FCC 47 CFR PART 15 SUBPART B

TEST REPORT

For

CAR ALARM RECEIVER

Model: PLUS-4800

Trade Name: Advance Security Inc.

Issued to

Advance Security Inc.
3F, 48 Ta An Street, Hsi Chih, Taipei Hsien,
TAIWAN R.O.C.

Issued by

Compliance Certification Services Inc.
Hsintien Lab.
No. 165, Chunghsen Road, Hsintien City
Taipei Hsien, Taiwan
TEL: (02) 2217-0894
FAX: (02) 2217-1029

TABLE OF CONTENTS

1 TEST RESULT CERTIFICATION

Applicant:	**Advance Security Inc.** 3F, 48 Ta An Street, Hsi Chih, Taipei Hsien, TAIWAN R.O.C.
Manufacturer:	**Advance Security Inc.** 3F, 48 Ta An Street, Hsi Chih, Taipei Hsien, TAIWAN R.O.C.
Equipment Under Test:	CAR ALARM RECEIVER
Trade Name:	Advance Security Inc.
Model:	PLUS-4800
Detailed EUT Description:	See Item 2 of this report
Date of Test:	March 2, 2005

Applicable Standard	Class / Limit	Test Result
FCC Part 15 Subpart B	Class B	No non-compliance noted
Deviation from Applicable Standard		
None		

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, Subpart B and the measurement procedures were according to ANSI C63.4. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

Approved by:

David Wang
Manager of Hsintien Laboratory
Compliance Certification Services Inc.

Reviewed by:

Vince Chiang
Section Manager of Hsintien Laboratory
Compliance Certification Services Inc.

2 EUT DESCRIPTION

Product	CAR ALARM RECEIVER
Trade Name	Advance Security Inc.
Model	PLUS-4800
Housing Type	Plastic
EUT Power Rating	12VDC from DC Power
OSC/Clock Frequencies	4MHz
Receiver Frequency	433.92MHz
Number of Channels	1 Channel
Operating Mode	Point-to-Point
Antenna Type	Internal loop, which is built in EUT

Note: *The product is a composite system includes Transmitter and Receiver. This submittal(s) (test report) is intended for FCC ID: H5OR41 filing to comply with FCC Part 15 Subpart B Rules. The composite system (Transmitter) is intended for FCC ID: H5OT29 is compliance with FCC Part 15 Subpart C Rules.*

I/O PORT OF EUT

I/O Port Type	Q'TY	TESTED WITH

Note: *Client consigns only one model sample (Model Number is PLUS-4800) to test.*

3 TEST METHODOLOGY

3.1 EUT SYSTEM OPERATION

1. Turn on the EUT by connect to DC power supply.
2. EUT receive the data from transmitter by pressing and hold the button.

Note: *Test program is self-repeating throughout the test.*

3.2 DECISION OF FINAL TEST MODE

1. The following test mode(s) were scanned during the preliminary test:

Mode:

1. NORMAL MODE

2. After the preliminary scan, the following test mode was found to produce the highest emission level.

Radiation: Mode 1

Then, the EUT configuration and cable configuration of the above highest emission mode was recorded for all final test items.

4 SETUP OF EQUIPMENT UNDER TEST

Setup Diagram

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

Support Equipment

No	Device Type	Model	Serial No.	FCC ID/ BSMI ID	Brand	Data Cable	Power Cord
1.	DC Power Supply	PS140YA	N/A	N/A	DAIWA	Unshielded, 0.4m	Unshielded, 1.8m

Note: *All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.*

Grounding: *Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.*

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at CCS Taiwan Hsintien Lab at No. 165, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan.

The measurement facilities are constructed in conformance with the requirements of CISPR 16-1, ANSI C63.4 and other equivalent standards.

5.2 LABORATORY ACCREDITATIONS AND LISTINGS

The test facilities used to perform Electromagnetic compatibility tests are registered or accredited by the organizations listed in the following table which includes the recognized scope specifically.

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	CFR 47, FCC Part 15/18 using ANSI 63.4; AS/NZS 3548; VCCI V3; CNS 13438; CNS 13439; CNS 13783; CNS 14115; CISPR 11/EN 55011; CISPR 14-1/EN 55014-1; CISPR 15/EN 55015; CISPR 22/EN 55022; EN 50081-1/EN 61000-6-3; EN 50082-1/EN 61000-6-4; IEC/EN 61000-4-2, IEC/EN 61000-4-3, IEC/EN 61000-4-4, IEC/EN 61000-4-5, IEC/EN 61000-4-6, IEC/EN 61000-4-8, IEC/EN 61000-4-11, IEC/EN 61000-3-2, IEC/EN 61000-3-3; CISPR 24/EN 55024; CISPR 14-2/EN 55014-2; EN 50081-2/EN 61000-6-1; EN 50082-2/EN 61000-6-2.	ACCREDITED 824.01
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	250366
Japan	VCCI	3/10 meter Open Area Test Sites and Line Conducted Test Room to perform conducted/radiated measurements	VCCI R-1434/1630~4 C-1511/1882
Norway	NEMKO	EN 50081-1/2, EN 50082-1/2, IEC 61000-6-1/2/3/4, EN 50091-2, EN 50130-4, EN 55011, EN 55013, EN 55014-1/2, EN 55015, EN 55022, EN 55024, EN 61000-3-2/3, EN 61326-1, IEC 61000-4-2/3/4/5/6/8/11, Cispr 16-1/2/3/4	ELA 103
Taiwan	CNLA	47 CFR FCC Part 15 Subpart B, EN 61000-3-2, EN 61000-3-3, CNS 13439, CNS 13783-1, CNS 13438, AS/NZS 3548, VCCI, CNS 13022-1/2/3, EN 55022, EN 55013, EN 55014-1, EN 61000-4-2/3/4/5/6/8/11, ENV 50204, ENV 50141, ENV 50142	CNLA 1108 ILAC MRA
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439	SL2-IN-E-0005 SL2-A1-E-0005 SL2-R1-E-0005 SL2-R2-E-0005

Note: *No part of this report may be used to claim or imply product endorsement by CNLA, A2LA or other government agency.*

6 INSTRUMENT AND CALIBRATION

6.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

6.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and. other equivalent standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

Equipment Used for Emission Measurement

Open Area Test Site # E				
EQUIPMENT	**MFR**	**MODEL**	**SERIAL NUMBER**	**CAL. DUE**
SITE NSA	CCS	E Site	N/A	09/10/2005
MEASURE RECEIVER	SCHAFFNER	SCR 3501	461	02/17/2006
SPECTRUM ANALYZER	ADVANTEST	R3132	120900027	09/05/2005
ANTENNA	SCHAFFNER	CBL 6112B	2802	09/25/2005
AMPLIFIER	MCL	ZKL-1R5	D100704	12/16/2005
CABLE	SUHNER	RG 214	N-TYPE#E4	11/18/2005
THERMO-HYGRO METER	TFA	N/A	NO.6	11/09/2005
ATTENUATOR	Midwest Microwave	UNAT-10	AT10-2	12/16/2005

Note: The measurement uncertainty is less than +/- 3.36dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.

7 LINE CONDUCTED & RADIATED EMISSION TEST

7.1 LIMIT

Maximum permissible level of Line Conducted Emission

FREQUENCY (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: The lower limit shall apply at the transition frequency.

Maximum permissible level of Radiated Emission measured at 3 meter

FREQUENCY (MHz)	Class B (dBuV/m)
	Peak
30-88	40
88-216	43.5
216-960	46
Above 960	54

Note: The lower limit shall apply at the transition frequency.

7.2 TEST PROCEDURE OF LINE CONDUCTED EMISSION

Procedure of Preliminary Test

- The EUT was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per ANSI C63.4.
- All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- The test system with EUT received AC power, 120V/60Hz, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- All support equipment received power from a second LISN.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a EMI Test Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to the Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Receiver.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in Item 3.2 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in Item 3.2 producing the highest emission level.
- The EUT configuration and cable configuration of the above highest emission level were recorded for reference of the final test.

Procedure of Final Test

- EUT and support equipment were set up on the test bench as per step 10 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the AV. limit in Q.P. mode, then the emission signal was re-checked using an AV. detector.
- The test data of the worst-case condition(s) was recorded.

Data Sample:

Freq. MHz	Read Level dBuV	Factor dB	Level dBuV	Limit dBuV	Over Limit dB	Reading Type (P/Q/A)	Line (L1/L2)
x.xx	42.95	0.55	43.50	56	-12.50	Q	L1

Freq. = Emission frequency in MHz
Read Level = Uncorrected Analyzer/Receiver reading
Factor = Insertion loss of LISN + Cable Loss
Level = Read Level + Factor
Limit = Limit stated in standard
Over Limit = Reading in reference to limit
P = Peak Reading
Q = Quasi-peak Reading
A = Average Reading
L1 = Hot side
L2 = Neutral side

Calculation Formula

Over Limit (dB) = Level (dBuV) – Limit (dBuV)

7.3 TEST PROCEDURE OF RADIATED EMISSION

Procedure of Preliminary Test

- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per ANSI C63.4.
- All I/O cables were positioned to simulate typical usage as per ANSI C63.4.
- The EUT received AC power source, 120VAC/60Hz, from the outlet socket under the turntable. All support equipment received power from another socket under the turntable.
- The antenna was placed at 10 meter away from the EUT as stated in ANSI C63.4. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 2000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in Item 3.2 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 3.2 producing the highest emission level.
- The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

- EUT and support equipment were set up on the turntable as per step 8 of the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 2000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
- The test data of the worst case condition(s) was recorded.

Data Sample:

Freq. MHz	Read Level dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Over Limit dB	Reading Type (P/Q/A)	Pol. (H/V)
x.xx	14.0	12.2	26.2	40	-13.8	Q	H

Freq. = Emission frequency in MHz
Read Level = Uncorrected Analyzer/Receiver reading
Factor = Antenna Factor + Cable Loss + Attenuator (3/6/10dB) – Amplifier Gain
Level = Read Level + Factor
Limit = Limit stated in standard
Over Limit = Reading in reference to limit
P = Peak Reading
Q = Quasi-peak Reading
A = Average Reading
H = Antenna Polarization: Horizontal
V = Antenna Polarization: Vertical

Calculation Formula

Over Limit (dB) = Level (dBuV/m) – Limit (dBuV/m)

7.4 TEST RESULTS

Line Conducted Emission

Model: N/A **Test Mode:** N/A

Temperature: N/A **Humidity:** N/A

Test Results: N/A **Tested by:** N/A

Six Highest Conducted Emission Readings							
Frequency Range Investigated				**150 kHz to 30 MHz**			
Freq (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Reading Type (P/Q/A)	Line (L1/L2)

NOTE: *Not applicable, because EUT no connect to AC Main Source.*

Radiated Emission

Model: PLUS-4800 **Test Mode:** Mode 1

Temperature: 25°C **Humidity:** 75% RH

Test Results: Passed **Tested by:** JASON LEE

(The chart below shows the highest readings taken from the final data, see **Appendix II** for details.)

Six Highest Radiated Emission Readings							
Frequency Range Investigated				**30 MHz to 2000 MHz at 10m**			
Freq (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Reading Type (P/Q/A)	Pol. (H/V)
409.000	**35.20**	**-9.78**	**25.42**	**46.00**	**-20.58**	**P**	**V**
438.200	**37.60**	**-8.97**	**28.63**	**46.00**	**-17.37**	**P**	**V**
454.100	**36.99**	**-8.91**	**28.08**	**46.00**	**-17.92**	**P**	**V**
428.500	**33.73**	**-9.51**	**24.22**	**46.00**	**-21.78**	**P**	**H**
436.400	**32.88**	**-9.09**	**23.79**	**46.00**	**-22.12**	**P**	**H**
454.600	**32.64**	**-8.91**	**23.73**	**46.00**	**-22.27**	**P**	**H**

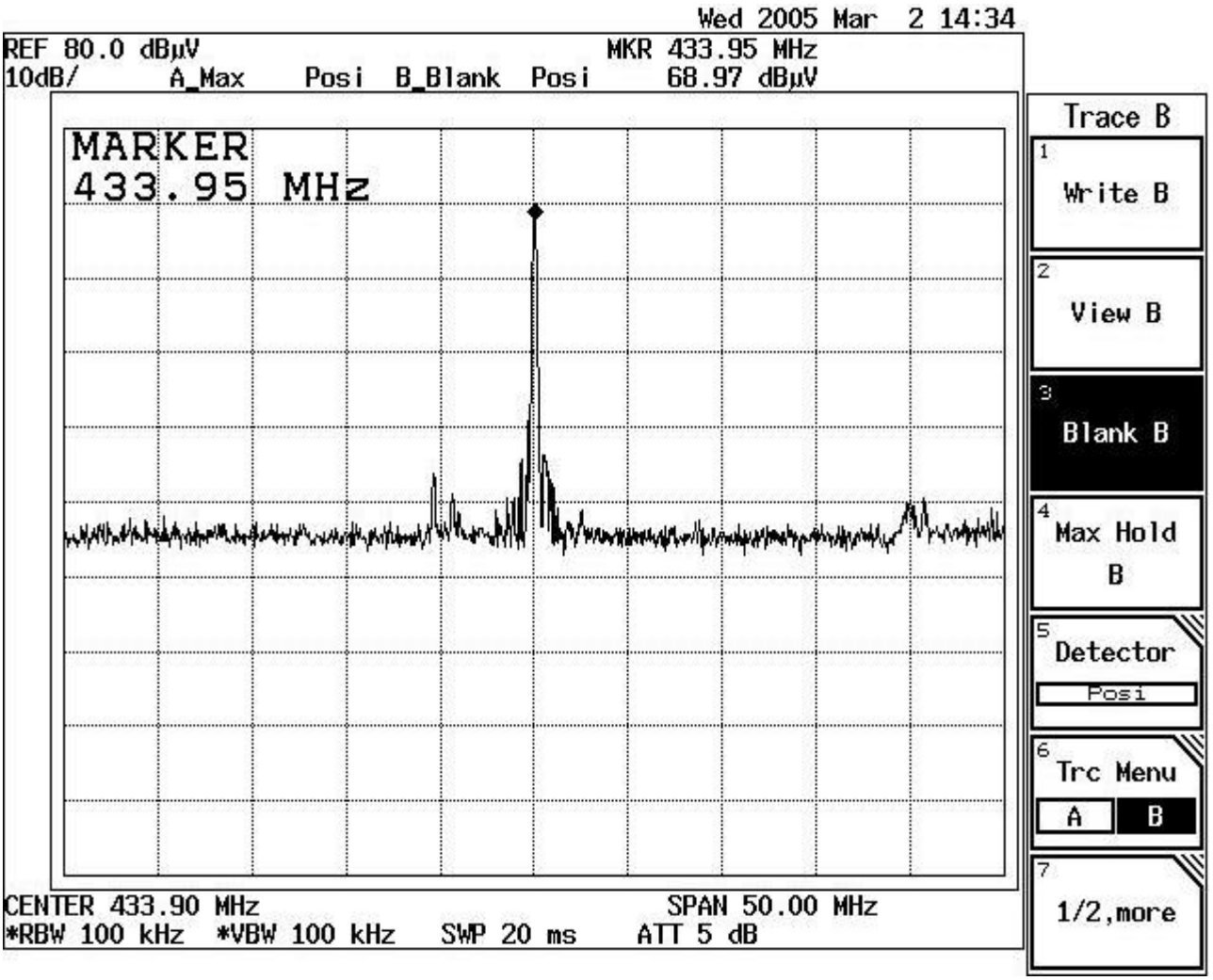
NOTE: *No other emissions were found within 20dB below the limits from 30-2000MHz.*

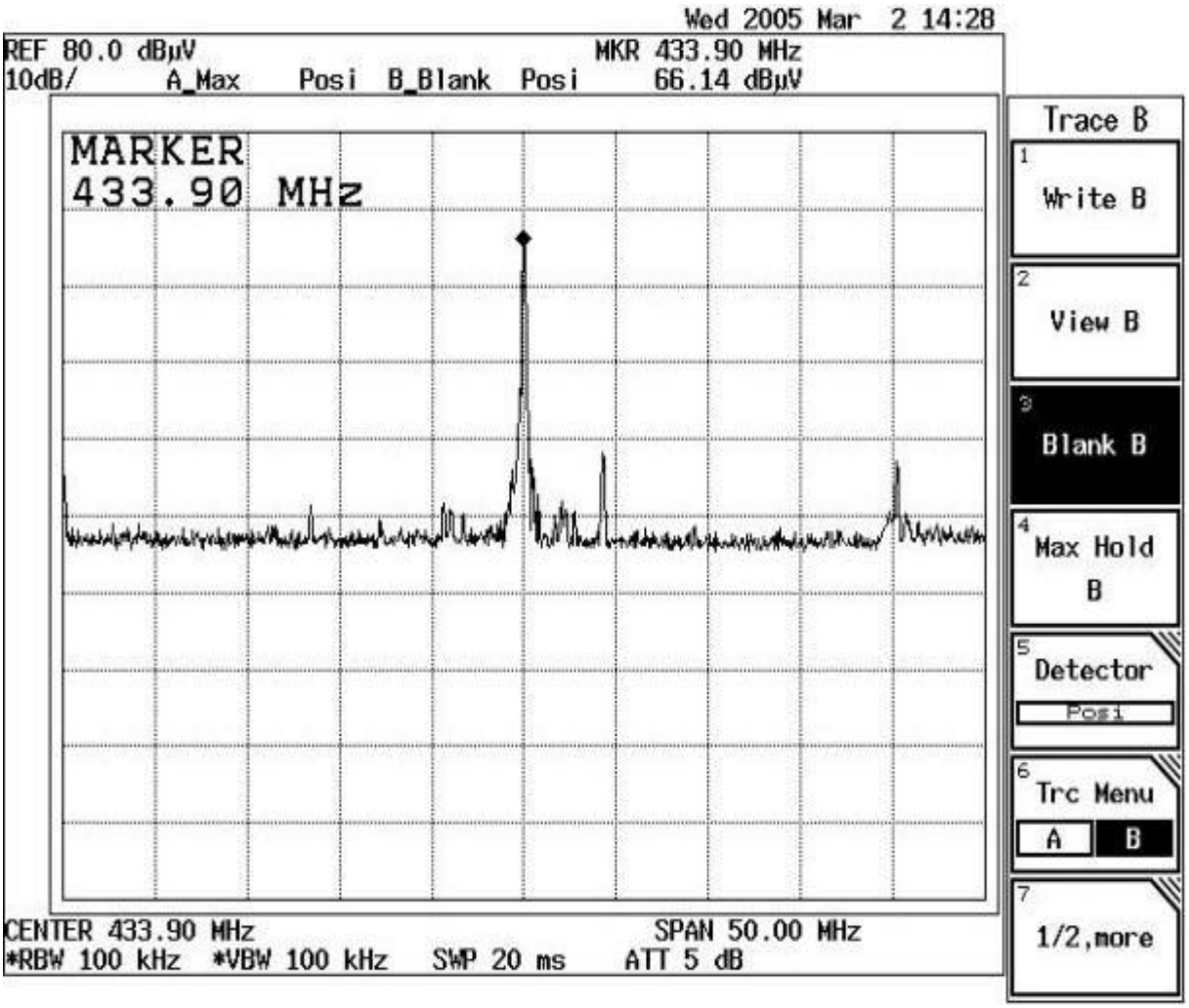
APPENDIX I - PHOTOGRAPHS OF TEST SETUP

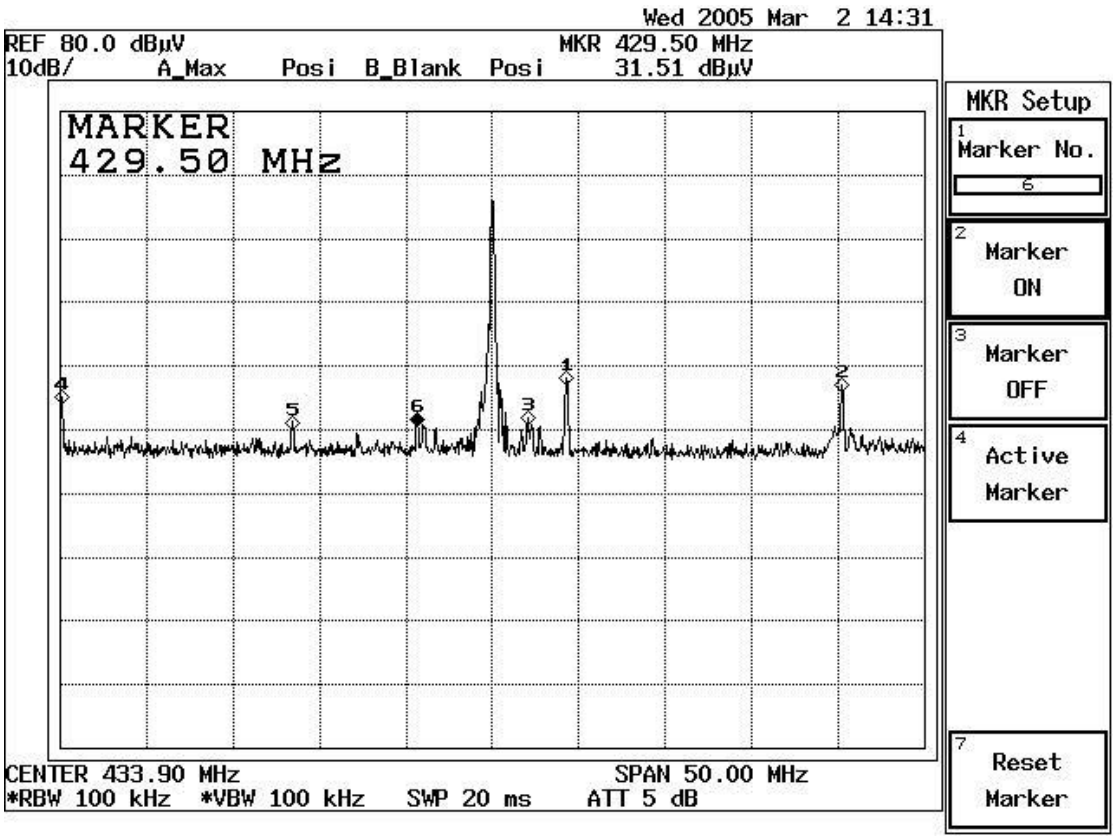
RADIATED EMISSION TEST

APPENDIX II - TEST RESULT OF FINAL DATAS

Radiated Emission Data


Wed 2005 Mar 2 14:34
REF 80.0 dBµV
MKR 433.95 MHz
10dB/ A_Max Posi B_Blank Posi 68.97 dBµV
MARKER
433.95 MHz
Trace B
1
Write B
2
View B
3
Blank B
4
Max Hold
B
5
Detector
Posi
6
Trc Menu
A
B
7
1/2,more
CENTER 433.90 MHz
SPAN 50.00 MHz
*RBW 100 kHz *VBW 100 kHz SWP 20 ms ATT 5 dB


Wed 2005 Mar 2 14:28
REF 80.0 dBµV
10dB/
A_Max Posi
B_Blank Posi
MKR 433.90 MHz
66.14 dBµV
MARKER
433.90 MHz
Trace B
1 Write B
2 View B
3 Blank B
4 Max Hold B
5 Detector
Posi
6 Trc Menu
A B
7 1/2,more
CENTER 433.90 MHz
SPAN 50.00 MHz
*RBW 100 kHz
*VBW 100 kHz
SWP 20 ms
ATT 5 dB

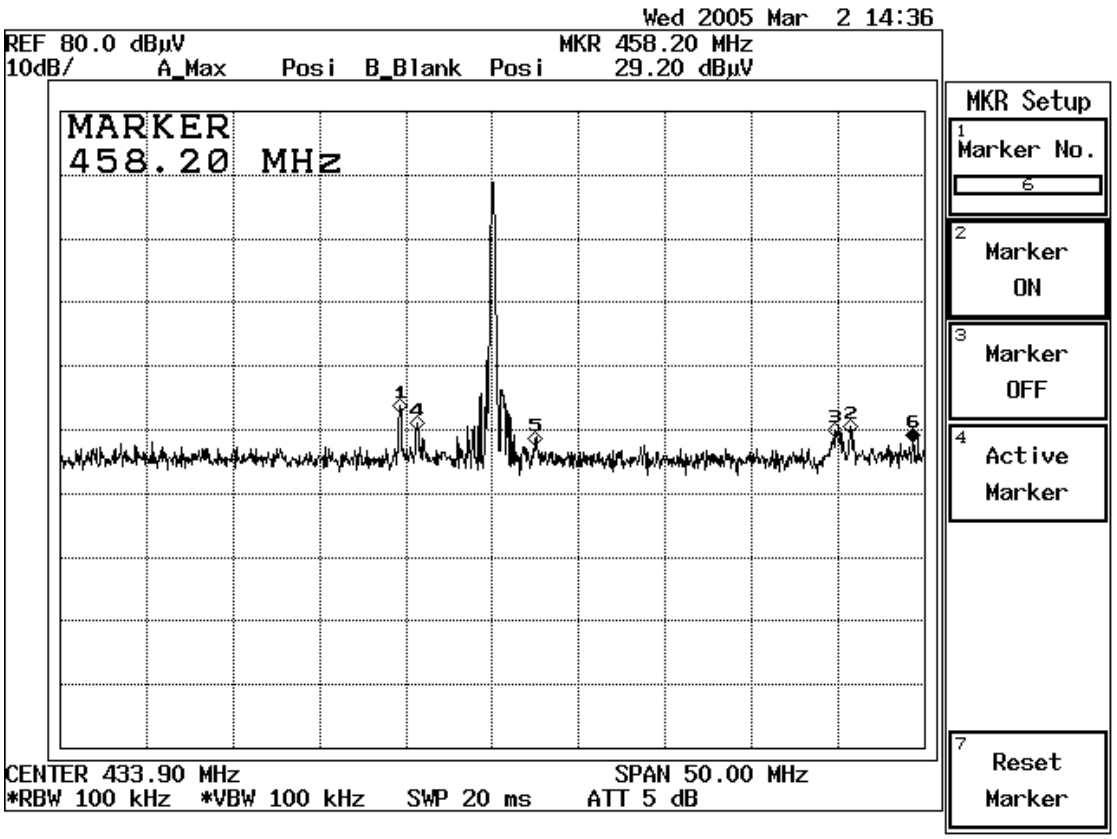


Model: PLUS-4800 **Test Mode:** Mode 1

Temperature: 25°C **Humidity:** 75% RH

Test Results: Passed **Tested by:** JASON LEE

Six Highest Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 2000 MHz at 10m			
Freq (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Reading Type (P/Q/A)	Pol. (H/V)
409.000	**35.20**	**-9.78**	**25.42**	**46.00**	**-20.58**	**P**	**V**
422.350	**31.09**	**-9.46**	**21.63**	**46.00**	**-24.37**	**P**	**V**
429.500	**31.51**	**-9.29**	**22.22**	**46.00**	**-23.78**	**P**	**V**
435.950	**31.77**	**-9.09**	**22.68**	**46.00**	**-23.32**	**P**	**V**
438.200	**37.60**	**-8.97**	**28.63**	**46.00**	**-17.37**	**P**	**V**
454.100	**36.99**	**-8.91**	**28.08**	**46.00**	**-17.92**	**P**	**V**



Model: PLUS-4800 **Test Mode:** Mode 1

Temperature: 25°C **Humidity:** 75% RH

Test Results: Passed **Tested by:** JASON LEE

Six Highest Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 2000 MHz at 10m			
Freq (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Reading Type (P/Q/A)	Pol. (H/V)
428.500	**33.73**	**-9.51**	**24.22**	**46.00**	**-21.78**	**P**	**H**
429.550	**31.09**	**-9.29**	**21.80**	**46.00**	**-24.20**	**P**	**H**
436.400	**32.88**	**-9.09**	**23.79**	**46.00**	**-22.21**	**P**	**H**
453.700	**31.91**	**-8.90**	**23.01**	**46.00**	**-22.99**	**P**	**H**
454.600	**32.64**	**-8.91**	**23.73**	**46.00**	**-22.27**	**P**	**H**
458.200	**31.25**	**-8.53**	**22.72**	**46.00**	**-23.28**	**P**	**H**