



TEST REPORT

Date: 2009-05-20

Report No.: 60.870.9.006.02F

Applicant:

Atom Industrial Limited.
RM 609, 6/F., Kwong Sang Hong Centre,
No.151-153 Hoi Bun Road, Kwun Tong,
Kowloon, Hong Kong.

Description of Samples:

Model name: 2.4GHz Wireless Headphone System
AWD205 (Transmitter)
Brand name: Nil
Model no.: AWD205(TX)
FCCID: NOY-AWD205TX

Date Samples Received:

2009-04-03

Date Tested:

2009-04-20 to 2009-05-19

Investigation Requested:

FCC Part 15 Subpart C, Section 15.247

Conclusions:

The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remarks:

Checked by:

Approved by:-

Prudence Poon
Project Manager
Telecom department

Victor Kwan
Manager
Telecom department

CONTENT:

Cover	Page 1 of 27	
Content	Page 2-3 of 27	
<u>1.0</u>	<u>General Details</u>	
1.1	Test Laboratory	Page 4 of 27
1.2	Applicant Details	Page 4 of 27
1.3	Equipment Under Test [EUT]	Page 5 of 27
1.4	Related Submittal(s) Grants	Page 5 of 27
<u>2.0</u>	<u>Technical Details</u>	
2.1	Investigations Requested	Page 6 of 27
2.2	Test Standards and Results Summary	Page 6 of 27
<u>3.0</u>	<u>Test Methodology</u>	
3.1	Radiated Emission	Page 7 of 27
3.2	Field Strength Calculation	Page 7 of 27
3.3	Conducted Emission	Page 7 of 27
<u>4.0</u>	<u>Test Results</u>	
4.1	Number of Frequency Hopping	Page 8 of 27
4.2	20dB Bandwidth Measurement	Page 9-10 of 27
4.3	Hopping Channel Carrier Frequency Separation	Page 11 of 27
4.4	Average Time of Occupancy	Page 12-13 of 27
4.5	Pseudorandom Hopping Algorithm	Page 14-15 of 27
4.6	Band Edge Measurement	Page 16-17 of 27
4.7	Maximum Output Power	Page 18-19 of 27
4.8	Out of Band Emissions and Emissions in Restricted Bands	Page 20-22 of 27
4.9	Conducted Emission on AC Mains	Page 23-26 of 27

5.0 **List of Measurement Equipments**

Page 27 of 27

Appendix A

Photos of Test Setup

Appendix B

External EUT Photos

Appendix C

Internal EUT Photos

1.0 General Details

1.1 Test Laboratory

EMC Laboratory registered by FCC with
FCC Registration Number: 607756

**1.2 Applicant Details
Applicant**

Atom Industrial Ltd.
RM 609, 6/F., Kwong Sang Hong Centre,
No.151-153 Hoi Bun Road, Kwun Tong,
Kowloon, Hong Kong.

Manufacturer

Atom Industrial Ltd.
RM 609, 6/F., Kwong Sang Hong Centre, No.151-153 Hoi
Bun Road, Kwun Tong, Kowloon, Hong Kong.

1.3 Equipment Under Test [EUT]

Description of EUT

Product Description:	2.4GHz Wireless Headphone System AWD205 (Transmitter)
Model No.:	AWD205(TX)
Brand Name:	Nil
FCCID:	NOY-AWD205TX
Rating:	- DC 5.0V, powered by USB port of computer. - AC120 / DC5.0V power adaptor.
Antenna Type:	Integral
Operated Frequency:	2406 -2472 MHz
No. of Channel:	15
Accessories and Auxiliary Equipments:	-AC/DC power adaptor. -Computer and peripherals.

General Operation of EUT

The Equipment Under Test (EUT) is a transmitter operated at 2.4GHz, it has audio input jacks at the back panel for audio source connection, and then transmit the audio signal to its associated headphone. This EUT is designed for fix used, as it is powered by AC/DC adaptor or USB port,

FHSS Operation Principle:

This module is controlled by microchip to generate Pseudorandom Frequency Hopping Sequence, this module support 15 hopping channels.

2406, 2420, 2422, 2424, 2426, 2428, 2444, 2446, 2448, 2450, 2452, 2456, 2468, 2470, 2472 MHz.

1.4 Related Submittal(s) Grants

This EUT has RF and computer peripheral part, both are subjected to Certificate Authorization.

2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2008 and ANSI C63.4: 2003 for FCC Verification

2.2 Test Standards and Results Summary Tables

Test Condition	Test Requirement	Test Result	
		Pass	N/A
Number of Frequency Hopping	Section 15.247 (a1)	☒	☐
20dB Bandwidth Measurement	Section 15.247 (a1)	☒	☐
Hopping Channel Carrier Frequency Separation	Section 15.247 (a1)	☒	☐
Average Time of Occupancy	Section 15.247 (a1)	☒	☐
Pseudorandom Hopping Algorithm	Section 15.247 (a1)	☒	☐
Band Edge Measurement	Section 15.247	☒	☐
Maximum Output Power	Section 15.247 (b1)	☒	☐
Out of Band Emission	Section 15.247 (d)	☒	☐
Radiated Emission in Restricted Band	Section 15.247 (d)	☒	☐
Conducted Emission on AC Mains	Section 15.207	☒	☐
RF Exposure	Section 15.247 (i)	☒ See note 1	☐
Antenna Requirement	Section 15.203	☒ See note 2	☐

Note 1 : Since this EUT is not a portable product it is deemed to fulfill this requirement without conducting SAR measurement.

Note 2 : The EUT uses a permanently attached antenna, which in accordance to Section 15.203, is considered sufficient to comply with the provisions of this section.

Remark: N/A - Not Applicable

3.0 Test Methodology

3.1 Radiated Emission

The sample was placed 0.8m above the ground plane on a standard emission test site *. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

*On a standard emission test site with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

3.2 Field Strength Calculation

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

$$\begin{aligned} \text{FS} &= \text{R} + \text{System Factor} \\ \text{System Factor} &= \text{AF} + \text{CF} + \text{FA} - \text{PA} \end{aligned}$$

Where FS = Net Field Strength in dBuV/m at 3 meters.

R = Reading of Spectrum Analyzer / Test Receiver in dBuV.

AF = Antenna Factor in dB.

CF = Cable Attenuation Factor in dB.

FA = Filter Attenuation Factor in dB.

PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

3.3 Conducted Emissions

The test was performed in accordance with ANSI C63.4: 2003, with the following: initial measurements were performed in peak and average detection modes on the live line of personal computer, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

4.0 Test Results

4.1 Number of Hopping Frequency

Test Requirement:	FCC part 15 section 15.247 (a1)(iii)
Test Date:	2009-05-14
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

Result: PASS

Measured Result :

Number of Channels = 15

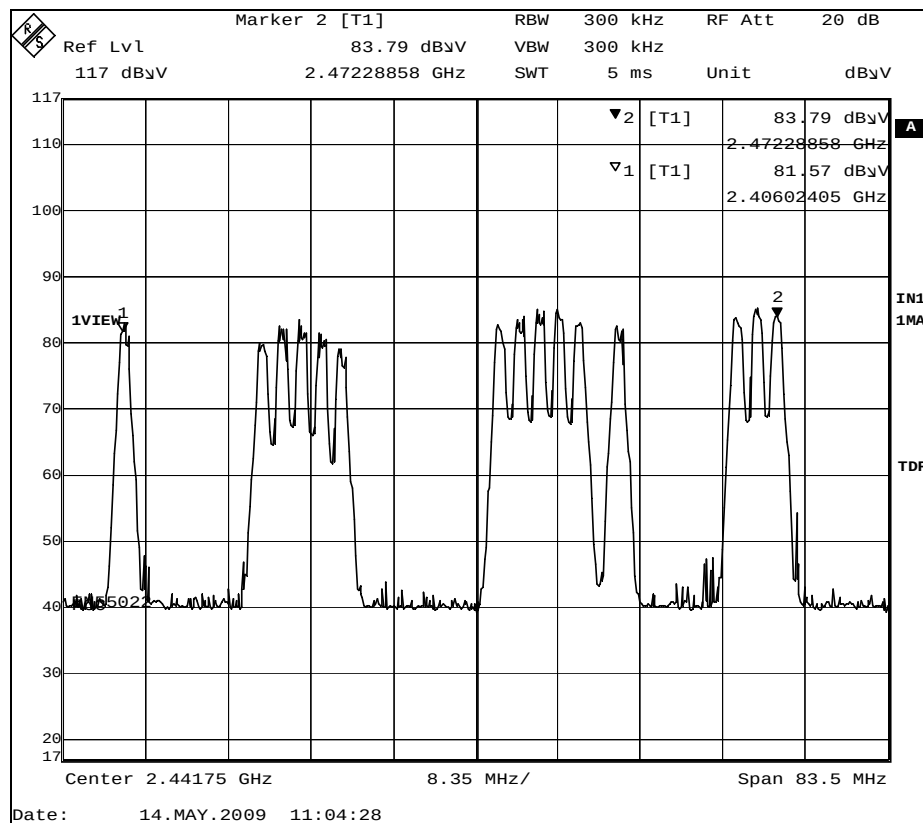
Channel Frequency in sequence:

2406, 2420, 2422, 2424, 2426, 2428, 2444, 2446, 2448, 2450, 2452, 2456, 2468, 2470, 2472 MHz.

Limit for Number of Hopping Channel [Section 15.247 (a1)(iii)]

At least 15 non-overlapping channels for 2400-2483.5MHz.

Figure 1 – Result data graph shows the number of operation channels:



4.2 20dB Bandwidth Measurement

Test Requirement:	FCC part 15 section 15.247 (a1)
Test Date:	2009-05-19
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

Test Setup:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
Lowest : 1	2406	2.025
Middle: 8	2446	2.029
Highest : 15	2472	2.026

This result is used for checking the hopping channel carrier frequencies separation.

Figure 2 – Result data graph shows 20 dB bandwidth Channel 1, BW = 2.025MHz

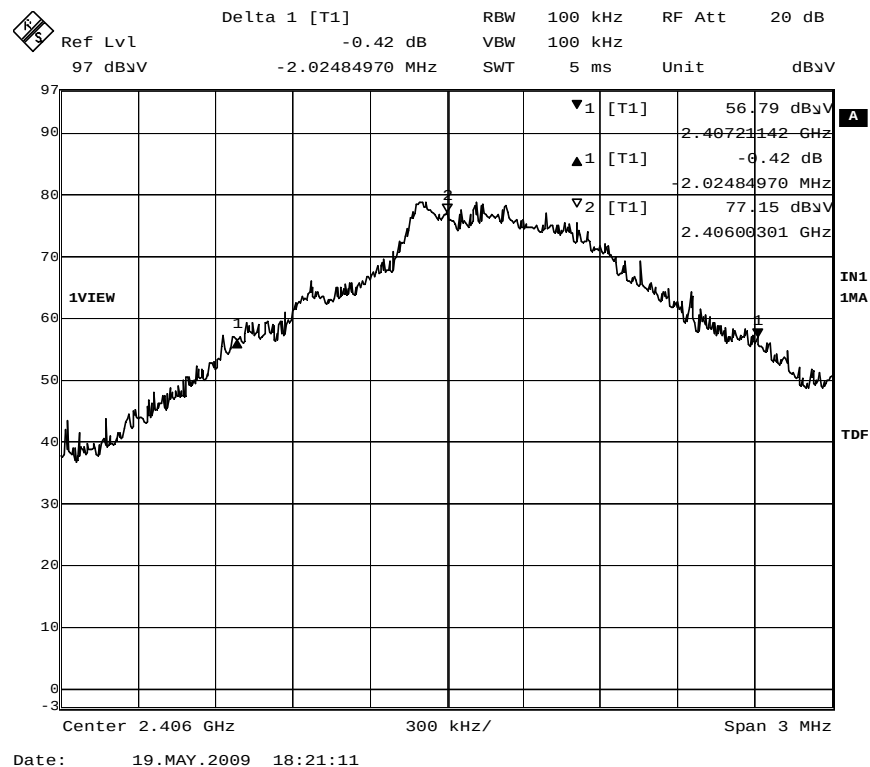


Figure 3 – Result data graph shows 20 dB bandwidth Channel 8, BW = 2.029MHz

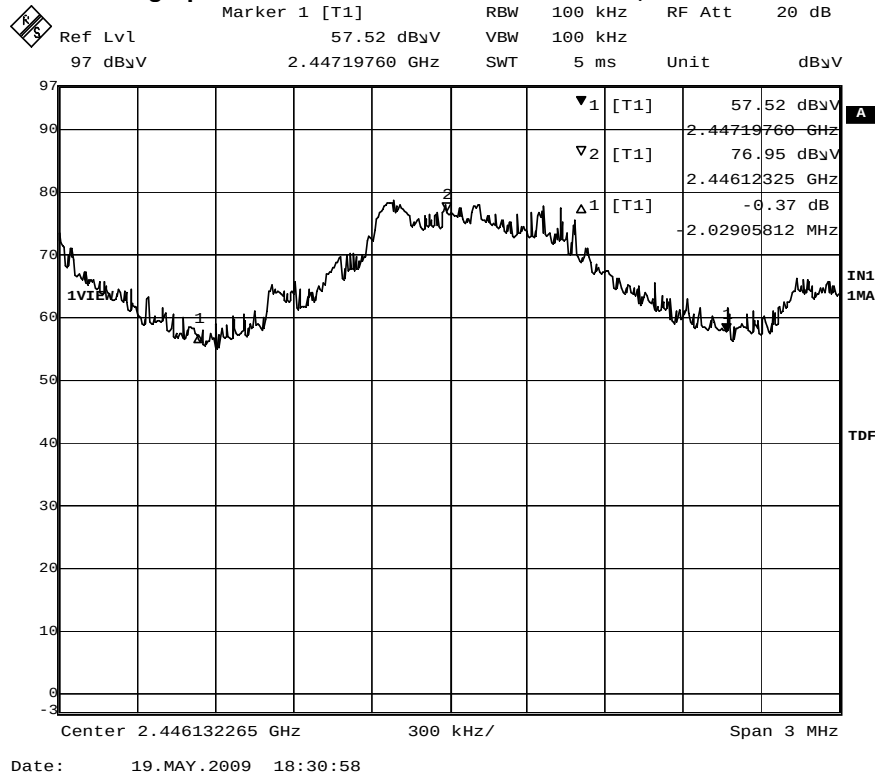
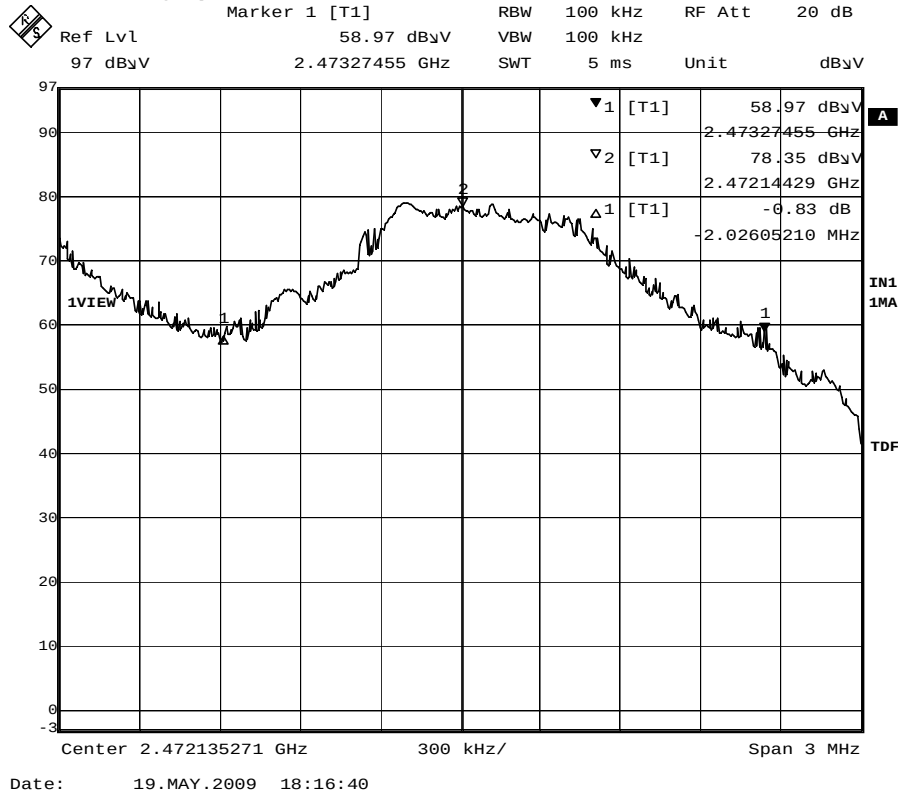


Figure 4 – Result data graph shows 20 dB bandwidth Channel 15, BW = 2.026MHz



4.3 Hopping Channel Carrier Frequency Separation

Test Requirement:	FCC part 15 section 15.247 (a1)
Test Date:	2009-05-14
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

Result: PASS

Measured Result :

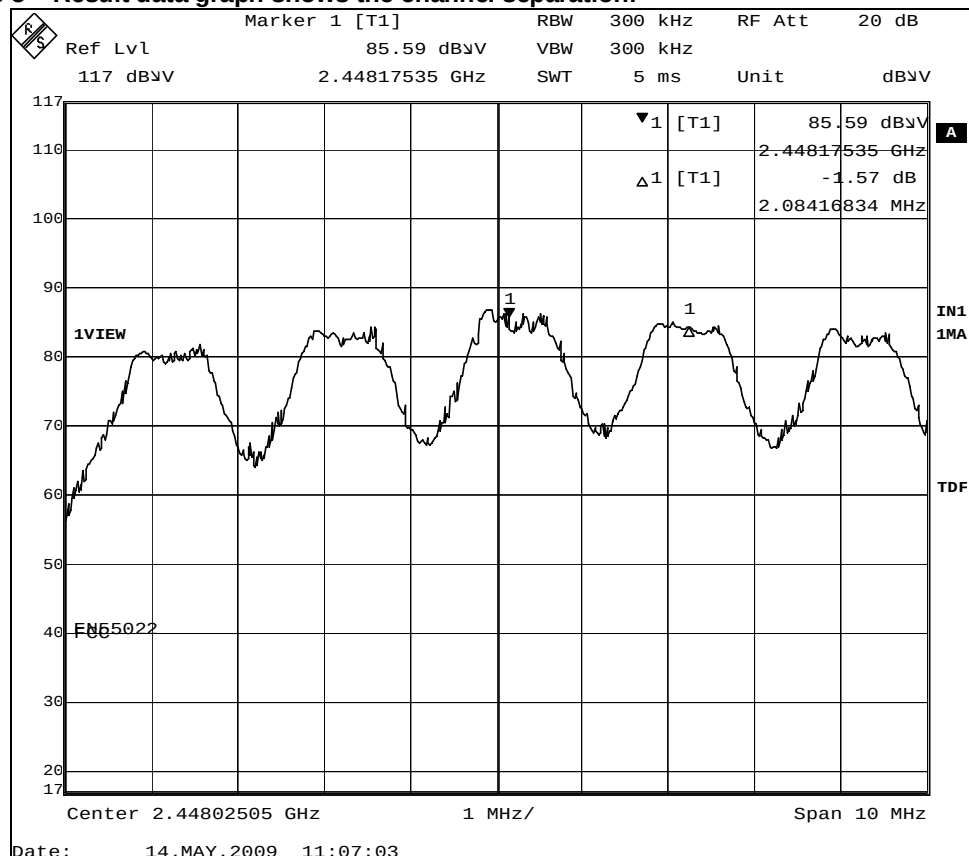
Refer to the delta marker, the frequency separation between two adjacent channels is 2.08417MHz, therefore requirement of channel separated by a minimum of the 20dB bandwidth of the hopping channel is applied.

According to the test result shown in section 4.2, the maximum 20dB bandwidth is 2.029MHz, so the hopping channel separation of this EUT is found to comply with the requirement.

Limits for Hopping Channel Separation [Section 15.247 (a1)]:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25KHz or the 20dB bandwidth of the hopping channel, whichever is greater.

Figure 5 – Result data graph shows the channel separation:



4.4 Average Time of Channel Occupancy

Test Requirement:	FCC part 15 section 15.247 (a1)(iii)
Test Date:	2009-5-14
Mode of Operation:	Transmitting mode.
Detector Function:	Zero span, Sweep time 1s

Result : PASS

Measured Result :

Observing time for total 15 hopping channels is $15 \times 0.4\text{s} = 6\text{s}$

Figure 6 shows 17 pulse within 1 s :

So, $17 \times 6 = 102$ pulses within 6s (observing time)

Figure 7 shows time of each pulse = 3.68ms

Therefore, total transmitting time is $102 \times 0.0037\text{s} = 0.377\text{s}$. ($<0.4\text{s}$)

- **Result data graph is shown at the next pages for reference.**

Limits for Average Time of Occupancy [Section 15.247 (a1)(iii)]:

The average time of occupancy on any channel shall not be greater than 0.4 second within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Figure 6 – Result data graph shows the number of pulse within 1s = 17

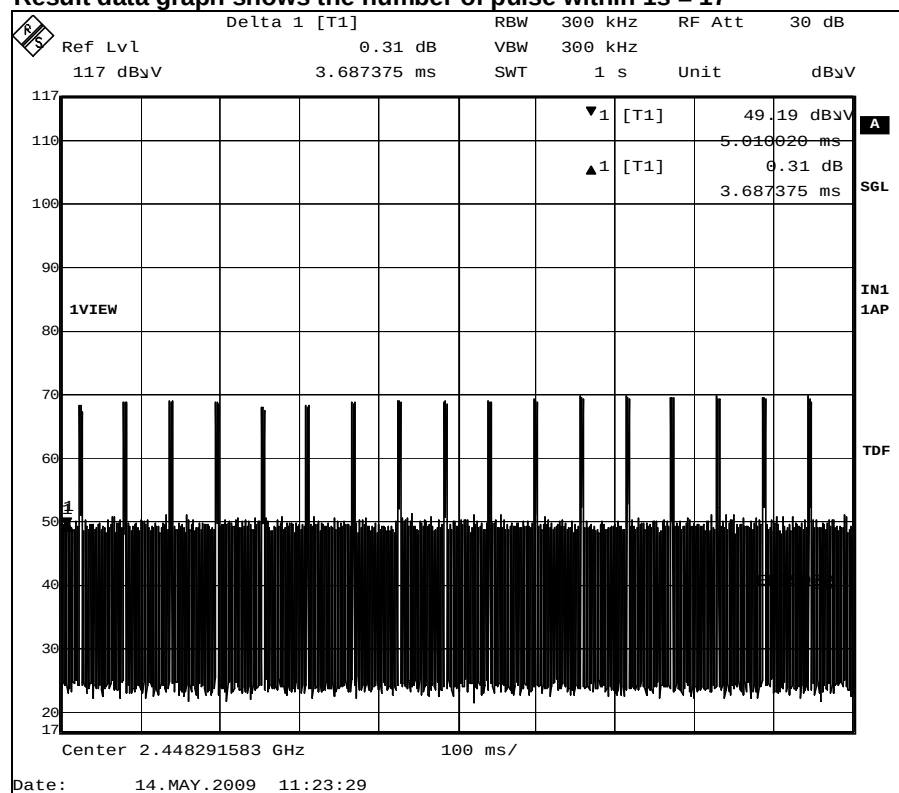
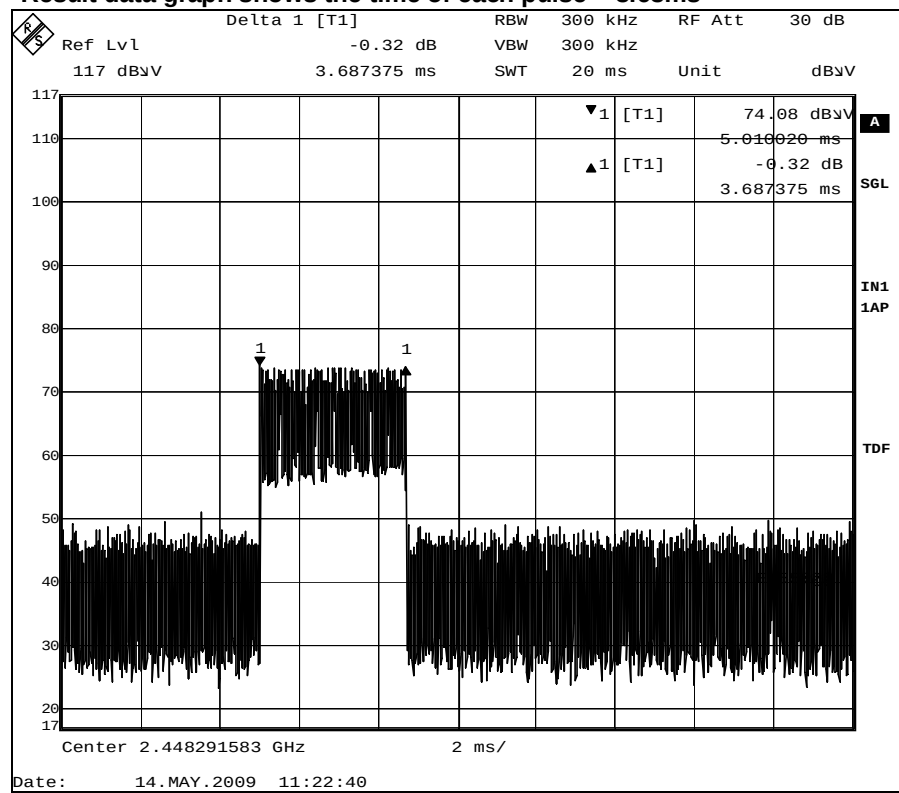


Figure 7 – Result data graph shows the time of each pulse = 3.68ms



4.5 Pseudorandom Hopping Algorithm

Pseudorandom Frequency Hopping

The embedded FHSS engine uses 15 hopping frequencies. Each channel frequency is selected from a pseudorandom ordered list of hopping frequencies, from 2406MHz to 2472MHz with separating in 2.08MHz apart from each of the channels. A single data frame is transmitted on each frequency location before skipping to the next hopping frequency in the list.

- **Refer to next page for the FHSS detail of the EUT, only sequence 1 is default to be used in this EUT, other sequences are disable to apply.**

System Receiver Input Bandwidth

The receiver bandwidth is equal to the receiver bandwidth in the 15 hopping channel mode, which is 2.08MHz. The receiver bandwidth was verified during RF hopping to the relative channel.

Receiver Hopping Capability

The associated receiver has the ability to shift frequencies in synchronization with the transmitted signals, with they start connect with a same channel and then hop to next channel with a same formula among each other.

Requirement for Pseudorandom Hopping Algorithm [Section 15.247 (a1)]:

The channel frequencies shall be selected from a pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on average by the transmitter.

6.2 RF Operation Principle

6.2.1 Carrier Frequency Separation

According the FCC rules part 15 subpart C15.247 frequency hopping system shall have hopping channel carrier frequency separated by a minimum of 25 KHz or 20dB bandwidth of the hopping channel. Channel separation 2 MHz @ per channel

6.2.2 Number of Hopping Frequencies

According the FCC rules part 15 subpart C15.247 frequency hopping systems operating in 2400~2483.5 KHz band that meet 15 hopping frequencies.

6.2.2.1 Pseudorandom Frequency Hopping Sequence

This module is controlled by microchip (IA2 embedded uP) to generate Pseudorandom Frequency Hopping Sequence. IA2 module RF normal operation mode support 15 hopping channel/Per Sequence.

There are four hopping sequences list as below:

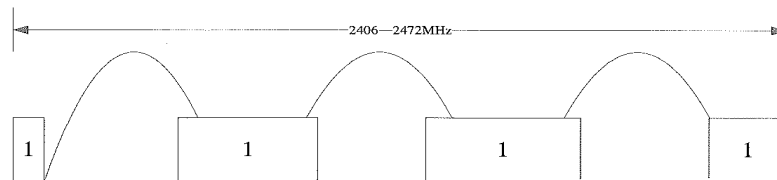
Sequence 1: 2406, 2420, 2422, 2424, 2426, 2428, 2444, 2446, 2448, 2450, 2452, 2456, 2468, 2470, 2472 MHz

Sequence 2: 2406, 2408, 2410, 2412, 2414, 2416, 2418, 2420, 2422, 2424, 2426, 2428, 2430, 2438, 2446 MHz

Sequence 3: 2432, 2440, 2448, 2450, 2452, 2454, 2458, 2460, 2462, 2464, 2466, 2468, 2470, 2472 MHz

Sequence 4: 2406, 2408, 2410, 2412, 2414, 2416, 2418, 2426, 2454, 2462, 2464, 2466, 2468, 2470, 2472 MHz

The reference diagram drawing as below:



4.6 Band Edge Measurement

Test Requirement:	FCC part 15 section 15.247
Test Date:	2009-05-19
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

Result: PASS

Measured Result :

Refer to the figure 5 and 6, it shows the frequency of lower band edge and upper band edge is 2.406GHz and 2.472GHz separately.

Limits of Band Edge for Carrier Frequencies Operated within the Bands [Section 15.247]:

The carrier frequencies should operate within 2400-2483.5MHz.

Figure 8 – Result data graph shows the frequency of lowest channel.

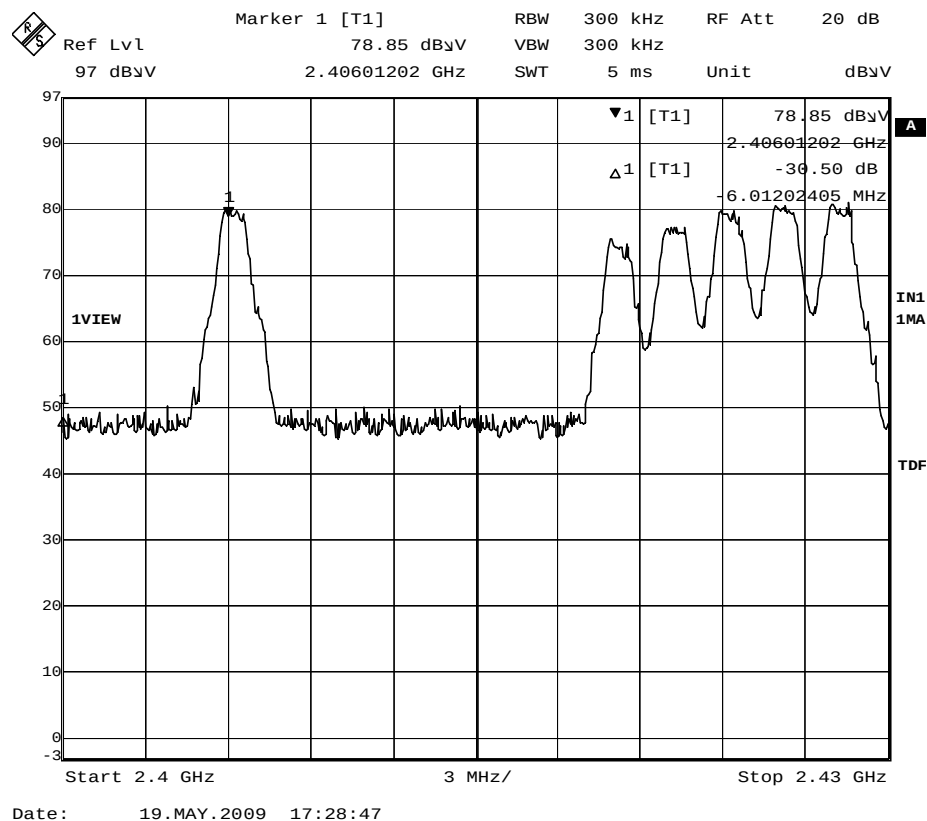
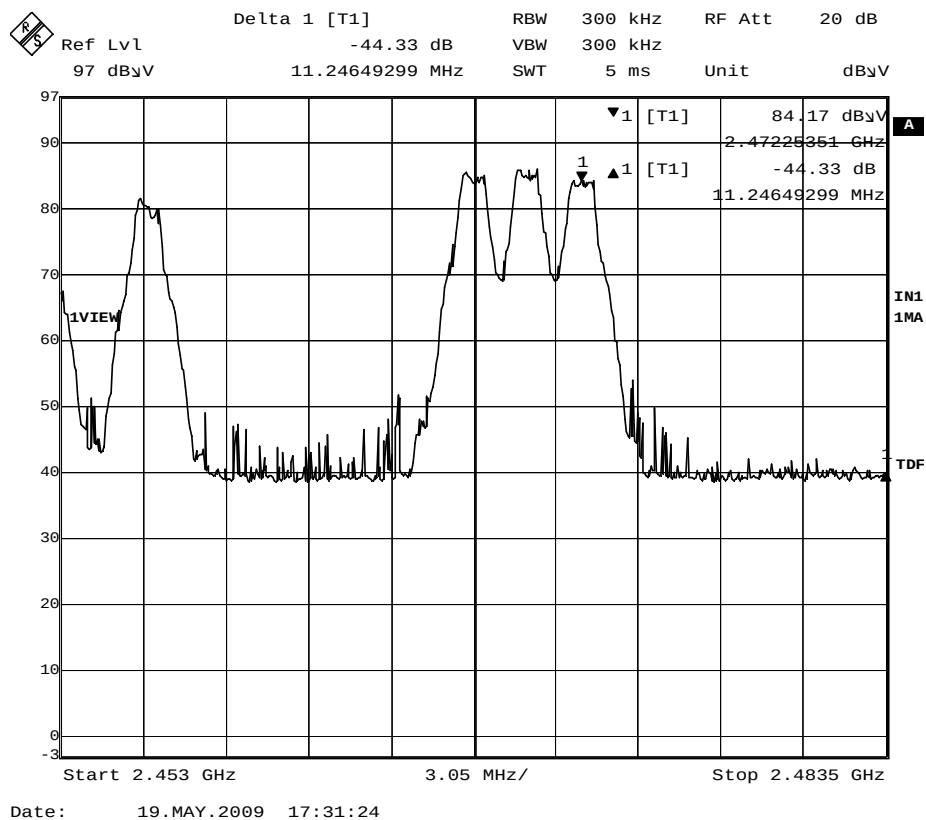


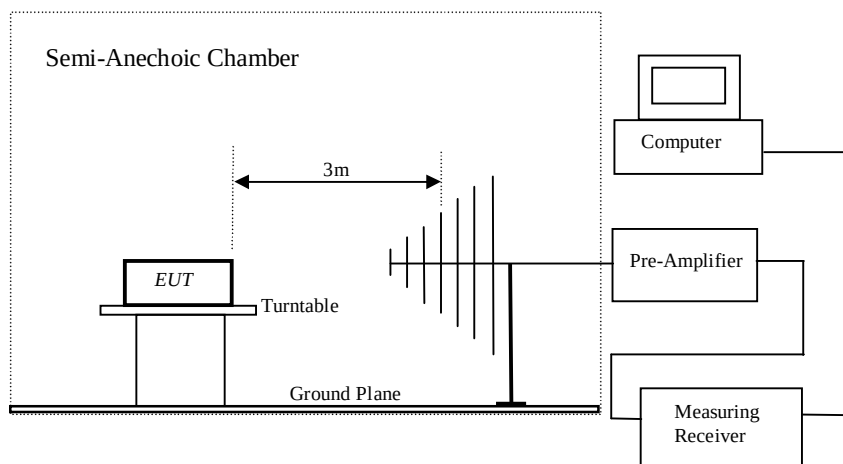
Figure 9 – Result data graph shows the frequency of highest channel.



4.7 Maximum Output Power

Test Requirement:	FCC part 15 section 15.247 (a1)
Test Method:	ANSI C63.4:2003
Test Date:	2009-05-11
Mode of Operation:	Transmitting mode.
Detector Function:	Peak
Measurement BW:	RBW 1MHz ; VBW 1MHz

Test Setup:



Result : PASS

Frequency (MHz)	Output Power		Max. Output Power (mW)
	(dBuV/m)	(V/m)	
Lowest Channel : 2406.0	108.4	0.263	16.49
Middle Channel : 2440.0	108.0	0.282	18.96
Highest Channel : 2470.0	109.0	0.251	15.02
Limit	114.0	0.501	125.0

Calculate the transmitter's peak power using the following equation:

$$E = \frac{\sqrt{30PG}}{d}$$

Where: E is the measured maximum fundamental field strength in V/m, utilizing a RBW $\geq$ the 20 dB bandwidth of the emission, VBW > RBW, peak detector function. Follow the procedures in C63.4-2003 with respect to maximizing the emission.

G is the numeric gain of the transmitting antenna with reference to an isotropic radiator.
G =1.258dBi.

d is the distance in meters from which the field strength was measured.

P is the power in watts for which you are solving:

$$P = \frac{(E*d)^2}{30G}$$

Limits for Maximum Output Power [Section 15.247 (a1)(iii)]:

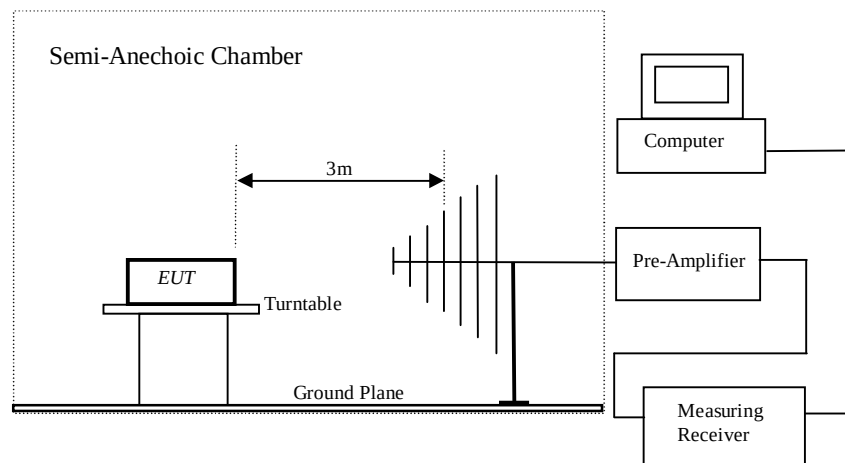
For frequency hopping systems employing at least 75 hopping channels: 1 Watt

For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watts

4.8 Out of Band Emissions and Emissions in Restricted Bands

Test Requirement:	FCC part 15 section 15.247 (d)
Test Method:	ANSI C63.4:2003
Test Date:	2009-05-11
Mode of Operation:	1) Communication mode. 2) Communication mode, EUT is connected to PC.
Detector Function:	Peak
Measurement BW:	RBW 100KHz ; VBW 300KHz

Test Setup:



Result : PASS

Out of Frequency Band Emissions
For out of band emissions that are close to or exceed 20dB attenuation requirement, and emission falls into restricted band, radiated emission was performed in order to show compliance with the general radiated emission requirement.
Result Summary: Below result is to show the worst case emissions detected under Communication mode with PC connection condition, the significant emissions detected are with more than 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power.

Limits for Out of Frequency Band Emission [Section 15.247 (d)]:

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 20 dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power. Attenuation below the general limits specified in Section 15.209(a) is not required.

Report No.: 60.870.9.006.02F

Result : PASS

All Emission and Emissions Fall into Restricted Band were recorded as below :

Radiated Emissions						
Emissions Frequency	E-Field Polarity	Reading	System Factor	Field strength at 3m	Limit	Delta to Limit
MHz		dBuV/m	dB	dBuV/m	dBuV/m	dBuV/m
Lowest	Ch.					
*4800.00	H	18.00	34.70	52.70	54.00	-1.30
*4800.00	V	17.20	34.70	51.90	54.00	-2.10
Middle	Ch.					
*4900.00	H	17.80	34.90	52.90	54.00	-1.10
*4900.00	V	16.00	34.90	50.90	54.00	-3.10
Highest	Ch.					
*4940.00	H	18.00	35.10	52.90	54.00	-1.10
*4940.00	V	16.90	35.10	52.00	54.00	-2.00

Result Summary:

- 1) Communication mode : All other emissions are more than 20dB below FCC part 15.209 limit.
- 2) Communication mode with PC connection : All other emissions are more than 20dB below FCC part 15.209 limit.
- 3) No further spurious emissions found between 30 MHz and lowest internal used/generated frequency.

Remarks : 1. “ * ” Radiated emissions which fall in the restricted bands as defined in Section 15.205(a).

2. Emission level with more than 20dB below the FCC required limit is not mentioned in table.

3. Delta to Limit = Field strength (dBμV/m) – Limit (dBμV/m).

3. Calculated measurement uncertainty: ±5.0dB.

Limit for Radiated Emission Falling in Restricted Bands [Section 15.209]:

Frequency (MHz)	Field Strength [μV/m]	Field Strength [dBμV/m]
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

Radiated emissions, which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209.

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Report No.: 60.870.9.006.02F

4.9 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement: FCC part 15 Section 15.207 Class B
Test Method: ANSI C63.4:2003
Test Date: 2009-05-19
Mode of Operation: - EUT is connected to the PC.
- Transmitting mode, EUT was connected with AC/DC adaptor.
Detector Function: CISPR Quasi Peak
Measurement BW: 100 kHz
Worst Case Channel: 1

Results: PASS

- Result data graph is shown at the next pages for reference.

Limits for Conducted Emission [Section 15.207]:

Frequency Range [MHz]	Quasi-Peak Limit [dB μ V]	Average Limit [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Remarks:

Calculated measurement uncertainty: ± 2.8 dB

Figure 10 – Result data graph shows the conducted Emission.

Conducted Emission

Operating Condition : Tx mode (connected to PC)

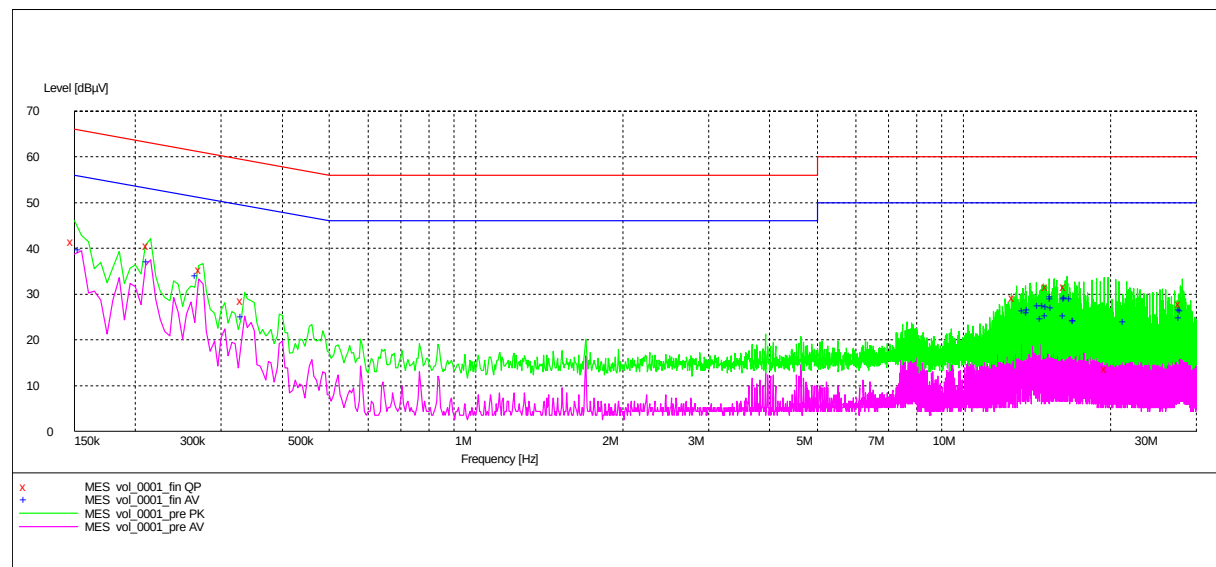
Test Specification : FCC Part 15 Class B

Comment : 117Va.c., Live and Neutral

SCAN TABLE: "FCC part15 B Voltage"

Short Description: FCC Part 15 Class B Voltage

Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
150.0 kHz	30.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	EM179
Average						



Report No.: 60.870.9.006.02F

MEASUREMENT RESULT: "vol_0001_fin QP"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150000	41.30	10.0	66	24.7	L1	GND
0.215000	40.50	10.0	63	22.5	N	GND
0.275000	35.30	10.0	61	25.6	N	GND
0.335000	28.70	10.0	59	30.6	L1	GND
12.810000	29.20	10.0	60	30.8	N	GND
14.985000	31.60	10.0	60	28.4	L1	GND
16.290000	31.60	10.0	60	28.4	L1	GND
19.780000	13.70	10.0	60	46.3	L1	GND
28.135000	27.80	10.0	60	32.2	N	GND

MEASUREMENT RESULT: "vol_0001_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.155000	39.70	10.0	56	16.1	L1	GND
0.215000	37.20	10.0	53	15.8	N	GND
0.270000	34.00	10.0	51	17.1	L1	GND
0.335000	25.20	10.0	49	24.2	L1	GND
13.390000	26.20	10.0	50	23.8	L1	GND
13.680000	26.00	10.0	50	24.0	L1	GND
13.730000	26.50	10.0	50	23.5	N	GND
14.405000	27.60	10.0	50	22.4	N	GND
14.600000	24.60	10.0	50	25.4	N	GND
14.745000	27.40	10.0	50	22.6	N	GND
14.935000	25.30	10.0	50	24.7	N	GND
14.985000	27.20	10.0	50	22.8	N	GND
15.275000	28.90	10.0	50	21.1	N	GND
15.325000	29.50	10.0	50	20.5	N	GND
15.375000	27.10	10.0	50	22.9	N	GND
16.245000	25.30	10.0	50	24.7	L1	GND
16.290000	29.00	10.0	50	21.0	N	GND
16.340000	29.20	10.0	50	20.8	N	GND
16.745000	28.90	10.0	50	21.1	L1	GND
17.015000	24.20	10.0	50	25.8	L1	GND
17.065000	24.10	10.0	50	25.9	N	GND
21.610000	24.00	10.0	50	26.0	L1	GND
28.090000	26.70	10.0	50	23.3	L1	GND
28.135000	24.80	10.0	50	25.2	L1	GND
28.280000	26.20	10.0	50	23.8	L1	GND

Report No.: 60.870.9.006.02F

Conducted Emission

Operating Condition : Tx mode (with AC/DC adaptor only)

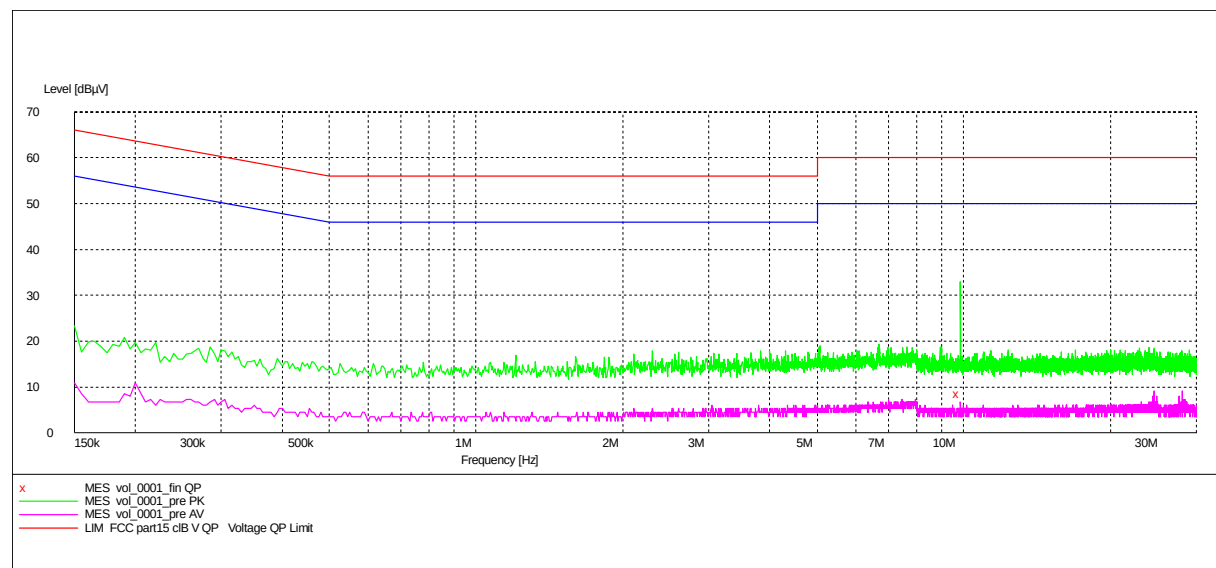
Test Specification : FCC Part 15 Class B

Comment : 117Va.c., Live and Neutral

SCAN TABLE: "FCC part15 B Voltage"

Short Description: FCC Part 15 Class B Voltage

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	EM179
Average						



MEASUREMENT RESULT: "vol_0001_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
9.840000	8.50	10.0	60	51.5	L1	GND

5.0 List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	CAL DUE
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3	--	2008/12/01	2011/12/01
EM174	BICONILOG ANTENNA	EMCO	3142C	00029071	2008/01/24	2010/01/24
EM229	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB40	100248	2008/09/08	2009/09/08

Conducted Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM197	LISN	EMCO	4825/2	1193	2007/10/30	2009/10/30
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2008/06/16	2009/06/16
EM154	SHIELDING ROOM	SIEMENS MATSUSHITA COMPONENTS	N/A	803-740-057-99A	2009/01/23	2010/01/23

Ancillary Equipments

ITEM NO.	DESCRIPTION	MODEL NO.	FCC ID	REMARK
1	DELL COMPUTER	DMC	N/A	N/A
2	DELL MONITOR	E551C	ARSCM356N	RESOLUTION:800x600(DURING TESTING) 1.0M UNSHIEDED POWER CORD CONNECTED TO THE COMPUTER 2.8M SHIEDED CABLE CONNECTED TO THE COMPUTER
3	DELL KEYBOARD	SK-8110	N/A	1.8M SHIEDED COILED CABLE CONNECTED TO THE COMPUTER
4	DELL MOUSE	N/A	N/A	2.4M UNSHIEDED CABLE CONNECTED TO THE COMPUTER
5	PARALLEL PRINTER	DMP3000	DE2850CDMP3000	1.8M UNSHIEDED POWER CORD 2.8M SHIEDED CABLE (BUNDLED TO 1M) CONNECTED TO THE COMPUTER

Remarks:

CM Corrective Maintenance
N/A Not Applicable or Not Available