Doorking Inc.

ADDENDUM TO TEST REPORT 90410

Handheld Garage Door Type RF Transmitter 318 MHz, 8066

Tested To The Following Standards:

FCC Part 15 Subpart C Sections 15.205/15.231
and
RSS-210 Version 7

Report No.: 90410-5

Date of issue: March 3, 2010

ACCREDITED

TESTING
CERT #803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Doorking Inc.
120 Glasgow St.
Inglewood, CA 90301

Representative: Patrick Kochie
Customer Reference Number: 78245

REPORT PREPARED BY:

Joyce Walker
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 90410

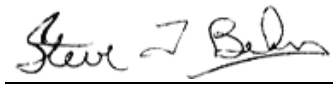
DATE OF EQUIPMENT RECEIPT: February 3, 2010
DATE(S) OF TESTING: February 3 - 5, 2010

Revision History

Original Date of Issue: February 16, 2010
Addendum A: To remove testing performed to 15.209 with the RF switch not pressed, corrected an incorrect reference to 15.225 and 15.247 under section 15.33(a) and changed the model from 8068 to 8066.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92823

Site Registration & Accreditation Information

Location	Japan	Canada	FCC
Brea D	R-1256, C-1319 & T-1660	3082D-2	100638

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C

Description	Test Procedure/Method	Results
Release Time	FCC Part 15 Subpart C Section 15.231(a)(1)	Pass
Field Strength of Fundamental	FCC Part 15 Subpart C Section 15.231(b)	Pass
Field Strength of Spurious Radiation	FCC Part 15 Subpart C Section 15.231(b)/15.205	Pass
Occupied Bandwidth	FCC Part 15 Subpart C Section 15.231(c) & RSS-210	Pass

CONDITIONS DURING TESTING

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

The EUT is a handheld garage door type RF transmitter operating on 318MHz. The following model was tested by CKC Laboratories: **Handheld Garage Door Type RF Transmitter 318 MHz, 8068**

Since the time of testing the manufacturer has chosen to use the following model name in its place. Any differences between the names does not affect their EMC characteristics and therefore meets the level of testing equivalent to the tested model name shown on the data sheets: **Handheld Garage Door Type RF Transmitter 318 MHz, 8066**

EQUIPMENT UNDER TEST

Handheld Garage Door Type RF Transmitter 318 MHz

Manuf: Door King Inc.
Model: 8066
Serial: NA

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CRF 15C requirements for Unlicensed Radio Frequency Devices, Subpart C - Intentional Radiators.

Temperature And Humidity During Testing
The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

15.31(e) Voltage Variations
Not applicable to this device because it is battery powered.

15.31(m) Number Of Channels
This device operates on a single channel.

15.33(a) Frequency Ranges Tested
15.205/15.231 Radiated Emissions: 9 kHz – 3.2GHz

15.203 Antenna Requirements
The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

EUT Operating Frequency
The EUT was operating at 318MHz

15.231(a)(1) Release Time

Test Engineer: S. Hundal

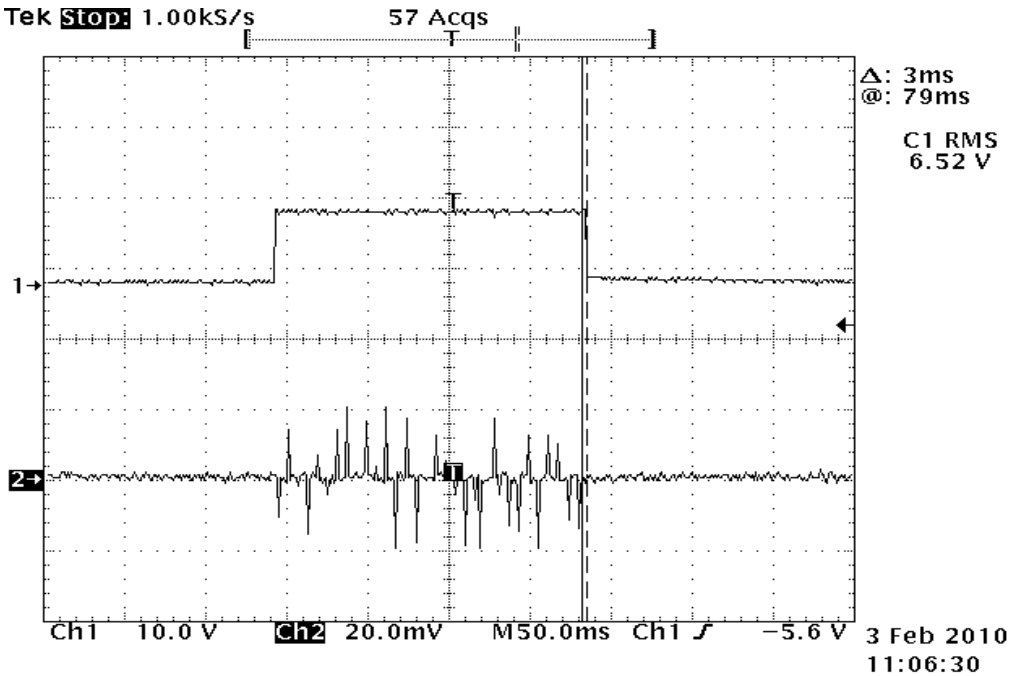
Test Equipment				
Equipment	**Serial #**	**Cal Date**	**Cal Due**	**Asset #**
Oscilloscope	BO20532	3/17/2009	3/17/2011	02847

Test Conditions

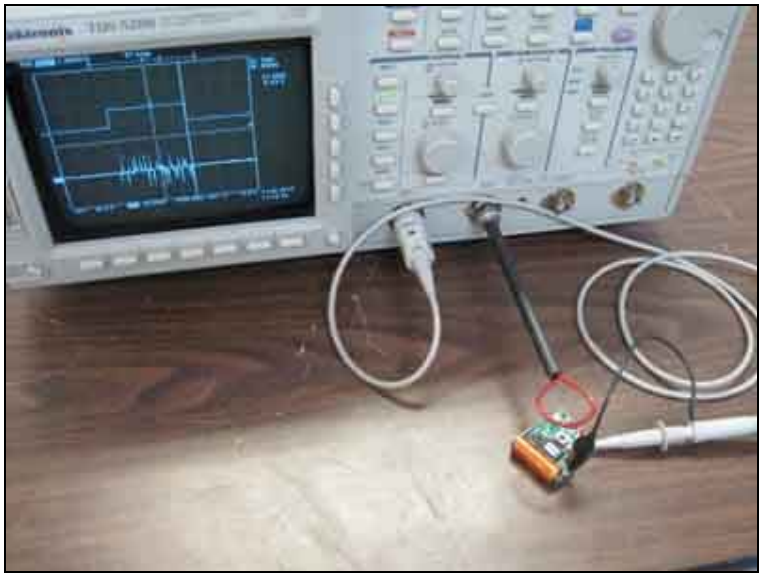
The EUT is placed on the test bench in close proximity. Ch1 of an Oscilloscope is connected to trigger lead of the RF switch. A RF receiving wire element is connected to the CH2 with the Oscilloscope set to trigger on negative edge of the RF switch. A single sweep was captured with the RF switch of the EUT being released. The captured time between the RF switch being released and RF cessation of RF power is measured.

Measured capture time = 3m sec, meets requirement.

Test Data



Test Setup Photos



15.231(b) Field Strength of Fundamental

Test Data Sheets

Test Location: CKC Laboratories, Inc. •110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Doorking, Inc.**
Specification: **FCC 15.231 (b) Field Strength of Fundamental**
Work Order #: **90410** Date: 2/5/2010
Test Type: **Maximized Emissions** Time: 08:46:40
Equipment: **Handheld Garage Door Type RF Transmitter 318 MHz** Sequence#: 1
Manufacturer: Doorking, Inc. Tested By: Shaminderjit Hundal
Model: 8068
S/N: NA

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	3001A18430	09/16/2008	09/16/2010	02472
Spectrum Analyzer	2928A04874	09/16/2008	09/16/2010	02462
QP Adapter	3303A01884	09/16/2008	09/16/2010	01437
Spectrum Analyzer	US44300438	07/23/2008	07/23/2010	02672
Antenna cable	Cable#17	09/22/2008	09/22/2010	P04382
Preamp to SA Cable (3 feet)	Cable #22	08/19/2008	08/19/2010	P05555
Pre-amp	2727A05392	04/29/2008	04/29/2010	00010
Cable #9 41ft to Antenna	Cable #9	11/11/2009	11/11/2011	P01911
Log Antenna	463	10/23/2009	10/23/2011	00001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Handheld Garage Door Type RF Transmitter 318 MHz*	Doorking, Inc.	8068	NA

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The handheld, single channel EUT is placed on the wooden table with Styrofoam surface of 5 cm thickness.
The RF switch is depressed, continuously transmitting for 10 mins.

Frequency = 318 MHz
RBW=120 kHz, VBW=120 kHz

A fresh battery is installed. The emissions profile of all three orthogonal orientations were investigated.

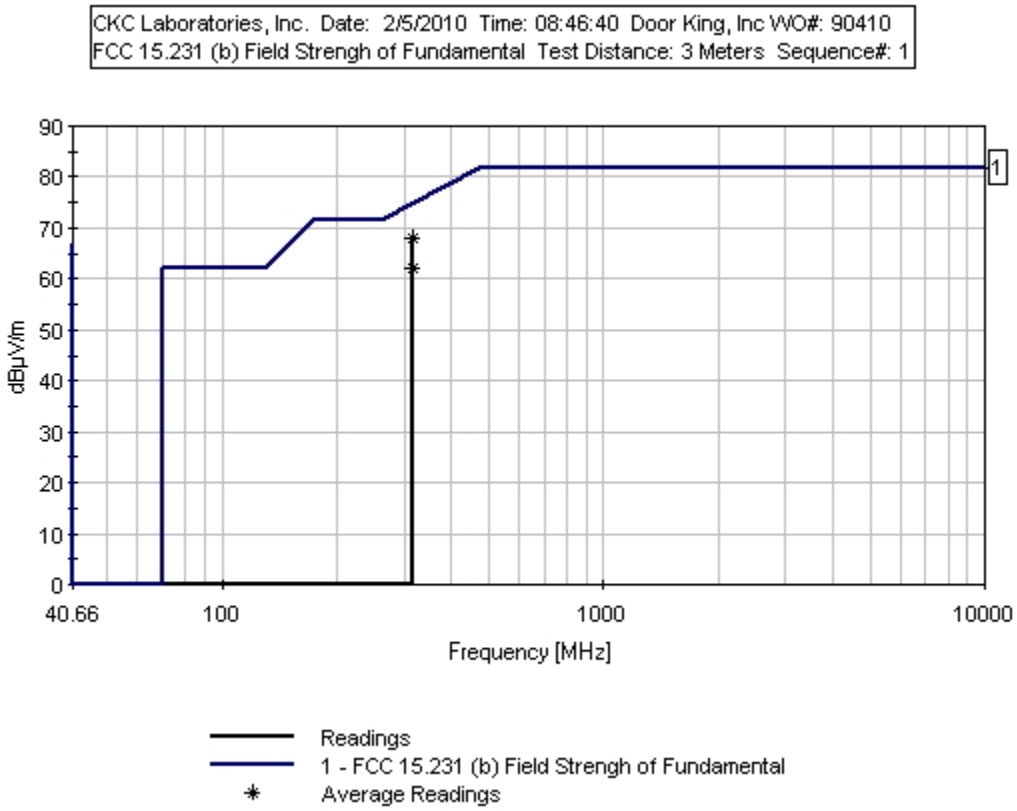
Temp - 28°C
Relative Humidity - 40%
Pressure - 101kPa

Transducer Legend:

T1=Preamplifier ANP00010 042910
T2=84' Heliax Cable P04382_#17
T3=Cable_P05555_SA to pre-amp
T4=Cable ANP01911 41ft RG-214/U
T5=Log Periodic AN00001

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	317.963M Ave	70.3	-26.8 +20.3	+1.9	+0.3	+1.9	+0.0	67.9	75.8 Layed Down	-7.9	Horiz
^	317.968M	86.4	-26.8 +20.3	+1.9	+0.3	+1.9	+0.0	84.0	75.8 Laying Down	+8.2	Horiz
3	317.963M Ave	64.5	-26.8 +20.3	+1.9	+0.3	+1.9	+0.0	62.1	75.8 One Side with LED Facing Antenna	-13.7	Vert
^	317.959M	80.2	-26.8 +20.3	+1.9	+0.3	+1.9	+0.0	77.8	75.8 One Side with LED Facing Antenna	+2.0	Vert


CKC Laboratories, Inc. Date: 2/5/2010 Time: 08:46:40 Door King, Inc WO#: 90410
FCC 15.231 (b) Field Strengh of Fundamental Test Distance: 3 Meters Sequence#: 1
dBµV/m
90
80
70
60
50
40
30
20
10
0
40.66
100
1000
10000
Frequency [MHz]
1
Readings
1 - FCC 15.231 (b) Field Strengh of Fundamental
Average Readings

Test Setup Photos

15.231(b)/15.205 Field Strength of Spurious Radiation

Test Data Sheets

Test Location: CKC Laboratories, Inc. •110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Doorking, Inc.**
Specification: **FCC 15.231/15.205**
Work Order #: **90410** Date: 2/5/2010
Test Type: **Maximized Emissions** Time: 12:02:52
Equipment: **Handheld Garage Door Type RF Transmitter 318 MHz** Sequence#: 2
Manufacturer: Doorking, Inc. Tested By: Shaminderjit Hundal
Model: 8068
S/N: NA

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	3001A18430	09/16/2008	09/16/2010	02472
Spectrum Analyzer	2928A04874	09/16/2008	09/16/2010	02462
QP Adapter	3303A01884	09/16/2008	09/16/2010	01437
Spectrum Analyzer	US44300438	07/23/2008	07/23/2010	02672
Antenna cable	Cable#17	09/22/2008	09/22/2010	P04382
Preamp to SA Cable (3 feet)	Cable #22	08/19/2008	08/19/2010	P05555
Pre-amp	2727A05392	04/29/2008	04/29/2010	00010
Horn Antenna 1-18GHz	9603-4683	06/06/2008	06/06/2010	01646
Microwave Pre-amp	3123A00282	06/04/2009	06/04/2011	00787
Antenna Cable	Hi Freq	10/13/2008	10/13/2010	P05563
Antenna cable	Cable#17	09/22/2008	09/22/2010	P04382
3'-40GHz cable	NA	09/14/2009	09/14/2011	P02946
Loop Antenna 6502	2014	06/16/2008	06/16/2010	00314
Cable #9 41ft to Antenna	Cable #9	11/11/2009	11/11/2011	P01911
Log Antenna	463	10/23/2009	10/23/2011	00001
Bicon Antenna	157	10/22/2009	10/22/2011	00206

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Handheld Garage Door Type RF Transmitter 318 MHz*	Doorking, Inc.	8068	NA

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The handheld, single channel EUT is placed on the wooden table with Styrofoam surface of 5 cm thickness. The RF switch is depressed, continuously transmitting for 10 mins.

Frequency = 318 MHz

Frequency range of measurement = 9 kHz - 3.2GHz.
Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz- 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz- 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz-3200MHz RBW=1 MHz, VBW=1 MHz

A fresh battery is installed. The emission profile of all three orthogonal orientations were investigated.

Temp - 18°C
Relative Humidity - 40%
Pressure - 101kPa

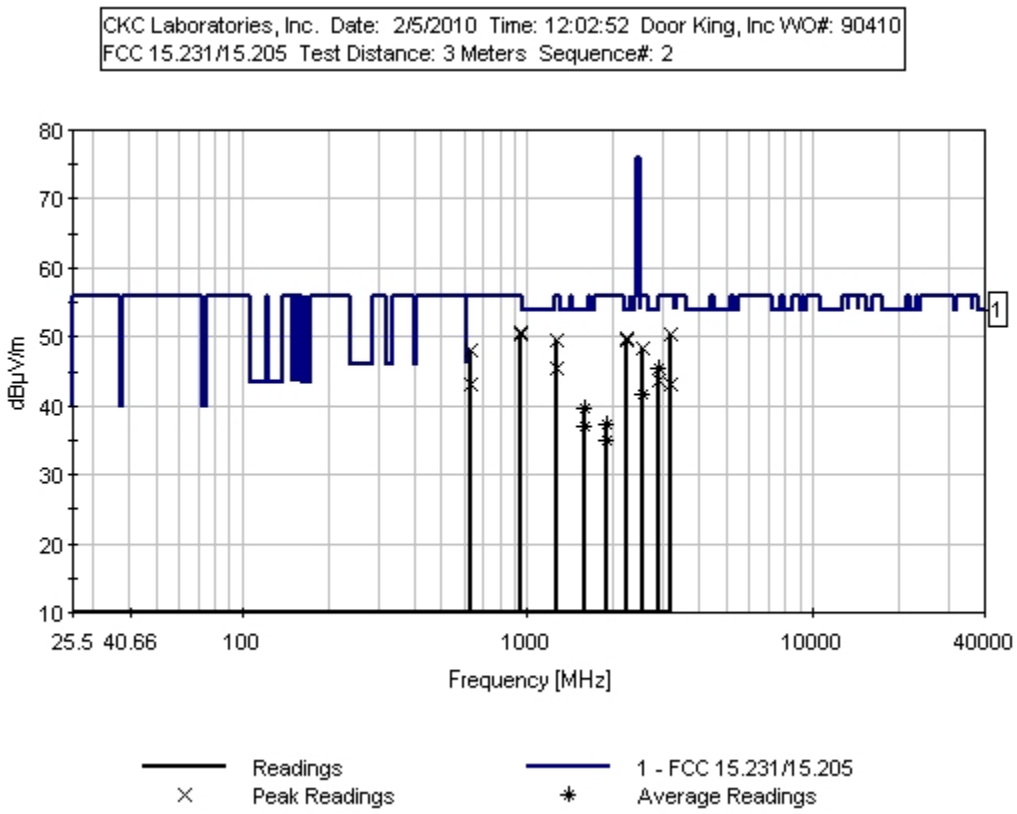
Transducer Legend:

T1=Preamplifier ANP00010 042910	T2=84' Heliax Cable P04382_#17
T3=Cable_P05555_SA to pre-amp	T4=Preamplifier AN00787
T5=Hi-Freq_40GHz_3ft_AN02946_0911411.TRN	T6=48' Heliax Cable 101310 P05563
T7=84' Heliax Cable P04382	T8=Horn Ant AN01646 060610
T9=Log Periodic AN00001	T10=Cable ANP01911 41ft RG-214/U

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2225.479M	52.7	+0.0 +0.6 +0.0	+0.0 +3.0 +0.0	+0.0 +5.5	-39.8 +27.7	+0.0	49.7	54.0 On Side LED facing antenna	-4.3	Horiz
2	2225.593M	52.6	+0.0 +0.6 +0.0	+0.0 +3.0 +0.0	+0.0 +5.5	-39.8 +27.7	+0.0	49.6	54.0 Standing up with side facing antenna	-4.4	Vert
3	953.842M	47.3	-27.6 +0.0 +23.3	+3.4 +0.0 +3.6	+0.6 +0.0	+0.0 +0.0	+0.0	50.6	55.8 Standing up with side facing antenna	-5.2	Vert
4	3179.393M	48.9	+0.0 +0.7 +0.0	+0.0 +3.8 +0.0	+0.0 +6.8	-40.0 +30.2	+0.0	50.4	55.8 Standing up with side facing antenna	-5.4	Vert
5	953.842M	47.1	-27.6 +0.0 +23.3	+3.4 +0.0 +3.6	+0.6 +0.0	+0.0 +0.0	+0.0	50.4	55.8 Laying Down	-5.4	Horiz
6	1271.803M	58.4	+0.0 +0.4 +0.0	+0.0 +2.2 +0.0	+0.0 +4.0	-40.2 +24.7	+0.0	49.5	55.8 Laying Down	-6.3	Vert
7	2543.459M	49.8	+0.0 +0.6 +0.0	+0.0 +3.3 +0.0	+0.0 +6.1	-39.9 +28.4	+0.0	48.3	55.8 On Side LED facing antenna	-7.5	Horiz

8	635.906M	51.4	-28.1 +0.0 +18.9	+2.7 +0.0 +2.8	+0.4 +0.0	+0.0 +0.0	+0.0	48.1	55.8 Standing up with side facing antenna	-7.7	Vert
9	2861.460M Ave	45.0	+0.0 +0.6 +0.0	+0.0 +3.6 +0.0	+0.0 +6.5	-39.9 +29.7	+0.0	45.5	54.0 On Side LED facing antenna	-8.5	Vert
^	2861.454M	62.2	+0.0 +0.6 +0.0	+0.0 +3.6 +0.0	+0.0 +6.5	-39.9 +29.7	+0.0	62.7	54.0 On Side LED facing antenna	+8.7	Vert
11	2861.597M	43.2	+0.0 +0.6 +0.0	+0.0 +3.6 +0.0	+0.0 +6.5	-39.9 +29.7	+0.0	43.7	54.0 Laying Down	-10.3	Horiz
12	1271.753M	54.3	+0.0 +0.4 +0.0	+0.0 +2.2 +0.0	+0.0 +4.0	-40.2 +24.7	+0.0	45.4	55.8 Laying Down	-10.4	Horiz
13	635.854M	46.5	-28.1 +0.0 +18.9	+2.7 +0.0 +2.8	+0.4 +0.0	+0.0 +0.0	+0.0	43.2	55.8 On Side LED facing antenna	-12.6	Horiz
14	3179.497M	41.5	+0.0 +0.7 +0.0	+0.0 +3.8 +0.0	+0.0 +6.8	-40.0 +30.2	+0.0	43.0	55.8 Laying Down	-12.8	Horiz
15	2543.529M Ave	43.2	+0.0 +0.6 +0.0	+0.0 +3.3 +0.0	+0.0 +6.1	-39.9 +28.4	+0.0	41.7	55.8 Laying Down	-14.1	Vert
^	2543.521M	59.8	+0.0 +0.6 +0.0	+0.0 +3.3 +0.0	+0.0 +6.1	-39.9 +28.4	+0.0	58.3	55.8 Laying Down	+2.5	Vert
17	1589.742M Ave	46.3	+0.0 +0.5 +0.0	+0.0 +2.6 +0.0	+0.0 +4.5	-39.7 +25.5	+0.0	39.7	54.0 On Side LED facing antenna	-14.3	Vert
^	1589.733M	63.8	+0.0 +0.5 +0.0	+0.0 +2.6 +0.0	+0.0 +4.5	-39.7 +25.5	+0.0	57.2	54.0 On Side LED facing antenna	+3.2	Vert
19	1589.653M Ave	43.7	+0.0 +0.5 +0.0	+0.0 +2.6 +0.0	+0.0 +4.5	-39.7 +25.5	+0.0	37.1	54.0 Standing up with side facing antenna	-16.9	Horiz
^	1589.693M	59.2	+0.0 +0.5 +0.0	+0.0 +2.6 +0.0	+0.0 +4.5	-39.7 +25.5	+0.0	52.6	54.0 Standing up with side facing antenna	-1.4	Horiz
21	1907.676M Ave	41.6	+0.0 +0.5 +0.0	+0.0 +2.8 +0.0	+0.0 +5.1	-39.7 +26.9	+0.0	37.2	55.8 On Side LED facing antenna	-18.6	Vert
^	1907.676M	59.2	+0.0 +0.5 +0.0	+0.0 +2.8 +0.0	+0.0 +5.1	-39.7 +26.9	+0.0	54.8	55.8 On Side LED facing antenna	-1.0	Vert
23	1907.457M Ave	39.4	+0.0 +0.5 +0.0	+0.0 +2.8 +0.0	+0.0 +5.1	-39.7 +26.9	+0.0	35.0	55.8 Laying Down	-20.8	Horiz
^	1907.451M	60.8	+0.0 +0.5 +0.0	+0.0 +2.8 +0.0	+0.0 +5.1	-39.7 +26.9	+0.0	56.4	55.8 Laying Down	+0.6	Horiz


CKC Laboratories, Inc. Date: 2/5/2010 Time: 12:02:52 Door King, Inc WO#: 90410
FCC 15.231/15.205 Test Distance: 3 Meters Sequence#: 2
80
70
60
50
40
30
20
10
dBµV/m
25.5 40.66 100 1000 10000 40000
Frequency [MHz]
1
Readings
Peak Readings
1 - FCC 15.231/15.205
Average Readings

Test Setup Photos

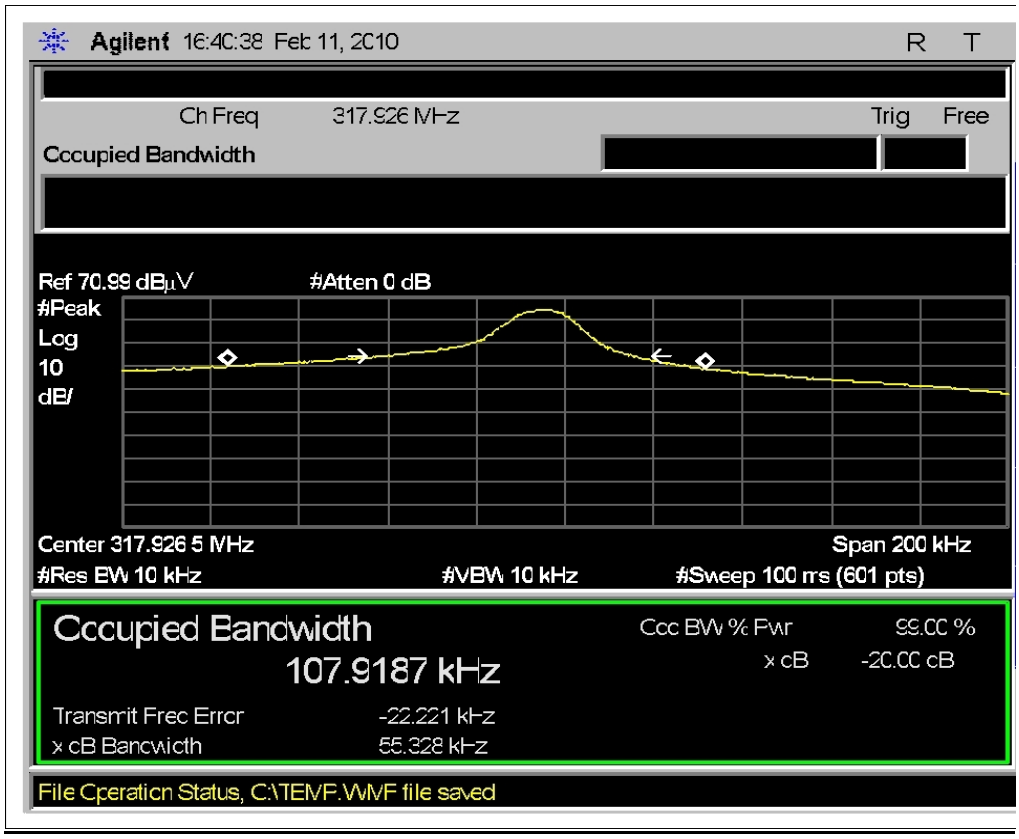
15.231(c) & RSS-210 Occupied Bandwidth

Engineer Name: S. Hundal

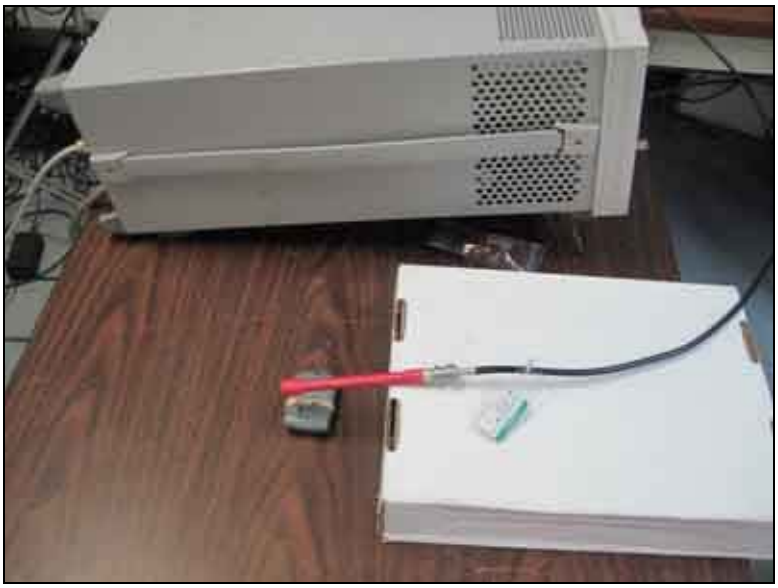
The EUT is placed on the test bench, in close proximity to the analyzer. The RF switch is depressed, continuously transmitting. Occupied Bandwidth -20dBc = 32kHz

Test Equipment				
Manufacturer	**Serial**	**Cal Date**	**Cal Due**	**Asset**
Agilent	US44300438	7/23/2008	7/23/2010	02672

Test Plots



Test Setup Photos



APPENDIX A
CUSTOMER PROVIDED INFORMATION

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	
CRT was displaying:	
Power Supply Manufacturer:	**NA**
Power Supply Part Number:	
AC Line Filter Manufacturer:	
AC Line Filter Part Number:	

I/O PORTS	
Type	#
NA	

CRYSTAL OSCILLATORS	
Type	Freq In MHz
SAW	318MHz
Ceramic Resonator	3.58Mhz

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Main PCB	8093-010 A	See Crystal above	2	Inside plastic case

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "QP" or an "Ave" on the appropriate rows of the data sheets. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer/receiver readings recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the measuring device called "peak hold," the measuring device had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer/receiver. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.