FCC TEST REPORT
for
iDTRONIC GmbH

Embedded HF Module M890
Model No.: OEM-HF-M890

Prepared for	:	iDTRONIC GmbH
Address	:	Donnersbergweg 1, 67059 Ludwigshafen am Rhein, Germany

Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772

Report Number	:	R011510316I
Date of Test	:	Apr. 18~ May 05, 2016
Date of Report	:	May 06, 2016

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Description

TEST REPORT VERIFICATION

Applicant	:	iDTRONIC GmbH
Manufacturer	:	iDTRONIC GmbH
EUT	:	Embedded HF Module M890
Model No.	:	OEM-HF-M890
Rating	:	DC 5V
Trade Mark	:	N/A

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C 15.225 & FCC / ANSI C63.10-2013

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 C 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. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

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 : Apr. 18~ May 05, 2016

Prepared by : Kebo Zhang
(Tested Engineer / Kebo Zhang)

Reviewer : Amy Ding
(Project Manager / Amy Ding)

Approved & Authorized Signer : Tom Chen
(Manager / Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Embedded HF Module M890
Model Number	:	OEM-HF-M890
Test Power Supply	:	AC 120V, 60Hz for Notebook/ AC 240V, 60Hz for Notebook
Frequency	:	13.56 MHz
Antenna Gain	:	0 dBi
Antenna Type	:	Integrated
Applicant	:	iDTRONIC GmbH
Address	:	Donnersbergweg 1, 67059 Ludwigshafen am Rhein, Germany
Manufacturer	:	iDTRONIC GmbH
Address	:	Donnersbergweg 1, 67059 Ludwigshafen am Rhein, Germany
Factory	:	iDTRONIC GmbH
Address	:	Donnersbergweg 1, 67059 Ludwigshafen am Rhein, Germany
Date of Sample received	:	Apr. 18, 2016
Date of Test	:	Apr. 18~ May 05, 2016

1.2. Auxiliary Equipment Used during Test

Notebook	:	Manufacturer: FUJITSU M/N: LH531 S/N: FPC04542DK CE , FCC: DOC

1.3. Description of Test Facility

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

FCC-Registration No.: 752021
Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed 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 10, 2013.

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-1, February 22, 2013.

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

2. Test Procedure

GENERAL: This report shall NOT be reproduced except in full without the written approval of Shenzhen Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.10-2013 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

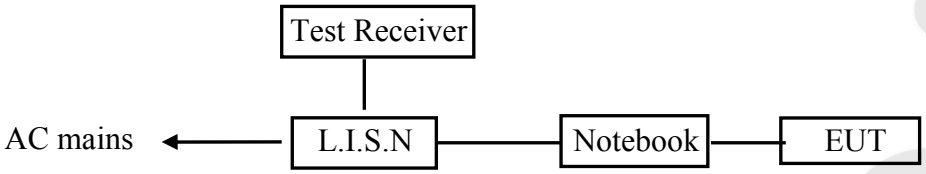
Example:
Freq (MHz) METER READING + ACF = FS
33 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.10-2013 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.
When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

3. POWER LINE CONDUCTED measurement

3.1 Block Diagram of Test Setup

3.1.1. Block diagram of connection between the EUT and simulators



3.2 Power Line Conducted Emission Measurement Limits (15.207)

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.

3.3 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.

3.4 Operating Condition of EUT

3.4.1. Setup the EUT and simulator as shown as Section 3.1.

3.4.2. Turn on the power of all equipment.

3.4.3. Let the EUT work in test mode (On) and measure it.

3.5 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 C63.10 on Conducted Emission Measurement.

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

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

The test results are reported on Section 3.6.

3.6 Test equipment

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

3.7 Power Line Conducted Emission Measurement Results

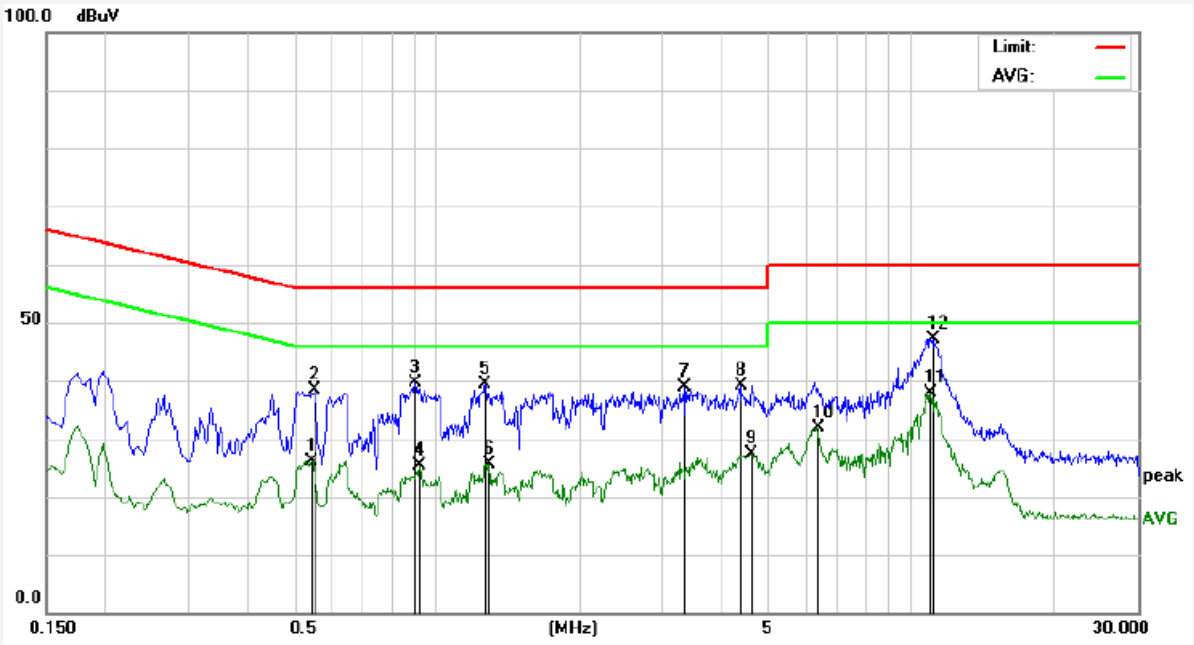
PASS.

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

Please refer the following pages.

CONDUCTED EMISSION TEST DATA

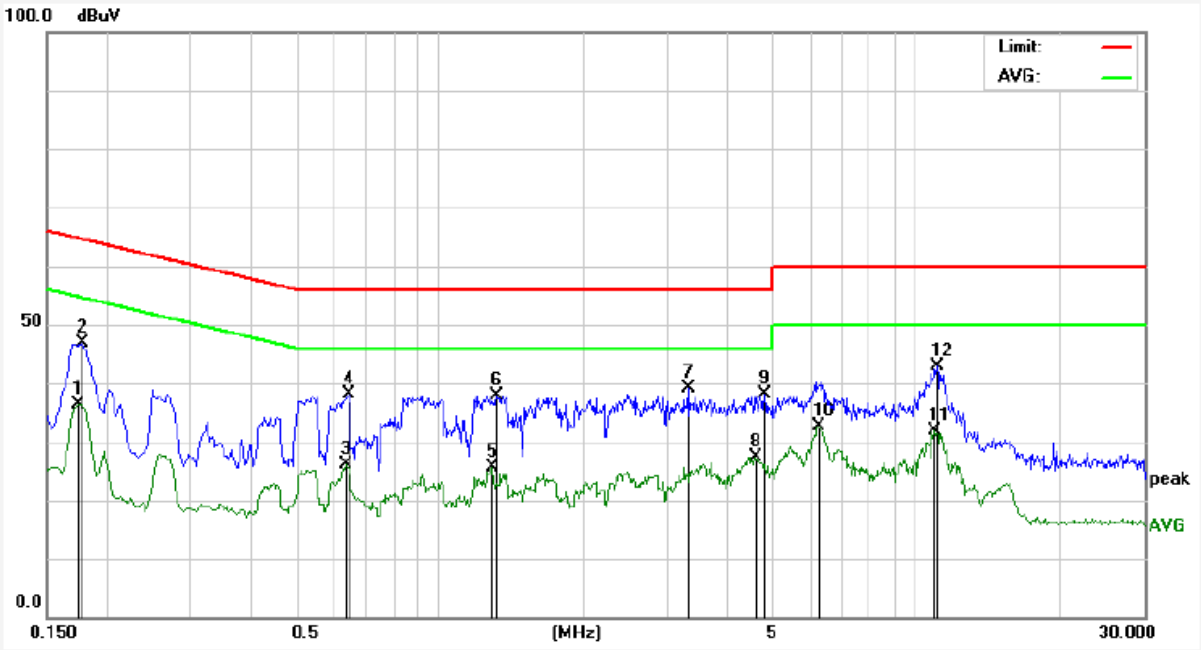
Test Site:	1# Shielded Room
Operating Condition:	ON
Test Specification:	AC 120V, 60Hz for Notebook
Comment:	Live Line
	Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.5460	6.22	20.00	26.22	46.00	-19.78	AVG	
2	0.5540	18.45	20.00	38.45	56.00	-17.55	QP	
3	0.9020	19.55	20.00	39.55	56.00	-16.45	QP	
4	0.9220	5.44	20.00	25.44	46.00	-20.56	AVG	
5	1.2660	19.40	20.00	39.40	56.00	-16.60	QP	
6	1.2900	5.73	20.00	25.73	46.00	-20.27	AVG	
7	3.3220	19.00	20.00	39.00	56.00	-17.00	QP	
8	4.3780	19.10	20.00	39.10	56.00	-16.90	QP	
9	4.5939	7.42	20.00	27.42	46.00	-18.58	AVG	
10	6.3220	11.83	20.00	31.83	50.00	-18.17	AVG	
11	10.9940	17.90	20.00	37.90	50.00	-12.10	AVG	
12	11.1300	27.25	20.00	47.25	60.00	-12.75	QP	

CONDUCTED EMISSION TEST DATA

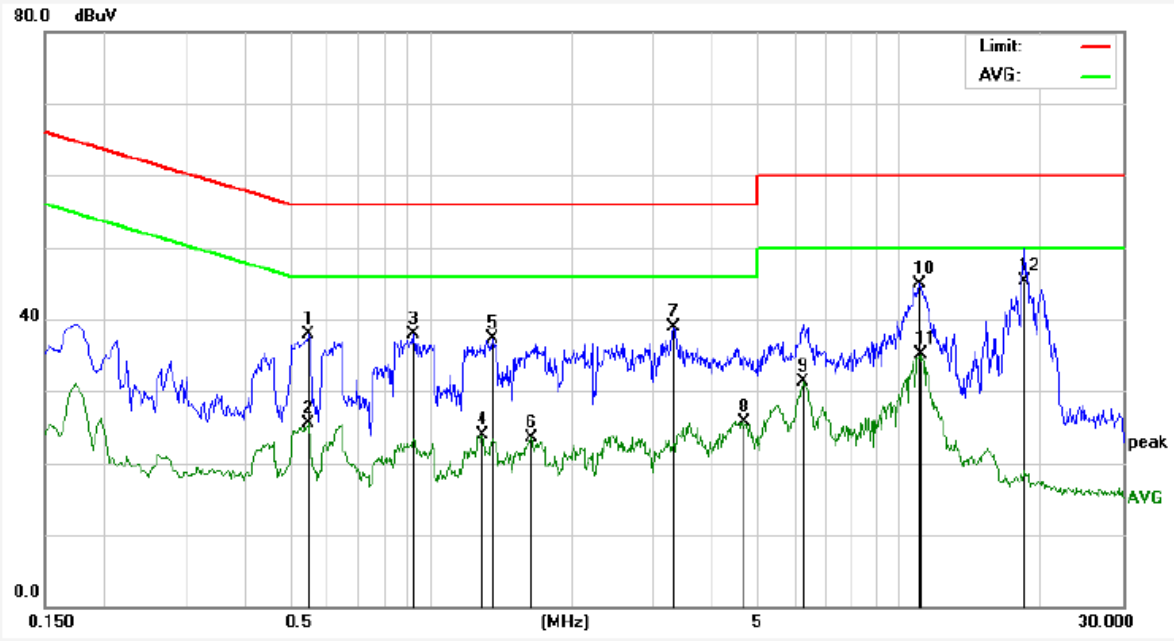
Test Site:	1# Shielded Room
Operating Condition:	ON
Test Specification:	AC 120V, 60Hz for Notebook
Comment:	Neutral Line
	Tem.:25℃ Hum:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1740	16.41	20.00	36.41	54.76	-18.35	AVG	
2	0.1780	26.82	20.00	46.82	64.57	-17.75	QP	
3	0.6340	6.06	20.00	26.06	46.00	-19.94	AVG	
4	0.6460	18.21	20.00	38.21	56.00	-17.79	QP	
5	1.2900	5.58	20.00	25.58	46.00	-20.42	AVG	
6	1.3220	17.96	20.00	37.96	56.00	-18.04	QP	
7	3.3220	19.15	20.00	39.15	56.00	-16.85	QP	
8	4.5939	7.47	20.00	27.47	46.00	-18.53	AVG	
9	4.7980	18.17	20.00	38.17	56.00	-17.83	QP	
10	6.2140	12.52	20.00	32.52	50.00	-17.48	AVG	
11	10.9340	11.76	20.00	31.76	50.00	-18.24	AVG	
12	11.0620	22.81	20.00	42.81	60.00	-17.19	QP	

CONDUCTED EMISSION TEST DATA

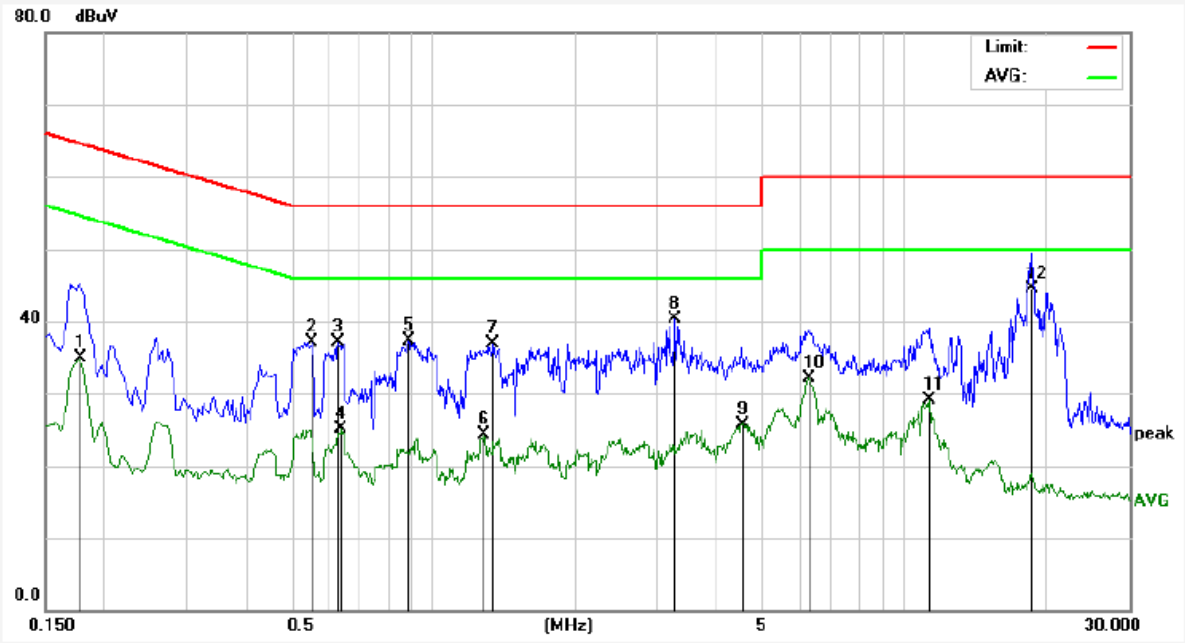
Test Site:	1# Shielded Room
Operating Condition:	ON
Test Specification:	AC 240V, 60Hz for Notebook
Comment:	Live Line
	Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.5500	17.88	20.00	37.88	56.00	-18.12	QP	
2	0.5500	5.50	20.00	25.50	46.00	-20.50	AVG	
3	0.9220	17.98	20.00	37.98	56.00	-18.02	QP	
4	1.2900	3.96	20.00	23.96	46.00	-22.04	AVG	
5	1.3580	17.32	20.00	37.32	56.00	-18.68	QP	
6	1.6420	3.48	20.00	23.48	46.00	-22.52	AVG	
7	3.3020	18.94	20.00	38.94	56.00	-17.06	QP	
8	4.6820	5.79	20.00	25.79	46.00	-20.21	AVG	
9	6.2460	11.22	20.00	31.22	50.00	-18.78	AVG	
10	11.0500	24.83	20.00	44.83	60.00	-15.17	QP	
11	11.1820	15.02	20.00	35.02	50.00	-14.98	AVG	
12	18.5700	25.21	20.00	45.21	60.00	-14.79	QP	

CONDUCTED EMISSION TEST DATA

Test Site:	1# Shielded Room
Operating Condition:	ON
Test Specification:	AC 240V, 60Hz for Notebook
Comment:	Neutral Line
	Tem.:25℃ Hum:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1780	14.97	20.00	34.97	54.57	-19.60	AVG	
2	0.5540	17.13	20.00	37.13	56.00	-18.87	QP	
3	0.6300	17.09	20.00	37.09	56.00	-18.91	QP	
4	0.6380	5.11	20.00	25.11	46.00	-20.89	AVG	
5	0.8860	17.40	20.00	37.40	56.00	-18.60	QP	
6	1.2820	4.26	20.00	24.26	46.00	-21.74	AVG	
7	1.3380	16.94	20.00	36.94	56.00	-19.06	QP	
8	3.2740	20.25	20.00	40.25	56.00	-15.75	QP	
9	4.5380	5.80	20.00	25.80	46.00	-20.20	AVG	
10	6.2500	12.12	20.00	32.12	50.00	-17.88	AVG	
11	11.3100	9.19	20.00	29.19	50.00	-20.81	AVG	
12	18.6299	24.58	20.00	44.58	60.00	-15.42	QP	

4. RADIATED EMISSION MEASUREMENT

4.1. Radiated Emission Limits

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
(d) The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

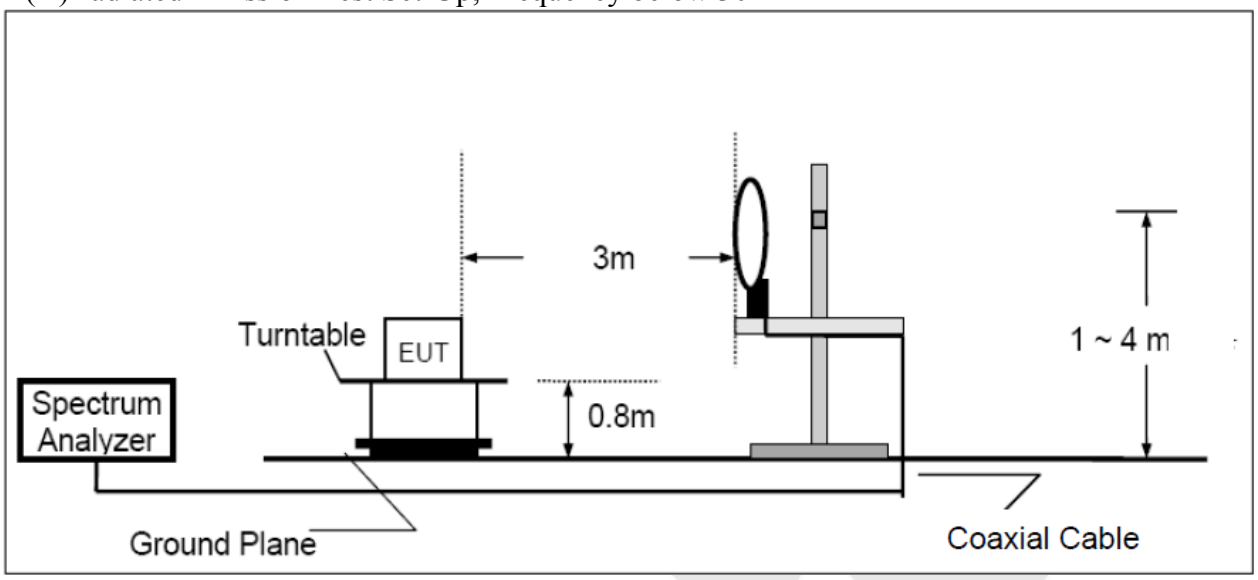
Note:
(1) The tighter limit shall apply at the boundary between two frequency range.
(2) Limitation expressed in dBuV/m is calculated by 20log Emission Level (uV/m).
(3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of $Ld1 = Ld2 * (d2/d1)^2$.
Example:
F.S Limit at 30m distance is 30uV/m , then F.S Limitation at 3m distance is adjusted as
$Ld1 = L1 = 30uV/m * (10)^2 = 100 * 30$ uV/m

4.2. Test Procedure

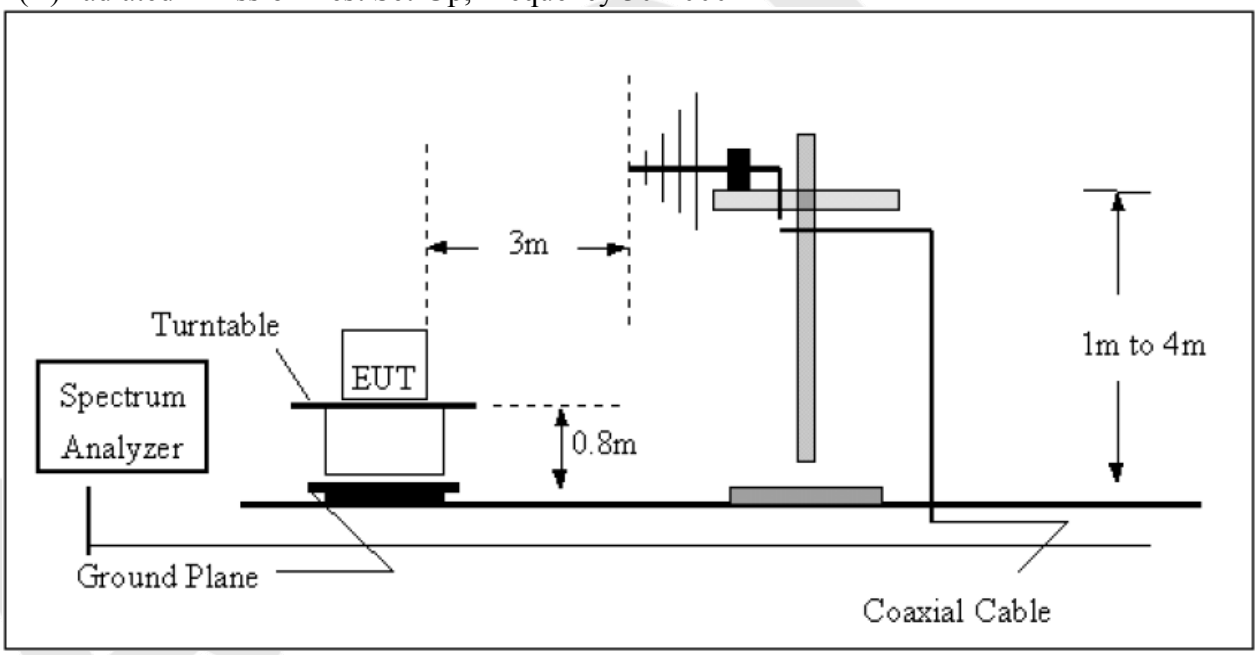
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
g. The device is evaluated in xyz orientation.

4.3. Test Setup

(A)Radiated Emission Test Set-Up, Frequency below 30MHz



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



Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Apr. 17, 2016	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Apr. 17, 2016	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 17, 2016	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 20, 2016	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 20, 2016	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 17, 2016	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8	Power Sensor	DAER	RPR3006W	15I00041SN046	Jun 30, 2015	1 Year
9	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun 30, 2015	1 Year
10	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun 30, 2015	1 Year
11	Signal Generator	Agilent	E4421B	MY41000743	Jun 30, 2015	1 Year
12	DC Power supply	IV	IV-8080	YQSB0096	Jun 30, 2015	1 Year
13	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150M8	SE-0137	Mar 16, 2016	1 Year

4.4. Test Results (Field Strength within the band of operation)

Freq.(MHz)	Ant. Orientation	Result at 3m (dBuV/m)	Limitation Converted 3m dist. (dBuV/m)	Margin dB
13.110	Front	56.62	80.50	-23.88
13.410	Front	60.47	80.50	-20.03
13.553	Front	74.34	90.50	-16.16
13.560	Front	85.47	124.00	-38.53
13.567	Front	62.83	90.50	-27.67
13.710	Front	60.21	80.50	-20.97
14.010	Front	54.84	80.50	-25.66
--	--	--	--	--
13.110	Side	53.28	80.50	-27.22
13.410	Side	60.47	80.50	-20.03
13.553	Side	69.81	90.50	-20.69
13.560	Side	85.74	124.00	-38.26
13.567	Side	65.21	90.50	-25.29
13.710	Side	57.46	80.50	-23.04
14.010	Side	60.31	80.50	-20.19
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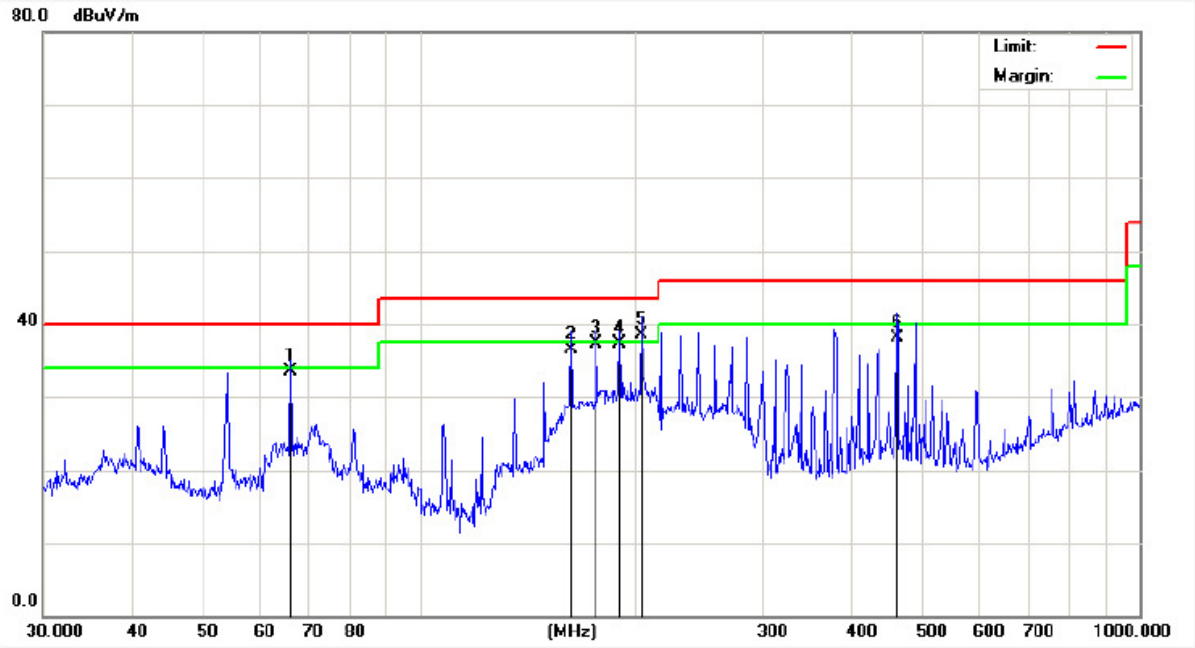
Remark：
(1) Spectrum Setting:
150 K Hz – 30 MHz, RBW= 9 KHz, VBW=9 KHz, Sweep time = 200 ms.
(2) The Log-Bicon Antenna will use to test frequency range from 30MHz to 1000MHz and the Loop Antenna will use to test frequency below 30MHz.
(3) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.
(4) Only the worst case (x orientation).

4.5. Test Results (Field strength outside of the band of operation)

PASS.

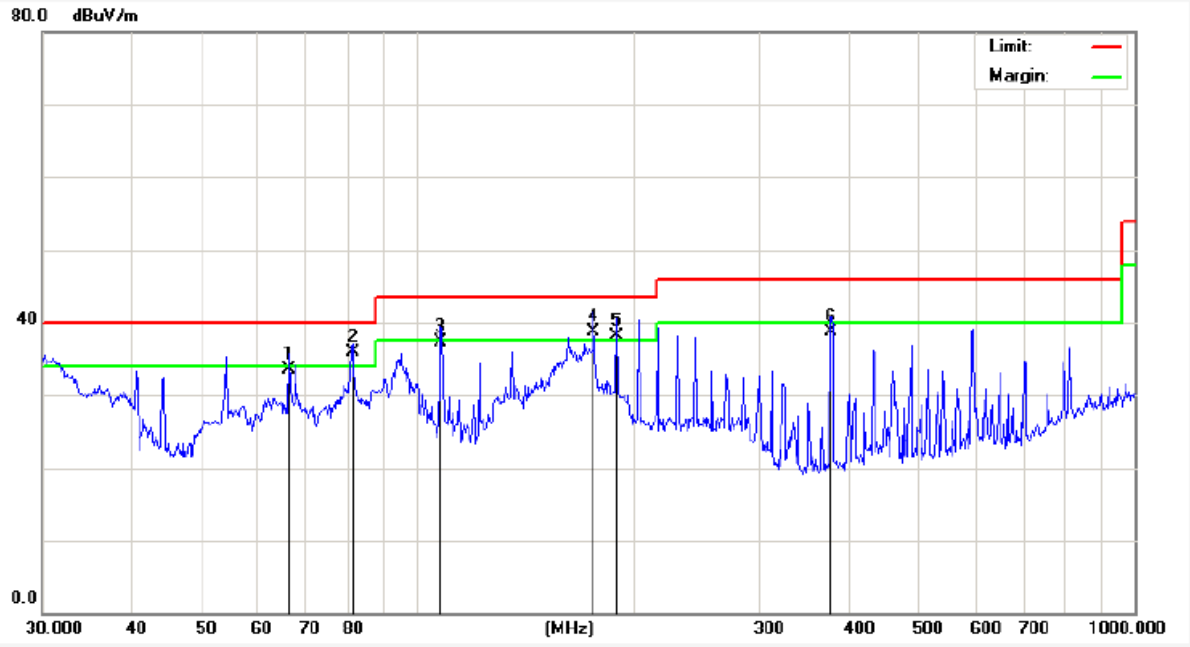
Please refer the following pages. Only the worst case (x orientation).

Job No.:	**011510316I**	**Plarization:**	**Horizontal**
Standard:	**(RE)FCC PART 15C _3m**	**Power Source:**	**AC 120V, 60Hz for Notebook**
Test item:	**Radiation Test (30~1000MHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**On**	**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	66.2661	51.55	-18.01	33.54	40.00	-6.46	QP	100	0	
2	162.6106	59.36	-22.79	36.57	43.50	-6.93	QP	100	360	
3	176.2685	59.46	-22.12	37.34	43.50	-6.16	QP	100	0	
4	189.7384	58.25	-20.95	37.30	43.50	-6.20	QP	100	360	
5	203.5227	59.14	-20.73	38.41	43.50	-5.09	QP	100	0	
6	460.7271	50.25	-12.08	38.17	46.00	-7.83	QP	100	360	

Job No.:	**011510316I**	**Plarization:**	**Vertical**
Standard:	**(RE)FCC PART 15C _3m**	**Power Source:**	**AC 120V, 60Hz for Notebook**
Test item:	**Radiation Test (30~1000MHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Test Mode:	**On**	**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	66.2661	51.46	-18.01	33.45	40.00	-6.55	QP	100	0	
2	81.2116	55.39	-19.58	35.81	40.00	-4.19	QP	100	360	
3	107.8876	52.91	-15.66	37.25	43.50	-6.25	QP	100	0	
4	176.2685	55.73	-17.12	38.61	43.50	-4.89	QP	100	360	
5	189.7384	54.15	-15.95	38.20	43.50	-5.30	QP	100	0	
6	377.2590	50.96	-12.32	38.64	46.00	-7.36	QP	100	360	

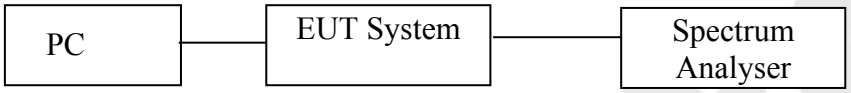
5. Frequency Tolerance

5.1. Frequency Tolerance Limits

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency.

Fundamental Frequency (MHz)	Limit of Tolerance Bandwidth (Hz)
13.56	13.56*1000*1000*0.01%=1356

5.2. Test Setups



Test Equipment

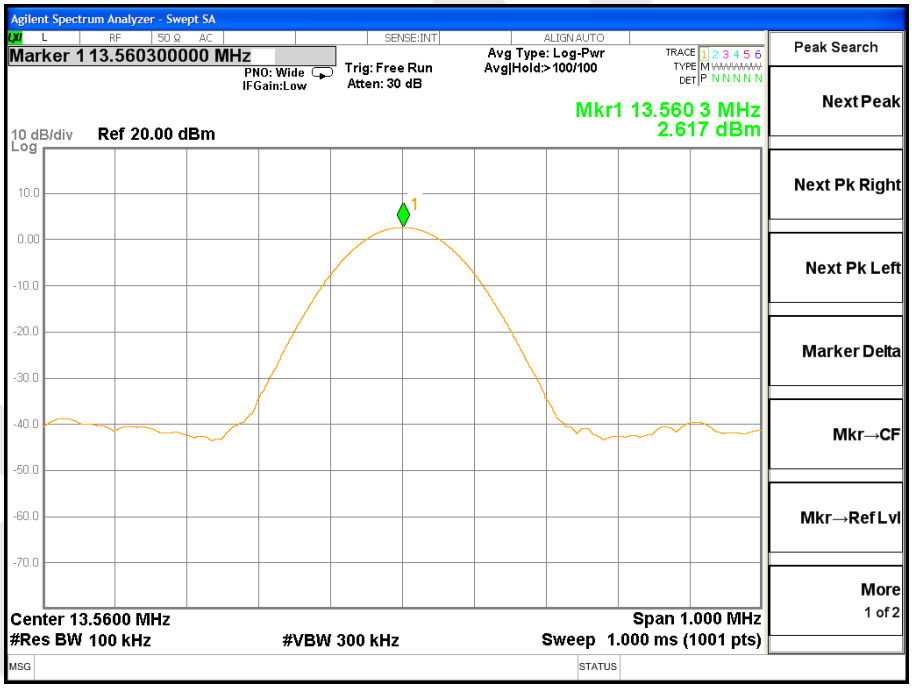
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Apr. 17, 2016	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Apr. 17, 2016	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 17, 2016	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 20, 2016	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 20, 2016	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 17, 2016	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8	Power Sensor	DAER	RPR3006W	15I00041SN046	Jun 30, 2015	1 Year
9	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun 30, 2015	1 Year
10	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun 30, 2015	1 Year
11	Signal Generator	Agilent	E4421B	MY41000743	Jun 30, 2015	1 Year
12	DC Power supply	IV	IV-8080	YQSB0096	Jun 30, 2015	1 Year
13	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150M8	SE-0137	Mar 16, 2016	1 Year

5.3. Test Procedure

Let the EUT works on temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

5.4. Test Results

Test Condition				
	Voltage (V)	Temperature (℃)	Test Result (Hz)	Limit (Hz)
Normal Condition	AC 120V	-20	36	1356
		+20	30	1356
		+50	35	1356
Extreme Condition	AC 138V	+20	41	1356
	AC 102V	+20	42	1356

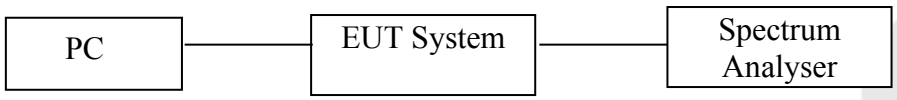


6. 20dB Bandwidth

6.1. Limits

According to 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.

6.2. Test Setups



Test Equipment

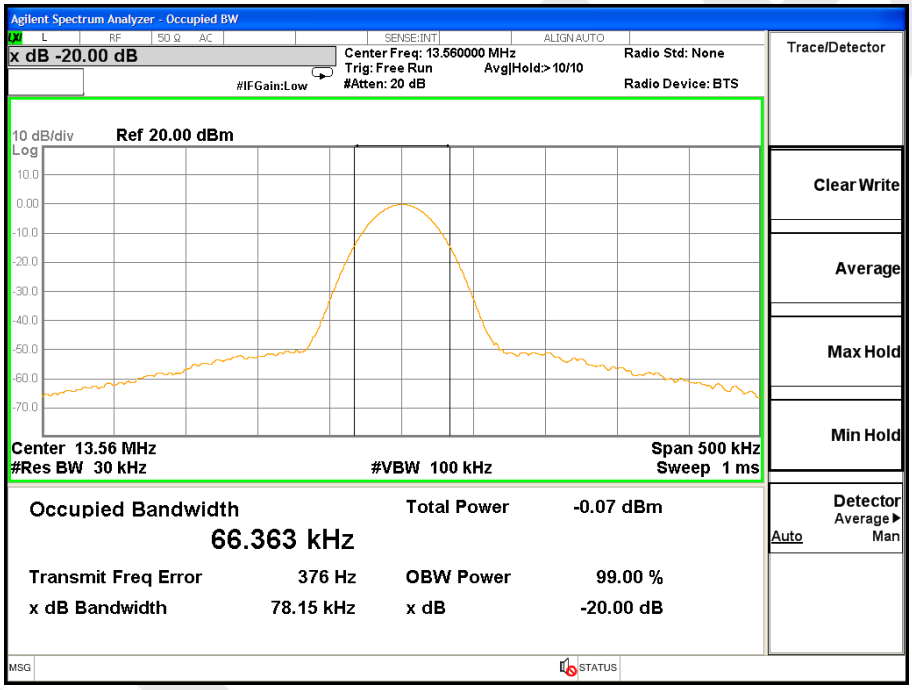
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Apr. 17, 2016	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Apr. 17, 2016	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 17, 2016	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 20, 2016	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 20, 2016	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 17, 2016	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8	Power Sensor	DAER	RPR3006W	15I00041SN046	Jun 30, 2015	1 Year
9	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun 30, 2015	1 Year
10	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun 30, 2015	1 Year
11	Signal Generator	Agilent	E4421B	MY41000743	Jun 30, 2015	1 Year
12	DC Power supply	IV	IV-8080	YQSB0096	Jun 30, 2015	1 Year
13	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150M8	SE-0137	Mar 16, 2016	1 Year

6.3. Test Procedure

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

6.4. Test Results

Frequency (MHz)	20dB BW (kHz)
13.56	78.15



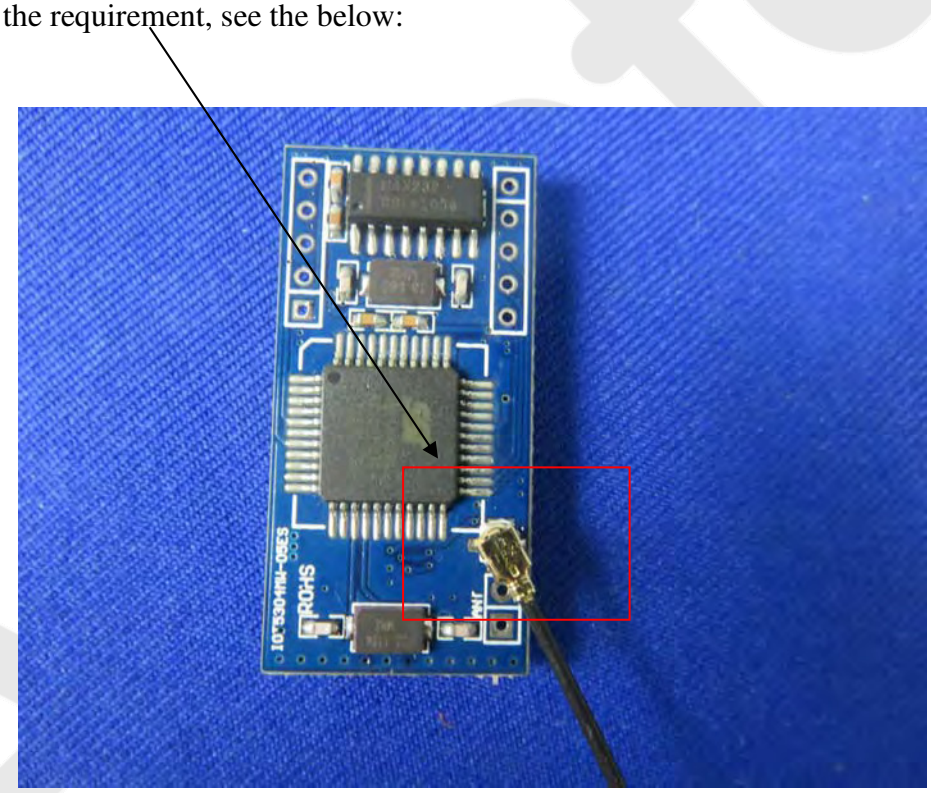
7. Antenna Application

7.1. Antenna Requirement

The EUT'S antenna should met the requirement of FCC part 15C section 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.
Antenna requirement must meet at least one of the following:
1) Antenna must be permanently attached to device.
2) The antenna must use a unique type of connector to attach to the device.
3) Device must be professionally installed. The installer shall be responsible for ensuring that the correct antenna is employed by the device.

7.2. Result

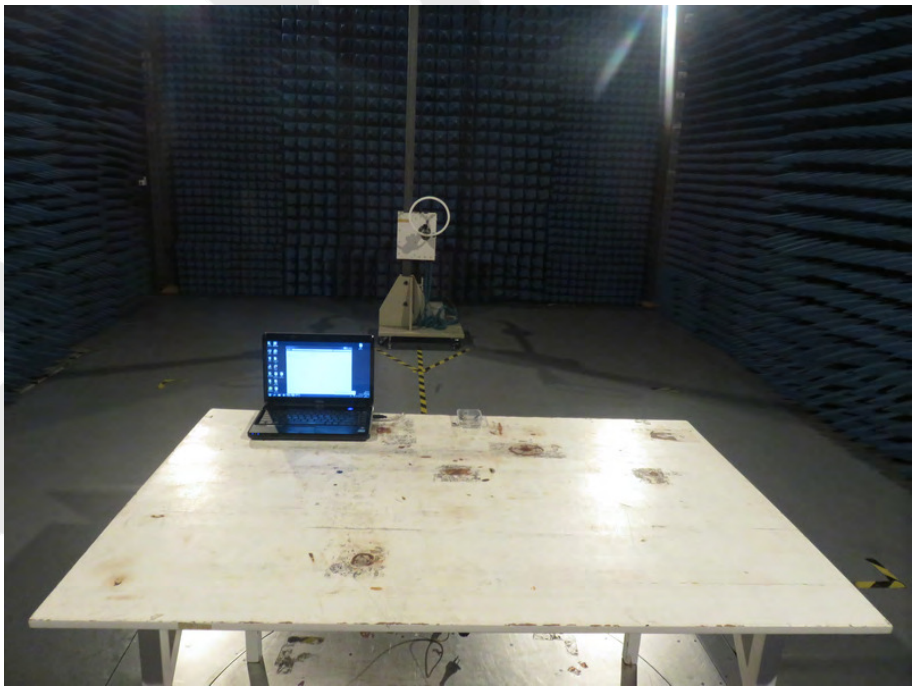
The RFID antenna is integral to the PCB board permanently to the device with glue which meets the requirement, see the below:

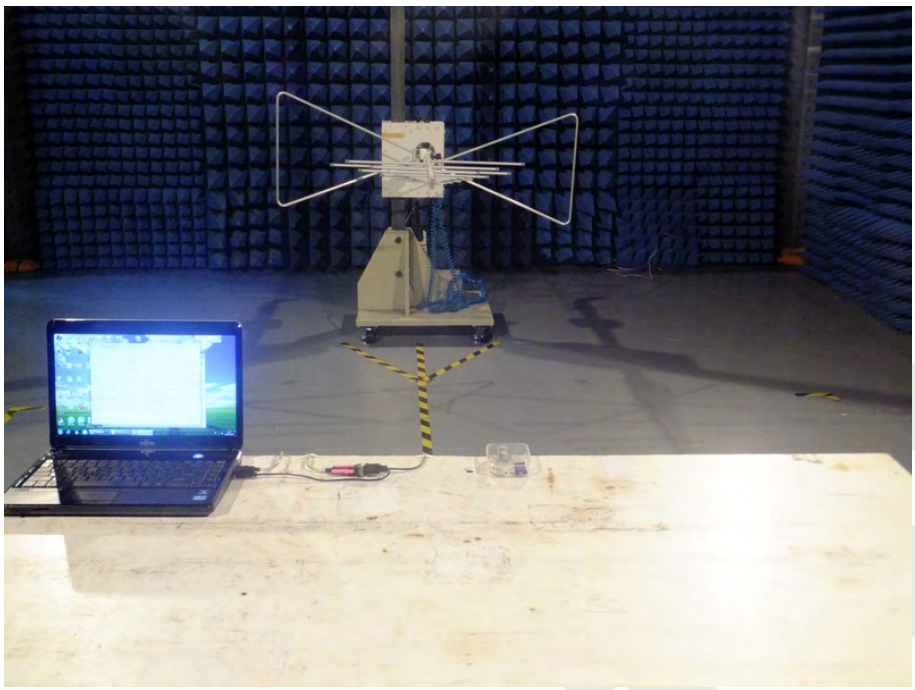


8. PHOTOGRAPH

8.1 Photo of Conducted Emission Test

8.2 Photo of Radiation Emission Test

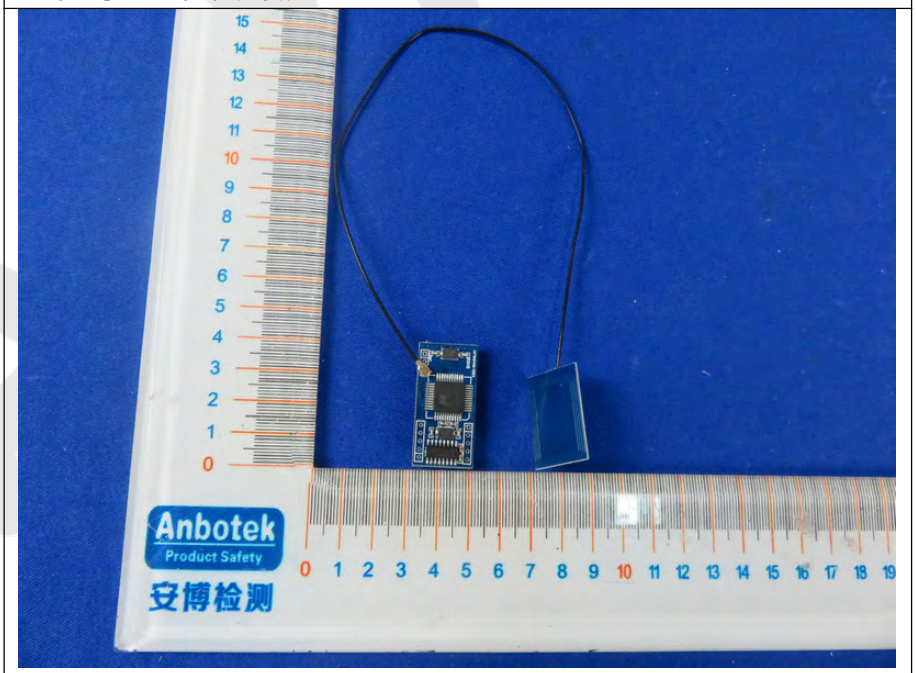




APPENDIX I (EXTERNAL PHOTOS)

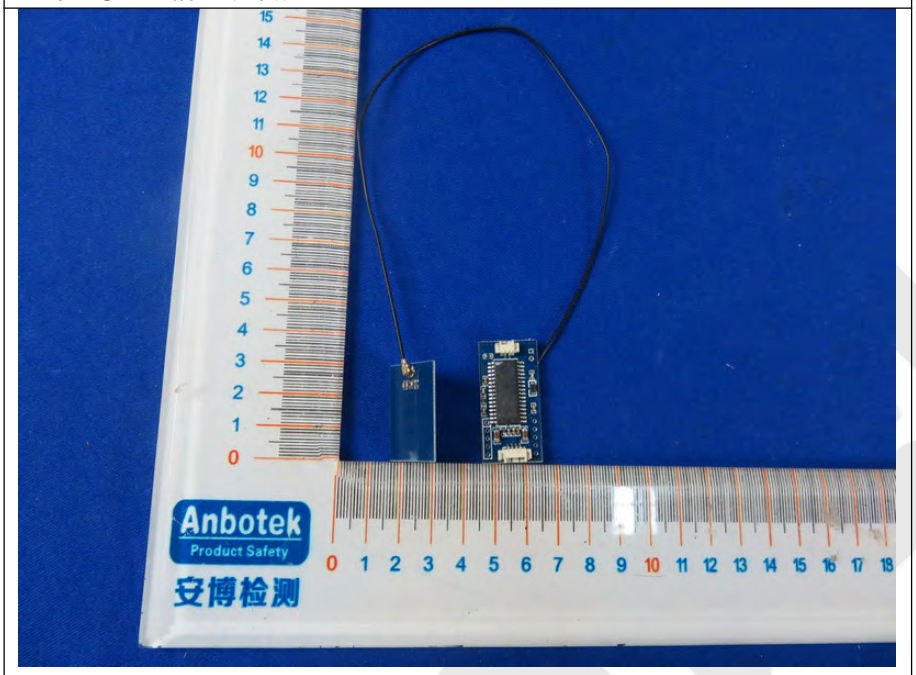
1. Figure
The EUT-Overall View

2. Figure
The EUT-Front View



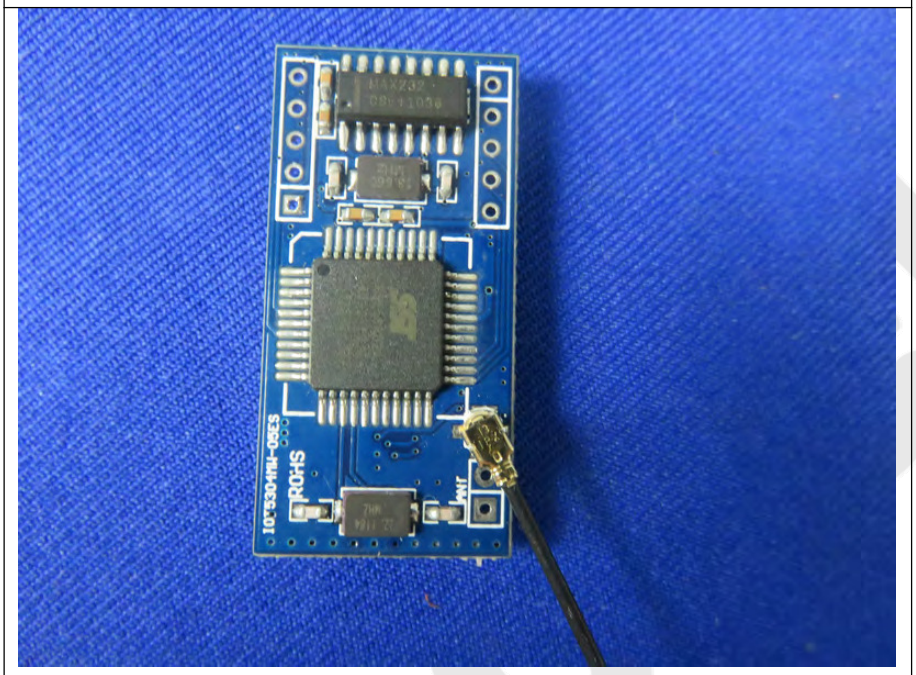
3. Figure

The EUT-Back View



APPENDIX Ⅱ(INTERNAL PHOTOS)

1. Figure
PCB of The EUT-Front View



2. Figure
PCB of The EUT-Back View