

FCC Test Report

for

Remote Data Terminal

Mode Number : RDT11
FCC ID : M8SNTN900R11
Report Number : RF-U070-0903-165
Date of Receipt : March 11, 2009
Date of Report : March 23, 2009

Prepared for

NTN BUZZTIME, INC.

5966 LA PLACE COURT, SUITE 100 CARLSBAD, CA 92008, USA

Prepared by



Central Research Technology Co.

EMC Test Laboratory

No.11, Lane41, Fushuen St., Jungshan Chiu, Taipei, Taiwan, 104, R.O.C.



NVLAP LAB CODE 200575-0

This report shall not be reproduced, except in full, without the written approval of Central Research Technology Co.. It may be duplicated completely in its entirety for legal use with the permission of the applicant. It should not be used to claim product endorsement by NVLAP, NIST or any U.S. government agency. The test result in the report applies only to the sample tested.

Certification

Equipment under Test : Remote Data Terminal
Mode Number : RDT11
FCC ID : M8SNTN900R11
Manufacturer : CLIMAX TECHNOLOGY CO., LTD.
Applicant : NTN BUZZTIME, INC.
Address : 5966 LA PLACE COURT, SUITE 100 CARLSBAD, CA 92008,
USA
Date of Testing : March 14~ March 19, 2009
Applicable Standards : 47 CFR part 15, Subpart C
Deviation : NA
Condition of Test Sample : Engineering Sample



We, **Central Research Technology Co.**, hereby certify that one sample of the designated product was tested in our facility during the period mentioned above. The test records, data evaluation and Equipment Under Test (EUT) configurations shown in the present report are true and accurate representation of the measurements of the sample's RF characteristics under the conditions herein specified.

The test results show that the EUT as described in the present report is in compliance with the requirements set forth in the standards mentioned above and apply to the tested sample identified in the present report only. The test report shall not be reproduced, except in its entirety, without the written approval of Central Research Technology Co.

PREPARED BY : Cathy Chen , DATE : March 23, 2009
(Cathy Chen/ Technical Manager)
APPROVED BY : J. Y. Shih , DATE : Mar. 23, 2009
(Tsun-Yu Shih/Laboratory head)

Contents

1	General Description	4
1.1	General Description of EUT	4
1.2	Test Methodology	4
1.3	Applied standards	5
1.4	The Support Units	7
1.5	Layout of Setup	7
1.6	Test Capability	8
1.7	Measurement Uncertainty	10
2	Field strength of Fundamental	11
2.1	Applied standard	11
2.2	Test Instruments	11
2.3	Test Data	12
3	Radiated Emission Measurement	17
3.1	Applied standard	17
3.2	Test Instruments	18
3.3	Test Data	19
4	Conducted Emission Measurement	43
4.1	Limits for Emission Measurement	43
4.2	Test Instruments	44
4.3	Test Data	45
Attachment 1 – Photographs of the Test Configurations		
Attachment 2 –External Photographs of EUT		
Attachment 3 –Internal Photographs of EUT		

1 General Description

1.1 General Description of EUT

Equipment under Test : Remote Data Terminal
Mode Number : RDT11
Power in : 4.8Vdc
Test Voltage : 4.8Vdc(Rechargeable Batteries)
Manufacturer : CLIMAX TECHNOLOGY CO., LTD.
Channel Numbers : 4
Frequency Range : 906.358MHz~908.18MHz
Operational Frequency : 906.358MHz, 907.28MHz, 907.88MHz, 908.18MHz
Modulation : FM
Function Description :

The EUT is used to transmit and receive control command. Please refer to the user's manual for the details.

1.2 Test Methodology

For this EUT, both conducted and radiated emissions were performed according to the procedures illustrated in ANSI C63.4:2003 and other required measurements were illustrated in separate sections of this test report for detail.

1.3 Applied standards

(1) Conduction Emission Requirement

For intentional device, according to §15.207(a) line conduction emission limit is as below table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency.

(2) Field strength of fundamental

According to 15.249(a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 - 928 MHz	50	500
2400 - 2483.5 MHz	50	500
5725 - 5875 MHz	50	500
24.0 - 24.25 GHz	250	2500

(3) Radiated Emission Requirement

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For intentional device, according to §15.209, the general requirement of field strength of radiated emissions from intentional radiator at a distance of 3 meters shall not exceed the below table.

Frequency (MHz)	Measurement Distance (m)	Field Strength (uV/m)	Field Strength (dBuV/m)
30 – 88	3	100	40.0
88 – 216	3	150	43.5
216 – 960	3	200	46.0
960 – 1610	3	500	54.0
above 1610	3	500	54.0

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

(4) Restricted Band

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
² 1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(2)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

1.4 The Support Units

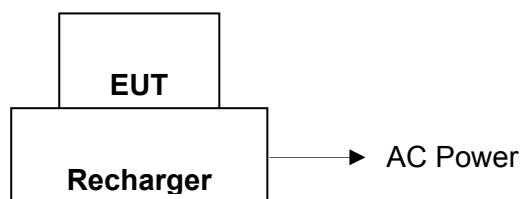
No.	Unit	Mode No./ Serial No.	Trade Name	Power Code	Supported by lab.
NA	-	-	-	-	-

1.5 Layout of Setup

Continuous Transmitting/ Receiving mode



Recharging mode



Connecting Cables :

No.	Cable	Length	Shielded	Core	Shielded Backshell	Supported by lab.	Note
NA	-	-	-	-	-	-	

Justification :

For both conducted and radiated emission below 1GHz, the system was configured for typical fashion as a customer could normal use it. The peripherals other than EUT was connected in normally standing by situation.

1.6 Test Capability

Test Facility

The test facility used for evaluating the conformance of the EUT with each standard in the present report meets what required in CISPR16-1-4, CISPR16-2-3 and ANSI C63.4.

Test Room	Type of Test Room	Descriptions
TR1	10m semi-anechoic chamber (23m×14m×9m)	Complying with the NSA requirements in documents CISPR 22 and ANSI C63.4. For the radiated emission measurement.
TR10	3m semi-anechoic chamber (9m × 6m × 6m)	
TR11	3m semi-anechoic chamber (9m × 6m × 6m)	
TR13	Chamber	For the RF conducted emission measurement.
TR5	Shielding Room (8m×5m×4m)	For the conducted emission measurement.

Test Laboratory Competence Information

Central Research Technology Co. has been accredited / filed / authorized by the agencies listed in the following table.

Certificate	Nation	Agency	Code	Mark
Accreditation Certificate	USA	NVLAP	200575-0	ISO/IEC 17025
	R.O.C. (Taiwan)	TAF	0905	ISO/IEC 17025
	R.O.C. (Taiwan)	BSMI	SL2-IN-E-0033, SL2-IS-E-0033, SL2-R1/R2-E-0033, SL2-A1-E-0033	ISO/IEC 17025
Site Filing Document	USA	FCC	474046, TW1053	Test facility list & NSA Data
	Canada	IC	4699A-1,-3	Test facility list & NSA Data
	Japan	VCCI	R-1527,C-1609,T-131,T-1441	Test facility list & NSA Data
Authorization Certificate	Germany	TUV	10021687-2007	ISO/IEC 17025
	Norway	Nemko	ELA212	ISO/IEC 17025

The copy of each certificate can be downloaded from our web site: www.crc-lab.com

1.7 Measurement Uncertainty

The assessed measurement uncertainty with a suitable coverage factor K to ensure 95% confidence level for the normal distribution are shown as below, the values are less than U_{cisp} in table 1 of CISPR 16-4-2.

Test Item	Measurement Uncertainty	
Peak Output Power	1.1dB	
Radiated Emission: (30MHz~200MHz)	Horizontal 2.8dB ; Vertical 3.5 dB	
Radiated Emission: (200MHz~1GHz)	Horizontal 3.4dB ; Vertical 2.8dB	
Radiated Emission: (1GHz~18GHz)	Horizontal 2.5dB ; Vertical 2.4dB	
Radiated Emission: (18GHz~26.5GHz)	Horizontal 4.0dB ; Vertical 3.9dB	
Line Conducted Emission	ESH2-Z5	3.1dB
	ENV 4200	3.8dB

2 Field strength of Fundamental

Result: Pass

2.1 Applied standard

Fundamental Frequency	Peak	Average
☒ 902 – 928 MHz	500mV/m (114dBuV/m)	50mV/m (94dBuV/m)
☐ 2400 – 2483.5 MHz	500 mV/m (114dBuV/m)	50 mV/m (94dBuV/m)
☐ 5725 – 5875 MHz	500 mV/m (114dBuV/m)	50 mV/m (94dBuV/m)
☐ 24.0 – 24.25 GHz	2500 mV/m (128dBuV/m)	250 mV/m (108dBuV/m)

2.2 Test Instruments

Test Site and Equipment	Manufacturer	Mode No./ Serial No.	Last Calibration Date	Calibration Due Date
Test Receiver	R&S	ETSI 26/ 831438/001	2008/10/8	2009/10/7
Test Receiver	R&S	ETSI 40/ 832427/004	2008/9/22	2009/9/21
Antenna	EMCO	3148/34429	2008/4/23	2009/4/22

Note:

1. The calibrations are traceable to NML/ROC.
2. NCR : No Calibration Required.

2.3 Test Data

Test Mode : 906.358MHz

Tester : Jacky

Frequency (MHz)	Polarization	Reading Data (dBuV)		Correction Factor (dB/m)	Output Field Strength (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
906.358	V	87.19	85.29	-0.55	86.64	84.74	114	94	27.36	9.26
	H	91.11	89.22	-0.55	90.56	88.67	114	94	23.44	5.33

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Output Field Strength (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Output Field Strength

Test Mode : 908.18MHz

Tester : Jacky

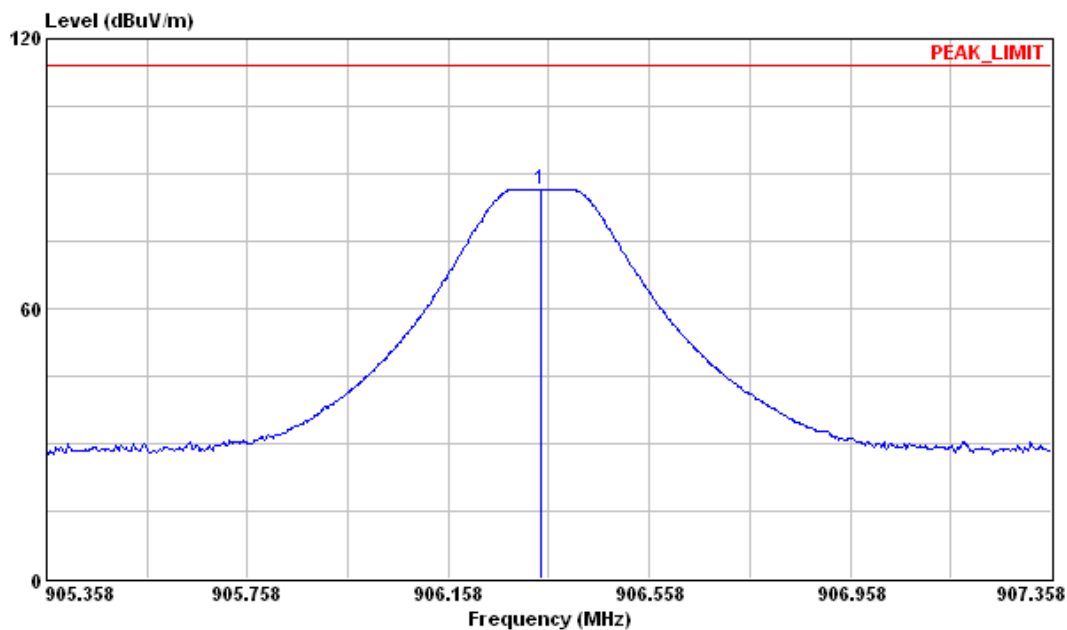
Frequency (MHz)	Polarization	Reading Data (dBuV)		Correction Factor (dB/m)	Output Field Strength (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
908.18	V	86.61	84.55	-0.55	86.06	84.00	114	94	27.94	10.00
	H	90.96	89.08	-0.55	90.41	88.53	114	94	23.59	5.47

Note :

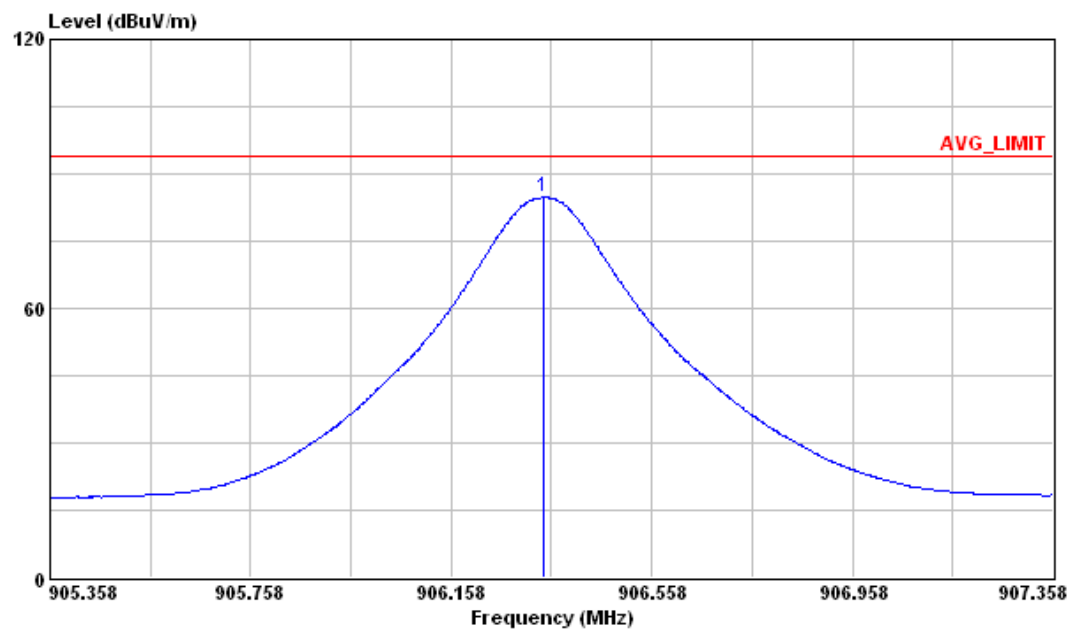
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Output Field Strength (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Output Field Strength

906.358MHz

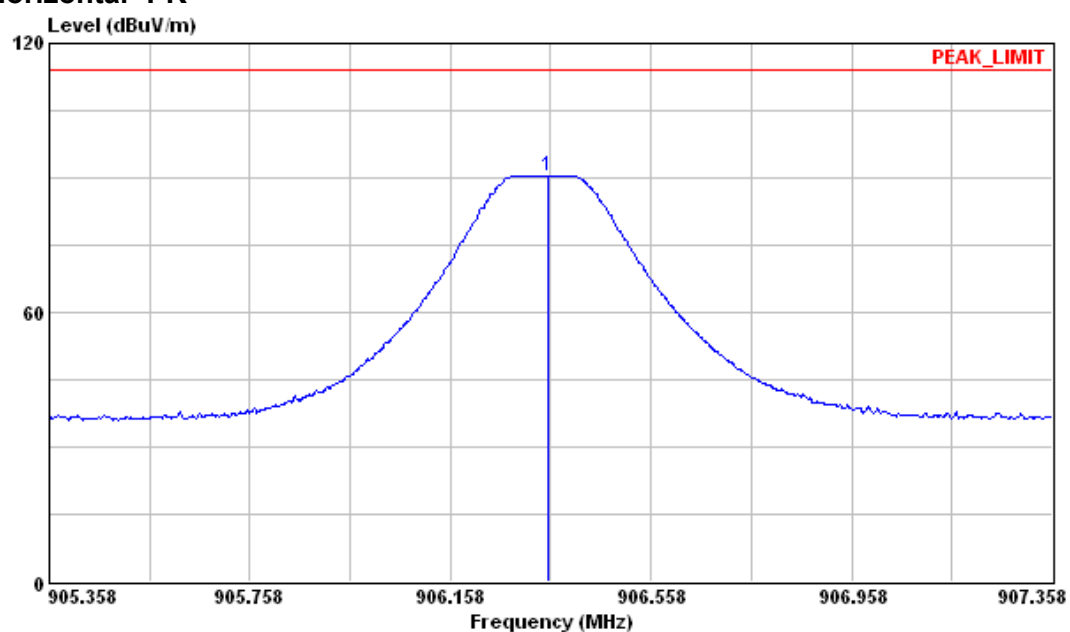
Vertical- PK



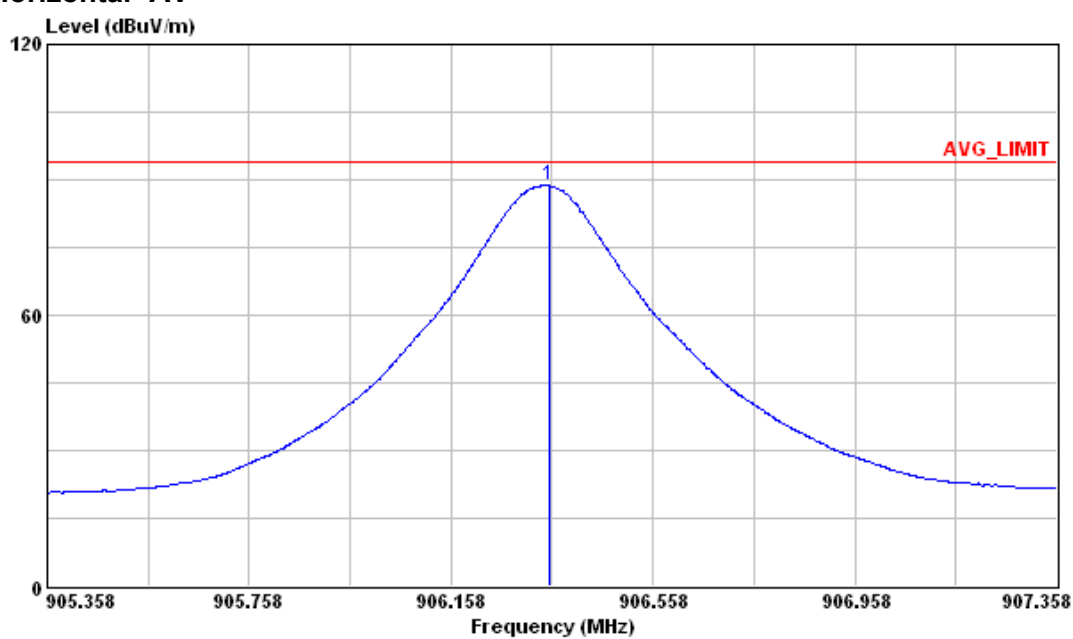
Vertical- AV



Horizontal- PK

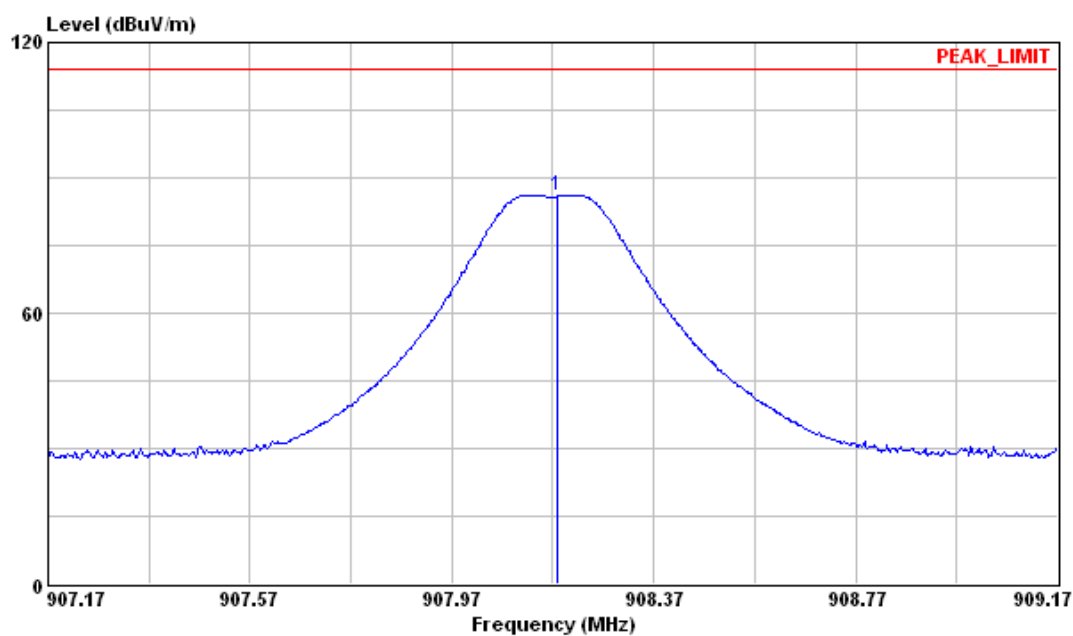


Horizontal- AV

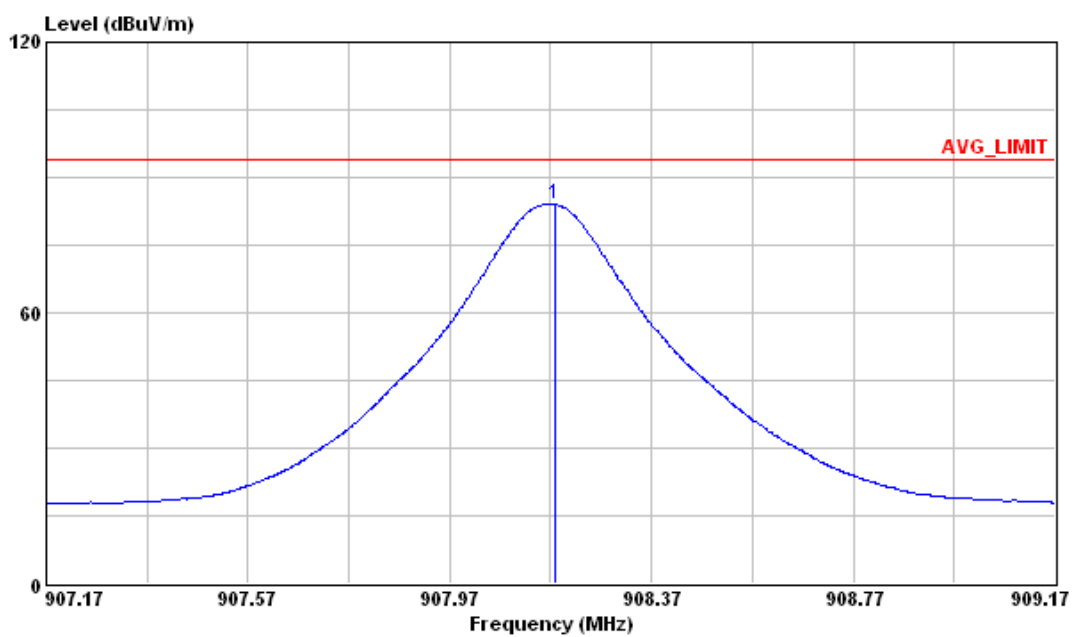


908.18MHz

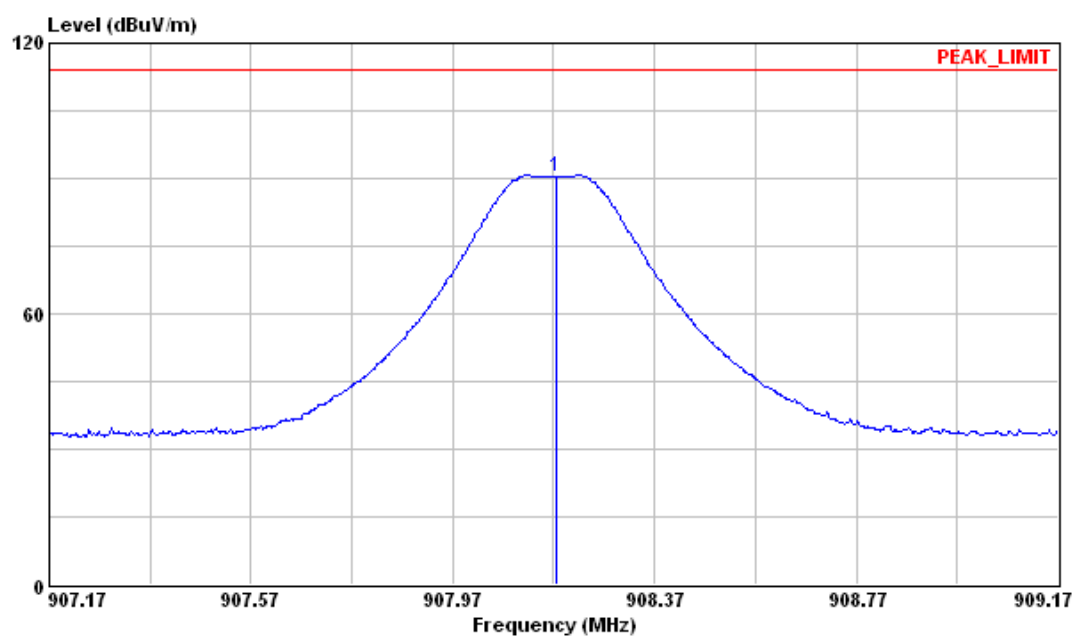
Vertical- PK



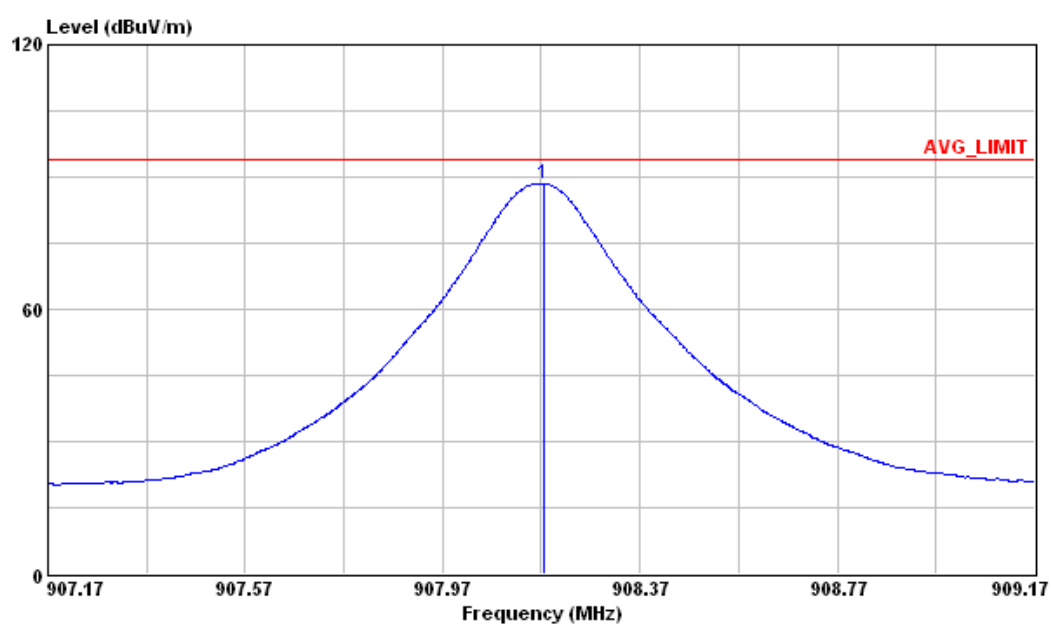
Vertical- AV



Horizontal- PK



Horizontal- AV



3 Radiated Emission Measurement

Result: Pass

3.1 Applied standard

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Limit for Harmonics Radiation Emission Measurement

Fundamental Frequency	Field Strength of Harmonics
☒ 902 – 928 MHz	500 uV/m (54dBuV/m)
☐ 2400 – 2483.5 MHz	500 uV/m (54dBuV/m)
☐ 5725 – 5875 MHz	500 uV/m (54dBuV/m)
☐ 24.0 – 24.25 GHz	2500 uV/m(68dBuV/m)

Limit for Other Emissions except Harmonics

Frequency (MHz)	Quasi-peak (dBμV/m)	
30 to 88	40	
88 to 216	43.5	
216 to 960	46	
960 to 1000	54	
Frequency (MHz)	Peak (dBμV/m)	Average (dBμV/m)
Above 1000	74	54
Note 1- The lower limit shall apply at the transition frequency.		
Note 2- Additional provisions may be required for cases where interference occurs.		

3.2 Test Instruments

Test Site and Equipment	Manufacturer	Mode No./ Serial No.	Last Calibration Date	Calibration Due Date
Test Receiver	R&S	ETSI 26/ 831438/001	2008/10/8	2009/10/7
Test Receiver	R&S	ETSI 40/ 832427/004	2008/9/22	2009/9/21
Antenna	EMCO	3117/00035224	2008/3/26	2009/3/25
Antenna	EMCO	3148/34429	2008/4/23	2009/4/22
Antenna	EMCO	3109/33524	2008/4/23	2009/4/22

Note:

1. The calibrations are traceable to NML/ROC.
2. NCR : No Calibration Required.

3.3 Test Data

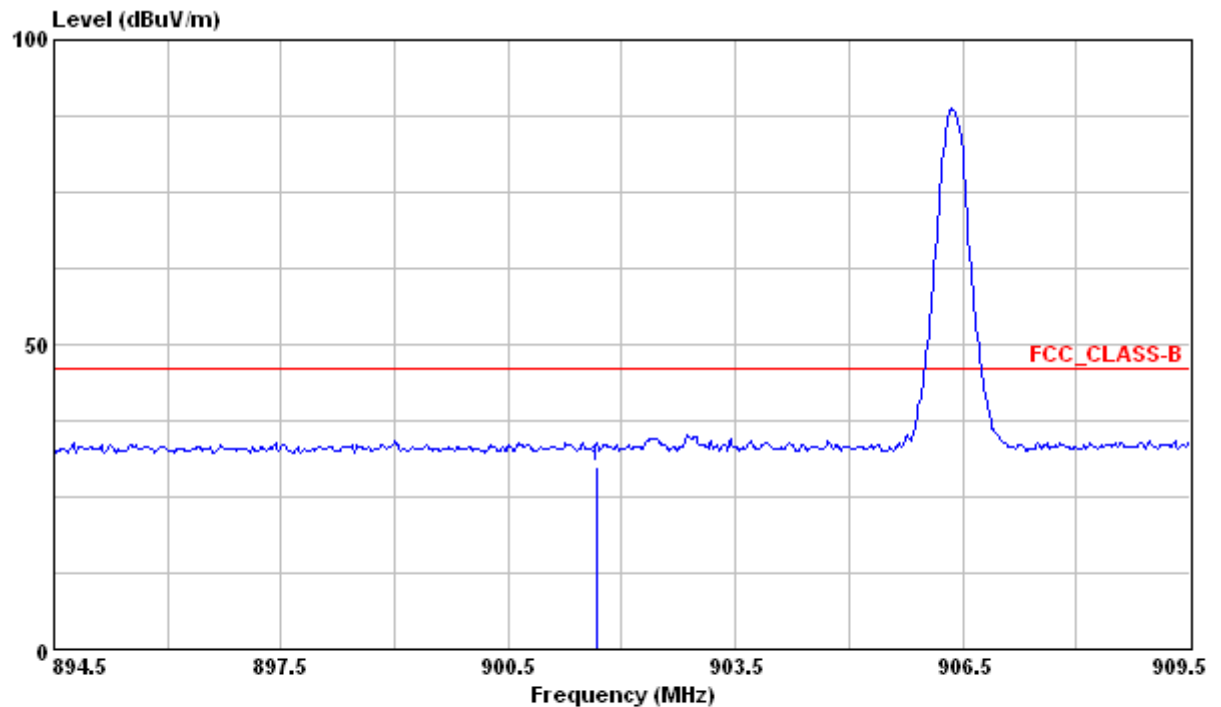
Band Edge

Test Mode : Continuous Transmitting, 906.358MHz

Test Distance : 3m

Tester : Jacky

Polarization :Vertical



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 @	901.670	29.81	30.39	-0.58	46.00	-16.19	124	227	VERTICAL	QP

Note :

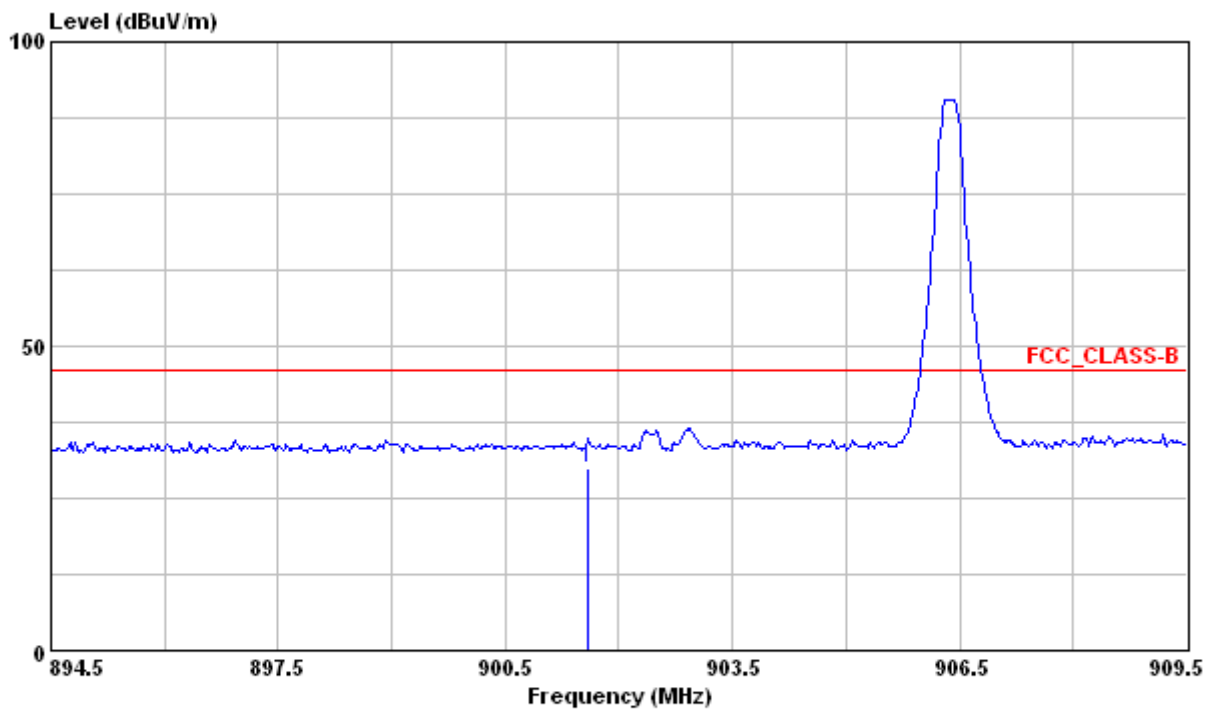
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBUV/m) = Reading Data + Correction Factor

Test Mode : Continuous Transmitting, 906.358MHz

Test Distance : 3m

Tester : Jacky

Polarization :Horizontal



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	901.600	29.80	30.38	-0.58	46.00	-16.20	100	144	HORIZONTAL	QP

Note :

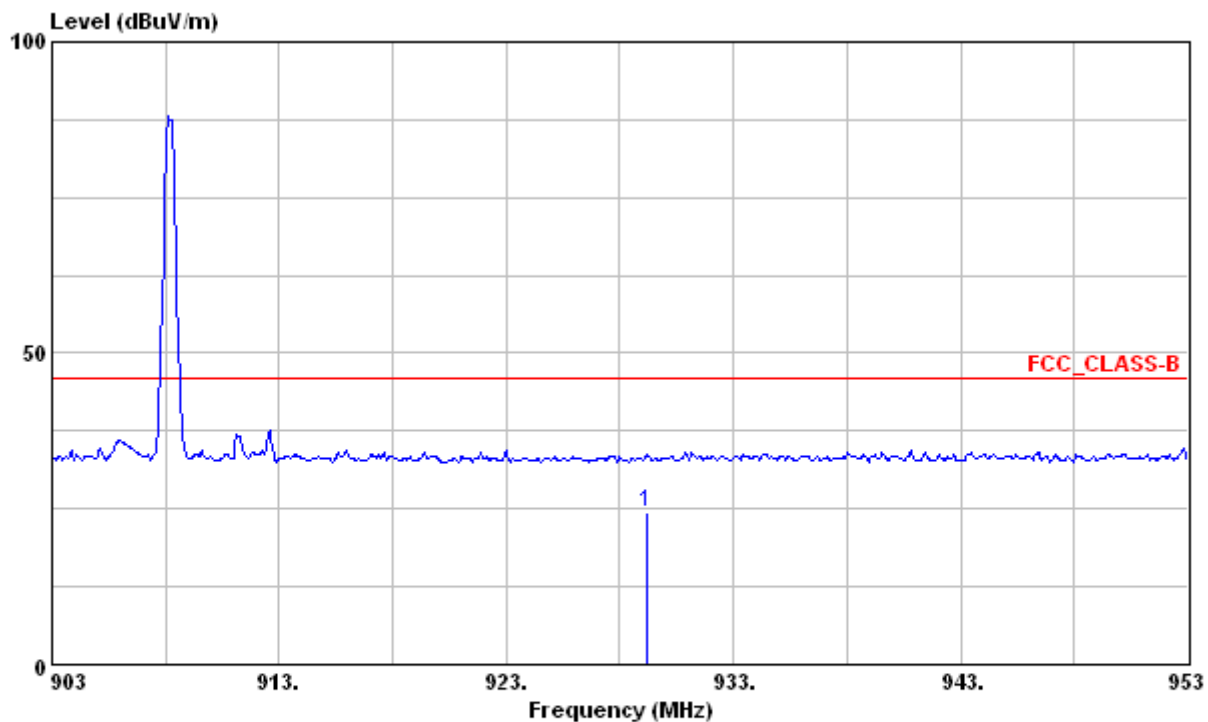
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

Test Mode : Continuous Transmitting, 908.18MHz

Test Distance : 3m

Tester : Jacky

Polarization :Vertical



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 @	929.150	24.42	24.89	-0.47	46.00	-21.58	168	60	VERTICAL	QP

Note :

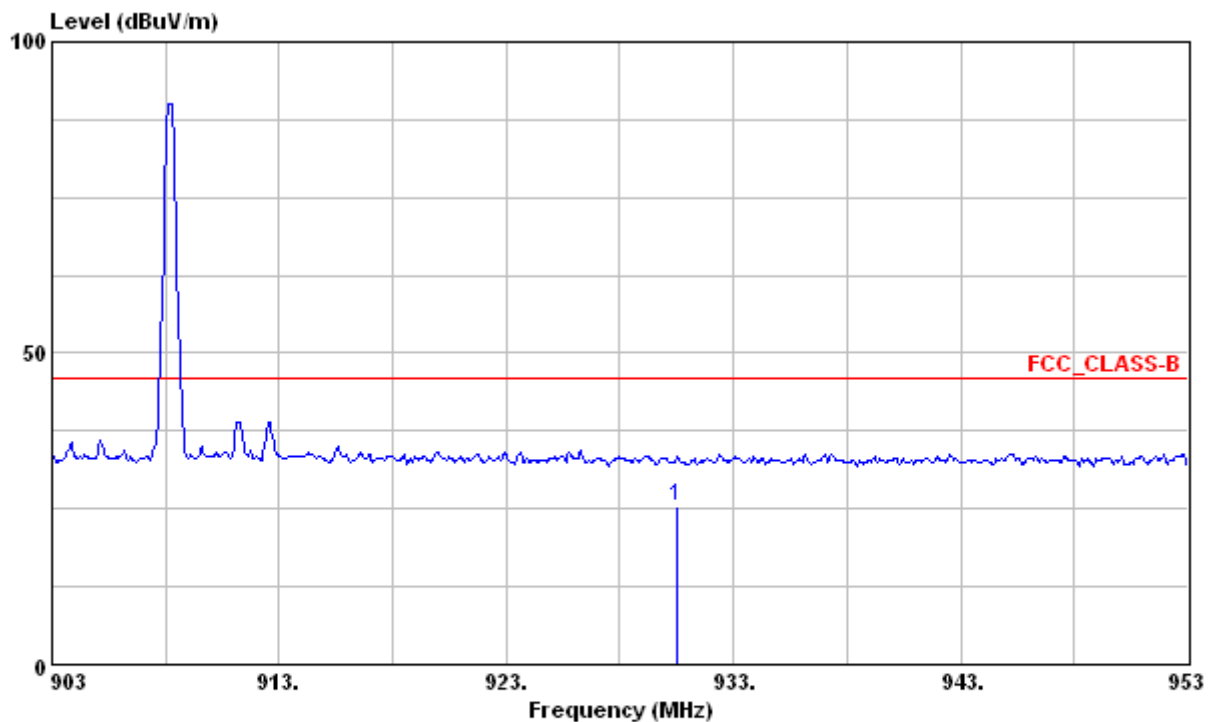
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

Test Mode : Continuous Transmitting, 908.18MHz

Test Distance : 3m

Tester : Jacky

Polarization : Horizontal



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	930.550	25.28	25.75	-0.47	46.00	-20.72	100	165	HORIZONTAL	QP

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

Radiated Emission Measurement below 1000MHz

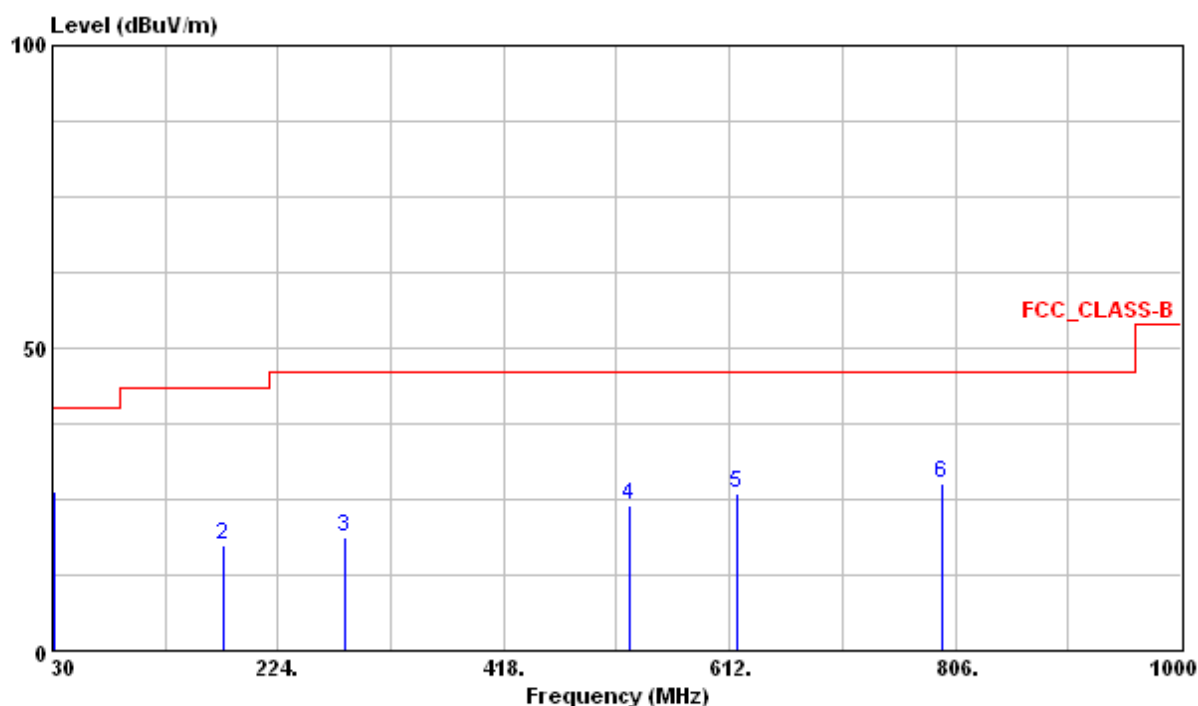
Test Mode : Continuous Transmitting, 906.358MHz

Test Distance : 3m

Tester : Jacky

Polarization : Vertical

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 @	31.080	26.36	35.46	-9.10	40.00	-13.64	---	---	VERTICAL	Peak
2	177.420	17.37	33.08	-15.71	43.50	-26.13	---	---	VERTICAL	Peak
3	280.830	18.77	31.82	-13.05	46.00	-27.23	---	---	VERTICAL	Peak
4	525.400	24.00	30.35	-6.35	46.00	-22.00	---	---	VERTICAL	Peak
5	618.500	25.92	30.56	-4.64	46.00	-20.08	---	---	VERTICAL	Peak
6	794.200	27.70	30.07	-2.37	46.00	-18.30	---	---	VERTICAL	Peak

Note :

- Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
- Emission Level (dBuV/m) = Reading Data + Correction Factor

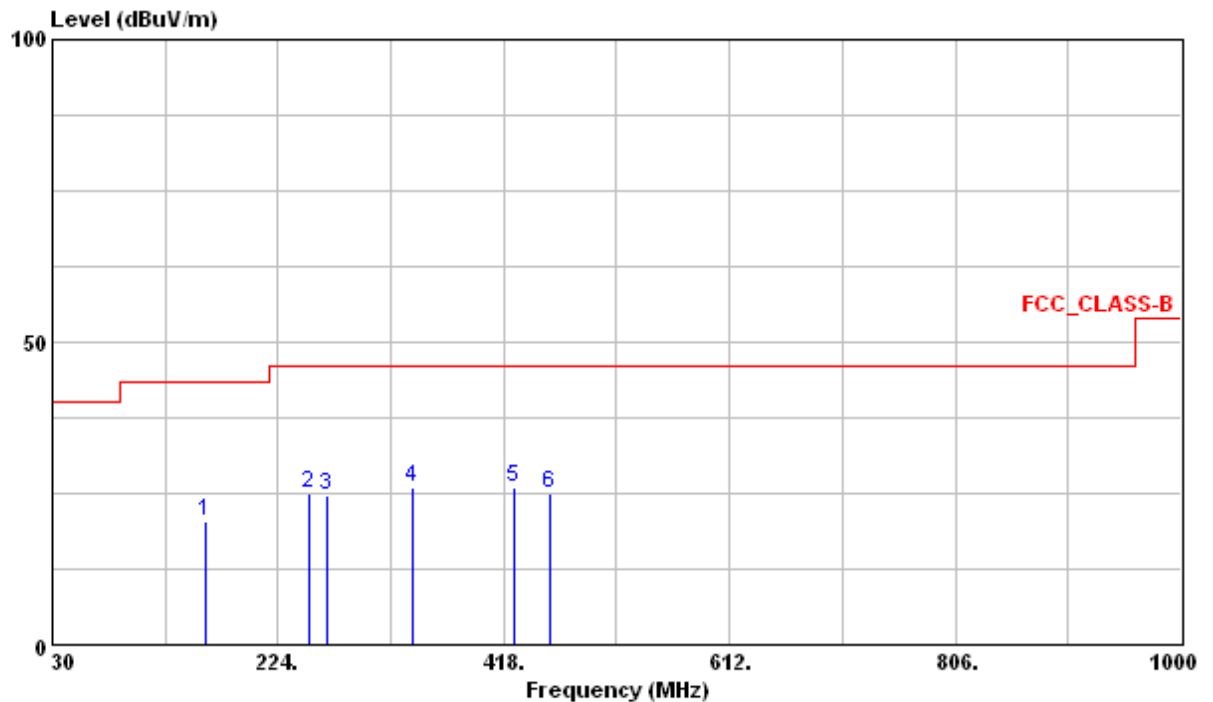
Test Mode : Continuous Transmitting, 906.358MHz

Test Distance : 3m

Tester : Jacky

Polarization : Horizontal

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read	Limit	Over	Ant	Table		
	MHz	dBuV/m	Level	Factor	Line	Limit	Pos	Pos	Pol/Phase
			dBuV	dB/m	dBuV/m	dB	cm	deg	Remark
1	162.300	20.37	37.32	-16.95	43.50	-23.13	---	---	HORIZONTAL Peak
2	251.130	24.85	38.75	-13.90	46.00	-21.15	---	---	HORIZONTAL Peak
3	265.980	24.66	37.92	-13.26	46.00	-21.34	---	---	HORIZONTAL Peak
4	339.900	26.08	36.87	-10.79	46.00	-19.92	---	---	HORIZONTAL Peak
5	427.400	25.88	34.43	-8.55	46.00	-20.12	---	---	HORIZONTAL Peak
6	457.500	25.05	33.17	-8.12	46.00	-20.95	---	---	HORIZONTAL Peak

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

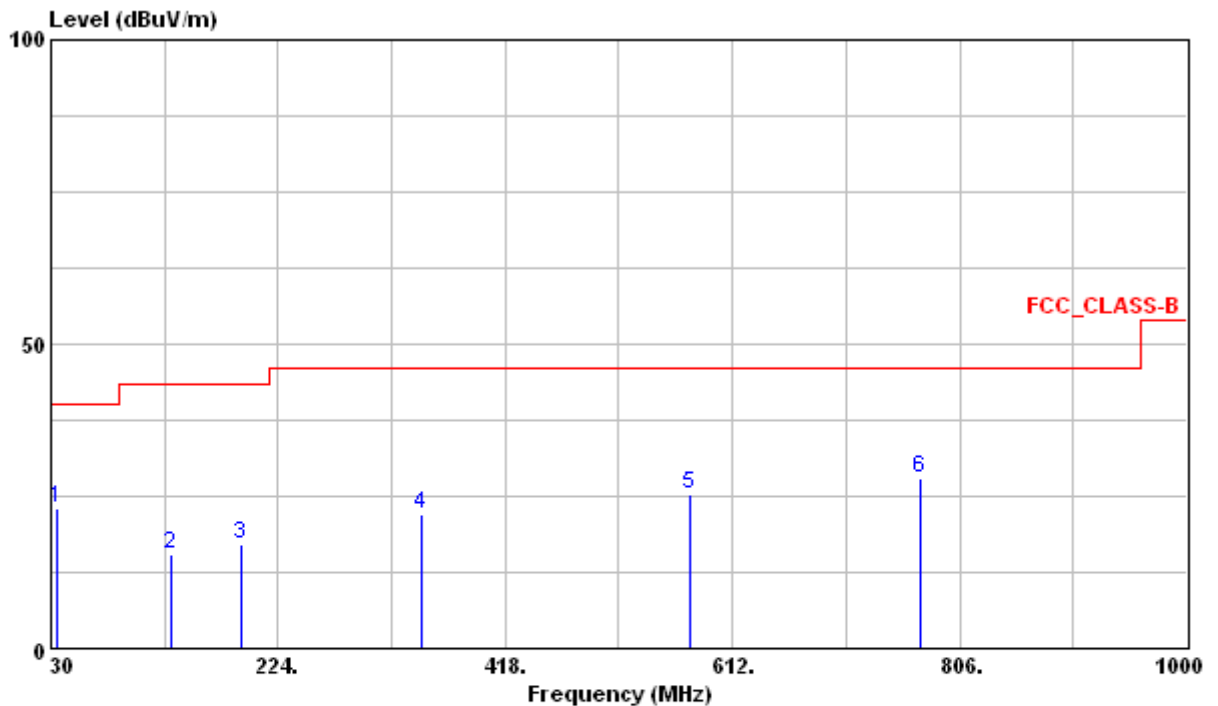
Test Mode : Continuous Transmitting, 908.18MHz

Test Distance : 3m

Tester : Jacky

Polarization : Vertical

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	34.590	23.01	34.34	-11.33	40.00	-16.99	---	---	VERTICAL	Peak
2	132.600	15.50	34.90	-19.40	43.50	-28.00	---	---	VERTICAL	Peak
3	192.270	16.99	32.87	-15.88	43.50	-26.51	---	---	VERTICAL	Peak
4	346.900	22.08	32.62	-10.54	46.00	-23.92	---	---	VERTICAL	Peak
5	576.500	25.19	30.32	-5.13	46.00	-20.81	---	---	VERTICAL	Peak
6	773.200	27.91	30.46	-2.55	46.00	-18.09	---	---	VERTICAL	Peak

Note :

- Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
- Emission Level (dBuV/m) = Reading Data + Correction Factor

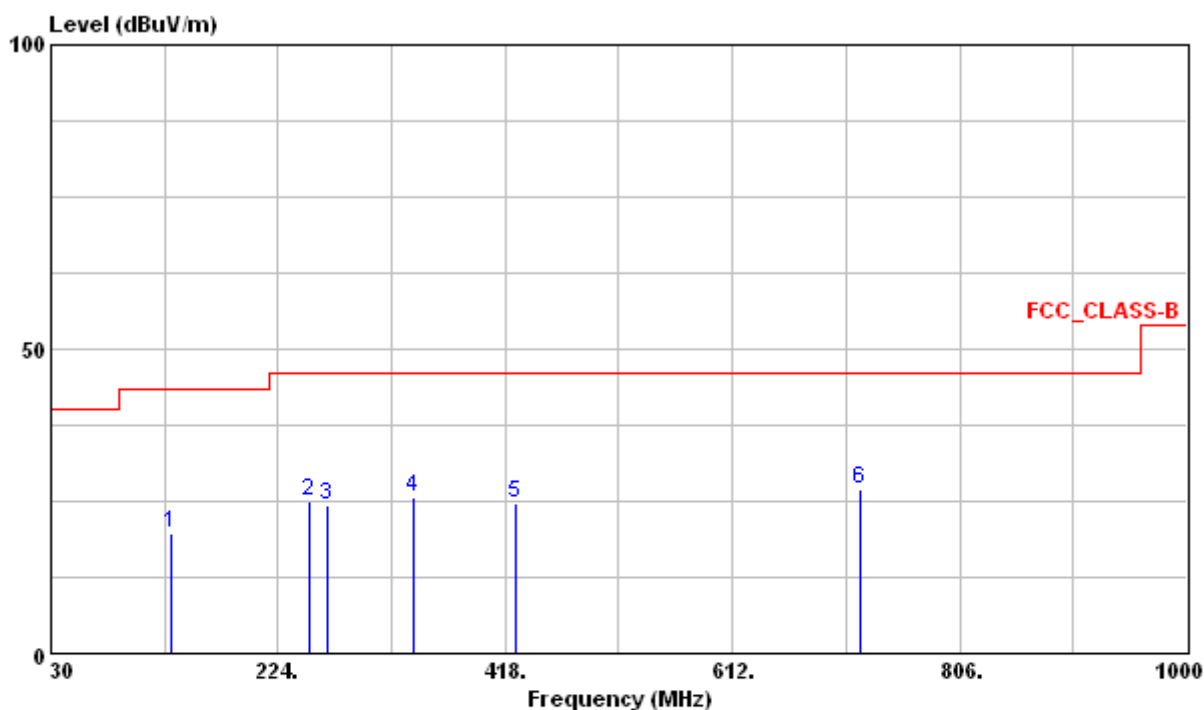
Test Mode : Continuous Transmitting, 908.18MHz

Test Distance : 3m

Tester : Jacky

Polarization : Horizontal

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	132.600	19.63	39.03	-19.40	43.50	-23.87	---	---	HORIZONTAL	Peak
2	251.130	25.04	38.94	-13.90	46.00	-20.96	---	---	HORIZONTAL	Peak
3	265.980	24.39	37.65	-13.26	46.00	-21.61	---	---	HORIZONTAL	Peak
4	339.900	25.78	36.57	-10.79	46.00	-20.22	---	---	HORIZONTAL	Peak
5	427.400	24.77	33.32	-8.55	46.00	-21.23	---	---	HORIZONTAL	Peak
6	720.700	26.85	29.76	-2.91	46.00	-19.15	---	---	HORIZONTAL	Peak

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

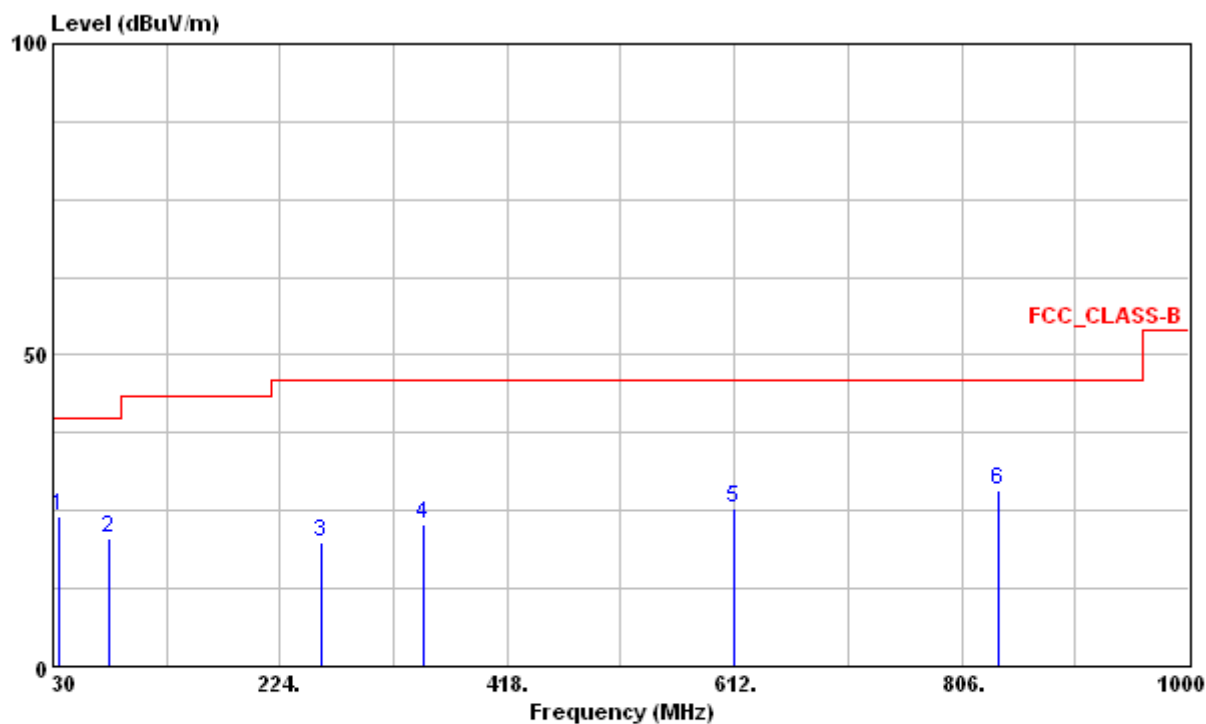
Test Mode : Continuous Receiving, 906.358MHz

Test Distance : 3m

Tester : Jacky

Polarization : Vertical

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	35.940	24.03	36.15	-12.12	40.00	-15.97	---	---	VERTICAL	Peak
2	77.790	20.45	40.74	-20.29	40.00	-19.55	---	---	VERTICAL	Peak
3	259.770	19.94	33.47	-13.53	46.00	-26.06	---	---	VERTICAL	Peak
4	346.900	22.70	33.24	-10.54	46.00	-23.30	---	---	VERTICAL	Peak
5	611.500	25.27	29.92	-4.65	46.00	-20.73	---	---	VERTICAL	Peak
6	838.300	28.32	30.14	-1.82	46.00	-17.68	---	---	VERTICAL	Peak

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

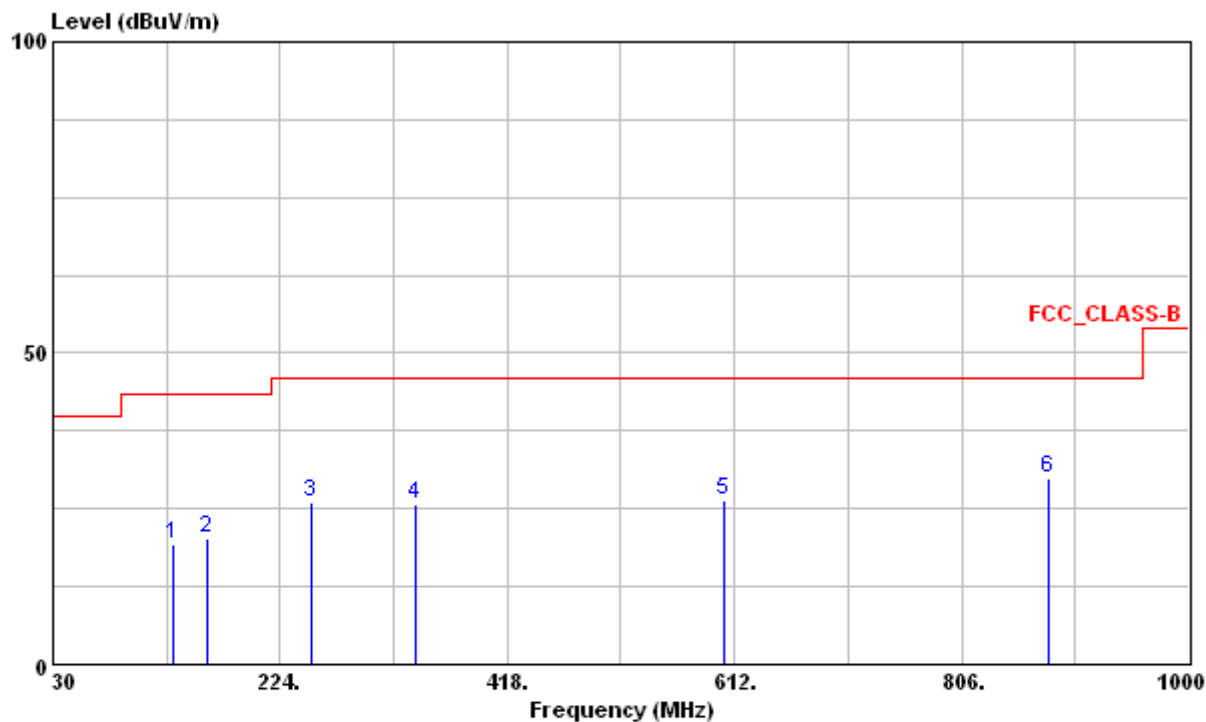
Test Mode : Continuous Receiving, 906.358MHz

Test Distance : 3m

Tester : Jacky

Polarization : Horizontal

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	132.600	19.26	38.66	-19.40	43.50	-24.24	---	---	HORIZONTAL	Peak
2	162.300	20.27	37.22	-16.95	43.50	-23.23	---	---	HORIZONTAL	Peak
3	251.130	26.01	39.91	-13.90	46.00	-19.99	---	---	HORIZONTAL	Peak
4	339.900	25.73	36.52	-10.79	46.00	-20.27	---	---	HORIZONTAL	Peak
5	603.100	26.25	30.90	-4.65	46.00	-19.75	---	---	HORIZONTAL	Peak
6	880.300	30.04	31.05	-1.01	46.00	-15.96	---	---	HORIZONTAL	Peak

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

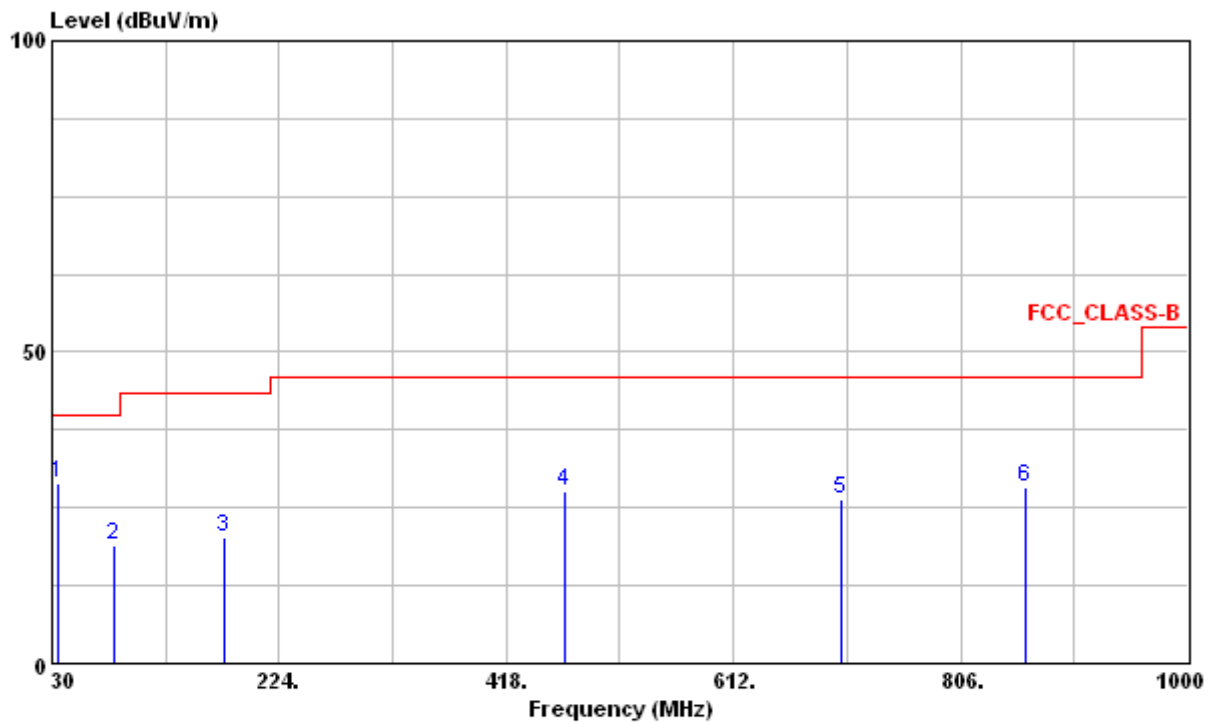
Test Mode : Continuous Receiving, 908.18MHz

Test Distance : 3m

Tester : Jacky

Polarization : Vertical

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read	Factor	Limit	Over	Ant	Table		
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	Pos	Pos	Pol/Phase	Remark
							cm	deg		
1	34.590	28.87	40.20	-11.33	40.00	-11.13	---	---	VERTICAL	Peak
2	82.650	18.86	38.93	-20.07	40.00	-21.14	---	---	VERTICAL	Peak
3	177.960	20.17	35.82	-15.65	43.50	-23.33	---	---	VERTICAL	Peak
4	468.000	27.79	35.66	-7.87	46.00	-18.21	---	---	VERTICAL	Peak
5	703.200	26.50	29.50	-3.00	46.00	-19.50	---	---	VERTICAL	Peak
6	860.700	28.43	29.87	-1.44	46.00	-17.57	---	---	VERTICAL	Peak

Note :

- Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
- Emission Level (dBuV/m) = Reading Data + Correction Factor

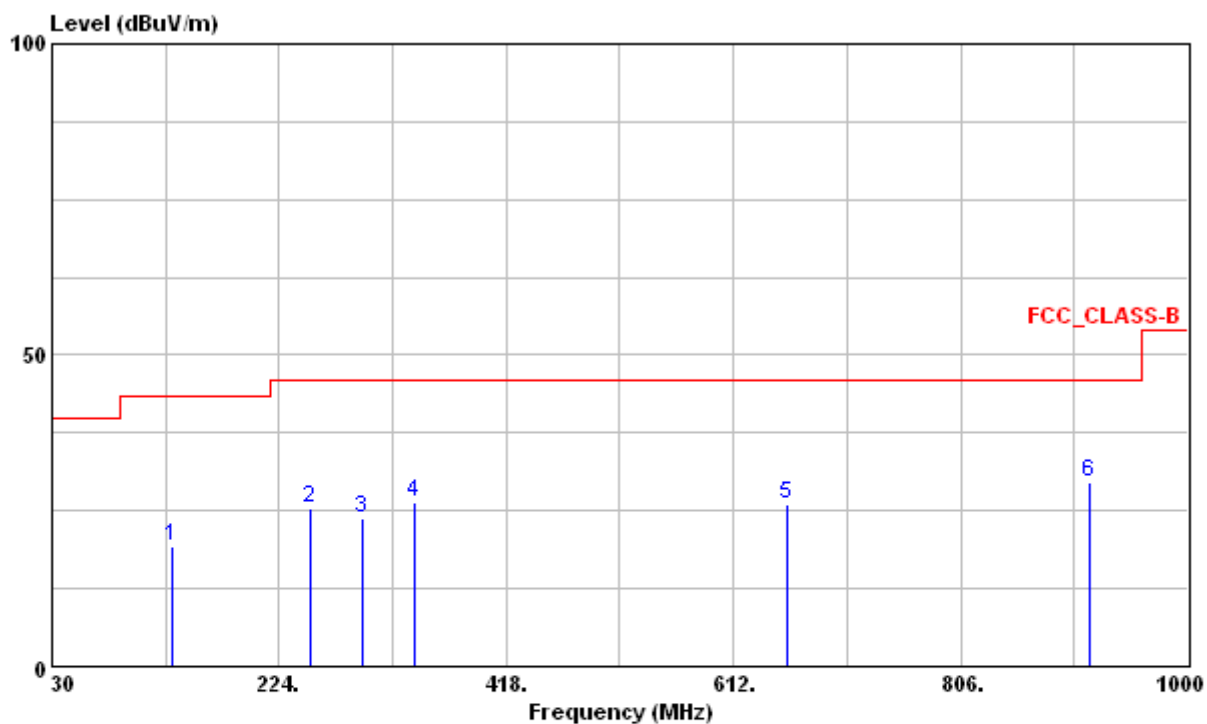
Test Mode : Continuous Receiving, 908.18MHz

Test Distance : 3m

Tester : Jacky

Polarization : Horizontal

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	132.600	19.31	38.71	-19.40	43.50	-24.19	---	---	HORIZONTAL	Peak
2	251.130	25.34	39.24	-13.90	46.00	-20.66	---	---	HORIZONTAL	Peak
3	295.680	23.88	36.46	-12.58	46.00	-22.12	---	---	HORIZONTAL	Peak
4	339.900	26.50	37.29	-10.79	46.00	-19.50	---	---	HORIZONTAL	Peak
5	657.700	26.05	30.44	-4.39	46.00	-19.95	---	---	HORIZONTAL	Peak
6	916.700	29.47	29.99	-0.52	46.00	-16.53	---	---	HORIZONTAL	Peak

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

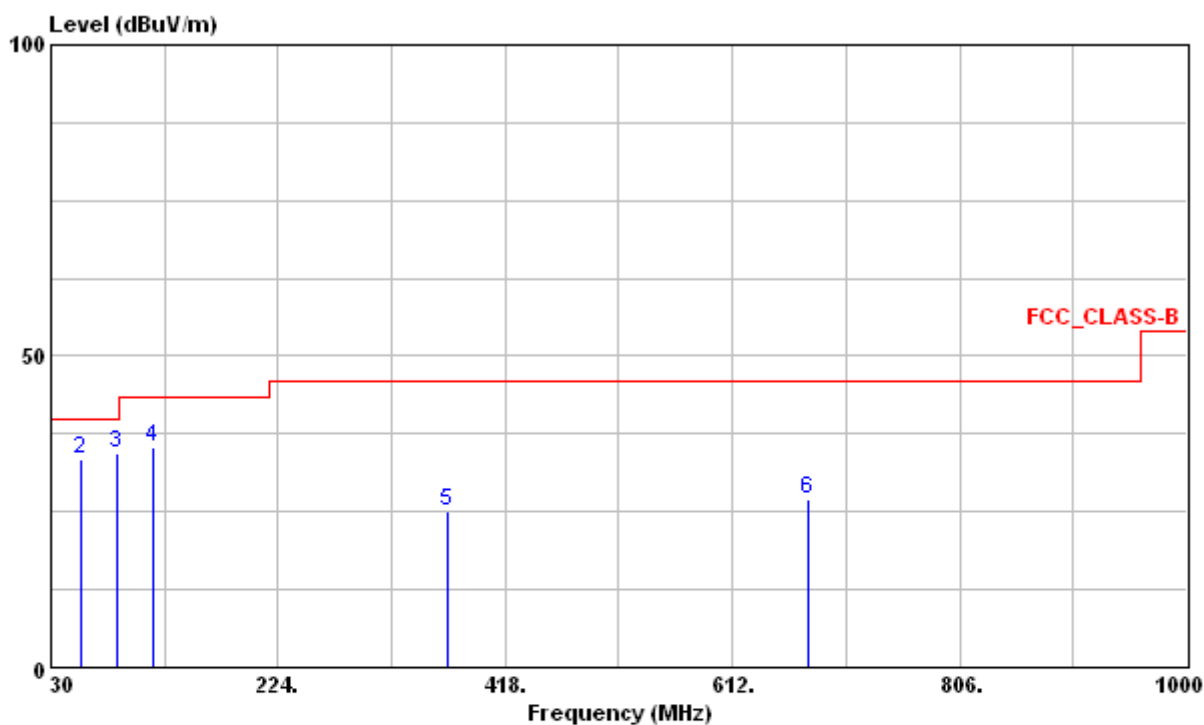
Test Mode : Recharge

Test Distance : 3m

Polarization : Vertical

Tester : Jacky

Frequency Range : 30MHz~1000MHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 @	30.000	38.08	46.50	-8.42	40.00	-1.92	101	119	VERTICAL	QP
2 @	56.190	33.52	52.36	-18.84	40.00	-6.48	---	---	VERTICAL	Peak
3 @	86.700	34.35	54.10	-19.75	40.00	-5.65	---	---	VERTICAL	Peak
4 @	117.210	35.43	54.83	-19.40	43.50	-8.07	---	---	VERTICAL	Peak
5	369.300	25.22	35.03	-9.81	46.00	-20.78	---	---	VERTICAL	Peak
6	676.600	26.93	30.71	-3.78	46.00	-19.07	---	---	VERTICAL	Peak

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor

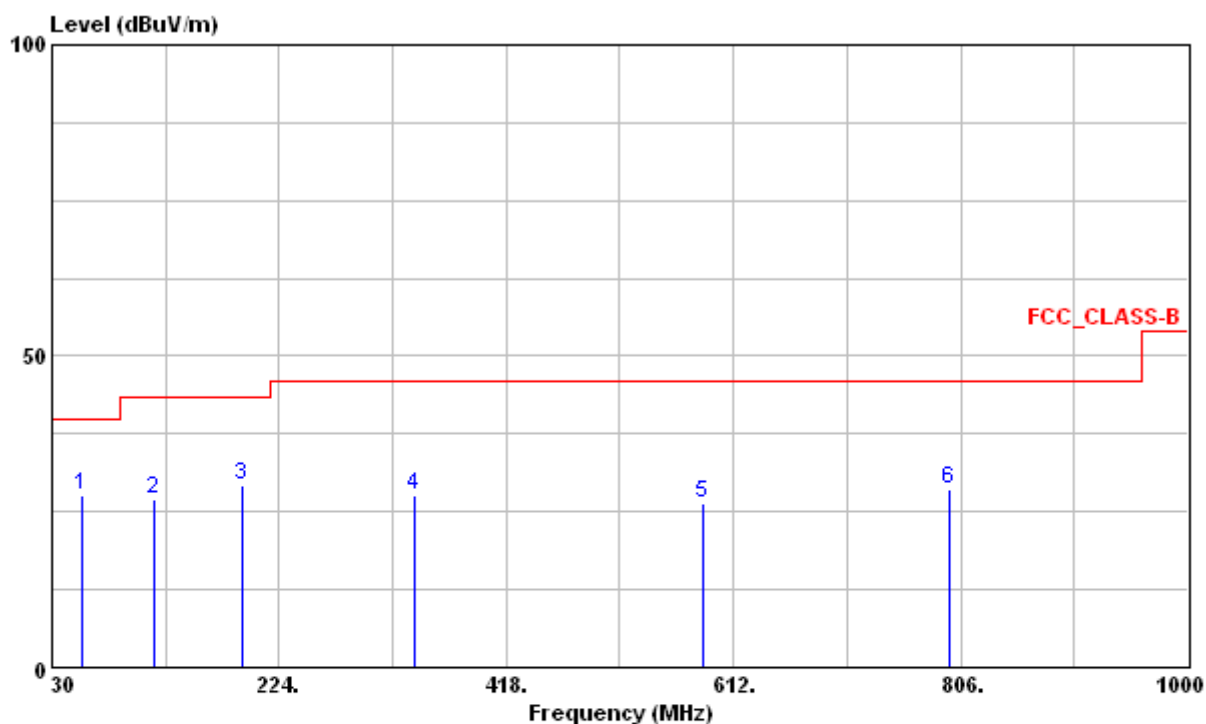
Test Mode : Recharge

Test Distance : 3m

Polarization : Horizontal

Tester : Jacky

Frequency Range : 30MHz~1000MHz



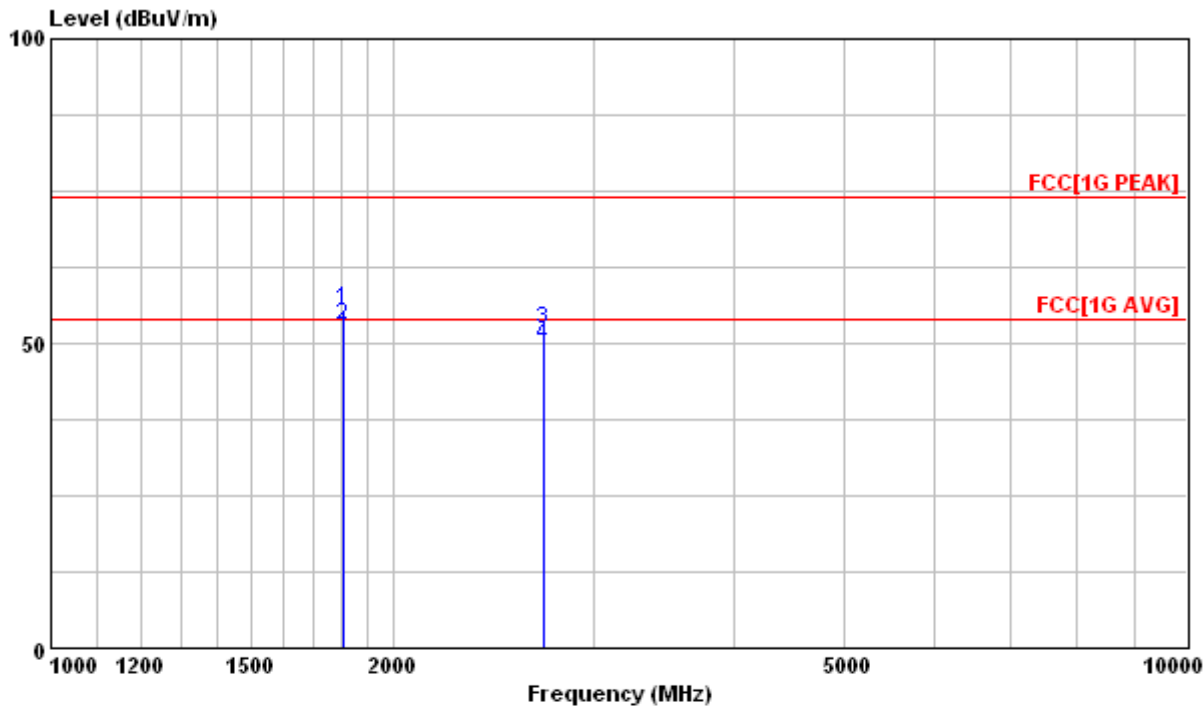
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	55.380	27.73	46.45	-18.72	40.00	-12.27	---	---	HORIZONTAL	Peak
2	117.210	26.94	46.34	-19.40	43.50	-16.56	---	---	HORIZONTAL	Peak
3	192.270	29.33	45.21	-15.88	43.50	-14.17	---	---	HORIZONTAL	Peak
4	339.900	27.72	38.51	-10.79	46.00	-18.28	---	---	HORIZONTAL	Peak
5	585.600	26.48	31.41	-4.93	46.00	-19.52	---	---	HORIZONTAL	Peak
6	796.300	28.59	30.95	-2.36	46.00	-17.41	---	---	HORIZONTAL	Peak

Note :

- Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
- Emission Level (dBuV/m) = Reading Data + Correction Factor

Radiated Emission Measurement above 1000MHz

Test Mode : Continuous Transmitting, 906.358MHz
Test Distance : 3m Tester : Jacky
Antenna Polarization : Vertical Frequency Range :1GHz~10GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBUV/m	dBuV	dB/m	dBUV/m	dB	cm	deg		
1	1812.600	55.43	85.50	-30.07	74.00	-18.57	100	177	VERTICAL	Peak
2 @	1812.600	52.93	83.02	-30.09	54.00	-1.07	100	177	VERTICAL	Average
3	2719.163	52.15	79.44	-27.29	74.00	-21.85	100	265	VERTICAL	Peak
4	2719.163	49.54	76.83	-27.29	54.00	-4.46	100	265	VERTICAL	Average

- Note:
- Emission Level (dBUV/m) = Reading Value + Correction Factor.
 - Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
 - PK. and AV. are abbreviation of peak and average respectively.

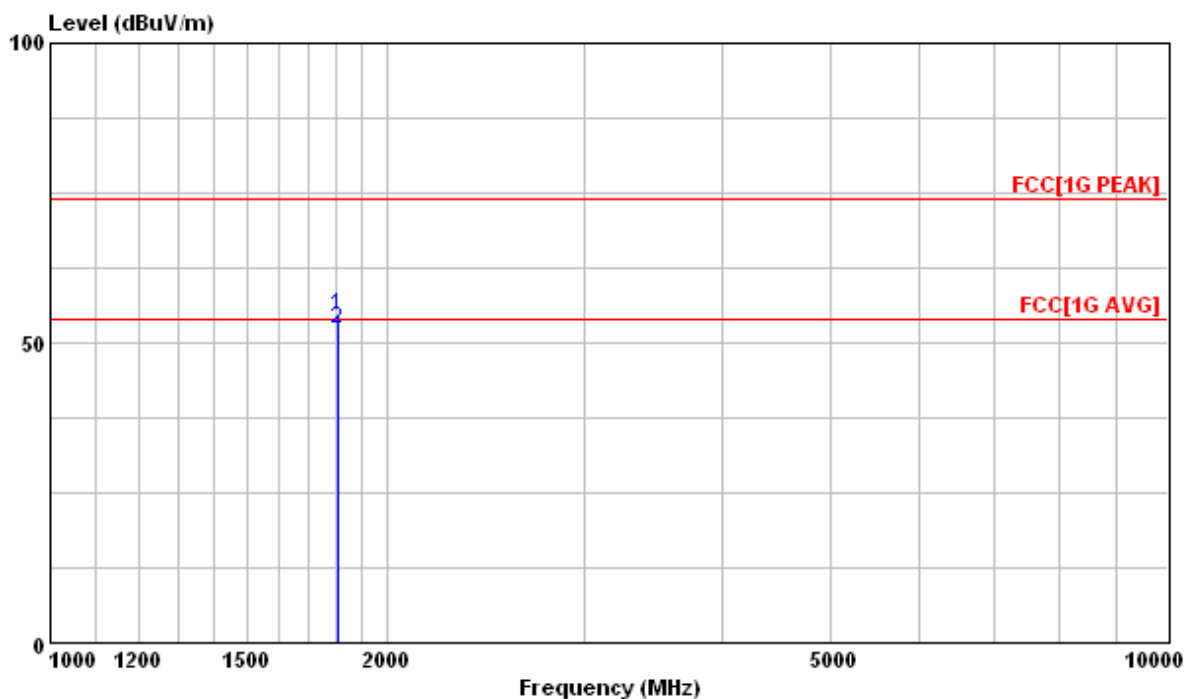
Test Mode : Continuous Transmitting, 906.358MHz

Test Distance : 3m

Tester : Jacky

Antenna Polarization : Horizontal

Frequency Range :1GHz~10GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1812.650	54.54	84.61	-30.07	74.00	-19.46	100	114	HORIZONTAL	Peak
2	1812.650	52.39	82.46	-30.07	54.00	-1.61	100	114	HORIZONTAL	Average

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. PK. and AV. are abbreviation of peak and average respectively.

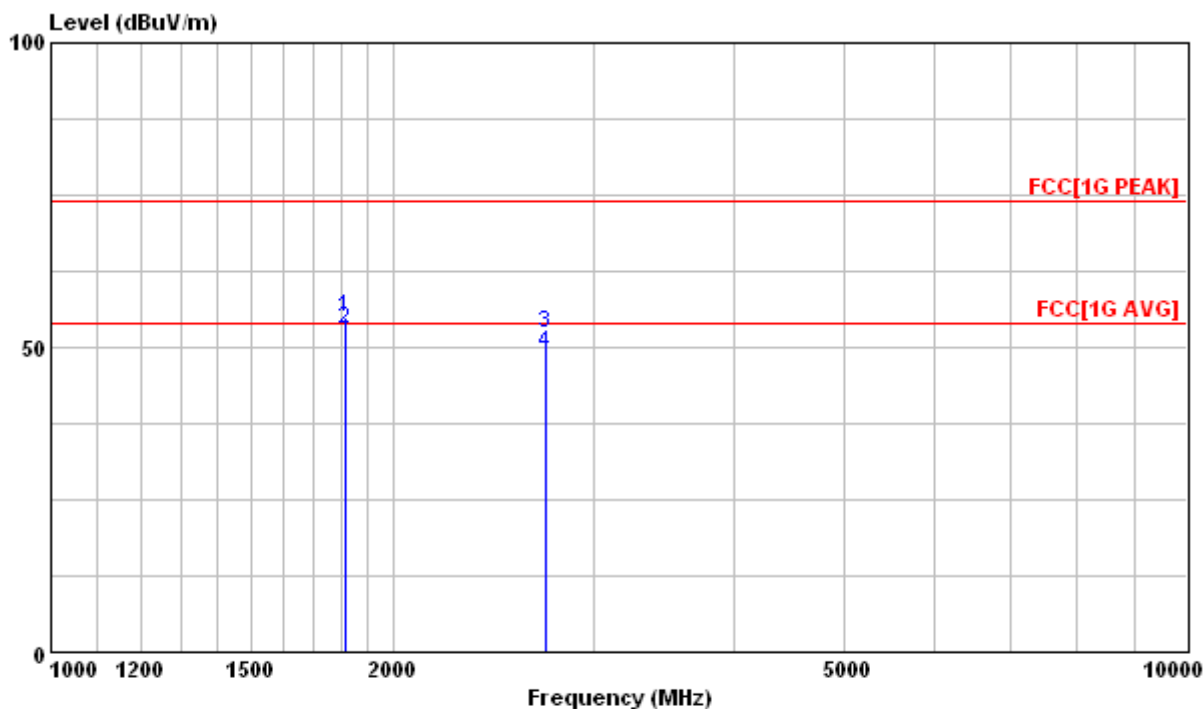
Test Mode : Continuous Transmitting, 908.18MHz

Test Distance : 3m

Tester : Jacky

Antenna Polarization : Vertical

Frequency Range :1GHz~10GHz



	Freq	Level	Read		Limit	Over	Ant	Table	Pol/Phase	Remark
			Level	Factor	Line	Limit	Pos	Pos		
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1816.300	54.94	84.98	-30.04	74.00	-19.06	144	183	VERTICAL	Peak
2 @	1816.300	52.94	82.98	-30.04	54.00	-1.06	144	183	VERTICAL	Average
3	2724.400	52.40	79.69	-27.29	74.00	-21.60	100	279	VERTICAL	Peak
4	2724.400	49.14	76.43	-27.29	54.00	-4.86	100	279	VERTICAL	Average

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. PK. and AV. are abbreviation of peak and average respectively.

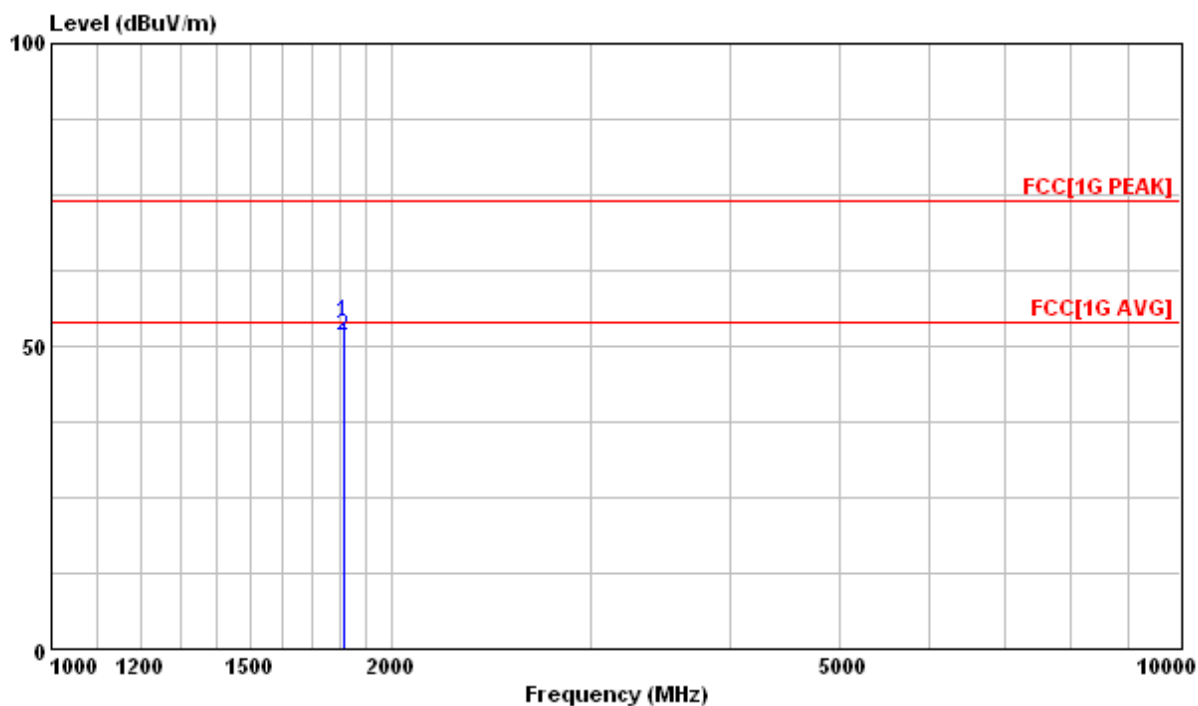
Test Mode : Continuous Transmitting, 908.18MHz

Test Distance : 3m

Tester : Jacky

Antenna Polarization : Horizontal

Frequency Range :1GHz~10GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1816.350	54.04	84.08	-30.04	74.00	-19.96	100	114	HORIZONTAL	Peak
2	1816.350	51.71	81.75	-30.04	54.00	-2.29	100	114	HORIZONTAL	Average

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. PK. and AV. are abbreviation of peak and average respectively.

Test Mode

: Continuous Receiving, 906.358MHz

Test Distance

: 3m

Tester

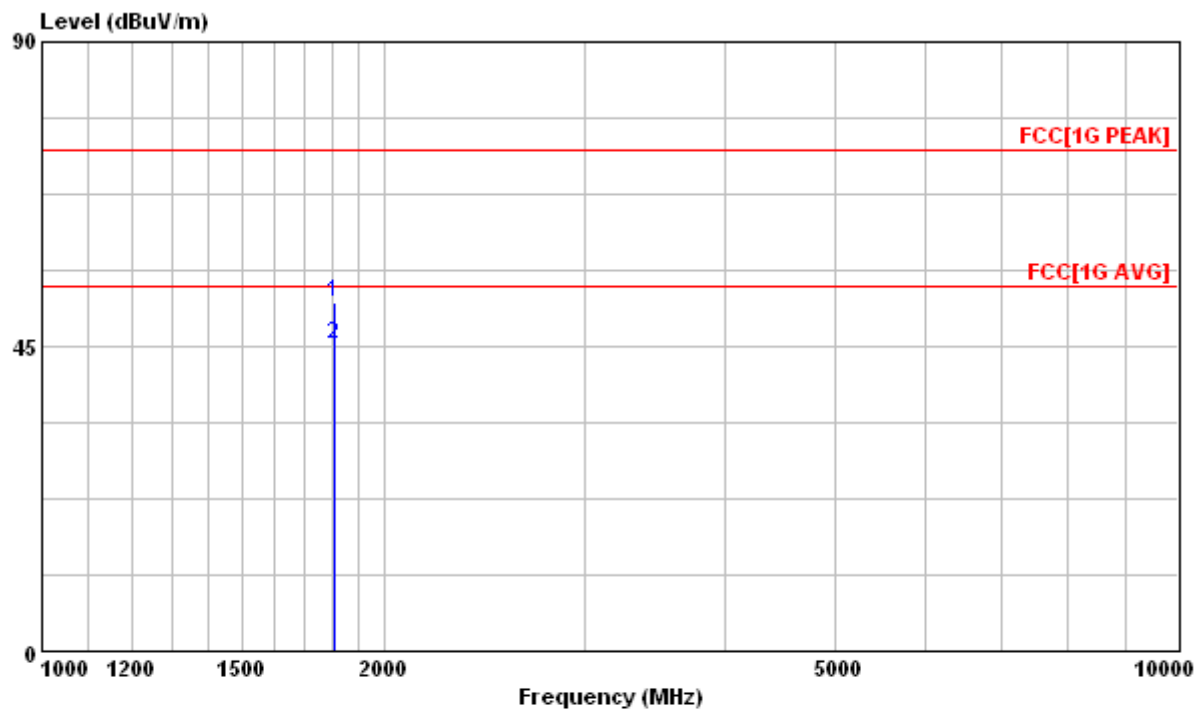
: Jacky

Antenna Polarization

: Vertical

Frequency Range

: 1GHz~10GHz



	Freq	Level	Read		Limit	Over	Ant	Table		Remark
	MHz	dBuV/m	Level	Factor	Line	Limit	Pos	Pos	Pol/Phase	
			dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1812.075	51.51	81.58	-30.07	74.00	-22.49	100	191	VERTICAL	Peak
2	1812.075	45.28	75.35	-30.07	54.00	-8.72	100	191	VERTICAL	Average

- Note:
1.

Emission Level (dBUV/m) = Reading Value + Correction Factor.
2.

Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3.

PK. and AV. are abbreviation of peak and average respectively.

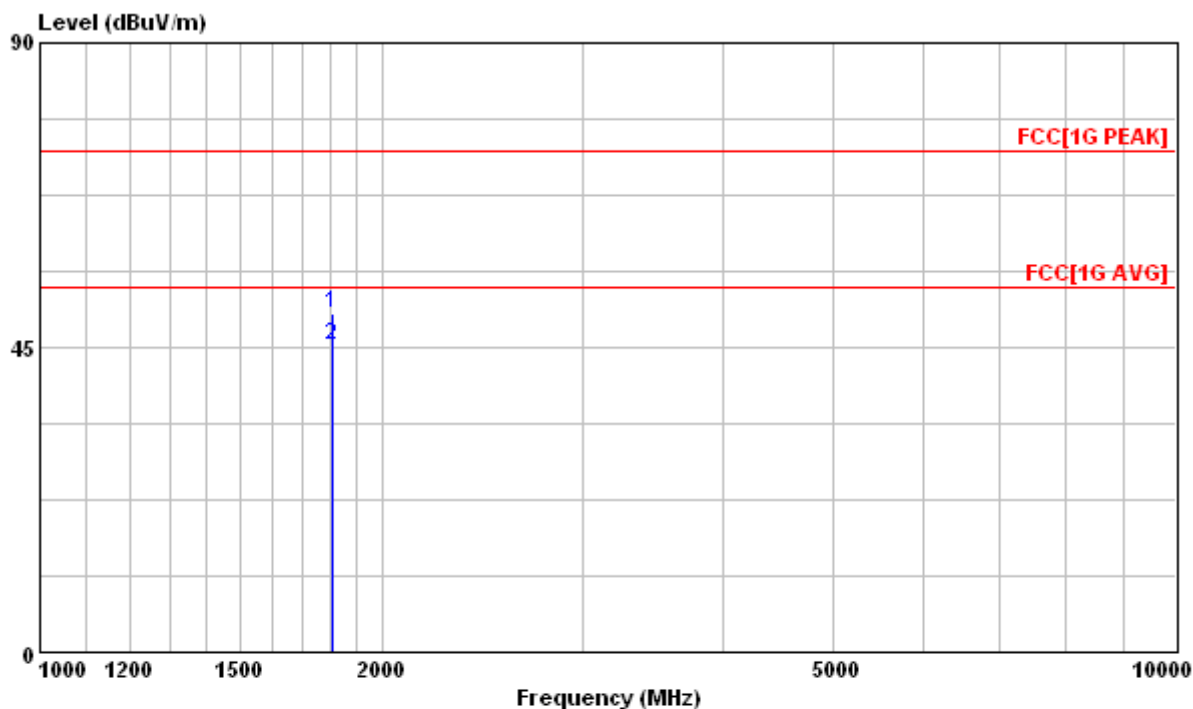
Test Mode : Continuous Receiving, 906.358MHz

Test Distance : 3m

Tester : Jacky

Antenna Polarization : Horizontal

Frequency Range :1GHz~10GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1812.037	50.09	80.16	-30.07	74.00	-23.91	132	37	HORIZONTAL	Peak
2	1812.037	45.43	75.50	-30.07	54.00	-8.57	132	37	HORIZONTAL	Average

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. PK. and AV. are abbreviation of peak and average respectively.

Test Mode

: Continuous Receiving, 908.18MHz

Test Distance

: 3m

Tester

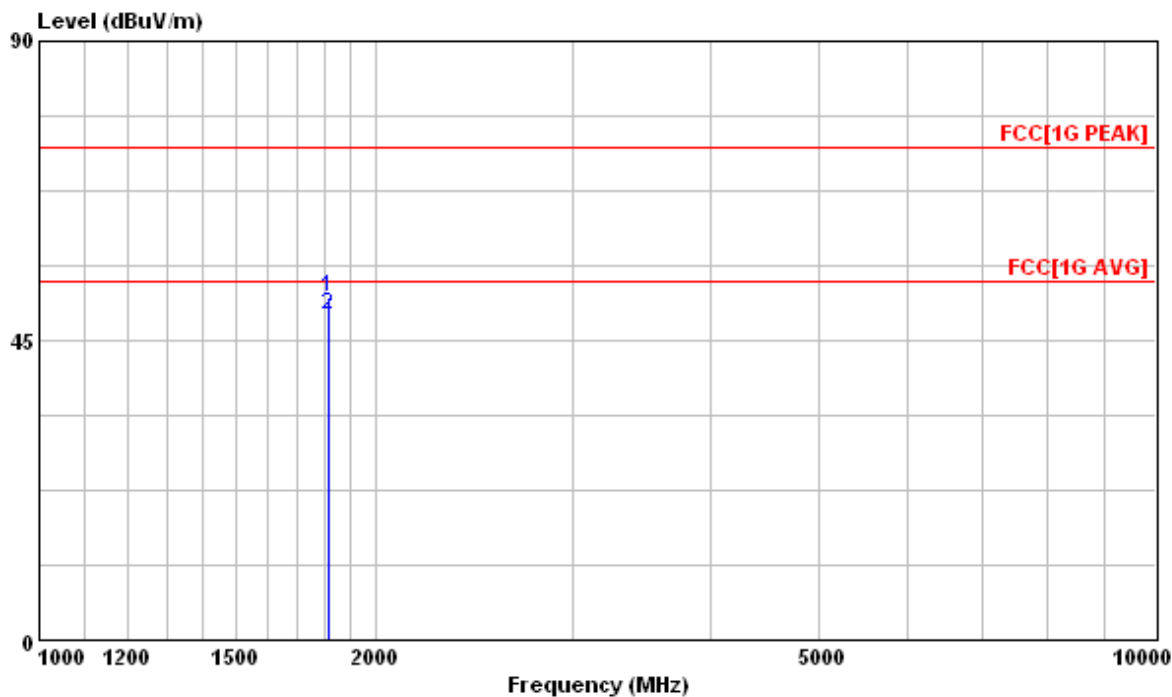
: Jacky

Antenna Polarization

: Vertical

Frequency Range

: 1GHz~10GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1815.775	51.41	81.45	-30.04	74.00	-22.59	211	92	VERTICAL	Peak
2	1815.775	48.77	78.81	-30.04	54.00	-5.23	211	92	VERTICAL	Average

- Note:
1.

Emission Level (dBuV/m) = Reading Value + Correction Factor.
2.

Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3.

PK. and AV. are abbreviation of peak and average respectively.

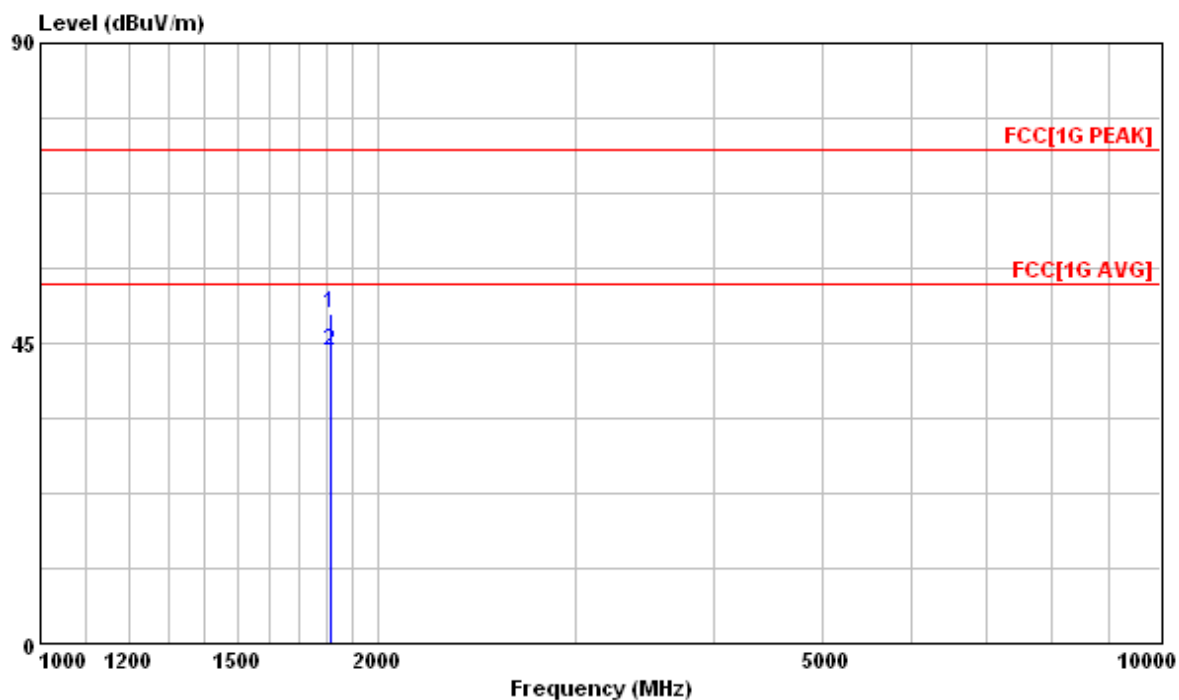
Test Mode : Continuous Receiving, 908.18MHz

Test Distance : 3m

Tester : Jacky

Antenna Polarization : Horizontal

Frequency Range :1GHz~10GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1815.863	49.44	79.48	-30.04	74.00	-24.56	124	115	HORIZONTAL	Peak
2	1815.863	43.83	73.87	-30.04	54.00	-10.17	124	115	HORIZONTAL	Average

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. PK. and AV. are abbreviation of peak and average respectively.

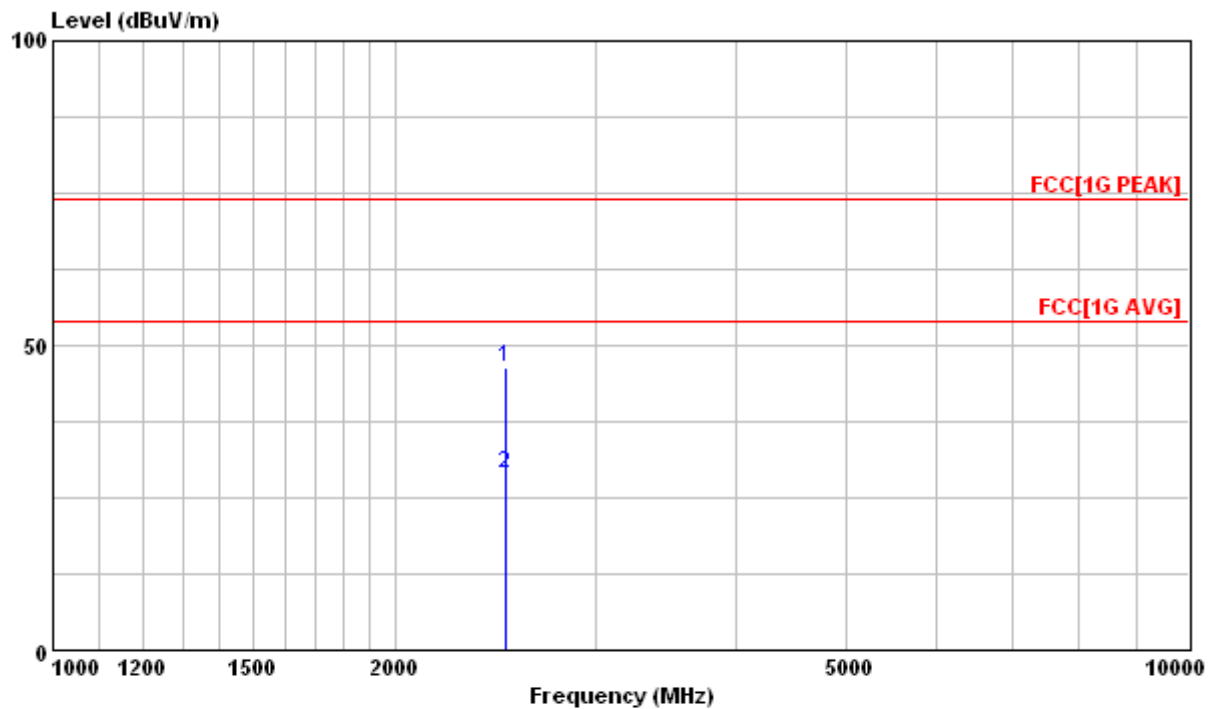
Test Mode : Recharge

Test Distance : 3m

Tester : Jacky

Antenna Polarization : Vertical

Frequency Range :1GHz~10GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2500.000	46.47	74.00	-27.53	74.00	-27.53	100	135	VERTICAL	Peak
2	2500.000	28.79	56.32	-27.53	54.00	-25.21	100	135	VERTICAL	Average

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. PK. and AV. are abbreviation of peak and average respectively.

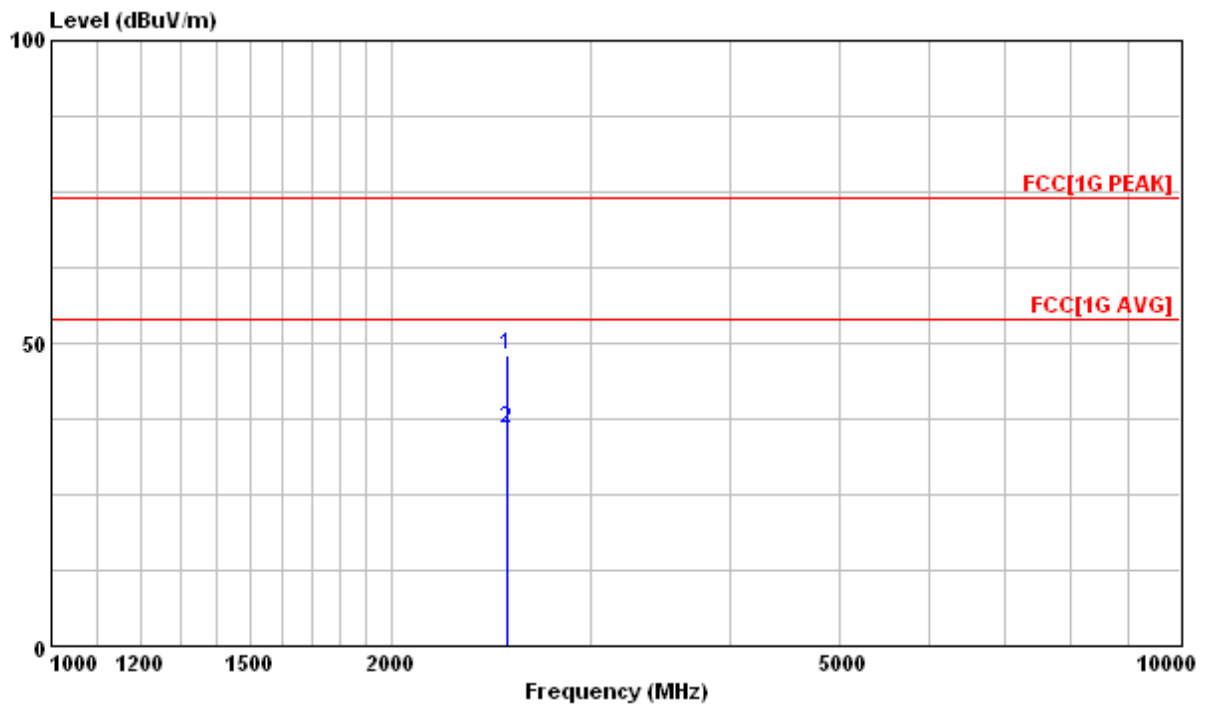
Test Mode : Recharge

Test Distance : 3m

Tester : Jacky

Antenna Polarization : Horizontal

Frequency Range :1GHz~10GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2539.000	47.97	75.46	-27.49	74.00	-26.03	113	125	HORIZONTAL	Peak
2	2539.000	35.78	63.27	-27.49	54.00	-18.22	113	125	HORIZONTAL	Average

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. PK. and AV. are abbreviation of peak and average respectively.

4 Conducted Emission Measurement

Test Result: Pass

4.1 Limits for Emission Measurement

For intentional device, according to §15.207(a) line conduction emission limit is as below table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency.

4.2 Test Instruments

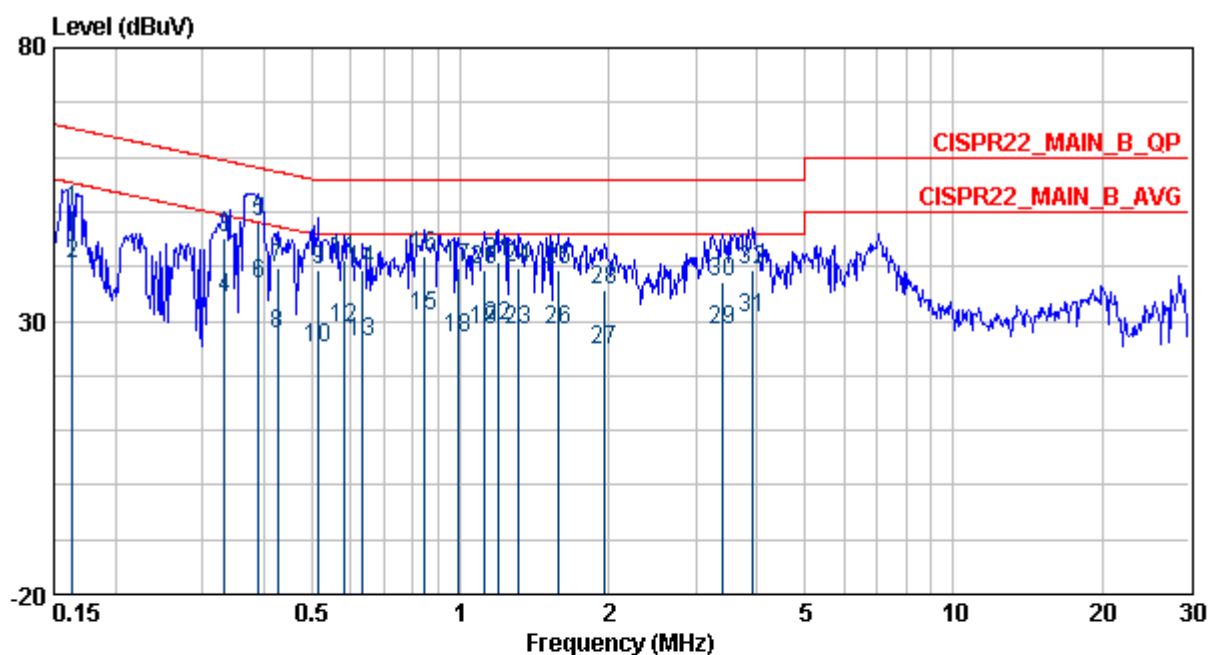
Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
Test Receiver	R&S	ESCS 30/ 836858/021	Jan. 13, 2009	Jan. 13, 2010
LISN	R&S	ESH2-Z5/ 836613/001	Aug. 13, 2008	Aug. 13, 2009
2 nd LISN	R&S	ENV4200/ 833209/010	Jan. 13, 2008	Jan. 13, 2009
50Ω terminator	N/A	N/A/ 001	Aug. 26, 2008	Aug. 26, 2009
RF Switch	N/A	RSU28/ 338965/002	Sept. 2, 2008	March 2, 2009
RF Cable	N/A	N/A/ C0052 ~ 56	Sept. 2, 2008	March 2, 2009
Test Software	Audix	e3/ Ver. 5.2004-2-19j	NCR	NCR
TR5 shielded room	ETS LINDGREN	TR5/ 15353-F	NCR	NCR

Note:

1. The calibrations are traceable to NML/ROC.
2. NCR : No Calibration Required.

4.3 Test Data

Test Mode : Recharge
 Tester : CDC Frequency Range : 150kHz~30MHz
 Phase : Line



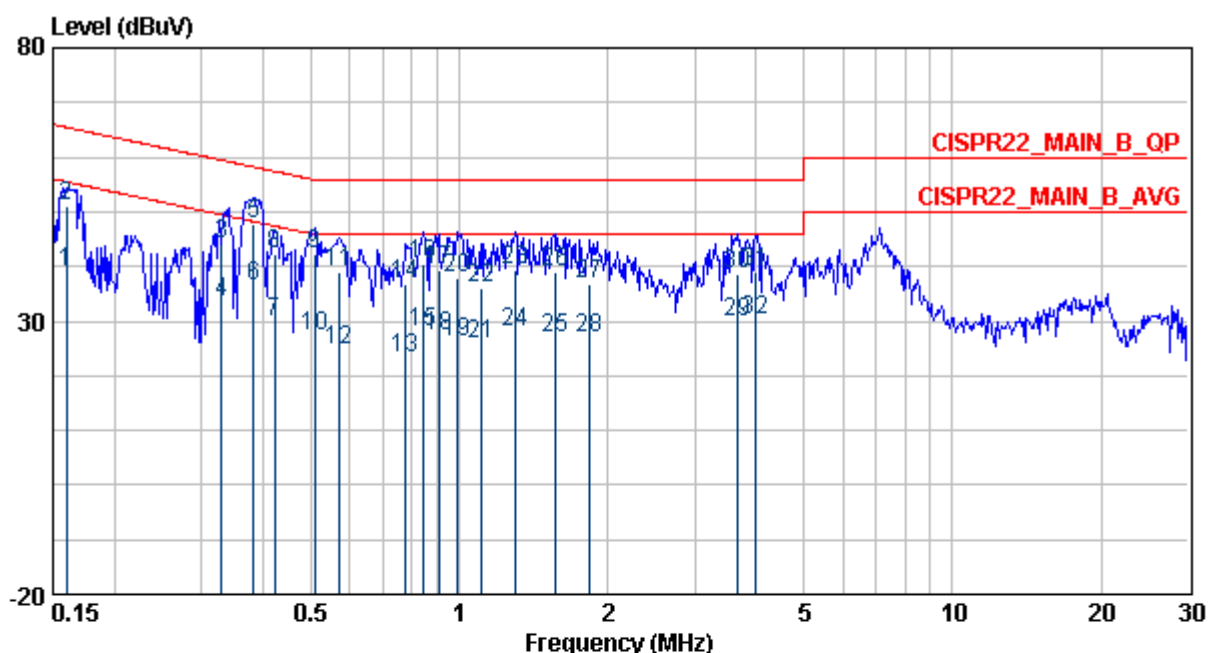
	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	cm		
1	0.16	50.43	0.14	50.29	65.30	-14.87	---	LINE	QP
2	0.16	40.56	0.14	40.42	55.30	-14.74	---	LINE	AVERAGE
3	0.33	45.02	0.15	44.87	59.40	-14.37	---	LINE	QP
4	0.33	34.08	0.15	33.93	49.40	-15.31	---	LINE	AVERAGE
5	0.39	47.95	0.15	47.80	58.08	-10.13	---	LINE	QP
6	0.39	36.61	0.15	36.46	48.08	-11.47	---	LINE	AVERAGE
7	0.43	39.88	0.15	39.73	57.33	-17.45	---	LINE	QP
8	0.43	27.50	0.15	27.35	47.33	-19.83	---	LINE	AVERAGE
9	0.52	39.40	0.16	39.24	56.00	-16.60	---	LINE	QP
10	0.52	24.93	0.16	24.77	46.00	-21.07	---	LINE	AVERAGE
11	0.58	41.30	0.16	41.14	56.00	-14.70	---	LINE	QP
12	0.58	28.61	0.16	28.45	46.00	-17.39	---	LINE	AVERAGE
13	0.63	26.18	0.17	26.01	46.00	-19.82	---	LINE	AVERAGE
14	0.63	39.49	0.17	39.32	56.00	-16.51	---	LINE	QP
15	0.84	30.80	0.19	30.61	46.00	-15.20	---	LINE	AVERAGE
16	0.84	41.83	0.19	41.64	56.00	-14.17	---	LINE	QP
17	0.99	39.83	0.20	39.63	56.00	-16.17	---	LINE	QP
18	0.99	26.97	0.20	26.77	46.00	-19.03	---	LINE	AVERAGE
19	1.12	28.37	0.21	28.16	46.00	-17.63	---	LINE	AVERAGE
20	1.12	39.19	0.21	38.98	56.00	-16.81	---	LINE	QP
21	1.19	40.64	0.21	40.43	56.00	-15.36	---	LINE	QP
22	1.19	28.94	0.21	28.73	46.00	-17.06	---	LINE	AVERAGE

	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	cm		
23	1.32	28.19	0.22	27.97	46.00	-17.81	---	LINE	AVERAGE
24	1.32	39.64	0.22	39.42	56.00	-16.36	---	LINE	QP
25	1.59	39.25	0.23	39.02	56.00	-16.75	---	LINE	QP
26	1.59	28.29	0.23	28.06	46.00	-17.71	---	LINE	AVERAGE
27	1.96	24.57	0.24	24.33	46.00	-21.43	---	LINE	AVERAGE
28	1.96	35.66	0.24	35.42	56.00	-20.34	---	LINE	QP
29	3.40	28.53	0.34	28.19	46.00	-17.47	---	LINE	AVERAGE
30	3.40	37.12	0.34	36.78	56.00	-18.88	---	LINE	QP
31	3.92	30.59	0.38	30.21	46.00	-15.41	---	LINE	AVERAGE
32	3.92	39.52	0.38	39.14	56.00	-16.48	---	LINE	QP

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + insertion loss of LISN.
3. Q.P. is abbreviation of quasi-peak.

Test Mode : Recharge
 Tester : CDC Frequency Range : 150kHz~30MHz
 Phase : Neutral



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	cm		
1	0.16	38.99	0.14	38.85	55.47	-16.48	---	NEUTRAL	AVERAGE
2	0.16	50.93	0.14	50.79	65.47	-14.54	---	NEUTRAL	QP
3	0.33	44.01	0.16	43.85	59.45	-15.44	---	NEUTRAL	QP
4	0.33	33.40	0.16	33.24	49.45	-16.05	---	NEUTRAL	AVERAGE
5 @	0.38	47.71	0.16	47.55	58.21	-10.50	---	NEUTRAL	QP
6	0.38	36.52	0.16	36.36	48.21	-11.69	---	NEUTRAL	AVERAGE
7	0.42	29.73	0.16	29.57	47.42	-17.69	---	NEUTRAL	AVERAGE
8	0.42	42.14	0.16	41.98	57.42	-15.28	---	NEUTRAL	QP
9	0.51	42.09	0.17	41.92	56.00	-13.91	---	NEUTRAL	QP
10	0.51	27.13	0.17	26.96	46.00	-18.87	---	NEUTRAL	AVERAGE
11	0.57	38.90	0.17	38.73	56.00	-17.10	---	NEUTRAL	QP
12	0.57	24.76	0.17	24.59	46.00	-21.24	---	NEUTRAL	AVERAGE
13	0.78	23.27	0.20	23.07	46.00	-22.73	---	NEUTRAL	AVERAGE
14	0.78	36.92	0.20	36.72	56.00	-19.08	---	NEUTRAL	QP
15	0.84	27.85	0.20	27.65	46.00	-18.15	---	NEUTRAL	AVERAGE
16	0.84	40.34	0.20	40.14	56.00	-15.66	---	NEUTRAL	QP
17	0.91	39.26	0.19	39.07	56.00	-16.74	---	NEUTRAL	QP
18	0.91	27.39	0.19	27.20	46.00	-18.61	---	NEUTRAL	AVERAGE
19	0.99	26.30	0.21	26.09	46.00	-19.70	---	NEUTRAL	AVERAGE
20	0.99	37.97	0.21	37.76	56.00	-18.03	---	NEUTRAL	QP
21	1.11	25.87	0.22	25.65	46.00	-20.13	---	NEUTRAL	AVERAGE
22	1.11	36.21	0.22	35.99	56.00	-19.79	---	NEUTRAL	QP

	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	cm		
23	1.30	39.22	0.22	39.00	56.00	-16.78	---	NEUTRAL	QP
24	1.30	27.95	0.22	27.73	46.00	-18.05	---	NEUTRAL	AVERAGE
25	1.56	26.86	0.23	26.63	46.00	-19.14	---	NEUTRAL	AVERAGE
26	1.56	39.03	0.23	38.80	56.00	-16.97	---	NEUTRAL	QP
27	1.84	36.90	0.24	36.66	56.00	-19.10	---	NEUTRAL	QP
28	1.84	26.83	0.24	26.59	46.00	-19.17	---	NEUTRAL	AVERAGE
29	3.68	29.75	0.38	29.37	46.00	-16.25	---	NEUTRAL	AVERAGE
30	3.68	38.66	0.38	38.28	56.00	-17.34	---	NEUTRAL	QP
31	3.99	38.88	0.40	38.48	56.00	-17.12	---	NEUTRAL	QP
32	3.99	30.30	0.40	29.90	46.00	-15.70	---	NEUTRAL	AVERAGE

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + insertion loss of LISN.
3. Q.P. is abbreviation of quasi-peak.