FCC Part 15
EMI TEST REPORT

of

E.U.T. : Wireless Electrical Stimulator
Model : WR-2605A (OTC)
FCC ID : 2AHFHWR2605AOTCRX

for

APPLICANT : Well-Life Healthcare Limited
ADDRESS : 1F., No. 16, Lane 454, Jungjeng Road, Yunghe District, New Taipei City, 23455, Taiwan

Test Performed by

ELECTRONICS TESTING CENTER, TAIWAN
NO. 34. LIN 5, DINGFU VIL., LINKOU DIST.,
NEW TAIPEI CITY, TAIWAN, 24442, R.O.C.
TEL : (02)26023052 FAX: (02)26010910

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Report Number : 16-01-RBF-029-02

TEST REPORT CERTIFICATION

Applicant	: Well-Life Healthcare Limited
	1F., No. 16, Lane 454, Jungjeng Road, Yunghe District, New Taipei City, 23455, Taiwan
Manufacturer	: Well-Life Healthcare Limited
	1F., No. 16, Lane 454, Jungjeng Road, Yunghe District, New Taipei City, 23455, Taiwan
Description of EUT	
a) Type of EUT	: Wireless Electrical Stimulator
b) Trade Name	: Well-Life
c) Model	: WR-2605A (OTC)
d) Serial Model	: WR-26XXXXXXXXXXXXXXX
	(Where X may be alphanumeric character, symbol or blank.)
e) Power Supply	: AC Adapter
	I/P: 100-240Vac, 0.3-0.15A, 50-60Hz
	O/P: 5Vdc, 1.2A
f) Frequency Range	: 2410MHz ~ 2450MHz

Regulation Applied : FCC Rules and Regulations Part 15 Subpart C

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.10-2009, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note: 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of ETC.

Summary of Tests

Test	Results
Radiated Emission	**Pass**
Conducted Emission	**Pass**
Band Edge Requirement	**Pass**
Duty Cycle	**N.A.**
20dB Bandwidth	**Pass**

Date Test Item Received	:	*Jan..25, 2016*
Date Test Campaign Completed	:	*Mar. 24, 2016*
Date of Issue	:	*Mar. 25, 2016*

Test Engineer : Brian Huang
(Brian Huang, Engineer)

Approve & Authorized Signer : S S Liou

S. S. Liou, Section Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

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1 GENERAL INFORMATION

1.1 Product Description

a)	Type of EUT	: Wireless Electrical Stimulator
b)	Trade Name	: Well-Life
c)	Model	: WR-2605A (OTC)
d)	Serial Model	: WR-26XXXXXXXXXXXXXXX (Where X may be alphanumeric character, symbol or blank.)
e)	Power Supply	: AC Adapter I/P: 100-240Vac, 0.3-0.15A, 50-60Hz O/P: 5Vdc, 1.2A
f)	Frequency Range	: 2410MHz ~ 2450MHz
g)	Model Difference	: Where X may be alphanumeric character, symbol or blank for marketing purpose. The serial model is electronically identical to WR-2605A (OTC).

1.2 Characteristics of Device

Wireless unit of a wireless electrical stimulator.

1.3 Test Methodology

Both conducted and radiated emissions were performed according to the procedures illustrated in ANSI C63.10-2009. Other required measurements were illustrated in separate sections of this test report for details.

Instead of 0.8m EUT height above 1GHz, 1.5m was allowed by FCC December 2014 TCB Conference call.

Measurement Software

Software	Version	Note
e3	Version 6.100618b	Radiated Emission Test
e3	Version 6.100421	Conducted Emission Test

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at No.34, Lin 5, Dingfu Vil., Linkou Dist., New Taipei City, Taiwan 24442, R.O.C.

This site is FCC 2.948 listed and accepted in a letter dated Jan. 29, 2014.

Registration Number: 90589

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:
A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device :
A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50MH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency MHz	Quasi Peak dBμV	Average dBμV
0.15 - 0.5	66-56	56-46
0.5 - 5.0	56	46
5.0 - 30.0	60	50

(2) Radiated Emission Requirement

For unintentional device, according to §15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	**Distance Meters**	**Radiated dBμV/m**	**Radiated μV/m**
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to §15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

For intentional radiator device, per §15.249(a), the field strength of emissions shall comply with the following :

Frequency	Distance	Fundamental		Harmonic	
MHz	Meters	dBμV/m	mV/m	dBμV/m	μV/m
902 - 928	3	94	50	54	500
2400 - 2483.5	3	94	50	54	500
5725 - 5875	3	94	50	54	500
24000 - 24250	3	108	250	68	2500

In accordance with §15.249(e), limits shown in above table are based on average limits for frequencies above 1000 MHz, and frequencies below 1000 MHz are based on quasi peak. However, the peak field strength of any emission shall not exceed the maximum permitted average limits by more than 20 dB.

(3) Spurious in Out Band Requirement

For intentional device, according to §15.249 (d), emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of fundamental or to the general radiated emission limits in §15.209.

(4) Antenna Requirement

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

2.3 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42-16.423	399.9-410	4.5-5.25
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	2655-2900	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	3360-4400	Above 38.6
13.36-13.41			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

For both radiated and conducted emissions, the system was configured for testing in a typical fashion as a customer would normally use it. The peripherals other than EUT were connected in normally standing by situation.

All measurement were intentional to maximum the emissions from EUT by varying the connection cables, therefore, the test result is sure to meet the applicable requirement.

3.2 Devices for Tested System

Device	Manufacturer	Model / FCC ID	Description
* Wireless Electrical Stimulator	Well-Life Healthcare Limited	WR-2605A (OTC)/ 2AHFHWR2605AOTCRX	0.6m unshielded USB Cable

Remark "*" means equipment under test.

4 RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For intentional radiators, according to §15.249 (a), the fundamental field strength shall not exceed 94 dBuV/m and the harmonics shall not exceed 54 dBuV/m. For out band emission except for harmonics shall be comply with §15.209 or at least attenuated by 50 dB below the level of the fundamental.

4.2 Measurement Procedure

A. Preliminary Measurement For Portable Devices

For portable devices, the following procedure was performed to determine the maximum emission axis of EUT:

1. With the receiving antenna is H polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
2. With the receiving antenna is V polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
3. Compare the results derived from above two steps. So, the axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.

B. Final Measurement

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively. Turn on EUT and make sure that it is in normal function.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 100 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ◦ to 360 ◦ with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.

5. Repeat step 4 until all frequencies need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.
7. Check the three frequencies of highest emission with varying the placement of cables (if any) associated with EUT to obtain the worse case and record the result.

Figure 1 : Frequencies measured below 1 GHz configuration

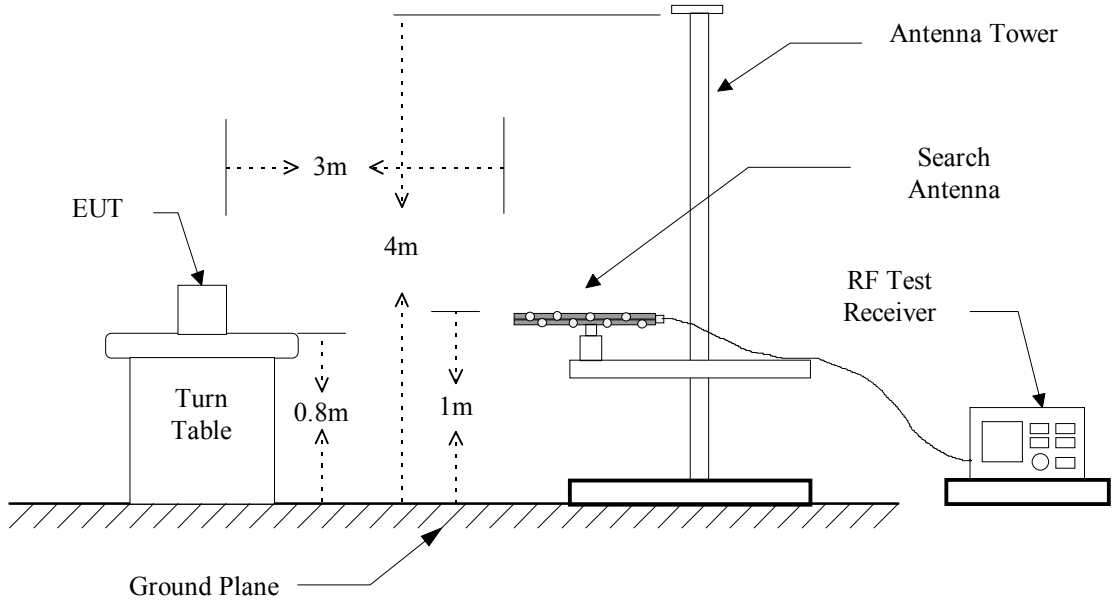
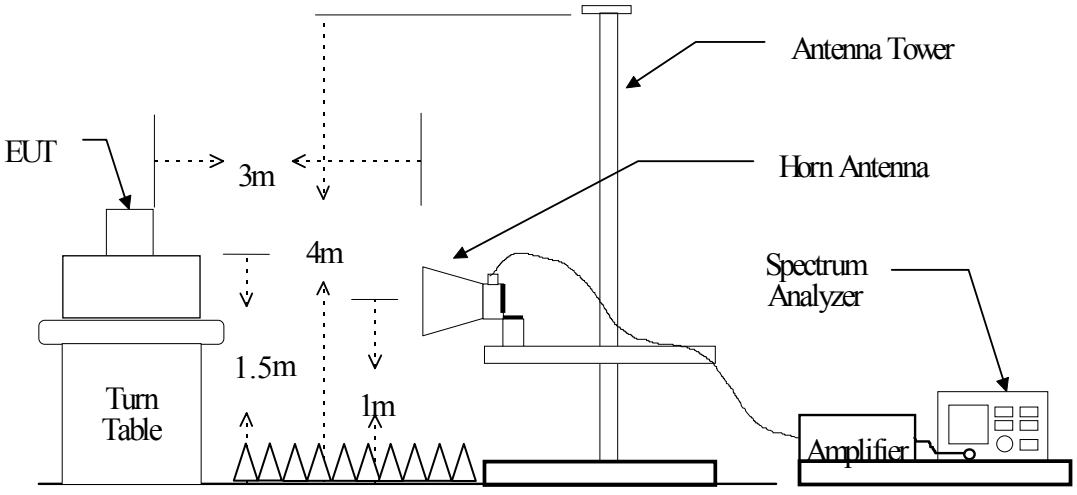


Figure 2 : Frequencies measured above 1 GHz configuration



4.3 Measuring Instrument

The following instrument are used for radiated emissions measurement:

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Test Receiver	Rohde & Schwarz	ESVS30	2015/06/03	2016/06/02
EMI Test Receiver	Rohde & Schwarz	ESL	2015/03/26	2016/03/25
Bi-Log Antenna	ETC	MCTD 2786	2015/07/01	2016/06/30
Log-periodic Antenna	EMCO	3146	2015/11/17	2016/11/16
Double Ridged Guide Horn Antenna	EMCO	3116	2015/10/12	2016/10/11
Biconical Antenna	EMCO	3110	2015/11/17	2016/11/16
Double Ridged Antenna	EMCO	3115	2015/10/08	2016/10/07
Amplifier	HP	8449B	2015/10/06	2016/10/05
Amplifier	HP	83051A	2015/10/21	2016/10/19
Amplifier	HP	8447D	2015/11/09	2016/11/07
EMI Test Receiver	Rohde & Schwarz	ESU 40	2015/10/07	2016/10/06

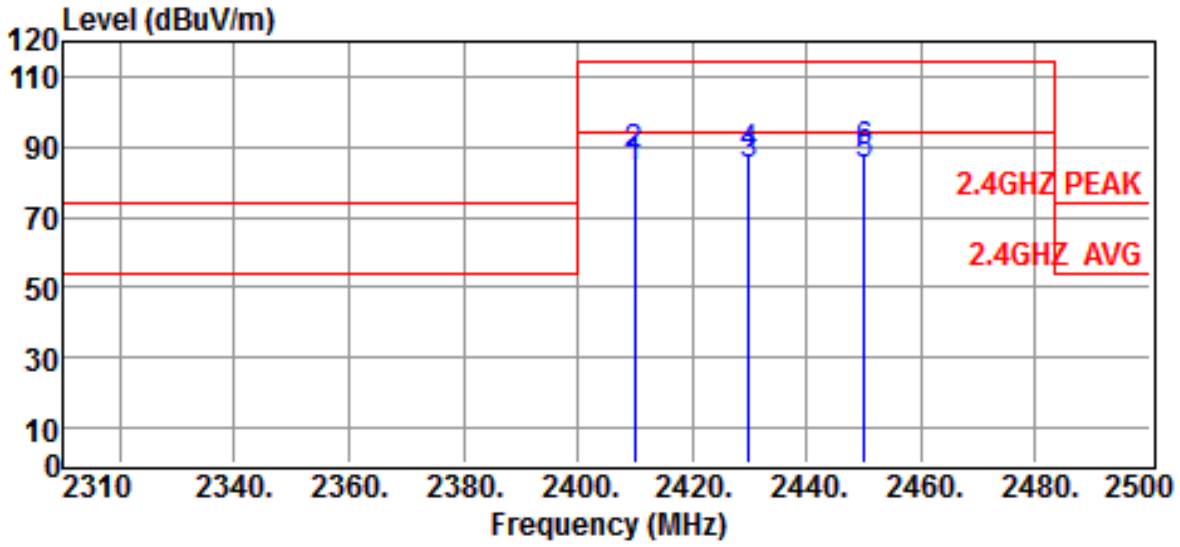
Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	N/A
	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz or ≥ 1/T (Note 1)

Note 1:
VBW = 10 Hz, when the duty cycle is no less than 98%.
VBW ≥ 1/T, when duty cycle is less than 98% where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

4.4 Radiated Emission Data

4.4.1 RF Portion

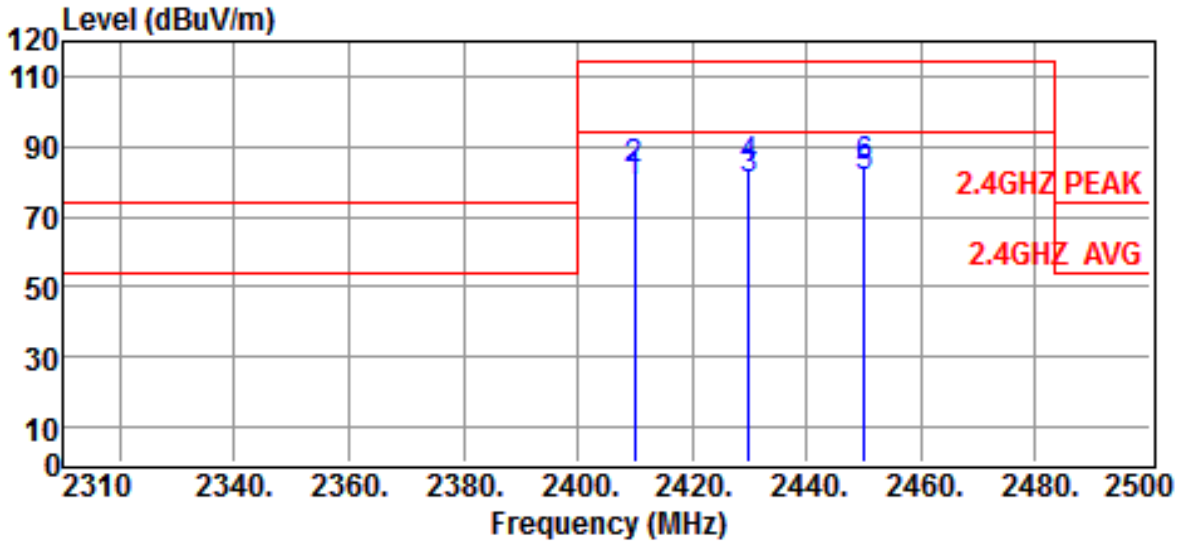


Site	:CHAMBER #2	Date	:2016-03-24
Limit	:2.4GHZ PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:BATTERY	Temp.	:20°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:TX - CH LO 2410 - MI 2430 - HI 2450MHz		
Test Mode	:EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2410.0000	90.2	-5.8	84.4	94.0	-9.6	Average
2410.0000	93.3	-5.8	87.5	114.0	-26.5	Peak
2430.0000	90.5	-5.8	84.7	94.0	-9.3	Average
2430.0000	93.6	-5.8	87.8	114.0	-26.2	Peak
2450.0000	90.8	-5.8	85.0	94.0	-9.0	Average
2450.0000	93.9	-5.8	88.1	114.0	-25.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result

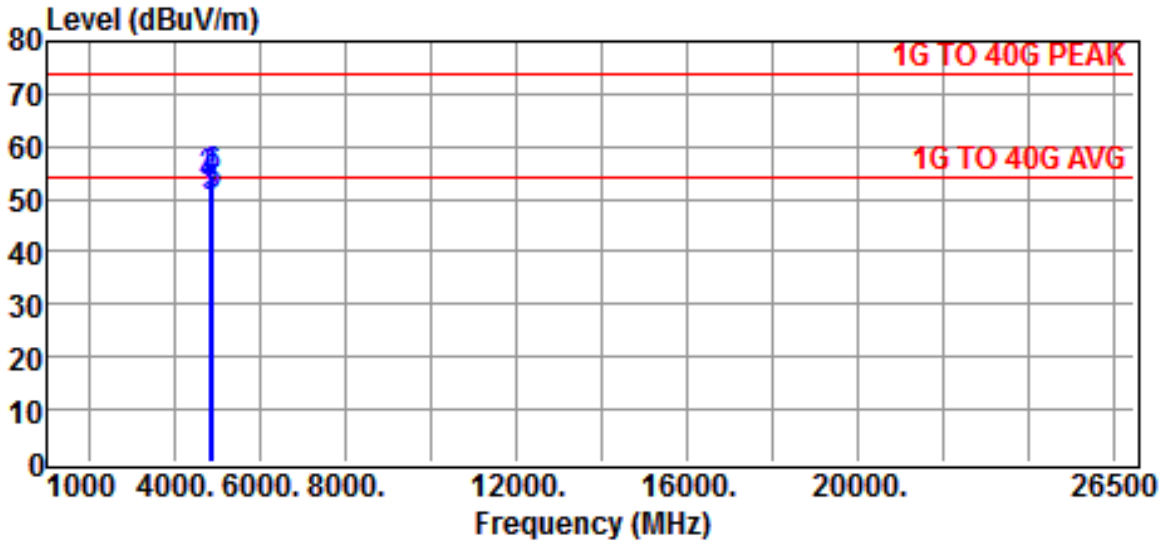


Site	:CHAMBER #2	Date	:2016-03-24
Limit	:2.4GHZ PEAK	Ant. Pol.	:VERTICAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:BATTERY	Temp.	:20°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:TX - CH LO 2410 - MI 2430 - HI 2450MHz		
Test Mode	:EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2410.0000	85.8	-5.8	80.0	94.0	-14.0	Average
2410.0000	89.3	-5.8	83.5	114.0	-30.5	Peak
2430.0000	86.4	-5.8	80.6	94.0	-13.4	Average
2430.0000	89.6	-5.8	83.8	114.0	-30.2	Peak
2450.0000	86.7	-5.8	80.9	94.0	-13.1	Average
2450.0000	89.9	-5.8	84.1	114.0	-29.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result

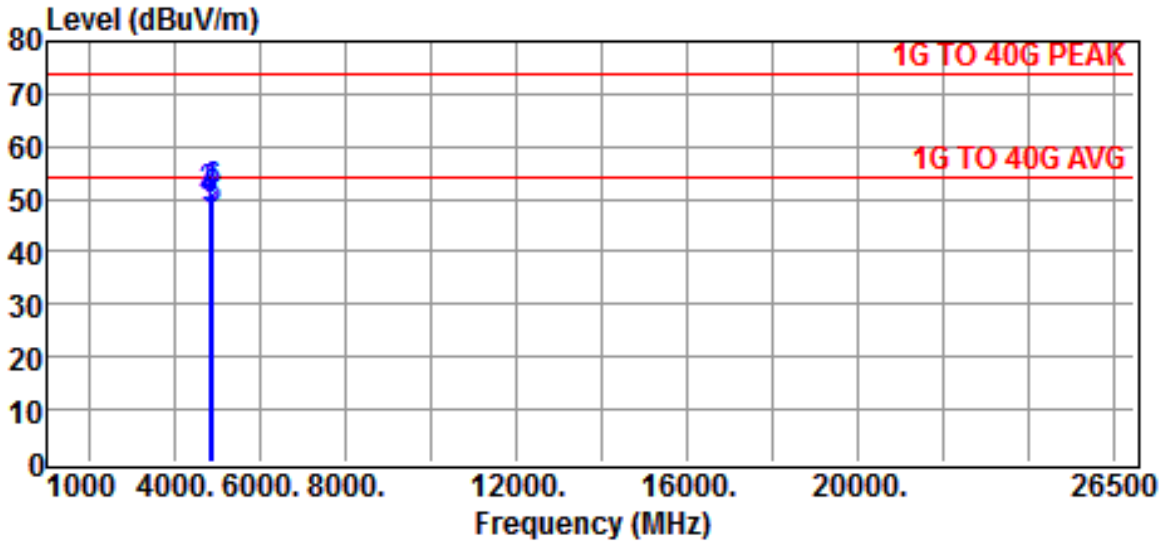


Site	:CHAMBER #2	Date	:2016-03-24
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:BATTERY	Temp.	:20°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:TX - CH LO 2410 - MI 2430 - HI 2450MHz		
Test Mode	:EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
4820.0000	48.9	1.2	50.1	54.0	-3.9	Average
4820.0000	52.3	1.2	53.5	74.0	-20.5	Peak
4860.0000	49.1	1.4	50.5	54.0	-3.5	Average
4860.0000	52.3	1.4	53.7	74.0	-20.3	Peak
4900.0000	49.3	1.5	50.8	54.0	-3.2	Average
4900.0000	52.6	1.5	54.1	74.0	-19.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result

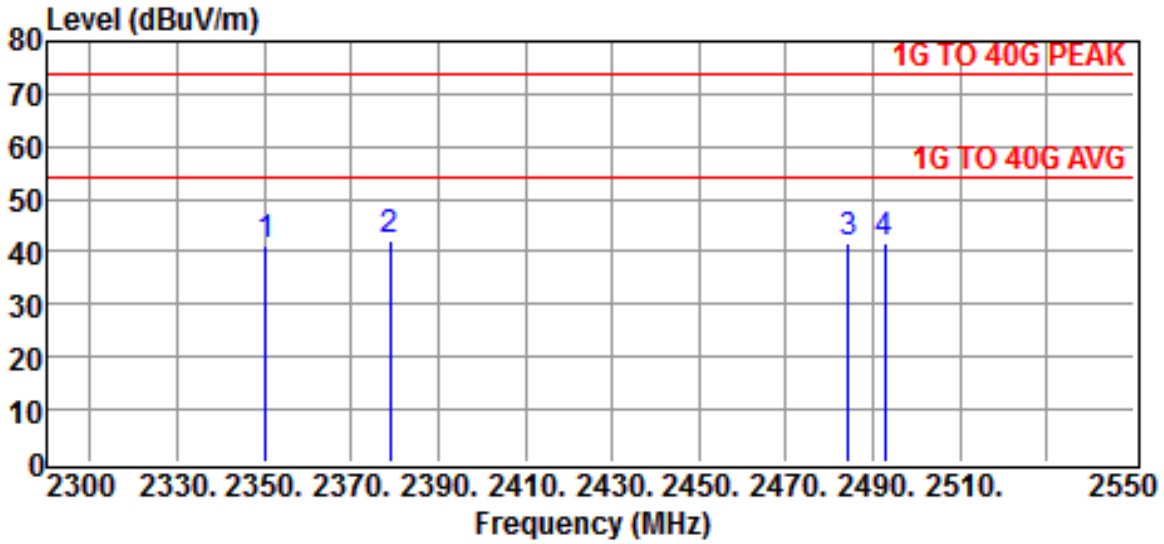


Site	:CHAMBER #2	Date	:2016-03-24
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:BATTERY	Temp.	:20°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:TX - CH LO 2410 - MI 2430 - HI 2450MHz		
Test Mode	:EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
4820.0000	46.2	1.2	47.4	54.0	-6.6	Average
4820.0000	49.4	1.2	50.6	74.0	-23.4	Peak
4860.0000	46.3	1.4	47.7	54.0	-6.3	Average
4860.0000	49.5	1.4	50.9	74.0	-23.1	Peak
4900.0000	46.5	1.5	48.0	54.0	-6.0	Average
4900.0000	49.7	1.5	51.2	74.0	-22.8	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result

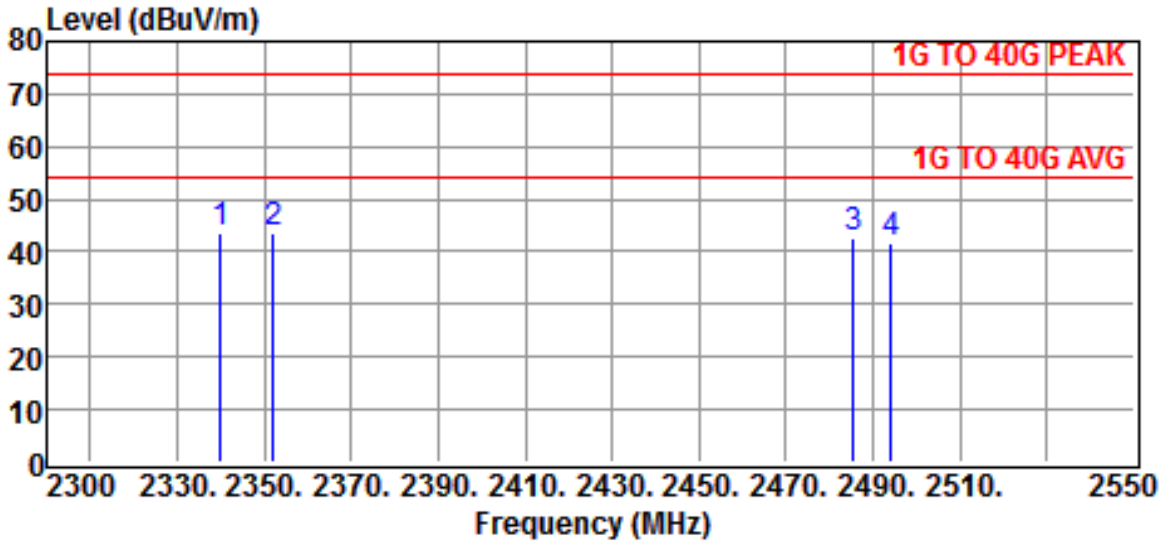


Site	:CHAMBER #2	Date	:2016-03-24
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:BATTEREY	Temp.	:20°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:TX - CH LO & HI - Restricted Bands		
Test Mode	:EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits (AVG) dBuV/m	Over limit dB	Detector
2350.5000	47.3	-6.0	41.3	54.0	-12.7	Peak
2379.0000	47.9	-5.9	42.0	54.0	-12.0	Peak
2484.2500	47.4	-5.7	41.7	54.0	-12.3	Peak
2492.7500	47.5	-5.7	41.8	54.0	-12.2	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value = Limit - Result
4. Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:CHAMBER #2	Date	:2016-03-24
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:BATTEREY	Temp.	:20°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:TX - CH LO & HI - Restricted Bands		
Test Mode	:EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits (AVG) dBuV/m	Over limit dB	Detector
2340.0000	49.5	-6.0	43.5	54.0	-10.5	Peak
2352.0000	49.5	-5.9	43.6	54.0	-10.4	Peak
2485.5000	48.4	-5.7	42.7	54.0	-11.3	Peak
2494.0000	47.2	-5.7	41.5	54.0	-12.5	Peak

Note :

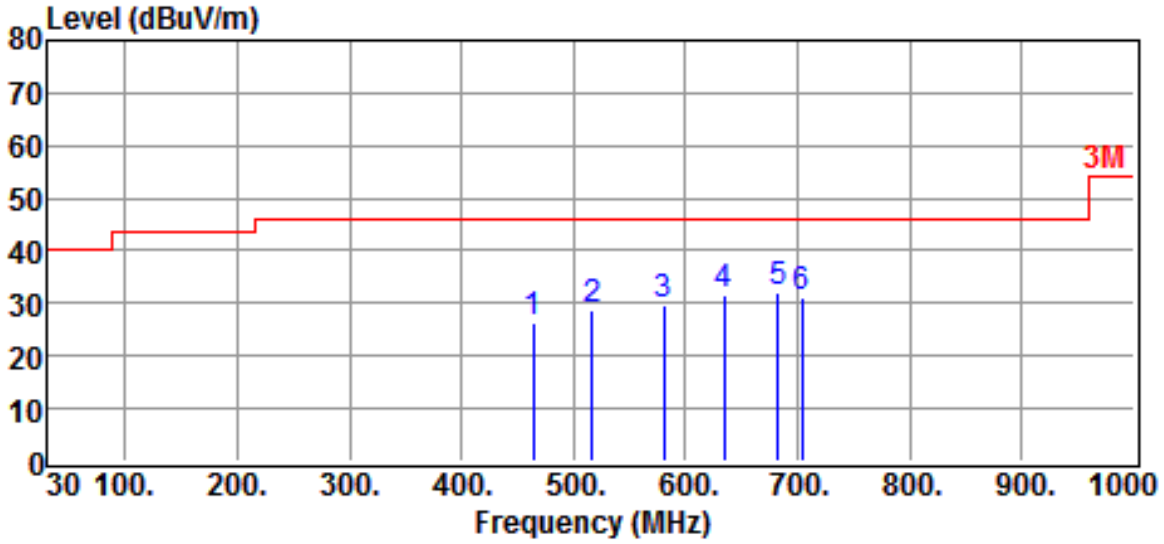
1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result
4. Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

4.4.2 Other Emissions

a) Emission frequencies below 1 GHz

Operation Mode : CHARGE MODE (Power from AC Adapter)

Test Date : Feb. 25, 2016 Temperature : 18 °C Humidity : 68 %

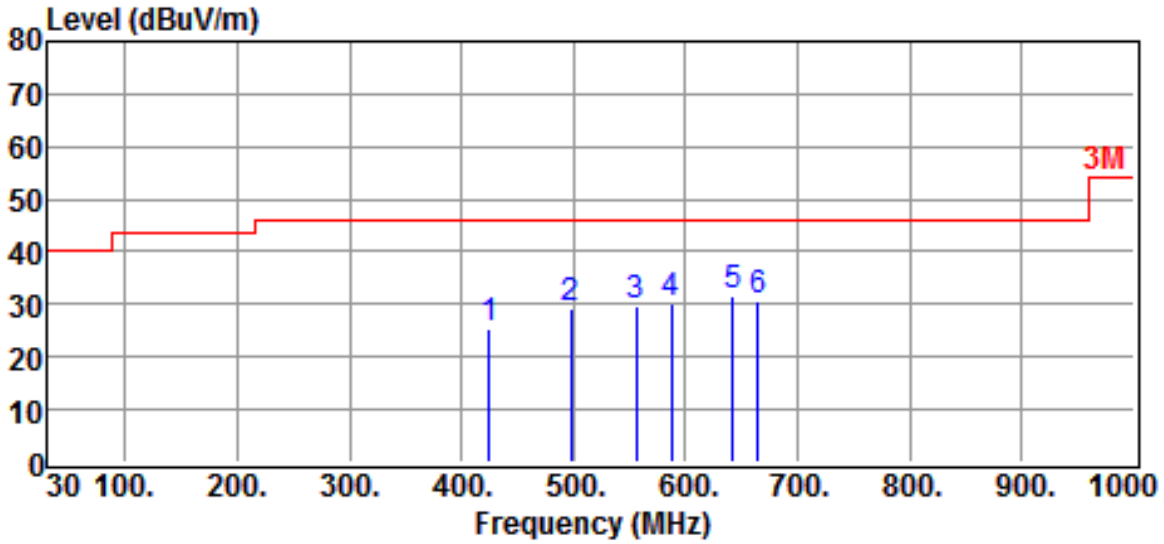


Site	:OPEN SITE	Date	:2016-02-25
Limit	:3M	Ant. Pol.	:HORIZONTAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:POWER FROM PC	Temp.	:18°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:CHARGE MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
464.5600	5.3	21.0	26.3	46.0	-19.7	QP
516.9400	6.9	22.1	29.0	46.0	-17.0	QP
579.9900	6.9	23.0	29.9	46.0	-16.1	QP
634.3100	7.4	24.2	31.6	46.0	-14.4	QP
682.8100	6.8	25.1	31.9	46.0	-14.1	QP
703.1800	5.9	25.4	31.3	46.0	-14.7	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result



Site	:OPEN SITE	Date	:2016-02-25
Limit	:3M	Ant. Pol.	:VERTICAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:POWER FROM PC	Temp.	:18°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:CHARGE MODE		

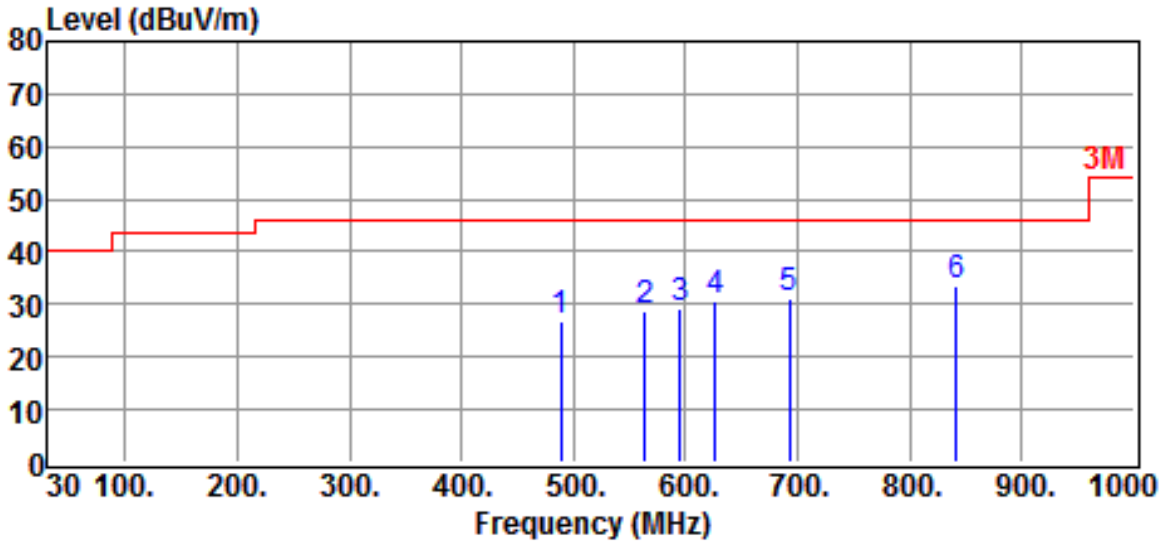
Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
424.7900	5.4	20.0	25.4	46.0	-20.6	QP
497.5400	7.4	21.8	29.2	46.0	-16.8	QP
555.7400	6.9	22.6	29.5	46.0	-16.5	QP
586.7800	7.1	23.0	30.1	46.0	-15.9	QP
642.0700	7.3	24.3	31.6	46.0	-14.4	QP
664.3800	6.0	24.7	30.7	46.0	-15.3	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result

Operation Mode : TX (Power From Battery)

Test Date : Feb. 25, 2016 Temperature : 18 °C Humidity : 68 %

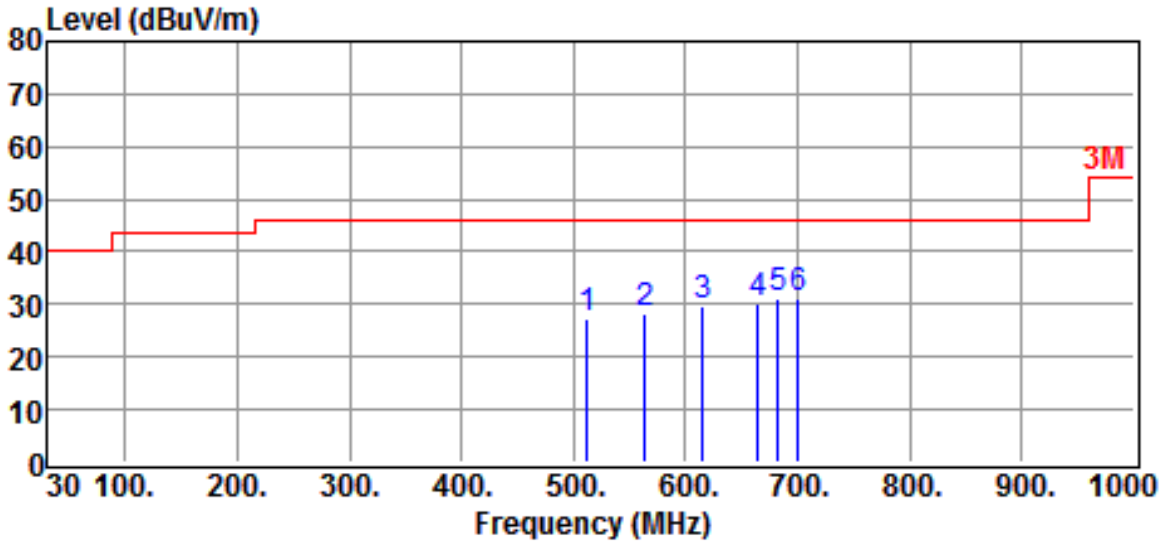


Site	:OPEN SITE	Date	:2016-02-25
Limit	:3M	Ant. Pol.	:HORIZONTAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:BATTERY	Temp.	:18°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:TX - EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
488.8100	5.2	21.6	26.8	46.0	-19.2	QP
563.5000	6.2	22.7	28.9	46.0	-17.1	QP
594.5400	6.1	23.2	29.3	46.0	-16.7	QP
626.5500	6.5	24.0	30.5	46.0	-15.5	QP
692.5100	5.9	25.3	31.2	46.0	-14.8	QP
841.8900	5.9	27.7	33.6	46.0	-12.4	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result



Site	:OPEN SITE	Date	:2016-02-25
Limit	:3M	Ant. Pol.	:VERTICAL
EUT	:Wireless Electrical Stimulator	Model	:WR-2605A (OTC)
Power Rating	:BATTERY	Temp.	:18°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:TX - EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
512.0900	5.4	22.1	27.5	46.0	-18.5	QP
563.5000	5.7	22.7	28.4	46.0	-17.6	QP
614.9100	6.2	23.6	29.8	46.0	-16.2	QP
664.3800	5.5	24.7	30.2	46.0	-15.8	QP
682.8100	5.8	25.1	30.9	46.0	-15.1	QP
700.2700	5.9	25.4	31.3	46.0	-14.7	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result

b) Emission frequencies above 1 GHz

Radiated emission frequencies above 1 GHz to 26.5 GHz were too low to be measured with a pre-amplifier of 35 dB.

c) Emission frequencies below 30MHz (9kHz - 30MHz)

According to exploratory test no any obvious emission were detected from 9KHz to 30MHz.

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where Corrected Factor

= Antenna FACTOR + Cable Loss + High Pass Filter Loss - Amplifier Gain

4.6 Photos of Radiation Measuring Setup

1. CHARGE MODE

2. TX (Power From Battery)

3. TX (Power From Battery)

5 CONDUCTED EMISSION MEASUREMENT

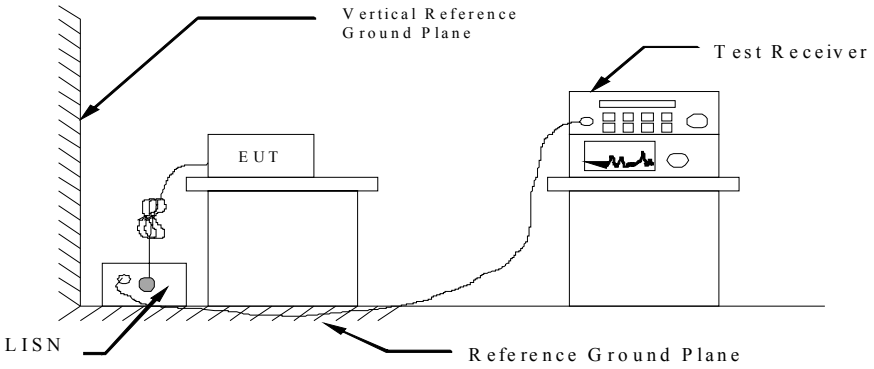
5.1 Standard Applicable

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to §15.107(a) and §15.207(a) respectively. Both Limits are identical specification.

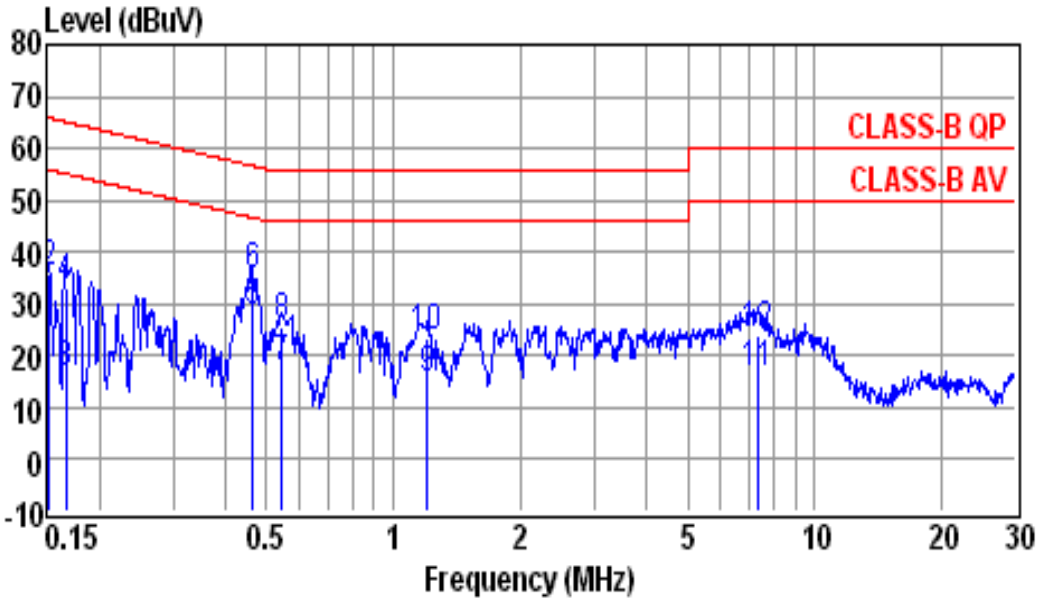
5.2 Measurement Procedure

1. Setup the configuration per figure 3.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 or 8 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then records the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 3: Conducted emissions measurement configuration



5.3 Conducted Emission Data

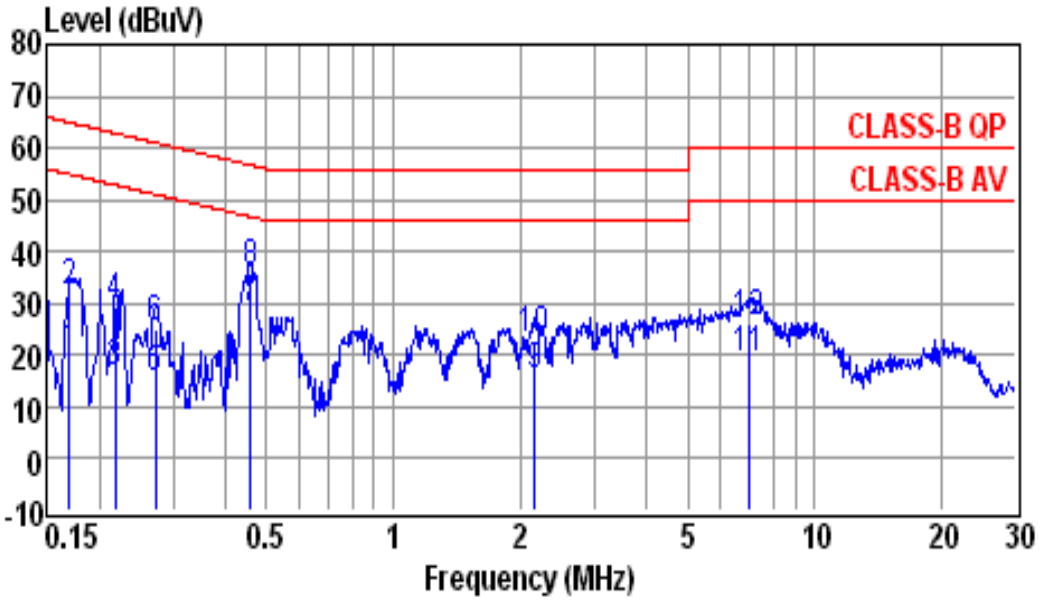


Site : conducted #1
Date : 02-25-2016
Condition : CLASS-B QP
LISN : NEUTRAL
Tem / Hum : 18 ℃ / 65%
Test Mode : CHARGE MODE
EUT : Wireless Electrical Stimulator
Power Rating : 120VAC/60Hz

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1524	12.79	10.18	22.97	55.87	-32.90	Average
0.1524	25.69	10.18	35.87	65.87	-30.00	QP
0.1668	6.37	10.18	16.55	55.12	-38.57	Average
0.1668	22.95	10.18	33.13	65.12	-31.99	QP
0.4637	17.85	10.22	28.07	46.63	-18.56	Average
0.4637	25.30	10.22	35.52	56.63	-21.11	QP
0.5436	7.19	10.22	17.41	46.00	-28.59	Average
0.5436	15.46	10.22	25.68	56.00	-30.32	QP
1.2030	4.89	10.26	15.15	46.00	-30.85	Average
1.2030	13.03	10.26	23.29	56.00	-32.71	QP
7.3290	6.07	10.55	16.62	50.00	-33.38	Average
7.3290	13.15	10.55	23.70	60.00	-36.30	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss



Site : conducted #1
Date : 02-25-2016
Condition : CLASS-B QP
LISN : LINE
Tem / Hum : 18 ℃ / 65%
Test Mode : CHARGE MODE
EUT : Wireless Electrical Stimulator
Power Rating : 120VAC/60Hz

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1703	9.55	10.17	19.72	54.94	-35.22	Average
0.1703	21.66	10.17	31.83	64.94	-33.11	QP
0.2185	6.48	10.17	16.65	52.88	-36.23	Average
0.2185	19.04	10.17	29.21	62.88	-33.67	QP
0.2730	4.99	10.18	15.17	51.03	-35.86	Average
0.2730	14.98	10.18	25.16	61.03	-35.87	QP
0.4588	18.42	10.20	28.62	46.71	-18.09	Average
0.4588	25.72	10.20	35.92	56.71	-20.79	QP
2.1670	5.56	10.29	15.85	46.00	-30.15	Average
2.1670	12.61	10.29	22.90	56.00	-33.10	QP
6.9880	8.51	10.54	19.05	50.00	-30.95	Average
6.9880	15.51	10.54	26.05	60.00	-33.95	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

5.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR

Assume a receiver reading of 22.5 dBμV is obtained, and LISN Factor is 0.1 dB, then the total of disturbance voltage is 22.6 dBμV.

RESULT = 22.5 + 0.1 = 22.6 dBμV
Level in μV = Common Antilogarithm[(22.6 dBμV)/20]
= 13.48 μV

5.5 Conducted Measurement Equipment

The following test equipments are used during the conducted test.

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2015/12/05	2016/12/04
LISN	EMCO	3625/2	2015/10/28	2016/10/26
LISN	Rohde & Schwarz	ESH2-Z5	2015/04/09	2016/04/08

5.6 Photos of Conduction Measuring Setup

6 ANTENNA REQUIREMENT

6.1 Standard Applicable

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

6.2 Antenna Construction

The antenna is integrated on the device. No consideration of replacement. Please refer to the construction Photo for details.

7 BAND EDGES MEASUREMENT

7.1 Standard Applicable

According to 15.249(d), out band emission except for harmonics shall be comply with §15.209 or at least attenuated by 50 dB below the level of the fundamental.

7.2 Measurement Procedure

A) 50 dB attenuation method

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
4. Repeat above procedures until all measured frequencies were complete.

B) Radiated Emission method

1. Following the measurement procedures in section 4.2 with the EUT set to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
2. Measure the highest amplitude appearing on spectral displayed.
3. Repeat above procedures until all measured frequencies were complete.

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	N/A
	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz or ≥ 1/T (Note 1)

Note 1:
VBW = 10 Hz, when the duty cycle is no less than 98%.
VBW ≥ 1/T, when duty cycle is less than 98% where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

7.3 Measurement Equipment

A) 50 dB attenuation method

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESU 40	2015/10/07	2016/10/06

B) Radiated Emission method

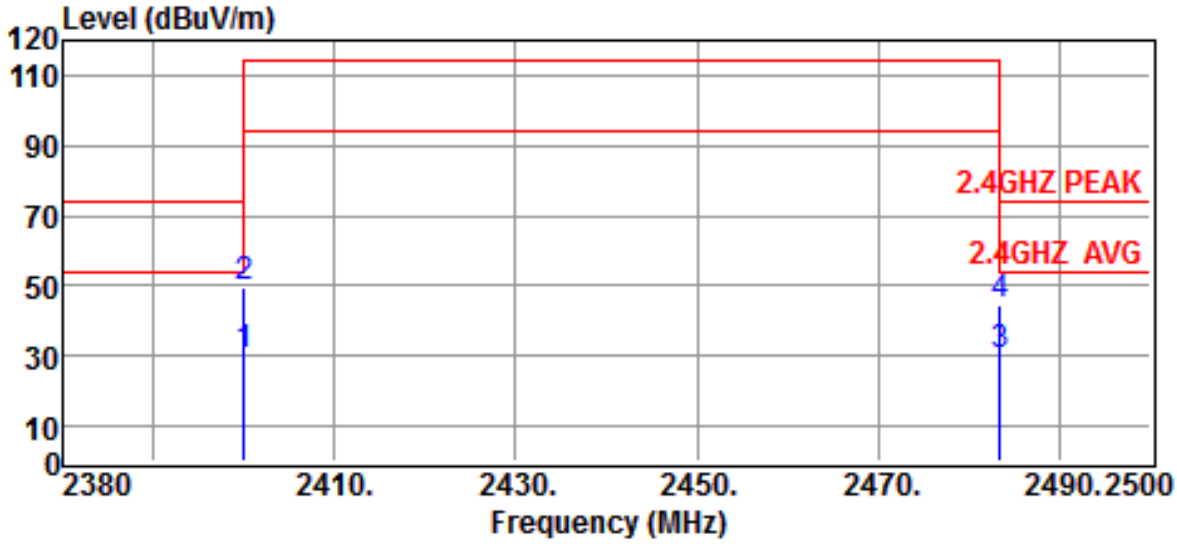
Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Test Receiver	Rohde & Schwarz	ESVS30	2015/06/03	2016/06/02
EMI Test Receiver	Rohde & Schwarz	ESL	2015/03/26	2016/03/25
Bi-Log Antenna	ETC	MCTD 2786	2015/07/01	2016/06/30
Log-periodic Antenna	EMCO	3146	2015/11/17	2016/11/16
Double Ridged Guide Horn Antenna	EMCO	3116	2015/10/12	2016/10/11
Biconical Antenna	EMCO	3110	2015/11/17	2016/11/16
Double Ridged Antenna	EMCO	3115	2015/10/08	2016/10/07
Amplifier	HP	8449B	2015/10/06	2016/10/05
Amplifier	HP	83051A	2015/10/21	2016/10/19
Amplifier	HP	8447D	2015/11/09	2016/11/07
EMI Test Receiver	Rohde & Schwarz	ESU 40	2015/10/07	2016/10/06

7.4 Measurement Data

Test Result: (Radiated Emission method)

The radiated emission test results of the lower and the upper band edges were comply with §15.209. Please refer to the following pages for test results.

Radiated Emission Test Results of the Band Edges

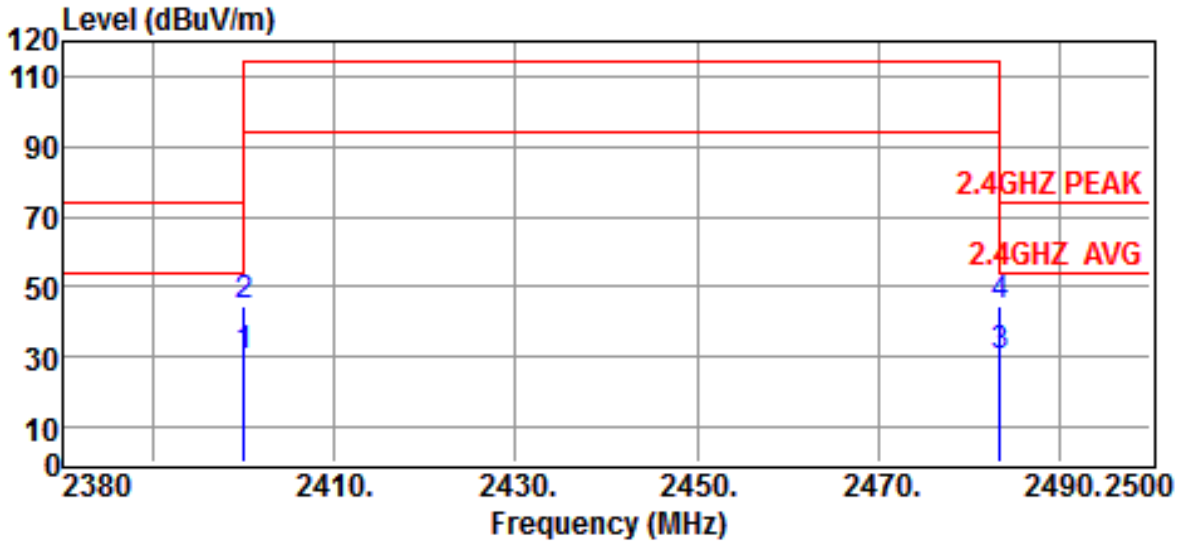


Site	:CHAMBER #2	Date	:2016-03-24
Limit	:2.4GHZ PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Wireless Electrical Stimulator		
Model	:WR-2605A (OTC)		
Power Rating	:BATTERY	Temp.	:20°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	:CH LO & HI - BANDEDGE		
Test Mode	:EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2400.0000	36.3	-5.8	30.5	54.0	-23.5	Average
2400.0000	55.3	-5.8	49.5	74.0	-24.5	Peak
2483.5000	35.9	-5.7	30.2	54.0	-23.8	Average
2483.5000	50.2	-5.7	44.5	74.0	-29.5	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result



Site	:CHAMBER #2	Date	:2016-03-24
Limit	:2.4GHZ PEAK	Ant. Pol.	:VERTICAL
EUT	:Wireless Electrical Stimulator		
Model	:WR-2605A (OTC)		
Power Rating	:BATTERY	Temp.	:20°C
Engineer	:Brian Huang	Humi.	:68 %
Test Mode	: CH LO & HI - BANDEDGE		
Test Mode	:EUT put on table horizontally (worst case)		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2400.0000	36.1	-5.8	30.3	54.0	-23.7	Average
2400.0000	50.0	-5.8	44.2	74.0	-29.8	Peak
2483.5000	35.8	-5.7	30.1	54.0	-23.9	Average
2483.5000	50.2	-5.7	44.5	74.0	-29.5	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit - Result

8. DYTY CYCLE

8.1 Standard Applicable

None. Reference only.

8.2 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2015/07/06	2016/07/05

8.3 Measurement Data

Test Date : Feb. 25, 2016 Temperature : 18 °C Humidity : 68 %

Duty Cycle Calculation

Period = 13.397436ms
Transmission duration (T) = 225.961538μs
Duty Cycle (%) = (0.225961538 / 13.397436) * 100 % = 1.68 %

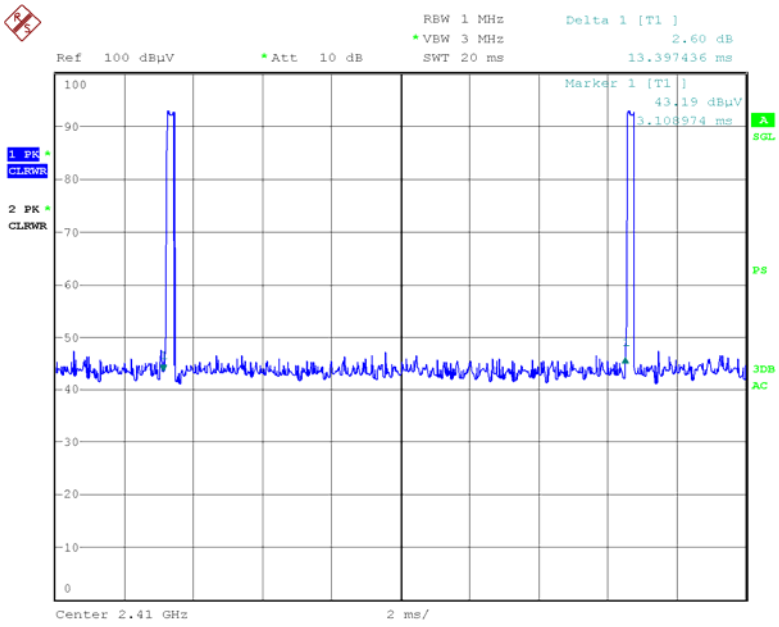
The duty cycle is less than 98%. For the average measurement of the radiated emission test, the VBW setting is >1/T where the T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

1/T = 1 / 225.961538μs = 4.425kHz

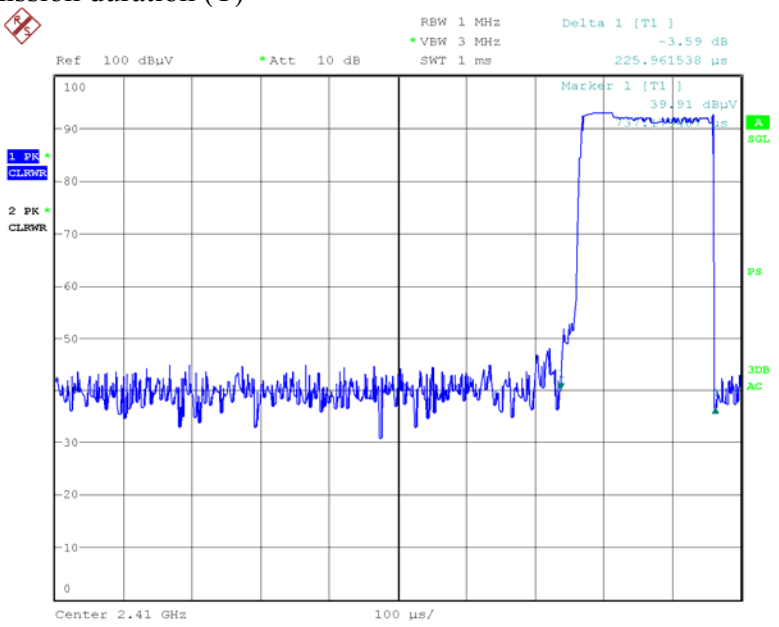
Hence the VBW setting for the average measurement is 10kHz.

Refer to the following page for data plots..

Period



Transmission duration (T)



9. BANDWIDTH OF EMISSION

9.1 Applicable Standard

Per FCC rule §15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. The settings of spectrum analyzer is as followings.
   1) Set RBW in the range of 1% to 5% of the OBW.
   2) Set the video bandwidth (VBW) ≥ 3 x RBW.
   3) Detector = Peak.
   4) Trace mode = max hold.
   5) Sweep = auto couple.
   6) Allow the trace to stabilize.
   7) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission. Alternatively, use the -20 dB bandwidth function of the spectrum analyzer.
3. Repeat above procedures until all frequencies measured were complete.

Figure 4: Emission bandwidth measurement configuration.

9.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2015/07/06	2016/07/05

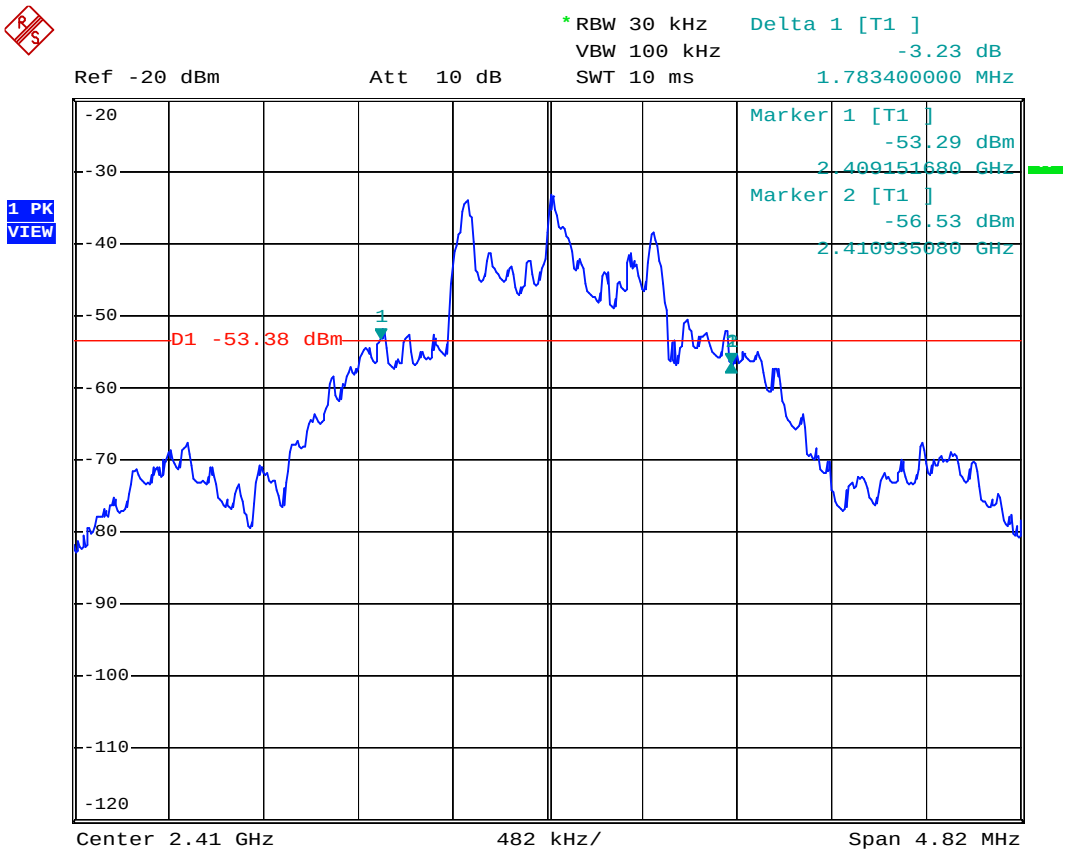
9.4 Measurement Data

Test Date : Feb. 25, 2016 Temperature : 18 °C Humidity : 68 %

a) Lower Band Edge : The 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section 15.249.
b) Upper Band Edge : The 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section 15.249.

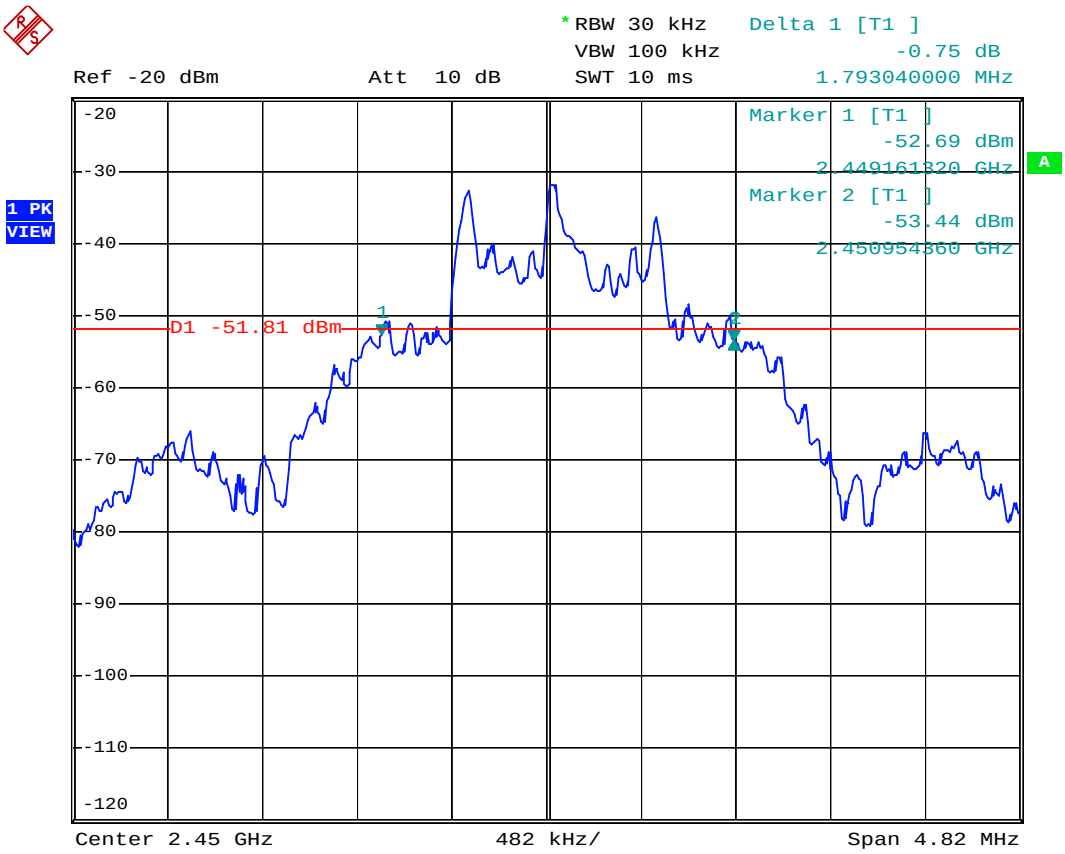
Note : The expanded uncertainty: frequency × 1.65×10^{-6} (1 GHz < f ≤ 18 GHz).

Lower band edge / -20dB BW plot of the lowest channel



The 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section 15.249.

Upper band edge / -20dB BW plot of the highest channel



The 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section 15.249.