

# Test Report of FCC CFR 47 Part 15 Subpart B

On Behalf of

## **Graupner GmbH & Co. KG.**

**FCC ID:** ZKZ-MC-20

**Product Description:** Computer System Graupner/SJ HoTT

**Model No.:** MC-20

**Supplementary Model:** N/A

**Prepared for:** Graupner GmbH & Co. KG.

Henriettenstr. 94-96 D-73230 Kirchheim/Teck GERMANY

**Prepared by:** Bontek Compliance Testing Laboratory Ltd

1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East

Road, Nanshan, Shenzhen, China

Tel: 86-755-86337020

Fax: 86-755-86337028

**Report No.:** BCT12GR214E-2

**Issue Date:** August 14, 2012

**Test Date:** July 20~ August 13, 2012

**Test by:**

**Reviewed By:**



Vincent Jiang



Kevin Chi

## TABLE OF CONTENTS

<b>1. GENERAL INFORMATION .....</b>	<b>3</b>
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
1.2 RELATED SUBMITTAL(S) / GRANT (S) AND TEST METHODOLOGY.....	3
1.3 TEST FACILITY.....	3
<b>2. SYSTEM TEST CONFIGURATION.....</b>	<b>5</b>
2.1 EUT CONFIGURATION.....	5
2.2 EUT EXERCISE .....	5
2.3 GENERAL TEST PROCEDURES.....	5
2.4 MEASUREMENT UNCERTAINTY .....	5
2.5 TEST EQUIPMENT LIST AND DETAILS .....	6
<b>3. SUMMARY OF TEST RESULTS.....</b>	<b>8</b>
<b>4. TEST OF AC POWER LINE CONDUCTED EMISSION .....</b>	<b>9</b>
4.1 LIMIT OF AC POWER LINE CONDUCTED EMISSION .....	9
4.2 EUT SETUP .....	9
4.3 INSTRUMENT SETUP .....	10
4.4 TEST PROCEDURE .....	10
4.5 TEST RESULT .....	10
<b>5 - RADIATED DISTURBANCES.....</b>	<b>13</b>
5.1 LIMIT OF RADIATED DISTURBANCES .....	13
5.2 EUT SETUP .....	13
5.3 TEST RECEIVER SETUP .....	14
5.4 TEST PROCEDURE .....	14
5.5 CORRECTED AMPLITUDE & MARGIN CALCULATION.....	14
5.6 RADIATED EMISSIONS TEST RESULT .....	14

# 1. GENERAL INFORMATION

## 1.1 Product Description for Equipment Under Test (EUT)

### Client Information

Applicant: **Graupner GmbH & Co. KG**  
Address of applicant: Henriettenstr. 94-96 D-73230 Kirchheim/Teck GERMANY  
Manufacturer: **SJ TECHNOLOGY(SHENZHEN) CO.,LTD**  
Address of manufacturer: F6, 1 BLDG, A AREA, YINTIANXIFA INDUSTRIAL AREA, XIXIANG TOWN, BAOAN DISTRICT SHENZHEN, GUANGDONG PROVINCE, CHINA

### General Description of E.U.T

Items	Description
EUT Description:	Computer System Graupner/SJ HoTT
Model No.:	MC-20
Trade Name:	N/A
Supplementary Model:	N/A
Frequency Band:	2404 MHz ~ 2479 MHz
Channel Spacing:	1 MHz
Number of Channels:	75
Type of Modulation:	FHSS
Antenna Type:	Built-in Antenna
Rated Voltage:	Input: 4.2VDC 500mA from AC/DC adapter
Adapter description:	Model: Graupner/SJ/ 33032.4 Input:100-240V~, 50/60Hz, MAX 0.5A Output: 4.2V DC/500mA

Remark: \* The test data gathered are from the production sample provided by the manufacturer.

## 1.2 Related Submittal(s) / Grant (s) and Test Methodology

The following Declaration of Conformity report of EUT is prepared in accordance with FCC Rules and Regulations Part 15 Subpart B 2006

The objective of the manufacturer is to demonstrate compliance with the described above standards.

## 1.3 Test Facility

All measurement required was performed at laboratory of Bontek Compliance Testing Laboratory Ltd at 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China and Centre Testing International (ShenZhen) Corporation ,Location at Hongwei Industrial Zone, Baoan 70 District, Shenzhen, Guangdong.

The test facility is recognized, certified, or accredited by the following organizations:

**FCC – Registration No.: 338263**

BONTEK COMPLIANCE TESTING LABORATORY LTD. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 338263, March 03, 2011.

**IC Registration No.: 7631A**

The 3m alternate test site of BONTEK COMPLIANCE TESTING LABORATORY LTD. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7631A on January 25, 2011.

**CNAS - Registration No.: L3923**

BONTEK COMPLIANCE TESTING LABORATORY LTD. to ISO/IEC 17025:25 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. The acceptance letter from the CNAS is maintained in our files: Registration: L3923, March 22, 2012.

**TUV - Registration No.: UA 50203122-0001**

BONTEK COMPLIANCE TESTING LABORATORY LTD. An assessment of the laboratory was conducted according to the "Procedures and Conditions for EMC Test Laboratories" with reference to EN ISO/IEC 17025 by a TUV Rheinland auditor. Audit Report NO. 17010783-002.

## 2. 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 that intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 3 or 10 meters from the leading edge of the turntable.

### 2.3 General Test Procedures

Conducted Emissions: The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 7.1 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 detector mode.

Radiated Emissions: The EUT is placed on as turntable, which is 0.8 m above ground plane. The turntable 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 maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

### 2.4 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

Uncertainty figures are valid to a confidence level of 95%.

## 2.5 Test Equipment List and Details

Test equipments list of Shenzhen Bontek Compliance Testing Laboratory Co., Ltd .

No.	Equipment	Manufacturer	Model No.	S/N	Calculator date	Calculator due date
1	EMI Test Receiver	R&S	ESCI	100687	2012-4-6	2013-4-5
2	EMI Test Receiver	R&S	ESPI	100097	2011-7-25	2012-7-24
3	Amplifier	HP	8447D	1937A02492	2012-4-6	2013-4-5
4	Horn Antenna	R/S	CH14-H052	1091698	2012-4-6	2013-4-5
5	Horn Antenna	SCHWARZBECK	BBHA9120A	0499	2011-11-28	2012-11-27
6	Single Power Conductor Module	FCC	FCC-LISN-5-50-1-01-CISPR25	07101	2012-4-6	2013-4-5
7	Single Power Conductor Module	FCC	FCC-LISN-5-50-1-01-CISPR25	07102	2012-4-6	2013-4-5
8	Power Clamp	SCHWARZBECK	MDS-21	3812	2012-4-6	2013-4-5
9	Positioning Controller	C&C	CC-C-1F	MF7802113	N/A	N/A
10	Electrostatic Discharge Simulator	TESEQ	NSG437	125	2011-4-11	2012-4-10
11	Fast Transient Burst Generator	SCHAFFNER	MODULA6150	34572	2012-4-6	2013-4-5
12	Fast Transient Noise Simulator	Noiseken	FNS-105AX	10501	2011-6-16	2012-6-15
14	Color TV Pattern Generator	PHILIPS	PM5418	TM209947	N/A	N/A
15	Power Frequency Magnetic Field Generator	EVERFINE	EMS61000-8K	608002	2012-4-6	2013-4-5
16	Capacitive Coupling Clamp	TESEQ	CDN8014	25096	2012-4-6	2013-4-5
17	High Field Biconical Antenna	ELECTRO-METRICS	EM-6913	166	2011-11-28	2012-11-27
18	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	811	2011-11-28	2012-11-27
19	Remote Active Vertical Antenna	ELECTRO-METRICS	EM-6892	304	2011-11-28	2012-11-27
20	TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB9163	9163-324	N/A	N/A
21	Teo Line Single Phase Module	SCHWARZBECK	NSLK8128	8128247	2011-10-24	2012-10-23
22	Triple-Loop Antenna	EVERFINE	LLA-2	711002	2012-4-6	2013-4-5
23	Electric bridge	Jhai	JK2812C	803024	N/A	N/A
24	RF POWER AMPLIFIER	FRANKONIA	FLL-75	1020A1109	2012-4-6	2013-4-5
25	CDN	FRANKONIA	CDN M2+M3	A3027019	2012-4-6	2013-4-5
26	6DB Attenuator	FRANKONIA	N/A	1001698	2012-4-6	2013-4-5
27	EM Injection clamp	FCC	F-203I-23mm	091536	2012-4-6	2013-4-5
28	9kHz-2.4GHz signal generator 2024	MARCONI	10S/6625-99-457-8730	112260/042	2012-4-6	2013-4-5

29	10dB attenuator	ELECTRO-METRICS	EM-7600	836	2012-4-6	2013-4-5
30	ISN	TESEQ	ISN-T800	30301	2011-6-23	2012-6-22
31	10KV surge generator	SANKI	SKS-0510M	048110003E 321	2011-11-14	2012-11-13
32	HRMONICS&FLICK RE ANALYSER	VOLTECH	PM6000	200006700433	2011-6-27	2012-6-26
33	Spectrum Analyzer	R&S	FSP	100397	2011-11-2	2012-11-1
34	Broadband preamplifier	SCH WARZBECK	BBV9718	9718-182	2012-4-6	2013-4-5
35	Temperature & Humidity Chamber	TOPSTAT	TOS-831A	3438A05208	2012-4-6	2013-4-5

18~24.6GHz Radiation Test equipments list of Centre Testing International (ShenZhen)

10M Semi-anechoic Chamber - Radiated disturbance Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
Receiver	R&S	ESCI	100435	07/06/2012
Spectrum Analyzer	R&S	FSP40	100416	07/06/2012
Biconilog Antenna	schwarzbeck	VULB9136	9136-401	07/06/2012
Horn Antenna	ETS-LINGREN	3117	00044562	07/06/2012
Microwave Preamplifier	Agilent	8449B	3008A02425	07/06/2012
Microwave Preamplifier	Agilent	11909A	186871	07/06/2012

### 3. SUMMARY OF TEST RESULTS

Standard	Test Items	Status
FCC Part 15 Subpart B	Conduction Emission, 0.15MHz to 30MHz	✓
FCC Part 15 Subpart B	Radiation Emission, 30MHz to 1000MHz	✓

#### 4. TEST OF AC POWER LINE CONDUCTED EMISSION

## 4.1 Limit of AC Power Line Conducted Emission

Frequency Range (MHz)	Limits ( dBuV)	
	Quasi-Peak	Average
0.150~0.500	66~56	56~46
0.500~5.000	56	46
5.000~30.00	60	50

## 4.2 EUT Setup

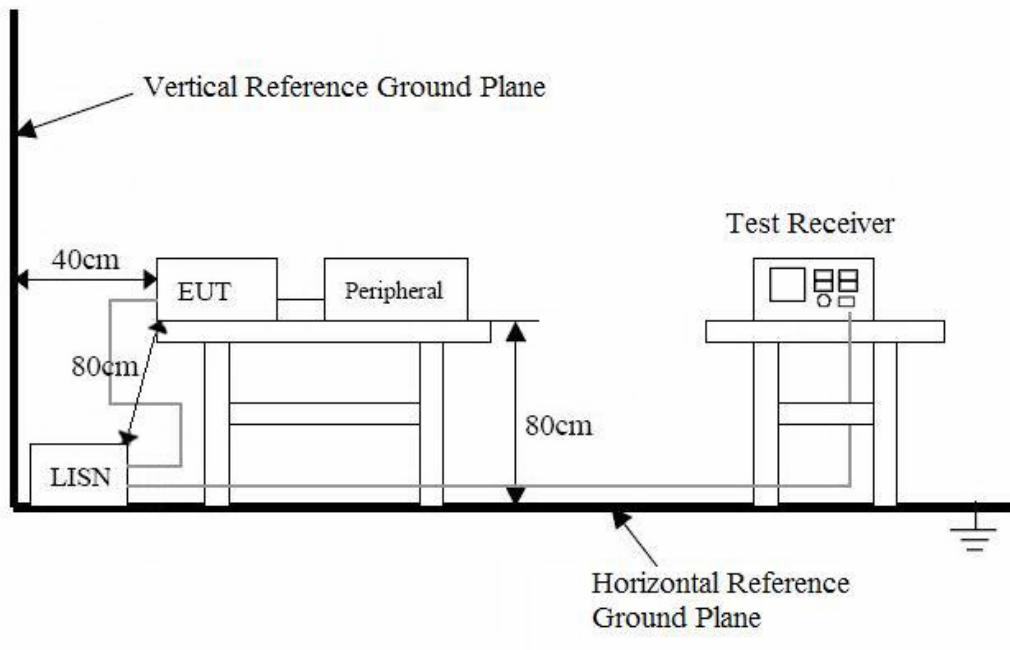
The setup of EUT is according with ANSI C63.4-2003 measurement procedure. The specification used was the FCC Rules and Regulations Part 15 Subpart B limits.

The EUT was placed center and the back edge of the test table.

The AV cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.



Remark: The EUT was connected to a 120VAC/ 60Hz power source.

### 4.3 Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range.....150 KHz to 30 MHz  
Detector.....Peak & Quasi-Peak & Average  
Sweep Speed.....Auto  
IF Band Width.....9 KHz

### 4.4 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dB $\mu$ V of specification limits). Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with a "AV".

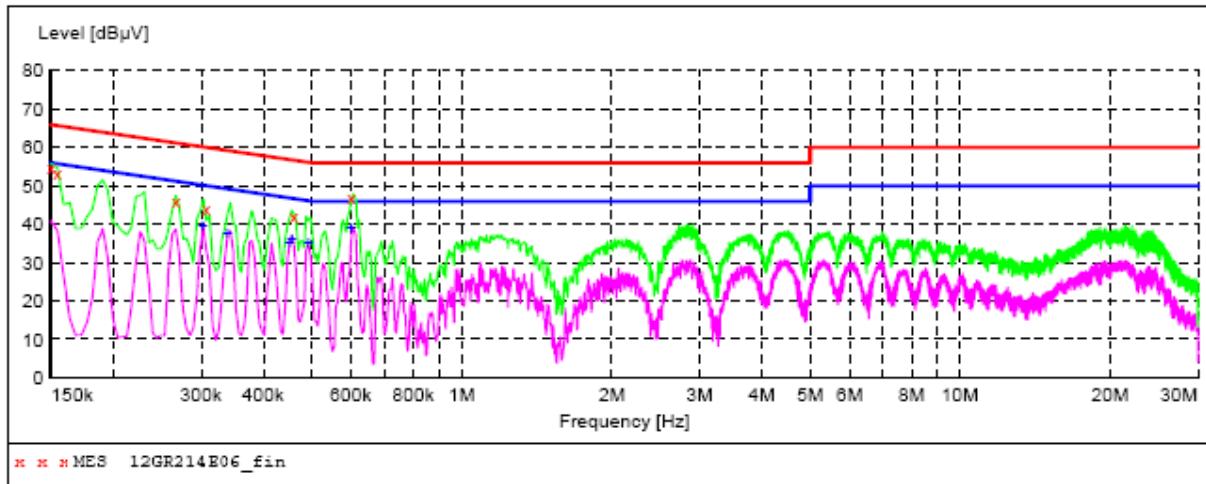
### 4.5 Test Result

Temperature ( °C ) : 23~25	EUT: Computer System Graupner/SJ HoTT
Humidity (%RH ) : 45~58	M/N: MC-20
Barometric Pressure ( mbar ) : 950~1000	Operation Condition: Connect to PC

## Conducted Emission Test Data

EUT: Computer System Graupner/SJ HoTT  
 M/N: MC-20  
 Operating Condition: Connect to PC  
 Test Site: Cheng  
 Operator: Yang  
 Test Specification: AC 120V/60Hz  
 Comment: N Line  
 Start of Test: 7/19/12/22:36      Tem:25°C Hum:50%

**SCAN TABLE: "Voltage (9K-30M) FIN"**  
Short Description: 150K-30M Voltage



### MEASUREMENT RESULT: "12GR214E06\_fin"

7/19/2012 10:39PM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.150000	54.90	11.4	66	11.1	QP	N	GND
0.154500	53.60	11.4	66	12.2	QP	N	GND
0.267000	45.80	10.6	61	15.4	QP	N	GND
0.307500	44.10	10.5	60	15.9	QP	N	GND
0.460500	42.00	10.3	57	14.7	QP	N	GND
0.600000	47.00	10.2	56	9.0	QP	N	GND

### MEASUREMENT RESULT: "12GR214E06\_fin2"

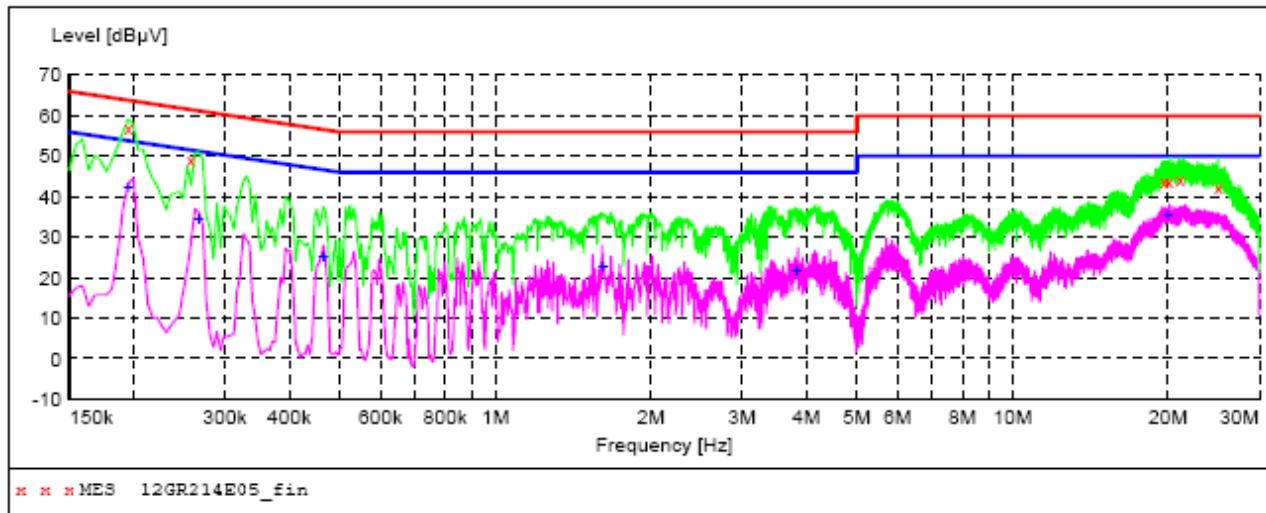
7/19/2012 10:39PM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.303000	39.50	10.6	50	10.7	AV	N	GND
0.339000	37.50	10.5	49	11.7	AV	N	GND
0.451500	35.50	10.3	47	11.3	AV	N	GND
0.456000	36.20	10.3	47	10.6	AV	N	GND
0.492000	35.10	10.3	46	11.0	AV	N	GND
0.600000	39.30	10.2	46	6.7	AV	N	GND

## Conducted Emission Test Data

EUT: Computer System Graupner/SJ HoTT  
M/N: MC-20  
Operating Condition: Connect to PC  
Test Site: Cheng  
Operator: Yang  
Test Specification: AC 120V/60Hz  
Comment: L Line  
Start of Test: 7/19/12/22:36 Tem:25°C Hum:50%

**SCAN TABLE: "Voltage (9K-30M) FIN"**  
Short Description: 150K-30M Voltage



**MEASUREMENT RESULT: "12GR214E05\_fin"**

7/19/2012 10:36PM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.195000	56.90	10.9	64	6.9	QP	L1	GND
0.258000	49.20	10.7	62	12.3	QP	L1	GND
19.635000	44.00	10.6	60	16.0	QP	L1	GND
20.071500	43.90	10.6	60	16.1	QP	L1	GND
21.124500	44.20	10.7	60	15.8	QP	L1	GND
24.972000	42.20	10.9	60	17.8	QP	L1	GND

**MEASUREMENT RESULT: "12GR214E05\_fin2"**

7/19/2012 10:36PM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.195000	42.30	10.9	54	11.5	AV	L1	GND
0.267000	34.30	10.6	51	16.9	AV	L1	GND
0.465000	25.40	10.3	47	21.2	AV	L1	GND
1.612500	22.90	10.2	46	23.1	AV	L1	GND
3.822000	21.60	10.3	46	24.4	AV	L1	GND
19.954500	35.30	10.6	50	14.7	AV	L1	GND

## 5 - RADIATED DISTURBANCES

### 5.1 Limit of Radiated Disturbances

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB $\mu$ V/m)
30 ~ 88	3	40
88~216	3	43.5
216 ~ 960	3	46
960 ~ 1000	3	54

Note: (1) The tighter limit shall apply at the edge between two frequency bands.  
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

### 5.2 EUT Setup

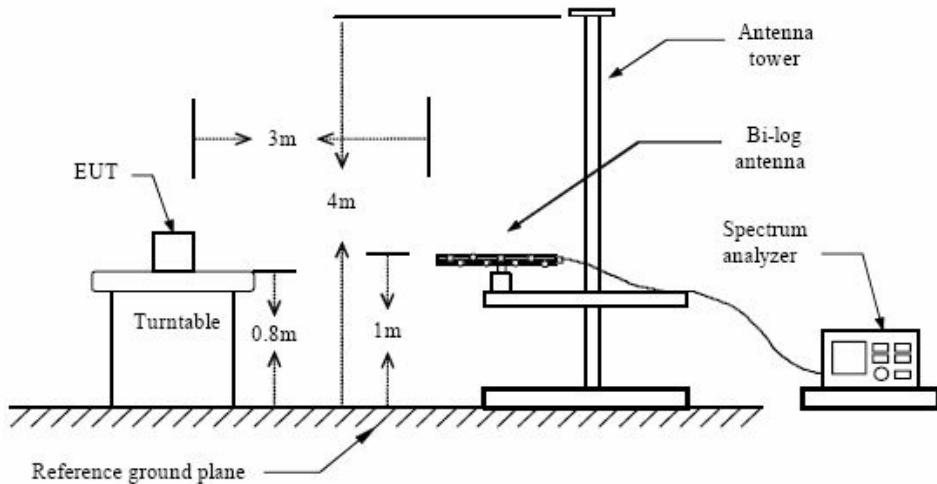
The radiated emission tests were performed in the in the 3-meter anechoic chamber, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15 Subpart B limits.

The EUT was placed on the center of the test table.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

Block diagram of test setup (In chamber)

Below 1 GHz



### 5.3 Test Receiver Setup

According to FCC Part 15 rule, the frequency was investigated from 30 to 1000 MHz. During the radiated emission test, the test receiver was set with the following configurations:

Test Receiver Setting:

Detector.....Peak & Quasi-Peak  
IF Band Width.....120KHz  
Frequency Range.....30MHz to 1000MHz  
Turntable Rotated.....0 to 360 degrees

Antenna Position:

Height.....1m to 4m  
Polarity.....Horizontal and Vertical

### 5.4 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within  $-10 \text{ dB}\mu\text{V}$  of specification limits), and are distinguished with a "QP" in the data table.

### 5.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of  $-7 \text{ dB}\mu\text{V}$  means the emission is  $7 \text{ dB}\mu\text{V}$  below the maximum limit for Subpart B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corr. Ampl.}$$

### 5.6 Radiated Emissions Test Result

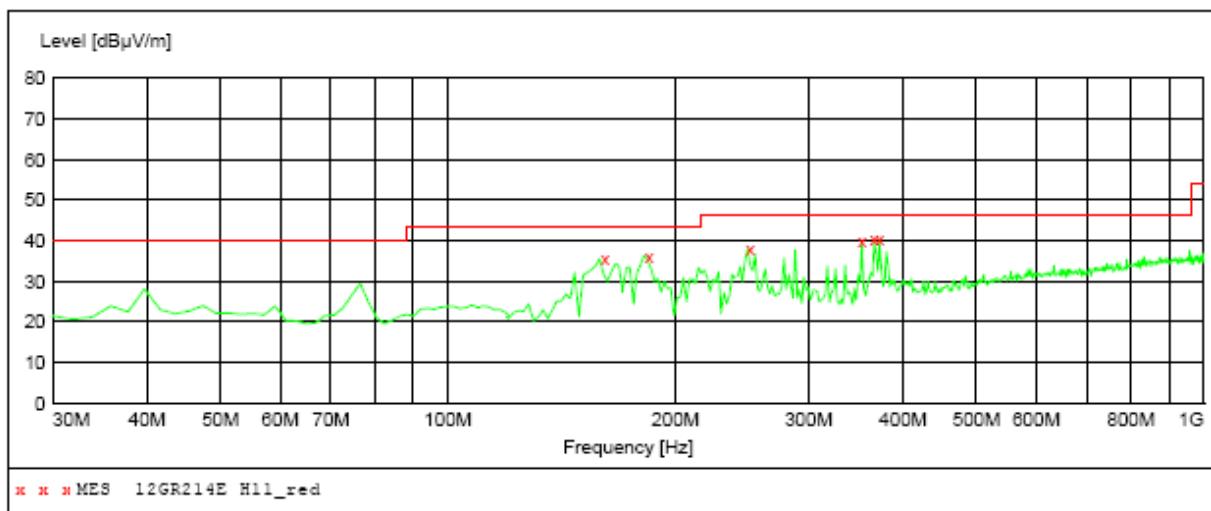
Temperature ( °C ) : 23~25	EUT: Computer System Graupner/SJ HoTT
Humidity (%RH) : 45~58	M/N: MC-20
Barometric Pressure ( mbar ) : 950~1000	Operation Condition: Connect to PC

## Radiated Emission Test Data Below 1G:

EUT: Computer System Graupner/SJ HoTT  
M/N: MC-20  
Operating Condition: Connect to PC  
Test Site: 3m CHAMBER  
Operator: Chen  
Test Specification: AC 120V/60Hz  
Comment: Polarization: Horizontal  
Start of Test: 7/25/12/07:20 Tem:25°C Hum:50%

### ***SWEEP TABLE: "test (30M-1G)"***

Short Description:		Field Strength		
Start Frequency	Stop Frequency	Detector	Meas.	IF
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz
				Transducer
				VULB9163 NEW



### ***MEASUREMENT RESULT: "12GR214E H11\_red"***

7/25/2012 07:18

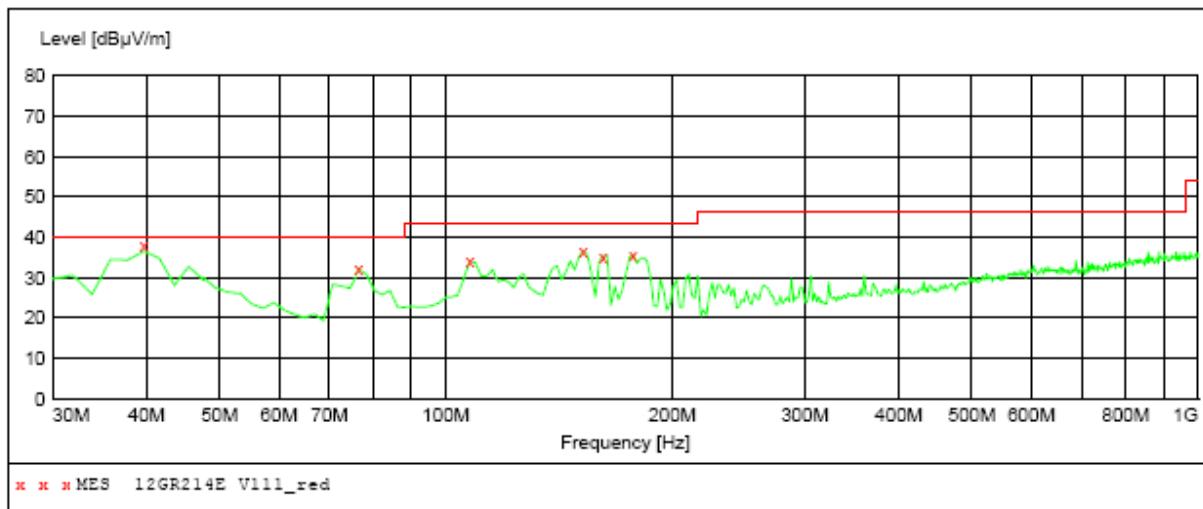
Frequency MHz	Level dB $\mu$ V/m	Transd dB	Limit dB $\mu$ V/m	Margin dB	Det. QP	Height cm	Azimuth deg	Polarization
159.980000	35.50	12.8	43.5	8.0	QP	100.0	0.00	HORIZONTAL
183.260000	36.30	14.2	43.5	7.2	QP	300.0	0.00	HORIZONTAL
249.220000	38.10	17.2	46.0	7.9	QP	100.0	0.00	HORIZONTAL
352.100000	39.00	20.4	46.0	7.0	QP	300.0	0.00	HORIZONTAL
363.680000	40.30	20.7	46.0	5.7	QP	100.0	0.00	HORIZONTAL
369.500000	40.40	20.8	46.0	5.6	QP	100.0	0.00	HORIZONTAL

## Radiated Emission Test Data Below 1G:

EUT: Computer System Graupner/SJ HoTT  
M/N: MC-20  
Operating Condition: Connect to PC  
Test Site: 3m CHAMBER  
Operator: Chen  
Test Specification: AC 120V/60Hz  
Comment: Polarization: Vertical  
Start of Test: 7/19/12/23:46 Tem:25°C Hum:50%

### ***SWEEP TABLE: "test (30M-1G)"***

Short Description:		Field Strength		
Start Frequency	Stop Frequency	Detector	Meas.	IF
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz
Transducer VULB9163 NEW				



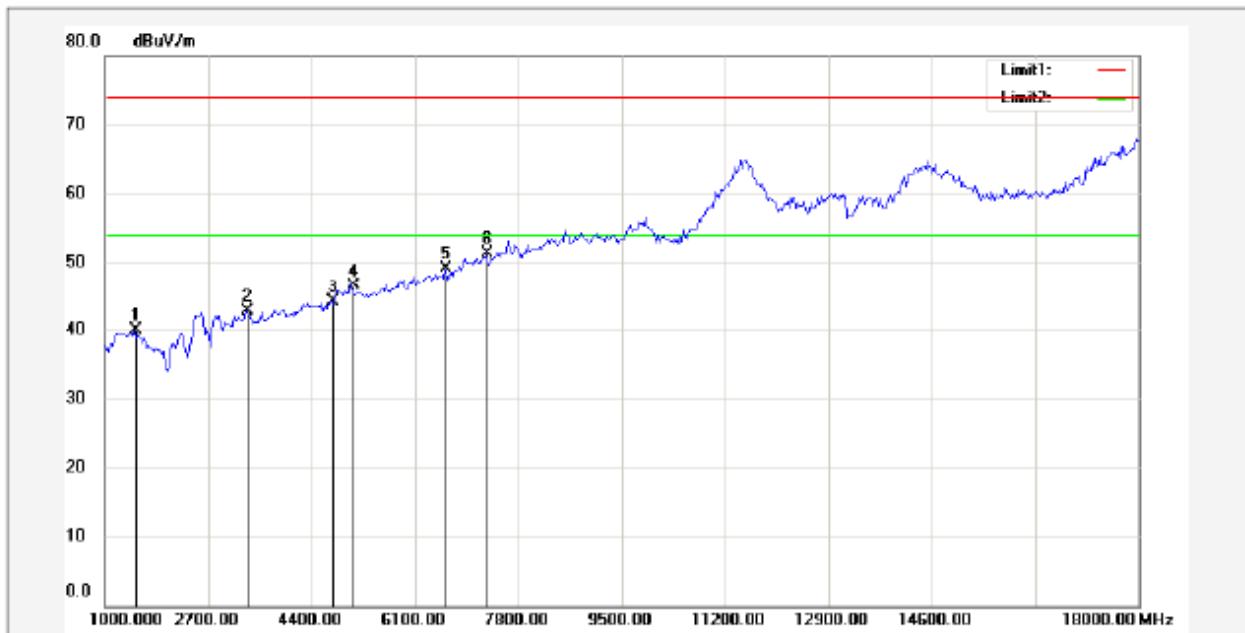
### ***MEASUREMENT RESULT: "12GR214E V11\_red"***

7/25/2012 07:21

Frequency MHz	Level dB $\mu$ V/m	Transd dB	Limit dB $\mu$ V/m	Margin dB	Det. QP	Height cm	Azimuth deg	Polarization
39.700000	36.90	15.8	40.0	4.1	QP	100.0	0.00	VERTICAL
76.560000	32.10	12.0	40.0	7.9	QP	100.0	0.00	VERTICAL
110.600000	34.40	16.8	43.5	9.1	QP	100.0	0.00	VERTICAL
152.220000	36.50	12.4	43.5	7.0	QP	100.0	0.00	VERTICAL
161.920000	35.40	12.8	43.5	8.1	QP	100.0	0.00	VERTICAL
180.440000	35.90	13.7	43.5	7.6	QP	100.0	0.00	VERTICAL

## Radiated Emission Test Data Above 1G:

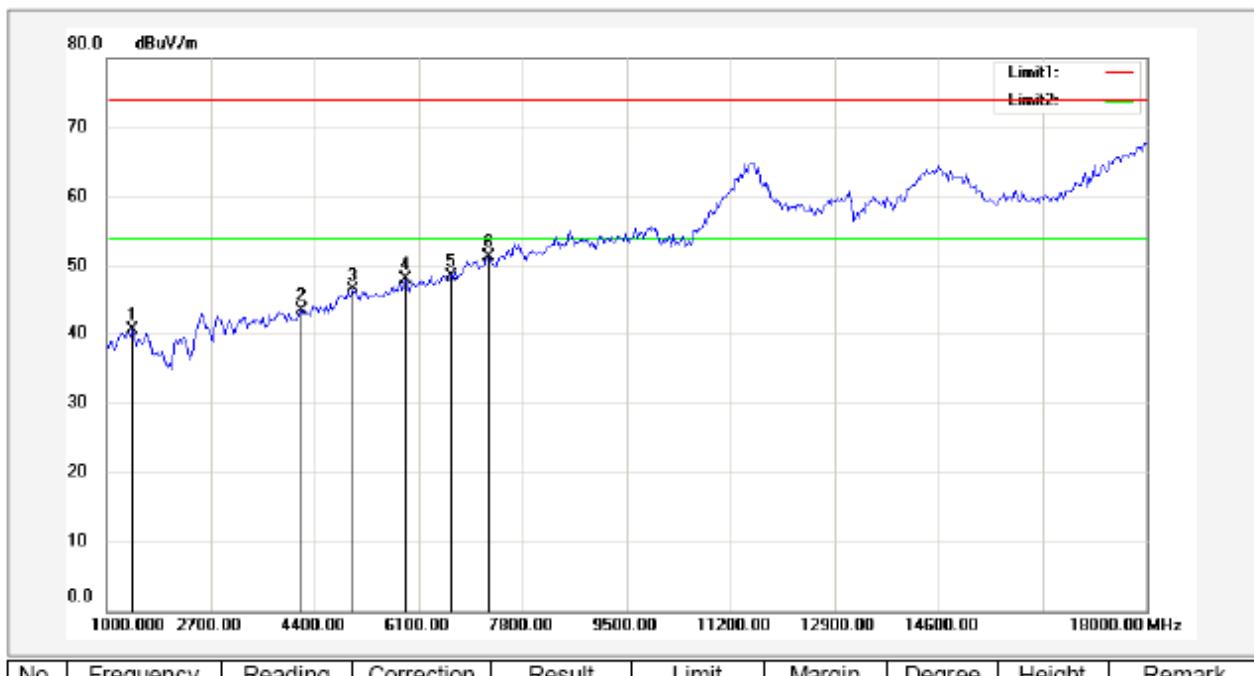
EUT: Computer System Graupner/SJ HoTT  
M/N: MC-20  
Operating Condition: Connect to PC  
Test Site: 3m CHAMBER  
Operator: Chen  
Test Specification: AC 120V/60Hz  
Comment: Polarization: Horizontal  
Start of Test: 7/25/12/07:20      Tem:25°C Hum:50%



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	1481.6667	48.14	-8.18	39.96	74.00	-34.04	---	---	peak
2	3323.3333	46.70	-4.03	42.67	74.00	-31.33	---	---	peak
3	4711.6667	44.03	0.03	44.06	74.00	-29.94	---	---	peak
4	5051.6667	45.20	1.38	46.58	74.00	-27.42	---	---	peak
5	6581.6667	44.31	4.77	49.08	74.00	-24.92	---	---	peak
6*	7261.6667	43.85	7.43	51.28	74.00	-22.72	---	---	peak

## Radiated Emission Test Data Above 1G:

EUT: Computer System Graupner/SJ HoTT  
M/N: MC-20  
Operating Condition: Connect to PC  
Test Site: 3m CHAMBER  
Operator: Chen  
Test Specification: AC 120V/60Hz  
Comment: Polarization: Vertical  
Start of Test: 7/19/12/23:46      Tem:25°C Hum:50%



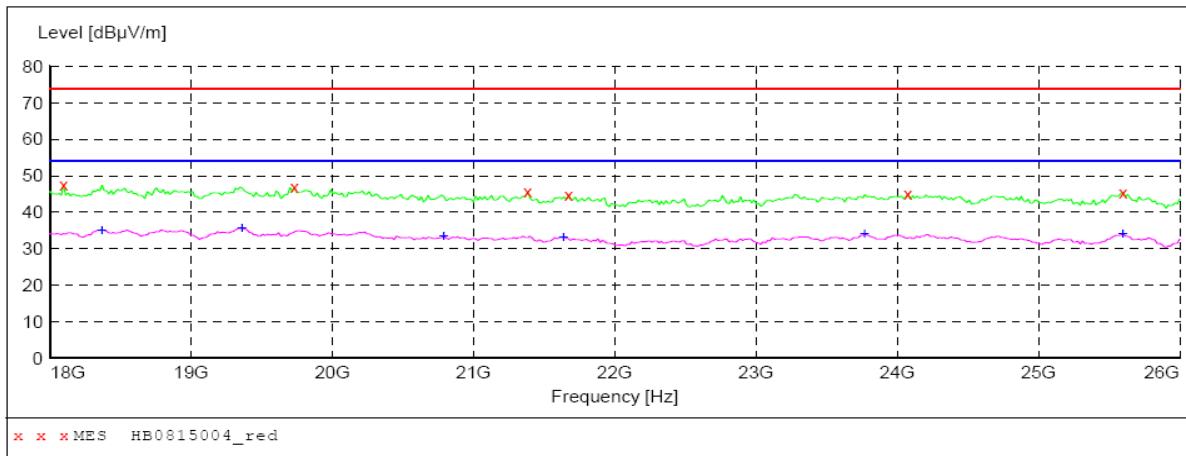
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	1425.0000	48.35	-7.94	40.41	74.00	-33.59	---	---	peak
2	4173.3333	45.02	-1.71	43.31	74.00	-30.69	---	---	peak
3	5023.3333	45.14	1.35	46.49	74.00	-27.51	---	---	peak
4	5873.3333	45.30	2.89	48.19	74.00	-25.81	---	---	peak
5	6638.3333	43.65	4.95	48.60	74.00	-25.40	---	---	peak
6*	7233.3333	43.89	7.40	51.29	74.00	-22.71	---	---	peak

## Radiated Emission Test Data Above 1G:

EUT: Computer System Graupner/SJ HoTT  
 M/N: MC-20  
 Operating Condition: Connect to PC  
 Test Site: 3m CHAMBER  
 Operator: Chen  
 Test Specification: AC 120V/60Hz  
 Comment: Polarization: Vertical and Horizontal  
 Start of Test: 7/19/12/23:46 Tem:25°C Hum:50%

### ***SWEET TABLE: "test (18G-40G) P"***

Short Description:		Field Strength			
Start Frequency	Stop Frequency	Detector	Meas.	IF	Transducer
18.0 GHz	40.0 GHz	MaxPeak	Time Coupled	Bandw. 1 MHz	SAS-574
Average					



### ***MEASUREMENT RESULT: "HB0815004\_red"***

8/15/2012 5:43PM	Frequency	Level	Transd	Limit	Margin	Det.	Height	Azimuth	Polarization
	MHz	dBµV/m	dB	dBµV/m	dB		cm	deg	
	18096.192385	47.60	-19.3	74.0	26.4	---	150.0	240.00	VERTICAL
	19731.462926	46.90	-25.4	74.0	27.1	---	150.0	314.00	VERTICAL
	21382.765531	45.60	-26.4	74.0	28.4	---	150.0	178.00	VERTICAL
	21671.342685	44.80	-26.0	74.0	29.2	---	150.0	215.00	HORIZONTAL
	24076.152305	45.00	-22.5	74.0	29.0	---	150.0	115.00	VERTICAL
	25599.198397	45.50	-22.7	74.0	28.5	---	150.0	80.00	HORIZONTAL

### ***MEASUREMENT RESULT: "HB0815004\_red2"***

8/15/2012 5:43PM	Frequency	Level	Transd	Limit	Margin	Det.	Height	Azimuth	Polarization
	MHz	dBµV/m	dB	dBµV/m	dB		cm	deg	
	18368.737475	35.20	-20.7	54.0	18.8	---	150.0	292.00	VERTICAL
	19362.725451	35.60	-24.6	54.0	18.4	---	150.0	233.00	VERTICAL
	20789.579158	33.40	-26.9	54.0	20.6	---	150.0	15.00	HORIZONTAL
	21639.278557	33.20	-26.0	54.0	20.8	---	150.0	174.00	VERTICAL
	23771.543086	34.00	-22.9	54.0	20.0	---	150.0	351.00	VERTICAL
	25599.198397	34.00	-22.7	54.0	20.0	---	150.0	201.00	HORIZONTAL