

# RF TEST REPORT

Test item : Wireless Charger  
Model No. : WCP-300  
Order No. : DEMC1301-00055  
Date of receipt : 2013-01-07  
Test duration : 2013-01-14 ~ 2013-01-23  
2013-02-13 ~ 2013-02-14  
Date of issue : 2013-02-15  
Use of report : FCC Original Grant

Applicant : LG Electronics USA.  
1000 Sylvan Avenue Englewood Cliffs, NJ 07632

Test laboratory : Digital EMC Co., Ltd.  
683-3, Yubang-Dong, Cheoin-Gu, Yongin-Si, Kyunggi-Do, 449-080, Korea

Test specification : FCC Part 15 Subpart C  
Test environment : See appended test report  
Test result : ☒ Pass ☐ Fail

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DIGITAL EMC CO., LTD.

Tested by:



Engineer  
JaeJin, Lee

Witnessed by:

N/A

Reviewed by:



Deputy General Manager  
WonJung, Lee

## Test Report Version

| Test Report No.    | Date          | Description                 |
|--------------------|---------------|-----------------------------|
| DRTFCC1301-0057    | Jan. 24, 2013 | Final version for approval  |
| DRTFCC1301-0057(1) | Feb. 15, 2013 | Update results of test mode |
|                    |               |                             |
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## 1. Equipment information

### 1.1 Equipment description

|                          |                                                    |
|--------------------------|----------------------------------------------------|
| FCC Equipment Class      | Part 15 Low Power Transmitter Below 1705 kHz (DCD) |
| Equipment type           | Wireless Charger                                   |
| Equipment model name     | WCP-300                                            |
| Equipment add model name | N/A                                                |
| Equipment serial no.     | Identical prototype                                |
| Frequency band           | 110 ~ 205kHz                                       |
| Power                    | AC 120V 60Hz                                       |
| Antenna type             | Internal Loop Antenna(Circular coil)               |

### 1.2 Support equipments

| Equipment     | Model No.      | Serial No.    | Manufacturer   | Note             |
|---------------|----------------|---------------|----------------|------------------|
| AC Adapter    | MCS-04WT       | TA2Y0000045   | TEN PAO        | -                |
| Client Device | bq51013EVM-725 | HPA725 Rev. A | TI Instruments | -                |
| Mobile Phone  | LG-E960        | N/A           | LG             | FCC ID : ZNFE960 |

Note: The support equipments were supported by manufacturer.

## 2. Information about test items

### 2.1 Test mode

This device has been tested in the worst-case mode of charging mode as below conditions:

| Test Mode | Support Equipment                  | Charging Current Condition |
|-----------|------------------------------------|----------------------------|
| TM1       | Client Device(M/N: bq51013EVM-725) | 300mA                      |
| TM2       | Client Device(M/N: bq51013EVM-725) | 600mA                      |
| TM3       | Client Device(M/N: bq51013EVM-725) | 1000mA                     |
| TM4       | Client Device(M/N: bq51013EVM-725) | 100mA                      |
| TM5       | Mobile Phone(M/N: LG-E960)         | < 1% battery status        |
| TM6       | Mobile Phone(M/N: LG-E960)         | 50% battery status         |

Note 1: The Charging is not operation when 100% fully charged status.

### 2.2 Tested environment

|                           |   |                |
|---------------------------|---|----------------|
| Temperature               | : | 21 ~ 24°C      |
| Relative humidity content | : | 39 ~ 47 % R.H. |
| Details of power supply   | : | AC 120V 60Hz   |

### 2.3 EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing

→ None

### 3. Test Report

#### 3.1 Summary of tests

| FCC Part Section(s)                                                                            | Parameter              | Limit               | Test Condition    | Status<br>Note 1 |
|------------------------------------------------------------------------------------------------|------------------------|---------------------|-------------------|------------------|
| <b>Test Items</b>                                                                              |                        |                     |                   |                  |
| 2.1049                                                                                         | Occupied Bandwidth     | N/A                 | Radiated          | <b>C</b>         |
| 15.209                                                                                         | Radiated Emission      | <FCC 15.209 limits  |                   | <b>C</b>         |
| 15.207                                                                                         | AC Conducted Emissions | < FCC 15.207 limits | AC Line Conducted | <b>C</b>         |
| Note 1: <b>C</b> =Comply <b>NC</b> =Not Comply <b>NT</b> =Not Tested <b>NA</b> =Not Applicable |                        |                     |                   |                  |

The sample was tested according to the following specification:  
ANSI C-63.4

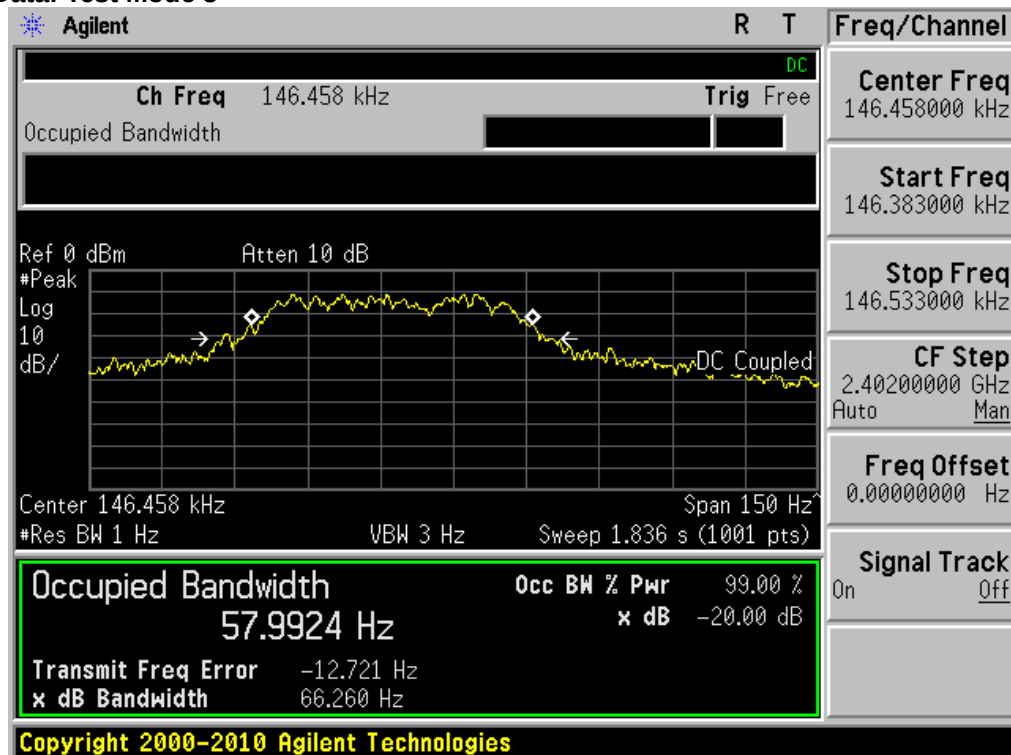
## 3.2 Transmitter requirements

### 3.2.1 20dB Bandwidth & Occupied Bandwidth Measurement

#### - Procedure:

The 20dB bandwidth and occupied bandwidth(99% emission bandwidth)are measured with a spectrum analyzer connected via a receiving antenna placed near the EUT while the EUT is operating.

#### - Measurement Data: Test Mode 3



### 3.2.2 Radiated Emissions

**- Limit: FCC Part 15.209(a)& RSS-GEN, section 7.2.2 and 7.2.5**

| Frequency<br>[MHz] | Field Strength<br>[uV/m] | Measurement Distance<br>[Meters] |
|--------------------|--------------------------|----------------------------------|
| 0.009 ~ 0.490      | 2400/F(kHz)              | 300                              |
| 0.490 ~ 1.705      | 24000/F(kHz)             | 30                               |
| 1.705 ~ 30         | 30                       | 30                               |
| 30 ~ 88            | 100                      | 3                                |
| 88 ~ 216           | 150                      | 3                                |
| 216 ~ 960          | 200                      | 3                                |
| Above 960          | 500                      | 3                                |

\*\* Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

**- Procedure:ANSI C63.4**

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

**- Measurement Data:** **Comply**(refer to the next page)

**- Measurement Data:**Measurement Distance : 3 Meters

| Test Mode | Note.1 | Freq. [MHz] | Det. Mode | ANT Pol. | Reading [dBuV] | T.F [dB/m] | D.C.F. | Field Strength [dBuV/m] | Limit [dBuV/m] | Margin [dB] |
|-----------|--------|-------------|-----------|----------|----------------|------------|--------|-------------------------|----------------|-------------|
| TM1       | F      | 0.148       | PK        | N/A      | 58.30          | 17.40      | 80     | -4.30                   | 24.20          | 28.50       |
|           | S      | 0.445       | PK        | N/A      | 35.90          | 17.50      | 80     | -26.60                  | 14.64          | 41.24       |
|           | S      | 0.739       | PK        | N/A      | 27.20          | 17.50      | 40     | 4.70                    | 30.23          | 25.53       |
|           | S      | 1.037       | PK        | N/A      | 21.50          | 17.50      | 40     | -1.00                   | 27.29          | 28.29       |
| TM2       | F      | 0.147       | PK        | N/A      | 59.30          | 17.40      | 80     | -3.30                   | 24.26          | 27.56       |
|           | S      | 0.442       | PK        | N/A      | 36.70          | 17.50      | 80     | -25.80                  | 14.70          | 40.50       |
|           | S      | 0.737       | PK        | N/A      | 27.70          | 17.50      | 40     | 5.20                    | 30.25          | 25.05       |
|           | S      | 1.031       | PK        | N/A      | 21.50          | 17.50      | 40     | -1.00                   | 27.34          | 28.34       |
| TM3       | F      | 0.145       | PK        | N/A      | 57.60          | 17.40      | 80     | -5.00                   | 24.38          | 29.38       |
|           | S      | 0.435       | PK        | N/A      | 35.40          | 17.50      | 80     | -27.10                  | 14.83          | 41.93       |
|           | S      | 0.724       | PK        | N/A      | 25.90          | 17.50      | 40     | 3.40                    | 30.41          | 27.01       |
|           | S      | 1.010       | PK        | N/A      | 21.10          | 17.50      | 40     | -1.40                   | 27.52          | 28.92       |
| TM4       | F      | 0.159       | PK        | N/A      | 57.40          | 17.40      | 80     | -5.20                   | 23.58          | 28.78       |
|           | S      | 0.476       | PK        | N/A      | 35.60          | 17.50      | 80     | -26.90                  | 14.05          | 40.95       |
|           | S      | 0.673       | PK        | N/A      | 25.70          | 17.50      | 40     | 3.20                    | 31.04          | 27.84       |
|           | S      | 0.794       | PK        | N/A      | 26.80          | 17.50      | 40     | 4.30                    | 29.61          | 25.31       |
|           | S      | 1.111       | PK        | N/A      | 21.50          | 17.50      | 40     | -1.00                   | 26.69          | 27.69       |
| TM5       | F      | 0.124       | PK        | N/A      | 60.60          | 17.40      | 80     | -2.00                   | 25.74          | 27.74       |
|           | S      | 0.373       | PK        | N/A      | 34.70          | 17.50      | 80     | -27.80                  | 16.17          | 43.97       |
|           | S      | 0.620       | PK        | N/A      | 25.80          | 17.50      | 40     | 3.30                    | 31.76          | 28.46       |
| TM6       | F      | 0.131       | PK        | N/A      | 57.10          | 17.40      | 80     | -5.50                   | 25.26          | 30.76       |
|           | S      | 0.393       | PK        | N/A      | 33.40          | 17.50      | 80     | -29.10                  | 15.72          | 44.82       |
|           | S      | 0.652       | PK        | N/A      | 25.10          | 17.50      | 40     | 2.60                    | 31.32          | 28.72       |

**Note 1.** "F" = Fundamental

"S" = Spurious

"\*" = Noise Floor

**Note 2.** Distance Correction Factor(D.C.F.)For 300m:  $40 \cdot \log(300/3) = 80\text{dB}$ For 30m:  $40 \cdot \log(30/3) = 40\text{dB}$ **Note 3.** No other spurious and harmonic emissions were reported greater than listed emissions above table.**Note 4.** Sample calculation

T.F = AF + CL – AG

/ Field Strength = Reading + T.F + D.C.F.

Margin = Limit – Field Strength

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

D.C.F = Distance Correction Factor

### 3.2.3 AC Line Conducted Emissions

**- Minimum Standard: FCC Part 15.207& RSS-GEN Issue 3, section 7.2.4**

| FrequencyRange<br>(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

**- Procedure:ANSI C63.4**

1. The test procedure is performed in a 6.5 m × 3.5 m × 3.5 m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

**- Measurement Data: Comply** (refer to the next page)

## - Measurement Data(Graph): Test Mode 1



## Results of Conducted Emission

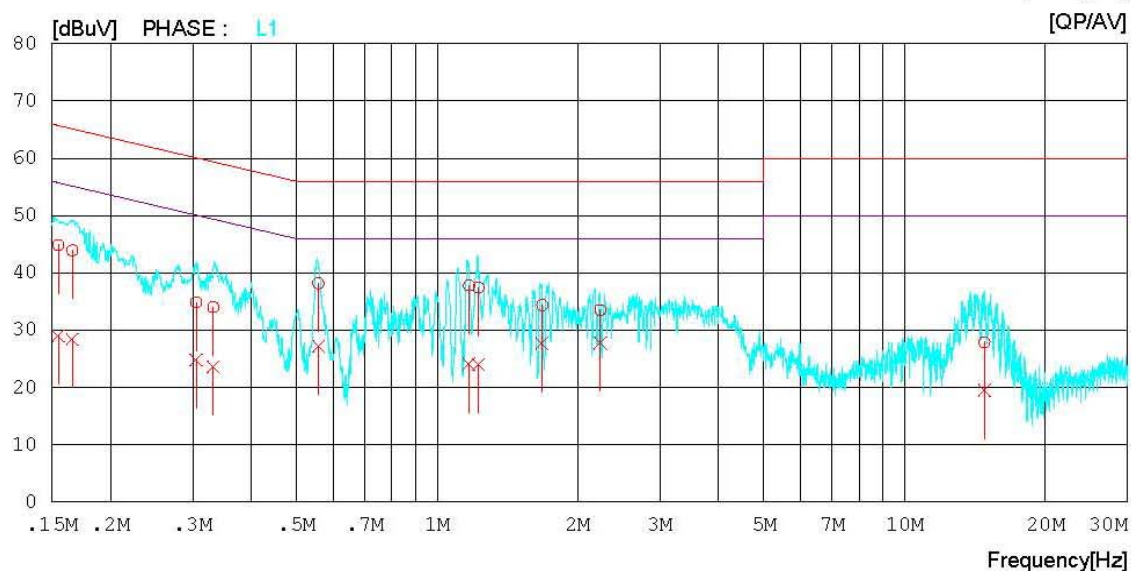
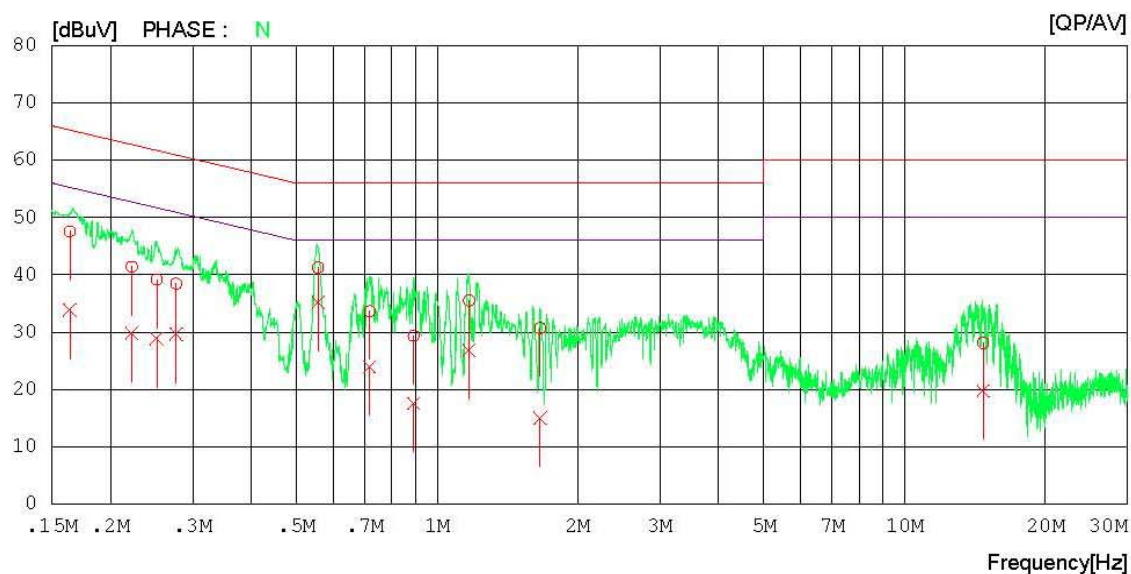
Digital EMC  
Date : 2013-01-17

Model No. : WCP-300  
Type :  
Serial No. : Identical prototype  
Test Condition : 300mA

Reference No. :  
Power Supply : 120 V 60 Hz  
Temp/Humi. : 24 'C 42 % R.H.  
Operator : H.H.LEE

Memo :

LIMIT : CISPR22\_B QP  
CISPR22\_B AV



## - Measurement Data(List): Test Mode 1

Results of Conducted EmissionDigital EMC  
Date : 2013-01-17

Model No. : WCP-300  
 Type :  
 Serial No. : Identical prototype  
 Test Condition : 300mA

Reference No. :  
 Power Supply : 120 V 60 Hz  
 Temp/Humi. : 24 'C 42 % R.H.  
 Operator : H.H.LEE

Memo :

LIMIT : CISPR22\_B QP  
 CISPR22\_B AV

| NO | FREQ<br>[MHz] | READING      |              | C.FACTOR<br>[dB] | RESULT       |              | LIMIT        |              | MARGIN       |              | PHASE |
|----|---------------|--------------|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
|    |               | QP<br>[dBuV] | AV<br>[dBuV] |                  | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] |       |
| 1  | 0.16385       | 47.5         | 33.7         | 0.1              | 47.6         | 33.8         | 65.3         | 55.3         | 17.7         | 21.5         | N     |
| 2  | 0.22230       | 41.3         | 29.7         | 0.1              | 41.4         | 29.8         | 62.7         | 52.7         | 21.3         | 22.9         | N     |
| 3  | 0.25123       | 39.1         | 28.8         | 0.1              | 39.2         | 28.9         | 61.7         | 51.7         | 22.5         | 22.8         | N     |
| 4  | 0.27664       | 38.4         | 29.5         | 0.1              | 38.5         | 29.6         | 60.9         | 50.9         | 22.4         | 21.3         | N     |
| 5  | 0.55650       | 41.1         | 35.1         | 0.1              | 41.2         | 35.2         | 56.0         | 46.0         | 14.8         | 10.8         | N     |
| 6  | 0.71734       | 33.5         | 23.8         | 0.1              | 33.6         | 23.9         | 56.0         | 46.0         | 22.4         | 22.1         | N     |
| 7  | 0.89065       | 29.3         | 17.4         | 0.1              | 29.4         | 17.5         | 56.0         | 46.0         | 26.6         | 28.5         | N     |
| 8  | 1.17050       | 35.4         | 26.8         | 0.1              | 35.5         | 26.9         | 56.0         | 46.0         | 20.5         | 19.1         | N     |
| 9  | 1.66250       | 30.5         | 14.8         | 0.2              | 30.7         | 15.0         | 56.0         | 46.0         | 25.3         | 31.0         | N     |
| 10 | 14.73350      | 27.6         | 19.2         | 0.5              | 28.1         | 19.7         | 60.0         | 50.0         | 31.9         | 30.3         | N     |
| 11 | 0.15486       | 44.8         | 28.9         | 0.1              | 44.9         | 29.0         | 65.7         | 55.7         | 20.8         | 26.7         | L1    |
| 12 | 0.16591       | 43.8         | 28.4         | 0.1              | 43.9         | 28.5         | 65.2         | 55.2         | 21.3         | 26.7         | L1    |
| 13 | 0.30519       | 34.7         | 24.7         | 0.1              | 34.8         | 24.8         | 60.1         | 50.1         | 25.3         | 25.3         | L1    |
| 14 | 0.33195       | 33.9         | 23.5         | 0.1              | 34.0         | 23.6         | 59.4         | 49.4         | 25.4         | 25.8         | L1    |
| 15 | 0.55733       | 38.1         | 27.1         | 0.1              | 38.2         | 27.2         | 56.0         | 46.0         | 17.8         | 18.8         | L1    |
| 16 | 1.22600       | 37.3         | 23.9         | 0.1              | 37.4         | 24.0         | 56.0         | 46.0         | 18.6         | 22.0         | L1    |
| 17 | 1.17100       | 37.7         | 24.0         | 0.1              | 37.8         | 24.1         | 56.0         | 46.0         | 18.2         | 21.9         | L1    |
| 18 | 1.67800       | 34.2         | 27.5         | 0.2              | 34.4         | 27.7         | 56.0         | 46.0         | 21.6         | 18.3         | L1    |
| 19 | 2.23550       | 33.3         | 27.6         | 0.2              | 33.5         | 27.8         | 56.0         | 46.0         | 22.5         | 18.2         | L1    |
| 20 | 14.82250      | 27.4         | 19.0         | 0.5              | 27.9         | 19.5         | 60.0         | 50.0         | 32.1         | 30.5         | L1    |

## - Measurement Data(Graph): Test Mode 2



## Results of Conducted Emission

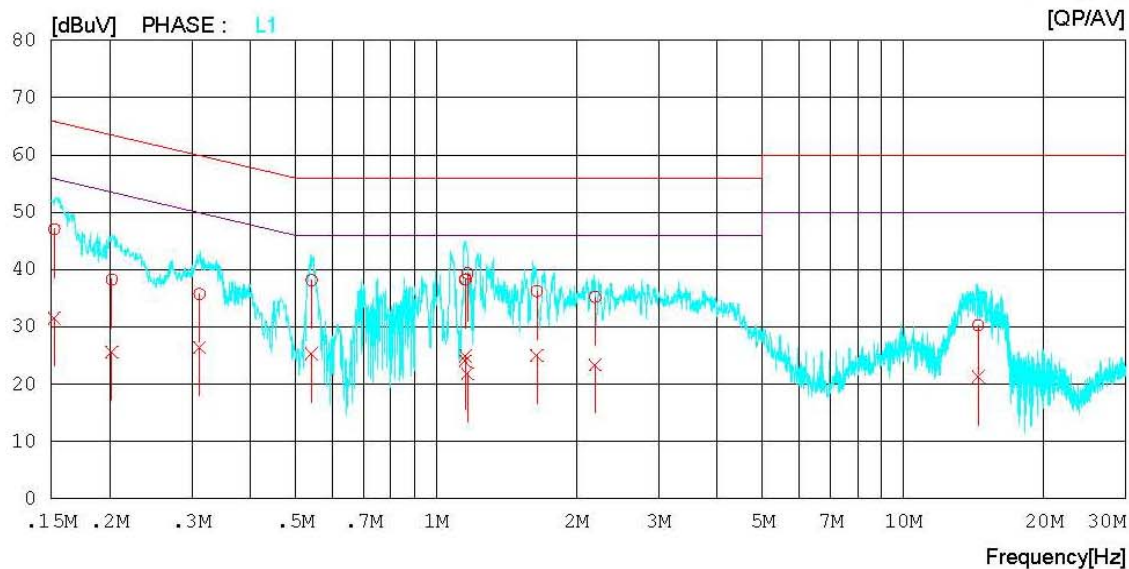
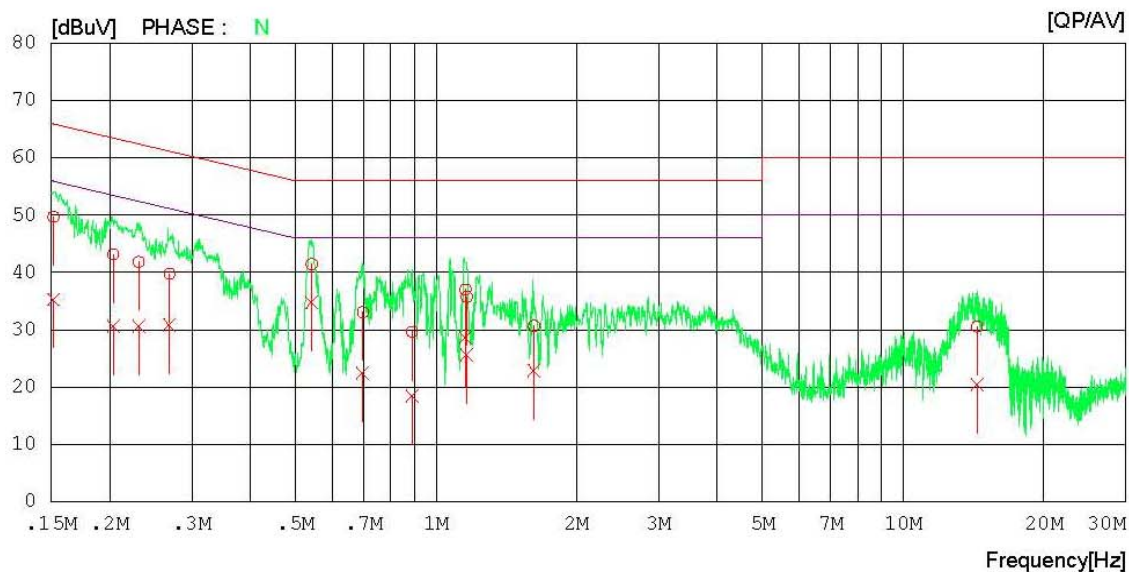
Digital EMC  
Date : 2013-01-17

Model No. : WCP-300  
Type :  
Serial No. : Identical prototype  
Test Condition : 600mA

Reference No. :  
Power Supply : 120 V 60 Hz  
Temp/Humi. : 24 °C 42 % R.H.  
Operator : H.H.LEE

Memo :

LIMIT : CISPR22\_B QP  
CISPR22\_B AV



## - Measurement Data(List): Test Mode 2

Results of Conducted EmissionDigital EMC  
Date : 2013-01-17

Model No. : WCP-300  
 Type :  
 Serial No. : Identical prototype  
 Test Condition : 600mA

Reference No. :  
 Power Supply : 120 V 60 Hz  
 Temp/Humi. : 24 'C 42 % R.H.  
 Operator : H.H.LEE

Memo :

LIMIT : CISPR22\_B QP  
 CISPR22\_B AV

| NO | FREQ<br>[MHz] | READING      |              | C.FACTOR<br>[dB] | RESULT       |              | LIMIT        |              | MARGIN       |              | PHASE |
|----|---------------|--------------|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
|    |               | QP<br>[dBuV] | AV<br>[dBuV] |                  | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] |       |
| 1  | 0.15173       | 49.6         | 35.2         | 0.1              | 49.7         | 35.3         | 65.9         | 55.9         | 16.2         | 20.6         | N     |
| 2  | 0.20381       | 43.0         | 30.5         | 0.1              | 43.1         | 30.6         | 63.5         | 53.5         | 20.4         | 22.9         | N     |
| 3  | 0.23093       | 41.7         | 30.5         | 0.1              | 41.8         | 30.6         | 62.4         | 52.4         | 20.6         | 21.8         | N     |
| 4  | 0.26874       | 39.7         | 30.7         | 0.1              | 39.8         | 30.8         | 61.2         | 51.2         | 21.4         | 20.4         | N     |
| 5  | 0.54198       | 41.4         | 34.7         | 0.1              | 41.5         | 34.8         | 56.0         | 46.0         | 14.5         | 11.2         | N     |
| 6  | 0.69725       | 33.0         | 22.3         | 0.1              | 33.1         | 22.4         | 56.0         | 46.0         | 22.9         | 23.6         | N     |
| 7  | 0.88894       | 29.5         | 18.3         | 0.1              | 29.6         | 18.4         | 56.0         | 46.0         | 26.4         | 27.6         | N     |
| 8  | 1.16450       | 35.6         | 25.5         | 0.1              | 35.7         | 25.6         | 56.0         | 46.0         | 20.3         | 20.4         | N     |
| 9  | 1.15650       | 36.9         | 28.5         | 0.1              | 37.0         | 28.6         | 56.0         | 46.0         | 19.0         | 17.4         | N     |
| 10 | 1.62250       | 30.4         | 22.7         | 0.2              | 30.6         | 22.9         | 56.0         | 46.0         | 25.4         | 23.1         | N     |
| 11 | 14.40950      | 30.0         | 19.9         | 0.5              | 30.5         | 20.4         | 60.0         | 50.0         | 29.5         | 29.6         | N     |
| 12 | 0.15236       | 47.0         | 31.5         | 0.1              | 47.1         | 31.6         | 65.9         | 55.9         | 18.8         | 24.3         | L1    |
| 13 | 0.20210       | 38.2         | 25.5         | 0.1              | 38.3         | 25.6         | 63.5         | 53.5         | 25.2         | 27.9         | L1    |
| 14 | 0.31173       | 35.7         | 26.3         | 0.1              | 35.8         | 26.4         | 59.9         | 49.9         | 24.1         | 23.5         | L1    |
| 15 | 0.54163       | 38.0         | 25.2         | 0.1              | 38.1         | 25.3         | 56.0         | 46.0         | 17.9         | 20.7         | L1    |
| 16 | 1.15750       | 38.2         | 24.9         | 0.1              | 38.3         | 25.0         | 56.0         | 46.0         | 17.7         | 21.0         | L1    |
| 17 | 1.16850       | 39.3         | 21.7         | 0.1              | 39.4         | 21.8         | 56.0         | 46.0         | 16.6         | 24.2         | L1    |
| 18 | 1.15550       | 38.2         | 24.0         | 0.1              | 38.3         | 24.1         | 56.0         | 46.0         | 17.7         | 21.9         | L1    |
| 19 | 1.64300       | 36.0         | 24.8         | 0.2              | 36.2         | 25.0         | 56.0         | 46.0         | 19.8         | 21.0         | L1    |
| 20 | 2.19250       | 35.0         | 23.2         | 0.2              | 35.2         | 23.4         | 56.0         | 46.0         | 20.8         | 22.6         | L1    |
| 21 | 14.48850      | 29.8         | 20.8         | 0.5              | 30.3         | 21.3         | 60.0         | 50.0         | 29.7         | 28.7         | L1    |

## - Measurement Data(Graph): Test Mode 3



## Results of Conducted Emission

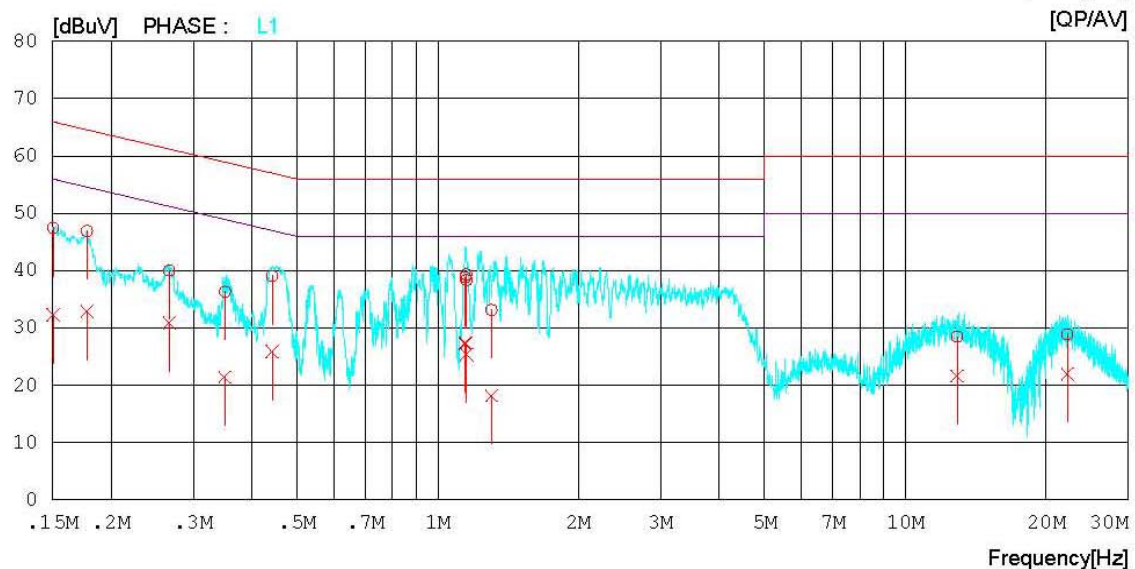
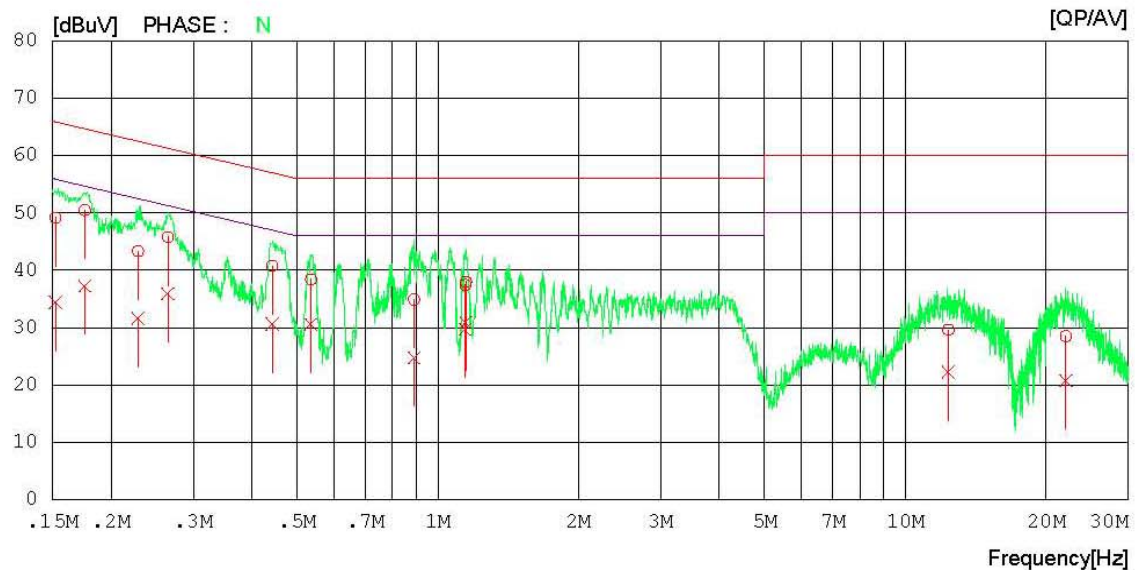
Digital EMC  
Date : 2013-01-17

Model No. : WCP-300  
Type :  
Serial No. : Identical prototype  
Test Condition : 1000mA

Reference No. :  
Power Supply : 120 V 60 Hz  
Temp/Humi. : 24 'C 42 % R.H.  
Operator : H.H.LEE

Memo :

LIMIT : CISPR22\_B QP  
CISPR22\_B AV



## - Measurement Data(List): Test Mode 3

Results of Conducted EmissionDigital EMC  
Date : 2013-01-17

Model No. : WCP-300  
 Type :  
 Serial No. : Identical prototype  
 Test Condition : 1000mA

Reference No. :  
 Power Supply : 120 V 60 Hz  
 Temp/Humi. : 24 'C 42 % R.H.  
 Operator : H.H.LEE

Memo :

LIMIT : CISPR22\_B QP  
 CISPR22\_B AV

| NO | FREQ<br>[MHz] | READING      |              | C.FACTOR<br>[dB] | RESULT       |              | LIMIT        |              | MARGIN       |              | PHASE |
|----|---------------|--------------|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
|    |               | QP<br>[dBuV] | AV<br>[dBuV] |                  | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] |       |
| 1  | 0.15225       | 49.1         | 34.3         | 0.1              | 49.2         | 34.4         | 65.9         | 55.9         | 16.7         | 21.5         | N     |
| 2  | 0.17584       | 50.4         | 37.1         | 0.1              | 50.5         | 37.2         | 64.7         | 54.7         | 14.2         | 17.5         | N     |
| 3  | 0.22856       | 43.2         | 31.5         | 0.1              | 43.3         | 31.6         | 62.5         | 52.5         | 19.2         | 20.9         | N     |
| 4  | 0.26484       | 45.7         | 35.8         | 0.1              | 45.8         | 35.9         | 61.3         | 51.3         | 15.5         | 15.4         | N     |
| 5  | 0.44249       | 40.6         | 30.5         | 0.1              | 40.7         | 30.6         | 57.0         | 47.0         | 16.3         | 16.4         | N     |
| 6  | 0.53554       | 38.3         | 30.5         | 0.1              | 38.4         | 30.6         | 56.0         | 46.0         | 17.6         | 15.4         | N     |
| 7  | 0.88961       | 34.8         | 24.6         | 0.1              | 34.9         | 24.7         | 56.0         | 46.0         | 21.1         | 21.3         | N     |
| 8  | 1.14900       | 37.9         | 30.8         | 0.1              | 38.0         | 30.9         | 56.0         | 46.0         | 18.0         | 15.1         | N     |
| 9  | 1.14500       | 37.3         | 29.6         | 0.1              | 37.4         | 29.7         | 56.0         | 46.0         | 18.6         | 16.3         | N     |
| 10 | 12.37050      | 29.1         | 21.7         | 0.5              | 29.6         | 22.2         | 60.0         | 50.0         | 30.4         | 27.8         | N     |
| 11 | 22.05600      | 27.8         | 20.0         | 0.7              | 28.5         | 20.7         | 60.0         | 50.0         | 31.5         | 29.3         | N     |
| 12 | 0.15050       | 47.4         | 32.2         | 0.1              | 47.5         | 32.3         | 66.0         | 56.0         | 18.5         | 23.7         | L1    |
| 13 | 0.17776       | 46.8         | 32.8         | 0.1              | 46.9         | 32.9         | 64.6         | 54.6         | 17.7         | 21.7         | L1    |
| 14 | 0.26646       | 39.9         | 30.8         | 0.1              | 40.0         | 30.9         | 61.2         | 51.2         | 21.2         | 20.3         | L1    |
| 15 | 0.35076       | 36.2         | 21.3         | 0.1              | 36.3         | 21.4         | 58.9         | 48.9         | 22.6         | 27.5         | L1    |
| 16 | 0.44214       | 39.0         | 25.8         | 0.1              | 39.1         | 25.9         | 57.0         | 47.0         | 17.9         | 21.1         | L1    |
| 17 | 1.15050       | 39.2         | 27.3         | 0.1              | 39.3         | 27.4         | 56.0         | 46.0         | 16.7         | 18.6         | L1    |
| 18 | 1.15300       | 38.3         | 25.3         | 0.1              | 38.4         | 25.4         | 56.0         | 46.0         | 17.6         | 20.6         | L1    |
| 19 | 1.14550       | 38.7         | 27.2         | 0.1              | 38.8         | 27.3         | 56.0         | 46.0         | 17.2         | 18.7         | L1    |
| 20 | 1.30350       | 33.1         | 18.1         | 0.1              | 33.2         | 18.2         | 56.0         | 46.0         | 22.8         | 27.8         | L1    |
| 21 | 12.91450      | 28.0         | 21.1         | 0.5              | 28.5         | 21.6         | 60.0         | 50.0         | 31.5         | 28.4         | L1    |
| 22 | 22.21650      | 28.2         | 21.3         | 0.7              | 28.9         | 22.0         | 60.0         | 50.0         | 31.1         | 28.0         | L1    |

## - Measurement Data(Graph): Test Mode4



## Results of Conducted Emission

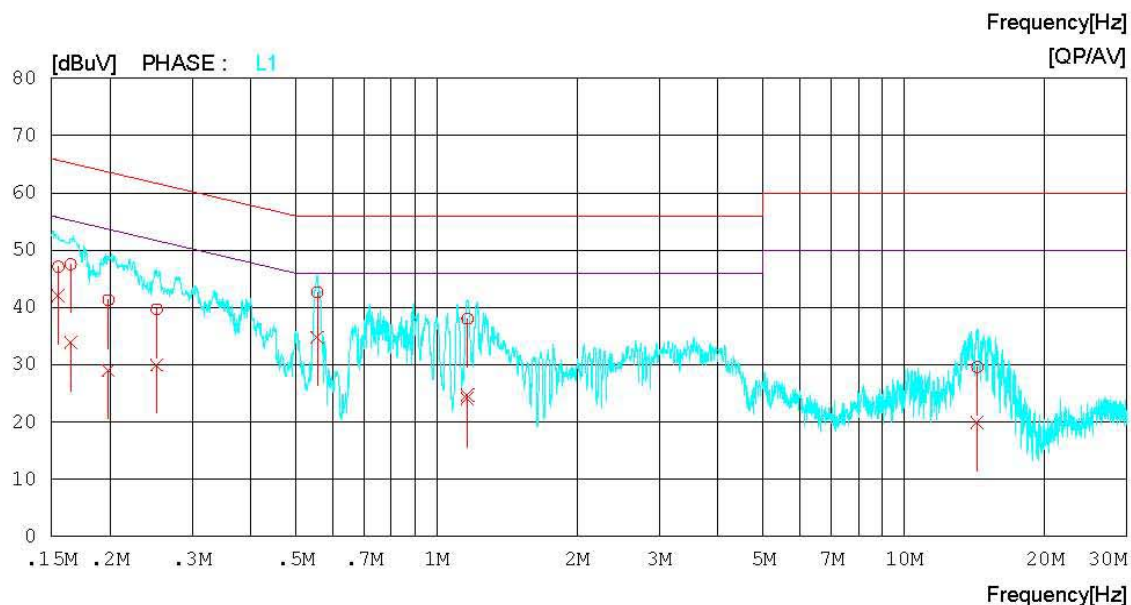
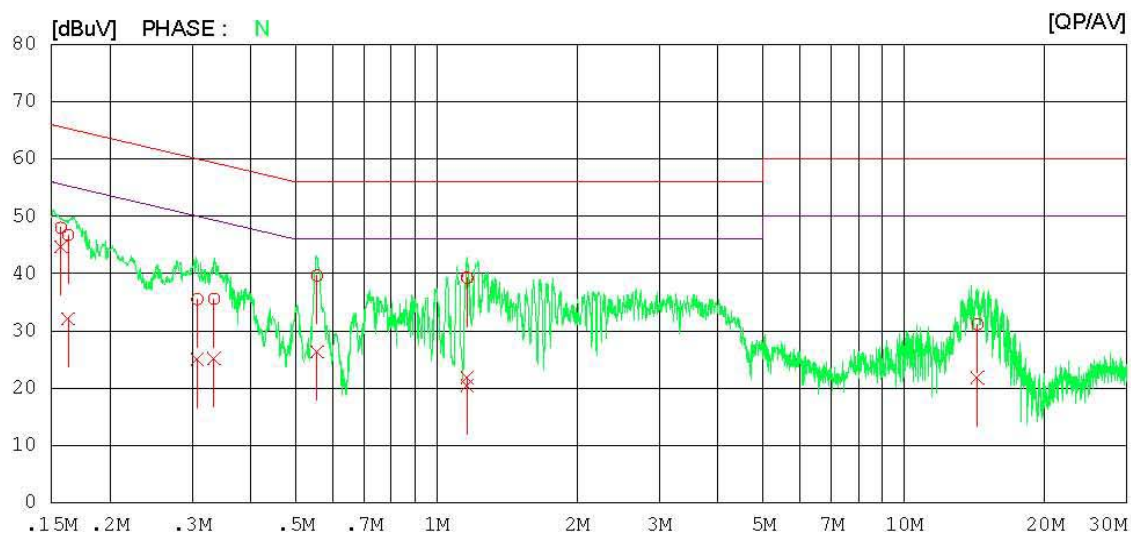
Digital EMC  
Date : 2013-02-14

Model No. : WCP-300  
Type :  
Serial No. : Identical prototype  
Test Condition : 100mA

Reference No. :  
Power Supply : 120 V 60 Hz  
Temp/Humi. : 24 'C 40 % R.H.  
Operator : H.H.LEE

Memo :

LIMIT : CISPR22\_B QP  
CISPR22\_B AV



## - Measurement Data(List): Test Mode 4

Results of Conducted EmissionDigital EMC  
Date : 2013-02-14

Model No. : WCP-300  
 Type :  
 Serial No. : Identical prototype  
 Test Condition : 100mA

Reference No. :  
 Power Supply : 120 V 60 Hz  
 Temp/Humi. : 24 'C 40 % R.H.  
 Operator : H.H.LEE

Memo :

LIMIT : CISPR22\_B QP  
 CISPR22\_B AV

| NO | FREQ<br>[MHz] | READING      |              | C.FACTOR<br>[dB] | RESULT       |              | LIMIT        |              | MARGIN       |              | PHASE |
|----|---------------|--------------|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
|    |               | QP<br>[dBuV] | AV<br>[dBuV] |                  | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] |       |
| 1  | 0.15715       | 47.9         | 44.6         | 0.1              | 48.0         | 44.7         | 65.6         | 55.6         | 17.6         | 10.9         | N     |
| 2  | 0.16285       | 46.6         | 32.0         | 0.1              | 46.7         | 32.1         | 65.3         | 55.3         | 18.6         | 23.2         | N     |
| 3  | 0.30775       | 35.4         | 24.9         | 0.1              | 35.5         | 25.0         | 60.0         | 50.0         | 24.5         | 25.0         | N     |
| 4  | 0.33406       | 35.5         | 25.1         | 0.1              | 35.6         | 25.2         | 59.3         | 49.3         | 23.7         | 24.1         | N     |
| 5  | 0.55533       | 39.6         | 26.2         | 0.1              | 39.7         | 26.3         | 56.0         | 46.0         | 16.3         | 19.7         | N     |
| 6  | 1.16300       | 39.1         | 20.3         | 0.1              | 39.2         | 20.4         | 56.0         | 46.0         | 16.8         | 25.6         | N     |
| 7  | 1.16450       | 39.1         | 21.8         | 0.1              | 39.2         | 21.9         | 56.0         | 46.0         | 16.8         | 24.1         | N     |
| 8  | 14.36800      | 30.6         | 21.3         | 0.5              | 31.1         | 21.8         | 60.0         | 50.0         | 28.9         | 28.2         | N     |
| 9  | 0.15526       | 47.0         | 42.0         | 0.1              | 47.1         | 42.1         | 65.7         | 55.7         | 18.6         | 13.6         | L1    |
| 10 | 0.16509       | 47.5         | 33.8         | 0.1              | 47.6         | 33.9         | 65.2         | 55.2         | 17.6         | 21.3         | L1    |
| 11 | 0.19853       | 41.2         | 28.9         | 0.1              | 41.3         | 29.0         | 63.7         | 53.7         | 22.4         | 24.7         | L1    |
| 12 | 0.25204       | 39.6         | 29.9         | 0.1              | 39.7         | 30.0         | 61.7         | 51.7         | 22.0         | 21.7         | L1    |
| 13 | 0.55570       | 42.6         | 34.7         | 0.1              | 42.7         | 34.8         | 56.0         | 46.0         | 13.3         | 11.2         | L1    |
| 14 | 1.16450       | 37.9         | 24.1         | 0.1              | 38.0         | 24.2         | 56.0         | 46.0         | 18.0         | 21.8         | L1    |
| 15 | 1.16500       | 37.9         | 24.6         | 0.1              | 38.0         | 24.7         | 56.0         | 46.0         | 18.0         | 21.3         | L1    |
| 16 | 14.36350      | 29.1         | 19.4         | 0.5              | 29.6         | 19.9         | 60.0         | 50.0         | 30.4         | 30.1         | L1    |

## - Measurement Data(Graph): Test Mode 5



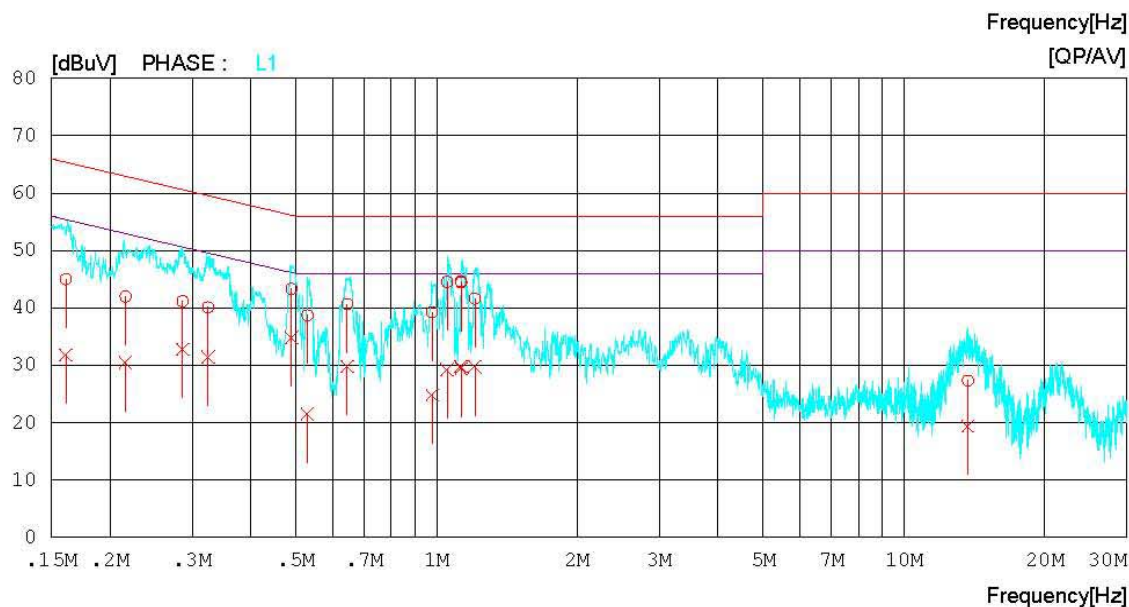
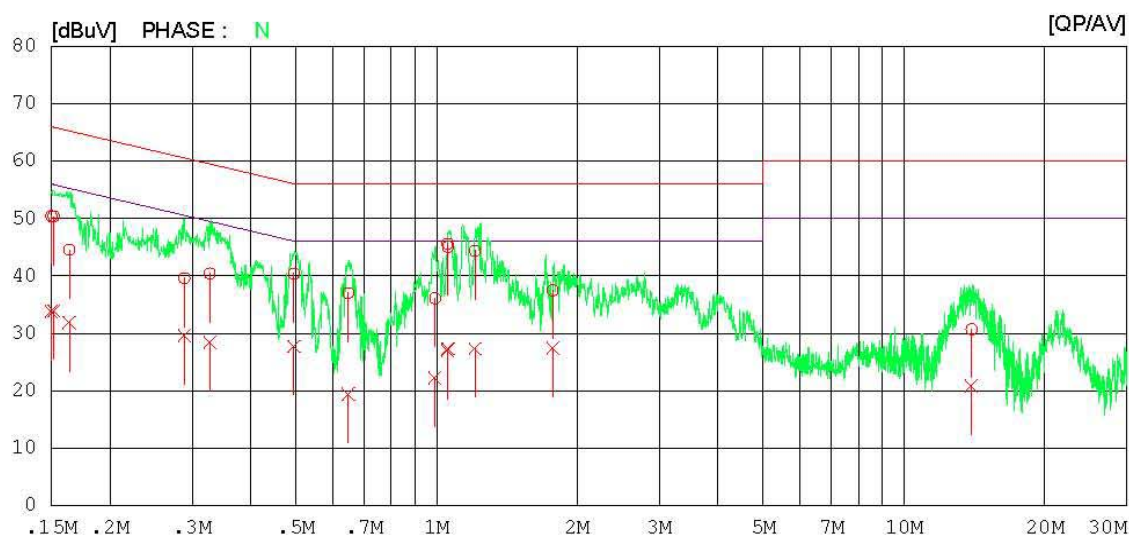
## Results of Conducted Emission

Digital EMC  
Date : 2013-01-17

Model No. : WCP-300  
Type :  
Serial No. : Identical prototype  
Test Condition : E960

Reference No. :  
Power Supply : 120 V 60 Hz  
Temp/Humi. : 24 °C 42 % R.H.  
Operator : H.H.LEE

Memo : 1%

LIMIT : CISPR22\_B QP  
CISPR22\_B AV

## - Measurement Data(List): Test Mode 5

Results of Conducted EmissionDigital EMC  
Date : 2013-01-17

Model No. : WCP-300  
 Type :  
 Serial No. : Identical prototype  
 Test Condition : E960

Reference No. :  
 Power Supply : 120 V 60 Hz  
 Temp/Humi. : 24 'C 42 % R.H.  
 Operator : H.H.LEE

Memo : 1%

LIMIT : CISPR22\_B QP  
 CISPR22\_B AV

| NO | FREQ<br>[MHz] | READING      |              | C.FACTOR<br>[dB] | RESULT       |              | LIMIT        |              | MARGIN       |              | PHASE |
|----|---------------|--------------|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
|    |               | QP<br>[dBuV] | AV<br>[dBuV] |                  | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] |       |
| 1  | 0.15001       | 50.3         | 33.7         | 0.1              | 50.4         | 33.8         | 66.0         | 56.0         | 15.6         | 22.2         | N     |
| 2  | 0.15166       | 50.2         | 33.8         | 0.1              | 50.3         | 33.9         | 65.9         | 55.9         | 15.6         | 22.0         | N     |
| 3  | 0.16368       | 44.5         | 31.7         | 0.1              | 44.6         | 31.8         | 65.3         | 55.3         | 20.7         | 23.5         | N     |
| 4  | 0.28894       | 39.5         | 29.5         | 0.1              | 39.6         | 29.6         | 60.6         | 50.6         | 21.0         | 21.0         | N     |
| 5  | 0.32738       | 40.3         | 28.3         | 0.1              | 40.4         | 28.4         | 59.5         | 49.5         | 19.1         | 21.1         | N     |
| 6  | 0.49514       | 40.3         | 27.6         | 0.1              | 40.4         | 27.7         | 56.1         | 46.1         | 15.7         | 18.4         | N     |
| 7  | 0.64766       | 36.9         | 19.3         | 0.1              | 37.0         | 19.4         | 56.0         | 46.0         | 19.0         | 26.6         | N     |
| 8  | 0.99260       | 36.0         | 22.1         | 0.1              | 36.1         | 22.2         | 56.0         | 46.0         | 19.9         | 23.8         | N     |
| 9  | 1.05800       | 45.0         | 27.2         | 0.1              | 45.1         | 27.3         | 56.0         | 46.0         | 10.9         | 18.7         | N     |
| 10 | 1.05500       | 45.5         | 26.9         | 0.1              | 45.6         | 27.0         | 56.0         | 46.0         | 10.4         | 19.0         | N     |
| 11 | 1.20900       | 44.3         | 27.2         | 0.1              | 44.4         | 27.3         | 56.0         | 46.0         | 11.6         | 18.7         | N     |
| 12 | 1.77350       | 37.3         | 27.2         | 0.2              | 37.5         | 27.4         | 56.0         | 46.0         | 18.5         | 18.6         | N     |
| 13 | 13.95050      | 30.2         | 20.4         | 0.5              | 30.7         | 20.9         | 60.0         | 50.0         | 29.3         | 29.1         | N     |
| 14 | 0.16114       | 44.9         | 31.7         | 0.1              | 45.0         | 31.8         | 65.4         | 55.4         | 20.4         | 23.6         | L1    |
| 15 | 0.21620       | 41.9         | 30.4         | 0.1              | 42.0         | 30.5         | 63.0         | 53.0         | 21.0         | 22.5         | L1    |
| 16 | 0.28635       | 41.1         | 32.7         | 0.1              | 41.2         | 32.8         | 60.6         | 50.6         | 19.4         | 17.8         | L1    |
| 17 | 0.32456       | 40.0         | 31.4         | 0.1              | 40.1         | 31.5         | 59.6         | 49.6         | 19.5         | 18.1         | L1    |
| 18 | 0.48933       | 43.2         | 34.7         | 0.1              | 43.3         | 34.8         | 56.2         | 46.2         | 12.9         | 11.4         | L1    |
| 19 | 0.52971       | 38.6         | 21.4         | 0.1              | 38.7         | 21.5         | 56.0         | 46.0         | 17.3         | 24.5         | L1    |
| 20 | 0.64363       | 40.6         | 29.7         | 0.1              | 40.7         | 29.8         | 56.0         | 46.0         | 15.3         | 16.2         | L1    |
| 21 | 0.97893       | 39.2         | 24.7         | 0.1              | 39.3         | 24.8         | 56.0         | 46.0         | 16.7         | 21.2         | L1    |
| 22 | 1.05350       | 44.4         | 29.2         | 0.1              | 44.5         | 29.3         | 56.0         | 46.0         | 11.5         | 16.7         | L1    |
| 23 | 1.13000       | 44.4         | 29.3         | 0.1              | 44.5         | 29.4         | 56.0         | 46.0         | 11.5         | 16.6         | L1    |
| 24 | 1.12850       | 44.6         | 29.7         | 0.1              | 44.7         | 29.8         | 56.0         | 46.0         | 11.3         | 16.2         | L1    |
| 25 | 1.20750       | 41.5         | 29.6         | 0.1              | 41.6         | 29.7         | 56.0         | 46.0         | 14.4         | 16.3         | L1    |
| 26 | 13.70550      | 26.8         | 18.9         | 0.5              | 27.3         | 19.4         | 60.0         | 50.0         | 32.7         | 30.6         | L1    |

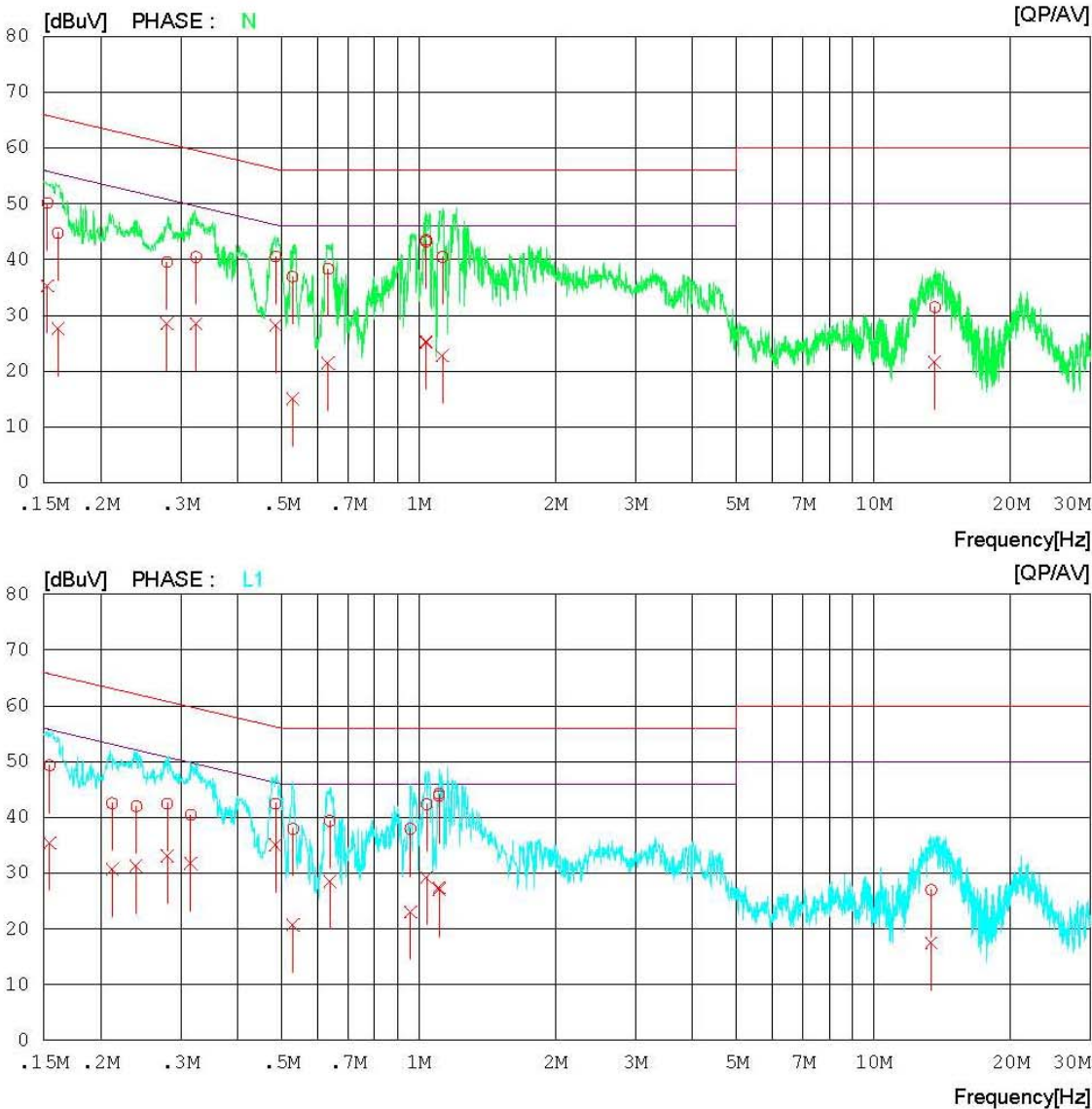
- Measurement Data(Graph): Test Mode 6



Results of Conducted Emission

Digital EMC  
Date : 2013-01-17

|                      |                       |               |                   |
|----------------------|-----------------------|---------------|-------------------|
| Model No.            | : WCP-300             | Reference No. | :                 |
| Type                 | :                     | Power Supply  | : 120 V 60 Hz     |
| Serial No.           | : Identical prototype | Temp/Humi.    | : 24 'C 42 % R.H. |
| Test Condition       | : E960                | Operator      | : H.H.LEE         |
| Memo                 | : 50%                 |               |                   |
| LIMIT : CISPR22_B QP |                       |               |                   |
| CISPR22_B AV         |                       |               |                   |



## - Measurement Data(List): Test Mode 6

Results of Conducted EmissionDigital EMC  
Date : 2013-01-17

Model No. : WCP-300  
 Type :  
 Serial No. : Identical prototype  
 Test Condition : E960

Reference No. :  
 Power Supply : 120 V 60 Hz  
 Temp/Humi. : 24 °C 42 % R.H.  
 Operator : H.H.LEE

Memo : 50%

LIMIT : CISPR22\_B QP  
 CISPR22\_B AV

| NO | FREQ<br>[MHz] | READING      |              | C.FACTOR<br>[dB] | RESULT       |              | LIMIT        |              | MARGIN       |              | PHASE |
|----|---------------|--------------|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
|    |               | QP<br>[dBuV] | AV<br>[dBuV] |                  | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] | QP<br>[dBuV] | AV<br>[dBuV] |       |
| 1  | 0.15279       | 50.0         | 35.2         | 0.1              | 50.1         | 35.3         | 65.8         | 55.8         | 15.7         | 20.5         | N     |
| 2  | 0.16120       | 44.7         | 27.5         | 0.1              | 44.8         | 27.6         | 65.4         | 55.4         | 20.6         | 27.8         | N     |
| 3  | 0.28001       | 39.5         | 28.5         | 0.1              | 39.6         | 28.6         | 60.8         | 50.8         | 21.2         | 22.2         | N     |
| 4  | 0.32428       | 40.3         | 28.4         | 0.1              | 40.4         | 28.5         | 59.6         | 49.6         | 19.2         | 21.1         | N     |
| 5  | 0.48534       | 40.4         | 28.1         | 0.1              | 40.5         | 28.2         | 56.2         | 46.2         | 15.7         | 18.0         | N     |
| 6  | 0.52873       | 36.8         | 15.0         | 0.1              | 36.9         | 15.1         | 56.0         | 46.0         | 19.1         | 30.9         | N     |
| 7  | 0.63291       | 38.2         | 21.3         | 0.1              | 38.3         | 21.4         | 56.0         | 46.0         | 17.7         | 24.6         | N     |
| 8  | 1.03900       | 43.1         | 25.0         | 0.1              | 43.2         | 25.1         | 56.0         | 46.0         | 12.8         | 20.9         | N     |
| 9  | 1.03900       | 43.4         | 25.2         | 0.1              | 43.5         | 25.3         | 56.0         | 46.0         | 12.5         | 20.7         | N     |
| 10 | 1.12850       | 40.4         | 22.7         | 0.1              | 40.5         | 22.8         | 56.0         | 46.0         | 15.5         | 23.2         | N     |
| 11 | 13.64300      | 31.0         | 21.1         | 0.5              | 31.5         | 21.6         | 60.0         | 50.0         | 28.5         | 28.4         | N     |
| 12 | 0.15450       | 49.2         | 35.3         | 0.1              | 49.3         | 35.4         | 65.8         | 55.8         | 16.5         | 20.4         | L1    |
| 13 | 0.21204       | 42.4         | 30.5         | 0.1              | 42.5         | 30.6         | 63.1         | 53.1         | 20.6         | 22.5         | L1    |
| 14 | 0.23973       | 41.9         | 31.2         | 0.1              | 42.0         | 31.3         | 62.1         | 52.1         | 20.1         | 20.8         | L1    |
| 15 | 0.28014       | 42.4         | 33.0         | 0.1              | 42.5         | 33.1         | 60.8         | 50.8         | 18.3         | 17.7         | L1    |
| 16 | 0.31540       | 40.4         | 31.6         | 0.1              | 40.5         | 31.7         | 59.8         | 49.8         | 19.3         | 18.1         | L1    |
| 17 | 0.48463       | 42.4         | 35.0         | 0.1              | 42.5         | 35.1         | 56.3         | 46.3         | 13.8         | 11.2         | L1    |
| 18 | 0.53010       | 37.9         | 20.6         | 0.1              | 38.0         | 20.7         | 56.0         | 46.0         | 18.0         | 25.3         | L1    |
| 19 | 0.63820       | 39.3         | 28.4         | 0.1              | 39.4         | 28.5         | 56.0         | 46.0         | 16.6         | 17.5         | L1    |
| 20 | 0.95958       | 37.8         | 22.9         | 0.1              | 37.9         | 23.0         | 56.0         | 46.0         | 18.1         | 23.0         | L1    |
| 21 | 1.04250       | 42.2         | 29.1         | 0.1              | 42.3         | 29.2         | 56.0         | 46.0         | 13.7         | 16.8         | L1    |
| 22 | 1.10800       | 43.7         | 27.0         | 0.1              | 43.8         | 27.1         | 56.0         | 46.0         | 12.2         | 18.9         | L1    |
| 23 | 1.10950       | 44.1         | 27.3         | 0.1              | 44.2         | 27.4         | 56.0         | 46.0         | 11.8         | 18.6         | L1    |
| 24 | 13.39300      | 26.5         | 17.0         | 0.5              | 27.0         | 17.5         | 60.0         | 50.0         | 33.0         | 32.5         | L1    |

# **APPENDIX I**

## **TEST EQUIPMENT FOR TESTS**

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment.

| Type              | Manufacturer | Model    | Cal.Date<br>(yy/mm/dd) | Next.Cal.Date<br>(yy/mm/dd) | S/N        |
|-------------------|--------------|----------|------------------------|-----------------------------|------------|
| Spectrum Analyzer | Agilent      | E4440A   | 12/09/18               | 13/09/18                    | MY45304199 |
| LOOP Antenna      | Schwarzbeck  | FMZB1513 | 12/09/24               | 13/09/24                    | 1513-128   |
| BILOG ANTENNA     | SCHAFFNER    | CBL6112B | 12/11/06               | 14/11/06                    | 2737       |
| Thermo hygrometer | BODYCOM      | BJ5478   | 12/06/20               | 13/06/20                    | 120612-2   |
| Amplifier (22dB)  | H.P          | 8447E    | 13/01/08               | 14/01/08                    | 2945A02865 |
| EMI TEST RECEIVER | R&S          | ESU      | 13/01/08               | 14/01/08                    | 100014     |
| EMI TEST RECEIVER | R&S          | ESCI     | 12/03/06               | 13/03/06                    | 100364     |
| CVCF              | KIKUSUI      | PCR1000L | 12/09/15               | 13/09/15                    | 14110610   |
| LISN              | R&S          | ESH2-Z5  | 12/09/18               | 13/09/18                    | 828739/006 |