FCC PART 15, SUBPART B and C
TEST REPORT

for

ZWAVE MODULE – AC VERSION

MODEL: AC1-ZW

Prepared for

RS SCENE AUTOMATION
5520 159TH PLACE SE
BELLEVUE, WASHINGTON 98006

Prepared by:_____

KYLE FUJIMOTO

Approved by:_____

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DATE: OCTOBER 18, 2007

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested:	Zwave Module – AC Version Model: AC1-ZW S/N: N/A
Product Description:	See Expository Statement
Modifications:	The EUT was not modified in order to meet the specifications.
Customer:	RS Scene Automation 5520 159th Place SE Bellevue, Washington 98006
Test Date:	October 9, 2007
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.209 and 15.249
Test Procedure:	ANSI C63.4
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207.
2	Radiated RF Emissions, 10 kHz – 9300 MHz (Transmitter Portion)	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and 15.249.
3	Radiated RF Emissions, 10 kHz – 9300 MHz (Digital and Receiver Portion)	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Zwave Module – AC Version, Model: AC1-HW. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B for the digital and receiver portion; and the limits defined in Subpart C, sections 15.205, 15.207, 15.209, and 15.249 for the transmitter portion.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

RS Scene Automation

Kendall C Russell General Manager

Compatible Electronics, Inc.

Kyle Fujimoto Test Engineer
Michael Christensen Lab Manager

2.4 Date Test Sample was Received

The test sample was received on October 9, 2007.

2.5 Disposition of the Test Sample

The sample has not been returned to RS Scene Automation as of October 18, 2007.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
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

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description Of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

Transmit Mode: The Zwave Module – AC Version, Model: AC1-HW (EUT) was connected to an AC junction box, AC public mains, and a 10 kohm resistor via its motor, AC input, and sensor ports, respectively. 2 Light bulbs were directly connected to the AC junction box. The EUT was transmitting on a continuous basis.

Receiver Mode: The Zwave Module – AC Version, Model: AC1-HW (EUT) was connected to an AC junction box, AC public mains, and a 10 kohm resistor via its motor, AC input, and sensor ports, respectively. 2 Light bulbs were directly connected to the AC junction box. The EUT was receiving a signal from a remote control located 20 feet away from the test site. The signal from the remote control turned on and off the 2 light bulbs.

The final radiated as well as conducted data was taken in both modes above. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1

This is a 2-meter unshielded cable connecting the EUT to the AC public mains. The cable has a 3 pin terminal block connector at the EUT end and a 3 prong AC Connector at the AC public mains end.

Cable 2

This is a 1-meter unshielded cable connecting the EUT to the AC junction box. The cable has a 4 pin terminal block connector at the EUT end and is hard wired into the AC junction box.

Cable 3

This is a 1-meter unshielded cable connecting the EUT to a 10 kohm resistor. The cable is hard wired at each end. This cable, along with Cable #4 was bundled to a length of 1 meter.

Cable 4

This is a 1-meter unshielded cable connecting the EUT to a 10 kohm resistor. The cable is hard wired at each end. This cable, along with Cable #3 was bundled to a length of 1 meter.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
ZWAVE MODULE – AC VERSION (EUT)	RS SCENE AUTOMATION	AC1-HW	N/A	**VQH-AC1-ZW**
REMOTE CONTROL	INTERMATIC, INC.	HA09	154HA23825	DGZH0009
10 K OHM RESISTOR	N/A	N/A	N/A	N/A
2 LIGHT BULBS	N/A	N/A	NA/	N/A
AC JUNCTION BOX	N/A	N/A	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100149	November 15, 2005	Nov. 15, 2007
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Preamplifier	Com Power	PA-102	1017	January 16, 2007	Jan. 16, 2008
Biconical Antenna	Com Power	AB-900	15227	March 8, 2007	March 8, 2008
Log Periodic Antenna	Com Power	AL-100	16060	July 9, 2007	July 9, 2008
Loop Antenna	Com Power	AL-130	17089	September 24, 2007	Sept. 24, 2008
Horn Antenna	Antenna Research	DRG-118/A	1053	March 6, 2006	March 6, 2008
Microwave Preamplifier	Com Power	PA-122	181921	Feb. 27, 2007	Feb. 27, 2008
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
Transient Limiter	Seaward	252A910	1	September 19, 2007	September 19, 2008
LISN	Com Power	LI-215	12082	September 26, 2007	September 26, 2008
LISN	Com Power	LI-215	12078	September 26, 2007	September 26, 2008

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was grounded via the safety ground in its power cord.

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in EN 55022. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207.

7.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz. The EMI Receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer or EMI Receiver records the highest measured reading over all the sweeps.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the EMI Receiver to keep the amplitude reading calibrated.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 9.3 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

7.1.3 Radiated Emissions (Spurious and Harmonics) Test (Continued)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249.

8. CONCLUSIONS

The Zwave Module – AC Version, Model: AC1-HW meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital and receiver portion; and the limits defined in Subpart C, sections 15.205, 15.207, 15.209, and 15.249 for the transmitter portion.

APPENDIX A

LABORATORY RECOGNITIONS

LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 or FCC Class B specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Zwave Module – AC Version
Model: AC1-HW
S/N: N/A

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

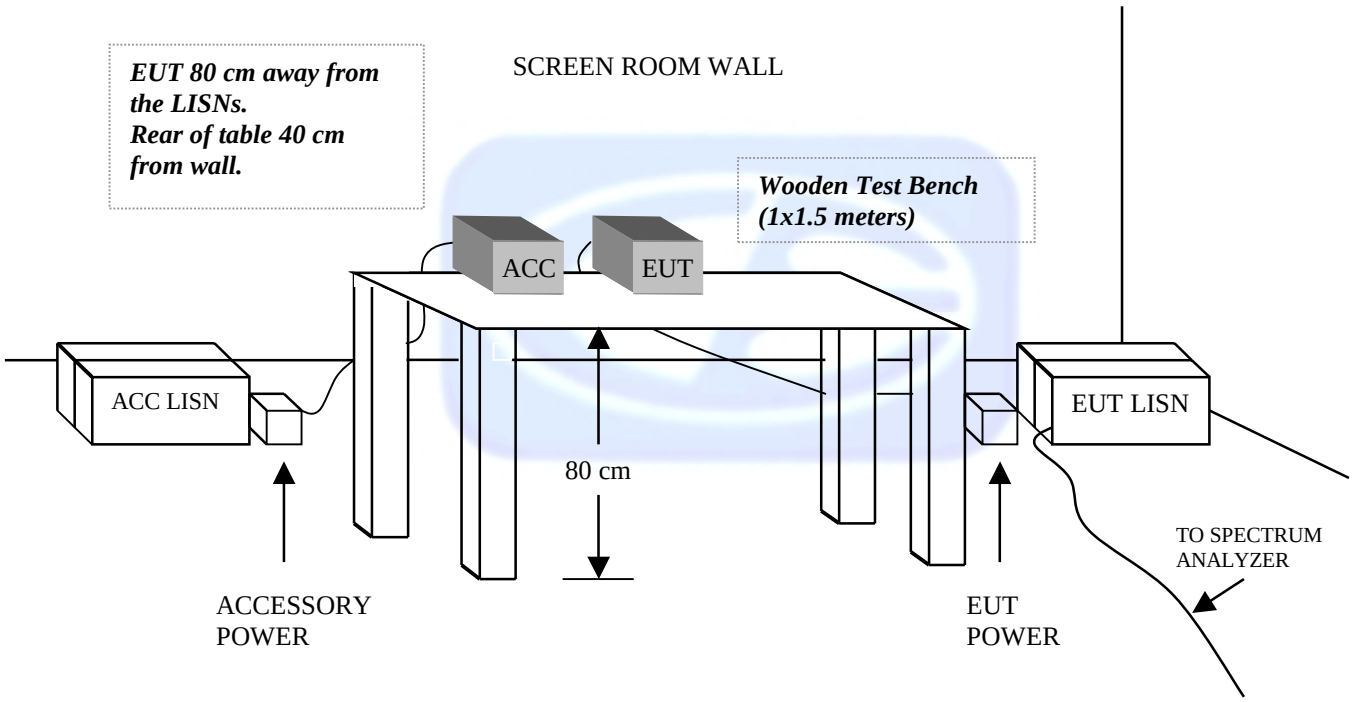
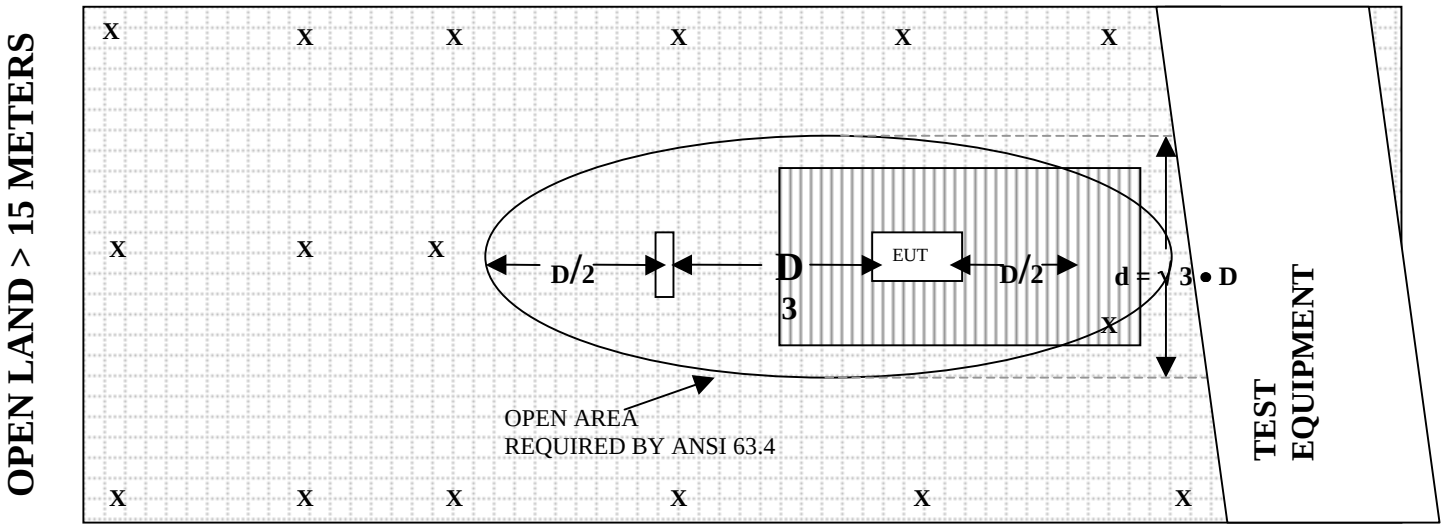


FIGURE 2: PLOT MAP AND LAYOUT OF 3 METER RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

X = GROUND RODS	= GROUND SCREEN
D = TEST DISTANCE (meters)	= WOOD COVER

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15227

CALIBRATION DATE: MARCH 8, 2007

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	12.6	100	12.3
35	10.0	120	14.7
40	9.5	140	13.0
45	9.2	160	13.7
50	9.4	180	16.4
60	7.4	200	17.2
70	6.5	250	14.6
80	7.0	275	19.0
90	8.0	300	22.3

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16060

CALIBRATION DATE: JULY 9, 2007

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.5	700	20.5
400	15.8	800	21.6
500	17.0	900	21.3
600	19.2	1000	22.2

COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: JANUARY 16, 2007

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.4	300	38.2
40	38.3	350	38.2
50	38.2	400	38.1
60	38.3	450	37.8
70	38.4	500	37.8
80	38.6	550	38.1
90	38.3	600	37.8
100	38.4	650	37.8
125	38.3	700	37.6
150	38.2	750	37.9
175	38.4	800	37.6
200	38.4	850	37.2
225	38.4	900	37.4
250	38.3	950	37.0
275	38.3	1000	37.2

COM-POWER PA-122

PREAMPLIFIER

S/N: 181921

CALIBRATION DATE: FEBRUARY 27, 2007

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	36.2	10.0	35.1
1.5	35.4	10.5	34.8
2.0	34.7	11.0	33.5
2.5	34.8	11.5	33.9
3.0	34.8	12.0	34.0
3.5	34.6	12.5	34.4
4.0	34.2	13.0	34.4
4.5	34.1	13.5	34.7
5.0	34.1	14.0	36.0
5.5	34.7	14.5	35.7
6.0	35.6	15.0	36.1
6.5	36.8	15.5	35.6
7.0	36.7	16.0	35.4
7.5	34.9	16.5	35.3
8.0	33.3	17.0	34.9
8.5	33.6	17.5	33.7
9.0	34.6	18.0	33.3
9.5	35.9		

ANTENNA RESEARCH DRG-118/A

HORN ANTENNA

S/N: 1053

CALIBRATION DATE: MARCH 6, 2006

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.46	10.0	39.55
1.5	25.05	10.5	39.86
2.0	28.42	11.0	38.49
2.5	29.91	11.5	40.71
3.0	31.46	12.0	40.59
3.5	31.91	12.5	40.17
4.0	31.55	13.0	39.70
4.5	31.94	13.5	40.84
5.0	32.90	14.0	41.58
5.5	34.07	14.5	45.14
6.0	35.69	15.0	42.20
6.5	33.11	15.5	39.42
7.0	36.51	16.0	38.80
7.5	37.27	16.5	41.08
8.0	37.21	17.0	44.11
8.5	37.16	17.5	46.29
9.0	38.27	18.0	41.61
9.5	39.73		

COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: SEPTEMBER 24, 2007

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.27	10.23
0.01	-41.96	9.54
0.02	-41.73	9.77
0.05	-42.0	9.5
0.07	-41.5	10.0
0.1	-41.43	10.07
0.2	-43.9	7.9
0.3	-41.43	10.07
0.5	-41.40	10.1
0.7	-41.13	10.37
1	-40.83	10.67
2	-40.30	11.20
3	-40.60	10.90
4	-41.00	10.50
5	-40.20	11.30
10	-40.40	11.10
15	-41.67	9.83
20	-41.10	10.40
25	-42.80	8.70
30	-42.80	8.70

FRONT VIEW

RS SCENE AUTOMATION
ZWAVE MODULE – AC VERSION
MODEL: AC1-HW
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB B

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

RS SCENE AUTOMATION
ZWAVE MODULE – AC VERSION
MODEL: AC1-HW
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB B

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

RS SCENE AUTOMATION
ZWAVE MODULE – AC VERSION
MODEL: AC1-HW
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB D

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

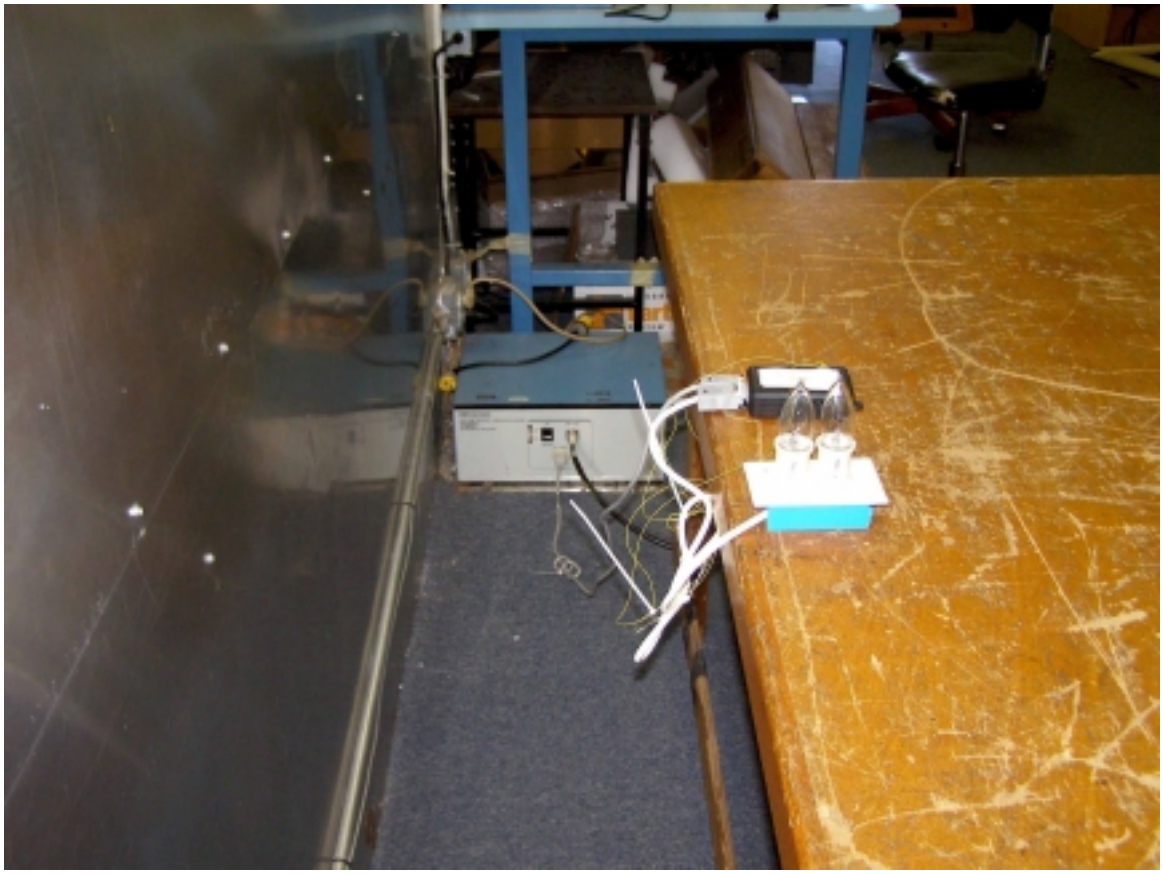
RS SCENE AUTOMATION
ZWAVE MODULE – AC VERSION
MODEL: AC1-HW
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB D

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

RS SCENE AUTOMATION
ZWAVE MODULE – AC VERSION
MODEL: AC1-HW
FCC SUBPART B AND C – CONDUCTED EMISSIONS – LAB D

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

RS SCENE AUTOMATION
ZWAVE MODULE – AC VERSION
MODEL: AC1-HW
FCC SUBPART B AND C – CONDUCTED EMISSIONS – LAB D

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.249

RS Scene Automation
Zwave Module -- AC Version
Model: AC1-ZW

Date: 10/09/07
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
908.4	72.19	V	94	-21.81	Peak	1	180	
1816.8	46.89	V	74	-27.11	Peak	1.89	125	
1816.8	45.39	V	54	-8.61	Avg	1.89	125	
2725.2	41.98	V	74	-32.02	Peak	1.33	125	
2725.2	32.36	V	54	-21.64	Avg	1.33	125	
3633.6	40.76	V	74	-33.24	Peak	1.35	125	
3633.6	27.91	V	54	-26.09	Avg	1.35	125	
4542	40.49	V	74	-33.51	Peak	1.39	151	
4542	28.58	V	54	-25.42	Avg	1.39	151	
5450.4	42.97	V	74	-31.03	Peak	1.35	125	
5450.4	31.3	V	54	-22.7	Avg	1.35	125	
6358.8	45.12	V	74	-28.88	Peak	1.36	125	
6358.8	32.31	V	54	-21.69	Avg	1.36	125	
7267.2		V	74	-74	Peak			No Emissions
7267.2		V	54	-54	Avg			Found
8175.6		V	74	-74	Peak			No Emissions
8175.6		V	54	-54	Avg			Found
9084		V	74	-74	Peak			No Emissions
9084		V	54	-54	Avg			Found

FCC 15.249

RS Scene Automation
Zwave Module -- AC Version
Model: AC1-ZW

Date: 10/09/07
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
908.4	76.51	H	94	-17.49	Peak	1.25	135	
1816.8	45.91	H	74	-28.09	Peak	1.24	125	
1816.8	43.76	H	54	-10.24	Avg	1.24	125	
2725.2	39.39	H	74	-34.61	Peak	1.71	125	
2725.2	29.75	H	54	-24.25	Avg	1.71	125	
3633.6	39.88	H	74	-34.12	Peak	1.75	125	
3633.6	26.97	H	54	-27.03	Avg	1.75	125	
4542	40.05	H	74	-33.95	Peak	1.75	135	
4542	27.68	H	54	-26.32	Avg	1.75	135	
5450.4	42.65	H	74	-31.35	Peak	1.78	125	
5450.4	29.46	H	54	-24.54	Avg	1.78	125	
6358.8		H	74	-74	Peak			
6358.8		H	54	-54	Avg			
7267.2		H	74	-74	Peak			No Emissions
7267.2		H	54	-54	Avg			Found
8175.6		H	74	-74	Peak			No Emissions
8175.6		H	54	-54	Avg			Found
9084		H	74	-74	Peak			No Emissions
9084		H	54	-54	Avg			Found

FCC 15.249

RS Scene Automation
Zwave Module -- AC Version
Model: AC1-ZW

Date: 10/09/07
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
908.4	78.21	V	94	-15.79	Peak	1	135	
1816.8	42.85	V	74	-31.15	Peak	1.32	225	
1816.8	40.85	V	54	-13.15	Avg	1.32	225	
2725.2	40.54	V	74	-33.46	Peak	1.52	315	
2725.2	27.62	V	54	-26.38	Avg	1.52	315	
3633.6	40.23	V	74	-33.77	Peak	1.53	225	
3633.6	27.04	V	54	-26.96	Avg	1.53	225	
4542	39.45	V	74	-34.55	Peak	1.53	125	
4542	27.71	V	54	-26.29	Avg	1.53	125	
5450.4		V	74	-74	Peak			No Emissions
5450.4		V	54	-54	Avg			Found
6358.8		V	74	-74	Peak			No Emissions
6358.8		V	54	-54	Avg			Found
7267.2		V	74	-74	Peak			No Emissions
7267.2		V	54	-54	Avg			Found
8175.6		V	74	-74	Peak			No Emissions
8175.6		V	54	-54	Avg			Found
9084		V	74	-74	Peak			No Emissions
9084		V	54	-54	Avg			Found

FCC 15.249

RS Scene Automation
Zwave Module -- AC Version
Model: AC1-ZW

Date: 10/09/07
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
908.4	73.36	H	94	-20.64	Peak	1.25	45	
1816.8	44.11	H	74	-29.89	Peak	1.07	125	
1816.8	42.12	H	54	-11.88	Avg	1.07	125	
2725.2	39.37	H	74	-34.63	Peak	1.31	125	
2725.2	25.37	H	54	-28.63	Avg	1.31	125	
3633.6	39.38	H	74	-34.62	Peak	1.35	125	
3633.6	27.13	H	54	-26.87	Avg	1.35	125	
4542	40.22	H	74	-33.78	Peak	1.27	125	
4542	27.76	H	54	-26.24	Avg	1.27	125	
5450.4	42.05	H	74	-31.95	Peak	1.28	125	
5450.4	29.64	H	54	-24.36	Avg	1.28	125	
6358.8		H	74	-74	Peak			
6358.8		H	54	-54	Avg			
7267.2		H	74	-74	Peak			No Emissions
7267.2		H	54	-54	Avg			Found
8175.6		H	74	-74	Peak			No Emissions
8175.6		H	54	-54	Avg			Found
9084		H	74	-74	Peak			No Emissions
9084		H	54	-54	Avg			Found

FCC 15.249

RS Scene Automation
Zwave Module -- AC Version
Model: AC1-ZW

Date: 10/09/07
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
908.4	74.93	V	94	-19.07	Peak	1	90	
1816.8	48.08	V	74	-25.92	Peak	1.33	135	
1816.8	46.26	V	54	-7.74	Avg	1.33	135	
2725.2	40.91	V	74	-33.09	Peak	1.13	125	
2725.2	29.04	V	54	-24.96	Avg	1.13	125	
3633.6	39.15	V	74	-34.85	Peak	1.15	125	
3633.6	27.63	V	54	-26.37	Avg	1.15	125	
4542	39.51	V	74	-34.49	Peak	1.18	125	
4542	27.75	V	54	-26.25	Avg	1.18	125	
5450.4		V	74	-74	Peak			No Emissions
5450.4		V	54	-54	Avg			Found
6358.8		V	74	-74	Peak			No Emissions
6358.8		V	54	-54	Avg			Found
7267.2		V	74	-74	Peak			No Emissions
7267.2		V	54	-54	Avg			Found
8175.6		V	74	-74	Peak			No Emissions
8175.6		V	54	-54	Avg			Found
9084		V	74	-74	Peak			No Emissions
9084		V	54	-54	Avg			Found

FCC 15.249

RS Scene Automation
Zwave Module -- AC Version
Model: AC1-ZW

Date: 10/09/07
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
908.4	77.37	H	94	-16.63	Peak	1.25	135	
1816.8	46.54	H	74	-27.46	Peak	1.65	125	
1816.8	43.01	H	54	-10.99	Avg	1.65	125	
2725.2	41.33	H	74	-32.67	Peak	2.07	125	
2725.2	31.55	H	54	-22.45	Avg	2.07	125	
3633.6	40.11	H	74	-33.89	Peak	1.79	135	
3633.6	27.21	H	54	-26.79	Avg	1.79	135	
4542	40.25	H	74	-33.75	Peak	1.79	125	
4542	27.69	H	54	-26.31	Avg	1.79	125	
5450.4	41.08	H	74	-32.92	Peak	1.79	125	
5450.4	29.41	H	54	-24.59	Avg	1.79	125	
6358.8	41.96	H	74	-32.04	Peak	1.85	135	
6358.8	29.29	H	54	-24.71	Avg	1.85	135	
7267.2		H	74	-74	Peak			No Emissions
7267.2		H	54	-54	Avg			Found
8175.6		H	74	-74	Peak			No Emissions
8175.6		H	54	-54	Avg			Found
9084		H	74	-74	Peak			No Emissions
9084		H	54	-54	Avg			Found

FCC 15.249

RS Scene Automation
Zwave Module -- AC Version
Model: AC1-ZW

Date: 10/09/07
Labs: B and D
Tested By: Kyle Fujimoto

Receive Mode and Digital Portion - 10 kHz to 9300 MHz - Vertical and Horizontal Polarizations
Non-Harmonic Emissions from the Tx - 10 kHz to 9300 MHz - Vertical and Horizontal Polarizations

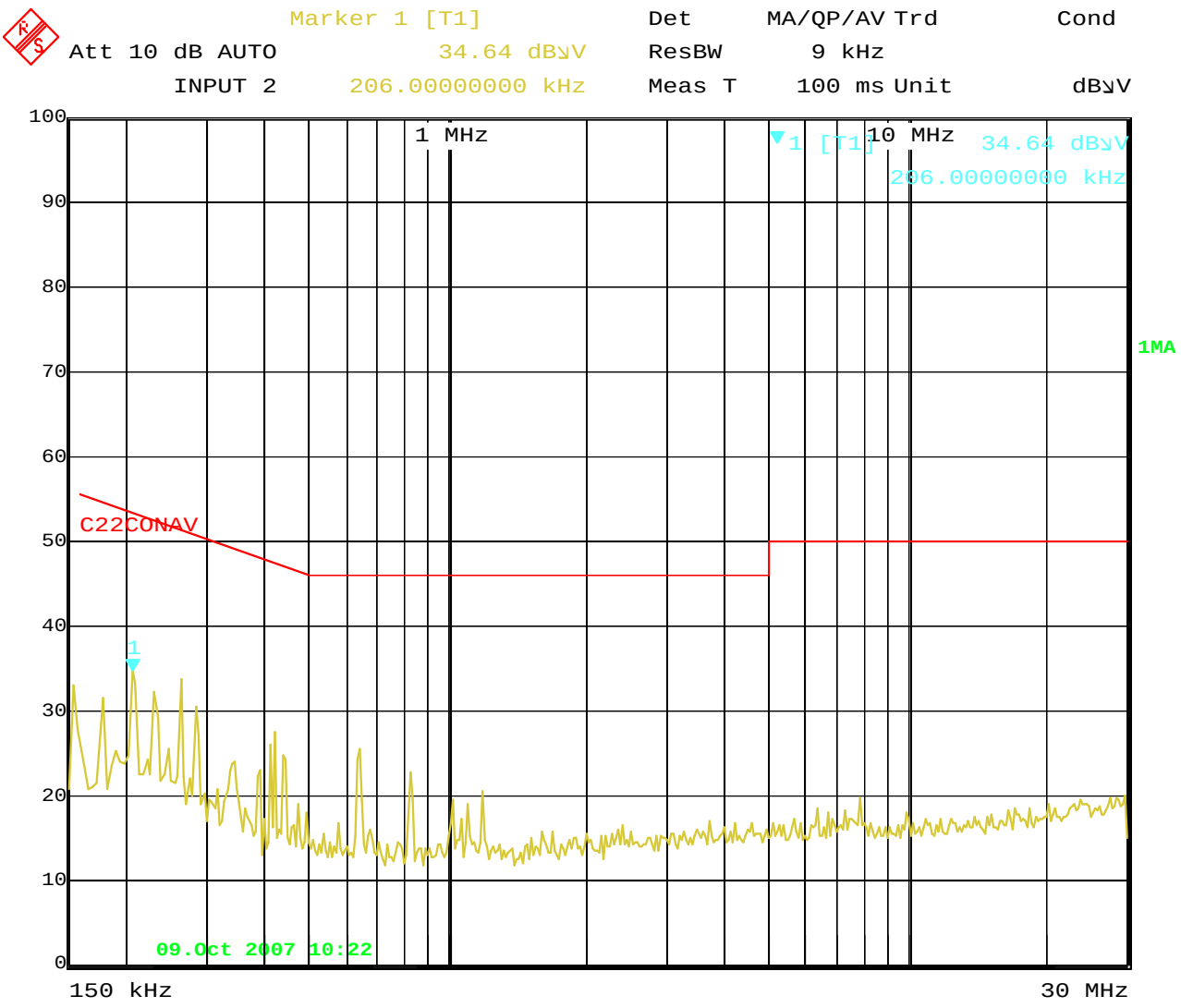
Worse Case Axis: X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions
								found in the Rx Mode
								from 10 kHz to 9300 MHz
								No Emissions Found
								from the Digital
								Portion from 10 kHz
								to 9300 MHz
								No Non-Harmonic
								Emissions from the Tx
								found from 10 kHz
								to 9300 MHz

CONDUCTED EMISSIONS

DATA SHEETS

FCC Conducted Emissions
RS Scene Automation
Zwave Module – AC Version
Model: AC1-ZW – Tx Mode
FCC Class B – Black Lead
Tested By: Kyle Fujimoto



Date: 9.OCT.2007 10:22:07

FCC Conducted Emissions
RS Scene Automation
AC Transceiver
Model: AC1-ZW – Tx Mode
FCC Class B – Black Lead
Tested By: Kyle Fujimoto

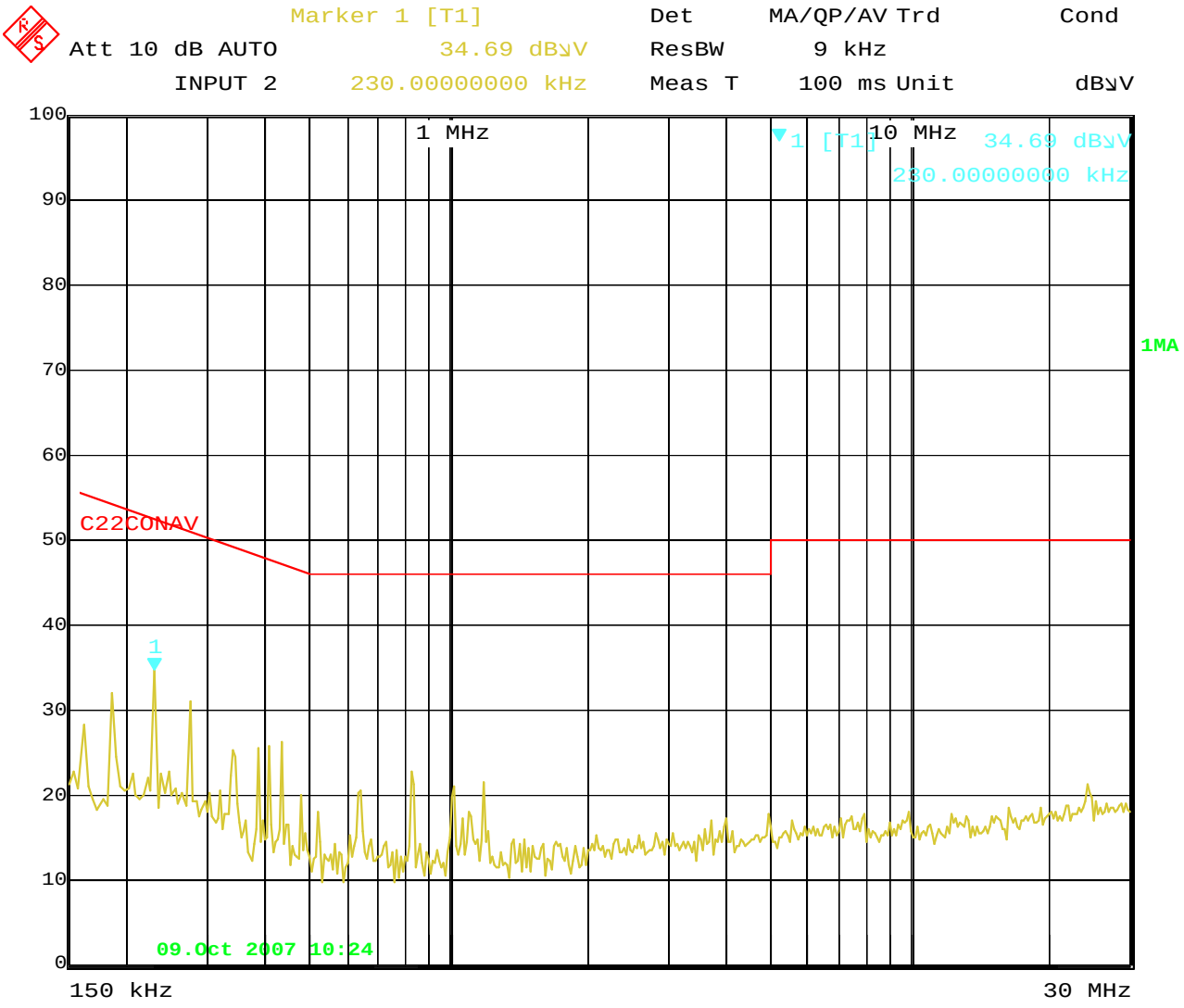
EDIT PEAK LIST (Final Results)

Trace1:	C22CONAV	Trace2:	---
Trace3:	---	Trace4:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	154.0000 kHz	32.94	-22.83
1 Max Peak	178.0000 kHz	31.45	-23.12
1 Max Peak	206.0000 kHz	34.64	-18.72
1 Max Peak	230.0000 kHz	32.20	-20.24
1 Max Peak	262.0000 kHz	33.71	-17.65
1 Max Peak	282.0000 kHz	30.48	-20.26
1 Max Peak	342.0000 kHz	23.90	-25.24
1 Max Peak	390.0000 kHz	22.98	-25.07
1 Max Peak	410.0000 kHz	25.78	-21.86
1 Max Peak	418.0000 kHz	27.33	-20.15
1 Max Peak	438.0000 kHz	24.70	-22.39
1 Max Peak	642.0000 kHz	25.37	-20.62
1 Max Peak	830.0000 kHz	22.57	-23.42
1 Max Peak	1.0220 MHz	19.39	-26.60
1 Max Peak	1.1100 MHz	18.76	-27.23
1 Max Peak	1.1900 MHz	20.31	-25.69
1 Max Peak	2.4140 MHz	16.49	-29.50
1 Max Peak	3.7060 MHz	16.79	-29.20
1 Max Peak	4.6020 MHz	16.68	-29.31
1 Max Peak	4.9740 MHz	15.75	-30.24

Date: 9.OCT.2007 10:22:59

FCC Conducted Emissions
RS Scene Automation
AC Transceiver
Model: AC1-ZW – Tx Mode
FCC Class B – White Lead
Tested By: Kyle Fujimoto



Date: 9.OCT.2007 10:24:10

FCC Conducted Emissions
RS Scene Automation
AC Transceiver
Model: AC1-ZW – Tx Mode
FCC Class B – White Lead
Tested By: Kyle Fujimoto

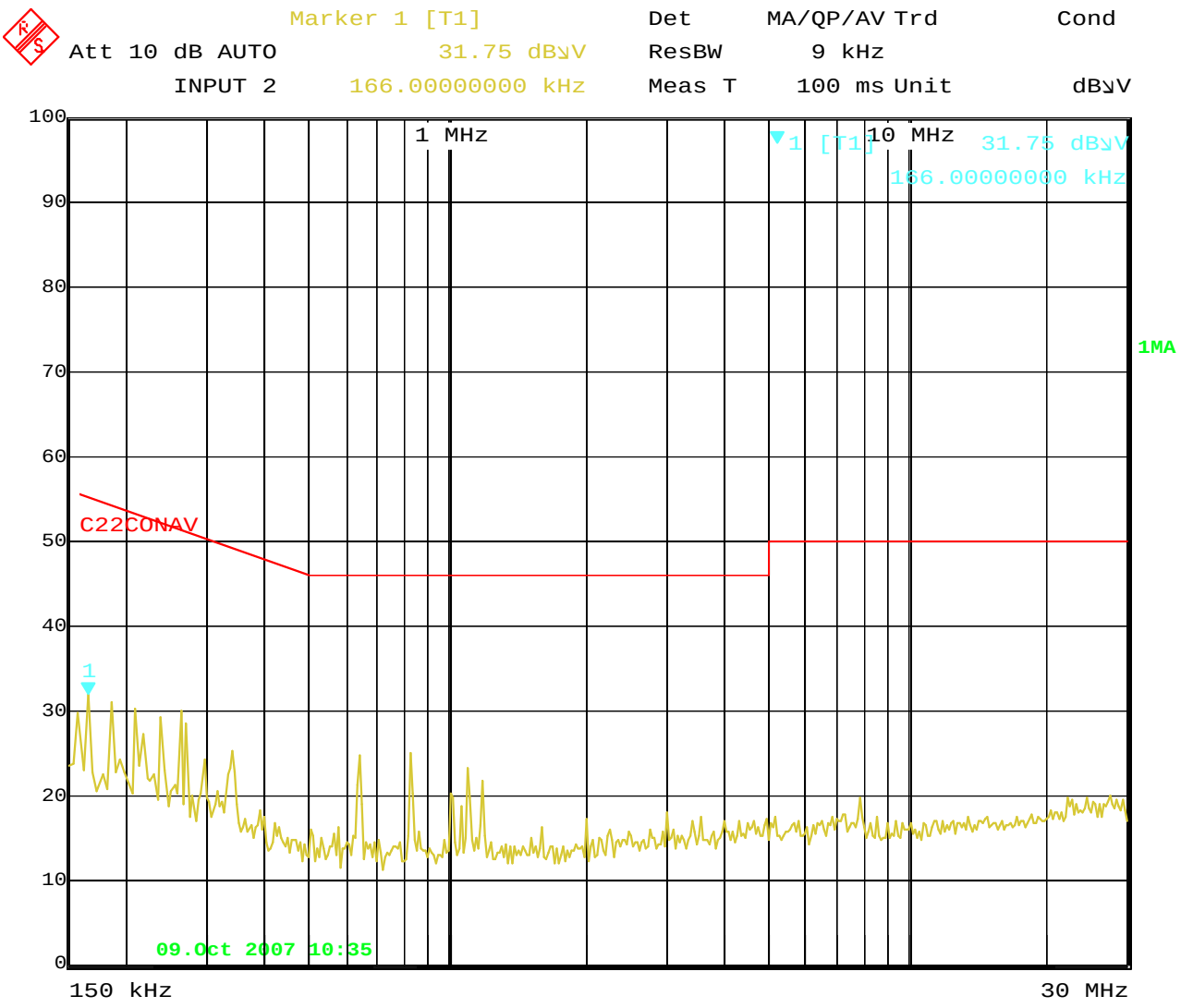
EDIT PEAK LIST (Final Results)

Trace1:	C22CONAV	Trace2:	---
Trace3:	---	Trace4:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	162.0000 kHz	28.14	-27.21
1 Max Peak	186.0000 kHz	31.99	-22.22
1 Max Peak	230.0000 kHz	34.68	-17.76
1 Max Peak	274.0000 kHz	30.78	-20.20
1 Max Peak	338.0000 kHz	25.14	-24.10
1 Max Peak	386.0000 kHz	25.27	-22.87
1 Max Peak	406.0000 kHz	25.53	-22.19
1 Max Peak	430.0000 kHz	26.06	-21.19
1 Max Peak	474.0000 kHz	19.78	-26.65
1 Max Peak	518.0000 kHz	17.85	-28.14
1 Max Peak	642.0000 kHz	20.43	-25.56
1 Max Peak	830.0000 kHz	22.58	-23.41
1 Max Peak	1.0220 MHz	20.82	-25.17
1 Max Peak	1.0700 MHz	17.09	-28.90
1 Max Peak	1.1060 MHz	17.98	-28.01
1 Max Peak	1.1900 MHz	21.37	-24.62
1 Max Peak	3.5860 MHz	15.90	-30.09
1 Max Peak	3.7100 MHz	16.84	-29.15
1 Max Peak	3.9460 MHz	16.05	-29.94
1 Max Peak	4.0220 MHz	17.24	-28.75

Date: 9.OCT.2007 10:25:16

FCC Conducted Emissions
RS Scene Automation
Zwave Module – AC Version
Model: AC1-ZW – Rx Mode
FCC Class B – Black Lead
Tested By: Kyle Fujimoto



Date: 9.OCT.2007 10:35:09

FCC Conducted Emissions
RS Scene Automation
Zwave Module – AC Version
Model: AC1-ZW – Rx Mode
FCC Class B – Black Lead
Tested By: Kyle Fujimoto

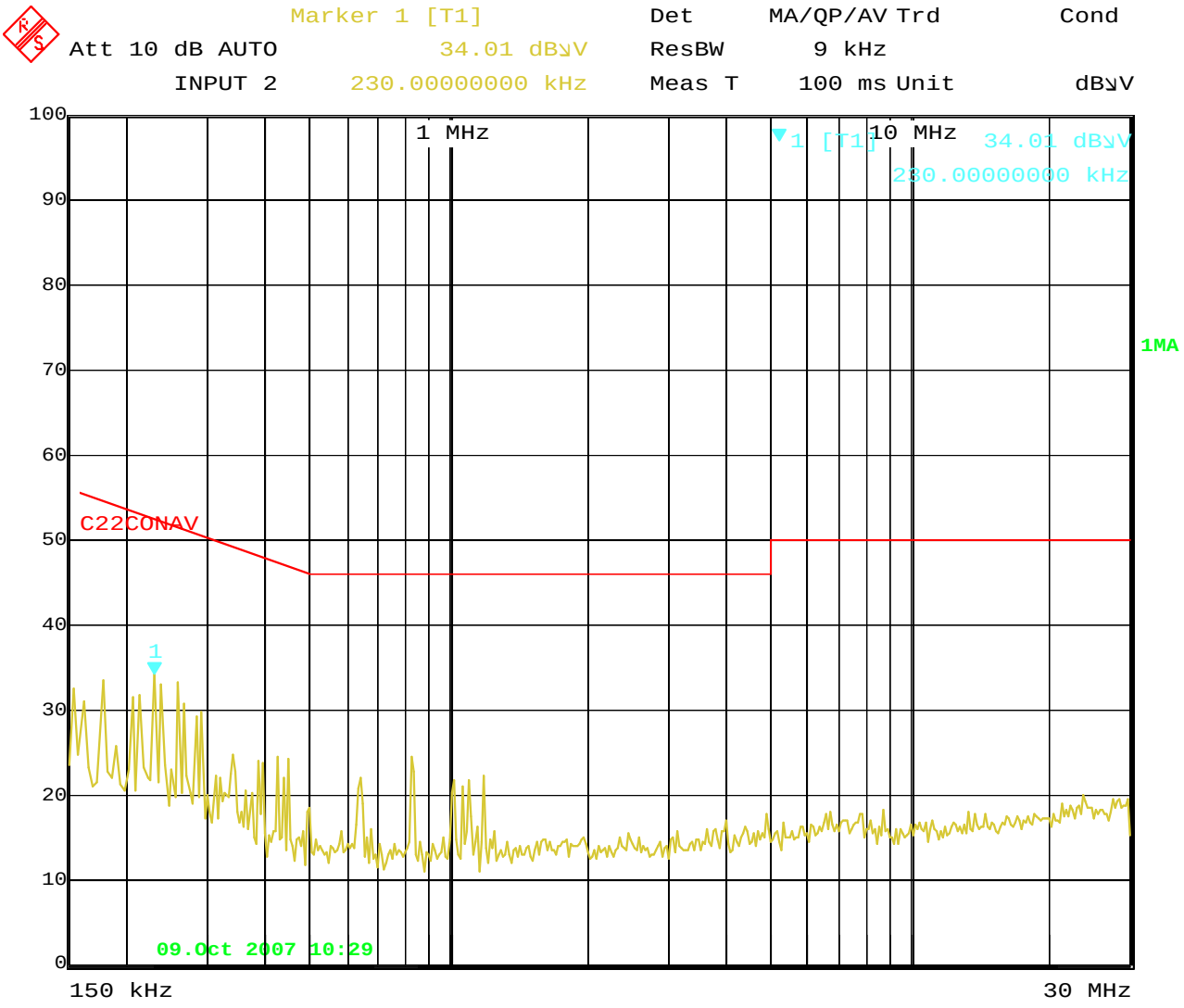
EDIT PEAK LIST (Prescan Results)

Trace1:	C22CONAV	Trace2:	---
Trace3:	---	Trace4:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	158.0000 kHz	29.61	-25.95
1 Max Peak	166.0000 kHz	31.75	-23.40
1 Max Peak	186.0000 kHz	30.89	-23.32
1 Max Peak	210.0000 kHz	30.23	-22.97
1 Max Peak	238.0000 kHz	29.00	-23.16
1 Max Peak	262.0000 kHz	29.86	-21.50
1 Max Peak	270.0000 kHz	28.35	-22.76
1 Max Peak	294.0000 kHz	24.04	-26.37
1 Max Peak	338.0000 kHz	25.11	-24.13
1 Max Peak	642.0000 kHz	24.56	-21.43
1 Max Peak	830.0000 kHz	24.97	-21.02
1 Max Peak	1.0180 MHz	20.03	-25.96
1 Max Peak	1.0700 MHz	18.50	-27.49
1 Max Peak	1.1100 MHz	23.12	-22.87
1 Max Peak	1.1860 MHz	21.64	-24.35
1 Max Peak	1.6020 MHz	16.20	-29.79
1 Max Peak	2.0220 MHz	17.02	-28.98
1 Max Peak	3.0180 MHz	17.95	-28.04
1 Max Peak	3.5660 MHz	17.45	-28.54
1 Max Peak	4.0220 MHz	16.94	-29.06

Date: 9.OCT.2007 10:33:10

FCC Conducted Emissions
RS Scene Automation
Zwave Module – AC Version
Model: AC1-ZW – Rx Mode
FCC Class B – White Lead
Tested By: Kyle Fujimoto



Date: 9.OCT.2007 10:29:29

FCC Conducted Emissions
RS Scene Automation
Zwave Module – AC Version
Model: AC1-ZW – Rx Mode
FCC Class B – White Lead
Tested By: Kyle Fujimoto

EDIT PEAK LIST (Prescan Results)

Trace1:	C22CONAV	Trace2:	---
Trace3:	---	Trace4:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	154.0000 kHz	32.36	-23.41
1 Max Peak	162.0000 kHz	30.81	-24.55
1 Max Peak	178.0000 kHz	33.37	-21.20
1 Max Peak	206.0000 kHz	31.38	-21.98
1 Max Peak	214.0000 kHz	31.53	-21.51
1 Max Peak	230.0000 kHz	34.01	-18.43
1 Max Peak	238.0000 kHz	32.96	-19.19
1 Max Peak	258.0000 kHz	33.09	-18.40
1 Max Peak	266.0000 kHz	30.65	-20.58
1 Max Peak	282.0000 kHz	29.14	-21.61
1 Max Peak	290.0000 kHz	29.74	-20.77
1 Max Peak	338.0000 kHz	24.60	-24.64
1 Max Peak	386.0000 kHz	23.91	-24.23
1 Max Peak	394.0000 kHz	23.65	-24.32
1 Max Peak	422.0000 kHz	24.45	-22.95
1 Max Peak	438.0000 kHz	21.79	-25.30
1 Max Peak	446.0000 kHz	24.04	-22.90
1 Max Peak	498.0000 kHz	18.37	-27.66
1 Max Peak	642.0000 kHz	21.91	-24.08
1 Max Peak	830.0000 kHz	24.30	-21.69

Date: 9.OCT.2007 10:29:55