FCC TEST REPORT

according to

FCC Part 15, Subpart C (15.231) / ANSI C63.4: 2003

Applicant	:	Doberman Security Products, Inc.
Address	:	3002 Dow Avenue, Suite #408, Tustin, USA, CA 92780
Equipment	:	Wireless Door Alarm W/Remote
Model No.	:	SE-0119
FCC ID	:	S88- SE0119
Trade Name	:	Doberman

Laboratory Accredition

TAF
Testing Laboratory
1332

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of ***Cerpass Technology Corp.*** the test report shall not be reproduced except in full.

Contents

CERTIFICATE OF COMPLIANCE

according to

FCC Part 15, Subpart C (15.231) / ANSI C63.4: 2003

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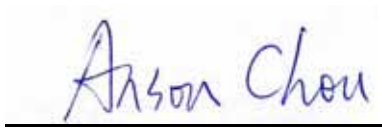
Model No.	:	SE-0119
FCC ID	:	S88- SE0119

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4.** The equipment was ***passed*** the test performed according to **FCC Part 15, Subpart C (15.231) / ANSI C63.4: 2003.**

The test was carried out on Apr. 30, 2010 at ***Cerpass Technology Corp***.

Signature



Anson Chou
EMC/RF B.U. Vice General Manager

1. Report of Measurements and Examinations

1.1. List of Measurements and Examinations

FCC Rule	Test Type	Result	Remark
15.203	Antenna Requirement	Pass	
15.207	Conducted Emission	Pass	3Vdc from batteries
15.209 15.231	Radiated Emission	Pass	Minimum Passing margin is -9.08 at 936.30 MHz
15.231	20dB Occupied Bandwidth Measurement	Pass	Meet the requirement of limit

Note: the information of measurement uncertainty is available upon the customer's request.

2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

- Voltage: DC3V
- Operating Frequency: 433MHz

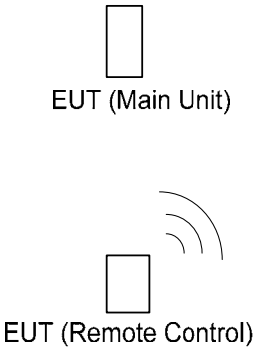
2.2. Test Mode and Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.

b. The complete test system included EUT (Main Unit, Remote Control, and Magnetic Sensor) for EMI test.

c. Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and XYZ axis.
Axis Z was selected for the final test.

2.3. Connection Diagram of Test System



＊ The Remote control keeps to transmit signal to the Main Unit by Wireless.

2.4. History of this test report

■ ORIGINAL.

☐ Additional attachment as following record:

Attachment No.	Issue Date	Description

3. Antenna Requirements

3.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.247(b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

3.2. Antenna Construction and Directional Gain

Antenna type: PCB Antenna

4. General Information of Test

Test Site :	Cerpass Technology Corp. 2F-11, No. 3, Yuan Qu St., (Nankang Software Park), Taipei, Taiwan 115, R.O.C.
Test Site Location (OATS1-SD):	No. 7-2, Moshihkeng, Fongtian Village, Shihding Township, Taipei County, Taiwan, R.O.C.
FCC Registration Number :	TW1049, TW1056, 982971, 488071
IC Registration Number :	4934C-1, 4934D-1
Test Voltage:	DC 3V
Test in Compliance with:	FCC Part 15, Subpart C (15.231) / ANSI C63.4: 2003
Frequency Range Investigated:	Conducted Emission Test: from 150kHz to 30 MHz Radiated Emission Test: from 30 MHz to 25000 MHz
Test Distance:	The test distance of radiated emission above 1GHz from antenna to EUT is 3 M.

5. Test of Conducted Emission

5.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

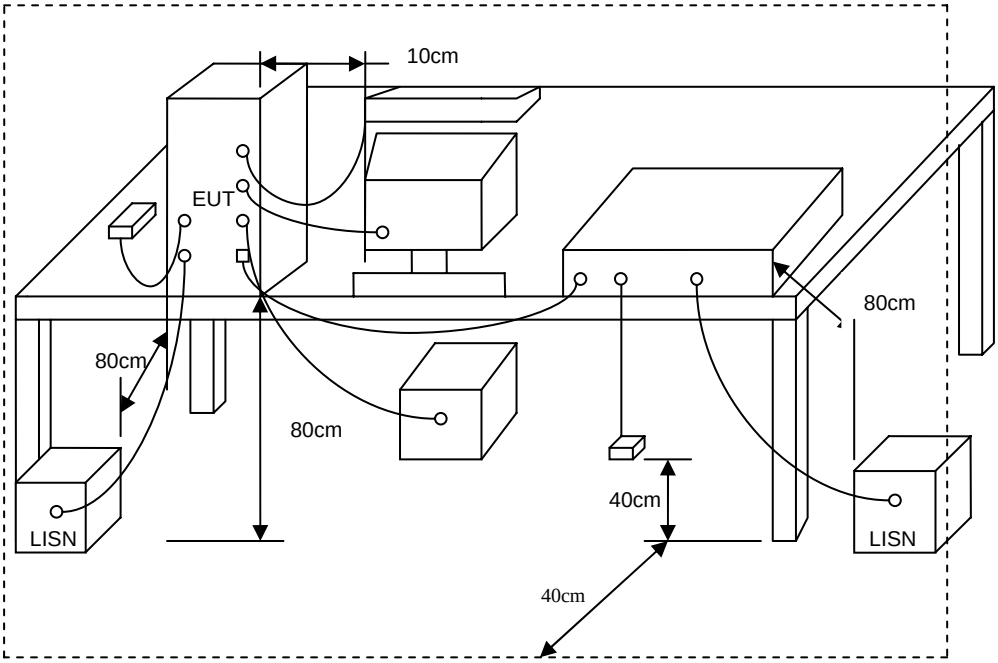
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

5.2. Test Procedures

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.3. Typical Test Setup



5.4. Test Result and Data

The test item is not applicable because the EUT is powered from Battery (DC 3V).

6. Test of Radiated Emission

6.1. Test Limit

According to 15.231 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Frequency (MHz)	Field Strength of Fundamental		Field Strength of Spurious	
	μV/ m	dBμV/ m	μV/ m	dBμV/ m
40.66 ~ 40.70	2250	67.04	225	48.04
70 ~130	1250	61.94	125	41.94
130 ~ 174	1250 ~ 3750	61.94 ~ 71.48	125 ~ 375	41.94 ~ 51.48
174 ~ 260	3750	71.48	375	51.48
260 ~ 470	3750 ~ 12500	71.48 ~ 81.94	375 ~ 1250	51.48 ~ 61.94
Above 470	12500	81.94	1250	61.94

NOTE:

1. Where F is the frequency in MHz, the formula for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, uV/m at 3 meters = 56.81818(F)-6136.3636; for the band 260-470 MHz, uV/m at 3 meters = 41.6667(F)- 7083.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.
2. The above field strength limits are specified at a distance of 3meters. The tighter limits apply at the band edges.

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequency (MHz)	Distance	Limit (μV/ m)
0.09 ~ 0.490	300m	2400/F(kHz)
0.490 ~ 1.705	30m	24000/ F(kHz)
1.705 ~ 30	30m	30
30 ~ 88	3m	100
88 ~ 216	3m	150
216 ~ 960	3m	200
Above 960	3m	500

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

6.2. Test Procedures

a. The EUT was placed on a rotatable table top 0.8 meter above ground.

b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiation.

d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.

e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.

f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 3 dB lower than the 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 and reported.

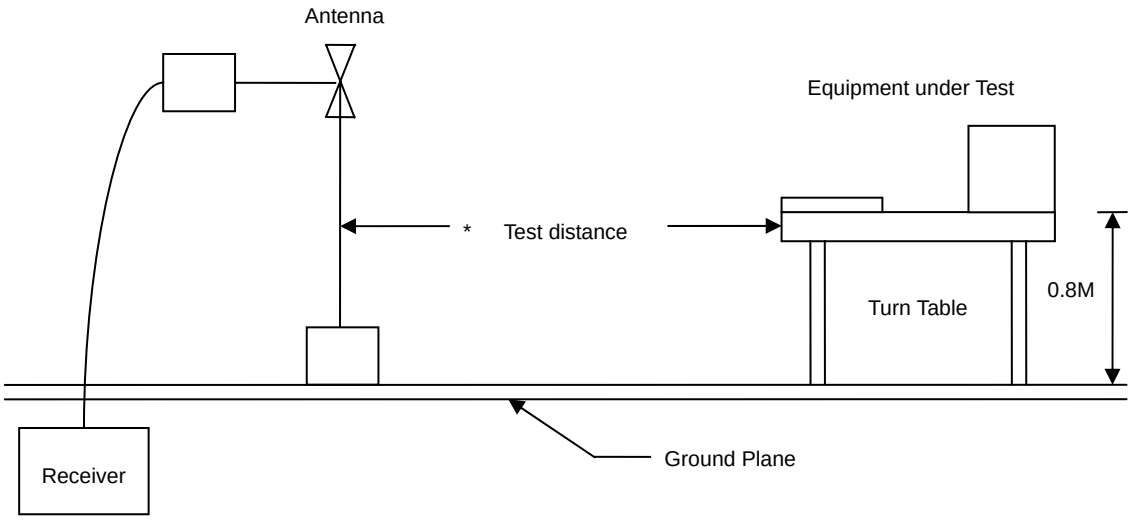
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

i. “Cone of radiation” has been considered to be 3dB beamwidth of the measurement antenna.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

6.3. Typical Test Setup Layout of Radiated Emission



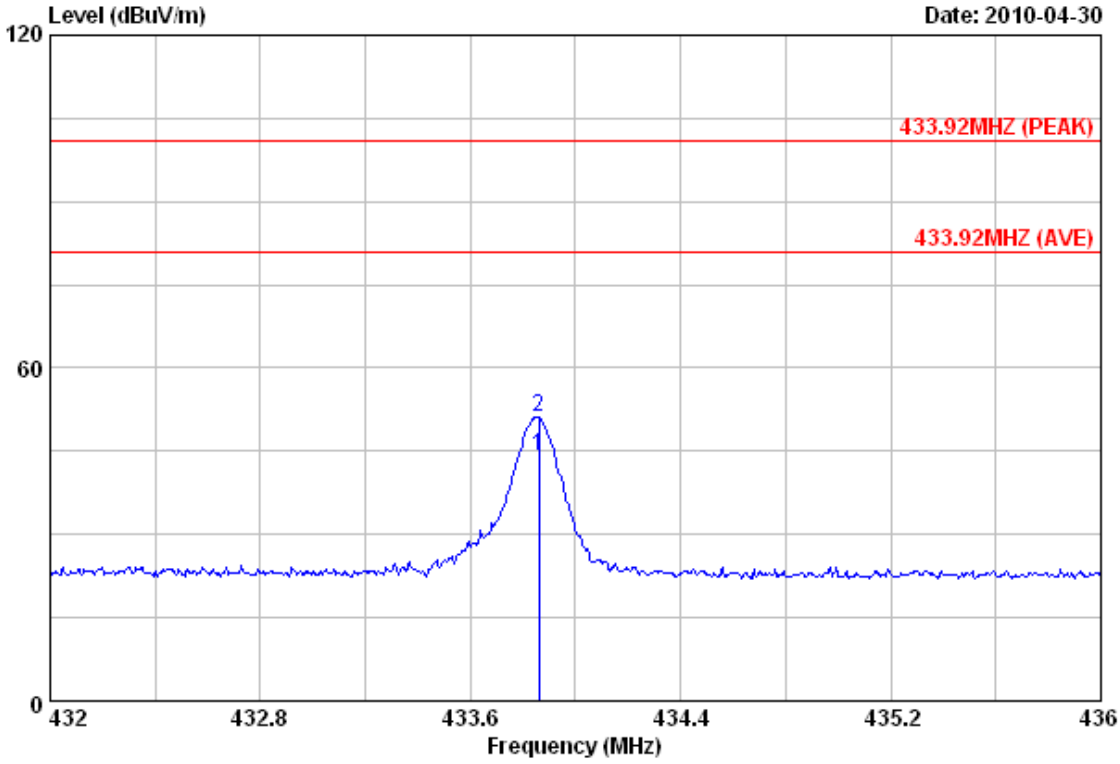
6.4. Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Bilog Antenna	Schaffner	CBL6112B	2840	2009/05/14	2010/05/13
EMI Receiver	R&S	ESCI	100443	2009/12/18	2010/12/17
Amplifier	Agilent	8447D	2944A10593	2009/05/21	2010/05/20
AC Power Converter	APC	AFC-11005	F103120008	N/A	N/A
SPECTRUM ANALYZER	R&S	FSP40	100219	2009/11/20	2010/11/19
HORN ANTENNA	EMCO	3115	31589	2010/05/04	2011/05/03
Preamplifier	Agilent	8449B	3008A01954	2010/02/26	2011/02/25

6.5. Test Result and Data

6.5.1. Test Result of Fundamental Emission

Power	:	DC 3V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit/ Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	61 %
Modulation Type	:		Atmospheric Pressure	:	1021 hPa
Operation Axial	:	Z	Memo	:	

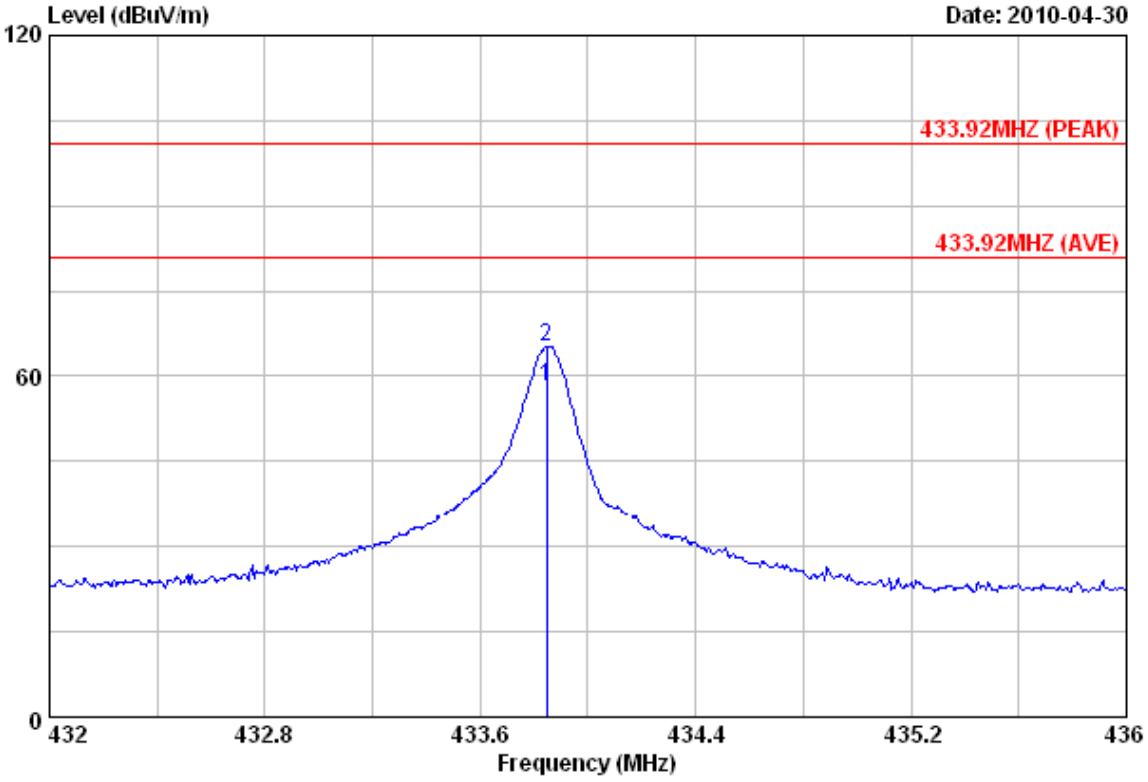


Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	433.86	51.78	-7.81	43.97	80.80	-36.83	Average	100	0
2	433.86	58.92	-7.81	51.11	100.80	-49.69	Peak	100	0

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The Average value = Peak value + 20log(Duty cycle)
6. The other emissions is too low to be measured.

Power	:	DC 3V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit/ Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	61 %
Modulation Type	:	FSK	Atmospheric Pressure	:	1021 hPa
Operation Axial	:	Z	Memo	:	



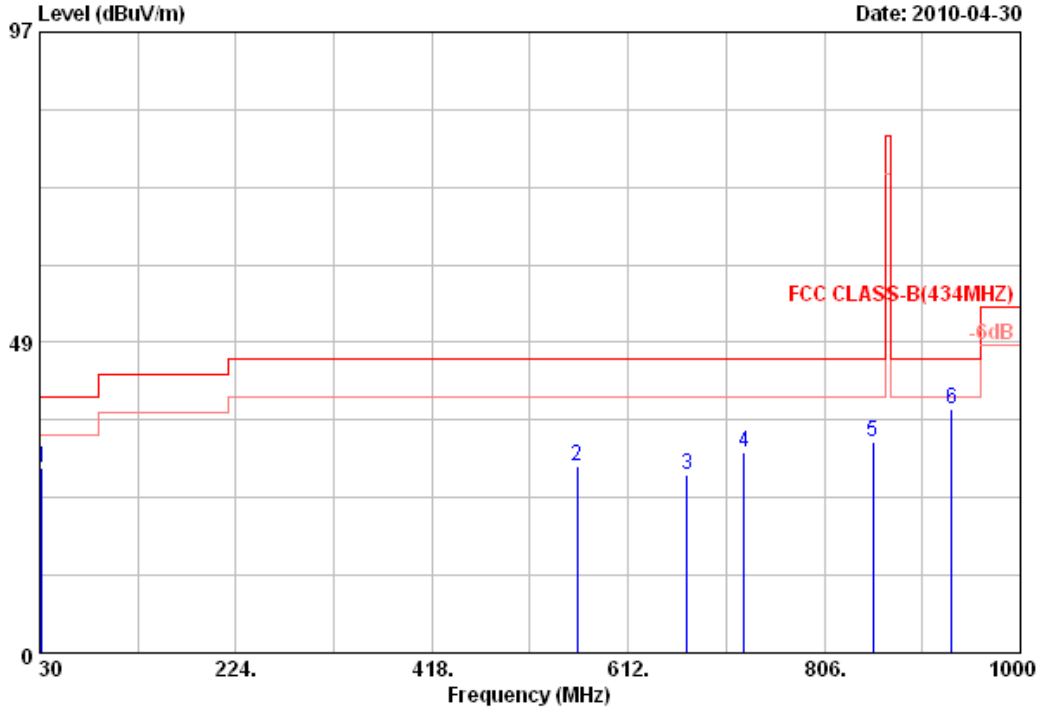
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	433.85	65.97	-7.81	58.16	80.80	-22.64	Average	100	360
2	433.85	73.11	-7.81	65.30	100.80	-35.50	Peak	100	360

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The Average value = Peak value + 20log(Duty cycle)
6. The other emissions is too low to be measured.

6.5.2. Test Result of Unwanted Spurious emission

Power	:	DC 3V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit/ Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	61 %
Modulation Type	:		Atmospheric Pressure	:	1021 hPa
Operation Axial	:	Z	Memo	:	

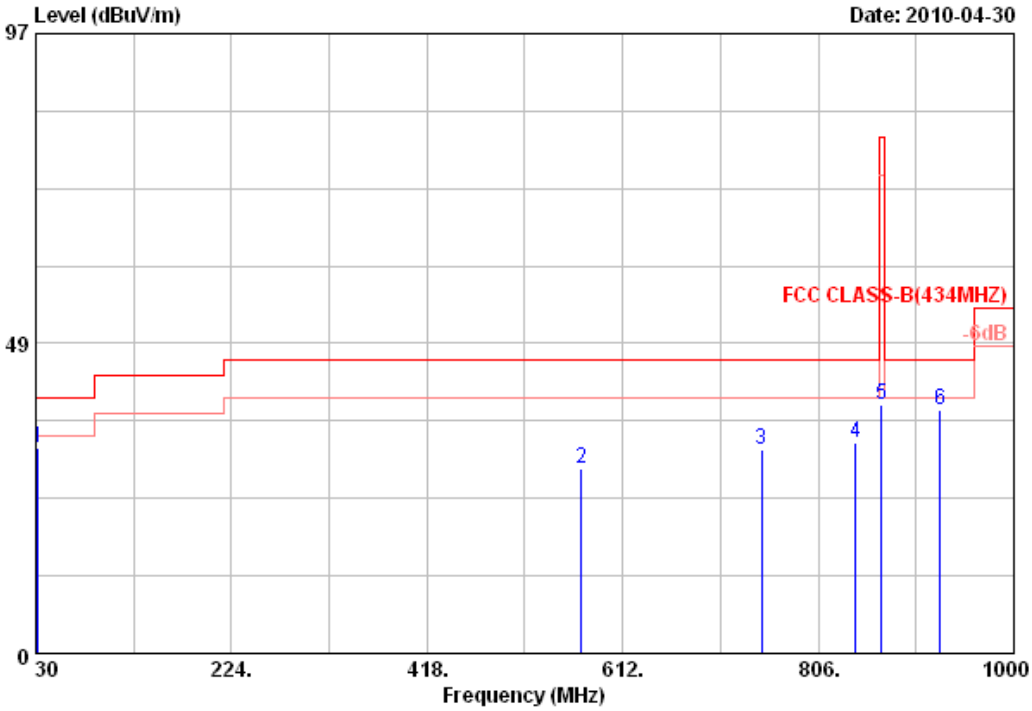


Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	31.94	32.12	-3.30	28.82	40.00	-11.18	Peak	100	0
2	561.56	32.47	-3.33	29.14	46.00	-16.86	Peak	100	0
3	670.20	31.50	-3.61	27.89	46.00	-18.11	Peak	100	0
4	726.46	31.94	-0.52	31.42	46.00	-14.58	Peak	100	0
5	854.50	32.42	0.66	33.08	46.00	-12.92	Peak	100	0
6	932.10	31.67	6.53	38.20	46.00	-7.80	Peak	100	0

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The Average value = Peak value + 20log(Duty cycle)
6. The other emissions is too low to be measured.

Power	:	DC 3V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit/ Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	61 %
Modulation Type	:		Atmospheric Pressure	:	1021 hPa
Operation Axial	:	Z	Memo	:	



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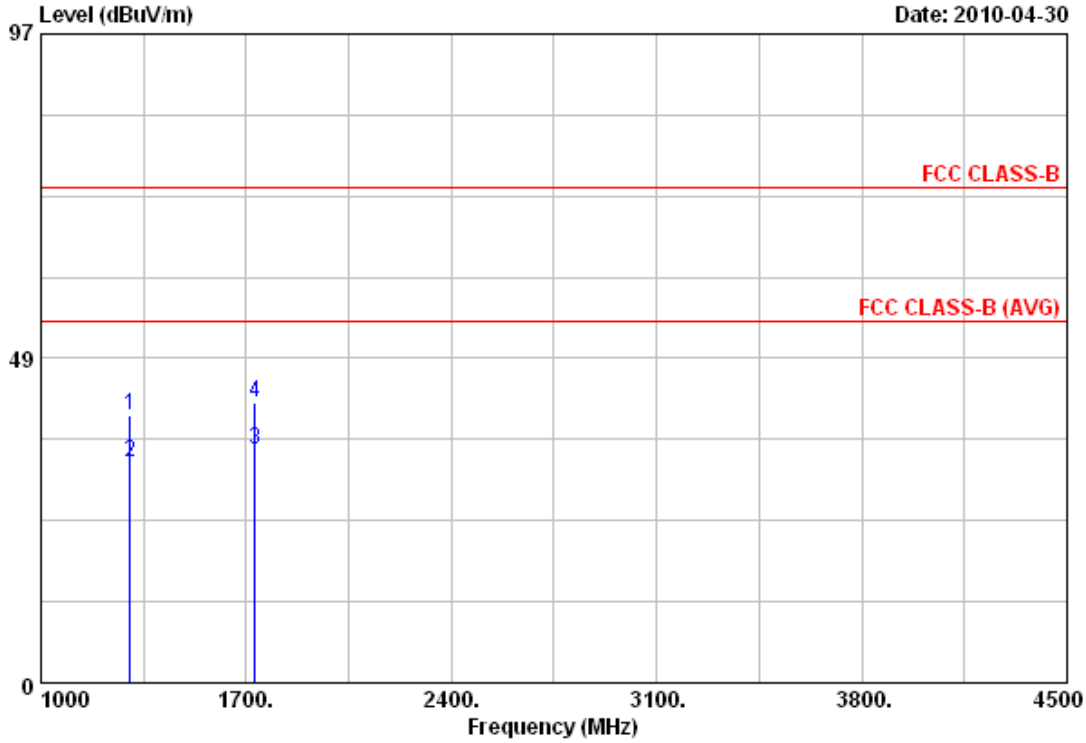
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	31.94	35.45	-3.30	32.15	40.00	-7.85	Peak	100	360
2	571.26	32.23	-3.37	28.86	46.00	-17.14	Peak	100	360
3	749.74	32.18	-0.35	31.83	46.00	-14.17	Peak	100	360
4	842.86	31.74	1.11	32.85	46.00	-13.15	Peak	100	360
5	869.05	38.49	0.43	38.92	80.80	-41.88	Peak	100	360
6	927.25	31.04	7.03	38.07	46.00	-7.93	Peak	100	360

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The Average value = Peak value + 20log(Duty cycle)
6. The other emissions is too low to be measured.

Power	:	DC 3V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit/ Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	61 %
Modulation Type	:		Atmospheric Pressure	:	1021 hPa
Operation Axial	:	Z	Memo	:	



Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	1303.40	46.85	-6.77	40.08	74.00	-33.92	Peak	100	360
2	1303.88	39.71	-6.77	32.94	54.00	-21.06	Average	100	360
3	1728.70	38.83	-3.98	34.85	54.00	-19.15	Average	100	360
4	1730.55	45.97	-3.97	42.00	74.00	-32.00	Peak	100	360

Notes:

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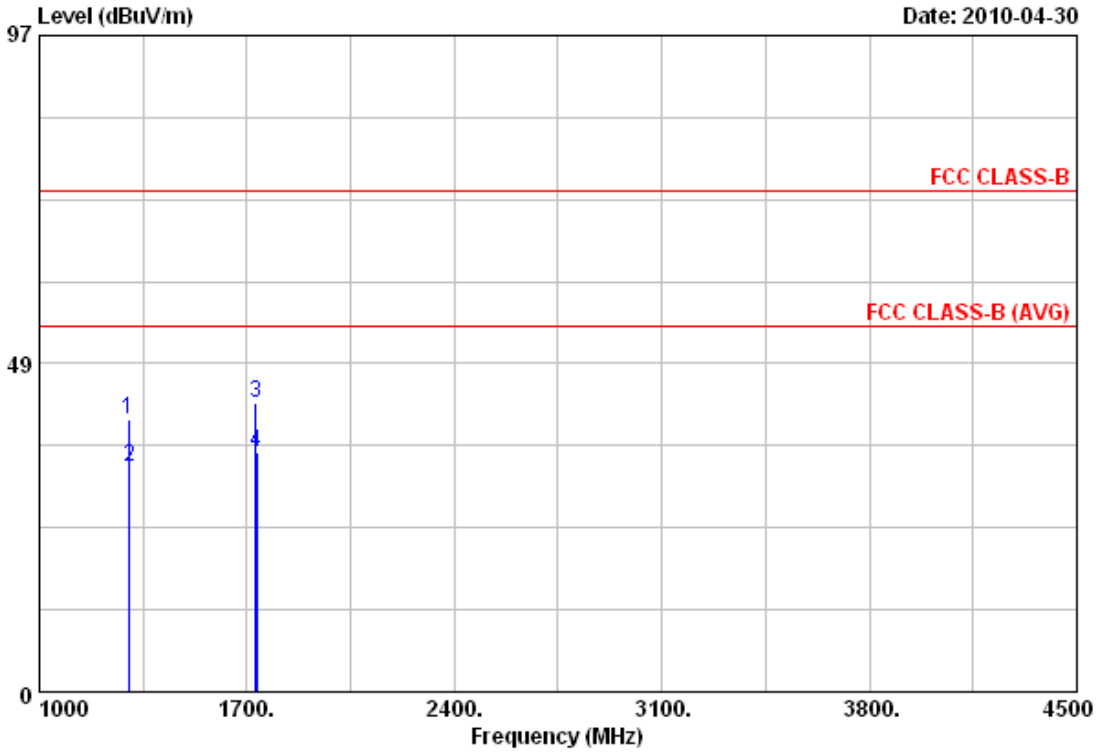
Test Mode	:	Transmit/ Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	61 %
Modulation Type	:		Atmospheric Pressure	:	1021 hPa
Operation Axial	:	Z	Memo	:	



Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	1300.65	47.09	-6.80	40.29	74.00	-33.71	Peak	100	32
2	1303.95	39.95	-6.77	33.18	54.00	-20.82	Average	100	0
3	1729.58	46.58	-3.97	42.61	74.00	-31.39	Peak	100	0
4	1731.60	39.44	-3.96	35.48	54.00	-18.52	Average	100	0

Notes:

1. Result = Read Value + Factor
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6. The other emissions is too low to be measured.

Test engineer: Ben