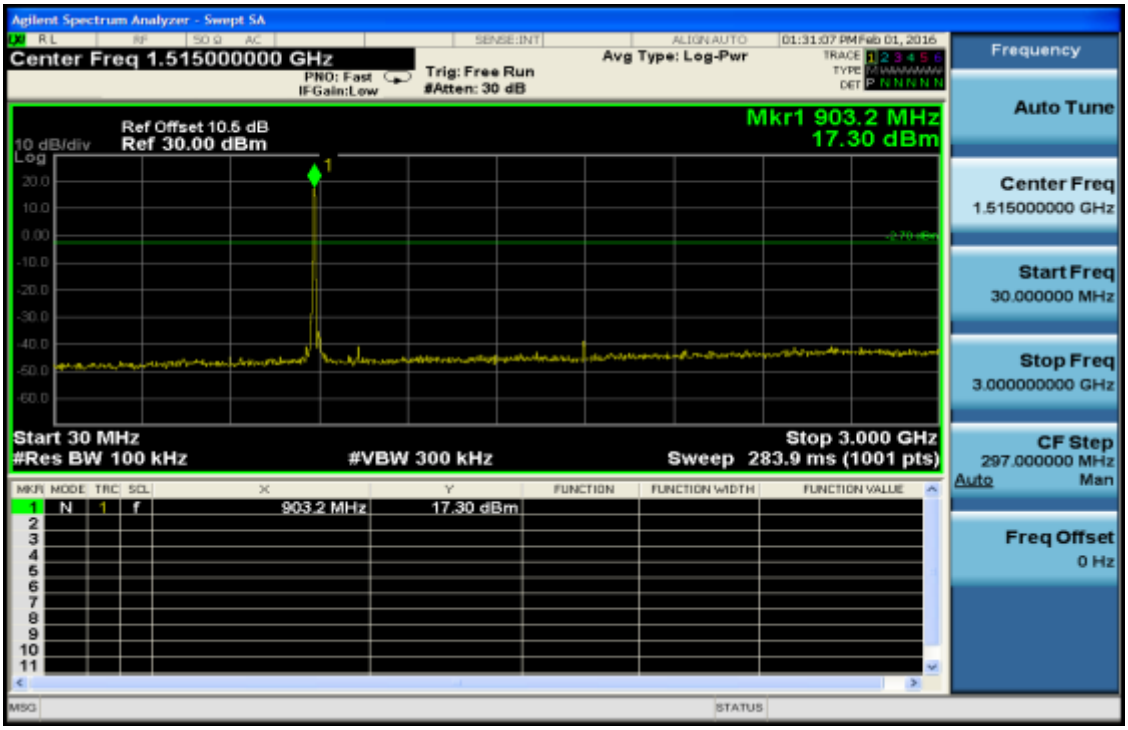
Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

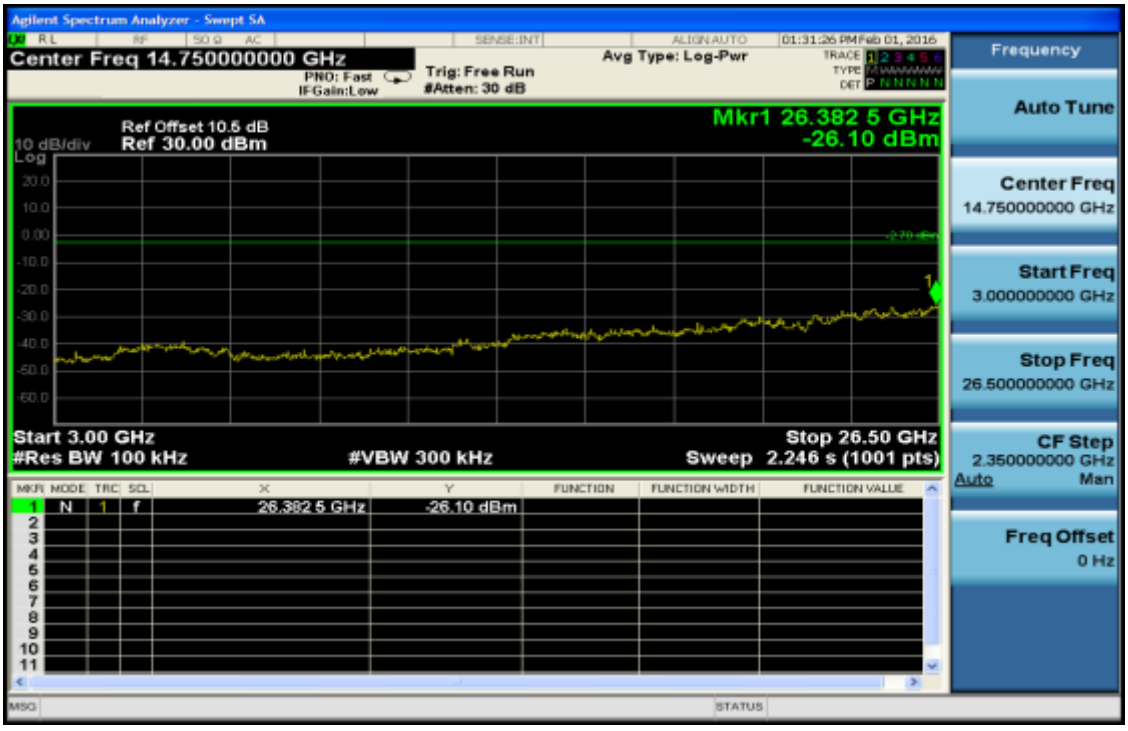
Band Edges Test Data CH-Low

Band Edges Test Data CH-High

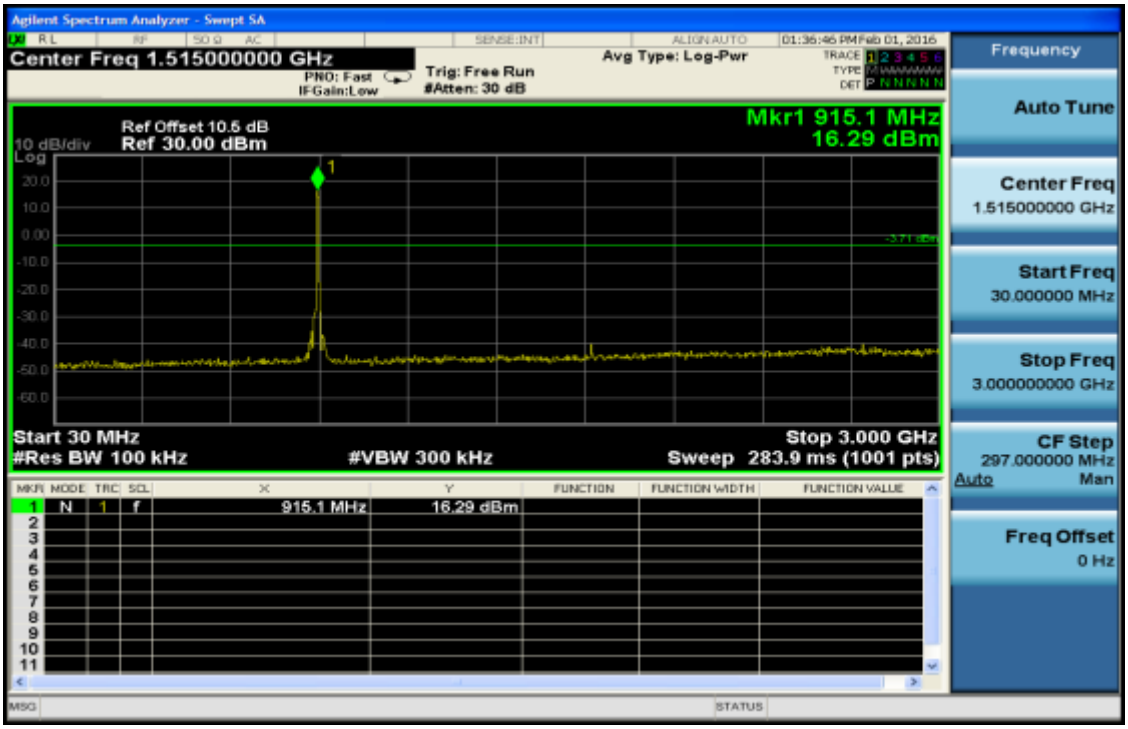


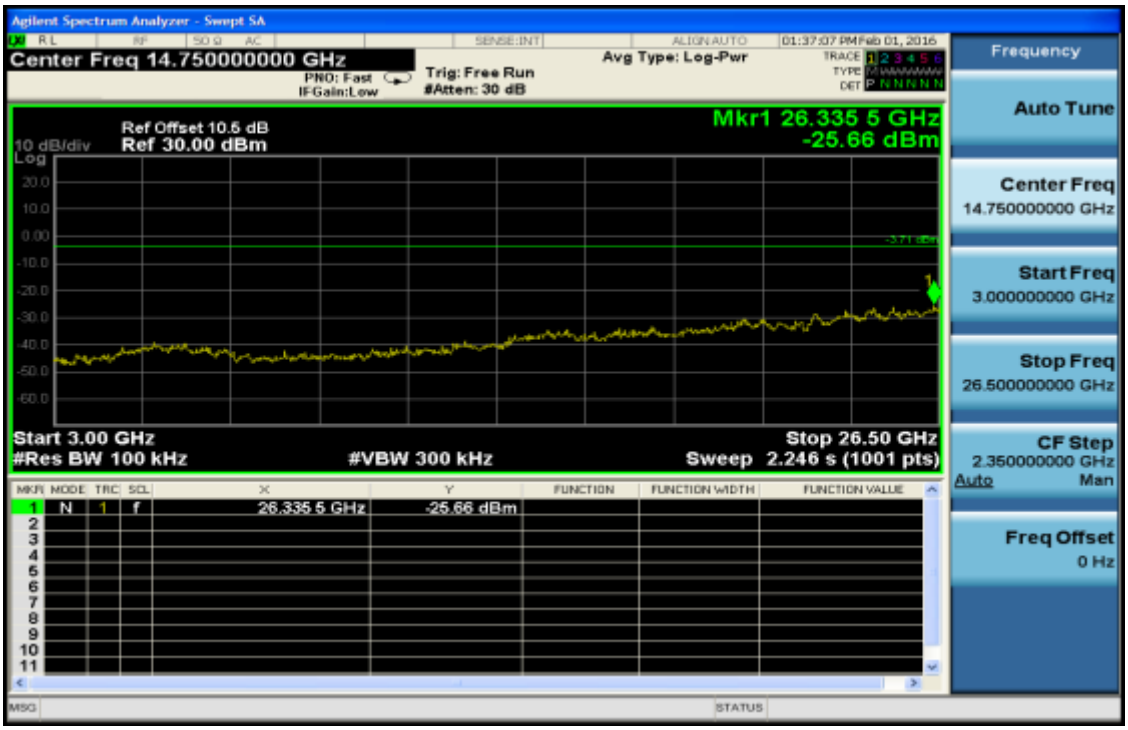
Spurious Emission Test Data CH-Low



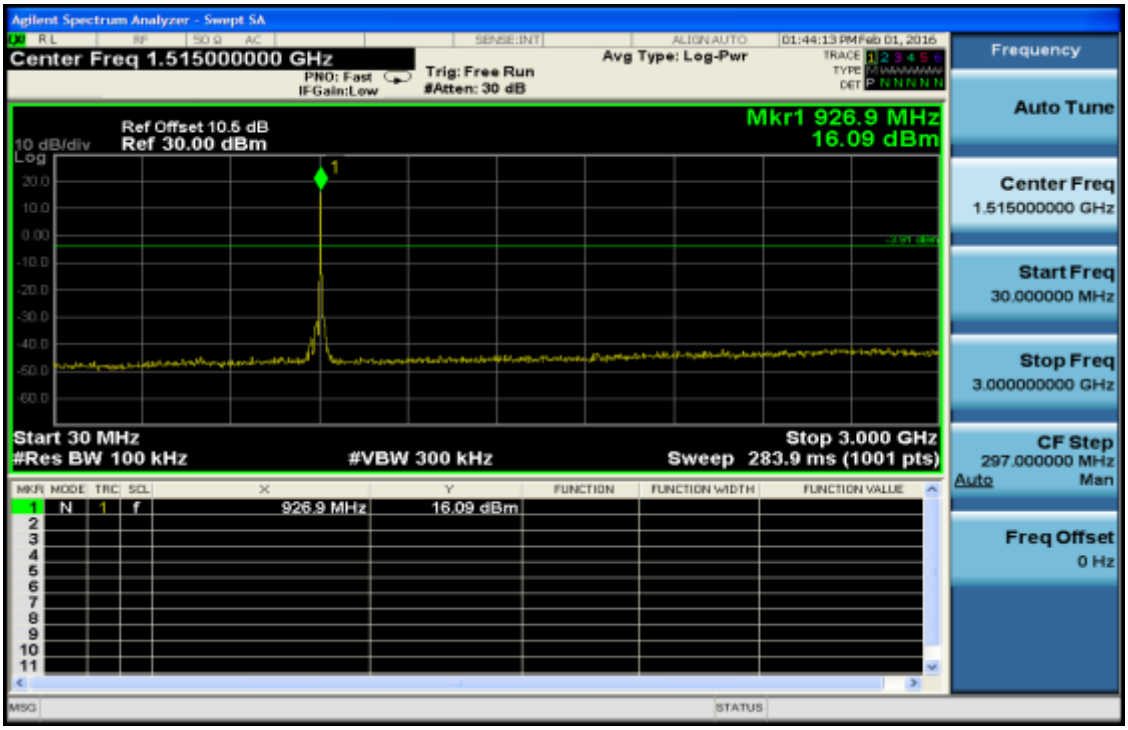


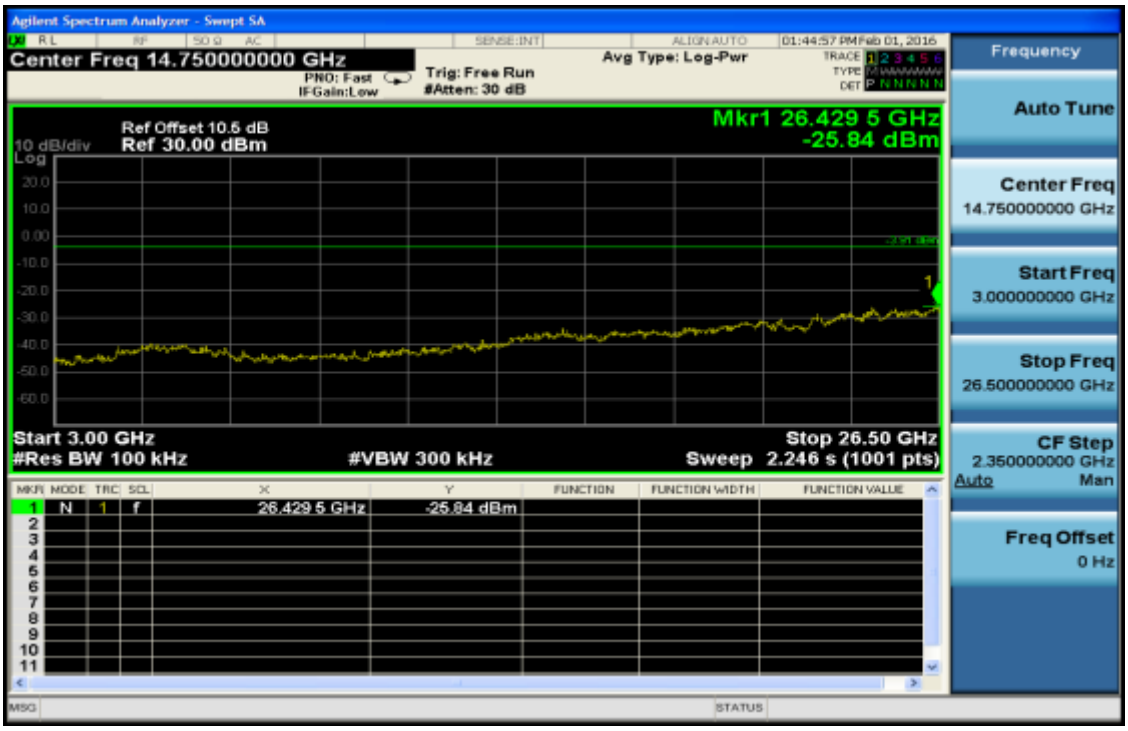
Spurious Emission Test Data CH-Mid





Spurious Emission Test Data CH-High





11 RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

11.1 Standard Applicable

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. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 limit as below.

And according to §15.33(a) (1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBμV/m) = 20 log Emission level (dBμV/m)

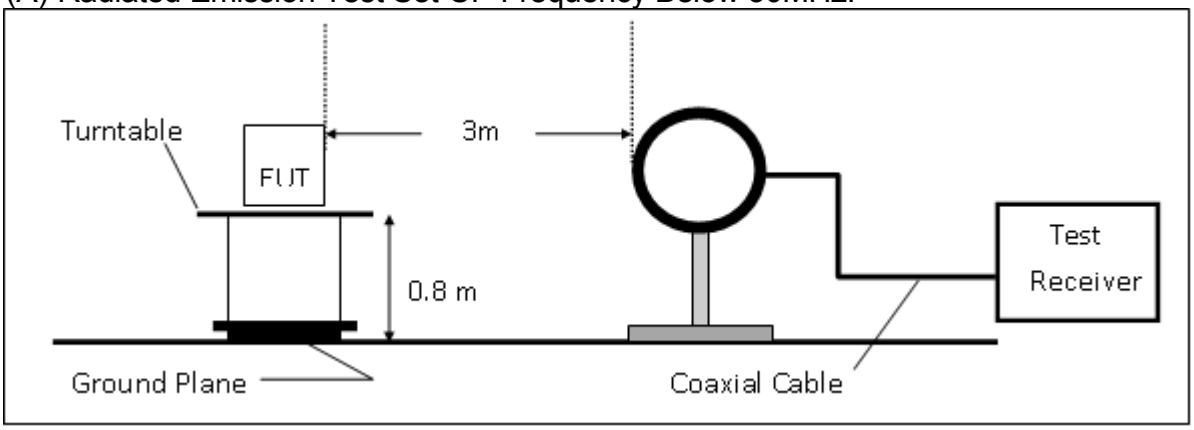
11.2 Measurement Equipment Used:

966 Chamber					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCI7	100760	05/04/2015	05/03/2016
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/28/2016	01/27/2017
Spectrum Analyzer	R&S	FSV-30	101398	09/23/2015	09/22/2016
Loop Antenna	ETS.LINDGREN	6502	00148045	09/07/2015	09/06/2016
Bilog Antenna	SCHWAZBECK	VULB9168	378	12/14/2015	12/13/2016
Horn antenna	ETS.LINDGREN	3117	123995	05/05/2015	05/04/2016
Horn Antenna	Schwarzbeck	BBHA9170	184	12/12/2015	12/11/2016
Pre-Amplifier	Agilent	8447D	2944A07676	01/02/2016	01/01/2017
Pre-Amplifier	Agilent	8449B	3008A00578	01/02/2016	01/01/2017
Pre-Amplifier	EMC Instruments Corp.	EMC184045	980135	01/02/2016	01/01/2017
Filter 2400-2483.5 MHz	EWT	EWT-14-0166	M2	01/02/2016	01/01/2017
Attenuator	Mini-Circuit	BW-S10W2+	004	01/02/2016	01/01/2017
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	ChamPro	AM-BS-4500-B	060776-ABS	N.C.R	N.C.R
Controller	ChamPro	EM1000	060776	N.C.R	N.C.R
Low Loss Cable	Huber Suhner	966_Rx	9	01/02/2016	01/01/2017
3m Site NSA	SGS	966 chamber	N/A	07/01/2015	06/30/2016

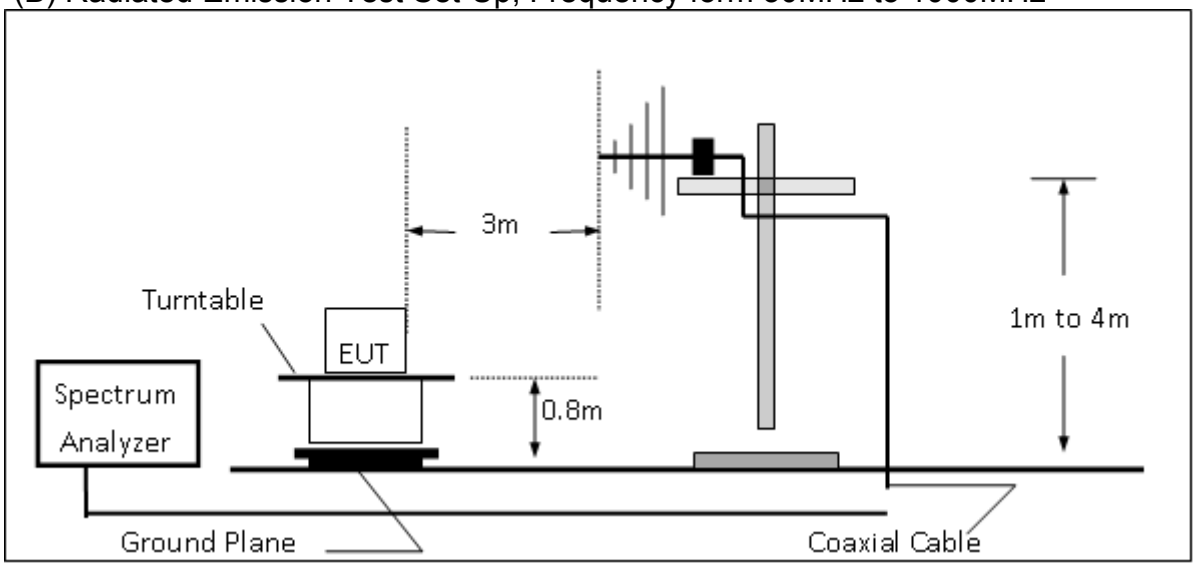
NOTE: N.C.R refers to Not Calibrated Required.

11.3 Test SET-UP

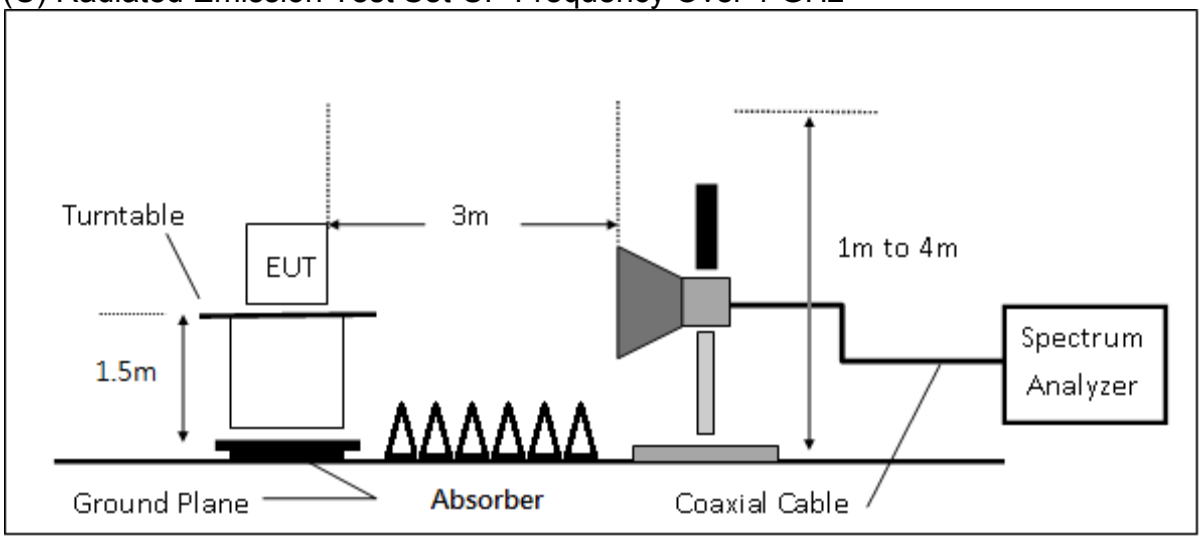
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



11.3.1 Measurement Procedure

1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance V03r04.
2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
5. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
10. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
11. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. On spectrum, change spectrum mode in linear display mode, and reduce VBW = 10Hz if average reading is measured.
12. Repeat above procedures until all default test channel measured were complete.

11.4 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

Note :

"**F**" : denotes Fundamental Frequency. ; "**H**" : denotes Harmonic Frequency.

"**E**" : denotes Band Edge Frequency. ; "**S**" : denotes Spurious Frequency.

11.5 Test Results of Radiated Spurious Emissions form 9 kHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

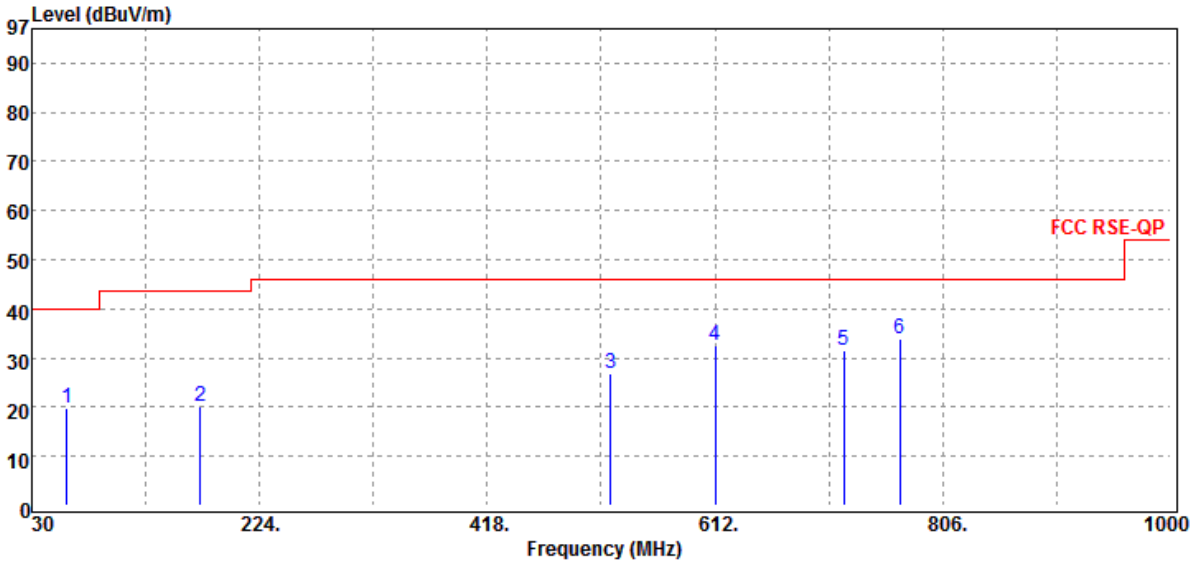
11.6 Measurement Result

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

Radiated Spurious Emission Measurement Result

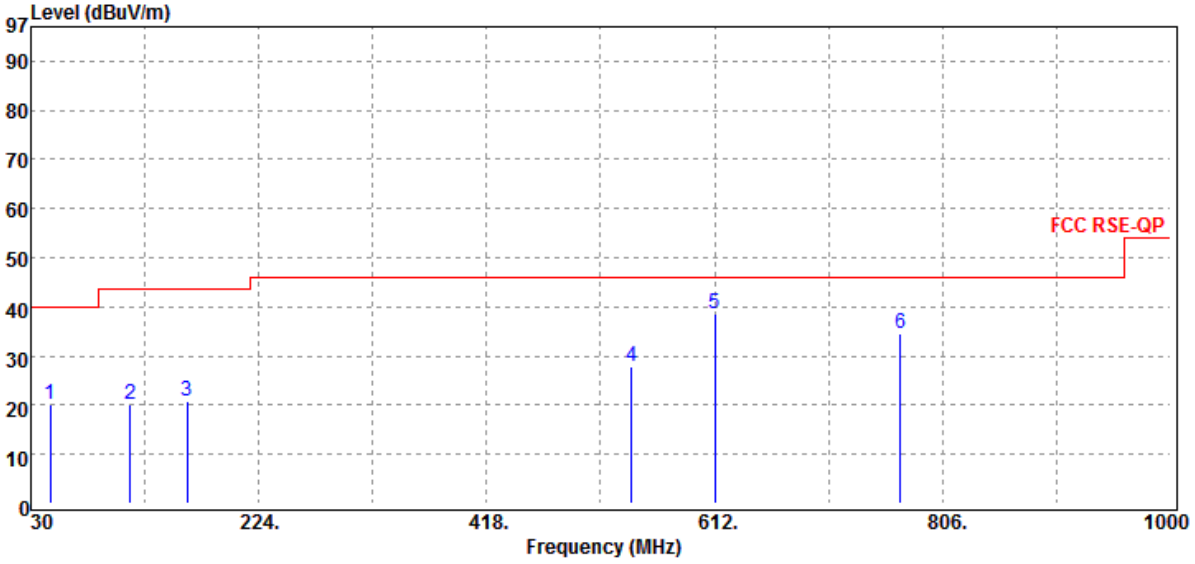
Below 1GHz Worst-Case Data:

Operation Band	:900M	Test Date	:2016-01-13
Fundamental Frequency	:904 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH LOW	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



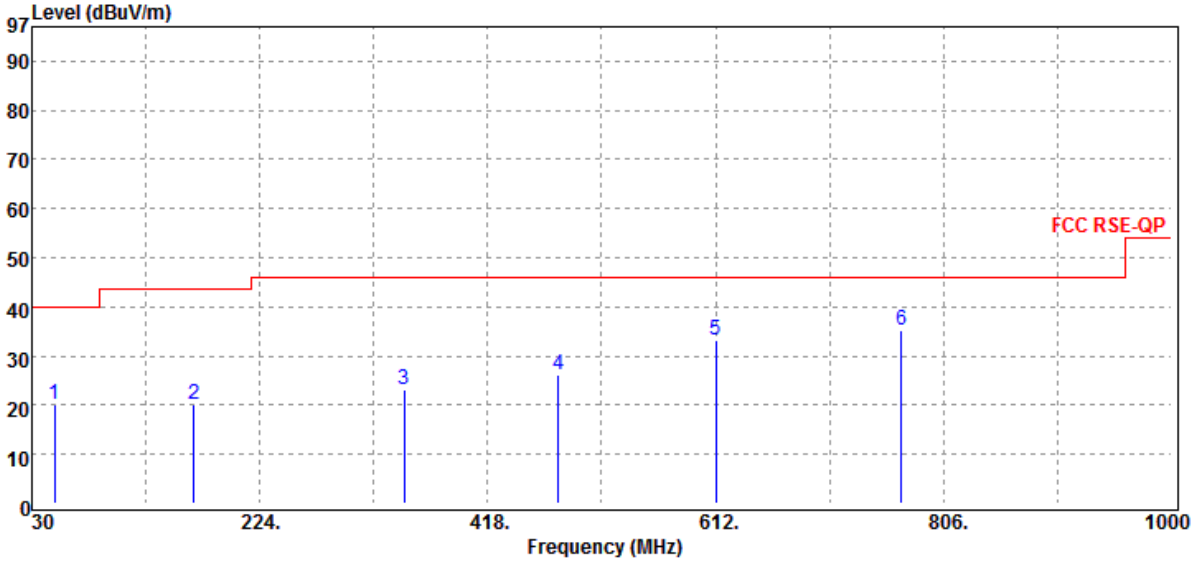
Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
60.07	S	Peak	27.99	-8.05	19.94	40.00	-20.06
173.56	S	Peak	28.05	-7.96	20.09	43.50	-23.41
522.76	S	Peak	28.41	-1.66	26.75	46.00	-19.25
612.00	S	Peak	32.85	-0.34	32.51	46.00	-13.49
721.61	S	Peak	29.94	1.50	31.44	46.00	-14.56
769.14	S	Peak	31.02	2.77	33.79	46.00	-12.21

Operation Band	:900M	Test Date	:2016-01-13
Fundamental Frequency	:904 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH LOW	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



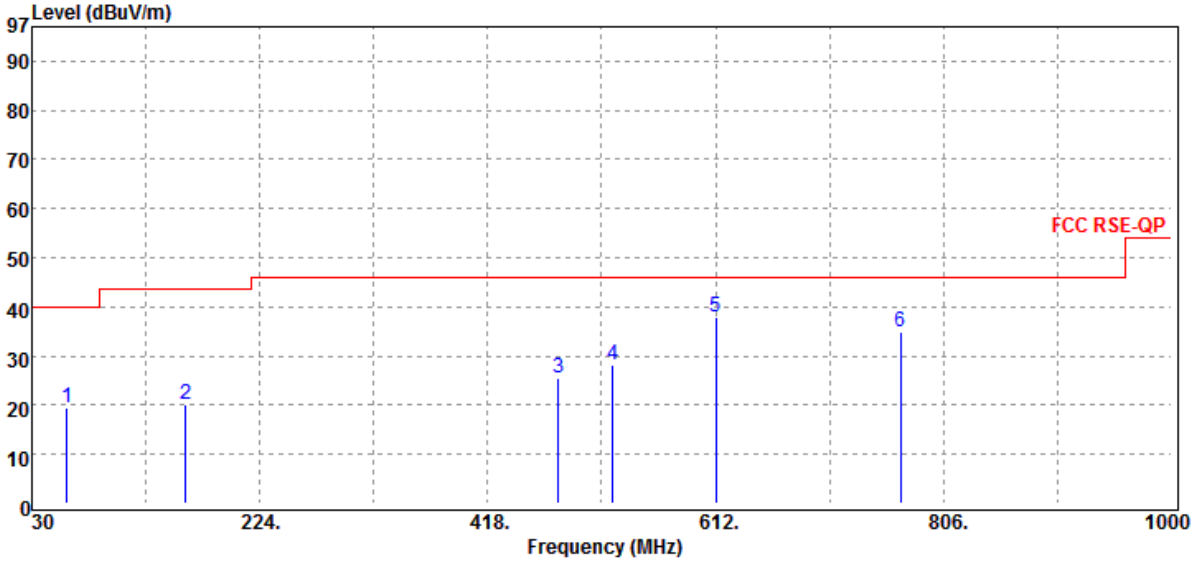
Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
46.49	S	Peak	27.92	-7.91	20.01	40.00	-19.99
114.39	S	Peak	31.17	-10.87	20.30	43.50	-23.20
162.89	S	Peak	28.44	-7.48	20.96	43.50	-22.54
541.19	S	Peak	29.55	-1.78	27.77	46.00	-18.23
612.00	S	Peak	38.88	-0.34	38.54	46.00	-7.46
770.11	S	Peak	31.97	2.68	34.65	46.00	-11.35

Operation Band	:900M	Test Date	:2016-01-13
Fundamental Frequency	:916 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH MID	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



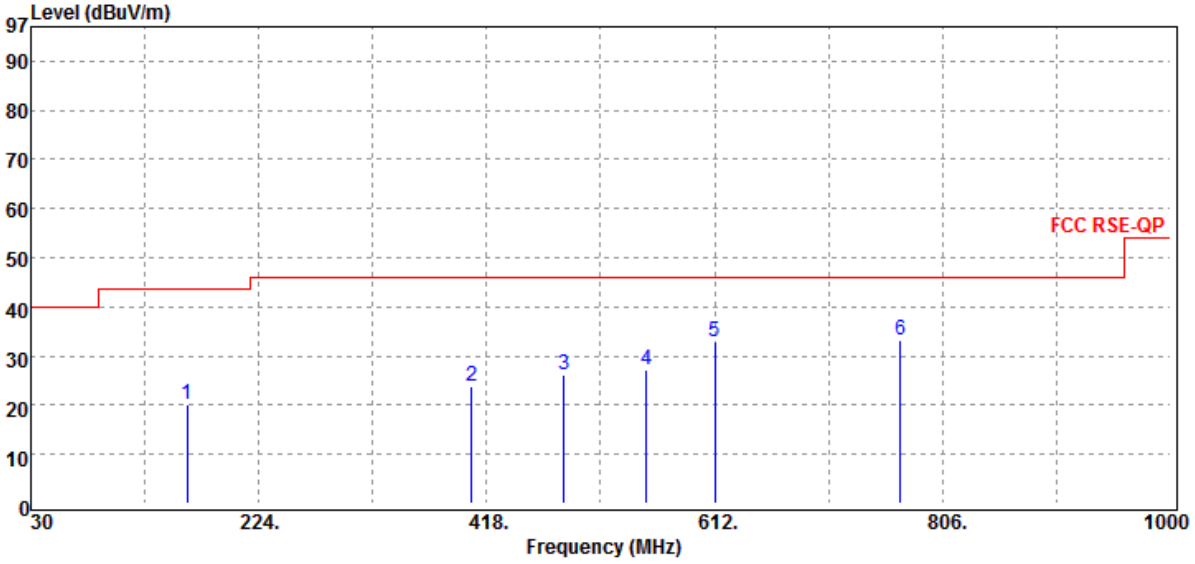
Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
49.40	S	Peak	27.88	-7.74	20.14	40.00	-19.86
167.74	S	Peak	27.74	-7.46	20.28	43.50	-23.22
347.19	S	Peak	28.06	-4.95	23.11	46.00	-22.89
478.14	S	Peak	28.71	-2.43	26.28	46.00	-19.72
612.00	S	Peak	33.71	-0.34	33.37	46.00	-12.63
770.11	S	Peak	32.63	2.68	35.31	46.00	-10.69

Operation Band	:900M	Test Date	:2016-01-13
Fundamental Frequency	:916 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH MID	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



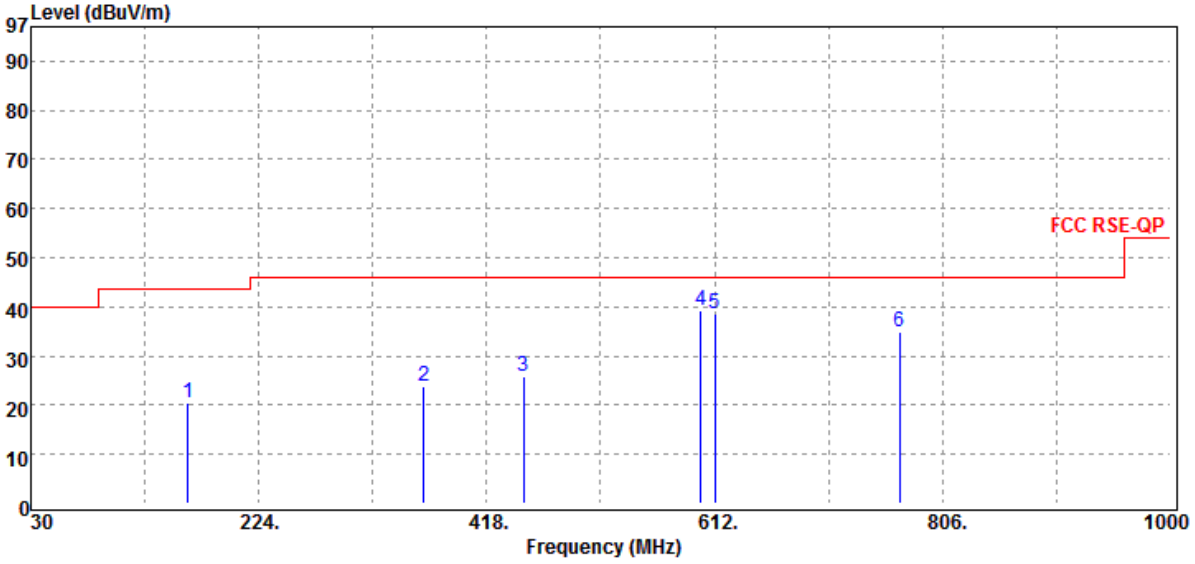
Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
60.07	S	Peak	27.59	-8.05	19.54	40.00	-20.46
160.95	S	Peak	27.47	-7.43	20.04	43.50	-23.46
478.14	S	Peak	28.08	-2.43	25.65	46.00	-20.35
524.70	S	Peak	29.71	-1.68	28.03	46.00	-17.97
612.00	S	Peak	38.39	-0.34	38.05	46.00	-7.95
769.14	S	Peak	31.98	2.77	34.75	46.00	-11.25

Operation Band	:900M	Test Date	:2016-01-13
Fundamental Frequency	:926 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH HIGH	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
162.89	S	Peak	27.51	-7.48	20.03	43.50	-23.47
405.39	S	Peak	27.59	-3.70	23.89	46.00	-22.11
483.96	S	Peak	28.56	-2.47	26.09	46.00	-19.91
553.80	S	Peak	28.50	-1.39	27.11	46.00	-18.89
612.00	S	Peak	33.31	-0.34	32.97	46.00	-13.03
770.11	S	Peak	30.69	2.68	33.37	46.00	-12.63

Operation Band	:900M	Test Date	:2016-01-13
Fundamental Frequency	:926 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH HIGH	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL

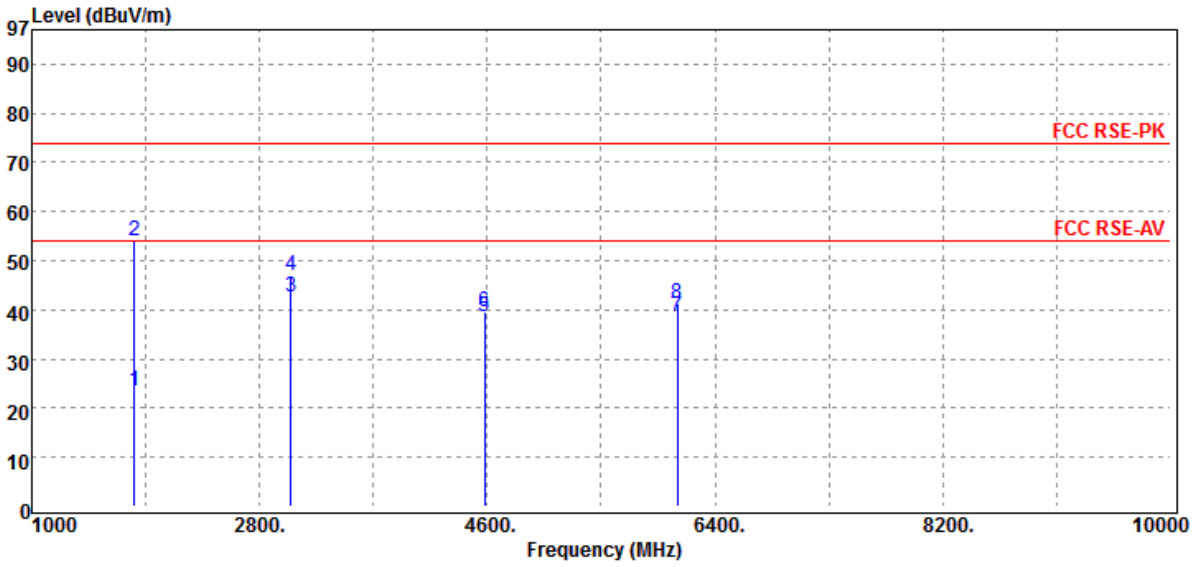


Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
163.86	S	Peak	28.08	-7.45	20.63	43.50	-22.87
364.65	S	Peak	28.36	-4.69	23.67	46.00	-22.33
449.04	S	Peak	28.82	-2.95	25.87	46.00	-20.13
600.36	S	Peak	39.41	-0.14	39.27	46.00	-6.73
612.00	S	Peak	39.03	-0.34	38.69	46.00	-7.31
769.14	S	Peak	32.13	2.77	34.90	46.00	-11.10

Radiated Spurious Emission Measurement Result

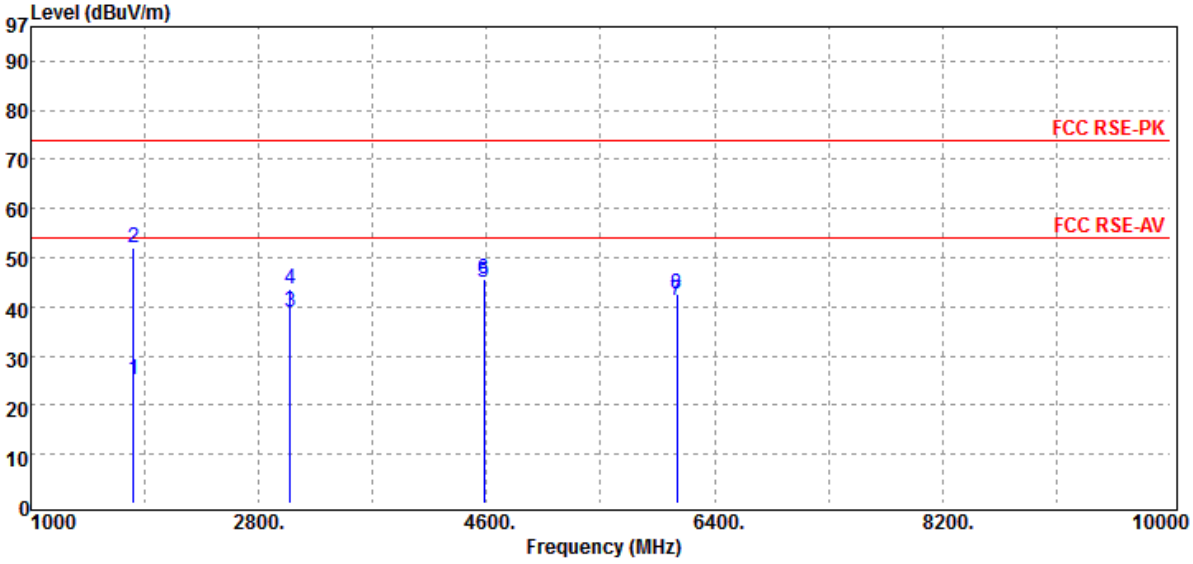
Above 1GHz Worst-Case Data:

Operation Band	:900M	Test Date	:2016-02-01
Fundamental Frequency	:904 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH LOW	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



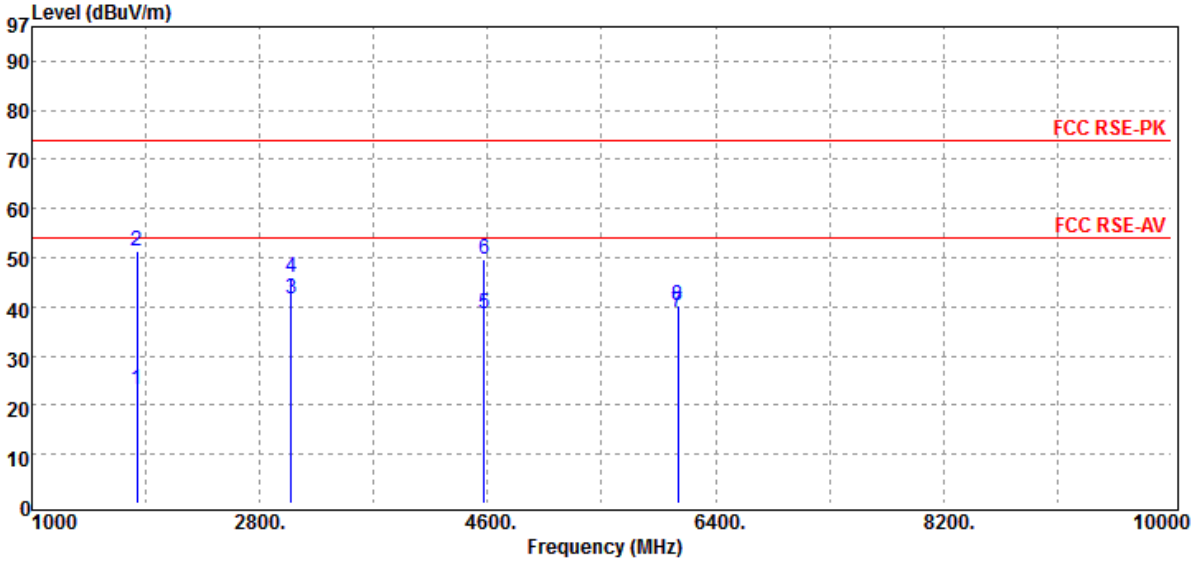
Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
1808.00	H	Average	32.87	-9.33	23.54	54.00	-30.46
1808.00	H	Peak	63.35	-9.33	54.02	74.00	-19.98
3051.00	S	Average	49.13	-6.36	42.77	54.00	-11.23
3051.00	S	Peak	53.51	-6.36	47.15	74.00	-26.85
4577.00	S	Average	42.28	-3.74	38.54	54.00	-15.46
4577.00	S	Peak	43.20	-3.74	39.46	74.00	-34.54
6103.00	S	Average	40.48	-1.85	38.63	54.00	-15.37
6103.00	S	Peak	43.05	-1.85	41.20	74.00	-32.80

Operation Band	:900M	Test Date	:2016-02-01
Fundamental Frequency	:904 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH LOW	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



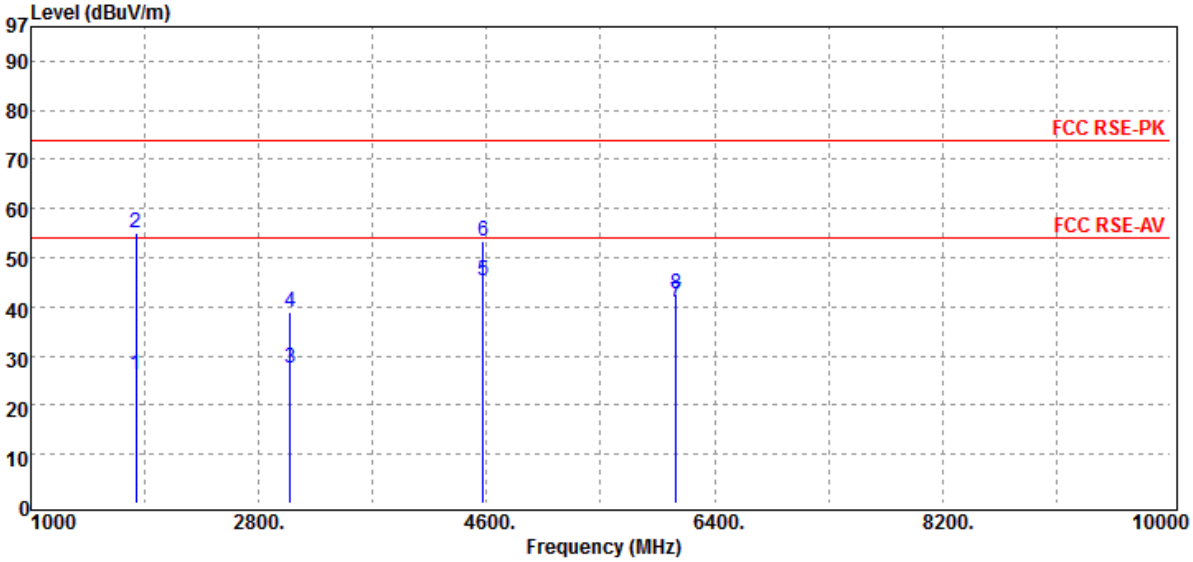
Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
1808.00	H	Average	34.44	-9.33	25.11	54.00	-28.89
1808.00	H	Peak	61.27	-9.33	51.94	74.00	-22.06
3051.00	S	Average	45.17	-6.36	38.81	54.00	-15.19
3051.00	S	Peak	49.94	-6.36	43.58	74.00	-30.42
4577.00	S	Average	48.55	-3.74	44.81	54.00	-9.19
4577.00	S	Peak	49.32	-3.74	45.58	74.00	-28.42
6103.00	S	Average	43.30	-1.85	41.45	54.00	-12.55
6103.00	S	Peak	44.38	-1.85	42.53	74.00	-31.47

Operation Band	:900M	Test Date	:2016-02-01
Fundamental Frequency	:916 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH MID	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



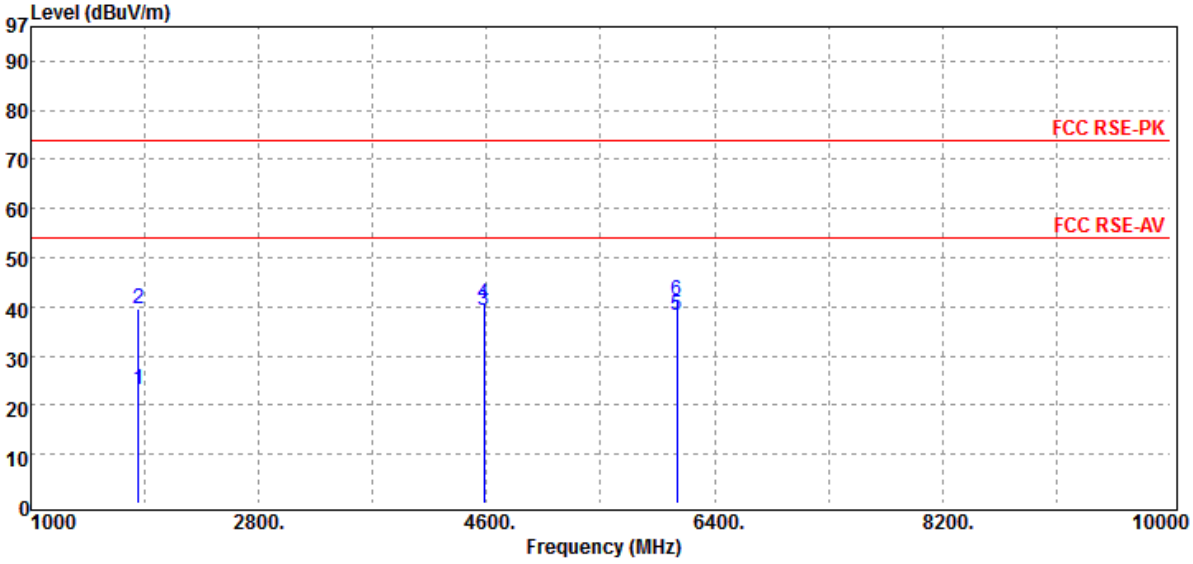
Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
1832.00	H	Average	32.24	-9.20	23.04	54.00	-30.96
1832.00	H	Peak	60.48	-9.20	51.28	74.00	-22.72
3051.00	S	Average	47.96	-6.36	41.60	54.00	-12.40
3051.00	S	Peak	52.43	-6.36	46.07	74.00	-27.93
4570.00	S	Average	42.44	-3.77	38.67	54.00	-15.33
4570.00	S	Peak	53.50	-3.77	49.73	74.00	-24.27
6103.00	S	Average	40.64	-1.85	38.79	54.00	-15.21
6103.00	S	Peak	42.13	-1.85	40.28	74.00	-33.72

Operation Band	:900M	Test Date	:2016-02-01
Fundamental Frequency	:916 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH MID	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



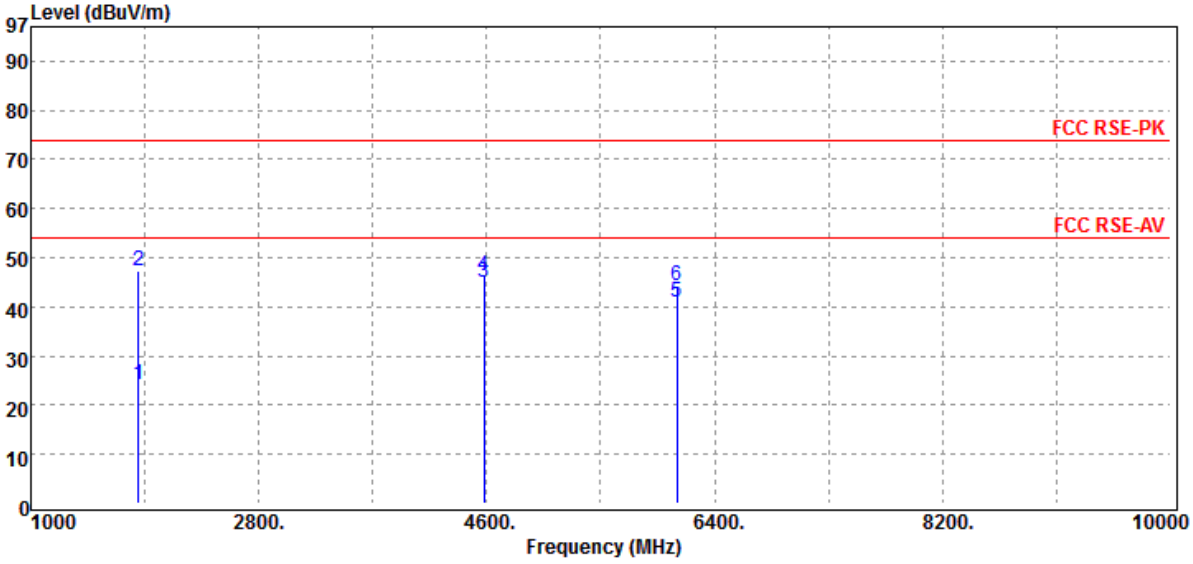
Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
1832.00	H	Average	35.26	-9.20	26.06	54.00	-27.94
1832.00	H	Peak	64.23	-9.20	55.03	74.00	-18.97
3051.00	S	Average	33.77	-6.36	27.41	54.00	-26.59
3051.00	S	Peak	45.13	-6.36	38.77	74.00	-35.23
4570.00	S	Average	49.24	-3.77	45.47	54.00	-8.53
4570.00	S	Peak	57.01	-3.77	53.24	74.00	-20.76
6096.00	S	Average	42.78	-1.87	40.91	54.00	-13.09
6096.00	S	Peak	44.42	-1.87	42.55	74.00	-31.45

Operation Band	:900M	Test Date	:2016-02-01
Fundamental Frequency	:926 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH HIGH	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
1852.00	H	Average	32.18	-9.11	23.07	54.00	-30.93
1852.00	H	Peak	48.65	-9.11	39.54	74.00	-34.46
4577.00	S	Average	43.04	-3.74	39.30	54.00	-14.70
4577.00	S	Peak	44.43	-3.74	40.69	74.00	-33.31
6103.00	S	Average	40.19	-1.85	38.34	54.00	-15.66
6103.00	S	Peak	42.97	-1.85	41.12	74.00	-32.88

Operation Band	:900M	Test Date	:2016-02-01
Fundamental Frequency	:926 MHz	Temp./Humi.	:21 deg_C / 61 RH
Operation Mode	:Tx CH HIGH	Engineer	:Edward
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
1852.00	H	Average	33.34	-9.11	24.23	54.00	-29.77
1852.00	H	Peak	56.28	-9.11	47.17	74.00	-26.83
4577.00	S	Average	48.85	-3.74	45.11	54.00	-8.89
4577.00	S	Peak	49.98	-3.74	46.24	74.00	-27.76
6103.00	S	Average	42.77	-1.85	40.92	54.00	-13.08
6103.00	S	Peak	46.10	-1.85	44.25	74.00	-29.75

12 PEAK POWER SPECTRAL DENSITY

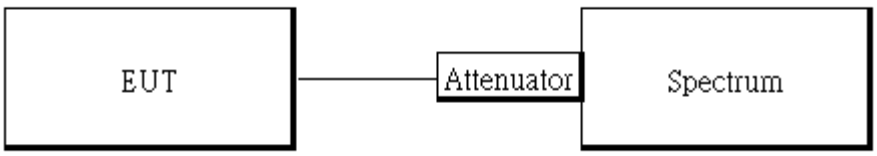
12.1 Standard Applicable

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

12.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Power Meter	Anritsu	ML2495A	1005007	12/09/2015	12/08/2016
Power Sensor	Anritsu	MA2411B	917032	12/09/2015	12/08/2016
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/02/2016	01/01/2017
Spectrum Analyzer	Agilent	E4440A	MY45304525	05/05/2015	05/04/2016
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2016	01/01/2017
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017

12.3 Test Set-up



12.4 Measurement Procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance V03r04.
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW = 3 kHz.
5. Set the VBW = 10 kHz.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level.

12.5 Measurement Result

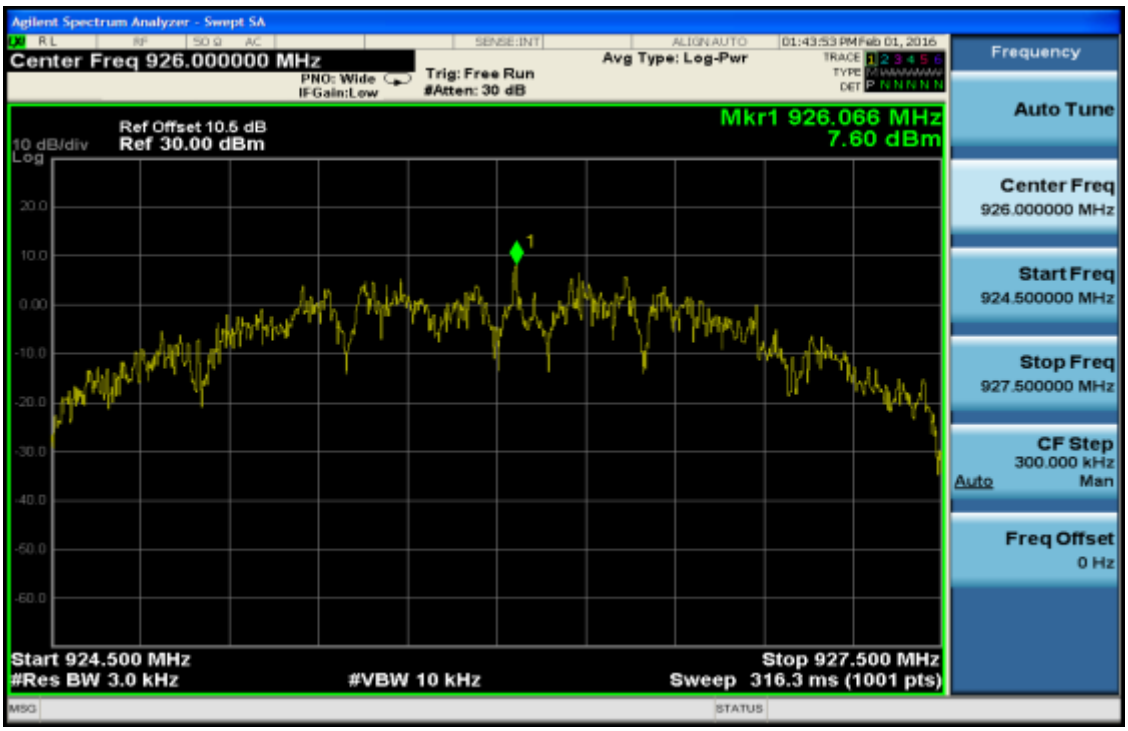
Frequency MHz	RF Power Density Reading (dBm)	Maximum Limit (dBm)
904	7.46	8
916	7.11	8
926	7.60	8

**Refer to next page for plots*

Power Spectral Density Test Plot (CH-Low)

Power Spectral Density Test Plot (CH-Mid)

Power Spectral Density Test Plot (CH-High)



13 ANTENNA REQUIREMENT

13.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

If the transmitting antenna is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

13.2 Antenna Connected Construction

An embedded-in antenna design is used.

The antenna connector is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

The antenna gain is less than 6dBi. Therefore, it is not necessary to reduce maximum output power limit.

~ End of Report ~