
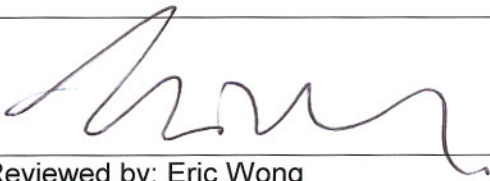
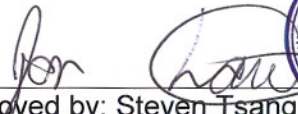



TEST REPORT N°: JEC-09JAH0183HTHFB

TEST REPORT

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">To:</td><td>JECKSON ELECTRIC CO., LTD</td></tr> <tr><td>Attn:</td><td>Henry Chan</td></tr> <tr><td>Address:</td><td>18/F, China Aerospace Centre, 143 Hoi Bun Road, Kwun Tong, Kowloon, Hong Kong.</td></tr> <tr><td>Fax:</td><td>23430391</td></tr> <tr><td>E-mail:</td><td>jeceng1@jeckson.com.hk</td></tr> <tr><td>Offer No.:</td><td>JEC-09JA22-01HTHHFP-A1</td></tr> </table>	To:	JECKSON ELECTRIC CO., LTD	Attn:	Henry Chan	Address:	18/F, China Aerospace Centre, 143 Hoi Bun Road, Kwun Tong, Kowloon, Hong Kong.	Fax:	23430391	E-mail:	jeceng1@jeckson.com.hk	Offer No.:	JEC-09JA22-01HTHHFP-A1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">To:</td><td>-</td></tr> <tr><td>Attn:</td><td>-</td></tr> <tr><td>Address:</td><td>-</td></tr> <tr><td>Fax:</td><td>-</td></tr> <tr><td>E-mail:</td><td>-</td></tr> </table>	To:	-	Attn:	-	Address:	-	Fax:	-	E-mail:	-
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	Test Method:	ANSI C63.4 – 2003																					
FCC ID:	ELY547-47-1013-T																						
<p>The results given in this report are related to the tested specimen of the described electrical apparatus.</p>																							
<p>CONCLUSION: The submitted sample was found to <u>COMPLY</u> with requirement of FCC Part 15 Subpart C.</p>																							
<p>Authorized Signature:</p>																							
<div style="text-align: center;">  Reviewed by: Eric Wong Date: March 23, 2009 </div>	<div style="text-align: center;">  Approved by: Steven Tsang Date: March 23, 2009 </div> <div style="text-align: right;">  </div>																						

BUREAU VERITAS HONG KONG LIMITED –
Unit 1611, 1614 & 1615,
16/F, VANTA INDUSTRIAL CENTRE 21-33,
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This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://cps.bureauveritas.com> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.



TEST REPORT N°: JEC-09JAH0183HTHFB

Location of the test site

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. An Open Area Test Site and Full Anechoic Chamber (FCC Listed Site, Registration No. 642151) are set up for investigation and located at :

BUREAU VERITAS HONG KONG LIMITED, EMC CENTRE

No. 2106-2107, 21/F., Westin Centre,
26 Hung To Road,
Kwun Tong, Kowloon,
Hong Kong

List of measuring equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
M0008	EMI TEST RECEIVER	R&S	ESCI	100379	13-APR-2009
M0012	HF LOOP ANTENNA	SCHAFFNER	HLA 6120	21728	14-NOV-2009
M0011	BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	31-JAN-2010
M0027	OPEN AREA TEST SITE	BVCPS	N/A	N/A	05-JULY-2009
M0028	ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	09-JULY-2009
M0036	HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D-692	29-JULY-2009
M0037	PREAMPLIFIER	SCHWARZBECK	BBV9718	9718-152	22-JULY-2009
M0050	COAXIAL CABLE 1-18GHz	SUHNER	N/A	N/A	23-JULY-2009

Conducted Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
M0007	EMI TEST RECEIVER	R&S	ESCS30	830986/030	18-SEP-2009
M0019	LISN	R&S	ESH3-Z5	100116	12-FEB-2010
M0030	PULSE LIMITER	R&S	ESH3 Z2	100088	17-APR-2009

Remarks:-

N/A : Not Applicable or Not Available

The measurement instrumentation uncertainty would be taking into consideration on each of the test result

TEST REPORT N°: JEC-09JAH0183HTHFB

Equipment Under Test [EUT]

Description of Sample:

Model Name: Wall Switch Style RF Controller
Model Number: 47-1013A-T & 47-1013B-T
Rating: 3Vd.c ("AAA" size battery x 2) / 24Va.c.
Remark: Model: 47-1013A-T is the tested sample. The different of two samples are 3,4 buttons are send different command, model: 47-1013B-T for countdown timer and 47-1013A-T for Purifire On/OFF

Description of EUT Operation:

The Equipment Under Test (EUT) is a **Jackson Electric** of Wall Switch Style RF Controller. The transmitter is a 6 buttons transmitter and operating at 433MHz. The EUT continues to transmit while buttons is being pressed. Modulation by IC, and type is pulse modulation.

The transmitter has different control:

1. Flame On button
2. Flame OFF button
3. Purifire On button Model:47-1013 A-T/ Countdown Timer button (up) Model: 47-1013 B-T
4. Purifire OFF button Model:47-1013 A-T / Countdown Timer button (Down) Model:47-1013 B-T
5. Set temperature button (up)
6. Set temperature button (Down)

Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. It is soldered on the PCB. The antenna is not replaceable or user serviceable. The requirement of S15.203 are met. There are no deviations or exceptions to the specifications.

Photo of Antenna



TEST REPORT N°: JEC-09JAH0183HTHFB

Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.231(a)

Test Method: ANSI C63.4

Test Date(s): 2009-03-20

Mode of Operation: Transmission mode (On/OFF button and Battery operated)
AC and Battery operated are tested, battery operated is the worst case result.

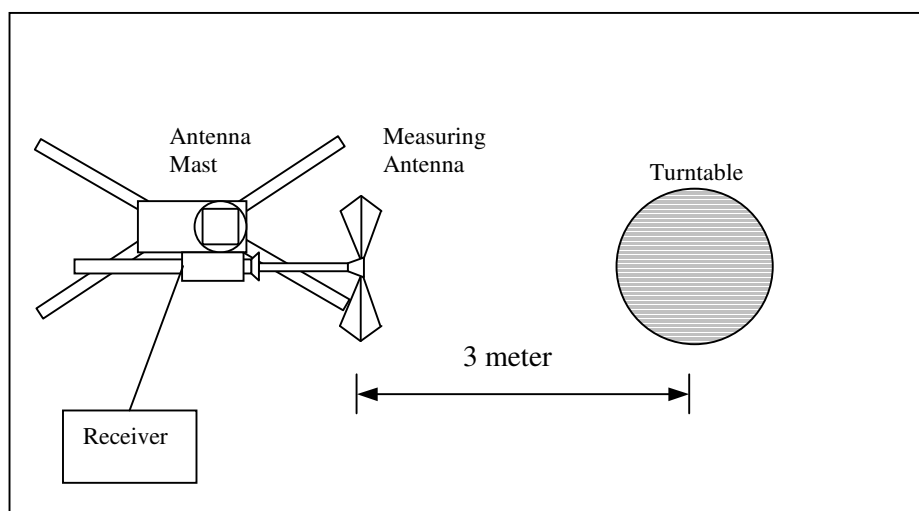
Test Procedure:

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables. For battery operated equipment, the equipment tests shall be performed using new battery. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.

Test Setup: Open Area Test Site



TEST REPORT N°: JEC-09JAH0183HTHFB

Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.231(a)]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [μV/m]	Field Strength of Fundamental Emission [Average] [μV/m]
260-470	3,750 to 12,500**	375 to 1,250**

**linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 260-470MHz, $\mu\text{V/m}$ at 3 meters = $41.6667(F) - 7083.3333$. The maximum permitted unwanted emission level is 20dB below the maximum permitted fundamental level]

Measurement Data

Test Result of (Transmission mode (On/OFF button and Battery operated)): **PASS**

Detection mode: Peak

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
433.98	H	26.1	71.2	100.8	-29.6

Detection mode: Average

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
433.98	H	26.1	67.1	80.8	-13.7

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

**Duty Cycle Correction = $20\text{Log}(0.626) = -4.1\text{dB}$

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz
VBW = 300KHz



TEST REPORT N°: JEC-09JAH0183HTHFB

Radiated Emissions (Spurious Emission)

Test Requirement: FCC Part 15 Section 15.209

Test Method: ANSI C63.4

Test Date(s): 2009-03-23

Mode of Operation: Transmission mode (On/OFF button and Battery operated)

Measurement Data

Test Result of (Transmission mode (On/OFF button and Battery operated)): **PASS**

Detection mode: **Peak**

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
867.96	V	34.9	38.2	46.0	-7.8
1301.94	V	28.7	37.1	54.0	-16.9
1735.92	V	28.8	34.3	54.0	-19.7
2169.90	V	31.8	41.8	54.0	-12.2
2603.88	H	32.5	40.5	54.0	-13.5
3037.86	H	33.7	41.0	54.0	-13.0
3471.84	V	34.2	41.2	54.0	-12.8
3905.82	V	35.7	42.4	54.0	-11.6
4339.80	V	36.9	42.4	54.0	-11.6

Note: Field Strength includes Antenna Factor, Cable Loss and Preamplifier gain (0.5-18GHz)

Receiver setting (30-1000MHz) :RBW = 100KHz
:VBW = 300KHz

Receiver setting (1-18GHz) :RBW = 1MHz
:VBW = 1MHz



TEST REPORT N°: JEC-09JAH0183HTHFB

Radiated Emissions (30MHz – 1GHz)

Test Requirement: FCC Part 15 Section 15.209

Test Method: ANSI C63.4

Test Date(s): 2009-03-20

Mode of Operation: **Standby / Transmission mode**

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above 960	500

Measurement Data

Test Result of (Standby mode): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
35.83	H	17.0	28.3	40.0	-11.7
395.45	H	25.0	29.2	46.0	-16.8
597.62	H	30.1	34.6	46.0	-11.4
918.36	H	35.8	39.0	46.0	-7.0
35.83	V	17.0	28.6	40.0	-11.4
385.73	V	24.7	28.0	46.0	-18.0
659.82	V	31.2	35.5	46.0	-10.5
922.24	V	35.9	39.8	46.0	-6.2

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
VBW = 120KHz



TEST REPORT N°: JEC-09JAH0183HTHFB

20dB Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.231(a)(1)
Test Method: ANSI C63.4:2003 (Section 13.1.7)
Test Date: 2009-03-20
Mode of Operation: Transmission mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency [MHz]	20dB Bandwidth [kHz]	Limits [kHz]
433.98	260	1080

TEST REPORT N°: JEC-09JAH0183HTHFB

Measurement Data :

Test Result of 20dB Bandwidth of Fundamental Emission: PASS



20.Mar 09 17:28

Ref 82 dBμV/m

*Att 10 dB

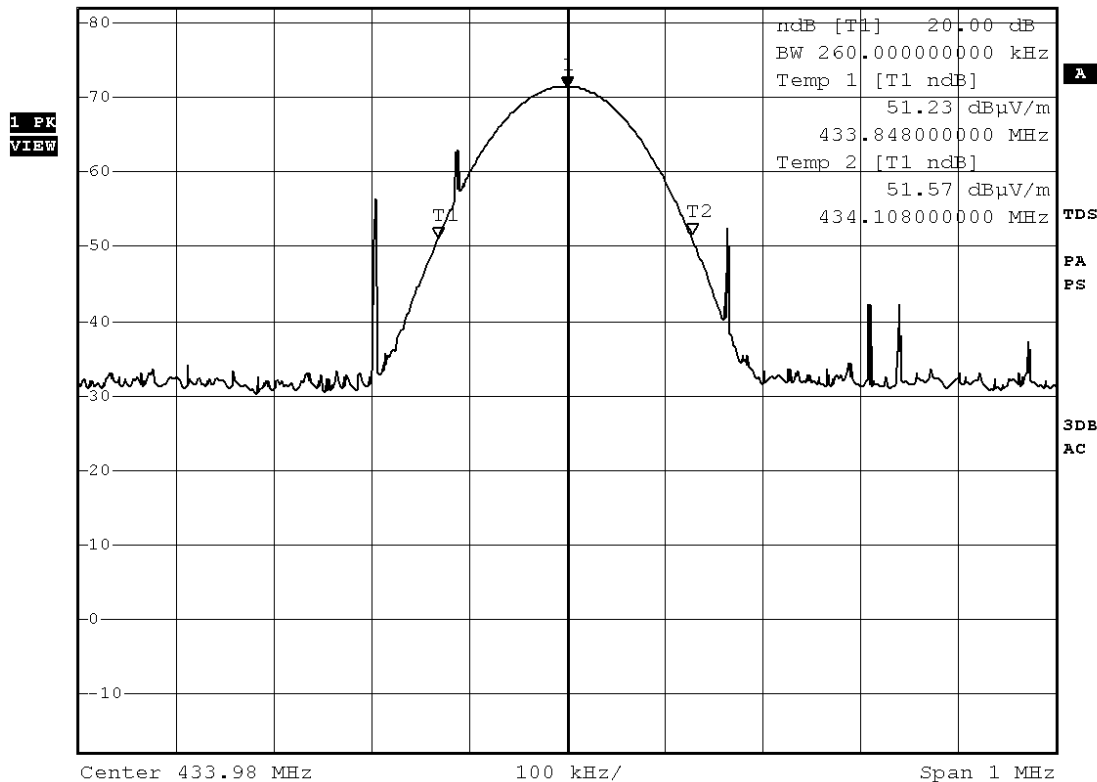
*RBW 100 kHz Marker 1 [T1]

VBW 300 kHz

SWT 2.5 ms

71.47 dBμV/m

433.980000000 MHz



Date: 20.MAR.2009 17:28:19



TEST REPORT N°: JEC-09JAH0183HTHFB

Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (49.1msec) never exceeds a series of 14 short (1.6msec) pulses and 1 long (8.4msec) pulses. Assuming any combination of short or long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $(14 \times 1.6) + (8.4)$ per 49.2msec = 62.6% duty cycle. Figure B and D show the characteristics of the pulse train for one of these functions.

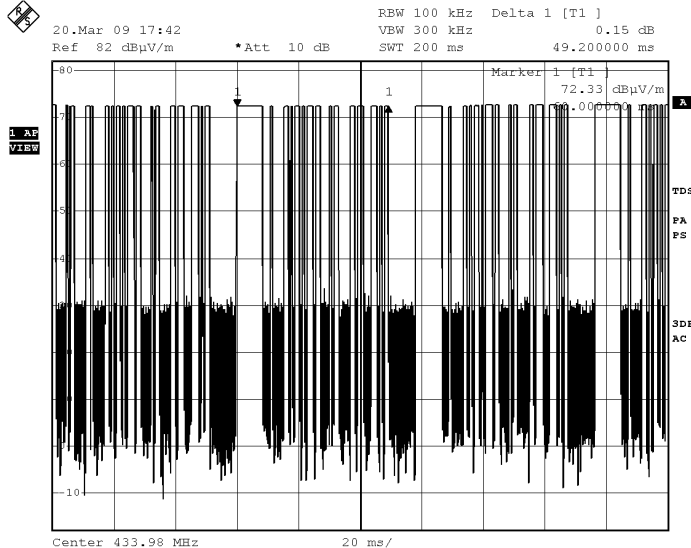
Remarks:

Duty Cycle Correction = $20\text{Log}(0.626) = -4.1\text{dB}$

The following figures [Figure B to Figure D] show the characteristics of the pulse train for one of these functions.

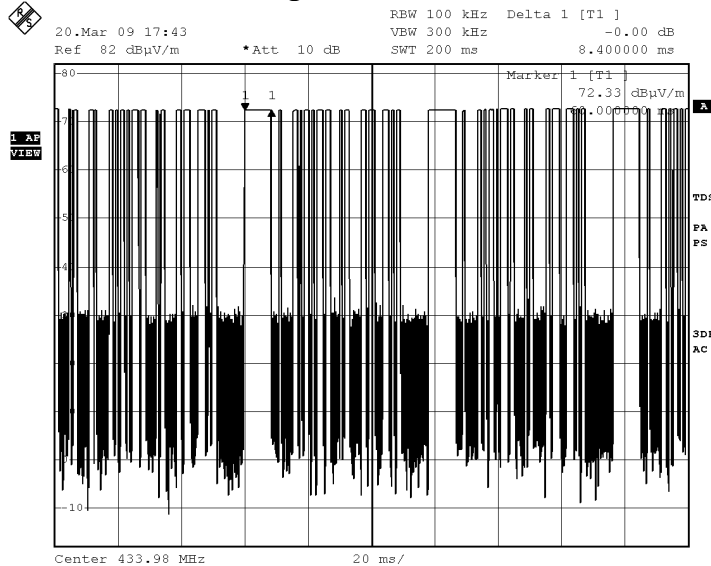
TEST REPORT N°: JEC-09JAH0183HTHFB

Figure B [Pulse Train]



Date: 20.MAR.2009 17:42:49

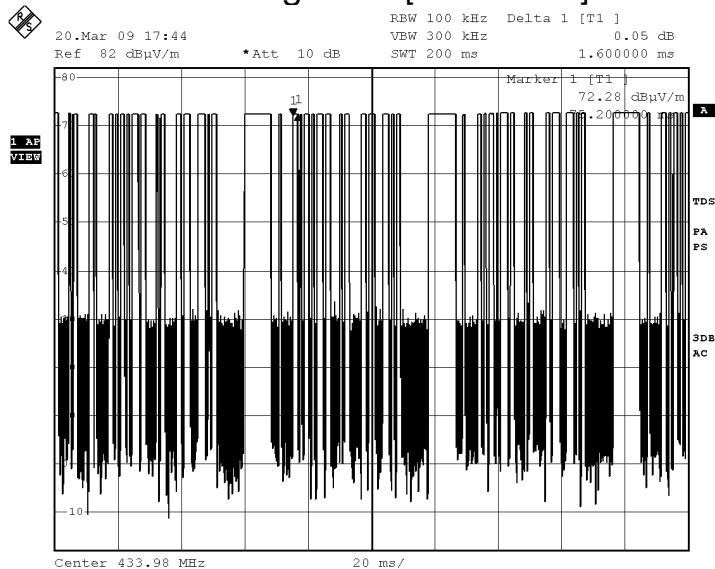
Figure C [Long Pulse]



Date: 20.MAR.2009 17:43:45

TEST REPORT N°: JEC-09JAH0183HTHFB

Figure D [Short Pulse]



Date: 20.MAR.2009 17:44:49



TEST REPORT N°: JEC-09JAH0183HTHFB

Duration of Transmission

Test Requirement: FCC 47 CFR 15.231(a)(1)

Test Date: 2009-03-20

Mode of Operation: Transmission mode

Test requirement:15.231(a)(1)

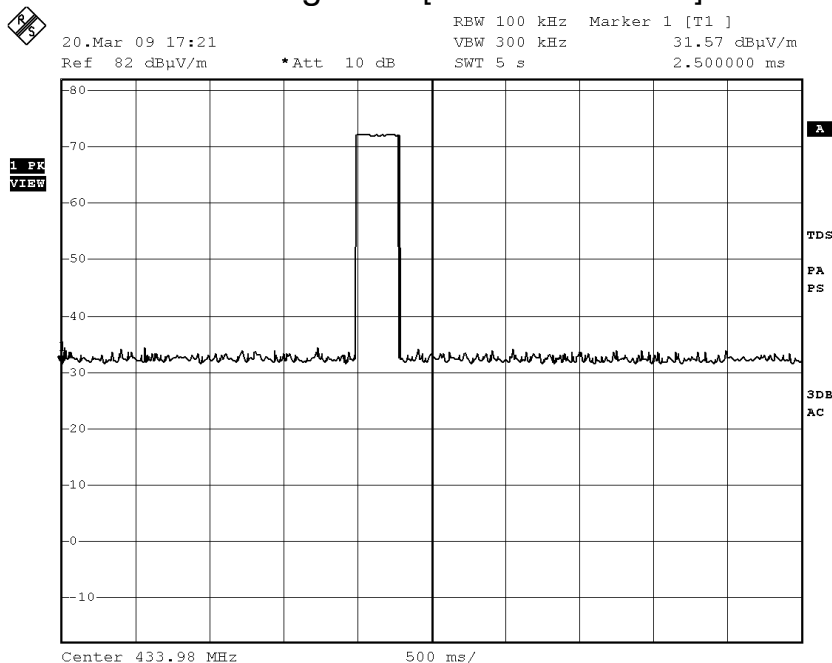
A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 second of being released.

Result: Pass

The EUT transmit while button is being pressed and it has been deactivated immediately of being released within 5 second as shown in Figure A

TEST REPORT N°: JEC-09JAH0183HTHFB

Figure A [Each transmission]



Date: 20.MAR.2009 17:21:22

TEST REPORT N°: JEC-09JAH0183HTHFB

Conducted Emissions (150kHz to 30MHz)

Test Requirement: FCC Part 15 Section 15.207
Test Method: ANSI C63.4
Test Limits: Class B

Test Date(s): 2009-02-06

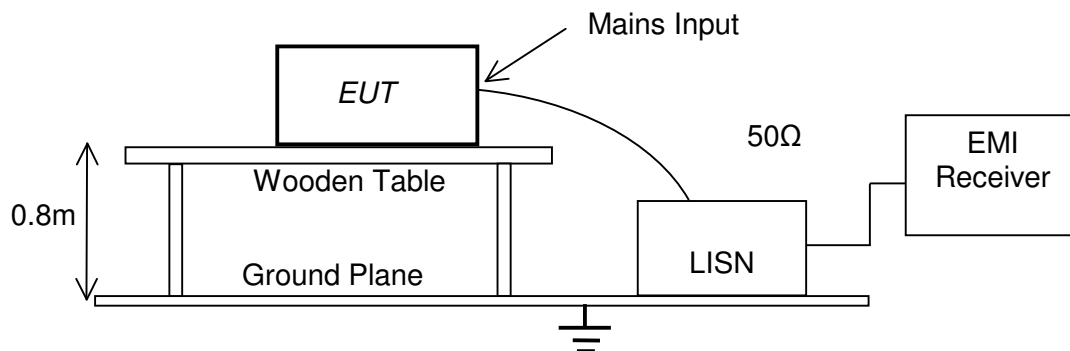
Mode of Operation: Transmission mode (24Vac)

Test Procedure:

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. The EUT was setup as described in the procedures, and both lines were measured.

Initial measurements were performed in peak and average detection modes on the live line, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:



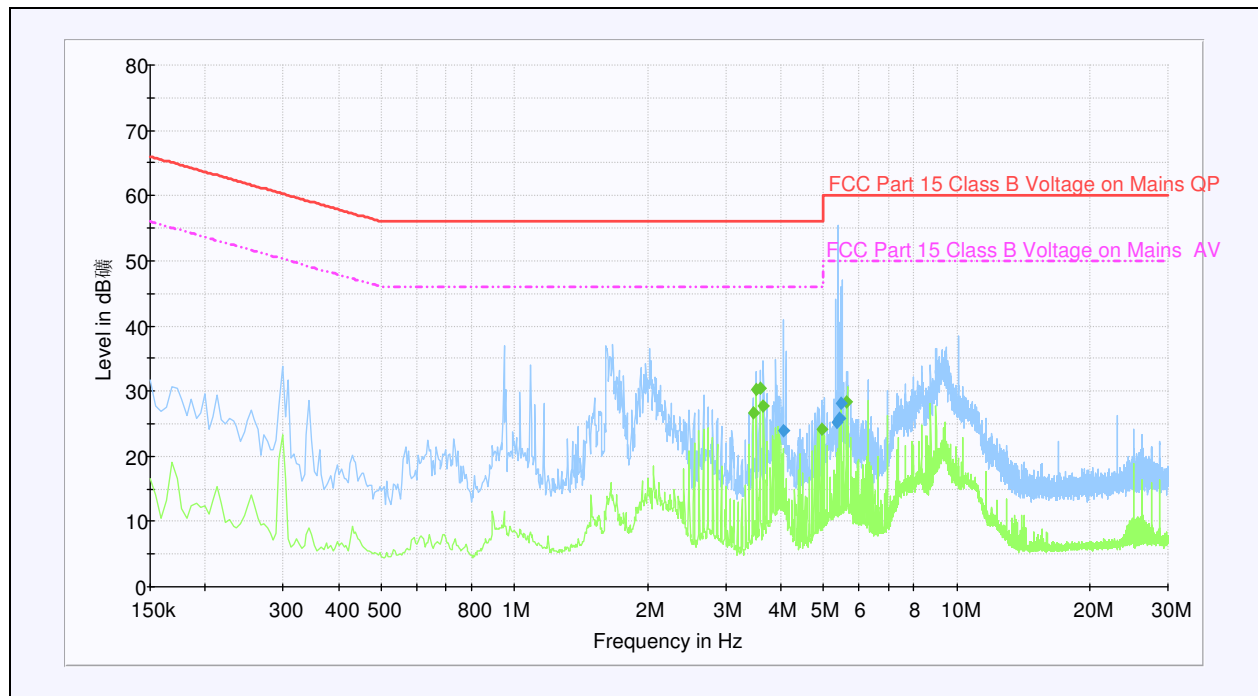
TEST REPORT N°: JEC-09JAH0183HTHFB

Measurement Data : Live

Test Result of (Transmission mode): **PASS**

Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBμV)
3.478000	21.7	9.000	10.0	34.3	56.0
3.752000	23.2	9.000	10.0	32.8	56.0
4.047000	24.0	9.000	10.0	32.0	56.0
5.352000	25.2	9.000	10.0	34.8	60.0
5.419500	25.9	9.000	10.0	34.1	60.0
5.482500	28.1	9.000	10.0	31.9	60.0
Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBμV)
3.457500	26.7	9.000	10.0	19.3	46.0
3.525000	30.2	9.000	10.0	15.8	46.0
3.588000	30.4	9.000	10.0	15.6	46.0
3.655500	27.6	9.000	10.0	18.4	46.0
4.960500	24.3	9.000	10.0	21.8	46.0
5.644500	28.4	9.000	10.0	21.6	50.0

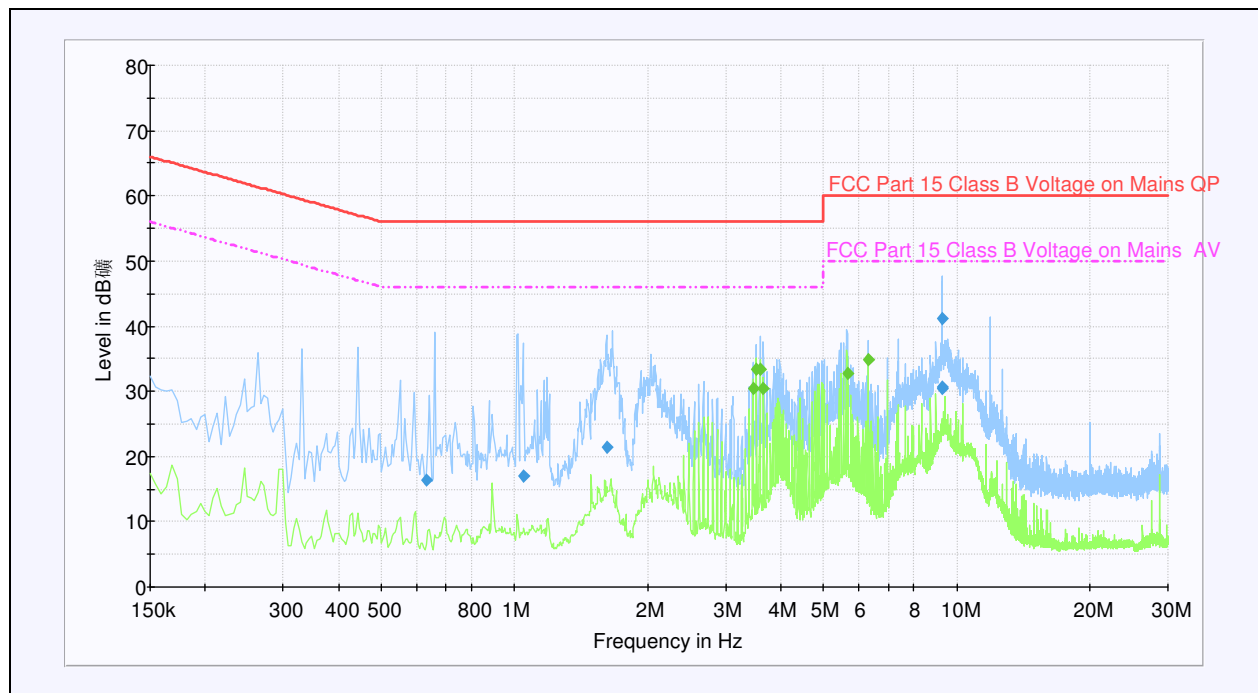
TEST REPORT N°: JEC-09JAH0183HTHFB

Measurement Data : Neutral

Test Result of (Transmission mode): PASS

Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.631500	16.4	9.000	10.0	39.6	56.0
1.050000	17.1	9.000	10.0	38.9	56.0
1.621500	21.4	9.000	10.0	34.6	56.0
9.267000	41.2	9.000	10.0	18.8	60.0
9.276000	30.7	9.000	10.0	29.3	60.0
9.285000	30.5	9.000	10.0	29.5	60.0
Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBμV)
3.457500	30.4	9.000	10.0	15.6	46.0
3.525000	33.3	9.000	10.0	12.7	46.0
3.588000	33.4	9.000	10.0	12.6	46.0
3.655500	30.5	9.000	10.0	15.5	46.0
5.649000	32.7	9.000	10.0	17.3	50.0
6.310500	35.0	9.000	10.0	15.0	50.0

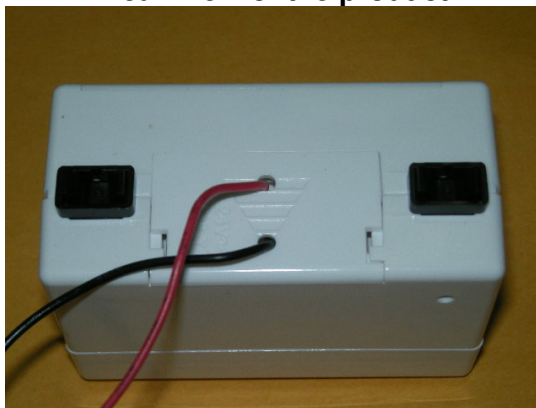
TEST REPORT N°: JEC-09JAH0183HTHFB

Photographs of EUT

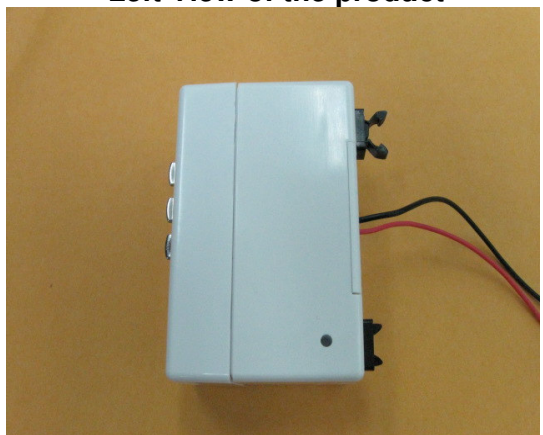
Front View of the product



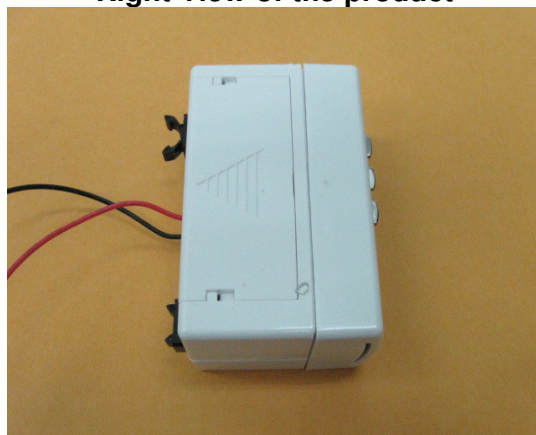
Rear View of the product



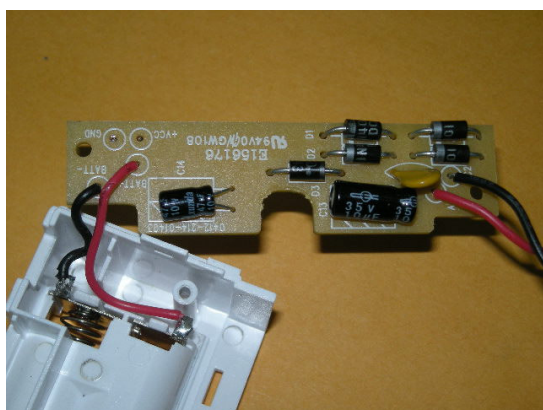
Left View of the product



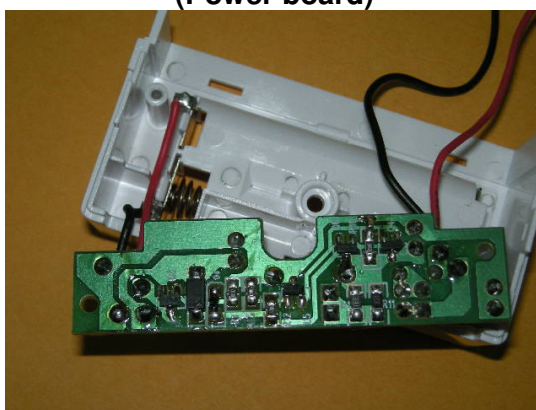
Right View of the product



Inner Circuit Top View (Power board)

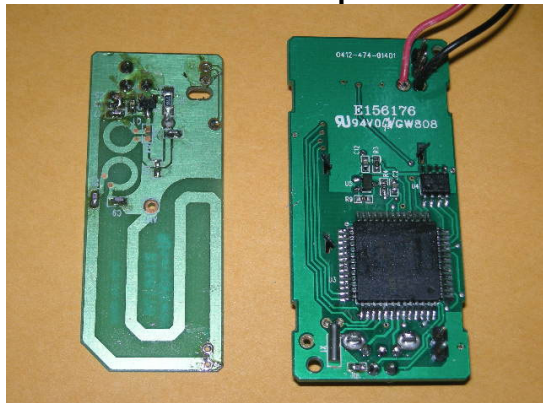


Inner Circuit Bottom View (Power board)

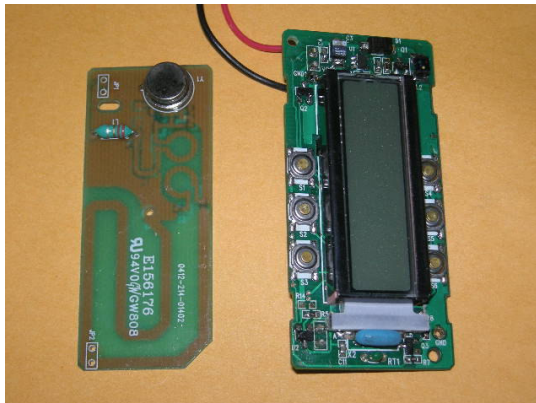


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Inner Circuit Top View



Inner Circuit Bottom View



Battery Cover



Battery Compartment



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Measurement of Radiated Emission Test Set Up



Measurement of Conducted Emission Test Set Up



******* End of Report *******