FCC TEST REPORT

FCC ID : XKJ- LUVIONPLAT

Applicant : Luvion Premium Babyproducts
Address of Applicant : Kleveringweg 25 2616LZ Delft Netherlands

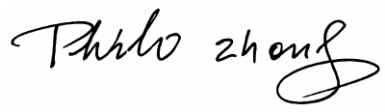
Equipment Under Test (EUT) :

Product description : Digital Wireless Camera And Monitor System
Model No. : Luvion Platinum

Standards : FCC 15 Paragraph 15.247

Date of Test :July 07, 2009

Test Engineer : Zero.Zhou

Reviewed By : 

PERPARED BY:
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2 Contents

3 Test Summary

Test Items	Test Requirement	Test Method	Limit / Severity	Result
Maximum peak output power	FCC Part 15:2007	ANSI C63.4: 2003	30dBm	PASS
Restricted Band	FCC Part 15:2007	ANSI C63.4: 2003	Note	PASS
Dwell time	FCC Part 15:2007	ANSI C63.4: 2003	Maximum:0.4 s	PASS
Channel separation	FCC Part 15:2007	ANSI C63.4: 2003	Channel separation at least 1MHz	PASS
Hopping channel No.	FCC Part 15:2007	ANSI C63.4: 2003	Total 41 channels	PASS
20-dB Bandwidth	FCC Part 15:2007	ANSI C63.4: 2003	Note	PASS
RF Exposure Test	FCC Part 15:2007	ANSI C63.4: 2003	Note	PASS
Mains Terminal Disturbance Voltage, 150kHz to 30MHz	FCC Part 15:2007	ANSI C63.4: 2003	N/A	PASS
Radiation Emission, 30MHz to 25GHz	FCC Part 15:2007	ANSI C63.4: 2003	N/A	PASS

Note : denote that for more details of the EUT , please refer to the relating test items as below .

Remark : the methods of measurement in all the test items were according to the FCC Public Notice DA 00-705 .

4 General Information

4.1 Client Information

Applicant:	Luvion Premium Babyproducts
Address of Applicant:	Kleveringweg 25 2616LZ Delft Netherlands
Manufacturer:	Luvion Premium Babyproducts
Address of Manufacturer:	Kleveringweg 25 2616LZ Delft Netherlands

4.2 General Description of E.U.T.

Product description:	Digital Wireless Camera And Monitor System
Model No.:	Luvion Platinum

4.3 Details of E.U.T.

Power Supply:	Adapter input: 100-240VAC
	Adapter output: 9VDC, 0.6A or
	4×AA 1.5V⎓ Batteries

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a Digital Wireless Camera And Monitor System. The standards used were FCC 15 Paragraph 15.247,Paragraph 15.205, Paragraph 15.207,Paragraph 15.209, Paragraph 15.31,Paragraph 15.33, Paragraph 15.35.

4.6 Test Facility

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

- **FCC – Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. 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 880581,June 24，2008.

- **IC – Registration No.: 7760**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC7760,July 24，2008.

4.7 Test Location

All Emissions tests were performed at:-
1/F, Fukangtai Building,West Baima Rd.,Songgang Street, Baoan District, Shenzhen 518105, Guangdong,China.

5 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114943	W2008001	9k-26.5GHz	Aug-08	Aug-09	Wws20081596	±1dB
Trilog Broadband Antenne 30-3000 MHz	SCHWARZBECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-08	Aug-09		±1dB
Broad-band Horn Antenna 1-18 GHz	SCHWARZBECK MESS-ELEKTROM / VULB9163	667	W2008003	1-18GHz	Aug-08	Aug-09		f＜10 GHz：±1dB 10GHz＜f＜18 GHz：±1.5dB
Broadband Preamplifier 0.5-18 GHz	SCHWARZBECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-08	Aug-09		±1.2dB
10m Coaxial Cable with N-male Connectors usable up to 18GHz,	SCHWARZBECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug-08	Aug-09		-
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connector	SCHWARZBECK MESS-ELEKTROM / AK 9513				Aug-08	Aug-09		
Positioning Controller	C&C LAB/ CC-C-IF				N/A	N/A		
Color Monitor	SUNSPO/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-08	Aug-09	Wws20080942	±1dB
EMI Receiver	Beijingkehuan	KH3931		9k-1GHz	Aug-08	Aug-09		
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug-08	Aug-09	Wws20080941	±10%
V－LISN	SCHWARZBECK MESS－ELEKTRONIK	NSLK 8128	8128-259	9k-30MHz	Aug-08	Aug-09		

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Absorbing Clamp	ROHDE&SCHWARZ/ MDS-21	100205	W2005003	impandance50Ω loss: 17 dB	Aug-08	Aug-09	Wws20080943	±1dB
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9514				Aug-08	Aug-09		
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V0745103095	W2008012	Power：2000VA Vol-range：0-300V Freq_range：10-80Hz	Aug-08	Aug-09	Wwd20081185	Voltage distinguish: 0.025% Power_freq distinguish: 0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V0745103096	W2008013	Vol-range：0-300V Power_freq：10-80Hz				
Electrostatic Discharge Simulator	Em Test AG/Switzerland/DITO	V0745103094	W2008005	Contact discharge：500V-10KV Air diacharge：500V-16.5KV	Aug-08	Aug-09	Wwc20082400	7.5A current will be changed in V_m=1.5V
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range：9K-1GHz RF voltage：-60 dBm-+10dBm	Aug-08	Aug-09	Wws20081890	Power_freq distinguish0.1Hz RFeletricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-08	Aug-09	Wwc20082396	150K-80MHz：±1dB 80-230MHz:-2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range：0.15-1000 MHz	Aug-08	Aug-09	Wwc20082397	0.3-400 MHz: ±4dB Other freq: ±5dB
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365			Aug-08	Aug-09	Wws20081597	
All Modules	SCHAFFNE	34579	W2008006	voltage:20	Aug-08	Aug-09	Wwc200	voltage:

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Generator	R/6150			0V-4.4KV Pulse current: 100A-2.2KA			82401	±10% Pulse current: ±10%
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311			Aug-08	Aug-09	Wwc20082398	-
Signal and Data Line Coupling Network	SCHAFFNER/ CDN 117	25627	W2008011	1.2/50μS	Aug-08	Aug-09	Wwc20082399	-
AC Power Supply	TONGYUN/ DTDGC-4				Aug-08	Aug-09	Wws20080944	-
Exposure Level Tester ELT-400	Narda Safety TEST Solutions/2304/03	M-0155	w2008022	Test freq range：1－400kHz	Aug-08	Aug-09	Wwd20081191	Test uncertainly: 1－120kHz:±1.83%, 120 kHz-400 kHz: ±4.06%
Magnetic Field Probe 100cm^2	Narda Safety TEST Solutions/2300/90.10	M-1070	w2008021	Test freq range：1－400kHz				Test uncertainly: 1Hz-10Hz: ±16.2%, 10Hz - 120kHz:±2.2%, 120 kHz-400 kHz: ±4.7%
Active Loop Antenna Charger 10kHz-30MHz	Beijing Dazhi / ZN30900A	-	-	10kHz-30MHz	Aug-08	Aug-09		±1dB

6 Conducted Emission Test

Test Requirement:	FCC Part15 Paragraph 15.207
Test Method:	Based on FCC Part15 Paragraph 15.207
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1 Test Equipment

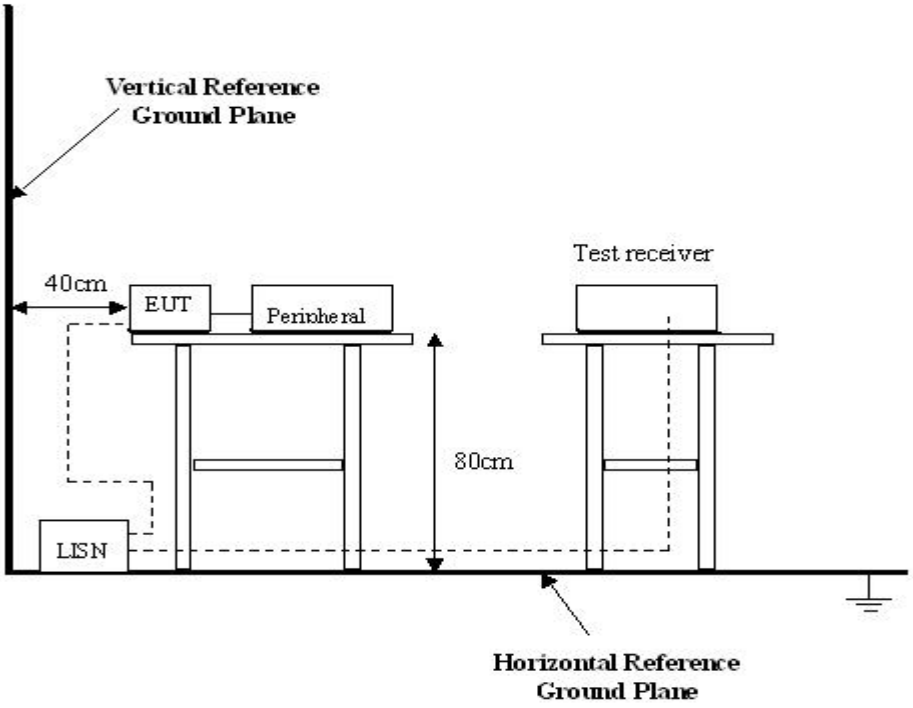
Please refer to Section 5 this report.

6.2 Test Procedure

1. The EUT was connected with signal generator and placed on a table.
2. The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.3 Conducted Test Setup

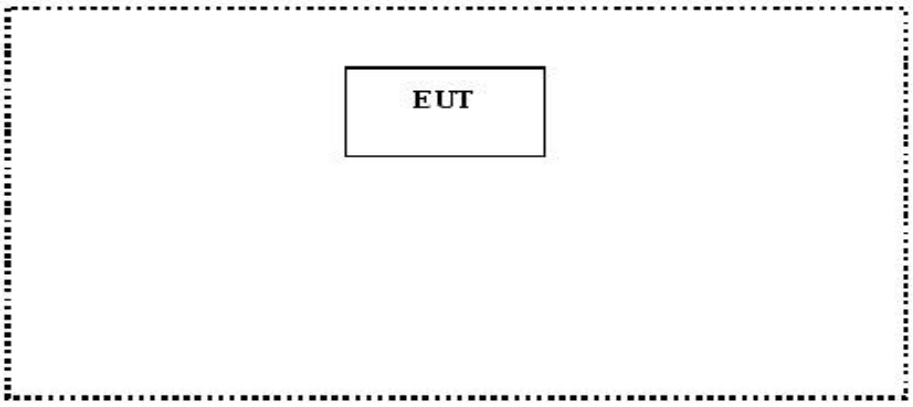
The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.207 limits.



6.4 EUT Operating Condition

Operating condition is according to ANSI C63.4:2003.

A. Setup the EUT and simulators as shown on follow.
B. Enable RF signal and confirm EUT active.
C. Modulate output capacity of EUT up to specification.



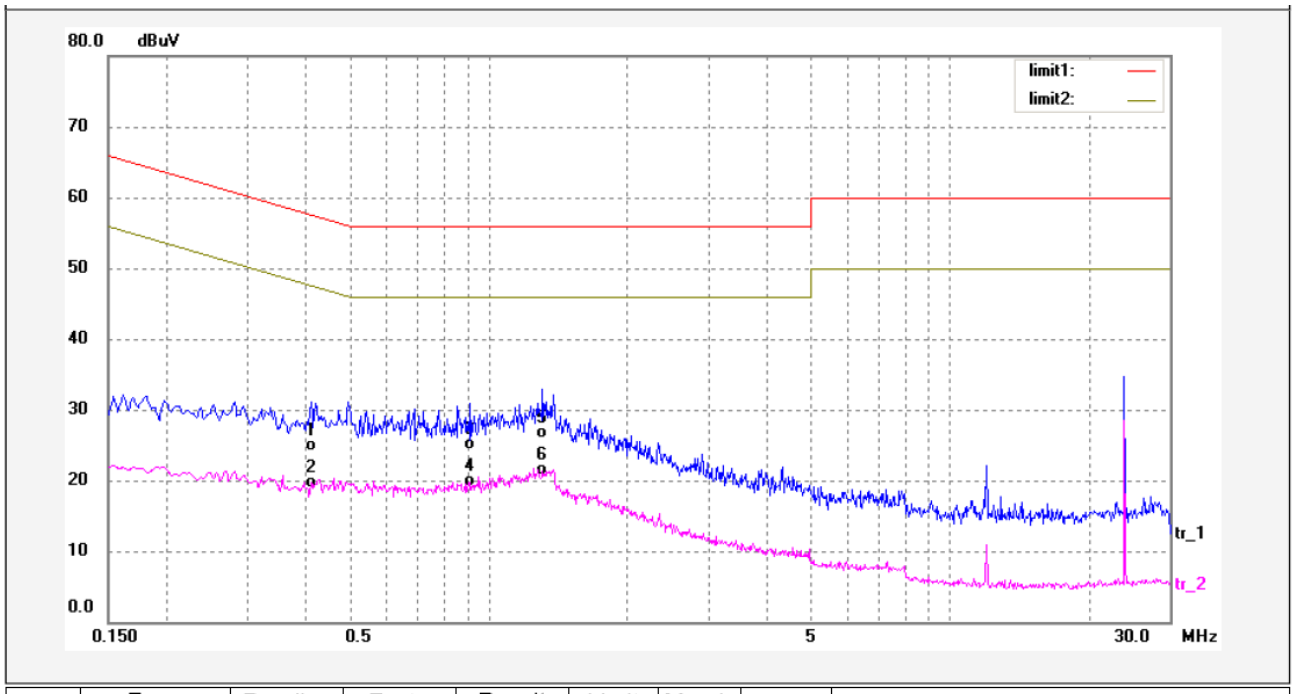
6.5 Conducted Emission Limits

66-56 dBμV between 0.15MHz & 0.5MHz
56 dBμV between 0.5MHz & 5MHz
60 dBμV between 5MHz & 30MHz

Note: In the above limits, the tighter limit applies at the band edges.

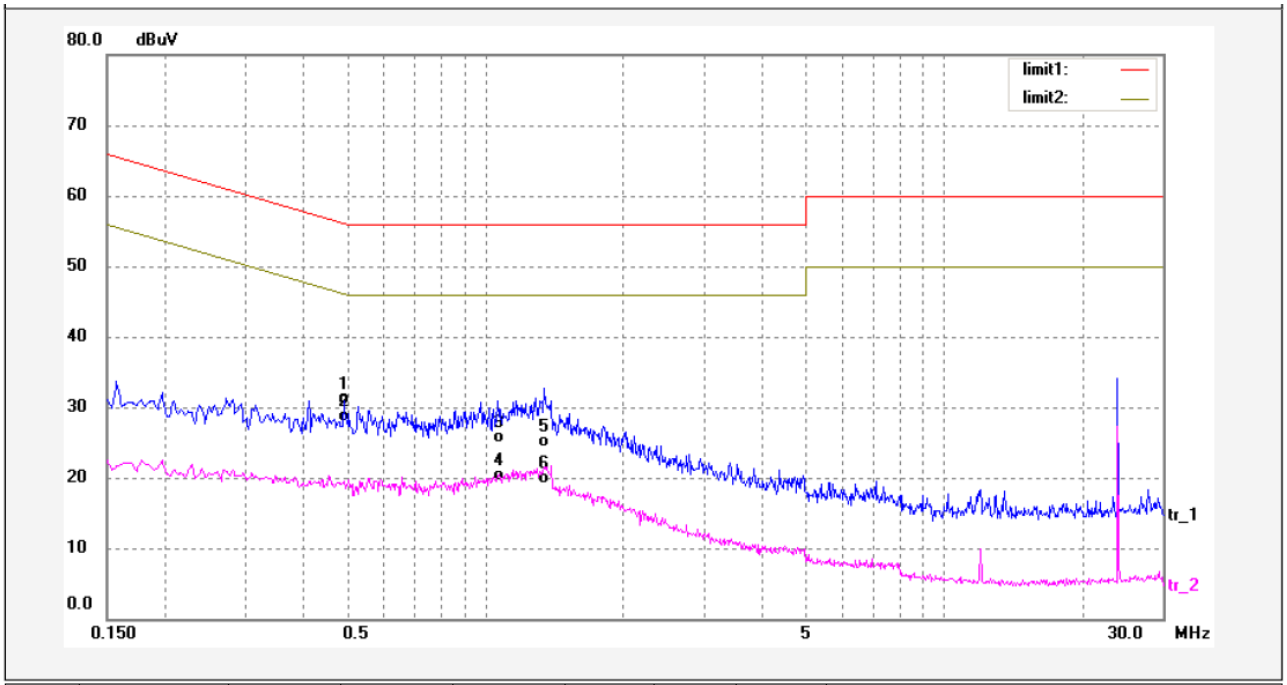
6.6 Conducted Emission Test Result

Live Line



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4140	13.70	10.35	24.05	57.57	-33.52	QP	
2	0.4140	8.54	10.35	18.89	47.57	-28.68	AVG	
3	0.9140	13.89	10.36	24.25	56.00	-31.75	QP	
4	0.9140	8.67	10.36	19.03	46.00	-26.97	AVG	
5	1.3140	15.64	10.36	26.00	56.00	-30.00	QP	
6	1.3140	10.31	10.36	20.67	46.00	-25.33	AVG	

Neutral Line



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4940	19.94	10.35	30.29	56.10	-25.81	QP	
2	0.4940	17.60	10.35	27.95	46.10	-18.15	AVG	
3	1.0660	14.60	10.36	24.96	56.00	-31.04	QP	
4	1.0660	9.16	10.36	19.52	46.00	-26.48	AVG	
5	1.3500	14.04	10.36	24.40	56.00	-31.60	QP	
6	1.3500	8.84	10.36	19.20	46.00	-26.80	AVG	

7 Radiation Emission Test

Test Requirement:	FCC Part15 Paragraph 15.247
Test Method:	Based on ANSI 63.4:2003
Test Result:	PASS
Frequency Range:	30MHz to 25GHz
Measurement Distance:	3m
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

7.1 Test Equipment

Please refer to Section 5 this report.

7.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at WALTEK SERVICES EMC Lab is +5.03dB.

7.3 Test Procedure

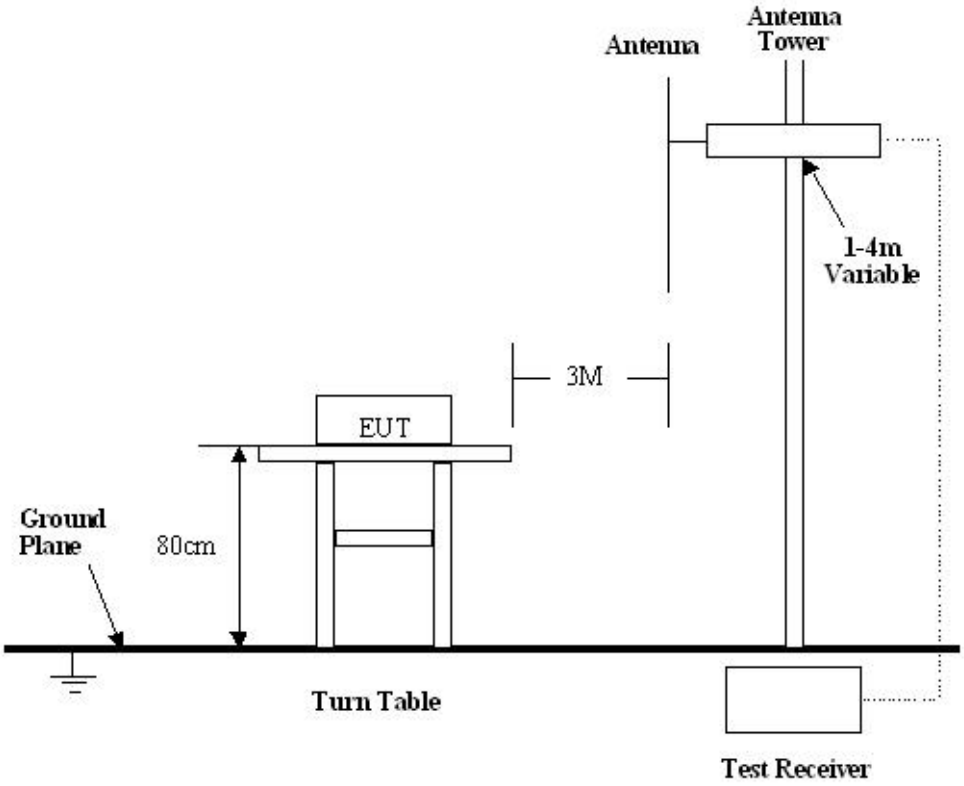
1. The adapter was used in the equipment under test for radiated emissions test.
2. The radiation emission should be tested under the normal working position.
   So the data shown was the test position only.
3. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.
4. All data was recorded in the peak and average detection mode.
5. The EUT was under working mode during the final qualification test and the configuration was used to represent the worst case results.
6. The EUT was tested in three(low/middle/high) channel ,and the channel list as below :

Frequency Number	Frequency Point	Note
1	2402	Test point
2	2404	
3	2406	
4	2408	
5	2410	
6	2412	
7	2414	
8	2416	
9	2418	
10	2420	
11	2422	
12	2424	
13	2426	
14	2428	
15	2430	
16	2432	
17	2434	
18	2436	
19	2438	
20	2440	
21	2442	Test point
22	2444	
23	2446	
24	2448	
25	2450	
26	2452	
27	2454	
28	2456	
29	2458	
30	2460	
31	2462	
32	2464	
33	2466	
34	2468	

35	2470	
36	2472	
37	2474	
38	2476	
39	2478	
40	2480	
41	2482	Test point

7.4 Radiated Test Setup

The radiated emission tests were performed in the 3m Semi-Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.209 limits and Paragraph 15.247 limits.



7.5 Spectrum Analyzer Setup

According to FCC Part15 Paragraph 15.247 Rules, the system was tested to 25000 MHz.
Below 1GHz

Start Frequency.....30 MHz
Stop Frequency .....1000 MHz
Sweep Speed Auto
IF Bandwidth.....120 KHz
Video Bandwidth.....100KHz
Quasi-Peak Adapter Bandwidth .....120 KHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 100KHz

Above 1GHz

Start Frequency.....1000 MHz
Stop Frequency 25000MHz
Sweep Speed Auto
IF Bandwidth.....120 KHz
Video Bandwidth.....1MHz
Quasi-Peak Adapter Bandwidth .....120 KHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 1MHz

7.6 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor – Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Class B Limit

7.7 EUT Operating Condition

The same as section 6.4 of this report.

Let the EUT work in test mode and test it.

7.8 Radiated Emissions Limit on Paragraph 15.209

Frequency(MHZ)	Distance(m)	Field strength(dBuV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: (1) RF Voltage(dBuV)=20 log RF Voltage(uV)

(2) In the Above Table,the tighter limit applies at the band edges.

(3) Distance refers to the distance in meters between the measuring instrument antenna.

(4)The emission limit in this paragraph is based on measurement instrumentaion employing an average detector.Measurement using instrumentation with a peak detector function,corresponding to 20dB above the maximum permitted average limit.

(5)Above 1GHz, mark a Peak and average measurements for all emissions,Limit for peak is 74dBuvV/m,According to Part15.35(b) and average is 54BuvV/m.

7.9 Radiated Emissions Test Result

Formula of conversion factors:the field strength at 3m was egtablished by adding
The meter reading of the spectrum analyzer (which is set to read in units of dBuV/m)
To the antenna correction factor supplied by the antenna manufacturer. The antenna
Correction factors are stared in terms of dB.The gain of the pressletor was accounted
For in the spectrum analyser meter reading.

Example:

Freq(MHz) Meter Reading +ACF=FS

33 20dBuV+10.36dB=30.36dBuV/m @3m

7.10 Radiated Emission Data

A. Test Item: Radiated Emission Data
Test Voltage: Adapter input 5.0V
Test Mode: TX On
Temperature: 24 °C
Humidity: 52%RH
Test Result: PASS

Remarks: 30-1000MHz radiation test no significant emissions above the equipment noise floor were detected.

And the below is the Fundamental and Harmonic .

Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	FCC 15 Subpart C Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low frequency							
2402	AV	Vertical	99.98		(Fund.)	1.5	100
4804	AV	Vertical	40.25	54.00	9.75	1.5	150
7206	AV	Vertical	32.14	54.00	17.86	1.8	120
9608	AV	Vertical	30.37	54.00	23.63	1.5	90
12010	AV	Vertical	30.11	54.00	23.89	1.0	60
14412	AV	Vertical	30.39	54.00	23.61	1.5	60
16814	AV	Vertical	30.28	54.00	23.72	1.8	100
19216	AV	Vertical	30.67	54.00	23.33	1.8	180
21618	AV	Vertical	30.59	54.00	23.41	1.5	100
24020	AV	Vertical	30.73	54.00	23.27	1.0	45

2402	AV	Horizontal	95.12		(Fund.)	1.7	100
4804	AV	Horizontal	40.25	54.00	13.75	1.5	120
7206	AV	Horizontal	34.02	54.00	19.98	1.5	120
9608	AV	Horizontal	32.03	54.00	21.97	1.0	90
12010	AV	Horizontal	34.21	54.00	19.79	1.8	45
14412	AV	Horizonta	30.36	54.00	23.64	1.0	120
16814	AV	Horizontal	30.74	54.00	23.26	1.8	180
19216	AV	Horizontal	31.22	54.00	22.78	1.5	90
21618	AV	Horizontal	31.53	54.00	22.47	1.5	60
24020	AV	Horizontal	32.36	54.00	21.64	1.0	60
2402	PK	Vertical	105.00		(Fund.)	1.2	120
4804	PK	Vertical	45.36	74.00	29.64	1.2	150
7206	PK	Vertical	37.88	74.00	36.12	1.5	100
9608	PK	Vertical	37.42	74.00	36.58	1.8	100
12010	PK	Vertical	35.63	74.00	38.37	1.0	90
14412	PK	Vertical	37.77	74.00	36.23	1.8	90
16814	PK	Vertical	35.89	74.00	38.11	1.0	60
19216	PK	Vertical	38.67	74.00	35.33	1.8	100
21618	PK	Vertical	38.78	74.00	35.22	1.5	120
24020	PK	Vertical	34.31	74.00	39.69	1.5	45
2402	PK	Horizontal	105.01		(Fund.)	1.20	90
4804	PK	Horizontal	42.36	74.00	31.64	1.2	90
7206	PK	Horizontal	36.25	74.00	33.75	1.5	100
9608	PK	Horizontal	37.33	74.00	36.67	1.0	90
12010	PK	Horizontal	33.19	74.00	40.81	1.0	60
14412	PK	Horizontal	33.62	74.00	40.38	1.5	60
16814	PK	Horizontal	30.73	74.00	43.27	1.8	100
19216	PK	Horizontal	33.57	74.00	40.43	1.8	120
21618	PK	Horizontal	33.59	74.00	40.41	1.8	180
24020	PK	Horizontal	35.88	74.00	38.12	1.0	120
Middle frequency							
2442	AV	Vertical	98.69		(Fund.)	1.1	180
4884	AV	Vertical	38.25	54.00	15.75	1.2	90
7326	AV	Vertical	30.24	54.00	23.76	1.6	60

9768	AV	Vertical	30.33	54.00	22.67	1.0	100
12210	AV	Vertical	30.87	54.00	22.13	1.8	180
14652	AV	Vertical	30.73	54.00	23.27	1.0	120
17094	AV	Vertical	30.26	54.00	23.74	1.6	100
19536	AV	Vertical	30.17	54.00	23.83	1.6	180
21978	AV	Vertical	33.65	54.00	20.35	1.5	90
24420	AV	Vertical	31.25	54.00	23.75	1.5	270
2442	AV	Horizontal	99.25		(Fund.)	1.2	150
4884	AV	Horizontal	35.69	54.00	28.31	1.2	270
7326	AV	Horizontal	30.33	54.00	23.67	1.8	90
9768	AV	Horizontal	32.52	54.00	21.48	1.0	100
12210	AV	Horizontal	31.45	54.00	22.55	1.8	120
14652	AV	Horizontal	30.67	54.00	23.33	1.6	90
17094	AV	Horizontal	30.24	54.00	23.76	1.5	45
19536	AV	Horizontal	31.86	54.00	22.14	1.8	180
21978	AV	Horizontal	30.59	54.00	23.41	1.6	120
24420	AV	Horizontal	29.03	54.00	27.97	1.2	150
2442	PK	Vertical	104.82		(Fund.)	1.2	180
4884	PK	Vertical	42.03	74.00	31.97	1.2	90
7326	PK	Vertical	38.25	74.00	35.75	1.2	180
9768	PK	Vertical	38.94	74.00	35.06	1.6	100
12210	PK	Vertical	37.87	74.00	36.13	1.5	120
14652	PK	Vertical	38.36	74.00	35.64	1.8	90
17094	PK	Vertical	39.47	74.00	34.53	1.0	180
19536	PK	Vertical	34.56	74.00	39.44	1.0	150
21978	PK	Vertical	40.22	74.00	33.78	1.6	45
24420	PK	Vertical	45.61	74.00	28.39	1.8	90
2442	PK	Horizontal	104.54		(Fund.)	1.0	120
4884	PK	Horizontal	43.56	74.00	30.44	1.8	45
7326	PK	Horizontal	41.51	74.00	32.49	1.5	60
9768	PK	Horizontal	40.14	74.00	33.86	1.5	90
12210	PK	Horizontal	39.36	74.00	34.64	1.6	100
14652	PK	Horizontal	38.74	74.00	35.26	1.0	120
17094	PK	Horizontal	34.21	74.00	39.79	1.5	90

19536	PK	Horizontal	38.86	74.00	35.14	1.5	120
21978	PK	Horizontal	40.22	74.00	33.78	1.5	100
24420	PK	Horizontal	40.67	74.00		1.6	45
High frequency							
2482	AV	Vertical	99.69		(Fund.)	1.0	100
4964	AV	Vertical	35.21	54.00	18.79	1.5	135
7446	AV	Vertical	32.25	54.00	21.75	1.5	100
9928	AV	Vertical	30.26	54.00	23.74	1.6	90
12410	AV	Vertical	30.55	54.00	23.45	1.8	45
14892	AV	Vertical	30.34	54.00	23.66	1.5	100
17374	AV	Vertical	30.62	54.00	23.38	1.6	120
19856	AV	Vertical	30.13	54.00	23.87	1.8	90
22338	AV	Vertical	30.27	54.00	23.73	1.5	90
24820	AV	Vertical	28.25	54.00	25.75	1.5	90
2482	AV	Horizontal	99.78		(Fund.)	1.5	150
4964	AV	Horizontal	34.56	54.00	19.44	1.2	120
7446	AV	Horizontal	30.35	54.00	23.65	1.5	90
9928	AV	Horizontal	31.47	54.00	22.53	1.0	60
12410	AV	Horizontal	31.89	54.00	22.11	1.6	90
14892	AV	Horizontal	32.42	54.00	21.58	1.0	100
17374	AV	Horizontal	31.17	54.00	22.83	1.8	120
19856	AV	Horizontal	32.55	54.00	21.45	1.5	120
22338	AV	Horizontal	32.86	54.00	21.14	1.0	100
24820	AV	Horizontal	33.25	54.00	20.75	1.6	60
2482	PK	Vertical	104.58		(Fund.)	1.2	90
4964	PK	Vertical	43.22	74.00	30.78	1.5	120
7446	PK	Vertical	36.83	74.00	37.17	1.5	180
9928	PK	Vertical	35.35	74.00	38.65	1.8	90
12410	PK	Vertical	35.56	74.00	38.44	1.0	90
14892	PK	Vertical	36.20	74.00	37.80	1.5	90
17374	PK	Vertical	36.87	74.00	37.13	1.8	45
19856	PK	Vertical	36.26	74.00	37.74	1.5	100
22338	PK	Vertical	36.73	74.00	37.27	1.5	90
24820	PK	Vertical	36.33	74.00	37.67	1.6	60

2482	PK	Vertical	103.41		(Fund.)	1.5	90
4964	PK	Vertical	43.26	74.00	30.74	1.5	90
7446	PK	Vertical	38.64	74.00	35.36	1.5	90
9928	PK	Vertical	35.37	74.00	38.63	1.6	90
12410	PK	Vertical	35.52	74.00	38.48	1.6	45
14892	PK	Vertical	35.26	74.00	38.74	1.5	60
17374	PK	Vertical	36.41	74.00	37.59	1.8	100
19856	PK	Vertical	39.25	74.00	34.75	1.8	120
22338	PK	Vertical	31.10	74.00	42.90	1.0	180
24820	PK	Vertical	30.22	74.00	43.78	1.5	90

8 Antenna Requirement.

According to the FCC Part 15 Paragraph 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. The use of a permanently attached antenna to the intentional radiator shall be considered sufficient to comply with the provisions of this section. This product has a permanent antenna, fulfill the requirement of this section.

9 Maximum Peak Output Power

Test Requirement: FCC Part15 Paragraph 15.247
Test Method: Based on ANSI 63.4:2003
Test Result: PASS
Test mode: Compliance test in the worse case: Tx Lower/Tx Middle/Tx Upper
Requirements: Regulation 15.247(b) The limit of Maximum Peak Output Power Measurement is 1W(30dBm)

Test procedure:

The following test procedure as below:

The transmitter output (antenna port) was connected to the spectrum analyzer.EUT and its simulators are placed on a table, let EUT working in test mode,then test it.

The bandwidth of the fundamental frequency was measured with the spectrum analyser using 100kHz RBW and 100kHz VBW.

Test Result: The unit does meet the FCC requirements.

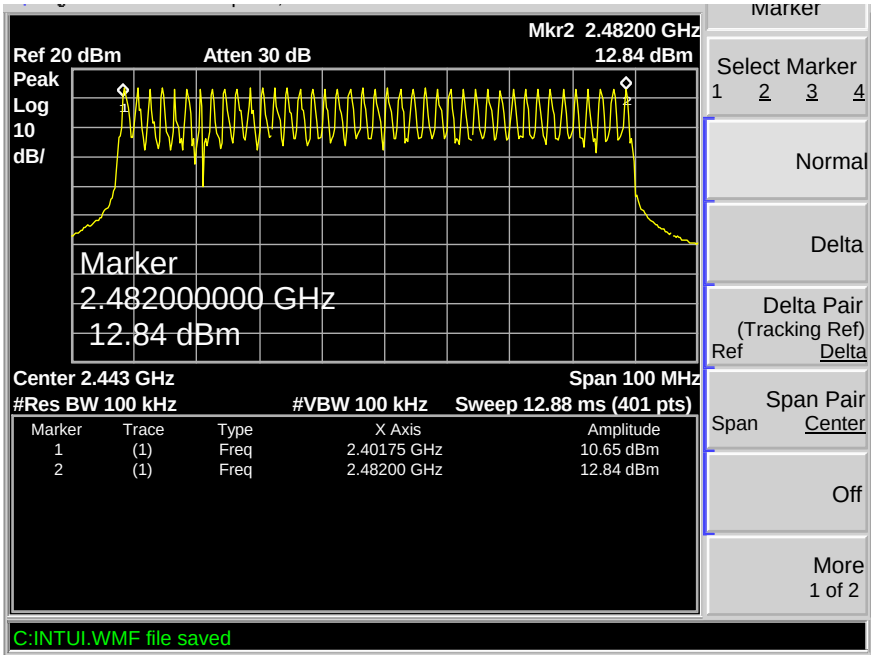
Test Channel	Fundamental Frequency(MHz)	Output Power (mW)	Limit (W)	Power output level
Lower	2402	1.72	1	conducted
Middle	2442	1.65	1	conducted
Upper	2482	1.68	1	conducted

10 Hopping Channel Number

Test Requirement:	FCC Part15 C
Test Method:	Based on FCC Part15 Paragraph 15.247
Test Result:	PASS
Test mode:	The EUT work in test mode(Tx) and test it
Requirements:	Regulation 15.247(b) For frequency hopping systems operating In the 2400-2483.5MHz band employing at least 15 hopping channels.
Test result:	The total number of channels would be 41 channels. The unit does meet the FCC requirements.

Please refer the graph as below:

Channel 1 to Channel 41



11 Frequency Separated

The requirements in this clause are only applicable to equipment using frequency hopping spread spectrum (FHSS) modulation.

Channel Separated

Definition: A hopping channel is any of the centre frequencies defined within the hopping sequence of a FHSS system.

Limit: Non-adaptive frequency hopping system shall make use of non-overlapping channels separated by the channel bandwidth as measured at 20dB below peak power.

The hopping channels defined within a hopping sequence shall be at least 1MHz apart(channel separation)

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Barometric Pressure: 1012 mbar

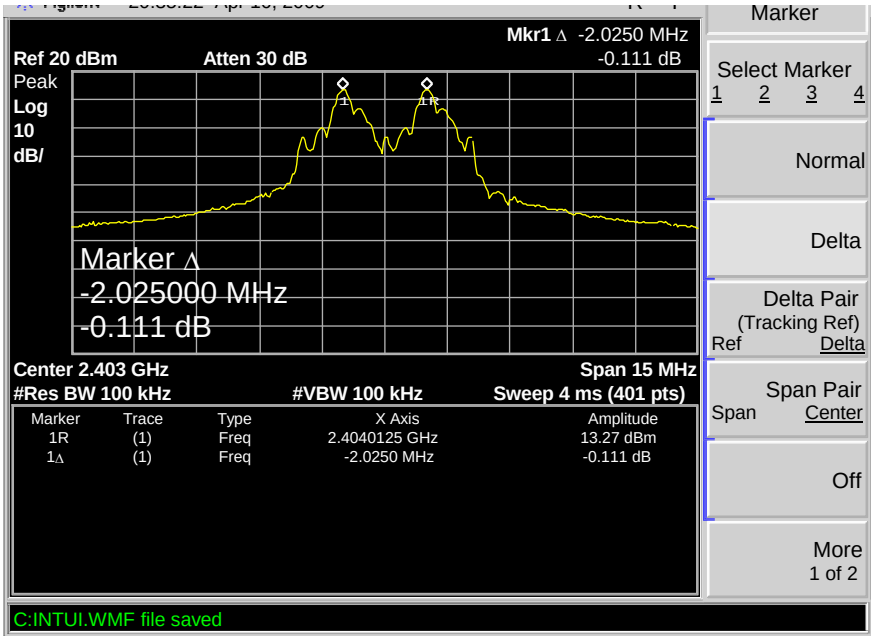
EUT Operation Condition:

The EUT was programmed to be in continuously transmitting mode.

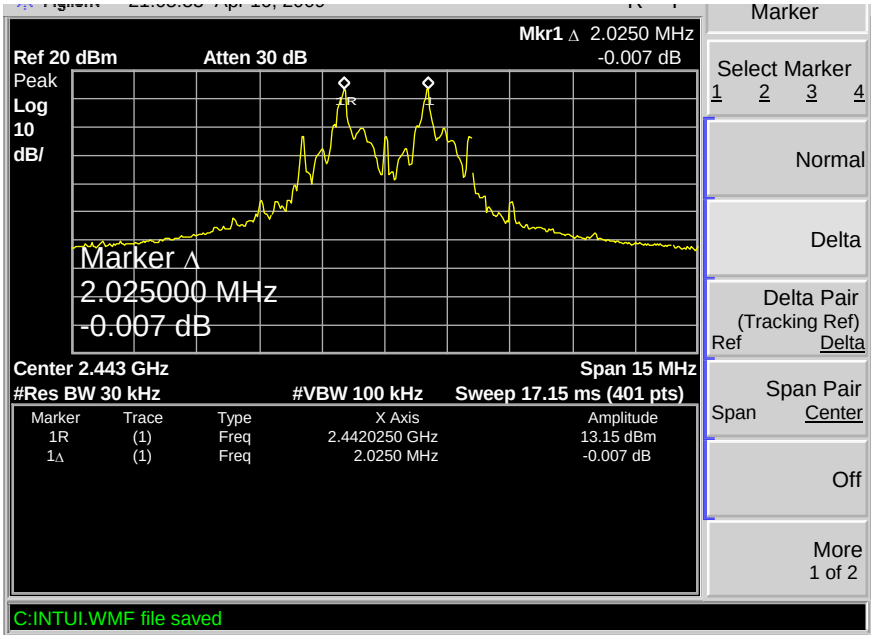
Test Result: PASS

Please refer to the below photos for more details

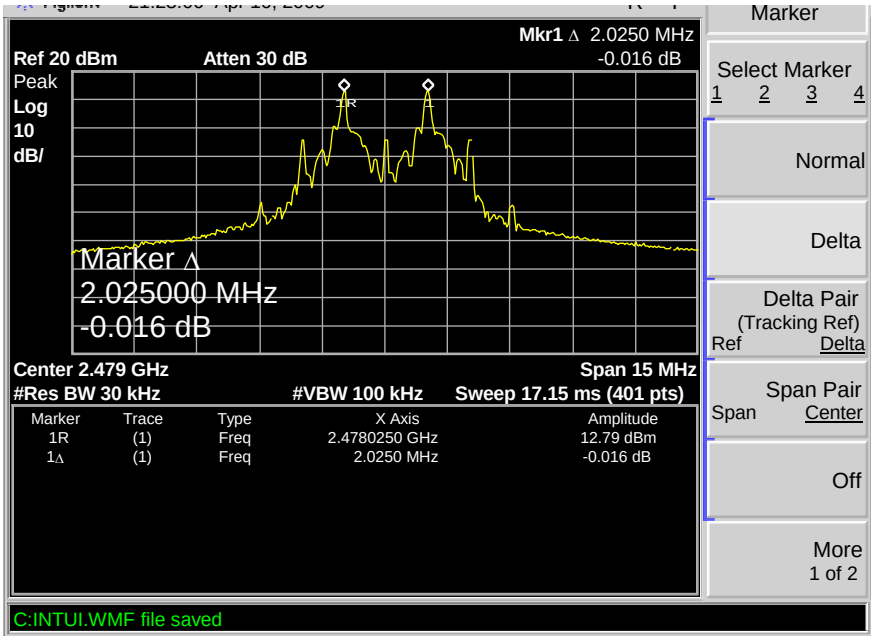
Lower Channel



Middle Channel



Upper Channel



12 Dwell time

11.1 Definition:

The dwell time is the time spent at a particular frequency during any single hop.

Limit: the maximum dwell time shall be less than 0.4s.

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Barometric Pressure: 1012 mbar

EUT Operation Condition:

The EUT was programmed to be in continuously transmitting mode.

11.2 Test Procedure

The EUT output antenna port was connected to the spectrum analyzer. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz,and the frequency span to zero span,measure the maximum time duration of one single pulse. So,the Dwell Time can be calculated as follows:

T=Ton-time*Ntimes/1S*0.4*41≤0. 4S.

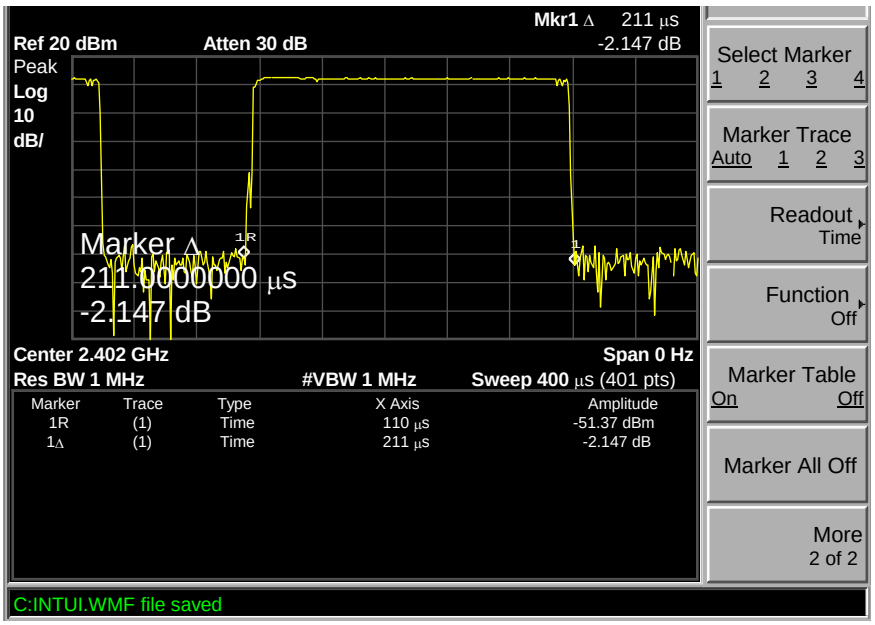
11.3 Test Result: PASS

Please refer to the below photos for more details.

Channel Low

Dwell time of each occupation in this channel as follows:
0.000211*100/1S*0.4*41=0.3460 <0.4S

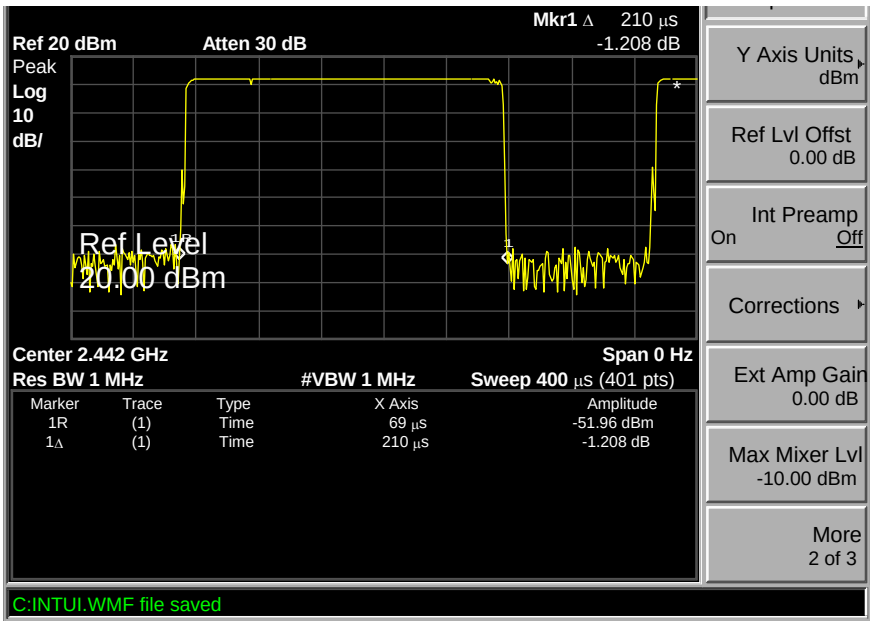
Test Result: PASS
The Results are not be greater than 0.4 seconds.



Channel Middle

Dwell time of each occupation in this channel as follows:
0.000210*100/1S*0.4*41=0.3444 <0.4S

Test Result: PASS
The Results are not be greater than 0.4 seconds.

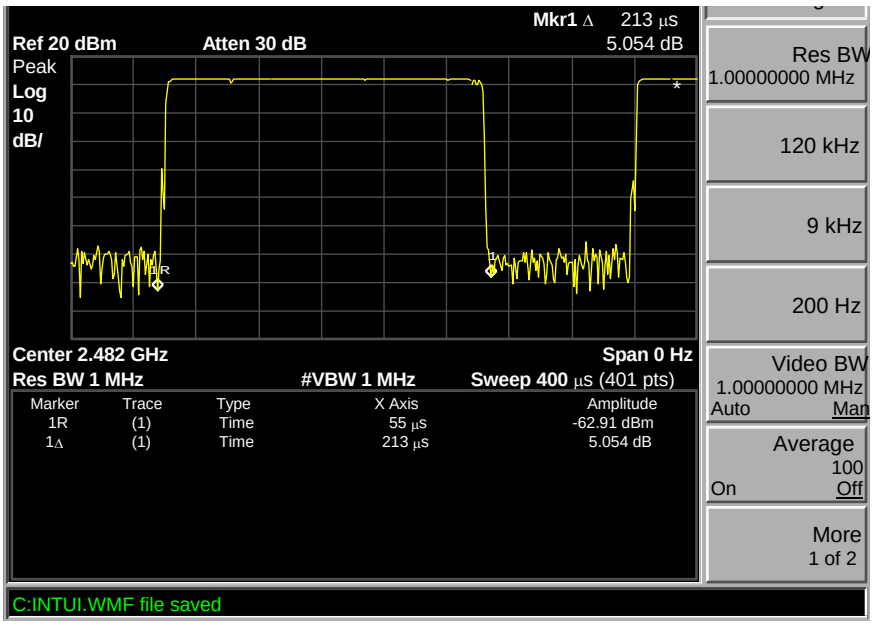


Channel High

Dwell time of each occupation in this channel as follows:
0.000213*100/1S*0.4*41=0.3493 <0.4S

Test Result: PASS

The Results are not be greater than 0.4 seconds.



13 20-dB Bandwidth

Test Requirement:	FCC Part15 C
Test Method:	Based on FCC Part15 Paragraph 15.247
Test Result:	PASS
Test mode:	The EUT work in test mode(Tx) and test it

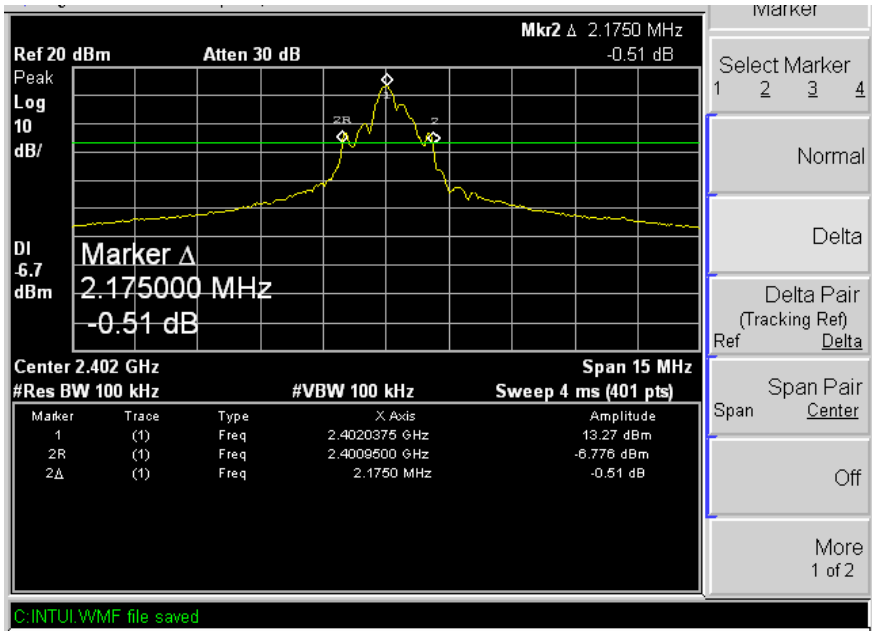
Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. The bandwidth of the fundamental frequency was measure by spectrum analyser with 100KHz RBW and 100KHz VBW.The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power 20dB.

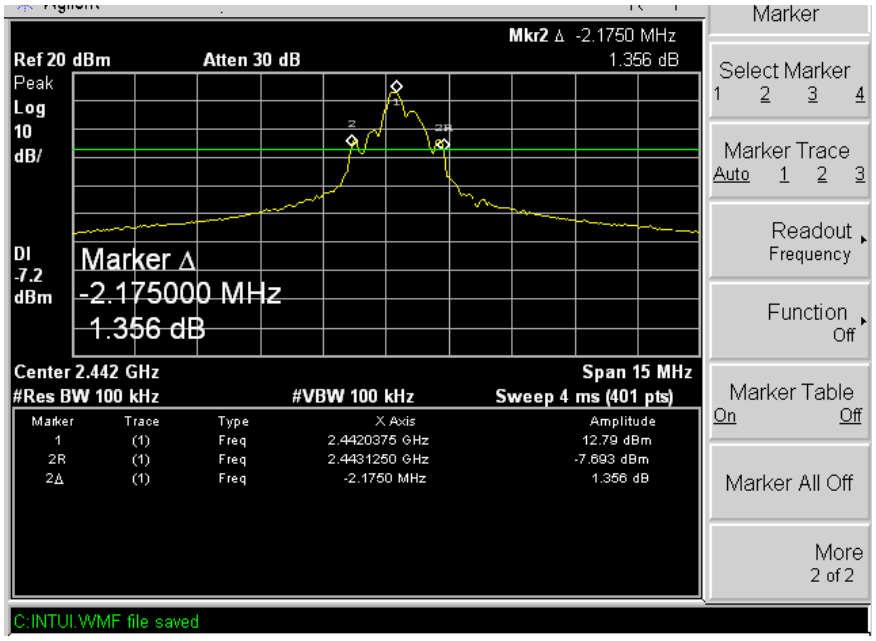
Test Result

Please refer the graph as below:

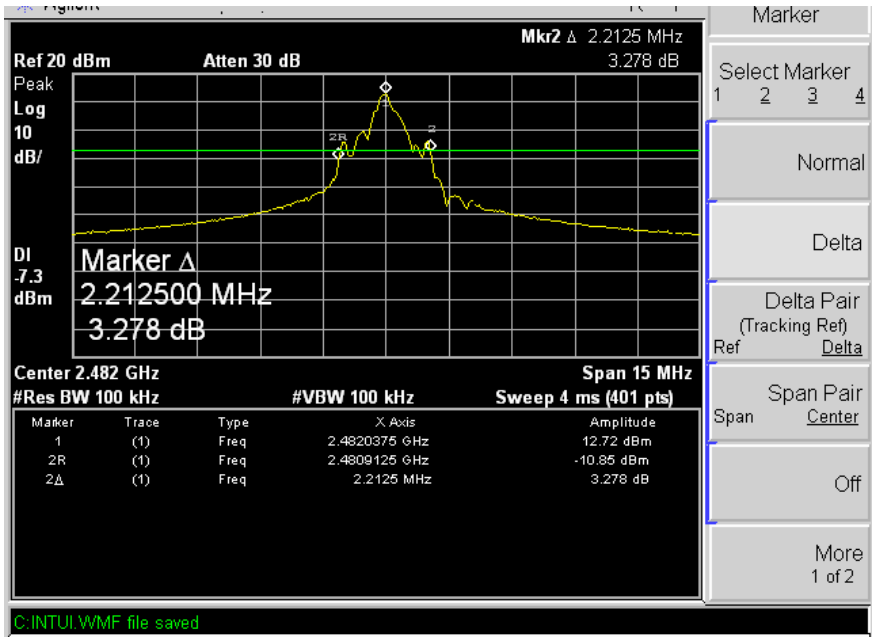
Lower Channel



Middle Channel



Upper Channel



14 Radiated spurious emissions into adjacent restricted band

Test Requirement:	FCC Part15 Paragraph 15.205
Test Method:	Based on FCC Part 15 Paragraph 15.247
Test Result:	PASS
Requirements:	The EUT work in test mode(Tx) and test it

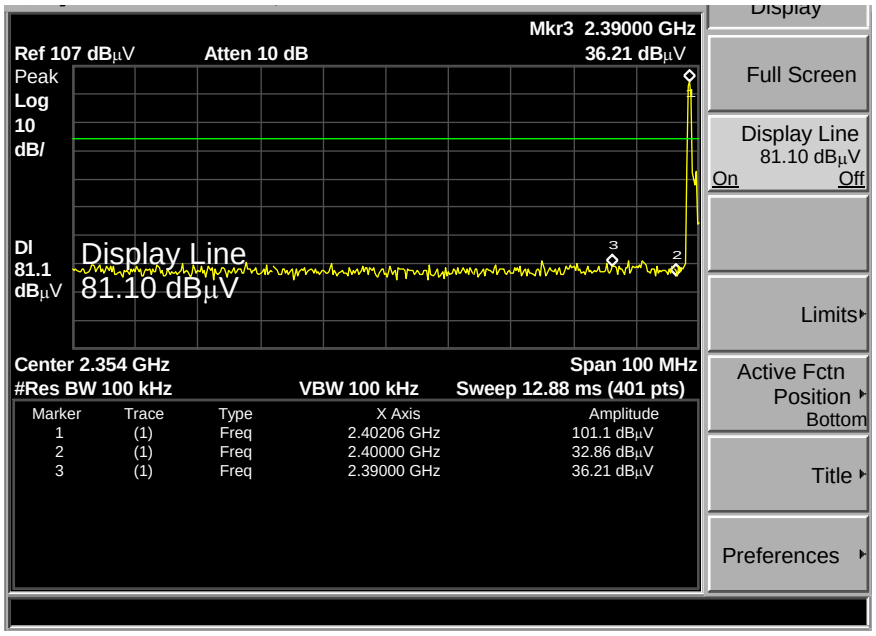
Requiments:

emissions that fall in the restricted bands(15.205).Above 1000MHz, compliance with the emissions limits in section 15.209 shall be demonstrated based on the average value of the measured emissions,The provisions in section 15.35apply to these measurements.

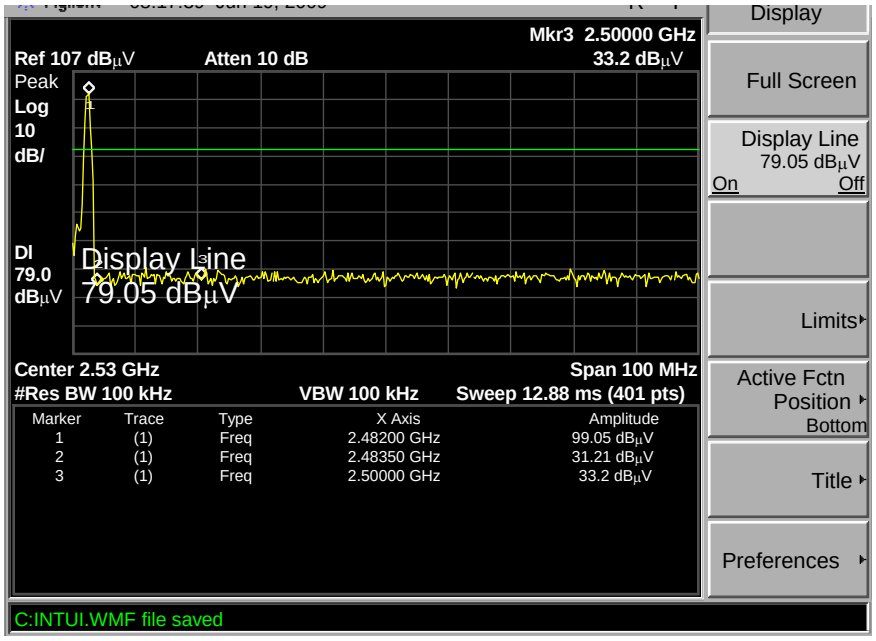
Test procedure:

An in band field strength measurement of the fundamental emission using the RBW and detector function required by C63.4-2003 and FCC Rules.The procedure was repeated with an average detector and a plot made.The calculated field strength in the adjacent restricted band is presented below.

Lower bandedge/ restricted band (AV value)



Upper bandedge/ restricted band (AV value)



15 RF Exposure Test

Test Requirement:	FCC Part 2 Subpart J
Test Method:	Based on FCC Part 15 Paragraph 15.247
Test Date:	July 07，2009
Requirements:	The EUT work in test mode(Tx) and test it

Requiments:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

MPE Calculation Method

E (V/m) $= \frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) $= \frac{E^2}{377}$

E = Electric field (V/m)
P = Peak RF output power (W)
G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)
The formula can be changed to

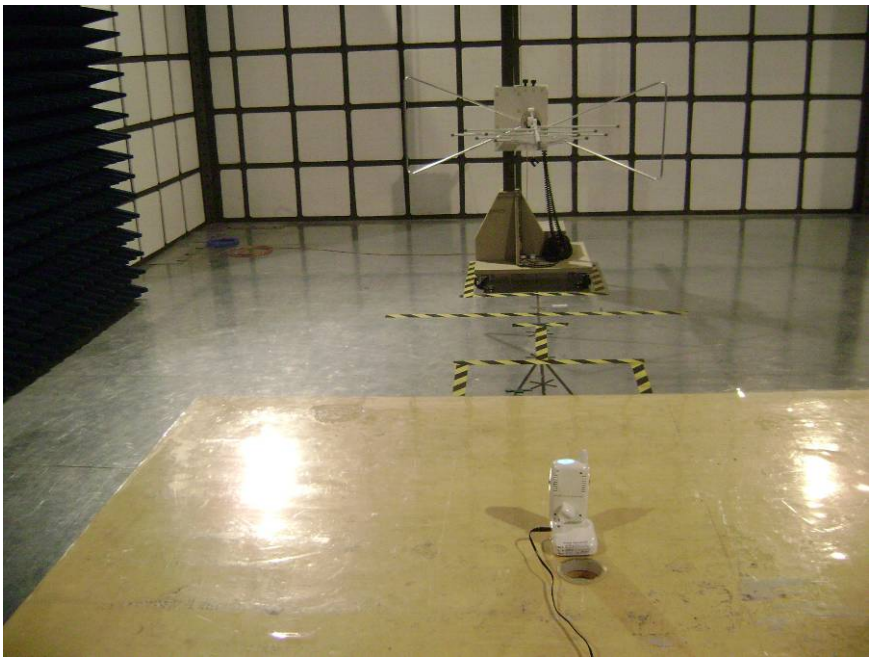
Pd $= \frac{30 \times P \times G}{377 \times d^2}$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

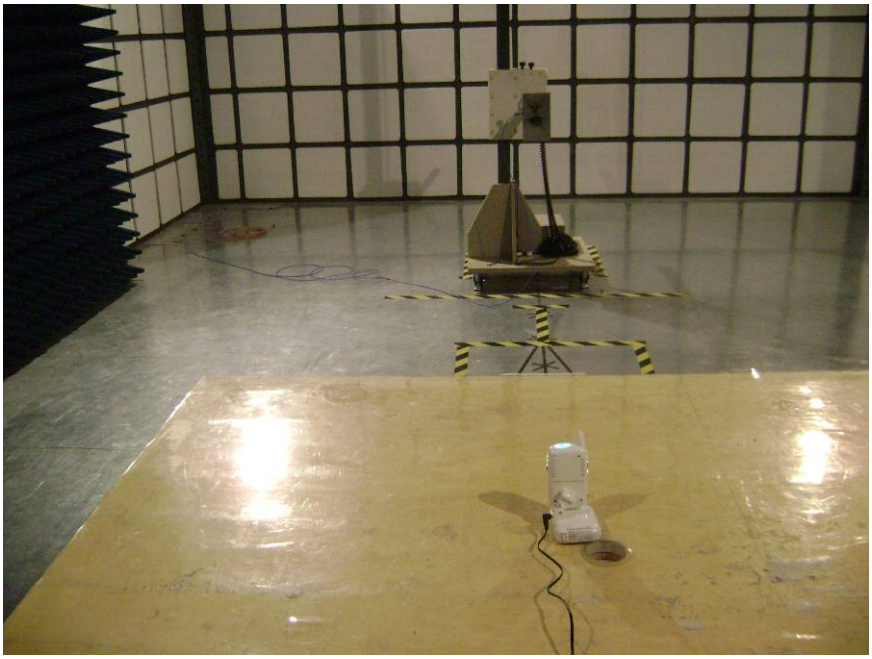
Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
-2.15	0.610	2.35	1.72	0.000209	1	Complies
-2.15	0.610	2.31	1.65	0.000200	1	Complies
-2.15	0.610	2.33	1.68	0.000205	1	Complies

16 Photographs of Testing

Radiation Emission Test View For 30MHz-1000MHz



Radiation Emission Test View For 1GHz-25GHz



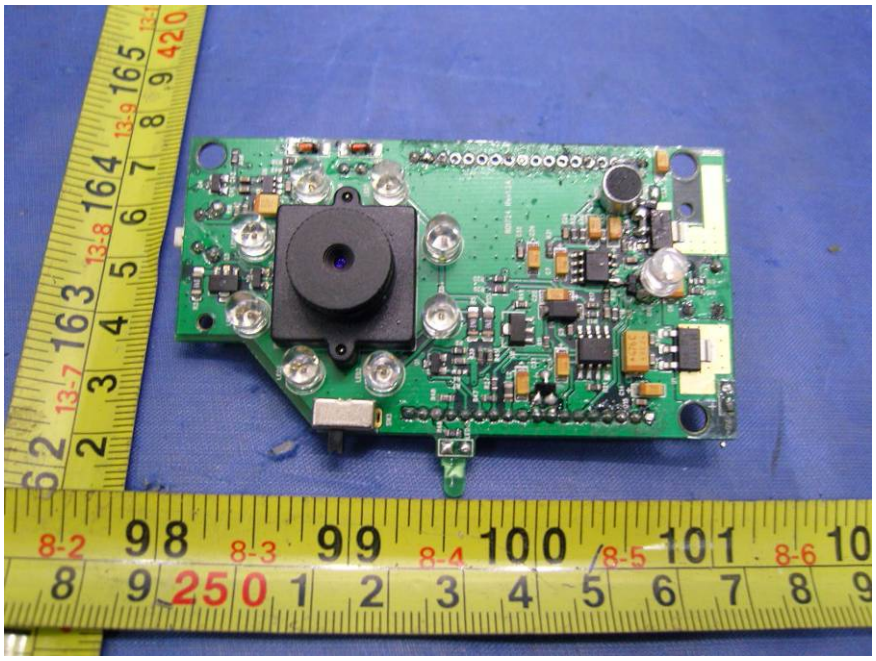
Conduction Emission Test View

17 Photographs - Constructional Details

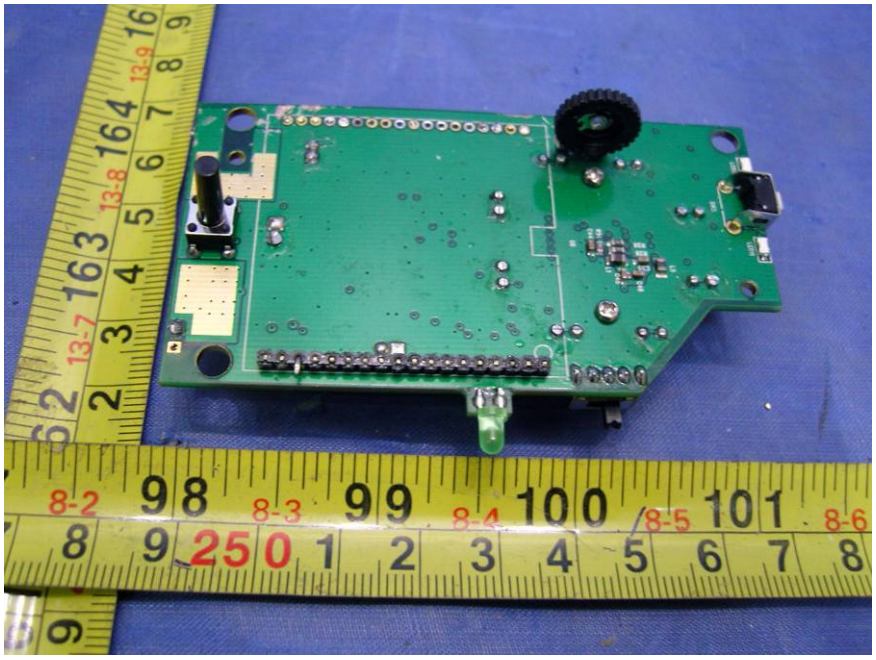
17.1 EUT– Front View

17.2 EUT– Back View

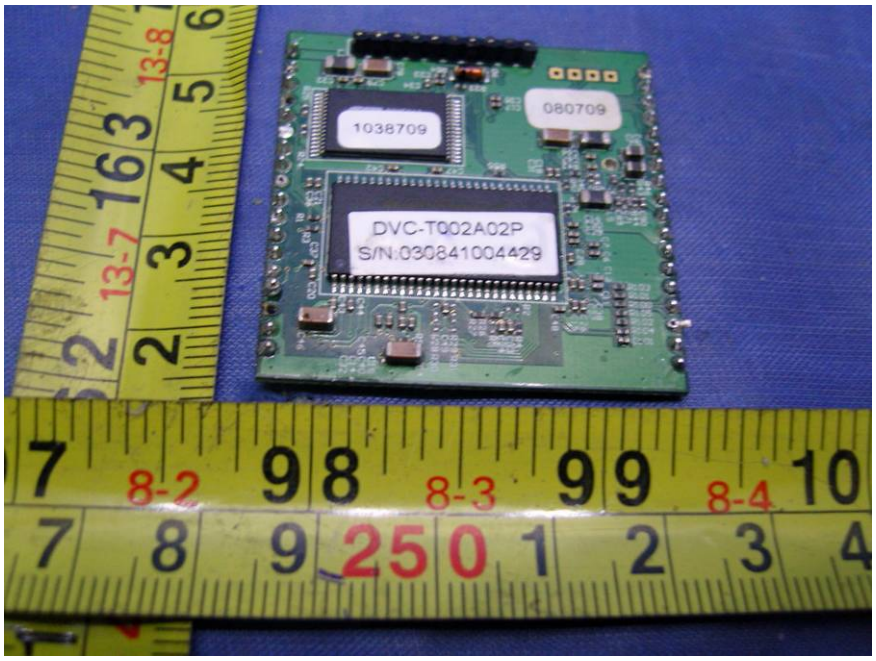
17.3 PCB1–Front View



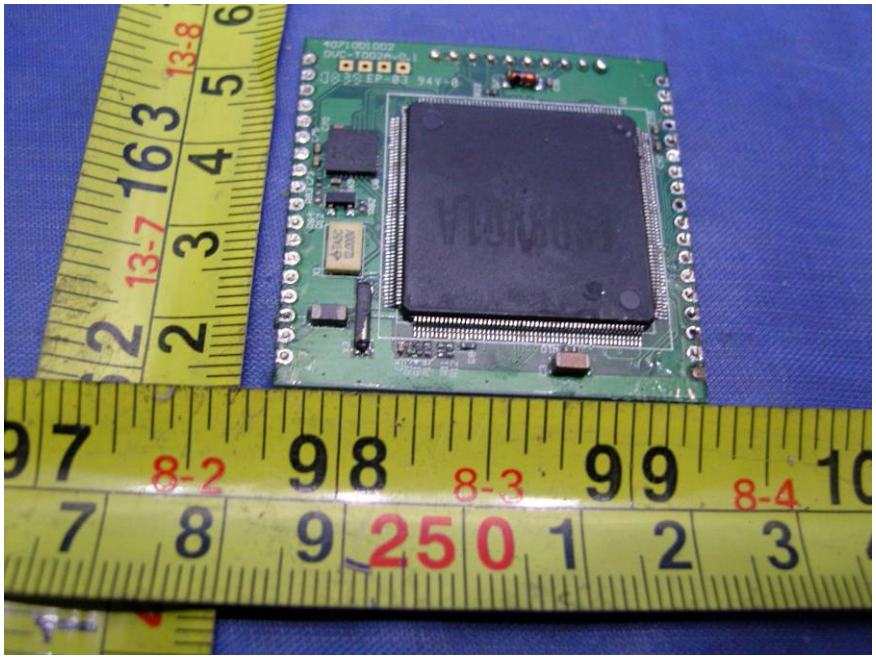
17.4 PCB1–Back View



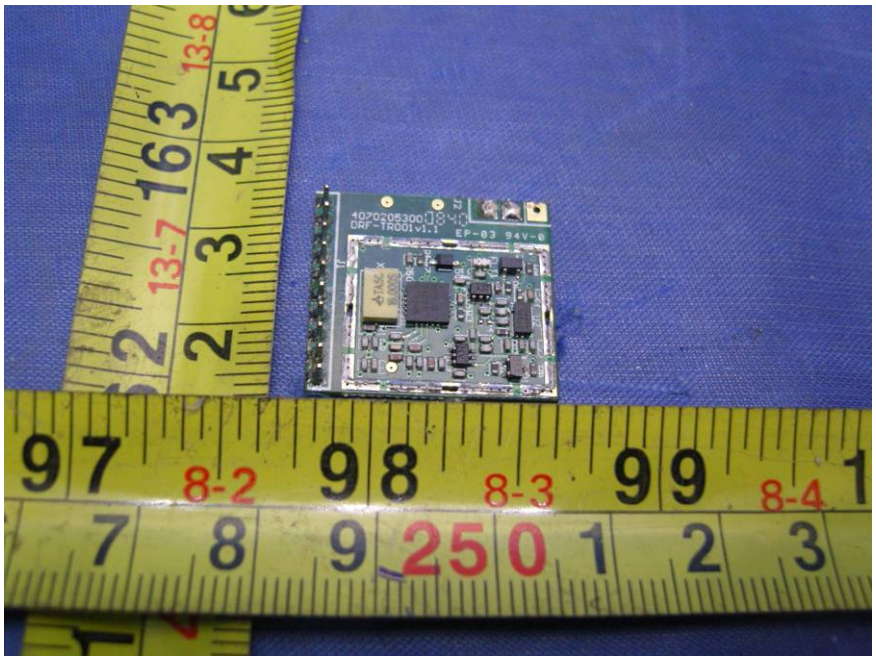
17.5 PCB2– Front View



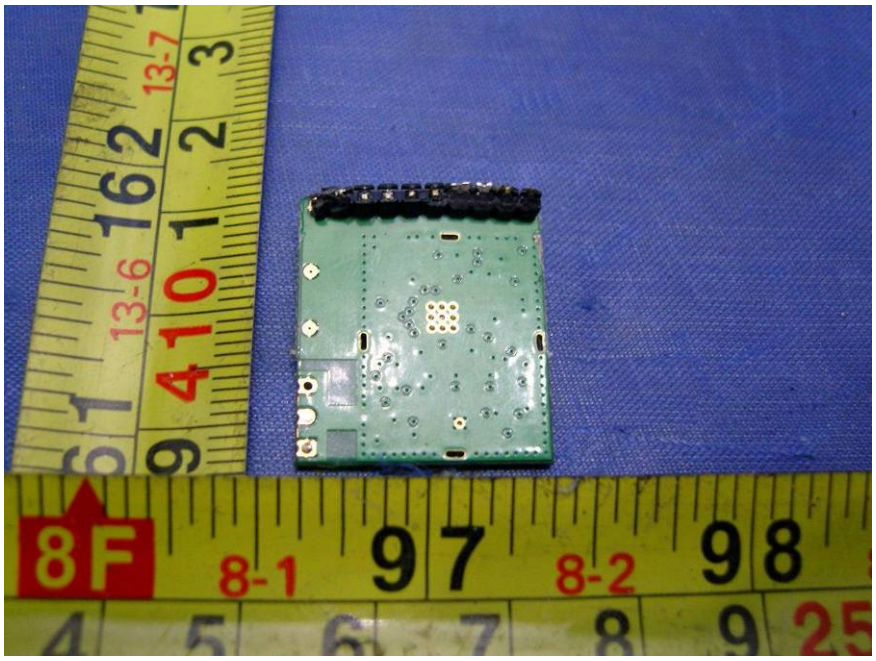
17.6 PCB2–Back View



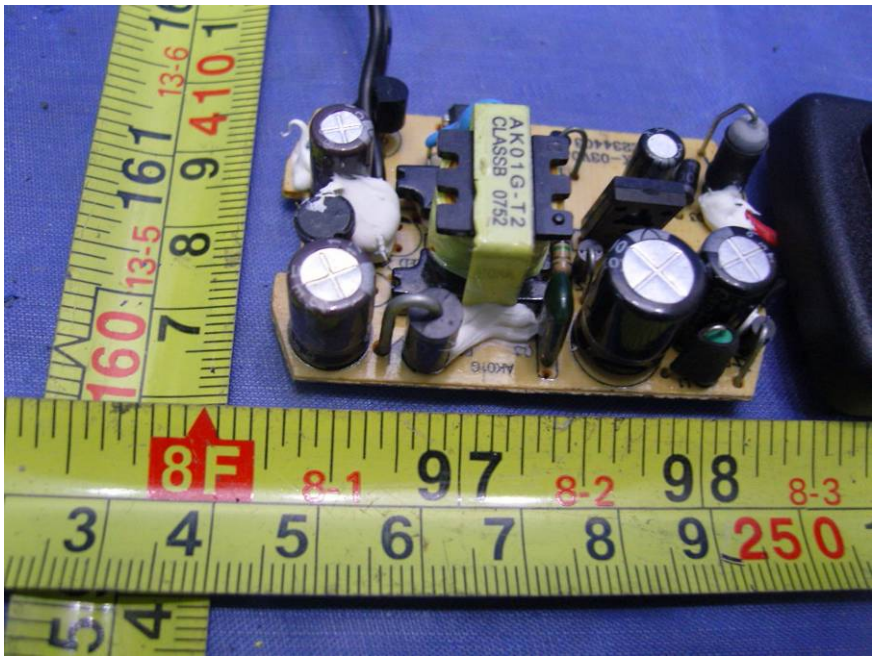
17.7 PCB3–Front View



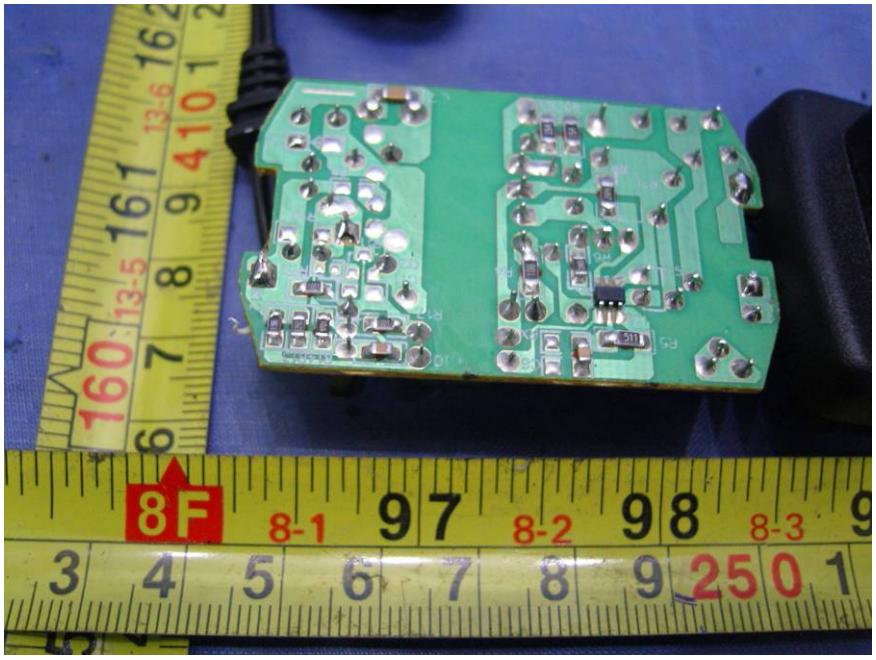
17.8 PCB3–Back View



17.9 PCB–Front View for Adapter



17.10 PCB–Back View for Adapter



18 FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT

EUT Bottom View/proposed FCC Mark Location