

FCC REPORT

Applicant: Front Electronics (H.K.) Limited

Address of Applicant: Rm 2919, Asia Trade Centre, 79 Lei Muk Road, Kwai Chung

Equipment Under Test (EUT)

Product Name: MULTI-GLO WIRELESS CONTROLLER

Model No.: FEL-2967

FCC ID: TAZ2967

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249:2012

Date of sample receipt: October 14, 2013

Date of Test: October 14-November 15, 2013

Date of report issued: November 15, 2013

Test Result : PASS *

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

Authorized Signature:



Robinson Lo

Laboratory Manager

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2 Version

Version No.	Date	Description
00	November 15, 2013	Original

Prepared By:



Date:

November 15, 2013

Project Engineer

Check By:



Date:

November 15, 2013

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:	Front Electronics (H.K.) Ltd.
Address of Applicant:	Rm 2919, Asia Trade Centre, 79 Lei Muk Road, Kwai Chung
Manufacturer:	Front Electronics (H.K.) Ltd.
Address of Manufacturer:	Rm 2919, Asia Trade Centre, 79 Lei Muk Road, Kwai Chung
Factory:	Shenzhen Front Electronics Co., Ltd.
Address of factory :	lock 10, No. 2 Hexi Industrial Zone,Baoan, Shenzhen 518102 China

5.2 General Description of EUT

Product Name:	MULTI-GLO WIRELESS CONTROLLER
Model No.:	FEL-2967
Operation Frequency:	2409MHz~2476MHz
Channel numbers:	68
Channel separation:	1MHz
Modulation type:	GFSK
Antenna Type:	PCB antenna
Antenna gain:	0 dBi
Power supply:	DC 3.7V

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2409MHz	18	2426MHz	35	2443MHz	52	2460MHz
2	2410MHz	19	2427MHz	36	2444MHz	53	2461MHz
3	2411MHz	20	2428 MHz	37	2445MHz	54	2462MHz
4	2412MHz	21	2429 MHz	38	2446MHz	55	2463MHz
5	2413MHz	22	2430 MHz	39	2447MHz	56	2464MHz
6	2414MHz	23	2431MHz	40	2448MHz	57	2465MHz
7	2415MHz	24	2432MHz	41	2449MHz	58	2466MHz
8	2416MHz	25	2433MHz	42	2450MHz	59	2467MHz
9	2417MHz	26	2434MHz	43	2451MHz	60	2468MHz
10	2418MHz	27	2435MHz	44	2452MHz	61	2469MHz
11	2419MHz	28	2436MHz	45	2453MHz	62	2470MHz
12	2420MHz	29	2437MHz	46	2454MHz	63	2471MHz
13	2421MHz	30	2438MHz	47	2455MHz	64	2472MHz
14	2422MHz	31	2439MHz	48	2456MHz	65	2473MHz
15	2423MHz	32	2440MHz	49	2457MHz	66	2474MHz
16	2424MHz	33	2441MHz	50	2458MHz	67	2475MHz
17	2425MHz	34	2442MHz	51	2459MHz	68	2476MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2409MHz
The middle channel	2440MHz
The Highest channel	2476MHz

5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
<i>Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i>	

5.4 Description of Support Units

N/A

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 files. Registration 600491, June 28, 2013. ● Industry Canada (IC) —Registration No.: 9079A-2 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-2, June 26, 2013.

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.

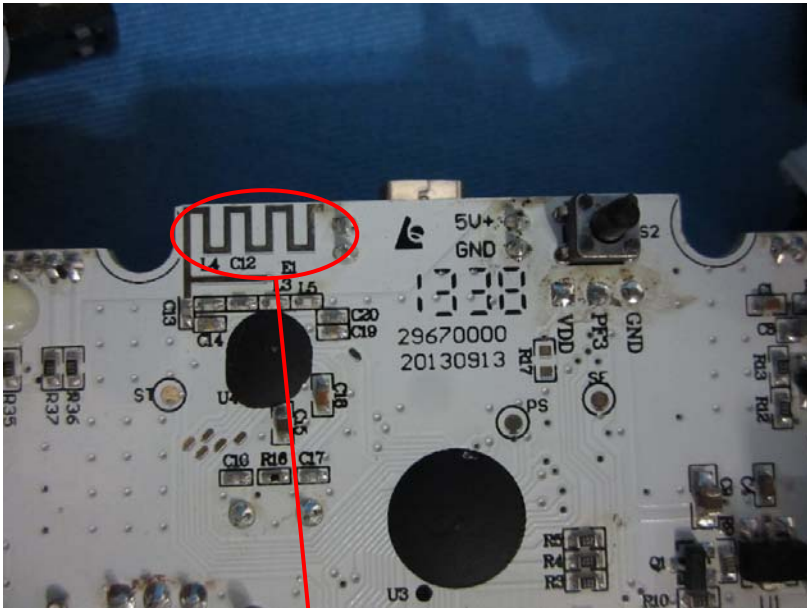
6 Test Instruments list

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. 29 2013	Mar. 28 2014
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	Spectrum Analyzer	Agilent	E4440A	GTS533	Dec. 6, 2012	Dec. 5 2013
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 02 2013	Jul. 01 2014
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 24 2013	Feb. 23 2014
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 28 2013	June 27 2014
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 29 2013	Mar. 28 2014
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	Mar. 30 2013	Mar. 29 2014
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 30 2013	Mar. 29 2014
11	Coaxial cable	GTS	N/A	GTS210	Mar. 30 2013	Mar. 29 2014
12	Coaxial Cable	GTS	N/A	GTS212	Mar. 30 2013	Mar. 29 2014
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 02 2013	Jul. 01 2014
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 02 2013	Jul. 01 2014
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 28 2013	June 27 2014
16	Band filter	Amindeon	82346	GTS219	Mar. 30 2013	Mar. 29 2014

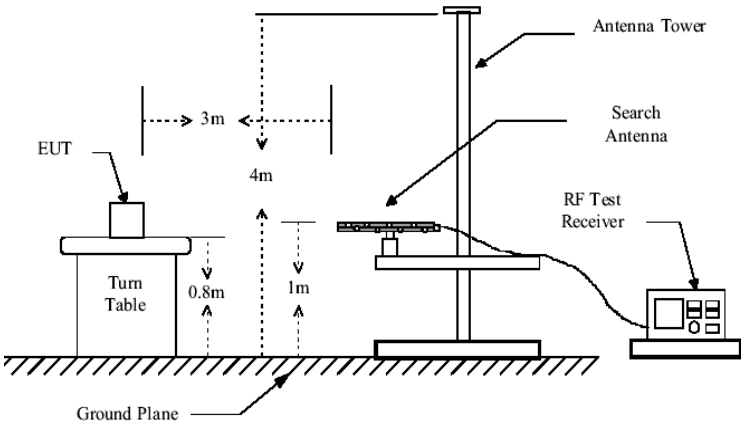
Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 07 2013	Sep. 06 2015
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 02 2013	Jul. 01 2014
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 02 2013	Jul. 01 2014
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 02 2013	Jul. 01 2014
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 02 2013	Jul. 01 2014
6	Coaxial Cable	GTS	N/A	GTS227	Jul. 02 2013	Jul. 01 2014
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

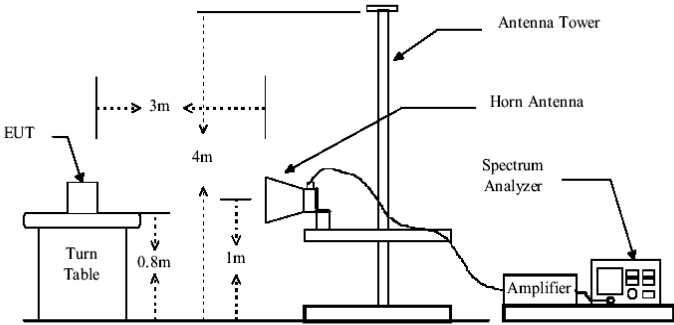
7 Test results and Measurement Data

7.1 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	
 Antenna	

7.2 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
		Peak	1MHz	10MHz	Average Value
For the filed strength test, the RBW and VBW were set to 2MHz and 6MHz					
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				

	
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.
Measurement Record:	Uncertainty: $\pm 4.5\text{dB}$ (for below 1GHz) $\pm 5.6\text{dB}$ (for above 1GHz)
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement data:

7.2.1 Field Strength of The Fundamental Signal

GFSK Mode:

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
2409.00	89.90	27.57	5.40	34.96	87.91	114.00	-26.09	Horizontal
2409.00	93.29	27.57	5.40	34.96	91.30	114.00	-22.70	Vertical
2440.00	90.74	27.48	5.43	34.96	88.69	114.00	-25.31	Horizontal
2440.00	89.80	27.48	5.43	34.96	87.75	114.00	-26.25	Vertical
2476.00	92.33	27.50	5.46	34.96	90.33	114.00	-23.67	Horizontal
2476.00	93.08	27.52	5.47	34.96	91.11	114.00	-22.89	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
2409.00	82.30	27.57	5.40	34.96	80.31	94.00	-13.69	Horizontal
2409.00	86.32	27.57	5.40	34.96	84.33	94.00	-9.67	Vertical
2440.00	83.43	27.48	5.43	34.96	81.38	94.00	-12.62	Horizontal
2440.00	81.30	27.48	5.43	34.96	79.25	94.00	-14.75	Vertical
2476.00	86.11	27.50	5.46	34.96	84.11	94.00	-9.89	Horizontal
2476.00	86.47	27.52	5.47	34.96	84.50	94.00	-9.50	Vertical

According to the following 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, $E_{max} = 91.30 \text{ dBuV/m} = 0.0367 \text{ V/m}$, $d = 3 \text{ m}$, $g_t = 1$

$$P_t = (E \times d)^2 / (30 \times g_t) = (0.0367 \times 3)^2 / (30 \times 1) = 0.000255 \text{ W}$$

7.2.2 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
66.27	43.17	12.16	0.91	31.90	24.34	40.00	-15.66	Vertical
165.49	49.94	10.82	1.66	32.04	30.38	43.50	-13.12	Vertical
200.69	50.86	12.57	1.84	32.14	33.13	43.50	-10.37	Vertical
364.26	45.37	16.46	2.69	31.99	32.53	46.00	-13.47	Vertical
729.36	42.12	21.19	4.19	31.23	36.27	46.00	-9.73	Vertical
935.55	41.56	23.34	4.99	31.20	38.69	46.00	-7.31	Vertical
86.20	45.66	12.74	1.08	31.73	27.75	40.00	-12.25	Horizontal
166.65	54.29	10.87	1.67	32.04	34.79	43.50	-8.71	Horizontal
196.51	52.80	12.57	1.82	32.13	35.06	43.50	-8.44	Horizontal
233.35	53.07	13.78	2.04	32.16	36.73	46.00	-9.27	Horizontal
364.26	48.59	16.46	2.69	31.99	35.75	46.00	-10.25	Horizontal
932.27	41.32	23.31	4.98	31.20	38.41	46.00	-7.59	Horizontal

■ Above 1GHz

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
4818.00	46.88	31.79	8.61	34.15	53.13	74.00	-20.87	Vertical
7227.00	32.02	36.19	11.66	33.07	46.80	74.00	-27.20	Vertical
9636.00	30.64	37.15	13.65	34.02	47.42	74.00	-26.58	Vertical
12045.00	*					74.00		Vertical
14454.00	*					74.00		Vertical
4818.00	42.14	31.79	8.61	34.15	48.39	74.00	-25.61	Horizontal
7227.00	32.14	36.19	11.66	33.07	46.92	74.00	-27.08	Horizontal
9636.00	30.89	37.15	13.65	34.02	47.67	74.00	-26.33	Horizontal
12045.00	*					74.00		Horizontal
14454.00	*					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
4818.00	37.88	31.79	8.61	34.15	44.13	54.00	-9.87	Vertical
7227.00	18.19	36.19	11.66	33.07	32.97	54.00	-21.03	Vertical
9636.00	18.37	37.15	13.65	34.02	35.15	54.00	-18.85	Vertical
12045.00	*					54.00		Vertical
14454.00	*					54.00		Vertical
4818.00	37.14	31.79	8.61	34.15	43.39	54.00	-10.61	Horizontal
7227.00	18.51	36.19	11.66	33.07	33.29	54.00	-20.71	Horizontal
9636.00	18.65	37.15	13.65	34.02	35.43	54.00	-18.57	Horizontal
12045.00	*					54.00		Horizontal
14454.00	*					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
4880.00	44.86	31.85	8.66	34.11	51.26	74.00	-22.74	Vertical
7320.00	32.62	36.37	11.72	33.11	47.60	74.00	-26.40	Vertical
9760.00	31.32	37.15	13.65	34.02	48.10	74.00	-25.90	Vertical
12200.00	*					74.00		Vertical
14640.00	*					74.00		Vertical
4880.00	43.02	31.85	8.66	34.11	49.42	74.00	-24.58	Horizontal
7320.00	33.14	36.37	11.72	33.11	48.12	74.00	-25.88	Horizontal
9760.00	32.59	37.15	13.65	34.02	49.37	74.00	-24.63	Horizontal
12200.00	*					74.00		Horizontal
14640.00	*					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
4880.00	37.86	31.85	8.66	34.11	44.26	54.00	-9.74	Vertical
7320.00	17.87	36.37	11.72	33.11	32.85	54.00	-21.15	Vertical
9760.00	17.44	37.15	13.65	34.02	34.22	54.00	-19.78	Vertical
12200.00	*					54.00		Vertical
14640.00	*					54.00		Vertical
4880.00	36.02	31.85	8.66	34.11	42.42	54.00	-11.58	Horizontal
7320.00	19.80	36.37	11.72	33.11	34.78	54.00	-19.22	Horizontal
9760.00	18.73	37.15	13.65	34.02	35.51	54.00	-18.49	Horizontal
12200.00	*					54.00		Horizontal
14640.00	*					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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4952.00	48.28	31.91	8.71	34.06	54.84	74.00	-19.16	Vertical
7428.00	31.36	36.56	11.79	33.15	46.56	74.00	-27.44	Vertical
9904.00	31.39	37.15	13.65	34.02	48.17	74.00	-25.83	Vertical
12380.00	*					74.00		Vertical
14856.00	*					74.00		Vertical
4952.00	44.73	31.91	8.71	34.06	51.29	74.00	-22.71	Horizontal
7428.00	30.95	36.56	11.79	33.15	46.15	74.00	-27.85	Horizontal
9904.00	31.28	37.15	13.65	34.02	48.06	74.00	-25.94	Horizontal
12380.00	*					74.00		Horizontal
14856.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4952.00	42.28	31.91	8.71	34.06	48.84	54.00	-5.16	Vertical
7428.00	18.59	36.56	11.79	33.15	33.79	54.00	-20.21	Vertical
9904.00	17.22	37.15	13.65	34.02	34.00	54.00	-20.00	Vertical
12380.00	*					54.00		Vertical
14856.00	*					54.00		Vertical
4952.00	37.73	31.91	8.71	34.06	44.29	54.00	-9.71	Horizontal
7428.00	16.73	36.56	11.79	33.15	31.93	54.00	-22.07	Horizontal
9904.00	18.43	37.15	13.65	34.02	35.21	54.00	-18.79	Horizontal
12380.00	*					54.00		Horizontal
14856.00	*					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.

7.2.3 Bandedge emissions

All of the restriction bands were tested, and only the data of worst case was exhibited.

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
2310.00	36.87	27.91	5.30	30.37	39.71	74.00	-34.29	Horizontal
2390.00	37.20	27.59	5.39	30.18	40.00	74.00	-34.00	Horizontal
2400.00	42.01	27.58	5.39	30.18	44.80	74.00	-29.20	Horizontal
2310.00	37.81	27.91	5.30	30.37	40.65	74.00	-33.35	Vertical
2390.00	42.88	27.59	5.39	30.18	45.68	74.00	-28.32	Vertical
2400.00	41.39	27.58	5.39	30.18	44.18	74.00	-29.82	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
2310.00	25.34	27.91	5.30	30.37	28.18	54.00	-25.82	Horizontal
2390.00	26.20	27.59	5.39	30.18	29.00	54.00	-25.00	Horizontal
2400.00	26.59	27.58	5.39	30.18	29.38	54.00	-24.62	Horizontal
2310.00	25.49	27.91	5.30	30.37	28.33	54.00	-25.67	Vertical
2390.00	25.11	27.59	5.39	30.18	27.91	54.00	-26.09	Vertical
2400.00	26.20	27.58	5.39	30.18	28.99	54.00	-25.01	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	42.02	27.53	5.47	29.93	45.09	74.00	-28.91	Horizontal
2500.00	37.45	27.55	5.49	29.93	40.56	74.00	-33.44	Horizontal
2483.50	45.09	27.53	5.47	29.93	48.16	74.00	-25.84	Vertical
2500.00	36.70	27.55	5.49	29.93	39.81	74.00	-34.19	Vertical

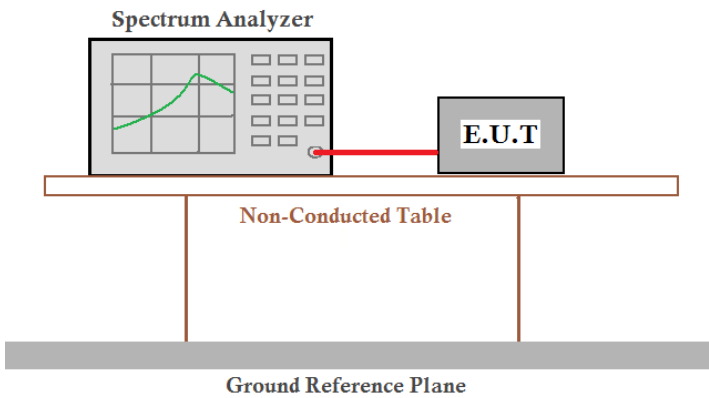
Average value:

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	26.07	27.53	5.47	29.93	29.14	54.00	-24.86	Horizontal
2500.00	25.64	27.55	5.49	29.93	28.75	54.00	-25.25	Horizontal
2483.50	45.81	27.53	5.47	29.93	48.88	54.00	-5.12	Vertical
2500.00	36.30	27.55	5.49	29.93	39.41	54.00	-14.59	Vertical

Remark:

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

7.3 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 the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Measurement Record:	Uncertainty: $\pm 1 \times 10^{-6}$
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

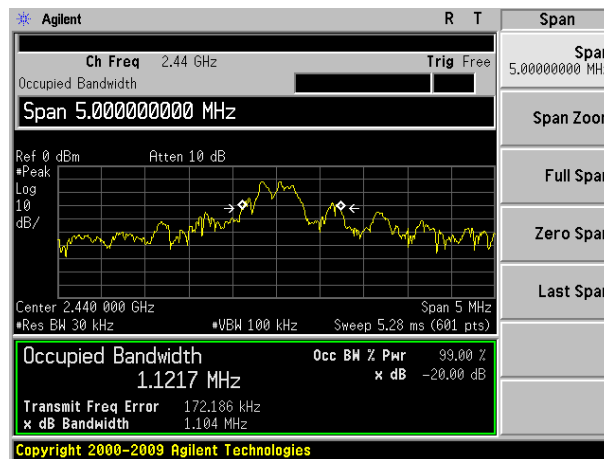
Measurement Data

Test channel	20dB bandwidth(MHz)	Result
Lowest	1.090	Pass
Middle	1.104	Pass
Highest	1.247	Pass

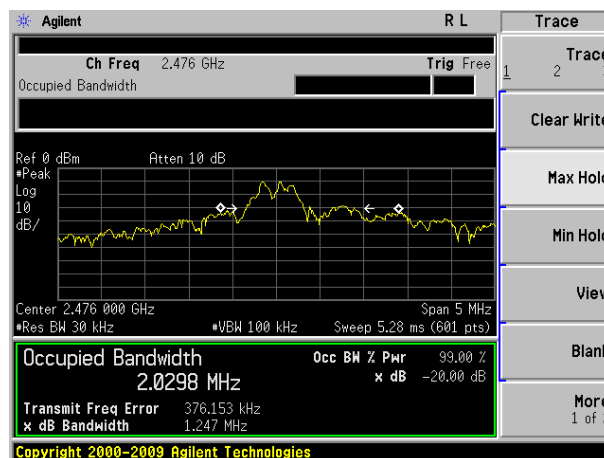
Test plot as follows:



Lowest channel



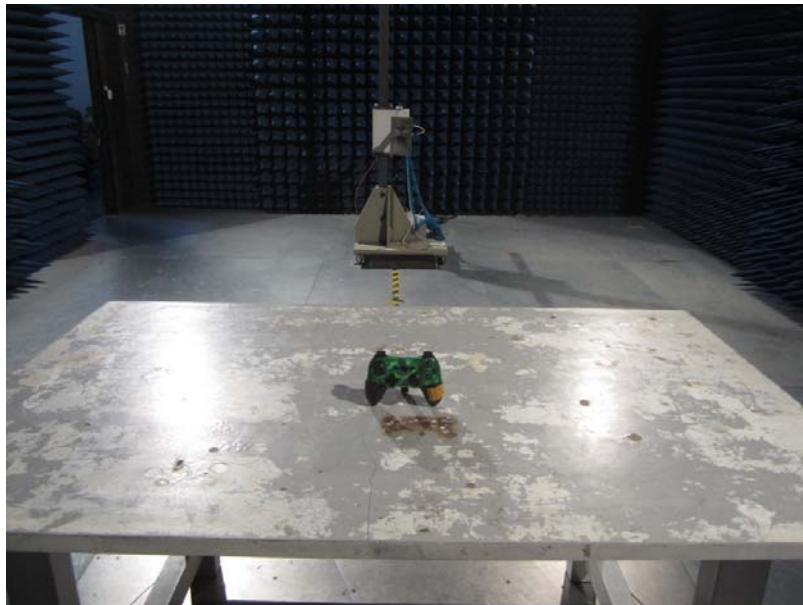
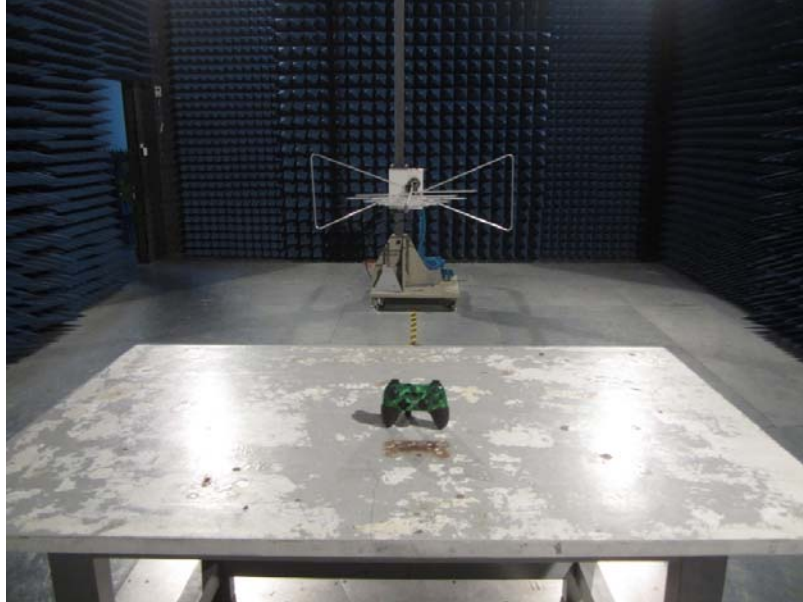
Middle channel



Highest channel

8 Test Setup Photo

Radiated Emission

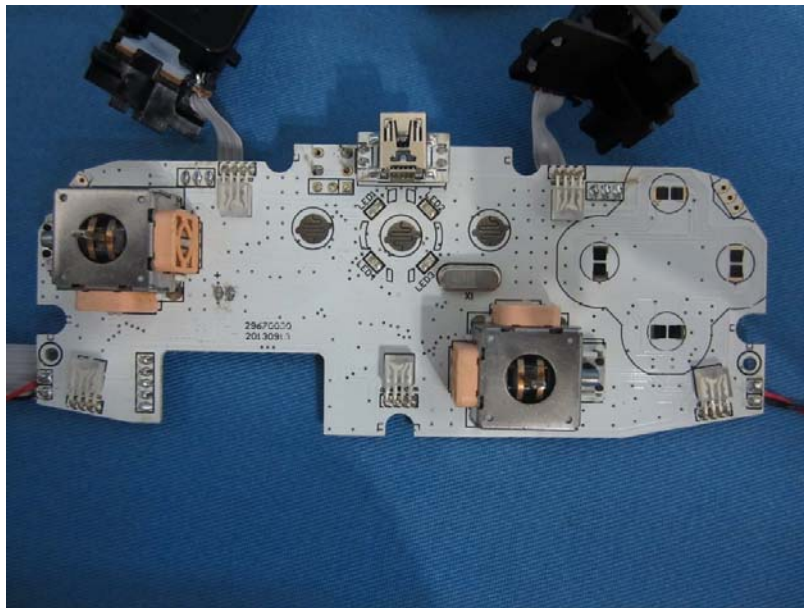
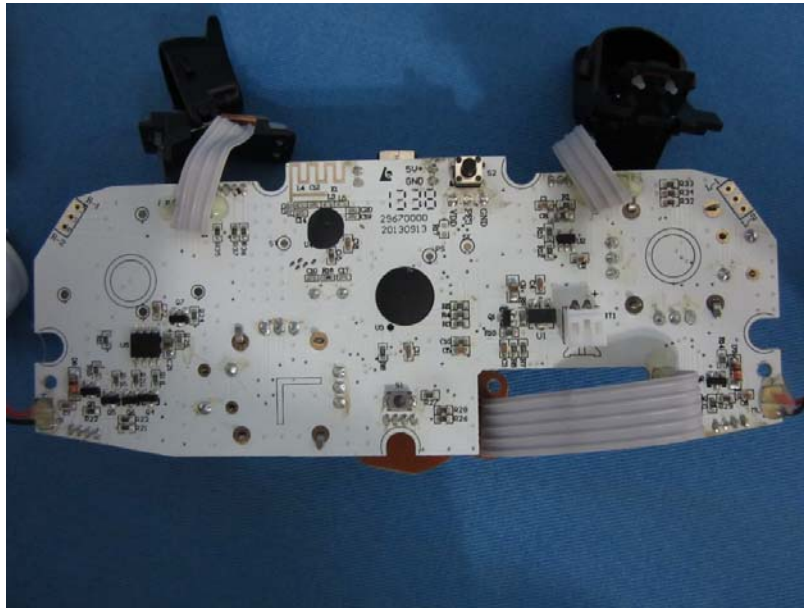


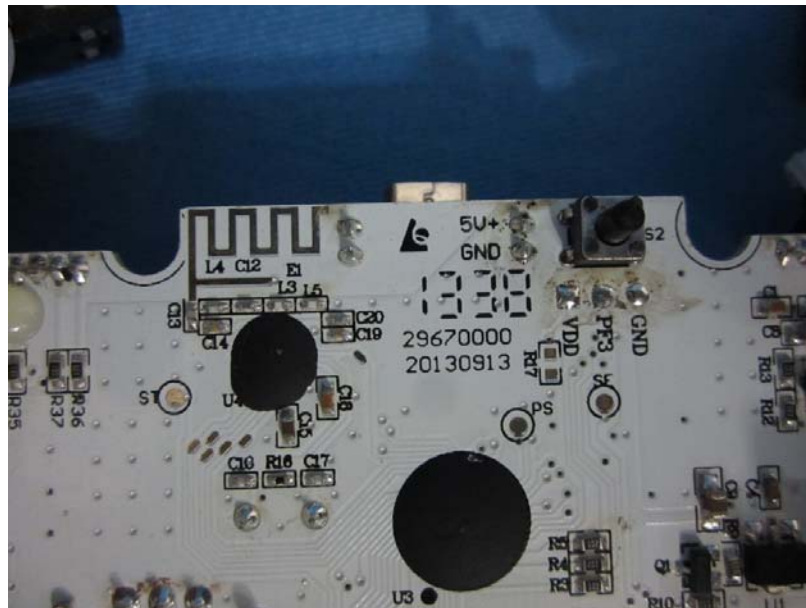
9 EUT Constructional Details











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