FCC TEST REPORT

REPORT NO.: RF950727H03
MODEL NO.: Y-RAT79A
RECEIVED: July 27, 2006
TESTED: Aug. 03 to 07, 2006
ISSUED: Aug. 10, 2006

APPLICANT: LOGITECH FAR EAST LTD.

ADDRESS: #2 Creation Rd. 4, Science-Based Ind. Park
Hsinchu Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien,
Taiwan, R.O.C.

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0536

No. 2177-01

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1 CERTIFICATION

PRODUCT :	Gorilla24 2.4GHz Keyboard
BRAND NAME :	Logitech
MODEL NO :	Y-RAT79A
TESTED:	Aug. 03 to 07, 2006
APPLICANT :	LOGITECH FAR EAST LTD.
STANDARDS :	47 CFR Part 15, Subpart C (Section 15.249), ANSI C63.4-2003

The above equipment (Model: Y-RAT79A) 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 : Midoli Peng , **DATE:** Aug. 10, 2006
(Midoli Peng)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Aug. 10, 2006
Responsible for RF
(Hank Chung)

APPROVED BY : , **DATE:** Aug. 10, 2006
(May Chen, Deputy Manager)

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	NA	Power supply is 3VDC from battery
15.249	Radiated Emission Test	PASS	Minimum passing margin is –0.9dB at 7443.00MHz
15.249	Band Edge Measurement	PASS	Meet the requirement of limit

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Gorilla24 2.4GHz Keyboard
MODEL NO.	Y-RAT79A
FCC ID	JNZ212313
POWER SUPPLY	3VDC from battery
MODULATION TYPE	GFSK
CARRIER FREQUENCY OF EACH CHANNEL	2402MHz ~ 2481MHz
NUMBER OF CHANNEL	80
ANTENNA TYPE	PCB printed meander line antenna with 0dBi antenna gain
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

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

3.2 DESCRIPTION OF TEST MODES

Eighty 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	79	2481

NOTE:

1. Below 1 GHz, the channel 0, 39, and 79 were pre-tested in chamber. The channel 0, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 0, 39, and 79 were tested individually.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Gorilla24 2.4GHz Keyboard. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

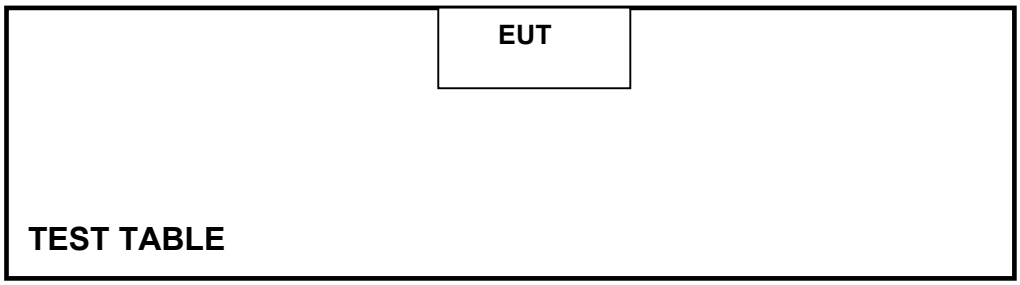
47 CFR Part 15, Subpart C (Section 15.249)
ANSI C63.4: 2003

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

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

3.5 CONFIGURATION OF SYSTEM UNDER TEST



NOTE: 1. Please refer to the photos of test configuration in Item 5 also.

4 TEST PROCEDURES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

NA

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
	Field Strength of Harmonics (dBuV/m)	
	74	54

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

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
*ADVANTEST Spectrum Analyzer	R3271A	85060311	July 03, 2007
*HP Pre_Amplifier	8449B	3008A01922	Oct. 02, 2006
*ROHDE & SCHWARZ Test Receiver	ESCS 30	100027	Jul. 18, 2007
*CHASE Broadband Antenna	CBL6112B	2798	Dec. 11, 2006
*Schwarzbeck Horn_Antenna	BBHA9120	D123	Sep. 23, 2006
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 05, 2007
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 08, 2009
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 08, 2009
*RF Switches	MP59B	M50867	July 03, 2007
*RF Cable(JETBAO)	9913-30M N-N Cable	STACAB-30M-1GHz	July 31, 2007
*Software	ADT_Radiated_V 5.14	NA	NA
*EMCO Antenna Tower	2075-2	9712-2124	NA
*EMCO Turn Table	2081-1.53	9712-2030	NA
*CORCOM AC Filter	MRI2030	107/108	NA

Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. * = These equipment are used for the final measurement.
3. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. A.
5. The VCCI Site Registration No. is R-782.
6. The FCC Site Registration No. is 91097.
7. The CANADA Site Registration No. is IC 4824-1.
8. The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

Measurement	Value
Radiated emissions (30MHz-1GHz)	3.30 dB
Radiated emissions (1GHz ~18GHz)	2.25 dB
Radiated emissions (18GHz ~20GHz)	1.88 dB

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.

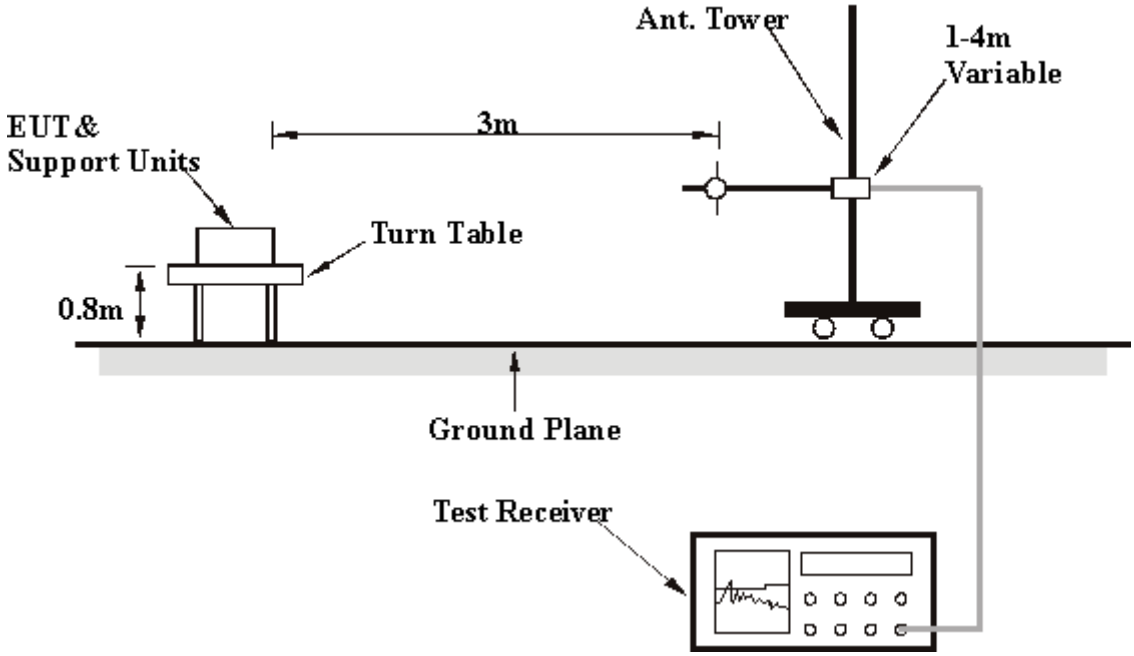
NOTE:

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 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

Set the EUT under transmission/ receiver condition continuously at specific channel frequency.

4.2.7 TEST RESULTS

MODE	Channel 0	INPUT POWER	3 VDC
FREQUENCY RANGE	30-1000 MHz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 960 hPa	TESTED BY	Eric Lee

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	133.32	24.20 QP	43.50	-19.30	1.47 H	84	11.30	12.90
2	194.95	29.50 QP	43.50	-14.00	1.68 H	254	17.60	11.90
3	199.90	27.20 QP	43.50	-16.30	1.65 H	35	15.60	11.60
4	264.96	24.60 QP	46.00	-21.40	1.11 H	258	10.00	14.60
5	352.00	26.30 QP	46.00	-19.70	1.32 H	66	8.90	17.40
6	396.98	27.20 QP	46.00	-18.80	1.35 H	62	8.30	18.90
7	499.98	27.20 QP	46.00	-18.80	1.32 H	65	5.50	21.80
8	520.24	30.20 QP	46.00	-15.80	1.11 H	326	7.80	22.40
9	600.00	27.20 QP	46.00	-18.80	1.78 H	54	2.80	24.50
10	664.01	32.50 QP	46.00	-13.50	1.55 H	253	7.20	25.20

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	76.23	23.00 QP	40.00	-17.00	1.52 V	32	11.90	11.10
2	133.33	27.20 QP	43.50	-16.30	1.63 V	3	14.30	12.90
3	196.69	25.40 QP	43.50	-18.10	1.00 V	258	13.50	11.80
4	199.90	26.20 QP	43.50	-17.20	1.23 V	65	14.60	11.60
5	399.98	31.20 QP	46.00	-14.80	1.02 V	236	12.20	19.00
6	496.87	28.70 QP	46.00	-17.30	1.62 V	326	7.00	21.70
7	499.99	29.50 QP	46.00	-16.50	1.65 V	224	7.70	21.80
8	543.23	30.20 QP	46.00	-15.80	1.02 V	258	7.20	23.00
9	664.01	31.20 QP	46.00	-14.80	1.02 V	54	6.00	25.20
10	686.20	24.20 QP	46.00	-21.80	1.85 V	256	-1.40	25.60

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

MODE	Channel 0	**INPUT POWER**	3 VDC
FREQUENCY RANGE	1000~25000MHz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 960 hPa	**TESTED BY**	Eric Lee

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	1601.00	40.70 PK	74.00	-33.30	1.25 H	100	12.50	28.20
1	1601.00	34.50 AV	54.00	-19.50	1.25 H	100	6.40	28.20
2	2390.00	41.50 PK	74.00	-32.50	1.03 H	11	11.10	30.40
2	2390.00	35.30 AV	54.00	-18.70	1.03 H	11	4.90	30.40
3	*2402.00	90.00 PK	114.00	-24.00	1.03 H	11	59.50	30.50
3	*2402.00	83.90 AV	94.00	-10.10	1.03 H	11	53.40	30.50
4	3202.00	46.30 PK	74.00	-27.70	1.23 H	98	13.80	32.60
4	3202.00	40.20 AV	54.00	-13.80	1.23 H	98	7.70	32.60
5	4003.00	45.30 PK	74.00	-28.70	1.25 H	51	11.50	33.80
5	4003.00	39.20 AV	54.00	-14.80	1.25 H	51	5.30	33.80
6	4804.00	52.90 PK	74.00	-21.10	1.81 H	24	16.70	36.10
6	4804.00	46.70 AV	54.00	-7.30	1.81 H	24	10.60	36.10
7	7206.00	58.10 PK	74.00	-15.90	1.84 H	124	16.40	41.60
7	7206.00	52.00 AV	54.00	-2.00	1.84 H	124	10.30	41.60

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	1601.00	33.00 PK	74.00	-41.00	1.08 V	256	4.90	28.20
1	1601.00	26.90 AV	54.00	-27.10	1.08 V	256	-1.20	28.20
2	2390.00	40.00 PK	74.00	-34.00	1.24 V	193	9.60	30.40
2	2390.00	33.90 AV	54.00	-20.10	1.24 V	193	3.50	30.40
3	*2402.00	88.50 PK	114.00	-25.50	1.24 V	193	58.00	30.50
3	*2402.00	82.40 AV	94.00	-11.60	1.24 V	193	51.90	30.50
4	3202.00	38.40 PK	74.00	-35.60	1.03 V	281	5.90	32.60
4	3202.00	32.30 AV	54.00	-21.70	1.03 V	281	-0.20	32.60
5	4003.00	43.40 PK	74.00	-30.60	1.44 V	93	9.60	33.80
5	4003.00	37.30 AV	54.00	-16.70	1.44 V	93	3.40	33.80
6	4804.00	55.80 PK	74.00	-18.20	1.00 V	96	19.60	36.10
6	4804.00	49.60 AV	54.00	-4.40	1.00 V	96	13.50	36.10
7	7206.00	51.00 PK	74.00	-23.00	1.82 V	360	9.30	41.60
7	7206.00	44.90 AV	54.00	-9.10	1.82 V	360	3.20	41.60

REMARKS:

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

MODE	Channel 39	INPUT POWER	3 VDC
FREQUENCY RANGE	1000~25000MHz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 960 hPa	TESTED BY	Eric Lee

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	1627.00	42.00 PK	74.00	-32.00	1.30 H	102	13.80	28.20
1	1627.00	35.80 AV	54.00	-18.20	1.30 H	102	7.60	28.20
2	*2441.00	90.80 PK	114.00	-23.20	1.08 H	20	60.10	30.70
2	*2441.00	84.70 AV	94.00	-9.30	1.08 H	20	54.00	30.70
3	3254.00	47.80 PK	74.00	-26.20	1.54 H	24	15.10	32.60
3	3254.00	41.70 AV	54.00	-12.30	1.54 H	24	9.00	32.60
4	4068.00	45.70 PK	74.00	-28.30	1.52 H	247	11.80	34.00
4	4068.00	39.60 AV	54.00	-14.40	1.52 H	247	5.70	34.00
5	4882.00	51.10 PK	74.00	-22.90	1.02 H	2	14.60	36.50
5	4882.00	45.40 AV	54.00	-8.60	1.02 H	2	8.90	36.50
6	7323.00	58.30 PK	74.00	-15.70	1.54 H	24	16.60	41.80
6	7323.00	52.20 AV	54.00	-1.80	1.54 H	24	10.40	41.80

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	1627.00	36.70 PK	74.00	-37.30	1.23 V	65	8.50	28.20
1	1627.00	30.60 AV	54.00	-23.40	1.23 V	65	2.40	28.20
2	*2441.00	89.60 PK	114.00	-24.40	1.25 V	200	58.90	30.70
2	*2441.00	83.50 AV	94.00	-10.50	1.25 V	200	52.80	30.70
3	3254.00	39.00 PK	74.00	-35.00	1.54 V	24	6.40	32.60
3	3254.00	32.90 AV	54.00	-21.10	1.54 V	24	0.20	32.60
4	4068.00	43.50 PK	74.00	-30.50	1.53 V	100	9.60	34.00
4	4068.00	37.40 AV	54.00	-16.60	1.53 V	100	3.40	34.00
5	4882.00	56.20 PK	74.00	-17.80	1.01 V	103	19.80	36.50
5	4882.00	50.10 AV	54.00	-3.90	1.01 V	103	13.60	36.50
6	7323.00	51.30 PK	74.00	-22.70	1.89 V	291	9.60	41.80
6	7323.00	45.20 AV	54.00	-8.80	1.89 V	291	3.40	41.80

REMARKS:

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

MODE	Channel 79	INPUT POWER	3 VDC
FREQUENCY RANGE	1000~25000MHz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 960 hPa	TESTED BY	Eric Lee

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	1653.50	42.10 PK	74.00	-31.90	1.26 H	97	13.80	28.30
1	1653.50	36.00 AV	54.00	-18.00	1.26 H	97	7.70	28.30
2	*2481.00	89.50 PK	114.00	-24.50	1.10 H	20	58.50	30.90
2	*2481.00	83.30 AV	94.00	-10.70	1.10 H	20	52.40	30.90
3	2483.50	49.30 PK	74.00	-24.70	1.10 H	20	18.30	31.00
3	2483.50	43.20 AV	54.00	-10.80	1.10 H	20	12.20	31.00
4	3307.00	46.50 PK	74.00	-27.50	1.32 H	101	13.80	32.70
4	3307.00	40.40 AV	54.00	-13.60	1.32 H	101	7.70	32.70
5	4135.00	44.80 PK	74.00	-29.20	1.26 H	52	10.70	34.10
5	4135.00	38.70 AV	54.00	-15.30	1.26 H	52	4.60	34.10
6	4962.00	54.20 PK	74.00	-19.80	1.56 H	356	17.30	36.90
6	4962.00	48.00 AV	54.00	-6.00	1.56 H	356	11.20	36.90
7	7443.00	59.20 PK	74.00	-14.80	1.95 H	250	17.30	41.90
7	**7443.00**	**53.10 AV**	**54.00**	**-0.90**	**1.95 H**	**250**	**11.20**	**41.90**

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	1653.50	33.30 PK	74.00	-40.70	1.85 V	24	5.00	28.30
1	1653.50	27.20 AV	54.00	-26.80	1.85 V	24	-1.10	28.30
2	*2481.00	89.10 PK	114.00	-24.90	1.25 V	150	58.10	30.90
2	*2481.00	82.90 AV	94.00	-11.10	1.25 V	150	52.00	30.90
3	2483.50	48.90 PK	74.00	-25.10	1.25 V	150	17.90	31.00
3	2483.50	42.80 AV	54.00	-11.20	1.25 V	150	11.80	31.00
4	3307.00	41.10 PK	74.00	-32.90	1.47 V	54	8.30	32.70
4	3307.00	34.90 AV	54.00	-19.10	1.47 V	54	2.20	32.70
5	4135.00	43.70 PK	74.00	-30.30	1.45 V	100	9.60	34.10
5	4135.00	37.50 AV	54.00	-16.50	1.45 V	100	3.50	34.10
6	4962.00	56.60 PK	74.00	-17.40	1.01 V	152	19.70	36.90
6	4962.00	50.50 AV	54.00	-3.50	1.01 V	152	13.60	36.90
7	7443.00	52.40 PK	74.00	-21.60	2.00 V	21	10.50	41.90
7	7443.00	46.20 AV	54.00	-7.80	2.00 V	21	4.30	41.90

REMARKS:

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

4.3 BAND EDGES MEASUREMENT

4.3.1 LIMITS OF BAND EDGES MEASUREMENT

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2006

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. 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 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.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

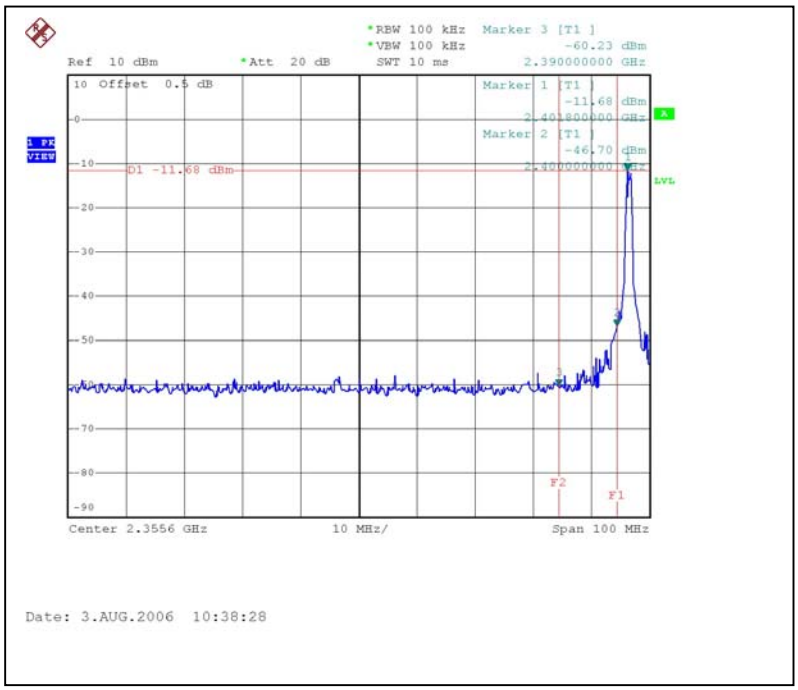
4.3.5 EUT OPERATING CONDITION

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

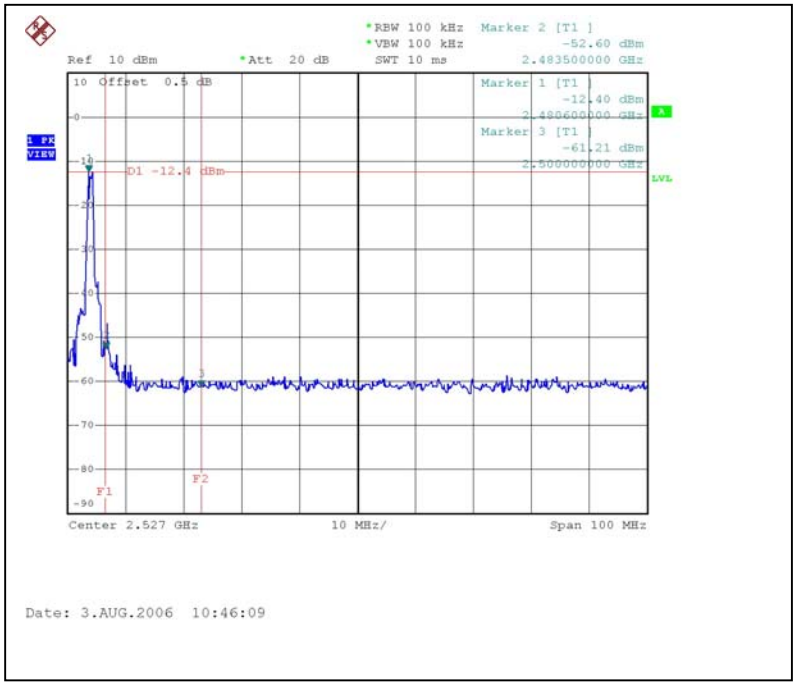
4.3.6 TEST RESULTS

Emissions radiated outside of the specified frequency bands, please refer pages form 8 to 16 for met the requirement of the general radiated emission limits in § 15.209.

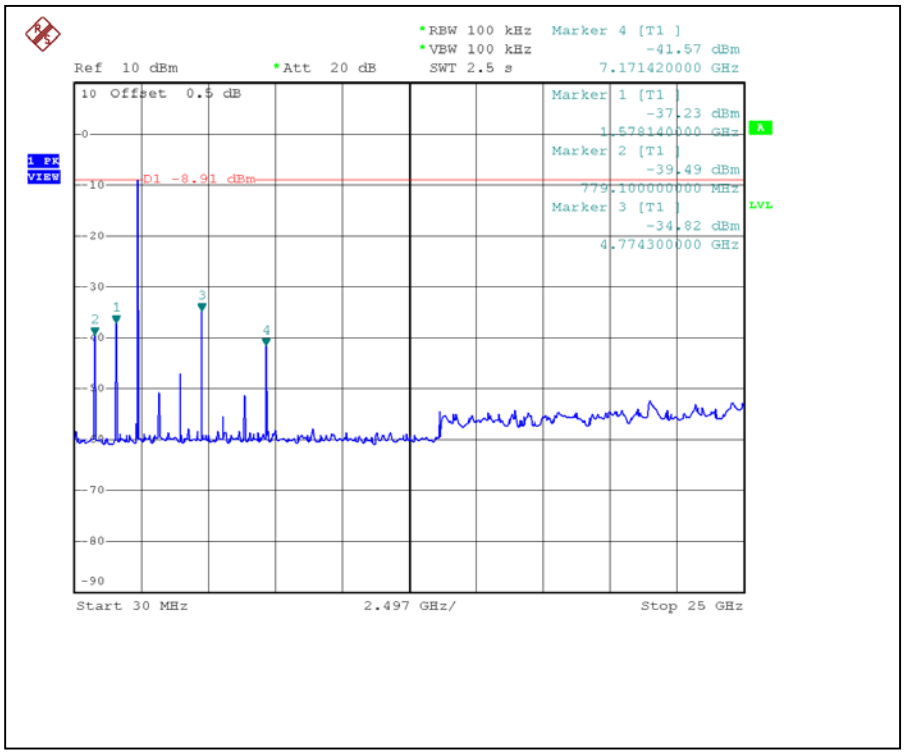
CH0



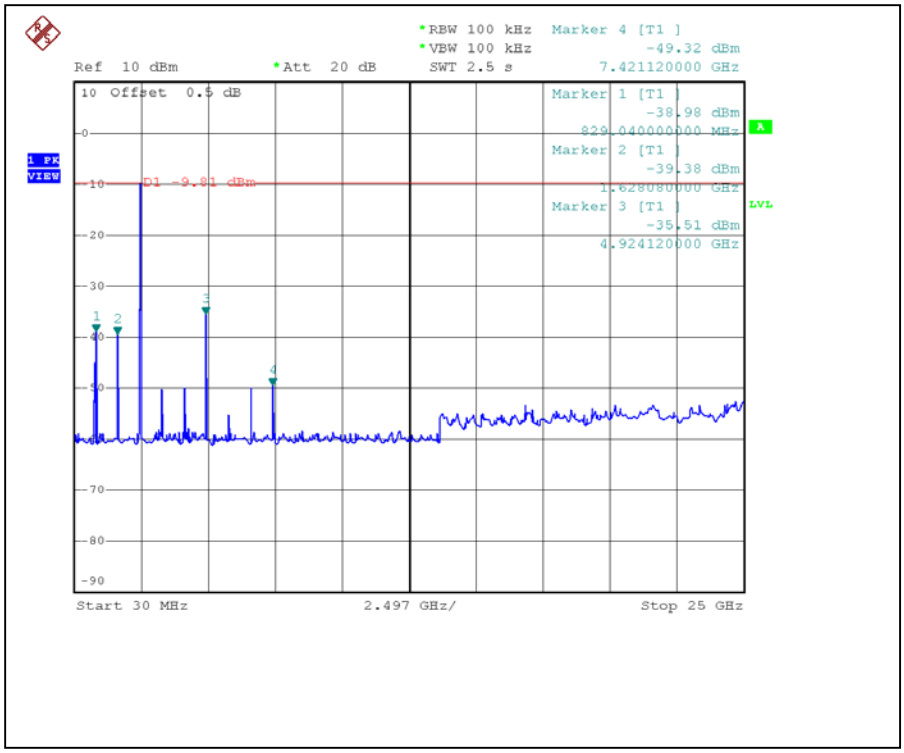
CH79



CH0


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 4 [T1]
-41.57 dBm
7.171420000 GHz
Ref 10 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
-37.23 dBm
1.578140000 GHz
Marker 2 [T1]
-39.49 dBm
779.100000000 MHz
Marker 3 [T1]
-34.82 dBm
4.774300000 GHz
1 PK VIEW
D1 -8.91 dBm
LVL
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH79


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 4 [T1]
-49.32 dBm
7.421120000 GHz
Ref 10 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
-38.98 dBm
829.040000000 MHz
Marker 2 [T1]
-39.38 dBm
1.628080000 GHz
Marker 3 [T1]
-35.51 dBm
4.924120000 GHz
1 PK VIEW
D1 -9.91 dBm
LVL
Start 30 MHz
2.497 GHz/
Stop 25 GHz

6 INFORMATION ON THE TESTING LABORATORIES

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

USA	FCC, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB, GOST-ASIA (MOU)
Russia	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
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/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Email: service@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.

APPENDIX-A

MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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