

Report No.: ER/2009/30001 Issue Date: Apr. 06, 2009

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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

Product Name: MyResponse RF-15

Brand Name: MyResponse

Model Name: RF-15

Model Difference: N/A

FCC ID: W9J-SBLRF15

Report No.: ER/2009/30001

Issue Date: Apr. 06, 2009

§15.249 FCC Rule Part:

Prepared for: AClass Learning Technology Inc.

15F-1, No. 343, ChungHo Rd., YungHo City,

Taipei, Taiwan

Prepared by: SGS Taiwan Ltd.

Electronics & Communication Laboratory

No. 134, Wu Kung Rd., Wuku Industrial Zone,

Taipei County, Taiwan.



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VERIFICATION OF COMPLIANCE

Applicant: AClass Learning Technology Inc.

15F-1, No. 343, ChungHo Rd., YungHo City, Taipei, Taiwan

Product Description: MyResponse RF-15

Brand Name: MyResponse

FCC ID: W9J-SBLRF15

Model No.: RF-15

Model Difference: N/A

File Number: ER/2009/30001

Date of test: Mar. 03, 2009 ~ Apr. 02, 2009

Date of EUT Received: Mar. 03, 2009

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd., Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.249.

The test results of this report relate only to the tested sample identified in this report.

Test By:	Bondi Jin	Date:	Apr. 06, 2009	
Prepared By:	Bondi Liu / Engineer	Date:	Apr. 06, 2009	
Approved By:	Eva Kao / Asst. Supervisor Vincent Su / Manager	Date:	Apr. 06, 2009	

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Version

Version No. Date		Description			
00 Apr. 06, 2009		Initial creation of document			

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GENERAL INFORMATION

1.1 Product Description

The AClass Learning Technology Inc., Model: RF-15 (referred to as the EUT in this report) is a low power device.

A major technical descriptions of EUT is described as following:

A) Operation Frequency: 2433~2483MHz, 251 channels

B) Modulation Type: MSK

C) Power Supply: 5Vdc from USB port.

D) Antenna Designation: Micro-Strip Antenna, Please see EUT photo for details.

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: W9J-SBLRF15 filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

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2. System Test Configuration

2.1 **EUT Configuration**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 **EUT Exercise**

The Transmitter was operated in the engineering operating mode, the Tx frequency was fixed which was for the purpose of the measurements.

2.3 **Test Procedure**

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2003.

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Limitation

(1) Conducted Emission

According to section 15.207(a) Conducted Emission Limits is as following.

Frequency	Conducted Limit (dBuV)				
(MHz)	Quasi-Peak	Average			
0.15 - 0.5	66 - 56	56 - 46			
0.5 - 5	56	46			
5 - 30	60	50			

(2) Radiated Emission 15.249(a)

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following.

Frequency	Field strength of	Field strength of	Distance (m)
(MHz)	Fundamental	Harmonics	
902 - 928	50 mV/m	500 uV/m	3
	(94dBuV/m)	(54dBuV/m)	
2400 – 2483.5	50 mV/m	50 mV/m 500 uV/m	
	(94dBuV/m)	(54dBuV/m)	
5725 – 5875	50 mV/m	500 uV/m	3
	(94dBuV/m)	(54dBuV/m)	
24.0 – 24.25 GHz	250 mV/m	2500 uV/m	3
	(107.95dBuV/m)	(67.95dBuV/m)	

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(3) Radiated Emission15.249 (d)

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

Frequency Field strength		Distance (m)	Field strength at 3m
(MHz)	μV/m		dBμV/m
1.705-30	30	30	69.54
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

(4) Radiated Emission 15.249(e)

For frequencies above 1000MHz, the above field strength limits are based on average limits. The peak filed strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation.

Remark: 1. Emission level in dBuV/m=20 log (uV/m)

- 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
- 3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205
- 4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of ξ 15.205, then the general radiated emission limits in ξ 15.209 apply.

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2.5 Configuration of Tested System

Fig. 2-1 Configuration of TX

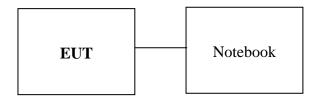


Table 2-2 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Notebook	IBM	T40	99HCYF4	N/A	Un-shieled

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.

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3. Summary of Test Results

FCC Rules	Description Of Test	Result		
§15.207	Conducted Emission	N/A		
§15.249(a)(e)	Radiated Emission	Compliant		
§15.249(d)	26dB band width Measurement	Compliant		

Description of test modes

The EUT has been tested under operating condition.

Test program used to control the EUT for staying in continuous transmitting mode is programmed.

Channel low (2433MHz) · mid (2458MHz) and high (2483MHz) with highest data rate are chosen for full testing.

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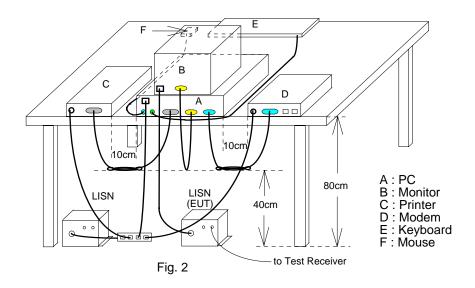
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4. Conducted Emissions Test

4.1 Measurement Procedure:

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete.

4.2 Test SET-UP (Block Diagram of Configuration)



4.3 Measurement Equipment Used:

Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
EMI Test Receiver	R&S	ESCS30	828985/004	09/16/2008	09/15/2009				
LISN	Rolf-Heine	NNB-2/16Z	99012	04/28/2008	04/27/2009				
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	04/28/2008	04/27/2009				
Coaxial Cables	N/A	WK CE Cable	N/A	10/30/2008	10/29/2009				

4.4 Measurement Result:

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

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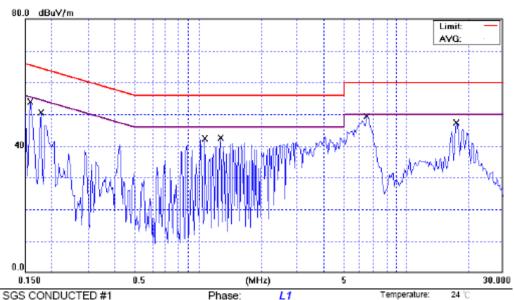


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AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation Mode			Test Date:	Mar. 10, 2009
Temperature:	24 °C	Humidity:	56 %	Test By:	Bondi



Site SGS CONDUCTED #1

Limit: EN55022 Class B Conduction(QP)

Phase: L1 Power: AC110V/60HZ

Distance:

Humidity: 56 % Air Pressure:

EUT: 互動反饋系統學習機

M/N: RF-15

Note: Operation mode

Mk.	Freq.		Reading Leveractor		Measure- mehimit	Over		
	MHz	dBuV/r	m dB	dBuV/m			Detector	Comment
1	0.1	1578	57.39	0.20	57.59	65.58	-7.99	QP
2	0.1	1578	35.65	0.20	35.85	55.58	-19.73	AVG
3	0.1	1773	51.22	0.20	51.42	64.61	-13.19	QP
4	0.1	1773	34.39	0.20	34.59	54.61	-20.02	AVG
5	1.0	0836	43.38	0.20	43.58	56.00	-12.42	QP
6	* 1.0	0836	42.85	0.20	43.05	46.00	-2.95	AVG
7	1.2	2828	43.84	0.20	44.04	56.00	-11.96	QP
8	1.2	2828	42.03	0.20	42.23	46.00	-3.77	AVG
9	6.5	5094	43.82	0.53	44.35	60.00	-15.65	QP
10	6.5	5094	43.35	0.53	43.88	50.00	-6.12	AVG
11	17.5	5055	46.16	0.70	46.86	60.00	-13.14	QP
12	17.5	5055	40.79	0.70	41.49	50.00	-8.51	AVG

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Report No.: ER/2009/30001 Issue Date: Apr. 06, 2009

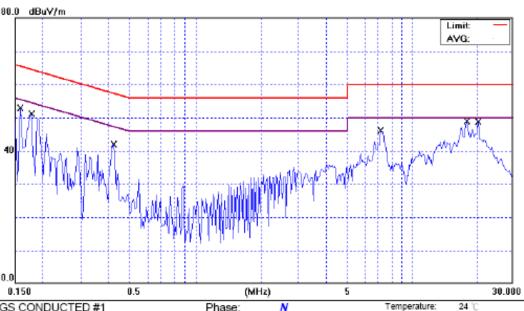
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Humidity:

Air Pressure:

56 %

hpa



AC110V/60HZ

Site SGS CONDUCTED #1

Limit: EN55022 Class B Conduction(QP)

EUT: 互動反饋系統作答機

M/N: RF-15

Note: Operation mode

	Mk.	Freq.		Reading Leveractor		leasure- mehimit	Over		
•		MHz	dBuV/	m dB	dBuV/m	dBuV/n	n dB	Detector	Comment
	1	0	.1578	57.22	0.20	57.42	65.58	-8.16	QP
•	2	0	.1578	40.47	0.20	40.67	55.58	-14.91	AVG
	3	0	.1773	51.02	0.20	51.22	64.61	-13.39	QP
	4	0	.1773	36.47	0.20	36.67	54.61	-17.94	AVG
	5	0	.4234	40.25	0.20	40.45	57.38	-16.93	QP
	6	* 0	.4234	39.89	0.20	40.09	47.38	-7.29	AVG
	7	7	.2008	43.78	0.56	44.34	60.00	-15.66	QP
•	8	7	.2008	36.53	0.56	37.09	50.00	-12.91	AVG
	9	17	.9625	44.98	0.76	45.74	60.00	-14.26	QP
	10	17	.9625	36.90	0.76	37.66	50.00	-12.34	AVG
•	11	20	.2594	40.82	0.81	41.63	60.00	-18.37	QP
	12	20	.2594	32.82	0.81	33.63	50.00	-16.37	AVG

Power:

Distance:

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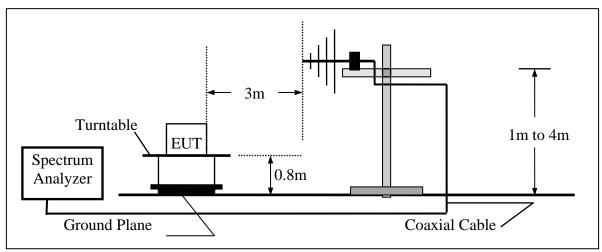
5. Radiated Emission Test

5.1 Measurement Procedure

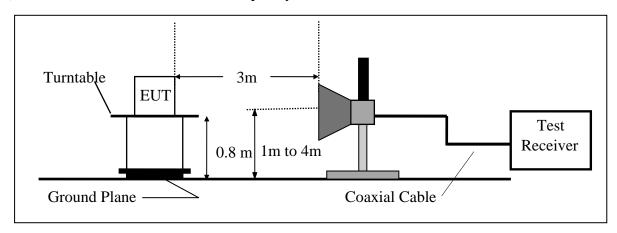
- 1. The EUT was placed on a turntable that is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 4. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



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Measurement Equipment Used:

966 Chamber										
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.					
TYPE		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2009	02/11/2010					
Loop antenna	MESSTEC	FLA30	03/10086	06/06/2007	06/05/2009					
Bilog Antenna	SCHWAZBECK	VULB9160	9160-3136	11/15/2008	11/14/2009					
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2008	05/08/2010					
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2008	11/29/2009					
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2009	01/04/2010					
Turn Table	HD	DT420	N/A	N.C.R	N.C.R					
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R					
Controller	HD	HD100	N/A	N.C.R	N.C.R					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2009	01/04/2010					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2009	01/04/2010					
3m Site	SGS	966 chamber	N/A	11/08/2008	11/09/2009					

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

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5.5 Measurement Result

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Low Test Date Mar. 23, 2009

Fundamental Frequency $2433 \mathrm{MHz}$ Test By Bondi Temperature $25~^{\circ}\mathrm{C}$ Pol Ver./Hor

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
51.34	V	Peak	50.61	-14.42	36.19	40.00	-3.81
96.93	V	Peak	54.39	-16.63	37.76	43.50	-5.74
191.99	V	Peak	50.00	-15.37	34.63	43.50	-8.87
288.99	V	Peak	53.51	-13.13	40.38	46.00	-5.62
313.24	V	Peak	49.60	-12.50	37.10	46.00	-8.90
455.83	V	Peak	44.93	-9.44	35.49	46.00	-10.51
96.93	Н	Peak	49.58	-16.63	32.95	43.50	-10.55
167.74	Н	Peak	50.90	-13.70	37.20	43.50	-6.30
191.99	Н	Peak	54.10	-15.37	38.73	43.50	-4.77
288.99	Н	Peak	54.33	-13.13	41.20	46.00	-4.80
313.24	Н	Peak	53.96	-12.50	41.46	46.00	-4.54
623.64	Н	Peak	43.19	-5.85	37.34	46.00	-8.66

Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Mid Test Date Mar. 23, 2009

Fundamental Frequency 2458MHz Test By Bondi 25 °C Temperature Pol Ver./Hor

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
31.94	V	Peak	51.00	-14.90	36.10	40.00	-3.90
51.34	V	Peak	49.59	-14.42	35.17	40.00	-4.83
96.93	V	Peak	51.90	-16.63	35.27	43.50	-8.23
288.99	V	Peak	53.62	-13.13	40.49	46.00	-5.51
313.24	V	Peak	49.87	-12.50	37.37	46.00	-8.63
455.83	V	Peak	45.26	-9.44	35.82	46.00	-10.18
48.43	Н	Peak	50.81	-14.32	36.49	40.00	-3.51
119.24	Н	Peak	52.23	-14.76	37.47	43.50	-6.03
191.99	Н	Peak	51.95	-15.37	36.58	43.50	-6.92
288.99	Н	Peak	55.31	-13.13	42.18	46.00	-3.82
313.24	Н	Peak	53.86	-12.50	41.36	46.00	-4.64
337.49	Н	Peak	51.13	-11.97	39.16	46.00	-6.84

Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH High Test Date Mar. 23, 2009

Fundamental Frequency 2483MHz Test By Bondi Temperature 25 °C Pol Ver./Hor

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
119.24	V	Peak	47.53	-14.76	32.77	43.50	-10.73
167.74	V	Peak	51.76	-13.70	38.06	43.50	-5.44
240.49	V	Peak	53.00	-14.54	38.46	46.00	-7.54
288.99	V	Peak	53.79	-13.13	40.66	46.00	-5.34
313.24	V	Peak	54.25	-12.50	41.75	46.00	-4.25
623.64	V	Peak	43.13	-5.85	37.28	46.00	-8.72
51.34	Н	Peak	49.92	-14.42	35.50	40.00	-4.50
96.93	Н	Peak	54.74	-16.63	38.11	43.50	-5.39
191.99	Н	Peak	49.38	-15.37	34.01	43.50	-9.49
288.99	Н	Peak	52.43	-13.13	39.30	46.00	-6.70
313.24	Н	Peak	50.41	-12.50	37.91	46.00	-8.09
455.83	Н	Peak	45.35	-9.44	35.91	46.00	-10.09

Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Low Test Date: Mar. 23, 2009

Fundamental Frequency: 2433MHz

Test By: Bondi
Temperature: 25 °C

Pol: Vertical

Humidity: 65 %

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB)	Actual Peak FS (dBuV/m)	Actual AV FS (dBuV/m)	Peak Limit at 3m (dBuV/m)	at 3m	Margin (dB)	
2433.0	V	87.05		-1.19	85.86		114.00	94.00	-8.14	F
4866.0	V	37.53		6.15	43.68		74.00	54.00	-10.32	Н
7299.0	V						74.00	54.00		Н
9732.0	V						74.00	54.00		Н
12165.0	V						74.00	54.00		Н
14598.0	V						74.00	54.00		Н
17031.0	V						74.00	54.00		Н
19464.0	V						74.00	54.00		Н
21897.0	V						74.00	54.00		Н
24330.0	V						74.00	54.00		Н

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Low Test Date: Mar. 23, 2009

Fundamental Frequency: 2433MHz

Test By: Bondi
Temperature: 25 °C

Pol: Horizontal

Humidity: 65 %

		Peak	\mathbf{AV}		Actual	Actual	Peak Limit	AV Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2433.0	V	88.58		-1.19	87.39		114.00	94.00	-6.61	F
1351.0	V	40.72		-6.56	34.16		74.00	54.00	-19.84	S
4866.0	V	41.16		6.15	47.31		74.00	54.00	-6.69	Н
7299.0	V						74.00	54.00		Н
9732.0	V						74.00	54.00		Н
12165.0	V						74.00	54.00		Н
14598.0	V						74.00	54.00		Н
17031.0	V						74.00	54.00		Н
19464.0	V						74.00	54.00		Н
21897.0	V						74.00	54.00		Н
24330.0	V						74.00	54.00		Н

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Mid Test Date: Mar. 23, 2009

Fundamental Frequency: 2458MHz

Test By: Bondi

Temperature: 25 °C

Pol: Vertical

Humidity: 65 %

		Peak	\mathbf{AV}		Actual	Actual	Peak Limit	AV Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2458.0	V	86.66		-1.04	85.62		114.00	94.00	-8.38	F
4916.0	V	37.98		6.26	44.24		74.00	54.00	-9.76	Η
7374.0	V						74.00	54.00		Η
9832.0	V						74.00	54.00		Η
12290.0	V						74.00	54.00		Η
14748.0	V						74.00	54.00		Н
17206.0	V						74.00	54.00		Н
19664.0	V						74.00	54.00		Н
22122.0	V						74.00	54.00		Н
24580.0	V						74.00	54.00		Н

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Mid Test Date: Mar. 23, 2009

Fundamental Frequency: 2458MHz

Test By: Bondi
Temperature: 25 °C

Pol: Horizontal

Humidity: 65 %

		Peak	\mathbf{AV}		Actual	Actual	Peak Limit	AV Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2458.0	V	86.76		-1.04	85.72		114.00	94.00	-8.28	F
1058.5	V	41.26		-7.91	33.35		74.00	54.00	-20.65	S
1500.5	V	40.68		-5.90	34.78		74.00	54.00	-19.22	S
4916.0	V	41.06		6.26	47.32		74.00	54.00	-6.68	Н
7374.0	V						74.00	54.00		Η
9832.0	V						74.00	54.00		Н
12290.0	V						74.00	54.00		Н
14748.0	V						74.00	54.00		Н
17206.0	V						74.00	54.00		Н
19664.0	V						74.00	54.00		Н
22122.0	V						74.00	54.00		Н
24580.0	V						74.00	54.00		Н

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH High Test Date: Mar. 23, 2009

Fundamental Frequency: 2483MHz Test By: Bondi 25 °C Pol: Vertical Temperature:

Humidity: 65 %

		Peak	\mathbf{AV}		Actual	Actual	Peak Limit	AV Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.0	V	86.64		-0.92	85.72		114.00	94.00	-8.28	F
2483.5	V	66.29	44.83	-0.92	65.37	43.91	74.00	54.00	-10.09	S
4966.0	V	38.35		6.39	44.74		74.00	54.00	-9.26	Н
7449.0	V						74.00	54.00		Н
9932.0	V						74.00	54.00		Η
12415.0	V						74.00	54.00		Η
14898.0	V						74.00	54.00		Н
17381.0	V						74.00	54.00		Н
19864.0	V						74.00	54.00		Н
22347.0	V						74.00	54.00		Н
24830.0	V						74.00	54.00		Н

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz-26GHz, RBW=1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH High Test Date: Mar. 23, 2009

Fundamental Frequency: 2483MHz

Test By: Bondi
Temperature: 25 °C

Pol: Horizontal

Humidity: 65 %

		Peak	\mathbf{AV}		Actual	Actual	Peak Limit	AV Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.0	V	87.66		-0.92	86.74		114.00	94.00	-7.26	F
2483.5	V	66.60	45.10	-0.92	65.68	44.18	74.00	54.00	-9.82	S
4966.0	V	40.82		6.36	47.18		74.00	54.00	-6.82	Н
7449.0	V						74.00	54.00		Н
9932.0	V						74.00	54.00		Н
12415.0	V						74.00	54.00		Н
14898.0	V						74.00	54.00		Н
17381.0	V						74.00	54.00		Н
19864.0	V						74.00	54.00		Н
22347.0	V						74.00	54.00		Н
24830.0	V						74.00	54.00		Н

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting : 1 GHz- 26 GHz, RBW=1 MHz, VBW=10 Hz, Sweep time= 200 ms.

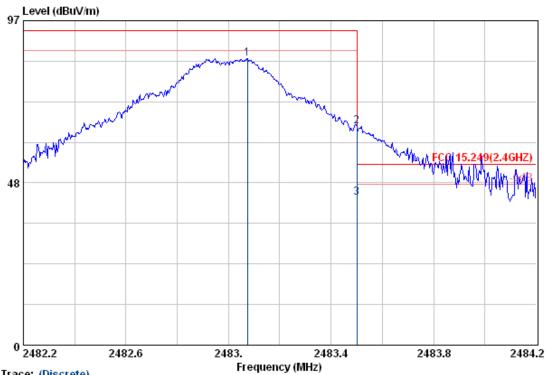
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Trace: (Discrete)

Site :1166 Site

: FCC 15.249(2.4GHZ) 3m BBHA9120D VERTICAL 150cm 0deg Condition

Project No. : ER/2009/30001

:松博學習科技股份有限公司 :互動反饋系統作答器 Applicant

EUT Description

EUT Model : RF-15

Test Mode : TX CH HIGH(CH 250)

Temp./Humid. : 25/65 Operator : DANNY

-	Freq			Preamp Factor		Factor	Level	Limit Line	Over Limit Remar
-	MHz	dBu₹	dB/m	dB	dB	dB/m	$\overline{\mathtt{dBuV/m}}$	$\overline{\mathtt{dBuV/m}}$	dB
1 2 X 3		66.29	27.52	33.78	5.34	-0.92	65.37	74.00	-8.28 Peak -8.63 Peak -10.09 Avera

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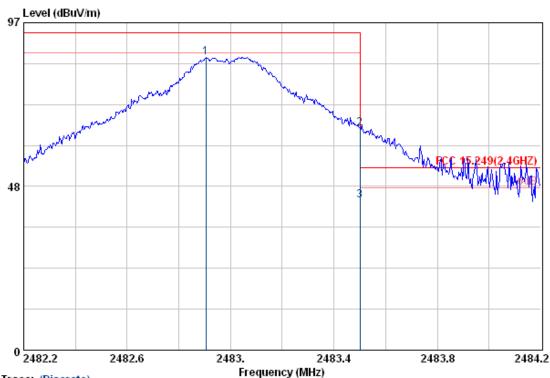
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Report No.: ER/2009/30001 Issue Date: Apr. 06, 2009

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Trace: (Discrete)

Site

:1166 Site

Condition : FCC 15.249(2.4GHZ) 3m BBHA9120D HORIZONTAL 150cm 0deg

Project No.

: ER/2009/30001 :松博學習科技股份有限公司 :互動反饋系統作答器 Applicant

EUT Description

EUT Model : RF-15

Test Mode : TX CH HIGH(CH 250)

Temp./Humid. : 25/65 : DANNY Operator

•	Freq			Preamp Factor			Level	Limit Line	Over Limit Remar
	MHz	dBuV	dB/m	dB	dB	dB/m	$\overline{\mathtt{dBuV/m}}$	$\overline{\mathtt{dBuV/m}}$	
1 2 X 3	2483.50	66.60	27.52	33.78	5.34	-0.92	65.68	74.00	-7.26 Peak -8.32 Peak -9.82 Avera

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6. 20 dB Band Width Measurement

6.1 Measurement Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Set ETU normal operating mode.
- 3. Set SPA Center Frequency = fundamental frequency, RBW = 100kHz, VBW = 300kHz, Span = 3MHz.
- 4. Set SPA Max hold. Mark peak, -20dB.

6.2 Test SET-UP (Block Diagram of Configuration)

Same as 4.2 Radiated Emission Measurement.

6.3 Measurement Equipment Used:

Same as 4.2 Radiated Emission Measurement.

6.4 Measurement Results:

2433 Channel = 849.578 kHz

2458 Channel = 877.089 kHz

2483 Channel = 852.346MHz

Refer to attached data chart.

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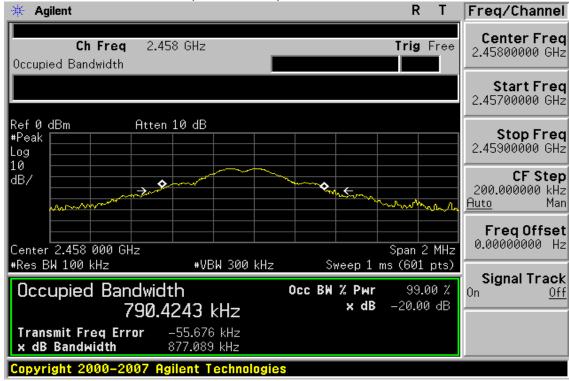
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20dB Band Width test Plot (2433 MHz)



20dB Band Width test Plot (2458 MHz)



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20dB Band Width test Plot (2483 MHz)



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