



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

FOR

Product Name: Audience Response System wireless receiver

Model : IWS-RF2

Trade Name: 

Issued to

CANNEX TECHNOLOGY INC.

No. 182, Sec 2, Yuanlu Rd., Sihu Town 514, Changhua County, Taiwan

Issued by

Global Certification Corp.

EMC Test Site	Xizhi office and Lab	No.146, Sec. 2, Xiangzhang Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
------------------	-------------------------	--



Note: This test refers exclusively to the test presented test model and sample. This report shall not be reproduced except in full, without the written approval of Global Certification Corporation. This document may be altered or revised by Global Certification Corporation. Personnel only, and shall be noted in the revision section of the document.



TABLE OF CONTENTS	2
1. GENERAL INFORMATION	3
1.1 DESCRIPTION OF THE TESTED SAMPLES	3
2. TEST METHODOLOGY	3
2.1 GENERAL TEST PROCEDURES	3
2.2 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS	3
2.3 DESCRIPTION OF TEST MODES	3
2.4 DESCRIPTION OF THE SUPPORT EQUIPMENTS	3
3. TEST AND MEASUREMENT EQUIPMENT	3
3.1 CALIBRATION	3
3.2 EQUIPMENT	3
4. SECTION 15.249 REQUIREMENTS (FUNDAMENTAL/ HARMONICS)	3
4.1 TEST SETUP	3
4.2 LIMIT	3
4.3 RESULT: <u>PASS</u>	3
4.4 TEST DATA:	3
5. SECTION 15.205 REQUIREMENTS (BAND EDGE)	3
5.1 TEST SETUP	3
5.2 LIMIT	3
5.3 RESULT: <u>PASS</u>	3
5.4 TEST DATA:	3
6. SECTION 15.209 REQUIREMENTS (GENERAL RADIATED EMISSION)	3
6.1 TEST SETUP	3
6.2 LIMIT	3
6.3 TEST PROCEDURE	3
6.4 RESULT: <u>PASS</u>	3
6.5 TEST DATA:	3
7. SECTION 15.207 REQUIREMENTS (POWERLINE CONDUCTED EMISSIONS)	3
APPENDIX 1	
PHOTOS OF TEST CONFIGURATION	
APPENDIX 3	
PHOTOS OF EUT	



1. GENERAL INFORMATION

Applicant : CANNEX TECHNOLOGY INC.
Address : No. 182, Sec 2, Yuanlu Rd., Sihua Town 514,
Changhua County, Taiwan
Manufacturer : CANNEX TECHNOLOGY INC.
Address : No. 182, Sec 2, Yuanlu Rd., Sihua Town 514,
Changhua County, Taiwan
EUT : Audience Response System wireless receiver
Model No. : IWS-RF2
Model Differences : N/A

Is here with confirmed to comply with the requirements set out in the FCC Rules and Regulations Part 15 Subpart C and the measurement procedures were according to ANSI C63.4-2003. The said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

FCC part 15 subpart C

Receipt Date : Jul. 31, 2012

Final Test Date : Sep. 18, 2012

New Taipei City, Taiwan

(Place)

Sep. 18, 2012

(Date)

Jason Yeh / Vice Manager

(Signature)

Designation Number: TW1030



1.1 DESCRIPTION OF THE TESTED SAMPLES

EUT Name : Audience Response System wireless receiver

Model Number : IWS-RF2

Receipt Date : Jul. 31, 2012

FCC ID : P28CWB

Input Voltage : DC 5 V

Power From ☐Inside ☒Outside

☐Adaptor ☐BATTERY ☐AC Power Source
☐DC Power Source ☒From USB port of host PC

Operate Frequency : Refer to the channel list as described below
(2.433GHz – 2.458.4GHz)

Modulation Technique : MSK

Number of Channels : 128 channels

Output Power : 1 mW

Operating Mode : ☐ Simplex ☐ Duplex ☒ Point-to-Point

Antenna Type : Fixed Micro-Strip Antenna

Antenna gain : 0.81dBi



Channels	Frequencies (MHz)	Channels	Frequencies (MHz)	Channels	Frequencies (MHz)	Channels	Frequencies (MHz)
0	2432.9999	40	2440.9979	80	2448.9960	120	2456.9940
1	2433.1998	41	2441.1979	81	2449.1959	121	2457.1940
2	2433.3998	42	2441.3978	82	2449.3959	122	2457.3939
3	2433.5997	43	2441.5978	83	2449.5958	123	2457.5939
4	2433.7997	44	2441.7977	84	2449.7958	124	2457.7938
5	2433.9996	45	2441.9977	85	2449.9957	125	2457.9938
6	2434.1996	46	2442.1976	86	2450.1957	126	2458.1937
7	2434.3995	47	2442.3976	87	2450.3956	127	2458.3937
8	2434.5995	48	2442.5975	88	2450.5956		
9	2434.7994	49	2442.7975	89	2450.7955		
10	2434.9994	50	2442.9974	90	2450.9955		
11	2435.1993	51	2443.1974	91	2451.1954		
12	2435.3993	52	2443.3973	92	2451.3954		
13	2435.5992	53	2443.5973	93	2451.5953		
14	2435.7992	54	2443.7972	94	2451.7953		
15	2435.9991	55	2443.9972	95	2451.9952		
16	2436.1991	56	2444.1971	96	2452.1952		
17	2436.3990	57	2444.3971	97	2452.3951		
18	2436.5990	58	2444.5970	98	2452.5951		
19	2436.7989	59	2444.7970	99	2452.7950		
20	2436.9989	60	2444.9969	100	2452.9950		
21	2437.1988	61	2445.1969	101	2453.1949		
22	2437.3988	62	2445.3968	102	2453.3949		
23	2437.5987	63	2445.5968	103	2453.5948		
24	2437.7987	64	2445.7967	104	2453.7948		
25	2437.9986	65	2445.9967	105	2453.9947		
26	2438.1986	66	2446.1966	106	2454.1947		
27	2438.3985	67	2446.3966	107	2454.3946		
28	2438.5985	68	2446.5965	108	2454.5946		
29	2438.7984	69	2446.7965	109	2454.7945		
30	2438.9984	70	2446.9964	110	2454.9945		
31	2439.1983	71	2447.1964	111	2455.1944		
32	2439.3983	72	2447.3963	112	2455.3944		
33	2439.5982	73	2447.5963	113	2455.5943		
34	2439.7982	74	2447.7962	114	2455.7943		
35	2439.9981	75	2447.9962	115	2455.9942		
36	2440.1981	76	2448.1961	116	2456.1942		
37	2440.3981	77	2448.3961	117	2456.3941		
38	2440.5980	78	2448.5961	118	2456.5941		
39	2440.7980	79	2448.7960	119	2456.7940		



2. TEST METHODOLOGY

All testing as described bellowed were performed in accordance with ANSI C63.4:2003 and FCC CFR 47 Part 15 Subpart C.

2.1 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on a wood table, which is at 0.8 m above ground plane acceding to clause 15.207 and requirements of ANSI C63.4:2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz are using CISPR Quasi-Peak / Average detectors.

Radiated Emissions

The EUT is a placed on a turn table, which is 0.8 m above ground plane. The turntable was rotated through 360 degrees to determine the position of maximum emission level. The EUT is placed at 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.



2.2 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
10.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	()
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

2.3 DESCRIPTION OF TEST MODES

The EUT was tested under following modes:

Modes:

1. Continuous transmitting

Channels:

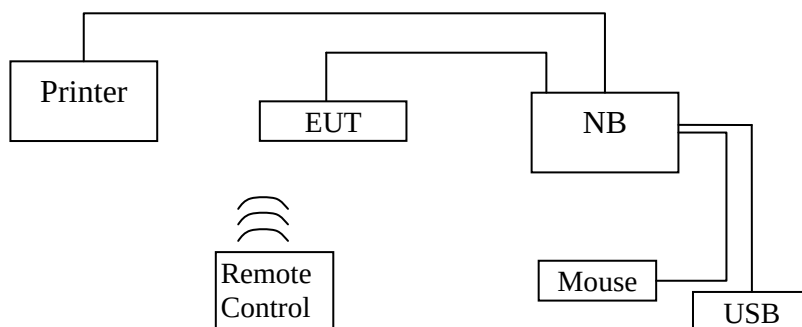
1. 2433MHz (Lowest Channel)
2. 2445.6MHz (Middle Channel)
3. 2458.4MHz (Highest Channel)



2.4 DESCRIPTION OF THE SUPPORT EQUIPMENTS

Setup Diagram

See test photographs attached in appendix 1 for the actual connections between EUT and support equipment.



Support Equipment

Peripherals Devices:

OUTSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord
1.	NB	2684-BV0	F9385	R33026	IBM	N/A	Unshielded 0.8m
2.	PRINTER	STYLUS PHOTO750	BDEK01 7629	3872P011	EPSON	Shielded 1.8m	Unshielded 1.8m
3.	MOUSE	M-UAR DEL7	N/A	T41126	DELL	Shielded 1.5m/USB	N/A
4.	USB storage	TS2GJFV30	156511-6 400	DOC/ D33193	TRANSCEND	Shielded 1m	N/A
EUT							
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord
1.	PCB	IWS-RF2	N/A	N/A	N/A	N/A	N/A

Note: All the above equipment /cable were placed in worse case position to maximize emission signals during emission test
Grounding: Grounding was in accordance with the manufacturer's requirement and conditions for the intended use.



3. TEST AND MEASUREMENT EQUIPMENT

3.1 CALIBRATION

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

3.2 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 required 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.

TABLE 1 LIST OF TEST AND MEASUREMENT EQUIPMENT

Instrument	Manufacturer	Model No.	Serial No.	Calibration Due Date	Note
EMC Test Receiver	R&S	ESCI	100438	Jun 29, 2013	
Bilog Antenna	SUNOL	JB1	A052204	Nov 06, 2012	
Turn table	EMCO	2080	9508-1805	N/A	
Controller	EMCO	2090	9804-1328	N/A	
Amplifier	G.W	GAP-801	EF150001	Jul.18, 2013	
Amplifier	Schwarzbeck	BBV 9718	9718-008	Aug. 10, 2013	
EMC Test Receiver	LIG NEx1	ER-265	L0907B006	Oct 01, 2012	
RF Cable	JYE BAO	RG214/U	25M-002	Nov 10, 2012	
RF Cable	Huber Suhner	SUCOFLEX 104	293864/4	Nov. 13, 2012	
Thermo-Hygro meter	WISEWIND	4-IN-1	050100378	Dec.02, 2012	
Loop Antenna	Teseq GmbH	HLA 6120	26439	Sep. 11, 2013	
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-491	Aug. 05, 2013	

✂ Calibration interval of instruments listed above is one year



4. SECTION 15.249 REQUIREMENTS (FUNDAMENTAL/ HARMONICS)

4.1 TEST SETUP

Refer to paragraph 6.1.

4.2 LIMIT

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBμV/m at 3-meter)	Detector
902 - 928 2400 – 2483 5725 - 5875	114	Peak
902 - 928 2400 – 2483 5725 - 5875	94	AV

Fundamental Frequency (MHz)	Field Strength of Harmonics (dBμV/m at 3-meter)	Detector
902 - 928 2400 – 2483 5725 - 5875	74	Peak
902 - 928 2400 – 2483 5725 - 5875	54	AV

4.3 RESULT: PASS



4.4 TEST DATA:

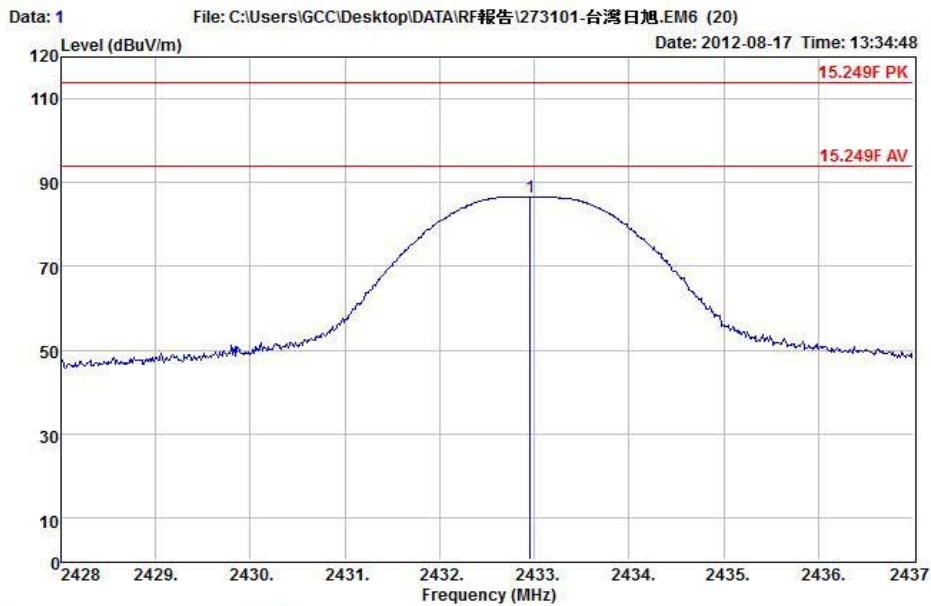
4.4.1 Fundamental

Lowest Channel-Horizontal



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249F PK 3m 3117(1G-18G)101 HORIZONTAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHL
°C/%

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dB
1	2432.96	106.09	-19.45	32.01	2.57	54.03	86.64	114.00 -27.36 Peak

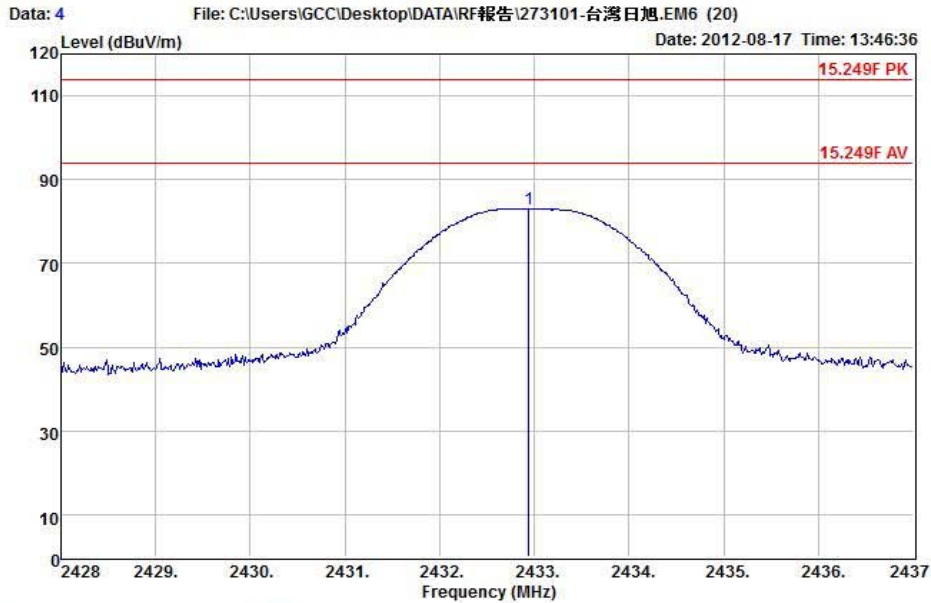


Lowest Channel-VERTOCAL



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249F PK 3m 3117(1G-18G)101 VERTICAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHL
°C / %

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2432.94	102.55	-19.45	32.01	2.57	54.03	83.10	114.00 -30.90 Peak

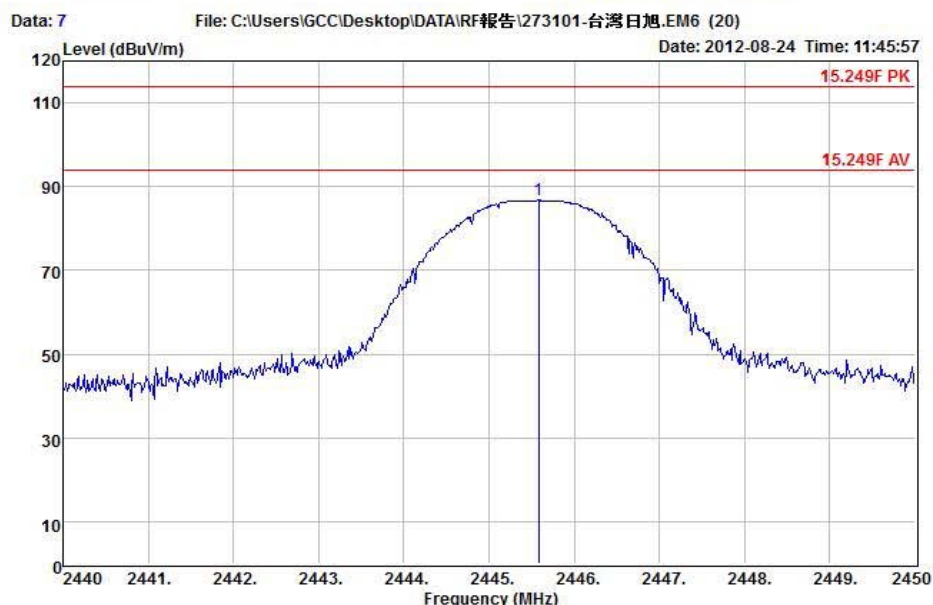


Middle Channel-HORIZONTAL



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249F PK 3m 3117(1G-18G)101 HORIZONTAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHM
°C / %

		Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Factor	Loss	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2445.58	106.13	-19.42	32.02	2.58	54.02	86.71	114.00	-27.29 Peak

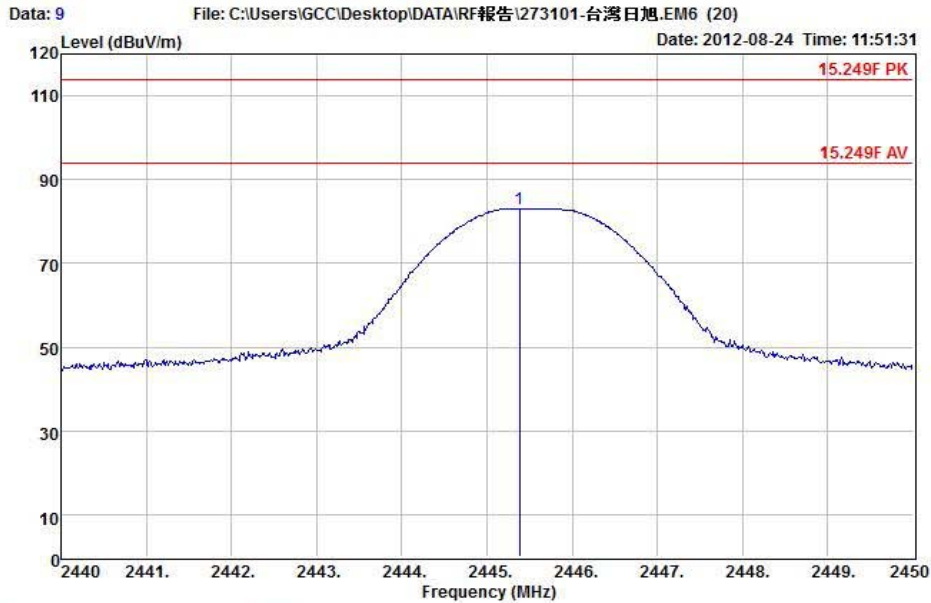


Middle Channel-VERTOCAL



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249F PK 3m 3117(1G-18G)101 VERTICAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHM
°C / %

	Read	Antenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Factor	Loss	Factor	Level	Line	Limit Remark
MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2445.38	102.57	-19.42	32.02	2.58	54.02	83.15	114.00 -30.85 Peak

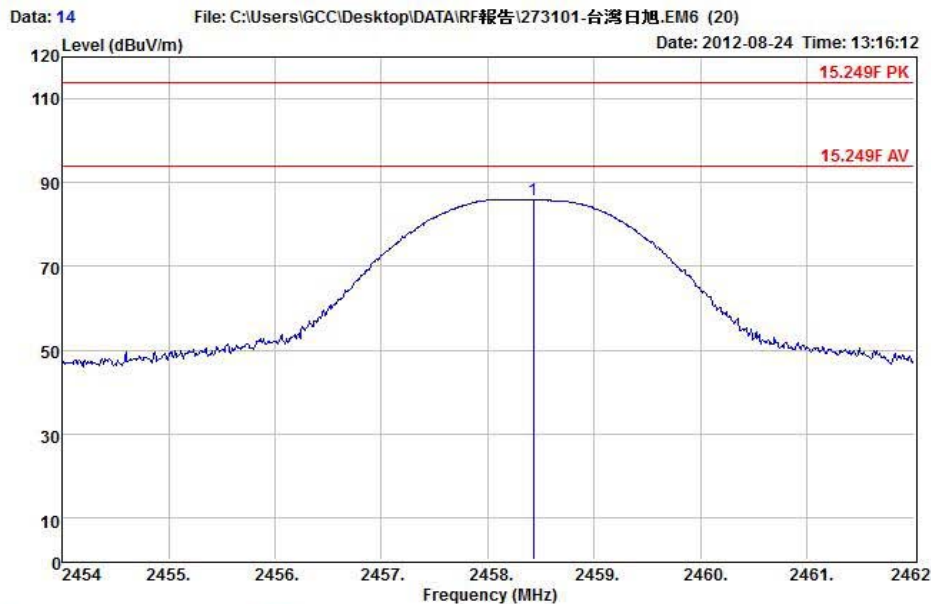


Highest Channel-HORIZONTAL



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249F PK 3m 3117(1G-18G)101 HORIZONTAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHH
°C / %

	Read	Antenna	Cable	Preamp	Limit	Over			
	Freq	Level	Factor	Factor	Loss	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2458.42	105.38	-19.38	32.04	2.59	54.01	86.00	114.00	-28.00 Peak

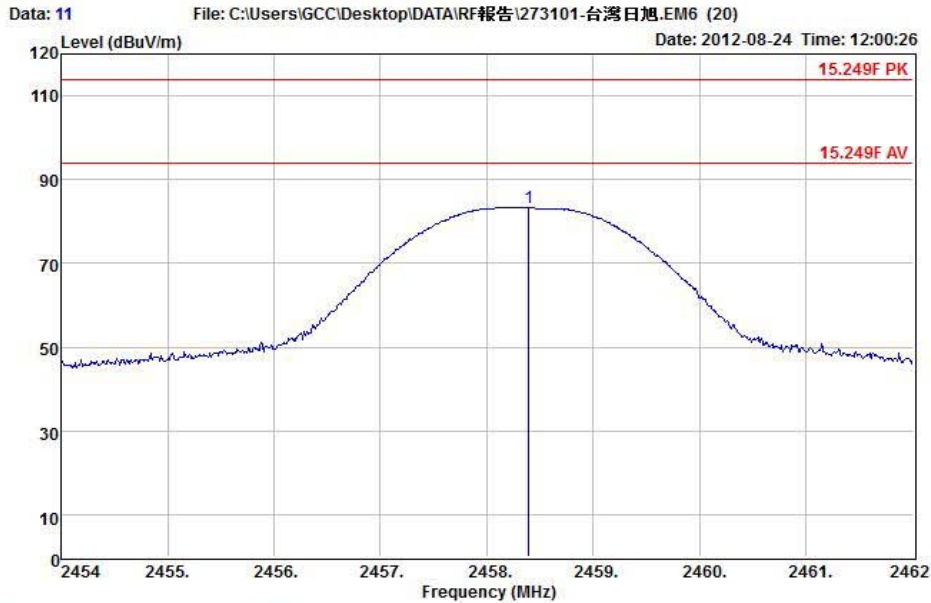


Highest Channel-VERTOCAL



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249F PK 3m 3117(1G-18G)101 VERTICAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHH
°C / %

		Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Factor	Loss	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2458.39	102.64	-19.38	32.04	2.59	54.01	83.26	114.00	-30.74 Peak



4.4.2 Harmonics
Lowest Channel

HORIZONTAL

	Freq	Read Level	Antenna Factor	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4870.00	61.46	-16.80	33.77	3.73	54.30	44.66	74.00	-29.34	Peak
2	7315.00	62.02	-13.67	35.44	4.65	53.76	48.35	74.00	-25.65	Peak
3	9722.50	56.16	-11.91	36.63	5.40	53.94	44.25	74.00	-29.75	Peak

VERTICAL

	Freq	Read Level	Antenna Factor	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4870.00	60.85	-16.80	33.77	3.73	54.30	44.05	74.00	-29.95	Peak
2	6820.00	58.95	-13.89	35.54	4.46	53.89	45.06	74.00	-28.94	Peak
3	9730.00	56.93	-11.90	36.64	5.40	53.94	45.03	74.00	-28.97	Peak



Harmonics

Middle Channel

HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4900.00	60.70	-16.77	33.78	3.74	54.29	43.93	74.00	-30.07 Peak
2	7337.50	61.28	-13.65	35.43	4.66	53.74	47.63	74.00	-26.37 Peak
3	9782.50	56.23	-11.89	36.67	5.41	53.97	44.34	74.00	-29.66 Peak

VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4900.00	60.17	-16.77	33.78	3.74	54.29	43.40	74.00	-30.60 Peak
2	7337.50	57.65	-13.65	35.43	4.66	53.74	44.00	74.00	-30.00 Peak
3	9782.50	55.95	-11.89	36.67	5.41	53.97	44.06	74.00	-29.94 Peak



Harmonics
Highest Channel

HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	4930.00	62.32	-16.74	33.79	3.75	54.28	45.58	74.00	-28.42 Peak
2	7382.50	63.65	-13.62	35.42	4.68	53.72	50.03	74.00	-23.97 Peak
3	9835.00	57.72	-11.86	36.70	5.43	53.99	45.86	74.00	-28.14 Peak

VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	4930.00	59.81	-16.74	33.79	3.75	54.28	43.07	74.00	-30.93 Peak
2	7375.00	56.35	-13.62	35.43	4.67	53.72	42.73	74.00	-31.27 Peak
3	9835.00	57.20	-11.86	36.70	5.43	53.99	45.34	74.00	-28.66 Peak

Note:

1. Correction factor = Antenna factor + Cable loss – Preamp Factor
2. Emission level = Reading level + Correction factor
3. Correction factor : Antenna factor, Cable loss, PreAmp, etc.
4. All emissions as described above were determining by rotating the EUT through three orthogonal axes to maximizing the emissions if the EUT belongs to hand-held or body-worn devices.
5. Measurements above 1000 MHz, Peak detector setting: use a 1 MHz RBW, a 3 MHz VBW.
6. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10 Hz VBW.
7. Peak detector measurement data will represent the worst case results.
8. “---” denotes the data which is not available.



5. SECTION 15.205 REQUIREMENTS (BAND EDGE)

5.1 TEST SETUP

Refer to paragraph 6.1.

5.2 LIMIT

Restricted Bands:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

Operation within the bands:

902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz, and 24.0 - 24.25 GHz.

Frequency (Hz)	Field Strength (μ V/m at 3-meter)	Field Strength (dB μ V/m at 3-meter)
1.705-30	30 (at 30-meter)	69.54
30-88	100	40
88-216	150	43
216-960	200	46
Above 960	500	54

5.3 RESULT: PASS



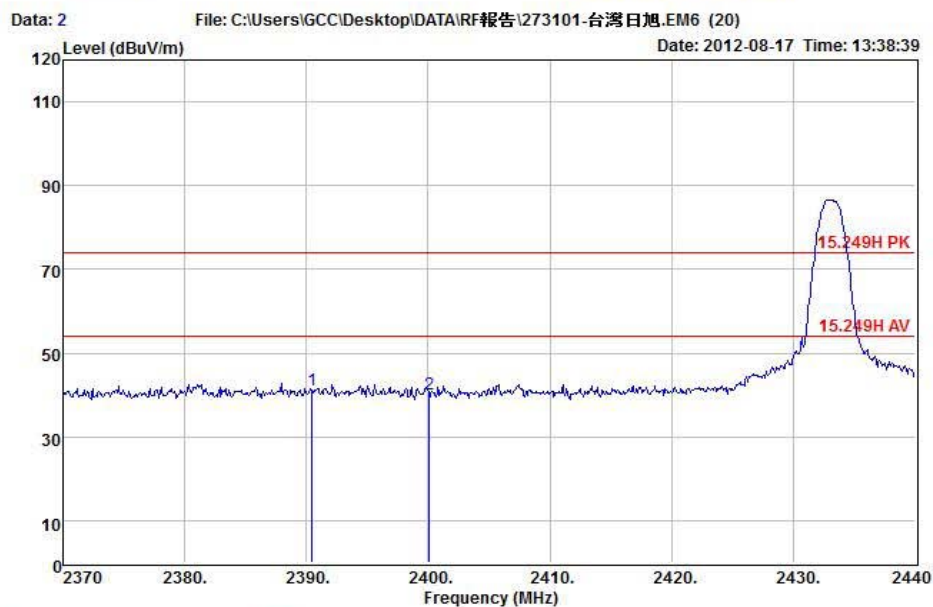
5.4 TEST DATA:

Lowest Channel-Horizontal



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249H PK 3m 3117(1G-18G)101 HORIZONTAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHL
°C/%

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB	
1	2390.44	60.60	-19.56	31.95	2.55	54.06	41.04	74.00 -32.96 Peak
2	2400.10	59.75	-19.54	31.96	2.55	54.05	40.21	74.00 -33.79 Peak



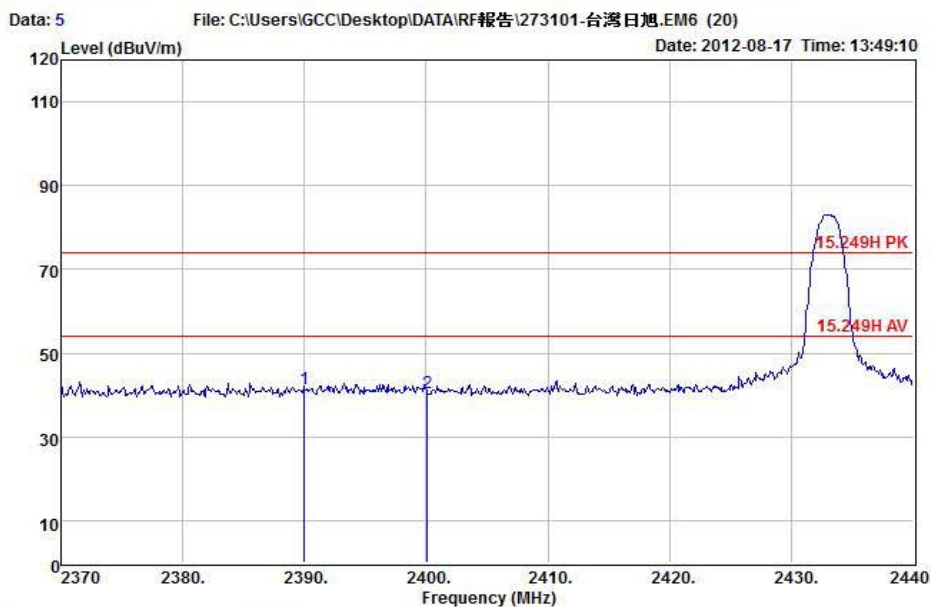
Lowest Channel-Vertical



環球認證有限公司

Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249H PK 3m 3117(1G-18G)101 VERTICAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHL
°C / %

		Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2390.02	61.18	-19.56	31.95	2.55	54.06	41.62	74.00	-32.38 Peak
2	2400.10	60.21	-19.54	31.96	2.55	54.05	40.67	74.00	-33.33 Peak

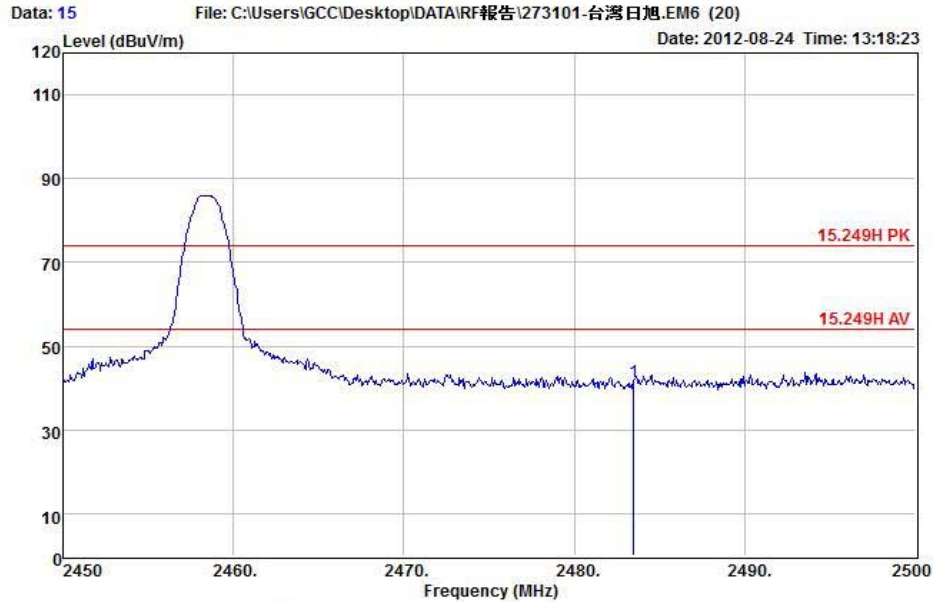


Highest Channel-Horizontal



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249H PK 3m 3117(1G-18G)101 HORIZONTAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHH
°C / %

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.50	60.84	-19.32	32.08	2.60	54.00	41.52	74.00	-32.48 Peak

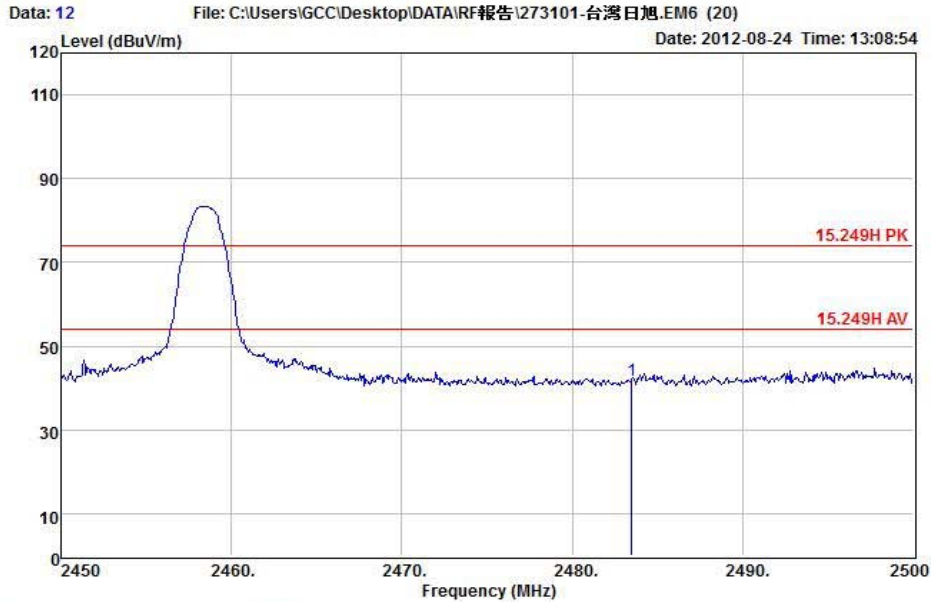


Highest Channel-Vertical



環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL:886-2-26426992 FAX:886-2-26487450
WebSite: <http://www.gcc.tw>



Site : 966
Condition : 15.249H PK 3m 3117(1G-18G)101 VERTICAL
EUT : Please refer to page 1 of report
MODE : Please refer to page 1 of report
MEMO : TX CHH
°C / %

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2483.50	61.30	-19.32	32.08	2.60	54.00	41.98	74.00	-32.02 Peak

Note:

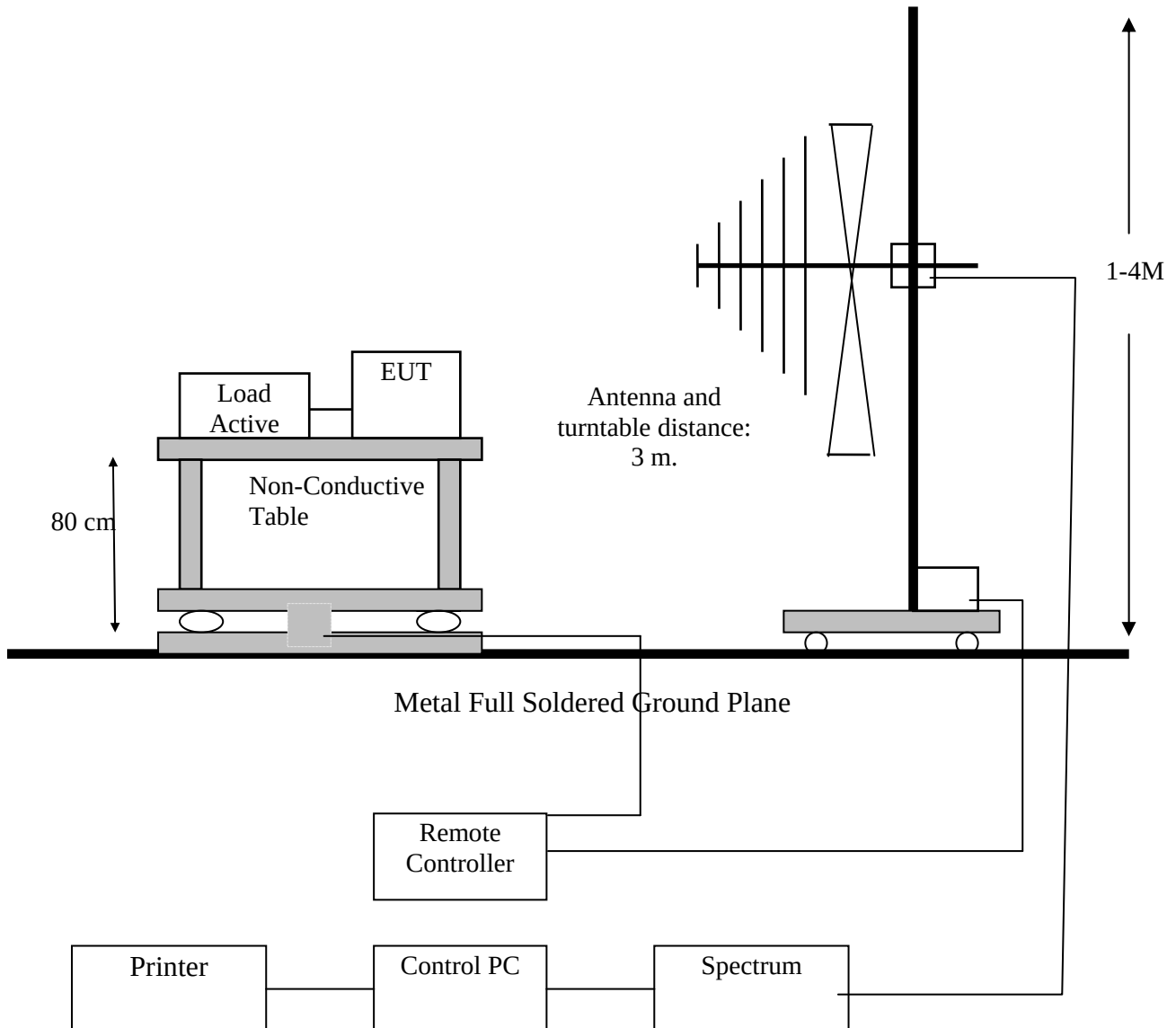
1. Correction factor = Antenna factor + Cable loss – Preamp Factor
2. Emission level = Reading level + Correction factor
3. Correction factor : Antenna factor, Cable loss, PreAmp, etc.



4. All emissions as described above were determining by rotating the EUT through three orthogonal axes to maximizing the emissions if the EUT belongs to hand-held or body-worn devices.
5. Measurements above 1000 MHz, Peak detector setting: use a 1 MHz RBW, a 3 MHz VBW
6. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10 Hz VBW
7. Peak detector measurement data will represent the worst case results.

6. SECTION 15.209 REQUIREMENTS (GENERAL RADIATED EMISSION)

6.1 TEST SETUP





6.2 LIMIT

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in section 15.209 as below.

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
1.705-30	30	30
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500*	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

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

Frequency (Hz)	Field Strength (μ V/m at 3-meter)	Field Strength (dB μ V/m at 3-meter)
1.705-30	30 (at 30-meter)	49.5
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

6.3 TEST PROCEDURE

1. The EUT was placed on a turntable, which was 0.8m above ground plane.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT was set at 3m away from the receiving antenna, which was varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was maximized by changing the polarization of receiving antenna, both horizontal and vertical.
6. Repeated above procedures until the measurements for all frequencies are completed.

6.4 RESULT: PASS



6.5 TEST DATA:

All frequencies not described in this test report and within the range of the general radiated emission limits are not detectable significantly. The table as below is representing worst emissions found.

Highest Channel (worst emissions found)

HORIZONTAL

	Freq	Read Level	Factor	Cable Loss	Antenna Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	119.25	37.85	-12.48	2.18	14.03	28.69	25.37	43.50	-18.13	Peak
2	214.72	46.87	-14.45	3.02	11.39	28.86	32.42	43.50	-11.08	Peak
3	239.46	42.93	-13.60	3.22	12.09	28.91	29.33	46.00	-16.67	Peak
4	251.80	43.74	-13.41	3.30	12.23	28.94	30.33	46.00	-15.67	Peak
5 p	286.06	49.91	-11.64	3.55	13.84	29.03	38.27	46.00	-7.73	Peak
6	334.28	45.58	-10.59	3.88	14.69	29.16	34.99	46.00	-11.01	Peak

VERTICAL

	Freq	Read Level	Factor	Cable Loss	Antenna Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	47.45	50.66	-17.48	1.33	9.87	28.68	33.18	40.00	-6.82	Peak
2	74.62	48.47	-18.82	1.70	8.15	28.67	29.65	40.00	-10.35	Peak
3 p	119.24	50.48	-12.48	2.18	14.03	28.69	38.00	43.50	-5.50	Peak
4	214.30	43.83	-14.46	3.02	11.37	28.85	29.37	43.50	-14.13	Peak
5	274.44	43.80	-11.74	3.47	13.79	29.00	32.06	46.00	-13.94	Peak
6	381.14	37.67	-9.37	4.17	15.75	29.29	28.30	46.00	-17.70	Peak

Note:

1. Correction factor = Antenna factor + Cable loss – Preamp Factor
2. Emission level = Reading level + Correction factor
3. Correction factor: Antenna factor, Cable loss, PreAmp, etc.
4. All emissions as described above were determining by rotating the EUT through three orthogonal axes to maximizing the emissions if the EUT belongs to hand-held or body-worn devices.
5. Measurements from 9 kHz to 150 kHz, Peak detector setting: 100 Hz RBW
6. Measurements from 150 kHz to 30MHz, Peak detector setting: 10 kHz RBW
7. Measurements from 30 MHz to 1000 MHz, Peak detector setting: 100 kHz RBW
8. Measurements from 9 kHz to 150 kHz, CISPR Quasi-Peak detector: 200 Hz RBW
9. Measurements from 150 kHz to 30MHz, CISPR Quasi-Peak detector: 9 kHz RBW
10. Measurements from 30 MHz to 1000 MHz, CISPR Quasi-Peak detector: 120 kHz RBW
11. Peak detector measurement data will represent the worst case results.



12. SECTION 15.207 REQUIREMENTS (powerline conducted emissions)

The EUT is powered by the DCV from PC; therefore this test item is not applicable.



Global Certification Corp.

Appendix 1

PHOTOS OF TEST CONFIGURATION

01 CE-F



02 CE-B



03 966 RE-Highest Channel



04 966 RE-Lowest Channel





Global Certification Corp.

Appendix 2

TEST DATA

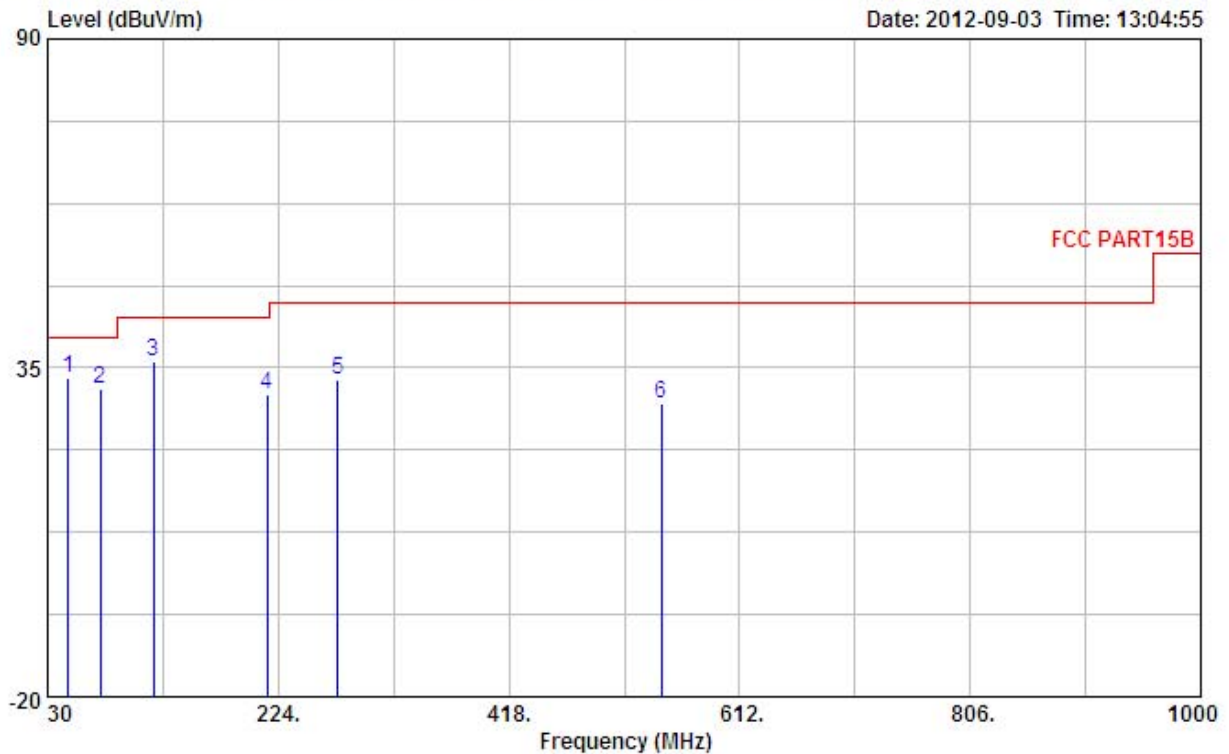


環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL: 886-2-26426992 FAX: 886-2-26487450
WebSite: <http://www.gcc.tw>

Data: 5

File: C:\Documents and Settings\XP桌面\E3 DATA\273101.EM6 (8)



Site : OPEN SITE Test Site 1
Condition : FCC PART15B VERTICAL
EUT : Please refer to page 1 of report.jnt
MODE : Please refer to page 1 of report.jnt
MEMO : TX
T/H : 26 °C 52%
Remarks : Level = Factor + Read Level

	Freq	Read Level	Factor	Cable Loss	Antenna Factor	Preamplifier	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1 p	47.46	50.65	-17.48	1.33	9.87	28.68	33.17	40.00	-6.83	Peak
2	74.25	50.31	-18.82	1.69	8.16	28.67	31.49	40.00	-8.51	Peak
3	119.42	48.61	-12.46	2.18	14.05	28.69	36.15	43.50	-7.35	Peak
4	214.30	44.96	-14.46	3.02	11.37	28.85	30.50	43.50	-13.00	Peak
5	274.05	44.75	-11.75	3.47	13.78	29.00	33.00	46.00	-13.00	Peak
6	546.04	34.77	-5.67	5.12	18.76	29.55	29.10	46.00	-16.90	Peak

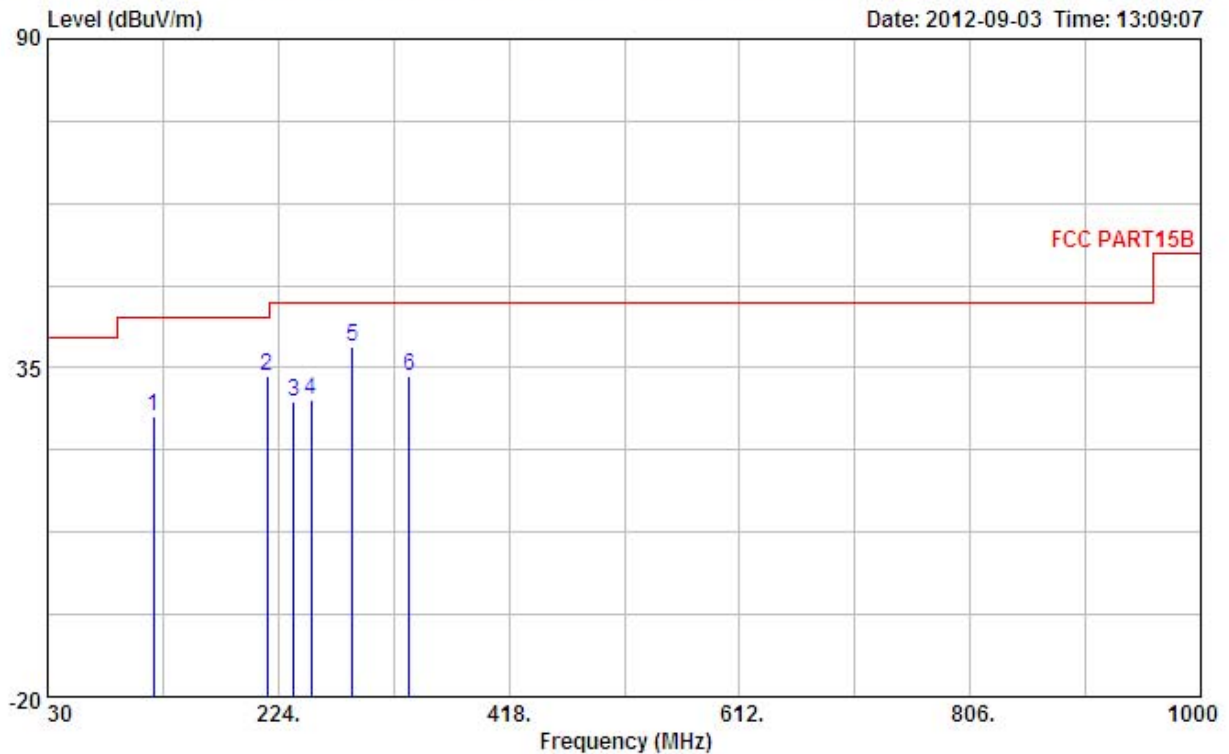


環球認證有限公司
Global Certification Corp.

Global Certification Corp.
No.146, Sec. 2, Xiangzhang Rd.,
Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
TEL: 886-2-26426992 FAX: 886-2-26487450
WebSite: http://www.gcc.tw

Data: 6

File: C:\Documents and Settings\XP桌面\E3 DATA\273101.EM6 (8)



Site : OPEN SITE Test Site 1
Condition : FCC PART15B HORIZONTAL
EUT : Please refer to page 1 of report.jnt
MODE : Please refer to page 1 of report.jnt
MEMO : TX
T/H : 26 °C 52%
Remarks : Level = Factor + Read Level

	Freq	Read Level	Factor	Cable Loss	Antenna Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	119.14	39.42	-12.49	2.18	14.02	28.69	26.93	43.50	-16.57	Peak
2	214.30	47.98	-14.46	3.02	11.37	28.85	33.52	43.50	-9.98	Peak
3	237.04	42.88	-13.67	3.20	12.04	28.91	29.21	46.00	-16.79	Peak
4	251.85	43.18	-13.41	3.30	12.23	28.94	29.77	46.00	-16.23	Peak
5 p	286.36	50.21	-11.64	3.55	13.84	29.03	38.57	46.00	-7.43	Peak
6	334.15	44.20	-10.60	3.88	14.68	29.16	33.60	46.00	-12.40	Peak