



## Test Report

Product Name	Traveler 900
Model No.	GM-070026/T
FCC ID	FSUGMZIF

Applicant	KYE SYSTEMS CORP. (Genius)
Address	No. 492, Sec. 5, Chung Hsin Rd., San Chung, Taipei Hsien, 24160, Taiwan, R. O. C.

Date of Receipt	Mar. 21, 2008
Issued Date	May 29, 2008
Report No.	083326R-RFUSP07V01
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.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

# Test Report Certification

Issued Date: May 29, 2008

Report No.: 083326R-RFUSP07V01



Product Name	Traveler 900
Applicant	KYE SYSTEMS CORP. (Genius)
Address	No. 492, Sec. 5, Chung Hsin Rd., San Chung, Taipei Hsien, 24160, Taiwan, R. O. C.
Manufacturer	KYE SYSTEMS CORP. (Genius)
Model No.	GM-070026/T
Rated Voltage	DC 3V(Power by battery)
Working Voltage	DC 3V(Power by battery)
Trade Name	Genius
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2007 ANSI C63.4: 2003
Test Result	Complied



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( Deputy Manager / Vincent Lin)

Testing Laboratory  
0914

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## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Traveler 900
Trade Name	Genius
Model No.	GM-070026/T
FCC ID	FSUGMZIF
Frequency Range	2402~2480MHz
Channel Control	Auto
Channel Separation	3MHz
Antenna Gain	-3dBi
Channel Number	27
Type of Modulation	GFSK
Antenna Type	Printed on PCB

#### Frequency of Each Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2402 MHz	Channel 08:	2423 MHz	Channel 15:	2444 MHz	Channel 22:	2465 MHz
Channel 02:	2405 MHz	Channel 09:	2426 MHz	Channel 16:	2447 MHz	Channel 23:	2468 MHz
Channel 03:	2408 MHz	Channel 10:	2429 MHz	Channel 17:	2450 MHz	Channel 24:	2471 MHz
Channel 04:	2411 MHz	Channel 11:	2432 MHz	Channel 18:	2453 MHz	Channel 25:	2474 MHz
Channel 05:	2414 MHz	Channel 12:	2435 MHz	Channel 19:	2456 MHz	Channel 26:	2477 MHz
Channel 06:	2417 MHz	Channel 13:	2438 MHz	Channel 20:	2459 MHz	Channel 27:	2480 MHz
Channel 07:	2420 MHz	Channel 14:	2441 MHz	Channel 21:	2462 MHz		

#### Note:

1. The EUT is a Traveler 900 with a built-in 2.4GHz transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
4. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249 for spread spectrum devices.
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

## 1.2. Operational Description

The EUT is 2.4GHz Wireless Mouse built-in 2.4GHz transceiver. The operation frequency is from 2402 MHz to 2480MHz with GFSK modulation. The signal will be transmitted through 2.4 GHz RF signal from the Printed on PCB antenna. DC 3V shall be provided for EUT operation.

Test Mode	Mode 1: Transmitter
-----------	---------------------

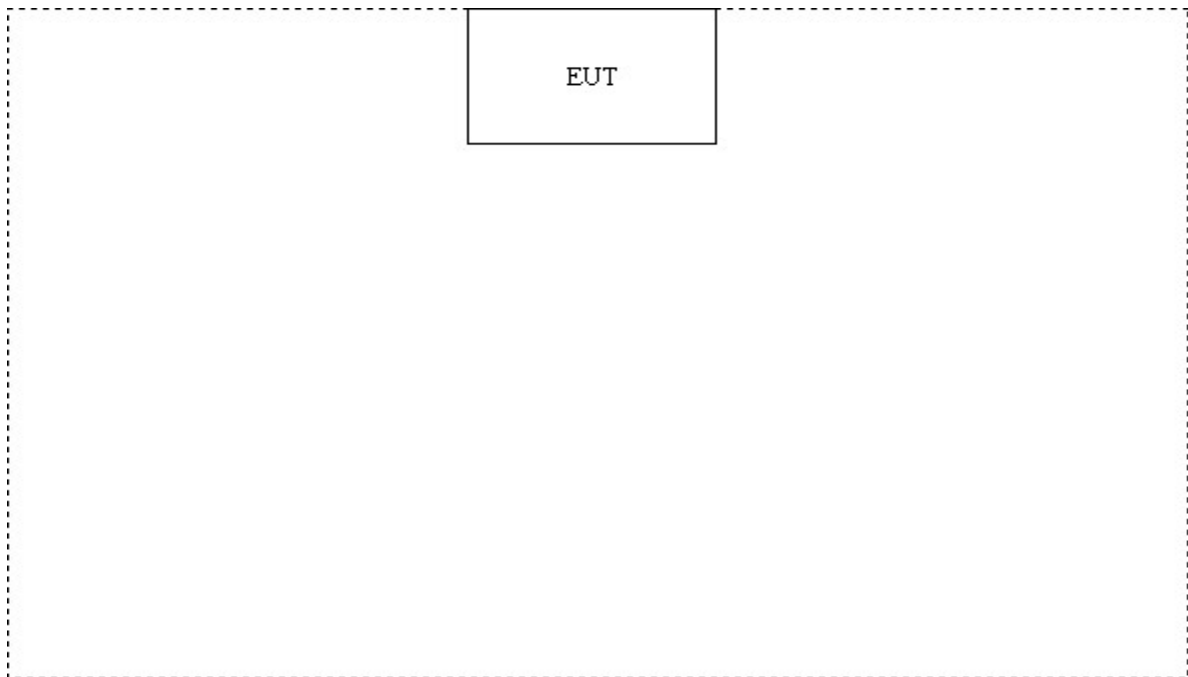
### 1.3. Tested System Details

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

Product	Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A

Signal Cable Type	Signal cable Description
A	N/A

### 1.4. Configuration of Test System



### 1.5. EUT Exercise Software

1	Setup the EUT as shown on 1.4.
2	Turn on the power for EUT.
3	The EUT to enter RF test mode.
4	The EUT will continuously receiver the radio signal.
5	Repeat the above procedure (3) to (4)

**1.6. Test Facility**

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description: File on  
 Federal Communications Commission  
 FCC Engineering Laboratory  
 7435 Oakland Mills Road  
 Columbia, MD 21046  
 Registration Number: 92195



Accreditation on NVLAP  
 NVLAP Lab Code: 200533-0



Site Name: Quietek Corporation

Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,  
 Lin-Kou Shiang, Taipei,  
 Taiwan, R.O.C.  
 TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789  
 E-Mail : [service@quietek.com](mailto:service@quietek.com)

FCC Accreditation Number: TW1014



## 2. Radiated Emission

### 2.1. Test Equipment

The following test equipment are used during the radiated emission test:

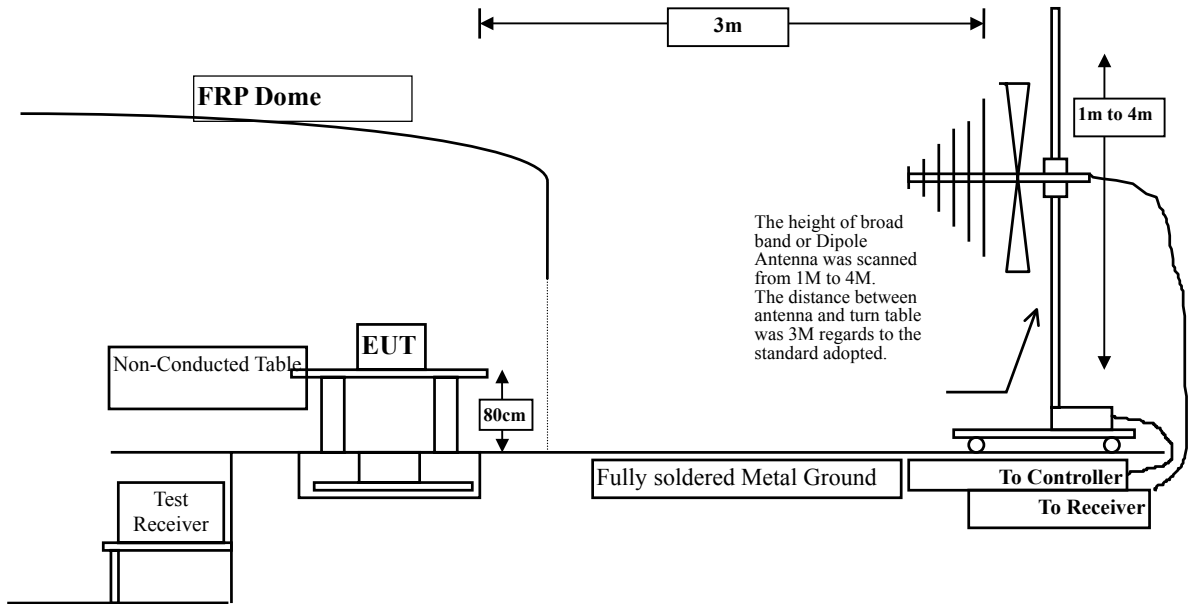
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
<input type="checkbox"/> Site # 1		Test Receiver	R & S	ESVS 10 / 834468/003	May, 2008
		Spectrum Analyzer	Advantest	R3162/ 00803480	May, 2008
		Pre-Amplifier	Advantest	BB525C/ 3307A01812	May, 2008
		Bilog Antenna	SCHAFFNER	CBL6112B / 2697	Sep., 2007
<input type="checkbox"/> Site # 2		Test Receiver	R & S	ESCS 30 / 836858 / 022	May, 2008
		Spectrum Analyzer	Advantest	R3162 / 100803466	May, 2008
		Pre-Amplifier	Advantest	BB525C/3307A01814	May, 2008
		Bilog Antenna	SCHAFFNER	CBL6112B / 2705	May, 2007
		Horn Antenna	ETS	3115 / 0005-6160	Sep., 2007
		Pre-Amplifier	QTK	QTK-AMP-01/ 0001	May, 2008
<input checked="" type="checkbox"/> Site # 3	X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2008
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2007
	X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2007
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2007
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2008
	X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2007

- Note:
1. All equipments are calibrated every one year.
  2. Test equipments marked by "X" are used to measure the final test results.

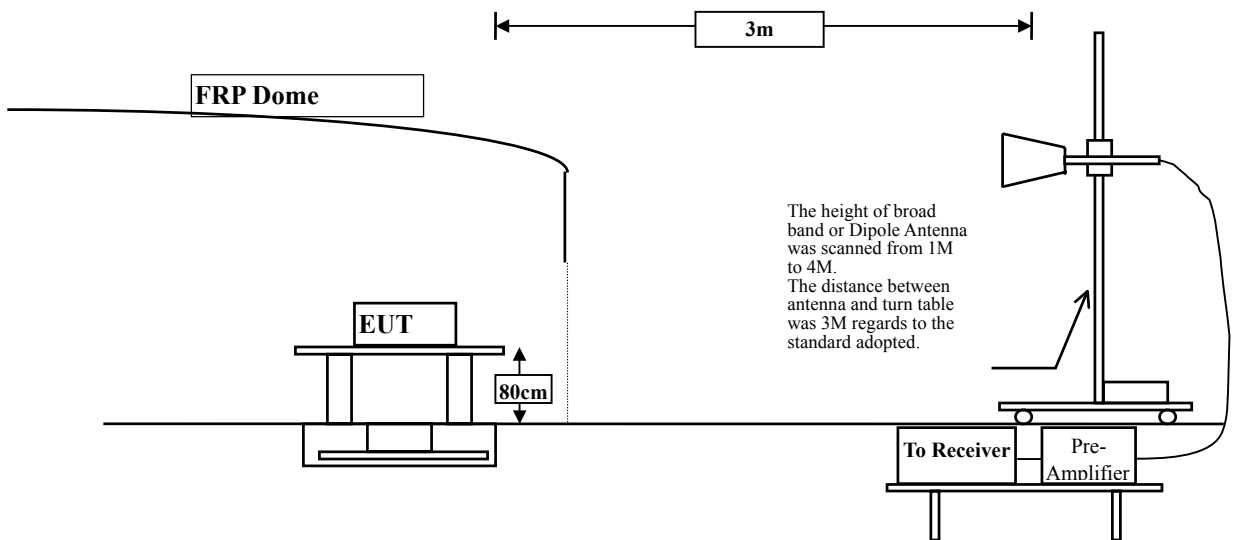


## 2.2. Test Setup

### Radiated Emission Below 1GHz



### Radiated Emission Above 1GHz



**2.3. Limits**

➤ **General Radiated Emission 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.

<b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b>		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

**2.4. Test Procedure**

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.249 requirements. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2003 on radiated measurement. The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz. Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas. The measurement is divided into the Preliminary Measurement and the Final Measurement. The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna. The worst radiated emission is measured on the Final Measurement. The frequency range from is checked.

## 2.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

**2.6. Test Result of Radiated Emission**

Product : Traveler 900  
 Test Item : Fundamental Radiated Emission  
 Test Site : No.3OATS  
 Test Mode : Mode 1: Transmitter (2402MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
Channel 01					
2402.000	-2.318	81.460	79.142	-34.858	114.000
<b>Average Detector</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
Channel 01					
2402.000	-2.318	88.230	85.912	-28.088	114.000
<b>Average Detector</b>					
--					

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.

Product : Traveler 900  
 Test Item : Fundamental Radiated Emission  
 Test Site : No.3OATS  
 Test Mode : Mode 1: Transmitter (2447MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
Channel 16					
2447.000	-2.096	81.180	79.083	-34.917	114.000
<b>Average Detector</b>					
2447.000	-2.096	62.980	60.884	-33.116	94.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
Channel 16					
2447.000	-2.096	88.830	86.733	-27.267	114.000
<b>Average Detector</b>					
2447.000	-2.096	70.030	67.934	-26.066	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.

Product : Traveler 900  
 Test Item : Fundamental Radiated Emission  
 Test Site : No.3OATS  
 Test Mode : Mode 1: Transmitter (2480MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
Channel 27					
2480.000	-1.952	82.180	80.229	-33.771	114.000
<b>Average Detector</b>					
2480.000	-1.952	62.980	61.028	-32.972	94.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
Channel 27					
2480.000	-1.952	89.300	87.349	-26.651	114.000
<b>Average Detector</b>					
2480.000	-1.952	70.100	68.148	-25.852	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.

Product : Traveler 900  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2402MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dBuV/m
	dB	dBuV	dBuV/m		

**Horizontal**

**Peak Detector:**

4804.000	3.663	53.050	56.713	-17.257	74.000
7206.000	9.357	45.910	55.266	-18.704	74.000
9608.000	11.842	36.200	48.042	-25.928	74.000

**Average Detector:**

--

**Vertical**

**Peak Detector:**

4804.000	3.663	53.940	57.603	-16.367	74.000
7206.000	9.357	48.920	58.276	-15.694	74.000
9608.000	11.842	36.130	47.972	-25.998	74.000

**Average Detector:**

--

**Note:**

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:10MHz ◦
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:10MHz ◦
4. Emission Level = Reading Level + Correct Factor.
5. 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 : Traveler 900  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2447 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4894.000	3.972	52.300	56.273	-17.697	74.000
7341.000	9.715	41.780	51.494	-22.476	74.000
9788.000	11.795	36.400	48.194	-25.776	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4894.000	3.972	53.020	56.993	-16.977	74.000
7341.000	9.715	44.790	54.504	-19.466	74.000
9788.000	11.795	36.960	48.754	-25.216	74.000

**Average Detector:**

--

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:10MHz ◦
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:10MHz ◦
4. Emission Level = Reading Level + Correct Factor.
5. 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 : Traveler 900  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2480 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dBuV/m
	dB	dBuV	dBuV/m		

**Horizontal**

**Peak Detector:**

4960.000	4.197	51.460	55.656	-18.314	74.000
7440.000	9.951	40.230	50.181	-23.789	74.000
9920.000	11.856	35.820	47.676	-26.294	74.000

**Average Detector:**

**Vertical**

**Peak Detector:**

4960.000	1.553	58.960	60.513	-13.457	74.000
7440.000	5.714	49.060	54.774	-19.196	74.000
9920.000	8.878	41.470	50.348	-23.622	74.000

**Average Detector:**

--

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:10MHz ◦
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:10MHz ◦
4. Emission Level = Reading Level + Correct Factor.
5. 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 : Traveler 900  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (2447 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
377.260	15.837	5.449	21.286	-24.714	46.000
544.100	19.945	8.010	27.955	-18.045	46.000
745.860	20.804	6.225	27.029	-18.971	46.000
827.340	21.877	6.075	27.952	-18.048	46.000
858.380	22.391	6.440	28.831	-17.169	46.000
967.020	23.439	5.547	28.986	-25.014	54.000
<b>Vertical</b>					
544.100	20.532	4.438	24.970	-21.030	46.000
687.660	20.424	3.308	23.732	-22.268	46.000
773.020	22.593	3.358	25.951	-20.049	46.000
840.920	21.405	4.857	26.262	-19.738	46.000
903.000	23.661	2.330	25.991	-20.009	46.000
968.960	22.949	7.308	30.257	-23.743	54.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

### 3. Band Edge

#### 3.1. Test Equipment

The following test equipments are used during the band edge tests:

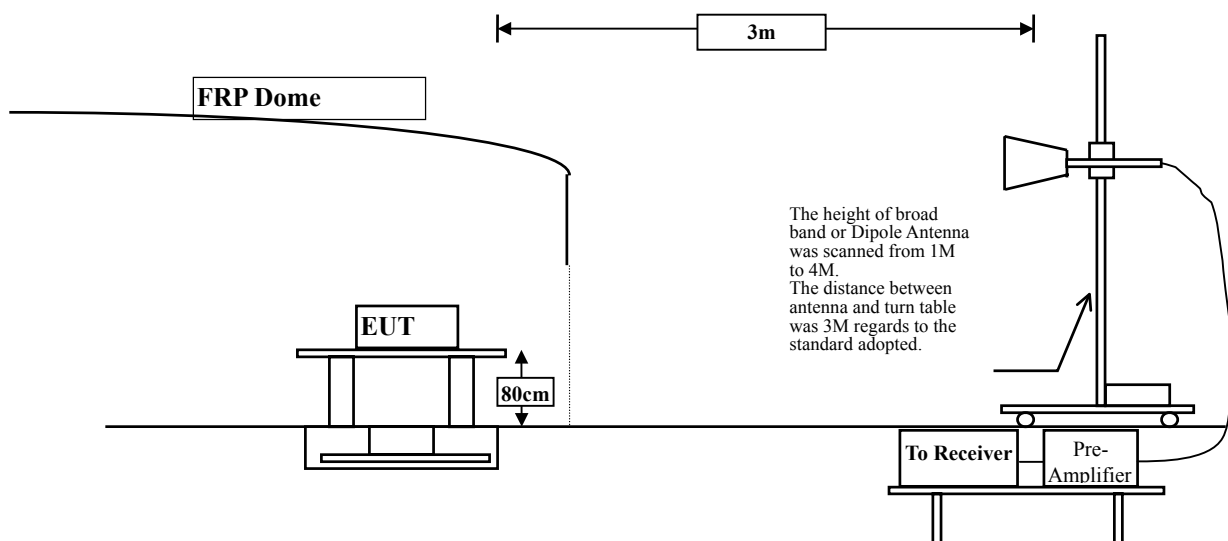
Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI 26 / 838786/004	May, 2008
X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2008
X Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2007
X Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2007
X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2007
X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2008
X Pre-Amplifier	HP	8449B / 3008A01123	July, 2007

Test Site: Site3

- Note:
1. All equipments are calibrated every one year.
  2. The test equipments marked by "X" are used to measure the final test results.

#### 3.2. Test Setup

##### RF Radiated Measurement:



### 3.3. 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)).

### 3.4. 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 setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

### 3.5. Uncertainty

Conducted is  $\pm 1.27$  dB

Radiated is  $\pm 3.9$  dB

### 3.6. Test Result of Band Edge

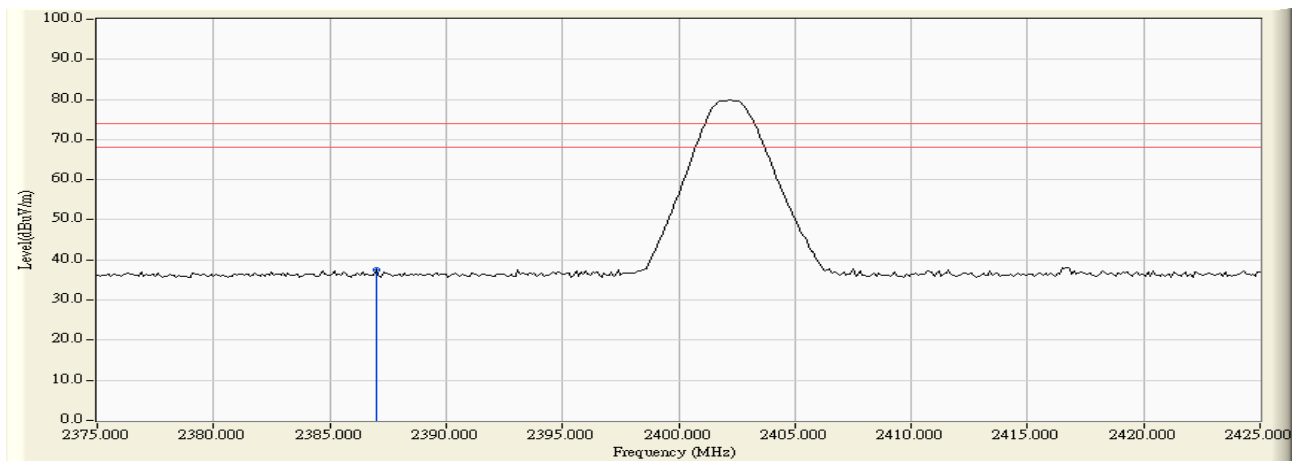
Product : Traveler 900  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter

#### RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2387.000	-2.392	40.038	37.646	74.00	54.00	Pass
01(Average)	--	--	--	--	74.00	54.00	Pass

Figure Channel 01:

Horizontal (Peak)



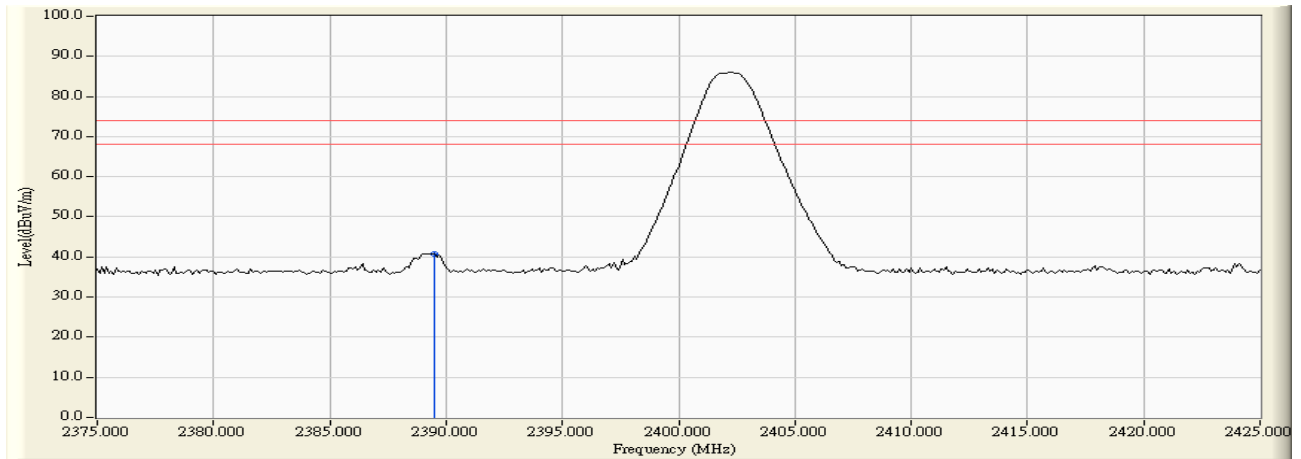
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Traveler 900  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter

**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2389.500	-2.379	43.175	40.795	74.00	54.00	Pass
01(Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 01: Vertical (Peak)**



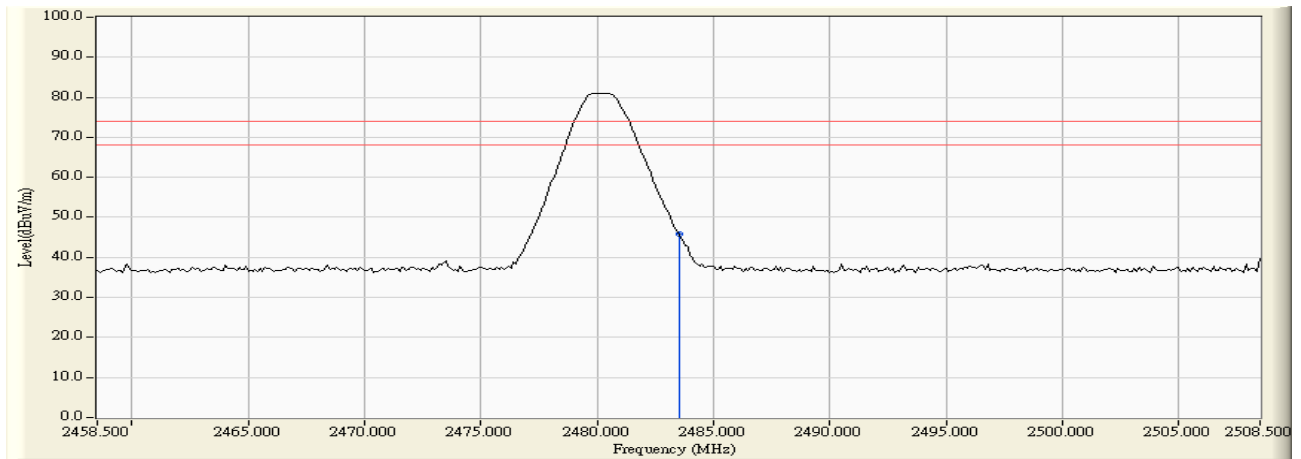
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Traveler 900  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter

**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
79(Peak)	2483.500	-1.937	47.896	45.959	74.00	54.00	Pass
79(Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 79: Horizontal (Peak)**



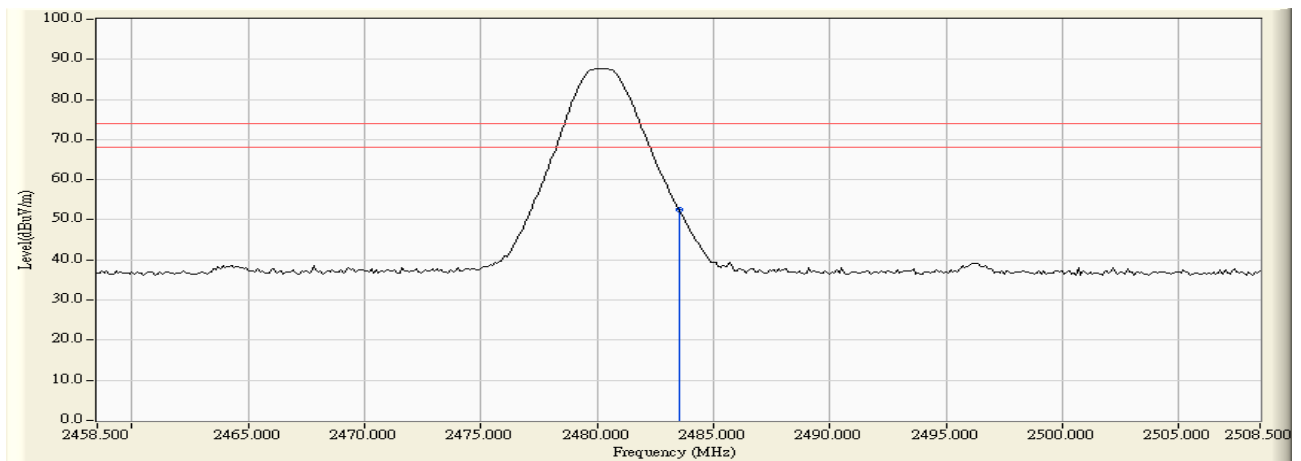
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Traveler 900  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter

**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
79(Peak)	2483.500	-1.937	54.447	52.510	74.00	54.00	Pass
79(Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 79: Vertical (Peak)**



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms



#### 4. EMI Reduction Method During Compliance Testing

No modification was made during testing.