STC Test Report

Date: 2016-05-04

No.: MH192587

Applicant: Ewig Industries Macao Commercial Offshore Limited
Avenida Da Praia Grande No.619, EDF. Comercial Si Toi L6, Macau

Manufacturer: Dong Guan Q&S Electronic Manufacturing Company Limited
Yin Shan Industrial District, Fu Gang Village, Xiang Mang West Road, Qing Xi Town, Dongguan City, Guang Dong Province, China

Description of Sample(s): Submitted sample(s) said to be

Product:	Water Leakage Sensor
Brand Name:	EWIG
Model Number:	GRP006
FCC ID:	N9ZGRP006

Date Sample(s) Received: 2016-04-13

Date Tested: 2016-04-26 to 2016-05-03

Investigation Requested: Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2015 and ANSI C63.10:2013 for FCC Certification.

Conclusion(s): The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remark(s): ---

Dr. LEE Kam Chuen
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.

CONTENT:

1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate, New Territories, Hong Kong

Telephone: 852 2666 1888
Fax: 852 2664 4353

1.2 Equipment Under Test [EUT]
Description of Sample(s)

Product:	Water Leakage Sensor
Manufacturer:	Dong Guan Q&S Electronic Manufacturing Company Limited Yin Shan Industrial District, Fu Gang Village, Xiang Mang West Road, Qing Xi Town, Dongguan City, Guang Dong Province, China
Brand Name:	EWIG
Model Number:	GRP006
Rating:	3.0Vd.c. (CR2032 battery x 1)

1.2.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Water Leakage Sensor of Ewig Industries Macao Commercial Offshore Limited. the transmission signal is digital modulated with channel frequency range 2405-2475MHz.

1.3 Date of Order

2016-04-13

1.4 Submitted Sample(s):

1 Sample

1.5 Test Duration

2016-04-26 to 2016-05-03

1.6 Country of Origin

China

2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2015 Regulations and ANSI C63.10:2013 for FCC Certification. The device was realized by test software.

2.2 Test Standards and Results Summary Tables

EMISSION
Results Summary

Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Fail	N/A
Output Power of Fundamental Emissions	FCC 47CFR 15.247(b)(3)	ANSI C63.10:2013	N/A	☒	☐	☐
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.10:2013	N/A	☒	☐	☐
Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10:2013	N/A	☐	☐	☒
Power Spectral Density	FCC 47CFR 15.247(e)	ANSI C63.10:2013	N/A	☒	☐	☐
6dB Bandwidth	FCC 47CFR 15.247(a)(2)	ANSI C63.10:2013	N/A	☒	☐	☐
Band Edge Emissions	FCC 47CFR 15.247(d)	ANSI C63.10:2013	N/A	☒	☐	☐
RF Exposure	FCC 47CFR 15.247(i)	N/A	N/A	☒	☐	☐

Note: N/A - Not Applicable

3.0 Test Results

3.1 Emission

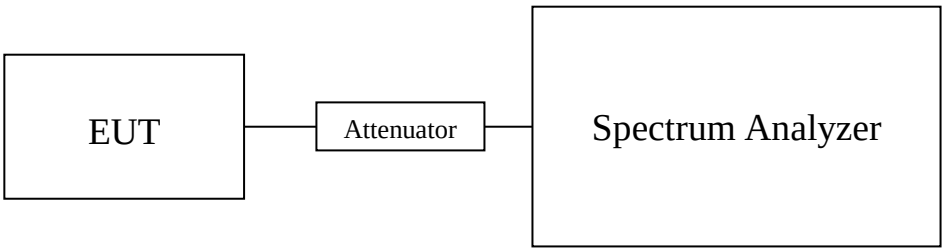
3.1.1 Maximum Peak Output Power

Test Requirement:	FCC 47CFR 15.247(b)(3)
Test Method:	N/A
Test Date:	2016-04-27
Mode of Operation:	TX mode

Test Method:

The RF output of the EUT was connected to the peak power meter. All the attenuation or cable loss will be added to the measured maximum output power. The results are recorded in mW.

Test Setup:



Note: a temporary antenna connector was soldered to the RF output.

Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (30dBm)

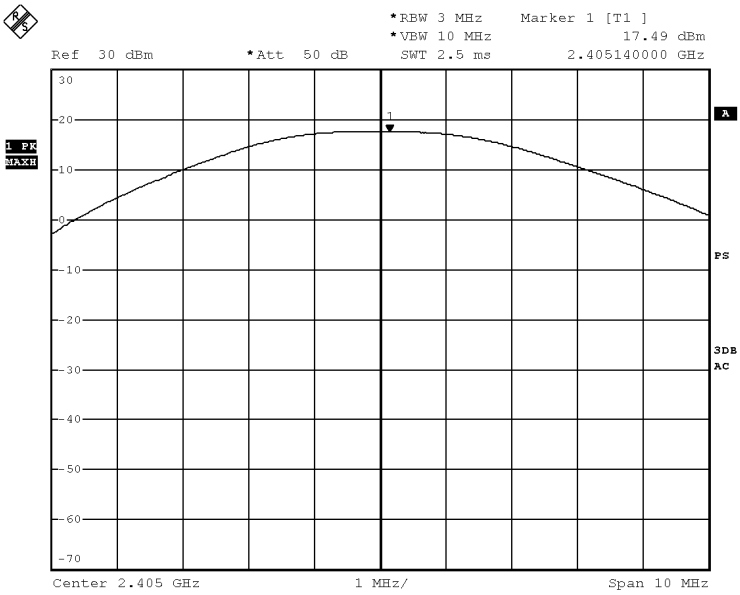
Results of Tx Mode Pi/4 QPSK (2405MHz to 2475MHz) : Pass (TX Unit)
Maximum conducted output power

Channel	Frequency(MHz)	Output Power(Watt)
Low	2405	0.056105
Middle	2440	0.056885
High	2475	0.058884

Calculated measurement uncertainty : 30MHz to 1GHz 1.7dB
1GHz to 26GHz 1.7dB

Test plot of Maximum Peak Conducted Output Power：

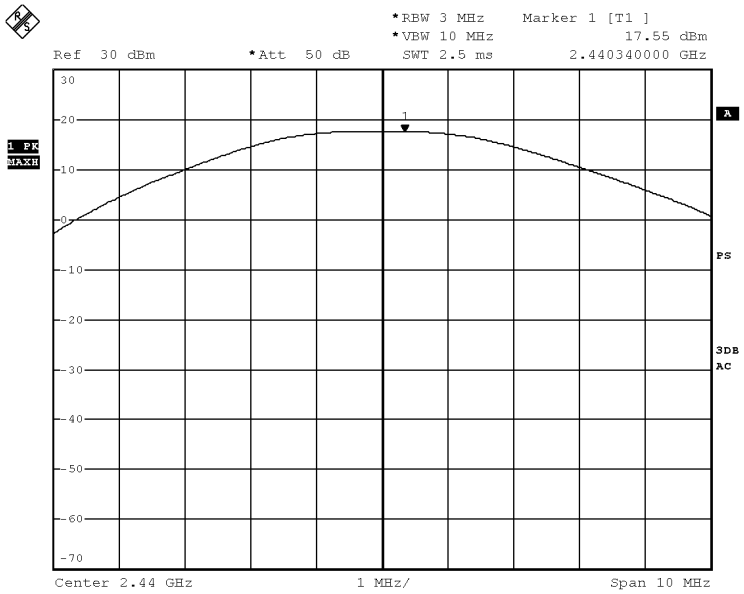
TX mode (2405MHz)



BMP

Date: 27.APR.2016 12:28:44

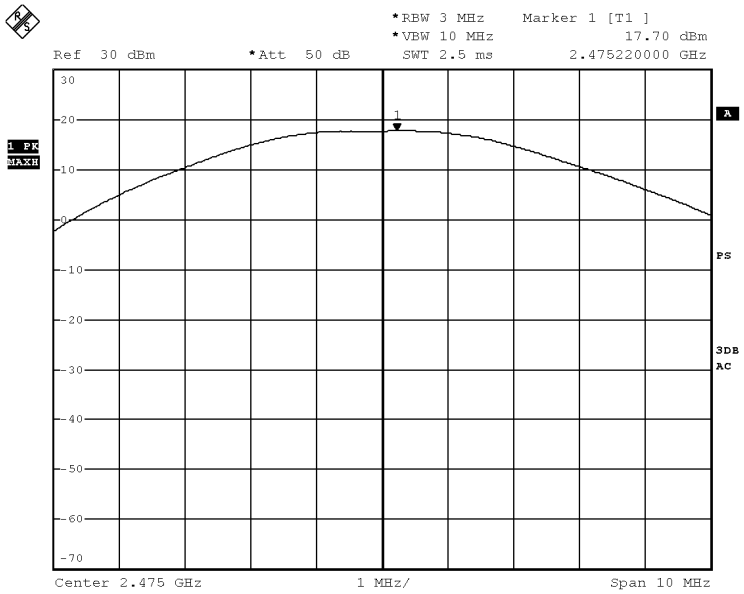
TX mode (2440MHz)



BMP

Date: 27.APR.2016 12:29:49

TX mode (2475MHz)



BMP

Date: 27.APR.2016 12:30:51

3.1.2 Radiated Emissions

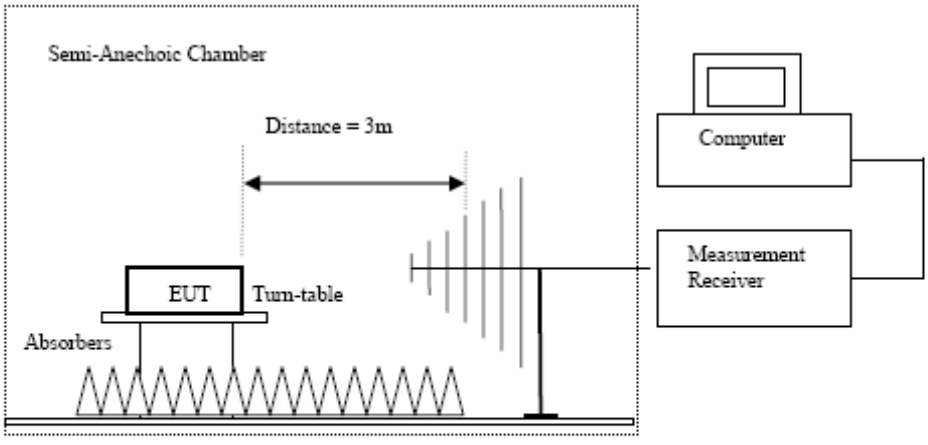
Test Requirement:	FCC 47CFR 15.209
Test Method:	ANSI C63.10:2013
Test Date:	2016-04-28
Mode of Operation:	Tx mode

Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. For emission measurements above 1 GHz, the sample was placed 1.5m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-Anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 568301.

Test Setup:



Ground Plane

- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz horn antennas are used, 9kHz to 30MHz loop antennas are used.

Limits for Radiated Emissions [FCC 47 CFR 15.247 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [µV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Tx mode (2405.0 MHz) (Pi/4 QPSK) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2405.0 MHz) (Pi/4 QPSK) (1GHz-26GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4810.0	14.8	41.5	56.3	74.0	17.7	Vertical
4810.0	15.9	42.4	58.3	74.0	15.7	Horizontal
7215.0	10.3	45.1	55.4	74.0	18.6	Vertical
7215.0	11.0	46.2	57.2	74.0	16.8	Horizontal
9620.0	5.5	48	53.5	74.0	20.5	Vertical
9620.0	8.3	48.8	57.1	74.0	16.9	Horizontal
12025.0	1.8	51.8	53.6	74.0	20.4	Vertical
12025.0	4.5	52.4	56.9	74.0	17.1	Horizontal

Result of Tx mode (2405.0 MHz) (Pi/4 QPSK) ((1GHz-26GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4810.0	-0.3	41.5	41.2	54.0	12.8	Vertical
4810.0	0.6	42.4	43.0	54.0	11.0	Horizontal
7215.0	-5.0	45.1	40.1	54.0	13.9	Vertical
7215.0	-4.1	46.2	42.1	54.0	11.9	Horizontal
9620.0	-9.7	48	38.3	54.0	15.7	Vertical
9620.0	-7.0	48.8	41.8	54.0	12.2	Horizontal
12025.0	-13.6	51.8	38.2	54.0	15.8	Vertical
12025.0	-10.6	52.4	41.8	54.0	12.2	Horizontal

Result of Tx mode (2440.0 MHz) (Pi/4 QPSK) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2440.0 MHz) (Pi/4 QPSK) ((1GHz-26GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4880.0	12.0	41.6	53.6	74.0	20.4	Vertical
4880.0	15.2	42.5	57.7	74.0	16.3	Horizontal
7320.0	0.9	53.2	54.1	74.0	19.9	Vertical
7320.0	10.7	46.3	57.0	74.0	17.0	Horizontal
9760.0	4.6	48.1	52.7	74.0	21.3	Vertical
9760.0	9.0	48.9	57.9	74.0	16.1	Horizontal
12200.0	3.0	51.6	54.6	74.0	19.4	Vertical
12200.0	3.9	52.5	56.4	74.0	17.6	Horizontal

Result of Tx mode (2440.0 MHz) (Pi/4 QPSK) ((1GHz-26GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4880.0	-3.2	41.6	38.4	54.0	15.6	Vertical
4880.0	0.0	42.5	42.5	54.0	11.5	Horizontal
7320.0	-6.4	45.2	38.8	54.0	15.2	Vertical
7320.0	-4.4	46.3	41.9	54.0	12.1	Horizontal
9760.0	-10.5	48.1	37.6	54.0	16.4	Vertical
9760.0	-6.3	48.9	42.6	54.0	11.4	Horizontal
12200.0	-12.1	51.6	39.5	54.0	14.5	Vertical
12200.0	-11.2	52.5	41.3	54.0	12.7	Horizontal

Result of Tx mode (2475.0 MHz) (Pi/4 QPSK) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2475.0 MHz) (Pi/4 QPSK) ((1GHz-26GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4950.0	11.2	41.4	52.6	74.0	21.4	Vertical
4950.0	14.8	42.7	57.5	74.0	16.5	Horizontal
7425.0	7.7	45.6	53.3	74.0	20.7	Vertical
7425.0	10.2	46.5	56.7	74.0	17.3	Horizontal
9900.0	6.2	48.6	54.8	74.0	19.2	Vertical
9900.0	7.1	49.7	56.8	74.0	17.2	Horizontal
12375.0	1.8	51.7	53.5	74.0	20.5	Vertical
12375.0	3.6	52.7	56.3	74.0	17.7	Horizontal

Result of Tx mode (2475.0 MHz) (Pi/4 QPSK) (1GHz-26GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4950.0	-3.9	41.4	37.5	54.0	16.5	Vertical
4950.0	-0.4	42.7	42.3	54.0	11.7	Horizontal
7425.0	-7.6	45.6	38.0	54.0	16.0	Vertical
7425.0	-4.9	46.5	41.6	54.0	12.4	Horizontal
9900.0	-9.0	48.6	39.6	54.0	14.4	Vertical
9900.0	-8.1	49.7	41.6	54.0	12.4	Horizontal
12375.0	-13.5	51.7	38.2	54.0	15.8	Vertical
12375.0	-11.5	52.7	41.2	54.0	12.8	Horizontal

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

* Denotes restricted band of operation.
Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : (9kHz-30MHz): 2.0dB
(30MHz -1GHz): 4.9dB
(1GHz -6GHz): 4.02dB
(6GHz -26.5GHz): 4.03dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

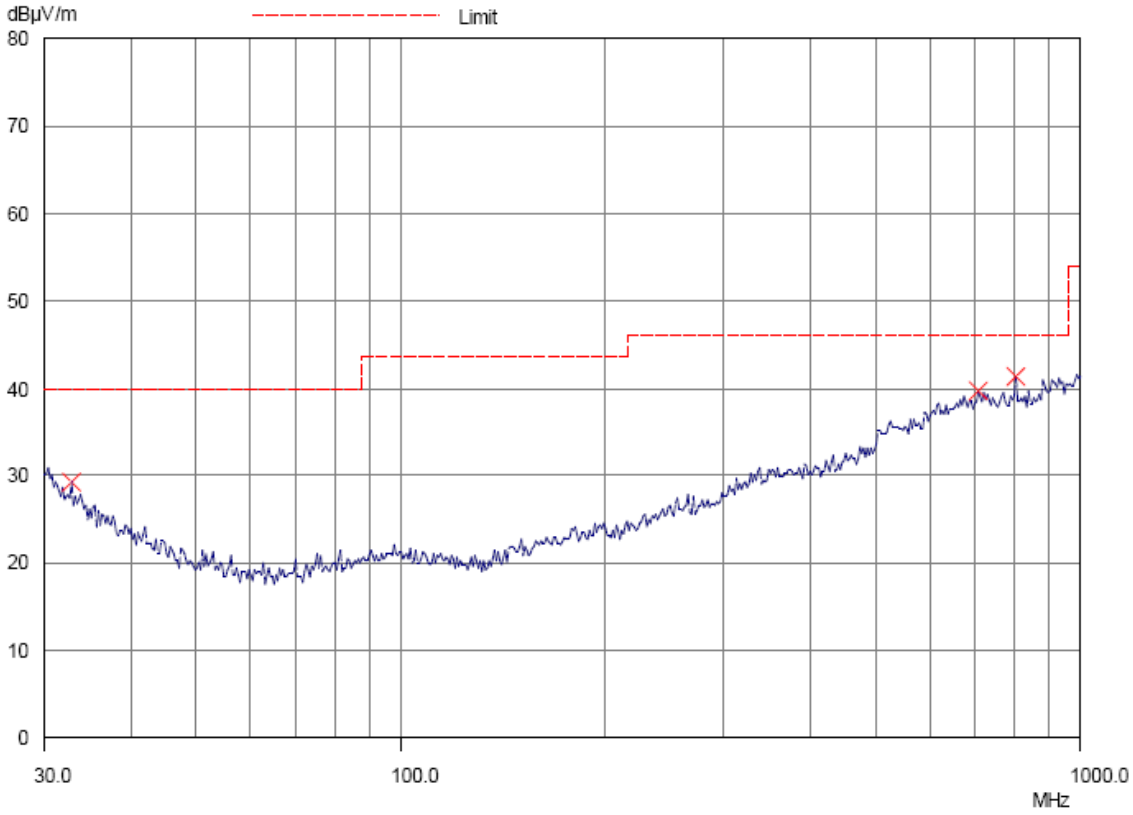
Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range	Quasi-Peak Limits
[MHz]	[μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of TX mode(2405.0 MHz) (30MHz – 1GHz): Pass
Please refer to the following table for result details

Horizontal



Result of TX mode (2405.0 MHz) (30MHz – 1GHz): Pass

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m dBµV/m	Limit @3m dBµV/m
32.8	Horizontal	29.2	40.0	28.8	100
704.6	Horizontal	39.6	46.0	95.5	200
798.8	Horizontal	40.2	46.0	102.3	200

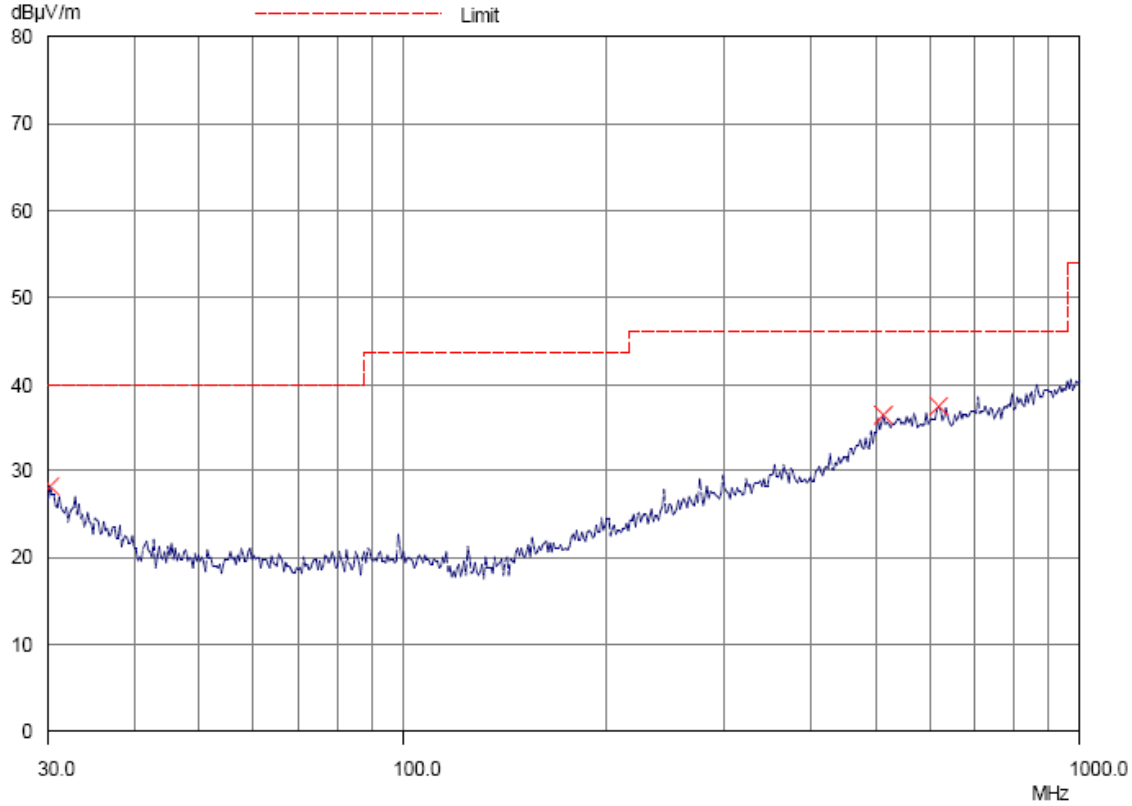
Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range	Quasi-Peak Limits
[MHz]	[μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of TX mode(2405.0 MHz) (30MHz – 1GHz): Pass
Please refer to the following table for result details

Vertical



Result of TX mode (2405.0 MHz) (30MHz – 1GHz): Pass

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m dBµV/m	Limit @3m dBµV/m
30.1	Vertical	28.1	40.0	25.4	100
511.4	Vertical	36.3	46.0	65.3	200
615.5	Vertical	37.4	46.0	74.1	200

Remarks:
Calculated measurement uncertainty (30MHz – 1GHz): 4.9dB
Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

3.1.3 Power Spectral Density

Test Requirement:	FCC 47CFR 15.247(e)
Test Method:	ANSI C63.10:2013
Test Date:	2016-04-27
Mode of Operation:	TX mode

Test Method:

The RF output of the EUT was connected to the spectrum analyzer. Set the fundamental frequency as the center frequency of the spectral analyzer. Use RBW=3kHz , VBW= 10KHz , Set the span to 1.5 times the DTS channel bandwidth. Detector = peak, Sweep time = auto couple , Trace mode = max hold. Measure the Power Spectral Density (PSD) and record the results in dBm.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

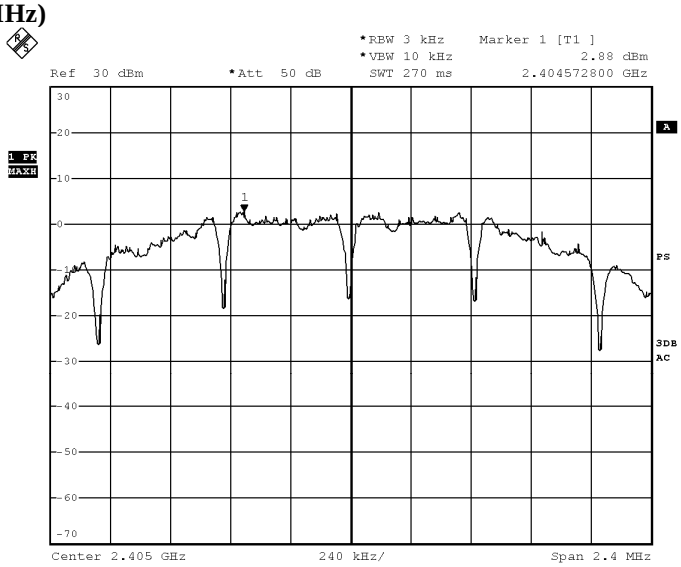
Test Limit:
The maximum power spectral density (PSD) shall not exceeded 8dBm in any 3kHz band.

Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF=10log (3 kHz/100 kHz=-15.2dB)

Results of TX Mode Pi/4 QPSK (Tx:2405MHz to 2475MHz) : Pass (TX Unit)
Maximum power spectral density

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2405.0	2.88	**8dBm**
2440.0	2.85	**8dBm**
2475.0	2.85	**8dBm**

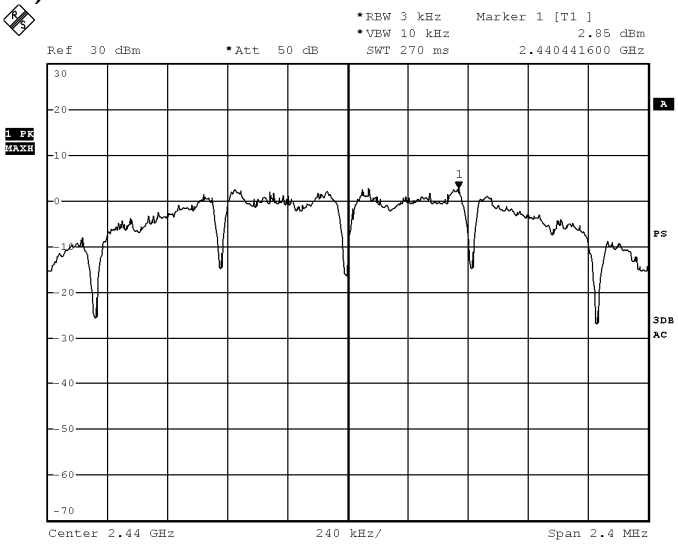
TX mode Pi/4 QPSK (Tx:2405MHz to 2475MHz)
CH 1 (2405.0 MHz)



BMP

Date: 27.APR.2016 12:53:16

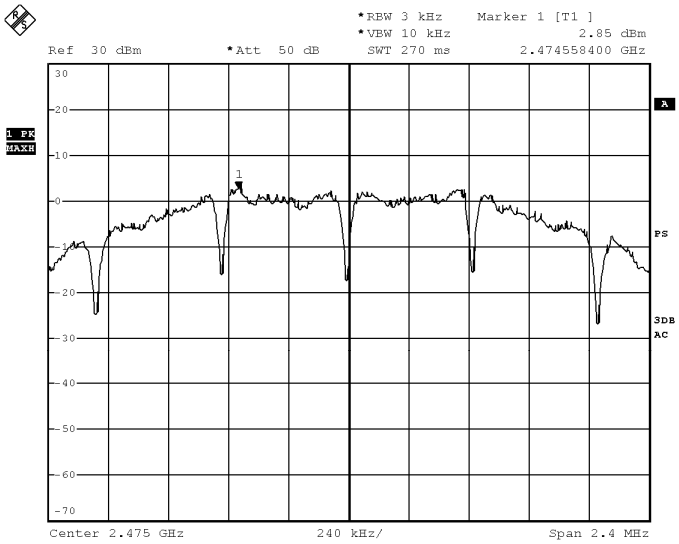
CH 6 (2440.0 MHz)



BMP

Date: 27.APR.2016 13:13:00

CH 11 (2475.0 MHz)



BMP

Date: 27.APR.2016 13:07:13

3.1.4 6dB Spectrum Bandwidth Measurement

Test Requirement:	FCC 47CFR 15.247(a)(2)
Test Method:	ANSI C63.10:2013
Test Date:	2016-04-27
Mode of Operation:	TX mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

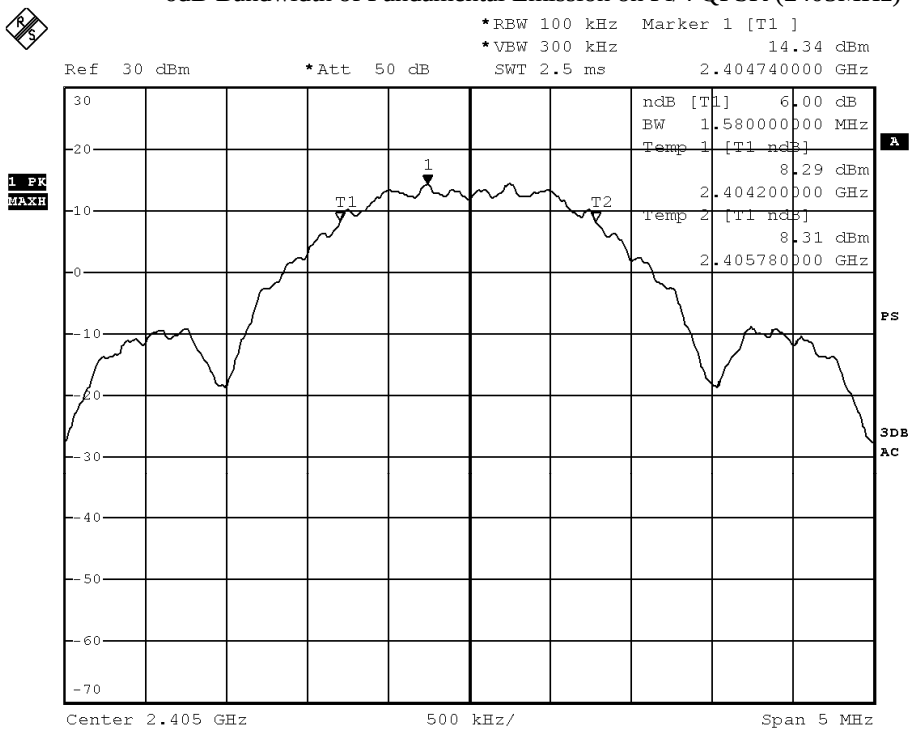
Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Limits for 6dB Spectrum Bandwidth Measurement:

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2405.0	1.58	> 500

6dB Bandwidth of Fundamental Emission on Pi/4 QPSK (2405MHz)



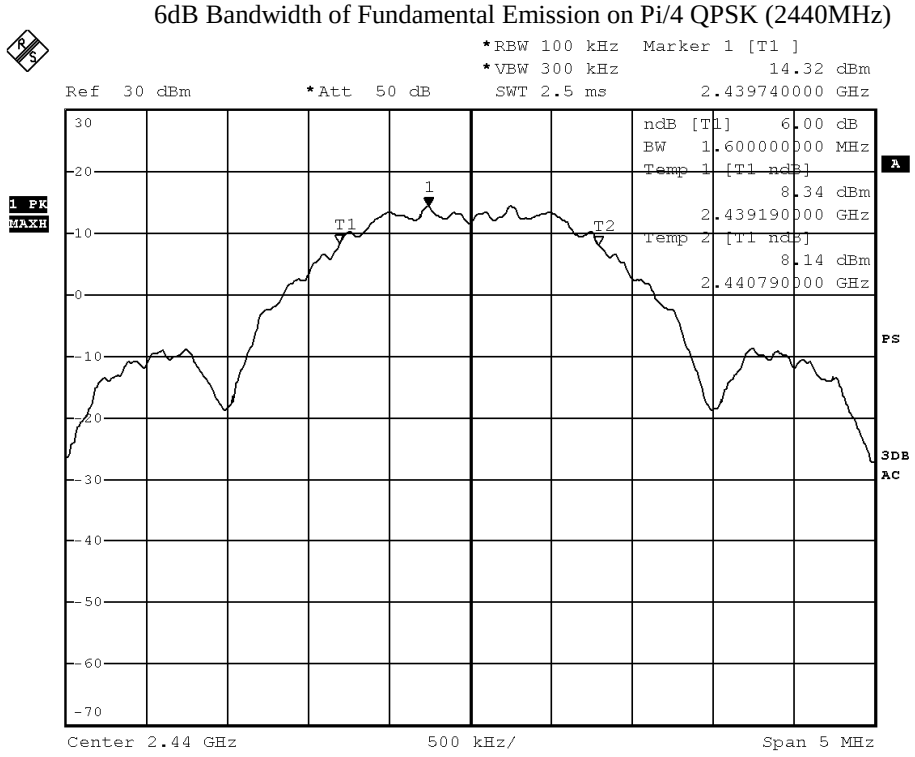
BMP

Date: 27.APR.2016 12:45:30

Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2440.0	1.60	> 500

6dB Bandwidth of Fundamental Emission on Pi/4 QPSK (2440MHz)



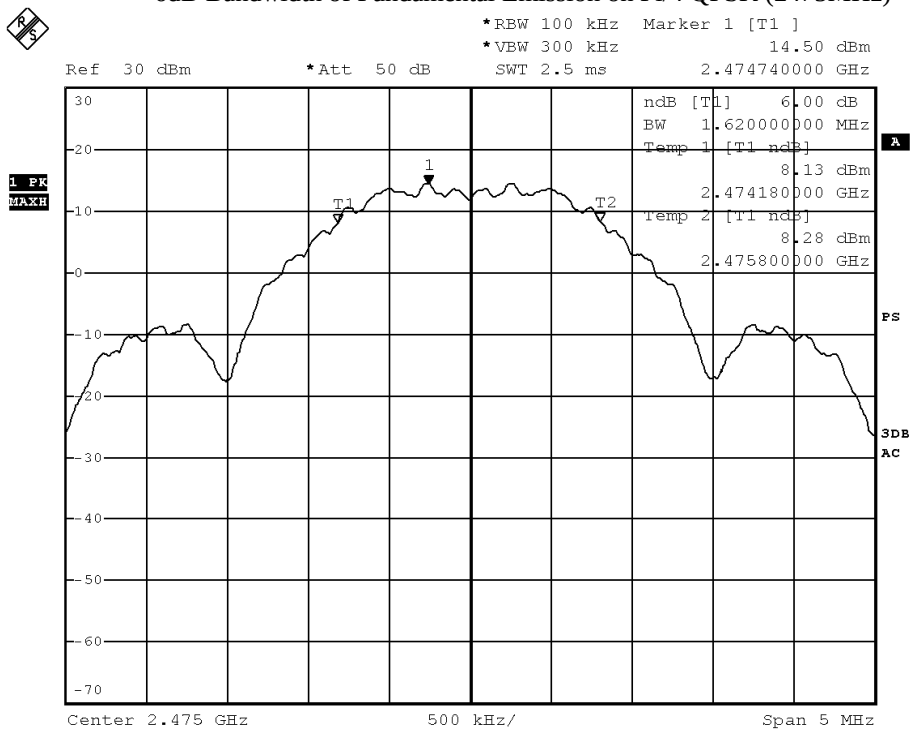
BMP

Date: 27.APR.2016 12:43:28

Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2475.0	1.62	> 500

6dB Bandwidth of Fundamental Emission on Pi/4 QPSK (2475MHz)



BMP

Date: 27.APR.2016 12:42:01

3.1.5 Band Edges Measurement

Test Requirement:	FCC 47CFR 15.247
Test Method:	ANSI C63.10:2013
Test Date:	2016-04-28
Mode of Operation:	TX mode

Test Method:

The band edge is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. The RBW art set to 100kHz and VBW are set to 300kHz for this measurement.

Test Setup:

As Test Setup of clause 3.1.2 in this test report.

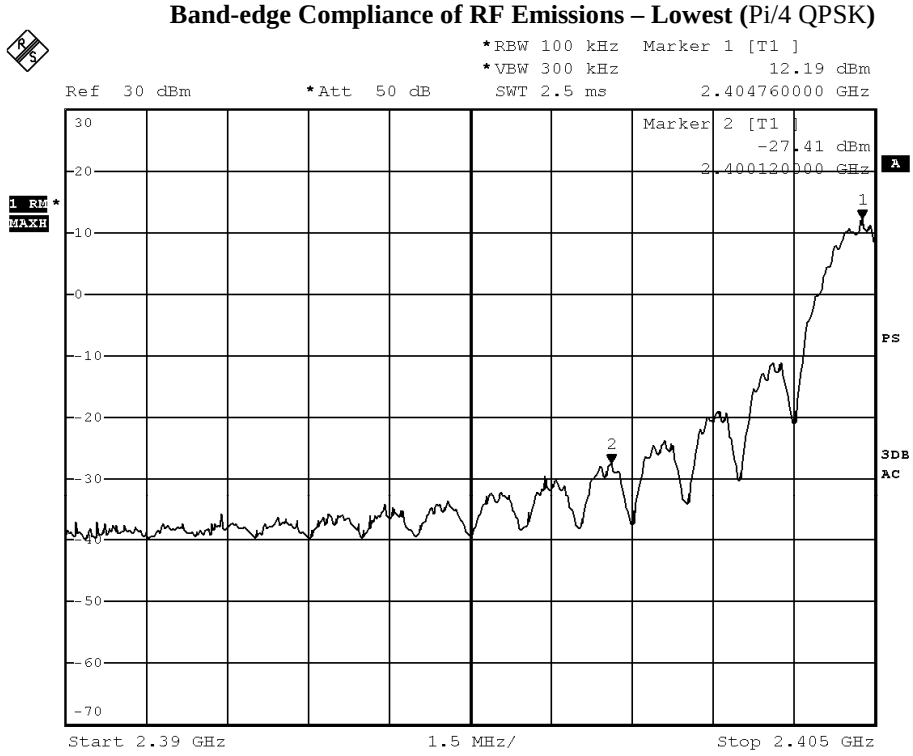
Band-edge Compliance of RF Conducted Emissions Measurement:

Limit：

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. Attenuation below the general limits specified in Section 15.209(a) is not required.

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2405)	39.60

Band-edge Compliance of RF Emissions – Lowest (Pi/4 QPSK**)**



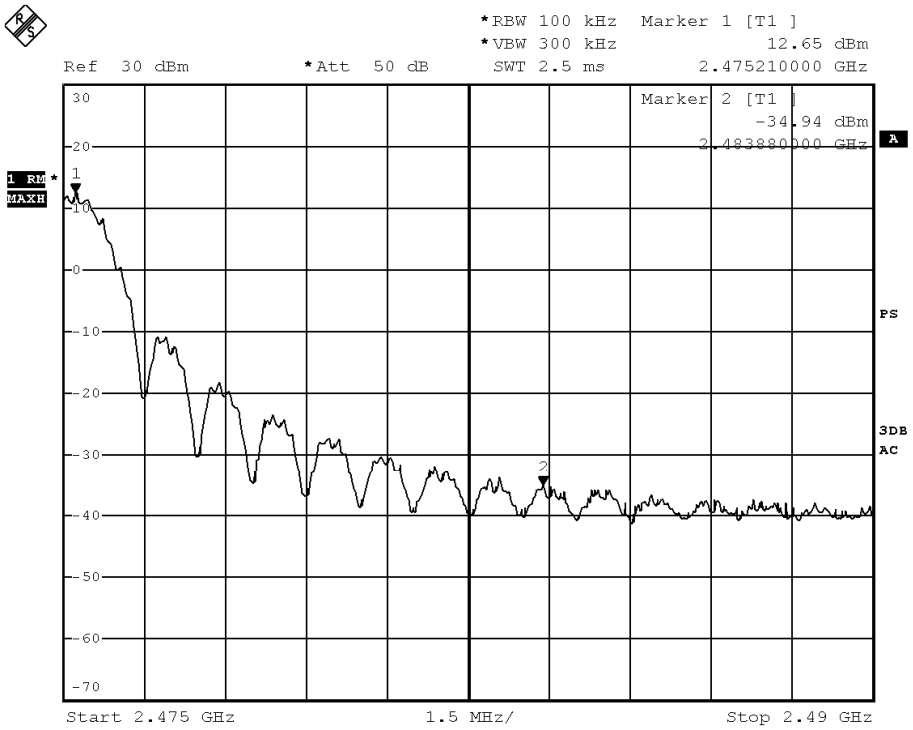
BMP

Date: 28.APR.2016 16:17:34

Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2475)	47.59

Band-edge Compliance of RF Emissions – Highest (Pi/4 QPSK**)**



BMP

Date: 28.APR.2016 16:21:05

Band-edge Compliance of RF Radiated Emissions Measurement:

Limit：

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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).

Result：Band-edge Compliance of RF Radiated Emissions (Lowest)- Pi/4 QPSK

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	19.4	36.8	56.2	74.0	17.8	Vertical
2390.0	24.4	36.4	60.8	74.0	13.3	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	9.0	36.8	45.8	54.0	8.2	Vertical
2390.0	13.9	36.4	50.3	54.0	3.7	Horizontal

Result：Band-edge Compliance of RF Radiated Emissions (Highest) - Pi/4 QPSK

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	18.6	36.8	55.4	74.0	18.6	Vertical
2483.5	22.3	36.4	58.7	74.0	15.3	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	8.4	36.8	45.2	54.0	8.8	Vertical
2483.5	12.0	36.4	48.4	54.0	5.6	Horizontal

3.1.6 RF Exposure

Test Requirement:	FCC 47CFR 15.247(i)
Test Date:	2016-04-29
Mode of Operation:	**TX** mode

Test Method:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

Test Results:

The EUT complied with the requirement(s) of this section.
EUT meets the requirements of these sections as proven through MPE calculation
The MPE calculation for EUT @ 20cm
Based on the highest P =58.884 mW

Pd = PG/ 4pi*R^2 = (58.884x 1.07)/12.566* $(20)^2$
= (63.006)/12.566x 400= 63.006 /5026.4
= 0.01253mW/cm^2

where:
*Pd = power density in mW/cm2
* G = Antenna numeric gain (1.07); Log G = g/10 (g = 0.28dBi).
* P = Conducted RF power to antenna (58.884mW).
* R = Minimum allowable distance.(20 cm)

*The power density Pd = 0.01253mW/cm^2 is less than 1 mW/cm^2 (listed MPE limit)
*The SAR evaluation is not needed (this is a desk top device, R> 20 cm)
* The EUT(antenna) must be 0.2 meters away from the General Population.

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EMD062	DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA	ETS-LINDGREN	3117	00075933	2014/11/15	2016/11/15
EM300	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-09	00130130	2016/06/27	2017/06/27
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2015/09/25	2016/09/25
EM320	BICONILOG ANTENNA	ETS-LINDGREN	3142D	00094856	2014/08/06	2016/08/06
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2014/04/28	2016/04/28
EM229	EMI TEST RECEIVER	R&S	ESIB40	100248	2015/06/01	2016/06/01
EM529	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 104	238296	2014/07/24	2016/07/24

Remarks:-

N/A Not Applicable or Not Available

Appendix B

Photographs of EUT

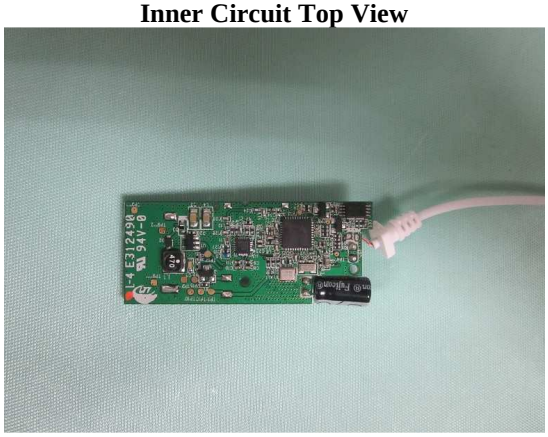
Front View of the product

Rear View of the product

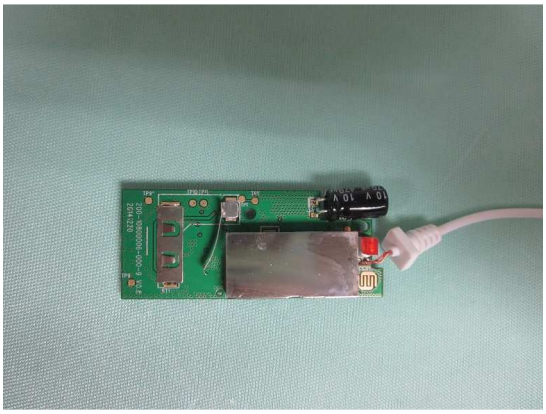
Inside View of the product

Inside View of the product

Inner Circuit Top View

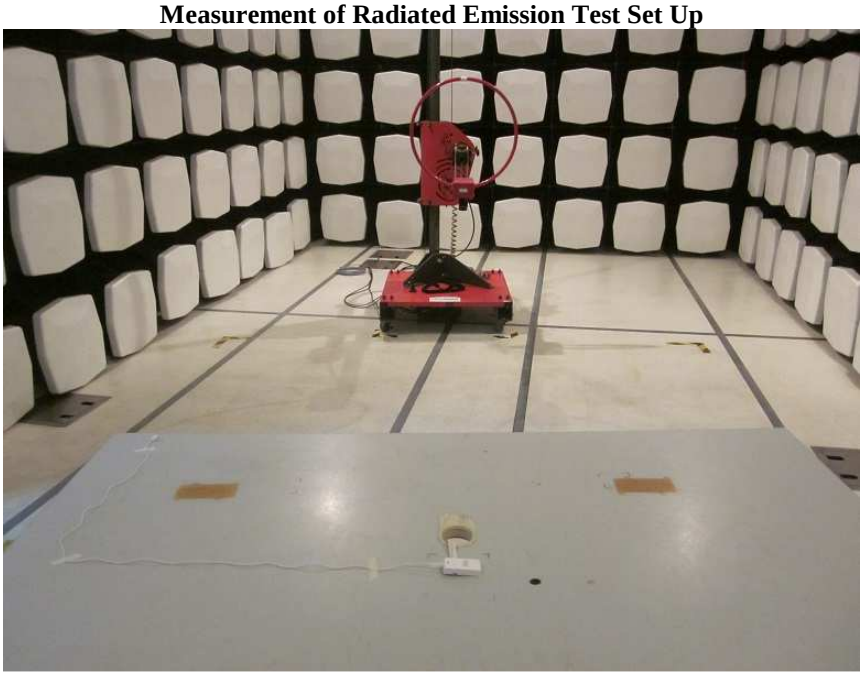


Inner Circuit Bottom View

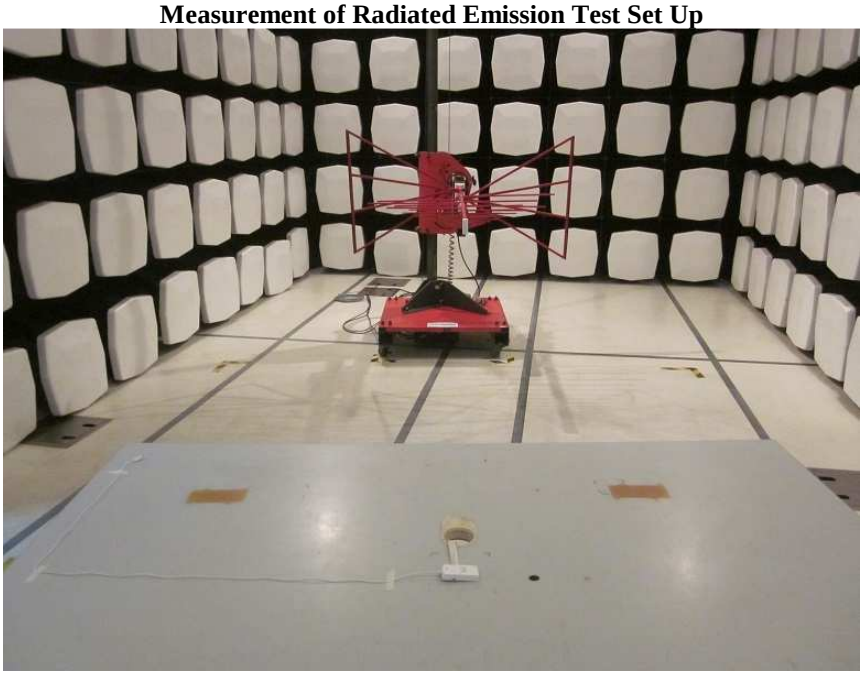


Photographs of EUT

Measurement of Radiated Emission Test Set Up

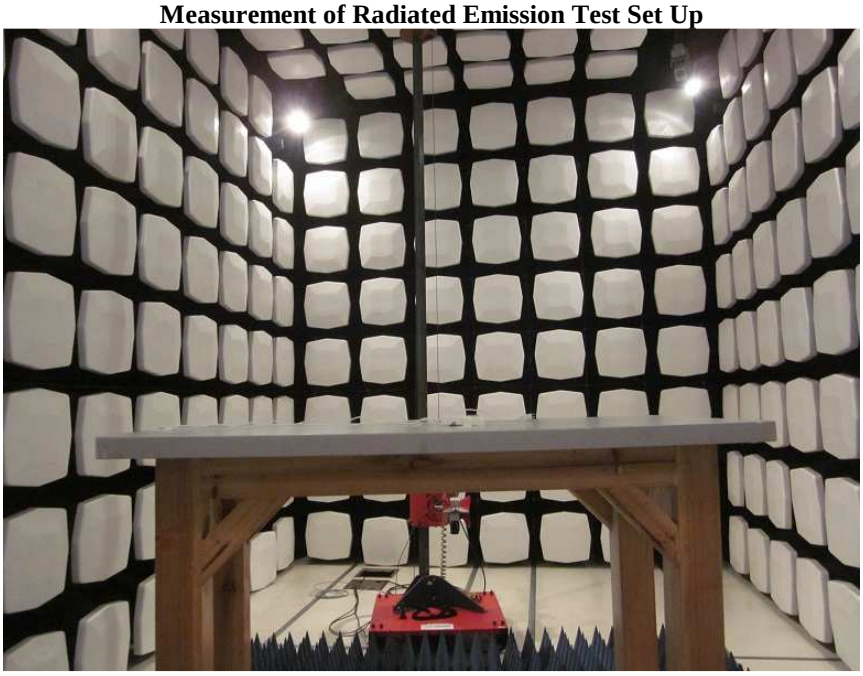


Measurement of Radiated Emission Test Set Up



Photographs of EUT

Measurement of Radiated Emission Test Set Up



******* End of Test Report *******