FCC PART 15.231

MEASUREMENT AND TEST REPORT

For

EUT Name: Wireless Remote
Item No.: YKQ-5A-2, YKQ-5A-1,YKQ-5A-1A,
YKQ-5A-1B,YKQ-5A-3
FCC ID: XA8YKQ5A2T
Serial No.: Not supplied by client

Prepared for	:	Yun Meng Yun Xi Lighting Products Co., Ltd. Economic Development Zone, Yunmeng County, Hubei Province, P.R.China
Prepared By	:	Shenzhen Toby Technology Co., Ltd. Room 803-805,East DingXin Bldg., Liuxian Road, Xili, Nanshan, Shenzhen, China 518055
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Report Number	**:**	**TB-F093928**
Date of Test	**:**	Apr. 13-16, 2009
Date of Report	**:**	Apr. 17-20, 2009

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TEST REPORT DECLARATION

Applicant	:	Yun Meng Yun Xi Lighting Products Co., Ltd.
Manufacturer	:	Yun Meng Yun Xi Lighting Products Co., Ltd.
EUT Description	:	Wireless Remote
Model No.	:	YKQ-5A-2, YKQ-5A-1,YKQ-5A-1A,YKQ-5A-1B, YKQ-5A-3

The device described above is tested by SEM.Test Compliance Service Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits for both radiation and conduction emissions.

The measurement results are contained in this test report and Shenzhen Toby Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Toby Technology Co., Ltd.

Tested by: Jacky Wang Date: Apr. 20, 2009
(Jacky Wang)

Reviewer: Benny Xu Date: Apr. 21, 2009
(Benny Xu)

Approved by: Justin Zhang Date: Apr. 22, 2009
(Justin Zhang)

1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Yun Meng Yun Xi Lighting Products Co., Ltd.
Address of applicant :	Economic Development Zone,Yunmeng County,Hubei Province, P.R.China
Manufacturer:	Yun Meng Yun Xi Lighting Products Co., Ltd.
Address of manufacturer:	Economic Development Zone,Yunmeng County,Hubei Province, P.R.China

General Description of E.U.T

Items	Description
EUT Description:	Wireless Remote
Trade Name:	/
Model No.:	YKQ-5A-2
Adding Models:	YKQ-5A-1, YKQ-5A-1A, YKQ-5A-1B,YKQ-5A-3
Rated Voltage:	DC12V Battery
Out Power:	90dBuV/m
Frequency Range:	315MHz
Tape of Antenna:	Internal Antenna
Size:	8.5cm×3.8cm×1.6cm

For more information refer to the circuit diagram form and the user's manual.

The test data is gathered from a production sample, provided by the manufacturer.Test is carried out with YKQ-5A-2R since the others listed in the report have the different appearance only without electronic construction.

1.2. Test Standards

The following report is prepared on behalf of the Yun Meng Yun Xi Lighting Products Co., Ltd. in accordance with FCC Part 15,Subpart C, and section 15.231, 15.203, 15.205 and 15.209 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.231, 15.203, 15.205 and 15.209 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission/immunity, should be checked to ensure compliance

has been maintained.

1.3. Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4. Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible immunity level. Test is carried with playing mode which worst case has been showed. Test setup was adapted accordingly in reference to the Operating Instructions.

1.5. Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

1.6. EUT Cable List and Details

Cable Description	Length (M)	Shielded/ Unshielded	With Core/ Without Core
/	/	/	/

1.7. Test Location

FCC – Registration No.: 994117

SEM.Test Compliance Service Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117. SEM. Test Compliance Service Co., Ltd. Lab.

TOBY Tel: +86 0755 2804 5093 Fax: +86 0755 518055

2. SUMMARY OF TEST RESULTS

DESCRIPTION OF TEST	RESULT
§15.203 Antenna Requirement	Compliant
§15.205 Restricted Band	Compliant
§15.207 Conducted Emission	N/A
§15.209 General Requirement	Compliant
§15.231 (a) Deactivation Testing	Compliant
§15.231 (c) 20dB Band Width Testing	Compliant
§15.231 (b) Radiated Emission	Compliant

3. §15.203 - ANTENNA REQUIREMENT

3.1. Standard Applicable

According to FCC 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. 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.

3.2. Test Result

This product has a permanent antenna, fulfill the requirement of this section.

4. §15. 205, §15.209, §15.231 (B) RADIATED EMISSION

4.1. Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is + 3.0 dB.

4.2. Standard Applicable

According to §15.231(b), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	\1\ 1,250 to 3,750	\1\ 125 to 375
174-260	3,750	375
260-470	\1\ 3,750 to 12,500	\1\ 375 to 1,250
Above 470	12,500	1,250

\1\ Linear interpolations.

The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

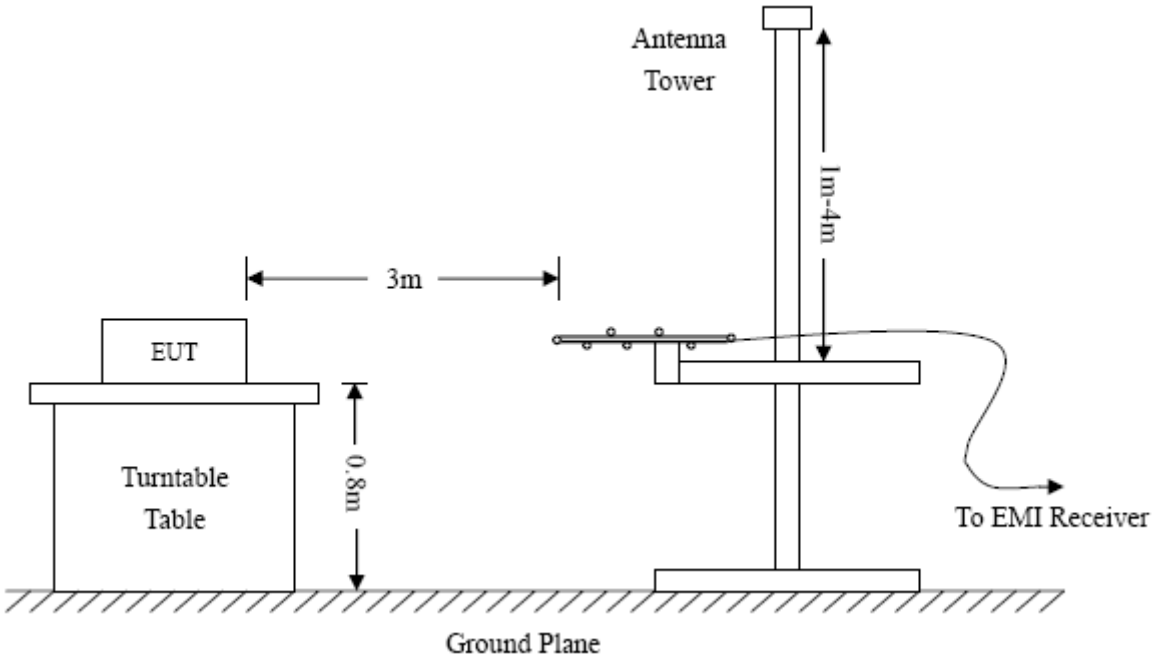
4.3. Test Equipment List and Details

Description	Manufactruer	Model No.	Serial No.	Cal. Date	Cal. Date
Spectrum Analyzer	ROHDE& SCHWARZ	FSEA20	DE25181	2008-07-08	2009-07-07
Positioning Controller	C&C	CC-C-1F	N/A	2008-07-08	2009-07-07
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2008-07-08	2009-07-07
Horn Antenna	SCHWARZBECK	BBHX 9120	9120-426	2008-07-08	2009-07-07
RF Switch	EM	EMSW18	SW060023	2008-07-08	2009-07-07
Amplifier	Agilent	8447F	3113A06717	2008-07-08	2009-07-07
Coaxial Cable	SCHWARZBECK	AK9513	9513-10	2008-07-08	2009-07-07
EMI Test Receiver	ROHDE& SCHWARZ	ESPI	25498514	2008-07-08	2009-07-07
EMI Test Receiver	ROHDE& SCHWARZ	ESI26	838786/103	2008-07-08	2009-07-07
Receiver Horn Antenna	ROHDE& SCHWARZ	HF906	100013	2008-07-08	2009-07-07

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

4.4. Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 15.231(b) and FCC Part 15.209 Limit.



4.5. Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading +Ant.Loss +Cab. Loss – Ampl.Gain

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15.231 Limit

4.6. Environmental Conditions

Temperature:	22° C
Relative Humidity:	53 %
ATM Pressure:	1017 mbar

4.7. Summary of Test Results/Plots

The radiation emissions of 633.3284MHz is margin -9.30, the 10th harmonic of radiation emissions lower than 20 dB below the allowable limit is not reported.

4.8. Environmental Conditions

Temperature:	24° C
Relative Humidity:	51 %
ATM Pressure:	1017 mbar

4.9. Test Receiver Setup

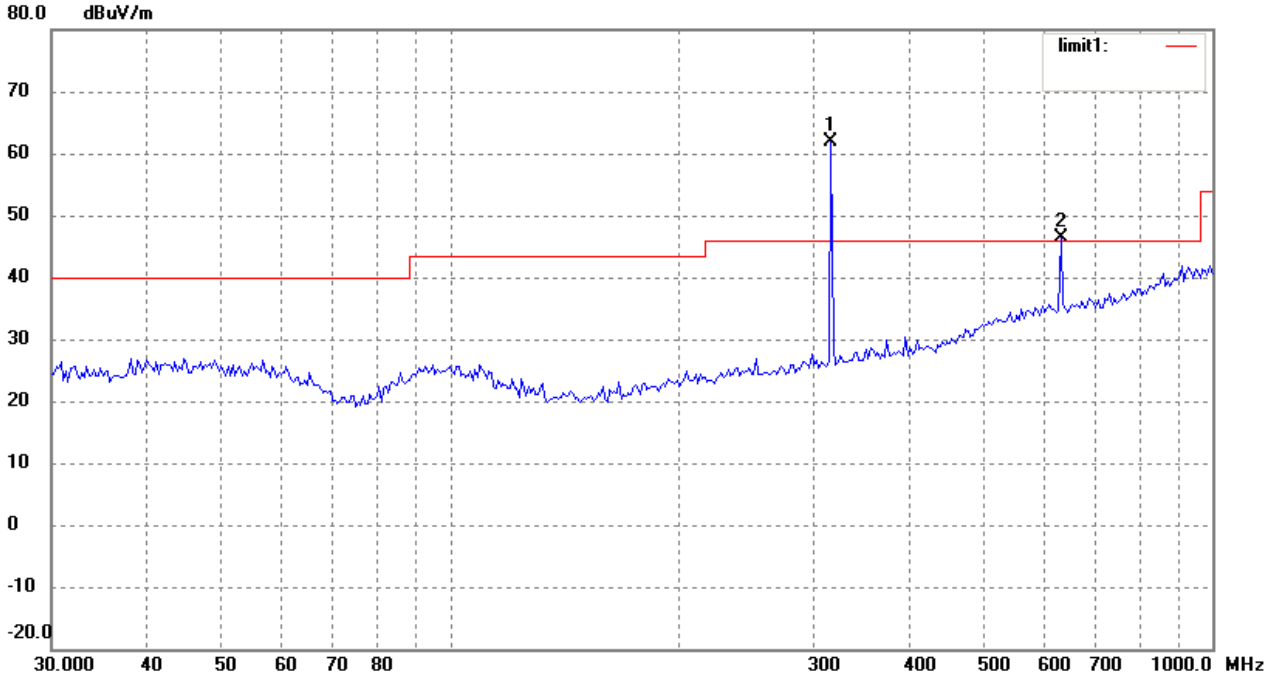
According to the data in section 4.6, the EUT complied with the FCC 15 Class B standards, and had the worst margin is:

-3.24 dBμV at 315.8601 MHz in the Horizontal polarization, 30 MHz to 1 GHz, 3Meters

Plot of Radiation Emissions Test Data

Radiated Disturbance
EUT: Wireless Remote
M/N: YKQ-5A-2
Operating Condition: ON
Test Specification:Horizontal &Vertical
Comment: DC12V

Horizontal

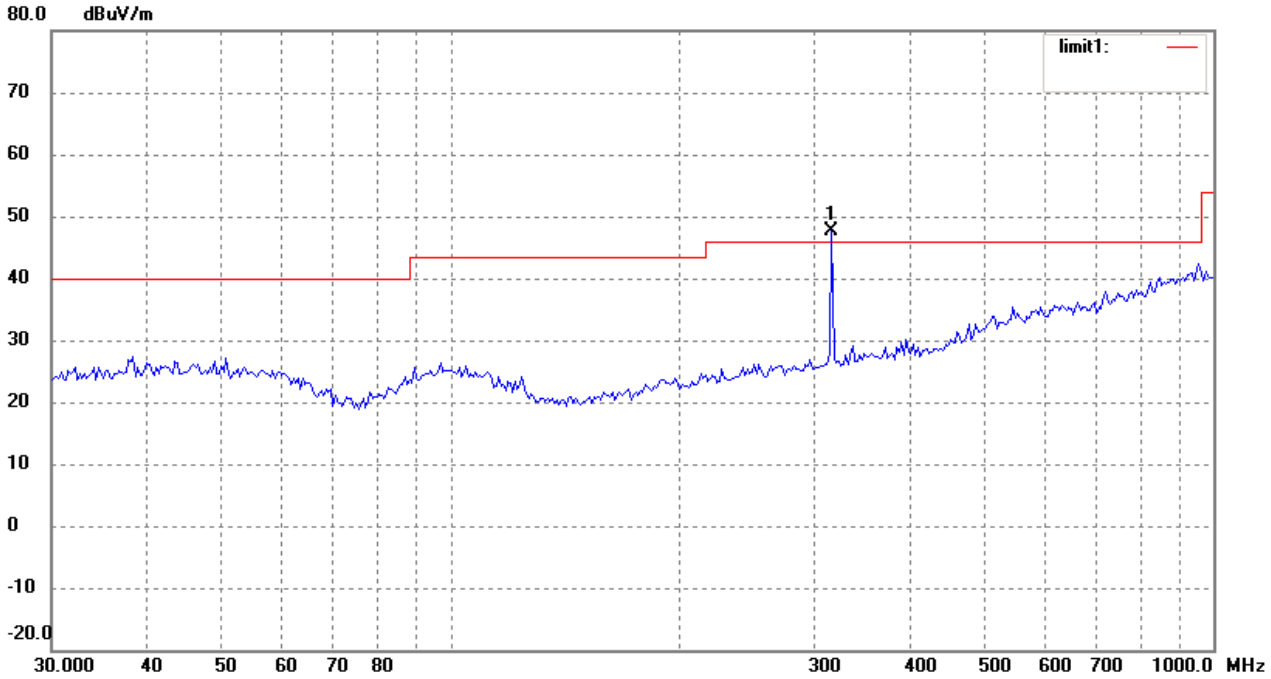


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor (dB)	Dutycycle Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	315.8599	47.23	14.57	N/A	61.80	95.60	-33.80	226	100	peak
2	315.8599	/	/	0	61.80	75.60	-13.80	209	100	Ave
3	633.3284	23.67	22.61	N/A	46.28	75.60	-29.32	215	100	peak
4	633.3284	/	/	0	46.28	55.60	-9.30	206	100	Ave

Above 1GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor (dB)	Dutycycle Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark

Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor (dB)	Dutycycle Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	315.8599	33.10	14.57	N/A	47.67	95.60	-47.93	228	100	peak
2	315.8599	/	/	0	47.67	75.60	-27.93	217	100	Ave

Above 1GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor (dB)	Dutycycle Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark

Note: The EUT was tested in all three orthogonal planes and frequency rang 30MHz to the tenth harmonics. Emissions attenuated closely to the noise base are not reported.

The fundamental frequency is 314.8975MHz, so the fundamental and spurious emissions radiated limit base on the the operating frequency 314.8975MHz.

5. §15. 231(C) 20DB BANDWIDTH TESTING

5.1. Standard Applicable

According to FCC 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

5.2. Test Equipment List and Details

Description	Manufactruer	Model No.	Serial No.	Cal. Date	Cal. Date
Agilent	Spectrum Analyzer	E4402B	US41192821	2008-07-08	2009-07-07
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2008-07-08	2009-07-07
Receiver Antenna	ETS	2175	57337	2008-07-08	2009-07-07
50 ohm Coaxial Cable	ETS	SUCOFLEX 104	25498514	2008-07-08	2009-07-07

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

5.3. Test Procedure

With the EUT's antenna attached, the EUT's 20dB Bandwidth power was received by the test antenna, which was connected to the spectrum analyzer with the START, and STOP frequencies set to the EUT's operation band.

5.4. Environmental Conditions

Temperature:	21° C
Relative Humidity:	52 %
ATM Pressure:	1013 mbar

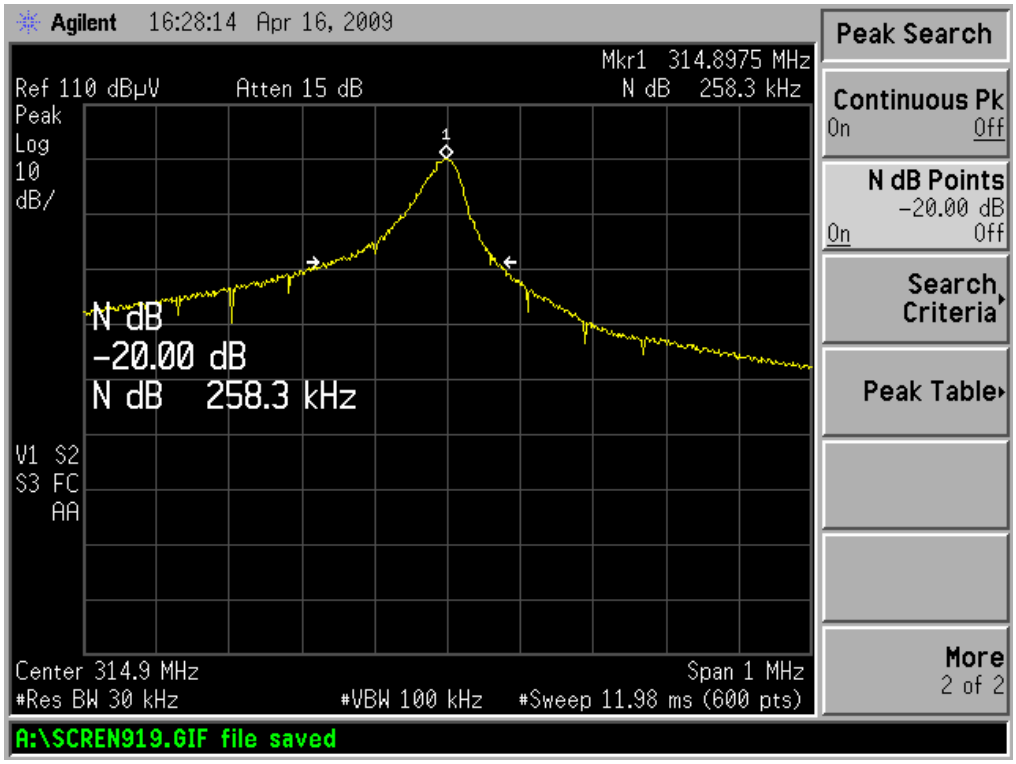
5.5. Summary of Test Results/Plots

Frequency 20dB MHz	Bandwidth KHz	Limit KHz
314.8975	258.3	1084

Limit=Fundamental Frequency×0.25%=314.8975×0.25%=787kHz

Test Result Pass

Refer to the attached plots.



6. §15. 231(A) DEACTIVATION TESTING

6.1. Standard Applicable

According to FCC 15.231 (a)(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

6.2. Test Equipment List and Details

Description	Manufactruer	Model No.	Serial No.	Cal. Date	Cal. Date
Agilent	Spectrum Analyzer	E4402B	US41192821	2008-07-08	2009-07-07
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2008-07-08	2009-07-07
Receiver Antenna	ETS	2175	57337	2008-07-08	2009-07-07
50 ohm Coaxial Cable	ETS	SUCOFLEX 104	25498514	2008-07-08	2009-07-07

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

6.3. Test Procedure

With the EUT's antenna attached, the EUT's output signal was received by the test antenna, which was connected to the spectrum analyzer.Set the center frequency to 433.92MHz, than set the spectrum analyzer to Zero Span for the release time reading. During the testing, the switch was released then the EUT automatically deactivated.

6.4. Environmental Conditions

Temperature:	22° C
Relative Humidity:	52 %
ATM Pressure:	1011 mbar

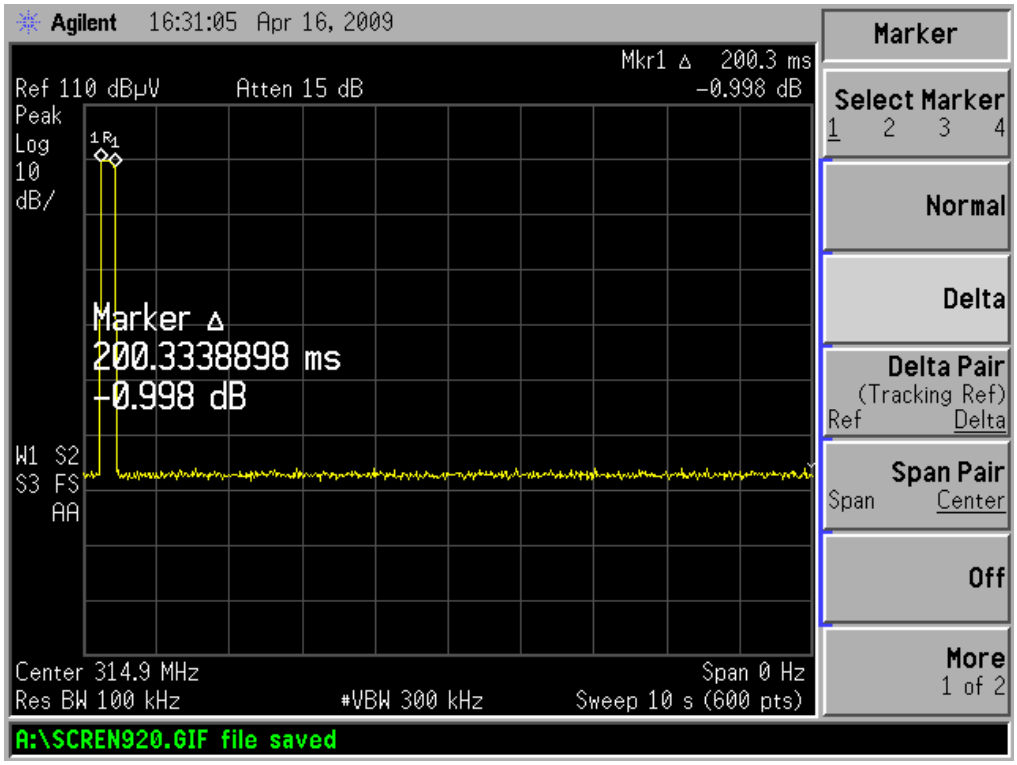
6.5. Summary of Test Results/Plots

Refer to the attached plots.

The transmission time <5s

Test Result Pass

Refer to the attached plots.



7. §15. 231(B) DUTY CYCLE

7.1. Standard Applicable

According to FCC 15.231 (b)(2) and 15.35 (c), For pulse operation transmitter, the averaging pulsed emissions are calculated by peak value of measured emission plus duty cycle factor.

7.2. Test Equipment List and Details

Description	Manufactruer	Model No.	Serial No.	Cal. Date	Cal. Date
Agilent	Spectrum Analyzer	E4402B	US41192821	2008-07-08	2009-07-07
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2008-07-08	2009-07-07
Receiver Antenna	ETS	2175	57337	2008-07-08	2009-07-07
50 ohm Coaxial Cable	ETS	SUCOFLEX 104	25498514	2008-07-08	2009-07-07

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

7.3. Test Procedure

With the EUT's antenna attached, the EUT's output signal was received by the test antenna, which was connected to the spectrum analyzer. Set the center frequency to 433.92MHz, than set the spectrum analyzer to Zero Span for the release time reading. During the testing, the switch was released then the EUT automatically deactivated.

7.4. Environmental Conditions

Temperature:	21° C
Relative Humidity:	52 %
ATM Pressure:	1012 mbar

7.5. Summary of Test Results/Plots

11 long pulses—0.3506ms and 14 short pulses--0.1252ms
Ton =11*0.3506+14*0.1252=5.6094ms
Duty Cycle = Ton / (Period) = 5.6094ms / 15.19ms = 0.3693
Factor = 20*Log (duty cycle) = 20*Log 0.3693 = -8.652dB

Test Result Pass

Duty Cycle plots.