


FCC TEST REPORT	
FCC 47 CFR Part 15C Industry Canada RSS-210 Operation within the 13.110 – 14.010 MHz band	
Report Reference No.....	G0M-1501-4486-TFC225RIM-V01
Testing Laboratory .....	Eurofins Product Service GmbH
Address.....	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation .....	  <p>A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A</p>
Applicant's name .....	Olympus Winter & Ibe GmbH
Address.....	Kuehnstr. 61 22045 Hamburg Germany
<b>Test specification:</b>	
Standard .....	47 CFR Part 15C RSS-210, Issue 8, 2010-12 RSS-Gen, Issue 4, 2014-11 ANSI C63.4:2014
Test scope.....	complete Radio compliance test
<b>Equipment under test (EUT):</b>	
Product description	Electrosurgical Generator
Model No.	CELON ELITE ESG-200 (WA90001A, WA90002A)
Additional Model(s)	CELON Precision (WA90008A, WA90009A)
Brand Name(s)	OLYMPUS
Hardware version	W7106586-02 - Zero Series / (incl. Rework to W7112354-03)
Firmware / Software version	CELON ELITE (EMC Test) Software Version 3.06-X
	FCC-ID: 2AERUESG200      IC: 20280-ESG200
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 .....: 2015-02-20

Date (s) of performance of tests .....: 2015-02-24 – 2016-01-19

Compiled by .....: Wilfried Treffke

Tested by (+ signature).....: Christian Weber  
(Responsible for Test) 

Approved by (+ signature) .....: Toralf Jahn  
(Deputy Head of Lab) 

Date of issue .....: 2016-01-27

Total number of pages .....: 36

**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:**

The HF-generator uses RFID technology to enable instrument recognition. The generator implements a RFID reader/writer and the hand instrument contains a passive RFID tag with a memory to provide specific information to the generator.

**OLYMPUS**

Your Vision, Our Future

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To whom it may concern

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Ihre Nachricht vom:

Unser Zeichen:

Unsere Nachricht vom:

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Datum: 2015-09-09

**Differences between CELON Elite ESG-200 and CELON Precision**

The ESG-200 exists in four variants. There are two different types of CELON Elite ESG-200 (WA90001A, WA90002A) and two different types of CELON Precision (WA90008A, WA90009A).

The hardware is identical except for the following differences:  
E-type (WA90001A; WA90008A) and B-type (WA90002A; WA90009A) feature different monopolar front sockets (E = "Erbe" socket; B = "Bovie" socket). Each of the four variants has its proper type plate, front panel and labelling.

The software is 100% identical. During final assembly the software is programmed and a software flag is set in order to define the product type – CELON Elite ESG-200 or CELON Precision. This flag enables and disables certain output modes. Only for CELON Elite ESG-200 the monopolar cut mode PulseCut is available. In addition the dedicated RFITT modes are only available with certain RFITT probes and enabled via instrument recognition. For CELON Elite ESG-200 these are Fine RFITT, Pure RFITT, Strong RFITT, and Strong RFITT + RCAP. For CELON Precision these are Pulse RFITT, RFITT, and Strong RFITT.

Best regards,



Erik Paul  
Manager Regulatory Affairs  
Regulatory Affairs

W7070134\_1-0

**OLYMPUS SURGICAL TECHNOLOGIES EUROPE**

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Geschäftsführer: Dr. André Poggan (Vorsitzender), Stefan Kaufmann, Tetsuaki Mori, Akihiro Taguchi, Kan Yoshimasa, Reinhard Zentner  
Sitz der Gesellschaft: Hamburg, Handelsregister: Amtsgericht Hamburg HRB 16 326

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## Version History

Version	Issue Date	Remarks	Revised by
01	2016-01-27	Initial Release	

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## REPORT INDEX

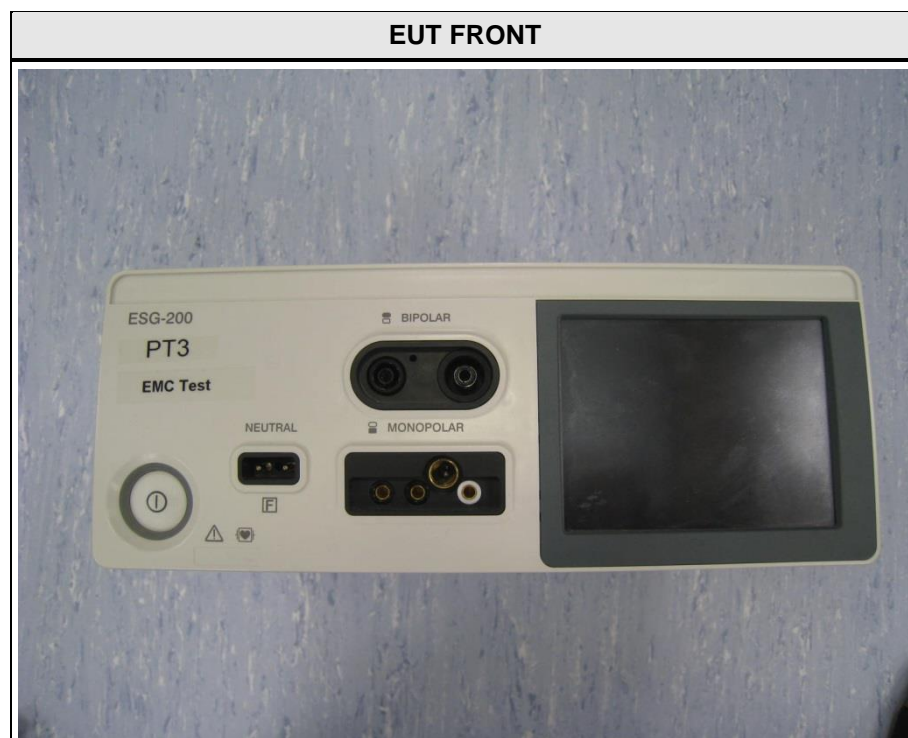
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## 1 Equipment (Test item) Description:

Description	Electrosurgical Generator	
Model	CELON ELITE ESG-200 (WA90001A, WA90002A)	
Additional Model(s)	CELON Precision (WA90008A, WA90009A)	
Brand Name(s)	OLYMPUS	
Serial number	W000004	
Hardware version	W7106586-02 - Zero Series / (incl. Rework to W7112354-03)	
Software / Firmware version	CELON ELITE (EMC Test) Software Version 3.06-X	
FCC-ID	2AERUESG200	
IC	20280-ESG200	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	13.56 MHz RFID	
Operating frequency range	13.56 MHz	
Assigned frequency band	13.110 - 14.010 MHz	
Frequency range	$F_{\text{MID}}$	13.56 MHz
Spreading	None	
Modulations	OOK	
Number of channels	1	
Channel spacing	None	
Number of antennas	1	
Antenna	Type	integrated
	Model	SDTR1103-HF2-0002K
	Manufacturer	PREMO S.L.
Manufacturer	Olympus Winter & Ibe GmbH Kuehnstr. 61 22045 Hamburg Germany	
Power supply	$V_{\text{NOM}}$	120.0 VAC
	$V_{\text{MIN}}$	100 VAC
	$V_{\text{MAX}}$	140 VAC
Temperatures	$T_{\text{NOM}}$	25°C
	$T_{\text{MIN}}$	10°C
	$T_{\text{MAX}}$	40°C
AC/DC-Adaptor	Model	N/A
	Vendor	N/A
	Input	N/A
	Output	N/A



## 1.1 Photos – Equipment External



EUT BACK



EUT OPEN



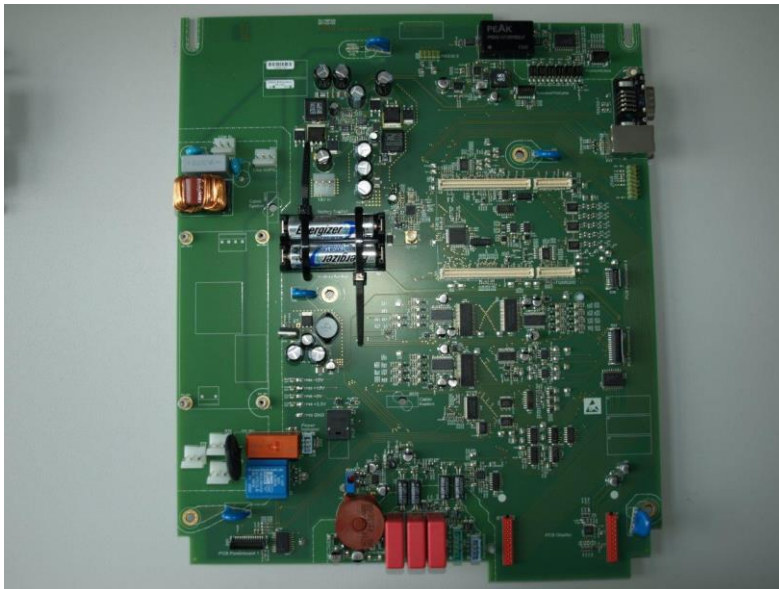


## 1.2 Photos – Equipment internal

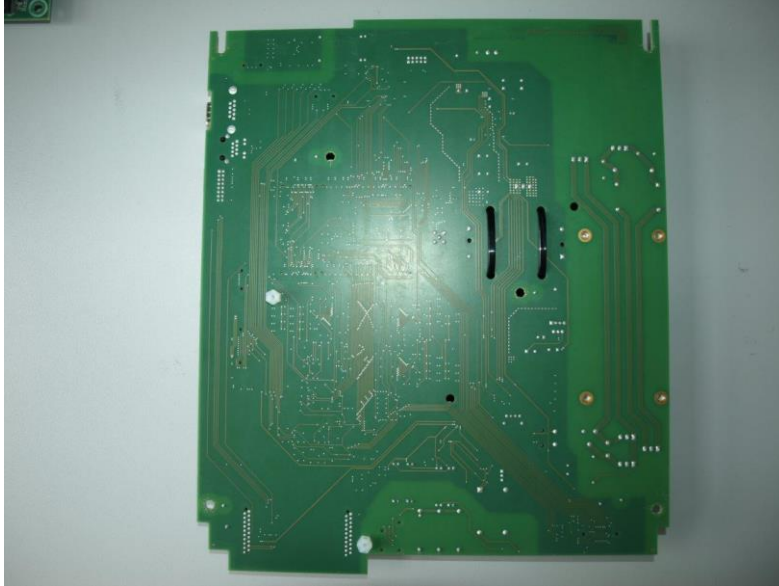
**MOTHER BOARD TOP**



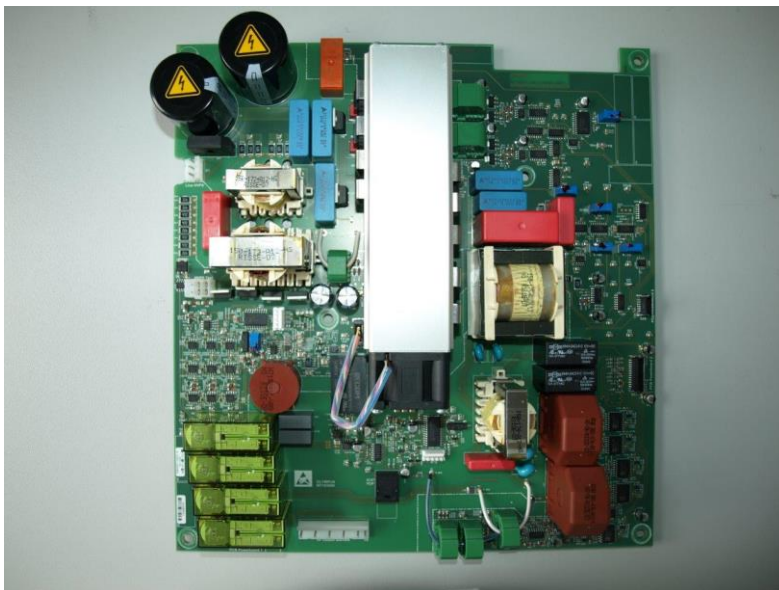
**MOTHER BOARD TOP WITHOUT EMBEDDED PC**



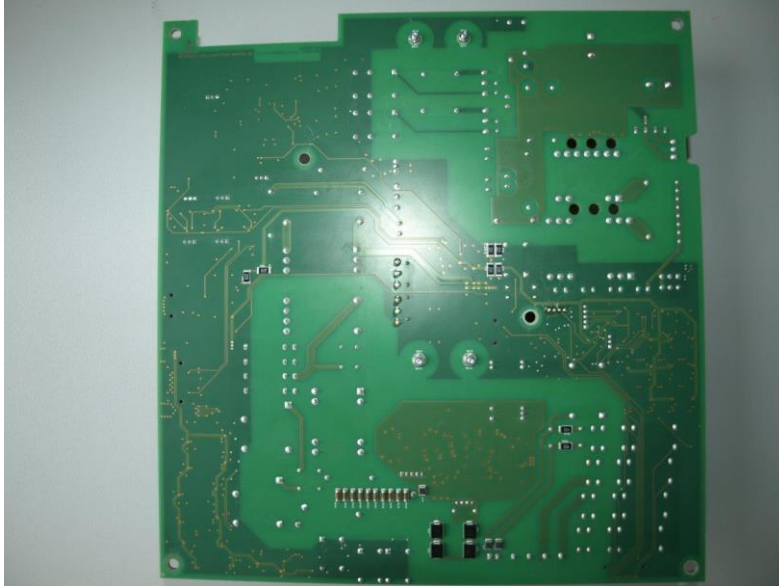
**MOTHER BOARD BOTTOM**



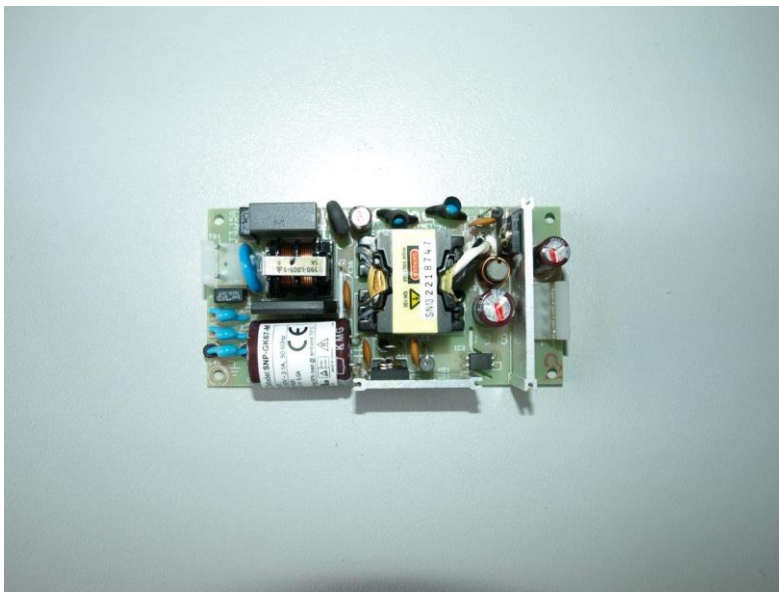
**POWER BOARD TOP**



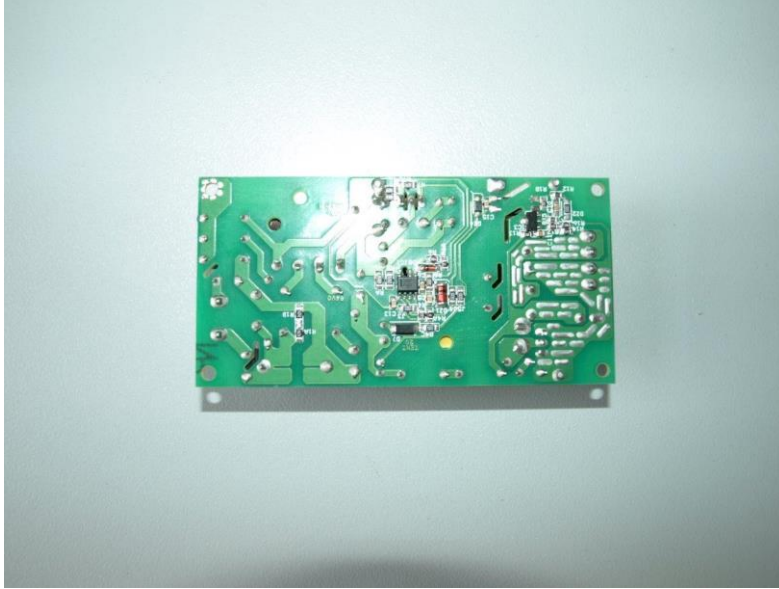
**POWER BOARD BOTTOM**



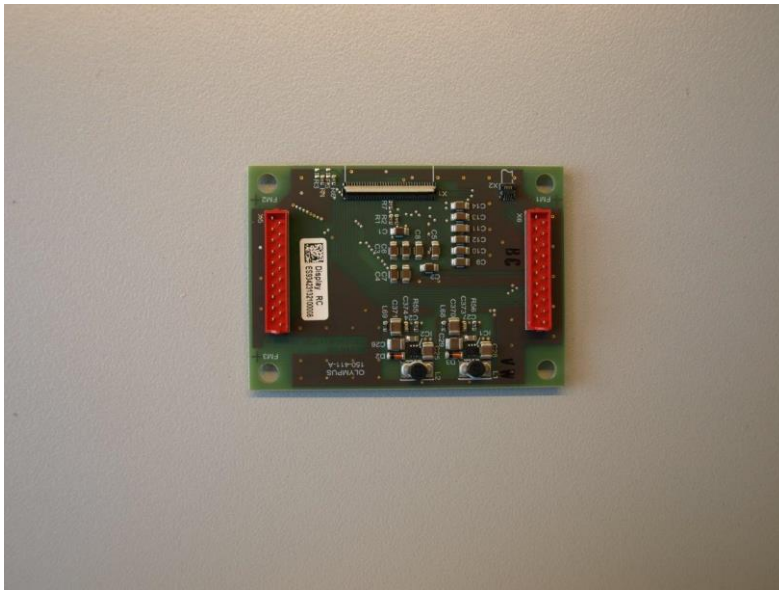
**LVPS PCB TOP**



**LVPS PCB BOTTOM**



**PCBA DISPLAY TOP**





PCBA DISPLAY BOTTOM



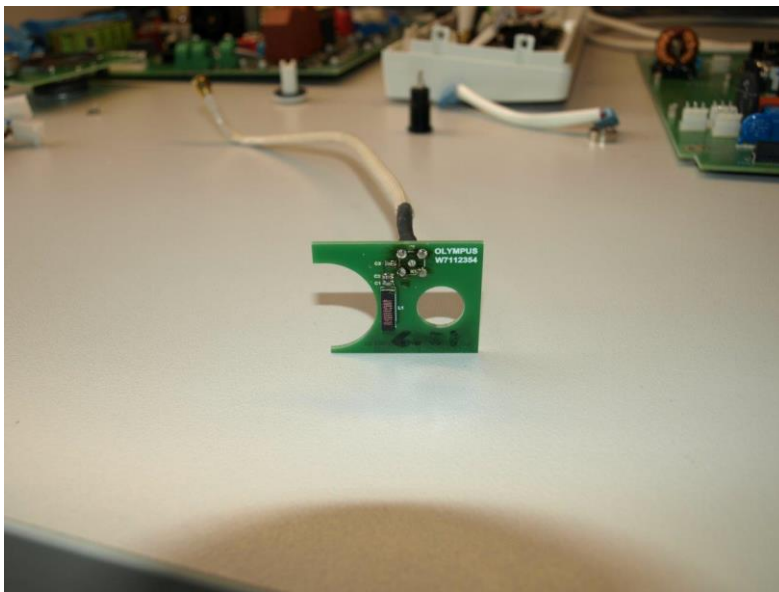
PCBA INTERFACE TOP



### PCBA INTERFACE BOTTOM

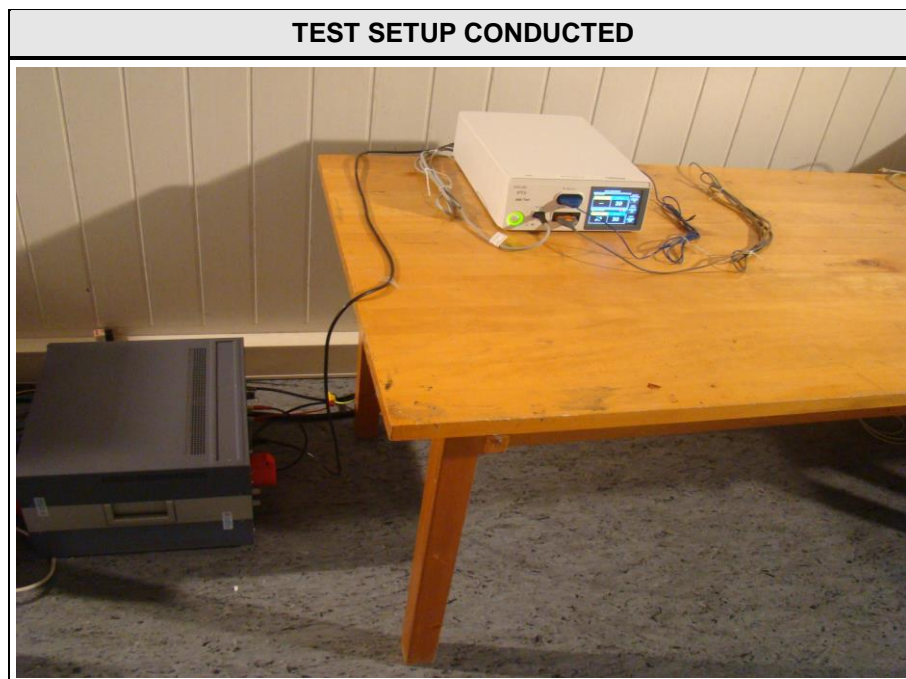
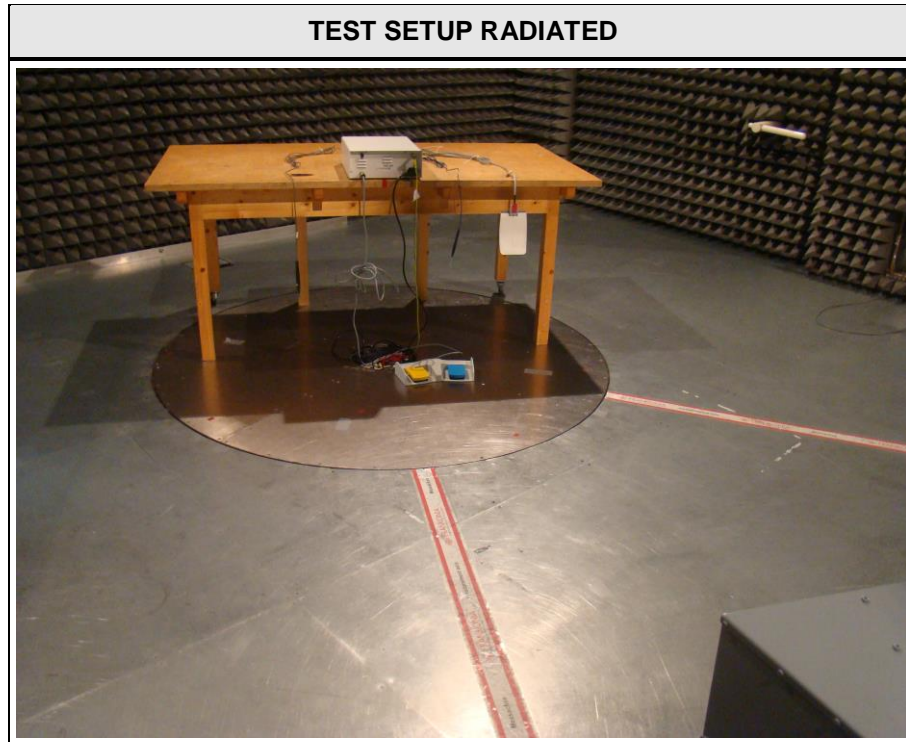


### RFID ANTENNA





### 1.3 Photos – Test setup



#### 1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
None				
<p><b>*Note:</b> Use the following abbreviations:</p> <p>AE : Auxiliary/Associated Equipment, or</p> <p>SIM : Simulator (Not Subjected to Test)</p> <p>CABL : Connecting cables</p>				

## 1.5 Test Modes

Mode #	Description	
Single	General conditions:	EUT powered by adjustable AC power supply
	Radio conditions:	Mode = standalone transmit Modulation = OOK Power level = Maximum

## 1.6 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	2015-04	2016-04

Field strength emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00242	2015-04	2016-04
Loop Antenna	R&S	HFH2-Z2	EF00184	2014-11	2016-11
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	2015-10	2018-10

Conducted emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH2-Z5	EF00182	2014-11	2016-11
AMN	R&S	ESH3-Z5	EF00036	2014-12	2016-12
EMI Test Receiver	R&S	ESCS 30	EF00295	2015-10	2016-10

## 1.7 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 $\mu$ 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 $\mu$ V/m). The FCC limits are given in units of  $\mu$ V/m. The following formula is used to convert the units of  $\mu$ V/m to dB $\mu$ V/m:

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

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:

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

## 2 Result Summary

FCC 47 CFR Part 15C, IC RSS-210				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
RSS-Gen 6.6	Occupied Bandwidth	RSS-Gen 6.6	N/R	Informational only
FCC 15.225(a-c) IC RSS-210 A2.6(a-c)	Fundamental in-band field strength emissions	ANSI C63.4	PASS	
FCC 15.225(d) FCC 15.209 IC RSS-210 A2.6(d)	Emission radiated outside the specified frequency band	ANSI C63.4	PASS	
FCC 15.225(e) IC RSS-210 A2.6	Frequency stability	ANSI C63.4	PASS	
IC RSS-Gen 4.10 IC RSS-Gen 7.1	Receiver radiated spurious emissions	ANSI C 63.4	N/A	Permanently co-located transmitter
47 CFR 15.207 RSS-Gen 8.8	AC power line conducted emissions	ANSI C63.4	PASS	
Remarks:				



### 3 Test Conditions and Results

#### 3.1 Test Conditions and Results – Occupied Bandwidth

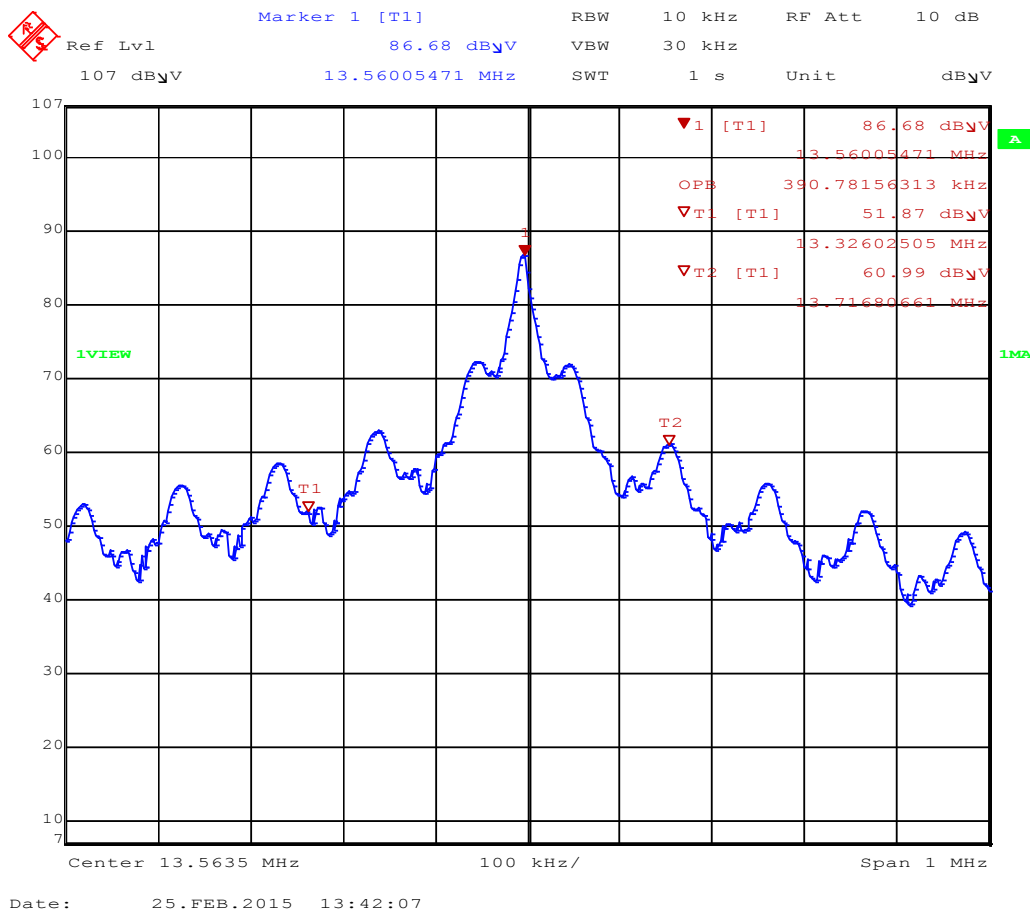
Occupied Bandwidth acc. to IC RSS-Gen			Verdict: PASS
Test according to measurement reference		Reference Method	
		RSS-Gen 6.6	
Test frequency range		Tested frequencies	
		F <sub>MID</sub>	
EUT test mode		Single	
Limits			
None (Informational only)			
Test setup			
<div><div>Spectrum Analyzer</div><div>EUT</div></div>			
Test procedure			
<div>1. EUT set to test mode (Communication tester is used if needed)</div> <div>2. Span set to at least twice the emission spectrum</div> <div>3. Resolution bandwidth set to 1 % of span</div> <div>4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function</div>			
Test results			
Channel	Frequency [MHz]	Occupied Bandwidth [kHz]	
F <sub>MID</sub>	13.56	390.8 kHz	
Comments: Measurement is applicable to all variants			

### Occupied Bandwidth

#### Occupied Bandwidth acc. to RSS-Gen

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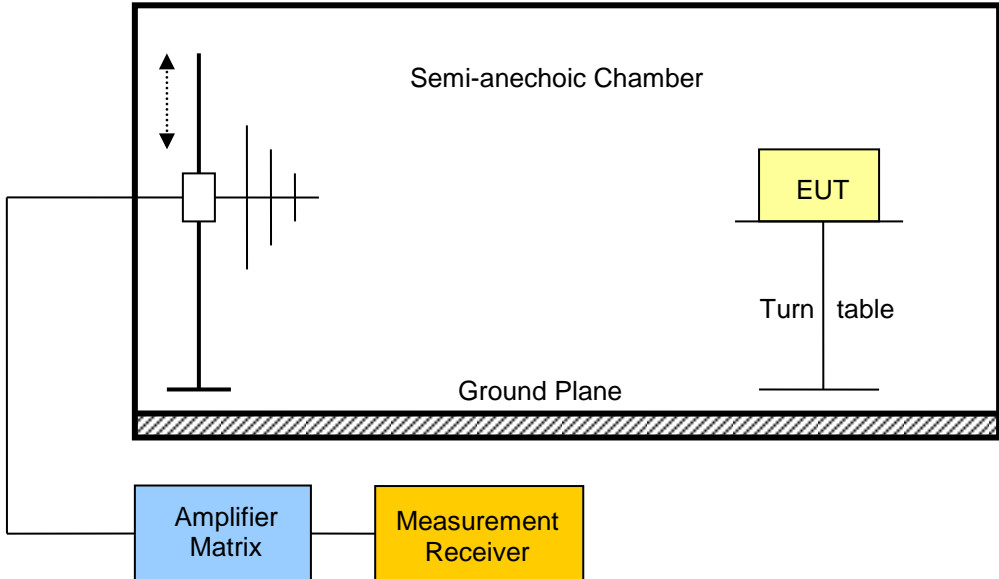
Applicant: Olympus Winter & Ibe GmbH  
EUT Name: High frequency surgical equipment  
Model: ESG-200  
Test Site: Eurofins Product Service GmbH  
Operator: Wilfried Treffke  
Test Conditions: Tnom / Vnom  
Mode: Tx, 13.56 MHz, modulated  
Test Date: 2015-02-25  
Verdict: NONE (INFORMATION ONLY)  
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used  
Note 2: conducted measurement



Test Report No.: G0M-1501-4486-TFC225RIM-V01

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

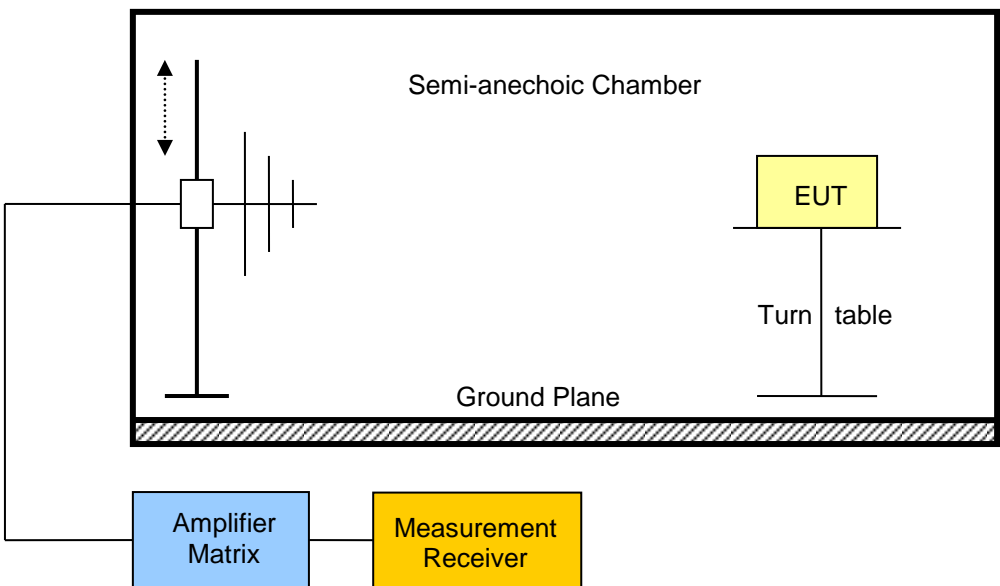
### 3.2 Test Conditions and Results – Fundamental in-band field strength emissions

Field strength emissions acc. to FCC 47 CFR 15.225 / IC RSS-210			Verdict: PASS
Test according referenced standards	Reference Method		
	FCC 15.225(a-c) / IC RSS-210 A2.6(a-c)		
Test according to measurement reference	Reference Method		
	ANSI C63.4		
Test frequency range	Tested frequencies		
	F <sub>MID</sub>		
EUT test mode	Single		
Limits			
Frequency range [MHz]	Limit [μV/m]	Limit [dBμV/m]	Limit Distance [m]
13.553 – 13.567	15848	84	30
13.410 – 13.553 13.567 – 13.710	334	50.5	30
13.110 – 13.410 13.710 – 14.010	106	40.5	30
Test setup			
			
Test procedure			
<div>1. EUT set to test mode</div> <div>2. Span it set according to measurement range</div> <div>3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector</div> <div>4. Below 30MHz and extrapolation factor of 40dB/decade is used and at 30MHz and above an extrapolation factor of 20dB/decade is used (47 CRF 15.31(f)).</div>			

Test results								
Channel	Frequency [MHz]	Emission [MHz]	Level @ 30m [dBμV/m]	Det.	Pol.	Limit @ 30m [dBμV/m]	Measurement distance [m]*	Margin [dB]
F <sub>MID</sub>	13.56	13.559	14.7	pk	N/A	84	3	-69.30
Comments: * Physical distance between EUT and measurement antenna. See Annex								

### 3.3 Test Conditions and Results – Emissions radiated outside the specified frequency band

Radiated out-of-band band emissions acc. to FCC 47 CFR 15.225 / IC RSS-210				Verdict: PASS
Test according referenced standards		Reference Method		
		FCC 15.225(d) / IC RSS-210 A2.6(d)		
Test according to measurement reference		Reference Method		
		ANSI C63.4		
Test frequency range		Tested frequencies		
		9 kHz – 216 MHz		
EUT test mode		Single		
Limits				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
0.009 – 0.490	Quasi-Peak	2400/F[kHz]	48.5 – 13.8	300
0.490 – 1.705	Quasi-Peak	2400/F[kHz]	13.8 – 2.97	30
1.705 – 30	Quasi-Peak	30	29.5	30
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.				

Test setup								
								
Test procedure								
<ol style="list-style-type: none"> <li>1. EUT set to test mode</li> <li>2. Span it set according to measurement range</li> <li>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</li> <li>4. Markers are set to maximum emission levels</li> </ol>								
Test results								
Channel	Frequency [MHz]	Emission [MHz]	Level [db $\mu$ V/m]	Detector	Pol.	Limit [db $\mu$ V/m]	Limit distance [m]*	Margin [dB]
F <sub>MID</sub>	13.56	131.86	39.74	pk	hor	43.50	3	-03.76
F <sub>MID</sub>	13.56	131.86	33.40	pk	ver	43.50	3	-10.10
Comments: * Physical distance between EUT and measurement antenna.								



### 3.4 Test Conditions and Results – Frequency stability

Frequency stability acc. to FCC 15.225 / IC RSS-210		Verdict: PASS
Test according referenced standards	Reference Method	
	FCC 15.225(e) / IC RSS-210 A2.6	
Test according to measurement reference	Reference Method	
	ANSI C63.4	
Test frequency range	Tested frequencies	
	F <sub>MID</sub>	
EUT test mode	Single	
Limits		
Frequency error limit		
±0.01% (±100ppm)		
Test setup		
<div><div><div><div><div><div></div><div>Power</div></div></div><div><div><div><div>Spectrum Analyzer</div><div>Rubidium Reference</div></div><div><div>EUT (Test fixture)</div></div></div><div>Climatic Chamber</div></div></div></div></div>		
Test procedure		
<div><div>1. EUT set to test mode</div><div>2. The ambient temperature and supply voltage is set according to measurement conditions</div><div>3. Span is set to capture fundamental emission</div><div>4. Frequency error is measured with frequency counter measurement function</div></div>		

Test results					
Channel	Frequency [MHz]	Temp.	Voltage	Measured Frequency [MHz]	Error [ppm]
F <sub>MID</sub>	13.56	T <sub>nom</sub> = 25°C	V <sub>nom</sub> = 120.0 VAC	13.559689	-22.94
F <sub>MID</sub>	13.56	T <sub>nom</sub> = 25°C	V <sub>min</sub> = 100 VAC	13.559660	-25.07
F <sub>MID</sub>	13.56	T <sub>nom</sub> = 25°C	V <sub>max</sub> = 140 VAC	13.559666	-24.63
F <sub>MID</sub>	13.56	T <sub>min</sub> = 10°C	V <sub>nom</sub> = 100 VAC	13.559906	-06.93
F <sub>MID</sub>	13.56	T <sub>min</sub> = 20°C	V <sub>nom</sub> = 100 VAC	13.559867	-09.81
F <sub>MID</sub>	13.56	T <sub>min</sub> = 30°C	V <sub>nom</sub> = 100 VAC	13.559784	-15.93
F <sub>MID</sub>	13.56	T <sub>max</sub> = 40°C	V <sub>nom</sub> = 140 VAC	13.559624	-27.73
Comments:					

### 3.5 Test Conditions and Results – AC power line conducted emissions

Power line conducted emissions acc. to FCC 47 CFR 15.207 / IC RSS-Gen				Verdict: PASS	
Test according referenced standards		Reference Method			
		ANSI C63.4			
Fully configured sample scanned over the following frequency range		Frequency range			
		0.15 MHz to 30 MHz			
Points of Application		Application Interface			
AC Mains		LISN			
EUT test mode		AC-Powerline			
Limits and results					
Frequency [MHz]	Quasi-Peak [dBμV]	Result	Average [dBμV]	Result	
0.15 to 5	66 to 56*	PASS	56 to 46*	PASS	
0.5 to 5	56	PASS	46	PASS	
5 to 30	60	PASS	50	PASS	
Comments:					
* Limit decreases linearly with the logarithm of the frequency.					

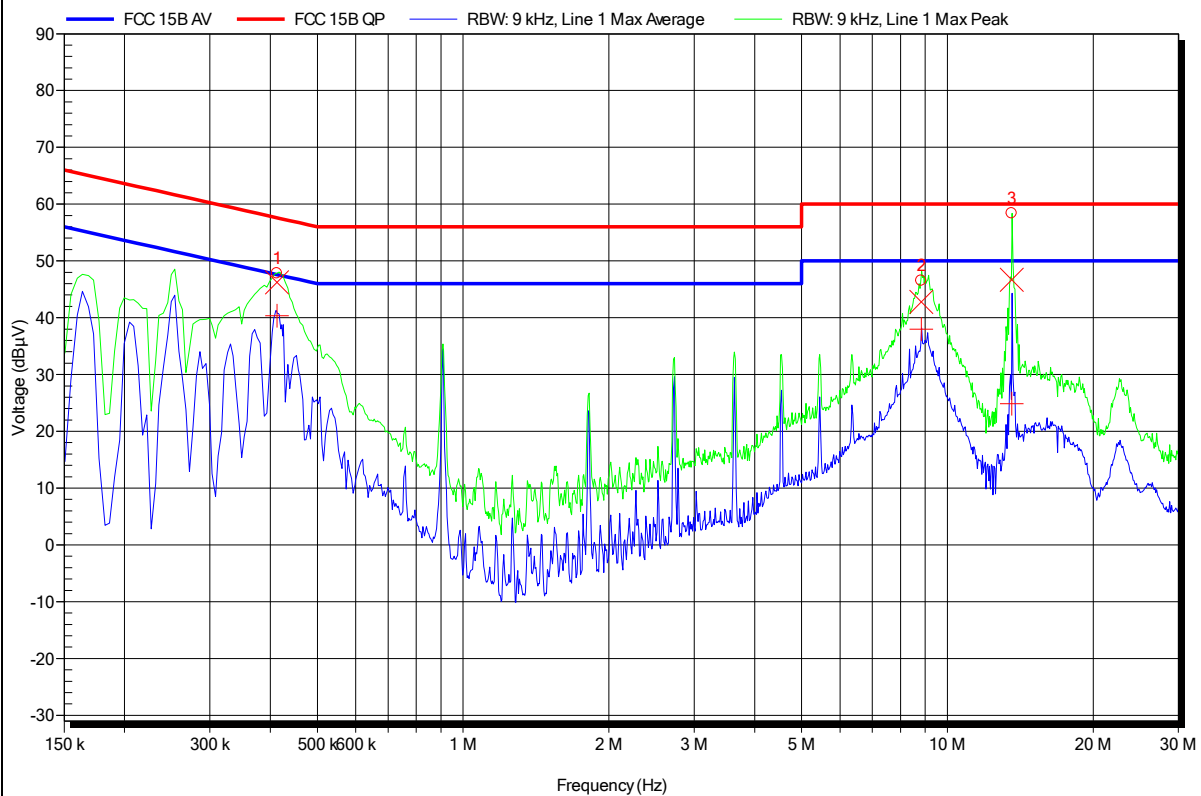
## Conducted Emissions 1

### EMI voltage test in the ac-mains according to FCC Part 15b

Project number: G0M-1501-4486

Manufacturer: Olympus Winter & Ibe GmbH  
 EUT Name: High frequency surgical generator  
 Model: ESG-200 incl. RFID  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Yu  
 Test Conditions: Tnom: 23°C, Unom: 120VAC  
 LISN: ESH2-Z5 L  
 Mode: RFID permanent+standby  
 Test Date: 2015-03-12  
 Note:

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Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
412.8 kHz	46.25 dBµV	57.59 dBµV	-11.34 dB	Pass
8.829 MHz	42.78 dBµV	60 dBµV	-17.22 dB	Pass
Marker 3 - 13.56 MHz				
TX of RFID				

Frequency	Average	Average Limit	Average Difference	Average Status
412.8 kHz	40.35 dBµV	47.59 dBµV	-7.24 dB	Pass
8.829 MHz	37.96 dBµV	50 dBµV	-12.04 dB	Pass

Test Report No.: G0M-1501-4486-TFC225RIM-V01

Eurofins Product Service GmbH  
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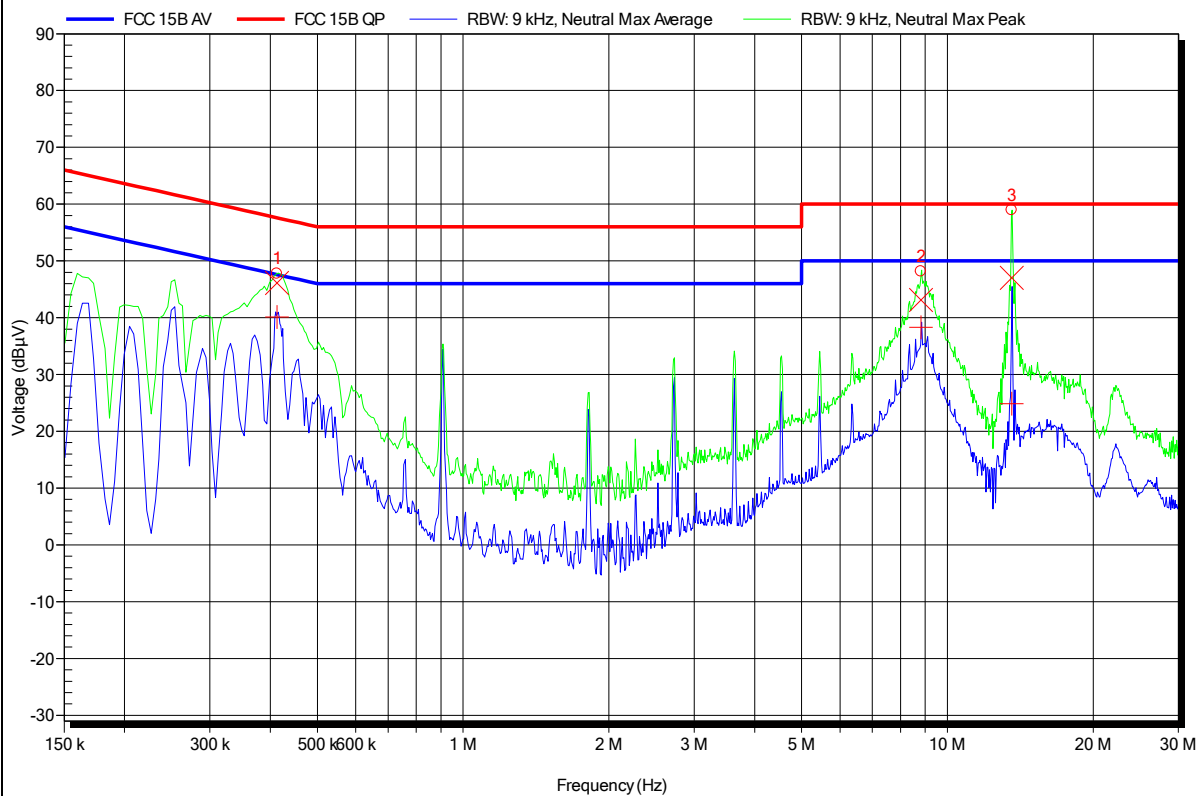
## Conducted Emissions 2

### EMI voltage test in the ac-mains according to FCC Part 15b

Project number: G0M-1501-4486

Manufacturer: Olympus Winter & Ibe GmbH  
 EUT Name: High frequency surgical generator  
 Model: ESG-200 incl. RFID  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Yu  
 Test Conditions: Tnom: 23°C, Unom: 120VAC  
 LISN: ESH2-Z5 N  
 Mode: RFID permanent+standby  
 Test Date: 2015-03-12  
 Note:

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Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
412.8 kHz	46.11 dBµV	57.59 dBµV	-11.48 dB	Pass
8.824 MHz	43.13 dBµV	60 dBµV	-16.87 dB	Pass
Marker 3 - 13.56 MHz				
TX of RFID				

Frequency	Average	Average Limit	Average Difference	Average Status
412.8 kHz	40.12 dBµV	47.59 dBµV	-7.47 dB	Pass
8.824 MHz	38.32 dBµV	50 dBµV	-11.68 dB	Pass

Test Report No.: G0M-1501-4486-TFC225RIM-V01

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

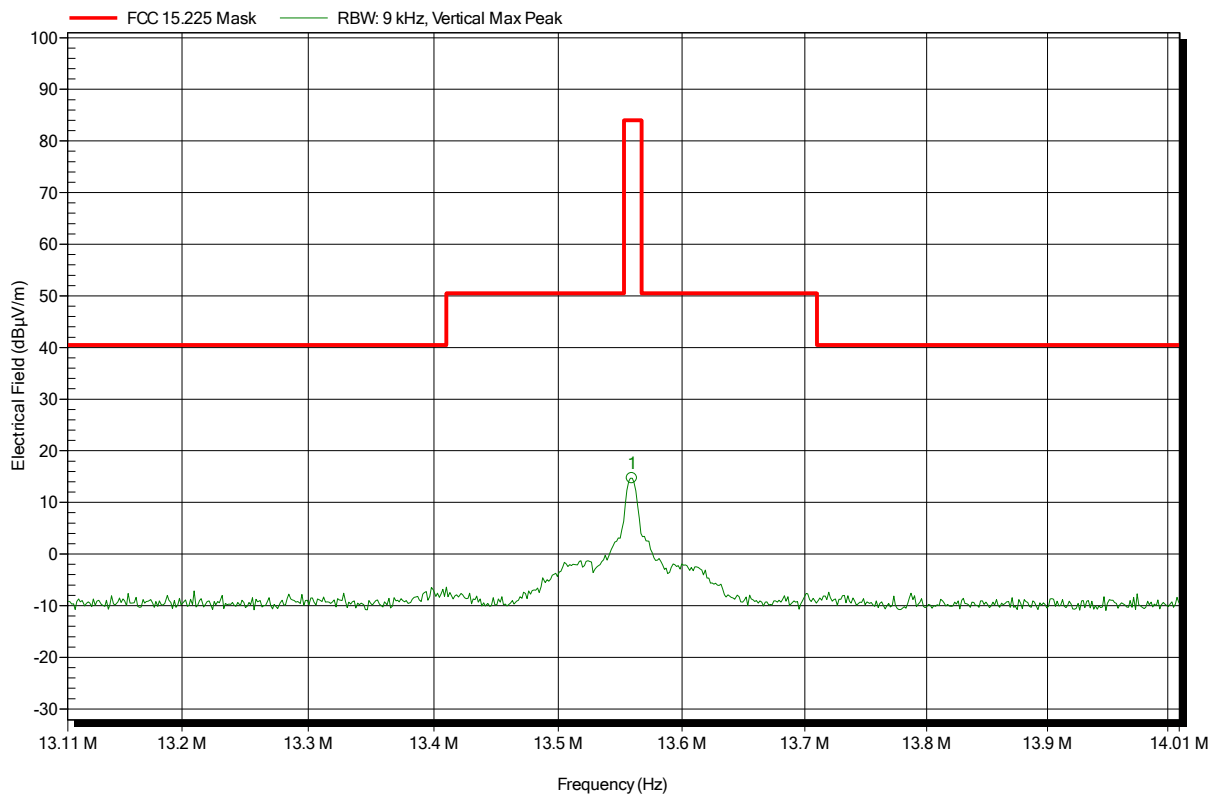
## ANNEX A Transmitter in-band emissions

### Spurious emissions according to FCC 15.225

Project number: G0M-1501-4486

Applicant: Olympus Winter & Ibe GmbH  
 EUT Name: High frequency surgical equipment  
 Model: ESG-200  
 Test Site: Eurofins Product Service GmbH  
 Operator: Weber  
 Test Conditions: Tnom: 25°C, Vnom: 120 VAC  
 Antenna: Rohde & Schwarz HFH 2-Z2  
 Measurement distance: 3 m converted to 30 m  
 Mode: TX; 13.56 MHz, modulated  
 Test Date: 2016-01-19  
 Note:

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Frequency  
13.559 MHz

Peak  
14.7 dBμV/m



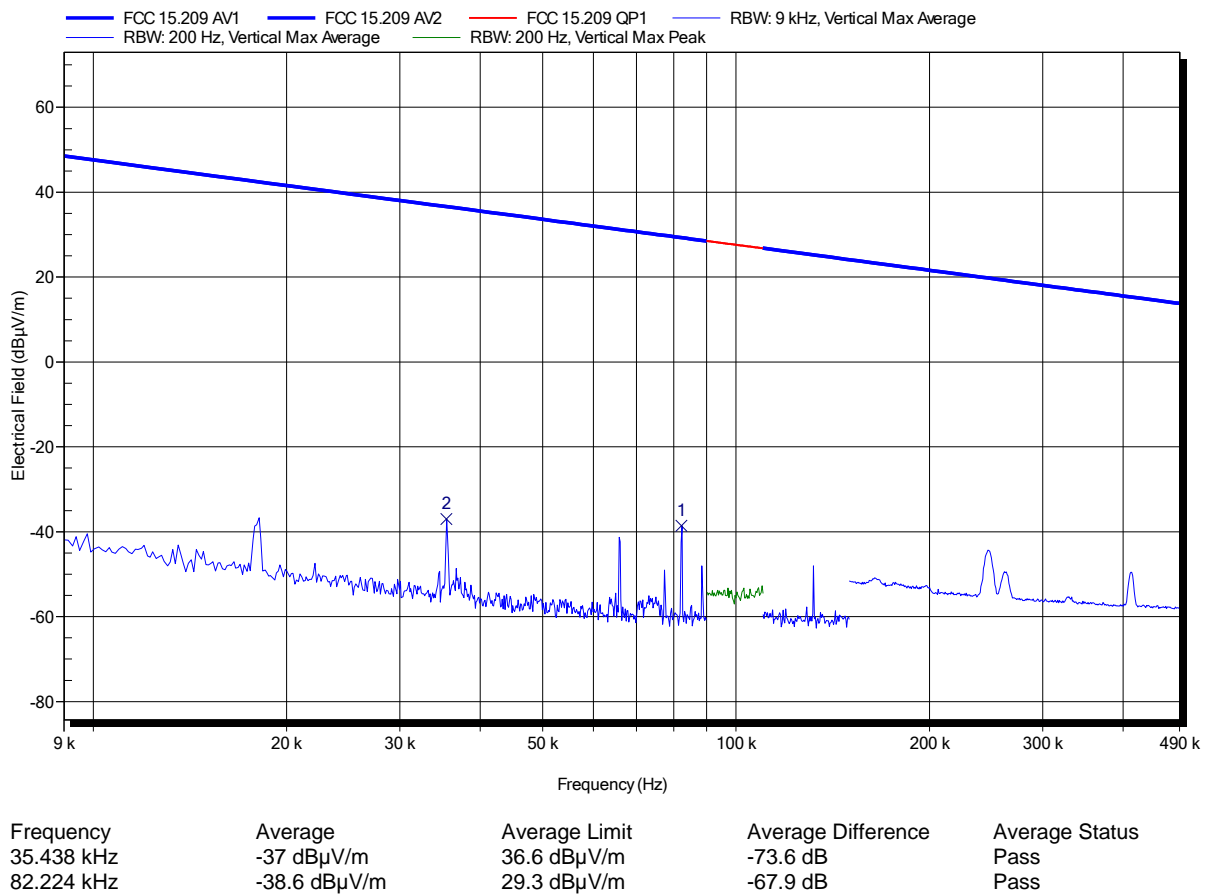
## ANNEX B Transmitter radiated spurious emissions

### Spurious emissions according to FCC 15.225

Project number: G0M-1501-4486

Applicant: Olympus Winter & Ibe GmbH  
 EUT Name: High frequency surgical equipment  
 Model: ESG-200  
 Test Site: Eurofins Product Service GmbH  
 Operator: Weber  
 Test Conditions: Tnom: 25°C, Vnom: 120 VAC  
 Antenna: Rohde & Schwarz HFH 2-Z2  
 Measurement distance: 3 m converted to 300 m  
 Mode: TX; 13.56 MHz, modulated  
 Test Date: 2016-01-19  
 Note:

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Test Report No.: G0M-1501-4486-TFC225RIM-V01

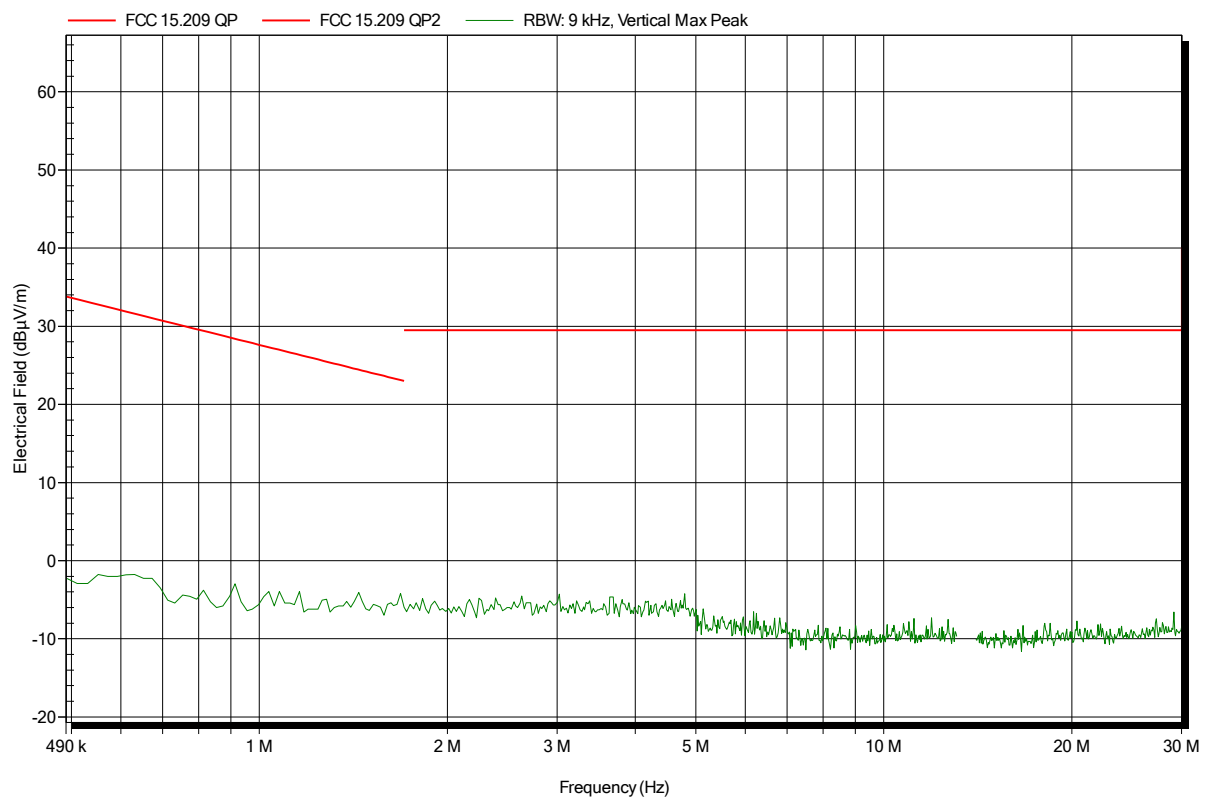
Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

## Spurious emissions according to FCC 15.225

Project number: G0M-1501-4486

Applicant: Olympus Winter & Ibe GmbH  
 EUT Name: High frequency surgical equipment  
 Model: ESG-200  
 Test Site: Eurofins Product Service GmbH  
 Operator: Weber  
 Test Conditions: Tnom: 25°C, Vnom: 120 VAC  
 Antenna: Rohde & Schwarz HFH 2-Z2  
 Measurement distance: 3 m converted to 30 m  
 Mode: TX; 13.56 MHz, modulated  
 Test Date: 2016-01-19  
 Note:

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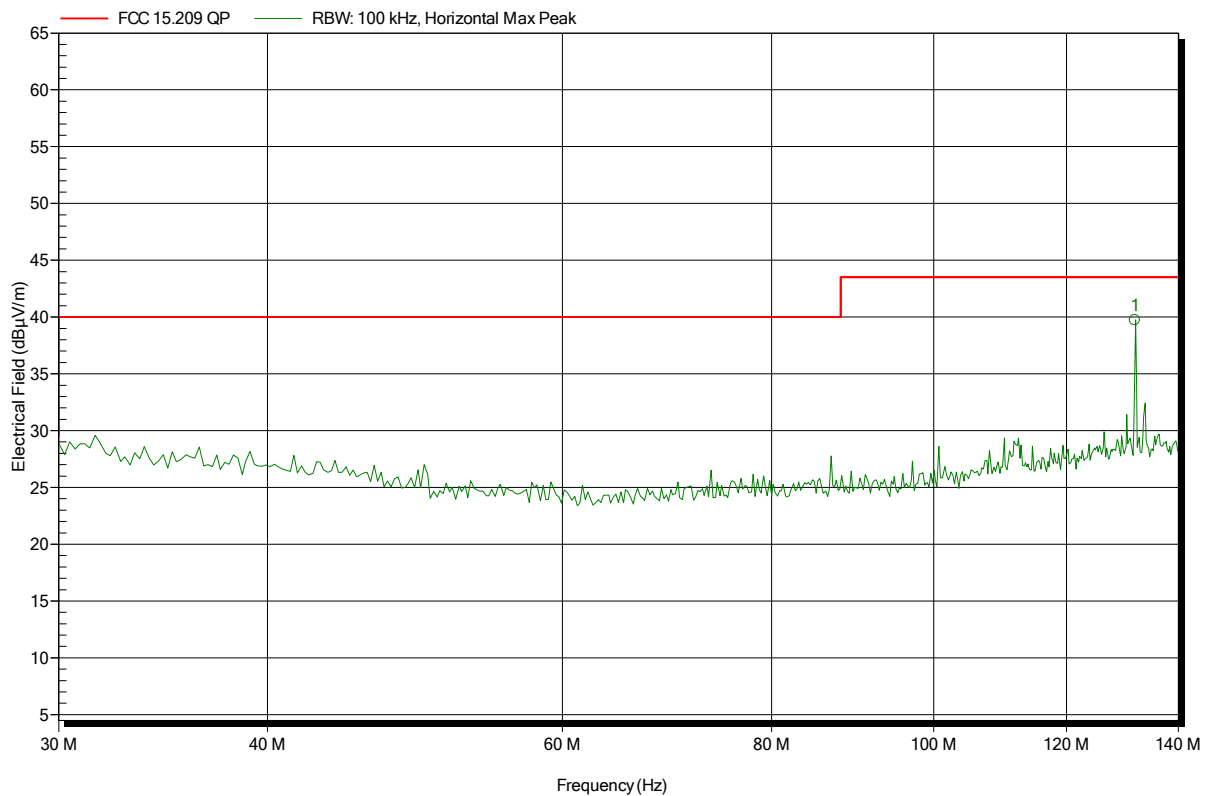


## Spurious emissions according to FCC 15.225

Project number: G0M-1501-4486

Applicant: Olympus Winter & Ibe GmbH  
 EUT Name: High frequency surgical equipment  
 Model: ESG-200  
 Test Site: Eurofins Product Service GmbH  
 Operator: Treffke  
 Test Conditions: Tnom: 25°C, Vnom: 120 VAC  
 Antenna: HK116, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 13.56 MHz, modulated  
 Test Date: 2015-02-25  
 Note:

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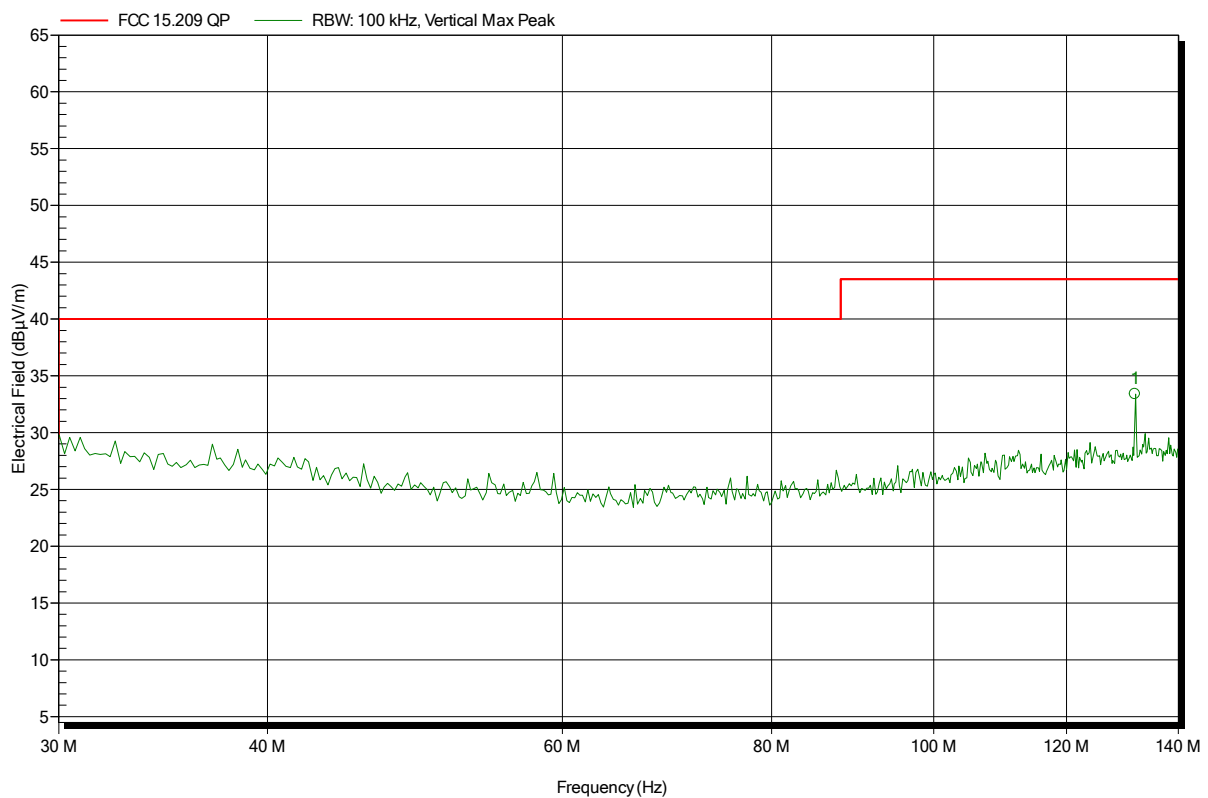
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
131.86 MHz	39.74 dBµV/m	43.5 dBµV/m	-3.76 dB	Pass

## Spurious emissions according to FCC 15.225

Project number: G0M-1501-4486

Applicant: Olympus Winter & Ibe GmbH  
 EUT Name: High frequency surgical equipment  
 Model: ESG-200  
 Test Site: Eurofins Product Service GmbH  
 Operator: Treffke  
 Test Conditions: Tnom: 25°C, Vnom: 120 VAC  
 Antenna: HK116, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 13.56 MHz, modulated  
 Test Date: 2015-02-25  
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
131.86 MHz	33.4 dBµV/m	43.5 dBµV/m	-10.1 dB	Pass