EMC TEST REPORT

Test item	: Handheld Digital Trunking Scanner
Model No.	: PRO-668
Order No.	: DTNC1603-01666
Date of receipt	: 2016-03-23
Test duration	: 2016-03-29 ~ 2016-04-01
Date of Issue	: 2016-04-28

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 63.4:2009
FCC Part 15 Subpart B
(Scanning receiver)

Test environment : Temperature : (17 ~ 18) °C,
Humidity : (35 ~ 41) % R.H.

Test result : ☒ Comply ☐ Not Comply

Tested by:

Engineer
DaeHwa Eun

Reviewed by:

Technical Manager
YoungKyu Shin

PRESIDENT OF DT&C Co., Ltd.

*** If this test report is required to confirmation of authenticity, please contact to report@dtnc.net**

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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	Handheld Digital Trunking Scanner
Model No.	PRO-668
Add Model No	WS1080, WS1088
Serial No	None
FCC ID	HSXSC10
Supplied Power for Test	DC 5 V, 500 mA
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 Part List)

4. Test Summary

4.1 Applied standards and test results

Test Items	Applied Standards	Results
Conducted Disturbance	ANSI C63.4:2009	**C**
Radiated Disturbance	ANSI C63.4:2009	**C**
Antenna Power Conduction	ANSI C63.4:2009	**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-668 >

Test Items	Test date (YYYY-MM-DD)	Temp (℃)	Humidity (% R.H.)
Conducted Disturbance	2016-04-01	18	41
Radiated Disturbance	2016-03-29	17 18	40 35
Antenna Power Conduction	2016-04-01	18	41

< WS1080 >

Test Items	Test date (YYYY-MM-DD)	Temp (℃)	Humidity (% R.H.)
Conducted Disturbance	2016-04-01	18	41
Radiated Disturbance	2016-03-29	17 18	40 35
Antenna Power Conduction	2016-04-01	18	41

< WS1088 >

Test Items	Test date (YYYY-MM-DD)	Temp (℃)	Humidity (% R.H.)
Conducted Disturbance	2016-04-01	18	41
Radiated Disturbance	2016-03-29	17 18	40 35
Antenna Power Conduction	2016-04-01	18	41

4.3 Test result Summary

(1) Conducted Emission

< PRO-668 >

Frequency [MHz]	Phase	Result [dBμV]	Detector	Limit [dBμV]	Margin [dB]
0.16007	**L**	**61.3**	Quasi-Peak	**65.5**	**4.2**

< WS1080 >

Frequency [MHz]	Phase	Result [dBμV]	Detector	Limit [dBμV]	Margin [dB]
0.17283	**L**	**59.4**	Quasi-Peak	**64.8**	**5.4**

< WS1088 >

Frequency [MHz]	Phase	Result [dBμV]	Detector	Limit [dBμV]	Margin [dB]
0.16270	**L**	**60.1**	Quasi-Peak	**65.3**	**5.2**

(2) Radiated Emission

< PRO-668 >

Frequency [MHz]	Pol.	Result [dB(μV/m)]	Detector	Limit [dB(μV/m)]	Margin [dB]
718.975	**H**	**42.1**	Quasi-Peak	**46.0**	**3.9**

< WS1080 >

Frequency [MHz]	Pol.	Result [dB(μV/m)]	Detector	Limit [dB(μV/m)]	Margin [dB]
954.000	**H**	**40.9**	Quasi-Peak	**46.0**	**5.1**

< WS1088 >

Frequency [MHz]	Pol.	Result [dB(μV/m)]	Detector	Limit [dB(μV/m)]	Margin [dB]
954.025	**H**	**40.9**	Quasi-Peak	**46.0**	**5.1**

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 notebook PC for receiving data.

5.3 Support Equipment Used

Unit	Model No.	Serial No.	Manufacturer	CABLE				Back shell	FCC ID
				Connect type	Length (m)	shield	With Ferrite		
Headset	COV-903	N/A	COSY	STEREO	2.0	Non-shield	X	Plastic	DOC
Notebook PC	X502C	D5N0CV821534227	ASUS	POWER USB	1.8 0.5	Non-shield Shield	X	Plastic Plastic	DOC
Notebook PC Adapter	ADP-65GDB	N69YW34N0VW6	LITE-ON TECHNOLOGY	POWER POWER	1.8 1.5	Non-shield Non-shield	X	Plastic 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

MODE 2 _ PRO-668

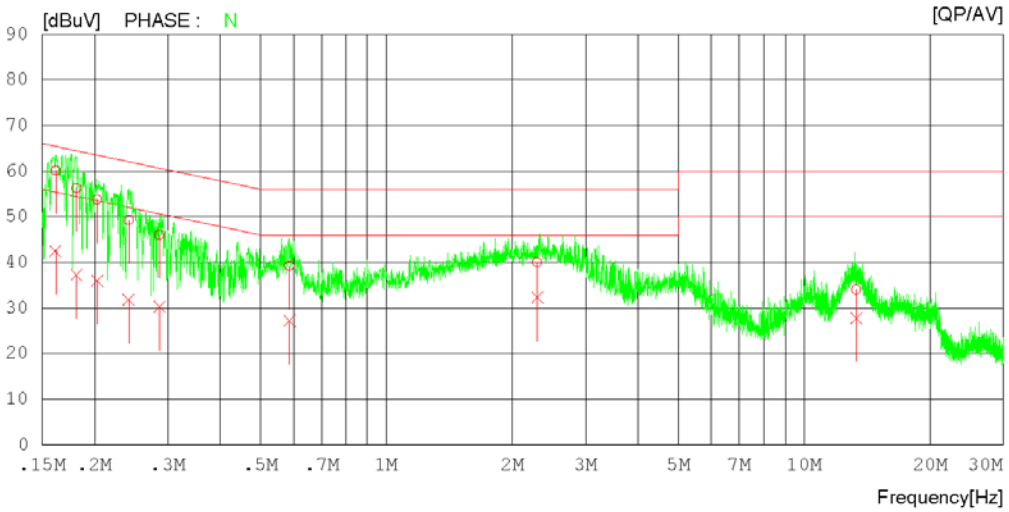
Results of Conducted Emission

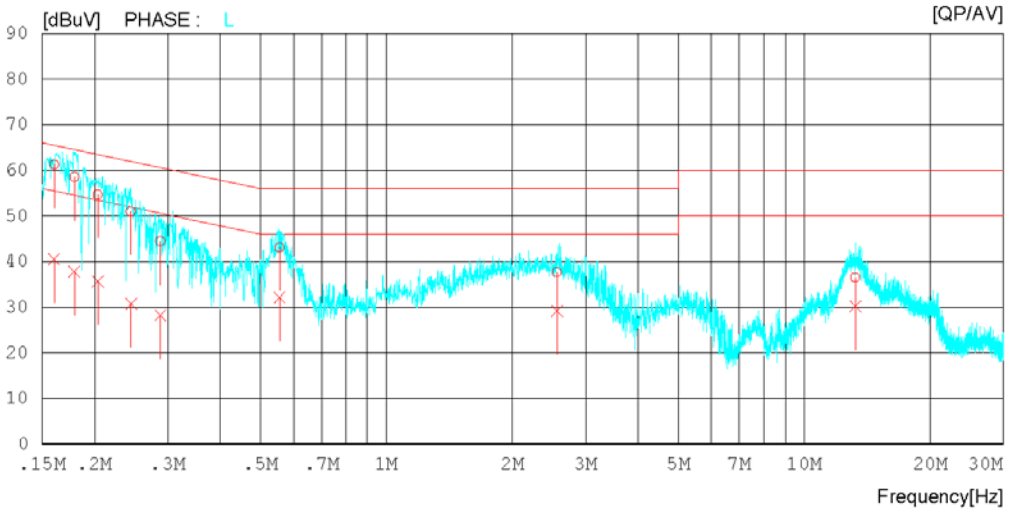
DTNC

Date : 2016-04-01

Order No.	:		Referrence No.	:	
Model No.	:	PRO-668	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi.	:	18 'C 41 % R.H.
Test Condition	:	2	Operator	:	
Memo	:				

LIMIT : CISPR22_B QP
CISPR22_B AV





Results of Conducted Emission

DTNC

Date : 2016-04-01

Order No. :
Model No. : PRO-668
Serial No. :
Test Condition : 2

Referrence No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 18 'C 41 % R.H.
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	0.16146	50.1	32.4	10.1	60.2	42.5	65.4	55.4	5.2	12.9	N
2	0.18110	46.2	27.1	10.1	56.3	37.2	64.4	54.4	8.1	17.2	N
3	0.20320	43.7	25.9	10.1	53.8	36.0	63.5	53.5	9.7	17.5	N
4	0.24150	39.1	21.7	10.1	49.2	31.8	62.0	52.0	12.8	20.2	N
5	0.28632	35.9	20.2	10.1	46.0	30.3	60.6	50.6	14.6	20.3	N
6	0.58586	29.2	17.1	10.1	39.3	27.2	56.0	46.0	16.7	18.8	N
7	2.29720	29.8	22.1	10.2	40.0	32.3	56.0	46.0	16.0	13.7	N
8	13.34860	23.4	17.1	10.6	34.0	27.7	60.0	50.0	26.0	22.3	N
9	0.16007	51.2	30.3	10.1	61.3	40.4	65.5	55.5	4.2	15.1	L
10	0.17901	48.4	27.6	10.1	58.5	37.7	64.5	54.5	6.0	16.8	L
11	0.20378	44.5	25.5	10.1	54.6	35.6	63.5	53.5	8.9	17.9	L
12	0.24476	40.8	20.6	10.1	50.9	30.7	61.9	51.9	11.0	21.2	L
13	0.28753	34.3	18.1	10.1	44.4	28.2	60.6	50.6	16.2	22.4	L
14	0.55492	33.0	22.0	10.1	43.1	32.1	56.0	46.0	12.9	13.9	L
15	2.56080	27.4	18.9	10.2	37.6	29.1	56.0	46.0	18.4	16.9	L
16	13.26780	25.7	19.4	10.8	36.5	30.2	60.0	50.0	23.5	19.8	L

MODE 2 _ WS1080

Results of Conducted Emission

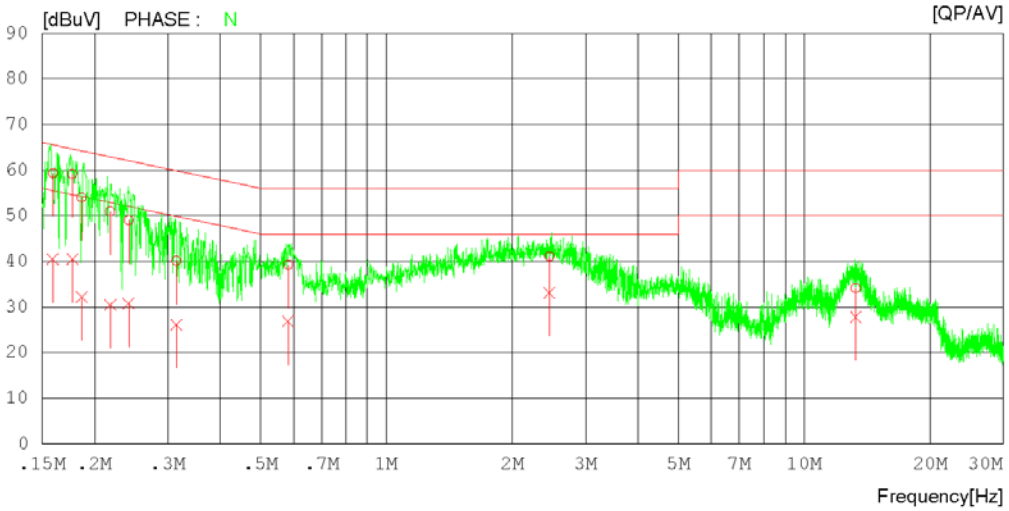
DTNC

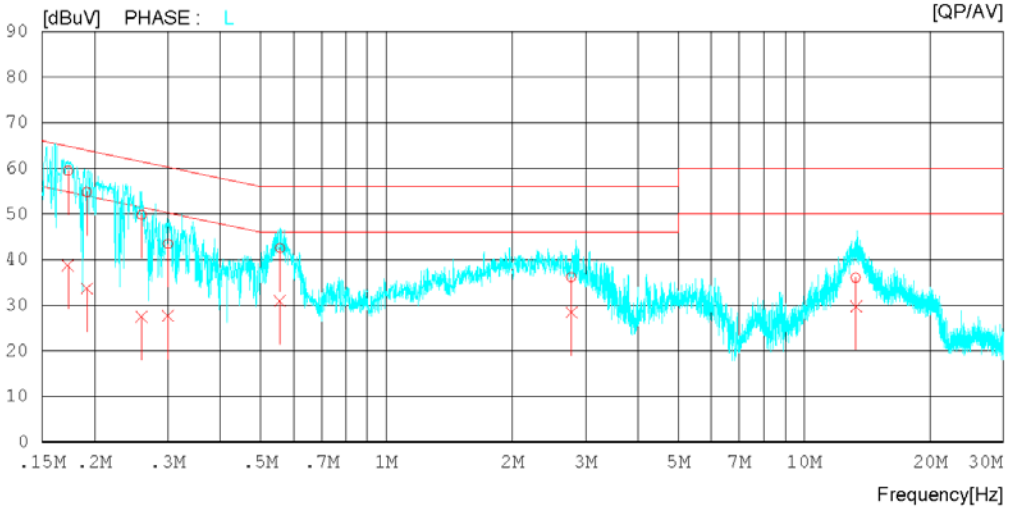
Date : 2016-04-01

Order No.	:		Referrence No.	:	
Model No.	:	WS1080	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi.	:	18 'C 41 % R.H.
Test Condition	:	2	Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV





Results of Conducted Emission

DTNC

Date : 2016-04-01

Order No. :
Model No. : WS1080
Serial No. :
Test Condition : 2

Referrence No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 18 'C 41 % R.H.
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	0.15915	49.3	30.4	10.1	59.4	40.5	65.5	55.5	6.1	15.0	N
2	0.17715	49.0	30.4	10.1	59.1	40.5	64.6	54.6	5.5	14.1	N
3	0.18650	43.9	22.1	10.1	54.0	32.2	64.2	54.2	10.2	22.0	N
4	0.21830	40.9	20.4	10.1	51.0	30.5	62.9	52.9	11.9	22.4	N
5	0.24141	38.9	20.7	10.1	49.0	30.8	62.0	52.0	13.0	21.2	N
6	0.31433	30.0	16.0	10.1	40.1	26.1	59.9	49.9	19.8	23.8	N
7	0.58219	29.1	16.8	10.1	39.2	26.9	56.0	46.0	16.8	19.1	N
8	2.45560	30.9	23.0	10.2	41.1	33.2	56.0	46.0	14.9	12.8	N
9	13.29000	23.5	17.2	10.6	34.1	27.8	60.0	50.0	25.9	22.2	N
10	0.17283	49.3	28.5	10.1	59.4	38.6	64.8	54.8	5.4	16.2	L
11	0.19207	44.7	23.5	10.1	54.8	33.6	63.9	53.9	9.1	20.3	L
12	0.25939	39.7	17.3	10.1	49.8	27.4	61.5	51.5	11.7	24.1	L
13	0.30011	33.3	17.5	10.1	43.4	27.6	60.2	50.2	16.8	22.6	L
14	0.55585	32.4	20.8	10.1	42.5	30.9	56.0	46.0	13.5	15.1	L
15	2.77480	25.9	18.2	10.2	36.1	28.4	56.0	46.0	19.9	17.6	L
16	13.29640	25.2	18.9	10.8	36.0	29.7	60.0	50.0	24.0	20.3	L

MODE 2 _ WS1088

Results of Conducted Emission

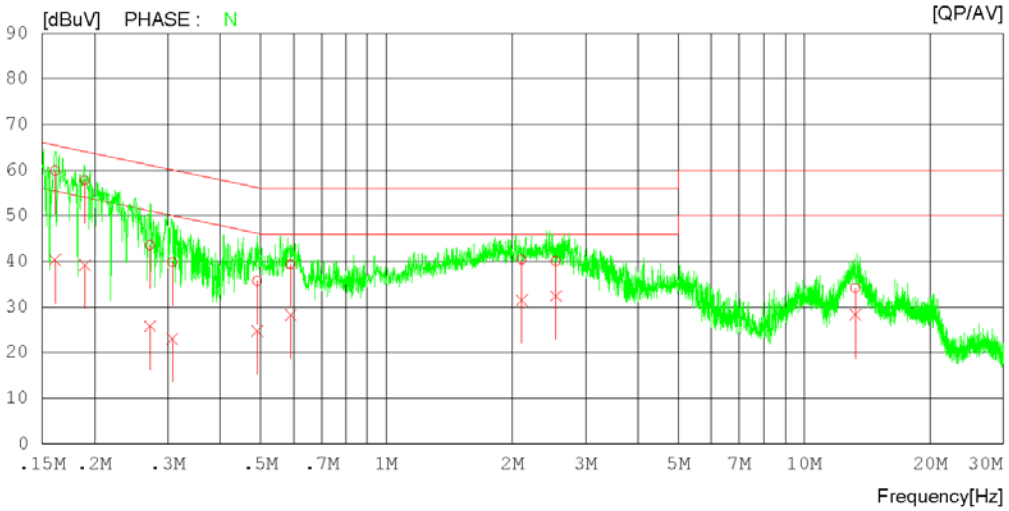
DTNC

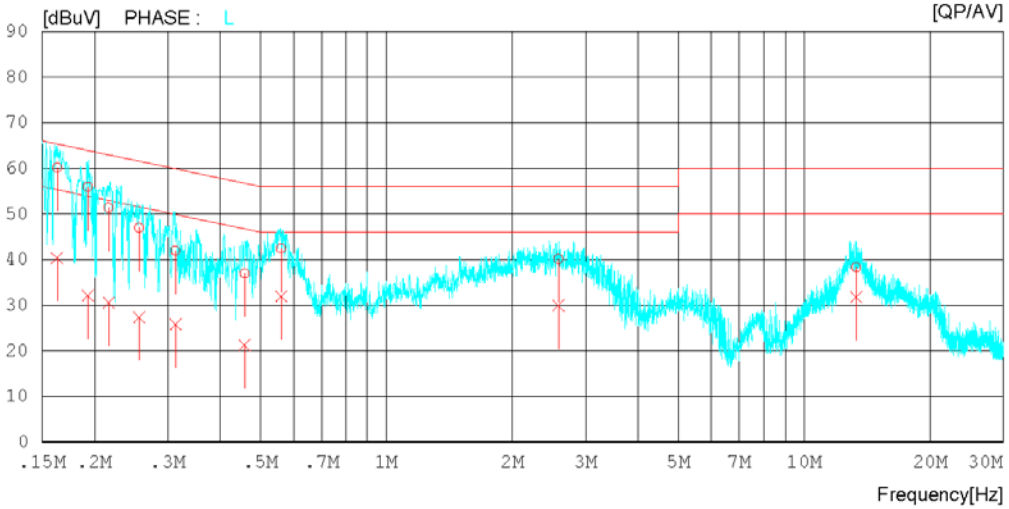
Date : 2016-04-01

Order No.	:		Referrence No.	:	
Model No.	:	WS1088	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi.	:	18 'C 41 % R.H.
Test Condition	:	2	Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV





Results of Conducted Emission

DTNC

Date : 2016-04-01

Order No. :
Model No. : WS1088
Serial No. :
Test Condition : 2

Referrence No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 18 'C 41 % R.H.
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	0.16094	49.8	30.2	10.1	59.9	40.3	65.4	55.4	5.5	15.1	N
2	0.18970	47.6	29.1	10.1	57.7	39.2	64.0	54.0	6.3	14.8	N
3	0.27194	33.5	15.7	10.1	43.6	25.8	61.1	51.1	17.5	25.3	N
4	0.30717	29.7	12.9	10.1	39.8	23.0	60.0	50.0	20.2	27.0	N
5	0.49036	25.6	14.6	10.1	35.7	24.7	56.2	46.2	20.5	21.5	N
6	0.58989	29.2	18.1	10.1	39.3	28.2	56.0	46.0	16.7	17.8	N
7	2.10800	30.1	21.3	10.2	40.3	31.5	56.0	46.0	15.7	14.5	N
8	2.54560	29.8	22.2	10.2	40.0	32.4	56.0	46.0	16.0	13.6	N
9	13.26520	23.5	17.6	10.6	34.1	28.2	60.0	50.0	25.9	21.8	N
10	0.16270	50.0	30.2	10.1	60.1	40.3	65.3	55.3	5.2	15.0	L
11	0.19289	45.8	21.9	10.1	55.9	32.0	63.9	53.9	8.0	21.9	L
12	0.21638	41.2	20.4	10.1	51.3	30.5	63.0	53.0	11.7	22.5	L
13	0.25599	36.8	17.2	10.1	46.9	27.3	61.6	51.6	14.7	24.3	L
14	0.31275	31.8	15.7	10.1	41.9	25.8	59.9	49.9	18.0	24.1	L
15	0.45772	26.8	11.2	10.1	36.9	21.3	56.7	46.7	19.8	25.4	L
16	0.56050	32.2	21.8	10.1	42.3	31.9	56.0	46.0	13.7	14.1	L
17	2.58120	29.8	19.7	10.2	40.0	29.9	56.0	46.0	16.0	16.1	L
18	13.32040	27.4	20.9	10.8	38.2	31.7	60.0	50.0	21.8	18.3	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-668 _ < 30 MHz ~ 1 GHz _ MODE 1 >

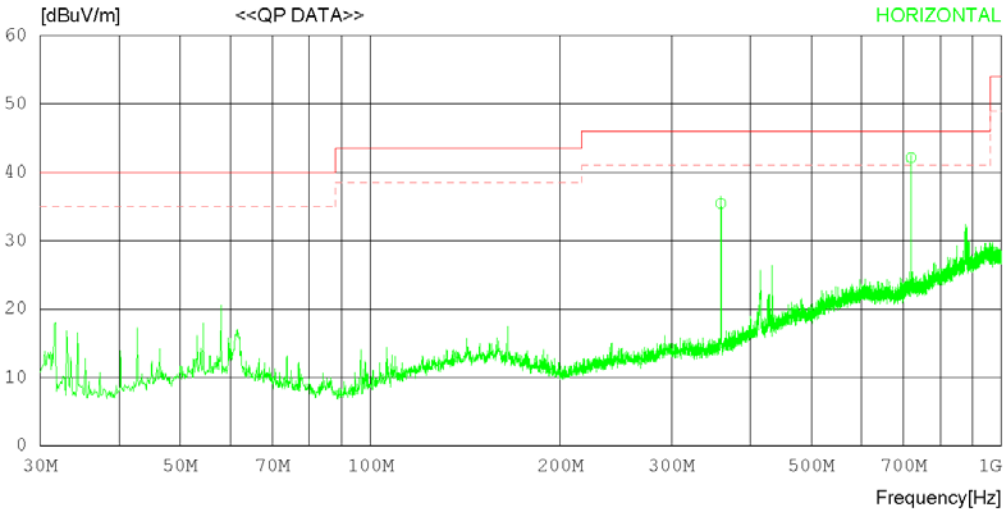
Results of Radiated Emissions

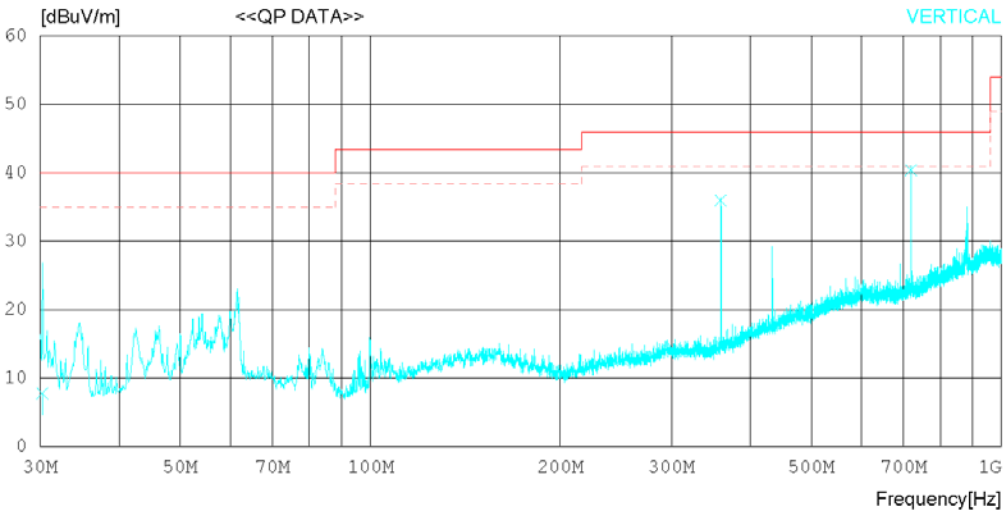
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	1	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 dB





Results of Radiated Emissions

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	1	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 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	359.306	45.0	14.6	2.8	27.0	35.4	46.0	10.6	100	302
2	718.975	43.7	21.3	4.1	27.0	42.1	46.0	3.9	100	274
----- Vertical ------										
3	30.243	25.0	9.3	0.6	27.1	7.8	40.0	32.2	100	74
4	359.306	45.6	14.6	2.8	27.0	36.0	46.0	10.0	221	209
5	718.975	42.0	21.3	4.1	27.0	40.4	46.0	5.6	100	316

PRO-668 _ < (1 ~ 6) GHz _ Peak _ MODE 1 >

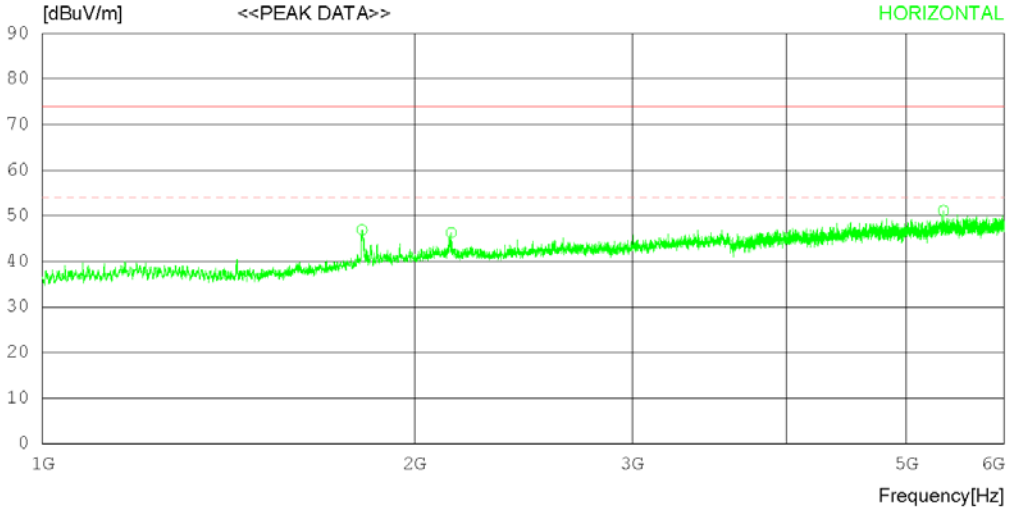
RADIATED EMISSION

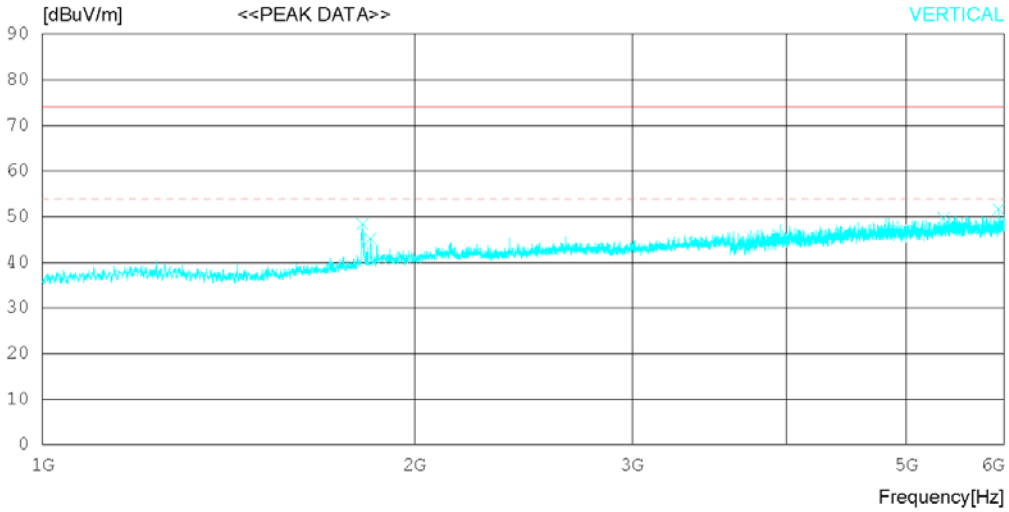
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	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	1813.750	60.1	30.3	4.3	47.8	46.9	74.0	27.1	100	1
2	2141.875	57.6	31.7	4.7	47.7	46.3	74.0	27.7	100	1
3	5357.500	56.0	34.2	8.0	47.1	51.1	74.0	22.9	100	1
----- Vertical ------										
4	1815.000	61.6	30.3	4.3	47.8	48.4	74.0	25.6	100	84
5	1842.500	58.1	30.6	4.3	47.8	45.2	74.0	28.8	100	358
6	5357.500	54.6	34.2	8.0	47.1	49.7	74.0	24.3	100	358
7	5938.750	55.0	34.9	8.3	46.6	51.6	74.0	22.4	100	358

PRO-668 _ < (1 ~ 6) GHz _ Average _ MODE 1 >

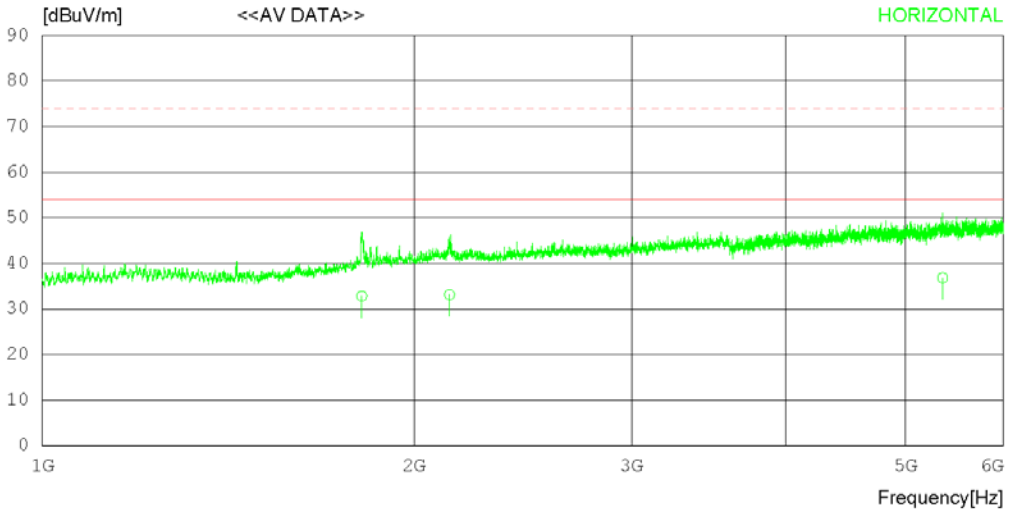
RADIATED EMISSION

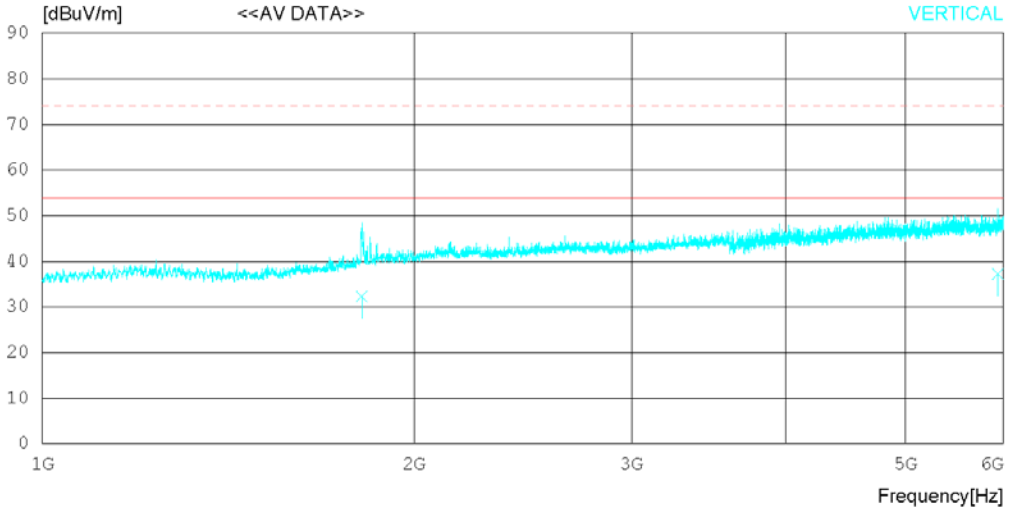
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	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	1813.770	46.0	30.3	4.3	47.8	32.8	54.0	21.2	100	284
2	2136.827	44.4	31.7	4.7	47.7	33.1	54.0	20.9	100	1
3	5357.500	41.7	34.2	8.0	47.1	36.8	54.0	17.2	100	1
----- Vertical ------										
4	1814.043	45.4	30.3	4.3	47.8	32.2	54.0	21.8	100	141
5	5938.750	40.6	34.9	8.3	46.6	37.2	54.0	16.8	100	358

PRO-668 _ < 30 MHz ~ 1 GHz _ MODE 2 >

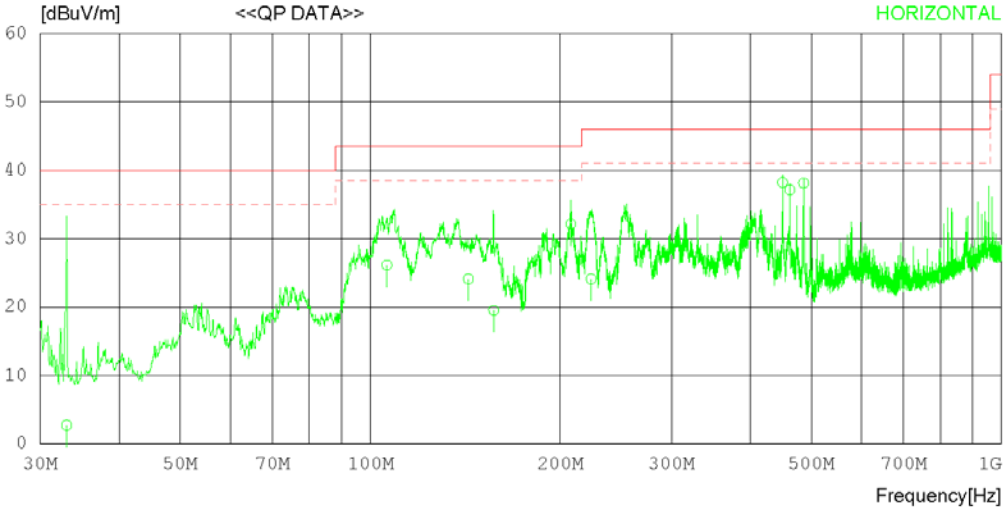
Results of Radiated Emissions

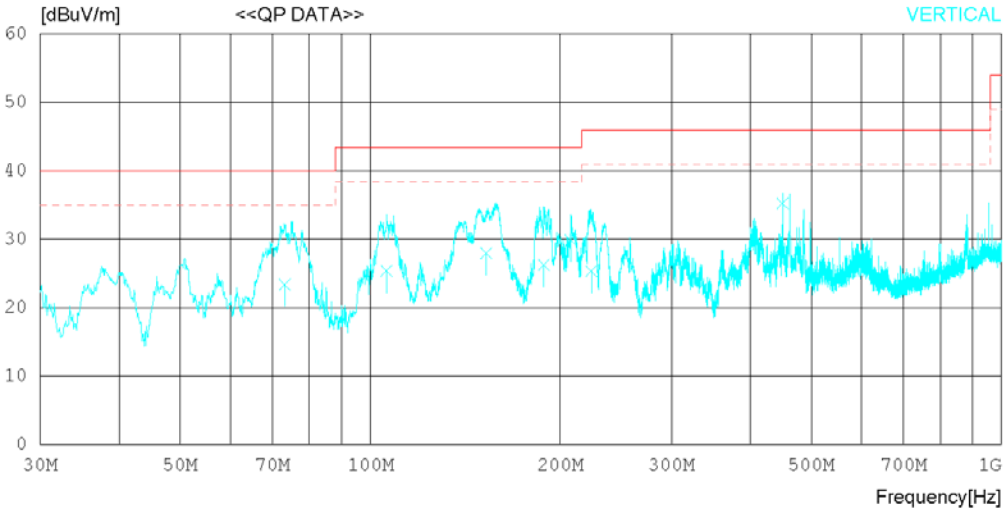
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	120 V 60 Hz
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	2	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 dB





Results of Radiated Emissions

Date : 2016-03-29

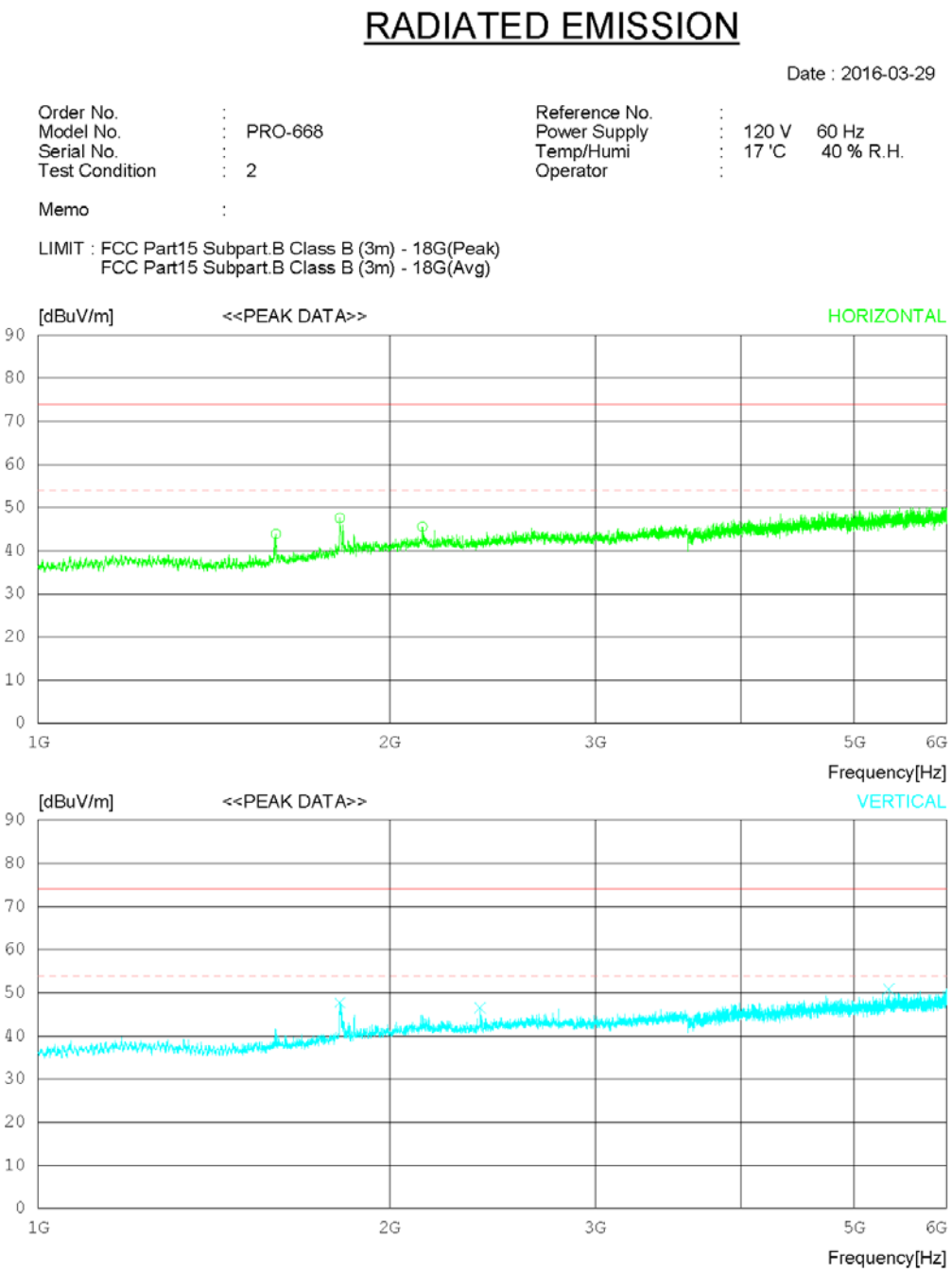
Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	120 V 60 Hz
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	2	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 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	33.031	20.0	9.2	0.6	27.1	2.7	40.0	37.3	300	0
2	106.243	41.6	9.7	1.4	26.6	26.1	43.5	17.4	291	122
3	143.033	36.0	12.7	1.6	26.2	24.1	43.5	19.4	218	6
4	156.826	31.0	12.9	1.7	26.1	19.5	43.5	24.0	100	359
5	207.844	46.1	10.1	2.0	26.1	32.1	43.5	11.4	100	359
6	223.764	37.4	10.7	2.2	26.2	24.1	46.0	21.9	100	124
7	449.998	44.2	17.1	3.2	26.3	38.2	46.0	7.8	239	205
8	461.999	42.9	17.2	3.2	26.2	37.1	46.0	8.9	250	0
9	486.009	43.3	17.5	3.3	26.0	38.1	46.0	7.9	300	0
----- Vertical ------										
10	73.184	39.4	9.6	1.2	26.8	23.4	40.0	16.6	100	86
11	106.144	40.9	9.7	1.4	26.6	25.4	43.5	18.1	147	114
12	152.564	39.6	12.9	1.6	26.1	28.0	43.5	15.5	100	0
13	188.470	39.7	10.8	1.9	26.1	26.3	43.5	17.2	100	195
14	207.857	43.9	10.1	2.0	26.1	29.9	43.5	13.6	100	0
15	224.088	38.7	10.7	2.2	26.2	25.4	46.0	20.6	100	109
16	449.987	41.3	17.1	3.2	26.3	35.3	46.0	10.7	199	186

PRO-668 _ < (1 ~ 6) GHz _ Peak _ MODE 2 >



RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	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	1598.750	59.0	28.4	3.9	47.4	43.9	74.0	30.1	100	1
2	1813.125	60.8	30.3	4.3	47.8	47.6	74.0	26.4	100	38
3	2133.750	56.9	31.7	4.7	47.7	45.6	74.0	28.4	100	294
----- Vertical ------										
4	1814.375	60.9	30.3	4.3	47.8	47.7	74.0	26.3	100	358
5	2390.000	57.6	31.7	5.0	47.8	46.5	74.0	27.5	100	189
6	5353.125	55.7	34.2	8.0	47.1	50.8	74.0	23.2	100	358

PRO-668 _ < (1 ~ 6) GHz _ Average _ MODE 2 >

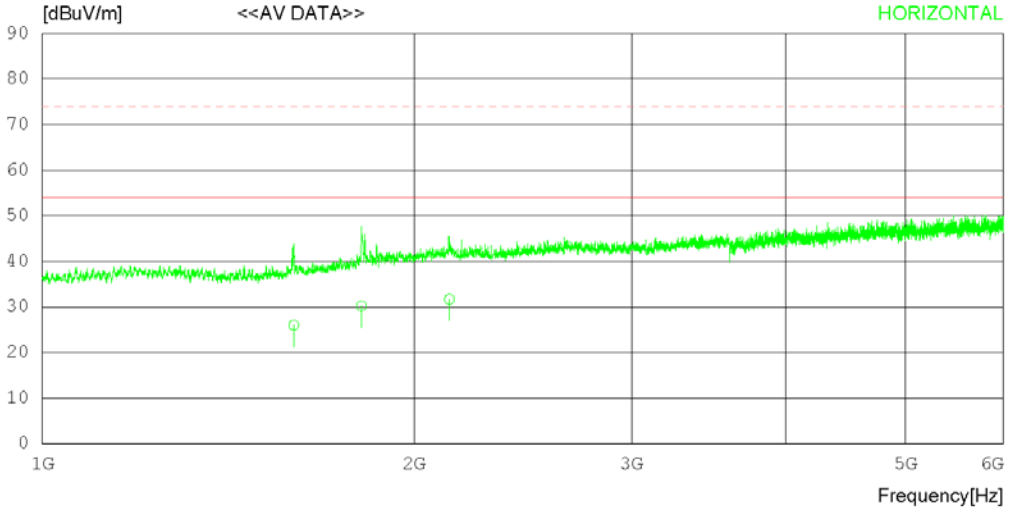
RADIATED EMISSION

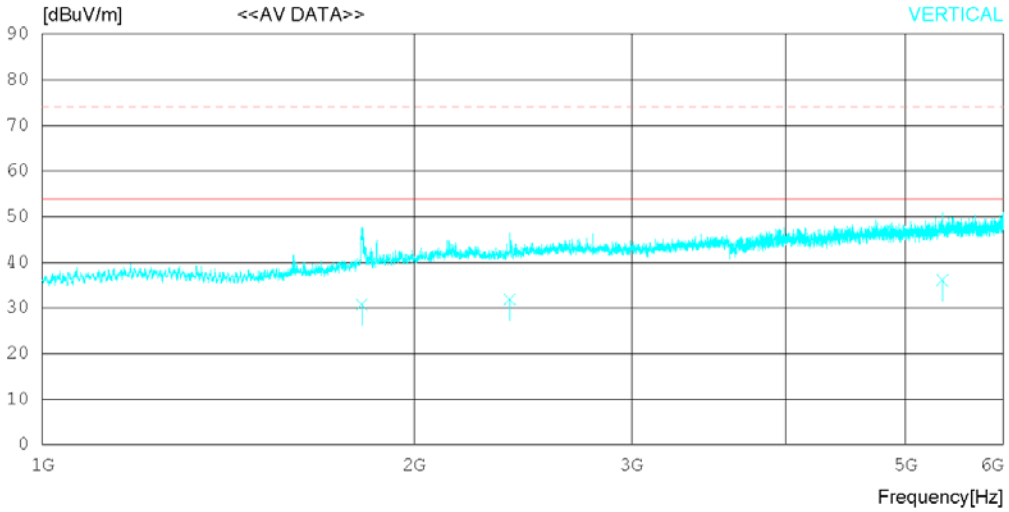
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	PRO-668	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	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	1597.738	41.1	28.4	3.9	47.4	26.0	54.0	28.0	100	189
2	1813.125	43.4	30.3	4.3	47.8	30.2	54.0	23.8	100	40
3	2135.600	43.0	31.7	4.7	47.7	31.7	54.0	22.3	100	294
----- Vertical ------										
4	1814.375	44.0	30.3	4.3	47.8	30.8	54.0	23.2	100	155
5	2390.000	43.0	31.7	5.0	47.8	31.9	54.0	22.1	100	190
6	5353.125	41.0	34.2	8.0	47.1	36.1	54.0	17.9	100	199

WS1080 _ < 30 MHz ~ 1 GHz _ MODE 1 >

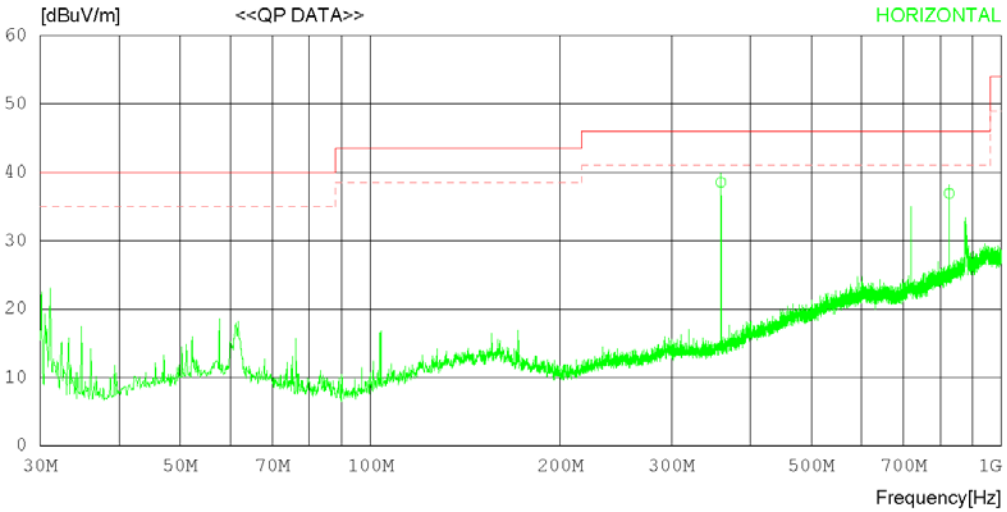
Results of Radiated Emissions

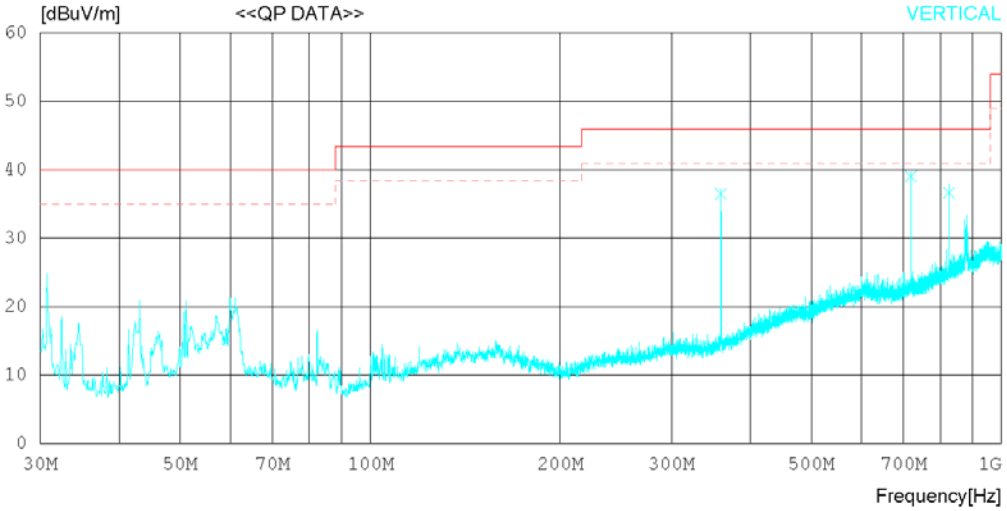
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	1	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 dB





Results of Radiated Emissions

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	1	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 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	359.306	48.1	14.6	2.8	27.0	38.5	46.0	7.5	100	64
2	826.305	36.2	22.7	4.5	26.5	36.9	46.0	9.1	100	304
----- Vertical ------										
3	359.306	46.1	14.6	2.8	27.0	36.5	46.0	9.5	100	199
4	718.732	40.7	21.3	4.1	27.0	39.1	46.0	6.9	100	0
5	826.305	36.0	22.7	4.5	26.5	36.7	46.0	9.3	199	170

WS1080 _ < (1 ~ 6) GHz _ Peak _ MODE 1 >

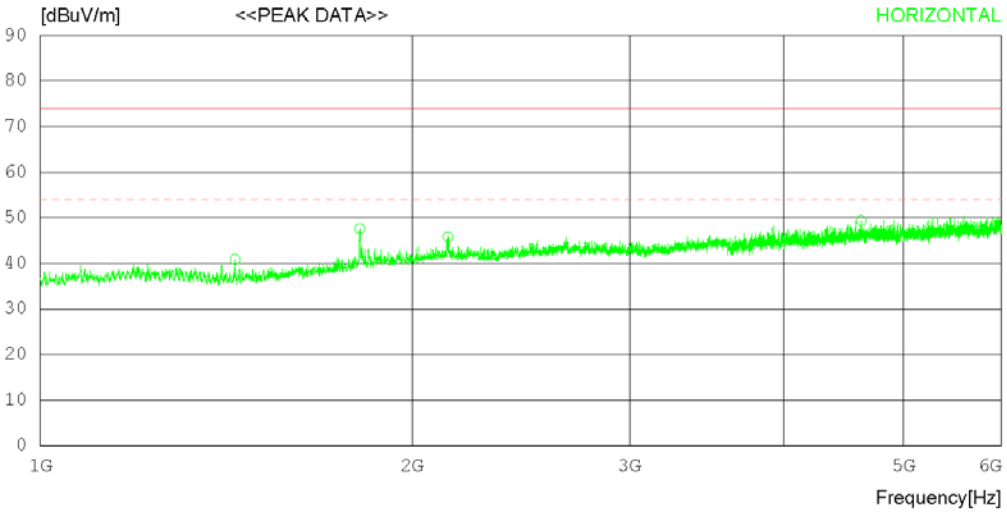
RADIATED EMISSION

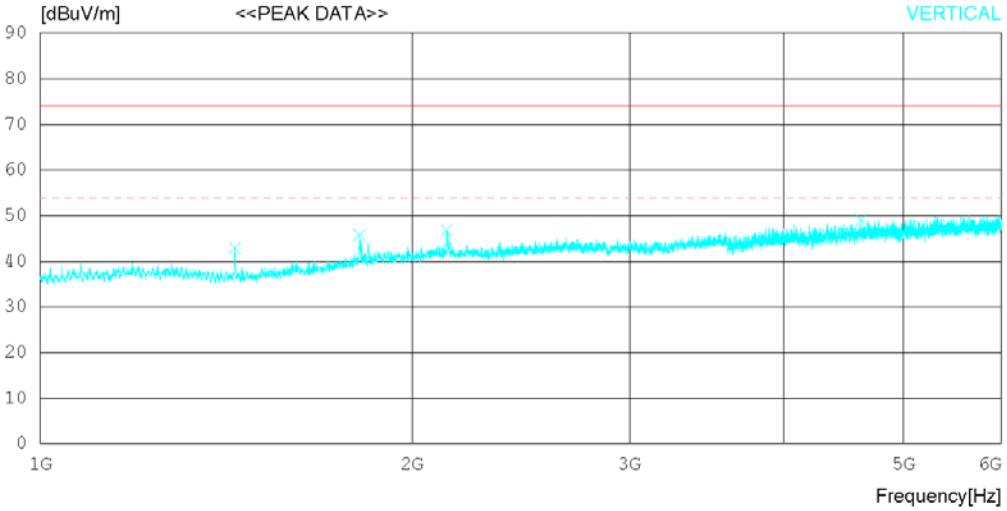
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	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	1437.500	57.2	28.2	3.7	48.2	40.9	74.0	33.1	100	73
2	1814.375	60.8	30.3	4.3	47.8	47.6	74.0	26.4	100	358
3	2137.500	57.1	31.7	4.7	47.7	45.8	74.0	28.2	100	358
4	4618.750	55.6	33.8	7.3	47.3	49.4	74.0	24.6	100	223
----- Vertical ------										
5	1437.500	59.2	28.2	3.7	48.2	42.9	74.0	31.1	100	162
6	1813.750	59.0	30.3	4.3	47.8	45.8	74.0	28.2	100	1
7	2133.750	58.1	31.7	4.7	47.7	46.8	74.0	27.2	100	153
8	4620.625	55.3	33.8	7.3	47.3	49.1	74.0	24.9	100	23

WS1080 _ < (1 ~ 6) GHz _ Average _ MODE 1 >

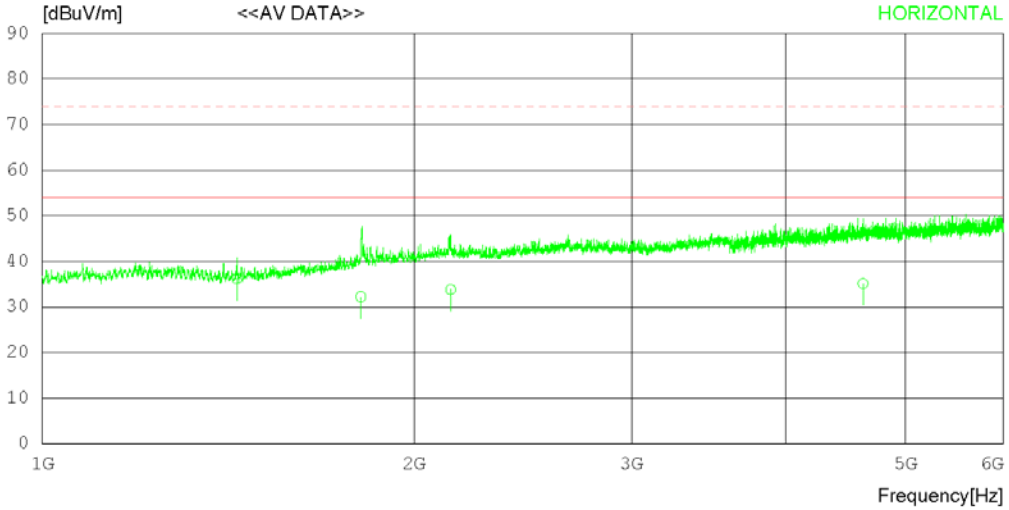
RADIATED EMISSION

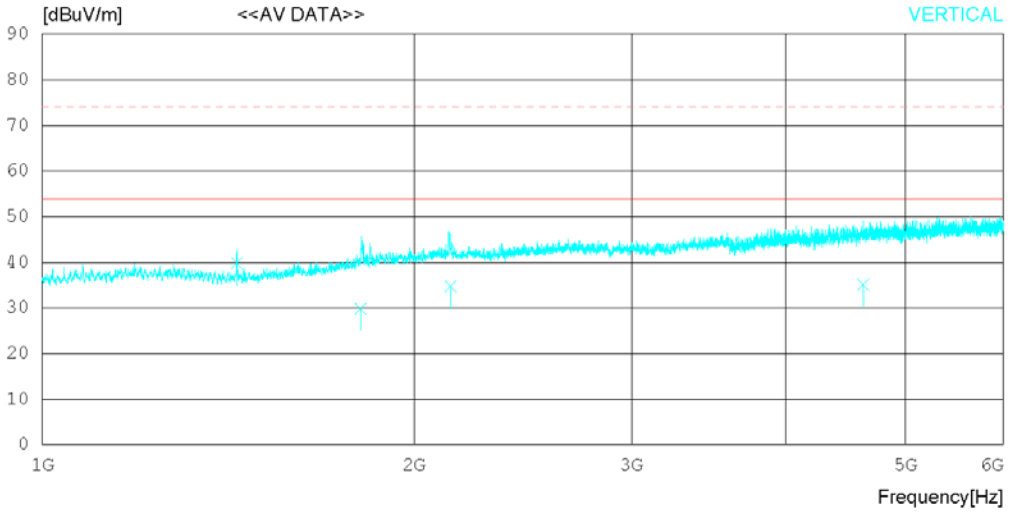
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	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	1437.752	52.5	28.2	3.7	48.2	36.2	54.0	17.8	100	88
2	1811.063	45.4	30.3	4.3	47.8	32.2	54.0	21.8	100	358
3	2141.378	45.1	31.7	4.7	47.7	33.8	54.0	20.2	100	269
4	4617.668	41.3	33.8	7.3	47.3	35.1	54.0	18.9	100	223
----- Vertical ------										
5	1437.751	56.1	28.2	3.7	48.2	39.8	54.0	14.2	100	170
6	1811.130	43.0	30.3	4.3	47.8	29.8	54.0	24.2	100	1
7	2141.378	46.0	31.7	4.7	47.7	34.7	54.0	19.3	100	311
8	4620.625	41.3	33.8	7.3	47.3	35.1	54.0	18.9	100	23

WS1080 _ < 30 MHz ~ 1 GHz _ MODE 2 >

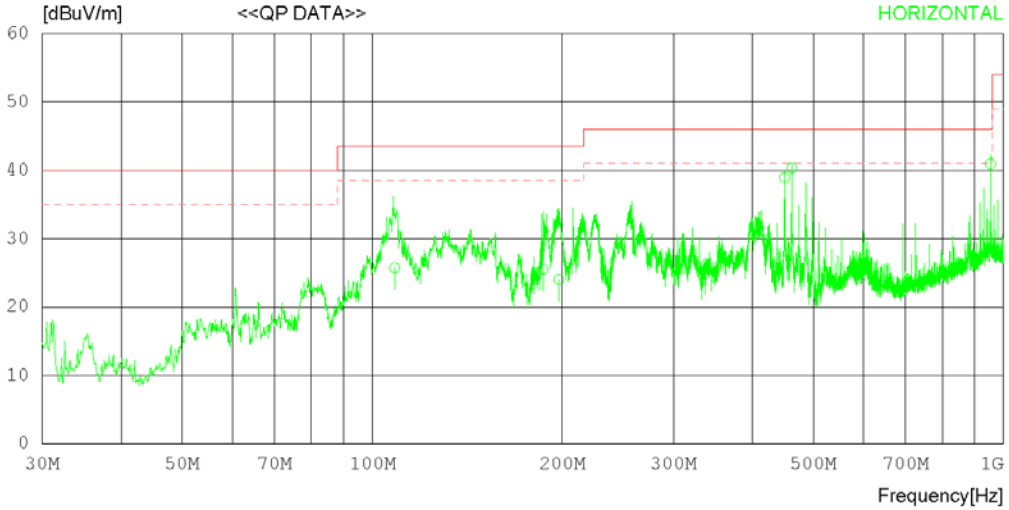
Results of Radiated Emissions

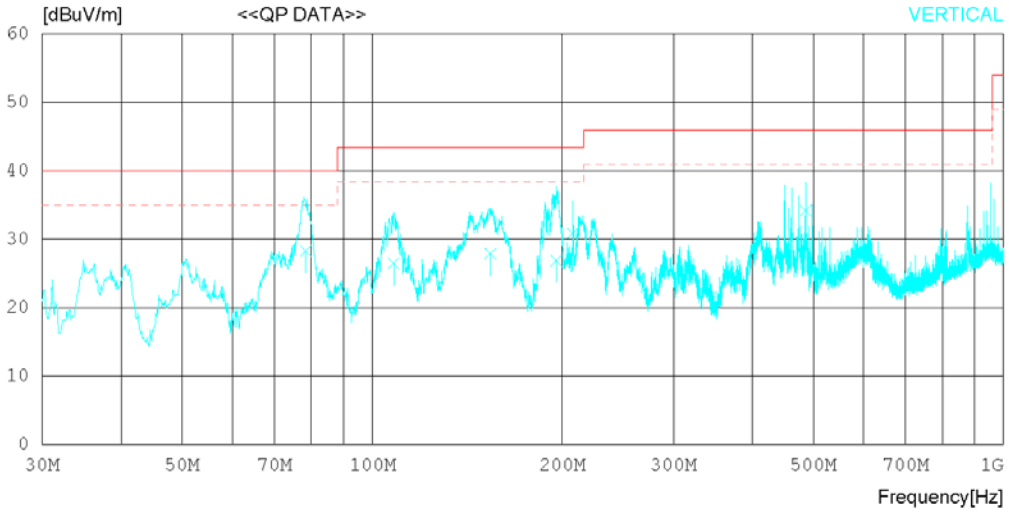
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	120 V 60 Hz
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	2	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 dB





Results of Radiated Emissions

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	120 V 60 Hz
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	2	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 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	108.496	40.8	10.0	1.4	26.5	25.7	43.5	17.8	300	190
2	186.409	38.8	10.9	1.9	26.1	25.5	43.5	18.0	200	0
3	197.456	38.2	10.0	1.9	26.1	24.0	43.5	19.5	100	146
4	450.000	44.9	17.1	3.2	26.3	38.9	46.0	7.1	200	359
5	462.002	46.1	17.2	3.2	26.2	40.3	46.0	5.7	103	357
6	954.000	38.0	24.4	4.9	26.4	40.9	46.0	5.1	200	0
----- Vertical ------										
7	78.453	45.4	8.5	1.2	26.8	28.3	40.0	11.7	100	359
8	108.084	41.7	10.0	1.4	26.6	26.5	43.5	17.0	100	0
9	153.915	39.5	12.9	1.6	26.1	27.9	43.5	15.6	100	253
10	195.951	41.0	10.1	1.9	26.1	26.9	43.5	16.6	100	253
11	207.848	44.9	10.1	2.0	26.1	30.9	43.5	12.6	100	44
12	486.000	39.4	17.5	3.3	26.0	34.2	46.0	11.8	100	359

WS1080 _ < (1 ~ 6) GHz _ Peak _ MODE 2 >

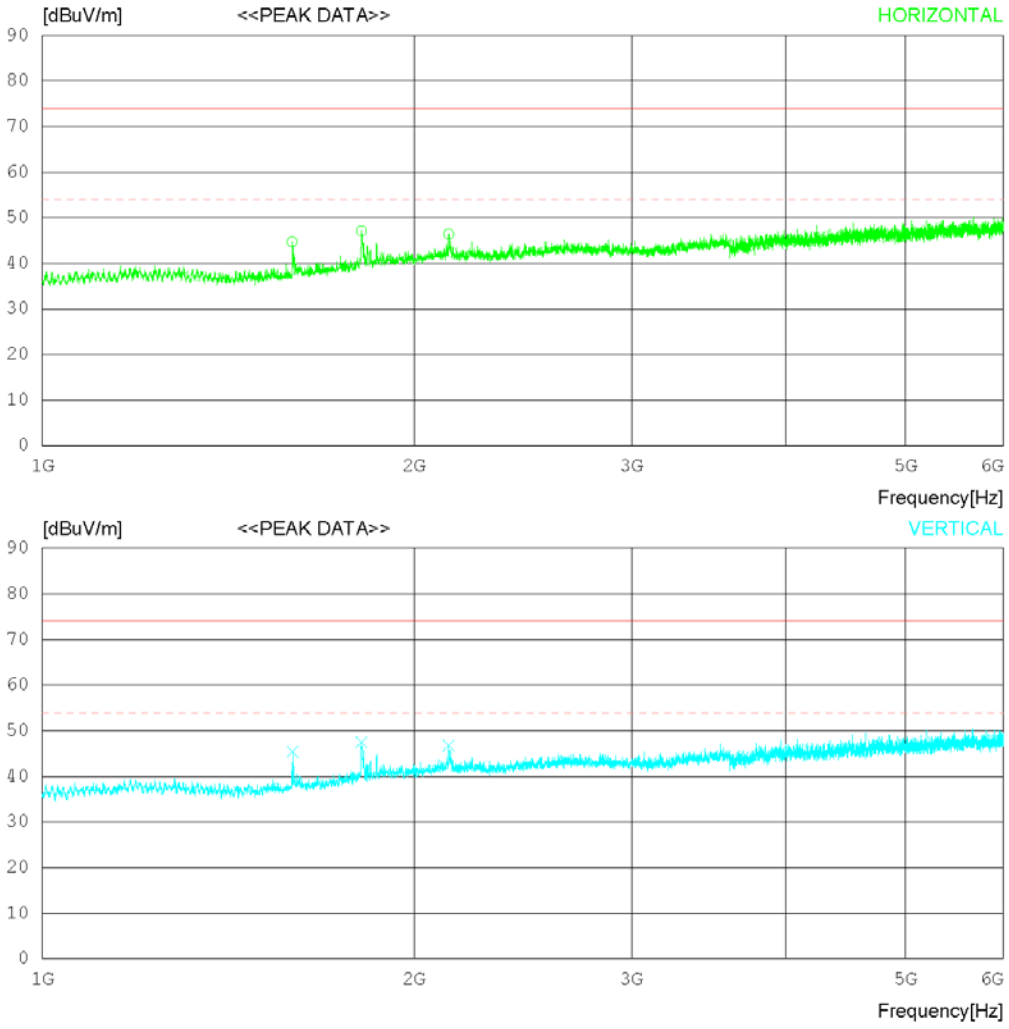
RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	Operator	:	

Memo :

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



RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	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	1593.125	59.8	28.4	3.9	47.4	44.7	74.0	29.3	100	358
2	1813.125	60.3	30.3	4.3	47.8	47.1	74.0	26.9	100	311
3	2133.125	57.7	31.7	4.7	47.7	46.4	74.0	27.6	100	358
----- Vertical ------										
4	1595.625	60.5	28.4	3.9	47.4	45.4	74.0	28.6	100	1
5	1813.750	60.7	30.3	4.3	47.8	47.5	74.0	26.5	100	313
6	2133.125	58.1	31.7	4.7	47.7	46.8	74.0	27.2	100	1

WS1080 _ < (1 ~ 6) GHz _ Average _ MODE 2 >

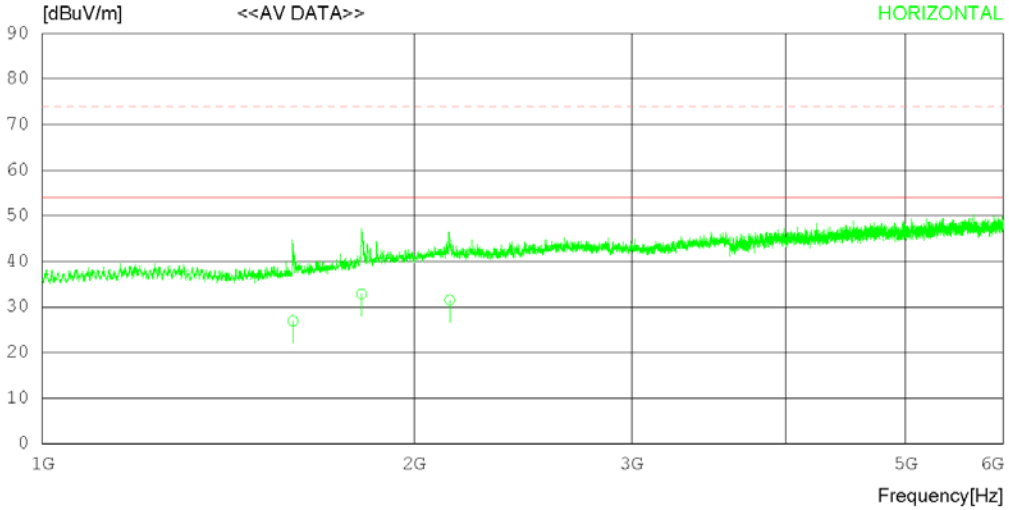
RADIATED EMISSION

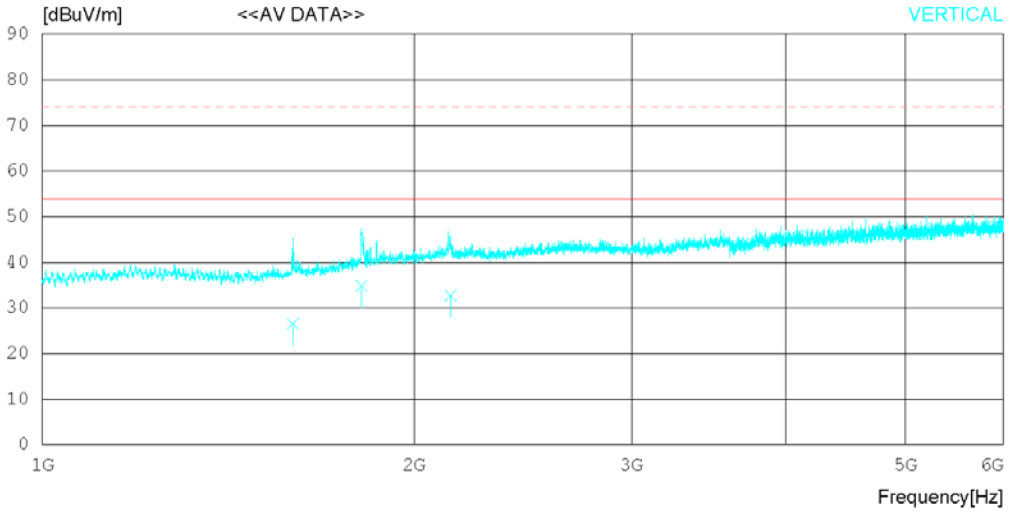
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1080	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	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	1595.700	42.0	28.4	3.9	47.4	26.9	54.0	27.1	100	358
2	1813.125	46.0	30.3	4.3	47.8	32.8	54.0	21.2	100	310
3	2136.955	42.8	31.7	4.7	47.7	31.5	54.0	22.5	100	331
----- Vertical ------										
4	1595.733	41.6	28.4	3.9	47.4	26.5	54.0	27.5	100	46
5	1813.750	48.0	30.3	4.3	47.8	34.8	54.0	19.2	100	307
6	2142.138	44.0	31.7	4.7	47.7	32.7	54.0	21.3	100	72

WS1088 _ < 30 MHz ~ 1 GHz _ MODE 1 >

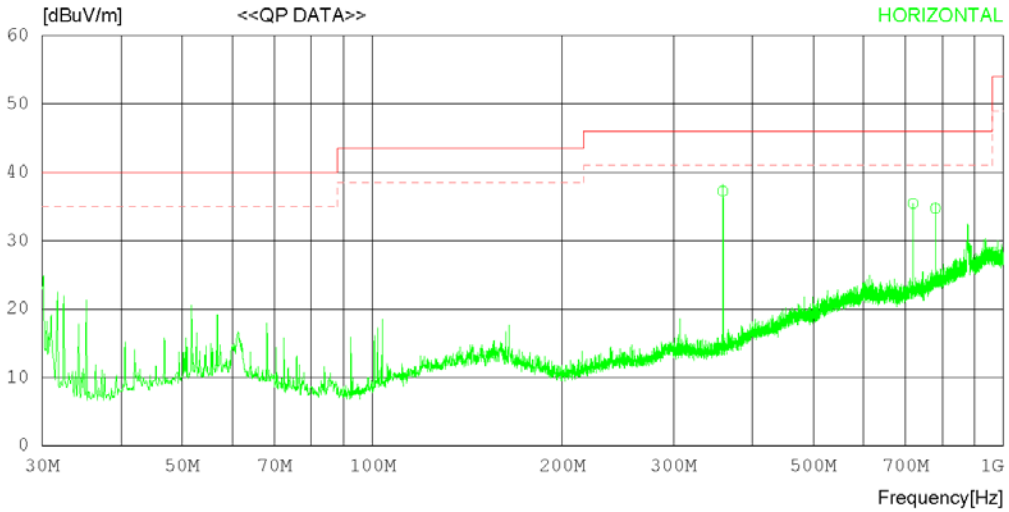
Results of Radiated Emissions

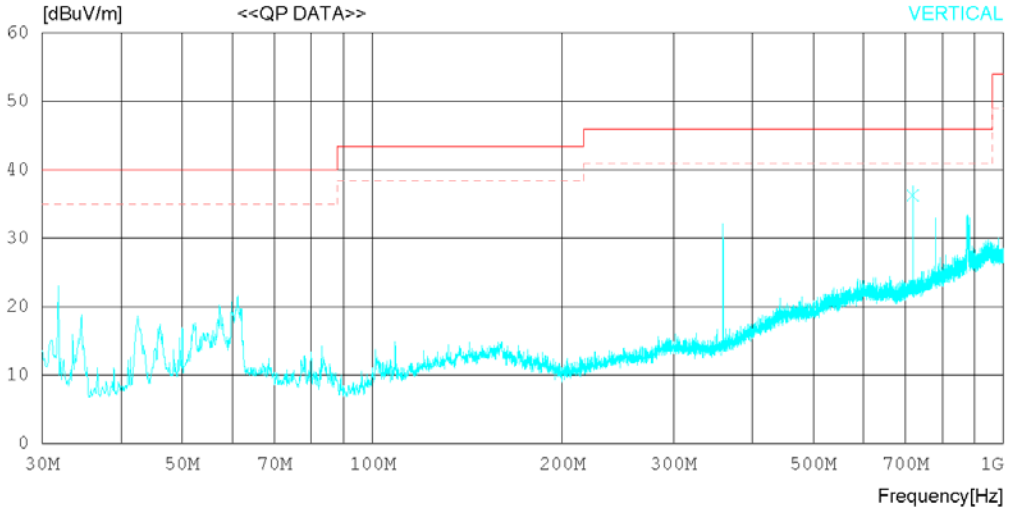
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	1	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 dB





Results of Radiated Emissions

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	1	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 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	359.384	46.8	14.6	2.8	27.0	37.2	46.0	8.8	100	228
2	718.784	37.0	21.3	4.1	27.0	35.4	46.0	10.6	100	110
3	780.151	35.1	22.2	4.3	26.9	34.7	46.0	11.3	100	359
----- Vertical ------										
4	718.783	37.9	21.3	4.1	27.0	36.3	46.0	9.7	100	0

WS1088 _ < (1 ~ 6) GHz _ Peak _ MODE 1 >

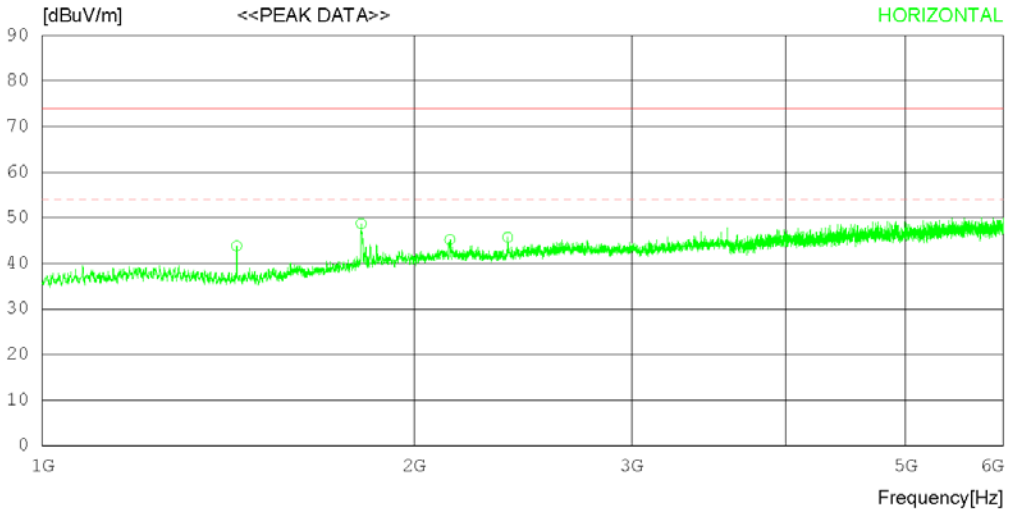
RADIATED EMISSION

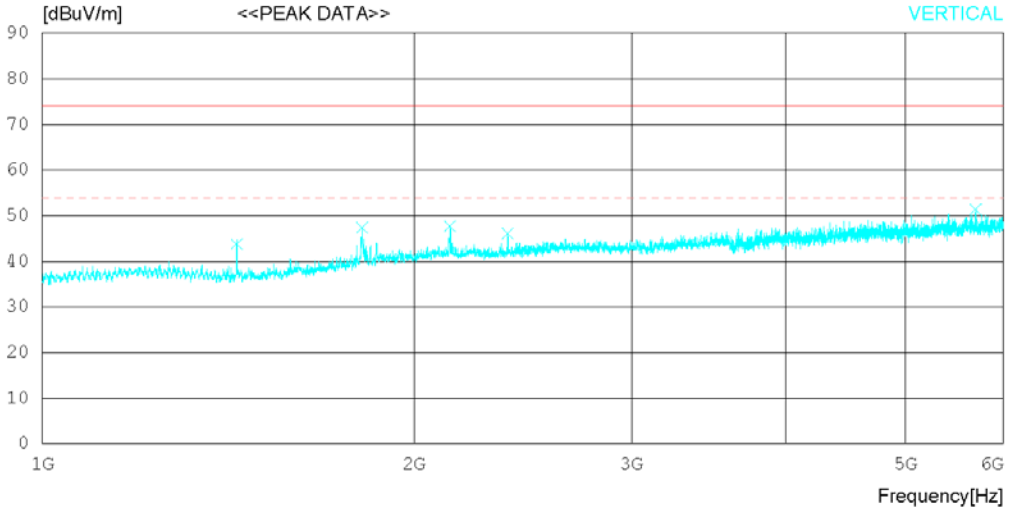
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	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	1436.875	60.1	28.2	3.7	48.2	43.8	74.0	30.2	100	358
2	1811.875	61.9	30.3	4.3	47.8	48.7	74.0	25.3	100	358
3	2137.500	56.5	31.7	4.7	47.7	45.2	74.0	28.8	100	358
4	2381.250	56.9	31.6	4.9	47.7	45.7	74.0	28.3	100	358
----- Vertical ------										
5	1436.875	60.1	28.2	3.7	48.2	43.8	74.0	30.2	100	197
6	1815.000	60.6	30.3	4.3	47.8	47.4	74.0	26.6	100	1
7	2138.125	59.0	31.7	4.7	47.7	47.7	74.0	26.3	100	83
8	2381.250	57.3	31.6	4.9	47.7	46.1	74.0	27.9	100	1
9	5696.250	55.5	34.5	8.2	46.8	51.4	74.0	22.6	100	120

WS1088 _ < (1 ~ 6) GHz _ Average _ MODE 1 >

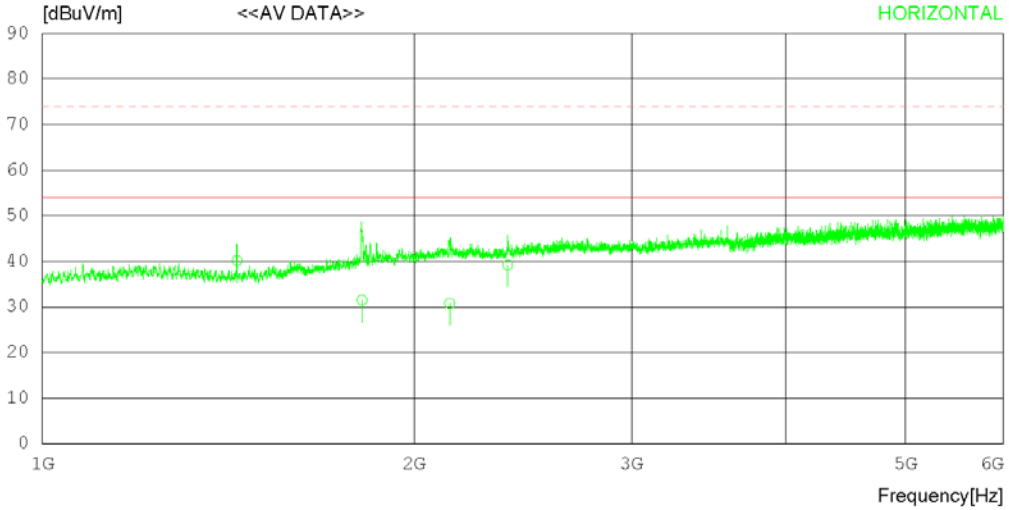
RADIATED EMISSION

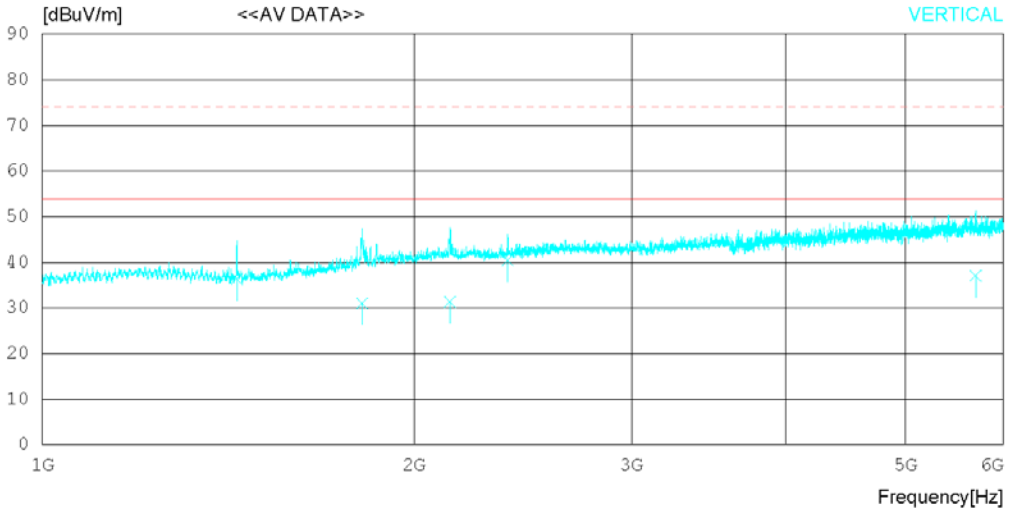
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	1	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	1437.454	56.5	28.2	3.7	48.2	40.2	54.0	13.8	100	358
2	1814.902	44.7	30.3	4.3	47.8	31.5	54.0	22.5	100	50
3	2136.978	42.1	31.7	4.7	47.7	30.8	54.0	23.2	100	106
4	2381.250	50.4	31.6	4.9	47.7	39.2	54.0	14.8	100	158
----- Vertical ------										
5	1437.454	52.7	28.2	3.7	48.2	36.4	54.0	17.6	100	197
6	1815.000	44.2	30.3	4.3	47.8	31.0	54.0	23.0	100	1
7	2138.125	42.6	31.7	4.7	47.7	31.3	54.0	22.7	100	83
8	2381.250	51.6	31.6	4.9	47.7	40.4	54.0	13.6	100	1
9	5696.250	41.1	34.5	8.2	46.8	37.0	54.0	17.0	100	120

WS1088 _ < 30 MHz ~ 1 GHz _ MODE 2 >

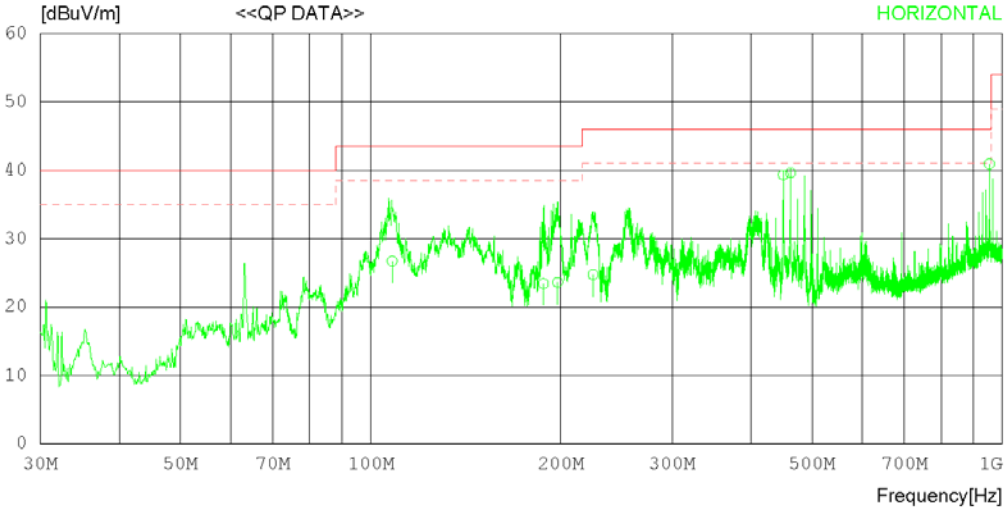
Results of Radiated Emissions

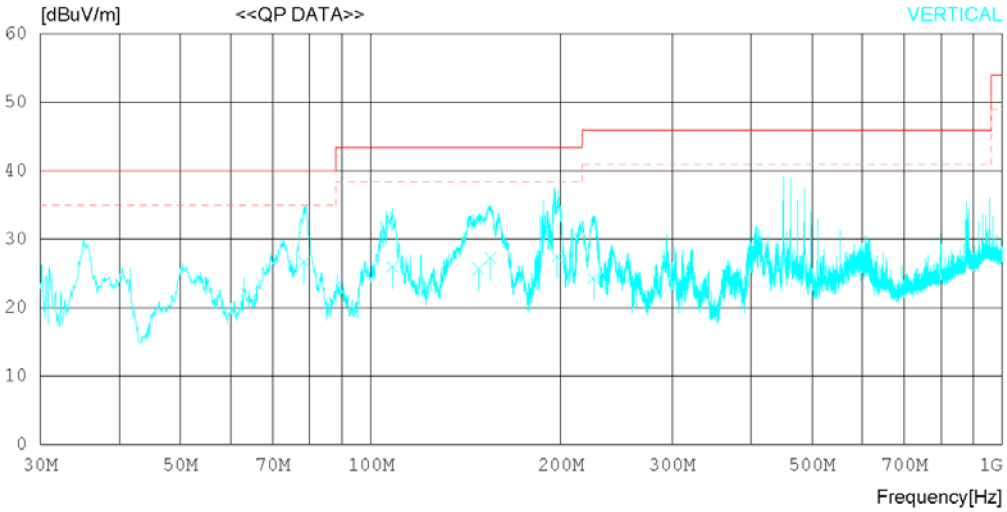
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	120 V 60 Hz
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	2	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 dB





Results of Radiated Emissions

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	120 V 60 Hz
Serial	:		Temp/Humi	:	18 'C 35 % R.H.
Test Condition	:	2	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 5 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	108.102	41.9	10.0	1.4	26.6	26.7	43.5	16.8	296	65
2	187.659	36.8	10.8	1.9	26.1	23.4	43.5	20.1	201	0
3	197.685	37.8	10.0	1.9	26.1	23.6	43.5	19.9	187	301
4	224.844	38.0	10.7	2.2	26.2	24.7	46.0	21.3	100	207
5	450.004	45.3	17.1	3.2	26.3	39.3	46.0	6.7	100	353
6	462.002	45.4	17.2	3.2	26.2	39.6	46.0	6.4	100	126
7	954.025	38.0	24.4	4.9	26.4	40.9	46.0	5.1	100	138
----- Vertical ------										
8	78.464	43.8	8.5	1.2	26.8	26.7	40.0	13.3	100	65
9	108.326	41.1	10.0	1.4	26.5	26.0	43.5	17.5	100	97
10	148.420	37.5	12.8	1.6	26.2	25.7	43.5	17.8	100	215
11	154.920	38.9	12.9	1.6	26.1	27.3	43.5	16.2	100	253
12	197.587	41.7	10.0	1.9	26.1	27.5	43.5	16.0	100	359
13	225.208	37.6	10.7	2.2	26.2	24.3	46.0	21.7	100	255

WS1088 _ < (1 ~ 6) GHz _ Peak _ MODE 2 >

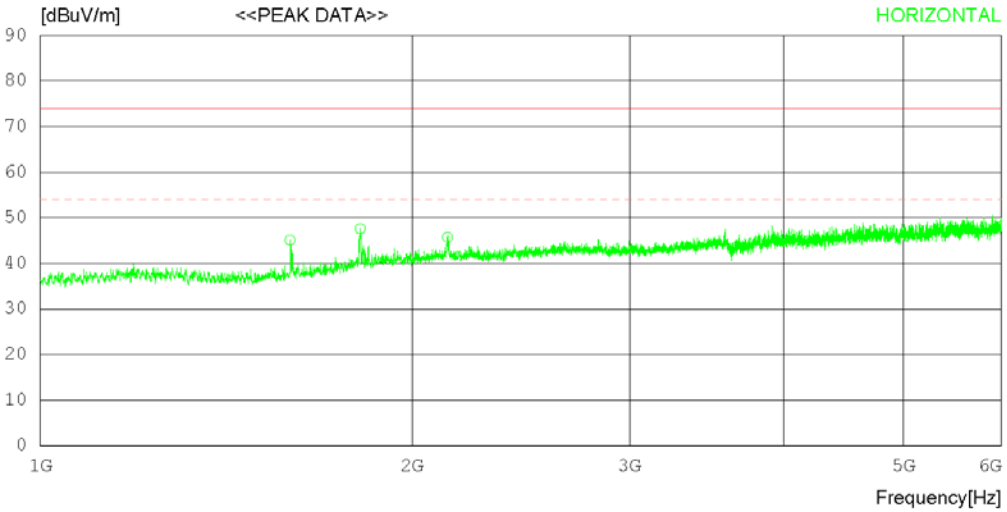
RADIATED EMISSION

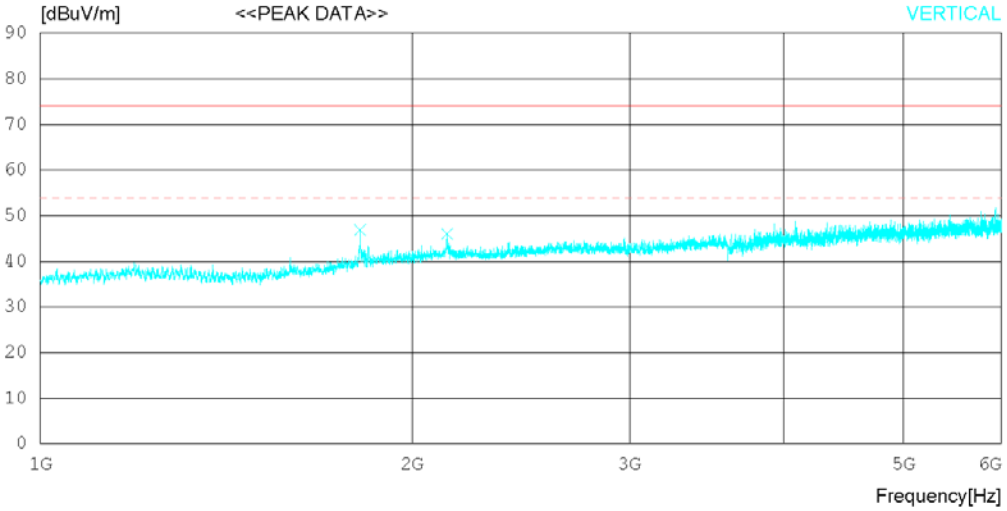
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	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	1593.125	60.2	28.4	3.9	47.4	45.1	74.0	28.9	100	143
2	1815.625	60.8	30.3	4.3	47.8	47.6	74.0	26.4	100	115
3	2135.625	57.0	31.7	4.7	47.7	45.7	74.0	28.3	100	1
----- Vertical ------										
4	1815.625	60.1	30.3	4.3	47.8	46.9	74.0	27.1	100	146
5	2135.000	57.3	31.7	4.7	47.7	46.0	74.0	28	100	256

WS1088 _ < (1 ~ 6) GHz _ Average _ MODE 2 >

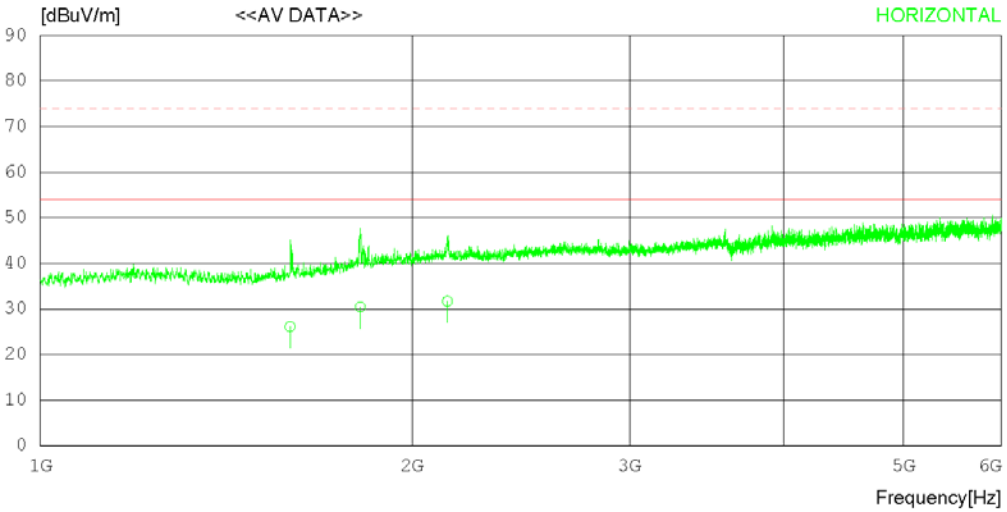
RADIATED EMISSION

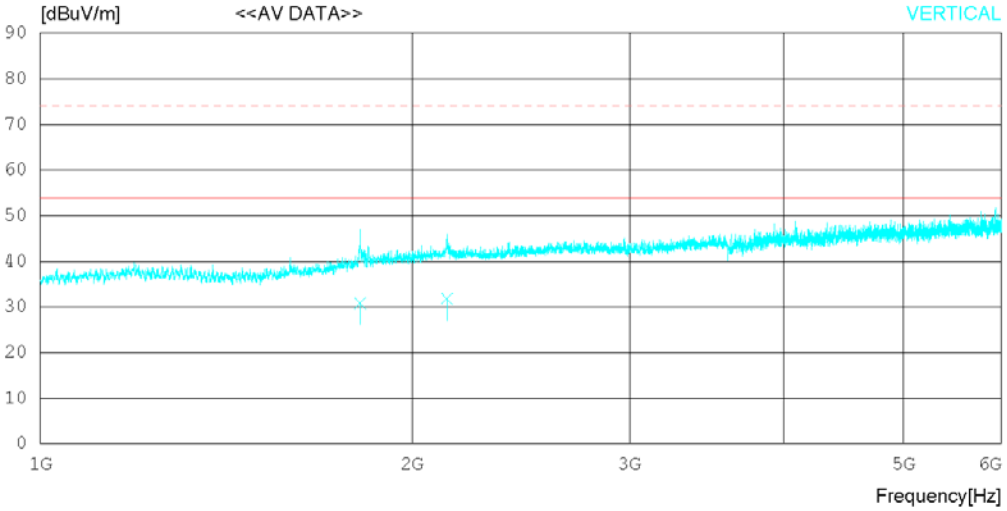
Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	Operator	:	

Memo :

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





RADIATED EMISSION

Date : 2016-03-29

Order No.	:		Reference No.	:	
Model No.	:	WS1088	Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi	:	17 'C 40 % R.H.
Test Condition	:	2	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	1593.125	41.2	28.4	3.9	47.4	26.1	54.0	27.9	100	143
2	1815.613	43.6	30.3	4.3	47.8	30.4	54.0	23.6	100	115
3	2135.625	43.0	31.7	4.7	47.7	31.7	54.0	22.3	100	181
----- Vertical ------										
4	1815.625	44.0	30.3	4.3	47.8	30.8	54.0	23.2	100	140
5	2134.096	43.1	31.7	4.7	47.7	31.8	54.0	22.2	100	256

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.

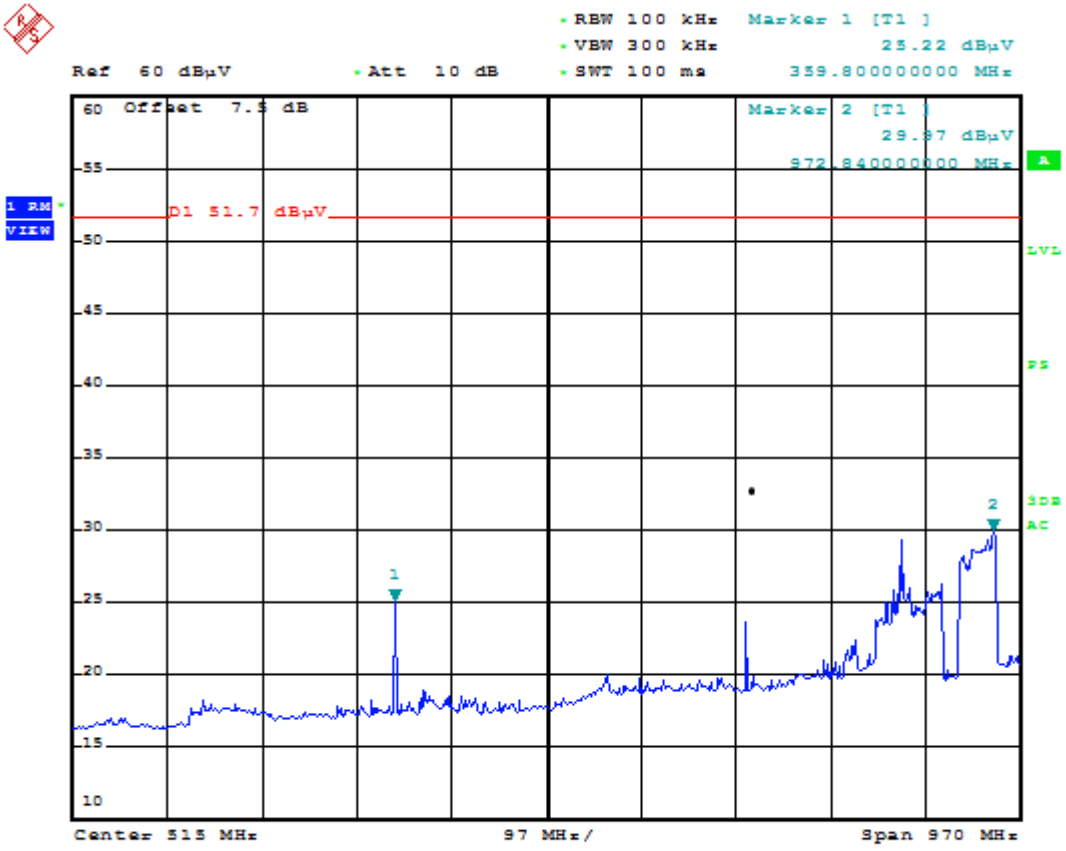
The measurements were repeated with the receiver tuned to a frequency until all of frequencies had been successively measured.

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.

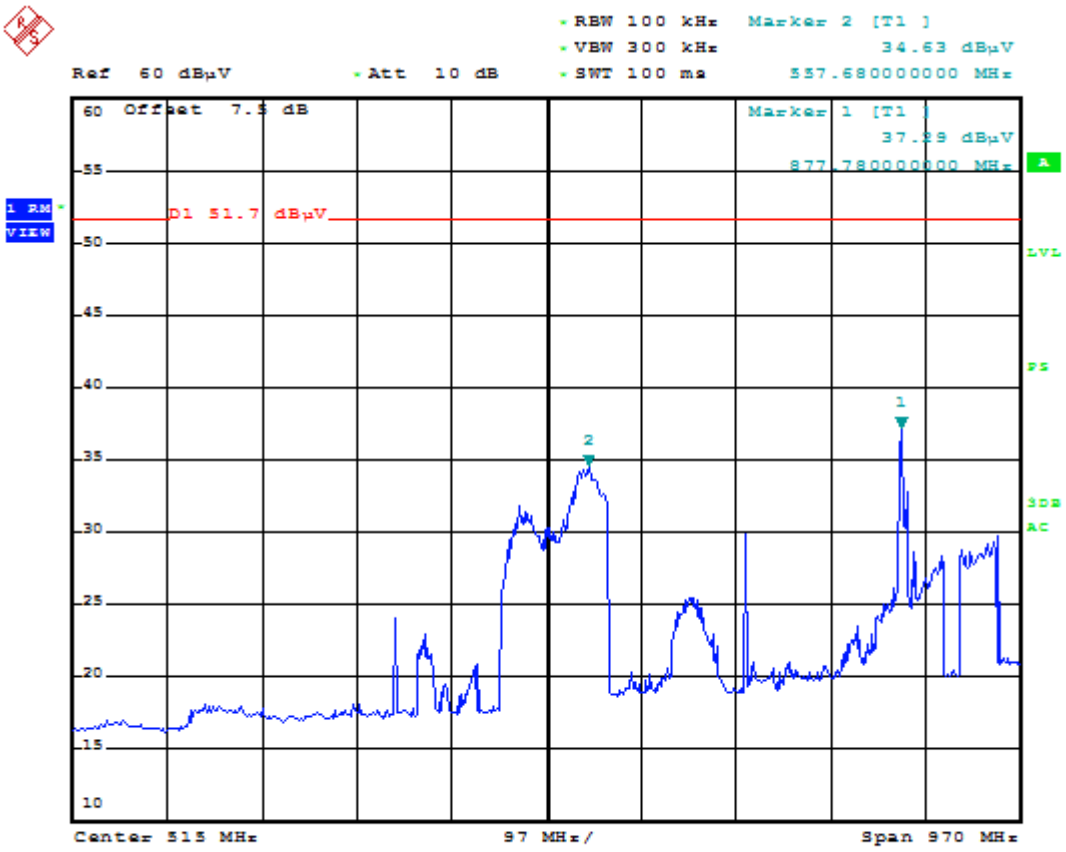
6.3.2 Limit for Antenna Power Conduction

- Limit : **2nW(51.7 dBμV)**

< PRO-668 >



< WS1080 >



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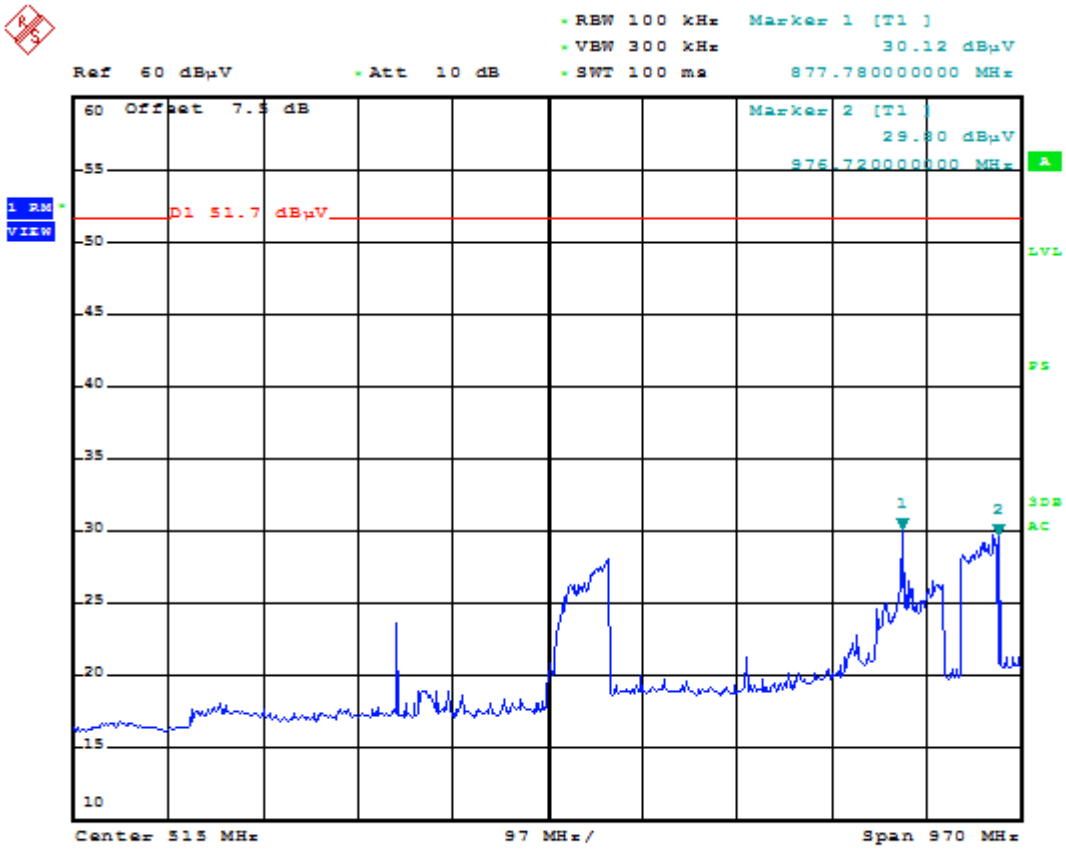

Appendix 1

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	101333	2015.10.20	2016.10.20
☐	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
☒	LOW NOISE PRE AMPLIFIER(0.1-18GHZ)	MLA-100M18-B01-42	TSJ	1872271	2015.05.26	2016.05.26

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

1. The circuital of Remote PCB Ass'y changed but it will be selling with same FCC ID of PRO-668.

Description	Ref. no	PRO-668 & WS1080	WS1088	Remark
Mechanical PL		Cable, FPC	FFC 14PIN KEY and LOGIC	it was changed into 14 pin cause what was increased buttons.
LOGIC PCB TOP ASS'Y	C406, C407, C408, C409	Not Imbedded	(0402) 47pF 50V +/-5%	capacitor was added because it was increased buttons.
	1. CN303 2. CN305	1. CONNECTOR 2. FFC	1. DIP 2PIN 2. FFC	1. connecter type was changed into "DIP" because connecter pin was changed to 14 pin. 2. the number of connector pin
	R441, R442, R443, R444	Not Imbedded	(0402) 1K ohm 1/16W +/-5% (Sn)	series resistance was deleted owing to LED removal.
KEY TOP ASS'Y	1. R502, R503 2. R507, R508, R509, R510 3. LED502, LED503 4. LED507, LED508, LED509, LED510	1. (0402)220 ohm 1/16W +/-5% 2. Not Imbedded 3. (RANK GB3-HB4) 4. Not Imbedded	1. Delete 2. (0402)220 ohm 1/16W +/-5% 3. Delete 4. (RANK GB3-HB4)	1. series resistance was deleted owing to LED removal. 2. series resistance was added owing to LED rearrangement. 3. LED was deleted owing to button rearrangement. 4. LED was added owing to button rearrangement.
	SWR501, SWR502, SWR503, SWR504, SWR505, SWR506, SWR507, SWR508, SWR509, SWR510	CHIP TACT SWITCH	Delete	CHIP TACT SWITCH was deleted Because button type was changed into PCB pattern.

