ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

Car DVD PLAYER

MODEL No.: CE6904(New York 800), CE6905(Chicago 600)

BRAND NAME: Foryou, Blaupunkt

FCC ID: VIPFGENY800CH600

REPORT NO: KAD110128050E

ISSUE DATE: February 19, 2011

Prepared for

HUIZHOU FORYOU GENERAL ELECTRONICS CO., LTD.
No.6, Zhongkai Songshan Industrial District, Huizhou City, Guangdong Province, China.

Prepared by

DONGGUAN EMTEK CO., LTD.

No.281, Guantai Road, Nancheng District,
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VERIFICATION OF COMPLIANCE

Applicant:	HUIZHOU FORYOU GENERAL ELECTRONICS CO., LTD. No.6, Zhongkai Songshan Industrial District, Huizhou City, Guangdong Province, China.
Product Description:	Car DVD PLAYER
Brand Name:	Foryou, Blaupunkt
Model Number:	CE6904(New York 800), CE6905(Chicago 600) (Note: These models are the same except sale areas, and CE6904 (New York 800) has loader, but CE6905(Chicago 600) has not, so we prepare CE6904(New York 800) for EMC test.)
Serial Number:	N/A
File Number:	KAD110128050E
Date of Test:	January 28, 2011 to February 19, 2011

We hereby certify that:

The above equipment was tested by DONGGUAN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247.

The test results of this report relate only to the tested sample identified in this report.

Approved By

Sam Lv / Q.A. Manager
DONGGUAN EMTEK CO., LTD.

Table of Contents

1. GENERAL INFORMATION

1.1 Product Description

The HUIZHOU FORYOU GENERAL ELECTRONICS CO., LTD. Model: CE6904(NEW YORK 800) (referred to as the EUT in this report) The EUT is an short range, lower power, Car DVD PLAYER designed as an Input Device. It is designed by way of utilizing the GFSK modulation achieves the system operating.

A major technical descriptions of EUT is described as following:

A). Operation Frequency: 2402-2480MHz
B). Modulation: GFSK（FHSS）
C). Number of Channel: 79
D). Channel space: 1MHz
E). Rated RF Output Power: 1dBm
F). BIT Rate of Transmission: 2Mbps, 3Mbps
G). Antenna Type: PCB antenna
H). Antenna GAIN: 2dBi
I). Power Supply: DC 10.5~15.8V

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: VIPFGENY800CH600 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. The composite system (receiver) is compliance with Subpart B is authorized under a DoC procedure.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2009). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2007.07.27
The certificate is valid until 2012.07.26
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2006
The Certificate Registration Number is L3150

Accredited by TUV Rheinland Shenzhen 2009.09.16
The certificate is valid until 2011.03.16
The Laboratory has been assessed according to the requirements ISO/IEC 17025: 2005

Accredited by FCC, Nov. 05, 2008
The Certificate Number is 247565.

Accredited by Industry Canada, January 13, 2011
The Certificate Registration Number. is 46405-9444

Name of Firm : DONGGUAN EMTEK CO., LTD
Site Location : No.281, Guantai Road, Nancheng District,
Dongguan, Guangdong, China

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. the Tx frequency was fixed which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2009.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2009.

2.4 Limitation

(1) Channel Separation test

FCC Part 15, Subpart C Section 15.247(a)(1). Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20 Bandwidth of the hopping channel, whichever is greater.

Frequency Range (MHz)	Limit(kHz)
902-928	>25kHz
2400-2483.5	>25kHz
5725-5850	>25kHz

(2) 20dB Bandwidth

Frequency Range(MHz)	Quantity of Hopping Channel	Limit(kHz) 50	25	15	75
902-928		<250	>250	NA	NA
2400-2483.5		NA	NA	>1000	<1000

(3) Quantity of Hopping Channel

FCC Part 15, Subpart C Section 15.247

Frequency Range (MHz)	Limit(Quantity of Hopping Channel) 20dB bandwidth <250kHz	20dB bandwidth >250kHz	20dB bandwidth <1MHz	20dB bandwidth >1MHz
902-928	50	25	NA	NA
2400-2483.5	NA	NA	15	15
5725-5850	NA	NA	75	NA

(4) Time of Occupancy(Dwell Time)

FCC Part 15, Subpart C Section 15.247

Frequency Range (MHz)	LIMIT(rms) 20dB bandwidth <250kHz(50Channel)	20dB bandwidth >250kHz(25Channel)	20dB bandwidth <1MHz(75Channel)
902-928	400(20S)	400(10S)	NA
2400-2483.5	NA	NA	400(30S)
5725-5850	NA	NA	400(30S)

Note: The "()"is all channel's average time of occupancy.

(5) Maximum Peak Output Power

FCC Part 15, Subpart C Section 15.247

Frequency Range (MHz)	Quantity of Hopping Channel	LIMIT(W) 50	25	15	75
902-928		1(30dBm)	0.125(21dBm)	NA	NA
2400-2483.5		NA	NA	0.125(21dBm)	1(30dBm)
5725-5850		NA	NA	NA	1(30dBm)

(6) Band edge

FCC Part15, Subpart C Section 15.247, In any 100kHz bandwidth outside the frequency band in with the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, attenuation below the general limits specified in section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a).

Operating Frequency Range(MHz)	Spurious emission frequency	Limit	
		Peak power ration to emission(dBc)	Emission level(dBuV/m)
902-928	<902	>20	NA
	>928	>20	NA
	960-1240	NA	54
2400-2483.5	<2400	>20	NA
	>2483.5-2500	NA	54
5725-5850	<5350-5460	NA	54
	<5725	>20	NA
	>5850	>20	NA

(7) Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

(8) Radiated Emission

FCC Part 15, Subpart C Section 15.209 limit of radiated emission for frequency below 1000GHz. The emissions from an intentional radiator shall not exceed the field strength level specified in the following table:

Frequency (MHz)	Field strength μV/m	Distance(m)	Field strength at 3m dBμV/m
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

FCC Part 15, Section 15.35(b) limit of radiated emission for frequency above 1000MHz

Frequency(MHz)	Class A(dBμV/m)(at 3m)		Class B(dBμV/m)(at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

FCC Part 15, Subpart C Section 15.249. The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency(MHz)	Filed Strength of Fundamental(at 3m)		Filed Strength of Harmonics(at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
902-928	114	94	74.0	54.0
2400-2483.5	114	94	74.0	54.0
5725-5875	114	94	74.0	54.0
24000-24250	128	108	88.0	68.0

2.5 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
1.	Car DVD PLAYER	Foryou, Blaupunkt	CE6904(NEW YORK 800)	VIPFGENY800 CH600	N/A	***EUT***

Note:

(1) Unless otherwise denoted as EUT in『Remark』column , device(s) used in tested system is a support equipment.

3. Summary of Test Results

FCC Rules	Description Of Test	Result
§ 15.247(a)(1)	Channel Separation test	Compliant
§ 15.247(a)(1)	20dB Bandwidth	Compliant
§ 15.247(a)(1)(iii)	Quantity of Hopping Channel	Compliant
§ 15.247(a)(1)(iii)	Time of Occupancy(Dwell Time)	Compliant
§ 15.247(b)	Max Peak output Power test	Compliant
§ 15.247(d)	Band edge test	Compliant
§ 15.207	AC Power Conducted Emission	N/A
§ 15.247(d), § 15.209	Radiated Emission	Compliant
§ 15.203	Antenna Requirement	Compliant
§ 1.1310	RF Exposure	Compliant

4. Description of test modes

The EUT (Car DVD PLAYER) has been tested under normal operating condition.
This EUT is a FHSS system, we use blue test to control the EUT with parallel port, Let EUT hopping on and transmit at every channel with highest power, Only output power use conducted method, others are using radiated method. After sirfdemo330R1 send the command to EUT, it can be removed, and the EUT keep hopping. 79 Channels are provided by EUT. The 3 channels of lower, medium and higher were chosen for test.

Channel	Frequency(MHz)
1	2402
40	2441
79	2480

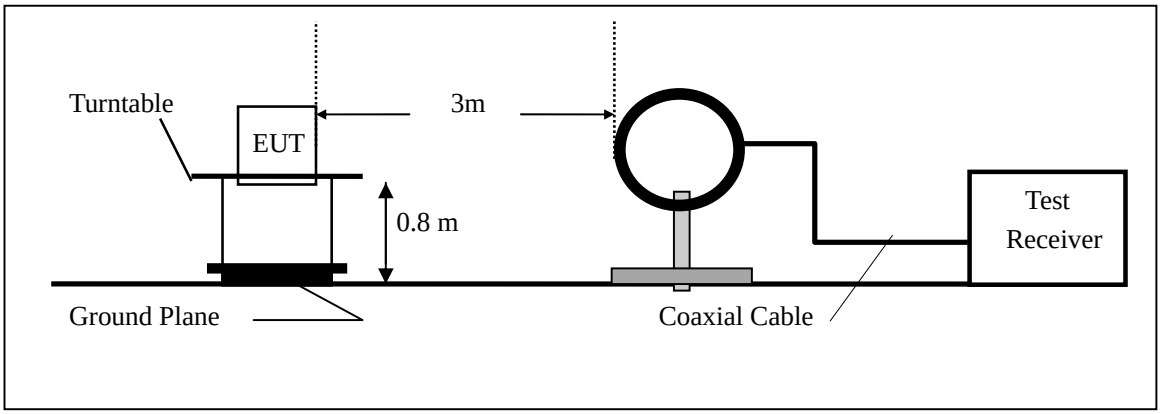
5. Radiated Emission Test

5.1 Measurement Procedure

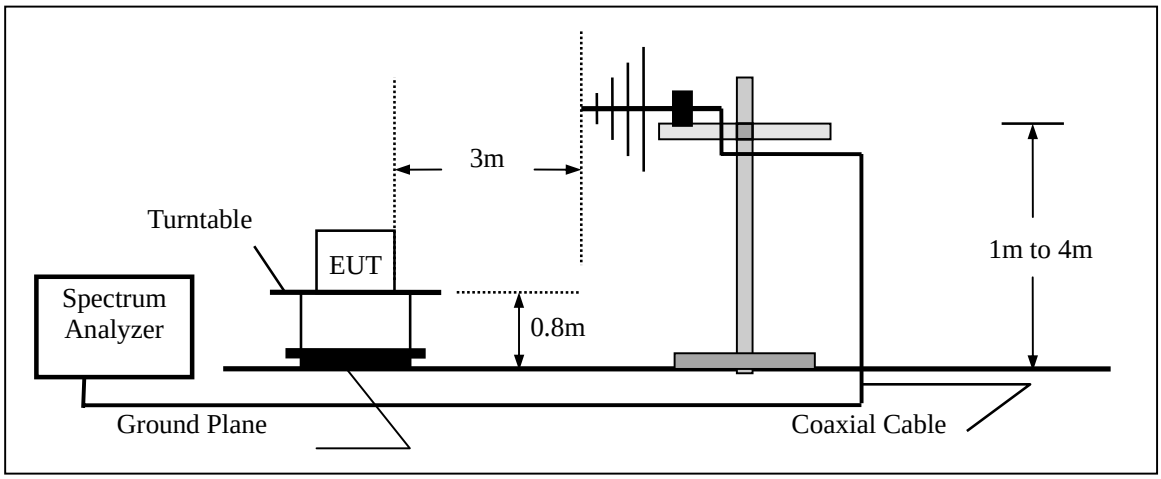
1 The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)

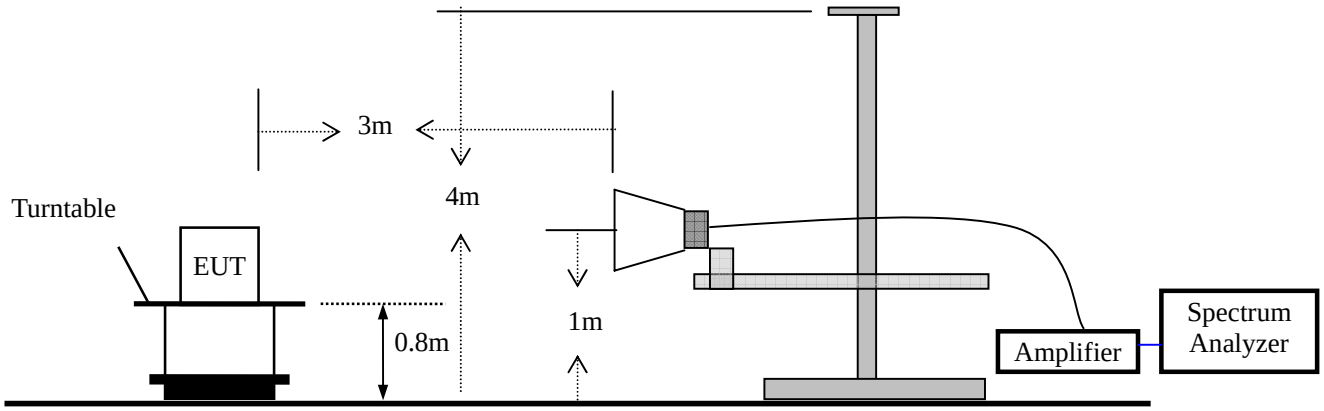
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



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



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



5.3 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Rohde & Schwarz	FSP7	839511/010	05/29/2010	05/29/2011
Spectrum Analyzer	HP	E4407B	839840481	05/29/2010	05/29/2011
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	05/29/2010	05/29/2011
Pre-Amplifier	HP	8447D	2944A07999	05/29/2010	05/29/2011
Bilog Antenna	Schwarzbeck	VULB9163	142	05/29/2010	05/29/2011
Loop Antenna	ARA	PLA-1030/B	1029	05/29/2010	05/29/2011
Horn Antenna	Electro-Metrics	EM-6961	103314	05/29/2010	05/29/2011
Horn Antenna	Schwarzbeck	BBHA 9120	D143	05/29/2010	05/29/2011

5.4 Measurement Result

Operation Mode:	RX Mode	Test Date :	January 25, 2011
Frequency Range:	30~1000MHz	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
179.38	V	30.20	40.00	-9.80	PK
203.63	V	31.30	40.00	-8.70	PK
549.92	V	39.21	47.00	-7.79	PK
750.71	V	38.72	47.00	-8.28	PK
839.95	V	40.38	47.00	-6.62	PK
189.08	H	31.39	40.00	-8.61	PK
216.24	H	30.40	40.00	-9.60	PK
431.58	H	38.02	47.00	-8.98	PK
490.75	H	37.28	47.00	-9.72	PK
600.36	H	39.60	47.00	-7.40	PK

Note: (1) All Readings are Peak Value.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode:	CH1: 2402MHz	Test Date :	January 25, 2011
Frequency Range:	1-25GHz	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	Andy

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
2400	V	54.52	45.17	74.00	54.00	-19.48	-8.83
4804	V	48.44	48.24	74.00	54.00	-25.56	-5.76
7206	V	52.12	48.83	74.00	54.00	-21.88	-5.17
9608	V	50.50	46.16	74.00	54.00	-23.50	-7.84
12010	V	48.46	44.95	74.00	54.00	-25.54	-9.05
2400	H	53.22	45.33	74.00	54.00	-20.78	-8.67
4804	H	47.30	47.29	74.00	54.00	-26.70	-6.71
7206	H	53.36	48.52	74.00	54.00	-20.64	-5.48
9608	H	51.04	46.35	74.00	54.00	-22.96	-7.65
12010	H	48.78	45.20	74.00	54.00	-25.22	-8.80

Other harmonics emissions are lower than 20dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode:	CH40: 2441MHz	Test Date :	January 25, 2011
Frequency Range:	1-25GHz	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV) PK	Emission Level(dBuV) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Margin(dB) PK	Margin(dB) AV
4882	V	50.48	44.50	74.00	54.00	-23.52	-9.50
7323	V	48.37	42.13	74.00	54.00	-25.63	-11.87
9764	V	49.79	40.49	74.00	54.00	-24.21	-13.51
12205	V	51.28	39.72	74.00	54.00	-22.72	-14.28
4882	H	48.62	43.51	74.00	54.00	-25.38	-10.49
7323	H	49.54	43.33	74.00	54.00	-24.46	-10.67
9764	H	52.47	40.92	74.00	54.00	-21.53	-13.08
12205	H	52.60	40.66	74.00	54.00	-21.40	-13.34

Other harmonics emissions are lower than 20dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode:	CH79: 2480MHz	Test Date :	January 25, 2011
Frequency Range:	1-25GHz	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	Andy

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
2483.5	V	55.15	46.43	74.00	54.00	-18.85	-7.57
4960	V	51.74	41.09	74.00	54.00	-22.26	-12.91
7440	V	50.32	41.62	74.00	54.00	-23.68	-12.38
9920	V	48.83	42.28	74.00	54.00	-25.17	-11.72
12400	V	50.12	42.47	74.00	54.00	-23.88	-11.53
2483.5	H	55.73	46.39	74.00	54.00	-18.27	-7.61
4960	H	51.52	42.44	74.00	54.00	-22.48	-11.56
7440	H	52.39	41.65	74.00	54.00	-21.61	-12.35
9920	H	50.34	43.92	74.00	54.00	-23.66	-10.08
12400	H	49.54	42.43	74.00	54.00	-24.46	-11.57

Other harmonics emissions are lower than 20dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

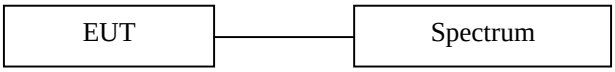
5.5 Radiated Measurement Photos:

6. Channel Separation test

6.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

6.2 Test SET-UP (Block Diagram of Configuration)



6.3 Measurement Equipment Used:

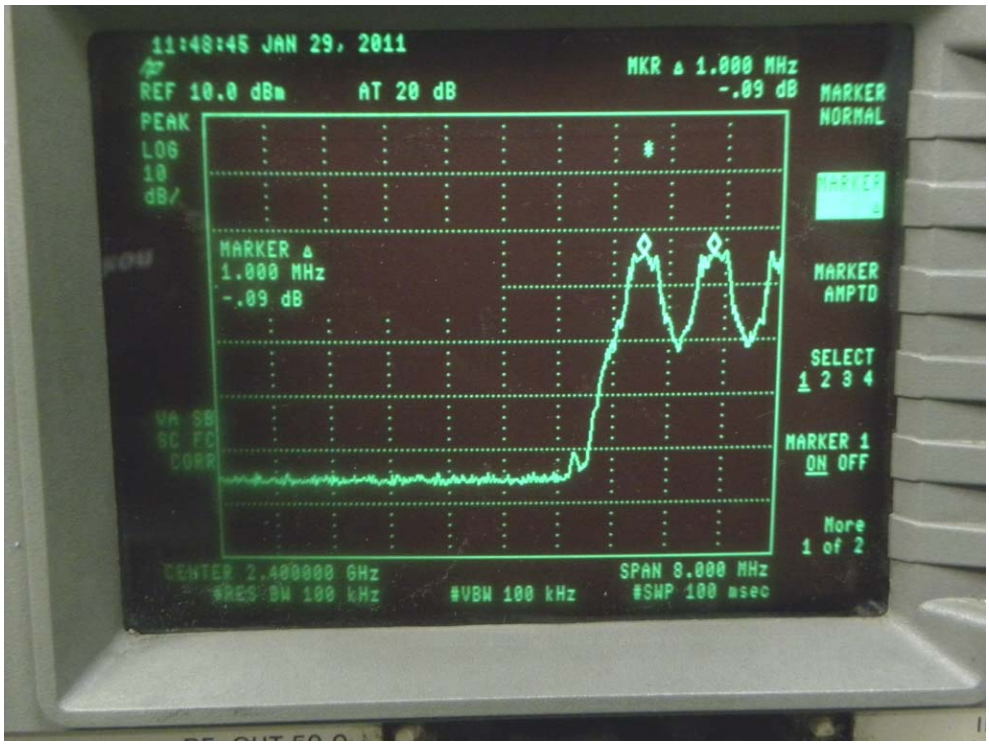
Same as 5.3 Radiated Emission Measurement.

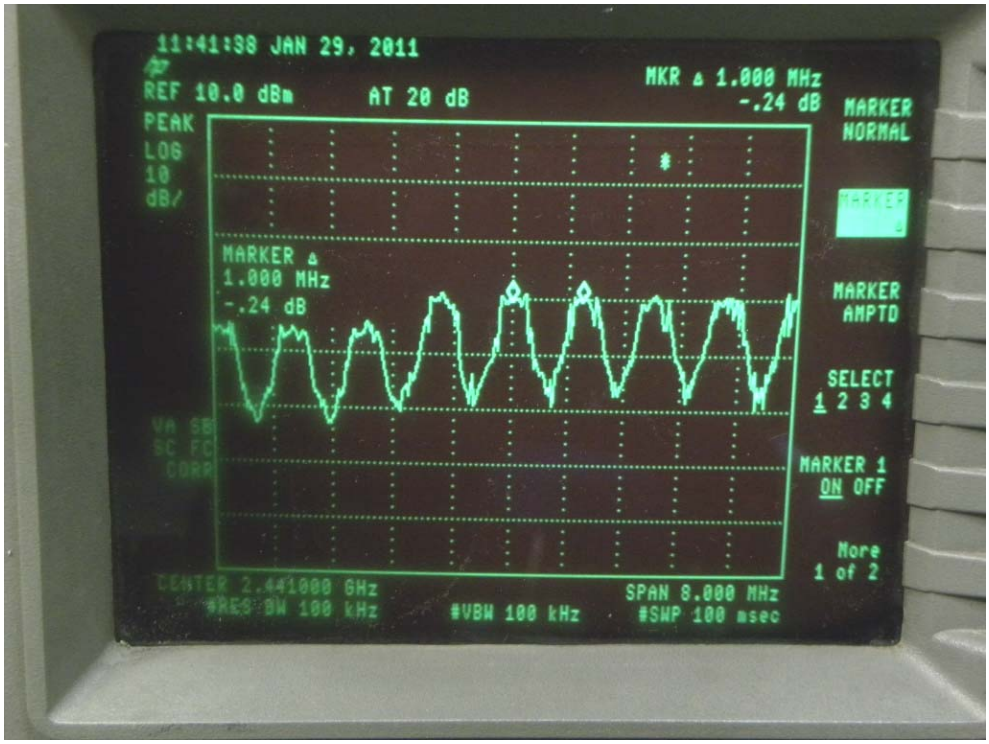
6.4 Measurement Results:

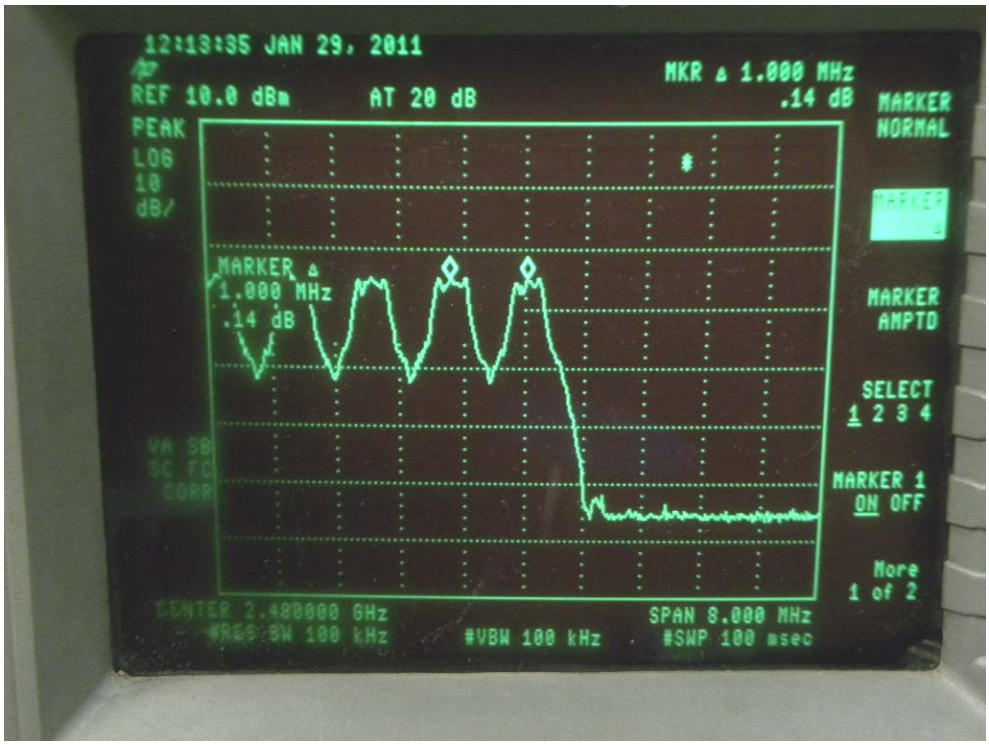
Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	January 29, 2011
Test By:	Andy	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Channel number	Channel frequency (MHz)	Separation Read Value (KHz)	Separation Limit (KHz)
1	2402	1000	>614.67
40	2441	1000	>644.67
79	2480	1000	>644.67


11:48:45 JAN 29, 2011
MKR Δ 1.000 MHz
-.09 dB
REF 10.0 dBm
AT 20 dB
PEAK
LOG
10
dB/
MARKER Δ
1.000 MHz
-.09 dB
MARKER
NORMAL
MARKER
AMPTD
SELECT
1 2 3 4
MARKER 1
ON OFF
More
1 of 2
CENTER 2.400000 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 8.000 MHz
#SWP 100 msec


11:41:38 JAN 29, 2011
MKR Δ 1.000 MHz
-.24 dB
REF 10.0 dBm
AT 20 dB
PEAK
LOG
10
dB/
MARKER Δ
1.000 MHz
-.24 dB
MARKER
NORMAL
MARKER
AMPTD
SELECT
1 2 3 4
MARKER 1
ON OFF
More
1 of 2
CENTER 2.441000 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 8.000 MHz
#SWP 100 msec

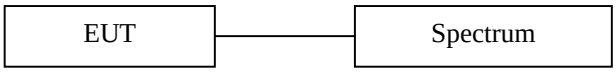

12:13:35 JAN 29, 2011
MKR Δ 1.000 MHz
.14 dB
REF 10.0 dBm
AT 20 dB
PEAK
LOG
10
dB/
MARKER
NORMAL
MARKER Δ
1.000 MHz
.14 dB
MARKER
AMPTD
SELECT
1 2 3 4
MARKER 1
ON OFF
More
1 of 2
CENTER 2.400000 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 8.000 MHz
#SWP 100 msec

7. 20dB Bandwidth test

7.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

7.2 Test SET-UP (Block Diagram of Configuration)



7.3 Measurement Equipment Used:

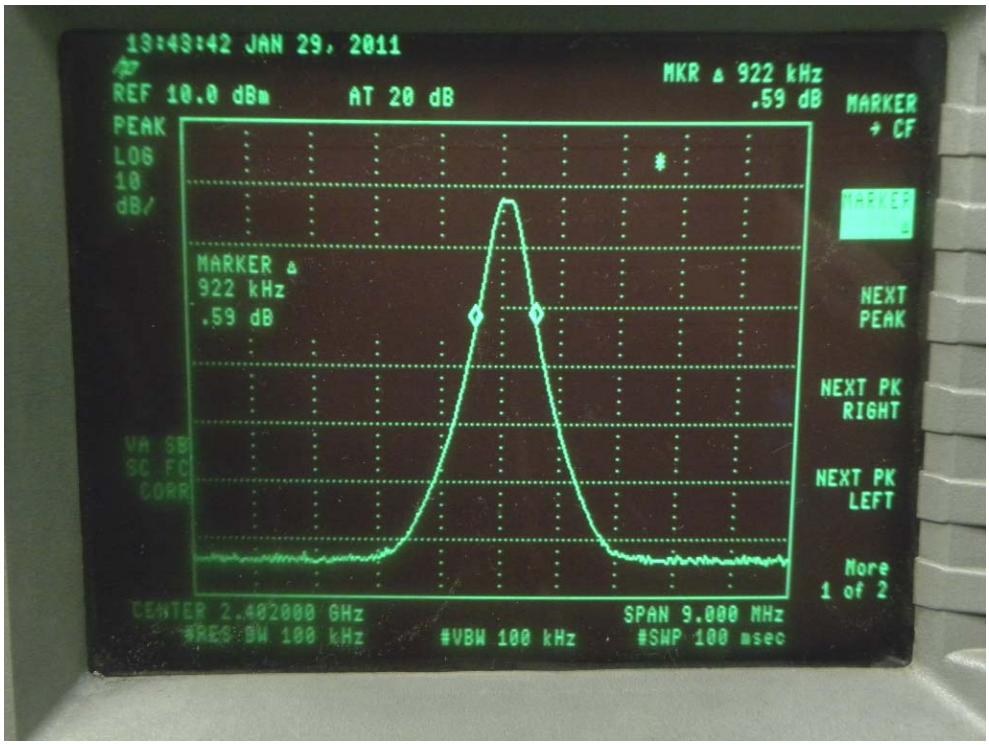
Same as 5.3 Radiated Emission Measurement.

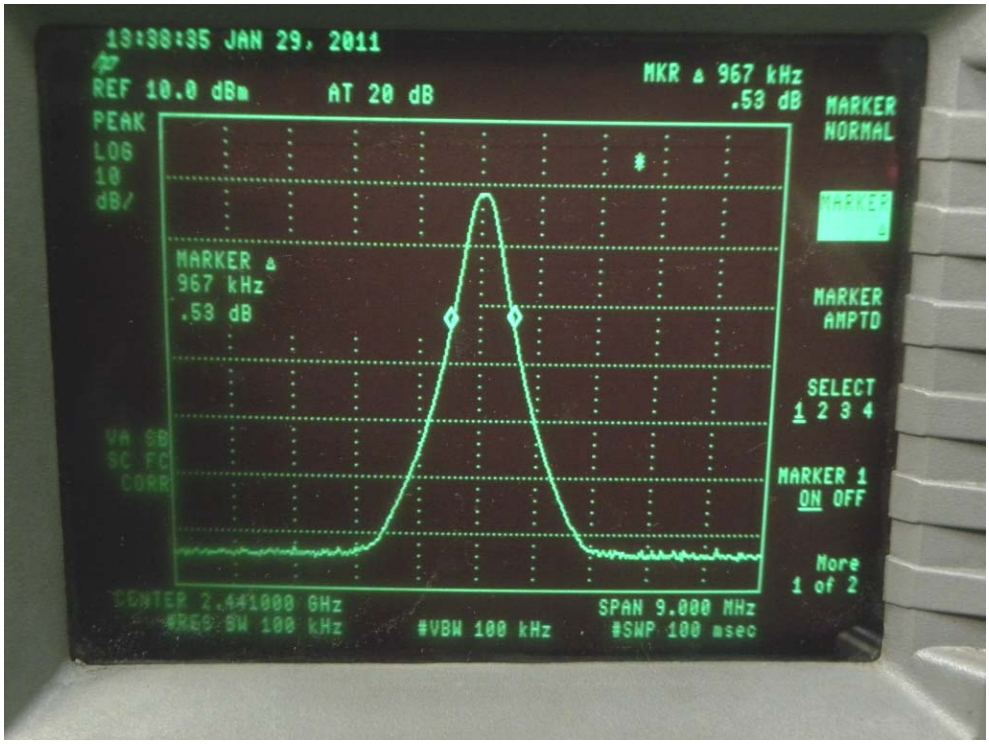
7.4 Measurement Results:

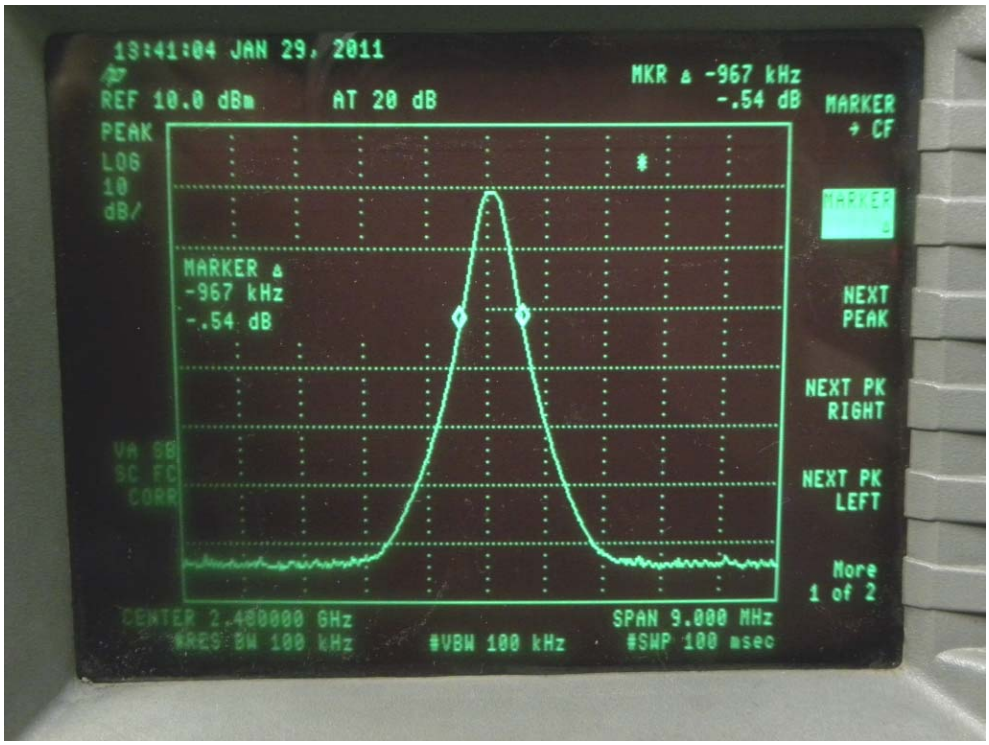
Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	January 29, 2011
Test By:	Andy	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Channel number	Channel frequency (MHz)	20dB Down BW(kHz)
1	2402	922
40	2441	967
79	2480	967


13:43:42 JAN 29, 2011
REF 10.0 dBm
AT 20 dB
MKR Δ 922 kHz
.59 dB
PEAK
LOG
10
dB/
MARKER Δ
922 kHz
.59 dB
MARKER
→ CF
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 2
CENTER 2.402000 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 9.000 MHz
#SWP 100 msec


13:38:35 JAN 29, 2011
REF 10.0 dBm
AT 20 dB
MKR Δ 967 kHz
.53 dB
PEAK
LOG
10
dB/
MARKER Δ
967 kHz
.53 dB
MARKER
NORMAL
MARKER
AMPTD
SELECT
1 2 3 4
MARKER 1
ON OFF
More
1 of 2
CENTER 2.441000 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 9.000 MHz
#SWP 100 msec

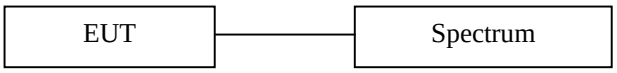

13:41:04 JAN 29, 2011
MKR Δ -967 kHz
-.54 dB
REF 10.0 dBm
AT 20 dB
PEAK
LOG
10
dB/
MARKER
→ CF
MARKER Δ
-967 kHz
-.54 dB
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 2
CENTER 2.480000 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 9.000 MHz
#SWP 100 msec

8. Quantity of Hopping Channel Test

8.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

8.2 Test SET-UP (Block Diagram of Configuration)



8.3 Measurement Equipment Used:

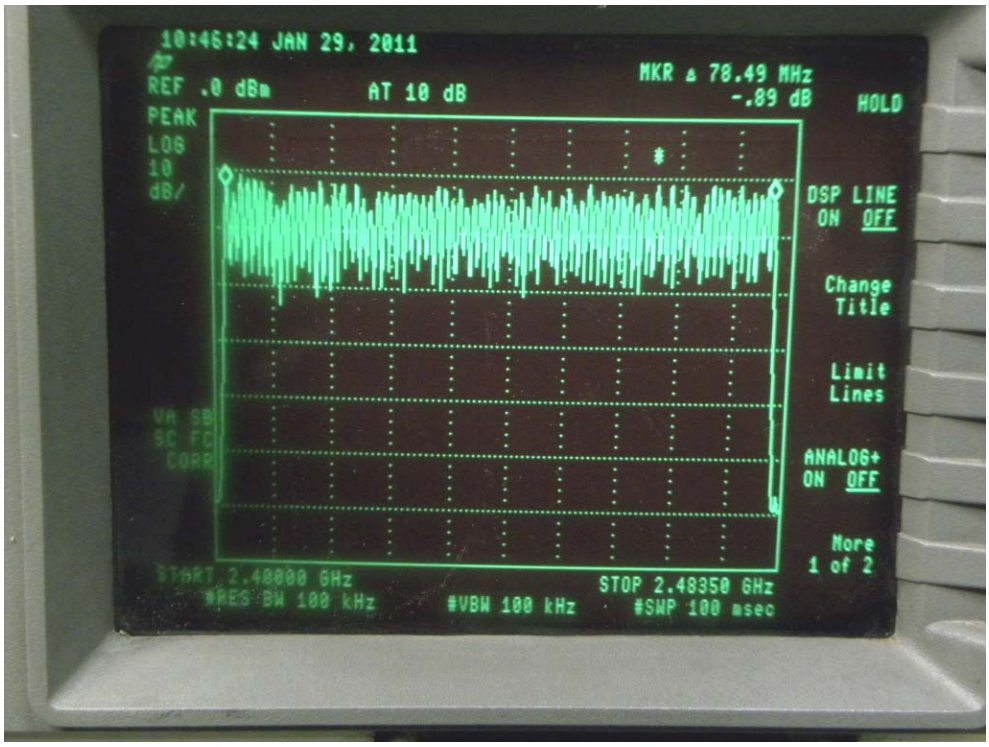
Same as 5.3 Radiated Emission Measurement.

8.4 Measurement Results:

Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	January 29, 2011
Test By:	Andy	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Hopping Channel Frequency Range	Quantity of Hopping Channel	Quantity of Hopping Channel
2402-2480	79	＞15


10:46:24 JAN 29, 2011
REF .0 dBm
AT 10 dB
MKR Δ 78.49 MHz
-.89 dB
HOLD
PEAK
LOG
10
dB/
DSP LINE
ON OFF
Change
Title
Limit
Lines
ANALOG+
ON OFF
More
1 of 2
START 2.48000 GHz
#RES BW 100 kHz
#VBW 100 kHz
STOP 2.48350 GHz
#SWP 100 msec

9. Time of Occupancy (Dwell Time) test

Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	January 29, 2011
Test By:	Andy	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

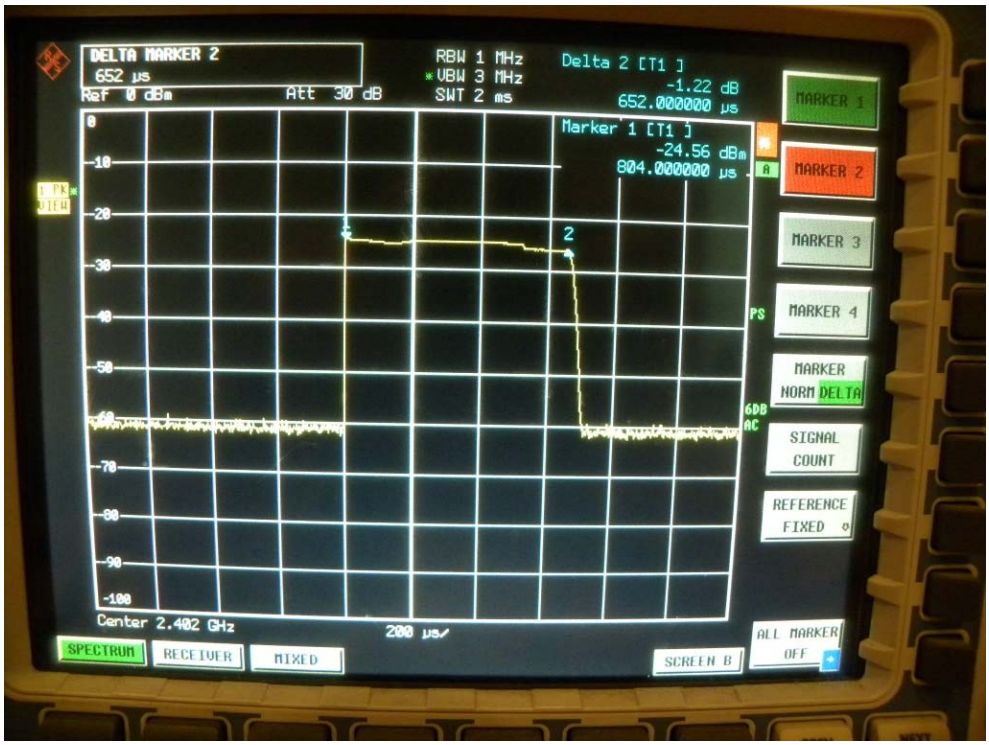
Mode	Number of transmission in a 31.6 (79 Hopping*0.4)	Length of transmissions time(msec)	Result (msec)	Limit (msec)
DH1	10.13 x 31.6 = 320.108	0.652	208.710	400
DH40	5.06 x 31.6 =159.896	0.636	101.693	400
DH79	3.38 x 31.6 =106.808	0.632	67.503	400

DH79 Packet permit maximum 1600/ 79 / 6 = 3.38 hops per second in each channel (79 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 3.38 x 31.6 =106.808 within 31.6 seconds.

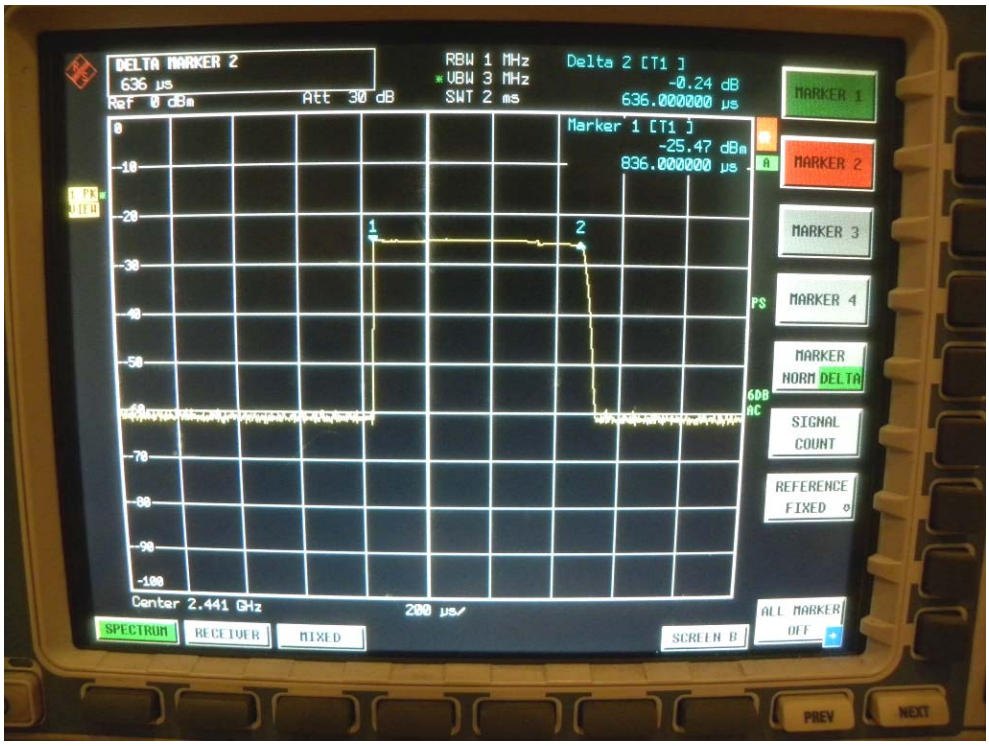
DH40 Packet permit maximum 1600 / 79 / 4 = 5.06 hops per second in each channel (40 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 15.06 x 31.6 =159.896 within 31.6 seconds.

DH1 Packet permit maximum 1600 / 79 / 2 = 10.13 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 10.13 x 31.6 = 320.108 within 31.6 seconds.

DH1


DELTA MARKER 2
652 µs
Ref 0 dBm
Att 30 dB
RBW 1 MHz
*VBW 3 MHz
SWT 2 ms
Delta 2 [T1]
-1.22 dB
652.000000 µs
Marker 1 [T1]
-24.56 dBm
804.000000 µs
Center 2.402 GHz
200 µs/
MARKER 1
MARKER 2
MARKER 3
MARKER 4
MARKER NORM DELTA
SIGNAL COUNT
REFERENCE FIXED
ALL MARKER OFF
SPECTRUM
RECEIVER
MIXED
SCREEN B

DH40


DELTA MARKER 2
636 µs
Ref 0 dBm
Att 30 dB
RBW 1 MHz
*VBW 3 MHz
SWT 2 ms
Delta 2 [T1]
-0.24 dB
636.000000 µs
Marker 1 [T1]
-25.47 dBm
836.000000 µs
Center 2.441 GHz
200 µs/
MARKER 1
MARKER 2
MARKER 3
MARKER 4
MARKER NORM DELTA
SIGNAL COUNT
REFERENCE FIXED
ALL MARKER OFF
SPECTRUM
RECEIVER
MIXED
SCREEN B
PREV
NEXT

DH79

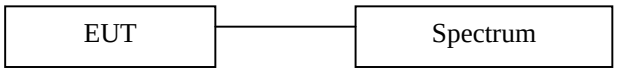

DELTA MARKER 2
632 µs
RBW 1 MHz
*VBW 3 MHz
SWT 2 ms
Delta 2 [T1]
-0.91 dB
632.000000 µs
Ref 0 dBm
Att 30 dB
Marker 1 [T1]
-23.31 dBm
540.000000 µs
0
-10
-20
-30
-40
-50
-70
-80
-90
-100
Center 2.48 GHz
200 µs/
MARKER 1
MARKER 2
MARKER 3
MARKER 4
MARKER NORM DELTA
SIGNAL COUNT
REFERENCE FIXED
ALL MARKER OFF
SPECTRUM
RECEIVER
MIXED
SCREEN B
PREV
NEXT

10. M AX IMUM PEAK OUTPUT POWER TEST

10.1 Measurement Procedure

a. Check the calibration of the measuring instrument(SA) using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using proper RBW and VBW setting.
d. Measure the captured power within the band and recording the plot.
e. Repeat above procedures until all frequencies required were complete.

10.2 Test SET-UP (Block Diagram of Configuration)



10.3 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Rohde & Schwarz	FSP7	839511/010	05/29/2010	05/29/2011

10.4 Measurement Results:

Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	January 29, 2011
Test By:	Andy	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Channel number	Channel Frequency (MHz)	Peak Power output(mW)	Peak Power output(dBm)	Peak Power Limit(mW)	Pass/Fail
1	2402.00	1.216	0.85	125	PASS
40	2441.00	1.186	0.74	125	PASS
79	2480.00	1.247	0.96	125	PASS

11. Band EDGE test

11.1 Measurement Procedure

1. The EUT was Operating in hopping mode or could be controlled its channel. Printed out test result from the spectrum by hard copy function.
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measured were complete.

11.2 Test SET-UP (Block Diagram of Configuration)

Same as 5.2 Radiated Emission Set-up.

11.3 Measurement Equipment Used:

Same as 5.3 Radiated Emission Measurement.

11.4 Measurement Results:

Refer to attached data chart.

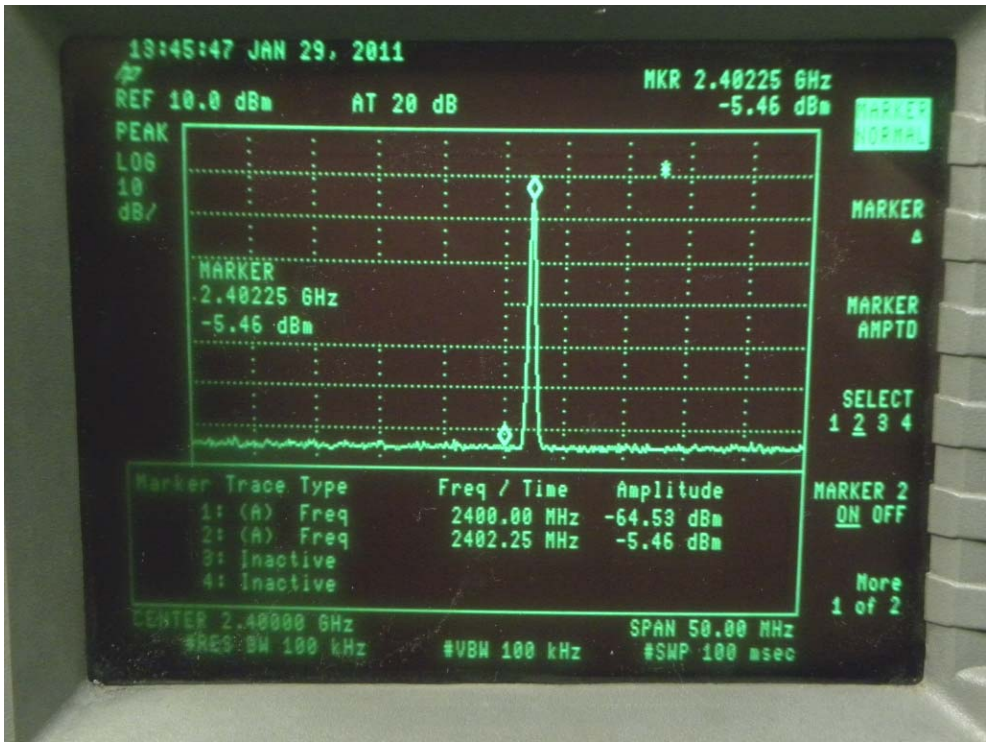
Spectrum Detector:	PK	Test Date :	January 29, 2011
Test By:	Andy	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

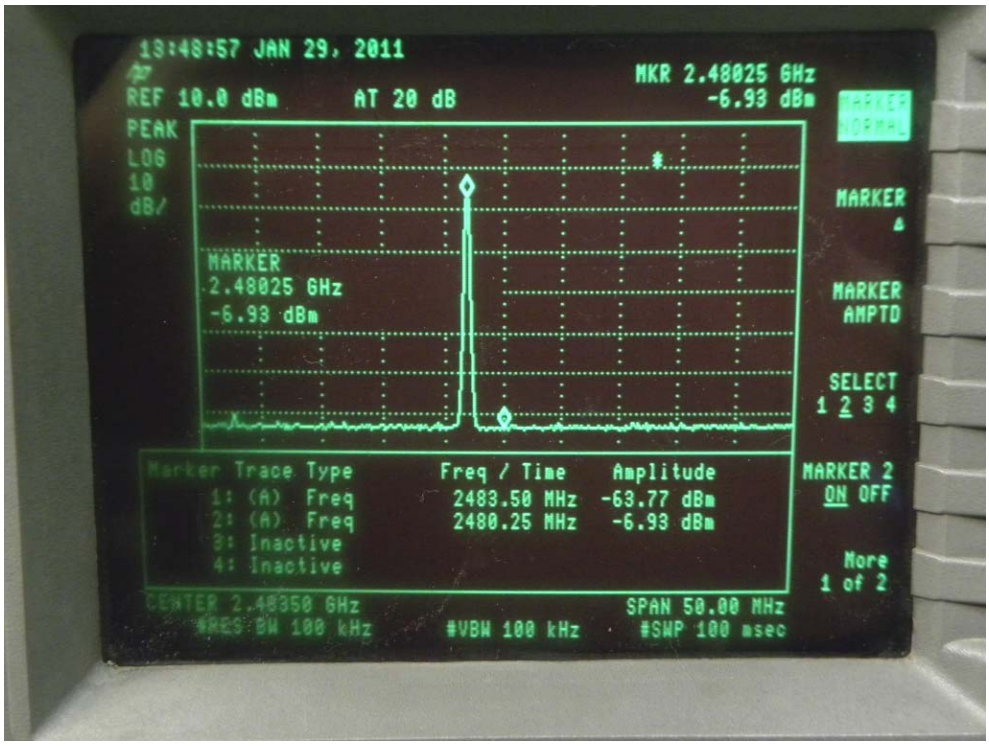
1.Conducted Test

Frequency (MHz)	Peak Power Output(dBm)	Emission read Value(dBm)	Result of Band edge(dBc)	Band edge Limit(dBc)
<2400	-5.46	-64.53	59.07	>20dBc
>2483.5	-6.93	-63.77	56.84	>20dBc

2.Radiated emission test

Frequency (MHz)	Antenna polarization (H/V)	Emission (dBuV/m)		Band edge Limit (dBuV/m)	
		PK	AV	PK	AV
<2400	V	53.77	45.24	74.00	54.00
>2483.5	V	55.35	46.46	74.00	54.00


13:45:47 JAN 29, 2011
MKR 2.40225 GHz
-5.46 dBm
REF 10.0 dBm
AT 20 dB
PEAK
LOG
10
dB/
MARKER
2.40225 GHz
-5.46 dBm
MARKER
Δ
MARKER
AMPTD
SELECT
1 2 3 4
Marker Trace Type
Freq / Time
Amplitude
1: (A) Freq
2400.00 MHz
-64.53 dBm
2: (A) Freq
2402.25 MHz
-5.46 dBm
3: Inactive
4: Inactive
MARKER 2
ON OFF
More
1 of 2
CENTER 2.40000 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 50.00 MHz
#SWP 100 msec


13:48:57 JAN 29, 2011
MKR 2.48025 GHz
-6.93 dBm
REF 10.0 dBm
AT 20 dB
PEAK
LOG
10
dB/
MARKER
2.48025 GHz
-6.93 dBm
MARKER
Δ
MARKER
AMPTD
SELECT
1 2 3 4
Marker Trace Type
Freq / Time
Amplitude
1: (A) Freq
2483.50 MHz
-63.77 dBm
2: (A) Freq
2480.25 MHz
-6.93 dBm
3: Inactive
4: Inactive
MARKER 2
ON OFF
More
1 of 2
CENTER 2.48350 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 50.00 MHz
#SWP 100 msec

12. Antenna Application

12.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.240.

FCC part 15C section 15.247 requirements:
Systems operating in the 2402-2480MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

12.2. Result

The EUT's antenna used a chip antenna and integrated on PCB, The antenna's gain is 2Bi and meets the requirement.

13. RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in § 1.1307(b)

Limits for Maximum Permissible Exposure(MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm^2)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	**--**	**--**	**F/300**	**6**
1500-100000	**--**	**--**	**5**	**6**
(B) Limits for General Population/Uncontrol Exposures				
300-1500	**--**	**--**	**F/1500**	**6**
1500-100000	**--**	**--**	**1**	**30**

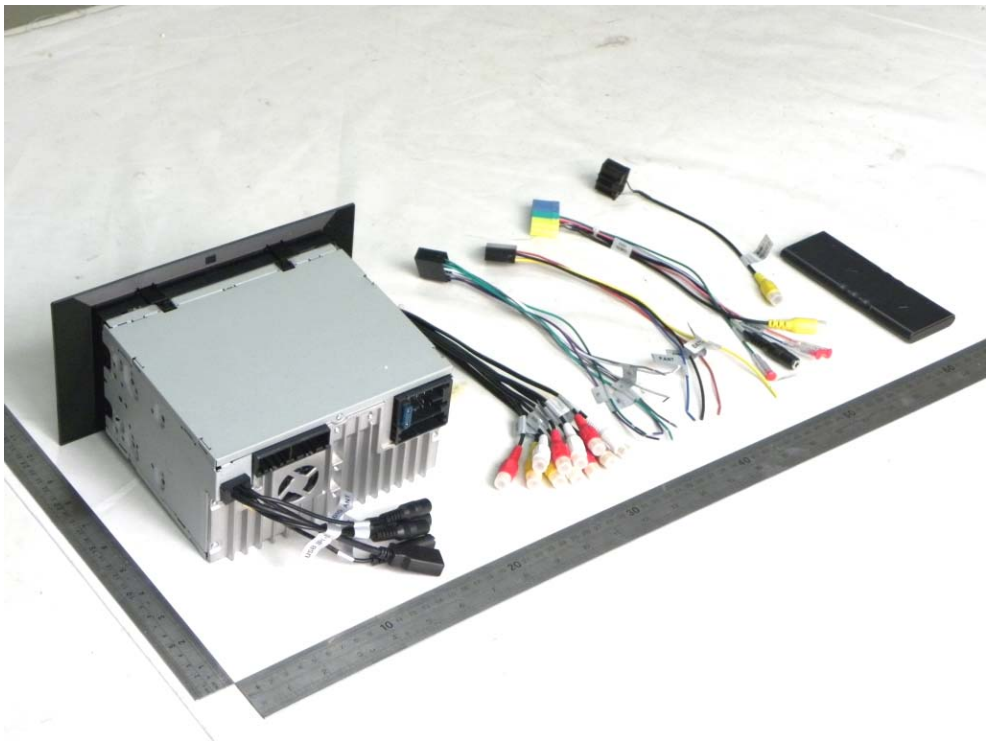
13.1 Friis transmission formula: Pd=(Pout*G)\(4*pi*R^2)

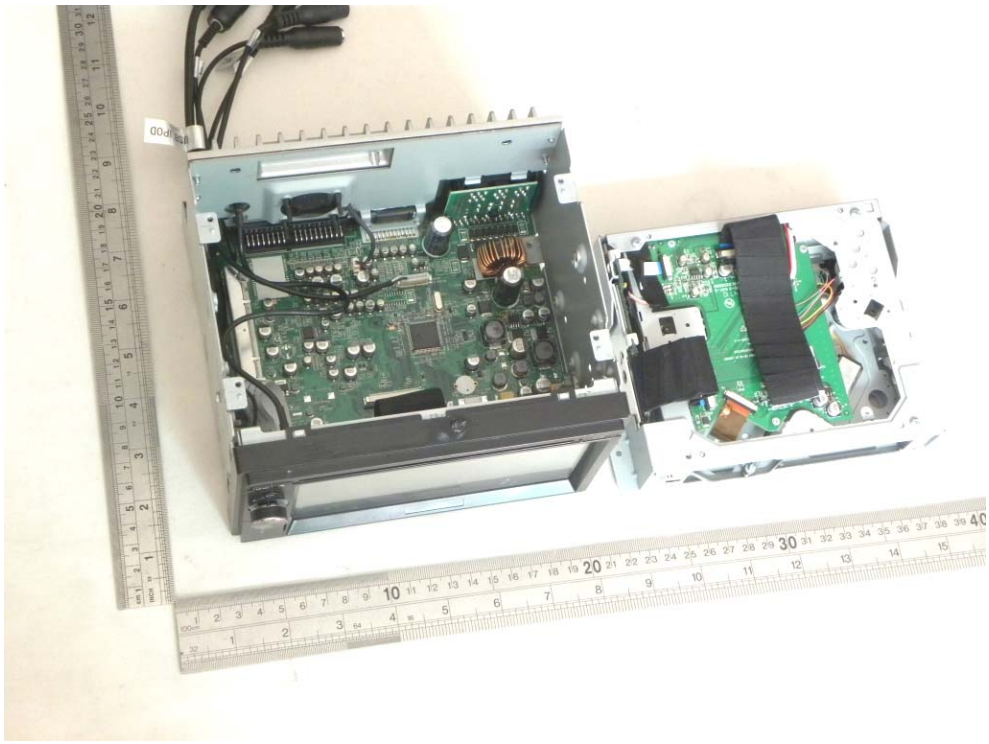
Where
Pd= Power density in mW/cm^2
Pout=output power to antenna in Mw
G= gain of antenna in linear scale
Pi=3.1416
R= distance between observation point and center of the radiator in cm
Pd the limit of MPE, 1mW/cm2. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

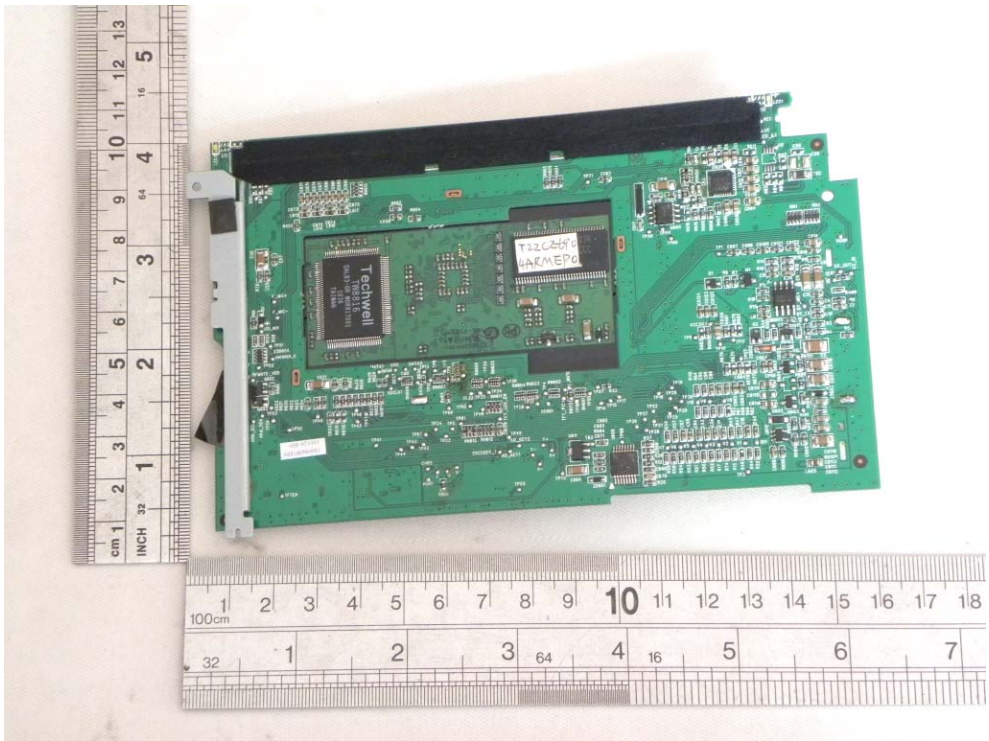
13.2 Measurement Result

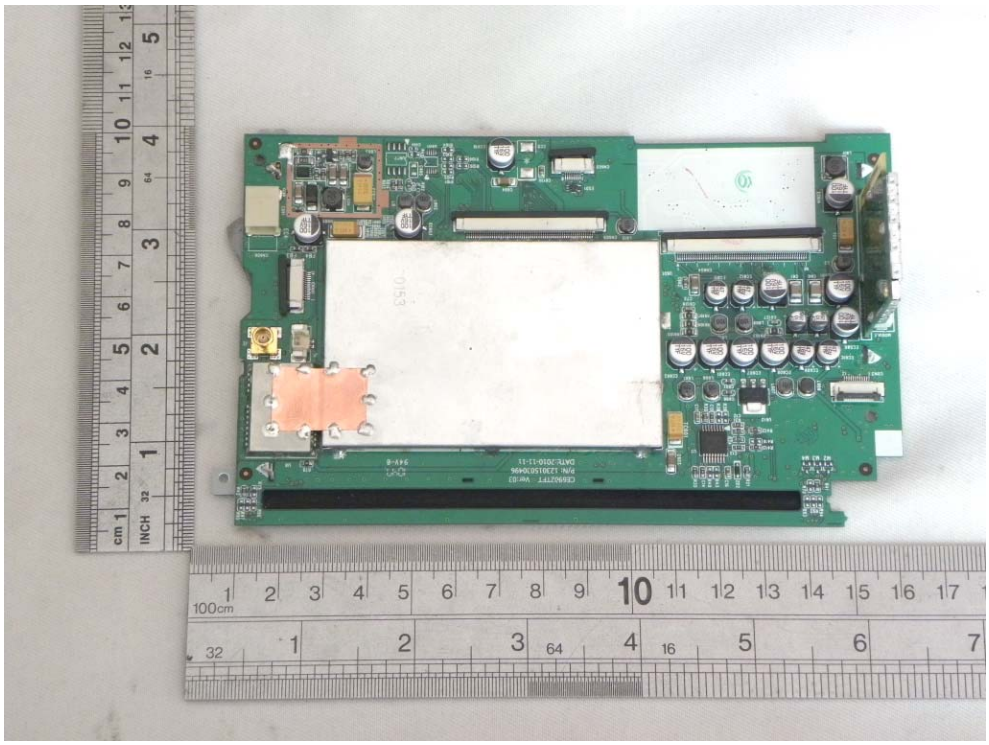
Channel	Channel Frequency (MHz)	Output Peak power (mW)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
Low	2402	1.216	2	3.83e-4	1
Middle	2441	1.186	2	3.74e-4	1
High	2480	1.247	2	3.93e-4	1

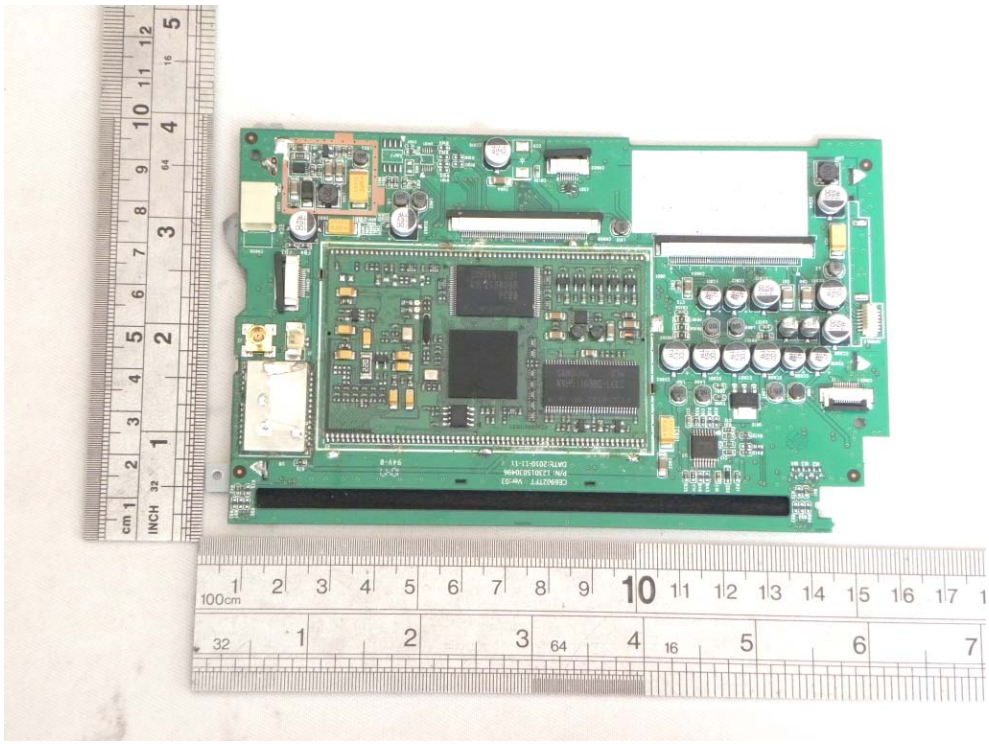
General Appearance of the EUT

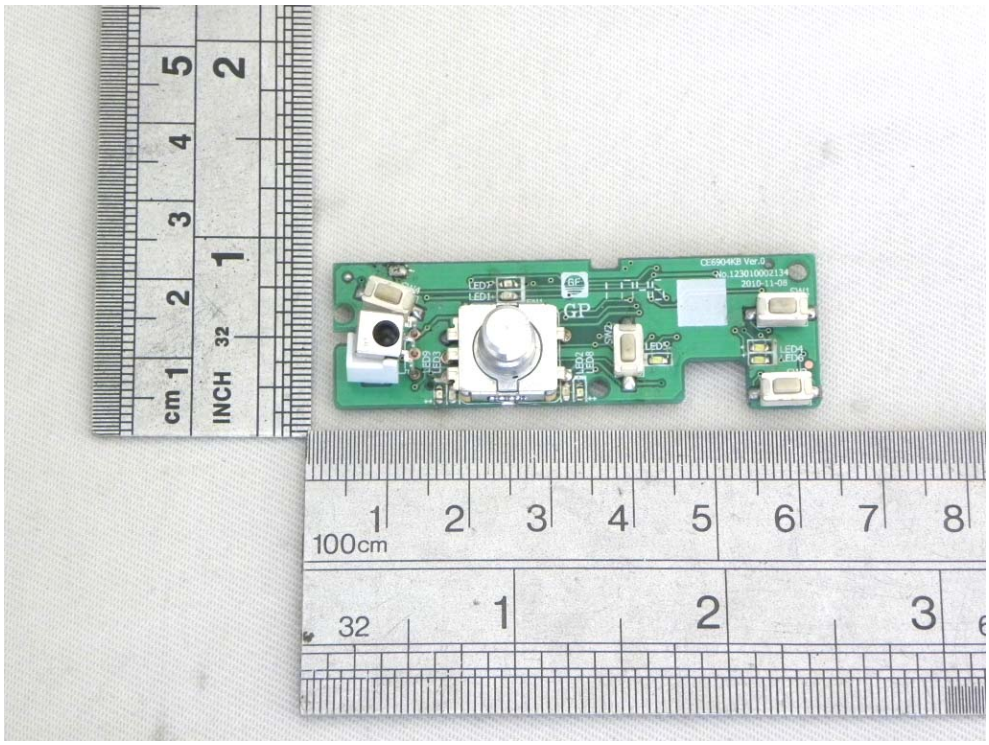


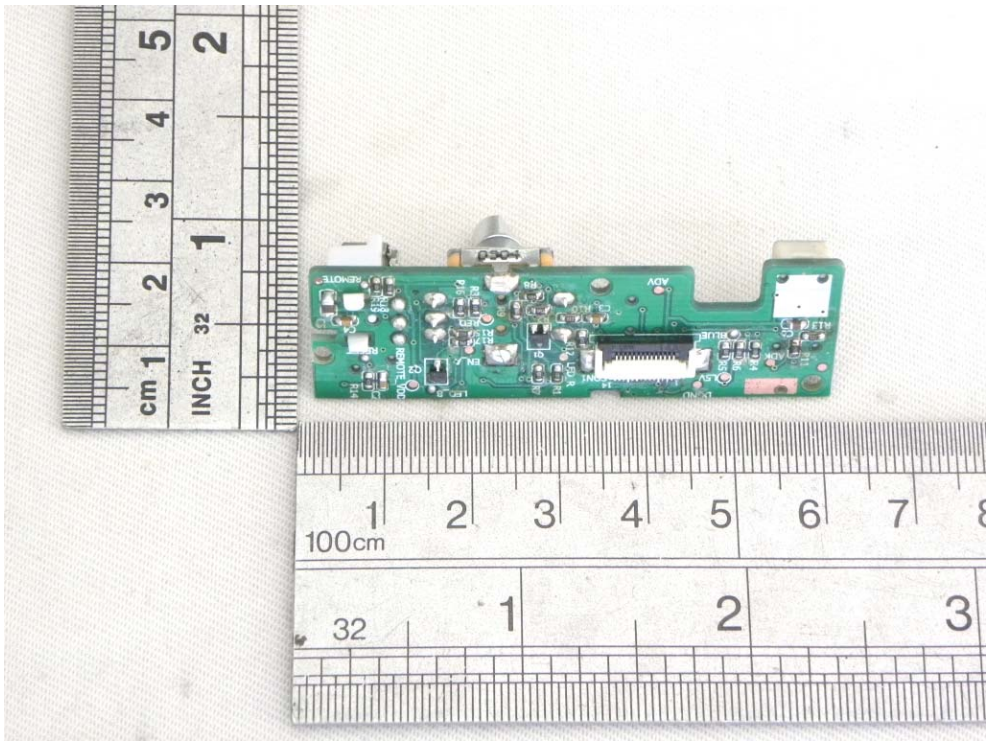


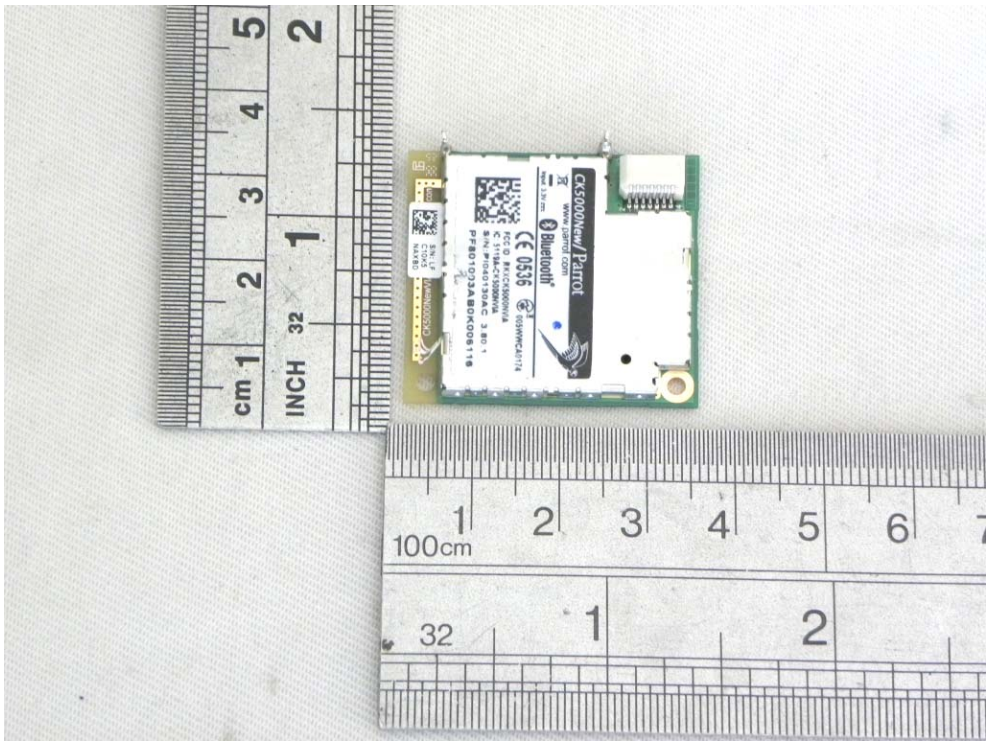

Techwell

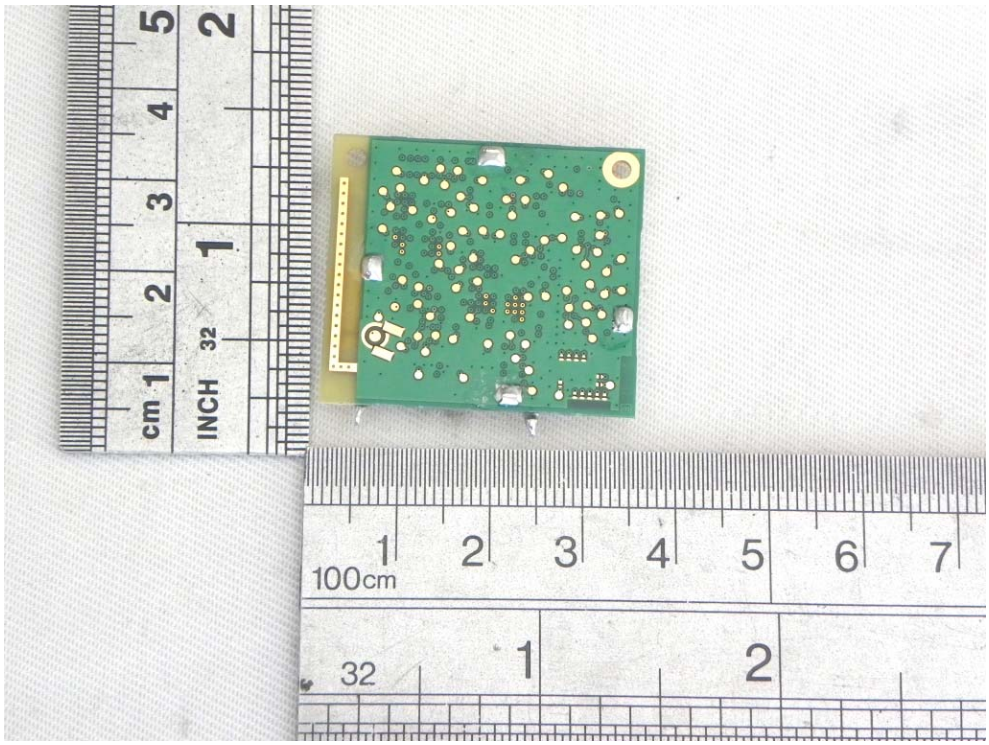





cm 1
INCH 32
100cm
GP


cm 1
INCH 32
100cm


CK5000Now! Parrot
Bluetooth
0536
cm 1 2 3 4 5
INCH 32 1 2
100cm 1 2 3 4 5 6
32 1 2


cm 1 2 3 4 5
INCH 32 1 2
100cm 1 2 3 4 5 6 7
32 1 2