

FCC TEST REPORT

REPORT NO. : RF931123L11A

MODEL NO. : IT7000

OEM MODEL NO. : DLI7000; CX1100

RECEIVED : NA

TESTED : Dec. 08 ~ Dec. 24, 2004

ISSUED : Jan. 07, 2005

APPLICANT : BITATEK CO., LTD.

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ISSUED BY : Advance Data Technology Corporation

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No. 2177-01



0528
ILAC MRA



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1 CERTIFICATION

PRODUCT: PDT (Portable Data Terminal)
BRAND NAME: Bitatek
OEM BRAND NAME: TXCOM; Data Ltd; C2E FZ LLC
MODEL NO: IT7000
OEM MODEL NO.: DLI7000; CX1100
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: BITATEK CO., LTD.
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4:2003

The above equipment (Model: IT7000) has 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: Andrea Hsia, **DATE:** Jan. 07, 2005
(Andrea Hsia)

TECHNICAL
ACCEPTANCE: Gary Chang, **DATE:** Jan. 07, 2005
Responsible for RF (Gary Chang)

APPROVED BY: Cody Chang, **DATE:** Jan. 07, 2005
(Cody Chang, Deputy Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -11.39dB at 0.166MHz
15.247 (a) (2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit
15.247 (b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
15.247 (d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -4.21dB at 115.53MHz
15.247 (e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247 (d)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

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:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.65 dB
	1GHz ~ 18GHz	2.20 dB
	18GHz ~ 40GHz	1.88 dB



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	PDT (Portable Data Terminal)
MODEL NO.	IT7000
OEM MODEL NO.	DLI7000; CX1100
POWER SUPPLY	7.4Vdc from rechargeable lithium battery 9Vdc from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	18.281mW
ANTENNA TYPE	PIFA antenna with –1dBi gain
DATA CABLE	1.6m USB shielded cable with 1 core
I/O PORTS	IrDA, USB, serial

NOTE:

1. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 11Mbps.
2. The following models are identical to each other except for their model and brand due to marketing requirement.

Brand	Model
Bitatek	IT7000
TXCOM	IT7000
Data Ltd	DLI7000
C2E FZ LLC	CX1100

3. The EUT is powered by the following adapter.

Brand	ENG
Model	3A-211DN09
Input Rating	100-240Vac, 50Hz-60Hz, 0.6A
Output Rating	9Vdc, 2.2A
Power Line	DC 1.8m non-shielded cable with 1 core AC 1.8m non-shielded cable without core (3 pin)

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

3.2 DESCRIPTION OF TEST MODES

Since the EUT is considered a portable unit, it was pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane. Therefore only the test data of this Z-plane was used for radiated test.

There are 3 test results presented in the report as below.

Test Result	Test Condition
A	The EUT was powered by the adapter
B	The EUT connected to the notebook to communicate data and was powered by the adapter
C	The EUT was powered by the battery

11 channels are provided to the EUT .

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

NOTE:

1. Below 1 GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 1, 6, and 11 were tested individually.
3. After pre-testing all data rates, we have chosen 11Mbps with DSSS technique as the worst case for the test among other data rates.



3.3 DESCRIPTION OF APPLIED STANDARDS

The EUT is a PDT (Portable Data Terminal) according to the specifications of the manufacturers, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

ANSI C63.4:2003

All tests 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. 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.

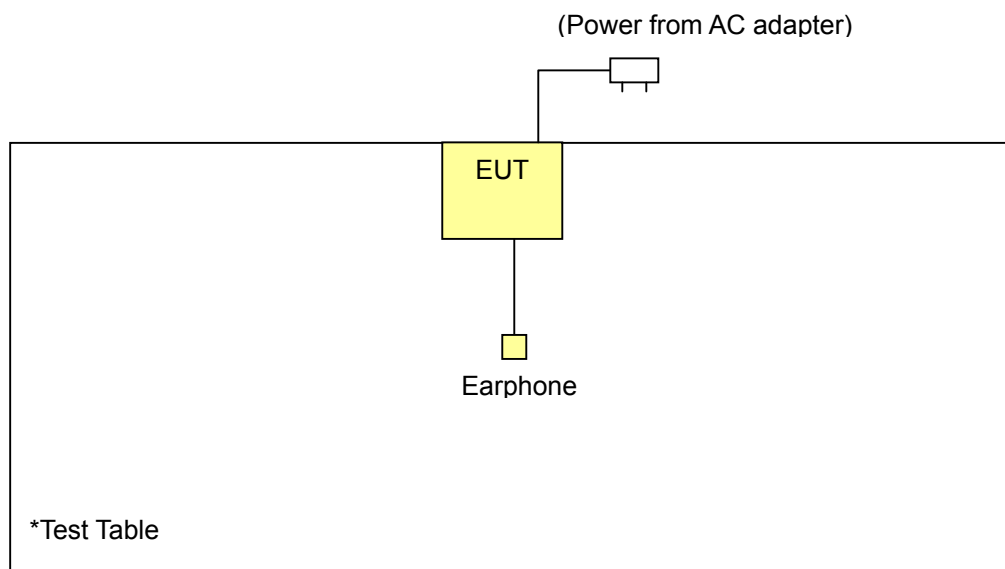
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	12130898320	E2K24CLNS
2	PRINTER	EPSON	LQ-300+	DCGY054147	FCC DoC Approved
3	MODEM	ACEEX	1414V/3	0401008269	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.2m shielded cable
3	1.2m shielded cable

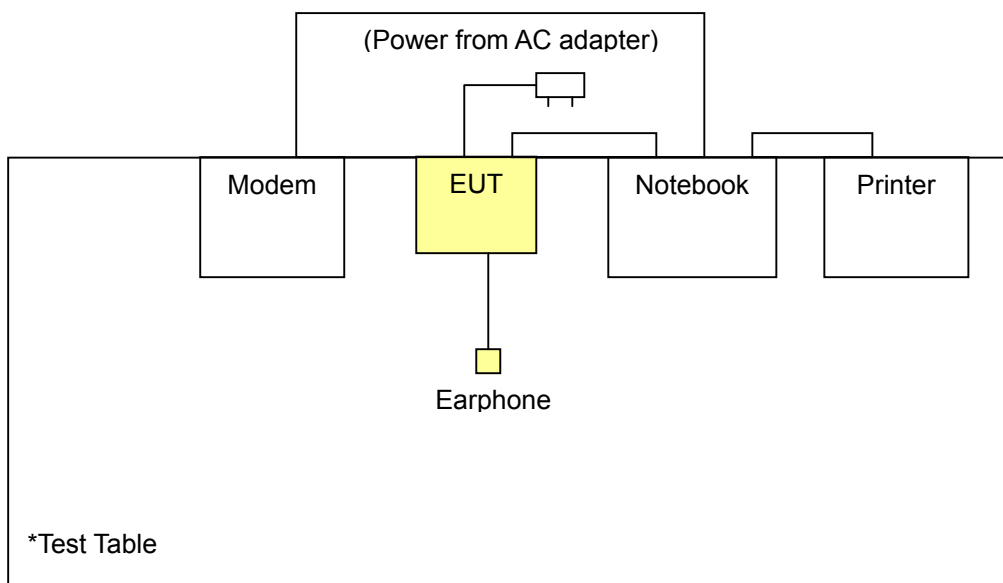
NOTE: All power cords of the above support units are non-shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

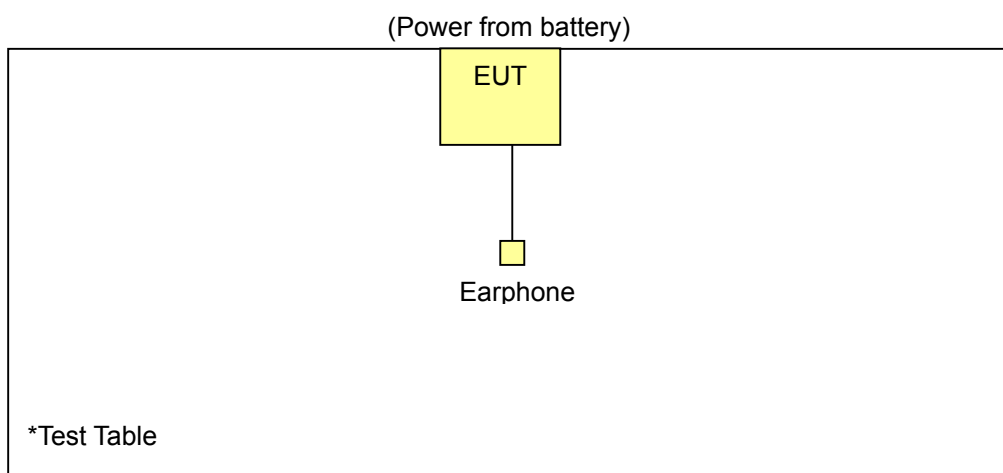
Test mode A



Test mode B



Test mode C





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	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 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	100288	Nov. 06, 2005
RF signal cable Woken	5D-FB	Cable-HyC02-01	Mar. 07, 2005
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Mar. 10, 2005
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Mar. 04, 2005
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.



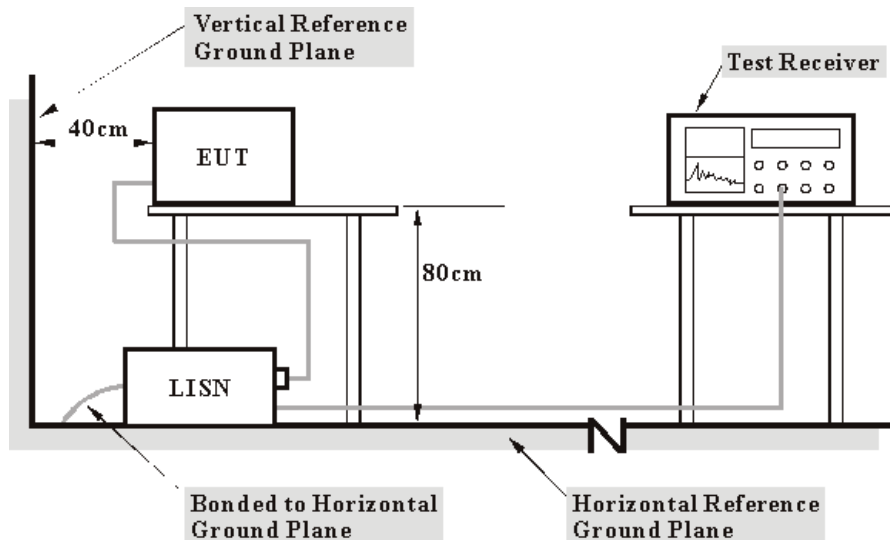
4.1.3 TEST PROCEDURES

- 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 150 kHz to 30 MHz was searched. Emission levels (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) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

Test mode A (Charger function)

- a. The EUT was powered by the power adapter.

Test mode B (Charger function)

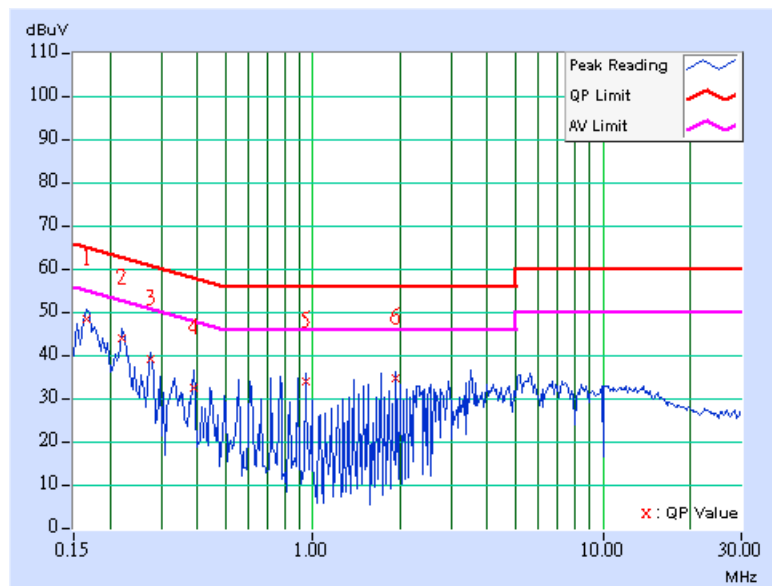
- a. The EUT was powered by the power adapter. (Link mode)
- b. The EUT connected to the notebook.
- c. The EUT communicated data with the notebook.
- d. The notebook sent "H" messages to the modem.
- e. The notebook sent "H" messages to the printer and the printer printed them out.
- f. Step e~f were repeated.

4.1.7 TEST RESULTS (A)

EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.10	48.34	-	48.44	-	65.18	55.18	-16.73	-
2	0.220	0.10	43.65	-	43.75	-	62.81	52.81	-19.06	-
3	0.275	0.11	38.97	-	39.08	-	60.97	50.97	-21.89	-
4	0.388	0.11	32.43	-	32.54	-	58.10	48.10	-25.56	-
5	0.943	0.24	33.93	-	34.17	-	56.00	46.00	-21.83	-
6	1.938	0.26	34.54	-	34.80	-	56.00	46.00	-21.20	-

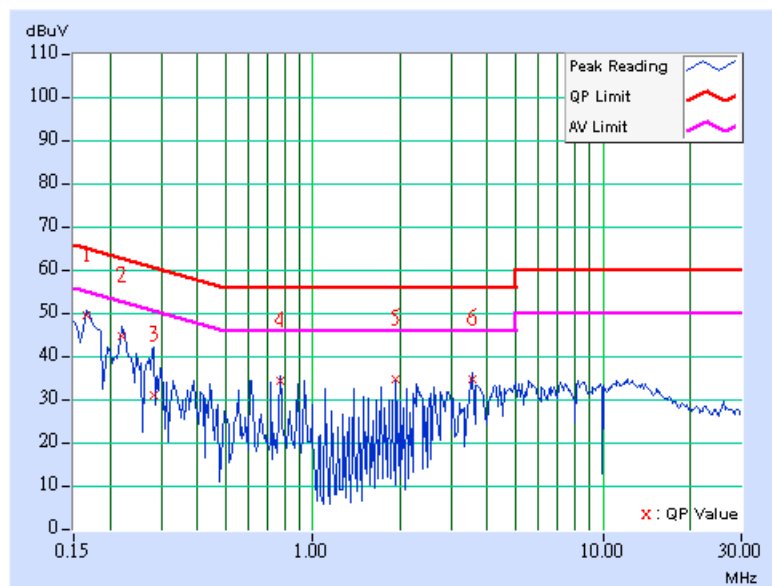
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.10	49.24	-	49.34	-	65.18	55.18	-15.84	-
2	0.220	0.10	44.48	-	44.58	-	62.81	52.81	-18.23	-
3	0.283	0.11	30.84	-	30.95	-	60.73	50.73	-29.79	-
4	0.775	0.19	33.97	-	34.16	-	56.00	46.00	-21.84	-
5	1.938	0.25	34.34	-	34.59	-	56.00	46.00	-21.41	-
6	3.543	0.29	34.36	-	34.65	-	56.00	46.00	-21.35	-

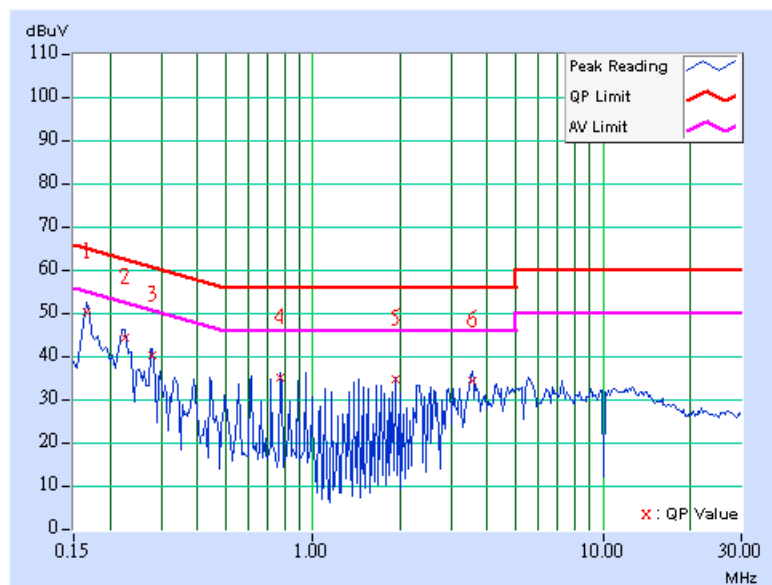
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	6	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.10	49.99	-	50.09	-	65.18	55.18	-15.08	-
2	0.224	0.10	44.06	-	44.16	-	62.66	52.66	-18.50	-
3	0.279	0.11	39.98	-	40.09	-	60.85	50.85	-20.76	-
4	0.775	0.20	34.74	-	34.94	-	56.00	46.00	-21.06	-
5	1.938	0.26	34.48	-	34.74	-	56.00	46.00	-21.26	-
6	3.547	0.30	34.23	-	34.53	-	56.00	46.00	-21.47	-

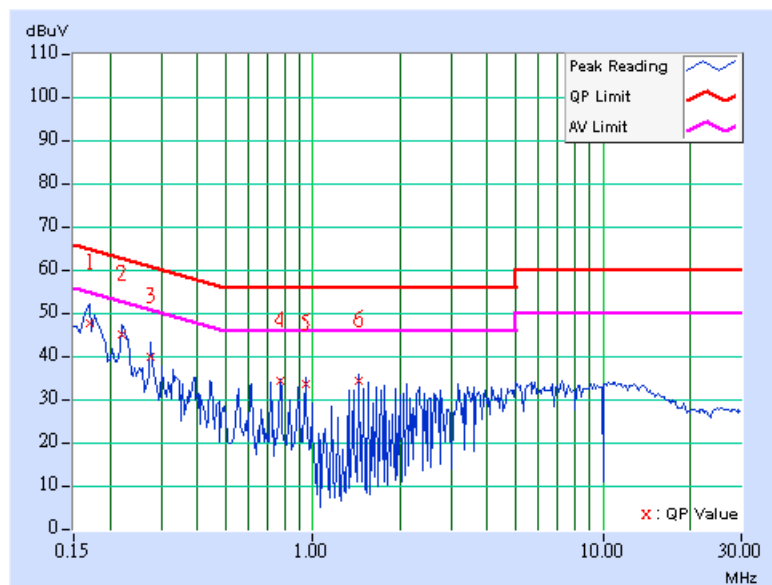
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	6	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	47.54	-	47.64	-	64.98	54.98	-17.35	-
2	0.220	0.10	44.88	-	44.98	-	62.81	52.81	-17.83	-
3	0.275	0.11	39.80	-	39.91	-	60.97	50.97	-21.06	-
4	0.775	0.19	34.03	-	34.22	-	56.00	46.00	-21.78	-
5	0.943	0.23	33.63	-	33.86	-	56.00	46.00	-22.14	-
6	1.441	0.24	34.32	-	34.56	-	56.00	46.00	-21.44	-

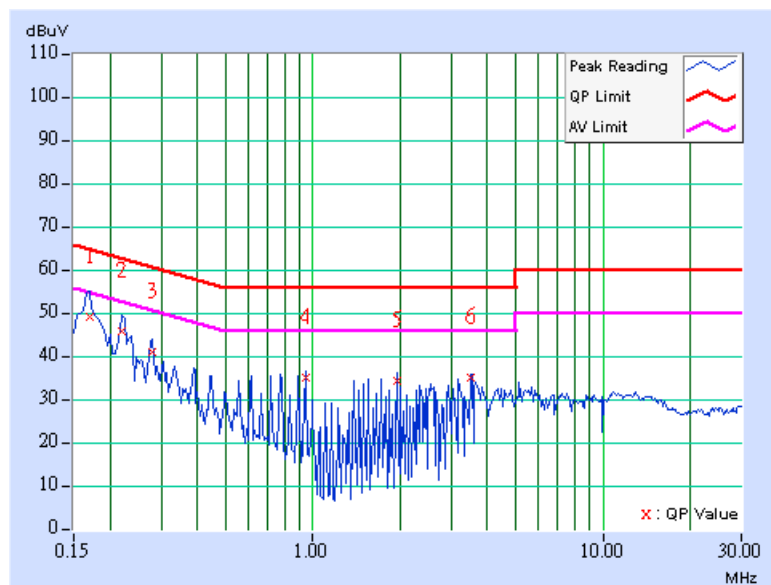
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	48.85	-	48.95	-	64.98	54.98	-16.03	-
2	0.220	0.10	45.75	-	45.85	-	62.81	52.81	-16.96	-
3	0.279	0.11	40.70	-	40.81	-	60.85	50.85	-20.04	-
4	0.943	0.24	34.80	-	35.04	-	56.00	46.00	-20.96	-
5	1.941	0.26	34.08	-	34.34	-	56.00	46.00	-21.66	-
6	3.492	0.30	35.06	-	35.36	-	56.00	46.00	-20.64	-

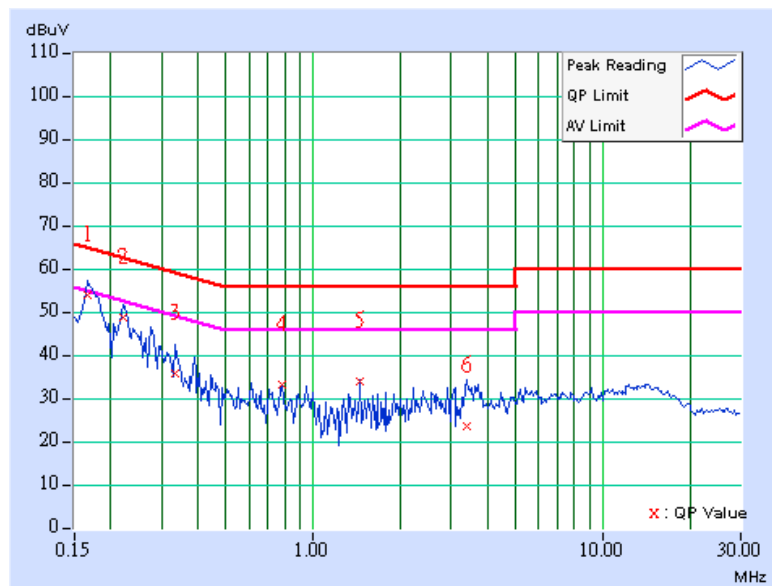
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.10	53.69	-	53.79	-	65.18	55.18	-11.39	-
2	0.220	0.10	48.58	-	48.68	-	62.81	52.81	-14.13	-
3	0.334	0.11	35.80	-	35.91	-	59.36	49.36	-23.45	-
4	0.779	0.19	32.97	-	33.16	-	56.00	46.00	-22.84	-
5	1.445	0.24	33.87	-	34.11	-	56.00	46.00	-21.89	-
6	3.391	0.29	23.57	-	23.86	-	56.00	46.00	-32.14	-

- 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.

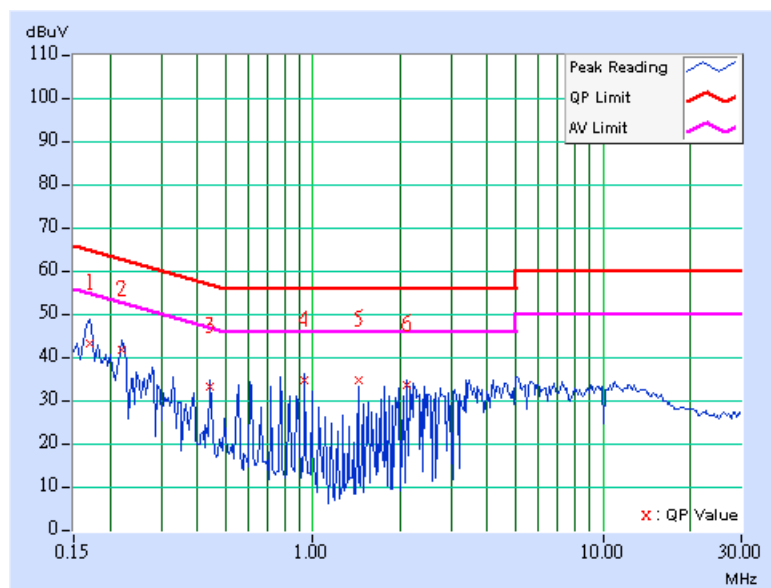


4.1.8 TEST RESULTS (B)

EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	43.16	-	43.26	-	64.98	54.98	-21.72	-
2	0.220	0.10	41.44	-	41.54	-	62.81	52.81	-21.27	-
3	0.443	0.12	32.95	-	33.07	-	57.01	47.01	-23.93	-
4	0.939	0.24	34.58	-	34.82	-	56.00	46.00	-21.18	-
5	1.438	0.25	34.44	-	34.69	-	56.00	46.00	-21.31	-
6	2.098	0.26	33.52	-	33.78	-	56.00	46.00	-22.22	-

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.

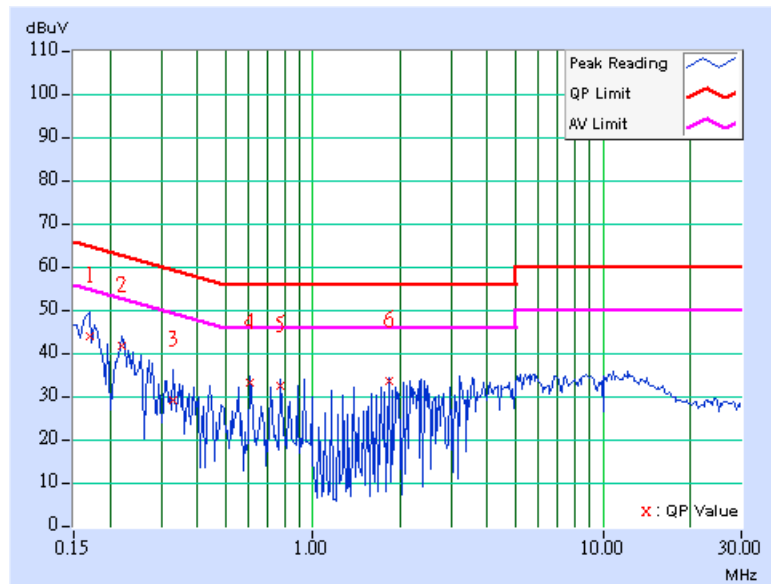




EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	43.78	-	43.88	-	64.98	54.98	-21.11	-
2	0.220	0.10	41.68	-	41.78	-	62.81	52.81	-21.03	-
3	0.330	0.11	29.08	-	29.19	-	59.46	49.46	-30.27	-
4	0.607	0.15	33.19	-	33.34	-	56.00	46.00	-22.66	-
5	0.771	0.19	32.45	-	32.64	-	56.00	46.00	-23.36	-
6	1.824	0.25	33.35	-	33.60	-	56.00	46.00	-22.40	-

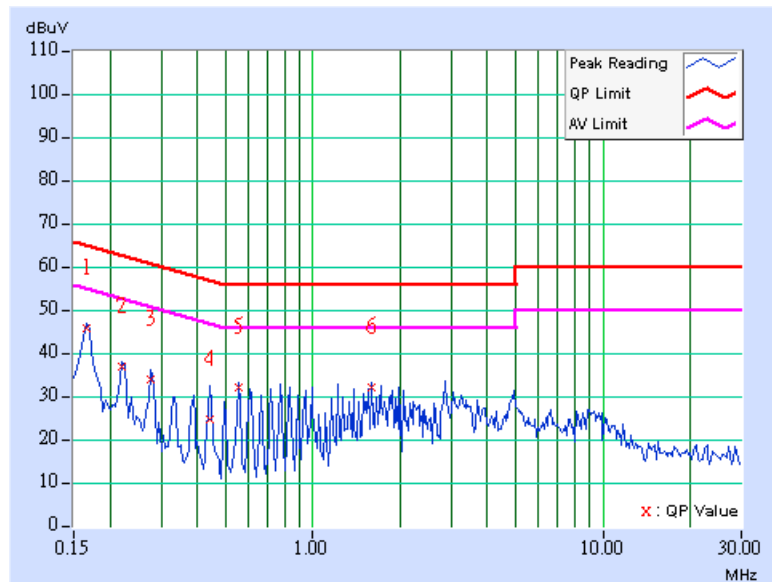
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	6	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.10	45.75	-	45.85	-	65.18	55.18	-19.32	-
2	0.220	0.10	36.61	-	36.71	-	62.81	52.81	-26.10	-
3	0.275	0.11	33.67	-	33.78	-	60.97	50.97	-27.19	-
4	0.443	0.12	24.39	-	24.51	-	57.01	47.01	-32.49	-
5	0.552	0.15	32.03	-	32.18	-	56.00	46.00	-23.82	-
6	1.602	0.26	32.05	-	32.31	-	56.00	46.00	-23.69	-

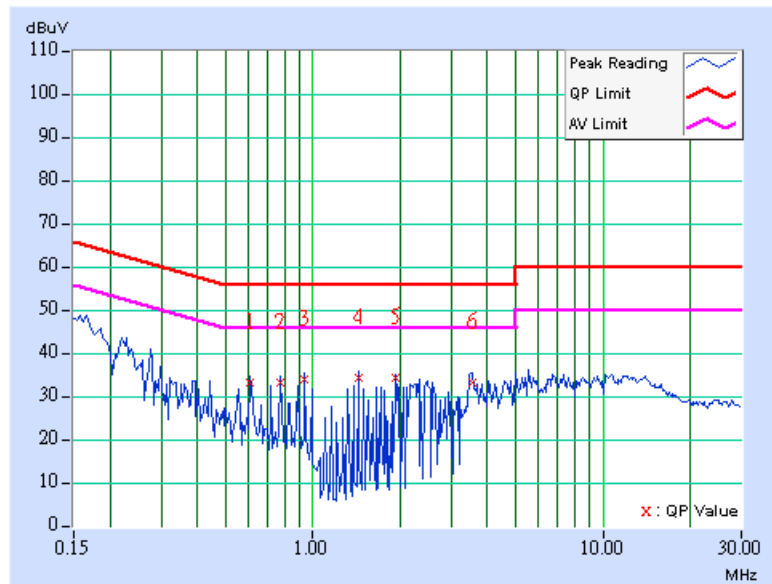
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	6	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.607	0.15	33.15	-	33.30	-	56.00	46.00	-22.70	-
2	0.775	0.19	32.97	-	33.16	-	56.00	46.00	-22.84	-
3	0.939	0.23	33.79	-	34.02	-	56.00	46.00	-21.98	-
4	1.438	0.24	34.26	-	34.50	-	56.00	46.00	-21.50	-
5	1.934	0.25	34.17	-	34.42	-	56.00	46.00	-21.58	-
6	3.535	0.29	33.20	-	33.49	-	56.00	46.00	-22.51	-

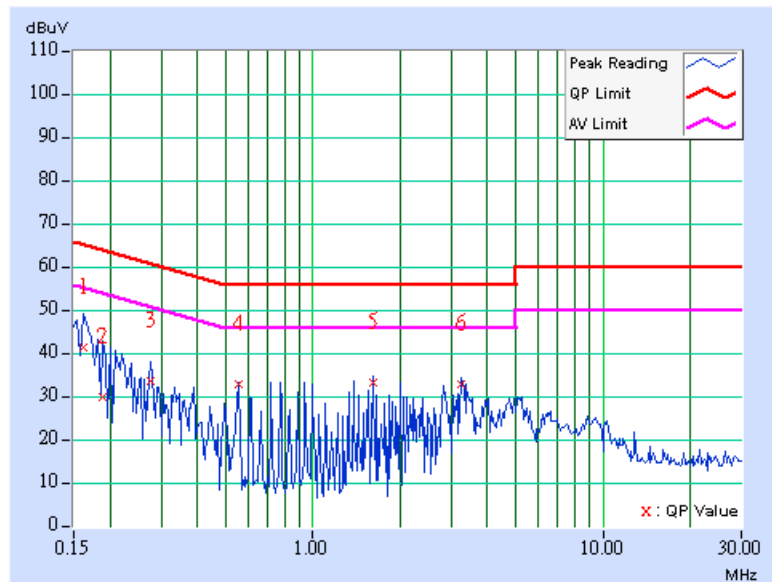
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.10	41.34	-	41.44	-	65.38	55.38	-23.93	-
2	0.189	0.10	29.72	-	29.82	-	64.08	54.08	-34.26	-
3	0.275	0.11	33.35	-	33.46	-	60.97	50.97	-27.51	-
4	0.552	0.15	32.51	-	32.66	-	56.00	46.00	-23.34	-
5	1.605	0.26	33.01	-	33.27	-	56.00	46.00	-22.73	-
6	3.266	0.29	32.81	-	33.10	-	56.00	46.00	-22.90	-

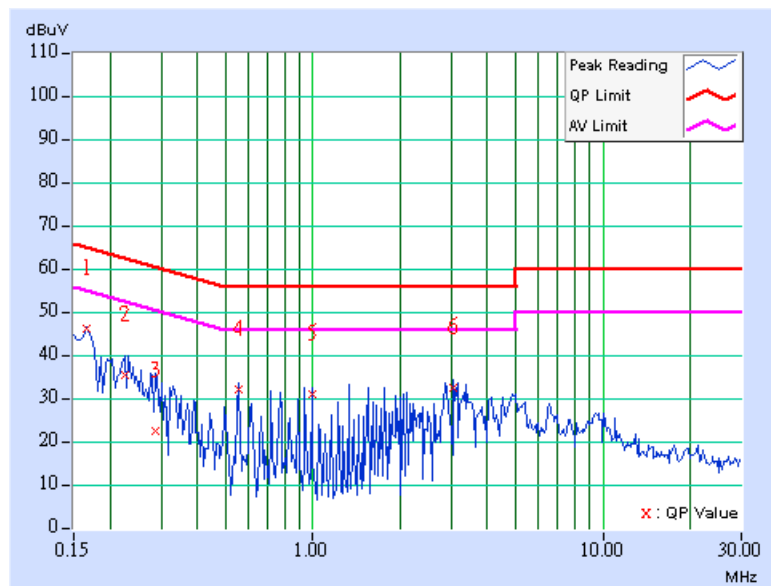
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Rush Kao

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.10	45.93	-	46.03	-	65.18	55.18	-19.15	-
2	0.224	0.10	35.43	-	35.53	-	62.66	52.66	-27.13	-
3	0.287	0.11	22.45	-	22.56	-	60.62	50.62	-38.06	-
4	0.552	0.15	32.09	-	32.24	-	56.00	46.00	-23.76	-
5	0.994	0.24	30.66	-	30.90	-	56.00	46.00	-25.10	-
6	3.043	0.28	32.24	-	32.52	-	56.00	46.00	-23.48	-

- 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

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as the following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Feb. 09, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Nov. 29, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 03, 2005
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Feb. 03, 2005
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170242	Feb. 23, 2005
Preamplifier Agilent	8447D	2944A10631	Nov. 17, 2005
Preamplifier Agilent	8449B	3008A01960	Nov. 14, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219272/4	Mar. 04, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219275/4	Mar. 04, 2005
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA
Turn Table ADT.	TT100.	TT93021704	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 3.
 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 IC4924-4.



4.2.3 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 test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

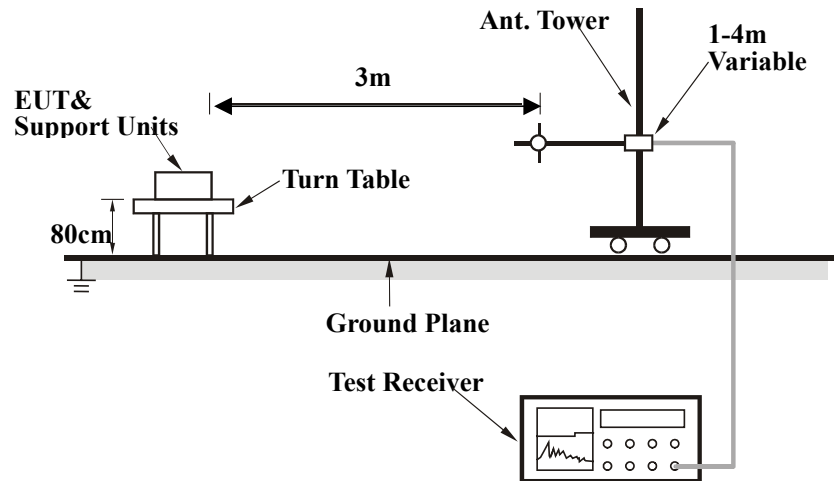
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Test mode A

- The EUT was powered by the power adapter.
- The EUT was set under transmitting continuously condition.

Test mode B

- The EUT was powered by the power adapter.
- The EUT connected to the notebook.
- The EUT communicated data with the notebook.
- The EUT was set under transmitting continuously condition.
- The notebook sent “H” messages to the modem.
- The notebook sent “H” messages to the printer and the printer printed them out.
- Step e~f were repeated.

Test mode C

- The EUT was powered by the battery.
- The EUT was set under transmitting continuously condition.

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4.2.7 TEST RESULTS (A)

EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	72.77	27.61 QP	40.00	-12.39	1.50 H	277	15.86	11.76
2	115.53	39.29 QP	43.50	-4.21	1.75 H	46	26.86	12.42
3	162.18	37.04 QP	43.50	-6.46	1.75 H	124	22.32	14.72
4	195.23	30.81 QP	43.50	-12.69	1.25 H	70	19.15	11.66
5	319.64	35.21 QP	46.00	-10.79	1.00 H	283	20.37	14.85
6	352.69	31.42 QP	46.00	-14.58	1.00 H	61	15.84	15.58
7	411.00	28.44 QP	46.00	-17.56	1.75 H	283	11.43	17.01
8	451.82	30.42 QP	46.00	-15.58	1.75 H	271	12.40	18.02
9	601.50	29.48 QP	46.00	-16.52	1.50 H	295	8.64	20.85
10	659.82	28.26 QP	46.00	-17.74	1.00 H	58	6.68	21.58
11	733.69	31.59 QP	46.00	-14.41	1.00 H	304	8.75	22.84
12	792.00	33.17 QP	46.00	-12.83	1.50 H	232	9.75	23.42
13	881.42	29.57 QP	46.00	-16.43	1.25 H	235	5.09	24.48
14	924.19	28.98 QP	46.00	-17.02	1.25 H	94	3.92	25.06

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.



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	37.78	23.56 QP	40.00	-16.44	1.25 V	190	8.59	14.96
2	84.43	30.44 QP	40.00	-9.56	1.00 V	352	20.48	9.97
3	119.42	32.05 QP	43.50	-11.45	1.00 V	73	19.24	12.80
4	160.24	35.89 QP	43.50	-7.61	1.25 V	250	20.98	14.92
5	298.26	30.09 QP	46.00	-15.91	1.25 V	289	15.71	14.38
6	399.34	30.48 QP	46.00	-15.52	1.25 V	328	13.77	16.71
7	449.88	36.87 QP	46.00	-9.13	1.00 V	334	18.88	18.00
8	731.74	29.38 QP	46.00	-16.62	1.75 V	10	6.59	22.79
9	792.00	30.43 QP	46.00	-15.57	1.25 V	115	7.00	23.42
10	924.19	28.31 QP	46.00	-17.69	1.00 V	241	3.25	25.06

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.



4.2.8 TEST RESULTS (B)

EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	115.53	39.16 QP	43.50	-4.34	1.50 H	22	26.74	12.42
2	160.24	37.41 QP	43.50	-6.09	1.50 H	175	22.49	14.92
3	193.29	30.20 QP	43.50	-13.30	1.25 H	64	18.38	11.82
4	319.64	34.42 QP	46.00	-11.58	1.00 H	295	19.58	14.85
5	352.69	31.04 QP	46.00	-14.96	1.00 H	61	15.45	15.58
6	455.71	30.88 QP	46.00	-15.12	1.50 H	34	12.81	18.07
7	599.56	29.56 QP	46.00	-16.44	1.50 H	289	8.74	20.82
8	665.65	29.58 QP	46.00	-16.42	1.00 H	31	7.94	21.64
9	731.74	31.62 QP	46.00	-14.38	1.25 H	289	8.83	22.79
10	792.00	34.20 QP	46.00	-11.80	1.50 H	238	10.77	23.42
11	881.42	31.51 QP	46.00	-14.49	1.25 H	238	7.04	24.48
12	924.19	29.77 QP	46.00	-16.23	1.25 H	91	4.71	25.06

- 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.



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	37.78	22.90 QP	40.00	-17.10	1.00 V	223	7.94	14.96
2	84.43	29.51 QP	40.00	-10.49	1.25 V	280	19.54	9.97
3	119.42	31.48 QP	43.50	-12.02	1.00 V	37	18.68	12.80
4	164.13	34.97 QP	43.50	-8.53	1.00 V	244	20.45	14.52
5	319.64	29.37 QP	46.00	-16.63	1.25 V	328	14.52	14.85
6	407.11	33.41 QP	46.00	-12.59	1.25 V	325	16.50	16.91
7	449.88	35.30 QP	46.00	-10.70	1.00 V	1	17.30	18.00
8	731.74	29.29 QP	46.00	-16.71	1.75 V	10	6.50	22.79
9	792.00	30.74 QP	46.00	-15.26	1.25 V	118	7.31	23.42

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.

4.2.9 TEST RESULTS (C)

EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	156.35	25.06 QP	43.50	-18.44	1.75 H	193	10.21	14.85
2	319.64	33.31 QP	46.00	-12.69	1.00 H	268	18.46	14.85
3	352.69	31.15 QP	46.00	-14.85	1.00 H	175	15.56	15.58
4	749.24	28.25 QP	46.00	-17.75	1.25 H	79	5.03	23.22
5	792.00	28.35 QP	46.00	-17.65	1.25 H	235	4.92	23.42
6	881.42	28.83 QP	46.00	-17.17	1.25 H	229	4.35	24.48

- 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.



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	82.48	22.95 QP	40.00	-17.05	1.00 V	295	13.03	9.92
2	156.35	25.69 QP	43.50	-17.81	1.25 V	28	10.84	14.85
3	319.64	29.29 QP	46.00	-16.71	1.25 V	319	14.45	14.85
4	564.57	24.97 QP	46.00	-21.03	1.50 V	298	5.11	19.86
5	900.86	25.01 QP	46.00	-20.99	1.00 V	121	0.19	24.82
6	941.68	24.96 QP	46.00	-21.04	1.25 V	61	-0.28	25.24

- 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.



4.2.10 TEST RESULTS

EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	1	FREQUENCY RANGE	1 ~25GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	2038.00	49.49 PK	74.00	-24.51	1.05 H	112	17.42	32.07
1	2038.00	47.51 AV	54.00	-6.49	1.05 H	112	15.44	32.07
2	2390.00	56.61 PK	74.00	-17.39	1.24 H	229	22.78	33.83
2	2390.00	47.37 AV	54.00	-6.63	1.24 H	229	13.54	33.83
3	*2412.00	101.10 PK			1.24 H	229	67.17	33.93
3	*2412.00	90.51 AV			1.24 H	229	56.58	33.93
4	4824.00	57.27 PK	74.00	-16.73	1.00 H	112	16.61	40.66
4	4824.00	46.75 AV	54.00	-7.25	1.00 H	112	6.09	40.66

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	2038.00	45.16 PK	74.00	-28.84	1.08 V	179	13.09	32.07
1	2038.00	40.70 AV	54.00	-13.30	1.08 V	179	8.63	32.07
2	2390.00	56.86 PK	74.00	-17.14	1.25 V	12	23.03	33.83
2	2390.00	46.79 AV	54.00	-7.21	1.25 V	12	12.96	33.83
3	*2412.00	96.63 PK			1.25 V	12	62.70	33.93
3	*2412.00	88.04 AV			1.25 V	12	54.11	33.93
4	4824.00	50.80 PK	74.00	-23.20	1.00 V	221	10.14	40.66
4	4824.00	38.17 AV	54.00	-15.83	1.00 V	221	-2.49	40.66

- 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.
 5. “ * ” : Fundamental frequency



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	6	FREQUENCY RANGE	1 ~25GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	2062.00	49.54 PK	74.00	-24.46	1.05 H	110	17.36	32.18
1	2062.00	46.11 AV	54.00	-7.89	1.05 H	110	13.93	32.18
2	*2437.00	100.32 PK			1.18 H	228	66.27	34.05
2	*2437.00	90.01 AV			1.18 H	228	55.96	34.05
3	4874.00	56.21 PK	74.00	-17.79	1.00 H	215	15.52	40.69
3	4874.00	45.87 AV	54.00	-8.13	1.00 H	215	5.18	40.69

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	2062.00	46.55 PK	74.00	-27.45	1.05 V	115	14.37	32.18
1	2062.00	40.50 AV	54.00	-13.50	1.05 V	115	8.32	32.18
2	*2437.00	95.87 PK			1.10 V	24	61.82	34.05
2	*2437.00	88.28 AV			1.10 V	24	54.23	34.05
3	4874.00	49.55 PK	74.00	-24.45	1.00 V	220	8.86	40.69
3	4874.00	38.21 AV	54.00	-15.79	1.00 V	220	-2.48	40.69

- 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.
 5. “ * ” : Fundamental frequency



EUT	PDT (Portable Data Terminal)	MODEL	IT7000
CHANNEL	11	FREQUENCY RANGE	1 ~25GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 991 hPa	TESTED BY	Rush Kao

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	2088.00	47.94 PK	74.00	-26.06	1.02 H	268	15.64	32.30
1	2088.00	45.16 AV	54.00	-8.84	1.02 H	268	12.86	32.30
2	*2462.00	101.73 PK			1.33 H	87	67.57	34.16
2	*2462.00	94.65 AV			1.33 H	87	60.49	34.16
3	2483.50	55.44 PK	74.00	-18.56	1.33 H	87	21.18	34.26
3	2483.50	46.77 AV	54.00	-7.23	1.33 H	87	12.51	34.26
4	4924.00	49.89 PK	74.00	-24.11	1.05 H	270	9.03	40.86
4	4924.00	37.97 AV	54.00	-16.03	1.05 H	270	-2.89	40.86

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	2088.00	46.69 PK	74.00	-27.31	1.00 V	57	14.39	32.30
1	2088.00	43.30 AV	54.00	-10.70	1.00 V	57	11.00	32.30
2	*2462.00	94.36 PK			1.02 V	19	60.20	34.16
2	*2462.00	86.24 AV			1.02 V	19	52.08	34.16
3	2483.50	51.21 PK	74.00	-22.79	1.02 V	19	16.95	34.26
3	2483.50	40.56 AV	54.00	-13.44	1.02 V	19	6.30	34.26
4	4924.00	50.03 PK	74.00	-23.97	1.18 V	42	9.17	40.86
4	4924.00	38.06 AV	54.00	-15.94	1.18 V	42	-2.80	40.86

- 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.
 5. “ * ” : Fundamental frequency



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSP 40	100035	Apr. 19, 2005

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

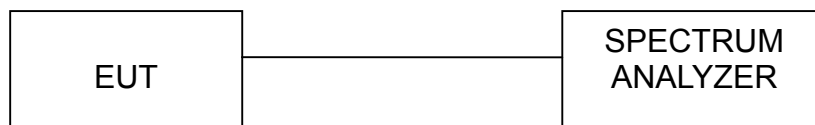
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

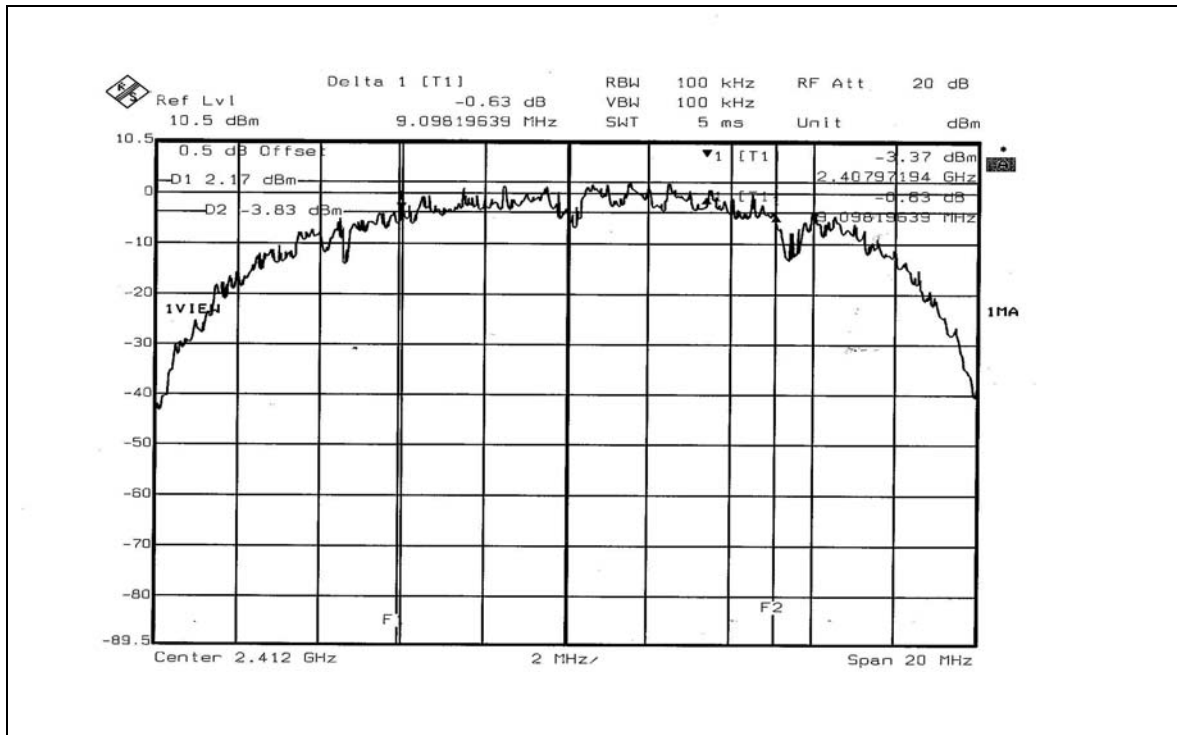


4.3.7 TEST RESULTS

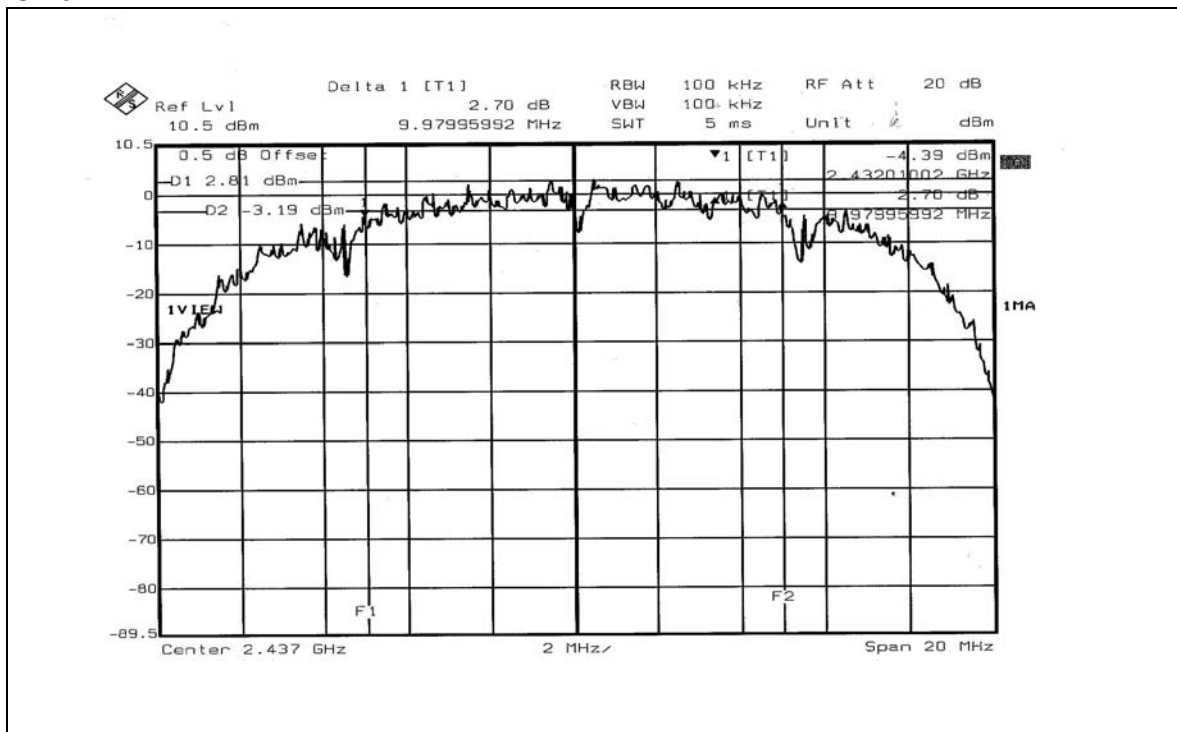
EUT	PDT (Portable Data Terminal)	MODEL	IT7000
ENVIRONMENTAL CONDITIONS	24 deg. C, 64% RH, 991 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	9.10	0.5	PASS
6	2437	9.98	0.5	PASS
11	2462	9.78	0.5	PASS

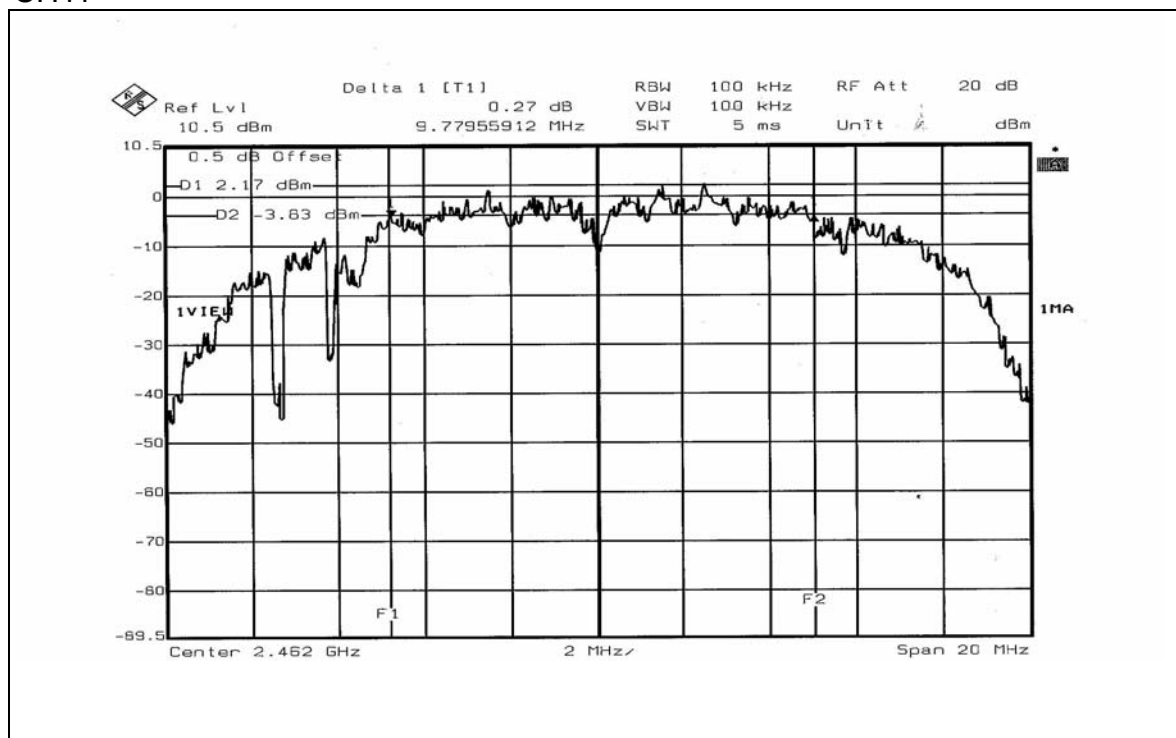
CH1



CH6



CH11





4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Spectrum Analyzer	FSP 40	100036	Mar. 18. 2005
ROHDE & SCHWARZ Signal Generator	SMR40	100231	Mar. 17. 2005
Tektronix Oscilloscope	TDS1012	C019167	Feb. 01. 2005
Narda Detector	4503A	FSCM99899	NA

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURE

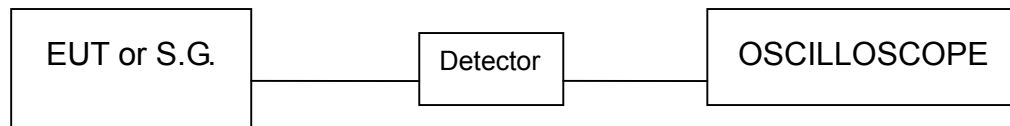
1. A detector was used on the output port of the EUT. An oscilloscope was used to read the peak response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G. was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same peak reading on oscilloscope. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.



4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITION

Same as Item 4.3.6.



4.4.7 TEST RESULTS

EUT	PDT (Portable Data Terminal)	MODEL	IT7000
ENVIRONMENTAL CONDITIONS	24 deg. C, 64% RH, 991 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	LEO HUNG		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.281	12.620	30	PASS
6	2437	16.943	12.290	30	PASS
11	2462	18.281	12.620	30	PASS



4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSP 40	100035	Apr. 19, 2005

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST PROCEDURE

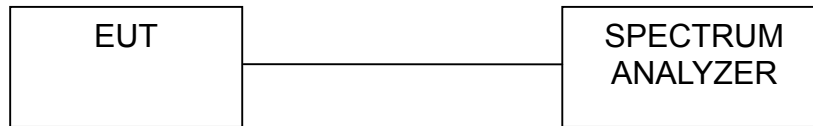
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6.



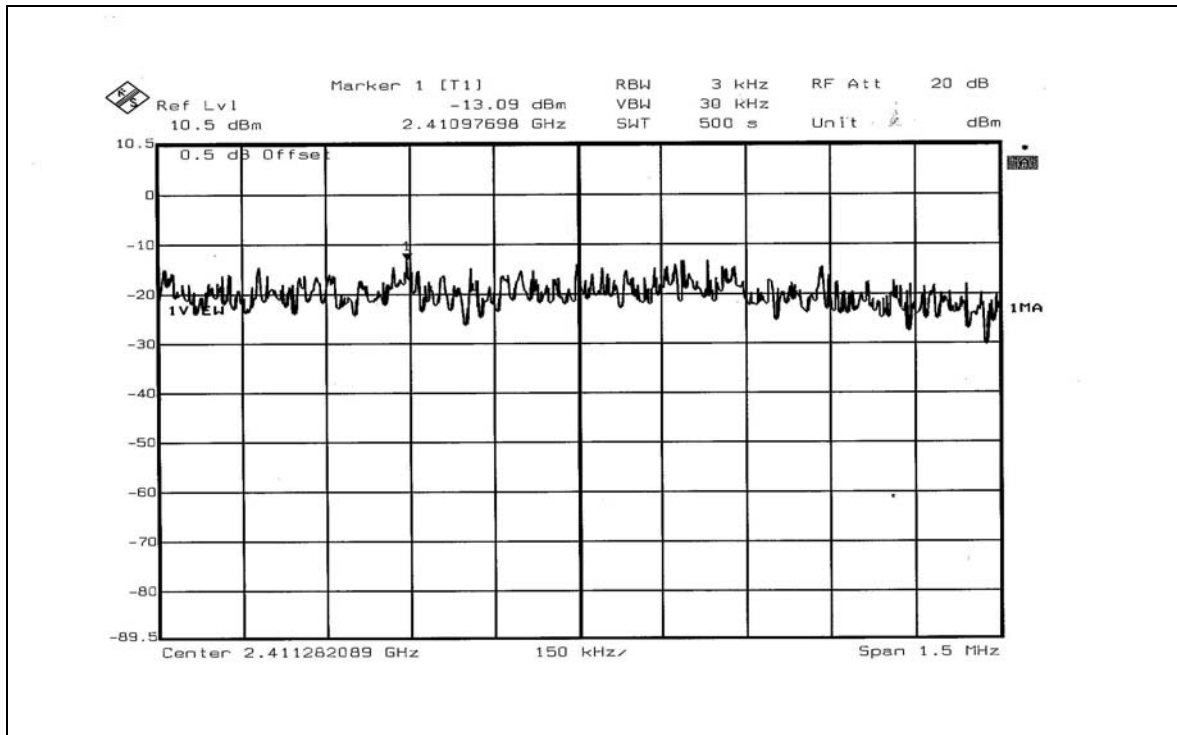
4.5.7 TEST RESULTS

EUT	PDT (Portable Data Terminal)	MODEL	IT7000
ENVIRONMENTAL CONDITIONS	24 deg. C, 64% RH, 991 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Rush Kao		

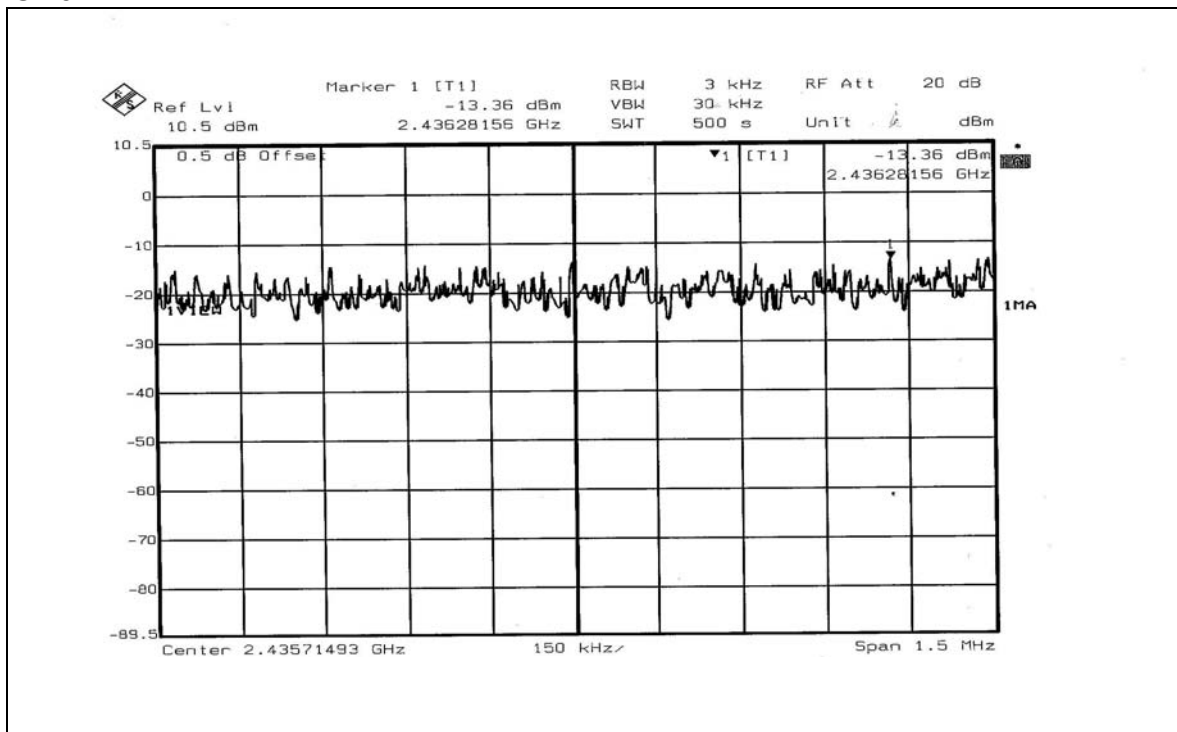
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.09	8	PASS
6	2437	-13.36	8	PASS
11	2462	-13.14	8	PASS



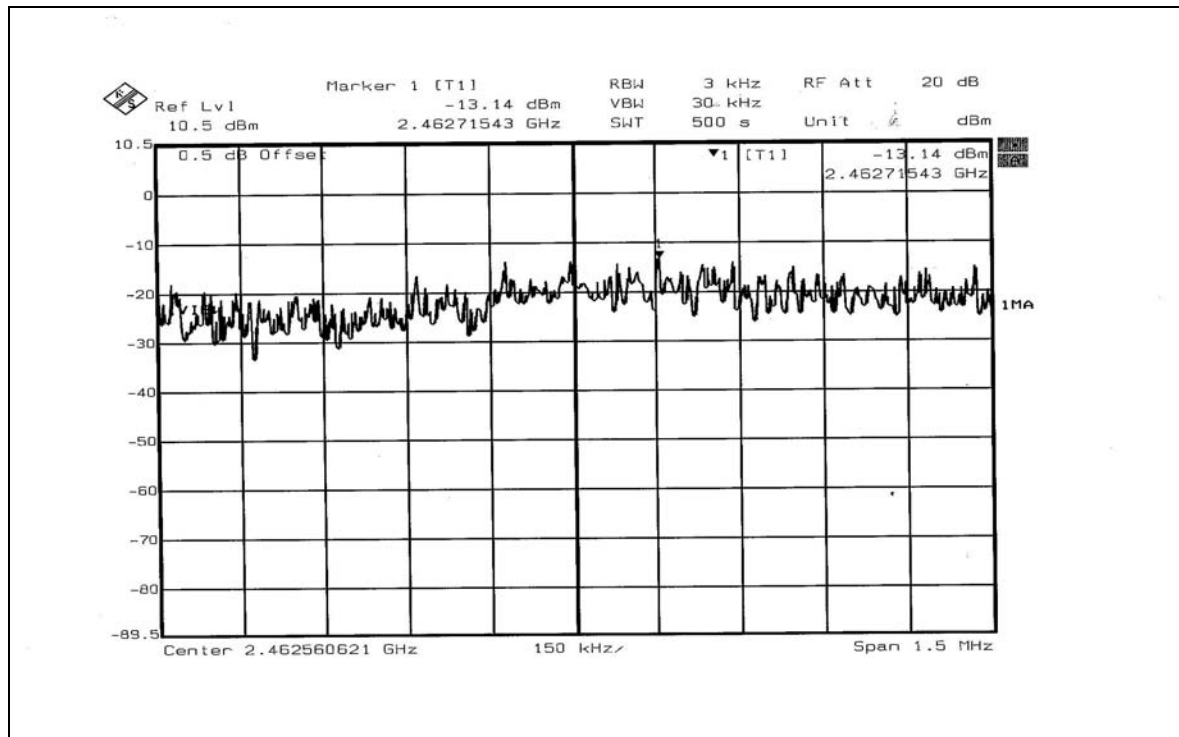
CH1



CH6



CH11





4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSP 40	100035	Apr. 19, 2005

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

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

The spectrum plots (Peak RBW=VBW=100kHz; Average RBW=1MHz, VBW=1kHz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6.



4.6.6 TEST RESULTS

The spectrum plots are attached on the following 6 images. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

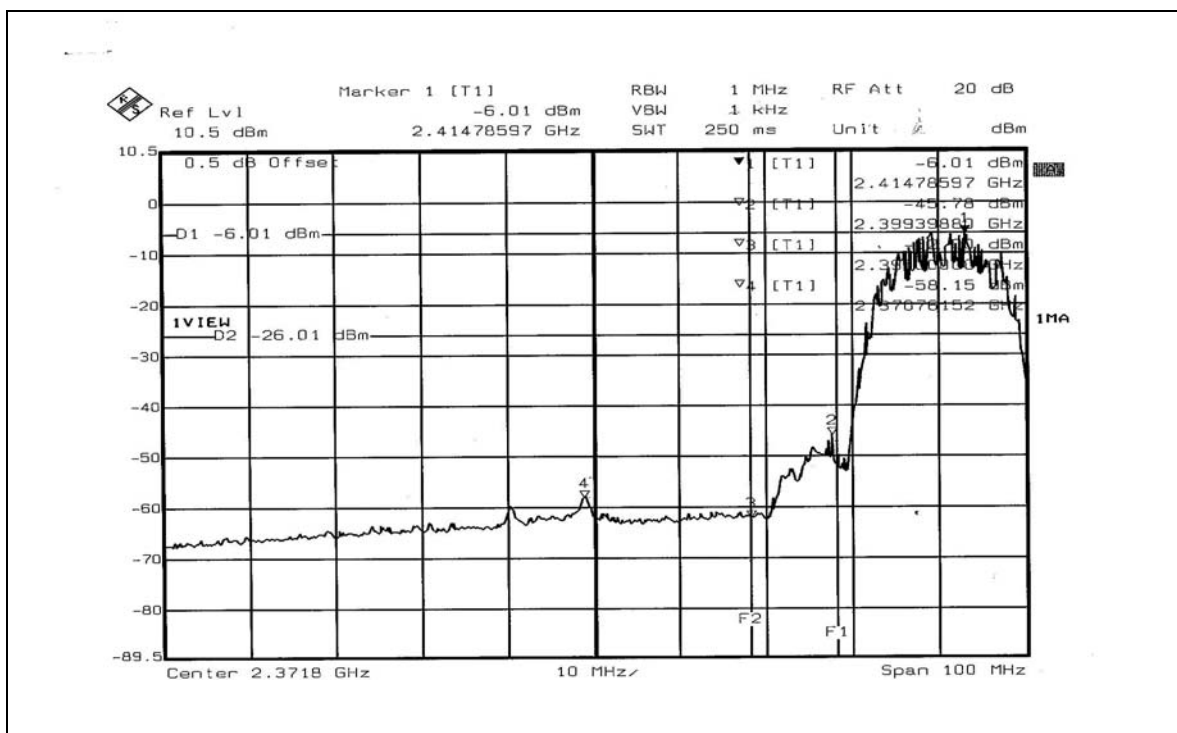
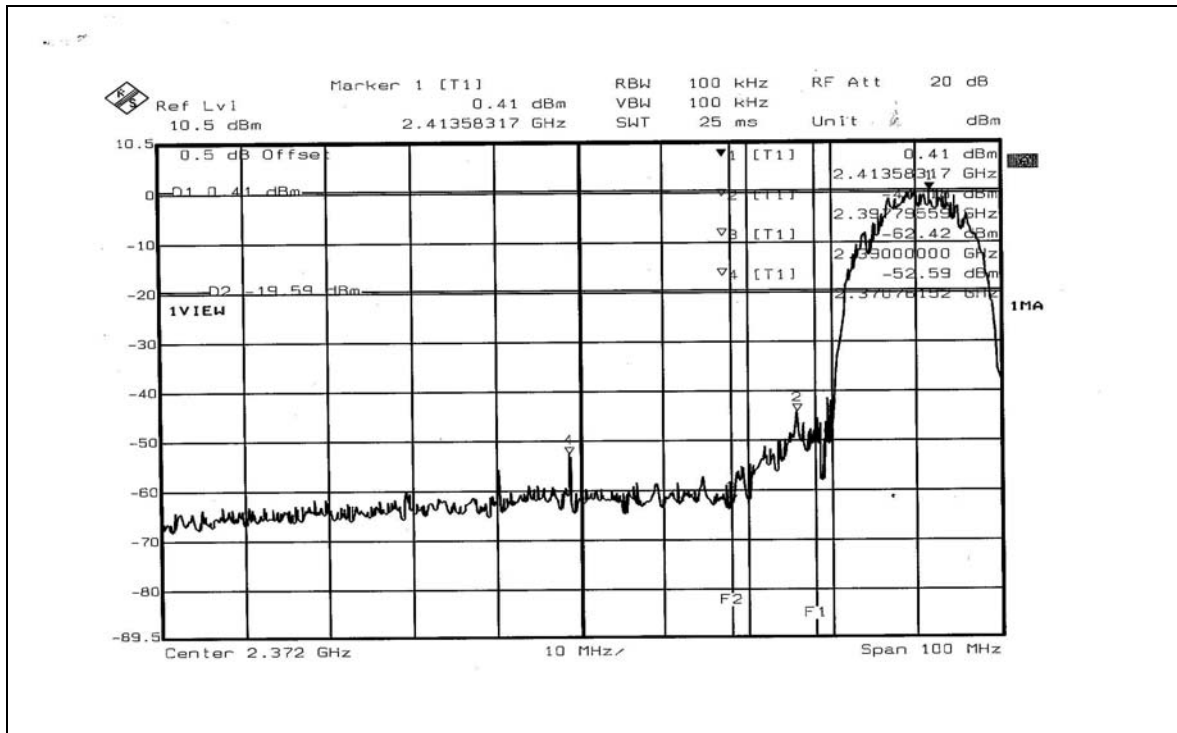
For DSSS

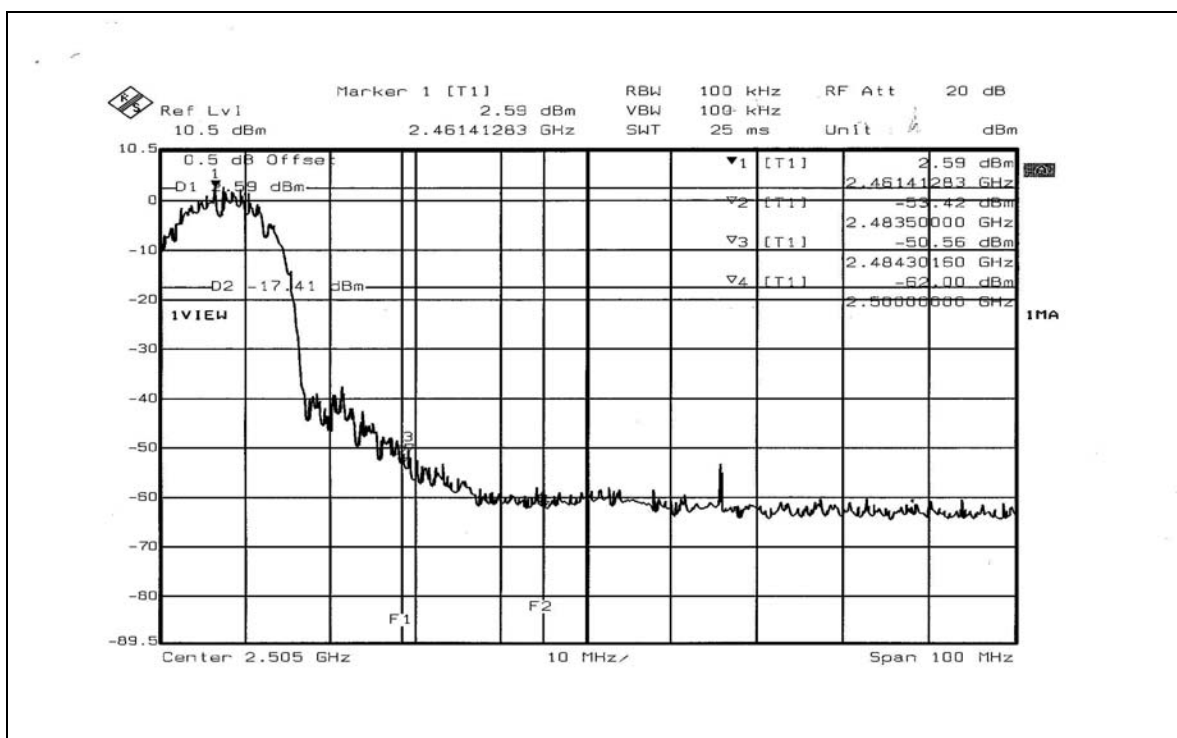
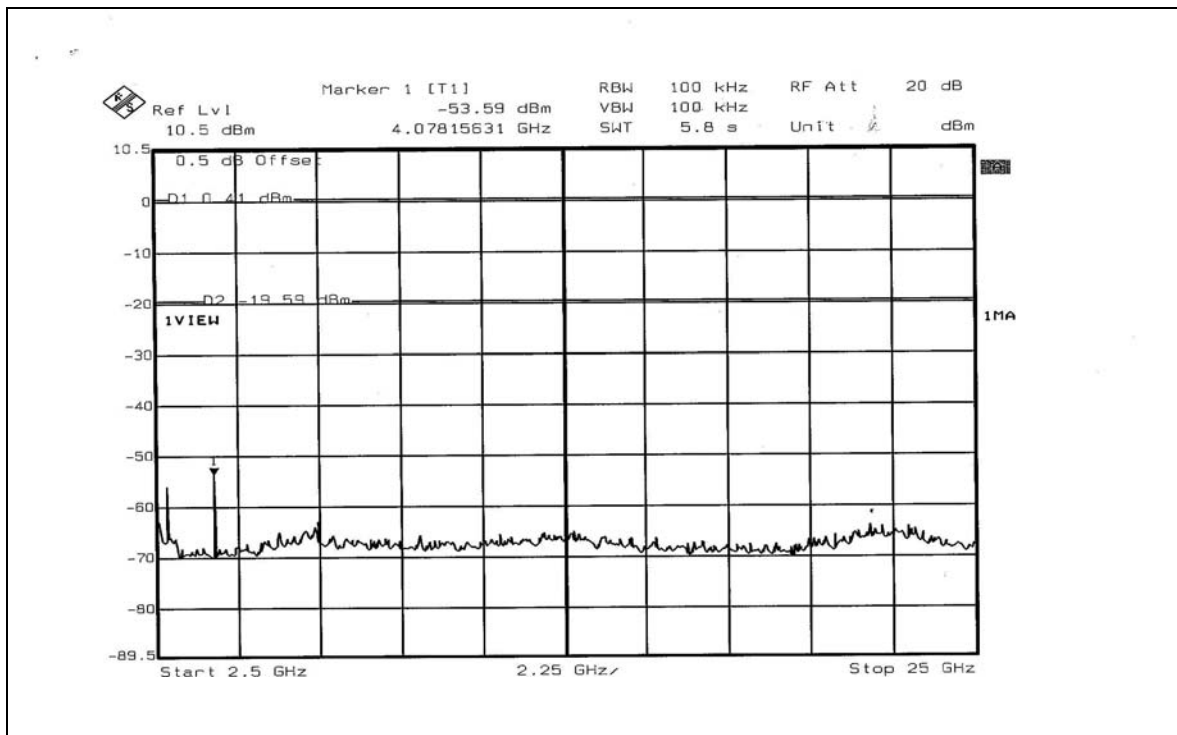
The band edge emission plot of DSSS technique on page 54 shows 53.00dB between carrier maximum power and local maximum emission in restrict band (2.3708GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.10 is 101.10dBuV/m (Peak), so the maximum field strength in restrict band is $101.10 - 53.00 = 48.01$ dBuV/m which is under 74dBuV/m limit.

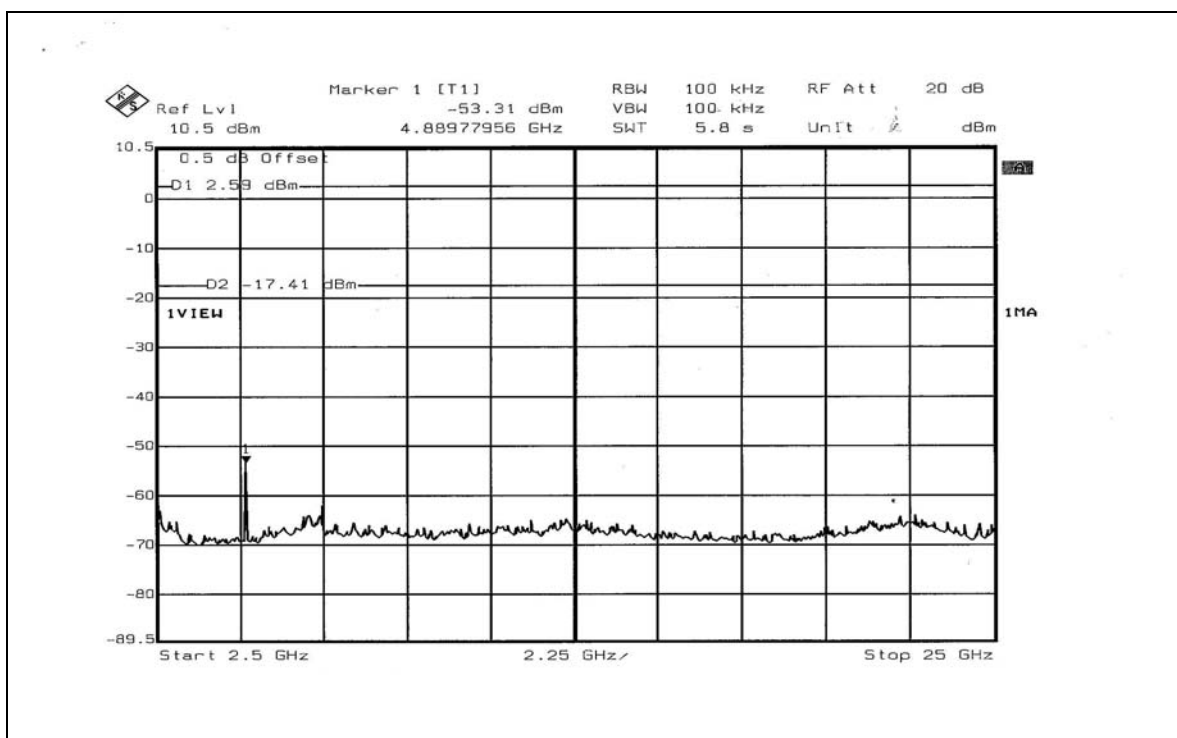
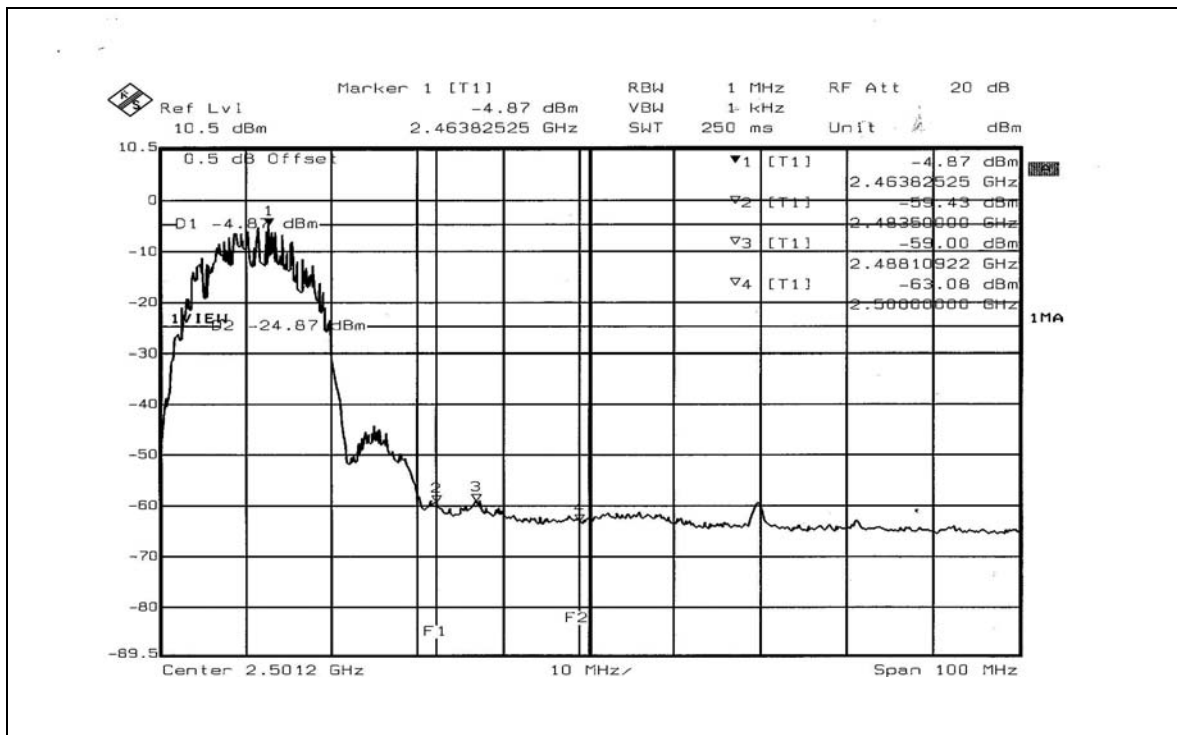
The band edge emission plot of DSSS technique on page 54 shows 55.99dB between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.10 is 90.51dBuV/m (Average), so the maximum field strength in restrict band is $90.51 - 55.99 = 34.52$ dBuV/m which is under 54dBuV/m limit.

The band edge emission plot of DSSS technique on page 55 shows 53.15dB between carrier maximum power and local maximum emission in restrict band (2.4843GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.10 is 101.73dBuV/m (Peak), so the maximum field strength in restrict band is $101.73 - 53.15 = 48.58$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of DSSS technique on page 56 shows 54.13dB between carrier maximum power and local maximum emission in restrict band (2.4881GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.10 is 94.65dBuV/m (Average), so the maximum field strength in restrict band is $94.65 - 54.13 = 40.52$ dBuV/m which is under 54dBuV/m limit.









4.7 ANTENNA REQUIREMENT

4.7.1 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.

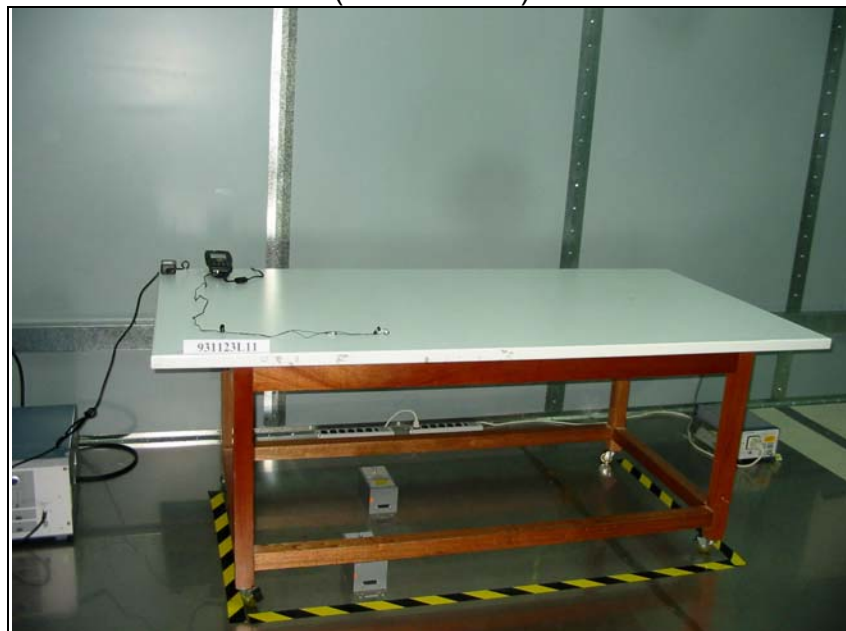
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna type used in this product is PIFA antenna with I-PAX antenna connector. The maximum gain of this antenna is –1dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

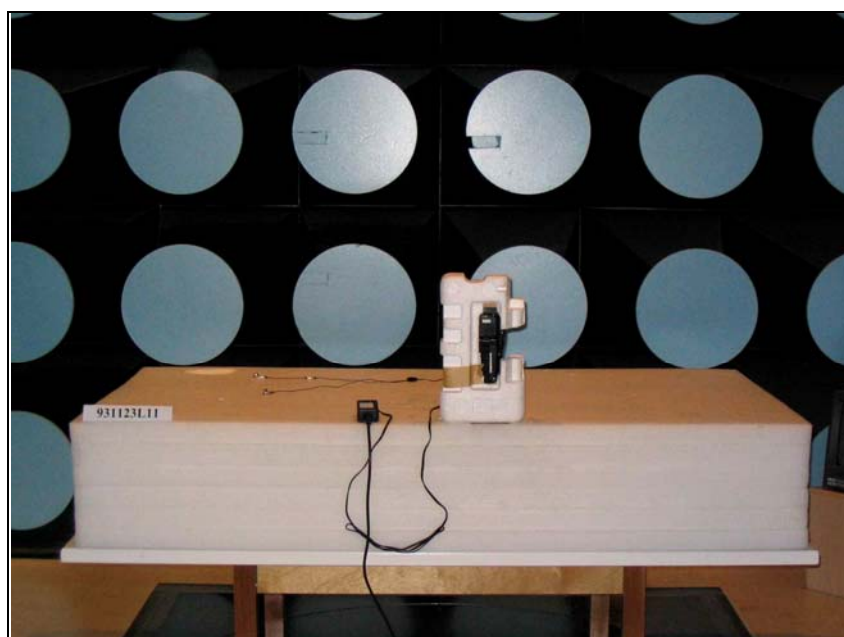
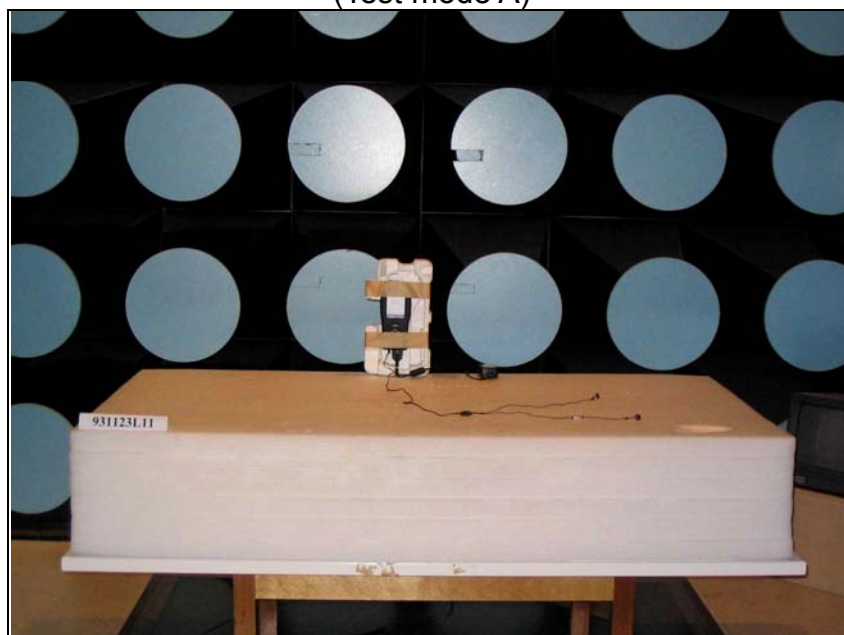
CONDUCTED EMISSION TEST (Test mode A)



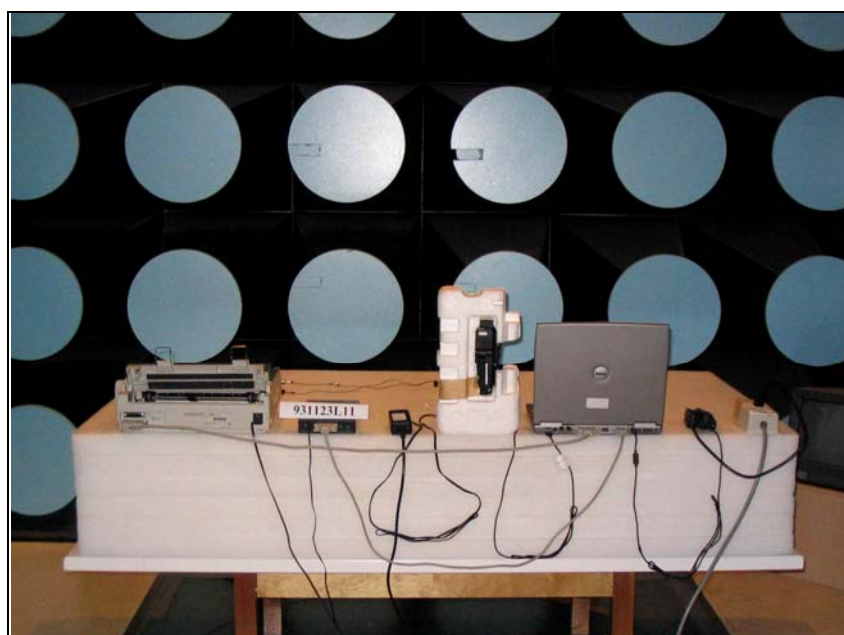
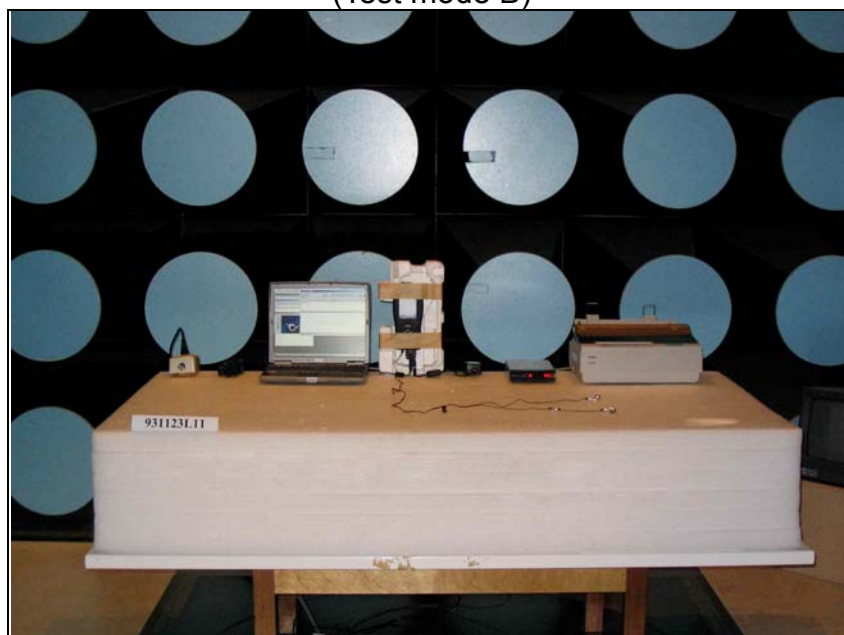
CONDUCTED EMISSION TEST (Test mode B)



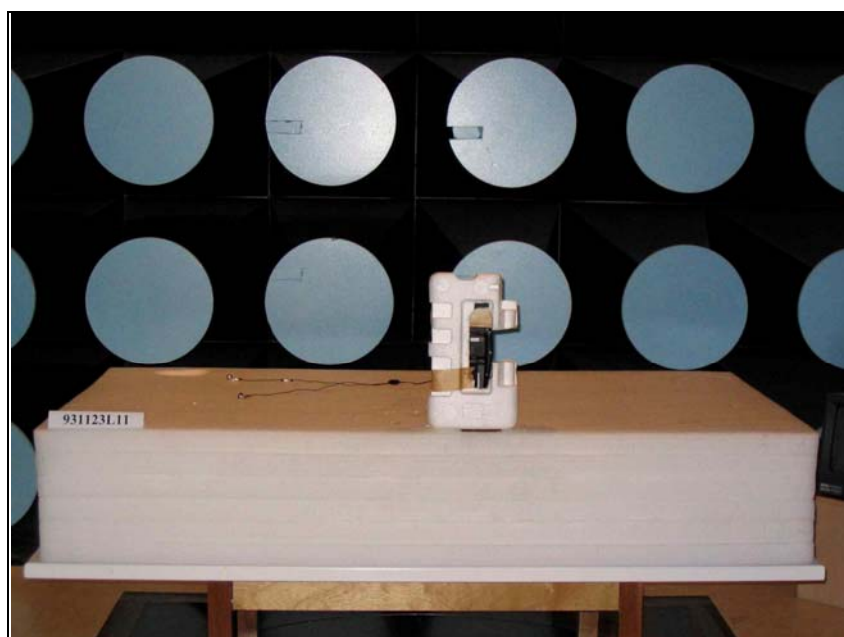
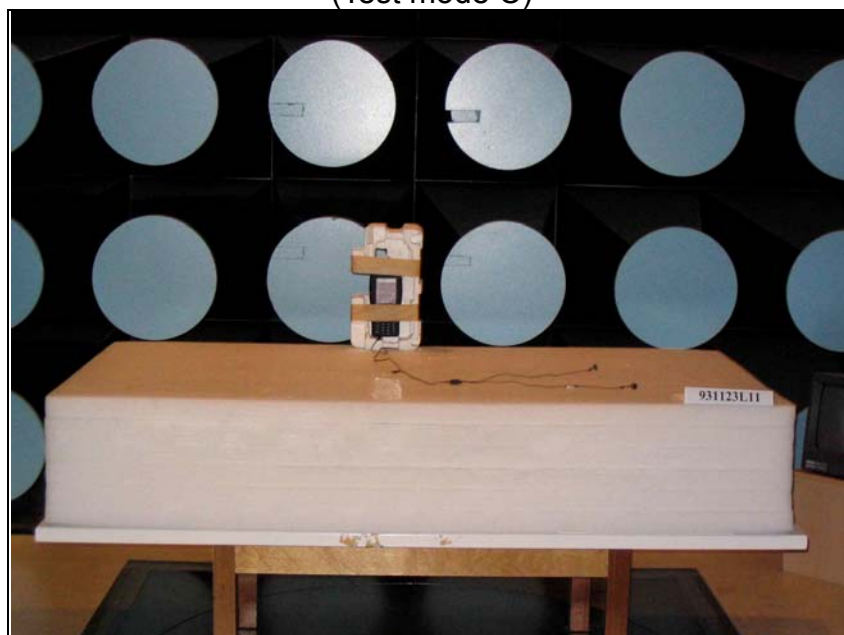
RADIATED EMISSION TEST (Test mode A)



RADIATED EMISSION TEST (Test mode B)



RADIATED EMISSION TEST
(Test mode C)





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, NVLAP, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB, 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.

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