

FCC TEST REPORT
for

Flint Rehabilitation Devices LLC

FitMi Motion Interface
Model No.: FitMi Receiver, FMR001

Prepared for : Flint Rehabilitation Devices LLC
Address : 18023 Sky Park Circle Ste. H2 Irvine CA 92614, United States

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
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Report Number : R0117020628W
Date of Test : Feb. 22~Apr. 10, 2017
Date of Report : Apr. 10, 2017

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TEST REPORT

Applicant : Flint Rehabilitation Devices LLC
Manufacturer : ShenZhen Tailhoo Technology Co., Ltd.
EUT : FitMi Motion Interface
Model No. : FitMi Receiver, FMR001
Serial No. : N.A.
Trade Mark : Exercise Equipment
Rating : Input DC 5V

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B 15.107, 15.109 & FCC / ANSI C63.4-2014

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited

Date of Test : Feb. 22~Apr. 10, 2017

Prepared by



Winkey Wang

(Tested Engineer / Winkey Wang)

Reviewer :

Brown Lu

(Project Manager / Brown Lu)

Approve & Authorized Signer :

Tom Chen

(Manager / Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	: FitMi Motion Interface
Model Number	: FitMi Receiver, FMR001 : (Note: All samples are the same except the model number and colour, so we prepare “FMR001” for test only.)
Test Power Supply	: DC 5V via USB Port
Antenna Specification	: Ceramic Antenna: 0.5dBi
Applicant	: Flint Rehabilitation Devices LLC
Address	: 18023 Sky Park Circle Ste. H2 Irvine CA 92614, United States
Manufacturer	: ShenZhen Tailhoo Technology Co., Ltd.
Address	: Rm 1411 Guanlida Mansion (Noble plaza) Qianjin 1st Road, 30 Area of Baoan, Shenzhen, China
Date of receipt	: Feb. 22, 2017
Date of Test	: Feb. 22~Apr. 10, 2017

1.2. Auxiliary Equipment Used during Test

PC	: Manufacturer: DELL M/N: Optiplex 3020 MT S/N: CN-079V51-70163-4AD-089K-A00 Input Rating: AC 100-240V, 50-60Hz 5.4A CE , FCC DOC, CCC
MONITOR	: Manufacturer: DELL M/N: UZ2215Hf S/N: CN-035VN6-72872-45A-A3AB Input Rating: AC 100-240V, 50-60Hz, 1.5A Output Rating: DC 19.5V, 4.62A TUV-GS FCC CE KCC VCCI
KEYBOARD	: Manufacturer: DELL M/N: SK-8120 S/N: CN-0DJ365-71616-49J-0MVR-A00 Input Rating: DC 5V,0.05A CE FCC VCCI KCC TUV-GS Cable: 1.8m, unshielded
MOUSE	: Manufacturer: DELL M/N: MS111-T S/N: CN-0KW2YH-71616-488-1CBJ Input Rating: DC 5V,0.1A Cable: 1.8m, unshielded CE FCC VCCI KCC TUV-GS

1.3. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS - LAB Code: L3503

Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

FCC-Registration No.: 752021

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, July 06, 2016

IC-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A, June 13, 2016

Test Location

All Emissions tests were performed
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

1.4. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1dB (Horizontal) Ur = 4.3dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

1.5. Test Summary

For the EUT described above. The standards used were FCC Part 15 Subpart B for Emissions.

Table 1 : Tests Carried Out Under FCC Part 15 Subpart B

Standard	Test Items	Status
FCC Part 15 Subpart B	Power Line Conducted Emission Test (150KHz To 30MHz)	√
FCC Part 15 Subpart B	Radiated Emission Test (30MHz To 1GHz)	√
	Radiated Emission Test (Above 1GHz)	√

- √ Indicates that the test is applicable
- x Indicates that the test is not applicable

2. POWER LINE CONDUCTED MEASUREMENT

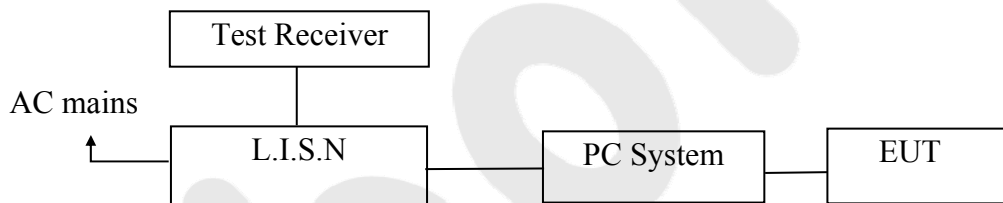
2.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Jul. 19, 2016	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Jun. 17, 2016	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Jun. 17, 2016	1 Year

2.2. Block Diagram of Test Setup

2.2.1. Block diagram of connection between the EUT and simulators



2.3. Power Line Conducted Emission Measurement Limits (FCC Part 15

Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

2.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

2.5. Operating Condition of EUT

- 2.5.1. Setup the EUT and simulator as shown as Section 2.2.
- 2.5.2. Turn on the power of all equipment.
- 2.5.3. Let the EUT work in test mode (Normal Mode) and measure it.

2.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test result are reported on Section 2.7.

2.7. Power Line Conducted Emission Measurement Results

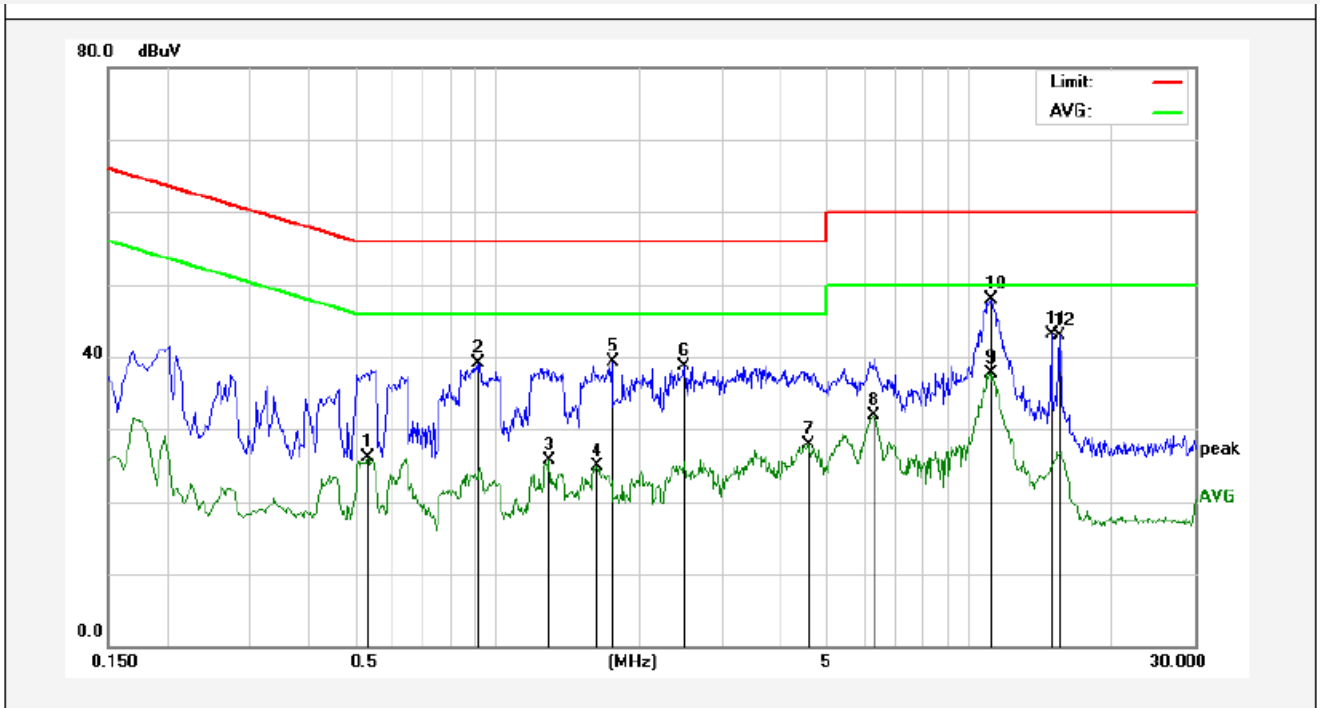
PASS

The frequency range from 150KHz to 30 MHz is investigated.

The test curves are shown in the following pages.

CONDUCTED EMISSION TEST DATA

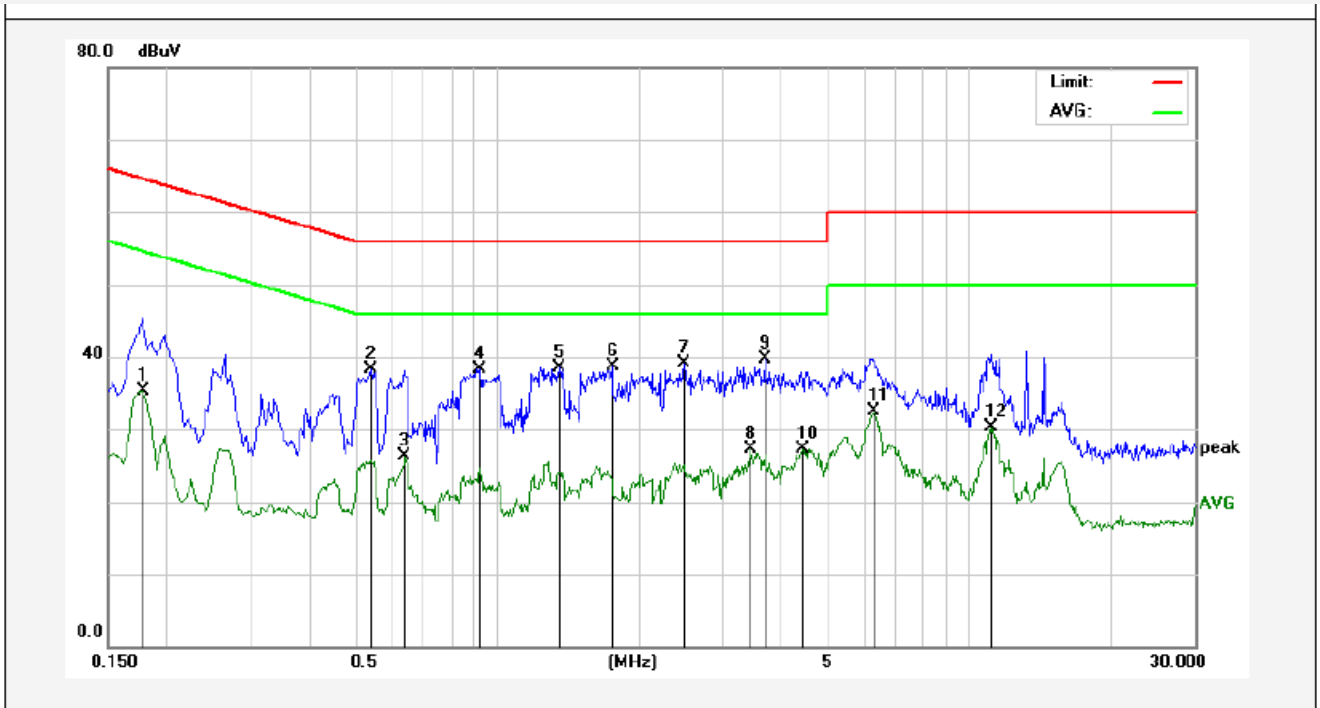
Test Site: 1# Shielded Room
 Operating Condition: Normal Mode
 Test Specification: DC 5V via USB Port
 Comment: L
 Temp.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.5340	6.16	19.99	26.15	46.00	-19.85	AVG	
2	0.9180	18.92	20.10	39.02	56.00	-16.98	QP	
3	1.2900	5.65	20.13	25.78	46.00	-20.22	AVG	
4	1.6300	4.81	20.13	24.94	46.00	-21.06	AVG	
5	1.7540	19.07	20.14	39.21	56.00	-16.79	QP	
6	2.4900	18.58	20.15	38.73	56.00	-17.27	QP	
7	4.5620	7.67	20.19	27.86	46.00	-18.14	AVG	
8	6.2740	11.68	20.24	31.92	50.00	-18.08	AVG	
9	11.0460	17.40	20.32	37.72	50.00	-12.28	AVG	
10	11.1780	27.63	20.32	47.95	60.00	-12.05	QP	
11	14.9300	22.84	20.26	43.10	60.00	-16.90	QP	
12	15.5020	22.57	20.27	42.84	60.00	-17.16	QP	

CONDUCTED EMISSION TEST DATA

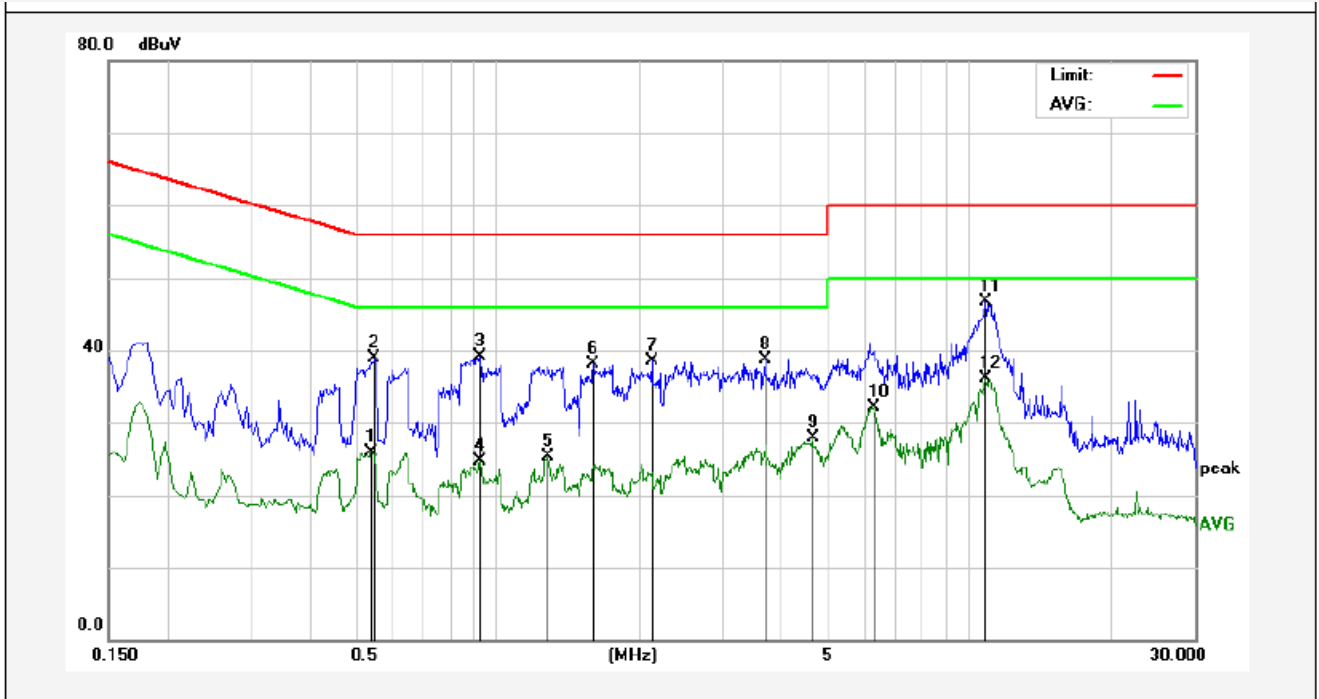
Test Site: 1# Shielded Room
 Operating Condition: Normal Mode
 Test Specification: DC 5V via USB Port
 Comment: N
 Temp.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1780	15.47	19.90	35.37	54.57	-19.20	AVG	
2	0.5420	18.27	19.99	38.26	56.00	-17.74	QP	
3	0.6380	6.22	20.02	26.24	46.00	-19.76	AVG	
4	0.9220	18.21	20.10	38.31	56.00	-17.69	QP	
5	1.3540	18.28	20.13	38.41	56.00	-17.59	QP	
6	1.7540	18.62	20.14	38.76	56.00	-17.24	QP	
7	2.4900	18.99	20.15	39.14	56.00	-16.86	QP	
8	3.4420	7.06	20.17	27.23	46.00	-18.77	AVG	
9	3.6900	19.44	20.17	39.61	56.00	-16.39	QP	
10	4.4500	7.18	20.19	27.37	46.00	-18.63	AVG	
11	6.2940	12.17	20.24	32.41	50.00	-17.59	AVG	
12	11.1740	10.07	20.32	30.39	50.00	-19.61	AVG	

CONDUCTED EMISSION TEST DATA

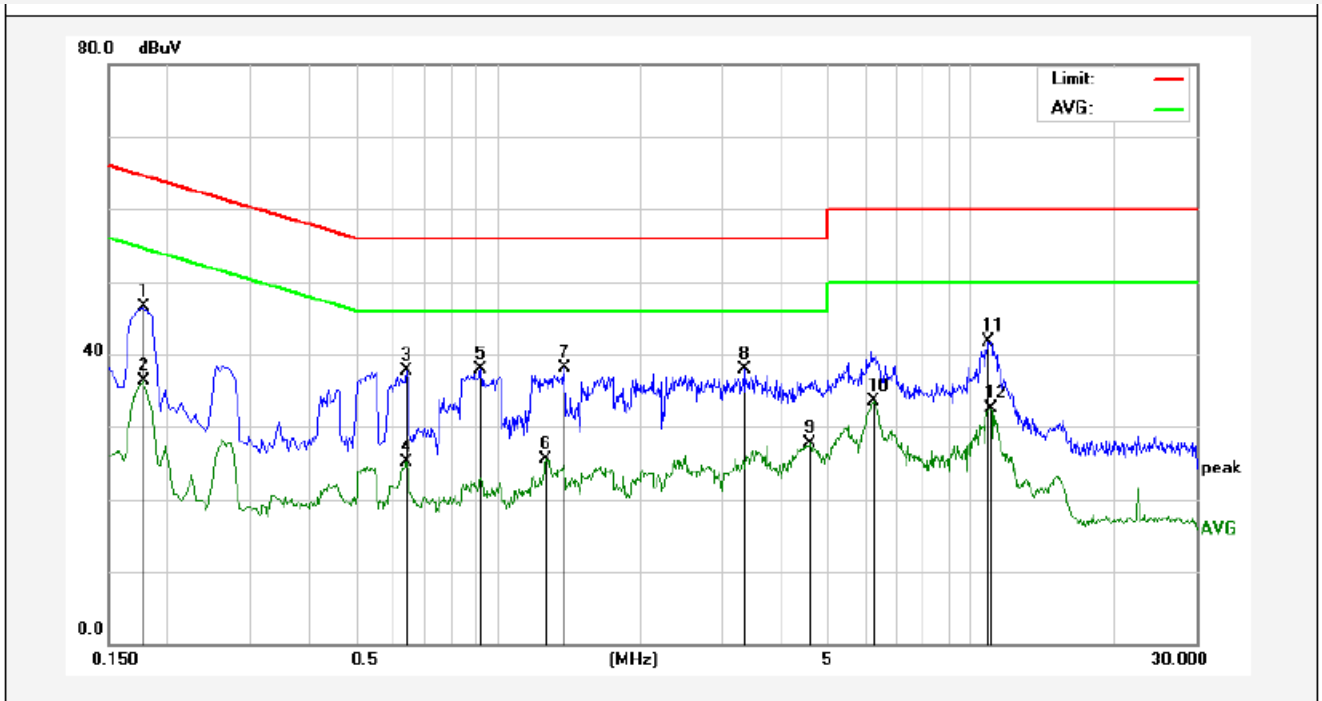
Test Site: 1# Shielded Room
 Operating Condition: Normal Mode
 Test Specification: DC 5V via USB Port
 Comment: L
 Temp.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.5420	5.95	19.99	25.94	46.00	-20.06	AVG	
2	0.5500	18.86	19.99	38.85	56.00	-17.15	QP	
3	0.9220	19.05	20.10	39.15	56.00	-16.85	QP	
4	0.9220	4.51	20.10	24.61	46.00	-21.39	AVG	
5	1.2820	5.13	20.13	25.26	46.00	-20.74	AVG	
6	1.5940	17.92	20.13	38.05	56.00	-17.95	QP	
7	2.1220	18.32	20.14	38.46	56.00	-17.54	QP	
8	3.6900	18.61	20.17	38.78	56.00	-17.22	QP	
9	4.6500	7.64	20.20	27.84	46.00	-18.16	AVG	
10	6.2700	11.78	20.24	32.02	50.00	-17.98	AVG	
11	10.7980	26.47	20.33	46.80	60.00	-13.20	QP	
12	10.7980	15.68	20.33	36.01	50.00	-13.99	AVG	

CONDUCTED EMISSION TEST DATA

Test Site: 1# Shielded Room
 Operating Condition: Normal Mode
 Test Specification: DC 5V via USB Port
 Comment: N
 Temp.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1779	26.52	19.90	46.42	64.58	-18.16	QP	
2	0.1779	16.49	19.90	36.39	54.58	-18.19	AVG	
3	0.6419	17.67	20.02	37.69	56.00	-18.31	QP	
4	0.6419	5.01	20.02	25.03	46.00	-20.97	AVG	
5	0.9220	17.77	20.10	37.87	56.00	-18.13	QP	
6	1.2660	5.45	20.13	25.58	46.00	-20.42	AVG	
7	1.3817	18.04	20.13	38.17	56.00	-17.83	QP	
8	3.3180	17.68	20.17	37.85	56.00	-18.15	QP	
9	4.5899	7.44	20.20	27.64	46.00	-18.36	AVG	
10	6.2419	13.33	20.24	33.57	50.00	-16.43	AVG	
11	10.9379	21.41	20.32	41.73	60.00	-18.27	QP	
12	11.0657	12.15	20.32	32.47	50.00	-17.53	AVG	

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

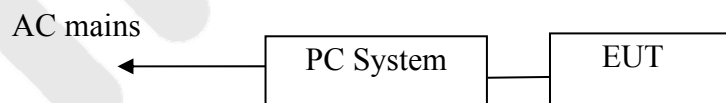
The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

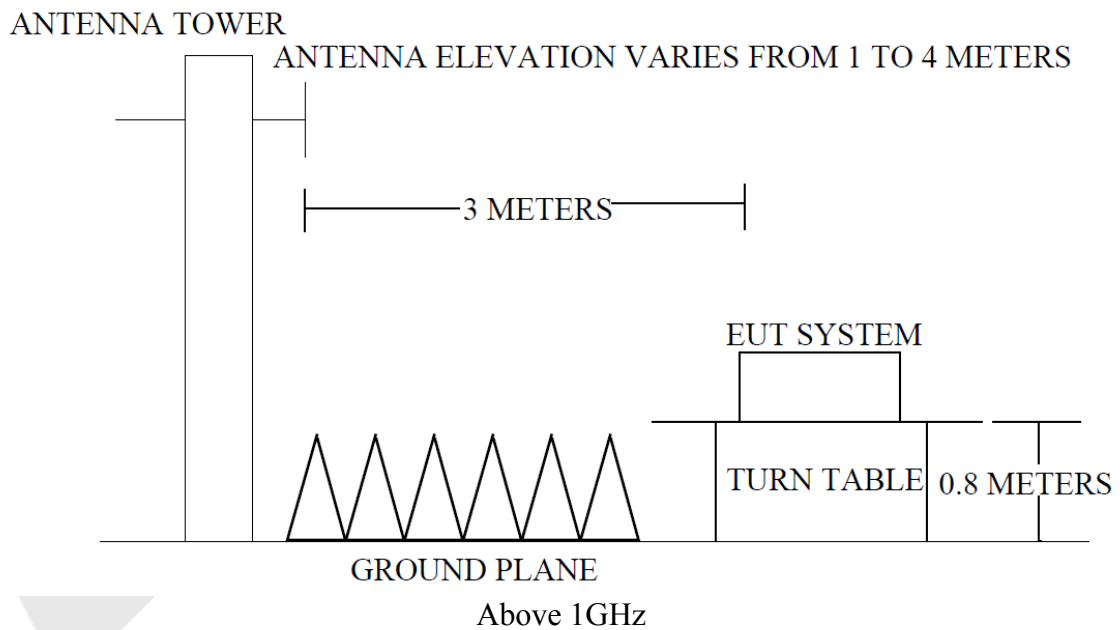
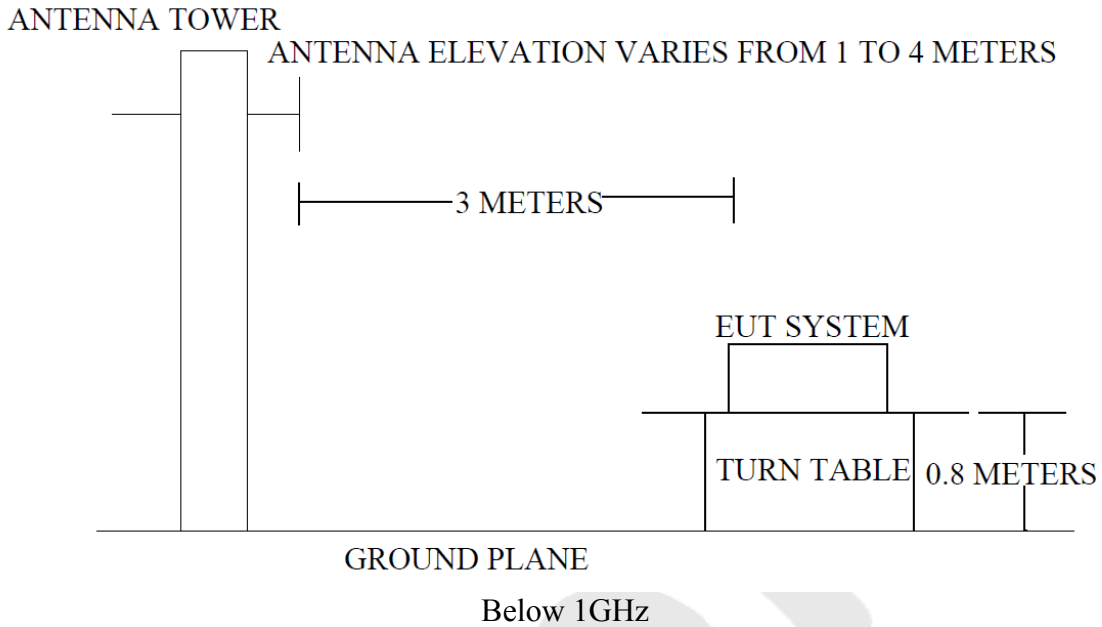
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Jun. 17, 2016	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 06, 2016	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Jun. 17, 2016	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Jul. 12, 2016	1 Year
5.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun. 17, 2016	1 Year
5	Preamplifier	Instruments corporation	EMC011830	980100	Jun. 17, 2016	1 Year
6.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 06, 2016	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



3.2.2. Anechoic Chamber Test Setup Diagram



3.3. Radiated Emission Limit (Subpart B Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30~88	3	100	40.0
88~216	3	150	43.5
216~960	3	200	46.0
Above 960	3	500	54.0

- Remark :
- (1) Emission level $(\text{dB})\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown in Section 3.2.

3.5.2. Let the EUT work in test mode (Normal Mode) and measure it.

3.6. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth setting of the test receiver/spectrum as follows:

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	30MHz~1GHz; RBW / VBW=120KHz / 300KHz; QP
Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1GHz
Stop Frequency	5 th Carrier Harmonic
RBW / VBW	1MHz / 1MHz for Peak; 1MHz / 10Hz for Average

As the highest working frequency of the device is 2480MHz, the frequency range from 30MHz to 12.75GHz is checked.

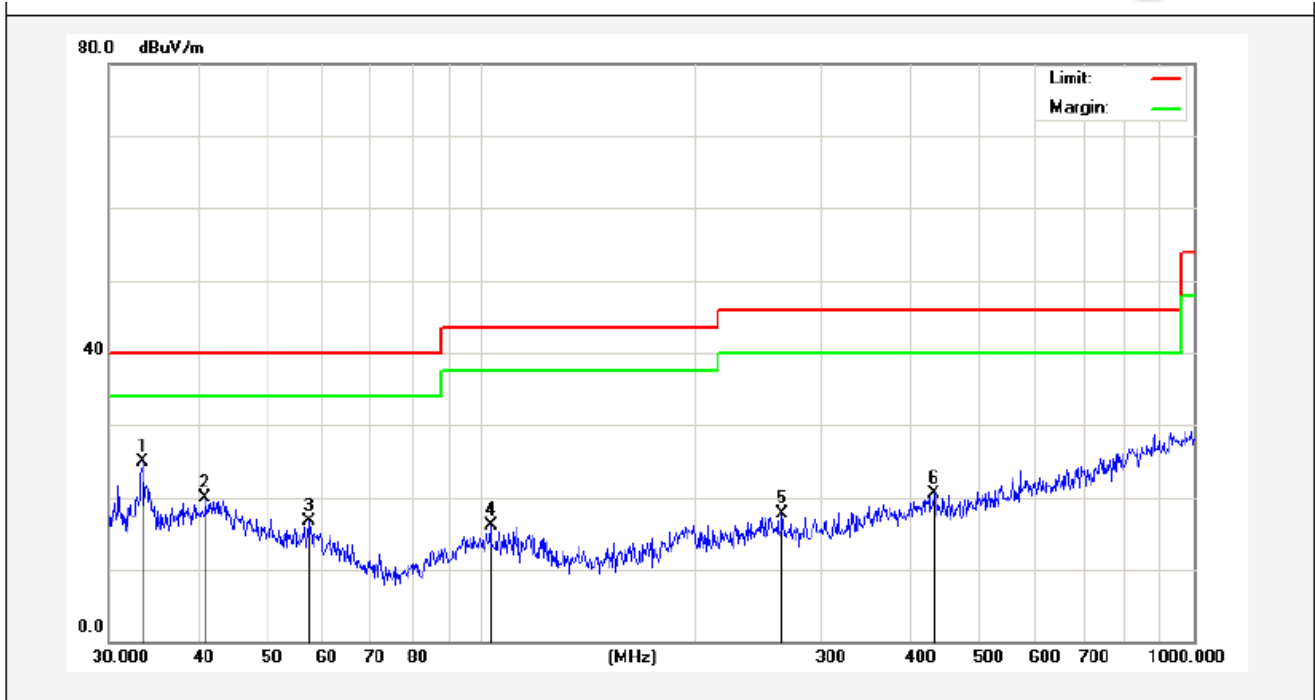
The test mode (Normal Mode) is tested in chamber and all the test results are listed in Section 3.7.

3.7. Radiated Emission Measurement Results

PASS.

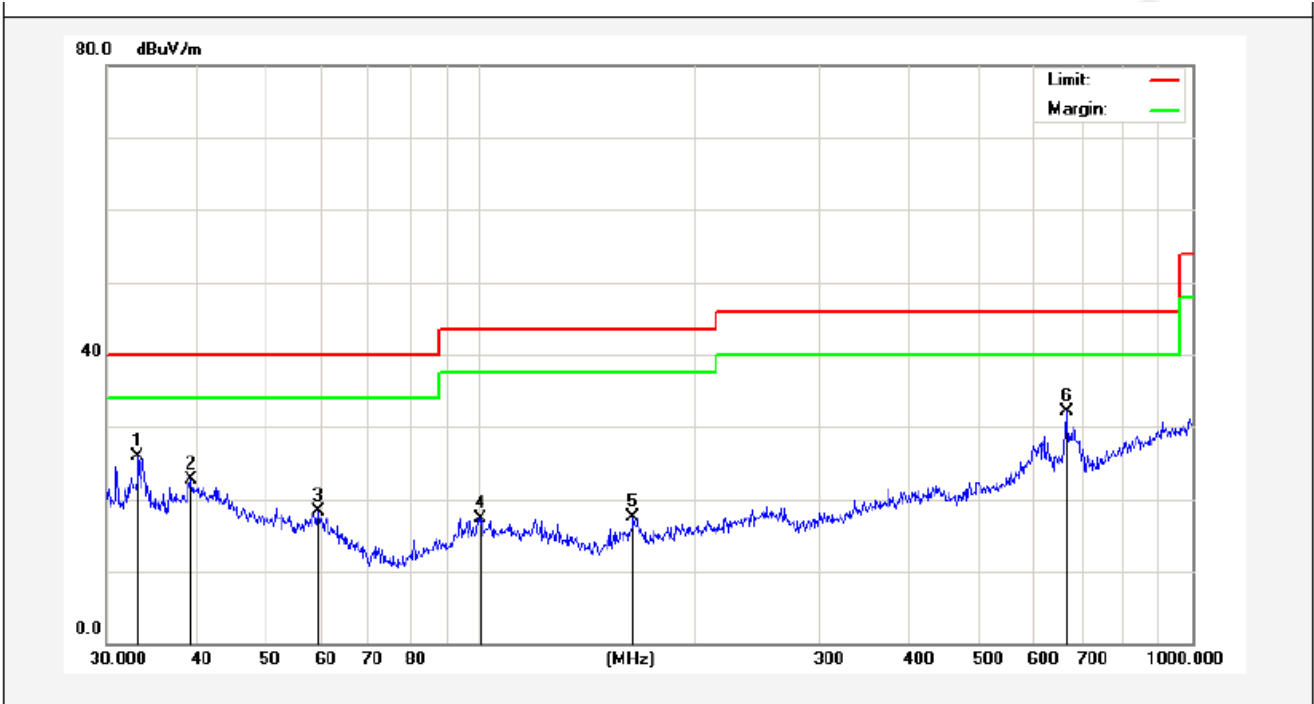
The test curves are shown in the following pages.

Job No.:	0117020628W	Polarization:	Horizontal
Standard:	(RE)FCC PART15 B _3m	Power Source:	DC 5V via USB Port
Test item:	Radiation Test	Temp.(°C)/Hum. (%RH):	24.3(°C)/55% RH
Mode:	Normal Mode	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	33.4449	40.11	-15.12	24.99	40.00	-15.01	peak			
2	40.9881	30.62	-10.77	19.85	40.00	-20.15	peak			
3	57.3923	31.92	-15.15	16.77	40.00	-23.23	peak			
4	103.0800	36.75	-20.72	16.03	43.50	-27.47	peak			
5	264.7457	36.55	-18.80	17.75	46.00	-28.25	peak			
6	432.5457	32.87	-12.27	20.60	46.00	-25.40	peak			

Job No.: 0117020628W **Polarization:** Vertical
Standard: (RE)FCC PART15 B_3m **Power Source:** DC 5V via USB Port
Test item: Radiation Test **Temp.(°C)/Hum.(%RH):** 24.3(°C)/55% RH
Mode: Normal Mode **Distance:** 3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	33.2112	41.17	-15.24	25.93	40.00	-14.07	peak			
2	39.4371	33.45	-10.80	22.65	40.00	-17.35	peak			
3	59.4405	33.58	-15.34	18.24	40.00	-21.76	peak			
4	100.5806	33.09	-15.76	17.33	43.50	-26.17	peak			
5	164.3301	35.18	-17.73	17.45	43.50	-26.05	peak			
6	665.8035	40.79	-8.73	32.06	46.00	-13.94	peak			

Test Result Above 1GHz

Horizontal

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dB μ V	Level dB μ V/m	Limit dB μ V/m	Over Limit dB	Remark
1685.990	2.07	31.05	34.41	49.71	48.42	74.00	-25.58	Peak
1685.990	2.07	31.05	34.41	40.46	39.17	54.00	-14.83	AV
2440.970	2.19	31.22	34.60	51.34	50.15	74.00	-23.85	Peak
2440.970	2.19	31.22	34.60	39.51	38.32	54.00	-15.68	AV
5768.630	2.98	35.61	34.85	49.83	53.57	74.00	-20.43	Peak
5768.630	2.98	35.61	34.85	36.65	40.39	54.00	-13.61	AV
9875.000	---	---	---	---	---	---	---	---
12315.00	---	---	---	---	---	---	---	---
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Vertical

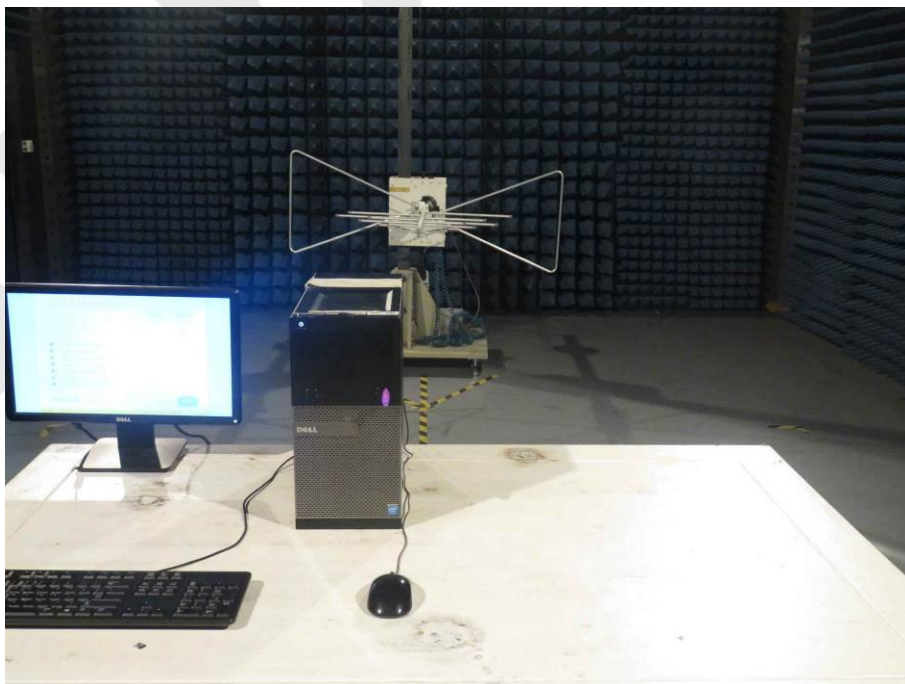
Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dB μ V	Level dB μ V/m	Limit dB μ V/m	Over Limit dB	Remark
1750.610	2.07	31.05	34.41	50.38	49.09	74.00	-24.91	Peak
1750.610	2.07	31.05	34.41	39.11	37.82	54.00	-16.18	AV
2443.250	2.19	31.22	34.60	51.57	50.38	74.00	-23.62	Peak
2443.250	2.19	31.22	34.60	39.39	38.2	54.00	-15.8	AV
5810.490	2.98	35.61	34.85	49.61	53.35	74.00	-20.65	Peak
5810.490	2.98	35.61	34.85	37.44	41.18	54.00	-12.82	AV
9880.000	---	---	---	---	---	---	---	---
12400.00	---	---	---	---	---	---	---	---
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4. PHOTOGRAPH

4.1. Photo of Power Line Conducted Emission Test



4.2. Photo of Radiated Emission Test

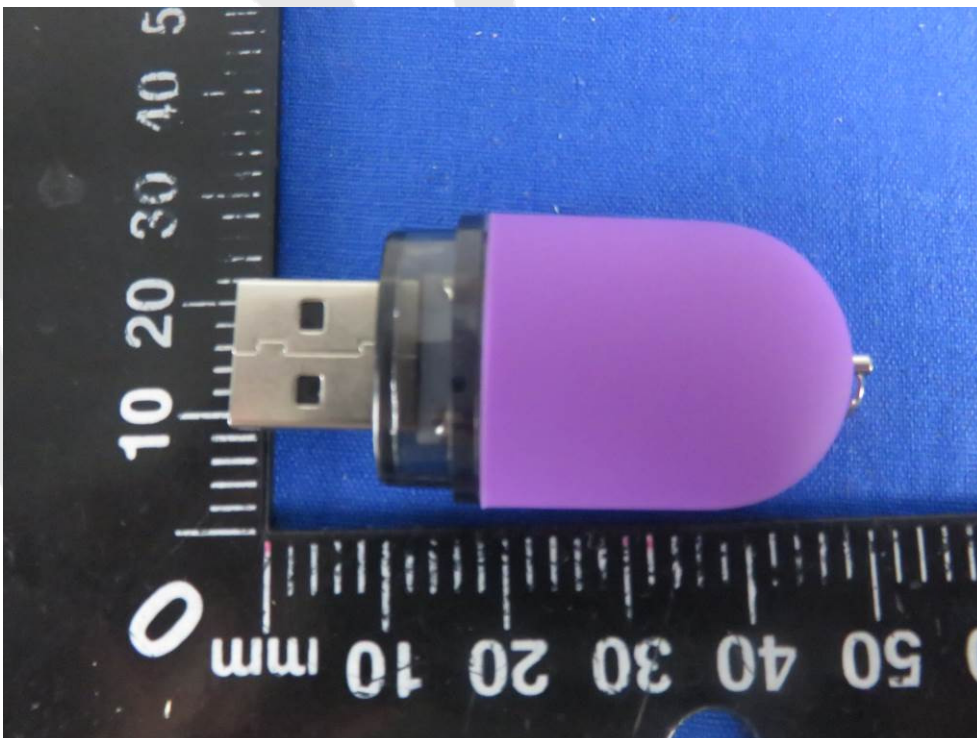


Below 1GHz

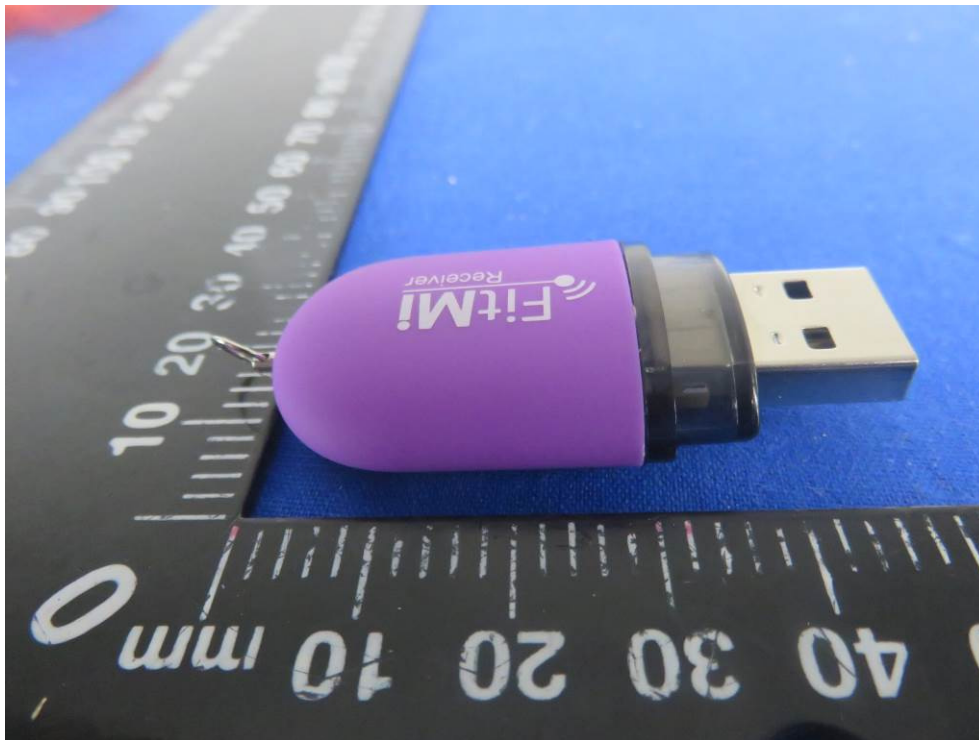


Above 1GHz

APPENDIX I (EXTERNAL PHOTOS)







APPENDIX II (INTERNAL PHOTOS)

