



LCIE

RFID 13,56MHz Template: Release October 25th, 2018

TEST REPORT

N°: 158542-730128-A

Version : 01

Subject

Radio spectrum matters
tests according to standards:
47 CFR Part 15.225 & RSS 210 Issue 9 & RSS-Gen Issue 5

Issued to

BIOLOG-ID
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France

Apparatus under test

Product SST-R (Smart Storage Refrigerator)
Trade mark BIOLOG-ID
Manufacturer BIOLOG-ID
Model under test PRD_7130400B
Serial number BI1828000101
FCC ID 2AKUFSSTR-V2
IC 23919-SSTRV2

Test date

: November 21, 2018 to November 27, 2018

Test location

Fontenay Aux Roses & Ecuelles

Test Site

6230B-1

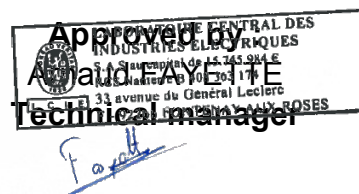
Composition of document

34 pages

Document issued on

February 14, 2019

Written by :
Julien PALARD
Tests operator



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PUBLICATION HISTORY

Each new edition of this test report replaces and cancels the previous edition. The control of the old editions of report is under responsibility of client.

Version	Date	Author	Modification
01	Decembre 4th,2018	Julien Palard	Creation of the document

Date of receipt of test item: 20/11/2018



SUMMARY

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1. TEST PROGRAM

References

- 47 CFR Part 15.225
- RSS 210 Issue 9
- RSS Gen Issue 5
- ANSI C63.10-2013

Radio requirement:

Clause (47CFR Part 15.225 & RSS-210 Issue 9 & RSS-Gen Issue 5) Test Description	Test result - Comments			
Occupied Bandwidth P	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
AC Power Line Conducted Emission P	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA(2)	<input type="checkbox"/> NP(1)
Frequency Tolerance P	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Field strength within the band 13.110-14.010MHz P	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Field strength outside of the bands 13.110-14.010 MHz P	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Receiver Radiated Emissions P	<input checked="" type="checkbox"/> PASS (3)	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
This table is a summary of test report, see conclusion of each clause of this test report for detail.				

(1): Limited program

(2): EUT not directly or indirectly connected to the AC Power Public Network

(3) Testing covered the receive mode, and receiver spurious emissions are considered to be the same as transmitter.

PASS: EUT complies with standard's requirement

FAIL: EUT does not comply with standard's requirement

NA: Not Applicable

NP: Test Not Performed

2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):
BIOLOG-ID PRD_7130400B

Serial Number: BI1828000101



Equipment Under Test

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Main power supply	Input	L1-N	1.8	Yes	<input type="checkbox"/>	
Data	Output	RJ45	5	No	<input type="checkbox"/>	Ethernet signals
Data	Output	Others	2.5	Yes	<input type="checkbox"/>	CAN cables
Data	Output	Others	2.5	Yes	<input type="checkbox"/>	Temperature sensor cable

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop			Use to set the EUT



Equipment information:

Type:	<input checked="" type="checkbox"/> RFID		
Frequency band:	[13.553 to 13.567] MHz		
Number of Channel:	1		
Antenna Type:	<input checked="" type="checkbox"/> Integral	<input type="checkbox"/> External	<input type="checkbox"/> Dedicated
Transmit chains:	1		
Receiver chains:	1		
Type of equipment:	<input type="checkbox"/> Stand-alone	<input checked="" type="checkbox"/> Plug-in	<input type="checkbox"/> Combined
Equipment type:	<input type="checkbox"/> Production model		<input checked="" type="checkbox"/> Pre-production model
Operating temperature range:	Tmin:	<input checked="" type="checkbox"/> -30°C IC <input type="checkbox"/> -20°C FCC	<input type="checkbox"/> 0°C <input type="checkbox"/> X°C
	Tnom:	20°C	
	Tmax:	<input type="checkbox"/> 35°C	<input checked="" type="checkbox"/> 50°C <input type="checkbox"/> X°C
Type of power source:	<input checked="" type="checkbox"/> AC power supply	<input type="checkbox"/> DC power supply	<input type="checkbox"/> Battery
Operating voltage range:	Vmin:	<input checked="" type="checkbox"/> 102V/60Hz	<input type="checkbox"/> XVdc
	Vnom:	<input checked="" type="checkbox"/> 120V/60Hz	<input type="checkbox"/> XVdc
	Vmax:	<input checked="" type="checkbox"/> 138V/60Hz	<input type="checkbox"/> XVdc

2.2. RUNNING MODE

The EUT is set in the following modes during tests:

- Permanent emission (setting: RF ON with even drawers)
- Permanent emission (setting: RF ON with odd drawers)

3. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

Test performed by : Julien PALARD
Date of test : November 27, 2018
Ambient temperature : 26 °C
Relative humidity : 42 %

3.2. TEST SETUP

- The Equipment Under Test is installed:

- On a table
- In a climatic chamber
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

- RSS-Gen Issue 5 § 6.7



Photograph for Occupied bandwidth



3.1. LIMIT

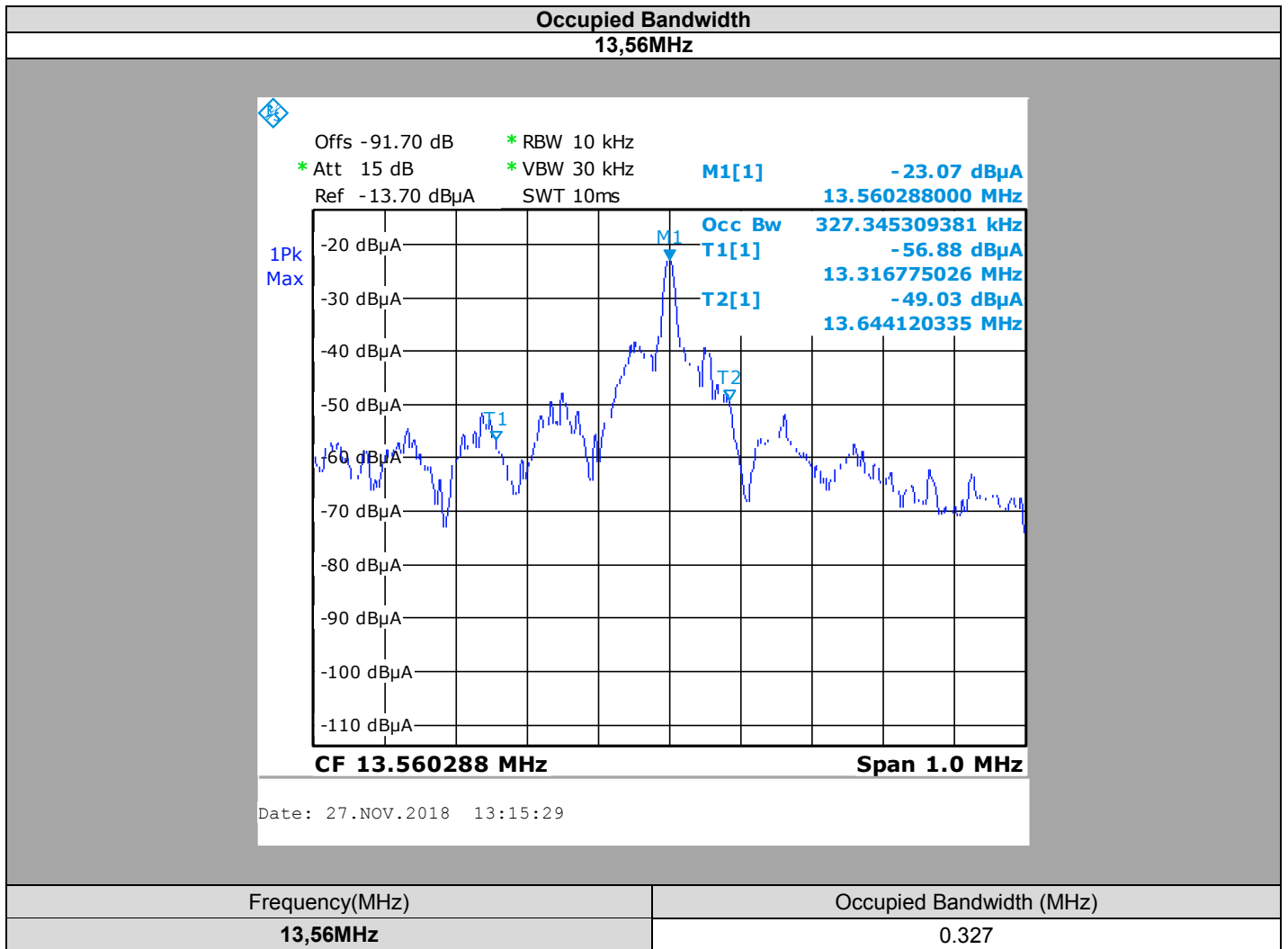
None

3.2. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic chamber	SECASI Technologies	-	D1025025	Cal with Thermometer	Cal with Thermometer
Thermometer	EUROTHERM 92	Climats Sapratin	D1025025	2018/03	2020/03
Spectrum analyzer	ROHDE & SCHWARZ	FSL6	A4060032	2017/10	2019/10
Multi-meter	KEITHLEY	2000	A1242090	2018/05	2020/05
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	Cal with Multi- meter	Cal with Multi-meter
Cable	CABLES & CONNECTIQUES	2.9MD/CSU440AA/2.9MD/2000	A5329358	Cal with EMI receiver	Cal with EMI receiver
Cable	CABLES & CONNECTIQUES	-	A5329422	Cal with EMI receiver	Cal with EMI receiver

Note: In our quality system, the test equipment calibration due is more & less 2 months

3.3. RESULTS



3.1. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **BIOLOG-ID PRD_7130400B**, SN: **BI1828000101**, in configuration and description presented in this test report, show levels **compliant** to the **RSS-GEN ISSUE 5** limits.

4. FREQUENCY TOLERANCE

4.1. TEST CONDITIONS

Test performed by : Julien PALARD
Date of test : November 27, 2018
Ambient temperature : 26 °C
Relative humidity : 42 %

4.2. TEST SETUP

- The Equipment Under Test is installed:

- On a table
- In a climatic chamber
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

- ANSI C63.10 § 6.8



Photograph for Frequency Tolerance



4.3. LIMIT

±0.01% (± 100ppm)

4.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic chamber	SECASI Technologies	-	D1025025	Cal with Thermometer	Cal with Thermometer
Thermometer	EUROTHERM 92	Climats Sapratin	D1025025	2018/03	2020/03
Spectrum analyzer	ROHDE & SCHWARZ	FSL6	A4060032	2017/10	2019/10
Multi-meter	KEITHLEY	2000	A1242090	2018/05	2020/05
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	Cal with Multi- meter	Cal with Multi-meter
Cable	CABLES & CONNECTIQUES	2.9MD/CSU440AA/2.9MD/2000	A5329358	Cal with EMI receiver	Cal with EMI receiver
Cable	CABLES & CONNECTIQUES	-	A5329422	Cal with EMI receiver	Cal with EMI receiver

Note: In our quality system, the test equipment calibration due is more & less 2 months



4.5. RESULTS

Frequency	13,56									
EUT ACTIVATION	Start up									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,56046	13,56044	13,56046	13,56046	13,56044	13,56042	13,56034	13,56032	13,5603	13,560288
Frequency Drift (%)	0,0034	0,0032	0,0034	0,0034	0,0032	0,0031	0,0025	0,0024	0,0022	0,0020
EUT ACTIVATION	2min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,56046	13,56044	13,56046	13,56046	13,56044	13,56042	13,56034	13,56032	13,5603	13,560288
Frequency Drift (%)	0,0034	0,0032	0,0034	0,0034	0,0032	0,0031	0,0025	0,0024	0,0022	0,0021
EUT ACTIVATION	5min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,56046	13,56044	13,56046	13,56046	13,56046	13,56042	13,56034	13,56032	13,5603	13,560288
Frequency Drift (%)	0,0034	0,0032	0,0034	0,0034	0,0034	0,0031	0,0025	0,0024	0,0022	0,0021
EUT ACTIVATION	10min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,56046	13,56044	13,56046	13,56046	13,56044	13,56042	13,56034	13,56032	13,5603	13,560288
Frequency Drift (%)	0,0034	0,0032	0,0034	0,0034	0,0032	0,0031	0,0025	0,0024	0,0022	0,0021

Voltage	Vnom		
Temperature	Tnom		
Frequency (MHz)	13,56042	13,56042	13,56042
Frequency Drift (%)	0,0031	0,0031	0,0031

4.6. CONCLUSION

Frequency tolerance measurement performed on the sample of the product **BIOLOG-ID PRD_7130400B**, SN: **BI1828000101**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 & RSS 210 ISSUE 9 limits.

5. AC POWER LINE CONDUCTED EMISSIONS

5.1. TEST CONDITIONS

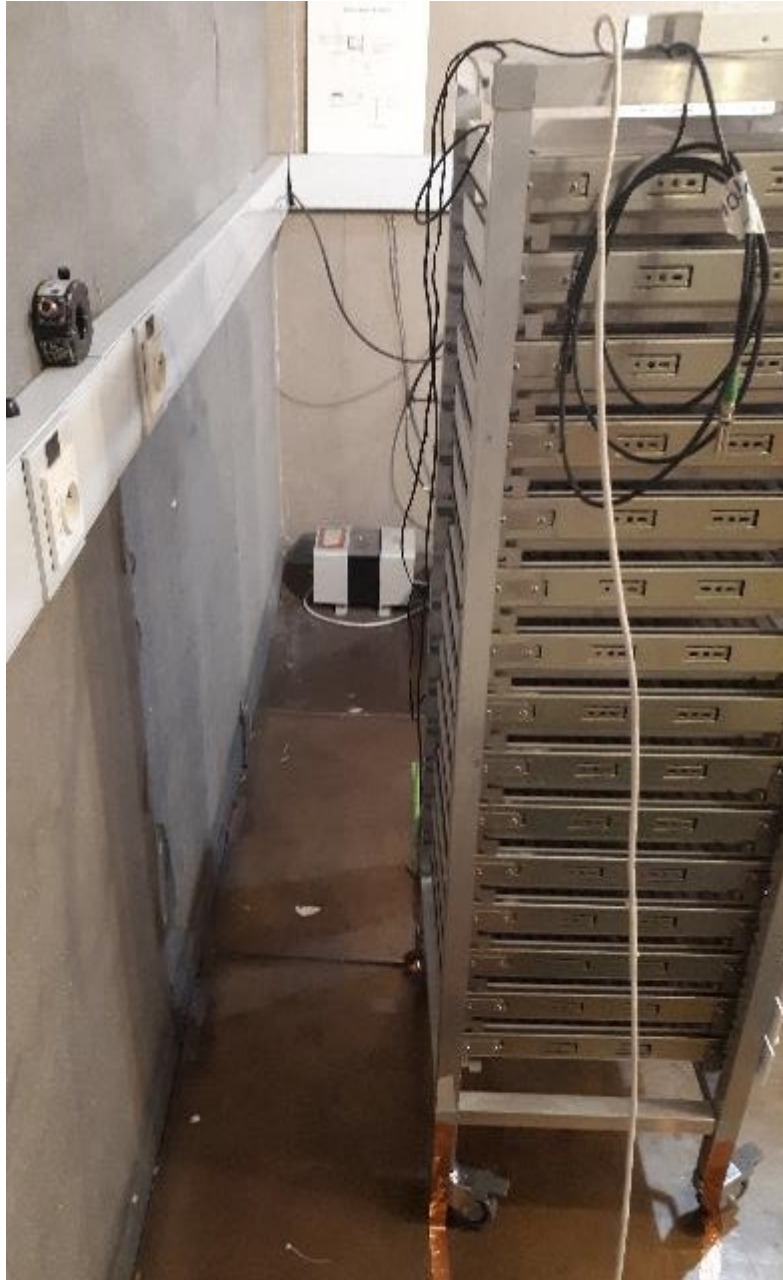
Test performed by : Laurent DENEUX
Date of test : November 23, 2018
Ambient temperature : 21 °C
Relative humidity : 53 %

5.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013) method. The EUT is placed on the ground reference plane, at 80cm from the LISN. The distance between the EUT and the vertical ground plane is 40cm. Auxiliaries are powered by another LISN. The cable has been shorted to 1meter length. The EUT is powered through the LISN. Measurement is made with a receiver in peak mode. This was followed by a Quasi-Peak, i.e. CISPR measurement for any strong signal. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary. The LISN (measure) is $50\Omega / 50\mu\text{H}$. Interconnecting cables and equipment's were moved to position that maximized emission.



Photograph for AC Power Line Conducted Emissions (Front view)



Photograph for AC Power Line Conducted Emissions (Rear view)



5.3. LIMIT

Quasi-Peak

0,15kHz to 0,5MHz: 66dB μ V to 56dB μ V*

0,5MHz to 5MHz: 56dB μ V

5MHz to 30MHz: 60dB μ V

Average

0,15kHz to 0,5MHz: 56dB μ V to 46dB μ V*

0,5MHz to 5MHz: 46dB μ V

5MHz to 30MHz: 50dB μ V

*Decreases with the logarithm of the frequency

5.4. TEST EQUIPMENT LIST

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Receiver	RHODE & SCHWARZ	ESIB26	A2642021	10/2018	12/2020
Cable	-	-	A5329417	09/2018	09/2020
V ISLN	ROHDE & SCHWARZ	ESH2-Z5	C2322002	08/2018	08/2019
Reference ground plan 2 x 3m	L.C.I.E.	-	-	-	-
Pulse limiter	ROHDE & SCHWARZ	ESH3-Z2	A2649008	03/2018	03/2019

Note: In our quality system, the test equipment calibration due is more & less 2 months

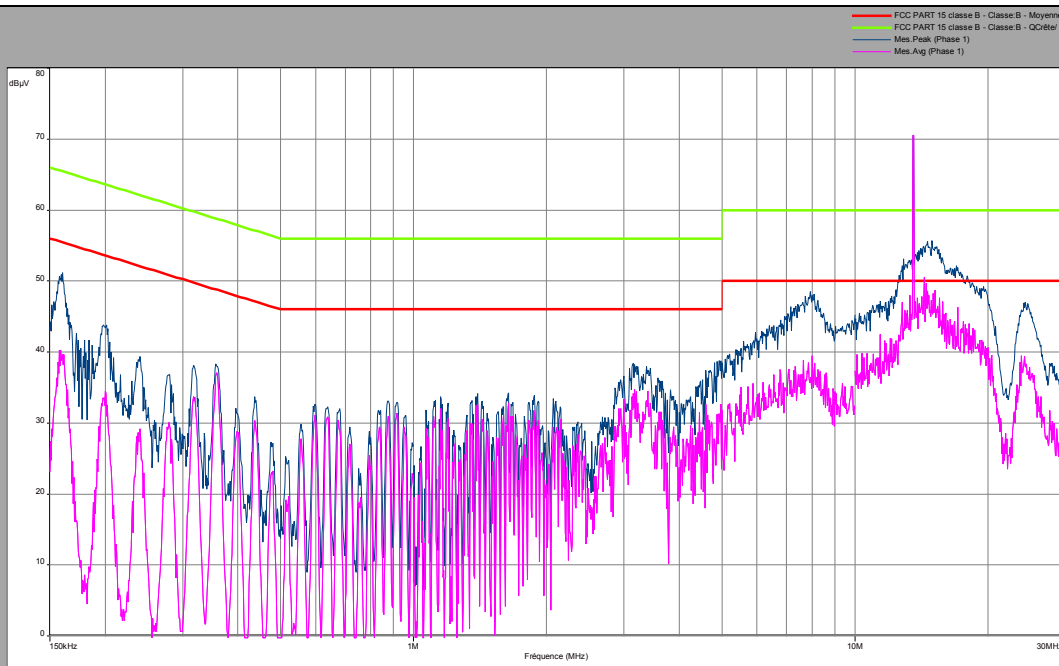
5.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None Divergence:

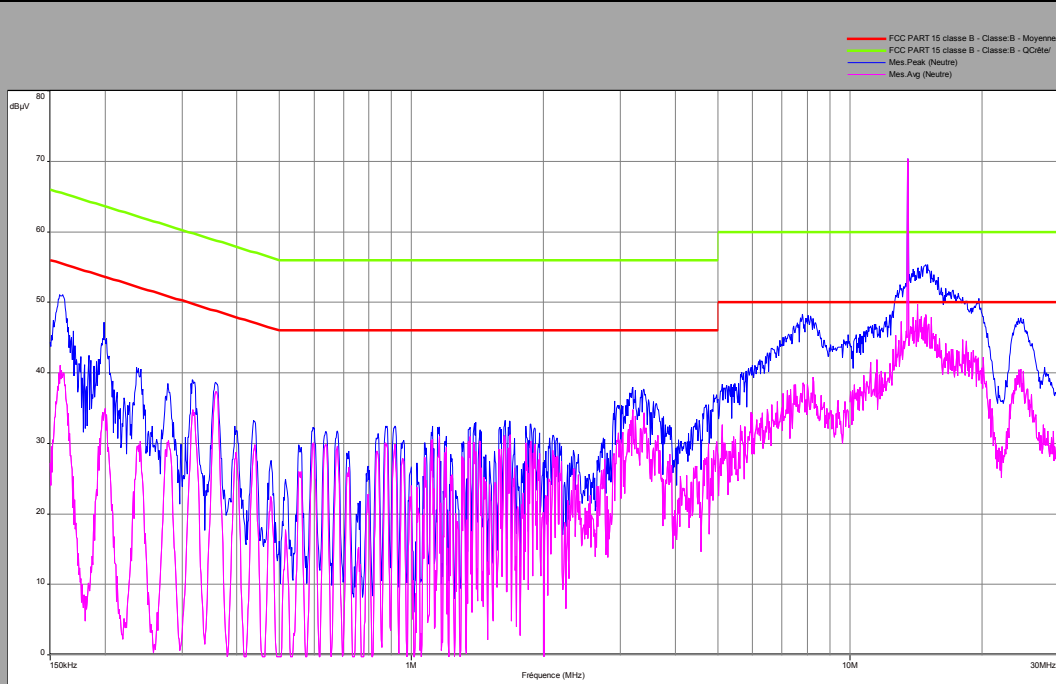
5.6. RESULTS

**AC Power Line Conducted Emission
RF ON with even drawers (with antenna)**

Phase



Line





L C I E

RF ON with even drawers

Phase line

Frequency (MHz)	Peak Level (dB μ V)	Quasi-Peak Limit (dB μ V)	Peak Margin (dB)	Average Level (dB μ V)	Average Limit (dB μ V)	Average Margin (dB)
0.161	46.8	65.4	18.6	36.4	55.4	19.0
0.321	38.2	59.6	21.4	34.5	49.6	15.1
0.882	31.8	56	24.2	29	46	17.0
10.34	45	60	15.0	40	50	10.0
14	54.5	60	5.5	47.7	50	2.3

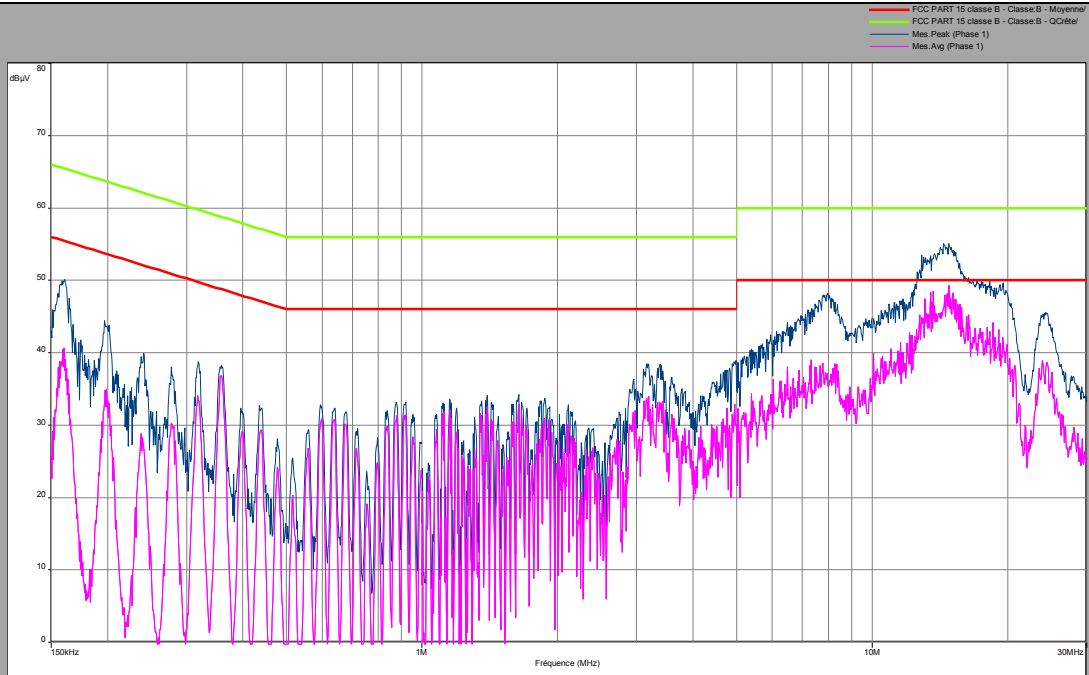
Neutral line

Frequency (MHz)	Peak Level (dB μ V)	Quasi-Peak Limit (dB μ V)	Peak Margin (dB)	Average Level (dB μ V)	Average Limit (dB μ V)	Average Margin (dB)
0.161	51.1	65.4	14.3	40.3	55.4	15.1
0.321	38.3	59.6	21.3	37	49.6	12.6
0.882	32.5	56	23.5	31	46	15.0
8	48	60	12.0	39.4	50	10.6
14	55.5	60	4.5	48.2	50	1.8

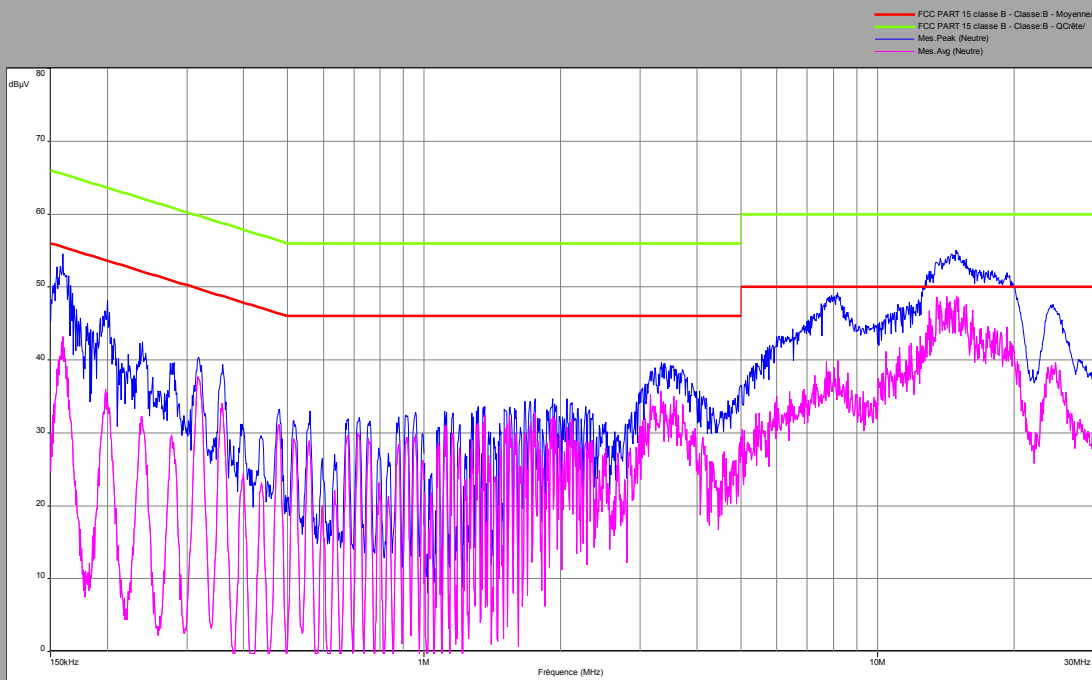


L C I E

AC Power Line Conducted Emission RF ON with even drawers (without antenna) Phase



Line



RF ON with even drawers (without antenna)

Phase line

Frequency (MHz)	Peak Level (dB μ V)	Quasi-Peak Limit (dB μ V)	Peak Margin (dB)	Average Level (dB μ V)	Average Limit (dB μ V)	Average Margin (dB)
0.161	48.9	65.4	16.5	40.6	55.4	14.8
0.321	38	59.6	21.6	36.7	49.6	12.9
0.882	33.2	56	22.8	30.7	46	15.3
7.762	47.8	60	12.2	40.5	50	9.5
14.804	55	60	5.0	49.2	50	0.8

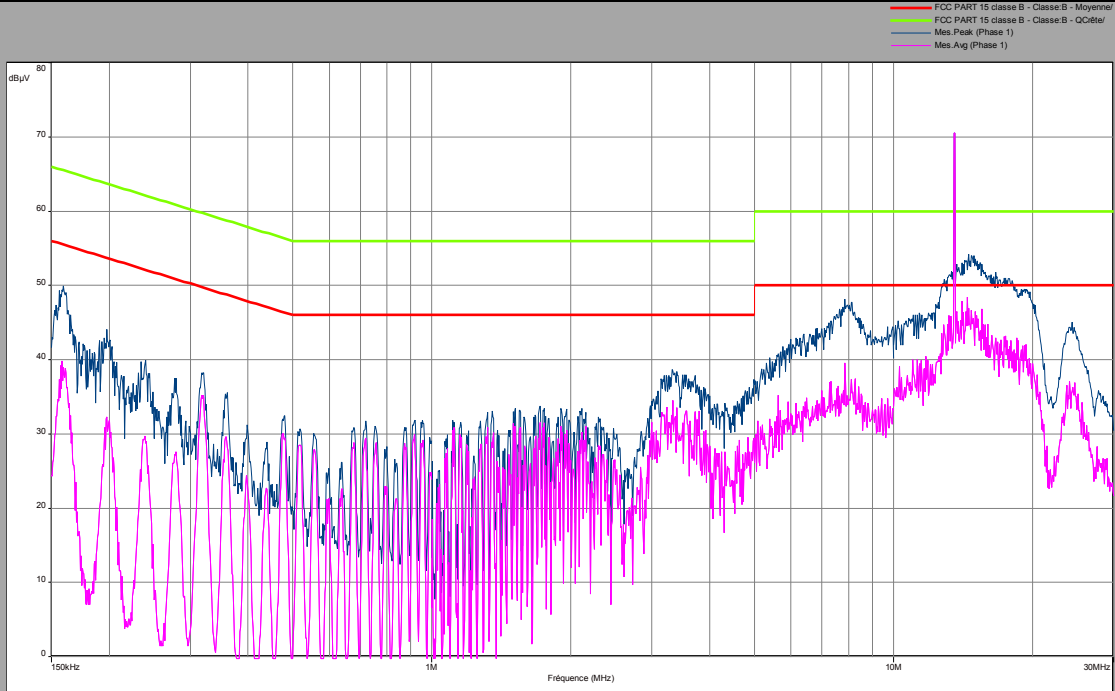
Neutral line

Frequency (MHz)	Peak Level (dB μ V)	Quasi-Peak Limit (dB μ V)	Peak Margin (dB)	Average Level (dB μ V)	Average Limit (dB μ V)	Average Margin (dB)
0.161	54.5	65.4	10.9	43.2	55.4	12.2
0.318	40.4	59.7	19.3	37	49.7	12.7
0.957	32.6	56	23.4	29.8	46	16.2
8.2	47.5	60	12.5	40	50	10.0
13.51	53.4	60	6.6	48.5	50	1.5

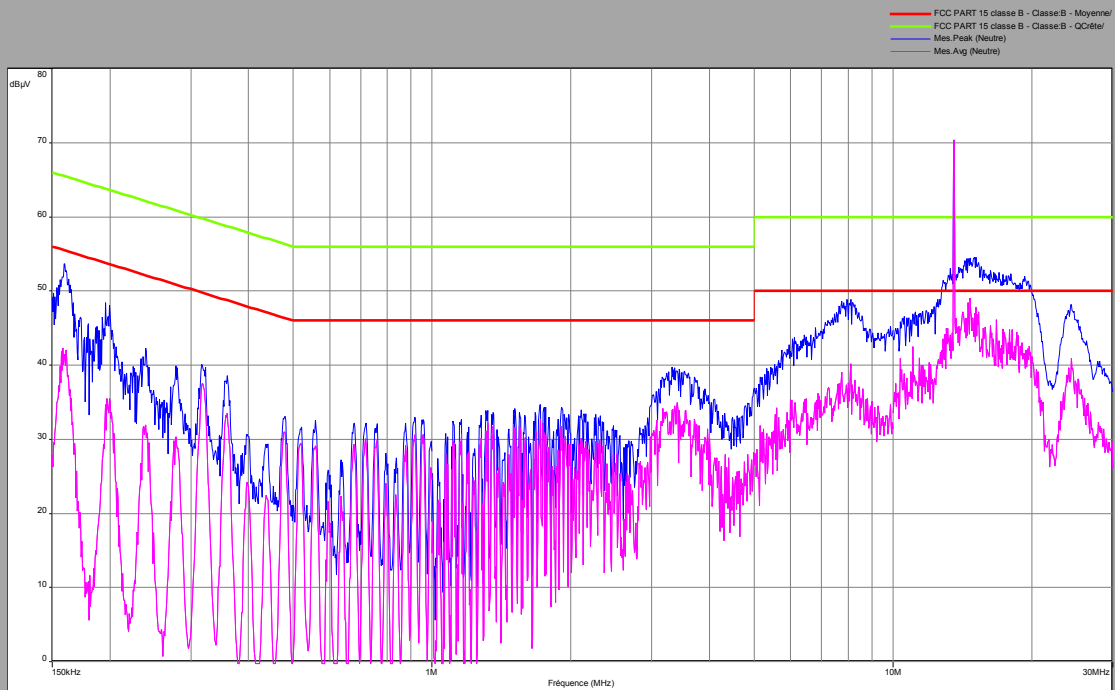


L C I E

AC Power Line Conducted Emission RF ON with odd drawers (with antenna) Phase



Line



RF ON with odd drawers (with antenna)

Phase line

Frequency (MHz)	Peak Level (dB μ V)	Quasi-Peak Limit (dB μ V)	Peak Margin (dB)	Average Level (dB μ V)	Average Limit (dB μ V)	Average Margin (dB)
0.161	49.4	65.4	16.0	39.8	55.4	15.6
0.319	38.3	59.7	21.4	35.3	49.7	14.4
0.918	31.7	56	24.3	29.2	46	16.8
7.836	48.2	60	11.8	39.5	50	10.5
14.0	56.7	60	3.3	48.1	50	1.9

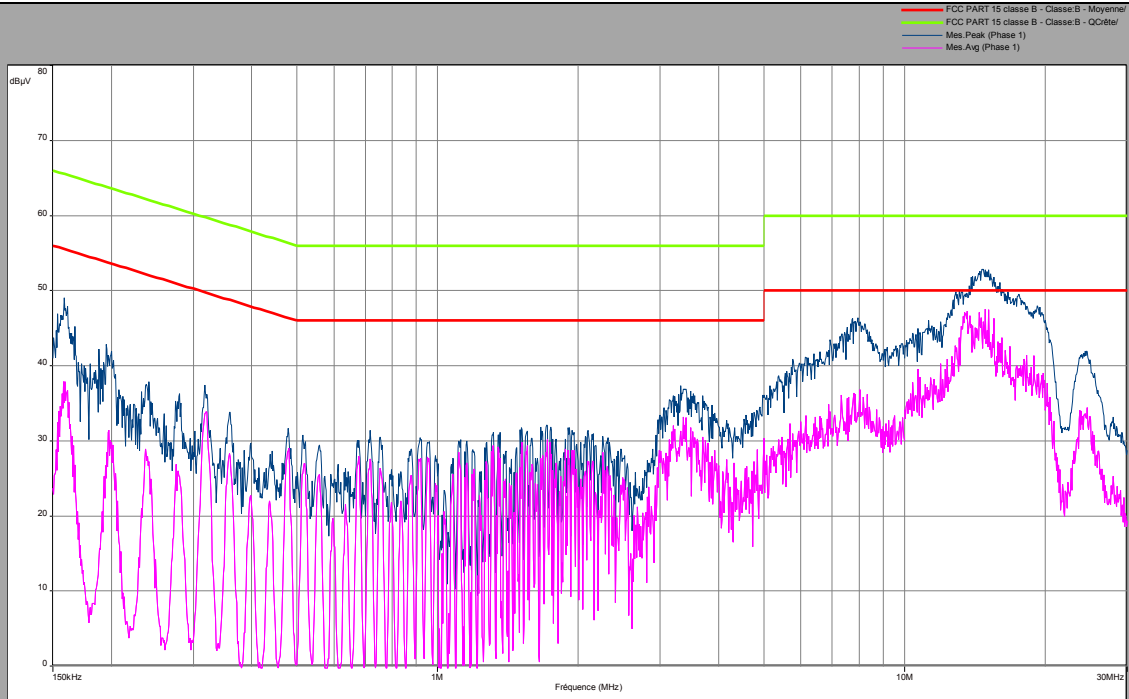
Neutral line

Frequency (MHz)	Peak Level (dB μ V)	Quasi-Peak Limit (dB μ V)	Peak Margin (dB)	Average Level (dB μ V)	Average Limit (dB μ V)	Average Margin (dB)
0.161	53.6	65.4	11.8	41.4	55.4	14.0
0.319	40	59.7	19.7	37.5	49.7	12.2
0.917	32	56	24.0	30.5	46	15.5
8.12	48.8	60	11.2	40.2	50	9.8
14.0	55.6	60	4.4	47.9	50	2.1

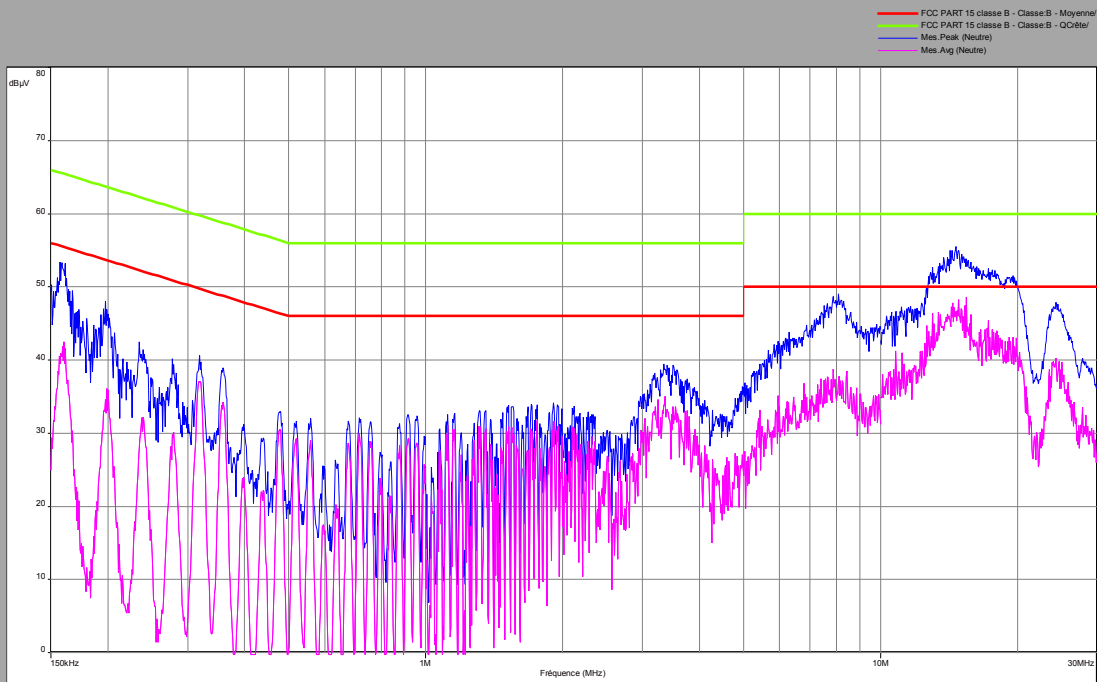


L C I E

AC Power Line Conducted Emission RF ON with ordd drawers (without antenna) Phase



Line





RF ON with odd drawers (without antenna)

Phase line

Frequency (MHz)	Peak Level (dB μ V)	Quasi-Peak Limit (dB μ V)	Peak Margin (dB)	Average Level (dB μ V)	Average Limit (dB μ V)	Average Margin (dB)
0.161	49	65.4	16.4	37.8	55.4	17.6
0.317	37.5	59.7	22.2	33.6	49.7	16.1
0.918	30.3	56	25.7	27.3	46	18.7
7.794	45.8	60	14.2	36.4	50	13.6
14.878	42	60	18.0	47.5	50	2.5

Neutral line

Frequency (MHz)	Peak Level (dB μ V)	Quasi-Peak Limit (dB μ V)	Peak Margin (dB)	Average Level (dB μ V)	Average Limit (dB μ V)	Average Margin (dB)
0.161	52.2	65.4	13.2	42.4	55.4	13.0
0.319	40.6	59.7	19.1	36.9	49.7	12.8
0.917	32.2	56	23.8	29.3	46	16.7
8.08	49	60	11.0	37	50	13.0
15.43	53.8	60	6.2	48.5	50	1.5

5.7. CONCLUSION

Ac Power Line Conducted Emission measurement performed on the sample of the product **BIOLOG-ID PRD_7130400B**, SN: **BI1828000101**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 & RSS Gen ISSUE 5 limits.

6. FIELD STRENGTH OUTSIDE OF THE BANDS 13.110-14.010 MHz

6.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
Date of test : November 21, 2018 to November 23, 2018
Ambient temperature : 17 to 19 °C
Relative humidity : 48 to 50 %

6.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013).

Test is performed in parallel, perpendicular and ground parallel axis with a loop antenna below 30MHz. Measurement bandwidth was 200Hz below 150kHz and 9kHz between 150kHz & 30MHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height was 1m. The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **3m**.

Test is performed in horizontal (H) and vertical (V) polarization with **bilog** between 30MHz & 1GHz. Measurement bandwidth was 120kHz below 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. The EUT is placed at 0.8m high under 1GHz. The EUT is placed **on an open area test site** from 30MHz to 1GHz. Distance between measuring antenna and the EUT is **10m**.



Photograph for Field strength outside of the bands 13.110-14.010 MHz

6.3. LIMIT

Limit at 3m:

9kHz to 0,490MHz: 2400/F(kHz) μ V/m (300m) or 20log(2400/F(kHz))dB μ V/m (3m) QPeak
 0,490MHz to 1.705MHz: 240000/F(kHz) μ V/m (30m) or 20log(240000/F(kHz))dB μ V/m (3m) QPeak
 1.705MHz to 30MHz: 30 μ V/m (30m) or dB μ V/m (3m) QPeak

Limit at 10m:

30MHz to 88MHz: 29.5dB μ V/m QPeak
 88MHz to 216MHz: 33dB μ V/m QPeak
 216MHz to 960MHz: 35.5dB μ V/m QPeak
 960MHz to 1000MHz: 43.5dB μ V/m QPeak
 Above 1000MHz: 63.5B μ V/m Peak
 43.5B μ V/m Average

6.4. TEST EQUIPMENT LIST

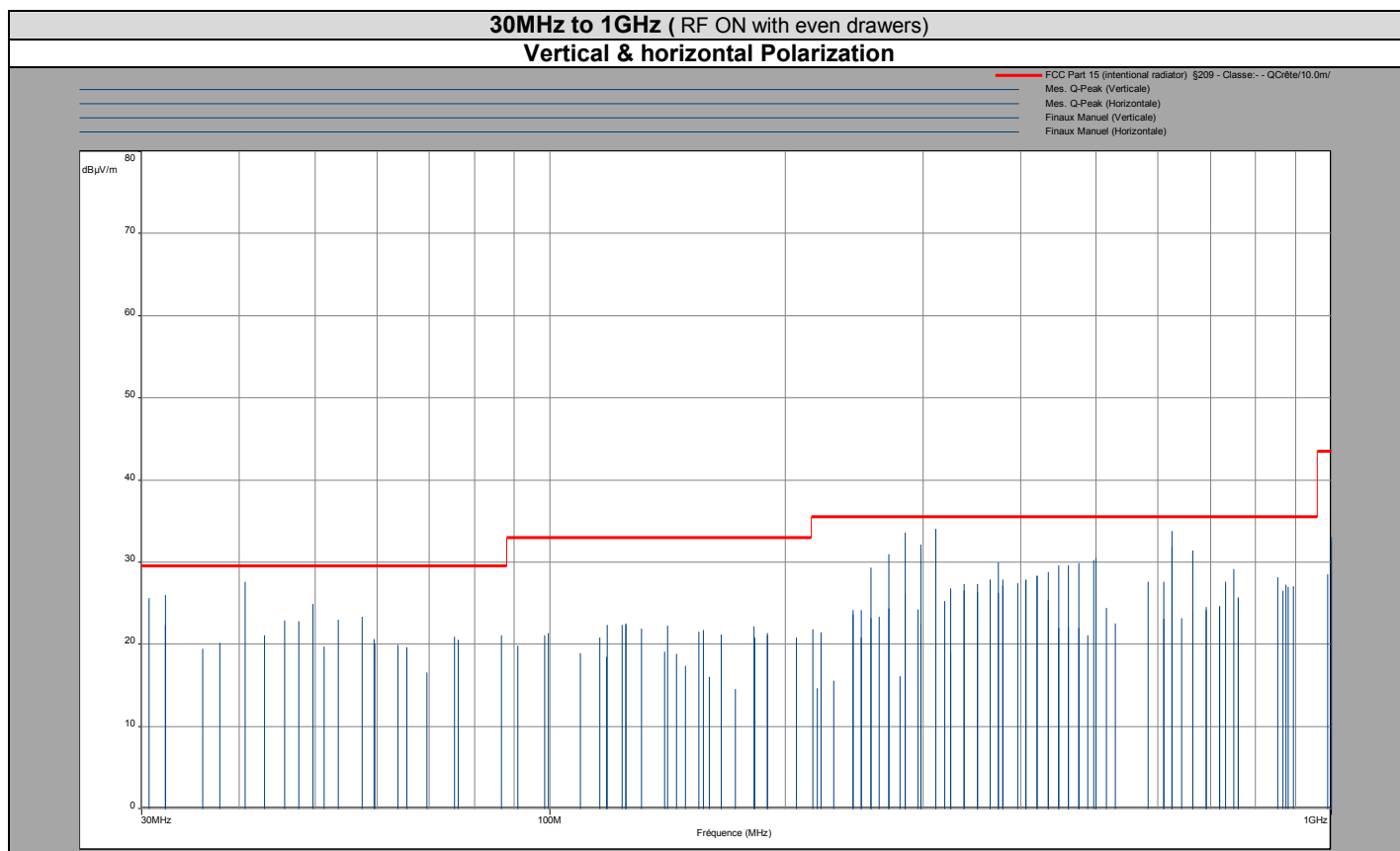
Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Receiver	RHODE & SCHWARZ	ESIB26	A2642021	10/2018	10/2020
Antenna bilog	CHASE	CBL 6112A	C2040040	04/208	04/2019
Loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	12/2017	12/2020
Preamplifier	HEWLETT PACKARD	8449B	A4069002	04/2018	04/2019
Horn	EMCO	.3115	C2042016	04/2018	04/2019
Cable	-	-	A5329449	09/2018	09/2019
Cable	-	-	A5329542	06/2018	06/2019
Cable	-	-	A5329368	11/2018	11/2019
Cable	-	-	A5329444	09/2018	09/2019
OATS	L.C.I.E.	-	F2000400	06/2018	06/2019

Note: In our quality system, the test equipment calibration due is more & less 2 months

6.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None Divergence:

6.6. RESULTS



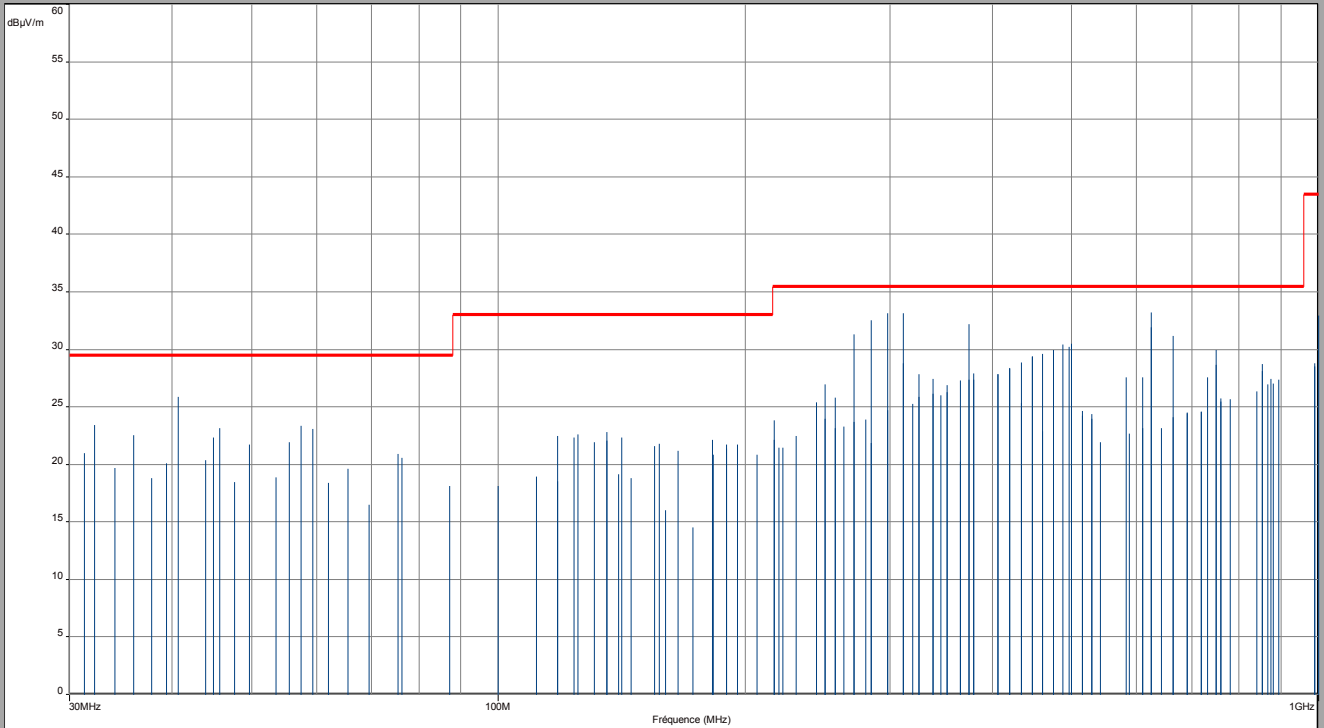
Frequency MHz)	level (dBµV/m)	limit FCC	Margin Fcc
40.7	27.64	29.5	1.86
284.8	33.65	35.5	1.85
311.9	34.08	35.5	1.42
625	33.83	35.5	1.67
664.5	31.43	35.5	4.07
999.9	33.1	43.5	10.4



L C I E

**30MHz to 1GHz(RF ON with odd drawers)
Vertical & horizontal Polarization**

— FCC Part 15 (intentional radiator) §209 - Classe:- - QCRéte/10.0m/
Mes. Q.Peak (Verticale)
Mes. Q.Peak (Horizontale)
Finaux Manuel (Verticale)
Finaux Manuel (Horizontale)



Frequency (MHz)	level (dBµV/m)	limit FCC	Margin Fcc
40.7	25.88	29.5	3.62
284.8	32.53	35.5	2.97
311.9	33.18	35.5	2.32
375	32.2	35.5	3.3
625	33.26	35.5	2.24
999.9	32.93	43.5	10.57



9kHz to 30MHz					
Polarization	Frequency (MHz)	Peak Level (dB μ V/m)	QPeak Level (dB μ V/m)	Limit (dB μ V/m)	Margin QPeak (dB μ V/m)
all emissions were greater than 20 dB below the limit					

6.7. CONCLUSION

Field strength outside of the bands 13.110-14.010 MHz measurement performed on the sample of the product **BIOLOG-ID PRD_7130400B**, SN: **B11828000101**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 & RSS-Gen ISSUE 5 limits.

7. FIELD STRENGTH WITHIN THE BAND 13.110-14.010MHZ

7.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
Date of test : November 20, 2018
Ambient temperature : 17 °C
Relative humidity : 50 %

7.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013). The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **3m**.

Test is performed in parallel, perpendicular and ground parallel axis with a loop antenna below 30MHz. Measurement bandwidth was 200Hz below 150kHz and 9kHz between 150kHz & 30MHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height was 1m.

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. The EUT is place at 0.8m.



Photograph for Field strength within the band 13.110-14.010MHz



7.3. LIMIT

Limit:

Below 13.110MHz:	30 μ V/m (30m) or 69.5dB μ V/m (3m) QPeak
13.110MHz to 13.410MHz:	106 μ V/m (30m) or 80.5dB μ V/m (3m)
13.410MHz to 13.553MHz:	334 μ V/m (30m) or 90.5dB μ V/m (3m)
13.553MHz to 13.567MHz:	15848 μ V/m (30m) or 124dB μ V/m (3m)
13.567MHz to 13.710MHz:	334 μ V/m (30m) or 90.5dB μ V/m (3m)
13.710MHz to 14.010MHz:	106 μ V/m (30m) or 80.5dB μ V/m (3m)
Above 14.010MHz:	30 μ V/m (30m) or 69.5dB μ V/m (3m) QPeak

7.4. TEST EQUIPMENT LIST

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Receiver	RHODE & SCHWARZ	ESIB26	A2642021	10/2018	10/2020
Loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	12/2017	12/2020
Cable	-	-	A5329449	09/2018	09/2019
Cable	-	-	A5329542	06/2018	06/2019
Cable	-	-	A5329368	11/2018	11/2019
Cable	-	-	A5329444	09/2018	09/2019
OATS	L.C.I.E.	-	F2000400	06/2018	06/2019

Note: In our quality system, the test equipment calibration due is more & less 2 months

7.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None Divergence:

7.6. RESULTS

RF ON with even drawers

Parallel Axis		
Frequency (MHz)	QPeak Level (dB μ V/m) (3m)	Limit (dB μ V/m) (3m)
Below 13.110	28.4	69.5
13.110 to 13.410	30.2	80.5
13.410 to 13.553	45.2	90.5
13.553 to 13.567	61.5	124
13.567 to 13.710	43.4	90.5
13.710 to 14.010	30.1	80.5
Above 14.010	29.4	69.5

Ground Parallel Axis		
Frequency (MHz)	QPeak Level (dB μ V/m) (3m)	Limit (dB μ V/m) (3m)
Below 13.110	29.8	69.5
13.110 to 13.410	31.1	80.5
13.410 to 13.553	33.2	90.5
13.553 to 13.567	37.8	124
13.567 to 13.710	32.1	90.5
13.710 to 14.010	31.4	80.5
Above 14.010	30.2	69.5

Perpendicular Axis		
Frequency (MHz)	QPeak Level (dB μ V/m) (3m)	Limit (dB μ V/m) (3m)
Below 13.110	27.9	69.5
13.110 to 13.410	30.1	80.5
13.410 to 13.553	38.4	90.5
13.553 to 13.567	58	124
13.567 to 13.710	40.3	90.5
13.710 to 14.010	30.9	80.5
Above 14.010	30.1	69.5



RF ON with odd drawers

Parallel Axis		
Frequency (MHz)	QPeak Level (dBµV/m) (3m)	Limit (dBµV/m) (3m)
Below 13.110	29.1	69.5
13.110 to 13.410	31.1	80.5
13.410 to 13.553	44.8	90.5
13.553 to 13.567	60	124
13.567 to 13.710	42.9	90.5
13.710 to 14.010	31.3	80.5
Above 14.010	29.8	69.5

Ground Parallel Axis		
Frequency (MHz)	QPeak Level (dBµV/m) (3m)	Limit (dBµV/m) (3m)
Below 13.110	30.2	69.5
13.110 to 13.410	31.5	80.5
13.410 to 13.553	32.9	90.5
13.553 to 13.567	38.2	124
13.567 to 13.710	31.9	90.5
13.710 to 14.010	30.5	80.5
Above 14.010	30.9	69.5

Perpendicular Axis		
Frequency (MHz)	QPeak Level (dBµV/m) (3m)	Limit (dBµV/m) (3m)
Below 13.110	29.2	69.5
13.110 to 13.410	31.2	80.5
13.410 to 13.553	39.8	90.5
13.553 to 13.567	56.5	124
13.567 to 13.710	38.9	90.5
13.710 to 14.010	31.8	80.5
Above 14.010	31.3	69.5

7.7. CONCLUSION

Field strength within the band 13.110-14.010MHz measurement performed on the sample of the product **BIOLOG-ID PRD_7130400B**, SN: **BI1828000101**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 & RSS 210 ISSUE 9 limits.



L C I E

8. UNCERTAINTIES CHART

47 CFR Part 15.209 & 15.207 Kind of test	Wide uncertainty laboratory (k=2) $\pm x(\text{dB}) / (\text{Hz}) /$ ms	Uncertainty limit
Measurement of conducted disturbances in voltage on the AC power port (9 kHz – 150 kHz)	2,67	3.8
Measurement of conducted disturbances in voltage on the AC power port (150 kHz – 30 MHz)	2,67	3.4
Measurement of conducted disturbances in voltage on the telecommunication port. (AAN)	3,67	5.0
Measurement of conducted disturbances in current (current clamp)	2,73	2.9
Measurement of disturbance power	2,67	4.5
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC V01	4,48	/
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC C01	4,48	/
Measurement of radiated electric field from 30 to 1000MHz in horizontal position on the OATS (Ecuellas)	4,88	6.3
Measurement of radiated electric field from 1 to 18GHz on the Ecuellas site	5.16	/
Measurement of radiated electric field from 30 to 1000MHz in vertical position on the OATS (Ecuellas)	4,99	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC C01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC C01	5,16	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC V01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC V01	5,15	6.3
Measurement of radiated electric field from 1 to 6 GHz C01	5,1	5.2
Measurement of radiated electric field from 1 to 6 GHz V01	4,85	5.2
Measurement of radiated magnetic field from 10kHz to 30MHz on the OATS (Ecuellas)	4,48	/

The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the CISPR. The conformity of the sample is directly established by the applicable limits values. This table includes all uncertainties maximum feasible for testing in the laboratory, whether or not made in this report