ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

Product Name:	**Sentry**
Brand Name:	**FaceVACS®**
Model Name:	**FVS20220M, FVS2021M**
Model Differences:	**Different models for different market place**
FCC ID:	**VWBFVS20220M**
Report No.:	**ER/2007/A0016**
Issue Date:	**Jan. 07, 2008**
FCC Rule Part:	**§15.225**
Prepared for:	**Internet Web Technology Limited** **2503 Skyline Tower, 39 Wang Kwong Road, Kowloon Bay, Hong Kong**
Prepared by:	**SGS Taiwan Ltd.** **No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.**

ilac-MRA TAF Testing Laboratory 0513

VERIFICATION OF COMPLIANCE

Applicant:	Internet Web Technology Limited 2503 Skyline Tower, 39 Wang Kwong Road, Kowloon Bay, Hong Kong
Product Name:	Sentry
FCC ID:	VWBFVS20220M
Brand Name:	FaceVACS®
Model No.:	FVS20220M, FVS2021M
Model Difference:	Different models for different market place
File Number:	ER/2007/A0016
Date of Test:	Dec. 05, 2007 ~ Jan. 03, 2008
Date of EUT Received:	Dec. 05, 2007

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.225

The test results of this report relate only to the tested sample identified in this report.

Test By:	Jazz Huang	*Date*	Jan. 07, 2008
	Jazz Huang/Engineer		
Prepared By:	Elisa Chen	*Date*	Jan. 07, 2008
	Elisa Chen/Asst. Supervisor		
Approved By	Vincent Su	*Date*	Jan. 07, 2008
	Vincent Su/Manager		

Version

Version No.	Date
00	Jan. 07, 2008

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GENERAL INFORMATION

1.1 Product Description

The Internet Web Technology Limited Model: FVS20220M, FVS2021M (referred to as the EUT in this report) The EUT is an short range, lower power, RF ID system.

A major technical descriptions of EUT is described as following:
A). Operation Frequency: 13.56MHz, one channel.
B). Modulation : Frequency Shifting Key (FSK) Modulation
C). Antenna Designation: Non-User Replaceable (Fixed)
D). Power Supply: 110 Vac

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **VWBFVS20220M** filing to comply with Section 15.225 of the FCC Part 15, Subpart C Rules. The composite system (digital device) is compliance with Subpart B is authorized under a DoC procedure.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of SGS Taiwan Ltd. No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 and CISPR 22/EN 55022 requirements. Site No. 1(3 &10 meters) Registration Number: 94644, Both OATS and Anechoic chamber (3 meters) was accredited by TAF (0513). Canada Registration Number: 4620A-1

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

1. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. the Tx frequency was fixed which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2003.

2.4 Limitation

(1) Conducted Emission

According to section 15.207(a) Conducted Emission Limits is as following.

Frequency range MHz	Limits dB (uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

(2) Radiated Emission

a. The field strength of any emission within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
b. Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
c. Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
d. The field strength of any emissions appearing outside of the 13.110-14.010 MHz shall not exceed the general radiated emission limits in section 15.209(Intentional Radiators general limit).as below.

Frequency (MHz)	Field strength μV/m	Distance (m)	Field strength at 3m dBμV/m
1.705-30	30	30	69.54
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205
4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.209 apply.

(3) Frequency Tolerance

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

2.5 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

Table 2-1 Equipment Used in Tested System

Equipment	Mfr/Brand	Model/ Type No.	FCC ID	Series No.
N/A				

2. Summary Of Test Results

FCC Rules	Description Of Test	Result
§15.207	Conducted Emission	Compliant
§15.225 (a), (d)	Radiated Emission	Compliant
§15.225 (b), (c)	26 dB Bandwidth	Compliant
§15.225 (e)	Frequency Stability	Compliant

3. Description of test modes

The EUT stay in continuous transmitting mode. The frequency 13.56 MHz is chosen for radiated emission testing.

4. Conducted Emissions Test

5.1 Measurement Procedure:

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)

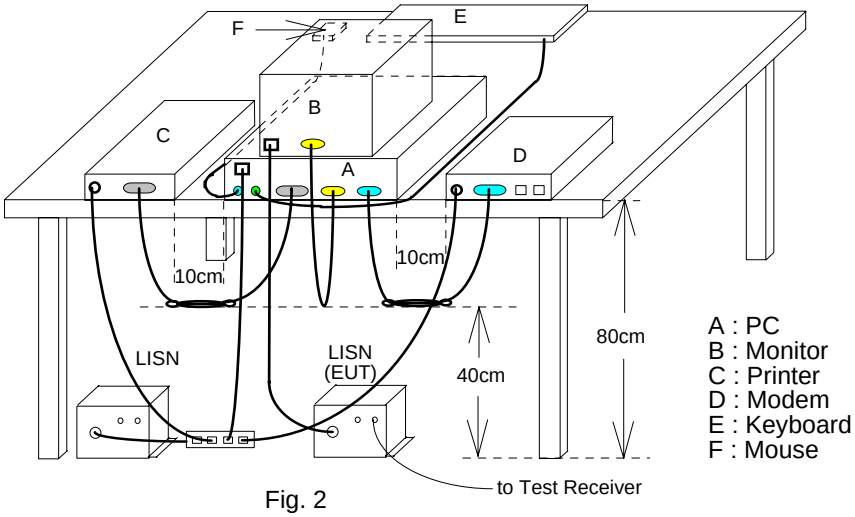


Fig. 2

5.3 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMC Analyzer	HP	8594EM	3624A00203	09/02/2007	09/03/2008
EMI Test Receiver	R&S	ESCS30	828985/004	06/09/2007	06/10/2008
Transient Limiter	HP	11947A	3107A02062	09/02/2007	09/03/2008
LISN	Rolf-Heine	NNB-2/16Z	99012	12/31/2006	12/30/2007
LISN	Rolf-Heine	NNB-2/16Z	99013	01/10/2007	01/09/2008
Coaxial Cables	FCC	FCC-LISN-50/250-25-2-01	04034	01/11/2007	01/10/2008

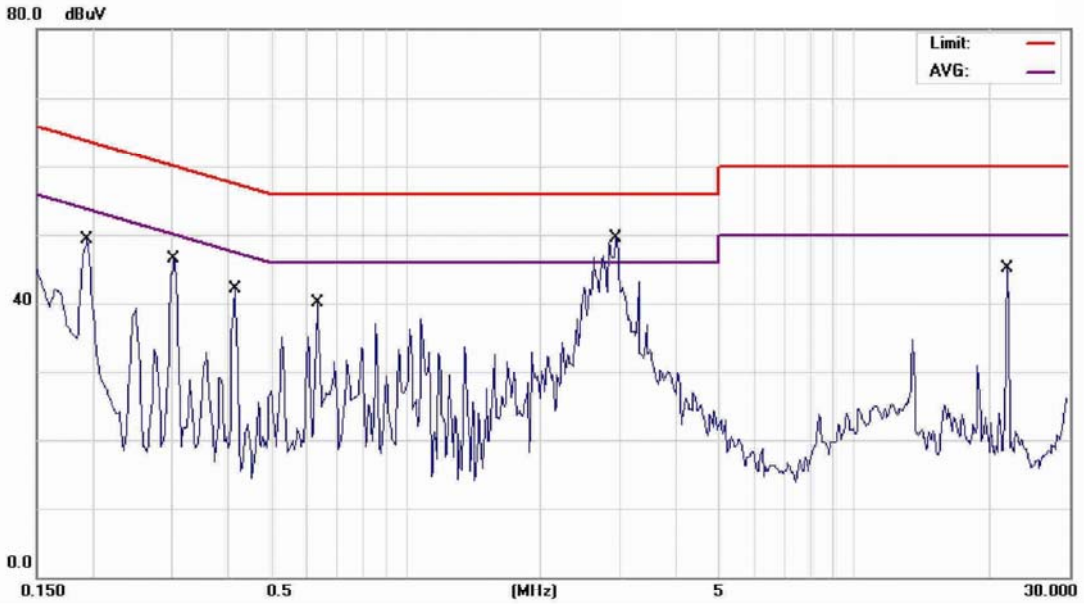
5.4 Measurement Result:

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peak.

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation Mode			Test Date:	Jan. 03, 2008
Temperature:	25 ℃	Humidity:	59 %	Test By:	Bondi

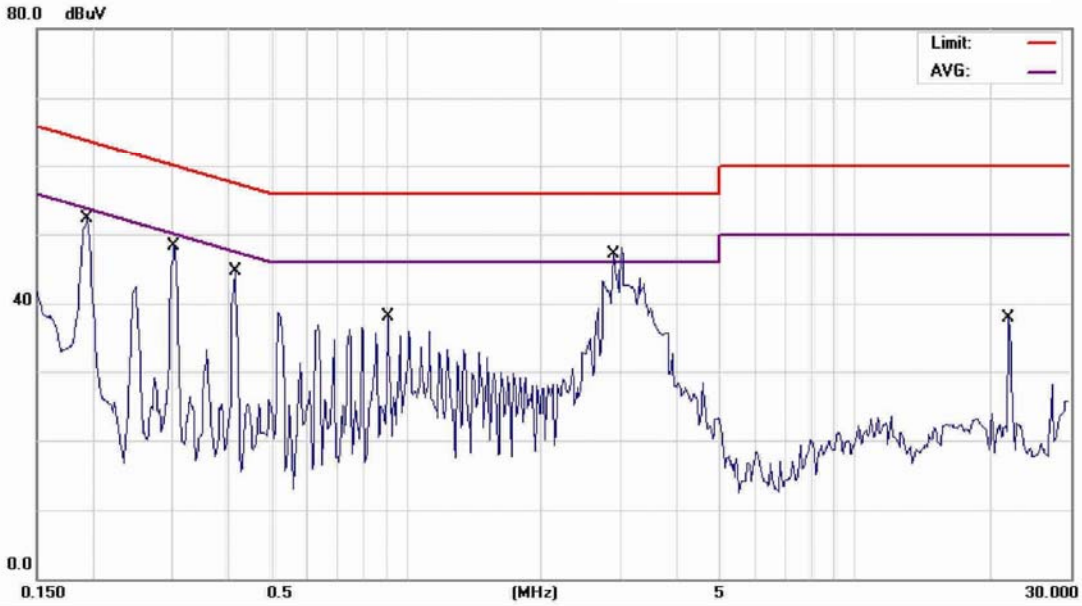
Conducted Emission Measurement



Site SGS CONDUCTED #1 Phase: L1 Temperature: 25 ℃
Limit: CISPR22 Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 59 %
EUT: Sentry
M/N: FVS20220M
Note: Normal Operation , Ping IP

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1945	49.14	0.15	49.29	63.84	-14.55	QP	
2		0.3035	46.44	0.02	46.46	60.15	-13.69	QP	
3		0.4148	42.06	0.02	42.08	57.55	-15.47	QP	
4		0.6338	40.03	0.02	40.05	56.00	-15.95	QP	
5		2.9536	44.52	0.06	44.58	56.00	-11.42	QP	
6	*	2.9536	38.45	0.06	38.51	46.00	-7.49	AVG	
7		22.0628	44.66	0.38	45.04	60.00	-14.96	QP	

Conducted Emission Measurement



Site SGS CONDUCTED #1 Phase: N Temperature: 25 ℃
Limit: CISPR22 Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 59 %
EUT: Sentry
M/N: FVS20220M
Note: Normal Operation , Ping IP

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1945	52.20	0.02	52.22	63.84	-11.62	QP	
2		0.3035	48.22	0.02	48.24	60.15	-11.91	QP	
3		0.4148	44.75	0.02	44.77	57.55	-12.78	QP	
4		0.9087	38.07	0.01	38.08	56.00	-17.92	QP	
5		2.9010	44.66	0.05	44.71	56.00	-11.29	QP	
6	*	2.9010	40.57	0.05	40.62	46.00	-5.38	AVG	
7		22.0628	37.51	0.38	37.89	60.00	-22.11	QP	

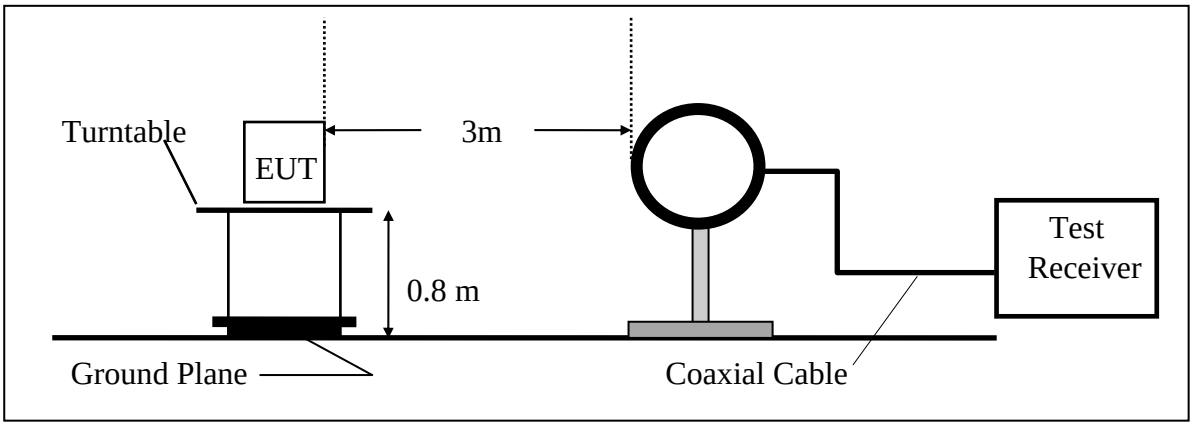
5. Radiated Emission Test

6.1 Measurement Procedure

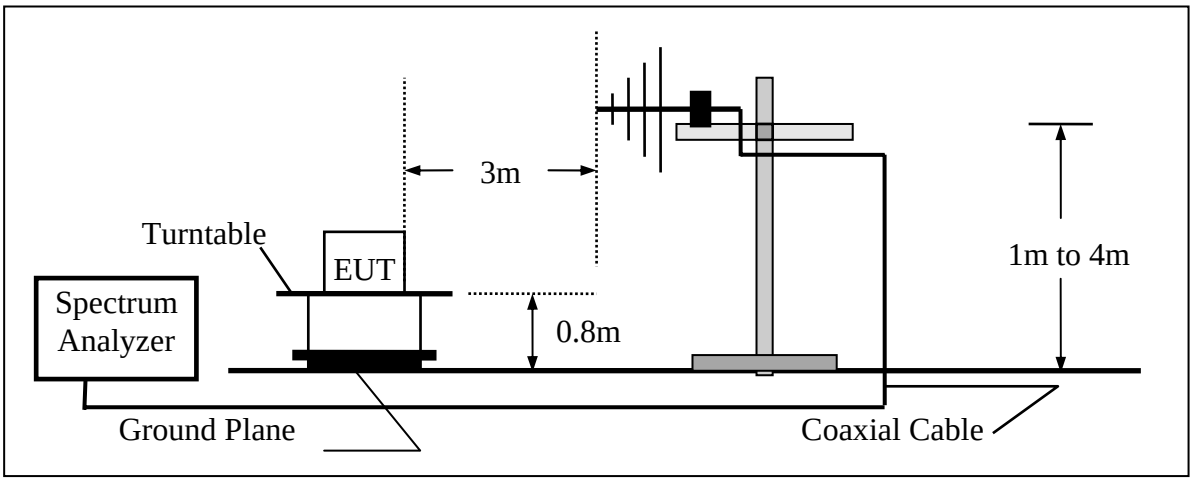
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

6.2 Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



6.3 Measurement Equipment Used:

966 Chamber					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/27/2007	04/27/2008
Spectrum Analyzer	R&S	FSP 40	100034	05/27/2007	05/26/2008
Spectrum Analyzer	Agilent	E7405A	US41160416	07/04/2007	07/03/2008
Loop Antenna	MESSTEC	FLA30	03/10086	06/06/2007	06/05/2009
Bilog Antenna	SCHWAZBECK	VULB9160	3224	11/14/2007	11/13/2008
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	12/14/2007	12/13/2008
Horn antenna	Schwarzbeck	BBHA 9170	184/185	12/13/2007	12/12/2008
Pre-Amplifier	HP	8447D	2944A09469	07/19/2007	07/18/2008
Pre-Amplifier	HP	8494B	3008A00578	02/26/2007	02/25/2008
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2007	10/08/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2007	10/08/2008
Site NSA	SGS	966 chamber	N/A	11/17/2007	11/16/2008

6.4 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

6.5 Measurement Result

Operation Mode:	Transmitting Mode	Test Date :	Sep. 31, 2007
Fundamental Frequency:	13.56 MHz	Test By:	Jason
Temperature :	25 ℃	Pol:	Vertical
Humidity :	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/AV/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit@3m (dBuV/m)	Safe Margin (dB)	Note
13.56	V	Peak	31.37	22.80	54.17	123.99	-69.82	F
27.12	V	Peak	--					
40.68	V	Peak	--					
54.24	V	Peak	--					
67.80	V	Peak	--					
81.36	V	Peak	--					
94.92	V	Peak	--					
108.48	V	Peak	--					
122.04	V	Peak	--					
135.60	V	Peak	--					
113.42	V	Peak	41.87	-14.13	27.74	43.50	-15.76	E
198.78	V	Peak	44.91	-14.69	30.22	43.50	-13.28	E
338.46	V	Peak	43.22	-10.90	32.32	46.00	-13.68	E
501.42	V	Peak	42.55	-7.65	34.90	46.00	-11.10	E
555.74	V	Peak	44.07	-6.52	37.55	46.00	-8.45	E
637.22	V	Peak	36.02	-4.78	31.24	46.00	-14.76	E

Remark：

(1) Measuring frequencies from 25 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 25 MHz to 1000MHz were made with an instrument using Peak detector mode.

(3) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.

(4) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) The IF bandwidth of SPA between 25MHz to 30MHz was 10KHz; 30MHz to 1GHz was 100KHz.

Operation Mode:	Transmitting Mode	Test Date :	Sep. 31, 2007
Fundamental Frequency:	13.56 MHz	Test By:	Jason
Temperature :	25 ℃	Pol:	Horizontal
Humidity :	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/AV/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit@3m (dBuV/m)	Safe Margin (dB)	Note
13.560	H	Peak	28.83	22.80	51.63	123.99	-72.36	F
27.12	H	Peak	--					
40.68	H	Peak	--					
54.24	H	Peak	--					
67.80	H	Peak	--					
81.36	H	Peak	--					
94.92	H	Peak	--					
108.48	H	Peak	--					
122.04	H	Peak	--					
135.60	H	Peak	--					
216.24	H	Peak	40.40	-14.47	25.93	46.00	-20.07	E
311.30	H	Peak	44.04	-11.46	32.58	46.00	-13.42	E
474.26	H	Peak	38.04	-8.06	29.98	46.00	-16.02	E
501.42	H	Peak	40.97	-7.65	33.32	46.00	-12.68	E
528.58	H	Peak	43.77	-7.11	36.66	46.00	-9.34	E
745.86	H	Peak	31.59	-2.49	29.10	46.00	-16.90	E

Remark：

(1) Measuring frequencies from 25 MHz to the 1GHz。

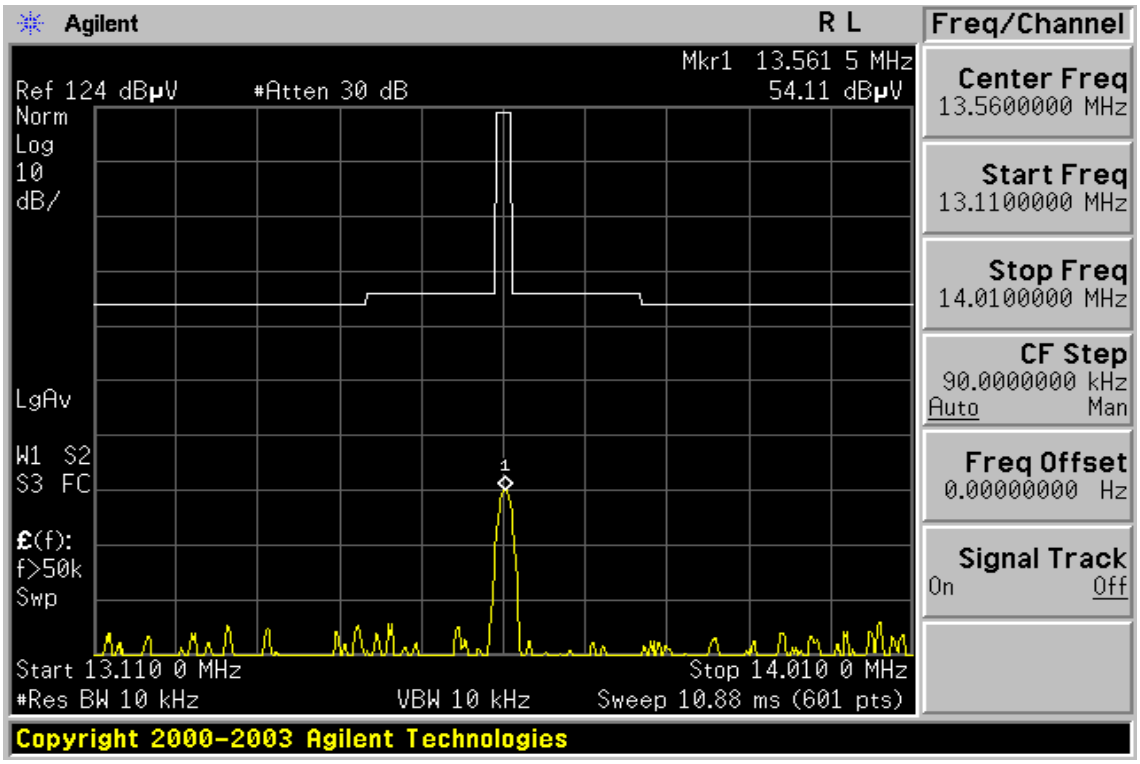
(2) Radiated emissions measured in frequency range from 25 MHz to 1000MHz were made with an instrument using Peak detector mode.

(3) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.

(4) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) The IF bandwidth of SPA between 25MHz to 30MHz was 10KHz; 30MHz to 1GHz was 100KHz.

Radiated Mask

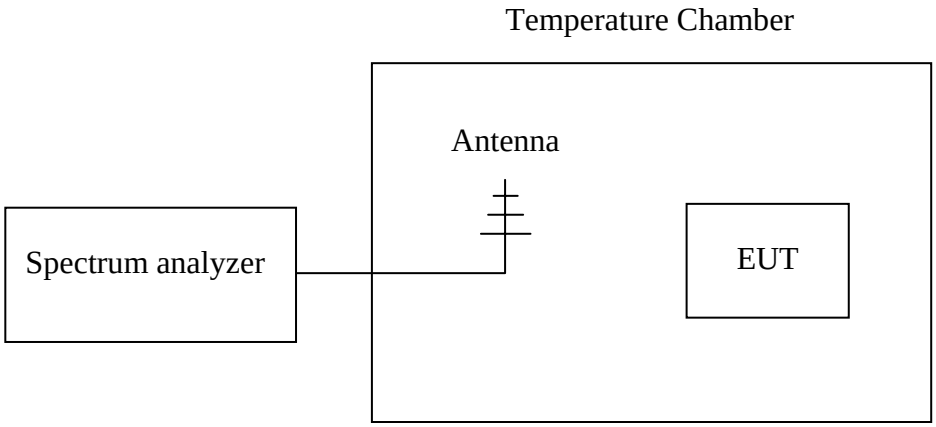


6. Frequency Tolerance

7.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation
3. Set SPA Center Frequency = fundamental frequency, RBW, VBW= 10kHz, Span =100kHz.
4. Set SPA Max hold. Mark peak, -26dB.

7.2 Test SET-UP (Block Diagram of Configuration)



7.3 Measurement Equipment Used:

Same as 6.2 Radiated Emission Measurement.

7.4 Measurement Results

Refer to attached data chart.

A. Temperature Variation

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vac	Temperature (℃)	(MHz)		
110	-20	13.561522	-21.00	+/- 1.356
110	-10	13.561521	-20.00	+/- 1.356
110	0	13.561501	0.00	+/- 1.356
110	10	13.561503	-2.00	+/- 1.356
110	20	13.561501	0.00	+/- 1.356
110	30	13.561499	2.00	+/- 1.356
110	40	13.561497	4.00	+/- 1.356
110	50	13.561496	5.00	+/- 1.356

B. Supply Voltage Variation

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vac	Temperature (℃)	(MHz)		
126.5	20	13.561512	-11.00	+/- 1.356
110	20	13.561501	0.00	+/- 1.356
93.5	20	13.561487	14.00	+/- 1.356