

FCC Verification Test Report

For

AUDIO LINK.CO., LTD

EUT Name: COMPATIBLE DONGLE

Model No: GO-DONGLE

Brand Name: MEDALLION

Prepared By:

Shenzhen ECT Testing Technology Co., Ltd.

Room 1106, Era Innovation Center, Xixiang gushu second road,

Baoan district, Shenzhen city, China

Date of Receipt: July 13, 2015

Date of Test: July 13~ 19, 2015

Date of Issue: July 20, 2015

Test Result: Pass

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Verification of Compliance

Client Information:

Applicant: AUDIO LINK.CO., LTD
Applicant add.: #101-1207. CHUNUI TECHNO PARK. 198-36 BUCHEON
ROAD. WONMI-GU. BUCHEON CITY.GYEONGGI-DO.
KOREA

EUT Information:

EUT Name : COMPATIBLE DONGLE
Model No.: GO-DONGLE
Brand Name: MEDALLION

Test procedure used: FCC Part 15 Subpart B Class B

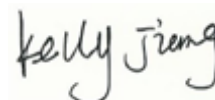
This device described above has been tested by Shenzhen ECT Testing Technology Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Reviewed by:



Nancy Xu

Approved by:



kelly Jiang

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2 Test Summary

Test	Test Requirement	Test Method	Criterion	Result
Mains Terminals Disturbance Voltage, 150kHz to 30MHz	FCC Part 15 Subpart B	FCC Part 15 Subpart B ANSI C63.4: 2009	Limits	PASS
Radiated Emissions 30MHz to 1GHz, 1GHz to 5GHz	FCC Part 15 Subpart B	FCC Part 15 Subpart B ANSI C63.4: 2009	Limits	PASS
Remark: None				
Model description: None				

2.1 Measurement Uncertainty

The report uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty Multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

No.	Item	Frequency Range	U , Value
1	Power Line Conducted Emission	150KHz~30MHz	$\pm 1.38\text{dB}$
2	Radiated Emission Test	30MHz~1GHz	$\pm 3.57\text{dB}$

3 General Information

3.1 General Description of EUT

Manufacturer:	Audio Development Organization
Manufacturer Address:	Puxinhu,Pulong Industry Complex Tangxia Town,Dongguan City, Guangdong Province,China
EUT Name:	COMPATIBLE DONGLE
Model No:	GO-DONGLE
Brand Name:	MEDALLION
Serial No:	N/A
Power Supply Range:	DC 5.0V
Test Power Supply:	DC 5.0V from laptop, AC 120V/60Hz for laptop adapter

3.1.1 EUT Test Mode

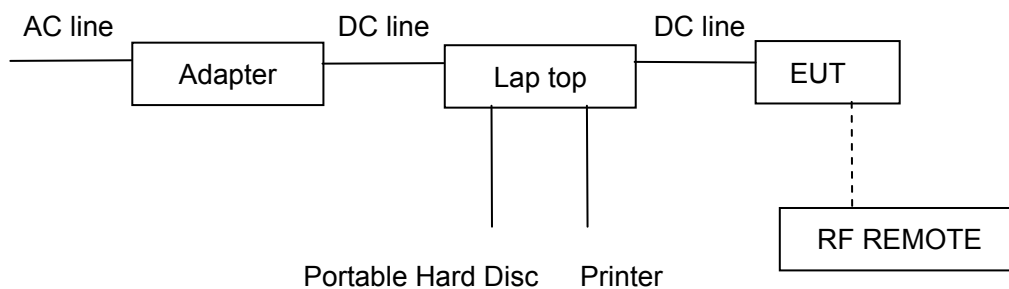
Mode 1	The EUT is in 433.92MHz receiving condition and connecting to laptop for data transmission.
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3.2 Description of Test setup

EUT was tested in normal configuration (Please See following Block diagram)

1. Block diagram of EUT configuration

Mode 1:



3.3 Peripheral List

No.	Equipment	Manufacturer	Model No.	Serial No.	Power cord	signal cable
1	Printer	EPSON	STYLUS C45	A1285	N/A	N/A
2	Laptop	ASUA	X401A	X401A-081BB 820	N/A	N/A
3	Adapter	Enertronix	EXA0703YH	04G2660047L 2222022854	1.5m/ unshielded/ detachable	N/A
4	RF REMOTE	Audio Development Organization	GO RIDER CONTROLLER	N/A	N/A	N/A

3.4 4.4 EUT Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	DC line	N/A	N/A	N/A	N/A	0.2m/ unshielded/ detachable	N/A

4 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
Spectrum Analyzer	Hewlett Packard	8566B	3013A07296	July 29, 2014	1 Year
RF Preselector	Hewlett Packard	85685A	3010A01157	July 30, 2014	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2521A00584	July 30, 2014	1 Year
Radiated EMI Software	Sector Design	N/A	Ver. 1.4.6	N/A	N/A
Conducted EMI Software	Hewlett Packard	85869PC	Ver. A.02.03	N/A	N/A
Preamplifier	Com Power	PA-102	1482	July 30, 2014	1 Year
RF Attenuator	Mini-Circuits	CAT-10	Asset #1000	December 7, 2014	1 Year
LISN	Com Power	LI-200	12012	September 21, 2014	1 Year
LISN	Com Power	LI-200	12214	September 21, 2014	1 Year
LISN	Com Power	LI-200	1767	September 21, 2014	1 Year
LISN	Com Power	LI-200	1768	September 21, 2014	1 Year
TLISN	Fischer	F-071115-1057-1-09	091407	September 10, 2014	1 Year
LCL Adaptor	Fischer	ALCL-1	091407.02	September 10, 2014	2 Years
Biconical Antenna	Com Power	AB-100	01557	July 8, 2015	1 Year
Log Periodic Antenna	Com Power	AL-100	16001	July 27, 2014	1 Year
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Dell, Inc.	DHS	DNSV641	N/A	N/A
Printer	Hewlett Packard	C8124A	CN39B2234T	N/A	N/A
Plotter	Hewlett Packard	7470A	2308A96499	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESU40	100127	December 22, 2014	1 Year
EMI Test Software	Rohde & Schwarz	EMC32	V8.40.0	N/A	N/A
BiConiLog Antenna	ETS-Lindgren	3142D	00102183	July 1, 2015	1 Year
Horn Antenna	ETS-Lindgren	3117	00109294	July 24, 2014	1 Year
Preamplifier	Rohde & Schwarz	TS-PR18	100056	October 31, 2014	1 Year
Antenna Mast	ETS-Lindgren	2175	00095727	N/A	N/A
Turntable	ETS-Lindgren	2187-3.0	00118231	N/A	N/A
Computer	Acer	Aspire 8930	85100050123	N/A	N/A
Multi-Function Controller	ETS-Lindgren	2090	00102270	N/A	N/A

5.1 Mains Terminals Disturbance Voltage Measurement

Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximized peak within 6dB of Average Limit
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Temperature:	25°C	Humidity:	54% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	Mode 1			The Worst Mode:	Mode 1	

1.2 Test Specification

The diagram illustrates the test setup for measuring the EUT and LISN. The EUT is placed on a table at a height of 80cm. The LISN is connected to the EUT and the V.C.P. (Voltage Control Point). The distance between the EUT and the V.C.P. is 40cm. The H.C.P. (Horizontal Control Point) is indicated by an arrow pointing towards the setup. The test receiver is connected to the LISN via a pulse limiter.

EUT was placed upon a wooden test table 0.8m above the horizontal metal reference plane and 0.4m from the vertical ground plane, and it was connected to an AMN. The closest distance between the boundary of the EUT and the surface of the AMN is 0.8m. All peripherals were connected to another AMN, and placed at a distance of 10cm from each other. A spectrum and receiver was connected to the RF output port of the AMN. Both average and quasi-peak value were detected.

5.1.3 Measurement Data

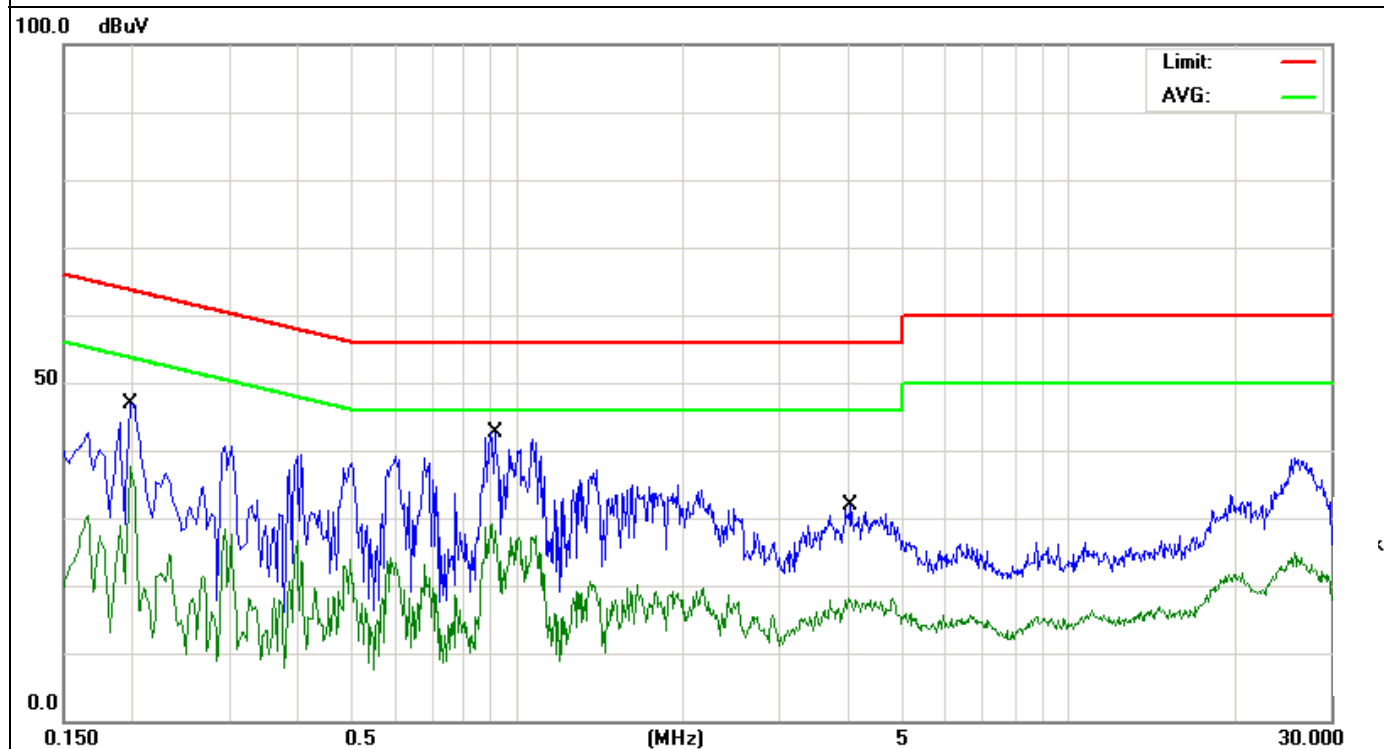
An initial pre-scan was performed on the live and neutral lines.

Quasi-peak or average measurements were performed at the frequency which maximum peak emissions were detected.

Please refer to the attached quasi-peak & average measurement data for reference.

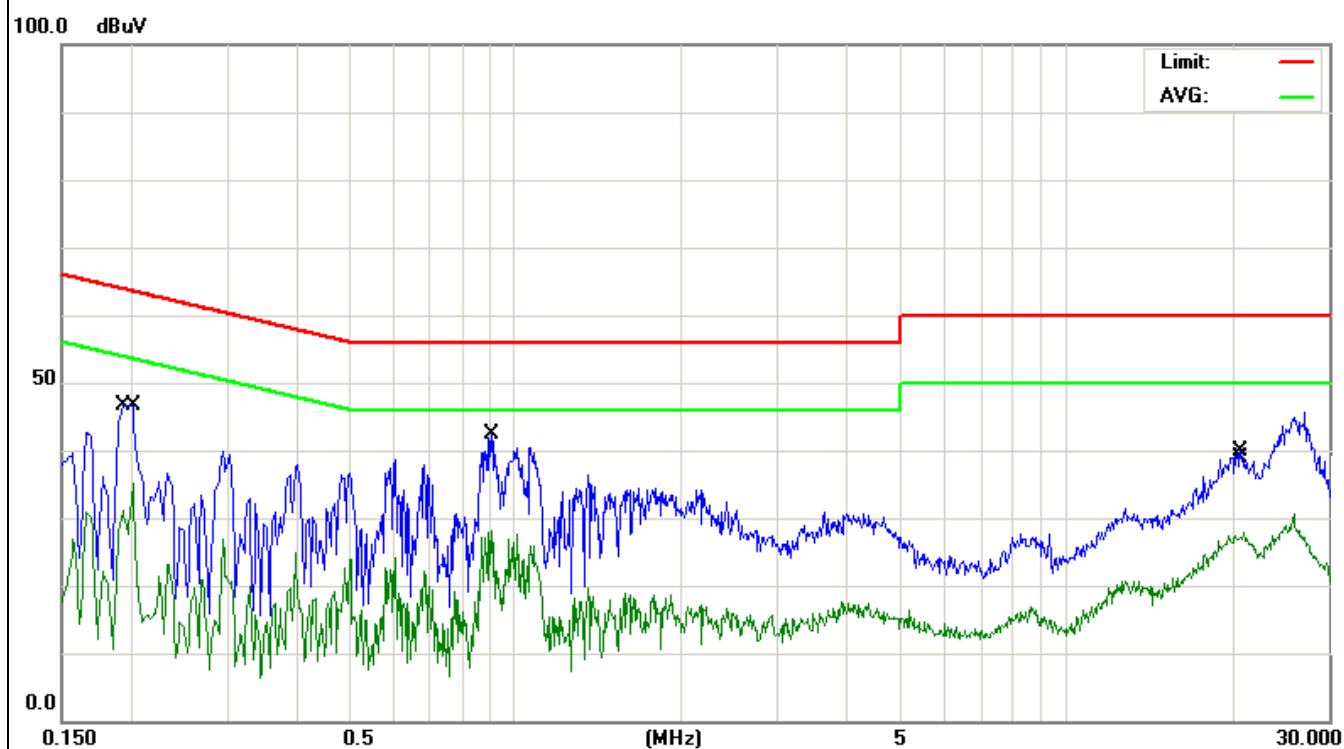
Model name:	GO-DONGLE			Test Date :	2015-07-15	
Test Mode:	Mode 1			Phase :	Line	
Test Voltage:	DC 5.0V from laptop, AC 120V for laotop adapter					
Frequency (MHz)	Meter Reading (dBμV)	Factor(dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector
0.1980	35.83	11.16	46.99	63.69	-16.70	Quasi-Peak
0.1980	26.55	11.16	37.71	53.69	-15.98	Average
0.9100	32.73	9.90	42.63	56.00	-13.37	Quasi-Peak
0.9020	19.21	9.90	29.11	46.00	-16.89	Average
4.0340	21.91	10.00	31.91	56.00	-24.09	Quasi-Peak
4.0060	8.23	10.00	18.23	46.00	-27.77	Average

Remark: Factor = Insertion Loss + Cable Loss + Pulse limiter.



Model name:	GO-DONGLE			Test Date :	2015-07-15	
Test Mode:	Mode 1			Phase :	Neutral	
Test Voltage:	DC 5.0V from laptop, AC 120V for laotop adapter					
Frequency (MHz)	Meter Reading (dBμV)	Factor(dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector
0.1940	35.38	11.21	46.59	63.86	0.1940	Quasi-Peak
0.2020	23.91	11.12	35.03	53.52	0.2020	Average
0.9060	32.37	9.90	42.27	56.00	0.9060	Quasi-Peak
0.9060	18.23	9.90	28.13	46.00	0.9060	Average
20.8100	38.00	1.77	39.77	60.00	20.8100	Quasi-Peak
21.0900	25.99	1.80	27.79	50.00	21.0900	Average

Remark: Factor = Insertion Loss + Cable Loss + Pulse limiter.



5.1.4 Test Setup Photograph



5.2 Radiated Emission Measurement

Limits of Radiated Emission Measurement

Frequency (MHz)	☐ Class A (10m)	☒ Class B (3m)
	Quasi-Peak dB(μ V/m)	Quasi-Peak dB(μ V/m)
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Detector:

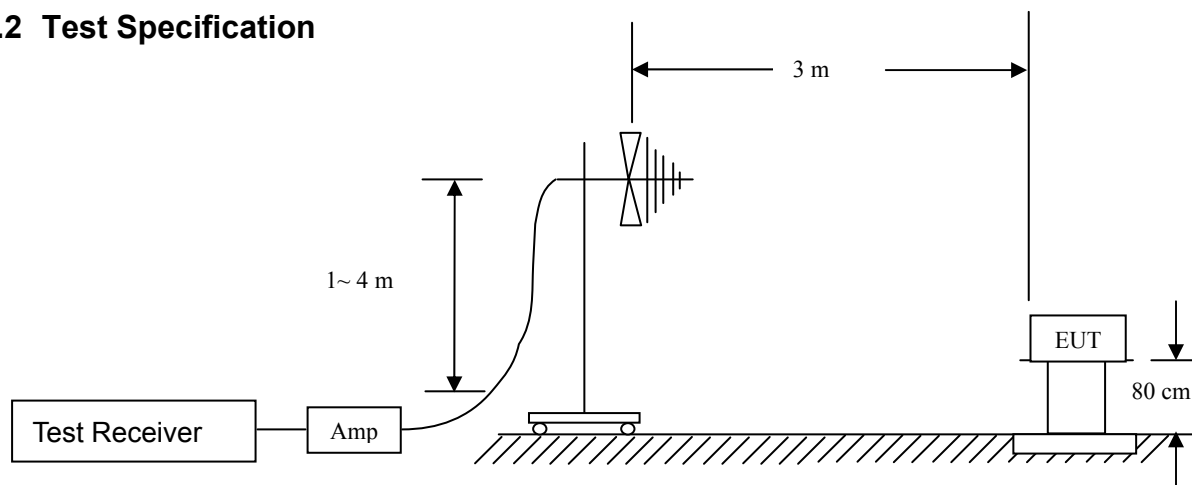
Peak for pre-scan (120kHz resolution bandwidth)

Quasi-Peak if maximum peak within 6dB of limit

5.2.1 E.U.T. Operation

Temperature:	26°C	Humidity:	55% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	Mode 1			The Worst Mode:	Mode 1	

5.2.2 Test Specification



EUT was placed upon a wooden test table which was placed on the turn table 0.8m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested.

5.2.3 Measurement Data

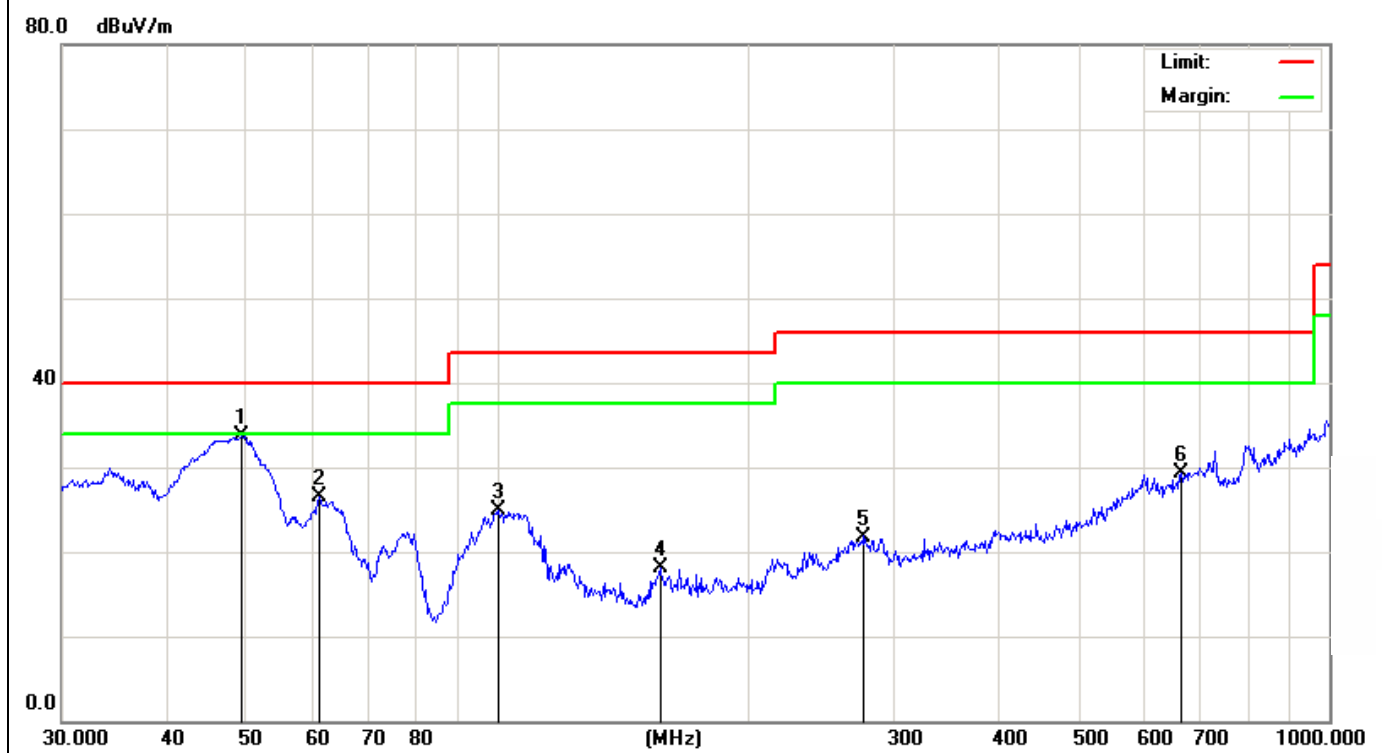
An initial pre-scan was performed in the 3m chamber using the spectrum analyzers in peak detection mode. The EUT was measured by Biology antenna with 2 orthogonal polarities and peak emissions from the EUT were detected within 6dB of the class B limit line.

The following quasi-peak measurements were performed on the EUT.

Between 30MHz-1GHz

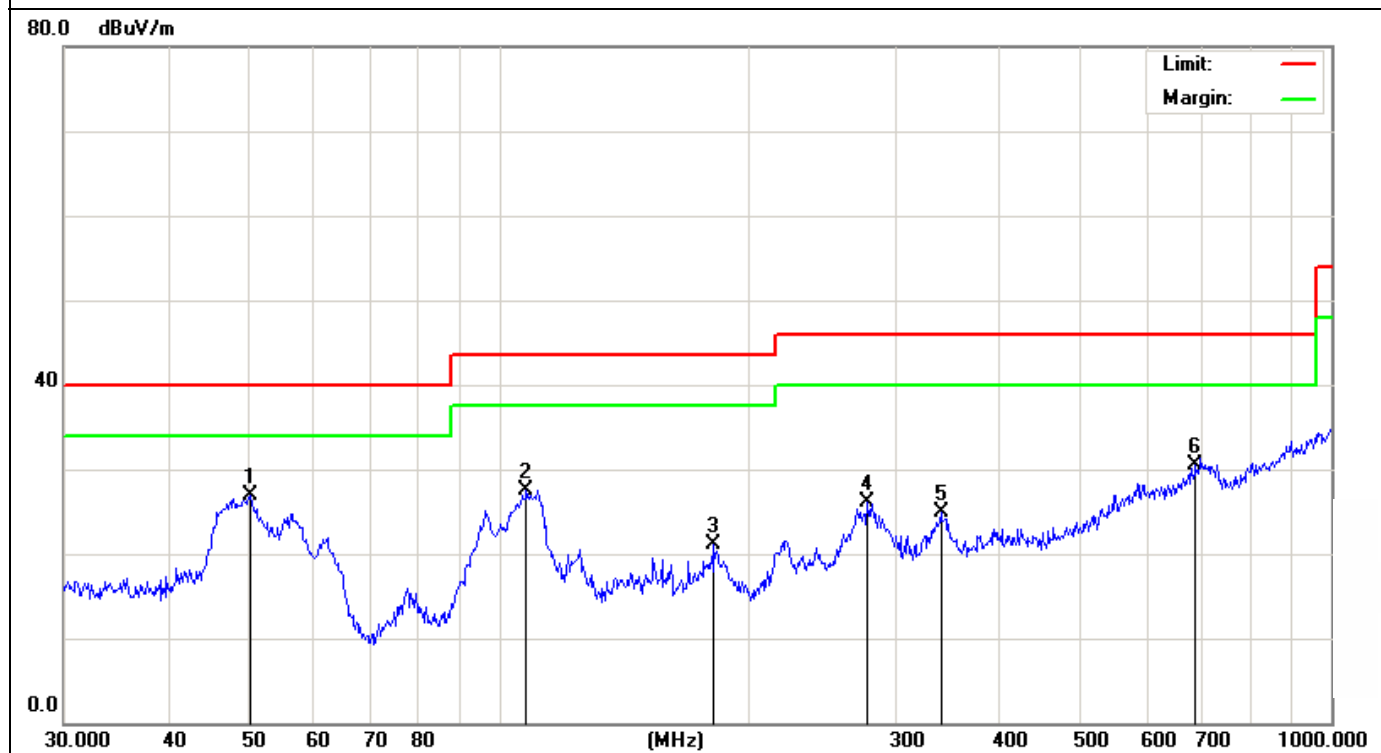
Model name:	GO-DONGLE			Test Date :	2015-07-15	
Test Mode:	Mode 1			Phase :	Vertical	
Test Voltage:	DC 5.0V from laptop, AC 120V for laptop adapter					
Frequency (MHz)	Meter Reading (dBμV)	Factor(dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector
49.3594	52.21	-18.59	33.62	40.00	-6.38	Quasi-Peak
61.1315	45.80	-19.36	26.44	40.00	-13.56	Quasi-Peak
100.2286	38.98	-13.99	24.99	43.50	-18.51	Quasi-Peak
157.0073	33.44	-15.27	18.17	43.50	-25.33	Quasi-Peak
276.1235	32.40	-10.60	21.80	46.00	-24.20	Quasi-Peak
663.4728	30.48	-1.17	29.31	46.00	-16.69	Quasi-Peak

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier



Model name:	GO-DONGLE			Test Date :	2015-07-15	
Test Mode:	Mode 1			Phase :	Horizontal	
Test Voltage:	DC 5.0V from laptop, AC 120V for laotop adapter					
Frequency (MHz)	Meter Reading (dBμV)	Factor(dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector
50.2324	41.13	-14.29	26.84	40.00	-13.16	Quasi-Peak
107.8877	42.90	-15.46	27.44	43.50	-16.06	Quasi-Peak
181.2834	32.09	-11.07	21.02	43.50	-22.48	Quasi-Peak
277.0935	36.61	-10.52	26.09	46.00	-19.91	Quasi-Peak
339.5887	33.44	-8.60	24.84	46.00	-21.16	Quasi-Peak
687.1507	30.83	-0.42	30.41	46.00	-15.59	Quasi-Peak

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier



Between 1GHz-5GHz

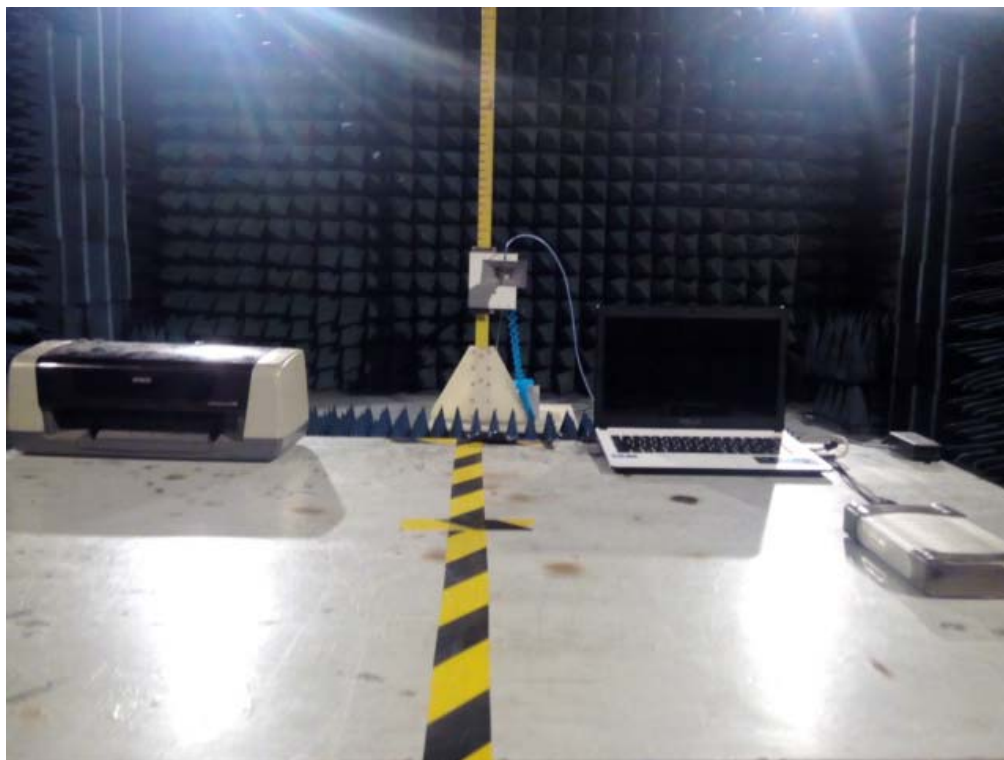
Model name:	GO-DONGLE			Test Date :	2015-07-15	
Test Mode:	Mode 1			Test Voltage:	DC 5.0V from laptop, AC 120V for laotop adapter	
Vertical						
Frequency (MHz)	Meter Reading (dBμV)	Factor(dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector
1245.327	47.01	-10.48	36.53	74.00	-37.47	Peak
1245.327	35.32	-10.48	24.84	54.00	-29.16	Average
1702.914	48.55	-9.62	38.93	74.00	-35.07	Peak
1702.914	36.17	-9.62	26.55	54.00	-27.45	Average
2458.283	46.34	-5.20	41.14	74.00	-32.86	Peak
2458.283	37.02	-5.20	31.82	54.00	-22.18	Average
3327.664	47.13	-1.02	46.11	74.00	-27.89	Peak
3327.664	35.38	-1.02	34.36	54.00	-19.64	Average
4089.092	43.88	3.97	47.85	74.00	-26.15	Peak
4089.092	34.49	3.97	38.46	54.00	-15.54	Average
4221.268	42.89	4.36	47.25	74.00	-26.75	Peak
4221.268	32.38	4.36	36.74	54.00	-17.26	Average
Horizontal						
Frequency (MHz)	Meter Reading (dBμV)	Factor(dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector
1052.364	46.54	-10.83	35.71	74.00	-38.29	Peak
1052.364	34.60	-10.83	23.77	54.00	-30.23	Average
1588.851	49.33	-9.89	39.44	74.00	-34.56	Peak
1588.851	35.58	-9.89	25.69	54.00	-28.31	Average
2236.966	49.76	-7.08	42.68	74.00	-31.32	Peak
2236.966	38.09	-7.08	31.01	54.00	-22.99	Average
3218.042	48.64	-1.17	47.47	74.00	-26.53	Peak
3218.042	34.05	-1.17	32.88	54.00	-21.12	Average
4152.354	44.47	4.07	48.54	74.00	-25.46	Peak
4152.354	33.28	4.07	37.35	54.00	-16.65	Average
4478.269	43.27	3.94	47.21	74.00	-26.79	Peak
4478.269	31.08	3.94	35.02	54.00	-18.98	Average
Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier						

5.2.4 Test Setup photograph

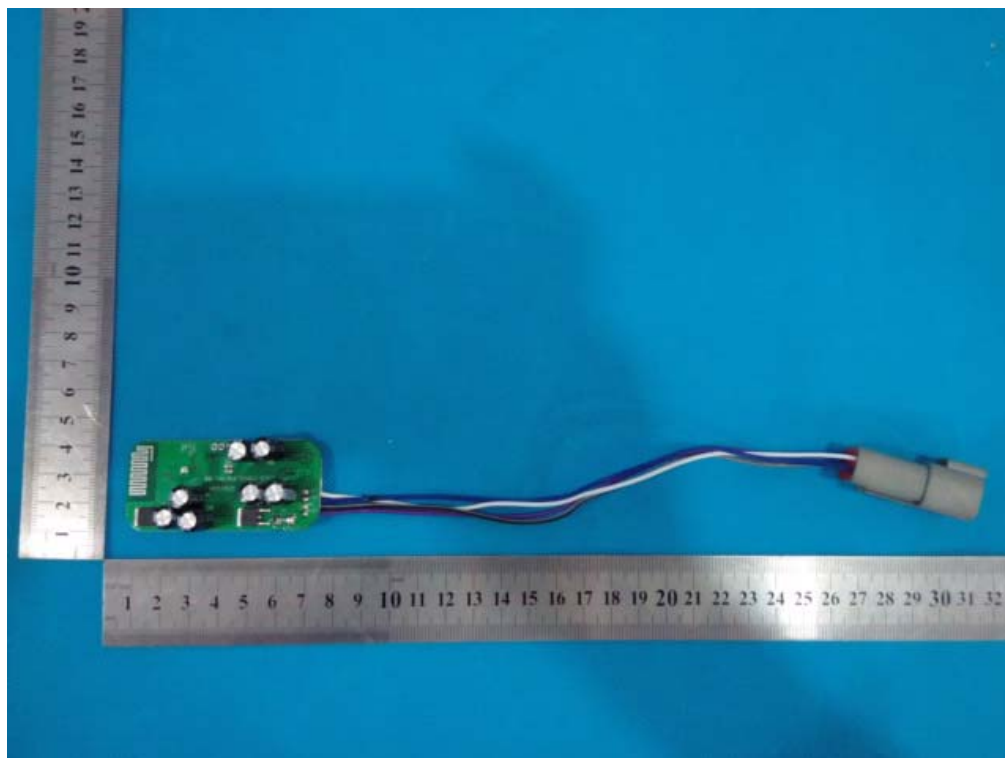
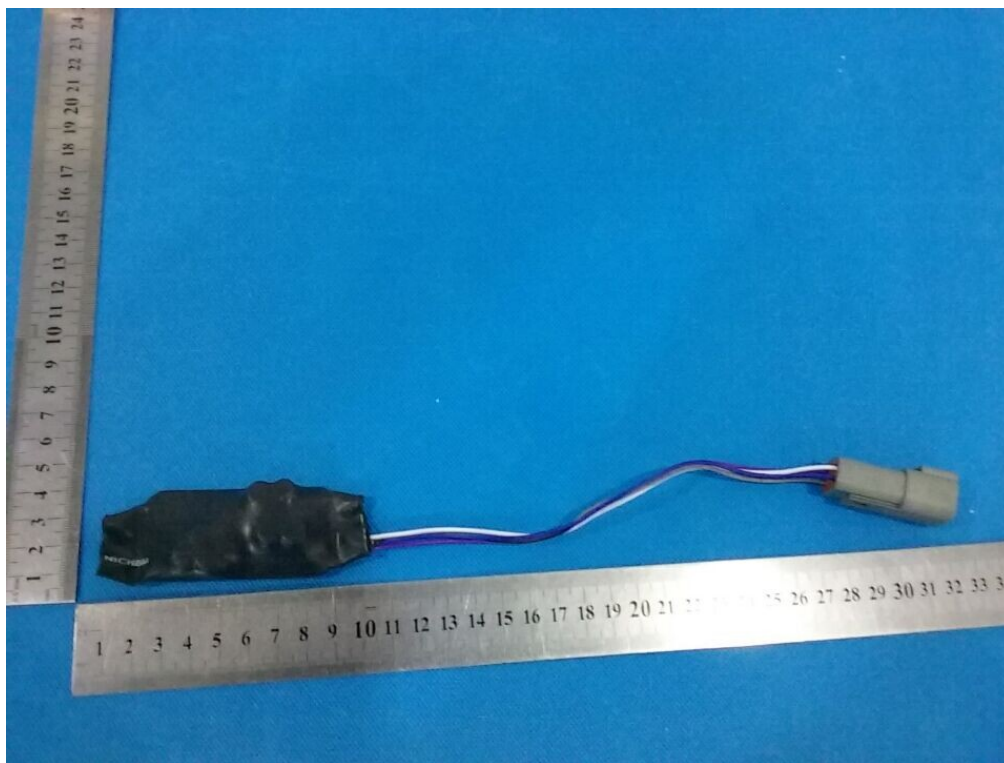
30MHz-1GHz

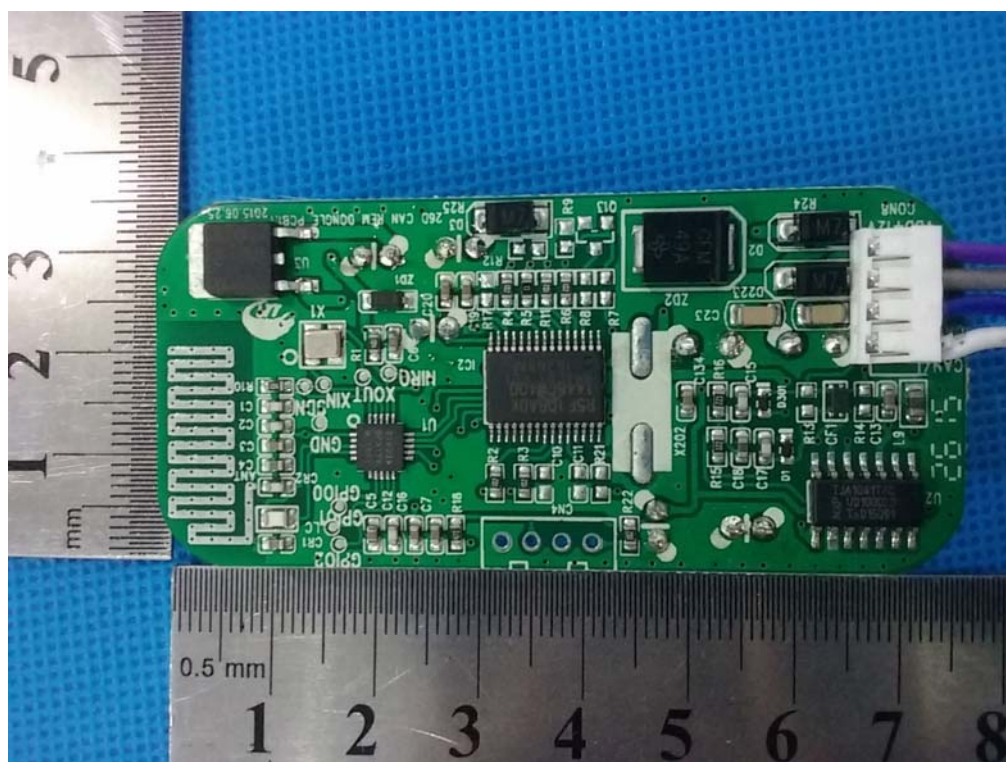
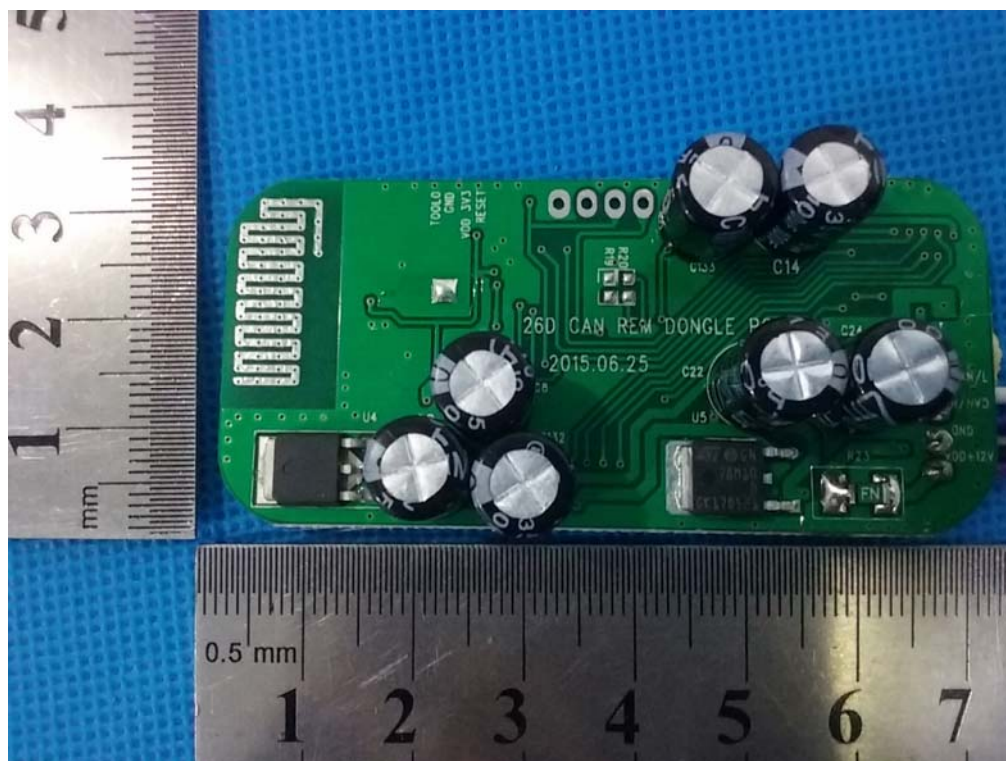


1GHz-5GHz



6 APPENDIX-Photographs of EUT Constructional Details







****End of Report****