FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart C § 15.231

Equipment	:	**Remote Control**
Model No.	:	**TR-009-1**
Brand Name	:	**KAB**
Filing Type	:	**New Application**
Applicant	:	**KAB Enterprise Co., Ltd.** 21F-1, No.33, Sec.1, Min Sheng Rd. Panchiao, Taipei Hsien, Taiwan. R.O.C.
FCC ID	:	**PAGTR-009-1**
Manufacturer	:	**Verdant Electronics (Dong Guan) Co., Ltd.** Langxie Administrative District, Qiaotou Dongguan City, Guangdog China
Received Date	:	Aug. 09, 2007
Test Date	:	Aug. 15, 2007

Statement

The test result in this report refers exclusively to the presented test model / sample.
Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart C**.
The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190
ILAC MRA

SPORTON International Inc.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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History of This Test Report

Original Issue Date: Aug. 21, 2007

Report No.: FR780809

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

according to

47 CFR FCC Part 15 Subpart C § 15.231

Equipment	: Remote Control
Model No.	: TR-009-1
Brand Name	: KAB
Applicant	: KAB Enterprise Co., Ltd. 21F-1, No.33, Sec.1, Min Sheng Rd. Panchiao, Taipei Hsien, Taiwan. R.O.C.

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Aug. 09, 2007 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Wayne Hsu

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	-
4.2	15.231(b)	Field Strength of Fundamental Emissions	Complies	17.49 dB
4.3	15.231(c)	20dB Spectrum Bandwidth	Complies	-
4.4	15.231(a)	Deactivating time	Complies	-
4.5	15.231(b)	Radiated Emissions	Complies	2.33 dB
4.6	15.231(b)	Band Edge Emissions	Complies	-
4.7	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.26dB	Confidence levels of 95%
Field Strength of Fundamental Emissions	±3.72dB	Confidence levels of 95%
20dB Spectrum Bandwidth	±6.25×10-7	Confidence levels of 95%
Radiated Emissions/ Band Edge Emissions	±3.72dB	Confidence levels of 95%

2. GENERAL INFORMATION

2.1. Product Details

Items	Description
Product Type	Remote Control
Power Type	Power from a 12V Battery
Modulation	ASK
Frequency Range	315MHz
Channel Number	1
Channel Band Width (99%)	80.80 kHz
Max. Fundamental Field Strength	68.73 dBuV/m at 3m (Peak)
Antenna	Integrated Antenna

2.2. Table for Carrier Frequencies

Freqeuncy Band	Channel No.	Frequency
315MHz	1	315 MHz

2.3. Table for Test Modes

The following table is a list of the test modes shown in this test report.

Test Items	Mode	Channel
AC Power Line Conducted Emissions	N/A	N/A
Field Strength of Fundamental Emissions 20dB Spectrum Bandwidth	CTX	1
Deactivating Time	Normal Use	1
Radiated Emissions 9kHz~30MHz Radiated Emissions 9kHz~10th Harmonic Band Edge Emissions	CTX	1

Note: CTX=continuously transmitting

2.4. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH03-HY	SAC	Hwa Ya	101377	IC 4088	-
CO04-HY	Conduction	-	101377	IC 4088	-
TH01-HY	OVEN Room	Hwa Ya	-	-	-

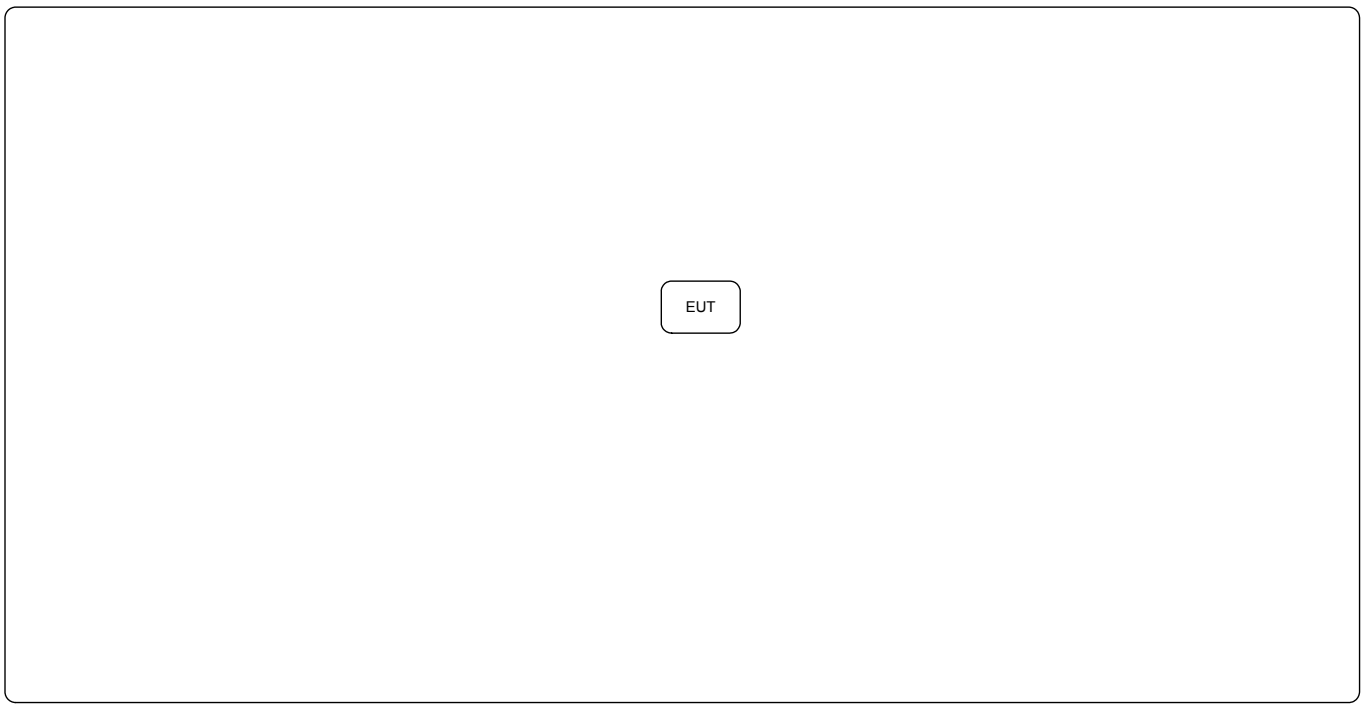
Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

2.5. Table for Supporting Units

The EUT was tested alone.

2.6. Test Configurations

2.6.1. Radiation Emissions Test Configuration



3. TEST RESULT

3.1. AC Power Line Conducted Emissions Measurement

3.1.1. Limit

For a Low-power Radio-frequency Device which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

3.1.2. Measuring Instruments and Setting

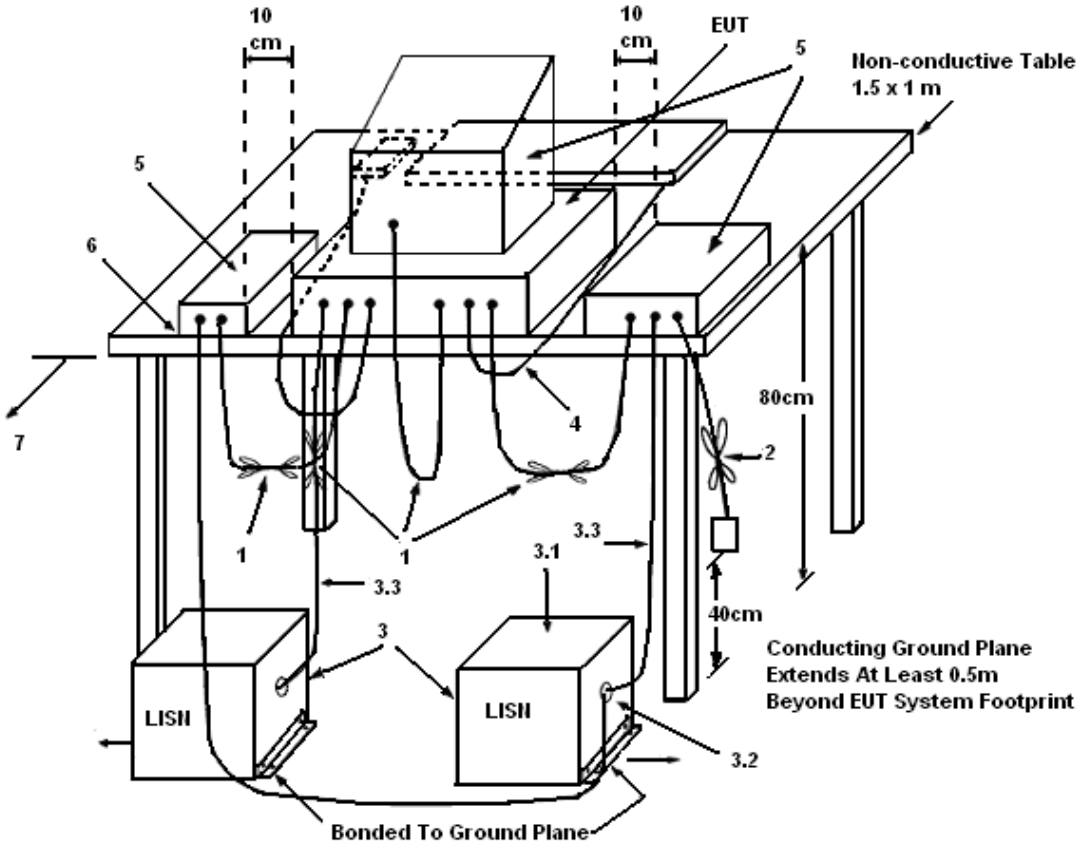
Please refer to section 5 of equipments list in this report.The following table is the setting of the receiver.

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

3.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

3.1.4. Test Setup Layout



1. 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.
2. 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.
3. EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.
   3.1 All other equipment powered from additional LISN(s).
   3.2 Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
   3.3 LISN at least 80cm from nearest part of EUT chassis.
4. Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
5. Non-EUT components of EUT system being tested.
6. Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
7. Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

3.1.5. Test Deviation

There is no deviation with the original standard.

3.1.6. EUT Operation during Test

N/A

3.1.7. Results of AC Power Line Conducted Emissions Measurement

Based on the Comment FCC/TCBC, the AC powerline conducted emission is not required for battery powered device.

3.2. Field Strength of Fundamental Emissions Measurement

3.2.1. Limit

Devices complying with 47 CFR FCC Part 15 Subpart C, section 15.231(a). The field strength of emissions from intentional radiators at 3 meters operated under this Section shall not exceed the following:

Frequency Band (MHz)	Fundamental Emissions Limit (uV/m) at 3m
40.66-40.70	2250
70-130	1250
130-174	1250-3750(**)
174-260	3750
260-470	3750-12500(**)
Above 470	12500

**1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

(1) for the band 130 - 174 MHz, μV/m at 3 meters = 56.81818×(operating frequency, MHz) - 6136.3636;

(2) for the band 260 - 470 MHz, μV/m at 3 meters = 41.6667×(operating frequency, MHz) - 7083.3333.

So the field strength of emission limits have been calculated in below table.

Carrier Frequency (MHz)	Fundamental Emissions Limit (dBuV/m) at 3m
315 MHz	75.62 (Average)
315 MHz	95.62 (Peak)

3.2.2. Measuring Instruments and Setting

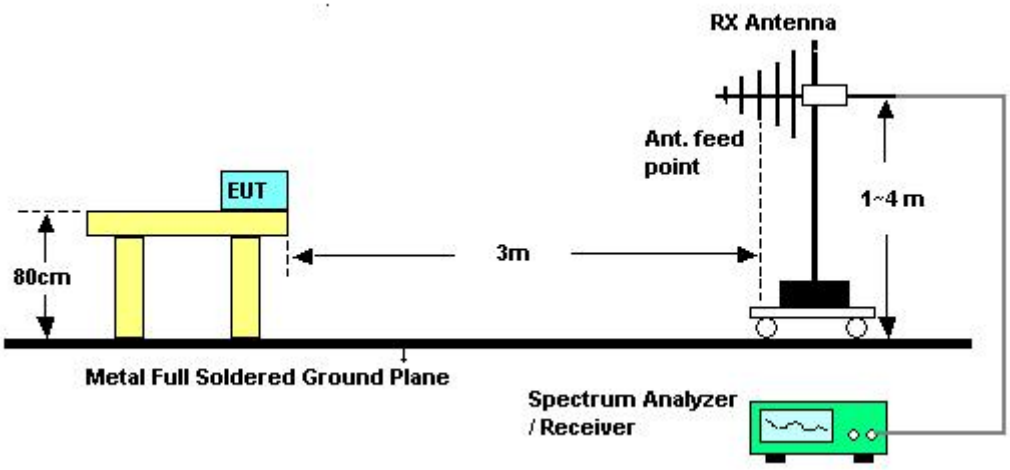
Please refer to section 5 of equipments list in this report.The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	Auto
Center Frequency	Fundamental Frequency
RB	120 kHz
Detector	Peak / Average

3.2.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. For Fundamental emissions, use the receiver to measure peak and average reading.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

3.2.4. Test Setup Layout



3.2.5. Test Deviation

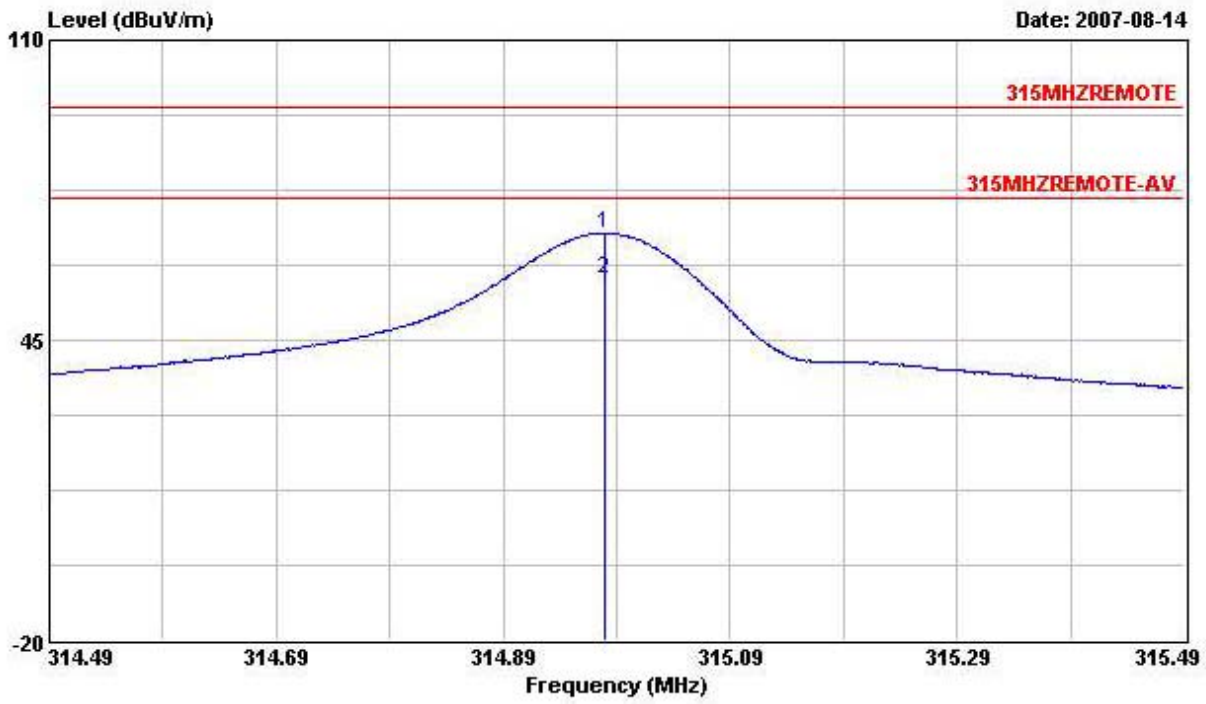
There is no deviation with the original standard.

3.2.6. EUT Operation during Test

The EUT was manually operated to be in transmitting mode.

3.2.7. Test Result of Field Strength of Fundamental Emissions

Temperature	24℃	**Humidity**	54%
Test Engineer	Duncan	**Configurations**	Channel 1



	Freq	Level	Read Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dBuV	dB	dBuV/m	dB/m	dB	dB	
1	314.980	68.20	78.80	-27.42	95.62	14.13	3.86	28.59	Peak
2 @	314.980	58.13	68.73	-17.49	75.62	14.13	3.86	28.59	Average

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Receiving maximum fundamental emissions are Vertical Polarization / Horizontal Polarization.

3.3. 20dB Spectrum Bandwidth Measurement

3.3.1. Limit

The bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. So the emission bandwidth limits have been calcuated in below table.

Fundamental Frequency	20dB Bandwidth Limits (kHz)
315 MHz	790

3.3.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report.The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 20dB Bandwidth
RB	10 kHz
VB	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. The resolution bandwidth of 10 kHz and the video bandwidth of 10 kHz were used.
3. Measured the spectrum width with power higher than 20dB below carrier.

3.3.4. Test Setup Layout

Spectrum Analyzer **EUT**

3.3.5. Test Deviation

There is no deviation with the original standard.

3.3.6. EUT Operation during Test

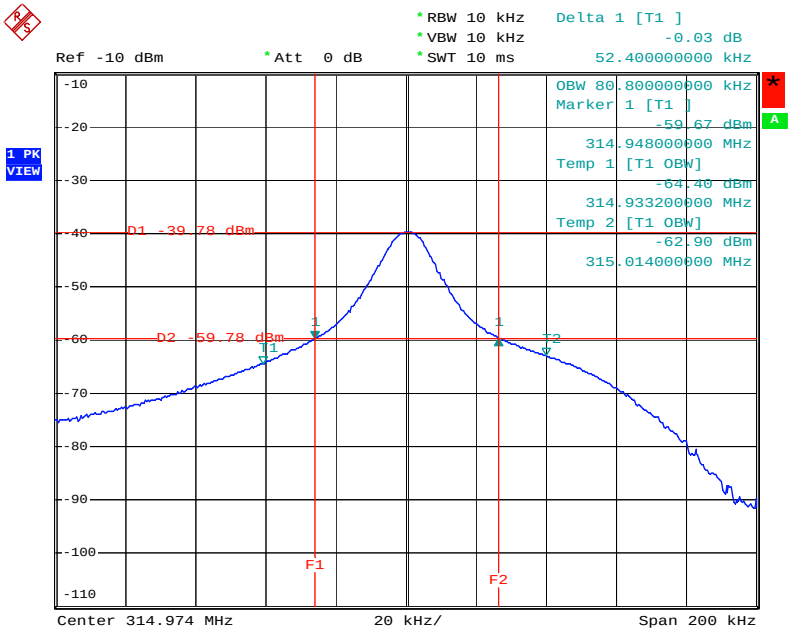
The EUT was manually operated to be in transmitting mode.

3.3.7. Test Result of 20dB Spectrum Bandwidth

Temperature	28℃	**Humidity**	58%
Test Engineer	Murphy	**Configurations**	Channel 1

Frequency	20dB BW (kHz)	99% OBW (kHz)	Limits (MHz)	Test Result
315 MHz	52.40	80.80	0.79	**Complies**

20 dB/99% Bandwidth Plot on 315 MHz



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3.4. Deactivating Time

3.4.1. Limit

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

3.4.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report.The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	0 MHz
RB	1000 kHz
VB	1000 kHz
Detector	Peak
Trace	Single Trigger
Attenuation	Auto

3.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser
2. Set RBW of spectrum analyzer to 1000kHz and VBW to 1000kHz.
3. Use a video trigger with the trigger level set to enable triggering only on full pulses.
4. Sweep Time is more than one pulse time.
5. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
6. Measure the maximum time duration of one single pulse.

3.4.4. Test Setup Layout

3.4.5. Test Deviation

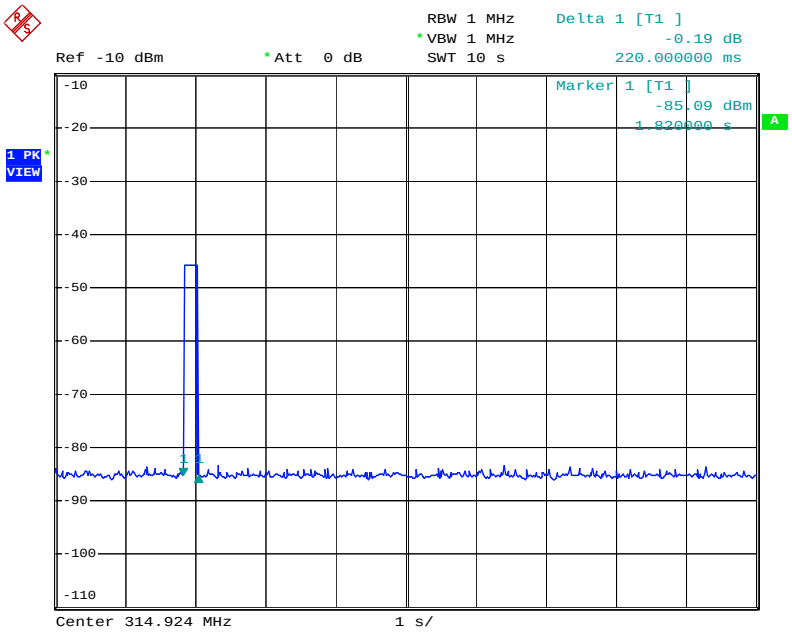
There is no deviation with the original standard.

3.4.6. EUT Operation during Test

The EUT was manually operated to be in transmitting mode.

3.4.7. Deactivating Time

Temperature	28℃	**Humidity**	58%
Test Engineer	Murphy	**Configurations**	Channel 1



Note: The EUT is deactivated immediately after being released.

3.4.8. Test Result of Operation Restriction

Periodic Operation Restriction	Applicable	Declared by applicant	Test performance	Passed
The transmitter is used for				
☐ security or safety applications ☒ other applications		☒		
The transmitter is operated				
☒ manually ☐ automatically		☒		
Periodic operation according to				
☒ 47 CFR FCC Part 15 Subpart C ☒ 15.231(a)				
Only control signals are sent and there is on continuous transmission.	☒	☐	☐	☒
(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.	☒	☐	☐	☒
(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.	☐	☐	☐	☐
(3) Periodic transmissions at regular predetermined intervals are ☒ not permitted ☐ permitted with total transmission time of two seconds per hour or less (for polling or supervision transmission to determine system integrity of transmitters used in security or safety applications)	☐	☐	☐	☐
☐ 47 CFR FCC Part 15 Subpart C 15.231(e)				
The device is provided with a means for automatically limiting operation so that the duration of each transmissions is not greater than one second and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 seconds.	☐	☐	☐	☐

Note: Result may be based on the applicant declaration (i.e. no test is performed). However, in this casethere is no vertification by the test laboratory.

3.5. Radiated Emissions Measurement

3.5.1. Limit

Devices complying with 47 CFR FCC Part 15 Subpart C, section 15.231(a). The field strength of emissions from intentional radiators at 3 meters operated under this Section shall not exceed the following:

Frequency Band (MHz)	Spurious Emissions Limit (up/m) at 3m
40.66-40.70	225
70-130	125
130-174	125-375(**)
174-260	375
260-470	375-1250(**)
Above 470	1250

**1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

(1) for the band 130 - 174 MHz, μV/m at 3 meters = 56.81818x(operating frequency, MHz) - 6136.3636;

(2) for the band 260 - 470 MHz, μV/m at 3 meters = 41.6667x(operating frequency, MHz) - 7083.3333.

(3)The maximum permitted unwanted emissions level is 20 dB below the maximum permitted fundamental level. In addition field strength of any emissions which appear inside of the restriction band shall not exceed the general radiated emissions limits in Section 15.209(a).

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F (KHz)	300
0.490~1.705	24000/F (KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

3.5.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report.The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

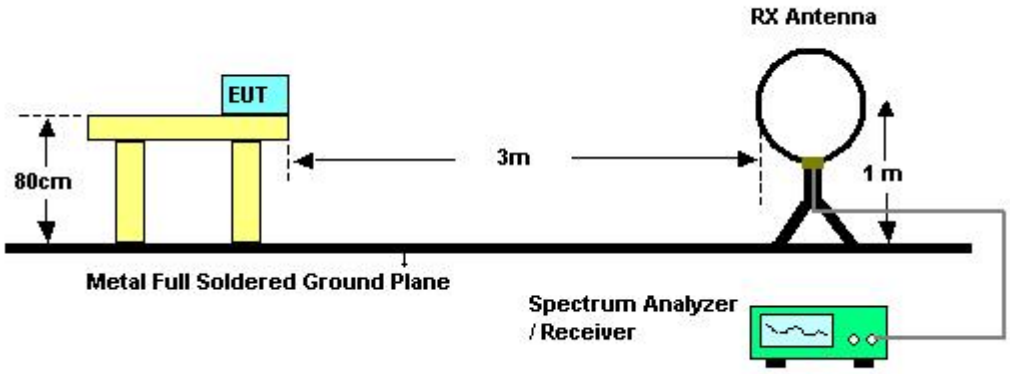
3.5.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

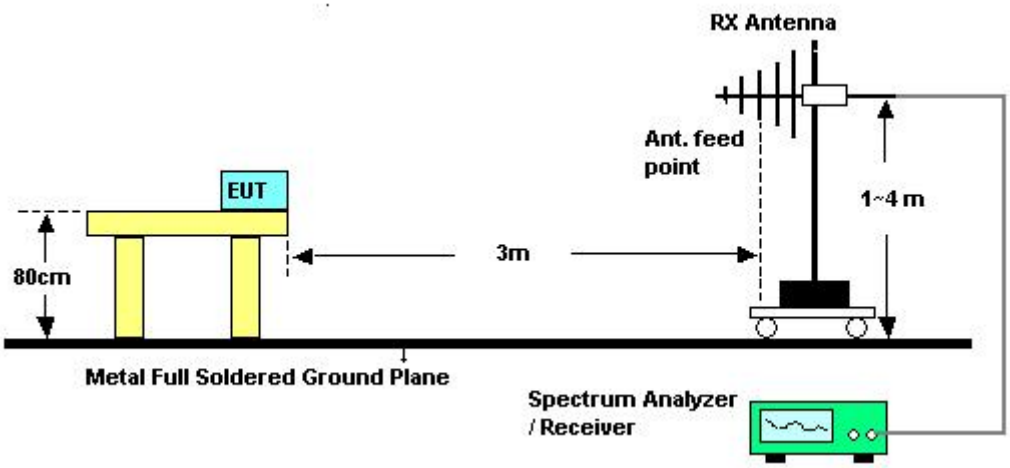
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

3.5.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



3.5.5. Test Deviation

There is no deviation with the original standard.

3.5.6. EUT Operation during Test

The EUT was manually operated to be in transmitting mode.

3.5.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	24℃	**Humidity**	54%
Test Engineer	Duncan	**Configurations**	Channel 1

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

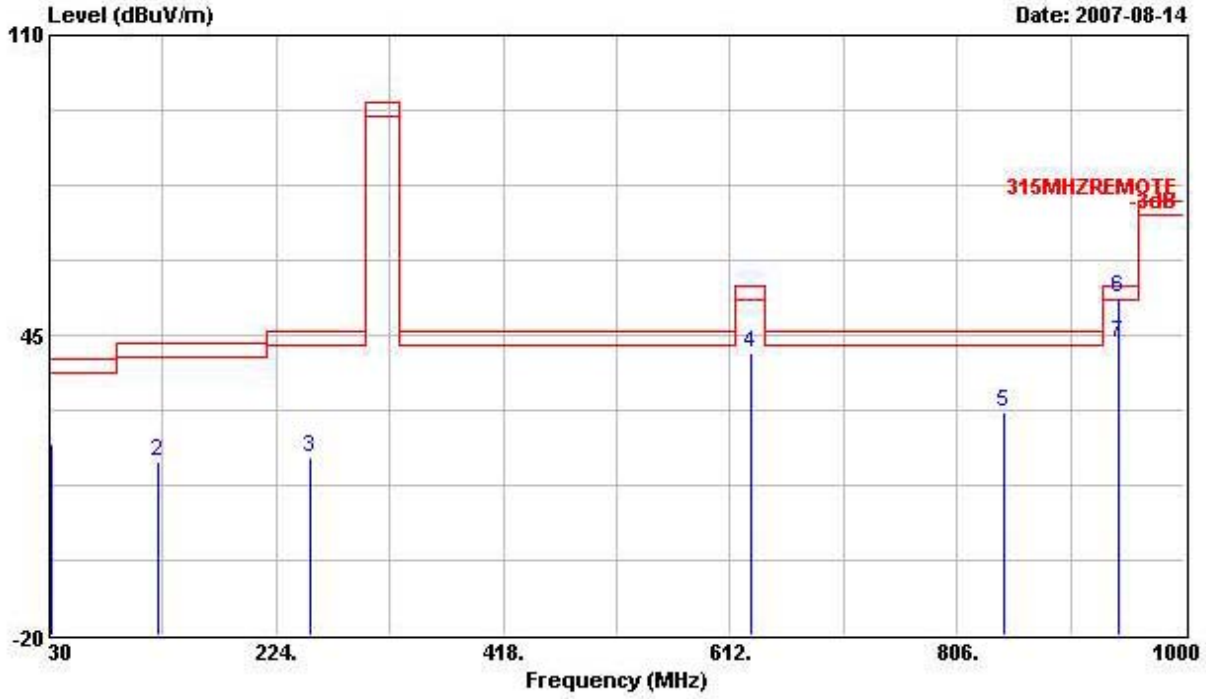
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

3.5.8. Results for Radiated Emissions (30MHz~10th Harmonic)

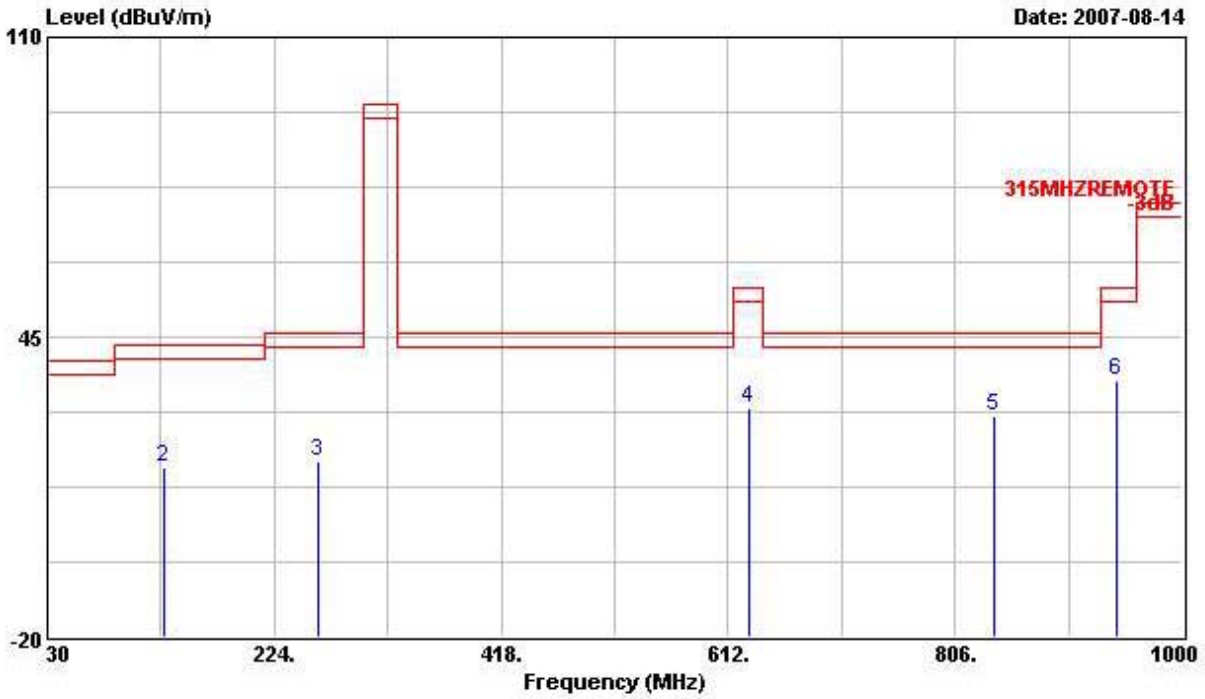
Temperature	24℃	**Humidity**	54%
Test Engineer	Duncan	**Configurations**	Channel 1

Horizontal



	Freq	Level	Read Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dBuV	dB	dBuV/m	dB/m	dB	dB	
1	31.940	21.28	29.50	-18.72	40.00	17.30	2.16	27.68	Peak
2	122.150	17.42	29.53	-26.08	43.50	12.56	3.17	27.84	Peak
3	253.100	18.52	29.93	-27.48	46.00	12.98	3.76	28.16	Peak
4 @	629.460	41.10	46.36	-14.52	55.62	19.49	4.96	29.72	Peak
5	846.740	28.35	31.11	-17.65	46.00	20.83	5.92	29.51	Peak
6 @	944.710	53.29	55.25	-2.33	55.62	21.30	6.41	29.67	Peak
7 @	944.710	43.22	45.18	-12.40	55.62	21.30	6.41	29.67	Average

Vertical



	Freq	Level	Read Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dBuV	dB	dBuV/m	dB/m	dB	dB	
1	30.000	21.19	28.42	-18.81	40.00	18.48	1.97	27.68	Peak
2	129.910	16.96	29.54	-26.54	43.50	12.38	2.97	27.93	Peak
3	261.830	18.21	29.13	-27.79	46.00	13.64	3.63	28.19	Peak
4	629.460	29.79	35.05	-25.83	55.62	19.49	4.96	29.72	Peak
5	839.950	27.96	30.80	-18.04	46.00	20.82	5.90	29.56	Peak
6	944.710	35.79	37.75	-19.83	55.62	21.30	6.41	29.67	Peak

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

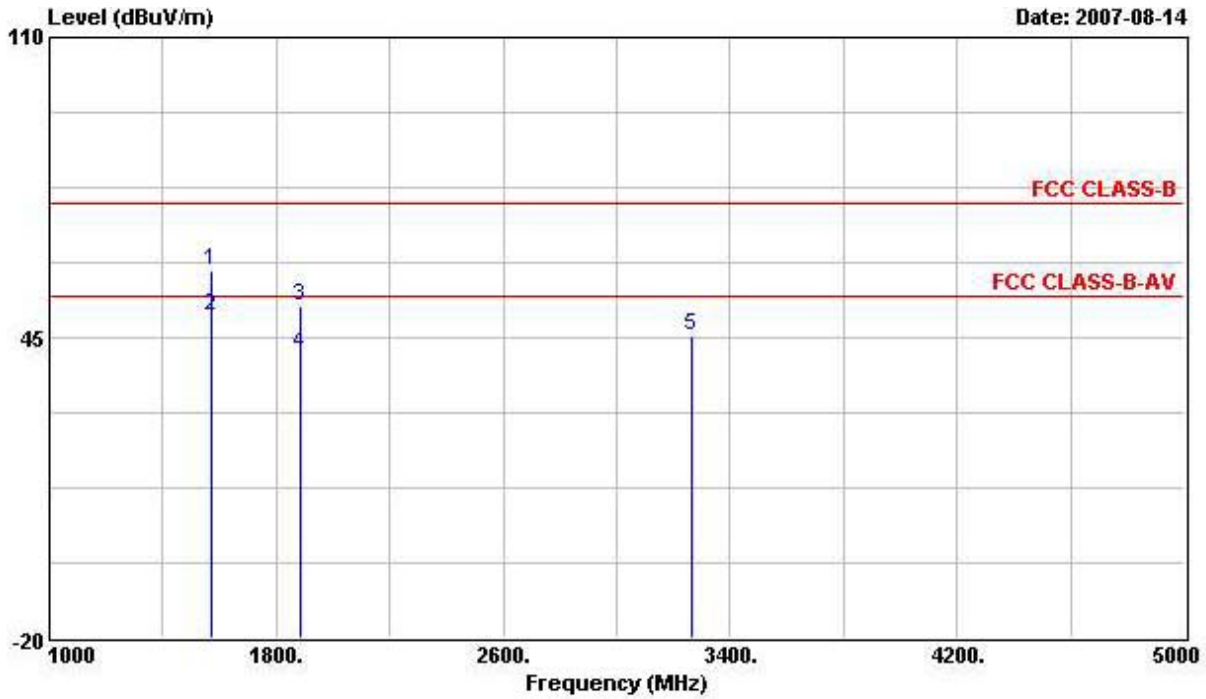
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.5.9. Results for Radiated Emissions (1GHz~10th harmonic of highest frequency)

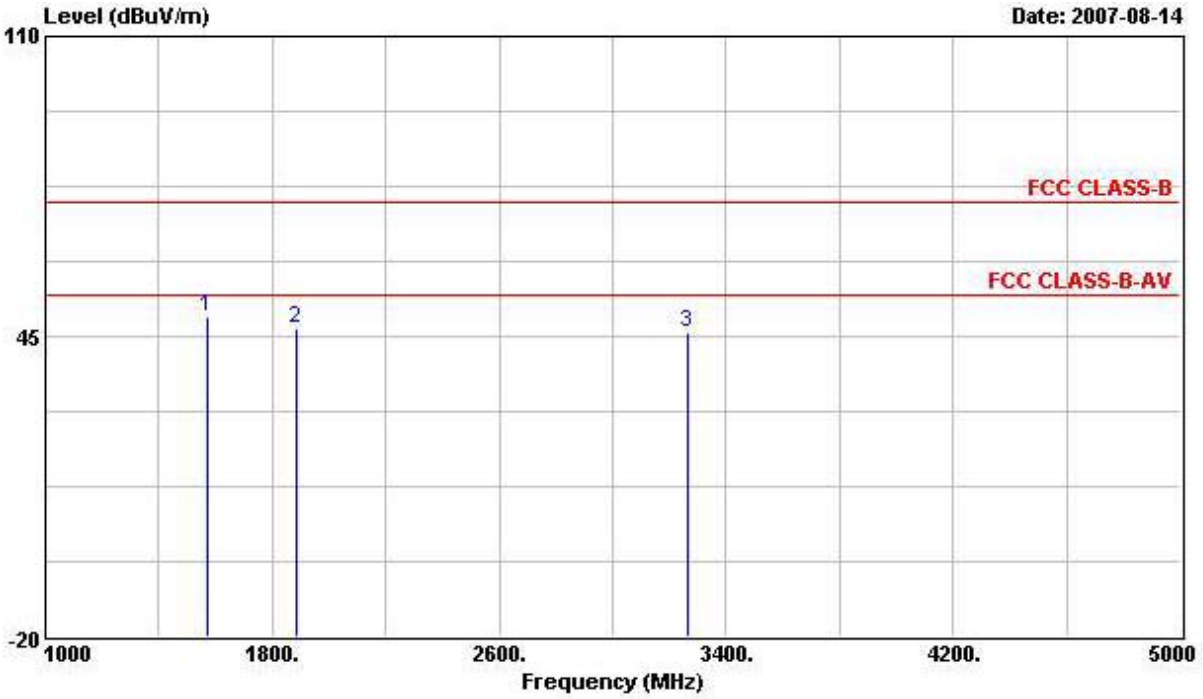
Temperature	26℃	**Humidity**	55%
Test Engineer	Duncan	**Configurations**	Channel 1

Horizontal



	Freq	Level	Read Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dBuV	dB	dBuV/m	dB/m	dB	dB	
1 @	1572.000	59.75	65.00	-14.25	74.00	25.75	2.25	33.25	Peak
2 @	1572.000	49.68	54.93	-4.32	54.00	25.75	2.25	33.25	Average
3	1886.000	51.79	55.19	-22.21	74.00	27.01	2.50	32.91	Peak
4 @	1886.000	41.72	45.12	-12.28	54.00	27.01	2.50	32.91	Average
5	3264.000	45.32	44.14	-28.68	74.00	30.62	3.40	32.85	PEAK

Vertical



	Freq	Level	Read Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dBuV	dB	dBuV/m	dB/m	dB	dB	
1 @	1572.000	49.48	54.73	-4.52	54.00	25.75	2.25	33.25	Average
2 @	1886.000	46.80	50.20	-7.20	54.00	27.01	2.50	32.91	Average
3	3264.000	45.86	44.69	-28.14	74.00	30.62	3.40	32.85	PEAK

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.6. Antenna Requirements

3.6.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

3.6.2. Antenna Connector Construction

Please refer to section 3.1 in this test report, all antenna connectors comply with the requirements.

4. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 14, 2007	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	CPA9231A	1886	9 kHz - 2 GHz	Jan. 22, 2007	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jun. 07, 2007	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100004/040	9 kHz - 40 GHz	Sep. 21, 2006	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz – 1 GHz	Jul. 21, 2007	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	May 04, 2007	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	NCR	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Dec. 02, 2006	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Dec. 02, 2006	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 – 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9kHz ~ 30GHz	Dec. 17, 2006	Conducted (TH01-HY)
Power Meter	R&S	NRCS	100444	DC ~ 40GHz	Jun. 27, 2007	Conducted (TH01-HY)
Power Sensor	R&S	NRC-Z51	1006458	DC ~ 40GHz	Jun. 27, 2007	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z32	100057	30MHz ~ 6GHz	Jun. 27, 2007	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Mar. 03, 2007	Conducted (TH01-HY)
Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Oct. 02, 2006	Conducted (TH01-HY)
RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 01, 2006	Conducted (TH01-HY)
RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 01, 2006	Conducted (TH01-HY)
Vector Signal Generator	R&S	SMU200A	102098	100kHz ~ 6GHz	Nov. 14, 2006	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Mar. 07, 2007	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year. NCR: Non-Calibration required.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Amplifier	MITEQ	AMF-6F-260400	923364	26.5 GHz - 40 GHz	Jan. 22, 2007*	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	May 23, 2006*	Radiation (03CH03-HY)
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	May 04, 2007*	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is two year.

5. TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL	:	886-3-327-3456
	FAX	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	No.8, Lane 728, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
	TEL	:	886-3-656-9065
	FAX	:	886-3-656-9085

6. TAF CERTIFICATE OF ACCREDITATION

Certificate No. : L1190-070110

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	:	ISO/IEC 17025:2005
Accreditation Number	:	1190
Originally Accredited	:	December 15, 2003
Effective Period	:	January 10, 2007 to January 09, 2010
Accredited Scope	:	Testing Field, see described in the Appendix
Specific Accreditation Program	:	Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

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The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.