FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart C § 15.247

Equipment	:	**MINI COMPUTER, MOBILE COMPUTER**
Brand Name	:	**LS**
Model No.	:	**IU9067**
Filing Type	:	**New Application**
Applicant	:	**LSIS Co., Ltd** 1026-6, Hogye-dong, Dong-an-gu Anyang-si, Gyeonggi-do, Korea
FCC ID	:	**Z8TIU9067LS001**
Manufacturer	:	**DongGuan BG Electronic Co., Limited.** The 2nd Bldg, The 5th Industrial Zone, Shang Sha-District, Chang An-Town, Guang Dong-Province, 523870, Dong Guan-City, People's Republic of China
Received Date	:	Dec. 13, 2011
Final Test Date	:	Dec. 14, 2011

Statement

Test result included is only for the RFID of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart C**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

SPORTON International Inc.

No. 52 Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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History of This Test Report

Original Issue Date: Dec. 16, 2011
Report No.: FR1O2535-01
■ No additional attachment.
□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

according to

47 CFR FCC Part 15 Subpart C § 15.247

Equipment	:	MINI COMPUTER, MOBILE COMPUTER
Brand Name	:	LS
Model No.	:	IU9067
Applicant	:	LSIS Co., Ltd 1026-6, Hogye-dong, Dong-an-gu Anyang-si, Gyeonggi-do, Korea

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Dec. 13, 2011 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

2011.12.16
Wayne Hsu / Assistant Manager

SPORTON International Inc.

No. 52 Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

1. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
3.1	15.207	AC Power Line Conducted Emissions	Complies	12.97 dB
3.2	15.247(b)(3)	Maximum Peak Output Power	Complies	5.94 dB
3.3	15.247(e)	Hopping Channel Separation	Complies	-
3.4	15.247(a)(2)	Number of Hopping Frequency	Complies	-
3.5	15.247(d)	Dwell Time	Complies	-
3.6	15.247(d)	Radiated Emissions	Complies	1.03 dB
3.7	15.203	Band Edge Emissions	Complies	-
3.8	15.207	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Peak Output Power	±0.8dB	Confidence levels of 95%
Hopping Channel Separation	$\pm 8.5\times10^{-8}$	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7℃	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

2. GENERAL INFORMATION

2.1. Product Details

Only the radio detail of RFID is shown in the table below. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

Items	Description
Power Type	5V From Adapter
Modulation	FHSS (ASK)
Frequency Range	902.75MHz ~ 927.25MHz
Channel Number	50
Channel Band Width	52 kHz
Peak Output Power	24.06 dBm

2.2. Accessories

Accessories Information					
Accessories or 2nd Source or Key Part	AC Adapter	Brand Name	DEE VAN ENTERPRISE CO.,LTD.	Model Name	DSA-24CA-05 05040035135
		Power Rating	INPUT : 0.3W(0A Load, 230 VAC50HZ) OUTPUT : +5V, 4A(20W)		
		Power Cord	Wall-mount Type(UL/FCC)		
	Battery	Brand Name	LS	Model Name	BP08-000640
		Power Rating	11.1V 3760mAh 41.74Wh	Type	Li-ion
	USB Cable Type	120cm shielded with core			

2.3. Table for Filed Antenna

Brand	Model	Antenna Type	Connector	Gain (dBi)
MAC technologies Inc.	MQMA60F48SG981-A	Quadrifilar Meander Antenna	IPX	-2.11

2.4. Table for Carrier Frequencies

Channel No.	Frequency	Channel No.	Frequency	Channel No.	Frequency
1	902.75 MHz	18	911.25 MHz	35	919.75 MHz
2	903.25 MHz	19	911.75 MHz	36	920.25 MHz
3	903.75 MHz	20	912.25 MHz	37	920.75 MHz
4	904.25 MHz	21	912.75 MHz	38	921.25 MHz
5	904.75 MHz	22	913.25 MHz	39	921.75 MHz
6	905.25 MHz	23	913.75 MHz	40	922.25 MHz
7	905.75 MHz	24	914.25 MHz	41	922.75 MHz
8	906.25 MHz	25	914.75 MHz	42	923.25 MHz
9	906.75 MHz	26	915.25 MHz	43	923.75 MHz
10	907.25 MHz	27	915.75 MHz	44	924.25 MHz
11	907.75 MHz	28	916.25 MHz	45	924.75 MHz
12	908.25 MHz	29	916.75 MHz	46	925.25 MHz
13	908.75 MHz	30	917.25 MHz	47	925.75 MHz
14	909.25 MHz	31	917.75 MHz	48	926.25 MHz
15	909.75 MHz	32	918.25 MHz	49	926.75 MHz
16	910.25 MHz	33	918.75 MHz	50	927.25 MHz
17	910.75 MHz	34	919.25 MHz	-	-

2.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Channel
AC Power Conducted Emissions	Transmitting Mode	Hopping 1~50
Maximum Peak Output Power	RFID	1/24/50
Hopping Channel Separation	RFID	1/24/50
Number of Hopping Frequency	RFID	1~50
Dwell Time	Hopping	1/50
Radiated Emissions Below 1GHz	Transmitting Mode	1/24/50
Radiated Emissions Above 1GHz	RFID	1/24/50
Band Edge Emissions	RFID	1/24/50

2.6. Table for Testing Locations

Test Site No.	Site Category	Location
CO04-HY	Conduction	Hwa Ya
TH01-HY	OVEN Room	Hwa Ya
03CH02-HY	SAC	Hwa Ya

Semi Anechoic Chamber (SAC).

2.7. Table for Supporting Units

The EUT tested with docking in this report.

2.8. Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power Parameters

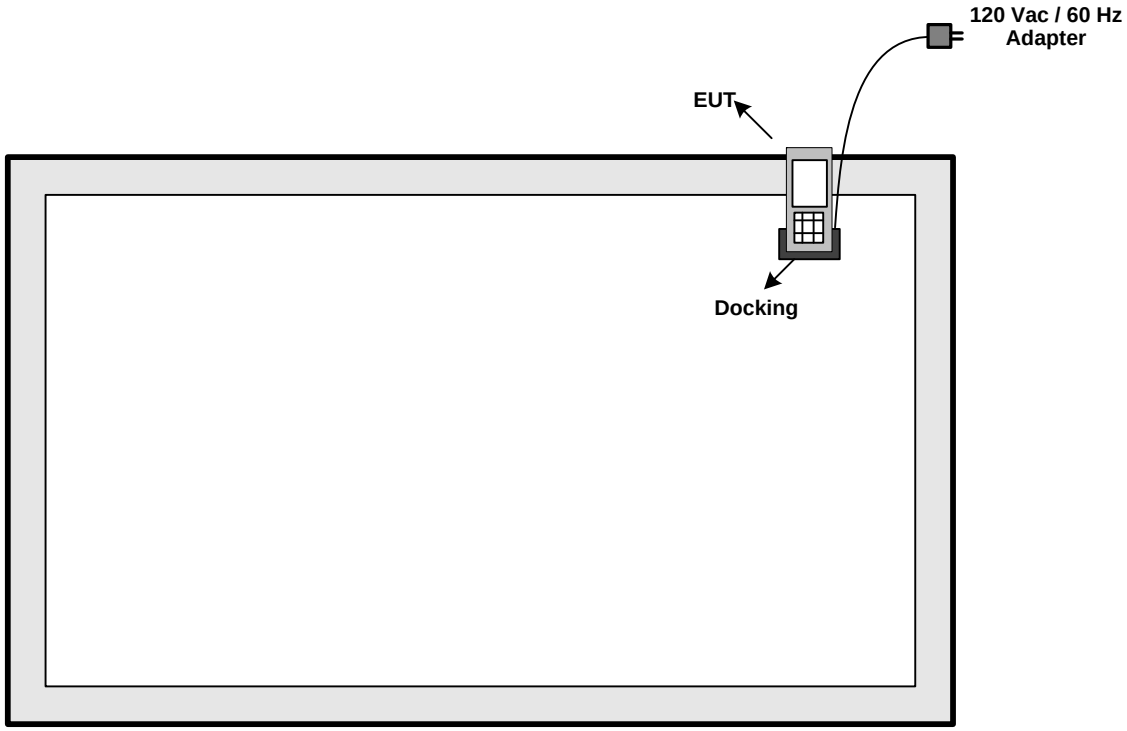
Test Software Version	RFIDDEMO V1.7.9		
Frequency	902.75 MHz	**914.25 MHz**	927.25 MHz
Power Parameters	1	1	1

2.9. EUT Operation during Test

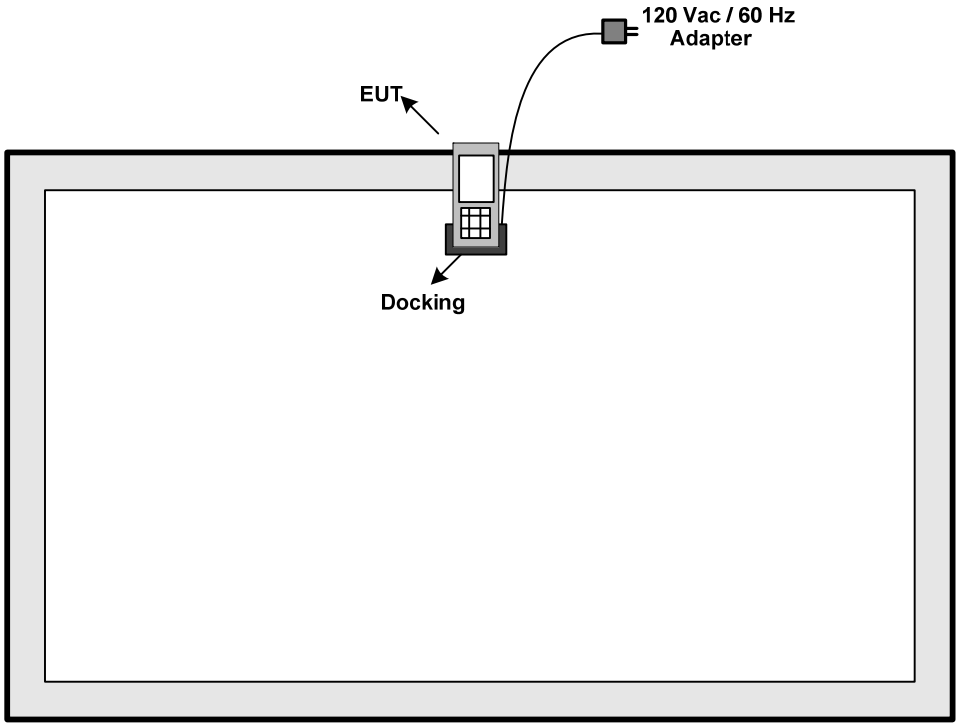
Turn on the power of all equipment.
- Executed “RFIDDEMO V1.7.9” to keep transmitting signals at fixed frequency.

2.10. Test Configurations

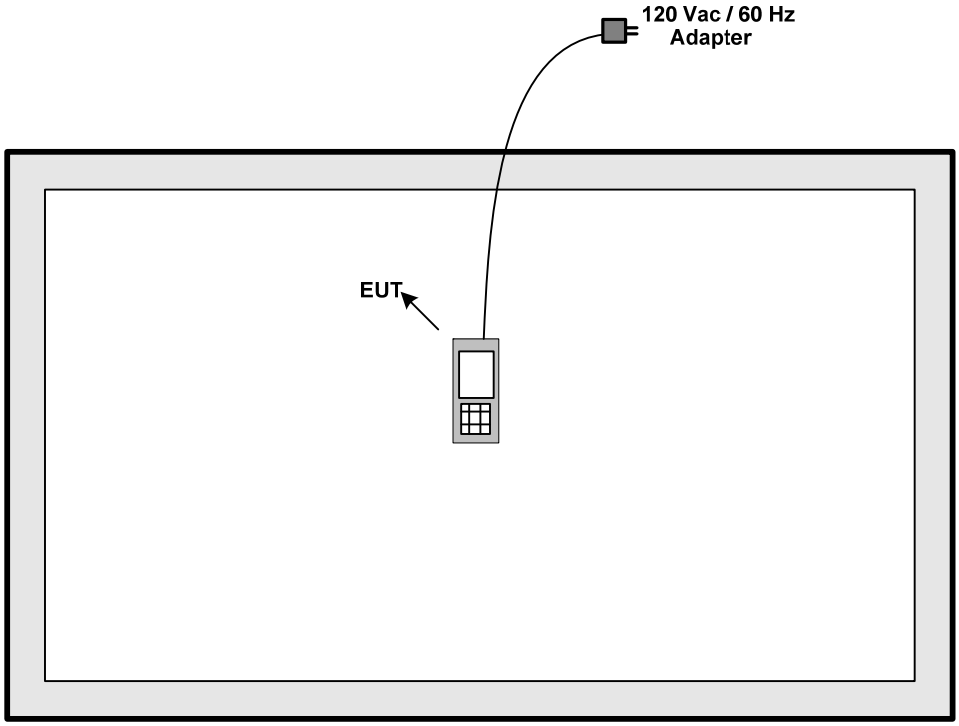
For conducted emissions



For radiated emissions 9kHz~1GHz



For radiated emissions above 1GHz



3. TEST RESULT

3.1. AC Power Line Conducted Emissions Measurement

3.1.1. Limit

For this product, which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Class A

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	79	66
0.5~30	73	60

Class B

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

3.1.2. Measuring Instruments and Setting

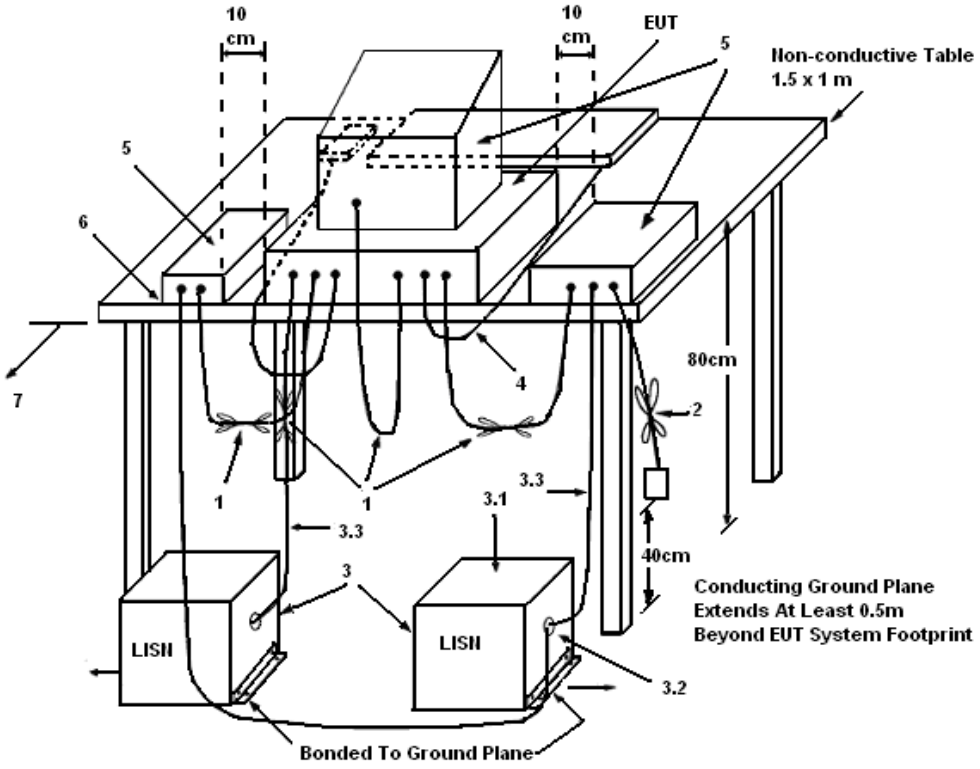
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.1.3. Test Procedures

1. The EUT warm up about 15 minutes then start test.
2. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
5. The frequency range from 150 KHz to 30 MHz was searched.
6. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
7. The measurement has to be done between each power line and ground at the power terminal.

3.1.4. Test Setup Layout



LEGEND:
(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.
(3.1) All other equipment powered from additional LISN(s).
(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
(3.3) LISN at least 80 cm from nearest part of EUT chassis.
(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
(5) Non-EUT components of EUT system being tested.
(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

3.1.5. Test Deviation

There is no deviation with the original standard.

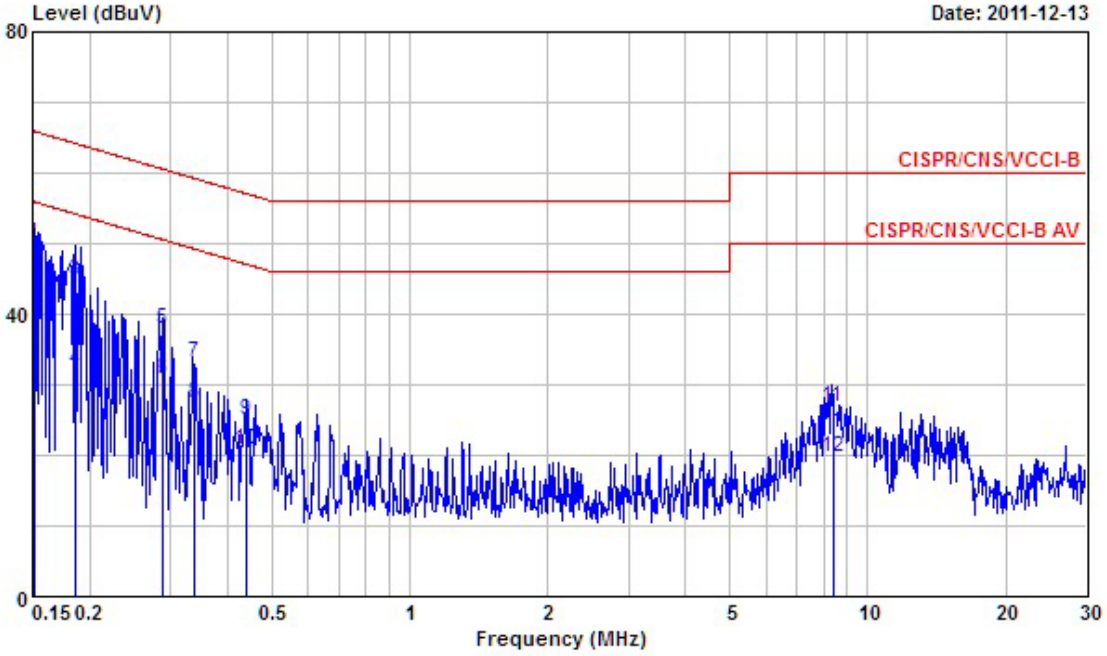
3.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in transmitting mode.

3.1.7. Results of AC Power Line Conducted Emissions Measurement

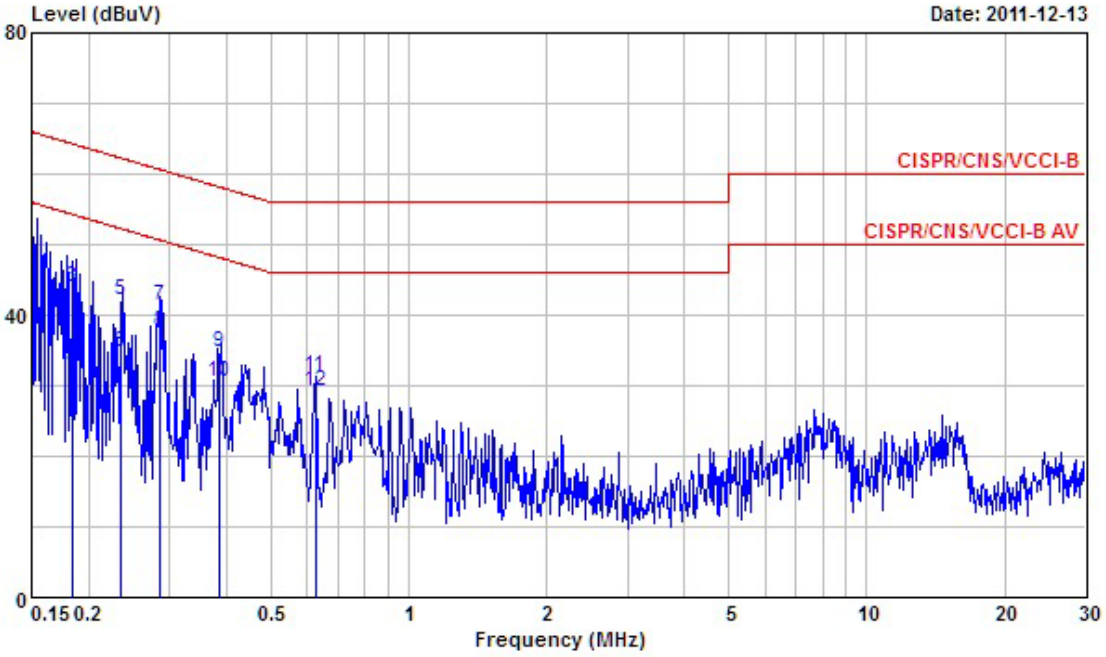
Final Test Date	Dec. 13, 2011	**Test Site No.**	CO04-HY
Temperature	24.8℃	**Humidity**	50%
Test Engineer	Assen	**Configuration**	Transmitting Mode

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1515980	50.06	-15.85	65.91	49.66	0.30	0.10	QP
2	0.1515980	37.31	-18.60	55.91	36.91	0.30	0.10	Average
3	0.1854100	44.66	-19.58	64.24	44.26	0.30	0.10	QP
4	0.1854100	32.21	-22.03	54.24	31.81	0.30	0.10	Average
5	0.2880290	37.83	-22.75	60.58	37.43	0.30	0.10	QP
6	0.2880290	30.71	-19.87	50.58	30.31	0.30	0.10	Average
7	0.3378700	33.29	-25.97	59.26	32.89	0.30	0.10	QP
8	0.3378700	27.34	-21.92	49.26	26.94	0.30	0.10	Average
9	0.4374210	24.89	-32.22	57.11	24.50	0.29	0.10	QP
10	0.4374210	20.84	-26.27	47.11	20.45	0.29	0.10	Average
11	8.415	26.78	-33.22	60.00	26.34	0.44	0.00	QP
12	8.415	19.84	-30.16	50.00	19.40	0.44	0.00	Average

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1500000	49.42	-16.58	66.00	49.05	0.27	0.10	QP
2	0.1500000	38.64	-17.36	56.00	38.27	0.27	0.10	Average
3	0.1842840	44.06	-20.23	64.29	43.70	0.26	0.10	QP
4	0.1842840	32.28	-22.01	54.29	31.92	0.26	0.10	Average
5	0.2349630	42.20	-20.07	62.27	41.85	0.25	0.10	QP
6	0.2349630	34.78	-17.49	52.27	34.43	0.25	0.10	Average
7	0.2867840	41.29	-19.33	60.62	40.95	0.24	0.10	QP
8	0.2867840	37.65	-12.97	50.62	37.31	0.24	0.10	Average
9	0.3866680	34.71	-23.42	58.13	34.37	0.24	0.10	QP
10	0.3866680	30.58	-17.55	48.13	30.24	0.24	0.10	Average
11	0.6241470	31.26	-24.74	56.00	30.92	0.24	0.10	QP
12	0.6241470	29.17	-16.83	46.00	28.83	0.24	0.10	Average

Note:
Level = Read Level + LISN Factor + Cable Loss.

3.2. Maximum **Peak Output Power** Measurement

3.2.1. Power Limit

(1) Installed areas and the maximum peak output power limit:
(a) For devices installed indoor or specific area: the maximum peak output power limit up to 1W (inclusive).
(b) For devices installed outdoor: the maximum peak output power limit up to 0.5W (inclusive).
(c) As shown in paragraph (a), “specific area” is specified to particular, closed and restricted fields with
management (for both indoor and outdoor).
(2) If transmitting antennas of directional gain greater than 6dBi are used, the peak output power from (2) the intentional radiator shall be reduced by the amount in dB that exceeds 6dBi.

3.2.2. Measuring Instruments and Setting

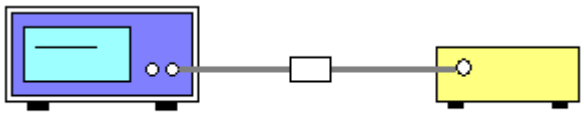
Please refer to section 4 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s
Used Peak Sensor	MA2411B

3.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the peak power value.
3. Repeat above procedures on all channels needed to be tested.

3.2.4. Test Setup Layout



3.2.5. Test Deviation

There is no deviation with the original standard.

3.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7. Test Result of Maximum Peak Output Power

Final Test Date	Dec. 14, 2011	**Test Site No.**	TH01-HY
Temperature	24.7℃	**Humidity**	69%
Test Engineer	Shiming	**Configuration**	RFID

Channel	**Frequency**	**Conducted Power (dBm)**	**Max. Limit (dBm)**	**Result**
1	902.75 MHz	23.99	30.00	**Complies**
24	914.25 MHz	23.98	30.00	**Complies**
50	927.25 MHz	24.06	30.00	**Complies**

3.3. Hopping Channel Separation Measurement

3.3.1. Other limits

(1) Frequency hopping systems:

(a) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter.

(b) Hopping channels and 20dB bandwidth limits: If the 20 dB bandwidth of the hopping channel is less than or equal to 250 kHz, the system shall use at least 12 hopping frequencies. If the 20dB bandwidth of the hopping channel is greater than 250 kHz, the system shall use at least 6 hopping frequencies. The maximum allowed 20dB bandwidth of the hopping channel is 500kHz.

(c) Frequency hopping systems, the average time of occupancy on any frequency each times shall not exceed 0.4 seconds within a time period in seconds equal to the number of hopping channels employed multiplied by 0.4.

3.3.2. Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	1 kHz (20dB Bandwidth) / 1 kHz (Channel Separation)
VB	1 kHz (20dB Bandwidth) / 1 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 1 kHz and the video bandwidth of 1 kHz were utilized for 20 dB bandwidth measurement.
3. The resolution bandwidth of 1 kHz and the video bandwidth of 1 kHz were utilized for channel separation measurement.

3.3.4. Test Setup Layout

3.3.5. Test Deviation

There is no deviation with the original standard.

3.3.6. EUT Operation during Test

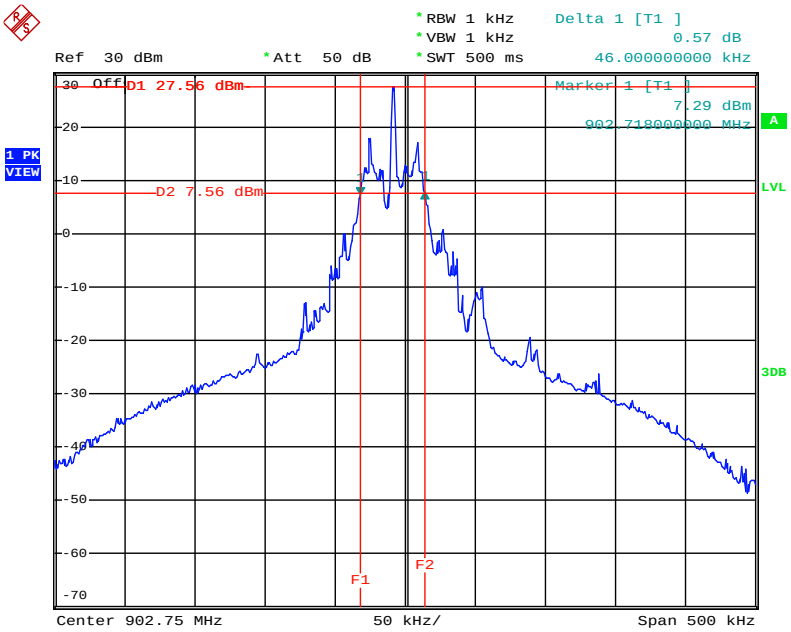
The EUT was programmed to be in continuously transmitting mode.

3.3.7. Test Result of Hopping Channel Separation

Final Test Date	Dec. 14, 2011	**Test Site No.**	TH01-HY
Temperature	24.7℃	**Humidity**	69%
Test Engineer	Shiming	**Configuration**	RFID

Frequency	Ch. Separation (kHz)	20dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)	Result
902.75 MHz	500.00	46.00	52.00	**Complies**
914.25 MHz	500.00	45.00	52.00	**Complies**
927.25 MHz	500.00	46.00	51.00	**Complies**

20 dB Bandwidth Plot on Channel 1 / 902.75 MHz



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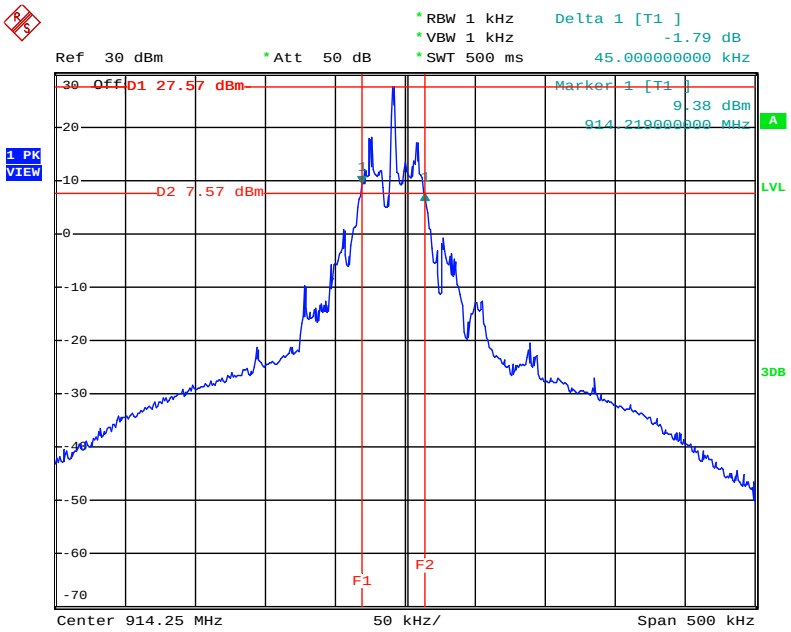
20 dB Bandwidth Plot on Channel 24 / 914.25 MHz



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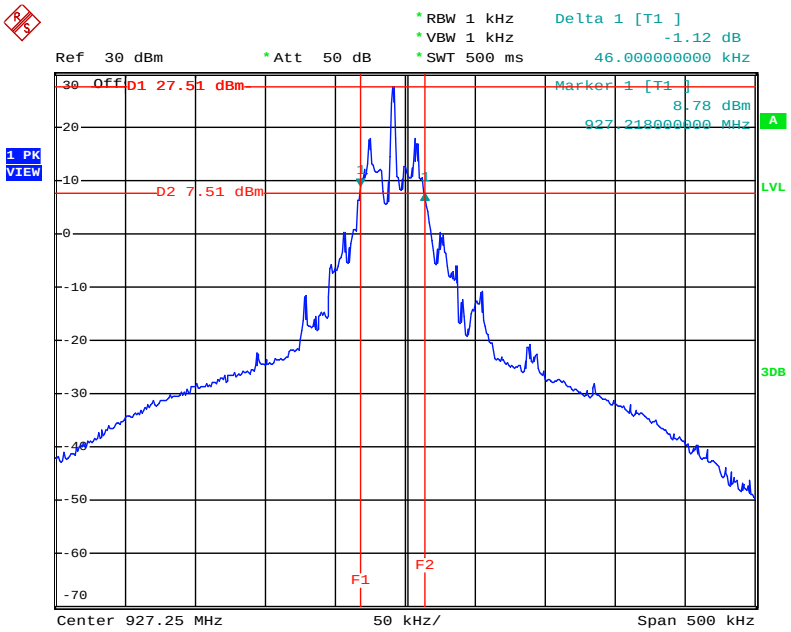
20 dB Bandwidth Plot on Channel 50 / 927.25 MHz



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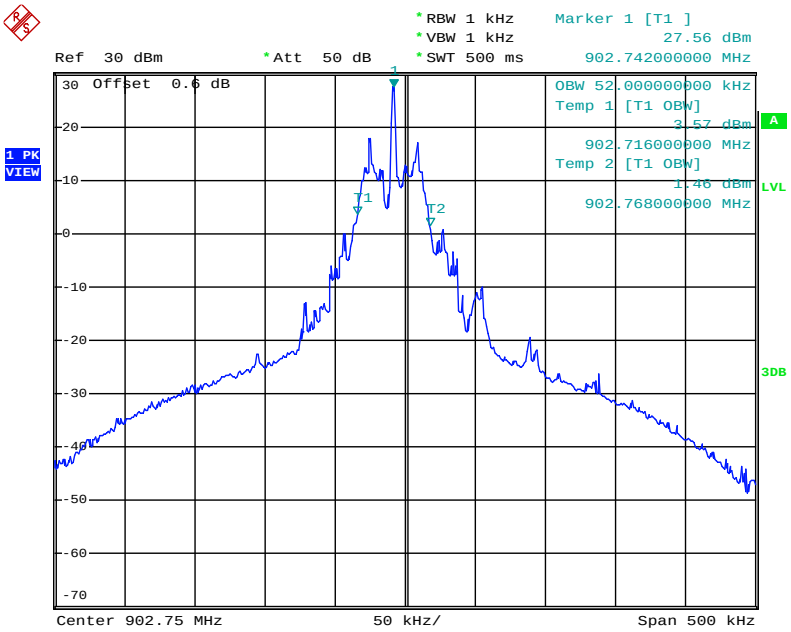
99% Occupied Bandwidth Plot on Channel 1 / 902.75 MHz



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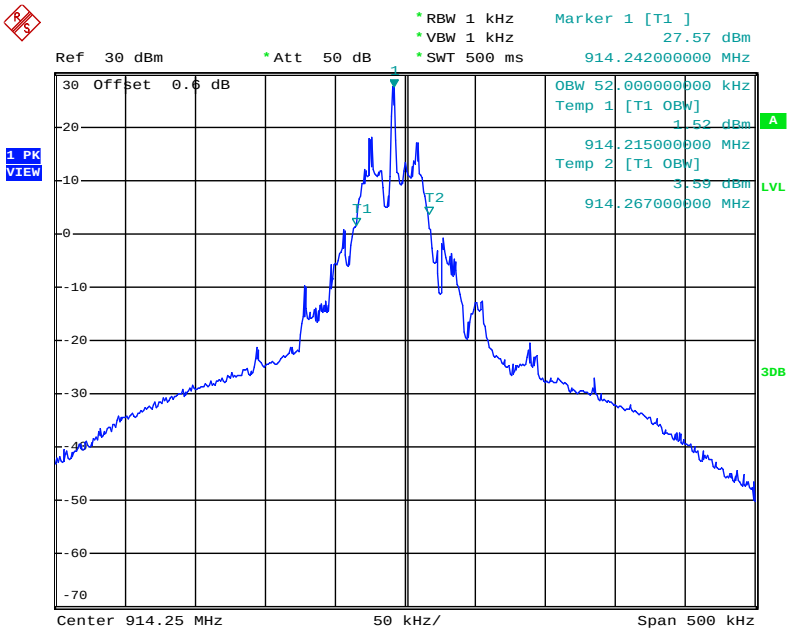
99% Occupied Bandwidth Plot on Channel 24 / 914.25 MHz



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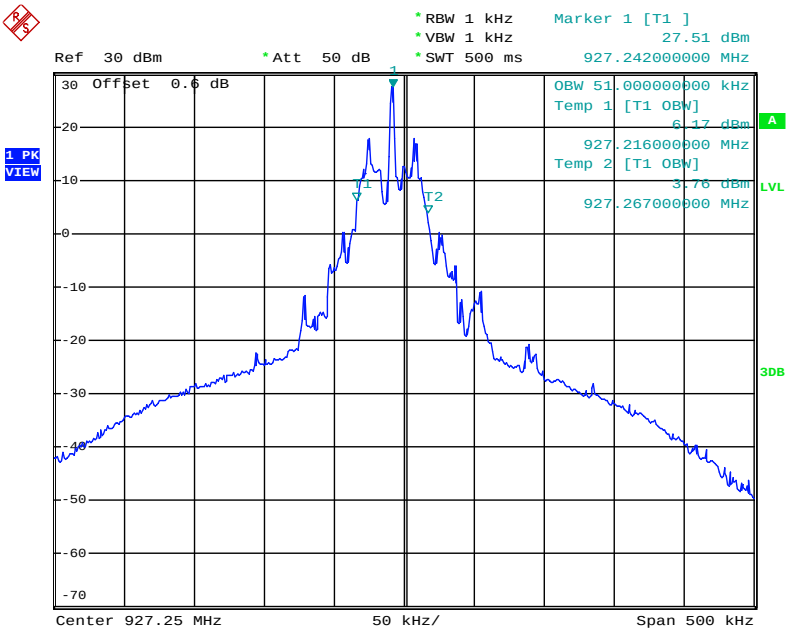
99% Occupied Bandwidth Plot on Channel 50 / 927.25 MHz



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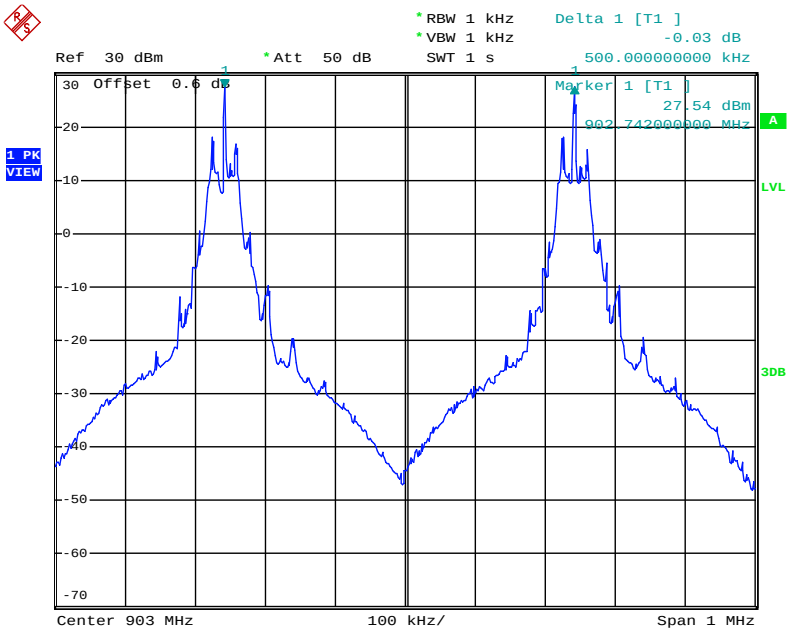
Channel Separation Plot on Channel 1 / 902.75 MHz



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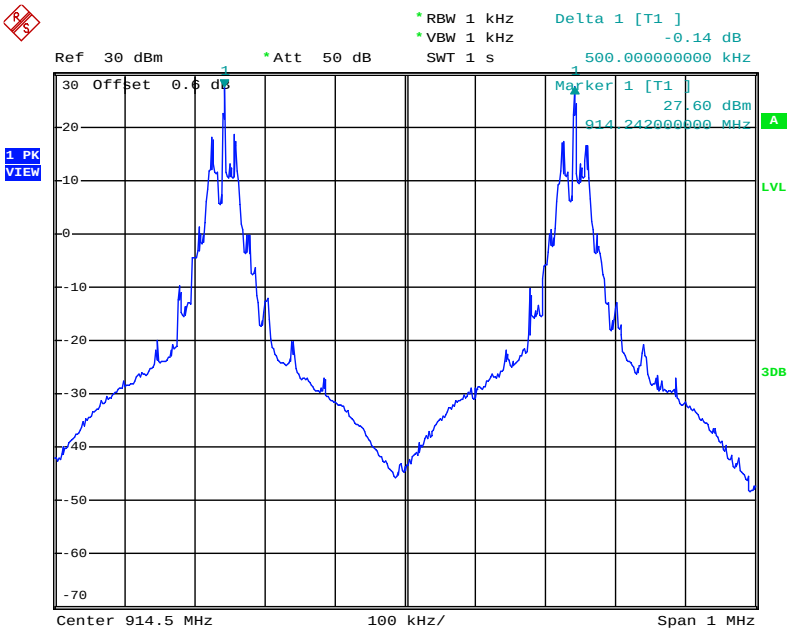
Channel Separation Plot on Channel 24 / 914.25 MHz



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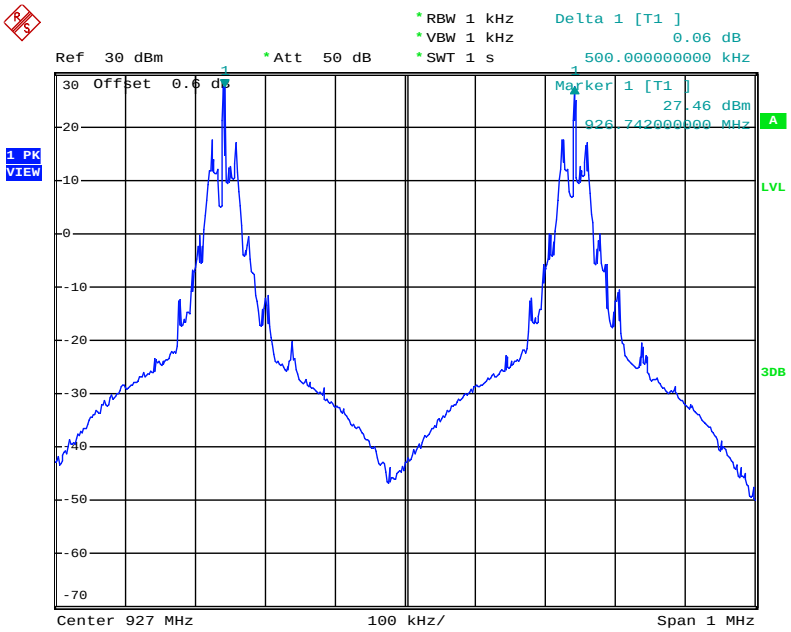
Channel Separation Plot on Channel 50 / 927.25 MHz



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3.4. Number of Hopping Frequency Measurement

3.4.1. Other limits

(1) Frequency hopping systems:

(a) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter.

(b) Hopping channels and 20dB bandwidth limits: If the 20 dB bandwidth of the hopping channel is less than or equal to 250 kHz, the system shall use at least 12 hopping frequencies. If the 20dB bandwidth of the hopping channel is greater than 250 kHz, the system shall use at least 6 hopping frequencies. The maximum allowed 20dB bandwidth of the hopping channel is 500kHz.

(c) Frequency hopping systems, the average time of occupancy on any frequency each times shall not exceed 0.4 seconds within a time period in seconds equal to the number of hopping channels employed multiplied by 0.4.

3.4.2. Measuring Instruments and Setting

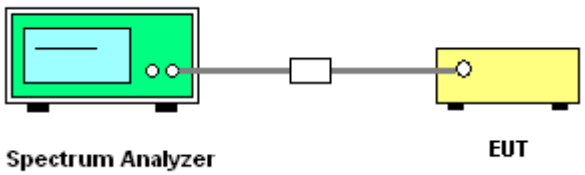
Please refer to section 4 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 300 kHz were utilized.
3. Observe frequency hopping in 902-928 MHz, there are at least 50 non-overlapping channels.

3.4.4. Test Setup Layout



3.4.5. Test Deviation

There is no deviation with the original standard.

3.4.6. EUT Operation during Test

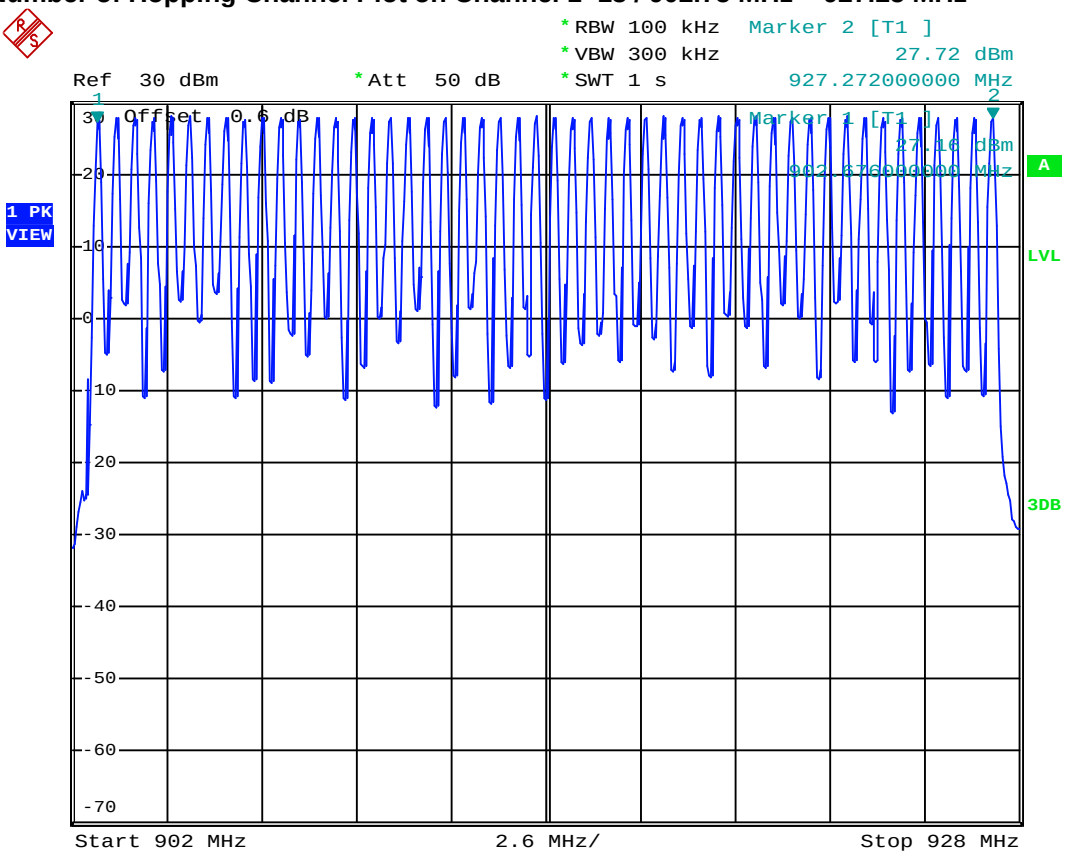
The EUT was programmed to be in continuously transmitting mode.

3.4.7. Test Result of Number of Hopping Frequency

Final Test Date	Dec. 14, 2011	Test Site No.	TH01-HY
Temperature	24.7℃	Humidity	69%
Test Engineer	Shiming	Configuration	RFID

Modulation Type	Channel No.	Frequency (MHz)	Hopping Ch. (Channels)	Min. Limit (Channels)	Test Result
ASK	1~50	902.75 ~ 927.25	50	50	**Complies**

Number of Hopping Channel Plot on Channel 1~13 / 902.75 MHz ~ 927.25 MHz



Date: 14.DEC.2011 16:22:24

3.5. Dwell Time Measurement

3.5.1. Other limits

(1) Frequency hopping systems:

(a) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter.

(b) Hopping channels and 20dB bandwidth limits: If the 20 dB bandwidth of the hopping channel is less than or equal to 250 kHz, the system shall use at least 12 hopping frequencies. If the 20dB bandwidth of the hopping channel is greater than 250 kHz, the system shall use at least 6 hopping frequencies. The maximum allowed 20dB bandwidth of the hopping channel is 500kHz.

(c) Frequency hopping systems, the average time of occupancy on any frequency each times shall not exceed 0.4 seconds within a time period in seconds equal to the number of hopping channels employed multiplied by 0.4.

3.5.2. Measuring Instruments and Setting

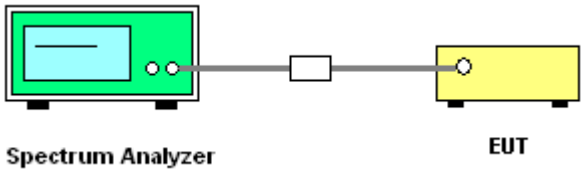
Please refer to section 4 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	0 MHz
RB	10 kHz
VB	10 kHz
Detector	Peak
Trace	Single Trigger

3.5.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer
2. Set RBW of spectrum analyzer to 10 kHz and VBW to 10 kHz.
3. Use a video trigger with the trigger level set to enable triggering only on full pulses.
4. Sweep Time is more than once pulse time.
5. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
6. Measure the maximum time duration of one single pulse.
7. Count the number of pulses in the dwell time duration.
8. Dwell time=pulse duration x number of pulses / measure time x dwell time duration.

3.5.4. Test Setup Layout



3.5.5. Test Deviation

There is no deviation with the original standard.

3.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

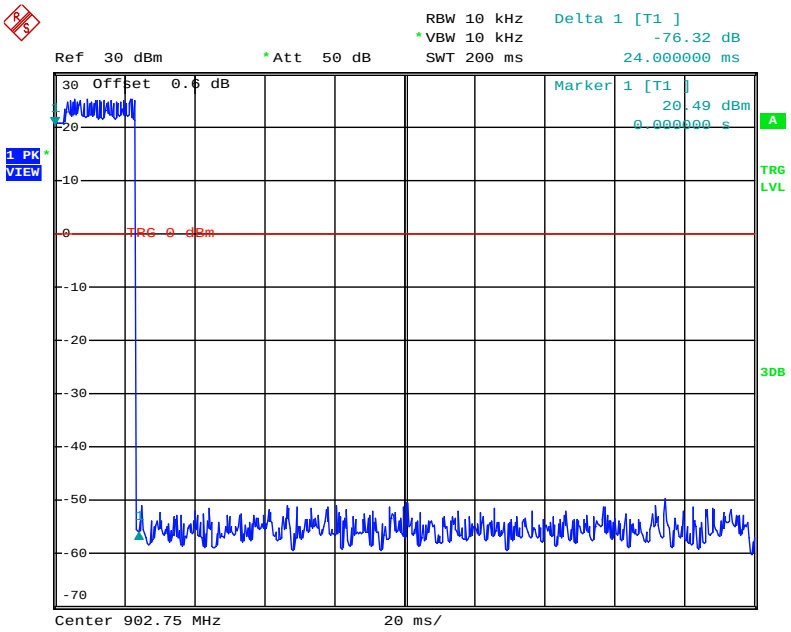
3.5.7. Test Result of Dwell Time

Final Test Date	Dec. 14, 2011	**Test Site No.**	TH01-HY
Temperature	24.7℃	**Humidity**	69%
Test Engineer	Shiming	**Configuration**	RFID

Frequency	**Pulse Duration (ms)**	**Number of Pulses**	**Measure Time (s)**	**Dwell time duration (s)**	**Dwell Time (s)**	**Limits (s)**	**Test\ Result**
902.75 MHz	24.0000	3	20	20	0.0720	0.4000	**Complies**
914.25 MHz	23.6000	3	20	20	0.0708	0.4000	**Complies**
927.25 MHz	24.0000	3	20	20	0.0720	0.4000	**Complies**

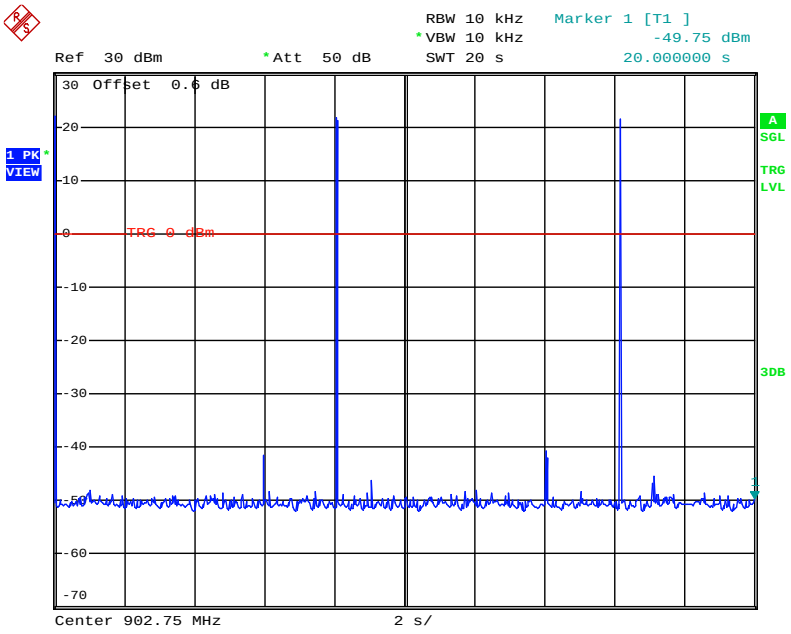
Note: Dwell time=pulse duration x number of pulses / measure time x dwell time duration

Single Pulse Plot on Channel 1 / 902.75 MHz



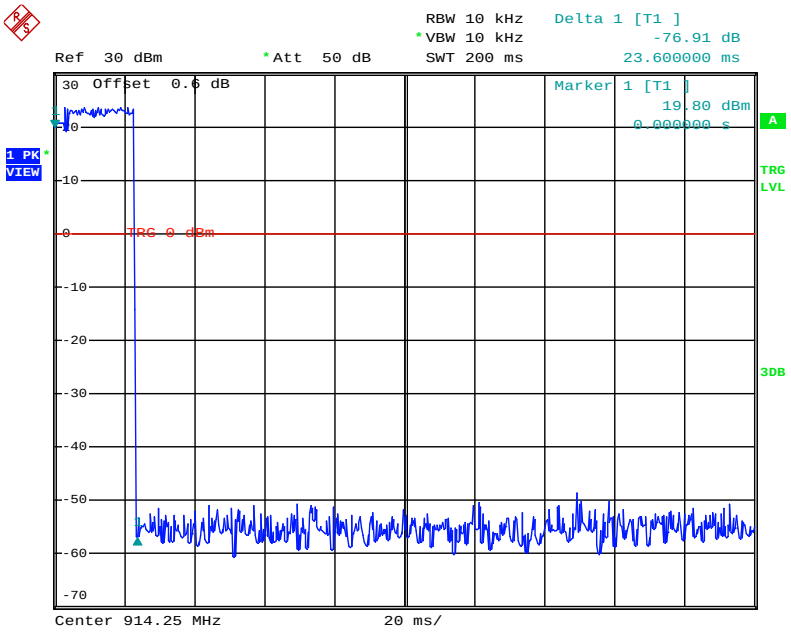
Date: 14.DEC.2011 13:50:52

Number of Pulses Plot on Channel 1 / 902.75 MHz



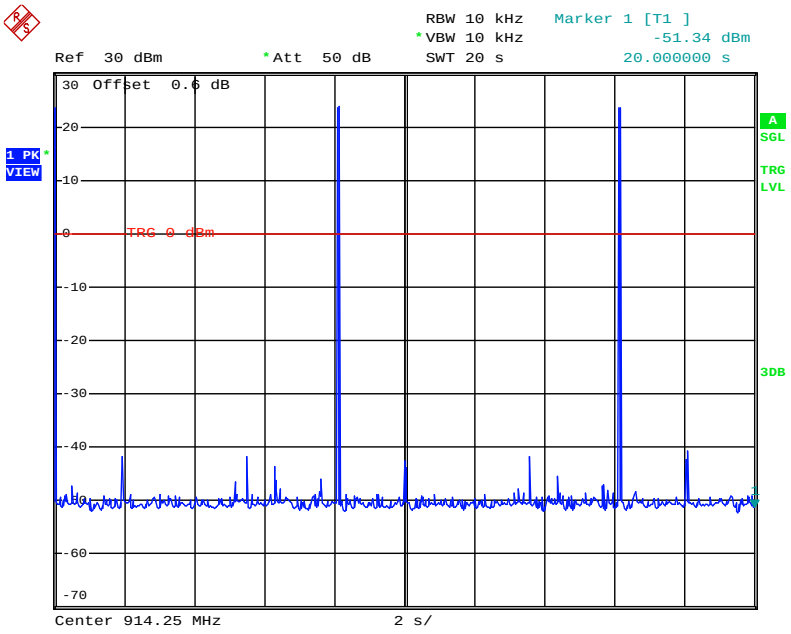
Date: 14.DEC.2011 11:59:10

Single Pulse Plot on Channel 24 / 914.25 MHz



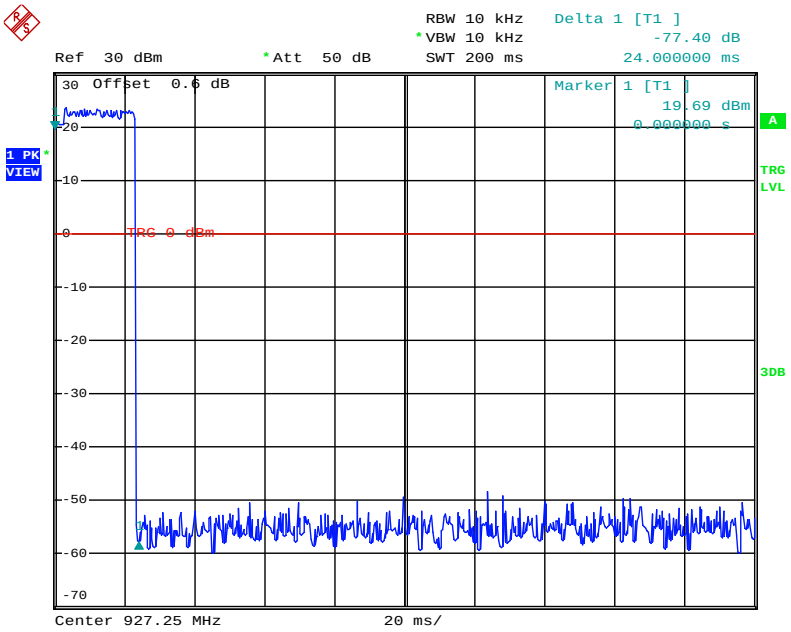
Date: 14.DEC.2011 13:49:44

Number of Pulses Plot on Channel 24 / 914.25 MHz



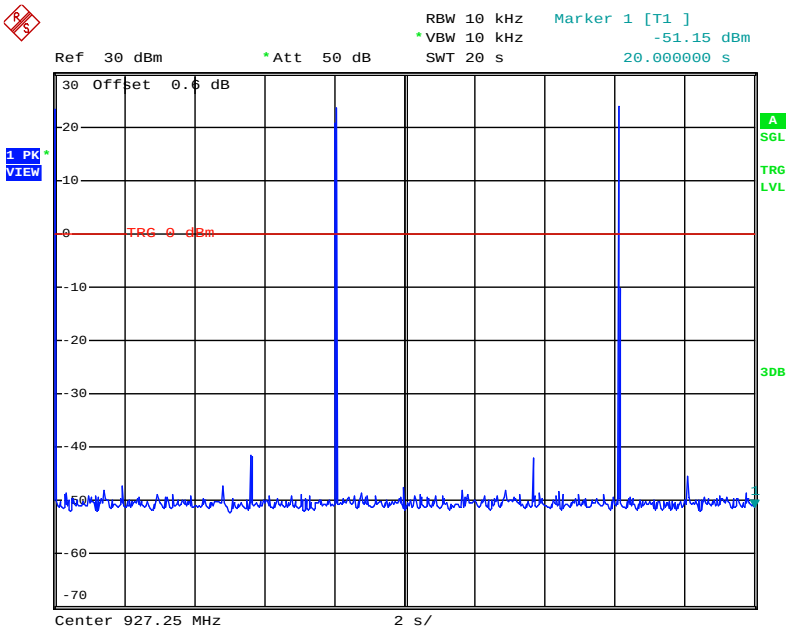
Date: 14.DEC.2011 13:43:15

Single Pulse Plot on Channel 50 / 927.25 MHz



Date: 14.DEC.2011 13:48:36

Number of Pulses Plot on Channel 50 / 927.25 MHz



Date: 14.DEC.2011 13:44:13

3.6. Radiated Emissions Measurement

3.6.1. Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 2.7 the restricted bands must also comply with the radiated emission limit specified in section 2.8.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

3.6.2. Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for peak

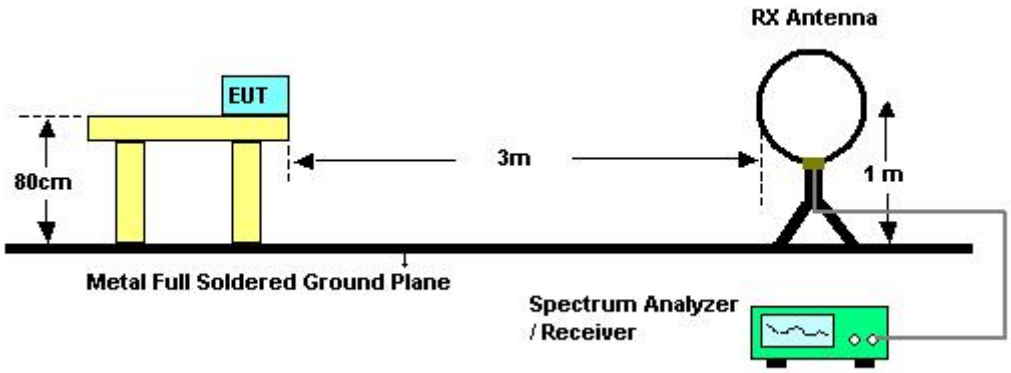
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.6.3. Test Procedures

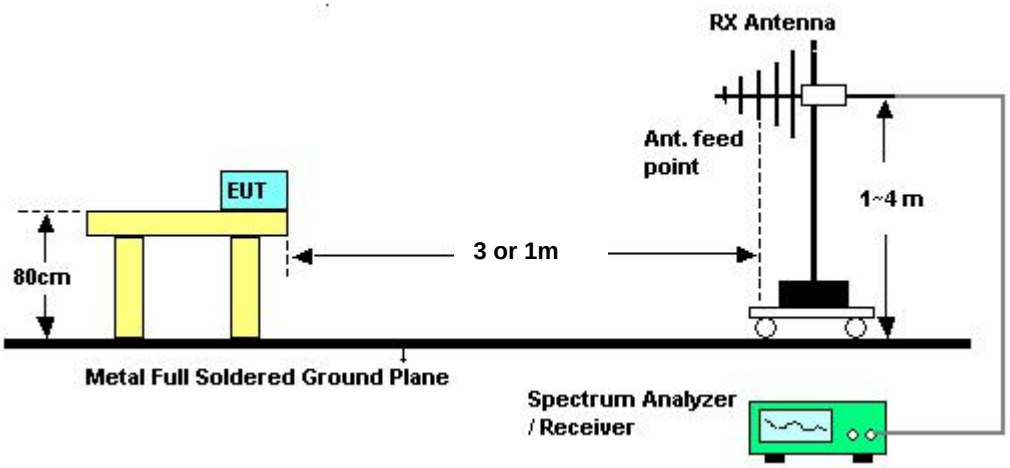
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

3.6.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.6.5. Test Deviation

There is no deviation with the original standard.

3.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.6.7. Results of Radiated Emissions (9kHz~30MHz)

Final Test Date	Dec. 14, 2011	**Test Site No.**	03CH02-HY
Temperature	25℃	**Humidity**	54%
Test Engineer	Daniel		

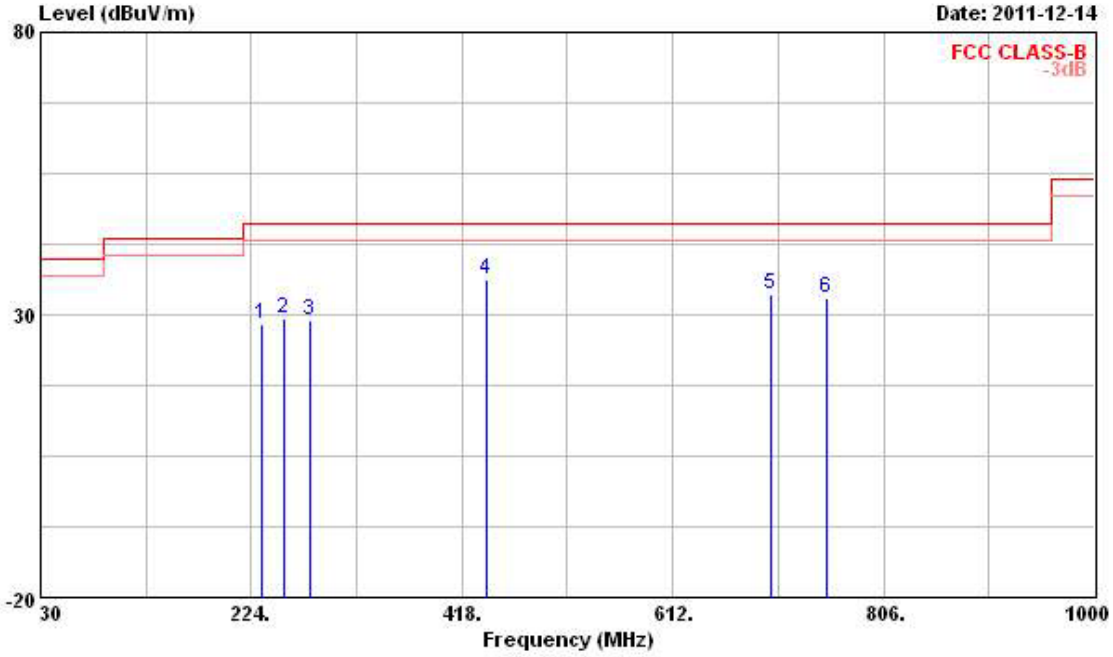
Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor.

3.6.8. Results of Radiated Emissions (30MHz~1GHz)

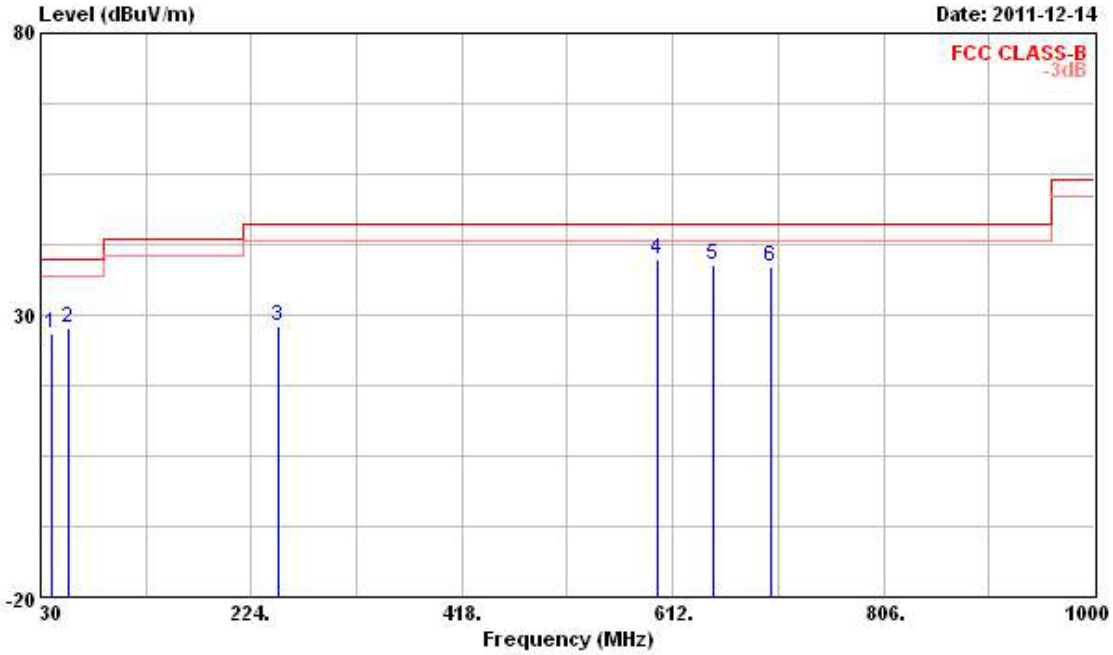
Final Test Date	Dec. 14, 2011	**Test Site No.**	03CH02-HY
Temperature	25℃	**Humidity**	54%
Test Engineer	Daniel	**Configuration**	Channel 1

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	233.700	28.24	-17.76	46.00	40.44	12.46	2.67	27.33	Peak	---	---
2	254.070	29.40	-16.60	46.00	40.84	13.05	2.79	27.28	Peak	---	---
3	277.350	29.03	-16.97	46.00	39.99	13.38	2.88	27.22	Peak	---	---
4	440.310	36.13	-9.87	46.00	44.59	16.08	3.54	28.08	Peak	---	---
5	703.180	33.55	-12.45	46.00	38.36	18.91	4.55	28.27	Peak	---	---
6	753.620	32.80	-13.20	46.00	36.57	19.61	4.72	28.10	Peak	---	---

Vertical

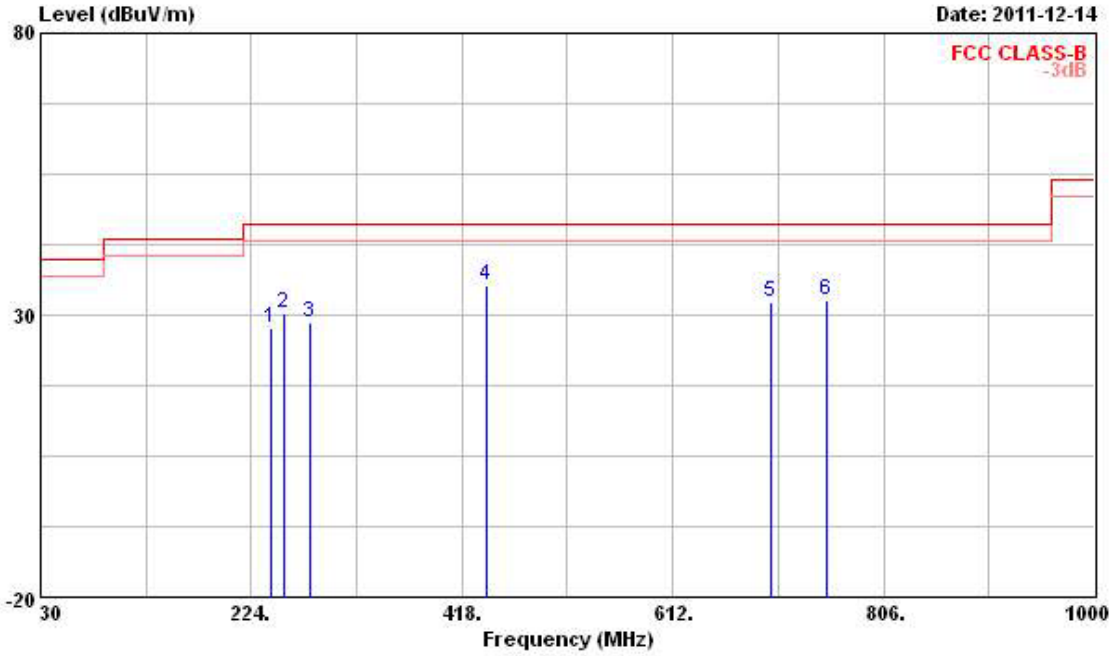


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	40.670	26.86	-13.14	40.00	40.70	13.01	1.05	27.90	Peak	---	---
2	55.220	27.62	-12.38	40.00	45.95	8.27	1.25	27.85	Peak	---	---
3	249.220	28.01	-17.99	46.00	39.56	12.97	2.77	27.29	Peak	---	---
4	598.420	39.94	-6.06	46.00	44.05	20.12	4.23	28.46	Peak	---	---
5	649.830	38.77	-7.23	46.00	43.24	19.51	4.39	28.37	Peak	---	---
6	703.180	38.65	-7.35	46.00	43.46	18.91	4.55	28.27	Peak	---	---

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

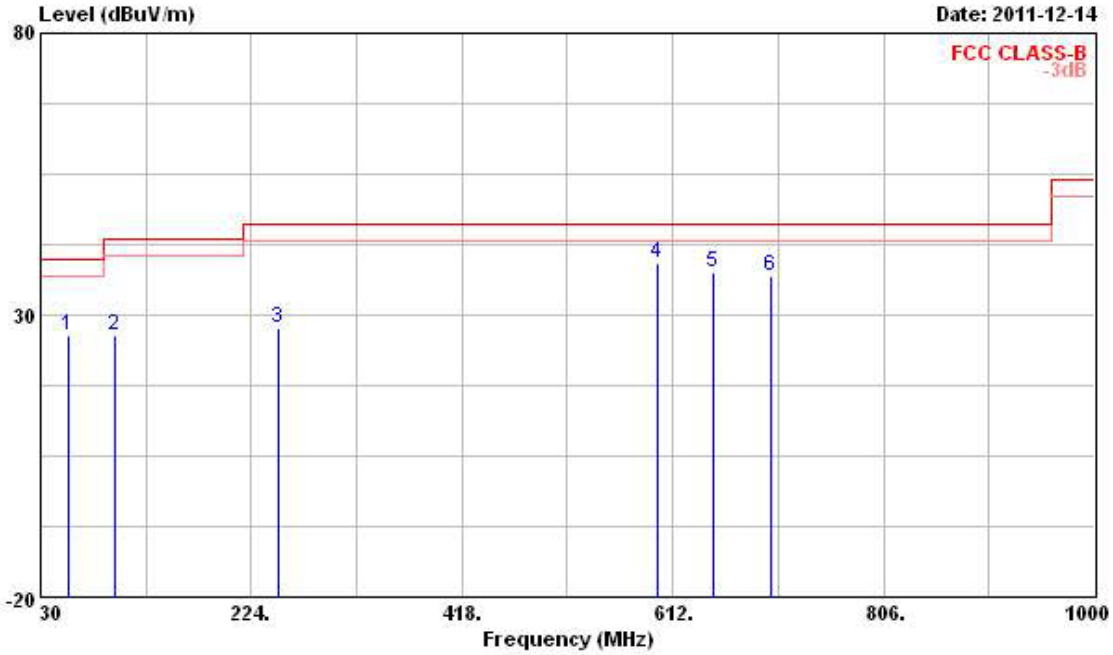
Final Test Date	Dec. 14, 2011	**Test Site No.**	03CH02-HY
Temperature	25℃	**Humidity**	54%
Test Engineer	Daniel	**Configuration**	Channel 24

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	241.460	27.59	-18.41	46.00	39.47	12.71	2.72	27.31	Peak	---	---
2	254.070	30.26	-15.74	46.00	41.70	13.05	2.79	27.28	Peak	---	---
3	277.350	28.58	-17.42	46.00	39.54	13.38	2.88	27.22	Peak	---	---
4	440.310	35.38	-10.62	46.00	43.84	16.08	3.54	28.08	Peak	---	---
5	703.180	32.27	-13.73	46.00	37.08	18.91	4.55	28.27	Peak	---	---
6	753.620	32.66	-13.34	46.00	36.43	19.61	4.72	28.10	Peak	---	---

Vertical

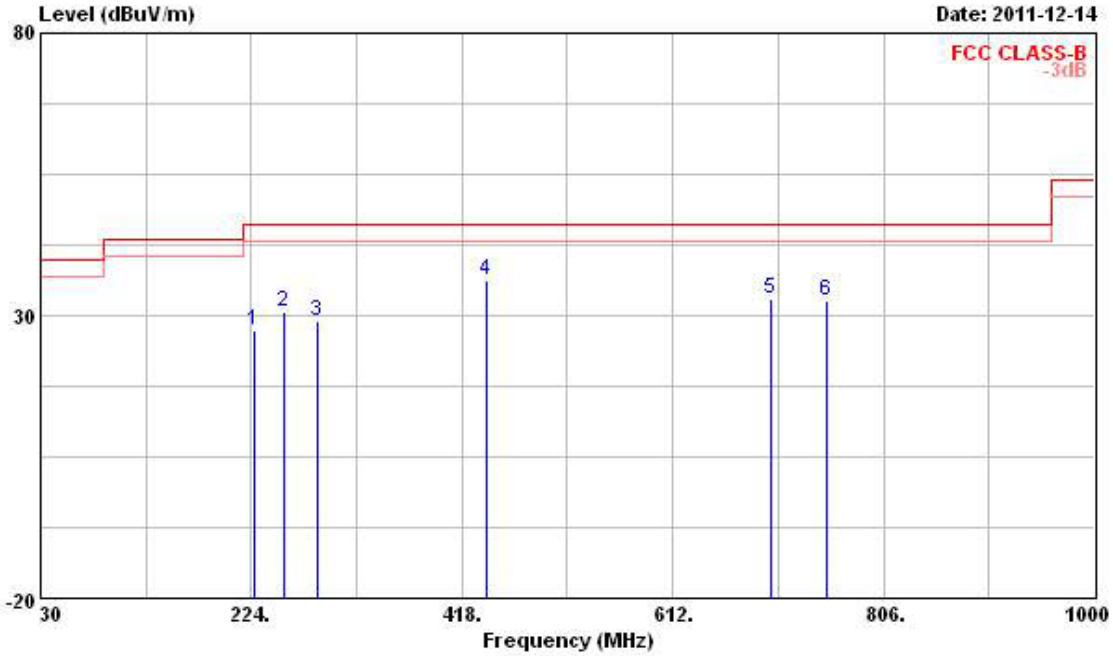


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	55.220	26.36	-13.64	40.00	44.69	8.27	1.25	27.85	Peak	---	---
2	98.870	26.26	-17.24	43.50	41.45	11.01	1.65	27.85	Peak	---	---
3	249.220	27.55	-18.45	46.00	39.10	12.97	2.77	27.29	Peak	---	---
4	598.420	39.34	-6.66	46.00	43.45	20.12	4.23	28.46	Peak	---	---
5	649.830	37.50	-8.50	46.00	41.97	19.51	4.39	28.37	Peak	---	---
6	703.180	36.99	-9.01	46.00	41.80	18.91	4.55	28.27	Peak	---	---

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

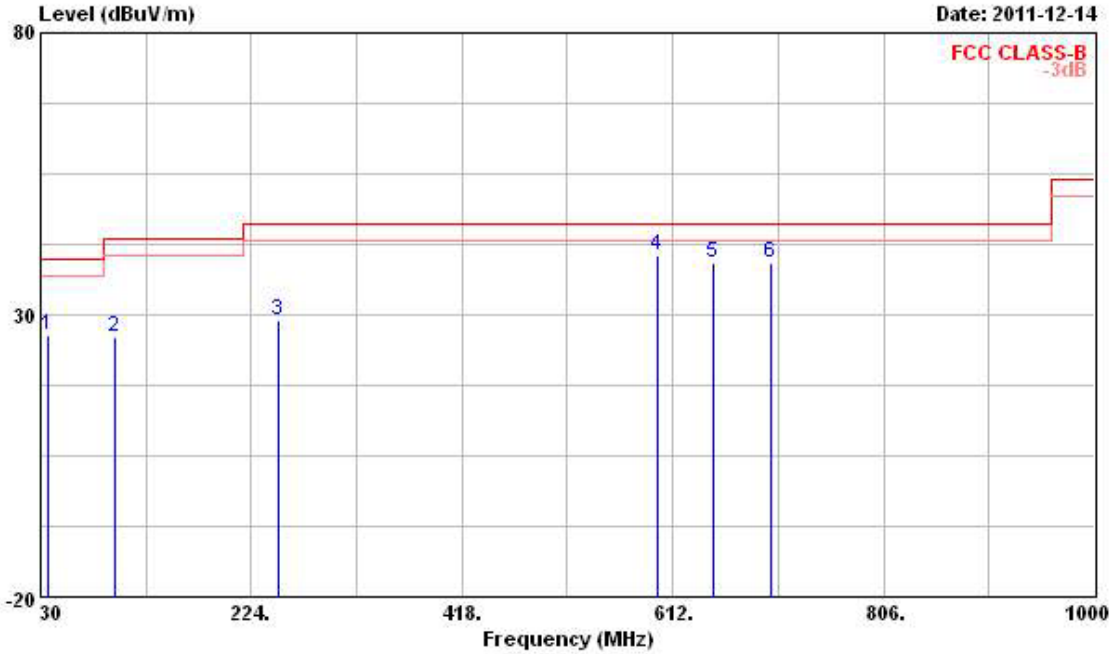
Final Test Date	Dec. 14, 2011	**Test Site No.**	03CH02-HY
Temperature	25℃	**Humidity**	54%
Test Engineer	Daniel	**Configuration**	Channel 50

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	225.940	27.48	-18.52	46.00	40.01	12.21	2.61	27.35	Peak	---	---
2	254.070	30.68	-15.32	46.00	42.12	13.05	2.79	27.28	Peak	---	---
3	285.110	28.90	-17.10	46.00	39.70	13.49	2.91	27.20	Peak	---	---
4	440.310	36.10	-9.90	46.00	44.56	16.08	3.54	28.08	Peak	---	---
5	703.180	32.99	-13.01	46.00	37.80	18.91	4.55	28.27	Peak	---	---
6	753.620	32.58	-13.42	46.00	36.35	19.61	4.72	28.10	Peak	---	---

Vertical



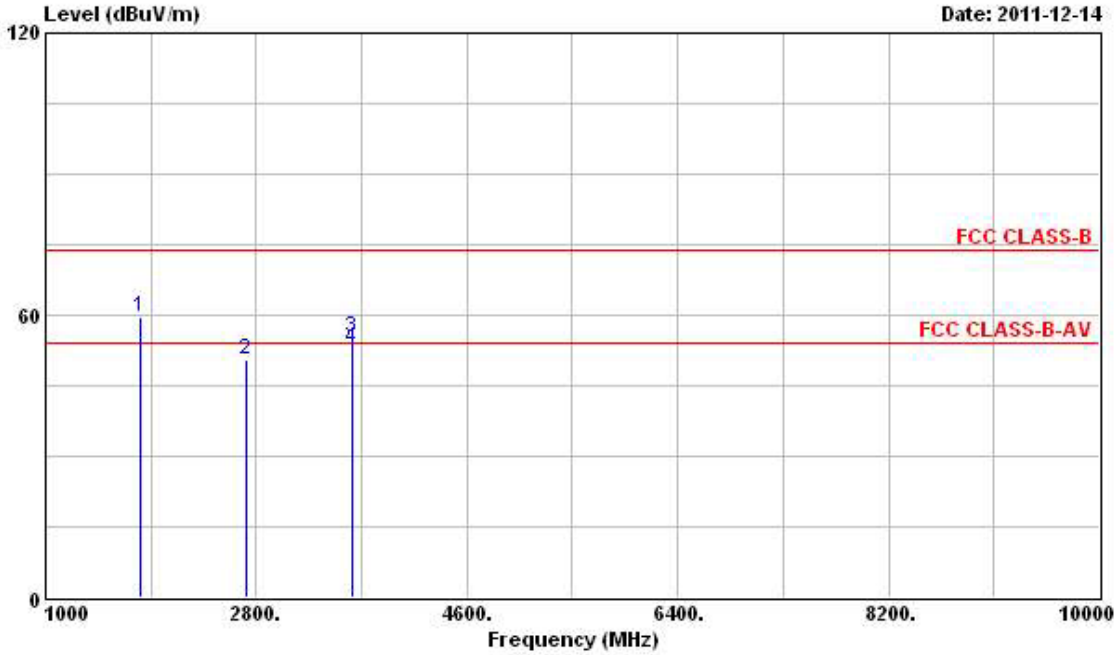
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	36.790	26.35	-13.65	40.00	39.35	13.92	1.00	27.92	Peak	---	---
2	98.870	26.02	-17.48	43.50	41.21	11.01	1.65	27.85	Peak	---	---
3	249.220	29.09	-16.91	46.00	40.64	12.97	2.77	27.29	Peak	---	---
4	598.420	40.46	-5.54	46.00	44.57	20.12	4.23	28.46	Peak	---	---
5	649.830	39.08	-6.92	46.00	43.55	19.51	4.39	28.37	Peak	---	---
6	703.180	39.06	-6.94	46.00	43.87	18.91	4.55	28.27	Peak	---	---

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.6.9. Results for Radiated Emissions (1GHz~10th Harmonic)

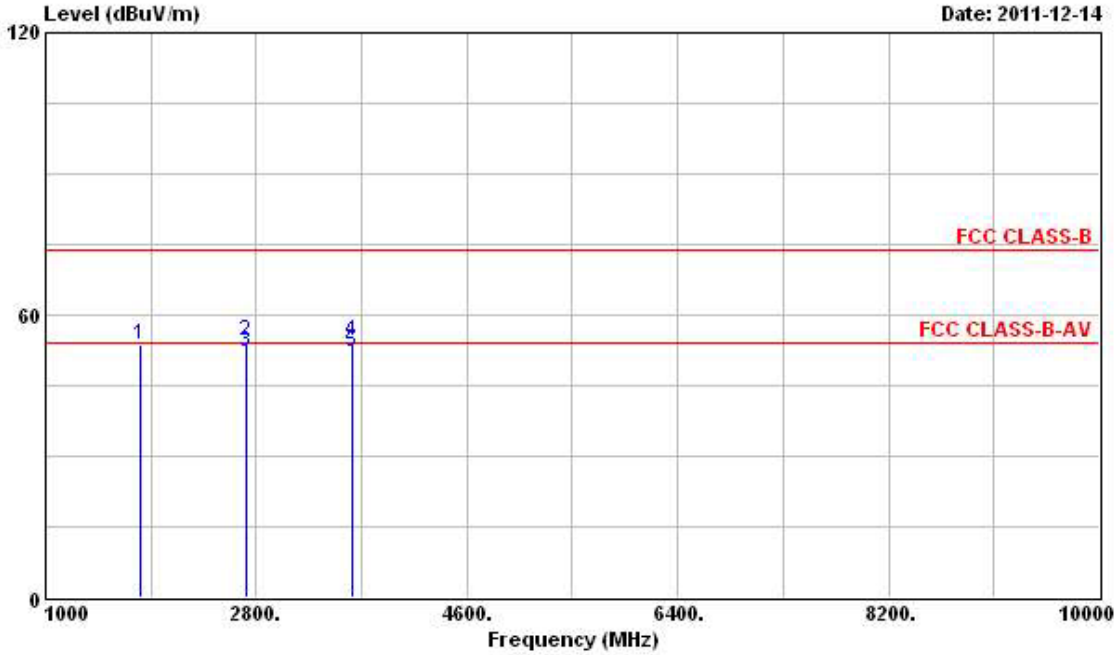
Final Test Date	Dec. 14, 2011	**Test Site No.**	03CH02-HY
Temperature	25℃	**Humidity**	54%
Test Engineer	Daniel	**Configurations**	Channel 1

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1806.400	59.58	-14.42	74.00	62.58	29.12	2.56	34.68	Peak	---	---
2	2709.600	50.43	-3.57	54.00	49.34	32.72	3.24	34.87	PK	---	---
3	3612.800	55.07	-18.93	74.00	52.41	33.64	3.92	34.90	Peak	---	---
4	3612.800	52.97	-1.03	54.00	50.31	33.64	3.92	34.90	Average	---	---

Vertical

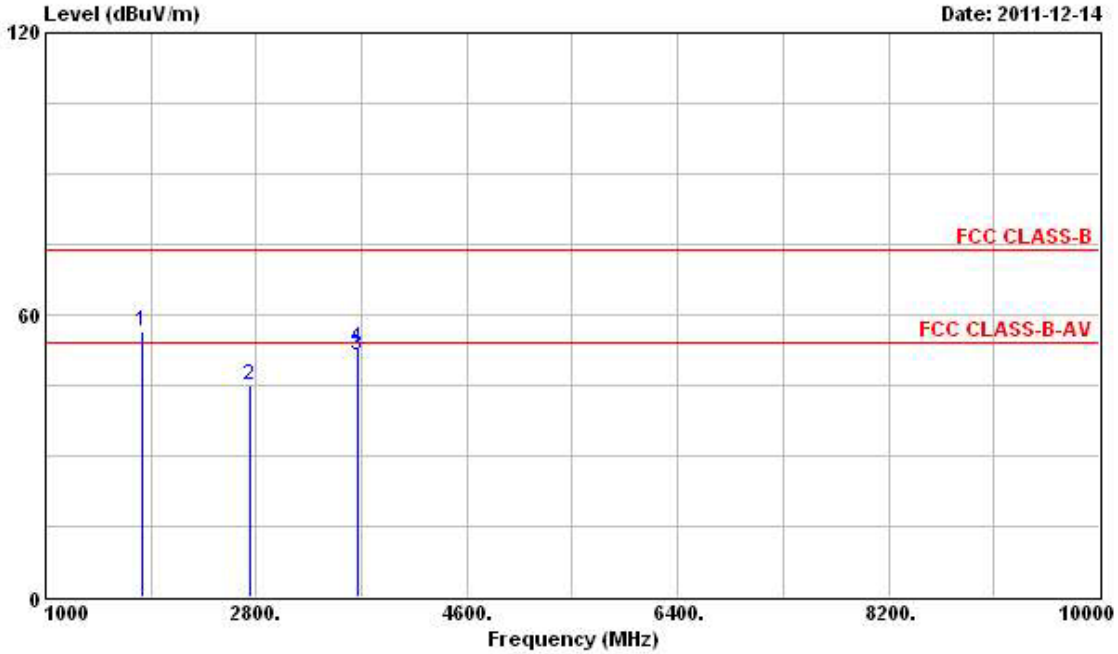


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1806.400	53.87	-20.13	74.00	56.35	29.64	2.56	34.68	Peak	---	---
2	2709.600	54.35	-19.65	74.00	53.23	32.75	3.24	34.87	Peak	---	---
3	2709.600	52.06	-1.94	54.00	50.94	32.75	3.24	34.87	Average	---	---
4	3612.800	54.29	-19.71	74.00	51.75	33.52	3.92	34.90	Peak	---	---
5	3612.800	52.19	-1.81	54.00	49.65	33.52	3.92	34.90	Average	---	---

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

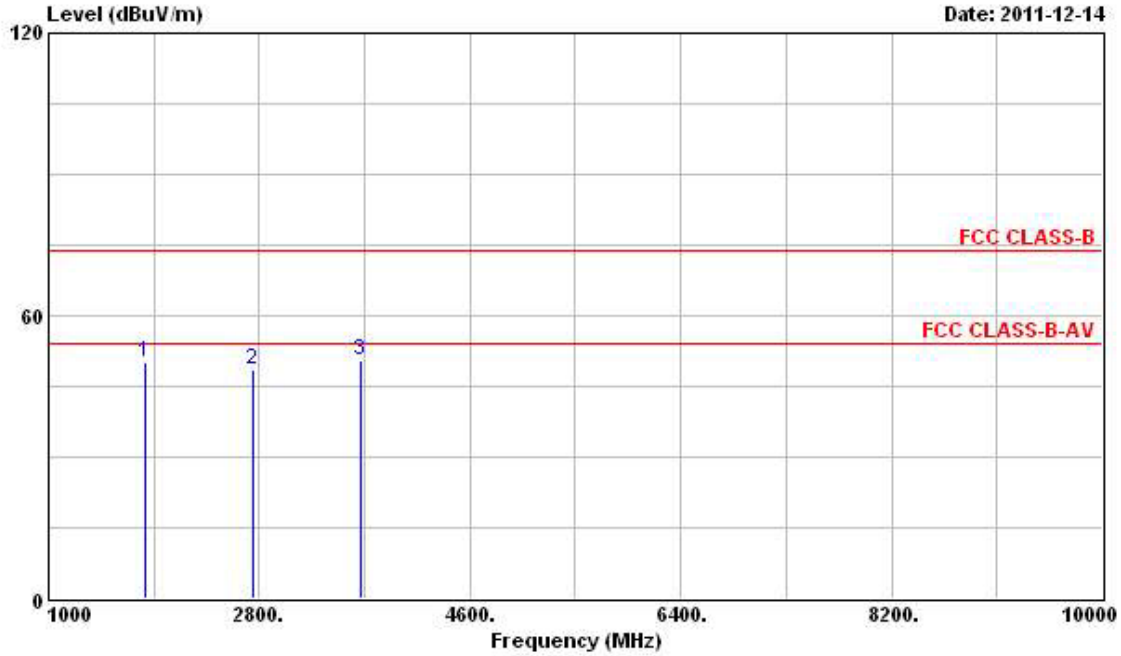
Final Test Date	Dec. 14, 2011	**Test Site No.**	03CH02-HY
Temperature	25℃	**Humidity**	54%
Test Engineer	Daniel	**Configuration**	Channel 24

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1829.400	56.56	-17.44	74.00	59.37	29.30	2.56	34.67	Peak	---	---
2	2744.100	45.16	-8.84	54.00	43.98	32.80	3.26	34.88	PK	---	---
3	3658.800	51.41	-2.59	54.00	48.65	33.71	3.94	34.89	Average	---	---
4	3658.800	53.07	-20.93	74.00	50.31	33.71	3.94	34.89	Peak	---	---

Vertical

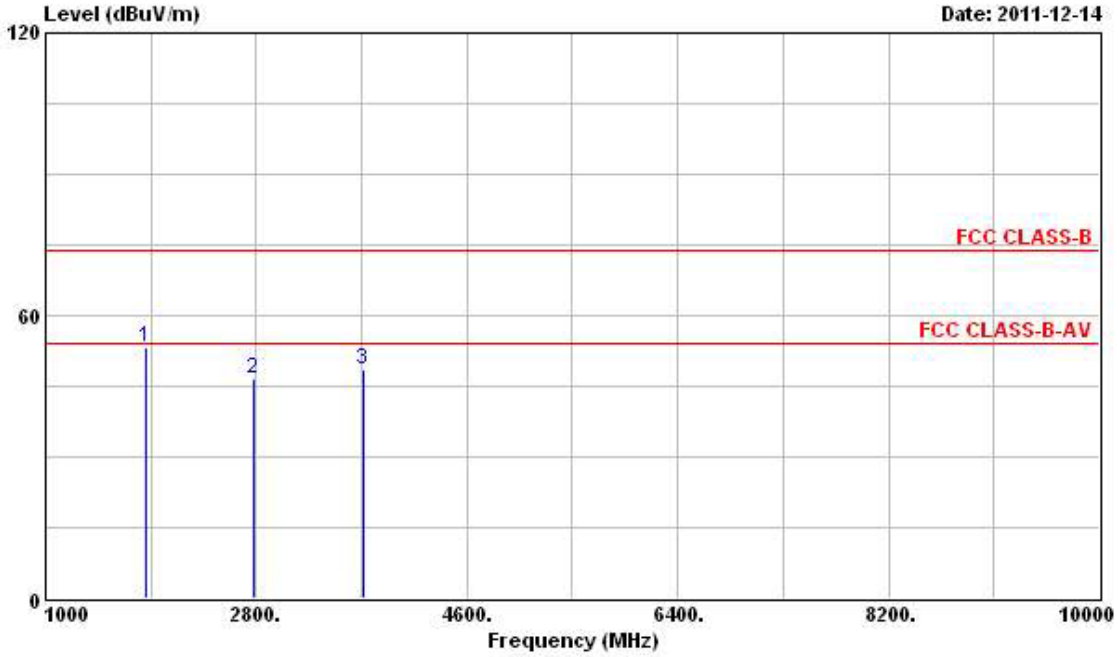


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1829.400	50.25	-23.75	74.00	52.56	29.80	2.56	34.67	Peak	---	---
2	2744.100	48.38	-5.62	54.00	47.20	32.80	3.26	34.88	PK	---	---
3	3658.800	50.38	-3.62	54.00	47.75	33.58	3.94	34.89	PK	---	---

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

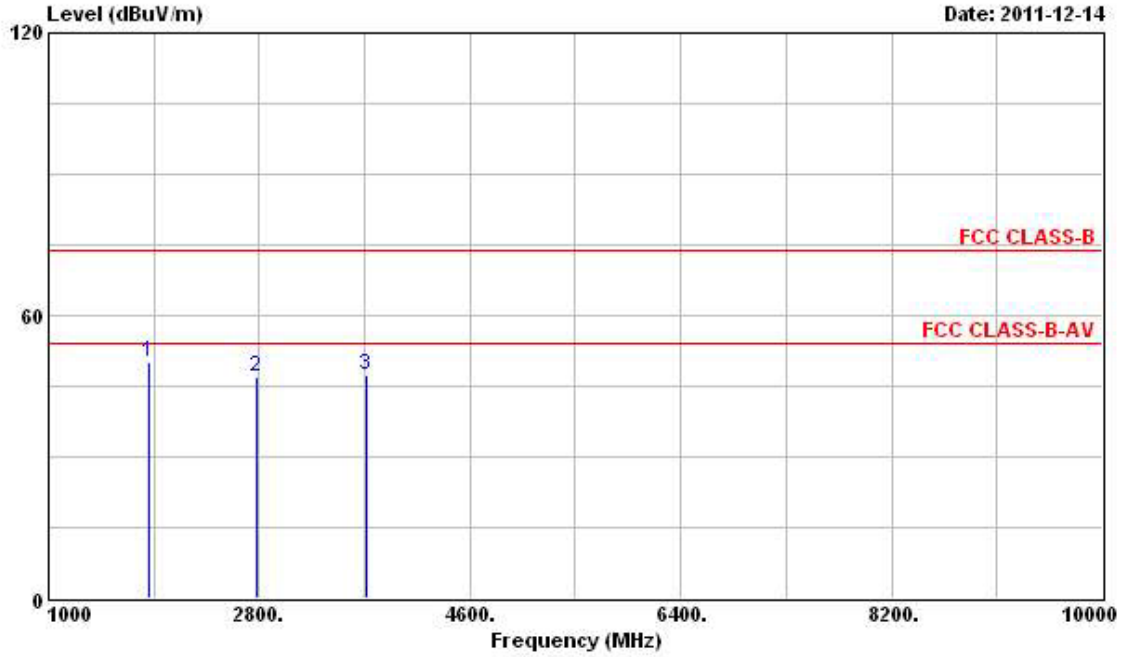
Final Test Date	Dec. 14, 2011	**Test Site No.**	03CH02-HY
Temperature	25℃	**Humidity**	54%
Test Engineer	Daniel	**Configurations**	Channel 50

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1855.400	53.19	-20.81	74.00	55.87	29.39	2.59	34.66	Peak	---	---
2	2783.100	46.51	-7.49	54.00	45.23	32.88	3.29	34.89	PK	---	---
3	3710.800	48.49	-5.51	54.00	45.58	33.81	3.99	34.89	PK	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1855.400	50.16	-23.84	74.00	52.35	29.88	2.59	34.66	Peak	---	---
2	2783.100	46.99	-7.01	54.00	45.74	32.85	3.29	34.89	PK	---	---
3	3710.800	47.54	-6.46	54.00	44.77	33.67	3.99	34.89	PK	---	---

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.7. Band Edge Emissions Measurement

3.7.1. Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 2.7 the restricted bands must also comply with the radiated emission limit specified in section 2.8

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

3.7.2. Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak

3.7.3. Test Procedures

1. The test procedure is the same as section 3.5.3; only the frequency range investigated is limited to 100MHz around band edges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

3.7.4. Test Setup Layout

This test setup layout is the same as that shown in section 3.6.4.

3.7.5. Test Deviation

There is no deviation with the original standard.

3.7.6. EUT Operation during Test

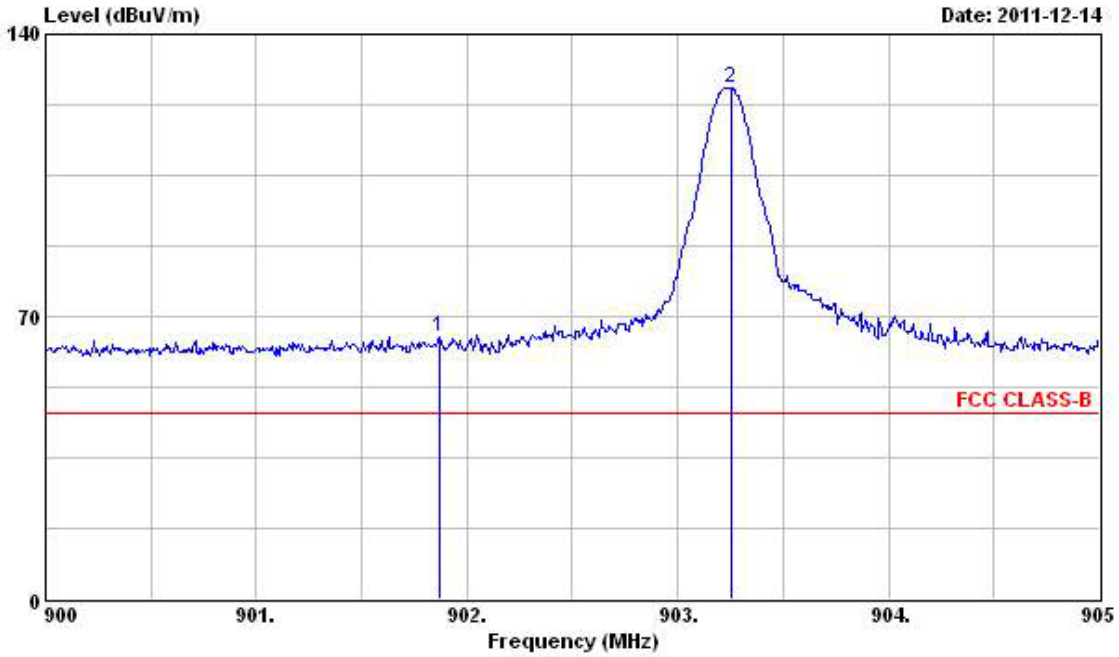
The EUT was programmed to be in continuously transmitting mode.

3.7.7. Test Result of Band Edge and Fundamental Emissions

Final Test Date	Dec. 14, 2011	Test Site No.	03CH02-HY
Temperature	25℃	Humidity	54%
Test Engineer	Daniel	Configurations	Channel 1, 24, 50

Horizontal

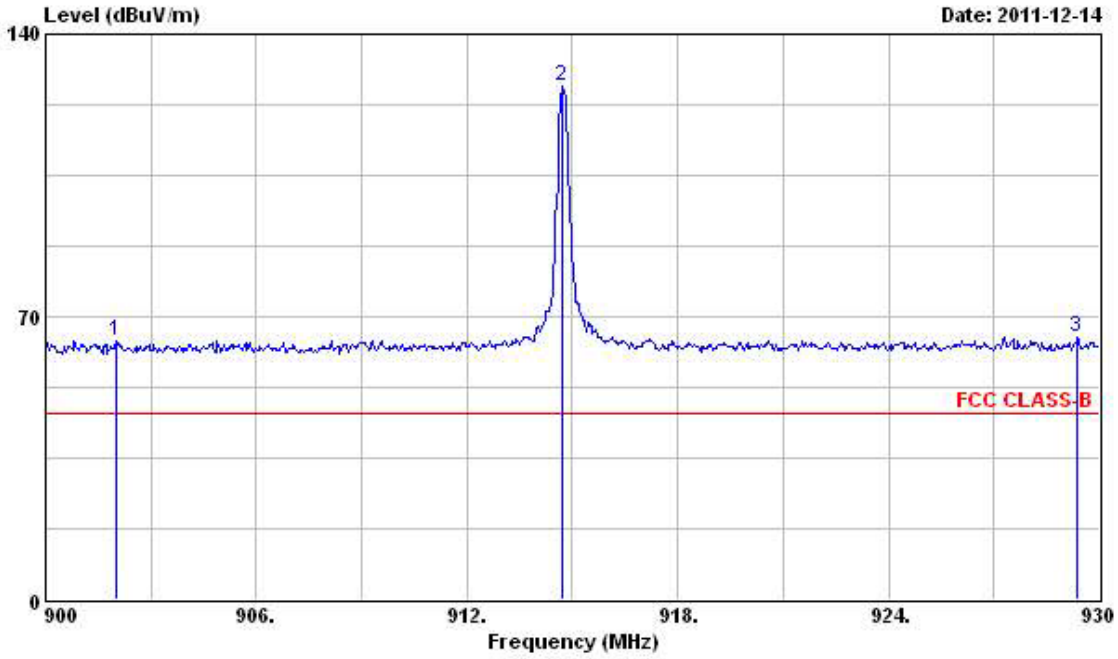
Channel 1



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 X	901.870	64.95	18.95	46.00	39.61	20.08	5.26	0.00	Peak	---	---
2 @	903.250	126.85	80.85	46.00	101.45	20.13	5.27	0.00	Peak	---	---

Horizontal

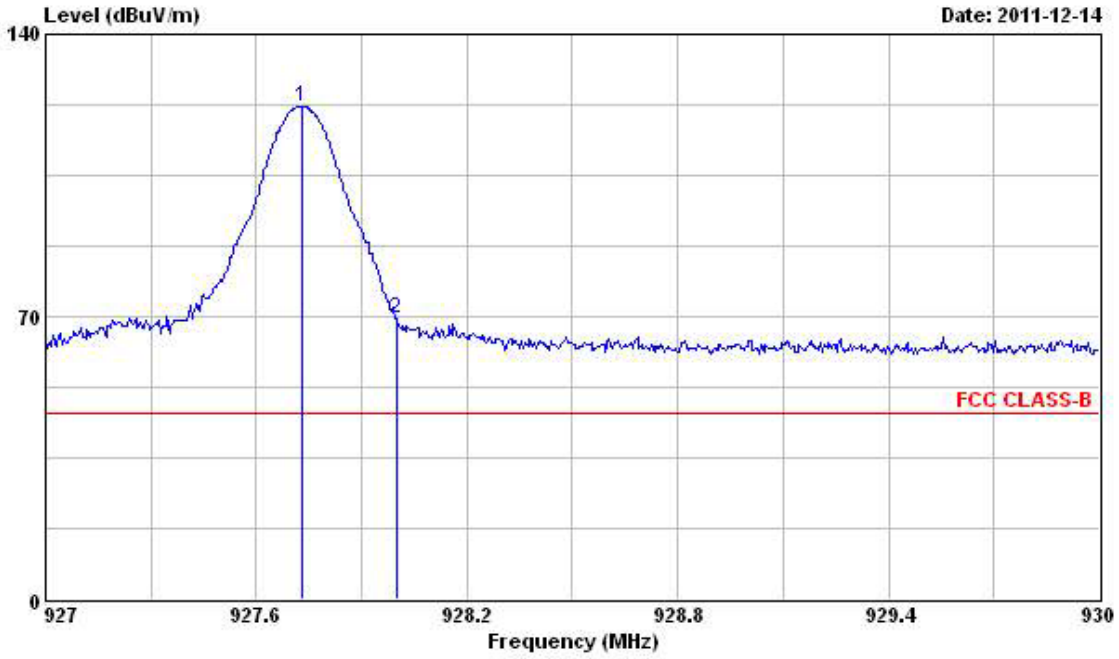
Channel 24



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 X	902.000	64.06	18.06	46.00	38.72	20.08	5.26	0.00	Peak	---	---
2 @	914.730	127.11	81.11	46.00	101.37	20.41	5.33	0.00	Peak	---	---
3 X	929.370	65.15	19.15	46.00	38.97	20.77	5.41	0.00	Peak	---	---

Horizontal

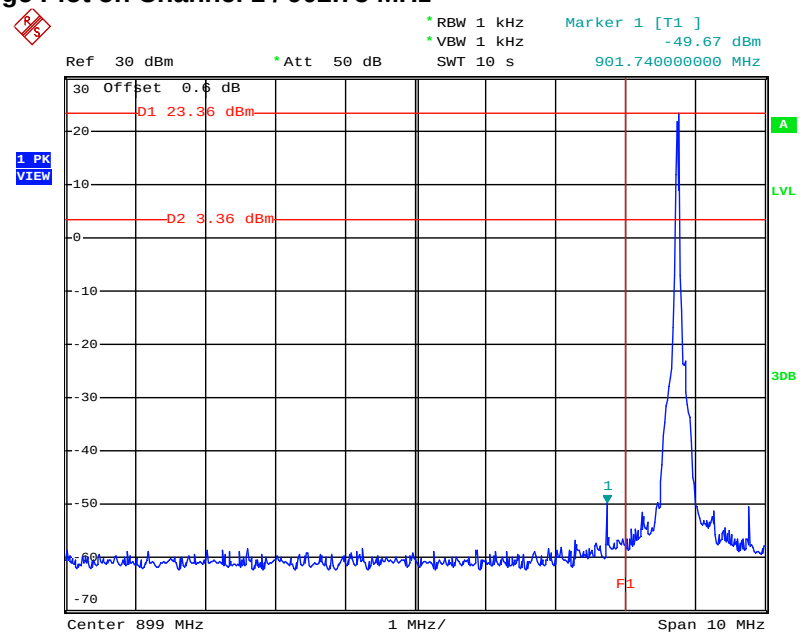
Channel 50



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 X	927.730	122.20	76.20	46.00	96.06	20.73	5.41	0.00	Peak	---	---
2 X	928.000	69.65	23.65	46.00	43.51	20.73	5.41	0.00	Peak	---	---

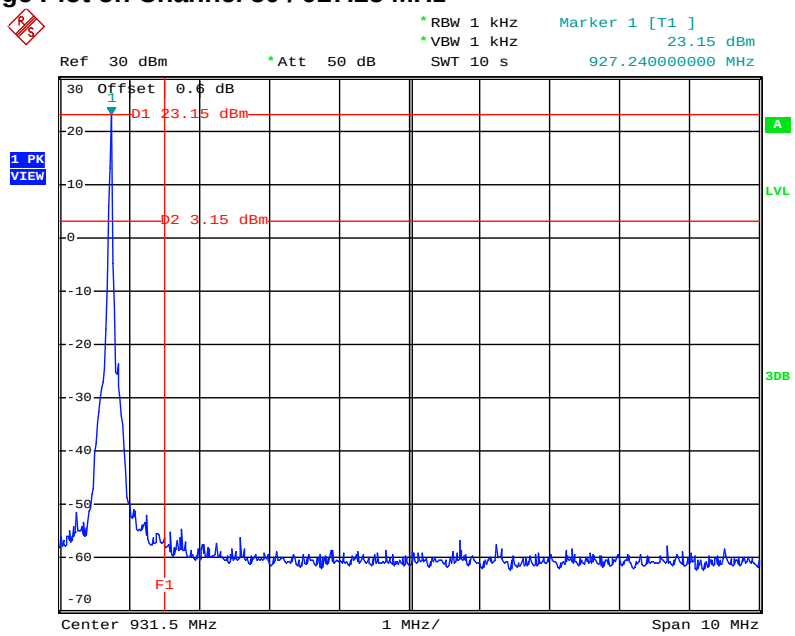
For Emission not in Restricted Band

Low Band Edge Plot on Channel 1 / 902.75 MHz



Date: 14.DEC.2011 14:06:02

High Band Edge Plot on Channel 50 / 927.25 MHz



Date: 14.DEC.2011 15:27:16

3.8. Antenna Requirements

3.8.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

3.8.2. Antenna Connector Construction

Please refer to section 2.3 in this test report; antenna connector complied with the requirements.

4. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9 kHz ~ 2.75 GHz	Apr. 20, 2011	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz – 30MHz	Jan. 17, 2011	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9 kHz ~ 30 MHz	May 04, 2011	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	CB049	9 kHz ~ 30 MHz	Apr. 21, 2011	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP 30	100023	9 KHz ~ 30 GHz	Mar. 15, 2011	Conducted (TH01-HY)
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	Jun. 09, 2011*	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 03, 2011	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-001	N/A	Nov. 17, 2011	Conducted (TH01-HY)
RF Cable-1m	Jye Bao	RG142	CB034-1m	20 MHz ~ 7 GHz	Dec. 03, 2011	Conducted (TH01-HY)
RF Cable-2m	Jye Bao	RG142	CB035-2m	20 MHz ~ 1 GHz	Dec. 03, 2011	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10 MHz ~ 40 GHz	Jun. 07, 2011	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	0917017	300 MHz ~ 40 GHz	Jan. 06, 2011	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	Jul. 26, 2010*	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is two year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100305/040	9 kHz ~ 40 GHz	Feb. 11, 2011	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30 MHz ~ 1 GHz 3m	May 11, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8447D	2944A11146	100 kHz ~ 1.3 GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1 GHz ~ 26.5 GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Horn Antenna	ETS-LINDGREN	3117	00091920	1 GHz ~ 18 GHz	Nov. 15, 2011	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz ~ 1 GHz	Nov. 11, 2011	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1 GHz ~ 40 GHz	Mar. 07, 2011	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30 MHz ~ 2 GHz	Oct. 22, 2011	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0 - 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 m - 4 m	N/A	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz ~ 30 MHz	Jul. 29, 2010*	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is two year.

5. TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan HsShimingg, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL	:	886-3-327-3456
	FAX	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou ShShimingg, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	No.8, Lane 728, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
	TEL	:	886-3-656-9065
	FAX	:	886-3-656-9085

6. TAF CERTIFICATE OF ACCREDITATION

Certificate No. : L1190-110111

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	:	ISO/IEC 17025:2005
Accreditation Number	:	1190
Originally Accredited	:	December 15, 2003
Effective Period	:	January 10, 2010 to January 09, 2013
Accredited Scope	:	Testing Field, see described in the Appendix
Specific Accreditation Program	:	Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 11, 2011

P1, total 24 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix