Test report

N°: 131328-664446HCr2015-08-04

Subject	**Radio spectrum Matters (ERM) tests according to standards: 47 CFR Part 95I & RSS-243 & RSS-Gen, Issue 4**
Issued to	SORIN Parc d'Affaires NOVEOS 4 avenue Réaumur 92143 Clamart cedex

Apparatus under test

Product	Platinium implantable cardioverter defibrillator
Trade mark	SORIN Group
Manufacturer	Sorin CRM S.r.l — Italy
Model	Son RCRT - D 1841
Serial number	126DD007
FCC ID	YSGCRTDSOR1841
IC ID	10270A-CRTDSOR1841
IC Site number OATS	6230B

Test date	2014/10/03 to 2014/10/07 & 2015/01/14 & 2015/01/15
Test location	Ecuelles Fontenay Aux Roses
Test performed by	Laurent DENEUX & Mathieu CERISIER
Composition of document	41 pages
Modification of the last version	2015/08/04
Document issued on	2015/02/10

Written by :
Laurent DENEUX & Mathieu CERISIER
Tests operator

Approved by :
Stéphane PHOUDIAH
Technical manager

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
S.A.S au capital de 15 745 984 €
RCS Nanterre B 408 363 174
33 avenue du Général Leclerc
F-92260 FONTENAY AUX ROSES

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1. TEST PROGRAM

- **References**

Standards: -47 CFR FCC Part 95I
-RSS-243
-RSS-Gen
-FCC 15.207
-FCC 15.109

- **Requirements:**

Clause (FCC Part 95I) Test Description	TEST RESULT - Comments
FCC § 95.627(e) & RSS-243 § 5.3 – Frequency error	☒**PASS** ☐**FAIL** ☐**NA** ☐**NP (Limited Program)**
FCC § 95.633(e) & RSS-243 § 5.1 – Emission bandwidth	☒**PASS** ☐**FAIL** ☐**NA** ☐**NP (Limited Program)**
RSS-Gen § 6.6 – Occupied bandwidth	☒**PASS** ☐**FAIL** ☐**NA** ☐**NP (Limited Program)**
FCC § 95.639(f) & RSS-243 § 5.4 – Transmitter output power	☒**PASS** ☐**FAIL** ☐**NA** ☐**NP (Limited Program)**
FCC § 15.207(d) & RSS-Gen § 8.8 – AC conducted emissions	☐**PASS** ☐**FAIL** ☒**NA** ☐**NP (Limited Program)**
FCC § 95.635(d) & RSS-243 § 5.5 – Transmitter unwanted emission	☒**PASS** ☐**FAIL** ☐**NA** ☐**NP (Limited Program)**
FCC 15.109 & RSS-243 § 5.6 – Receiver spurious emissions	☒**PASS** ☐**FAIL** ☐**NA** ☐**NP (Limited Program)**
FCC 95.627 (a)(3) & RSS-243 § 5.7.1 – LBT threshold power level	☐**PASS** ☐**FAIL** ☒**NA (MICS Communication session initiated by ULP-AMI-P only)** ☐**NP (Limited Program)**
FCC 95.627 (a)(1) & RSS-243 § 5.7.2 – Monitoring system bandwidth	☐**PASS** ☐**FAIL** ☒**NA (MICS Communication session initiated by ULP-AMI-P only)** ☐**NP (Limited Program)**
FCC 95.627 (a)(2) & RSS-243 § 5.7.3 –Monitoring system scan cycle time	☐**PASS** ☐**FAIL** ☒**NA (MICS Communication session initiated by ULP-AMI-P only)** ☐**NP (Limited Program))**
FCC 95.627 (a)(2) & RSS-243 § 5.7.4 –Minimum channel monitoring period	☐**PASS** ☐**FAIL** ☒**NA (MICS Communication session initiated by ULP-AMI-P only)** ☐**NP (Limited Program)**
FCC 95.627 (a)(4) & RSS-243 § 5.7.5 – Channel access	☐**PASS** ☐**FAIL** ☒**NA (MICS Communication session initiated by ULP-AMI-P only)** ☐**NP (Limited Program)**
FCC 95.627 (a)(4) & RSS-243 § 5.7.6 – Discontinuation of MICS session	☐**PASS** ☐**FAIL** ☒**NA (MICS Communication session initiated by ULP-AMI-P only)** ☐**NP (Limited Program)**
FCC 95.627 (a)(5) & RSS-243 § 5.7.7 – Use of pre-scanned alternative channel	☐**PASS** ☐**FAIL** ☒**NA (MICS Communication session initiated by ULP-AMI-P only)** ☐**NP (Limited Program)**
SAR Evaluation	☒**PASS** ☐**FAIL** ☐**NA**
This table is a summary of test report, see conclusion of each clause of this test report for detail.	

The product SORIN Group Son RCRT - D 1841**, SN: 126DD007 is Compliant according to FCC part 95I & RSS-243 & RSS-Gen standards.**

PASS: EUT complies with standard's requirement
FAIL: EUT does not comply with standard's requirement
NA: Not Applicable
NP: Not Performed

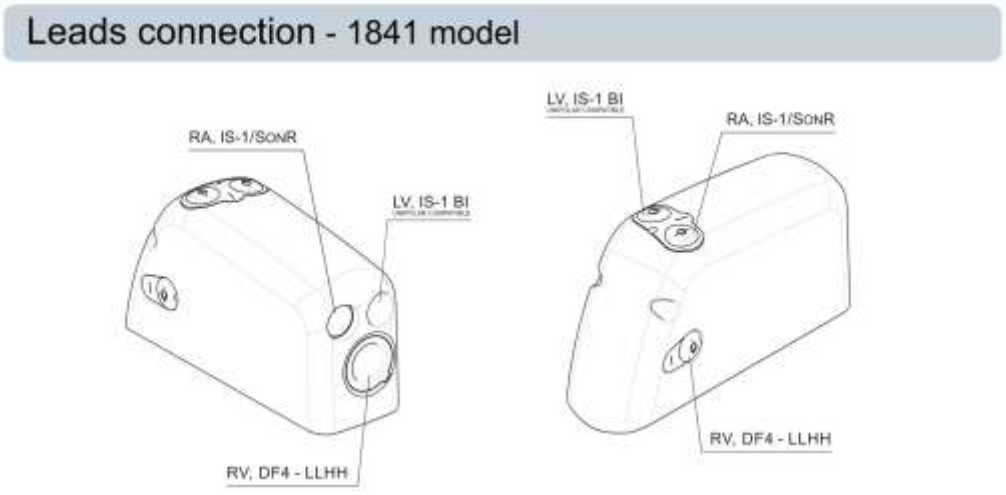
2. EQUIPMENT DESCRIPTION

2.1. GENERAL DESCRIPTION

The SORIN Group PLATINIUM SonR CRT D-1841 is an implantable cardioverter defibrillator for the recognition and treatment of ventricular tachycardia and fibrillation, with ventricular resynchronization, in patients with spontaneous or inducible tachyarrhythmias. PLATINIUM SonR CRT-D is equipped with an accelerometer to allow adaptation of pacing to suit the patient's activity.

2.2. HARDWARE & SOFTWARE IDENTIFICATION DECLARED BY THE MANUFACTURER

Equipment under test (EUT):



Photograph of EUT

- **Auxiliary equipment (AE) used for testing:**

-Inductive Head
-Personal Computer

Photograph of AE

- **Input/output:**

- none

- **Software identification:**

-Software version: ROM V2

- **Equipment information:**

- Modulation: 2FSK
- Transmit operating mode: ☐ Multiples antenna ☒ Single antenna
- Number of transmit chains: ☒ 1 ☐ 2
- Number of receiver chains: ☒ 1 ☐ 2
- Antenna type: ☒ Integral ☐ External
- Type of the equipment: ☒ Stand-alone equipment ☐ Plug-in radio device ☐ Combined equipment
- Temperature range:

Tmin:	☐ -20°C	☐ 0°C	☒ 25°C
Tnom:	☒ 37°C		
Tmax:	☐ +35°C	☐ 55°C	☒ 45°C

- Test source voltage:

Vmin:	☐ 207V/50Hz	☒ 2.5Vdc
Vnom:	☐ 230V/50Hz	☒ 2.62Vdc
Vmax:	☐ 253V/50Hz	☒ 3.24Vdc

- Type of power source: ☒ Battery (Lithium-Ion) ☐ Internal power supply ☐ External power supply ☐ Car Charger
- Test sequence/test software used: See 2.2. Running Mode
- Duty Cycle: ☒ Continuous duty ☐ Intermittent duty ☐ Continuous operation
- Equipment type: ☒ Representative production model ☐ Pre-production model

- Operating frequency range:

Frequency Band (MHz)	
2400MHz to 2483,5MHz	☒
5150MHz to 5350MHz	☐
5470MHz to 5725MHz	☐
402MHz to 405MHz	☒

-Channel plan:

Channel	Frequency (MHz)
Cmin: 0	402.15
1	402.45
2	402.75
3	403.05
4	403.35
Cnom:5	403.65
6	403.95
7	404.25
8	404.55
Cmax: 9	404.85

2.3. RUNNING MODE

The EUT is set in the following modes during tests:
- Permanent emission with modulation on a fixed channel at the highest power
- Permanent emission without modulation on a fixed channel at the highest power
- Permanent reception

Following commands with the specific test software are used to set the product:
See MISC2723A document

2.4. EQUIPMENT LABELLING

2.5. EQUIPMENT MODIFICATION

☒ No equipment modification has been necessary during testing.
☐ Modification applied for following tests:

3. FREQUENCY ERROR

3.1. TEST CONDITIONS

Test performed by : Mathieu CERISIER
Date of test : 2015/01/14
Ambient temperature : 25°C
Relative humidity : 29%

3.2. TEST SETUP

- The Equipment under Test is installed:
☒ In the climatic chamber
☐ On a table
☐ In an anechoic chamber

-Measurement is performed with a spectrum analyzer
☐ On the EUT conducted access
☒ With a test fixture

The spectrum analyzer counter and marker peak functions are used to find the frequency error.
Detector peak

Photograph for Frequency Error

Photograph for Frequency Error

3.3. LIMIT

Frequency error for equipment operating in the 402 MHz to 405 MHz band shall not exceed ±100 ppm under normal, extreme or any intermediate set of conditions.

3.4. TEST EQUIPMENT LIST

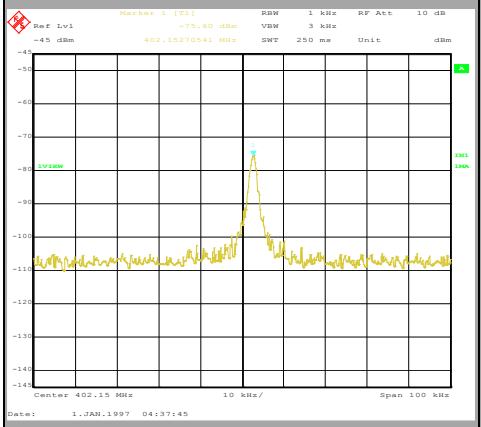
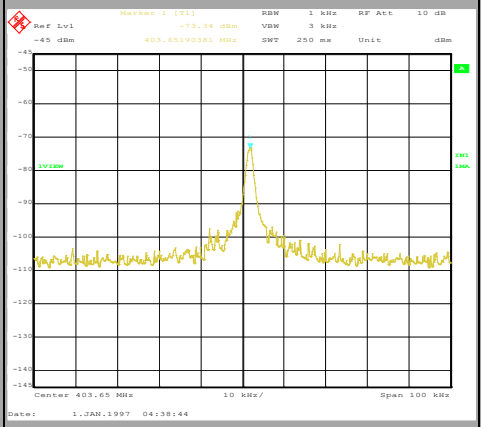
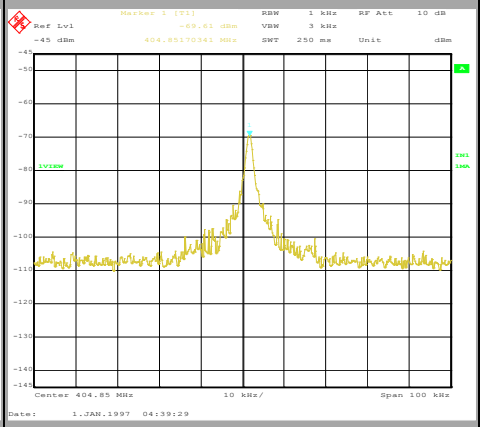
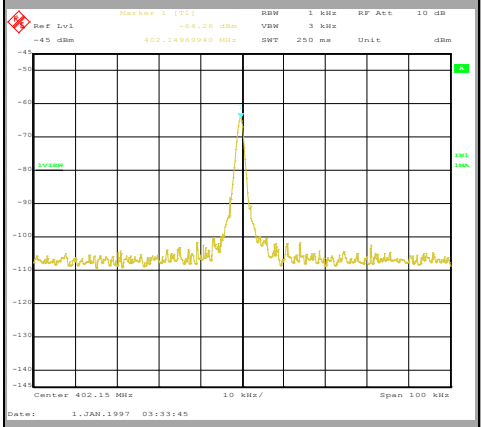
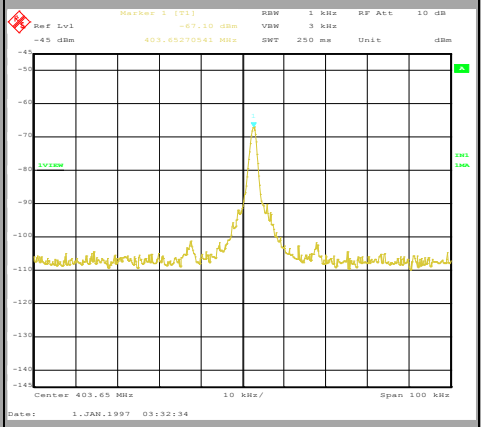
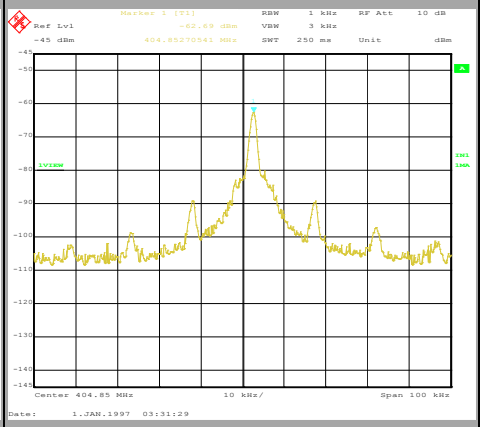
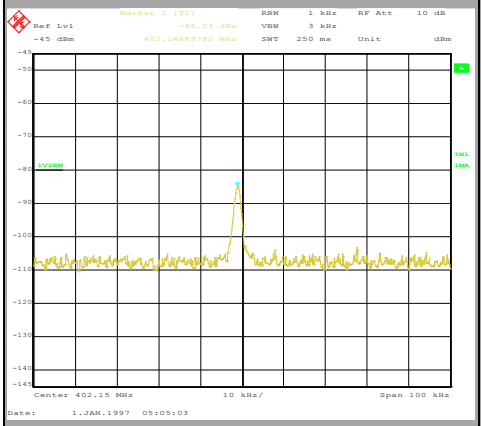
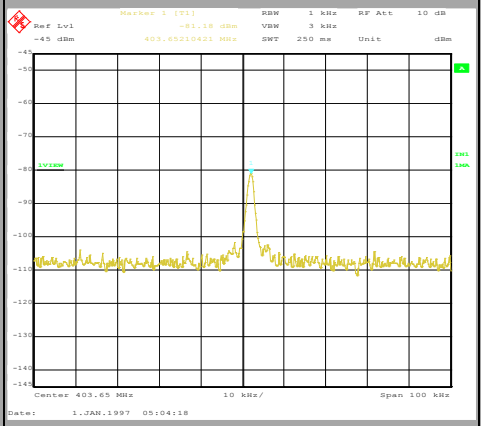
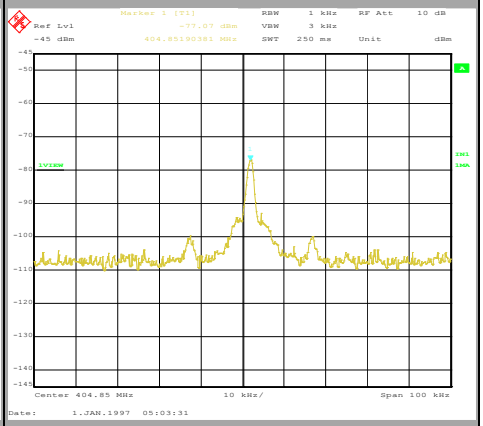
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic Chamber	SECASI	SLT34	D1024029	Verified with Temperature Sensor	Verified with Temperature Sensor
EMI receiver	ROHDE & SCHWARZ	ESI40	A2642010	2014/02	2015/02
Temperature Sensor	AOIP	TM6630	B4041042	2014/12	2015/12

Note: In our system quality, calibration due is more & less 2 month.

3.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☒None ☐Divergence:

3.6. GRAPHICS & RESULTS

Tmin		
Cmin	**Cnom**	**Cmax**
		
Tnom		
Cmin	**Cnom**	**Cmax**
		
Tmax		
Cmin	**Cnom**	**Cmax**
		

Temperature	Tmin			Tnom			Tmax		
Voltage	**Vnom**								
Channel	Cmin	Cnom	Cmax	Cmin	Cnom	Cmax	Cmin	Cnom	Cmax
Frequency (MHz)	402,1527	403,6519	404,8517	402,1496	403,6327	404,8527	402,1489	403,6521	404,8519
Frequency error (ppm)	7,7	47,6	-2,5	REF	REF	REF	-1,7	48,1	-2,0

3.7. CONCLUSION

The product SORIN Group Son RCRT - D 1841, SN: 126DD007, in configuration and description presented in this test report, complies with the frequency error measurement of FCC § 95.627(e) & RSS-243 § 5.3.

4. EMISSION BANDWIDTH

4.1. TEST CONDITIONS

Test performed by : Mathieu CERISIER
Date of test : 2015/01/15
Ambient temperature : 22°C
Relative humidity : 42%

4.2. TEST SETUP

- The Equipment under Test is installed:
☒ In the climatic chamber
☐ On a table
☐ In an anechoic chamber

-Measurement is performed with a spectrum analyzer
☐ On the EUT conducted access
☒ With a test fixture

The spectrum analyzer is used to find the emission bandwidth.
Detector peak

Photograph for Emission Bandwidth

Photograph for Emission Bandwidth

4.3. LIMIT

Emission bandwidth shall not exceed 300 kHz. If two or more devices that operate in a given MICS communications session operate in different portions of the 402 MHz to 405 MHz band, their combined emission bandwidths shall not exceed 300 kHz. This limits spectrum usage to a maximum of 300 kHz in any single MICS communications session. The 300 kHz limitation may be exceeded briefly due to intermittent transmissions that may occur when operating channel acquisitions or changes are required to maintain a communications session.

All emissions from each device that fall outside its emission bandwidth but do fall within the 402 MHz to 405 MHz band shall be attenuated at least 20dB.

In addition, emissions from a device operating in the low duty cycle low power mode in the band 403,5MHz to 403,8MHz must be attenuated at least 20 dB at the band edges, 403,5MHz and 403,8MHz.

4.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic Chamber	SECASI	SLT34	D1024029	Verified with Temperature Sensor	Verified with Temperature Sensor
EMI receiver	ROHDE & SCHWARZ	ESI40	A2642010	2014/02	2015/02
Temperature Sensor	AOIP	TM6630	B4041042	2014/12	2015/12

Note: In our system quality, calibration due is more & less 2 month.

4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

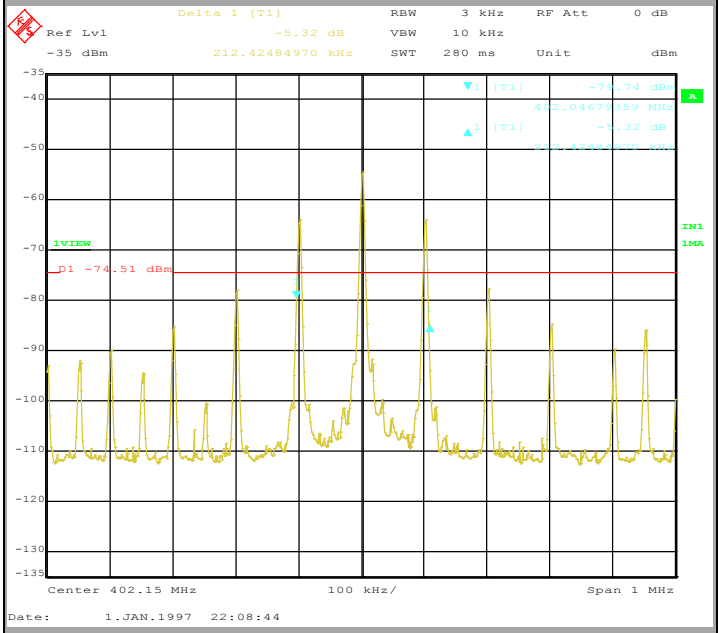
☒None ☐Divergence:

4.6. GRAPHICS & RESULTS

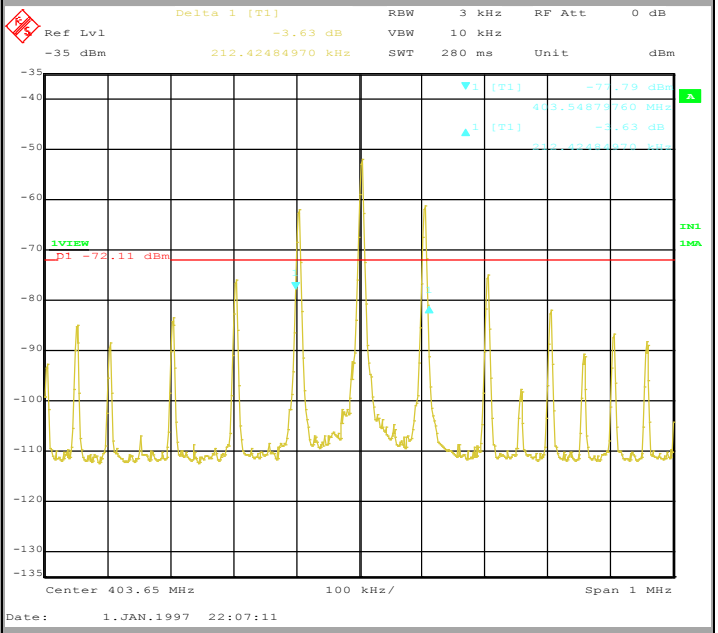
Tnom

Vnom

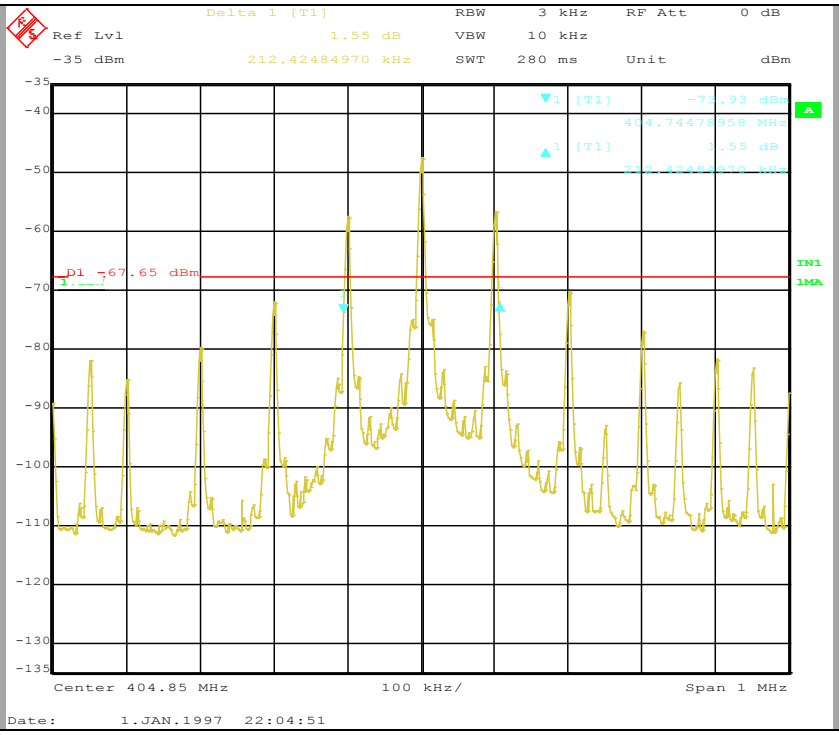
Cmin



Cnom



Cmax



Temperature	Tnom		
Voltage	**Vnom**		
Channel	Cmin	Cnom	Cmax
Emission bandwidth (kHz)	212.424	212.424	212.424

4.7. CONCLUSION

The product SORIN Group Son RCRT - D 1841, SN: 126DD007, in configuration and description presented in this test report, complies with the emission bandwidth measurement of FCC § 95.633(e) & RSS-243 § 5.1.

5. OCCUPIED BANDWIDTH

5.1. TEST CONDITIONS

Test performed by : Mathieu CERISIER
Date of test : 2015/01/15
Ambient temperature : 25°C
Relative humidity : 29%

5.2. TEST SETUP

- The Equipment under Test is installed:
☒ In the climatic chamber
☐ On a table
☐ In an anechoic chamber

-Measurement is performed with a spectrum analyzer
☐ On the EUT conducted access
☒ With a test fixture

The product has been tested according to the RSS-GEN § 6.6 reference method.
Detector peak

Photograph for Occupied Bandwidth

Photograph for Occupied Bandwidth

5.3. LIMIT

No Limit

5.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic Chamber	SECASI	SLT34	D1024029	Verified with Temperature Sensor	Verified with Temperature Sensor
EMI receiver	ROHDE & SCHWARZ	ESI40	A2642010	2014/02	2015/02
Temperature Sensor	AOIP	TM6630	B4041042	2014/12	2015/12

Note: In our system quality, calibration due is more & less 2 month.

5.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

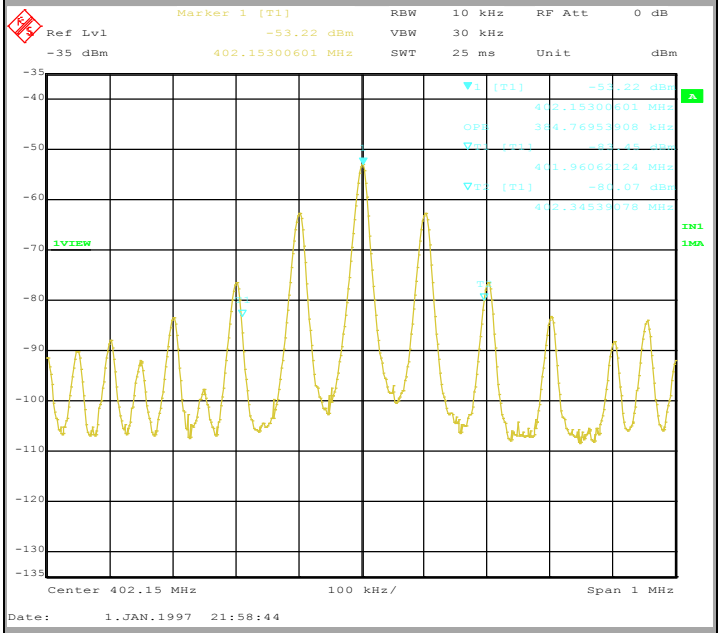
☒None ☐Divergence:

5.6. GRAPHICS & RESULTS

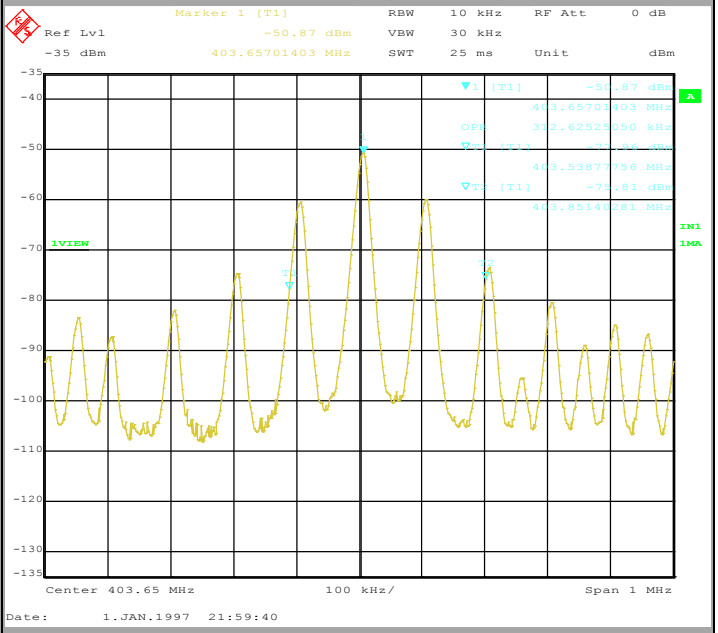
Tnom

Vnom

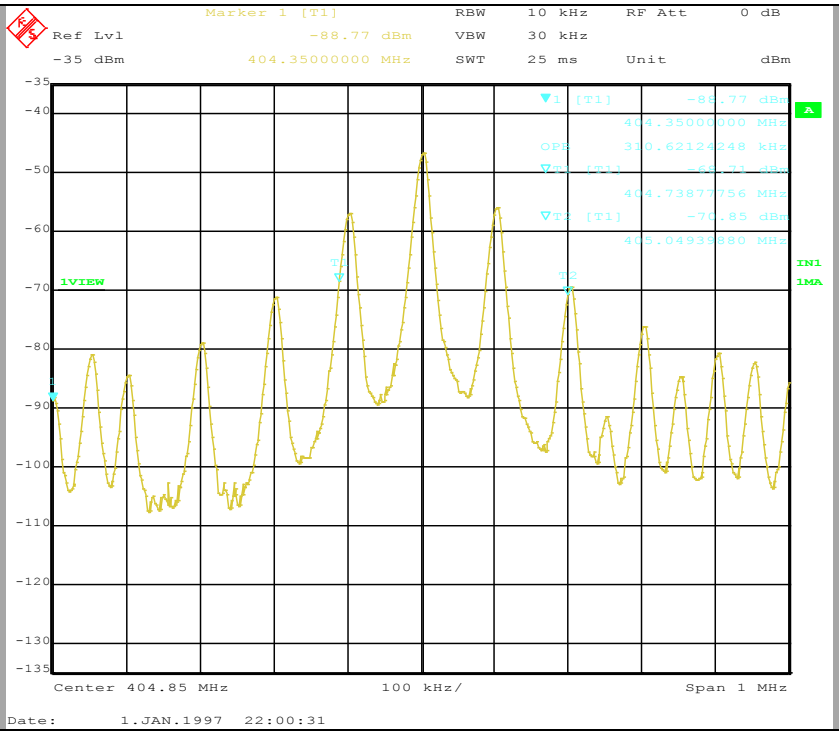
Cmin



Cnom



Cmax



Temperature	Tnom		
Voltage	**Vnom**		
Channel	Cmin	Cnom	Cmax
Occupied Bandwidth (kHz)	384.769	312.625	310.621

5.7. CONCLUSION

The product SORIN Group Son RCRT - D 1841, SN: 126DD007, in configuration and description presented in this test report, complies with the occupied bandwidth measurement of RSS-Gen § 6.6.

6. TRANSMITTER OUTPUT POWER

6.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
Date of test : November 27th, 2014
Ambient temperature : 18°C
Relative humidity : 47%

6.2. TEST SETUP

- The Equipment Under Test is installed:
☐ FAR
☐ SAR
☒ OATS

- Distance between EUT and the measuring antenna is:
☐ 3m
☒ 10m

- The setup is 1.5 m above the ground reference plane on an isolating table and the maximum emitted power value from the EUT is found by the rotation of the 360°turntable and:
☐ With measurement antenna height at 1.5m from the ground reference plane
☒ By variation of measurement antenna height between 1m and 4m from the ground reference plane

The measuring antenna is in vertical and then in horizontal polarization. The substitution antenna replaces the equipment under test. The substitution antenna is powered by signal generator through RF cables. The input signal on the substitution antenna is adjusted in order to obtain the same value found in the maximum emitted power search. Mean power at the output of the transmitter and product antenna gain (A+G) are deduced after correction due to the gain of the substitution antenna and the RF cables loss between the signal generator and the substitution antenna

The Equivalent Isotropic Radiated Power (EIRP in dBm) is defined with the following formula:

EIRP = A+G
A (dBm): peak power at the output of the transmitter
G (dBi): product antenna gain
A+G: Measured in radiated by substitution method

Detector peak

Photograph for Transmitter output power

6.3. LIMIT

The EIRP of ULP-AMI and/or ULP-AMI-P equipment that operates as part of system that incorporates a monitoring system to select the frequency of operation using LBT and AFA shall not exceed 25 µW.

The EIRP of ULP-AMI transmitters operating on any frequency in the band 403,5 MHz to 403,8 MHz shall not exceed 100nW unless the frequency of operation in this band has been selected by a monitoring system using LBT and AFA. The duty cycle for any transmitter operating in the LDC mode is limited to 0,01%.

6.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESI40 1088 740K40	A2642010	2014/02	2015/02
Bilog antenna	CHASE	CBL 6112A	C2040040	2014/04	2015/04
Logperiodic antenna	ROHDE & SCHWARZ	HL 023 A2	C2040001	2014/05	2015/05
Signal Generator	ROHDE & SCHWARZ	SMY02	A5442014	2014/04	2015/04
Cable	-	-	A5329449	2014/09	2015/09
Cable	-	-	A5329368	2014/04	2015/04
cable	-	-	A5329444	2014/09	2015/09
Cable	-	-	A5329362	2014/03	2015/04
Cable	-	-	A5329442	2014/09	2015/09
OATS	L.C.I.E.	-	F2000400	2014/06	2015/06

6.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☒None ☐Divergence:

6.6. RESULTS

Tnom					
Vnom					
Frequency	**Generator level (dBm)**	**Loss (dB)**	**Antenna gain (dBi)**	**EIRP (dBm)**	**EIRP (µW)**
402.15MHz	-46.0	2.4	5.1	-43,26	0,047
403.66MHz	-47.0	2.4	5.2	-44,26	0,037
404.85MHz	-45.0	2.4	5.2	-42,26	0,059

6.7. CONCLUSION

The product SORIN Group Son RCRT - D 1841, SN: 126DD007, in configuration and description presented in this test report, complies with the transmitter output power measurement of FCC § 95.639(f) & RSS-243 § 5.4.

7. TRANSMITTER UNWANTED EMISSIONS

7.1. TEST CONDITIONS

Test performed by : Laurent DENEUX & Mathieu CERISIER
Date of test : 2014/10/06 & 2014/08/19 to 2014/12/16
Ambient temperature : 18°C & 23°C
Relative humidity : 51% & 43%

7.2. TEST SETUP

- The Equipment under Test is installed:
☐SAR ☒OATS

- Distance between EUT and the measuring antenna is:
☐3m ☒10m

- Choice of measuring antenna below 1GHz:
☒Bilog ☐Log periodic ☐Biconic ☐Dipole antenna

- Choice of measuring antenna above 1GHz:
☒Horn

The product has been tested according to ANSI C63.10 (2009). Test is performed in horizontal (H) and vertical (V) polarization. Measurement bandwidth was 120kHz below 1GHz and 1MHz above 1GHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height search was performed from 1 to 4m.

Photograph for Transmitter unwanted emissions

7.3. LIMIT

Transmitter unwanted emissions from MICS devices more than 250kHz outside of the 402-405 MHz band shall not exceed the field strength limits specified below:

Frequencies	Limit at 10m (µV/m)	Limit at 3m (µV/m)	Limit at 3m (µV/m)
30MHz to 88MHz	29.55dBµV/m QPeak	40dBµV/m QPeak	100µV/m QPeak
88MHz to 216MHz	33.05dBµV/m QPeak	43.5dBµV/m QPeak	150µV/m QPeak
216MHz to 960MHz	35.55dBµV/m QPeak	46dBµV/m QPeak	200µV/m QPeak
960MHz to 1000MHz	43.45dBµV/m QPeak	53.9dBµV/m QPeak	500µV/m QPeak
Above 1000MHz	63.45dBµV/m Peak	73.9dBµV/m Peak	5000µV/m Peak
	43.45dBµV/m Average	53.9dBµV/m Average	500µV/m Average

Transmitter unwanted emissions within the 402-405MHz MICS band which are more than 150kHz away from the centre frequency of the spectrum, and the transmissions that occupy up to 250kHz above and below the band shall be attenuated at least 20dB below the maximum transmitter output power.

7.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESI40 1088 740K40	A2642010	2014/02	2015/02
Bilog antenna	CHASE	CBL 6112A	C2040040	2014-04	2015-04
Cable	-	-	A5329449	2014-09	2015-09
Cable	-	-	A5329368	2014-03	2015-03
Cable	-	-	A5329444	2014-09	2015-09
Cable	-	-	A5329542	2014-01	2015-01
OATS	L.C.I.E.	-	F2000400	2014-06	2015-06
Horn Antenna	EMCO	3115	C2042016	2014-04	2015-04
Preampli	HEWLETT PACKARD	8449B	A4069002	2014-04	2015-04
Climatic Chamber	MPC	F65/350L	D1025035	2013/12	2014/12
EMI receiver	ROHDE & SCHWARZ	FSIQ7	A4060040	2013/11	2014/11
Temperature Sensor	HP	34970A	A6440070	2014/01	2016/01

7.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

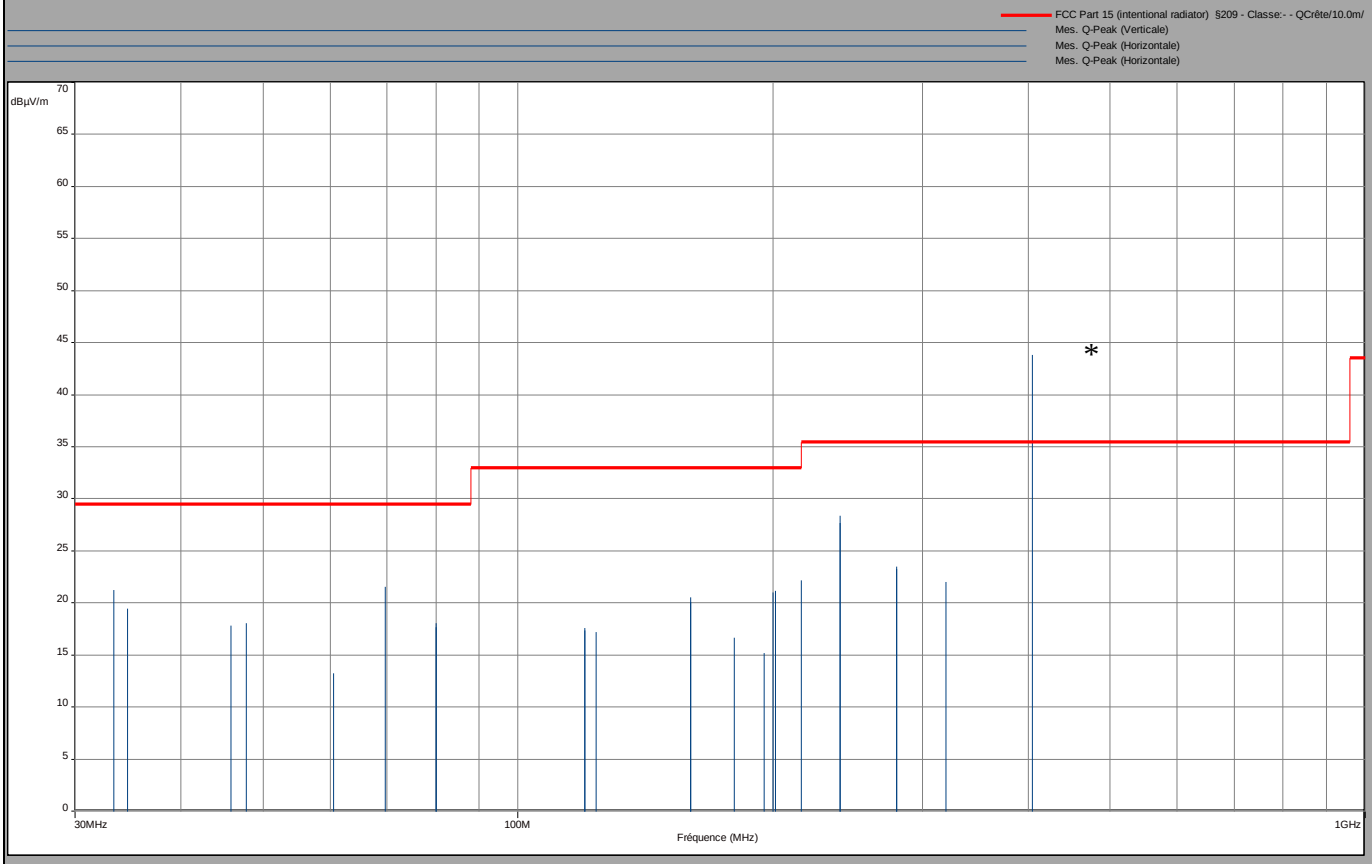
☒None ☐Divergence:

7.6. GRAPHICS & RESULTS

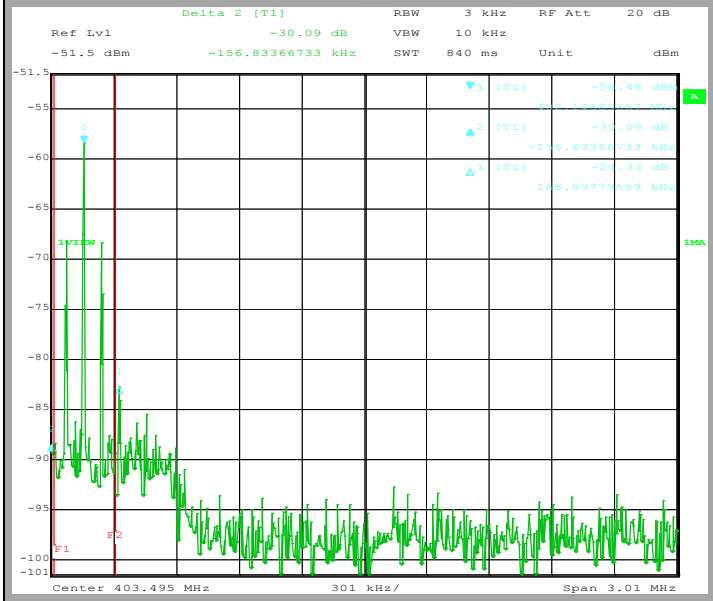
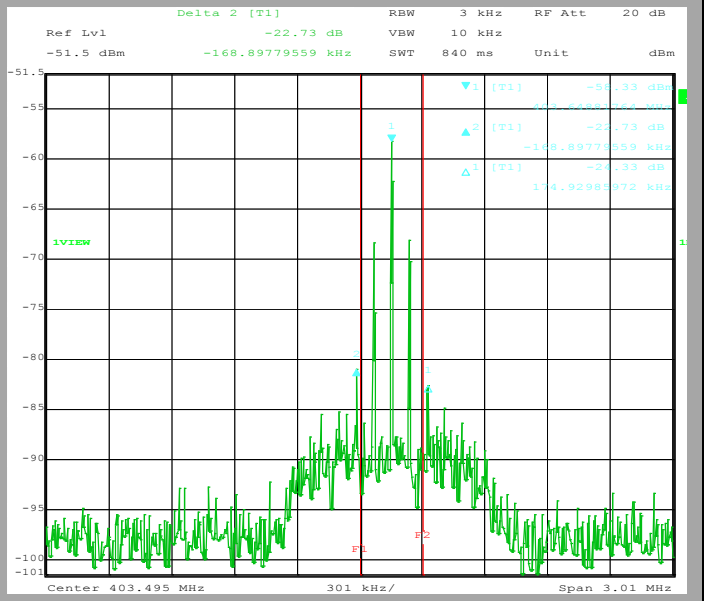
Out of band transmitter unwanted emissions (below 1GHz)

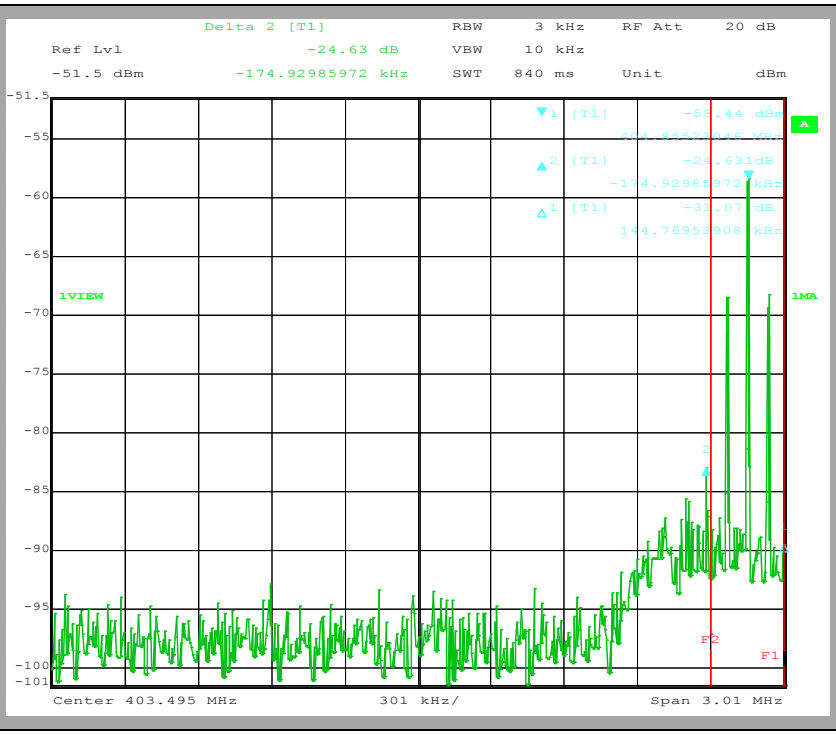
400 Tx

Quasi peak measurement

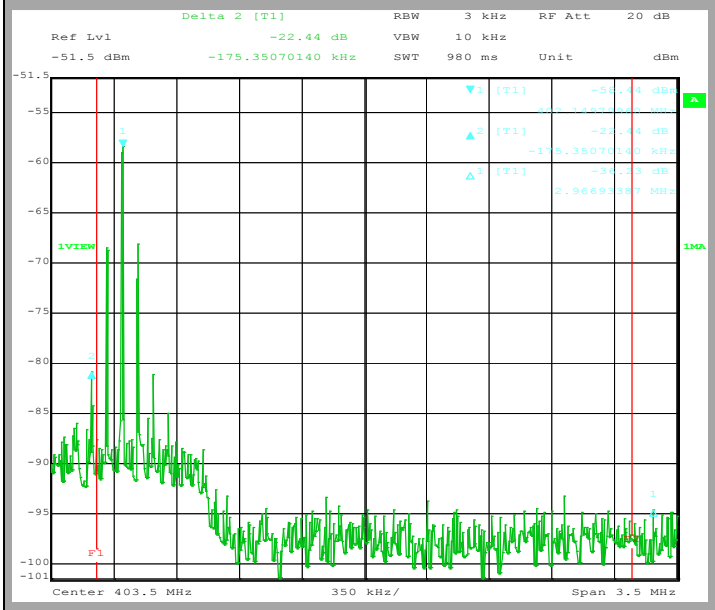


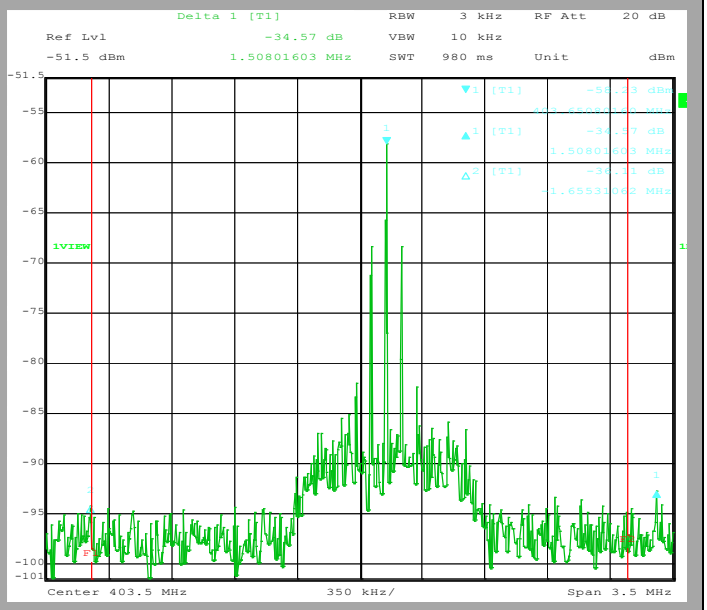
* Transmitter frequency

Tnom	
Vnom	
In band transmitter unwanted emissions	
Cmin	Cnom
	
Cmax	

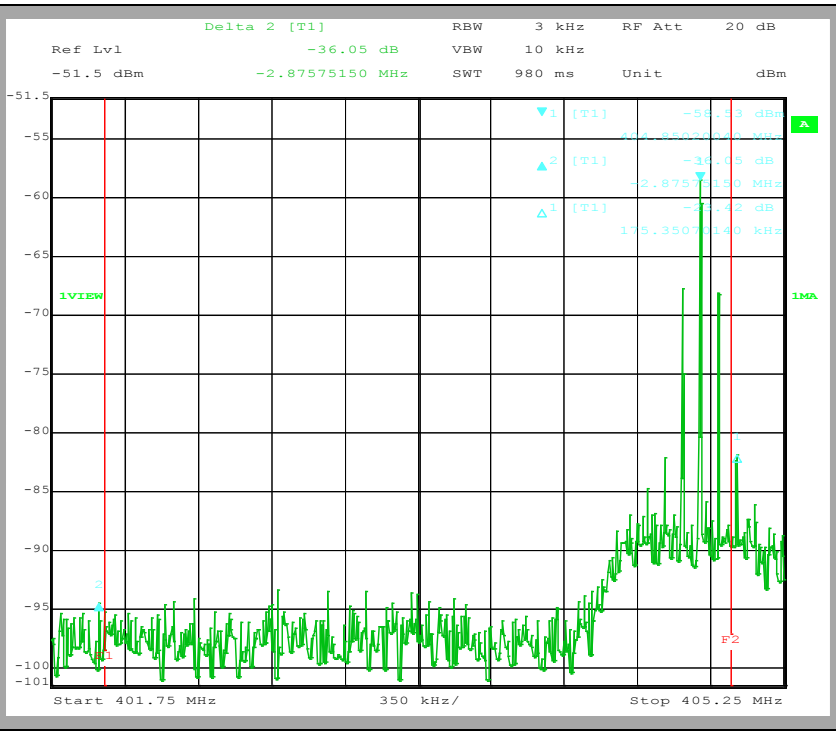


Tnom	
Vnom	
Out of band transmitter unwanted emissions +/-250kHz	
Cmin	Cnom





Cmax


Delta 2 [T1]
RBW 3 kHz
RF Att 20 dB
Ref Lvl
-36.05 dB
VBW 10 kHz
-51.5 dBm
-2.87575150 MHz
SWT 980 ms
Unit dBm
-51.5
-55
-60
-65
-70
-75
-80
-85
-90
-95
-100
-101
1VIEW
1MA
A
Start 401.75 MHz
350 kHz/
Stop 405.25 MHz

Out of band transmitter unwanted emissions			
Below 1GHz			
Polarization	Frequencies (MHz)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)
Vertical	33.3	21.26	29.5
Vertical	34.6	19.45	29.5
Vertical	45.8	17.85	29.5
Vertical	47.8	18.1	29.5
Vertical	60.6	13.25	29.5
Vertical	69.7	21.54	29.5
Vertical	80	17.67	29.5
Vertical	120	17.58	33
Vertical	160	20.59	33
Vertical	180	16.66	33
Vertical	195.4	15.24	33
Vertical	201.3	21.18	33
Vertical	216	22.2	33
Vertical	240	28.38	35.5
Vertical	280	23.54	35.5
Horizontal	80	18.05	29.5
Horizontal	120	17.37	33
Horizontal	123.7	17.25	33
Horizontal	160	20.14	33
Horizontal	200	21	33
Horizontal	240	27.7	35.5
Horizontal	280	23.29	35.5
Horizontal	320	22.03	35.5

Detector peak

Out of band +/-250kHz transmitter unwanted emissions			
Channel	Level (dB) at Fmin	Level (dB) at Fmax	Limit (dB)
Cmin	22,44	36,23	At least 20
Cnom	36,11	34,57	At least 20
Cmax	36,05	23,42	At least 20

Detector peak

In band transmitter unwanted emissions			
Channel	Level (dB) at Fmin	Level (dB) at Fmax	Limit (dB)
Cmin	30,09	24,33	At least 20
Cnom	22,73	24,33	At least 20
Cmax	24,63	31,07	At least 20

7.7. CONCLUSION

The product SORIN Group Son RCRT - D 1841, SN: 126DD007, in configuration and description presented in this test report, complies with the Unwanted Emission into Restricted Bands measurement of FCC § 95.635(d) & RSS-243 § 5.5.

8. RECEIVER SPURIOUS EMISSIONS

8.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
Date of test : 2014/11/27
Ambient temperature : 18°C
Relative humidity : 51%

8.2. TEST SETUP

- The Equipment under Test is installed:
☐SAR ☒OATS

- Distance between EUT and the measuring antenna is:
☐3m ☒10m

- Choice of measuring antenna below 1GHz:
☒Bilog ☐Log periodic ☐Biconic ☐Dipole antenna

- Choice of measuring antenna above 1GHz:
☒Horn

The product has been tested according to ANSI C63.10 (2009). Test is performed in horizontal (H) and vertical (V) polarization. Measurement bandwidth was 120kHz below 1GHz and 1MHz above 1GHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height search was performed from 1 to 4m.

Photograph for Receiver spurious emissions

8.3. LIMIT

Receiver spurious emissions shall not exceed value below:

30MHz to 88MHz: 29.5dBµV/m QPeak
88MHz to 216MHz: 33dBµV/m QPeak
216MHz to 960MHz: 35.5dBµV/m QPeak
960MHz to 1000MHz: 43.5dBµV/m QPeak
Above 1000MHz: 63.5dBµV/m Peak
43.5dBµV/m Average

8.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESI40 1088 740K40	A2642010	2014/02	2015/02
Bilog antenna	CHASE	CBL 6112A	C2040040	2014-04	2015-04
Cable	-	-	A5329449	2014-09	2015-09
Cable	-	-	A5329368	2014-03	2015-03
Cable	-	-	A5329444	2014-09	2015-09
Cable	-	-	A5329542	2014-01	2015-01
OATS	L.C.I.E.	-	F2000400	2014-06	2015-06
Horn Antenna	EMCO	3115	C2042016	2014-04	2015-04
Preampli	HEWLETT PACKARD	8449B	A4069002	2014-04	2015-04

8.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

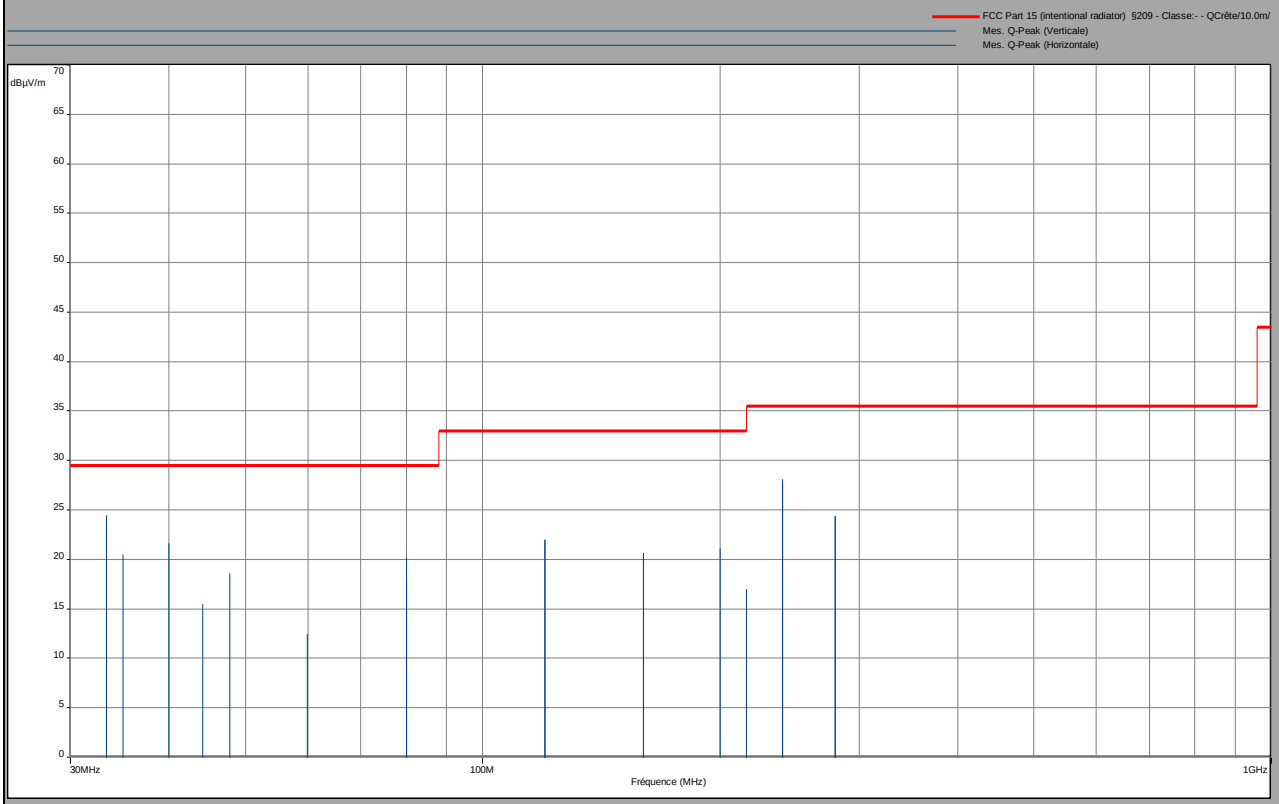
☒None ☐Divergence:

8.6. GRAPHICS & RESULTS

Out of band transmitter unwanted emissions (below 1GHz)

400 Rx and 2.4 Rx mode

Quasi peak measurement



Out of band transmitter unwanted emissions			
Below 1GHz			
Polarization	Frequencies (MHz)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)
Vertical	33.3	24.46	29.5
Vertical	35	20.54	29.5
Vertical	40	21.7	29.5
Vertical	44.2	15.49	29.5
Vertical	47.8	18.59	29.5
Vertical	59.9	12.48	29.5
Vertical	80	17.92	29.5
Vertical	120	21.93	33
Vertical	160	20.6	33
Vertical	216	17.05	33
Vertical	240	28.14	355
Vertical	280	24.37	35.5
Horizontal	80	20.2	29.5
Horizontal	120	22.04	33
Horizontal	160	20.68	33
Horizontal	200	21.13	33
Horizontal	240	27.7	35.5

8.7. CONCLUSION

The product SORIN Group Son RCRT - D 1841, SN: 126DD007, in configuration and description presented in this test report, complies with the receiver spurious emissions measurement of FCC 15.109 & RSS-243 § 5.6.

9. SAR EVALUATION

9.1. TEST CONDITIONS

Test performed by : Mathieu CERISIER
Date of test : 2015/07/31
Ambient temperature : 26
Relative humidity : 32%

9.2. TEST SETUP

- The Equipment under Test is installed:
☐ In the climatic chamber
☒ On a table
☐ In an anechoic chamber

-Measurement is performed with a spectrum analyzer
☒ On the EUT conducted access
☐ With a test fixture

The spectrum analyzer marker peak functions is used to find the maximum rf conducted output power
Detector peak

Photograph for RF conducted output power

9.3. LIMIT

RSS-102 Issue 5 March 2015:

2.5.1 Exemption Limits for Routine Evaluation – SAR Evaluation

For medical implants devices, the exemption limit for routine evaluation is set at 1 mW. The output power of a medical implants device is defined as the higher of the conducted or e.i.r.p to determine whether the device is exempt from the SAR evaluation.

FCC:

KDB 447498 section 4.2.4:

4.2.4. Transmitters implanted in the body of a user

When the aggregate of the maximum power available at the antenna port and radiating structures of an implanted transmitter, under all operating circumstances, is ≤ 1.0 mW, SAR test exclusion may be applied. The maximum available output power requirement and worst case operating conditions must be supported by power measurement results and fully justified in a SAR analysis report, in lieu of the SAR measurement or numerical simulation, according to design and implementation requirements of the device.

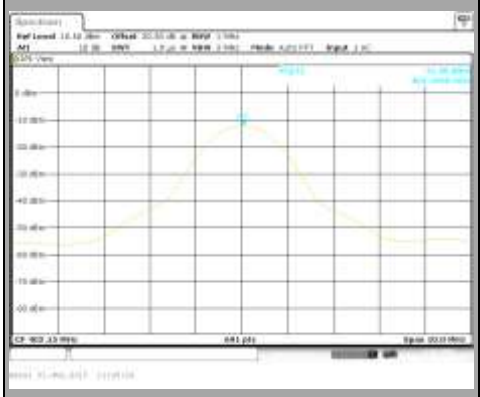
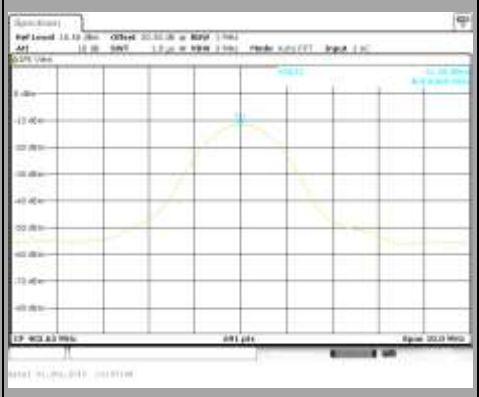
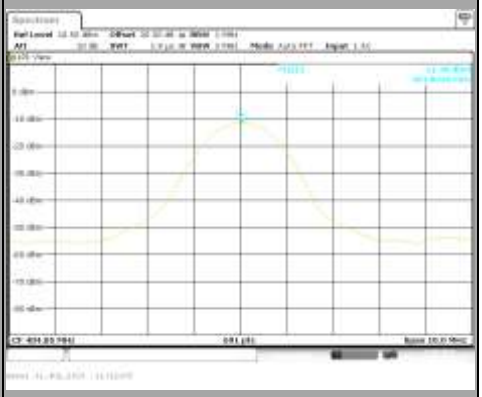
9.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI test receiver	R&S	ESR	A2642023	03/2015	03/2016
RF cable & Attenuator	Télédyne & MINI CIRCUITS	920-0202-024 & FW-20+	A5329674	10/2014	10/2015

9.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☒None ☐Divergence:

9.6. GRAPHICS & RESULTS

Tnom		
Cmin	**Cnom**	**Cmax**
		

Temperature	Tnom		
Voltage	**Vnom**		
Channel	Cmin	Cnom	Cmax
RF conducted output power (dBm)	-11,98	-11,59	-11,4
RF conducted output power (mW)	0,063	0,069	0,072
EIRP (dBm)	-43,26	-44,26	-42,26
EIRP (mW)	0,000047	0,000037	0,000059

9.7. CONCLUSION

The product SORIN Group Son RCRT - D 1841, in configuration and description presented in this test report, is excluded of SAR evaluation.

10. UNCERTAINTIES CHART

Kind of test	Measurement uncertainties (k=2) ±x(dB) / (Hz)	Limit for uncertainties ±y(dB)
REQUIREMENTS		
RF output power, conducted	±0.6 dB	±1,5 dB
Power Spectral Density, conducted	±0.6 dB	±1,5 dB
Unwanted Emissions, conducted	±0.6 dB	±1,5 dB
Radiated emissions • Frequency < 1000 MHz • Frequency > 1000 MHz	 ±3.9 dB ±3.1 dB	±6 dB
Temperature	±0.5°C	±1°C
Humidity	±2.5 %	±5 %