

Variant FCC Test Report

APPLICANT	: Trimble Navigation Ltd.
EQUIPMENT	: PDA
BRAND NAME	: Trimble
MODEL NAME	: Juno SD
FCC ID	: JUP66420
STANDARD	: FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	: Certification

This is a variant report which is only valid combined with the original report. The product was received on May 21, 2010 and completely tested on Jun. 14, 2010. 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 the 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.



TABLE OF CONTENTS

RE	VISIO	N HISTORY	3
611			1
30			
1.	GENE	ERAL DESCRIPTION	5
	1.1.	Applicant	5
	1.2.	Manufacturer	5
	1.3.	Feature of Equipment Under Test	6
	1.4.	Test Site	7
	1.5.	Applied Standards	7
	1.6.	Ancillary Equipment List	7
2.	TEST	CONFIGURATION OF EQUIPMENT UNDER TEST	8
	2.1.	Test Mode	8
	2.2.	Connection Diagram of Test System	9
	2.3.	Test Software	9
3.	TEST	RESULT	10
	3.1.	Test of AC Conducted Emission Measurement	10
	3.2.	Test of Radiated Emission Measurement	14
4.	LIST	OF MEASURING EQUIPMENT	18
F			10
э.	UNCE		19
AP	PEND	X A. PHOTOGRAPHS OF EUT	
AP	PEND	X B. SETUP PHOTOGRAPHS	
Ar	FEND		



REVISION HISTORY

REPORT NO.	VERSION		DESCRIPTION	ISSUED DATE
		This is a va the test cas be referred appendix C configuration	ariant report which is added one new adapter. All ses were performed on original report which can to Sporton Report Number FC8O0405 as C; only worst cases were verified. The different ons between these two models are listed below:	
FD052102	Rev. 01	Model	Configuration	Jul. 07, 2010
		Juno SC	Not equipped with audio receiver and AGPS antenna	
		Juno SD	Supports voice talk over WWAN and equipped with AGPS antenna for emergency call	



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
2.1	15 107	700	AC Conducted Emission	< 15.107 limits	DASS	Under limit
3.1	15.107	1.2.2	AC COnducted Emission	< RSS-Gen table 2 limits	PASS	0.526 MHz
				< 15.109 limits or		Under limit
3.2	15.109	7.2.3.2	Radiated Emission	< RSS-Gen table 1 limits	PASS	3.50 dB at
				(Section 6)		299.73 MHz



1. General Description

1.1. Applicant

Trimble Navigation Ltd.

935 Stewart Drive, Sunnyvale, CA 94088-3642 U.S.A.

1.2. Manufacturer

GOLDTEK Technology Co., Ltd.

3F., No. 3, Ln. 768, Sec. 4, Pateh Rd., Taipei 115, Taiwan, R.O.C.



1.3. Feature of Equipment Under Test

Product F	eature & Specification
Equipment	PDA
Brand Name	Trimble
Model Name	Juno SD
FCC ID	JUP66420
Integrated WWAN Module	Brand Name : CINTERION Model Name : HC25 HW Version : B2.12.1 SW Version : Bevision 02.050 (SV 15)
Tx Frequency Range	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz
Rx Frequency Range	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz GPS : 1.57542 GHz
Antenna Type	Fixed Internal Antenna
HW Version	1.0
SW Version	1.0
Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK WCDMA : QPSK HSDPA : QPSK / 16QAM Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK 802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM) GPS : BPSK
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



1.4. Test Site

Test Site	SPORTON INTERNA	TIONAL INC.				
	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park,					
	Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.					
	TEL: +886-3-327-3456					
	FAX: +886-3-328-4978					
Tast Site No	Sporton	Site No.	FCC/IC Registration No.			
Test Site No.	CO05-HY	03CH06-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 47 CFR FCC Part 15 Subpart B
- · ANSI C63.4-2003
- · IC RSS-Gen Issue 2

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

1.6. Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-100	PYA1YH	N/A	N/A
5.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
6.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
7.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
8.	iPod	Apple	A1199	FCC DoC	Unshielded, 1.2 m	N/A
9.	iPod	Apple	A1285	FCC DoC	Unshielded, 1.2 m	N/A





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: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th 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 Co	ondition
ltem	EUT Configuration	EMI	EMI
		AC	RE
1.	Charging Mode (EUT with adapter)	\boxtimes	\square

Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE: EUT radiated emissions

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1	Mode 1: WCDMA Band V Idle + GPS Rx + Bluetooth Idle + WLAN Idle + Earphone + USB Link + Camera + Adapter 2
Radiated Emissions	1	Mode 1: WCDMA Band V Idle + GPS Rx + Bluetooth Idle + WLAN Idle + Earphone + USB Link + Camera + Adapter 2



2.2. Connection Diagram of Test System



2.3. Test Software

The EUT was in WCDMA idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone and WLAN AP, and the following programs installed in the EUT were programmed during the test.

- 1. Execute the programs, "EMI Test" or "Activesync.exe" under WINXP installed in notebook for active sync files transfer with EUT via USB cable.
- 2. Execute "mGpsCmd" to make the EUT receive signals from GPS station continuously.
- 3. Turn on camera to capture images.



3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission	Conducted	limit (dBuV)
(MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.



3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test M	ode :		Mode 1			Ten	nperatur	e :	20~22 ℃
Test Er	ngineeı	r :	Novic Jiang			Rel	ative Hu	midity :	40~42%
Test Vo	oltage :		120Vac / 60H	Ηz		Pha	ase :		Line
			WCDMA Bar	nd V Id	le + G	PS Rx	+ Blueto	oth Idle	+ WLAN Idle + Earphone + USB
Functio	on Type	e:	Link + Came	ra + Ac	dapter	2			
Pomar	k •			not ro	norted	l horo i	are more	than 10	dB below the prescribed limit
ILEIIIAI	n .				poneo				db below the prescribed limit.
	1	00 -							
	9	90I.							
		+							
	8	³⁰							
	1	70							
		-						CIS	SPR22 OP Limit at Main Ports
	2	6 0							
	l dg	50						ÇIS	PR22-Ave Limit at Main Ports
	evel ir			`				• •	
	<u>، ت</u>	40		~ \			u wia	I	
	:	30 I	₩ ₩	◆ ⁴ ₩	. Minun	4 Martin	www.w		
		20							
		+							
		10							
		0			+ +				
		150	300 400	500	800 1M	_ 2	2M 3M	4M 5M 6	8 10M 20M 30M
						Frequ	iency in Hz		
		su				0	N4	1	
	Freque (MH:	ency z)	(dBuV)	Filter	Line	(dB)	(dB)	(dBuV)	
	0.150	000	45.7	Off	L1	19.4	20.3	66.0	
	0.166	000	44.0	Off	L1	19.3	21.2	65.2	
	0.190	000	43.2	Off	L1	19.4	20.8	64.0	
	0.2140	000	39.0	Off	L1	19.3	24.0	63.0	
	0.246	000	39.4	Off	11	19.4	16.6	56.0	
	0.020		0011	•		1010	1010	0010	
F	inal Re	esu	lt 2						
	Freque	ency	Average	Filter	Line	Corr.	Margin	Limit	
	(MH)	Z)	(dBµV)	0#	11	(dB)	(dB)	(dBµV)	
	0,166	000	35.2	Off	L1	19.4	20.0	55.2	
	0.190	000	34.4	Off	 L1	19.4	19.6	54.0	
	0.214	000	30.9	Off	L1	19.3	22.1	53.0	
	0.2460	000	25.8	Off	L1	19.4	26.1	51.9	
	0.526	000	32.6	Off	L1	19.3	13.4	46.0	

SPORTON INTERNATIONAL INC. TEL : 886-3-327-3456 FAX : 886-3-328-4978 FCC ID : JUP66420 Page Number: 12 of 20Report Issued Date: Jul. 07, 2010Report Version: Rev. 01



	ae :	Ν	Mode 1			Ten	nperatur	e:	20~22 ℃
Test Eng	ginee	r:	Novic Jiang			Rela	ative Hu	midity :	40~42%
Test Vol	tage :	: 1	120Vac / 60H	Ηz		Pha	se :		Neutral
		١	NCDMA Bar	nd V Id	le + GF	PS Rx	+ Blueto	oth Idle -	+ WLAN Idle + Earphone + US
Function	n Typ	e :	ink + Came	ra + Ac	lanter 3	2			•
						-		11	
Remark	•	ŀ	All emissions	s not re	ported	nere a	are more	than 10	ab below the prescribed limit.
	1	100 T							
	9	90							
		80							
		70							
								CIS	PR22-OP Limit at Main Ports
	≥	60							
	dBµ	50	1					ÇIS	PR22-Ave Limit at Main Ports
	velin	Ĩ.	~					•	
	Le,	40+							
		-	- Myry (*	- Unud	MM MA	when the	MAN AND AND AND AND AND AND AND AND AND A	A MARINE LAN	
	:	30	•	• • • • • • • • • • • • • • • • • • •		Y		Maria Chicada	
					1				
							L		
		20							
		10	•						
		10							
		10 0	200_400	500			M 2M		0.10M 20M 20M
		10 0 150k	300 400	500 {	800 1M	2	M 3M	4M 5M 6	8 10M 20M 30M
		10 0 150k	300 400	500	B00 1M	2 Frequ	M 3M ency in Hz	4M 5M 6	8 10M 20M 30M
Fir	nal Re	10 0 150k	300 400	500 8	B00 1M	2 Frequ	M 3M ency in Hz	4M 5M 6	8 10M 20M 30M
Fir	nal Re Freque	10 10 150k esult ency	300 400 :1 QuasiPeak (dBuV)	500 Filter	BOO 1M	2 Frequ Corr.	M 3M ency in Hz Margin	4M 5M 6 2 Limit (dBu)()	8 10M 20M 30M
Fir	nal Re Freque (MH	10 10 150k 20 150k 20 20 20 20 20 20 20 20 20 20	300 400 1 QuasiPeak (dBµV) 42.7	500 8	300 1M	2 Frequ Corr. (dB) 19.4	M 3M ency in Hz Margin (dB) 23.3	4M 5M 6 2 Limit (dBμV) 66.0	8 10M 20M 30M
Fir	nal Re Freque (MH 0.1500 0.166	10 10 150k esult ency z) 000 000	300 400 300 400 300 400 300 400 300 400 400 400 400 400 400 400 400 400 4	500 Filter Off	Line N N	2 Frequ Corr. (dB) 19.4 19.3	M 3M ency in Hz Margin (dB) 23.3 20.0	4M 5M 6 2 Limit (dBμV) 66.0 65.2	8 10M 20M 30M
Fir	nal Re Freque (MH 0.150 0.166 0.198	10 10 10 150k esult ency (z) 000 000 000	300 400 : 1 QuasiPeak (dBµV) 42.7 45.2 39.5	Filter Off Off	Line N N N	2 Frequ Corr. (dB) 19.4 19.3 19.3	M 3M ency in Hz (dB) 23.3 20.0 24.2	4M 5M 6 2 (dBμV) 66.0 65.2 63.7	8 10M 20M 30M
Fir 	nal Re Freque (MH 0.150 0.166 0.198 0.222	10 150k esult ency (z) 000 000 000 000	300 400 1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4	Filter Off Off Off	Line N N N N	2 Frequ Corr. (dB) 19.4 19.3 19.3	M 3M ency in Hz (dB) 23.3 20.0 24.2 25.3	4M 5M 6 2 (dBμV) 66.0 65.2 63.7 62.7	8 10M 20M 30M
Fir	nal Re Freque (MH 0.150 0.166 0.198 0.222 0.270	10 150k esult ency z) 000 000 000 000 000	300 400 300 400 300 400 300 400 42.7 45.2 39.5 37.4 28.5	500 Filter Off Off Off Off	Line N N N N N N	2 Frequ Corr. (dB) 19.4 19.3 19.3 19.3	M 3M ency in Hz (dB) 23.3 20.0 24.2 25.3 32.6	4M 5M 6 2 4M 5M 6 2 4M 5M 6 2 66.0 65.2 63.7 62.7 61.1	8 10M 20M 30M
Fir	nal Re Freque (MH 0.150 0.166 0.198 0.222 0.270 0.510	10 10 150k escy 23 000 000 000 000 000 000 000	 300 400 300 400 1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4 28.5 38.4 	Filter Off Off Off Off Off Off	Line N N N N N N N	2 Frequ Corr. (dB) 19.4 19.3 19.3 19.3 19.3	M 3M ency in Hz (dB) 23.3 20.0 24.2 25.3 32.6 17.6	4M 5M 6 4M 5M 6 2 4M 5M 6 2 4M 5M 6 2 6 6 3.7 6 3.7 6 2.7 6 1.1 56.0	8 10M 20M 30M
Fir	nal Re (MH 0.1500 0.1660 0.1980 0.2220 0.2700 0.5100	10 0 150k esult esult 2) 000 000 000 000 000 000 000	300 400 1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4 28.5 38.4	500 S 500 S	Line N N N N N N N	2 Frequ (dB) 19.4 19.3 19.3 19.3 19.3	M 3M ency in Hz (dB) 23.3 20.0 24.2 25.3 32.6 17.6	4M 5M 6 2 (dBμV) 66.0 65.2 63.7 62.7 61.1 56.0	8 10M 20M 30M
Fir	nal Re Freque (MH 0.150 0.166 0.198 0.222 0.270 0.510 nal Re	10 10 150k escult ency z) 000 000 000 000 000 000 000	300 400 300 400 1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4 28.5 38.4 2	500 Filter Off Off Off Off Off Off	Line N N N N N N N	2 Frequ Corr. (dB) 19.4 19.3 19.3 19.3 19.3	M 3M ency in Hz Margin (dB) 23.3 20.0 24.2 25.3 32.6 17.6	4M 5M 6 4M 5M 6 2 4M 5M 6 2 66.0 65.2 63.7 62.7 61.1 56.0	8 10M 20M 30M
Fir	nal Re Freque (MH 0.1500 0.1666 0.2220 0.2700 0.5100 nal Re Freque	10 10 10 150k escult ency 000 000 000 000 000 000 escult ency 20 20 20 20 20 20 20 20 20 20	300 400 300 400 1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4 28.5 38.4 2 Average (dB:v))	500 Filter Off Off Off Off Off Filter	Line N N N N N N Line	2 Frequ (dB) 19.4 19.3 19.3 19.3 19.3 19.3 (Corr.	M 3M ency in Hz (dB) 23.3 20.0 24.2 25.3 32.6 17.6 Margin	4M 5M 6 4M 5M 6 2 Limit (dBμV) 66.0 65.2 63.7 61.1 56.0 Limit (dB ₁ V)	8 10M 20M 30M
Fir	nal Re Freque (MH 0.1500 0.166 0.198 0.2220 0.2700 0.5100 nal Re Freque (MH	10 10 10 150k escult ency 22 000 000 000 000 000 000 000	300 400 :1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4 28.5 38.4 :2 Average (dBµV) 26 с	500 Filter Off Off Off Off Off Filter	BOO 1M BOO 1M N N N N N N N N	2 Frequ (dB) 19.4 19.3 19.3 19.3 19.3 19.3 19.3 (000000000000000000000000000000000000	M 3M ency in Hz Margin (dB) 23.3 20.0 24.2 25.3 32.6 17.6 Margin (dB)	4M 5M 6 2 (dBμV) 66.0 65.2 63.7 62.7 61.1 56.0 Limit (dBμV) 56.0	8 10M 20M 30M
Fir	nal Re Freque (MH 0.150 0.166 0.222 0.270 0.510 nal Re Freque (MH 0.150 0.150	10 10 10 150k essult ency (z) 000 000 000 000 000 000 essult ency (z) 000 000 000 000 000 000 000 0	300 400 300 400 1 QuasiPeak (dBμV) 42.7 45.2 39.5 37.4 28.5 38.4 2 Average (dBμV) 36.6 36.5	500 Filter Off Off Off Off Off Filter Off	Line N N N N N N Line N	2 Frequ (dB) 19.4 19.3 19.3 19.3 19.3 19.3 19.3 19.3 19.3	M 3M ency in Hz Margin (dB) 23.3 20.0 24.2 25.3 32.6 17.6 Margin (dB) 19.4 18.7	4M 5M 6 4M 5M 6 4M 5M 6 2 4M 5M 6 2 4 4 5 2 4 4 4 4 4 4 4 4 4 4 4 4 4	8 10M 20M 30M
Fir	nal Re Freque (MH 0.1500 0.1660 0.2220 0.2700 0.5100 nal Re Freque (MH 0.1500 0.1660 0.1980	20 10 10 150k escult ency (z) 000 000 000 000 000 000 000 0	300 400 300 400 1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4 28.5 38.4 2 Average (dBµV) 36.6 36.5 30 1	500 Filter Off Off Off Off Off Off Off Off Off Of	Line N N N N N N N N N N N N N N	2 Frequ Corr. (dB) 19.4 19.3 19.3 19.3 19.3 19.3 19.3 19.3 19.4 19.3 19.3	M 3M ency in Hz Margin (dB) 23.3 20.0 24.2 25.3 32.6 17.6 Margin (dB) 19.4 18.7 23.6	4M 5M 6 4M 5M 6 4M 5M 6 4M 5M 6 5 4 5 6 6 2 6 3.7 6 2.7 6 1.1 5 6.0 5 5 6 0 5 5 2 5 3 7 5 6 0 5 5 2 5 3 7 5 6 0 5 2 5 6 0 5 2 5 6 0 5 6 5 2 5 6 0 5 6 6 6 6 5 2 6 6 7 6 6 6 6 6 6 6 6 6 6 6 6 6	8 10M 20M 30M
Fir	nal Re Freque (MH 0.1500 0.1660 0.2220 0.2700 0.5100 Freque (MH 0.1500 0.1660 0.1988 0.2220	20 10 10 10 150k escult ency 2) 000 000 000 000 000 000 000	 300 400 300 400 1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4 28.5 38.4 2 Average (dBµV) 36.6 36.5 30.1 27.1 	500 Filter Off Off Off Off Off Off Off Off Off Of	Line N N N N N N N N N N N N N N N N N	2 Frequ (dB) 19.4 19.3 19.3 19.3 19.3 19.3 19.3 19.4 19.4 19.3 19.3 19.3	M 3M ency in Hz Margin (dB) 23.3 20.0 24.2 25.3 32.6 17.6 Margin (dB) 19.4 18.7 23.6 25.6	4M 5M 6 4M 5M 6 4M 5M 6 5 4M 5M 6 6 5 6 3.7 6 6 1.1 5 6.0 5 5 6 0 5 5 2 5 3.7 5 2.7 5 2.7	8 10M 20M 30M
Fir 	nal Re (MH 0.150 0.166 0.198 0.222 0.270 0.510 nal Re Freque (MH 0.150 0.166 0.198 0.222 0.270	10 10 10 150k escult ency z) 000 000 000 000 000 000 000	 300 400 300 400 1 QuasiPeak (dBµV) 42.7 45.2 39.5 37.4 28.5 38.4 2 Average (dBµV) 36.6 36.5 30.1 27.1 19.5 	500 Filter Off Off Off Off Off Off Off Off Off Of	BOO 1M BOO 1M N N N N N N N N N N N N N N N N N N N	2 Frequ (dB) 19.4 19.3 19.3 19.3 19.3 19.3 19.3 19.3 19.3	M 3M ency in Hz Margin (dB) 23.3 20.0 24.2 25.3 32.6 17.6 Margin (dB) 19.4 18.7 23.6 25.6 31.6	4M 5M 6 2 Limit (dBμV) 66.0 65.2 63.7 62.7 61.1 56.0 Limit (dBμV) 56.0 55.2 53.7 52.7 51.1	

SPORTON INTERNATIONAL INC. TEL : 886-3-327-3456 FAX : 886-3-328-4978 FCC ID : JUP66420



3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(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 EUT was placed on a turntable with 0.8 meter above ground.
- 2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest radiation.
- 4. The antenna is a Bi-Log antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- 7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported
- 8. Emission level (dBuV/m) = 20 log Emission level (uV/m)
- 9. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level



3.2.4. Test Setup of Radiated Emission



3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1			Temperature :		21~	21~23°C				
Test Engineer :	Elvis Chen			Relati	Relative Humidity :		44~	44~46%			
Test Distance :	3m				Polarization : Horizontal						
-	WCDMA Band V Idle + GPS Rx + Bluetooth Idle + WLAN Idle + Earphone + USB										
Function Type :	Link +	Link + Camera + Adapter 2									
Remark :	#6 is S	δ is System Simulator Signal which can be ignored.									
97 Level (dBuV/m) Date: 2010-06-11										Ő.	
									FCC	CLASS-B	
									unni	2010	
49							7		FCC CLAS	-6dB	
P	6										
0 30		2624	i.	5218		781:	2.	104	406.	1300	0
Trace: Site : 03CH06 Condition : FCC CT Project : FD 05: Memo : Mode	(Discrete) 6-HY LASS-B 3m 2102 1) HF-ANT(8-	18C)_0911	II HORTZON	TAL	y (IVINZ)					
	Freq	Level	Over Limit	Limit Line	Read/ Level	intenna Factor	Cable P Loss F	ream actor	o Ant F Pos	Table Pos	Remark
	MHz	dBu∛/m	dB	dBu∛/m	dBu∛	dB ∕π	dB	df	3	deg	
1 2 ! 3 @ 4 5 6 7 8 8 8 8 8 8	119.64 179.58 299.73 300.00 353.90 880.30 1924.00 1924.00	32. 78 39. 54 42. 50 39. 95 34. 30 39. 81 51. 12 38. 20	-10. 72 -3. 96 -3. 50 -6. 05 -11. 70 -22. 88 -15. 80	43, 50 43, 50 46, 00 46, 00 46, 00 74, 00 54, 00	51.08 59.57 57.85 55.30 47.87 44.85 41.82 28.90	11.50 9.25 13.11 13.11 14.50 20.60 36.03 36.03	1.76 2.24 3.01 3.01 3.32 5.40 7.71 7.71	31, 55 31, 53 31, 47 31, 47 31, 39 31, 04 34, 45 34, 45	5 7 100 7 100 9 1 5 100 5 100	 227 353 309 309	Peak Peak QP Peak Peak Peak Average



Test Mode :	Mode 1			Temperature :			21~	21~23°C			
Test Engineer :	Elvis Chen			Relative Humidity :		44~46%					
Test Distance :	3m Polarization : Vertical										
Function Type :	WCDN Link +	WCDMA Band V Idle + GPS Rx + Bluetooth Idle + WLA _ink + Camera + Adapter 2							AN Idle	+ Earp	ohone + USB
Remark :	#6 is S	6 is System Simulator Signal which can be ignored.									
Level (dBuV/m) Date: 2010-06-11											
	-								FCC	CLASS-B	
				_	_					-ouo	
							7		FCC CLASS	-6dB	
49	56						8				
2											
0 30		2624		5218		781	2	104	06	1300	0
Trace: Site : 03CHO Condition : PCC CI Project : FD 052 Memo : Mode	(Discrete 6-HY LASS-B 3m 2102) HF-ANT(8-	18C)_0911	II VERTICA	Frequenc <u>:</u> L	y (MHz)					
	Freq	Level	Over Limit	Limit Line	Read/ Level	Intenna Factor	Cable P Loss F	reamp actor	Ant Pos	Table Pos	Remark
	MHz	dBu∛/m	dB	dB u∛∕m	dBu¥	dB/m	dB	dB	cm	deg	
1 2 3 4 5 6 7 8	66. 99 179. 58 299. 73 300. 00 659. 80 880. 30 8894. 00	33.98 32.12 39.58 37.13 37.55 39.13 51.42	-6.02 -11.38 -6.42 -8.87 -8.45 -22.58	40.00 43.50 46.00 46.00 46.00 74.00	$\begin{array}{c} 57.\ 70\\ 52.\ 16\\ 54.\ 93\\ 52.\ 48\\ 45.\ 56\\ 44.\ 17\\ 42.\ 16\end{array}$	6.54 9.25 13.11 13.11 19.03 20.60 36.01	1.30 2.24 3.01 3.01 4.59 5.40 7.68	31.56 31.53 31.47 31.47 31.63 31.04 34.42	100 100	12 2	Peak Peak Peak Peak Peak Peak Peak



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 05, 2009	Aug. 04, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz~30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9KHz-26.5GHz	Oct. 23, 2009	Oct. 22, 2010	Radiation (03CH06-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 20, 2009	Oct. 19, 2010	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000M Hz	Apr. 28, 2010	Apr. 27, 2011	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 20, 2009	Aug. 19, 2010	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AH-0801	95119	8GHz~18GHz	Nov. 02, 2009	Nov. 01, 2010	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917025 1	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Nov. 11, 2009	Nov. 10, 2010	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
System Simulator	R&S	CMU200	105934	N/A	Nov. 11, 2008	Nov. 10, 2010	-



5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

	Uncertai		
Contribution	dB	Probability Distribution	u(X _i)
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)		1.13	
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))		2.26	

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

	Uncerta		
Contribution	dB	Probability Distribution	u(X _i)
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-Shape	0.28
Combined Standard Uncertainty Uc(y)		1.27	
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))		2.54	



	Uncertai	nty of X _i			
Contribution	dB Probability Distribution		u(X _i)	C _i	C _i * u(X _i)
Receiver Reading	±0.10	Normal (k=2)	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 Γ 1 = 0.197 Antenna VSWR Γ 2 = 0.194 Uncertainty = 20Log(1- Γ 1* Γ 2)	+0.34 / -0.35	U-Shape	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		

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



Appendix A. Photographs of EUT

Please refer to Sporton report number EP052102 as below.



Appendix C. Original Report

Please refer to Sporton report number FC8O0405 as below.