

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

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Test by:

Reviewed By:



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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 a 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 Genenator | 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 | 048110003E321 | 2011-11-14 | 2012-11-13 |
| 32 | HRMONICS&FLICKRE 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 | SCHWARZBECK | 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

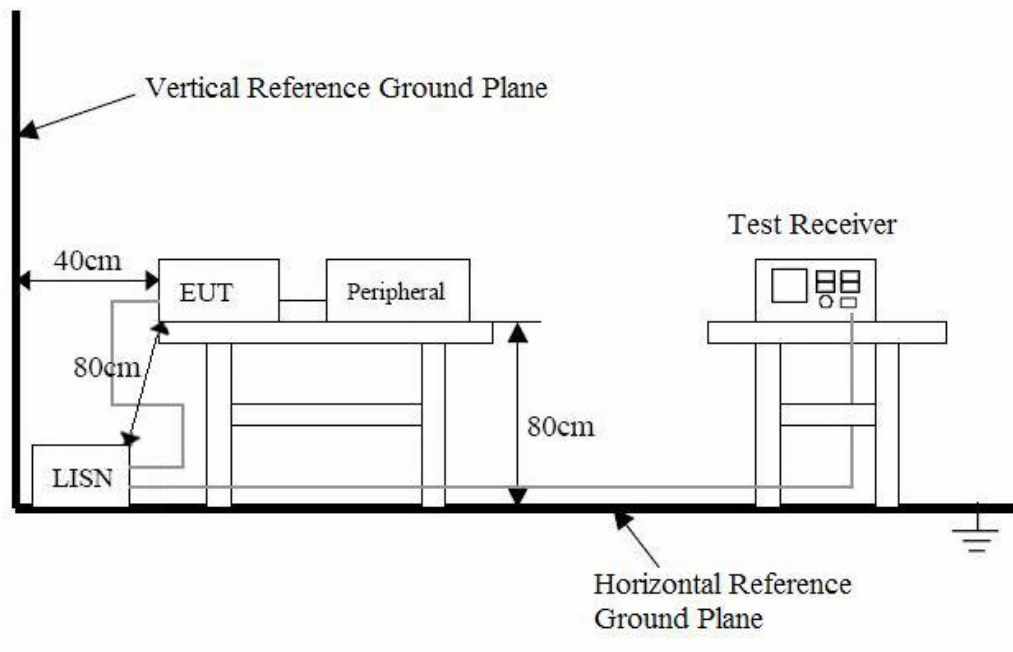
The setup of EUT is according with ANSI C63.4-2003 measurement procedure. The specification used was the FCC Rules and Regulations Part 15 Subpart B limits.

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 μ V of specification limits). Quasi-peak readings are distinguished with a "**QP**". Average readings are distinguished with a "**AV**".

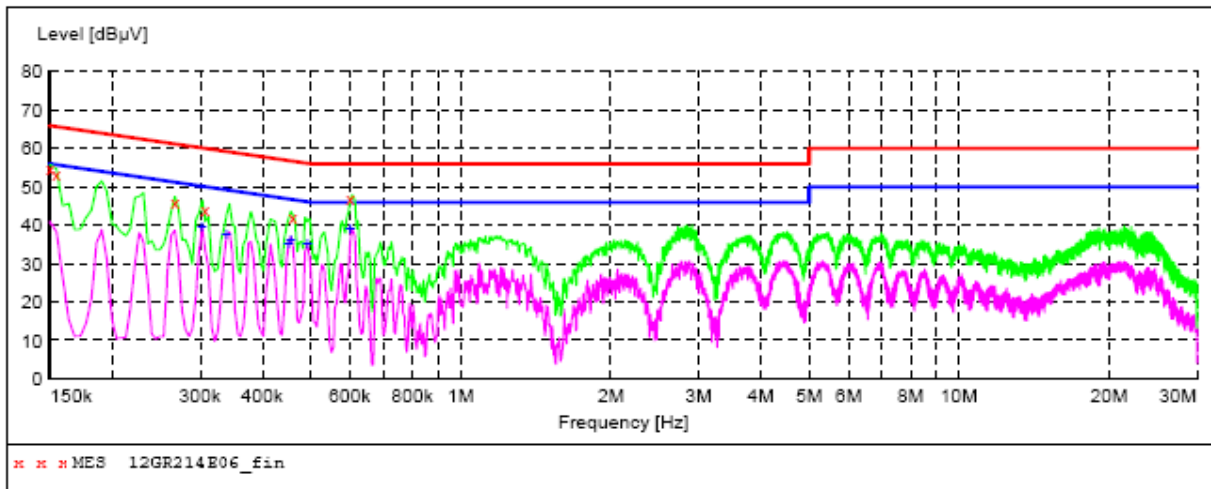
4.5 Test Result

| | |
|---|---------------------------------------|
| 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 dBμV | Transd dB | Limit dBμV | 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"

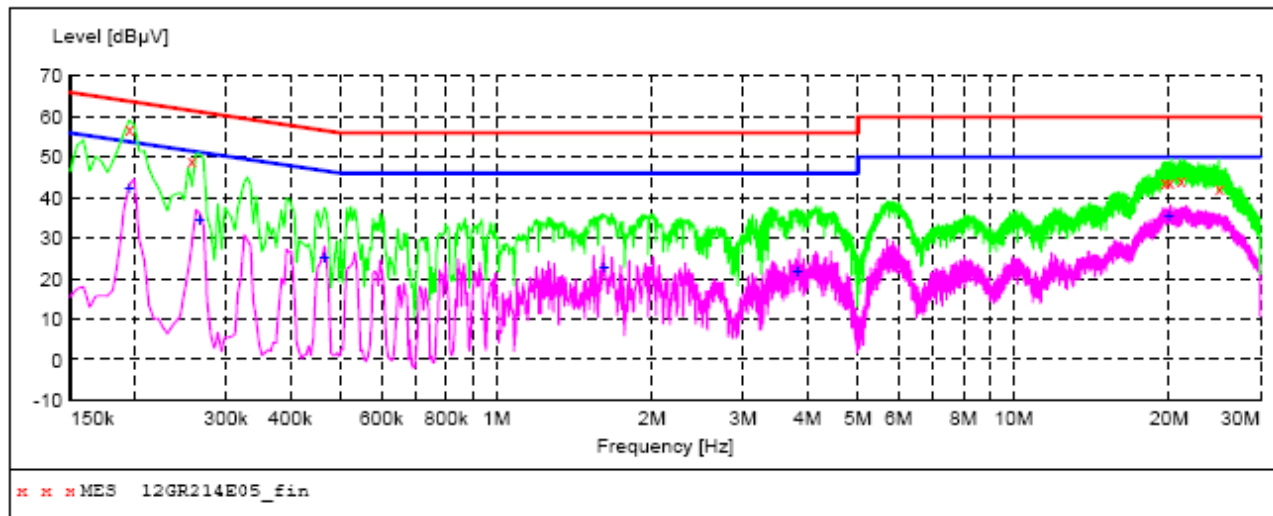
7/19/2012 10:39PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | 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 dBμV | Transd dB | Limit dBμV | 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 dBμV | Transd dB | Limit dBμV | 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 μ 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.

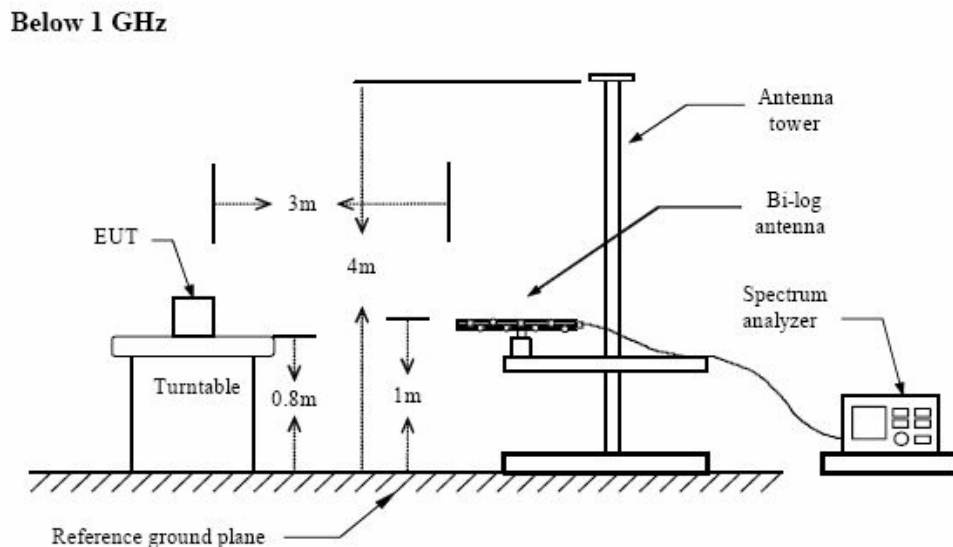
5.2 EUT Setup

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)



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 dB μ 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 -7dB μ V means the emission is 7dB μ 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

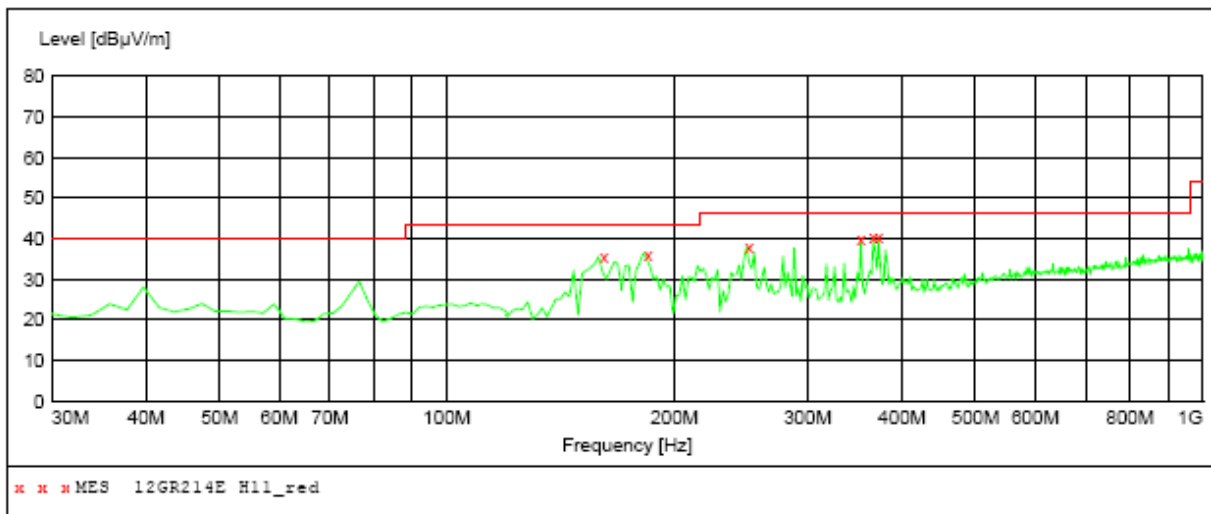
| | |
|---|---------------------------------------|
| Temperature (°C) : 23~25 | EUT: Computer System Graupner/SJ HoTT |
| Humidity (%RH) : 45~58 | M/N: MC-20 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Connect to PC |

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 | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "12GR214E H11_red"

7/25/2012 07:18

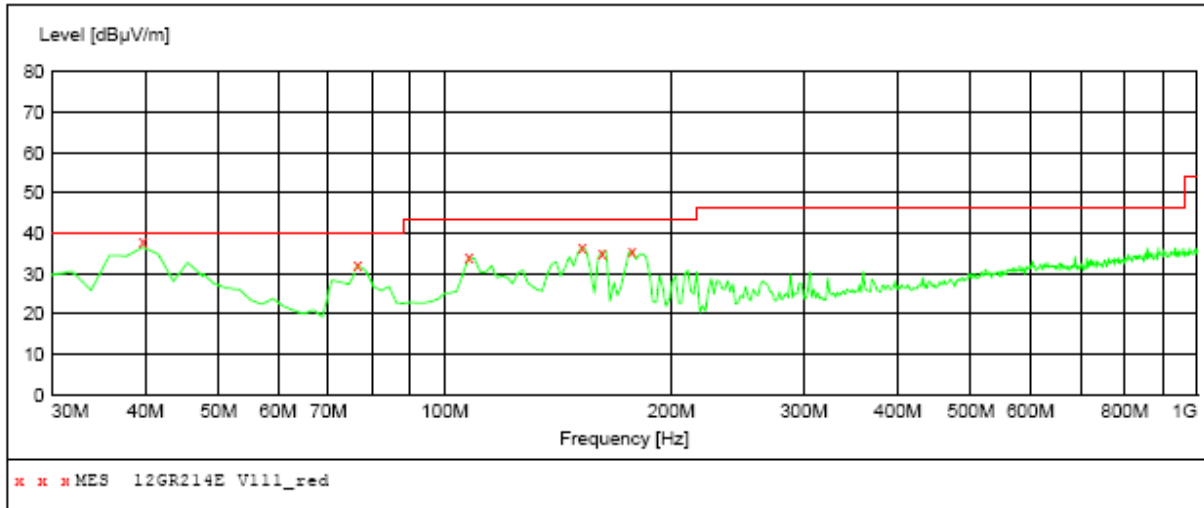
| Frequency MHz | Level dBuV/m | Transd dB | Limit dBuV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 159.980000 | 35.50 | 12.8 | 43.5 | 8.0 | 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 | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



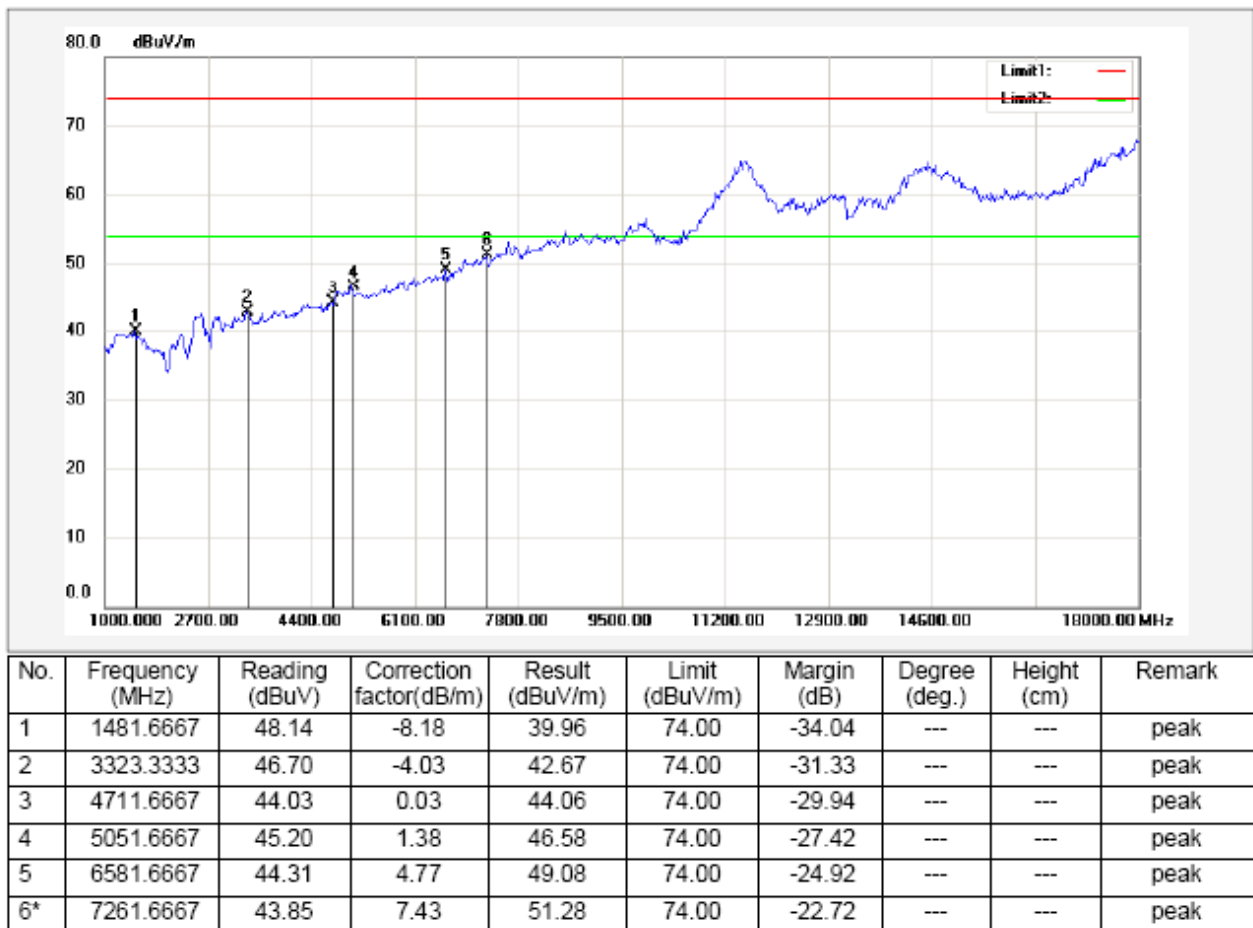
MEASUREMENT RESULT: "12GR214E V11_red"

7/25/2012 07:21

| Frequency MHz | Level dBuV/m | Transd dB | Limit dBuV/m | Margin dB | Det. | 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 |

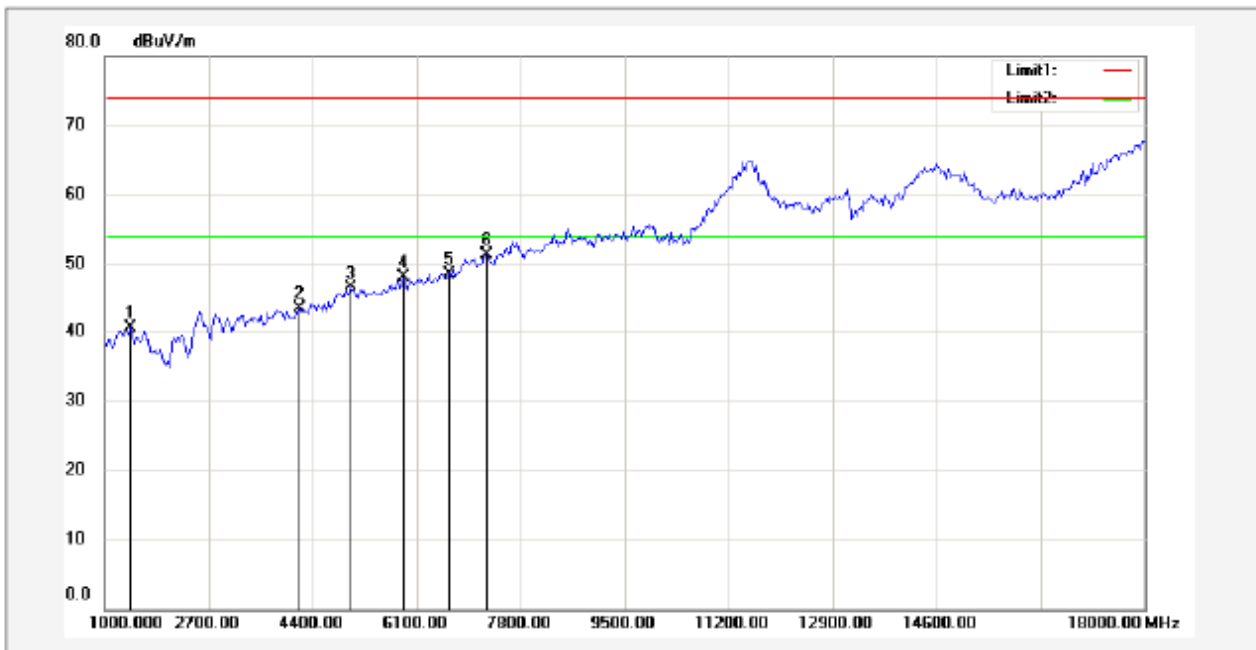
Radiated Emission Test Data Above 1G:

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%



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%



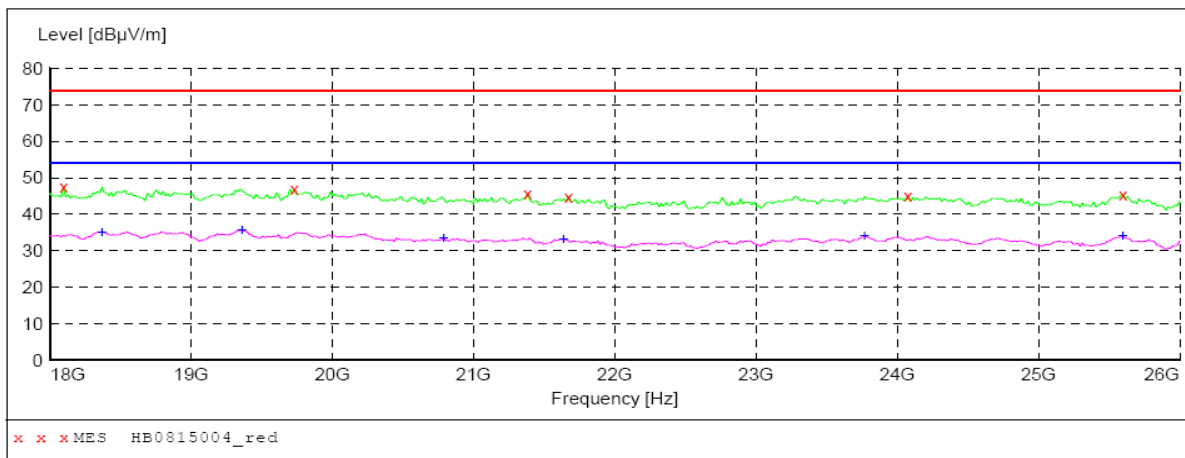
| No. | Frequency (MHz) | Reading (dBuV) | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree (deg.) | Height (cm) | Remark |
|-----|-----------------|----------------|-------------------------|-----------------|----------------|-------------|---------------|-------------|--------|
| 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%

SWEEP TABLE: "test (18G-40G) P"

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



MEASUREMENT RESULT: "HB0815004_red"

8/15/2012 5:43PM

| Frequency MHz | Level dBμV/m | Transd dB | Limit dBμV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 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 MHz | Level dBμV/m | Transd dB | Limit dBμV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 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 |