Test Report

Curtis-Straus LLC, *a wholly owned subsidiary of BV CPS*

Report No	EQ1352-2
Client	BlackBox Biometrics Inc.
Address	125 Tech Park Drive Rochester, NY 14623
Phone	(585)-329-3399
Items tested	Blast Gauge (Models: Gen 7 0 and Gen 7 1)
FCC ID	2AHN8BG710
IC	21433-BG710
Equipment Type	Digital Transmission System
Equipment Code	DTS
Emission Designator	1M05F1D
FCC/IC Rule Parts	47 CFR 15.247, RSS-247 Issue 1
Test Dates	June 2, June 7, July 6 and July 11, 2016
Results	As detailed within this report
Prepared by	Yunus Fazilioglu – Sr. EMC Engineer
Authorized by	Christopher Reynolds – EMC Supervisor
Issue Date	8/31/2016
Conditions of Issue	This Test Report is issued subject to the conditions stated in the '*Conditions of Testing*' section on page 31 of this report.

Contents

Form Final Report REV 7-20-07 (DW)

Summary

This test report supports an application for certification of a transmitter operating pursuant to 47 CFR 15.247 and RSS-247. The product is the “Blast Gauge” (Models: Gen 7 0 and Gen 7 1). It is a digitally modulated transmitter that operates in the 2402 to 2480 MHz frequency range. It has an internal patch antenna with 2.5dBi peak gain.

We found that the product met the above requirements without modification. The test samples were received in good condition.

The EUT has two models as detailed below:
Gen 7 X, where X will be a numeric value indicating battery size: 0 for 1/6 D-Cell and 1 for 2450-cell
Antenna port conducted measurements were performed on Model Gen 7 0.
Radiated spurious emissions tests were performed on Model Gen 7 1.
Since the only difference between the models is the size of the battery, test results presented in this report represent both models.

Release Control Record

Issue No.	Reason for change	Date Issued
1	Original Release	August 31, 2016

Test Methodology

All testing was performed according to the following rules/procedures/documents; CFR 47 Part 15.247, RSS-247 Issue 1, RSS-Gen Issue 4, FCC KDB 558074 D01 DTS Measurement Guidance v03r05 and ANSI C63.10-2013.

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) as well as varying the test antenna's height and polarity. Only worst case results are listed in this report. EUT has an internal antenna that cannot be maximized separately.

RF measurements, as required by the rule section, were performed at the antenna port. 3 channels were tested as follows:

- 2402 MHz: Low Channel (#0)
- 2442 MHz: Mid Channel (#20)
- 2480 MHz: High Channel (#39)

EUT operating voltage is 3.6VDC (battery), therefore AC line conducted emissions testing was not required.

The following bandwidths were used during radiated spurious emissions testing.

Frequency	RBW	VBW
30-1000MHz	120kHz	1MHz
1-25GHz	1MHz	3MHz

Product Tested - Configuration Documentation

EUT Configuration			
Work Order:	Q1352		
Company:	BlackBox Biometrics Inc.		
Company Address:	125 Tech Park Drive		
	Rochester, NY 14623		
Contact:	Mike Premo		
	MN	**PN**	**SN**
EUT:	Blast Gauge System, Gen 7 1	--	0000M (Radiated EMI testing)
	Blast Gauge System, Gen 7 0	--	Sample 1 (Conducted Antenna Port testing)
EUT Description:	Blast Gauge		
EUT Max Frequency:	48 MHz (associated circuitry)		
EUT Min Frequency:	0.032768 MHz (associated circuitry)		
EUT TX Frequency:	2402 to 2480 MHz		

Support Equipment	**MN**	**SN**
Dell Laptop	Latitude	7F5L2Q1

Port Label	**Port Type**	**# ports**	**# populated**	**cable type**	**shielded**	**ferrites**	**length (m)**	**in/out**	**under test**	**comment**
USB Power	USB	1	1	USB	Yes	No	0.15	in	yes	USB 3M Ext. used for radiated setup only

Software Operating Mode Description:

EUT is set to transmit at Low (2402MHz), Middle (2442MHz) and High (2480MHz) channels.

Statement of Conformity

EUT has shown compliance to the following:

RSS-GEN	RSP-100	RSS 247	Part 15	Comments
6.3			15.15(b)	There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements.
	3.1		15.19	The label is shown in the label exhibit.
	4		15.21	Information to the user is shown in the instruction manual exhibit.
			15.27	No special accessories are required for compliance.
3, 6.1			15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13			15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
8.1			15.35	The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.
8.3			15.203	EUT has a patch antenna internal to the device (Peak gain: 2.5dBi). The antenna is connected to the PCB via IPEX MHF1 connector, which is considered unique.
8.10			15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable
8.8			15.207	Not applicable since EUT is battery powered.
			15.247	The unit complies with the requirements of 15.247
		RSS 247		The unit complies with the requirements of RSS-247
6.6				Occupied Bandwidth measurements were made.

Test Results

DTS Bandwidth

Limit: The minimum 6 dB bandwidth shall be at least 500 kHz. [15.247(a)(2)]

MEASUREMENTS / RESULTS

6dB Bandwidth

Date: Jun-2-2016 **Company:** BlackBox Biometrics, Inc. **Work Order:** Q1352

Engineer: Yunus Faziloglu **EUT Desc:** BlastGauge **EUT Operating Voltage/Frequency:** 3.6VDC

Temp: 22°C **Humidity:** 46% **Pressure:** 1007 mBar

Frequency Range: 2402-2480 MHz **Measurement Type:** Conducted

Notes: Powered from support laptop USB port

Frequency (MHz)	Reading (kHz)	6dB BW Limit (kHz)	6dB BW Margin (kHz)	6dB BW Result (Pass/Fail)
2402	675.2	≥500	175.2	Pass
2442	680.9	≥500	180.9	Pass
2480	683.9	≥500	183.9	Pass

Test Site: Wireless Test Room **Cable 1:** SMA adapter assembly **Cable 2:** Asset #1784

Analyzer: MXE 1168255

Rev. 5/18/2016

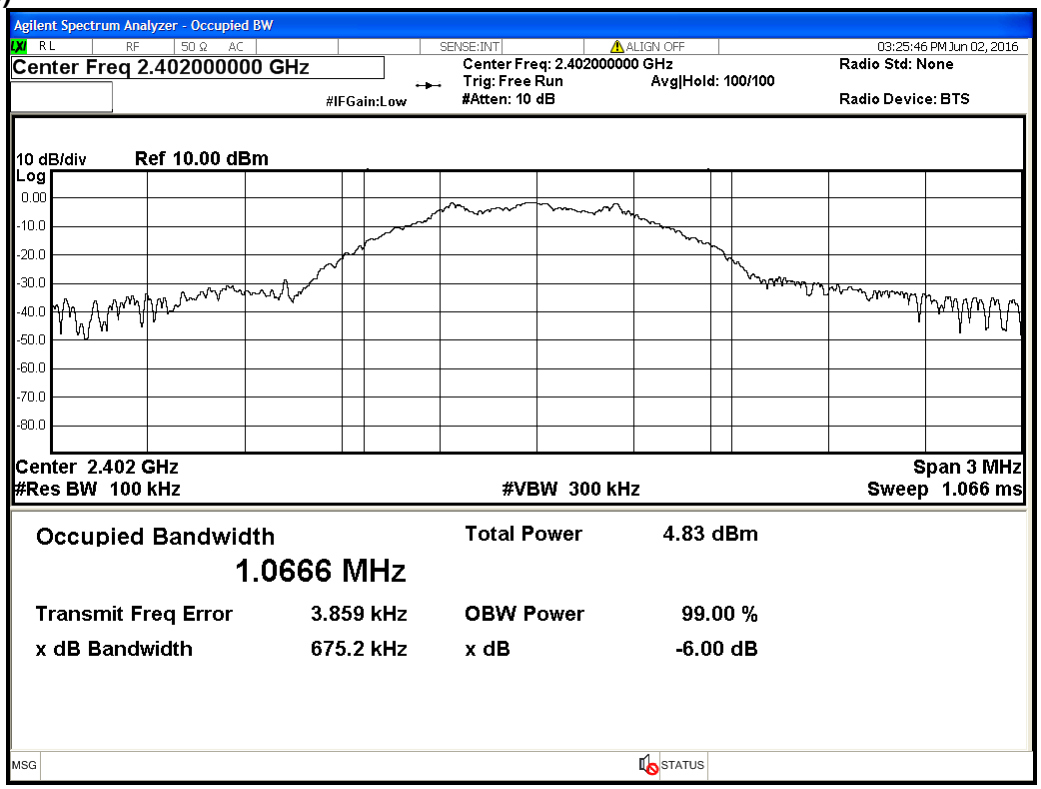
Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
MXE EMI Receiver	20Hz-8.4GHz	N9038A	Agilent	MY53290009	1168255	I	6/16/2016	6/16/2015

Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
TH A#2080	HTC-1	HDE		2080	II	4/5/2017	4/5/2016
Barometric A#2160	5396-0321	Monarch Instrument	4000060	2160	I	3/7/2017	3/7/2016

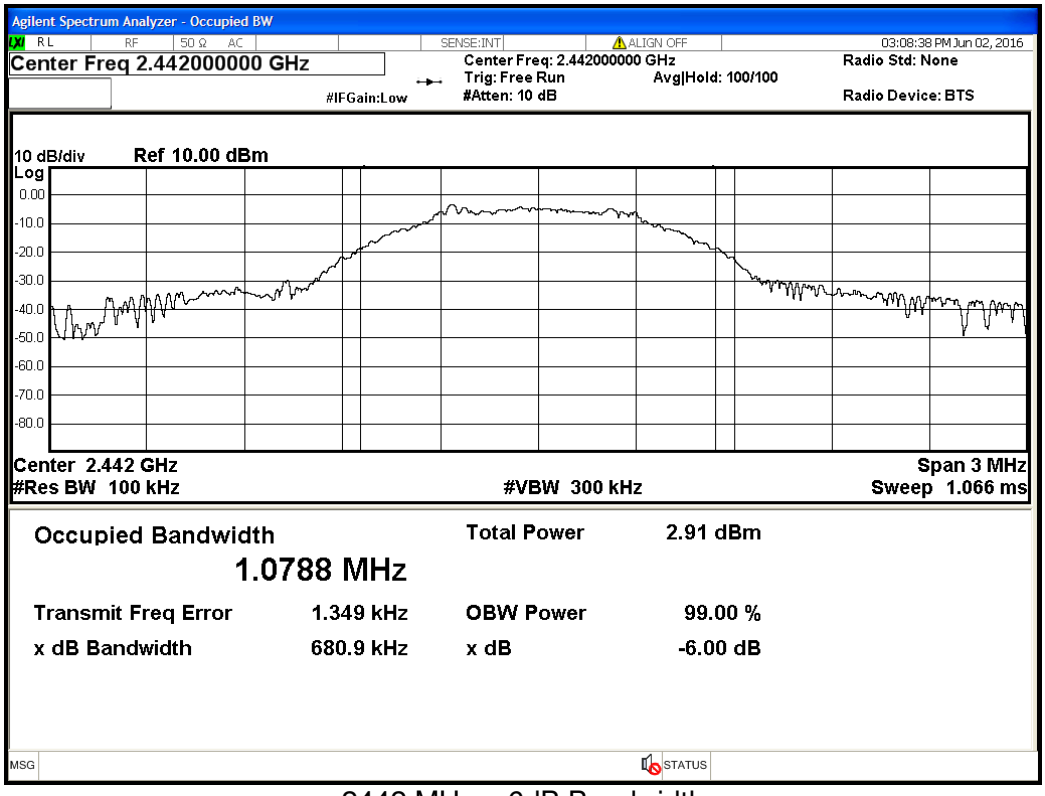
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on
Asset #1784	9kHz - 18GHz	Florida RF	II	3/7/2017	3/7/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

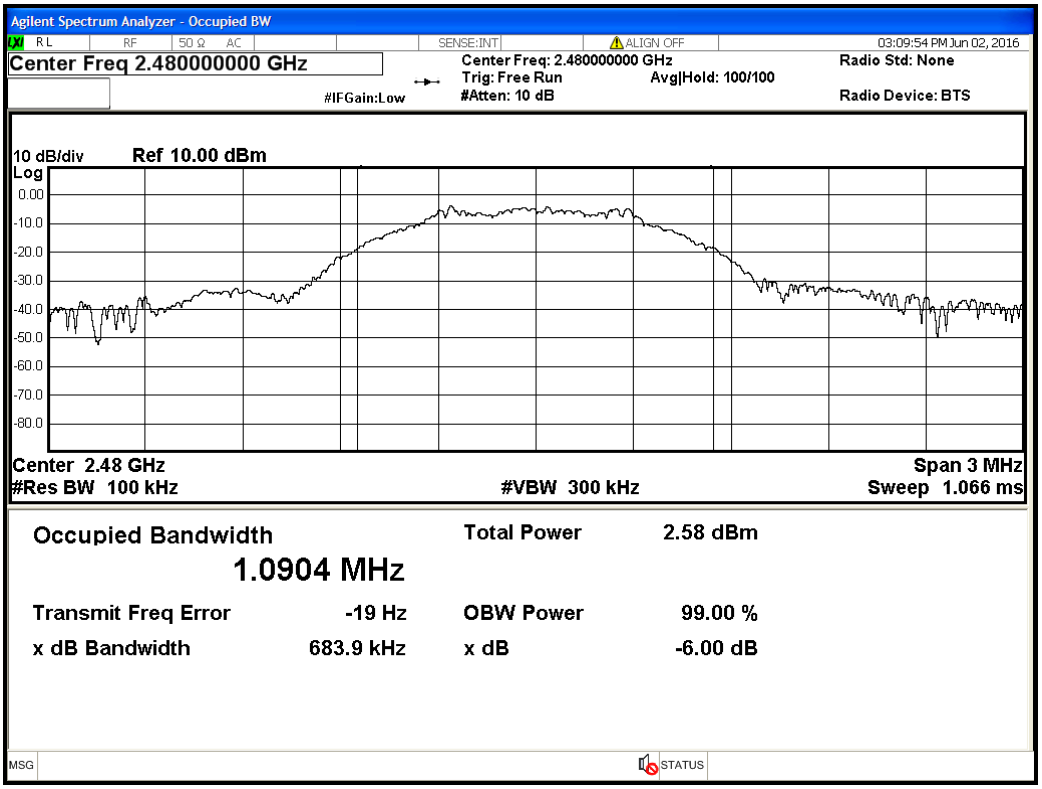
PLOT(s)



2402 MHz – 6dB Bandwidth



2442 MHz – 6dB Bandwidth



2480 MHz – 6dB Bandwidth

Output Power

Limit: 1 Watt Conducted Output Power [15.247(b)(3)]

Per 558074 D01 DTS Measurement Guidance v03r05 Section 9.1.2 (Peak Power Meter Method)

MEASUREMENTS / RESULTS

Peak Output Power

Date:	Jun-7-2016	**Company:**	BlackBox Biometrics, Inc.			**Work Order:** Q1352
Engineer:	Yunus Faziloglu	**EUT Desc:**	BlastGauge			**EUT Operating Voltage/Frequency:** 3.6VDC
Temp:	23.5°C	**Humidity:**	47%	**Pressure:**	991mBar	
Notes:	Conducted measurement at the antenna port					**EUT Max Freq:** 2480MHz
	Packet Type: Pseudorandom bit sequence 15					
	Payload length: 37 bytes					
	Different packet types and payload lengths did not have any impact on readings					

Frequency	Peak Reading	Insertion Loss	Peak Output Power	Limit	Margin	Result
(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBm)	(Pass/Fail)
2402	1.37	0.50	1.87	30.00	-28.13	Pass
2442	1.34	0.50	1.84	30.00	-28.16	Pass
2480	1.34	0.50	1.84	30.00	-28.16	Pass

Test Site: Wireless Test Room **Cable** SMA adapter assembly **Power Sensor** Boonton A#2108

POP(dBm)= Peak Reading (dBm) + Insertion Loss (dB)

VBW set to ≥ DTS

Rev. 5/18/2016							
Meteorological Meters	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**libration D**	**alibrated on**
TH A#2084	HTC-1	HDE		2084	II	4/5/2017	4/5/2016
Barometric A#2160	5396-0321	arch Instrun	4000060	2160	I	3/7/2017	3/7/2016
Power/Noise Meters	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**libration D**	**alibrated on**
2108 Power sensor	55006	Boonton	9529	2108	I	12/8/2016	12/8/2015
RMS Voltmeters/Current Clamp	**MN**	**Mnfr**	**SN**	**Asset**	**Cat**	**libration D**	**alibrated on**
DMM	114	Fluke	25660084	1866	I	2/2/2017	2/2/2016
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.							

Radiated Spurious Emissions

LIMITS

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
[15.247(d)]

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) and worst case emissions observed in Z orientation. All the results below are for the worst case orientation only.

MEASUREMENTS / RESULTS

Radiated Emissions Table

Date: 11-Jul-16 **Company:** Blackbox Biometrics, Inc **Work Order:** Q1352
Engineer: Tuyen Truong **EUT Desc:** BlastGauge System **EUT Operating Voltage/Frequency:** USB (3.6Vdc)
Temp: 20°C **Humidity:** 53% **Pressure:** 1001 mBar
Frequency Range: 30 to 1000 MHz **Measurement Distance:** 3m
Notes: all 3 channels were investigated; only worst case recorded. **EUT Max Freq:**

Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	--- Limit (dBµV/m)	--- Margin (dB)	--- Result (Pass/Fail)	FCC 15.209 Limit (dBµV/m)	FCC 15.209 Margin (dB)	FCC 15.209 Result (Pass/Fail)
v	71.92	42.5	25.3	8.9	0.6	26.7	---	---	---	40.0	-13.3	Pass
v	47.0	37.5	25.2	9.6	0.4	22.3	---	---	---	40.0	-17.7	Pass
v	84.07	43.7	25.3	7.7	0.6	26.7	---	---	---	40.0	-13.3	Pass
v	151.3	38.3	25.2	12.5	1.0	26.6	---	---	---	43.5	-16.9	Pass
v	163.0	35.3	25.0	12.2	0.9	23.4	---	---	---	43.5	-20.1	Pass
v	228.25	37.3	25.3	11.2	1.0	24.2	---	---	---	46.0	-21.8	Pass
v	325.0	36.9	25.0	14.0	1.2	27.1	---	---	---	46.0	-18.9	Pass
h	466.5	38.0	25.5	17.3	1.7	31.5	---	---	---	46.0	-14.5	Pass

Table Result: Pass by -13.3 dB ***Worst Freq:*** 71.92 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #1507 **Cable 3:** ---
Analyzer: Gold **Preamp:** Blue-Blk **Antenna:** Red-Black **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.165

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

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Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	II	3/22/2017	3/22/2015

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue-Black	0.009-2000MHz	ZFL-1000-LN	CS	N/A	800	II	12/27/2016	12/27/2015

Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-Black Bilog	30-2000MHz	JB1	Sunol	A091604-2	1106	I	2/9/2017	2/9/2015

Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
TH A#2081	HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Barometric A#2160	5396-0321	Monarch Instruments	4000060	2160	I	3/7/2017	3/7/2016

Cables	Range	Mfr	Cat	Calibration Due	Calibrated on
Asset #1507	9kHz - 18GHz	Florida RF	II	2/14/2017	2/14/2016
Asset #2052	9kHz - 18GHz	Florida RF	II	3/2/2017	3/2/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table

Date: 11-Jul-16 **Company:** Blackbox Biometrics, Inc **Work Order:** Q1352
Engineer: Tuyen Truong **EUT Desc:** BlastGauge System **EUT Operating Voltage/Frequency:** USB (3.6Vdc)
Temp: 20°C **Humidity:** 53% **Pressure:** 1001 mBar
Frequency Range: 1 to 6 GHz **Measurement Distance:** 3m
Notes: tx on low, mid and high channels **EUT Tx Freq:** 2402-2480 MHz
Duty Cycle <1%

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
h	4804.0	39.1	19.1	17.9	32.8	5.4	59.4	39.4	74.0	-14.6	Pass	54.0	-14.6	Pass
v	4804.0	37.4	17.4	17.9	32.8	5.4	57.7	37.7	74.0	-16.3	Pass	54.0	-16.3	Pass
h - noise floor	2390.0	47.5	24.9	19.9	28.0	3.5	59.1	36.5	74.0	-14.9	Pass	54.0	-17.5	Pass
v - noise floor	2390.0	48.2	25.1	19.9	28.0	3.5	59.8	36.7	74.0	-14.2	Pass	54.0	-17.3	Pass
h	4884.0	40.7	20.7	17.9	32.8	5.2	60.8	40.8	74.0	-13.2	Pass	54.0	-13.2	Pass
v	4884.0	38.1	18.1	17.9	32.8	5.2	58.2	38.2	74.0	-15.8	Pass	54.0	-15.8	Pass
h	4960.0	39.4	19.4	17.9	32.9	5.2	59.6	39.6	74.0	-14.4	Pass	54.0	-14.4	Pass
v	4960.0	37.9	17.9	17.9	32.9	5.2	58.1	38.1	74.0	-15.9	Pass	54.0	-15.9	Pass
h - noise floor	2483.5	48.7	25.2	20.2	28.4	3.6	60.5	37.0	74.0	-13.5	Pass	54.0	-17.0	Pass
v - noise floor	2483.5	48.4	25.0	20.2	28.4	3.6	60.2	36.8	74.0	-13.8	Pass	54.0	-17.2	Pass

Table Result: Pass by -13.2 dB ***Worst Freq:*** 4884.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #1507 **Cable 3:** ---
Analyzer: Gold **Preamp:** Asset #1517 **Antenna:** Orange Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.165

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

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Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
1517 HF Preamp	1-20GHz	CS	CS	N/A	1517	II	8/6/2016	8/6/2015
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Orange Horn	1-18GHz	3115	EMCO	0004-6123	390	I	10/13/2016	10/13/2014
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #1507	9kHz - 18GHz		Florida RF			II	2/14/2017	2/14/2016
Asset #2052	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table

Date: 06-Jul-16 **Company:** BlackBox Biometrics, Inc. **Work Order:** Q1352
Engineer: Tuyen Truong **EUT Desc:** BlastGauge System **EUT Operating Voltage/Frequency:** 3.6Vdc (USB power)
Temp: 23°C **Humidity:** 47% **Pressure:** 1001mBar
Frequency Range: 6-18GHz **Measurement Distance:** 1m
Notes: tx on low, mid and high channels **EUT Tx Freq:** 2402-2480 MHz
Duty Cycle <1%

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
h	7206.0	43.1	23.1	16.6	37.1	6.6	70.2	50.2	83.5	-13.3	Pass	63.5	-13.3	Pass
v	7206.0	45.37	25.4	16.6	37.1	6.6	72.5	52.5	83.5	-11.0	Pass	63.5	-11.0	Pass
h	7326.0	44.3	24.3	17.0	37.6	6.7	71.6	51.6	83.5	-11.9	Pass	63.5	-11.9	Pass
v	7326.0	45.9	25.9	17.0	37.6	6.7	73.2	53.2	83.5	-10.3	Pass	63.5	-10.3	Pass
h	7440.0	43.9	23.9	17.2	37.5	6.7	70.9	50.9	83.5	-12.6	Pass	63.5	-12.6	Pass
v	7440.0	45.66	25.7	17.2	37.5	6.7	72.7	52.7	83.5	-10.8	Pass	63.5	-10.8	Pass

Table Result: Pass by -10.3 dB ***Worst Freq:*** 7326.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #1507 **Cable 3:** ---
Analyzer: Gold **Preamp:** Asset #1517 **Antenna:** Orange Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.165

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Rev. 7/4/2016

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
1517 HF Preamp	1-20GHz	CS	CS	N/A	1517	II	8/6/2016	8/6/2015
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Orange Horn	1-18GHz	3115	EMCO	0004-6123	390	I	10/13/2016	10/13/2014
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #1507	9kHz - 18GHz		Florida RF			II	2/14/2017	2/14/2016
Asset #2052	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table

Date: 11-Jul-16 **Company:** Blackbox Biometrics, Inc **Work Order:** Q1352

Engineer: Tuyen Truong **EUT Desc:** BlastGauge System **EUT Operating Voltage/Frequency:** USB (3.6Vdc)

Temp: 20°C **Humidity:** 53% **Pressure:** 1001 mBar

Frequency Range: 18 to 26 GHz **Measurement Distance:** 10cm

Notes: tx on low, mid and high channels **EUT Max Freq:** 2402-2480 MHz

Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	FCC 15.209 Limit (dBµV/m)	FCC 15.209 Result (Pass/Fail)	Result (Pass/Fail)
No Emissions Found in This Range									

Table Result: --- by --- dB ***Worst Freq:*** --- MHz

Test Site: EMI Chamber 2 **Cable 1:** EMIR-HIGH-06 **Cable 2:** --- **Cable 3:** ---

Analyzer: Gold **Preamp:** 18 to 26.5 GHz **Antenna:** 18-26.5GHz Horn **Preselector:** ---

CSsoft Radiated Emissions Calculator v 1.017.165

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Rev. 7/24/2016

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
HF (Yellow)	18-26.5GHz	AFS4-18002650-60-8P-4	CS	467559	1266	II	3/8/2017	3/8/2016
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
HF (White) Horn	18-26.5GHz	801-WLM	Waveline	758	758	III	Verify before Use	date of test
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Barometric A#2160		5396-0321	Monarch Instruments	4000060	2160	I	3/7/2017	3/7/2016
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
REMI-High-06	1 - 26.5GHz	TRU-21B0707-120	TRU			II	8/7/2016	8/7/2015

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

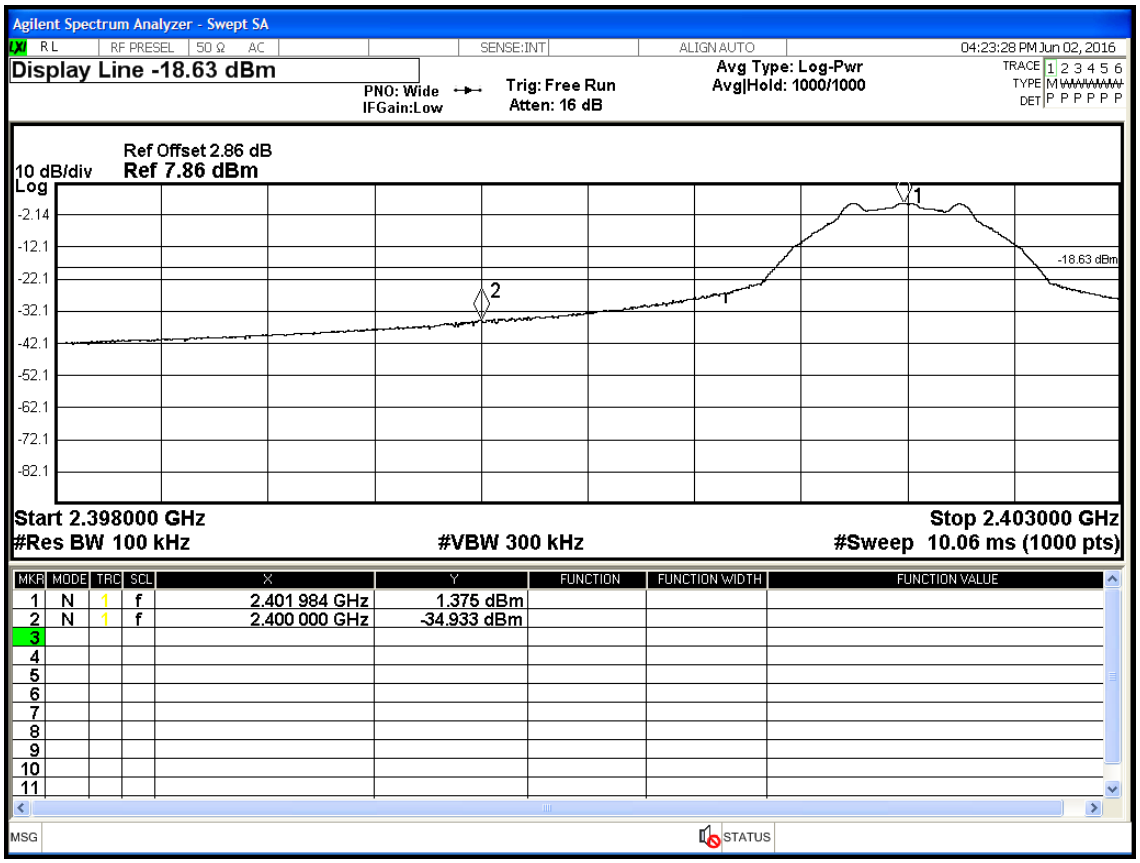
Conducted Spurious Emissions

LIMITS

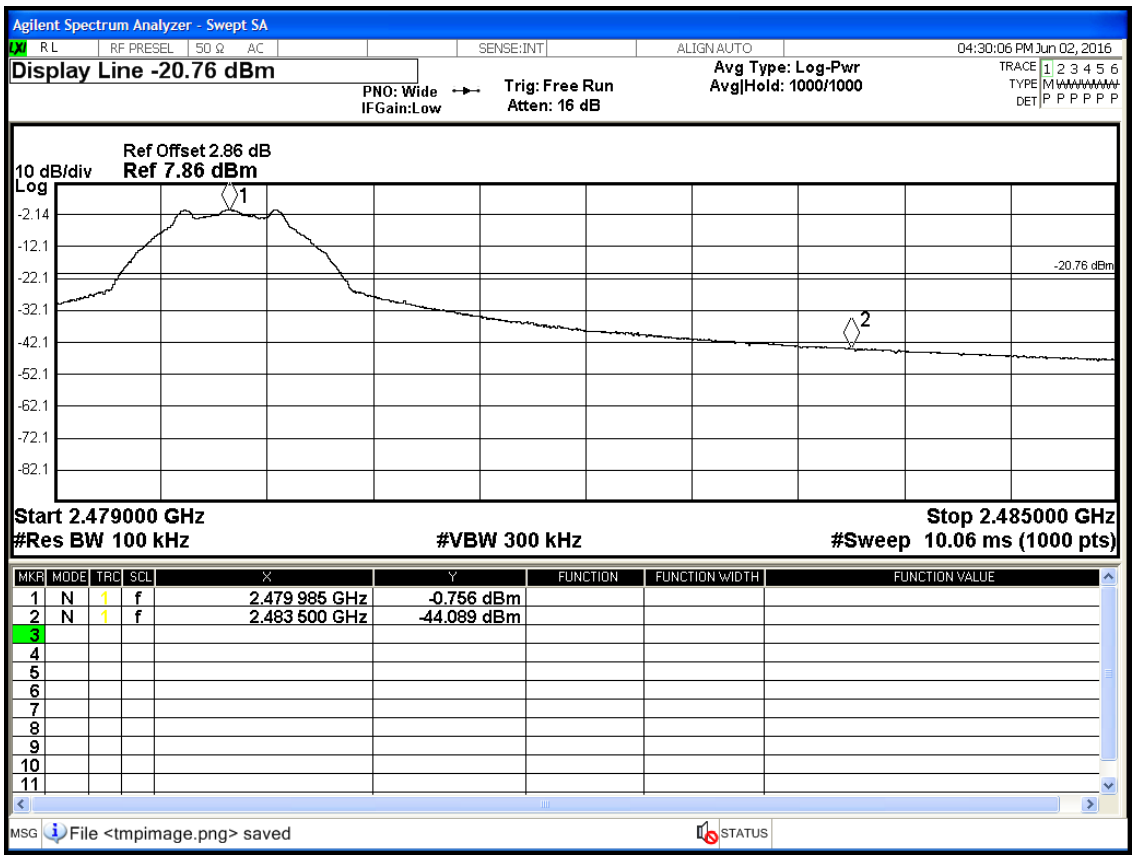
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth that contains the highest level of desired power based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB …
[15.247(d)]

MEASUREMENTS / RESULTS

Conducted Band Edge Plots



Lowest Channel – Band Edge



Highest Channel – Band Edge

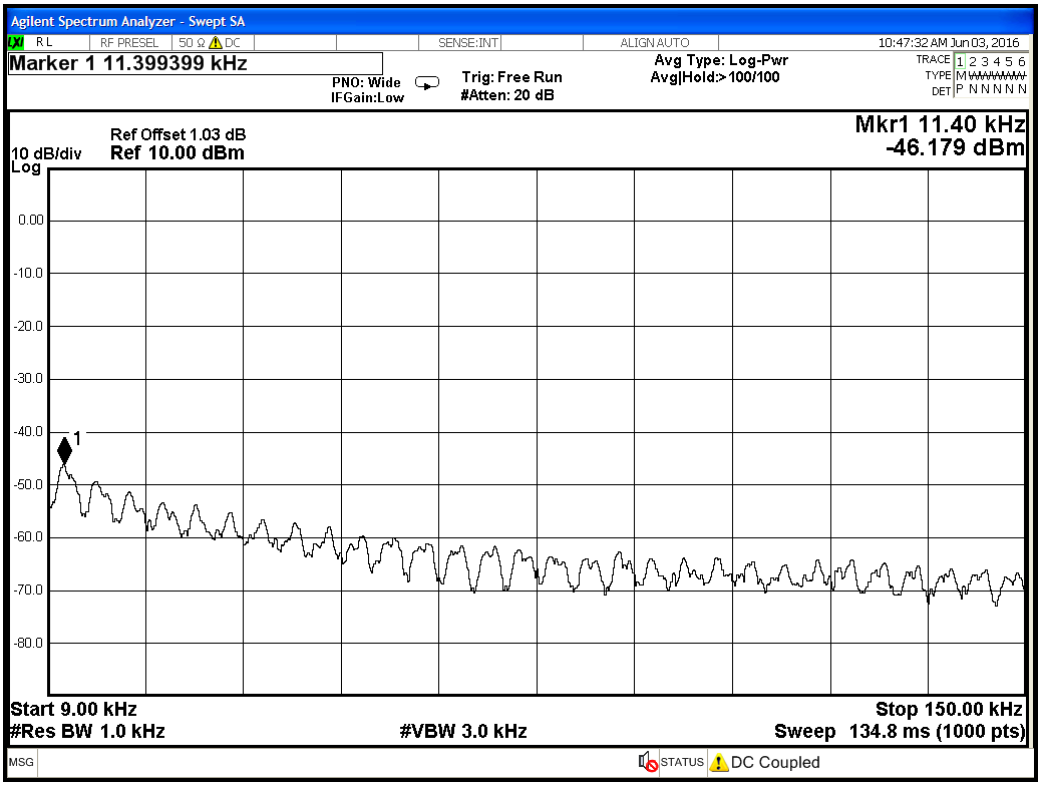
Conducted Spurious Emission

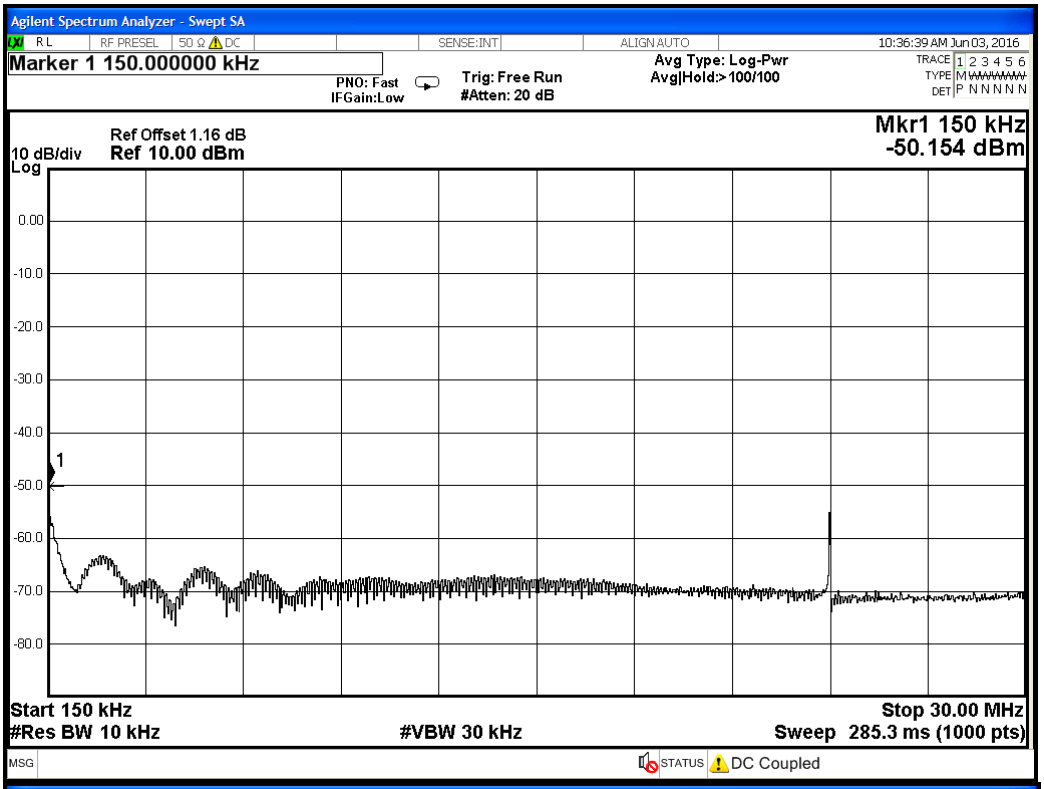
Note: 9 kHz - 25 GHz frequency range was investigated for all 3 channels (low, middle and high) at the EUT antenna port. Worst case insertion losses were entered as reference level offset to the spectrum analyzer. All emissions and instrument noise floor were more than 20dB below the fundamental.

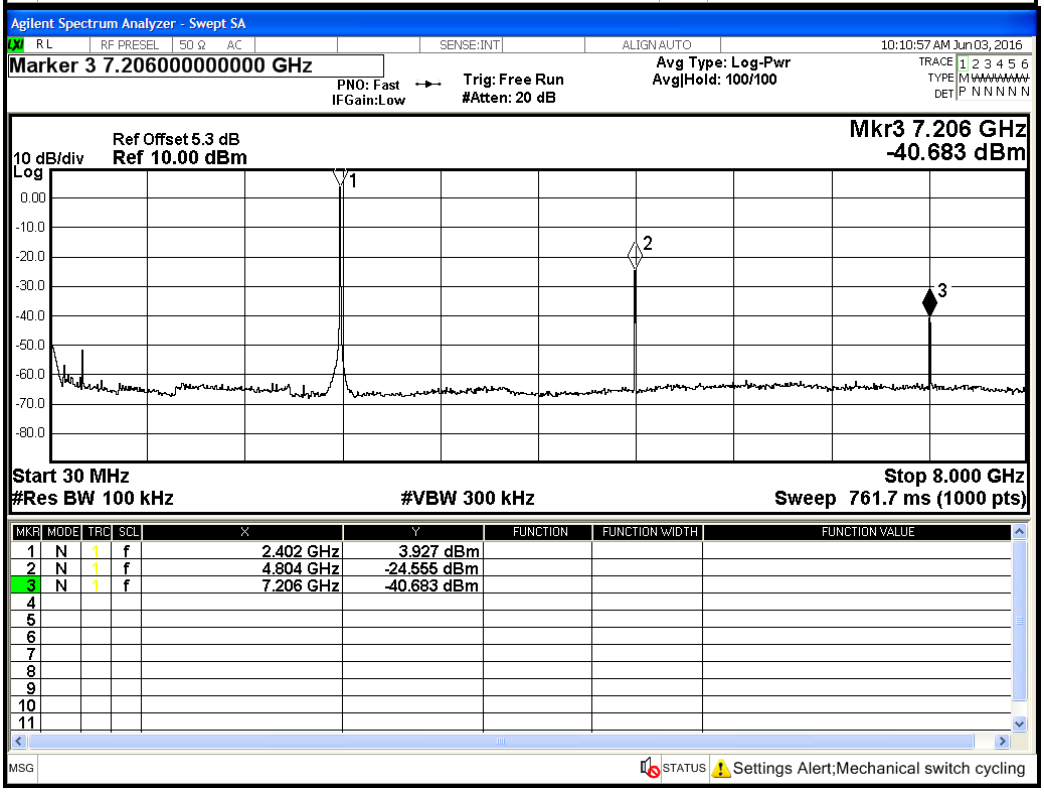
MEASUREMENTS / RESULTS

Conducted Spurious Emissions Plots

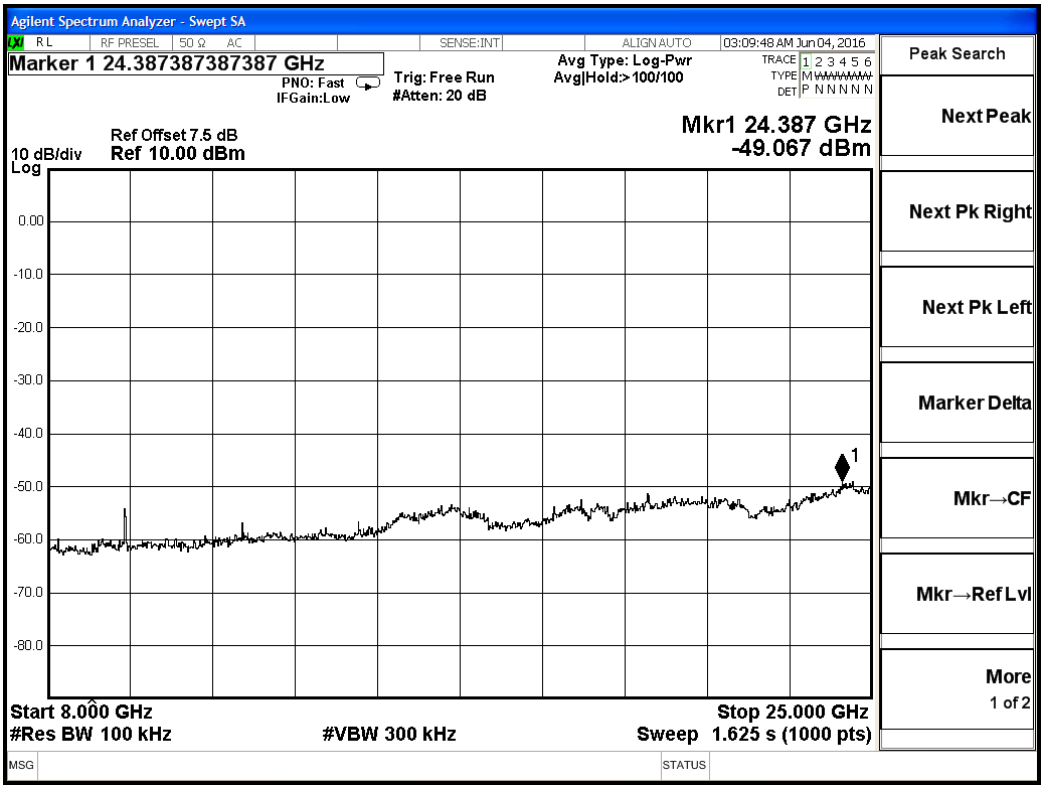
2402MHz



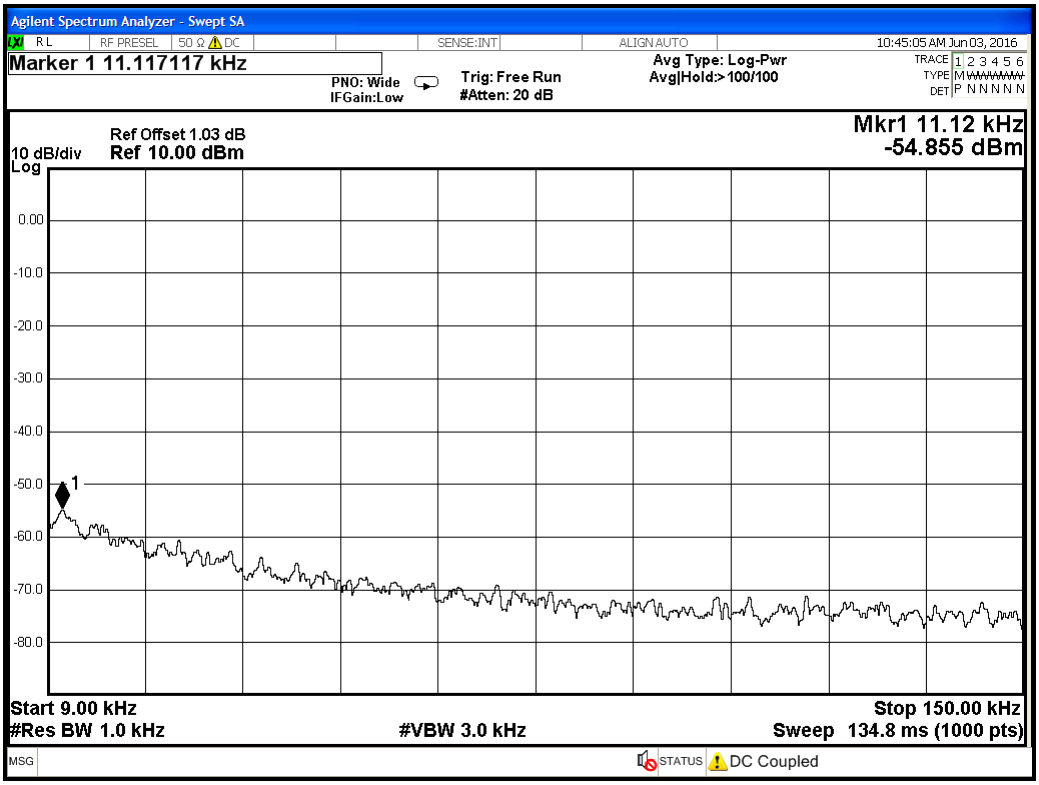


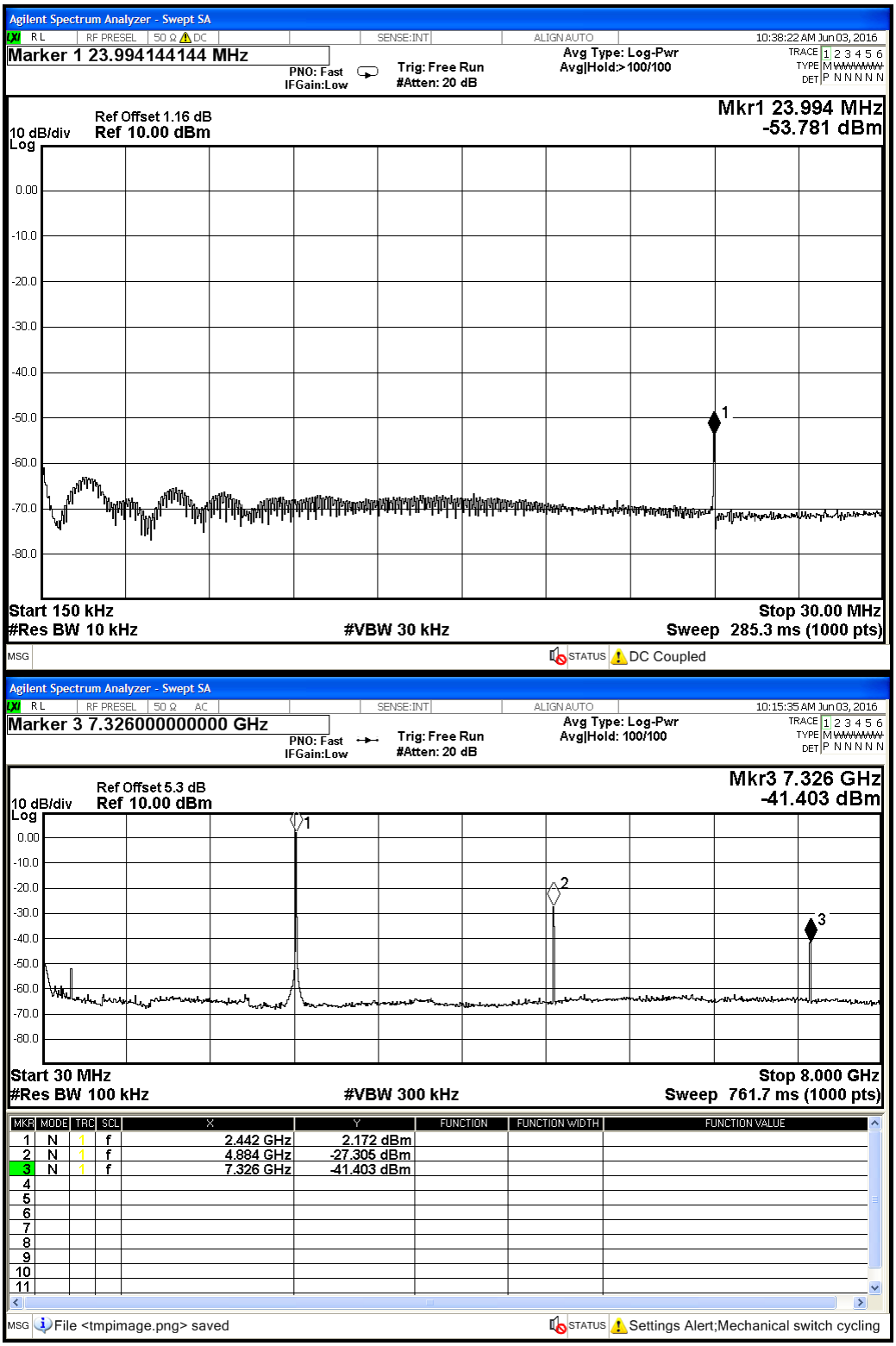


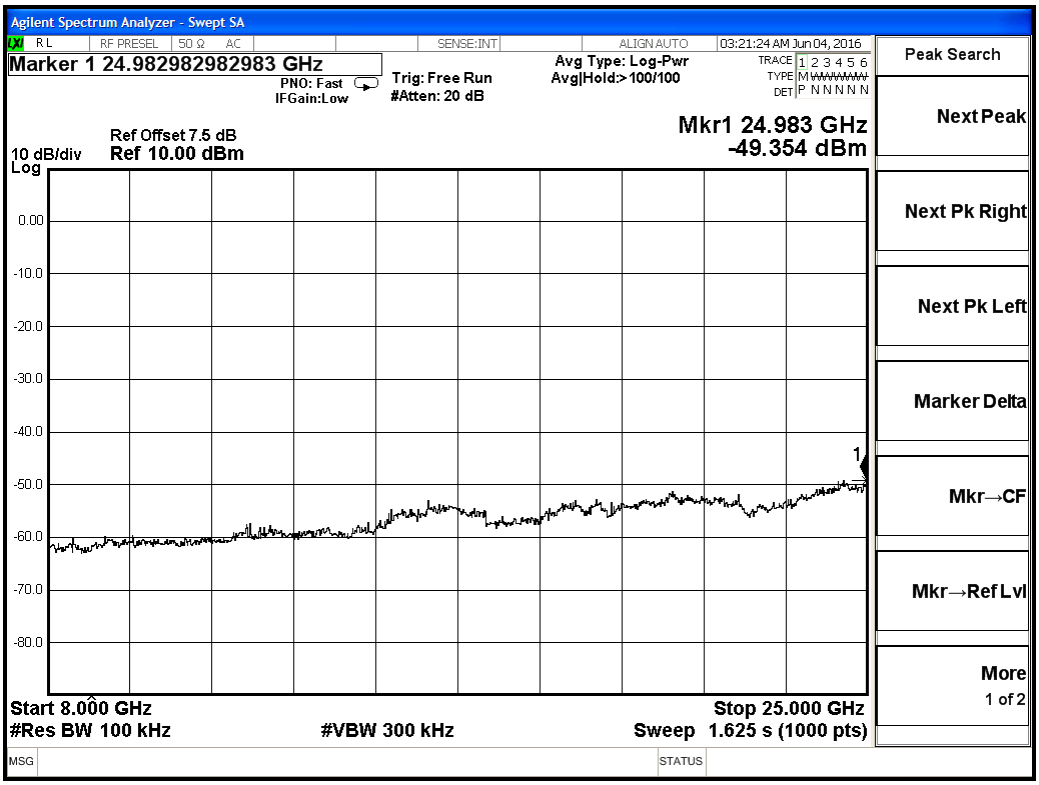
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.402 GHz	3.927 dBm			
2	N	1	f	4.804 GHz	-24.555 dBm			
3	N	1	f	7.206 GHz	-40.683 dBm			
4								
5								
6								
7								
8								
9								
10								
11								


Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω AC
SENSE:INT
ALIGN AUTO
03:09:48 AM Jun 04, 2016
Marker 1 24.387387387387 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 24.387 GHz
-49.067 dBm
Ref Offset 7.5 dB
10 dB/div
Log
Ref 10.00 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 8.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.625 s (1000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

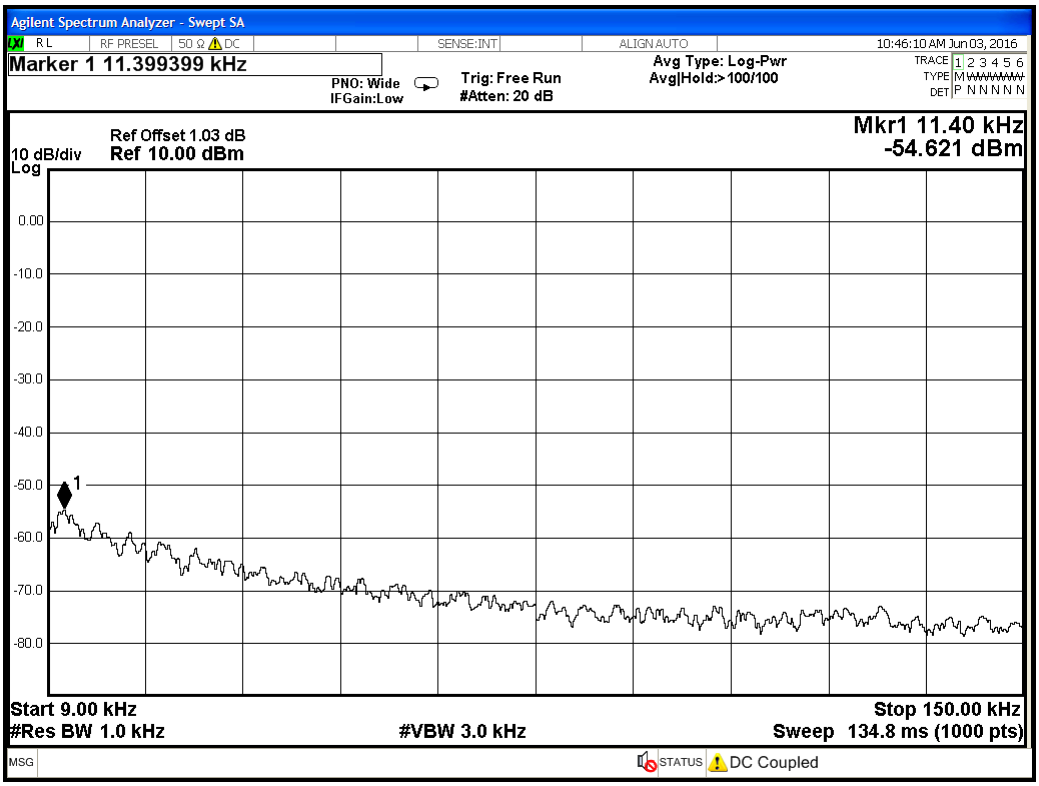
2442MHz

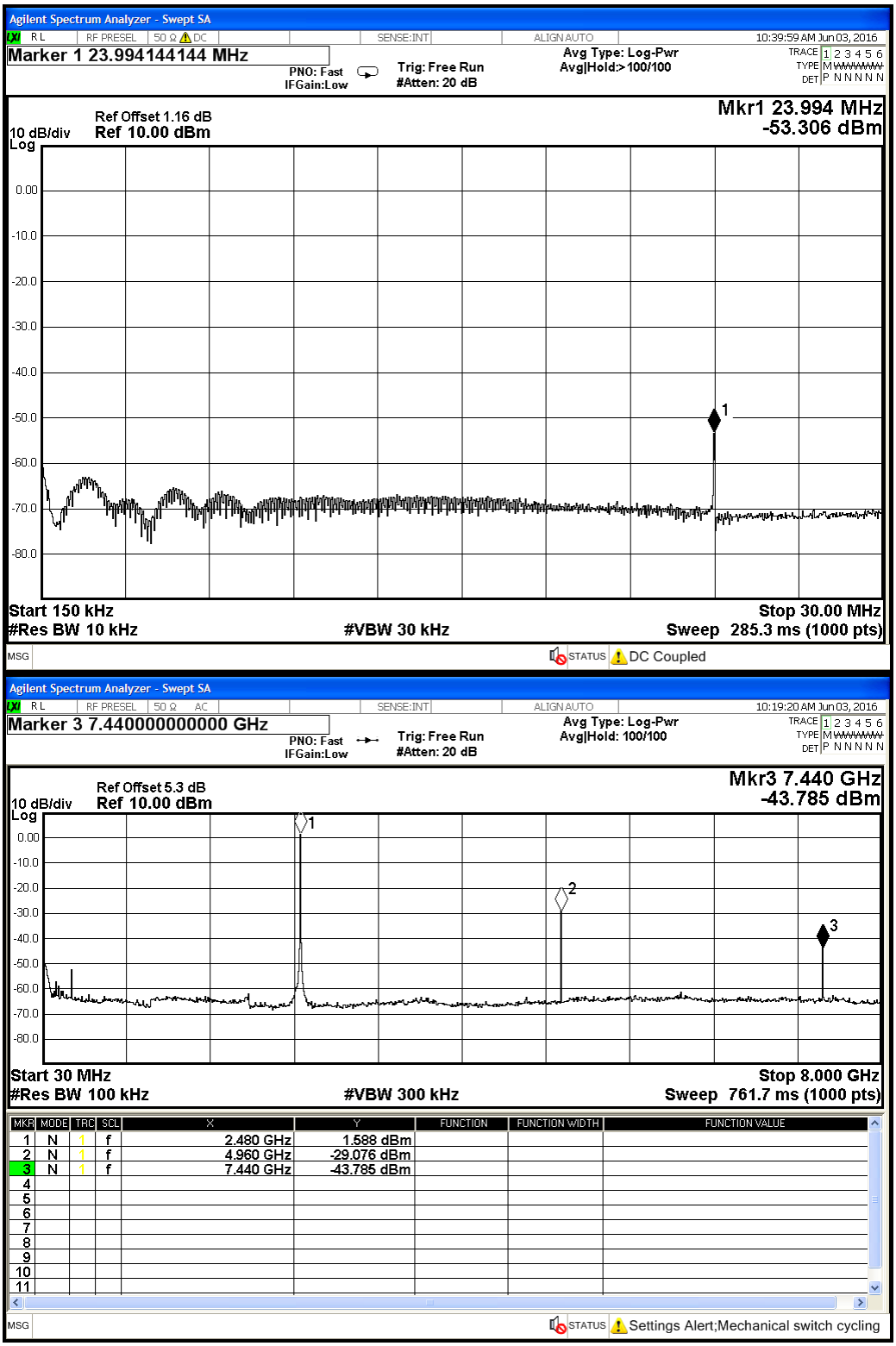

Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω DC
SENSE:INT
ALIGN AUTO
10:45:05 AM Jun 03, 2016
Marker 1 11.117117 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 11.12 kHz
-54.855 dBm
Ref Offset 1.03 dB
10 dB/div
Log
Ref 10.00 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz
Stop 150.00 kHz
Sweep 134.8 ms (1000 pts)
MSG
STATUS
DC Coupled

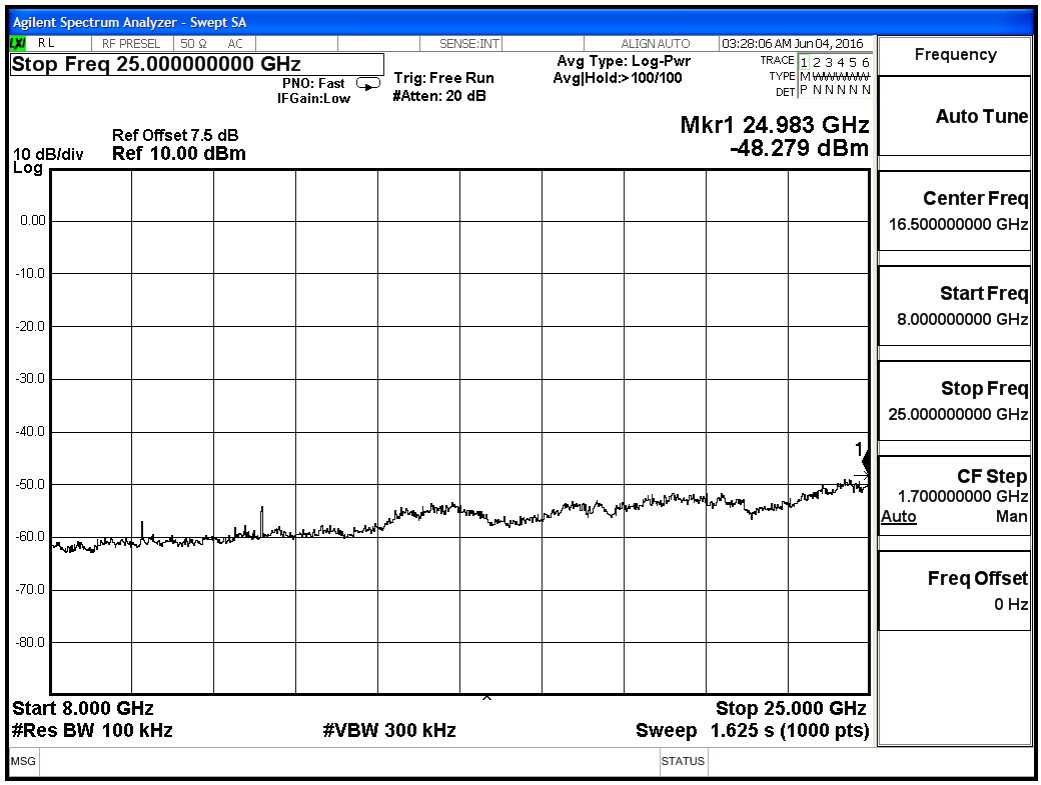

Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω DC
SENSE:INT
ALIGN AUTO
10:38:22 AM Jun 03, 2016
Marker 1 23.994144144 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 1.16 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 23.994 MHz
-53.781 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
1
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285.3 ms (1000 pts)
MSG
STATUS
DC Coupled
Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω AC
SENSE:INT
ALIGN AUTO
10:15:35 AM Jun 03, 2016
Marker 3 7.326000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 5.3 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr3 7.326 GHz
-41.403 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
1
2
3
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 8.000 GHz
Sweep 761.7 ms (1000 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.442 GHz 2.172 dBm
2 N 1 f 4.884 GHz -27.305 dBm
3 N 1 f 7.326 GHz -41.403 dBm
4
5
6
7
8
9
10
11
MSG
File <tmpimage.png> saved
STATUS
Settings Alert;Mechanical switch cycling


Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω AC
SENSE:INT
ALIGN AUTO
03:21:24 AM Jun 04, 2016
Marker 1 24.982982982983 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 7.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 24.983 GHz
-49.354 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 8.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.625 s (1000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

2480MHz


Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω DC
SENSE:INT
ALIGN AUTO
10:46:10 AM Jun 03, 2016
Marker 1 11.399399 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 1.03 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 11.40 kHz
-54.621 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz
Stop 150.00 kHz
Sweep 134.8 ms (1000 pts)
MSG
STATUS
DC Coupled


Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω DC
SENSE:INT
ALIGN AUTO
10:39:59 AM Jun 03, 2016
Marker 1 23.994144144 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 1.16 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 23.994 MHz
-53.306 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285.3 ms (1000 pts)
MSG
STATUS
DC Coupled
Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω AC
SENSE:INT
ALIGN AUTO
10:19:20 AM Jun 03, 2016
Marker 3 7.440000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 5.3 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr3 7.440 GHz
-43.785 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 8.000 GHz
Sweep 761.7 ms (1000 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.480 GHz 1.588 dBm
2 N 1 f 4.960 GHz -29.076 dBm
3 N 1 f 7.440 GHz -43.785 dBm
4
5
6
7
8
9
10
11
MSG
STATUS
Settings Alert;Mechanical switch cycling


Agilent Spectrum Analyzer - Swept SA
RL
RF PRESEL
50 Ω AC
SENSE:INT
ALIGN AUTO
03:28:06 AM Jun 04, 2016
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 24.983 GHz
-48.279 dBm
Ref Offset 7.5 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 8.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.625 s (1000 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
16.500000000 GHz
Start Freq
8.000000000 GHz
Stop Freq
25.000000000 GHz
CF Step
1.700000000 GHz
Auto
Man
Freq Offset
0 Hz

Power Spectral Density

Limit: Power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. [15.247(e)]

Per 558074 D01 DTS Measurement Guidance v03r05 Section 10.2 (Peak PSD)

MEASUREMENTS / RESULTS

Peak Power Spectral Density

Date: Jun-2-2016 **Company:** BlackBox Biometrics, Inc. **Work Order:** Q1352
Engineer: Yunus Faziloglu **EUT Desc:** BlastGauge **EUT Operating Voltage/Frequency:** 3.6VDC
Temp: 22°C **Humidity:** 46% **Pressure:** 1007 mBar

Frequency Range: 2402-2480 MHz **Measurement Type:** Conducted

Notes: Powered from support laptop USB port
Total cable insertion loss factored in via reference level offset to the spectrum analyzer. Corresponding plots show corrected readings.

Frequency	PSD	Limit		
(MHz)	(dBm)	(dBm)	Margin	Result
2402.00	-2.762	8.00	-10.76	Pass
2442.00	-4.952	8.00	-12.95	Pass
2480.00	-5.522	8.00	-13.52	Pass

Table Result: Pass by -10.76 dB ***Worst Freq:*** 2402.0 MHz

Test Site: Wireless Test Room **Cable 1:** SMA adapter assembly **Cable 2:** Asset #1784
Analyzer: MXE 1168255

Rev. 5/18/2016

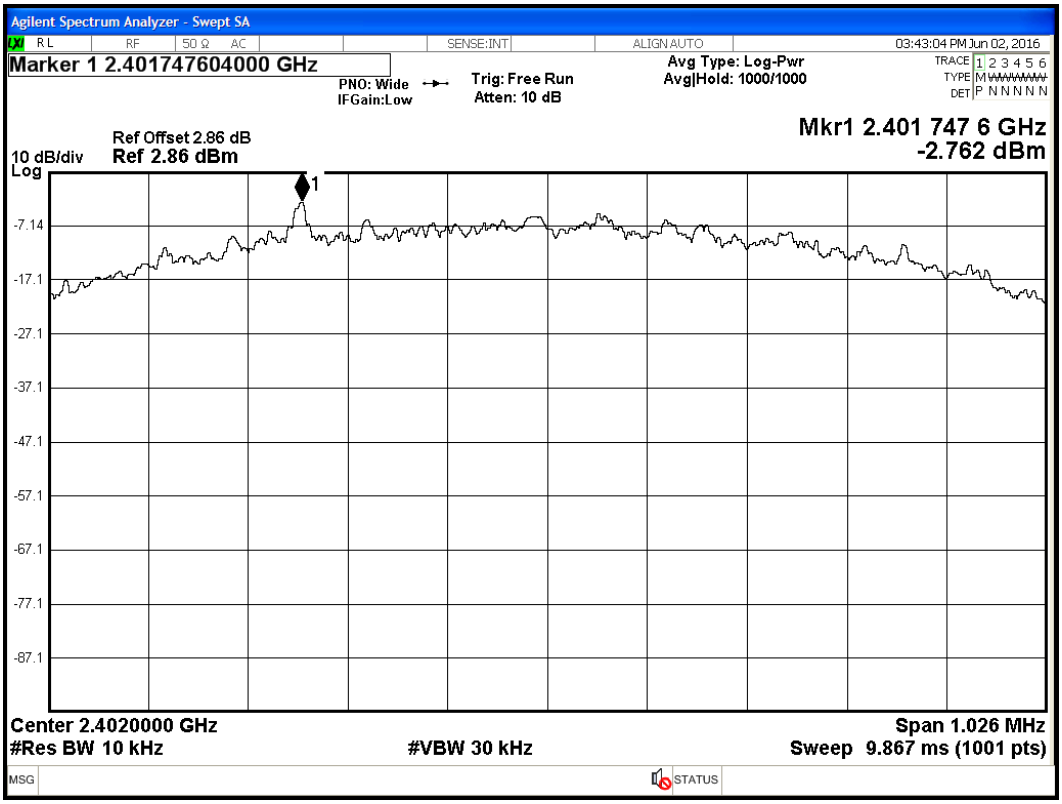
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
MXE EMI Receiver	20Hz-8.4GHz	N9038A	Agilent	MY53290009	1168255	I	6/16/2016	6/16/2015

Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
TH A#2080		HTC-1	HDE		2080	II	4/5/2017	4/5/2016
Barometric A#2160		5396-0321	Monarch Instrument	4000060	2160	I	3/7/2017	3/7/2016

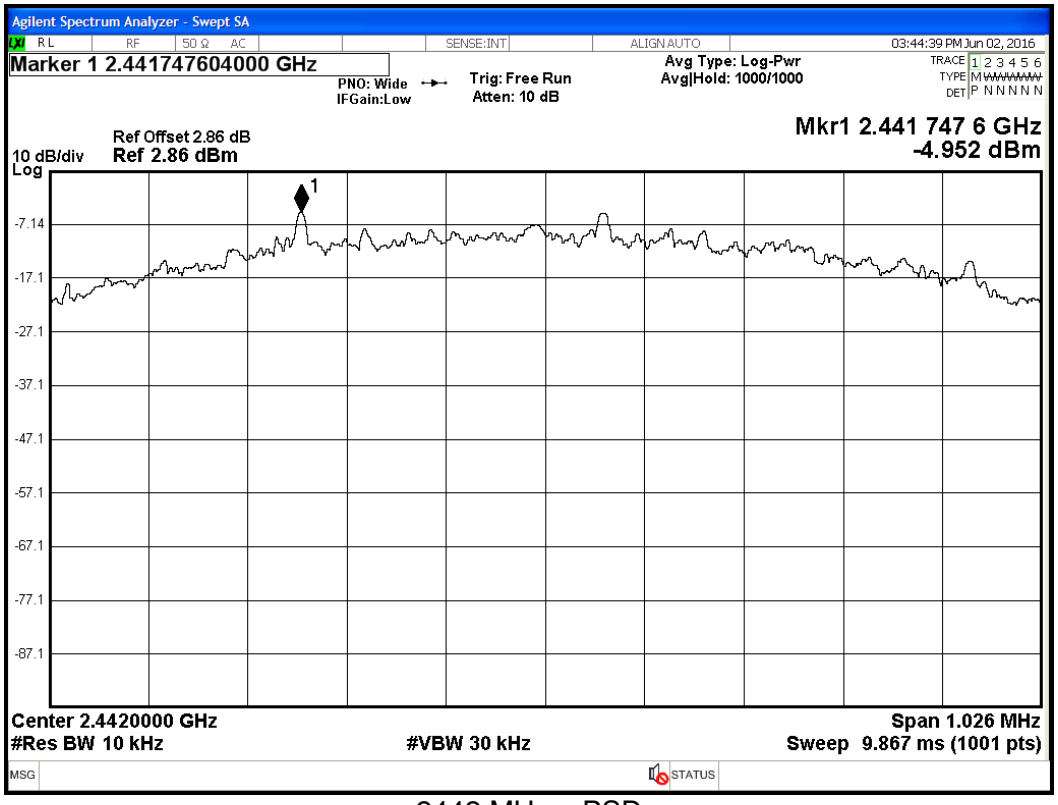
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on
Asset #1784	9kHz - 18GHz	Florida RF	II	3/7/2017	3/7/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

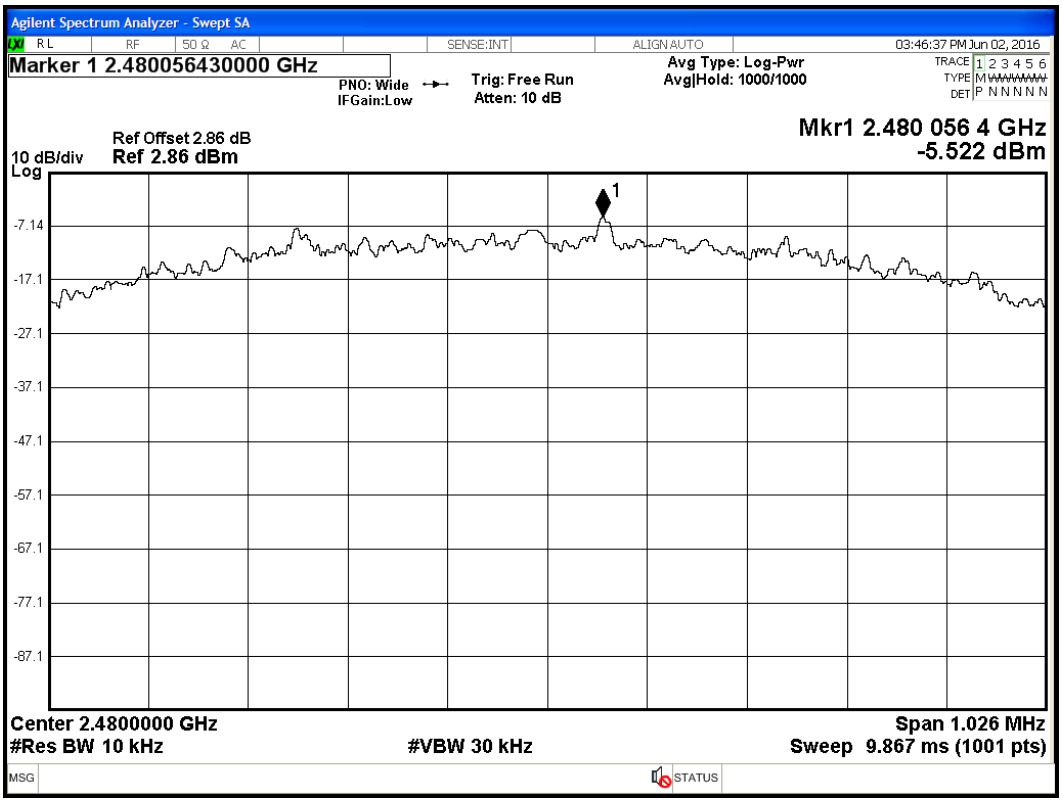
PLOTS



2402 MHz – PSD



2442 MHz – PSD


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
03:46:37 PM Jun 02, 2016
Marker 1 2.480056430000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 1000/1000
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 2.480 056 4 GHz
-5.522 dBm
Ref Offset 2.86 dB
10 dB/div
Log
Ref 2.86 dBm
-7.14
-17.1
-27.1
-37.1
-47.1
-57.1
-67.1
-77.1
-87.1
Center 2.4800000 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1.026 MHz
Sweep 9.867 ms (1001 pts)
MSG
STATUS

2480 MHz – PSD

AC Line Conducted Emissions

LIMITS

Frequency of emission (MHz)	Quasi-peak limit (dBµV)	Average limit (dBµV)
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

[47 CFR 15.207(a)]

MEASUREMENTS / RESULTS

Not applicable since the EUT is battery powered.

Occupied Bandwidth

Requirement: When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured. [RSS-GEN 6.6]

MEASUREMENTS / RESULTS

99% Occupied Bandwidth

Date: Jun-2-2016 **Company:** BlackBox Biometrics, Inc. **Work Order:** Q1352

Engineer: Yunus Faziloglu **EUT Desc:** BlastGauge **EUT Operating Voltage/Frequency:** 3.6VDC

Temp: 22°C **Humidity:** 46% **Pressure:** 1007 mBar

Frequency Range: 2402-2480 MHz **Measurement Type:** Conducted

Notes: Powered from support laptop USB port

Frequency (MHz)	99% OBW (kHz)
2402	1.0384
2442	1.0166
2480	1.0458

Test Site: Wireless Test Room **Cable 1:** SMA adapter assembly **Cable 2:** Asset #1784

Analyzer: MXE 1168255

Rev. 5/18/2016

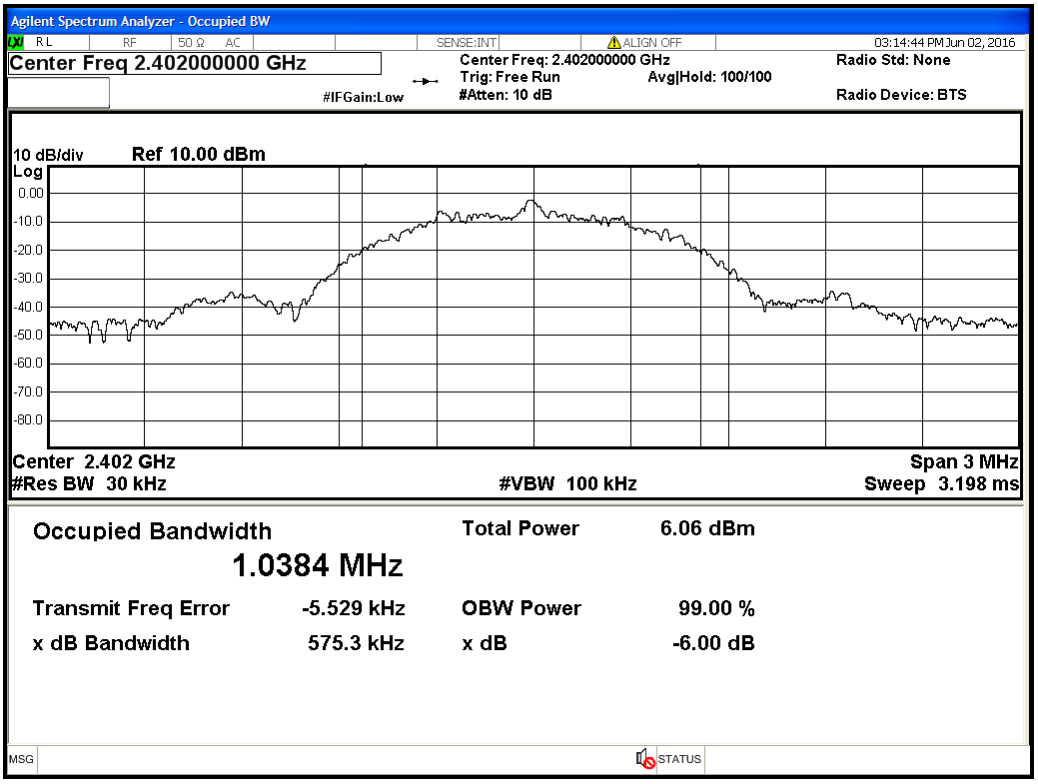
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
MXE EMI Receiver	20Hz-8.4GHz	N9038A	Agilent	MY53290009	1168255	I	6/16/2016	6/16/2015

Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
TH A#2080		HTC-1	HDE		2080	II	4/5/2017	4/5/2016
Barometric A#2160		5396-0321	Monarch Instrument	4000060	2160	I	3/7/2017	3/7/2016

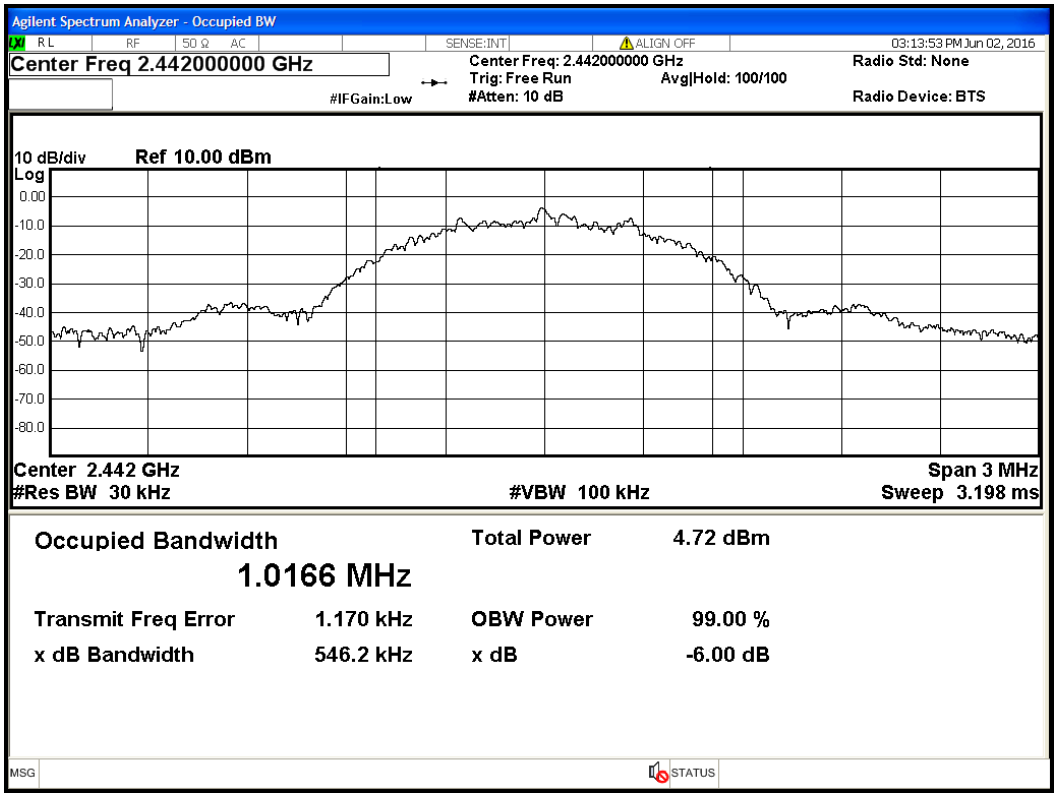
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on
Asset #1784	9kHz - 18GHz	Florida RF	II	3/7/2017	3/7/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

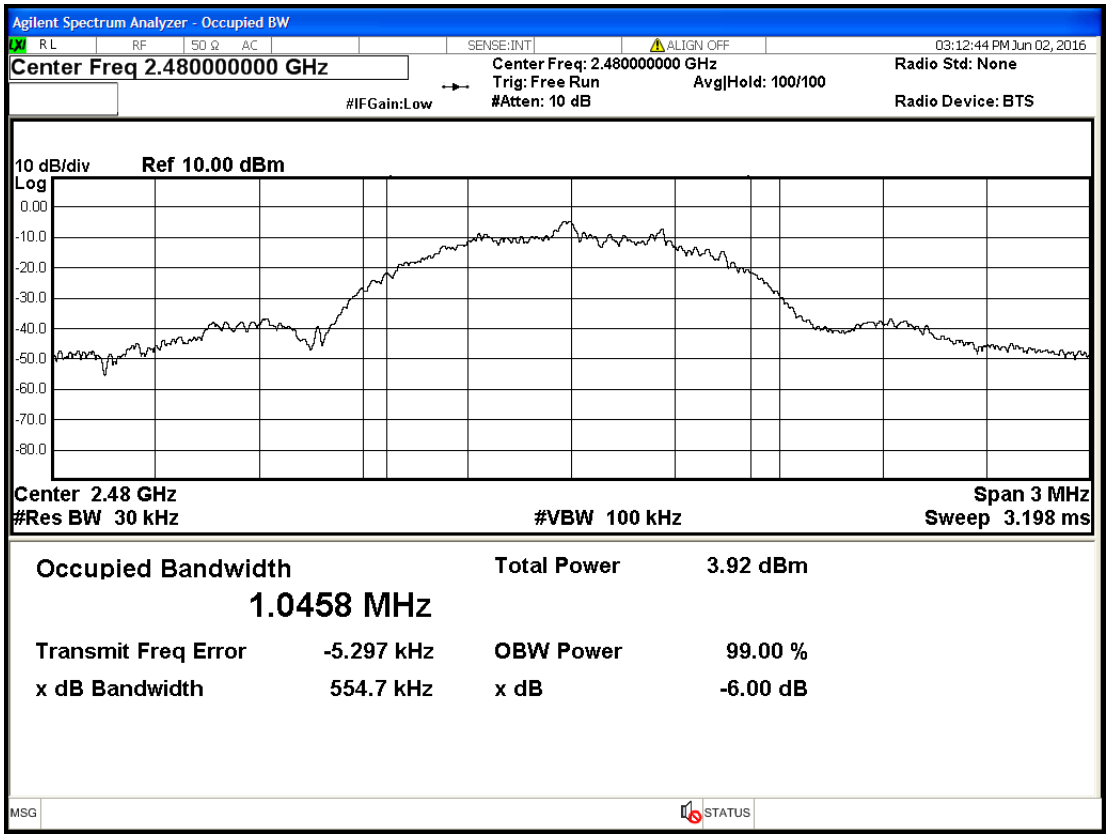
Plot(s)



2402 MHz – Occupied Bandwidth



2442 MHz – Occupied Bandwidth



2480 MHz – Occupied Bandwidth

Measurement Uncertainty

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz) NIST CISPR	 5.6dB 4.6dB	 N/A 5.2dB (Ucispr)
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions NIST CISPR	 3.9dB 3.6dB	 N/A 3.6dB (Ucispr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	3.23×10^{-8}	1×10^{-7}
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation: • Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	 3.4% 0.3dB	 5% 3dB
Adjacent channel power	1.9dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°C	1.0°C
Time	4.1%	10%
RF Power Density, Conducted	0.4dB	3dB
DC and low frequency voltages	1.3%	3%
Voltage (AC, <10kHz)	1.3%	2%
Voltage (DC)	0.62%	1%
The above reflects a 95% confidence level		

Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "**BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPS", "MTL", "ACTS", "MTL-ACTS" and CURTIS-STRAUS** (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only were such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.
13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.
14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.

15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B)NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.
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