

*FCC PART 15, SUBPART B
FCC 15.231 TEST REPORT
TEST METHOD: ANSI C63.4: 2009*

For

BOTTOM BAR TRANSMITTER
Model: 5010A

Prepared for

SUPER SEAL MANUFACTURING, LIMITED.
670 ROUNTREE DAIRY ROAD
WOODBRIDGE, ONTARIO L4L 5T8

Prepared by: 

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Approved by: 

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DATE: JULY 21, 2011

REPORT BODY	APPENDICES					TOTAL
	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	
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GENERAL REPORT SUMMARY

This electromagnetic emission 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 in any form except in full, without the written permission of Compatible Electronics.

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

Device Tested: Bottom Bar Transmitter
Model: 5010A
S/N: N/A

Product Description: Please see the expository statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: Super Seal Manufacturing, Limited
670 Rountree Dairy Road
Woodbridge, Ontario L4L 5T8

Test Dates: July 12 and 13, 2011

Test Specifications: Emissions requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231
Test Procedure: ANSI C63.4: 2009.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz.	This test was not performed because the EUT will only operate on DC power only and cannot be plugged into the AC public mains.
2	Radiated RF Emissions, 10 kHz – 4180 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; the limits of CFR Title 47, Part 15 Subpart C, 15.209 and 15.231 Highest Reading in relation to spec. limit: 79.28 dBuV/m @ 418 MHz (*u _c = 3.59 dB)
3	20 dB Bandwidth	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.231

*u_c = Combined Standard Uncertainty

1. PURPOSE

This document is a qualification test report based on the Emissions tests performed on the Bottom Bar Transmitter, Model: 5010A. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4: 2009. 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; and Subpart C, sections 15.205, 15.209, and 15.231.

Note: for the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15 Subpart B.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions 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

Super Seal Manufacturing, Limited.

Ivan Heriban Electrical Engineering Manager

Compatible Electronics Inc.

Kyle Fujimoto Test Engineer
James Ross Test Engineer

2.4 Date Test Sample was Received

The test sample was received on July 12, 2011.

2.5 Disposition of the Test Sample

The test sample has not been returned to Super Seal Manufacturing, Limited. as of July 21, 2011.

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 test report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – (Emissions)

The Bottom Bar Transmitter, Model: 5010A (EUT) was connected to a super seal door simulator via its BNC connector. The EUT was tested in three orthogonal axis.

The EUT was put in a special test mode for continuously transmitting during the test. The EUT shuts off within 1 second during normal operation when activated by a sensor attached to the door simulator.

The highest emissions were found when the EUT was running in the above configuration. The cables were moved to maximize the emissions. The final radiated data was taken in this mode of operation. All initial investigations were performed with the spectrum analyzer in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the photographs in Appendix D.

4.1.1 Photograph of Test Configuration – (Emissions)



4.1.2 Cable Construction and Termination

Cable 1

This is a 20-centimeter foil shielded cable connecting the super seal door simulator to the BNC port of the EUT. The shield of the cable is grounded to the chassis via the connectors.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

#	EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID
1	BOTTOM BAR TRANSMITTER (EUT)	SUPER SEAL MANUFACTURING, LIMITED.	5010A	N/A	ZRZ-5010A
2	SUPER SEAL DOOR SIMULATOR	SUPER SEAL MANUFACTURING, LIMITED	N/A	N/A	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	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
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	May 27, 2011	May 27, 2012
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 27, 2011	May 27, 2012
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 27, 2011	May 27, 2012
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2010	November 19, 2012
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Radiated Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
CombiLog Antenna	Com Power	AC-220	61027	June 9, 2011	June 9, 2012
Preamplifier	Com-Power	PA-103	1582	January 11, 2011	January 11, 2012
Microwave Preamplifier	Com-Power	PA-118	181656	December 22, 2010	December 22, 2011
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Antenna Mast	Com-Power	AM-100	N/A	N/A	N/A

6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

Please refer to section 2.1 and 7.1.2 of this report for 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 not grounded.

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 spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. 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 spectrum analyzer offset was adjusted accordingly to read the actual data measured. The LISN output was read by the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for the conducted emissions 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 ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The initial test data was taken in manual mode while scanning the frequency ranges of 0.15 MHz to 1.6 MHz, 1.6 MHz to 5 MHz, and 5 MHz to 30 MHz. The conducted emissions from the EUT were maximized for operating mode as well as cable placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the spectrum analyzer span adjusted to 1 MHz.

The final data was collected under program control by the computer in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave.

Test Results:

This test was not performed because the EUT will only operate on battery power only and cannot be plugged into the AC public mains.

7.1.2 Radiated Emissions Test

The spectrum analyzer and EMI Receiver were 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-103 was used for frequencies from 30 MHz to 1 GHz, the Com Power Microwave Preamplifier Model: PA-118 was used for frequencies above 1 GHz. The spectrum analyzer and EMI Receiver were 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 quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The frequencies for the fundamental and harmonics were adjusted by a "duty cycle correction factor", derived from $20 \log (\text{dwell time} / 100 \text{ ms})$.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 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 4.18 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: 2009. 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 by the Radiated Emission Manual Test software. 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.

Radiated Emissions 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 10-meter test distance from 10 kHz to 30 MHz, and at a 3 meter test distance from 30 MHz to 4.18 GHz to obtain the final test data.

Test Results:

The EUT 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, Sections 15.209 and 15.231 for radiated emissions. Please see Appendix E for the data sheets

7.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
BOTTOM BAR TRANSMITTER Model: 5010A

Frequency MHz	Corrected Reading* dBuV/m	Spec. Limit dBuV/m	Delta dB
418.00 (X-Axis) (Horizontal)	79.28 (A)	80.28	-1.00
418.00 (Z-Axis) (Horizontal)	78.28 (A)	80.28	-2.00
418.00 (Y-Axis) (Vertical)	75.18 (A)	80.28	-5.10
418.00 (Y-Axis) (Horizontal)	72.58 (A)	80.28	-7.70
418.00 (Z-Axis) (Vertical)	69.98 (A)	80.28	-10.30
418.00 (X-Axis) (Vertical)	68.88 (A)	80.28	-11.40

Notes:

* The complete emissions data is given in Appendix E of this report.

Quasi-Peak Reading

A Average Reading

7.2**20 dB Bandwidth**

The 20 dB Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.231 (c). The 20 dB bandwidth is less than 0.25% of the fundamental. Please see the data sheet located in Appendix D.

8. DEVIATIONS FROM THE TEST PROCEDURES

There were no deviations from the test procedures.

9. CONCLUSIONS

The Bottom Bar Transmitter, Model: 5010A, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.231.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

APPENDIX A***LABORATORY ACCREDITATIONS AND RECOGNITIONS***

LABORATORY ACCREDITATIONS AND RECOGNITIONS



NVLAP LAB CODES 200063-0,
200528-0, 200527-0

For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

NVLAP listing links

Agoura Division - <http://ts.nist.gov/Standards/scopes/2000630.htm>

Brea Division - <http://ts.nist.gov/Standards/scopes/2005280.htm>

Silverado/Lake Forest Division - <http://ts.nist.gov/Standards/scopes/2005270.htm>



ANSI listing

[CETCB](#)

<https://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4>



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

We are also certified/listed for IT products by the following country/agency:



VCCI Listing, from VCCI site

[Enter "Compatible" in search form](#) http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html



FCC Listing, from FCC OET site

[FCC test lab search](#) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>



Compatible Electronics IC listing can be found at:

<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

APPENDIX B***MODIFICATIONS TO THE EUT***

MODIFICATIONS TO THE EUT

There were no modifications made to the EUT during the test.

APPENDIX C***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Bottom Bar Transmitter
Model: 5010A
S/N: N/A

There were no additional models covered under this report.

APPENDIX D***DIAGRAMS, CHARTS AND PHOTOS***

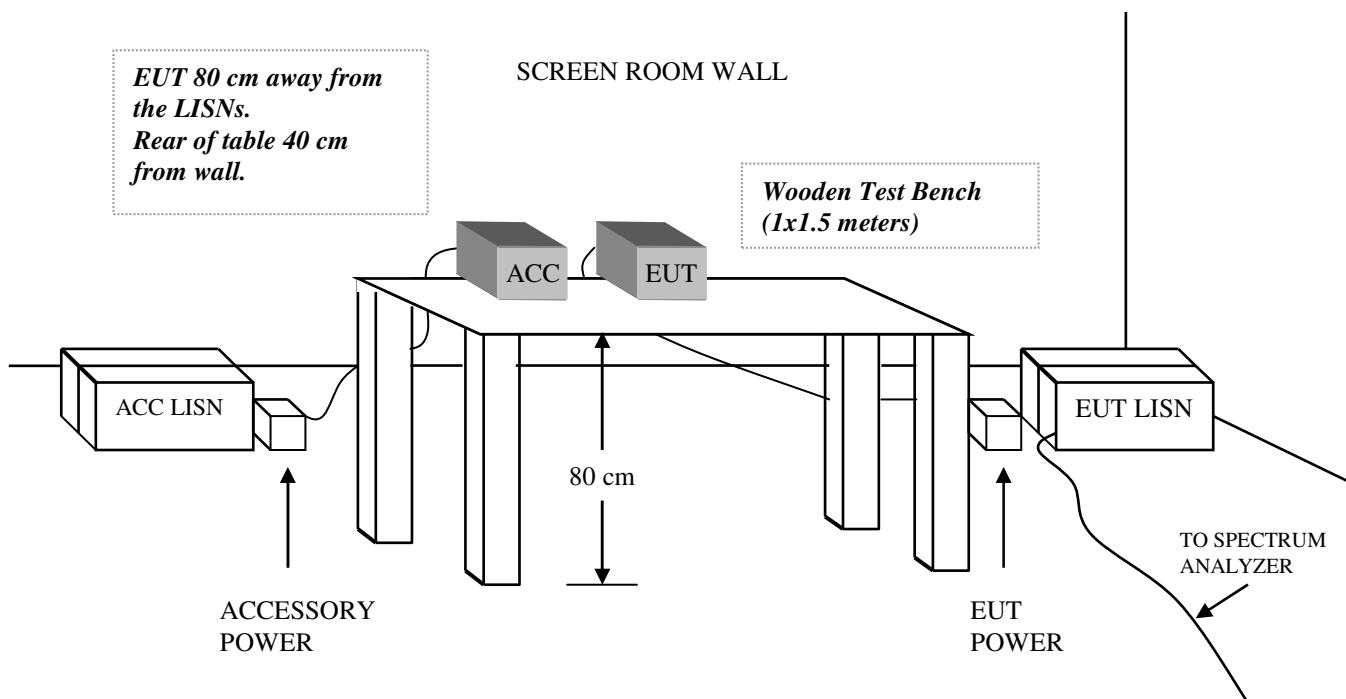
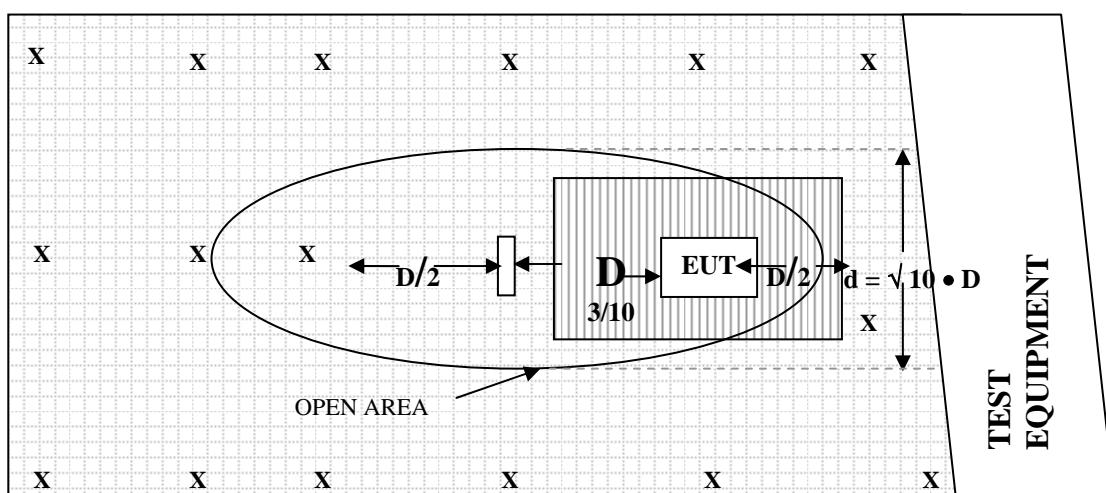
FIGURE 1: CONDUCTED EMISSIONS TEST SETUP


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

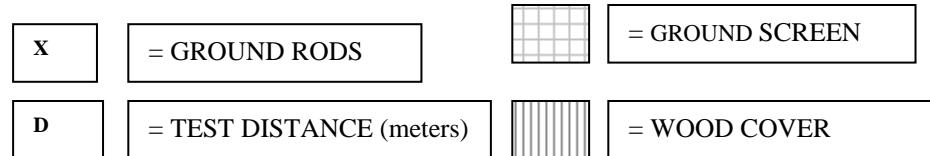
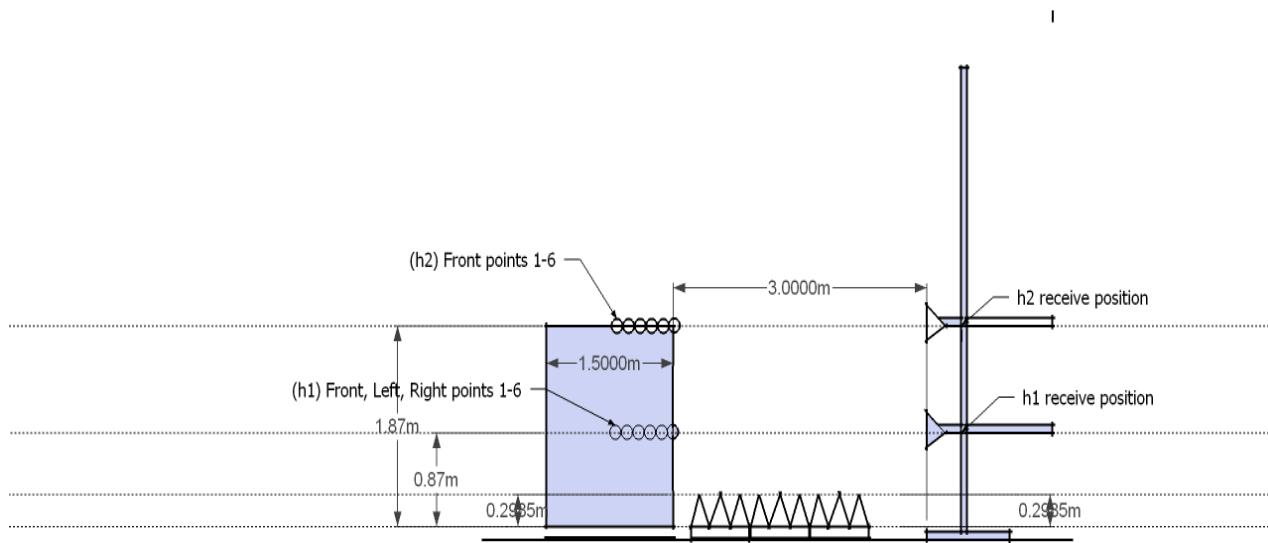


FIGURE 3: HIGH FREQUENCY TEST VOLUME

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61027

CALIBRATION DATE: JUNE 9, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	16.7	160	9.0
35	17.4	180	9.3
40	18.3	200	9.3
45	17.2	250	11.6
50	17.2	300	13.0
60	13.7	400	16.9
70	8.6	500	17.2
80	6.2	600	19.0
90	7.2	700	18.9
100	9.0	800	21.8
120	10.1	900	22.0
140	10.2	1000	21.8

COM-POWER PA-103**PREAMPLIFIER****S/N: 1582****CALIBRATION DATE: JANUARY 11, 2011**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	33.0	300	32.4
40	33.0	350	32.4
50	32.9	400	32.3
60	32.9	450	32.3
70	32.9	500	32.2
80	32.9	550	32.2
90	32.9	600	32.2
100	32.9	650	32.0
125	32.9	700	32.3
150	32.8	750	31.9
175	32.8	800	32.2
200	32.7	850	32.0
225	32.7	900	32.0
250	32.7	950	32.0
275	32.7	1000	31.5

COM-POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: MARCH 18, 2010

FREQUENCY (MHz)	FACTOR (dB)
1000	22.2
1500	24.2
2000	27.2
2500	27.8
3000	30.5
3500	30.9
4000	31.9
4500	33.2
5000	33.6
5500	36.2
6000	35.8

COM-POWER PA-118**PREAMPLIFIER****S/N: 181656****CALIBRATION DATE: DECEMBER 22, 2010**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	25.69	9500	25.42
1000	24.90	10000	26.07
1500	26.50	10500	24.97
2000	26.79	11000	24.79
2500	26.90	11500	24.33
3000	27.03	12000	24.24
3500	26.94	12500	24.92
4000	27.18	13000	24.52
4500	26.79	13500	24.33
5000	26.25	14000	24.56
5500	26.16	14500	24.99
6000	25.52	15000	26.06
6500	25.29	15500	26.87
7000	24.45	16000	25.95
7500	24.18	16500	24.69
8000	24.02	17000	24.20
8500	24.54	17500	25.12
9000	24.91	18000	26.03

**FRONT VIEW**

SUPER SEAL MANUFACTURING, LIMITED
BOTTOM BAR TRANSMITTER
Model: 5010A
RADIATED EMISSIONS – 07/12/2011

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

**REAR VIEW**

SUPER SEAL MANUFACTURING, LIMITED
BOTTOM BAR TRANSMITTER
Model: 5010A
RADIATED EMISSIONS – 07/12/2011

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

APPENDIX E***DATA SHEETS***

RADIATED EMISSION***DATA SHEETS***

FCC 15.231

Super Seal Manufacturing, Limited

Bottom Bar Transmitter

Model: 5010A

Date: 07/12/2011

Labs: A and B

Tested By: Kyle Fujimoto

X-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
418	76.57	V	100.28	-23.71	Peak	1.25	155	
418	68.88	V	80.28	-11.4	Avg	1.25	155	
836	32.24	V	80.28	-48.04	Peak	1	135	
836	24.55	V	60.28	-35.73	Avg	1	135	
1254	29.71	V	74	-44.29	Peak	1.55	165	
1254	22.02	V	54	-31.98	Avg	1.55	165	
1672	34.54	V	74	-39.46	Peak	1.25	175	
1672	26.85	V	54	-27.15	Avg	1.25	175	
2090	39.75	V	80.28	-40.53	Peak	1.35	185	
2090	32.06	V	60.28	-28.22	Avg	1.35	185	
2508	39.18	V	80.28	-41.1	Peak	1.25	175	
2508	31.49	V	60.28	-28.79	Avg	1.25	175	
2926	42.78	V	80.28	-37.5	Peak	1.35	185	
2926	35.09	V	60.28	-25.19	Avg	1.35	185	
3344	40.16	V	80.28	-40.12	Peak	1.25	195	
3344	32.47	V	60.28	-27.81	Avg	1.25	195	
3762	39.94	V	74	-34.06	Peak	1.55	215	
3762	32.25	V	54	-21.75	Avg	1.55	215	
4180	41.94	V	74	-32.06	Peak	1.25	135	
4180	34.25	V	54	-19.75	Avg	1.25	135	

FCC 15.231

Super Seal Manufacturing, Limited

Bottom Bar Transmitter

Model: 5010A

Date: 07/12/2011

Labs: A and B

Tested By: Kyle Fujimoto

X-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
418	86.97	H	100.28	-13.31	Peak	1	125	
418	79.28	H	80.28	-1	Avg	1	125	
836	42.94	H	80.28	-37.34	Peak	1	125	
836	35.25	H	60.28	-25.03	Avg	1	125	
1254	30.41	H	74	-43.59	Peak	1.25	155	
1254	22.72	H	54	-31.28	Avg	1.25	155	
1672	35.91	H	74	-38.09	Peak	1.25	155	
1672	28.22	H	54	-25.78	Avg	1.25	155	
2090	44.21	H	80.28	-36.07	Peak	1.35	165	
2090	36.52	H	60.28	-23.76	Avg	1.35	165	
2508	38.38	H	80.28	-41.9	Peak	1.25	175	
2508	30.69	H	60.28	-29.59	Avg	1.25	175	
2926	43.23	H	80.28	-37.05	Peak	1.35	180	
2926	35.54	H	60.28	-24.74	Avg	1.35	180	
3344	40.72	H	80.28	-39.56	Peak	1.55	175	
3344	33.03	H	60.28	-27.25	Avg	1.55	175	
3762	40.69	H	74	-33.31	Peak	1.25	185	
3762	33	H	54	-21	Avg	1.25	185	
4180	41.25	H	74	-32.75	Peak	1.25	175	
4180	33.56	H	54	-20.44	Avg	1.25	175	

FCC 15.231

Super Seal Manufacturing, Limited

Bottom Bar Transmitter

Model: 5010A

Date: 07/12/2011

Labs: A and B

Tested By: Kyle Fujimoto

Y-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
418	82.87	V	100.28	-17.41	Peak	1	150	
418	75.18	V	80.28	-5.1	Avg	1	150	
836	50.27	V	80.28	-30.01	Peak	1	180	
836	42.58	V	60.28	-17.70	Avg	1	180	
1254	31.58	V	74	-42.42	Peak	1.25	175	
1254	23.89	V	54	-30.11	Avg	1.25	175	
1672	35.04	V	74	-38.96	Peak	1.35	185	
1672	27.35	V	54	-26.65	Avg	1.35	185	
2090	39.54	V	80.28	-40.74	Peak	1.25	135	
2090	31.85	V	60.28	-28.43	Avg	1.25	135	
2508	37.43	V	80.28	-42.85	Peak	1.35	185	
2508	29.74	V	60.28	-30.54	Avg	1.35	185	
2926	42.14	V	80.28	-38.14	Peak	1.25	175	
2926	34.45	V	60.28	-25.83	Avg	1.25	175	
3344	40.89	V	80.28	-39.39	Peak	1.35	185	
3344	33.2	V	60.28	-27.08	Avg	1.35	185	
3762	39.27	V	74	-34.73	Peak	1.25	175	
3762	31.58	V	54	-22.42	Avg	1.25	175	
4180	39.59	V	74	-34.41	Peak	1.35	185	
4180	31.9	V	54	-22.1	Avg	1.35	185	

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Super Seal Manufacturing, Limited

Bottom Bar Transmitter

Model: 5010A

Date: 07/12/2011

Labs: A and B

Tested By: Kyle Fujimoto

Y-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
418	80.27	H	100.28	-20.01	Peak	1.25	135	
418	72.58	H	80.28	-7.7	Avg	1.25	135	
836	42.44	H	80.28	-37.84	Peak	1.35	155	
836	34.75	H	60.28	-25.53	Avg	1.35	155	
1254	32.37	H	74	-41.63	Peak	1.25	175	
1254	24.68	H	54	-29.32	Avg	1.25	175	
1672	34.28	H	74	-39.72	Peak	1.55	185	
1672	26.59	H	54	-27.41	Avg	1.55	185	
2090	45.31	H	80.28	-34.97	Peak	1.25	175	
2090	37.62	H	60.28	-22.66	Avg	1.25	175	
2508	39.88	H	80.28	-40.4	Peak	1.35	185	
2508	32.19	H	60.28	-28.09	Avg	1.35	185	
2926	42.06	H	80.28	-38.22	Peak	1.25	175	
2926	34.37	H	60.28	-25.91	Avg	1.25	175	
3344	42.29	H	80.28	-37.99	Peak	1.25	155	
3344	34.6	H	60.28	-25.68	Avg	1.25	155	
3762	40.94	H	74	-33.06	Peak	1.35	165	
3762	33.25	H	54	-20.75	Avg	1.35	165	
4180	38.61	H	74	-35.39	Peak	1.25	175	
4180	30.92	H	54	-23.08	Avg	1.25	175	

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Super Seal Manufacturing, Limited

Bottom Bar Transmitter

Model: 5010A

Date: 07/12/2011

Labs: A and B

Tested By: Kyle Fujimoto

Z-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
418	77.67	V	100.28	-22.61	Peak	1.25	135	
418	69.98	V	80.28	-10.3	Avg	1.25	135	
836	41.77	V	80.28	-38.51	Peak	1	150	
836	34.08	V	60.28	-26.2	Avg	1	150	
1254	30.22	V	74	-43.78	Peak	1.25	135	
1254	22.53	V	54	-31.47	Avg	1.25	135	
1672	35.19	V	74	-38.81	Peak	1.25	145	
1672	27.5	V	54	-26.5	Avg	1.25	145	
2090	44.32	V	80.28	-35.96	Peak	1.25	165	
2090	36.63	V	60.28	-23.65	Avg	1.25	165	
2508	39.59	V	80.28	-40.69	Peak	1.35	175	
2508	31.9	V	60.28	-28.38	Avg	1.35	175	
2926	41.61	V	80.28	-38.67	Peak	1.25	185	
2926	33.92	V	60.28	-26.36	Avg	1.25	185	
3344	40.08	V	80.28	-40.2	Peak	1.35	195	
3344	32.39	V	60.28	-27.89	Avg	1.35	195	
3762	40.25	V	74	-33.75	Peak	1.25	175	
3762	32.56	V	54	-21.44	Avg	1.25	175	
4180	40.05	V	74	-33.95	Peak	1.35	185	
4180	32.36	V	54	-21.64	Avg	1.35	185	

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Super Seal Manufacturing, Limited

Bottom Bar Transmitter

Model: 5010A

Date: 07/12/2011

Labs: A and B

Tested By: Kyle Fujimoto

Z-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
418	85.97	H	100.28	-14.31	Peak	1.25	135	
418	78.28	H	80.28	-2	Avg	1.25	135	
836	48.34	H	80.28	-31.94	Peak	1.25	135	
836	40.65	H	60.28	-19.63	Avg	1.25	135	
1254	30.86	H	74	-43.14	Peak	1.35	145	
1254	23.17	H	54	-30.83	Avg	1.35	145	
1672	35.84	H	74	-38.16	Peak	1.25	165	
1672	28.15	H	54	-25.85	Avg	1.25	165	
2090	40.37	H	80.28	-39.91	Peak	1.35	175	
2090	32.68	H	60.28	-27.6	Avg	1.35	175	
2508	39.21	H	80.28	-41.07	Peak	1.25	185	
2508	31.52	H	60.28	-28.76	Avg	1.25	185	
2926	39.82	H	80.28	-40.46	Peak	1.25	175	
2926	32.13	H	60.28	-28.15	Avg	1.25	175	
3344	41.61	H	80.28	-38.67	Peak	1.25	135	
3344	33.92	H	60.28	-26.36	Avg	1.25	135	
3762	39.22	H	74	-34.78	Peak	1.25	155	
3762	31.53	H	54	-22.47	Avg	1.25	155	
4180	41.74	H	74	-32.26	Peak	1.35	165	
4180	34.05	H	54	-19.95	Avg	1.35	165	

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Super Seal Manufacturing, Limited
Bottom Bar Transmitter
Model: 5010A

Date: 07/12/2011
Labs: A and B
Tested By: Kyle Fujimoto

Digital Portion and Non-Harmonic Emissions from the EUT - 30 MHz to 4180 MHz Vertical and Horizontal Polarizations

FCC 15.231

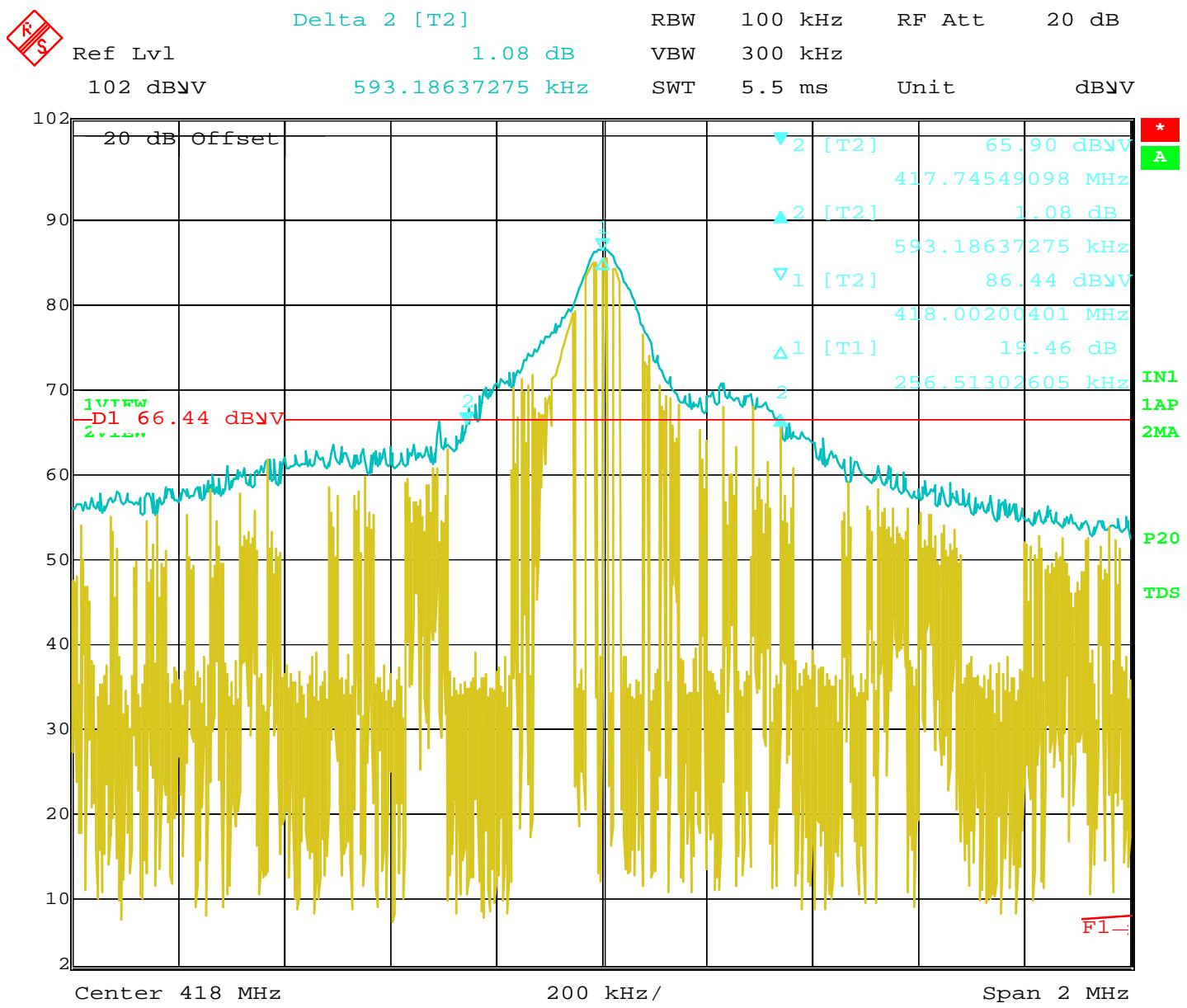
Super Seal Manufacturing, Limited
Bottom Bar Transmitter
Model: 5010A

Date: 07/13/2011
Lab: A
Tested By: James Ross

Digital Portion and Non-Harmonic Emissions from the EUT - 10 kHz to 30 MHz Vertical and Horizontal Polarizations

-20 dB BANDWIDTH

DATA SHEET



Date: 12.JUL.2011 16:10:48

-20 dB Bandwidth of the Fundamental