

FCC PART 15 TEST REPORT

For

UHF Wireless Microphone-Receiver

Model Number:

**DF-2400, DF-1200, DF-2000, DF-4000, DF-4800, DF-8000,
DF-95, DF-96, DF-326, DF-327**

Brand Name: DIFAN

FCC ID: YE2DF-2400

Report No.: AGC01661001GZ01-2E5

Date of Issue: Apr.27, 2010

Prepared For

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1. VERIFICATION OF COMPLIANCE

Equipment Under Test: UHF Wireless Microphone-Receiver

Brand Name: DIFAN

Model Name: DF-2400, DF-1200, DF-2000, DF-4000, DF-4800, DF-8000,
DF-95, DF-96, DF-326, DF-327
ENPING DIFAN ELECTRONICS CO., LTD

Applicant: NO.7 & 8 of district A, Enping foreign and private capital industrial Distri
Enping, Guangdong, China
ENPING DIFAN ELECTRONICS CO., LTD

Manufacturer: NO.7 & 8 of district A, Enping foreign and private capital industrial Distri
Enping, Guangdong, China

Type of Test: FCC Class B

Measurement Procedure: ANSI C63.4: 2009

File Number: AGC01661001GZ01-2E5

Date of test: Apr.18 ~Apr.27 ,2010

Deviation: None

Condition of Test Sample: Normal

The above equipment was tested by Shenzhen Attestation Of Global Compliance Science & Technology Co., Ltd. For compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2009 This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

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

Checked By: Jekey Zhang
Jekey Zhang Apr.27, 2010

Authorized By King Zhang
King Zhang Apr.27, 2010

2. PRODUCT INFORMATION

Housing Type: Metal
EUT Rating Voltage: 120V
Voltage During Test: AC 120V/60Hz
Rating Power of Product: DC13-18V by adapter
Receiver Frequency Range 575-600MHz
Antenna Designation External and Removable

I/O Ports of EUT

I/O Port Type	Q'TY	Cable	Tested with
DC INPUT PORT	1	0	1
AUDIO OUTPUT PORT	2	0	2

3. TEST FACILITY

Location:	Bldg.69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
Description:	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2009
Site Filing:	The FCC Registration Number is 709623
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4 requirements that meet industry regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For radiated emission test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

4. TEST EQUIPMENT LIST

Instrumentation: The following list contains equipment used at Compliance Certification Services (Shenzhen) Inc. for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0GHz or above.

Equipment used during the tests:

3m semi-anechoic chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL. DUE
Spectrum Analyzer	Rohde & Schwarz	FSEM30	849720/019	05/29/2009	05/29/2010
Amplifier	H.P.	8449B	3008A00277	05/29/2009	05/29/2010
Horn Antenna	Sunol Sciences	DRH-118	A052604	05/29/2009	05/29/2010
EMI Test Receiver	Rohde & Schwarz	ESCI	100028	05/29/2009	05/29/2010
Amplifier	H.P.	HP8447E	1937A01046	05/29/2009	05/29/2010
Broadband Antenna	Sunol Sciences	JB1	A040904-2	05/29/2009	05/29/2010

Note: The measure uncertainty is less than $\pm 2.5078\text{dB}$, which is evaluated as per the UKAS LAB34 and CISPR/A/291/CDV.

Conducted Emission Test Site Shielding room 3#					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL. DUE
Test Receiver	Rohde & Schwarz	ESCS30	828985/018	05/29/2009	05/29/2010
LISN	Rohde & Schwarz	ESH2-Z 5	834549/005	05/29/2009	05/29/2010
LISN	Rohde & Schwarz	ESH2-Z 5	834549/005	05/29/2009	05/29/2010
50 Coaxial Switch	Anritsu	MP59B	M20531	05/29/2009	05/29/2010

Note: The measure uncertainty is less than $\pm 2.2318\text{dB}$, which is evaluated as per the UKAS LAB34 and CISPR/A/291/CDV.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

5. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
--	--	--	--	--	--

***Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.*

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

6. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices (if need).
2. Power on the EUT, the EUT begins to work.
3. Make sure the EUT operates normally during the test.

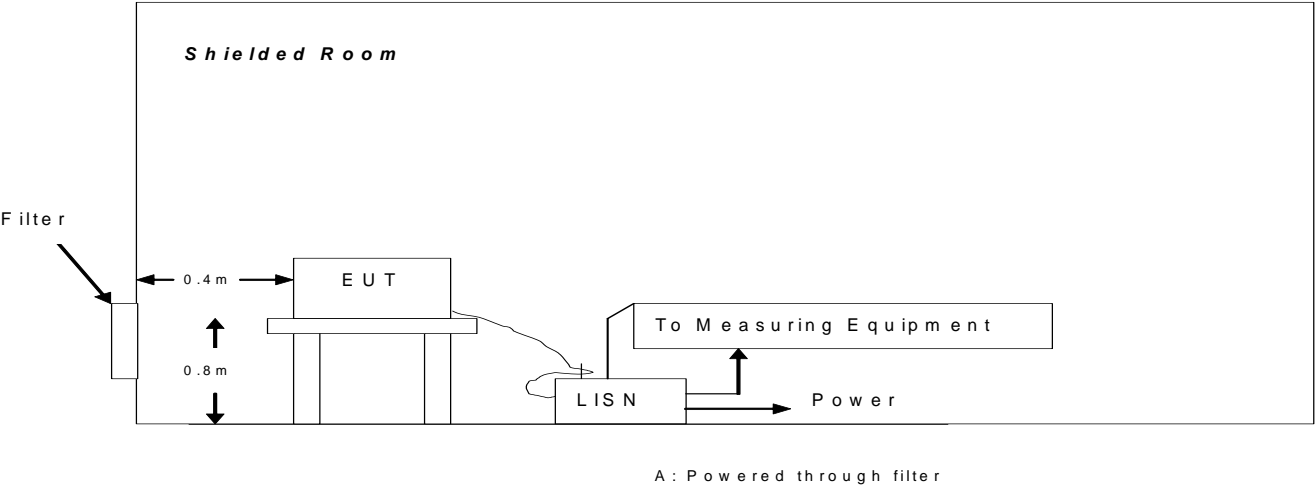
7. FCC LINE CONDUCTED EMISSION TEST

7.1 LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

**Note: 1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

7.2 BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



7.3 PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) The EUT received power through a Line Impedance Stabilization Network (LISN) that was grounded to the protect earth.
- 5) All support equipments received AC power from a second LISN, if any.
- 6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8) During the above scans, the emissions were maximized by cable manipulation.
- 9) The following test mode(s) were scanned during the preliminary test:

Preliminary Line Conducted Emission Test				
Frequency Range Investigated		150 KHz TO 30 MHz		
Mode of operation	Date	Report No.	Data#	Worst Mode
Normal	20/04/2010	AGC01661001GZ01-2E5	DF-2400_0(L,N)	<input checked="" type="checkbox"/>

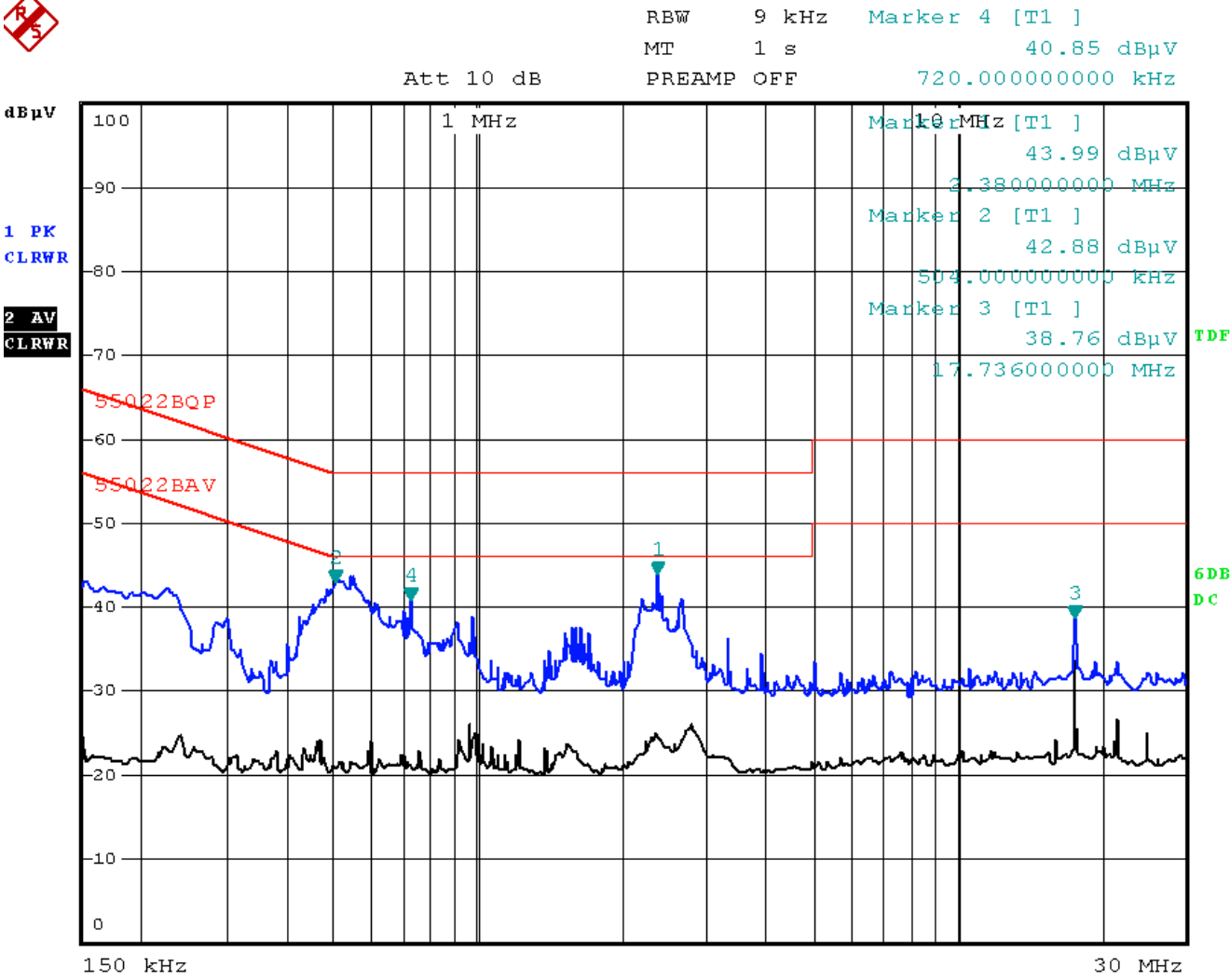
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

7.4 FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1) EUT and support equipment was set up on the test bench as per step 9 of the preliminary test.
- 2) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3) The test data of the worst case condition(s) was reported on the Summary Data page.

7.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

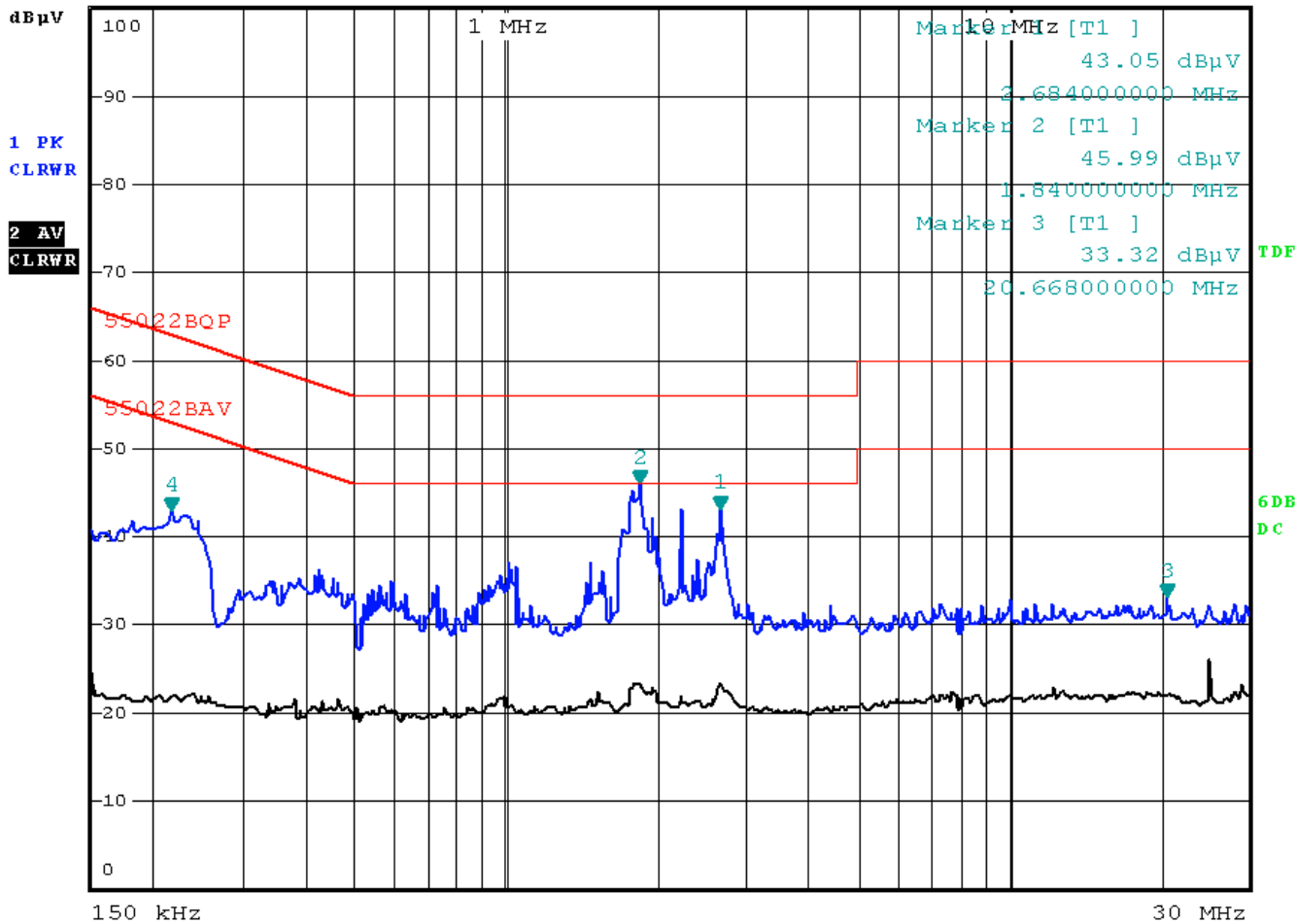
TEST RESULT OF LINE CONDUCTED EMISSION TEST-LINE LINE



TEST RESULT OF LINE CONDUCTED EMISSION TEST-NEUTRAL LINE



RBW 9 kHz Marker 4 [T1]
MT 1 s 42.86 dBμV
Att 10 dB PREAMP OFF 218.000000000 kHz



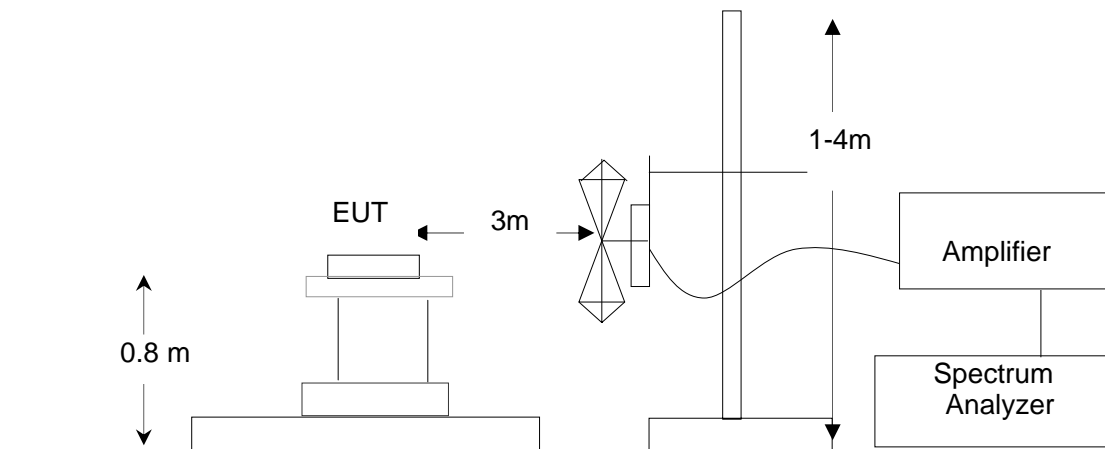
8. FCC RADIATED EMISSION TEST

8.1 LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

**Note: The lower limit shall apply at the transition frequency.

8.2 BLOCK DIAGRAM OF RADIATED EMISSION TEST



8.3 PRELIMINARY PROCEDURE OF RADIATED EMISSION TEST

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) The EUT received DC13V from the adapter. All support equipments received AC 120V/60Hz power from socket under the turntable, if any.
- 5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
- 6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- 7) The following test mode(s) were scanned during the preliminary test:

Preliminary Radiated Emission Test				
Frequency Range Investigated			30 MHz TO 1000 MHz	
Mode of operation	Date of test	Report No.	Data#	Worst Mode
Normal	04/20/2010	AGC01661001GZ01-2E5	DF-2400_0(H,V)	<input checked="" type="checkbox"/>

Then, the EUT and cable(s) configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for final testing.

8.4 FINAL PROCEDURE OF RADIATED EMISSION TEST

EUT and support equipment were set up on the turntable as per step 7 of the preliminary test.

The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

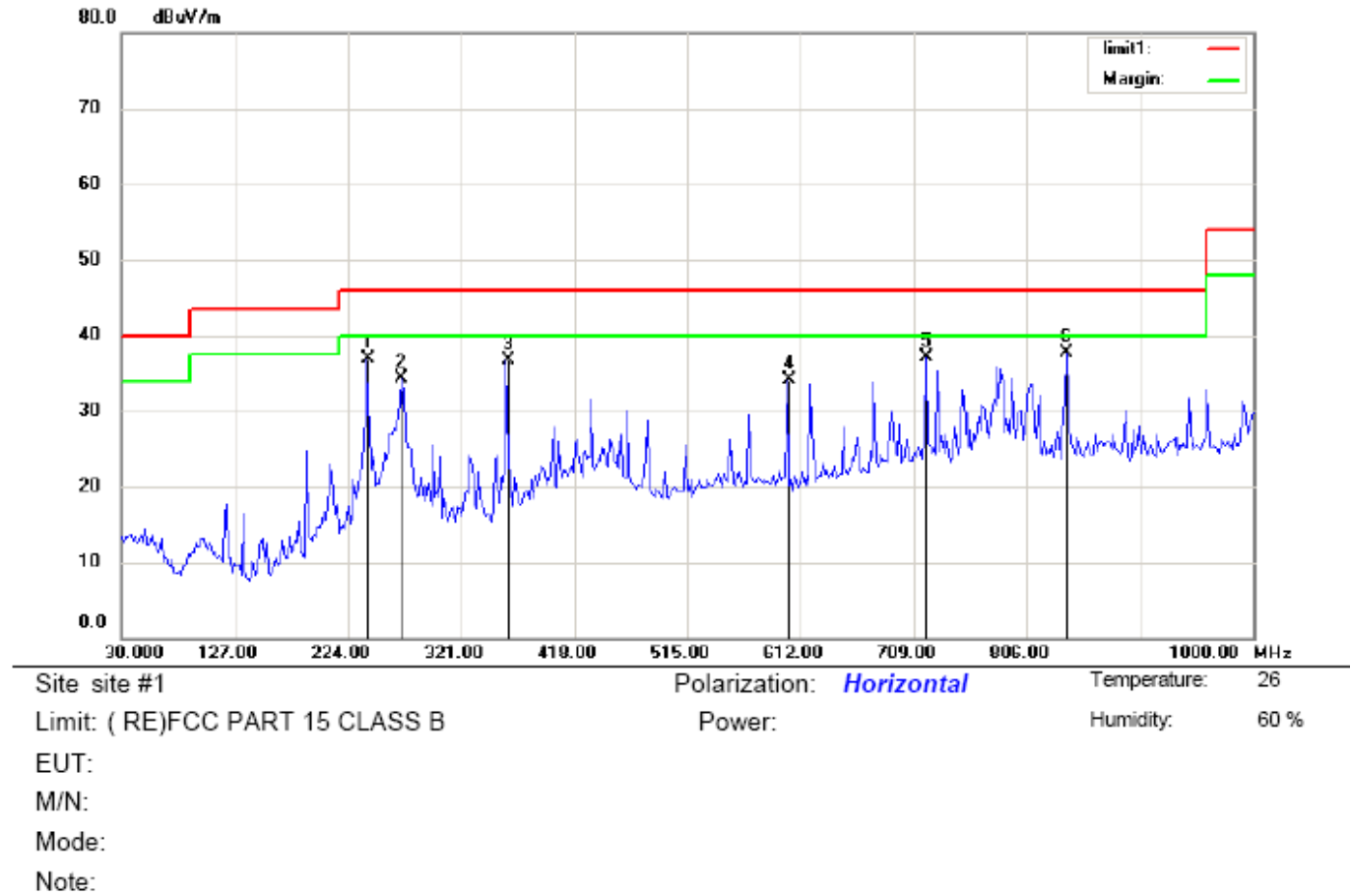
Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P/Peak. reading is presented.

The test data of the worst case condition(s) was reported on the Summary Data page.

8.5 TEST RESULT OF RADIATED EMISSION TEST

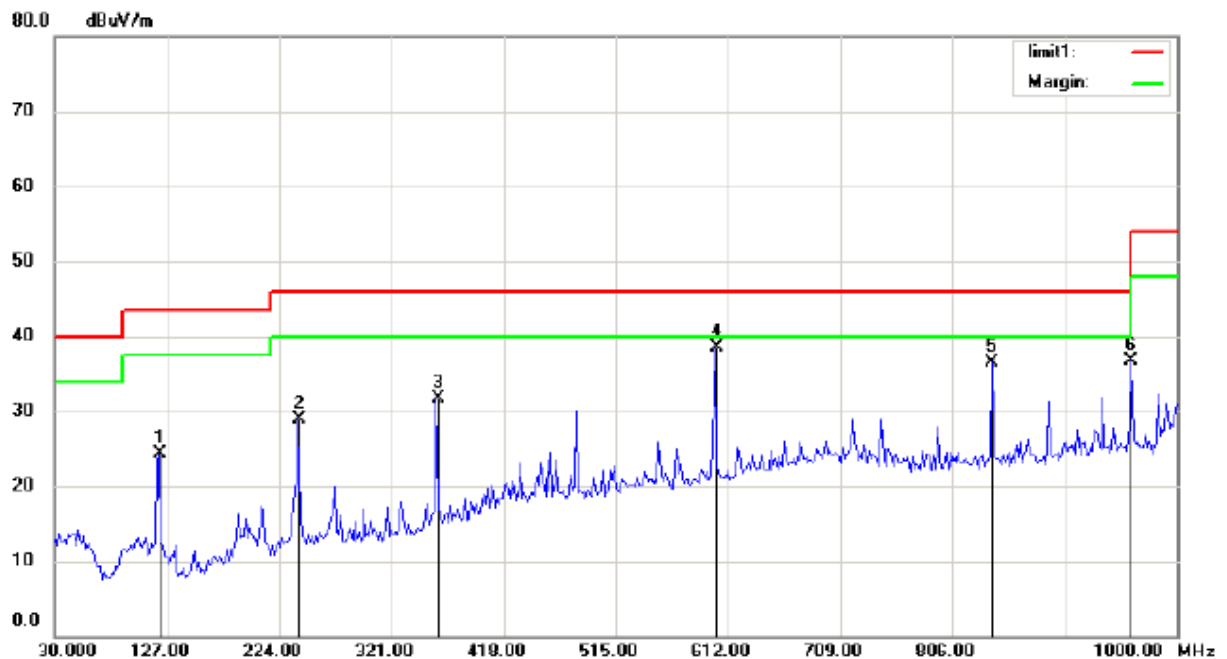
RECEIVE FREQUENCY AT 575.000MHZ (BOTTOM FREQUENCY)

TEST RESULT OF RADIATED EMISSION AT-HORIZONTAL



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		239.8558	23.82	13.15	36.97	46.00	-9.03	peak		
2		269.3910	20.11	14.11	34.22	46.00	-11.78	peak		
3		359.5513	21.00	15.76	36.76	46.00	-9.24	peak		
4		600.4968	14.51	19.67	34.18	46.00	-11.82	peak		
5		720.1923	14.20	22.88	37.08	46.00	-8.92	peak		
6	*	839.8878	13.95	23.77	37.72	46.00	-8.28	peak		

TEST RESULT OF RADIATED EMISSION-VERTICAL

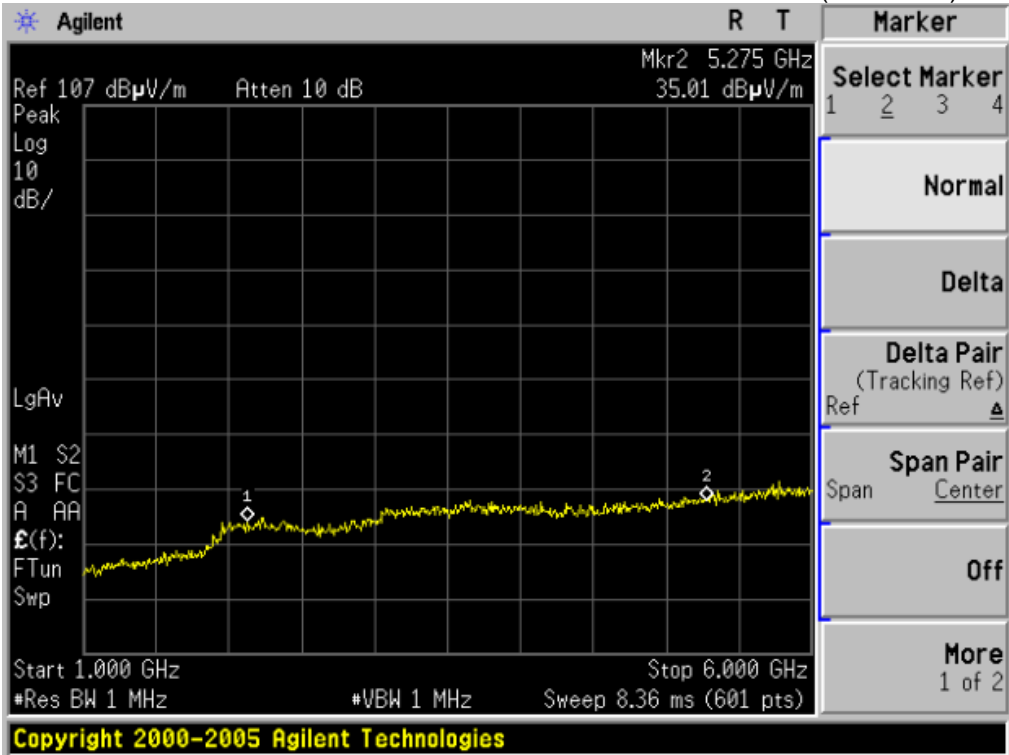


Site site #1 Polarization: **Vertical** Temperature: 26
Limit: (RE)FCC PART 15 CLASS B Power: Humidity: 60 %
EUT:
M/N:
Mode:
Note:

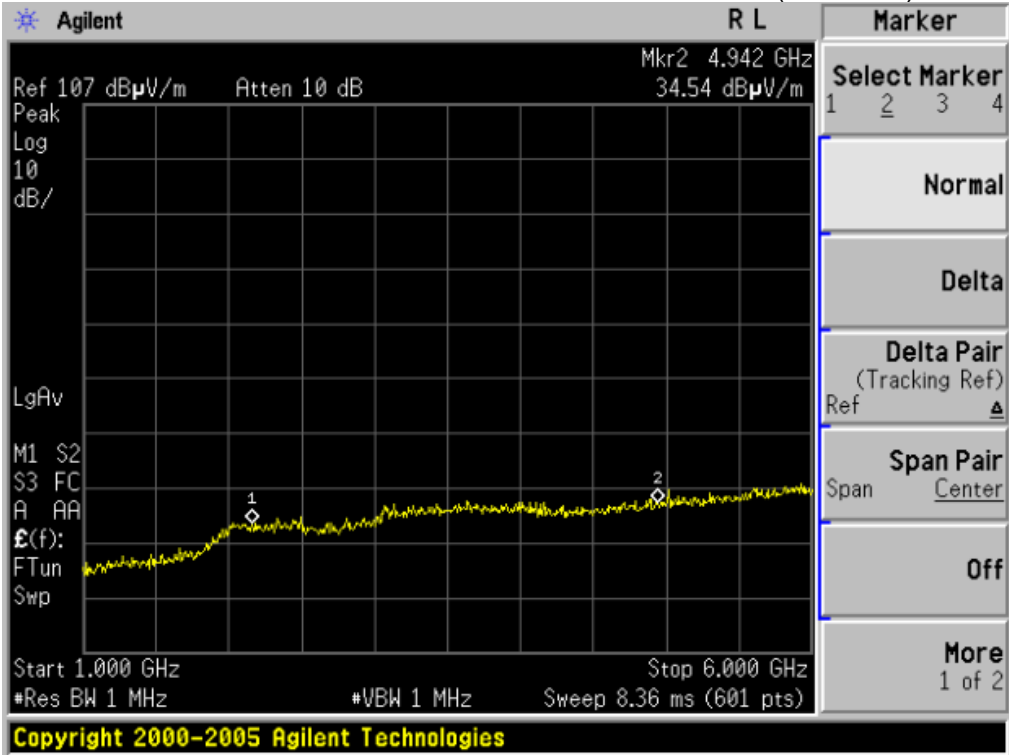
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		120.1603	11.62	12.62	24.24	43.50	-19.26	peak		
2		239.8558	15.36	13.63	28.99	46.00	-17.01	peak		
3		359.5513	15.14	16.47	31.61	46.00	-14.39	peak		
4	*	600.4968	18.08	20.51	38.59	46.00	-7.41	peak		
5		839.8878	13.62	22.87	36.49	46.00	-9.51	peak		
6		961.1378	12.02	24.64	36.66	53.90	-17.24	peak		

RECEIVE FREQUENCY AT 575.000MHZ (BOTTOM FREQUENCY)

TEST RESULT OF RADIATED EMISSION AT-HORIZONTAL(1G-6GHZ)

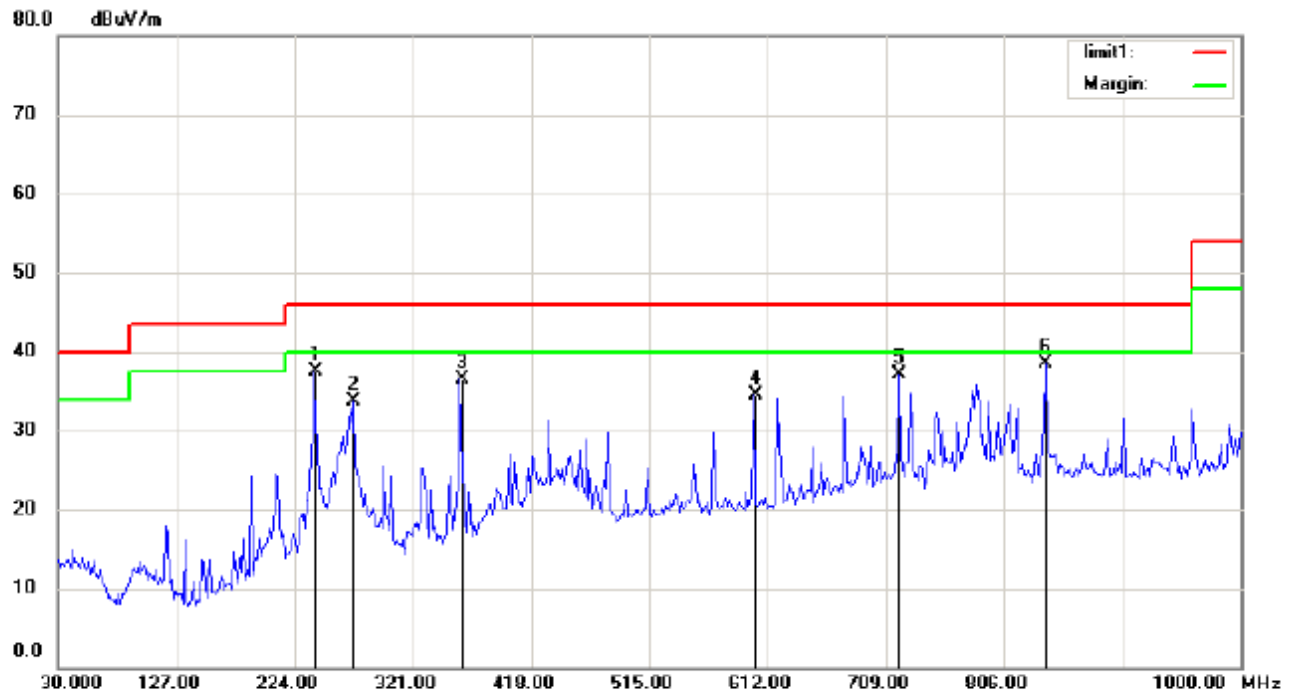


TEST RESULT OF RADIATED EMISSION-VERTICAL(1G-6GHZ)



RECEIVE FREQUENCY AT 587.500MHZ (MIDDLE FREQUENCY)

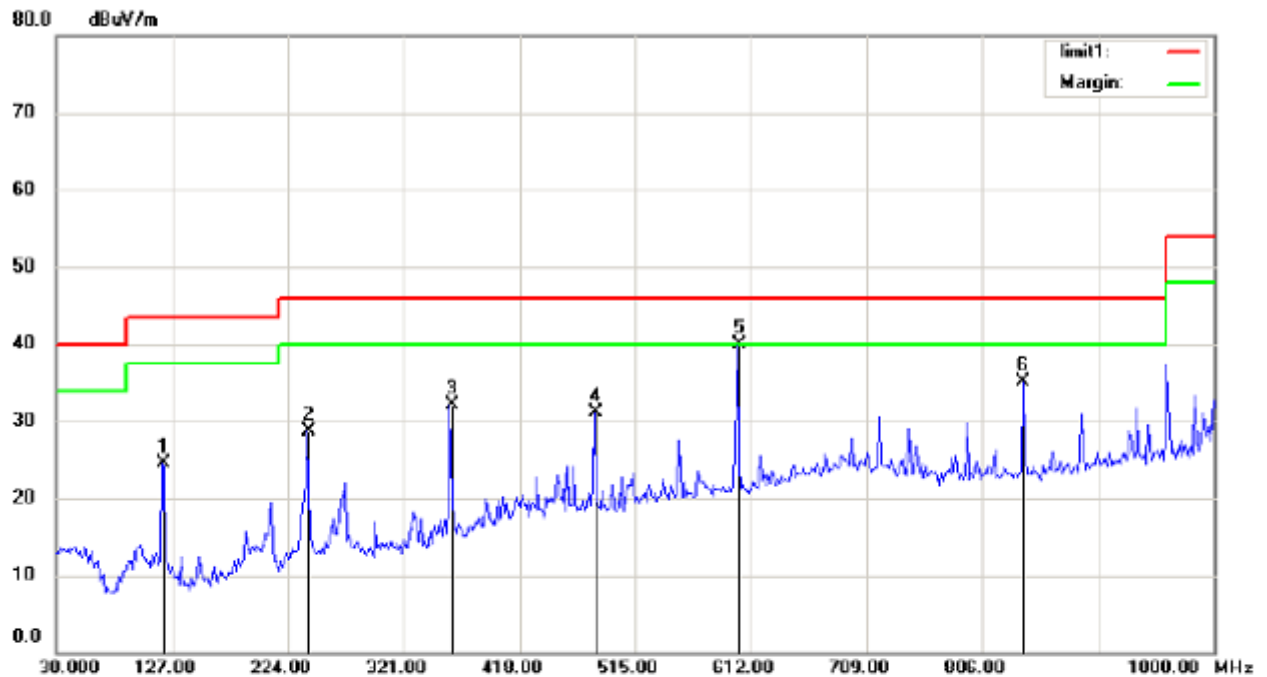
TEST RESULT OF RADIATED EMISSION-HORIZONTAL



Site site #1 Polarization: **Horizontal** Temperature: 26
Limit: (RE)FCC PART 15 CLASS B Power: Humidity: 60 %
EUT:
M/N:
Mode:
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		239.8558	24.40	13.15	37.55	46.00	-8.45	peak		
2		272.5000	19.68	14.11	33.79	46.00	-12.21	peak		
3		359.5513	20.70	15.76	36.46	46.00	-9.54	peak		
4		600.4968	14.81	19.67	34.48	46.00	-11.52	peak		
5		720.1923	14.13	22.88	37.01	46.00	-8.99	peak		
6	*	839.8878	14.77	23.77	38.54	46.00	-7.46	peak		

TEST RESULT OF RADIATED EMISSION-VERTICAL

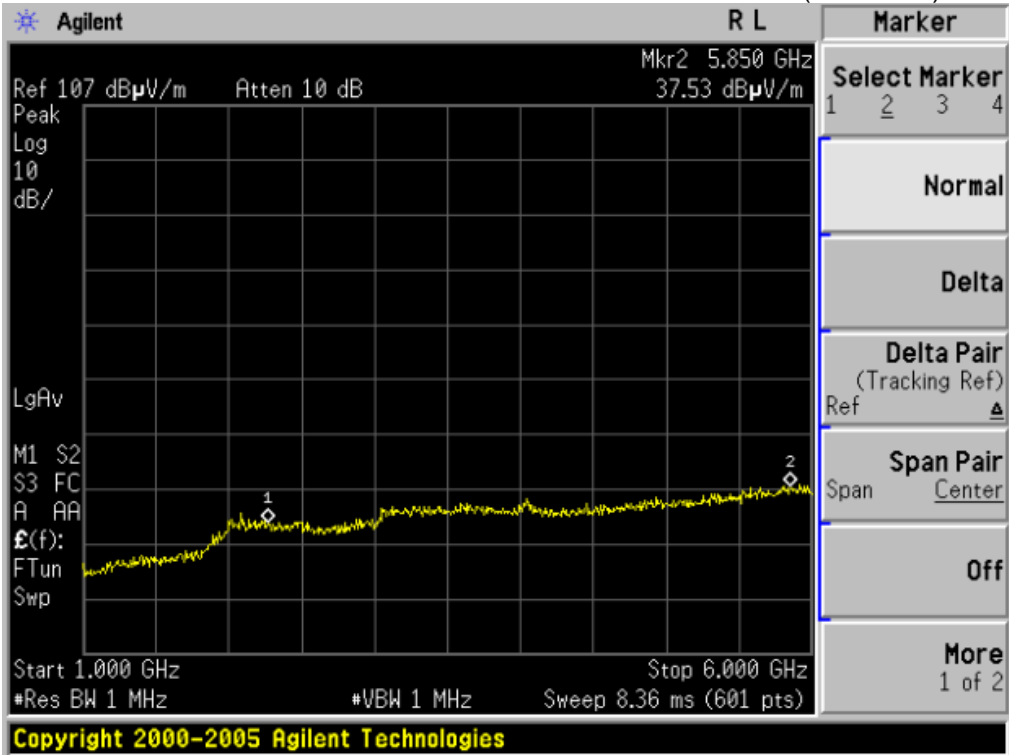


Site site #1 Polarization: **Vertical** Temperature: 26
Limit: (RE)FCC PART 15 CLASS B Power: Humidity: 60 %
EUT:
M/N:
Mode:
Note:

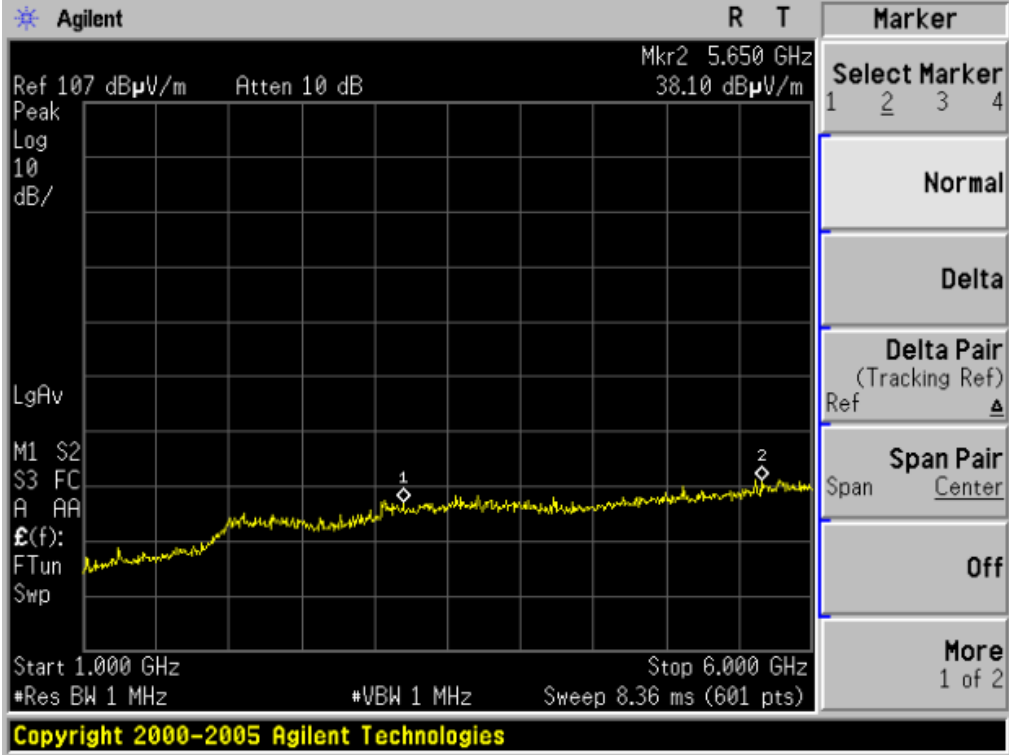
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		118.6058	11.92	12.67	24.59	43.50	-18.91	peak		
2		239.8558	15.07	13.63	28.70	46.00	-17.30	peak		
3		359.5513	15.57	16.47	32.04	46.00	-13.96	peak		
4		480.8013	12.60	18.45	31.05	46.00	-14.95	peak		
5	*	600.4968	19.31	20.51	39.82	46.00	-6.18	peak		
6		839.8878	12.32	22.87	35.19	46.00	-10.81	peak		

RECEIVE FREQUENCY AT 587.500MHZ (MIDDLE FREQUENCY)

TEST RESULT OF RADIATED EMISSION-HORIZONTAL (1G-6GHZ)

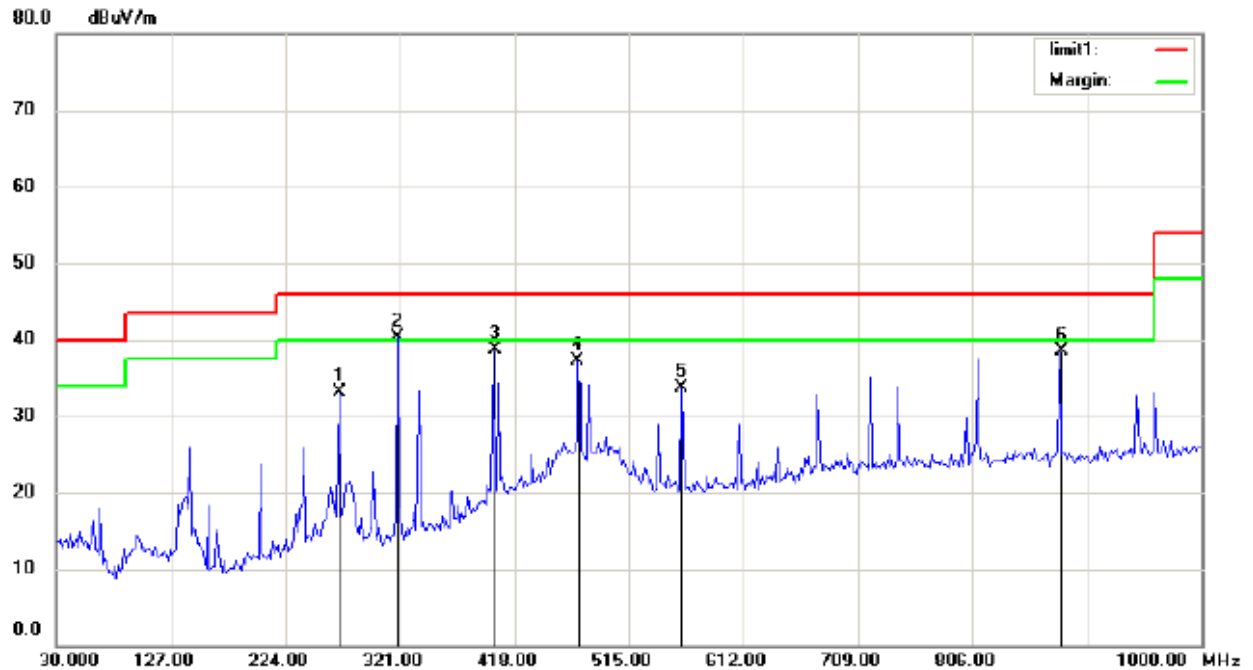


TEST RESULT OF RADIATED EMISSION-VERTICAL (1G-6GHZ)



RECEIVE FREQUENCY AT 599.750MHZ (TOP FREQUENCY)

TEST RESULT OF RADIATED EMISSION-HORIZONTAL



Site site #1

Polarization: *Horizontal*

Temperature: 26

Limit: (RE)FCC PART 15 CLASS B

Power:

Humidity: 60 %

EUT: CARMER

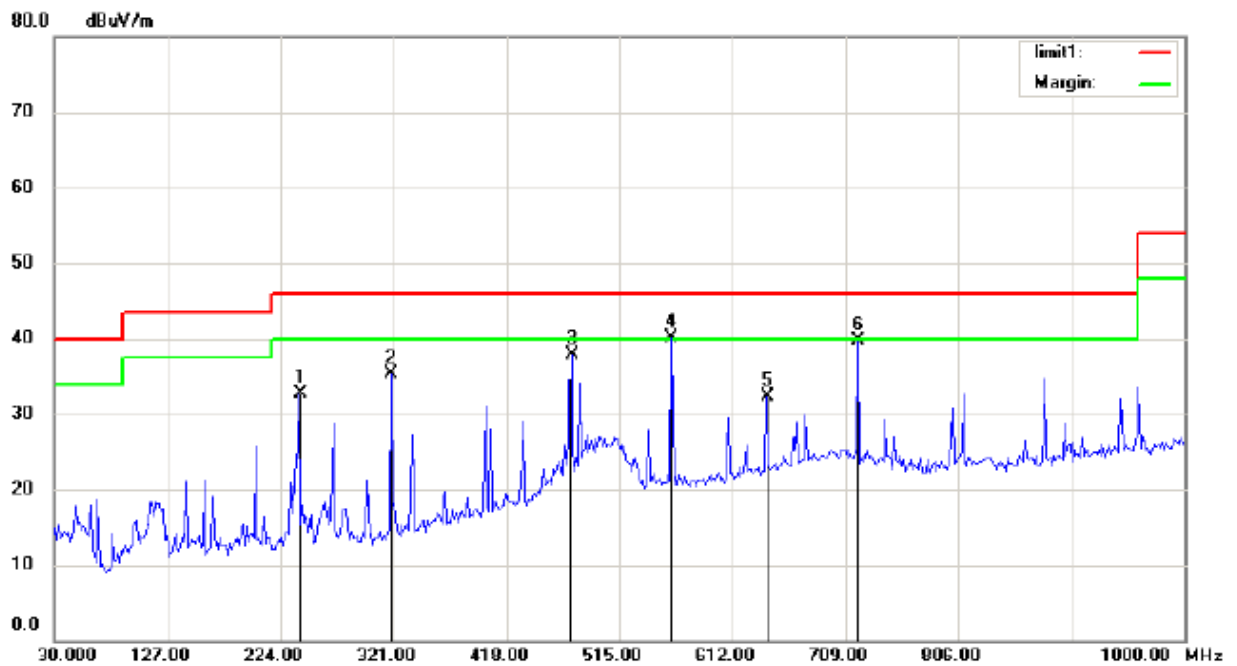
M/N:

Mode:USB

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		269.3910	19.05	14.11	33.16	46.00	-12.84	peak			
2	!	319.1346	26.00	14.35	40.35	46.00	-5.65	peak			
3		399.9680	20.61	18.06	38.67	46.00	-7.33	peak			
4	*	473.0288	18.87	18.34	37.21	46.00	-8.79	peak			
5		560.0801	13.96	19.65	33.61	46.00	-12.39	peak			
6		880.3045	14.24	24.23	38.47	46.00	-7.53	peak			

TEST RESULT OF RADIATED EMISSION-VERTICAL

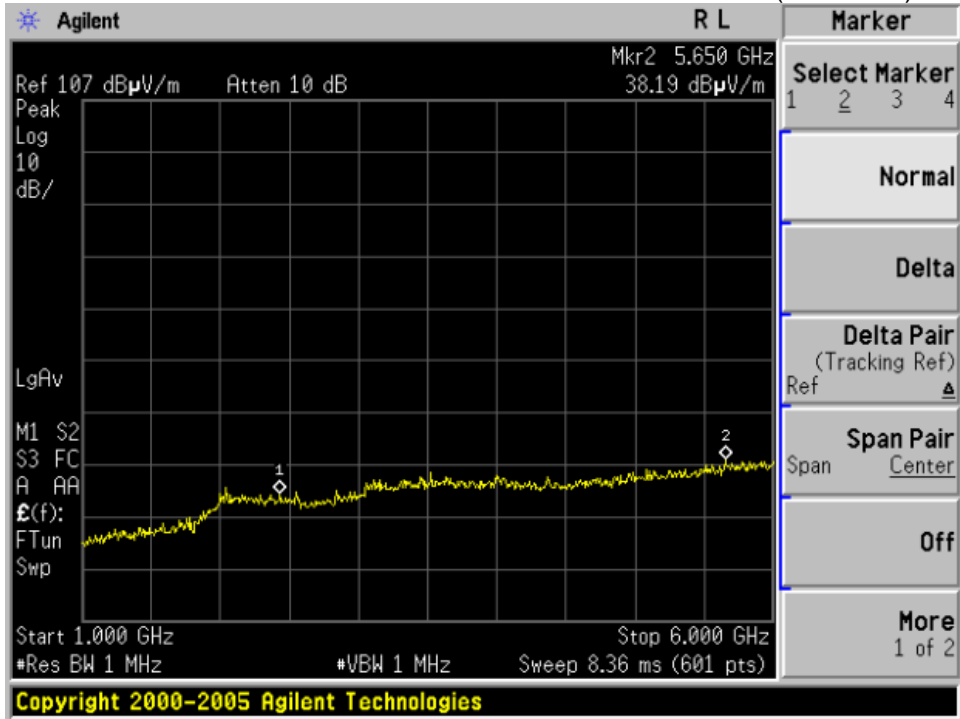


Site site #1 Polarization: **Vertical** Temperature: 26
Limit: (RE)FCC PART 15 CLASS B Power: Humidity: 60 %
EUT:
M/N:
Mode:
Note:

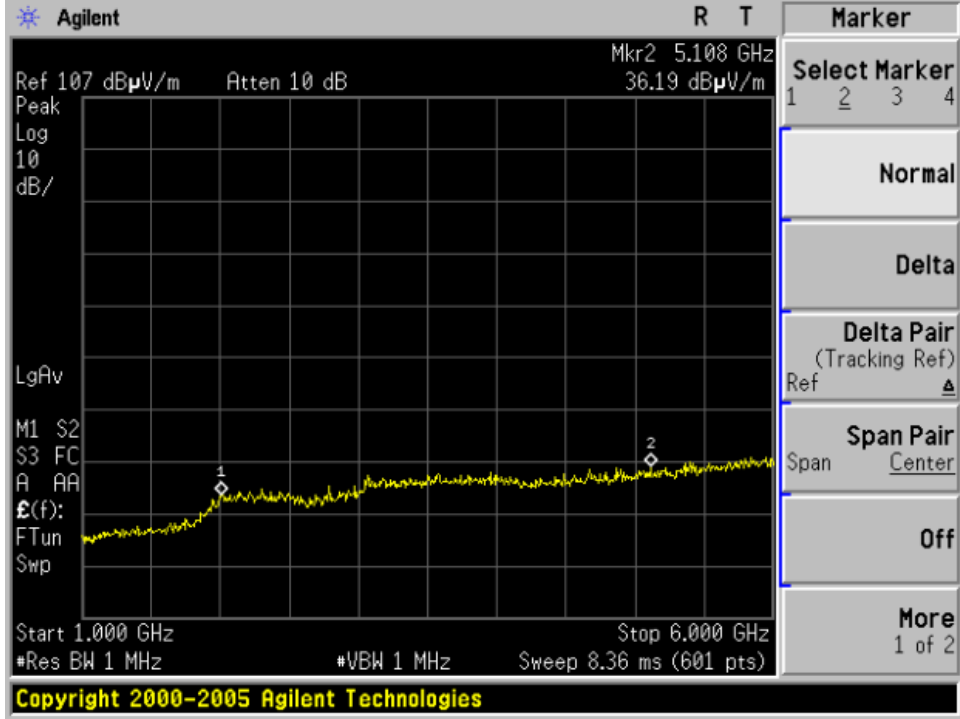
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		239.8558	19.14	13.63	32.77	46.00	-13.23	peak		
2		319.1346	20.86	14.52	35.38	46.00	-10.62	peak		
3	*	473.0288	20.53	18.33	38.86	46.00	-7.14	peak		
4	!	560.0801	20.37	19.65	40.02	46.00	-5.98	peak		
5		640.9135	10.36	21.93	32.29	46.00	-13.71	peak		
6		720.1923	16.17	23.51	39.68	46.00	-6.32	peak		

RECEIVE FREQUENCY AT 599.750MHZ (TOP FREQUENCY)

TEST RESULT OF RADIATED EMISSION-HORIZONTAL(1G-6GHZ)



TEST RESULT OF RADIATED EMISSION-VERTICAL(1G-6GHZ)



APPENDIX 1
PHOTOGRAPHS OF TEST SETUP
TEST SETUP OF RADIATED EMISSION



TEST SETUP OF COUDUCTED EMISSION



APPENDIX 2
PHOTOGRAPHS OF EUT
FRONT VIEW OF RX



BACK VIEW OF RX



TOP VIEW OF RX



LEFT VIEW OF RX



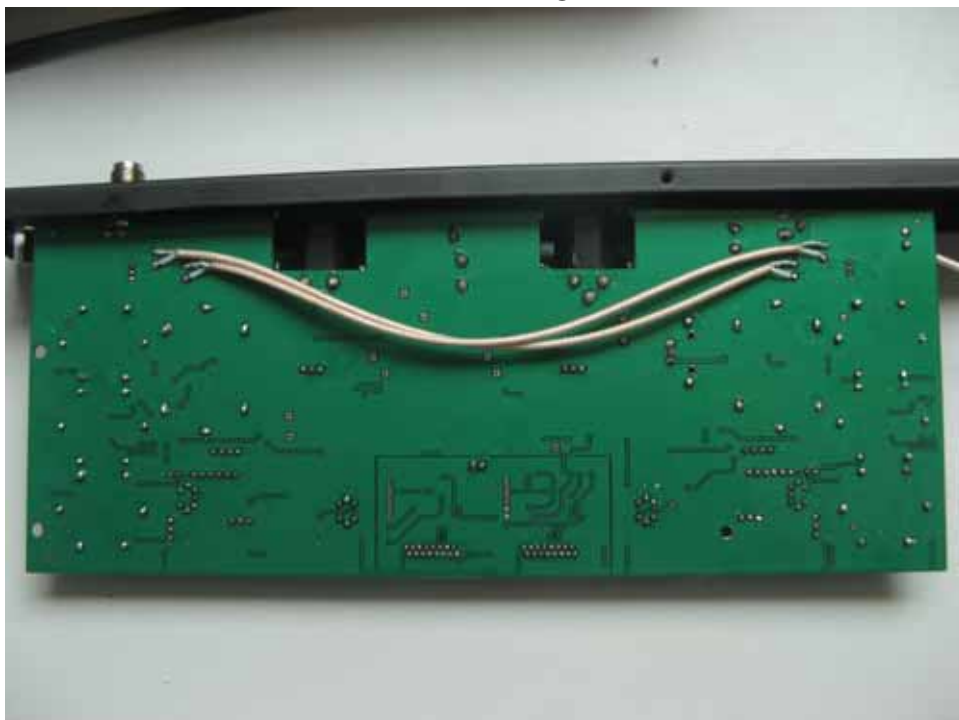
RIGHT VIEW OF RX



INTERNAL VIEW OF RX-1



INTERNAL VIEW OF RX-2



---END OF REPORT---