



Test Report

Product Name : Eraser
Model No. : SBE-3A10
FCC ID. : UBBSBE3A10

Applicant : WALTOP International Corp.
Address : 6F,No.19-1 Industry E.Rd.IV,Hsinchu Science
Park,Hsin-Chu 30077,Taiwan,R.O.C.

Date of Receipt : 2009/11/25
Issued Date : 2009/12/10
Report No. : 09B475R-RFUSP38V01
Report Version : V1.0

The test results relate only to the samples tested.

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This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issued Date : 2009/12/10

Report No. : 09B475R-RFUSP38V01



Product Name : Eraser

Applicant : WALTOP International Corp.

Address : 6F,No.19-1 Industry E.Rd.IV,Hsinchu Science Park,Hsin-Chu
30077,Taiwan,R.O.C.

Manufacturer : WALTOP International Corp.

Model No. : SBE-3A10

FCC ID. : UBBSBE3A10

Rated Voltage : DC 1.5V

EUT Voltage : DC 1.5V

Trade Name : WALTOP

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C 15.209: 2008

Test Result : Complied

The test results relate only to the samples tested.

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Documented By : Sandy Chuang
(Sandy Chuang / Adm. Specialist)

Reviewed By : Halu Chung
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Approved By : Roy Wang
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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Eraser
Trade Name	WALTOP
Model No.	SBE-3A10
FCC ID	UBBSBE3A10
Frequency Range	210~220KHz
Channel Number	2
Antenna Type	Integrated Loop Antenna.

Frequency of Each Channel:	
Channel	Frequency
Channel 1	213KHz
Channel 2	217KHz

Note:

1. This device is a 210~220KHz device included a 213KHz transmitting function.
2. The major measurement is 213KHz. It's pen point is pressed retentively, and bring the operating mode of the continue transmit signal.
3. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.209.

1.3. Test Mode

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	
TX	Mode 1: Transmit
Final Test Mode	
TX	Mode 1: Transmit

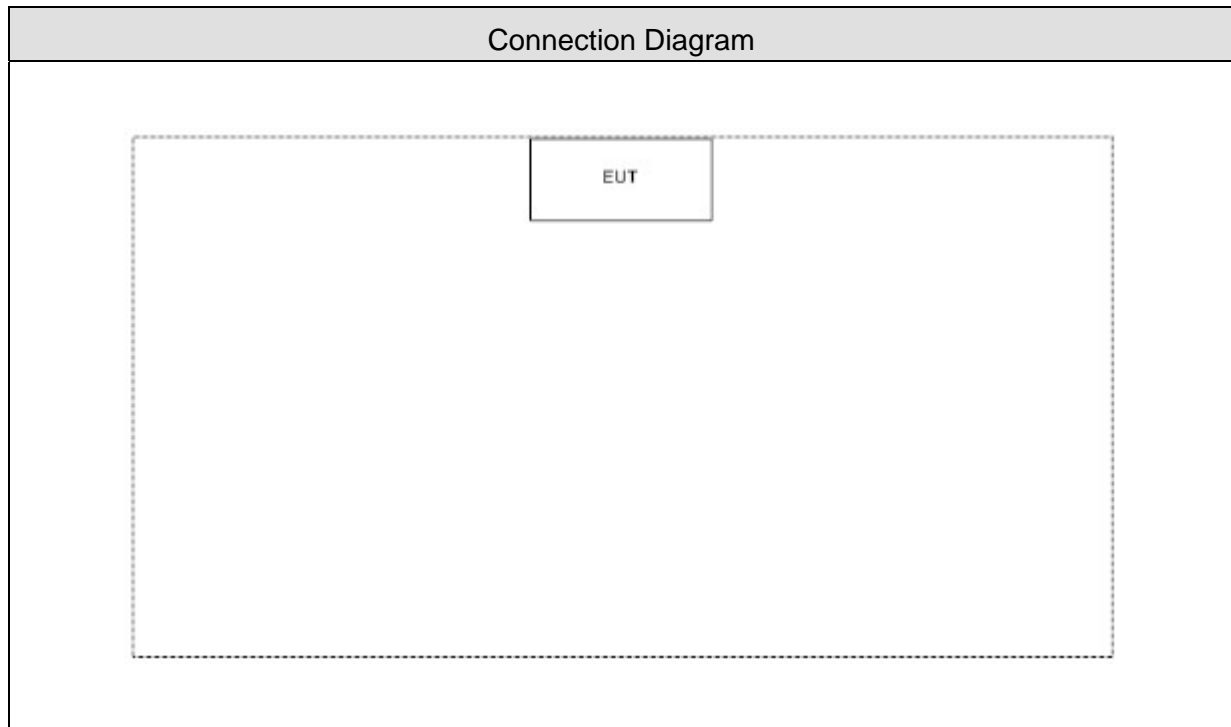
Emission	
Performed Item	Test
Conducted Emission	No
Radiated Emission	Yes

1.4. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

N/A

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.5.
2	Enable RF signal and confirm EUT active.
3	Modulate output capacity of EUT up to specification.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	ANSI.C63.4 CE	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	ANSI.C63.4 RE	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

August 30, 2007 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520



Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2010



Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2010



Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

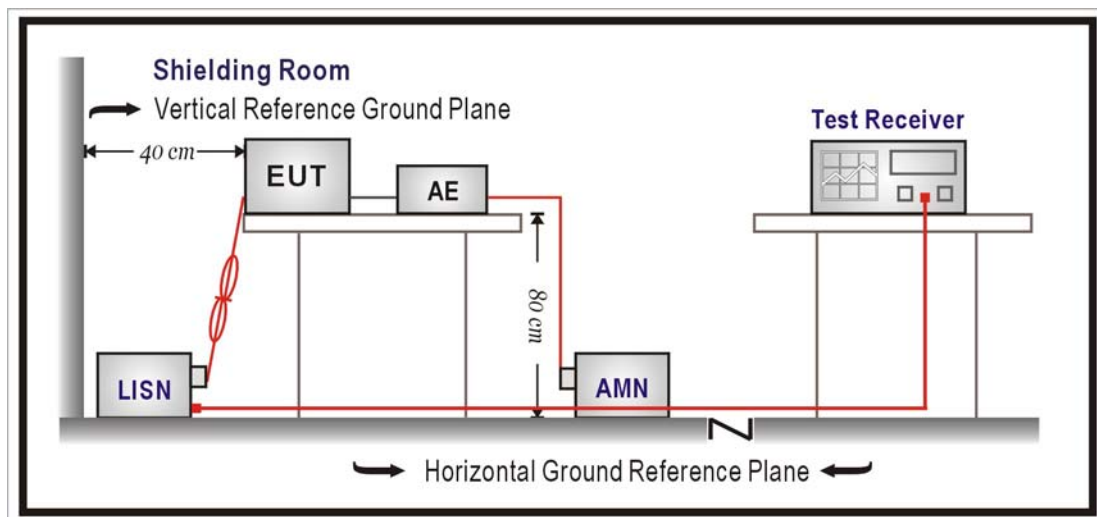
The following test equipments are used during the test:

Conducted Emission / SR2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
4-Wire ISN	R & S	ENY 41	837032/001	2009/04/15
Artificial Mains Network	R & S	ENV4200	848411/010	2009/03/13
Double 2-Wire ISN	R & S	ENY 22	835354/008	2009/04/15
LISN	R & S	ESH3-Z5	825562/002	2009/03/31
Pulse Limiter	R & S	ZSH3Z2	357.8810.54	2009/07/19
Test Receiver	R & S	ESCS 30	100122	2009/02/21

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBUV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207: 2008

2.6. Test Result

Owing to the DC operation of EUT, this test item is not performed.

3. Radiated Emission

3.1. Test Equipment

The following test equipments are used during the test:

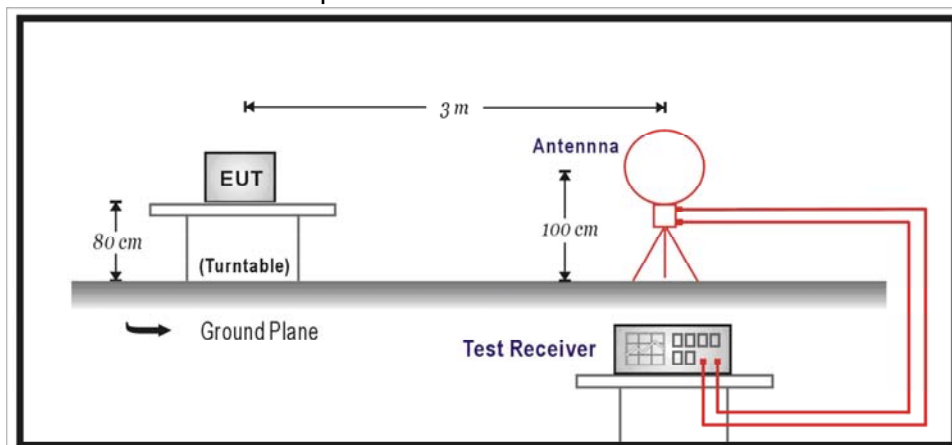
Radiated Emission / CB1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2895	2009/09/03
Loop Antenna	R & S	HFH2-Z2	833799/004	2009/09/13
Pre-Amplifier	Quietek	AP-025C	CHM0608021	2009/11/13
Spectrum Analyzer	R & S	FSP40	100005	2009/08/25
Test Receiver	R & S	ESCS 30	825442/017	2009/02/03

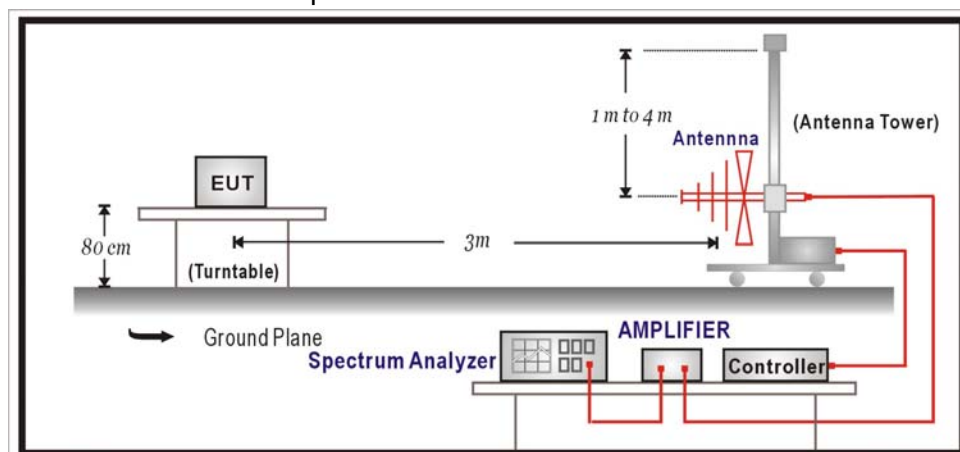
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. Mark "X" test instruments are used to measure the final test results.

3.2. Test Setup

Under 30MHz Test Setup:



Under 1GHz Test Setup:



3.3. Limits

FCC Part 15 Subpart C Paragraph 15.209 Limits			
Frequency MHz	uV/m	dBuV/m	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	See Remark ¹	300
0.490-1.705	24000/F(kHz)	See Remark ¹	30
1.705-30	30	29.54	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV).

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4. When the very low emission of EUT, the 3m measurement distance was performed. Regards to an inverse linear extrapolation 40dB/dec is adopted.

3.4. Test Procedure

Under 30MHz Test:

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum electric field strength. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna which is 1.0 meter above ground. All X-axis, Y-axis and Z-axis polarization of the antenna are set on measurement.

The emission limit shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limit in these three bands are based on measurements employing an average detector.

Under 1GHz Test:

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

On any frequency the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

The bandwidth below 30MHz setting on the field strength meter is 9kHz and above 30MHz is 120kHz.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.209: 2008

3.6. Test Result

Product	Eraser			
Test Item	Radiated Emission			
Test Mode	Mode 1: Transmit			
Date of Test	2009/12/08	Test Site	CB1	

(213KHz)

Eraser_ Horizontal				
Frequency	Cable Loss	Reading Level	Emission Level	Average Limit
MHz	dB	dBuV	dBuV/m	dBuV/m
X-axis				
0.213	0.29	48.58	48.87	103.10
Y-axis				
0.213	0.29	48.49	48.78	103.10
Z-axis				
0.213	0.29	40.75	41.04	103.10
Eraser (Z-axis)_Horizontal				
Frequency	Cable Loss	Reading Level	Emission Level	QP Limit
MHz	dB	dBuV	dBuV/m	dBuV/m
0.430	0.29	32.48	32.19	94.93
4.300	0.29	32.71	32.42	69.54
8.600	0.29	32.19	31.90	69.54
12.900	0.29	31.87	31.58	69.54
17.200	0.29	29.79	29.50	69.54
21.500	0.29	29.49	29.20	69.54
25.800	0.29	28.59	28.30	69.54

Note:

1. The Reading Levels are Average detector for the frequency bands 9–90kHz, 110–490 kHz and above 1000 MHz, and the others are QuasiPeak detector.
2. Measurement Level = Reading Level + Correct Factor.
3. 0.009 - 0.490 MHz , $\text{Limit(dBuV/m)} = 20 \log (2400 / \text{F(kHz)}) + 40 \log (300\text{m} / 3\text{m})$
4. 0.490 - 1.705 MHz , $\text{Limit(dBuV/m)} = 20 \log (24000 / \text{F(kHz)}) + 40 \log (30\text{m} / 3\text{m})$
5. 1.705 - 30.0 MHz , $\text{Limit(dBuV/m)} = 20 \log (30 \text{ uV/m}) + 40 \log (30\text{m} / 3\text{m})$

Product	Eraser		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2009/12/08	Test Site	CB1

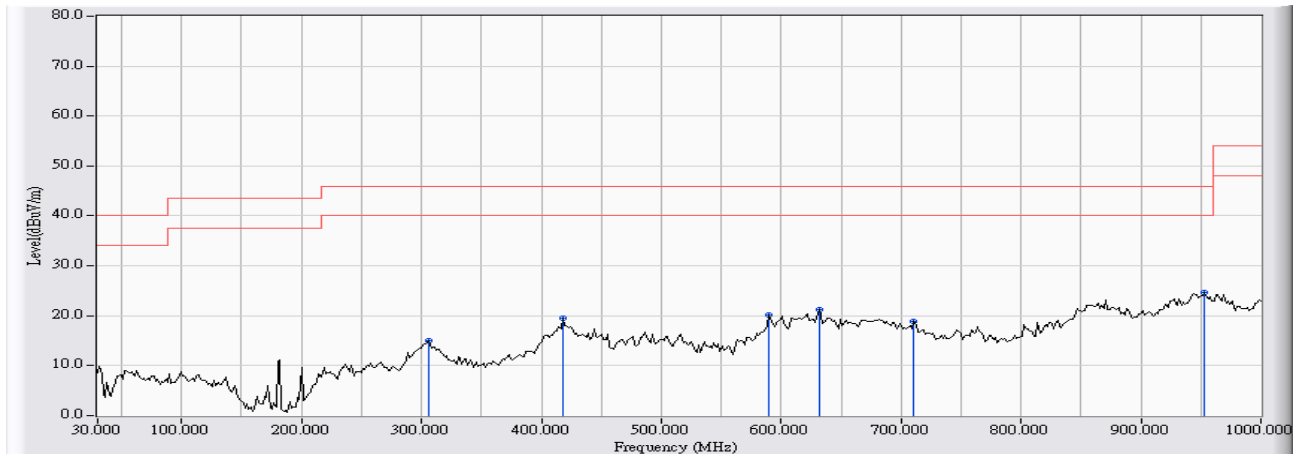
(213KHz)

Eraser_Vertical				
Frequency	Cable Loss	Reading Level	Emission Level	Average Limit
MHz	dB	dBuV	dBuV/m	dBuV/m
X-axis				
0.213	0.29	48.83	49.12	103.10
Y-axis				
0.213	0.29	48.75	49.04	103.10
Z-axis				
0.213	0.29	41.13	41.42	103.10
Eraser (Z-axis)_Vertical				
Frequency	Cable Loss	Reading Level	Emission Level	QP Limit
MHz	dB	dBuV	dBuV/m	dBuV/m
0.430	0.29	32.46	32.17	94.93
4.300	0.29	32.67	32.38	69.54
8.600	0.29	33.26	32.97	69.54
12.900	0.29	30.72	30.43	69.54
17.200	0.29	30.49	30.20	69.54
21.500	0.29	29.94	29.65	69.54
25.800	0.29	29.05	28.76	69.54

Note:

1. The Reading Levels are Average detector for the frequency bands 9–90kHz, 110–490 kHz and above 1000 MHz, and the others are QuasiPeak detector.
2. Measurement Level = Reading Level + Correct Factor.
3. 0.009 - 0.490 MHz , Limit(dBuV/m) = $20 \log (2400 / F(\text{kHz})) + 40 \log (300\text{m} / 3\text{m})$
4. 0.490 - 1.705 MHz , Limit(dBuV/m) = $20 \log (24000 / F(\text{kHz})) + 40 \log (30\text{m} / 3\text{m})$
5. 1.705 - 30.0 MHz , Limit(dBuV/m) = $20 \log (30 \text{ uV/m}) + 40 \log (30\text{m} / 3\text{m})$

Site : CB1	Time : 2009/12/08 - 11:20
Limit : NCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_NCC_30-1G(2009) - HORIZONTAL	Power : DC 1.5V
EUT : Eraser	Note : TX

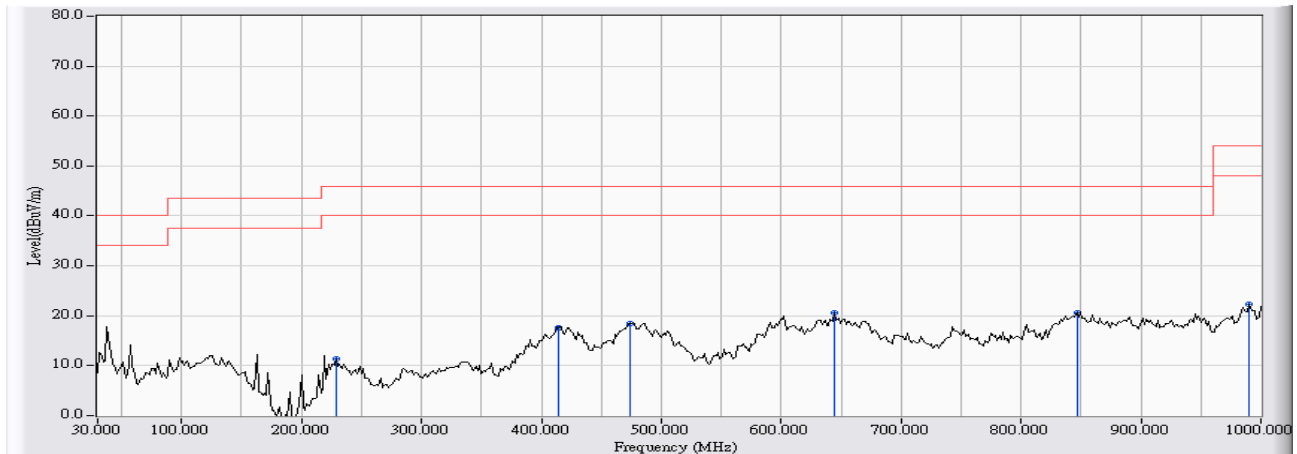


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		306.450	-8.575	23.488	14.913	-31.087	46.000	QUASIPeAK
2		418.000	-4.552	24.055	19.503	-26.497	46.000	QUASIPeAK
3		589.367	-3.738	23.814	20.077	-25.923	46.000	QUASIPeAK
4		631.400	-2.442	23.599	21.158	-24.842	46.000	QUASIPeAK
5		710.617	-4.416	23.358	18.942	-27.058	46.000	QUASIPeAK
6	*	953.117	2.268	22.417	24.684	-21.316	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
- 3.Measurement Level = Reading Level + Correct Factor

Site : CB1	Time : 2009/12/08 - 11:24
Limit : NCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_NCC_30-1G(2009) - VERTICAL	Power : DC 1.5V
EUT : Eraser	Note : TX



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	228.850	-12.979	24.251	11.272	-34.728	46.000	QUASIPeAK
2	414.767	-4.736	22.423	17.686	-28.314	46.000	QUASIPeAK
3	474.583	-3.645	22.191	18.545	-27.455	46.000	QUASIPeAK
4	* 644.333	-2.946	23.641	20.695	-25.305	46.000	QUASIPeAK
5	846.417	-2.113	22.614	20.502	-25.498	46.000	QUASIPeAK
6	990.300	-0.318	22.683	22.365	-31.635	54.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor