


FCC TEST REPORT FCC 47 CFR Part 95I Medical Device Radiocommunication Service (MedRadio) Industry Canada RSS-243 Medical Devices Operating in the 401 – 406 MHz Frequency Band	
Report Reference No.	G0M-1406-3876-TFC95IMR-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	 A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A
Applicant's name	Biotronik SE & Co. KG
Address	Woermannkehre 1 12359 Berlin GERMANY
Test specification:	
Standard	47 CFR Part 95E 47 CFR Part 95I 47 CFR Part 15C RSS-243, Issue 3, 2010-02 RSS-Gen, Issue 3, 2010-12 ANSI C63.4:2009 EN 301 839-1 V1.3.1:2009-10
Equipment under test (EUT):	
Product description	Implantable Cardiac Monitor
Model No.	BioMonitor 2-AF Silicone Coated
Additional Model(s)	BioMonitor 2-AF Parylene Coated, BioMonitor 2-S Parylene Coated, BioMonitor 2-S Silicone Coated
Brand Name(s)	Biotronik
Hardware version	ASM-0206, Rev A
Firmware / Software version	RAM: 7447_30_0301 / UpROM:7300_20_0102
	FCC-ID: QRIBM2 IC: 4708A-BM2
Test result	Passed

Possible test case verdicts:

- neither assessed nor tested: N/N
- required by standard but not appl. to test object.....: N/A
- required by standard but not tested.....: N/T
- not required by standard for the test object: N/R
- test object does meet the requirement.....: P (Pass)
- test object does not meet the requirement.....: F (Fail)

Testing:

Test Lab Temperature.....: 20 – 23 °C

Test Lab Humidity: 32 – 38 %

Date of receipt of test item: 2014-07-28

Date (s) of performance of tests: 2014-07-28 - 2014-07-31

Compiled by: Wilfried Treffke

Tested by (+ signature).....: Wilfried Treffke *W. Treff*
 (Responsible for Test)

Approved by (+ signature): Christian Weber *C. Weber*

Date of issue: 2014-09-24

Total number of pages: 79

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Additional comments:

Version History

Version	Issue Date	Remarks	Revised by
01	2014-09-24	Initial Release	

REPORT INDEX

1	EQUIPMENT (TEST ITEM) DESCRIPTION	5
1.1	Photos - Equipment external	7
1.2	Photos - Equipment internal	8
1.3	Photos – Test setup	9
1.4	Photos – Auxiliary/Associated Equipment	10
1.5	Supporting Equipment Used During Testing	11
1.6	Test Modes	12
1.7	Test Equipment Used During Testing	13
1.8	Sample emission level calculation	14
1.9	Simulated human body	15
2	RESULT SUMMARY	16
3	TEST CONDITIONS AND RESULTS	17
3.1	Test Conditions and Results – Occupied Bandwidth	17
3.2	Test Conditions and Results – Emission Bandwidth	21
3.3	Test Conditions and Results – Frequency stability	25
3.4	Test Conditions and Results – Transmitter output power	27
3.5	Test Conditions and Results – Band-edge compliance	29
3.6	Test Conditions and Results – Transmitter unwanted emissions	31
3.7	Test Conditions and Results – Receiver spurious emissions	33
3.8	Test Conditions and Results – Discontinuation of MICS or MEDS session	35
ANNEX A	Transmitter radiated power	38
ANNEX B	Transmitter radiated spurious emissions	50
ANNEX C	Receiver radiated spurious emissions	74

1 Equipment (Test item) Description

Description	Implantable Cardiac Monitor	
Model	BioMonitor 2-AF Silicone Coated	
Additional Model(s)	BioMonitor 2-AF Parylene Coated, BioMonitor 2-S Parylene Coated, BioMonitor 2-S Silicone Coated	
Brand Name(s)	Biotronik	
Serial number	91200433	
Hardware version	ASM-0206, Rev A	
Software / Firmware version	RAM: 7447_30_0301 / UpROM:7300_20_0102	
FCC-ID	QRIBM2	
IC	4708A-BM2	
Equipment type	End product	
Radio type	Transceiver	
Number of Radios	1	
Radio technology	MedRadio (MICS) active medical implant	
Operating frequency range	402.45 - 405.85 MHz	
Assigned frequency band	402 - 405 MHz	
Main test frequencies	F _{LOW}	402.45 MHz
	F _{MID}	403.65 MHz
	F _{HIGH}	404.85 MHz
Modulations	FSK	
Emission designator	F1D	
Number of channels	9	
Channel spacing	300 kHz	
Spectrum access	LBT/AFA (channel access controlled by ULP-AMI-P device outside the human body)	
Number of antennas	1	
Antenna	Type	integrated
	Model	wire antenna
	Manufacturer	see Manufacturer
	Gain	-27 dBi (Determined by measurements)
Manufacturer	Biotronik SE & Co. KG Woermannkehre 1 12359 Berlin GERMANY	

Power supply	V _{NOM}	3.0 VDC
	V _{MIN}	2.0 VDC
	V _{MAX}	3.5 VDC
Temperature	T _{NOM}	37 °C
	T _{MIN}	25 °C
	T _{MAX}	45 °C
AC/DC-Adaptor	Model	N/A
	Vendor	N/A
	Input	N/A
	Output	N/A

1.5 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE1	Programming Wand	Biotronik	PGH3000	EUT programming
AE2	Telex USB Stick	Biotronik	Hermes 2D	Companion device

***Note:** Use the following abbreviations:

AE : Auxiliary/Associated Equipment, or

SIM : Simulator (Not Subjected to Test)

CABL : Connecting cables

1.6 Test Modes

Mode #	Description	
Unmodulated	General conditions:	EUT powered on.
	Radio conditions:	Mode = standalone transmit Spreading = None Modulation = None Duty cycle = 100 % Power level = Maximum
Modulated	General conditions:	EUT powered on.
	Radio conditions:	Mode = standalone transmit Modulation = FSK Duty cycle = 100 % Power level = Maximum
Monitoring	General conditions:	EUT powered on... EUT adjusted to monitoring conditions for companion device.
	Radio conditions:	Mode = standalone transmit Modulation = FSK Duty cycle = normal
Receive	General conditions:	EUT powered on.
	Radio conditions:	Mode = standalone receive Modulation = FSK

1.7 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2014.1.15

Occupied Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSIQ26	EF00242	2014-03	2015-03

Emission Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSIQ26	EF00242	2014-03	2015-03

Frequency Stability					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSIQ26	EF00242	2014-03	2015-03

Effective radiated power					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Fully-anechoic chamber	Frankonia	AC 4	EF00200	---	---
Spectrum Analyzer	R&S	FSEK30	EF00168	2014-01	2015-01
LPD Antenna	R&S	HL 223	EF00212	2013-02	2016-02

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00242	2014-03	2015-03
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00187	2014-03	2017-03
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02

Discontinuation of MICS session					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSIQ26	EF00242	2014-03	2015-03
Signal Generator	R&S	SMP 02	EF00165	2013-05	2015-05

1.8 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dB μ V. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

$$\text{Reading on Analyzer (dB}\mu\text{V)} + \text{A.F. (dB)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dB μ V/m). The FCC limits are given in units of μ V/m. The following formula is used to convert the units of μ V/m to dB μ V/m:

$$\text{Limit (dB}\mu\text{V/m)} = 20 * \log (\mu\text{V/m})$$

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

$$\begin{array}{rclcl} \text{Reading} & + & \text{AF} & = & \text{Net Reading} & : & \text{Net reading - FCC limit} & = & \text{Margin} \\ 21.5 \text{ dB}\mu\text{V} & + & 26 \text{ dB} & = & 47.5 \text{ dB}\mu\text{V/m} & : & 47.5 \text{ dB}\mu\text{V/m} - 57.0 \text{ dB}\mu\text{V/m} & = & -9.5 \text{ dB} \end{array}$$

1.9 Simulated human body

For radiated tests the implant was placed in a simulated human body.

Liquid components	
Component	percentage per weight
Deionized water	52.4
Bactericide	0.08
Hydroxy ethyl cellulose (HCE)	1.0
Sodium chloride	1.4
Sucrose	45.0

Measured tissue parameters:


Tissue parameters – 403.5MHz			
Component	Target	Measured	Tolerance [%]
Dielectric constant ϵ	62.5	63.08	0.93
Conductivity σ [ms/cm]	9.0	8.8	-2.22

2 Result Summary

FCC 47 CFR Part 95E, 95I, 15C, IC RSS-243, IC RSS-Gen				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
IC RSS-243 3.2 IC RSS-Gen 4.6	Occupied bandwidth	RSS-Gen 4.6.1	N/A	Informational only
FCC 95.628(d) FCC § 95.633(e) IC RSS-243 3.6, 5.1	Emission bandwidth	FCC § 95.628(a)(6)(i) FCC § 95.633(e)(3)	PASS	
FCC 95.628(e) IC RSS-243 3.3, 5.3 RSS-Gen 4.7	Frequency stability	EN 301 839-1 8.1	PASS	
FCC § 95.6369(f) IC RSS-243 § 5.4	Transmitter output power	EN 301 839-1 8.3	PASS	
FCC § 95.635(d) IC RSS-243 § 3.4, 5.5	Band edge compliance	FCC § 95.635(d) ANSI C63.4	PASS	
FCC § 95.635(d) IC RSS-243 § 3.4, 5.5 RSS-Gen 4.9	Transmitter unwanted emissions	FCC § 95.635(d) ANSI C63.4	PASS	
IC RSS-243 3.5, 5.6 IC RSS-Gen 4.10 6.1	Receiver spurious emissions	ANSI C63.4	PASS	
FCC § 15.207 IC RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	N/A	EUT battery powered
FCC § 95.628(a)(3) IC RSS-243 3.6, 5.7.1	System threshold power levels	EN 301 839-1 10.1	N/A	Applies only to equipment by which LBT is performed
FCC § 95.628(a)(1) IC RSS-243 3.6, 5.7.2	Monitoring system bandwidth	EN 301 839-1 10.2	N/A	Applies only to equipment by which LBT is performed
FCC § 95.628(a)(2) IC RSS-243 3.6, 5.7.3	Scan cycle time	EN 301 839-1 10.3	N/A	Applies only to equipment by which LBT is performed
FCC § 95.628(a)(2) IC RSS-243 3.6, 5.7.4	Minimum channel monitoring period	EN 301 839-1 10.3	N/A	Applies only to equipment by which LBT is performed
FCC § 95.628(a)(4) IC RSS-243 3.6, 5.7.5	Channel Access	EN 301 839-1 10.4	N/A	Applies only to equipment by which LBT is performed
FCC § 95.628(a)(4) IC RSS-243 3.6, 5.7.6	Discontinuation of MICS or MEDS session	EN 301 839-1 10.5	PASS	Applies only to equipment by which LBT is performed
FCC § 95.628(a)(5) IC RSS-243 3.6, 5.7.7	Use of the pre-scanned alternate channel	EN 301 839-1 10.6	N/A	Not used
Remarks:				

3 Test Conditions and Results

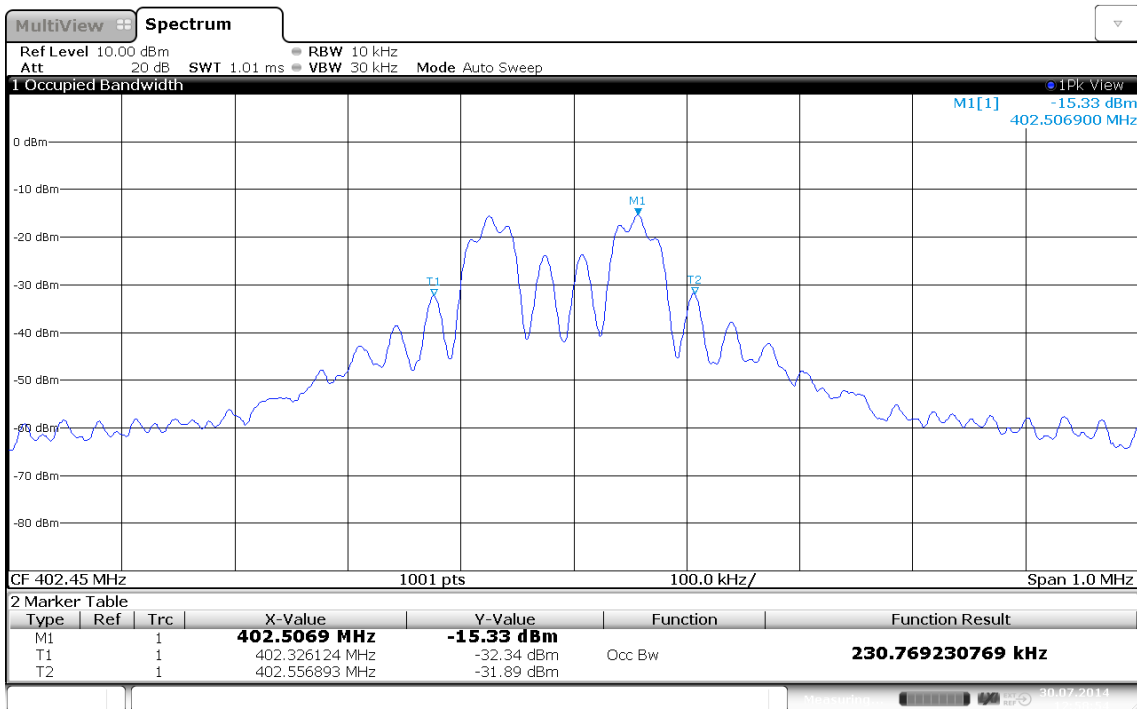
3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. IC RSS-243		Verdict: PASS
Test according to measurement reference	Reference Method	
	RSS-Gen 4.6.1	
Test frequency range	Tested frequencies	
	$F_{LOW} / F_{MID} / F_{HIGH}$	
EUT test mode	Modulated	
Limits		
None (Informational only)		
Test setup		
 <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] </pre>		
Test procedure		
<ol style="list-style-type: none"> 1. EUT set to test mode (Communication tester is used if needed) 2. Span set to at least twice the emission spectrum 3. Resolution bandwidth set to 1 % of span 4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function 		
Test results		
Channel	Frequency [MHz]	Occupied Bandwidth [kHz]
F_{LOW}	402.45	230.8
F_{MID}	403.65	231.8
F_{HIGH}	404.85	228.8
Comments:		

Occupied Bandwidth – F_{Low}
Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3876

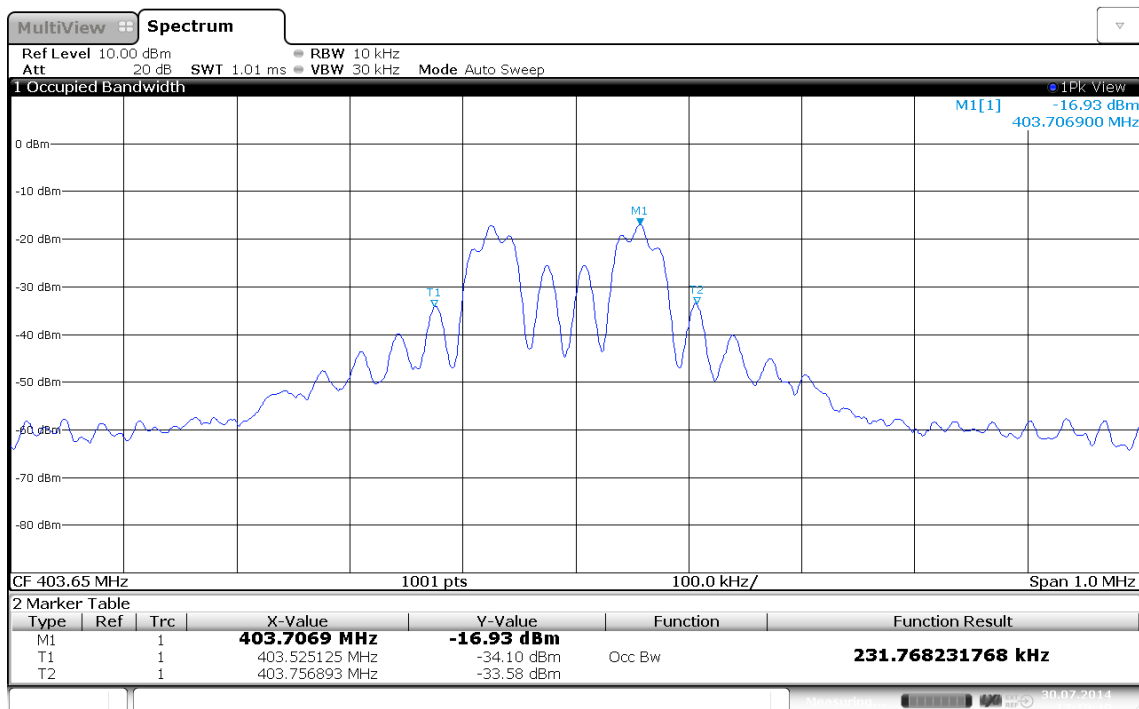
Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx 402.45 MHz
 Test Date: 2014-07-30
 Verdict: PASS
 Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
 Note 2:


 Occupied bandwidth: 230.8 KHz
 Date: 30.JUL.2014 12:58:53

Occupied Bandwidth - F_{MID}
Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3876

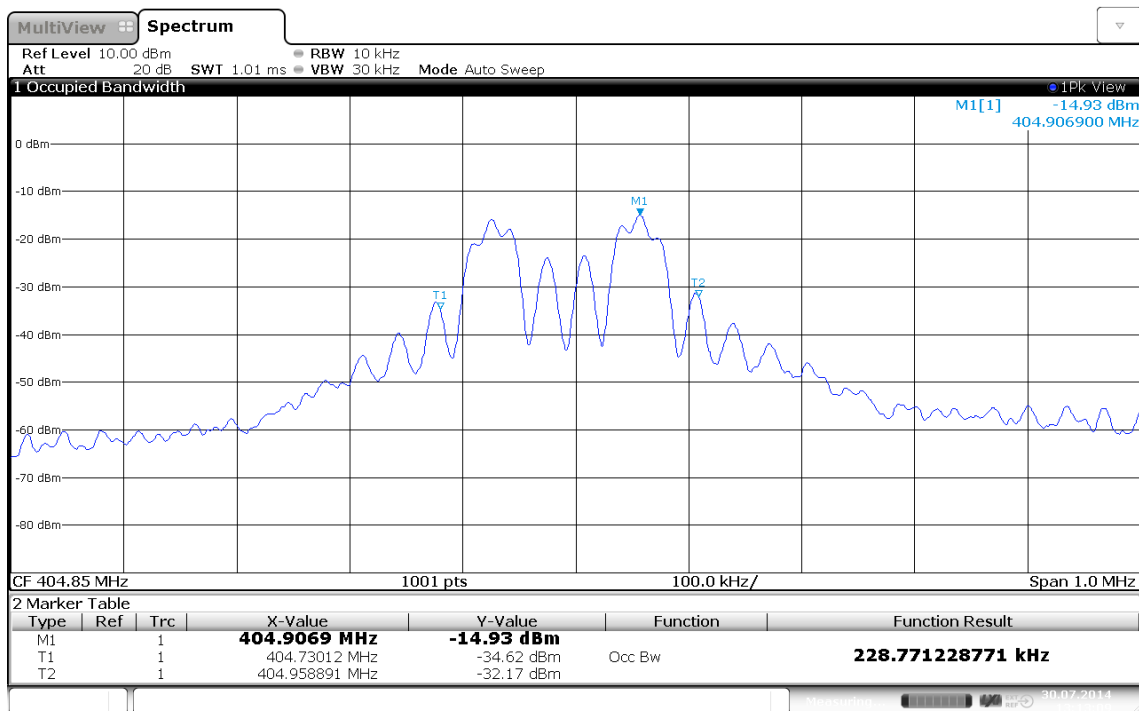
Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx 403.65 MHz
 Test Date: 2014-07-30
 Verdict: PASS
 Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
 Note 2:


 Occupied bandwidth: 231.8 KHz
 Date: 30.JUL.2014 13:10:49

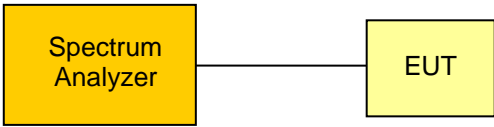
Occupied Bandwidth - F_{HIGH}
Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx 404.85 MHz
 Test Date: 2014-07-30
 Verdict: PASS
 Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
 Note 2:



3.2 Test Conditions and Results – Emission Bandwidth

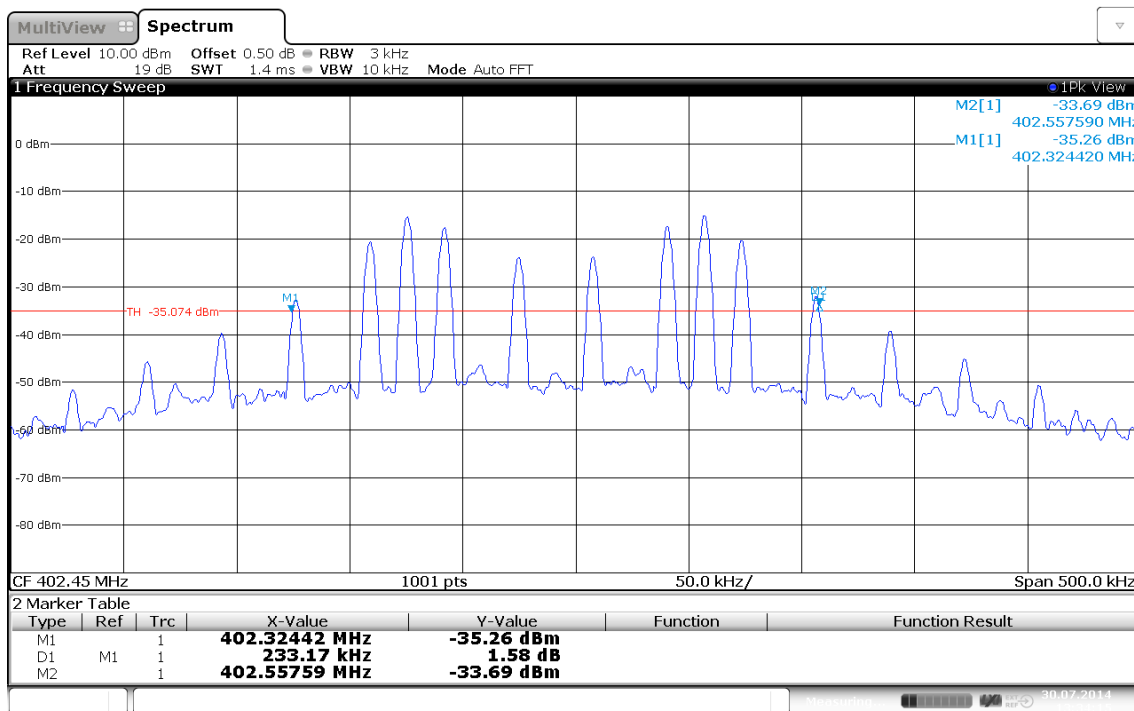
Emission Bandwidth acc. FCC Part 95 / IC RSS-243				Verdict: PASS
EUT requirement rule parts and clause	Reference			
	FCC 95.628(d) / FCC 95.633(e) / IC RSS-243 3.3 5.1			
Test according to measurement reference	Reference Method			
	FCC 95.628(a)(6)(i) / FCC 95.633(e)(3)			
Test frequency range	Tested frequencies			
	$F_{LOW} / F_{MID} / F_{HIGH}$			
EUT test mode	Modulated			
Limits				
≤ 300 kHz				
Test setup				
				
Test procedure				
<ol style="list-style-type: none"> 1. EUT set to test mode 2. Span set to at least twice the emission spectrum 3. Detector set to peak and max hold 4. Envelope peak value of emission spectrum is selected 5. Marker on envelope of spectrum is set to level of -20 dB to the left of the peak 6. Marker on envelope of spectrum is set to level of -20 dB to the right of the peak 7. 20 dB Emission Bandwidth is determined by marker frequency separation 				
Test results				
Channel	Frequency [MHz]	Emission Bandwidth [kHz]	Limit [kHz]	Result
F_{LOW}	402.45	233.2	≤ 300	PASS
F_{MID}	403.65	233.7	≤ 300	PASS
F_{HIGH}	404.85	233.2	≤ 300	PASS
Comments:				

Emission Bandwidth – F_{Low}

Emission Bandwidth acc. to FCC Part 95.633

Project Number: G0M-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx 402.45 MHz
 Test Date: 2014-07-30
 Verdict: PASS
 Note 1: 20 dB bandwidth
 Note 2:



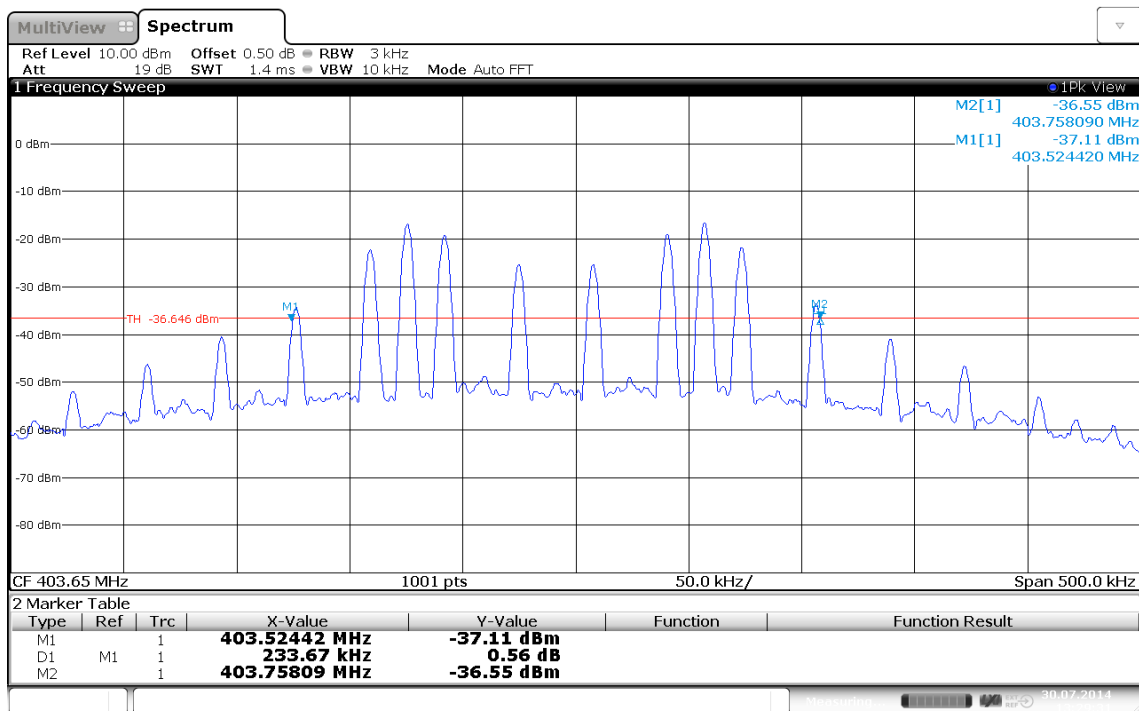
20 dB bandwidth: 233.2 KHz
 Date: 30.JUL.2014 13:34:15

Emission Bandwidth – F_{MID}

Emission Bandwidth acc. to FCC Part 95.633

Project Number: G0M-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx 403.65 MHz
 Test Date: 2014-07-30
 Verdict: PASS
 Note 1: 20 dB bandwidth
 Note 2:



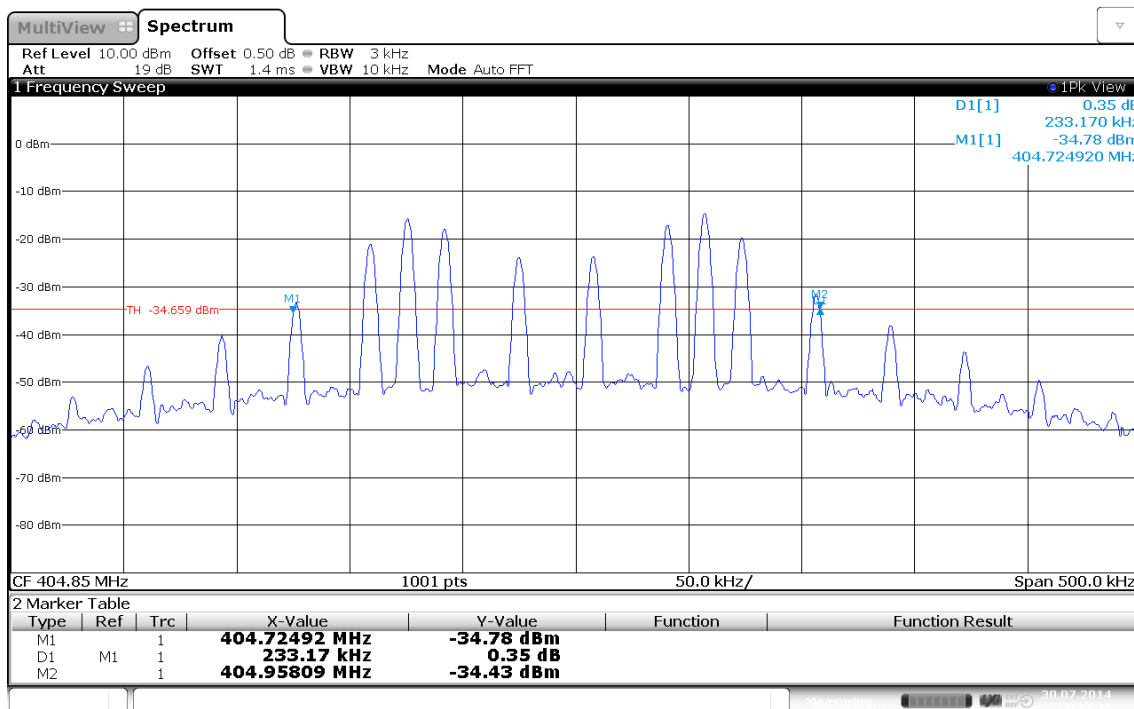
20 dB bandwidth: 233.7 KHz
 Date: 30.JUL.2014 13:29:30

Emission Bandwidth – 1 F_{HIGH}

Emission Bandwidth acc. to FCC Part 95.633

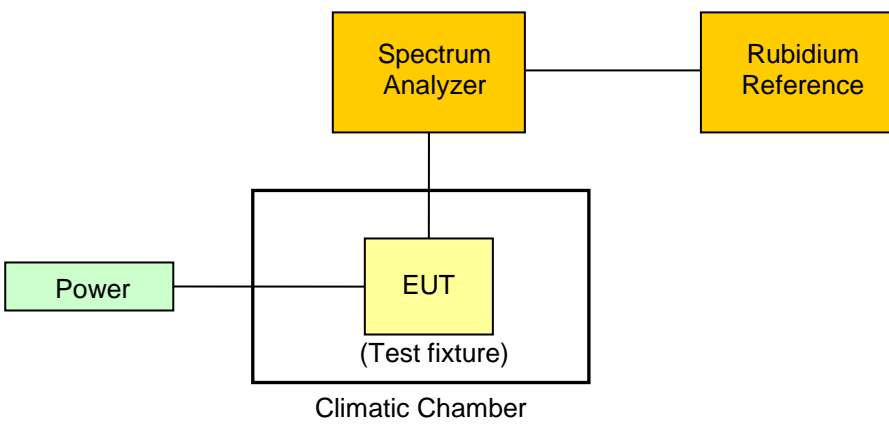
Project Number: G0M-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx 404.85 MHz
 Test Date: 2014-07-30
 Verdict: PASS
 Note 1: 20 dB bandwidth
 Note 2:



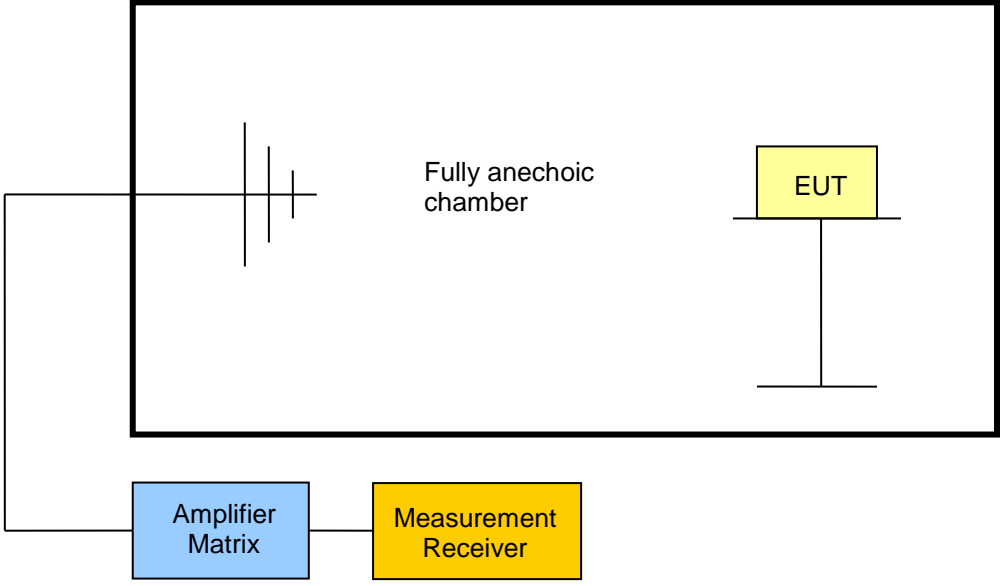
20 dB bandwidth: 234.7 KHz
 Date: 30.JUL.2014 13:23:20

3.3 Test Conditions and Results – Frequency stability

Frequency stability acc. FCC Part 95 / IC RSS-243		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 95.628(e) / IC RSS-243 3.3 5.3 / RSS-Gen 4.7	
Test according to measurement reference	Reference Method	
	EN 301 839-1 8.1	
Test frequency range	Tested frequencies	
	$F_{LOW} / F_{MID} / F_{HIGH}$	
EUT test mode	Unmodulated	
Limits		
$\leq \pm 100$ ppm		
Test setup		
 <pre> graph TD Power[Power] --- EUT[EUT (Test fixture)] subgraph Climatic Chamber EUT end EUT --- SA[Spectrum Analyzer] SA --- RR[Rubidium Reference] </pre>		
Test procedure		
<ol style="list-style-type: none"> 1. EUT set to test mode with supply voltage and temperature set to nominal conditions 2. EUT transmits without modulation 3. Detector set to peak and max hold 4. Peak of emission is measured using a frequency counter 5. The frequency error is determined as the deviation of the emission frequency from the nominal frequency stated by the customer. 		

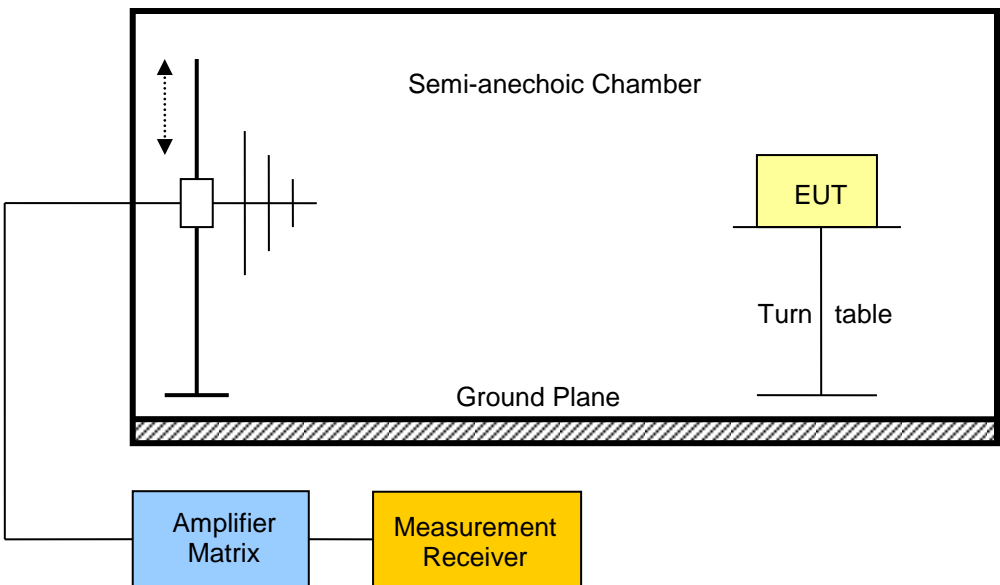
Test results					
Channel	Nominal Frequency [MHz]	Temperature	Supply voltage	Frequency [MHz]	Drift [ppm]
F _{LOW}	402.45	T _{NOM} = 37 °C	V _{NOM} = 3.0 VDC	402.440743	-23.00
F _{LOW}	402.45	T _{MIN} = 25 °C	V _{NOM} = 3.0 VDC	402.441399	-21.37
F _{LOW}	402.45	T _{MAX} = 45 °C	V _{NOM} = 3.0 VDC	402.440543	-23.50
F _{MID}	403.65	T _{NOM} = 37 °C	V _{NOM} = 3.0 VDC	403.640795	-22.80
F _{MID}	403.65	T _{MIN} = 25 °C	V _{NOM} = 3.0 VDC	403.641272	-21.62
F _{MID}	403.65	T _{MAX} = 45 °C	V _{NOM} = 3.0 VDC	403.640602	-23.28
F _{HIGH}	404.85	T _{NOM} = 37 °C	V _{NOM} = 3.0 VDC	404.840851	-22.60
F _{HIGH}	404.85	T _{MIN} = 25 °C	V _{NOM} = 3.0 VDC	404.841522	-20.94
F _{HIGH}	404.85	T _{MAX} = 45 °C	V _{NOM} = 3.0 VDC	404.840658	-23.08
Comments:					

3.4 Test Conditions and Results – Transmitter output power

Transmitter output power acc. FCC Part 95 / IC RSS-243		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 95.639(f) / IC RSS-243 5.4	
Test according to measurement reference	Reference Method	
	EN 301 839-1 8.3	
Test frequency range	Tested frequencies	
	$F_{LOW} / F_{MID} / F_{HIGH}$	
EUT test mode	Modulated	
Limits		
$\leq 25 \mu W$ (-16 dBm) e.i.r.p.		
Test setup		
 <p>The diagram illustrates the test setup. An Amplifier Matrix (blue box) is connected to a Fully anechoic chamber (black box). Inside the chamber, an EUT (yellow box) is mounted on a stand. The chamber is connected to a Measurement Receiver (yellow box) outside the chamber.</p>		
Test procedure		
<ol style="list-style-type: none"> 1. EUT set to test frequency with modulation 2. Measurement polarization is set to vertical 3. Span it set according to measurement range and detector is set to peak and max hold 4. Resolution bandwidth is set to be at least twice the emission bandwidth 5. During the sweep the EUT is rotated to obtain maximum emission level 6. Measurement is repeated with horizontal measurement polarization 		

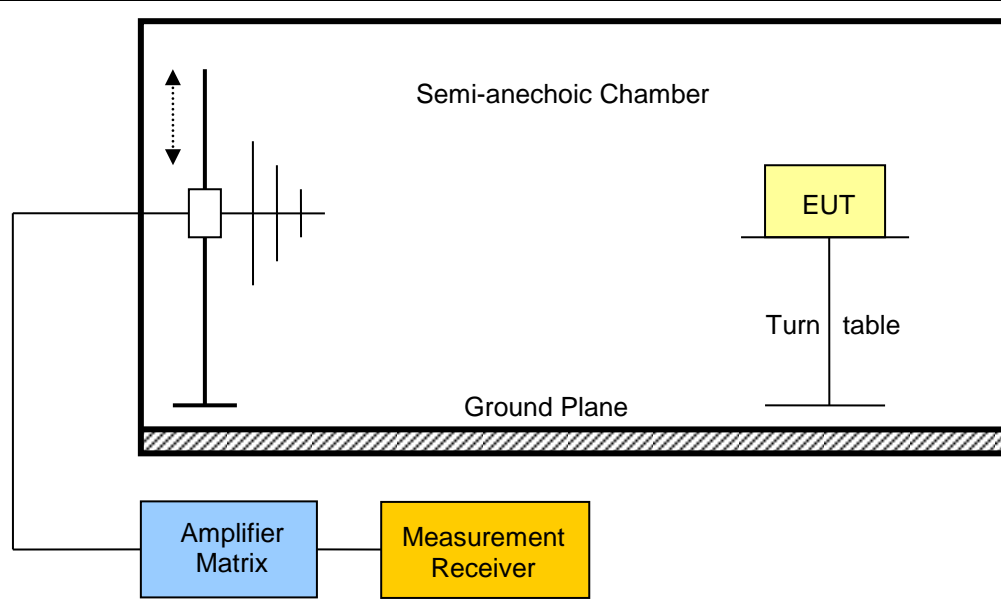
Test results					
Channel	Frequency [MHz]	Emission Level [dbm e.i.r.p.]	Detector	Limit [dbm e.i.r.p.]	Margin [dB]
F _{LOW}	402.45	-37.2	pk	-16	-21.20
F _{MID}	403.65	-39.1	pk	-16	-23.10
F _{HIGH}	404.85	-40.2	pk	-16	-24.20
Comments:					

3.5 Test Conditions and Results – Band-edge compliance

Band-edge compliance acc. FCC Part 95 / IC RSS-243		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 95.635(d) / IC RSS-243 3.5 5.5 / RSS-Gen 4.9	
Test according to measurement reference	Reference Method	
	FCC 95.635(d) / ANSI C 63.4	
Test frequency range	Tested frequencies	
	$F_{LOW} / F_{MID} / F_{HIGH}$	
EUT test mode	Modulated	
Limits - FCC		
Frequency range	Limit	
$402 \text{ MHz} - 250 \text{ kHz} \leq f \leq 402 \text{ MHz}$	20 dB below maximum permitted output power	
$402 \text{ MHz} < f < 150 \text{ kHz} - f_c$	20 dB below transmitter output power	
$150 \text{ kHz} + f_c < f < 405 \text{ MHz}$	20 dB below transmitter output power	
$405 \text{ MHz} \leq f \leq 405 \text{ MHz} + 250 \text{ kHz}$	20 dB below maximum permitted output power	
Limits - IC		
Frequency range	Limit	
$402 \text{ MHz} - 250 \text{ kHz} < f < 150 \text{ kHz} - f_c$	20 dB below maximum permitted output power	
$150 \text{ kHz} + f_c < f < 405 \text{ MHz} + 250 \text{ kHz}$	20 dB below maximum permitted output power	
Because the FCC limits are more stringent than the Industry Canada limits, the FCC limits are used to show compliance with the band-edge emission requirements.		
Test setup		
 <p>The diagram shows a test setup within a semi-anechoic chamber. On the left, an Amplifier Matrix (blue box) is connected to a vertical antenna structure. The antenna is positioned above a Ground Plane (hatched area at the bottom). To the right, an EUT (yellow box) is placed on a Turn table, also above the Ground Plane. A Measurement Receiver (yellow box) is connected to the antenna structure. The chamber is labeled 'Semi-anechoic Chamber'.</p>		

Test procedure					
<ol style="list-style-type: none"> 1. EUT set to test frequency with modulation 2. Measurement polarization is set to vertical 3. Span it set according to measurement range 4. Resolution bandwidth is set to 1% of the emission bandwidth and detector is set to peak 5. During the sweep the EUT is rotated to obtain maximum emission level 6. Measurement is repeated with horizontal measurement polarization 					
Test results					
Channel	Frequency [MHz]	Max. Emission Level [dB μ V/m]	Max. Carrier Level [dB μ V/m]	In-band Limit [dB μ V/m]	Result
F _{LOW}	402.45	22.65	55.40	35.40	PASS
F _{HIGH}	404.85	18.43	54.25	34.25	PASS
Comments: see attached diagrams					

3.6 Test Conditions and Results – Transmitter unwanted emissions

Transmitter unwanted emissions acc. FCC Part 95 / IC RSS-243				Verdict: PASS	
Test according referenced standards		Reference Method			
		FCC 95.635(d) / IC RSS-243 3.4 5.5 / IC RSS-Gen 4.9			
Test according to measurement reference		Reference Method			
		FCC 95.635(d) / ANSI C 63.4			
Test frequency range		Tested frequencies			
		30 MHz – 10 th Harmonic			
Limits					
Frequency range [MHz]	Detector	Limit [μ V/m]	Limit [dB μ V/m]	Limit Distance [m]	
30 – 88	Quasi-Peak	100	40	3	
88 – 216	Quasi-Peak	150	43.5	3	
216 – 960	Quasi-Peak	200	46	3	
960 – 1000	Quasi-Peak	500	54	3	
> 1000	Average	500	54	3	
Test setup					
 <p>The diagram illustrates the test setup within a semi-anechoic chamber. The chamber sits on a ground plane. An Equipment Under Test (EUT) is mounted on a turntable. A probe is used to measure emissions from the EUT. The probe is connected to an amplifier matrix, which is then connected to a measurement receiver.</p>					

Test procedure

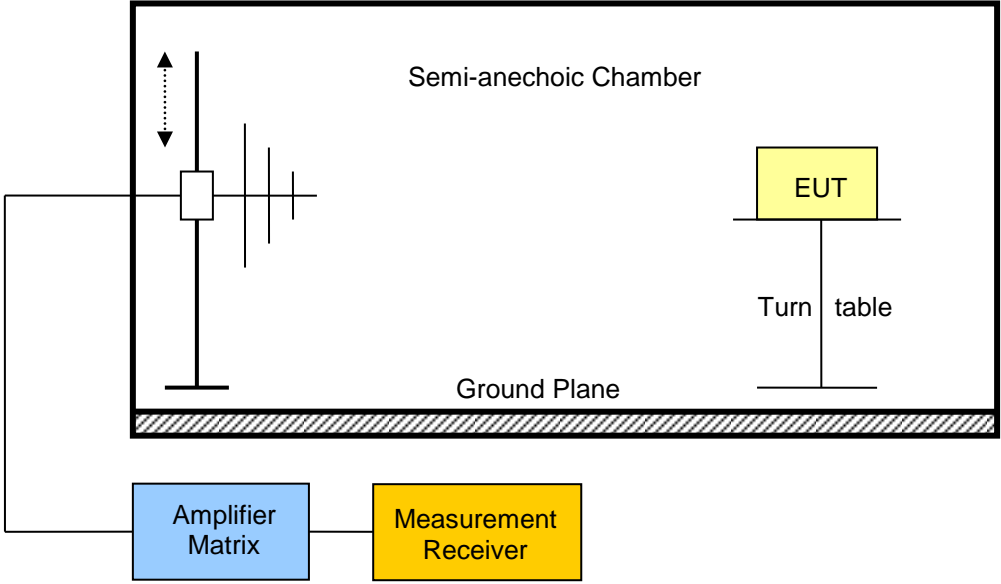
1. EUT set to test mode
2. Span it set according to measurement range
3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz
4. Markers are set to peak emission levels within restricted bands

Test results – Transmitter & Antenna 1

Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [db μ V/m]	Det.	Pol.	Limit [db μ V/m]	Limit dist. [m]*	Margin [dB]
F _{LOW}	402.45	Modulated	402.295	13.27	pk	hor	39.30	3	-26.03
F _{LOW}	402.45	Modulated	402.295	22.65	pk	ver	42.60	3	-19.95
F _{LOW}	402.45	Modulated	403.229	13.13	pk	ver	42.60	3	-29.47
F _{HIGH}	404.85	Modulated	404.695	18.43	pk	ver	40.50	3	-22.07

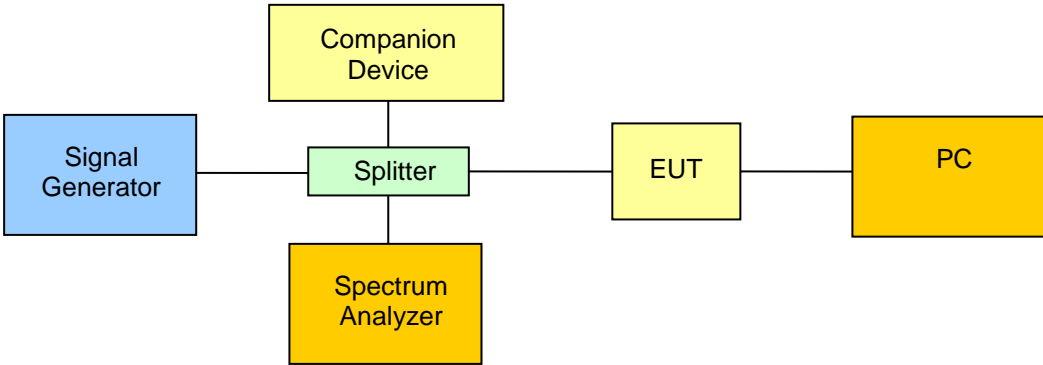
Comments: * Physical distance between EUT and measurement antenna.

3.7 Test Conditions and Results – Receiver spurious emissions

Receiver spurious emissions acc. IC RSS-243		Verdict: PASS		
Test according referenced standards	Reference Method			
	IC RSS-243 3.5 5.6 / IC RSS-Gen 4.10 6.1			
Test according to measurement reference	Reference Method			
	ANSI C 63.4			
Test frequency range	Tested frequencies			
	30 MHz – 3 th Harmonic			
EUT test mode	Receive			
Limits				
Frequency range [MHz]	Detector	Limit [μ V/m]	Limit [dB μ V/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3
Test setup				
				

Test procedure							
1. EUT set to receive mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels							
Test results							
Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dB μ V/m]	Det.	Pol.	Limit [dB μ V/m]	Margin [dB]
F _{MID}	403.65	37.48	31.66	pk	ver	40	-8.34 dB
Comments: * Physical distance between EUT and measurement antenna. ** Emission level corresponds to ambient noise floor							

3.8 Test Conditions and Results – Discontinuation of MICS or MEDS session

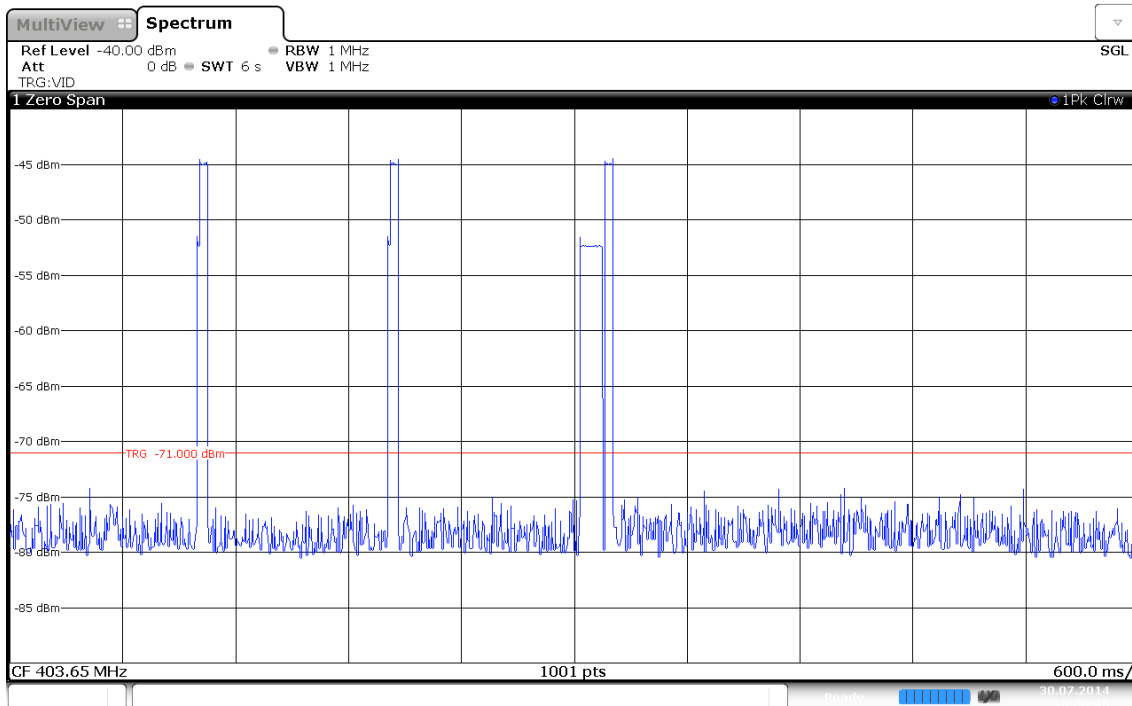
Discontinuation of MICS or MEDS session acc. FCC Part 95 / IC RSS-243		Verdict: PASS
Test according referenced standards	Reference Method	
	FCC 95.628(a)(4) / IC RSS-243 3.6 5.7.7	
Test according to measurement reference	Reference Method	
	EN 301 839-1 10.5	
Test frequency range	Tested frequencies	
	F _{MID}	
EUT test mode	Monitoring	
Limits		
Cease transmission for silent period ≥ 5 s		
Test setup		
		
Test procedure		
<ol style="list-style-type: none"> 1. A communication session is established between the EUT and a companion device 2. The communication is monitored by a spectrum analyser 3. The communication session is interrupted 4. All transmissions after the interruptions are monitored and recorded 		

Test results – Home monitoring mode				
Channel	Frequency [MHz]	Transmission time [s]	Time Limit [s]	Margin [s]
F _{MID}	403.65	4.05	5.0	0.95
Comments:				

TRANSMISSION communication message – F_{MID}
Discontinuation of MICS session if a silent period greater than or equal 5 s occurs

Project Number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	Tx 402.45 MHz
Test Date:	2014-07-30
Verdict:	PASS
Note 1:	Fully communication message
Note 2:	Mode : home monitoring



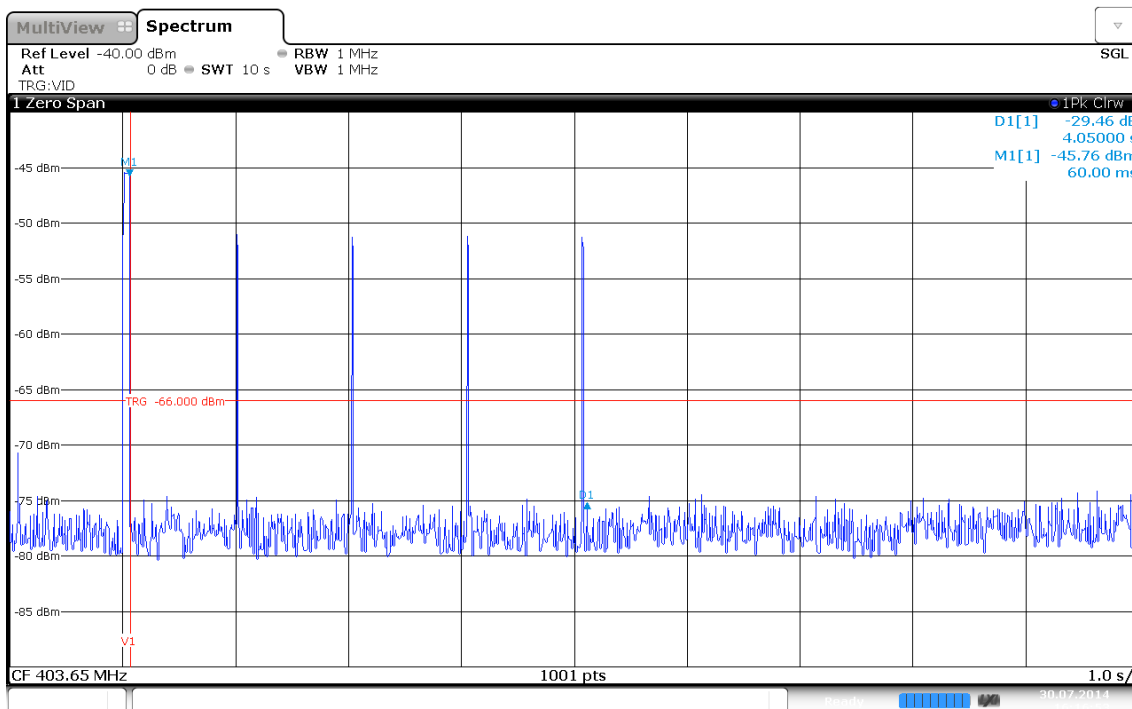
Date: 30.JUL.2014 16:08:40

TRANSMISSION STOP – F_{MID}

Discontinuation of MICS session if a silent period greater than or equal 5 s occurs

Project Number: G0M-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx 402.45 MHz
 Test Date: 2014-07-30
 Verdict: PASS
 Note 1: No communication after 4.05 sec silent period
 Note 2: Mode : home monitoring



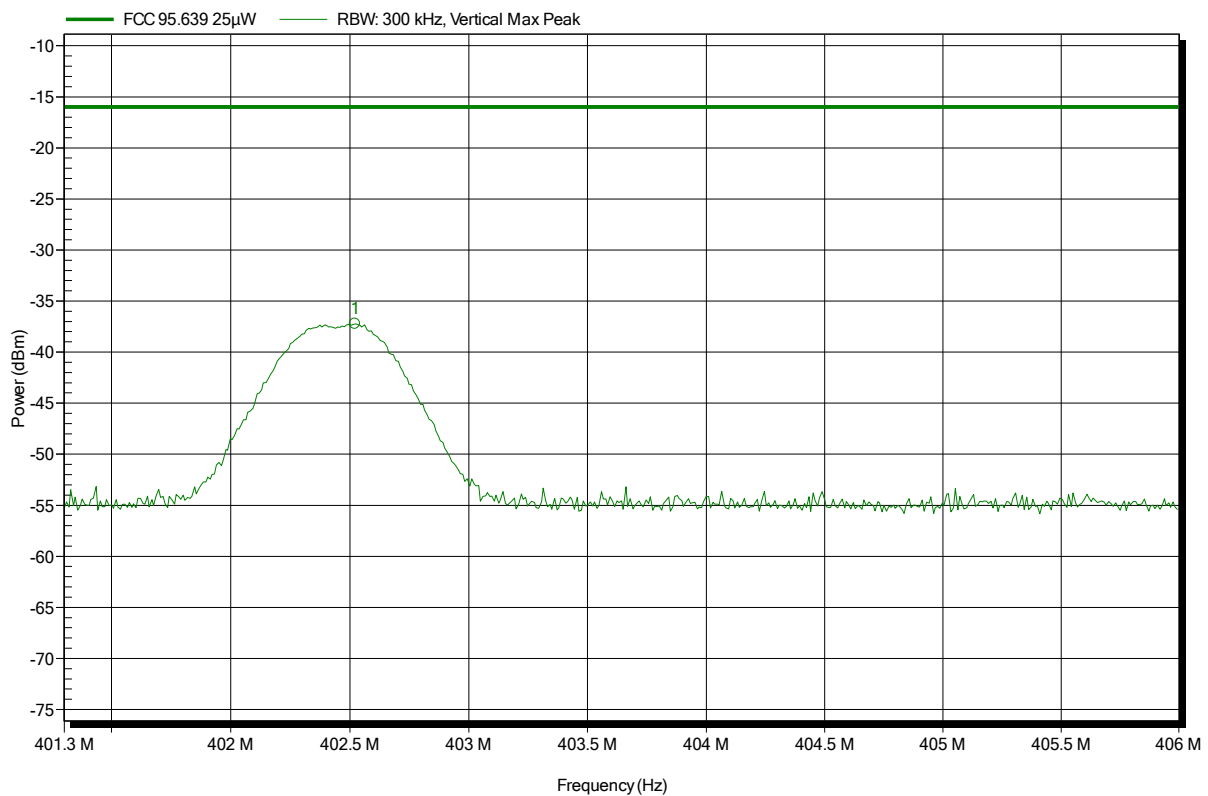
ANNEX A Transmitter radiated power

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	Tx; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	Tx Power EIRP

Index 33



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
402.522 MHz	-37.2 dBm	-16 dBm	-21.23 dB	Pass

Test Report No.: G0M-1406-3876-TFC95IMR-V01

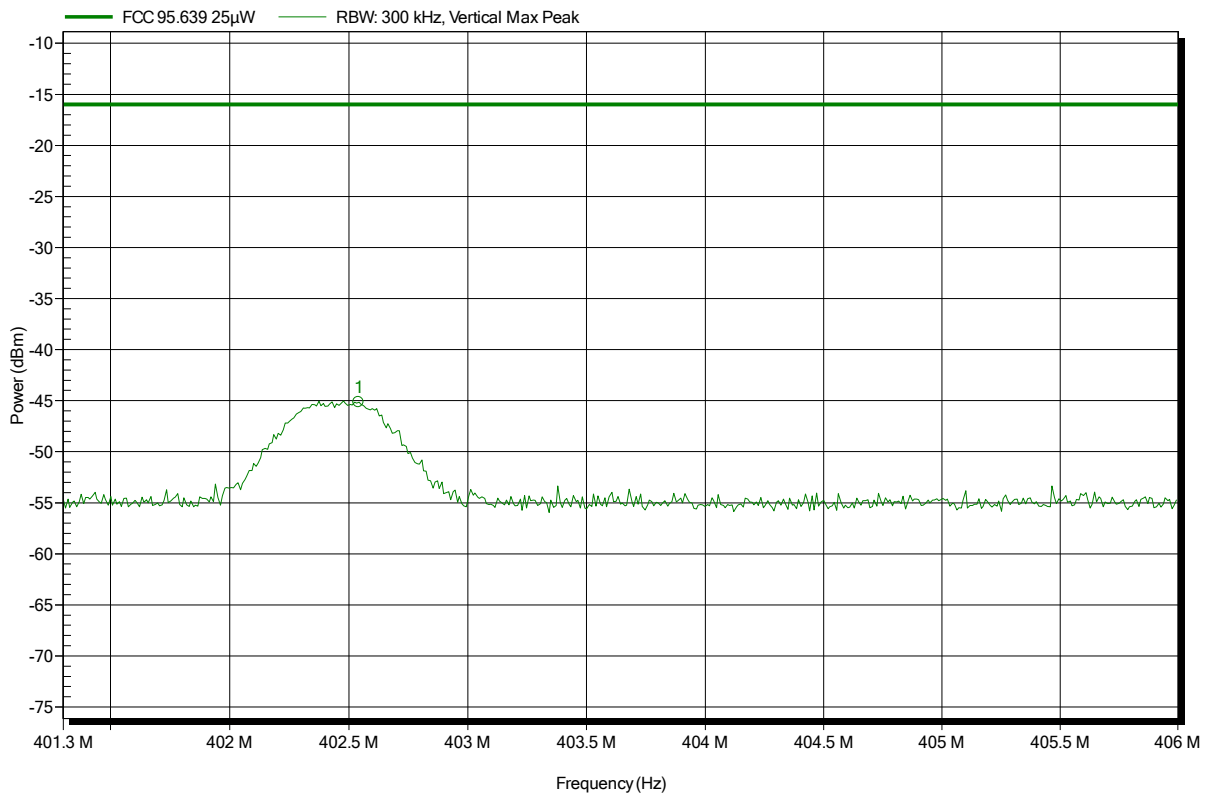
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	Tx; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	Tx Power EIRP

Index 35



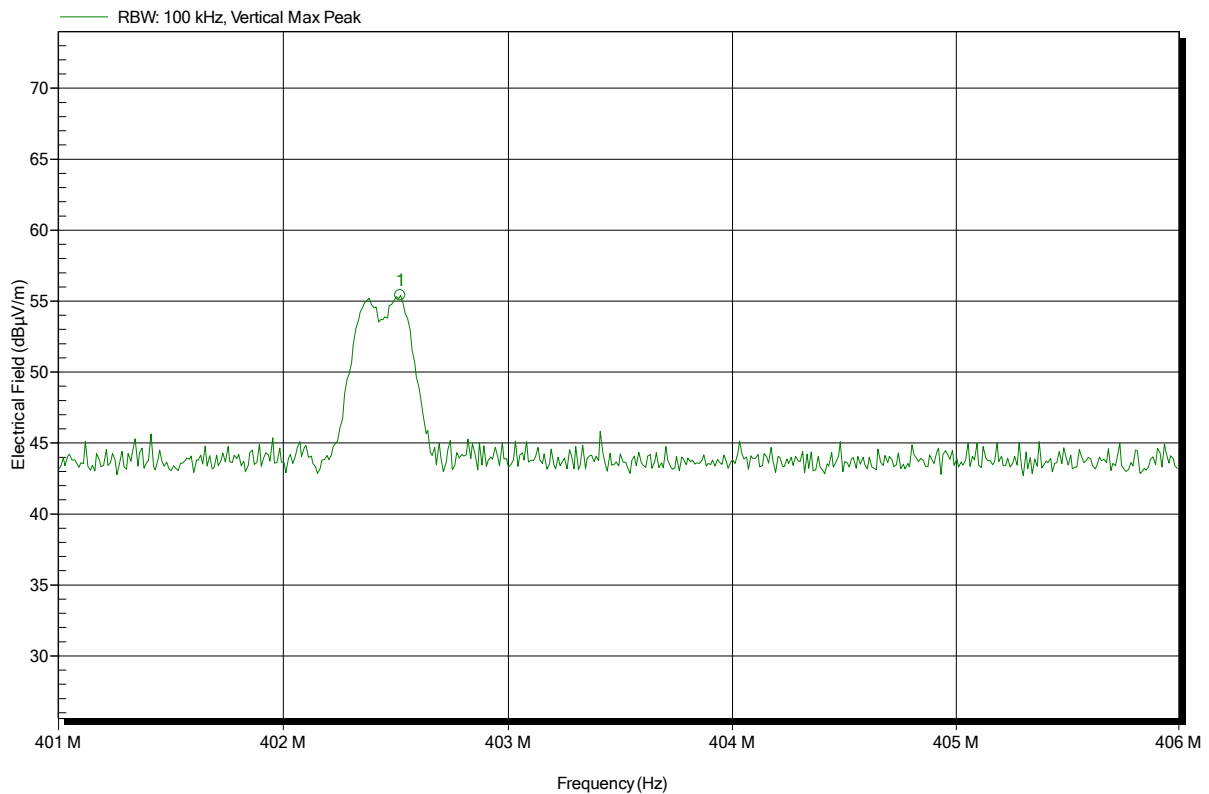
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
402.541 MHz	-45.1 dBm	-16 dBm	-29.14 dB	Pass

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	Tx; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	Power dB μ V/m ERP

Index 32


 Frequency
402.52 MHz

 Peak
55.4 dB μ V/m

Test Report No.: G0M-1406-3876-TFC95IMR-V01

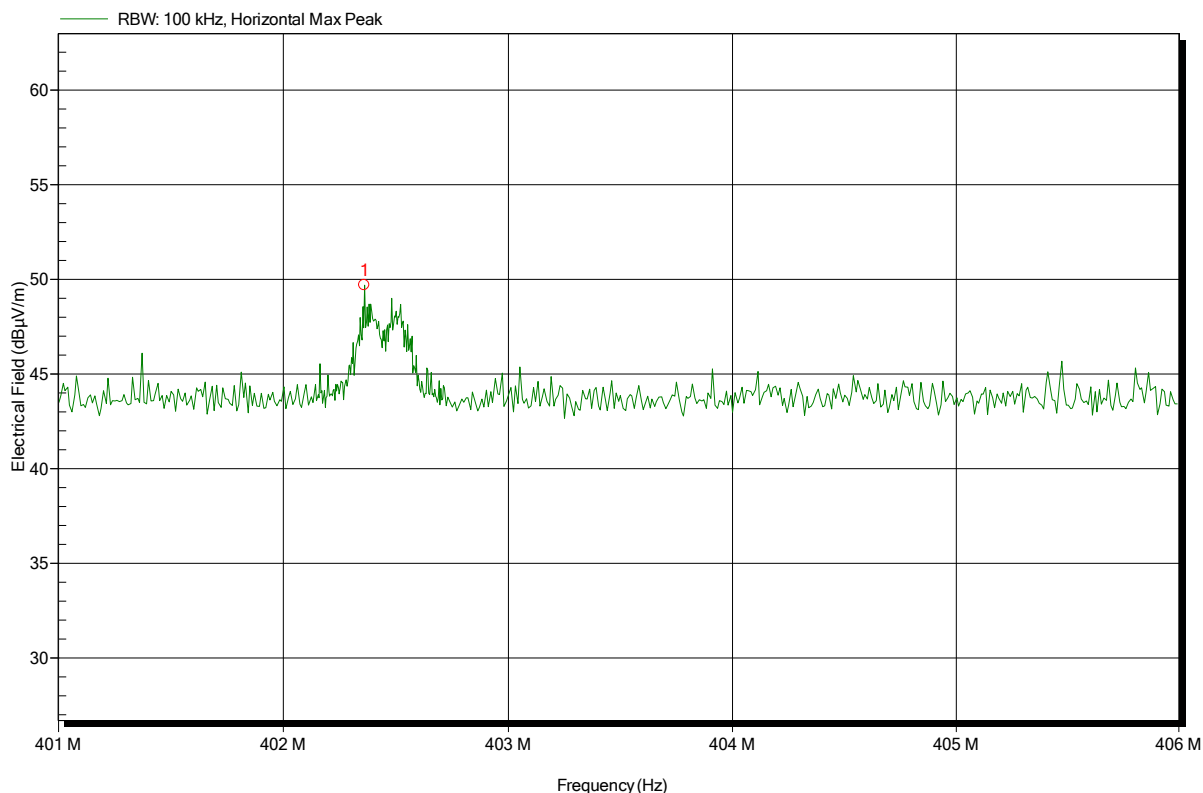
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	Tx; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	Power dB μ V/m ERP

Index 34


 Frequency
402.36 MHz

 Peak
49.71 dB μ V/m

Test Report No.: G0M-1406-3876-TFC95IMR-V01

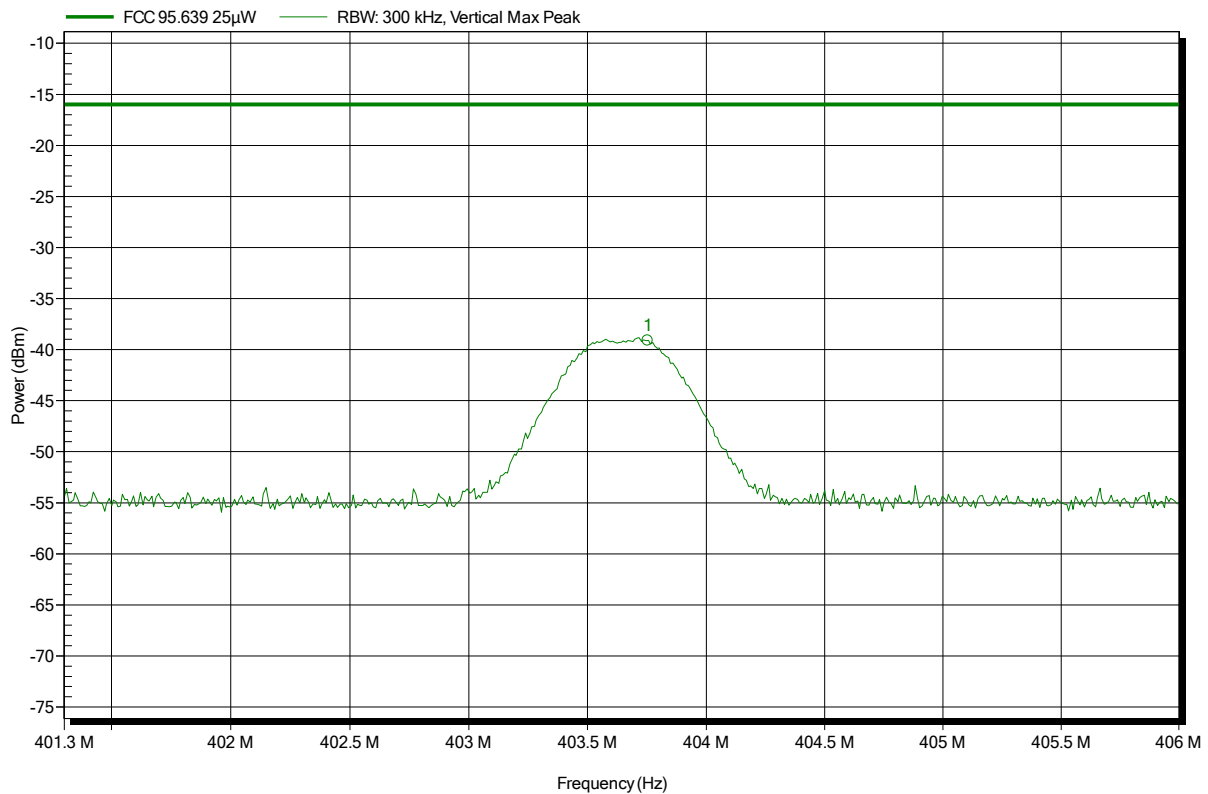
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	Tx; 403.65 MHz; modulated
Test Date:	2014-07-29
Note:	Tx Power EIRP

Index 66



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
403.753 MHz	-39.1 dBm	-16 dBm	-23.11 dB	Pass

Test Report No.: G0M-1406-3876-TFC95IMR-V01

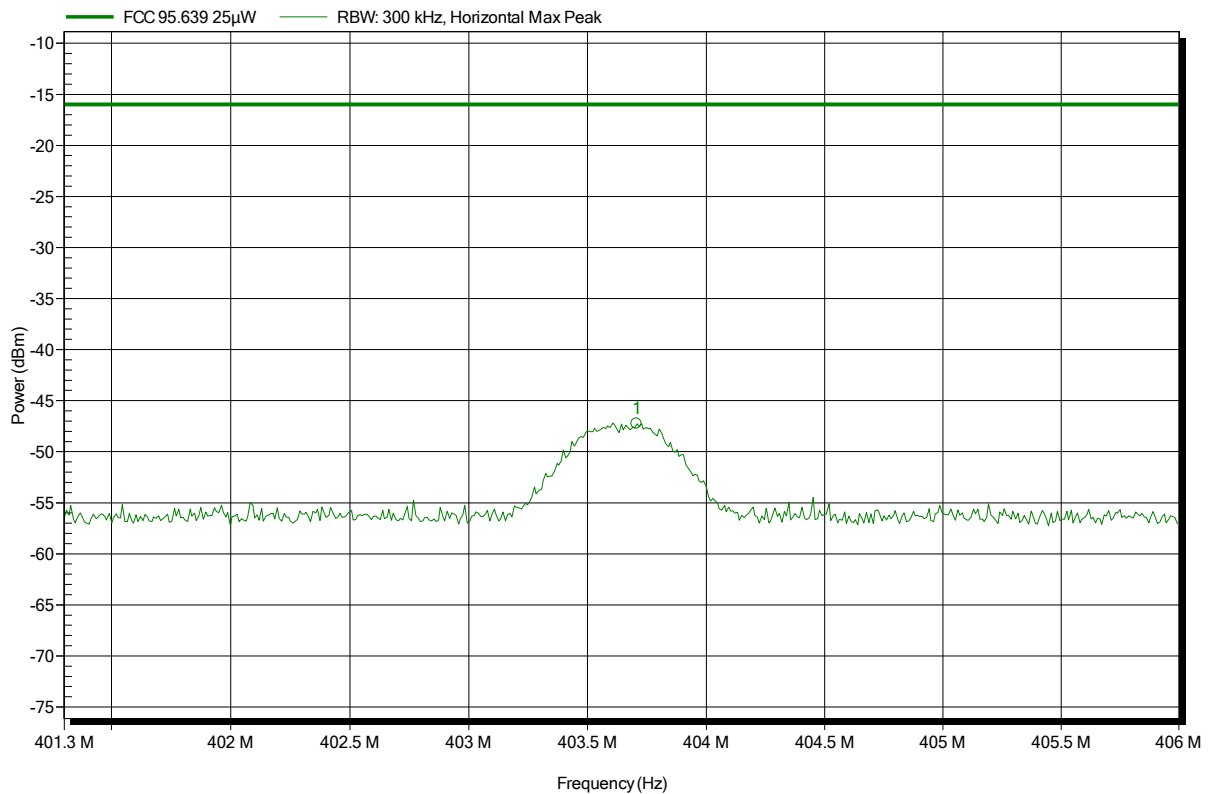
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	Tx; 403.65 MHz; modulated
Test Date:	2014-07-29
Note:	Tx Power EIRP

Index 68



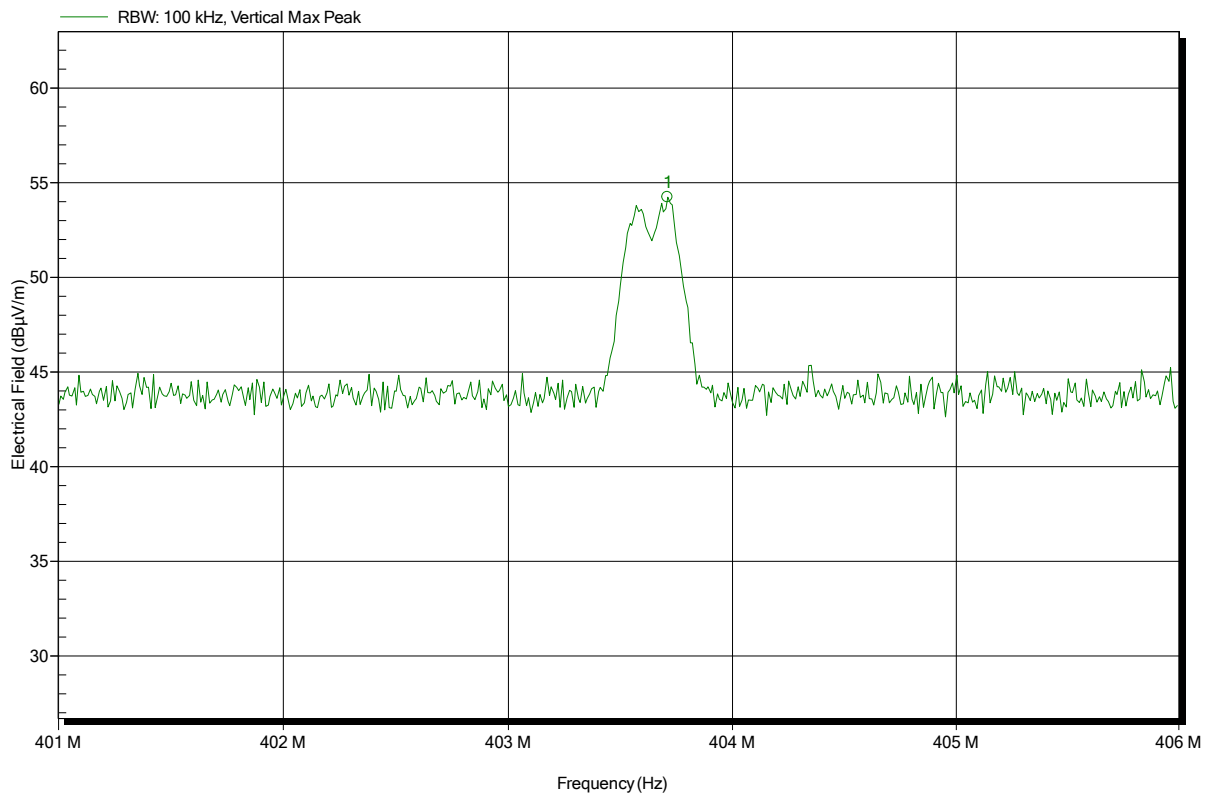
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
403.706 MHz	-47.2 dBm	-16 dBm	-31.24 dB	Pass

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	Tx; 403.65 MHz; modulated
Test Date:	2014-07-29
Note:	Power dB μ V/m ERP

Index 67


 Frequency
403.71 MHz

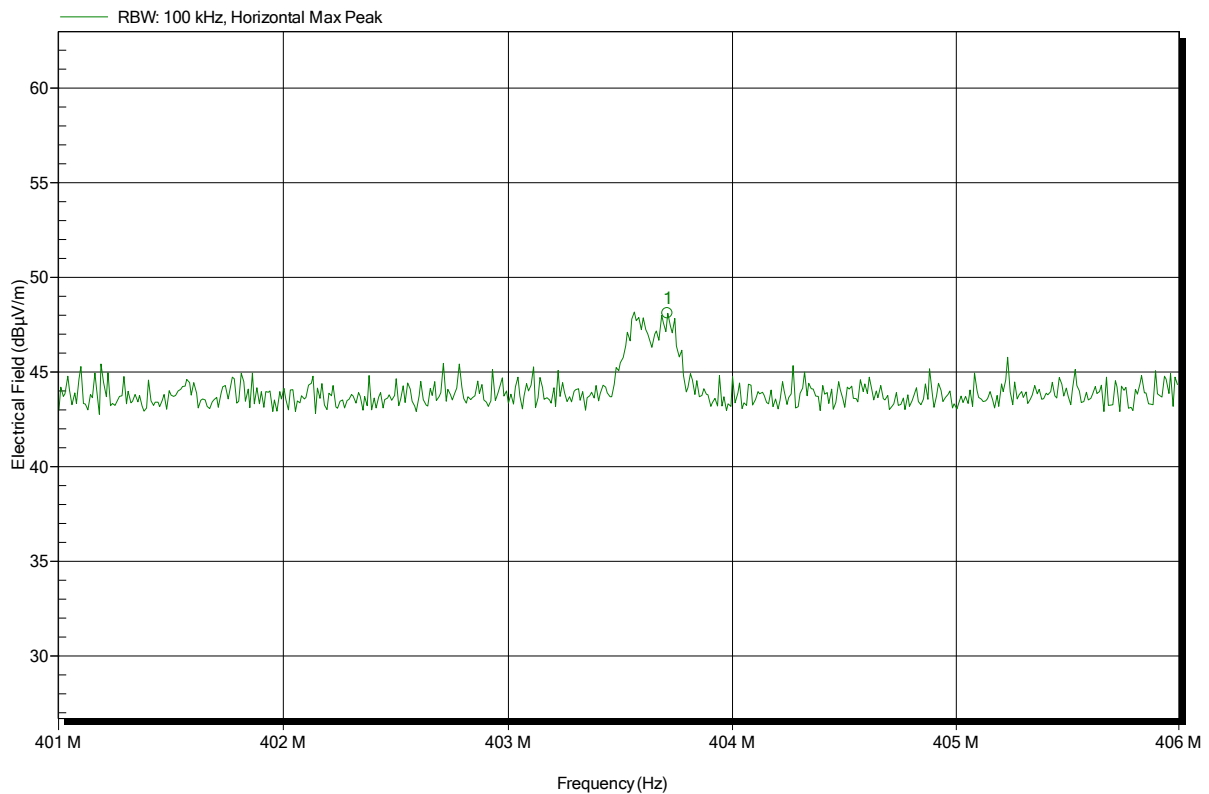
 Peak
54.25 dB μ V/m

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	Tx; 403.65 MHz; modulated
Test Date:	2014-07-29
Note:	Power dBµV/m ERP

Index 69


 Frequency
403.71 MHz

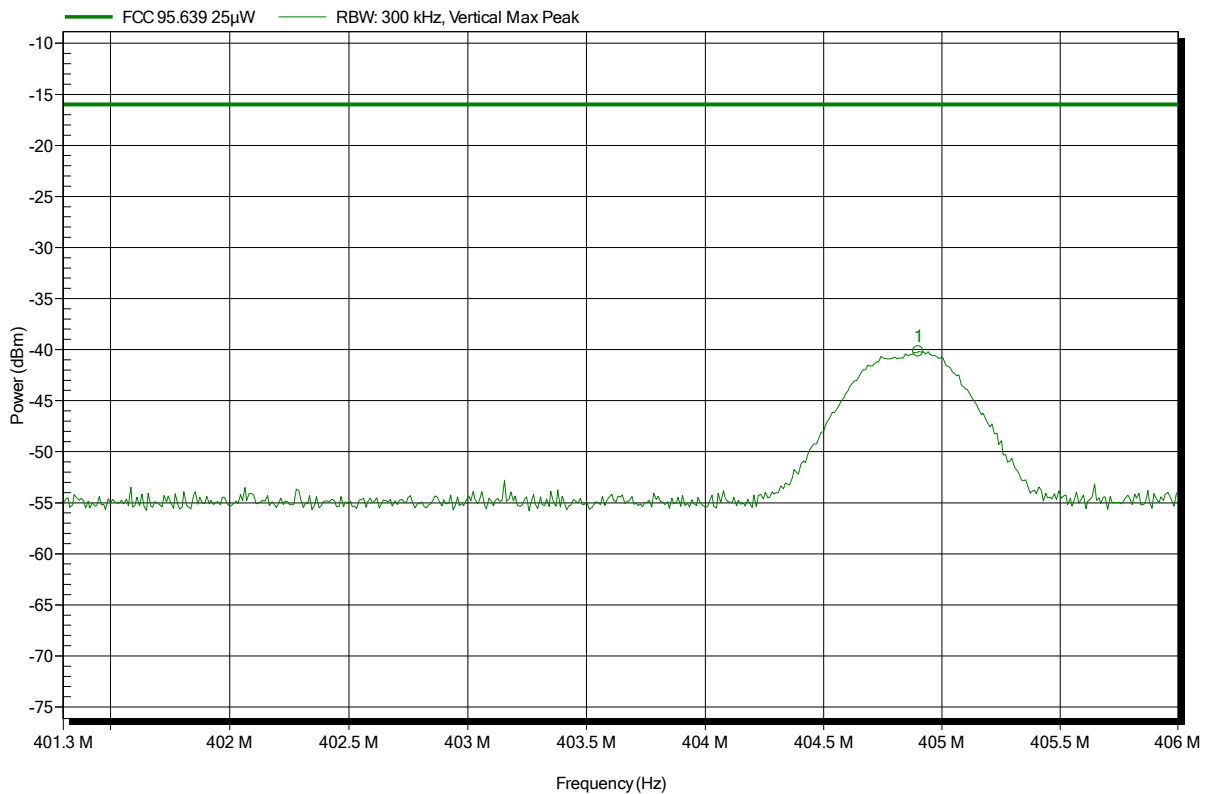
 Peak
48.11 dBµV/m

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	Tx; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	Tx Power EIRP

Index 61



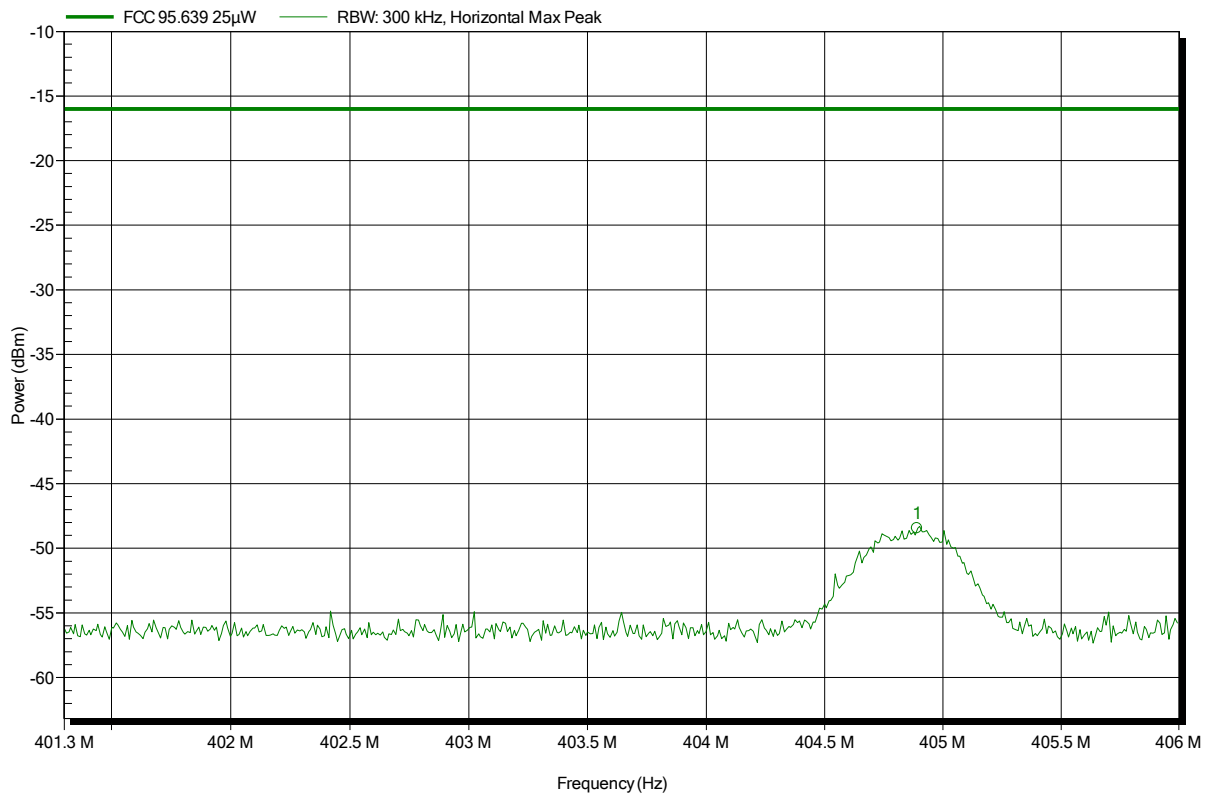
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
404.9 MHz	-40.2 dBm	-16 dBm	-24.17 dB	Pass

Radiated power according to FCC Part 95; Subpart E

Order number: GOM-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	Tx; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	Tx Power EIRP

Index 65



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
404.891 MHz	-48.5 dBm	-16 dBm	-32.45 dB	Pass

Test Report No.: GOM-1406-3876-TFC95IMR-V01

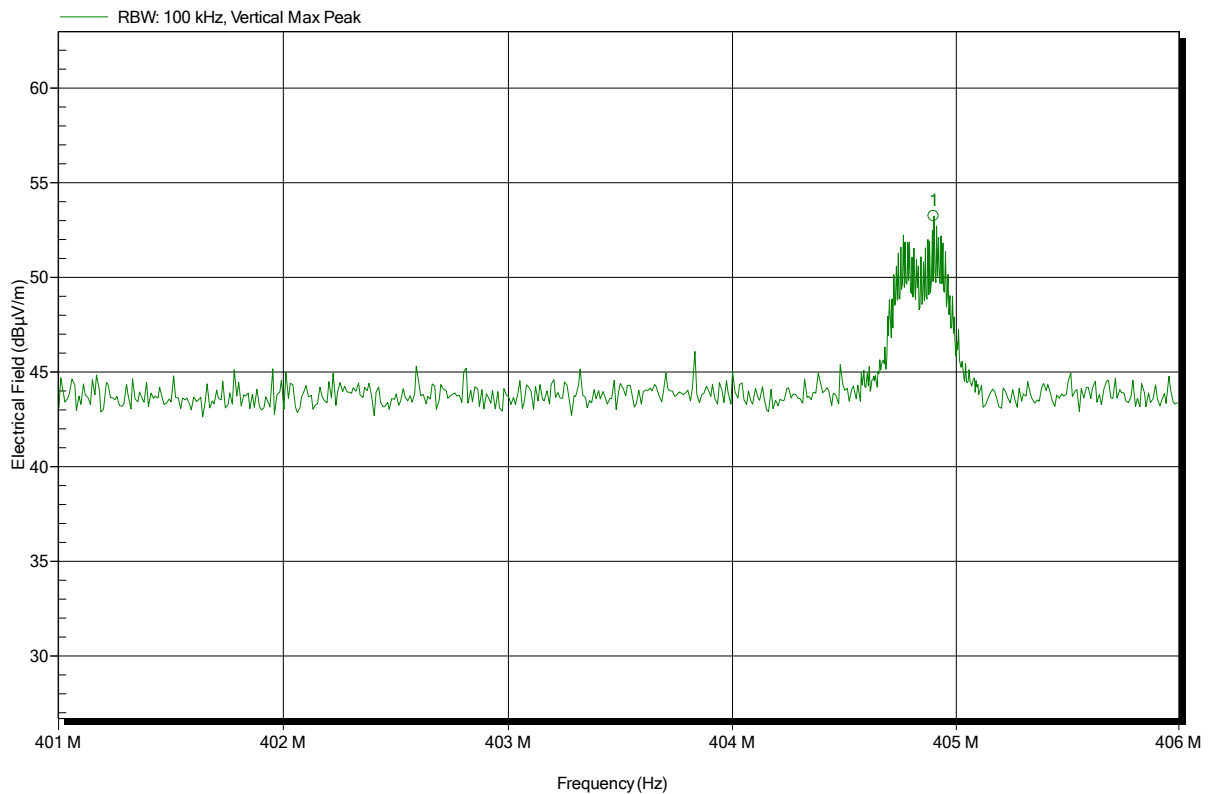
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	Tx; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	Power dB μ V/m ERP

Index 63


 Frequency
404.9 MHz

 Peak
53.25 dB μ V/m

Test Report No.: G0M-1406-3876-TFC95IMR-V01

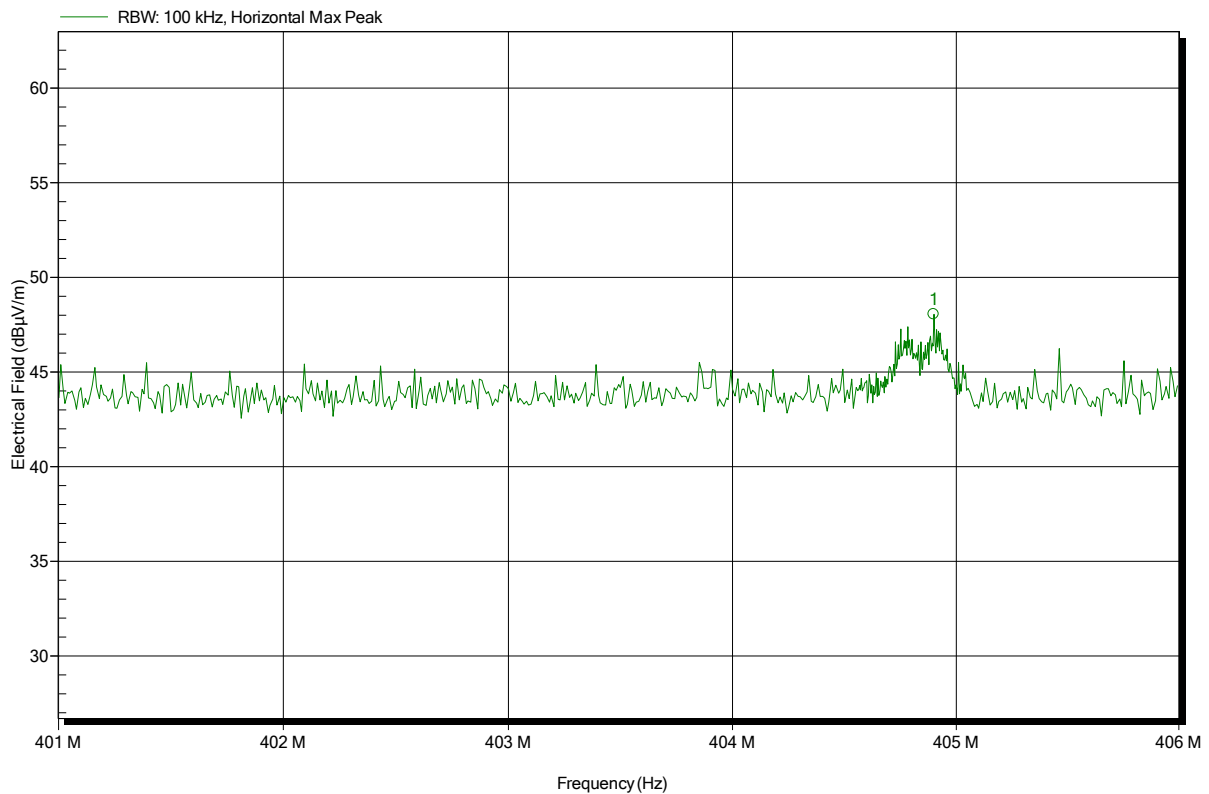
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated power according to FCC Part 95; Subpart E

Order number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	Tx; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	Power dB μ V/m ERP

Index 64


 Frequency
404.9 MHz

 Peak
48.05 dB μ V/m

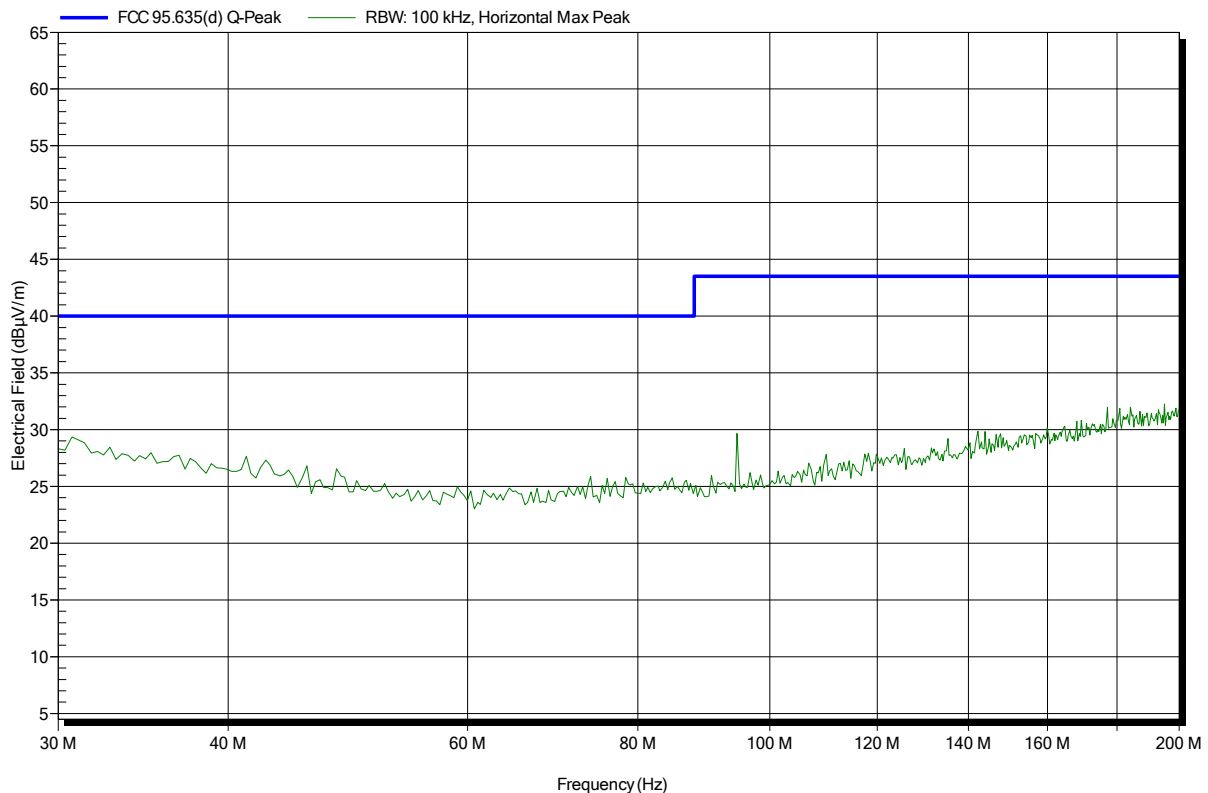
ANNEX B Transmitter radiated spurious emissions

Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HK116, Horizontal
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 45

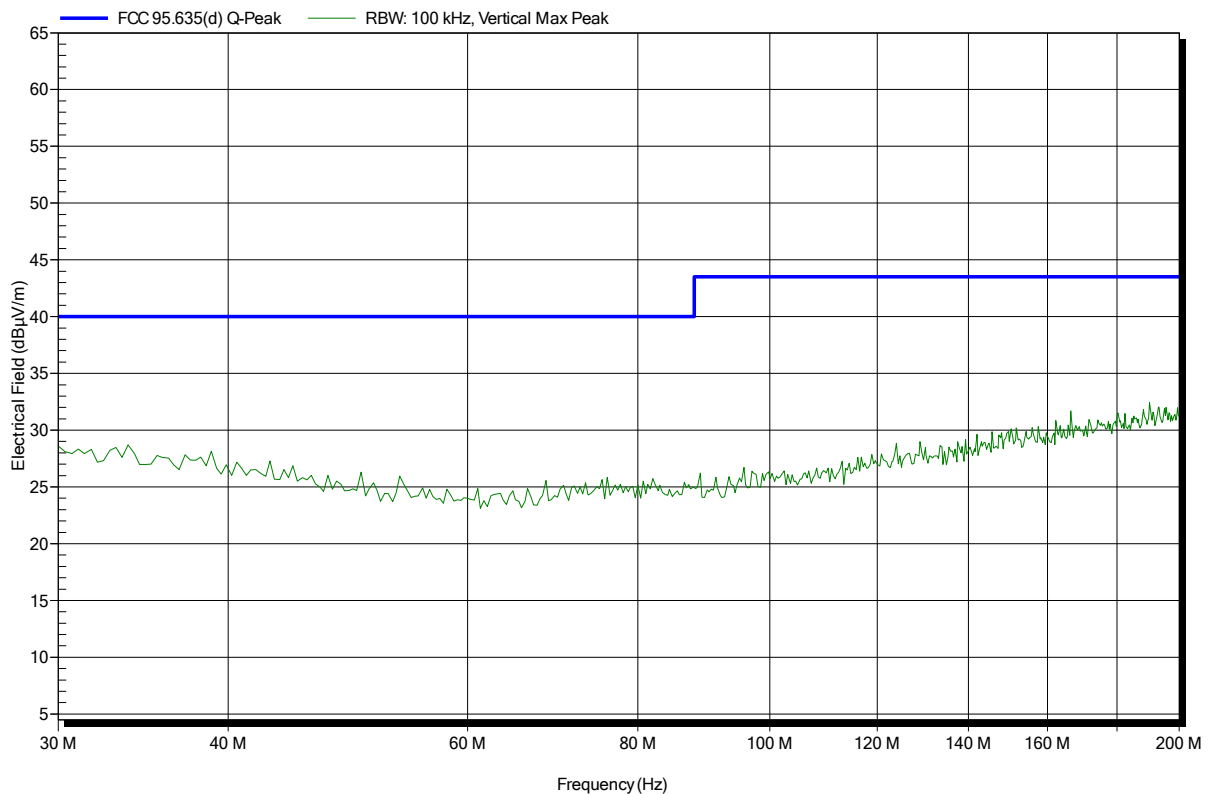


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HK116, Vertical
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 44

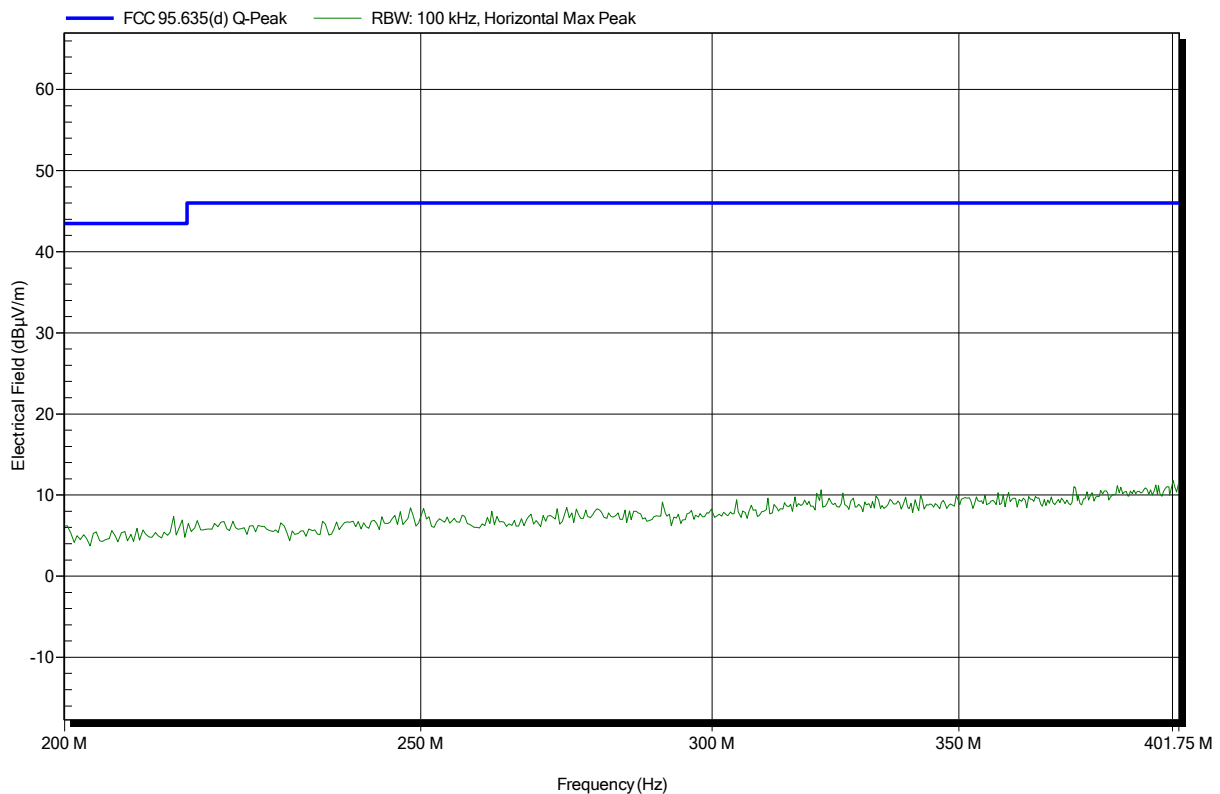


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 36

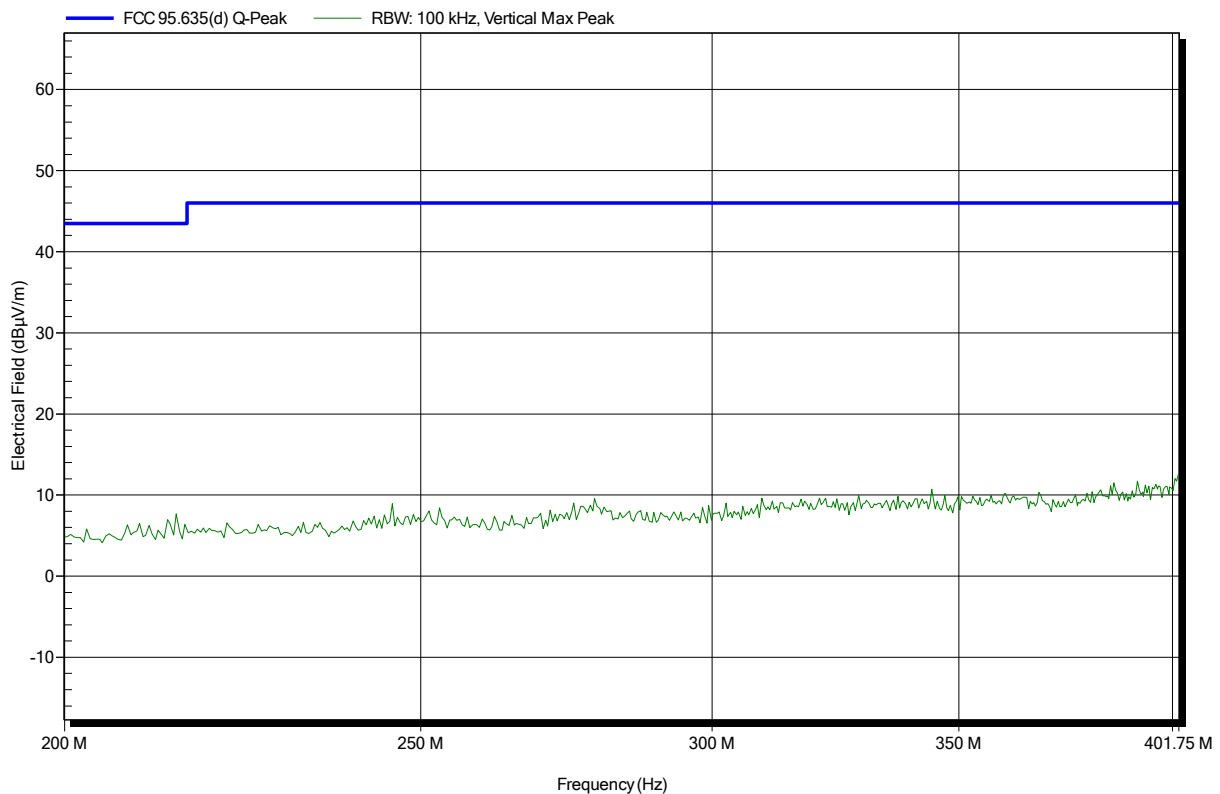


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 40

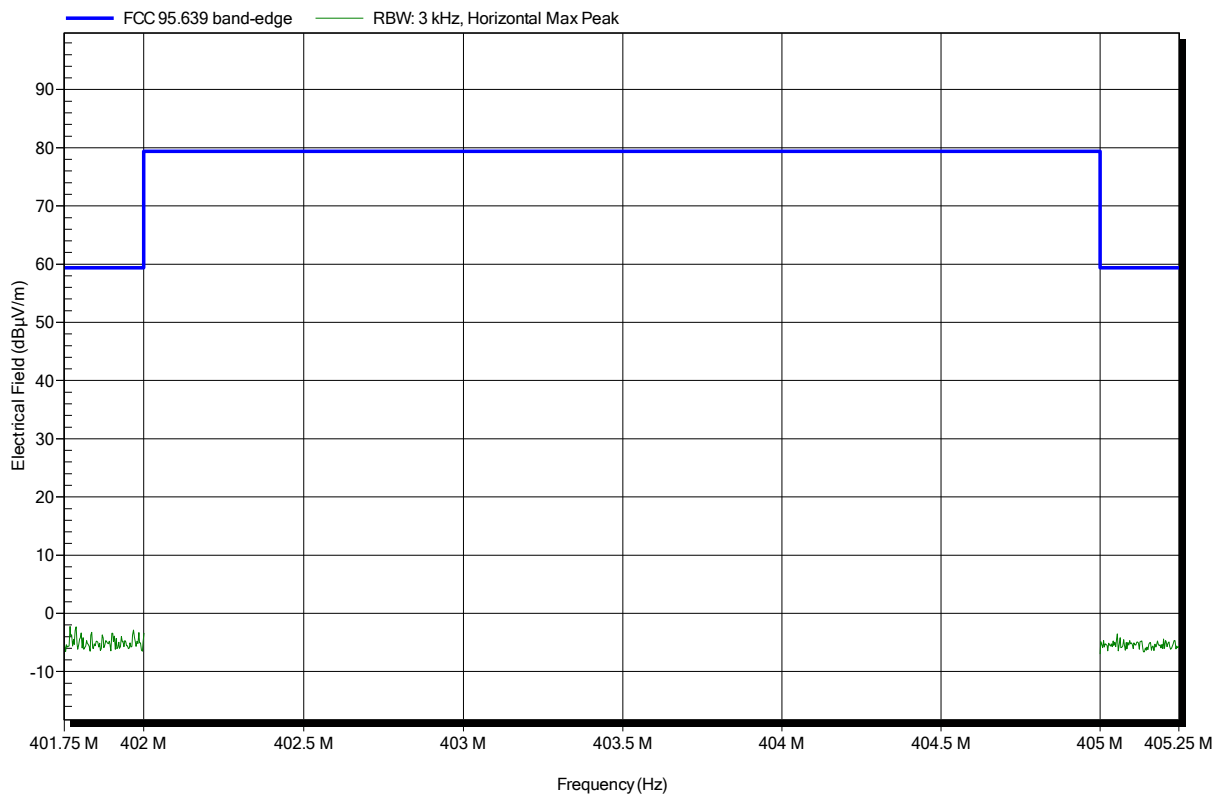


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	Band-edge

Index 37

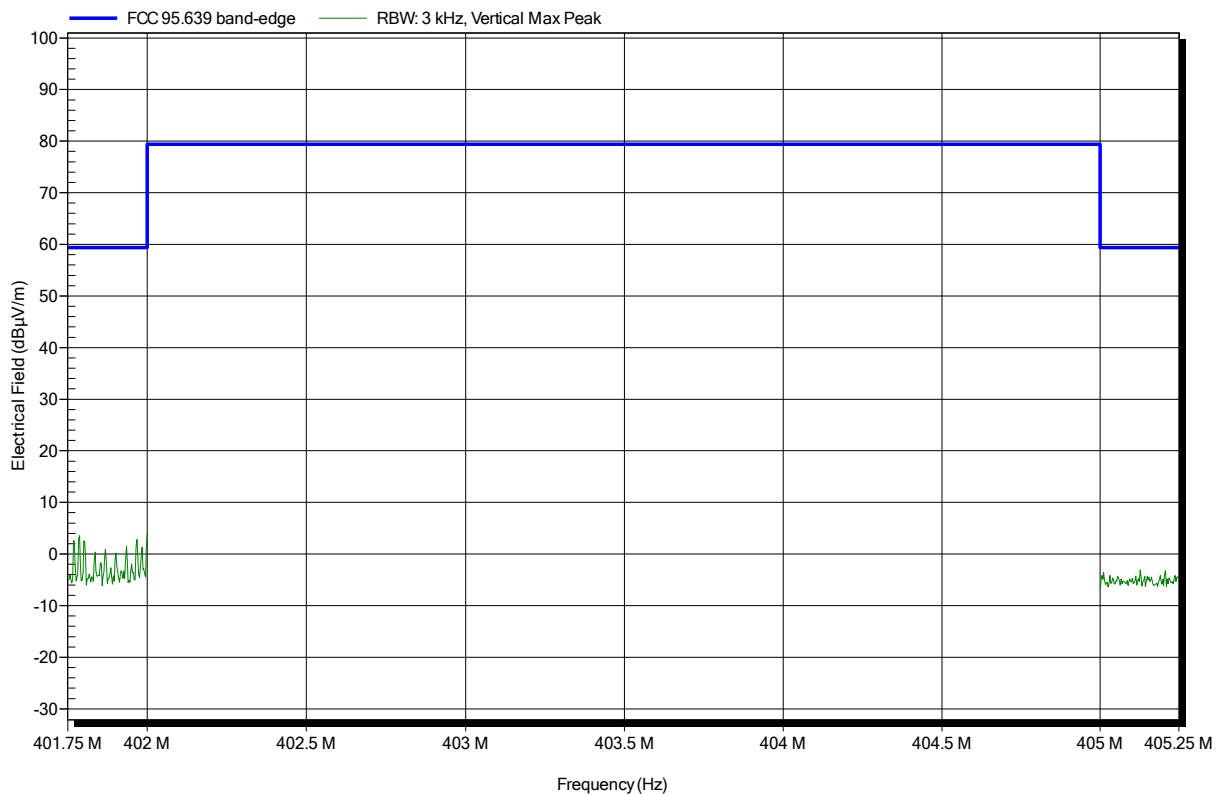


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	Band-edge

Index 41

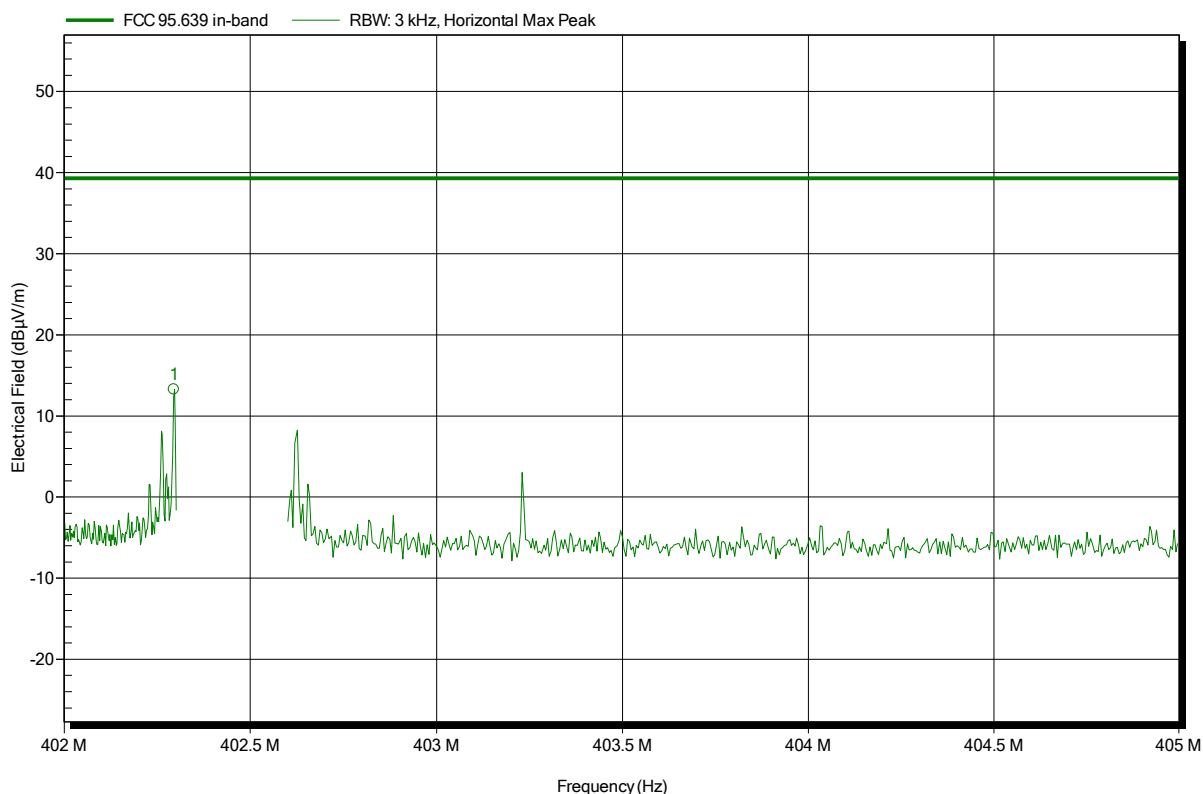


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC battery
 Antenna: HL223, Horizontal
 Measurement distance: 3 m
 Mode: TX; 402.45 MHz; modulated
 Test Date: 2014-07-29
 Note: In-band emissions

Index 38



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
402.295 MHz	13.27 dBµV/m	39.3 dBµV/m	-26.03 dB	Pass

Test Report No.: G0M-1406-3876-TFC95IMR-V01

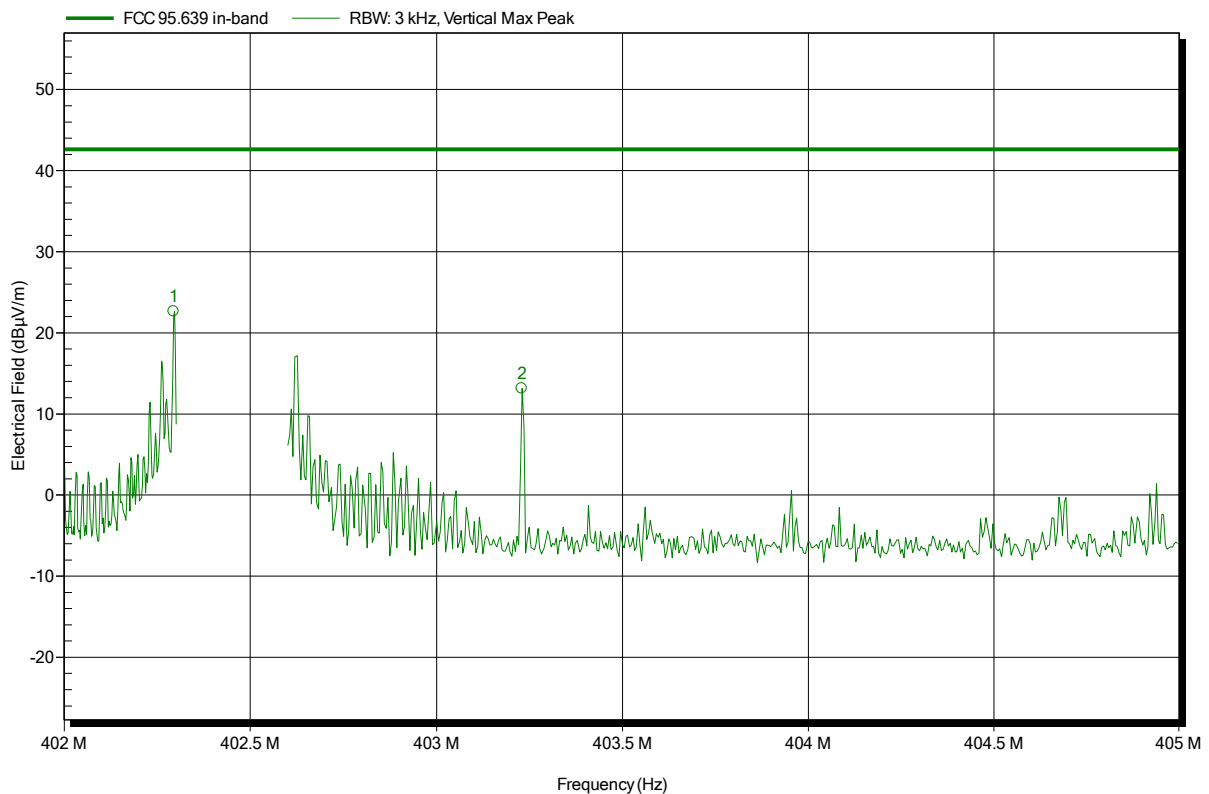
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 95; Subpart E

Project number: GOM-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC battery
 Antenna: HL223, Vertical
 Measurement distance: 3 m
 Mode: TX; 402.45 MHz; modulated
 Test Date: 2014-07-29
 Note: In-band emissions

Index 42



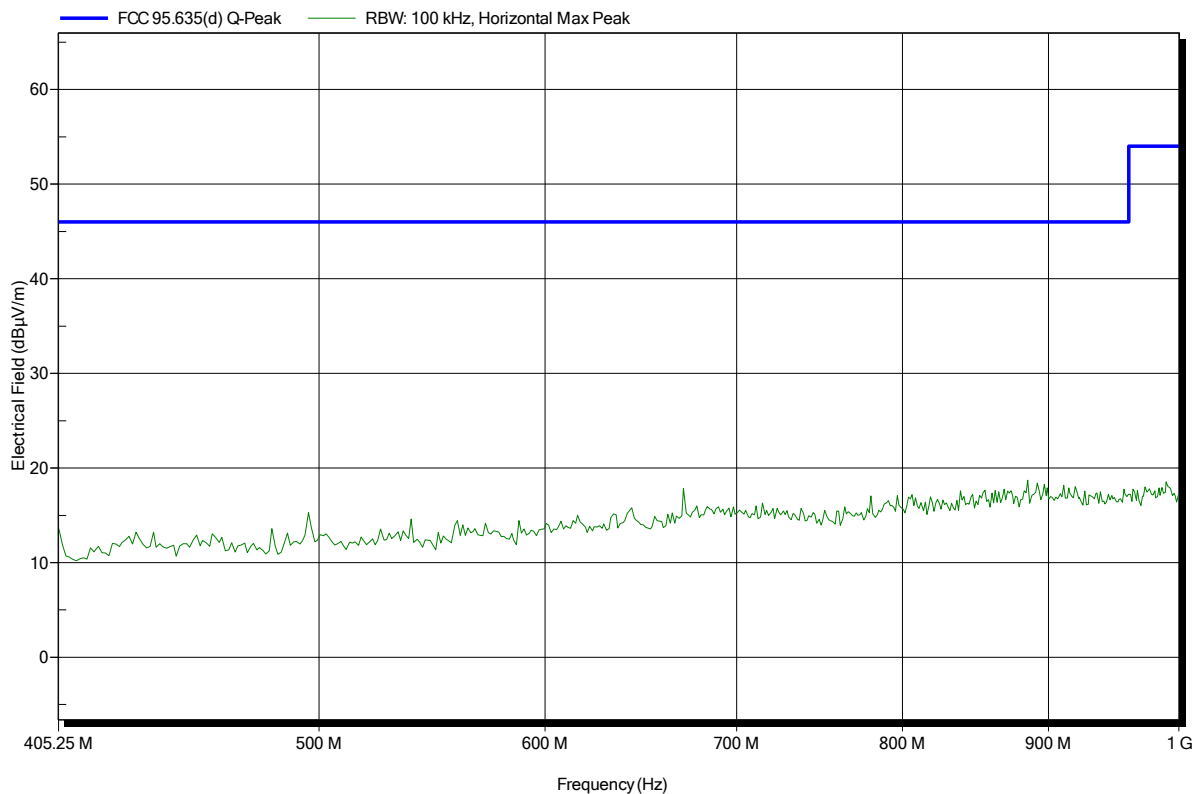
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
402.295 MHz	22.65 dBµV/m	42.6 dBµV/m	-19.95 dB	Pass
403.229 MHz	13.13 dBµV/m	42.6 dBµV/m	-29.47 dB	Pass

Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 39

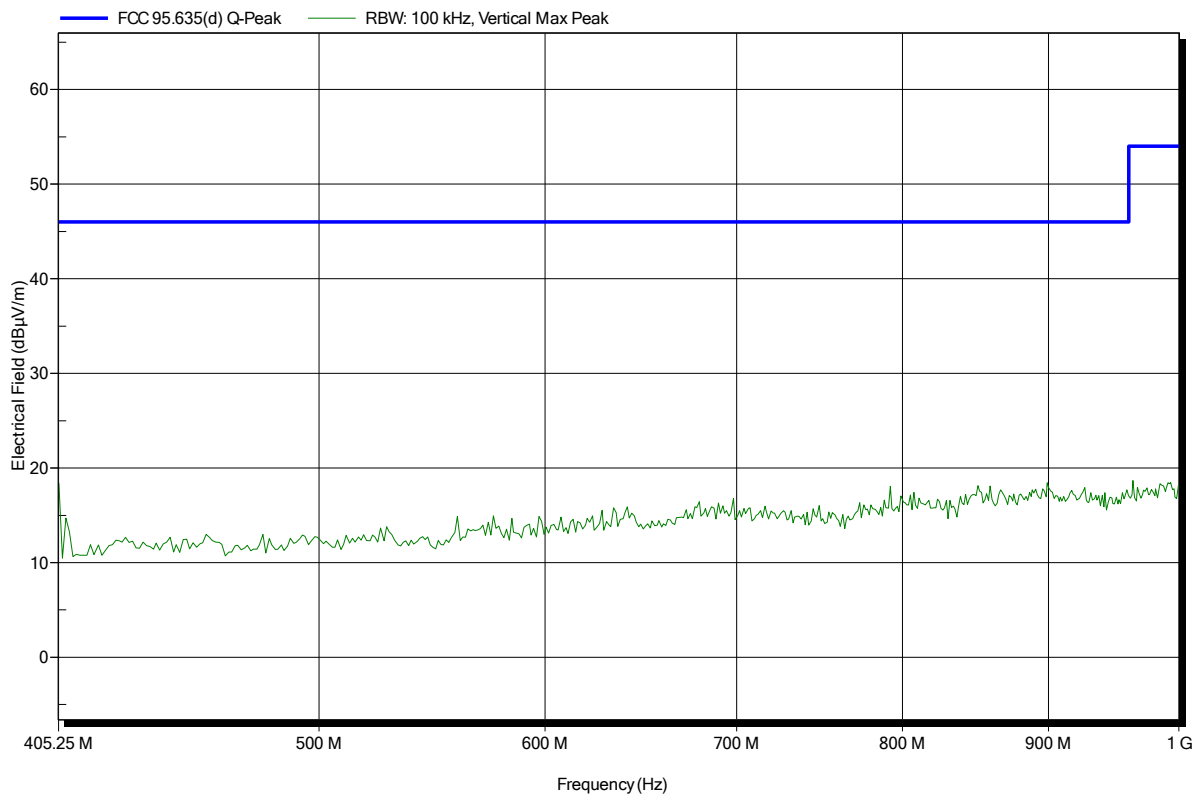


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 43

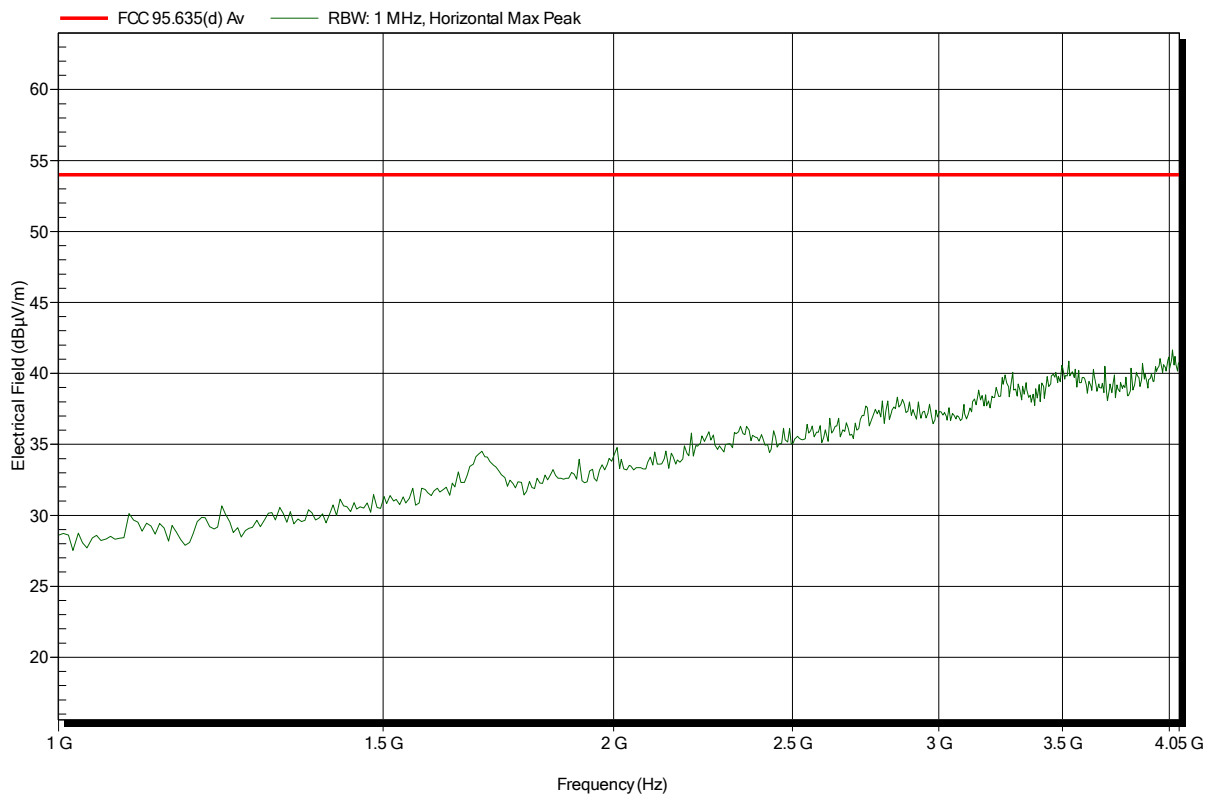


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL025, Horizontal
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 46

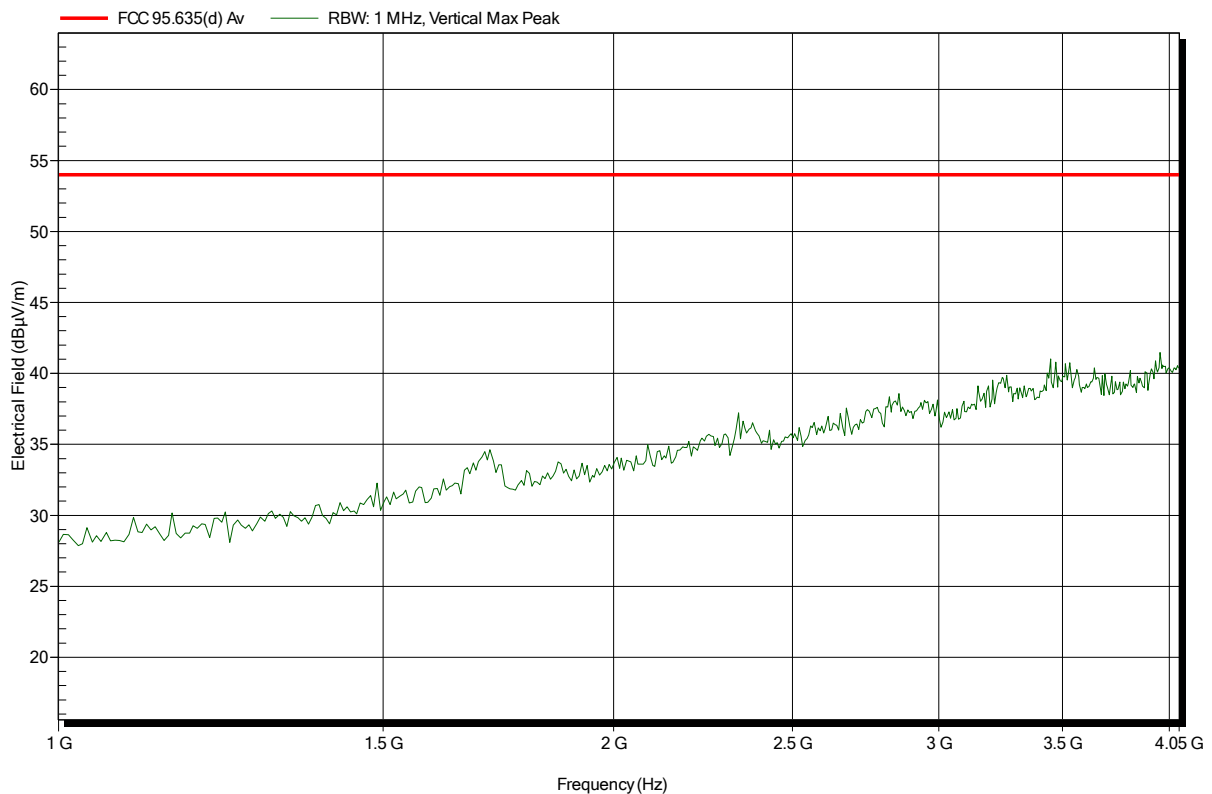


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL025, Vertical
Measurement distance:	3 m
Mode:	TX; 402.45 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 47

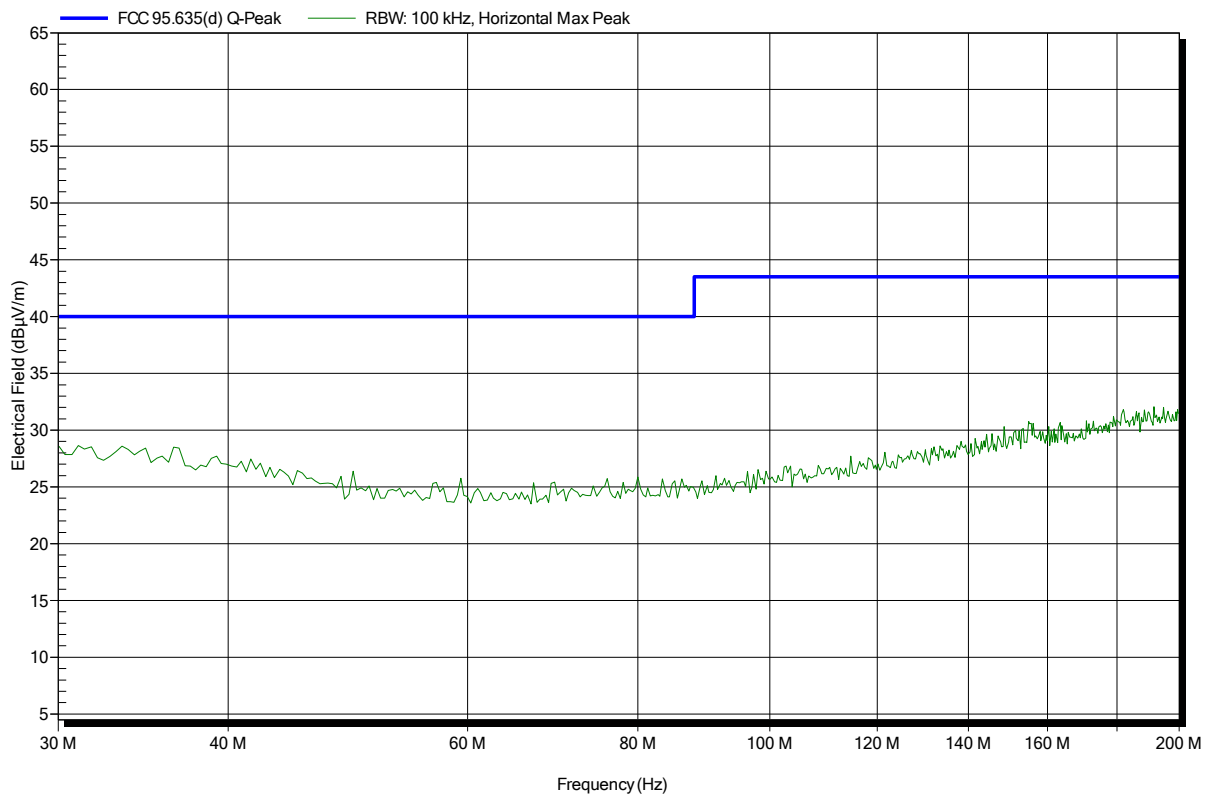


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HK116, Horizontal
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 50

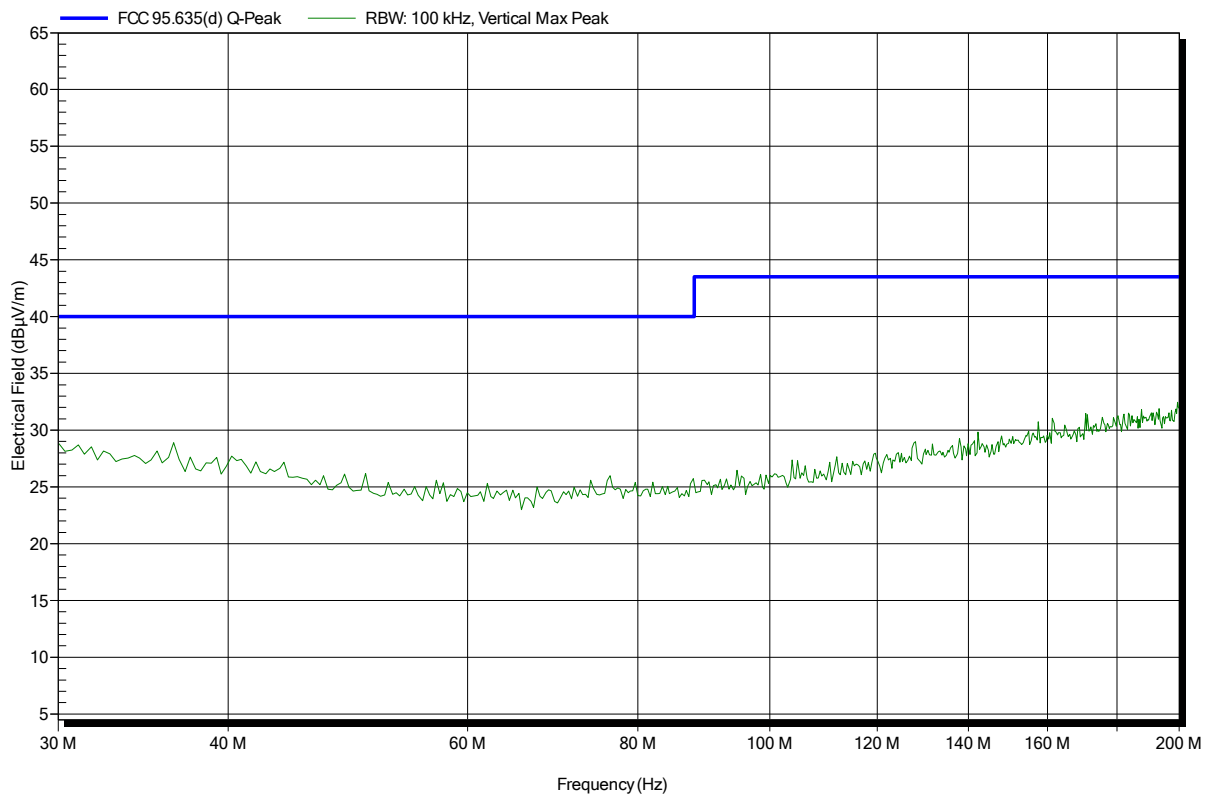


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HK116, Vertical
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 51

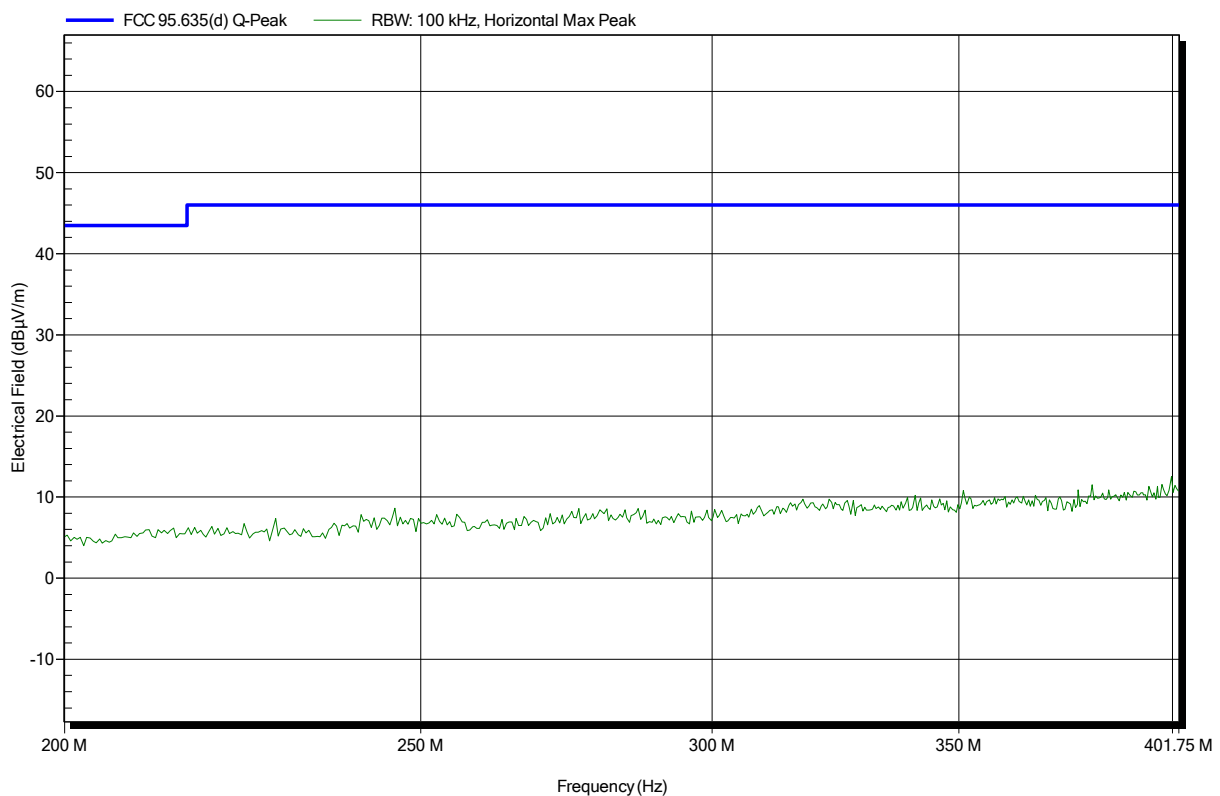


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 52

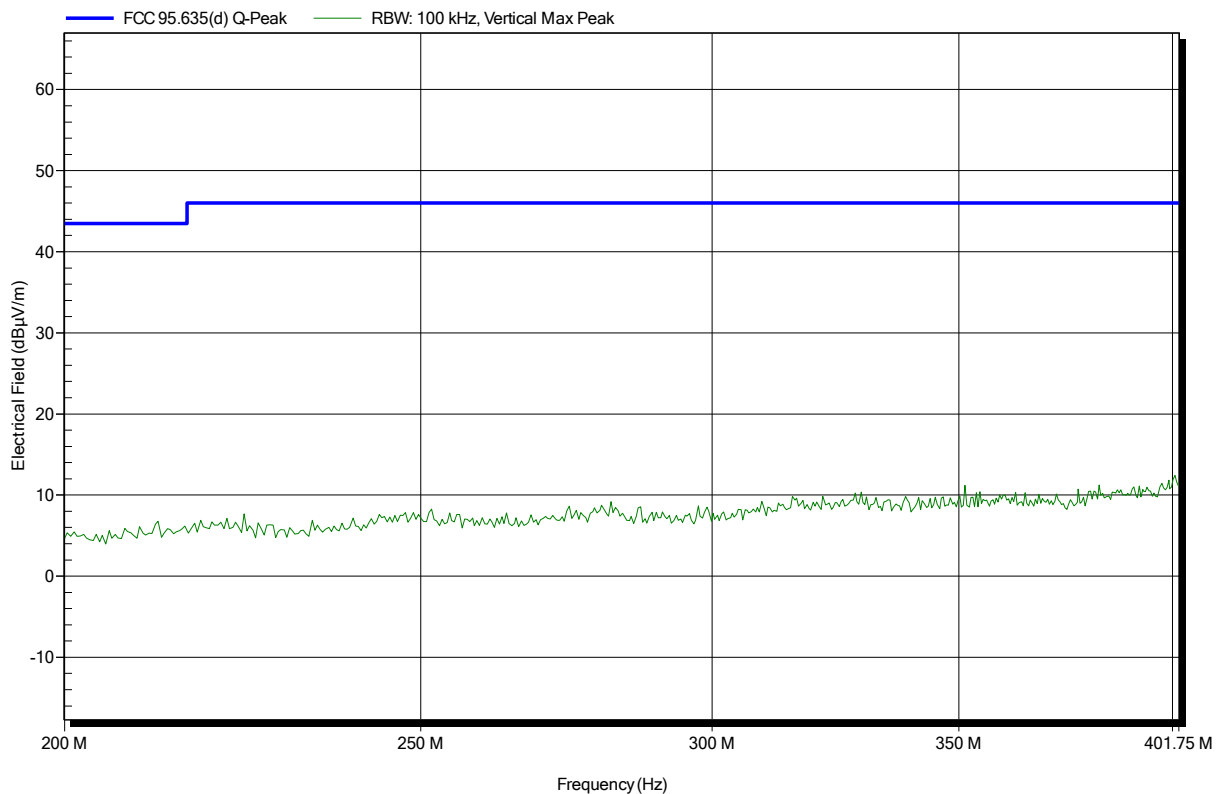


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 57

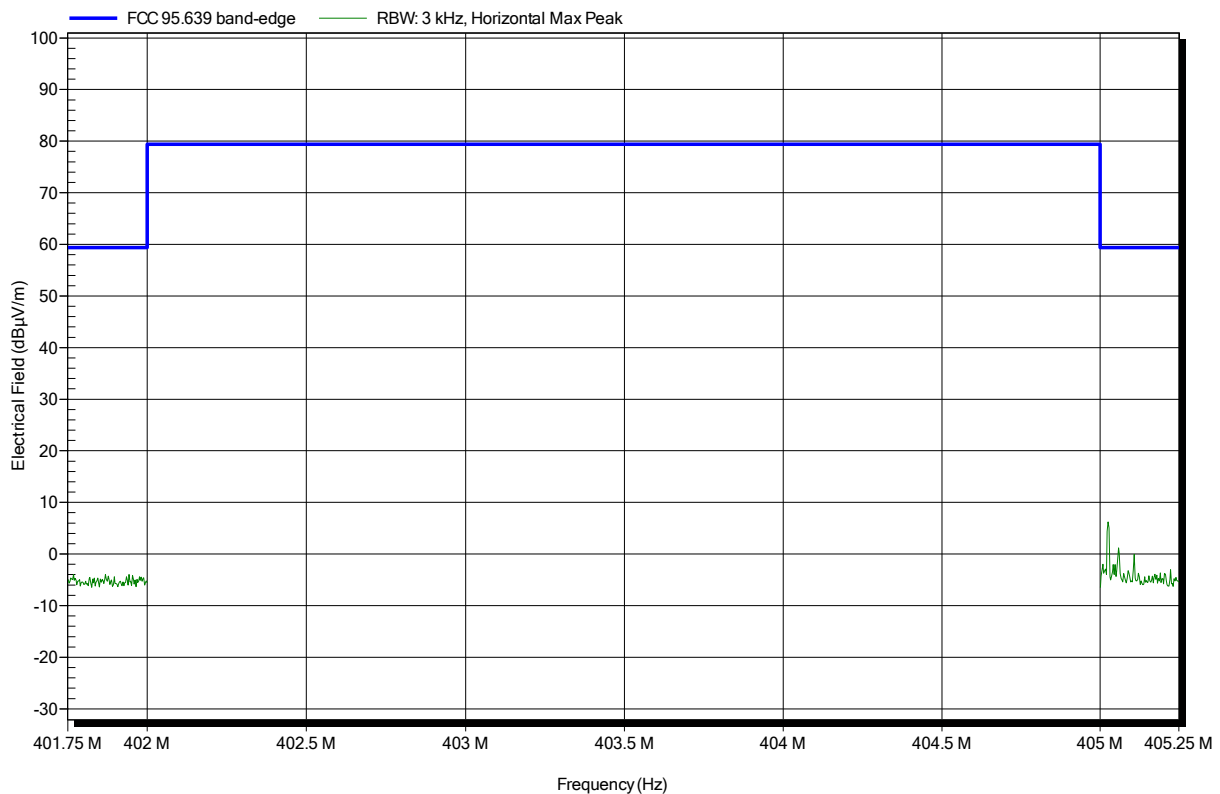


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	Band-edge

Index 53

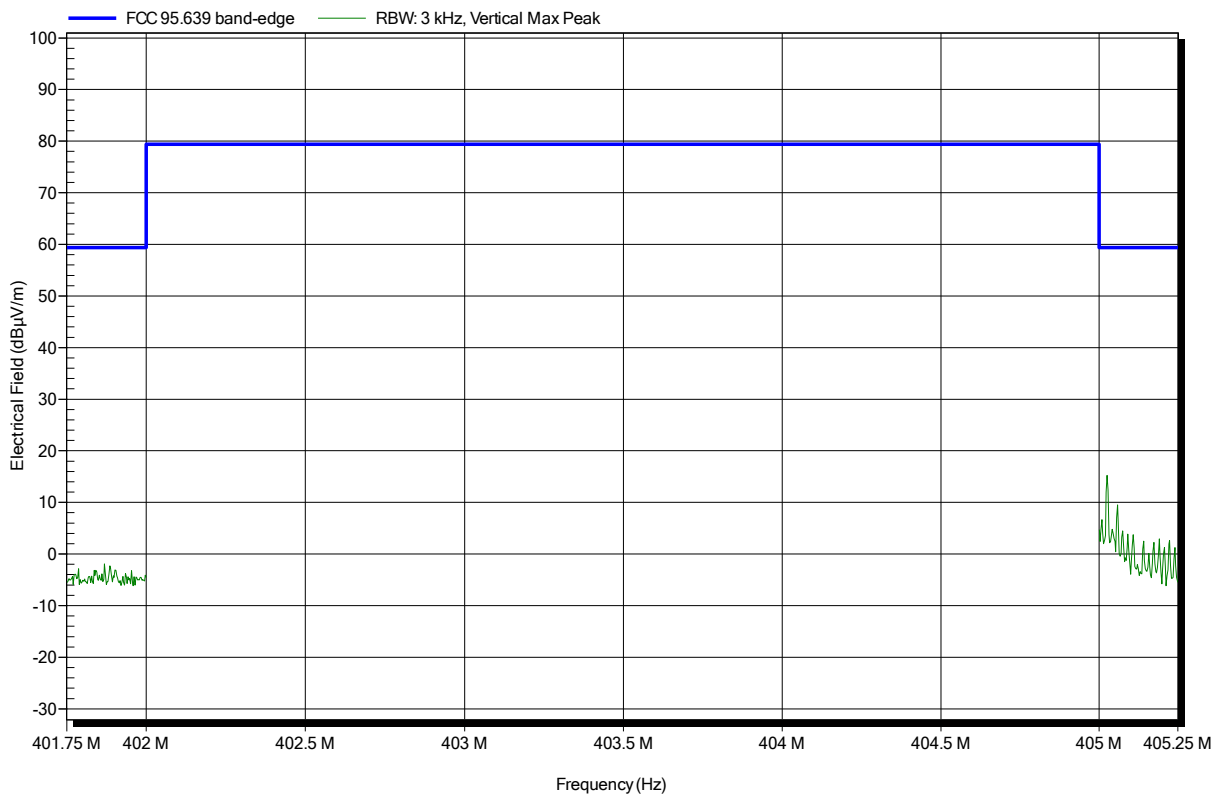


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	Band-edge

Index 58

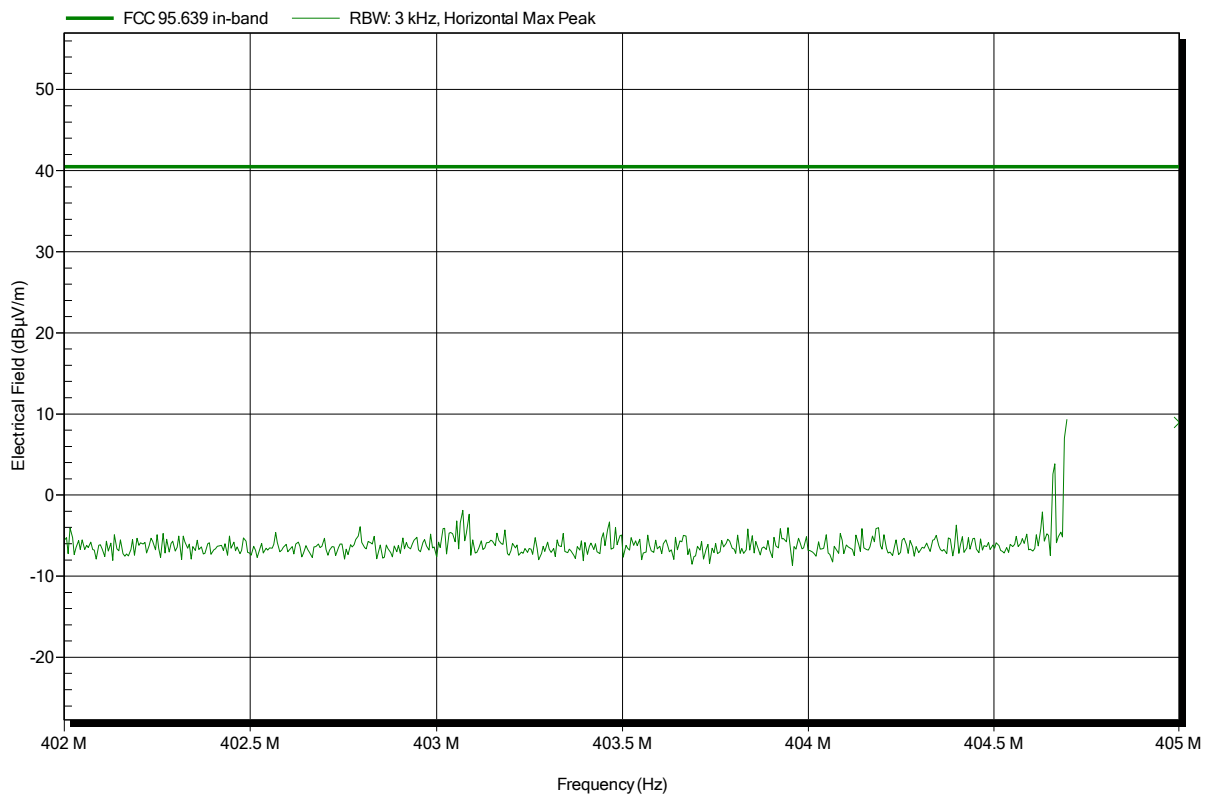


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	In-band emissions

Index 54

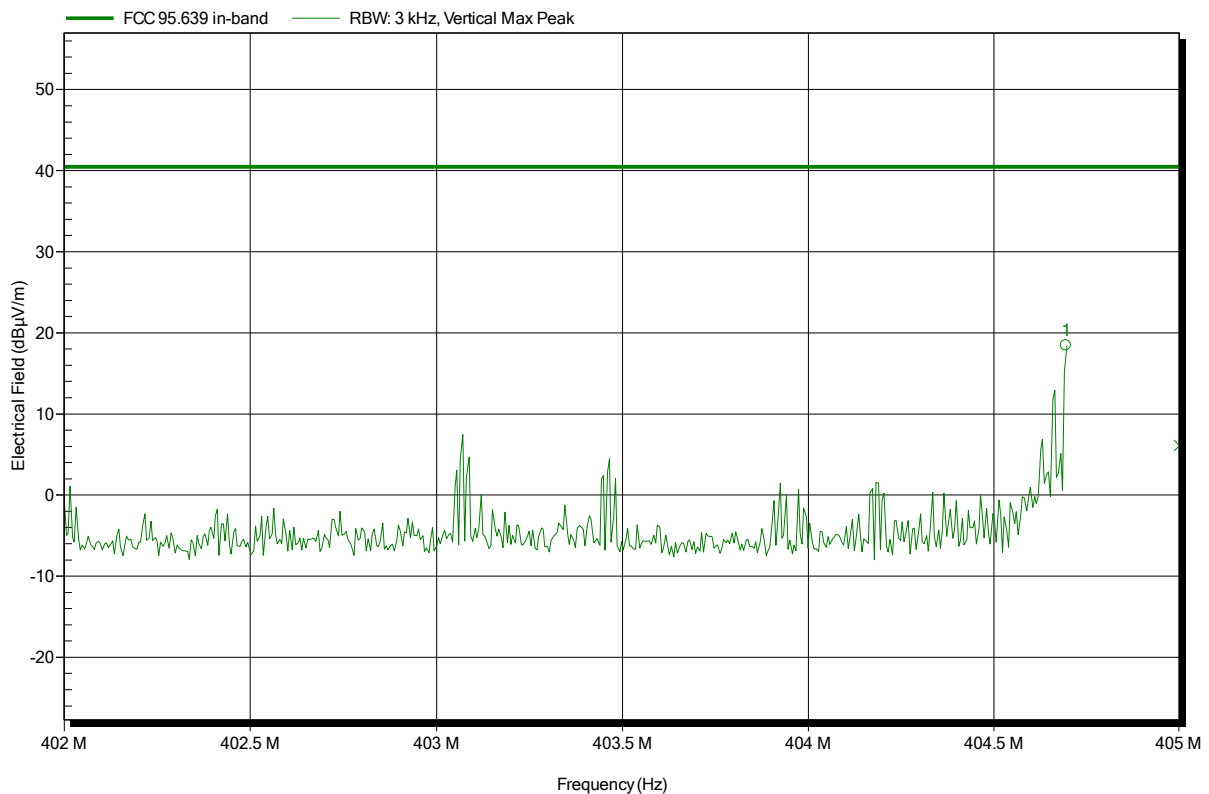


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC battery
 Antenna: HL223, Vertical
 Measurement distance: 3 m
 Mode: TX; 404.85 MHz; modulated
 Test Date: 2014-07-29
 Note: In-band emissions

Index 59



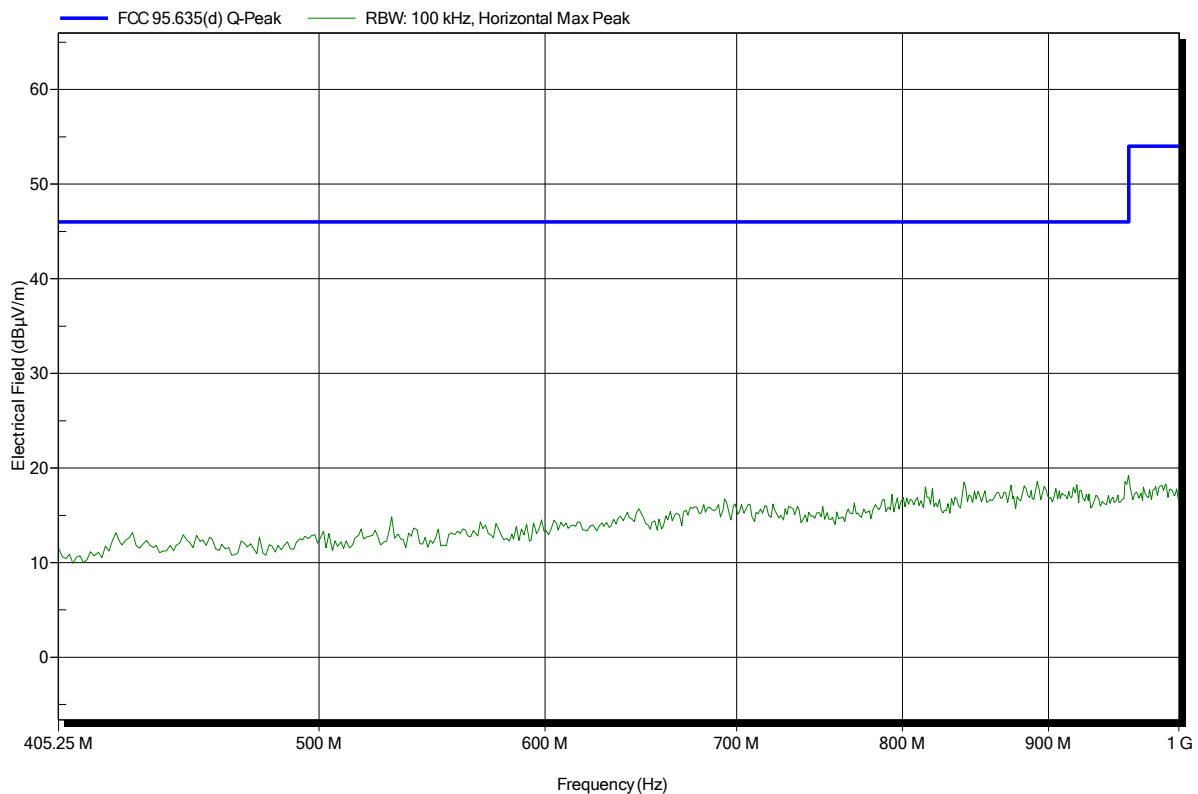
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
404.695 MHz	18.43 dBµV/m	40.5 dBµV/m	-22.07 dB	Pass

Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 56

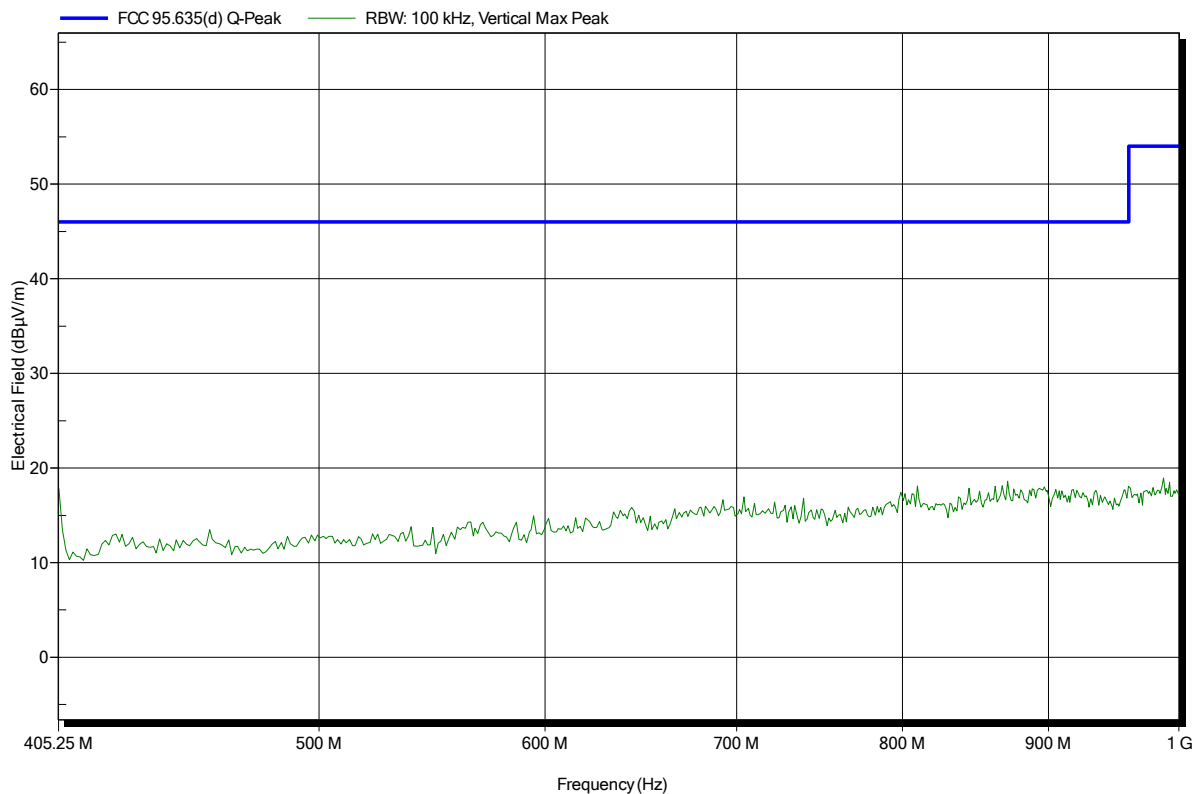


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 60

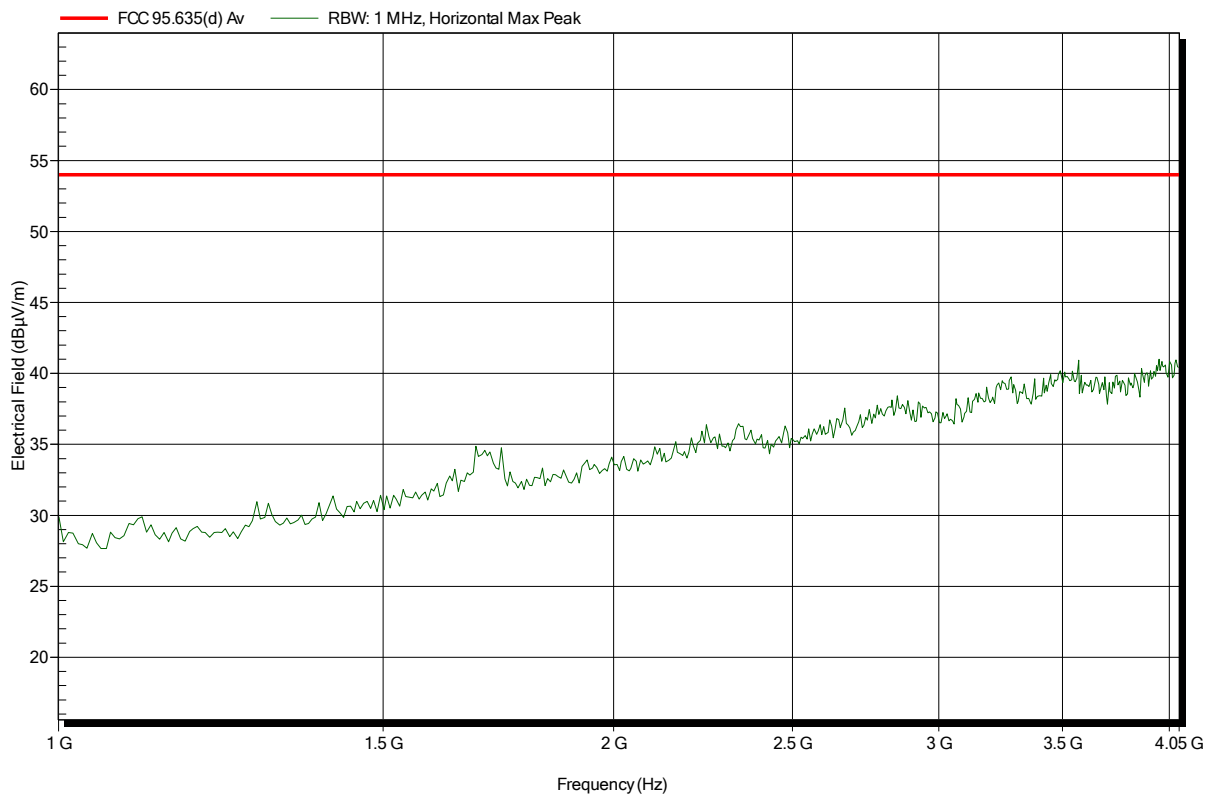


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL025, Horizontal
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 49

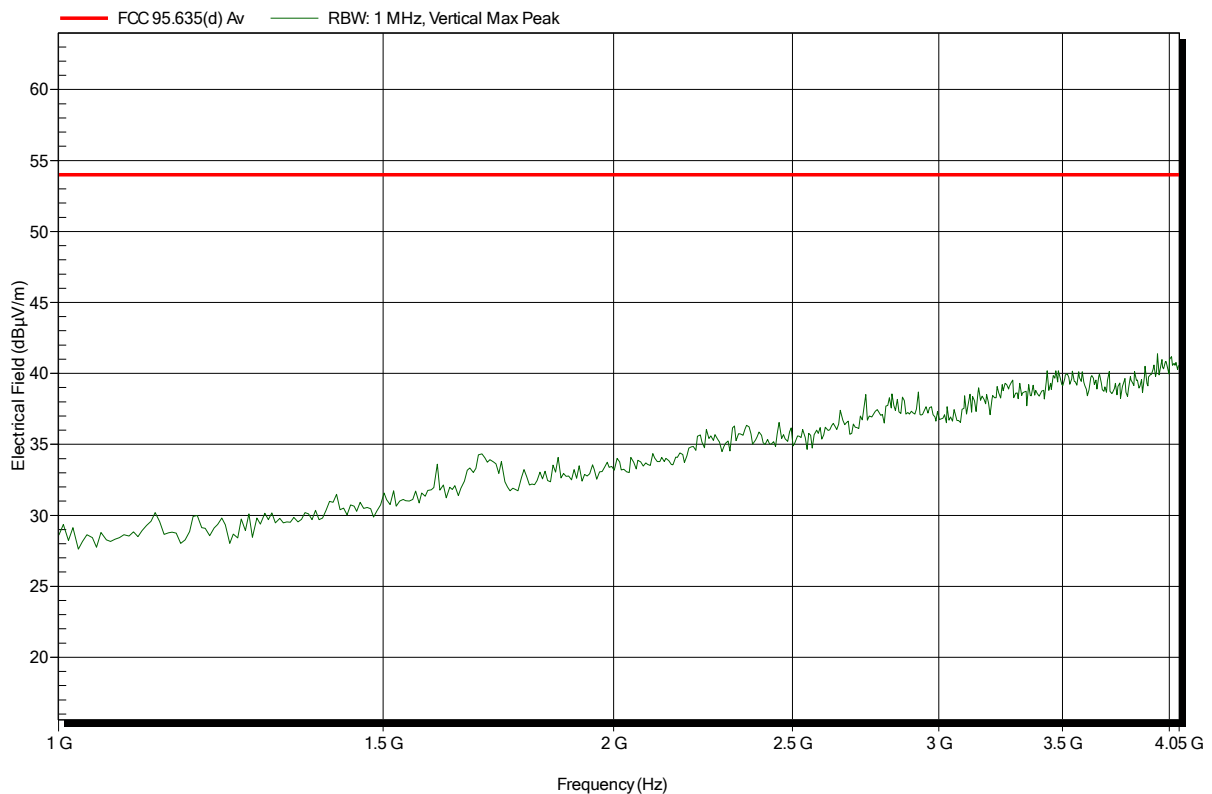


Spurious emissions according to FCC Part 95; Subpart E

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL025, Vertical
Measurement distance:	3 m
Mode:	TX; 404.85 MHz; modulated
Test Date:	2014-07-29
Note:	

Index 48



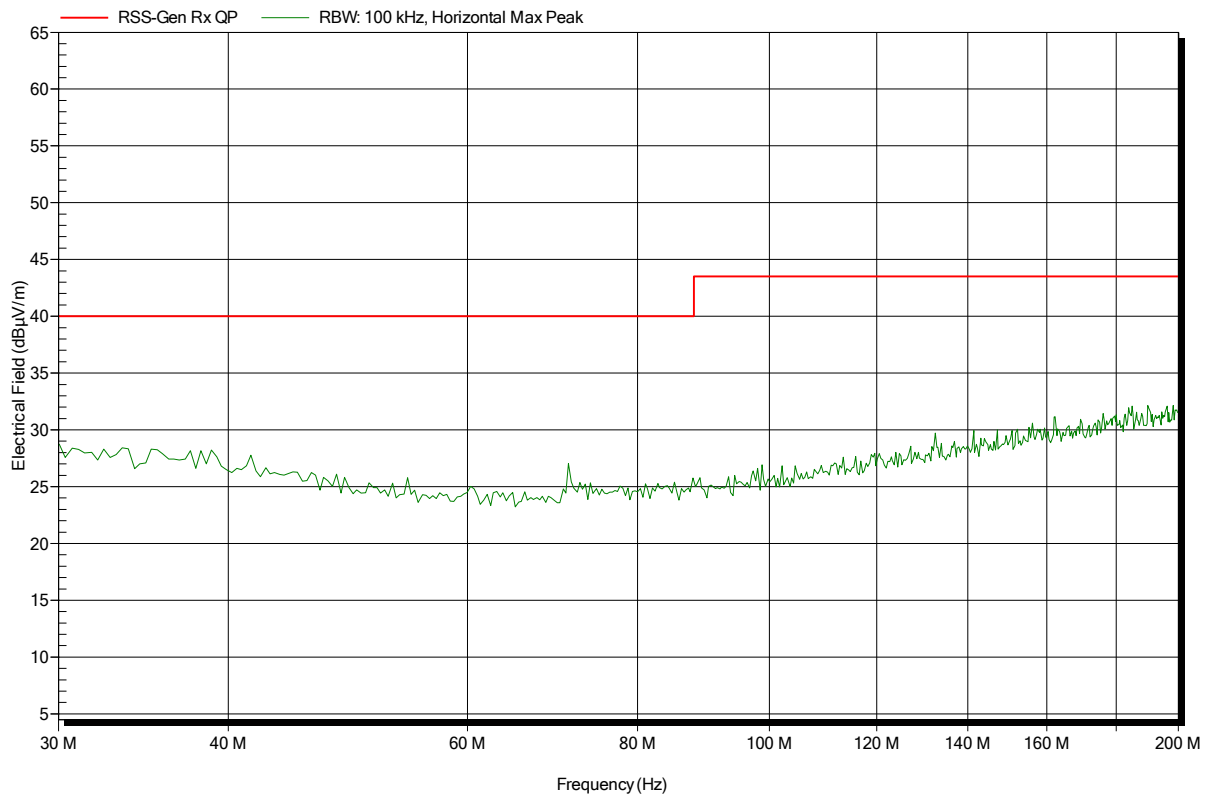
ANNEX C Receiver radiated spurious emissions

Spurious emissions according to RSS-Gen

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HK116, Horizontal
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	Montag, 28. Juli 2014
Note:	

Index 26

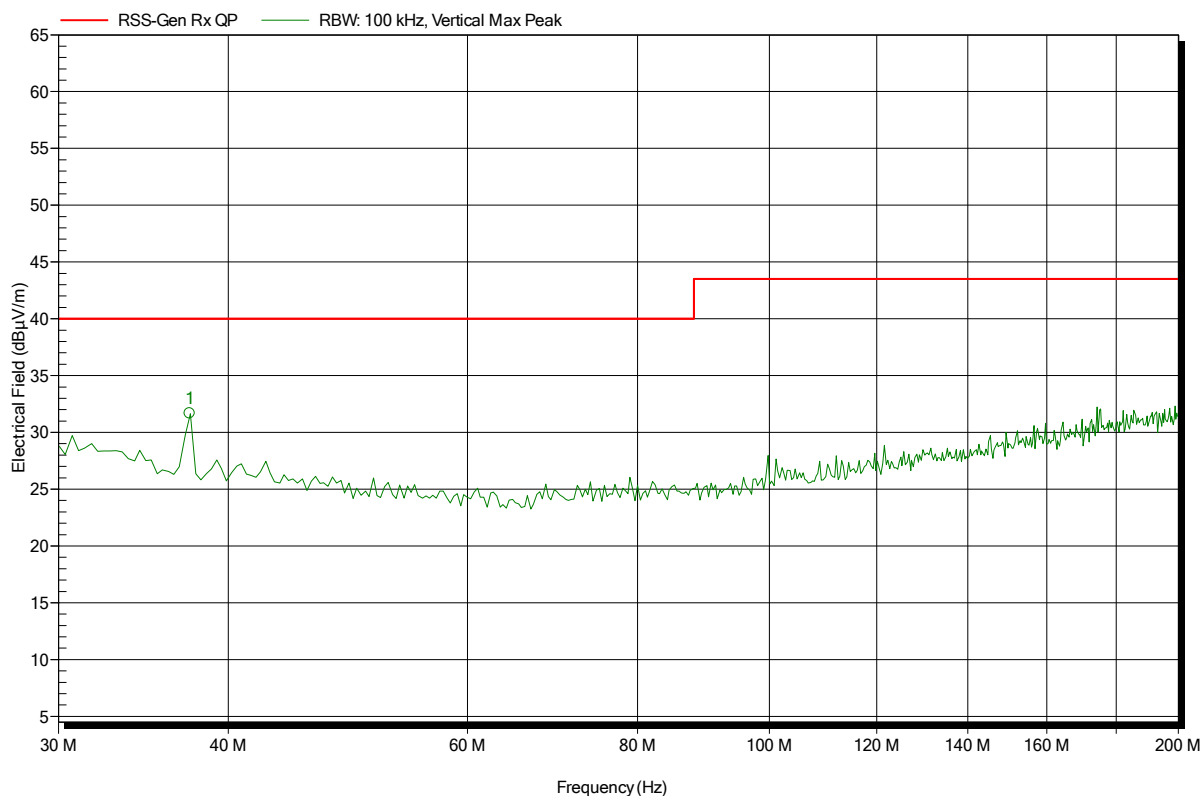


Spurious emissions according to RSS-Gen

Project number: GOM-1406-3876

Applicant: Biotronik SE & Co.KG
 EUT Name: Implantable Cardiac Monitor
 Model: BioMonitor 2-AF Silicone Coated
 Test Site: Eurofins Product Service GmbH
 Operator: Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC battery
 Antenna: HK116, Vertical
 Measurement distance: 3 m
 Mode: RX; 403.65 MHz
 Test Date: Montag, 28. Juli 2014
 Note:

Index 27



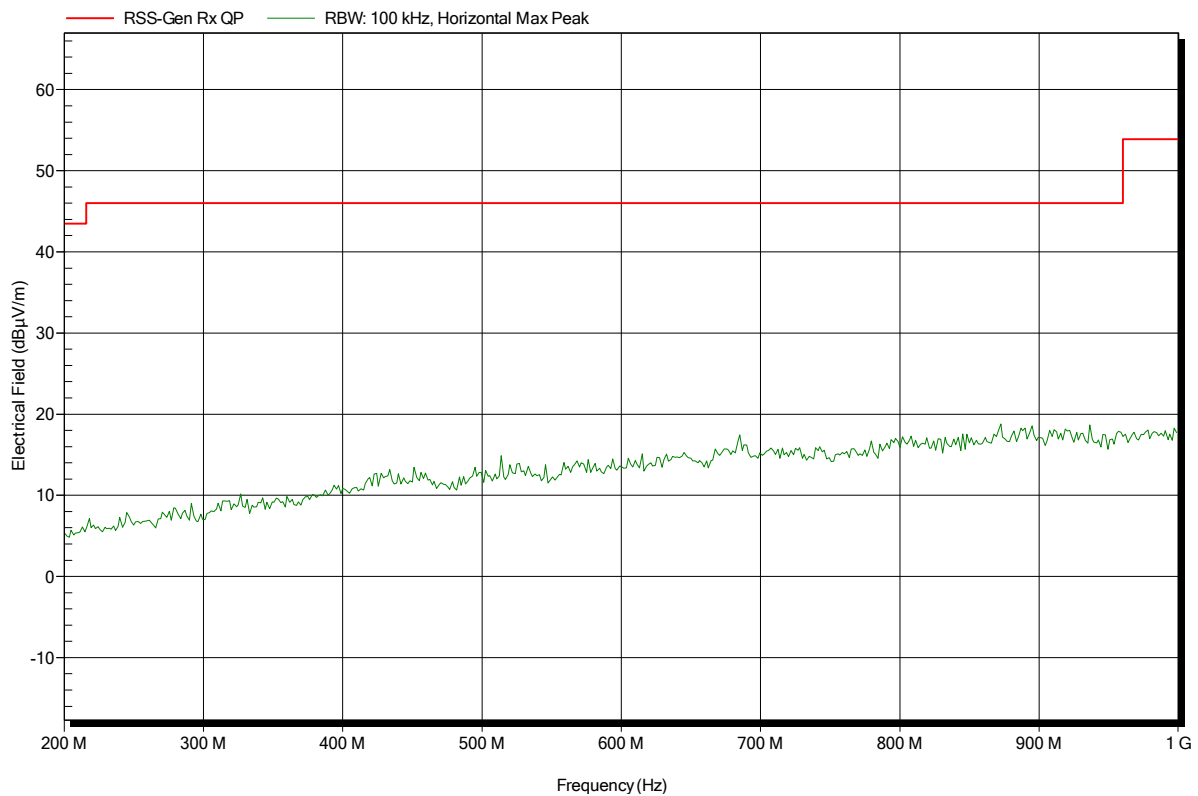
Frequency	Peak	Peak Limit	Peak Difference	Status
37,48 MHz	31,66 dBµV/m	40 dBµV/m	-8,34 dB	Pass

Spurious emissions according to RSS-Gen

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Horizontal
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	Montag, 28. Juli 2014
Note:	

Index 28

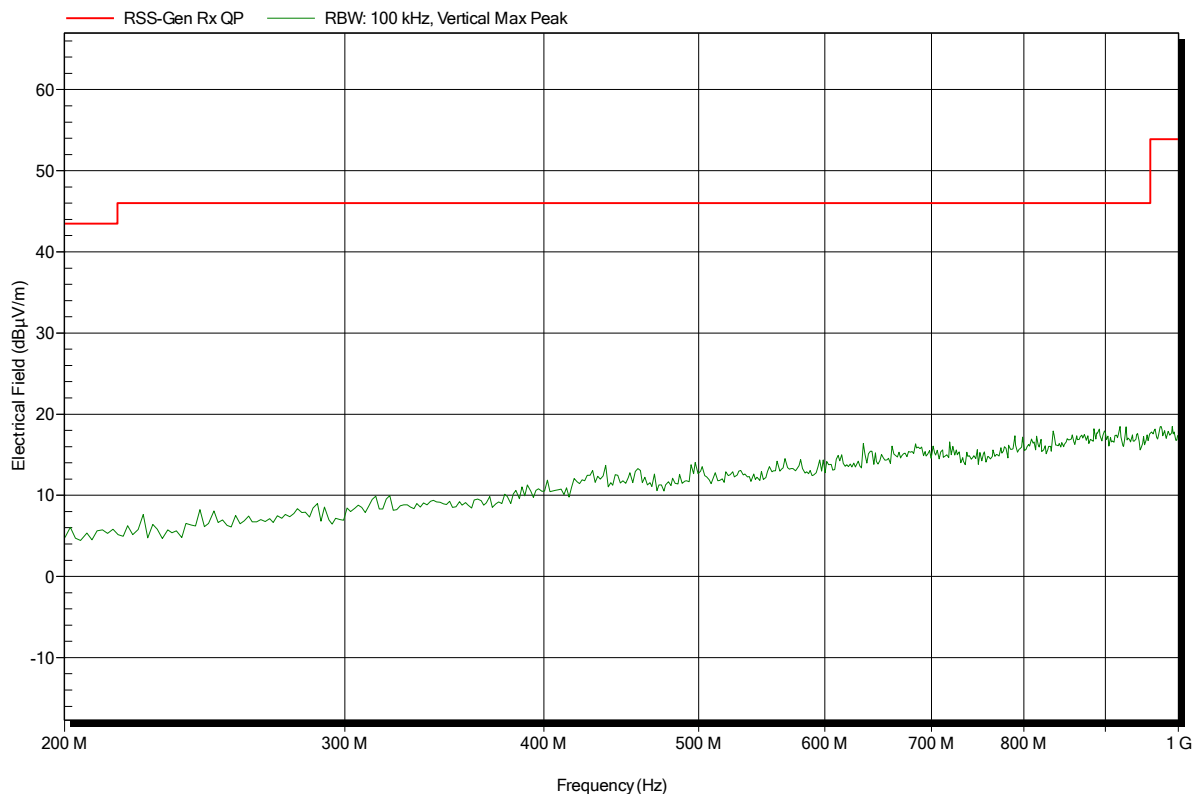


Spurious emissions according to RSS-Gen

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL223, Vertical
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	Montag, 28. Juli 2014
Note:	

Index 29

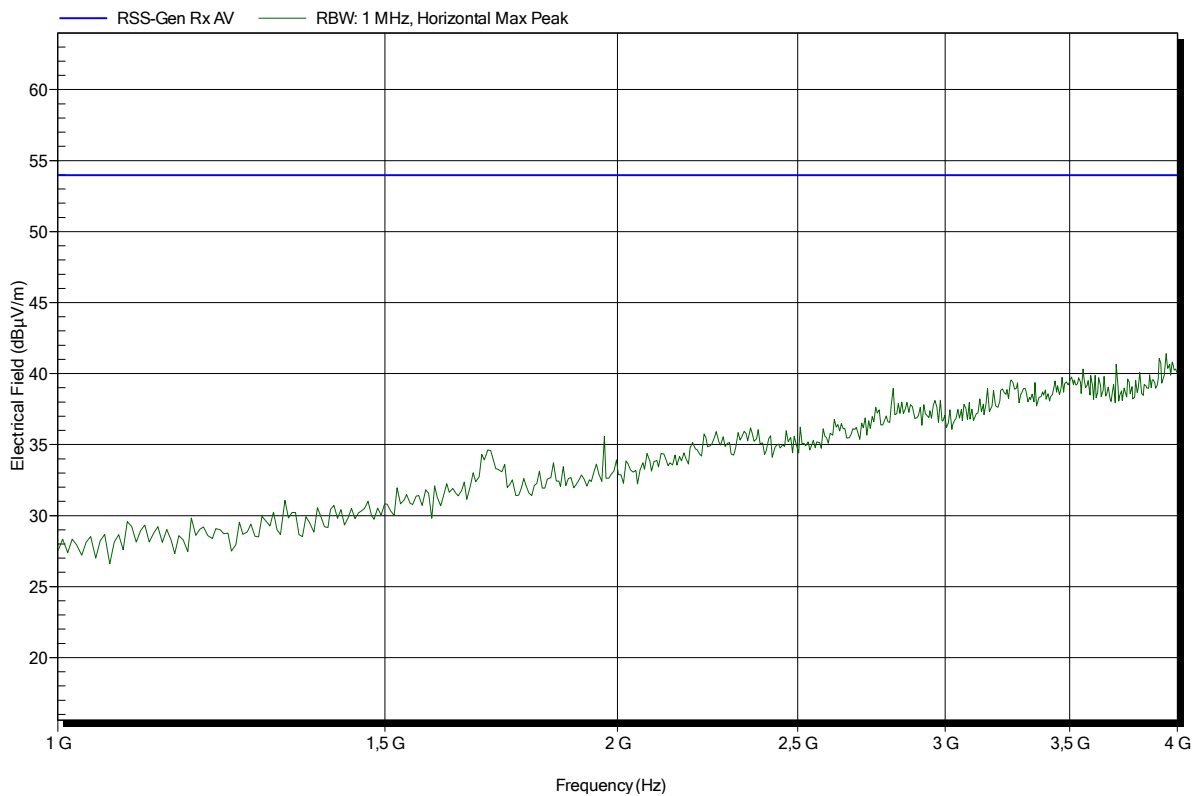


Spurious emissions according to RSS-Gen

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL025, Horizontal
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	Montag, 28. Juli 2014
Note:	

Index 30



Spurious emissions according to RSS-Gen

Project number: G0M-1406-3876

Applicant:	Biotronik SE & Co.KG
EUT Name:	Implantable Cardiac Monitor
Model:	BioMonitor 2-AF Silicone Coated
Test Site:	Eurofins Product Service GmbH
Operator:	Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC battery
Antenna:	HL025, Vertical
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	Montag, 28. Juli 2014
Note:	

Index 31

