EMC TEST REPORT

Test item	: 200CH Desktop Radio Scanner With FM Radio
Model No.	: PRO-650
Order No.	: DTNC1601-00157
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

Tested by:

Engineer
DaeHwa Eun

Reviewed by:

Technical Manager
YoungKyu Shin

PRESIDENT OF DT&C Co., Ltd.

CONTENTS

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.dtnc.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 Desktop Radio Scanner With FM Radio
Model No.	PRO-650
Add Model No	WS1025
Serial No	None
FCC ID	HSXSC02
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-650 >

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

< WS1025 >

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

4.3 Test result Summary

(1) Conducted Emission

< PRO-650 >

Frequency [MHz]	Phase	Result [dBμV]	Detector	Limit [dBμV]	Margin [dB]
0.56096	**L**	**39.9**	Average	**46.0**	**6.1**

< WS1025 >

Frequency [MHz]	Phase	Result [dBμV]	Detector	Limit [dBμV]	Margin [dB]
3.94272	**N**	**33.9**	Average	**46.0**	**12.1**

(2) Radiated Emission

< PRO-650 >

Frequency [MHz]	Pol.	Result [dB(μV/m)]	Detector	Limit [dB(μV/m)]	Margin [dB]
38.973	**V**	**35.7**	Quasi-Peak	**40.0**	**4.3**

< WS1025 >

Frequency [MHz]	Pol.	Result [dB(μV/m)]	Detector	Limit [dB(μV/m)]	Margin [dB]
30.124	**V**	**23.6**	Quasi-Peak	**30.0**	**6.4**

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-650 _ MODE 1 >

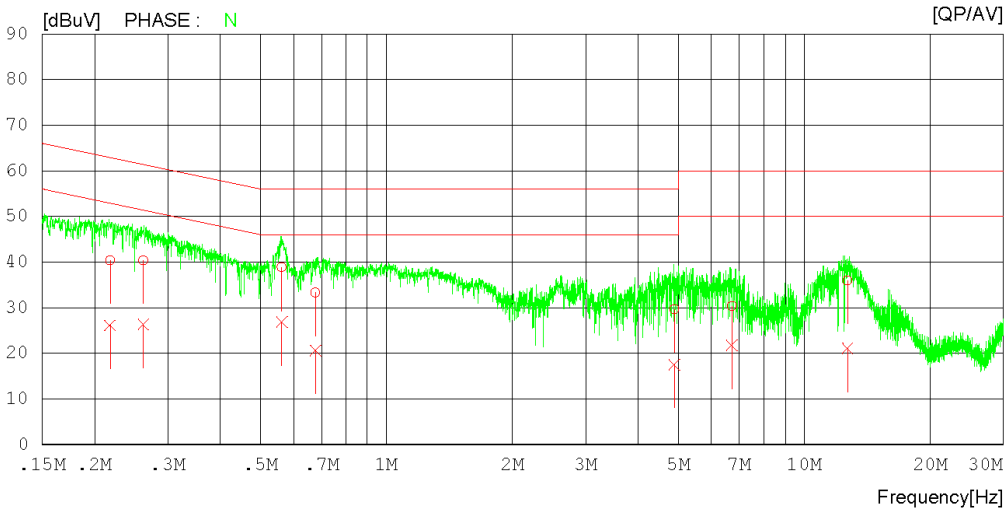
Results of Conducted Emission

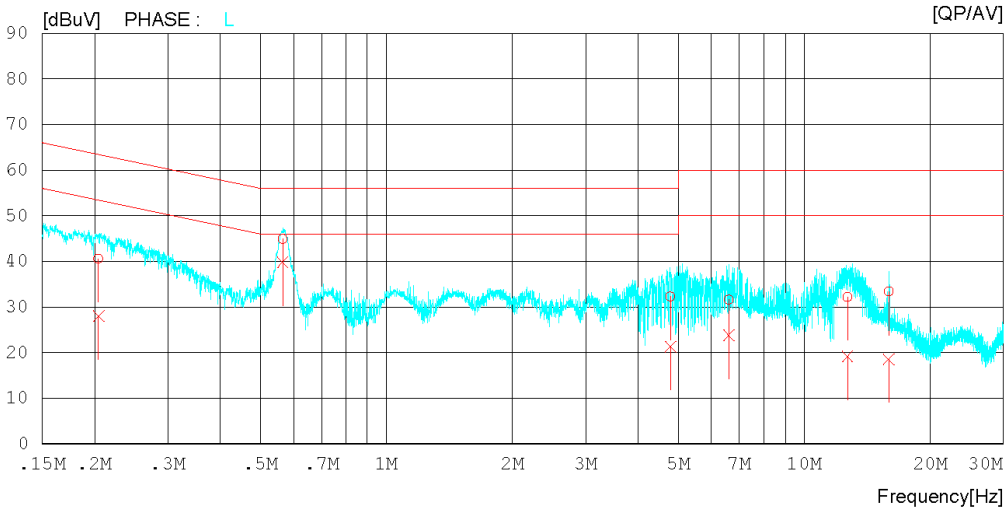
DTNC

Date : 2016-01-13

Order No.	:	DTNC1601-00157	Referrence No.	:	
Model No.	:	PRO-650	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.	:	DTNC1601-00157	Referrence No.	:	
Model No.	:	PRO-650	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	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.21787	30.3	16.0	10.1	40.4	26.1	62.9	52.9	22.5	26.8	N
2	0.26177	30.3	16.2	10.1	40.4	26.3	61.4	51.4	21.0	25.1	N
3	0.56144	28.7	16.8	10.1	38.8	26.9	56.0	46.0	17.2	19.1	N
4	0.67594	23.2	10.5	10.1	33.3	20.6	56.0	46.0	22.7	25.4	N
5	4.88480	19.5	7.3	10.2	29.7	17.5	56.0	46.0	26.3	28.5	N
6	6.71460	20.0	11.4	10.4	30.4	21.8	60.0	50.0	29.6	28.2	N
7	12.69920	25.3	10.5	10.6	35.9	21.1	60.0	50.0	24.1	28.9	N
8	0.20437	30.5	17.9	10.1	40.6	28.0	63.4	53.4	22.8	25.4	L
9	0.56450	34.8	29.7	10.1	44.9	39.8	56.0	46.0	11.1	6.2	L
10	4.78440	22.0	11.0	10.3	32.3	21.3	56.0	46.0	23.7	24.7	L
11	6.60100	21.1	13.3	10.4	31.5	23.7	60.0	50.0	28.5	26.3	L
12	12.69600	21.4	8.4	10.7	32.1	19.1	60.0	50.0	27.9	30.9	L
13	15.95100	22.5	7.7	10.8	33.3	18.5	60.0	50.0	26.7	31.5	L

< PRO-650 _ MODE 2 >

Results of Conducted Emission

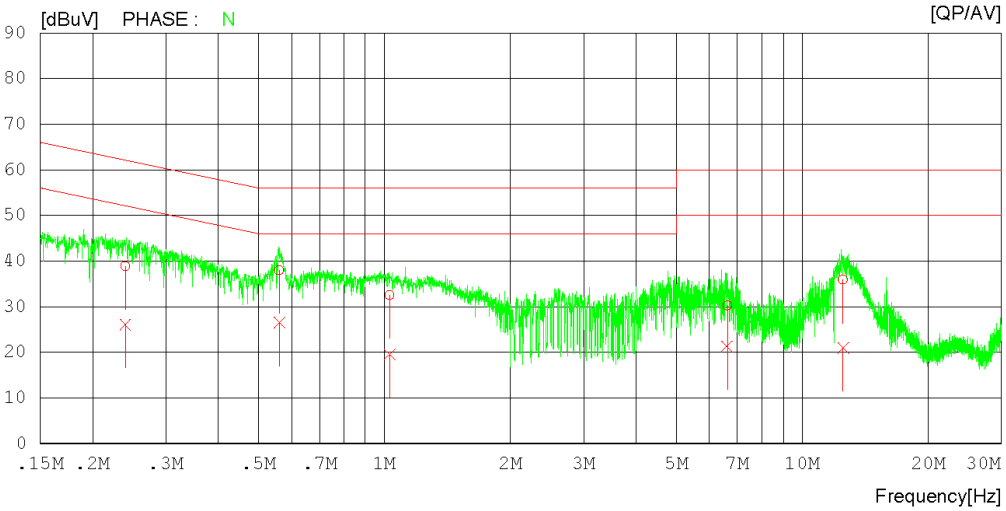
DTNC

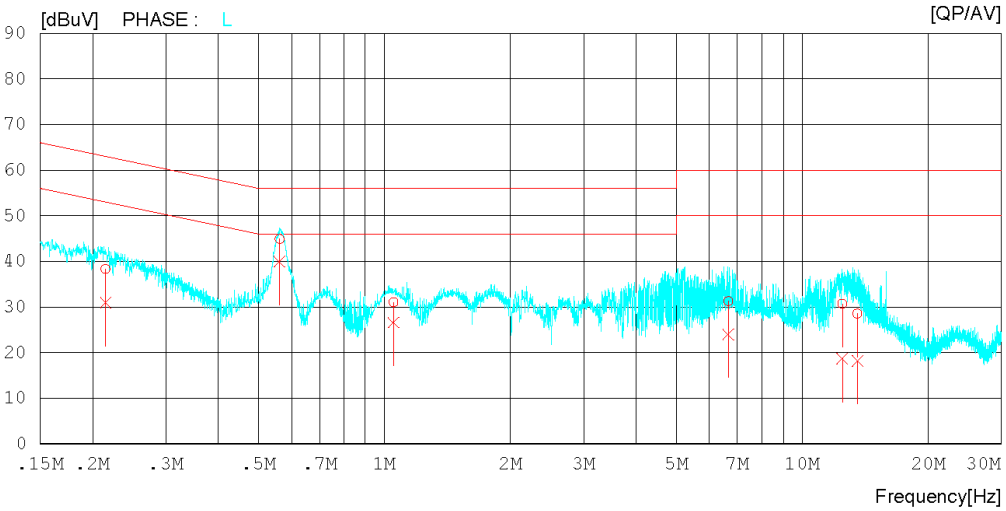
Date : 2016-01-13

Order No.	:	DTNC1601-00157	Referrence No.	:	
Model No.	:	PRO-650	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





Results of Conducted Emission

DTNC

Date : 2016-01-13

Order No.	:	DTNC1601-00157	Referrence No.	:	
Model No.	:	PRO-650	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	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.23955	28.8	16.0	10.1	38.9	26.1	62.1	52.1	23.2	26.0	N
2	0.56001	27.9	16.5	10.1	38.0	26.6	56.0	46.0	18.0	19.4	N
3	1.02860	22.3	9.3	10.2	32.5	19.5	56.0	46.0	23.5	26.5	N
4	6.61440	19.8	10.9	10.4	30.2	21.3	60.0	50.0	29.8	28.7	N
5	12.52600	25.3	10.4	10.6	35.9	21.0	60.0	50.0	24.1	29.0	N
6	0.21504	28.1	20.8	10.1	38.2	30.9	63.0	53.0	24.8	22.1	L
7	0.56096	34.7	29.8	10.1	44.8	39.9	56.0	46.0	11.2	6.1	L
8	1.05160	20.8	16.3	10.2	31.0	26.5	56.0	46.0	25.0	19.5	L
9	6.65160	20.8	13.6	10.4	31.2	24.0	60.0	50.0	28.8	26.0	L
10	12.46200	20.0	7.9	10.7	30.7	18.6	60.0	50.0	29.3	31.4	L
11	13.56580	17.7	7.4	10.8	28.5	18.2	60.0	50.0	31.5	31.8	L

< WS1025 _ MODE 1 >

Results of Conducted Emission

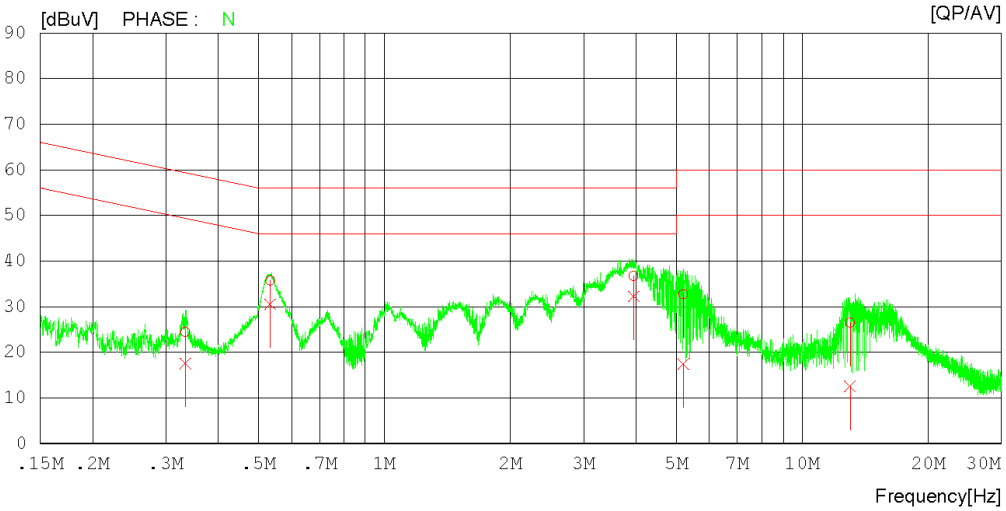
DTNC

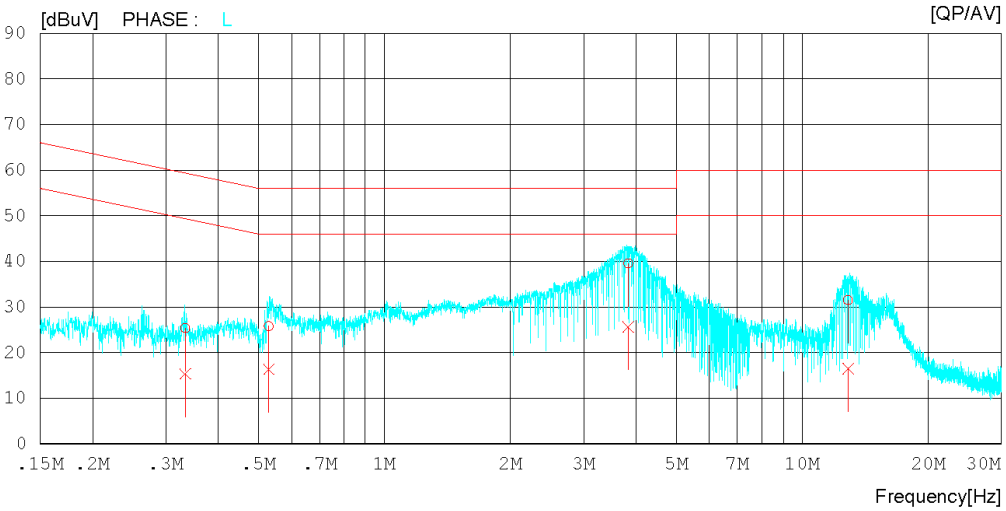
Date : 2016-02-25

Order No.	:		Referrence No.	:	
Model No.	:	WS1025	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi.	:	16 'C 38 % R.H.
Test Condition	:	1	Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV





Results of Conducted Emission

DTNC

Date : 2016-02-25

Order No.	:		Referrence No.	:	
Model No.	:	WS1025	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi.	:	16 'C 38 % R.H.
Test Condition	:	1	Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.33388	14.4	7.4	10.1	24.5	17.5	59.4	49.4	34.9	31.9	N
2	0.53268	25.5	20.5	10.1	35.6	30.6	56.0	46.0	20.4	15.4	N
3	3.94977	26.5	22.1	10.2	36.7	32.3	56.0	46.0	19.3	13.7	N
4	5.20071	22.4	7.2	10.3	32.7	17.5	60.0	50.0	27.3	32.5	N
5	13.01558	15.8	2.0	10.6	26.4	12.6	60.0	50.0	33.6	37.4	N
6	0.33332	15.2	5.2	10.1	25.3	15.3	59.4	49.4	34.1	34.1	L
7	0.52878	15.6	6.2	10.1	25.7	16.3	56.0	46.0	30.3	29.7	L
8	3.83214	29.3	15.4	10.2	39.5	25.6	56.0	46.0	16.5	20.4	L
9	12.89827	20.8	5.8	10.7	31.5	16.5	60.0	50.0	28.5	33.5	L

< WS1025 _ MODE 2 >

Results of Conducted Emission

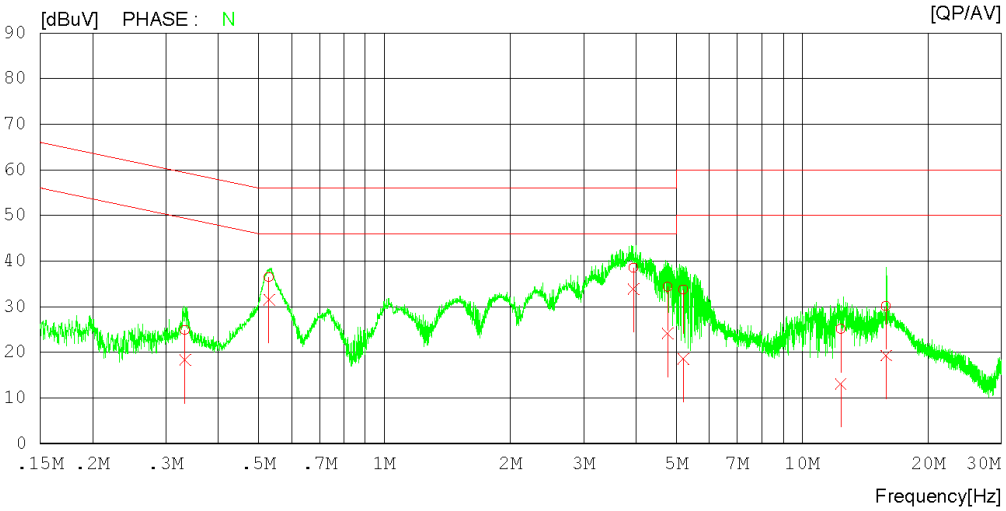
DTNC

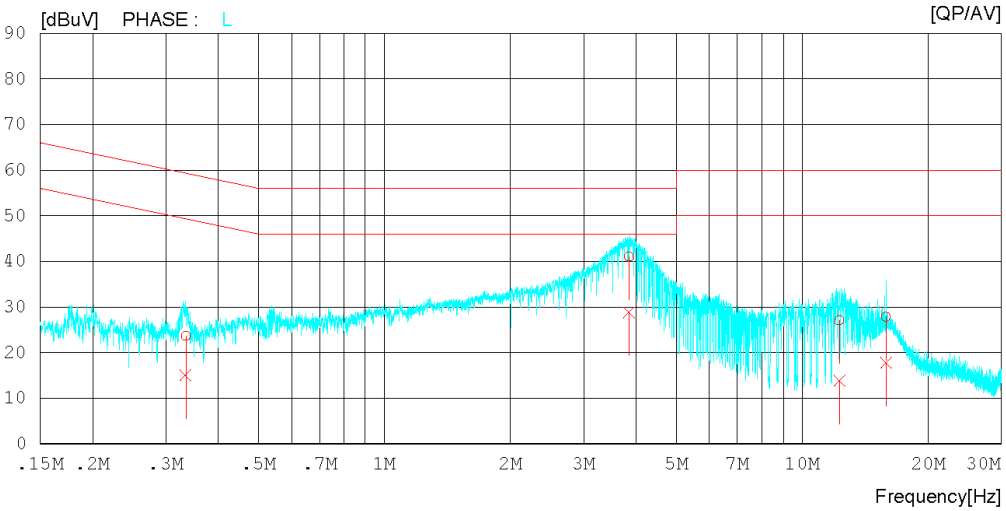
Date : 2016-02-25

Order No.	:		Referrence No.	:	
Model No.	:	WS1025	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





Results of Conducted Emission

DTNC

Date : 2016-02-25

Order No.	:		Referrence No.	:	
Model No.	:	WS1025	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	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.33308	14.7	8.2	10.1	24.8	18.3	59.4	49.4	34.6	31.1	N
2	0.52895	26.4	21.5	10.1	36.5	31.6	56.0	46.0	19.5	14.4	N
3	3.94272	28.3	23.7	10.2	38.5	33.9	56.0	46.0	17.5	12.1	N
4	4.76540	24.1	14.0	10.2	34.3	24.2	56.0	46.0	21.7	21.8	N
5	5.19489	23.4	8.3	10.3	33.7	18.6	60.0	50.0	26.3	31.4	N
6	12.37308	14.5	2.5	10.6	25.1	13.1	60.0	50.0	34.9	36.9	N
7	15.87904	19.5	8.7	10.6	30.1	19.3	60.0	50.0	29.9	30.7	N
8	0.33443	13.4	4.9	10.1	23.5	15.0	59.3	49.3	35.8	34.3	L
9	3.85009	30.8	18.5	10.2	41.0	28.7	56.0	46.0	15.0	17.3	L
10	12.27276	16.3	3.1	10.7	27.0	13.8	60.0	50.0	33.0	36.2	L
11	15.87038	17.0	6.9	10.8	27.8	17.7	60.0	50.0	32.2	32.3	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	5th 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 (dBμV/m)	Quasi-peak (dBμV/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 (dBμV/m)	Quasi-peak (dBμV/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 (dBμV/m)	Average (dBμV/m)	Peak (dBμV/m)	Average (dBμV/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-650 _ < 30 MHz ~ 1 GHz _ MODE 1 >

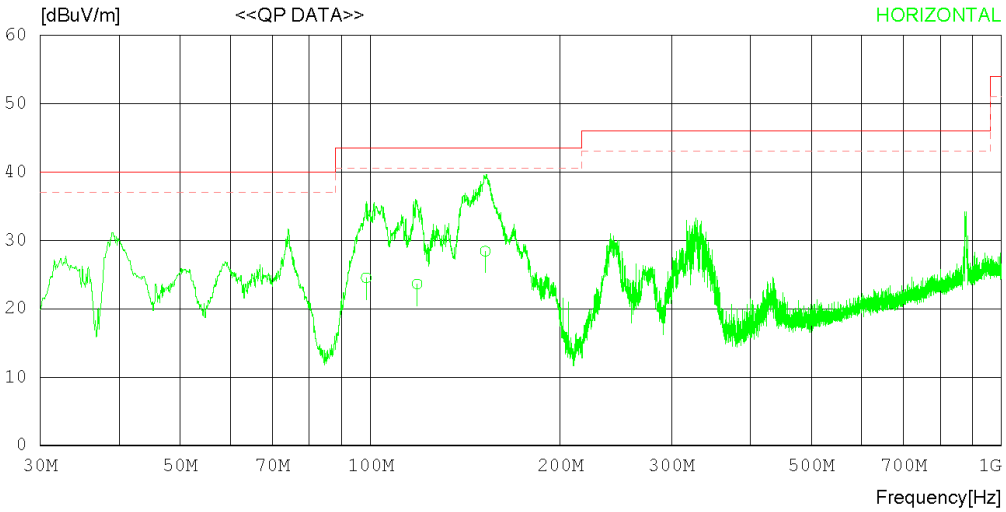
RADIATED EMISSION

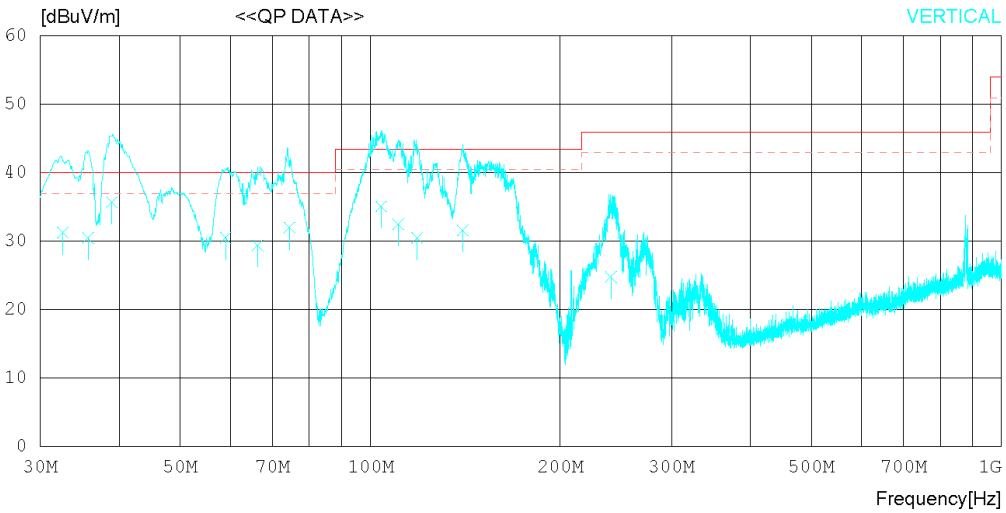
Date : 2016-01-18

Order No.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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





RADIATED EMISSION

Date : 2016-01-18

Order No.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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	98.505	41.6	8.7	0.8	26.6	24.5	43.5	19.0	300	359
2	118.630	38.1	11.3	0.8	26.6	23.6	43.5	19.9	400	112
3	152.090	41.0	12.9	1.0	26.5	28.4	43.5	15.1	400	0
----- Vertical ------										
4	32.568	48.2	9.2	0.5	26.6	31.3	40.0	8.7	100	323
5	35.700	47.3	9.3	0.5	26.6	30.5	40.0	9.5	100	5
6	38.973	51.8	10.0	0.5	26.6	35.7	40.0	4.3	100	169
7	59.016	44.7	11.8	0.6	26.6	30.5	40.0	9.5	100	194
8	66.329	44.6	10.8	0.6	26.6	29.4	40.0	10.6	100	172
9	74.522	48.7	9.3	0.6	26.6	32.0	40.0	8.0	100	213
10	104.042	51.4	9.5	0.8	26.6	35.1	43.5	8.4	100	179
11	110.774	48.0	10.3	0.8	26.6	32.5	43.5	11.0	100	244
12	118.630	45.0	11.3	0.8	26.6	30.5	43.5	13.0	100	65
13	140.006	44.5	12.6	1.0	26.5	31.6	43.5	11.9	100	170
14	240.657	38.5	11.3	1.4	26.4	24.8	46.0	21.2	100	358

PRO-650 _ < (1 ~ 6) GHz _ Peak _ MODE 1 >

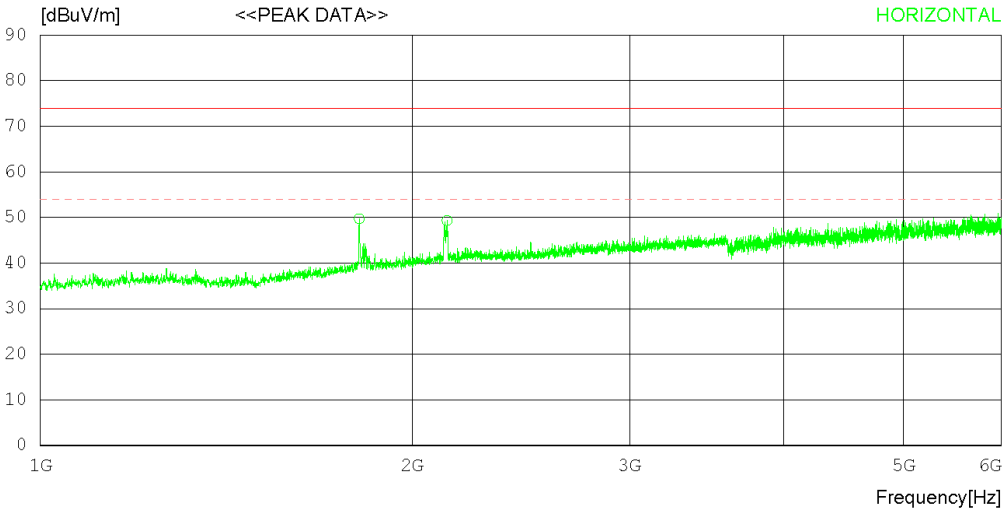
RADIATED EMISSION

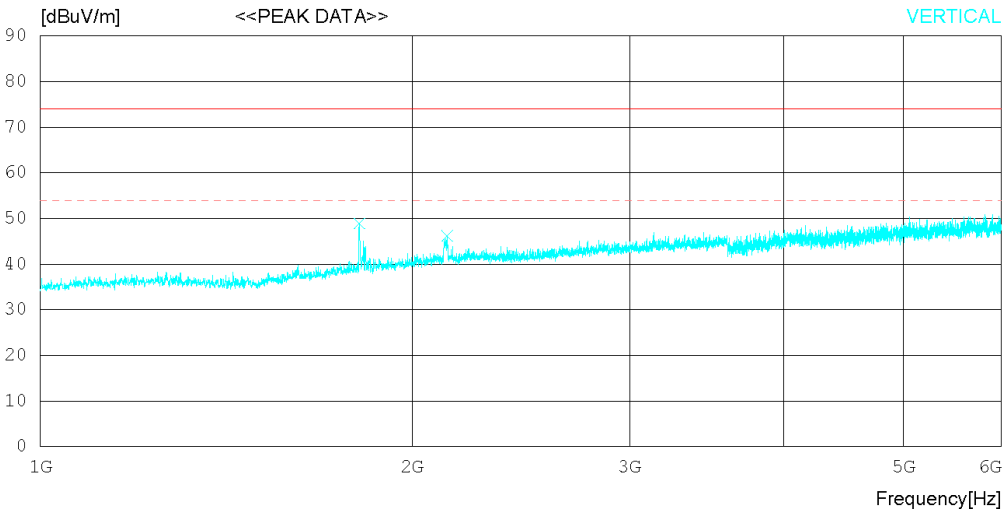
Date : 2016-01-20

Order No.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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	62.6	30.6	4.3	47.8	49.7	74.0	24.3	100	313
2	2134.375	60.2	32.1	4.7	47.7	49.3	74.0	24.7	100	1
----- Vertical ------										
3	1811.875	61.8	30.6	4.3	47.8	48.9	74.0	25.1	100	283
4	2134.375	57.1	32.1	4.7	47.7	46.2	74.0	27.8	100	1

PRO-650 _ < (1 ~ 6) GHz _ Average _ MODE 1 >

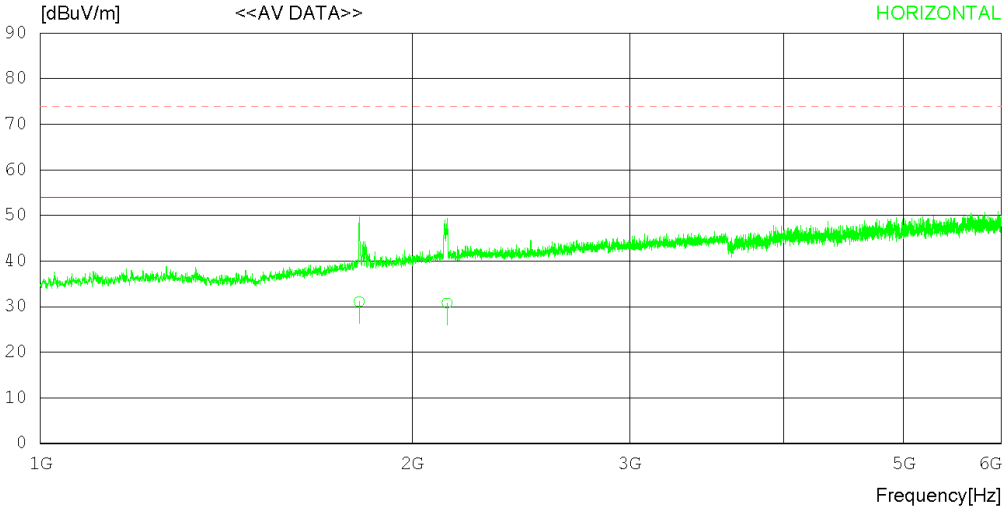
RADIATED EMISSION

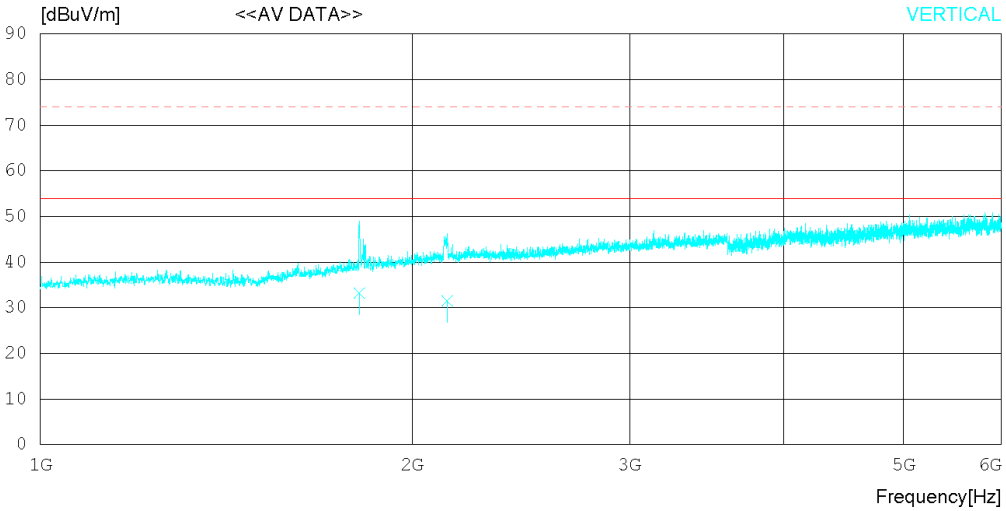
Date : 2016-01-20

Order No.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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)





RADIATED EMISSION

Date : 2016-01-20

Order No.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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 [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	1811.875	44.0	30.6	4.3	47.8	31.1	54.0	22.9	100	313
2	2134.375	41.7	32.1	4.7	47.7	30.8	54.0	23.2	100	136
----- Vertical ------										
3	1812.412	46.1	30.6	4.3	47.8	33.2	54.0	20.8	100	182
4	2134.375	42.4	32.1	4.7	47.7	31.5	54.0	22.5	100	251

PRO-650 _ < 30 MHz ~ 1 GHz _ MODE 2 >

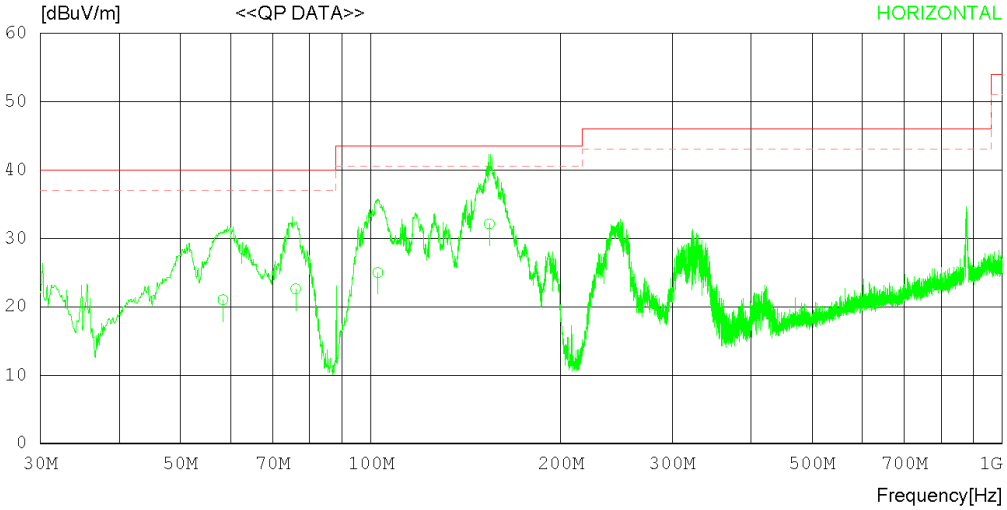
RADIATED EMISSION

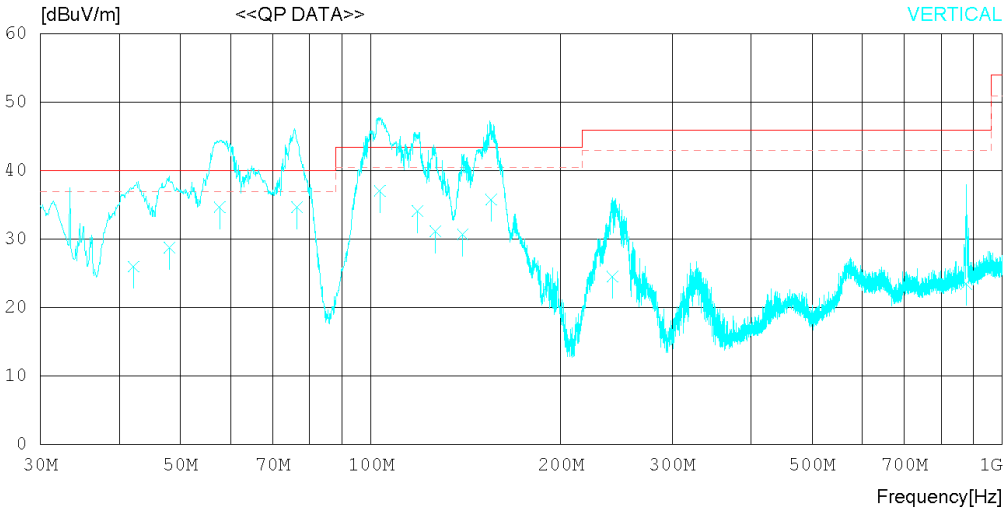
Date : 2016-01-18

Order No.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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	58.372	35.2	11.8	0.6	26.6	21.0	40.0	19.0	207	297
2	76.070	39.5	9.0	0.7	26.6	22.6	40.0	17.4	206	195
3	102.628	41.5	9.3	0.8	26.6	25.0	43.5	18.5	300	319
4	154.066	44.7	12.9	1.0	26.5	32.1	43.5	11.4	300	0
----- Vertical ------										
5	42.138	41.4	10.7	0.5	26.6	26.0	40.0	14.0	100	201
6	57.648	48.9	11.8	0.6	26.6	34.7	40.0	5.3	100	172
7	76.475	51.7	8.9	0.7	26.6	34.7	40.0	5.3	100	211
8	48.002	43.1	11.6	0.7	26.6	28.8	40.0	11.2	100	1
9	103.336	53.5	9.4	0.8	26.6	37.1	43.5	6.4	100	158
10	118.686	48.6	11.3	0.8	26.6	34.1	43.5	9.4	100	276
11	126.589	45.1	11.8	0.9	26.6	31.2	43.5	12.3	100	1
12	139.897	43.6	12.6	1.0	26.5	30.7	43.5	12.8	100	169
13	155.154	48.4	12.9	1.0	26.5	35.8	43.5	7.7	100	211
14	241.212	38.1	11.4	1.4	26.4	24.5	46.0	21.5	100	1
15	875.907	23.4	23.2	3.2	26.3	23.5	46.0	22.5	199	350

PRO-650 _ < (1 ~ 6) GHz _ Peak _ MODE 2 >

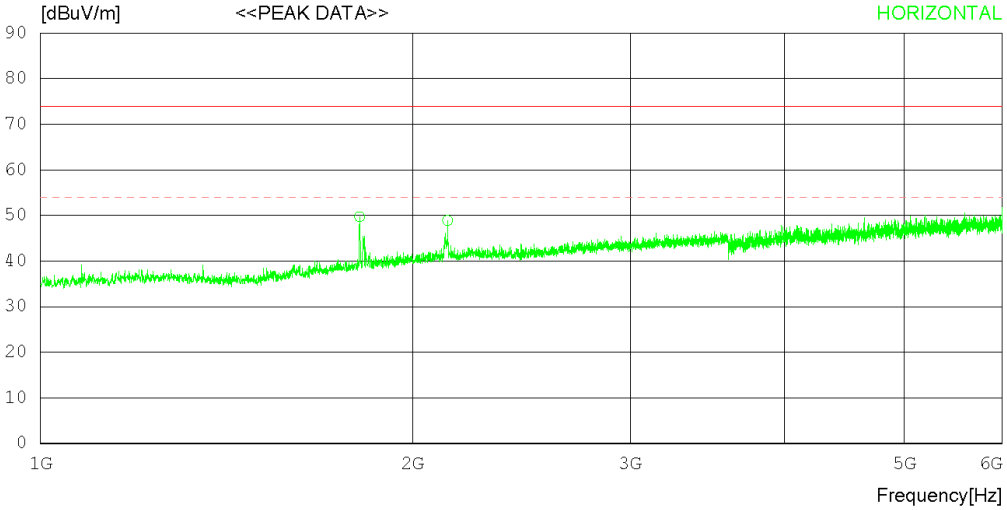
RADIATED EMISSION

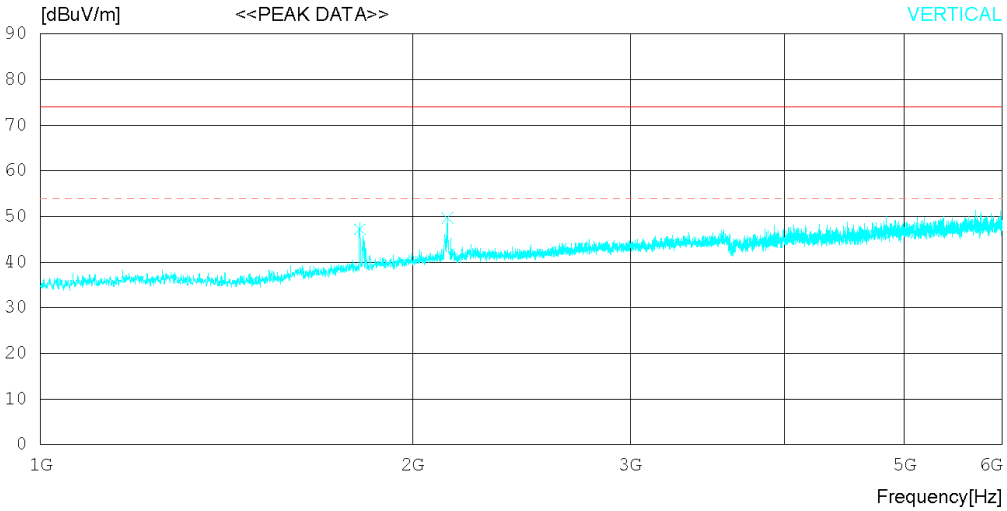
Date : 2016-01-20

Order No.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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	1811.875	62.6	30.6	4.3	47.8	49.7	74.0	24.3	100	358
2	2134.375	59.8	32.1	4.7	47.7	48.9	74.0	25.1	100	358
----- Vertical ------										
3	1811.875	60.1	30.6	4.3	47.8	47.2	74.0	26.8	100	31
4	2134.375	60.6	32.1	4.7	47.7	49.7	74.0	24.3	100	1

PRO-650 _ < (1 ~ 6) GHz _ Average _ MODE 2 >

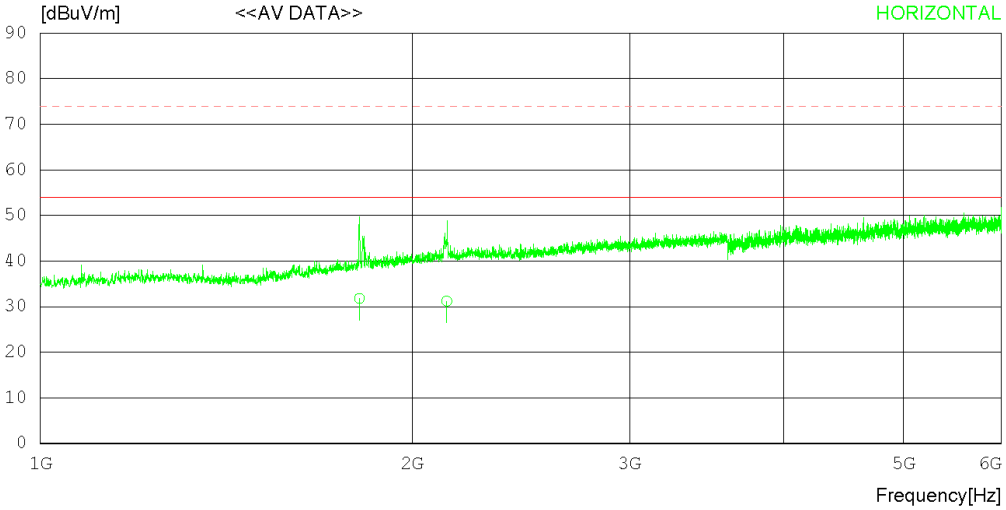
RADIATED EMISSION

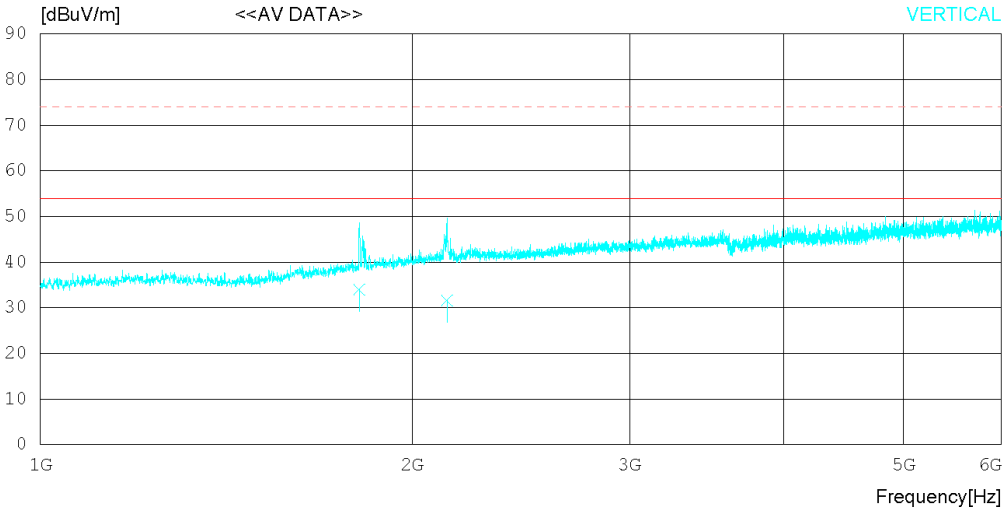
Date : 2016-01-20

Order No.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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.	:	DTNC1601-00157	Reference No.	:	
Model No.	:	PRO-650	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	1812.481	44.7	30.6	4.3	47.8	31.8	54.0	22.2	100	302
2	2133.803	42.1	32.1	4.7	47.7	31.2	54.0	22.8	100	73
----- Vertical ------										
3	1812.450	46.9	30.6	4.3	47.8	34.0	54.0	20.0	100	31
4	2134.375	42.5	32.1	4.7	47.7	31.6	54.0	22.4	100	204

WS1025 _ < 30 MHz ~ 1 GHz _ MODE 1 >

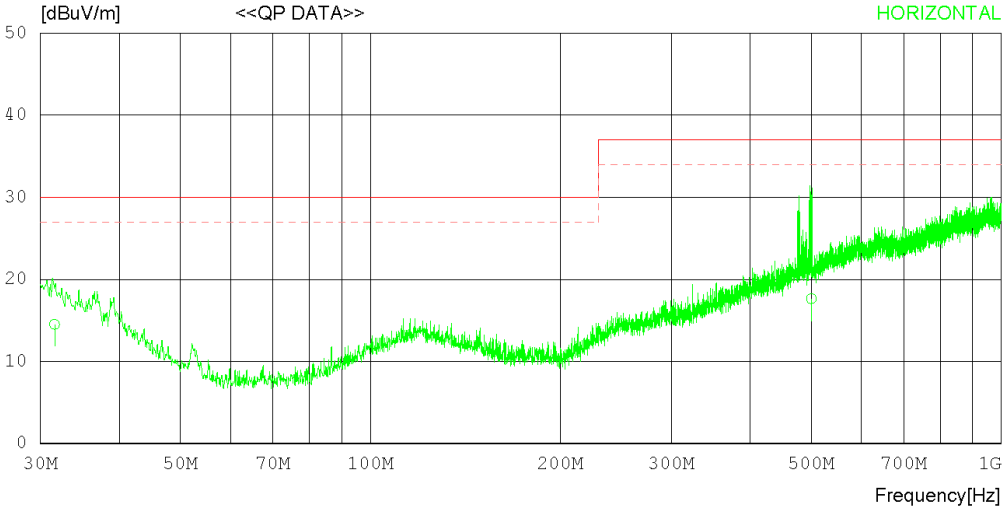
RADIATED EMISSION

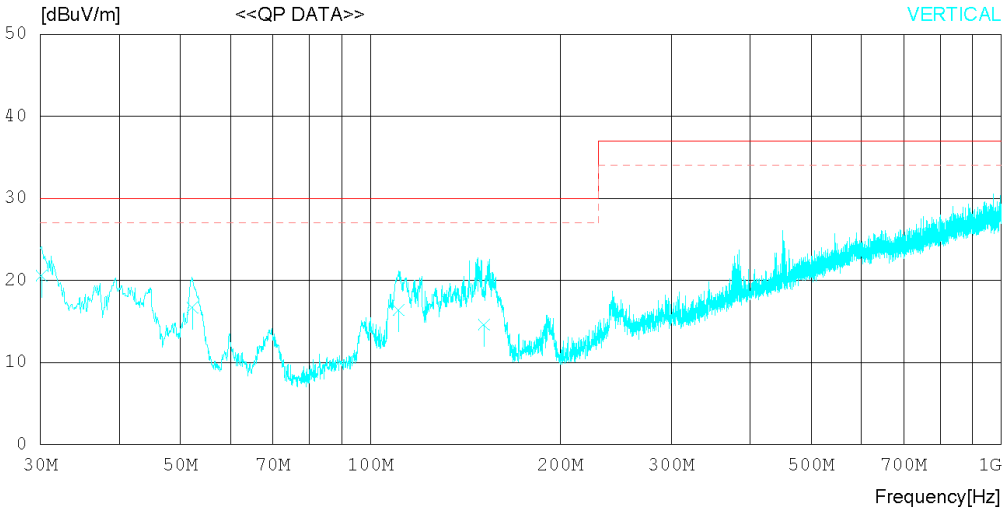
Date : 2016-03-04

Order No.	:		Reference No.	:	
Model No.	:	WS1025	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 39 % R.H.
Test Condition	:	1	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-04

Order No.	:		Reference No.	:	
Model No.	:	WS1025	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 39 % R.H.
Test Condition	:	1	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	31.596	17.6	17.8	1.3	22.2	14.5	30.0	15.5	400	69
2	500.218	19.0	17.5	5.6	24.5	17.6	37.0	19.4	201	0
----- Vertical ------										
3	30.121	23.0	18.5	1.3	22.2	20.6	30.0	9.4	175	69
4	52.226	29.4	7.9	1.7	22.3	16.7	30.0	13.3	100	101
5	110.872	25.2	11.5	2.4	22.7	16.4	30.0	13.6	100	0
6	151.413	24.3	10.4	2.9	23.0	14.6	30.0	15.4	100	85

WS1025 _ < (1 ~ 6) GHz _ Peak _ MODE 1 >

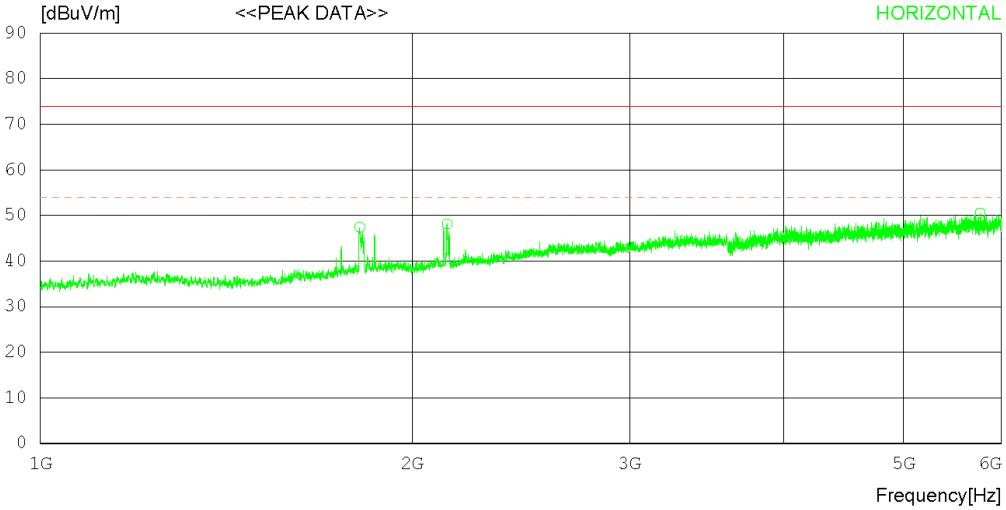
RADIATED EMISSION

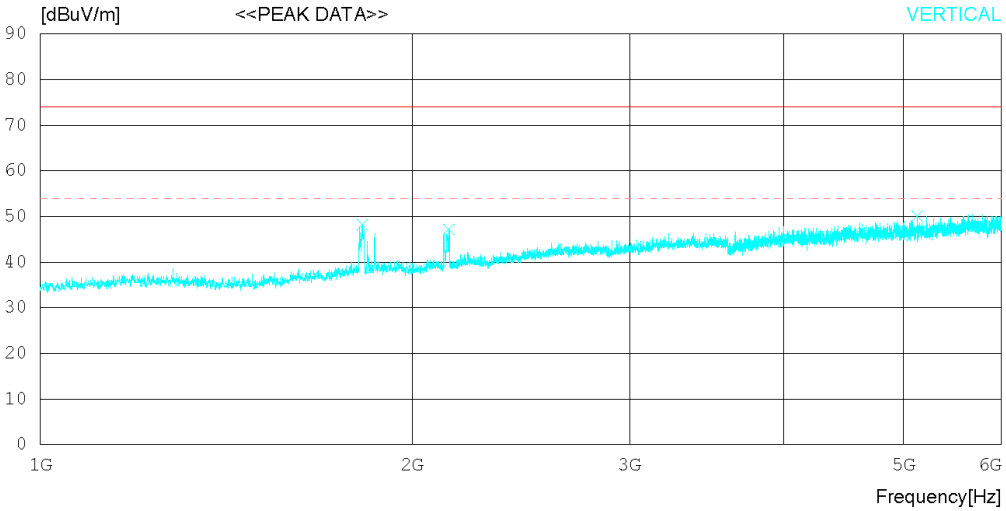
Date : 2016-03-05

Order No.	:		Reference No.	:	
Model No.	:	WS1025	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.	:		Reference No.	:	
Model No.	:	WS1025	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)

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	1813.750	60.6	30.3	4.3	47.8	47.4	74.0	26.6	100	201
2	2135.000	59.4	31.7	4.7	47.7	48.1	74.0	25.9	100	324
3	5766.875	54.6	34.6	8.2	46.8	50.6	74.0	23.4	100	105
----- Vertical ------										
4	1823.125	61.3	30.4	4.3	47.8	48.2	74.0	25.8	100	1
5	2141.875	58.5	31.7	4.7	47.7	47.2	74.0	26.8	100	1
6	5126.250	55.3	34.1	7.9	47.2	50.1	74.0	23.9	100	351

WS1025 _ < (1 ~ 6) GHz _ Average _ MODE 1 >

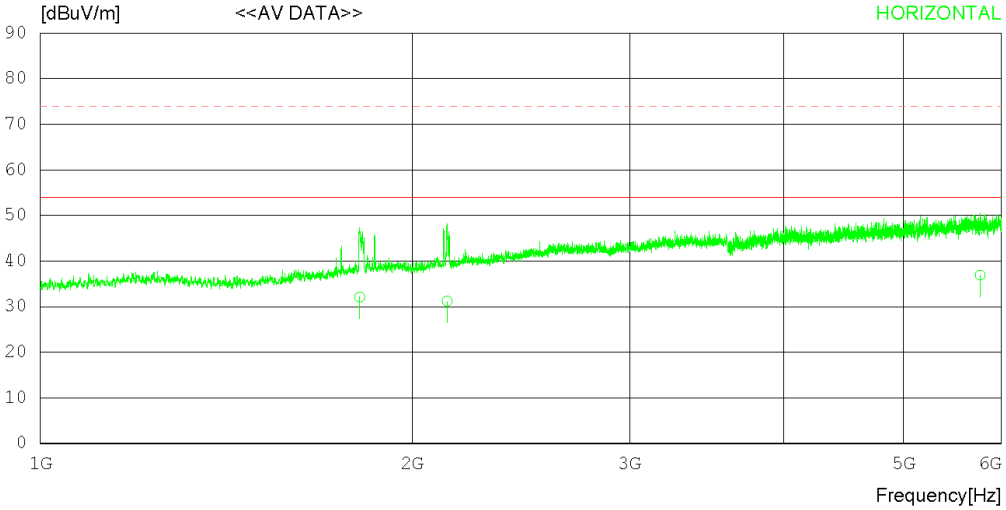
RADIATED EMISSION

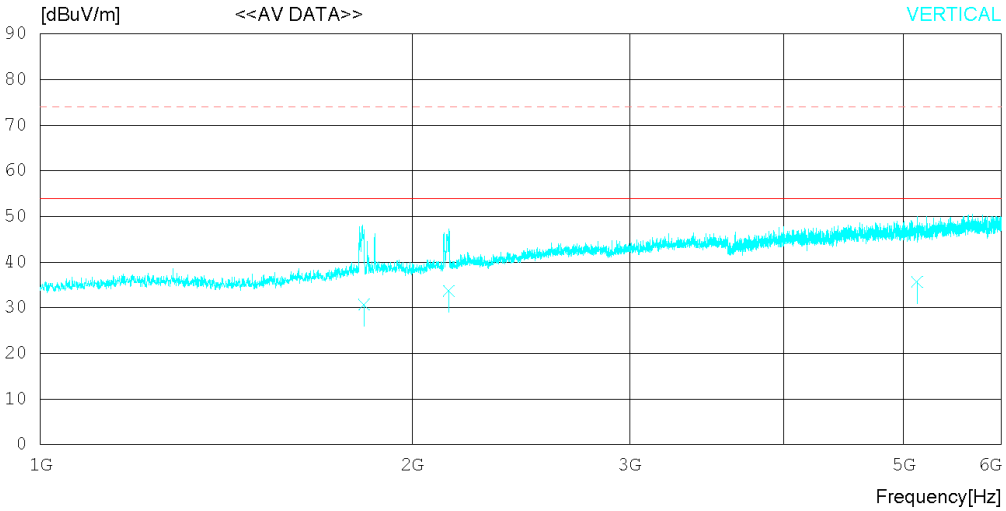
Date : 2016-03-05

Order No.	:		Reference No.	:	
Model No.	:	WS1025	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.	:	WS1025	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	1813.677	45.3	30.3	4.3	47.8	32.1	54.0	21.9	100	314
2	2134.470	42.5	31.7	4.7	47.7	31.2	54.0	22.8	100	324
3	5767.388	40.9	34.6	8.2	46.8	36.9	54.0	17.1	100	141
----- Vertical ------										
4	1828.097	43.7	30.5	4.3	47.8	30.7	54.0	23.3	100	263
5	2141.658	45.0	31.7	4.7	47.7	33.7	54.0	20.3	100	305
6	5126.270	40.9	34.1	7.9	47.2	35.7	54.0	18.3	100	166

WS1025 _ < 30 MHz ~ 1 GHz _ MODE 2 >

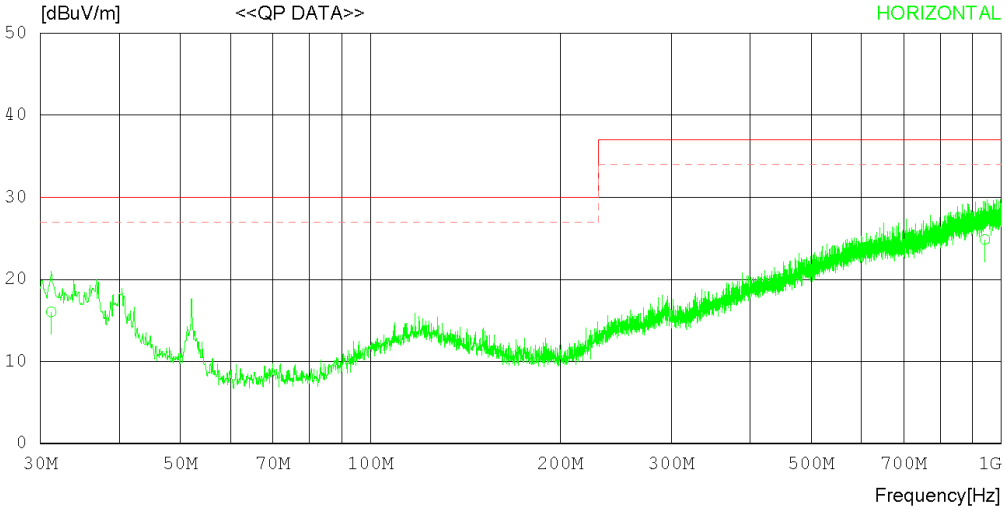
RADIATED EMISSION

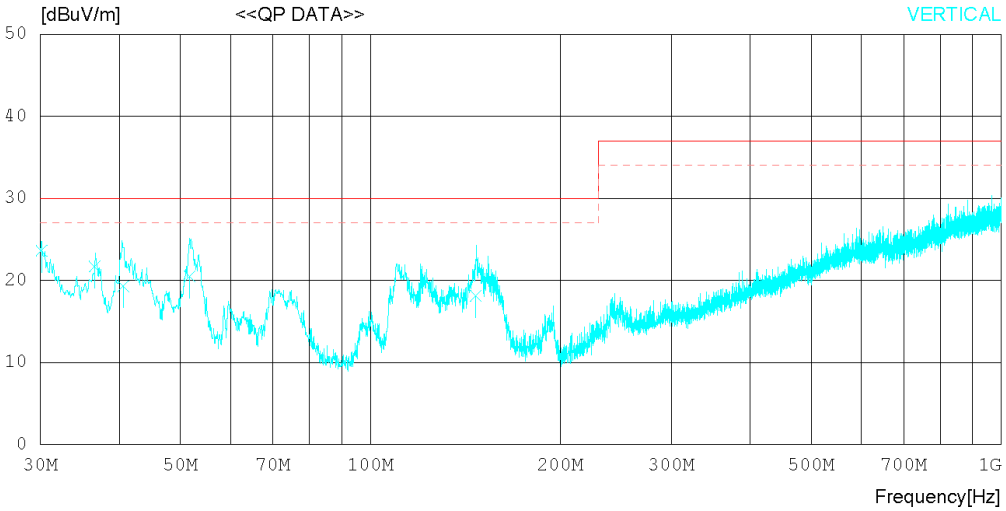
Date : 2016-03-04

Order No.	:		Reference No.	:	
Model No.	:	WS1025	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.	:	
Model No.	:	WS1025	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

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	31.213	18.9	18.0	1.3	22.2	16.0	30.0	14.0	200	64
2	941.760	18.7	20.8	8.2	22.9	24.8	37.0	12.2	400	358
----- Vertical ------										
3	30.124	26.0	18.5	1.3	22.2	23.6	30.0	6.4	300	0
4	36.575	27.4	15.2	1.3	22.2	21.7	30.0	8.3	269	235
5	40.597	26.7	13.2	1.6	22.2	19.3	30.0	10.7	100	359
6	51.744	33.1	8.0	1.7	22.3	20.5	30.0	9.5	400	261
7	146.916	27.6	10.7	2.8	23.0	18.1	30.0	11.9	100	76

WS1025 _ < (1 ~ 6) GHz _ Peak _ MODE 2 >

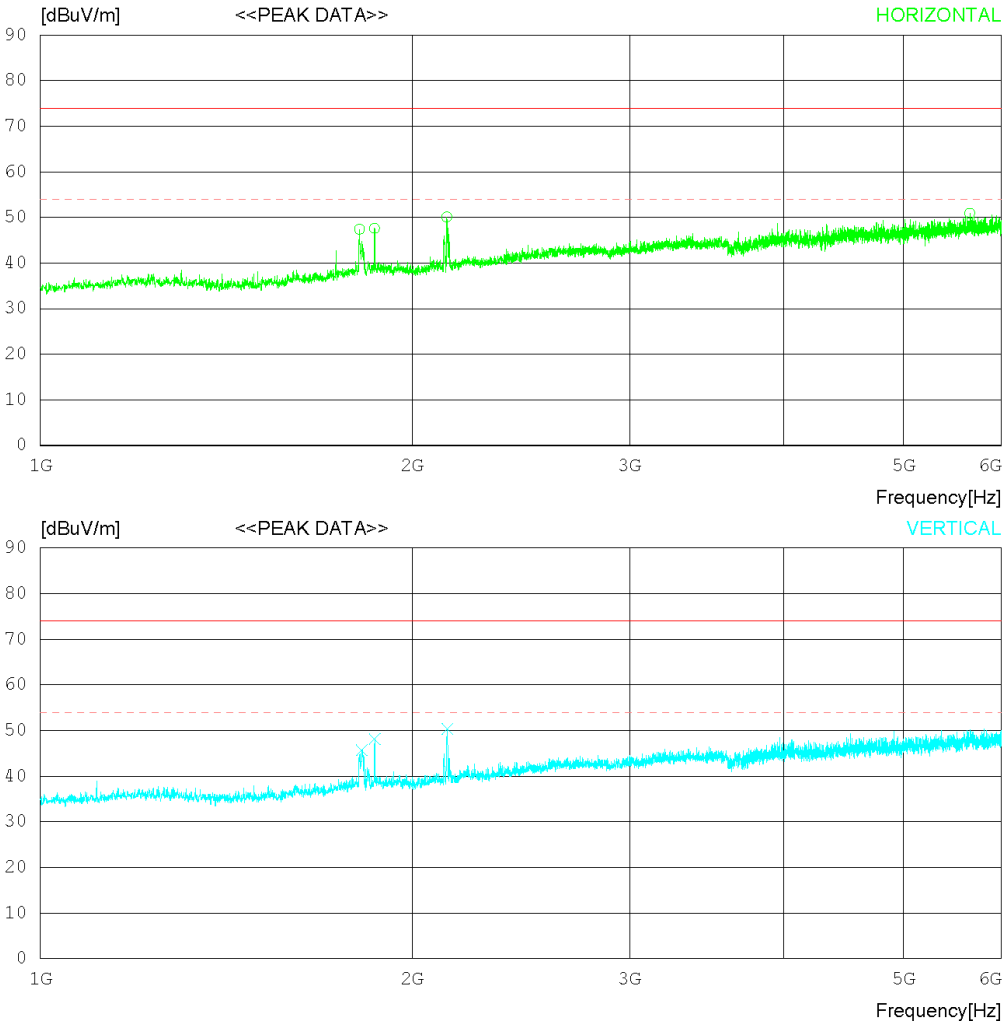
RADIATED EMISSION

Date : 2016-03-05

Order No.	:		Reference No.	:	
Model No.	:	WS1025	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.	:		Reference No.	:	
Model No.	:	WS1025	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)

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	1813.125	60.6	30.3	4.3	47.8	47.4	74.0	26.6	100	29
2	1864.375	60.4	30.8	4.3	47.9	47.6	74.0	26.4	100	5
3	2133.125	61.4	31.7	4.7	47.7	50.1	74.0	23.9	100	93
4	5655.625	55.1	34.5	8.2	46.9	50.9	74.0	23.1	100	358
----- Vertical ------										
5	1821.250	58.8	30.4	4.3	47.8	45.7	74.0	28.3	100	1
6	1865.000	60.9	30.8	4.3	47.9	48.1	74.0	25.9	100	164
7	2136.250	61.7	31.7	4.7	47.7	50.4	74.0	23.6	100	1

WS1025 _ < (1 ~ 6) GHz _ Average _ MODE 2 >

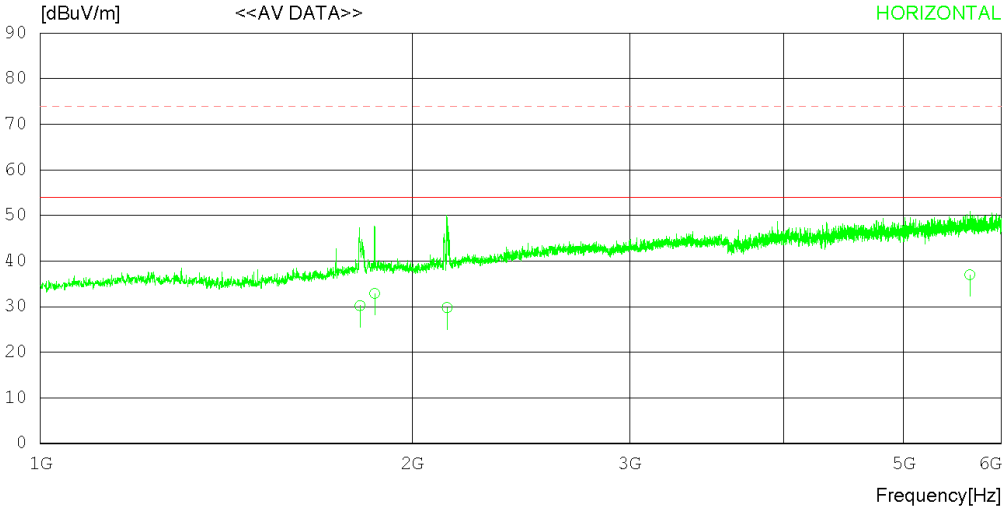
RADIATED EMISSION

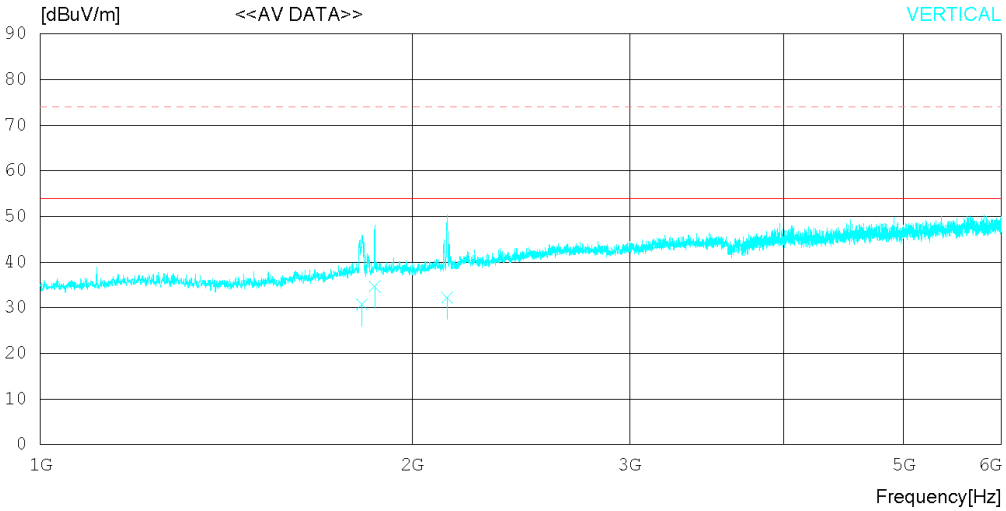
Date : 2016-03-05

Order No.	:		Reference No.	:	
Model No.	:	WS1025	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.	:	WS1025	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	1814.460	43.4	30.3	4.3	47.8	30.2	54.0	23.8	100	313
2	1865.054	45.7	30.8	4.3	47.9	32.9	54.0	21.1	100	210
3	2134.348	41.1	31.7	4.7	47.7	29.8	54.0	24.2	100	301
4	5656.827	41.2	34.5	8.2	46.9	37.0	54.0	17.0	100	174
----- Vertical ------										
5	1821.573	43.8	30.4	4.3	47.8	30.7	54.0	23.3	100	169
6	1865.086	47.4	30.8	4.3	47.9	34.6	54.0	19.4	100	263
7	2134.216	43.5	31.7	4.7	47.7	32.2	54.0	21.8	100	258

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 dBμV.

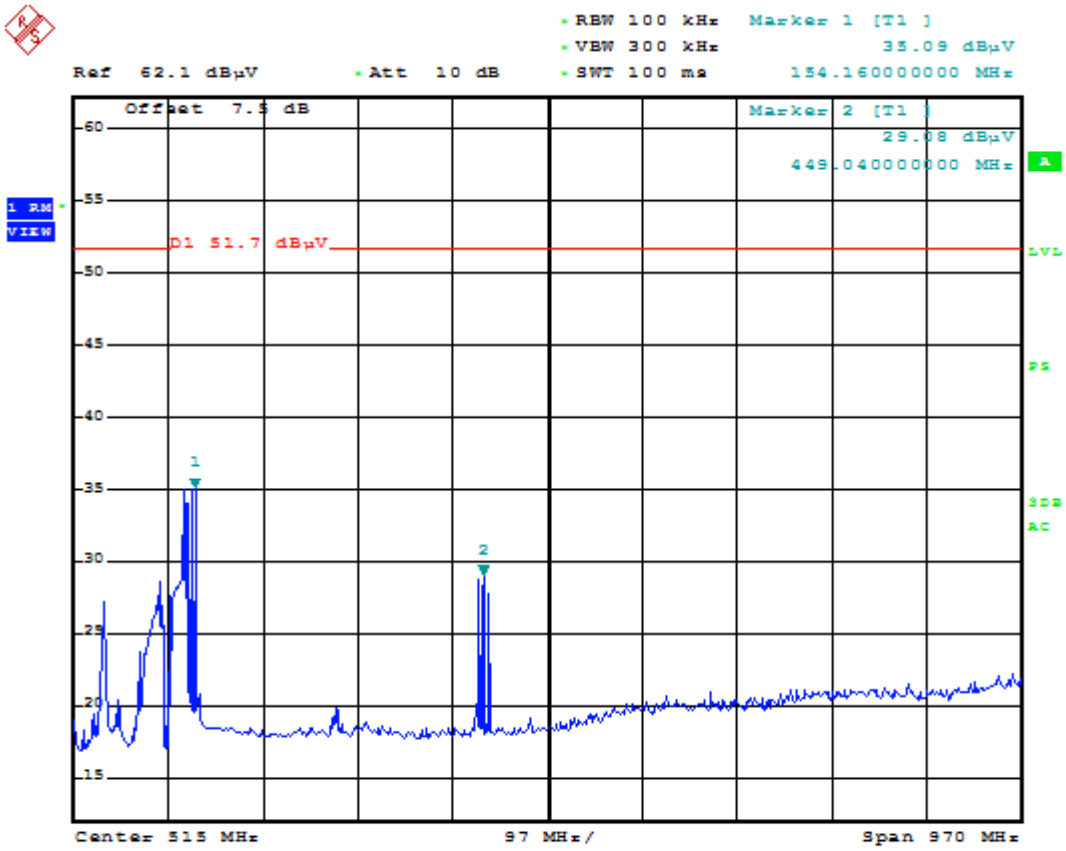
The measurements were repeated with the receiver tuned to a frequency until all of frequencies had been successively measured.

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 dBμV)**

< PRO-650 >



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
☒	MEASUREMENT SOFTWARE	EMI-C VER. 2.00.0143	TSJ	N/A	N/A	N/A
☐	ARTIFICIAL MAINS NETWORK	PMM L2-16B	NARDA S.T.S. / PMM	000WX20305	2015.06.26	2016.06.26
☒	LISN	KNW-407	KYORITSU	8-317-8	2016.01.05	2017.01.05
☐	50 OHM TERMINATOR	CT-01	TME	N/A	2016.01.05	2017.01.05
☒	EMI TEST RECEIVER	ESCI7	ROHDE & SCHWARZ	100910	2016.02.25	2017.02.25
☒	LISN	ESH2-Z5	ROHDE & SCHWARZ	828739/006	2015.09.10	2016.09.10
☒	PULSE LIMITER	ESH3-Z2	ROHDE & SCHWARZ	101334	2016.01.05	2017.01.05
☒	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
☒	MEASUREMENT SOFTWARE	EMI-R VER. 2.00.0121	TSJ	N/A	N/A	N/A
☒	EMI TEST RECEIVER	ESU	ROHDE & SCHWARZ	100538	2016.02.05	2017.02.05
☒	TRILOG BROADBAND TEST-ANTENNA	VULB9160	SCHWARZBECK	9160-3362	2014.07.31	2016.07.31
☒	LOW NOISE PRE AMPLIFIER	MLA-100K01-B01-26	TSJ	1252741	2016.02.25	2017.02.25
☒	HORN ANTENNA	3117	ETS-LINDGREN	00152093	2016.02.26	2018.02.26
☒	EMI TEST RECEIVER	ESU	ROHDE & SCHWARZ	100014	2016.01.06	2017.01.06
☒	AMPLIFIER	8447E	H/P	2945A02865	2016.01.06	2017.01.06
☒	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
☒	EMI TEST RECEIVER	ESCI	ROHDE & SCHWARZ	100364	2016.02.25	2017.02.25
☐	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