SGS-CSTC Standards Technical Services Ltd.

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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

TEST REPORT

Application No. :	GLEMR061101835RF
Applicant:	NEO-NEON INTERNATIONAL LTD.
FCC ID:	USRSRC-260
Frequency Band	915MHz and 916MHz
Equipment Under Test (EUT):	
Name:	Wireless remote controller
Model No.:	SRC-260
Trade mark :	NEO-NEON or YIN YU
Standards:	FCC PART 15: 2006
	Please refer to section 2 for further details.
Date of Receipt:	06 Noverment 2006
Date of Test:	06 to 17Noverment 2006
Date of Issue:	17 Noverment 2006
Test Result :	**PASS ***

In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Jerry Chen
Manager

2 Test Summary

Test	Test Requirement	Stanadard Paragraph	Result
Flied Strength of Fundamental	FCC PART 15 :2006	Section 15.249 (a)	PASS
Flied Strength of Unwanted Emissions	FCC PART 15 :2006	Section 15.249 (a) Section 15.249 (d)	PASS
Occupied Bandwidth	FCC PART 15 :2006	Section 15.249	PASS
Band Edges	FCC PART 15 :2006	Section 15.249 (d)	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15 :2006	Section 15.207	PASS

Remark:

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

3 Contents

4 General Information

4.1 Client Information

Applicant Name:	NEO-NEON INTERNATIONAL LTD.
Applicant Address:	13/F of Tower A,New Mandarin Plaza,14 Science Museum Road,Tsim Sha Tsui,Kowloon,HK.

4.2 General Description of E.U.T.

Product Name:	Wireless remote controller
Model:	SRC-260
Power Supply:	9.0V DC supplied by adaptor.
Adaptor:	Input:AC 120;Output:9VDC 500mA
Power Cord:	Two wires 1.8m unshielding cable.

4.3 Description of EUT operation

The EUT was a set of equipment:

This device is a DMX mode signal wireless converter.It receives DMX signal transmitted by a controller,then convert it to radio signal and transmit out.The receiver at another place receives the signal and converts it to DMX signal to control various luminaire.

When #1 device act as Tx, #2 device act as Rx. vice versa.

4.4 Standards Applicable for Testing

The standard used was FCC PART 15, SUBPART C (2006) section 15.249.

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198 Kezhu Road, Science Town Economic& Technology Development District Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.6 Other Information Requested by the Customer

the manufacture will fix a bolt into the antenna connector, therefore the end user will not replace the antenna unless with exclusive tools. Please refer to the external photo furnished with the application for detail.

5 Test Result

5.1 E.U.T. Operation

Input voltage:	9.0V DC supplied by adaptor.
Operating Environment:	
Temperature:	26°C
Humidity:	56% RH
Atmospheric Pressure:	1005mbar
EUT Operation:	Test the EUT in transmitting mode.

5.2 Test Instruments

No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0039	Temperature Chamber	TERCHY	MHG-800RR	0118	05-12-2005	05-12-2006
EMC0009	D.C. Power Supply	Instek	PS-3030	9862036	Check when used	
EMC0007	DMM	Fluke	73	70671122	27-09-2006	27-09-2007
EMC0006	DMM	Fluke	73	70681569	27-09-2006	27-09-2007
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	06-03-2006	06-03-2007
EMC0530	10m Semi- Anechoic Chamber	ETS	N/A	N/A	22-08-2006	22-08-2007
EMC0502	Biconical Antenna (Rx)	Rohde & Schwarz	HK116	100032	31-07-2006	31-07-2007
EMC0503	Biconical Antenna (Tx)	Rohde & Schwarz	HK116	100033	31-07-2006	31-07-2007
EMC0504	Log-Perd. Dipole Antenna (Rx)	Rohde & Schwarz	HL223	100039	31-07-2006	31-07-2007
EMC0505	Log-Perd. Dipole Antenna (Tx)	Rohde & Schwarz	HL223	100040	31-07-2006	31-07-2007
EMC0517	Horn Antenna (Rx)	Rohde & Schwarz	HF906	100095	29-07-2006	29-07-2007
EMC0519	Bilog Type Antenna	Schaffner Chase	CBL6143	5070	31-07-2006	31-07-2007
EMC0520	0.1-1300 MHz Pre Amplifier	HP	8447D OPT 010	2944A06252	06-03-2006	06-03-2007
EMC0521	1-26.5GHz Pre Amplifier	Agilent	8449B	3008A01649	06-03-2006	06-03-2007
EMC0507	Antenna Mask (Tx)	HD-GmbH	AS620M	620/408	N/A	N/A
EMC0508	Antenna Mask (Rx)	HD-GmbH	MA240	240/619	N/A	N/A
EMC0509	Turntable	HD-GmbH	DT430	N/A	N/A	N/A
EMC0510	Turntable & Antenna Mask Controller	HD-GmbH	HD100	N/A	N/A	N/A
EMC0512	EMI Test Software	Rohde & Schwarz	ES-K1	N/A	N/A	N/A
EMC0511	Coaxial cable	Rohde & Schwarz	N/A	N/A	04-11-2005	03-11-2006
EMC0514	Coaxial cable	Rohde & Schwarz	N/A	N/A	04-11-2005	03-11-2006
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	05-12-2005	05-12-2006
EMC0040	Spectrum Analyzer	Rohde & Schwarz	FSP30	100324	05-12-2005	05-12-2006
EMC0516	Signal Generator	Rohde & Schwarz	SMR20	100416	05-12-2005	05-12-2006
EMC0032	Radio Communication Monitor	Rohde & Schwarz	CMS54	100137	20-12-2005	20-12-2006
EMC0904	Power Meter	Rohde & Schwarz	NRVS	825770/074	22-07-2006	22-07-2007
EMC0905	Power Sensor	Rohde & Schwarz	NRV-Z5	825802/013	22-07-2006	22-07-2007
EMC0906	Dual Directional Coupler	Werlatone Inc.	C1795	6634	04-01-2006	04-01-2007
EMC1508	Audio Analyzer	Rohde & Schwarz	UPL	100855	16-08-2005	16-08-2006
EMC1005	Digital Oscilloscope	Tektronix	TDS3012	B015508	14-07-2006	14-07-2007
EMC0523	Active Loop Antenna	EMCO	6502	00042963	14-01-2006	14-01-2007
EMC0001	Temp. Humidity/ Barometer	Oregon Scientific	BA-888	EMC0001	20-09-2005	20-09-2006

5.3 Test Procedure & Measurement Data

5.3.1 Test in transmitting mode

Test Requirement:	FCC Part15 C Section 15.249(a) & (d)
Test Method:	Based on FCC Part15 C Section 15.249 & ANSI C63.4
Test Date:	16 November 2006
Measurement Distance:	3m (Compact Semi-Anechoic Chamber)
Frequency range	30 MHz – 25GHz for transmitting mode. Test instrumentation resolution bandwidth 120 kHz (30 MHz - 1000 MHz), 1 MHz (1000 M – 25GHz)
Operation:	Receive antenna scan height 1 - 4 m, polarization Vertical/ Horizontal, a turntable rotate through 360^0 in the horizontal plane and it is used to support the test sample at 0.8m above the ground plane.

Requirements:

FCC Part 15.249(a)

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBuV/m @ 3m)	Field Strength of Harmonics (dBuV/m @ 3m)
902 to 928	94.0	54.0
2400 to 2483.5	94.0	54.0
5725 to 5875	94.0	54.0
24000 to 24250	108.0	68.0

FCC Part 15.249(d)

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.

Remark:

The fundamental frequency of the EUT is 915MHz and 916MHz.

The limit for average field strength dBuv/m for the fundamental frequency = 94.0 dBμV/m.

The limit for Peak field strength dBuv/m for the fundamental frequency = 114.0 dBμV/m.

No fundamental is allowed in the restricted bands.

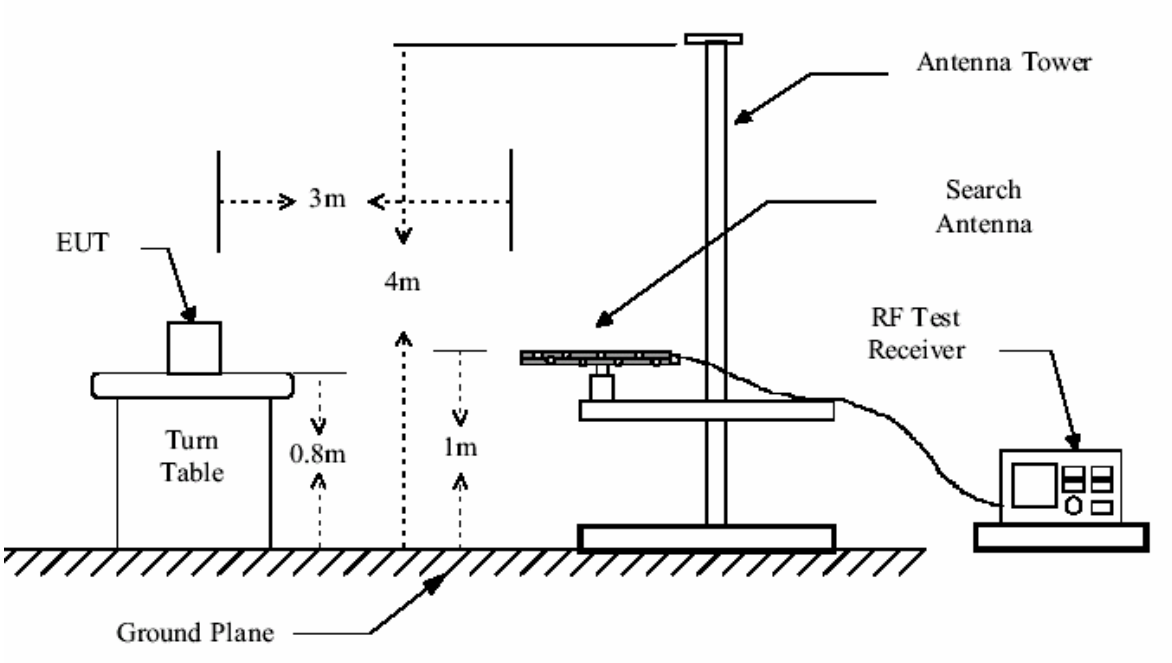
The limit for average field strength dBμV/m for the harmonics = 54.0 dBμV/m.

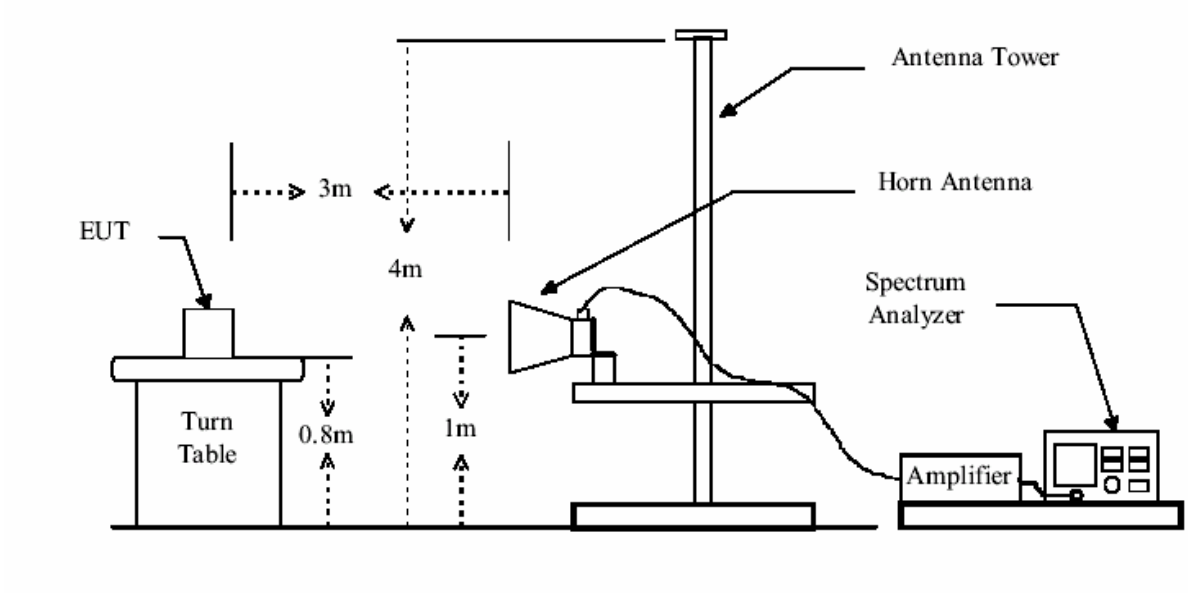
The limit for peak field strength dBμV/m for the harmonics = 74.0 dBμV/m.

Emission radiated outside of the specified frequency bands,except for harmonics,shall be attenuated by at least 50dB below the level of the fundamental or 54.0 dBμV/m in 15.209. Here the limit for the other emission is 54.0 dBμV/m.

Test Procedure: The procedure uesd was ANSI Standard C63.4-2003. The receive was scanned from 30MHz to 25GHz.When an emission was found,the table was roated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

Test Configuration:


Antenna Tower
Search
Antenna
3m
EUT
4m
RF Test
Receiver
Turn
Table
0.8m
1m
Ground Plane


Antenna Tower
Horn Antenna
3m
EUT
4m
Spectrum
Analyzer
Turn
Table
0.8m
1m
Amplifier

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier . The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Peramlifer Factor

The following test results were performed on the EUT:

For **#1 Tx**: (1). Fundamental emission

Peak Measurement

Test Frequency (MHz)	Measuring Level (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
915.000	91.6	92.3	114.0	22.4	21.7
916.000	92.2	93.0	114.0	21.8	21.0
Average Measurement					
915.000	90.3	90.8	94.0	3.7	3.2
916.000	91.0	91.2	94.0	3.0	2.8

(2). Harmonics & Other Emissions

Peak Measurement

Test Frequency (MHz)	Measuring Level (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
2) 127.000	38.9	41.2	74.0	35.1	32.8
3) 159.010	37.5	38.0	74.0	36.5	36.0
4) 1829.600	49.7	52.1	74.0	24.3	21.9
5) 2744.570	49.3	52.2	74.0	24.7	21.8
Average Measurement					
2) 127.000	32.1	39.5	54.0	21.9	14.5
3) 159.010	30.5	35.0	54.0	23.5	19.0
4) 1829.600	49.0	52.0	54.0	5.0	2.0
5) 2744.570	49.1	51.8	54.0	4.9	2.2

Remark:

1). According to 15.249 (e) As shown in Section 15.35(b), for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

2）Sweep from 30MHz to 25GHz, find the max radiated emissions and record it, when the emissions are too weak to be detected, it will not be reported.

TEST RESULTS: The unit does meet the FCC requirements.

The following test results were performed on the EUT:

For **#2 Tx**: (1). Fundamental emission

Peak Measurement

Test Frequency (MHz)	Measuring Level (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
915.0	92.4	92.3	114.0	21.6	21.7
916.0	93.2	92.5	114.0	20.8	21.5
Average Measurement					
915.0	91.3	91.8	94.0	2.7	2.2
916.0	92.1	91.0	94.0	1.9	3.0

(2). Harmonics & Other Emissions

Peak Measurement

Test Frequency (MHz)	Measuring Level (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
2) 128.000	37.5	36.0	74.0	36.5	38.0
3) 160.000	39.9	39.6	74.0	34.1	34.4
4) 1829.600	50.3	52.6	74.0	23.7	21.4
5) 2744.570	50.9	52.8	74.0	23.1	21.2
Average Measurement					
2) 128.000	30.8	30.2	54.0	23.2	23.8
3) 160.000	34.2	30.8	54.0	19.8	23.2
4) 1829.600	49.1	51.5	54.0	4.9	2.5
5) 2744.570	49.8	52.0	54.0	4.2	2.0

Remark:

1). According to 15.249 (e) As shown in Section 15.35(b), for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

2）Sweep from 30MHz to 25GHz, find the max radiated emissions and record it, when the emissions are too weak to be detected, it will not be reported.

TEST RESULTS: The unit does meet the FCC requirements.

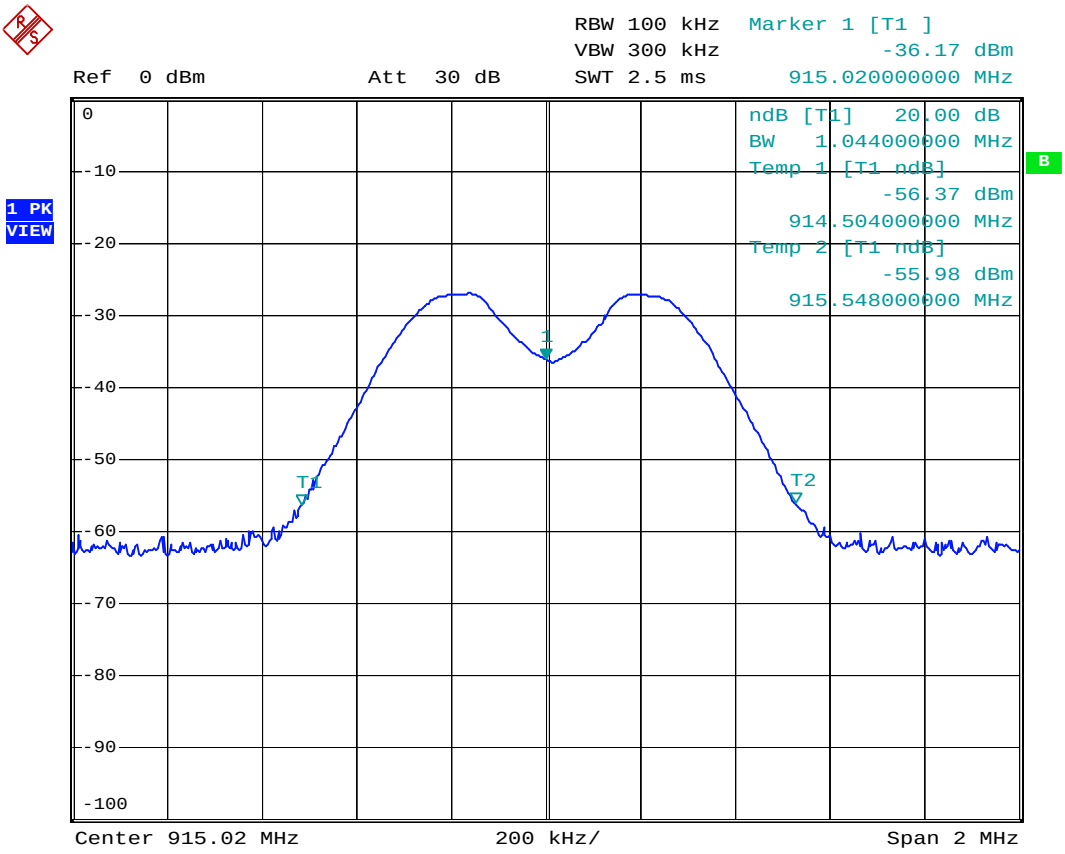
5.3.2 Occupied Bandwidth & Band Edge

Test Requirement:	FCC Part 15 C Section 15.249
Test Method:	ANSI C63.4 and FCC Part 2.1049
	Operation within the band 902-928MHz
Test Date:	16 November 2006
Requirements:	15.249 (d) 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.
Method of measurement:	A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken.

(1). **For Mode 1**:

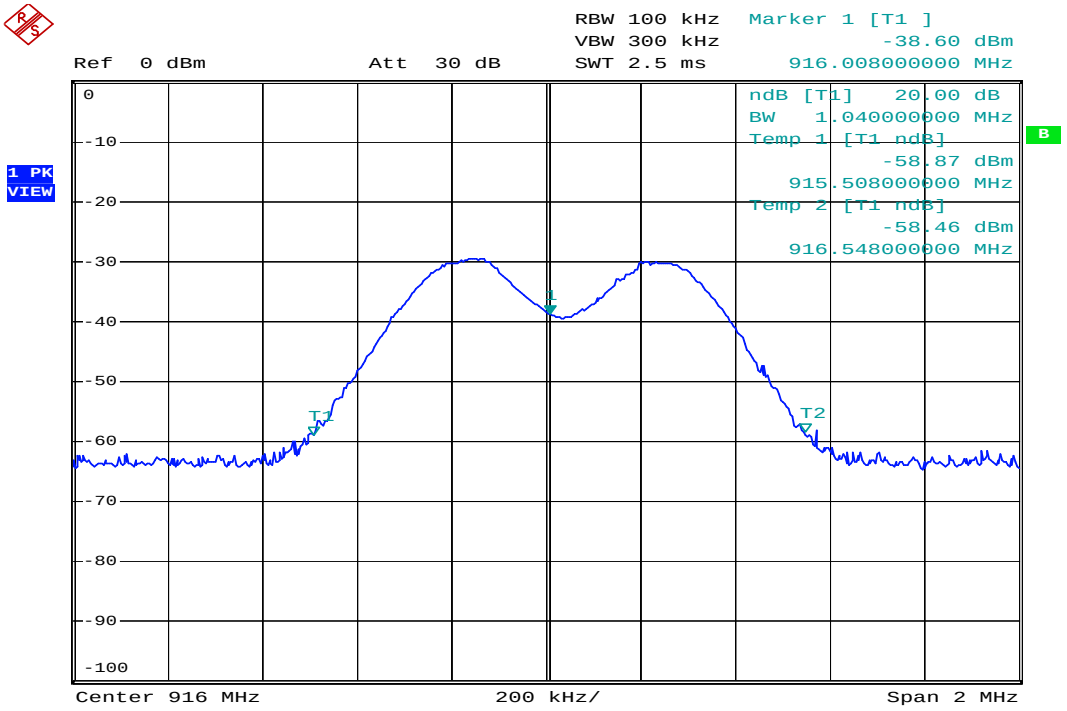
(i)The occupied bandwidth as below:

Channel 915MHz:



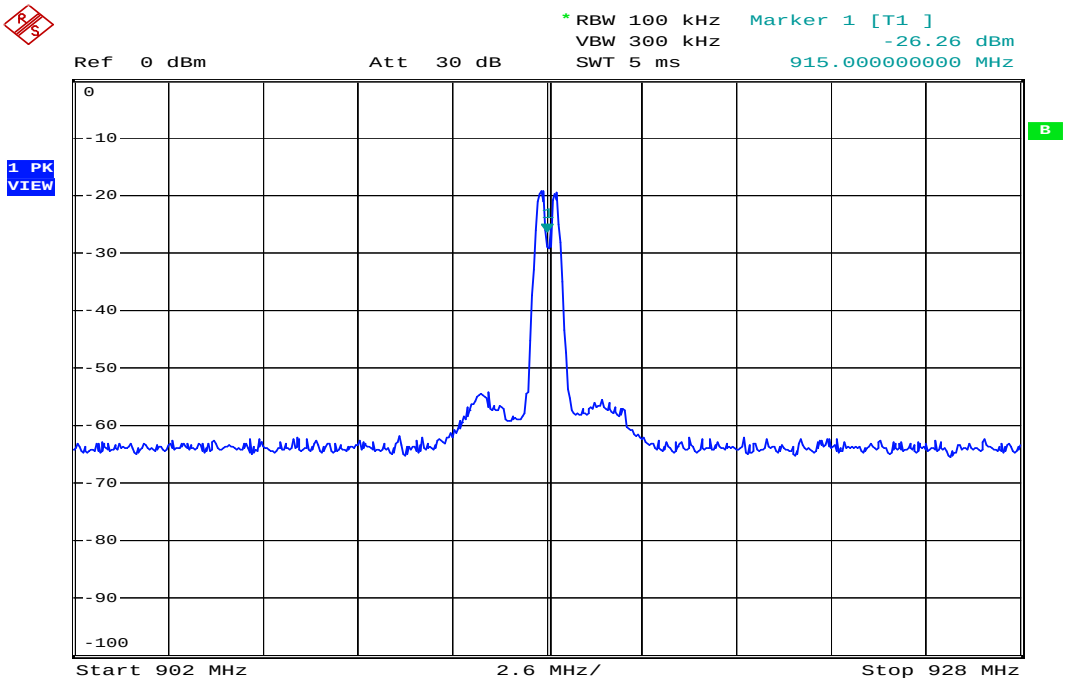
Date: 16.NOV.2006 16:25:00

Channel 916MHz:



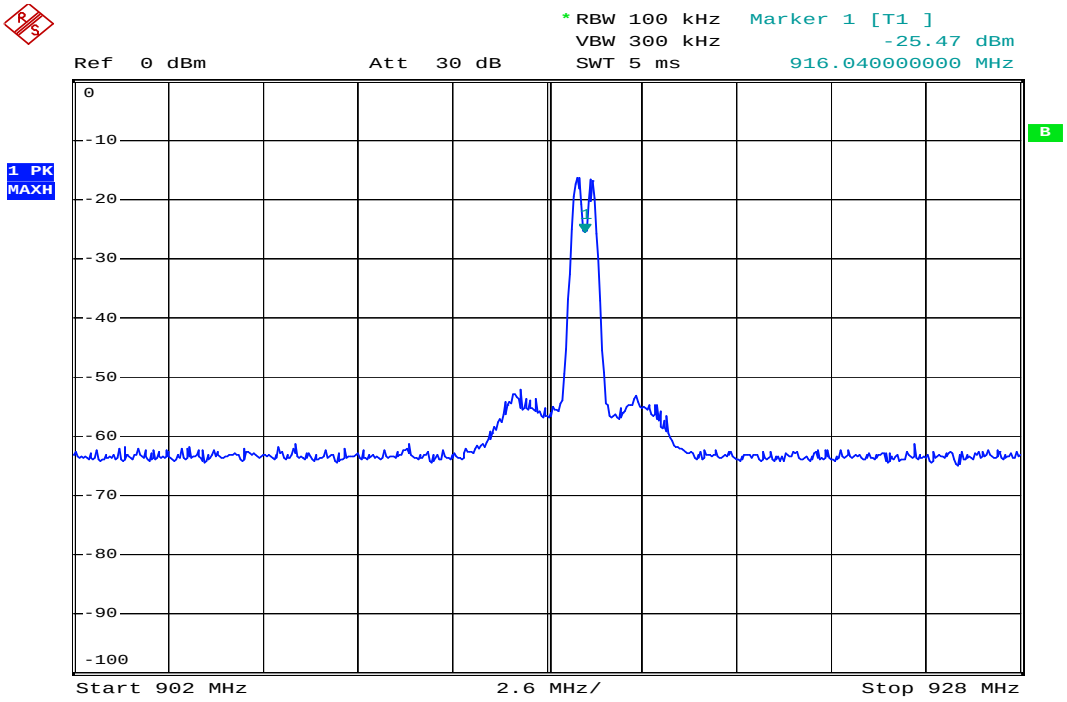
Date: 16.NOV.2006 16:26:38

(ii)Band Edge 915MHz:



Date: 16.NOV.2006 16:31:51

Band Edge 916MHz



Date: 16.NOV.2006 16:30:34

The test result for the Emissions radiated outside of the specified frequency bands , please refer to the section 5.3.1 of this report.
The worst case is average value 52.0dBuV/m at frequency 1829.6MHz, it's below the limits 54.0 dBuV/m base Section 15.209 .

For the field strength of Lower Edges:902.0MHz is 42.8dBuV/m(peak value).

For the field strength of Upper Edges:928.0MHz is 44.0dBuV/m(peak value).

The results: The unit does meet the FCC requirements.

5.3.3 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement:	FCC Part15 C
Test Method:	ANSI C63.4
Test Date:	17 November 2006:
Frequency Range:	150KHz to 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

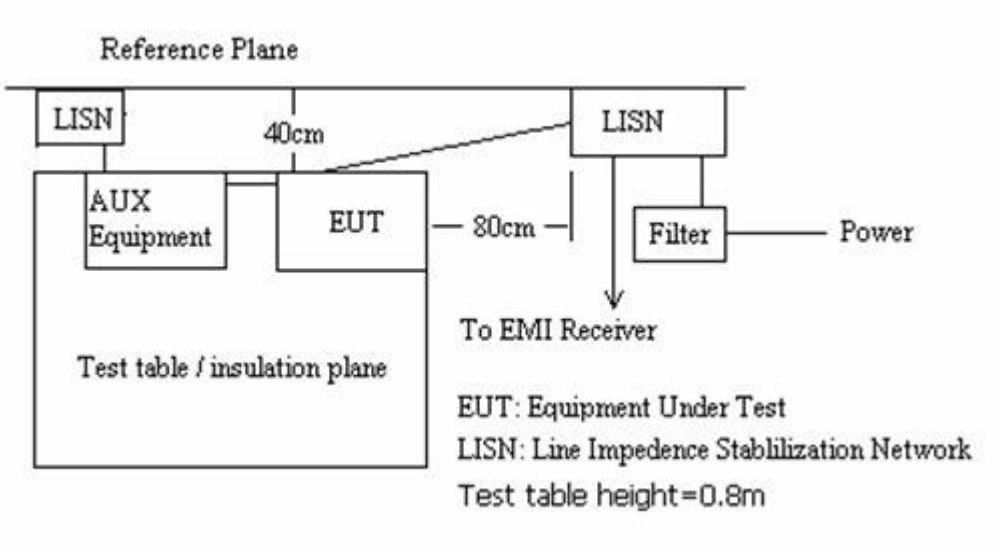
5.3.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 51 % RH Atmospheric Pressure: 1011 mbar

EUT Operation: Pretest the EUT in carrier 915MHz and 916MHz,compliance test in 915MHz mode.Keep Tx transmitting when perform the test.

5.3.3.2 Plan View of Test Setup



5.3.3.3 Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

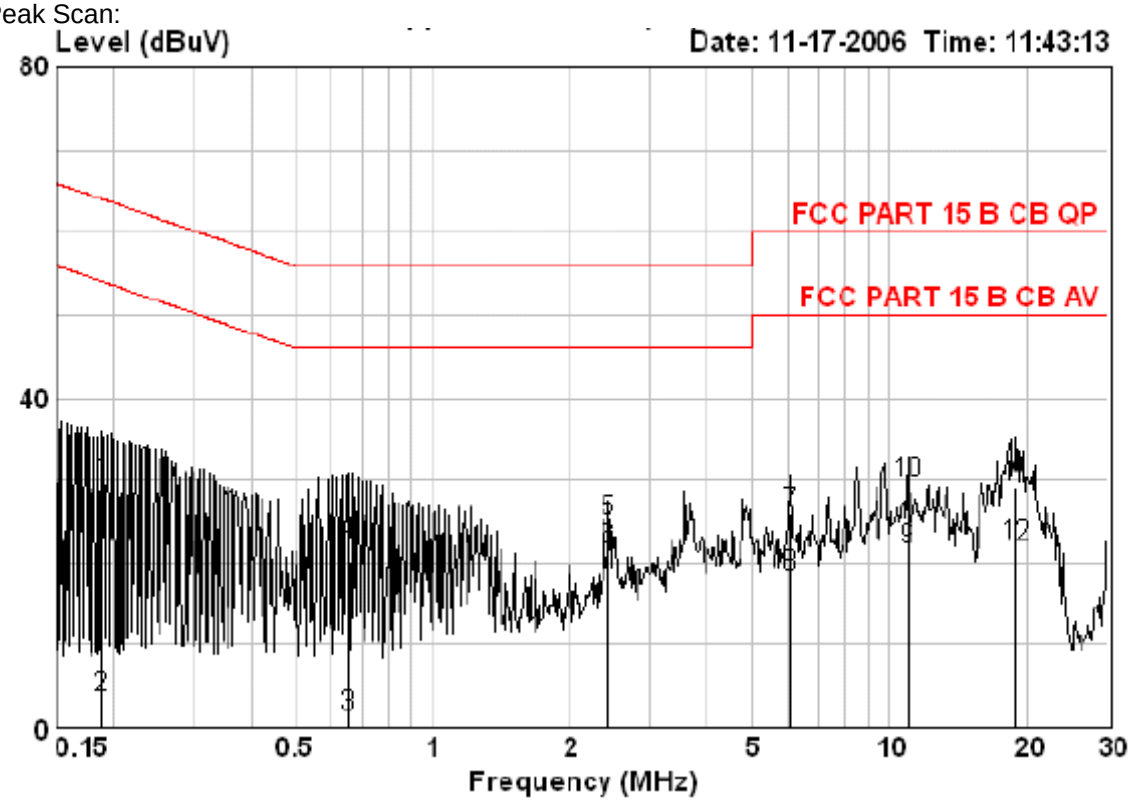
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

The following Quasi-Peak and Average measurements were performed on the EUT on 17 November 2006:

#1 Tx

Live Line:

Peak Scan:

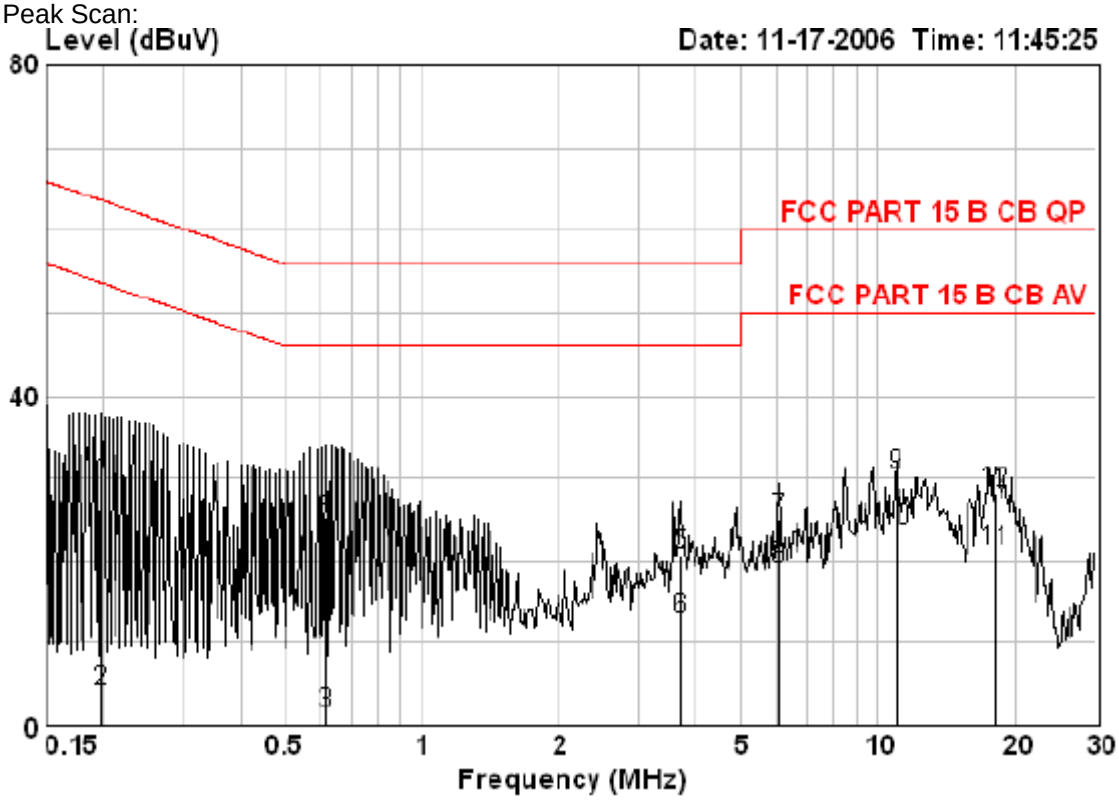


Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.188	29.48	0.00	0.08	29.56	64.11	-34.55	QP
0.188	3.55	0.00	0.08	3.63	54.11	-50.48	AVERAGE
0.654	1.39	0.00	0.02	1.41	46.00	-44.59	AVERAGE
0.654	22.18	0.00	0.02	22.20	56.00	-33.80	QP
2.435	25.02	0.04	0.02	25.08	56.00	-30.92	QP
2.435	21.56	0.04	0.02	21.62	46.00	-24.38	AVERAGE
6.089	25.68	0.08	0.13	25.89	60.00	-34.11	QP
6.089	18.09	0.08	0.13	18.30	50.00	-31.70	AVERAGE
10.963	21.28	0.12	0.24	21.64	50.00	-28.36	AVERAGE
10.963	29.16	0.12	0.24	29.52	60.00	-30.48	QP
19.021	28.36	0.20	0.48	29.04	60.00	-30.96	QP
19.021	21.37	0.20	0.48	22.05	50.00	-27.95	AVERAGE

Neutral Line

Peak Scan:



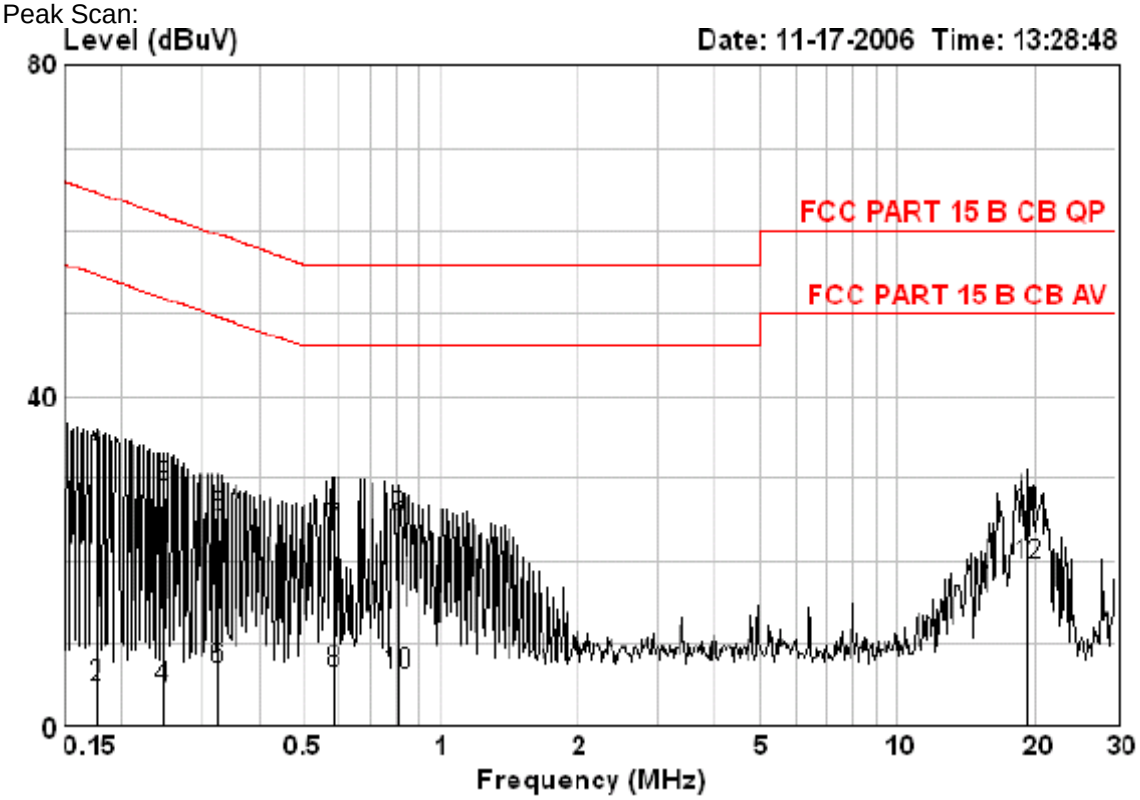
Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.198	29.24	0.00	0.10	29.34	63.71	-34.37	QP
0.198	4.01	0.00	0.10	4.11	53.71	-49.60	AVERAGE
0.617	1.45	0.00	0.04	1.49	46.00	-44.51	AVERAGE
0.617	25.10	0.00	0.04	25.14	56.00	-30.86	QP
3.681	20.66	0.06	0.00	20.72	56.00	-35.28	QP
3.681	12.74	0.06	0.00	12.80	46.00	-33.20	AVERAGE
6.089	24.72	0.08	0.31	25.11	60.00	-34.89	QP
6.089	18.76	0.08	0.31	19.15	50.00	-30.85	AVERAGE
10.963	29.28	0.12	0.92	30.32	60.00	-29.68	QP
10.963	22.66	0.12	0.92	23.70	50.00	-26.30	AVERAGE
18.039	20.57	0.19	0.36	21.12	50.00	-28.88	AVERAGE
18.039	27.70	0.19	0.36	28.25	60.00	-31.75	QP

#2 Tx

Live Line:

Peak Scan:

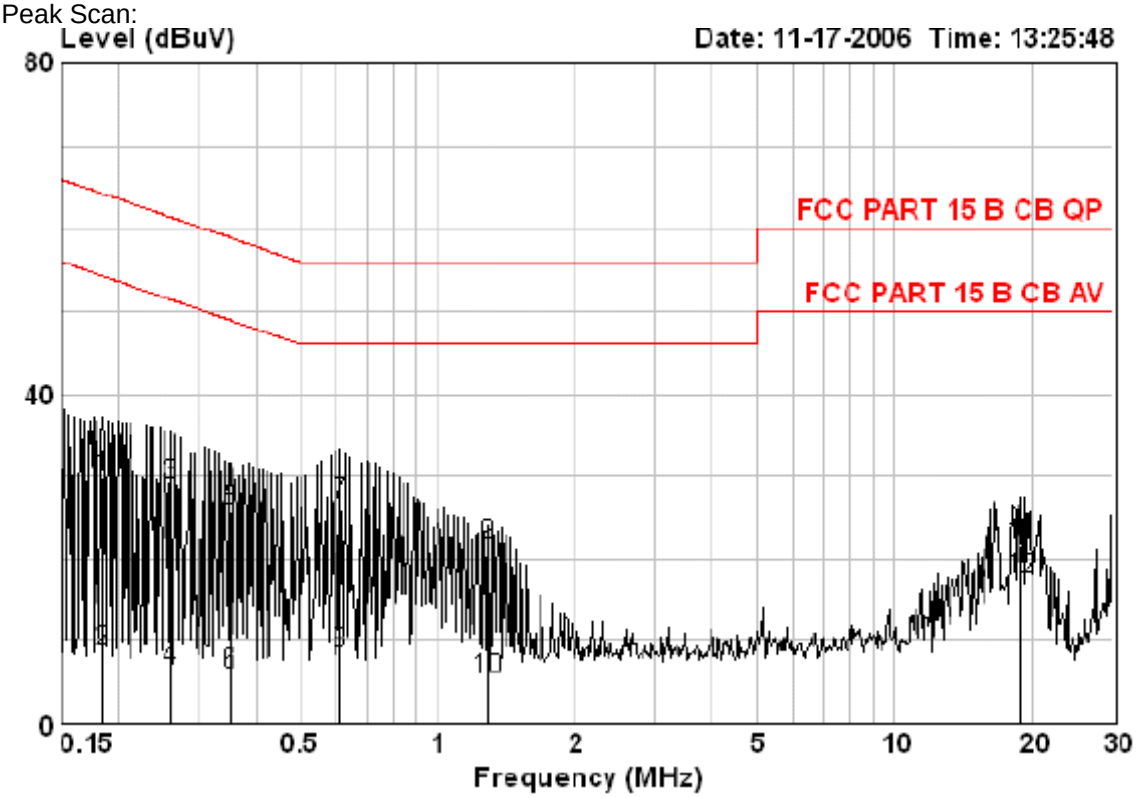


Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.176	32.06	0.00	0.05	32.11	64.68	-32.57	QP
0.176	4.72	0.00	0.05	4.77	54.68	-49.91	AVERAGE
0.247	28.84	0.00	0.10	28.94	61.86	-32.92	QP
0.247	4.46	0.00	0.10	4.56	51.86	-47.30	AVERAGE
0.325	25.20	0.00	0.10	25.30	59.57	-34.27	QP
0.325	6.74	0.00	0.10	6.84	49.57	-42.73	AVERAGE
0.585	23.80	0.00	0.05	23.85	56.00	-32.15	QP
0.585	6.27	0.00	0.05	6.32	46.00	-39.68	AVERAGE
0.804	25.12	0.00	0.04	25.16	56.00	-30.84	QP
0.804	6.24	0.00	0.04	6.28	46.00	-39.72	AVERAGE
19.326	24.94	0.20	0.49	25.63	60.00	-34.37	QP
19.326	18.91	0.20	0.49	19.60	50.00	-30.40	AVERAGE

Neutral Line

Peak Scan:



Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.184	29.68	0.00	0.10	29.78	64.28	-34.50	QP
0.184	8.60	0.00	0.10	8.70	54.28	-45.58	AVERAGE
0.260	28.86	0.00	0.10	28.96	61.42	-32.46	QP
0.260	6.35	0.00	0.10	6.45	51.42	-44.97	AVERAGE
0.350	25.66	0.00	0.10	25.76	58.96	-33.20	QP
0.350	5.97	0.00	0.10	6.07	48.96	-42.89	AVERAGE
0.614	26.46	0.00	0.04	26.50	56.00	-29.50	QP
0.614	8.36	0.00	0.04	8.40	46.00	-37.60	AVERAGE
1.289	21.46	0.01	0.06	21.53	56.00	-34.47	QP
1.289	5.14	0.01	0.06	5.21	46.00	-40.79	AVERAGE
19.021	21.00	0.20	0.38	21.58	60.00	-38.42	QP
19.021	16.93	0.20	0.38	17.51	50.00	-32.49	AVERAGE