

FCC TEST REPORT

for

47 CFR, Part 15, Subpart C

Equipment : HOME POD / Mini PCI
Model No. : HOME POD / Mini PCI
FCC ID : RNAMP-100
Filing Type : Certification
Applicant : GLOBAL VIEW CO.,LTD
NO. 345, SHINHU 2ND RD., TAIPEI, 114, TAIWAN, R.O.C.

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SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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CERTIFICATE OF COMPLIANCE

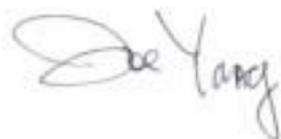
for

47 CFR, Part 15, Subpart C

Equipment : HOME POD / Mini PCI
Model No. : HOME POD / Mini PCI
FCC ID : RNAMP-100
Filing Type : Certification
Applicant : GLOBAL VIEW CO.,LTD
NO.,345, SHINHU 2ND RD., TAIPEI, 114, TAIWAN, R.O.C.

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 - 2001** and the equipment under test was **passed** all test items required in FCC Part 15 subpart C, relative to the equipment under test. Testing was carried out on Dec.10, 2003 at **SPORTON International Inc.** LAB.



Joe Yang

Director

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

SPORTON International Inc.

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FCC ID : RNAMP-100

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Issued Date : Dec. 10, 2003

1. General Description of Equipment under Test

1.1 Applicant

GLOBAL VIEW CO.,LTD

NO.,345, SHINHU 2ND RD., TAIPEI, 114, TAIWAN, R.O.C.

1.2 Manufacturer

Same as 1.1

1.3 Basic Description of Equipment under Test

Equipment : HOME POD / Mini PCI
Model No. : HOME POD/ Mini PCI
FCC ID. : RNAMP-100
Trade Name : GLOBAL VIEW
Power Supply Type : From system
AC Power Input : 110V / 60MHz

1.4 Feature of Equipment under Test

Product Feature & Specification	
1. Host/Radio Interface	Mini PCI
2. Type of Modulation	BPSK/DQPSK/CCK
3. Number of Channels	11
4. Frequency Band	2.4~2.4835GHz
5. Carrier Frequency of each channel	2412 + (N-1) *5GHz. N=0~11
6. Bandwidth of each channel	22MHz
7. Maximum Output Power to Antenna	19 dBm
8. Type of Antenna Connector (Ex: SMA, TNC, MCX, MMCX, FC.....etc)	UFC
9. Antenna Type/Class and Gain	Dipole, 2dBi
10. Function Type	Transceiver
11. Basic Function of Product	Wireless LAN Mini PCI Card

2 Test Configuration of Equipment under Test

2.1 Test Manner

- a. The EUT has been associated with notebook and peripherals pursuant to ANSI C63.4-2001 and configuration operated in a manner, which tended to maximize its emission characteristics in a typical application.
- b. The complete test system included Dell notebook, EPSON printer, Gateway USB keyboard, ACEEX modem, Logitech USB mouse and EUT for EMI test.
- c. The EUT can operate on eleven channels from 2412.0MHz to 2462.0MHz. (as listed in section 1.4). According to 15.31(m), three channels (one near top, one near middle and one near bottom) were performed as following:
- d. The following test modes were pretested for conduction test:
 - Mode 1: CH01 (2412MHz)
 - Mode 2: CH06 (2437MHz)
 - Mode 3: CH11 (2462MHz)
- f. The following test modes were pretested for radiation test:
 - Mode 1: CH01 (2412MHz)
 - Mode 2: CH06 (2437MHz)
 - Mode 3: CH11 (2462MHz)
- g. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 25000MHz.

2.2 Description of Test System

Support Unit 1. – USB Mouse (LOGITECH)

FCC ID	: N/A
Model No.	: M-8E58
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0037
Data Cable	: Shielded, 1.7m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 2. – Printer (EPSON)

FCC ID	: N/A
Model No.	: STYLUS COLOR 680
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0037
Data Cable	: Shielded, 1.35m
Remark	: This support device was tested to comply with FCC standards and

authorized under a declaration of conformity.

Support Unit 3. – Modem (ACEEX)

FCC ID : IFAXDM141
Model No. : DM141
Power Supply Type : Switching
Power Cord : Non-Shielded
Serial No. : SP0037
Data Cable : Shielded, 1.15m

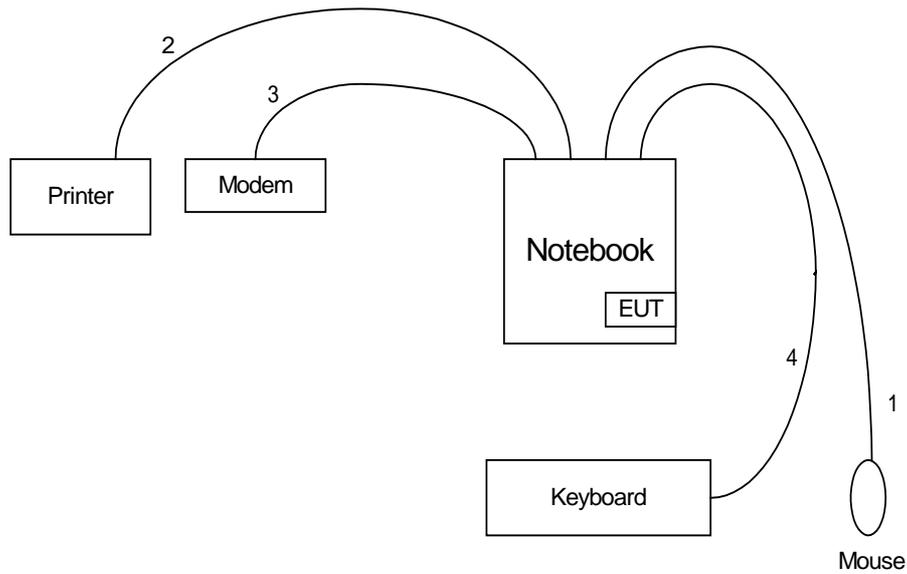
Support Unit 4. – Notebook (DELL)

FCC ID : E2K24CLNS
Model No. : PPO5L
Power Supply Type : Switching
Power Cord : Non-Shielded
Serial No. : SP0037
Data Cable : Non-Shielded, 1.8m

Support Unit 5. – USB Keyboard (GATEWAY)

Model No. : SK-9900U
Power Supply Type : Switching
Power Cord : Non-Shielded
Serial No. : SP0037
Data Cable : Shielded, 1.6m
Remark : This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

2.3 Connection Diagram of Test System



1. The I/O cable is connected from Notebook to the support unit 1.
2. The I/O cable is connected from Notebook to the support unit 2.
3. The I/O cable is connected from Notebook to the support unit 3.
4. The I/O cable is connected from Notebook to the support unit 5

3 Operation of Equipment under Test

An executive program, "EMCTESTEXE." under WIN XP, which generates a complete line of continuously repeating "H" pattern was used as the test software.

The program was executed as follows:

- a. Turn on the power of all equipment.
- b. The PC reads the test program from the hard disk drive and runs it.
- c. The PC sends "H" messages to the monitor, and the monitor displays "H" patterns on the screen.
- d. The PC sends "H" messages to the printer, then the printer prints them on the paper.
- e. The PC sends "H" messages to the modem.
- f. The PC sends "H" messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
- g. Repeat the steps from c to f.

At the same time, one self test program to keep transmitting and receiving signals.

4 General Information of Test

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,
Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C.
TEL : 886-3-327-3456
FAX : 886-3-318-0055

Test Site No : CO01-HY, 03CH03-HY

4.1 Test Voltage

110V/ 60Hz

4.2 Standard for Methods of Measurement

ANSI C63.4-2001 for conducted power line test and radiated emission test,
"Guidance on Measurements for Direct Sequence Spread Spectrum Systems" for test of 6dB Bandwidth
"Guidance on Measurements for Direct Sequence Spread Spectrum Systems" for test of Maximum Peak
Output Power
"Guidance on Measurements for Direct Sequence Spread Spectrum Systems" for test of 100kHz Bandwidth
of Frequency Band Edges
"Guidance on Measurements for Direct Sequence Spread Spectrum Systems" for test of Power Spectral
Density

4.3 Test in Compliance with

FCC Part 15, Subpart C

4.4 Frequency Range Investigated

- a. Conduction: from 150 kHz to 30 MHz
- b. Radiation: from 30 MHz to 25000MHz

4.5 Test Distance

The test distance of radiated emission from antenna to EUT is 3 M.

5 Report of Measurements and Examinations

5.1 List of Measurements and Examinations

FCC Rule	Description of Test	Result
15.207	Conducted Emission	Pass
15.247(a)(2)	6dB Bandwidth	Pass
15.247(b)	Maximum Peak Output Power	Pass
15.209	Radiated Emission	Pass
15.247(c)	100kHz Bandwidth of Frequency Band Edges	Pass
15.247(d)	Power Spectral Density	Pass
15.203	Antenna Requirement	Pass
1.1307 1.1310 2.1091 2.1093	RF Exposure Compliance	Pass

5.2 6dB Bandwidth

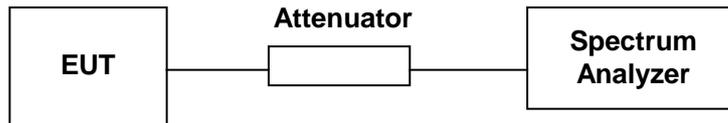
5.2.1 Measuring Instruments :

As described in chapter 7 of this test report.

5.2.2 Test Procedure :

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 100KHz and VBW to 100KHz.
3. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

5.2.3 Test Setup Layout :



5.2.4 Test Result : The spectrum analyzer plots are attached as below

- Temperature : 23 °C
- Relative Humidity : 56%

Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
01	2412	6.64	0.5	1
06	2437	6.64	0.5	2
11	2462	6.60	0.5	3

5.3 Maximum Peak Output Power

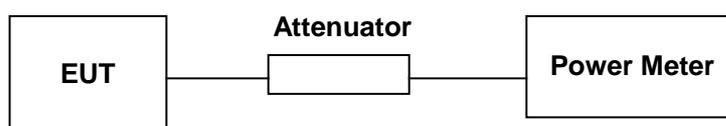
5.3.1 Measuring Instruments :

As described in chapter 7 of this test report.

5.3.2 Test Procedure :

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

5.3.3 Test Setup Layout :



5.3.4 Test Result : See spectrum analyzer plots below

- Temperature : 23C
- Relative Humidity : 56%

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	18.55	1W/30 dBm
06	2437	19.00	1W/30 dBm
11	2462	18.60	1W/30 dBm

5.4 Power Spectral Density

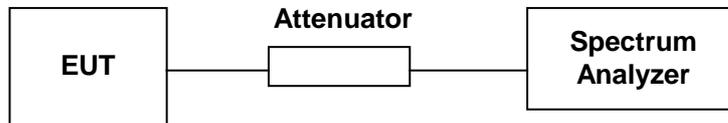
5.4.1 Measuring Instruments :

As described in chapter 7 of this test report.

5.4.2 Test Procedure :

1. The transmitter output was connected to spectrum analyzer through an attenuator.
2. The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.
3. The power spectral density was measured and recorded.
4. The sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

5.4.3 Test Setup Layout :



5.4.4 Test Result : See spectrum analyzer plots below

- Temperature : 23°C
- Relative Humidity : 56%

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
01	2412	-5.58	8	4
06	2437	-5.96	8	5
11	2462	-5.86	8	6

5.5 Test of Conducted Emission

Conducted Emissions were measured from 150 KHz to 30 MHz with a bandwidth of 9 KHz and return leads of the EUT according to the methods defined in ANSI C63.4-2001 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.4.5 Major Measuring Instruments :

● Test Receiver	(R&S ESCS 30)
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

5.4.6 Test Procedures :

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connect to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 KHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.4.7 Test Result of Conducted Emission :

Frequency Range of Test : from 150KHz to 30 MHz. 6dB Bandwidth : 9KHz

- Test Mode : Mode 1
- Temperature : 23°C
- Relative Humidity : 51 %

The test was passed at the minimum margin that marked by the frame in the following table

Condition : CNS/VCCI/CISPR-B 2003 2001/008 LENE
 EUT : HomePod/Mini PCI
 Power : 110V/60Hz
 Model : HomePod/Mini PCI
 Memo : Tx Ch01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB		cm	deg
1	0.1560000	42.79	-22.88	65.67	42.53	0.10	0.16	0.00	QP	---	---
2	0.1560000	25.99	-29.68	55.67	25.73	0.10	0.16	0.00	Average	---	---
3	0.1560000	43.89	-21.70	65.67	43.63	0.10	0.16	0.00	QP	---	---
4	0.1560000	27.64	-28.03	55.67	27.38	0.10	0.16	0.00	Average	---	---
5	0.1790000	20.87	-33.66	54.53	20.60	0.10	0.17	0.00	Average	---	---
6	0.1790000	34.84	-29.69	64.53	34.57	0.10	0.17	0.00	QP	---	---
7	0.2070000	29.73	-23.59	53.32	29.45	0.10	0.18	0.00	Average	---	---
8	0.2070000	37.92	-25.40	63.32	37.64	0.10	0.18	0.00	QP	---	---
9	0.2370000	19.62	-32.50	52.20	19.36	0.10	0.16	0.00	Average	---	---
10	0.2370000	35.33	-26.87	62.20	35.07	0.10	0.16	0.00	QP	---	---
11	0.2510000	31.05	-20.67	51.72	30.80	0.10	0.15	0.00	Average	---	---
12	@0.2510000	41.96	-19.76	61.72	41.71	0.10	0.15	0.00	QP	---	---

Condition : CNS/VCCI/CISPR-B 2003 2001/008 NEUTRAL
 EUT : HomePod/Mini PCI
 Power : 110V/60Hz
 Model : HomePod/Mini PCI
 Memo : Tx Ch01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB		cm	deg
1	0.1520000	45.40	-20.49	65.89	45.14	0.10	0.16	0.00	QP	---	---
2	0.1520000	20.30	-27.51	55.89	20.12	0.10	0.16	0.00	Average	---	---
3	0.1540000	43.34	-22.44	65.78	43.08	0.10	0.16	0.00	QP	---	---
4	0.1540000	34.86	-20.92	55.78	34.60	0.10	0.16	0.00	Average	---	---
5	0.1800000	22.21	-32.20	54.49	21.94	0.10	0.17	0.00	Average	---	---
6	0.1800000	37.83	-26.66	64.49	37.56	0.10	0.17	0.00	QP	---	---
7	0.2160000	24.49	-28.48	52.97	24.22	0.10	0.17	0.00	Average	---	---
8	0.2160000	36.29	-26.60	62.97	36.02	0.10	0.17	0.00	QP	---	---
9	0.2470000	29.11	-22.75	51.86	28.85	0.10	0.16	0.00	Average	---	---
10	0.2470000	41.54	-20.32	61.86	41.28	0.10	0.16	0.00	QP	---	---
11	10.020	31.97	-20.03	60.00	31.49	0.20	0.28	0.00	QP	---	---
12	10.020	27.11	-22.89	50.00	26.63	0.20	0.28	0.00	Average	---	---

Test Engineer : Jones Tsai Jones Tsai

- Test Mode : Mode 2
- Temperature : 23°C
- Relative Humidity : 51 %

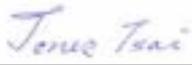
The test was passed at the minimum margin that marked by the frame in the following table

Condition : CNS/VCCI/CISPR-B 2003 2001/008 LINE
 EUT : HomePod/Mini PCI
 Power : 110V/60Hz
 Model : HomePod/Mini PCI
 Memo : Tx Ch06 2437MHz

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Preamp Factor	Remark	Rat Pos	Table Pos
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB		cm	deg
1	0.1540000	47.92	-17.86	65.78	47.66	0.10	0.16	0.00	QP	---	---
2	0.1540000	30.43	-25.35	55.78	30.17	0.10	0.16	0.00	Average	---	---
3	0.1640000	39.39	-25.87	65.26	39.13	0.10	0.16	0.00	QP	---	---
4	0.1640000	26.33	-28.93	55.26	26.07	0.10	0.16	0.00	Average	---	---
5	0.2130000	21.70	-31.31	53.09	21.51	0.10	0.17	0.00	Average	---	---
6	0.2130000	37.94	-25.15	63.09	37.67	0.10	0.17	0.00	QP	---	---
7	0.2470000	26.36	-25.50	51.86	26.10	0.10	0.16	0.00	Average	---	---
8	0.2470000	41.26	-20.60	61.86	41.00	0.10	0.16	0.00	QP	---	---
9	1.690	26.17	-19.83	46.00	25.99	0.10	0.08	0.00	Average	---	---
10	1.690	31.58	-24.42	56.00	31.40	0.10	0.08	0.00	QP	---	---
11	9.650	26.73	-23.27	50.00	26.25	0.20	0.28	0.00	Average	---	---
12	9.650	32.01	-27.99	60.00	31.53	0.20	0.28	0.00	QP	---	---

Condition : CNS/VCCI/CISPR-B 2003 2001/008 NEUTRAL
 EUT : HomePod/Mini PCI
 Power : 110V/60Hz
 Model : HomePod/Mini PCI
 Memo : Tx Ch06 2437MHz

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Preamp Factor	Remark	Rat Pos	Table Pos
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB		cm	deg
1	0.1540000	43.48	-22.30	65.78	43.22	0.10	0.16	0.00	QP	---	---
2	0.1540000	35.79	-19.99	55.78	35.53	0.10	0.16	0.00	Average	---	---
3	0.1640000	40.32	-24.94	65.26	40.06	0.10	0.16	0.00	QP	---	---
4	0.1640000	25.25	-30.01	55.26	24.99	0.10	0.16	0.00	Average	---	---
5	0.2130000	23.23	-29.86	53.09	22.96	0.10	0.17	0.00	Average	---	---
6	0.2130000	38.26	-24.83	63.09	37.99	0.10	0.17	0.00	QP	---	---
7	0.2470000	28.95	-22.91	51.86	28.69	0.10	0.16	0.00	Average	---	---
8	0.2470000	39.43	-22.43	61.86	39.17	0.10	0.16	0.00	QP	---	---
9	1.690	25.77	-20.23	46.00	25.59	0.10	0.08	0.00	Average	---	---
10	1.690	30.73	-25.27	56.00	30.55	0.10	0.08	0.00	QP	---	---
11	9.650	26.74	-23.26	50.00	26.26	0.20	0.28	0.00	Average	---	---
12	9.650	31.76	-28.24	60.00	31.28	0.20	0.28	0.00	QP	---	---

Test Engineer :  Jones Tsai

- Test Mode : Mode 3
- Temperature : 23°C
- Relative Humidity : 51 %

The test was passed at the minimum margin that marked by the frame in the following table

Condition : CNS/VCCI/CISPR-B 2003 2001/008 LENE
 EUT : HomePod/Mini PCI
 Power : 110V/60Hz
 Model : HomePod/Mini PCI
 Memo : Tx Ch11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB		cm	deg
1	@0.1540000	47.76	-18.02	65.78	47.50	0.10	0.16	0.00	QP	---	---
2	0.1540000	34.22	-21.56	55.78	33.96	0.10	0.16	0.00	Average	---	---
3	@0.1560000	46.70	-18.97	65.67	46.44	0.10	0.16	0.00	QP	---	---
4	0.1560000	27.45	-20.22	55.67	27.19	0.10	0.16	0.00	Average	---	---
5	0.1620000	40.42	-24.94	65.36	40.16	0.10	0.16	0.00	QP	---	---
6	0.1620000	28.00	-27.36	55.36	27.74	0.10	0.16	0.00	Average	---	---
7	0.1790000	36.91	-27.62	64.53	36.64	0.10	0.17	0.00	QP	---	---
8	0.1790000	19.36	-35.17	54.53	19.09	0.10	0.17	0.00	Average	---	---
9	0.2010000	34.90	-28.67	63.57	34.62	0.10	0.18	0.00	QP	---	---
10	0.2010000	22.11	-31.46	53.57	21.83	0.10	0.18	0.00	Average	---	---
11	0.2470000	29.44	-22.42	51.86	29.18	0.10	0.16	0.00	Average	---	---
12	0.2470000	41.08	-20.78	61.86	40.82	0.10	0.16	0.00	QP	---	---

Condition : CNS/VCCI/CISPR-B 2003 2001/008 NEUTRAL
 EUT : HomePod/Mini PCI
 Power : 110V/60Hz
 Model : HomePod/Mini PCI
 Memo : Tx Ch11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB		cm	deg
1	0.1540000	45.64	-20.14	65.78	45.38	0.10	0.16	0.00	QP	---	---
2	0.1540000	33.09	-22.69	55.78	32.83	0.10	0.16	0.00	Average	---	---
3	0.1670000	24.54	-30.57	55.11	24.28	0.10	0.16	0.00	Average	---	---
4	0.1670000	37.37	-27.74	65.11	37.11	0.10	0.16	0.00	QP	---	---
5	0.2020000	22.59	-30.94	53.53	22.31	0.10	0.18	0.00	Average	---	---
6	0.2020000	38.78	-24.75	63.53	38.50	0.10	0.18	0.00	QP	---	---
7	0.2510000	41.57	-20.15	61.72	41.32	0.10	0.15	0.00	QP	---	---
8	0.2510000	29.30	-22.42	51.72	29.05	0.10	0.15	0.00	Average	---	---
9	0.3580000	28.34	-20.43	48.77	28.13	0.10	0.11	0.00	Average	---	---
10	0.3580000	31.18	-27.59	58.77	30.97	0.10	0.11	0.00	QP	---	---
11	9.970	32.03	-27.97	60.00	31.55	0.20	0.28	0.00	QP	---	---
12	9.970	27.16	-22.84	50.00	26.68	0.20	0.28	0.00	Average	---	---

Test Engineer : Jones Tsai Jones Tsai

5.4.8 Photographs of Conducted Emission Test Configuration

- The photographs show the configuration that generates the maximum emission.

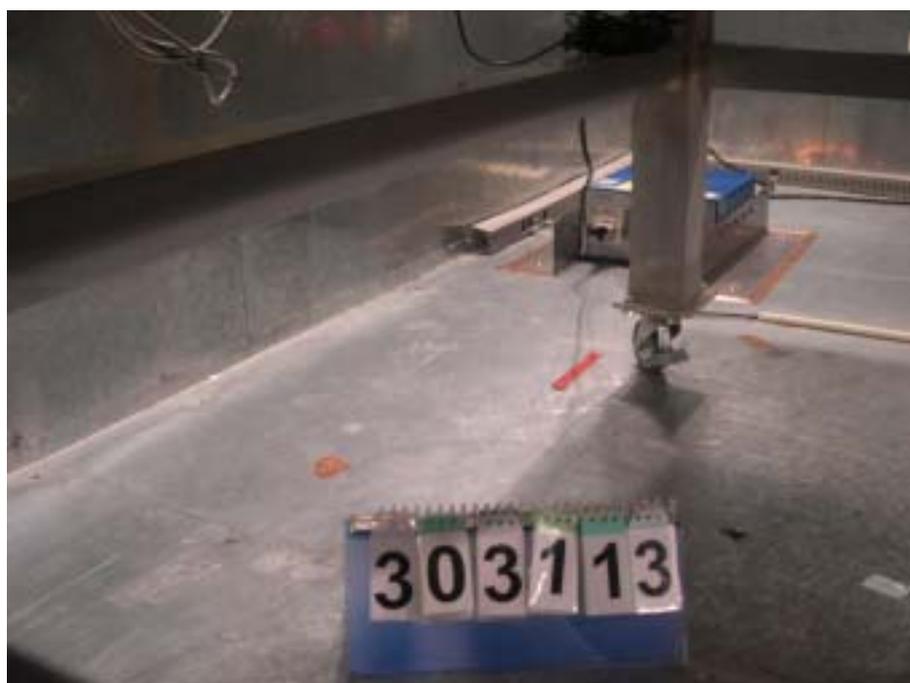
FRONT VIEW



REAR VIEW



SIDE VIEW



5.6 Test of Radiated Emission

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2001. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

5.6.1 Major Measuring Instruments

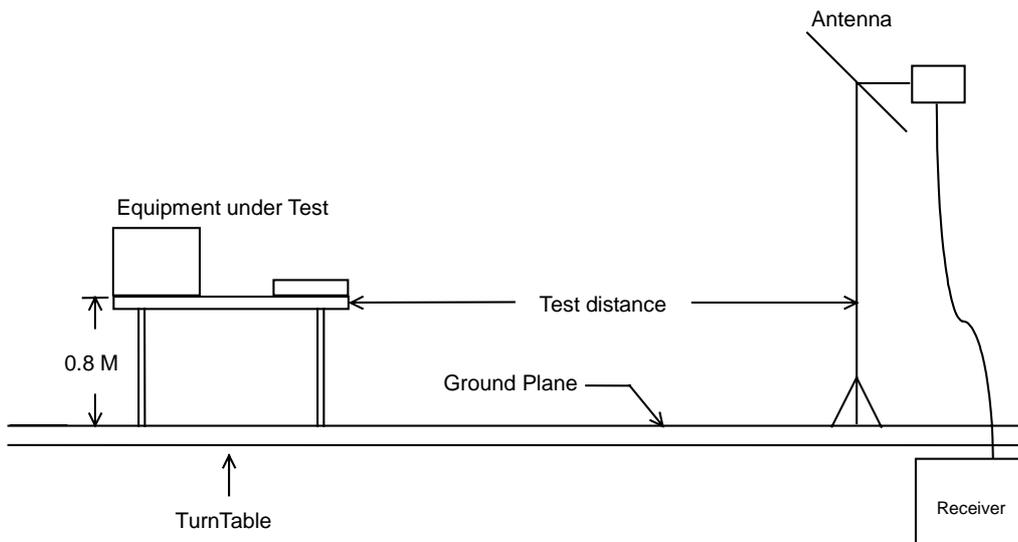
- Amplifier (MITEQ AFS44)
 - RF Gain 40 dB
 - Signal Input 100 MHz to 26.5 GHz

- Spectrum analyzer (R&S FSP40)
 - Attenuation 10 dB
 - Start Frequency 30 MHz
 - Stop Frequency 25 GHz
 - Resolution Bandwidth 120 KHz / 1 MHz
 - Video Bandwidth 300 KHz / 1MHz
 - Signal Input 9 KHz to 40 GHz

5.6.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the 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 and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission 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.

5.6.3 Typical Test Setup Layout of Radiated Emission



5.6.4 Test Result of Radiated Emission

- Test Mode: Mode 1 (2412MHz)
- Test Distance : 3 M
- Temperature : 24.5 °C
- Relative Humidity : 53 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

The test was passed at the minimum margin that marked by the frame in the following table

■ Spurious Emission

```

Site      : 03CH03-HY
Condition : 3m 03CH03-MAT VERTICAL
EUT       : HOME POD
Power     : 110V / 60Hz
MODEL     : HOME POD
MEMO     : TX CH01 2412MHz
    
```

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	36.210	35.36	-4.64	40.00	49.95	12.38	1.06	28.03	Peak	123	323
2	165.540	33.57	-9.93	43.50	51.59	7.69	2.06	27.77	Peak	121	312
3	232.770	35.73	-10.27	46.00	50.35	10.30	2.65	27.57	Peak	130	316

```

Site      : 03CH03-HY
Condition : 3m 03CH03-MAT VERTICAL
EUT       : HOME POD
Power     : 110V / 60Hz
MODEL     : HOME POD
MEMO     : TX CH01 2412MHz
    
```

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	394.500	27.64	-18.36	46.00	37.16	14.45	3.80	27.77	Peak	127	311
2	595.400	30.07	-15.93	46.00	37.20	17.23	4.44	28.80	Peak	124	323
3	665.400	34.54	-11.46	46.00	40.04	17.75	4.60	28.73	Peak	124	321

Site : 03CH03-HY
 Condition : 3a 03CH03-MAT HORIZONTAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : TX CH01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	165.810	39.07	-4.43	43.50	57.11	7.68	2.05	27.77	Peak	132	319
2	199.290	38.27	-5.23	43.50	56.24	7.27	2.46	27.70	Peak	125	310
3	231.890	42.91	-3.09	46.00	57.60	10.23	2.65	27.57	Peak	130	316

Site : 03CH03-HY
 Condition : 3a 03CH03-MAT HORIZONTAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : TX CH01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	307.000	34.55	-11.45	46.00	47.30	11.59	3.00	27.34	Peak	126	323
2	394.500	35.09	-10.11	46.00	45.41	14.45	3.80	27.77	Peak	128	327
3	827.800	32.00	-14.00	46.00	36.49	18.96	5.21	28.66	Peak	129	324

Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 VERTICAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : Tx CH01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2390.000	60.04	-13.96	74.00	62.10	28.20	5.98	36.24	Peak	105	250
2	2390.000	46.96	-7.04	54.00	49.02	28.20	5.98	36.24	Average	105	250
5	2452.000	68.34	-5.66	74.00	70.17	28.33	6.07	36.23	Peak	104	245

Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 HORIZONTAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : Tx CH01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2390.000	44.53	-9.47	54.00	46.59	28.20	5.98	36.24	Average	165	306
2	2390.000	57.16	-16.84	74.00	59.22	28.20	5.98	36.24	Peak	165	306

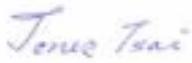
➤ For 2.453GHz ~ 25GHz

Remark: Frequency from 2453MHz to 25 GHz, the emission emitted by the EUT is too low to be measured

■ Field strength of fundamental and harmonics

Frequency (MHz)	Probe Polarity	Cable Factor	Loss	Reading (dBuV)	Limits (dBuV/m)	Emission (uV/m)	Level (dBuV/m)	Margin (uV/m)	Detect (dB)	Mode
2413.320	V	28.25	6.02	73.43	-	-	107.70	-	53.70	AV
2413.320	V	28.25	6.02	81.71	-	-	115.98	-	41.98	Peak
2438.160	H	28.30	6.05	67.13	-	-	101.48	-	47.48	AV
2413.320	H	28.25	6.02	75.59	-	-	109.86	-	35.86	Peak
4824.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
7236.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
9648.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
12060.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
14472.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
16884.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
19296.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
21708.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
24120.000	V/H	-	-	-	-	-	-	-	-	AV/Peak

Remark: The emission emitted by the EUT is too low to be measured except the emission listed above,

Test Engineer : 
 Jones Tsai

- Test Mode: Mode 2 (2437 MHz)
- Test Distance : 3 M
- Temperature : 23 °C
- Relative Humidity : 56 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

The test was passed at the minimum margin that marked by the frame in the following table

■ Spurious Emission

```

Site      : 03CH03-HY
Condition : 3m 03CH03-MAT VERTICAL
EUT       : HOME POD
Power     : 110V / 60Hz
MODEL     : HOME POD
MEMO     : TX CH06 2437MHz
    
```

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	36.210	35.28	-4.72	40.00	49.07	12.38	1.06	28.03	Peak	125	327
2	165.540	34.70	-8.80	43.50	52.72	7.69	2.06	27.77	Peak	124	311
3	232.770	36.57	-9.43	46.00	51.19	10.30	2.65	27.57	Peak	131	327

```

Site      : 03CH03-HY
Condition : 3m 03CH03-MAT VERTICAL
EUT       : HOME POD
Power     : 110V / 60Hz
MODEL     : HOME POD
MEMO     : TX CH06 2437MHz
    
```

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	394.500	27.57	-18.43	46.00	37.09	14.45	3.80	27.77	Peak	127	334
2	596.100	30.94	-15.06	46.00	38.12	17.24	4.38	28.80	Peak	120	324
3	663.300	33.33	-12.67	46.00	39.64	17.74	4.69	28.74	Peak	122	337

FCC TEST REPORT

Report No. : F303113

Site : 03CH03-HY
 Condition : 3a 03CH03-MAT HORIZONTAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : TX CH06 2437MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	166.620	39.24	-4.26	43.50	57.34	7.63	2.04	27.77	Peak	125	326
2	199.290	38.11	-5.39	43.50	56.08	7.27	2.46	27.70	Peak	119	320
3	231.690	42.48	-3.52	46.00	57.20	10.20	2.65	27.57	Peak	124	329

Site : 03CH03-HY
 Condition : 3a 03CH03-MAT HORIZONTAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : TX CH06 2437MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	307.000	34.62	-11.38	46.00	47.37	11.59	3.00	27.34	Peak	112	342
2	394.500	35.46	-10.54	46.00	44.98	14.45	3.80	27.77	Peak	124	323
3	631.800	31.11	-14.89	46.00	37.97	17.51	4.40	28.77	Peak	126	334

Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 VERTICAL
 EUT : HOME POD/Mini PCI
 Power : 110V / 60Hz
 MODEL : HOME POD/Mini PCI
 MEMO : Tx CH6 2437MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3246.000	63.97	-10.92	74.89	61.95	30.60	7.38	35.96	Peak	108	358
2	3248.000	61.25	-5.50	66.75	59.22	30.61	7.38	35.96	Average	108	358

Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 HORIZONTAL
 EUT : HOME POD/Mini PCI
 Power : 110V / 60Hz
 MODEL : HOME POD/Mini PCI
 MEMO : Tx CH6 2437MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3249.240	55.26	-23.95	79.21	53.22	30.61	7.39	35.96	Average	225	250
2	3250.000	56.28	-31.85	88.13	54.24	30.61	7.39	35.96	Peak	225	250

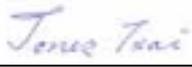
➤ For 3.251GHz ~ 25 GHz

Remark: Frequency from 3251MHz to 25 GHz, the emission emitted by the EUT is too low to be measured

■ Field strength of fundamental and harmonics

Frequency (MHz)	Polarity	Probe Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Limits (dBuV/m)	Emission (uV/m)	Level (dBuV/m)	Margin (uV/m)	Detect (dB)	Mode
2438.160	V	28.30	6.05	80.78	-	-	115.13	-	41.13	Peak
2438.160	V	28.30	6.05	72.95	-	-	107.30	-	53.30	AV
2438.160	H	28.30	6.05	76.23	-	-	110.58	-	36.58	Peak
2438.160	H	28.30	6.05	68.38	-	-	102.73	-	48.73	AV
4874.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
7311.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
9892.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
12185.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
14622.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
17059.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
19496.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
21933.000	V/H	-	-	-	-	-	-	-	-	AV/Peak
24370.000	V/H	-	-	-	-	-	-	-	-	AV/Peak

Remark: The emission emitted by the EUT is too low to be measured except the emission listed above,

Test Engineer : 
 Jones Tsai

- Test Mode: Mode 3 (2462 MHz)
- Test Distance : 3 M
- Temperature : 23 °C
- Relative Humidity : 56 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

The test was passed at the minimum margin that marked by the frame in the following table

■ Spurious Emission

Site : 03CH03-HY
 Condition : 3m 03CH03-MAT VERTICAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : TX CH11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	36.210	35.41	-4.59	40.00	50.00	12.38	1.06	28.03	Peak	112	332
2	166.620	33.62	-9.88	43.50	51.72	7.63	2.04	27.77	Peak	113	323
3	232.770	36.65	-9.35	46.00	51.27	10.30	2.65	27.57	Peak	120	331

Site : 03CH03-HY
 Condition : 3m 03CH03-MAT VERTICAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : TX CH11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	595.400	30.65	-15.35	46.00	37.78	17.23	4.44	28.00	Peak	122	343
2	662.600	34.40	-11.60	46.00	40.72	17.73	4.69	28.74	Peak	123	341
3	819.400	31.14	-14.86	46.00	35.76	18.91	5.17	28.70	Peak	120	334

FCC TEST REPORT

Report No. : F303113

Site : 03CH03-HY
 Condition : 3m 03CH03-MAT HORIZONTAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : TX CH11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	165.540	38.83	-4.67	43.50	56.85	7.69	2.06	27.77	Peak	131	341
2	198.210	38.21	-5.29	43.50	56.17	7.29	2.45	27.70	Peak	128	322
3	231.690	42.16	-3.84	46.00	56.88	10.20	2.65	27.57	Peak	120	331

Site : 03CH03-HY
 Condition : 3m 03CH03-MAT HORIZONTAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : TX CH11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
2	351.800	30.50	-15.50	46.00	41.73	13.07	3.26	27.56	Peak	105	245
3	394.500	35.85	-10.15	46.00	45.37	14.45	3.80	27.77	Peak	104	230

Site : 03CH03-NY
 Condition : 3m HORN-ANT-6741 VERTICAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : Tx CH11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1916.000	59.60	-14.40	74.00	63.58	27.07	5.29	36.34	Peak	102	236
2	1916.000	41.48	-12.52	54.00	45.46	27.07	5.29	36.34	Average	102	236
3	2422.000	66.15	-7.85	74.00	68.08	28.27	6.03	36.23	Peak	102	235
4	2422.000	51.00	-3.00	54.00	52.93	28.27	6.03	36.23	Average	102	235
7	2495.900	59.14	-14.86	74.00	60.80	28.42	6.14	36.22	Peak	102	244
8	2495.900	46.48	-7.52	54.00	48.14	28.42	6.14	36.22	Average	102	244

Site : 03CH03-NY
 Condition : 3m HORN-ANT-6741 VERTICAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : Tx CH11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3278.000	63.26	-10.74	74.00	65.24	30.68	3.31	35.97	Peak	124	20
2	3278.000	51.37	-2.63	54.00	53.35	30.68	3.31	35.97	Average	124	20

Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 HORIZONTAL
 EUT : HOME POD
 Power : 110V / 60Hz
 MODEL : HOME POD
 MEMO : Tx CH11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2420.000	63.02	-10.18	74.00	65.76	28.26	6.03	36.23	Peak	104	262
4	2483.500	56.51	-17.49	74.00	58.22	28.39	6.12	36.22	Peak	102	246
5	2483.500	44.33	-9.67	54.00	46.04	28.39	6.12	36.22	Average	102	246

Site : 03CH03-HY
 Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
 EUT : HOME POD/Mini PCI
 Power : 110V / 60Hz
 MODEL : HOME POD/Mini PCI
 MEMO : Tx CH11 2462MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3278.000	59.67	-28.46	88.13	61.65	30.68	3.31	35.97	Peak	143	142
2	3282.840	58.83	-20.38	79.21	60.85	30.69	3.26	35.97	Average	143	142

➤ For 3.283GHz ~ 2.5 GHz

Remark: Frequency from 3283MHz to 25000MHz, the emission emitted by the EUT is too low to be measured

■ Field strength of fundamental and harmonics

Frequency (MHz)	Antenna Polarity	Cable Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Limits (dBuV/m)	Emission (uV/m)	Level (dBuV/m)	Margin (uV/m)	Detect (dB)	Mode
2462.000	V	28.35	6.09	80.45	-	-	114.89	-	40.89	Peak
2462.000	V	28.35	6.09	72.31	-	-	106.75	-	52.75	AV
2462.000	H	28.35	6.09	73.69	-	-	108.13	-	34.13	Peak
2462.000	H	28.35	6.09	64.77	-	-	99.21	-	45.21	AV
4926.000	V	33.28	4.08	16.59	-	-	53.95	-	-20.05	Peak
4926.000	V	33.28	4.08	12.38	-	-	49.74	-	-4.26	AV
7386.000	V/H	-	-	-	-	-	-	-	-	AV/ Peak
9848.000	V/H	-	-	-	-	-	-	-	-	AV/ Peak
12310.000	V/H	-	-	-	-	-	-	-	-	AV/ Peak
14772.000	V/H	-	-	-	-	-	-	-	-	AV/ Peak
17234.000	V/H	-	-	-	-	-	-	-	-	AV/ Peak
19696.000	V/H	-	-	-	-	-	-	-	-	AV/ Peak
22158.000	V/H	-	-	-	-	-	-	-	-	AV/ Peak
24620.000	V/H	-	-	-	-	-	-	-	-	AV/ Peak

Remark: The emission emitted by the EUT is too low to be measured except the emission listed above,

Test Engineer : *Jones Tsai*
 Jones Tsai

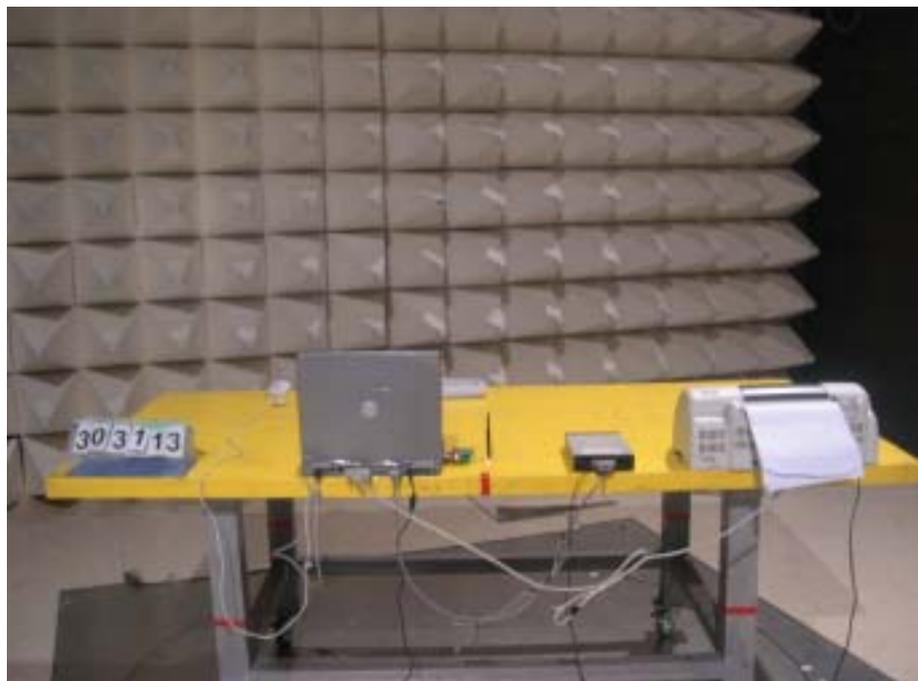
5.6.5 Photographs of Radiated Emission Test Configuration

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW



REAR VIEW



5.7 Band Edges Measurement

5.7.1 Measuring Instruments :

As described in chapter 7 of this test report.

5.7.2 Test Procedure :

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100KHz with convenient frequency span including 100 KHz bandwidth from band edge.
3. The band edges was measured and recorded.

5.7.3 Test Result :

- Test Result in lower band (Channel 1) : PASS
- Test Result in higher band(Channel 11) : PASS

5.7.4 Note on Band edge Emission

The band edge emission plot on appendix B page B7. shows 57.96dB delta between carrier maximum power and local maximum emission in the restricted band (2.390GHz).

The band edge emission plot on appendix B page B8. shows 59.5dB delta between carrier maximum power and local maximum emission in the restricted band (2.4835GHz).

Channel	Polarity	The emission of carrier power strength	The maximum field strength in restrict band	Limit	Margin	Result
		(dB μ V/m)	(dB μ V/m)	(dB μ V/m)	(dB)	
CH1	H	109.86	51.9	74	-22.1	Peak
	H	101.48	43.52	54	-10.48	Average
	V	115.98	58.02	74	-15.98	Peak
	V	107.70	49.74	54	-4.26	Average
CH11	H	108.13	48.63	74	-25.37	Peak
	H	99.21	39.71	54	-14.29	Average
	V	114.89	55.39	74	-18.61	Peak
	V	106.75	47.25	54	-6.75	Average

* The maximum field strength in restricted band is the emission of carrier power strength subtract to the delta between carrier maximum power and local maximum emission in the restricted band.

5.8 Antenna Requirements

5.8.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

5.8.2 Antenna Connected Construction

The antenna is integral to the device with U.F. connector.

5.9 RF Exposure

FCC Rules and Regulations Part 1.1307,1.1310,2.1091,2.1093:
RF Exposure Compliance

5.9.1 Limit For Maximum Permissible Exposure (MPE)

(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

F=frequency in MHz

*Plane-wave equivalent power density

5.9.2 MPE Calculations

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (mW/cm}^2\text{)} = \frac{E^2}{377}$$

- E = Electric field (V/m)
- P = Peak output power (mW)
- G = Antenna numeric gain (numeric)
- d = Separation distance (m)

Because the EUT is belong to General Population/ Uncontrolled Exposure. So the Limit of Power Density is 10 mWc/m2. We can change the formula to:

$$d = \sqrt{\frac{30 \times P \times G}{377}}$$

Channel No.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated RF Exposure Separation Distance (cm)	Minimum RF Exposure Separation Distance (cm)
Channel 01	2	1.58	18.55	71.6143	3.0053	20.00
Channel 06	2	1.58	19.00	79.4328	3.1651	20.00
Channel 11	2	1.58	18.60	72.4436	3.0227	20.00

5.9.3 FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation. Proposed RF exposure safety information to include in User's Manual.

6 Antenna Factor & Cable Loss

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)	Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30	15.35	0.92	1000	24.10	3.92
35	13.63	1.05	2000	27.40	5.66
40	11.11	1.08	3000	30.00	7.20
45	10.59	1.15	4000	32.60	9.36
50	6.47	1.29	5000	33.40	9.16
55	5.83	1.63	6000	34.20	10.70
60	5.18	1.30	7000	35.30	12.16
65	4.81	1.36	8000	36.90	13.12
70	4.43	1.43	9000	38.10	13.81
75	5.10	1.48	10000	39.00	14.83
80	5.91	1.53	11000	38.60	15.83
85	7.33	1.61	12000	39.50	17.11
90	8.74	1.69	13000	39.30	17.62
95	9.05	1.67	14000	41.60	18.37
100	9.36	1.76	15000	40.60	19.10
110	9.65	1.80	16000	37.20	19.72
120	9.97	1.90	17000	40.20	21.98
130	10.51	1.61	18000	48.90	21.22
140	10.32	2.14	19000	37.60	23.90
150	9.42	2.16	20000	37.30	24.07
160	8.09	2.16	21000	37.00	25.49
170	7.43	1.99	22000	38.00	24.92
180	7.60	2.39	23000	38.70	25.60
190	7.43	2.38	24000	38.60	25.70
200	7.26	2.46	25000	24.10	3.92
220	9.11	2.59	14000	27.40	5.66
240	10.88	2.68	15000	30.00	7.20
260	11.75	2.91	16000	32.60	9.36
280	11.55	2.92	17000	33.40	9.16
300	11.36	2.99	18000	34.20	10.70
320	12.03	3.03	19000	35.30	12.16
340	12.69	3.22	20000	36.90	13.12
360	13.33	3.28	21000	38.10	13.81
380	14.00	3.80	22000	39.00	14.83
400	14.63	3.80	23000	38.60	15.83
450	15.33	3.69	24000	39.50	17.11
500	16.03	3.93	25000	39.30	17.62
550	16.65	3.56			
600	17.29	4.15			
650	17.64	4.58			
700	18.00	4.73			
750	18.39	4.71			
800	18.79	4.99			
850	19.10	5.24			
900	19.42	5.38			
950	19.58	5.57			
1000	19.75	5.62			

7 List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9 KHz – 2.75 GHz	Jun. 12, 2003	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001-008	9 KHz – 30 MHz	Apr. 29, 2003	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001-009	9 KHz – 30 MHz	Apr. 29, 2003	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450 Hz	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 ~ 60 Hz	N/A	Conduction (CO01-HY)
RF Cable-CON	Suhner Switzerland	RG223/U	CB029	9KHz~30MHz	Jan. 07, 2003	Conduction (CO01-HY)
50 ohm BNC type Terminal	NOBLE	50ohm	TM009	50 ohm	Apr. 24, 2003	Conduction (CO01-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2003	Radiation (03CH03-HY)
Spectrum analyzer	R&S	FSP40	100004	9KHz~40GHz	Aug. 07, 2003	Radiation (03CH03-HY)
Amplifier	MITEQ	AFS44	879981	100MHz~26.5GHz	Jul. 23, 2003	Radiation (03CH03-HY)
Horn Antenna	COM-POWER	AH-118	10094	1GHz – 18GHz	Apr. 10, 2003	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Mar. 14, 2003	Radiation (03CH03-HY)

Calibration Interval of instruments listed above is one year, except for Horn Antenna, BBHA9170.

8 Uncertainty of Test Site

Uncertainty of Radiated Emission Measurement

Contribution	Probability Distribution	3m
Antenna factor calibration	normal(k=2)	±1
cable loss calibration	normal(k=2)	±0.3
RCV/SPA specification	rectangular	±2
Antenna Directivity	rectangular	±3
Antenna Factor V.S. Height	rectangular	±2
Antenna Factor Interpolation for Frequency	rectangular	±0.25
site imperfection	rectangular	±2
Mismatch Receiver VSWR $\Gamma_1=0.09$ Antenna VSWR $\Gamma_2=0.67$ Uncertainty= $20\log(1-\Gamma_1*\Gamma_2)$	U-shaped	±0.54
combined standard uncertainty Ue(y)	normal	±2.7
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	normal (k=2)	±5.4

$U = \{((1/2)^2 + (0.3/2)^2 + (2^2 + 0.5^2 + 2^2 + 0.25^2 + 2^2)/3 + (0.54)^2/2\} = 2.2$ for 10m test distance

$U = \{((1/2)^2 + (0.3/2)^2 + (2^2 + 3^2 + 2^2 + 0.25^2 + 2^2)/3 + (0.54)^2/2\} = 2.7$ for 3m test distance

Uncertainty of Conducted Emission Measurement

Contribution	Probability Distribution	150KHz – 30MHz
Cable and I/P attenuator calibration	normal(k=2)	±0.3
RCV/SPA specification	rectangular	±2
LISN coupling specification	rectangular	±1.5
Transducer factor frequency interpolation	rectangular	±0.2
Mismatch Receiver VSWR $\Gamma_1=0.09$ LISN VSWR $\Gamma_2=0.33$ Uncertainty= $20\log(1-\Gamma_1*\Gamma_2)$	U-shaped	0.2
combined standard uncertainty Ue(y)	normal	±1.66
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	normal (k=2)	±3.32

$U = \{(0.3/2)^2 + (2^2 + 1.5^2 + 0.2^2)/3 + (0.2)^2/2\} = 1.66$