FCC TEST REPORT

REPORT NO.: RF960320L11A
MODEL NO.: DUB-2240
RECEIVED: Aug. 31, 2007
TESTED: Sep. 04 ~ Oct. 16, 2007
ISSUED: Oct. 16, 2007

APPLICANT: D-Link Corporation

ADDRESS: 17595 Mt. Herrmann, Fountain Valley, CA 92708, U.S.A.

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Kueishan, Taoyuan, Taiwan, R.O.C.

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1 CERTIFICATION

PRODUCT:	UWB D-Link HUB DUB-2240 A1
MODEL:	DUB-2240
BRAND:	D-Link
APPLICANT:	D-Link Corporation
TESTED:	Sep. 04 ~ Oct. 16, 2007
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 15, Subpart F (Section 15.517)** ANSI C63.4-2003

The above equipment (model: DUB-2240) have been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Rennie Wang , **DATE:** Oct. 16, 2007
Rennie Wang / Senior Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Oct. 16, 2007
Responsible for RF
Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Oct. 16, 2007
Gary Chang / Assistant Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart F			
Standard Section	**Test Type and Limit**	**Result**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –15.98dB at 0.513MHz.
15.517(b)	UWB Bandwidth	PASS	Meet the requirement of limit.
15.209 15.517(c)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is –1.81dB at 529.48MHz.
15.209 15.517(d)	Radiated Emissions in GPS Band	PASS	Meet the requirement of limit. Minimum passing margin is –19.04dB at 1584.00MHz.
15.517(e)	Peak Emissions within a 50MHz Bandwidth	PASS	Meet the requirement of limit. Minimum passing margin is –1.08dB at 4520.00MHz.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	UWB D-Link HUB DUB-2240 A1
MODEL NO.	DUB-2240
FCC ID	KA2UB2240A1
POWER SUPPLY	5.0Vdc from AC adapter
MODULATION TECHNOLOGY	MOFDM
FREQUENCY RANGE	3.1 to 4.8GHz (Supporting up to 3 MBOA sub-bands, 528MHz each)
MAXIMUM OUTPUT POWER	-25.52dBm (69.68dBuV/m)
ANTENNA TYPE	PIFA antenna with 2dBi gain
I/O PORTS	USB
DATA CABLE	0.6m shielded USB cable without core
ASSOCIATED DEVICES	Adapter

NOTE:

1. This report is prepared for FCC class II permissive change. Difference compared with the original report is listed as below, therefore all test items has been re-tested.

ITEM	ORIGINAL DESCRIPTION	CLASS II CHANGE DESCRIPTION
1	Metal antenna with 2dBi gain	PIFA antenna with 2dBi gain

2. The EUT was powered by the following adapter:

BRAND:	JENTEC TECHNOLOGY CO., LTD.
MODEL:	AF1805-A
INPUT:	100-120Vac, 50-60Hz, 0.4A
OUTPUT:	5Vdc, 3A
POWER LINE:	1.8m non-shielded cable without core

3. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

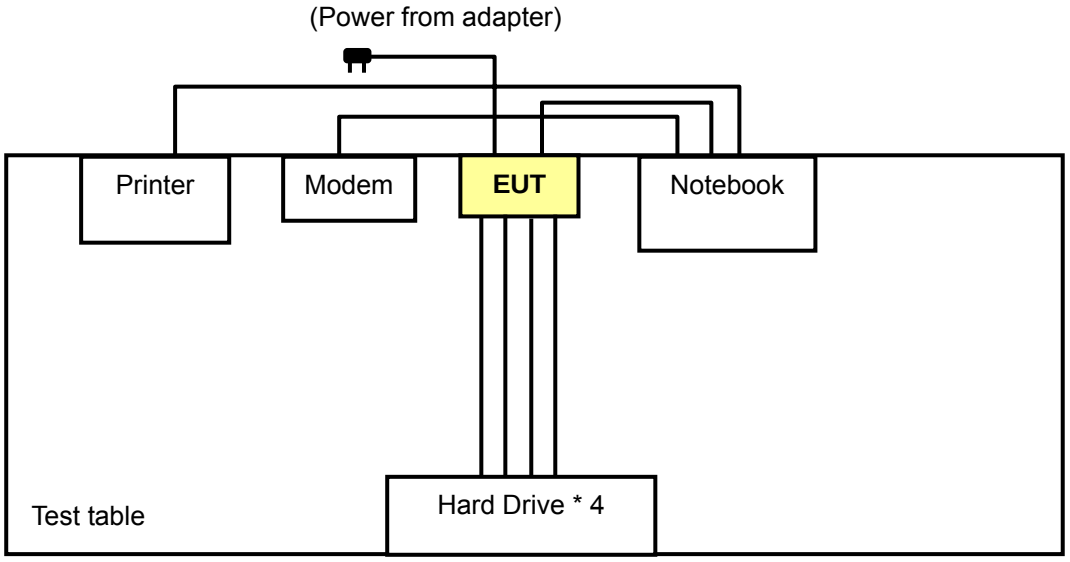
3.2 DESCRIPTION OF TEST MODES

Four transmission modes are provided to this EUT.

MODE	SUB-BAND	FREQUENCY (MHz)
1	1	3432
2	2	3960
3	3	4488
4	1 + 2 + 3	3432, 3960, 4488

NOTE: After pre-testing each mode, the mode 4 was the worst situation and only the data was presented in the following sections.

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT configure mode	Applicable to					Description
	PLC	RE<1G	RE≥1G	UB	PE	
1	-	-	-	√	-	Sub-band 1
2	-	-	-	√	-	Sub-band 2
3	-	-	-	√	-	Sub-band 3
4	√	√	√	√	√	Sub-band 1 + 2 + 3

Where **PLC:** Power Line Conducted Emission
RE≥1G: Radiated Emission above 1GHz
PE: Peak Emission
RE<1G: Radiated Emission below 1GHz
UB:UBW Bandwidth

NOTE: "-" means no effect.

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT configure mode	Tested Sub-band	Modulation Technology
4	1 + 2 + 3	MOFDM

RADIATED EMISSION TEST (BELOW 960 MHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT configure mode	Tested Sub-band	Modulation Technology
4	1 + 2 + 3	MOFDM

RADIATED EMISSION TEST (ABOVE 960 MHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT configure mode	Tested Sub-band	Modulation Technology
4	1 + 2 + 3	MOFDM

UWB BANDWIDTH MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT configure mode	Tested Sub-band	Modulation Technology
1	1	MOFDM
2	2	MOFDM
3	3	MOFDM
4	1 + 2 + 3	MOFDM

PEAK EMISSION MEASUREMENT

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT configure mode	Tested Sub-band	Modulation Technology
4	1 + 2 + 3	MOFDM

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a UWB product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart F. (15.517)

ANSI C63.4-2003

THE EVOLUTION OF MODERN UWB TECHNOLOGY

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	16484462992	E2K24CLNS
2	PRINTER	EPSON	LQ-300+	DCGY054147	FCC DoC Approved
3	MODEM	ACEEX	1414V/3	0401008253	IFAXDM1414
4	EXTERNAL HARD DISK	Terasys	F12-UF	A0100222-4860 009	FCC DoC Approved
5	EXTERNAL HARD DISK	Terasys	F12-UF	A0100222-4860 017	FCC DoC Approved
6	EXTERNAL HARD DISK	Terasys	F12-UF	A0100222-4A71 007	FCC DoC Approved
7	EXTERNAL HARD DISK	Terasys	F12-UF	A0100222-4A60 012	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	0.6m shielded USB cable
2	1.8m braid shielded wire , DB25 connector , w/o core.
3	1.2m braid shielded wire , DB25 & DB9 connector , w/o core.
4	1.5 m shielded cable, terminated with USB connector, w/o core. 1.8 m braid shielded wire, terminated with IEEE 1394 connector via drain wire, w/o core.
5	1.5 m shielded cable, terminated with USB connector, w/o core. 1.8 m braid shielded wire, terminated with IEEE 1394 connector via drain wire, w/o core.
6	1.5 m shielded cable, terminated with USB connector, w/o core. 1.8 m braid shielded wire, terminated with IEEE 1394 connector via drain wire, w/o core.
7	1.5 m shielded cable, terminated with USB connector, w/o core. 1.8 m braid shielded wire, terminated with IEEE 1394 connector via drain wire, w/o core.

NOTE: All power cords of the above support units are non-shielded (1.8m).

3.5 OPEARTIONAL LIMIATIONS

FCC 47 CFR Section 15.517(a)(1)

(1) Indoor UWB devices, by the nature of their design, must be capable of operation only indoors. The necessity to operate with a fixed indoor infrastructure, *e.g.*, a transmitter that must be connected to the AC power lines, may be considered sufficient to demonstrate this.

EUT connected to the AC power lines.

FCC 47 CFR Section 15.517(a)(2)

(2) The emissions from equipment operated under this section shall not be intentionally directed outside of the building in which the equipment is located, such as through a window or a doorway, to perform an outside function, such as the detection of persons about to enter a building.

Client has been advised

FCC 47 CFR Section 15.517(a)(3)

(3) The use of outdoor mounted antennas, *e.g.*, antennas mounted on the outside of a building or on a telephone pole, or any other outdoors infrastructure is prohibited.

Client has been advised

FCC 47 CFR Section 15.517(a)(4)

(4) Field disturbance sensors installed inside of metal or underground storage tanks are considered to operate indoors provided the emissions are directed towards the ground.

EUT is not a Field disturbance sensor

FCC 47 CFR Section 15.517(a)(5)

(5) A communications system shall transmit only when the intentional radiator is sending information to an associated receive

Client has been advised and showed on users manual

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 56 60	56 to 46 46 50

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 08, 2007
RF signal cable Woken	5D-FB	Cable-HYCO3-01	Jan. 06, 2008
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 08, 2008
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jan. 16, 2008
Software ADT	ADT_Cond_V3	NA	NA

NOTE:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.

4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

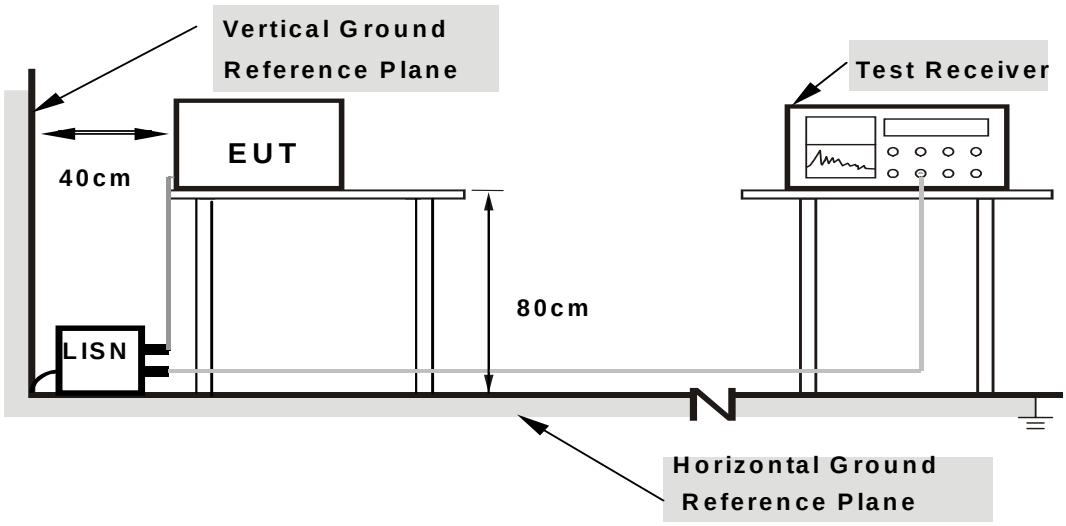
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under Limit - 20dB was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

a. Connected the EUT to HDDs and placed on a testing table.
b. The EUT read/write data from the USB HDDs.
c. Set the EUT under transmission condition continuously at specific channel frequency.
d. The necessary accessories enable the system in full functions.

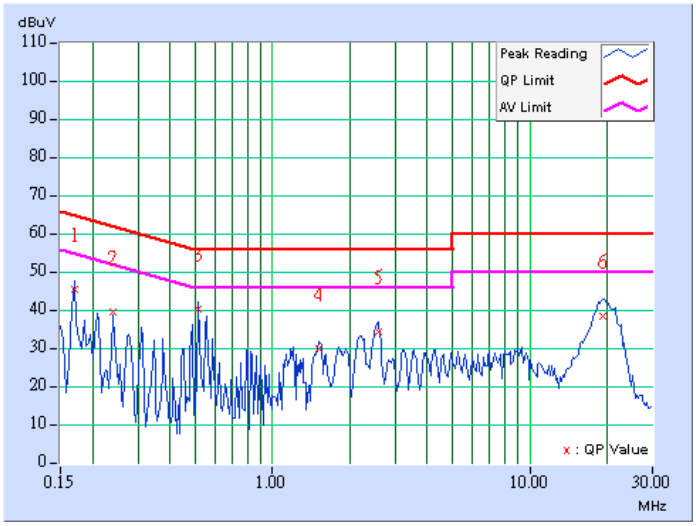
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
SUB-BAND	1 + 2 + 3	PHASE	Line 1
MODULATION TECHNOLOGY	MOFDM	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 982hPa	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	45.15	-	45.25	-	64.98	54.98	-19.73	-
2	0.240	0.10	39.24	-	39.34	-	62.10	52.10	-22.76	-
3	**0.513**	**0.10**	**39.92**	**-**	**40.02**	**-**	**56.00**	**46.00**	**-15.98**	**-**
4	1.516	0.17	29.40	-	29.57	-	56.00	46.00	-26.43	-
5	2.586	0.24	33.75	-	33.99	-	56.00	46.00	-22.01	-
6	19.242	0.56	37.78	-	38.34	-	60.00	50.00	-21.66	-

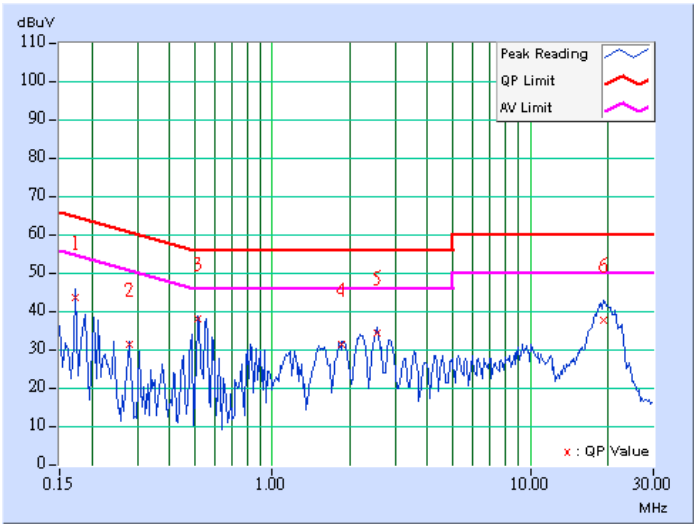
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
SUB-BAND	1 + 2 + 3	PHASE	Line 2
MODULATION TECHNOLOGY	MOFDM	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 982hPa	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	43.04	-	43.14	-	64.79	54.79	-21.65	-
2	0.279	0.10	31.10	-	31.20	-	60.85	50.85	-29.65	-
3	0.517	0.12	37.61	-	37.73	-	56.00	46.00	-18.27	-
4	1.863	0.22	30.80	-	31.02	-	56.00	46.00	-24.98	-
5	2.547	0.24	34.04	-	34.28	-	56.00	46.00	-21.72	-
6	19.230	0.56	37.31	-	37.87	-	60.00	50.00	-22.13	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT (FOR 15.517 (c))

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The radiated emissions at or below 960MHz from a device operating under the provisions of this section shall not exceed the emission levels in Section 15.209.

FREQUENCIES (MHz)	FIELD STRENGTH (mV/m)	MEASUREMENT DISTANCE (m)
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

NOTE: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

The radiated emissions above 960MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1MHz:

FREQUENCY IN MHz	EIRP IN dBm	dBuV/m@3m	dBuV/m@1m
960 ~ 1,610	-75.3	19.9	29.44
1,610 ~ 1,990	-53.3	41.9	51.44
1,990 ~ 3,100	-51.3	43.9	53.44
3,100 ~ 10,600	-41.3	53.9	63.44
Above 10600	-51.3	43.9	53.44

Transfer rules follow 15.521(g),15.31(f)(1).

15.521(c) Emissions from digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in Section 15.209 of this chapter, rather than the limits specified in this subpart.

NOTE: Use conducted measurement to determine emissions is from digital circuitry or not.
Emissions from digital circuitry follow 15.209 else 15.517

The radiated emissions from a device operating under the provisions of this section shall not exceed the emission levels in Section 15.209.

FREQUENCY IN MHz	dBuV/m@3m	dBuV/m@1m
	Quasi Peak	Quasi Peak
216 ~ 960	46.00	55.54
960 ~ 1000	54.00	63.54

FREQUENCY IN MHz	dBuV/m@3m		dBuV/m@1m	
Above 1000	Peak	Average	Peak	Average
	74.00	54.00	83.54	63.54

4.2.2 INSTRUMENT SETUP VALUE AND MEASUREMENT DISTANCE

FREQUENCY RANGE	RESOLUTION BANDWIDTH	VIDEO BANDWIDTH	DETECTOR	MEASUREMENT DISTANCE
Below 960MHz	120kHz	120kHz	Quasi Peak	3 meters
Above 960MHz	1MHz	3MHz	RMS	1 meter

4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jul. 27, 2008
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 05, 2008
BILOG Antenna SCHWARZBECK	VULB9168	9168-153	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Jul. 30, 2008
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A01910	Sep. 19, 2008
Preamplifier Agilent	8447D	2944A10638	Dec. 20, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218188/218189	Nov. 14, 2007
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008
Software	ADT_Radiated_V7.6	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA
Turn Table EMCO	2087-2.03	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA

NOTE:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The IC Site Registration No. is IC3789B-9.

4.2.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 1, 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

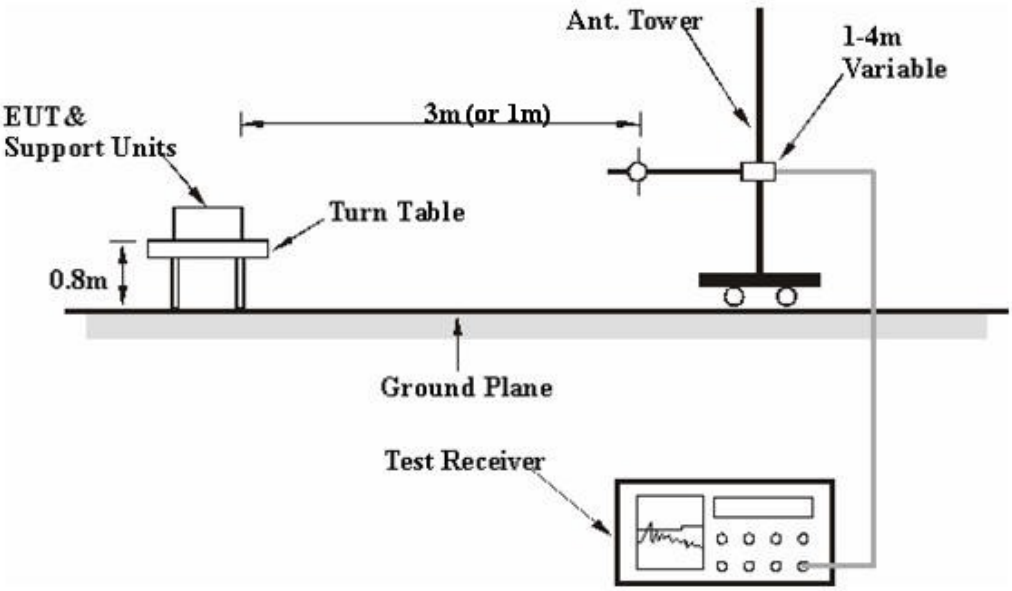
c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.7 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.8 TEST RESULTS

RADIATED BELOW 960MHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
SUB-BAND	1 + 2 + 3	**FREQUENCY RANGE**	Below 960MHz
MODULATION TECHNOLOGY	MOFDM	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 70%RH, 985hPa	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TESTED BY	Dean Wang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	31.05 QP	40.00	-8.95	2.00 H	109	18.96	12.09
2	106.41	34.55 QP	43.50	-8.95	1.50 H	109	24.62	9.92
3	130.64	33.60 QP	43.50	-9.90	2.00 H	103	21.64	11.96
4	199.60	34.87 QP	43.50	-8.63	1.50 H	85	24.52	10.35
5	264.83	43.57 QP	46.00	-2.43	1.00 H	295	30.79	12.78
6	**529.48**	**44.19 QP**	**46.00**	**-1.81**	**1.50 H**	**67**	**24.74**	**19.45**
7	794.13	43.20 QP	46.00	-2.80	1.00 H	73	18.97	24.23

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	34.13 QP	40.00	-5.87	2.00 V	73	22.05	12.09
2	91.50	29.52 QP	43.50	-13.98	1.00 V	133	20.48	9.04
3	113.87	32.38 QP	43.50	-11.12	1.00 V	136	21.55	10.82
4	264.83	37.68 QP	46.00	-8.32	1.00 V	289	24.90	12.78
5	529.48	40.10 QP	46.00	-5.90	1.50 V	34	20.66	19.45
6	667.39	33.75 QP	46.00	-12.25	1.50 V	208	12.04	21.70
7	794.13	37.97 QP	46.00	-8.03	1.50 V	268	13.74	24.23

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

RADIATED ABOVE 960MHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
SUB-BAND	1 + 2 + 3	FREQUENCY RANGE	960MHz ~ 40GHz
MODULATION TECHNOLOGY	MOFDM	DETECTOR FUNCTION	RMS
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 70%RH, 985hPa
TESTED BY	Dean Wang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 1 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1848.00	41.01	51.44	-10.43	1.00 H	346	10.98	30.03
2	2376.00	46.26	53.44	-7.18	1.00 H	0	14.24	32.02
3	2640.00	42.96	53.44	-10.48	1.00 H	26	9.90	33.06
4	2904.00	45.36	53.44	-8.08	1.00 H	97	11.46	33.90
5	3432.00	59.88	63.44	-3.56	1.00 H	154	25.02	34.86
6	3960.00	58.33	63.44	-5.11	1.00 H	114	22.16	36.17
7	4488.00	57.77	63.44	-5.67	1.00 H	166	20.14	37.63

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 1 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1848.00	36.85	51.44	-14.59	1.00 V	246	6.82	30.03
2	2376.00	42.08	53.44	-11.36	1.00 V	116	10.06	32.02
3	2640.00	38.67	53.44	-14.77	1.00 V	114	5.61	33.06
4	2904.00	41.39	53.44	-12.05	1.00 V	258	7.49	33.90
5	3432.00	56.05	63.44	-7.39	1.00 V	245	21.19	34.86
6	3960.00	56.36	63.44	-7.08	1.00 V	147	20.19	36.17
7	4488.00	56.72	63.44	-6.72	1.00 V	125	19.09	37.63

RMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

EMISSIONS FROM DIGITAL CIRCUITRY

EUT TEST CONDITION		MEASUREMENT DETAIL	
SUB-BAND	1 + 2 + 3	FREQUENCY RANGE	Below 1GHz
MODULATION TECHNOLOGY	MOFDM	DETECTOR FUNCTION	Quasi - Peak
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 70%RH, 991hPa
TESTED BY	Dean Wang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 1 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	990.00	41.66 QP	63.54	-21.88	1.00 H	5	13.44	28.22

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 1 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	990.00	36.21 QP	63.54	-27.33	1.00 V	7	7.99	28.22

RMARKS:

1. Emission source vs. possible corresponding spurious:

Emission Source	Frequency (MHz)	Possible corresponding spurious CW tones (MHz) (X times harmonic)
DLL	330.00	990 (x3)

2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.

EUT TEST CONDITION		MEASUREMENT DETAIL	
SUB-BAND	1 + 2 + 3	FREQUENCY RANGE	Above 1GHz
MODULATION TECHNOLOGY	MOFDM	DETECTOR FUNCTION	Peak / Average
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 70%RH, 991hPa
TESTED BY	Dean Wang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 1 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1056.00	59.23 PK	83.54	-24.31	1.00 H	321	30.86	28.37
2	1056.00	58.93 AV	63.54	-4.61	1.00 H	321	30.56	28.37
3	1188.00	47.82 PK	83.54	-35.72	1.00 H	201	19.11	28.71
4	1188.00	34.21 AV	63.54	-29.33	1.00 H	201	5.50	28.71
5	1200.00	45.23 PK	83.54	-38.31	1.00 H	166	16.49	28.74
6	1200.00	30.95 AV	63.54	-32.59	1.00 H	166	2.21	28.74
7	1320.00	51.36 PK	83.54	-32.18	1.00 H	314	22.28	29.08
8	1320.00	48.03 AV	63.54	-15.51	1.00 H	314	18.95	29.08
9	1584.00	48.98 PK	83.54	-34.56	1.00 H	117	19.34	29.64
10	1584.00	44.50 AV	63.54	-19.04	1.00 H	117	14.86	29.64

RMARKS:

1. Emission source vs. possible corresponding spurious:

Emission Source	Frequency (MHz)	Possible corresponding spurious CW tones (MHz) (X times harmonic)
PLL	1056.00	1056 (x1)
PLL	528.00	1056 (x2), 1584 (x3)
DLL	330.00	1320 (x4)
PLL	264.00	1056 (x4)
XTAL of PHY	66.00	1056 (x16), 1188 (x18)
XTAL of MAC	30.00	1200 (x40)

2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.

EUT TEST CONDITION		MEASUREMENT DETAIL	
SUB-BAND	1 + 2 + 3	FREQUENCY RANGE	Above 1GHz
MODULATION TECHNOLOGY	MOFDM	DETECTOR FUNCTION	Peak / Average
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 68%RH, 991hPa
TESTED BY	Dean Wang		

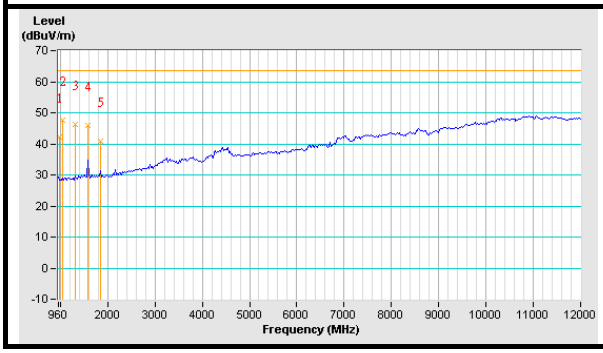
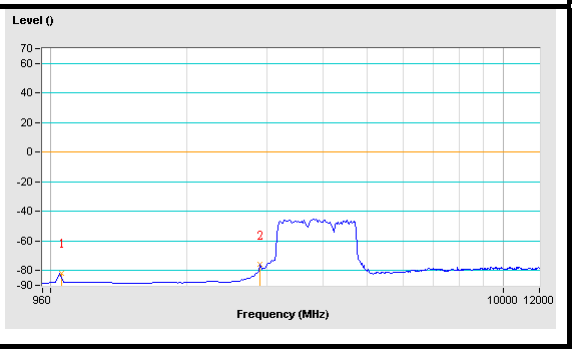
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 1 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1056.00	54.10 PK	83.54	-29.44	1.00 V	255	25.73	28.37
2	1056.00	53.82 AV	63.54	-9.72	1.00 V	255	25.45	28.37
3	1188.00	43.62 PK	83.54	-39.92	1.00 V	105	14.91	28.71
4	1188.00	30.59 AV	63.54	-32.95	1.00 V	105	1.88	28.71
5	1200.00	41.19 PK	83.54	-42.35	1.00 V	107	12.45	28.74
6	1200.00	27.23 AV	63.54	-36.31	1.00 V	107	-1.51	28.74
7	1320.00	47.59 PK	83.54	-35.95	1.00 V	124	18.51	29.08
8	1320.00	43.62 AV	63.54	-19.92	1.00 V	124	14.54	29.08
9	1584.00	44.32 PK	83.54	-39.22	1.00 V	274	14.68	29.64
10	1584.00	40.19 AV	63.54	-23.35	1.00 V	274	10.55	29.64

RMARKS:

1. Emission source vs. possible corresponding spurious:

Emission Source	Frequency (MHz)	Possible corresponding spurious CW tones (MHz) (X times harmonic)
PLL	1056.00	1056 (x1)
PLL	528.00	1056 (x2), 1584 (x3)
DLL	330.00	1320 (x4)
PLL	264.00	1056 (x4)
XTAL of PHY	66.00	1056 (x16), 1188 (x18)
XTAL of MAC	30.00	1200 (x40)

2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.

TERMINATED ANTENNA PORT	CONDUCTED ANTENNA PORT
	

4.3 RADIATED EMISSION MEASUREMENT (FOR 15.517 (d))

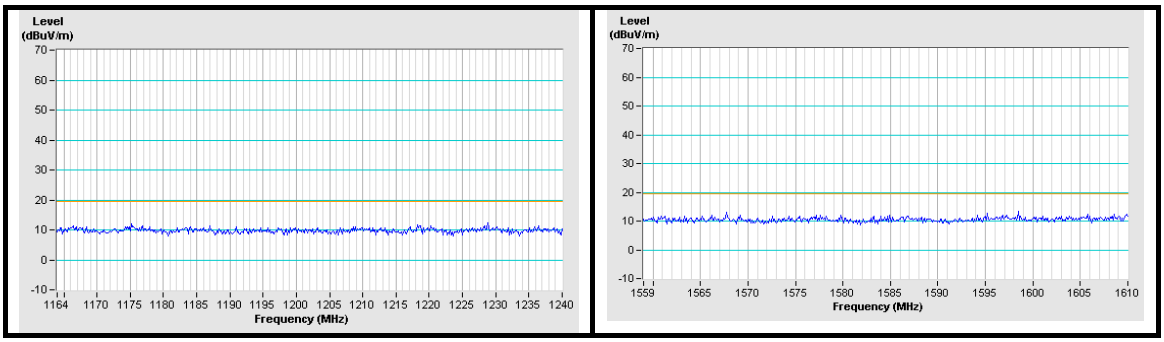
4.3.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY IN MHz	EIRP IN dBm	dBuV/m@3m	dBuV/m@1m
1,164 ~ 1,240	-85.3	9.9	19.44
1,559 ~ 1,610	-85.3	9.9	19.44

Transfer rules follow 15.521(g), 15.31(f)(1).

NOTE: 1. 15.521(g) converted to a peak field strength level at 3 meters using E(dBuV/m) = P(dBmEIRP) + 95.2.
2. 15.31(f)(1)When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade, Measurement distance moves from 3m to 1m, Limit (1m) = Limit (3m) + 20Log (3/1) = Limit (3m) + 9.54.

Instrument Noise Floor



15.521(c) Emissions from digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in Section 15.209 of this chapter, rather than the limits specified in this subpart.

NOTE: Use conducted measurement to determine emissions is from digital circuitry or not. Emissions from digital circuitry follow 15.209 else 15.517

The radiated emissions above 1000MHz from a device operating under the provisions of this section shall not exceed the emission levels in Section 15.209.

FREQUENCY IN MHz	dBuV/m@3m		dBuV/m@1m	
Above 1000	Peak	Average	Peak	Average
	74.00	54.00	83.54	63.54

4.3.2 INSTRUMENT SETUP VALUE AND MEASUREMENT DISTANCE

UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz:

FREQUENCY RANGE	RESOLUTION BANDWIDTH	VIDEO BANDWIDTH	DETECTOR	MEASUREMENT DISTANCE
1,164 ~ 1,240	*10kHz	30kHz	RMS	1 meter
1,559 ~ 1,610	*10kHz	30kHz	RMS	1 meter

NOTE: *reference The Evolution of Modern UWB Technology.

4.3.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jul. 27, 2008
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 05, 2008
BILOG Antenna SCHWARZBECK	VULB9168	9168-153	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Jul. 30, 2008
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A01910	Sep. 19, 2008
Preamplifier Agilent	8447D	2944A10638	Dec. 20, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218188/218189	Nov. 14, 2007
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008
Software	ADT_Radiated_V7.6	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA
Turn Table EMCO	2087-2.03	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA

NOTE:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The IC Site Registration No. is IC3789B-9.

4.3.4 TEST PROCEDURES

e. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 1 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

f. The EUT was set 1 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

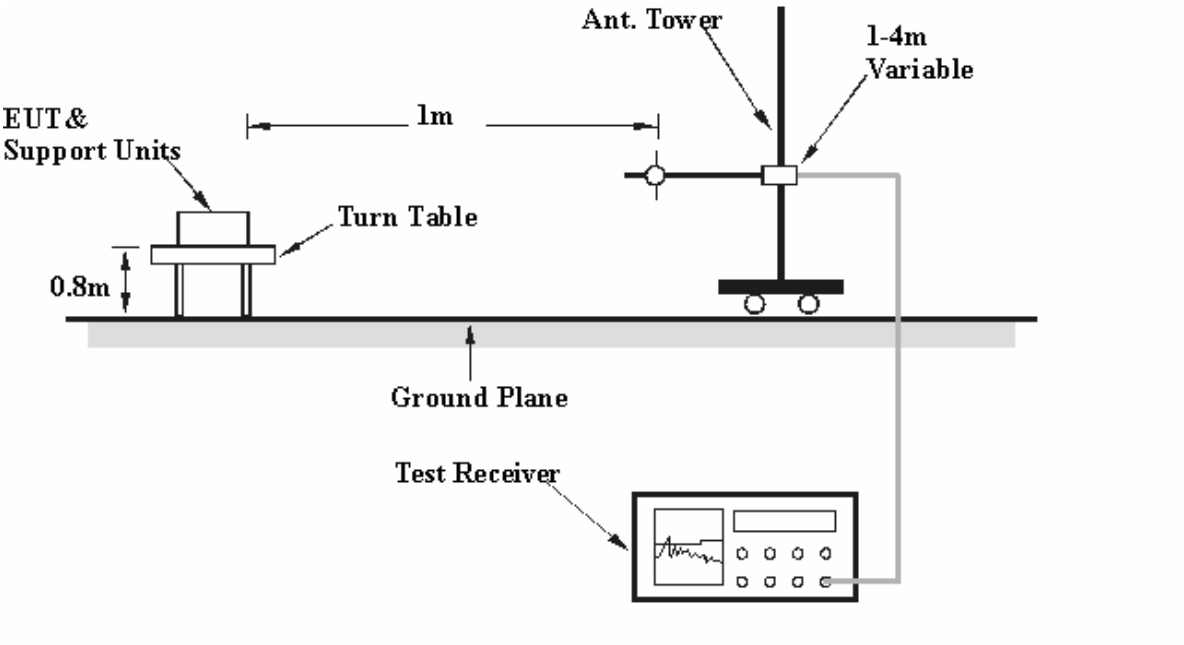
g. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

h. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

4.3.5 DEVIATION FROM TEST STANDARD

No deviation

4.3.6 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.3.7 EUT OPERATING CONDITIONS

Same as 4.1.6

4.3.8 TEST RESULTS

EMISSIONS FROM DIGITAL CIRCUITRY

EUT TEST CONDITION		MEASUREMENT DETAIL	
SUB-BAND	1 + 2 + 3	FREQUENCY RANGE	Above 1GHz
MODULATION TECHNOLOGY	MOFDM	DETECTOR FUNCTION	Peak / Average
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
TESTED BY	Dean Wang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 1 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1188.00	47.82 PK	83.54	-35.72	1.00 H	201	19.11	28.71
1	1188.00	34.21 AV	63.54	-29.33	1.00 H	201	5.50	28.71
2	1200.00	45.23 PK	83.54	-38.31	1.00 H	166	16.49	28.74
2	1200.00	30.95 AV	63.54	-32.59	1.00 H	166	2.21	28.74
3	1584.00	48.98 PK	83.54	-34.56	1.00 H	117	19.34	29.64
3	**1584.00**	**44.50 AV**	**63.54**	**-19.04**	**1.00 H**	**117**	**14.86**	**29.64**

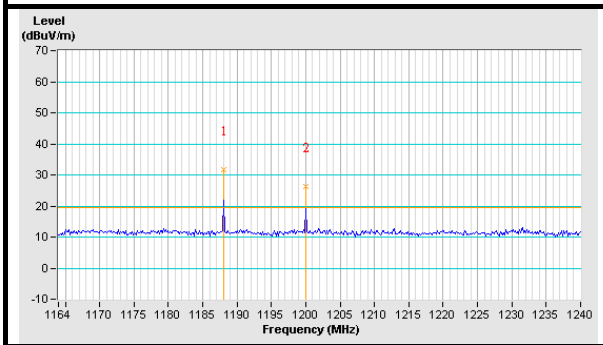
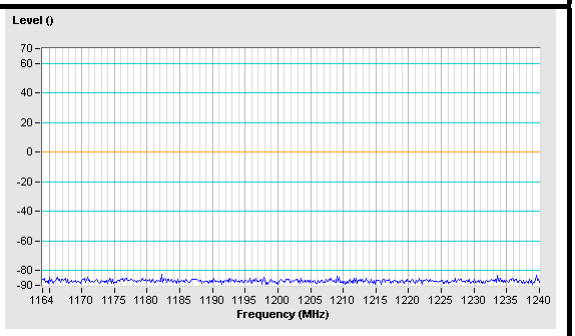
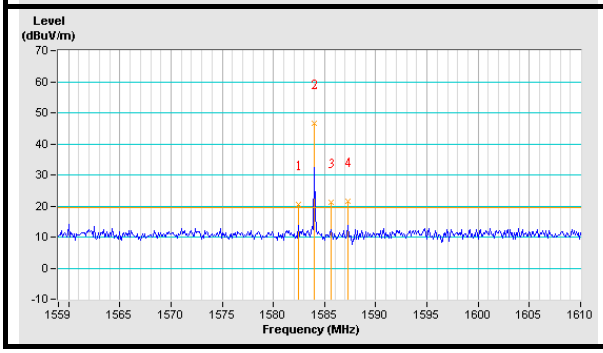
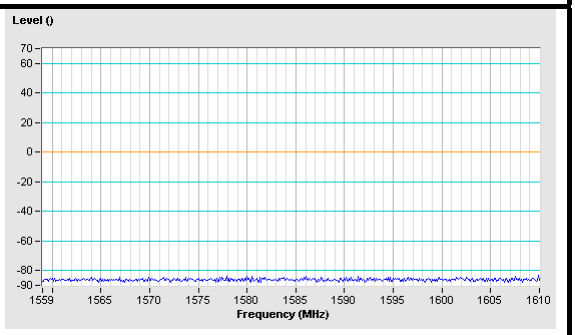
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 1 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1188.00	43.62 PK	83.54	-39.92	1.00 V	105	14.91	28.71
1	1188.00	30.59 AV	63.54	-32.95	1.00 V	105	1.88	28.71
2	1200.00	41.19 PK	83.54	-42.35	1.00 V	107	12.45	28.74
2	1200.00	27.23 AV	63.54	-36.31	1.00 V	107	-1.51	28.74
3	1584.00	44.32 PK	83.54	-39.22	1.00 V	274	14.68	29.64
3	1584.00	40.19 AV	63.54	-23.35	1.00 V	274	10.55	29.64

RMARKS:

1. Emission source vs. possible corresponding spurious:

Emission Source	Frequency (MHz)	Possible corresponding spurious CW tones (MHz) (X times harmonic)
PLL	528.00	1584 (x3)
XTAL of PHY	66.00	1188 (x18)
XTAL of MAC	30.00	1200 (x40)

2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.

TERMINATED ANTENNA PORT	CONDUCTED ANTENNA PORT
	
	

4.4 UWB BANDWIDTH MEASUREMENT

4.4.1 LIMITS OF UWB BANDWIDTH MEASUREMENT

The UWB bandwidth of a UWB system operating under the provisions of this section must be contained between 3100 MHz and 10,600 MHz.

4.4.2 INSTRUMENT SETUP VALUE AND MEASUREMENT DISTANCE

FREQUENCY RANGE	RESOLUTION BANDWIDTH	VIDEO BANDWIDTH	DETECTOR	MEASUREMENT DISTANCE
3,100 ~ 10,600	1MHz	3MHz	Peak	3 meters

4.4.3 TEST INSTRUMENT

Same as Item 4.2.3

4.4.4 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The Spectrum Analyzer system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. The UWB Bandwidth is measured at the 10 dB point (F_L, F_H).

4.4.5 DEVIATION FROM TEST STANDARD

No deviation

4.4.6 TEST SETUP

Same as Item 4.2.6

4.4.7 EUT OPERATING CONDITIONS

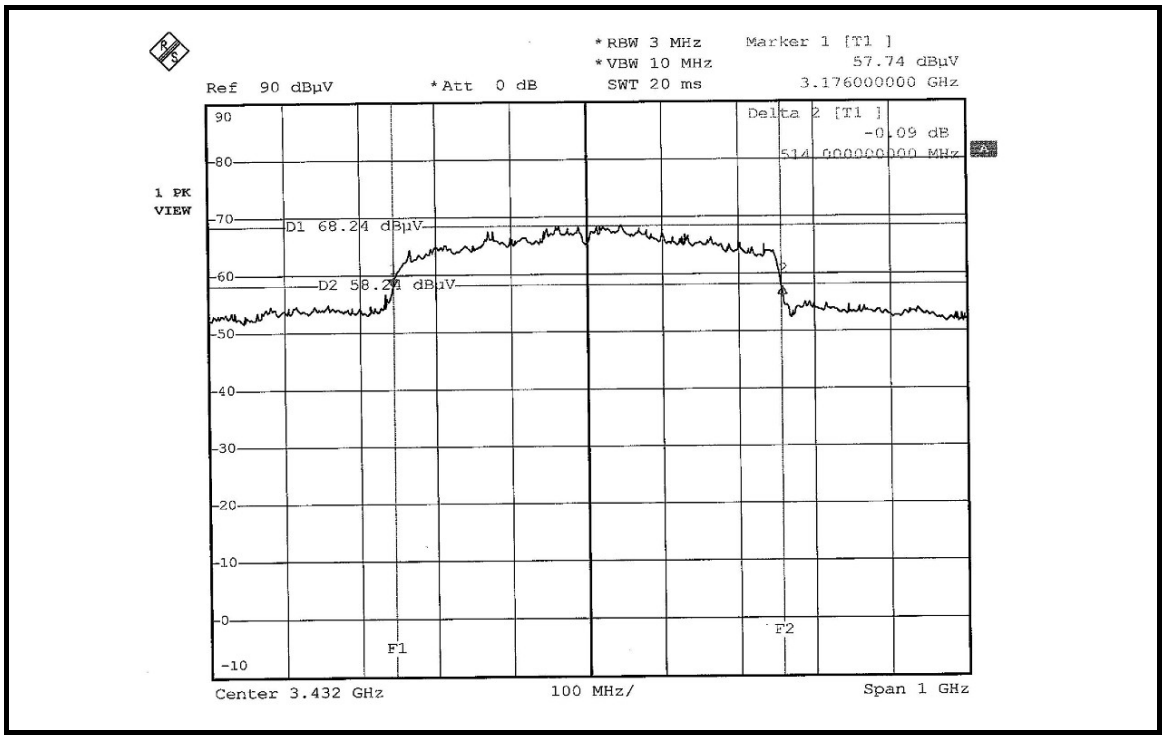
The software provided by client to enable the EUT under transmission condition continuously.

4.4.8 TEST RESULTS

SUB-BAND	1	INPUT POWER (SYSTEM)	120Vac, 60 Hz
MODULATION TECHNOLOGY	MOFDM	ENVIRONMENTAL CONDITIONS	25deg.C, 70%RH, 991hPa
TESTED BY	Dean Wang		

F_L (MHz)	F_H (MHz)	$F_C=(F_L+F_H)/2$ (MHz)	LIMIT (MHz)	PASS/FAIL
3176.00	3690.00	3433.00	Between 3100.00 ~ 10600.00	PASS

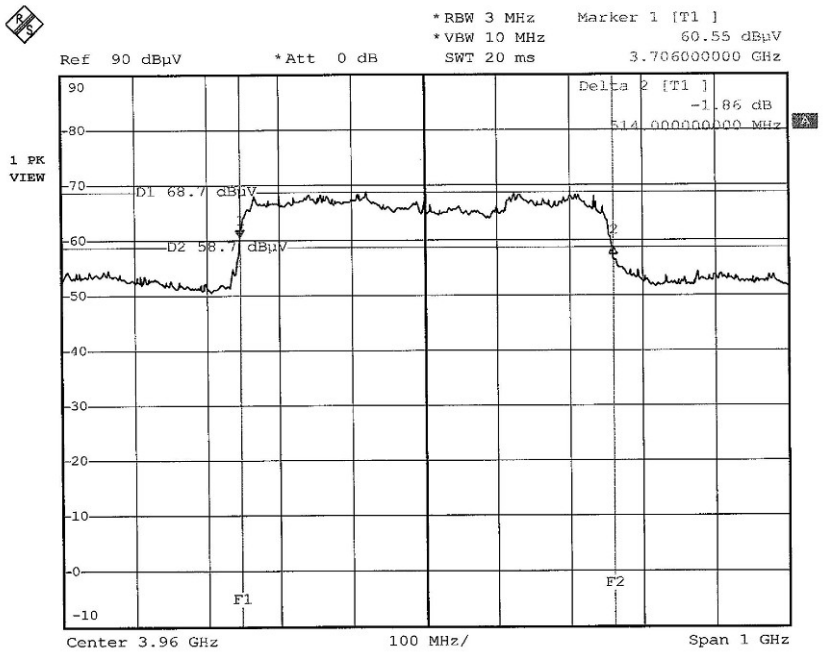
UWB Bandwidth = F_H - F_L = 514MHz



SUB-BAND	2	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
MODULATION TECHNOLOGY	MOFDM	**ENVIRONMENTAL CONDITIONS**	25deg.C, 70%RH, 991hPa
TESTED BY	Dean Wang		

F_L (MHz)	F_H (MHz)	$F_C=(F_L+F_H)/2$ (MHz)	LIMIT (MHz)	PASS/FAIL
3706.00	4220.00	3963.00	Between 3100.00 ~ 10600.00	PASS

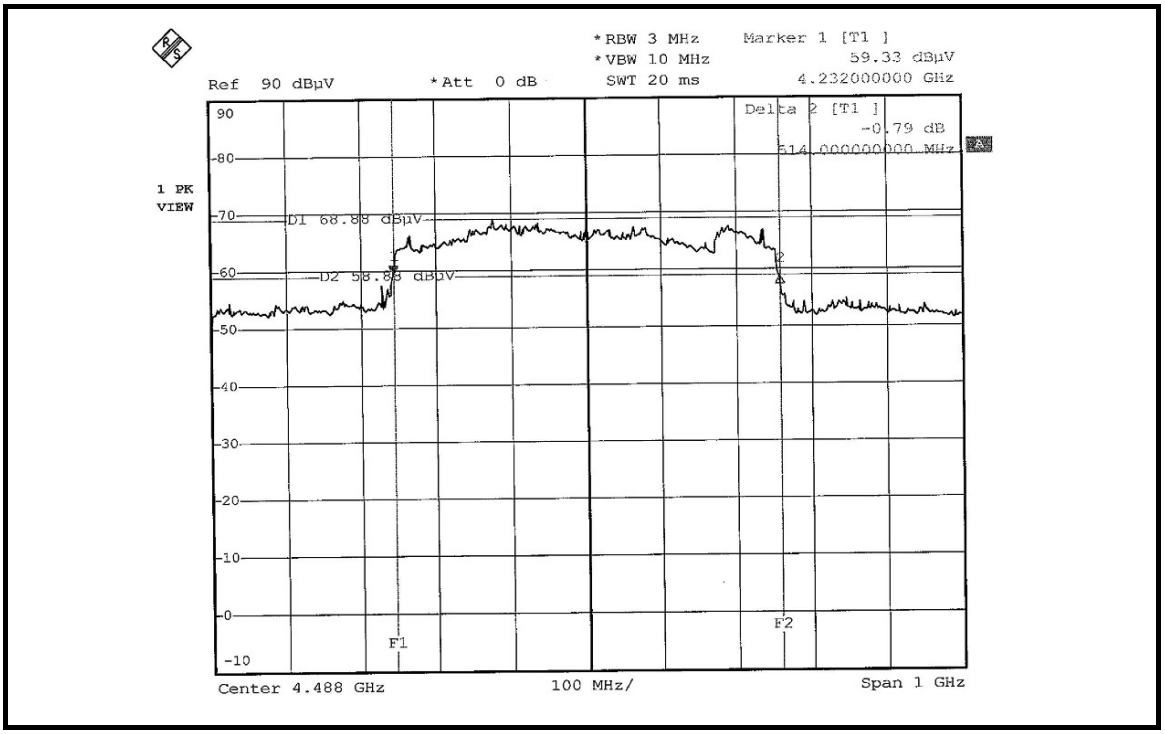
UWB Bandwidth = F_H - F_L = 514MHz



SUB-BAND	3	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
MODULATION TECHNOLOGY	MOFDM	**ENVIRONMENTAL CONDITIONS**	25deg.C, 70%RH, 991hPa
TESTED BY	Dean Wang		

F_L (MHz)	F_H (MHz)	$F_C=(F_L+F_H)/2$ (MHz)	LIMIT (MHz)	PASS/FAIL
4232.00	4746.00	4489.00	Between 3100.00 ~ 10600.00	PASS

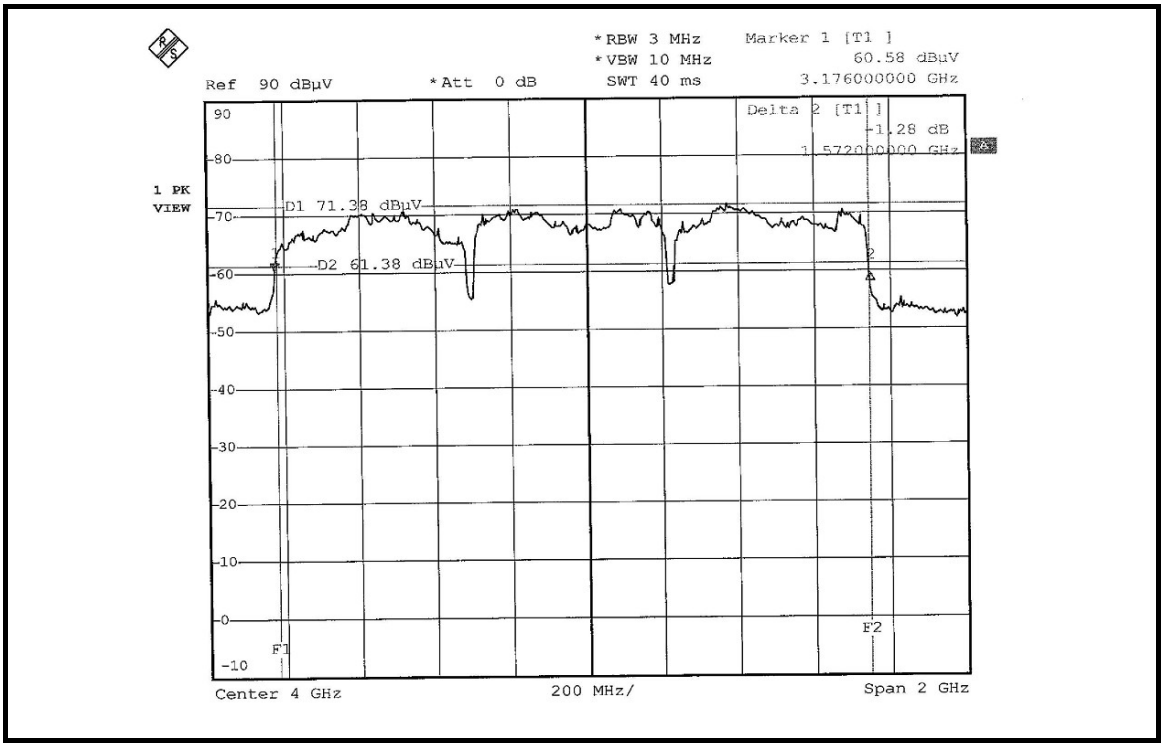
UWB Bandwidth = F_H - F_L = 514MHz



SUB-BAND	1 + 2 + 3	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
MODULATION TECHNOLOGY	MOFDM	**ENVIRONMENTAL CONDITIONS**	25deg.C, 70%RH, 991hPa
TESTED BY	Dean Wang		

F_L (MHz)	F_H (MHz)	$F_C=(F_L+F_H)/2$ (MHz)	LIMIT (MHz)	PASS/FAIL
3176.00	4748.00	3962.00	Between 3100.00 ~ 10600.00	PASS

UWB Bandwidth = F_H - F_L = 1572MHz



4.5 PEAK EMISSION WITHIN A 50MHz BANDWIDTH

4.5.1 LIMITS OF PEAK EMISSION

The Maximum Peak Output Power Measurement is 0dBm(RBW=50MHz)
If a resolution bandwidth other than 50 MHz is Employed, the peak EIRP limit shall be 20 log (RBW/50) dBm where RBW is the resolution bandwidth in megahertz that is employed. The resolution bandwidth used to make the peak measurement was 3 MHz, resulting in a limit of –24.44dBm

.

This may be converted to a peak field strength level at 3 meters using

E(dBuV/m) = P(dBm EIRP) + 95.2 = -24.44 + 95.2 = 70.76.

4.5.2 INSTRUMENT SETUP VALUE AND MEASUREMENT DISTANCE

RADIATED EMISSIONS 15.517 (e):

FREQUENCY RANGE	RESOLUTION BANDWIDTH	VIDEO BANDWIDTH	DETECTOR	MEASUREMENT DISTANCE
3,100 ~ 10,600	3MHz	10MHz	*Peak	3 meters

NOTE: *reference The Evolution of Modern UWB Technology

4.5.3 TEST INSTRUMENTS

Same as 4.2.3

4.5.4 TEST PROCEDURE

Same as 4.2.4

4.5.5 DEVIATION FROM TEST STANDARD

No deviation

4.5.6 TEST SETUP

Same as Item 4.2.6

4.5.7 EUT OPERATING CONDITIONS

Same as 4.1.6

4.5.8 TEST RESULTS

MODULATION TECHNOLOGY	MOFDM	ENVIRONMENTAL CONDITIONS	25deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Dean Wang

ANTENNA POLARITY & TEST DISTANCE AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (Db/m)
1	3432.00	69.64 PK	70.76	-1.12	1.00 H	213	35.95	33.69
2	3944.00	65.87 PK	70.76	-4.89	1.00 H	115	30.34	35.53
3	4568.00	65.37 PK	70.76	-5.39	1.00 H	203	28.10	37.27
1	3488.00	64.83 PK	70.76	-5.93	1.00 V	186	30.75	34.08
2	4088.00	68.82 PK	70.76	-1.94	1.00 V	156	32.86	35.97
3	**4520.00**	**69.68 PK**	**70.76**	**-1.08**	**1.00 V**	**254**	**32.54**	**37.14**

4.6 ANTENNA REQUIREMENT

4.6.1 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.

4.6.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is PIFA antenna without antenna connector. The maximum Gain of the antenna is 2dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025

USA	FCC, UL
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

7 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.