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## 1. Description of Equipment Under Test

## 1.1 Product Description

|                                     |                                                                                                                                                                                    |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer                        | : Brother Industries, Ltd.                                                                                                                                                         |
| Model (referred to as the EUT)      | : RL-700S                                                                                                                                                                          |
| Nominal Voltage                     | : 120 VAC                                                                                                                                                                          |
| Type of Modulation                  | : ACK 10%                                                                                                                                                                          |
| Mode of Operation                   | : <input type="checkbox"/> duplex <input type="checkbox"/> 1/2 duplex <input checked="" type="checkbox"/> simplex <input type="checkbox"/> other                                   |
| The type of the equipment           | : <input checked="" type="checkbox"/> Stand-alone <input type="checkbox"/> Combined Equipment<br><input type="checkbox"/> Plug –In Card <input type="checkbox"/> Other             |
| The type of the antenna             | : <input checked="" type="checkbox"/> Integral <input type="checkbox"/> external <input type="checkbox"/> Other                                                                    |
| The type of power source            | : <input type="checkbox"/> AC mains <input checked="" type="checkbox"/> Dedicated AC adapter (100-240 VAC)<br><input type="checkbox"/> DC Voltage <input type="checkbox"/> Battery |
| The type of battery (if applicable) | : N/A                                                                                                                                                                              |
| Type of Operation                   | : <input type="checkbox"/> Continuous <input type="checkbox"/> Burst <input checked="" type="checkbox"/> Intermittent                                                              |
| Stand by Mode                       | : <input type="checkbox"/> Available <input checked="" type="checkbox"/> N/A                                                                                                       |
| Intended functions                  | : RFID label printer                                                                                                                                                               |
| The bandwidth of the IF filters     | : N/A                                                                                                                                                                              |
| Method of Communication Link        | : Software to make maximum speed transmitting                                                                                                                                      |
| The operating frequency band        | : 13.553 to 13.567 MHz                                                                                                                                                             |
| The thermal limitation              | : Not specified                                                                                                                                                                    |

## 1.2 Antenna Description

The following table shows the general information about dedicated antennas

| No. | Type Name | Gain      | Antenna Type | Remarks                |
|-----|-----------|-----------|--------------|------------------------|
| 1   | B5J-0281  | -53.5 dBi | Printed Loop | Originally Integrated. |

### 1.3 Accompanied Peripherals Description

| No. | Equipment Name | Manufacturer | Type Name       | Serial Number | Remarks |
|-----|----------------|--------------|-----------------|---------------|---------|
| 1   | AC Adapter     | Brother      | NU60-6240250-13 | N/A           |         |
| 2   | PC             | DELL         | PP05L           | N/A           |         |

## 2. General Information

### 2.1 Test Methodology

All measurement subject to the present test report is carried out according to the procedures in ANSI C63.4:2003.

### 2.2 Test Facility

All measurement was performed in the following facility;

#### **Cosmos Corporation EMC Lab. Ohnogi**

(2-3571 Ohaza-iwatachi, Ohnogi, Watarai-cho, Watarai-gun, Mie-ken 516-2102, Japan) The test site has been filed by FCC.

#### **Cosmos Corporation EMC Lab. No. 2**

(519 Shimesasu, Watarai-cho, Watarai-gun, Mie-ken 516-2119, Japan) The test site has been filed by FCC.

### 2.3 Tractability

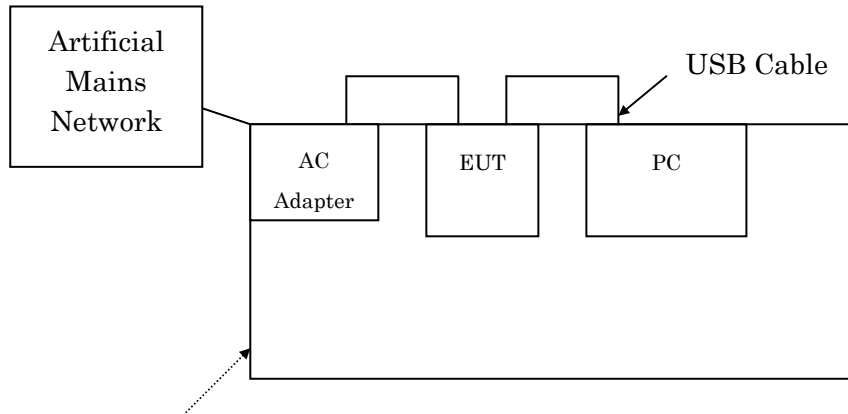
The calibration of measurement equipment used in the test subject to the present report is designed and operated to ensure that the measurement is traceable to national standards of measurement or equivalent abroad.

## 3. Summary of Test Results

| Section | Test Item                           | Limit              | Result |
|---------|-------------------------------------|--------------------|--------|
| 15. 207 | AC Power Conducted Emission         | Limit: min.48dBuV  | Pass   |
| 15. 209 | Field Strength of Spurious Emission | Refer to 15. 209   | Pass   |
| 15. 225 | Maximum Output Power                | 15,848 uV/m @ 30 m | Pass   |
| 15. 225 | Frequency Tolerance                 | $\pm$ 0.01 %       | Pass   |

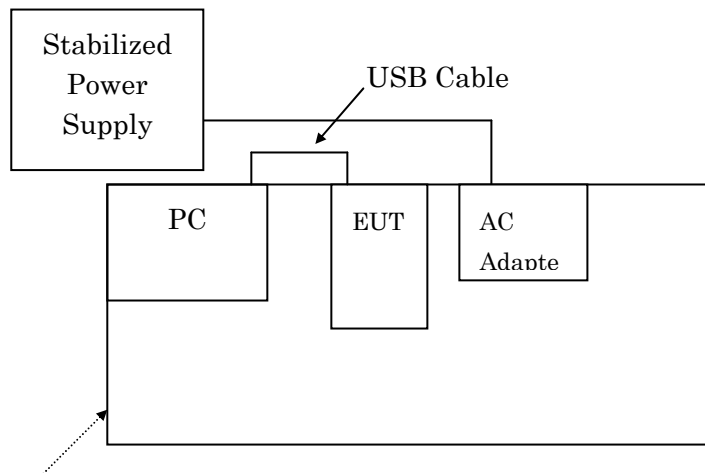
## 4. Test Configuration

### 4.1 Conducted Emission Measurement

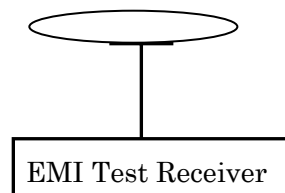


Non-conductive table, 0.8m high  
Non-conductive board, 12mm thick

### 4.2 Radiated Measurement in 3m Anechoic Chamber



Non-conductive table, 0.8 m high



Antenna (Loop, Biconical and Log-periodic)

\* The support PC was placed under the non-conducted table to avoid screening RF emission of EUT.

#### 4.3 Test Mode

In all test configurations above, EUT makes communication link between the integrated RFID module and a RFID tag in a dedicated ink ribbon with the maximum RF power by a special test program.

Maximum Output Power and Frequency Tolerance measurement were performed with an external stabilized DC power supply voltage varied between 85% and 115% of the nominal rated supply voltage 120 VAC.

Frequency Tolerance measurement is performed under the following extreme condition:

Temperature: - 20°C to +50°C

Voltage: 102 to 138 VAC

## 5. Measurement Result

### 5.1 15. 207 AC Power Conducted Emission

#### 5.1.1 Setting Remarks

- Configure the EUT System in accordance with ANSI C63.4-2003.
- A wooden test table (1.5m×1.0m, height 0.8m) was used.
- EUT's dedicated AC adapter connected to Artificial Mains Network (AMN).
- Other power cord of support equipment is connected to another AMN to isolate its emission from the measured emission of EUT.
- The measuring port of AMN for support equipment was terminated by the 50Ω
- Activate the EUT System and run the software prepared for the test, if necessary.
- Refer to test configuration figure 4.1.

#### 5.1.2 Minimum Standard

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN).

Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

| Frequency of Emission (MHz) | Conducted Limit (dBuV) |            |
|-----------------------------|------------------------|------------|
|                             | Quasi-peak             | Average    |
| 0.15-0.5                    | 66 to 56 *             | 56 to 46 * |
| 0.5-5                       | 56                     | 46         |
| 5-30                        | 60                     | 50         |

\* Decreases with the logarithm of the frequency.

#### 5.1.3 Result

**EUT complies with the requirement.**

Uncertainty of measurement :  $\pm 2.26$  dB  
Temperature, Humidity : N/A



## 5.1.4 Measured Data

## Measured Value Table

\*\*\*\*\* Cosmos Corporation \*\*\*\*\*  
<<Conducted Emission>>

22 June, 2007 23:31  
062168E CE Total02.dat

Limit : FCC Part 15  
Model : RL-700S  
Serial : E65117-D7G127230  
Operator : K. Yamashita  
Power : AC 120V, 60Hz  
Temp , Humid : 25deg., 56%  
Remark1 : Operated  
Remark2 :  
Remark3 :  
Remark4 : RBW: 9kHz

\*\*\*\*\*  
Final Result

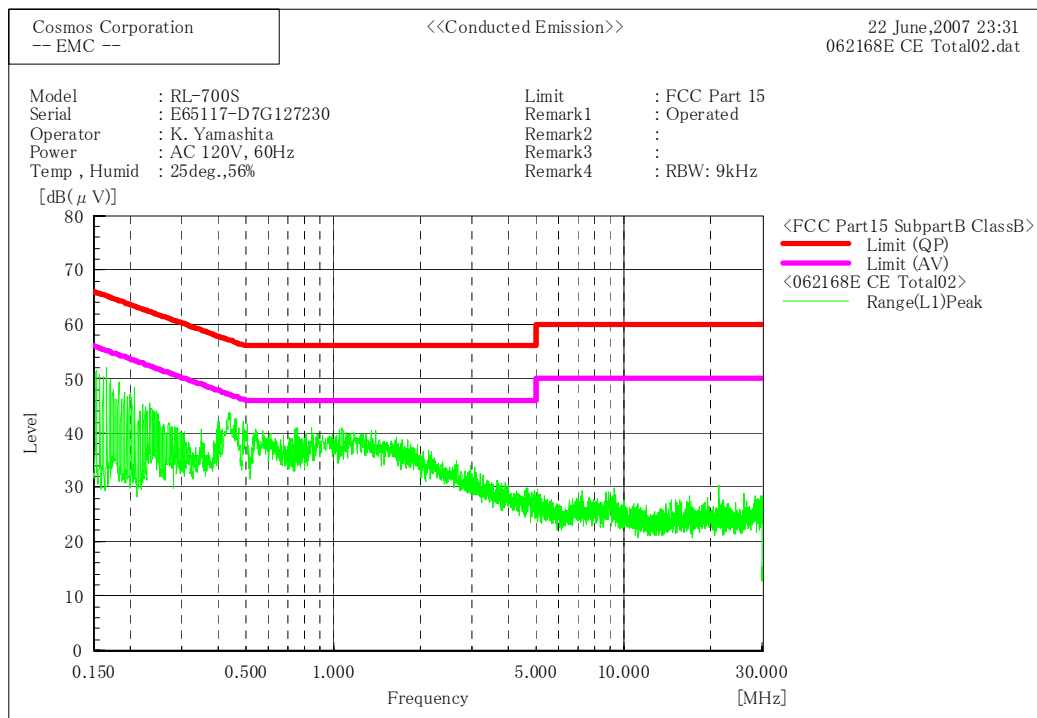
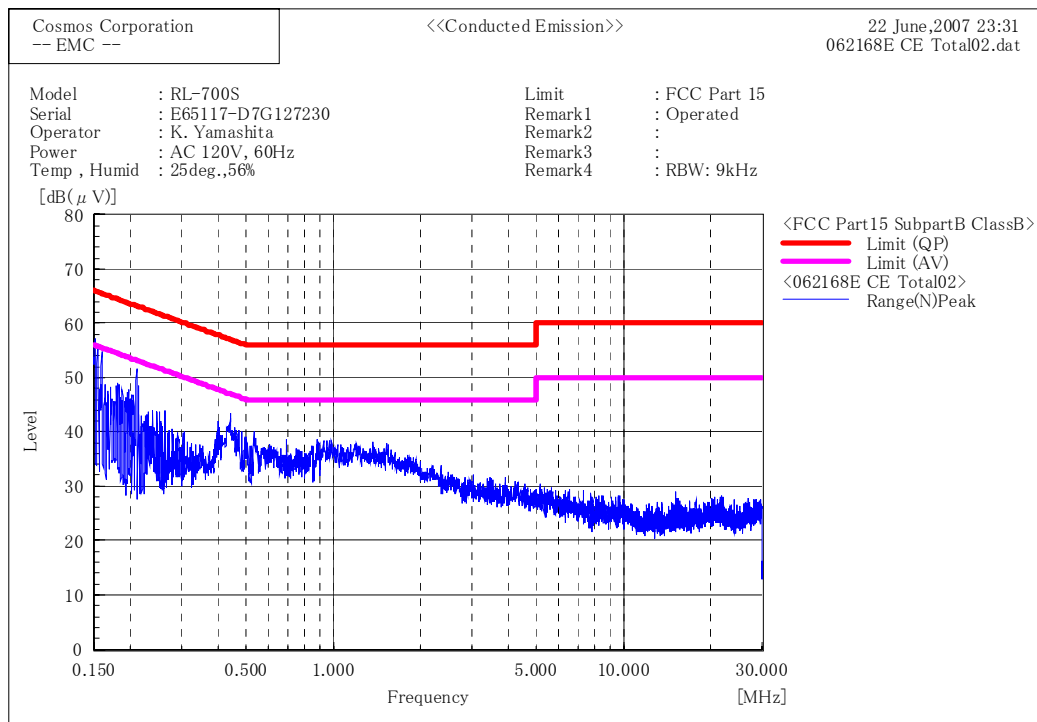
## --- N Phase ---

| No. | Frequency | Reading<br>QP  | Reading<br>AV  | c.f  | Result<br>QP   | Result<br>AV   | Limit<br>QP    | Limit<br>AV    | Margin<br>QP | Margin<br>AV |
|-----|-----------|----------------|----------------|------|----------------|----------------|----------------|----------------|--------------|--------------|
|     | [MHz]     | [dB( $\mu$ V)] | [dB( $\mu$ V)] | [dB] | [dB( $\mu$ V)] | [dB( $\mu$ V)] | [dB( $\mu$ V)] | [dB( $\mu$ V)] | [dB]         | [dB]         |
| 1   | 0.152     | 42.8           | 24.0           | 9.8  | 52.6           | 33.8           | 65.9           | 55.9           | 13.3         | 22.1         |
| 2   | 0.194     | 36.0           | 18.8           | 9.6  | 45.6           | 28.4           | 63.9           | 53.9           | 18.3         | 25.5         |
| 3   | 0.439     | 30.2           | 20.4           | 9.7  | 39.9           | 30.1           | 57.1           | 47.1           | 17.2         | 17.0         |
| 4   | 0.891     | 26.1           | 14.4           | 9.7  | 35.8           | 24.1           | 56.0           | 46.0           | 20.2         | 21.9         |
| 5   | 1.522     | 22.2           | 13.1           | 10.0 | 32.2           | 23.1           | 56.0           | 46.0           | 23.9         | 22.9         |
| 6   | 3.485     | 13.6           | 7.1            | 10.2 | 23.8           | 17.3           | 56.0           | 46.0           | 32.2         | 28.7         |
| 7   | 15.142    | 5.5            | -1.7           | 11.4 | 16.9           | 9.7            | 60.0           | 50.0           | 43.1         | 40.3         |

## --- L1 Phase ---

| No. | Frequency | Reading<br>QP  | Reading<br>AV  | c.f  | Result<br>QP   | Result<br>AV   | Limit<br>QP    | Limit<br>AV    | Margin<br>QP | Margin<br>AV |
|-----|-----------|----------------|----------------|------|----------------|----------------|----------------|----------------|--------------|--------------|
|     | [MHz]     | [dB( $\mu$ V)] | [dB( $\mu$ V)] | [dB] | [dB( $\mu$ V)] | [dB( $\mu$ V)] | [dB( $\mu$ V)] | [dB( $\mu$ V)] | [dB]         | [dB]         |
| 1   | 0.153     | 42.4           | 22.7           | 9.8  | 52.2           | 32.5           | 65.8           | 55.8           | 13.6         | 23.3         |
| 2   | 0.164     | 36.6           | 14.0           | 9.7  | 46.3           | 23.7           | 65.3           | 55.3           | 19.0         | 31.7         |
| 3   | 0.209     | 30.1           | 11.6           | 9.6  | 39.7           | 21.2           | 63.3           | 53.3           | 23.6         | 32.1         |
| 4   | 0.443     | 30.7           | 21.2           | 9.7  | 40.4           | 30.9           | 57.0           | 47.0           | 16.6         | 16.1         |
| 5   | 0.848     | 27.8           | 16.2           | 9.7  | 37.5           | 25.9           | 56.0           | 46.0           | 18.5         | 20.1         |
| 6   | 1.371     | 25.9           | 14.9           | 9.9  | 35.8           | 24.8           | 56.0           | 46.0           | 20.2         | 21.3         |
| 7   | 9.325     | 6.5            | -0.1           | 10.9 | 17.4           | 10.8           | 60.0           | 50.0           | 42.6         | 39.2         |
| 8   | 21.296    | 5.2            | -0.4           | 11.7 | 16.9           | 11.3           | 60.0           | 50.0           | 43.1         | 38.7         |

## Peak Hold Wave Form



## 5.2 15. 209 Transmitter Radiated Emissions

### 5.2.1 Setting Remarks

- The data lists in “5.2.4 Measured Data “ list the significant emission frequencies, measured levels, correction factor (includes cable and antenna corrections), the corrected reading, plus the limit.
- In the frequency range between 9kHz to 1 GHz, the Electric Field Strength was measured in accordance with ANSI C63.4: 2003 and CISPR22: 1997.
- The test setup was made in accordance with ANSI C63.4: 2003.
- The antenna was measured at 1-4m height for 30MHz to 1GHz.
- The EUT was placed on the non-conductive table in the center of turntable. The height of this table was 0.8m.
- The measurement was carried out with both horizontal and vertical antenna polarization.
- The highest radiation from the equipment was recorded.
- Below 30MHz, a loop antenna was used at 1m height.
- By varying the configuration of the test sample and the cable routing, it was attempted to maximize the emission.
- The test receiver with Quasi Peak and Average detector is in compliance with CISPR 16-1:1993.
- 9-90 kHz, 110-490 kHz are based on measurements employing an average detector.
- The spectrum analyzer was set-up as following;

(Frequency range : 9kHz - 30 MHz)

- ✓ Resolution bandwidth : 10 kHz
- ✓ Video bandwidth : 100 kHz
- ✓ Detector function : Peak
- ✓ Trace Mode : Max Hold

(Frequency range : 30 - 1000 MHz)

- ✓ Resolution bandwidth : 100 kHz
- ✓ Video bandwidth : 300 kHz
- ✓ Detector function : Peak
- ✓ Trace Mode : Max Hold

- EMI Test Receiver analyzer was set-up as following (Quasi-Peak Detector);

- ✓ IF bandwidth : 200 Hz (9kHz - 150kHz)
- ✓ IF bandwidth : 9 kHz (150kHz - 30MHz)
- ✓ IF bandwidth : 120 kHz (30MHz - 1GHz)

- Refer to test configuration figure 4.2.

**5.2.2 Minimum Standard**

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

**5.2.3 Result**

**EUT complies with the requirement.**

Uncertainty of measurement result:  $\pm 3.64$  dB

Temperature, Humidity : Refer to each data table

## 5.2.4 Measured Data

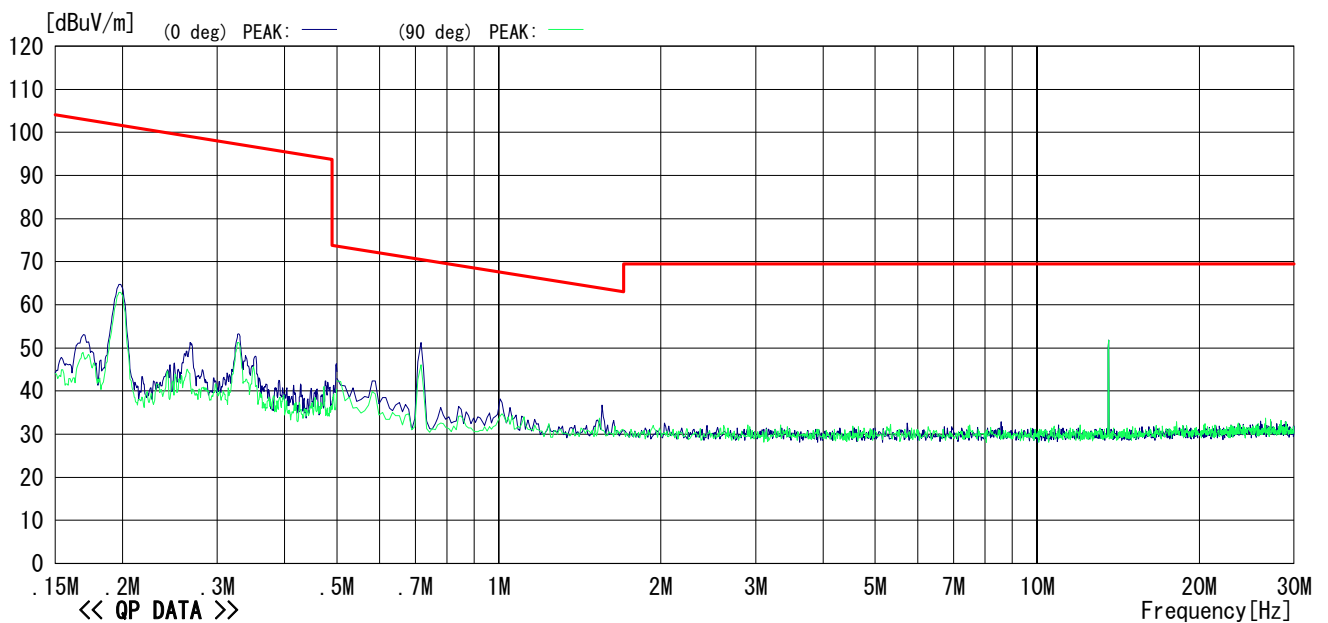
9kHz to 30MHz

Model Name : RL-700S / NU60-6240250-13  
Serial No. : E65117-D7G127230 / None  
Operator : M. Yamanaka  
Power Supply : AC 120V, 60Hz

Job No. : CJ07-062168E  
Temp./Humi. : 25°C/48%  
Condition :  
Remark :

Memo : RFID Reader Mode

LIMIT : FCC Part15 SubpartC 15.209 9KHz-30MHz



| No | Freq.    | Reading | Ant. Fac | Loss | Result   | Limit    | Margin | Antenna | Angle |
|----|----------|---------|----------|------|----------|----------|--------|---------|-------|
|    | [MHz]    | [dBuV]  | [dB/m]   | [dB] | [dBuV/m] | [dBuV/m] | [dB]   |         | [deg] |
| 1  | 0.17089  | 31.5    | 19.0     | 0.2  | 50.7     | 102.9    | 52.2   | 0deg    | 242   |
| 2  | 0.35205  | 24.4    | 19.0     | 0.2  | 43.6     | 96.7     | 53.1   | 0deg    | 243   |
| 3  | 13.56004 | 32.2    | 18.4     | 0.8  | 51.4     | 69.5     | 18.1   | 0deg    | 133   |
| 4  | 0.17335  | 26.7    | 19.0     | 0.2  | 45.9     | 102.8    | 56.9   | 90deg   | 208   |
| 5  | 0.34960  | 21.9    | 19.0     | 0.2  | 41.1     | 96.7     | 55.6   | 90deg   | 211   |
| 6  | 13.56004 | 32.4    | 18.4     | 0.8  | 51.6     | 69.5     | 17.9   | 90deg   | 180   |

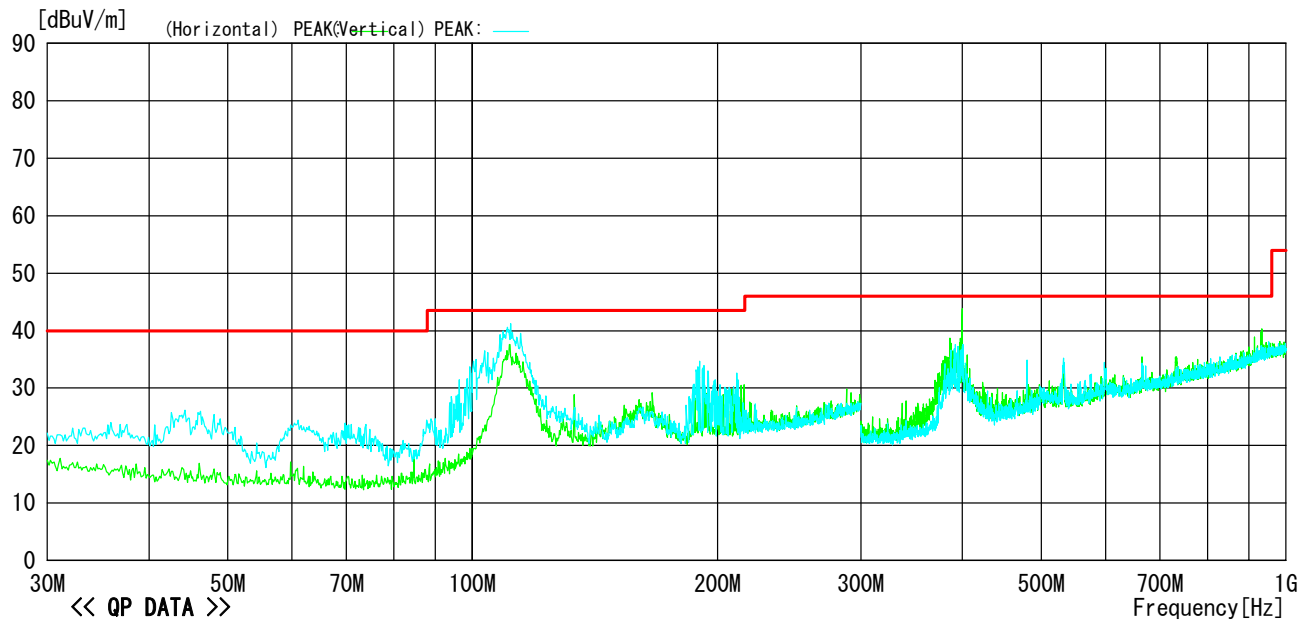
30MHz to 1GHz

Model Name : RL-700S / NU60-6240250-13  
 Serial No. : E65117-D7G127230 / None  
 Operator : M. Yamanaka  
 Power Supply : AC 120V 60Hz

Job No : GJ07-062168E  
 Temp./Humi. : 24°C/45%  
 Condition :  
 Remark : 3m distance

Memo : RFID Reader Mode FCC Part15 Subpart C

LIMIT : FCC 15.209 3m



| No | Freq.   | Reading | C. Fac | Result   | Limit    | Margin | Pola. | Height | Angle | Ant  | Comment |
|----|---------|---------|--------|----------|----------|--------|-------|--------|-------|------|---------|
|    | [MHz]   | [dBuV]  | [dB/m] | [dBuV/m] | [dBuV/m] | [dB]   | [H/V] | [cm]   | [deg] | Type |         |
| 1  | 211.273 | 30.8    | -7.7   | 23.1     | 43.5     | 20.4   | Hori. | 174    | 76    | BC   |         |
| 2  | 398.802 | 38.6    | -5.6   | 33.0     | 46.0     | 13.0   | Hori. | 100    | 107   | LP   |         |
| 3  | 71.938  | 36.9    | -15.4  | 21.5     | 40.0     | 18.5   | Vert. | 100    | 109   | BC   |         |
| 4  | 107.545 | 46.5    | -13.7  | 32.8     | 43.5     | 10.7   | Vert. | 298    | 97    | BC   |         |
| 5  | 111.789 | 50.3    | -13.5  | 36.8     | 43.5     | 6.7    | Vert. | 174    | 287   | BC   |         |
| 6  | 190.335 | 37.0    | -8.8   | 28.2     | 43.5     | 15.3   | Vert. | 100    | 222   | BC   |         |
| 7  | 212.981 | 30.3    | -7.6   | 22.7     | 43.5     | 20.8   | Vert. | 179    | 288   | BC   |         |
| 8  | 393.832 | 36.9    | -5.6   | 31.3     | 46.0     | 14.7   | Vert. | 100    | 228   | LP   |         |
| 9  | 480.225 | 37.2    | -3.5   | 33.7     | 46.0     | 12.3   | Vert. | 100    | 181   | LP   |         |

### 5.3 Maximum Carrier Output Power

#### 5.3.1 Setting Remarks

- Refer to 5.2.1
- The EUT was placed on the non-conductive table in the center of turntable. The height of this table was 1m.
- The measurement was carried out with both horizontal and vertical antenna polarization.
- The highest radiation from the equipment was recorded.
- The test receiver with Quasi Peak and Average detector is in compliance with CISPR 16-1:1993.
- The spectrum analyzer was set-up as following;
  - ✓ Frequency Span : Appropriate to determine carrier frequency.
  - ✓ Resolution bandwidth : Appropriate to determine carrier frequency.
  - ✓ Video bandwidth : Appropriate to determine carrier frequency.
  - ✓ Sweep : Auto
  - ✓ Detector function : Peak
  - ✓ Trace Mode : Max Hold
- EMI Test Receiver analyzer was set-up as following (Quasi-Peak Detector);
  - ✓ IF bandwidth : 9 kHz
- Refer to test configuration figure 4.2.

#### 5.3.2 Minimum Standard

- (a) The field strength of any emissions 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.

#### 5.3.3 Result

**EUT complies with the requirement.**

Uncertainty of measurement result:  $\pm 3.64$  dB  
Temperature, Humidity : 24 °C, 45%

## 5.3.4 Measured Data (3m distance)

(102 VAC)

| Frequency (MHz) | Polarization (°) | Correction Factor (dB) | Reading (dBuV) | Peak Power (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Angle (°) |
|-----------------|------------------|------------------------|----------------|---------------------|----------------|-------------|-----------|
| 13.11           | 0                | 18.5                   | 6.48           | 24.98               | 80.5           | 55.52       | 331       |
| 13.41           | 0                | 18.4                   | 4.54           | 22.94               | 80.5           | 57.56       | 324       |
| 13.553          | 0                | 18.4                   | 29.11          | 47.51               | 90.47          | 42.96       | 318       |
| 13.560          | 0                | 18.4                   | 39.87          | 58.27               | 124            | 65.73       | 319       |
| 13.567          | 0                | 18.4                   | 25.17          | 43.57               | 90.47          | 46.9        | 311       |
| 13.71           | 0                | 18.4                   | 4.54           | 22.94               | 80.5           | 57.56       | 309       |
| 14.01           | 0                | 18.4                   | 6.69           | 25.09               | 80.5           | 55.41       | 328       |

(120 VAC)

| Frequency (MHz) | Polarization (°) | Correction Factor (dB) | Reading (dBuV) | Peak Power (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Angle (°) |
|-----------------|------------------|------------------------|----------------|---------------------|----------------|-------------|-----------|
| 13.11           | 0                | 18.5                   | 6.26           | 24.76               | 80.5           | 55.74       | 340       |
| 13.41           | 0                | 18.4                   | 4.54           | 22.94               | 80.5           | 57.56       | 339       |
| 13.553          | 0                | 18.4                   | 29.13          | 47.53               | 90.47          | 42.94       | 341       |
| 13.560          | 0                | 18.4                   | 39.81          | 58.21               | 124            | 65.79       | 329       |
| 13.567          | 0                | 18.4                   | 25.19          | 43.59               | 90.47          | 46.88       | 333       |
| 13.71           | 0                | 18.4                   | 4.54           | 22.94               | 80.5           | 57.56       | 334       |
| 14.01           | 0                | 18.4                   | 6.69           | 25.09               | 80.5           | 55.41       | 342       |

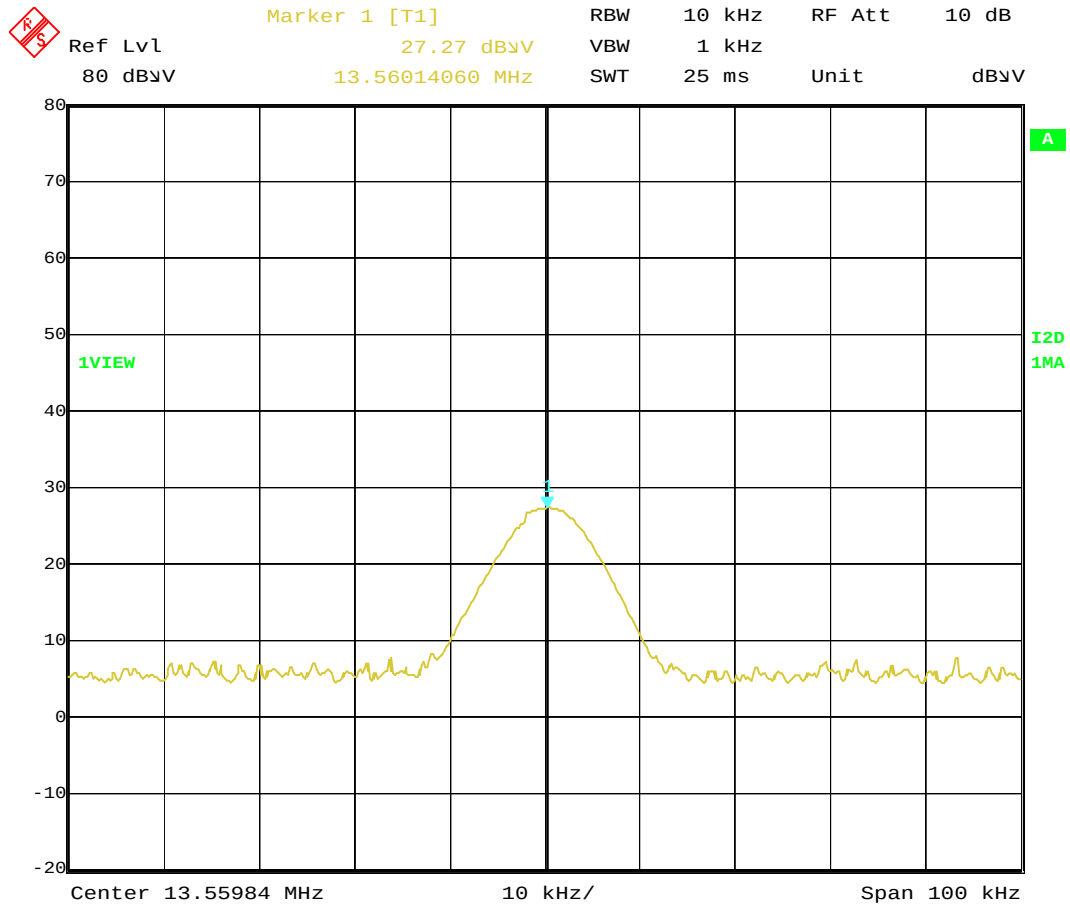
(138 VAC)

| Frequency (MHz) | Polarization (°) | Correction Factor (dB) | Reading (dBuV) | Peak Power (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Angle (°) |
|-----------------|------------------|------------------------|----------------|---------------------|----------------|-------------|-----------|
| 13.11           | 0                | 18.5                   | 6.48           | 24.98               | 80.5           | 55.52       | 330       |
| 13.41           | 0                | 18.4                   | 4.54           | 22.94               | 80.5           | 57.56       | 330       |
| 13.553          | 0                | 18.4                   | 29.13          | 47.53               | 90.47          | 42.94       | 336       |
| 13.560          | 0                | 18.4                   | 39.82          | 58.22               | 124            | 65.78       | 335       |
| 13.567          | 0                | 18.4                   | 25.17          | 43.57               | 90.47          | 46.9        | 334       |
| 13.71           | 0                | 18.4                   | 4.54           | 22.94               | 80.5           | 57.56       | 332       |
| 14.01           | 0                | 18.4                   | 6.69           | 25.09               | 80.5           | 55.41       | 329       |

\* Correction Factor = Cable Loss (dB) + Antenna Factor (dB)



Carrier Spectrum



Date: 13.JUL.2007 10:58:32

## 5.4 Frequency Tolerance

### 5.4.1 Setting Remarks

- Refer to setting remarks 5.3.1.
- Refer to test configuration figure 4.2.
- With an environmental test chamber, EUT is exposed in extreme temperatures until its temperature is stabilized. (Approximately 30 minutes) Then EUT is on with nominal AC voltage, or installed a fully charged battery.

### 5.4.2 Minimum Standard

(e) 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.

### 5.4.3 Result

**EUT complies with the requirement.**

Uncertainty of measurement result:  $\pm 1$  Hz

### 5.4.4 Measured Data

| Temp.<br>(°C) | P/S<br>Voltage<br>(VAC) | Frequency<br>(Hz) | Limit<br>( $\pm$ Hz) | Offset from<br>the CF (Hz) | Limit<br>(%) | Error<br>(%) |
|---------------|-------------------------|-------------------|----------------------|----------------------------|--------------|--------------|
| Center Freq.  |                         | <b>13,560,000</b> |                      |                            |              |              |
| 25            | 102.00                  | 13,559,750        | 1356.00              | -250                       | 0.01         | -0.002       |
| 25            | 120.00                  | 13,559,870        | 1356.00              | -130                       | 0.01         | -0.001       |
| 25            | 138.00                  | 13,559,690        | 1356.00              | -310                       | 0.01         | -0.002       |
| -20           | 102.00                  | 13,559,980        | 1356.00              | -20                        | 0.01         | 0.000        |
| -20           | 120.00                  | 13,560,050        | 1356.00              | 50                         | 0.01         | 0.000        |
| -20           | 138.00                  | 13,559,850        | 1356.00              | -150                       | 0.01         | -0.001       |
| 50            | 102.00                  | 13,559,690        | 1356.00              | -310                       | 0.01         | -0.002       |
| 50            | 120.00                  | 13,559,570        | 1356.00              | -430                       | 0.01         | -0.003       |
| 50            | 138.00                  | 13,559,680        | 1356.00              | -320                       | 0.01         | -0.002       |

## 6. Photos

### 6.1 Setup Photo (Conducted Emission)

#### Front View

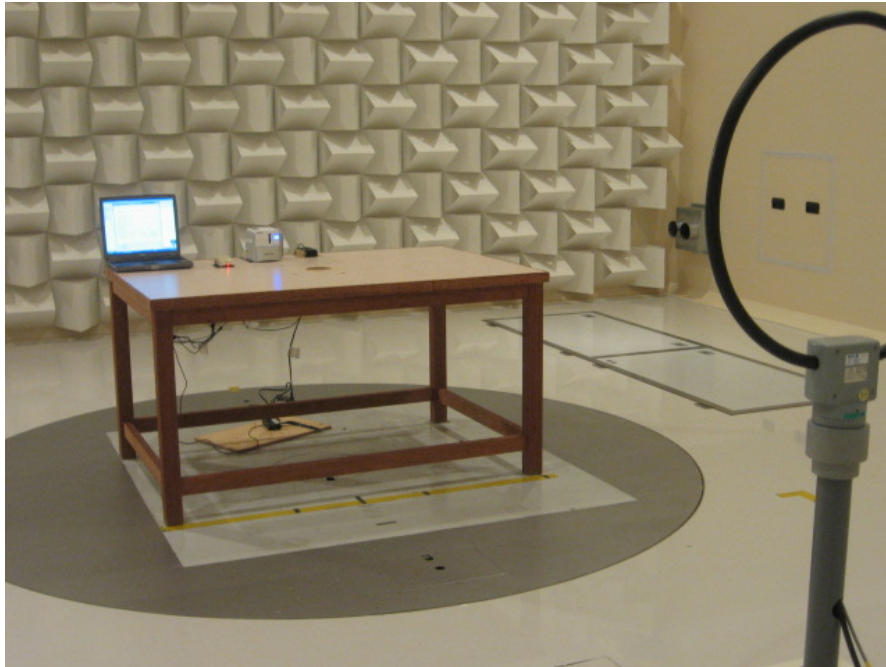


#### Side View

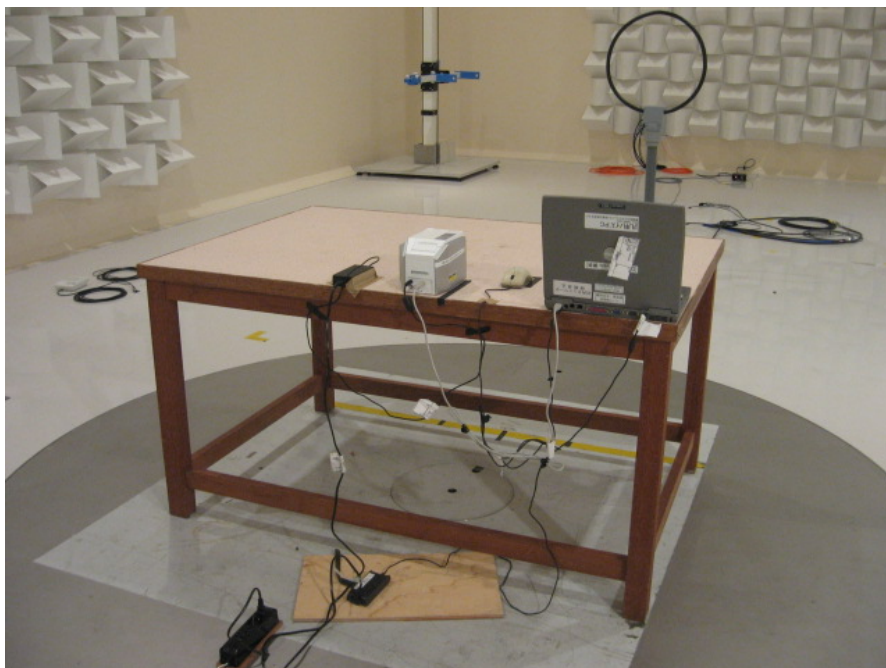


## 6.2 Setup Photo (Radiated Emission)

### Front View (9kHz - 30MHz)

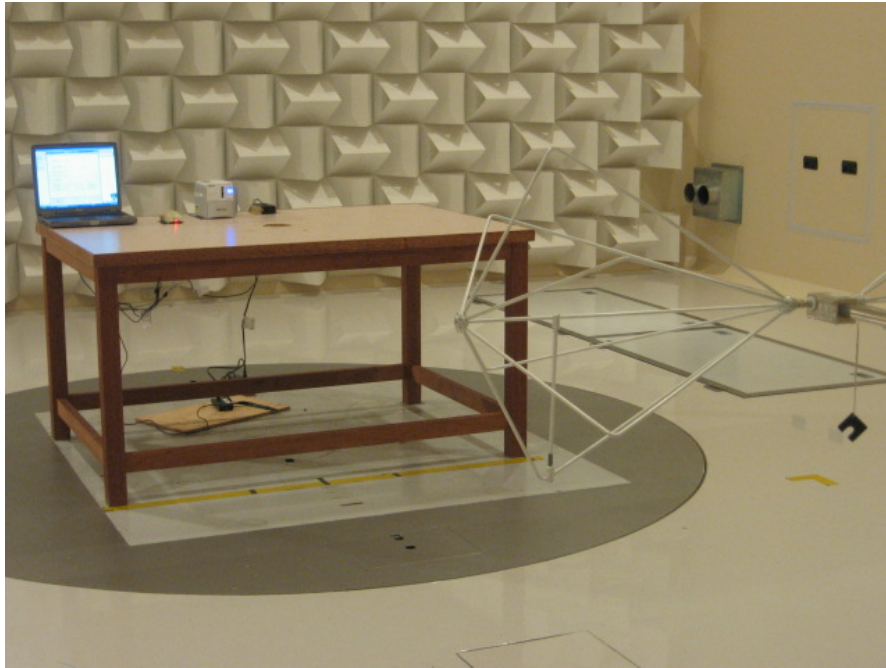


### Rear View (9kHz - 30MHz)

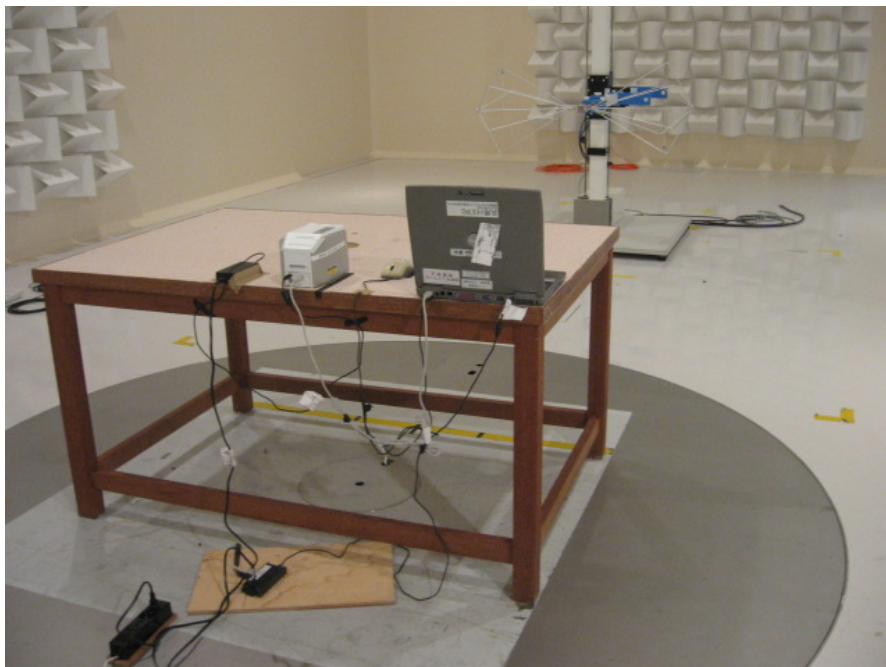




Front View (Above 30MHz)



Rear View (Above 30MHz)



## 7. List of Test Measurement Instruments

### 7.1 Conducted Emission Measurement

| Instruments                                     | Manufacturer                    | Model<br>Serial No.   | Calibrated<br>Date/Until           |
|-------------------------------------------------|---------------------------------|-----------------------|------------------------------------|
| Spectrum Analyzer                               | HEWLETT<br>PACKARD              | 8563E<br>3846A10015   | July, 2005<br>July, 2007           |
| EMI Test Receiver                               | ROHDE &<br>SCHWARZ              | ESCS30<br>830245/014  | April, 2007<br>April, 2009         |
| Artificial-Mains<br>Network<br>(for EUT)        | KYORITSU<br>CORPORATION         | KNW-243C<br>8-1238-3  | September, 2006<br>September, 2007 |
| Artificial-Mains<br>Network<br>(for Peripheral) | ROHDE &<br>SCHWARZ              | ESH2-Z5<br>828739/005 | June, 2006<br>June, 2007           |
| RF cable                                        | SUHNER                          | RG223/U<br>(4m)       | May, 2007<br>May, 2008             |
| RF Selector                                     | TOYO Corporation                | NS4901DR<br>9904011   | Confirmed<br>before Test           |
| Transient Limiter                               | CHASE<br>Electronics<br>Limited | CFL9206<br>1662       | Confirmed<br>before Test           |

### 7.2 Radiated Emission Measurement

| Instruments                                    | Manufacturer       | Model / Type                         | Serial No.     | Calibration Date<br>Next Calibration |
|------------------------------------------------|--------------------|--------------------------------------|----------------|--------------------------------------|
| Programmable<br>AC/DC Power Source             | NF Corporation     | ES18000W                             | 425779         | ---                                  |
| EMI Test Receiver                              | ROHDE &<br>SCHWARZ | ESIB40                               | 100211         | April, 2007<br>April, 2008           |
| Biconical Antenna<br>(30 to 300MHz)            | SCHWARZBECK        | VHBB9124(Balun)<br>BBA9106(Elements) | 311            | September, 2006<br>September, 2007   |
| Log.-Periodic<br>Antenna<br>(300 MHz to 1 GHz) | SCHWARZBECK        | UHALP 9108 A                         | 645            | September, 2006<br>September, 2007   |
| Loop Antenna<br>(0.15 to 30 MHz)               | ROHDE &<br>SCHWARZ | HFH2-Z2                              | 131            | August, 2006<br>August, 2007         |
| Environment<br>Chamber                         | ISUZU              | HPAV-48-40                           | 0092986-0<br>1 | ---                                  |