

FCC Part15.209 Test Report

Product Name : Lane Guard BTL
Model No. : BTLLG
FCC ID : P9I-WGBTLLG

Applicant : WG Security Products, Inc

Address : 3031 Tisch Way Suite 602, San Jose United, States

Date of Receipt : 25/10/2011
Test Date : 26/11/2011 ~ 08/11/2011
Issued Date : 23/11/2011
Report No. : 11AS049R-RF-US-P09V01
Report Version : V1.0

Test Report Certification

Issued Date : 23/11/2011

Report No. : 11AS049R-RF-US-P09V01

The test results relate only to the sample

The test results shown in the test report are the results of the equipment and evaluated measurement

Quietek

national standard through the calibration

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Product Name : Lane Guard BTL

Applicant : WG Security Products, Inc

Address : 3031 Tisch Way Suite 602, San Jose United, States

Manufacturer : SHANGHAI WINGUIDE DIGITAL TECHNOLOGY LTD.

Address : 79 Wu XIANG Rd. Jiading district Xuhang, shanghai

Model No. : BTLLG

FCC ID : P9I-WGBTLLG

EUT Voltage : AC IN: 110~240V OUT: AC 26V

Brand Name : WG

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2009
ANSI C63.4: 2009; ANSI C63.10: 2009

Test Result : Complied

Performed Location : Suzhou EMC Laboratory
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TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration Number: 800392

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Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	: BSMI, NCC, TAF
Germany	: TUV Rheinland
Norway	: Nemko, DNV
USA	: FCC, NVLAP
Japan	: VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://www.quietek.com/tw/ctg/cts/accreditations.htm>
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	Lane Guard BTL
Model No.	BTLLG
Working Voltage	AC IN: 110~240V OUT: AC 26V
Working Frequency	58kHz
Type of modulation	Sine wave
Antenna Type	Loop Antenna

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmit, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit

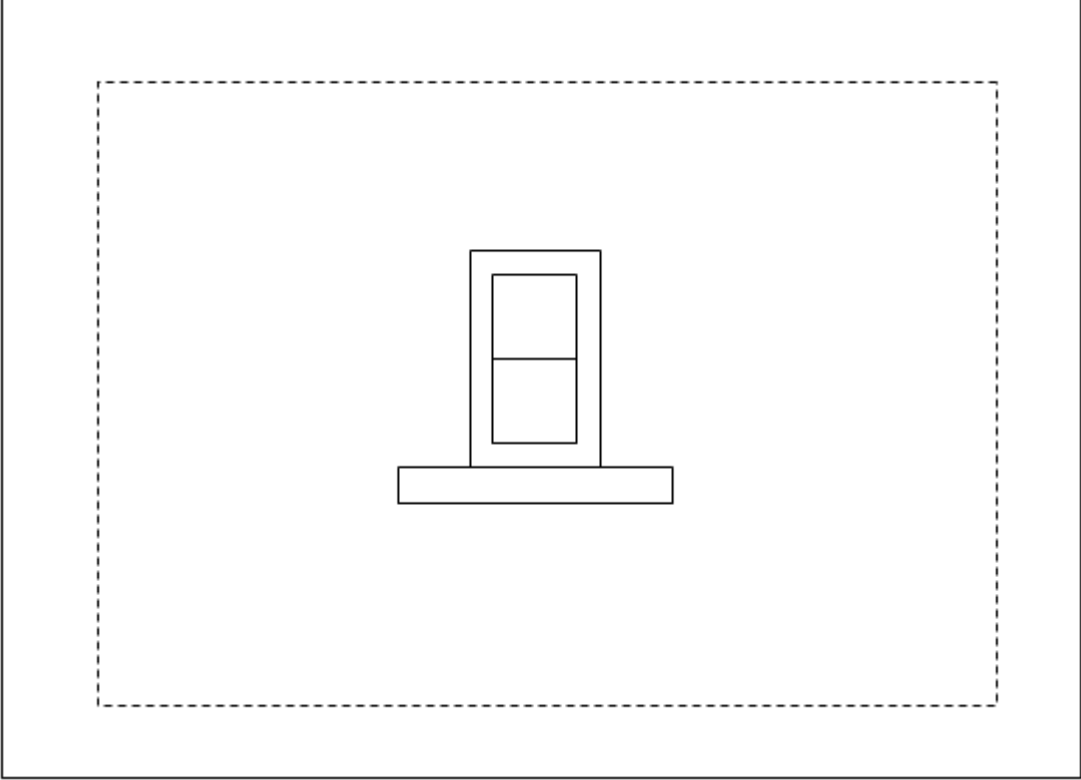
Note: In the process of testing, we always make the EUT transmit at the maximum value of amplitude.

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

1.4. Configuration of Tested System

Connection Diagram		
		
Signal Cable Type		Signal cable Description
N/A	N/A	N/A

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Make the EUT work on transmit mode.

2. Technical Test

2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.209	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

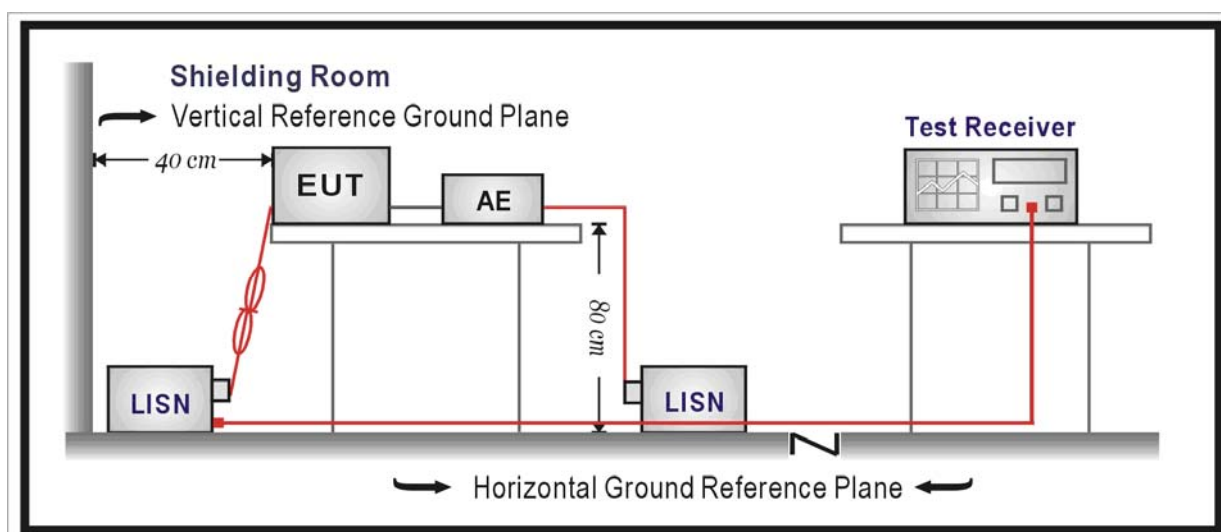
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100726	2012.04.23
Two-Line V-Network	R&S	ENV216	100043	2012.04.29
Two-Line V-Network	R&S	ENV216	100044	2012.09.07
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2012.05.05
50ohm Termination	SHX	TF2	07081401	2012.09.22
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2012.01.14

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 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.

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

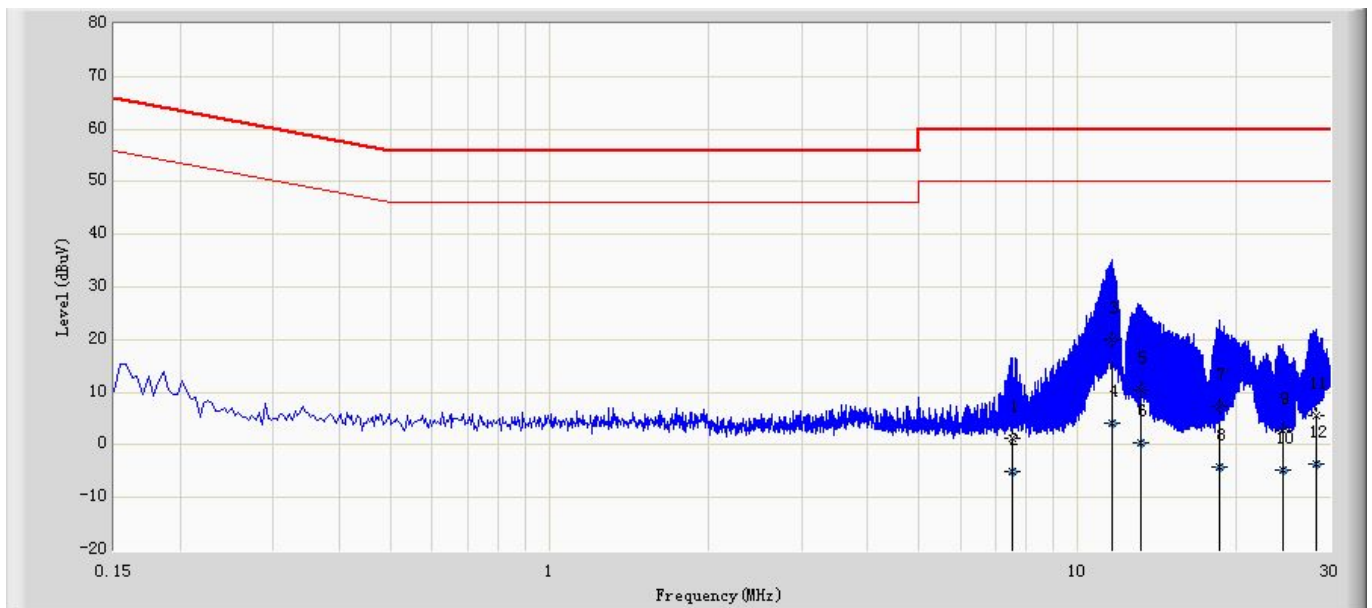
The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

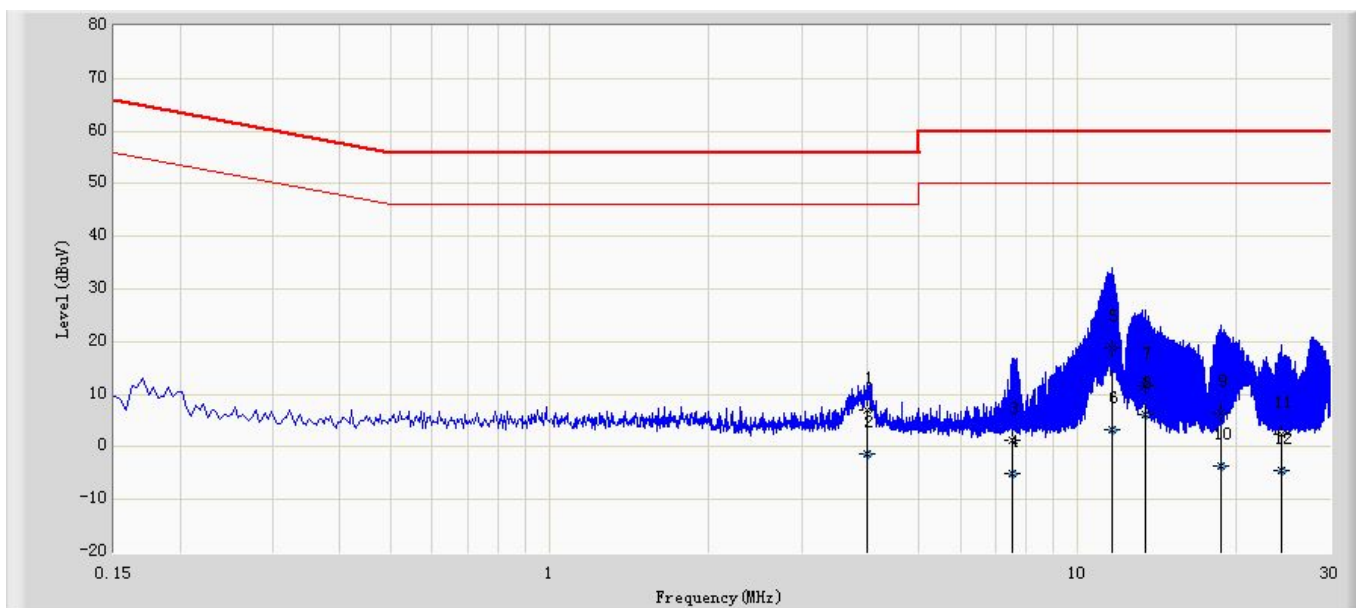
3.6. Test Result

Engineer: Toms	
Site: TR1	Time: 2011/10/29 - 11:45
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101043(0.009-30MHz)	Polarity: Line
EUT: Lane Guard BTL	Power: AC 120V/60Hz
Note: Mode1: Transmit	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		7.542	1.399	-8.493	-58.601	60.000	9.892	QP
2		7.542	-5.045	-14.937	-55.045	50.000	9.892	AV
3	*	11.622	19.839	9.808	-40.161	60.000	10.031	QP
4		11.622	4.042	-5.988	-45.958	50.000	10.031	AV
5		13.154	10.560	0.483	-49.440	60.000	10.078	QP
6		13.154	0.452	-9.626	-49.548	50.000	10.078	AV
7		18.502	7.347	-2.863	-52.653	60.000	10.210	QP
8		18.502	-4.061	-14.271	-54.061	50.000	10.210	AV
9		24.402	2.670	-7.706	-57.330	60.000	10.376	QP
10		24.402	-4.687	-15.063	-54.687	50.000	10.376	AV
11		28.254	5.584	-4.886	-54.416	60.000	10.470	QP
12		28.254	-3.611	-14.081	-53.611	50.000	10.470	AV

Engineer: Toms	
Site: TR1	Time: 2011/10/29 - 11:48
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101043(0.009-30MHz)	Polarity: Neutral
EUT: Lane Guard BTL	Power: AC 120V/60Hz
Note: Mode1: Transmit	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		4.006	7.140	-2.650	-48.860	56.000	9.790	QP
2		4.006	-1.418	-11.208	-47.418	46.000	9.790	AV
3		7.542	1.253	-8.671	-58.747	60.000	9.924	QP
4		7.542	-4.973	-14.897	-54.973	50.000	9.924	AV
5	*	11.634	18.772	8.717	-41.228	60.000	10.055	QP
6		11.634	3.134	-6.920	-46.866	50.000	10.055	AV
7		13.418	11.585	1.471	-48.415	60.000	10.114	QP
8		13.418	6.011	-4.103	-43.989	50.000	10.114	AV
9		18.654	6.384	-3.931	-53.616	60.000	10.315	QP
10		18.654	-3.689	-14.004	-53.689	50.000	10.315	AV
11		24.358	2.521	-7.924	-57.479	60.000	10.445	QP
12		24.358	-4.518	-14.963	-54.518	50.000	10.445	AV

4. Radiated Emission

4.1. Test Equipment

Radiated Emissions / AC1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100175	2012.09.22
EMI Test Receiver	R&S	ESCI	100726	2012.04.23
Preamplifier	Quietek	AP-025C	CHM-0602008	2012.04.12
Preamplifier	Quietek	AP-025C	CHM-0503006	2012.04.12
Bilog Antenna	Schaffner	CBL6112B	2933	2012.10.18
Bilog Antenna	Schaffner	CBL6112B	2931	2012.10.18
Loop Antenna	R&S	HFH2-Z2	833799/003	2011.11.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC1-L	2012.03.07
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC1-R	2012.03.07
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC1-C	2012.03.07
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC1-TH	2012.01.14

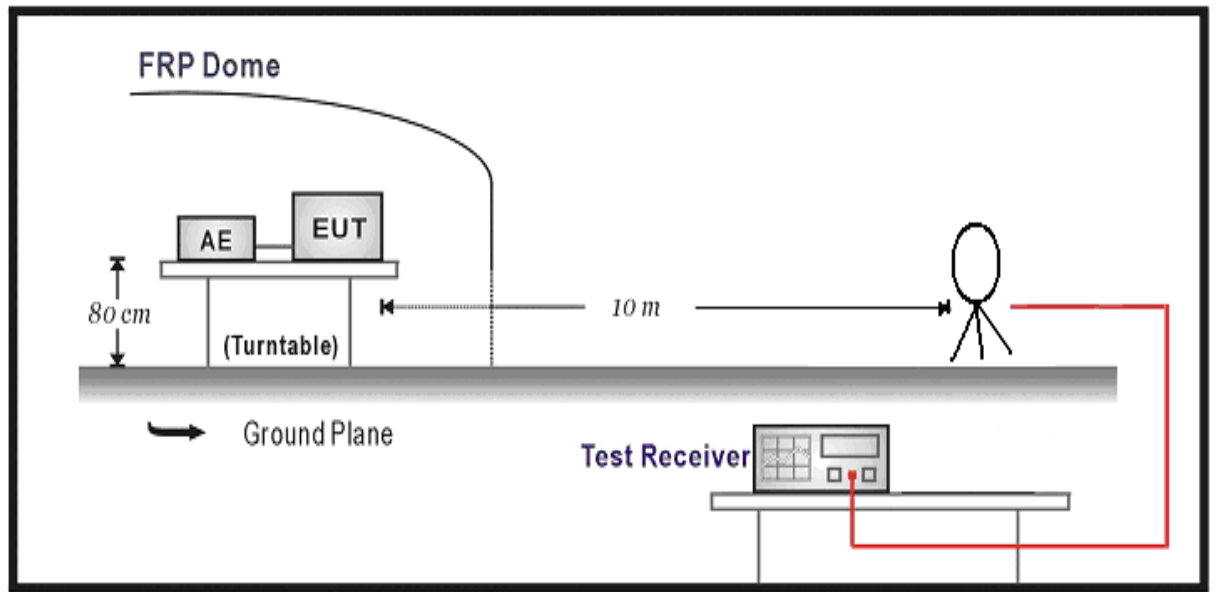
☒ Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2012.04.23
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2012.10.18
Loop Antenna	R&S	HFH2-Z2	833799/003	2011.11.22
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2012.06.11
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2012.03.08
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2012.01.14

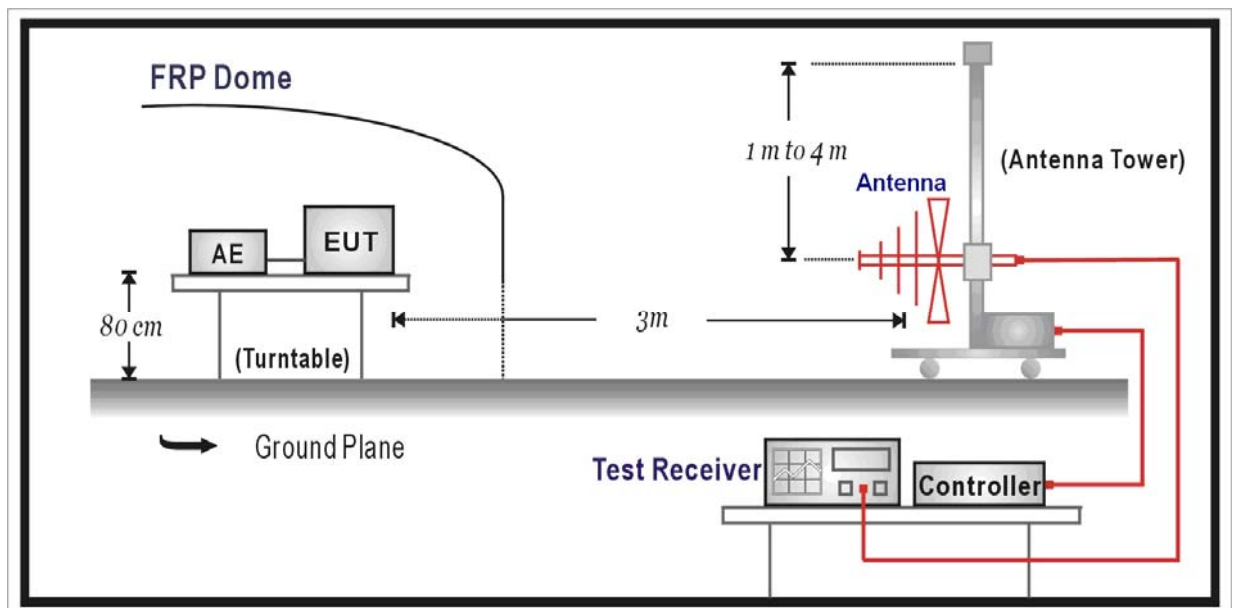
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

Below 30MHz Test Setup:



Above 30MHz Test Setup:



4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (uV/m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-80	100**	3
80-216	150**	3
216-960	200**	3
Above 960	500	3

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters for below 30MHz and 3 meters for above 30MHz.

For 3 meters above 30MHz, the antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

The EUT should be operate in transmission mode.

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

4.6. Test Result

All of the test result shown indicates the worst case.

Mode1: Trasmit

Working Frequency: 58kHz

Radiated Emission Below 30MHz

Measurement Distance: 10 Meters

Frequency (MHz)	Reading Level (dBuV/m)	Factor	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin [dB]	Detector	Note
Face On							
0.058	80.80	22.92	103.72	111.42	-7.71	PK	Both Antennas
0.058	60.60	22.92	83.52	91.42	-7.91	AV	Both Antennas
0.058	80.90	22.92	103.82	111.42	-7.61	PK	Figure-O Antenna
0.058	58.60	22.92	81.52	91.42	-9.91	AV	Figure-O Antenna
0.116	33.20	22.92	56.12	105.40	-49.28	PK	Figure-O Antenna
0.116	11.30	22.92	34.22	85.40	-51.18	AV	Figure-O Antenna
0.174	31.60	22.93	54.53	101.87	-47.34	PK	Figure-O Antenna
0.174	10.00	22.93	32.93	81.87	-48.94	AV	Figure-O Antenna
0.232	26.20	22.94	49.14	99.37	-50.23	PK	Figure-O Antenna
0.232	6.40	22.94	29.34	79.37	-50.03	AV	Figure-O Antenna
0.290	23.40	22.95	46.35	97.44	-51.09	PK	Figure-O Antenna
0.290	3.10	22.95	26.05	77.44	-51.39	AV	Figure-O Antenna
0.348	19.10	22.95	42.05	95.85	-53.81	PK	Figure-O Antenna
0.348	2.10	22.95	25.05	75.85	-50.81	AV	Figure-O Antenna
0.406	17.00	22.94	39.94	94.51	-54.57	PK	Figure-O Antenna
0.406	1.60	22.94	24.54	74.51	-49.97	AV	Figure-O Antenna
0.464	14.10	22.94	37.04	93.35	-56.31	PK	Figure-O Antenna
0.464	1.20	22.94	24.14	73.35	-49.21	AV	Figure-O Antenna
0.522	6.30	22.94	29.24	52.33	-23.09	QP	Figure-O Antenna
0.580	5.60	22.95	28.55	51.42	-22.87	QP	Figure-O Antenna
0.058	61.00	22.92	83.92	111.42	-27.51	PK	Figure-8 Antenna
0.058	40.70	22.92	63.62	91.42	-27.81	AV	Figure-8 Antenna
0.116	3.90	22.92	26.82	105.40	-78.58	PK	Figure-8 Antenna
0.116	-6.80	22.92	16.12	85.40	-69.28	AV	Figure-8 Antenna
0.174	20.70	22.93	43.63	101.87	-58.24	PK	Figure-8 Antenna
0.174	9.30	22.93	32.23	81.87	-49.64	AV	Figure-8 Antenna

0.232	16.50	22.94	39.44	99.37	-59.93	PK	Figure-8 Antenna
0.232	5.40	22.94	28.34	79.37	-51.03	AV	Figure-8 Antenna
0.290	14.90	22.95	37.85	97.44	-59.59	PK	Figure-8 Antenna
0.290	3.10	22.95	26.05	77.44	-51.39	AV	Figure-8 Antenna
0.348	14.00	22.95	36.95	95.85	-58.91	PK	Figure-8 Antenna
0.348	2.10	22.95	25.05	75.85	-50.81	AV	Figure-8 Antenna
0.406	14.00	22.94	36.94	94.51	-57.57	PK	Figure-8 Antenna
0.406	1.60	22.94	24.54	74.51	-49.97	AV	Figure-8 Antenna
0.464	16.10	22.94	39.04	93.35	-54.31	PK	Figure-8 Antenna
0.464	1.20	22.94	24.14	73.35	-49.21	AV	Figure-8 Antenna
0.522	8.00	22.94	30.94	52.33	-21.39	QP	Figure-8 Antenna
0.580	5.60	22.95	28.55	51.42	-22.87	QP	Figure-8 Antenna

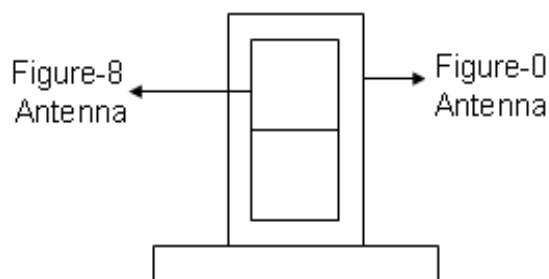
Notes:

1. All measurements were performed using a loop antenna. The antenna was positioned in two orthogonal (face on and face off) and the position with the highest emission level was recorded.
2. The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
3. Measurements were performed at 10m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear extrapolation factor (40 dB/decade) as specified in &15.31(f)(2).

Extrapolation Factor = $40 * \text{LOG}(300/10) = 59 \text{ dB}$

For example(58kHz):

AV Limit = $20 * \text{LOG}(2400/58) + 40 * \text{LOG}(300/10) = 91.42 \text{ dBuV/m.}$



Radiated Emission(>30MHz)

Measurement Distance: 3 Meters

Frequency (MHz)	Reading Level (dBuV/m)	Factor	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin [dB]	Detector
Horizontal						
57.28	9.03	12.36	21.38	40.00	-18.62	QP
129.79	5.91	18.58	24.49	43.50	-19.01	QP
191.99	7.21	15.98	23.18	43.50	-20.32	QP
240.01	9.39	18.31	27.71	46.00	-18.29	QP
287.90	6.82	20.40	27.21	46.00	-18.79	QP
312.03	6.01	21.13	27.14	46.00	-18.86	QP
Vertical						
119.97	9.50	18.49	27.99	43.50	-15.51	QP
143.98	10.37	17.45	27.82	43.50	-15.68	QP
167.98	7.48	16.17	23.65	43.50	-19.85	QP
191.99	10.40	15.98	26.37	43.50	-17.13	QP
312.03	11.41	21.13	32.54	46.00	-13.47	QP
383.93	8.02	23.24	31.25	46.00	-14.75	QP