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CERTIFICATION TEST REPORT

Manufacturer: **Centurion Medical Products**
100 Centurion Way
Williamston, Michigan 48895 USA

Applicant: **Same As Above**

Product Name: **Compass Monitor Accessory Plug (MAP)**

Product Description: The Centurion Compass CAST-MAP system consists of two parts. The Compass CAST disposable digital wireless blood pressure monitor (transmitter) and the Compass MAP wireless sensor (receiver) which plugs into the Blood Pressure monitor port of a medical multifunction monitor. When a connection is made between the CAST and the MAP, a detailed blood pressure waveform is presented on the multi-function monitor. The Compass CAST and MAP are both implemented using Low Energy Bluetooth radios.

Model: **CWM001 (Compass MAP)**

FCC ID: **2AF4Z-CWM001**

Testing Commenced: **Nov. 10, 2015**

Testing Ended: **Aug. 4, 2016**

Summary of Test Results: **In Compliance**

The EUT complies with the EMC requirements when manufactured identically as the unit tested in this report, including any required modifications. Any changes to the design or build of this unit subsequent to this testing may deem it non-compliant.

Standards:

- **FCC Part 15 Subpart C, Section 15.247**
- **FCC15.207 - Conducted Limits**
- **FCC Part 15.31(e)**
- **ANSI C63.10:2013**



Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Evaluation Conducted by:

Joe Knepper, EMC Proj. Eng.

Report Reviewed by:

Ken Littell, Director of EMC & Wireless Operations

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1 ADMINISTRATIVE INFORMATION

1.1 Measurement Location:

F2 Labs in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD.

1.2 Measurement Procedure:

All measurements were performed according to the 2013 version of ANSI C63.10 and recommended FCC procedure of measurement of DTS operating under Section 15.247 and in KDB558074. A list of the measurement equipment can be found in Section 6.

1.3 Uncertainty Budget:

The uncertainty in EMC measurements arises from several factors which affect the results, some associated with environmental conditions in the measurement room, the test equipment being used and the measurement techniques adopted.

The measurement uncertainty budgets detailed below are calculated from the test and calibration data, and are expressed with a 95% confidence factor. Note: Only measurements listed below which relate to tests included in this Test Report are applicable.

Measurement	Uncertainty
Radiated Emissions <1 GHz @ 10m	±5.09dB
Radiated Emissions <1 GHz @ 3m	±5.07dB
Radiated Emissions 1 GHz to 2.7 GHz	±3.62dB
Radiated Emissions 2.7 GHz to 18 GHz	±3.10dB
Radiated Emissions 18 GHz to 26.5 GHz	±3.11dB
AC Power Line Conducted Emissions 150kHz to 30 MHz	±2.76dB

This Uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.4 Document History

Document Number	Description	Issue Date	Approved By
F2LQ7746C-02E	First Issue	Aug. 4, 2016	K. Littell



Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

2 SUMMARY OF TEST RESULTS

Test Name	Standard(s)	Results
-6dB Occupied Bandwidth	CFR 47 Part 15.247(a)(2) / KDB558074	Complies
Conducted Output Power	CFR 47 Part 15.247(b)(3) / KDB558074	Complies
Conducted Spurious Emissions	CFR 47 Part 15.247(d) / Part 15.209 / KDB558074	Complies
Radiated Spurious Emission with 0dBi Integral Antenna	CFR 47 Part 15.247(d) / Part 15.209 / KDB558074	Complies
Peak Power Spectral Density	CFR 47 Part 15.247(e) / KDB558074	Complies
Conducted Emissions	CFR 47 Part 15.207(a)	Complies

Note: Product was operated using a 5V DC supply from an AC/DC power supply.
Requirements of 15.31 were met by varying the supply by $\pm 15\%$
and the results in Section 3 reflect worst case mode.

Modifications Made to the Equipment
None



Order Number: F2LQ7746C

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3 TABLE OF MEASURED RESULTS

Test	High Channel 2.48GHz	Mid Channel 2.44GHz	Low Channel 2.402GHz
Conducted Output Power	4.03mW (6.06dBm)	3.90mW (5.91dBm)	4.00mW (6.02dBm)
Conducted Output Power Limit	1 Watt, (30dBm)	1 Watt, (30dBm)	1 Watt, (30dBm)
E.I.R.P. with 0dBi Integral antenna	4.03mW (6.06dBm)	3.90mW (5.91dBm)	4.00mW (6.02dBm)
E.I.R.P. Limit	4 Watts, (36.02dBm)	4 Watts, (36.02dBm)	4 Watts, (36.02dBm)
Peak Power Spectral Density	-10.27dBm	-10.75dBm	-10.41dBm
Peak Power Spectral Density Limit	8dBm	8dBm	8dBm
-6dB Occupied Bandwidth	565.262kHz	548.988kHz	541.812kHz
-6dB Occupied Bandwidth Limit	≥ 500kHz	≥ 500kHz	≥ 500kHz



Order Number: F2LQ7746C

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4 ENGINEERING STATEMENT

This report has been prepared on behalf of Centurion Medical Products to provide documentation for the testing described herein. This equipment has been tested and found to comply with Part 15.247 of the FCC Rules using ANSI C63.10:2013 and KDB558074 standards. The test results found in this test report relate only to the items tested.



Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

5 EUT INFORMATION AND DATA

5.1 Equipment Under Test:

Product: Compass Monitor Accessory Plug (MAP)

Model: CWM001

Serial No.: None Spec.

FCC ID: 2AF4Z-CWM001

5.2 Trade Name:

Centurion Medical Products

5.3 Power Supply:

5.0V DC from AC/DC source

5.4 Applicable Rules:

CFR 47, Part 15.247, subpart C

5.5 Equipment Category:

Radio Transmitter-DTS

5.6 Antenna:

0dBi Integral Antenna

5.7 Accessories:

N/A

5.8 Test Item Condition:

The equipment to be tested was received in good condition.

5.9 Testing Algorithm:

The EUT was configured to permit frequency changes from low-mid-upper transmission channel using digital modulation (required for digital transmission systems). For RF antenna conducted tests, the EUT was equipped with an SMA connector for connection to the measuring equipment. For radiated emissions tests, in a semi-anechoic chamber, the EUT was equipped with integral/internal chip. The highest emissions were recorded in the data tables.



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6 LIST OF MEASUREMENT INSTRUMENTATION

Equipment Type	Asset Number	Manufacturer	Model	Serial Number	Calibration Due Date
Shielded Chamber	CL166-E	AlbatrossProjects	B83117-DF435-T261	US140023	May 12, 2017
Spectrum Analyzer	CL138	Agilent Technologies	E4407B	US41192779	Nov. 13, 2016
Receiver	CL151	Rohde & Schwarz	ESU40	100319	Nov. 25, 2016
Pre-Amplifier	CL153	Agilent	83006-69007	MY39500791	June 6, 2017
Regulated DC Supply	N/A	R.S.R. Electronics	3040	None Specified	Verified
Amplifier w/Monopole & 18" Loop	CL163	A.H. Systems, Inc.	EHA-52B	100	May 2, 2017
Antenna	CL175	Sunol Sciences	JB3	A030315	Apr. 1, 2017
Horn Antenna	CL098	EMCO	3115	9809-5580	Dec. 10, 2016
Horn Antenna	CL114	A.H. Systems, Inc.	SAS-572	237	Oct. 16, 2016
Software:	Tile Version 1.0			Software Verified: Aug. 4, 2016	
Software:	EMC 32, Version 5.20.2			Software Verified: Aug. 4, 2016	
LISN	CL184	Com-Power	LI-125A	191213	June 9, 2018
LISN	CL185	Com-Power	LI-125A	191214	June 9, 2018



Order Number: F2LQ7746C

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7 FCC PART 15.247(a)(2) – OCCUPIED BANDWIDTH

7.1 Requirements:

The 6dB bandwidth shall be greater than 500 kHz.

Bandwidth measurements were made at the low (2.402 GHz), mid (2.44 GHz) and upper (2.48 GHz) frequencies with the resolution Bandwidth set at 100 kHz (video bandwidth set at 300 kHz) while the span was set at 3MHz. The bandwidth was measured using the occupied bandwidth function.



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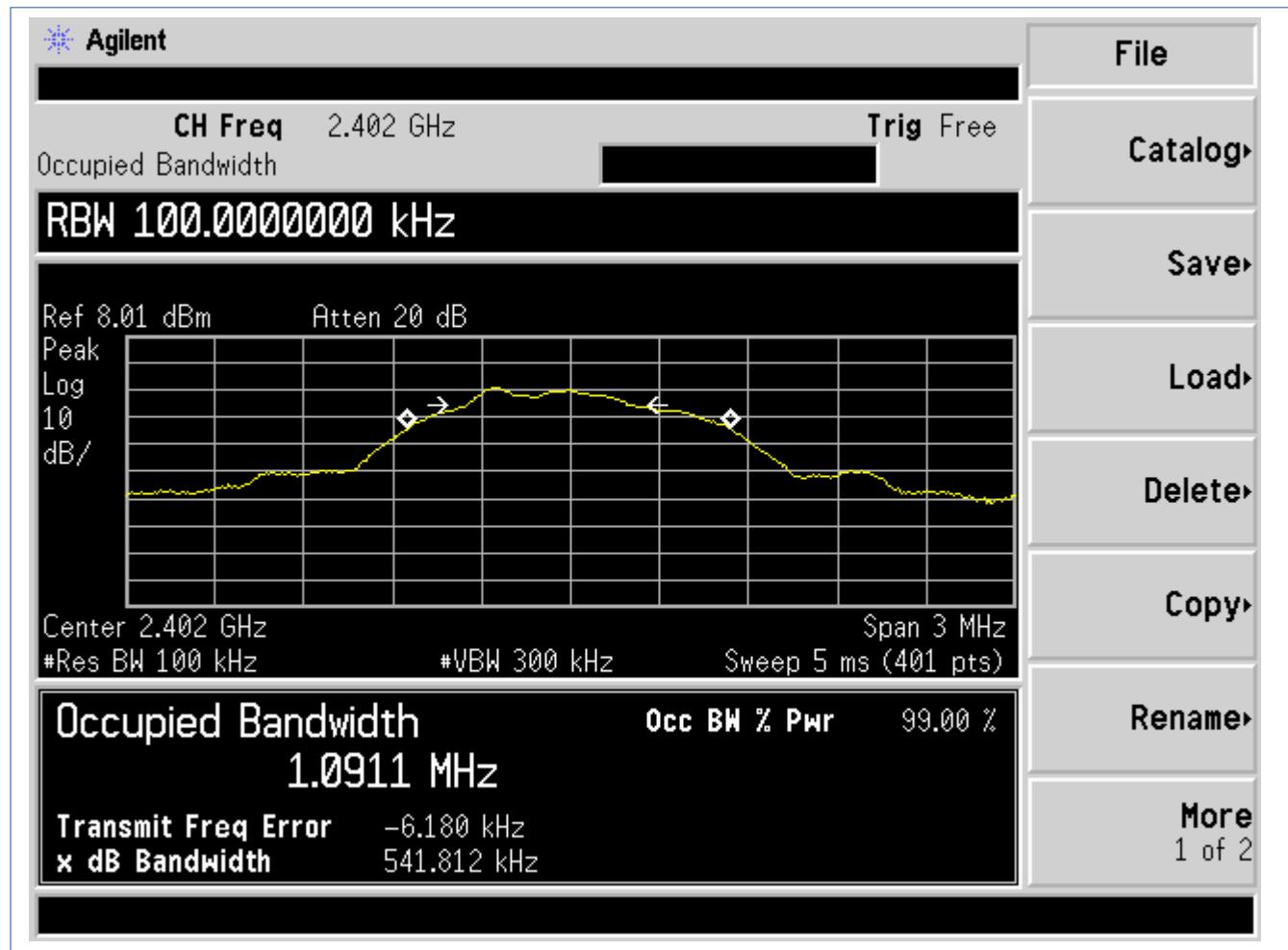
Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

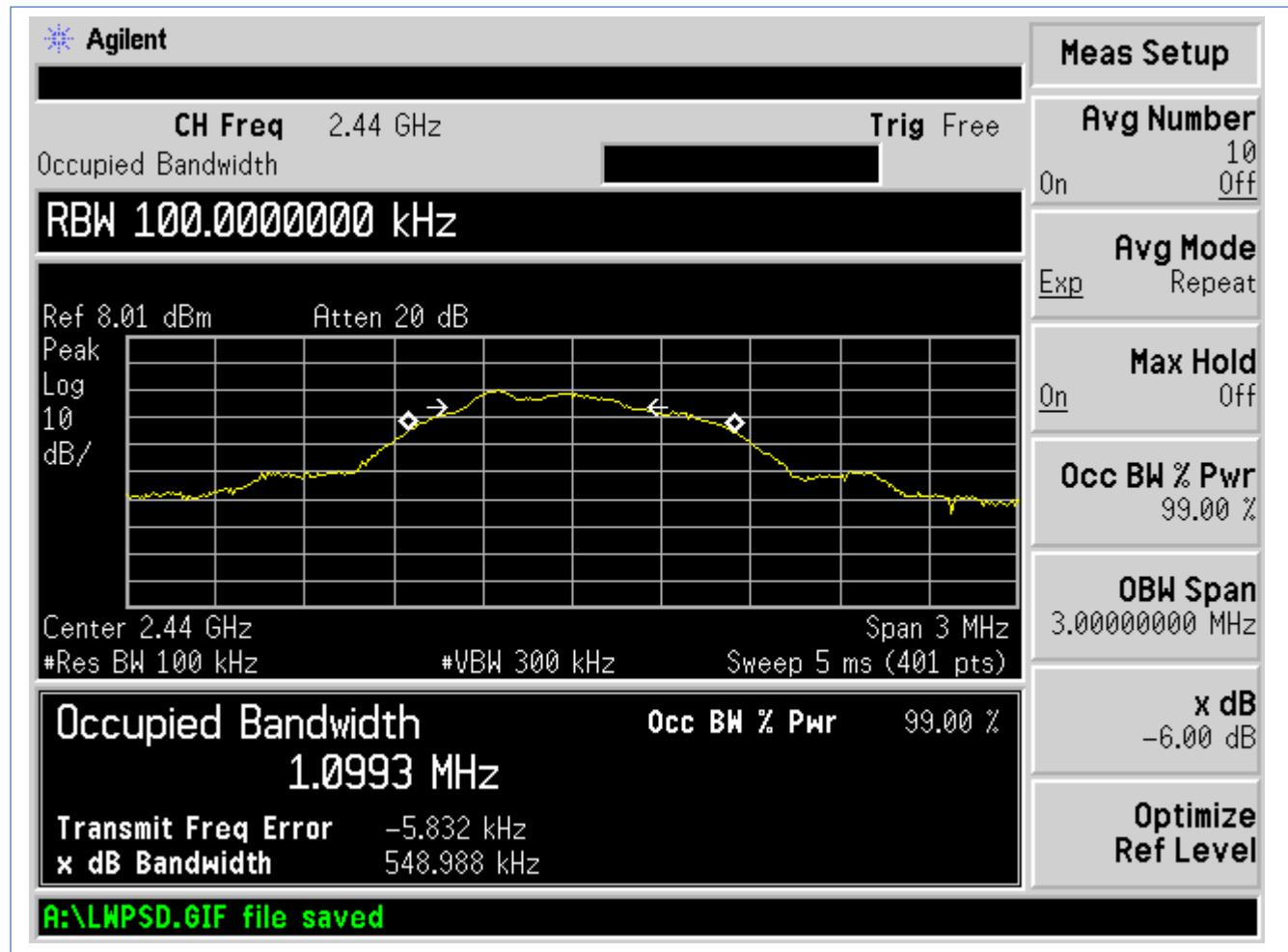
7.2 Occupied Bandwidth Test Data

Test Date:	Nov. 10, 2015	Test Engineer:	J. Knepper
Standards:	CFR 47 Part 15.247(a)(2); KDB558074	Air Temperature:	22.0°C
		Relative Humidity:	46%

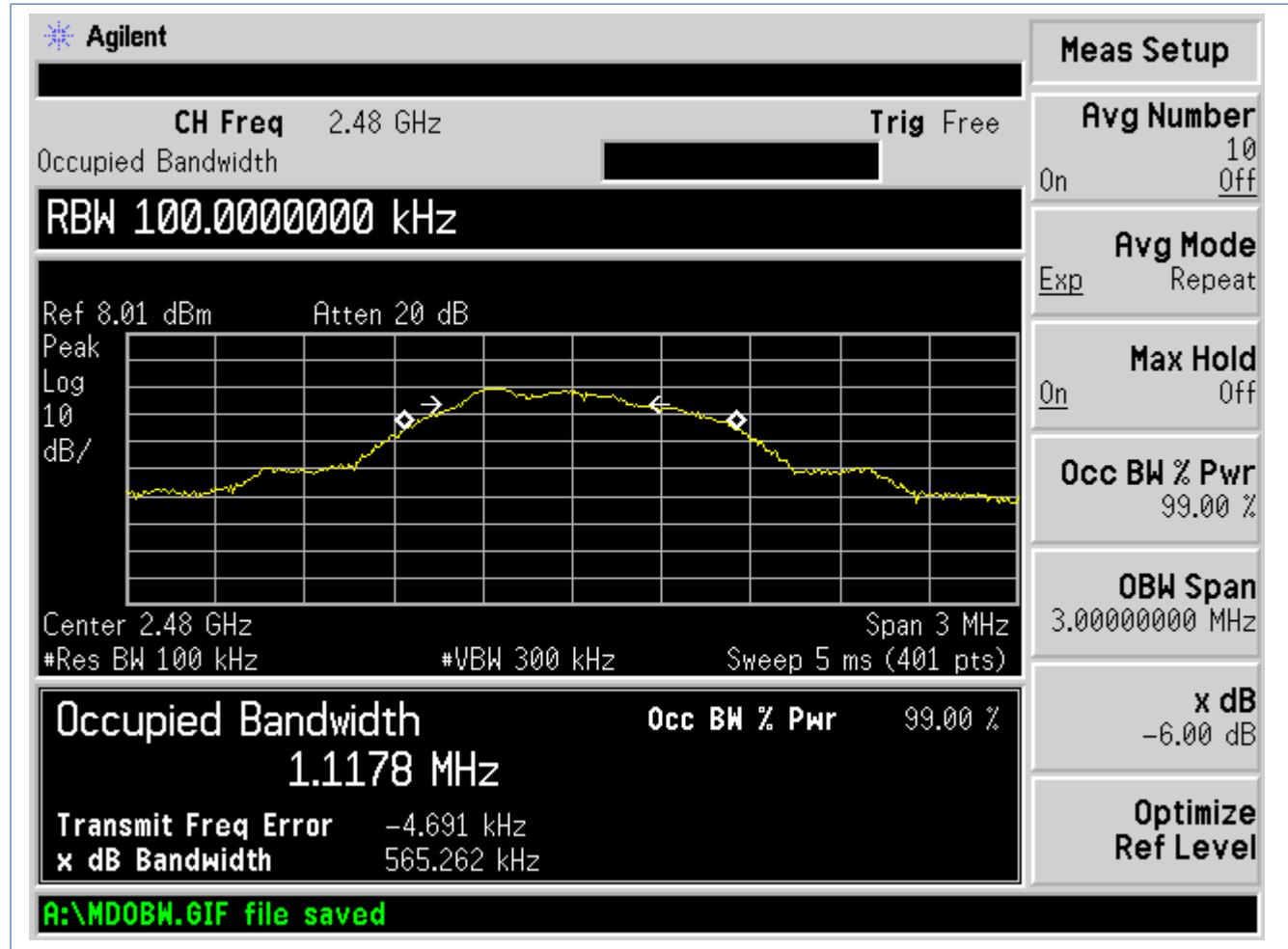
Low Channel



Mid Channel



High Channel





Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

8 FCC PART 15.247(b)(3) – CONDUCTED OUTPUT POWER

The EUT antenna port was fitted with an SMA connector and directly connected to the input of the receiver. The peak power output was measured.

8.1 Requirements:

The peak power output shall be 1 watt (30 dBm) or less when using an antenna with a gain of less than 6dBi. For antennas having a gain of more than 6dBi, the limit is reduced by 1dB for every dB the antenna gain is over 6dBi.



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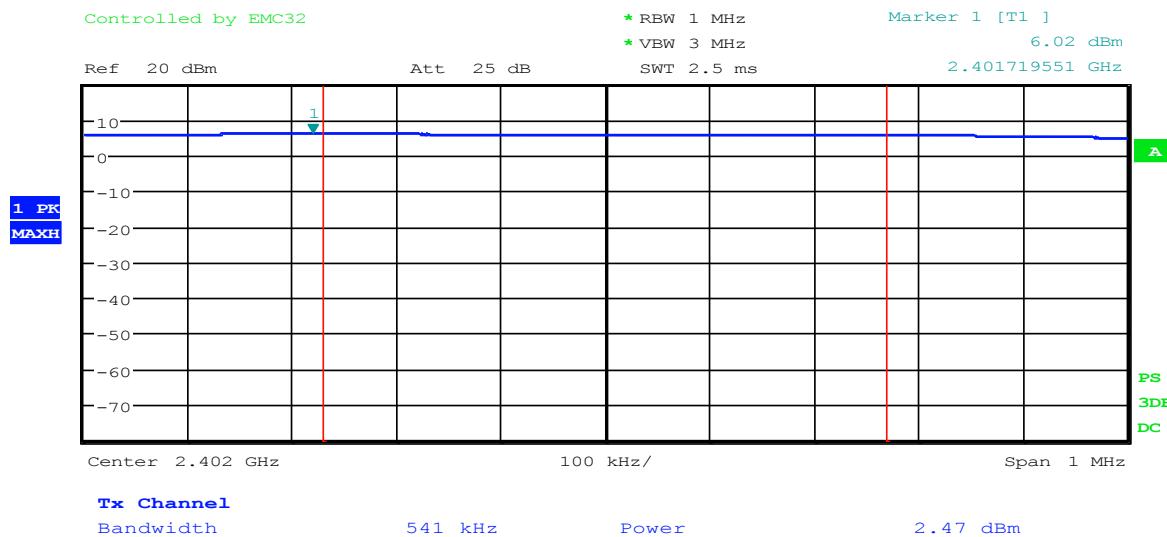
Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

8.2 Conducted Output Power Test Data

Test Date:	Aug. 4, 2016	Test Engineer:	J. Knepper
Standards:	CFR 47 Part 15.247(b)(3); KDB558074	Air Temperature:	21.7°C

Low Channel



Date: 4.AUG.2016 14:39:48

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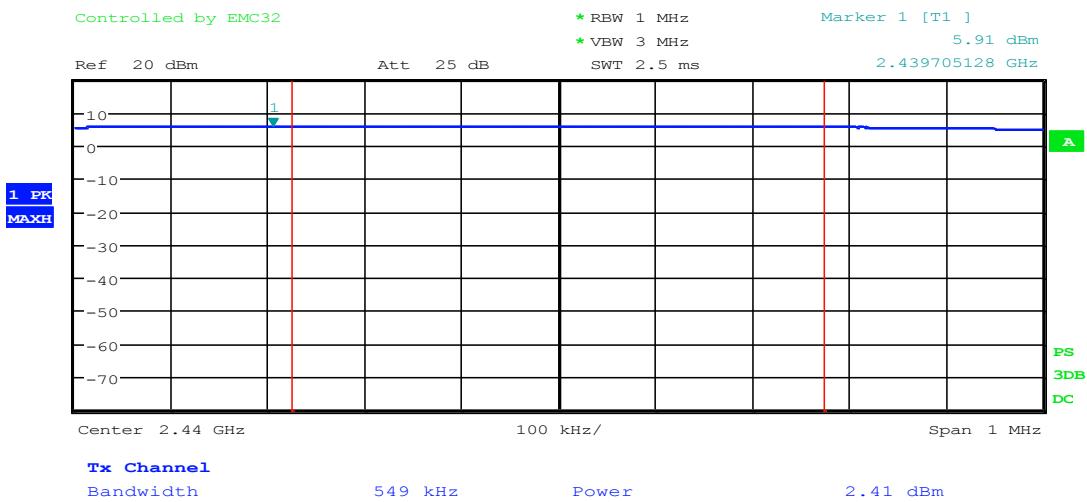


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Mid Channel



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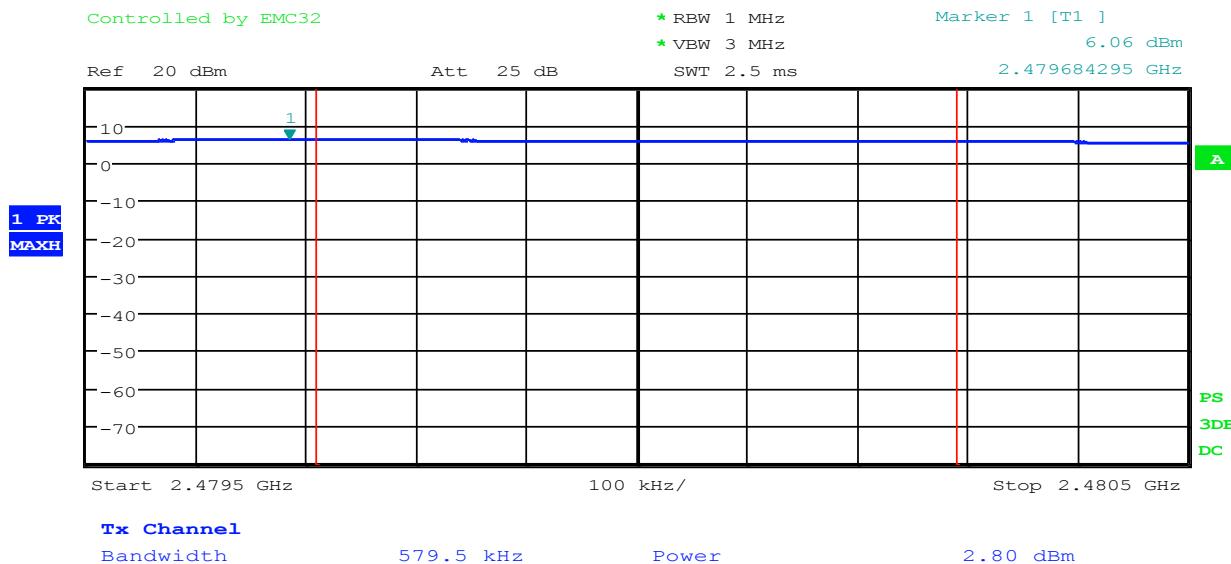


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

High Channel



Date: 4.AUG.2016 14:55:56

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Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

9 FCC Part 15.247(c) – CONDUCTED SPURIOUS EMISSIONS

The following tests were performed to demonstrate compliance.

RF Antenna Conducted Test

The EUT antenna port was fitted with an SMA connector and directly connected to the input of the spectrum analyzer.

9.1 Requirements:

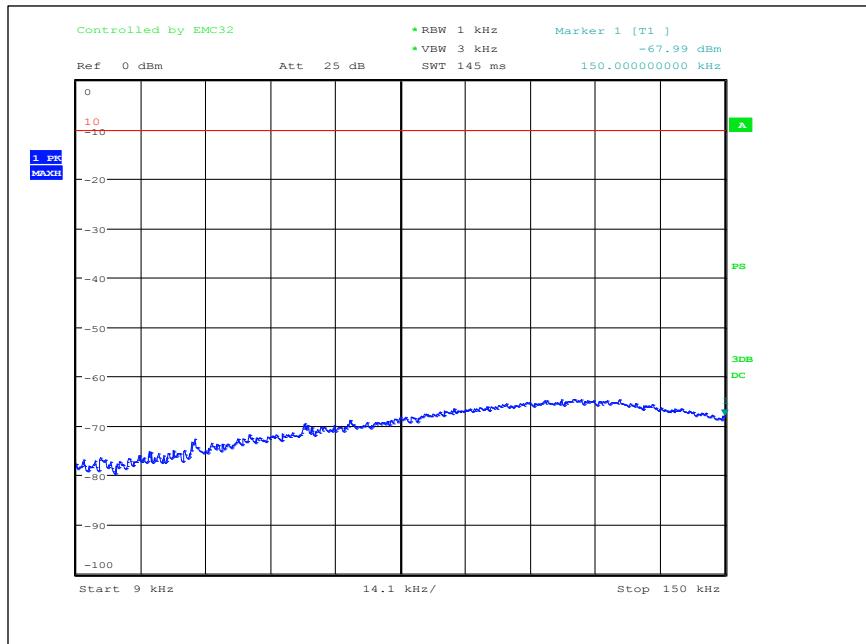
All Spurious Emissions must be at least 20dB down from the highest emission level measured within the authorized band up through the tenth harmonic.

Spurious emissions measurements were made at the low, mid, and upper channels with the appropriate spectrum analyzer impulse bandwidth. Additionally, 20dB down points were measured for the low and high channels to verify band edge compliance.

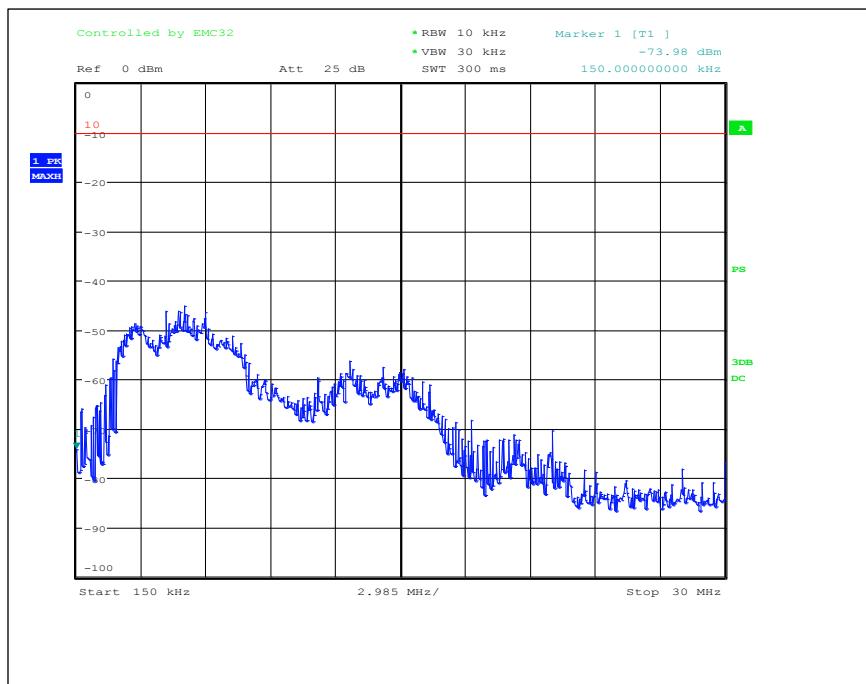
9.2 Test Data – Conducted Spurious Emissions

Test Date:	Aug. 4, 2016	Test Engineer:	J. Knepper
Standards:	CFR 47 Part 15.247(d) / Part 15.209; KDB558074	Air Temperature:	22.1°C

Low Channel: .009 MHz to 0.15 MHz



Low Channel: 0.15 MHz to 30 MHz

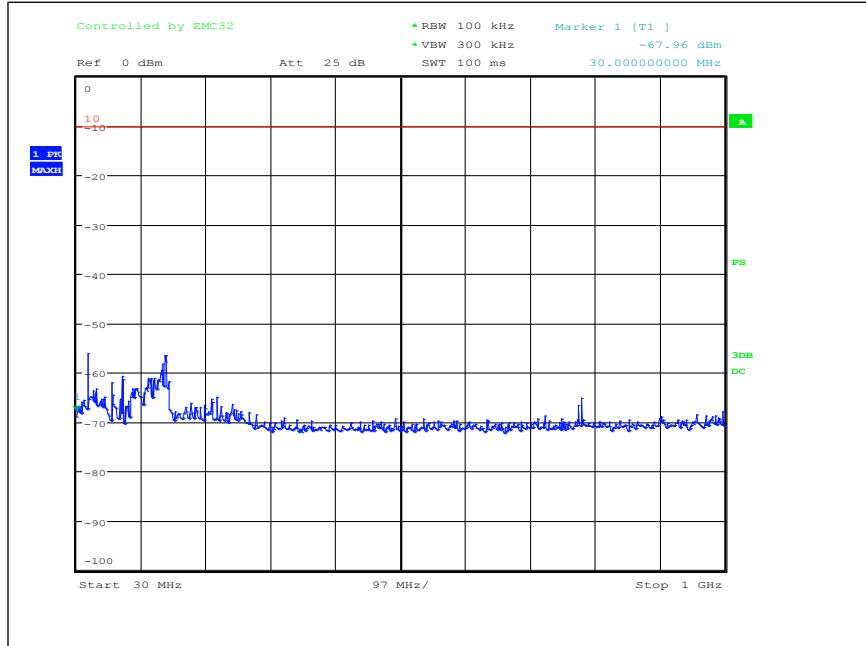




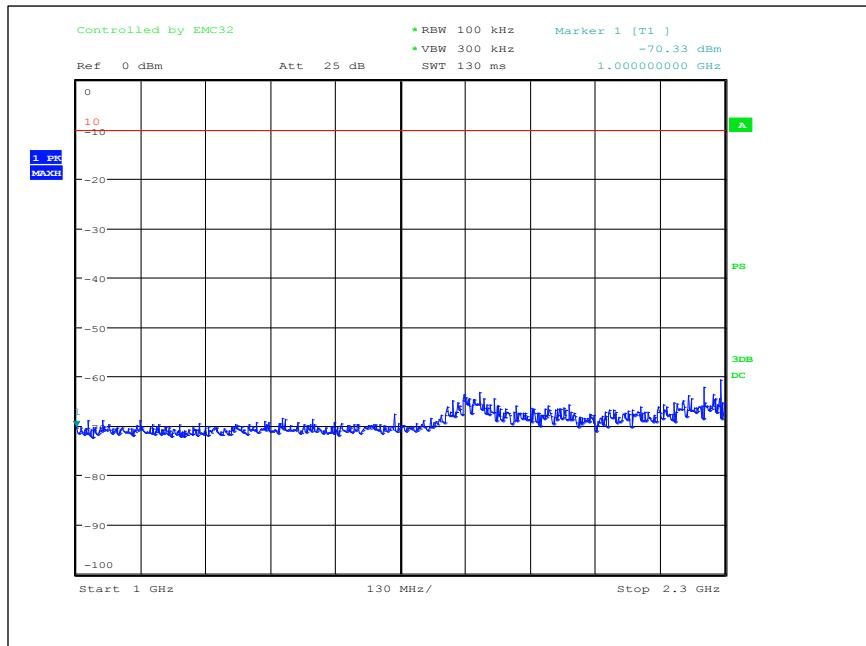
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Low Channel: 30 MHz to 1 GHz



Low Channel: 1 GHz to 2.3 GHz

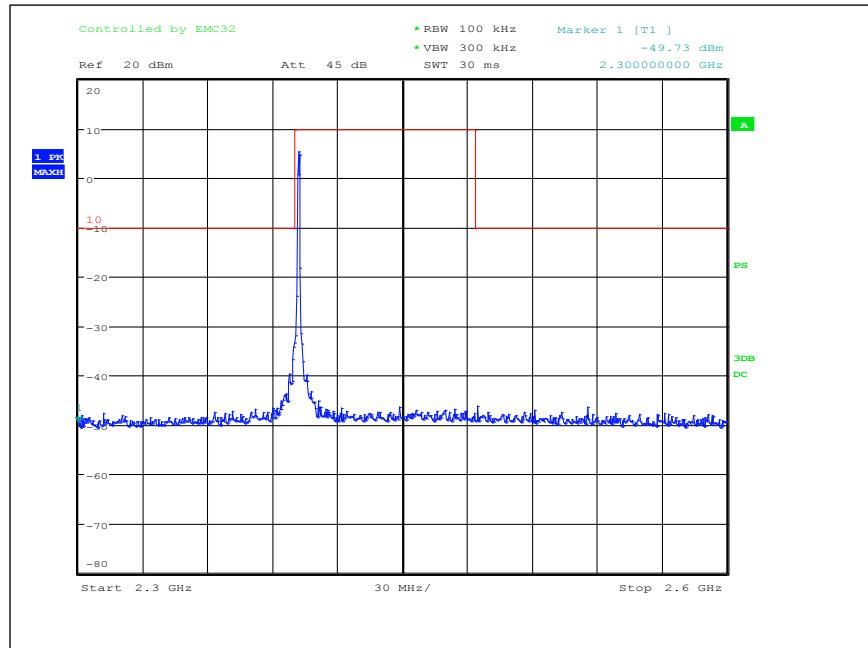




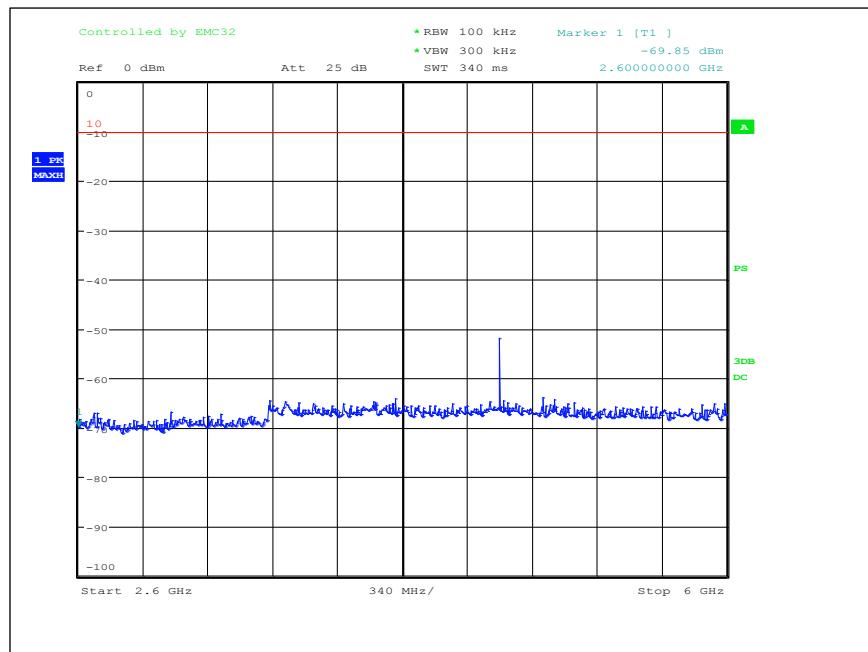
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Low Channel: 2.3 GHz to 2.6 GHz



Low Channel: 2.6 GHz to 6 GHz



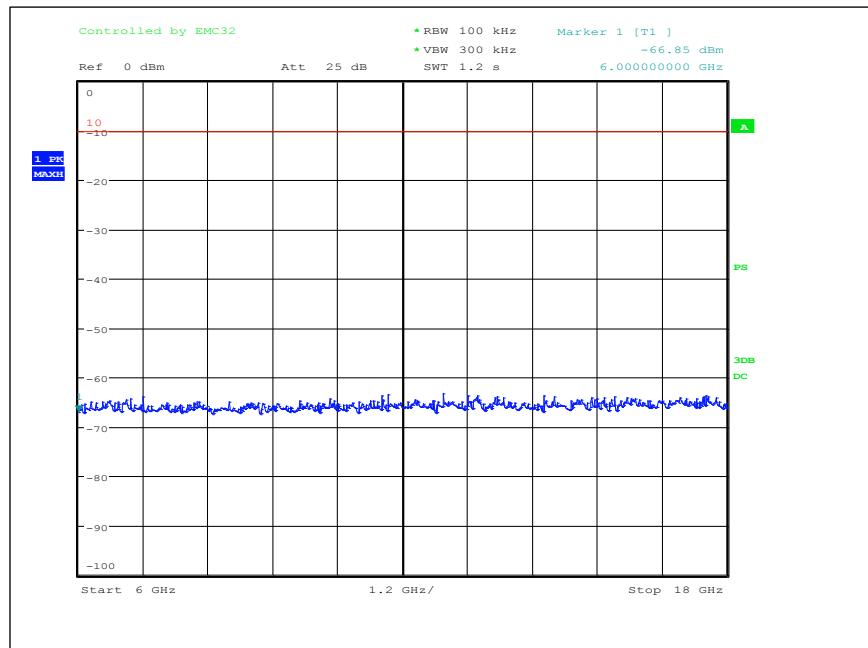


Order Number: F2LQ7746C

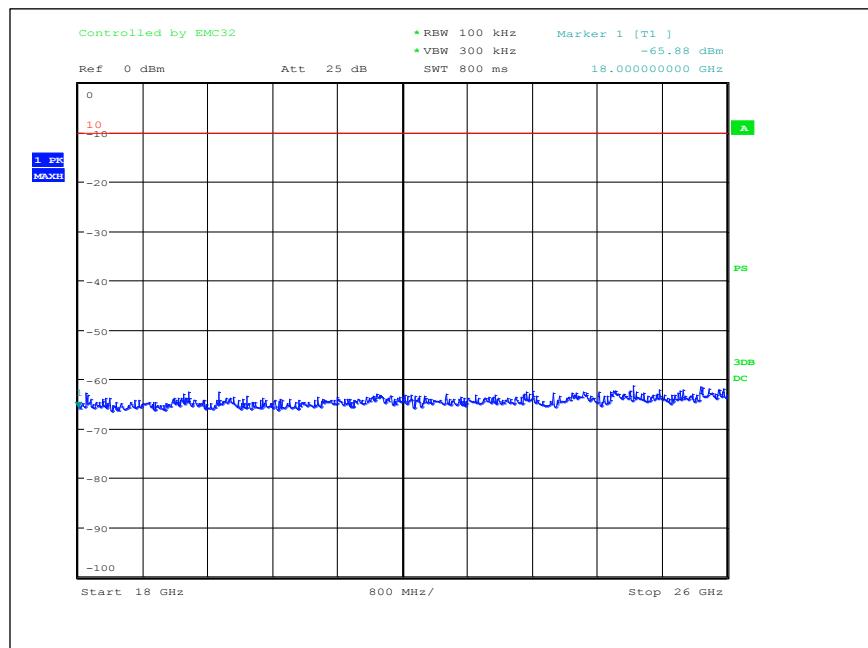
Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Low Channel: 6 GHz to 18 GHz



Low Channel: 18 GHz to 25 GHz

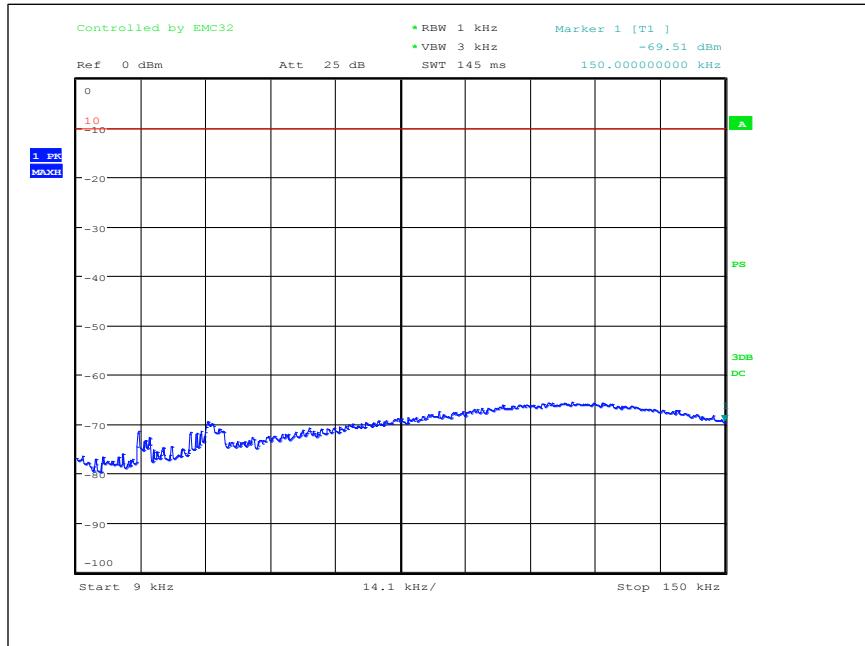




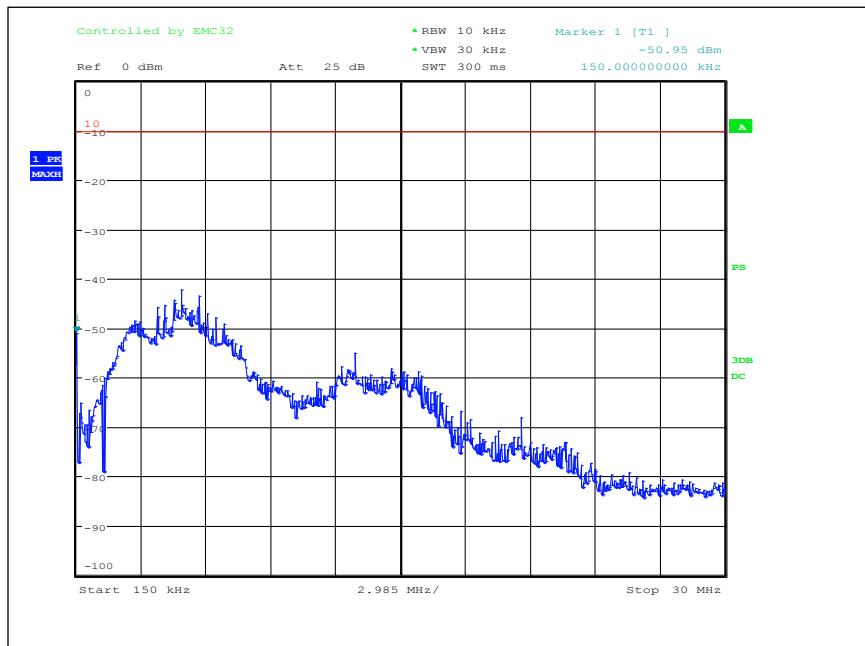
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

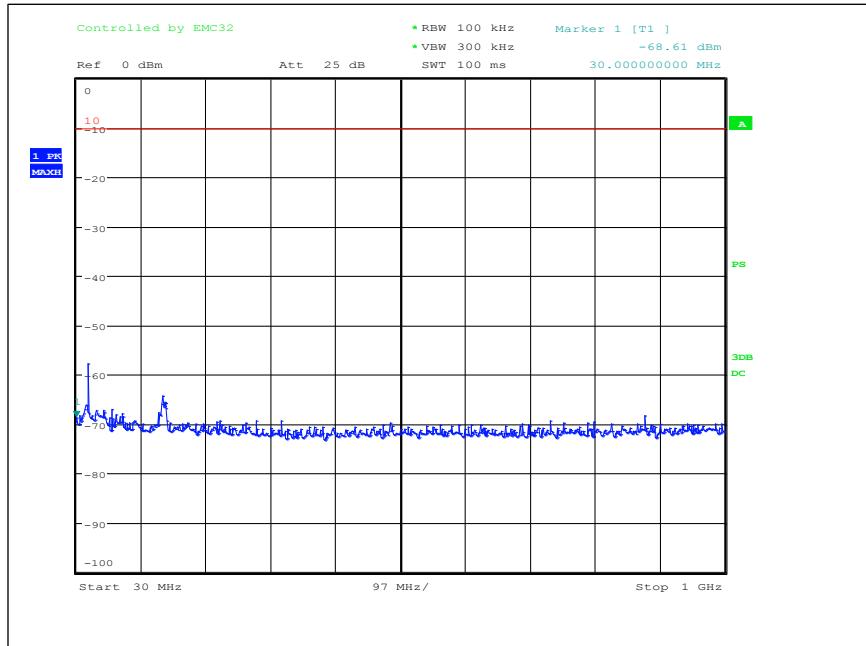
Mid Channel: .009 MHz to 0.15 MHz



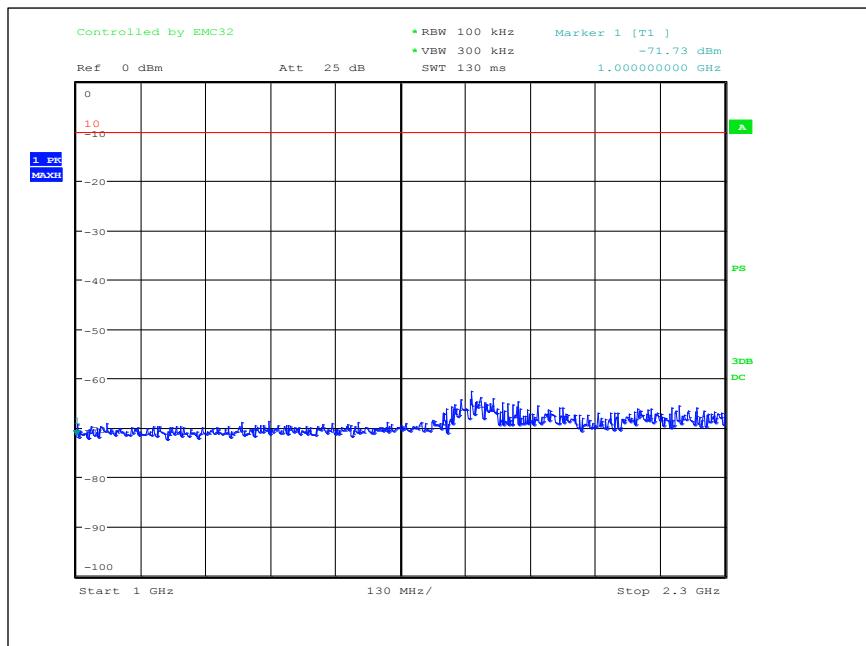
Mid Channel: 0.15 MHz to 30 MHz



Mid Channel: 30 MHz to 1 GHz



Mid Channel: 1 GHz to 2.3 GHz

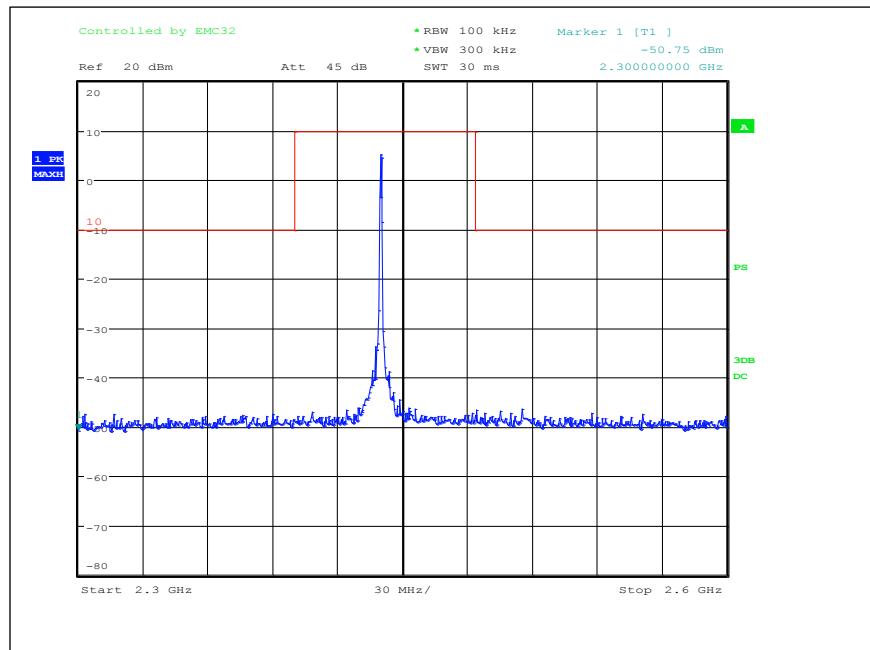




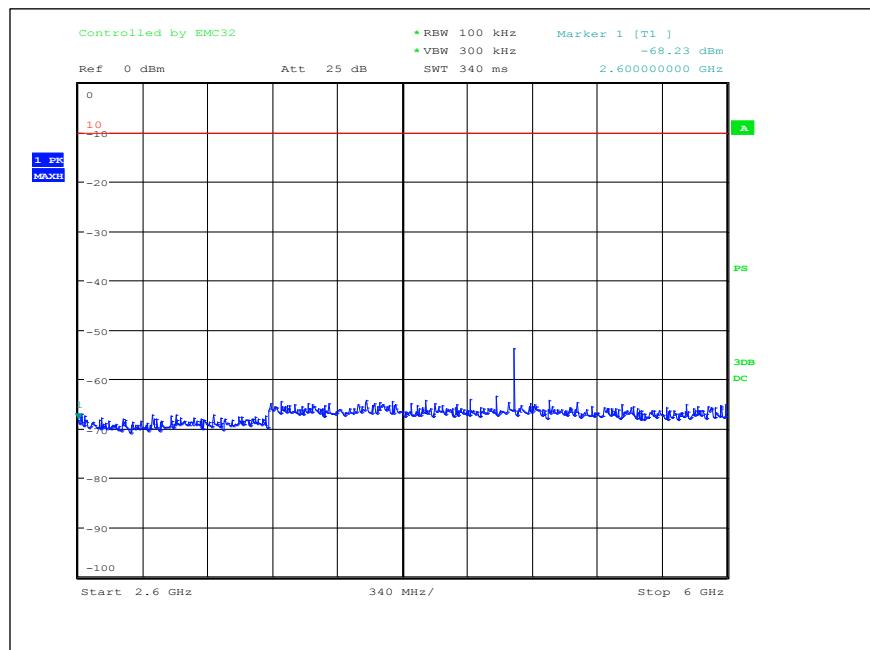
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Mid Channel: 2.3 GHz to 2.6 GHz



Mid Channel: 2.6 GHz to 6 GHz



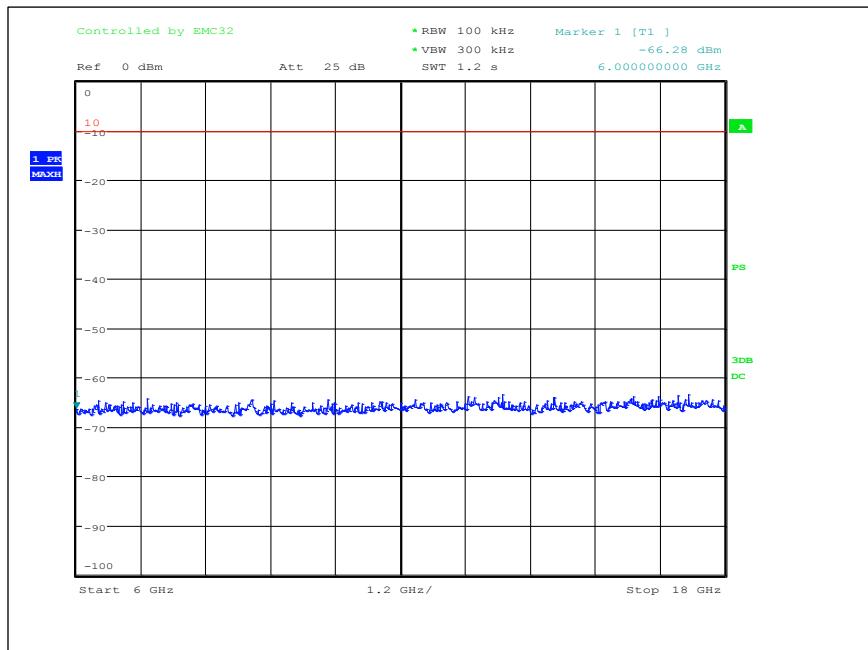


Order Number: F2LQ7746C

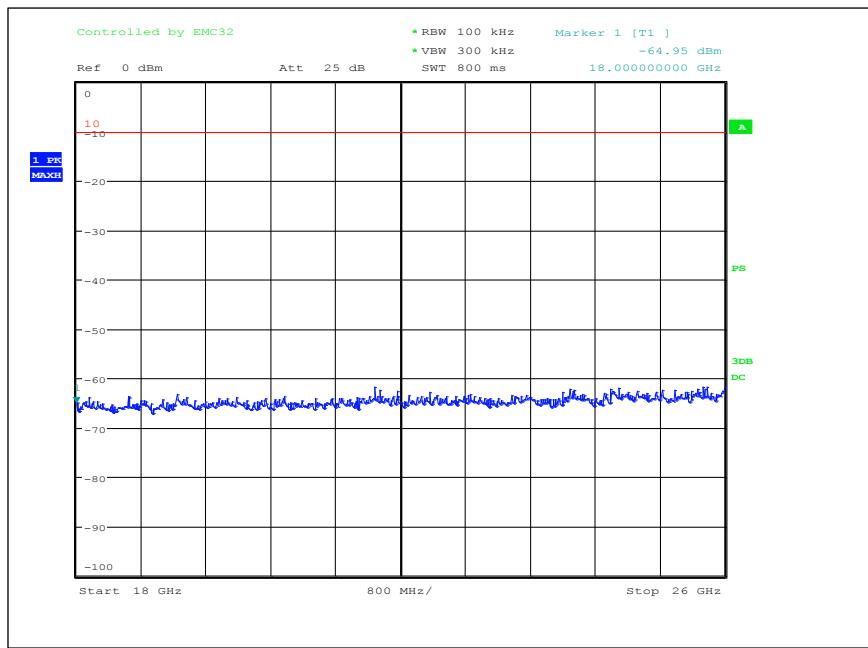
Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Mid Channel: 6 GHz to 18 GHz



Mid Channel: 18 GHz to 25 GHz

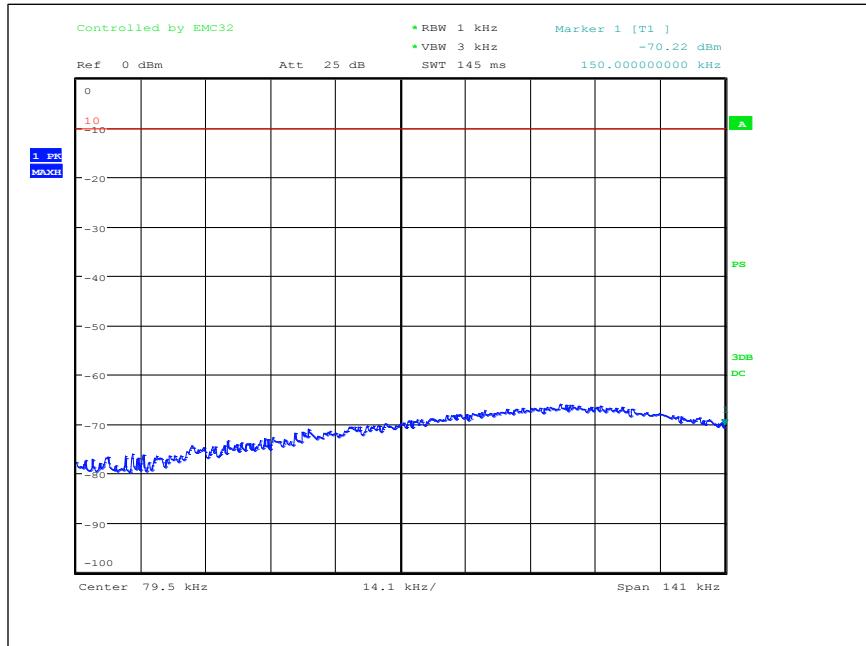




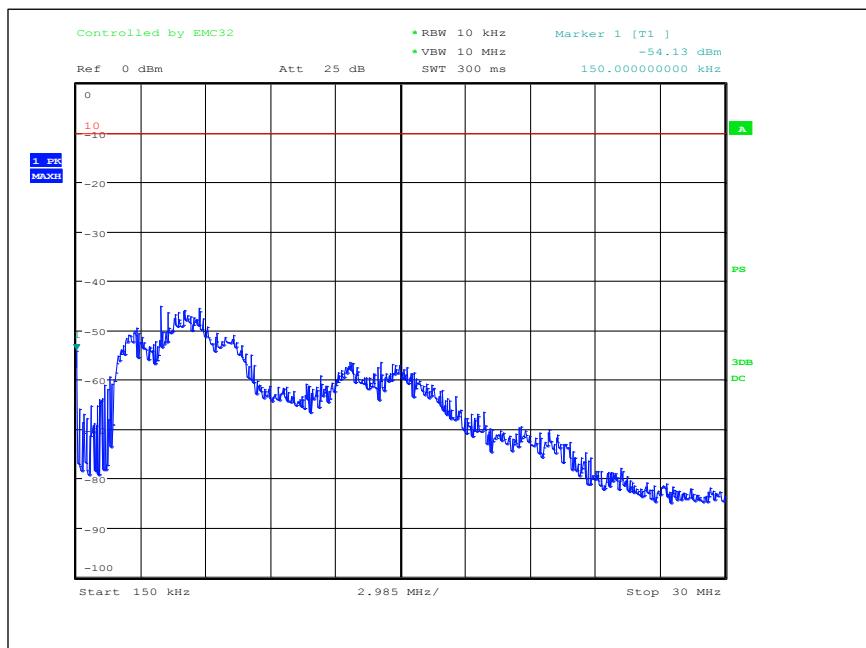
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

High Channel: .009 MHz to 0.15 MHz



High Channel: 0.15 MHz to 30 MHz

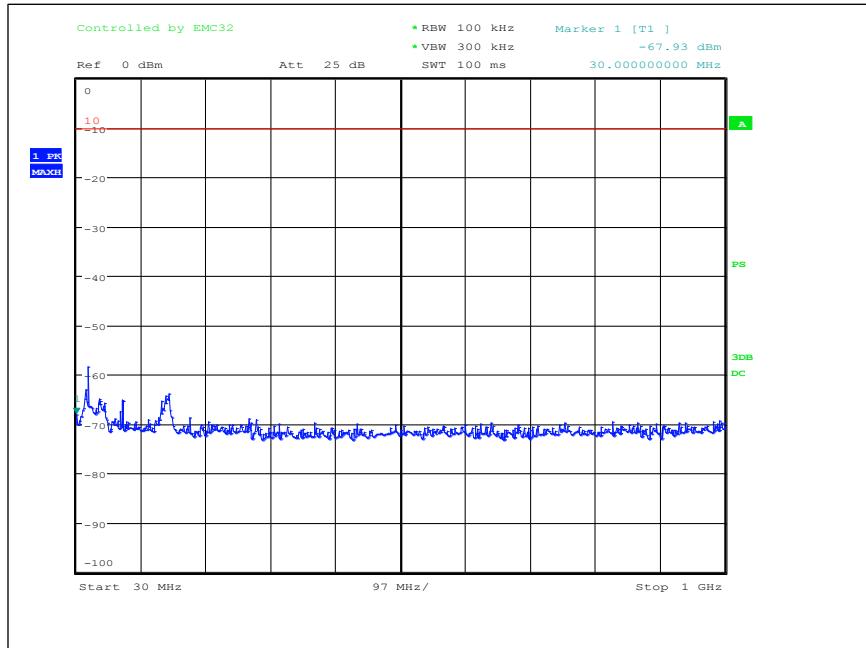




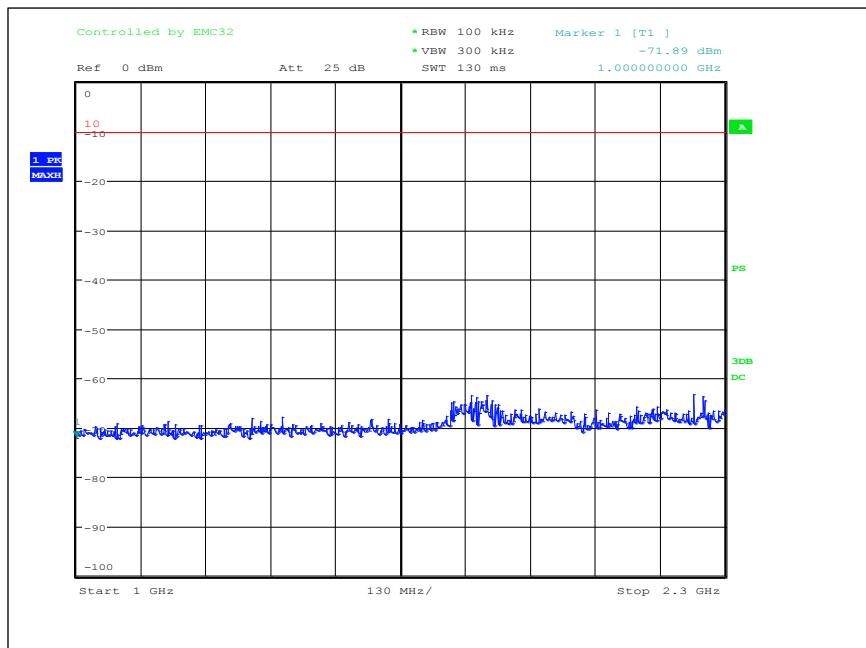
Order Number: F2LQ7746C

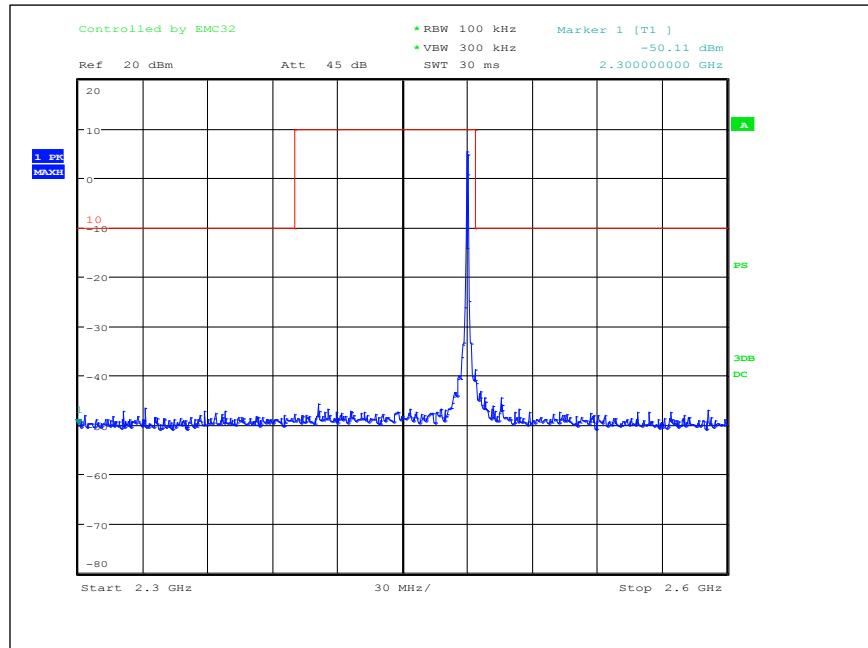
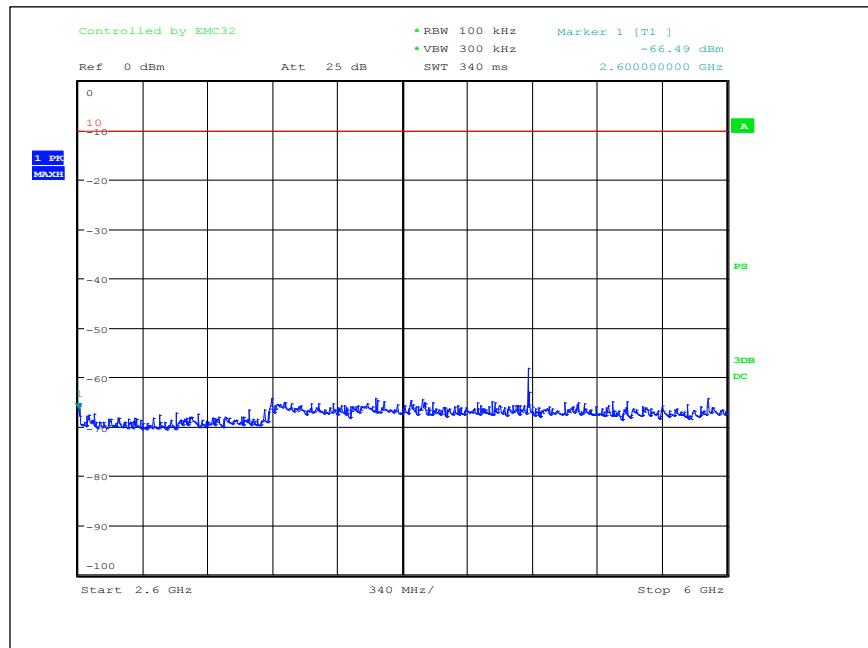
Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

High Channel: 30 MHz to 1 GHz



High Channel: 1 GHz to 2.3 GHz



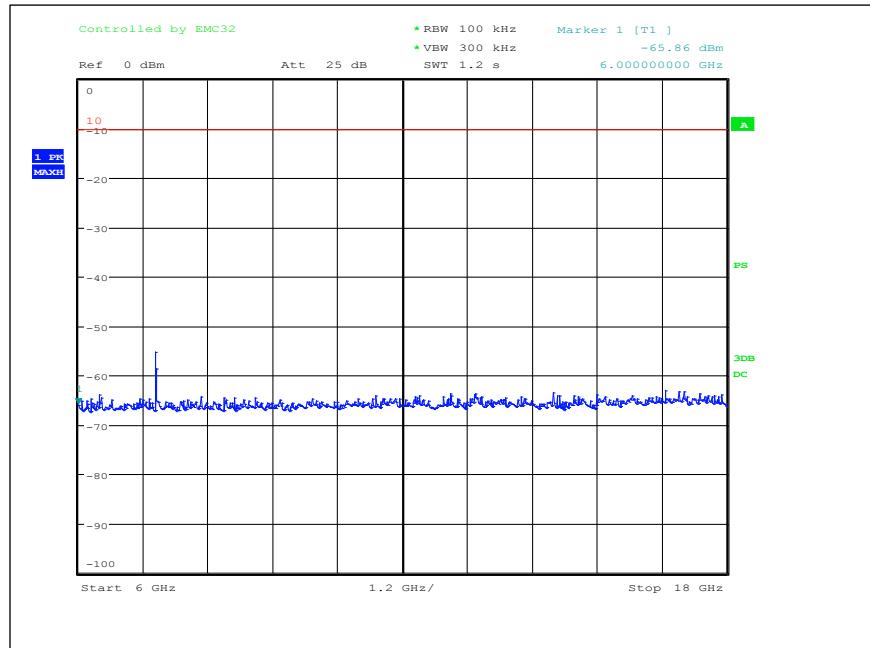
High Channel: 2.3 GHz to 2.6 GHz

High Channel: 2.6 GHz to 6 GHz




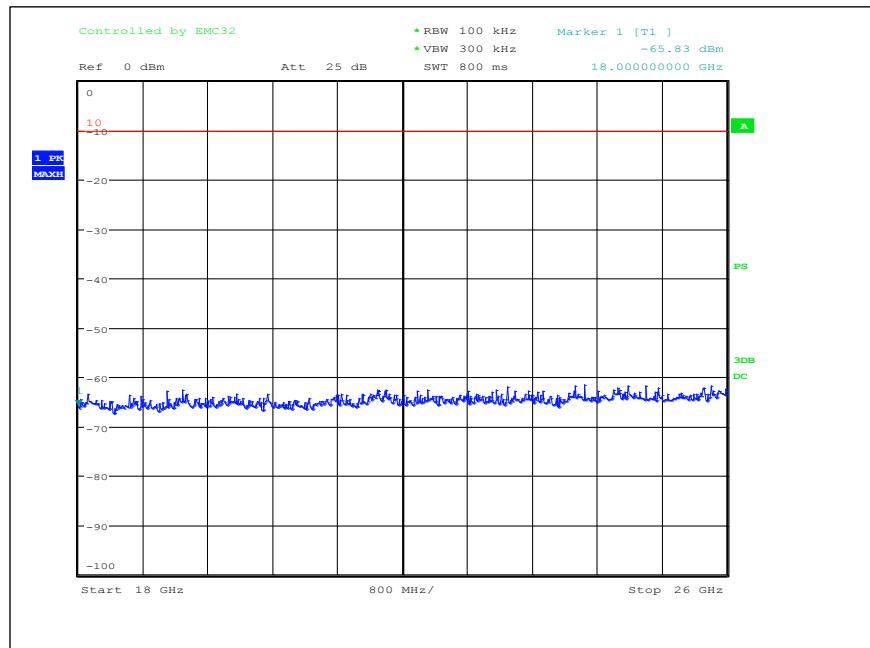
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

High Channel: 6 GHz to 18 GHz



Low Channel: 18 GHz to 25 GHz





Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

10 RADIATED SPURIOUS EMISSION

The EUT antenna port was fitted with its integral/internal chip antenna. Radiated emissions were measured in a Semi-Anechoic Chamber. All emissions generated that fall in the restricted bands per FCC Part 15.205 were examined.

10.1 Requirements:

All emissions that fall in the restricted bands defined in FCC Part 15.205 shall not exceed the maximum field strength listed in FCC Part 15.209(a).



Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

10.2 Radiated Spurious Emission Test Data

Test Date(s):	Aug. 4, 2016	Test Engineer:	J. Knepper
Standards:	CFR 47 Part 15.247(d); Part 15.209 / KDB558074	Air Temperature:	19.6°C
		Relative Humidity:	45%

Notes: Plots are peak, max hold prescan data included only to determine what frequencies to investigate and measure. The EUT was initially placed in a semi-anechoic chamber, and rotated in all three orthogonal positions to maximize the emissions. Characterization measurements were then performed to determine at which frequencies significant emissions occurred. These graphs are shown below.

The equipment was fully exercised with all cabling attached to the EUT and was positioned in a semi-anechoic chamber for maximum emissions. While the equipment was energized, the receiving antenna was scanned from 1.0 meter to 4.0 meters in both vertical and horizontal polarities while the turntable was adjusted 360 degrees to determine the maximum field strength. The tables of measured results can be found below.

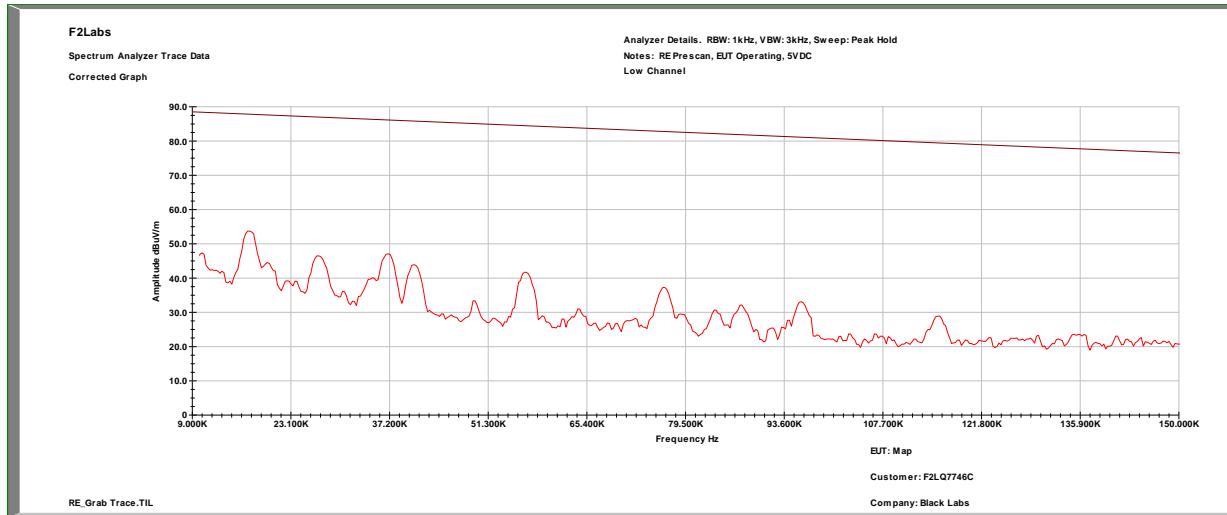
Some of the frequencies did not change with the EUT on or off. At those frequencies, the test distance was shortened to 1 meter and still no emissions from the EUT were visible or over the ambient or limit. The plots are for reference only and the limit lines are not actual limit lines but merely a guide.



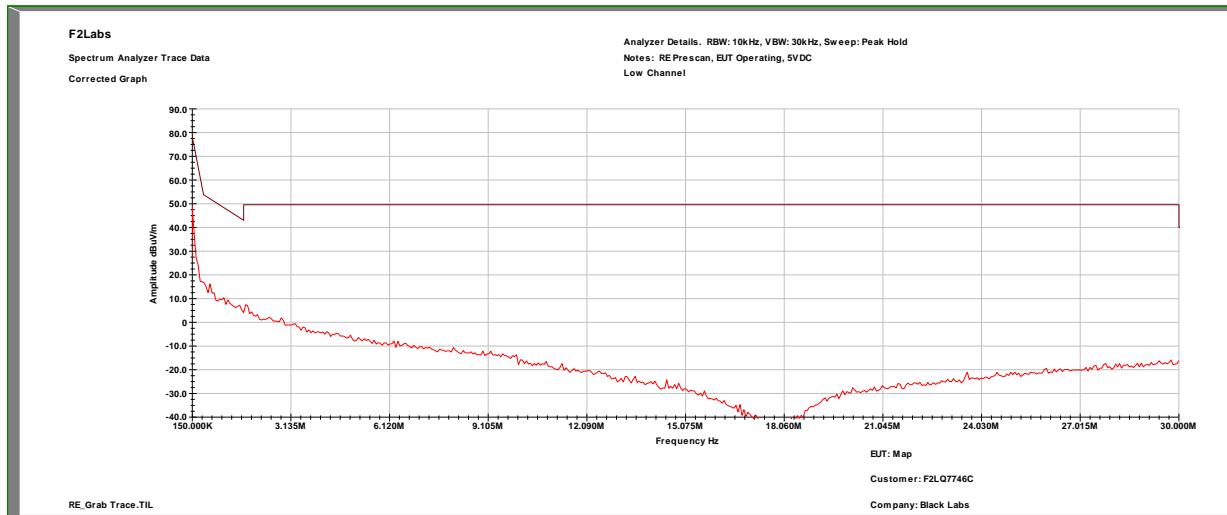
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Low Channel: 0.009 to 0.15 MHz



Low Channel: 0.15 MHz to 30 MHz



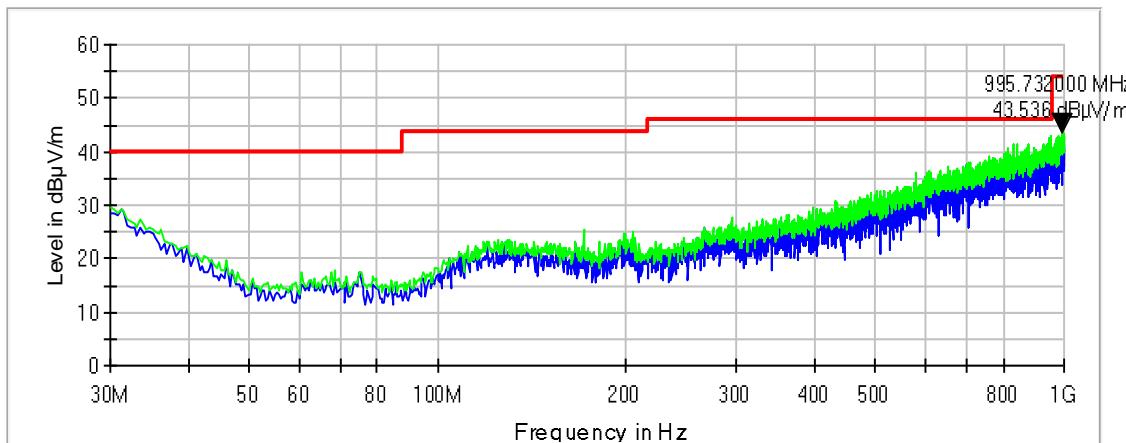


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Low Channel: 30 MHz to 1 GHz, Vertical

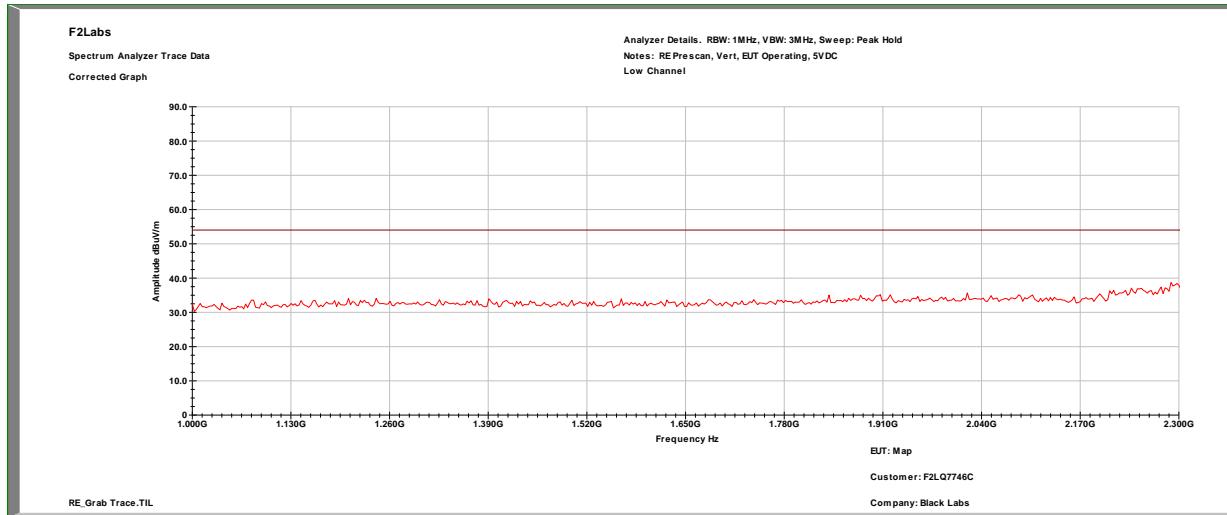




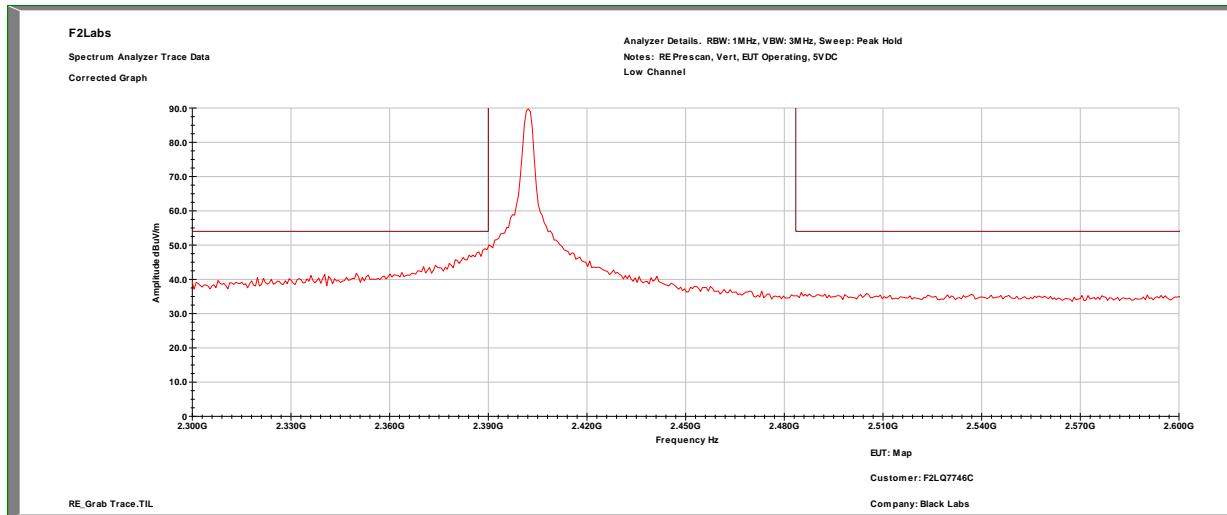
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Low Channel: 1 GHz to 2.3 GHz, Vertical



Low Channel: 2.3 GHz to 2.6 GHz, Vertical

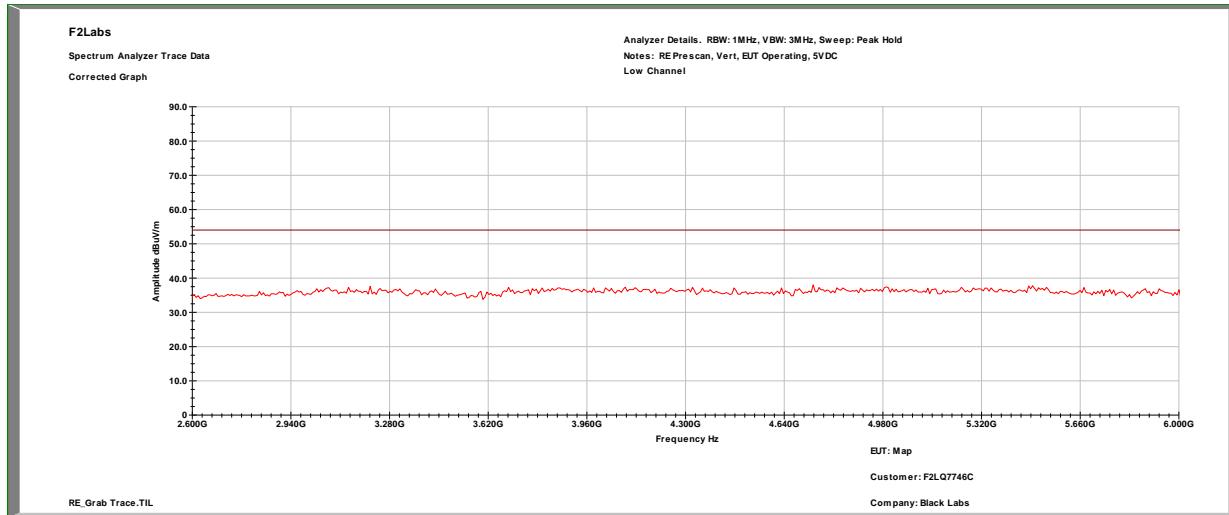




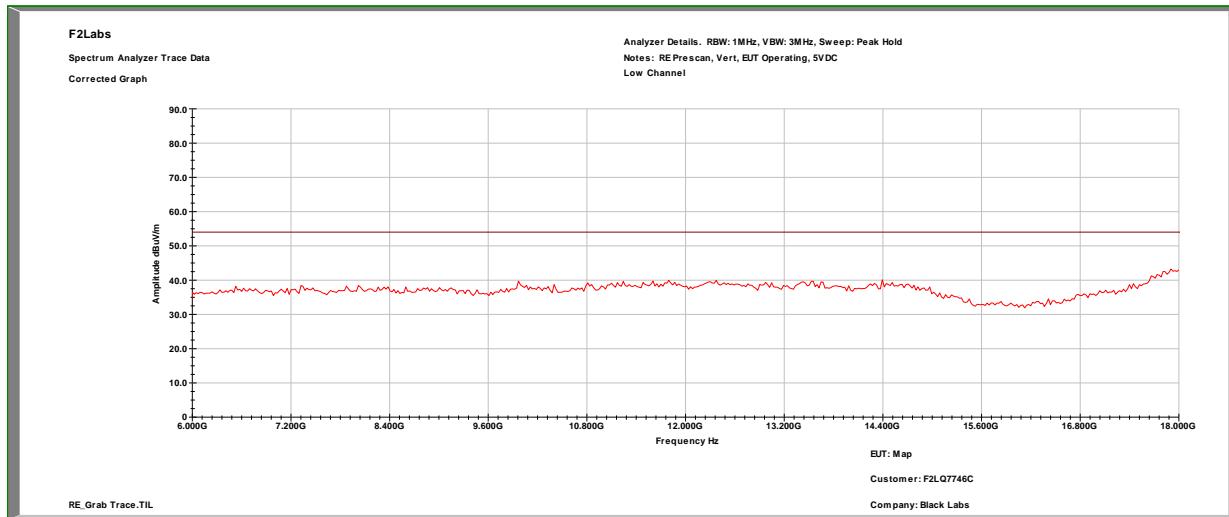
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Low Channel: 2.6 GHz to 6 GHz, Vertical



Low Channel: 6 GHz to 18 GHz, Vertical



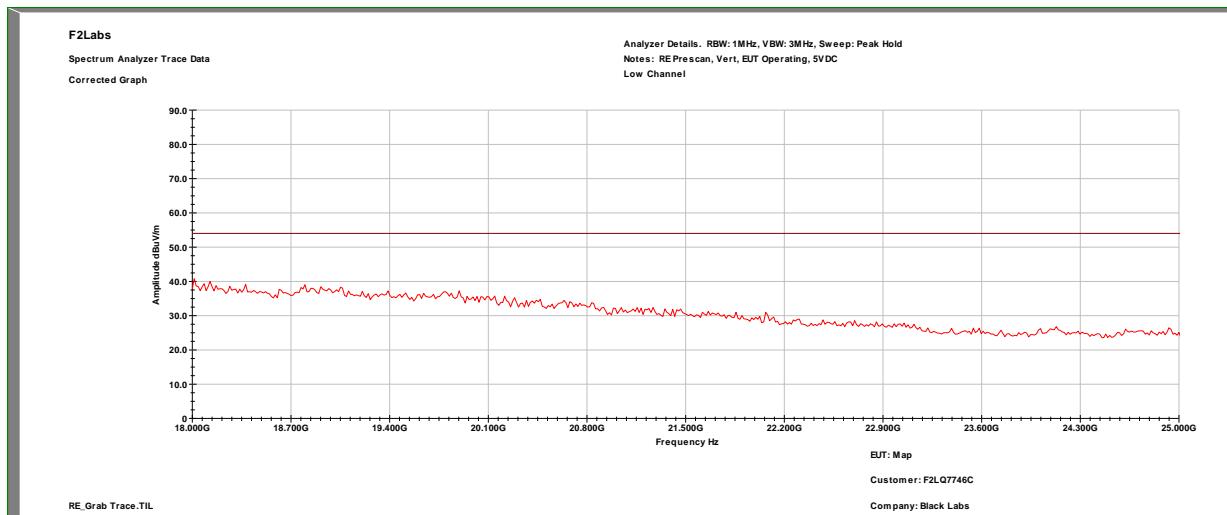


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Low Channel: 18 GHz to 25 GHz, Vertical



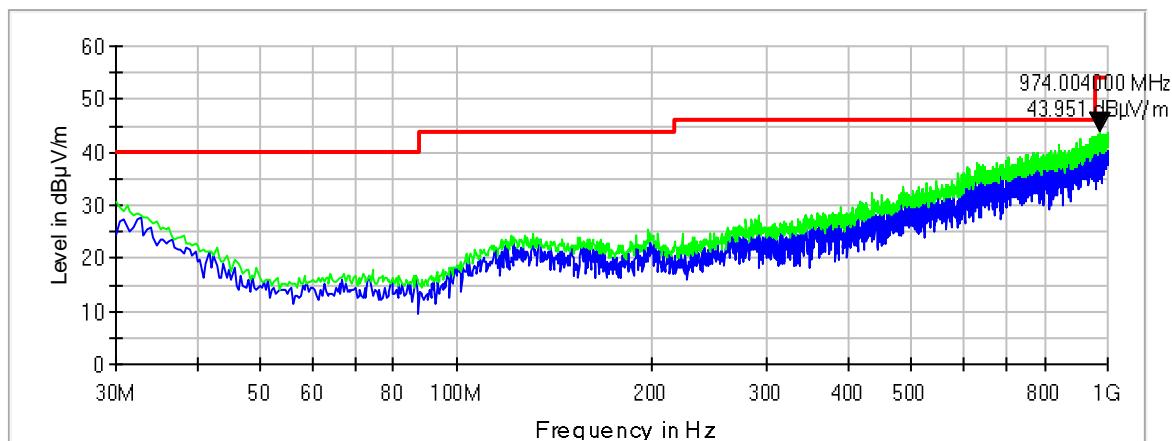


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Low Channel: 30 MHz to 1 GHz, Horizontal

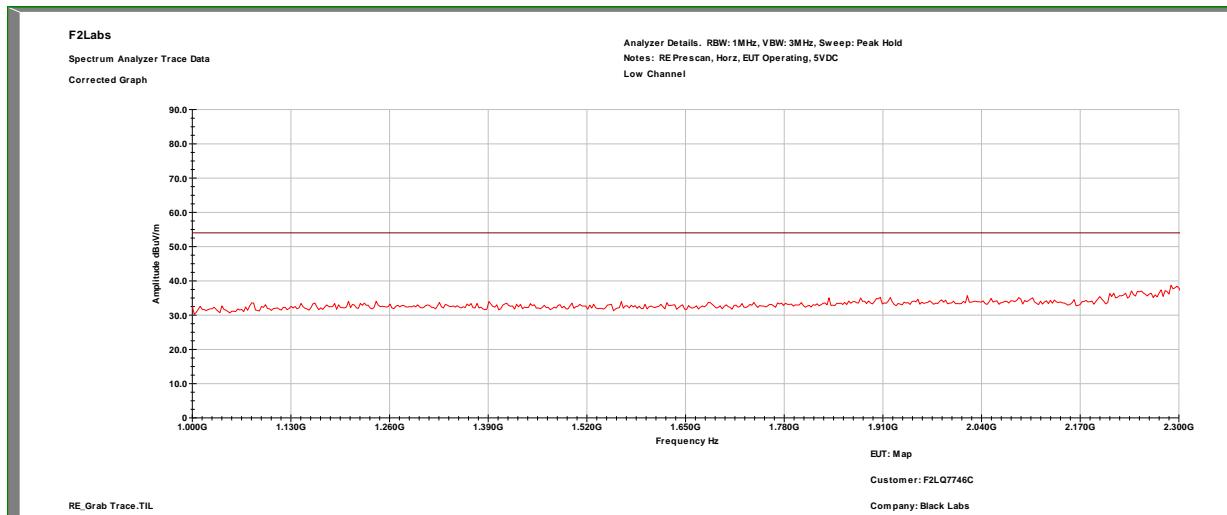




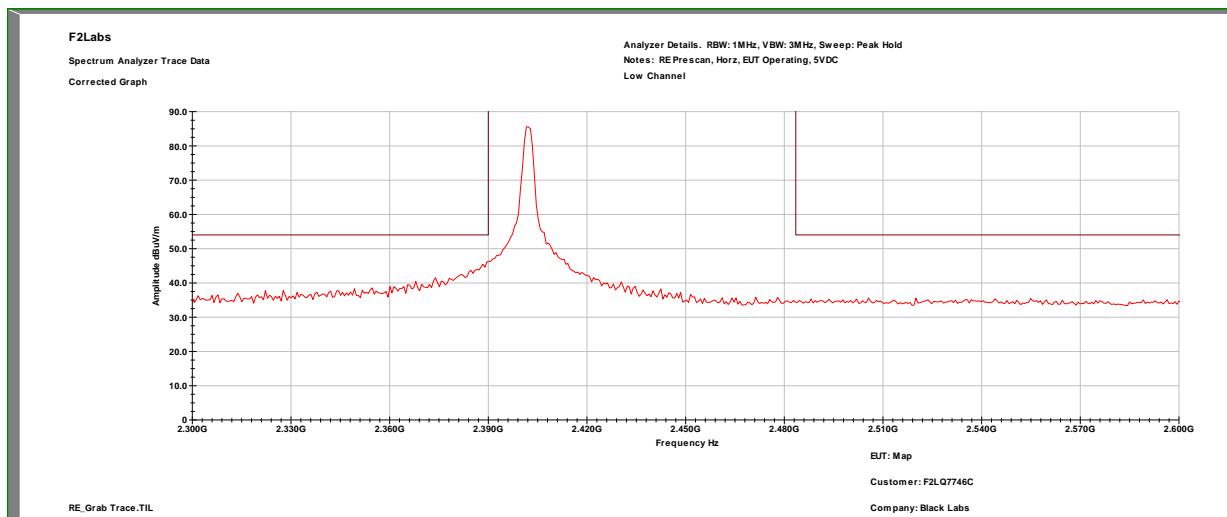
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Low Channel: 1 GHz to 2.3 GHz, Horizontal



Low Channel: 2.3 GHz to 2.6 GHz, Horizontal

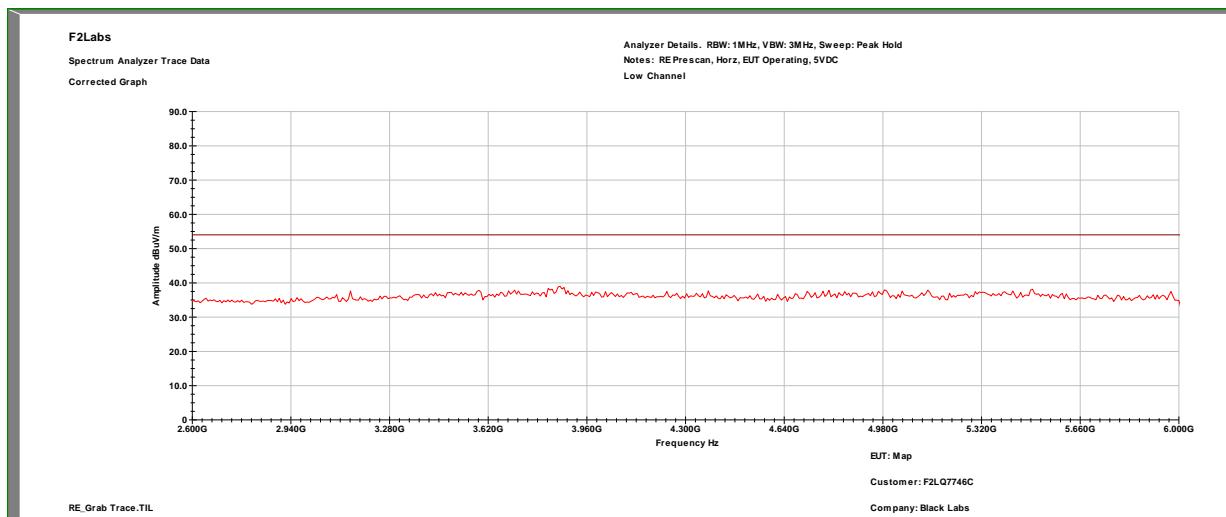




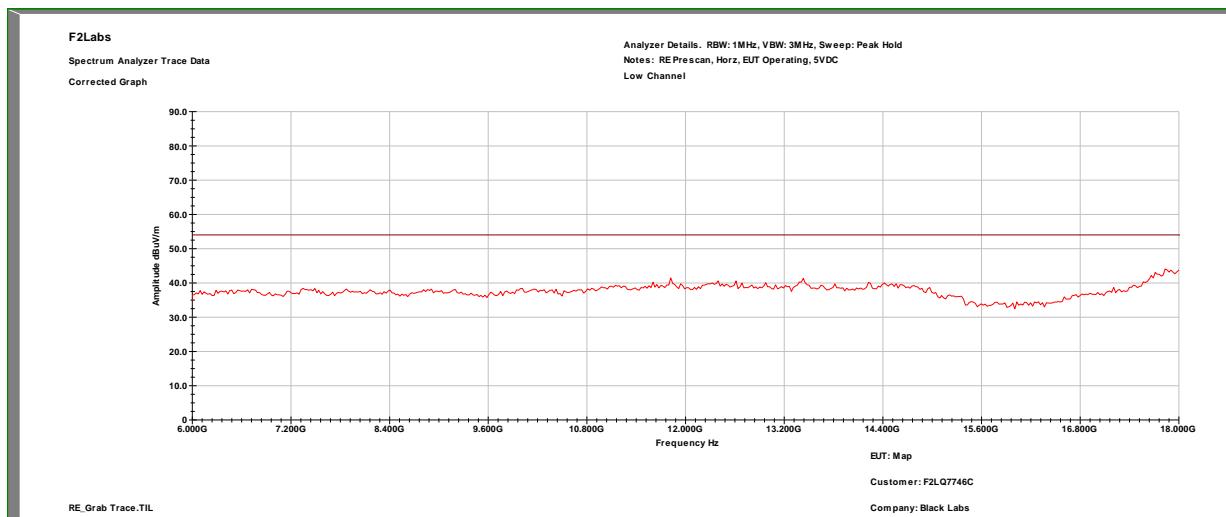
Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Low Channel: 2.6 GHz to 6 GHz, Horizontal



Low Channel: 6 GHz to 18 GHz, Horizontal



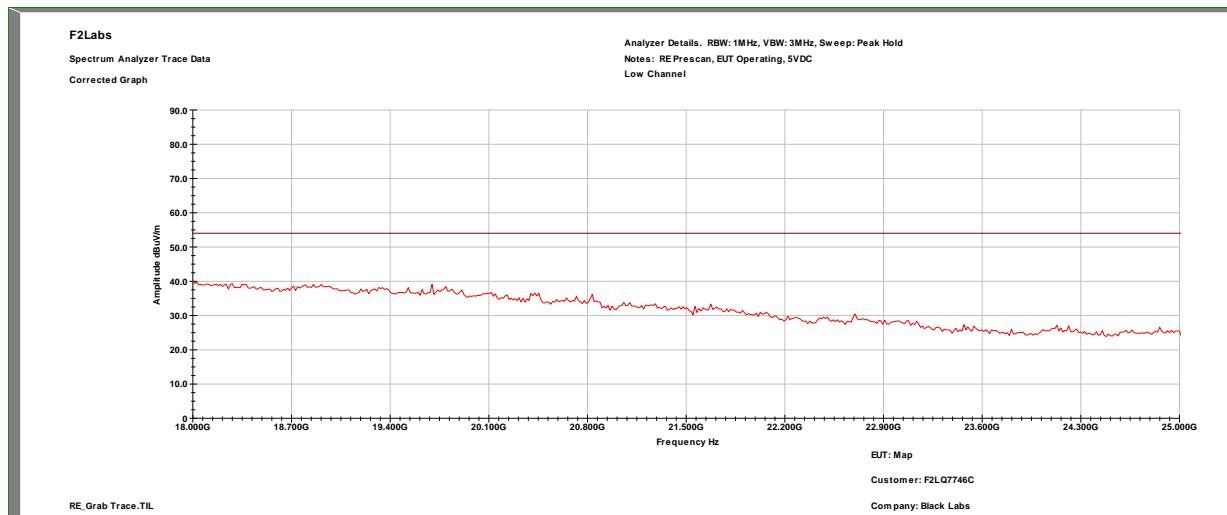


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Low Channel: 18 GHz to 25 GHz, Horizontal



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Report Number: F2LQ7746C-02E

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Issue Date: Aug. 4, 2016

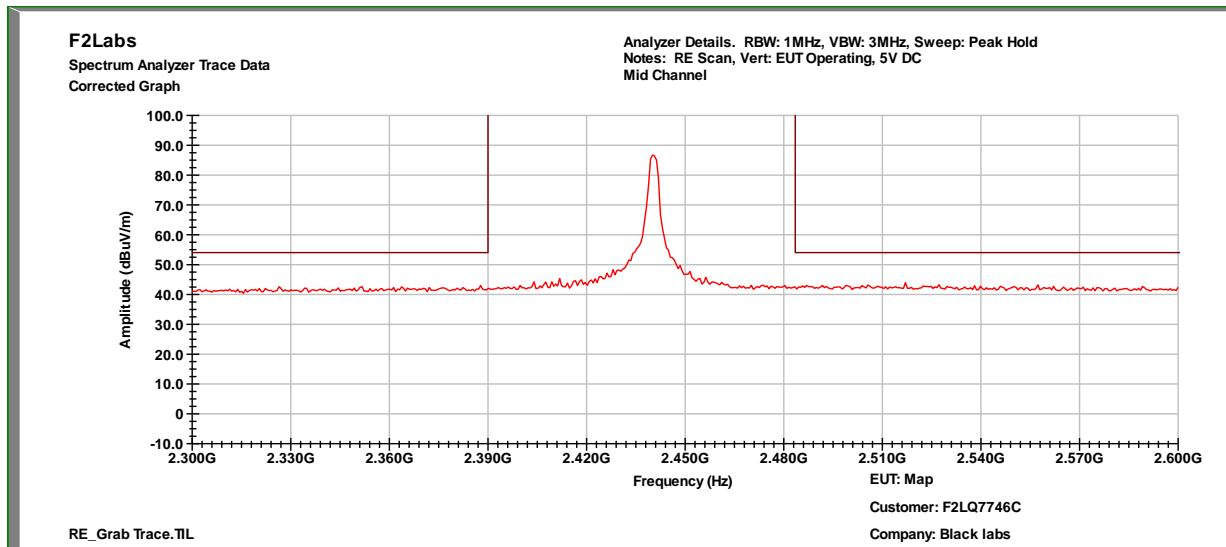


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Mid Channel: 2.3 GHz to 2.6 GHz, Vertical



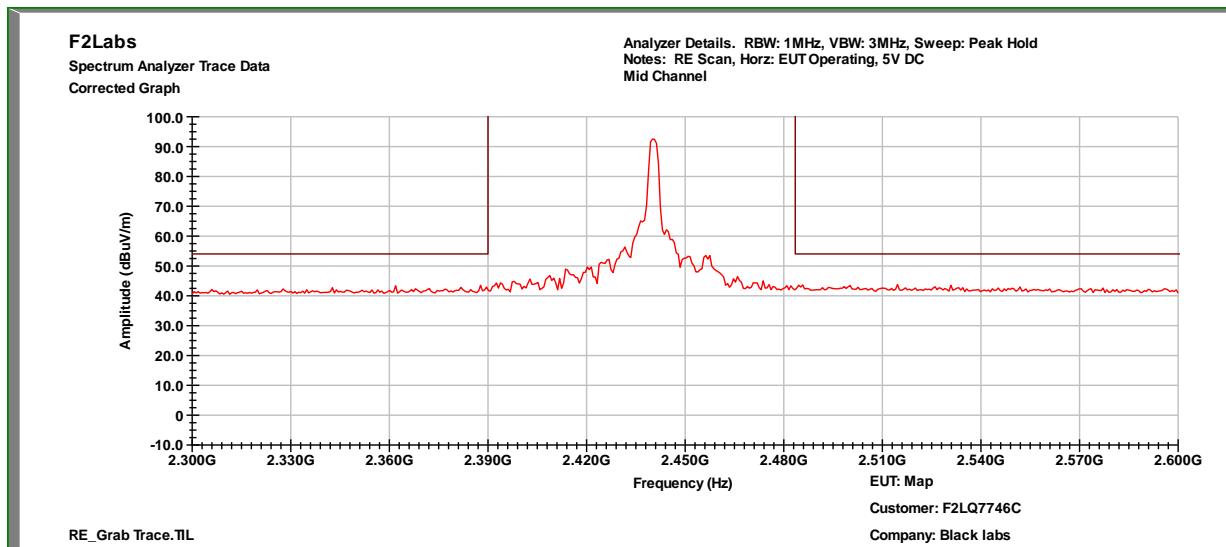


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Mid Channel: 2.3 GHz to 2.6 GHz, Horizontal



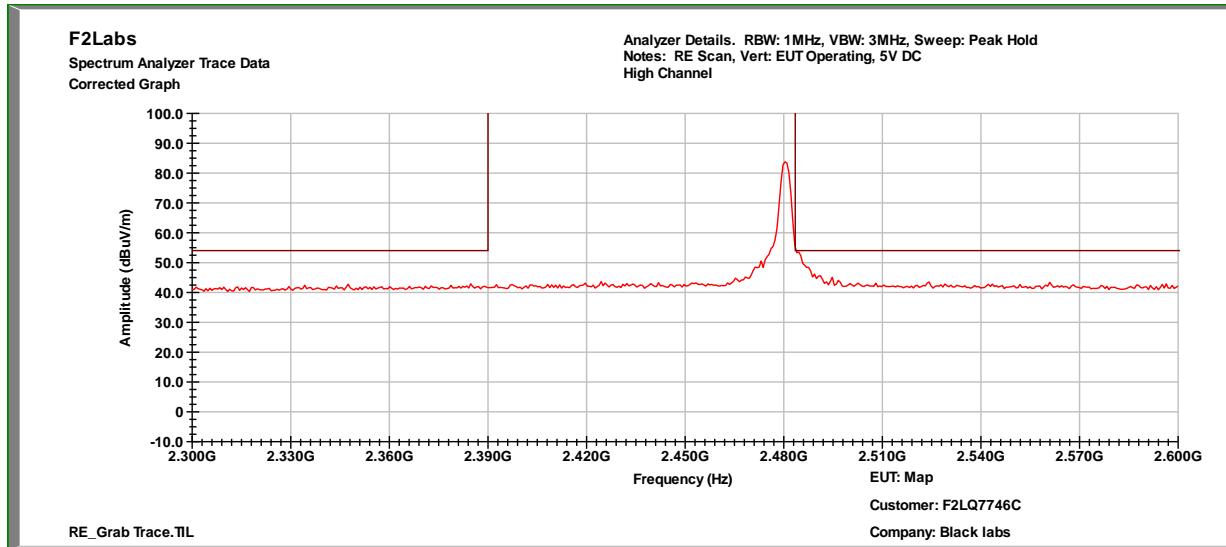


Order Number: F2LQ7746C

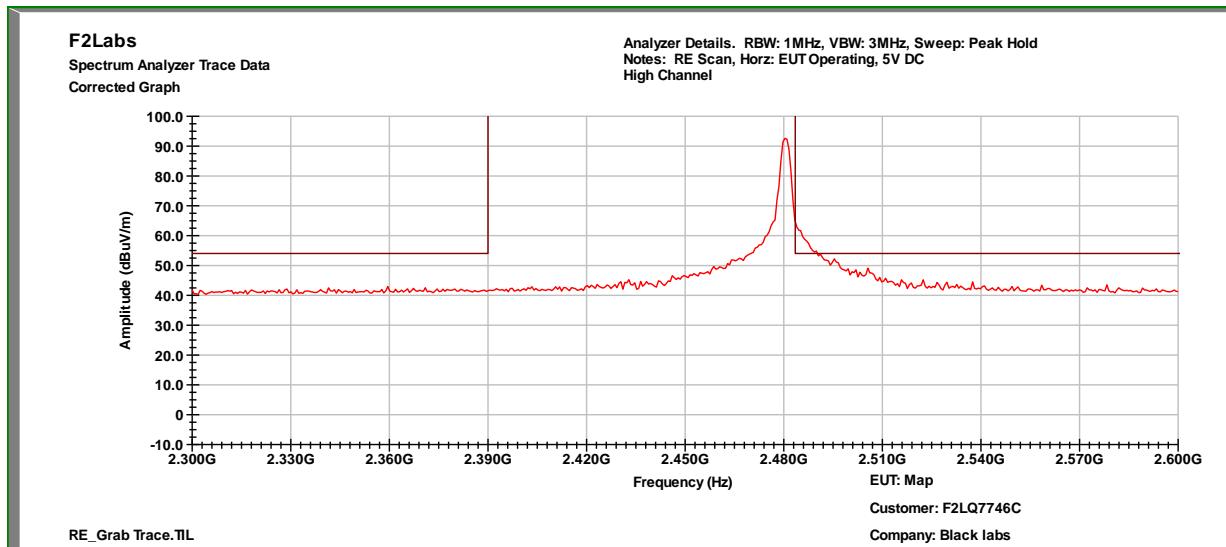
Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

High Channel: 2.3 GHz to 2.6 GHz, Vertical



High Channel: 2.3 GHz to 2.6 GHz, Horizontal





Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Measurements

Low Channel - MaxPeak

Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Cable Loss & Antenna Factor (dB)	Emission (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2390.000000	H	43.7	15.3	59.00	74.0	-15.0
2390.000000	V	40.0	15.3	55.30	74.0	-18.7
2483.500000	H	35.7	15.6	51.30	74.0	-22.7
2483.500000	V	35.9	15.6	51.50	74.0	-22.5

Low Channel - Average

Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Cable Loss & Antenna Factor (dB)	Emission (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2390.000000	H	23.1	15.3	38.40	54.0	-15.6
2390.000000	V	22.8	15.3	38.10	54.0	-15.9
2483.500000	H	22.5	15.6	38.10	54.0	-15.9
2483.500000	V	22.5	15.6	38.10	54.0	-15.9



Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Mid Channel - MaxPeak

Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Cable Loss & Antenna Factor (dB)	Emission (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2390.000000	H	36.20	15.3	51.50	74.0	-22.5
2390.000000	V	37.20	15.3	52.50	74.0	-21.5
2483.500000	H	35.90	15.6	51.50	74.0	-22.5
2483.500000	V	36.20	15.6	51.80	74.0	-22.2

Mid Channel - Average

Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Cable Loss & Antenna Factor (dB)	Emission (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2390.000000	H	22.4	15.3	37.70	54.0	-16.3
2390.000000	V	22.4	15.3	37.70	54.0	-16.3
2483.500000	H	22.3	15.6	37.90	54.0	-16.1
2483.500000	V	22.3	15.6	37.90	54.0	-16.1



Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

High Channel - MaxPeak

Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Cable Loss & Antenna Factor (dB)	Emission (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2390.000000	H	35.80	15.3	51.10	74.0	-22.9
2390.000000	V	36.40	15.3	51.70	74.0	-22.3
2483.500000	H	54.40	15.6	70.00	74.0	-4.0
2483.500000	V	45.60	15.6	61.20	74.0	-12.8

High Channel - Average

Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Cable Loss & Antenna Factor (dB)	Emission (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2390.000000	H	22.4	15.3	37.70	54.0	-16.3
2390.000000	V	22.4	15.3	37.70	54.0	-16.3
2483.500000	H	25.2	15.6	40.80	54.0	-13.2
2483.500000	V	23.1	15.6	38.70	54.0	-15.3



Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

11 DENSITY (PSD)

Peak power spectral density measurements were performed.

11.1 Requirements:

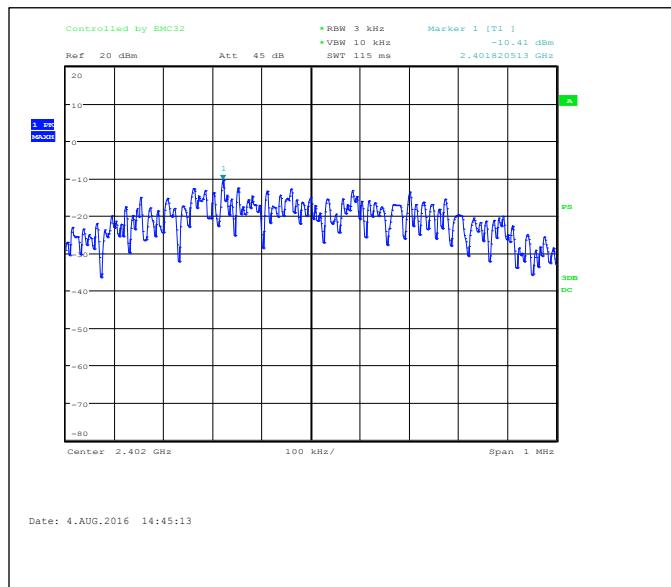
The peak power spectral density shall not exceed +8dBm in any 3 kHz band during any time interval of continuous transmission.

Power spectral density measurements were performed at a resolution bandwidth of 3 kHz (video bandwidth set at 10kHz). The peak spectral densities were measured at the low, mid, and upper channels.

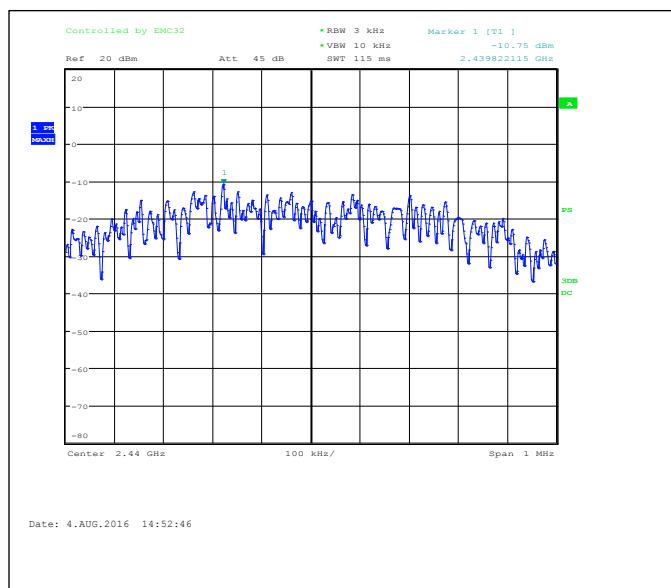
11.2 Peak Power Spectral Density Test Data

Test Date(s):	Aug. 4, 2016	Test Engineer:	J. Knepper
Standards:	CFR 47 Part 15.247(e)/KDB558074	Air Temperature:	22.0°C
		Relative Humidity:	46%

Low Channel



Mid Channel



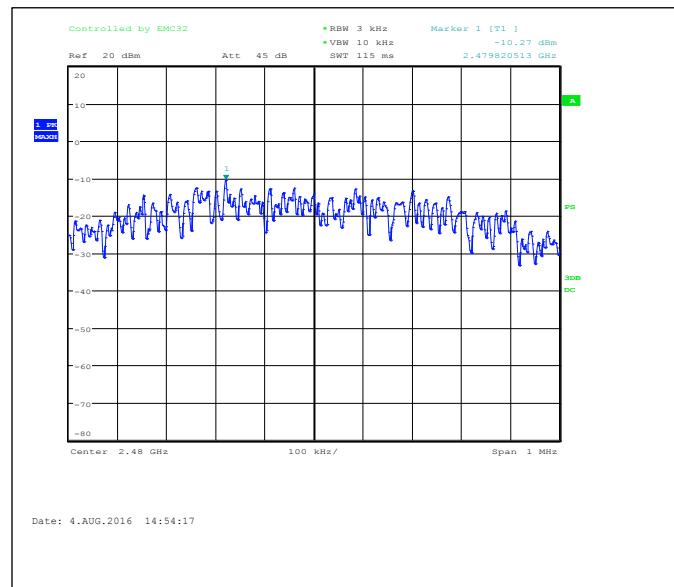


Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

High Channel





Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

12 CONDUCTED EMISSIONS

12.1 Requirements

In accordance with FCC CFR 47 Part 15.207(a), "Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50ohm line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
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.

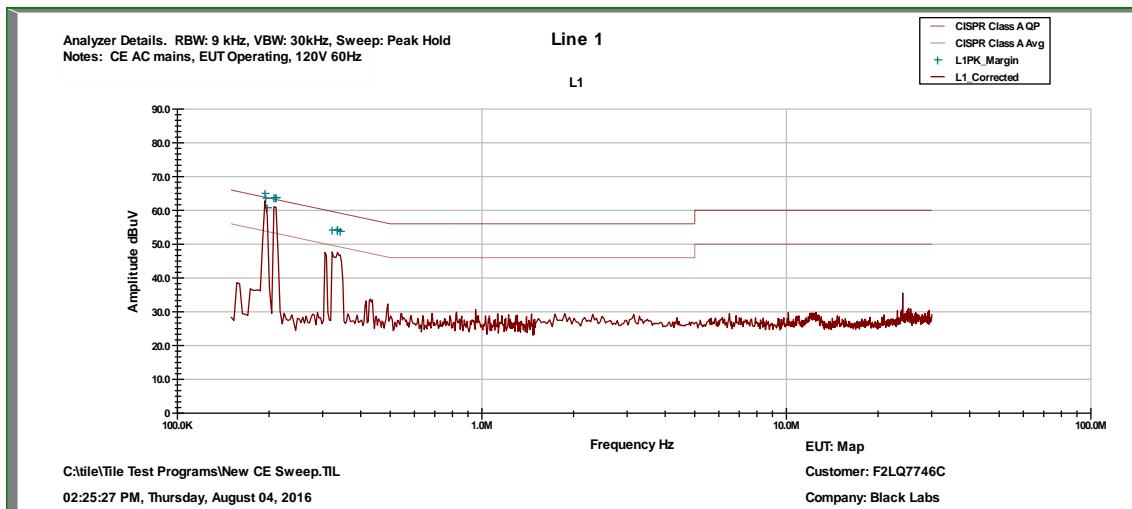
12.2 Procedure

The EUT was placed on a 1.0 x 1.5 meter non-conductive table, 0.8 meter above a horizontal ground plane and 0.4 meter from a vertical ground plane. Power was provided to the EUT through a LISN bonded to a 3 x 2 meter ground plane. The LISN and peripherals were supplied power through a filtered AC power source. The output of the LISN was connected to the input of the receiver via a transient limiter, and emissions in the range 150 kHz to 30 MHz were measured. The measurements were recorded using the quasi-peak and average detectors as directed by the standard, and the resolution bandwidth during testing was 9 kHz. The raw measurements were corrected to allow for attenuation from the LISN, transient limiter and cables.

12.3 Conducted Emissions Test Data

Test Date:	Aug. 4, 2016	Test Engineer:	J. Knepper
Rule:	15.207(a)	Air Temperature:	21.2° C
Test Results:	Pass	Relative Humidity:	45%

Conducted Test – Line 1: 0.15 MHz to 30.0 MHz



Top Discrete Measurements									
No.	Conductor	Frequency (MHz)	Detector	Level (dB μ V)	Adjustment (dB)	Results (dB μ V)	Limit (dB μ V)	Margin (dB)	
1	Line 1	0.193875	Quasi-Peak	44.996	11.025	56.021	63.821	-7.8	
			Average	15.416	11.025	26.441	53.821	-27.4	
2	Line 1	0.195	Quasi-Peak	44.789	11.020	55.809	63.821	-8.0	
			Average	13.082	11.020	24.102	53.821	-29.7	
3	Line 1	0.19725	Quasi-Peak	44.447	11.011	55.458	63.727	-8.3	
			Average	14.263	11.011	25.274	53.727	-28.5	
4	Line 1	0.207375	Quasi-Peak	43.305	10.959	54.264	63.311	-9.0	
			Average	14.009	10.959	24.968	53.311	-28.3	
5	Line 1	0.21	Quasi-Peak	43.098	10.944	54.042	63.205	-9.2	
			Average	15.868	10.944	26.812	53.205	-26.4	
6	Line 1	0.21075	Quasi-Peak	43.119	10.940	54.059	63.176	-9.1	
			Average	11.479	10.940	22.419	53.176	-30.8	
7	Line 1	0.322125	Quasi-Peak	30.735	10.500	41.235	59.652	-18.4	
			Average	10.395	10.500	20.895	49.652	-28.8	
8	Line 1	0.335	Quasi-Peak	30.072	10.477	40.549	59.326	-18.8	
			Average	9.592	10.477	20.069	49.326	-29.3	
9	Line 1	0.335625	Quasi-Peak	29.988	10.476	40.464	59.311	-18.8	
			Average	10.268	10.476	20.744	49.311	-28.6	
10	Line 1	0.342375	Quasi-Peak	29.778	10.464	40.242	59.146	-18.9	
			Average	9.501	10.464	19.965	49.146	-29.2	

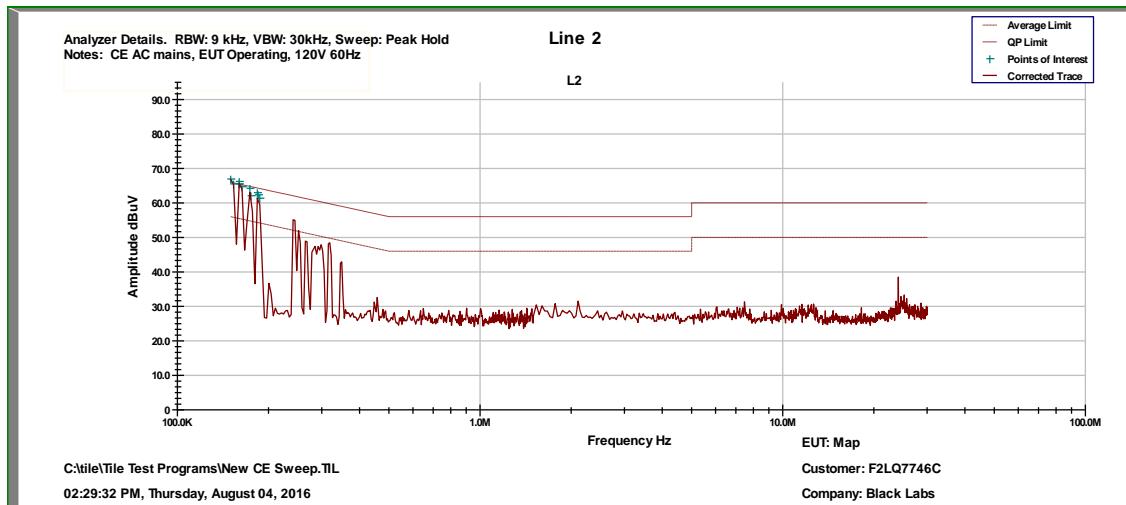


Order Number: F2LQ7746C

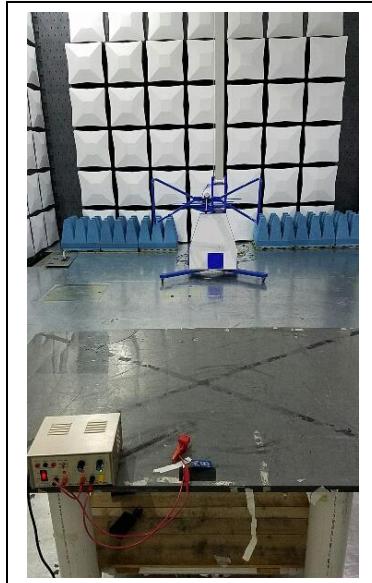
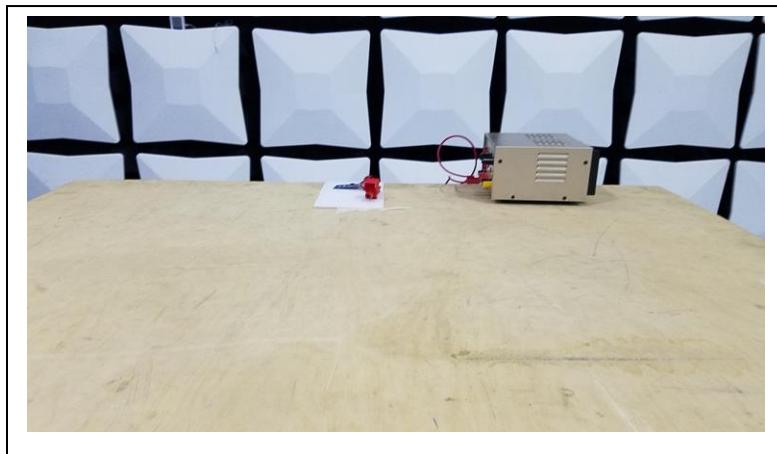
Manufacturer: Centurion Medical Products

Model: CWM001 (Compass MAP)

Conducted Test – Line 2: 0.15 MHz to 30.0 MHz



Top Discrete Measurements								
No.	Conductor	Frequency (MHz)	Detector	Level (dB μ V)	Adjustment (dB)	Results (dB μ V)	Limit (dB μ V)	Margin (dB)
1	Line 2	0.15	Quasi-Peak	50.350	11.490	61.840	66.000	-4.160
			Average	18.070	11.490	29.560	56.000	-26.440
2	Line 2	0.153375	Quasi-Peak	49.422	11.439	60.861	65.816	-4.955
			Average	18.881	11.439	30.320	55.816	-25.496
3	Line 2	0.16	Quasi-Peak	48.586	11.340	59.926	65.464	-5.538
			Average	19.999	11.340	31.339	55.464	-24.125
4	Line 2	0.160125	Quasi-Peak	48.627	11.339	59.966	65.458	-5.492
			Average	20.420	11.339	31.759	55.458	-23.699
5	Line 2	0.1635	Quasi-Peak	48.093	11.302	59.395	65.285	-5.89
			Average	17.281	11.302	28.583	55.285	-26.702
6	Line 2	0.173625	Quasi-Peak	47.137	11.179	58.316	64.786	-6.470
			Average	16.795	11.179	27.974	54.786	-26.812
7	Line 2	0.175	Quasi-Peak	46.969	11.160	58.129	64.720	-6.591
			Average	17.455	11.160	28.615	54.720	-26.105
8	Line 2	0.18375	Quasi-Peak	46.086	11.071	57.157	64.315	-7.158
			Average	17.965	11.071	29.036	54.315	-25.279
9	Line 2	0.185	Quasi-Peak	45.776	11.065	56.841	64.258	-7.417
			Average	17.169	11.065	28.234	54.258	-26.024
10	Line 2	0.187125	Quasi-Peak	45.827	11.054	56.881	64.164	-7.283
			Average	17.699	11.054	28.753	54.164	-25.411

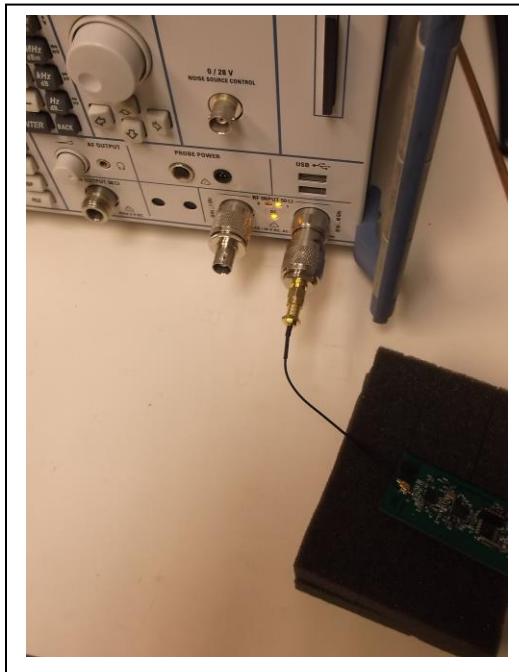
14 PHOTOGRAHPS/EXHIBITS – PRODUCT PHOTOS, TEST SETUPS**Radiated Spurious Emission <1 GHz****Radiated Spurious Emission >1 GHz**



Order Number: F2LQ7746C

Manufacturer: Centurion Medical Products
Model: CWM001 (Compass MAP)

Conducted Output Power, Peak Power Spectral Density,
-6dB Occupied Bandwidth, and Conducted Spurious Emissions



AC Conducted Emissions

