

FCC Test Report

FCC ID:LNQSBWD100B

Product : ScreenBeam Pro Wireless Display Receiver,
ScreenBeam Kit,
ScreenBeam Pro,
ScreenBeam Pro-Education Edition 2,
ScreenBeam Pro-Business Edition

Trade Name : Actiontec

Model Name : SBWD100B

Serial Model : N/A

Report No. : NTEK-2014NT0515718F2-02

Prepared for

Actiontec Electronics, Inc.

760 North Mary Ave., Sunnyvale, California 94085 United States

Prepared by

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Website: www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name : Actiontec Electronics, Inc.
Address : 760 North Mary Ave., Sunnyvale, California 94085 United States
Manufacturer's Name : Actiontec Electronics, Inc.
Address : 760 North Mary Ave., Sunnyvale, California 94085 United States


Product description

Product name : ScreenBeam Pro Wireless Display Receiver,
ScreenBeam Kit,
ScreenBeam Pro,
ScreenBeam Pro-Education Edition 2,
ScreenBeam Pro-Business Edition
Model and/or type reference : SBWD100B
Serial Model : N/A
Standards : 47 CFR FCC part15 subpart B, 10-1-2015
ANSI C63.4:2014

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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Date of Test :
Date (s) of performance of tests : 20 Nov. 2015 ~07 Dec. 2015
Date of Issue : 07 Dec. 2015
Test Result : **Pass**

Testing Engineer : 
(Estelle Chen)

Technical Manager : 
(Jane Lv)

Authorized Signatory : 
(Sam Chen)

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1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC part15 subpart B, 10-1-2015 ANSI C63.4:2014	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report
- (2) For client's request and manual description, the test will not be executed.

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd

Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration Number:238937; IC Registration Number:9270A-1

CNAS Registration Number:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
NTEKC01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
NTEKA01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~6GHz	5.0	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	ScreenBeam Pro Wireless Display Receiver, ScreenBeam Kit, ScreenBeam Pro, ScreenBeam Pro-Education Edition 2, ScreenBeam Pro-Business Edition	
Model Name	SBWD100B	
Additional Model Number(s)	N/A	
Model Difference	N/A	
Product Description	The EUT is a ScreenBeam Pro Wireless Display Receiver, ScreenBeam Kit, ScreenBeam Pro, ScreenBeam Pro-Education Edition 2, ScreenBeam Pro-Business Edition.	
	Operating frequency:	2.4G 802.11b/g/n(20MHz):2412~2462 MHz 802.11n(40MHz):2422~2452 MHz 5.2G 5180 MHz ~ 5240 MHz 5.8G 5725 MHz ~ 5850 MHz
	Connecting I/O port:	HDMI,VGA,USB,RJ45
Adapter	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	
	Adapter 1: MU05BS050100-A1 Input: 100-240V~, 50/60Hz, 0.18A Output: 5V $\overline{\text{---}}$, 1.0A Adapter 2: WB-10E05FU Input: 100-240V~, 50/60Hz, 0.4A Output: 5V $\overline{\text{---}}$, 2.0A Adapter 3: KSAS0120500200HU Input: 100-240V~, 50/60Hz, 0.4A Output: 5V $\overline{\text{---}}$, 2.0A	

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

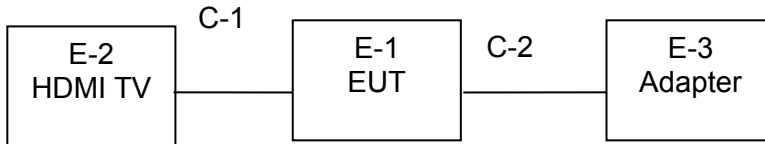
Pretest Mode	Description
Mode 1	Running

For Conducted Test	
Final Test Mode	Description
Mode 1	Running

For Radiated Test	
Final Test Mode	Description
Mode 1	Running

2.3 DESCRIPTION OF TEST SETUP

Mode 1: Running



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
E-1	ScreenBeam Pro Wireless Display Receiver, ScreenBeam Kit, ScreenBeam Pro, ScreenBeam Pro-Education Edition 2, ScreenBeam Pro-Business Edition	Actiontec	SBWD100B	N/A	EUT
E-2	TV	SONY	KDL-24EX520	N/A	
E-3	Adapter 1	Ktec	KSAS0120500200HU	N/A	
E-3	Adapter 2	Actiontec	MU05BS050100-A1	N/A	
E-3	Adapter 3	APD	WB-10E05FU	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	Metal wire	NO	100cm	HDMI Line
C-2	Unshielded	NO	80cm	DC Line

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

2.5.1 CONDUCTED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	LISN	R&S	ENV216	101490	Dec. 08, 2014	Dec. 07, 2015	1 year
2	LISN	R&S	ENV216	101313	Dec. 08, 2014	Dec. 07, 2015	1 year
3	50Ω Switch	ANRITSU CORP	MP59B	6200983704	Jun. 28, 2015	Jun. 27, 2016	1 year
4	Low frequency cable	N/A	C-2	C-2	Dec. 02, 2015	Dec. 01, 2016	1 year
5	EMI Test Receiver	R&S	ESCI	101160	Jun. 28, 2015	Jun. 27, 2016	1 year

2.5.2 RADIATED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Bilog Antenna	TESEQ	CBL6111D	31216	Jun. 26, 2015	Jun. 25, 2016	1 year
2	Test Cable	N/A	R-01	N/A	Jun. 28, 2015	Jun. 27, 2016	1 year
3	EMI Test Receiver	R&S	ESCI-7	101318	Jun. 28, 2015	Jun. 27, 2016	1 year
4	Antenna Mast	EM	SC100_1	N/A	N/A	N/A	N/A
5	Turn Table	EM	SC100	060531	N/A	N/A	N/A
6	50Ω Switch	Anritsu	MP59B	6200983705	Jun. 28, 2015	Jun. 27, 2016	1 year

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

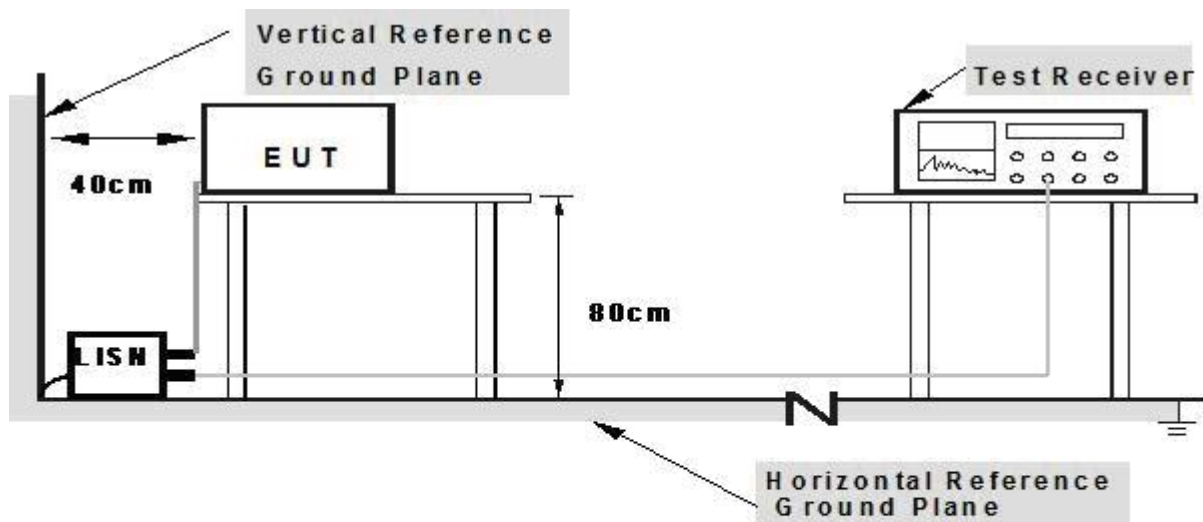
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



- Note: 1. Support units were connected to second LISN.**
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

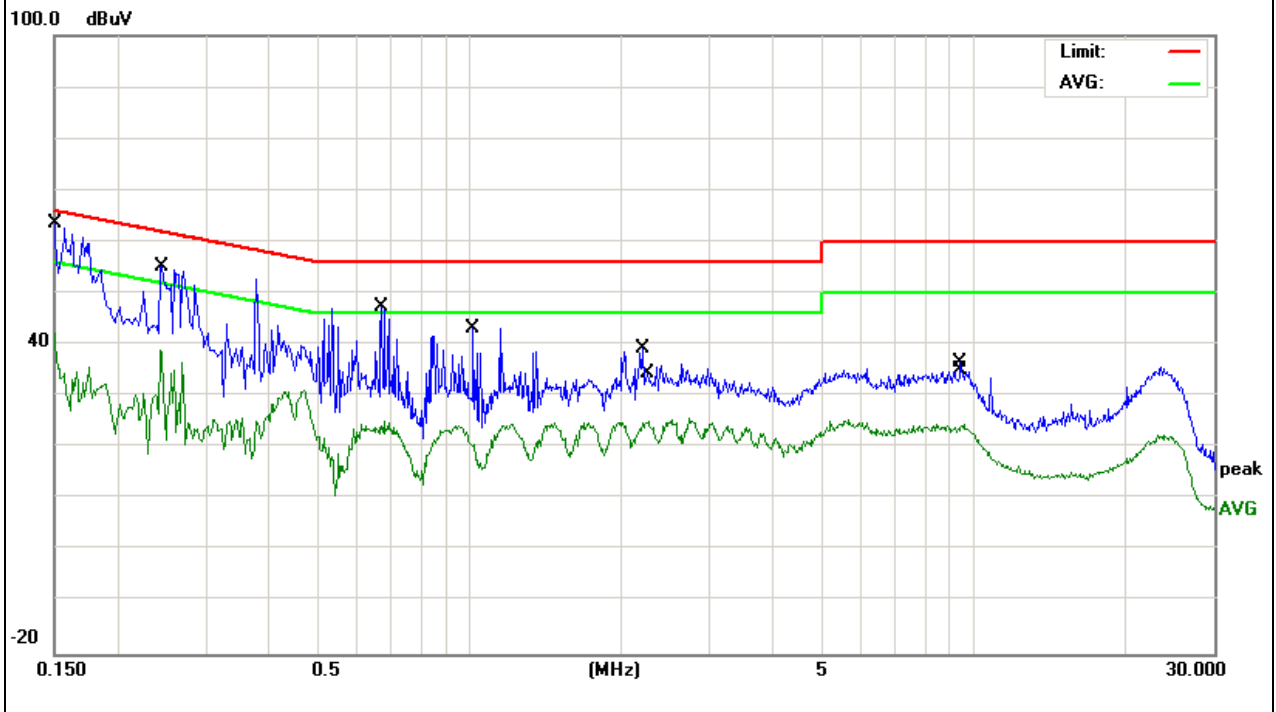
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running-Adapter 1	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.1500	52.97	9.63	62.60	66.00	-3.40	QP
0.1500	32.52	9.63	42.15	56.00	-13.85	AVG
0.2459	45.64	9.66	55.30	61.89	-6.59	QP
0.2459	29.27	9.66	38.93	51.89	-12.96	AVG
0.6700	37.52	9.78	47.30	56.00	-8.70	QP
0.6780	15.35	9.78	25.13	46.00	-20.87	AVG
1.0180	33.49	9.73	43.22	56.00	-12.78	QP
1.0180	11.27	9.73	21.00	46.00	-25.00	AVG
2.2099	29.53	9.65	39.18	56.00	-16.82	QP
2.2700	15.38	9.66	25.04	46.00	-20.96	AVG
9.4458	26.94	9.72	36.66	60.00	-23.34	QP
9.5859	14.90	9.72	24.62	50.00	-25.38	AVG

Remark:

Factor = Insertion Loss + Cable Loss.

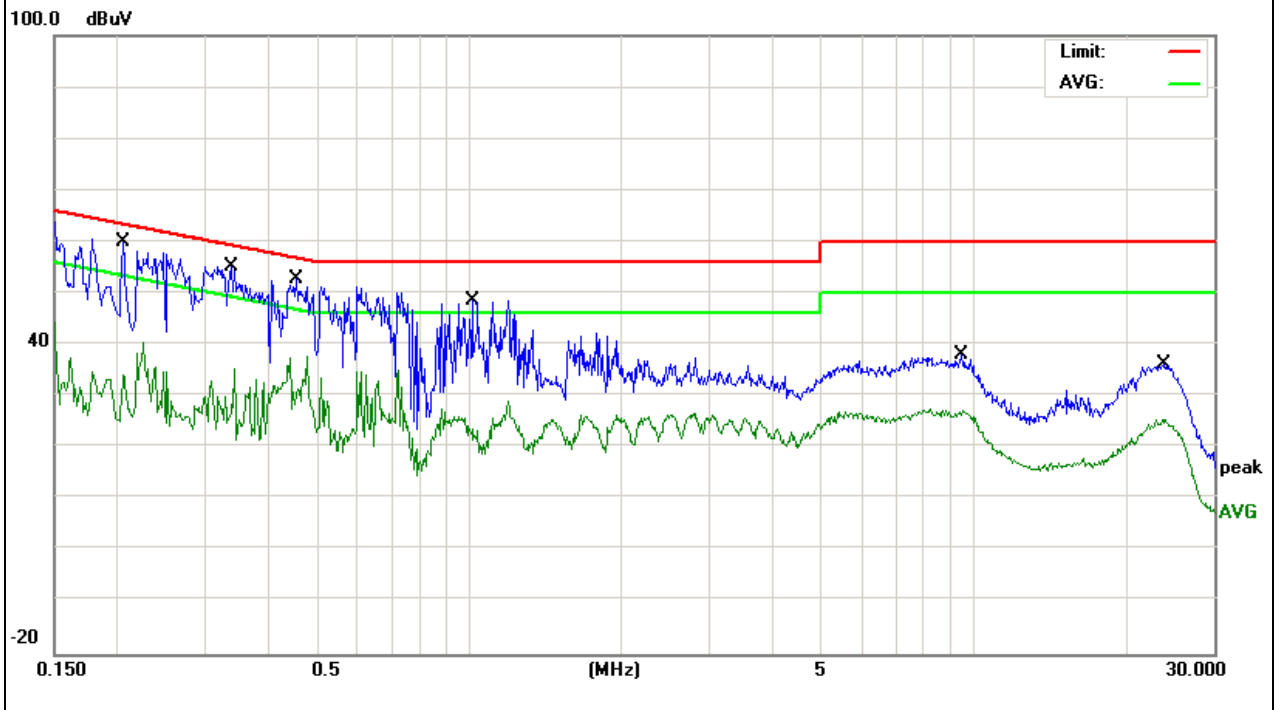


EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running-Adapter 1	Phase :	N
Test Voltage :	DC5V From Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.2058	50.31	9.61	59.92	63.37	-3.45	QP
0.2058	24.60	9.61	34.21	53.37	-19.16	AVG
0.3379	45.67	9.62	55.29	59.25	-3.96	QP
0.3379	25.62	9.62	35.24	49.25	-14.01	AVG
0.4515	43.14	9.66	52.80	56.85	-4.05	QP
0.4515	27.68	9.66	37.34	46.85	-9.51	AVG
1.0140	39.05	9.61	48.66	56.00	-7.34	QP
1.0140	16.16	9.61	25.77	46.00	-20.23	AVG
9.4618	28.47	9.63	38.10	60.00	-21.90	QP
9.4618	17.70	9.63	27.33	50.00	-22.67	AVG
23.9939	26.29	9.92	36.21	60.00	-23.79	QP
23.9939	15.66	9.92	25.58	50.00	-24.42	AVG

Remark:

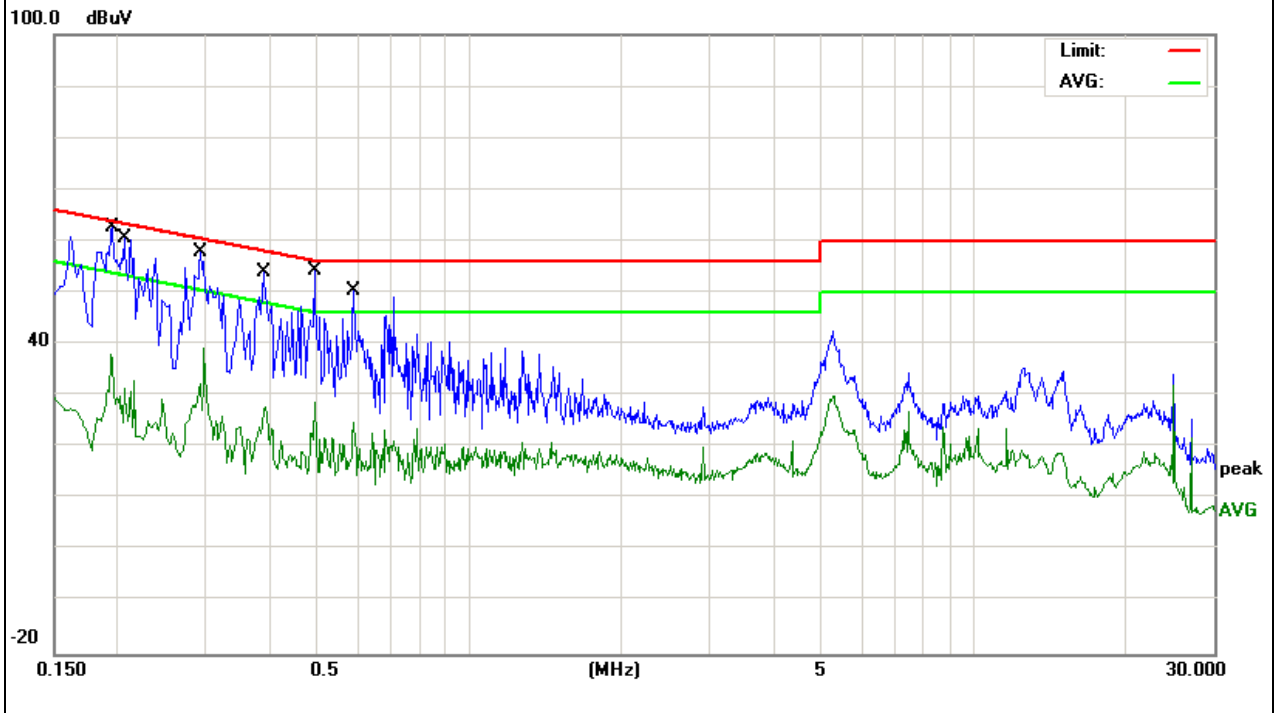
Factor = Insertion Loss + Cable Loss.



EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 1	Phase :	L
Test Voltage :	DC 5V from Adapter AC 240V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.2300	42.95	9.49	52.44	62.45	-10.01	QP
0.2300	31.05	9.49	40.54	52.45	-11.91	AVG
0.5260	34.55	9.55	44.10	56.00	-11.90	QP
0.5260	25.50	9.55	35.05	46.00	-10.95	AVG
1.5300	39.25	9.56	48.81	56.00	-7.19	QP
1.5300	26.19	9.56	35.75	46.00	-10.25	AVG
5.2179	41.02	9.68	50.70	60.00	-9.30	QP
5.2179	28.08	9.68	37.76	50.00	-12.24	AVG
6.9298	40.86	9.70	50.56	60.00	-9.44	QP
6.9298	28.68	9.70	38.38	50.00	-11.62	AVG
12.0699	35.27	9.77	45.04	60.00	-14.96	QP
12.0699	19.35	9.77	29.12	50.00	-20.88	AVG

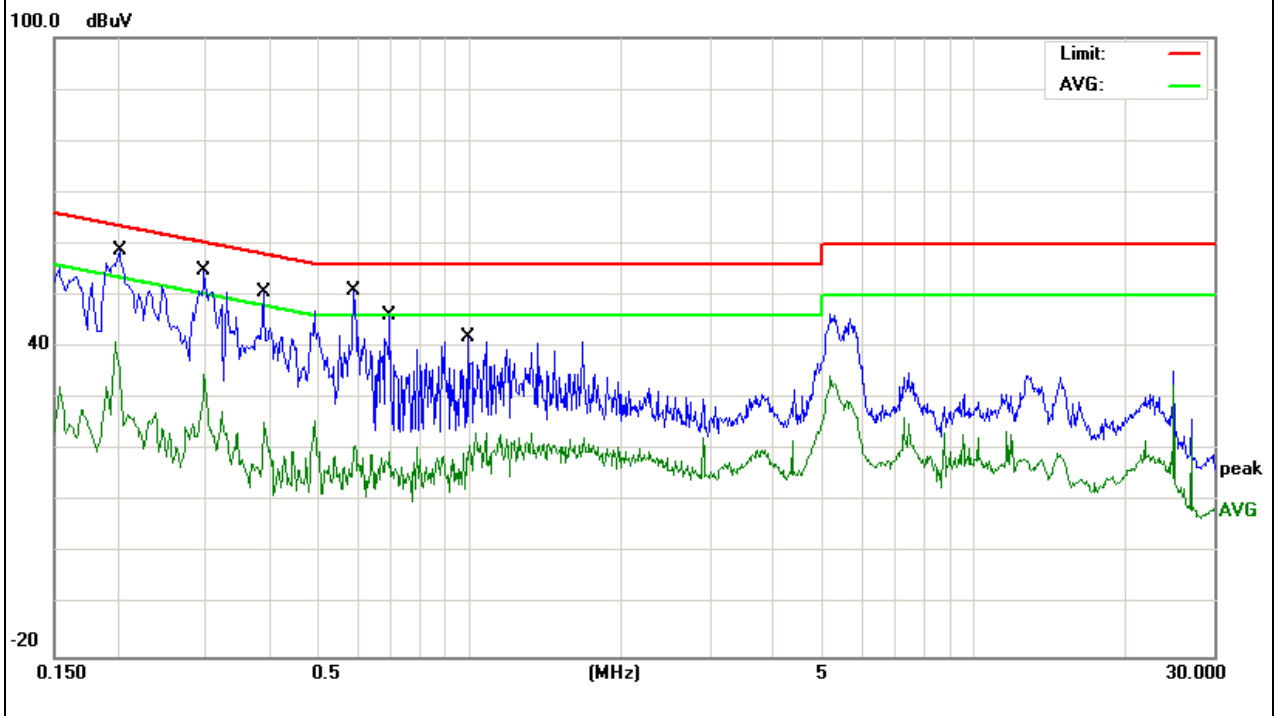
Remark:
Factor = Insertion Loss + Cable Loss.



EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 1	Phase :	N
Test Voltage :	DC 5V from Adapter AC 240V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.2020	51.07	9.45	60.52	63.52	-3.00	QP
0.2020	34.53	9.45	43.98	53.52	-9.54	AVG
0.2979	47.33	9.57	56.90	60.30	-3.40	QP
0.2979	29.16	9.57	38.73	50.30	-11.57	AVG
0.3899	45.00	9.20	54.20	58.06	-3.86	QP
0.3899	21.02	9.20	30.22	48.06	-17.84	AVG
0.5936	36.49	9.56	46.05	56.00	-9.95	QP
0.5936	11.48	9.56	21.04	46.00	-24.96	AVG
0.6935	32.25	9.57	41.82	56.00	-14.18	QP
0.6935	13.84	9.57	23.41	46.00	-22.59	AVG
0.9899	32.26	9.56	41.82	56.00	-14.18	QP
0.9899	13.91	9.56	23.47	46.00	-22.53	AVG

Remark:
Factor = Insertion Loss + Cable Loss.

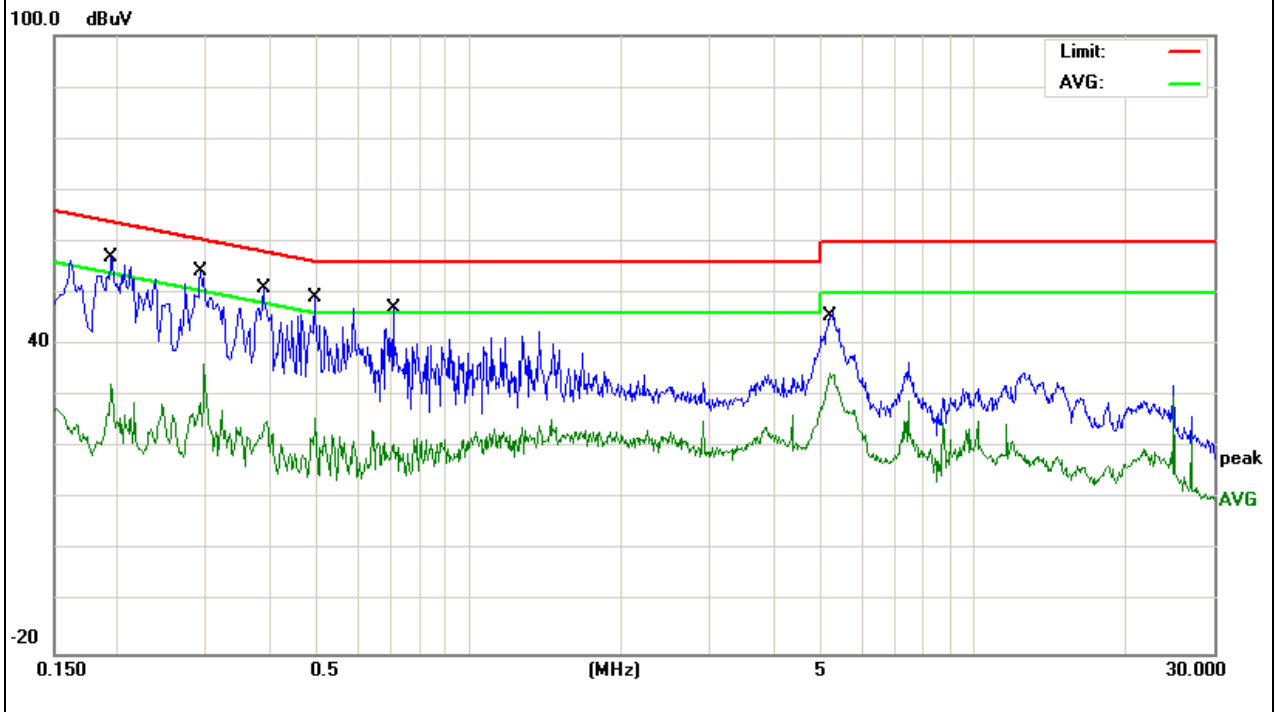


EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 2	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.1943	47.55	9.45	57.00	63.85	-6.85	QP
0.1943	23.02	9.45	32.47	53.85	-21.38	AVG
0.2923	44.74	9.56	54.30	60.46	-6.16	QP
0.2923	26.66	9.56	36.22	50.46	-14.24	AVG
0.3899	41.66	9.20	50.86	58.06	-7.20	QP
0.3899	16.03	9.20	25.23	48.06	-22.83	AVG
0.4939	39.75	9.53	49.28	56.10	-6.82	QP
0.4939	16.16	9.53	25.69	46.10	-20.41	AVG
0.7056	37.60	9.57	47.17	56.00	-8.83	QP
0.7056	12.20	9.57	21.77	46.00	-24.23	AVG
5.1859	36.85	9.68	46.53	60.00	-13.47	QP
5.1859	24.78	9.68	34.46	50.00	-15.54	AVG

Remark:

Factor = Insertion Loss + Cable Loss.

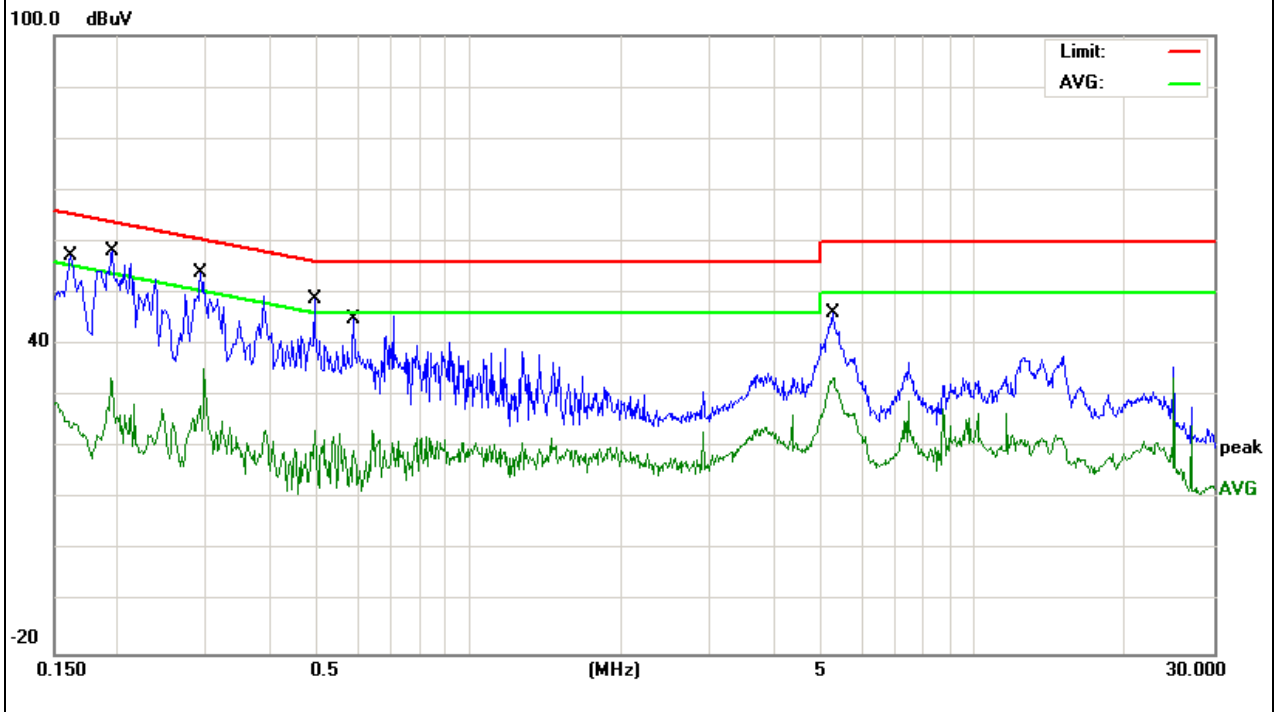


EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 2	Phase :	N
Test Voltage :	DC5V From Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.1620	47.83	9.48	57.31	65.36	-8.05	QP
0.1620	18.26	9.48	27.74	55.36	-27.62	AVG
0.1943	48.75	9.45	58.20	63.85	-5.65	QP
0.1943	24.02	9.45	33.47	53.85	-20.38	AVG
0.2923	44.24	9.56	53.80	60.46	-6.66	QP
0.2923	25.66	9.56	35.22	50.46	-15.24	AVG
0.4939	39.25	9.53	48.78	56.10	-7.32	QP
0.4939	13.87	9.53	23.40	46.10	-22.70	AVG
0.5897	35.44	9.56	45.00	56.00	-11.00	QP
0.5897	13.72	9.56	23.28	46.00	-22.72	AVG
5.2499	36.35	9.68	46.03	60.00	-13.97	QP
5.2499	23.87	9.68	33.55	50.00	-16.45	AVG

Remark:

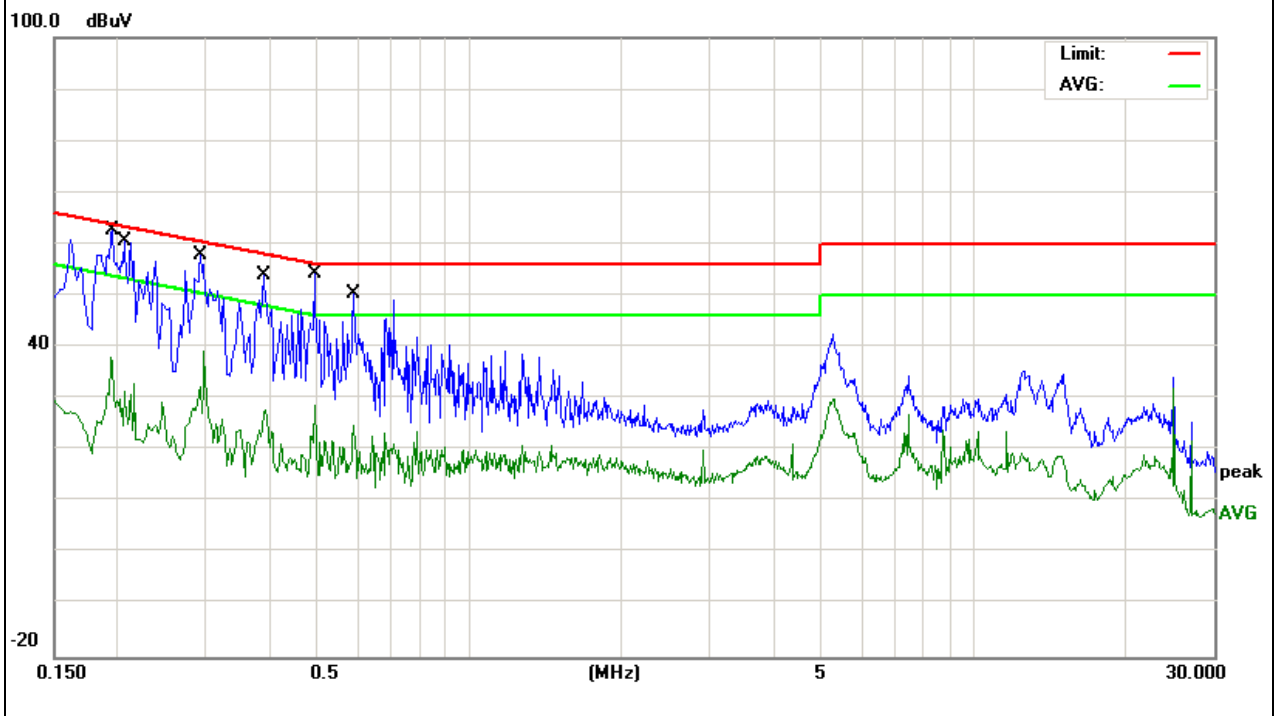
Factor = Insertion Loss + Cable Loss.



EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 2	Phase :	L
Test Voltage :	DC 5V from Adapter AC 240V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.1955	51.35	9.45	60.80	63.80	-3.00	QP
0.1955	28.52	9.45	37.97	53.80	-15.83	AVG
0.2061	49.64	9.46	59.10	63.36	-4.26	QP
0.2061	23.42	9.46	32.88	53.36	-20.48	AVG
0.2923	47.54	9.56	57.10	60.46	-3.36	QP
0.2923	29.66	9.56	39.22	50.46	-11.24	AVG
0.3899	44.66	9.20	53.86	58.06	-4.20	QP
0.3899	18.78	9.20	27.98	48.06	-20.08	AVG
0.4939	42.37	9.53	51.90	56.10	-4.20	QP
0.4939	19.37	9.53	28.90	46.10	-17.20	AVG
0.5899	40.94	9.56	50.50	56.00	-5.50	QP
0.5899	15.34	9.56	24.90	46.00	-21.10	AVG

Remark:
Factor = Insertion Loss + Cable Loss.

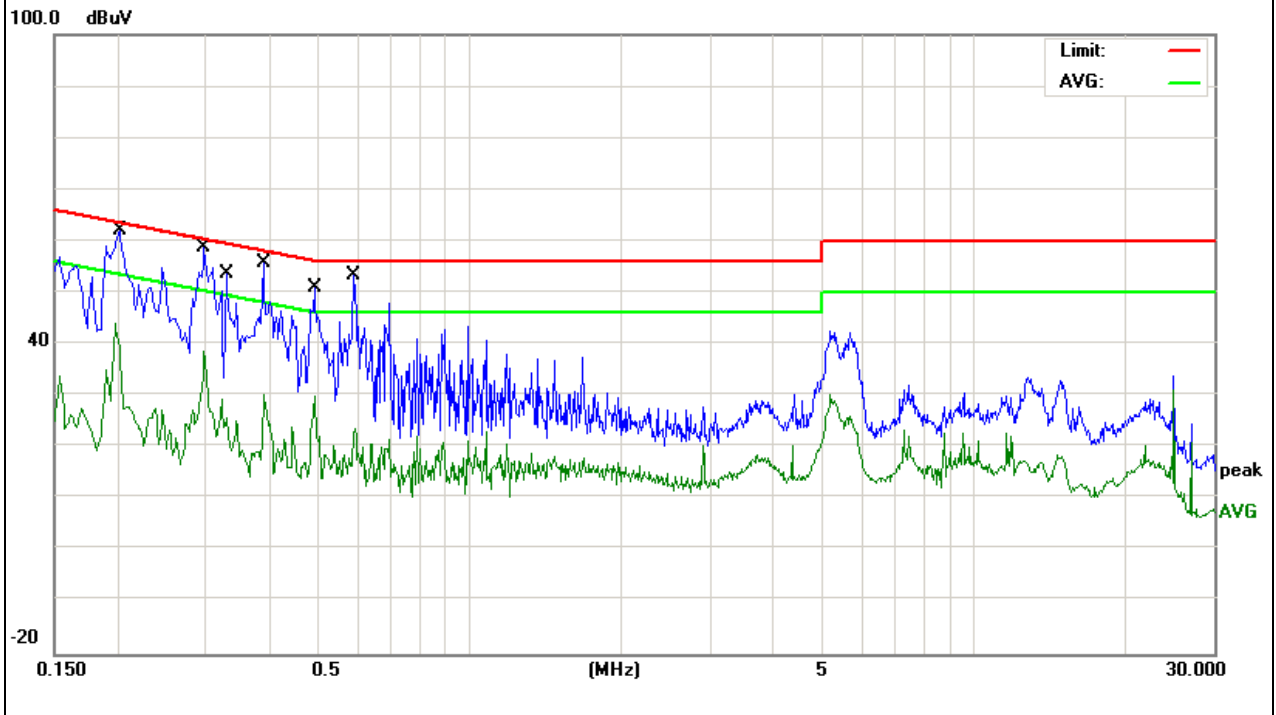


EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 2	Phase :	N
Test Voltage :	DC 5V from Adapter AC 240V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.2020	51.07	9.45	60.52	63.52	-3.00	QP
0.2020	34.53	9.45	43.98	53.52	-9.54	AVG
0.2979	47.33	9.57	56.90	60.30	-3.40	QP
0.2979	29.16	9.57	38.73	50.30	-11.57	AVG
0.3300	44.05	9.45	53.50	59.45	-5.95	QP
0.3300	19.99	9.45	29.44	49.45	-20.01	AVG
0.3899	45.00	9.20	54.20	58.06	-3.86	QP
0.3899	21.02	9.20	30.22	48.06	-17.84	AVG
0.4939	41.57	9.53	51.10	56.10	-5.00	QP
0.4939	20.33	9.53	29.86	46.10	-16.24	AVG
0.5899	43.06	9.56	52.62	56.00	-3.38	QP
0.5899	13.98	9.56	23.54	46.00	-22.46	AVG

Remark:

Factor = Insertion Loss + Cable Loss.

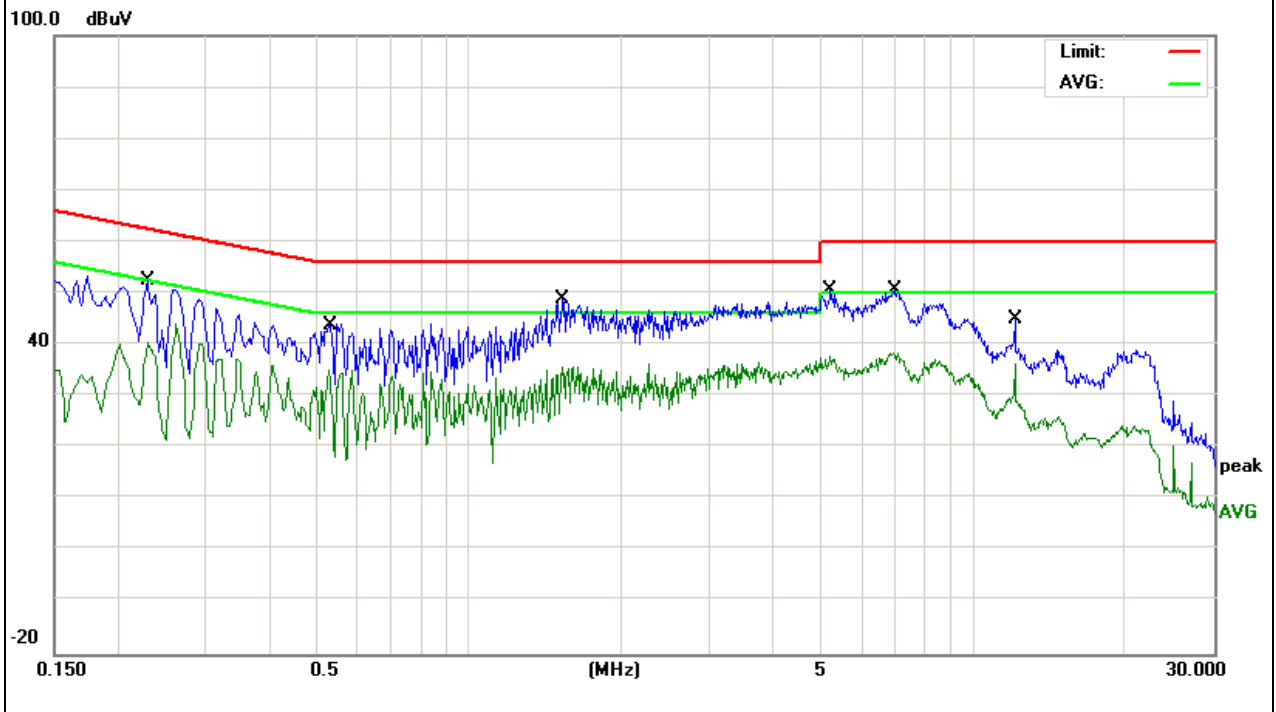


EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 3	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.2300	42.95	9.49	52.44	62.45	-10.01	QP
0.2300	31.05	9.49	40.54	52.45	-11.91	AVG
0.5260	34.55	9.55	44.10	56.00	-11.90	QP
0.5260	25.50	9.55	35.05	46.00	-10.95	AVG
1.5300	39.25	9.56	48.81	56.00	-7.19	QP
1.5300	26.19	9.56	35.75	46.00	-10.25	AVG
5.2179	41.02	9.68	50.70	60.00	-9.30	QP
5.2179	28.08	9.68	37.76	50.00	-12.24	AVG
6.9298	40.86	9.70	50.56	60.00	-9.44	QP
6.9298	28.68	9.70	38.38	50.00	-11.62	AVG
12.0699	35.27	9.77	45.04	60.00	-14.96	QP
12.0699	19.35	9.77	29.12	50.00	-20.88	AVG

Remark:

Factor = Insertion Loss + Cable Loss.

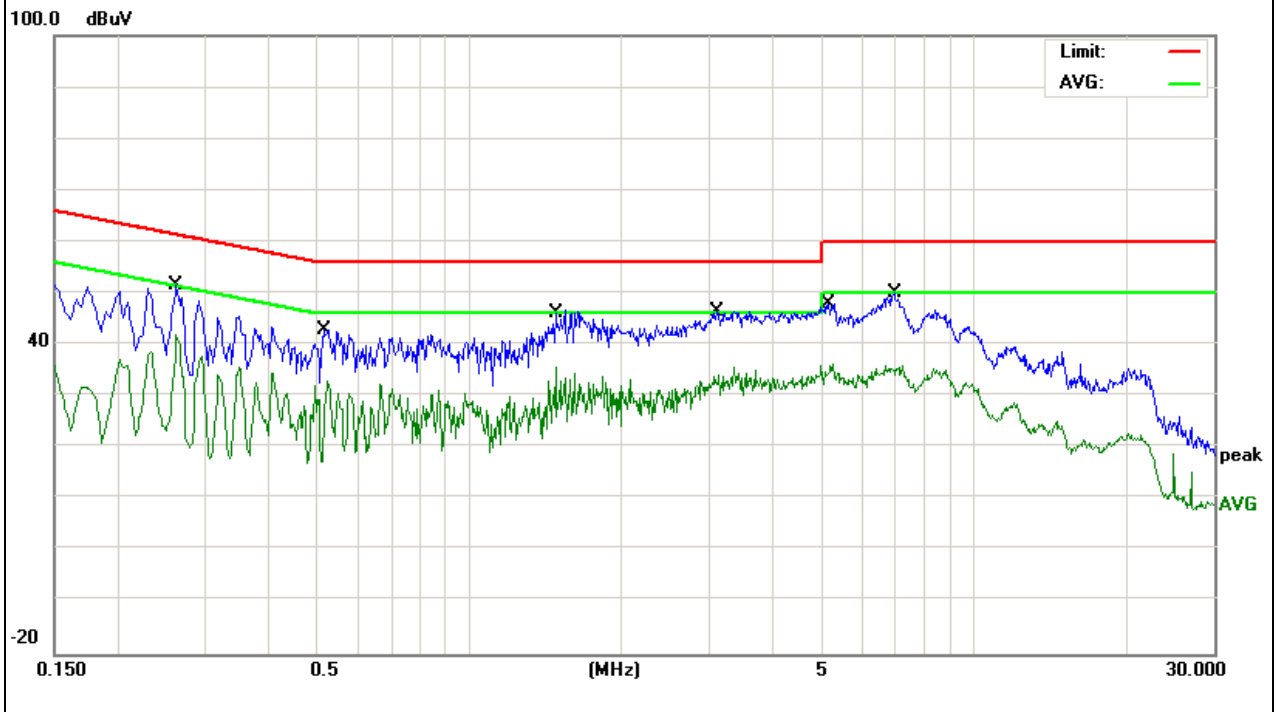


EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 3	Phase :	N
Test Voltage :	DC5V From Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.2620	42.06	9.52	51.58	61.36	-9.78	QP
0.2620	32.44	9.52	41.96	51.36	-9.40	AVG
0.5140	33.33	9.55	42.88	56.00	-13.12	QP
0.5140	23.44	9.55	32.99	46.00	-13.01	AVG
1.4819	37.26	9.57	46.83	56.00	-9.17	QP
1.4819	26.12	9.57	35.69	46.00	-10.31	AVG
3.1018	36.91	9.62	46.53	56.00	-9.47	QP
3.1018	24.54	9.62	34.16	46.00	-11.84	AVG
5.1658	38.39	9.68	48.07	60.00	-11.93	QP
5.1658	26.65	9.68	36.33	50.00	-13.67	AVG
6.9858	40.46	9.70	50.16	60.00	-9.84	QP
6.9858	26.16	9.70	35.86	50.00	-14.14	AVG

Remark:

Factor = Insertion Loss + Cable Loss.

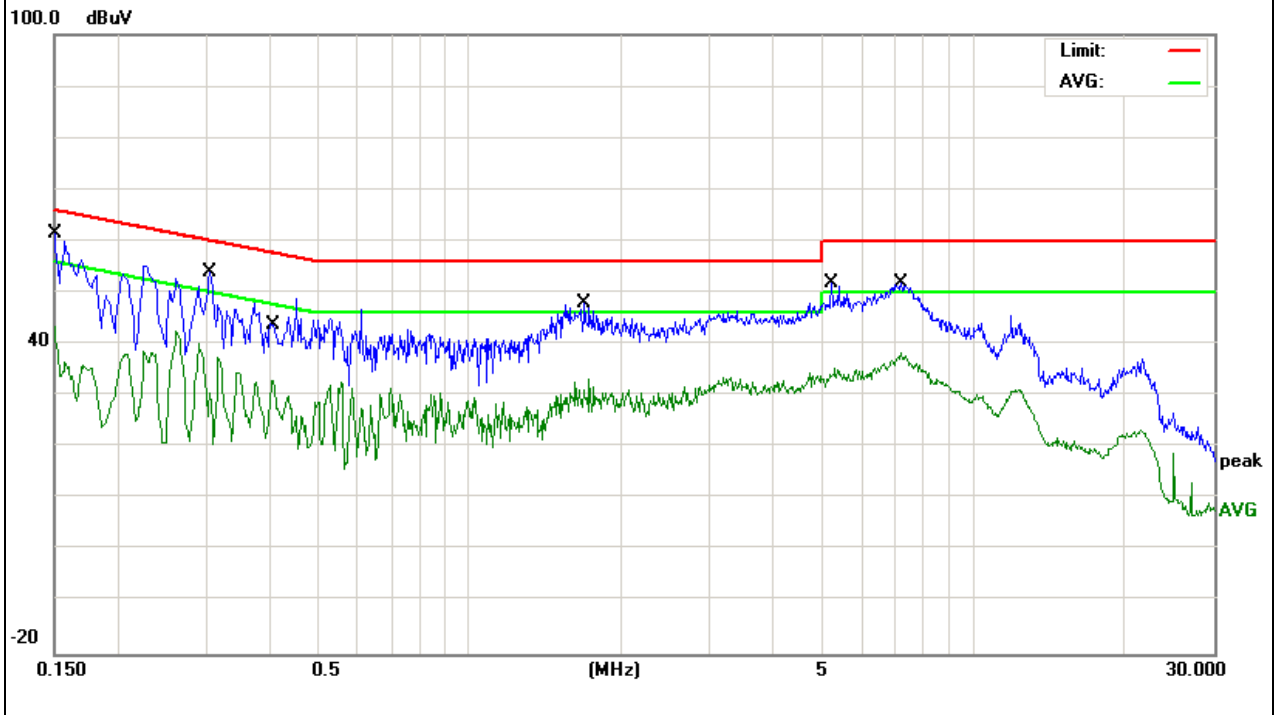


EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 3	Phase :	L
Test Voltage :	DC 5V from Adapter AC 240V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.1500	52.05	9.49	61.54	65.99	-4.45	QP
0.1500	33.95	9.49	43.44	55.99	-12.55	AVG
0.3059	44.54	9.55	54.09	60.08	-5.99	QP
0.3059	27.81	9.55	37.36	50.08	-12.72	AVG
0.4102	39.63	9.20	48.83	57.64	-8.81	QP
0.4102	22.73	9.20	31.93	47.64	-15.71	AVG
1.6976	38.52	9.56	48.08	56.00	-7.92	QP
1.6976	23.70	9.56	33.26	46.00	-12.74	AVG
5.2298	42.15	9.68	51.83	60.00	-8.17	QP
5.2298	25.73	9.68	35.41	50.00	-14.59	AVG
7.1977	42.14	9.70	51.84	60.00	-8.16	QP
7.1977	26.50	9.70	36.20	50.00	-13.80	AVG

Remark:

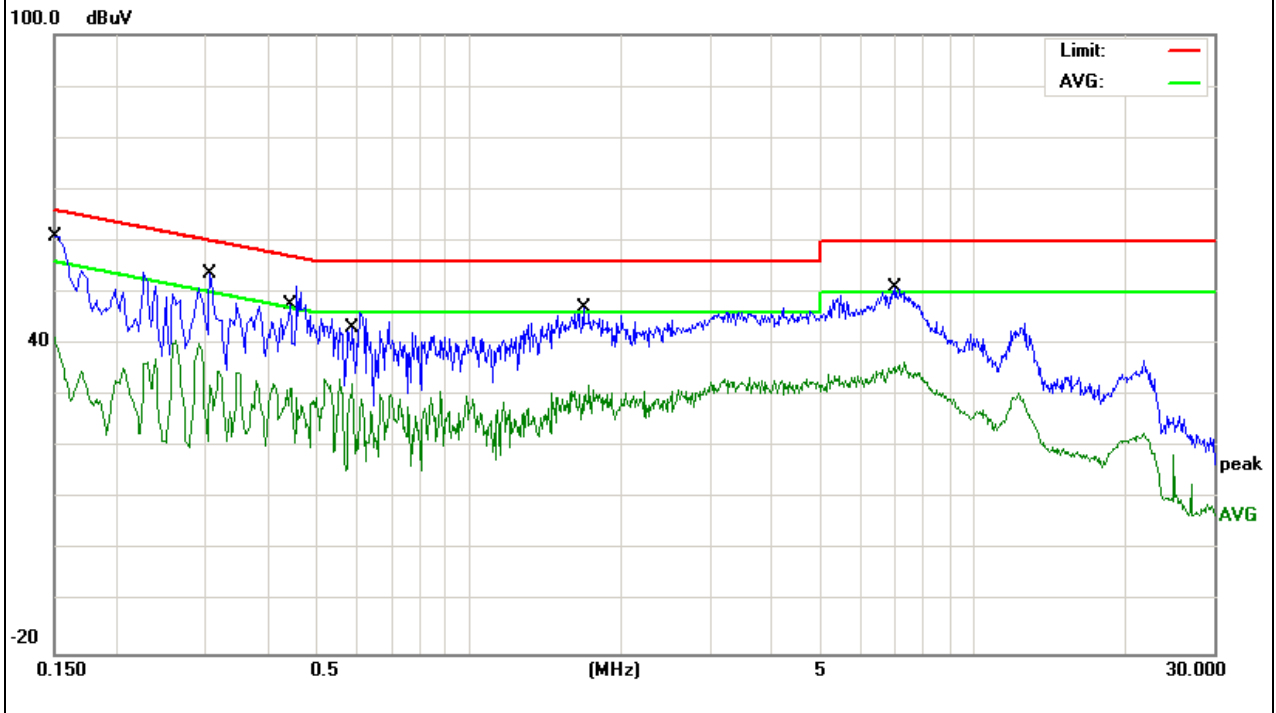
Factor = Insertion Loss + Cable Loss.



EUT :	Refer to page 6	Model Name. :	SBWD100B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 3	Phase :	N
Test Voltage :	DC 5V from Adapter AC 240V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
0.1500	51.23	9.49	60.72	65.99	-5.27	QP
0.1500	31.80	9.49	41.29	55.99	-14.70	AVG
0.3059	44.18	9.55	53.73	60.08	-6.35	QP
0.3059	25.25	9.55	34.80	50.08	-15.28	AVG
0.4420	41.86	9.32	51.18	57.02	-5.84	QP
0.4420	22.06	9.32	31.38	47.02	-15.64	AVG
0.5856	36.66	9.56	46.22	56.00	-9.78	QP
0.5856	22.85	9.56	32.41	46.00	-13.59	AVG
1.6856	37.42	9.56	46.98	56.00	-9.02	QP
1.6856	22.56	9.56	32.12	46.00	-13.88	AVG
6.9897	41.10	9.70	50.80	60.00	-9.20	QP
6.9897	26.75	9.70	36.45	50.00	-13.55	AVG

Remark:
Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

- (1) The limit for radiated test was performed according to as following:
FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

Test Arrangement for Radiated Emissions up to 1 GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency below 1GHz.

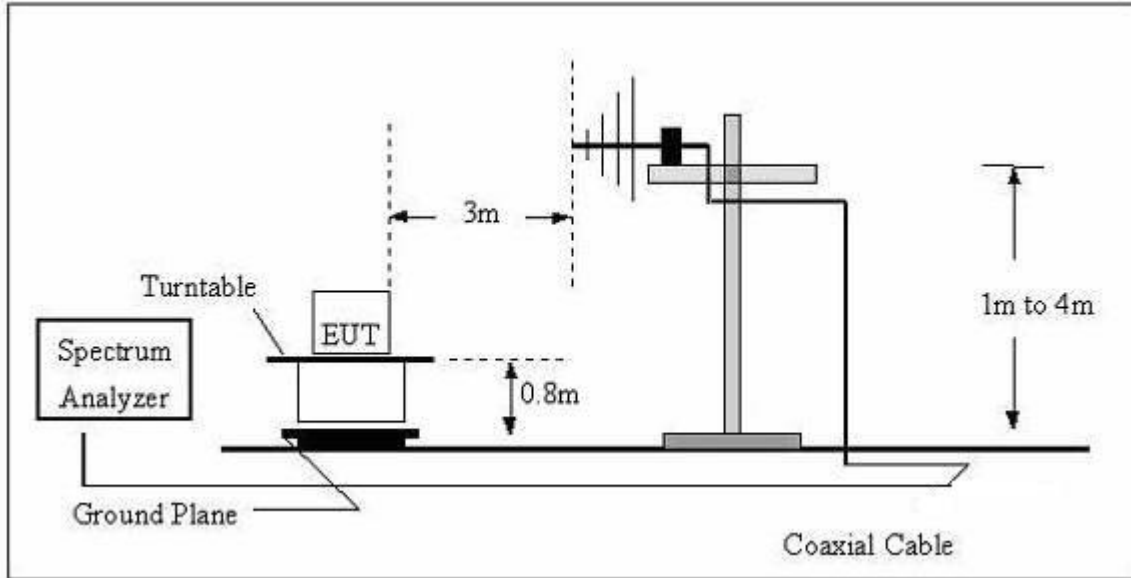
Test Arrangement for Radiated Emissions above 1 GHz.

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find

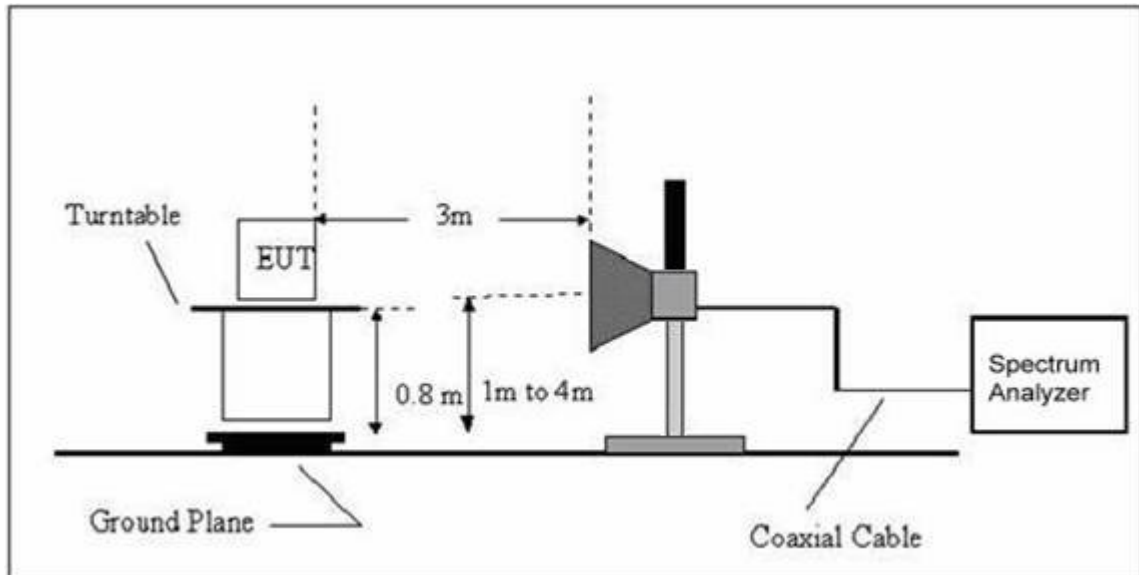
- the maximum reading.
- e. The spectrum analyzer system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

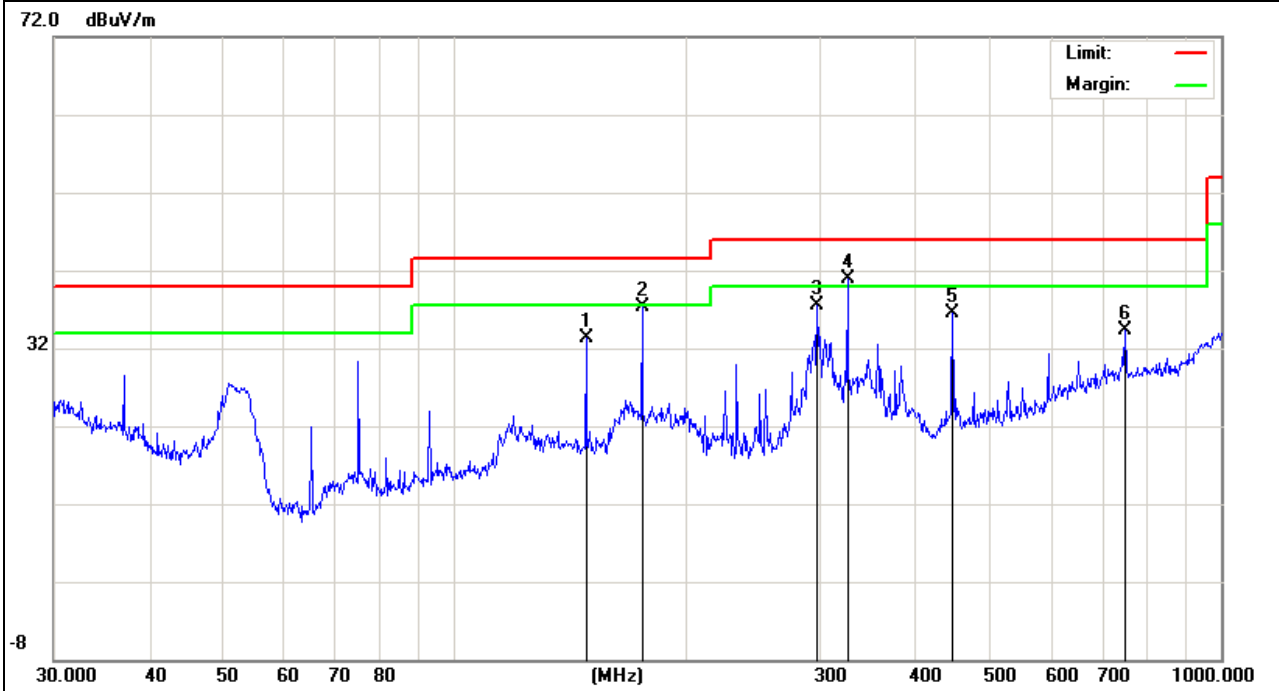
3.2.5 TEST RESULTS

EUT :	Refer to page 6	Model Name :	SBWD100B
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 1	Polarization :	Horizontal
Test Power :	DC5V From Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
148.4410	21.70	11.57	33.27	43.50	-10.23	QP
175.6516	24.98	12.26	37.24	43.50	-6.26	QP
297.2241	25.06	12.51	37.57	46.00	-8.43	QP
325.5958	27.36	13.46	40.82	46.00	-5.18	QP
446.4141	20.66	15.91	36.57	46.00	-9.43	QP
750.1082	12.18	22.10	34.28	46.00	-11.72	QP

Remark:

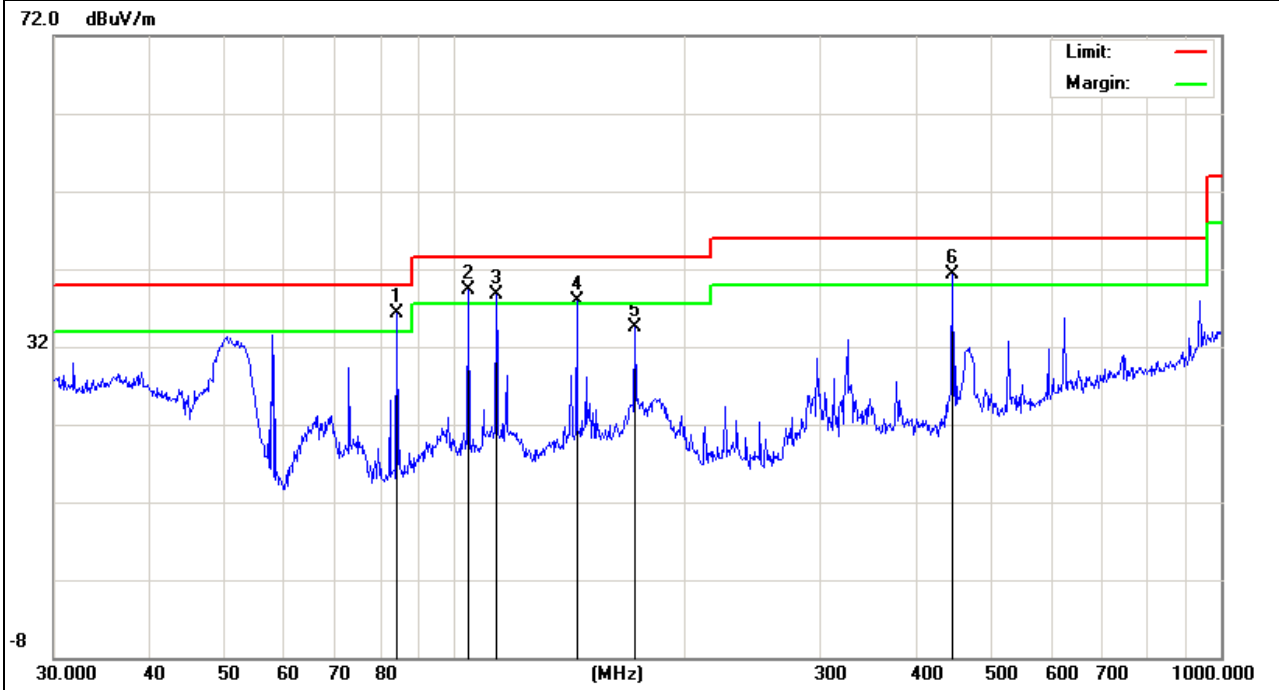
Factor = Antenna Factor + Cable Loss.



EUT :	Refer to page 6	Model Name :	SBWD100B
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 1	Polarization :	Vertical
Test Power :	DC5V From Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
84.1099	27.26	9.14	36.40	40.00	-3.60	QP
104.1701	29.05	10.28	39.33	43.50	-4.17	QP
113.3162	28.50	10.20	38.70	43.50	-4.80	QP
144.3348	26.68	11.25	37.93	43.50	-5.57	QP
171.9944	22.04	12.46	34.50	43.50	-9.00	QP
446.4141	25.33	15.91	41.24	46.00	-4.76	QP

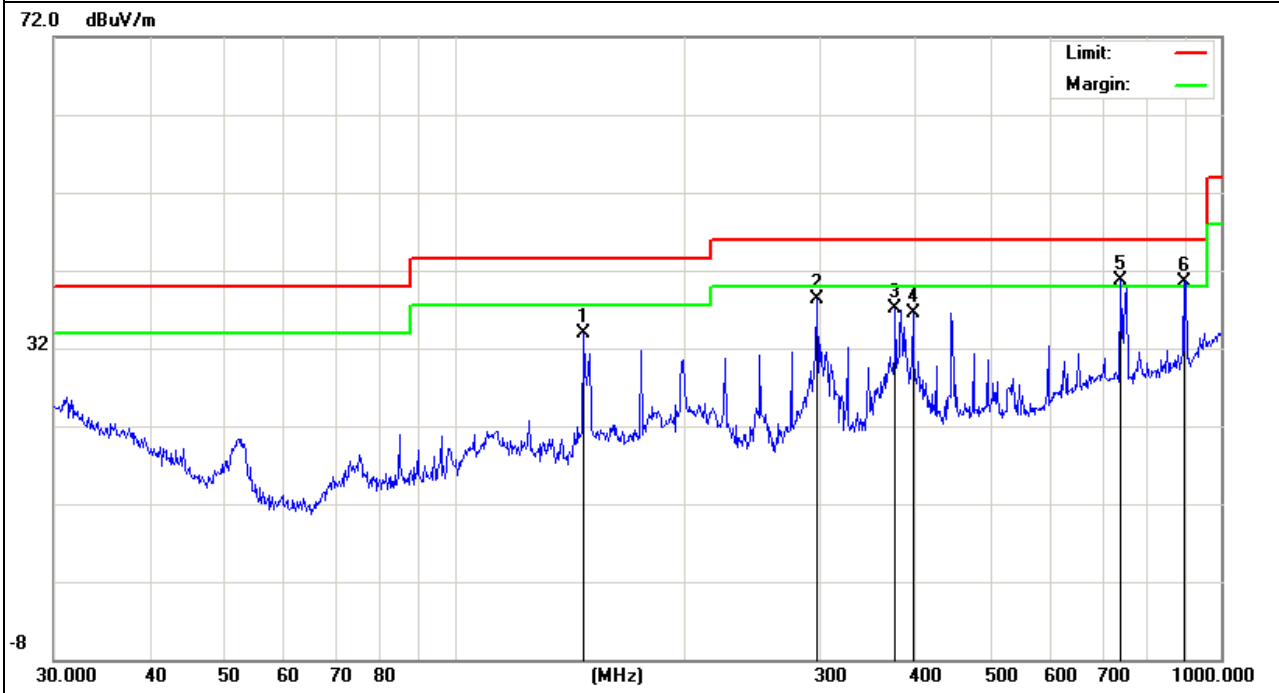
Remark:
Factor = Antenna Factor + Cable Loss.



EUT :	Refer to page 6	Model Name :	SBWD100B
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 2	Polarization :	Horizontal
Test Power :	DC5V From Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
147.4036	22.42	11.48	33.9	43.5	-9.6	QP
297.2241	25.82	12.51	38.33	46	-7.67	QP
375.9384	22.18	14.86	37.04	46	-8.96	QP
396.2412	21.76	14.81	36.57	46	-9.43	QP
739.6603	18.83	21.97	40.8	46	-5.2	QP
893.8567	16.39	24.05	40.44	46	-5.56	QP

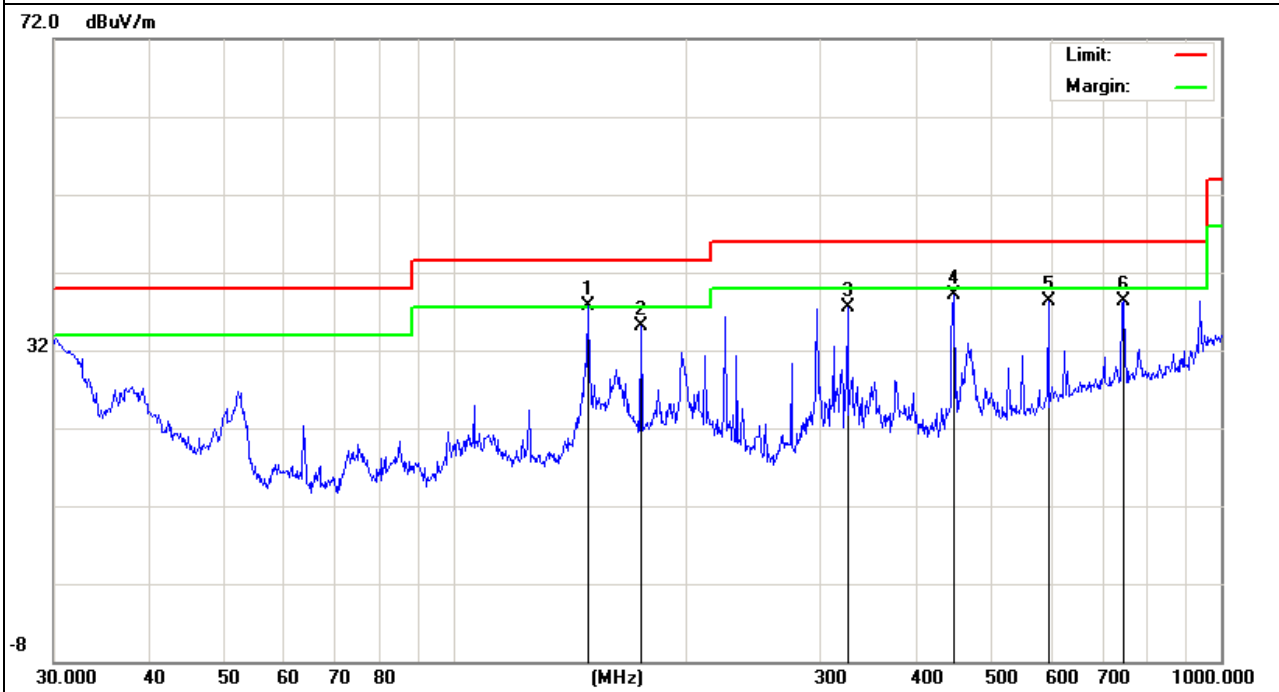
Remark:
Factor = Antenna Factor + Cable Loss.



EUT :	Refer to page 6	Model Name :	SBWD100B
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 2	Polarization :	Vertical
Test Power :	DC5V From Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
149.4857	26.14	11.66	37.8	43.5	-5.7	QP
175.0363	22.79	12.31	35.1	43.5	-8.4	QP
325.5957	23.96	13.46	37.42	46	-8.58	QP
447.9821	23.14	15.96	39.1	46	-6.9	QP
595.1326	19.07	19.21	38.28	46	-7.72	QP
744.8659	16.26	22.04	38.3	46	-7.7	QP

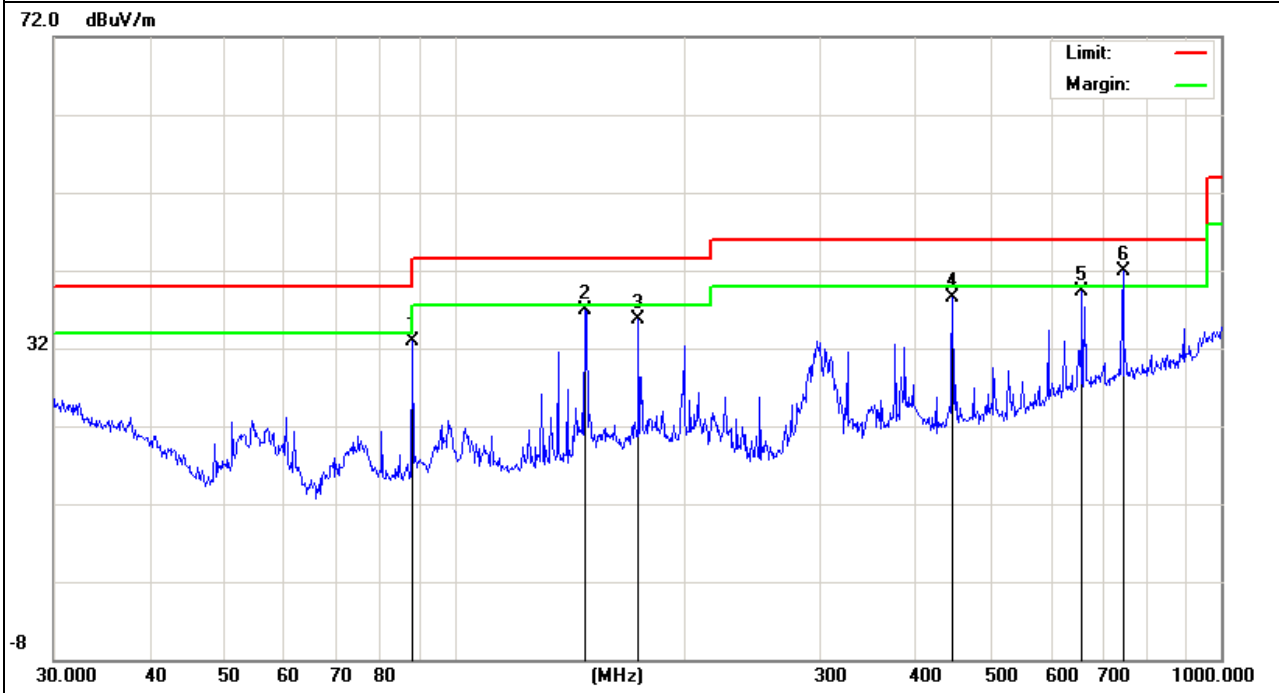
Remark:
Factor = Antenna Factor + Cable Loss.



EUT :	Refer to page 6	Model Name :	SBWD100B
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 3	Polarization :	Horizontal
Test Power :	DC5V From Adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
88.0327	23.22	9.64	32.86	43.50	-10.64	QP
147.9214	25.47	11.53	37.00	43.50	-6.50	QP
173.8135	23.25	12.37	35.62	43.50	-7.88	QP
446.4141	22.52	15.91	38.43	46.00	-7.57	QP
658.8360	18.70	20.59	39.29	46.00	-6.71	QP
744.8659	19.95	22.04	41.99	46.00	-4.01	QP

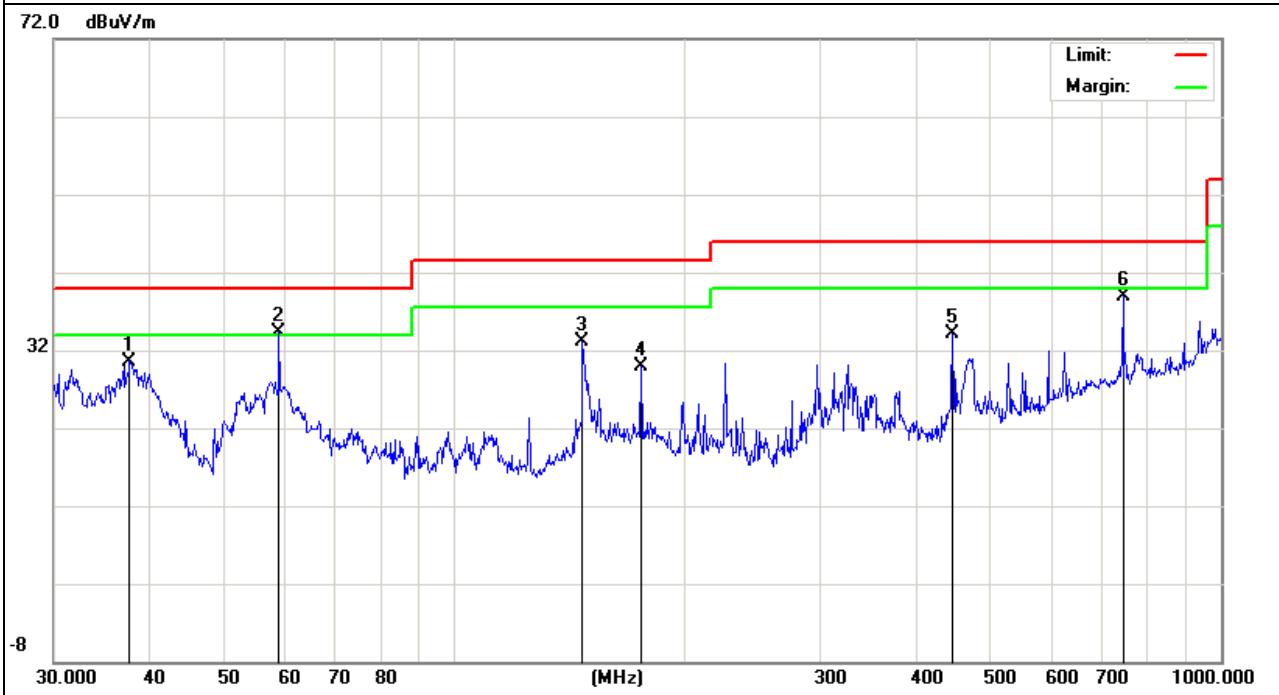
Remark:
Factor = Antenna Factor + Cable Loss.



EUT :	Refer to page 6	Model Name :	SBWD100B
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2015-12-03
Test Mode :	Running- Adapter 3	Polarization :	Vertical
Test Power :	DC5V From Adapter AC 120V/60Hz		

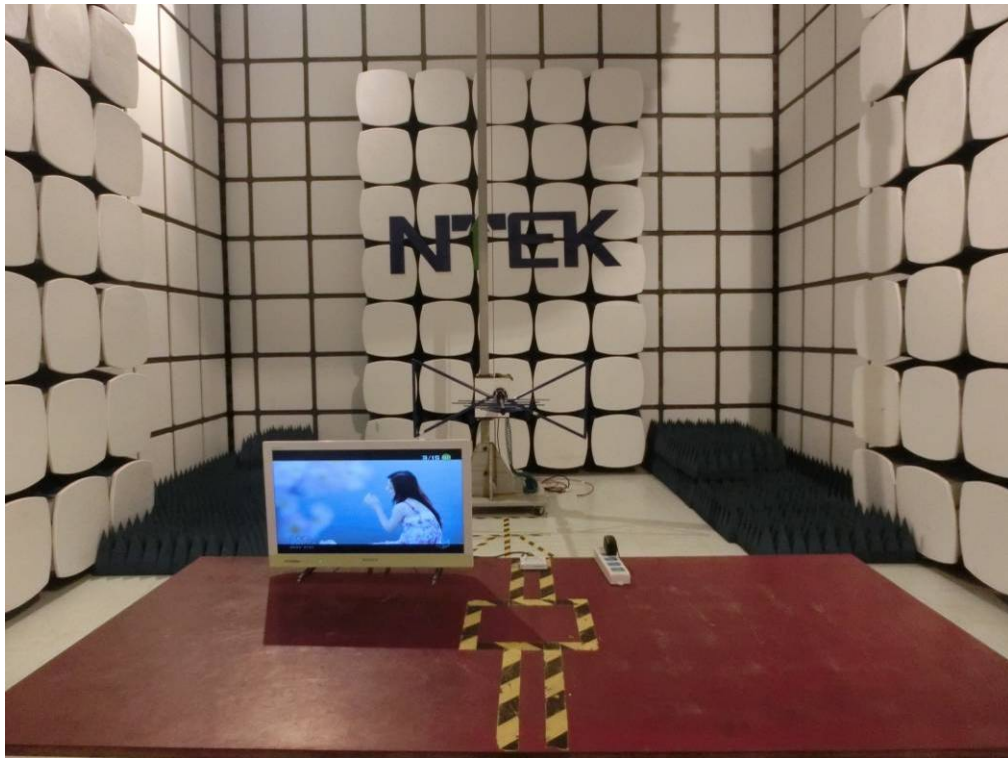
Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Remark
37.6798	14.67	15.93	30.60	40.00	-9.40	QP
59.0251	28.10	6.16	34.26	40.00	-5.74	QP
146.8874	21.67	11.43	33.10	43.50	-10.40	QP
175.0363	17.54	12.31	29.85	43.50	-13.65	QP
446.4141	18.27	15.91	34.18	46.00	-11.82	QP
744.8659	16.77	22.04	38.81	46.00	-7.19	QP

Remark:
Factor = Antenna Factor + Cable Loss.



4. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos

