

EMC TEST REPORT

Test item : 200CH HANDHELD RADIO SCANNER
Model No. : PRO-649
Order No. : DTNC1601-00158
Date of receipt : 2016-01-11
Test duration : 2016-01-13 ~ 2016-03-05
Date of Issue : 2016-03-23

Applicant : The Whistler Group, Inc.
168 Ayer Road, Littleton, MA 01460, USA

Test laboratory : DT&C Co., Ltd.
42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, South Korea 449-935

Test specification : ANSI C 63.4:2014
FCC Part 15 Subpart B
(Scanning receiver)

Test environment : Temperature : (16 ~ 19) °C,
Humidity : (38 ~ 45) % R.H.

Test result : Comply Not Comply


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.
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Tested by:



Engineer
DaeHwa Eun

Reviewed by:



Technical Manager
YoungKyu Shin

PRESIDENT OF DT&C Co., Ltd.

CONTENTS

| | |
|---|----|
| 1. General Remarks | 3 |
| 2. Test Laboratory | 3 |
| 3. General Information of EUT | 4 |
| 4. Test Summary | 5 |
| 4.1 Applied standards and test results | 5 |
| 4.2 Test environment and conditions | 5 |
| 4.3 Test result Summary | 6 |
| 5. Test Set-up and operation mode | 7 |
| 5.1 Principle of Configuration Selection | 7 |
| 5.2 Test Operation Mode | 7 |
| 5.3 Support Equipment Used | 7 |
| 6. Test Results : Emission | 8 |
| 6.1 Conducted Disturbance | 8 |
| 6.2 Radiated Disturbance | 17 |
| 6.3 Antenna Power Conduction | 43 |
| Appendix 1 | 45 |
| List of Test and Measurement Instruments | 45 |
| Appendix 2 | 47 |
| Report Revision History | 47 |
| Appendix 3 | 48 |
| Changed Item | 48 |

1. General Remarks

This report contains the result of tests performed by:

Dt&C Co., Ltd.

Address : 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, South Korea 449-935

<http://www.dtn.net>

Tel: +82-31-321-2664 Fax: +82-31-321-1664

2. Test Laboratory

Dt&C Co., Ltd. has been accredited / filed / authorized by the agencies listed in the following table;

| Certificate | Nation | Agency | Code | Mark |
|---------------|---------|--------|--|----------------------------|
| Accreditation | Korea | KOLAS | 393 | ISO/IEC 17025 |
| Site Filing | USA | FCC | KR0034 101842 678747, 596748, 804488, 165783 | Accredited 2.948 Listed |
| | Canada | IC | 5740A-1 5740A-2 | Registered |
| | Japan | VCCI | C-1427 R-1364, R-3385, R-4076, R-4180, T-1442, G-338, G754, G-815 | Registered |
| Certification | Korea | KC | KR0034 | Designation |
| | Germany | TUV | CARAT 13 11 86721 001 | ISO/IEC 17025 |

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competent of calibration and testing laboratory".

3. General Information of EUT

| | |
|-------------------------|---|
| Kind of Equipment | 200CH HANDHELD RADIO SCANNER |
| Model No. | PRO-649 |
| Add Model No | WS1010 |
| Serial No | None |
| FCC ID | HSXSC01 |
| Supplied Power for Test | 120 V, 60 Hz |
| Applicant | The Whistler Group, Inc. 168 Ayer Road, Littleton, MA 01460, USA |
| Manufacturer | RDX, Inc 307 Daeryung Techno Twon 3, 115 Gasan Digital 2-ro, Guemcheon-gu, Seoul, Korea |
| Factory | Radix Telecom Phils., Industries Inc. P-IMES Bldg.2. Block 16, Phase IV Peza Rosario Cavite, Philippines |

Related Submittal(s) / Grant(s)

Refer to Appendix 3 (Changed Item)

4. Test Summary

4.1 Applied standards and test results

| Test Items | Applied Standards | Results |
|--|-------------------|---------|
| Conducted Disturbance | ANSI C63.4:2014 | C |
| Radiated Disturbance | ANSI C63.4:2014 | C |
| Antenna Power Conduction | ANSI C63.4:2014 | C |
| C=Comply N/C=Not Comply N/T=Not Tested N/A=Not Applicable | | |

The data in this test report are traceable to the national or international standards.

4.2 Test environment and conditions

< PRO-649 >

| Test Items | Test date (YYYY-MM-DD) | Temp (°C) | Humidity (% R.H.) |
|--------------------------|------------------------|-----------|-------------------|
| Conducted Disturbance | 2016-01-13 | 16 | 41 |
| Radiated Disturbance | 2016-01-18 | 17 | 40 |
| | 2016-01-20 | 17 | 39 |
| Antenna Power Conduction | 2016-01-20 | 17 | 39 |

< WS1010 >

| Test Items | Test date (YYYY-MM-DD) | Temp (°C) | Humidity (% R.H.) |
|-----------------------|------------------------|-----------|-------------------|
| Conducted Disturbance | 2016-02-25 | 16 | 38 |
| Radiated Disturbance | 2016-03-04 | 17 | 39 |
| | 2016-03-05 | 19 | 45 |

4.3 Test result Summary

(1) Conducted Emission

< PRO-649 >

| Frequency [MHz] | Phase | Result [dB μ V] | Detector | Limit [dB μ V] | Margin [dB] |
|--------------------|-------|------------------------|----------|-----------------------|----------------|
| 0.56206 | L | 36.7 | Average | 46.0 | 9.3 |

< WS1010 >

| Frequency [MHz] | Phase | Result [dB μ V] | Detector | Limit [dB μ V] | Margin [dB] |
|--------------------|-------|------------------------|----------|-----------------------|----------------|
| 4.00781 | N | 30.3 | Average | 46.0 | 15.7 |

(2) Radiated Emission

< PRO-649 >

| Frequency [MHz] | Pol. | Result [dB(μ V/m)] | Detector | Limit [dB(μ V/m)] | Margin [dB] |
|--------------------|------|----------------------------|------------|---------------------------|----------------|
| 58.873 | V | 32.5 | Quasi-Peak | 40.0 | 7.5 |

< WS1010 >

| Frequency [MHz] | Pol. | Result [dB(μ V/m)] | Detector | Limit [dB(μ V/m)] | Margin [dB] |
|--------------------|------|----------------------------|------------|---------------------------|----------------|
| 34.117 | V | 23.7 | Quasi-Peak | 30.0 | 6.3 |

5. Test Set-up and operation mode

5.1 Principle of Configuration Selection

Emission : The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

5.2 Test Operation Mode

- MODE 1: The EUT was set to constantly scan all bands.
- MODE 2: The EUT was set to connect USB cable to the scanning receiver for receiving data and status.

5.3 Support Equipment Used

| Unit | Model No. | Serial No. | Manufacturer | CABLE | | | | Back shell | FCC ID |
|---|----------------|------------|--------------------------|--------------|------------|----------------------|--------------|--------------------|--------|
| | | | | Connect type | Length (m) | shield | With Ferrite | | |
| 200CH Desktop Radio Scanner With FM Radio | PRO-650 | N/A | The Whistler Group, Inc. | POWER STEREO | 1.8 1.0 | Non-shield Shield | X | Plastic Plastic | DOC |
| Headset | COV-903 | N/A | COSY | STEREO | 2.0 | Non-shield | X | Plastic | DOC |
| ADAPTOR | GQ05-090040-AU | N/A | 3YE | POWER | 1.8 | Non-shield | X | Plastic | DOC |

6. Test Results : Emission

6.1 Conducted Disturbance

6.1.1 Measurement Procedure

In the range of 0.15 MHz to 30 MHz, the conducted disturbance was measured and set-up was made accordance with **ANSI C63.4**.

If the EUT is table top equipment, it was placed on a wooden table with a height of 0.8 m above the reference ground plane and 0.4 m from the conducting wall of the shielded room.

Also if the EUT is floor-standing equipment, it was placed on a non-conducted support with a height up to 0.15 m above the reference ground plane.

Connect the EUT's power source lines to the PC power through the LISN. All the other peripherals are connected to the 2nd LISN, if any.

Unused measuring port of the LISN was resistively terminated by 50 ohm terminator.

The measuring port of the LISN for EUT was connected to spectrum analyzer.

Using conducted emission test software, the emissions were scanned with peak detector mode.

After scanning over the frequency range, suspected emissions were selected to perform final measurement. When performing final measurement, the receiver was used which has Quasi-Peak detector and Average detector.

By varying the configuration of the test sample and the cable routing it was attempted to maximize the emission.

For further description of the configuration refer to the picture of the test set-up.

6.1.2 Limit for Conducted Disturbance

(1) Conducted disturbance at mains ports.

| Frequency range (MHz) | Limits dB(μV) | | | |
|-----------------------|---------------|----------|---------|----------|
| | Quasi-peak | | Average | |
| | Class A | Class B | Class A | Class B |
| 0.15 to 0.50 | 79 | 66 to 56 | 66 | 56 to 46 |
| 0.50 to 5 | 73 | 56 | 60 | 46 |
| 5 to 30 | | 60 | | 50 |

Note 1 The lower limit shall apply at the transition frequencies.
 Note 2 The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

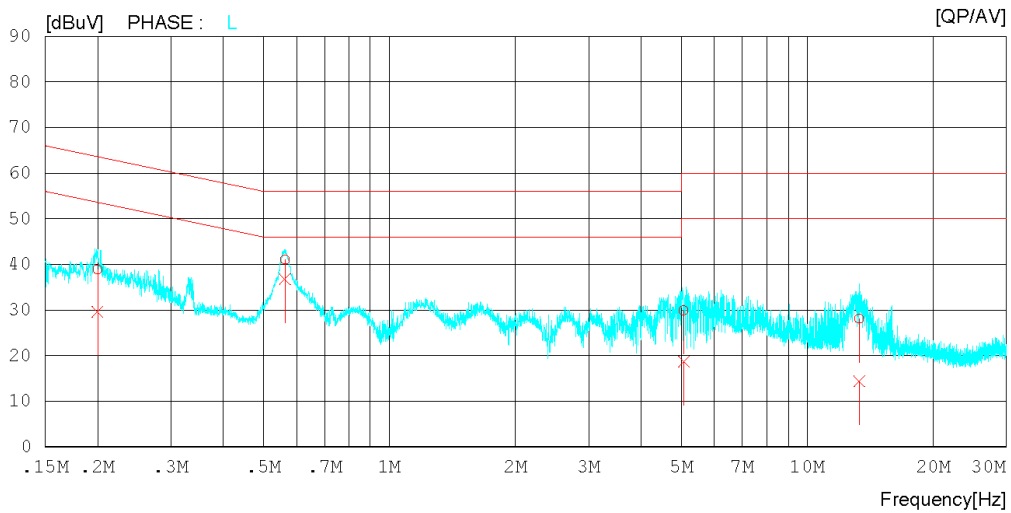
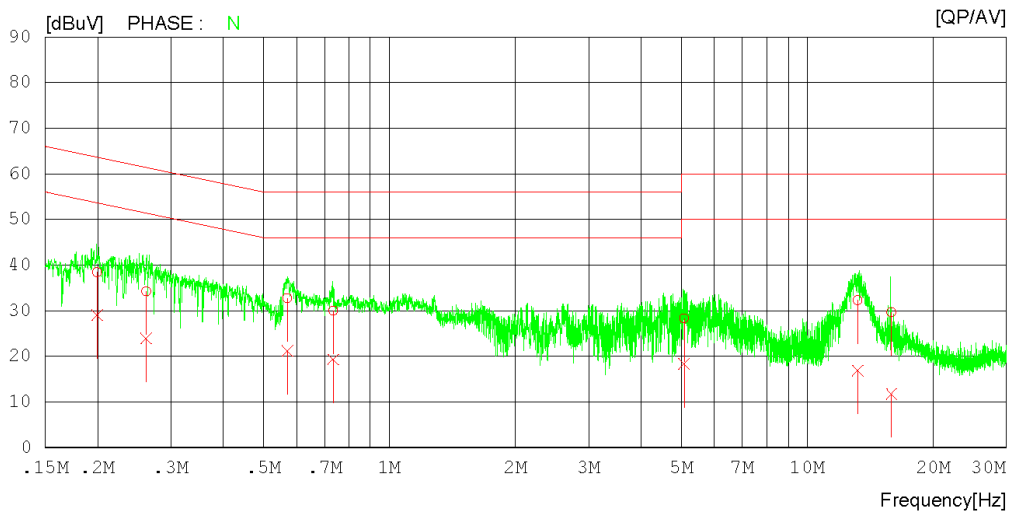
- Note) 1. Emission Level = Reading Value + Correction Factor.
 2. Correction Factor = Cable Loss + Insertion Loss of LISN
 3. Margin = Limit - Emission level

Test Result

< PRO-649 _ MODE 1 >

Results of Conducted Emission

| | |
|----------------------------|------------------------------|
| DTNC | Date : 2016-01-13 |
| Order No. : DTNC1601-00158 | Reference No. : |
| Model No. : PRO-649 | Power Supply : 120 V 60 Hz |
| Serial No. : | Temp/Humi. : 16 °C 41 % R.H. |
| Test Condition : 1 | Operator : |
| Memo : | |
| LIMIT : CISPR22_B QP | |
| CISPR22_B AV | |



Results of Conducted Emission

DTNC

Date : 2016-01-13

| | | | |
|------------------|----------------|-----------------|-----------------|
| Order No. : | DTNC1601-00158 | Reference No. : | : |
| Model No. : | PRO-649 | Power Supply : | 120 V 60 Hz |
| Serial No. : | : | Temp/Humi. : | 16 °C 41 % R.H. |
| Test Condition : | 1 | Operator : | : |

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV

| NO | FREQ [MHz] | READING | | C. FACTOR [dB] | RESULT | | LIMIT | | MARGIN | | PHASE |
|----|---------------|--------------|--------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
| | | QP [dBuV] | AV [dBuV] | | QP [dBuV] | AV [dBuV] | QP [dBuV] | AV [dBuV] | QP [dBuV] | AV [dBuV] | |
| 1 | 0.19971 | 28.3 | 19.0 | 10.1 | 38.4 | 29.1 | 63.6 | 53.6 | 25.2 | 24.5 | N |
| 2 | 0.26147 | 24.1 | 13.9 | 10.1 | 34.2 | 24.0 | 61.4 | 51.4 | 27.2 | 27.4 | N |
| 3 | 0.56942 | 22.7 | 11.1 | 10.1 | 32.8 | 21.2 | 56.0 | 46.0 | 23.2 | 24.8 | N |
| 4 | 0.73316 | 20.0 | 9.2 | 10.1 | 30.1 | 19.3 | 56.0 | 46.0 | 25.9 | 26.7 | N |
| 5 | 5.06940 | 18.0 | 8.0 | 10.3 | 28.3 | 18.3 | 60.0 | 50.0 | 31.7 | 31.7 | N |
| 6 | 13.21400 | 21.7 | 6.2 | 10.6 | 32.3 | 16.8 | 60.0 | 50.0 | 27.7 | 33.2 | N |
| 7 | 15.91120 | 19.1 | 1.1 | 10.6 | 29.7 | 11.7 | 60.0 | 50.0 | 30.3 | 38.3 | N |
| 8 | 0.20000 | 28.8 | 19.4 | 10.1 | 38.9 | 29.5 | 63.6 | 53.6 | 24.7 | 24.1 | L |
| 9 | 0.56206 | 30.8 | 26.6 | 10.1 | 40.9 | 36.7 | 56.0 | 46.0 | 15.1 | 9.3 | L |
| 10 | 5.06300 | 19.5 | 8.3 | 10.3 | 29.8 | 18.6 | 60.0 | 50.0 | 30.2 | 31.4 | L |
| 11 | 13.32800 | 17.2 | 3.5 | 10.8 | 28.0 | 14.3 | 60.0 | 50.0 | 32.0 | 35.7 | L |

< PRO-649 _ MODE 2 >

Results of Conducted Emission

DTNC

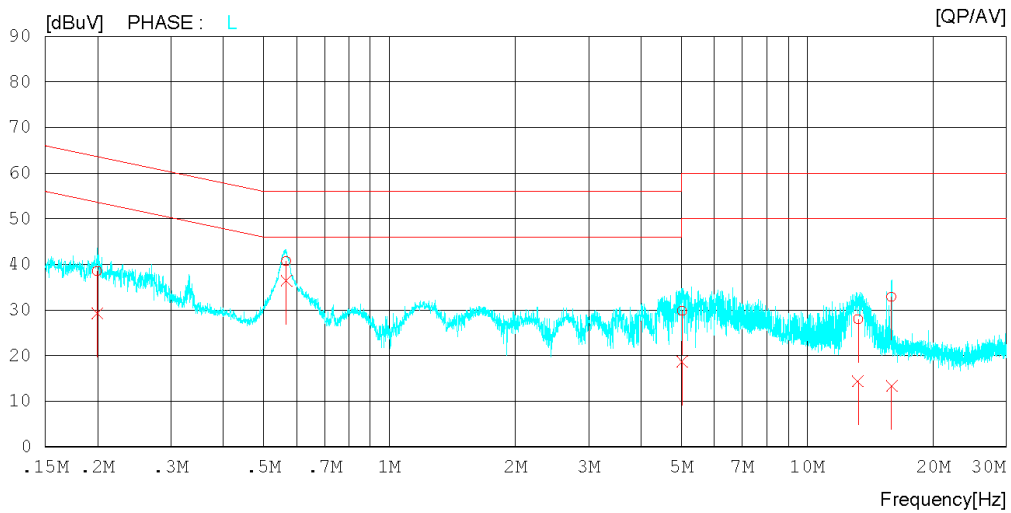
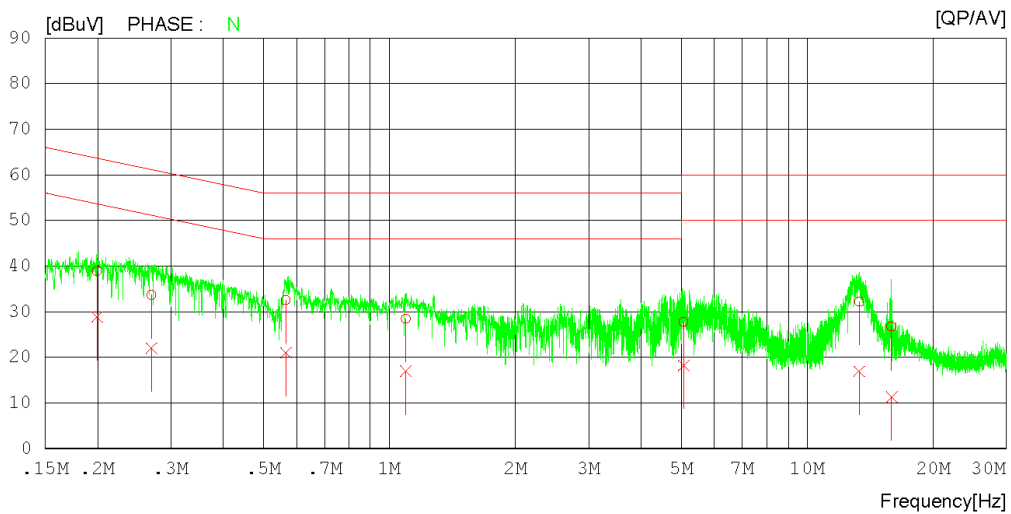
Date : 2016-01-13

Order No. : DTNC1601-00158
 Model No. : PRO-649
 Serial No. :
 Test Condition : 2

Reference No. :
 Power Supply : 120 V 60 Hz
 Temp/Humi. : 16 °C 41 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV



Results of Conducted Emission

DTNC

Date : 2016-01-13

| | | | |
|----------------|------------------|---------------|-------------------|
| Order No. | : DTNC1601-00158 | Reference No. | : |
| Model No. | : PRO-649 | Power Supply | : 120 V 60 Hz |
| Serial No. | : | Temp/Humi. | : 16 °C 41 % R.H. |
| Test Condition | : 2 | Operator | : |

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV

| NO | FREQ [MHz] | READING | | C. FACTOR [dB] | RESULT | | LIMIT | | MARGIN | | PHASE |
|----|---------------|--------------|--------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
| | | QP [dBuV] | AV [dBuV] | | QP [dBuV] | AV [dBuV] | QP [dBuV] | AV [dBuV] | QP [dBuV] | AV [dBuV] | |
| 1 | 0.19960 | 28.8 | 18.8 | 10.1 | 38.9 | 28.9 | 63.6 | 53.6 | 24.7 | 24.7 | N |
| 2 | 0.26910 | 23.6 | 11.9 | 10.1 | 33.7 | 22.0 | 61.1 | 51.1 | 27.4 | 29.1 | N |
| 3 | 0.56511 | 22.4 | 10.9 | 10.1 | 32.5 | 21.0 | 56.0 | 46.0 | 23.5 | 25.0 | N |
| 4 | 1.09480 | 18.3 | 6.8 | 10.2 | 28.5 | 17.0 | 56.0 | 46.0 | 27.5 | 29.0 | N |
| 5 | 5.06400 | 17.5 | 7.9 | 10.3 | 27.8 | 18.2 | 60.0 | 50.0 | 32.2 | 31.8 | N |
| 6 | 13.32740 | 21.6 | 6.3 | 10.6 | 32.2 | 16.9 | 60.0 | 50.0 | 27.8 | 33.1 | N |
| 7 | 15.91860 | 16.1 | 0.7 | 10.6 | 26.7 | 11.3 | 60.0 | 50.0 | 33.3 | 38.7 | N |
| 8 | 0.19978 | 28.4 | 19.1 | 10.1 | 38.5 | 29.2 | 63.6 | 53.6 | 25.1 | 24.4 | L |
| 9 | 0.56650 | 30.6 | 26.3 | 10.1 | 40.7 | 36.4 | 56.0 | 46.0 | 15.3 | 9.6 | L |
| 10 | 5.01920 | 19.4 | 8.4 | 10.3 | 29.7 | 18.7 | 60.0 | 50.0 | 30.3 | 31.3 | L |
| 11 | 13.23780 | 17.1 | 3.5 | 10.8 | 27.9 | 14.3 | 60.0 | 50.0 | 32.1 | 35.7 | L |
| 12 | 15.91800 | 22.0 | 2.5 | 10.8 | 32.8 | 13.3 | 60.0 | 50.0 | 27.2 | 36.7 | L |

< WS1010 _ MODE 1 >

Results of Conducted Emission

DTNC

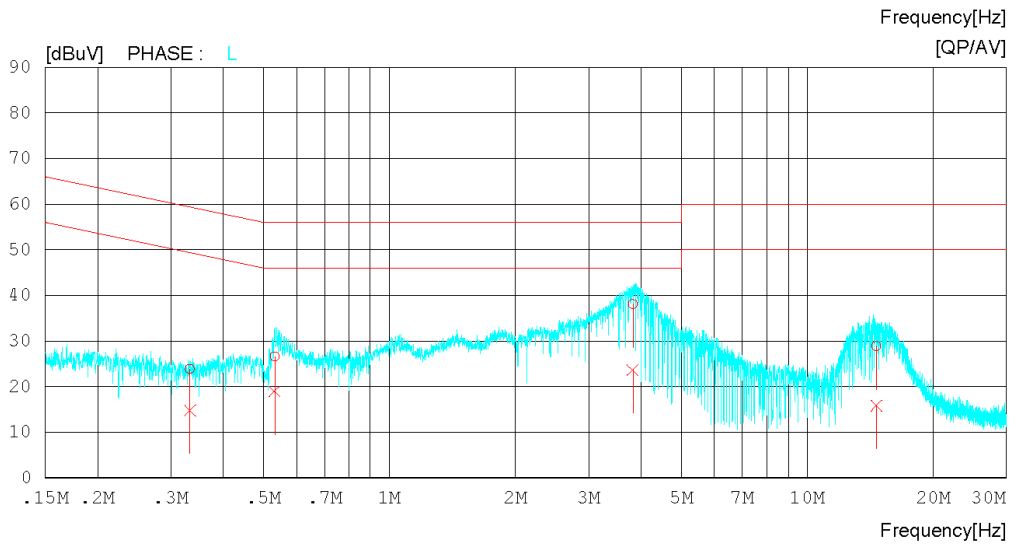
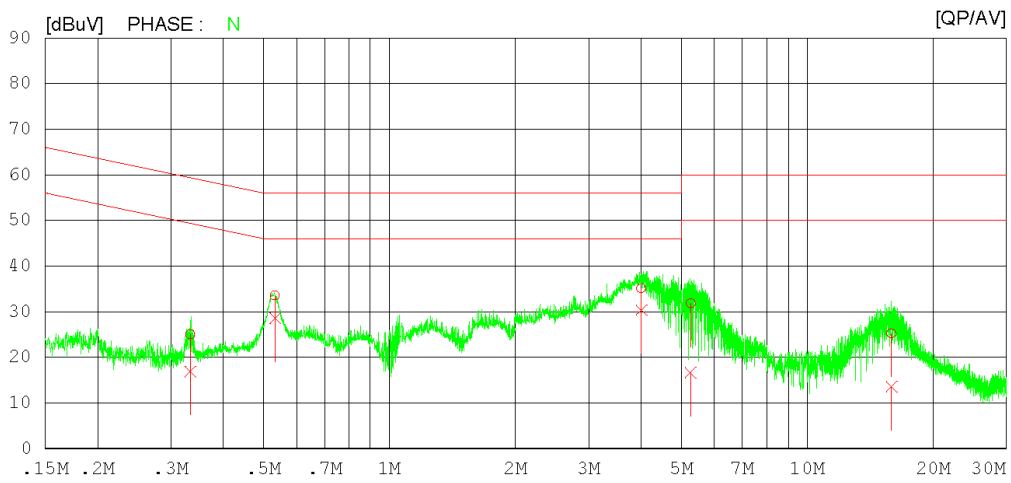
Date : 2016-02-25

Order No. :
 Model No. : WS1010
 Serial No. :
 Test Condition : 1

Reference No. :
 Power Supply : 120 V 60 Hz
 Temp/Humi. : 16 °C 38 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV



Results of Conducted Emission

DTNC

Date : 2016-02-25

Order No. :
 Model No. : WS1010
 Serial No. :
 Test Condition : 1

Reference No. :
 Power Supply : 120 V 60 Hz
 Temp/Humi. : 16 °C 38 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV

| NO | FREQ [MHz] | READING | | C. FACTOR [dB] | RESULT | | LIMIT | | MARGIN | | PHASE |
|----|---------------|--------------|--------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
| | | QP [dBuV] | AV [dBuV] | | QP [dBuV] | AV [dBuV] | QP [dBuV] | AV [dBuV] | QP [dBuV] | AV [dBuV] | |
| 1 | 0.33410 | 14.9 | 6.8 | 10.1 | 25.0 | 16.9 | 59.3 | 49.3 | 34.3 | 32.4 | N |
| 2 | 0.53210 | 23.4 | 18.5 | 10.1 | 33.5 | 28.6 | 56.0 | 46.0 | 22.5 | 17.4 | N |
| 3 | 4.00781 | 24.9 | 20.1 | 10.2 | 35.1 | 30.3 | 56.0 | 46.0 | 20.9 | 15.7 | N |
| 4 | 5.26142 | 21.4 | 6.2 | 10.4 | 31.8 | 16.6 | 60.0 | 50.0 | 28.2 | 33.4 | N |
| 5 | 15.92404 | 14.6 | 3.0 | 10.6 | 25.2 | 13.6 | 60.0 | 50.0 | 34.8 | 36.4 | N |
| 6 | 0.33292 | 13.7 | 4.7 | 10.1 | 23.8 | 14.8 | 59.4 | 49.4 | 35.6 | 34.6 | L |
| 7 | 0.53120 | 16.4 | 8.8 | 10.1 | 26.5 | 18.9 | 56.0 | 46.0 | 29.5 | 27.1 | L |
| 8 | 3.82077 | 27.9 | 13.4 | 10.2 | 38.1 | 23.6 | 56.0 | 46.0 | 17.9 | 22.4 | L |
| 9 | 14.65026 | 18.0 | 5.0 | 10.8 | 28.8 | 15.8 | 60.0 | 50.0 | 31.2 | 34.2 | L |

< WS1010 _ MODE 2 >

Results of Conducted Emission

DTNC

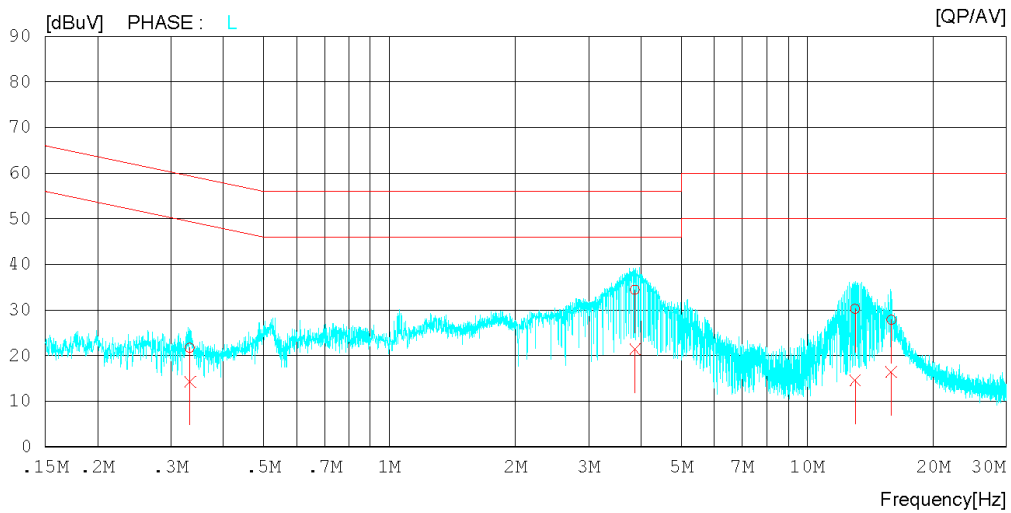
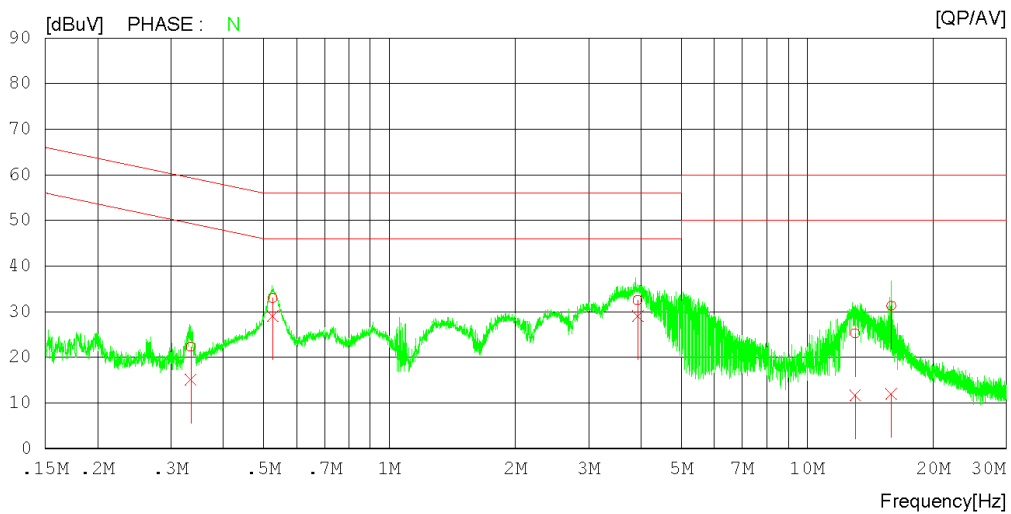
Date : 2016-02-25

Order No. :
 Model No. : WS1010
 Serial No. :
 Test Condition : 2

Reference No. :
 Power Supply : 120 V 60 Hz
 Temp/Humi. : 16 °C 38 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV



Results of Conducted Emission

DTNC

Date : 2016-02-25

| | | | |
|------------------|--------|-----------------|-----------------|
| Order No. : | | Reference No. : | |
| Model No. : | WS1010 | Power Supply : | 120 V 60 Hz |
| Serial No. : | | Temp/Humi. : | 16 °C 38 % R.H. |
| Test Condition : | 2 | Operator : | |

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV

| NO | FREQ [MHz] | READING | | C. FACTOR [dB] | RESULT | | LIMIT | | MARGIN | | PHASE |
|----|---------------|--------------|--------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
| | | QP [dBuV] | AV [dBuV] | | QP [dBuV] | AV [dBuV] | QP [dBuV] | AV [dBuV] | QP [dBuV] | AV [dBuV] | |
| 1 | 0.33433 | 12.2 | 5.0 | 10.1 | 22.3 | 15.1 | 59.3 | 49.3 | 37.0 | 34.2 | N |
| 2 | 0.52493 | 22.9 | 19.0 | 10.1 | 33.0 | 29.1 | 56.0 | 46.0 | 23.0 | 16.9 | N |
| 3 | 3.93049 | 22.3 | 18.8 | 10.2 | 32.5 | 29.0 | 56.0 | 46.0 | 23.5 | 17.0 | N |
| 4 | 13.02237 | 14.6 | 1.0 | 10.6 | 25.2 | 11.6 | 60.0 | 50.0 | 34.8 | 38.4 | N |
| 5 | 15.88744 | 20.6 | 1.4 | 10.6 | 31.2 | 12.0 | 60.0 | 50.0 | 28.8 | 38.0 | N |
| 6 | 0.33315 | 11.5 | 4.2 | 10.1 | 21.6 | 14.3 | 59.4 | 49.4 | 37.8 | 35.1 | L |
| 7 | 3.86831 | 24.2 | 11.2 | 10.2 | 34.4 | 21.4 | 56.0 | 46.0 | 21.6 | 24.6 | L |
| 8 | 13.02333 | 19.5 | 3.9 | 10.7 | 30.2 | 14.6 | 60.0 | 50.0 | 29.8 | 35.4 | L |
| 9 | 15.90026 | 17.0 | 5.6 | 10.8 | 27.8 | 16.4 | 60.0 | 50.0 | 32.2 | 33.6 | L |

6.2 Radiated Disturbance

6.2.1 Measurement Procedure

The radiated disturbance was measured and set-up was made accordance with **ANSI C63.4**.

If the EUT is tabletop equipment, it was placed on a wooden table with a height of 0.8 m above the reference ground plane and 3 m or 10 m away from the interference receiving antenna in the **10m semi-anechoic chamber**.

Also if the EUT is floor-standing equipment, it was placed on a non-conducted support with a height up to 0.15 m above the reference ground plane.

Rotate the EUT from (0 - 360)° and position the receiving antenna at heights from (1 - 4) m above the reference ground plane continuously to determine associated with higher emission levels and record them.

The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.

For below 1 GHz frequency range, Quasi-Peak detector with 120 kHz RBW was used.

Peak detector with 1 MHz RBW and 1 MHz VBW were used for above 1 GHz frequency range, also used linear average detector with defined in CISPR 16-1-1.

For further description of the configuration refer to the picture of the test set-up.

6.2.2 Limit for Radiated Disturbance

- The test frequency range of Radiated Disturbance measurements are listed below.

| Highest frequency generated or used in the device or on which the device operates or tunes (MHz) | Upper frequency of measurement range (MHz) |
|--|---|
| Below 108 | 1 000 |
| 108 – 500 | 2 000 |
| 500 – 1 000 | 5 000 |
| Above 1 000 | 5 th harmonic of the highest frequency or 40 GHz, whichever is lower |

(1) Limit for Radiated Emission below 1 000 MHz

| Frequency range (MHz) | Class A Equipment (10 m distance) | Class B Equipment (3 m distance) |
|-----------------------|-----------------------------------|----------------------------------|
| | Quasi-peak (dB μ V/m) | Quasi-peak (dB μ V/m) |
| 30 to 88 | 39.1 | 40 |
| 88 to 216 | 43.5 | 43.5 |
| 216 to 960 | 46.4 | 46 |
| 960 to 1 000 | 49.5 | 54 |

Note 1 The lower limit shall apply at the transition frequency.

Note 2 Additional provisions may be required for cases where interference occurs.

Note 3 According to 15.109(g), as an alternative to the radiated emission limit shown above, digital devices may be shown to comply with the standards(CISPR), Pub. 22 shown as below.

| Frequency range (MHz) | Class A Equipment (10 m distance) | Class B Equipment (10 m distance) |
|-----------------------|-----------------------------------|-----------------------------------|
| | Quasi-peak (dB μ V/m) | Quasi-peak (dB μ V/m) |
| 30 to 230 | 40 | 30 |
| 230 to 1 000 | 47 | 37 |

(2) Limits for Radiated Emission above 1 000 MHz at a measuring distance of 3 m

| Frequency (GHz) | Class A Equipment | | Class B Equipment | |
|-----------------|---------------------|------------------------|---------------------|------------------------|
| | Peak (dB μ V/m) | Average (dB μ V/m) | Peak (dB μ V/m) | Average (dB μ V/m) |
| 1 to 40 | 80 | 60 | 74 | 54 |

Note)1. Emission Level = Reading Value + loss - gain + Ant Factor

2. Margin = Limit - Emission level

3. Loss = Cable loss, Gain = Amp gain, Ant Factor = Antenna Factor

Test Result

PRO-649 _ < 30 MHz ~ 1 GHz _ MODE 1 >

RADIATED EMISSION

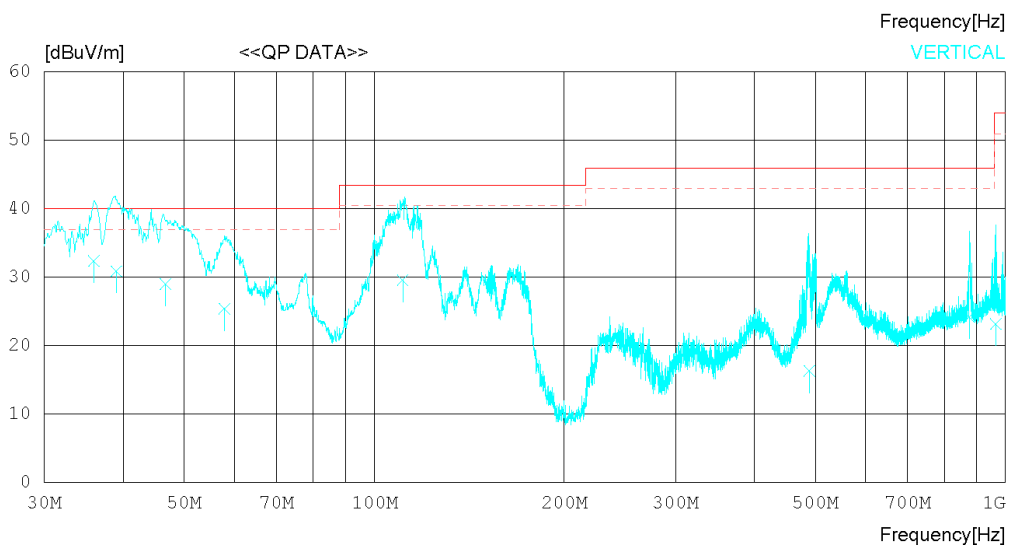
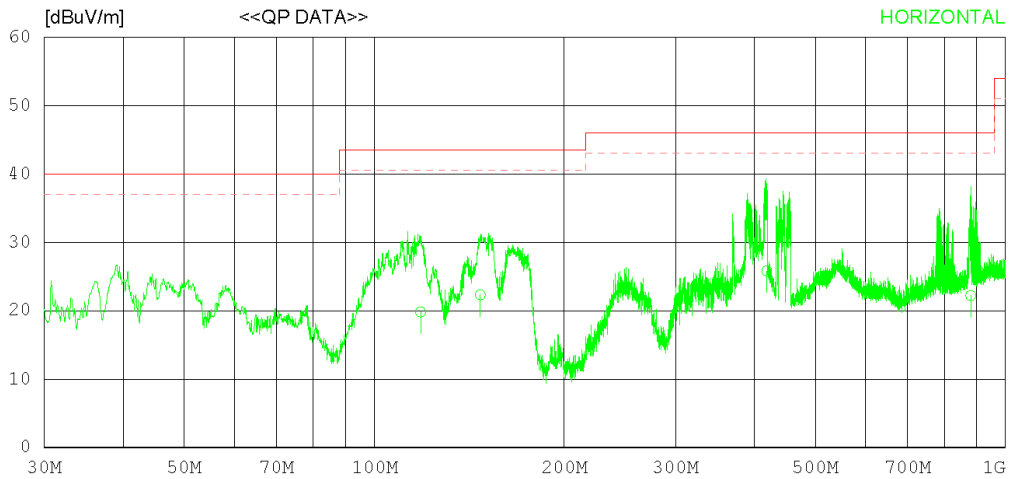
Date : 2016-01-18

Order No. : DTNC1601-00158
 Model No. : PRO-649
 Serial No. :
 Test Condition : SCAN

Reference No. :
 Power Supply : 120 V 60 Hz
 Temp/Humi : 17 °C 40 % R.H.
 Operator :

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
 MARGIN: 3 dB



RADIATED EMISSION

Date : 2016-01-18

| | | | |
|----------------|------------------|---------------|-------------------|
| Order No. | : DTNC1601-00158 | Reference No. | : |
| Model No. | : PRO-649 | Power Supply | : 120 V 60 Hz |
| Serial No. | : | Temp/Humi | : 17 °C 40 % R.H. |
| Test Condition | : SCAN | Operator | : |

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m)
 MARGIN: 3 dB

| No. | FREQ [MHz] | READING QP [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|-------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 118.386 | 34.4 | 11.2 | 0.8 | 26.6 | 19.8 | 43.5 | 23.7 | 400 | 169 |
| 2 | 147.199 | 35.0 | 12.8 | 1.0 | 26.5 | 22.3 | 43.5 | 21.2 | 282 | 156 |
| 3 | 418.717 | 34.1 | 16.2 | 1.8 | 26.3 | 25.8 | 46.0 | 20.2 | 199 | 358 |
| 4 | 880.880 | 22.0 | 23.2 | 3.3 | 26.3 | 22.2 | 46.0 | 23.8 | 100 | 260 |
| ----- Vertical ----- | | | | | | | | | | |
| 5 | 35.941 | 49.2 | 9.3 | 0.5 | 26.6 | 32.4 | 40.0 | 7.6 | 100 | 12 |
| 6 | 39.000 | 46.9 | 10.1 | 0.5 | 26.6 | 30.9 | 40.0 | 9.1 | 200 | 187 |
| 7 | 46.700 | 43.4 | 11.5 | 0.7 | 26.6 | 29.0 | 40.0 | 11.0 | 169 | 359 |
| 8 | 57.888 | 39.6 | 11.8 | 0.6 | 26.6 | 25.4 | 40.0 | 14.6 | 200 | 196 |
| 9 | 110.901 | 45.1 | 10.3 | 0.8 | 26.6 | 29.6 | 43.5 | 13.9 | 100 | 139 |
| 10 | 488.958 | 23.0 | 17.5 | 2.1 | 26.3 | 16.3 | 46.0 | 29.7 | 183 | 359 |
| 11 | 876.514 | 24.0 | 23.2 | 3.3 | 26.3 | 24.2 | 46.0 | 21.8 | 100 | 87 |
| 12 | 965.857 | 22.0 | 24.4 | 3.6 | 26.8 | 23.2 | 54.0 | 30.8 | 100 | 240 |

PRO-649 _ < (1 ~ 6) GHz _ Peak _ MODE 1 >

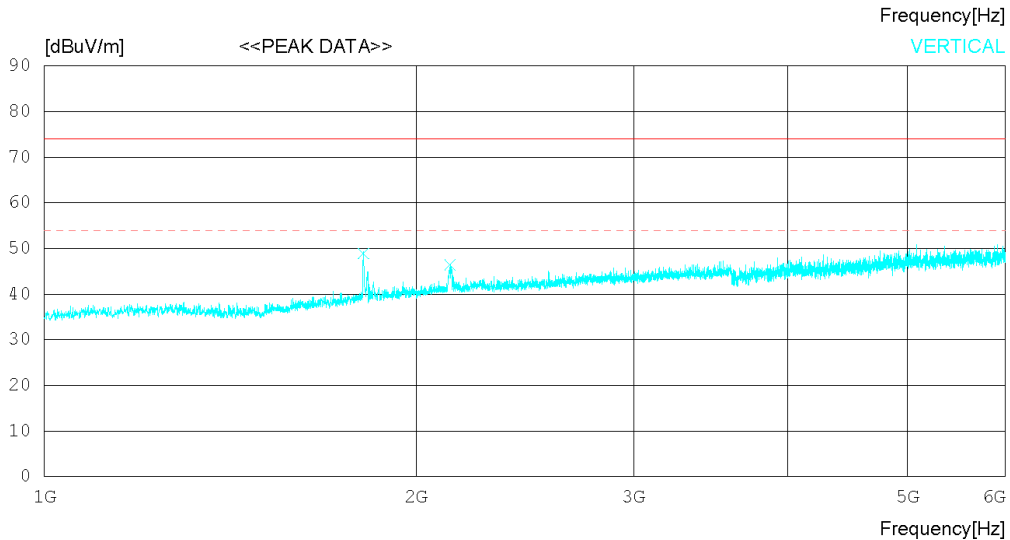
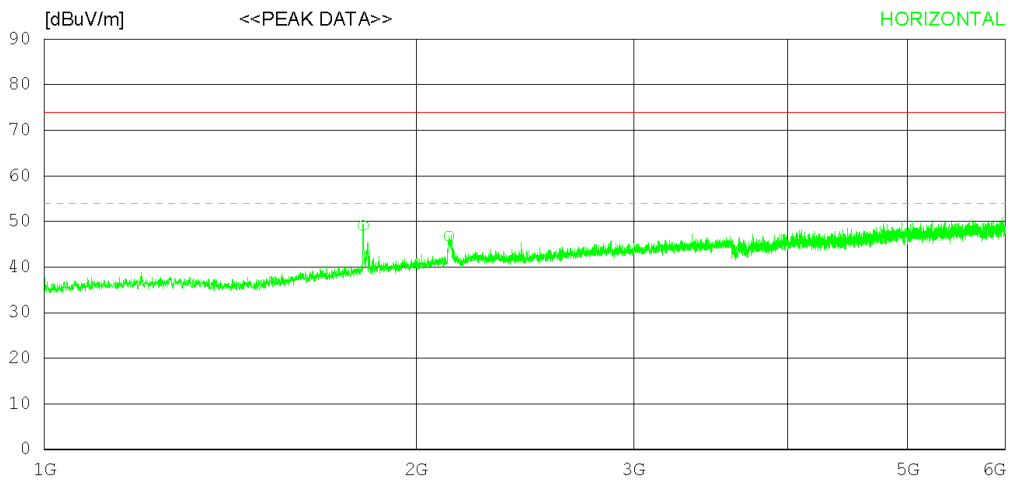
RADIATED EMISSION

Date : 2016-01-20

| | | | |
|----------------|------------------|---------------|-------------------|
| Order No. | : DTNC1601-00158 | Reference No. | : |
| Model No. | : PRO-649 | Power Supply | : 120 V 60 Hz |
| Serial No. | : | Temp/Humi | : 17 °C 39 % R.H. |
| Test Condition | : SCAN | Operator | : |

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
 FCC Part15 Subpart.B Class B (3m) - 18G(Avg)



RADIATED EMISSION

Date : 2016-01-20

| | | | |
|----------------|------------------|---------------|-------------------|
| Order No. | : DTNC1601-00158 | Reference No. | : |
| Model No. | : PRO-649 | Power Supply | : 120 V 60 Hz |
| Serial No. | : | Temp/Humi | : 17 °C 39 % R.H. |
| Test Condition | : SCAN | Operator | : |

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Peak)
 FCC Part15 Subpart B Class B (3m) - 18G(Avg)

| No. | FREQ [MHz] | READING PEAK [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|---------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 1811.875 | 62.0 | 30.6 | 4.3 | 47.8 | 49.1 | 74.0 | 24.9 | 100 | 358 |
| 2 | 2126.250 | 57.7 | 32.1 | 4.7 | 47.7 | 46.8 | 74.0 | 27.2 | 100 | 93 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 1811.875 | 61.8 | 30.6 | 4.3 | 47.8 | 48.9 | 74.0 | 25.1 | 100 | 1 |
| 4 | 2130.625 | 57.3 | 32.1 | 4.7 | 47.7 | 46.4 | 74.0 | 27.6 | 100 | 248 |

PRO-649 _ < (1 ~ 6) GHz _ Average _ MODE 1 >

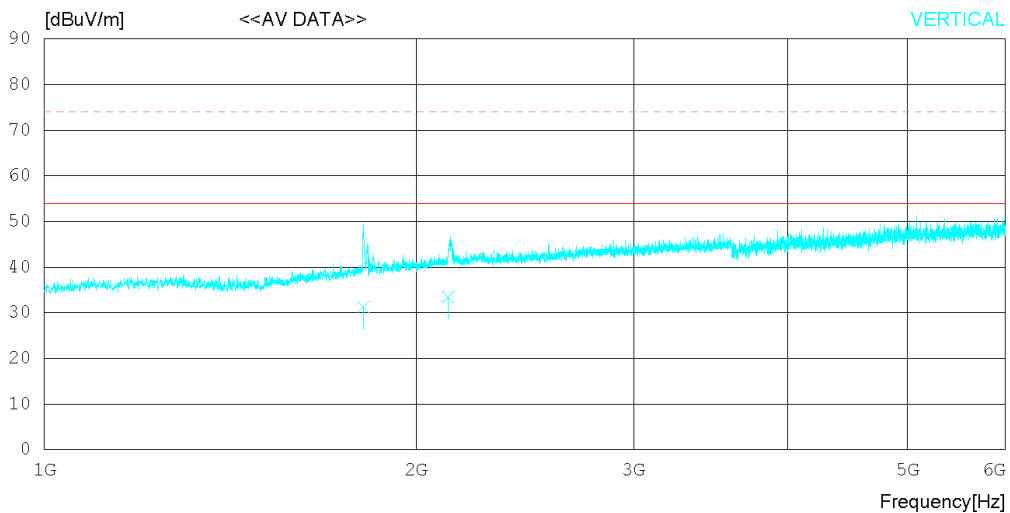
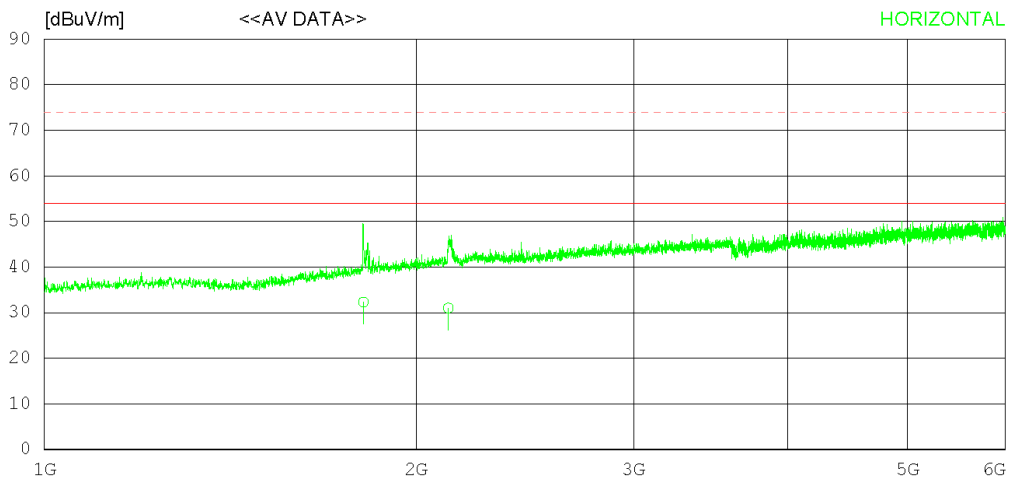
RADIATED EMISSION

Date : 2016-01-20

| | | |
|----------------------------|-----------------|-----------------|
| Order No. : DTNC1601-00158 | Reference No. : | : 120 V 60 Hz |
| Model No. : PRO-649 | Power Supply : | 17 °C 39 % R.H. |
| Serial No. : | Temp/Humi : | |
| Test Condition : SCAN | Operator : | |

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
 FCC Part15 Subpart.B Class B (3m) - 18G(Peak)



RADIATED EMISSION

Date : 2016-01-20

| | | | |
|----------------|------------------|---------------|-------------------|
| Order No. | : DTNC1601-00158 | Reference No. | : |
| Model No. | : PRO-649 | Power Supply | : 120 V 60 Hz |
| Serial No. | : | Temp/Humi | : 17 °C 39 % R.H. |
| Test Condition | : SCAN | Operator | : |

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Avg)
 FCC Part15 Subpart B Class B (3m) - 18G(Peak)

| No. | FREQ | READING | ANT | LOSS | GAIN | RESULT | LIMIT | MARGIN | ANTENNA | TABLE |
|------------------------|----------|---------|--------|------|------|----------|----------|--------|---------|-------|
| | [MHz] | [dBuV] | FACTOR | [dB] | [dB] | [dBuV/m] | [dBuV/m] | [dB] | [cm] | [DEG] |
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 1812.232 | 45.2 | 30.6 | 4.3 | 47.8 | 32.3 | 54.0 | 21.7 | 100 | 351 |
| 2 | 2123.720 | 42.0 | 32.1 | 4.7 | 47.8 | 31.0 | 54.0 | 23.0 | 100 | 93 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 1811.800 | 44.1 | 30.6 | 4.3 | 47.8 | 31.2 | 54.0 | 22.8 | 100 | 194 |
| 4 | 2123.721 | 44.4 | 32.1 | 4.7 | 47.8 | 33.4 | 54.0 | 20.6 | 100 | 169 |

PRO-649 _ < 30 MHz ~ 1 GHz _ MODE 2 >

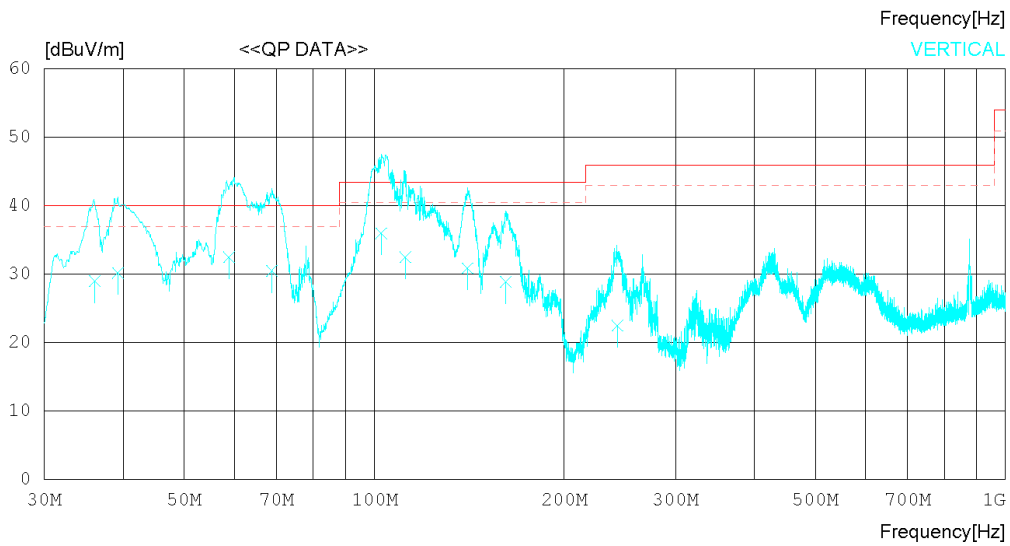
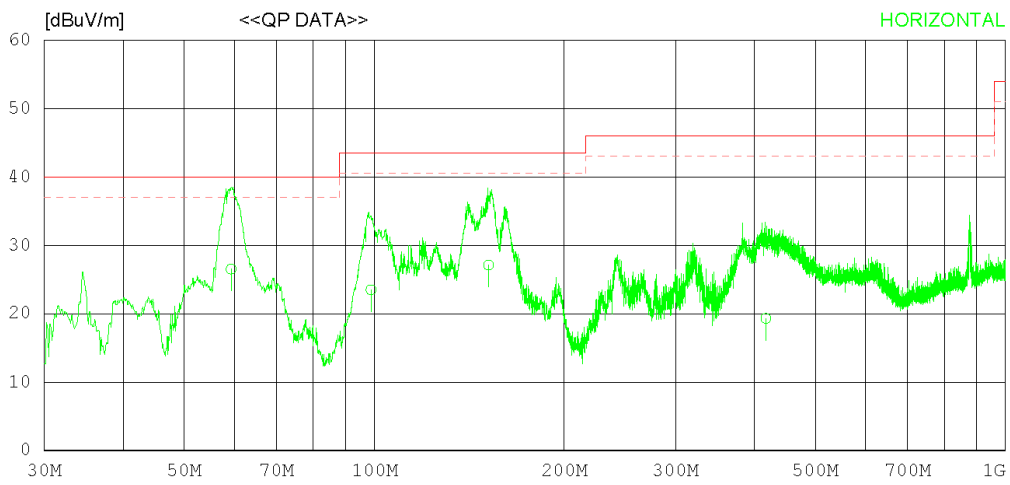
RADIATED EMISSION

Date : 2016-01-18

| | | | |
|----------------|------------------|---------------|-------------------|
| Order No. | : DTNC1601-00158 | Reference No. | : |
| Model No. | : PRO-649 | Power Supply | : 120 V 60 Hz |
| Serial No. | : | Temp/Humi | : 17 °C 40 % R.H. |
| Test Condition | : PC/IF | Operator | : |

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
 MARGIN: 3 dB



RADIATED EMISSION

Date : 2016-01-18

| | |
|----------------------------|-----------------------------|
| Order No. : DTNC1601-00158 | Reference No. : |
| Model No. : PRO-649 | Power Supply : 120 V 60 Hz |
| Serial No. : | Temp/Humi : 17 °C 40 % R.H. |
| Test Condition : PC/IF | Operator : |

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m)
 MARGIN: 3 dB

| No. | FREQ [MHz] | READING QP [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|-------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 59.294 | 40.8 | 11.7 | 0.6 | 26.6 | 26.5 | 40.0 | 13.5 | 300 | 275 |
| 2 | 98.797 | 40.5 | 8.8 | 0.8 | 26.6 | 23.5 | 43.5 | 20.0 | 300 | 0 |
| 3 | 151.665 | 39.7 | 12.9 | 1.0 | 26.5 | 27.1 | 43.5 | 16.4 | 277 | 170 |
| 4 | 417.164 | 27.6 | 16.2 | 1.8 | 26.3 | 19.3 | 46.0 | 26.7 | 254 | 209 |
| ----- Vertical ----- | | | | | | | | | | |
| 5 | 36.091 | 45.7 | 9.4 | 0.5 | 26.6 | 29.0 | 40.0 | 11.0 | 100 | 1 |
| 6 | 39.215 | 46.2 | 10.1 | 0.5 | 26.6 | 30.2 | 40.0 | 9.8 | 100 | 182 |
| 7 | 58.873 | 46.7 | 11.8 | 0.6 | 26.6 | 32.5 | 40.0 | 7.5 | 100 | 201 |
| 8 | 68.803 | 46.0 | 10.5 | 0.6 | 26.6 | 30.5 | 40.0 | 9.5 | 100 | 31 |
| 9 | 102.628 | 52.5 | 9.3 | 0.8 | 26.6 | 36.0 | 43.5 | 7.5 | 100 | 197 |
| 10 | 111.918 | 47.9 | 10.4 | 0.8 | 26.6 | 32.5 | 43.5 | 11.0 | 100 | 238 |
| 11 | 140.461 | 43.8 | 12.6 | 1.0 | 26.5 | 30.9 | 43.5 | 12.6 | 100 | 201 |
| 12 | 161.553 | 41.4 | 12.9 | 1.1 | 26.5 | 28.9 | 43.5 | 14.6 | 100 | 201 |
| 13 | 242.632 | 36.1 | 11.4 | 1.4 | 26.4 | 22.5 | 46.0 | 23.5 | 100 | 196 |

PRO-649 _ < (1 ~ 6) GHz _ Peak _ MODE 2 >

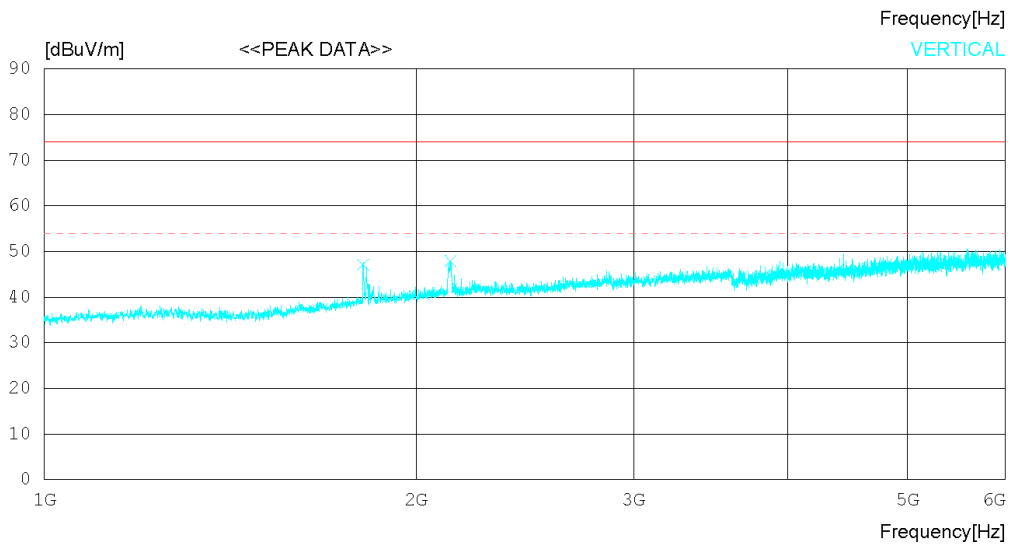
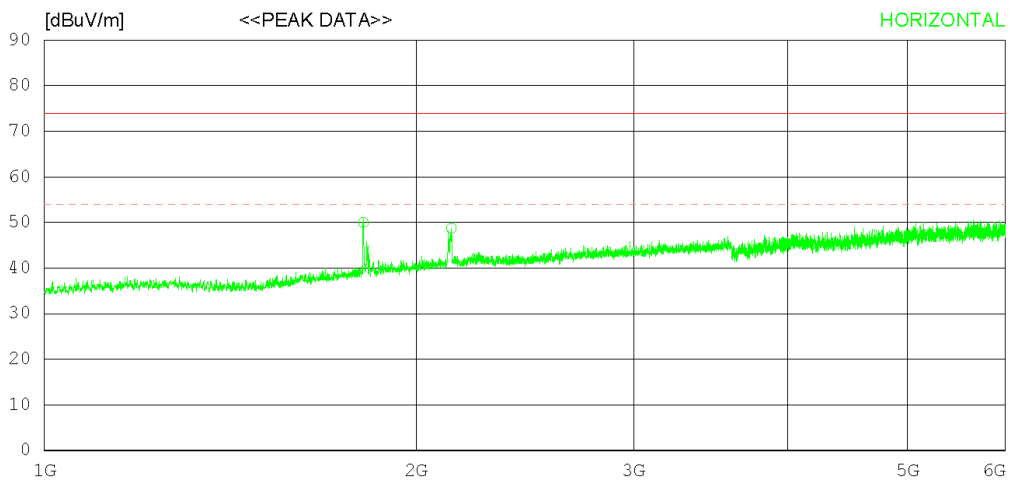
RADIATED EMISSION

Date : 2016-01-20

| | | |
|----------------------------|-----------------------------|--|
| Order No. : DTNC1601-00158 | Reference No. : | |
| Model No. : PRO-649 | Power Supply : 120 V 60 Hz | |
| Serial No. : | Temp/Humi : 17 °C 39 % R.H. | |
| Test Condition : PC/IF | Operator : | |

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
 FCC Part15 Subpart.B Class B (3m) - 18G(Avg)



RADIATED EMISSION

Date : 2016-01-20

| | | | |
|----------------|------------------|---------------|-------------------|
| Order No. | : DTNC1601-00158 | Reference No. | : |
| Model No. | : PRO-649 | Power Supply | : 120 V 60 Hz |
| Serial No. | : | Temp/Humi | : 17 °C 39 % R.H. |
| Test Condition | : PC/IF | Operator | : |

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Peak)
 FCC Part15 Subpart B Class B (3m) - 18G(Avg)

| No. | FREQ [MHz] | READING PEAK [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|---------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 1812.500 | 62.9 | 30.6 | 4.3 | 47.8 | 50.0 | 74.0 | 24 | 100 | 358 |
| 2 | 2136.250 | 59.6 | 32.1 | 4.7 | 47.7 | 48.7 | 74.0 | 25.3 | 100 | 358 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 1812.500 | 60.0 | 30.6 | 4.3 | 47.8 | 47.1 | 74.0 | 26.9 | 100 | 252 |
| 4 | 2133.125 | 58.8 | 32.1 | 4.7 | 47.7 | 47.9 | 74.0 | 26.1 | 100 | 0 |

PRO-649 _ < (1 ~ 6) GHz _ Average _ MODE 2 >

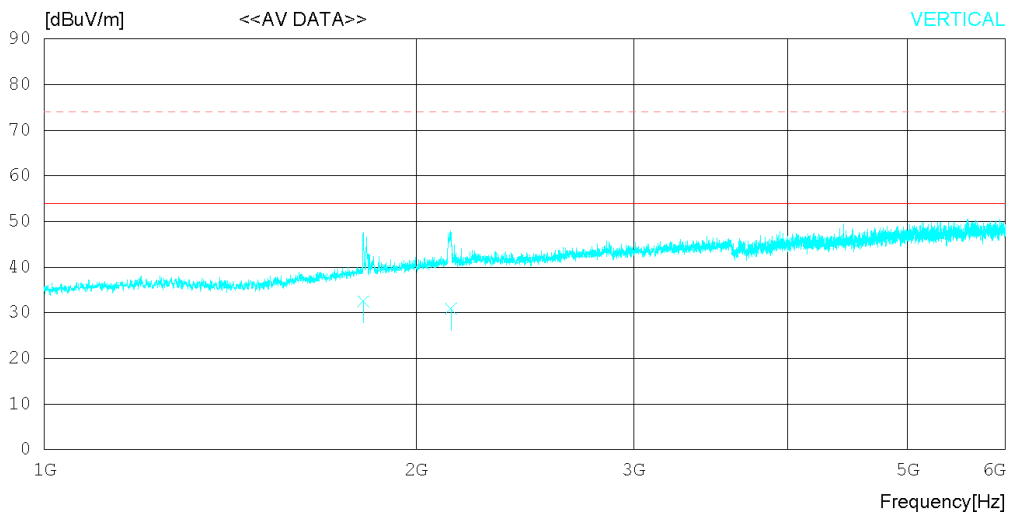
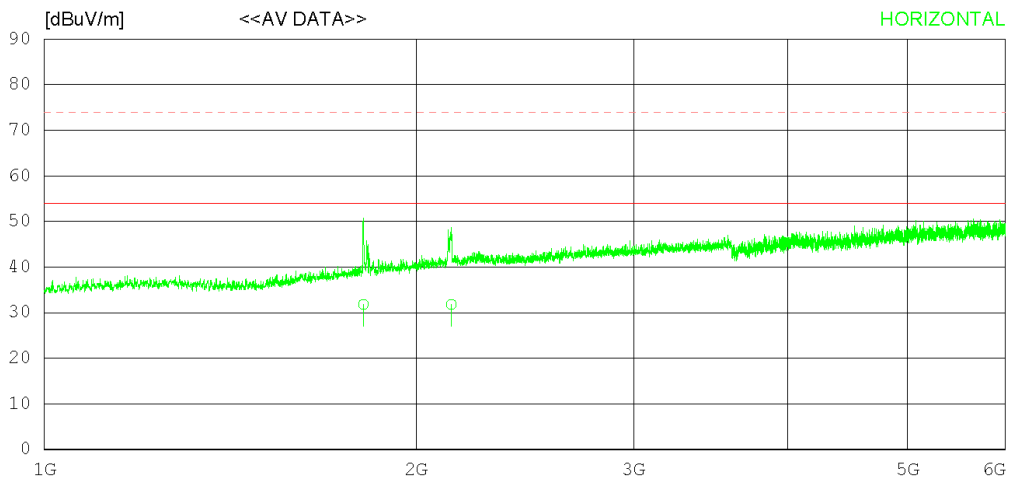
RADIATED EMISSION

Date : 2016-01-20

| | | |
|----------------------------|----------------------|-----------|
| Order No. : DTNC1601-00158 | Reference No. : | : : |
| Model No. : PRO-649 | Power Supply : 120 V | 60 Hz |
| Serial No. : | Temp/Humi : 17 °C | 39 % R.H. |
| Test Condition : PC/IF | Operator : | |

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
 FCC Part15 Subpart.B Class B (3m) - 18G(Peak)



RADIATED EMISSION

Date : 2016-01-20

| | | | |
|----------------|------------------|---------------|-------------------|
| Order No. | : DTNC1601-00158 | Reference No. | : |
| Model No. | : PRO-649 | Power Supply | : 120 V 60 Hz |
| Serial No. | : | Temp/Humi | : 17 °C 39 % R.H. |
| Test Condition | : PC/IF | Operator | : |

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Avg)
 FCC Part15 Subpart B Class B (3m) - 18G(Peak)

| No. | FREQ [MHz] | READING AV [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|-------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 1812.790 | 44.7 | 30.6 | 4.3 | 47.8 | 31.8 | 54.0 | 22.2 | 100 | 232 |
| 2 | 2136.250 | 42.7 | 32.1 | 4.7 | 47.7 | 31.8 | 54.0 | 22.2 | 100 | 358 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 1812.540 | 45.4 | 30.6 | 4.3 | 47.8 | 32.5 | 54.0 | 21.5 | 100 | 194 |
| 4 | 2134.125 | 41.8 | 32.1 | 4.7 | 47.7 | 30.9 | 54.0 | 23.1 | 100 | 217 |

WS1010 _ < 30 MHz ~ 1 GHz _ MODE 1 >

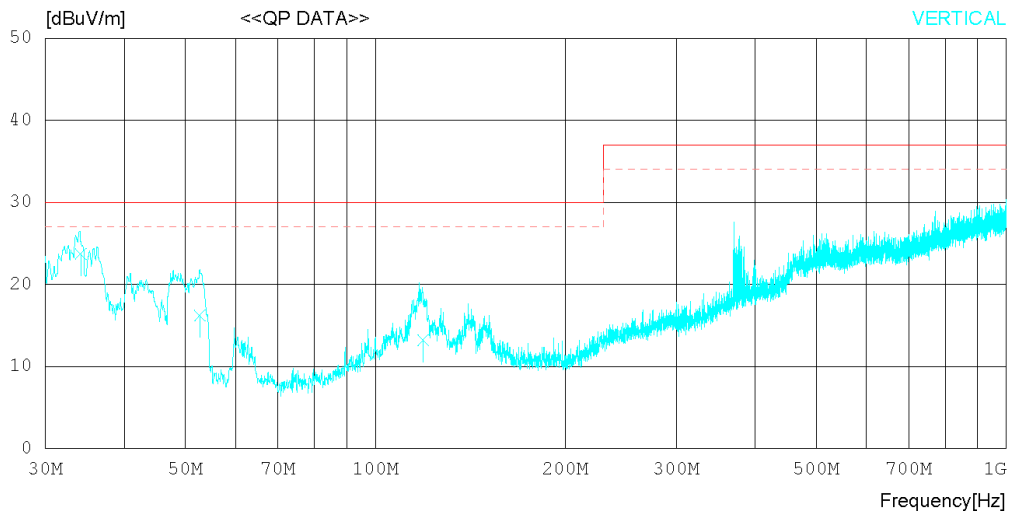
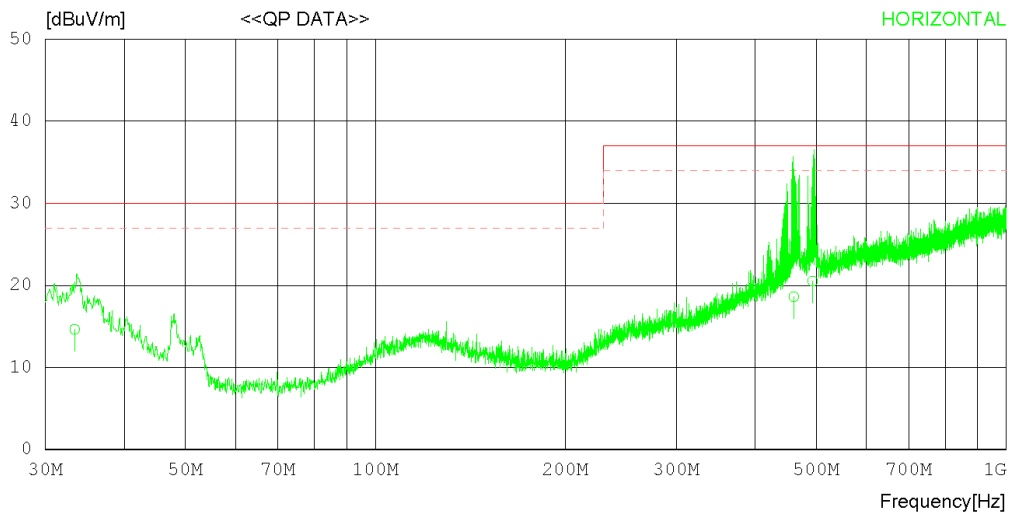
RADIATED EMISSION

Date : 2016-03-04

| | | |
|--------------------|--------------------|-----------------------------|
| Order No. : WS1010 | Reference No. : | Power Supply : 120 V 60 Hz |
| Model No. : WS1010 | Serial No. : | Temp/Humi : 17 °C 39 % R.H. |
| Serial No. : | Test Condition : 1 | Operator : |

Memo :

LIMIT : CISPR Pub.22 Class B (10m)
 MARGIN: 3 dB



RADIATED EMISSION

Date : 2016-03-04

| | |
|---|--|
| Order No. : Model No. : WS1010 Serial No. : Test Condition : 1 | Reference No. : Power Supply : 120 V 60 Hz Temp/Humi : 17 °C 39 % R.H. Operator : |
|---|--|

Memo :

LIMIT : CISPR Pub.22 Class B (10m)
 MARGIN: 3 dB

| No. | FREQ [MHz] | READING QP [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|-------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 33.400 | 18.6 | 16.9 | 1.3 | 22.2 | 14.6 | 30.0 | 15.4 | 200 | 358 |
| 2 | 460.426 | 20.9 | 16.9 | 5.4 | 24.6 | 18.6 | 37.0 | 18.4 | 200 | 211 |
| 3 | 493.526 | 22.1 | 17.4 | 5.5 | 24.5 | 20.5 | 37.0 | 16.5 | 263 | 208 |
| ----- Vertical ----- | | | | | | | | | | |
| 4 | 34.117 | 28.1 | 16.5 | 1.3 | 22.2 | 23.7 | 30.0 | 6.3 | 322 | 169 |
| 5 | 52.674 | 29.0 | 7.8 | 1.7 | 22.3 | 16.2 | 30.0 | 13.8 | 320 | 0 |
| 6 | 119.057 | 21.2 | 12.2 | 2.6 | 22.8 | 13.2 | 30.0 | 16.8 | 100 | 357 |

WS1010 _ < (1 ~ 6) GHz _ Peak _ MODE 1 >

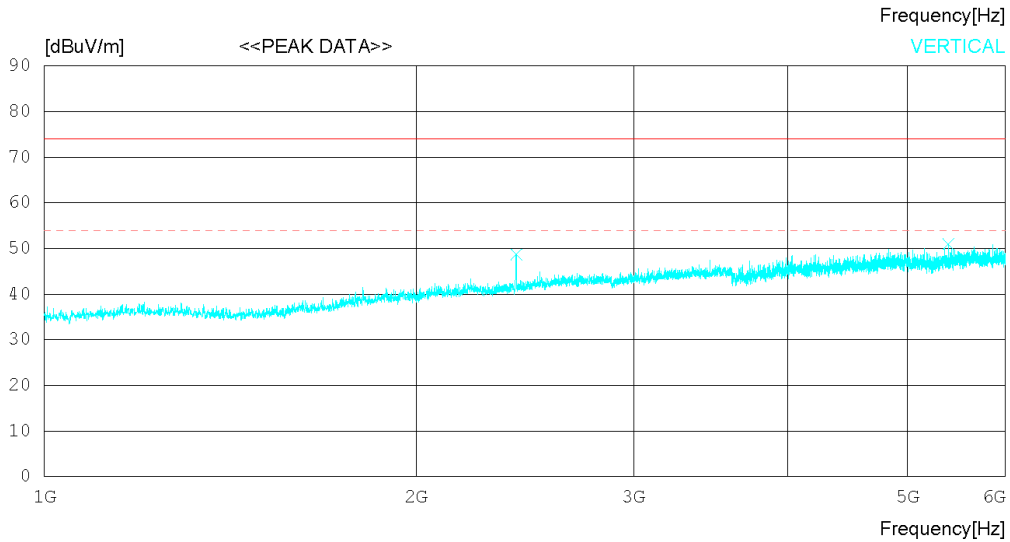
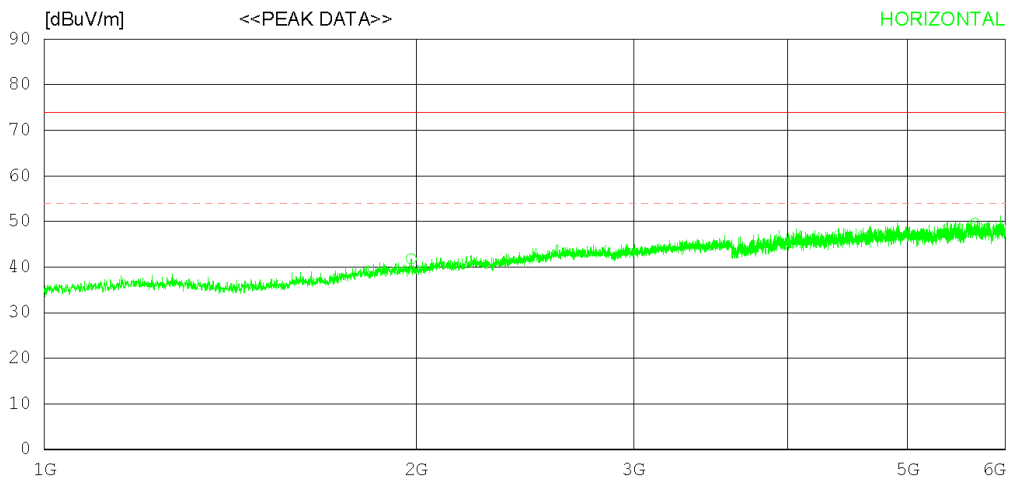
RADIATED EMISSION

Date : 2016-03-05

| | | |
|--------------------|-----------------|-----------------|
| Order No. : | Reference No. : | |
| Model No. : WS1010 | Power Supply : | 120 V 60 Hz |
| Serial No. : | Temp/Humi : | 19 °C 45 % R.H. |
| Test Condition : | Operator : | |

Memo : 1

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
 FCC Part15 Subpart.B Class B (3m) - 18G(Avg)



RADIATED EMISSION

Date : 2016-03-05

| | |
|---|--|
| Order No. : Model No. : WS1010 Serial No. : Test Condition : | Reference No. : Power Supply : 120 V 60 Hz Temp/Humi : 19 °C 45 % R.H. Operator : |
|---|--|

Memo : 1

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Peak)
 FCC Part15 Subpart B Class B (3m) - 18G(Avg)

| No. | FREQ [MHz] | READING PEAK [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|---------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 1981.875 | 54.0 | 31.4 | 4.5 | 48.1 | 41.8 | 74.0 | 32.2 | 100 | 358 |
| 2 | 5668.750 | 53.8 | 34.5 | 8.2 | 46.9 | 49.6 | 74.0 | 24.4 | 100 | 358 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 2410.625 | 59.7 | 31.7 | 5.1 | 47.8 | 48.7 | 74.0 | 25.3 | 100 | 0 |
| 4 | 5395.625 | 55.9 | 34.2 | 8.0 | 47.1 | 51.0 | 74.0 | 23 | 100 | 27 |

WS1010 _ < (1 ~ 6) GHz _ Average _ MODE 1 >

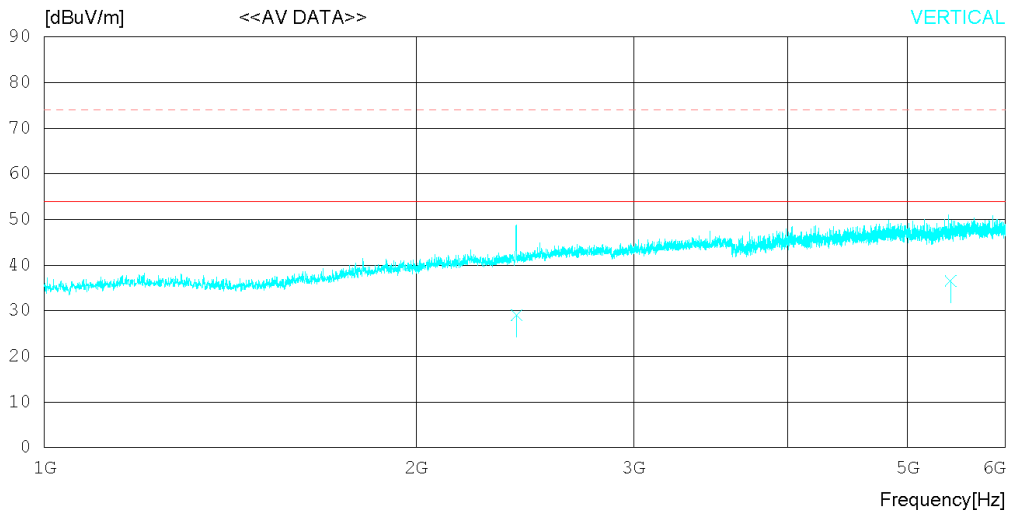
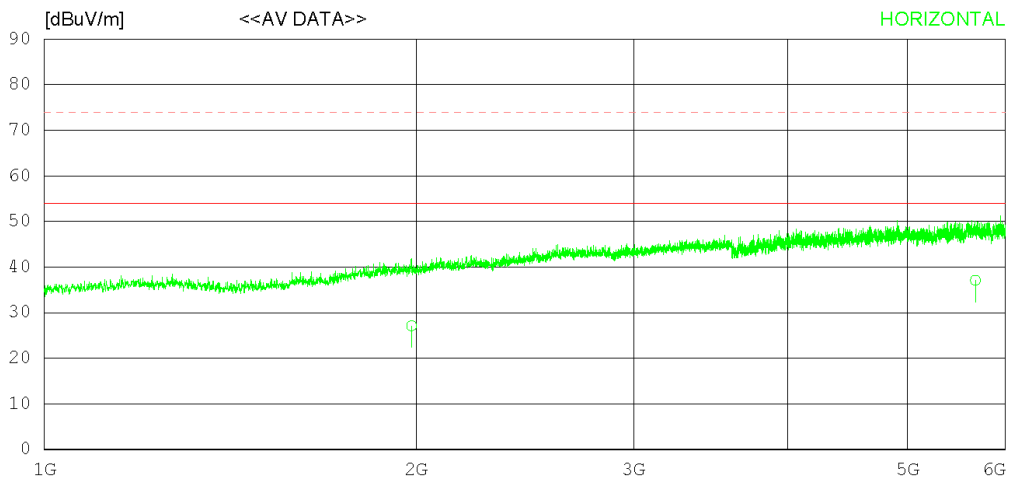
RADIATED EMISSION

Date : 2016-03-05

| | | |
|--------------------|-----------------|-----------------|
| Order No. : | Reference No. : | |
| Model No. : WS1010 | Power Supply : | 120 V 60 Hz |
| Serial No. : | Temp/Humi : | 19 °C 45 % R.H. |
| Test Condition : | Operator : | |

Memo : 1

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
 FCC Part15 Subpart.B Class B (3m) - 18G(Peak)



RADIATED EMISSION

Date : 2016-03-05

| | | |
|--------------------|-----------------|-----------------|
| Order No. : | Reference No. : | |
| Model No. : WS1010 | Power Supply : | 120 V 60 Hz |
| Serial No. : | Temp/Humi : | 19 °C 45 % R.H. |
| Test Condition : | Operator : | |

Memo : 1

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Avg)
 FCC Part15 Subpart B Class B (3m) - 18G(Peak)

| No. | FREQ [MHz] | READING AV [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|-------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 1982.805 | 39.3 | 31.4 | 4.5 | 48.1 | 27.1 | 54.0 | 26.9 | 100 | 358 |
| 2 | 5672.019 | 41.3 | 34.5 | 8.2 | 46.9 | 37.1 | 54.0 | 16.9 | 100 | 358 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 2412.893 | 40.0 | 31.7 | 5.1 | 47.8 | 29.0 | 54.0 | 25.0 | 100 | 167 |
| 4 | 5415.388 | 41.4 | 34.2 | 8.0 | 47.1 | 36.5 | 54.0 | 17.5 | 100 | 27 |

WS1010 _ < 30 MHz ~ 1 GHz _ MODE 2 >

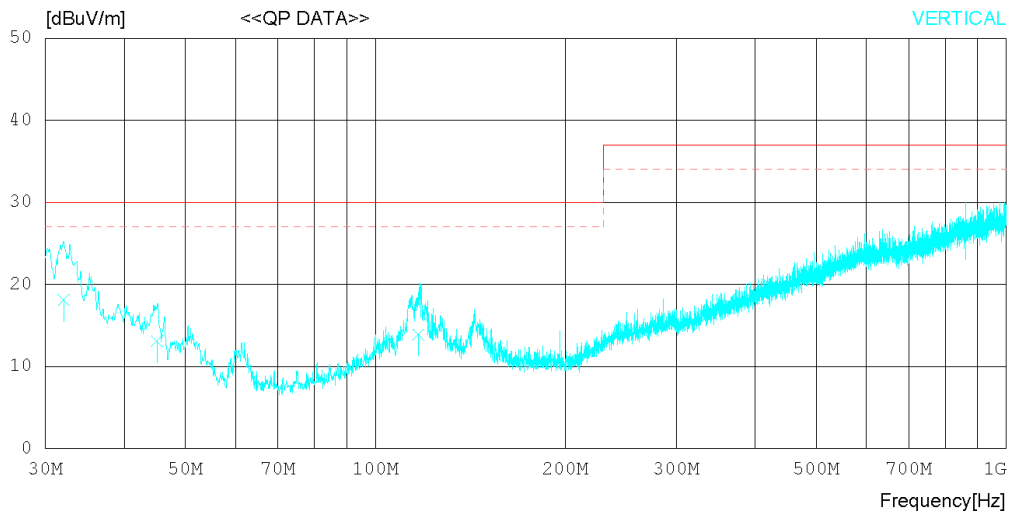
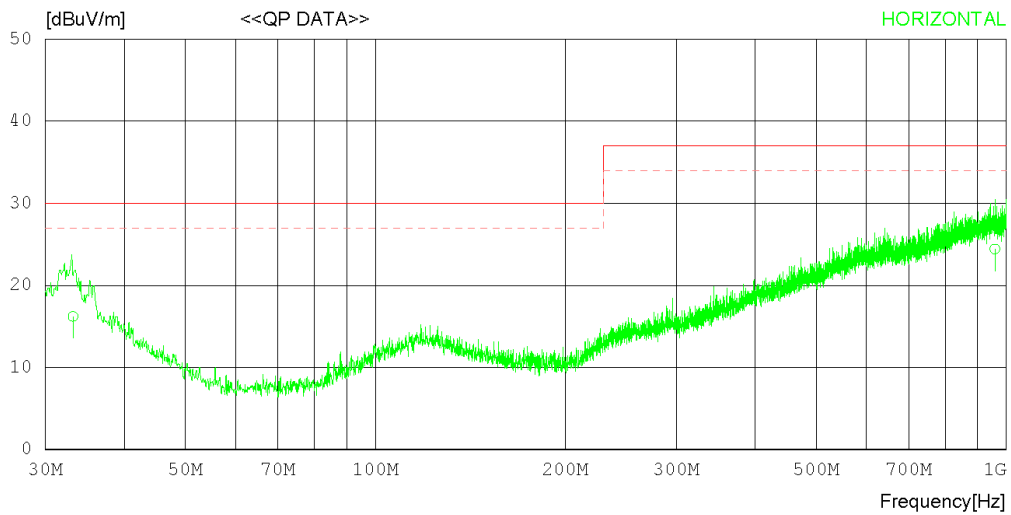
RADIATED EMISSION

Date : 2016-03-04

| | | |
|--------------------|-----------------|-----------------|
| Order No. : | Reference No. : | |
| Model No. : WS1010 | Power Supply : | 120 V 60 Hz |
| Serial No. : | Temp/Humi : | 17 °C 39 % R.H. |
| Test Condition : 2 | Operator : | |

Memo :

LIMIT : CISPR Pub.22 Class B (10m)
 MARGIN: 3 dB



RADIATED EMISSION

Date : 2016-03-04

| | | |
|--------------------|----------------------------|-----------------------------|
| Order No. : | Reference No. : | Power Supply : |
| Model No. : WS1010 | Power Supply : 120 V 60 Hz | Temp/Humi : 17 °C 39 % R.H. |
| Serial No. : | Operator : | |
| Test Condition : 2 | | |

Memo :

LIMIT : CISPR Pub.22 Class B (10m)
 MARGIN: 3 dB

| No. | FREQ [MHz] | READING QP [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|-------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 33.196 | 20.1 | 17.0 | 1.3 | 22.2 | 16.2 | 30.0 | 13.8 | 325 | 74 |
| 2 | 959.346 | 18.2 | 20.9 | 8.2 | 22.9 | 24.4 | 37.0 | 12.6 | 199 | 0 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 32.061 | 21.4 | 17.6 | 1.3 | 22.2 | 18.1 | 30.0 | 11.9 | 300 | 169 |
| 4 | 45.046 | 22.6 | 11.1 | 1.6 | 22.2 | 13.1 | 30.0 | 16.9 | 100 | 266 |
| 5 | 117.113 | 22.0 | 12.0 | 2.6 | 22.7 | 13.9 | 30.0 | 16.1 | 100 | 315 |
| 6 | 861.354 | 20.6 | 20.3 | 7.7 | 22.9 | 25.7 | 37.0 | 11.3 | 200 | 174 |

WS1010 _ < (1 ~ 6) GHz _ Peak _ MODE 2 >

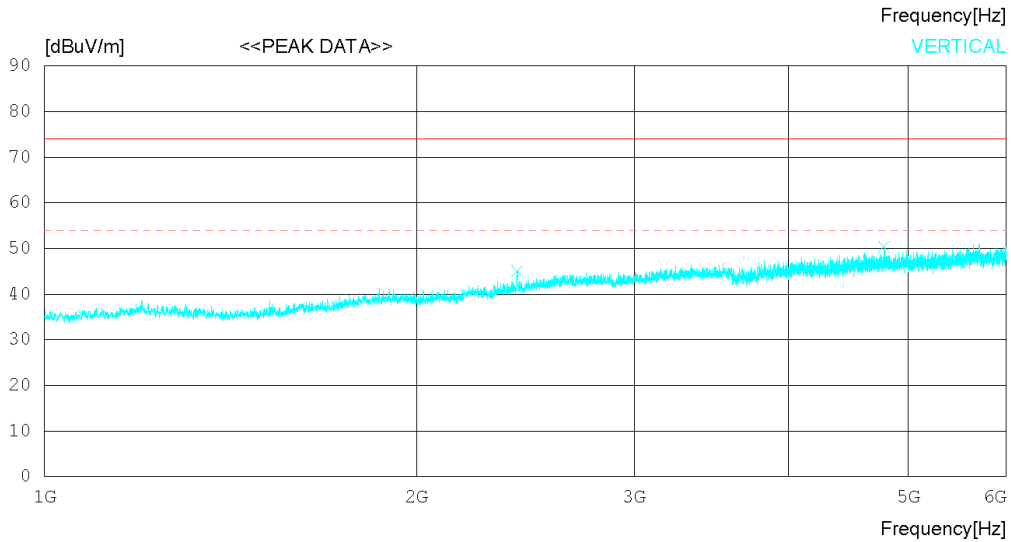
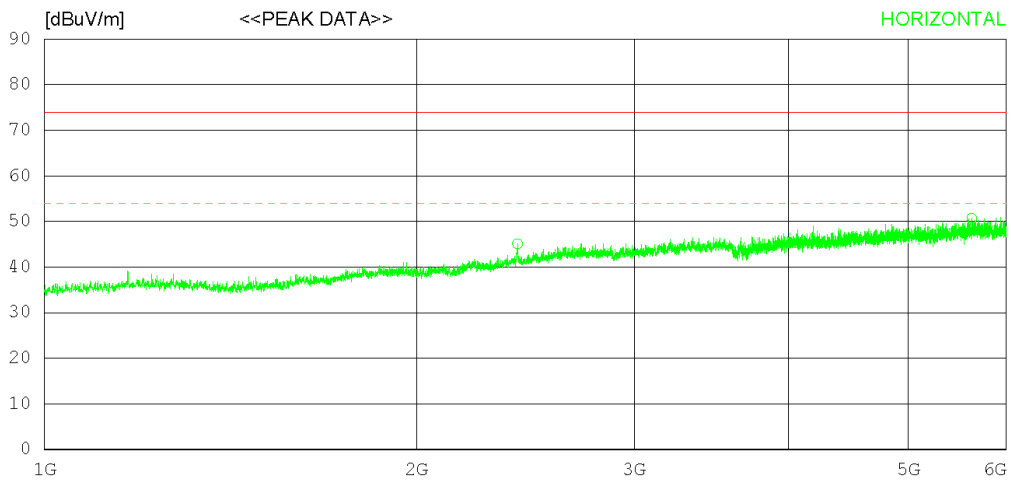
RADIATED EMISSION

Date : 2016-03-05

| | | | | | |
|----------------|---|--------|---------------|---|-----------------|
| Order No. | : | | Reference No. | : | |
| Model No. | : | WS1010 | Power Supply | : | 120 V 60 Hz |
| Serial No. | : | | Temp/Humi | : | 19 °C 45 % R.H. |
| Test Condition | : | | Operator | : | |

Memo : 2

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
 FCC Part15 Subpart.B Class B (3m) - 18G(Avg)



RADIATED EMISSION

Date : 2016-03-05

| | |
|---|--|
| Order No. : Model No. : WS1010 Serial No. : Test Condition : | Reference No. : Power Supply : 120 V 60 Hz Temp/Humi : 19 °C 45 % R.H. Operator : |
|---|--|

Memo : 2

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Peak)
 FCC Part15 Subpart B Class B (3m) - 18G(Avg)

| No. | FREQ [MHz] | READING PEAK [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|---------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 2413.750 | 56.1 | 31.7 | 5.1 | 47.8 | 45.1 | 74.0 | 28.9 | 100 | 133 |
| 2 | 5625.000 | 55.0 | 34.5 | 8.1 | 46.9 | 50.7 | 74.0 | 23.3 | 100 | 1 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 2412.500 | 56.1 | 31.7 | 5.1 | 47.8 | 45.1 | 74.0 | 28.9 | 100 | 173 |
| 4 | 4778.125 | 56.4 | 33.8 | 7.5 | 47.3 | 50.4 | 74.0 | 23.6 | 100 | 114 |

WS1010 _ < (1 ~ 6) GHz _ Average _ MODE 2 >

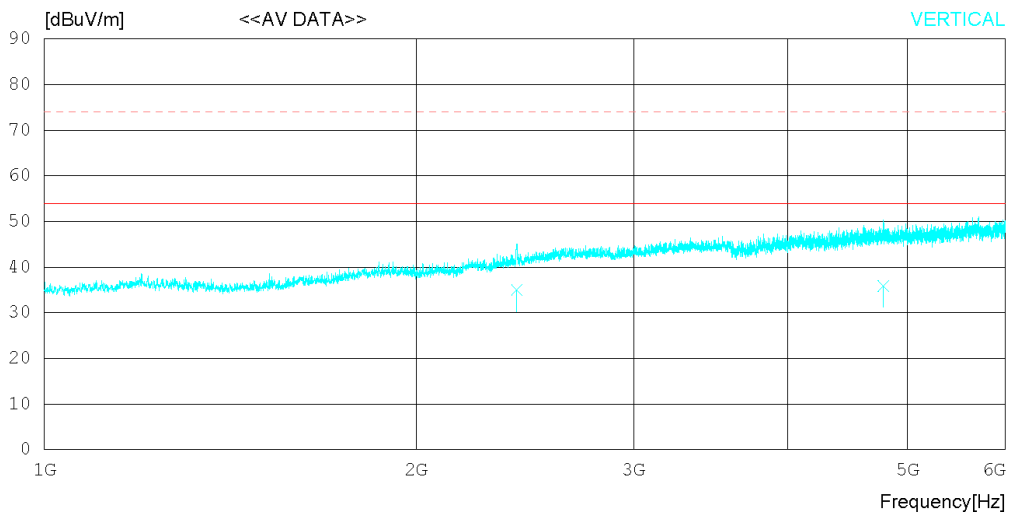
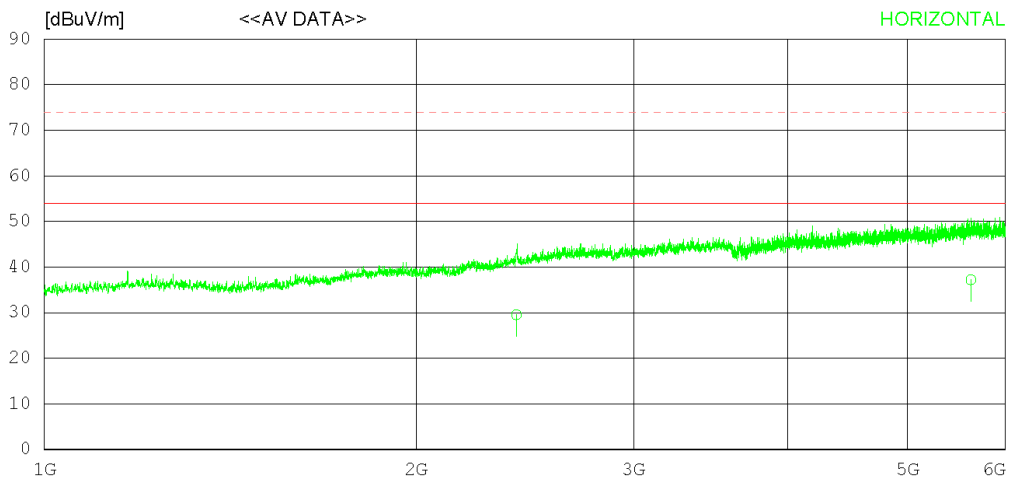
RADIATED EMISSION

Date : 2016-03-05

| | | |
|--------------------|-----------------------------|--|
| Order No. : | Reference No. : | |
| Model No. : WS1010 | Power Supply : 120 V 60 Hz | |
| Serial No. : | Temp/Humi : 19 °C 45 % R.H. | |
| Test Condition : | Operator : | |

Memo : 2

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
 FCC Part15 Subpart.B Class B (3m) - 18G(Peak)



RADIATED EMISSION

Date : 2016-03-05

| | |
|---|---|
| Order No. : : | Reference No. : : |
| Model No. : : WS1010 | Power Supply : : 120 V 60 Hz |
| Serial No. : : | Temp/Humi : : 19 °C 45 % R.H. |
| Test Condition : : | Operator : : |

Memo : 2

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Avg)
 FCC Part15 Subpart B Class B (3m) - 18G(Peak)

| No. | FREQ [MHz] | READING AV [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|-------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 2411.504 | 40.5 | 31.7 | 5.1 | 47.8 | 29.5 | 54.0 | 24.5 | 100 | 258 |
| 2 | 5625.902 | 41.5 | 34.5 | 8.1 | 46.9 | 37.2 | 54.0 | 16.8 | 100 | 241 |
| ----- Vertical ----- | | | | | | | | | | |
| 3 | 2413.299 | 46.0 | 31.7 | 5.1 | 47.8 | 35.0 | 54.0 | 19.0 | 100 | 312 |
| 4 | 4779.917 | 41.9 | 33.8 | 7.5 | 47.3 | 35.9 | 54.0 | 18.1 | 100 | 217 |

6.3 Antenna Power Conduction

6.3.1 Measurement Procedure

Power on the receive antenna terminals was to be determined by measurement of the voltage present at these terminals.

Antenna conducted power measurements was performed with the EUT antenna terminals connected directly to measuring instrument using a impedance-Matching network to connect the measurement Instrument to the antenna terminals of the EUT.

The losses in decibels in impedance-matching network and cables was added to the measured values in dB μ V.

The measurements were repeated with the receiver tuned to a frequency until all of frequencies had been successively measured.

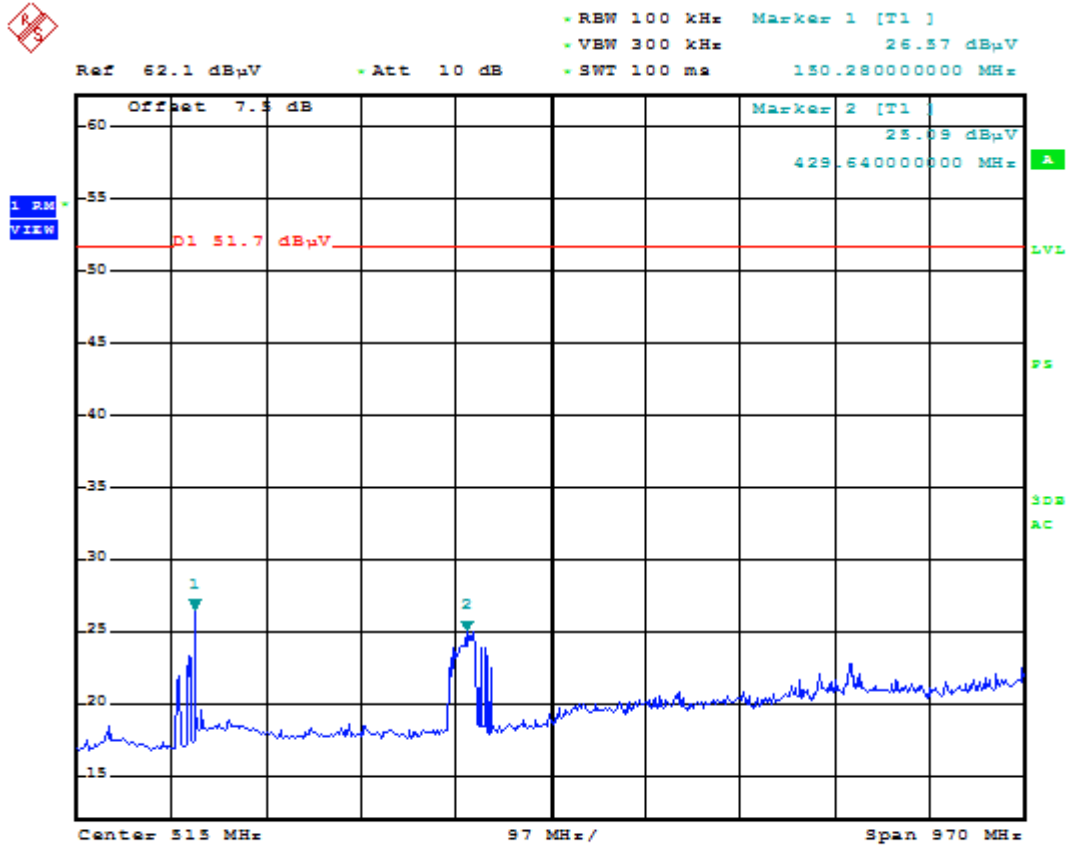
Power in the receive antenna terminals in the ratio of V^2 / R , where V is the loss-corrected voltage measured at the antenna terminals, and R is the impedance of the measuring instrument.

6.3.2 Limit for Antenna Power Conduction

- Limit : **2nW(51.7 dB μ V)**

Test Result

< PRO-649 >



Appendix 1

List of Test and Measurement Instruments

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment is identified by the Test Laboratory.

1. Conducted Disturbance

| Name of Instrument | Model No. | Manufacturer | Serial No. | Cal. Date | Next Cal. Date |
|--|----------------------|--------------------|------------|------------|----------------|
| <input checked="" type="checkbox"/> MEASUREMENT SOFTWARE | EMI-C VER. 2.00.0143 | TSJ | N/A | N/A | N/A |
| <input type="checkbox"/> ARTIFICIAL MAINS NETWORK | PMM L2-16B | NARDA S.T.S. / PMM | 000WX20305 | 2015.06.26 | 2016.06.26 |
| <input checked="" type="checkbox"/> LISN | KNW-407 | KYORITSU | 8-317-8 | 2016.01.05 | 2017.01.05 |
| <input type="checkbox"/> 50 OHM TERMINATOR | CT-01 | TME | N/A | 2016.01.05 | 2017.01.05 |
| <input checked="" type="checkbox"/> EMI TEST RECEIVER | ESCI7 | ROHDE & SCHWARZ | 100910 | 2016.02.25 | 2017.02.25 |
| <input checked="" type="checkbox"/> LISN | ESH2-Z5 | ROHDE & SCHWARZ | 828739/006 | 2015.09.10 | 2016.09.10 |
| <input checked="" type="checkbox"/> PULSE LIMITER | ESH3-Z2 | ROHDE & SCHWARZ | 101334 | 2016.01.05 | 2017.01.05 |
| <input checked="" type="checkbox"/> 50 OHM TERMINATOR | CT-01 | TME | N/A | 2016.01.05 | 2017.01.05 |

2. Radiated Disturbance

| Name of Instrument | Model No. | Manufacturer | Serial No. | Cal. Date | Next Cal. Date |
|---|----------------------|-----------------|------------|------------|----------------|
| <input checked="" type="checkbox"/> MEASUREMENT SOFTWARE | EMI-R VER. 2.00.0121 | TSJ | N/A | N/A | N/A |
| <input checked="" type="checkbox"/> EMI TEST RECEIVER | ESU | ROHDE & SCHWARZ | 100538 | 2016.02.05 | 2017.02.05 |
| <input checked="" type="checkbox"/> TRILOG BROADBAND TEST-ANTENNA | VULB9160 | SCHWARZBECK | 9160-3362 | 2014.07.31 | 2016.07.31 |
| <input checked="" type="checkbox"/> LOW NOISE PRE AMPLIFIER | MLA-100K01-B01-26 | TSJ | 1252741 | 2016.02.25 | 2017.02.25 |
| <input checked="" type="checkbox"/> HORN ANTENNA | 3117 | ETS-LINDGREN | 00152093 | 2016.02.26 | 2018.02.26 |
| <input checked="" type="checkbox"/> EMI TEST RECEIVER | ESU | ROHDE & SCHWARZ | 100014 | 2016.01.06 | 2017.01.06 |
| <input checked="" type="checkbox"/> AMPLIFIER | 8447E | H/P | 2945A02865 | 2016.01.06 | 2017.01.06 |
| <input checked="" type="checkbox"/> BILOG ANTENNA | CBL6112B | SCHAFFNER | 2737 | 2014.12.10 | 2016.12.10 |

3. Antenna Power Conduction

| Name of Instrument | Model No. | Manufacturer | Serial No. | Cal. Date | Next Cal. Date |
|---|-----------|-----------------|-------------|------------|----------------|
| <input checked="" type="checkbox"/> EMI TEST RECEIVER | ESCI | ROHDE & SCHWARZ | 100364 | 2016.02.25 | 2017.02.25 |
| <input type="checkbox"/> SPLITTER | ZFRSC-42 | MINI CIRCUITS | SF624000603 | 2015.06.26 | 2016.06.26 |

Appendix 2

Report Revision History

| Revision Date | Description | Revised By | Revision Reviewed By |
|---------------|-------------|------------|----------------------|
| None | Original | N/A | N/A |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Appendix 3

Changed item

Addition of the adapter as requested by the buyer.

| Linear Adapter (Basic type) | SMPS Adapter (Additional type) |
|-----------------------------|-------------------------------------|
| Manufacturer : Song Lian | Manufacturer : 3YE |
| Model name : GA-09D-0310B | Model name : GQ05-090040-AU |
| Input : 120V AC 60Hz 200mA | Input : 100-240V ~ 50/60Hz 0.3A Max |
| Output : 9V DC 400mA 3.6W | Output : 9V 400mA |