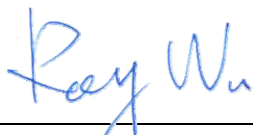


Variant FCC / IC Test Report

EQUIPMENT : Bluetooth Module
BRAND NAME : WORKABOUT PRO
MODEL NAME : BTL040
FCC ID : GM37525BTB
IC ID : 2739D-7525BTB
STANDARD : FCC Part 15 Subpart C §15.247
IC RSS-210 Issue 7
CLASSIFICATION : Digital Spread Spectrum (DSS)
APPLICANT : Psion Teklogix Inc.
2100 Meadowvale Blvd., Mississauga, Ontario, L5N 7J9, Canada

This is a variant report which is only valid together with the original test report.
The product sample received on Aug. 27, 2008 and completely tested on Dec. 17, 2008. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Roy Wu / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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APPENDIX A. PHOTOGRAPHS OF EUT

APPENDIX B. SETUP PHOTOGRAPHS

APPENDIX C. ORIGINAL REPORT

**SUMMARY OF TEST RESULT**

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(b)(1)	A8.4(2)	Number of Channels	$\geq 15\text{Chs}$	Not Applicable	-
3.2	15.247(a)(1)	A8.1(a)	20dB Bandwidth	NA	Not Applicable	-
3.3	15.247(a)(1)	A8.1(b)	Channel Separation	$\geq 2/3$ of 20dB BW	Not Applicable	-
3.4	15.247(a)(1)	A8.1(d)	Dwell Time of Each Channel	$\leq 0.4\text{sec}$ in 31.6sec period	Not Applicable	-
3.5	15.247(a)(1)	A8.1(b)	Peak Output Power	$\leq 1\text{W}$	Pass	-
3.6	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Not Applicable	-
3.7	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Not Applicable	-
3.8	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 6.41 dB at 528.20 MHz
3.9	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Psion Teklogix Inc.

2100 Meadowvale Blvd., Mississauga, Ontario, L5N 7J9, Canada

1.2 Manufacturer

ASKEY COMPUTER CORP.

10F, No. 119, Chienkang Rd., Chung-Ho, Taipei, R.O.C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Bluetooth Module
Brand Name	WORKABOUT PRO
Model Name	BTL040
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Channel Spacing	1 MHz
Maximum Output Power to Antenna	Bluetooth : 0.63 dBm (1Mbps)
Antenna Type	Chip Antenna with gain 4.1 dBi
Antenna Connector Type	N/A
Type of Modulation	Bluetooth (1Mbps) : GFSK
EUT Stage	Identical Prototype

Note: The CSR Bluetooth module, BTL040, is embedded in the specific host 7527C / 7527S series.

Accessories List:

Accessories Specification		
Module	Brand Name	Siemens
	Model Name	MC75
	H/W version	B2.12
	S/W version	04.001(SVN 19)
LCD Panel	Brand Name	Sharp
	Model Name	LS037V7DW01

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. For accessories equipped with this EUT, please refer to the appendix of the external photo.



Details of the Accessories

Terminal Options

		Model Number	Part Number	Remark
GSM	Quad-band MC75 GSM Radio with Stubby antenna	RA3030-G2	N/A	
Kit	Blackroc Endcap Kit 3-Port (RS232,TTL,IRDA); kit	BR1000-G1	1050812	Endcap 7
802.11g	802.11g CF Radio	RA2041	N/A	
Endcap with GSM	Imager, 2D HHP 5180 Endcap with GSM antenna	WA8110-G1	1050830	Endcap 5
	Imager, 1D EV15 Endcap, with GSM antenna	WA9113-G1	1050778	Endcap 1
	Scanner, 1D SE955 Endcap, with GSM antenna	WA9112-G1	1050491	Endcap 2
Endcap	Imager, 2D HHP 5180 Endcap	WA8010-G1	1050890	Endcap 6
	Imager, 1D Intermec EV15 Endcap	WA9103-G1	1050777	Endcap 3
	Scanner, 1D SE955 Endcap	WA9102-G1	1050492	Endcap 4
POD	Imager, 1D Intermec EV15 Pod	WA9003-G1	1050462	POD 1
	Scanner, 1D SE955 Pod	WA9002-G1	1050230	POD 2
	Scanner, 1D SE1223HP Pod	WA9000-G1	1050229	POD 3
	Scanner, 1D SE1223LR Pod	WA9005-G1	1051025	POD 4
	Imager, 2D HHP 5180 Pod	WA9012-G1	1050865	POD 6

Docks and Connectivity Options

Docking	Desktop Docking Station	WA4003-G2	1050955	Docking 1
	USB Cable	N/A	N/A	USB 1
	Vehicle Cradle - Powered 12V with Port Replicator	WA4005-G1 (port replicator)	1080224 (port replicator)	
	Cigarette light adaptor	WA3113-G2	1050463-001	
	Standalone Power Supply	PS1050-G1	1050465	
USB	USB to Ethernet adaptor module	WA4010-G1	1050236	USB 2
	USB to RS232 adaptor module	WA4015-G1	1050067-300	USB 3
Tether	Tether to Ethernet adaptor module	WA4025	1050255	USB 5
	Tether adaptor cable (for connecting keyboards)	WA1001	1050551	USB 4

Others

Battery	3000mAh	WA3006		B2
	4000mAh	WA3010	1050192	B3
Holster	Soft Shell Holster	WA6050	1030227	C1
Pistol Grips	Pistol Grip Symbol SE1223 Scanner	WA6001-G1	1050460	C2

Remark:

1. USB Cable comes in the box as part of the Docking StationWA4003-G2.
2. The Endcap and POD use different type of scanner and imager components inside, please find the clause 7.3 of user manual.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C TEL: +886-3-3273456 / FAX: +886-3-3284978	
Test Site No.	Sporton Site No.	FCC/IC Registration No.
	03CH07-HY	TW1022/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC Public Notice DA 00-705
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 7

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

2 Test Configuration of Equipment Under Test

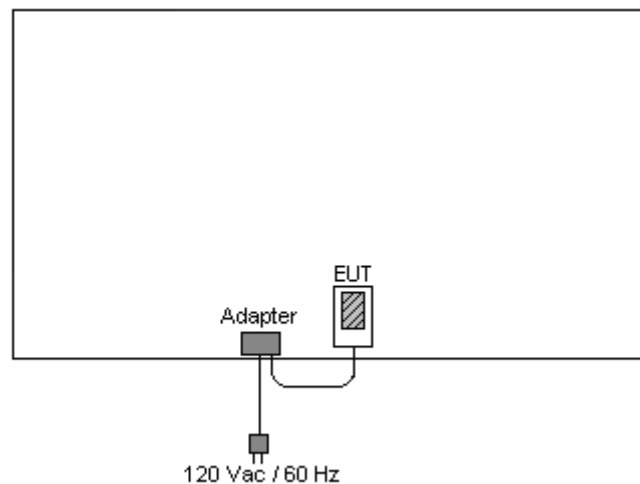
2.1 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). The following tables are showing the test modes as the worst cases and recorded in this report.

Test Cases	
Test Item	Modulation
	Bluetooth 1Mbps GFSK
Conducted Power	<ul style="list-style-type: none"> ■ Mode 1: CH00_2402 MHz ■ Mode 2: CH39_2441 MHz ■ Mode 3: CH78_2480 MHz
Radiated TCs	<ul style="list-style-type: none"> ■ Mode 1: CH00_2402 MHz for 7527C ■ Mode 2: CH00_2402 MHz for 7527S

Note: The test mode of RE was based on worst case of original report shown in appendix C.

2.2 Connection Diagram of Test System



2.3 RF Utility

The Bluetooth function can continuous transmitting and receiving signal by programmed RF utility "Bluetest".

3 Test Result

3.1 Peak Output Power Measurement

3.1.1 Limit of Peak Output Power

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 1W (30dBm).

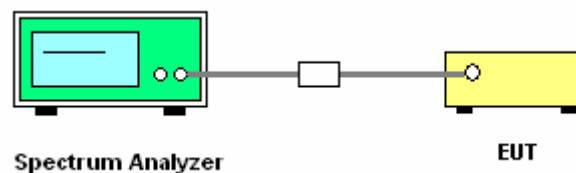
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the input (RF input) of a spectrum analyzer for Bluetooth measurement. RBW and VBW are set to 3MHz. The cable loss has been offset before testing.

3.1.4 Test Setup





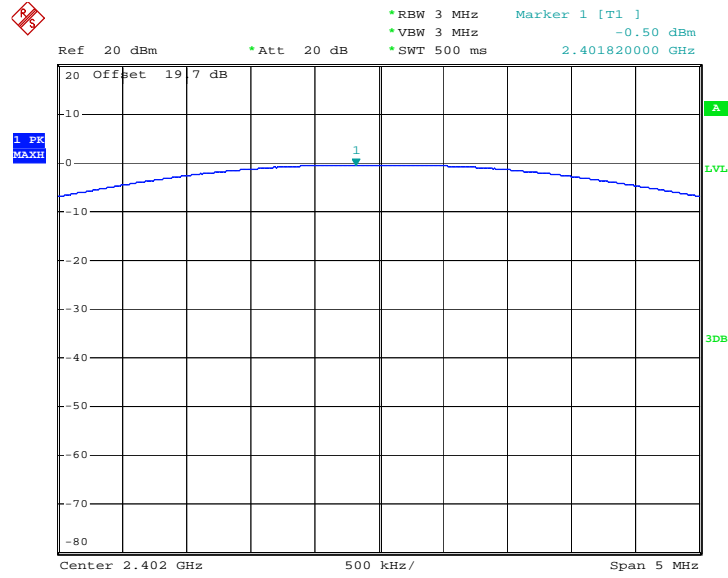
3.1.5 Test Result of Peak Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	28~29°C
Test Engineer :	Jack Jeng	Relative Humidity :	45~46%

Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	-0.50	30	Pass
39	2441	0.63	30	Pass
78	2480	-0.49	30	Pass

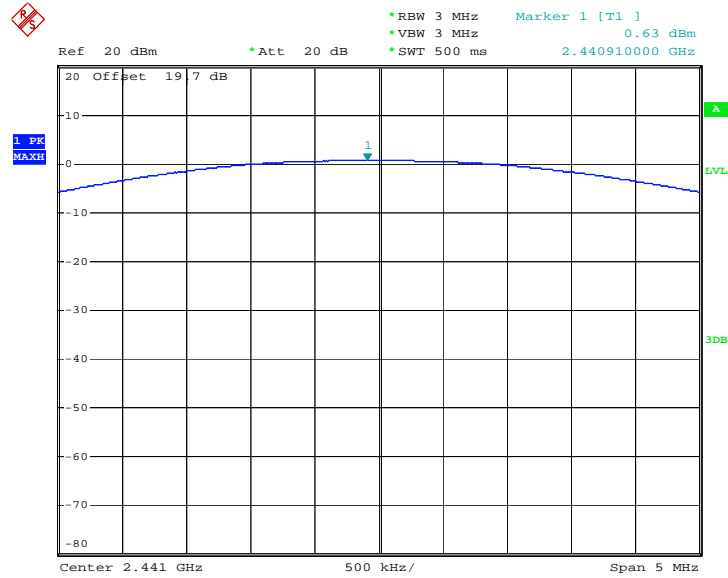


Peak Output Power Plot on Channel 00



Date: 26.DEC.2008 16:41:15

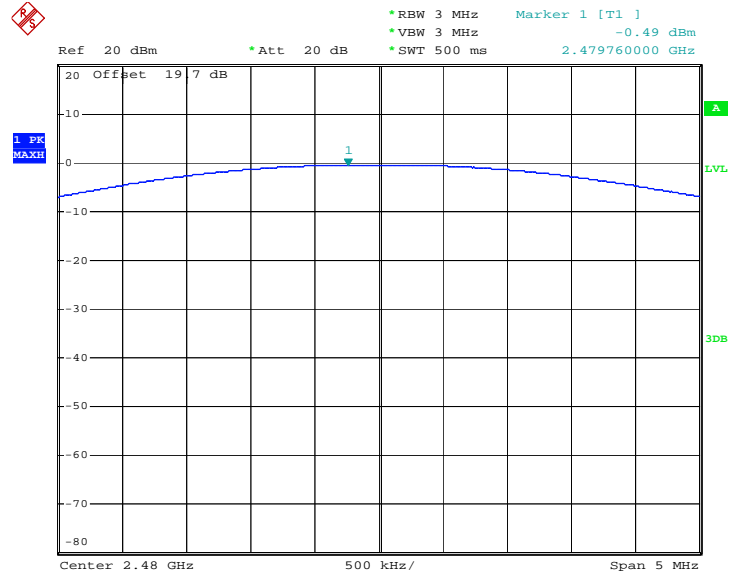
Peak Output Power Plot on Channel 39



Date: 26.DEC.2008 16:45:38



Peak Output Power Plot on Channel 78



Date : 26.DEC.2008 16:51:26

3.2 Radiated Emission Measurement

3.2.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

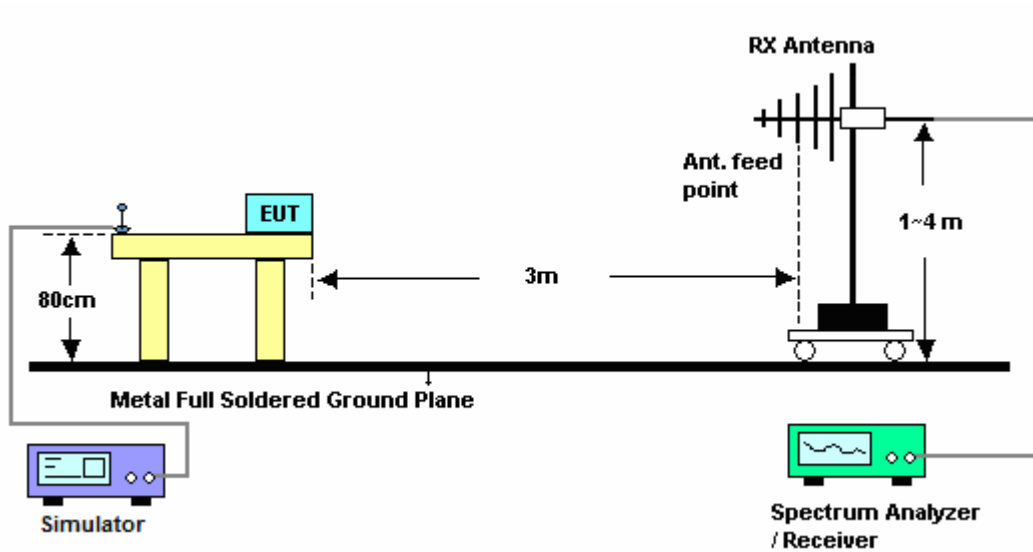
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the guidelines in FCC Public Notice DA 00-705 Measurement Guidelines.
2. Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
1. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

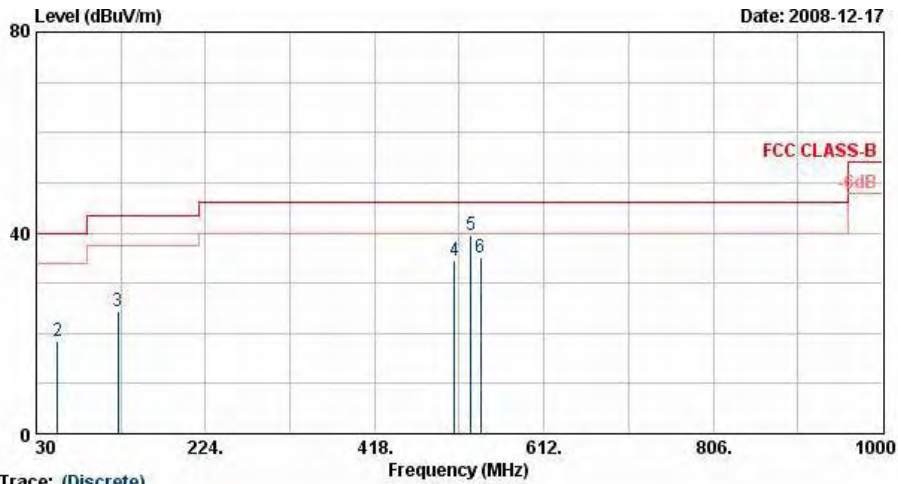
3.2.4 Test Setup





3.2.5 Test Result of Radiated Emission < 1GHz

Test Mode :	Mode 1	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :			



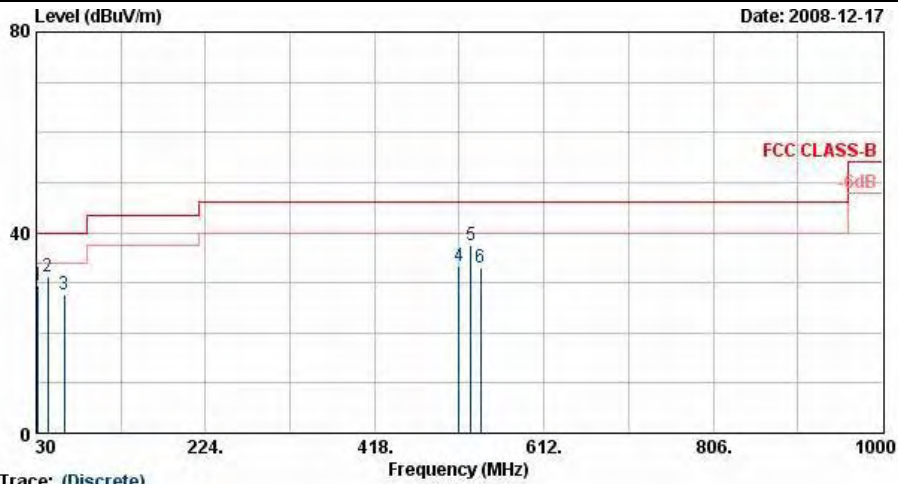
Trace: (Discrete)
 Site : 03CH07-HY
 Condition : 3m LF-ANT(080228) HORIZONTAL
 Model : FR 710208-02

Plane : E1

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	Remark
1	30.54	20.48	-19.52	40.00	33.12	17.99	0.65	31.28	---	---	Peak
2	54.57	18.30	-21.70	40.00	41.48	7.26	0.86	31.30	---	---	Peak
3	123.42	24.36	-19.14	43.50	43.33	11.10	1.32	31.39	---	---	Peak
4	509.30	34.56	-11.44	46.00	44.59	18.09	2.97	31.09	---	---	Peak
5 @	528.20	39.59	-6.41	46.00	49.18	18.45	3.03	31.06	100	241	Peak
6	539.40	34.97	-11.03	46.00	44.31	18.64	3.06	31.05	---	---	Peak



Test Mode :	Mode 1	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :			



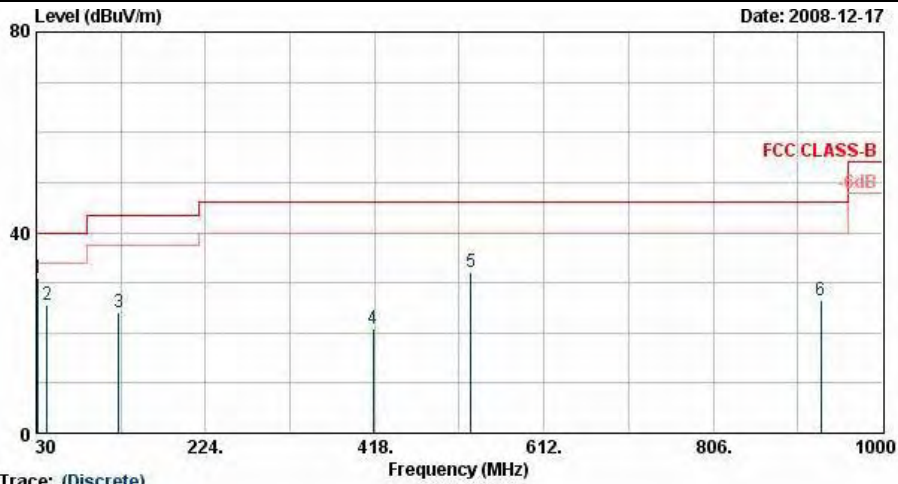
Trace: (Discrete)
 Site : 03CH07-HY
 Condition : 3m LF-ANT(080228) VERTICAL
 Model : FR 710208-02

Plane : E1

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	dB	dBuV/m	dBuV	Loss	Factor	Pos	Pos	Remark
					dB	dB	dB	cm	deg	
1	31.89	29.47	-10.53	40.00	42.69	17.38	0.66	31.26	---	Peak
2	43.50	31.14	-8.86	40.00	50.24	11.37	0.72	31.20	---	Peak
3	62.13	27.74	-12.26	40.00	52.22	5.99	0.92	31.40	---	Peak
4	514.20	33.27	-12.73	46.00	43.19	18.18	2.98	31.08	---	Peak
5	528.20	37.54	-8.46	46.00	47.12	18.45	3.03	31.06	100	142 Peak
6	539.40	32.95	-13.05	46.00	42.29	18.64	3.06	31.05	---	Peak



Test Mode :	Mode 2	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :			



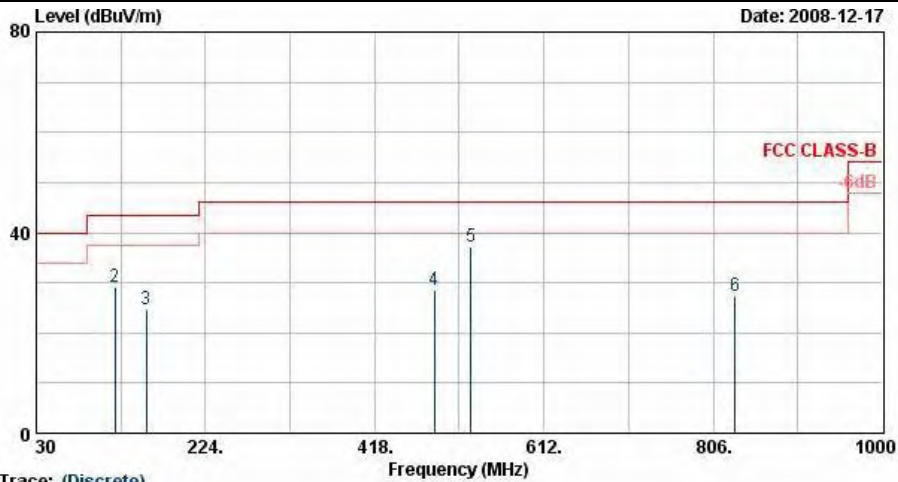
Site : 03CH07-HY
 Condition : 3m LF-ANT(080228) HORIZONTAL
 Model : FR 710208-02

Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table		
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	Remark	
			dB	dBuV/m	dBuV	dB	dB	cm	deg		
1 @	31.89	31.01	-8.99	40.00	44.23	17.38	0.66	31.26	100	214 Peak	
2	42.69	25.70	-14.30	40.00	44.24	11.92	0.72	31.18	---	---	Peak
3	124.77	24.10	-19.40	43.50	43.22	10.91	1.35	31.38	---	---	Peak
4	416.20	20.92	-25.08	46.00	33.45	16.11	2.64	31.29	---	---	Peak
5	528.20	31.98	-14.02	46.00	41.56	18.45	3.03	31.06	---	---	Peak
6	929.30	26.51	-19.49	46.00	29.24	23.71	4.22	30.66	---	---	Peak



Test Mode :	Mode 2	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :			



Trace: (Discrete)
 Site : 03CH07-HY
 Condition : 3m LF-ANT(080228) VERTICAL
 Model : FR 710208-02

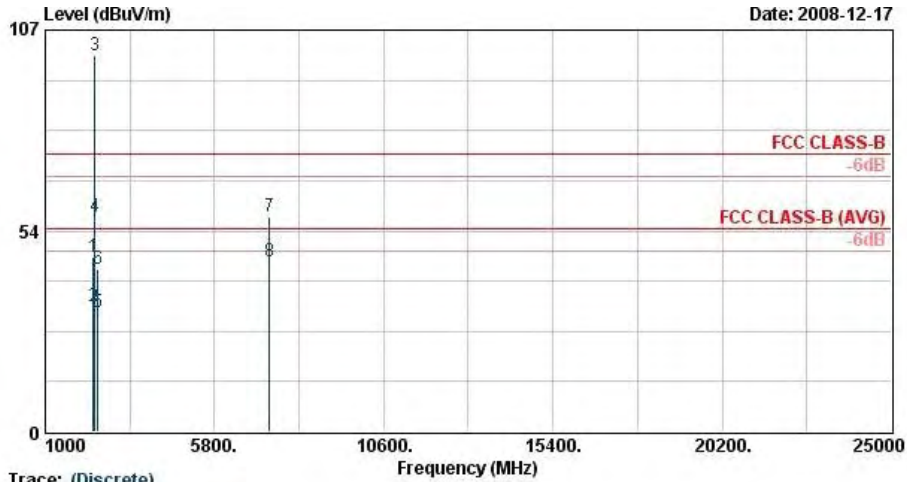
Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table		
	MHz	dBuV/m	dB	dBuV/m	dBuV	Loss	Factor	Pos	Pos	Remark	
						dB	dB	cm	deg		
1 @	30.00	31.04	-8.96	40.00	43.10	18.61	0.64	31.31	---	---	Peak
2	120.18	29.19	-14.31	43.50	47.94	11.38	1.28	31.41	---	---	Peak
3	156.09	24.78	-18.72	43.50	44.24	10.38	1.49	31.33	---	---	Peak
4	486.20	28.48	-17.52	46.00	39.12	17.62	2.89	31.14	---	---	Peak
5 @	528.20	37.09	-8.91	46.00	46.68	18.45	3.03	31.06	100	125	Peak
6	831.30	27.36	-18.64	46.00	31.64	22.48	3.92	30.68	---	---	Peak



3.2.6 Test Result of Radiated Emission ≥ 1 GHz

Test Mode :	Mode 1	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals		



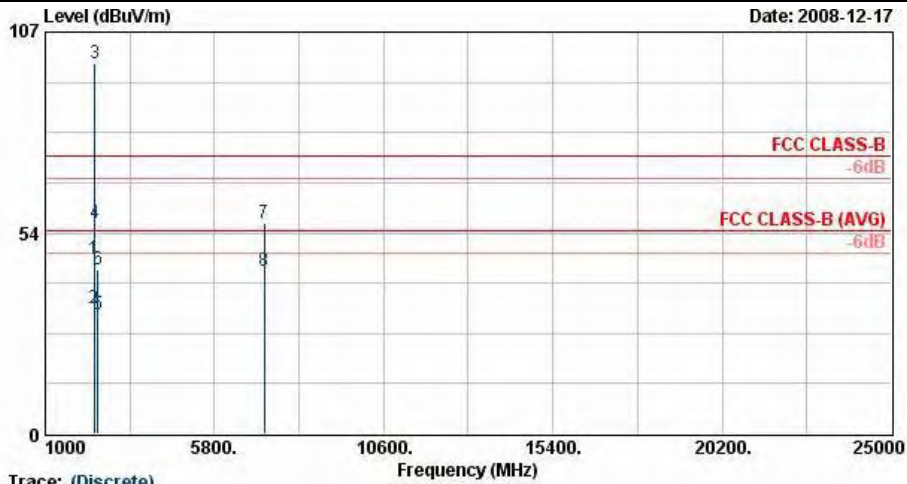
Trace: (Discrete)
 Site : 03CH07-HY
 Condition : 3m SHF-EHF HORN HORIZONTAL
 Model : FR 710208-02

Plane : E1

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2373.65	46.42	-27.58	74.00	44.30	32.32	5.47	35.68	100	0 Peak
2	2373.65	33.39	-20.61	54.00	31.27	32.32	5.47	35.68	103	48 Average
3 @	2402.00	100.09			98.01	32.32	5.44	35.68	100	0 Peak
4 @	2402.00	57.28			55.18	32.32	5.46	35.68	103	48 Average
5	2483.50	31.94	-22.06	54.00	29.95	32.30	5.38	35.70	103	48 Average
6	2483.50	43.32	-30.68	74.00	41.33	32.30	5.38	35.70	100	0 Peak
7	7353.00	57.09	-16.91	74.00	45.45	38.02	9.76	36.14	100	0 Peak
8	7353.00	45.18	-8.82	54.00	33.54	38.02	9.76	36.14	100	185 Average



Test Mode :	Mode 1	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals		



Trace: (Discrete)

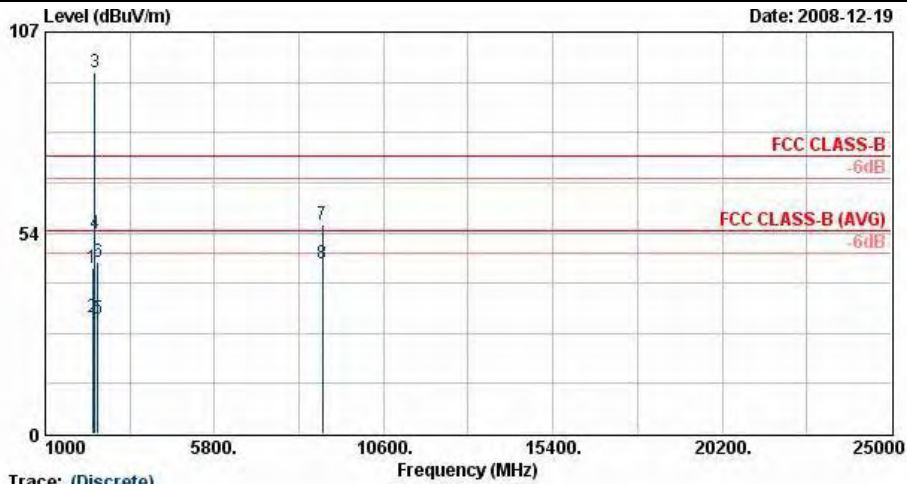
Site : 03CH07-HY
 Condition : 3m SHF-EHF HORN VERTICAL
 Model : FR 710208-02

Plane : E1

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	Remark
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	2385.62	46.62	-27.38	74.00	44.54	32.30	5.46	35.68	100	0 Peak
2	2385.62	33.26	-20.74	54.00	31.18	32.30	5.46	35.68	149	62 Average
3 @	2402.00	98.57			96.51	32.30	5.44	35.68	100	0 Peak
4 @	2402.00	55.89			53.81	32.30	5.46	35.68	149	62 Average
5	2483.50	31.96	-22.04	54.00	29.97	32.30	5.38	35.70	149	62 Average
6	2483.50	43.60	-30.40	74.00	41.61	32.30	5.38	35.70	100	0 Peak
7	7206.00	56.11	-17.89	74.00	45.60	36.68	9.91	36.08	100	0 Peak
8	7206.00	43.29	-10.71	54.00	32.78	36.68	9.91	36.08	100	285 Average



Test Mode :	Mode 2	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals		



Trace: (Discrete)

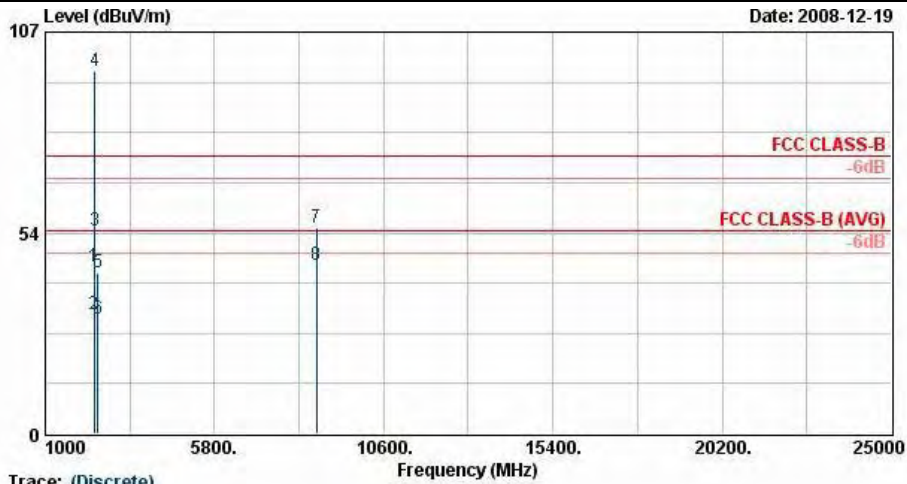
Site : 03CH07-HY
 Condition : 3m SHF-EHF HORN HORIZONTAL
 Model : FR 710208-02

Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level	Loss	Loss	Pos	Pos	Remark
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	2340.21	44.18	-29.82	74.00	42.02	32.33	5.50	35.67	100	0 Peak
2	2340.21	30.96	-23.04	54.00	28.80	32.33	5.50	35.67	101	357 Average
3 @	2402.00	96.11			94.03	32.32	5.44	35.68	100	0 Peak
4 @	2402.00	53.35			51.25	32.32	5.46	35.68	101	357 Average
5	2494.00	30.46	-23.54	54.00	28.49	32.30	5.37	35.70	101	357 Average
6	2494.00	45.70	-28.30	74.00	43.73	32.30	5.37	35.70	100	0 Peak
7	8853.00	55.60	-18.40	74.00	43.21	38.61	10.29	36.51	100	0 Peak
8 @	8853.00	45.49	-8.51	54.00	33.10	38.61	10.29	36.51	100	45 Average



Test Mode :	Mode 2	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals		



Trace: (Discrete)
 Site : 03CH07-HY
 Condition : 3m SHF-EHF HORN VERTICAL
 Model : FR 710208-02

Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg	Remark
1	2385.62	44.57	-29.43	74.00	42.49	32.30	5.46	35.68	100	0 Peak
2	2385.62	31.63	-22.37	54.00	29.55	32.30	5.46	35.68	132	10 Average
3 @	2402.00	54.26			52.18	32.30	5.46	35.68	132	10 Average
4 @	2402.00	96.62			94.56	32.30	5.44	35.68	100	0 Peak
5	2484.00	42.89	-31.11	74.00	40.90	32.30	5.38	35.70	100	0 Peak
6	2484.00	30.44	-23.56	54.00	28.45	32.30	5.38	35.70	132	10 Average
7	8685.00	54.76	-19.24	74.00	43.52	37.41	10.24	36.41	100	0 Peak
8 @	8685.00	45.08	-8.92	54.00	33.84	37.41	10.24	36.41	100	23 Average



3.3 Antenna Requirements

3.3.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.3.2 Antenna Connected Construction

The antennas type used in this product is Chip Antenna without connector and it is considered to meet antenna requirement.

3.3.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9KHz~40GHz	Jun. 26, 2008	Jun. 25, 2009	Conducted (TH02-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz~1GHz	Nov. 20, 2008	Nov. 19, 2009	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9kHz~30GHz	Dec. 02, 2008	Dec. 01, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1G~18GHz	Aug. 13, 2008	Aug. 12, 2009	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G~26.5GHz	Dec. 17, 2008	Dec. 16, 2009	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10~1000MHz. 32dB.GAIN	Mar. 31, 2008	Mar. 30, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	66584	1G~18GHz	Aug. 06, 2008	Aug. 05, 2009	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
Combined standard uncertainty Uc(y)	1.27		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.54		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	C_i	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	4.72				

6 Certification of TAF Accreditation



Certificate No. : L1190-070110

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory


Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

PI, total 9 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.