



# FCC TEST REPORT

**REPORT NO.:** RF920412R02

**MODEL NO.:** 8360 RF Terminal-L  
8360 RF Terminal-C

**RECEIVED:** Apr. 12, 2003

**TESTED:** Aug. 28 ~ Sept. 4, 2003

**APPLICANT:** Syntech Information Co.,Ltd.

**ADDRESS:** 8F, No.210,Ta-Tung Rd., Sec.3, Hsi-Chih,  
Taipei Hsien, Taiwan, R.O.C.

**ISSUED BY:** Advance Data Technology Corporation

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

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0528  
ILAC MRA



Lab Code: 200102-0



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## 1 CERTIFICATION

**PRODUCT :** Portable Terminal  
**BRAND NAME :** CipherLab  
**MODEL NO :** 8360 RF Terminal-L  
8360 RF Terminal-C  
**TEST ITEM:** Engineering Sample  
**APPLICANT :** Syntech Information Co.,Ltd.  
**STANDARDS :** 47 CFR Part 15, Subpart C (15.249)  
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from August 28 ~ September 4, 2003. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

**PREPARED BY:** Rennie Wang , **DATE:** September 8, 2003  
Rennie Wang

**APPROVED BY:** Dr. Alan Lane, JVP **DATE:** September 8, 2003

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Paragraph	Test Type	Result	Remark
15.207	Conducted Emission Test	PASS	Minimum passing margin is -19.36dB at 0.205 MHz
15.249	Radiated Emission Test	PASS	Minimum passing margin is -3.30dB at 615.23MHz
15.249	Band Edge Measurement	PASS	Meet the requirement of limit

**NOTE:** The information of measurement uncertainty is available upon the customer's request.

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Portable Terminal
<b>MODEL NO.</b>	8360 RF Terminal-L, 8360 RF Terminal-C
<b>POWER SUPPLY</b>	3.7VDC from battery 5.0VDC from power adapter
<b>MODULATION TYPE</b>	FHSS
<b>CARRIER FREQUENCY OF EACH CHANNEL</b>	2402MHz ~ 2480MHz
<b>BANDWIDTH OF EACH CHANNEL</b>	1MHz
<b>NUMBER OF CHANNEL</b>	79
<b>ANTENNA TYPE</b>	Wire antenna
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	NA
<b>ASSOCIATED DEVICES</b>	NA

**NOTE:**

- The EUT was powered by following adapter:

<b>Brand:</b>	SINO-AMERICAN
<b>Model:</b>	SA10-0515U
<b>Input:</b>	100-240V, 50-60Hz, 250mA
<b>Output:</b>	5V---1500mA

- There are two models provided to this EUT. Model 8360 RF Terminal-L are designed with Laser function, and model 8360 RF Terminal-C are designed with CCD function.
- These two models are designed with 24 keys and 39 keys. Model 8360 RF Terminal-L with 39 keys, the worst case, was chosen for final test.
- For more detailed feature description of the EUT, please refer to user's manual.

### 3.2 DESCRIPTION OF TEST MODES

Seventy-nine channels are provided to this EUT.

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2431	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

**NOTE:**

1. Below 1 GHz, the channel 0, 39, and 78 were pre-tested in chamber. The channel 78, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 0, 39, and 78 were tested individually.
3. Model 8360 RF Terminal-L, the worse case, was chosen for final test.



### **3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS**

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

**FCC 47 CFR Part 15, Subpart C. (15.249)**  
**ANSI C63.4 : 1992**

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 (DoC). The test report has been issued separately.

## 4 TEST PROCEDURES AND RESULTS

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

#### Notes:

1. The lower limit shall apply at the transition frequencies.
2. 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
ROHDE & SCHWARZ Test Receiver	ESCS 30	838251/021	Jan. 20, 2004
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Dec. 18, 2003
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Dec. 18, 2003
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100220	Dec. 18, 2003
ROHDE & SCHWARZ 4-wire ISN	ENY41	837032/016	Nov. 29 2003
ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Nov. 29 2003
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	May. 01, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010770	Mar. 24, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Apr. 06, 2004

- 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. “\*”: These equipment are used for conducted telecom port test only (if tested).
3. The test was performed in ADT Shielded Room No. 10.
4. The VCCI Site Registration No. is C-1312.





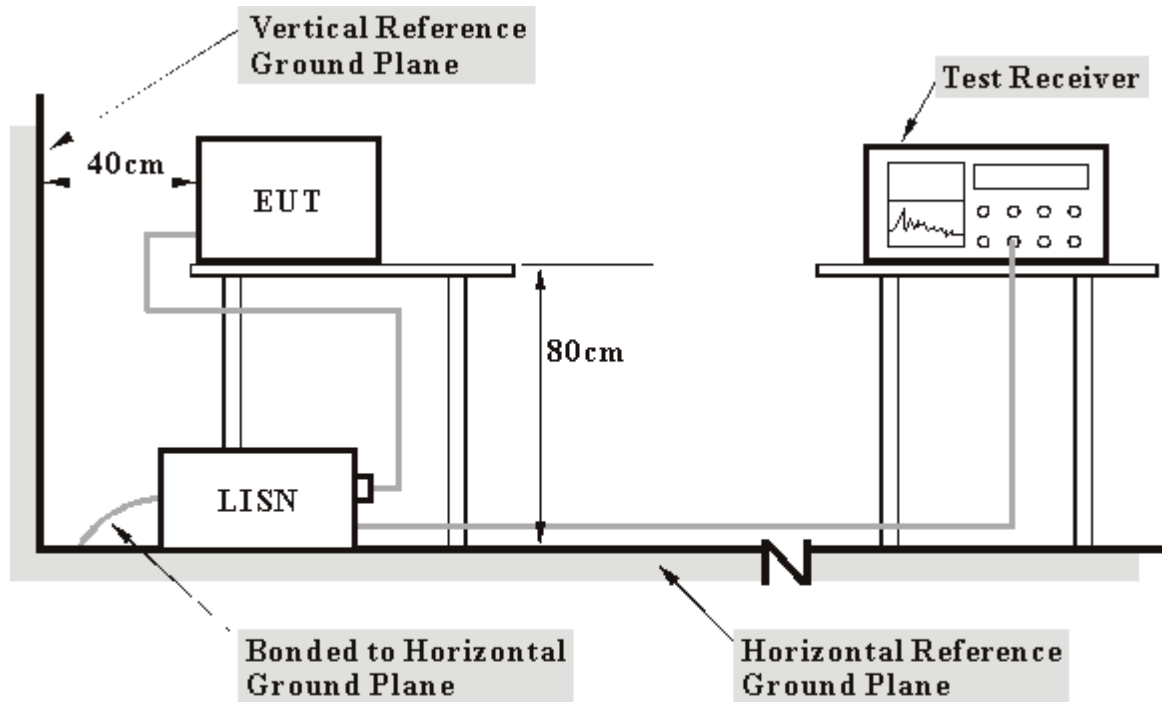
#### 4.1.3 TEST PROCEDURES

- 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 over 10dB under the prescribed limits could not be reported

#### 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

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

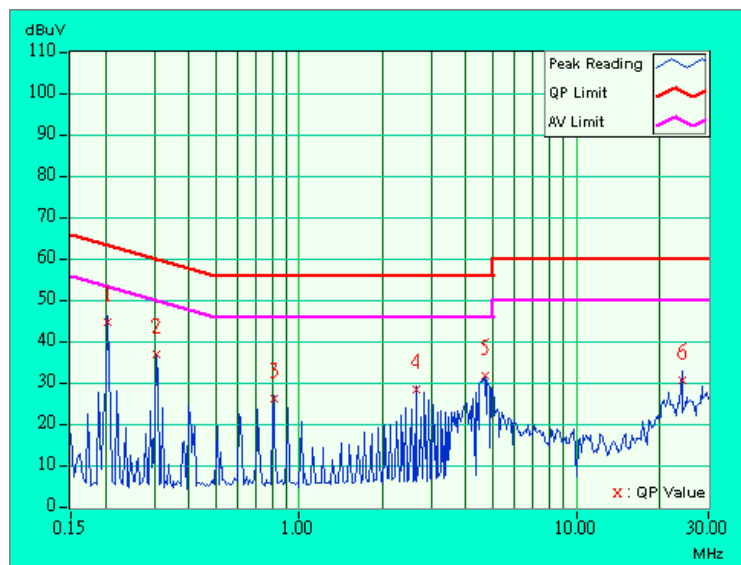


4.1.7 TEST RESULTS

<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 0	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	26 deg. C, 60%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.205	0.06	44.00	-	44.06	-	63.42
2	0.306	0.06	36.24	-	36.30	-	60.07	50.07	-23.77	-
3	0.810	0.13	25.37	-	25.50	-	56.00	46.00	-30.50	-
4	2.637	0.19	27.68	-	27.87	-	56.00	46.00	-28.13	-
5	4.668	0.24	30.86	-	31.10	-	56.00	46.00	-24.90	-
6	24.145	0.85	29.90	-	30.75	-	60.00	50.00	-29.25	-

- 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.

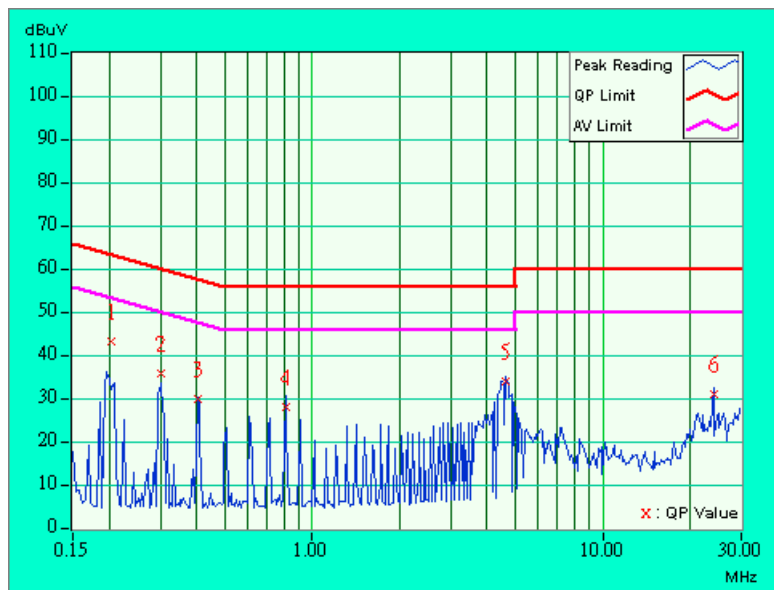




<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 0	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	26 deg. C, 60%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.203	0.05	42.74	-	42.79	-	63.48
2	0.302	0.05	35.11	-	35.16	-	60.18	50.18	-25.02	-
3	0.404	0.05	29.39	-	29.44	-	57.77	47.77	-28.33	-
4	0.810	0.12	27.46	-	27.58	-	56.00	46.00	-28.42	-
5	4.660	0.23	33.43	-	33.66	-	56.00	46.00	-22.34	-
6	24.145	0.69	30.38	-	31.07	-	60.00	50.00	-28.93	-

- 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.

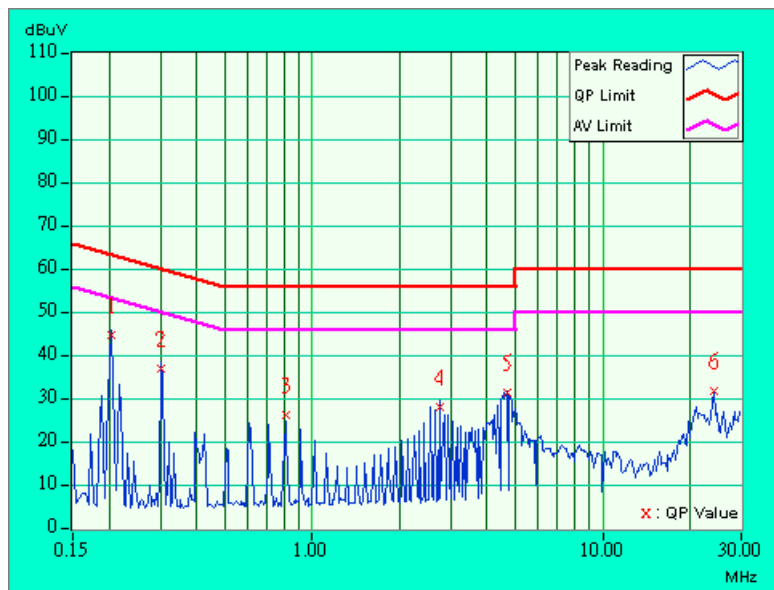




<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 39	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	26 deg. C, 60%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.205	0.06	43.92	-	43.98	-	63.42
2	0.302	0.06	36.34	-	36.40	-	60.18	50.18	-23.78	-
3	0.810	0.13	25.32	-	25.45	-	56.00	46.00	-30.55	-
4	2.738	0.19	27.48	-	27.67	-	56.00	46.00	-28.33	-
5	4.668	0.24	30.64	-	30.88	-	56.00	46.00	-25.12	-
6	24.145	0.85	31.04	-	31.89	-	60.00	50.00	-28.11	-

- 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.

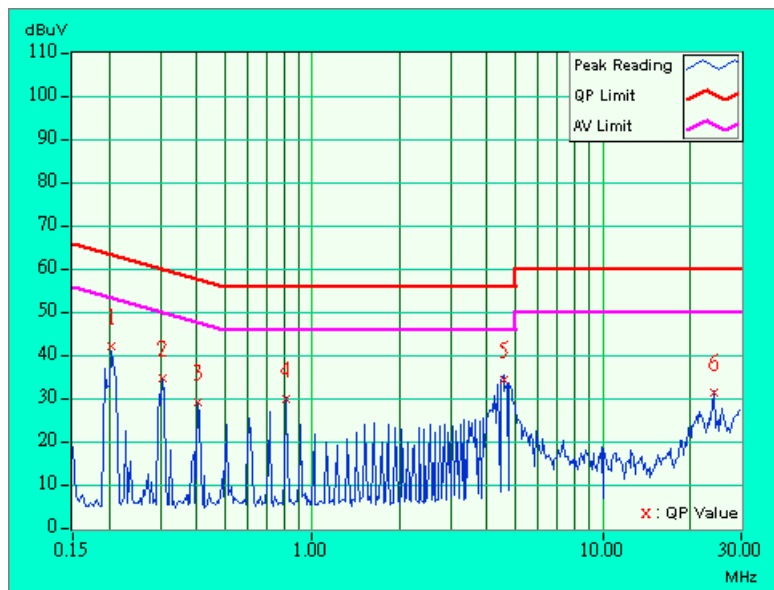




<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 39	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	26 deg. C, 60%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.205	0.05	41.41	-	41.46	-	63.42
2	0.306	0.05	34.12	-	34.17	-	60.07	50.07	-25.90	-
3	0.404	0.05	28.43	-	28.48	-	57.77	47.77	-29.29	-
4	0.814	0.13	29.42	-	29.55	-	56.00	46.00	-26.45	-
5	4.566	0.22	33.88	-	34.10	-	56.00	46.00	-21.90	-
6	24.145	0.69	30.66	-	31.35	-	60.00	50.00	-28.65	-

- 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.

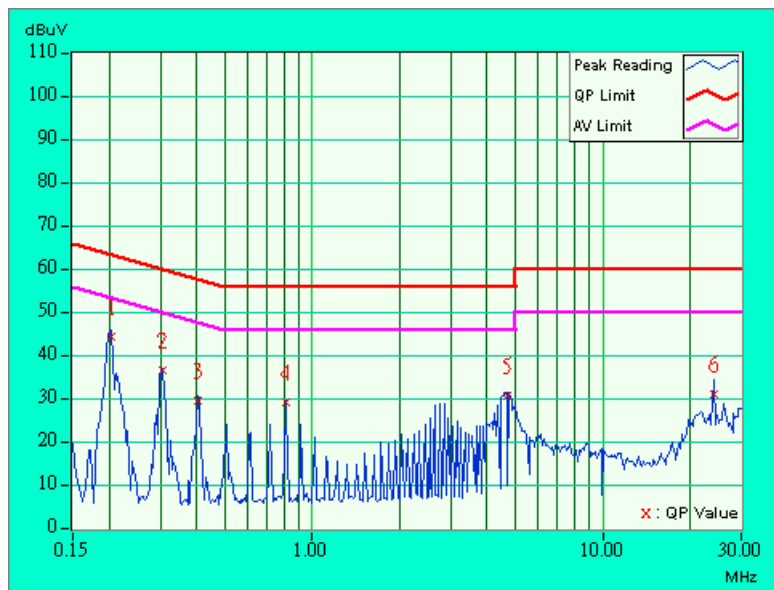




<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 78	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	26 deg. C, 60%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.205	0.06	43.54	-	43.60	-	63.42
2	0.306	0.06	35.94	-	36.00	-	60.07	50.07	-24.07	-
3	0.404	0.06	28.83	-	28.89	-	57.77	47.77	-28.88	-
4	0.814	0.13	28.45	-	28.58	-	56.00	46.00	-27.42	-
5	4.668	0.24	29.94	-	30.18	-	56.00	46.00	-25.82	-
6	24.145	0.85	30.34	-	31.19	-	60.00	50.00	-28.81	-

- 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.

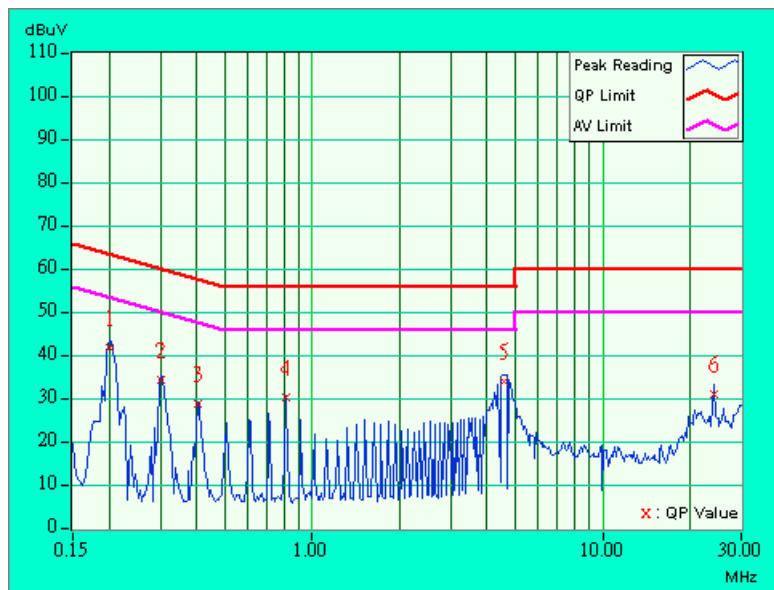




<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 78	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Neurral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	26 deg. C, 60%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.201	0.05	41.15	-	41.20	-	63.58
2	0.302	0.05	33.79	-	33.84	-	60.18	50.18	-26.34	-
3	0.404	0.05	28.09	-	28.14	-	57.77	47.77	-29.63	-
4	0.814	0.13	29.68	-	29.81	-	56.00	46.00	-26.19	-
5	4.566	0.22	33.48	-	33.70	-	56.00	46.00	-22.30	-
6	24.145	0.69	30.58	-	31.27	-	60.00	50.00	-28.73	-

- 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

According to 15.249 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBuV/m)	
	Peak	Average
2400 ~ 2483.5	114	94

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

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
*HP Spectrum Analyzer	8590L	3520A00667	Aug. 28, 2004
*CHASE Preamplifier	CPA9231A/4	3215	Nov. 06, 2003
* HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
* HP Preamplifier	8449B	3008A01292	Aug. 11, 2004
* ROHDE & SCHWARZ TEST RECEIVER	ESVS10	846285/012	Sept. 16, 2003
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Feb. 13, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Nov. 22, 2003
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
* CHASE BILOG Antenna	CBL6112B	2751	Mar. 21, 2004
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun. 30, 2004
* EMCO Horn Antenna	3115	9312-4192	Mar. 23 2004
* CHANCE Turn Table & Tower Controller	ACS-I	NA	NA
* Software	ADT_Radiate d_V5.14	NA	NA
* ANRITSU RF Switches	MP59B	M51167	Aug. 16, 2004
* TIMES RF cable	LMR-600	CABLE-ST6-01	Aug. 16, 2004

- 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. "\*" = These equipment are used for the final measurement.
  3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  4. The test was performed in ADT Open Site No. 6.
  5. The VCCI Site Registration No. is R-728.



### 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 10 meter open area test site. 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.

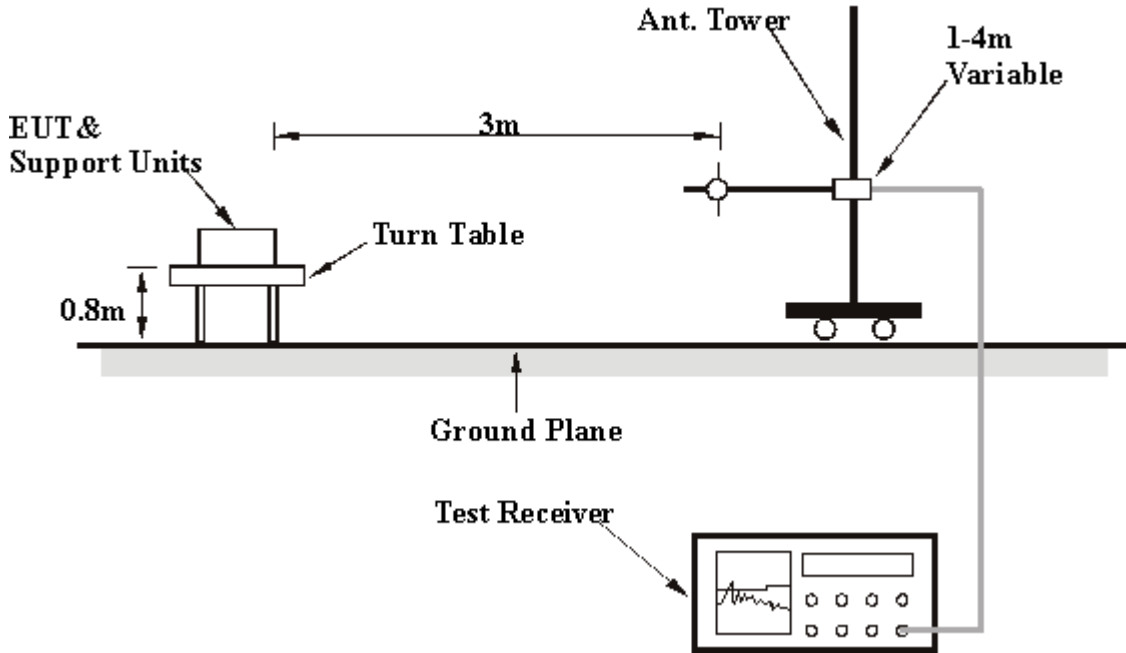
**NOTE:**

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 300 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 TEST RESULTS

Digital Portion:

<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 78	<b>FREQUENCY RANGE</b>	Below 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>DETECTOR FUNCTION</b>	Quasi-Peak
<b>ENVIRONMENTAL CONDITIONS</b>	25 deg. C, 75%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

**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	31.08	28.0 QP	40.00	-12.00	1.75 H	346	15.10	12.80
2	62.33	26.9 QP	40.00	-13.10	1.75 H	346	14.10	12.90
3	169.03	28.7 QP	43.50	-14.80	1.75 H	352	15.20	13.50
4	227.23	25.9 QP	46.00	-20.10	1.75 H	346	13.40	12.50
5	319.92	34.4 QP	46.00	-11.60	1.75 H	310	18.70	15.60
6	393.21	31.8 QP	46.00	-14.20	1.00 H	262	14.20	17.50
7	432.01	32.1 QP	46.00	-13.90	1.75 H	94	13.40	18.70
8	443.87	30.2 QP	46.00	-15.80	1.00 H	280	11.10	19.10
9	526.86	29.4 QP	46.00	-16.60	1.50 H	112	8.80	20.60
10	609.84	38.6 QP	46.00	-7.40	1.50 H	226	15.80	22.70
11	615.23	35.3 QP	46.00	-10.70	1.75 H	106	12.50	22.80
12	654.03	33.5 QP	46.00	-12.50	1.25 H	70	10.20	23.30
13	670.20	34.4 QP	46.00	-11.60	3.00 H	208	10.80	23.50

- 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.



<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 78	<b>FREQUENCY RANGE</b>	Below 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>DETECTOR FUNCTION</b>	Quasi-Peak
<b>ENVIRONMENTAL CONDITIONS</b>	25 deg. C, 75%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
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	107.22	26.1 QP	43.50	-17.40	1.75 V	328	15.10	11.00
2	167.96	35.1 QP	43.50	-8.40	1.75 V	328	21.50	13.60
3	235.86	34.7 QP	46.00	-11.30	2.50 V	310	21.80	13.00
4	282.20	37.8 QP	46.00	-8.20	1.75 V	358	23.10	14.70
5	313.46	29.2 QP	46.00	-16.80	4.00 V	310	13.80	15.40
6	446.02	36.3 QP	46.00	-9.70	1.75 V	10	17.10	19.20
7	509.61	34.0 QP	46.00	-12.00	1.50 V	4	13.70	20.20
8	565.66	34.6 QP	46.00	-11.40	1.00 V	358	13.00	21.60
9	615.23	42.7 QP	46.00	-3.30	1.00 V	88	19.90	22.80
10	631.40	39.2 QP	46.00	-6.80	1.00 V	10	16.10	23.00
11	636.79	40.2 QP	46.00	-5.80	1.00 V	346	17.10	23.10
12	654.03	38.1 QP	46.00	-7.90	1.25 V	280	14.80	23.30
13	675.59	36.0 QP	46.00	-10.00	1.25 V	346	12.40	23.60
14	754.27	37.0 QP	46.00	-9.00	1.75 V	358	11.60	25.40

- 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.



**RF Portion :**

<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 0	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25 deg. C, 52%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

**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	1202.00	39.40 PK	74.00	-34.60	1.00 H	28	12.20	27.20
2	2402.00	103.70 PK	114.00	-10.30	1.45 H	360	72.90	30.80
2	2402.00	82.50 AV	94.00	-11.50	1.45 H	360	51.70	30.80
3	4804.00	50.10 PK	74.00	-23.90	1.13 H	242	13.90	36.20
4	7206.00	50.40 PK	74.00	-23.60	1.17 H	242	8.20	42.20

**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	*2402.00	107.6 PK	114.00	-6.40	1.30 V	157	76.80	30.80
1	*2402.00	85.6 AV	94.00	-8.40	1.30 V	157	54.80	30.80
2	4804.00	50.9 PK	74.00	-23.10	1.01 V	277	14.70	36.20
2	4804.00	40.4 AV	54.00	-13.60	1.01 V	277	4.20	36.20
3	7206.00	55.2 PK	74.00	-18.80	1.42 V	143	13.00	42.20
3	7206.00	42.4 AV	54.00	-11.60	1.42 V	143	0.20	42.20
4	9608.00	55.6 PK	74.00	-18.40	1.21 V	260	10.80	44.80
4	9608.00	43.1 AV	54.00	-10.90	1.21 V	260	-1.70	44.80

**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. Margin value = Emission level - Limit value
4. " \* " : Fundamental frequency
5. The other emission levels were very low against the limit.
6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625\*5 per 247 ms per channel.  
Therefore, the duty cycle be equal to:  $20\log(3.125/100) = -30\text{dB}$
7. Average value = peak reading  $-20\log(\text{duty cycle})$



<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 39	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25 deg. C, 52%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

**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	1220.00	40.7 PK	74.00	-33.30	1.16 H	144	13.40	27.30
2	*2441.00	104.7 PK	114.00	-9.30	1.21 H	217	73.70	31.00
2	*2441.00	83.70 AV	94.00	-10.30	1.21 H	217	52.70	31.00
3	4882.00	49.1 PK	74.00	-24.90	1.00 H	119	12.80	36.40
4	7323.00	54.7 PK	74.00	-19.30	1.00 H	242	12.30	42.40
4	7323.00	38.6 AV	54.00	-15.40	1.00 H	242	-3.80	42.40
5	9764.00	55.0 PK	74.00	-19.00	1.40 H	82	9.60	45.40
5	9764.00	42.3 AV	54.00	-11.70	1.40 H	82	-3.00	45.40

**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	1220.00	41.5 PK	74.00	-32.50	1.43 V	183	14.20	27.30
2	*2441.00	107.0 PK	114.00	-7.00	1.25 V	175	76.00	31.00
2	*2441.00	85.3 AV	94.00	-8.70	1.25 V	175	54.30	31.00
3	4881.87	53.9 PK	74.00	-20.10	1.05 V	201	17.60	36.40
3	4881.87	42.7 AV	54.00	-11.30	1.05 V	201	6.40	36.40
4	7323.02	55.2 PK	74.00	-18.80	1.00 V	280	12.80	42.40
4	7323.02	41.7 AV	54.00	-12.30	1.00 V	280	-0.70	42.40
5	9764.15	56.2 PK	74.00	-17.80	1.14 V	58	10.80	45.40
5	9764.15	43.0 AV	54.00	-11.00	1.14 V	58	-2.40	45.40

**REMARKS:**

- Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
- Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
- Margin value = Emission level - Limit value
- " \* " : Fundamental frequency
- The other emission levels were very low against the limit.
- The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625\*5 per 247 ms per channel.  
Therefore, the duty cycle be equal to:  $20\log(3.125/100) = -30\text{dB}$
- Average value = peak reading  $-20\log(\text{duty cycle})$





<b>EUT</b>	Portable Terminal	<b>MODEL</b>	8360 RF Terminal-L
<b>MODE</b>	Channel 78	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25 deg. C, 52%RH, 991 hPa	<b>TESTED BY:</b> Steven Lu	

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
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	1240.23	39.7 PK	74.00	-34.30	1.00 H	317	12.40	27.40
2	*2480.00	102.6 PK	114.00	-11.40	1.43 H	285	71.50	31.10
2	*2480.00	81.5 AV	94.00	-12.50	1.43 H	285	50.40	31.10
3	4959.87	47.3 PK	74.00	-26.70	1.64 H	86	10.80	36.50
4	7440.00	51.9 PK	74.00	-22.10	1.40 H	92	9.30	42.60
4	7440.00	40.20 AV	54.00	-13.80	1.40 H	92	-2.40	42.60
5	9920.00	55.9 PK	74.00	-18.10	1.28 H	232	10.30	45.60
5	9920.00	44.10 AV	54.00	-9.90	1.28 H	232	-1.50	45.60

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
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	1240.23	42.5 PK	74.00	-31.50	1.00 V	30	15.10	27.40
2	*2480.00	106.4 PK	114.00	-7.60	1.00 V	284	75.30	31.10
2	*2480.00	84.6 AV	94.00	-9.40	1.00 V	284	53.50	31.10
3	4960.05	52.6 PK	74.00	-21.40	1.20 V	173	16.10	36.50
3	4960.05	40.1 AV	54.00	-13.90	1.20 V	173	3.70	36.50
4	7440.02	54.9 PK	74.00	-19.10	1.30 V	298	12.30	42.60
4	7440.02	42.4 AV	54.00	-11.60	1.30 V	298	-0.20	42.60
5	9920.25	58.2 PK	74.00	-15.80	1.33 V	85	12.70	45.60
5	9920.25	45.4 AV	54.00	-8.60	1.33 V	85	-0.20	45.60

**REMARKS:**

- Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
- Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
- Margin value = Emission level - Limit value
- " \* " : Fundamental frequency
- The other emission levels were very low against the limit.
- The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625\*5 per 247 ms per channel.  
Therefore, the duty cycle be equal to:  $20\log(3.125/100) = -30\text{dB}$
- Average value = peak reading  $-20\log(\text{duty cycle})$

## 4.8 BAND EDGES MEASUREMENT

### 4.8.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100KHz RB).

### 4.8.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

#### NOTES:

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

### 4.8.3 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 100 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

### 4.8.4 DEVIATION FROM TEST STANDARD

No deviation

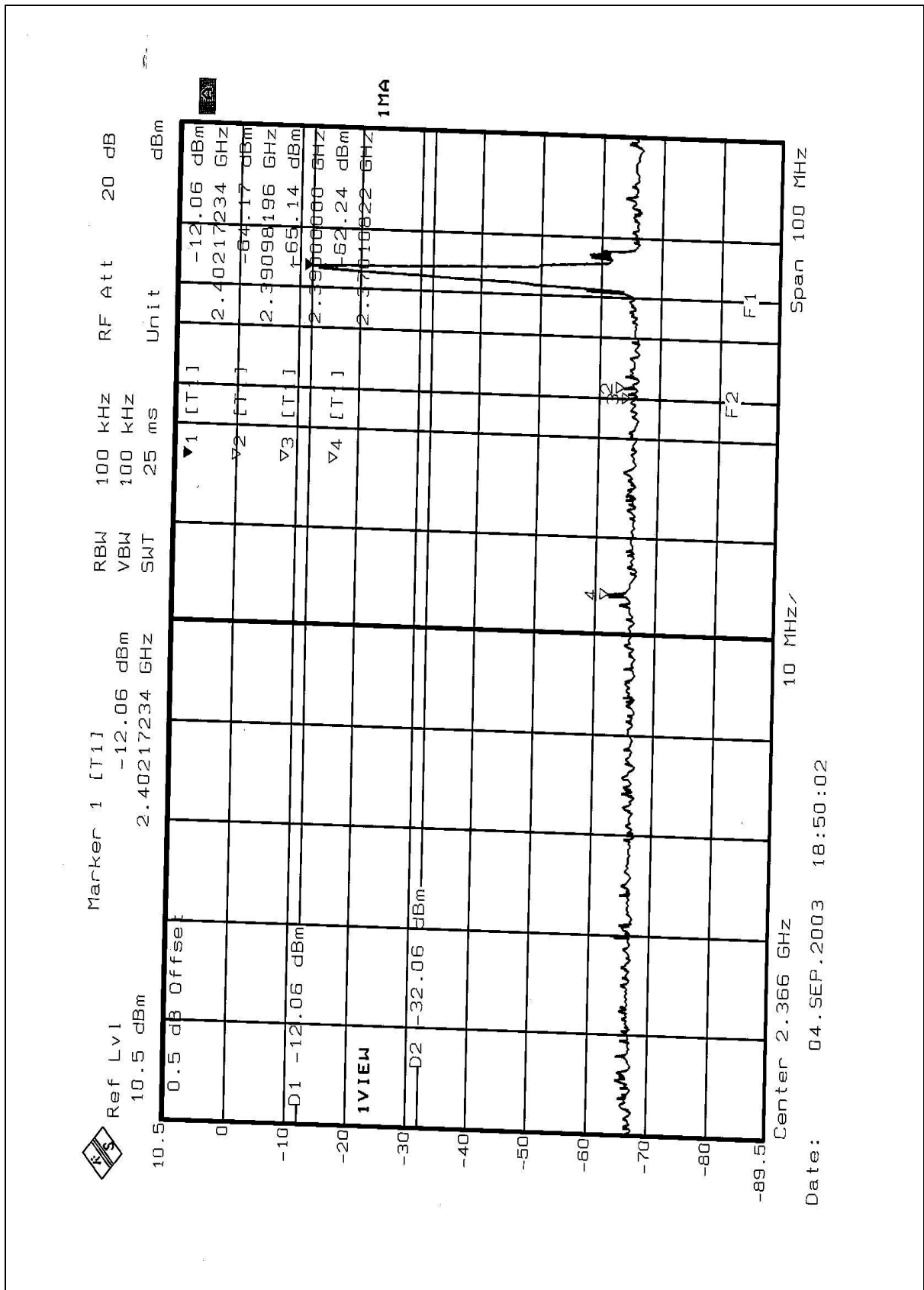


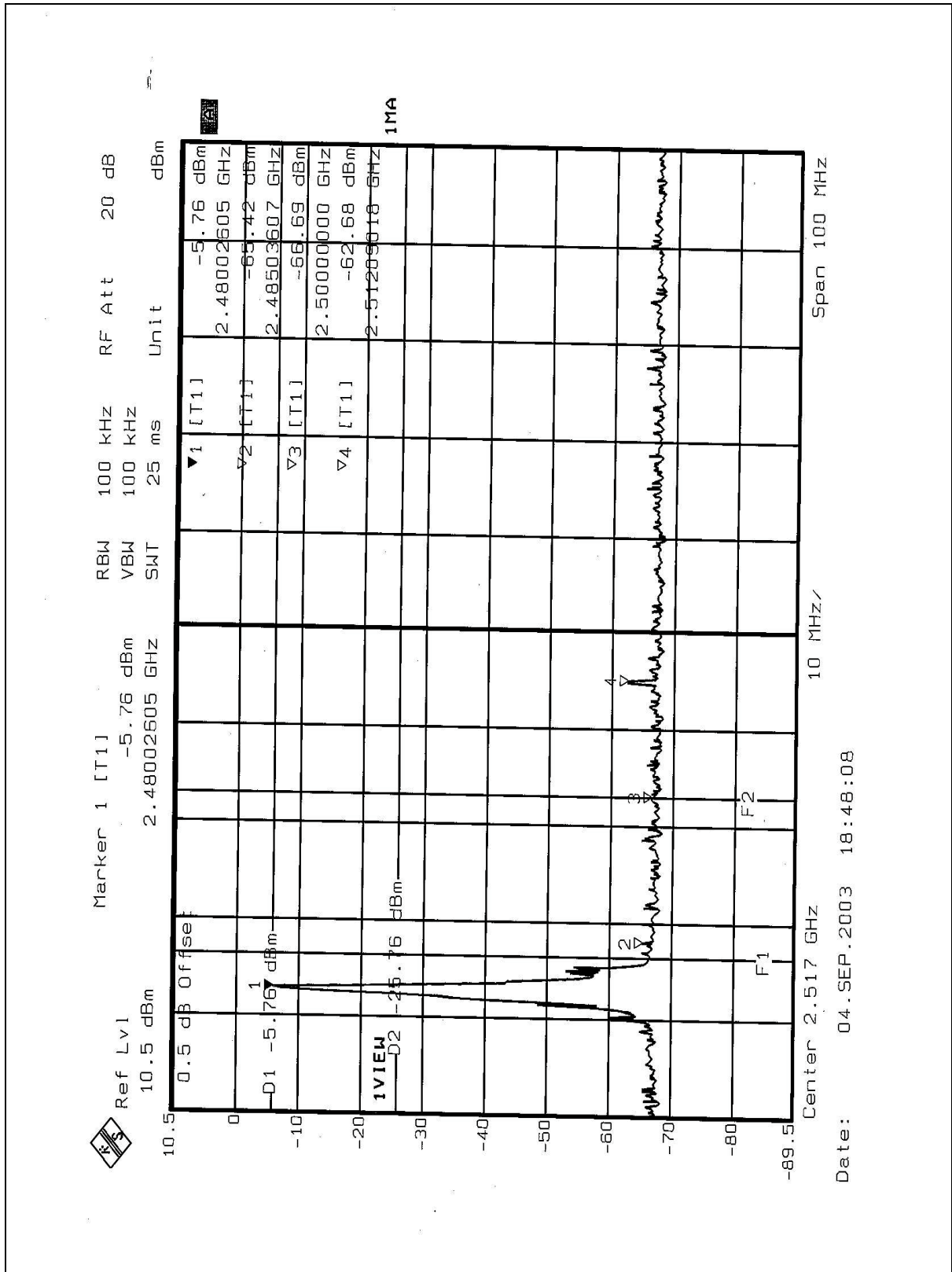
#### 4.8.5 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

#### 4.8.6 TEST RESULTS

The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.249.





## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

### CONDUCTED EMISSION TEST



### RADIATED EMISSION TEST





## 6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

<b>USA</b>	FCC, NVLAP
<b>Germany</b>	TUV Rheinland
<b>Japan</b>	VCCI
<b>New Zealand</b>	MoC
<b>Norway</b>	NEMKO
<b>R.O.C.</b>	BSMI, DGT, CNLA

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](http://www.adt.com.tw/index.5/phtml).

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**Email:** [service@mail.adt.com.tw](mailto:service@mail.adt.com.tw)

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

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