

FCC REPORT

Applicant: MAXELEGANT DEVELOP(H.K.) LIMITED

Address of Applicant: FLAT/RM H, 20/F, WANG FAI INDUSTRIAL BUILDING, 29 LUK HOP STREET, SAN PO KONG, KL, HK.

Equipment Under Test (EUT)

Product Name: IOS SERIES CONTROL CAR(Transmitter)

Model No.: 35014

FCC ID: PRJ13411907453

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249:2010

Date of sample receipt: August 25, 2012

Date of Test: August 27-31, 2012

Date of report issued: September 03, 2012

Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Lo
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	September 03, 2012	Original

Prepared By:

hank. yan

Date:

September 03, 2012

Project Engineer

Check By:

Hans. Hu

Date:

September 03, 2012

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	PASS
AC Power Line Conducted Emission	15.207	PASS
Field strength of the fundamental signal	15.249 (a)	PASS
Spurious emissions	15.249 (a) (d)/15.209	PASS
Band edge	15.249 (d)/15.205	PASS
20dB Occupied Bandwidth	15.215 (c)	PASS

Pass: The EUT complies with the essential requirements in the standard.

N/A: not applicable.

5 General Information

5.1 Client Information

Applicant:	MAXELEGANT DEVELOP(H.K.) LIMITED
Address of Applicant:	FLAT/RM H, 20/F, WANG FAI INDUSTRIAL BUILDING, 29 LUK HOP STREET, SAN PO KONG, KL, HK.
Manufacturer:	MAXELEGANT DEVELOP(H.K.) LIMITED
Address of Manufacturer:	FLAT/RM H, 20/F, WANG FAI INDUSTRIAL BUILDING, 29 LUK HOP STREET, SAN PO KONG, KL, HK.
Factory:	MAXELEGANT DEVELOP(H.K.) LIMITED
Address of factory :	FLAT/RM H, 20/F, WANG FAI INDUSTRIAL BUILDING, 29 LUK HOP STREET, SAN PO KONG, KL, HK.

5.2 General Description of E.U.T.

Product Name:	IOS SERIES CONTROL CAR(Transmitter)
Model No.:	35014
Operation Frequency:	2410MHz ~ 2475MHz
Test Frequency:	Lowest channel: 2410MHz Middle channel: 2450MHz Highest channel: 2475MHz
Modulation technology:	FSK
Antenna Type:	PCB Antenna
Antenna gain:	0dBi (declare by Applicant)
Power supply:	DC 3.7V Li-ion Battery DC 5.0V by PC Port

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2410MHz	3	2438MHz	5	2463MHz		
2	2423MHz	4	2450MHz	6	2475MHz		

5.3 Test mode

Transmitting mode	Keep transmitting mode.
Charging mode	Keep charging mode with PC.

Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	X	Y	Z
Field Strength(dBuV/m)	82.14	88.78	77.09

Final Test Mode:

According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup”:

Y axis (see the test setup photo)

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
HP	Printer	CB495A	05257893	DoC
DELL	PC	OPTIPLEX745	GTS312	DoC
DELL	MONITOR	E178FPC	N/A	DoC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC
iPhone	Mobile Phone	MD235ZP	C35HCKSUOTCO	Doc

5.5 Test Facility

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

- CNAS —Registration No.: CNAS L5775
CNAS has accredited Global United Technology Services Co., Ltd. to ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.
- FCC —Registration No.: 600491
Global United Technology Services Co., Ltd., Shenzhen 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 600491, July 20, 2010.
- Industry Canada (IC)
The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China
Tel: 0755-27798480
Fax: 0755-27798960

5.7 Other Information Requested by the Customer

None.

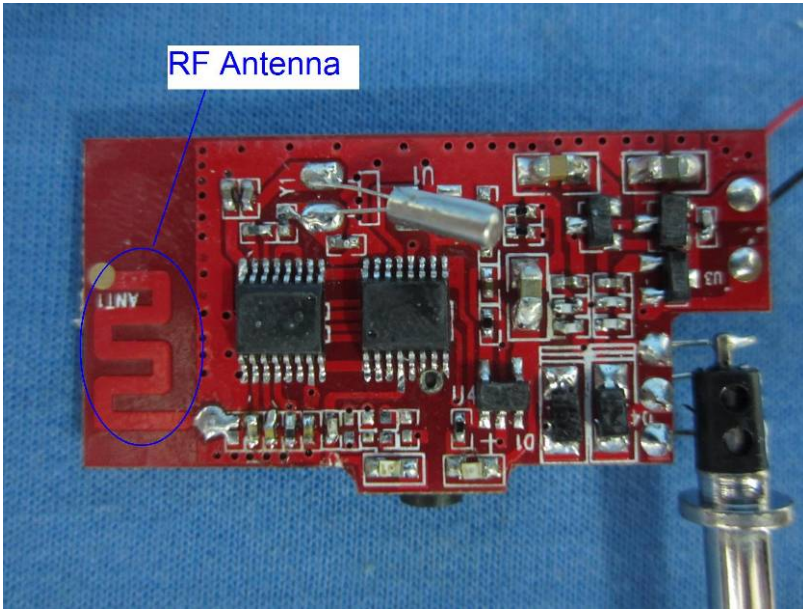
5.8 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 30 2011	Mar. 29 2013
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 03 2012	Jul. 02 2013
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 25 2012	Feb. 24 2013
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 29 2012	June 28 2013
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2011	Mar. 29 2013
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Mar. 31 2012	Mar. 30 2013
9	Coaxial Cable	GTS	N/A	GTS211	Mar. 31 2012	Mar. 30 2013
10	Coaxial cable	GTS	N/A	GTS210	Mar. 31 2012	Mar. 30 2013
11	Coaxial Cable	GTS	N/A	GTS212	Mar. 31 2012	Mar. 30 2013
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 03 2012	Jul. 02 2013
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 03 2012	Jul. 02 2013
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 29 2012	June 28 2013
15	Band filter	Amindeon	82346	GTS219	Mar. 31 2012	Mar. 30 2013

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS252	Jul. 03 2012	Jul. 02 2013
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 03 2012	Jul. 02 2013
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 03 2012	Jul. 02 2013
4	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 03 2012	Jul. 02 2013
5	Coaxial Cable	GTS	N/A	GTS227	Mar. 31 2012	Mar. 30 2013
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

6 Test results and Measurement Data

6.1 Antenna requirement:

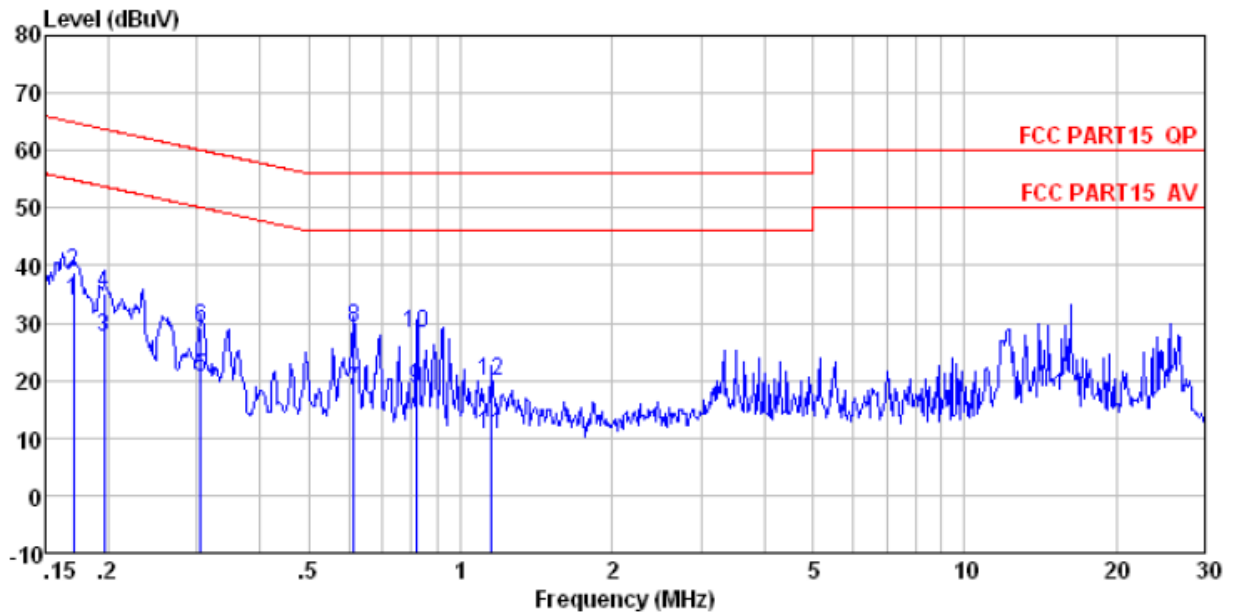
Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
E.U.T Antenna: The antenna is PCB antenna, the best case gain of the antenna is 0dBi	
	

6.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207																
Test Method:	ANSI C63.4:2003																
Test Frequency Range:	150KHz to 30MHz																
Class / Severity:	Class B																
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto																
Limit:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table> * Decreases with the logarithm of the frequency.			Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)																
	Quasi-peak	Average															
0.15-0.5	66 to 56*	56 to 46*															
0.5-5	56	46															
5-30	60	50															
Test setup:	Reference Plane Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m																
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.																
Test Instruments:	Refer to section 5.8 for details																
Test mode:	Charging mode																
Test results:	Pass																

Measurement Data

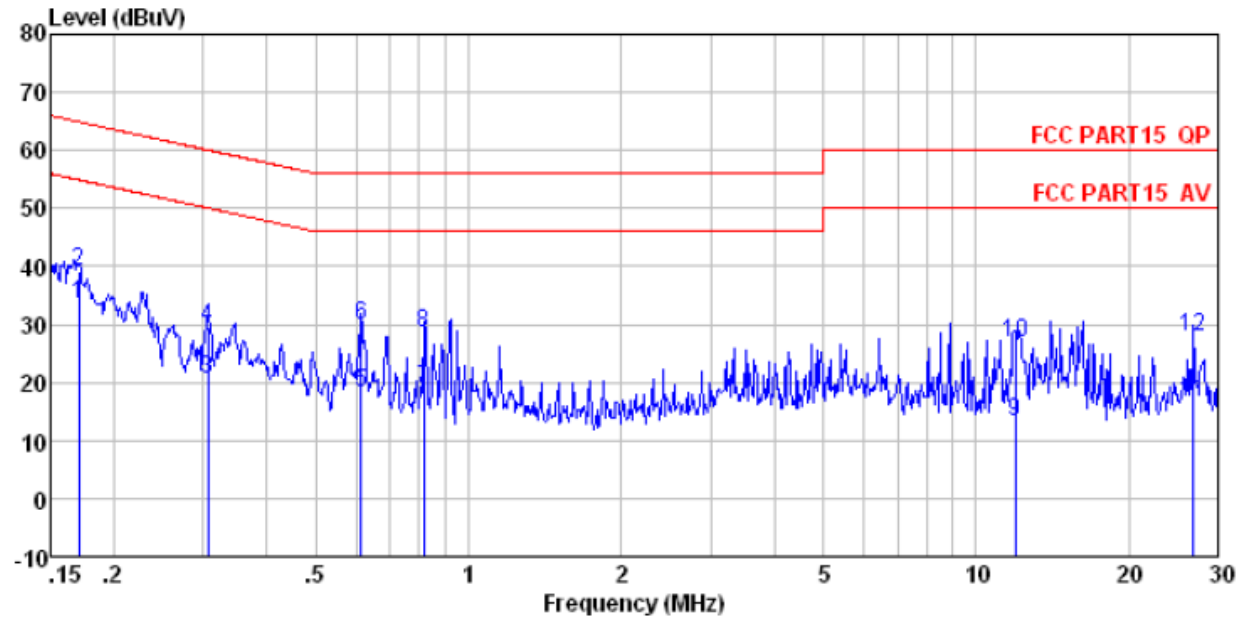
Line:



Site : Shielded room
 Condition : FCC PART15 QP LISN-2012 LINE
 Job No. : 986RF
 Test Mode : Charger mode
 Test Engineer: Sam

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.170	33.63	-0.05	0.10	33.68	54.94	-21.26	Average
2	0.170	38.91	-0.05	0.10	38.96	64.94	-25.98	QP
3	0.197	27.37	-0.05	0.10	27.42	53.76	-26.34	Average
4	0.197	35.28	-0.05	0.10	35.33	63.76	-28.43	QP
5	0.305	20.45	-0.05	0.10	20.50	50.10	-29.60	Average
6	0.305	29.28	-0.05	0.10	29.33	60.10	-30.77	QP
7	0.614	18.22	-0.05	0.10	18.27	46.00	-27.73	Average
8	0.614	29.29	-0.05	0.10	29.34	56.00	-26.66	QP
9	0.817	18.58	-0.05	0.10	18.63	46.00	-27.37	Average
10	0.817	28.30	-0.05	0.10	28.35	56.00	-27.65	QP
11	1.153	10.43	-0.06	0.10	10.47	46.00	-35.53	Average
12	1.153	19.85	-0.06	0.10	19.89	56.00	-36.11	QP

Neutral:



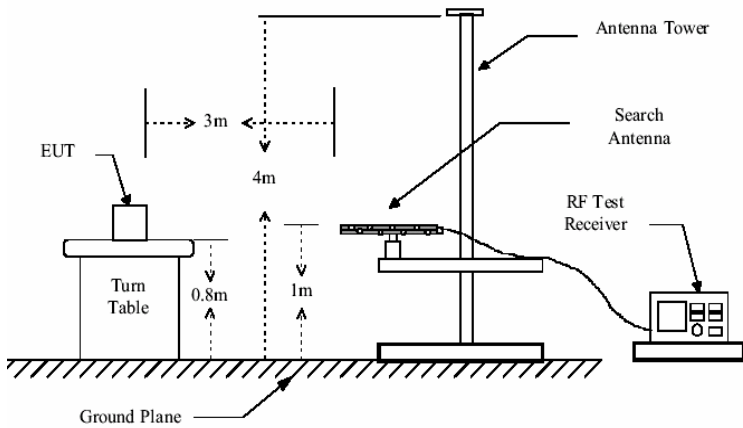
Site : Shielded room
 Condition : FCC PART15 QP LISN-2012 NEUTRAL
 Job No. : 986RF
 Test Mode : Charger mode
 Test Engineer: Sam

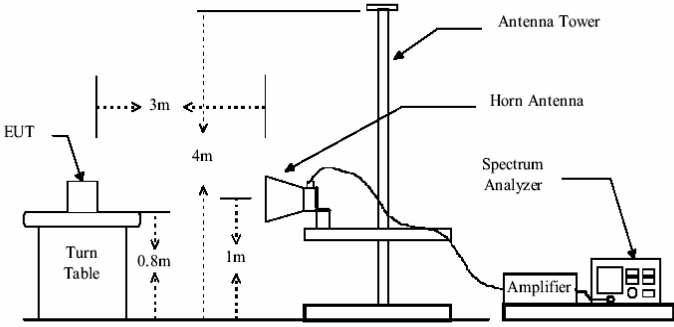
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.170	33.37	-0.05	0.10	33.42	54.94	-21.52	Average
2	0.170	39.15	-0.05	0.10	39.20	64.94	-25.74	QP
3	0.307	20.50	-0.05	0.10	20.55	50.06	-29.51	Average
4	0.307	29.54	-0.05	0.10	29.59	60.06	-30.47	QP
5	0.614	18.10	-0.05	0.10	18.15	46.00	-27.85	Average
6	0.614	29.68	-0.05	0.10	29.73	56.00	-26.27	QP
7	0.817	18.81	-0.05	0.10	18.86	46.00	-27.14	Average
8	0.817	28.56	-0.05	0.10	28.61	56.00	-27.39	QP
9	11.933	13.33	-0.20	0.20	13.33	50.00	-36.67	Average
10	11.933	27.02	-0.20	0.20	27.02	60.00	-32.98	QP
11	26.841	16.80	-0.50	0.22	16.52	50.00	-33.48	Average
12	26.841	28.19	-0.50	0.22	27.91	60.00	-32.09	QP

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss

6.3 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.4:2003				
Test Frequency Range:	30MHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		AV	1MHz	10Hz	Average Value
Limit: (Field strength of the fundamental signal)	Frequency		Limit (dBuV/m @3m)		Remark
	2400MHz-2483.5MHz		94.00		Average Value
			114.00		Peak Value
Limit: (Spurious Emissions)	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.00		Quasi-peak Value
	88MHz-216MHz		43.50		Quasi-peak Value
	216MHz-960MHz		46.00		Quasi-peak Value
	960MHz-1GHz		54.00		Quasi-peak Value
	Above 1GHz		54.00		Average Value
			74.00		Peak Value
Limit: (band edge)	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.				
Test setup:	Below 1GHz				
					
	Above 1GHz				

	 The diagram illustrates the test setup. An EUT (Equipment Under Test) is placed on a turn table at a height of 0.8m. The turn table is rotated 360 degrees. The EUT is positioned 3m away from the antenna tower. The antenna tower has a horn antenna at a height of 4m. The antenna height is varied from 1m to 4m. The test receiver system consists of a spectrum analyzer and an amplifier.
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Transmitting mode
Test results:	Pass

Measurement data:

6.3.1 Field Strength of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2410.00	80.80	27.57	5.40	30.12	83.65	114.00	-30.35	Horizontal
2450.00	78.43	27.48	5.43	30.06	81.28	114.00	-32.72	Horizontal
2475.00	78.78	27.52	5.47	29.93	81.84	114.00	-32.16	Horizontal
2410.00	85.93	27.57	5.40	30.12	88.78	114.00	-25.22	Vertical
2450.00	83.23	27.48	5.43	30.06	86.08	114.00	-27.92	Vertical
2475.00	82.86	27.52	5.47	29.93	85.92	114.00	-28.08	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2410.00	69.51	27.57	5.40	30.12	72.36	94.00	-21.64	Horizontal
2450.00	67.84	27.48	5.43	30.06	70.69	94.00	-23.31	Horizontal
2475.00	67.32	27.52	5.47	29.93	70.38	94.00	-23.62	Horizontal
2410.00	74.62	27.57	5.40	30.12	77.47	94.00	-16.53	Vertical
2450.00	72.13	27.48	5.43	30.06	74.98	94.00	-19.02	Vertical
2475.00	72.55	27.52	5.47	29.93	75.61	94.00	-18.39	Vertical

According to the follow transmitter output power (P_t) formula:

$$P_t = (E \times d)^2 / (30 \times g_t)$$

P_t =transmitter output power in watts

g_t =numeric gain of the transmitting antenna (unitless)

E =electric field strength in V/m

d = measurement distance in meters (m).

According to the above test data, $E_{max}=88.78\text{dBuV/m}=0.0275\text{V/m}$, $d=3\text{m}$, $g_t=1$

$$P_t = (E \times d)^2 / (30 \times g_t) = (0.0275 \times 3)^2 / (30 \times 1) = 0.000227\text{W}$$

6.3.2 Spurious emissions

■ Below 1GHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
54.45	39.85	16.14	0.81	31.95	24.85	40.00	-15.15	Vertical
96.44	38.66	16.02	1.16	31.75	24.09	43.50	-19.41	Vertical
230.91	44.10	14.72	2.02	32.15	28.69	46.00	-17.31	Vertical
372.01	43.39	16.53	2.72	31.96	30.68	46.00	-15.32	Vertical
463.97	42.30	17.71	3.15	31.67	31.49	46.00	-14.51	Vertical
893.86	38.72	24.05	4.83	31.19	36.41	46.00	-9.59	Vertical
47.83	39.21	16.49	0.75	31.98	24.47	40.00	-15.53	Horizontal
76.78	43.89	11.90	1.00	31.80	24.99	40.00	-15.01	Horizontal
101.29	38.78	16.03	1.20	31.77	24.24	43.50	-19.26	Horizontal
280.02	41.66	15.70	2.27	32.17	27.46	46.00	-18.54	Horizontal
455.91	45.50	17.58	3.11	31.70	34.49	46.00	-11.51	Horizontal
919.29	38.75	24.03	4.93	31.19	36.52	46.00	-9.48	Horizontal

■ Above 1GHz

Test channel:	Lowest channel
---------------	----------------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4820.00	34.33	31.79	8.61	24.17	50.56	74.00	-23.44	Vertical
7230.00	36.50	36.19	11.66	26.46	57.89	74.00	-16.11	Vertical
9640.00	31.47	38.01	14.16	25.44	58.20	74.00	-15.80	Vertical
12050.00	*					74.00		Vertical
14460.00	*					74.00		Vertical
4820.00	34.17	31.79	8.61	24.17	50.40	74.00	-23.60	Horizontal
7230.00	36.27	36.19	11.66	26.46	57.66	74.00	-16.34	Horizontal
9640.00	31.35	38.01	14.16	25.44	58.08	74.00	-15.92	Horizontal
12050.00	*					74.00		Horizontal
14460.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4820.00	24.97	31.79	8.61	24.17	41.20	54.00	-12.80	Vertical
7230.00	26.61	36.19	11.66	26.46	48.00	54.00	-6.00	Vertical
9640.00	19.93	38.01	14.16	25.44	46.66	54.00	-7.34	Vertical
12050.00	*					54.00		Vertical
14460.00	*					54.00		Vertical
4820.00	24.90	31.79	8.61	24.17	41.13	54.00	-12.87	Horizontal
7230.00	26.21	36.19	11.66	26.46	47.60	54.00	-6.40	Horizontal
9640.00	19.48	38.01	14.16	25.44	46.21	54.00	-7.79	Horizontal
12050.00	*					54.00		Horizontal
14460.00	*					54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. “*”, means this data is the too weak instrument of signal is unable to test.

Test channel:	Middle channel
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4900.00	34.65	31.88	8.68	24.08	51.13	74.00	-22.87	Vertical
7350.00	37.70	36.41	11.74	26.78	59.07	74.00	-14.93	Vertical
9800.00	33.45	38.43	14.29	25.33	60.84	74.00	-13.16	Vertical
12250.00	*					74.00		Vertical
14700.00	*					74.00		Vertical
4900.00	33.93	31.88	8.68	24.08	50.41	74.00	-23.59	Horizontal
7350.00	37.22	36.41	11.74	26.78	58.59	74.00	-15.41	Horizontal
9800.00	32.72	38.43	14.29	25.33	60.11	74.00	-13.89	Horizontal
12250.00	*					74.00		Horizontal
14700.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4900.00	25.29	31.88	8.68	24.08	41.77	54.00	-12.23	Vertical
7350.00	27.81	36.41	11.74	26.78	49.18	54.00	-4.82	Vertical
9800.00	21.91	38.43	14.29	25.33	49.30	54.00	-4.70	Vertical
12250.00	*					54.00		Vertical
14700.00	*					54.00		Vertical
4900.00	24.66	31.88	8.68	24.08	41.14	54.00	-12.86	Horizontal
7350.00	27.16	36.41	11.74	26.78	48.53	54.00	-5.47	Horizontal
9800.00	20.85	38.43	14.29	25.33	48.24	54.00	-5.76	Horizontal
12250.00	*					54.00		Horizontal
14700.00	*					54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. “*”, means this data is the too weak instrument of signal is unable to test.

Test channel:	Highest channel
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4950.00	35.05	31.91	8.71	24.05	51.62	74.00	-22.38	Vertical
7425.00	37.29	36.56	11.79	27.03	58.61	74.00	-15.39	Vertical
9900.00	31.47	38.81	14.35	25.27	59.36	74.00	-14.64	Vertical
12375.00	*					74.00		Vertical
14850.00	*					74.00		Vertical
4950.00	35.33	31.91	8.71	24.05	51.90	74.00	-22.10	Horizontal
7425.00	36.90	36.56	11.79	27.03	58.22	74.00	-15.78	Horizontal
9900.00	29.84	38.81	14.35	25.27	57.73	74.00	-16.27	Horizontal
12375.00	*					74.00		Horizontal
14850.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4950.00	25.69	31.91	8.71	24.05	42.26	54.00	-11.74	Vertical
7425.00	27.40	36.56	11.79	27.03	48.72	54.00	-5.28	Vertical
9900.00	19.93	38.81	14.35	25.27	47.82	54.00	-6.18	Vertical
12375.00	*					54.00		Vertical
14850.00	*					54.00		Vertical
4950.00	26.06	31.91	8.71	24.05	42.63	54.00	-11.37	Horizontal
7425.00	26.84	36.56	11.79	27.03	48.16	54.00	-5.84	Horizontal
9900.00	17.97	38.81	14.35	25.27	45.86	54.00	-8.14	Horizontal
12375.00	*					54.00		Horizontal
14850.00	*					54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. “*”, means this data is the too weak instrument of signal is unable to test.

6.3.3 Bandedge emissions

Test channel:	Lowest channel
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	45.00	27.59	5.38	30.18	47.79	74.00	-26.21	Horizontal
2400.00	47.27	27.58	5.39	30.18	50.06	74.00	-23.94	Horizontal
2390.00	46.20	27.59	5.38	30.18	48.99	74.00	-25.01	Vertical
2400.00	48.64	27.58	5.39	30.18	51.43	74.00	-22.57	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	32.61	27.59	5.38	30.18	35.40	54.00	-18.60	Horizontal
2400.00	34.65	27.58	5.39	30.18	37.44	54.00	-16.56	Horizontal
2390.00	33.94	27.59	5.38	30.18	36.73	54.00	-17.27	Vertical
2400.00	36.78	27.58	5.39	30.18	39.57	54.00	-14.43	Vertical

Test channel:	Highest channel
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	47.34	27.53	5.47	29.93	50.41	74.00	-23.59	Horizontal
2500.00	45.24	27.55	5.49	29.93	48.35	74.00	-25.65	Horizontal
2483.50	49.57	27.53	5.47	29.93	52.64	74.00	-21.36	Vertical
2500.00	46.53	27.55	5.49	29.93	49.64	74.00	-24.36	Vertical

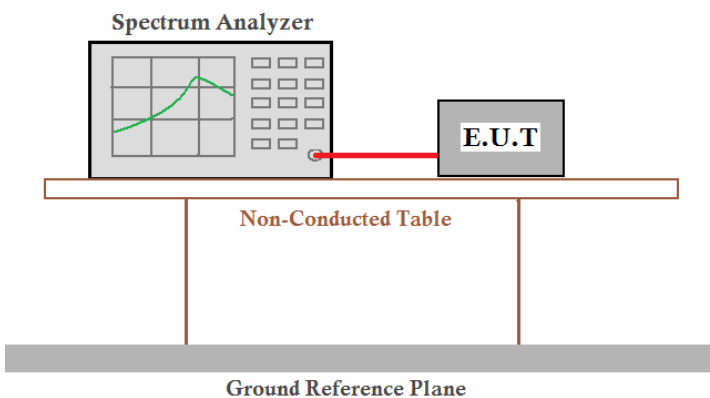
Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	33.05	27.53	5.47	29.93	36.12	54.00	-17.88	Horizontal
2500.00	31.65	27.55	5.49	29.93	34.76	54.00	-19.24	Horizontal
2483.50	34.24	27.53	5.47	29.93	37.31	54.00	-16.69	Vertical
2500.00	32.26	27.55	5.49	29.93	35.37	54.00	-18.63	Vertical

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

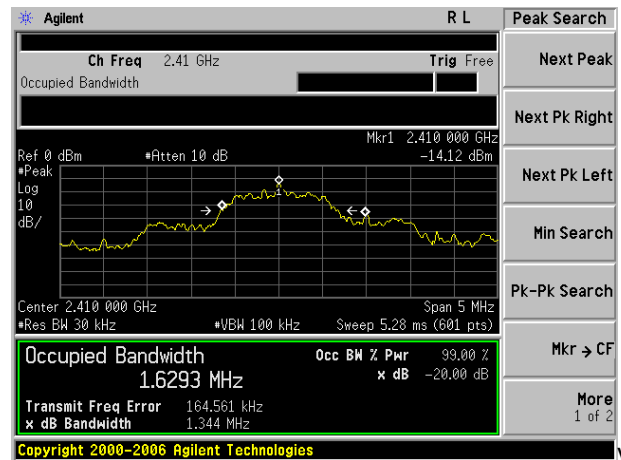
6.4 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.4:2003
Limit:	Operation Frequency range 2400MHz~2483.5MHz
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both devices are placed on a Non-Conducted Table, which is positioned above a Ground Reference Plane.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Transmitting mode
Test results:	Pass

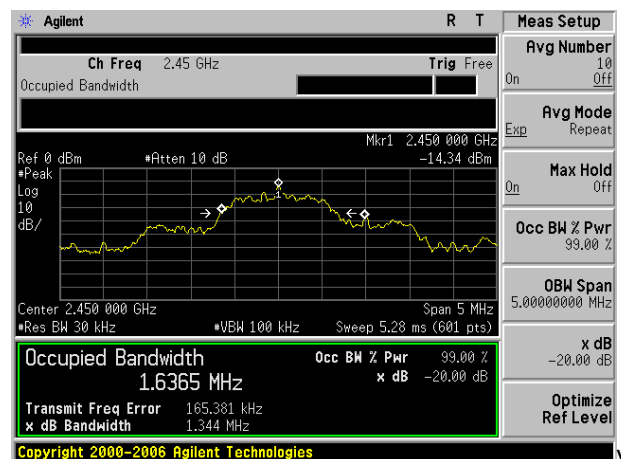
Measurement Data

Test channel	20dB bandwidth(MHz)	Result
Lowest	1.344	Pass
Middle	1.344	Pass
Highest	1.342	Pass

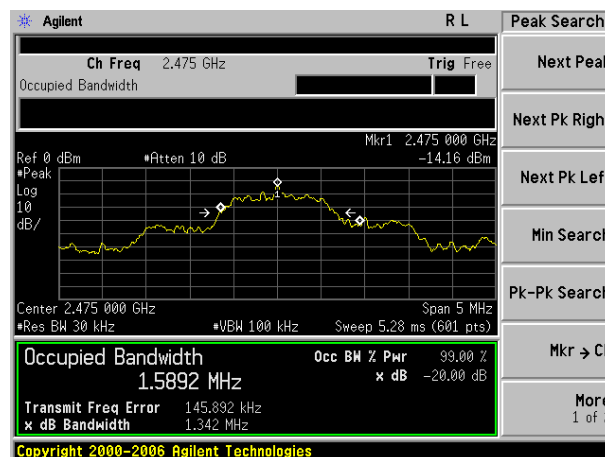
Test plot as follows:



Lowest channel



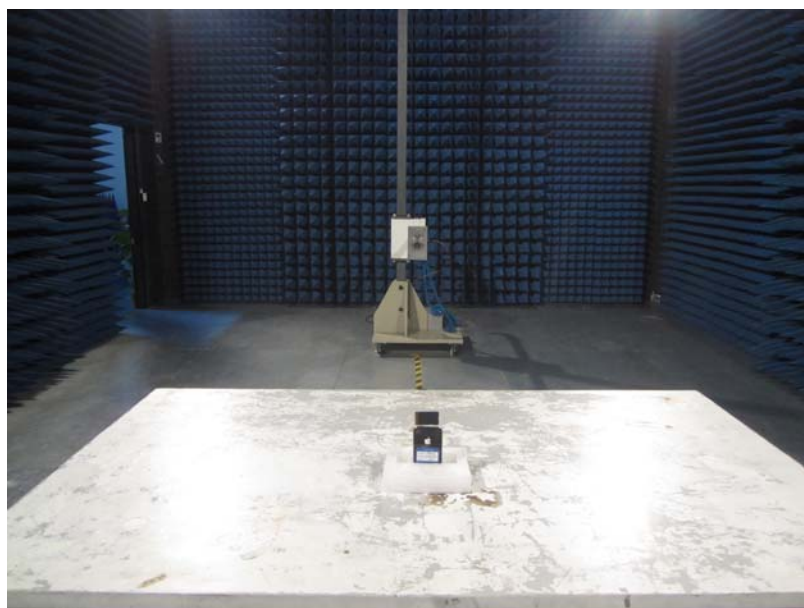
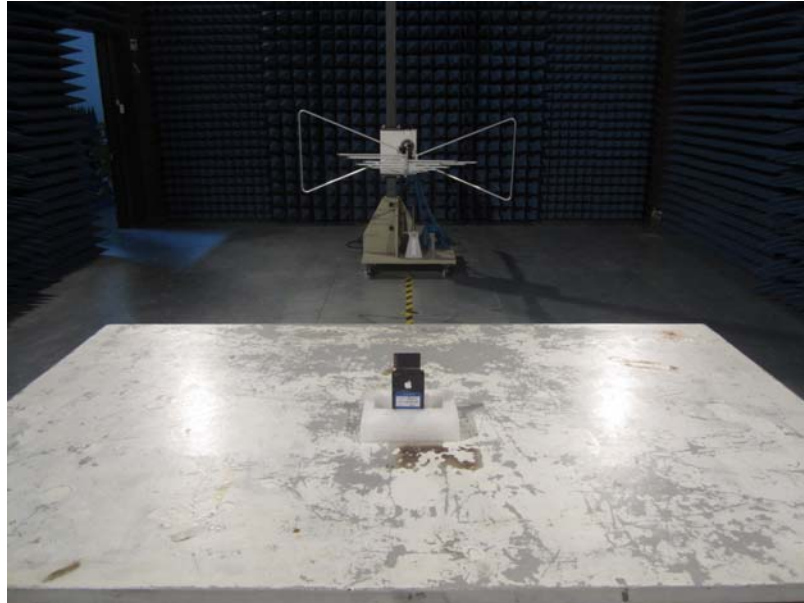
Middle channel



Highest channel

7 Test Setup Photo

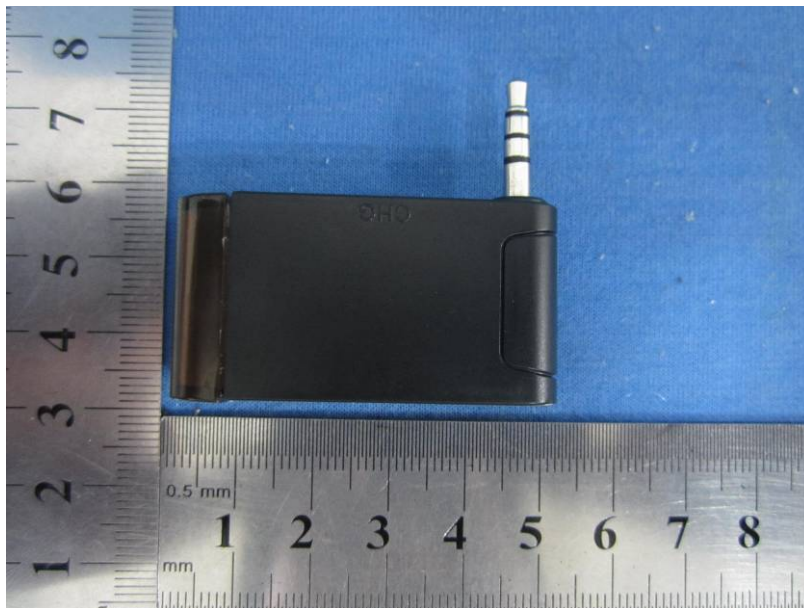
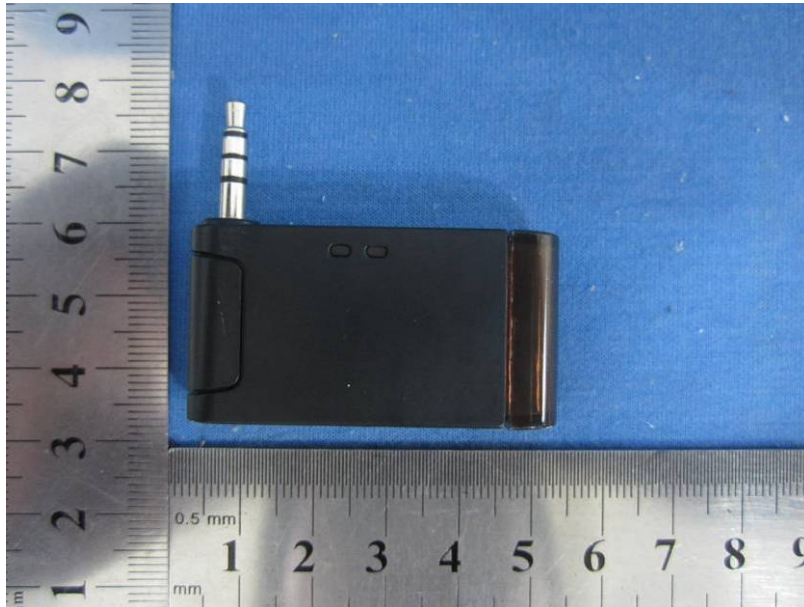
Radiated Emission



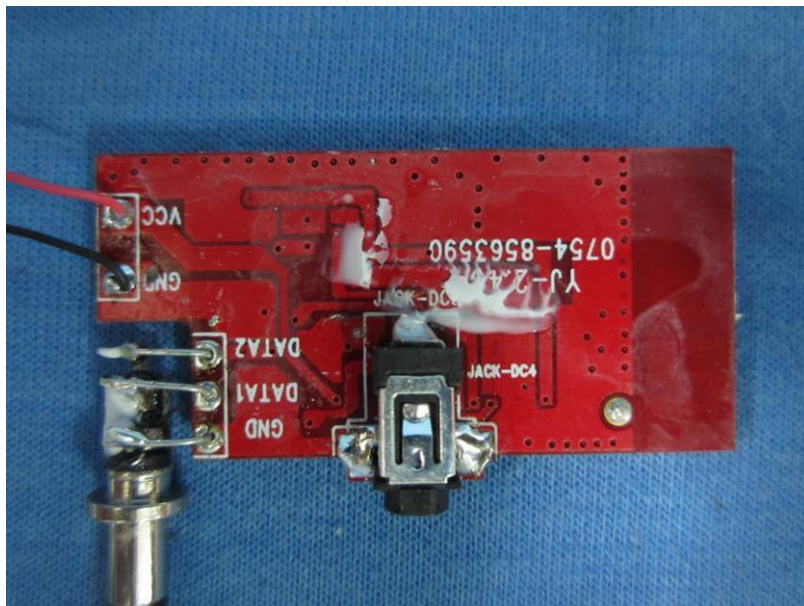
Conducted Emission

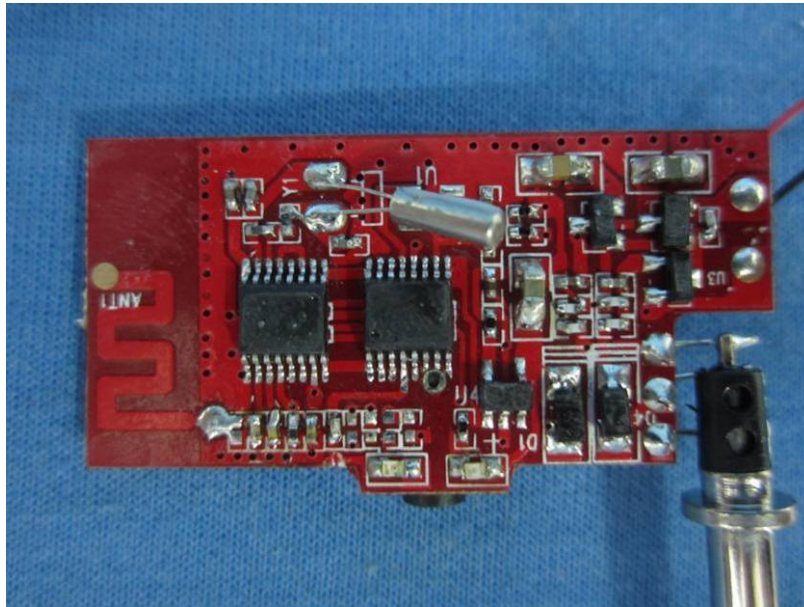


8 EUT Constructional Details









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