Test Report

Product Name ： GPSmile53 Car Navigator
Model No. ： NAV-53A, NAV-53B
FCC ID. ： RJINAV-53xx

Applicant ： Holux Technology, Inc.
Address ： 1F, No.30, R&D Rd. II, Hsinchu City 300, Taiwan (R.O.C.)

Date of Receipt ： 2006/09/18
Issued Date ： 2006/10/19
Report No. ： 069H036-RF-US-P05V01

Test Report Certification

Issued Date : 2006/10/19
Report No. : 069H036-RF-US-P05V01

QuieTek

Product Name	:	GPSmile53 Car Navigator
Applicant	:	Holux Technology, Inc.
Address	:	1F, No.30, R&D Rd. II, Hsinchu City 300, Taiwan (R.O.C.)
Manufacturer	:	Holux Technology, Inc.
Model No.	:	NAV-53A, NAV-53B
FCC ID.	:	RJINAV-53xx
Rated Voltage	:	AC 120 V / 60 Hz
EUT Voltage	:	AC 120 V / 60 Hz
Trade Name	:	HOLUX
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C Section 15.247
Test Result	:	Complied

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Documented By : Demi Chang

(Demi Chang)

Tested By : Sheena Huang

(Sheena Huang)

Approved By : Roy Wang

(Roy Wang)

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1. General Information

1.1. EUT Description

Product Name	GPSmile53 Car Navigator
Trade Name	HOLUX
Model No.	NAV-53A, NAV-53B
Frequency Range	2402~2480MHz
Channel Number	79
Type of Modulation	GFSK
Channel Control	Auto
Antenna Type	Soldered on PCB
Antenna Gain	-2.64dBi

Component	
Power Adapter	SWITCHING, SYS1196-0605-W2 I/P: 100-240V, 0.3A, 20-30VA, 50-60Hz Cable Out: Non-Shielded, 1.5m O/P: +5V/1.0A O/P Power: 5W MAX
Car Charger	HOLUX, CC-0103 I/P: 12V-24V O/P: DC 5.0V, 850mA Cable Out: 1.6m

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00	2402 MHz	Channel 20	2422 MHz	Channel 40	2442 MHz	Channel 60	2462 MHz
Channel 01	2403 MHz	Channel 21	2423 MHz	Channel 41	2443 MHz	Channel 61	2463 MHz
Channel 02	2404 MHz	Channel 22	2424 MHz	Channel 42	2444 MHz	Channel 62	2464 MHz
Channel 03	2405 MHz	Channel 23	2425 MHz	Channel 43	2445 MHz	Channel 63	2465 MHz
Channel 04	2406 MHz	Channel 24	2426 MHz	Channel 44	2446 MHz	Channel 64	2466 MHz
Channel 05	2407 MHz	Channel 25	2427 MHz	Channel 45	2447 MHz	Channel 65	2467 MHz
Channel 06	2408 MHz	Channel 26	2428 MHz	Channel 46	2448 MHz	Channel 66	2468 MHz
Channel 07	2409 MHz	Channel 27	2429 MHz	Channel 47	2449 MHz	Channel 67	2469 MHz
Channel 08	2410 MHz	Channel 28	2430 MHz	Channel 48	2450 MHz	Channel 68	2470 MHz
Channel 09	2411 MHz	Channel 29	2431 MHz	Channel 49	2451 MHz	Channel 69	2471 MHz
Channel 10	2412 MHz	Channel 30	2432 MHz	Channel 50	2452 MHz	Channel 70	2472 MHz
Channel 11	2413 MHz	Channel 31	2433 MHz	Channel 51	2453 MHz	Channel 71	2473 MHz
Channel 12	2414 MHz	Channel 32	2434 MHz	Channel 52	2454 MHz	Channel 72	2474 MHz
Channel 13	2415 MHz	Channel 33	2435 MHz	Channel 53	2455 MHz	Channel 73	2475 MHz
Channel 14	2416 MHz	Channel 34	2436 MHz	Channel 54	2456 MHz	Channel 74	2476 MHz
Channel 15	2417 MHz	Channel 35	2437 MHz	Channel 55	2457 MHz	Channel 75	2477 MHz
Channel 16	2418 MHz	Channel 36	2438 MHz	Channel 56	2458 MHz	Channel 76	2478 MHz
Channel 17	2419 MHz	Channel 37	2439 MHz	Channel 57	2459 MHz	Channel 77	2479 MHz
Channel 18	2420 MHz	Channel 38	2440 MHz	Channel 58	2460 MHz	Channel 78	2480 MHz
Channel 19	2421 MHz	Channel 39	2441 MHz	Channel 59	2461 MHz		

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. The transmitter is presented with a continuous data stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its 79 channels and over the minimum number of hopping channels (75 channels).

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Note:

1. This device is a GPSmile53 Car Navigator included a 2.4GHz receiving function, and 2.4GHz transmitting function.
2. The different outlook and colors between NAV-53A and NAV-53B, so we just measured one mode.
3. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
4. Regards to the frequency band operation; the lowest、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
5. This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 069H036-RF-US-P01V02 under Declaration of Conformity.

1.2. Operational Description

The EUT is a GPSmile 53 Portable Automobile Navigation System. When we power on GPSmile 53, the GPS function is enable, then we turn on the Bluetooth function to self-test before a connection is established. A Bluetooth link can now be established between the EUT and the Bluetooth device of notebook PC.

The setting function gives you the ability to adjust the basic system options, including time settings, volume control, screen calibration, startup message, backlight setting, version info, and GPS reset etc. You can modify the settings according to personal preferences.

The EUT can be used in car navigation, security systems, cartography, and other applications such as surveying and agriculture etc. The basic requirement for its use is to “have a clear view of the sky”. It relies on Bluetooth transmission technology, or other compatible interface to communicate with other electronic devices. The built-in rechargeable battery saves satellite information such as the status of the satellite signal, the last location, and the date and time last used.

1.3. Test Mode

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-Test Mode	
EMI	Mode 1: Transmit (Power by Adapter) Mode 2: Transmit (Power by Car Charger)
Final Test Mode	
EMI	Mode 1: Transmit (Power by Adapter) Mode 2: Transmit (Power by Car Charger)

1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

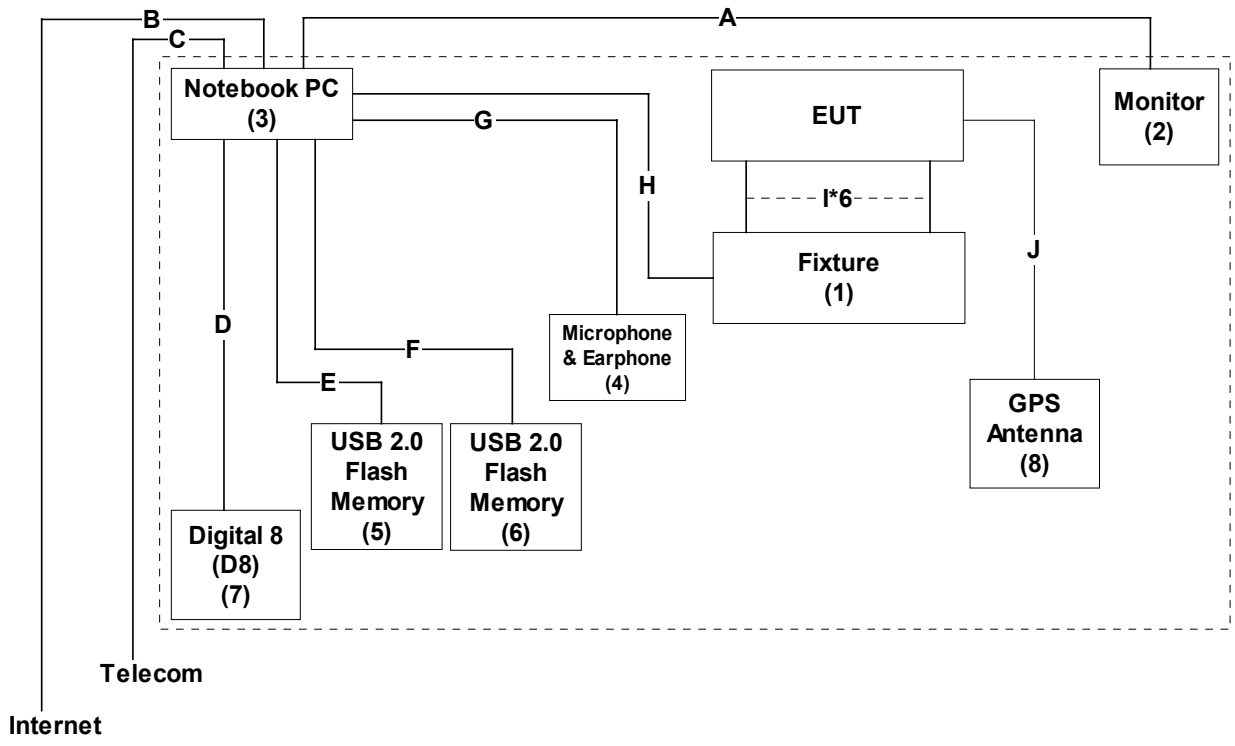
Test Mode		Mode 1: Transmit (Power by Adapter)				
Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Fixture	HOLUX	N/A	--	DoC	--
2	Monitor	CHI MEI	A170E1-09	3UC120955RA0033	DoC	Non-Shielded, 1.8m
3	Notebook PC	DELL	LATITUDE D400	N/A	DoC	Non-Shielded, 1.7m, a ferrite core bonded
4	Microphone & Earphone	Ronald	MOE060	N/A	DoC	--
5	USB 2.0 Flash Memory	Ridata	PEN000-DP065-37	N/A	DoC	--
6	USB 2.0 Flash Memory	Ridata	PEN000-DP065-37	N/A	DoC	--
7	Digital 8 (D8)	SONY	DCR-TRV110	P35209	DoC	--
8	GPS Antenna	HOLUX	A-1000	--	DoC	--

Test Mode		Mode 2: Transmit (Power by Car Charger)				
Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Fixture	HOLUX	N/A	--	DoC	--
2	Monitor	CHI MEI	A170E1-09	3UC120955RA0033	DoC	Non-Shielded, 1.8m
3	Notebook PC	DELL	LATITUDE D400	N/A	DoC	Non-Shielded, 1.7m, a ferrite core bonded
4	Microphone & Earphone	Ronald	MOE060	N/A	DoC	--
5	USB 2.0 Flash Memory	Ridata	PEN000-DP065-37	N/A	DoC	--
6	USB 2.0 Flash Memory	Ridata	PEN000-DP065-37	N/A	DoC	--
7	Digital 8 (D8)	SONY	DCR-TRV110	P35209	DoC	--
8	GPS Antenna	HOLUX	A-1000	--	DoC	--
9	Battery	Motorcraft	P075	--	DoC	--

1.5. Configuration of tested System

Test Mode	Mode 1: Transmit (Power by Adapter)

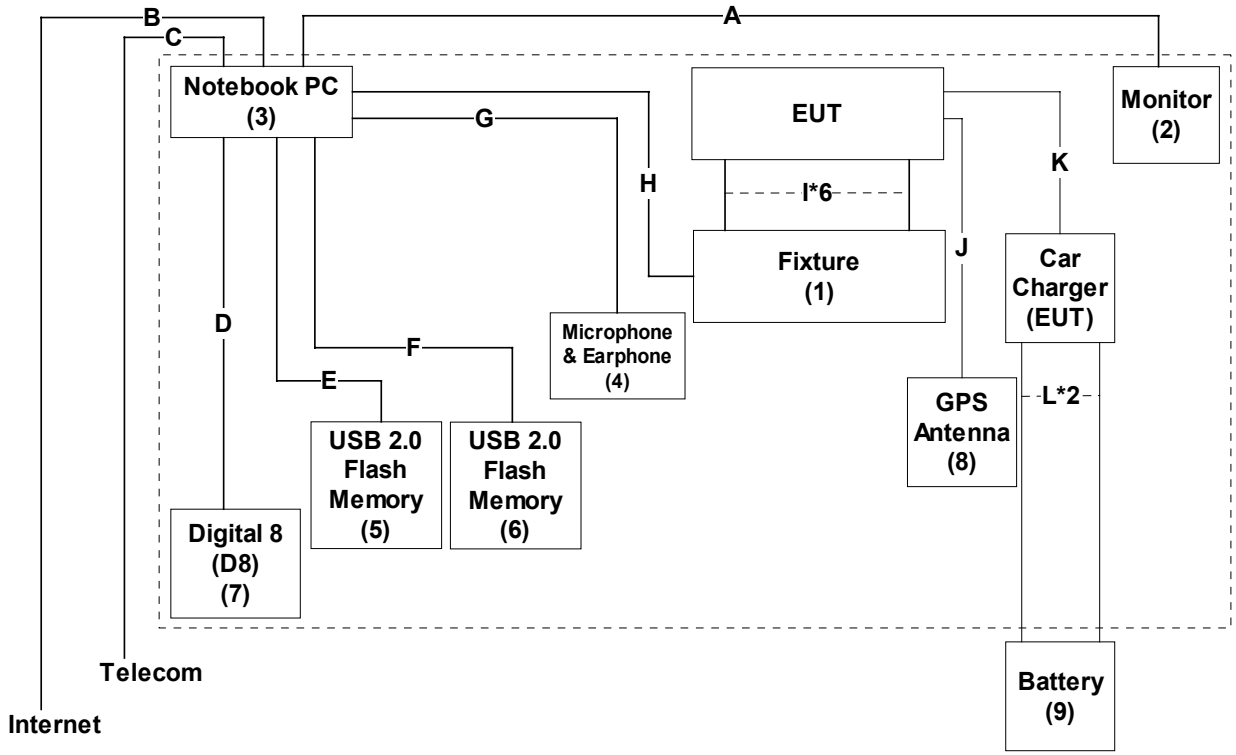
Connection Diagram



Signal Cable Type		Signal cable Description
A	VGA Cable	Shielded, 1.8m
B	LAN Cable	Non-Shielded, 3m
C	Telecom Cable	Non-Shielded, 3m
D	1394 Cable	Non-Shielded, 1.2m
E	USB 2.0 Flash Memory Cable	Shielded, 0.8m
F	USB 2.0 Flash Memory Cable	Non-Shielded, 1.7m
G	Microphone & Earphone Cable	Non-Shielded, 1.2m
H	RS232 Cable	Non-Shielded, 1.7m
I	Signal Line	Non-Shielded, 0.08m, 6 PCS
J	Antenna Cable	Non-Shielded, 2m

Test Mode	Mode 2: Transmit (Power by Car Charger)

Connection Diagram



Signal Cable Type		Signal cable Description
A	VGA Cable	Shielded, 1.8m
B	LAN Cable	Non-Shielded, 3m
C	Telecom Cable	Non-Shielded, 3m
D	1394 Cable	Non-Shielded, 1.2m
E	USB 2.0 Flash Memory Cable	Shielded, 0.8m
F	USB 2.0 Flash Memory Cable	Non-Shielded, 1.7m
G	Microphone & Earphone Cable	Non-Shielded, 1.2m
H	RS232 Cable	Non-Shielded, 1.7m
I	Signal Line	Non-Shielded, 0.08m, 6 PCS
J	Antenna Cable	Non-Shielded, 2m
K	Power Line	Non-Shielded, 1m
L	Power Line	Non-Shielded, 1m, 2 PCS

1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	The EUT will play the function from GPS program and MP3 Player.
4	Verify the model operation.
5	Repeat the above procedure (3) to (4).

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.247 Band Edge (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Channel Of Number (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	53
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Channel Separation (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Dwell Time (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	59
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

January 24, 2005 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520

Accredited by CNLA
Accreditation Number: 1313
Effective through: September 27, 2007

1313
ILAC MRA

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2006

NVLAP Lab Code : 200347-0

Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

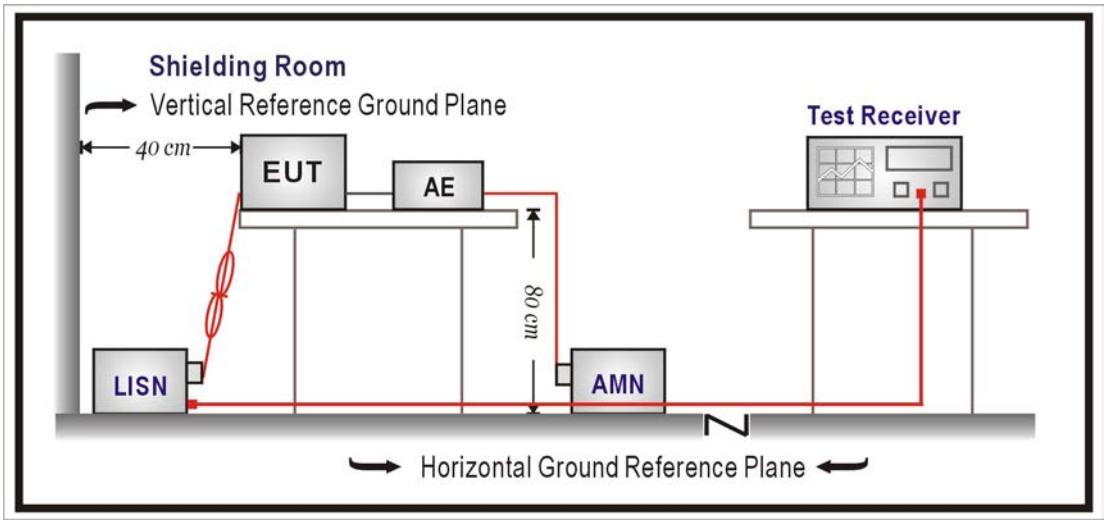
2.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/018	Sep., 2006	
2	Artificial Mains Network	R & S	ENV4200/848411/10	Feb., 2006	Peripherals
3	LISN	R & S	ESH3-Z5/825562/002	Feb., 2006	EUT
4	Pulse Limiter	R & S	ESH3-Z2/357.8810.52	Feb., 2006	
5	No.2 Shielded Room			N/A	

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

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

2.4. Test Procedure

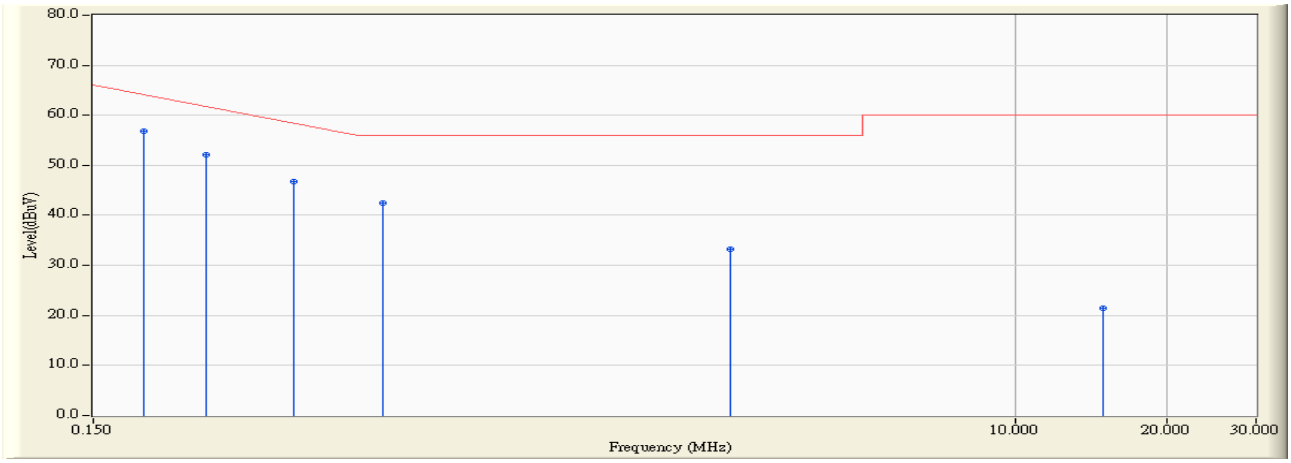
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.) Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement. Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207: 2004

2.6. Test Result

Site : QuieTek Shielding Room 2	**Time : 2006/09/28 - 13:34**
Limit : CISPR_B_00M_QP	**Margin : 0**
EUT : NAV-53A	**Probe : QTK-LISN-SR2 - Line1**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)**

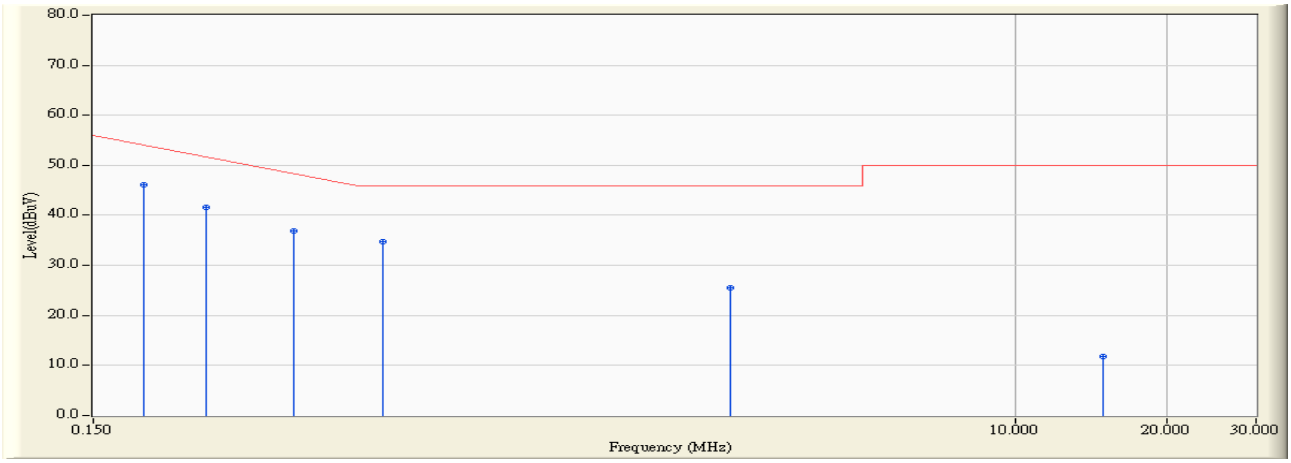


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.189	0.200	56.730	56.930	-7.956	64.886	QUASIPEAK
2		0.251	0.200	51.930	52.130	-10.984	63.114	QUASIPEAK
3		0.373	0.200	46.550	46.750	-12.879	59.629	QUASIPEAK
4		0.560	0.210	42.300	42.510	-13.490	56.000	QUASIPEAK
5		2.740	0.270	33.040	33.310	-22.690	56.000	QUASIPEAK
6		14.947	1.000	20.490	21.490	-38.510	60.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : QuieTek Shielding Room 2	**Time : 2006/09/28 - 13:34**
Limit : CISPR_B_00M_AV	**Margin : 0**
EUT : NAV-53A	**Probe : QTK-LISN-SR2 - Line1**
Power : AC 120V/60Hz	**Note : MODE 1: TRANSMIT (POWER BY ADAPTER)**

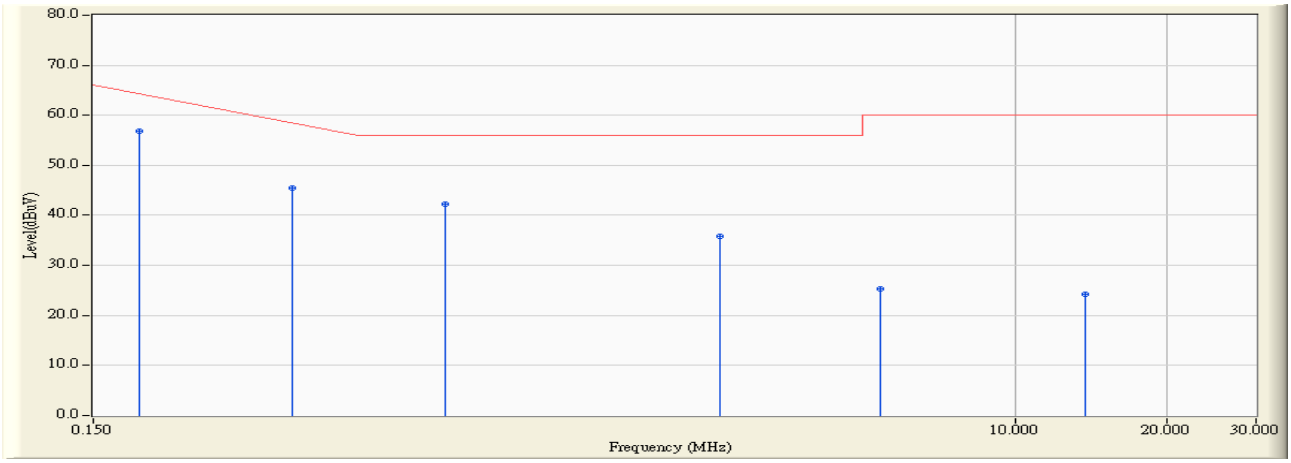


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.189	0.200	45.870	46.070	-8.816	54.886	AVERAGE
2		0.251	0.200	41.340	41.540	-11.574	53.114	AVERAGE
3		0.373	0.200	36.640	36.840	-12.789	49.629	AVERAGE
4		0.560	0.210	34.570	34.780	-11.220	46.000	AVERAGE
5		2.740	0.270	25.200	25.470	-20.530	46.000	AVERAGE
6		14.947	1.000	10.840	11.840	-38.160	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : QuieTek Shielding Room 2	**Time : 2006/09/28 - 13:42**
Limit : CISPR_B_00M_QP	**Margin : 0**
EUT : NAV-53A	**Probe : QTK-LISN-SR2 - Line2**
Power : AC 120V/60Hz	**Note : MODE 1: TRANSMIT (POWER BY ADAPTER)**

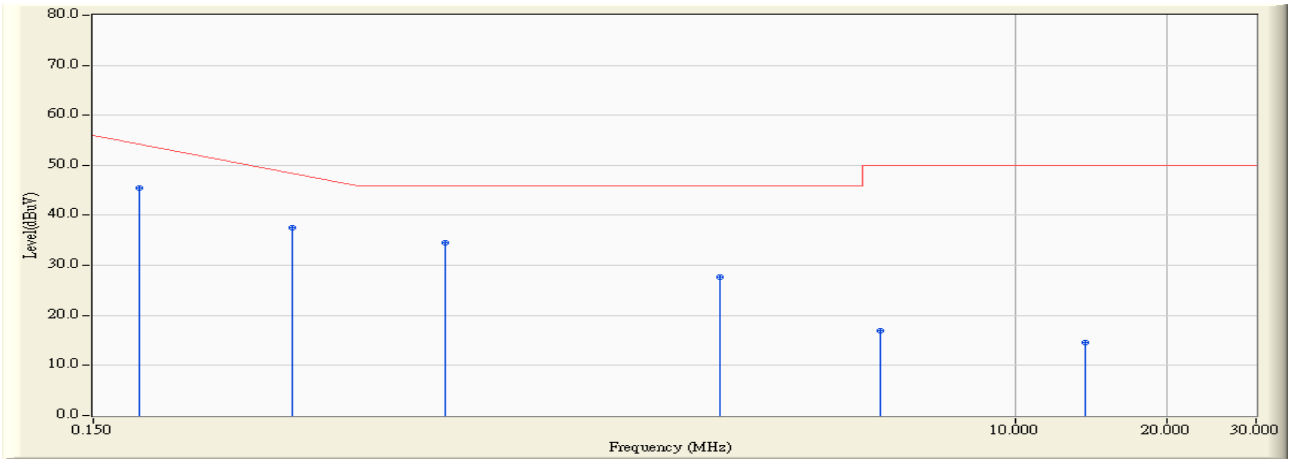


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.185	0.200	56.620	56.820	-8.180	65.000	QUASIPEAK
2		0.371	0.200	45.180	45.380	-14.306	59.686	QUASIPEAK
3		0.744	0.210	42.110	42.320	-13.680	56.000	QUASIPEAK
4		2.615	0.230	35.690	35.920	-20.080	56.000	QUASIPEAK
5		5.405	0.330	24.880	25.210	-34.790	60.000	QUASIPEAK
6		13.752	0.652	23.630	24.282	-35.718	60.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : QuieTek Shielding Room 2	**Time : 2006/09/28 - 13:42**
Limit : CISPR_B_00M_AV	**Margin : 0**
EUT : NAV-53A	**Probe : QTK-LISN-SR2 - Line2**
Power : AC 120V/60Hz	**Note : MODE 1: TRANSMIT (POWER BY ADAPTER)**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.185	0.200	45.320	45.520	-9.480	55.000	AVERAGE
2		0.371	0.200	37.330	37.530	-12.156	49.686	AVERAGE
3		0.744	0.210	34.240	34.450	-11.550	46.000	AVERAGE
4		2.615	0.230	27.480	27.710	-18.290	46.000	AVERAGE
5		5.405	0.330	16.600	16.930	-33.070	50.000	AVERAGE
6		13.752	0.652	14.030	14.682	-35.318	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

3. Peak Power Output

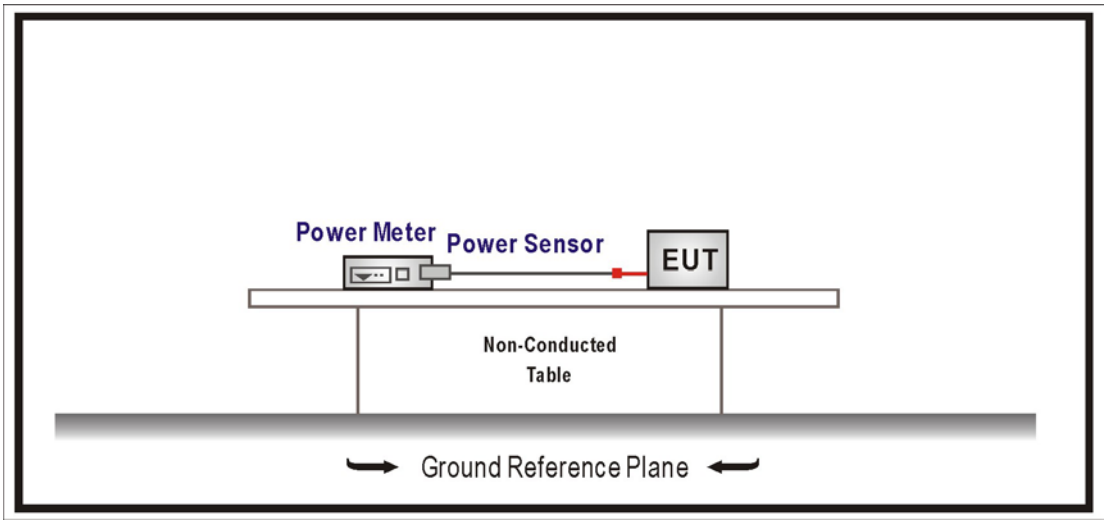
3.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Power Meter	Agilent	E4416A / GB41291630	May, 2006
2	Power Sensor	Agilent	E9323A / US40411166	Apr., 2006
3	No.1 OATS			Sep., 2006

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

3.2. Test Setup



3.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: 1 Watt for systems employing at least 50 hopping channels; and, 0.25 Watts for systems employing less than 50 hopping channels.

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1Watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watt.

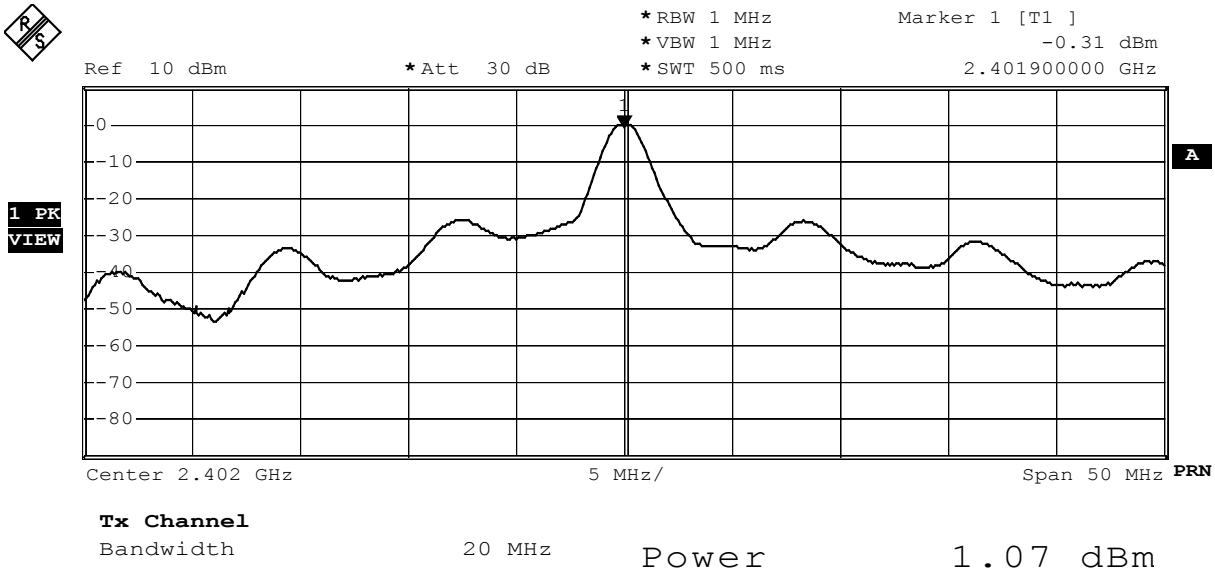
3.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2004

3.5. Test Result

Product	GPSmile53 Car Navigator		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/25	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402.00	1.07	1Watt = 30 dBm	Pass
39	2441.00	-0.06	1Watt= 30 dBm	Pass
78	2480.00	-1.40	1Watt= 30 dBm	Pass



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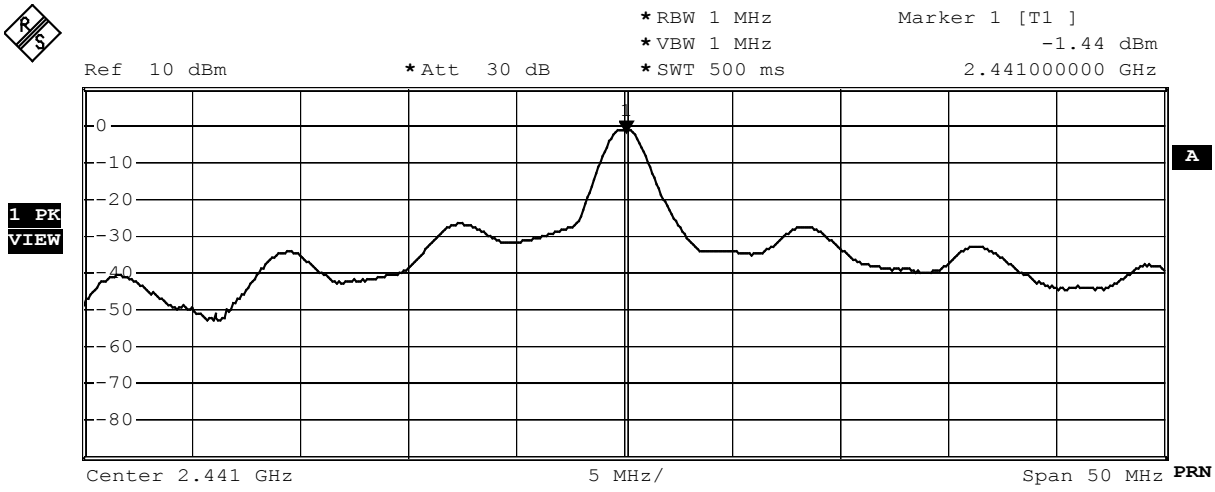
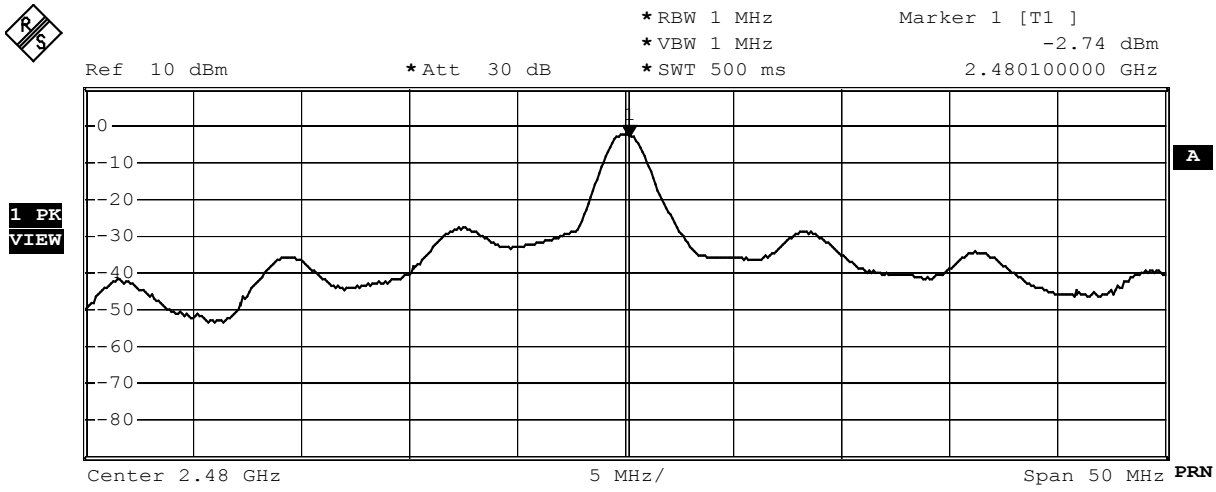


Tx Channel

Bandwidth 20 MHz Power -0.06 dBm

Date: 25.SEP.2006 18:54:45



Tx Channel

Bandwidth 20 MHz Power -1.40 dBm

Date: 25.SEP.2006 18:56:25

4. Radiated Emission

4.1. Test Equipment

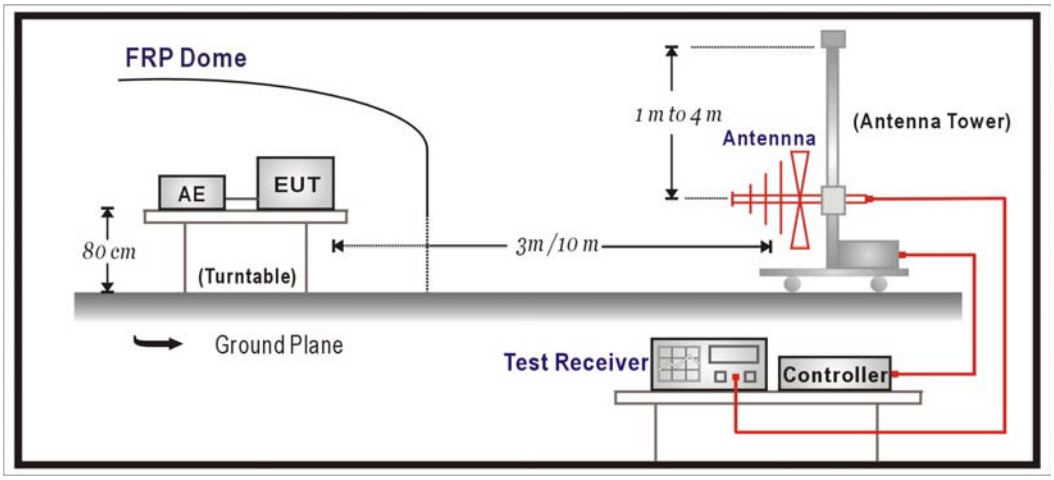
The following test equipment are used during the test:

Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Test Receiver	R & S	ESCS 30 / 825442/014	Jun., 2006
2	X	Spectrum Analyzer	Advantest	R3162 / 91700283	N/A
3	X	Pre-Amplifier	Advantest	BB525C / N/A	N/A
4	X	Bilog Antenna	Schaffner	CBL6112B / 2673	Sep., 2006
5	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2006
6	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2006
7	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Jul., 2006
8	No.3 OATS				Sep., 2006

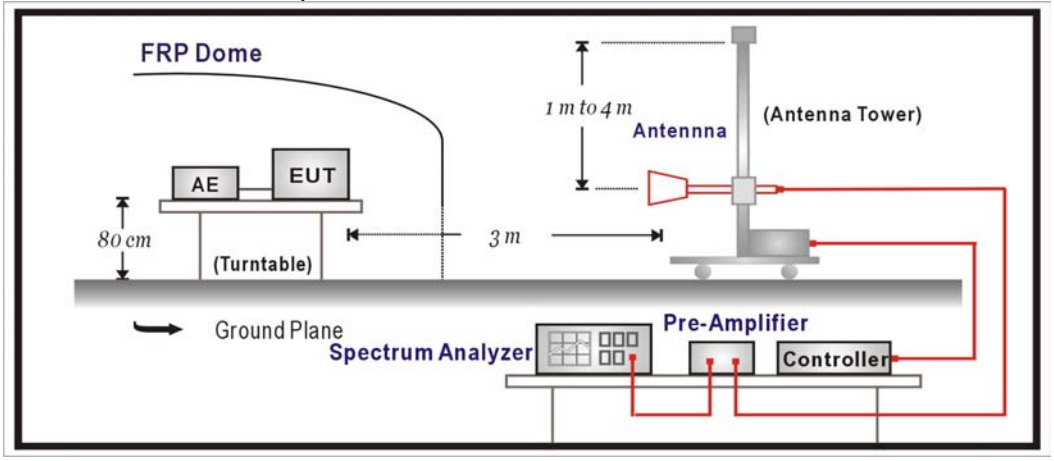
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. Mark “X” test instruments are used to measure the final test results.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

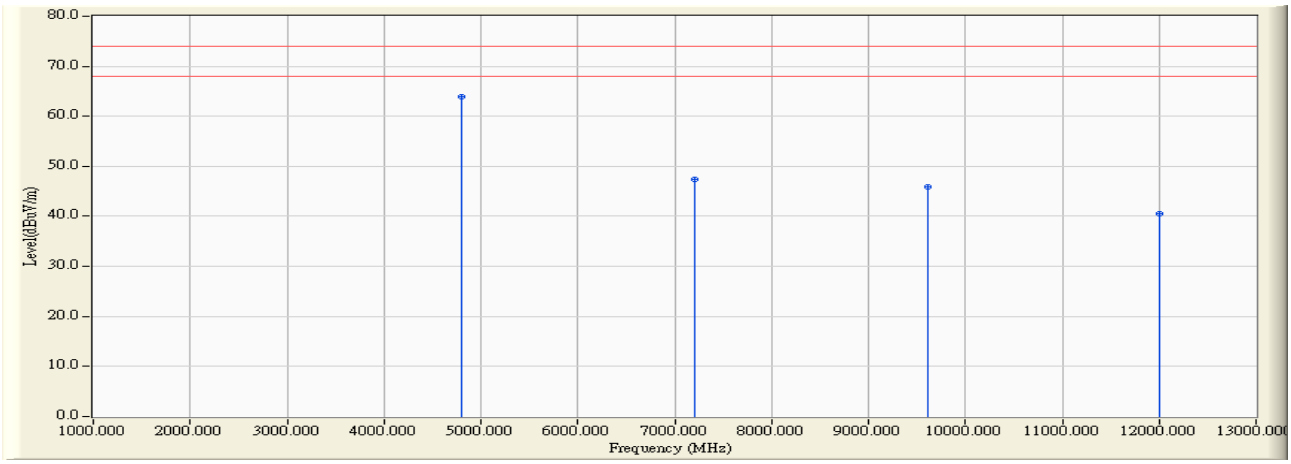
4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2004

4.6. Test Result

Harmonic & Spurious:

Site : Site1	**Time : 2006/09/27 - 09:36**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : NAV-53A	**Probe : RF_1G-18G(2005-3) - HORIZONTAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH00**

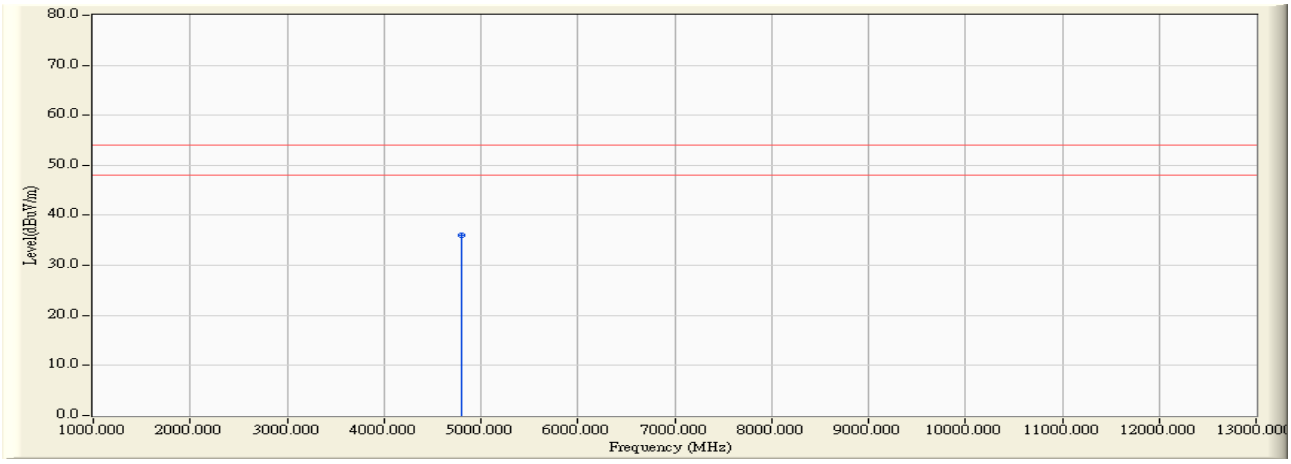


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	4803.710	2.686	61.210	63.895	-10.105	74.000	PEAK	0.000	0.000
2		7205.580	7.757	39.660	47.416	-26.584	74.000	PEAK	0.000	0.000
3		9607.690	11.497	34.300	45.797	-28.203	74.000	PEAK	0.000	0.000
4		12009.990	9.057	31.500	40.557	-33.443	74.000	PEAK	0.000	0.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site1	**Time : 2006/09/27 - 10:08**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : NAV-53A	**Probe : RF_1G-18G(2005-3) - HORIZONTAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH00**

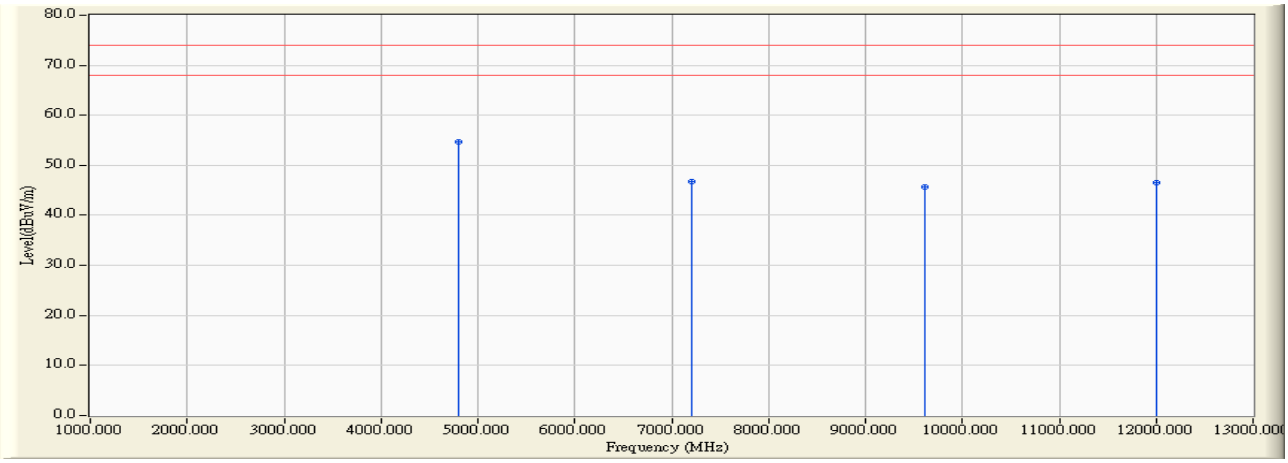


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	4804.050	2.686	33.280	35.966	-18.034	54.000	AVERAGE	0.000	0.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site1	**Time : 2006/09/27 - 10:08**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : NAV-53A	**Probe : RF_1G-18G(2005-3) - VERTICAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH00**

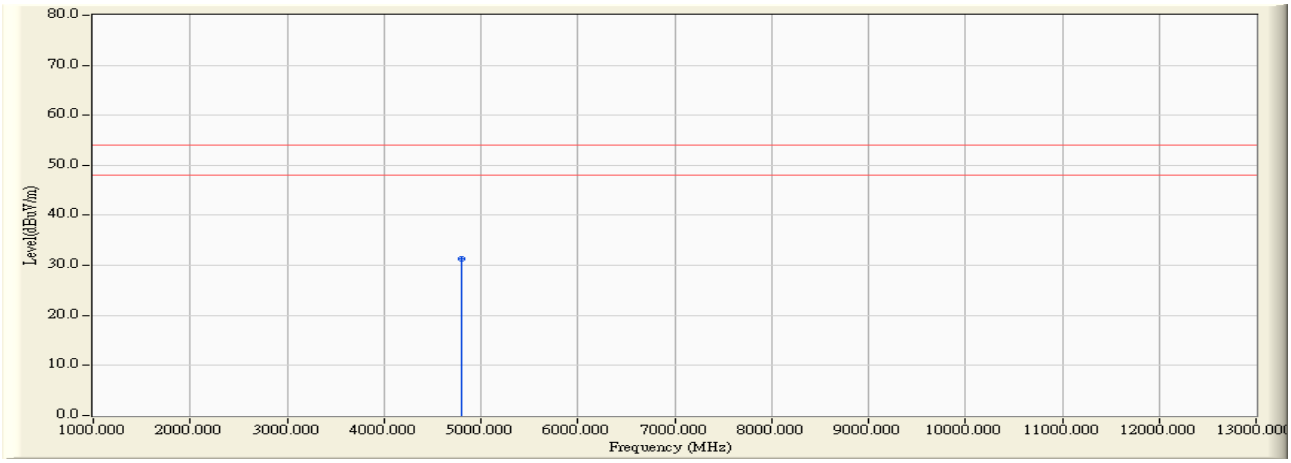


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	4804.280	0.903	53.700	54.603	-19.397	74.000	PEAK	0.000	0.000
2		7205.440	7.688	39.140	46.827	-27.173	74.000	PEAK	0.000	0.000
3		9608.030	13.498	32.260	45.758	-28.242	74.000	PEAK	0.000	0.000
4		12010.020	14.792	31.780	46.572	-27.428	74.000	PEAK	0.000	0.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site1	**Time : 2006/09/27 - 10:08**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : NAV-53A	**Probe : RF_1G-18G(2005-3) - VERTICAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH00**

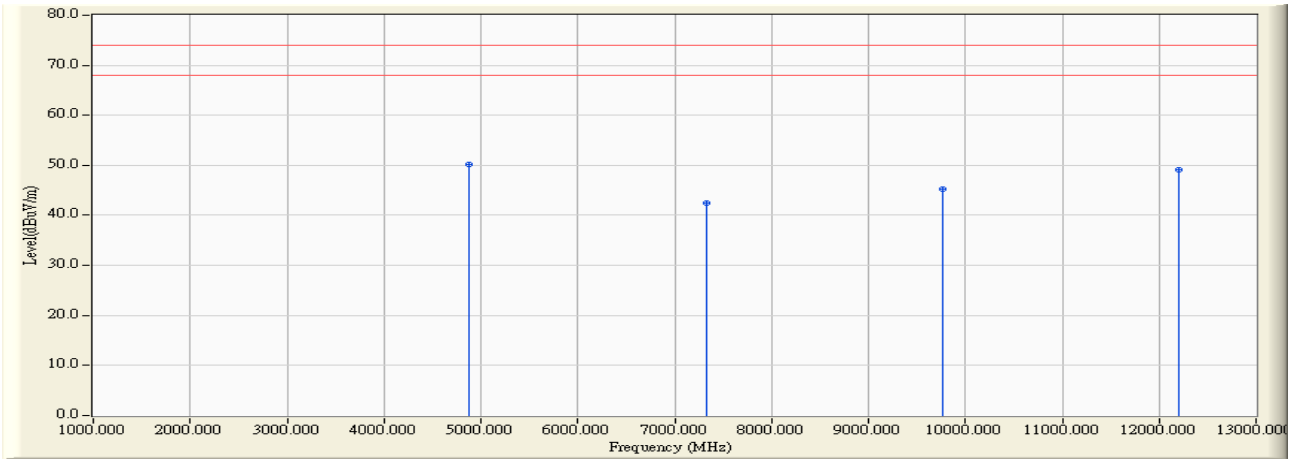


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	4804.020	0.901	30.440	31.342	-22.658	54.000	AVERAGE	0.000	0.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site1	**Time : 2006/09/27 - 10:24**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : NAV-53A	**Probe : RF_1G-18G(2005-3) - HORIZONTAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH39**

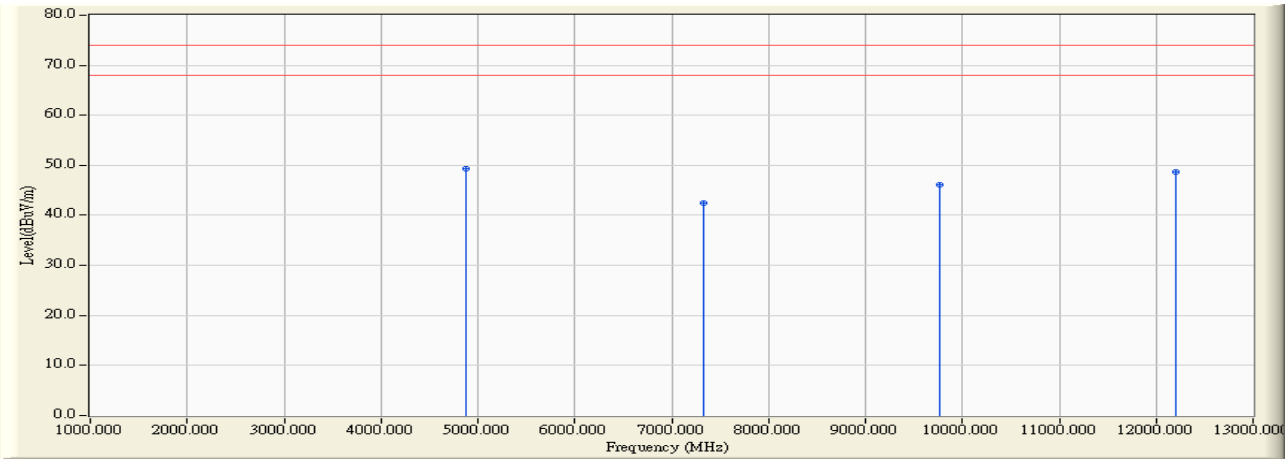


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	4881.770	3.040	47.170	50.210	-23.790	74.000	PEAK	0.000	0.000
2		7323.030	8.662	33.710	42.372	-31.628	74.000	PEAK	0.000	0.000
3		9763.960	11.619	33.650	45.269	-28.731	74.000	PEAK	0.000	0.000
4		12205.020	16.719	32.380	49.099	-24.901	74.000	PEAK	0.000	0.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site1	**Time : 2006/09/27 - 10:36**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : NAV-53A	**Probe : RF_1G-18G(2005-3) - VERTICAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH39**

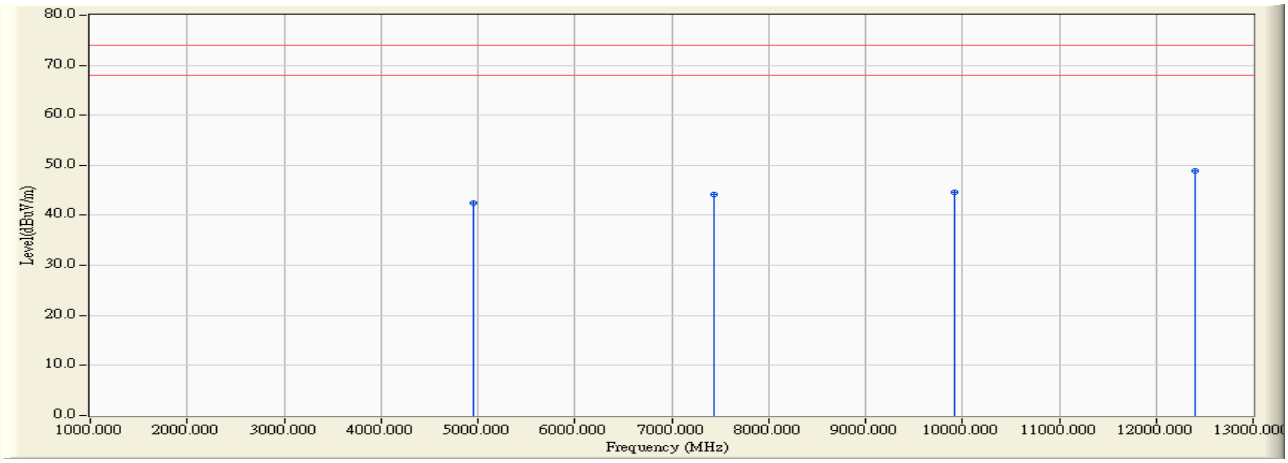


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	4881.750	1.400	47.950	49.350	-24.650	74.000	PEAK	0.000	0.000
2		7323.020	8.662	33.830	42.492	-31.508	74.000	PEAK	0.000	0.000
3		9764.000	13.619	32.400	46.019	-27.981	74.000	PEAK	0.000	0.000
4		12205.030	17.914	30.780	48.694	-25.306	74.000	PEAK	0.000	0.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site1	**Time : 2006/09/27 - 11:54**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : NAV-53A	**Probe : RF_1G-18G(2005-3) - HORIZONTAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH78**

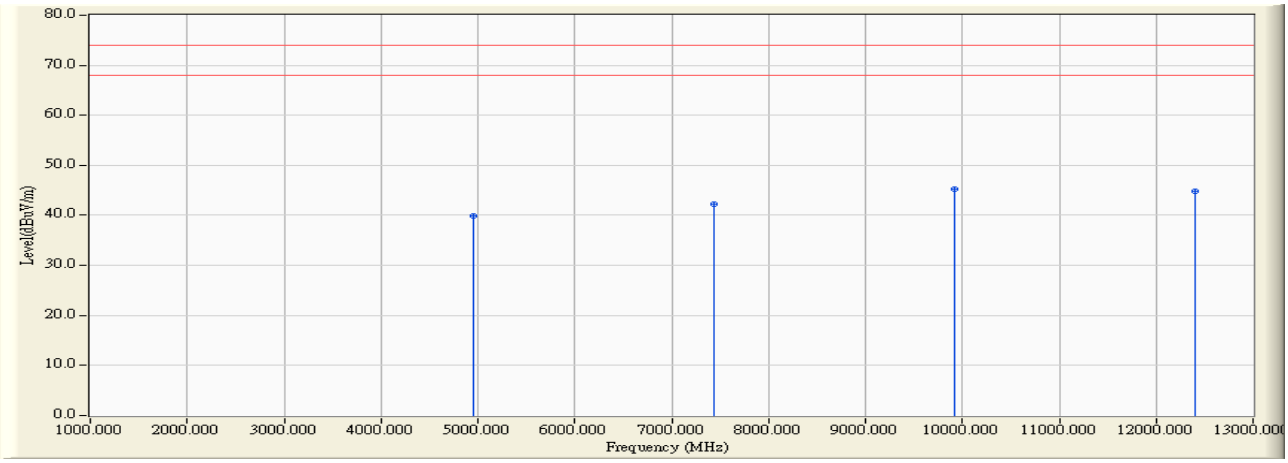


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		4960.030	1.904	40.510	42.415	-31.585	74.000	PEAK	0.000	0.000
2		7441.580	9.208	35.040	44.248	-29.752	74.000	PEAK	0.000	0.000
3		9920.020	12.664	32.020	44.685	-29.315	74.000	PEAK	0.000	0.000
4	*	12400.100	18.635	30.260	48.895	-25.105	74.000	PEAK	0.000	0.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site1	**Time : 2006/09/27 - 13:23**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : NAV-53A	**Probe : RF_1G-18G(2005-3) - VERTICAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH78**



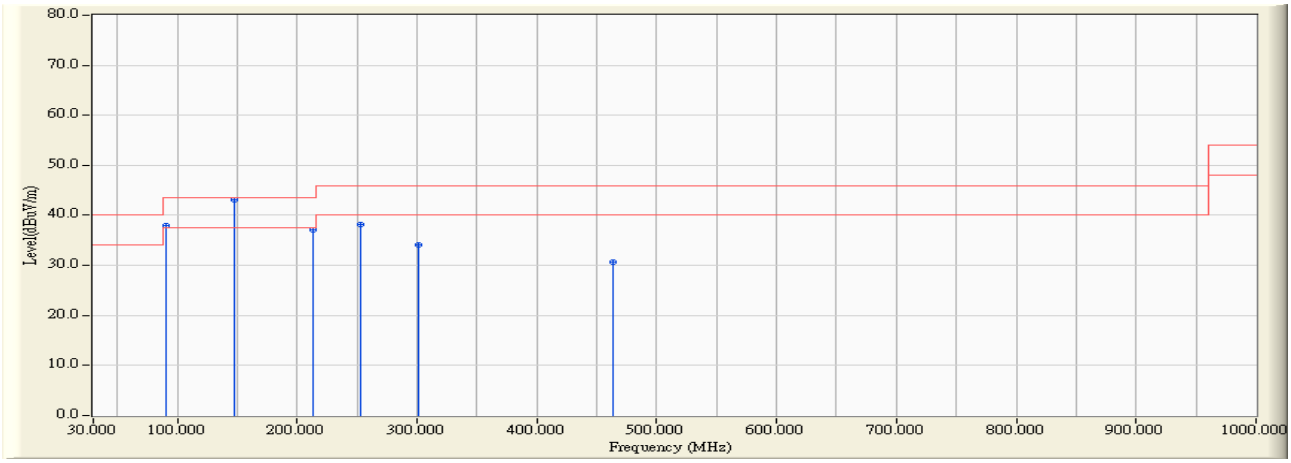
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		4959.670	1.903	37.890	39.793	-34.207	74.000	PEAK	0.000	0.000
2		7439.920	9.209	33.120	42.329	-31.671	74.000	PEAK	0.000	0.000
3	*	9919.840	13.465	31.710	45.175	-28.825	74.000	PEAK	0.000	0.000
4		12399.890	13.937	30.860	44.797	-29.203	74.000	PEAK	0.000	0.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

30 MHz – 1 GHz Spurious:

Site : Site1	**Time : 2006/10/04 - 23:17**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
EUT : NAV-53A	**Probe : RF_30-1G(06.5.12)0.8M - HORIZONTAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH39**

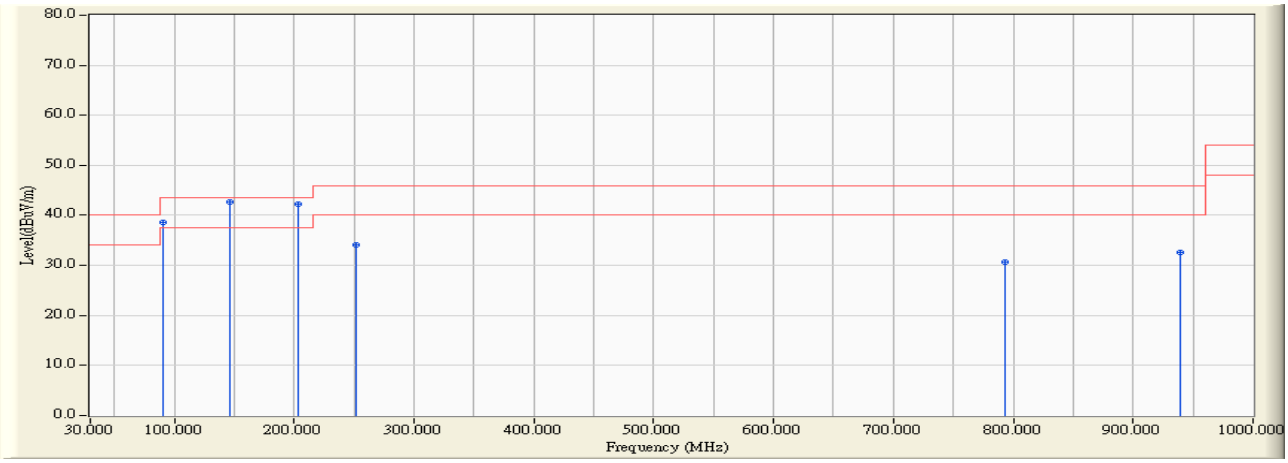


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		90.971	-9.381	47.401	38.020	-5.480	43.500	PEAK	0.000	0.000
2	*	147.786	-12.994	56.000	43.005	-0.495	43.500	PEAK	0.000	0.000
3		212.914	-13.010	50.200	37.190	-6.310	43.500	PEAK	0.000	0.000
4		253.100	-8.225	46.400	38.175	-7.825	46.000	PEAK	0.000	0.000
5		301.600	-4.111	38.200	34.089	-11.911	46.000	PEAK	0.000	0.000
6		463.729	3.298	27.400	30.698	-15.302	46.000	PEAK	0.000	0.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : Site1	**Time : 2006/10/04 - 23:18**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
EUT : NAV-53A	**Probe : RF_30-1G(06.5.12)0.8M - VERTICAL**
Power : AC 120V/60Hz	**Note : Mode 1: Transmit (Power by Adapter)-CH39**

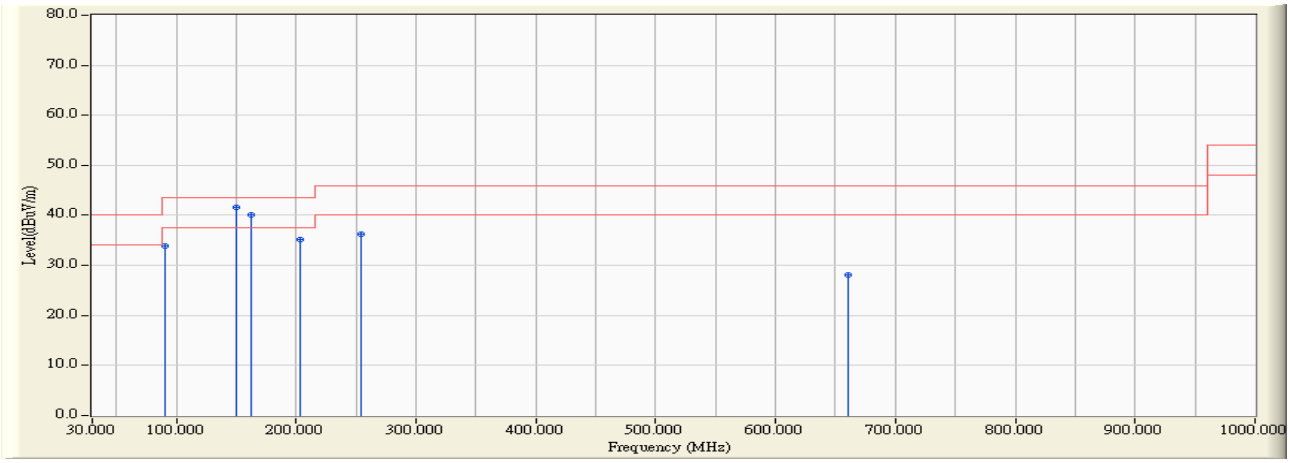


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		90.971	-2.384	41.001	38.617	-4.883	43.500	PEAK	0.000	0.000
2	*	146.400	-4.030	46.800	42.770	-0.730	43.500	PEAK	0.000	0.000
3		203.214	-3.212	45.400	42.188	-1.312	43.500	PEAK	0.000	0.000
4		251.714	-8.039	42.200	34.161	-11.839	46.000	PEAK	0.000	0.000
5		793.529	4.677	26.000	30.677	-15.323	46.000	PEAK	0.000	0.000
6		939.029	9.065	23.600	32.665	-13.335	46.000	PEAK	0.000	0.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SITE1	**Time : 2006/10/17 - 23:27**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
EUT : NAV-53A	**Probe : RF_30-1G(06.5.12)0.8M - HORIZONTAL**
Power : DC 12V	**Note : Mode 2: Transmit (Power by Car Charger)-CH39**

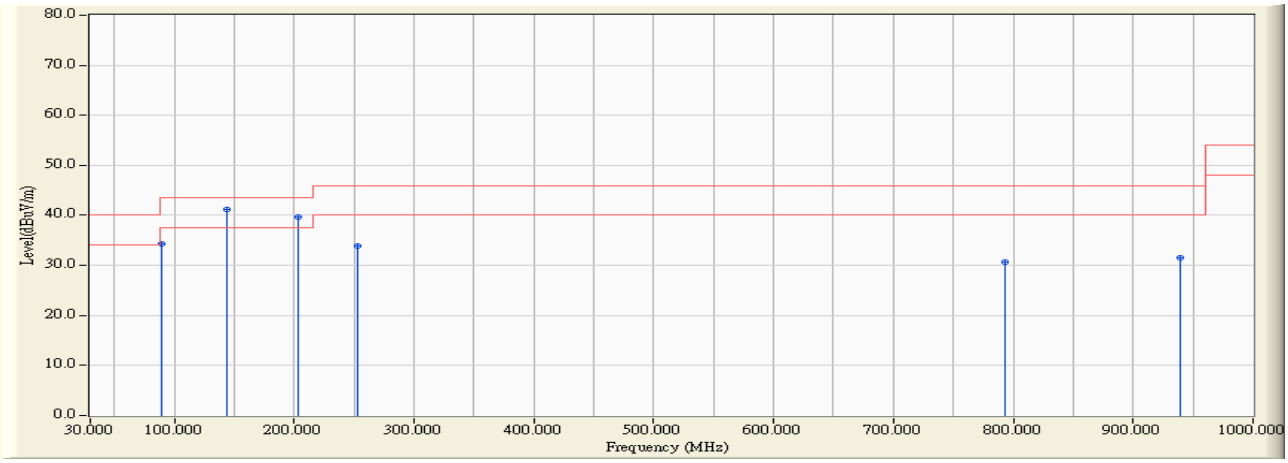


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		90.971	-9.381	43.301	33.920	-9.580	43.500	PEAK	0.000	0.000
2	*	150.557	-13.850	55.500	41.650	-1.850	43.500	PEAK	0.000	0.000
3		163.029	-14.516	54.600	40.084	-3.416	43.500	PEAK	0.000	0.000
4		203.214	-13.897	49.000	35.103	-8.397	43.500	PEAK	0.000	0.000
5		254.486	-8.077	44.300	36.223	-9.777	46.000	PEAK	0.000	0.000
6		660.500	0.697	27.300	27.997	-18.003	46.000	PEAK	0.000	0.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SITE1	**Time : 2006/10/17 - 23:27**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
EUT : NAV-53A	**Probe : RF_30-1G(06.5.12)0.8M - VERTICAL**
Power : DC 12V	**Note : Mode 2: Transmit (Power by Car Charger)-CH39**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		89.586	-3.569	37.800	34.231	-9.269	43.500	PEAK	0.000	0.000
2	*	143.629	-5.294	46.399	41.106	-2.394	43.500	PEAK	0.000	0.000
3		203.214	-3.212	42.900	39.688	-3.812	43.500	PEAK	0.000	0.000
4		253.100	-8.555	42.400	33.845	-12.155	46.000	PEAK	0.000	0.000
5		793.529	4.677	26.000	30.677	-15.323	46.000	PEAK	0.000	0.000
6		939.029	9.065	22.400	31.465	-14.535	46.000	PEAK	0.000	0.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

5. Band Edge

5.1. Test Equipment

The following test equipment are used during the test:

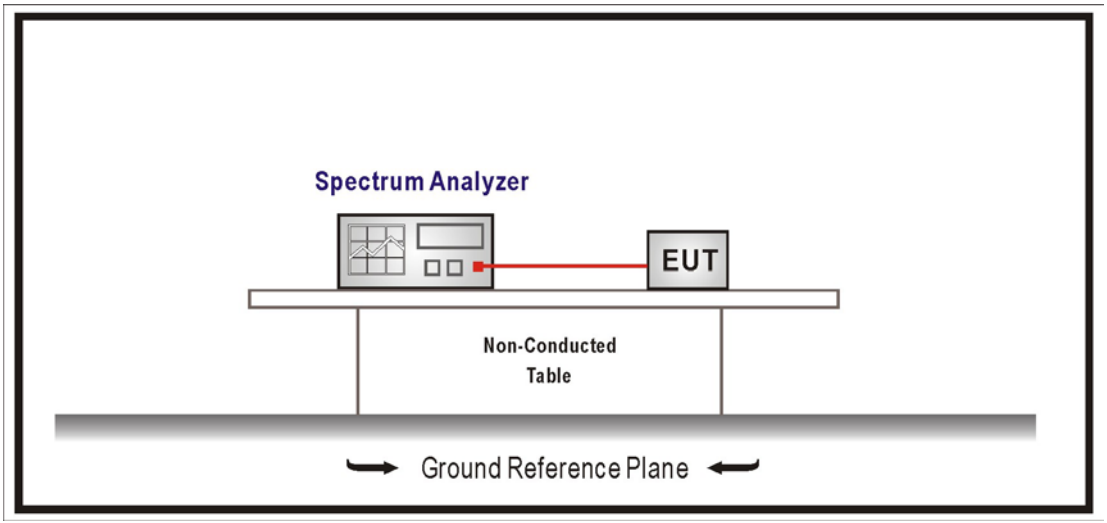
RF Conducted Measurement:					
Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer		R & S	FSP / 100561	Mar., 2006
2	No.1 OATS				Sep., 2006
RF Radiated Measurement:					
Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2006
2	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2006
3		Loop Antenna	R & S	HFH2-Z2 / 833799/004	Sep., 2006
4		BiconiLog Antenna	Schwarzbeck	VULB 9166 / 1061	Sep., 2006
5		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2006
6	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Sep., 2006
7	No.1 OATS				Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

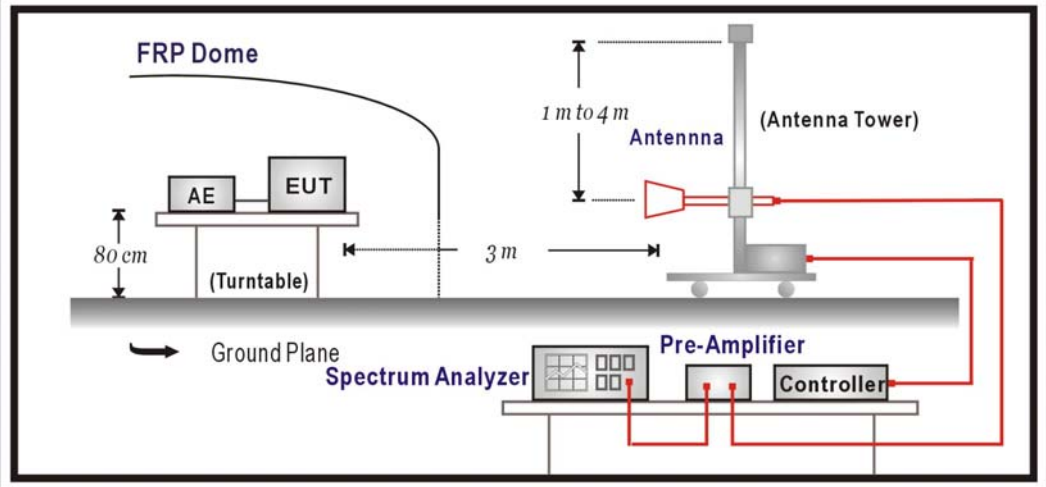
2. Mark “X” test instruments are used to measure the final test results.

5.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2004

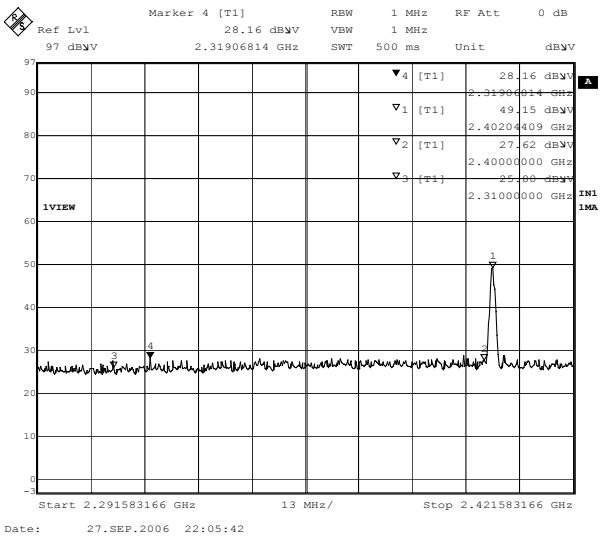
5.6. Test Result

Product	GPSmile53 Car Navigator		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/27	Test Site	No.1 OATS

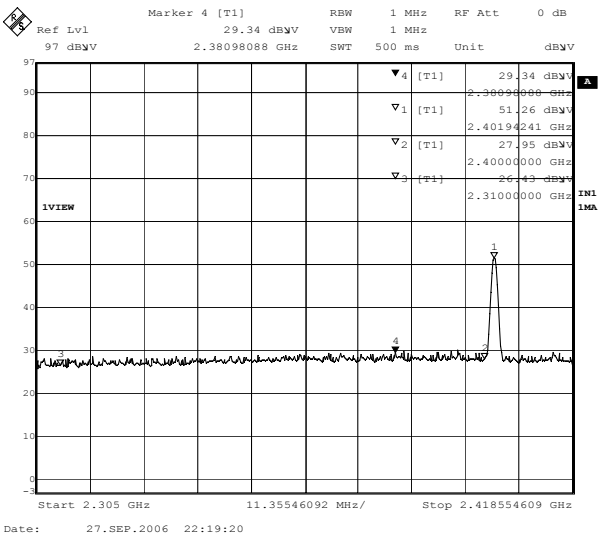
RF Radiated Measurement: (Peak Detector)

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	PreAMP (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Result
00(Horizontal)	2319.060	28.160	24.250	0.00	56.313	74.000	Pass
00(Vertical)	2380.980	29.340	22.844	0.00	56.102	74.000	Pass

Horizontal



Vertical



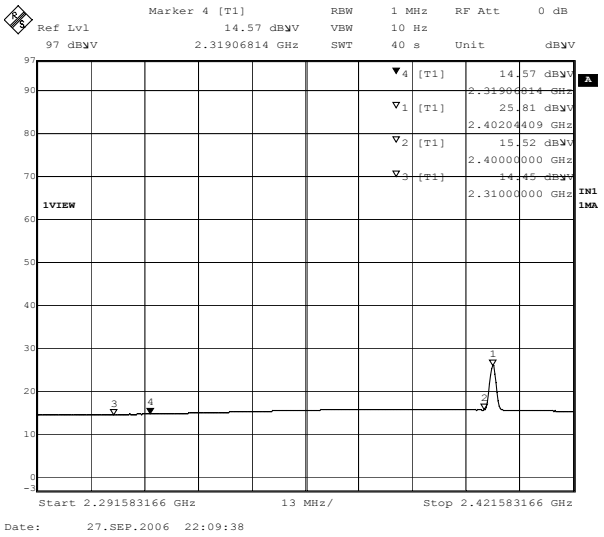
Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	GPSmile53 Car Navigator		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/27	Test Site	No.1 OATS

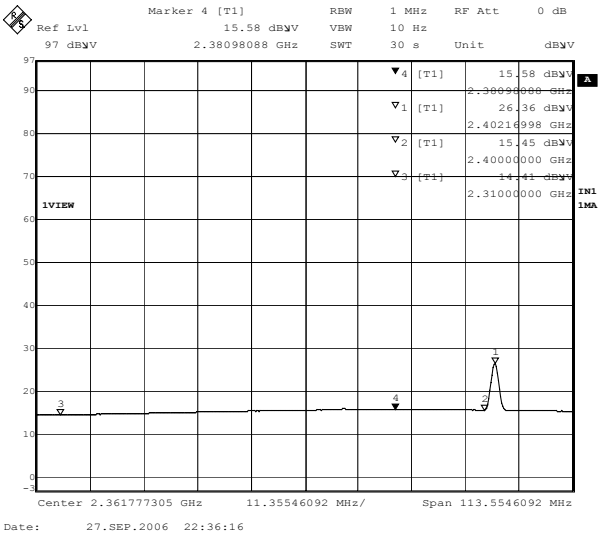
RF Radiated Measurement: (Average Detector)

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	PreAMP (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Result
00(Horizontal)	2319.060	14.570	24.250	0.00	42.723	54.00	Pass
00(Vertical)	2380.980	15.580	22.844	0.00	42.342	54.00	Pass

Horizontal



Vertical



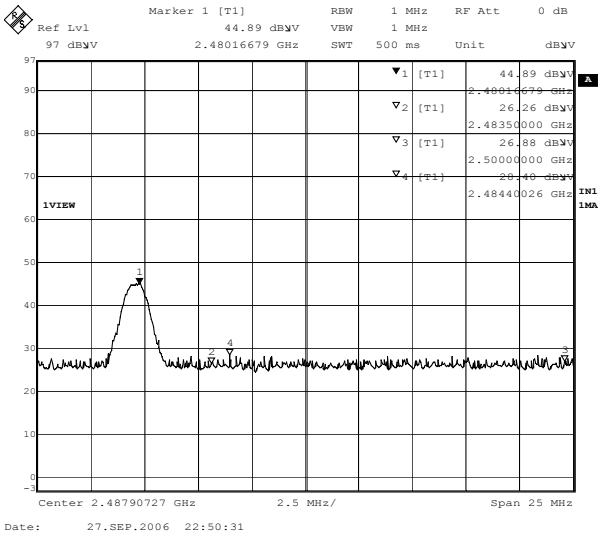
Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	GPSmile53 Car Navigator		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/27	Test Site	No.1 OATS

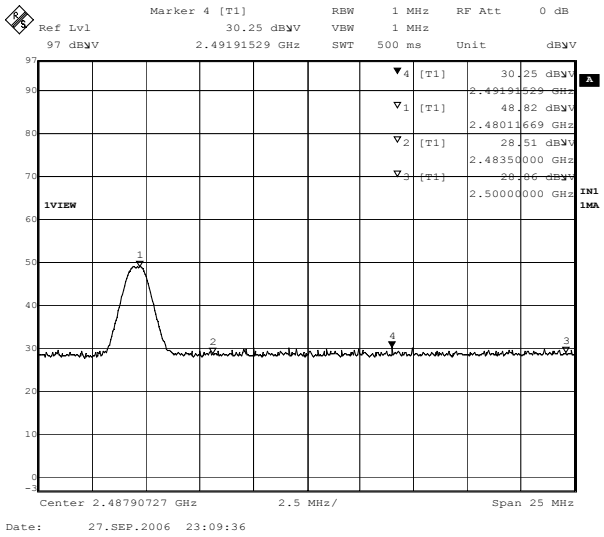
RF Radiated Measurement: (Peak Detector)

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	PreAMP (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Result
78(Horizontal)	2484.400	28.400	24.723	0.00	57.114	74.000	Pass
78(Vertical)	2491.910	30.250	23.140	0.00	57.390	74.000	Pass

Horizontal



Vertical



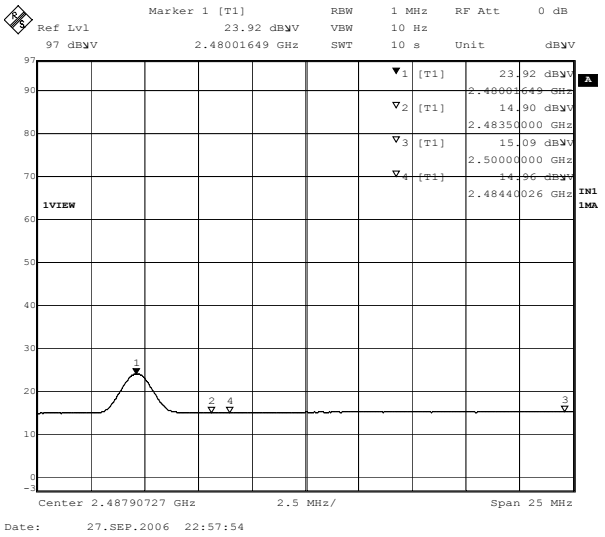
Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	GPSmile53 Car Navigator		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/27	Test Site	No.1 OATS

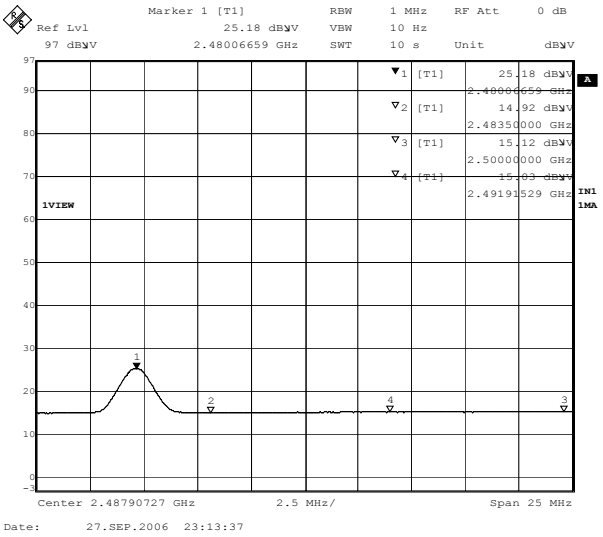
RF Radiated Measurement: (Average Detector)

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	PreAMP (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Result
78(Horizontal)	2484.400	14.960	24.723	0.00	43.674	54.000	Pass
78(Vertical)	2491.910	15.030	23.140	0.00	42.170	54.000	Pass

Horizontal



Vertical



Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

6. Channel of Number

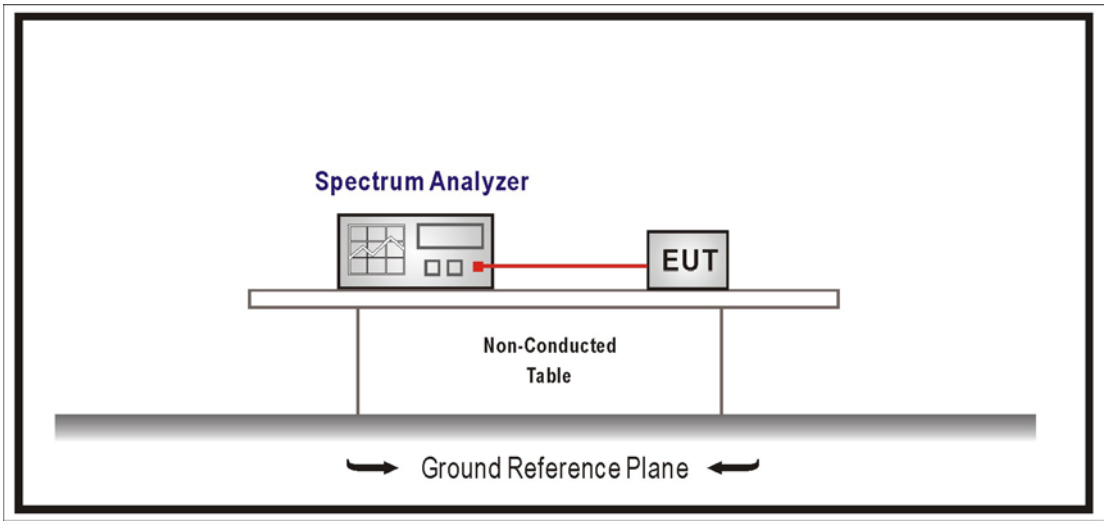
6.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2006
2	No.1 OATS			Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

6.2. Test Setup



6.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 2400-2483.5 MHz bands, which use fewer than 75 hopping frequencies, may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

6.4. Test Specification

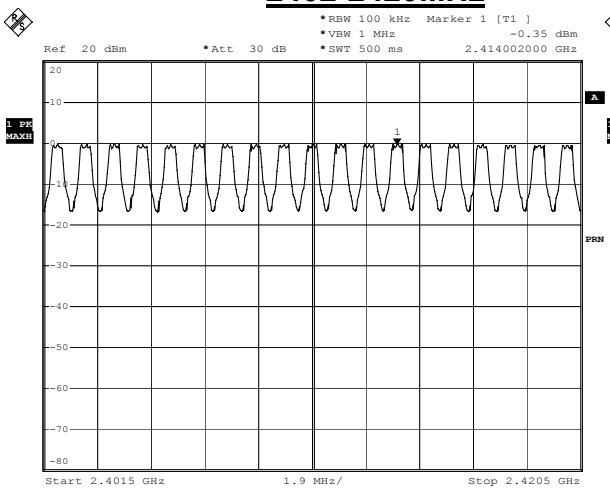
According to FCC Part 15 Subpart C Paragraph 15.247: 2004

6.5. Test Result

Product	GPSmile53 Car Navigator		
Test Item	Channel of Number		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/25	Test Site	No.1 OATS

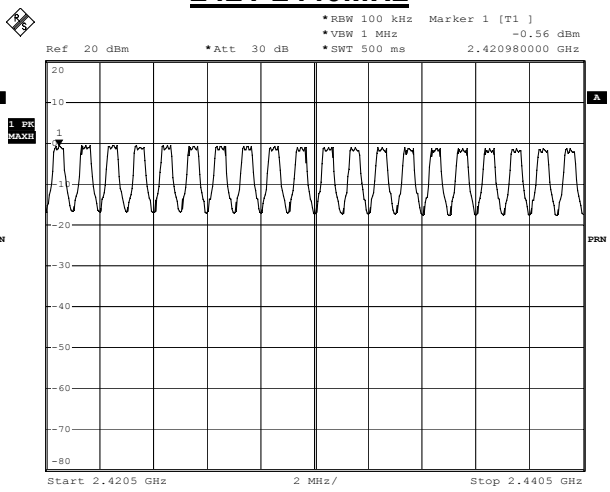
Frequency Range (MHz)	Measure Level (Hopping Channel)	Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

2402-2420MHz



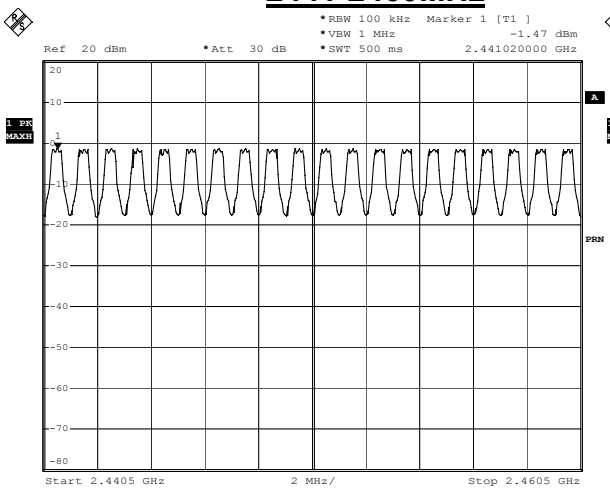
Date: 25.SEP.2006 19:58:54

2421-2440MHz



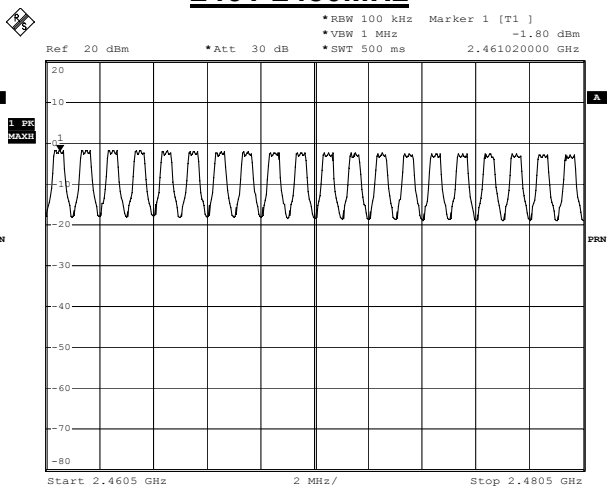
Date: 25.SEP.2006 20:02:27

2441-2460MHz



Date: 25.SEP.2006 20:06:13

2461-2480MHz



Date: 25.SEP.2006 20:16:55

7. Channel Separation

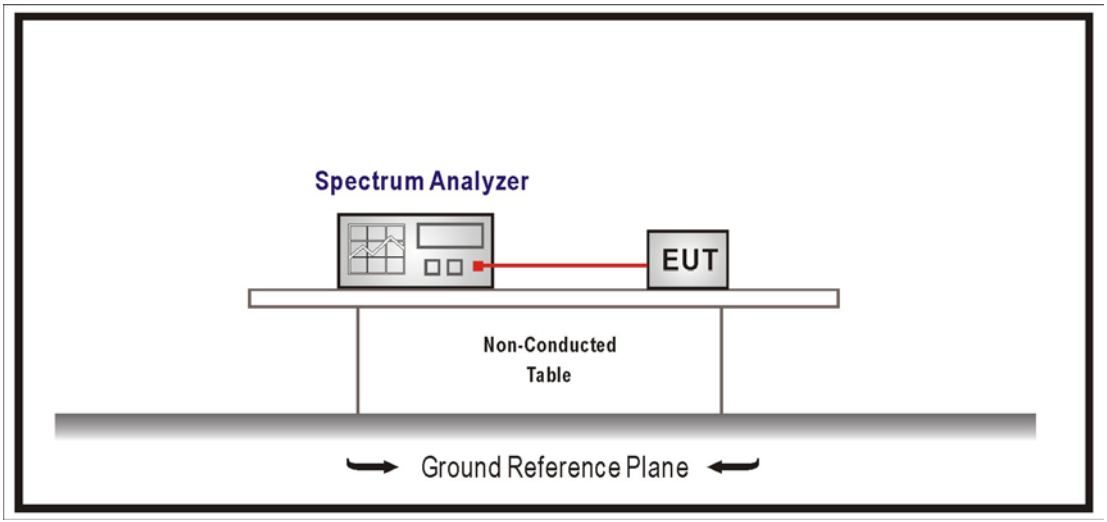
7.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2006
2	No.1 OATS			Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Limits

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

7.4. Test Specification

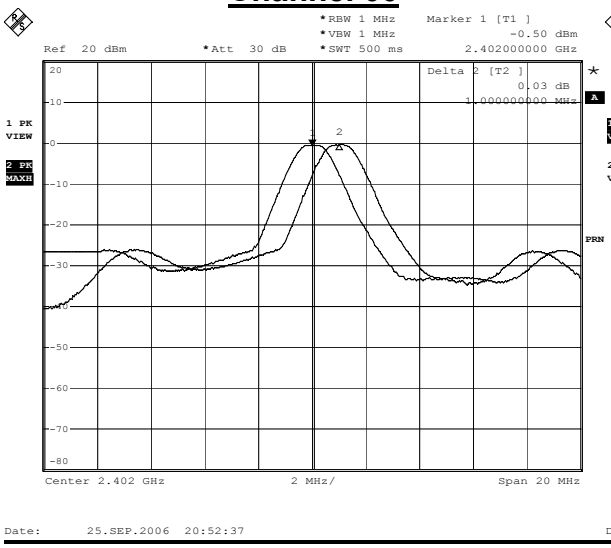
According to FCC Part 15 Subpart C Paragraph 15.247: 2004

7.5. Test Result

Product	GPSmile53 Car Navigator		
Test Item	Channel Separation		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/25	Test Site	No.1 OATS

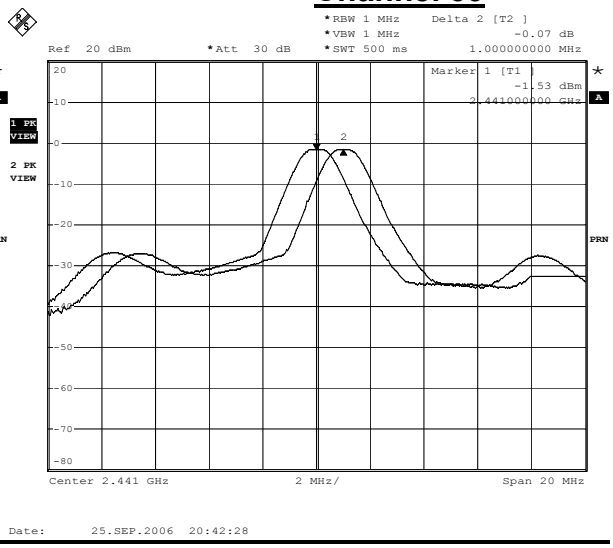
Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
00	2402.00	1000	1000	Pass
39	2441.00	1000	1000	Pass
78	2480.00	1000	1000	Pass

Channel 00



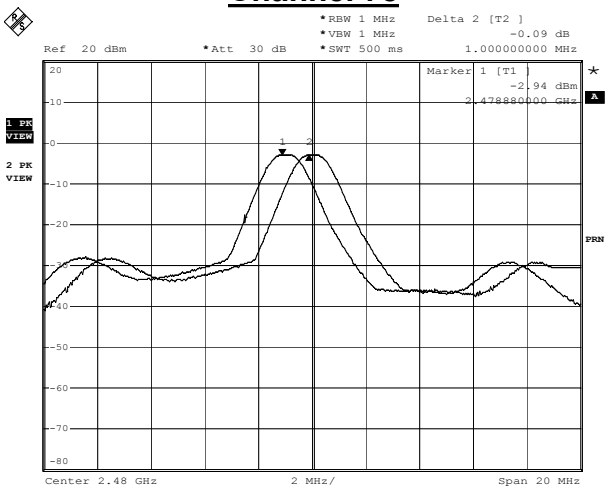
Date: 25.SEP.2006 20:52:37

Channel 39



Date: 25.SEP.2006 20:42:28

Channel 78



Date: 25.SEP.2006 21:04:40

8. Occupied Bandwidth

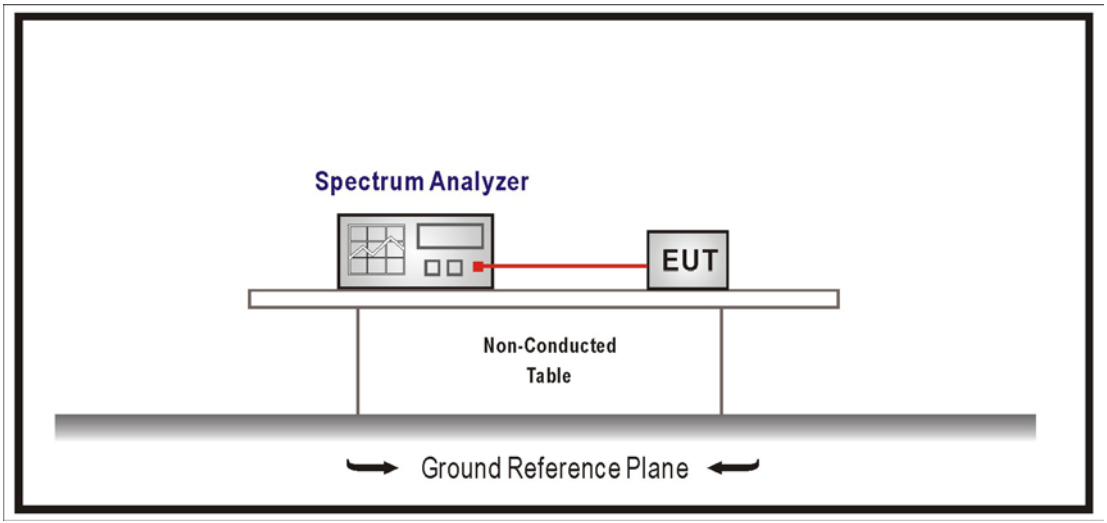
8.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2006
2	No.1 OATS			Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup



8.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 5725-5850 MHz bands. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.4. Test Specification

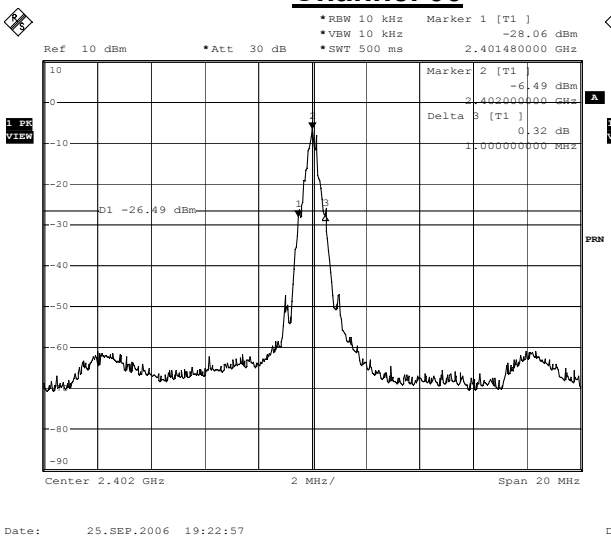
According to FCC Part 15 Subpart C Paragraph 15.247: 2004

8.5. Test Result

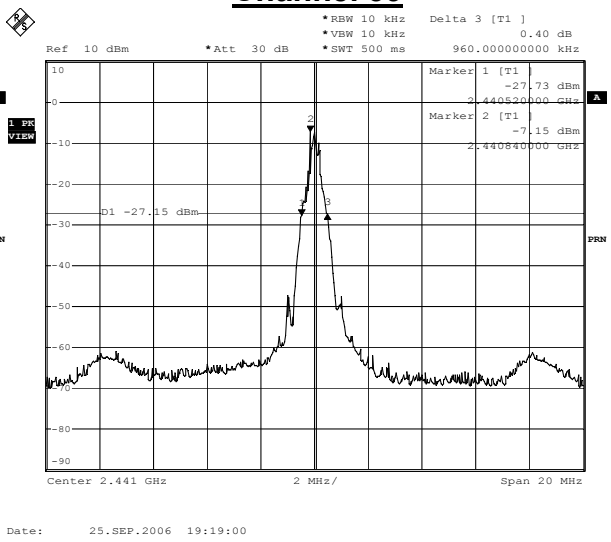
Product	GPSmile53 Car Navigator		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/25	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402.00	1	<1	Pass
39	2441.00	0.96	<1	Pass
78	2480.00	0.96	<1	Pass

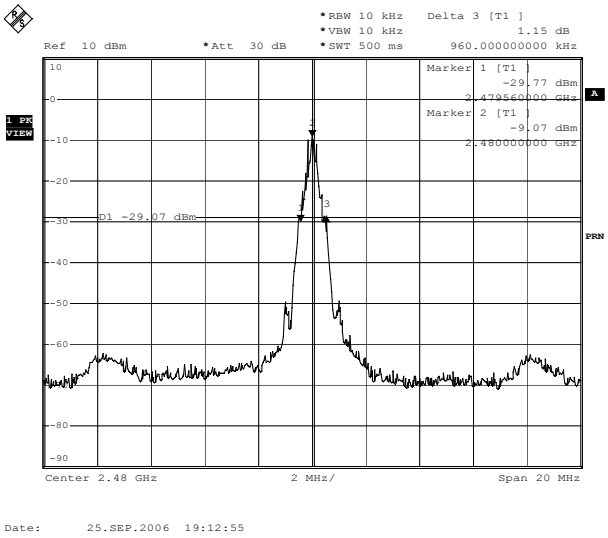
Channel 00



Channel 39



Channel 78



9. Dwell Time

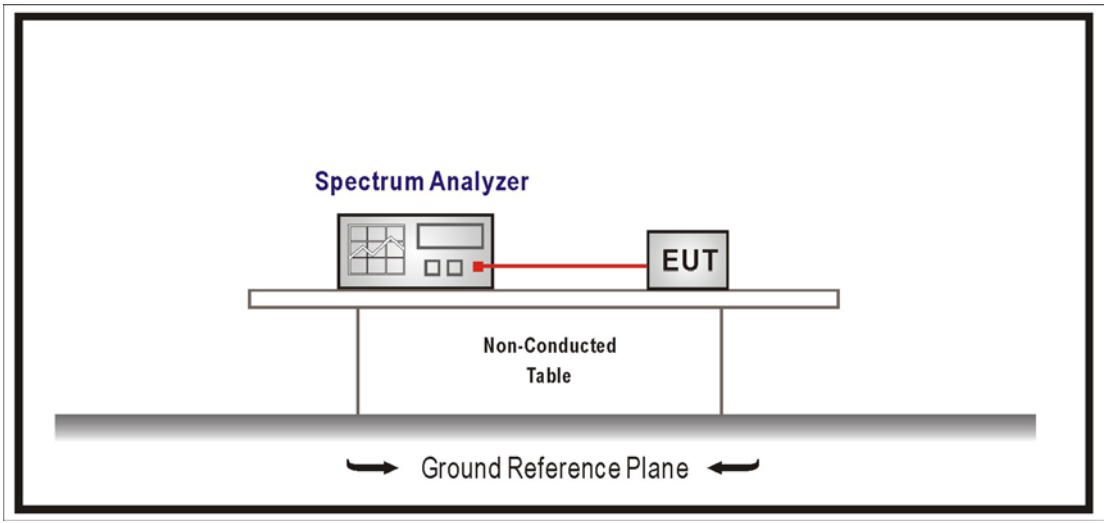
9.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2006
2	No.1 OATS			Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

9.2. Test Setup



9.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.
For frequency hopping systems operating in the 2400-2483.5 MHz bands. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
For frequency hopping systems operating in the 5725-5850 MHz bands. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

9.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2004

9.5. Test Result

Product	GPSmile53 Car Navigator		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/25	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System-DH 1

A) 2402MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 16/20msec=800 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00038*(800/79)*31.6=0.1216sec。

B) 2441MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 16/20msec=800 /sec

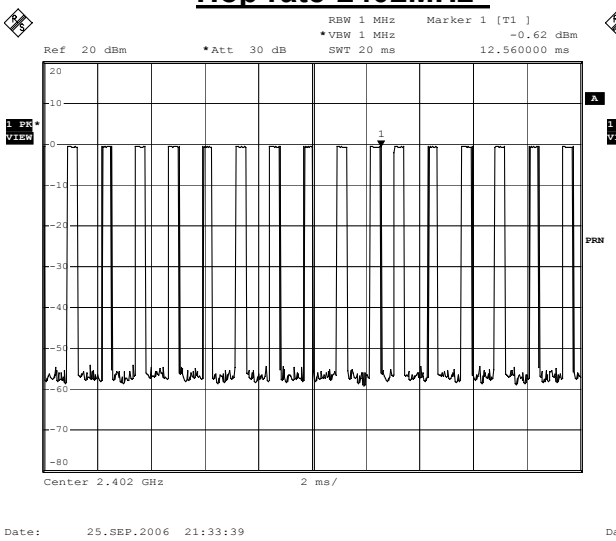
The Maximum Occupancy Time Within 31.6sec: 0.00038*(800/79)*31.6=0.1216sec。

C) 2480MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 16/20msec=800 /sec

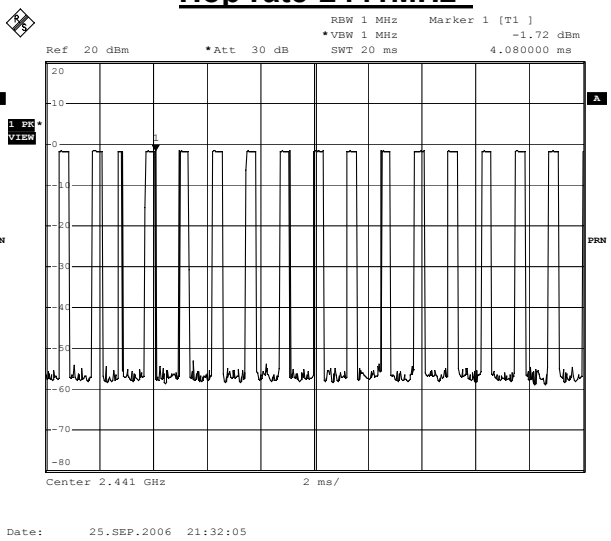
The Maximum Occupancy Time Within 31.6sec: 0.00039*(800/79)*31.6=0.1248sec。

Test Result: The Average Occupancy Time of Each Highest，Middle and Lowest Channel Is Less Than 0.4sec，And Corresponds to The Standard。

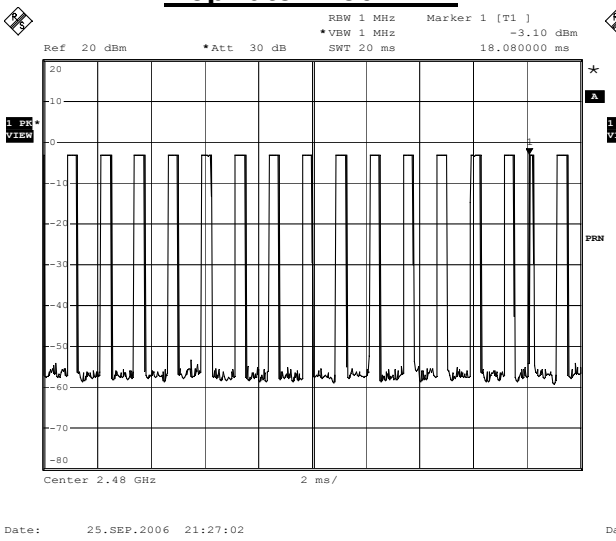
Hop rate-2402MHz



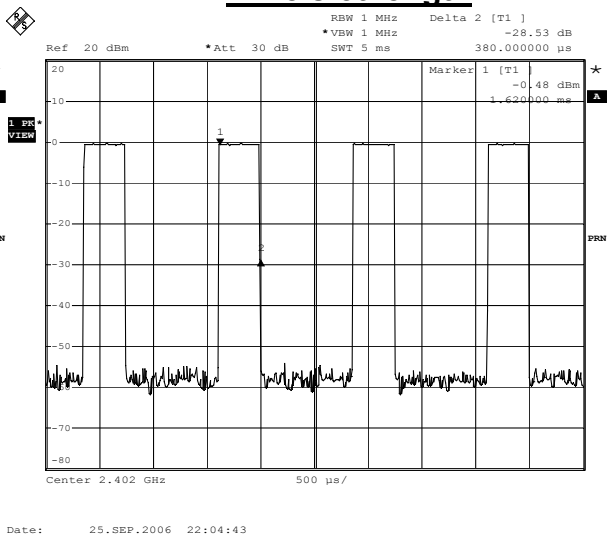
Hop rate-2441MHz



Hop rate-2480MHz



Time slot length



Note: Dwell time＝time slot length * hop rate / number of hopping channels * period

Product	GPSmile53 Car Navigator		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/25	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System-DH 3

A) 2402MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 8/20msec=400 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00163*(400/79)*31.6=0.2608sec。

B) 2441MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 8/20msec=400 /sec

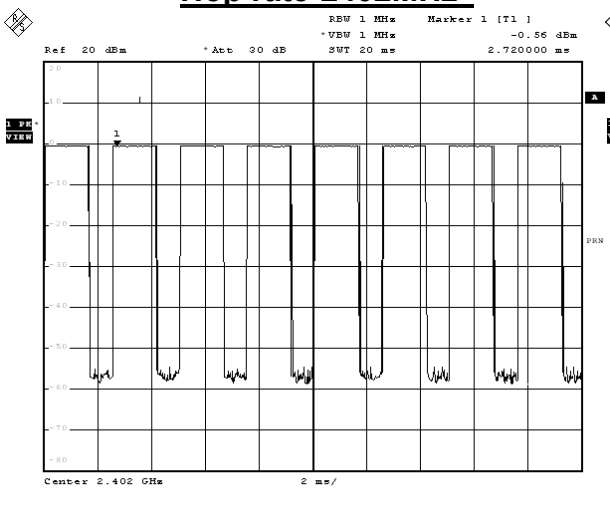
The Maximum Occupancy Time Within 31.6sec: 0.00115*(400/79)*31.6=0.264sec。

C) 2480MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 8/20msec=400 /sec

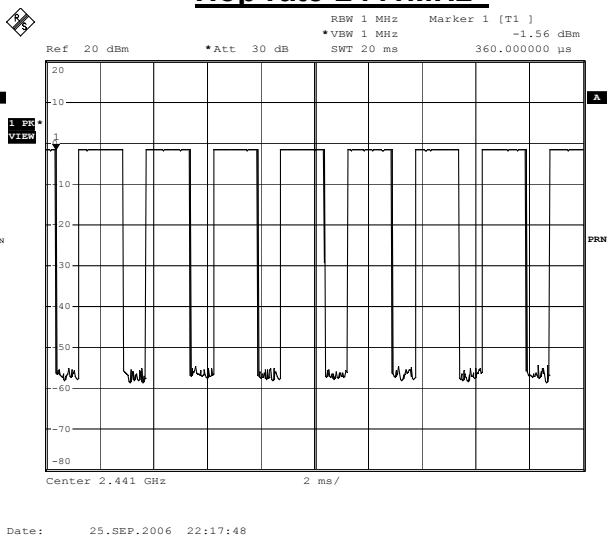
The Maximum Occupancy Time Within 31.6sec: 0.00164*(400/79)*31.6=0.2624sec。

Test Result: The Average Occupancy Time of Each Highest，Middle and Lowest Channel Is Less Than 0.4sec，And Corresponds to The Standard。

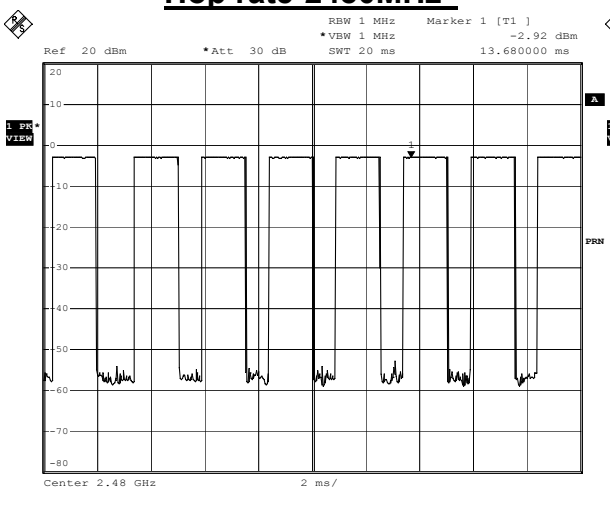
Hop rate-2402MHz



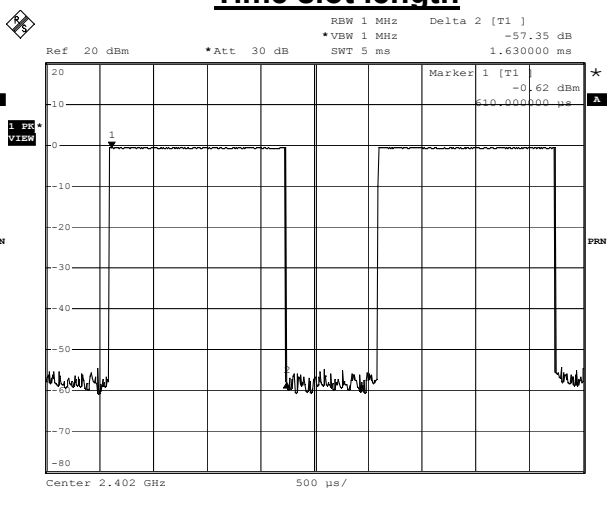
Hop rate-2441MHz



Hop rate-2480MHz



Time slot length



Note: Dwell time＝time slot length * hop rate / number of hopping channels * period

Product	GPSmile53 Car Navigator		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit (Power by Adapter)		
Date of Test	2006/09/25	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System-DH 5

A) 2402MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 5/20msec=250 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00289*(250/79)*31.6=0.289sec。

B) 2441MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 5/20msec=250 /sec

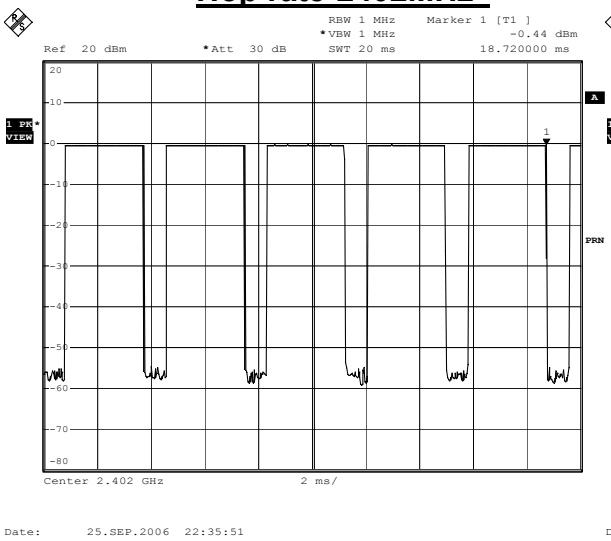
The Maximum Occupancy Time Within 31.6sec: 0.00288*(250/79)*31.6=0.288sec。

C) 2480MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 5/20msec=250 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00288*(250/79)*31.6=0.288sec。

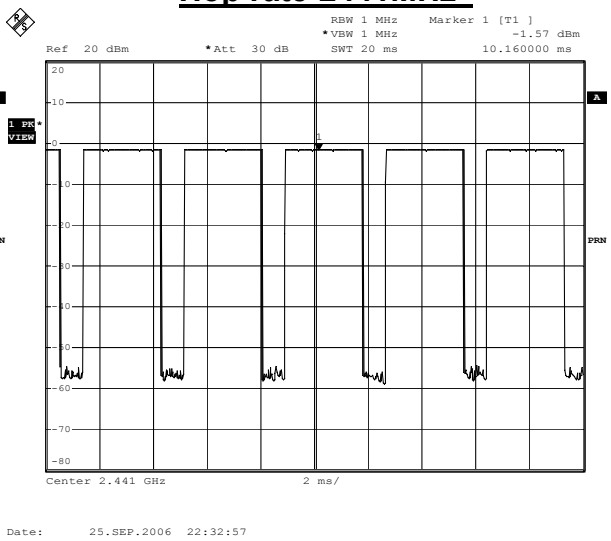
Test Result: The Average Occupancy Time of Each Highest，Middle and Lowest Channel Is Less Than 0.4sec，And Corresponds to The Standard。

Hop rate-2402MHz



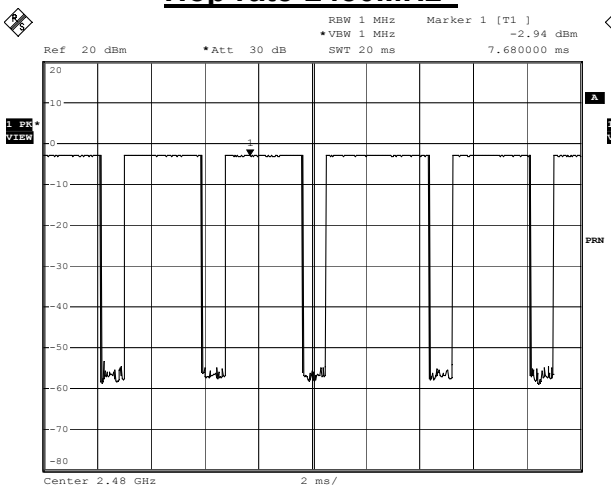
Date: 25.SEP.2006 22:35:51

Hop rate-2441MHz



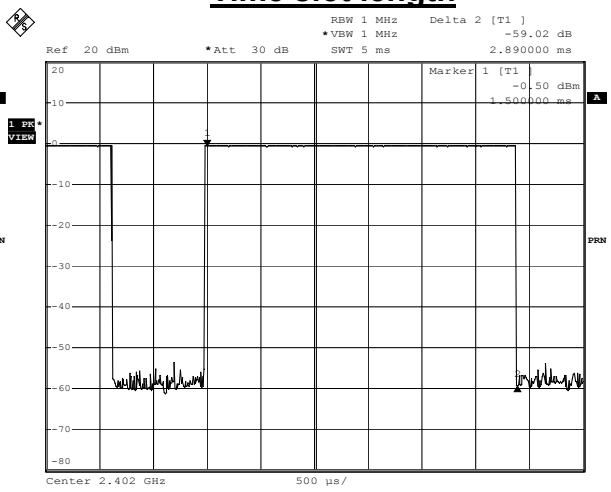
Date: 25.SEP.2006 22:32:57

Hop rate-2480MHz



Date: 25.SEP.2006 22:28:41

Time slot length



Date: 25.SEP.2006 22:36:55

Note: Dwell time＝time slot length * hop rate / number of hopping channels * period