



Test Report

Product Name : PersonalMate GPS

Model No. : 860Pro

FCC ID. : OUP980600101

Applicant : TRANSYSTEM INC.

Address : No.1-2, Li-Hsin Rd.1, Science-Based Industrial Park,
Hsinchu, Taiwan R.O.C.

Date of Receipt : 2009/08/24

Issued Date : 2009/09/22

Report No. : 098423R-RFUSP43V01

Report Version : V1.0

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.

Test Report Certification

Issued Date : 2009/09/22

Report No. : 098423R-RFUSP43V01



Product Name : PersonalMate GPS
 Applicant : TRANSYSTEM INC.
 Address : No.1-2, Li-Hsin Rd.1, Science-Based Industrial Park, Hsinchu,
 Taiwan R.O.C.
 Manufacturer : TRANSYSTEM INC.
 Model No. : 860Pro
 FCC ID. : OUP980600101
 Rated Voltage : DC 3V (Power by Battery)
 EUT Voltage : DC 3V (Power by Battery)
 Trade Name : TSI
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247:2008
 Test Result : Complied

The test results relate only to the samples tested.

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Documented By : Demi Chang

(Demi Chang / Engineering Adm. Specialist)

Tested By : Sheena Huang

(Sheena Huang / Engineer)

Approved By : Roy Wang

(Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	PersonalMate GPS
Trade Name	TSI
Model No.	860Pro
Frequency Range	2400~2483.5MHz
Channel Number	79
Type of Modulation	FHSS
Channel Control	Auto
Antenna Type	Soldered on PCB
Antenna Gain	0dBi

Component	
Car Charger (Mode 2)	mobileconn, M/N: mb-st1-5050 I/P: DC 12V-24V O/P: DC 4.5V~5.3V, 0.5A Cable Out: Non-Shielded, 1.5m
Car Charger (Mode 3)	mobileconn, M/N: MB-006-C I/P: DC 12V-24V O/P: DC 5V, 1A Cable Out: Non-Shielded, 0.6m
USB Cable	Shielded, 0.6m
Power Adapter	Sage/power, KSUFB0500050W1UV-1 I/P: 100-240V, 50/60Hz, 0.15A O/P: 5V, 0.5A Cable Out: Non-Shielded, 0.6m

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 PersonalMate GPS including a 2.4GHz receiving function, and transmitting function.
2. These test results on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
3. 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.
4. 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 098423R-RFUSP37V02 under Declaration of Conformity.

1.2. Operational Description

The 860 PRO is a PersonalMate GPS with Bluetooth function. The Bluetooth technology operates in the unlicensed industrial, scientific and medical (ISM) band at 2402MHz to 2480MHz. The working voltage is 3Vdc. The type of antenna is chip antenna (Soldered on PCB) without antenna connector.

It is using a spread spectrum and frequency hopping and the signal hops among 79 frequencies at 1 MHz intervals to give a high degree of interference immunity.

The MTK Single Chip Bluetooth system (MT6610) is provided its clock input from 26 MHz crystal oscillator (7M26000172), the unwanted signal is filed by filter (LFB182G45SG9A293) manufactured by Murata.

MT6601 is a highly integrated Bluetooth platform IC. It includes powerful baseband processing capabilities with rich features and a high performance transceiver, all in a compact single package. Embedded ARM7 processor core with internal ROM is provided for compact protocol implementation.

The 860 PRO can communicate with other products with Bluetooth function such as desktop/laptop computers, Bluetooth-enabled peripherals, and portable handheld devices. See the user manual for basic operation of the products.

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 (Adapter) Mode 2: Transmit (Car Charger-mb-st1-5050) Mode 3: Transmit (Car Charger-MB-006-C) Mode 4: Transmit (USB)
Final Test Mode	
EMI	Mode 1: Transmit (Adapter) Mode 2: Transmit (Car Charger-mb-st1-5050) Mode 3: Transmit (Car Charger-MB-006-C) Mode 4: Transmit (USB)

Emission	Mode 1	Mode 2	Mode 3	Mode 4
Conducted Emission	Yes	No	No	No
Peak Power Output	Yes	No	No	No
Radiated Emission	Yes	Yes	Yes	Yes
Band Edge	Yes	No	No	No
Channel of Number	Yes	No	No	No
Channel Separation	Yes	No	No	No
Occupied Bandwidth	Yes	No	No	No
Dwell Time	Yes	No	No	No

1.4. Tested System Details

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

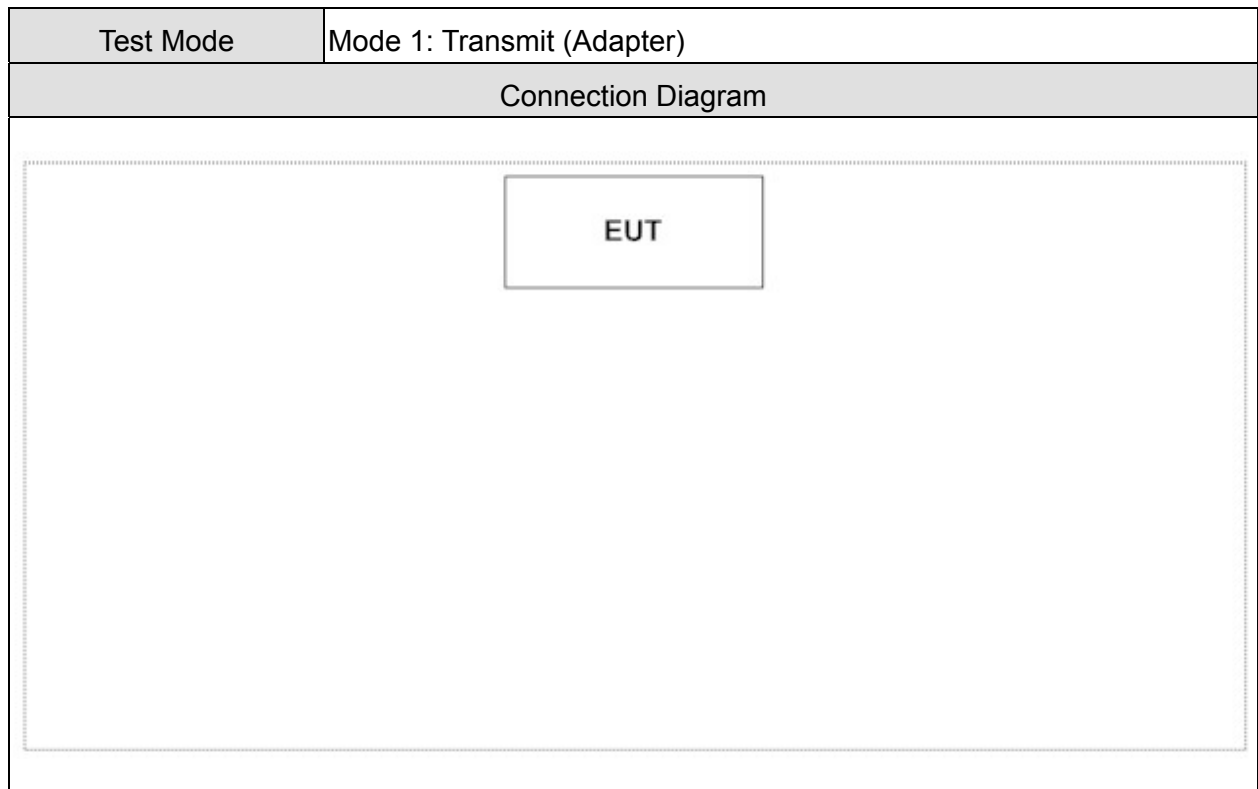
Test Mode	Mode 1: Transmit (Adapter)
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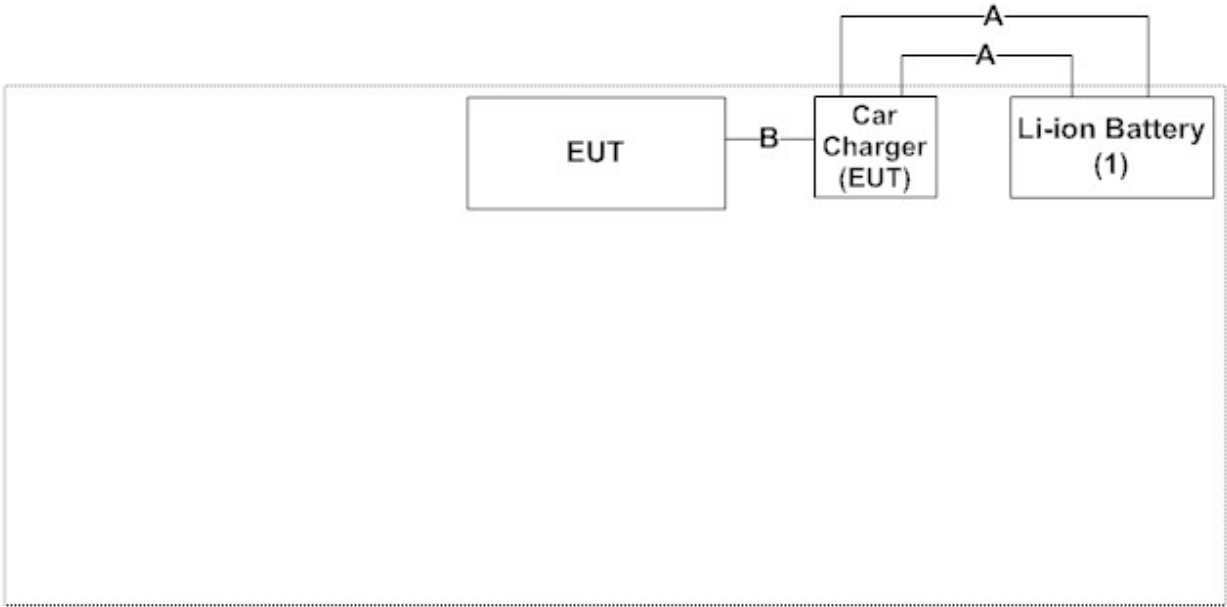
N/A

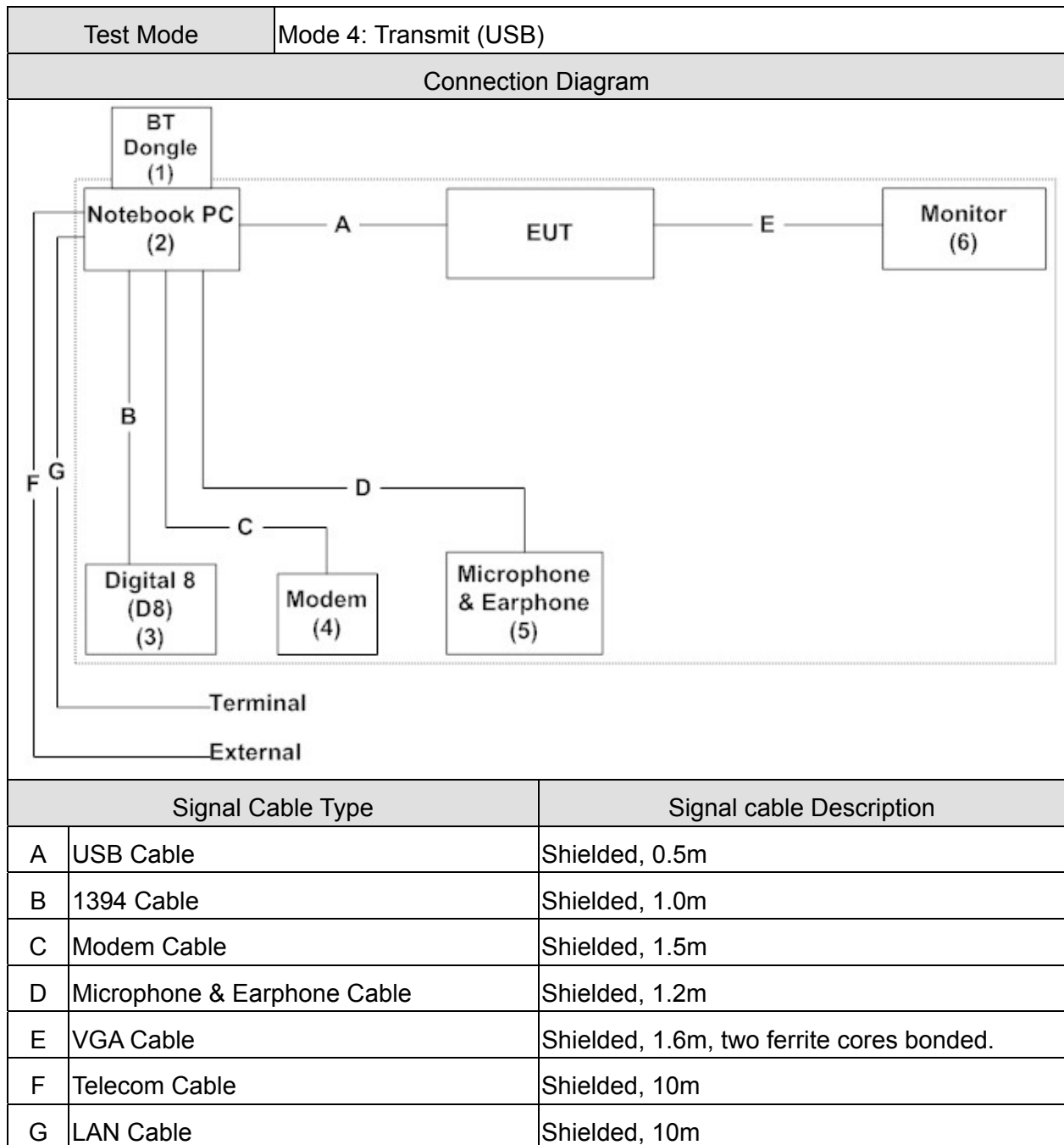
Test Mode	Mode 2: Transmit (Car Charger-mb-st1-5050) Mode 3: Transmit (Car Charger-MB-006-C)				
Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 Li-ion Battery	HELIX	HX-N3650A	N/A	DoC	--

Test Mode	Mode 4: Transmit (USB)				
Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 BT Dongle	Motorola	N/A	N/A	DoC	--
2 Notebook PC	DELL	LATITUDE D400	GK43D1S	DoC	Non-shielded, 1.7m, a ferrite core bonded
3 Digital 8 (D8)	SONY	DCR-TRV110	P35209	DoC	--
4 Modem	ACEEX	DM-1414	0102027544	DoC	Non-shielded, 1.6m
5 Microphone & Earphone	Fujiei	SBZ-38	N/A	DoC	--
6 Monitor	CHI MEI	A170E1-09	3UC120955SA 1227	DoC	Non-shielded, 1.8m

1.5. Configuration of tested System



Test Mode		Mode 2: Transmit (Car Charger-mb-st1-5050) Mode 3: Transmit (Car Charger-MB-006-C)
Connection Diagram		
 <pre> graph LR EUT[EUT] --- B[B] --- CC[Car Charger (EUT)] CC --- A[A] --- LB[Li-ion Battery (1)] </pre>		
Signal Cable Type		Signal cable Description
A	Power Line	Non-Shielded, 1.0m, 2PCS
B	Power Line	Non-Shielded, 1.5m



1.6. EUT Exercise Software

1	Setup the EUT and Notebook PC as shown on 1.5.
2	Turn on the power of all equipment.
3	Data will be continue transmitting through EUT.
4	Repeat the above procedure (2) to (3)

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 B 15.207 Conducted Emission	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output (FHSS)	15 - 35	26
Humidity (%RH)		25 - 75	51
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.209 Radiated Emission (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	54
Barometric pressure (mbar)		860 - 1060	950-1000
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	22
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth (FHSS)	15 - 35	22
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Dwell Time (FHSS)	15 - 35	22
Humidity (%RH)		25 - 75	48
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 TAF
Accreditation Number: 1313
Effective through: December 27, 2010



Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2009



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

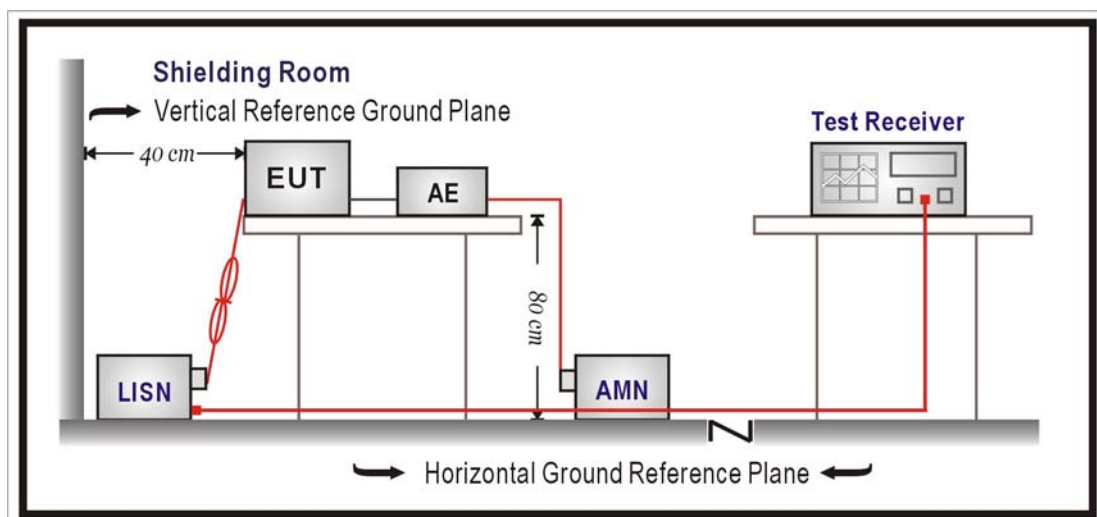
The following test equipment are used during the test:

Conducted Emission / SR2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
4-Wire ISN	R & S	ENY 41	837032/001	2009/04/15
Artificial Mains Network	R & S	ENV4200	848411/010	2009/03/13
Double 2-Wire ISN	R & S	ENY 22	835354/008	2009/04/15
LISN	R & S	ESH3-Z5	825562/002	2009/03/31
Pulse Limiter	R & S	ZSH3Z2	357.8810.54	2009/07/19
Test Receiver	R & S	ESCS 30	100122	2009/02/21

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 was setup and tested according to ANSI C63.4, 2003.

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.

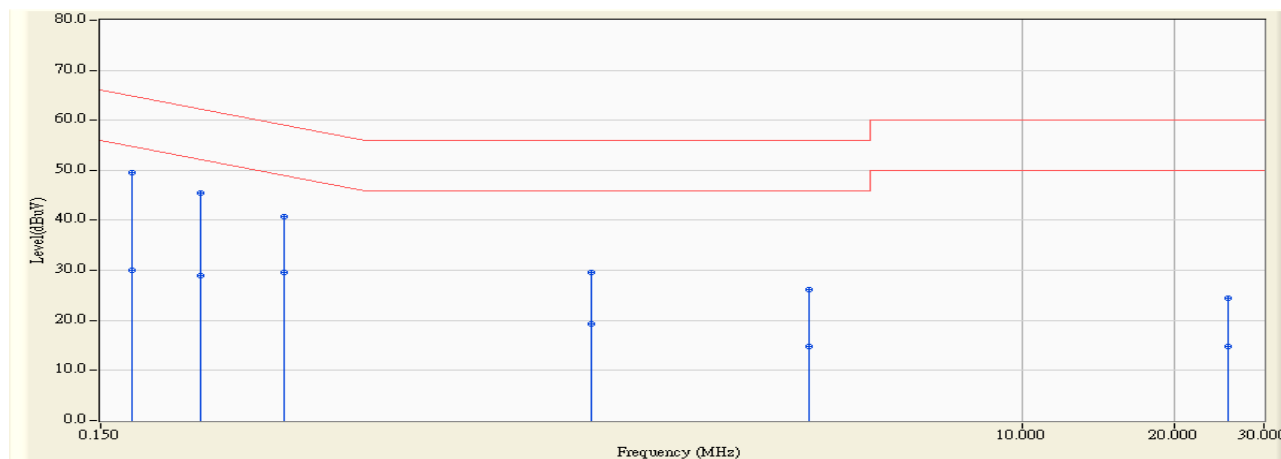
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207: 2008

2.6. Test Result

Site : SR3	Time : 2009/08/27 - 14:47
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A) - Line1	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Mode 1: Transmit (Adapter)

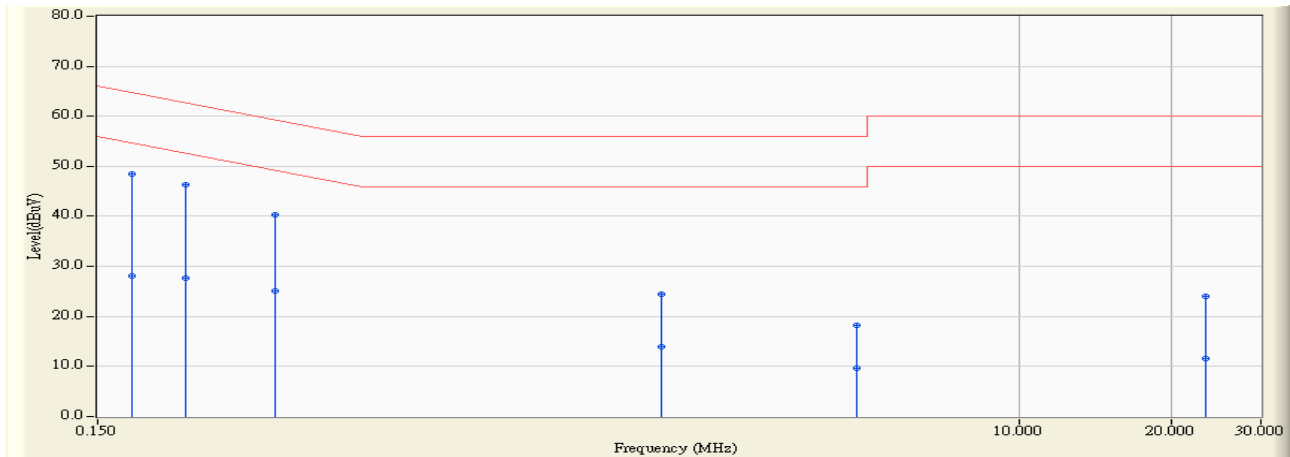


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.173	9.624	39.950	49.574	-15.221	64.794	QUASIPeAK
2		0.173	9.624	20.340	29.964	-24.831	54.794	AVERAGE
3		0.236	9.757	35.690	45.446	-16.792	62.238	QUASIPeAK
4		0.236	9.757	19.110	28.866	-23.372	52.238	AVERAGE
5		0.346	9.812	30.890	40.702	-18.346	59.048	QUASIPeAK
6		0.346	9.812	19.820	29.632	-19.416	49.048	AVERAGE
7		1.400	9.880	19.680	29.560	-26.440	56.000	QUASIPeAK
8		1.400	9.880	9.510	19.390	-26.610	46.000	AVERAGE
9		3.783	9.916	16.200	26.116	-29.884	56.000	QUASIPeAK
10		3.783	9.916	4.920	14.836	-31.164	46.000	AVERAGE
11		25.568	10.350	14.170	24.520	-35.480	60.000	QUASIPeAK
12		25.568	10.350	4.400	14.750	-35.250	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 : SR3	Time : 2009/08/27 - 14:51
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A) - Line2	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Mode 1: Transmit (Adapter)

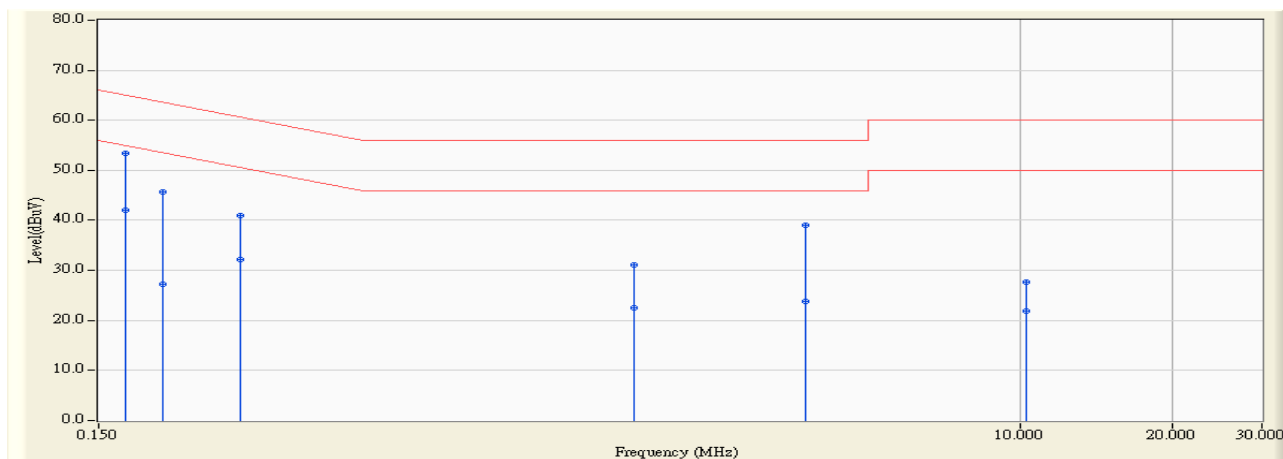


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.176	9.569	38.870	48.439	-16.236	64.675	QUASIPeAK
2		0.176	9.569	18.530	28.099	-26.576	54.675	AVERAGE
3		0.224	9.642	36.670	46.312	-16.349	62.661	QUASIPeAK
4		0.224	9.642	17.930	27.572	-25.089	52.661	AVERAGE
5		0.338	9.707	30.540	40.247	-19.018	59.265	QUASIPeAK
6		0.338	9.707	15.360	25.067	-24.198	49.265	AVERAGE
7		1.951	9.839	14.510	24.349	-31.651	56.000	QUASIPeAK
8		1.951	9.839	4.020	13.859	-32.141	46.000	AVERAGE
9		4.759	9.849	8.430	18.279	-37.721	56.000	QUASIPeAK
10		4.759	9.849	-0.140	9.709	-36.291	46.000	AVERAGE
11		23.408	10.527	13.480	24.008	-35.992	60.000	QUASIPeAK
12		23.408	10.527	1.020	11.548	-38.452	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 : SR3	Time : 2009/08/27 - 14:25
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A) - Line1	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Mode 4: Transmit (USB)

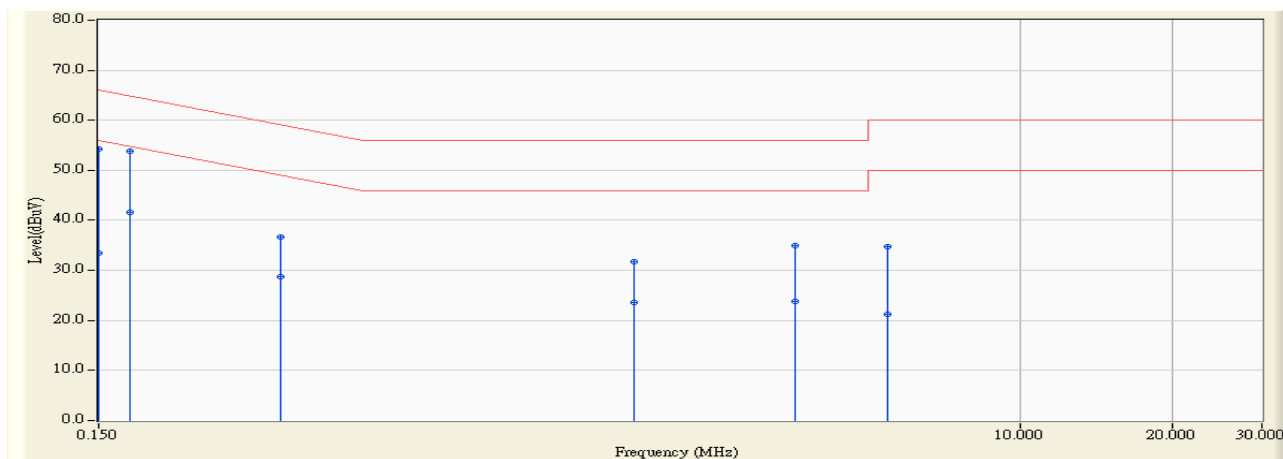


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.170	9.608	43.730	53.337	-11.646	64.983	QUASPEAK
2		0.170	9.608	32.410	42.017	-12.966	54.983	AVERAGE
3		0.201	9.712	35.980	45.693	-17.886	63.578	QUASPEAK
4		0.201	9.712	17.490	27.203	-26.376	53.578	AVERAGE
5		0.287	9.782	31.250	41.032	-19.587	60.619	QUASPEAK
6		0.287	9.782	22.340	32.122	-18.497	50.619	AVERAGE
7		1.718	9.896	21.110	31.006	-24.994	56.000	QUASPEAK
8		1.718	9.896	12.690	22.586	-23.414	46.000	AVERAGE
9		3.744	9.916	29.180	39.096	-16.904	56.000	QUASPEAK
10		3.744	9.916	13.850	23.766	-22.234	46.000	AVERAGE
11		10.267	10.149	17.620	27.769	-32.231	60.000	QUASPEAK
12		10.267	10.149	11.790	21.939	-28.061	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 : SR3	Time : 2009/08/27 - 14:33
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A) - Line2	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Mode 4: Transmit (USB)



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.150	9.538	44.790	54.328	-11.672	66.000	QUASIPeAK
2		0.150	9.538	23.990	33.528	-22.472	56.000	AVERAGE
3	*	0.173	9.563	44.290	53.853	-10.941	64.794	QUASIPeAK
4		0.173	9.563	32.110	41.673	-13.121	54.794	AVERAGE
5		0.344	9.710	26.990	36.700	-22.408	59.108	QUASIPeAK
6		0.344	9.710	18.940	28.650	-20.458	49.108	AVERAGE
7		1.718	9.831	22.000	31.832	-24.168	56.000	QUASIPeAK
8		1.718	9.831	13.780	23.612	-22.388	46.000	AVERAGE
9		3.568	9.845	25.050	34.895	-21.105	56.000	QUASIPeAK
10		3.568	9.845	13.890	23.735	-22.265	46.000	AVERAGE
11		5.463	9.877	24.880	34.758	-25.242	60.000	QUASIPeAK
12		5.463	9.877	11.280	21.158	-28.842	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

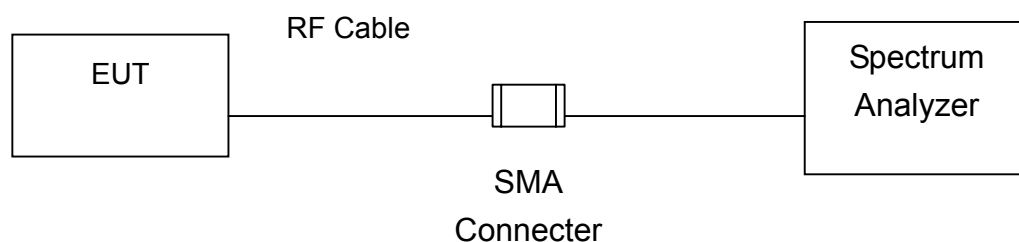
3.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R&S	FSP/ 100005	Oct., 2008
2	No.1 OATS			Sep., 2008

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

3.2. Test Setup



3.3. Test procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

3.4. 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.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2008

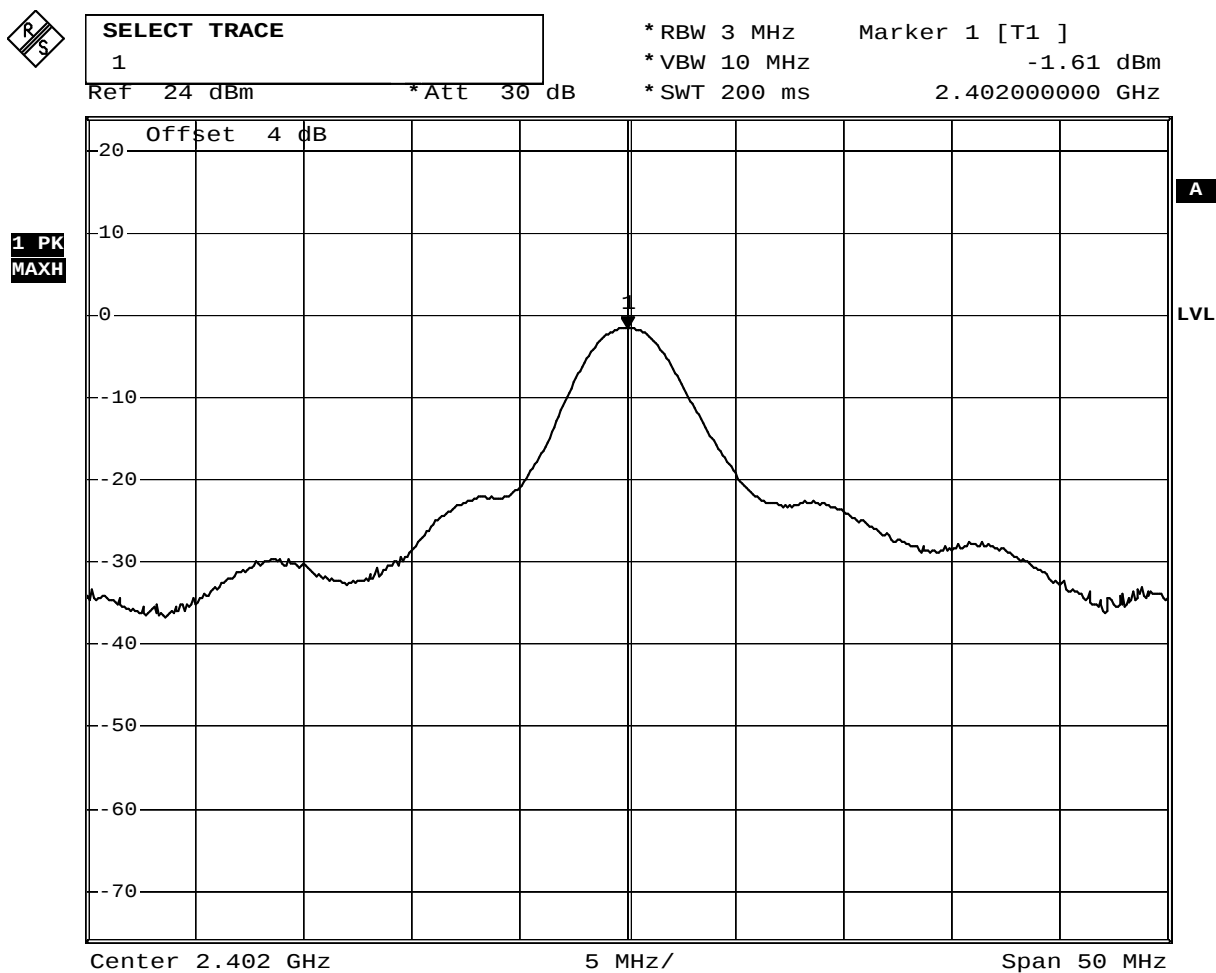
3.6. Test Result

Product	PersonalMate GPS		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit (Adapter)		
Date of Test	2009/08/27	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	-1.61	1Watt= 30 dBm	Pass

Channel 00



Date: 26.AUG.2009 15:31:52

Product	PersonalMate GPS		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type

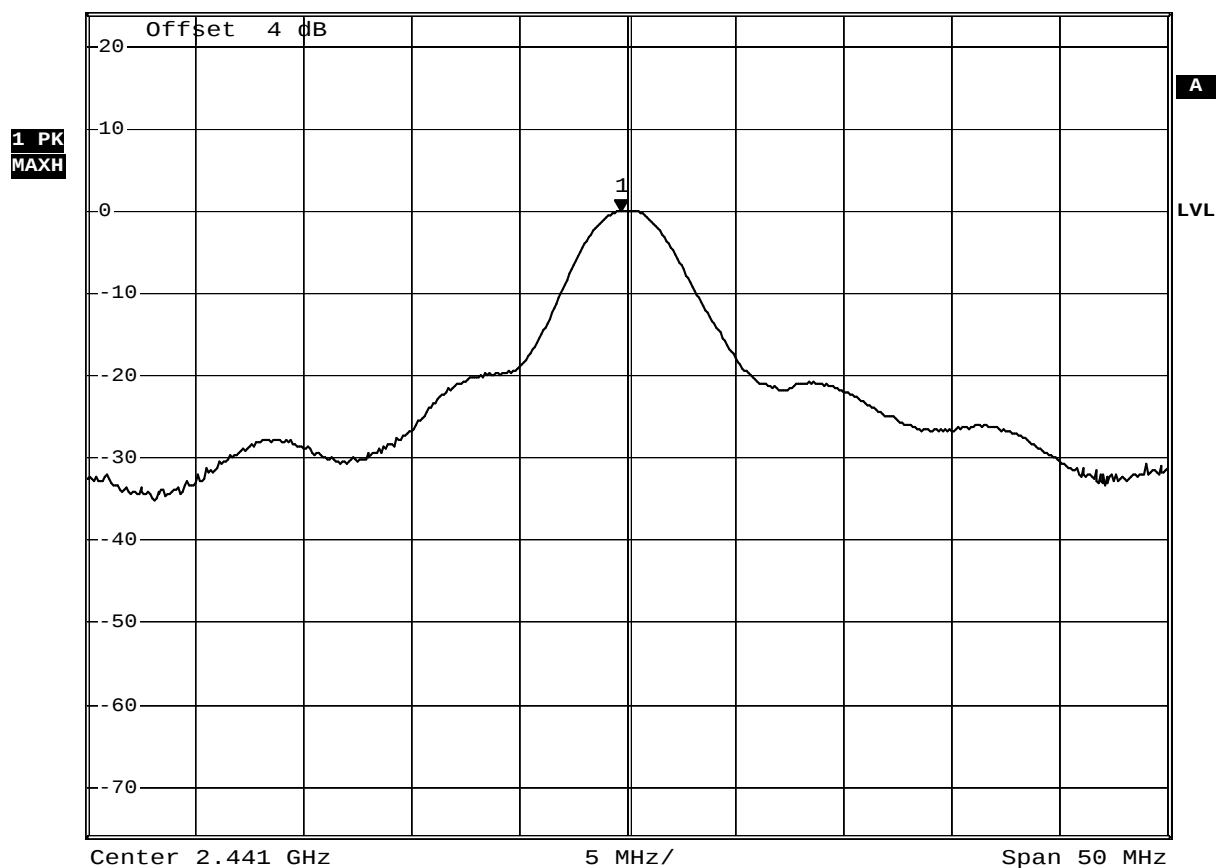
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
39	2441	0.01	1Watt= 30 dBm	Pass

Channel 39



MARKER 1
2.4407 GHz
Ref 24 dBm *Att 30 dB

*RBW 3 MHz Marker 1 [T1]
*VBW 10 MHz 0.01 dBm
*SWT 200 ms 2.440700000 GHz



Date: 26.AUG.2009 15:29:29

Product	PersonalMate GPS		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
78	2480	0.29	1Watt= 30 dBm	Pass

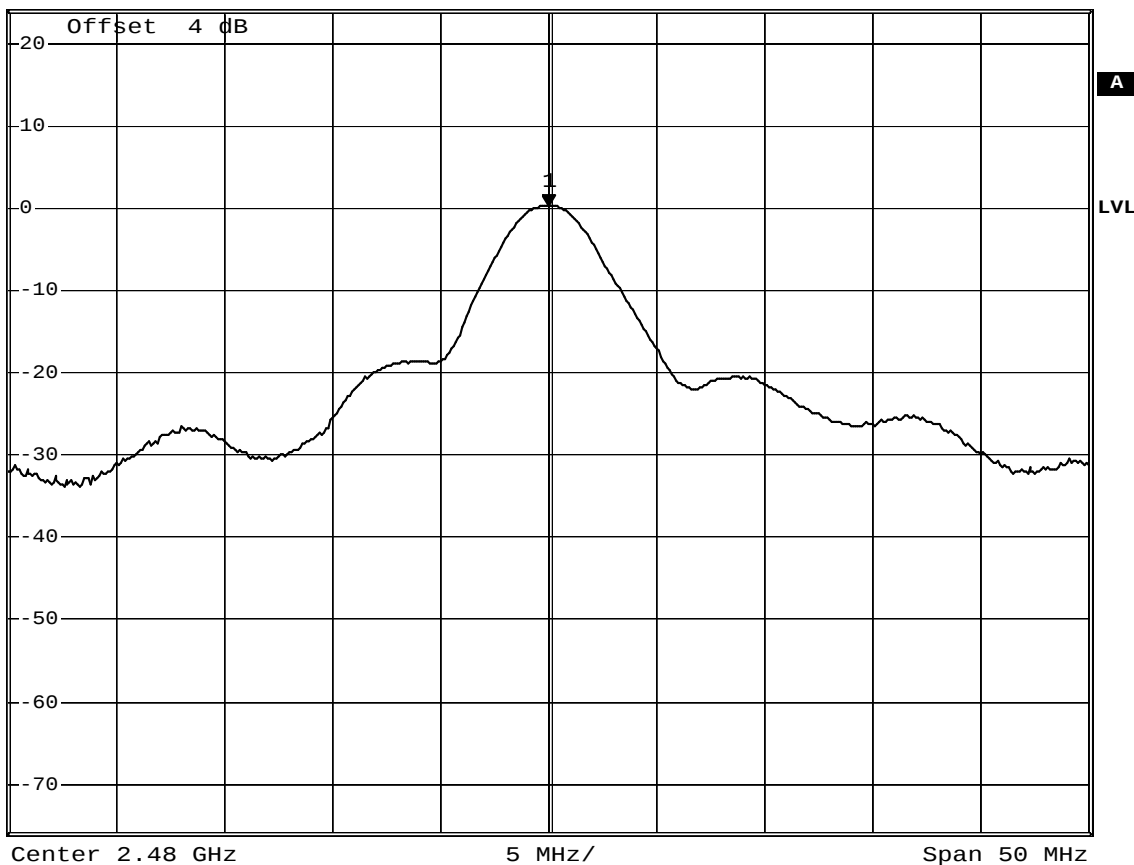
Channel 78



SELECT TRACE
1
Ref 24 dBm *Att 30 dB

*RBW 3 MHz Marker 1 [T1]
*VBW 10 MHz 0.29 dBm
*SWT 200 ms 2.480000000 GHz

1 PK
MAXH



Date: 26.AUG.2009 15:31:04

4. Radiated Emission

4.1. Test Equipment

The following test equipment are used during the test:

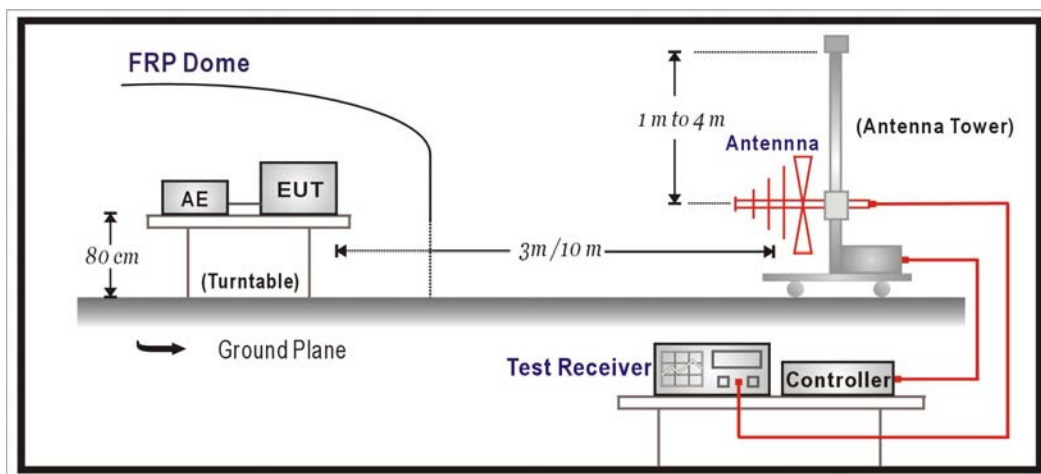
Radiated Emission / CB1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Horn Antenna	Schwarzback	9120D743	D69250	2009/03/16
Pre-Amplifier	HP	8449B	3008A01123	2008/11/15
Spectrum Analyzer	R & S	FSP40	100005	2009/08/25

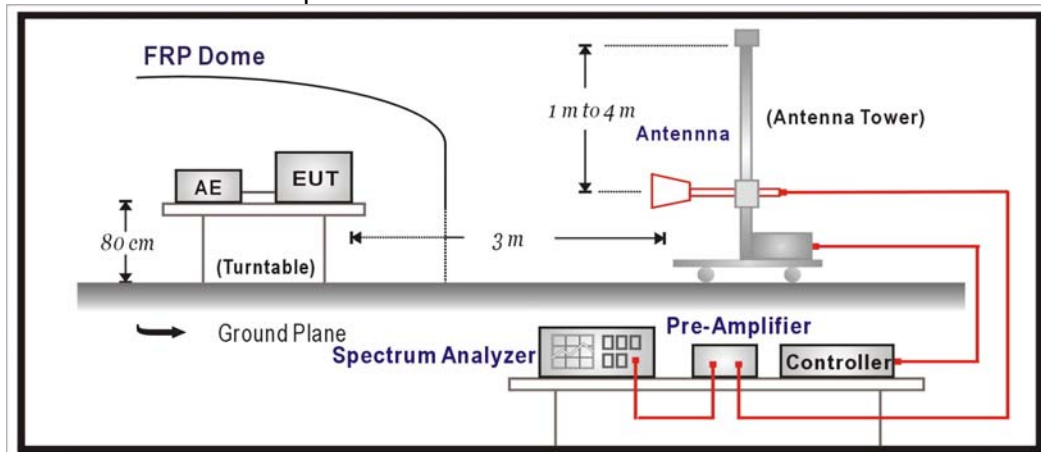
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. "N/A" Ca1.Date is used to Pre-test, not final test.

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 was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

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.

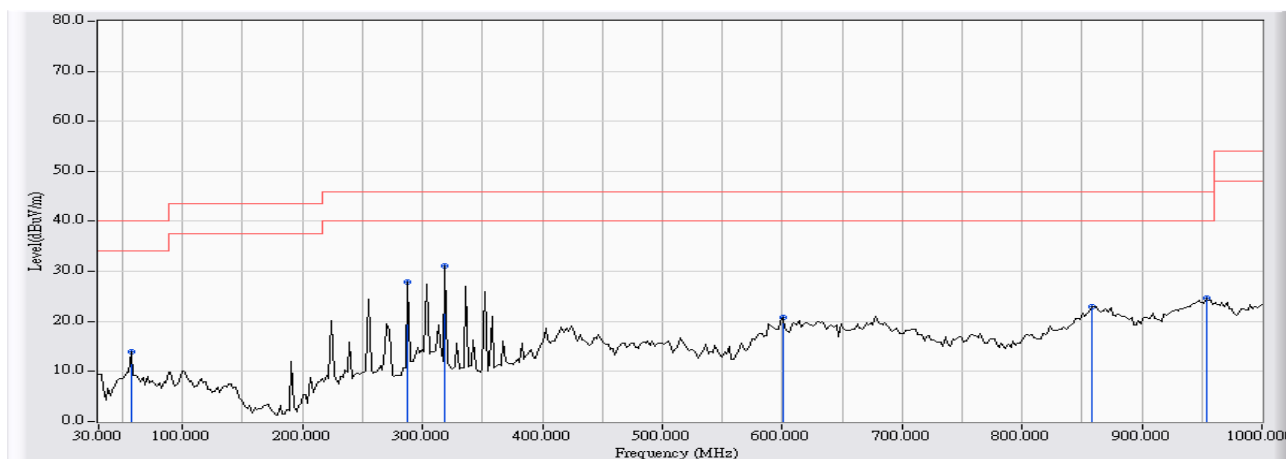
4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.209: 2008

4.6. Test Result

30MHz-1GHz Spurious

Site : CB1	Time : 2009/08/22 - 09:14
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : PersonalMate GPS	Note : Mode 1: Transmit (Adapter)

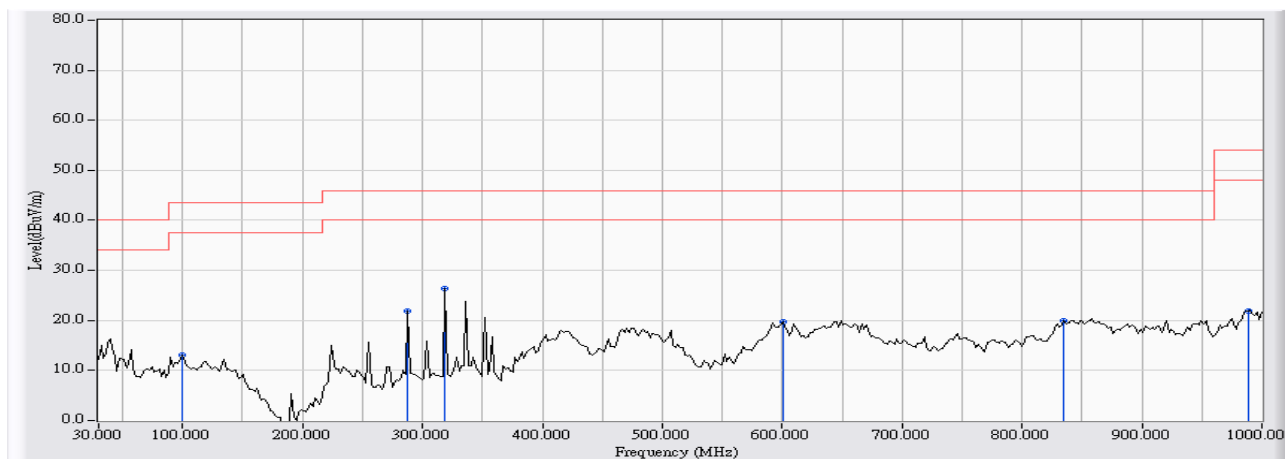


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	57.160	-13.999	27.929	13.930	-26.070	40.000	QUASIPeAK
2	288.020	-11.268	39.058	27.791	-18.209	46.000	QUASIPeAK
3	* 319.060	-10.752	41.929	31.176	-14.824	46.000	QUASIPeAK
4	600.360	-2.524	23.291	20.768	-25.232	46.000	QUASIPeAK
5	858.380	0.322	22.526	22.849	-23.151	46.000	QUASIPeAK
6	953.440	2.258	22.493	24.751	-21.249	46.000	QUASIPeAK

Note:

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

Site : CB1	Time : 2009/08/22 - 09:17
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - VERTICAL	Power : AC 120V / 60Hz
EUT : PersonalMate GPS	Note : Mode 1: Transmit (Adapter)

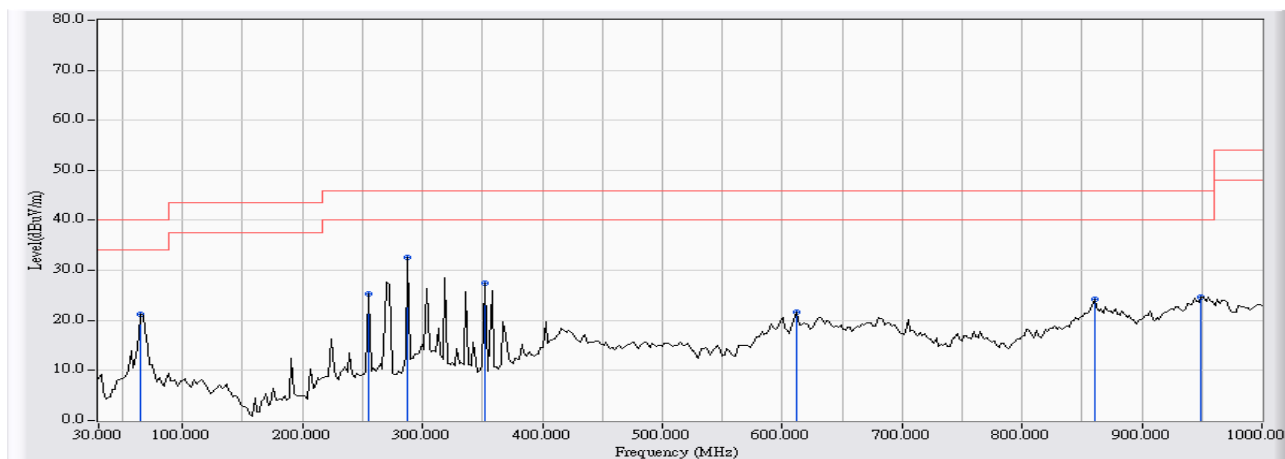


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		99.840	-11.547	24.538	12.990	-30.510	43.500	QUASIPeAK
2		288.020	-13.253	35.097	21.845	-24.155	46.000	QUASIPeAK
3	*	319.060	-13.397	39.766	26.369	-19.631	46.000	QUASIPeAK
4		600.360	-2.817	22.490	19.673	-26.327	46.000	QUASIPeAK
5		835.100	-2.963	22.808	19.845	-26.155	46.000	QUASIPeAK
6		988.360	-0.486	22.459	21.973	-32.027	54.000	QUASIPeAK

Note:

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

Site : CB1	Time : 2009/08/22 - 09:36
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : PersonalMate GPS	Note : Mode 2: Transmit (Car Charger-mb-st1-5050)

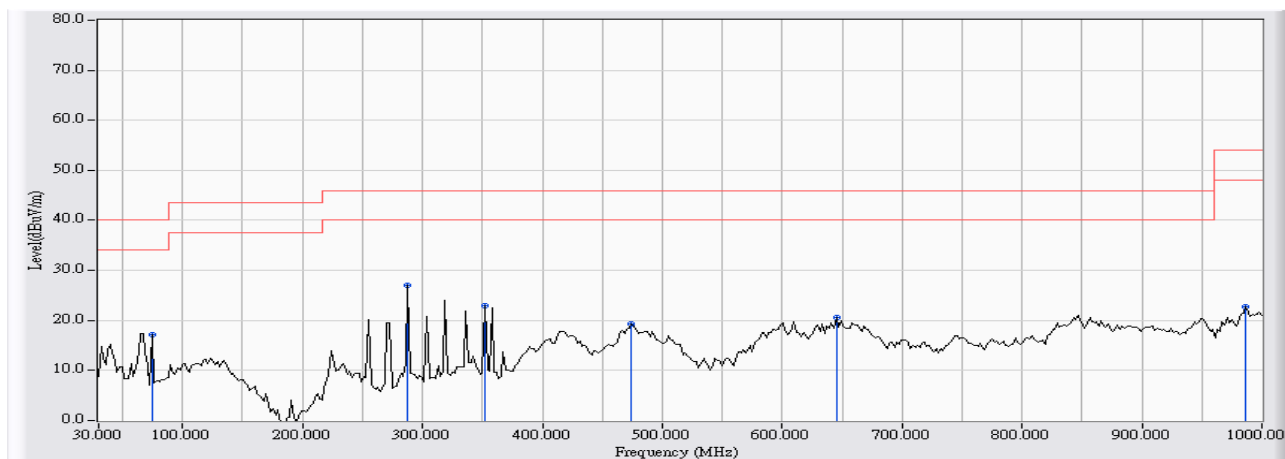


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		64.920	-15.001	36.238	21.237	-18.763	40.000	QUASIPeAK
2		255.040	-12.566	37.810	25.245	-20.755	46.000	QUASIPeAK
3	*	288.020	-11.268	43.762	32.495	-13.505	46.000	QUASIPeAK
4		352.040	-12.469	39.885	27.416	-18.584	46.000	QUASIPeAK
5		612.000	-2.703	24.470	21.768	-24.232	46.000	QUASIPeAK
6		860.320	0.442	23.713	24.155	-21.845	46.000	QUASIPeAK
7		949.560	2.292	22.463	24.755	-21.245	46.000	QUASIPeAK

Note:

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

Site : CB1	Time : 2009/08/22 - 09:39
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - VERTICAL	Power : AC 120V / 60Hz
EUT : PersonalMate GPS	Note : Mode 2: Transmit (Car Charger-mb-st1-5050)

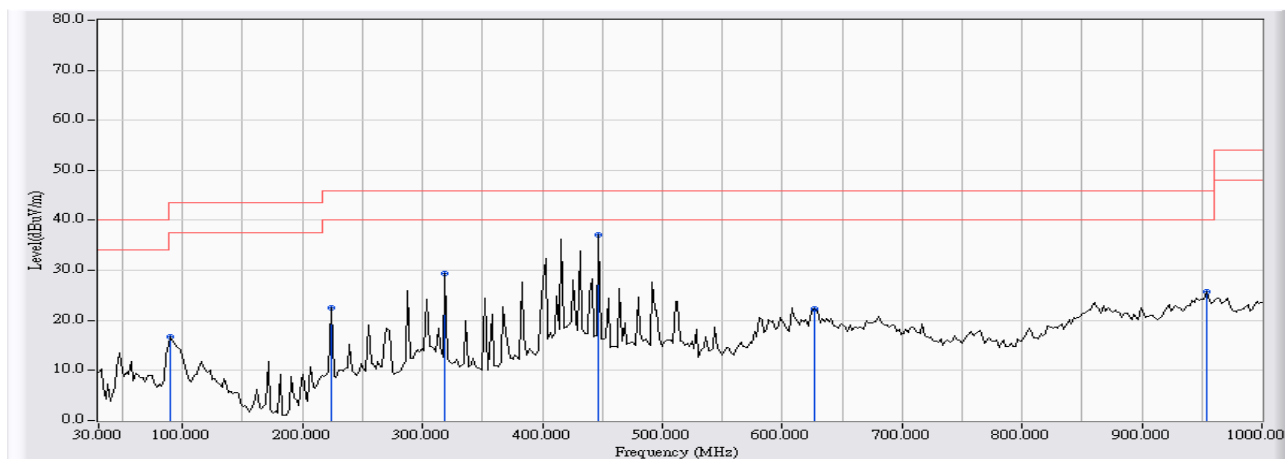


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		74.620	-15.613	32.877	17.264	-22.736	40.000	QUASIPeAK
2	*	288.020	-13.253	40.270	27.018	-18.982	46.000	QUASIPeAK
3		352.040	-13.052	36.093	23.041	-22.959	46.000	QUASIPeAK
4		474.260	-3.688	23.022	19.334	-26.666	46.000	QUASIPeAK
5		644.980	-2.855	23.411	20.556	-25.444	46.000	QUASIPeAK
6		986.420	-0.456	23.116	22.660	-31.340	54.000	QUASIPeAK

Note:

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

Site : CB1	Time : 2009/09/08 - 20:18
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - HORIZONTAL	Power : DC 12V
EUT : PersonalMate GPS	Note : Mode 3: Transmit (Car Charger-MB-006-C)

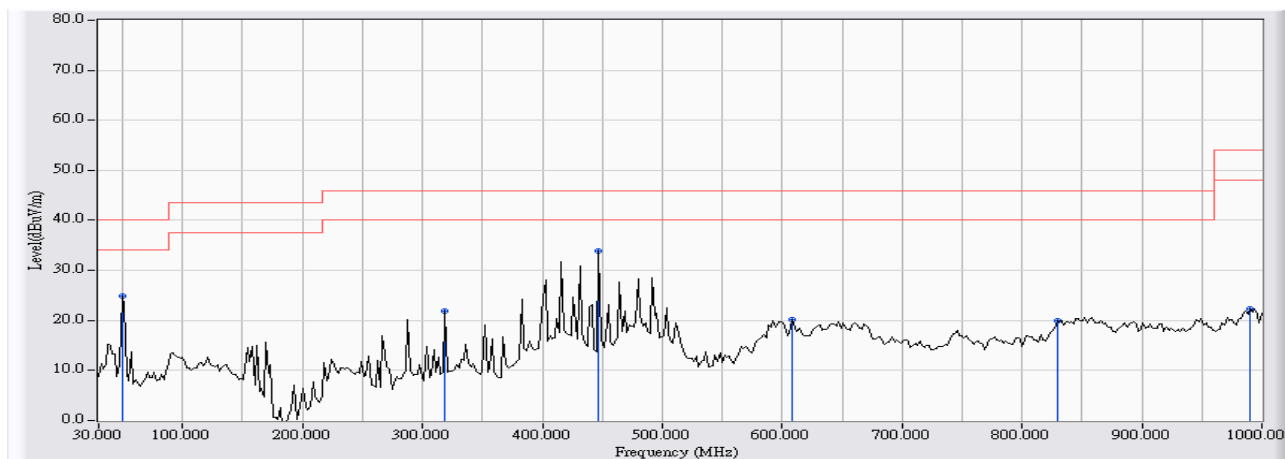


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		90.140	-15.420	32.205	16.784	-26.716	43.500	QUASIPeAK
2		224.000	-13.825	36.379	22.553	-23.447	46.000	QUASIPeAK
3		319.060	-10.752	40.177	29.424	-16.576	46.000	QUASIPeAK
4	*	447.100	-6.631	43.826	37.194	-8.806	46.000	QUASIPeAK
5		627.520	-2.852	25.199	22.347	-23.653	46.000	QUASIPeAK
6		953.440	2.258	23.411	25.669	-20.331	46.000	QUASIPeAK

Note:

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

Site : CB1	Time : 2009/09/08 - 20:19
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - VERTICAL	Power : DC 12V
EUT : PersonalMate GPS	Note : Mode 3: Transmit (Car Charger-MB-006-C)

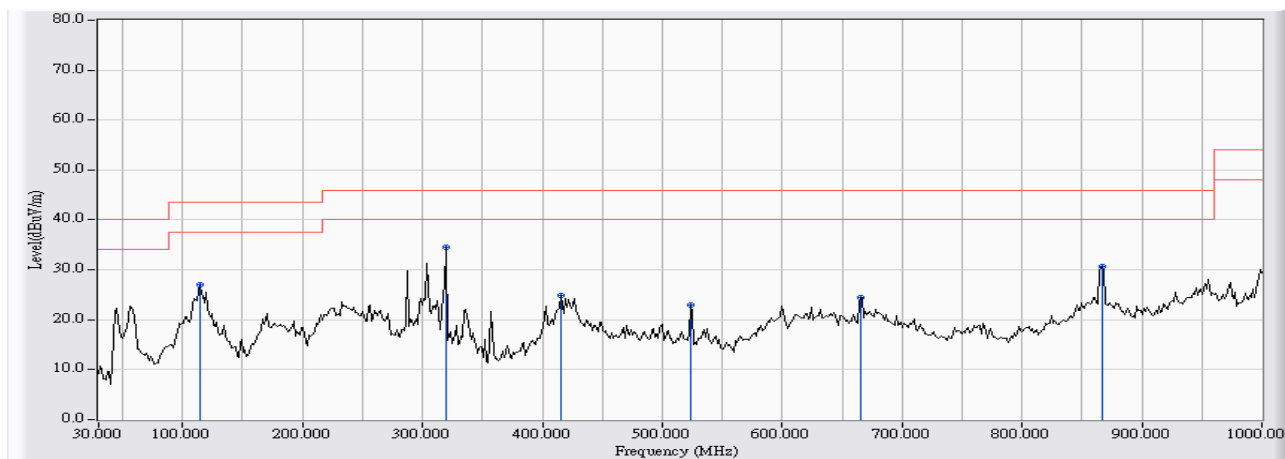


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		49.400	-13.993	38.916	24.923	-15.077	40.000	QUASIPeAK
2		319.060	-13.397	35.305	21.908	-24.092	46.000	QUASIPeAK
3	*	447.100	-8.702	42.523	33.821	-12.179	46.000	QUASIPeAK
4		608.120	-4.329	24.425	20.096	-25.904	46.000	QUASIPeAK
5		829.280	-3.458	23.426	19.968	-26.032	46.000	QUASIPeAK
6		990.300	-0.318	22.688	22.370	-31.630	54.000	QUASIPeAK

Note:

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

Site : CB1	Time : 2009/08/27 - 17:22
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - HORIZONTAL	Power : AC 120V / 60Hz
EUT : PersonalMate GPS	Note : Mode 4: Transmit (USB)

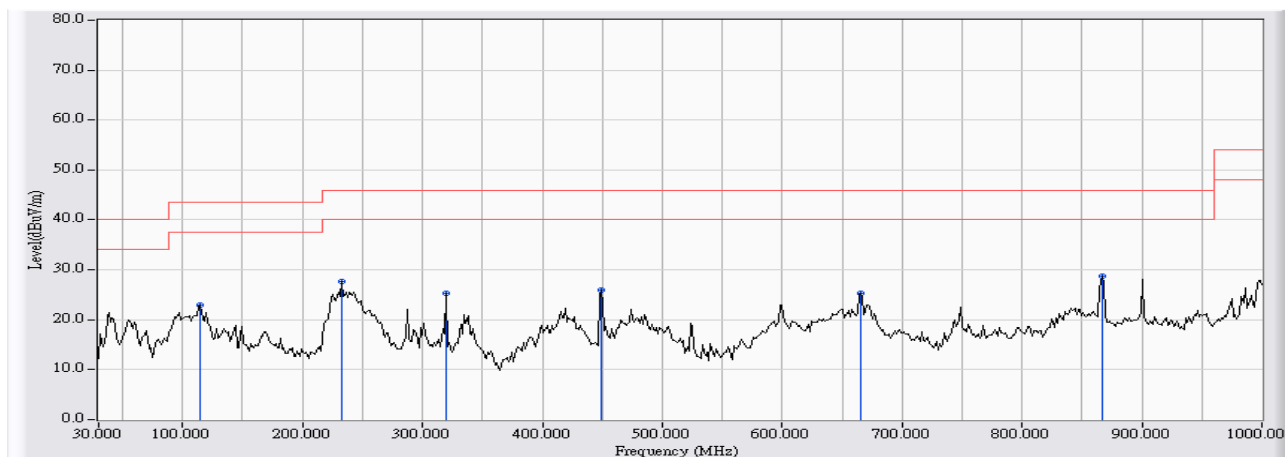


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		114.348	-14.498	41.603	27.105	-16.395	43.500	QUASIPeAK
2	*	319.594	-10.919	45.367	34.447	-11.553	46.000	QUASIPeAK
3		415.188	-4.626	29.473	24.848	-21.152	46.000	QUASIPeAK
4		523.435	-7.742	30.585	22.843	-23.157	46.000	QUASIPeAK
5		665.420	-3.874	28.424	24.550	-21.450	46.000	QUASIPeAK
6		866.449	-0.110	30.720	30.611	-15.389	46.000	QUASIPeAK

Note:

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

Site : CB1	Time : 2009/08/27 - 17:25
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_30-1G(2009) - VERTICAL	Power : AC 120V / 60Hz
EUT : PersonalMate GPS	Note : Mode 4: Transmit (USB)



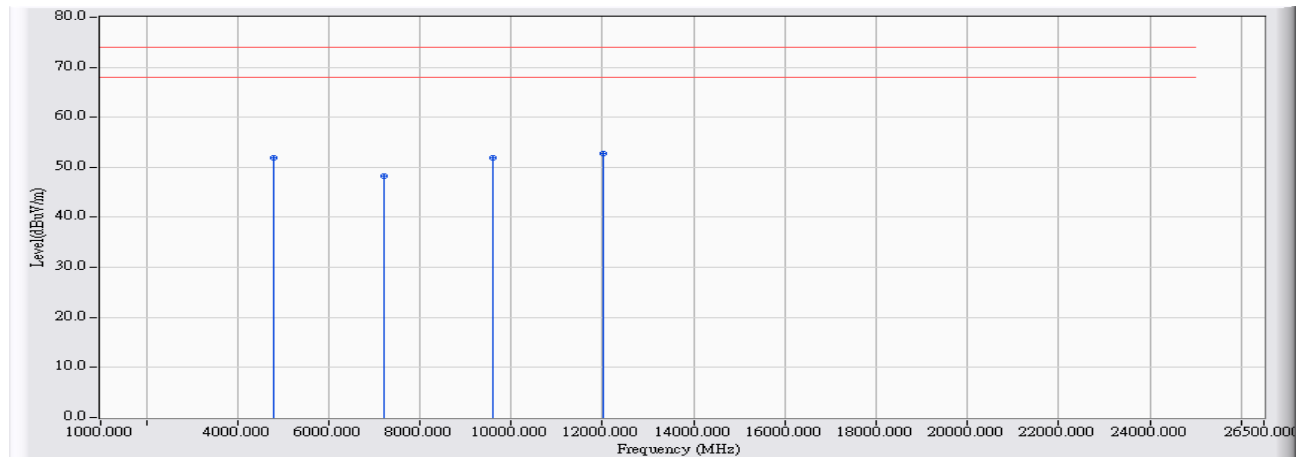
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		114.348	-12.019	34.999	22.981	-20.519	43.500	QUASIPeAK
2		232.435	-12.543	40.252	27.709	-18.291	46.000	QUASIPeAK
3		319.594	-13.362	38.641	25.279	-20.721	46.000	QUASIPeAK
4		448.928	-8.408	34.382	25.974	-20.026	46.000	QUASIPeAK
5		665.420	-4.028	29.266	25.238	-20.762	46.000	QUASIPeAK
6	*	866.449	-2.816	31.497	28.681	-17.319	46.000	QUASIPeAK

Note:

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

Harmonic & Spurious:

Site : CB1	Time : 2009/08/25 - 18:07
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2402

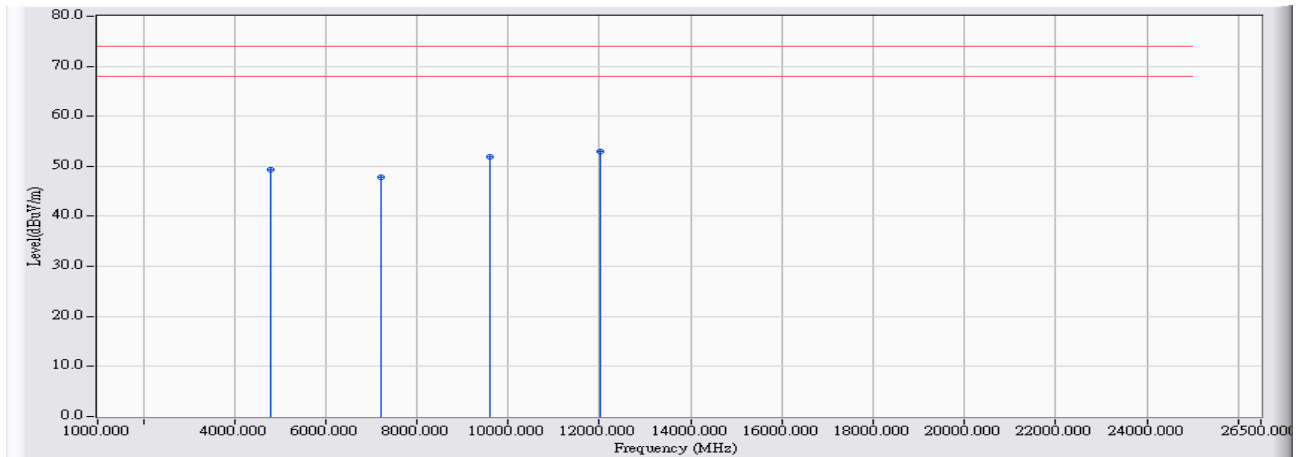


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.230	3.346	48.480	51.825	-22.175	74.000	PEAK
2		7205.840	9.740	38.550	48.291	-25.709	74.000	PEAK
3		9607.850	13.651	38.290	51.942	-22.058	74.000	PEAK
4	*	12010.450	18.806	33.951	52.757	-21.243	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2009/08/25 - 18:15
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2402

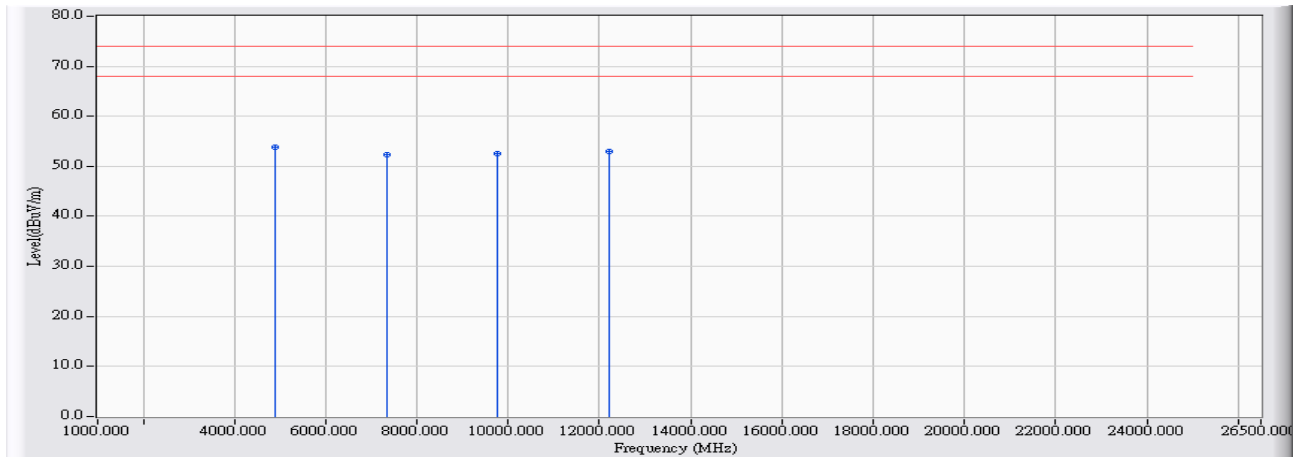


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.040	5.534	43.810	49.344	-24.656	74.000	PEAK
2		7205.840	9.396	38.359	47.756	-26.244	74.000	PEAK
3		9607.980	13.716	38.214	51.929	-22.071	74.000	PEAK
4	*	12010.450	17.436	35.563	52.999	-21.001	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2009/08/25 - 18:24
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2441

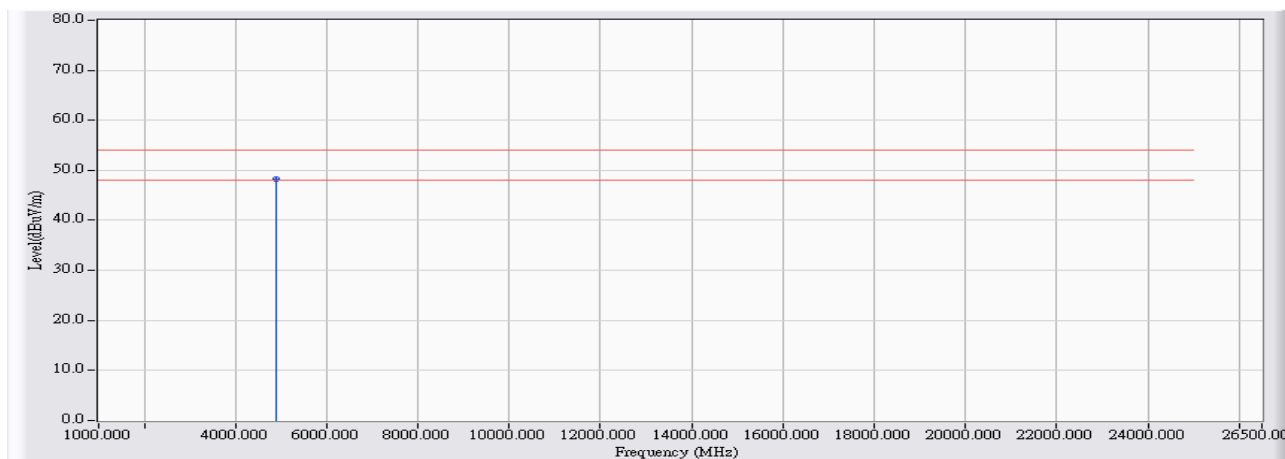


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4881.970	3.553	50.301	53.854	-20.146	74.000	PEAK
2		7336.000	10.351	42.081	52.432	-21.568	74.000	PEAK
3		9764.150	14.282	38.207	52.489	-21.511	74.000	PEAK
4		12205.460	18.041	34.931	52.972	-21.028	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2009/08/25 - 18:30
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2441

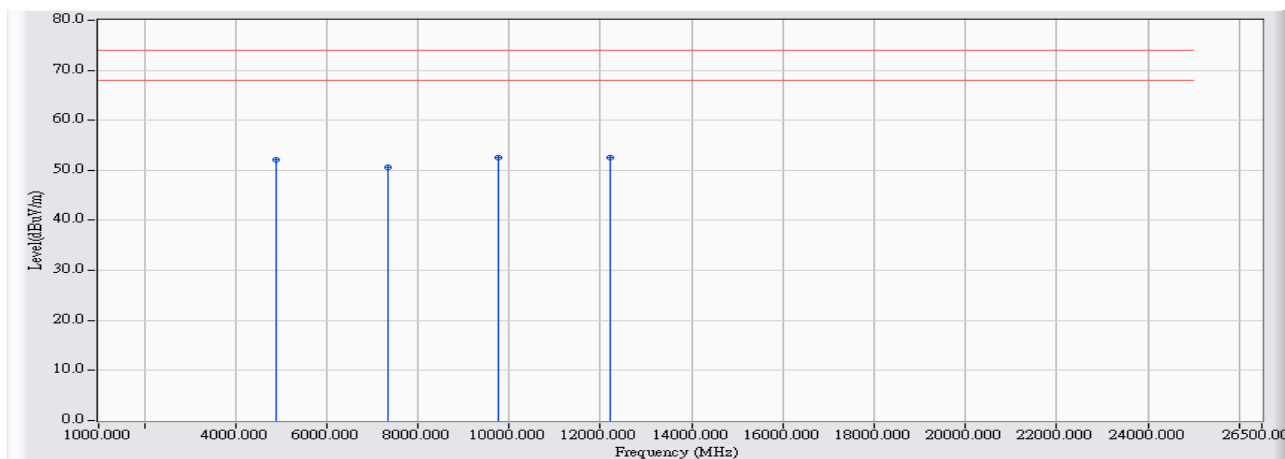


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4882.040	3.553	44.630	48.183	-5.817	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2009/08/25 - 18:38
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2441

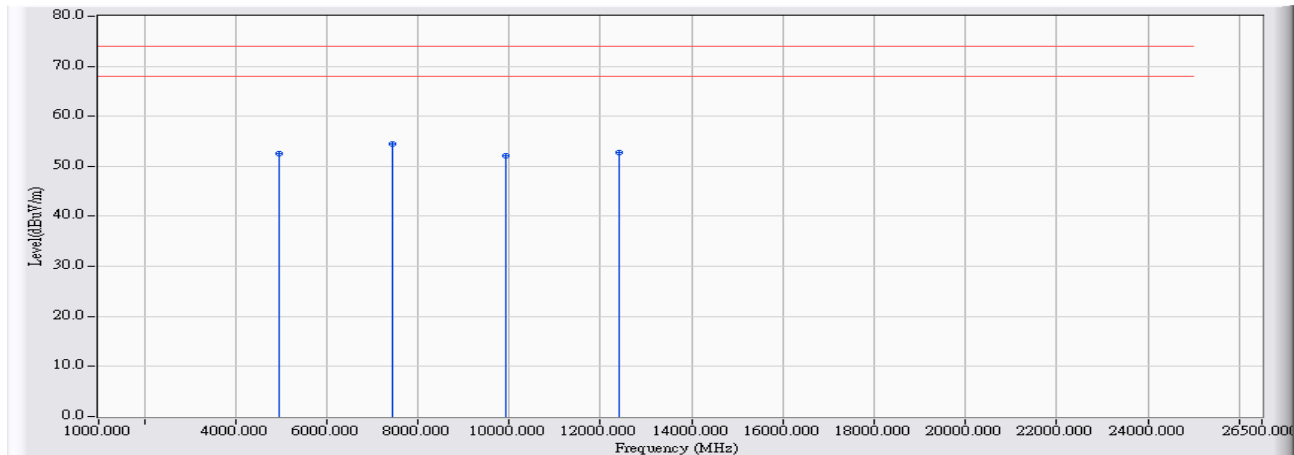


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4881.880	5.580	46.433	52.014	-21.986	74.000	PEAK
2		7336.000	9.655	40.930	50.585	-23.415	74.000	PEAK
3	*	9764.150	14.498	38.070	52.568	-21.432	74.000	PEAK
4		12205.680	17.085	35.460	52.545	-21.455	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2009/08/25 - 18:56
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2480

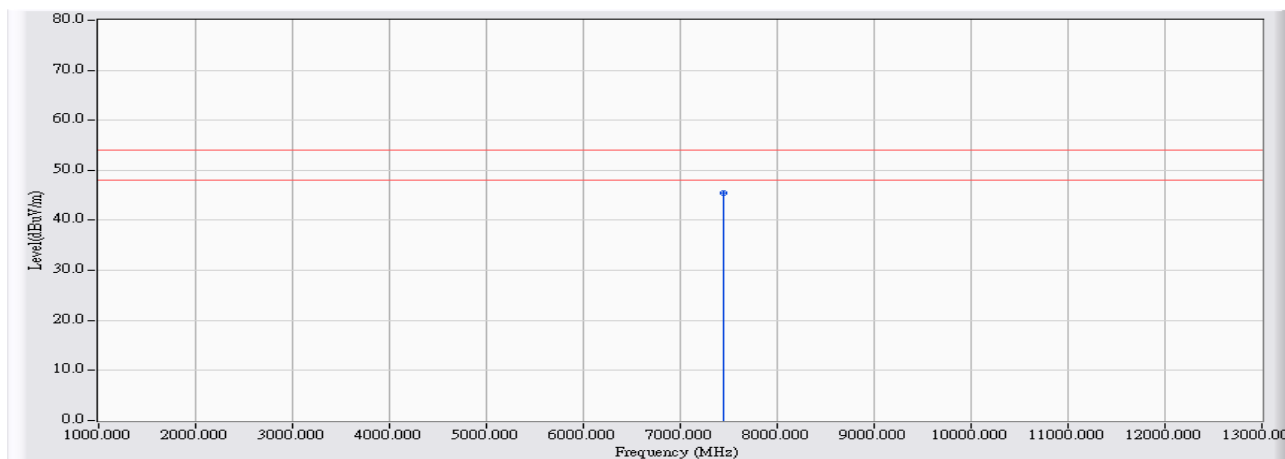


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	3.775	48.769	52.544	-21.456	74.000	PEAK
2	*	7432.000	10.794	43.676	54.470	-19.530	74.000	PEAK
3		9919.690	14.907	37.270	52.177	-21.823	74.000	PEAK
4		12399.880	17.271	35.570	52.841	-21.159	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2009/08/25 - 19:02
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2480

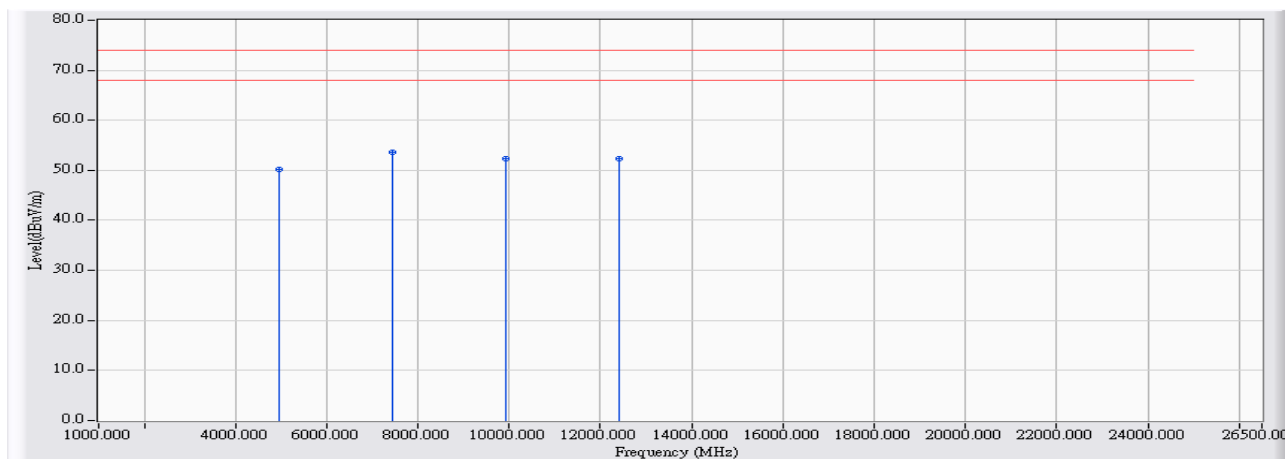


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	7439.980	10.832	34.670	45.502	-8.498	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2009/08/25 - 19:08
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2480

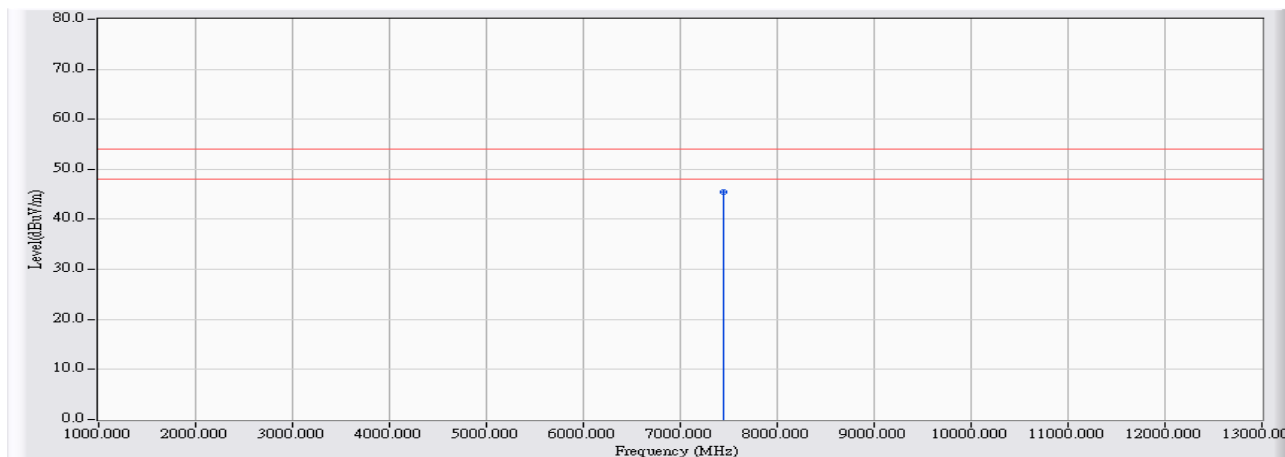


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	5.632	44.598	50.230	-23.770	74.000	PEAK
2	*	7432.000	9.851	43.869	53.719	-20.281	74.000	PEAK
3		9919.850	15.278	37.019	52.297	-21.703	74.000	PEAK
4		12399.870	16.724	35.692	52.416	-21.584	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2009/08/25 - 19:12
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : Transmit -2480



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	7440.000	9.867	35.520	45.387	-8.613	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

5. RF antenna conducted test

5.1. Test Equipment

The following test equipments are used during the test:

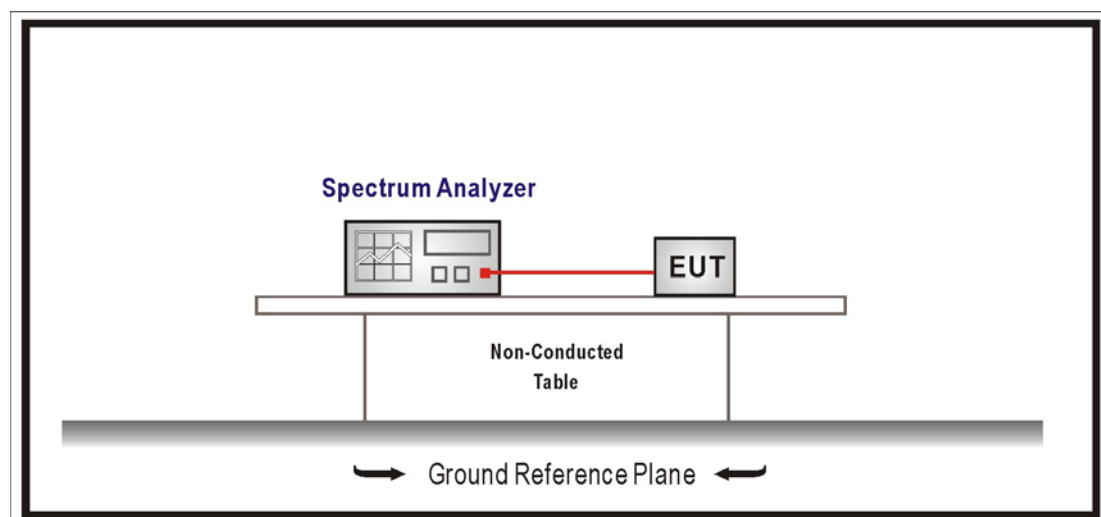
RF Conducted Measurement:				
Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2009
2	No.1 OATS			Sep., 2009

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:



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 an RF conducted or 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 was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

5.5. Test Specification

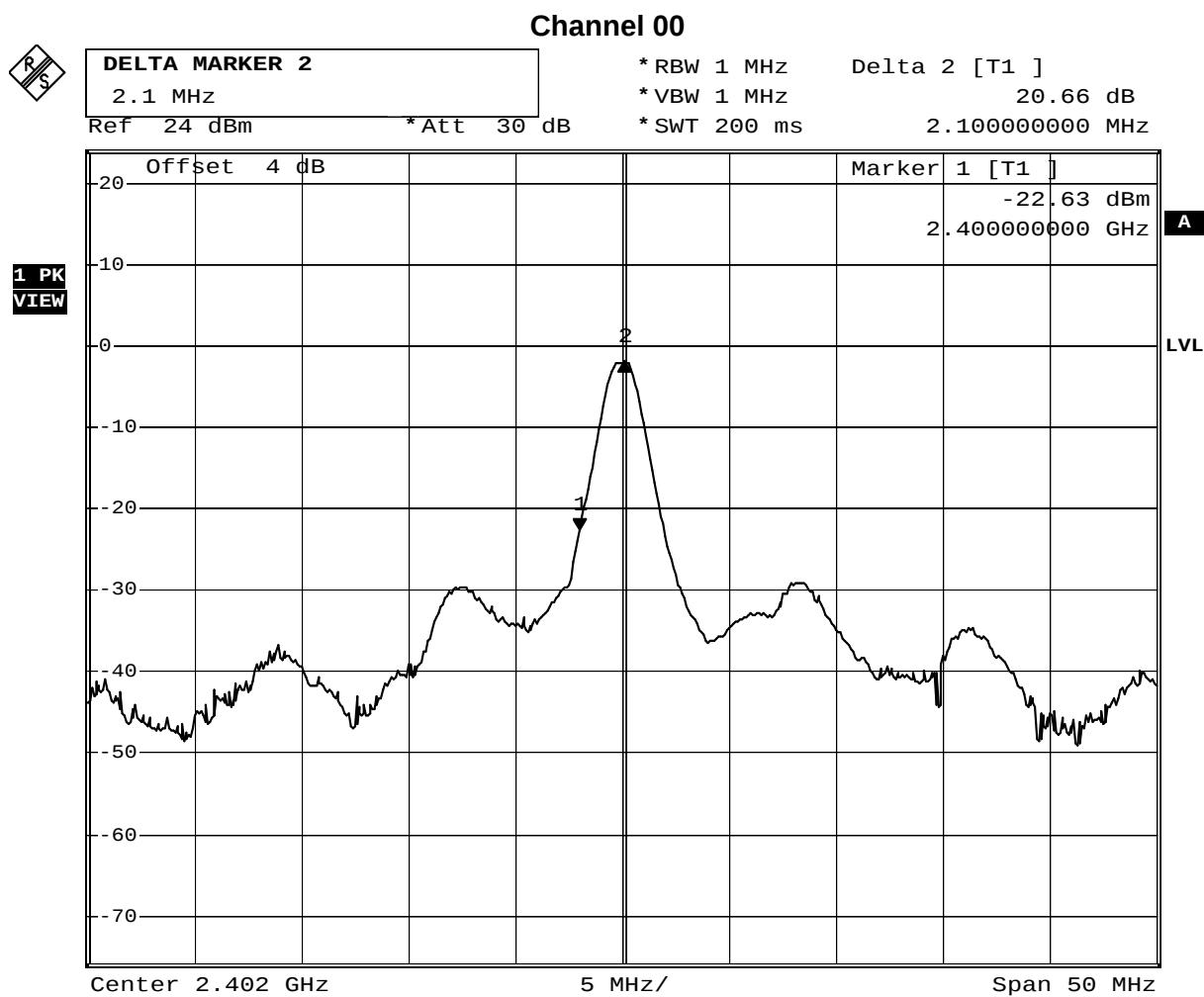
According to FCC Part 15 Subpart C Paragraph 15.247: 2008

5.6. Test Result

Product	PersonalMate GPS		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dBc)	Result
00	2402	20.66	≥ 20	Pass
78	2480	32.39	≥ 20	Pass

Figure Channel 1:



Date: 26.AUG.2009 16:50:38

Channel 78



DELTA MARKER 2

-3.3 MHz

* RBW 1 MHz

Delta 2 [T1]

* VBW 1 MHz

32.39 dB

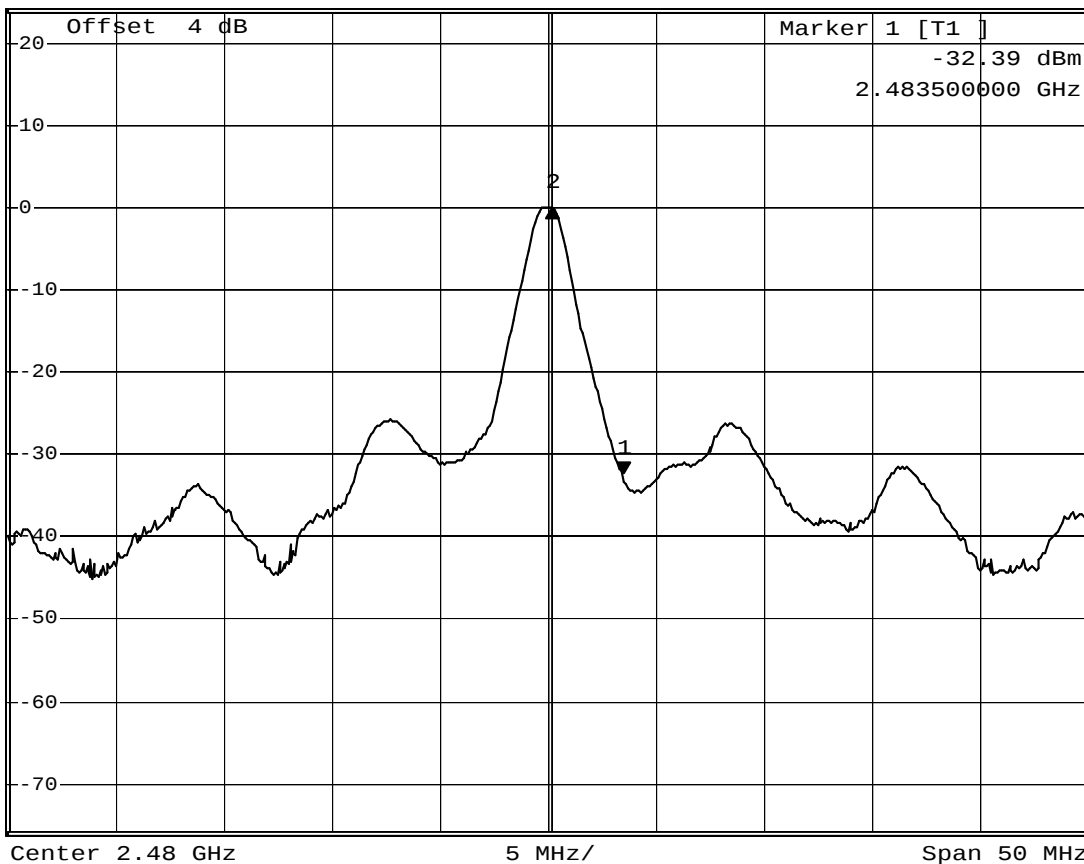
Ref 24 dBm

* Att 30 dB

* SWT 200 ms

-3.300000000 MHz

1 PK
VIEW



A

LVL

Date: 26.AUG.2009 16:51:21

Channel 00 (30-25000)



DELTA MARKER 2

11.68596 GHz

*RBW 1 MHz

Delta 2 [T1]

*VBW 1 MHz

-27.37 dB

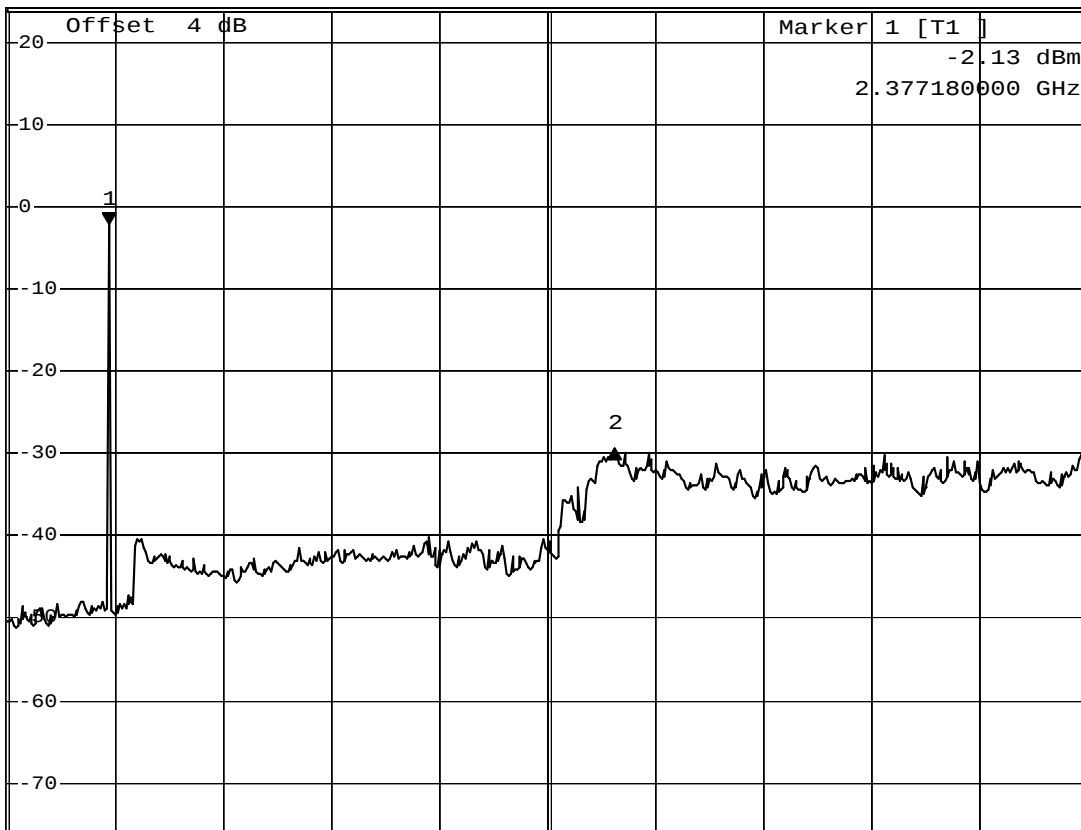
Ref 24 dBm

*Att 30 dB

SWT 500 ms

11.685960000 GHz

1 PK
VIEW



A

LVL

Start 30 MHz

2.497 GHz/

Stop 25 GHz

Date: 26.AUG.2009 17:07:59

Channel 78 (30-25000)



DELTA MARKER 2

11.4862 GHz

*RBW 1 MHz

Delta 2 [T1]

*VBW 1 MHz

-28.77 dB

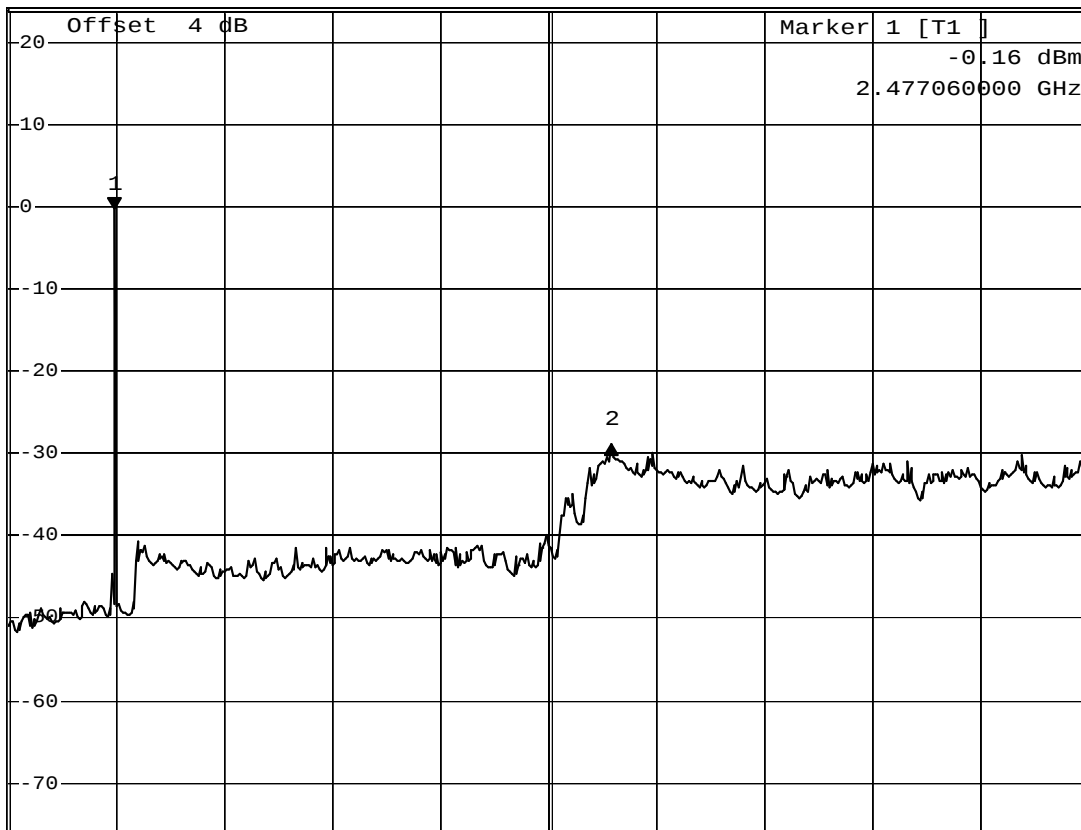
Ref 24 dBm

*Att 30 dB

SWT 500 ms

11.486200000 GHz

1 PK
VIEW



A

LVL

Start 30 MHz

2.497 GHz/

Stop 25 GHz

Date: 26.AUG.2009 17:06:54

6. Band Edge

6.1. Test Equipment

The following test equipments are used during the test:

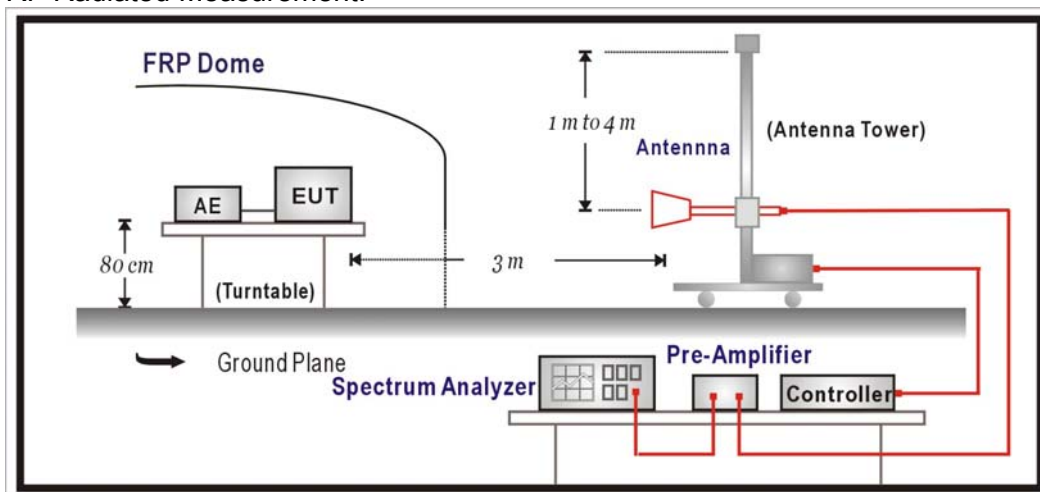
RF Radiated Measurement:					
Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2009
2	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2009
3		Loop Antenna	R & S	HFH2-Z2 / 833799/004	Sep., 2008
4		BiconiLog Antenna	Schwarzbeck	VULB 9166 / 1061	Sep., 2008
5		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2008
6	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Sep., 2008
7	No.1 OATS				Sep., 2008

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.

6.2. Test Setup

RF Radiated Measurement:



6.3. 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.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

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.

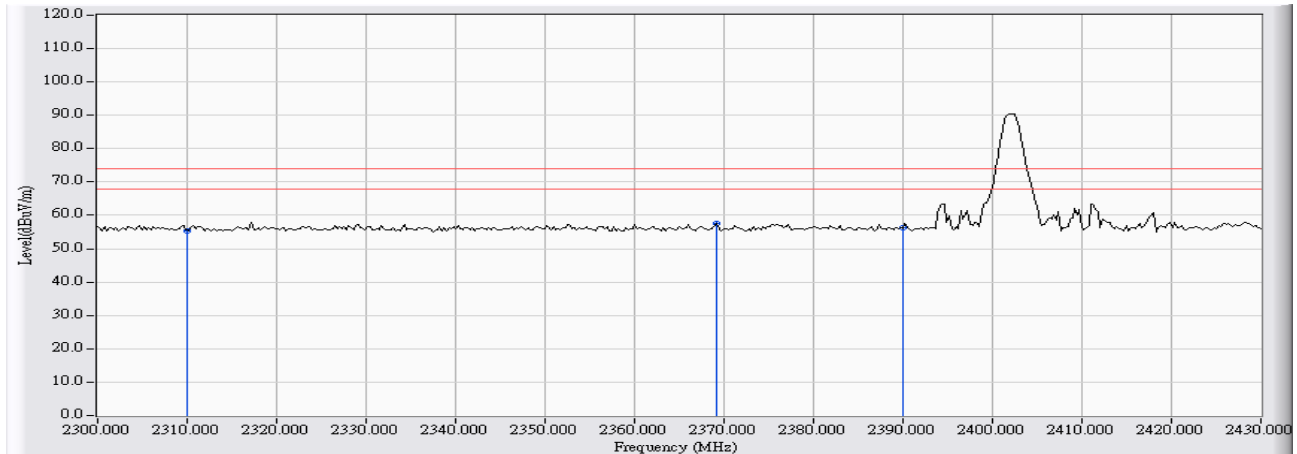
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

6.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2008

6.6. Test Result

Site : Site1	Time : 2009/08/26 - 11:25
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : TX-2402

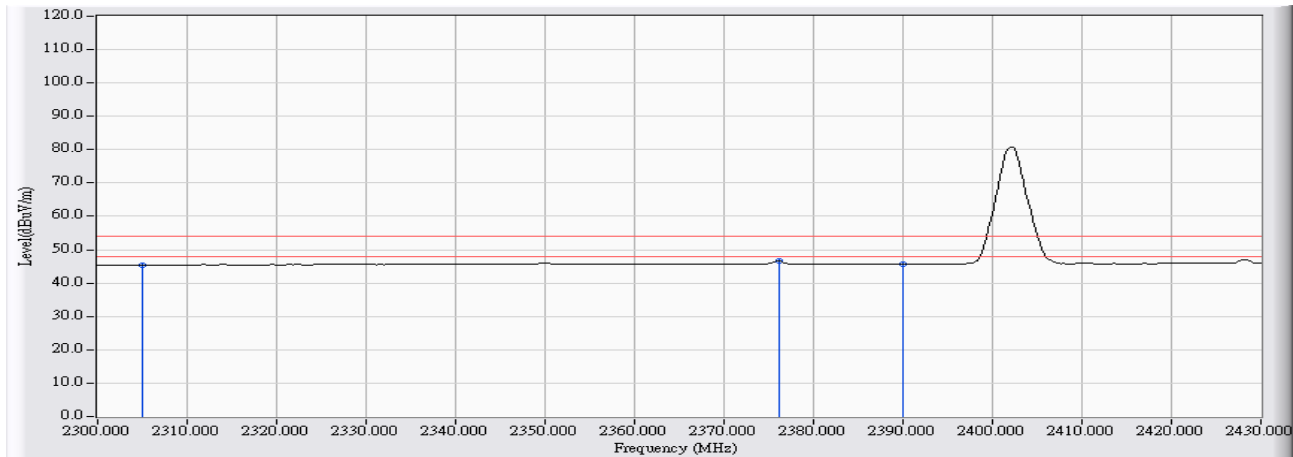


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	31.658	23.787	55.444	-18.556	74.000	PEAK
2	*	2369.160	31.934	25.629	57.564	-16.436	74.000	PEAK
3		2390.000	32.036	24.273	56.309	-17.691	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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 : 2009/08/26 - 11:27
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : TX-2402

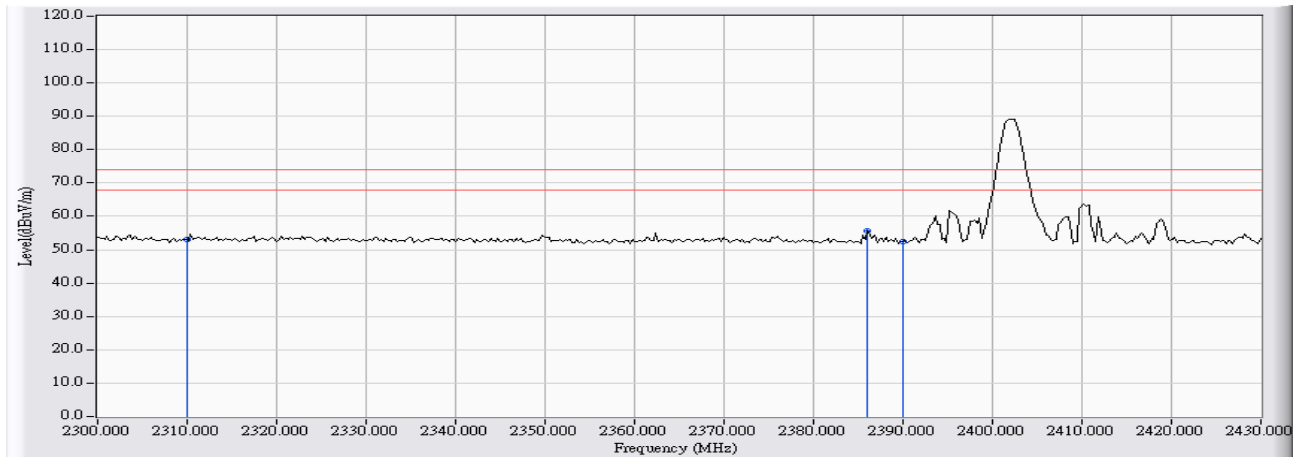


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2305.000	31.633	13.869	45.502	-8.498	54.000	AVERAGE
2	*	2376.180	31.969	14.523	46.492	-7.508	54.000	AVERAGE
3		2390.000	32.036	13.770	45.806	-8.194	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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 : 2009/08/26 - 11:33
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : TX-2402

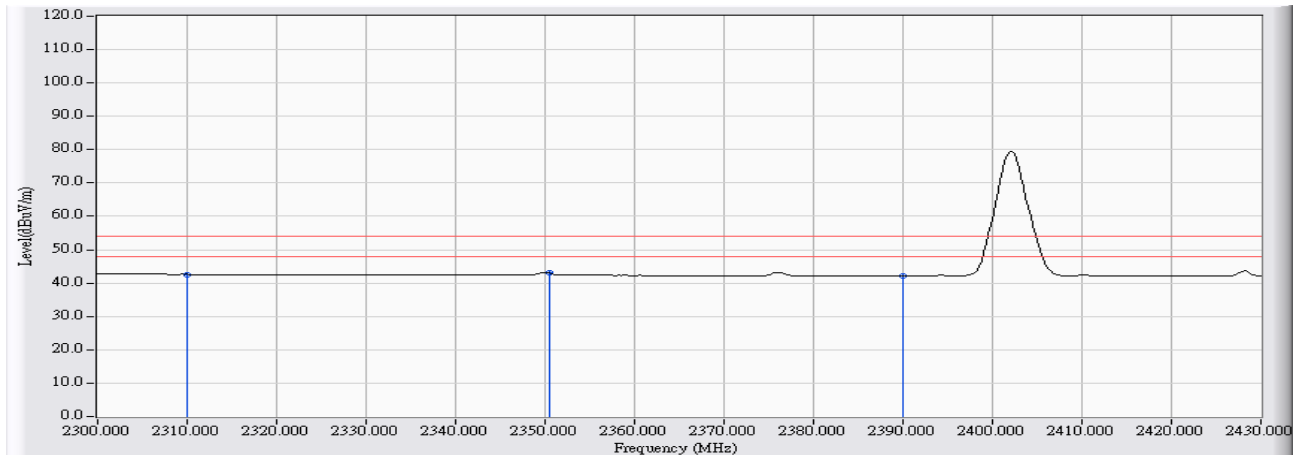


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	28.738	24.217	52.954	-21.046	74.000	PEAK
2	*	2386.060	28.482	27.158	55.640	-18.360	74.000	PEAK
3		2390.000	28.470	24.119	52.589	-21.411	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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 : 2009/08/26 - 11:44
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : TX-2402

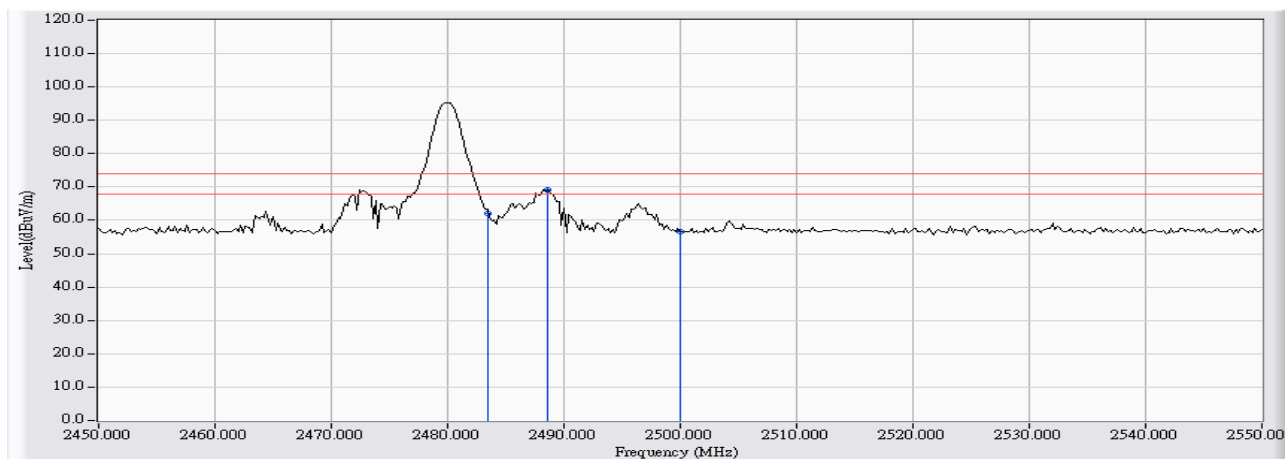


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	28.738	13.885	42.622	-11.378	54.000	AVERAGE
2	*	2350.440	28.598	14.388	42.985	-11.015	54.000	AVERAGE
3		2390.000	28.470	13.780	42.250	-11.750	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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 : 2009/08/26 - 11:52
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : TX-2480

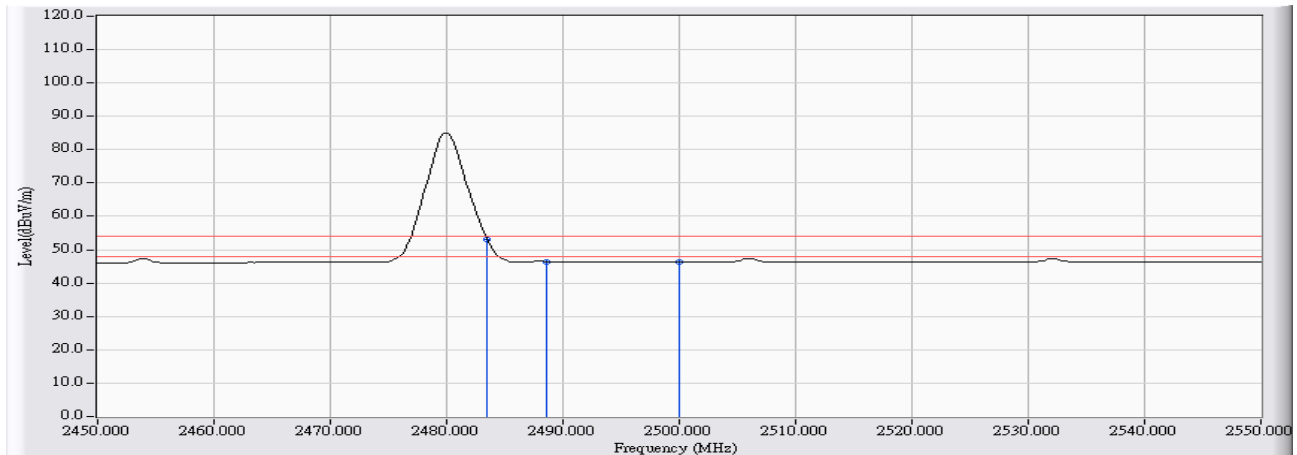


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2483.500	32.480	29.716	62.196	-11.804	74.000	PEAK
2	*	2488.600	32.505	36.543	69.048	-4.952	74.000	PEAK
3		2500.000	32.557	24.070	56.628	-17.372	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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 : 2009/08/26 - 11:54
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : TX-2480

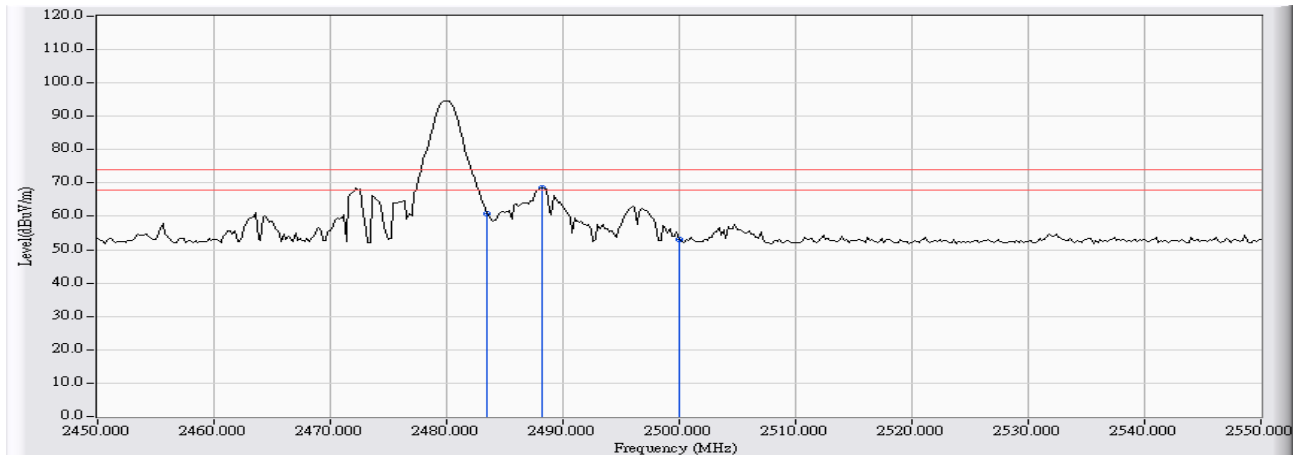


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2483.500	32.480	20.598	53.078	-0.922	54.000	AVERAGE
2		2488.600	32.505	13.923	46.428	-7.572	54.000	AVERAGE
3		2500.000	32.557	13.749	46.307	-7.693	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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 : 2009/08/26 - 12:01
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : TX-2480

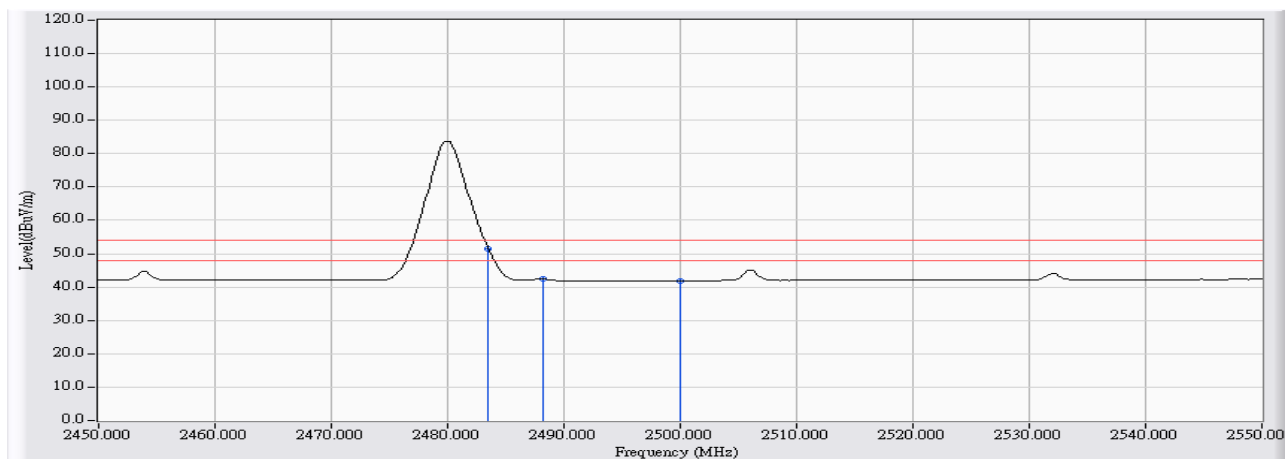


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2483.500	28.156	32.548	60.703	-13.297	74.000	PEAK
2	*	2488.200	28.137	40.408	68.545	-5.455	74.000	PEAK
3		2500.000	28.142	24.826	52.968	-21.032	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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 : 2009/08/26 - 12:02
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : Site1_FCC_EFS_1-18G(2009-06) - VERTICAL	Power : AC 120V/60Hz
EUT : PersonalMate GPS	Note : TX-2480



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2483.500	28.156	23.377	51.532	-2.468	54.000	AVERAGE
2		2488.200	28.137	14.396	42.533	-11.467	54.000	AVERAGE
3		2500.000	28.142	13.767	41.909	-12.091	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

7. Number of hopping frequency

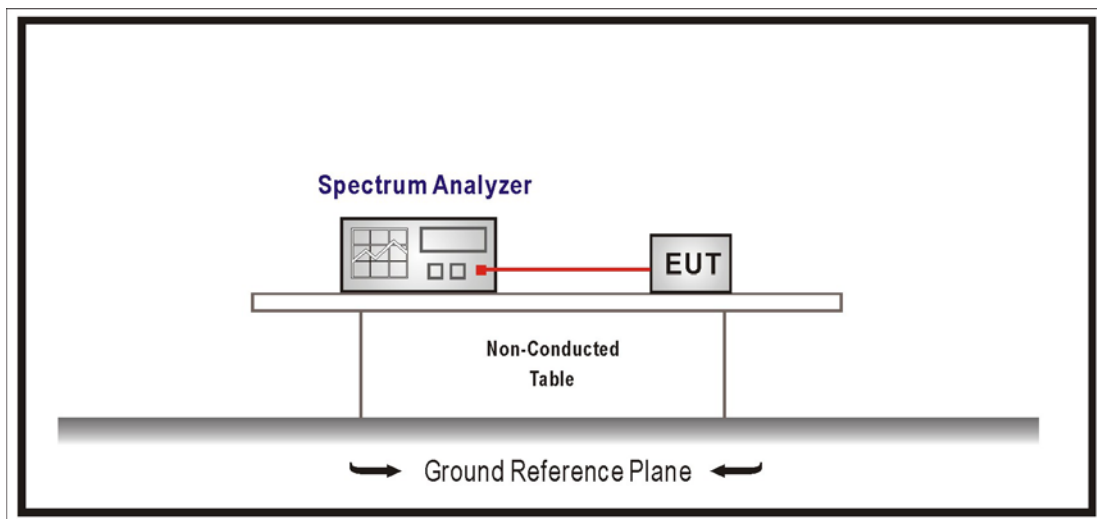
7.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2009
2	No.1 OATS			Sep., 2008

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 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.

7.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = the frequency band of operation

$RBW \geq 1\%$ of the span , $VBW \geq RBW$

Sweep = auto, Detector function = peak, Trace = max hold

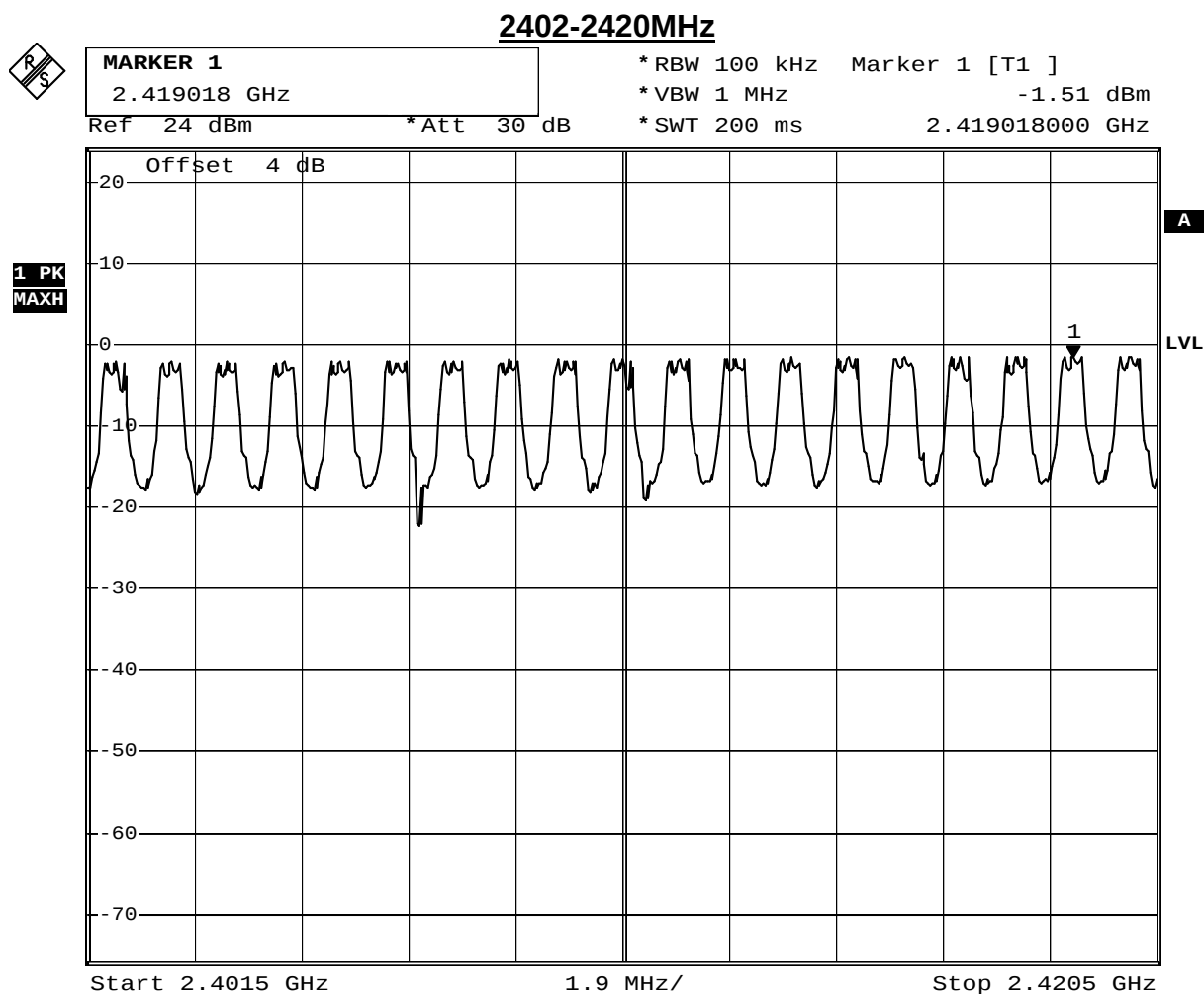
7.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2008

7.6. Test Result

Product	PersonalMate GPS		
Test Item	Number of hopping frequency		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/26	Test Site	No.1 OATS

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



Date: 26.AUG.2009 15:48:44

2421-2440MHz



MARKER 1

2.440006 GHz

*RBW 100 kHz Marker 1 [T1]

*VBW 1 MHz -29.41 dBm

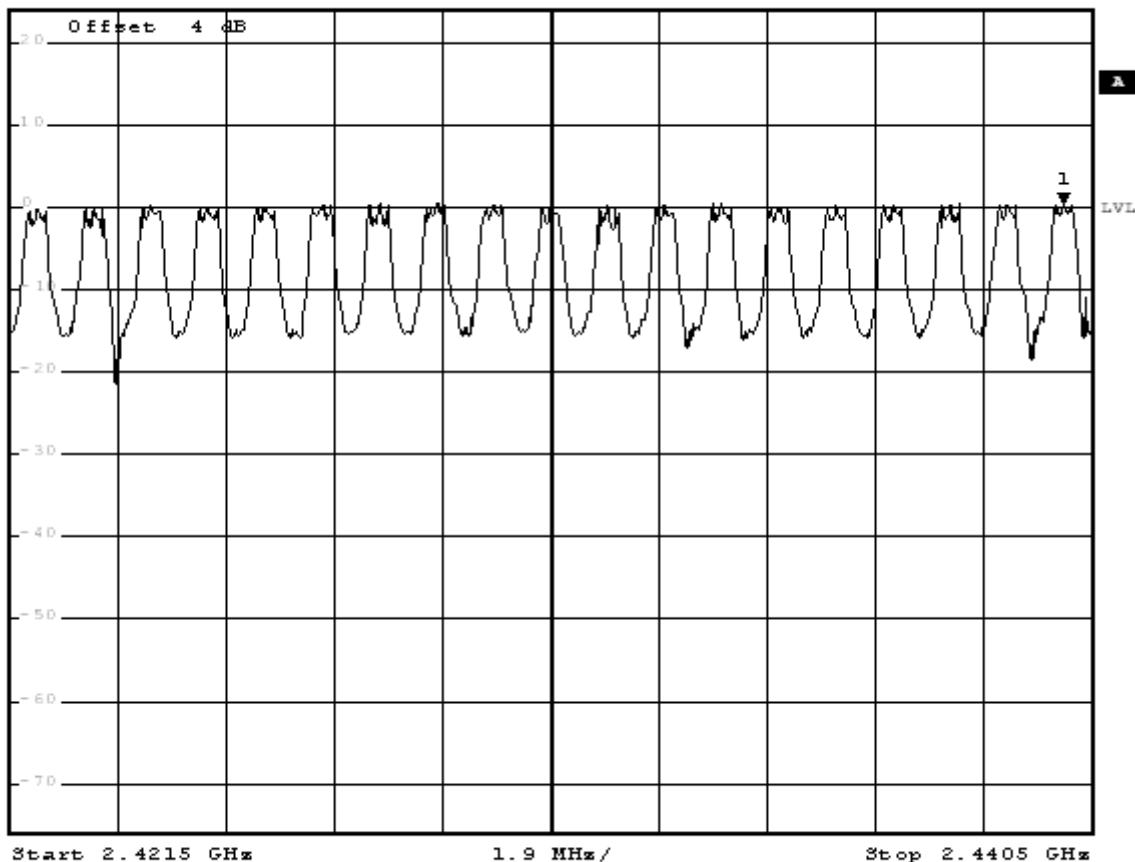
Ref -6 dBm

*Att 0 dB

*SWT 200 ms

2.440006000 GHz

1 PE
VIEW



Date: 22.SEP.2009 16:36:38

2441-2460MHz



START FREQUENCY

2.4405 GHz

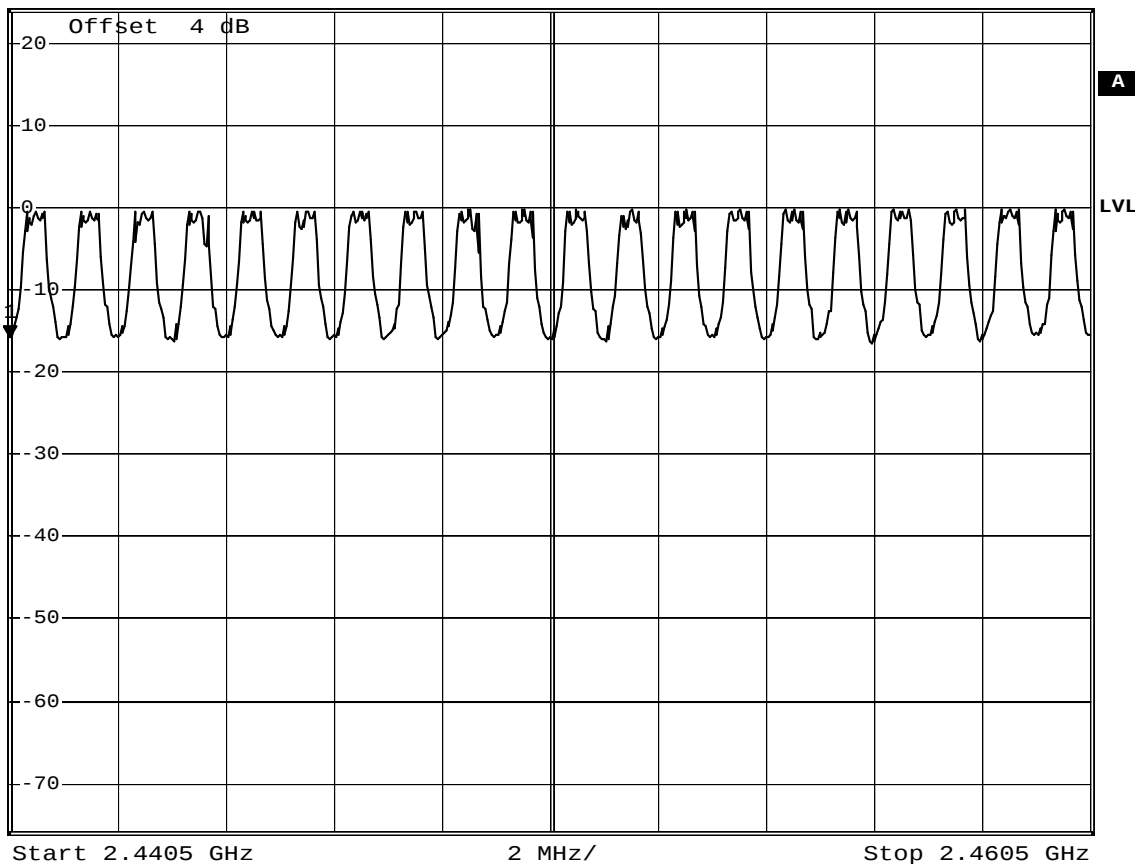
* RBW 100 kHz Marker 1 [T1]

* VBW 1 MHz -15.73 dBm

Ref 24 dBm * Att 30 dB

* SWT 200 ms 2.440500000 GHz

1 PK
MAXH



Date: 26.AUG.2009 16:12:26

2461-2480MHz



MARKER 1

2.461 GHz

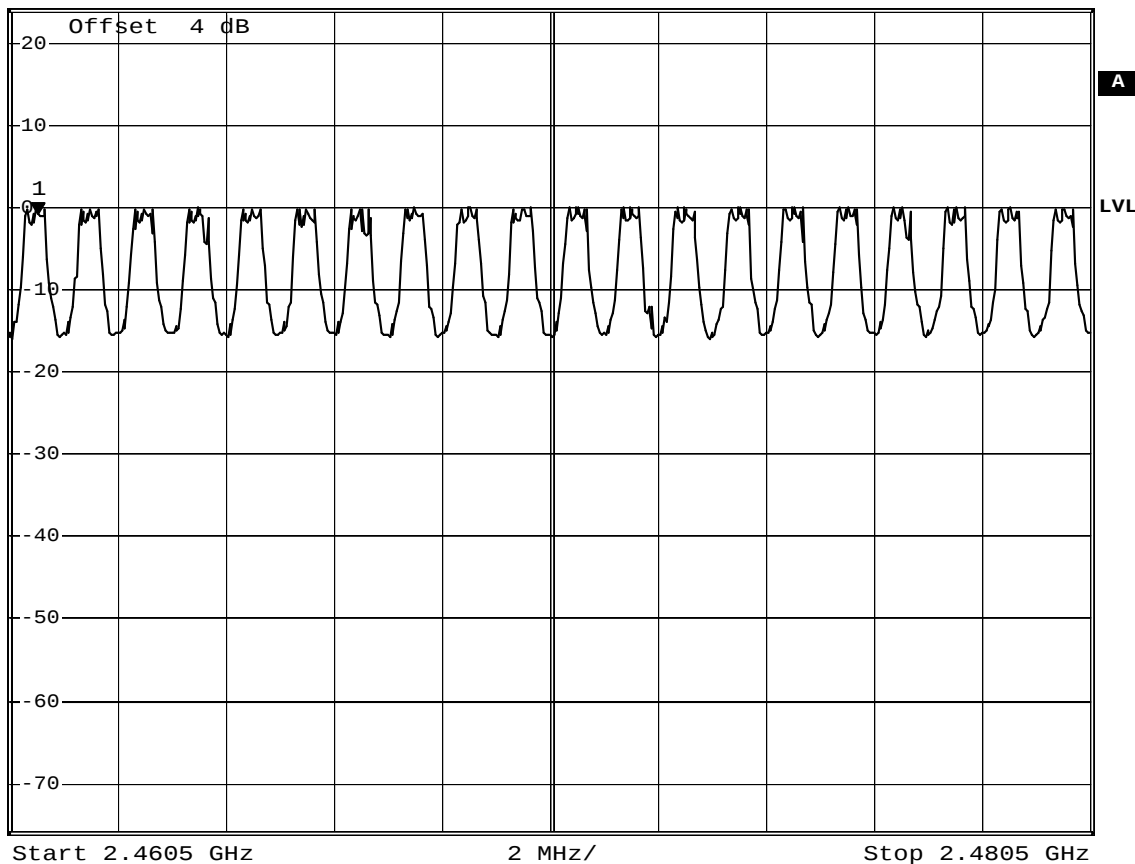
* RBW 100 kHz Marker 1 [T1]

* VBW 1 MHz -0.90 dBm

Ref 24 dBm * Att 30 dB

* SWT 200 ms 2.461000000 GHz

1 PK
MAXH



Date: 26.AUG.2009 16:19:58

8. Carrier Frequency Separation

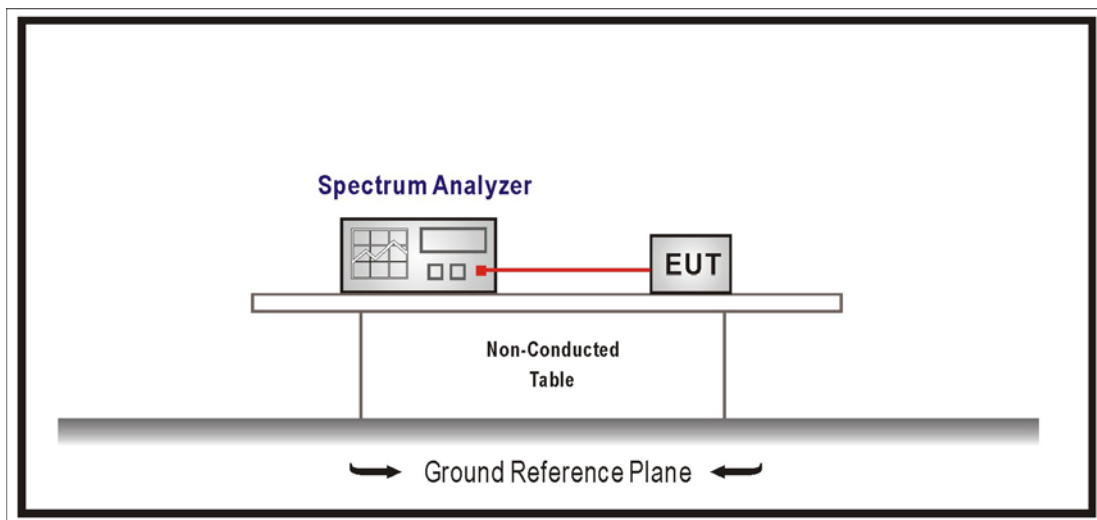
8.1. Test Equipment

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	Jan., 2009
2	No.1 OATS			Sep., 2008

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 shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

8.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = wide enough to capture the peaks of two adjacent channels

Resolution Bandwidth (RBW) $\geq$ 1% of the span, VBW $\geq$ RBW

Sweep = auto, Detector function = peak, Trace = max hold

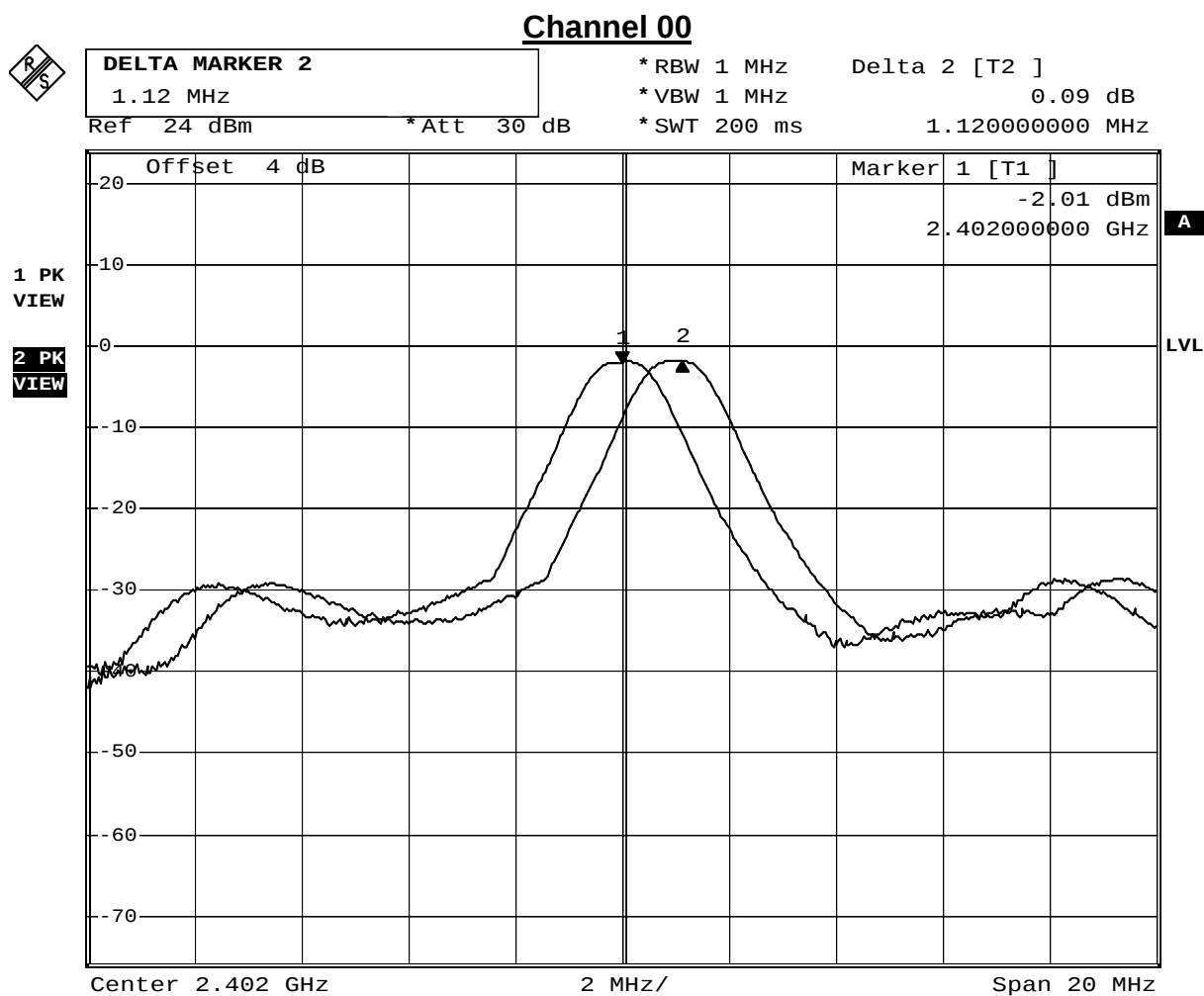
8.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2008

8.6. Test Result

Product	PersonalMate GPS		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

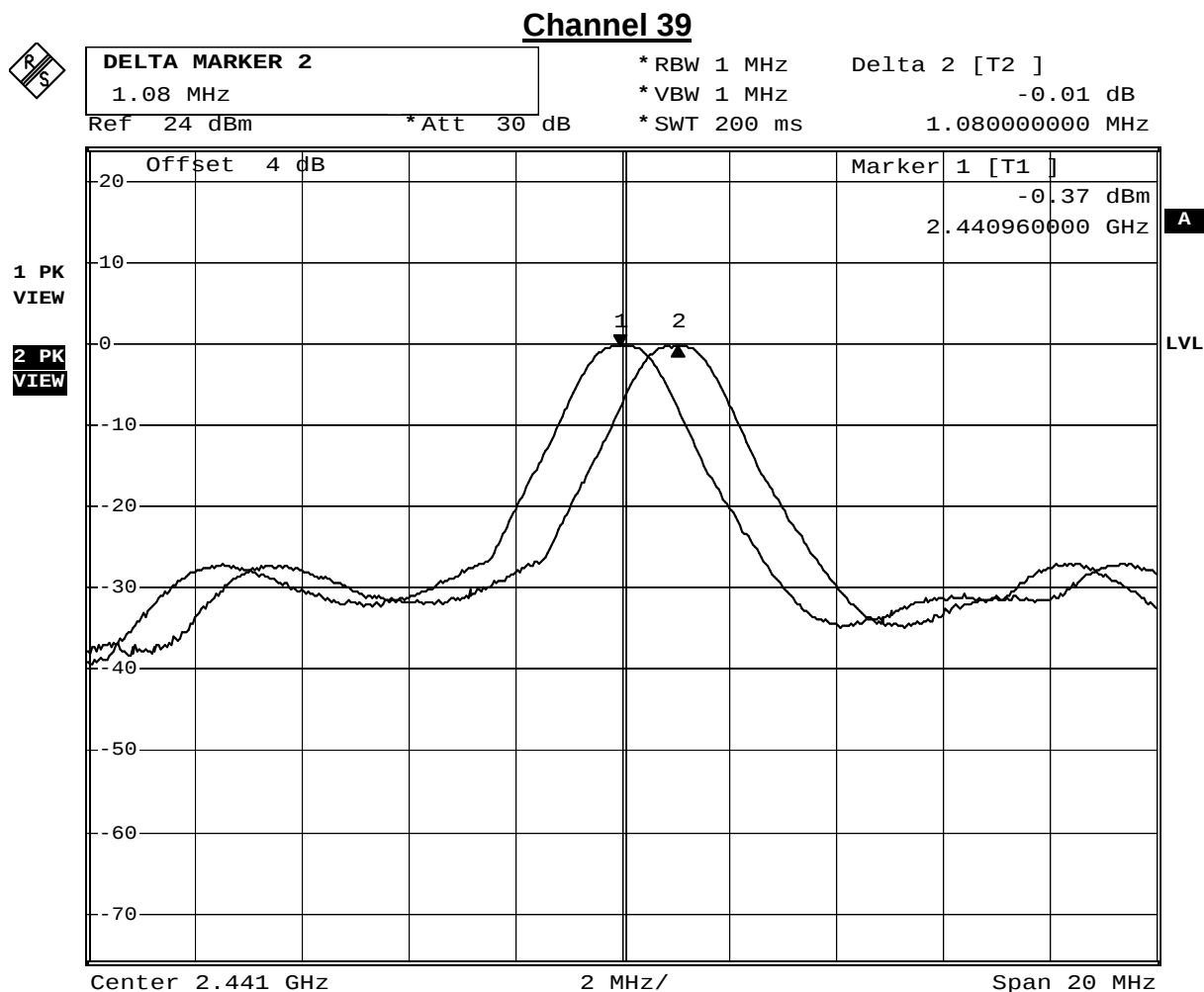
Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
00	2402.00	11200	>759	Pass



Date: 26.AUG.2009 16:27:14

Product	PersonalMate GPS		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

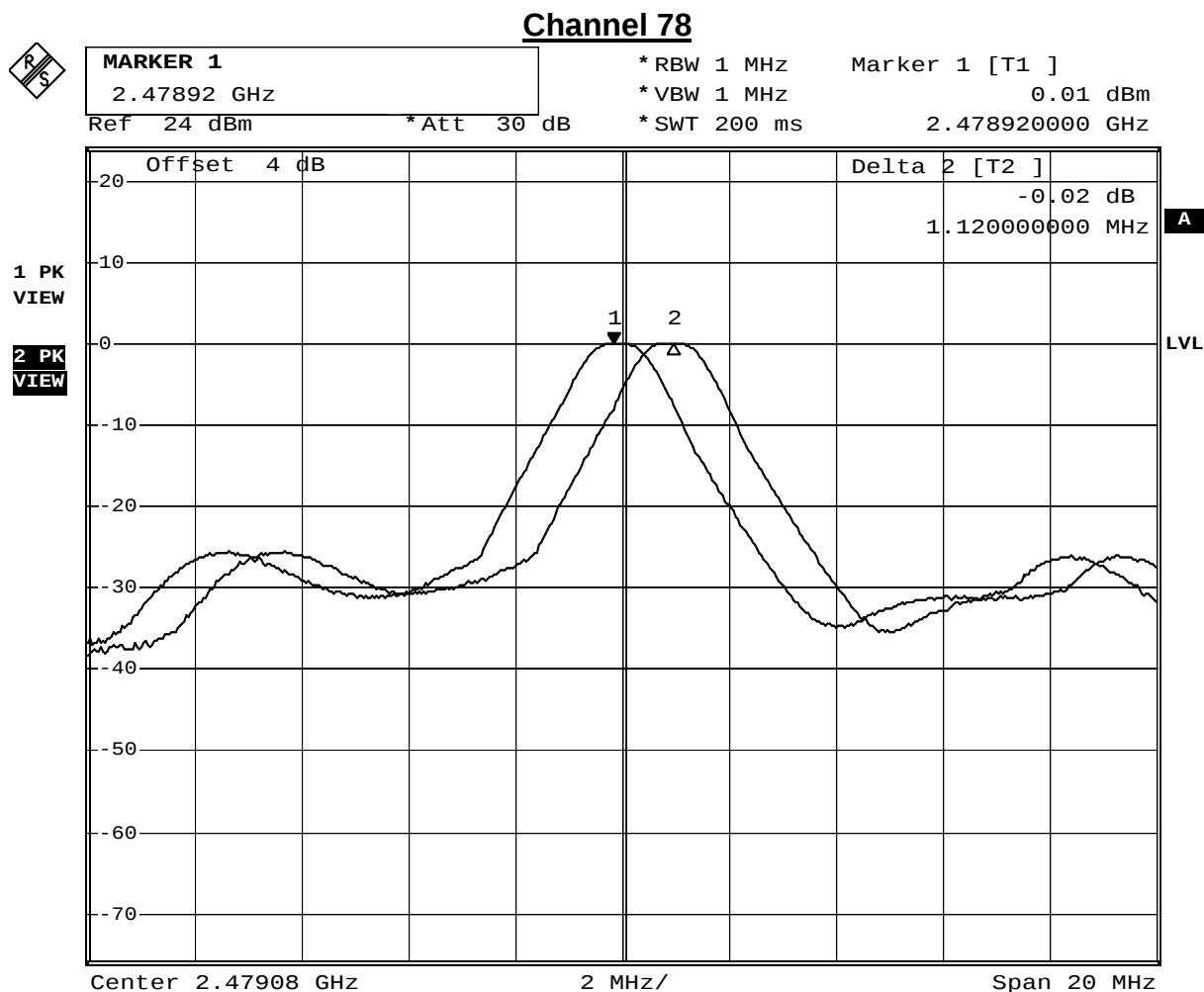
Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
39	2441.00	10800	>778.8	Pass



Date: 26.AUG.2009 16:31:28

Product	PersonalMate GPS		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
78	2480.00	11200	>792	Pass



Date: 26.AUG.2009 16:33:57

9. Occupied Bandwidth

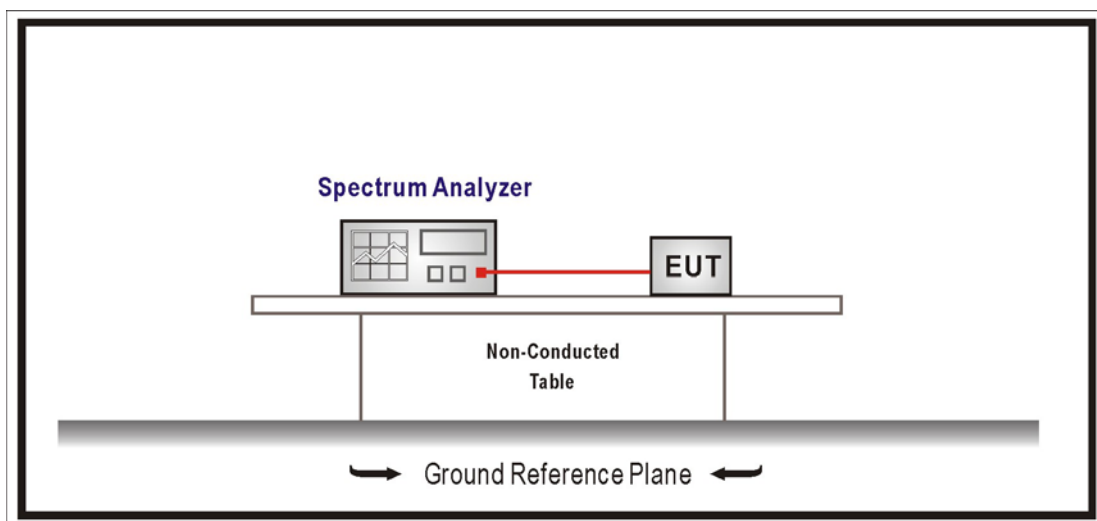
9.1. Test Equipment

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	Jan., 2009
2	No.1 OATS			Sep., 2008

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. 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.

9.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW $\geq$ 1% of the 20 dB bandwidth, VBW $\geq$ RBW

Sweep = auto, Detector function = peak, Trace = max hold

The EUT should be transmitting at its maximum data rate.

9.5. Test Specification

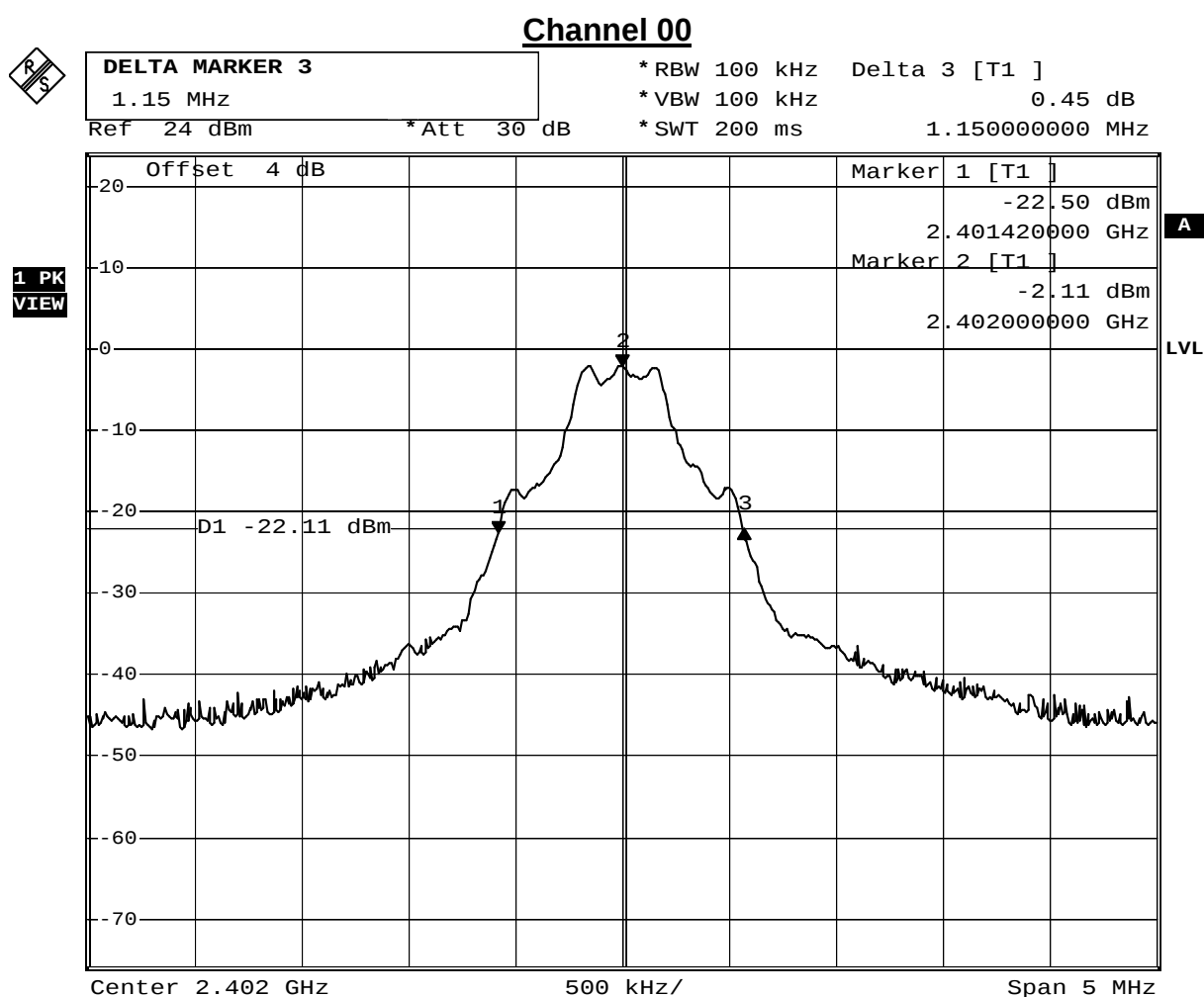
According to FCC Part 15 Subpart C Paragraph 15.247: 2008

9.6. Test Result

Product	PersonalMate GPS		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402.00	1.15	--	Pass

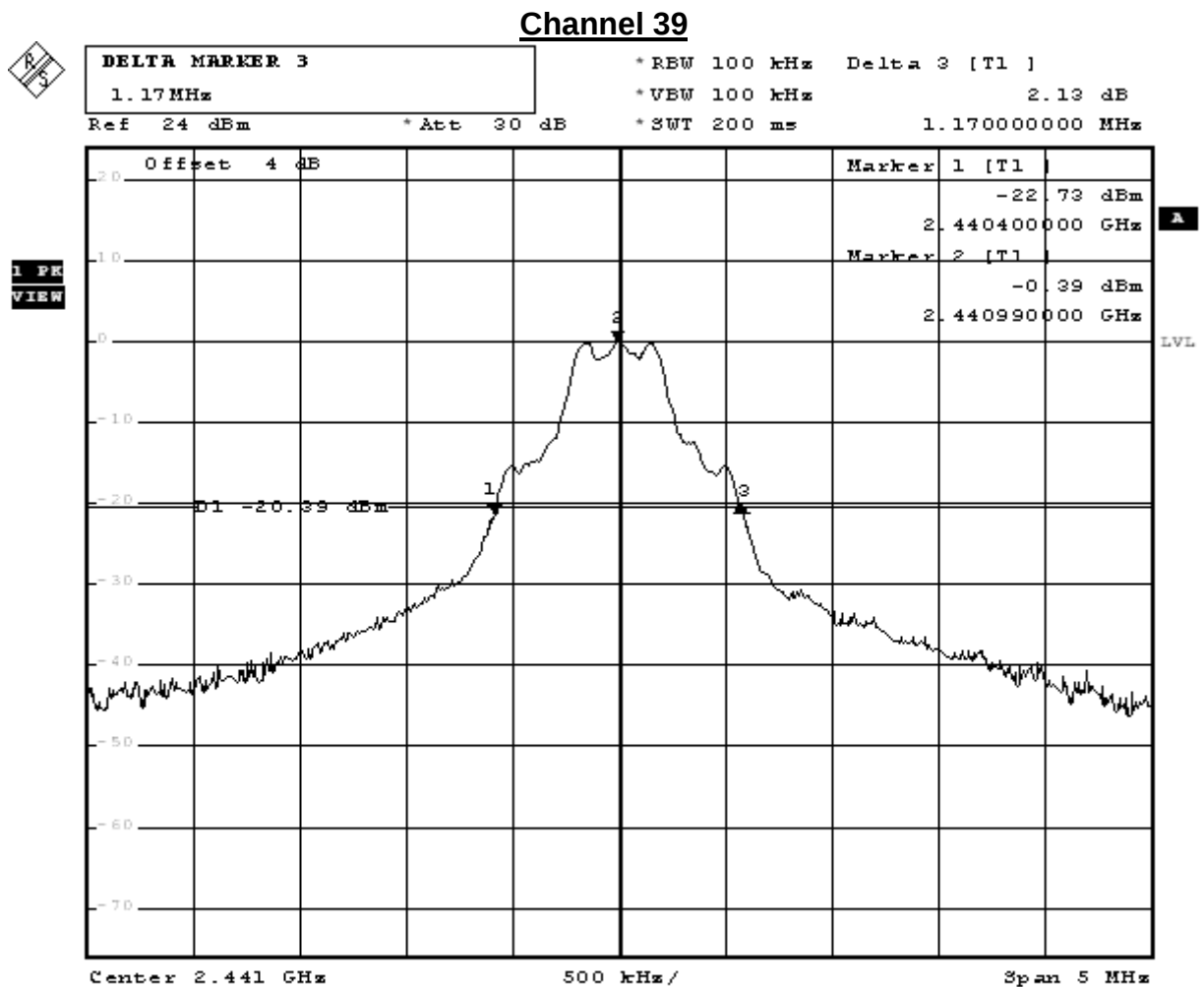


Date: 26.AUG.2009 15:33:58

Product	PersonalMate GPS		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
39	2441.00	1.17	--	Pass

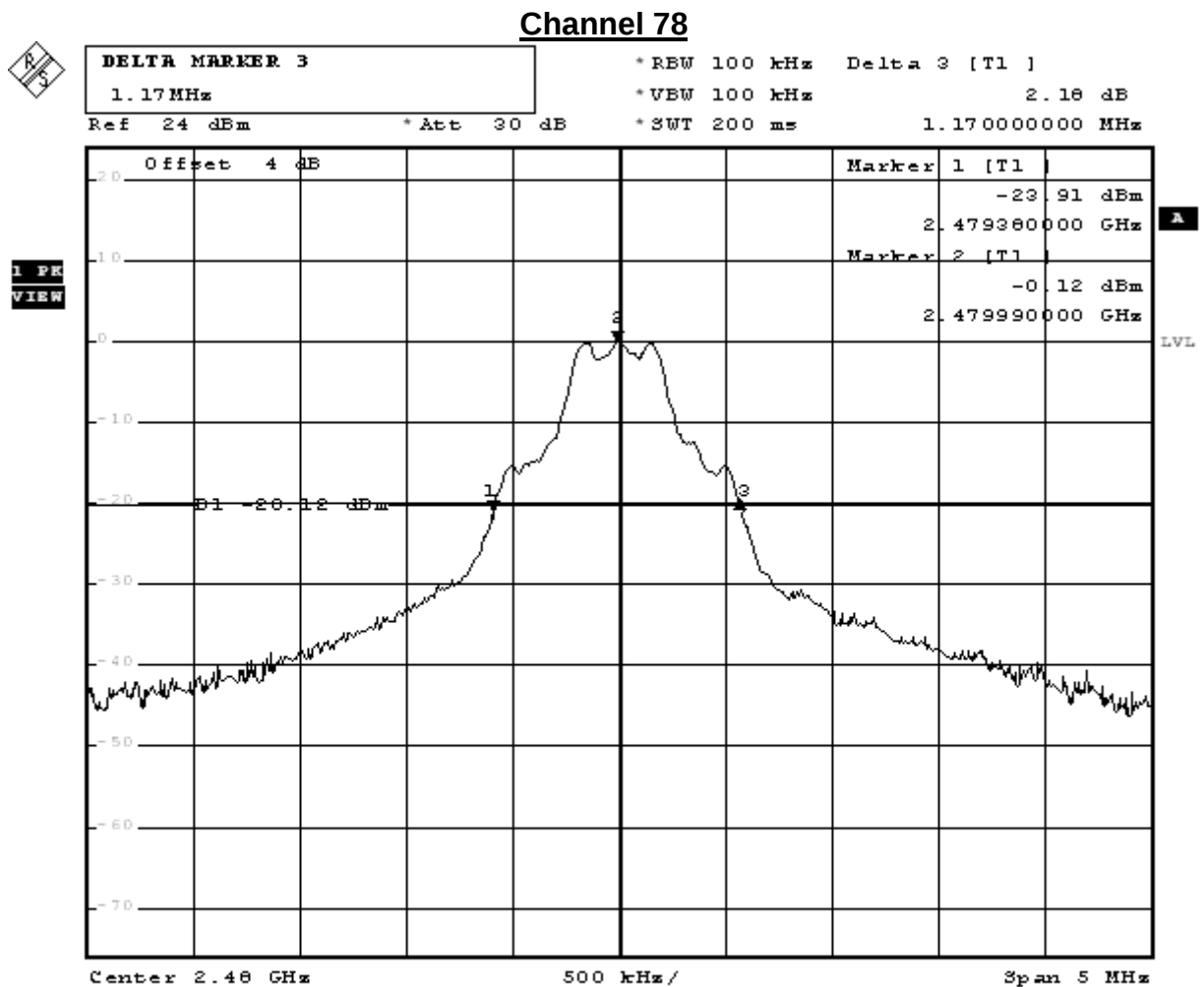


Date: 26.AUG.2009 15:36:27

Product	PersonalMate GPS		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

1M-GFSK Modulation, PRBS Packet Type

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
78	2480.00	1.17	--	Pass



Date: 26.AUG.2009 15:37:27

10. Dwell Time

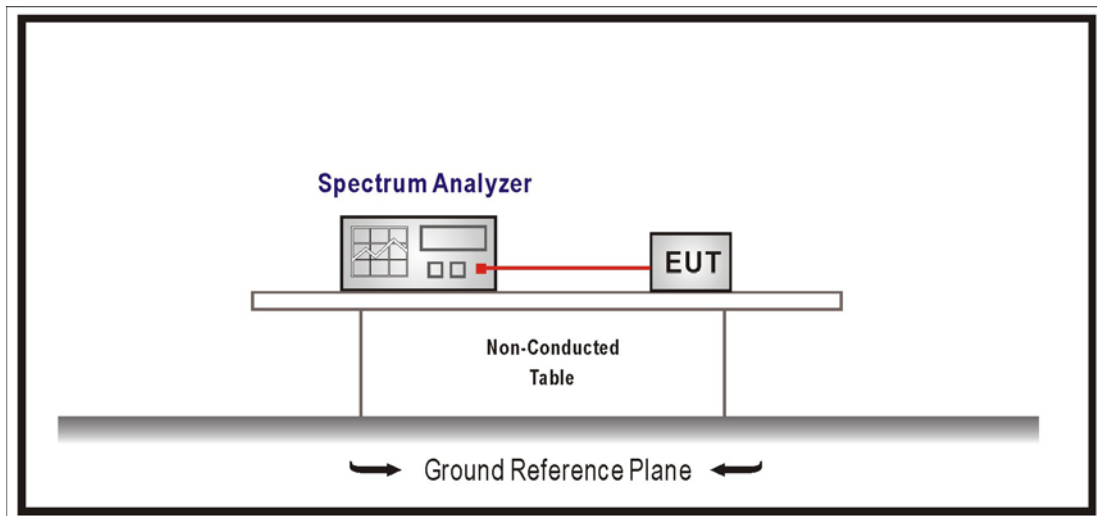
10.1. Test Equipment

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	Jan., 2009
2	No.1 OATS			Sep., 2008

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

10.2. Test Setup



10.3. 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.

10.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = zero span, centered on a hopping channel

RBW = 1 MHz, VBW $\geq$ RBW

Sweep = as necessary to capture the entire dwell time per hopping channel

Detector function = peak, Trace = max hold

10.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2008

10.6. Test Result

Product	PersonalMate GPS		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit		
Date of Test	2009/08/27	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System-DH 5

A) 2402MHz Test Time Period: $0.4 \times 79 = 31.6\text{sec}$, Hopping Times Within 1sec: $5/20\text{msec} = 250 / \text{sec}$

The Maximum Occupancy Time Within 0.00304sec: $0.00304 \times (250/79) \times 31.6 = 0.304\text{sec}$.

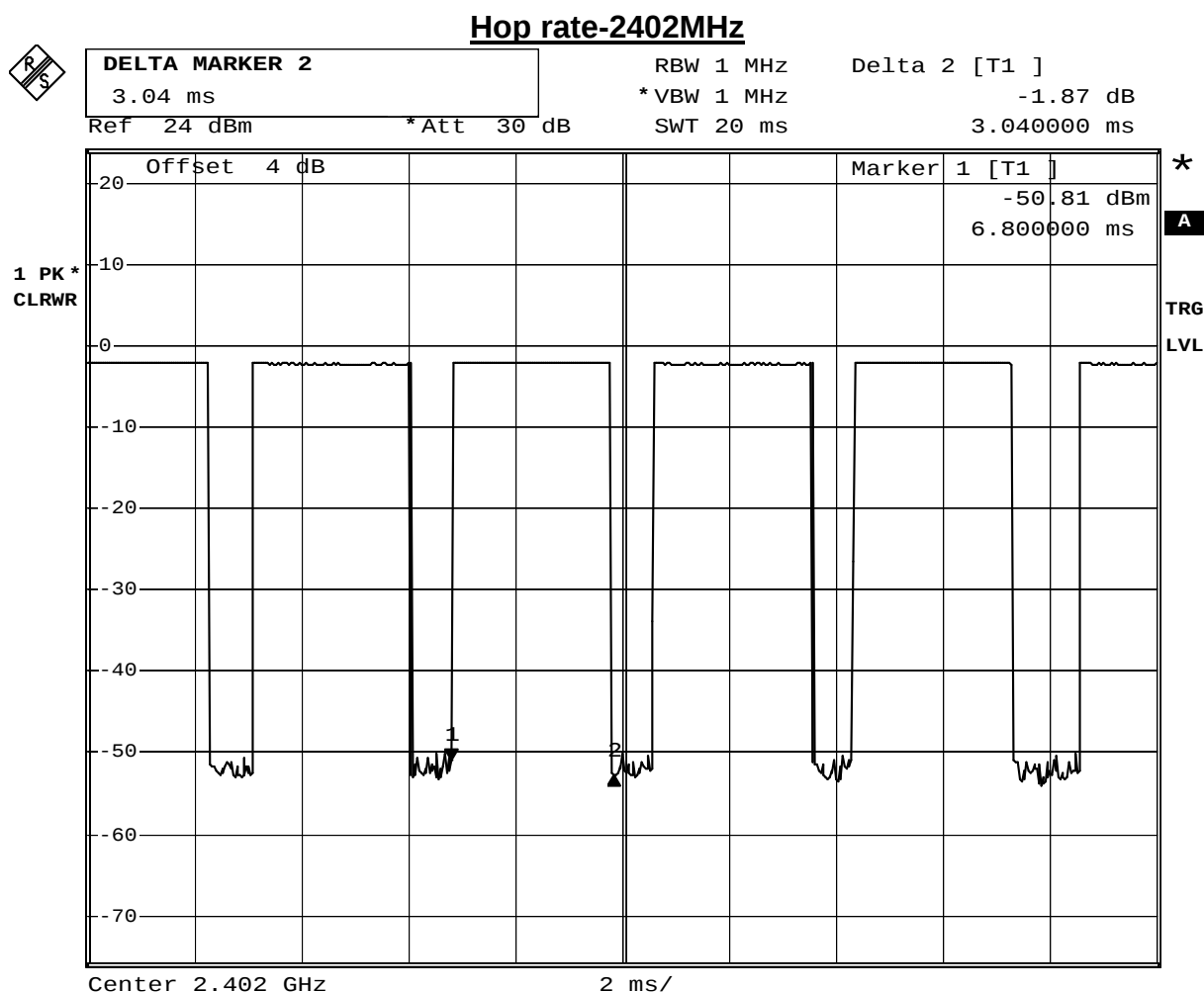
B) 2441MHz Test Time Period: $0.4 \times 79 = 31.6\text{sec}$, Hopping Times Within 1sec: $5/20\text{msec} = 250 / \text{sec}$

The Maximum Occupancy Time Within 0.00308sec: $0.00308 \times (250/79) \times 31.6 = 0.308\text{sec}$.

C) 2480MHz Test Time Period: $0.4 \times 79 = 31.6\text{sec}$, Hopping Times Within 1sec: $5/20\text{msec} = 250 / \text{sec}$

The Maximum Occupancy Time Within 0.00312sec: $0.00312 \times (250/79) \times 31.6 = 0.312\text{sec}$.

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



Date: 26.AUG.2009 16:36:58

Hop rate-2441MHz



DELTA MARKER 2

3.08 ms

RBW 1 MHz

Delta 2 [T1]

*VBW 1 MHz

0.39 dB

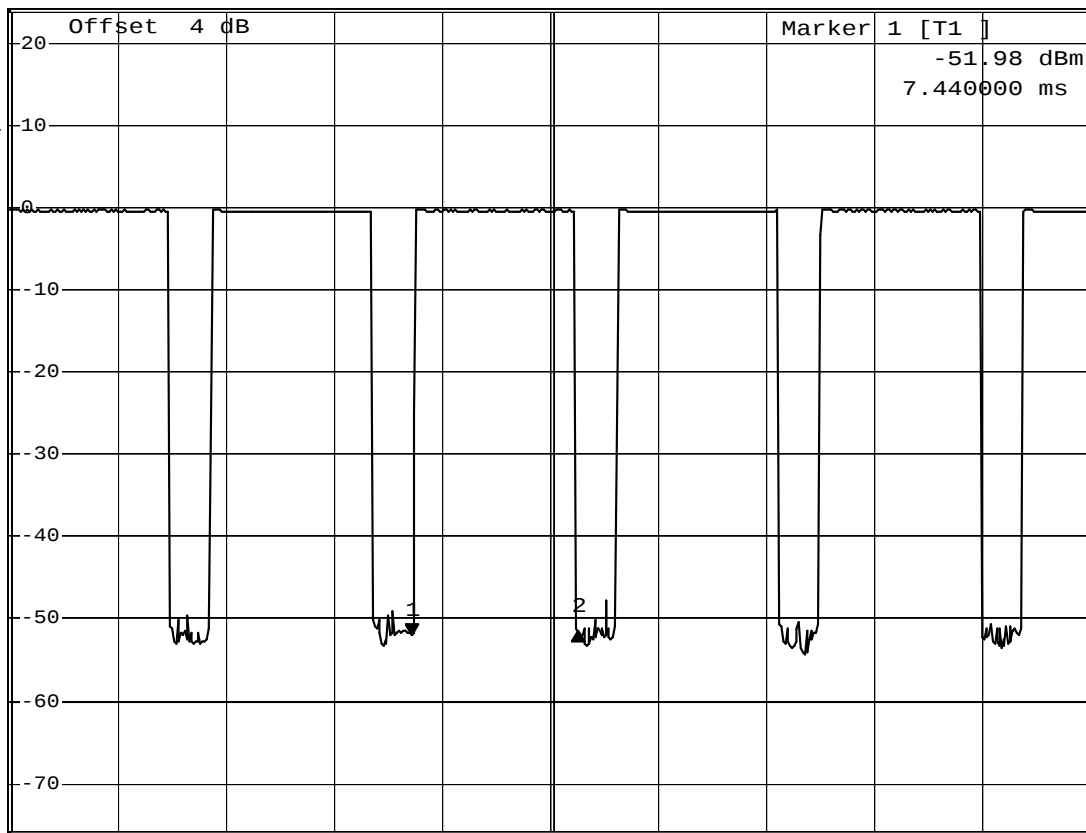
Ref 24 dBm

*Att 30 dB

SWT 20 ms

3.080000 ms

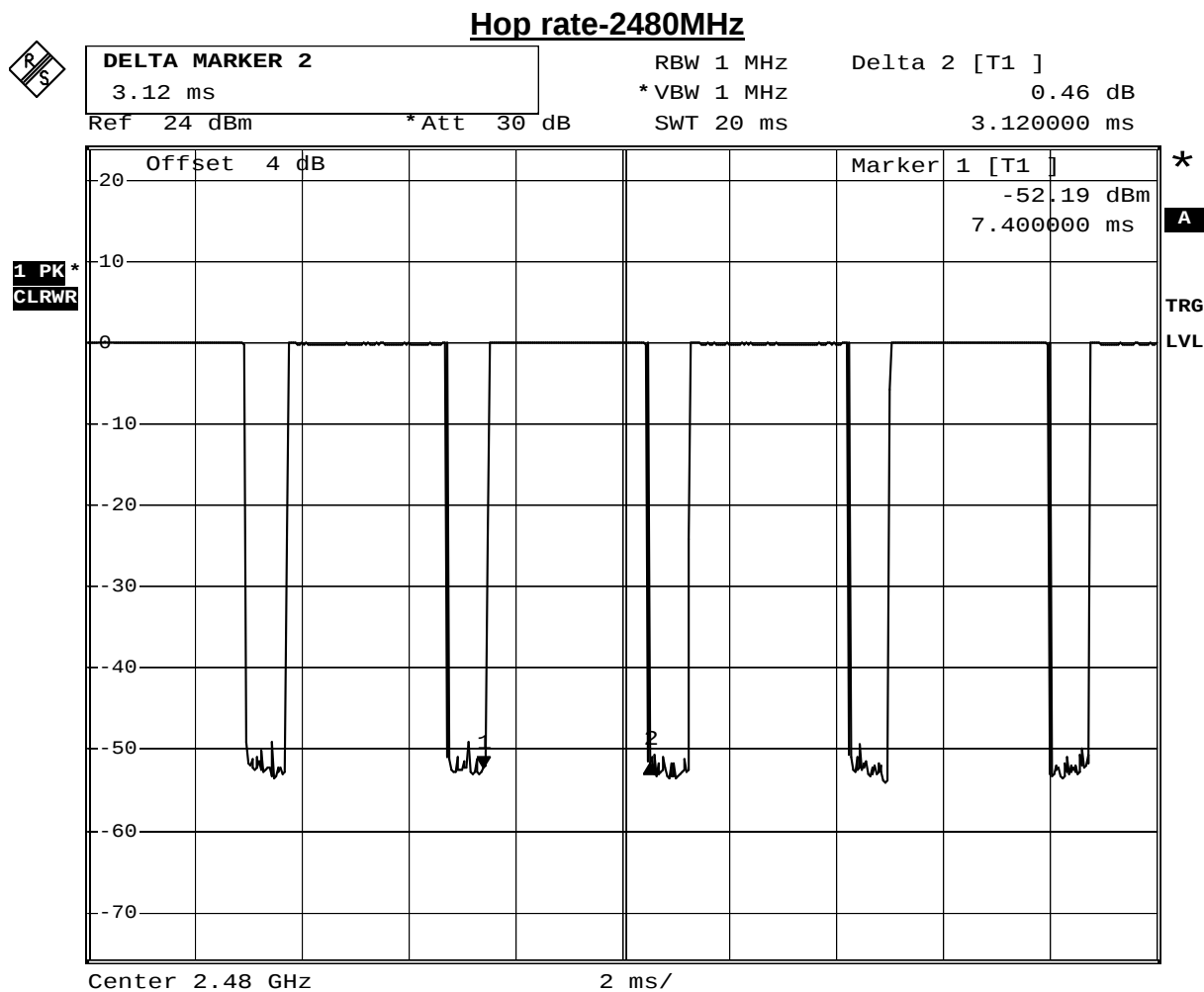
1 PK*
CLRWR



Center 2.441 GHz

2 ms/

Date: 26.AUG.2009 16:39:27



Date: 26.AUG.2009 16:41:59

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