

Honeywell International Inc.

ADDENDUM TO TEST REPORT 95223-6

AESU Processor
Model: ISP-80C
Part Number: 965-1694-002

Tested To The Following Standards:

FCC Part 87

Report No.: 95223-6A

Date of issue: March 20, 2014



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:

Honeywell International Inc.
15001 NE 36th Street, M/S-Qual Lab
Redmond, WA 98052

Representative: Brian McAdams
Customer Reference Number: 6400231228

DATE OF EQUIPMENT RECEIPT:**DATE(S) OF TESTING:****REPORT PREPARED BY:**

Morgan Tramontin
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 95223

February 25, 2014

February 25-28, 2014

Revision History

Original: Testing of AESS Processor, 965-1694-002 to FCC Part 87.

Addendum A: To correct specification limit on all data from 47 CFR 87.139(h) to 47 CFR 87.139(a) in Spurious Emissions sections. Insert corrected test data in Radiated Spurious Emissions section.

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.
22116 23rd Drive S.E., Suite A
Bothell, WA 98021-4413

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14
Immunity	5.00.07

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Bothell	US0081	SL2-IN-E-1145R	3082C-1	318736	A-0148

SUMMARY OF RESULTS

Standard / Specification: FCC Part(s) 2 / 87

Test Procedure/Method	Description	Results
2.1046 / 87.131 / TIA / EIA 603-C	RF Power Output	Pass
2.1047	Modulation Characteristics	NA
2.1049 / 87.135 / TIA / EIA 603-C	Occupied Bandwidth	Pass
2.1051	Spurious Emissions at Antenna Terminals	Pass
2.1053 / 87.139 / TIA / EIA 603-C	Field Strength of Spurious Radiation	Pass
2.1055 / 87.133 / TIA / EIA 603-C	Frequency Stability	Pass

NA = Not applicable. See the section in the report for the reason.

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)

EQUIPMENT UNDER TEST

AESU Processor

Manuf: Honeywell International Inc.

Model: ISP-80C

Part Number: 965-1694-002

Serial: ISPA-000146

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

TCAS Antenna Simulator

Manuf: Honeywell

Model: 727-0016-001

Serial: 0068

TCAS Antenna Simulator

Manuf: Honeywell

Model: 727-0016-001

Serial: 0081

AESU EMI Harness

Manuf: Honeywell

Model: 014-1089-004 REV

Serial: None

AESS Engineering Test Station

Manuf: Honeywell

Model: 951-0404-013

Serial: 218

FCC PART(S) 2 / 87

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) requirements for 47 CFR Part 2: Frequency Allocations and Radio Treaty Matters, General Rules and Regulations and Licensed Device falling under Part 87: Aviation Services.

2.1046 / 87.131 RF Power Output

Test Conditions

The input of the directional coupler is directly attached to each antenna port and the output to the simulated antenna loads. The forward power will be measured through the forward power port attenuator and cables.

Temperature: 22°C

Pressure: 104.0kPa

Humidity: 35%

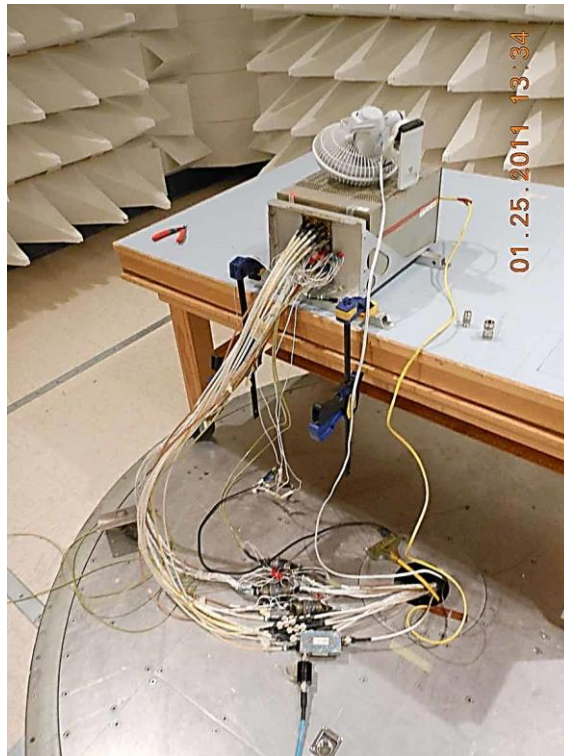
Engineer Name: Steven Pittsford

Test Equipment					
Asset #	Description	Model	Manufacturer	Cal Date	Cal Due
02872	Spectrum Analyzer	E4440A	Agilent	7/19/2013	7/19/2015
P01906	Directional Coupler	3002-30	Narda	6/18/2013	6/18/2015
P06505	Cable	32026-29080- 29080-84	Astrolab	10/18/2013	10/18/2015
P05547	Cable	Heliac	Andrews	9/7/2012	9/7/2014
P06217	Attenuator	768-10	Narda	3/31/2013	3/31/2015

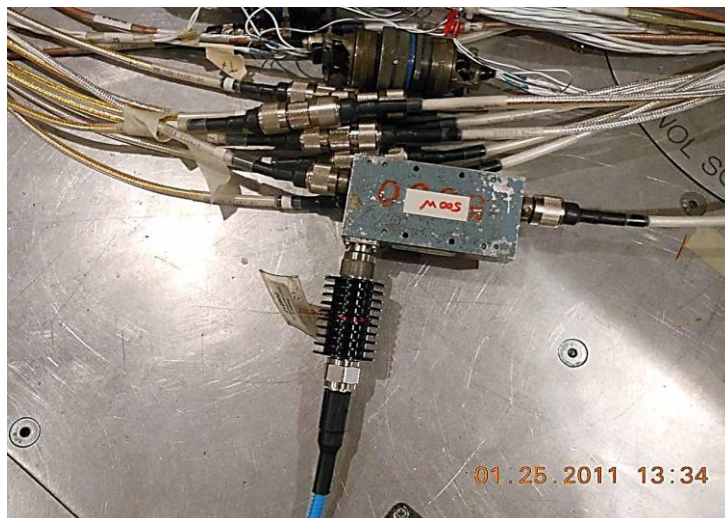
Test Data

Frequency (MHz)	Antenna Port	Mode	Spectrum Analyzer measurement (dBm)	Loss due to Cables & Attenuators	Corrected Peak Power (dBm)	Peak Power (Watts)
1030	1	S	6.4	41.6	48.0	63.1
		C	4.8	43.2	48.0	63.1
1090	1	S	3.2	43.0	46.2	41.7
		C	3.8	43.0	46.8	47.9
1030	2	S	5.2	41.6	46.8	47.9
		C	4.7	43.2	47.9	61.7
1090	2	S	3.8	43.0	46.8	47.9
		C	4.9	43.0	47.9	61.7
1030	3	S	5.5	41.6	47.1	51.3
		C	5.0	43.2	48.2	66.1
1090	3	S	3.0	43.0	46	39.8
		C	4.1	43.0	47.2	52.5
1030	4	S	5.7	41.6	47.3	53.7
		C	3.7	43.2	46.9	49.0
1090	4	S	2.6	43.0	45.6	36.3
		C	3.8	43.0	46.8	47.9
1030	TOTAL	S			53.3	216.0
	TOTAL	C			53.8	239.9
1090	TOTAL	S			52.2	165.7
	TOTAL	C			53.2	210.0

Test Setup Photo(s)



Overall Test Setup



Test Setup Close

Note: These photos were taken on 2/25/2014.

2.1047 Modulation Characteristics

Test Engineer:	Steven Pittsford	Test Procedure:	2.1047
Test Level:	NA		
Declarations:	Not applicable because the EUT does not employ modulation characteristics.		

2.1049 /87.135 Occupied Bandwidth

Test Conditions

Occupied Bandwidth: < 20 MHz for 99% of transmitted power.

The input of the directional coupler is directly attached to each antenna port and the output to the simulated antenna loads. The forward power will be measured through the forward power port attenuator and cables.

Temperature: 22°C

Pressure: 104.0kPa

Humidity: 35%

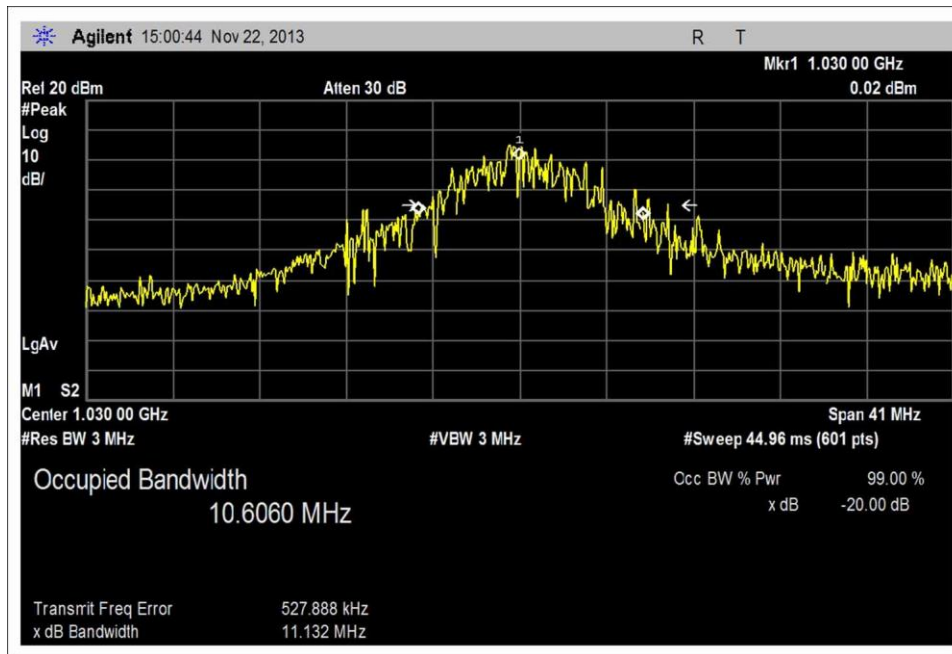
Engineer Name: Steven Pittsford

Test Equipment					
Asset #	Description	Model	Manufacturer	Cal Date	Cal Due
02872	Spectrum Analyzer	E4440A	Agilent	7/19/2013	7/19/2015
P01906	Directional Coupler	3002-30	Narda	6/18/2013	6/18/2015
P06505	Cable	32026-29080-29080-84	Astrolab	10/18/2013	10/18/2015
P05547	Cable	Helix	Andrews	9/7/2012	9/7/2014
P06217	Attenuator	768-10	Narda	3/31/2013	3/31/2015

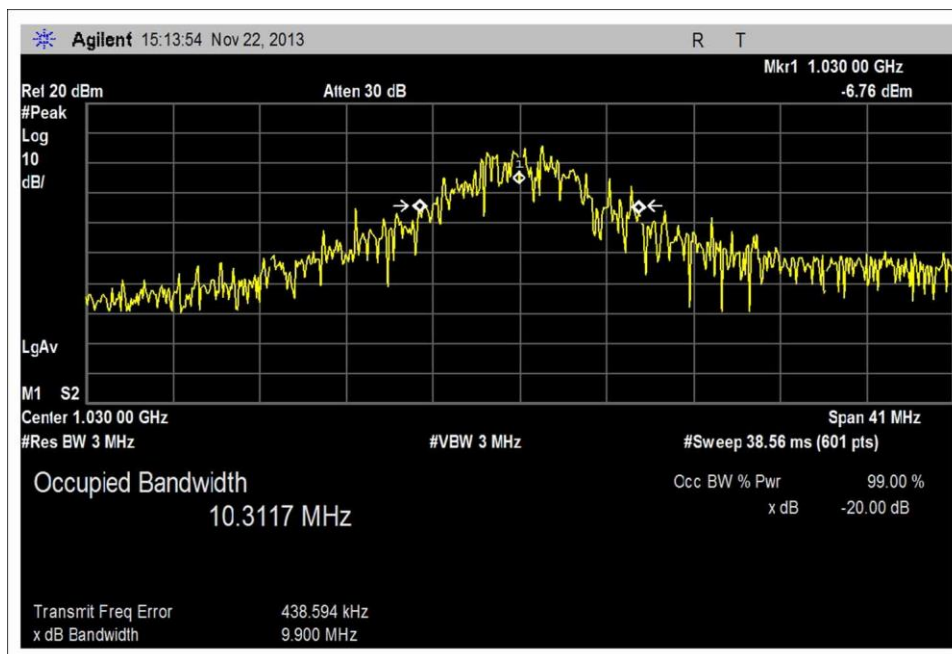
Test Data

Frequency (MHz)	Antenna Port	Mode	OBW (MHz)
1030	1	S	14.3748
		C	10.6060
1090	1	S	10.1540
		C	10.3408
1030	2	S	15.0963
		C	10.3117
1090	2	S	11.3667
		C	11.4246
1030	3	S	14.9704
		C	11.7257
1090	3	S	11.1525
		C	11.1804
1030	4	S	16.0229
		C	11.1022
1090	4	S	10.6001
		C	10.5802

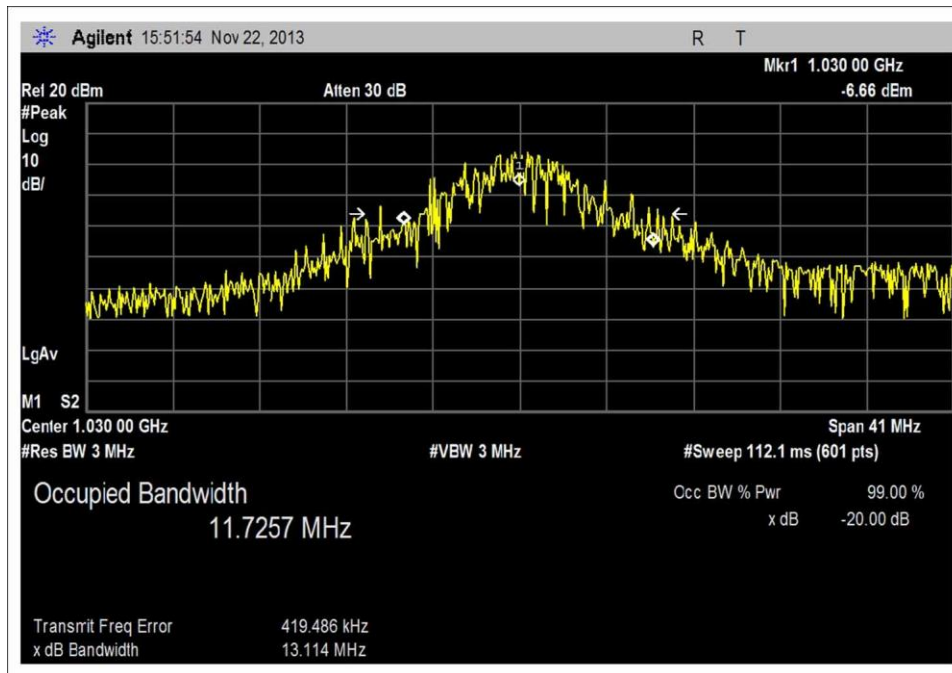
Test Plots



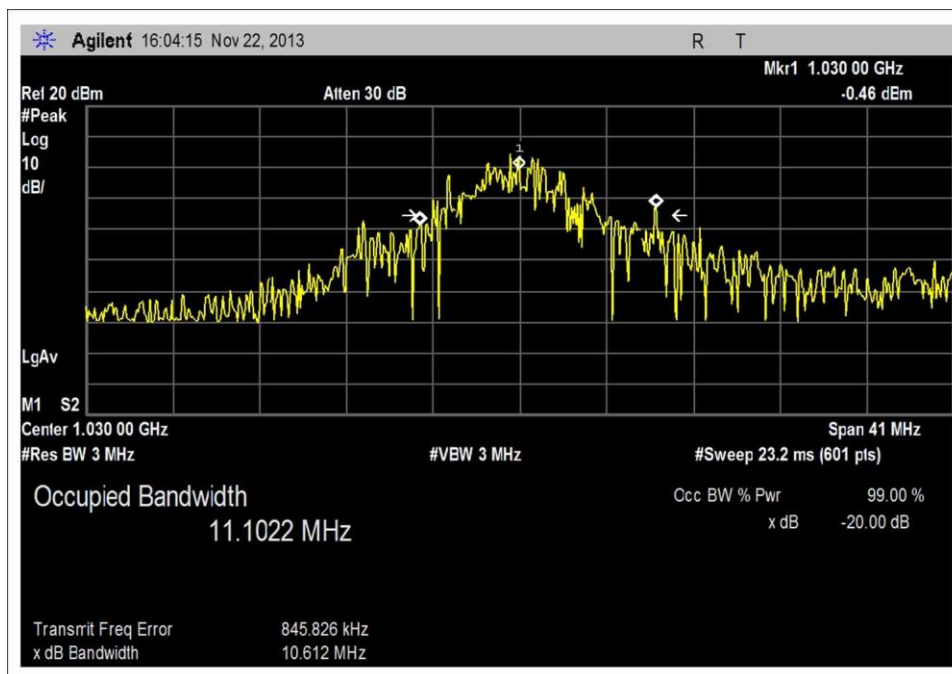
1030 C T1



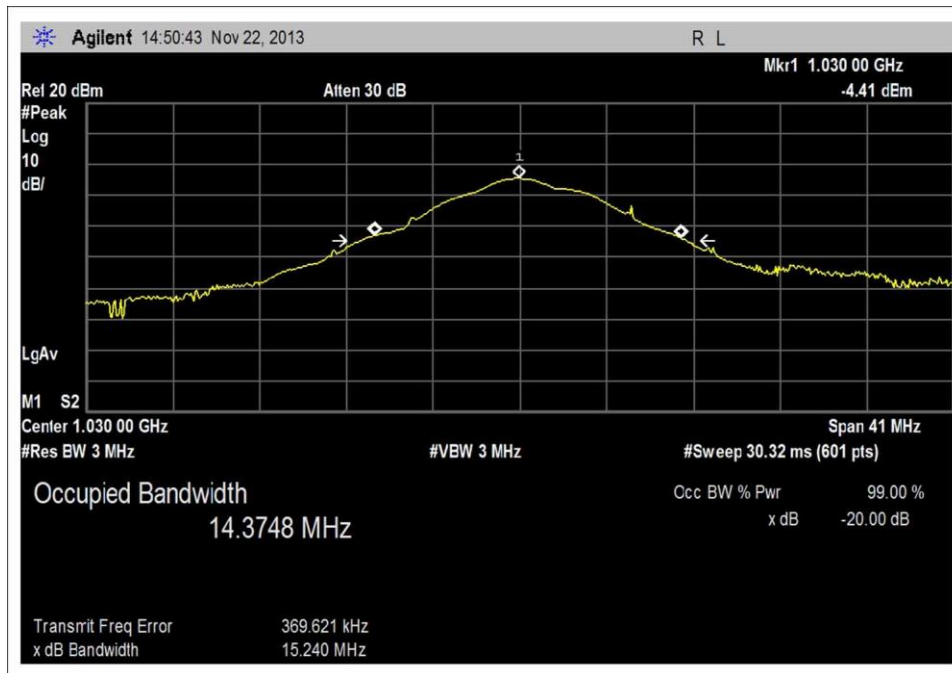
1030 C T2



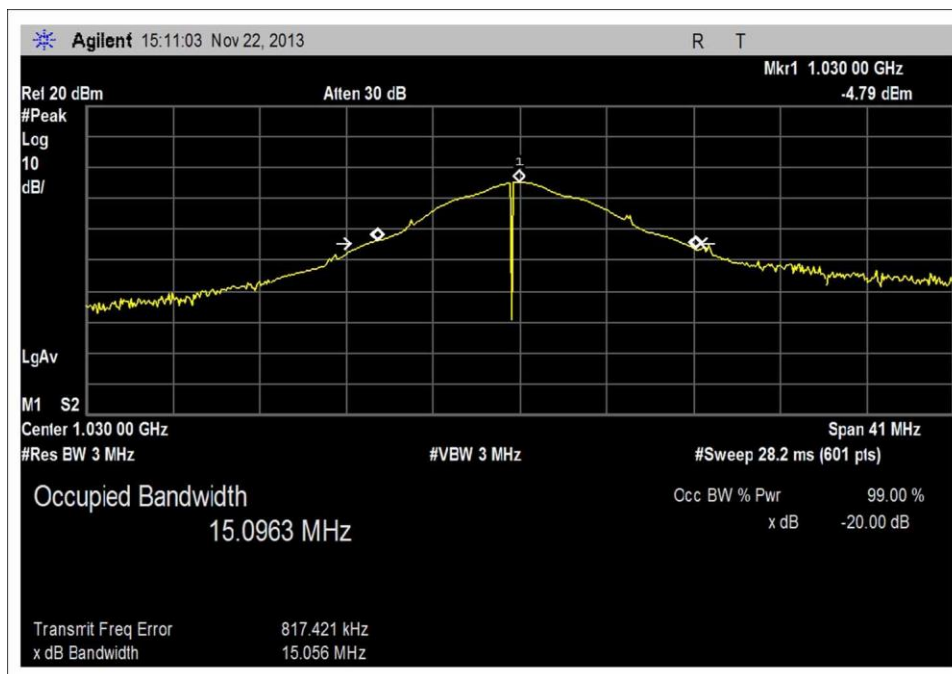
1030 C T3



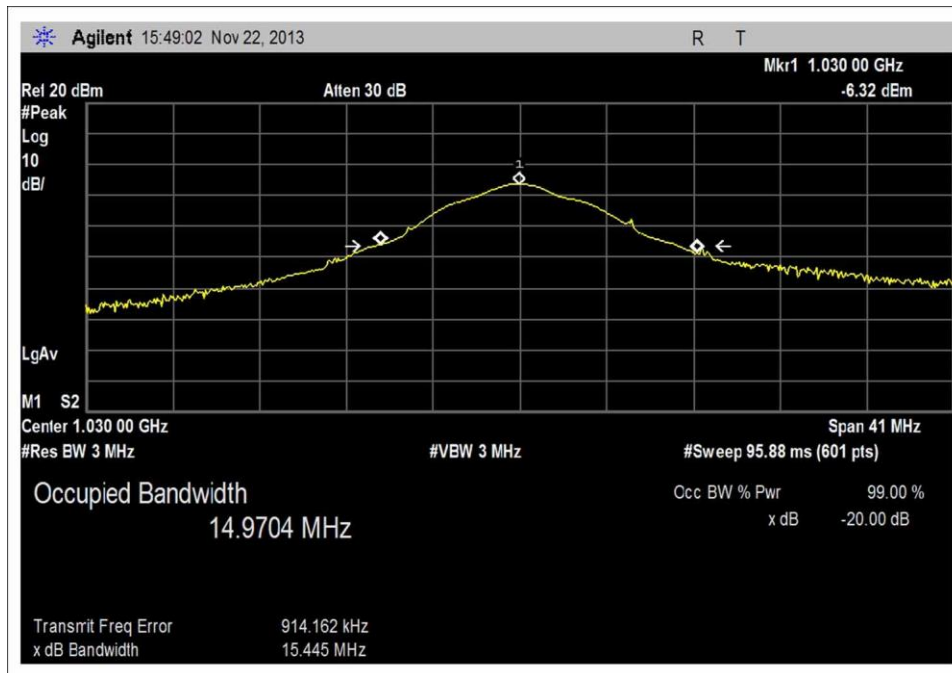
1030 C T4



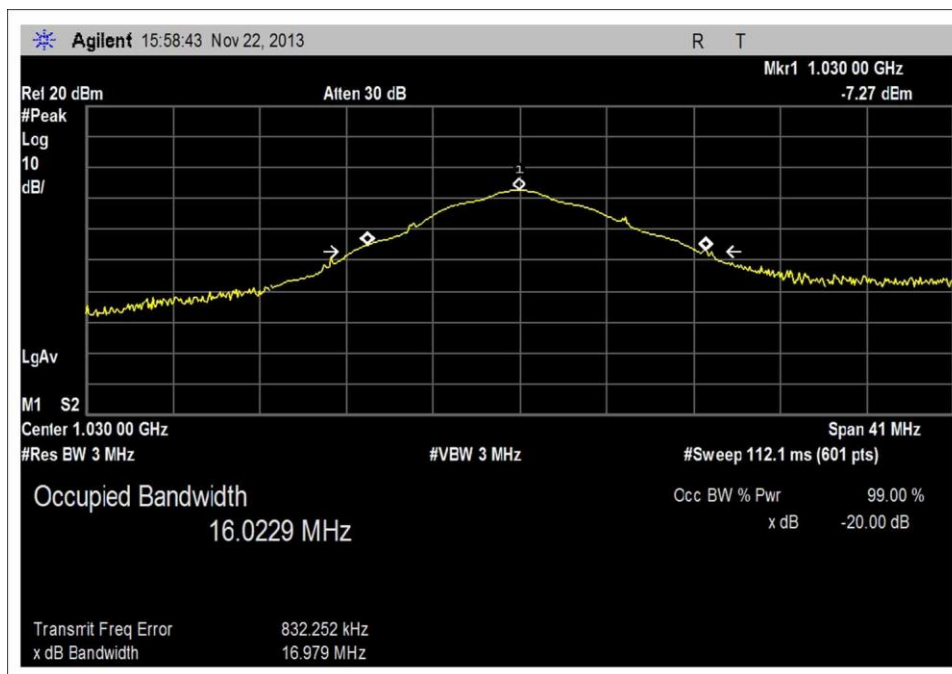
1030 S T1



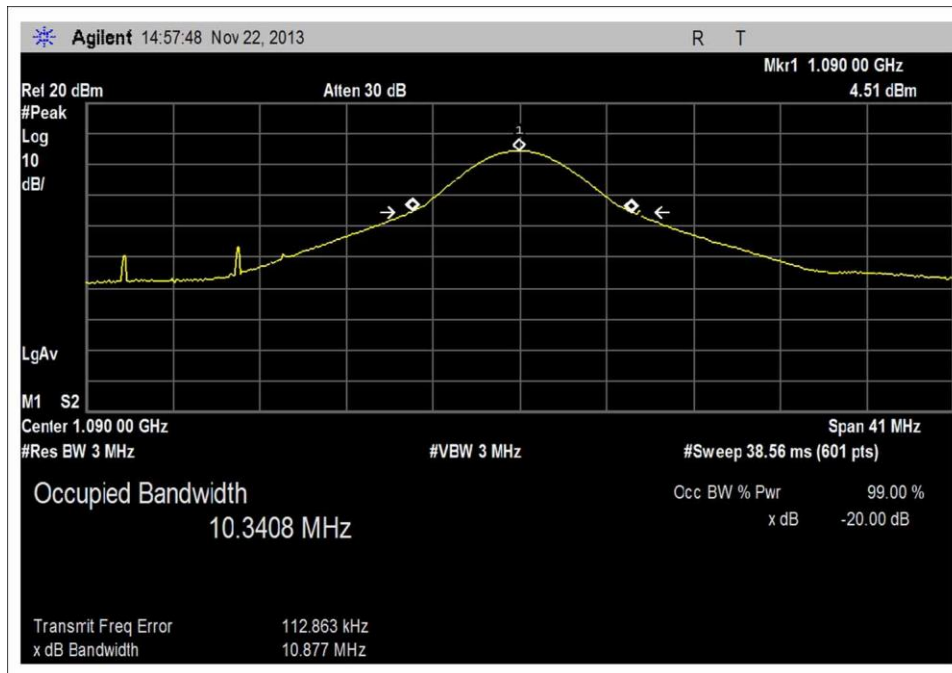
1030 S T2



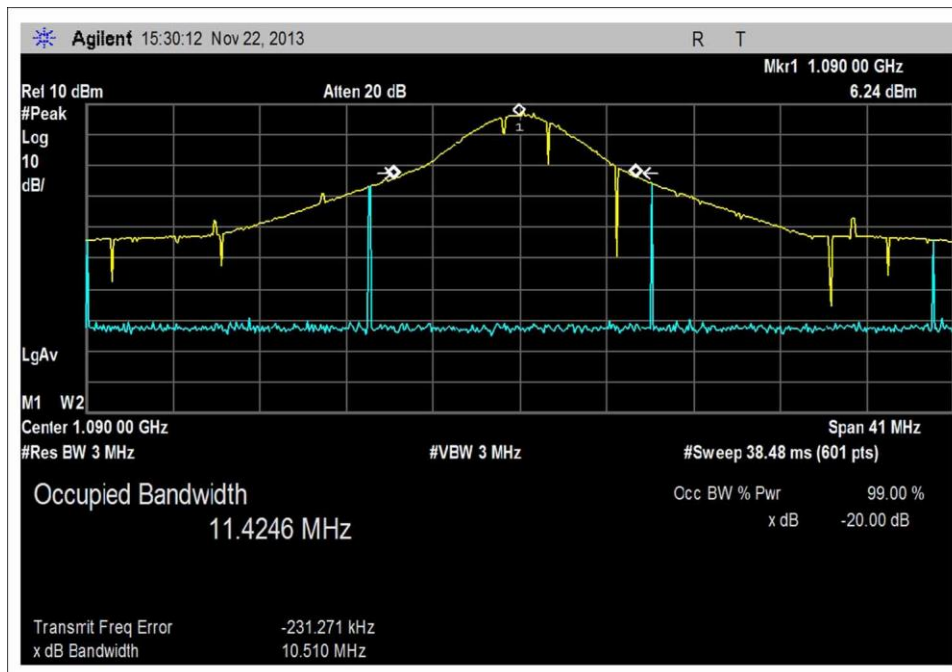
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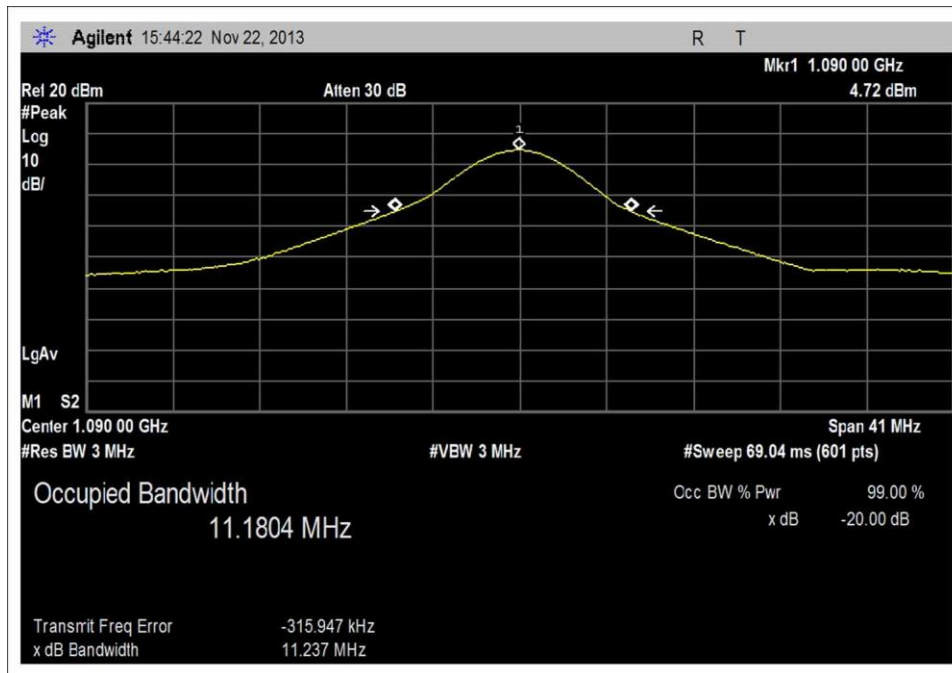
1030 S T4



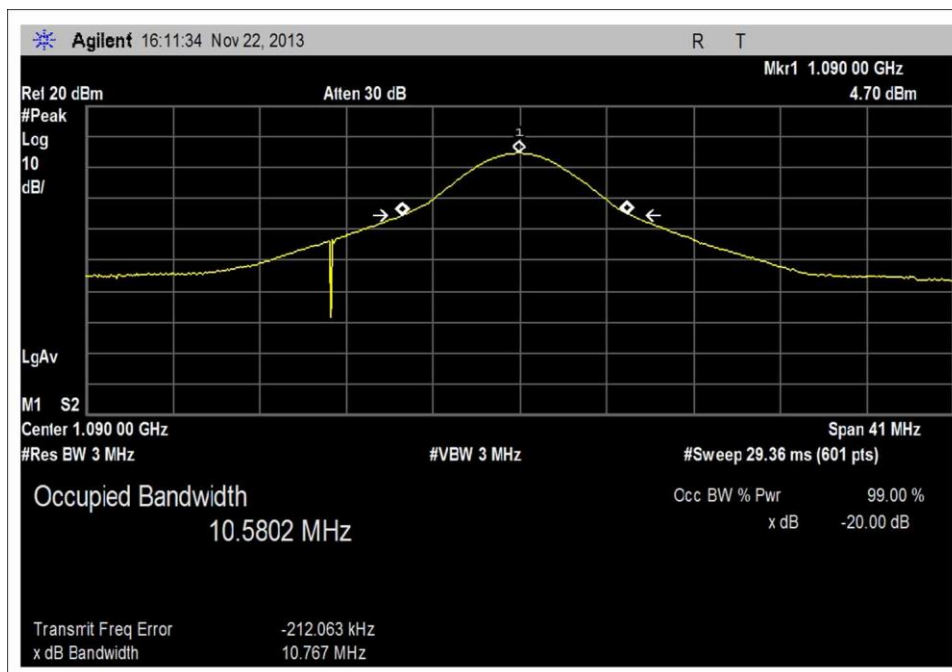
1090 C T1



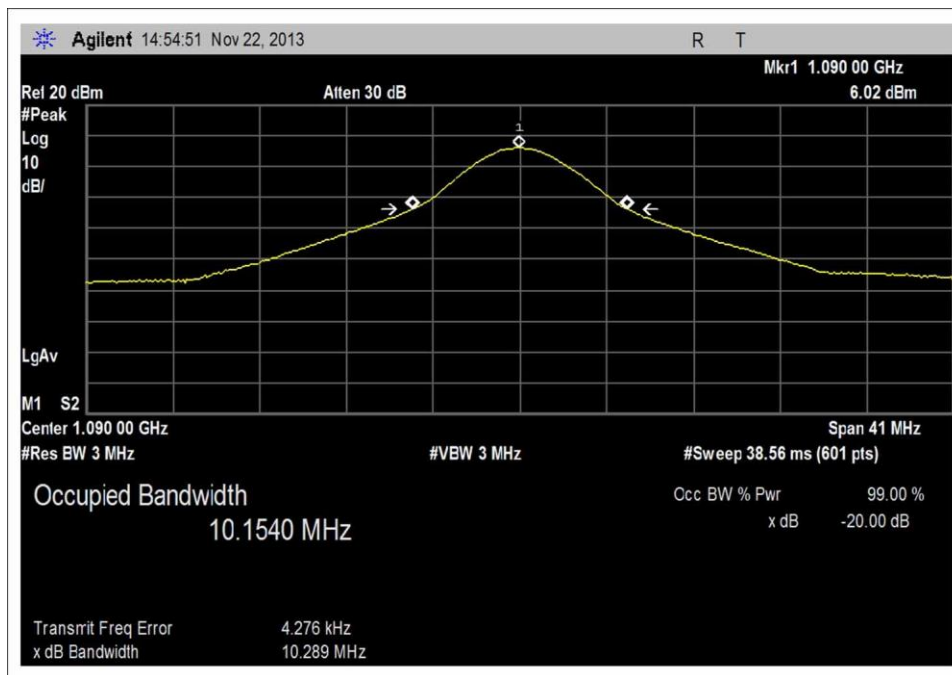
1090 C T2



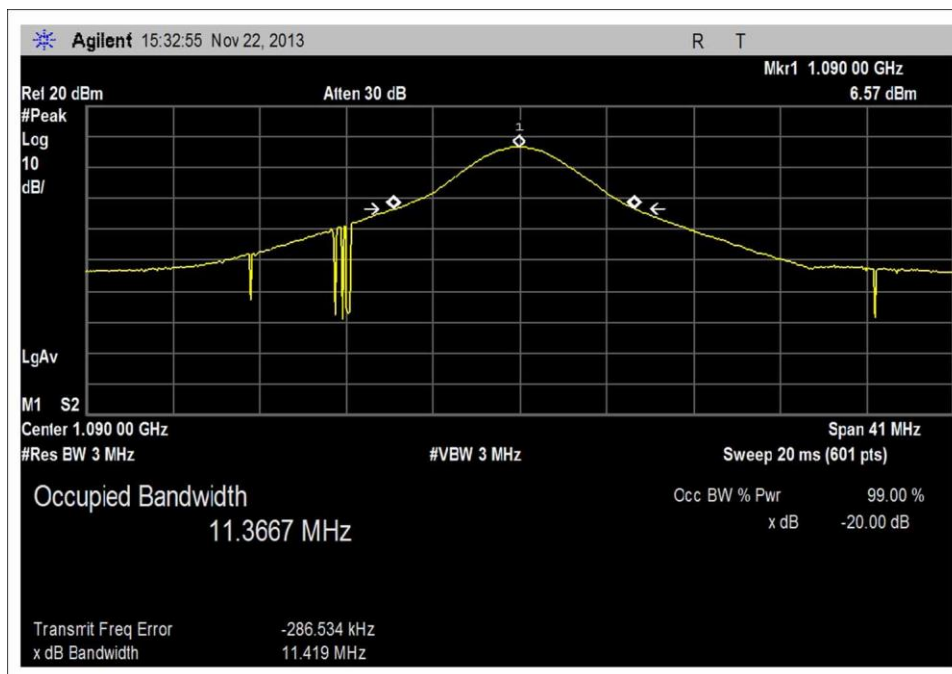
1090 C T3



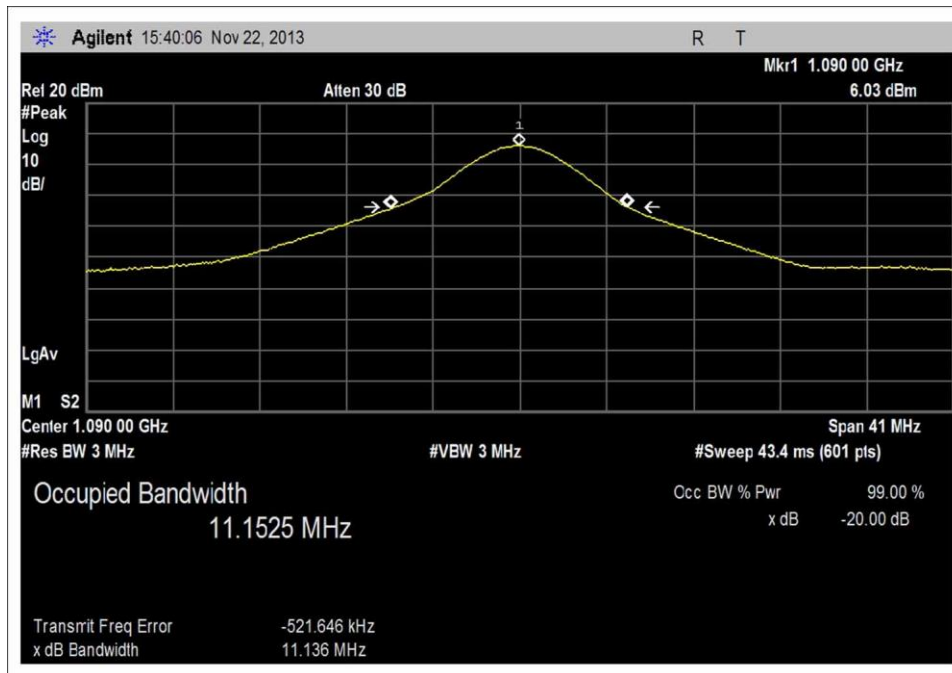
1090 C T4



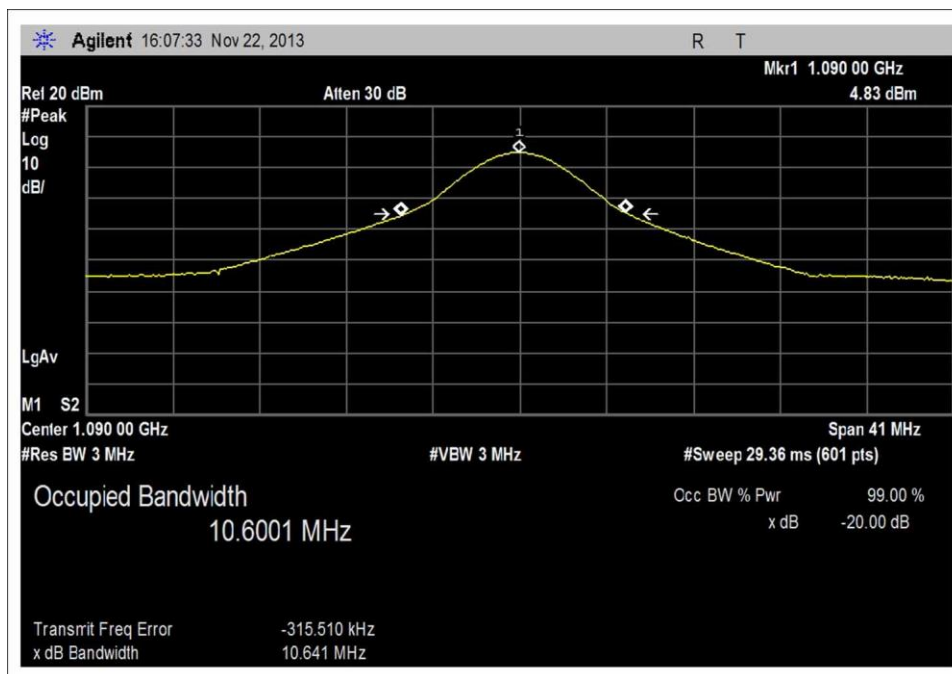
1090 S T1



1090 S T2

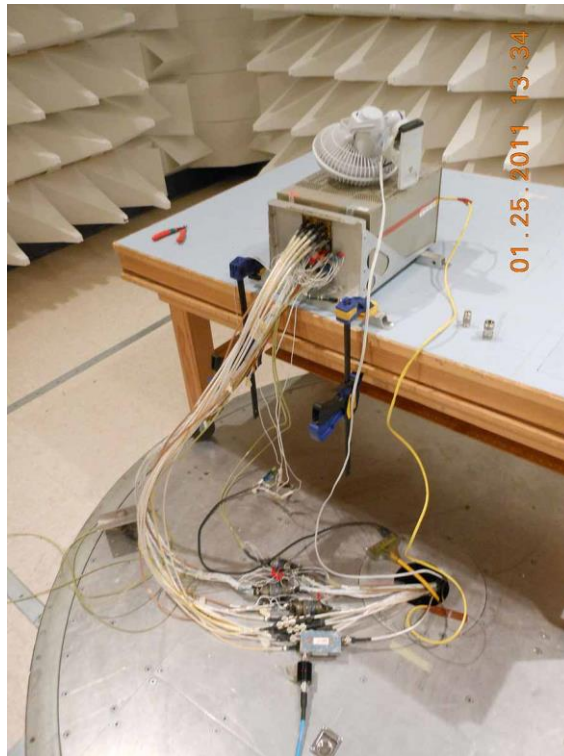


1090 S T3

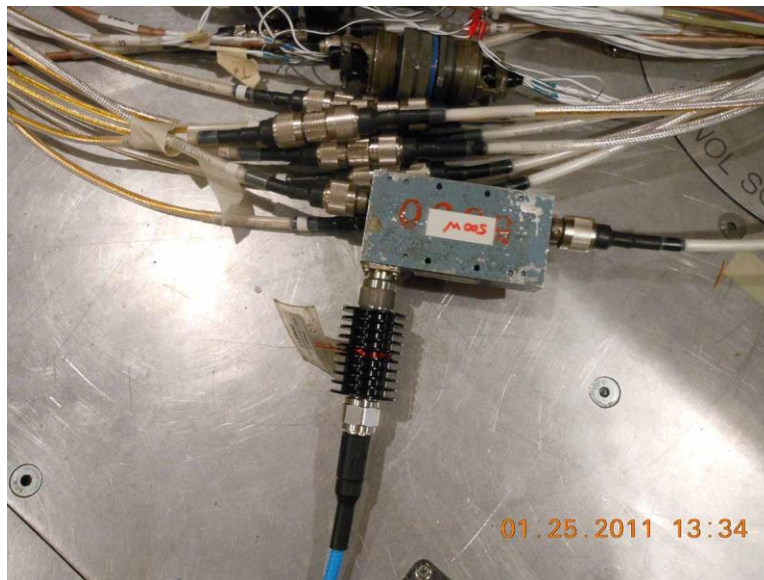


1090 S T4

Test Setup Photo(s)



Overall Test Setup



Test Setup Close

Note: Photos were taken day of testing 2/27/2014.

2.1051 Spurious Emissions at Antenna Terminals

Test Conditions

The mask is checked at mode C at 1030MHz which only operates while 1090MHz is also operating. Mode S 1030MHz, Mode S 1090MHz and Mode C 1090MHz all operate independently and are tested one at a time. The input of the directional coupler is directly attached to each antenna port and the output to the simulated antenna loads. The forward power will be measured through the forward power port attenuator and cables.

Temperature: 22°C

Pressure: 104.0kPa

Humidity: 32%

Engineer Name: Steven Pittsford

Test Equipment

Asset #	Description	Model	Manufacturer	Cal Date	Cal Due
02872	Spectrum Analyzer	E4440A	Agilent	7/19/2013	7/19/2015
P01906	Directional Coupler	3002-30	NARDA	6/18/2013	6/18/2015
P06505	Cable	32026-29080- 29080-84	Astrolab	10/18/2013	10/18/2015
P05547	Cable	Helix	Andrews	9/7/2012	9/7/2014
P06217	Attenuator	768-10	Narda	3/31/2013	3/31/2015

Test Data

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Honeywell International Inc.**
 Specification: **47 CFR §87.139(a) Spurious Emissions**
 Work Order #: **95223**
 Test Type: **Conducted Emissions**
 Equipment: **AESU Processor**
 Manufacturer: **Honeywell International Inc.**
 Model: **ISP-80C (965-1694-002)**
 S/N: **ISPA-000146**

Date: 2/26/2014
 Time: 12:37:23
 Sequence#: 3
 Tested By: Steven Pittsford
 115V 400Hz

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	7/19/2013	7/19/2015
T2	ANP06505	Cable	32026-29080-29080-84	10/18/2013	10/18/2015
T3	ANP05547	Cable	Helix	9/7/2012	9/7/2014
	AN02471	Directional Coupler	DC5000	1/25/2013	1/25/2015
T4	AN02030	Directional Coupler	DC6000	1/24/2013	1/24/2015
T5	ANP01906	Directional Coupler	3002-30	6/18/2013	6/18/2015
T6	ANP01904	Directional Coupler	3003-30	6/11/2013	6/11/2015
T7	ANP01905	Directional Coupler	3004-30	6/11/2013	6/11/2015
T8	ANP06511	Directional Coupler- Fwd Pwr Port 1 Factor dB	17566-03	10/31/2013	10/31/2015
T9	AN03209	Preamplifier	83051A	3/5/2013	3/5/2015
T10	ANP06512	Directional Coupler- Fwd Pwr Port 1 Factor dB	18325-01	10/31/2013	10/31/2015
T11	AN00952A	Directional Coupler	DC2000	2/26/2014	2/26/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AESU Processor*	Honeywell International Inc.	ISP-80C (965-1694-002)	ISPA-000146

Support Devices:

Function	Manufacturer	Model #	S/N
TCAS Antenna Simulator	Honeywell	727-0016-001	0068
TCAS Antenna Simulator	Honeywell	727-0016-001	0081
AESU EMI Harness	Honeywell	014-1089-004 REV	
AESS Engineering Test Station	Honeywell	951-0404-013	218

Test Conditions / Notes:

Temperature: 22°C
Pressure: 104.0kPa
Humidity: 35%
Frequency: 9kHz-14GHz

The EUT is sitting on an 80cm test table.
The EUT is connected to the support equipment outside the chamber through the EMI Harness.
The Antenna terminals are terminated by a characteristic loads located outside the chamber.
The EUT is transmitting at full power Mode S & C at 1030MHz and 1090MHz simultaneously.

CISPR Bandwidths below 150kHz

- 1) Resolution Bandwidth = 10 kHz for spurious emissions 150kHz - 1 GHz, and 1 MHz for spurious emissions above 1GHz.
- 2) Video Bandwidth = 300 kHz for spurious emissions 150kHz - 1 GHz, and 3 MHz for spurious emissions above 1 GHz.
- 3) Sweep Speed slow enough to maintain measurement calibration.
- 4) Detector Mode = Positive Peak.

Test Method TIA-603 C

Ext Attn: 0 dB

Measurement Data:

Reading listed by margin.

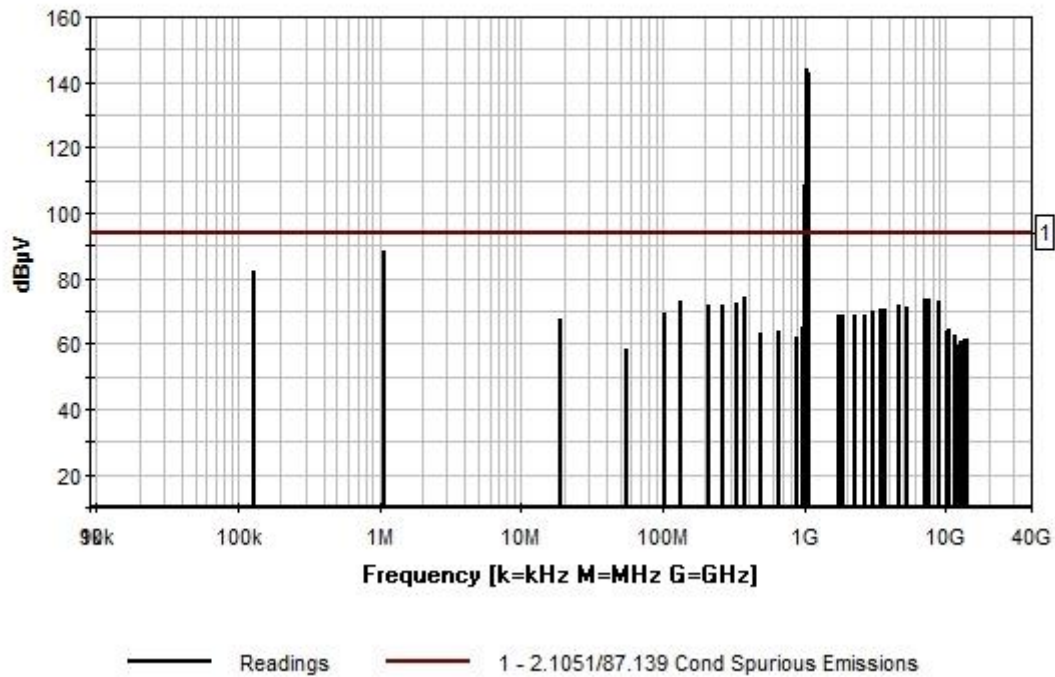
Test Lead: T1

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV	dBμV	dB	Ant
1	1030.000M	111.2	+0.0	+0.9	+1.6	+0.0	+0.0	144.3	94.0	+50.3	T1
	Ambient		+30.6	+0.0	+0.0	+0.0			Fundamenta		
			+0.0	+0.0	+0.0						
2	1090.000M	110.0	+0.0	+1.0	+1.6	+0.0	+0.0	142.9	94.0	+48.9	T1
	Ambient		+30.3	+0.0	+0.0	+0.0			Fundamenta		
			+0.0	+0.0	+0.0						
3	1030.000M	108.4	+0.0	+0.9	+1.6	+0.0	+0.0	141.5	94.0	+47.5	T1
	Ambient		+30.6	+0.0	+0.0	+0.0			Fundamenta		
			+0.0	+0.0	+0.0						
4	1037.000M	98.7	+0.0	+0.9	+1.6	+0.0	+0.0	131.8	94.0	+37.8	T1
	Ambient		+30.6	+0.0	+0.0	+0.0			Fundamenta		
			+0.0	+0.0	+0.0						
5	1016.000M	75.3	+0.0	+0.9	+1.6	+0.0	+0.0	108.5	94.0	+14.5	T1
	Ambient		+30.7	+0.0	+0.0	+0.0			Fundamenta		
			+0.0	+0.0	+0.0						
6	1011.000M	70.3	+0.0	+0.9	+1.6	+0.0	+0.0	103.5	94.0	+9.5	T1
	Ambient		+30.7	+0.0	+0.0	+0.0			Fundamenta		
			+0.0	+0.0	+0.0						
7	1.075M	38.4	+0.0	+0.0	+0.1	+0.0	+0.0	88.1	94.0	-5.9	T1
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+49.6						
8	129.000k	33.1	+0.0	+0.0	+0.0	+0.0	+0.0	82.5	94.0	-11.5	T1
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+49.4						

9	384.400M	23.1	+0.0 +0.0 +0.0	+0.6 +0.0 +0.0	+0.9 +0.0 +0.0	+0.0 +0.0	+0.0	74.0	94.0	-20.0	T1
10	7012.000M	39.5	+0.0 +0.0 +0.0	+2.4 +0.0 +0.0	+4.3 +27.4 +0.0	+0.0 +0.0	+0.0	73.6	94.0	-20.4	T1
11	7720.000M	39.0	+0.0 +0.0 +0.0	+2.4 +0.0 +0.0	+4.5 +27.6 +0.0	+0.0 +0.0	+0.0	73.5	94.0	-20.5	T1
12	8998.000M	36.7	+0.0 +0.0 +0.0	+2.7 +0.0 +0.0	+4.7 +28.9 +0.0	+0.0 +0.0	+0.0	73.0	94.0	-21.0	T1
13	133.200M	22.6	+0.0 +0.0 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +49.5	+0.0 +0.0	+0.0	73.0	94.0	-21.0	T1
14	334.600M	22.1	+0.0 +0.0 +0.0	+0.6 +0.0 +0.0	+0.8 +0.0 +0.0	+0.0 +0.0	+0.0	72.7	94.0	-21.3	T1
15	208.200M	22.6	+0.0 +0.0 +0.0	+0.4 +0.0 +0.0	+0.6 +0.0 +0.0	+0.0 +0.0	+0.0	72.1	94.0	-21.9	T1
16	262.600M	22.1	+0.0 +0.0 +0.0	+0.5 +0.0 +0.0	+0.7 +0.0 +0.0	+0.0 +0.0	+0.0	72.1	94.0	-21.9	T1
17	4720.000M	36.3	+0.0 +0.0 +0.0	+2.3 +0.0 +0.0	+3.5 +29.7 +0.0	+0.0 +0.0	+0.0	71.8	94.0	-22.2	T1
18	5356.000M	36.1	+0.0 +0.0 +0.0	+2.7 +0.0 +0.0	+3.7 +28.9 +0.0	+0.0 +0.0	+0.0	71.4	94.0	-22.6	T1
19	3474.000M	36.7	+0.0 +0.0 +0.0	+1.6 +29.5 +0.0	+3.1 +0.0 +0.0	+0.0 +0.0	+0.0	70.9	94.0	-23.1	T1
20	3654.000M	36.2	+0.0 +0.0 +0.0	+1.6 +29.7 +0.0	+3.2 +0.0 +0.0	+0.0 +0.0	+0.0	70.7	94.0	-23.3	T1
21	3084.000M	37.1	+0.0 +0.0 +0.0	+1.6 +28.6 +0.0	+2.9 +0.0 +0.0	+0.0 +0.0	+0.0	70.2	94.0	-23.8	T1
22	102.800M	19.0	+0.0 +0.0 +0.0	+0.3 +0.0 +0.0	+0.4 +0.0 +49.6	+0.0 +0.0	+0.0	69.3	94.0	-24.7	T1
23	1855.000M	35.7	+0.0 +29.9 +0.0	+1.2 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0 +0.0	+0.0	69.0	94.0	-25.0	T1
24	2660.000M	35.2	+0.0 +0.0 +0.0	+1.4 +29.4 +0.0	+2.7 +0.0 +0.0	+0.0 +0.0	+0.0	68.7	94.0	-25.3	T1
25	1749.000M	35.8	+0.0 +29.6 +0.0	+1.2 +0.0 +0.0	+2.1 +0.0 +0.0	+0.0 +0.0	+0.0	68.7	94.0	-25.3	T1

26	2298.000M	34.8	+0.0 +0.0 +0.0	+1.4 +29.9 +0.0	+2.5 +0.0 +0.0	+0.0 +0.0	+0.0	68.6	94.0	-25.4	T1
27	19.010M	17.5	+0.0 +0.0 +0.0	+0.1 +0.0 +0.0	+0.0 +0.0 +49.8	+0.0 +0.0	+0.0	67.4	94.0	-26.6	T1
28	19.010M	17.5	+0.0 +0.0 +0.0	+0.1 +0.0 +0.0	+0.0 +0.0 +49.8	+0.0 +0.0	+0.0	67.4	94.0	-26.6	T1
29	983.800M	13.2	+0.0 +0.0 +0.0	+0.9 +0.0 +0.0	+1.5 +0.0 +0.0	+49.8 +0.0	+0.0	65.4	94.0	-28.6	T1
30	10492.000 M	34.0	+0.0 +0.0 -27.8	+3.2 +0.0 +0.0	+5.1 +0.0 +0.0	+0.0 +50.0	+0.0	64.5	94.0	-29.5	T1
31	651.400M	12.8	+0.0 +0.0 +0.0	+0.8 +0.0 +0.0	+1.2 +0.0 +0.0	+49.3 +0.0	+0.0	64.1	94.0	-29.9	T1
32	10164.000 M	33.5	+0.0 +0.0 -27.9	+3.0 +0.0 +0.0	+5.0 +0.0 +0.0	+0.0 +50.1	+0.0	63.7	94.0	-30.3	T1
33	487.000M	12.5	+0.0 +0.0 +0.0	+0.7 +0.0 +0.0	+1.0 +0.0 +0.0	+49.3 +0.0	+0.0	63.5	94.0	-30.5	T1
34	11642.000 M	32.3	+0.0 +0.0 -28.4	+3.6 +0.0 +0.0	+5.4 +0.0 +0.0	+0.0 +49.6	+0.0	62.5	94.0	-31.5	T1
35	886.600M	10.1	+0.0 +0.0 +0.0	+0.9 +0.0 +0.0	+1.4 +0.0 +0.0	+49.8 +0.0	+0.0	62.2	94.0	-31.8	T1
36	13968.000 M	33.9	+0.0 +0.0 -31.1	+4.4 +0.0 +48.4	+6.1 +0.0 +0.0	+0.0 +0.0	+0.0	61.7	94.0	-32.3	T1
37	13608.000 M	34.1	+0.0 +0.0 -30.8	+4.0 +0.0 +48.1	+6.0 +0.0 +0.0	+0.0 +0.0	+0.0	61.4	94.0	-32.6	T1
38	13204.000 M	33.1	+0.0 +0.0 -30.5	+4.1 +0.0 +48.2	+6.0 +0.0 +0.0	+0.0 +0.0	+0.0	60.9	94.0	-33.1	T1
39	12826.000 M	33.0	+0.0 +0.0 -30.0	+3.7 +0.0 +48.1	+5.9 +0.0 +0.0	+0.0 +0.0	+0.0	60.7	94.0	-33.3	T1
40	12476.000 M	31.8	+0.0 +0.0 -29.5	+3.5 +0.0 +48.1	+5.7 +0.0 +0.0	+0.0 +0.0	+0.0	59.6	94.0	-34.4	T1
41	10112.000 M	28.7	+0.0 +0.0 -27.9	+3.0 +0.0 +0.0	+4.9 +0.0 +0.0	+0.0 +50.0	+0.0	58.7	94.0	-35.3	T1
42	56.410M	7.9	+0.0 +0.0 +0.0	+0.3 +0.0 +0.0	+0.3 +0.0 +49.8	+0.0 +0.0	+0.0	58.3	94.0	-35.7	T1

CKC Laboratories, Inc. Date: 2/26/2014 Time: 12:37:23 Honeywell International Inc. WO#: 95223
 Test Lead: T1 115V 400Hz Sequence#: 3 T1
 Honeywell International Inc. AESU (Aircraft Environment Surveillance Unit) P/N: ISP-80C (PN: 965-1694-002)



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Honeywell International Inc.**
 Specification: **47 CFR §87.139(a) Spurious Emissions**
 Work Order #: **95223**
 Test Type: **Conducted Emissions**
 Equipment: **AESU Processor**
 Manufacturer: Honeywell International Inc.
 Model: ISP-80C (965-1694-002)
 S/N: ISPA-000146

Date: 2/26/2014
 Time: 13:34:46
 Sequence#: 4
 Tested By: Steven Pittsford
 115V 400Hz

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	7/19/2013	7/19/2015
T2	ANP06505	Cable	32026-29080-29080-84	10/18/2013	10/18/2015
T3	ANP05547	Cable	Heliac	9/7/2012	9/7/2014
T4	AN02471	Directional Coupler	DC5000	1/25/2013	1/25/2015
T5	AN02030	Directional Coupler	DC6000	1/24/2013	1/24/2015
T6	ANP01906	Directional Coupler	3002-30	6/18/2013	6/18/2015
T7	ANP01904	Directional Coupler	3003-30	6/11/2013	6/11/2015
T8	ANP01905	Directional Coupler	3004-30	6/11/2013	6/11/2015
T9	ANP06511	Directional Coupler-Fwd Pwr Port 1 Factor dB	17566-03	10/31/2013	10/31/2015
T10	AN03209	Preamp	83051A	3/5/2013	3/5/2015
T11	ANP06512	Directional Coupler-Fwd Pwr Port 1 Factor dB	18325-01	10/31/2013	10/31/2015
T12	AN00952A	Directional Coupler	DC2000	2/26/2014	2/26/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AESU Processor*	Honeywell International Inc.	ISP-80C (965-1694-002)	ISPA-000146

Support Devices:

Function	Manufacturer	Model #	S/N
TCAS Antenna Simulator	Honeywell	727-0016-001	0068
TCAS Antenna Simulator	Honeywell	727-0016-001	0081
AESU EMI Harness	Honeywell	014-1089-004 REV	
AESS Engineering Test Station	Honeywell	951-0404-013	218

Test Conditions / Notes:

Temperature: 22°C
Pressure: 104.0kPa
Humidity: 35%
Frequency: 9kHz-14GHz

The EUT is sitting on an 80cm test table.
The EUT is connected to the support equipment outside the chamber through the EMI Harness.
The Antenna terminals are terminated by a characteristic loads located outside the chamber.
The EUT is transmitting at full power Mode S & C at 1030MHz and 1090MHz simultaneously.

CISPR Bandwidths below 150kHz

- 1) Resolution Bandwidth = 10 kHz for spurious emissions 150kHz - 1 GHz, and 1 MHz for spurious emissions above 1GHz.
- 2) Video Bandwidth = 300 kHz for spurious emissions 150kHz - 1 GHz, and 3 MHz for spurious emissions above 1 GHz.
- 3) Sweep Speed slow enough to maintain measurement calibration.
- 4) Detector Mode = Positive Peak.

Test Method TIA-603 C

Ext Attn: 0 dB

Measurement Data:

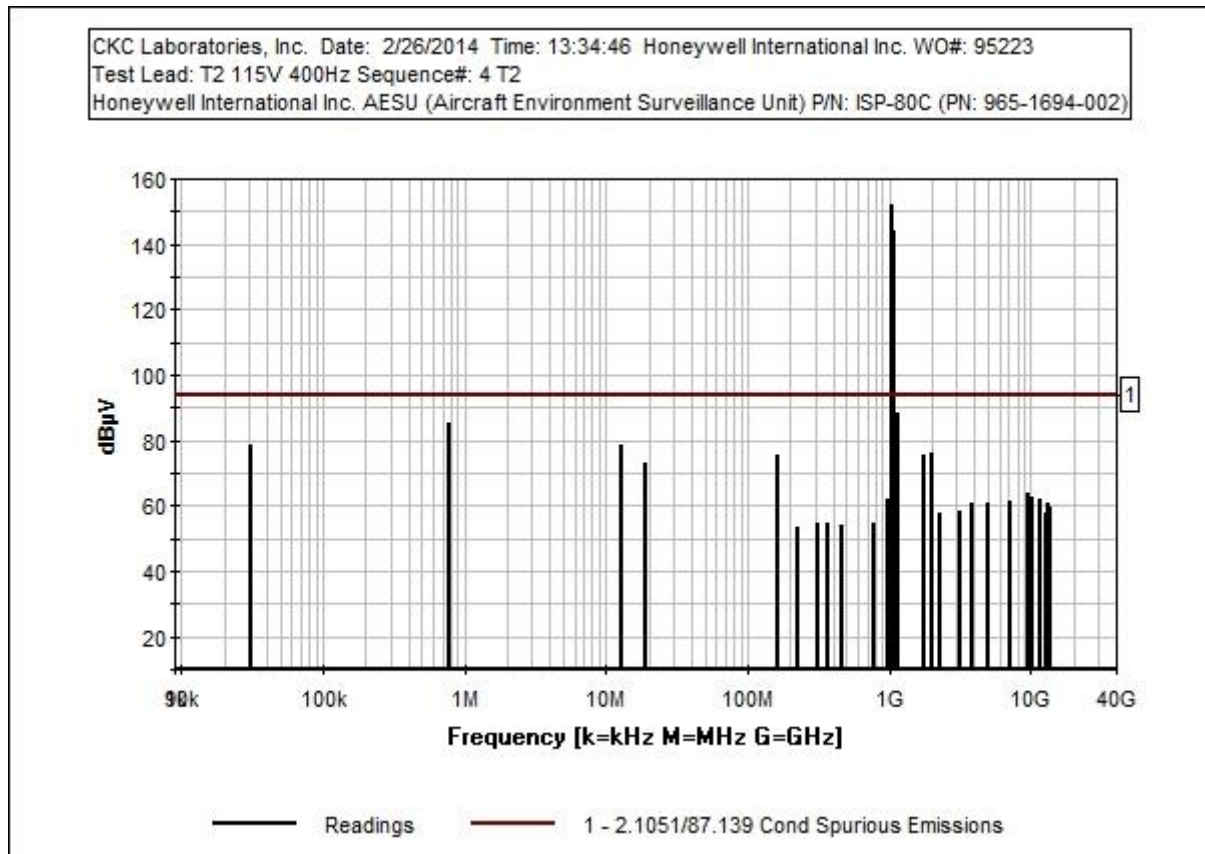
Reading listed by margin.

Test Lead: T2

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5	T6	T7	T8					
			T9	T10	T11	T12	Table	dBμV	dBμV	dB	Ant
1	1030.120M	118.7	+0.0	+0.9	+1.6	+0.0	+0.0	151.8	94.0	+57.8	T2
	Ambient		+0.0	+30.6	+0.0	+0.0			Fundamental		
			+0.0	+0.0	+0.0	+0.0					
2	1090.000M	110.9	+0.0	+1.0	+1.6	+0.0	+0.0	143.8	94.0	+49.8	T2
	Ambient		+0.0	+30.3	+0.0	+0.0			Fundamental		
			+0.0	+0.0	+0.0	+0.0					
3	1161.000M	55.8	+0.0	+1.0	+1.7	+0.0	+0.0	88.6	94.0	-5.4	T2
			+0.0	+30.1	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
4	789.000k	35.9	+0.0	+0.0	+0.0	+0.0	+0.0	85.5	94.0	-8.5	T2
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+49.6					
5	31.278k	29.4	+0.0	+0.0	+0.0	+0.0	+0.0	78.8	94.0	-15.2	T2
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+49.4					
6	12.995M	28.8	+0.0	+0.1	+0.1	+0.0	+0.0	78.7	94.0	-15.3	T2
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+49.7					
7	1980.000M	42.4	+0.0	+1.3	+2.3	+0.0	+0.0	76.4	94.0	-17.6	T2
			+0.0	+30.4	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
8	1729.000M	42.8	+0.0	+1.2	+2.1	+0.0	+0.0	75.7	94.0	-18.3	T2
			+0.0	+29.6	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					

9	165.000M	25.3	+0.0 +0.0 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +0.0	+0.0 +0.0 +49.4	+0.0	75.6	94.0	-18.4	T2
10	18.993M	23.0	+0.0 +0.0 +0.0	+0.1 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0 +0.0 +49.8	+0.0	72.9	94.0	-21.1	T2
11	9670.000M	26.5	+0.0 +0.0 +0.0	+2.9 +0.0 +0.0	+4.8 +0.0 +0.0	+0.0 +29.7 +0.0	+0.0	63.9	94.0	-30.1	T2
12	10122.000 M	32.8	+0.0 +0.0 +50.0	+3.0 +0.0 -27.9	+5.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	62.9	94.0	-31.1	T2
13	991.600M	10.2	+0.0 +49.7 +0.0	+0.9 +0.0 +0.0	+1.5 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	62.3	94.0	-31.7	T2
14	11634.000 M	31.8	+0.0 +0.0 +49.6	+3.6 +0.0 -28.4	+5.4 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	62.0	94.0	-32.0	T2
15	7174.000M	27.5	+0.0 +0.0 +0.0	+2.4 +0.0 +0.0	+4.3 +0.0 +0.0	+0.0 +27.4 +0.0	+0.0	61.6	94.0	-32.4	T2
16	5008.000M	25.5	+0.0 +0.0 +0.0	+2.5 +0.0 +0.0	+3.6 +0.0 +0.0	+0.0 +29.3 +0.0	+0.0	60.9	94.0	-33.1	T2
17	13398.000 M	33.1	+0.0 +0.0 +0.0	+4.1 +0.0 -30.6	+6.0 +0.0 +48.1	+0.0 +0.0 +0.0	+0.0	60.7	94.0	-33.3	T2
18	3826.000M	25.5	+0.0 +0.0 +0.0	+1.7 +0.0 +0.0	+3.3 +30.1 +0.0	+0.0 +0.0 +0.0	+0.0	60.6	94.0	-33.4	T2
19	13796.000 M	32.0	+0.0 +0.0 +0.0	+4.2 +0.0 -30.9	+6.1 +0.0 +48.1	+0.0 +0.0 +0.0	+0.0	59.5	94.0	-34.5	T2
20	3168.000M	25.5	+0.0 +0.0 +0.0	+1.6 +0.0 +0.0	+3.0 +28.6 +0.0	+0.0 +0.0 +0.0	+0.0	58.7	94.0	-35.3	T2
21	2294.000M	24.0	+0.0 +0.0 +0.0	+1.4 +0.0 +0.0	+2.5 +29.9 +0.0	+0.0 +0.0 +0.0	+0.0	57.8	94.0	-36.2	T2
22	12910.000 M	30.2	+0.0 +0.0 +0.0	+3.8 +0.0 -30.2	+5.9 +0.0 +48.1	+0.0 +0.0 +0.0	+0.0	57.8	94.0	-36.2	T2
23	773.800M	3.2	+0.0 +49.7 +0.0	+0.8 +0.0 +0.0	+1.3 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	55.0	94.0	-39.0	T2
24	307.600M	4.6	+0.0 +0.0 +0.0	+0.5 +0.0 +0.0	+0.8 +0.0 +0.0	+49.0 +0.0 +0.0	+0.0	54.9	94.0	-39.1	T2
25	366.200M	3.7	+0.0 +0.0 +0.0	+0.6 +0.0 +0.0	+0.9 +0.0 +0.0	+49.5 +0.0 +0.0	+0.0	54.7	94.0	-39.3	T2

26	465.400M	3.4	+0.0	+0.6	+1.0	+0.0	+0.0	54.4	94.0	-39.6	T2
			+49.4	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
27	225.400M	4.0	+0.0	+0.5	+0.6	+48.6	+0.0	53.7	94.0	-40.3	T2
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Honeywell International Inc.**
 Specification: **47 CFR §87.139(a) Spurious Emissions**
 Work Order #: **95223**
 Test Type: **Conducted Emissions**
 Equipment: **AESU Processor**
 Manufacturer: Honeywell International Inc.
 Model: ISP-80C (965-1694-002)
 S/N: ISPA-000146

Date: 2/26/2014
 Time: 14:11:46
 Sequence#: 5
 Tested By: Steven Pittsford
 115V 400Hz

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	7/19/2013	7/19/2015
T2	ANP06505	Cable	32026-29080-29080-84	10/18/2013	10/18/2015
T3	ANP05547	Cable	Heliac	9/7/2012	9/7/2014
T4	AN02471	Directional Coupler	DC5000	1/25/2013	1/25/2015
T5	AN02030	Directional Coupler	DC6000	1/24/2013	1/24/2015
T6	ANP01906	Directional Coupler	3002-30	6/18/2013	6/18/2015
T7	ANP01904	Directional Coupler	3003-30	6/11/2013	6/11/2015
T8	ANP01905	Directional Coupler	3004-30	6/11/2013	6/11/2015
T9	ANP06511	Directional Coupler-Fwd Pwr Port 1 Factor dB	17566-03	10/31/2013	10/31/2015
T10	AN03209	Preamp	83051A	3/5/2013	3/5/2015
T11	ANP06512	Directional Coupler-Fwd Pwr Port 1 Factor dB	18325-01	10/31/2013	10/31/2015
T12	AN00952A	Directional Coupler	DC2000	2/26/2014	2/26/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AESU Processor*	Honeywell International Inc.	ISP-80C (965-1694-002)	ISPA-000146

Support Devices:

Function	Manufacturer	Model #	S/N
TCAS Antenna Simulator	Honeywell	727-0016-001	0068
TCAS Antenna Simulator	Honeywell	727-0016-001	0081
AESU EMI Harness	Honeywell	014-1089-004 REV	
AESS Engineering Test Station	Honeywell	951-0404-013	218

Test Conditions / Notes:

Temperature: 22°C
Pressure: 104.0kPa
Humidity: 35%
Frequency: 9kHz-14GHz

The EUT is sitting on an 80cm test table.
The EUT is connected to the support equipment outside the chamber through the EMI Harness.
The Antenna terminals are terminated by a characteristic loads located outside the chamber.
The EUT is transmitting at full power Mode S & C at 1030MHz and 1090MHz simultaneously.

CISPR Bandwidths below 150kHz

- 1) Resolution Bandwidth = 10 kHz for spurious emissions 150kHz - 1 GHz, and 1 MHz for spurious emissions above 1GHz.
- 2) Video Bandwidth = 300 kHz for spurious emissions 150kHz - 1 GHz, and 3 MHz for spurious emissions above 1 GHz.
- 3) Sweep Speed slow enough to maintain measurement calibration.
- 4) Detector Mode = Positive Peak.

Test Method TIA-603 C

Ext Attn: 0 dB

Measurement Data:

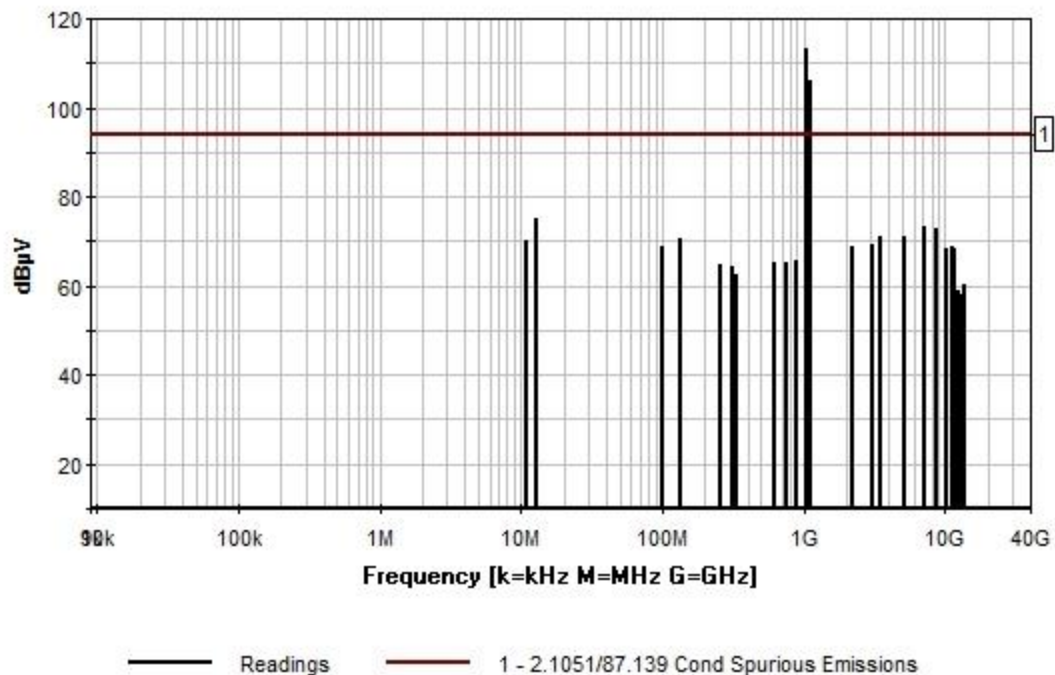
Reading listed by margin.

Test Lead: T3

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8 T12	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV	dBμV	dB	Ant
1	1029.000M	80.2	+0.0	+0.9	+1.6	+0.0	+0.0	113.3	94.0	+19.3	T3
	Ambient		+0.0	+30.6	+0.0	+0.0			Fundamental		
			+0.0	+0.0	+0.0	+0.0					
2	1108.000M	73.1	+0.0	+1.0	+1.6	+0.0	+0.0	106.0	94.0	+12.0	T3
	Ambient		+0.0	+30.3	+0.0	+0.0			Fundamental		
			+0.0	+0.0	+0.0	+0.0					
3	13.010M	25.3	+0.0	+0.1	+0.1	+0.0	+0.0	75.2	94.0	-18.8	T3
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+49.7					
4	7066.000M	38.9	+0.0	+2.5	+4.3	+0.0	+0.0	73.1	94.0	-20.9	T3
			+0.0	+0.0	+0.0	+27.4					
			+0.0	+0.0	+0.0	+0.0					
5	8740.000M	36.8	+0.0	+2.7	+4.6	+0.0	+0.0	72.8	94.0	-21.2	T3
			+0.0	+0.0	+0.0	+28.7					
			+0.0	+0.0	+0.0	+0.0					
6	5206.000M	35.9	+0.0	+2.5	+3.7	+0.0	+0.0	71.2	94.0	-22.8	T3
			+0.0	+0.0	+0.0	+29.1					
			+0.0	+0.0	+0.0	+0.0					
7	3434.000M	36.9	+0.0	+1.7	+3.1	+0.0	+0.0	71.1	94.0	-22.9	T3
			+0.0	+0.0	+29.4	+0.0					
			+0.0	+0.0	+0.0	+0.0					
8	133.000M	20.0	+0.0	+0.4	+0.5	+0.0	+0.0	70.4	94.0	-23.6	T3
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+49.5					

9	11.010M	20.4	+0.0 +0.0 +0.0	+0.1 +0.0 +0.0	+0.1 +0.0 +0.0	+0.0 +0.0 +49.7	+0.0	70.3	94.0	-23.7	T3
10	3062.000M	36.1	+0.0 +0.0 +0.0	+1.6 +0.0 +0.0	+2.9 +28.7 +0.0	+0.0 +0.0 +0.0	+0.0	69.3	94.0	-24.7	T3
11	11132.000 M	38.2	+0.0 +0.0 +49.9	+3.4 +0.0 -27.9	+5.3 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	68.9	94.0	-25.1	T3
12	99.600M	18.4	+0.0 +0.0 +0.0	+0.3 +0.0 +0.0	+0.4 +0.0 +0.0	+0.0 +0.0 +49.6	+0.0	68.7	94.0	-25.3	T3
13	2204.000M	34.8	+0.0 +0.0 +0.0	+1.4 +0.0 +0.0	+2.4 +30.1 +0.0	+0.0 +0.0 +0.0	+0.0	68.7	94.0	-25.3	T3
14	11750.000 M	37.8	+0.0 +0.0 +49.8	+3.7 +0.0 -28.5	+5.5 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	68.3	94.0	-25.7	T3
15	10328.000 M	38.1	+0.0 +0.0 +49.9	+3.1 +0.0 -27.9	+5.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	68.2	94.0	-25.8	T3
16	897.000M	13.4	+0.0 +49.8 +0.0	+0.9 +0.0 +0.0	+1.4 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	65.5	94.0	-28.5	T3
17	743.500M	13.7	+0.0 +49.5 +0.0	+0.8 +0.0 +0.0	+1.3 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	65.3	94.0	-28.7	T3
18	621.500M	13.7	+0.0 +49.4 +0.0	+0.7 +0.0 +0.0	+1.2 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	65.0	94.0	-29.0	T3
19	257.400M	14.9	+0.0 +0.0 +0.0	+0.5 +0.0 +0.0	+0.7 +0.0 +0.0	+48.6 +0.0 +0.0	+0.0	64.7	94.0	-29.3	T3
20	307.400M	14.2	+0.0 +0.0 +0.0	+0.5 +0.0 +0.0	+0.8 +0.0 +0.0	+48.9 +0.0 +0.0	+0.0	64.4	94.0	-29.6	T3
21	333.000M	12.1	+0.0 +0.0 +0.0	+0.6 +0.0 +0.0	+0.8 +0.0 +0.0	+49.2 +0.0 +0.0	+0.0	62.7	94.0	-31.3	T3
22	13630.000 M	33.1	+0.0 +0.0 +0.0	+4.0 +0.0 -30.8	+6.0 +0.0 +48.1	+0.0 +0.0 +0.0	+0.0	60.4	94.0	-33.6	T3
23	12436.000 M	31.1	+0.0 +0.0 +0.0	+3.5 +0.0 -29.4	+5.7 +0.0 +48.0	+0.0 +0.0 +0.0	+0.0	58.9	94.0	-35.1	T3
24	12982.000 M	30.7	+0.0 +0.0 +0.0	+3.8 +0.0 -30.3	+5.9 +0.0 +47.9	+0.0 +0.0 +0.0	+0.0	58.0	94.0	-36.0	T3

CKC Laboratories, Inc. Date: 2/26/2014 Time: 14:11:46 Honeywell International Inc. WO#: 95223
 Test Lead: T3 115V 400Hz Sequence#: 5 T3
 Honeywell International Inc. AESU (Aircraft Environment Surveillance Unit) P/N: ISP-80C (PN: 965-1694-002)



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Honeywell International Inc.**
 Specification: **47 CFR §87.139(a) Spurious Emissions**
 Work Order #: **95223**
 Test Type: **Conducted Emissions**
 Equipment: **AESU Processor**
 Manufacturer: Honeywell International Inc.
 Model: ISP-80C (965-1694-002)
 S/N: ISPA-000146

Date: 2/26/2014
 Time: 14:40:24
 Sequence#: 6
 Tested By: Steven Pittsford
 115V 400Hz

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	7/19/2013	7/19/2015
T2	ANP06505	Cable	32026-29080-29080-84	10/18/2013	10/18/2015
T3	ANP05547	Cable	Heliac	9/7/2012	9/7/2014
T4	AN02471	Directional Coupler	DC5000	1/25/2013	1/25/2015
T5	AN02030	Directional Coupler	DC6000	1/24/2013	1/24/2015
T6	ANP01906	Directional Coupler	3002-30	6/18/2013	6/18/2015
T7	ANP01904	Directional Coupler	3003-30	6/11/2013	6/11/2015
T8	ANP01905	Directional Coupler	3004-30	6/11/2013	6/11/2015
T9	ANP06511	Directional Coupler-Fwd Pwr Port 1 Factor dB	17566-03	10/31/2013	10/31/2015
T10	AN03209	Preamp	83051A	3/5/2013	3/5/2015
T11	ANP06512	Directional Coupler-Fwd Pwr Port 1 Factor dB	18325-01	10/31/2013	10/31/2015
T12	AN00952A	Directional Coupler	DC2000	2/26/2014	2/26/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AESU Processor*	Honeywell International Inc.	ISP-80C (965-1694-002)	ISPA-000146

Support Devices:

Function	Manufacturer	Model #	S/N
TCAS Antenna Simulator	Honeywell	727-0016-001	0068
TCAS Antenna Simulator	Honeywell	727-0016-001	0081
AESU EMI Harness	Honeywell	014-1089-004 REV	
AESS Engineering Test Station	Honeywell	951-0404-013	218

Test Conditions / Notes:

Temperature: 22°C
Pressure: 104.0kPa
Humidity: 35%
Frequency: 9kHz-14GHz

The EUT is sitting on an 80cm test table.
The EUT is connected to the support equipment outside the chamber through the EMI Harness.
The Antenna terminals are terminated by a characteristic loads located outside the chamber.
The EUT is transmitting at full power Mode S & C at 1030MHz and 1090MHz simultaneously.

CISPR Bandwidths below 150kHz

- 1) Resolution Bandwidth = 10 kHz for spurious emissions 150kHz - 1 GHz, and 1 MHz for spurious emissions above 1GHz.
- 2) Video Bandwidth = 300 kHz for spurious emissions 150kHz - 1 GHz, and 3 MHz for spurious emissions above 1 GHz.
- 3) Sweep Speed slow enough to maintain measurement calibration.
- 4) Detector Mode = Positive Peak.

Test Method TIA-603 C

Ext Attn: 0 dB

Measurement Data:

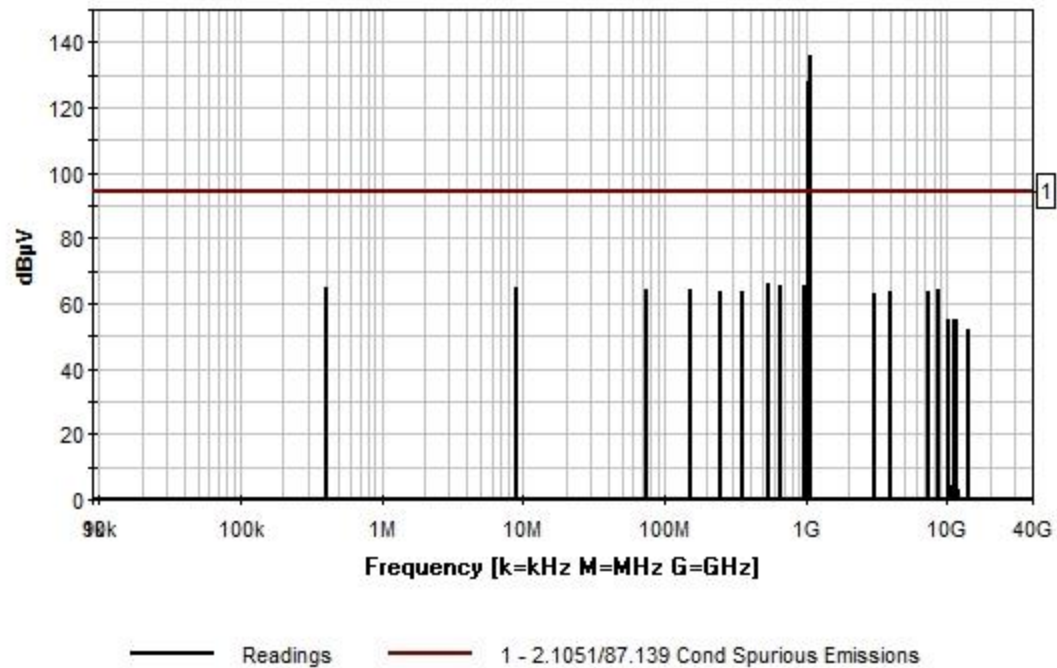
Reading listed by margin.

Test Lead: T4

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8 T12	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV	dBμV	dB	Ant
1	1091.000M	103.2	+0.0	+1.0	+1.6	+0.0	+0.0	136.1	94.0	+42.1	T4
	Ambient		+0.0	+30.3	+0.0	+0.0			Fundamental		
			+0.0	+0.0	+0.0	+0.0					
2	1029.000M	94.8	+0.0	+0.9	+1.6	+0.0	+0.0	127.9	94.0	+33.9	T4
	Ambient		+0.0	+30.6	+0.0	+0.0			Fundamental		
			+0.0	+0.0	+0.0	+0.0					
3	536.800M	15.0	+0.0	+0.7	+1.1	+0.0	+0.0	66.1	94.0	-27.9	T4
			+49.3	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
4	963.400M	13.5	+0.0	+0.9	+1.5	+0.0	+0.0	65.7	94.0	-28.3	T4
			+49.8	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
5	658.600M	13.9	+0.0	+0.8	+1.2	+0.0	+0.0	65.3	94.0	-28.7	T4
			+49.4	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
6	410.000k	15.5	+0.0	+0.0	+0.0	+0.0	+0.0	65.0	94.0	-29.0	T4
			+0.0	+0.0	+0.0	+0.0			Fundamental		
			+0.0	+0.0	+0.0	+49.5					
7	9.010M	14.8	+0.0	+0.1	+0.1	+0.0	+0.0	64.7	94.0	-29.3	T4
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+49.7					
8	73.610M	14.1	+0.0	+0.3	+0.3	+0.0	+0.0	64.4	94.0	-29.6	T4
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+49.7					

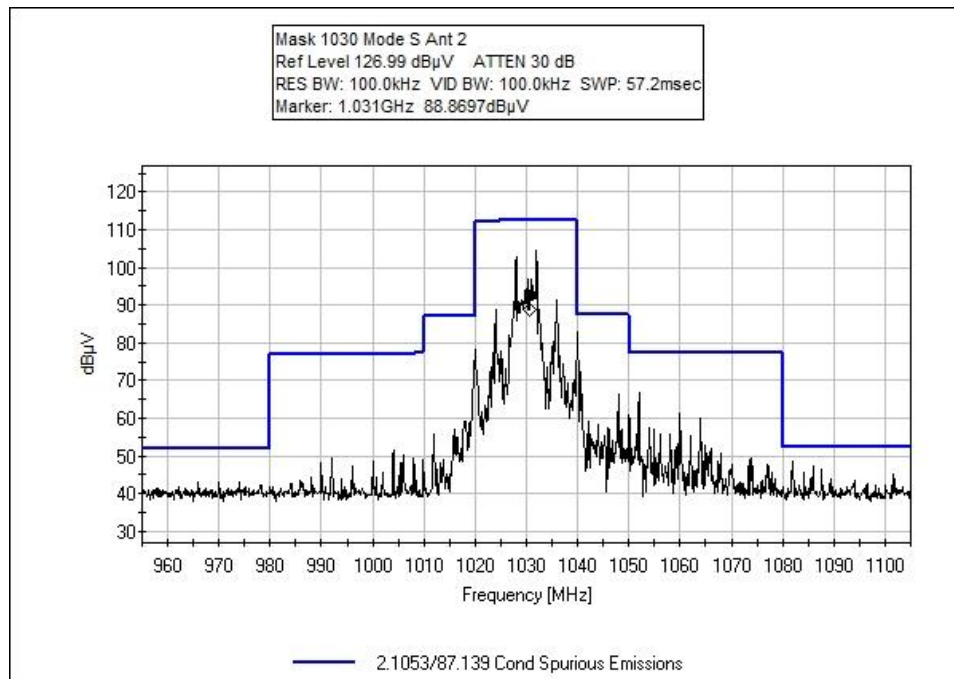
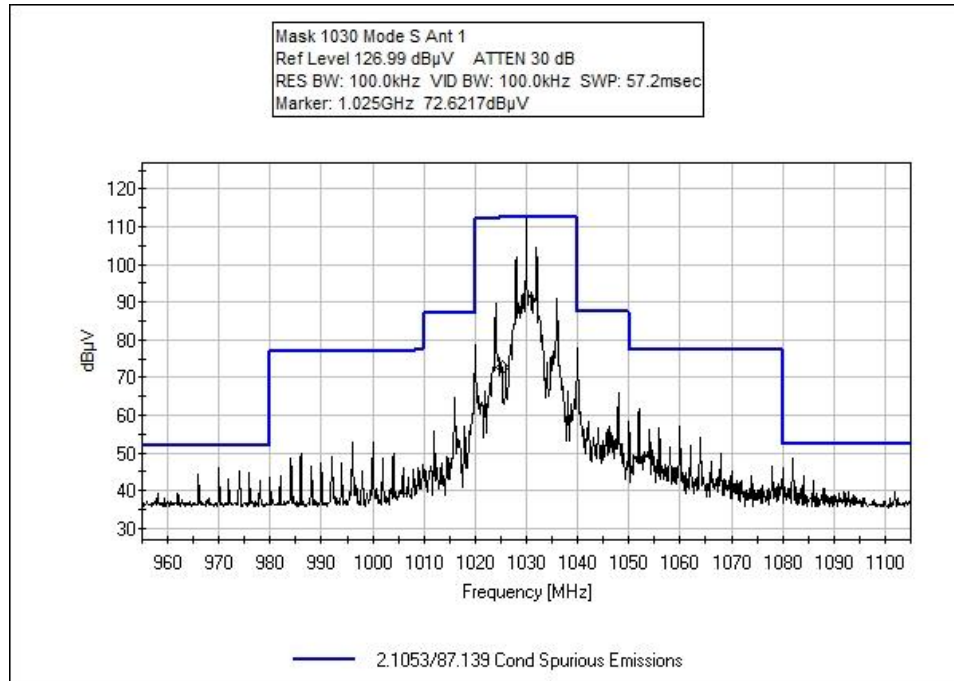
9	151.200M	13.8	+0.0 +0.0 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +0.0	+0.0 +0.0 +49.5	+0.0	64.2	94.0	-29.8	T4
10	8566.000M	28.2	+0.0 +0.0 +0.0	+2.6 +0.0 +0.0	+4.6 +0.0 +0.0	+0.0 +28.6 +0.0	+0.0	64.0	94.0	-30.0	T4
11	7258.000M	29.6	+0.0 +0.0 +0.0	+2.4 +0.0 +0.0	+4.3 +0.0 +0.0	+0.0 +27.5 +0.0	+0.0	63.8	94.0	-30.2	T4
12	251.600M	13.8	+0.0 +0.0 +0.0	+0.5 +0.0 +0.0	+0.7 +0.0 +0.0	+48.6 +0.0 +0.0	+0.0	63.6	94.0	-30.4	T4
13	358.800M	13.0	+0.0 +0.0 +0.0	+0.6 +0.0 +0.0	+0.9 +0.0 +0.0	+49.0 +0.0 +0.0	+0.0	63.5	94.0	-30.5	T4
14	3900.000M	28.1	+0.0 +0.0 +0.0	+1.8 +0.0 +0.0	+3.3 +30.2 +0.0	+0.0 +0.0 +0.0	+0.0	63.4	94.0	-30.6	T4
15	3084.000M	30.0	+0.0 +0.0 +0.0	+1.6 +0.0 +0.0	+2.9 +28.6 +0.0	+0.0 +0.0 +0.0	+0.0	63.1	94.0	-30.9	T4
16	10166.000 M	24.9	+0.0 +0.0 +50.1	+3.0 +0.0 -27.9	+5.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	55.1	94.0	-38.9	T4
17	11150.000 M	24.3	+0.0 +0.0 +49.8	+3.5 +0.0 -27.9	+5.3 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	55.0	94.0	-39.0	T4
18	11714.000 M	24.5	+0.0 +0.0 +49.7	+3.6 +0.0 -28.5	+5.5 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	54.8	94.0	-39.2	T4
19	13956.000 M	24.6	+0.0 +0.0 +0.0	+4.4 +0.0 -31.1	+6.1 +0.0 +48.2	+0.0 +0.0 +0.0	+0.0	52.2	94.0	-41.8	T4
20	10604.000 M	24.1	+0.0 +0.0 +0.0	+3.2 +0.0 -27.8	+5.1 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	4.6	94.0	-89.4	T4
21	11936.000 M	22.4	+0.0 +0.0 +0.0	+3.7 +0.0 -28.6	+5.6 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	3.1	94.0	-90.9	T4

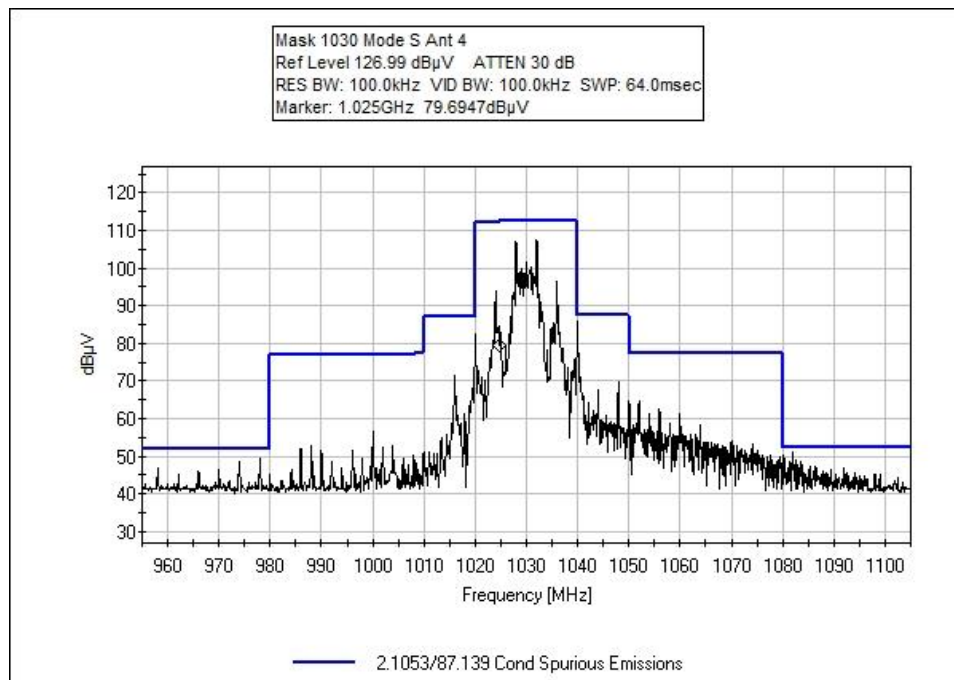
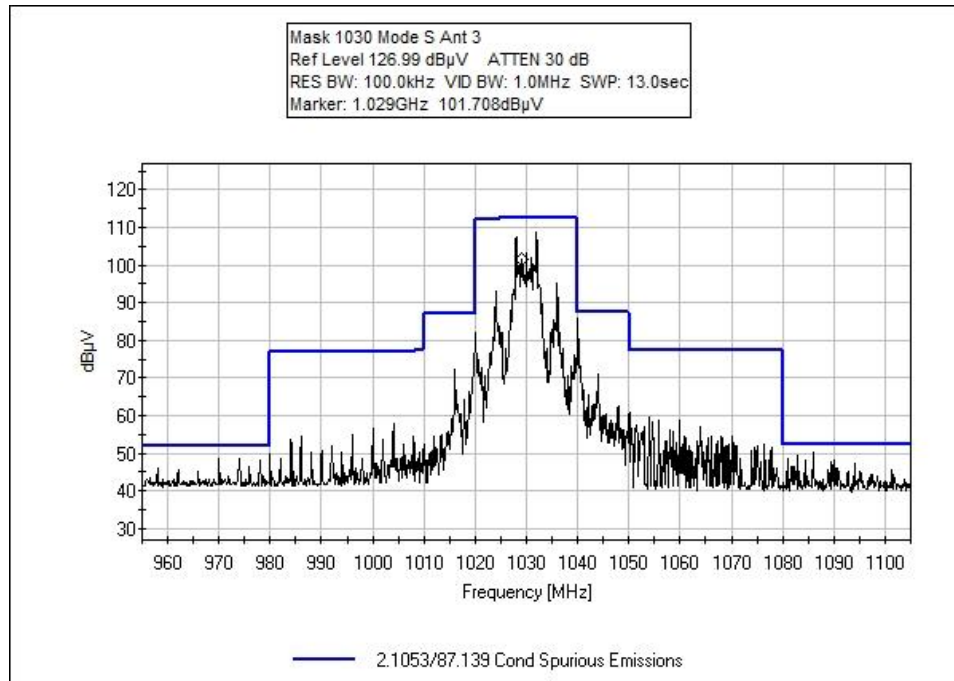
CKC Laboratories, Inc. Date: 2/26/2014 Time: 14:40:24 Honeywell International Inc. WO#: 95223
 Test Lead: T4 115V 400Hz Sequence#: 6 T4
 Honeywell International Inc. AESU (Aircraft Environment Surveillance Unit) P/N: ISP-80C (PN: 965-1694-002)

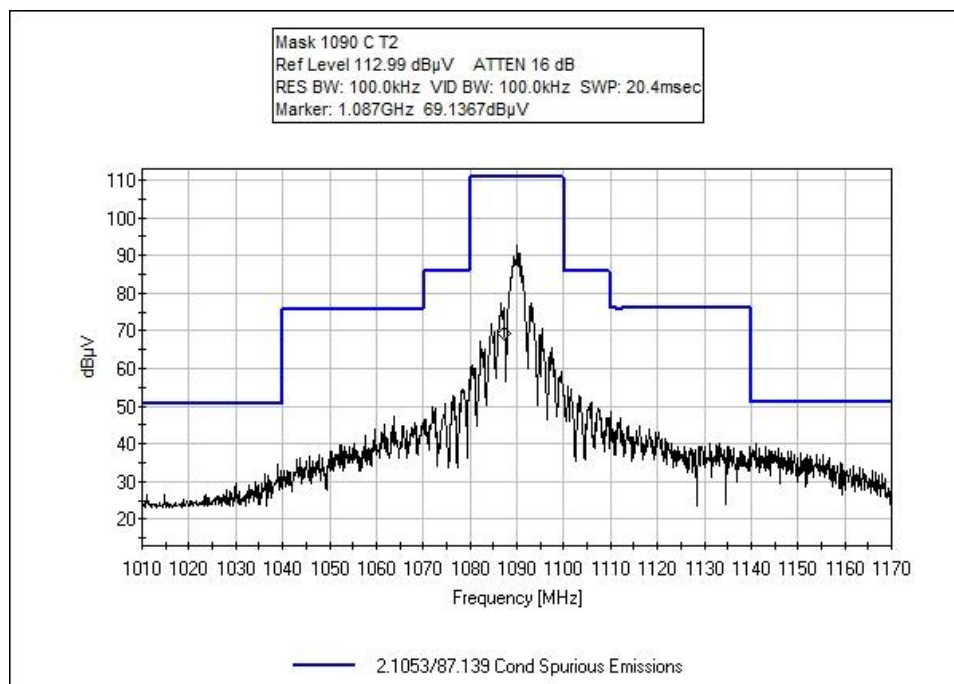
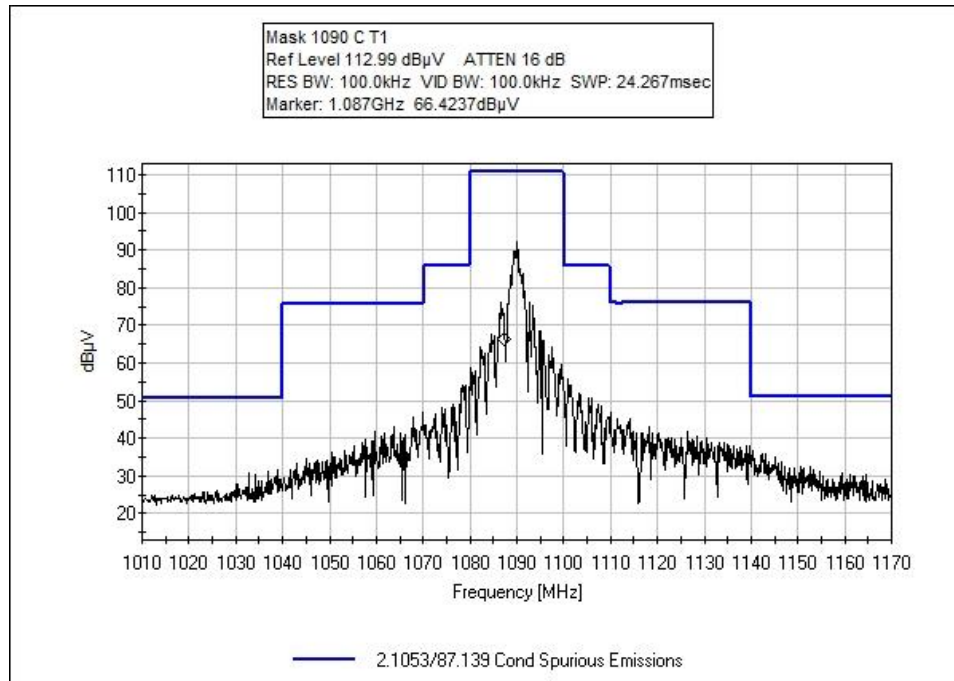


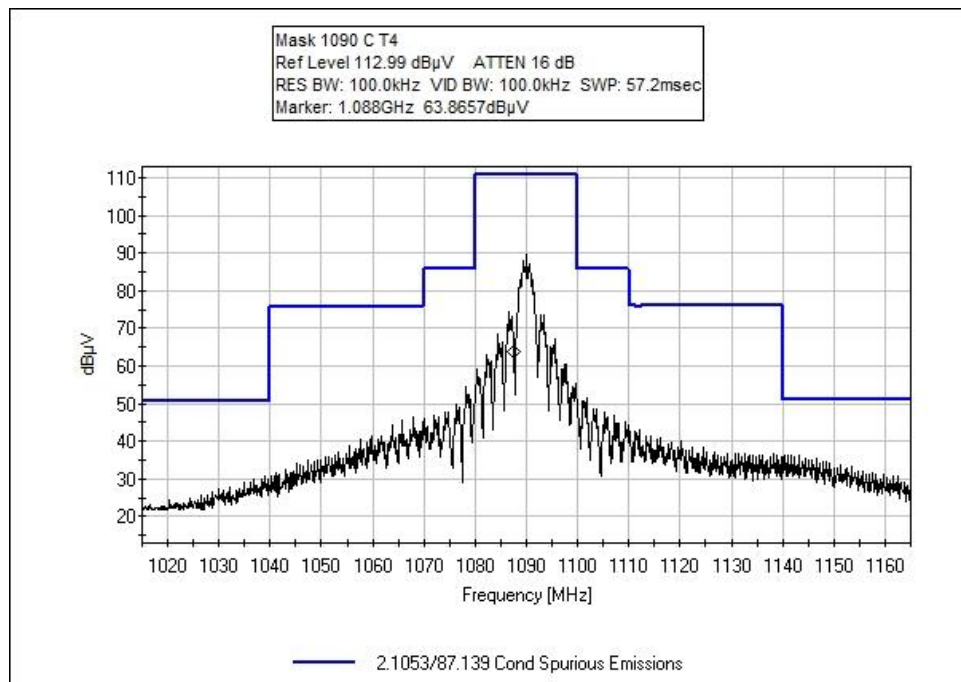
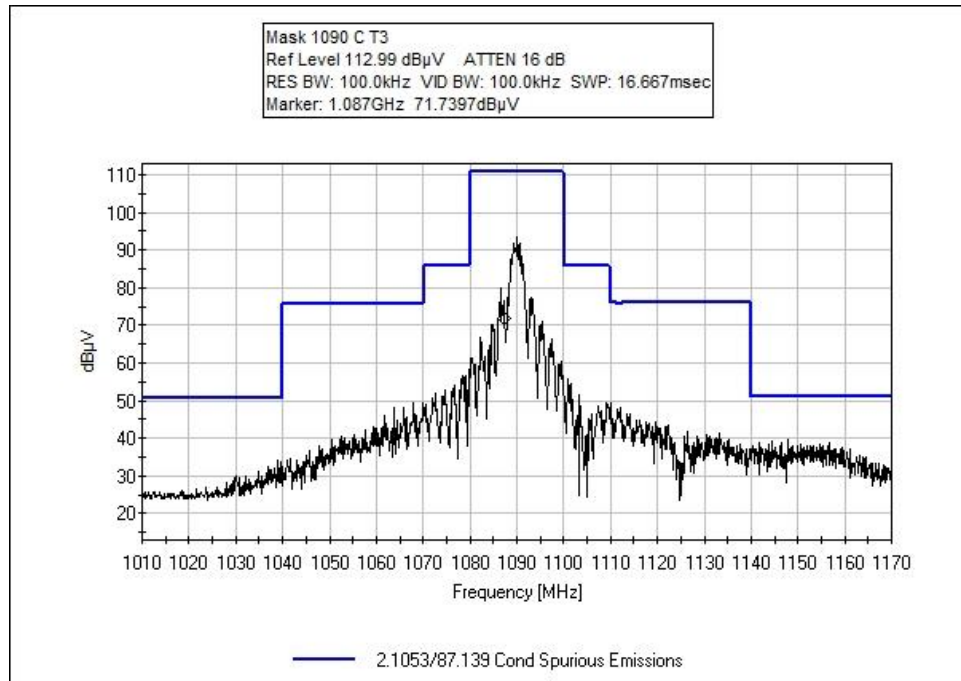
Test Plots

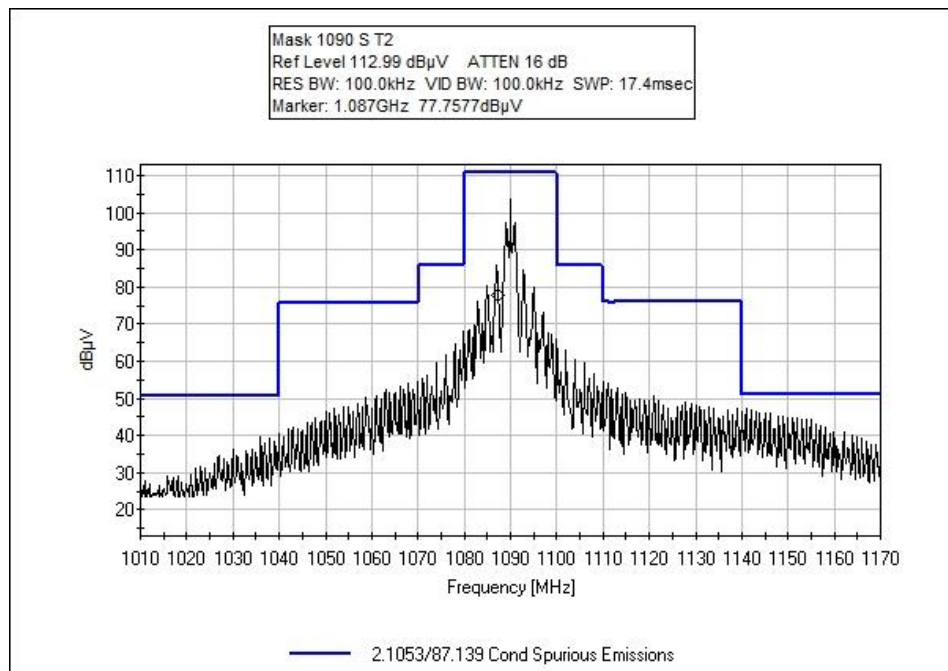
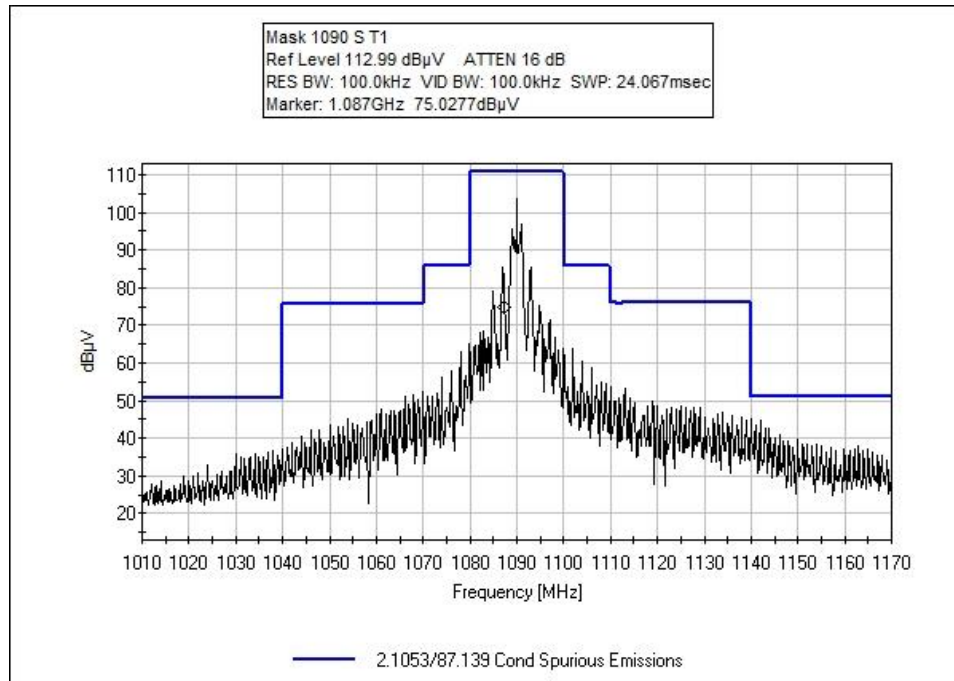
Note: 2.1053 / 87.139 Conducted Spurious Emissions is a typo. The correct reference is 2.1051 / 87.139 Conducted Spurious Emissions. The plots come in as jpg format and cannot be altered.

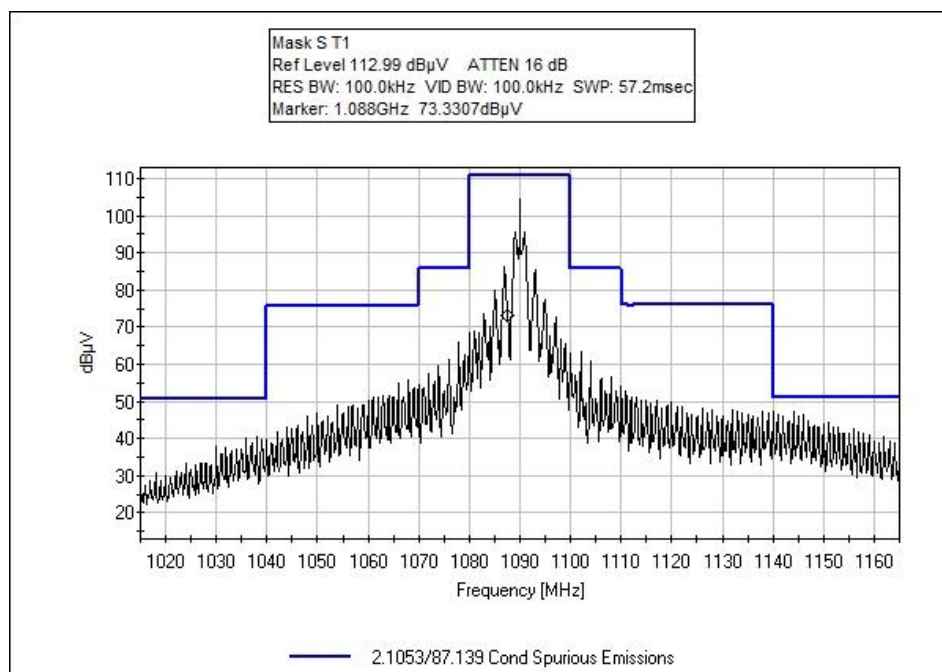
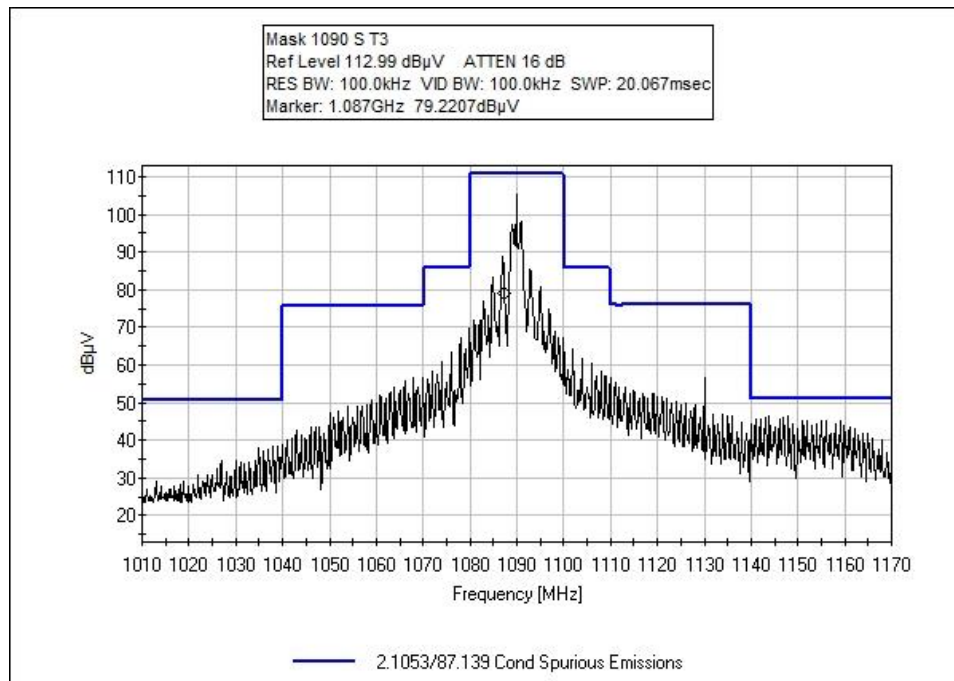


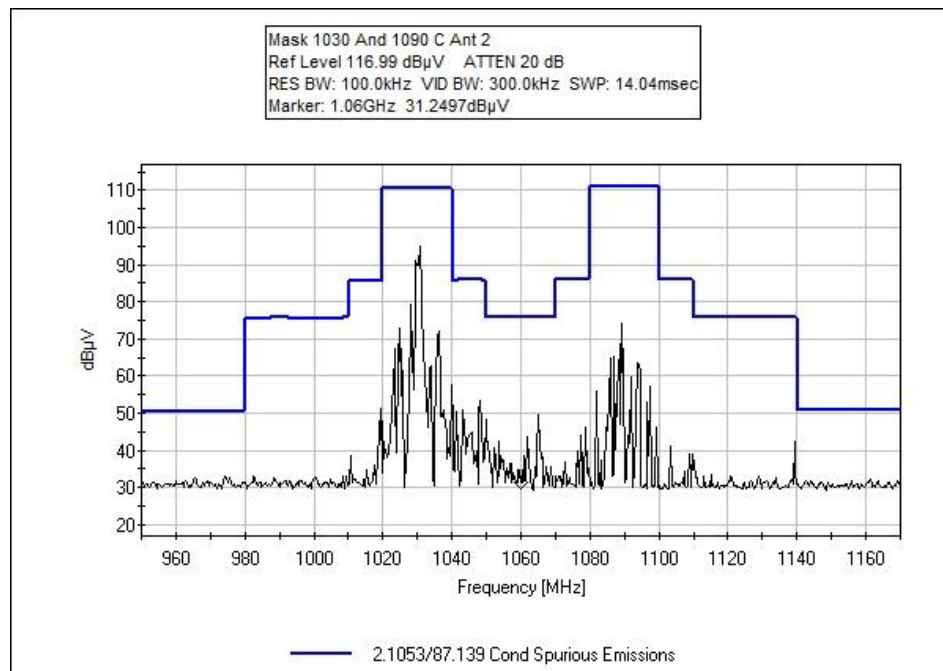
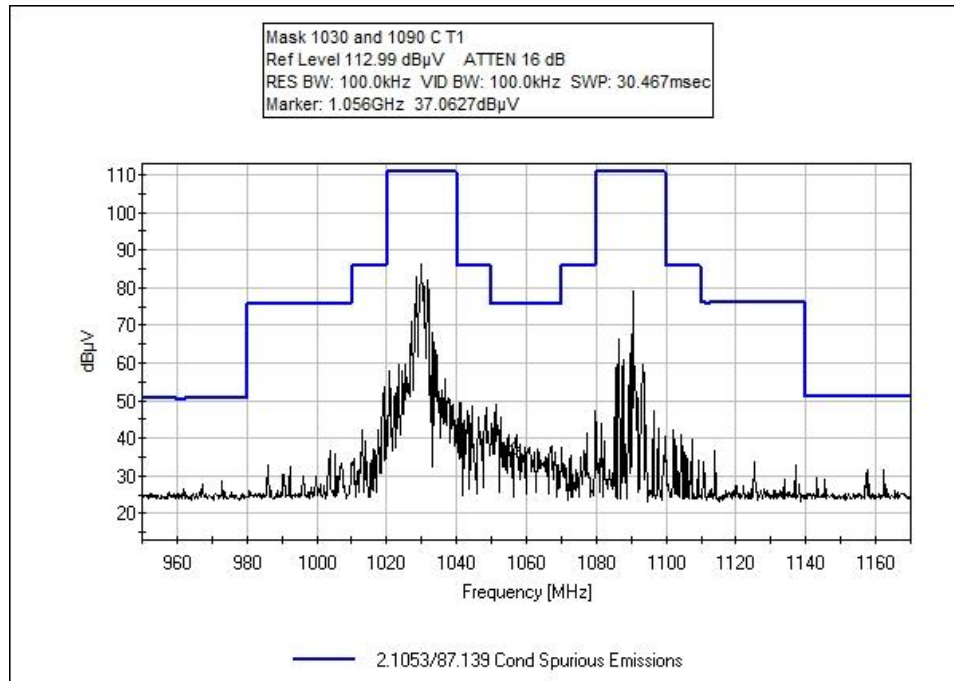


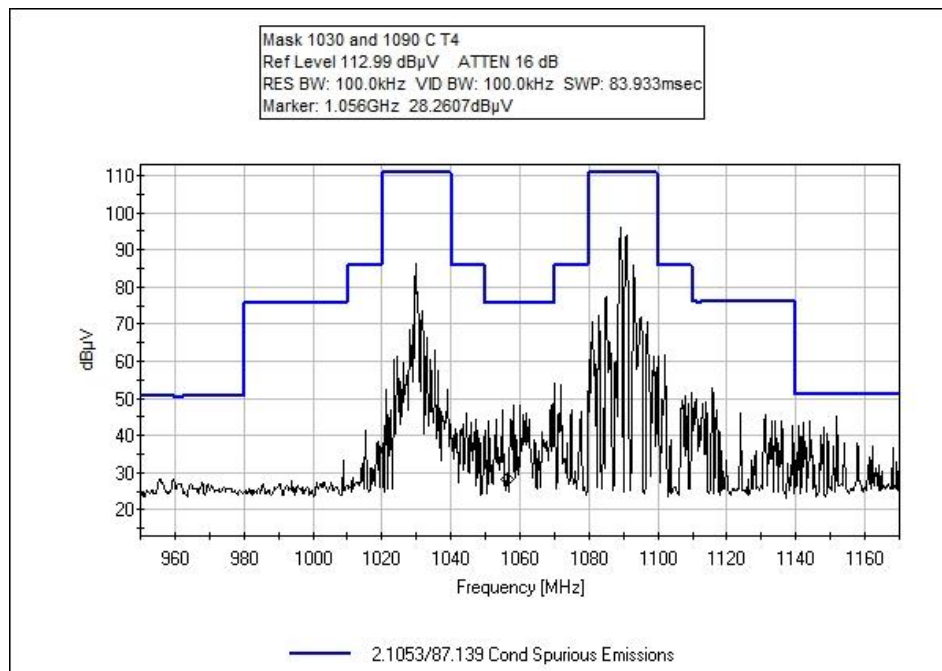
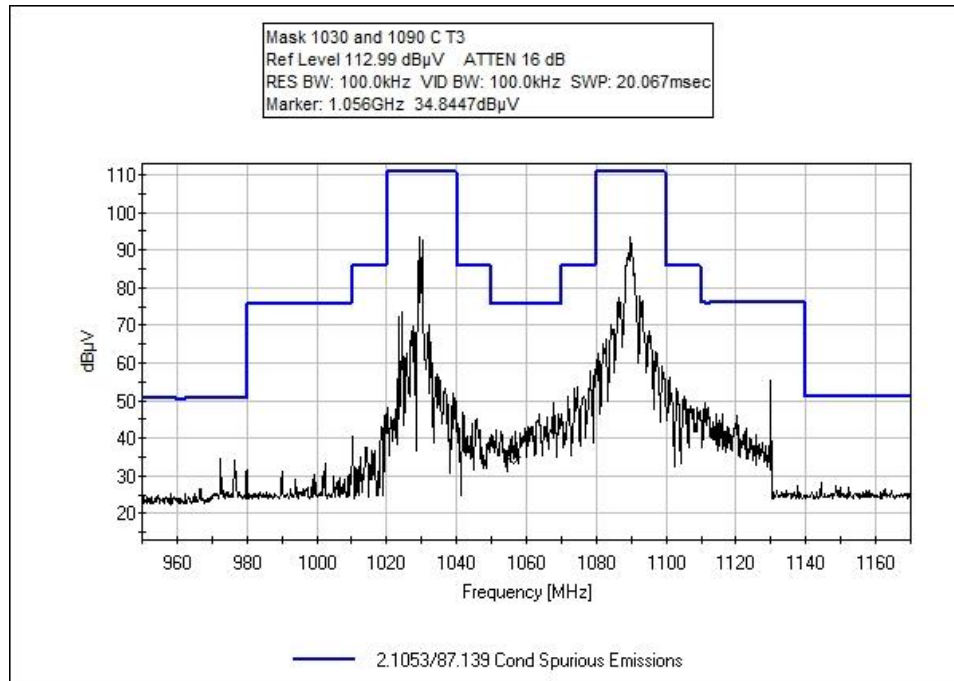








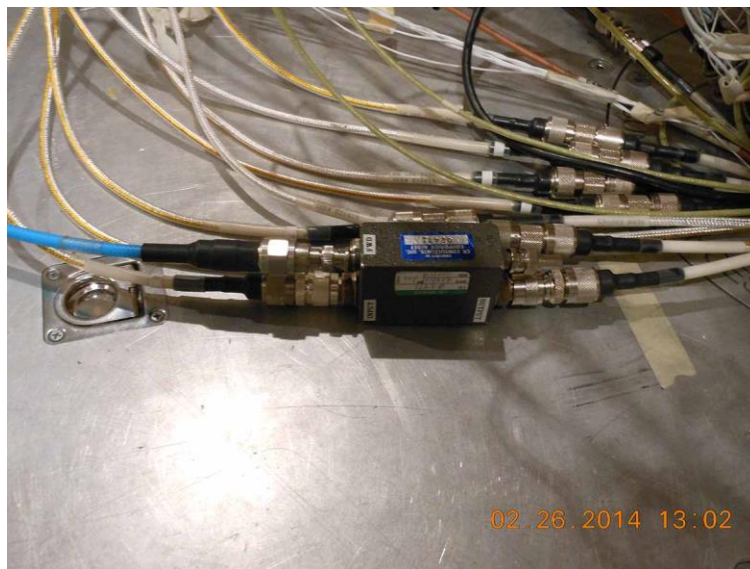




Test Setup Photo(s)



9kHz-200MHz



200-400MHz



1-2GHz



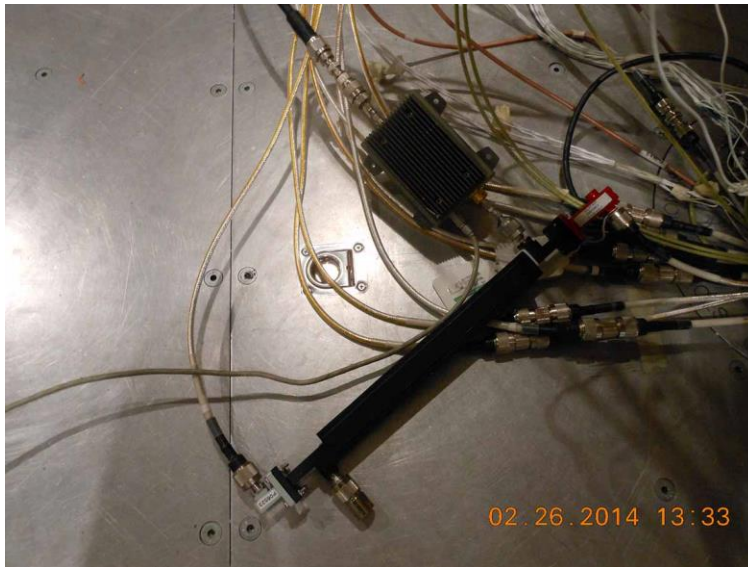
2-4GHz



4-10GHz



10-12GHz



12-14GHz



400MHz-1GHz

2.1053 / 87.139 Field Strength of Spurious Radiation

Test Conditions

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Honeywell International Inc.**

Specification: **47 CFR §87.139(a) Spurious Emissions**

Work Order #: **95223**

Date: 2/26/2014

Test Type: **Maximized Emissions**

Time: 10:11:35

Equipment: **AESU Processor**

Sequence#: 2

Manufacturer: Honeywell International Inc.

Tested By: Steven Pittsford

Model: ISP-80C (965-1694-002)

S/N: ISPA-000146

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02308	Preamp	8447D	4/3/2012	4/3/2014
T2	AN01996	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
T3	ANP05360	Cable	RG214	12/3/2012	12/3/2014
T4	ANP05541	Cable	Heliac	4/11/2012	4/11/2014
T5	ANP06505	Cable	32026-29080- 29080-84	10/18/2013	10/18/2015
T6	AN02872	Spectrum Analyzer	E4440A	7/19/2013	7/19/2015
T7	ANP05547	Cable	Heliac	9/7/2012	9/7/2014
T8	AN00052	Loop Antenna	6502	5/16/2012	5/16/2014
T9	AN03209	Preamp	83051A	3/5/2013	3/5/2015
T10	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	9/16/2013	9/16/2015
T11	ANP06217	Attenuator	768-10	3/22/2012	3/22/2014
T12	AN02741	Active Horn Antenna	AMFW-5F- 12001800-20-10P	12/18/2012	12/18/2014

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AESU Processor*	Honeywell International Inc.	ISP-80C (965-1694-002)	ISPA-000146

Support Devices:

Function	Manufacturer	Model #	S/N
TCAS Antenna Simulator	Honeywell	727-0016-001	0068
TCAS Antenna Simulator	Honeywell	727-0016-001	0081
AESU EMI Harness	Honeywell	014-1089-004 REV	
AESS Engineering Test Station	Honeywell	951-0404-013	218

Test Conditions / Notes:

Temperature: 22°C Pressure: 104.0kPa Humidity: 35% Frequency: 9k-14GHz The EUT is sitting on an 80cm test table. The EUT is connected to the support equipment outside the chamber through the EMI Harness The Antenna terminals are terminated by a characteristic loads located outside the chamber. The EUT is transmitting at full power Mode S & C at 1030MHz and 1090MHz simultaneously CISPR Bandwidths below 150kHz 1) Resolution Bandwidth = 10 kHz for spurious emissions 150kHz - 1 GHz, and 1 MHz for spurious emissions above 1GHz. 2) Video Bandwidth = 300 kHz for spurious emissions 150kHz - 1 GHz, and 3 MHz for spurious emissions above 1 GHz. 3) Sweep Speed slow enough to maintain measurement calibration. 4) Detector Mode = Positive Peak. Test Method TIA-603 C
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Test Data

Operating Frequency(ies):	1030MHz & 1090MHz
Operational Mode(s):	Mode C & S
Highest Measured Power:	48 dBm
Measurement Distance:	3 meters

Limit Definition:

Frequency Range	Limit (dBc)	Limit Calculation
9kHz - 14GHz	61	$43+10*\text{LOG}(P)$

Frequency (MHz)	Reference Level (dBm)	Measured (dBc)	Margin	Antenna Polarity
10000.000	-30.9	78.9	-17.9	Horizontal
10000.000	-31.0	79.0	-18.0	Vertical
9810.000	-31.2	79.2	-18.2	Vertical
7630.000	-31.5	79.5	-18.5	Vertical
9266.390	-32.0	80.0	-19.0	Vertical
7211.890	-32.0	80.0	-19.0	Vertical
8720.000	-32.5	80.5	-19.5	Vertical
8241.620	-32.5	80.5	-19.5	Vertical
3270.000	-34.4	82.4	-21.4	Vertical
6540.000	-36.4	84.4	-23.4	Vertical
5450.000	-37.0	85.0	-24.0	Vertical
6179.440	-37.5	85.5	-24.5	Horizontal
5148.130	-39.6	87.6	-26.6	Vertical
4360.000	-40.6	88.6	-27.6	Vertical
4121.130	-42.0	90.0	-29.0	Horizontal
3112.550	-42.1	90.1	-29.1	Vertical
2180.000	-42.4	90.4	-29.4	Vertical
396.012	-42.6	90.6	-29.6	Vertical
1187.850	-45.2	93.2	-32.2	Vertical
39.553	-45.2	93.2	-32.2	Horizontal
2055.250	-45.4	93.4	-32.4	Horizontal
264.077	-48.0	96.0	-35.0	Vertical

106.769	-48.4	96.4	-35.4	Vertical
14041.520	-57.8	105.8	-44.8	Vertical
13393.420	-58.3	106.3	-45.3	Vertical
13952.000	-58.3	106.3	-45.3	Horizontal
11147.480	-59.1	107.1	-46.1	Vertical
11147.520	-59.1	107.1	-46.1	Horizontal
12356.700	-59.6	107.6	-46.6	Vertical
10297.380	-60.2	108.2	-47.2	Vertical
11326.960	-60.5	108.5	-47.5	Vertical

Test Setup Photo(s)



AESS Test Station Outside, Conducted



Test Setup Inside 1, Radiated



Test Setup Inside 2, Radiated

Note: The two photos above were taken the day of testing 2/26/2014.

2.1055 / 87.133 Frequency Stability

Test Conditions

The EUT was placed into a controlled temperature chamber and stabilized at the temperature indicated. The EUT was then operated for fifteen minutes after which time the transmitter frequency was measured.

The input of the directional coupler is directly attached to each antenna port and the output to the simulated antenna loads. The forward power will be measured through the forward power port attenuator and cables.

20 PPM or + 20.6 kHz from the +20°C frequency over a temperature range from –15°C to +70°C.

Pressure: 101.0kPa

Humidity: 31%

Engineer Name: Steven Pittsford

Test Equipment					
Asset #	Description	Model	Manufacturer	Cal Date	Cal Due
02872	Spectrum Analyzer	E4440A	Agilent	7/19/2013	7/19/2015
P01906	Directional Coupler	3002-30	NARDA	6/18/2013	6/18/2015
P06505	Cable	32026-29080-29080-84	Astrolab	10/18/2013	10/18/2015
02757	Temperature Chamber	F100/350-8	Bemco	1/22/2013	1/22/2015
P06217	Attenuator	768-10	Narda	3/31/2013	3/31/2015
03029	Thermometer, Digital Infrared	566	Fluke	2/1/2013	2/1/2015

Test Data

Antenna Port 1					
Temp	Mode	Measured Freq (1030MHz Ideal)	1030MHz Deviation (kHz)	Measured Freq (1090MHz Ideal)	1090MHz Deviation (kHz)
-15°C	S	1.029999	-1	1.089999	-1
	C	1.030002	2	1.090001	1
-10°C	S	1.029997	-3	1.089999	-1
	C	1.029997	-3	1.089999	-1
0°C	S	1.029997	-3	1.089997	-3
	C	1.029994	-6	1.089998	-2
10°C	S	1.029998	-2	1.089999	-1
	C	1.030002	2	1.089999	-1
20°C	S	1.029998	-2	1.090000	0
	C	1.029996	-4	1.089999	-1
30°C	S	1.029997	-3	1.090000	0
	C	1.029999	-1	1.090000	0
40°C	S	1.029999	-1	1.089998	-2
	C	1.029995	-5	1.089998	-2
50°C	S	1.029997	-3	1.089998	-2
	C	1.030005	5	1.089999	-1
60°C	S	1.029997	-3	1.089999	-1
	C	1.030004	4	1.089999	-1
70°C	S	1.029999	-1	1.089998	-2
	C	1.029999	-1	1.089999	-1
20°C 115% Nominal Voltage	S	1.030001	1	1.089998	-2
	C	1.030001	1	1.089997	-3
20°C 85% Nominal Voltage	S	1.029999	-1	1.089999	-1
	C	1.030001	1	1.089999	-1

Antenna Port 2					
Temp	Mode	Measured Freq (1030MHz Ideal)	1030MHz Deviation (kHz)	Measured Freq (1090MHz Ideal)	1090MHz Deviation (kHz)
-15°C	S	1.029999	-1	1.090000	0
	C	1.029998	-2	1.090000	0
-10°C	S	1.029997	-3	1.089998	-2
	C	1.029998	-2	1.089997	-3
0°C	S	1.029997	-3	1.090001	1
	C	1.029996	-4	1.089998	-2
10°C	S	1.029997	-3	1.089998	-2
	C	1.030003	3	1.089998	-2
20°C	S	1.029996	-4	1.089998	-2
	C	1.029998	-2	1.089998	-2
30°C	S	1.029999	-1	1.089999	-1
	C	1.029993	-7	1.089998	-2
40°C	S	1.029998	-2	1.089998	-2
	C	1.030009	9	1.089998	-2
50°C	S	1.029997	-3	1.089999	-1
	C	1.029997	-3	1.089998	-2
60°C	S	1.029997	-3	1.089999	-1
	C	1.029998	-2	1.089998	-2
70°C	S	1.029998	-2	1.089998	-2
	C	1.029999	-1	1.089999	-1
20°C 115% Nominal Voltage	S	1.029997	-3	1.090000	0
	C	1.030002	2	1.089997	-3
20°C 85% Nominal Voltage	S	1.029998	-2	1.089999	-1
	C	1.029996	-4	1.089998	-2

Antenna Port 3					
Temp	Mode	Measured Freq (1030MHz Ideal)	1030MHz Deviation (kHz)	Measured Freq (1090MHz Ideal)	1090MHz Deviation (kHz)
-15°C	S	1.029998	-2	1.089999	-1
	C	1.030002	2	1.089999	-1
-10°C	S	1.029998	-2	1.089998	-2
	C	1.030003	3	1.089999	-1
0°C	S	1.029999	-1	1.089998	-2
	C	1.030001	1	1.089999	-1
10°C	S	1.029999	-1	1.089999	-1
	C	1.029999	-1	1.089999	-1
20°C	S	1.029998	-2	1.089998	-2
	C	1.030001	1	1.090000	0
30°C	S	1.029998	-2	1.089999	-1
	C	1.030004	4	1.089997	-3
40°C	S	1.029998	-2	1.089997	-3
	C	1.029996	-4	1.089998	-2
50°C	S	1.029999	-1	1.089998	-2
	C	1.029998	-2	1.089998	-2
60°C	S	1.029997	-3	1.089998	-2
	C	1.029998	-2	1.090000	0
70°C	S	1.029999	-1	1.089998	-2
	C	1.029999	-1	1.089999	-1
20°C 115% Nominal Voltage	S	1.029998	-2	1.089998	-2
	C	1.029995	-5	1.089998	-2
20°C 85% Nominal Voltage	S	1.029999	-1	1.089998	-2
	C	1.029999	-1	1.089998	-2

Antenna Port 4					
Temp	Mode	Measured Freq (1030MHz Ideal)	1030MHz Deviation (kHz)	Measured Freq (1090MHz Ideal)	1090MHz Deviation (kHz)
-15°C	S	1.029998	-2	1.089999	-1
	C	1.029996	-4	1.089998	-2
-10°C	S	1.030000	0	1.089998	-2
	C	1.029996	-4	1.089999	-1
0°C	S	1.029999	-1	1.089998	-2
	C	1.029999	-1	1.089998	-2
10°C	S	1.030000	0	1.090000	0
	C	1.029997	-3	1.089999	-1
20°C	S	1.029999	-1	1.089997	-3
	C	1.029996	-4	1.089999	-1
30°C	S	1.029999	-1	1.089999	-1
	C	1.030009	9	1.089999	-1
40°C	S	1.029997	-3	1.089998	-2
	C	1.029992	-8	1.089998	-2
50°C	S	1.029998	-2	1.089999	-1
	C	1.030001	1	1.089998	-2
60°C	S	1.029998	-2	1.090000	0
	C	1.030009	9	1.089998	-2
70°C	S	1.029997	-3	1.089998	-2
	C	1.030007	7	1.089999	-1
20°C 115% Nominal Voltage	S	1.029998	-2	1.089999	-1
	C	1.030001	1	1.089998	-2
20°C 85% Nominal Voltage	S	1.029998	-2	1.089998	-2
	C	1.030000	0	1.089999	-1

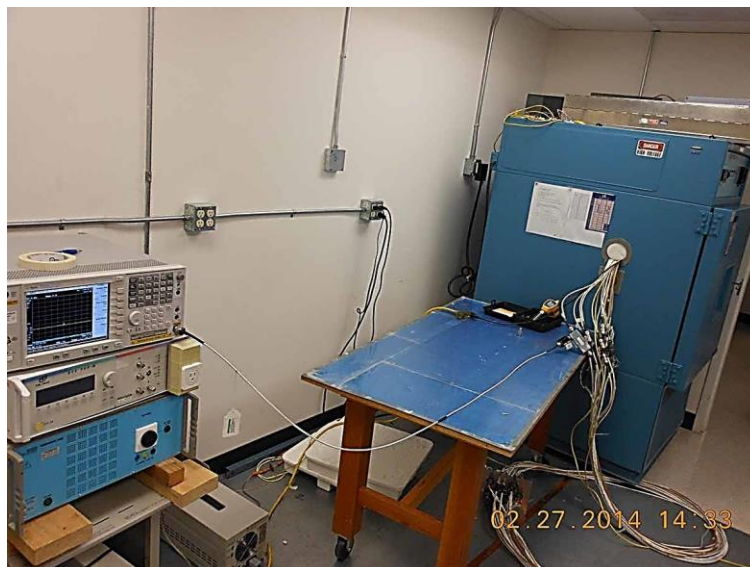
Test Setup Photo(s)



Inside Temperature Chamber 87.133



Outside Temperature Chamber



Outside Temperature Chamber

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

Unless otherwise indicated, the following configuration parameters are used for equipment setup: 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 dB μ V/m, the spectrum analyzer reading in dB μ V 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. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

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 "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. 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 or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent 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

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. 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.