RFID 13,56MHz Template: Release October 10th, 2016

TEST REPORT

N°: 143466-690273B **Version : 01**

Subject	**Radio spectrum matters tests according to standards: 47 CFR Part 15.225**
Issued to	**BIOLOG ID** **1 rue du commandant Robert Malrait** **ZA de granges** **27 300 BERNAY** **France**
Apparatus under test	
Product	**PRD713**
Trade mark	**BIOLOG ID**
Manufacturer	**BIOLOG ID**
Model under test	**PRD-7130100C Rev0**
Serial number	**BI 16450000XX**
FCC ID	**2AKUFSSTRBIOLOGID**
Test date	: December 20, 2016 to December 22, 2016
Test location	Fontenay Aux Roses
Composition of document	30 pages
Document issued on	June 7, 2017

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Approved by :
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L C I E

PUBLICATION HISTORY

Version	Date	Author	Modification
01	June 6, 2017	Armand MAHOUNGOU	Creation of the document

SUMMARY

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1. TEST PROGRAM

References

- **47 CFR Part 15.225**
- **ANSI C63.10-2013**

Radio requirement:

Clause (47CFR Part 15.225) Test Description	Test result - Comments			
Occupied Bandwidth	☑ **PASS**	☐ **FAIL**	☐ **NA**	☐ **NP(1)**
AC Power Line Conducted Emission	☑ **PASS**	☐ **FAIL**	☐ **NA(2)**	☐ **NP(1)**
Frequency Tolerance	☑ **PASS**	☐ **FAIL**	☐ **NA**	☐ **NP(1)**
Field strength within the band 13.110-14.010MHz	☑ **PASS**	☐ **FAIL**	☐ **NA**	☐ **NP(1)**
Field strength outside of the bands 13.110-14.010 MHz	☑ **PASS**	☐ **FAIL**	☐ **NA**	☐ **NP(1)**
Receiver Radiated Emissions	☑ **PASS (3)**	☐ **FAIL**	☐ **NA**	☐ **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. INFORMATIONS

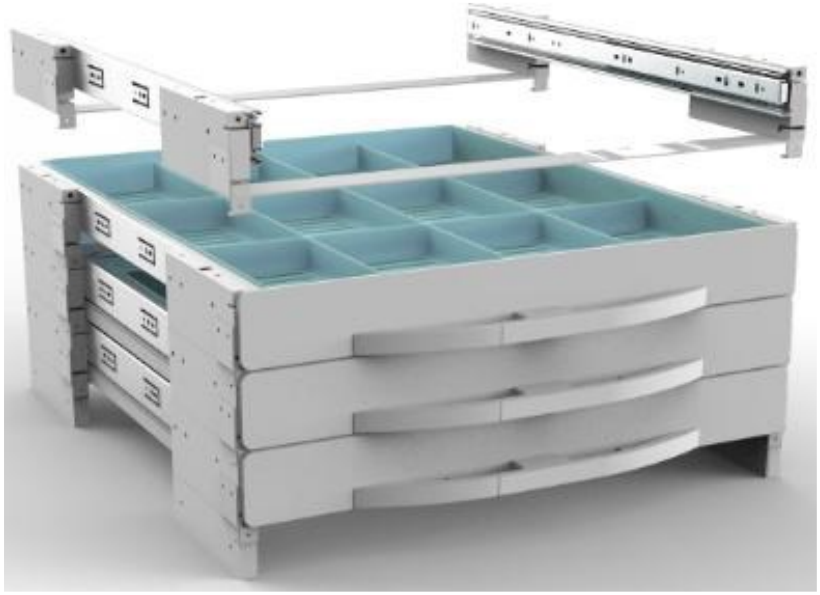
The Smart Storage Device (SST-R) is an accessory of a Blood Bank Refrigerator (or cold room). The intended use is traceability for tracking Red Blood Cell units (RBC) inside a refrigerator (e.g. motion, new entry, exit etc...)
The SST-R drawers are put in a specific and compatible blood bank refrigerator. Users are people working in hospital.
The system allows to track each motion of blood bags (entry/exit) equipped with RFID tags.
The system should be connected to standalone software in order to exchange data or to write information in the memory of the tag.
The SST-R device is based on three mains modules:
- Mechanical drawers, structure supporting drawers, antennas and embedded electronic (for RFID).
- Main computer board with embedded software to pilote RFID and to communicates with standalone software if such system is used.
For RFID functionalities, Frequency is 13,56 Mhz (High Frequency) in compliance with the ISO 15693 standard.

Apparatus of same family:

Compatible refrigerator	**BR 750 CF750***	**BR 490**	**BR 410**	**BR 250**
Ref. kit SST	**PRD-7130100C**	**PRD-7130110C**	**PRD-7130120C**	**PRD-7130130C**
Calculator	PRD_7130001A			
RFID equipped drawer	PRD_7130011C	PRD_7130012C		
Rails (x4)	PRD_7130003A	PRD_7130004A	PRD_7130004B	PRD_7130004C
Wiring harness	CBL_71304A		CBL_71305A	CBL_71306A
storage capacity	15 drawers (5x3) 225 pockets	14 drawers (4x2) 112 pockets	11 drawers (4x2) 88 pockets	5 drawers (4x2) 40 pockets
Interface méchanical	4 rails fixed by 3 screws CHCM5			
Type of assembly	Single bayonet mounting on rail (without tool)			
Power supply	110-220VAC 60W			
wiring	Plug-in connector assembly			
Total mass	117Kg	89Kg	71Kg	29Kg
Light indicator	Blue Led to indicate available slots and Red for flaws			

2.2. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):
BIOLOG ID PRD-7130100C Rev0 **Serial Number: BI 16450000XX**



Equipment Under Test

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Power supply	-	-	☐	☐	☑	-
Ethernet cable	-	-	☐	☐	☑	-
12V power supply on Jack 5.1mm	-	-	☐	☐	☑	-
Ethernet cable on RJ45	-	-	☐	☐	☑	-
Temperature sensor on M8	-	-	☐	☐	☑	-
CAN BUS cable on M8	-	-	☐	☐	☑	-

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Personal computer	-	-	-

Equipment information:

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

Antenna Characteristic			
Antenna assembly	**Gain (dBi)**	**Frequency Band (MHz)**	**Impedance(Ω)**
1	-	13.56	50

Modulation Type
ASK

2.3. RUNNING MODE

The EUT is set in the following modes during tests:
- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
- Permanent reception

Following specific test software “a web browser on computer” is used to set the product:

2.4. EQUIPMENT LABELLING

Power supply

Label stuck on Calculator (PRD 713 0001A01)

Label stuck on drawer unit (PRD 713 0011A01)

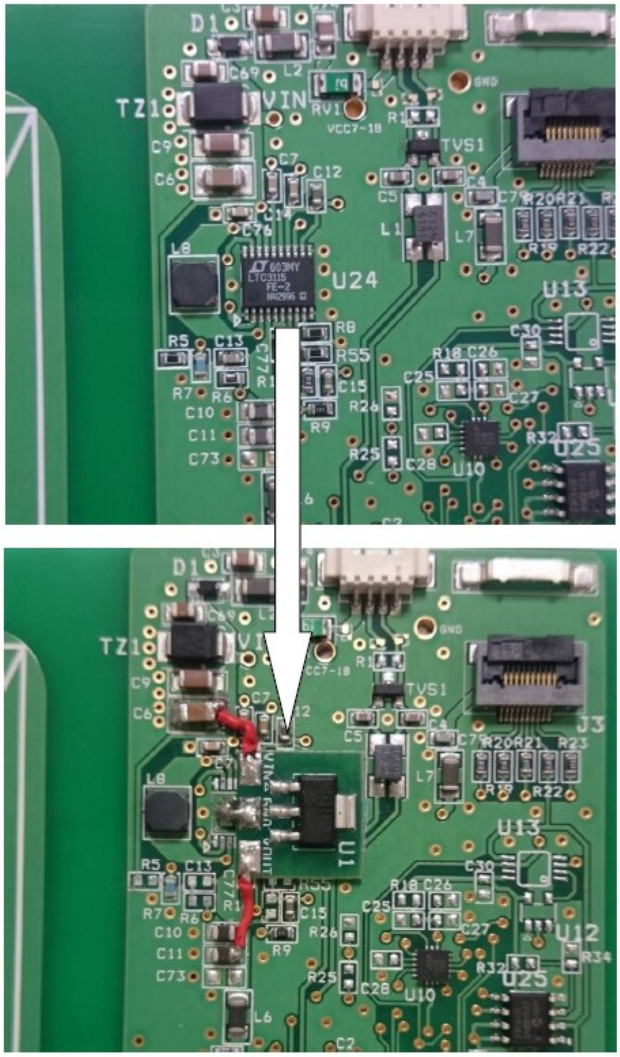
2.5. EQUIPMENT MODIFICATION

☐ None ☑ Modification:

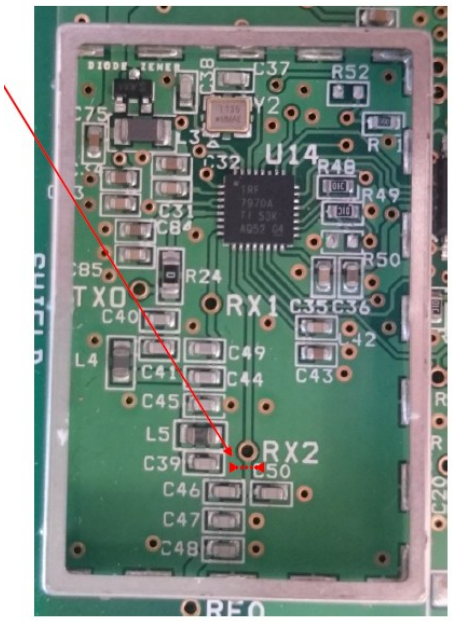
- On the electrical harness CBL_71304A: addition of the card CAR_71308A (DC-DC converter board Vout = 6,5 Volts).

- On the calculator PRD_7130001A: addition of the Lithium-ion battery.

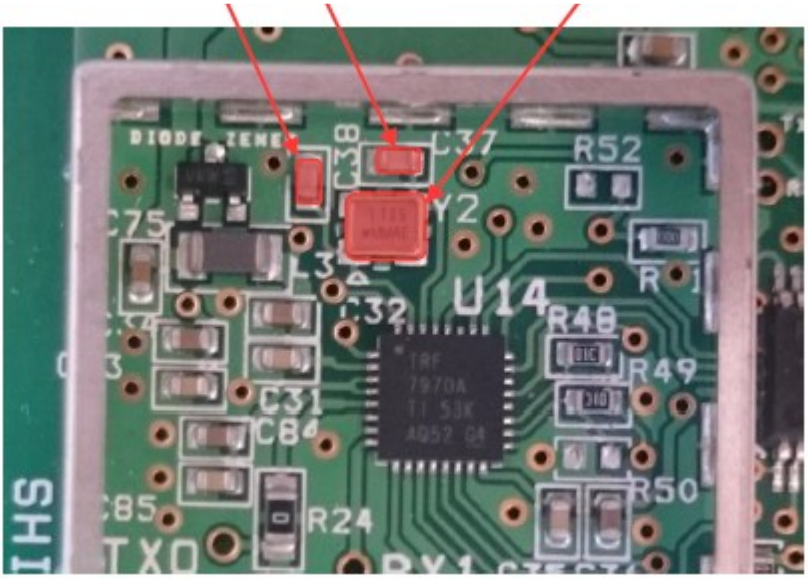
- The switched-mode power supply (LTC3115) and its passive components must be replaced with an MCP1755ST-type LDO power supply mounted on a dedicated PCB. This PCB must be glued to the bare place of the LTC3115 and its three VIN - GND - VOUT pins must be welded to the tracks provided on the RFID card.



- RX2 the track back towards the TR7970A be cut.



- The QUARTZ series must be removed and replaced with an ABM8G-13.560MHZ-18-D2Y-T quartz crystal.
The ceramic capacitors of 27pF C38 and C37 are also to be replaced with 8pF ceramic capacitors.



3. FREQUENCY TOLERANCE

3.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : December 21, 2016
Ambient temperature : 25 °C
Relative humidity : 44 %

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:
☑ ANSI C63.10 § 6.8

Photograph for Frequency Tolerance

3.1. LIMIT

The Center Frequency shall be inside +/-0.01MHz

3.2. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic chamber	VIESSMAN	-	D1025030	2015/03	2017/03
Spectrum analyzer	ROHDE & SCHWARZ	FSL6	A4060032	2015/04	2017/04
Multi-meter	KEITHLEY	2000	A1242090	2016/05	2017/05
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	2016/06	2018/06
Cable	CABLES & CONNECTIQUES	2.9MD/CSU440AA/2.9MD/2000	A5329360	2016/06	2017/06

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

3.3. RESULTS

EUT activation:	2min							
Voltage:	Vnom							
Temperature:	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C
Frequency (MHz)	13,5602	13,5602	13,5602	13,5602	13,5602	13,5602	13,5600	13,5600
Frequency Drift (%)	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015
EUT activation:	5min							
Voltage:	Vnom							
Temperature:	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C
Frequency (MHz)	13,5602	13,5602	13,5602	13,5602	13,5602	13,5602	13,5600	13,5600
Frequency Drift (%)	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015
EUT activation:	10min							
Voltage:	Vnom							
Temperature:	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C
Frequency (MHz)	13,5602	13,5602	13,5602	13,5602	13,5602	13,5602	13,5600	13,5600
Frequency Drift (%)	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015	0,0015

Temperature	Tnom		
Voltage:	Vmin	Vnom	Vmax
Frequency (MHz)	13,5602	13,5602	13,5602
Frequency Drift (%)	0,0015	0,0015	0,0015

3.4. CONCLUSION

Frequency tolerance measurement performed on the sample of the product **BIOLOG ID PRD-7130100C Rev0**, SN: **BI 16450000XX**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

4. AC POWER LINE CONDUCTED EMISSIONS

4.1. TEST CONDITIONS

Test performed by	: Laurent DENEUX
Date of test	: December 19, 2016 to December 20, 2016
Ambient temperature	: 21 °C
Relative humidity	: 53 %

4.2. 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 50Ω / 50µH. 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)

4.3. LIMIT

Quasi-Peak
0,15kHz to 0,5MHz: 66dBµV to 56dBµV*
0,5MHz to 5MHz: 56dBµV
5MHz to 30MHz: 60dBµV

Average
0,15kHz to 0,5MHz: 56dBµV to 46dBµV*
0,5MHz to 5MHz: 46dBµV
5MHz to 30MHz: 50dBµV

*Decreases with the logarithm of the frequency

4.4. TEST EQUIPMENT LIST

Test Equipment Used					
Description	**Manufacturer**	**Model**	**Identifier**	**Cal. Date**	**Cal. Due**
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2015-12	2016-12
V ISLN	ROHDE & SCHWARZ	ESH2-Z5	C2322001	2016-05	2017-05
Pulse limiter	ROHDE & SCHWARZ	ESH3-Z2	A2649008	2016-03	2017-03
Cable	-	-	A5329417	2016-10	2017-10
Cable	-	-	A5329589	2016-10	2017-10
Ground plane	LCIE	-	-	-	-

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

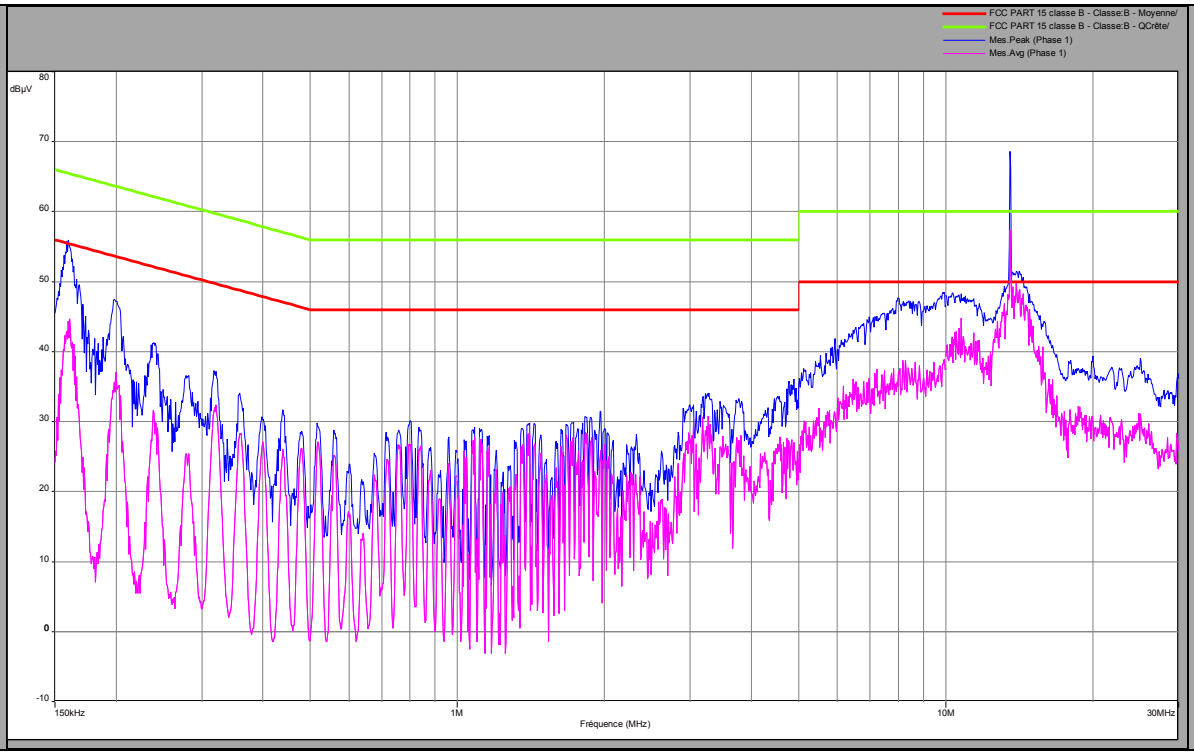
4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

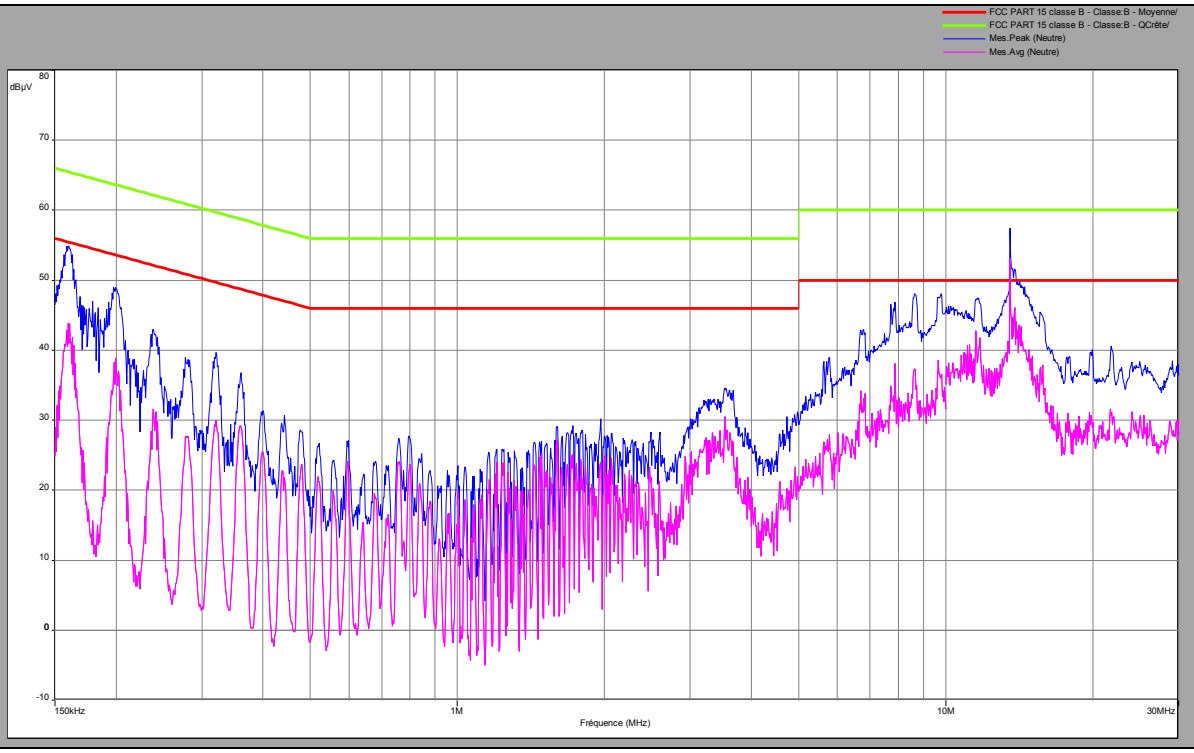
4.6. RESULTS

AC Power Line Conducted Emission (with antenna)

Phase

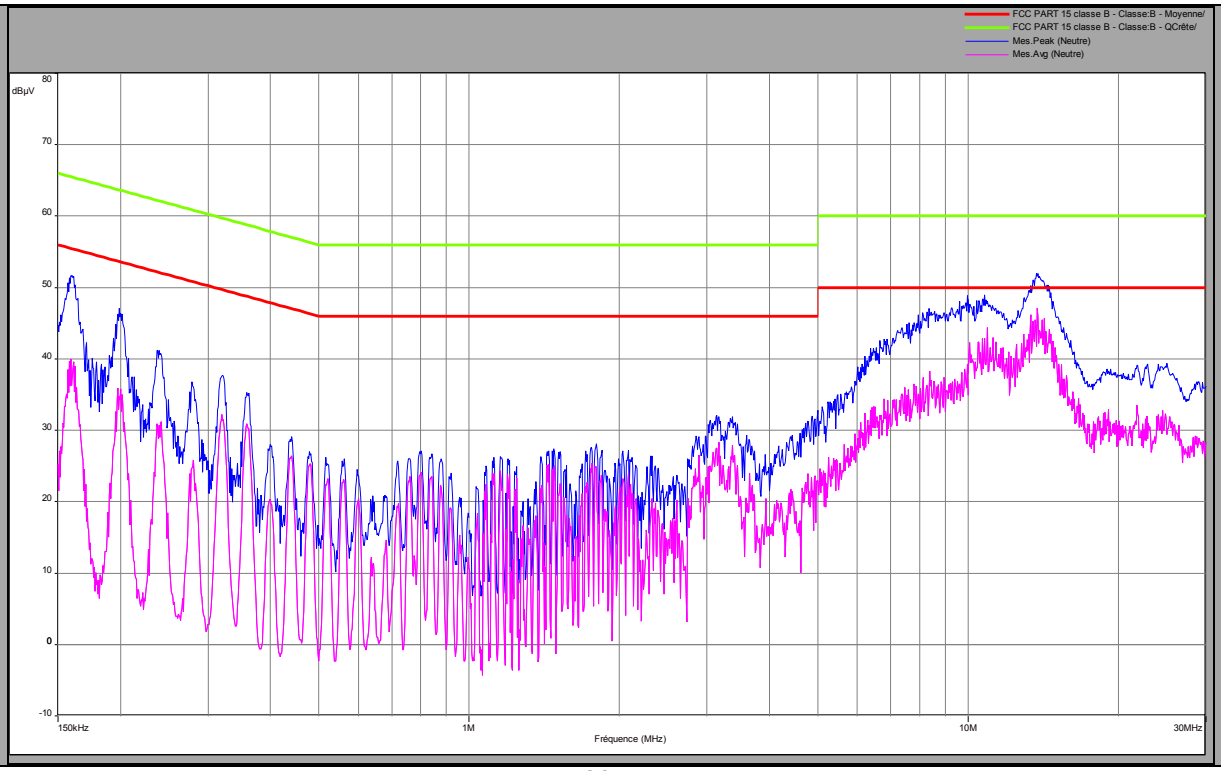


Line

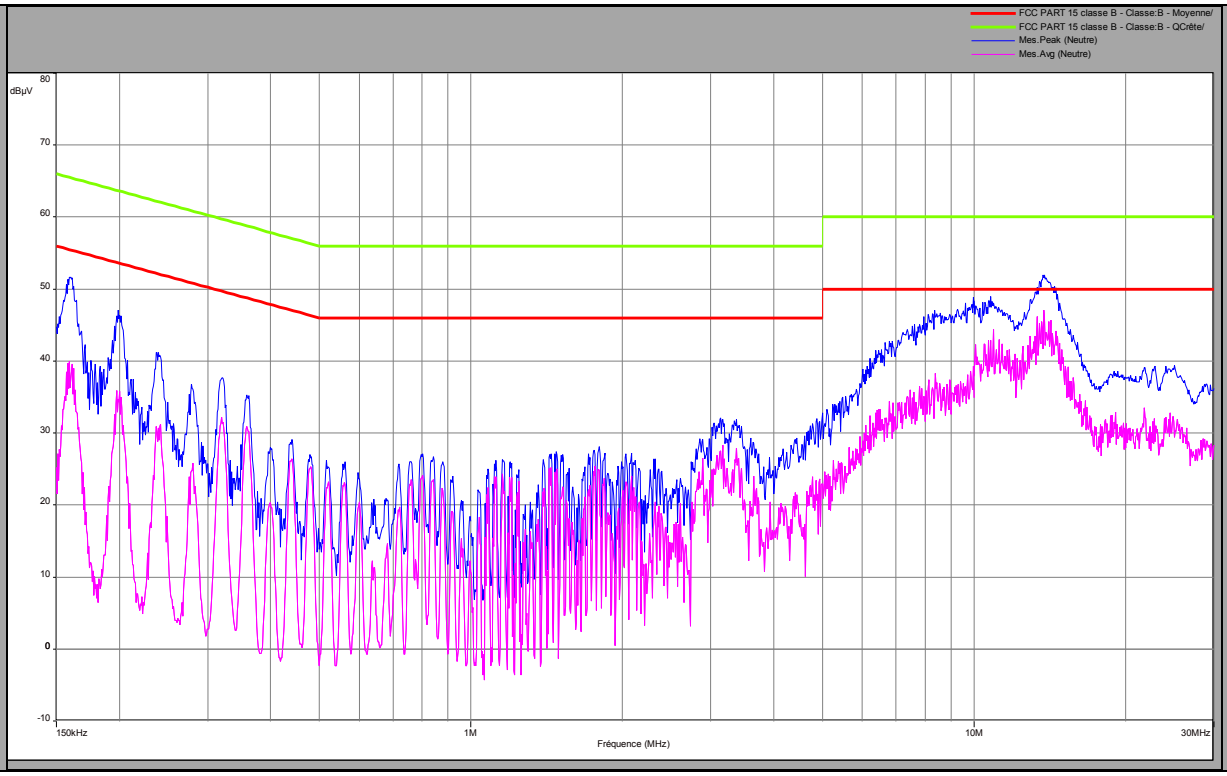


AC Power Line Conducted Emission (without antenna)

Phase



Line



With antenna

Phase Line					
Frequency (MHz)	**Peak Level (dBµV)**	**Quasi-Peak Level (dBµV)**	**Quasi-Peak Limit (dBµV)**	**Average Level (dBµV)**	**Average Limit (dBµV)**
159.7	56	-	64.5	44.7	54.5
321	37.2	-	59.7	32.4	49.7
802.5	30.2	-	56	26.4	46
7992	47.7	-	56	37.2	46
13560	68.6	-	60	57.4	50

Neutral Line					
Frequency (MHz)	**Peak Level (dBµV)**	**Quasi-Peak Level (dBµV)**	**Quasi-Peak Limit (dBµV)**	**Average Level (dBµV)**	**Average Limit (dBµV)**
159.5	54.8	-	65.5	43.9	55.5
321	39.7	-	59.6	39.7	49.6
759	27.4	-	56	24.2	46
7872	46.8	-	60	38	50
13560	56.7	-	60	53.2	50

Without antenna

Phase Line					
Frequency (MHz)	**Peak Level (dBµV)**	**Quasi-Peak Level (dBµV)**	**Quasi-Peak Limit (dBµV)**	**Average Level (dBµV)**	**Average Limit (dBµV)**
160	51.4	-	65.5	40	55.5
320	37.7	-	59.7	31.6	49.7
797	28.8	-	56	26.2	46
3048	32	-	56	28.9	46
13560	51.8	-	60	48	50

Neutral Line					
Frequency (MHz)	**Peak Level (dBµV)**	**Quasi-Peak Level (dBµV)**	**Quasi-Peak Limit (dBµV)**	**Average Level (dBµV)**	**Average Limit (dBµV)**
161.5	51.5	-	65.4	40	55.4
320	37.7	-	59.7	32.2	49.7
1436	27	-	56	25.3	46
10920	48	-	60	44.4	50
13560	51.5	-	60	47	50

4.7. CONCLUSION

Ac Power Line Conducted Emission measurement performed on the sample of the product **BIOLOG ID PRD-7130100C Rev0**, SN: **BI 16450000XX**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

5. FIELD STRENGTH OUTSIDE OF THE BANDS 13.110-14.010 MHZ

5.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
Date of test : December 19, 2016 to December 20, 2016
Ambient temperature : 24 °C
Relative humidity : 35 %

5.2. 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 parrallel and perpendicular 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.

Test is performed in horizontal (H) and vertical (V) polarization with **bilog** between 30MHz & 1GHz and with a horn antenna above 1GHz. 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. The EUT is place at 1.5m high above 1GHz and at 0.8m high under 1GHz.
Distance between measuring antenna and the EUT is **10m**.

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

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

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

5.3. LIMIT

Limit at 3m:
9kHz to 0,490MHz: 2400/F(kHz)µV/m (300m) or 20log(2400/F(kHz))dBµV/m (3m) QPeak
0,490MHz to 1.705MHz: 240000/F(kHz)µV/m (30m) or 20log(240000/F(kHz))dBµV/m (3m) QPeak
1.705MHz to 30MHz: 30µV/m (30m) or dBµV/m (3m) QPeak

Limit at 10m:
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: 63.5BµV/m Peak
43.5BµV/m Average

5.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal. Date	Cal. Due
Open test site	LCIE	-	F2000400	2016-05	2017-05
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2015-12	2016-12
Preamplifier	HELWETT PACKARD	8449B	A7080071	2016-01	2017-01
Bilog antenna	CHASE	CBL 6112A	C2040040	2016-01	2017-01
Loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2015-11	2016-11
Horn	ETS	3115	C2042023	2016-01	2017-01
Cable	-	-	A5329542	2016-03	2017-03
Cable	-	-	A5329449	2016-10	2017-10
Cable	-	-	A5329368	2016-05	2017-05
Cable	-	-	A5329444	2016-10	2017-10

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

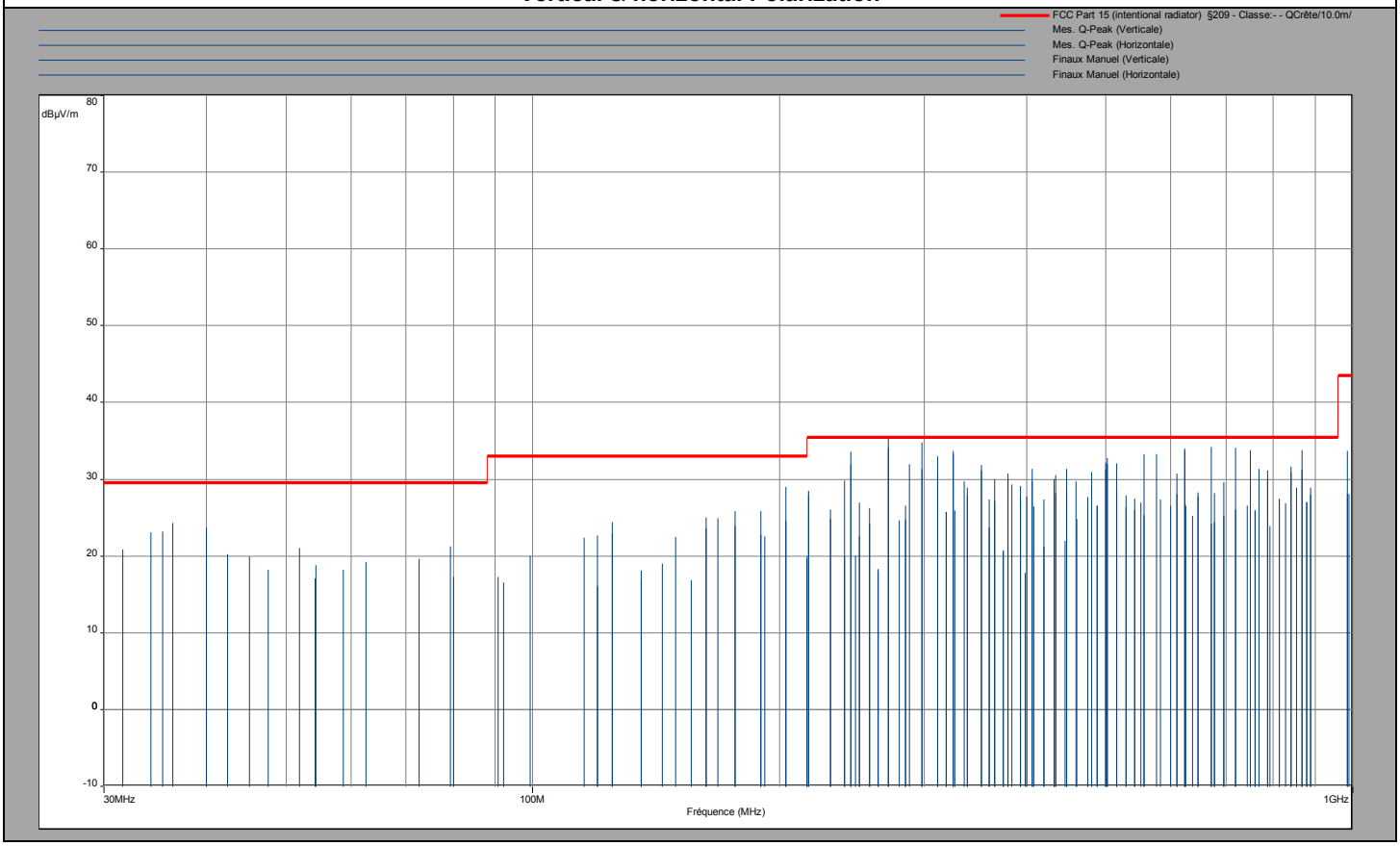
5.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

5.6. RESULTS

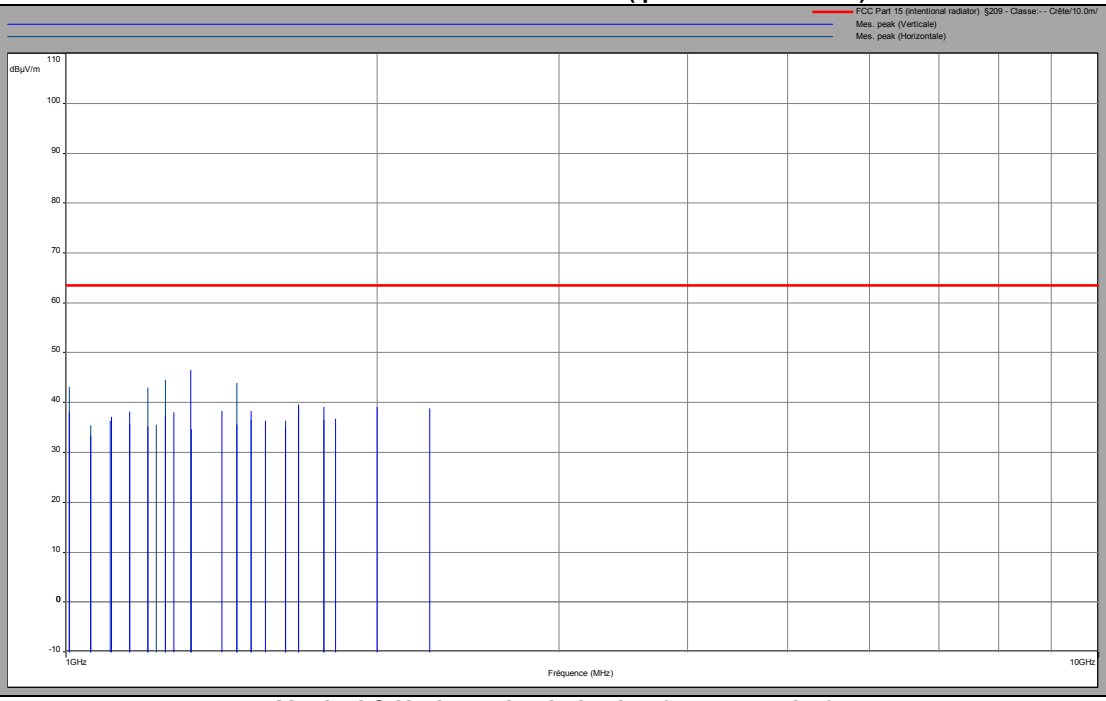
30MHz to 1GHz

Vertical & horizontal Polarization

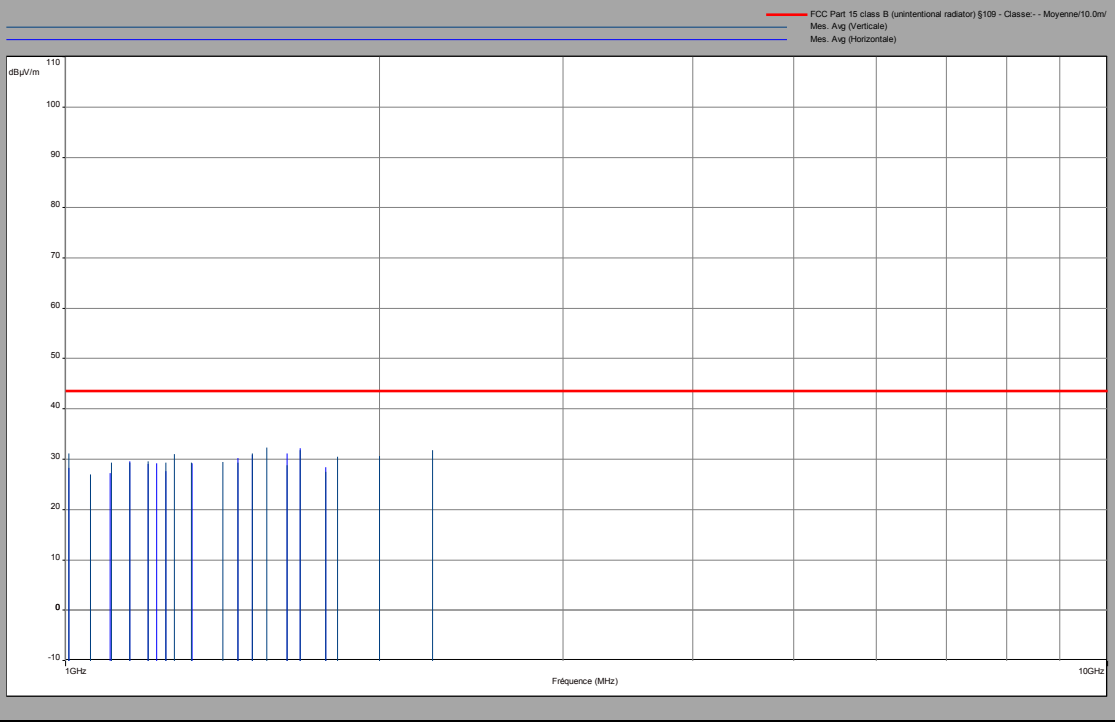


Above 1GHz

Vertical & horizontal Polarization (peak measurement)



Vertical & Horizontal polarization (average value)



9kHz to 30MHz

Polarization	Frequency (MHz)	QPeak Level (dBµV/m)	Limit (dBµV/m)
Perpendicular	25	-37	69.5
parallel	25	-33	69.5

30MHz to 1GHz

Polarization	Frequency (MHz)	QPeak Level (dBµV/m)	Limit (dBµV/m)
Vertical	36.4	24.3	29.5
Vertical	203.4	29.05	33
Vertical	271.2	35.42	35.5
Horizontal	298.3	34.85	35.5
Vertical	556	33.3	35.5
Horizontal	672	34.26	35.5
Horizontal	719.9	34.12	35.5

Above 1GHz						
Polarization	**Frequency (MHz)**	**Duty cycle correction (dB)**	**Average Level (dBµV/m)**	**Average Limit (dBµV/m)**	**Peak Level (dBµV/m)**	**Peak Limit (dBµV/m)**
Vertical	1008	0	31.22	43.5	38.02	63.5
Vertical	1055.9	0	26.96	43.5	33.37	63.5
Vertical	1106	0	29.4	43.5	37.15	63.5
Vertical	1152	0	29.35	43.5	38.26	63.5
Vertical	1199.9	0	29.62	43.5	35.26	63.5
Vertical	1247.9	0	29.34	43.5	37.38	63.5
Vertical	1271.9	0	31.02	43.5	38.07	63.5
Vertical	1320	0	29.41	43.5	46.55	63.5
Vertical	1415.9	0	29.43	43.5	38.29	63.5
Vertical	1463.9	0	29.33	43.5	35.57	63.5
Vertical	1511.9	0	31.12	43.5	38.3	63.5
Vertical	1559.9	0	32.35	43.5	36.41	63.5
Vertical	1631.9	0	28.89	43.5	35.13	63.5
Vertical	1680	0	31.8	43.5	39.63	63.5
Vertical	1776	0	27.51	43.5	39.17	63.5
Vertical	1823.9	0	30.56	43.5	36.78	63.5
Vertical	2000.1	0	30.7	43.5	39.09	63.5
Vertical	2250.1	0	31.81	43.5	38.81	63.5
Horizontal	1007.9	0	28.32	43.5	43.18	63.5
Horizontal	1055.9	0	26.86	43.5	35.51	63.5
Horizontal	1103.9	0	27.33	43.5	36.41	63.5
Horizontal	1152	0	29.62	43.5	35.69	63.5
Horizontal	1199.9	0	29.09	43.5	42.98	63.5
Horizontal	1223.9	0	29.27	43.5	35.65	63.5
Horizontal	1247.9	0	27.68	43.5	44.54	63.5
Horizontal	1322	0	29.19	43.5	34.71	63.5
Horizontal	1463.9	0	30.29	43.5	43.92	63.5
Horizontal	1511.9	0	30.98	43.5	36.55	63.5
Horizontal	1631.9	0	31.11	43.5	36.44	63.5
Horizontal	1679.9	0	32.23	43.5	38.72	63.5
Horizontal	1775.9	0	28.44	43.5	36.5	63.5

5.7. CONCLUSION

Field strength outside of the bands 13.110-14.010 MHz measurement performed on the sample of the product **BIOLOG ID PRD-7130100C Rev0**, SN: **BI 16450000XX**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

6. FIELD STRENGTH WITHIN THE BAND 13.110-14.010MHz

6.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
Date of test : December 19, 2016 to December 20, 2016
Ambient temperature : Temperature 19°C
Relative humidity : Humidity 47%

6.2. 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 parrallel and perpendicular 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

Photograph for Field strength within the band 13.110-14.010MHz

6.3. LIMIT

Limit:

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

6.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal. Date	Cal. Due
Open test site	LCIE	-	F2000400	2016-05	2017-05
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2015-12	2016-12
Loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2015-11	2016-11
Cable	-	-	A5329449	2016-10	2017-10
Cable	-	-	A5329368	2016-05	2017-05
Cable	-	-	A5329444	2016-10	2017-10

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

Parallel Axis

Frequency (MHz)	QPeak Level (dBµV/m) (3m)	Limit (dBµV/m) (3m)
Below 13.110	33	69.5
13.110 to 13.410	35	80.5
13.410 to 13.553	43	90.5
13.553 to 13.567	62.8	124
13.567 to 13.710	47	90.5
13.710 to 14.010	42	80.5
Above 14.010	33	69.5

Perpendicular Axis

Frequency (MHz)	QPeak Level (dBµV/m) (3m)	Limit (dBµV/m) (3m)
Below 13.110	33	69.5
13.110 to 13.410	48	80.5
13.410 to 13.553	47	90.5
13.553 to 13.567	64.5	124
13.567 to 13.710	45	90.5
13.710 to 14.010	41	80.5
Above 14.010	35	69.5

6.7. CONCLUSION

Field strength within the band 13.110-14.010MHz measurement performed on the sample of the product **BIOLOG ID PRD-7130100C Rev0**, SN: **BI 16450000XX**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

7. UNCERTAINTIES CHART

47 CFR Part 15.209 & 15.207 Kind of test	Wide uncertainty laboratory (k=2) ±x(dB) / (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 (Ecuelles)	4,88	6.3
Measurement of radiated electric field from 1 to 18GHz on the Ecuelles site	5.16	/
Measurement of radiated electric field from 30 to 1000MHz in vertical position on the OATS (Ecuelles)	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 (Ecuelles)	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