



FCC TEST REPORT

REPORT NO.: RF930715L07

MODEL NO.: DB-6645

RECEIVED: July 15, 2004

TESTED: July 16 ~ Aug. 04, 2004

APPLICANT: DBTEL Incorporated

ADDRESS: No. 29, Tzu Chiang St., Tu-Cheng,
Taipei, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

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

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Table of Contents

1	CERTIFICATION	4
2	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY	5
3	GENERAL INFORMATION	6
3.1	GENERAL DESCRIPTION OF EUT	6
3.2	DESCRIPTION OF TEST MODES	7
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	7
3.4	DESCRIPTION OF SUPPORT UNITS	8
3.5	CONFIGURATION OF SYSTEM UNDER TEST	8
4	TEST TYPES AND RESULTS	9
4.1	CONDUCTED EMISSION MEASUREMENT	9
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	9
4.1.2	TEST INSTRUMENTS	9
4.1.3	TEST PROCEDURES	10
4.1.4	DEVIATION FROM TEST STANDARD	10
4.1.5	TEST SETUP	11
4.1.6	EUT OPERATING CONDITIONS	11
4.1.7	TEST RESULTS (A)	12
4.1.8	TEST RESULTS (B)	18
4.2	RADIATED EMISSION MEASUREMENT	24
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	24
4.2.2	TEST INSTRUMENTS	25
4.2.3	TEST PROCEDURES	26
4.2.4	DEVIATION FROM TEST STANDARD	27
4.2.5	TEST SETUP	27
4.2.6	EUT OPERATING CONDITIONS	27
4.2.7	TEST RESULTS	28
4.3	6dB BANDWIDTH MEASUREMENT	40
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	40
4.3.2	TEST INSTRUMENTS	40
4.3.3	TEST PROCEDURE	41
4.3.4	DEVIATION FROM TEST STANDARD	41
4.3.5	TEST SETUP	41
4.3.6	EUT OPERATING CONDITIONS	41



4.3.7	TEST RESULTS	42
4.4	MAXIMUM PEAK OUTPUT POWER	46
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	46
4.4.2	TEST INSTRUMENTS.....	46
4.4.3	TEST PROCEDURES	46
4.4.4	DEVIATION FROM TEST STANDARD	46
4.4.5	TEST SETUP.....	47
4.4.6	EUT OPERATING CONDITIONS	47
4.4.7	TEST RESULTS	48
4.5	POWER SPECTRAL DENSITY MEASUREMENT	49
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	49
4.5.2	TEST INSTRUMENTS.....	49
4.5.3	TEST PROCEDURE.....	50
4.5.4	DEVIATION FROM TEST STANDARD	50
4.5.5	TEST SETUP.....	50
4.5.6	EUT OPERATING CONDITIONS	50
4.5.7	TEST RESULTS	51
4.6	BAND EDGES MEASUREMENT	55
4.6.1	LIMITS OF BAND EDGES MEASUREMENT.....	55
4.6.2	TEST INSTRUMENTS.....	55
4.6.3	TEST PROCEDURE.....	55
4.6.4	DEVIATION FROM TEST STANDARD	55
4.6.5	EUT OPERATING CONDITION	55
4.6.6	TEST RESULTS	56
4.7	ANTENNA REQUIREMENT	61
4.7.1	STANDARD APPLICABLE	61
4.7.2	ANTENNA CONSINO-AMEREICANTED CONSTRUCTION	61
5	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	62
6	INFORMATION ON THE TESTING LABORATORIES	66



1 CERTIFICATION

PRODUCT : WLAN IP Phone
MODEL NO. : DB-6645
BRAND : DBTEL
TEST ITEM : Engineering Sample
TESTED : July 16 ~ Aug. 04, 2004
APPLICANT : DBTEL Incorporated
STANDARDS : FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2001

The above equipment 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 : Wendy Liao , **DATE:** Aug. 10, 2004
(Wendy Liao)

TECHNICAL
ACCEPTANCE : Gary Chang , **DATE:** Aug. 10, 2004
Responsible for RF (Gary Chang)

APPROVED BY : Cody Chang , **DATE:** Aug. 10, 2004
(Cody Chang, Supervisor)

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 -5.82dB at 0.189MHz.
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(c)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -4.04dB at 4924MHz.
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(c)	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	9k~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	WLAN IP Phone
MODEL NO.	DB-6645
POWER SUPPLY	5Vdc from power adapter
MODULATION TYPE	BPSK, QPSK, CCK
RADIO TECHNOLOGY	DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	13.99dBm
ANTENNA TYPE	Chip embedded Antenna
ANTENNA GAIN	0dBi
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This is a supplementary report with ADT report no. RF930322L11.
2. This report is prepared for FCC class II permissive change. The difference compared with the original design is adding more capacitor and resistor on the main board.
3. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 11Mbps.
4. The EUT complies with IEEE 802.11b products.
5. The EUT was powered by the following adapters:

Brand:	DELTA
Model:	ADP-10SB REV.BH
Input:	100-240Vac, 0.4A, 50-60Hz
Output:	5.0Vdc, 2.0A

Brand:	SINO-AMERICAN
Model:	SAL115A-0526-6
Input:	100-240Vac, 400mA, 50-60Hz
Output:	5.0Vdc, 2.0A, 10W

5. 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

Eleven channels are provided to this 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. Form our experience and technical viewpoint, we have chose data rate 11Mbps, as the worst case for final test.
4. There are two adapters provided for the test. For conducted emission measurement test, two test results were presented in the following sections. The test result A is for adapter which brand is Delta, and the test result B is for SINO-AMERICAN. For radiated emission measurement below 1GHz test, the worst case had been found when EUT was tested with adapter Delta.
5. Since the EUT is considered a portable unit, it was pre-tested on the positioned of each 3 axis. For radiated emission measurement test will have three test modes. First one is X-axis, second one is Y-axis and the last one is Z-axis.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247)
ANSI C63.4: 2001

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

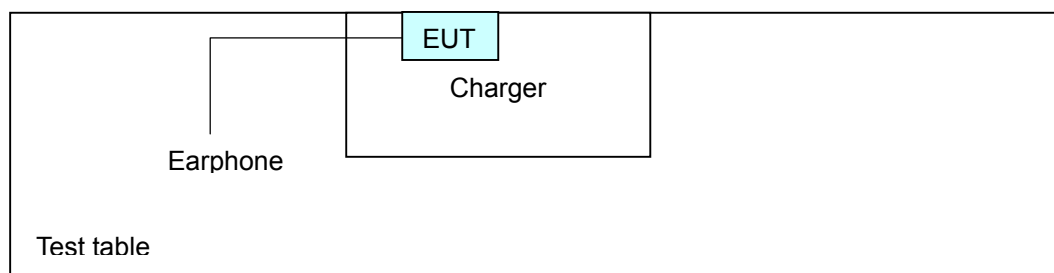
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NA	NA	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	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	100291	Dec. 12, 2004
RF signal cable Woken	5D-FB	Cable-HYC01-01	Mar. 02, 2005
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Mar. 03, 2005
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Mar. 02, 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 1.
 3. The VCCI Site Registration No. is C-2040.



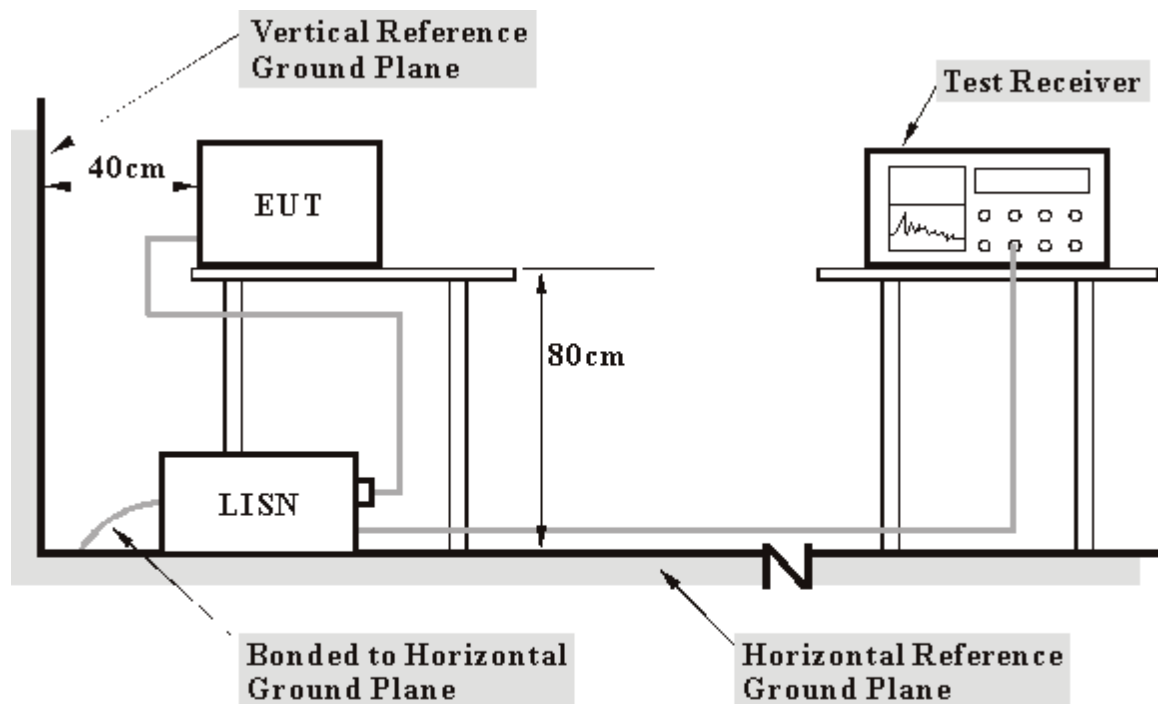
4.1.3 TEST PROCEDURES

- 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) 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

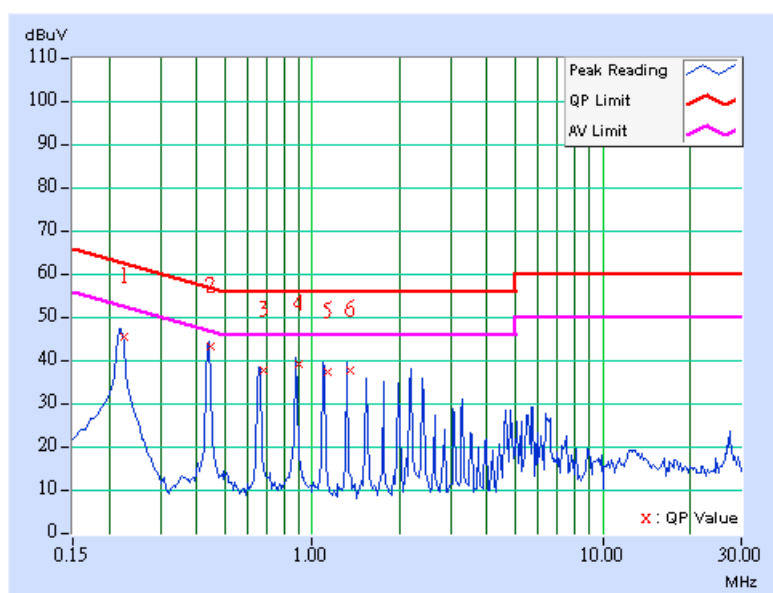
- Place the EUT on the charger with earphone.
- Ran a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS (A)

EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 1	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	DELTA
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Line (L)
TESTED BY	Steven Lu		

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	0.225	0.12	45.29	-	45.41	-	62.61	52.61	-17.20	-
2	0.448	0.13	43.15	-	43.28	-	56.91	46.91	-13.63	-
3	0.678	0.13	37.66	-	37.79	-	56.00	46.00	-18.21	-
4	0.900	0.14	39.21	-	39.35	-	56.00	46.00	-16.65	-
5	1.127	0.15	37.15	-	37.30	-	56.00	46.00	-18.70	-
6	1.350	0.15	37.71	-	37.86	-	56.00	46.00	-18.14	-

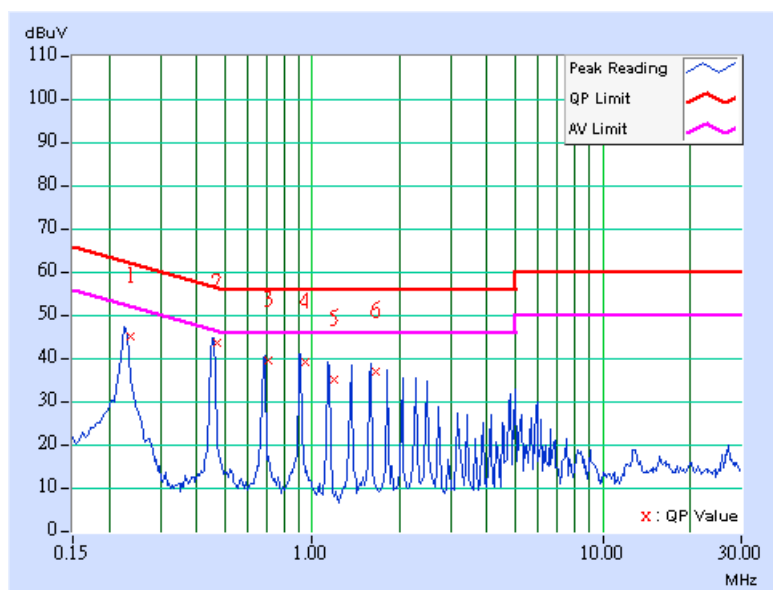
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 1	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	DELTA
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Neutral (N)
TESTED BY	Steven Lu		

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	0.236	0.11	44.95	-	45.06	-	62.24	52.24	-17.18	-
2	0.472	0.12	43.66	-	43.78	-	56.48	46.48	-12.70	-
3	0.708	0.13	39.52	-	39.65	-	56.00	46.00	-16.35	-
4	0.946	0.15	39.02	-	39.17	-	56.00	46.00	-16.83	-
5	1.190	0.15	35.01	-	35.16	-	56.00	46.00	-20.84	-
6	1.656	0.16	37.04	-	37.20	-	56.00	46.00	-18.80	-

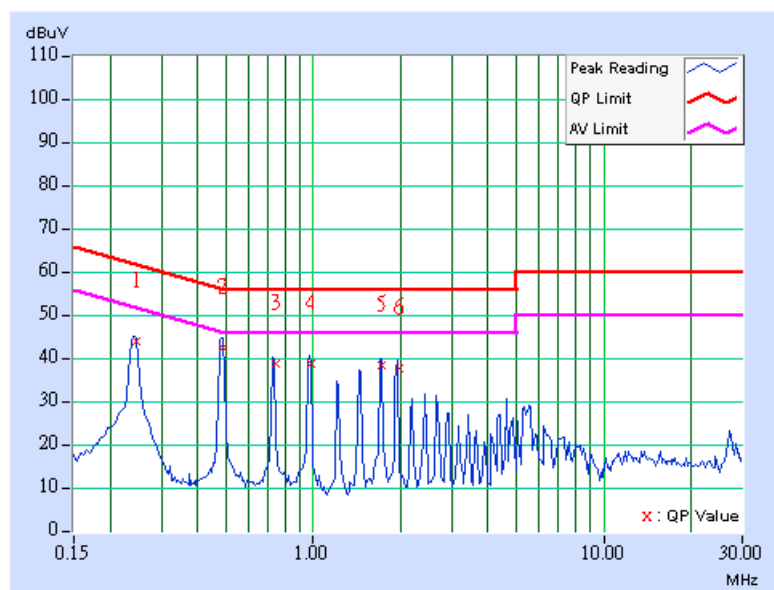
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 6	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	DELTA
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Line (L)
TESTED BY	Steven Lu		

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	0.245	0.12	43.94	-	44.06	-	61.93	51.93	-17.87	-
2	0.489	0.13	42.29	-	42.42	-	56.19	46.19	-13.77	-
3	0.742	0.14	38.64	-	38.78	-	56.00	46.00	-17.22	-
4	0.985	0.15	38.71	-	38.86	-	56.00	46.00	-17.14	-
5	1.721	0.16	38.43	-	38.59	-	56.00	46.00	-17.41	-
6	1.971	0.16	37.58	-	37.74	-	56.00	46.00	-18.26	-

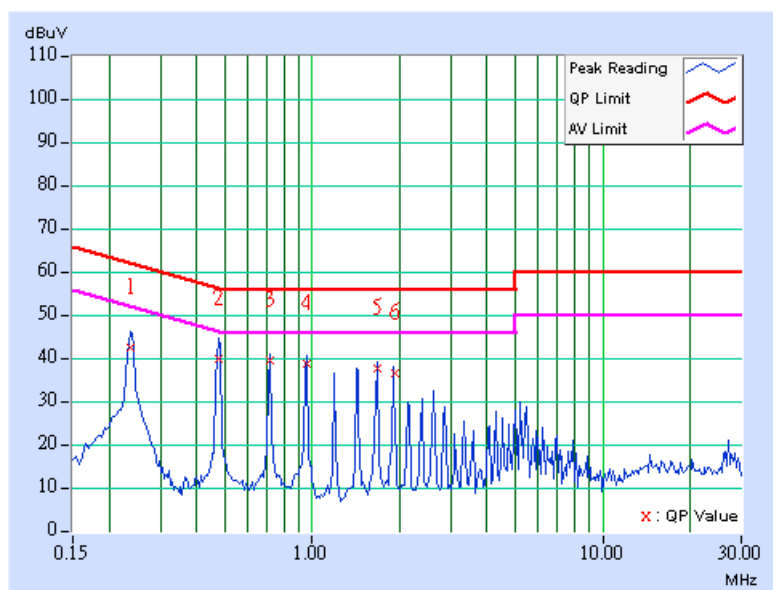
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 6	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	DELTA
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Neutral (N)
TESTED BY	Steven Lu		

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	0.236	0.11	42.37	-	42.48	-	62.24	52.24	-19.76	-
2	0.474	0.12	39.75	-	39.87	-	56.44	46.44	-16.57	-
3	0.719	0.13	39.60	-	39.73	-	56.00	46.00	-16.27	-
4	0.958	0.15	38.63	-	38.78	-	56.00	46.00	-17.22	-
5	1.680	0.16	37.61	-	37.77	-	56.00	46.00	-18.23	-
6	1.918	0.16	36.64	-	36.80	-	56.00	46.00	-19.20	-

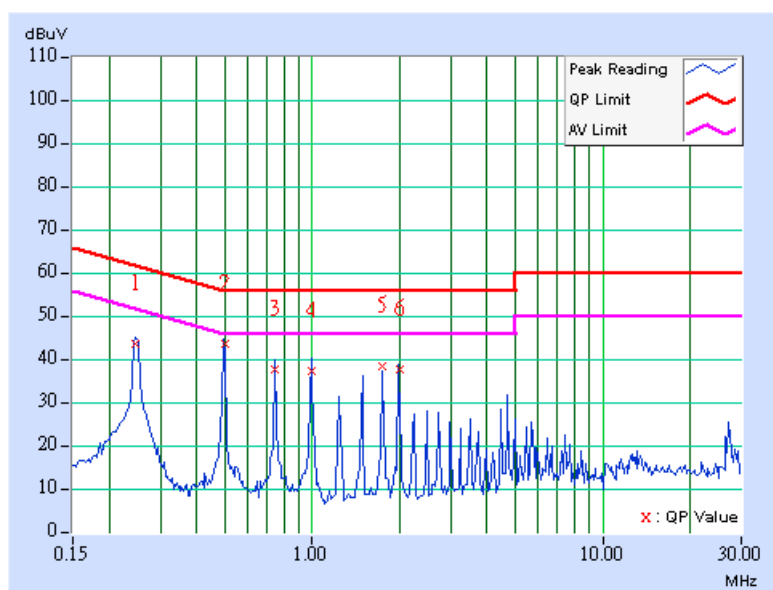
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	DELTA
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Line (L)
TESTED BY	Steven Lu		

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	0.248	0.12	43.69	-	43.81	-	61.84	51.84	-18.02	-
2	0.499	0.13	43.52	-	43.65	-	56.02	46.02	-12.38	-
3	0.747	0.14	37.62	-	37.76	-	56.00	46.00	-18.24	-
4	0.994	0.15	37.08	-	37.23	-	56.00	46.00	-18.77	-
5	1.747	0.16	38.31	-	38.47	-	56.00	46.00	-17.53	-
6	1.993	0.16	37.45	-	37.61	-	56.00	46.00	-18.39	-

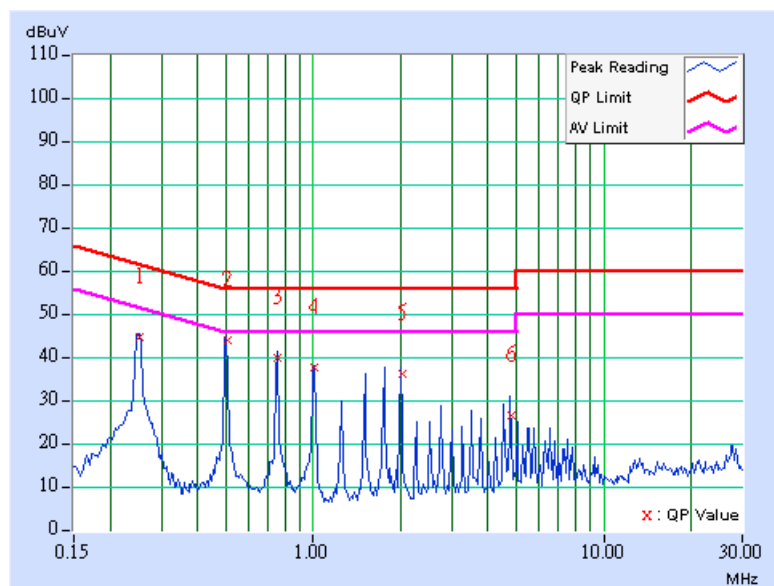
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	DELTA
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Neutral (N)
TESTED BY	Steven Lu		

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	0.252	0.11	44.58	-	44.69	-	61.70	51.70	-17.01	-
2	0.505	0.12	43.86	-	43.98	-	56.00	46.00	-12.02	-
3	0.755	0.13	39.69	-	39.82	-	56.00	46.00	-16.18	-
4	1.008	0.15	37.56	-	37.71	-	56.00	46.00	-18.29	-
5	2.017	0.16	36.08	-	36.24	-	56.00	46.00	-19.76	-
6	4.794	0.22	26.54	-	26.76	-	56.00	46.00	-29.24	-

- 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
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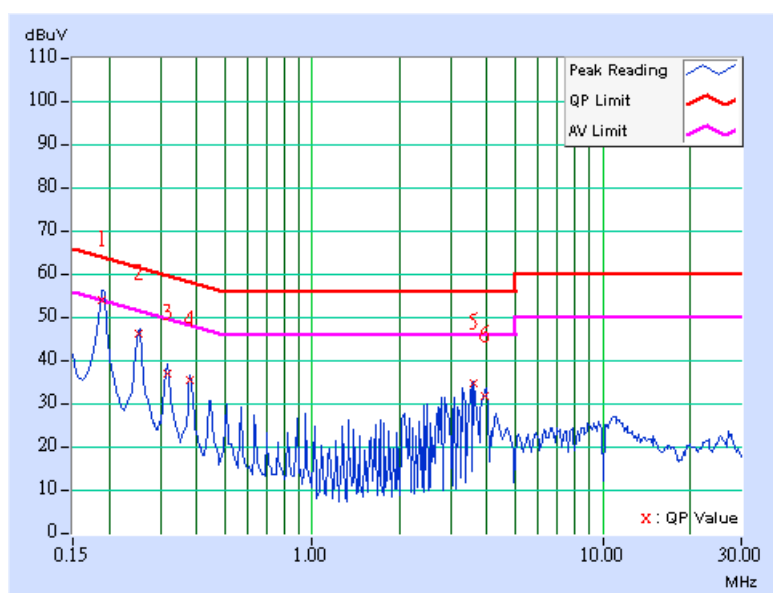


4.1.8 TEST RESULTS (B)

EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 1	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	SINO-AMEREICAN
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Line (L)
TESTED BY	Steven Lu		

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	0.189	0.12	53.88	-	54.00	-	64.08	54.08	-10.08	-
2	0.253	0.12	46.03	-	46.15	-	61.64	51.64	-15.49	-
3	0.317	0.12	36.96	-	37.08	-	59.79	49.79	-22.71	-
4	0.380	0.13	35.36	-	35.49	-	58.27	48.27	-22.78	-
5	3.612	0.20	34.56	-	34.76	-	56.00	46.00	-21.24	-
6	3.930	0.21	31.69	-	31.90	-	56.00	46.00	-24.10	-

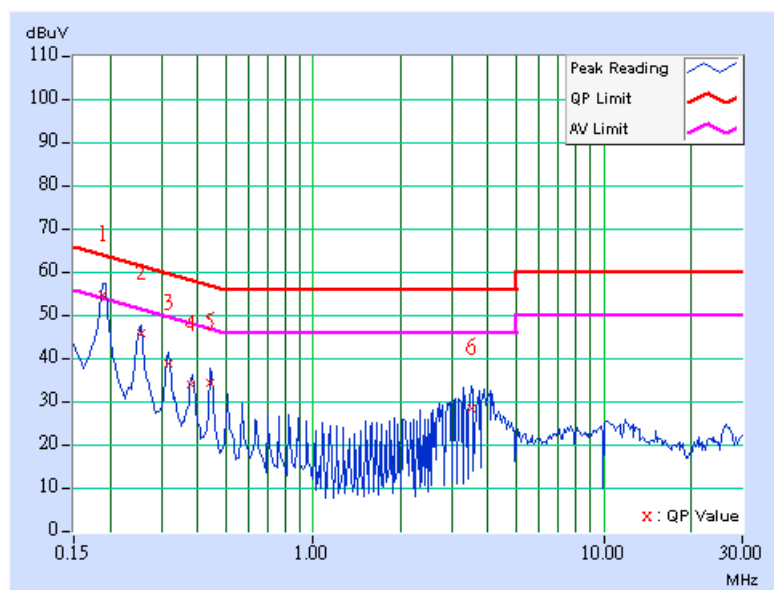
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 1	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	SINO-AMEREICAN
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Neutral (N)
TESTED BY	Steven Lu		

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	0.189	0.11	54.66	48.15	54.77	48.26	64.08	54.08	-9.31	-5.82
2	0.254	0.11	45.89	-	46.00	-	61.62	51.62	-15.62	-
3	0.318	0.11	38.74	-	38.85	-	59.76	49.76	-20.91	-
4	0.380	0.12	33.88	-	34.00	-	58.28	48.28	-24.28	-
5	0.443	0.12	34.38	-	34.50	-	57.01	47.01	-22.51	-
6	3.488	0.19	28.22	-	28.41	-	56.00	46.00	-27.59	-

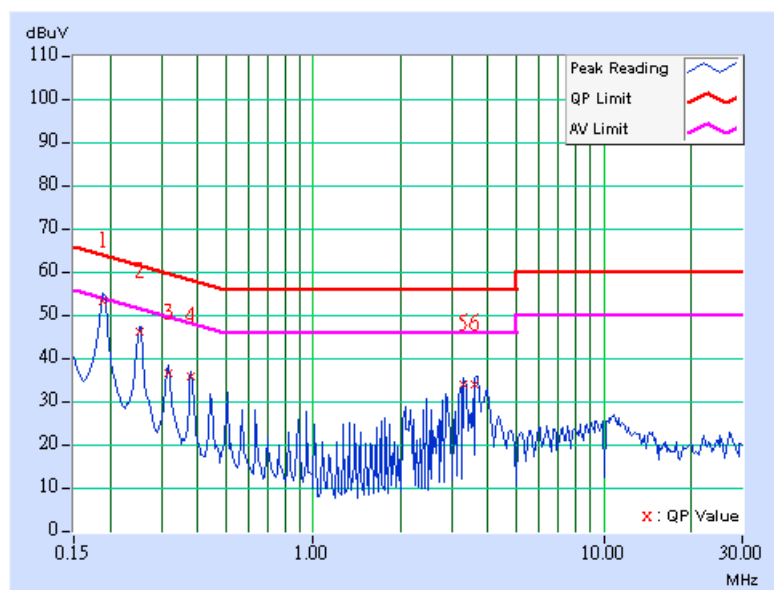
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 6	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	SINO-AMEREICAN
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Line (L)
TESTED BY	Steven Lu		

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	0.189	0.12	53.01	-	53.13	-	64.08	54.08	-10.95	-
2	0.254	0.12	46.15	-	46.27	-	61.62	51.62	-15.35	-
3	0.317	0.12	36.51	-	36.63	-	59.80	49.80	-23.16	-
4	0.380	0.13	35.55	-	35.68	-	58.27	48.27	-22.59	-
5	3.293	0.19	33.72	-	33.91	-	56.00	46.00	-22.09	-
6	3.609	0.20	33.88	-	34.08	-	56.00	46.00	-21.92	-

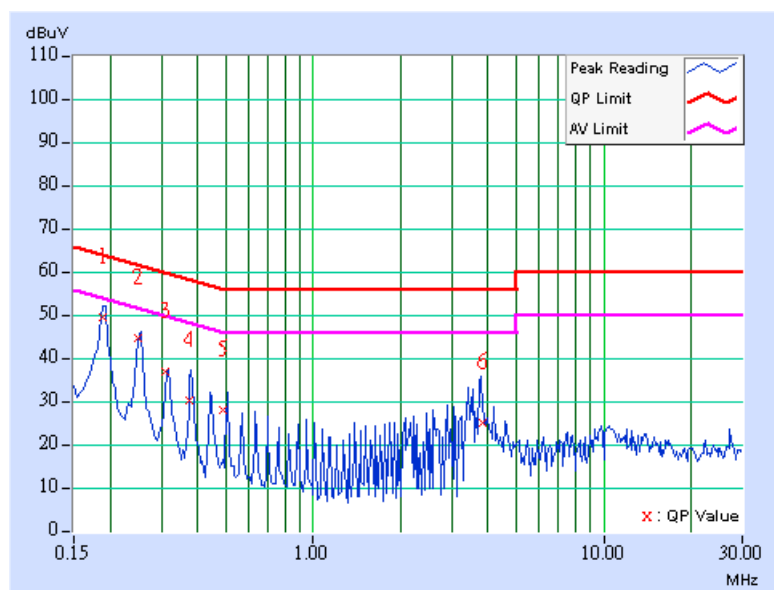
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 6	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	SINO-AMEREICAN
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Neutral (N)
TESTED BY	Steven Lu		

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	0.189	0.11	49.60	-	49.71	-	64.08	54.08	-14.37	-
2	0.250	0.11	44.76	-	44.87	-	61.75	51.75	-16.88	-
3	0.310	0.11	36.89	-	37.00	-	59.97	49.97	-22.97	-
4	0.373	0.12	30.17	-	30.29	-	58.44	48.44	-28.15	-
5	0.489	0.12	27.91	-	28.03	-	56.19	46.19	-28.16	-
6	3.814	0.20	25.05	-	25.25	-	56.00	46.00	-30.75	-

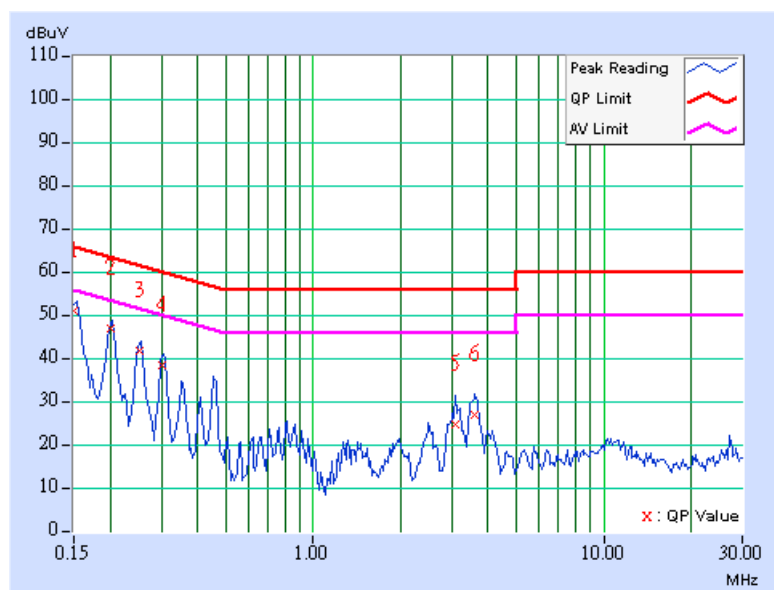
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	SINO-AMEREICAN
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Line (L)
TESTED BY	Steven Lu		

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	0.150	0.11	50.74	-	50.85	-	66.00	56.00	-15.15	-
2	0.202	0.12	46.95	-	47.07	-	63.54	53.54	-16.47	-
3	0.251	0.12	41.63	-	41.75	-	61.71	51.71	-19.96	-
4	0.302	0.12	38.19	-	38.31	-	60.19	50.19	-21.88	-
5	3.098	0.19	24.62	-	24.81	-	56.00	46.00	-31.19	-
6	3.605	0.20	26.90	-	27.10	-	56.00	46.00	-28.90	-

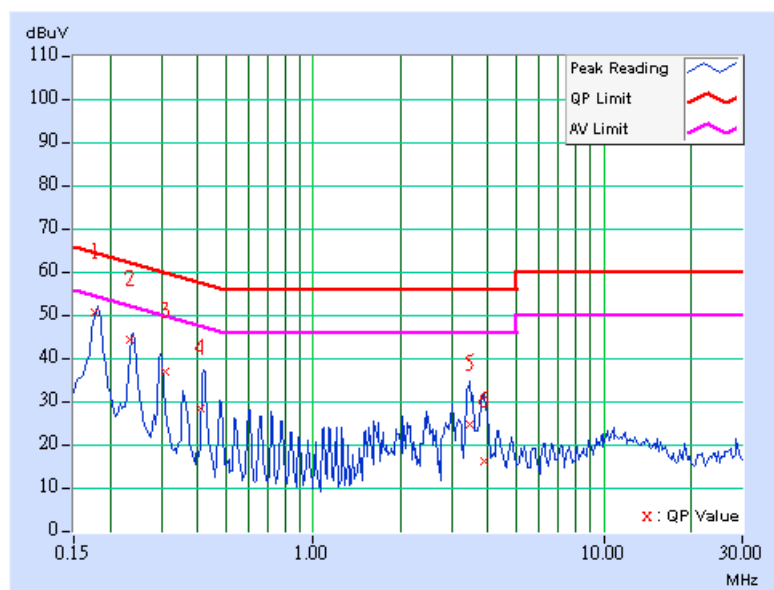
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	ADAPTER	SINO-AMEREICAN
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 991 hPa	PHASE	Neutral (N)
TESTED BY	Steven Lu		

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	0.176	0.11	50.56	-	50.67	-	64.66	54.66	-14.00	-
2	0.235	0.11	44.17	-	44.28	-	62.29	52.29	-18.01	-
3	0.309	0.11	36.99	-	37.10	-	60.01	50.01	-22.90	-
4	0.409	0.12	28.18	-	28.30	-	57.67	47.67	-29.38	-
5	3.469	0.19	24.80	-	24.99	-	56.00	46.00	-31.01	-
6	3.891	0.20	16.14	-	16.34	-	56.00	46.00	-39.66	-

- 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.



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 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	Dec. 15, 2004
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	Jan. 15, 2005
Preamplifier Agilent	8449B	3008A01960	Jan. 22, 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 PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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.

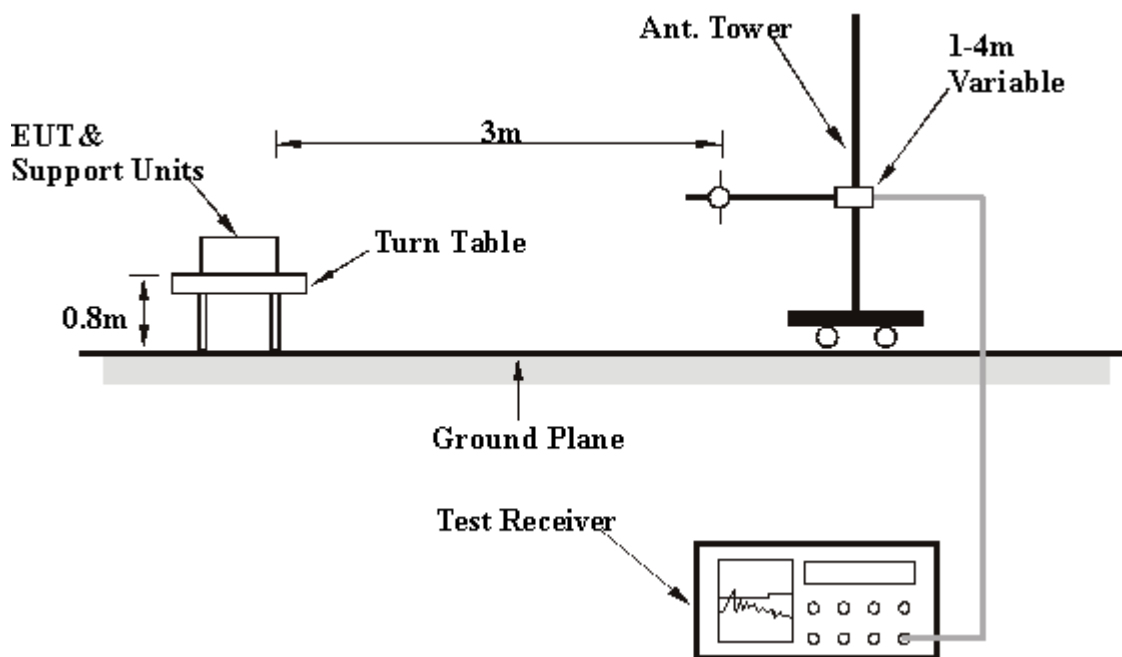
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and 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

Same as 4.1.6

4.2.7 TEST RESULTS

For X-Axis

EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	TEST MODE	X-Axis
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 64 % RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Allen Chang		

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	111.64	24.85 QP	43.50	-18.65	3.00 H	274	12.81	12.05
2	197.17	25.51 QP	43.50	-17.99	1.50 H	121	14.01	11.50
3	387.68	34.00 QP	46.00	-12.00	1.00 H	232	17.57	16.43
4	424.61	30.51 QP	46.00	-15.49	1.00 H	55	13.15	17.36
5	461.54	32.68 QP	46.00	-13.32	2.00 H	64	14.55	18.13
6	500.42	28.06 QP	46.00	-17.94	2.00 H	64	9.48	18.58
7	574.29	32.94 QP	46.00	-13.06	1.50 H	103	12.82	20.13
8	762.85	26.97 QP	46.00	-19.03	1.00 H	124	3.68	23.30

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	53.33	20.59 QP	40.00	-19.41	2.00 V	139	6.32	14.27
2	113.59	19.87 QP	43.50	-23.63	2.50 V	25	7.63	12.23
3	249.66	18.17 QP	46.00	-27.83	1.50 V	232	5.06	13.11
4	449.88	30.80 QP	46.00	-15.20	2.50 V	115	12.80	18.00
5	461.54	33.08 QP	46.00	-12.92	2.00 V	127	14.95	18.13
6	486.81	28.51 QP	46.00	-17.49	1.00 V	304	10.09	18.42
7	574.29	28.17 QP	46.00	-17.83	1.50 V	145	8.04	20.13
8	951.40	26.39 QP	46.00	-19.61	4.00 V	217	1.05	25.33

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 1	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TEST MODE	X-Axis
TESTED BY	Allen Chang		

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	2374.40	53.26 PK	74.00	-20.74	1.08 H	193	19.51	33.75
1	2374.40	48.91 AV	54.00	-5.09	1.08 H	193	15.16	33.75
2	*2412.00	106.26 PK			1.08 H	193	72.33	33.93
2	*2412.00	101.91 AV			1.08 H	193	67.98	33.93
3	4824.00	52.21 PK	74.00	-21.79	1.58 H	20	11.55	40.66
3	4824.00	40.00 AV	54.00	-14.00	1.58 H	20	-0.66	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	2374.40	42.34 PK	74.00	-31.66	1.47 V	260	8.59	33.75
1	2374.40	37.92 AV	54.00	-16.08	1.47 V	260	4.17	33.75
2	*2412.00	95.34 PK			1.47 V	260	61.41	33.93
2	*2412.00	90.92 AV			1.47 V	260	56.99	33.93
3	4824.00	52.80 PK	74.00	-21.20	1.26 V	57	12.14	40.66
3	4824.00	41.03 AV	54.00	-12.97	1.26 V	57	0.37	40.66

REMARKS:

1. Emission level (dBuV/m) = Raw Value(dBuV) + Correction Factor (dB).
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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 6	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TEST MODE	X-Axis
TESTED BY	Allen Chang		

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	*2437.00	105.95 PK			1.32 H	116	71.90	34.05
1	*2437.00	101.43 AV			1.32 H	116	67.38	34.05
2	4874.00	55.37 PK	74.00	-18.63	1.41 H	260	14.68	40.69
2	4874.00	48.88 AV	54.00	-5.12	1.41 H	260	8.19	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	*2437.00	102.02 PK			1.63 V	157	67.97	34.05
1	2437.00	97.52 AV			1.63 V	157	63.47	34.05
2	4874.00	53.11 PK	74.00	-20.89	1.43 V	251	12.42	40.69
2	4874.00	41.90 AV	54.00	-12.10	1.43 V	251	1.21	40.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value(dBuV) + Correction Factor (dB).
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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64 % RH, 991 hPa	TEST MODE	X-Axis
TESTED BY	Allen Chang		

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	*2462.00	105.18 PK			1.05 H	194	71.02	34.16
1	*2462.00	100.68 AV			1.05 H	194	66.52	34.16
2	2483.50	51.77 PK	74.00	-22.23	1.05 H	194	17.51	34.26
2	2483.50	47.27 AV	54.00	-6.73	1.05 H	194	13.01	34.26
3	4924.00	51.35 PK	74.00	-22.65	1.00 H	0	10.49	40.86
3	4924.00	40.29 AV	54.00	-13.71	1.00 H	0	-0.57	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	*2462.00	98.53 PK			1.64 V	184	64.37	34.16
1	*2462.00	94.09 AV			1.64 V	184	59.93	34.16
2	2483.50	45.12 PK	74.00	-28.88	1.64 V	184	10.86	34.26
2	2483.50	40.68 AV	54.00	-13.32	1.64 V	184	6.42	34.26
3	4924.00	53.43 PK	74.00	-20.57	1.02 V	288	12.57	40.86
3	4924.00	45.78 AV	54.00	-8.22	1.02 V	288	4.92	40.86

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

For Y-Axis

EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	TEST MODE	Y-Axis
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 64 % RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Allen Chang		

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	109.70	24.46 QP	43.50	-19.04	2.50 H	172	12.61	11.86
2	162.18	25.77 QP	43.50	-17.73	2.00 H	202	11.05	14.72
3	399.34	27.12 QP	46.00	-18.88	1.00 H	322	10.41	16.71
4	449.88	29.42 QP	46.00	-16.58	2.50 H	55	11.42	18.00
5	512.08	28.16 QP	46.00	-17.84	1.50 H	61	9.37	18.79
6	550.96	31.33 QP	46.00	-14.67	1.50 H	79	11.84	19.49
7	574.29	29.00 QP	46.00	-17.00	1.50 H	73	8.87	20.13
8	599.56	27.68 QP	46.00	-18.32	1.50 H	91	6.86	20.82
9	920.30	25.55 QP	46.00	-20.45	1.00 H	277	0.53	25.02

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	53.33	21.41 QP	40.00	-18.59	2.00 V	355	7.14	14.27
2	162.18	19.63 QP	43.50	-23.87	2.50 V	115	4.92	14.72
3	249.66	18.45 QP	46.00	-27.55	1.50 V	199	5.34	13.11
4	412.95	25.19 QP	46.00	-20.81	2.50 V	25	8.13	17.06
5	461.54	26.82 QP	46.00	-19.18	2.00 V	184	8.69	18.13
6	525.69	26.62 QP	46.00	-19.38	2.00 V	148	7.59	19.03
7	599.56	23.04 QP	46.00	-22.96	1.00 V	85	2.22	20.82
8	902.81	33.82 QP	46.00	-12.18	4.00 V	10	8.98	24.84
9	943.63	25.76 QP	46.00	-20.24	4.00 V	82	0.49	25.26

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 1	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TEST MODE	Y-Axis
TESTED BY	Allen Chang		

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	2374.40	52.25 PK	74.00	-21.75	1.34 H	121	18.50	33.75
1	2374.40	47.85 AV	54.00	-6.15	1.34 H	121	14.10	33.75
2	*2412.00	106.15 PK			1.34 H	121	72.22	33.93
2	*2412.00	101.75 AV			1.34 H	121	67.82	33.93
3	4824.00	54.60 PK	74.00	-19.40	1.42 H	269	13.94	40.66
3	4824.00	47.56 AV	54.00	-6.44	1.42 H	269	6.90	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	2374.40	47.65 PK	74.00	-26.35	1.66 V	170	13.90	33.75
1	2374.40	43.28 AV	54.00	-10.72	1.66 V	170	9.53	33.75
2	*2412.00	101.55 PK			1.66 V	170	67.62	33.93
2	*2412.00	97.18 AV			1.66 V	170	63.25	33.93
3	4824.00	52.61 PK	74.00	-21.39	1.57 V	52	11.95	40.66
3	4824.00	39.69 AV	54.00	-14.31	1.57 V	52	-0.97	40.66

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 6	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TEST MODE	Y-Axis
TESTED BY	Allen Chang		

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	*2437.00	106.27 PK			1.31 H	117	72.22	34.05
1	*2437.00	101.80 AV			1.31 H	117	67.75	34.05
2	4874.00	51.51 PK	74.00	-22.49	1.24 H	12	10.82	40.69
2	4874.00	37.52 AV	54.00	-16.48	1.24 H	12	-3.17	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	*2437.00	100.38 PK			1.68 V	164	66.33	34.05
1	*2437.00	95.89 AV			1.68 V	164	61.84	34.05
2	4874.00	53.54 PK	74.00	-20.46	1.21 V	339	12.85	40.69
2	4874.00	44.19 AV	54.00	-9.81	1.21 V	339	3.50	40.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64 % RH, 991 hPa	TEST MODE	Y-Axis
TESTED BY	Allen Chang		

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	*2462.00	105.19 PK			1.05 H	119	71.03	34.16
1	*2462.00	100.71 AV			1.05 H	119	66.55	34.16
2	2483.50	51.28 PK	74.00	-22.72	1.05 H	119	17.02	34.26
2	2483.50	46.80 AV	54.00	-7.20	1.05 H	119	12.54	34.26
3	4924.00	53.70 PK	74.00	-20.30	1.35 H	314	12.84	40.86
3	4924.00	46.22 AV	54.00	-7.78	1.35 H	314	5.36	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	*2462.00	100.73 PK			1.62 V	149	66.57	34.16
1	*2462.00	96.23 AV			1.62 V	149	62.07	34.16
2	2483.50	46.82 PK	74.00	-27.18	1.62 V	149	12.56	34.26
2	2483.50	42.32 AV	54.00	-11.68	1.62 V	149	8.06	34.26
3	4924.00	52.85 PK	74.00	-21.15	1.56 V	260	11.99	40.86
3	4924.00	42.40 AV	54.00	-11.60	1.56 V	260	1.54	40.86

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

For Z-Axis

EUT	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	TEST MODE	Z-Axis
INPUT POWER (SYSTEM)	120Vac, 60 Hz	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 64 % RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Allen Chang		

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	111.64	26.87 QP	43.50	-16.63	2.00 H	184	14.83	12.05
2	162.18	28.03 QP	43.50	-15.47	2.00 H	37	13.31	14.72
3	399.34	27.44 QP	46.00	-18.56	1.00 H	334	10.72	16.71
4	412.95	28.77 QP	46.00	-17.23	1.00 H	331	11.72	17.06
5	438.22	31.25 QP	46.00	-14.75	2.00 H	235	13.55	17.70
6	461.54	30.23 QP	46.00	-15.77	2.00 H	70	12.10	18.13
7	486.81	28.36 QP	46.00	-17.64	2.00 H	226	9.94	18.42
8	525.69	33.58 QP	46.00	-12.42	1.50 H	118	14.56	19.03
9	550.96	30.86 QP	46.00	-15.14	1.50 H	109	11.37	19.49
10	574.29	27.69 QP	46.00	-18.31	1.50 H	247	7.57	20.13

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	53.33	21.04 QP	40.00	-18.96	1.50 V	43	6.77	14.27
2	249.66	20.75 QP	46.00	-25.25	1.00 V	208	7.65	13.11
3	438.22	28.90 QP	46.00	-17.10	2.00 V	190	11.20	17.70
4	449.88	28.07 QP	46.00	-17.93	2.00 V	190	10.08	18.00
5	461.54	27.40 QP	46.00	-18.60	1.00 V	340	9.27	18.13
6	525.69	31.26 QP	46.00	-14.74	1.50 V	166	12.23	19.03
7	550.96	28.83 QP	46.00	-17.17	1.00 V	214	9.34	19.49
8	574.29	26.27 QP	46.00	-19.73	1.00 V	337	6.15	20.13
9	861.98	25.97 QP	46.00	-20.03	2.00 V	133	1.84	24.13
10	908.64	31.58 QP	46.00	-14.42	4.00 V	40	6.68	24.90

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 1	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TEST MODE	Z-Axis
TESTED BY	Allen Chang		

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	2374.40	45.28 PK	74.00	-28.72	1.21 H	46	11.53	33.75
1	2374.40	40.86 AV	54.00	-13.14	1.21 H	46	7.11	33.75
2	*2412.00	99.31 PK			1.21 H	46	65.38	33.93
2	*2412.00	94.89 AV			1.21 H	46	60.96	33.93
3	4824.00	52.73 PK	74.00	-21.27	1.20 H	184	12.07	40.66
3	4824.00	41.17 AV	54.00	-12.83	1.20 H	184	0.51	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	2374.40	49.47 PK	74.00	-24.53	1.58 V	3	15.72	33.75
1	2374.40	45.07 AV	54.00	-8.93	1.58 V	3	11.32	33.75
2	*2412.00	103.50 PK			1.58 V	3	69.57	33.93
2	*2412.00	99.10 AV			1.58 V	3	65.17	33.93
3	4824.00	55.28 PK	74.00	-18.72	1.58 V	148	14.62	40.66
3	4824.00	48.52 AV	54.00	-5.48	1.58 V	148	7.86	40.66

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 6	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TEST MODE	Z-Axis
TESTED BY	Allen Chang		

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	*2437.00	97.80 PK			1.17 H	221	63.75	34.05
1	*2437.00	93.32 AV			1.17 H	221	59.27	34.05
2	4874.00	52.55 PK	74.00	-21.45	1.29 H	93	11.86	40.69
2	4874.00	42.58 AV	54.00	-11.42	1.29 H	93	1.89	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	*2437.00	97.18 PK			1.22 V	356	63.13	34.05
1	*2437.00	92.65 AV			1.22 V	356	58.60	34.05
2	4874.00	52.60 PK	74.00	-21.40	1.38 V	92	11.91	40.69
2	4874.00	42.72 AV	54.00	-11.28	1.38 V	92	2.03	40.69

REMARKS:

- 1.Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
- 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	WLAN IP Phone	MODEL	DB-6645
MODE	Channel 11	FREQUENCY RANGE	1 ~ 20GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64 % RH, 991 hPa	TEST MODE	Z-Axis
TESTED BY	Allen Chang		

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	*2462.00	96.77 PK			1.00 H	23	62.61	34.16
1	*2462.00	92.22 AV			1.00 H	23	58.06	34.16
2	2483.50	44.90 PK	74.00	-29.10	1.00 H	23	10.64	34.26
2	2483.50	40.35 AV	54.00	-13.65	1.00 H	23	6.09	34.26
3	4924.00	53.37 PK	74.00	-20.63	1.06 H	181	12.51	40.86
3	4924.00	44.15 AV	54.00	-9.85	1.06 H	181	3.29	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	*2462.00	101.91 PK			1.25 V	347	67.75	34.16
1	*2462.00	97.49 AV			1.25 V	347	63.33	34.16
2	2483.50	50.04 PK	74.00	-23.96	1.25 V	347	15.78	34.26
2	2483.50	45.62 AV	54.00	-8.38	1.25 V	347	11.36	34.26
3	4924.00	55.75 PK	74.00	-18.25	1.34 V	157	14.89	40.86
3	4924.00	49.96 AV	54.00	-4.04	1.34 V	157	9.10	40.86

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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	FSEK30	100049	Aug. 12, 2005

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

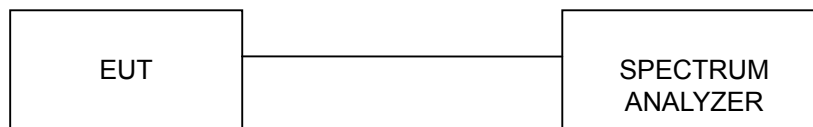
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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

4.3.6 EUT OPERATING CONDITIONS

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

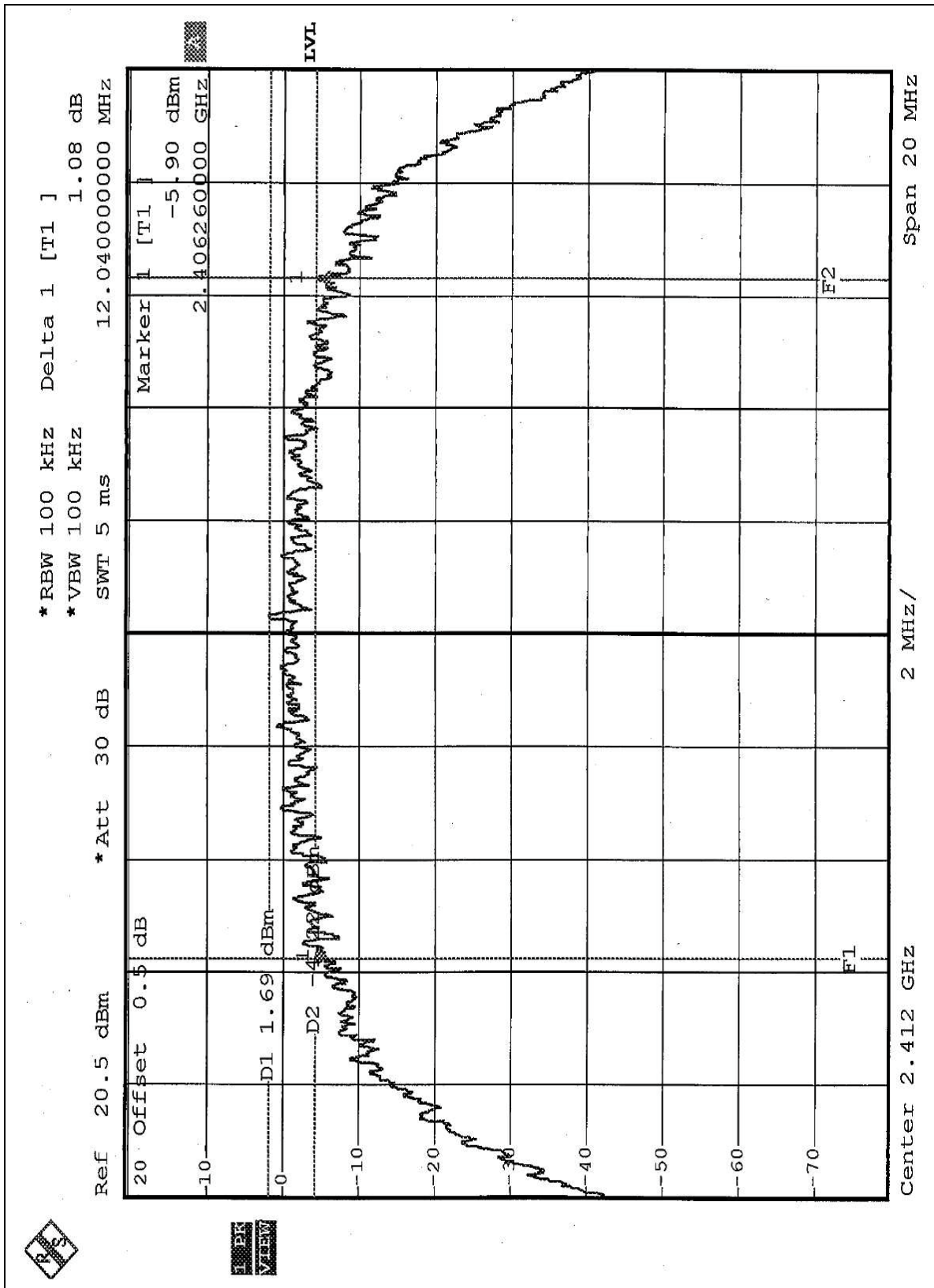


4.3.7 TEST RESULTS

EUT	WLAN IP Phone	MODEL	DB-6645
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20 deg. C, 62%RH, 991 hPa
TESTED BY: Hardaway Lee			

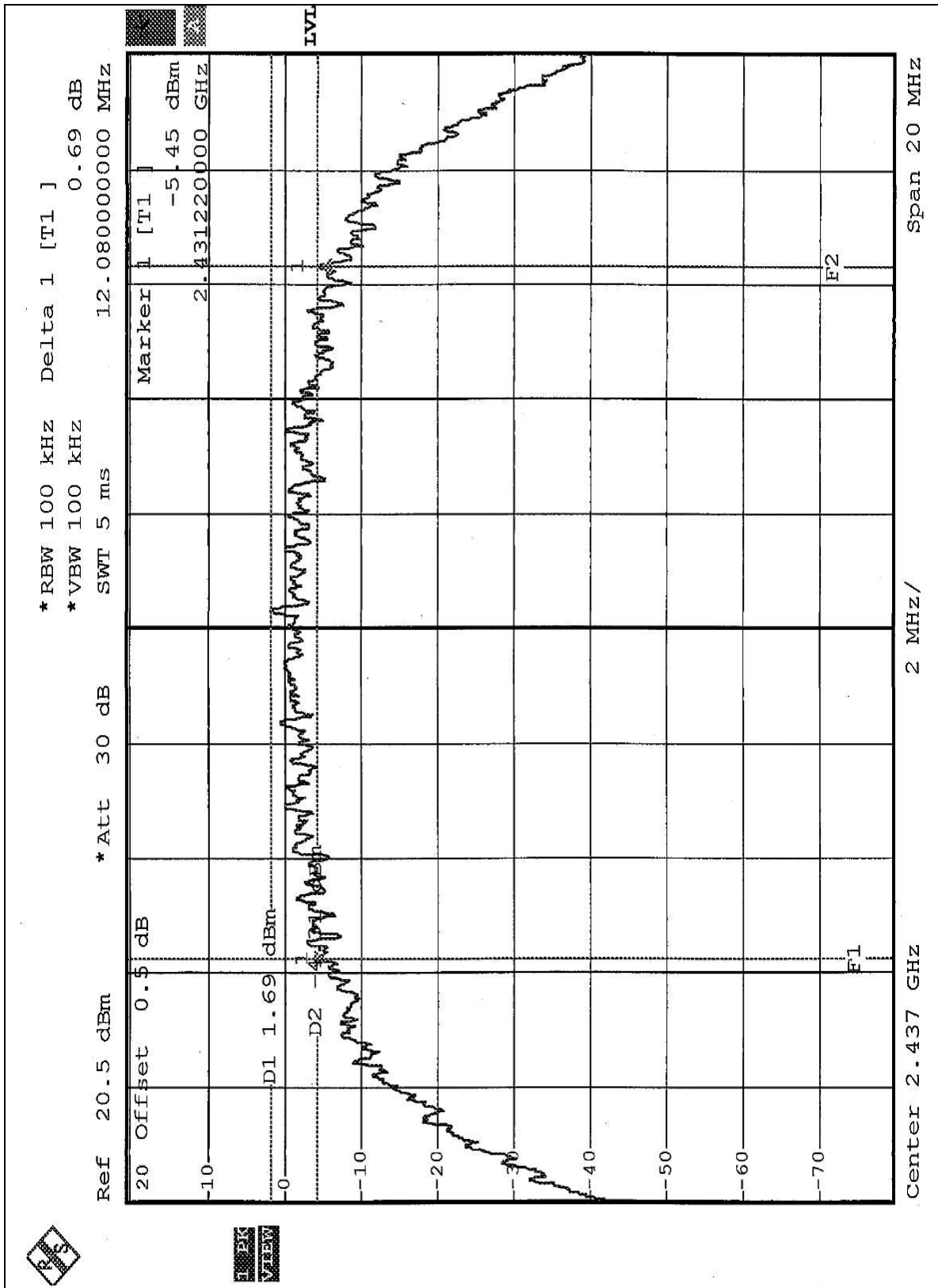
CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.04	0.5	PASS
6	2437	12.08	0.5	PASS
11	2462	11.32	0.5	PASS

CH1

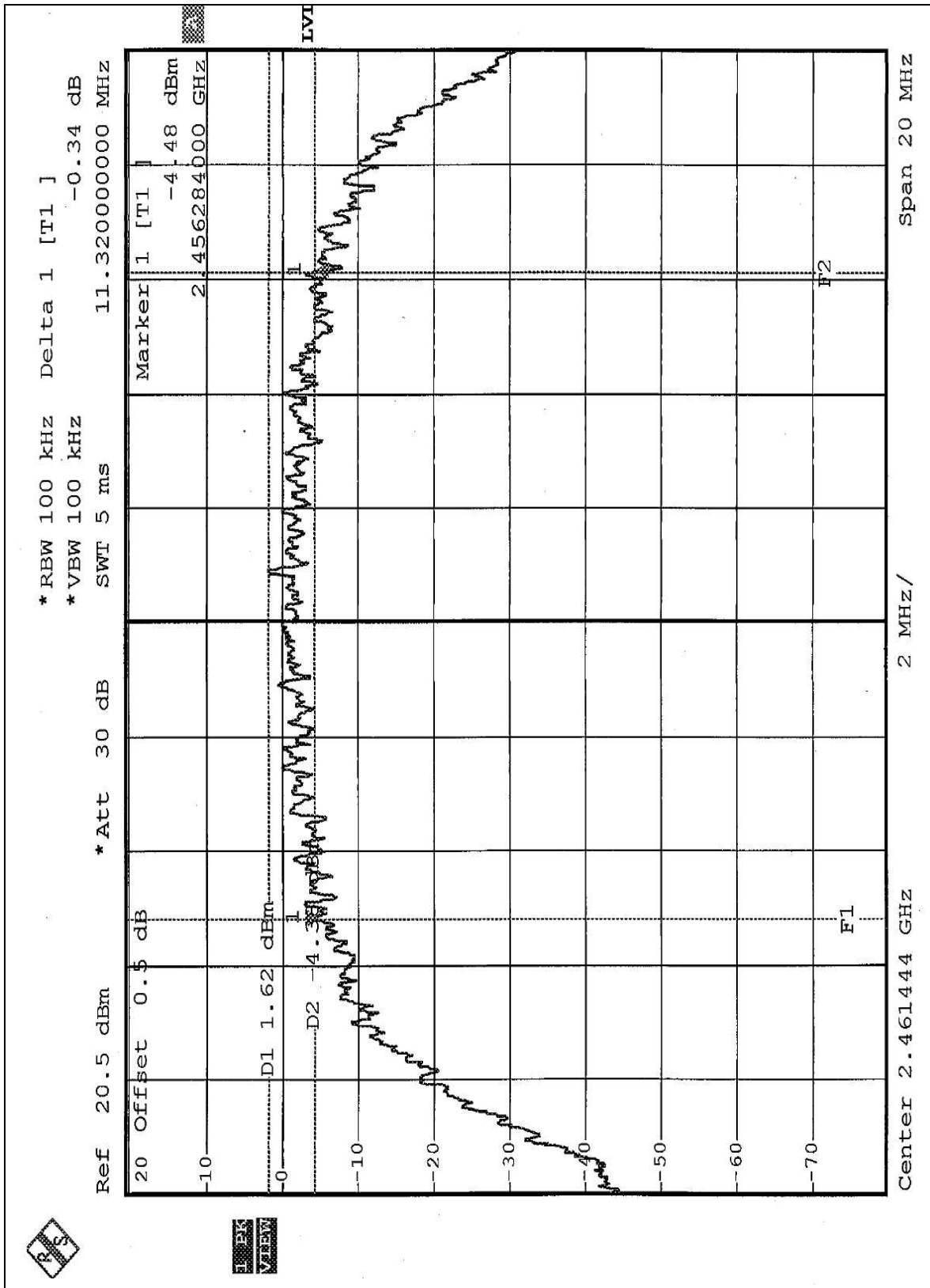




CH6



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
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 31, 2004
TEKTRONIX OSCILLOSCOPE	TDS 1012	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.

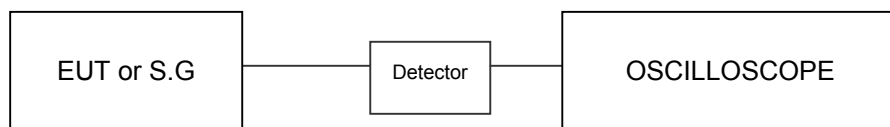
4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the 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 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 CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

EUT	WLAN IP Phone	MODEL	DB-6645
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20 deg. C, 62%RH, 991 hPa
TESTED BY: Stanely Hsu			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	13.92	30	PASS
6	2437	13.99	30	PASS
11	2462	13.92	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	FSEK30	100049	Aug. 12, 2005

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

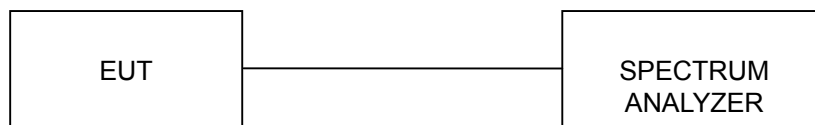
4.5.3 TEST PROCEDURE

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 3 kHz RBW and 30 kHz 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 CONDITIONS

Same as 4.3.6

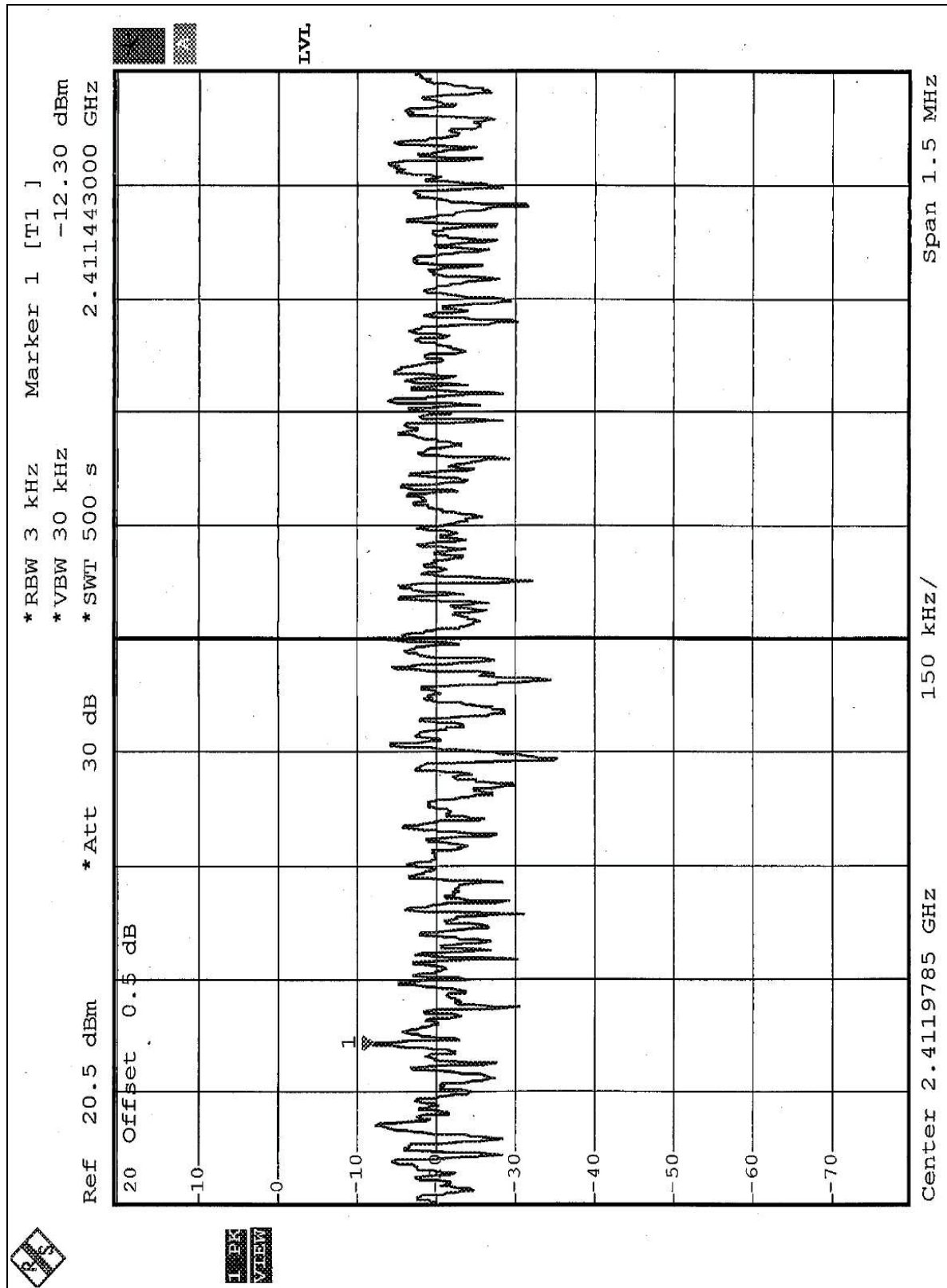


4.5.7 TEST RESULTS

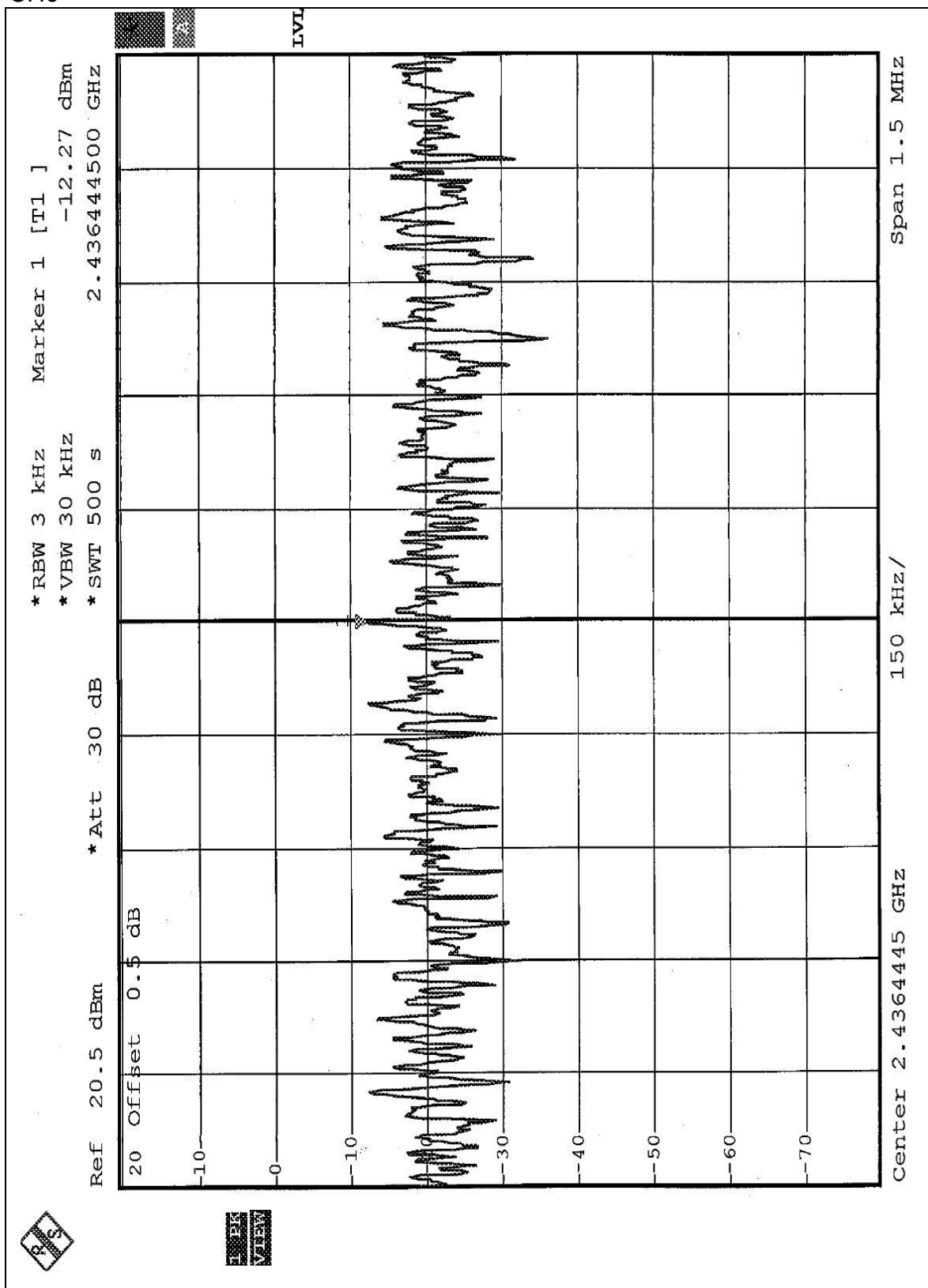
EUT	WLAN IP Phone	MODEL	DB-6645
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20 deg. C, 62%RH, 991 hPa
TESTED BY: Stanely Hsu			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-12.30	8	PASS
6	2437	-12.27	8	PASS
11	2462	-12.34	8	PASS

CH1



CH6



Ref 20.5 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1] -12.34 dBm 2.461444000 GHz

20 Offset 0.5 dB

10

0

-10

-30

-40

-50

-60

-70

Center 2.461444 GHz 150 kHz/ Span 1.5 MHz

1 PK
VIEW

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	FSEK30	100049	Aug. 12, 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.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6



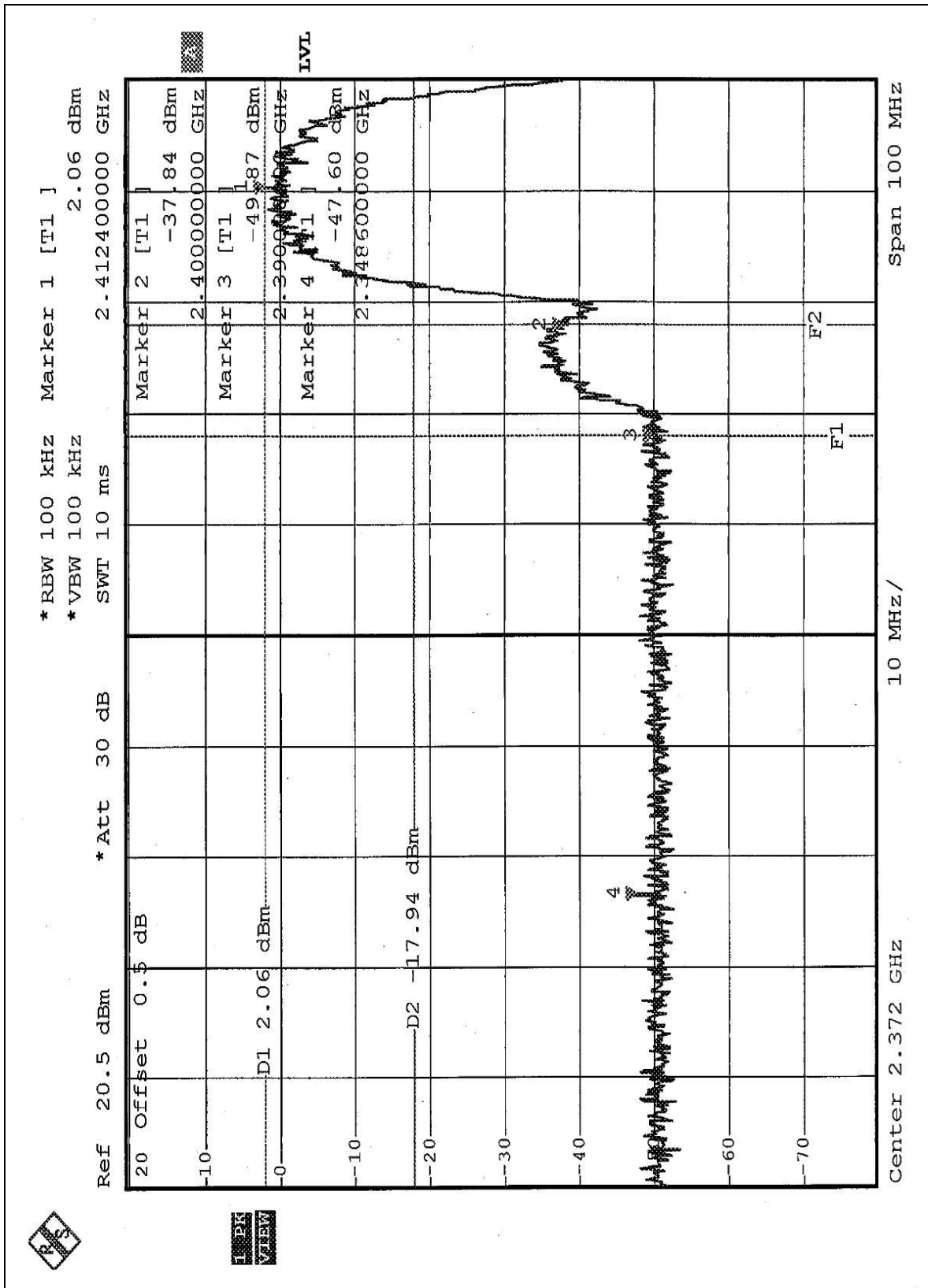
4.6.6 TEST RESULTS

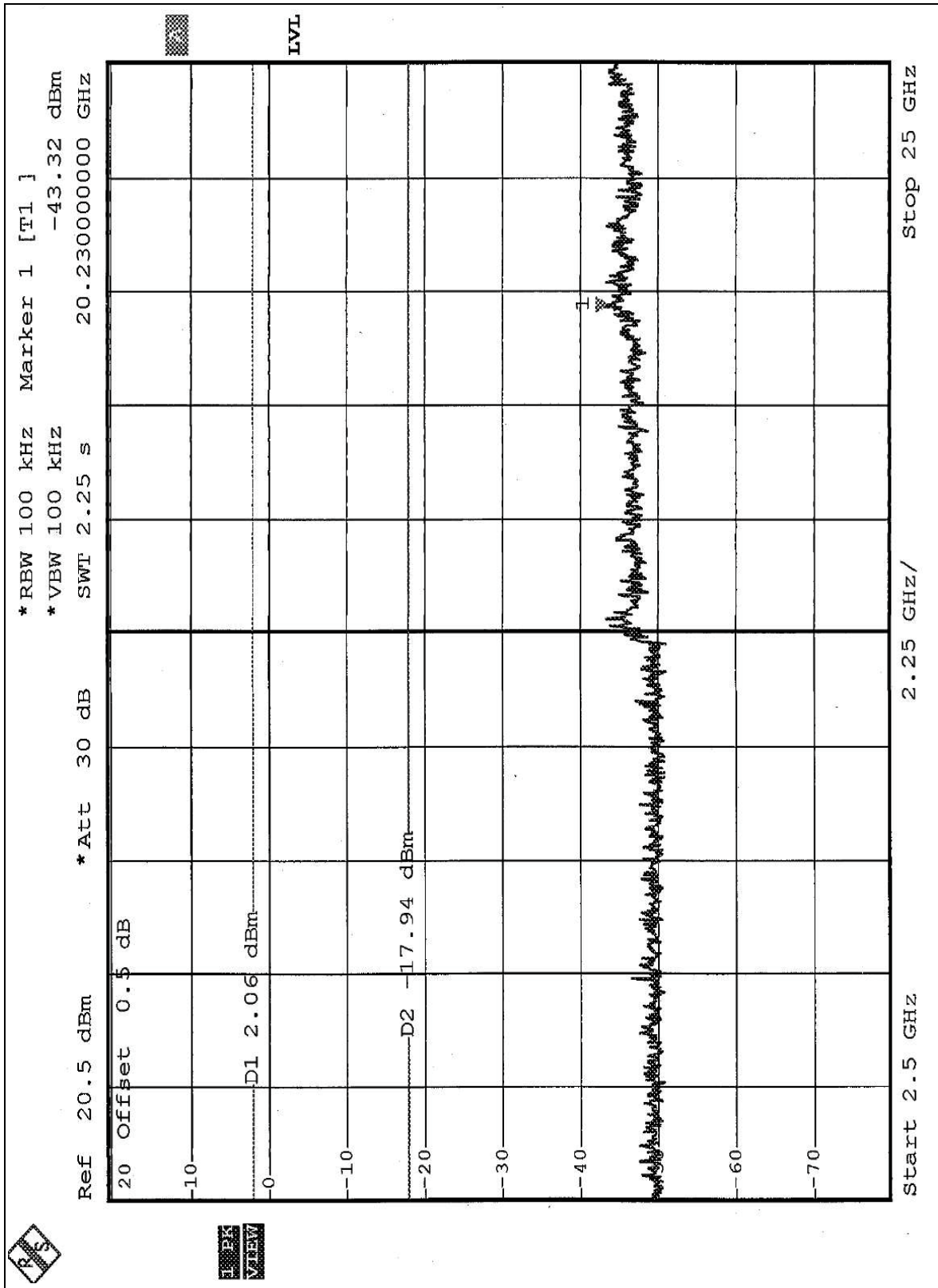
The spectrum plots are attached on the following 4 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

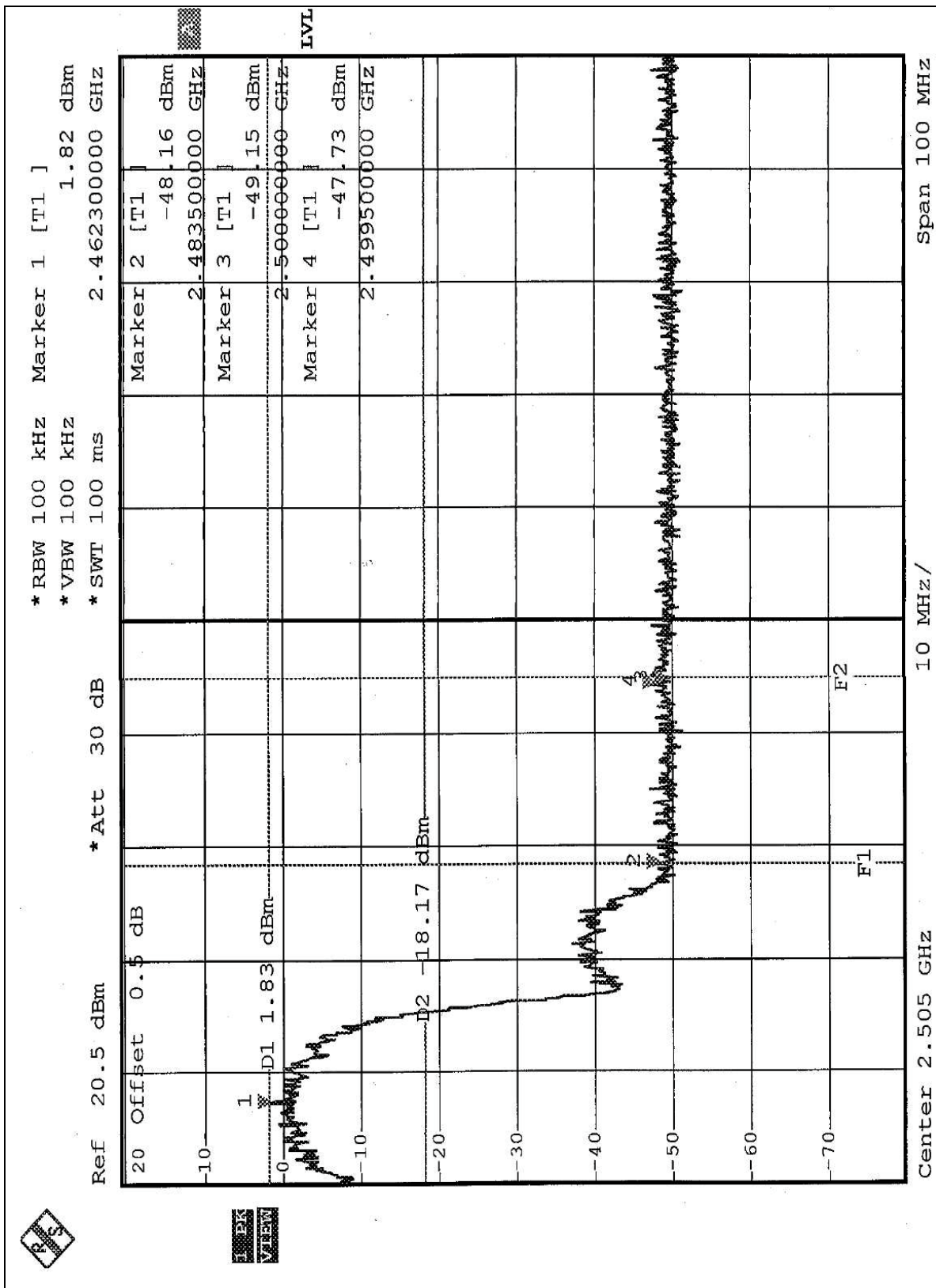
NOTE:

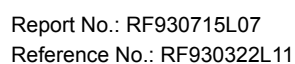
The band edge emission plots on the following 1 ~ 2 pages show 51.93dB delta between carrier maximum power and local maximum emissions in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 101.75dBuV/m, so the maximum field strength in restrict band is $101.75 - 51.93 = 49.82\text{dBuV/m}$ which is under 54 dBuV/m limit.

The band edge emission plots on the following 3 ~ 4 pages show 49.99dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 100.71dBuV/m, so the maximum field strength in restrict band is $100.71 - 49.99 = 50.72\text{dBuV/m}$ which is under 54 dBuV/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 CONSINO-AMEREICANTED CONSTRUCTION

The antenna used in this product is Chip embedded antenna without antenna connector. And the maximum Gain of this antenna is 0dBi only.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

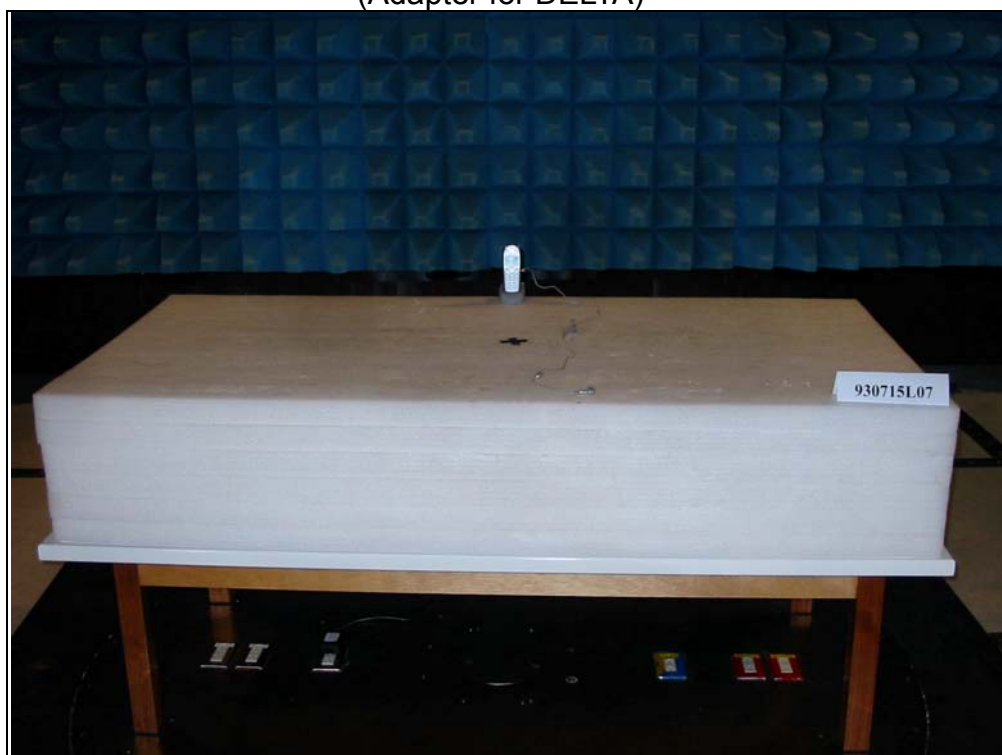
CONDUCTED EMISSION TEST (Adapter for DELTA)



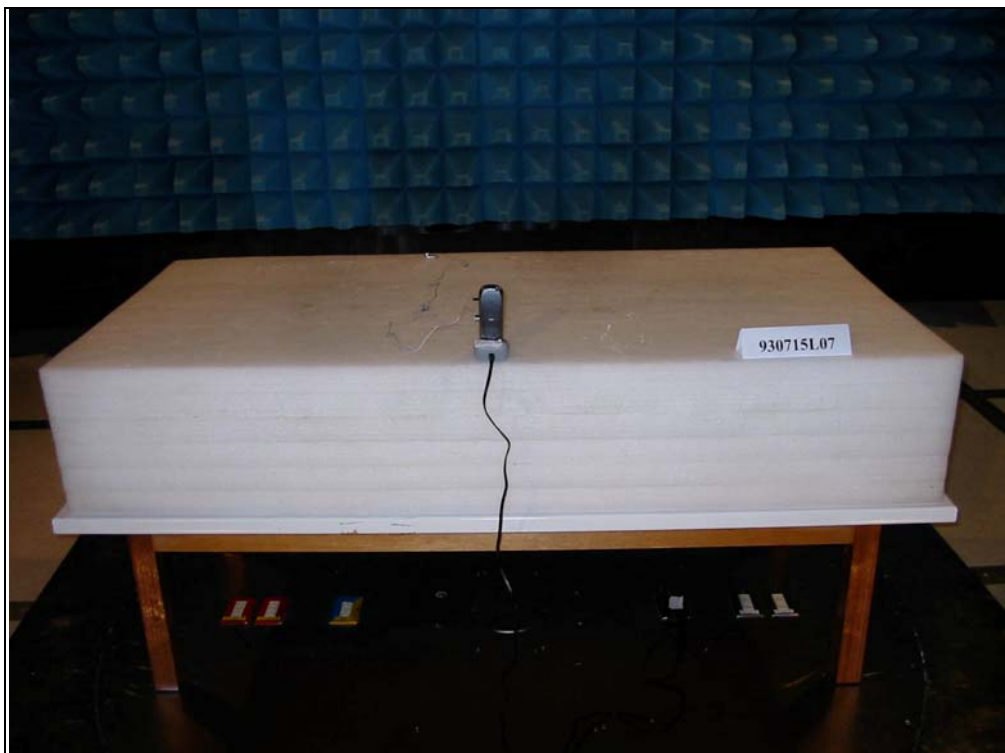
(Adapter for SINO-AMERICAN)



RADIATED EMISSION TEST (Adapter for DELTA)



(Adapter for SINO-AMERICAN)





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, Guide 25 or EN 45001:

USA	FCC, NVLAP, UL
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. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Linko RF & Telecom Lab.

Tel: 886-3-3270910

Fax: 886-3-3270892

Email: service@mail.adt.com.tw

Web Site: www.adt.com.tw

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

Report Format Version 1.2