Test Report

Product Name	：	Remote Wiring Switch
Model No.	：	SJ-805
FCC ID.	：	XSMSJ805-23071

Applicant	：	Mycarr Lighting Technology Co., Ltd.
Address	：	1, Lane 174, Jung Young Rd., Changhua, Taiwan 500

Date of Receipt	：	2009/09/29
Issued Date	：	2009/10/13
Report No.	：	09A018R-RFUSP41V01
Version	：	V1.0

Test Report Certification

Issued Date : 2009/10/13
Report No. : 09A018R-RFUSP41V01

QuieTek

Product Name	:	Remote Wiring Switch
Applicant	:	Mycarr Lighting Technology Co., Ltd.
Address	:	1, Lane 174, Jung Young Rd., Changhua, Taiwan 500
Manufacturer	:	Mycarr Lighting Technology Co., Ltd.
Model No.	:	SJ-805
FCC ID.	:	XSMSJ805-23071
Rated Voltage	:	DC 3V (Power by Battery)
EUT Voltage	:	DC 3V (Power by Battery)
Trade Name	:	MYCARR
Applicable Standard	:	FCC 15 Subpart C Section 15.231: 2008
		ANSI C63.4: 2003
Test Result	:	Complied

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

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Approved By : Roy Wang
(Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	Remote Wiring Switch
Trade Name	MYCARR
Model No.	SJ-805
FCC ID	XSMSJ805-23071
Frequency Range	433.92MHz
Type of Modulation	Printed
Type of Antenna	Modulation
Number of Channel	1

Working Frequency of Each Channel	
Channel	Frequency
1	433.92MHz

Note:

1. The EUT is a Remote Wiring Switch with a built-in 433.92MHz transmitter.
2. The different of the each model is shown as below:
   1) FA3-SS: Remote Wiring Switch with Battery build-in
   2) FA4-SS: Remote Wiring Switch without Battery build-in
3. The EUT will stop the transmission immediately when the test button is pressed and releases. The EUT will stop the transmission within 5 seconds when the test button is pressed and held.
4. The worst case is when the button is pressed. Only the worst case is shown in the report.
5. These tests are conducted on a sample for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.231.
6. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.3. Test Mode

QuieTek verified the construction and function in typical operation. All the test modes are performed in normal operation and are defined as:

Pre-Test Mode	
TX	Mode 1: Transmit
Final Test Mode	
TX	Mode 1: Transmit

Emission	
Performed Item	
Conducted Emission	No
Radiated Emission	Yes
Occupied Bandwidth	Yes
Duty cycle	Yes
Transmitter time	Yes
Power Density	Yes

1.4. Tested System Details

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

N/A

1.5. Configuration of tested System

Connection Diagram


1.6. EUT Exercise Software

1	Setup the EUT as shown in section 1.5.
2	Press the test button of the EUT.
3	Verify that the EUT works properly.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.231 Radiated Emission	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.231 Occupied Bandwidth	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.231 Duty Cycle	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.231 Transmitter Time	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.231 Power Density	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

August 30, 2007 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520

Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2010

Testing Laboratory 1313

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2009

NVLAP Lab Code : 200347-0

Site Name: Quietek Corporation
Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

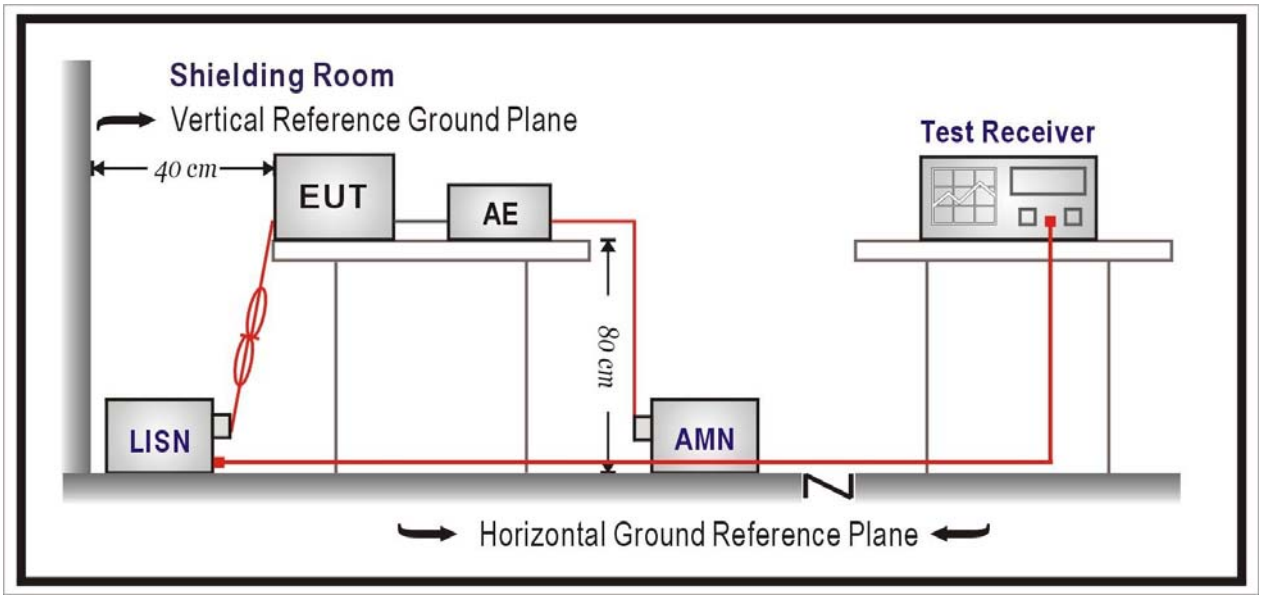
The following test equipments are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
4-Wire ISN	R & S	ENY 41	837032/001	2009/04/15
Double 2-Wire ISN	R & S	ENY 22	835354/008	2009/04/15
LISN	R&S	ESH3-Z5	836679/022	2009/06/17
LISN	R & S	ESH3-Z5	836679/013	2008/12/30
Pulse Limiter	R & S	ESH3-Z2	100411	2008/11/16
Test Receiver	R & S	ESCS 30	100149	2008/11/15

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207: 2008

2.6. Uncertainty

± 2.26 dB

2.7. Test Result

The power of the EUT is supplied by battery. This test is not performed.

3. Radiated Emission

3.1. Test Equipment

The following test equipments are used during the test:

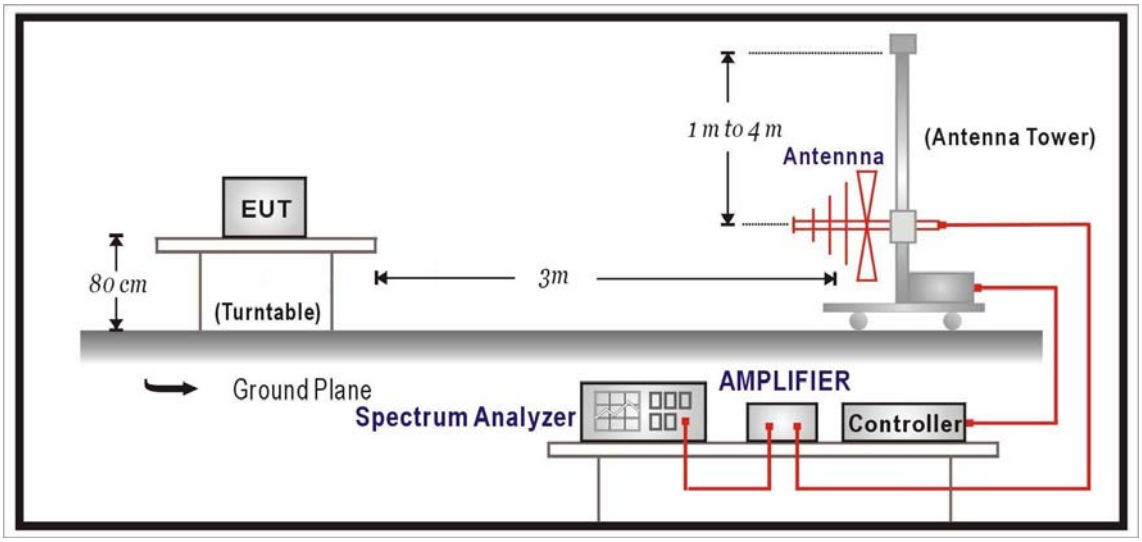
Radiated Emission / CB1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2895	2009/09/03
Horn Antenna	Schwarzback	9120D743	D69250	2009/03/16
Pre-Amplifier	Quietek	AP-025C	CHM0608021	2008/11/13
Pre-Amplifier	HP	8449B	3008A01123	2008/11/15
Spectrum Analyzer	R & S	FSP40	100005	2009/08/25

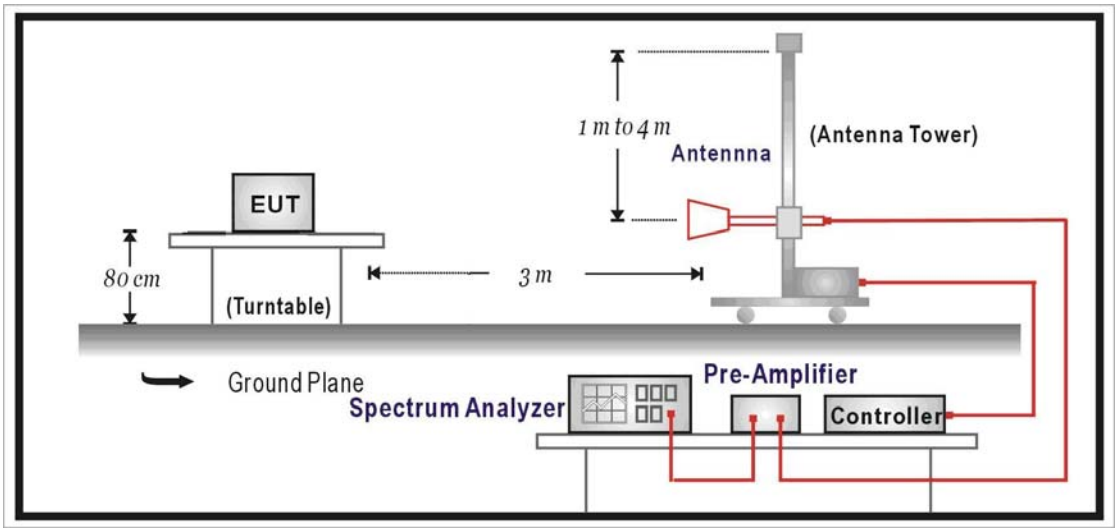
Note: 1. All instruments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



3.3. Limits

➢ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.231 Limits				
Fundamental Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	uV/m	dBuV/m	uV/m	dBuV/m
40.66-40.70	2250	67.0	225	47.0
70-130	1250	62.0	125	42.0
130-174	1250-3750	62.0-71.5	125-375	42.0-51.5
174-260	3750	71.5	375	51.5
260-470	3750-12500	71.5-82.00	375-1250	51.5-62.0
above 470	12500	82.00	1250	62.0

Remarks: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

➢ Spurious electric field strength limits

FCC Part 15 Subpart C Paragraph 15.209 Limits			
Frequency MHz	uV/m	dBuV/m	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	See Remark[1]	300
0.490-1.705	24000/F(kHz)	See Remark[1]	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 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 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the

measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.
The worst radiated emission is measured on the Final Measurement.
The frequency range from 30MHz to 10th harminics is checked.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231: 2008

3.6. Uncertainty

± 3.8 dB below 1GHz
± 3.9 dB above 1GHz

3.7. Test Result

Product	Remote Wiring Switch		
Test Item	Fundamental Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2009/10/27	Test Site	CB1

Frequency	Correct Factor	Reading Level	Measurement Level	Peak Limit	Average Limit
MHz	dB	dBuV	dBuV/m	dBuV/m	dBuV/m
Horizontal					
Peak					
433.92(X-Line)	19.249	55.95	75.199	73.304	80.52
433.92(Y-Line)	19.249	51.05	70.299	68.404	80.52
433.92(Z-Line)	19.249	51.70	70.949	69.054	80.52
Vertical					
433.92(X-Line)	19.249	43.22	62.469	60.574	80.52
433.92(Y-Line)	19.249	54.62	73.869	71.974	80.52
433.92(Z-Line)	19.249	52.42	71.669	69.774	80.52

Note1:

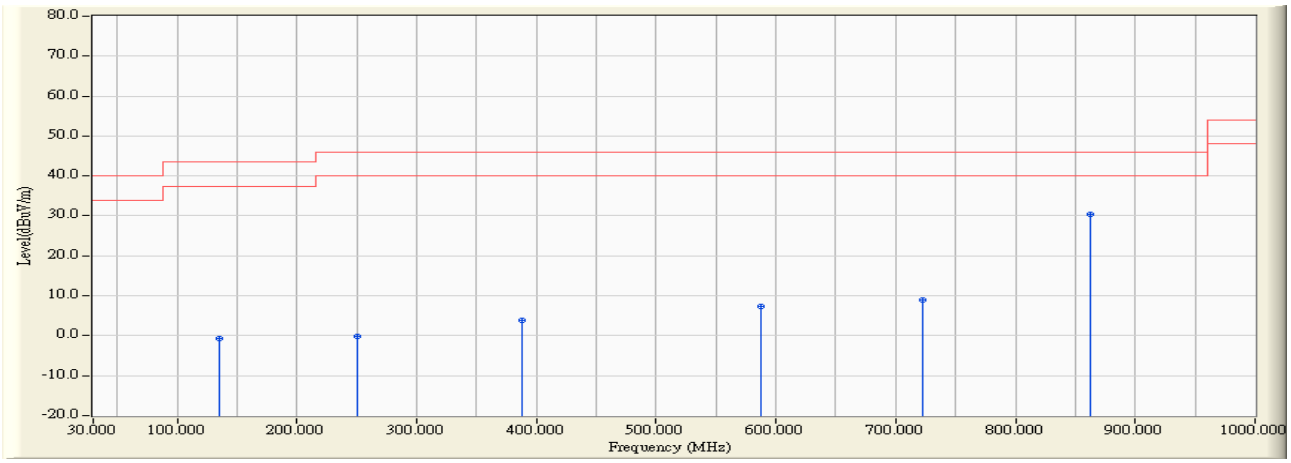
Average Power Measurement = Peak + 20Log (Duty Cycle)

Duty Cycle = (Ton/(Ton+Toff)) = 80.4 / 100 = 0.804

20 * Log (Duty Cycle) = -1.895

30MHz-1GHz Spurious :

Site : CB1	**Time : 2009/10/08 - 19:45**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
EUT : Remote Wiring Switch	**Probe : CB1_FCC_30-1G(2009-10) - HORIZONTAL**
Power : DC 3V	**Note :**

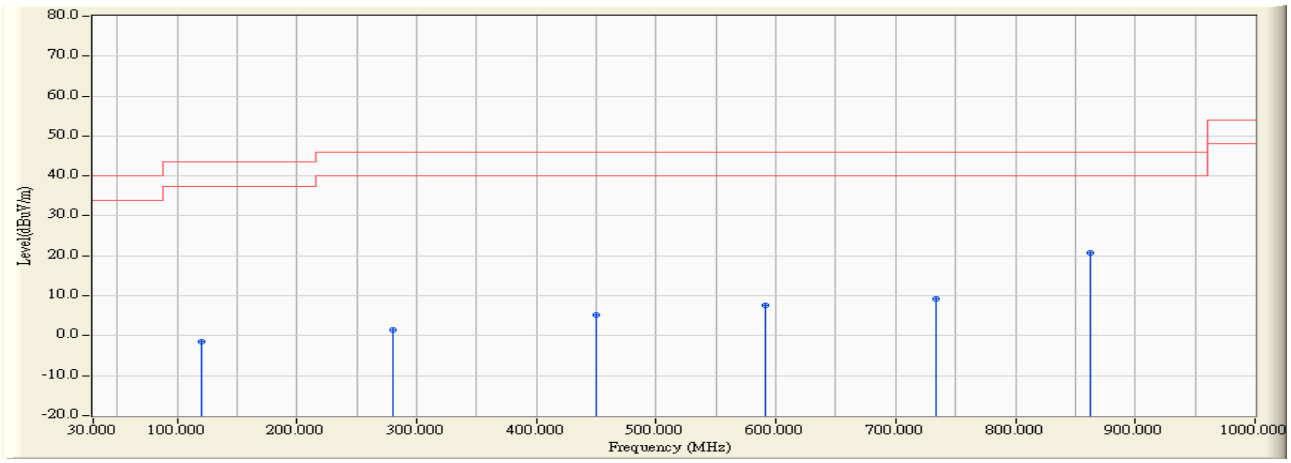


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		135.314	-9.724	9.000	-0.724	-44.224	43.500	QUASIPEAK
2		250.329	-8.300	8.200	-0.100	-46.100	46.000	QUASIPEAK
3		387.514	-4.624	8.600	3.976	-42.024	46.000	QUASIPEAK
4		587.057	-1.087	8.400	7.313	-38.687	46.000	QUASIPEAK
5		722.857	0.362	8.600	8.961	-37.039	46.000	QUASIPEAK
6	*	862.814	2.148	28.200	30.347	-15.653	46.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB1	**Time : 2009/10/08 - 19:46**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
EUT : Remote Wiring Switch	**Probe : CB1_FCC_30-1G(2009-10) - VERTICAL**
Power : DC 3V	**Note :**



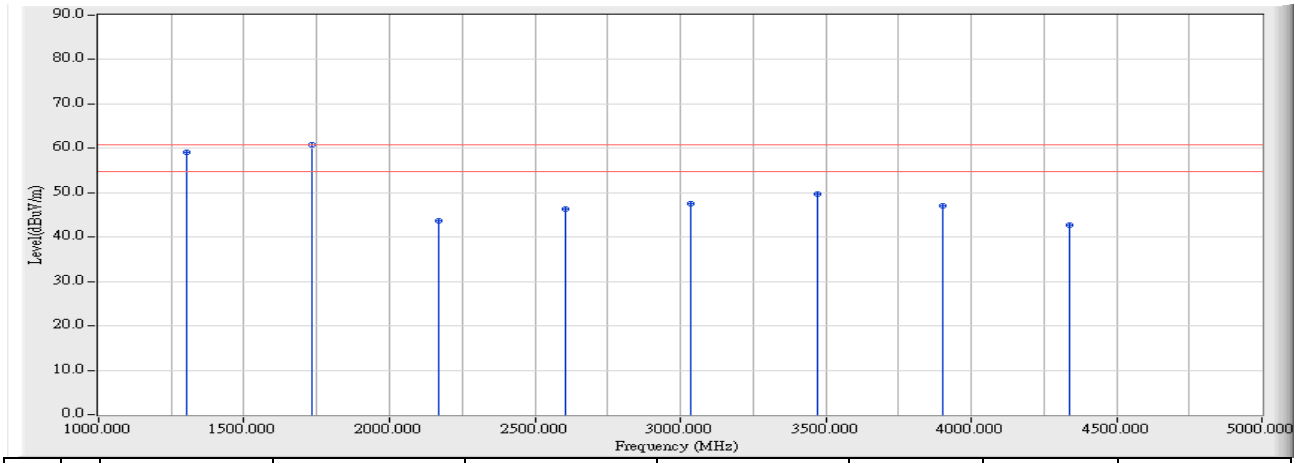
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		120.071	-9.459	8.000	-1.458	-44.958	43.500	QUASIPEAK
2		280.814	-7.720	9.200	1.479	-44.521	46.000	QUASIPEAK
3		449.871	-3.184	8.400	5.216	-40.784	46.000	QUASIPEAK
4		591.214	-1.033	8.600	7.567	-38.433	46.000	QUASIPEAK
5		733.943	0.511	8.600	9.111	-36.889	46.000	QUASIPEAK
6	*	862.814	2.148	18.600	20.747	-25.253	46.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Above 1GHz Spurious:

Site : CB1	**Time : 2009/10/09 - 09:54**
Limit : FCC_SpartC_15.231(b))_H_433.92MHz_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2009-06) - HORIZONTAL	**Power : DC 3V**
EUT : Remote Wiring Switch	**Note :**

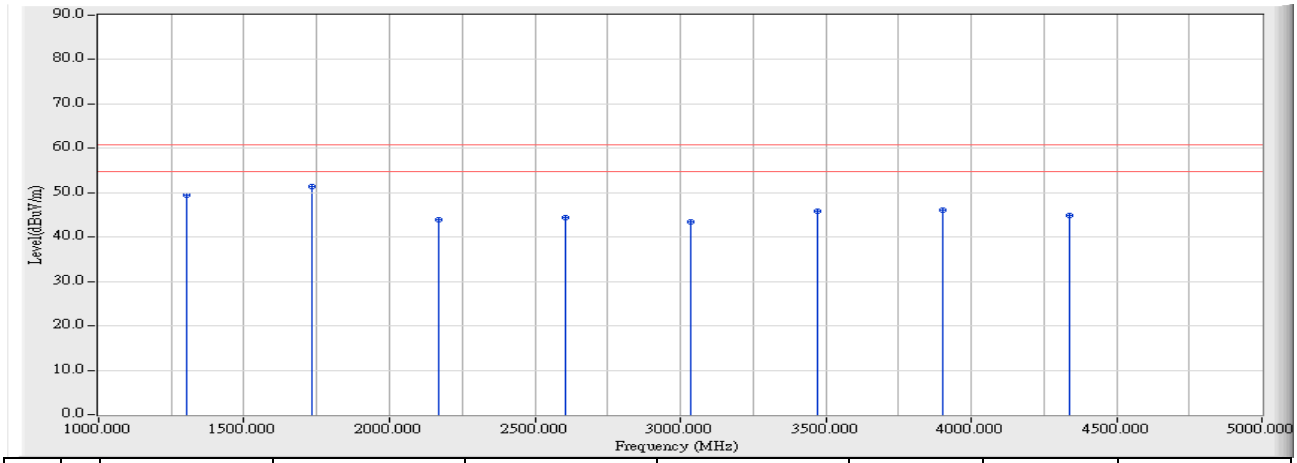


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Average Limit (dBuV/m)	Detector Type
1		1301.520	-8.790	67.800	59.009	-1.821	60.830	PEAK
2	*	1735.380	-6.160	66.940	60.780	-0.050	60.830	PEAK
3		2168.300	-3.921	47.660	43.739	-17.091	60.830	PEAK
4		2603.420	-1.895	48.210	46.316	-14.514	60.830	PEAK
5		3036.940	-0.185	47.830	47.646	-13.184	60.830	PEAK
6		3470.920	0.285	49.490	49.775	-11.055	60.830	PEAK
7		3904.640	1.352	45.710	47.061	-13.769	60.830	PEAK
8		4338.960	2.215	40.450	42.665	-18.165	60.830	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. " * ", means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2009/10/09 - 09:54**
Limit : FCC_SpartC_15.231(b) _H_433.92MHz_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G(2009-06) - VERTICAL	**Power : DC 3V**
EUT : Remote Wiring Switch	**Note :**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Average Limit (dBuV/m)	Detector Type
1		1301.500	-5.303	54.800	49.497	-11.333	60.830	PEAK
2	*	1735.350	-4.610	55.940	51.330	-9.500	60.830	PEAK
3		2169.240	-5.698	49.560	43.862	-16.968	60.830	PEAK
4		2603.320	-5.577	49.890	44.313	-16.517	60.830	PEAK
5		3037.140	-0.770	44.320	43.550	-17.280	60.830	PEAK
6		3471.120	1.146	44.670	45.816	-15.014	60.830	PEAK
7		3905.020	3.760	42.310	46.069	-14.761	60.830	PEAK
8		4339.080	5.029	39.910	44.939	-15.891	60.830	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. " * ", means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection.

4. Occupied Bandwidth

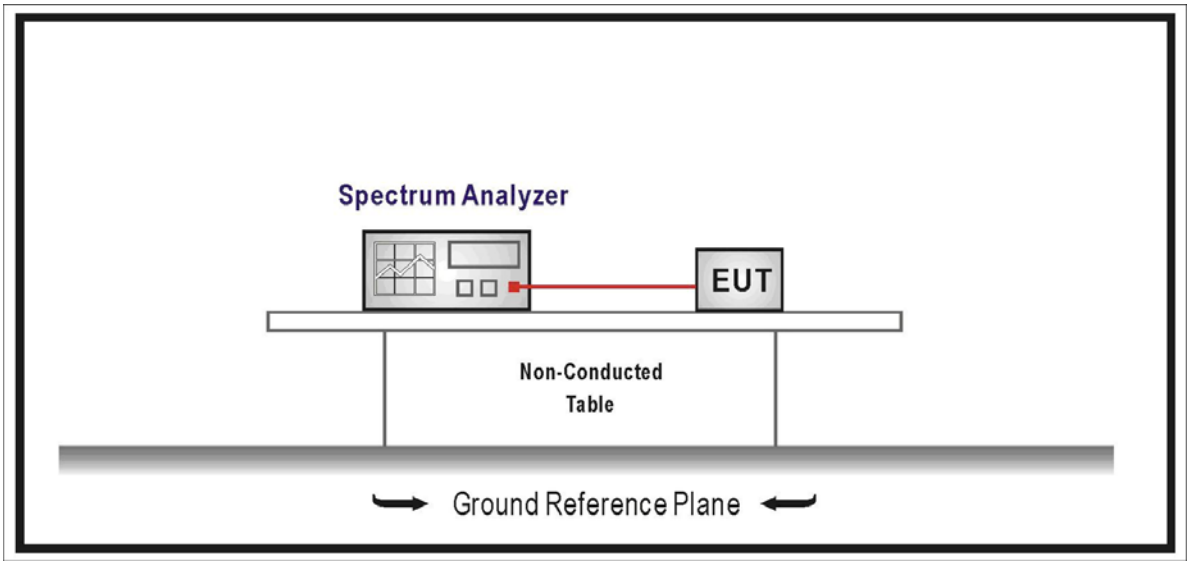
4.1. Test Equipment

The following test equipments are used during the radiated emission tests:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2009
2	CB1			Sep., 2009

Note: 1. All instruments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

4.2. Test Setup



4.3. Limits

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. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

4.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231: 2008

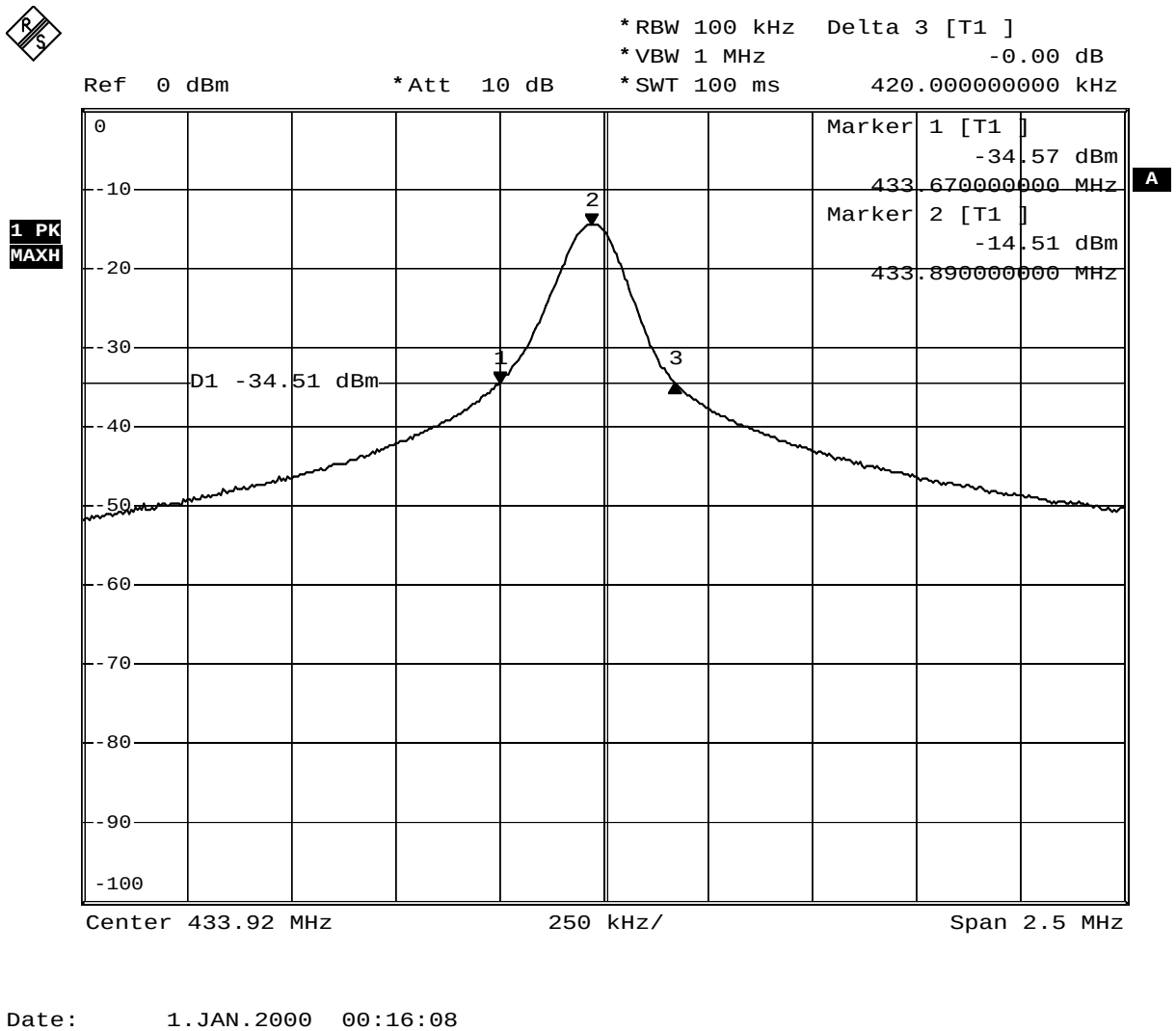
4.5. Uncertainty

± 150Hz

4.6. Test Result

Product	Remote Wiring Switch		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2009/10/05	Test Site	CB1

Center Frequency	433.92 MHz
Allowable Bandwidth (70-900 MHz: 0.25%, Above 900MHz: 0.5%)	1084.8 KHz
Bandwidth at 20dB down (Max)	420 KHz
Result	PASS



5. Duty cycle

5.1. Test Equipment

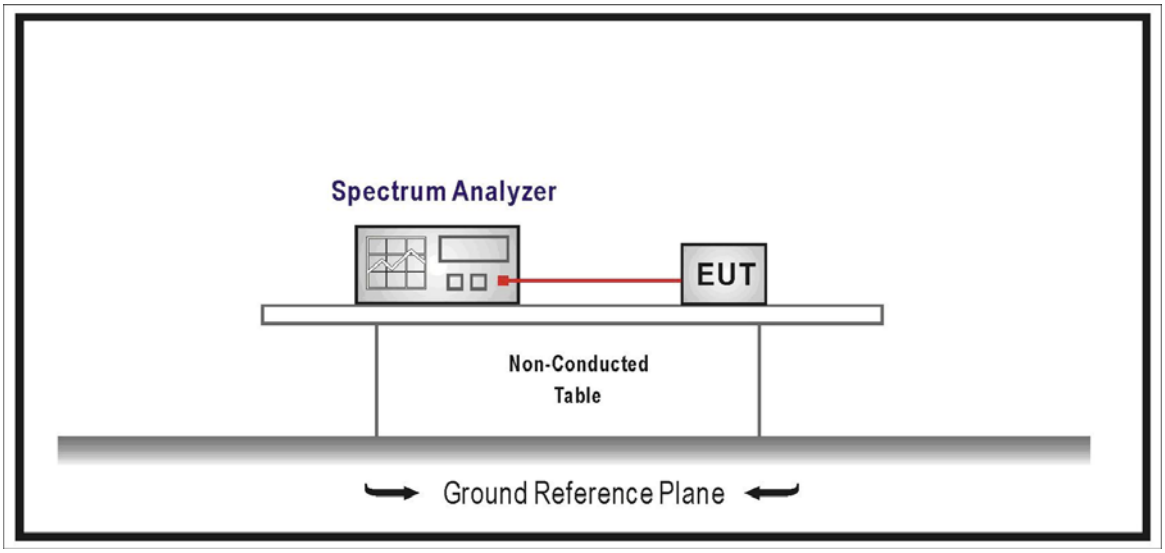
The following test equipments are used during the radiated emission tests:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2009
2	CB1			Sep., 2009

Note: 1. All instruments are calibrated every one year.

2. The test instruments marked by “X” are used to measure the final test results.

5.2. Test Setup



5.3. Limits

N/A

5.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231: 2008

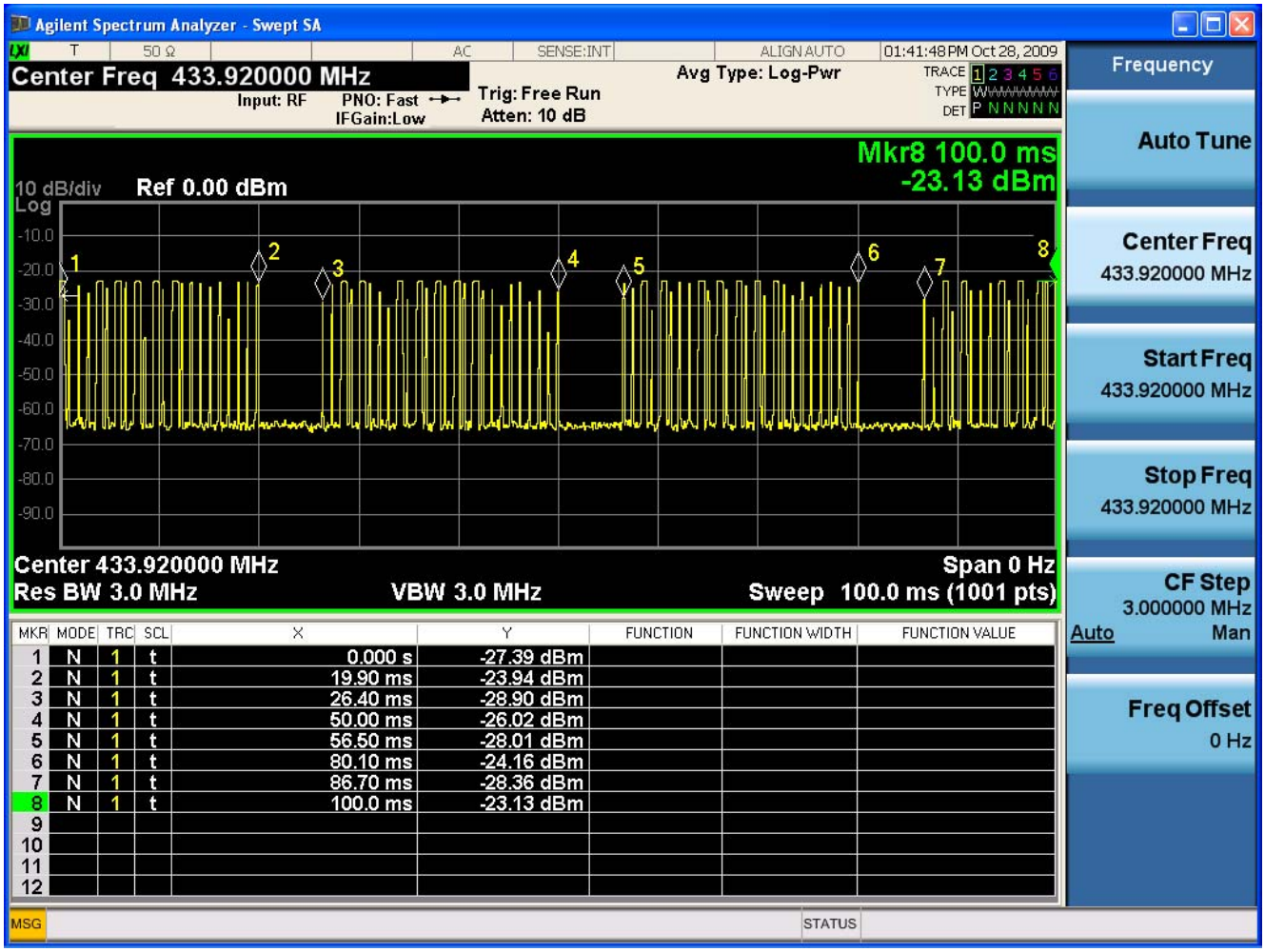
5.5. Uncertainty

± 25msec

5.6. Test Result

Product	Remote Wiring Switch		
Test Item	Duty Cycle		
Test Mode	Mode 1: Transmit		
Date of Test	2009/10/28	Test Site	CB1

Center Frequency	433.92 MHz
Ton = 80.4 ms Ton + Toff = 100 ms	
Duty Cycle= 80.4 / 100	0.804



6. Transmitter time

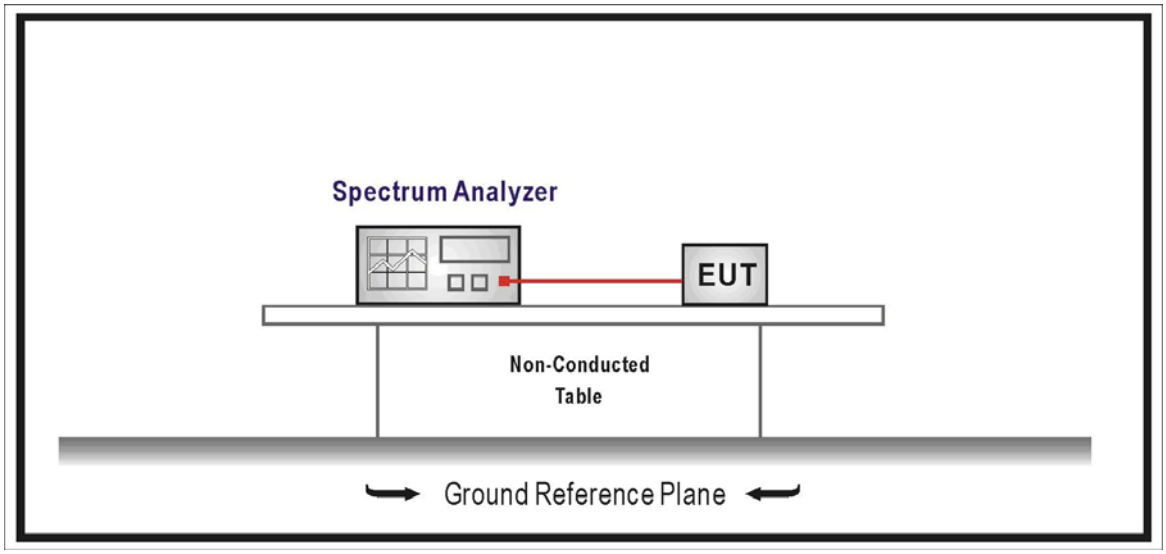
6.1. Test Equipment

The following test equipments are used during the radiated emission tests:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Jan., 2009
2	CB1			Sep., 2009

Note: 1. All instruments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

6.2. Test Setup



6.3. Limits

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

6.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231: 2008

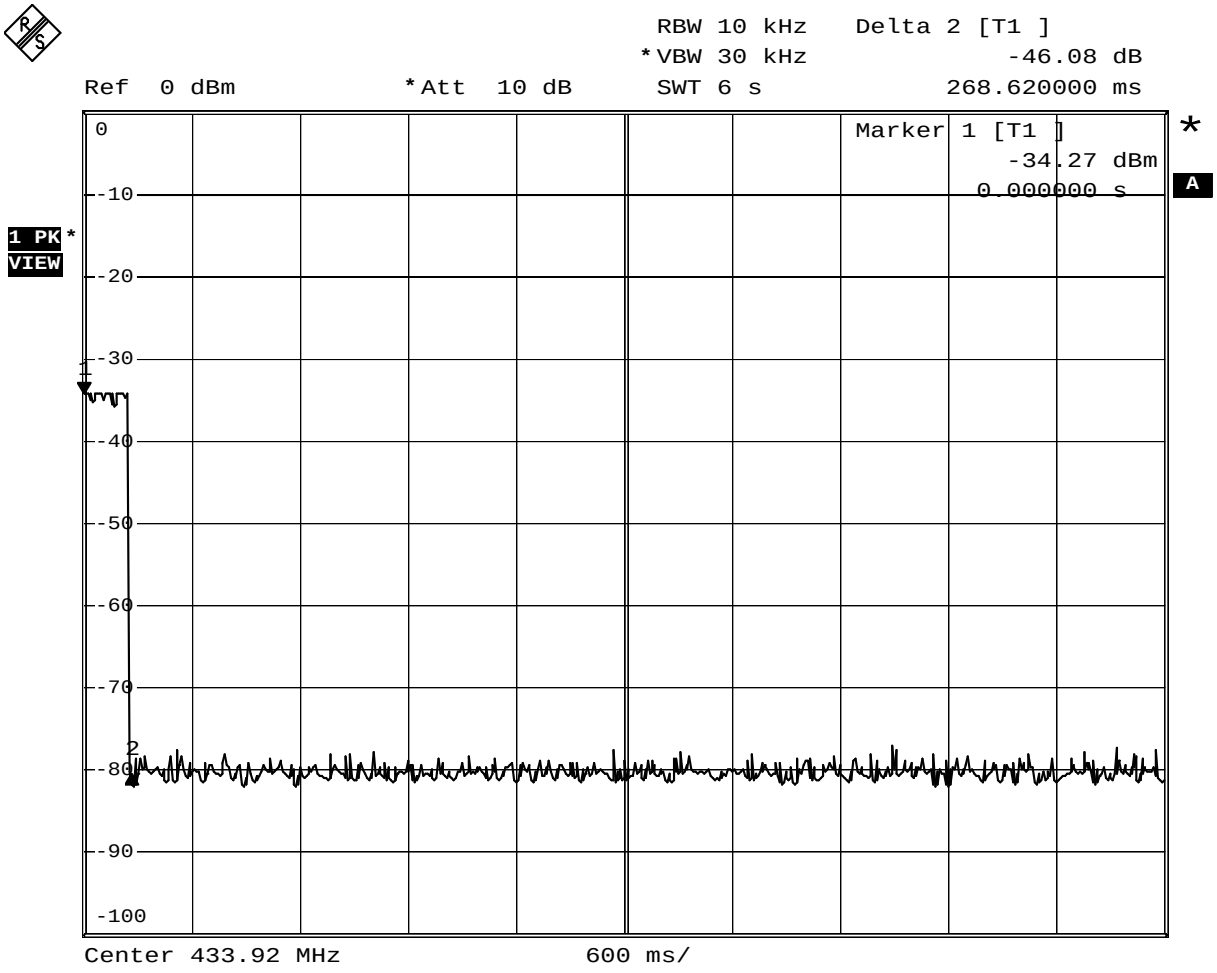
6.5. Uncertainty

± 25msec

6.6. Test Result

Product	Remote Wiring Switch		
Test Item	Transmitter time		
Test Mode	Mode 1: Transmit		
Date of Test	2009/10/05	Test Site	CB1

Center Frequency	433.92 MHz
Transmitter time = 268.62 ms < 5 sec.	Below 5 sec.
Result	PASS



Date: 1.JAN.2000 00:39:46