



LCIE

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

TEST REPORT

N°: 153219-715764-B

Version : 01

Subject

Radio spectrum matters
tests according to standards:
47 CFR Part 15.225 [P](#)

Issued to

SMARTWARE
11 avenue des Andes
91940 – LES ULIS
FRANCE

Apparatus under test

- ↗ Product
- ↗ Trade mark
- ↗ Manufacturer
- ↗ Model under test
- ↗ Family product
- ↗ Serial number
- ↗ FCC ID

INDUSTRIAL PASSPORT STATION
Smartware
Smartware
PST-STAT-4
PST-STAT-4 & PST-STAT-2
UP#1723AA201023A
RPM-PSTSTAT4
RPM-PSTSTAT2

Test date

: February 12, 2018 to July 16, 2018

Test location

Fontenay Aux Roses & Ecuelles

Composition of document

26 pages

Document issued on

July 16, 2018

Written by :
Mathieu CERISIER
Tests operator



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PUBLICATION HISTORY

Version	Date	Author	Modification
01	February 28, 2018	Mathieu CERISIER	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 P	☐ PASS	☐ FAIL	☐ NA	☒ NP(1)
AC Power Line Conducted Emission P	☒ PASS	☐ FAIL	☐ NA(2)	☐ NP(1)
Frequency Tolerance P	☒ PASS	☐ FAIL	☐ NA	☐ NP(1)
Field strength within the band 13.110-14.010MHz P	☒ PASS	☐ FAIL	☐ NA	☐ NP(1)
Field strength outside of the bands 13.110-14.010 MHz P	☒ PASS	☐ FAIL	☐ NA	☐ NP(1)
Receiver Radiated Emissions P	☒ 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

-Tests are performed on the most complete product **Smartware PST-STAT-4** , SN: **UP#1723AA201023A** . See Table below for difference between products.

Assembly	Made of	Remark	Model
2 Contactless Interfaces	US-PICC2 + US-CORE	2 RF transmitters	PST-STAT-2
4 Contactless Interfaces	US-PICC2 + US-PICC2 + US-CORE	4 RF transmitters	PST-STAT-4

2.2. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

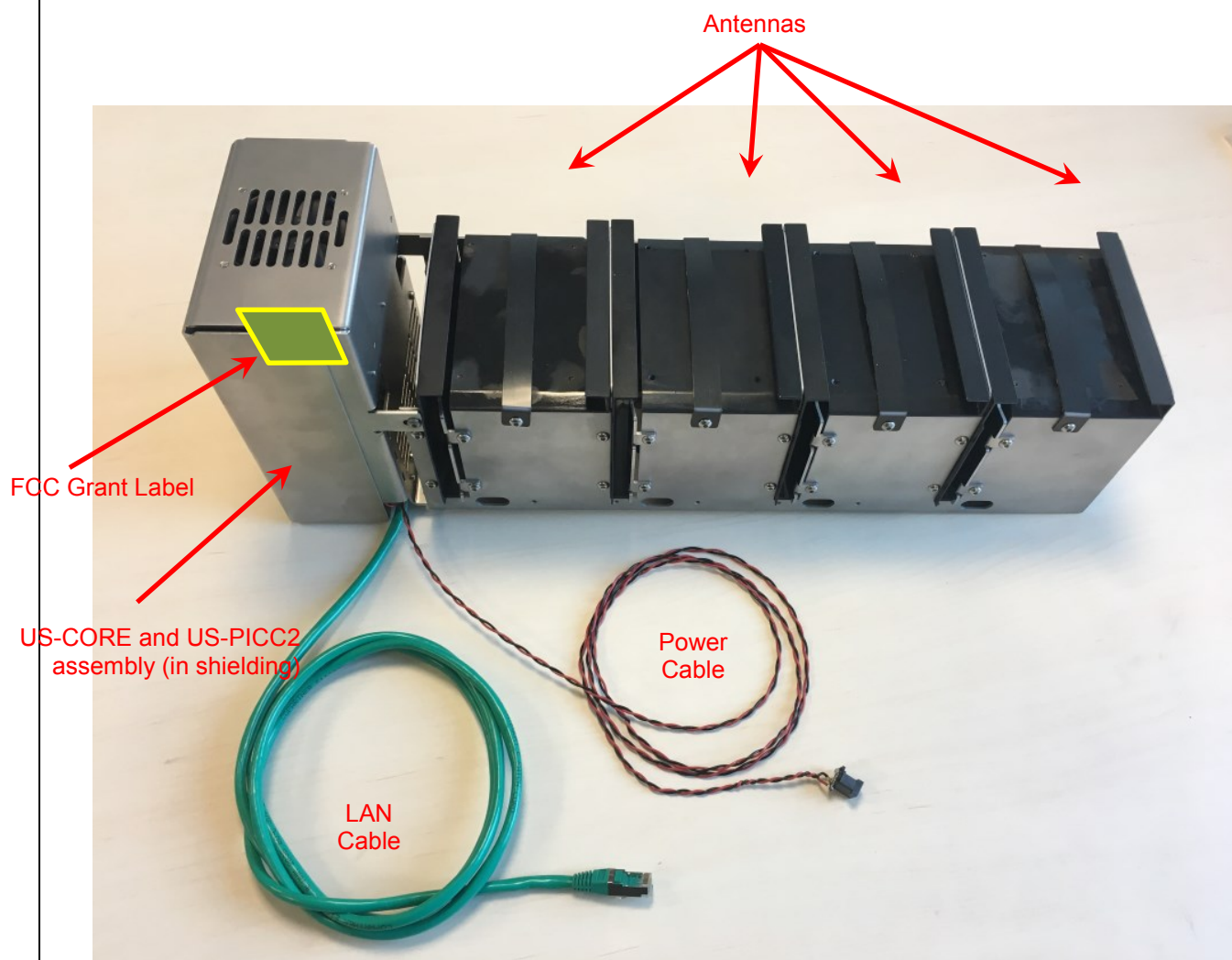
Equipment under test (EUT):

Smartware PST-STAT-4

Serial Number: UP#1723AA201023A



Equipment Under Test



Equipment Under Test



Auxiliary equipment

Equipment information:

Type:	☒ RFID		
Frequency band:	[13.553 to 13.567] MHz		
Number of Channel:	1		
Antenna Type:	☒ Integral	☐ External	☐ Dedicated
Transmit chains:	2 or 4		
Receiver chains:	2 or 4		
Type of equipment:	☒ Stand-alone	☒ Plug-in	☐ Combined
Equipment type:	☒ Production model		☐ Pre-production model
Operating temperature range:	Tmin:	☐ -30°C IC ☒ -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	☒ 10,8Vdc
	Vnom:	☒ 120V/60Hz	☒ 12Vdc
	Vmax:	☐ 138V/60Hz	☒ 13,2Vdc

Antenna Characteristic

Antenna assembly	Gain (dBi)	Frequency Band (MHz)	Impedance(Ω)
1	0	13,554 to 13,567	50



Modulation Type
Amplitude Modulation (Amplitude Shift Keying), Type A : 100 % (OOK)
Amplitude Modulation (Amplitude Shift Keying), Type B : 10 %

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 with tag card
- Setting of power = 10

2.4. EQUIPMENT LABELLING

-

2.5. EQUIPMENT MODIFICATION

☒ None

☐ Modification:

3. FREQUENCY TOLERANCE

3.1. TEST CONDITIONS

Test performed by : Mathieu CERISIER
Date of test : February 15, 2018 to February 16, 2018
Ambient temperature : 22 °C
Relative humidity : 41 %

3.2. TEST SETUP

- The Equipment Under Test is installed:

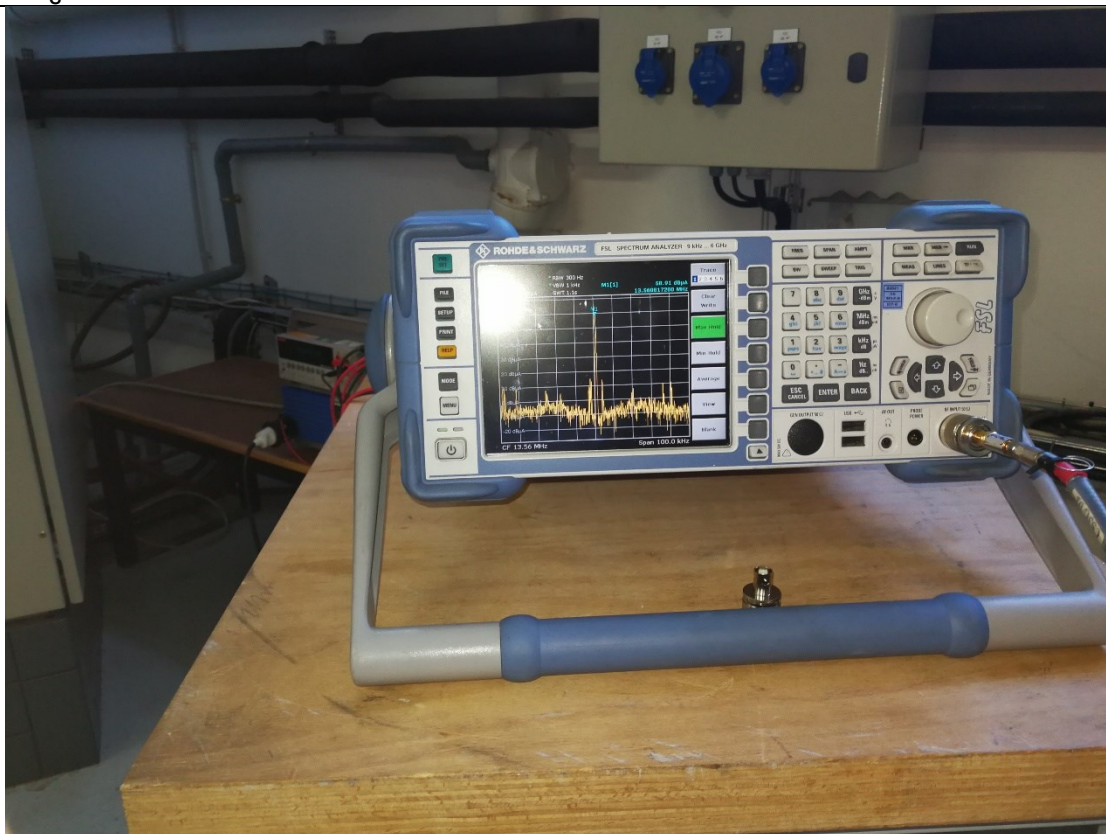
- ☐ On a table
- ☒ In a climatic chamber
- ☐ In an anechoic chamber

- 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

± 100ppm (±0.01%)

3.2. TEST EQUIPMENT LIST

Description	Constructor	Model	N°	Cal. Date	Cal. Due
Cable	-	-	A5329531	2017/04	2018/04
Climatic chamber	-	-	D1024025	2017/09	2018/09
Spectrum analyzer	ROHDE & SCHWARZ	FSL6	A4060032	2017/10	2019/10
Multi-meter	KEITHLEY	2000	A1242090	2016/06	2018/06
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	2016/06	2018/06

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

3.3. RESULTS

Frequency	13,56								
EUT ACTIVATION	Start up								
Voltage	Vnom								
Temperature		-20	-10	0	10	20	30	40	50
Frequency (MHz)		13,5608	13,5609	13,5608	13,5608	13,5608	13,5607	13,5607	13,5608
Frequency Drift (%)		0,0059	0,0066	0,0059	0,0059	0,0059	0,0052	0,0052	0,0059
EUT ACTIVATION	2min								
Voltage	Vnom								
Temperature		-20	-10	0	10	20	30	40	50
Frequency (MHz)		13,5608	13,5608	13,5608	13,5608	13,5608	13,5607	13,5606	13,5612
Frequency Drift (%)		0,0059	0,0059	0,0059	0,0059	0,0059	0,0052	0,0044	0,0088
EUT ACTIVATION	5min								
Voltage	Vnom								
Temperature		-20	-10	0	10	20	30	40	50
Frequency (MHz)		13,5608	13,5608	13,5608	13,5608	13,5607	13,5607	13,5607	13,5609
Frequency Drift (%)		0,0059	0,0059	0,0059	0,0059	0,0052	0,0052	0,0052	0,0066
EUT ACTIVATION	10min								
Voltage	Vnom								
Temperature		-20	-10	0	10	20	30	40	50
Frequency (MHz)		13,5608	13,5608	13,5608	13,5607	13,5607	13,5607	13,5607	13,5611
Frequency Drift (%)		0,0059	0,0059	0,0059	0,0052	0,0052	0,0052	0,0052	0,0081

Temperature	Tnom		
Voltage	Vmin	Vnom	Vmax
Frequency (MHz)	13,5608	13,5607	13,5607
Frequency Drift (%)	0,0059	0,0052	0,0052

3.4. CONCLUSION

Frequency tolerance measurement performed on the sample of the product **Smartware PST-STAT-4** , SN: **UP#1723AA201023A** , in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

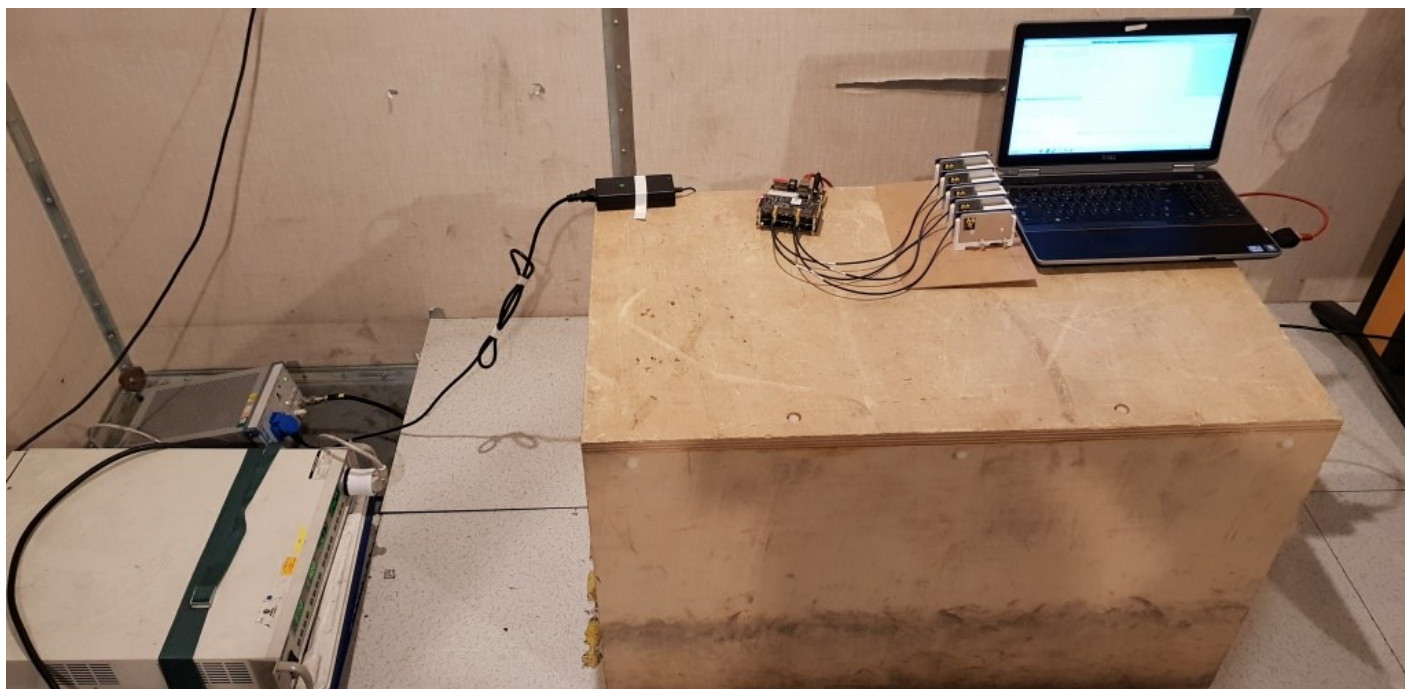
4. AC POWER LINE CONDUCTED EMISSIONS

4.1. TEST CONDITIONS

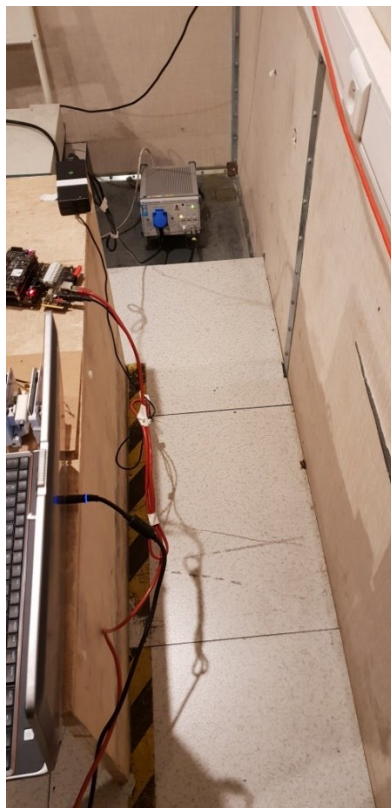
Test performed by : Mathieu CERISIER
Date of test : July 16, 2018
Ambient temperature : 23 °C
Relative humidity : 45 %

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 $50\Omega / 50\mu\text{H}$. 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)

4.3. 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



4.4. TEST EQUIPMENT LIST

Description	Constructor	Model	N°	Cal. Date	Cal. Due
EMI Receiver	ROHDE & SCHWARZ	ESU26	A2642018	2016/10	2018/10
Pulse limiter	ROHDE & SCHWARZ	ESH3-Z1	A2649004	2018/03	2019/03
Cable	-	-	A5329414	2017/09	2018/09
RSIL	ROHDE & SCHWARZ	ENV215	C2320162	2018/01	2019/01

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 connected

Phase

Description Sous-bande 1

Fréquences: 150 kHz - 30 MHz (Mode: Lin, Pas: 5 kHz)

Réglages: RBW: 9 kHz, VBW: Auto, Durée balayage: 50 ms/Pts, Atténuation: 246746288, Nombre de Balayages: 1, Preamp: Off, LN Preamp: Off, Preselecteur: On

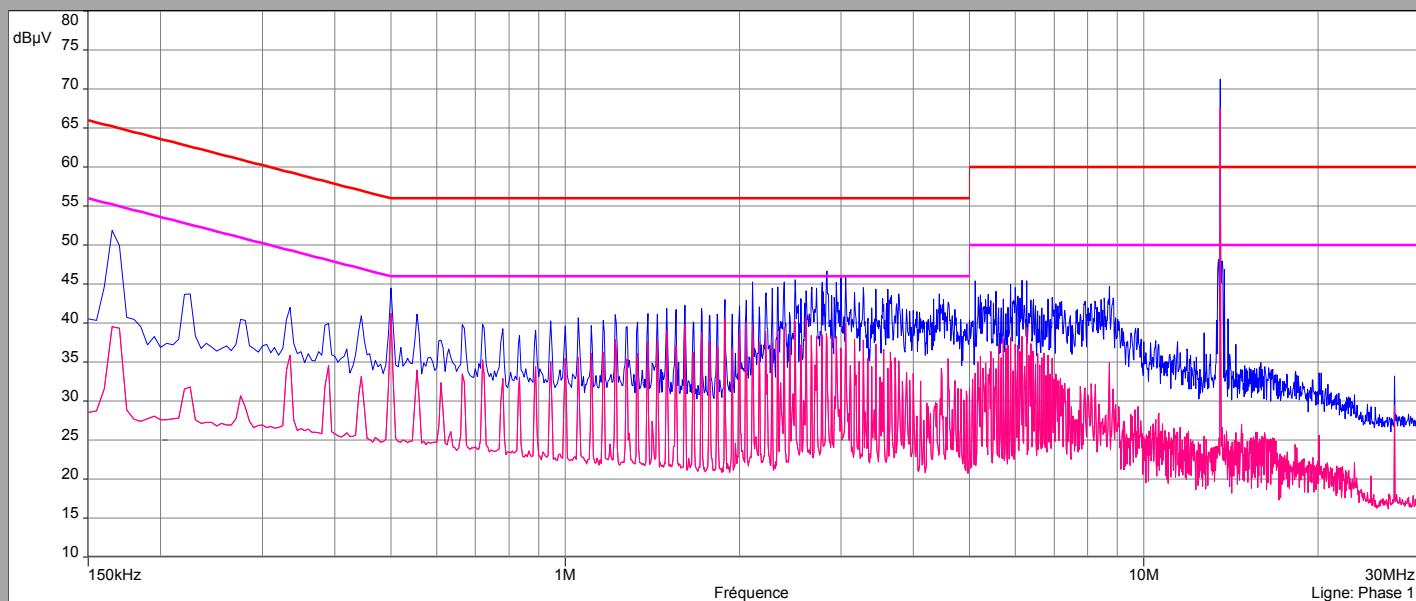
Ligne: Phase 1

FCC/FCC 15.207 - Classe: B - Moyenne/

FCC/FCC 15.207 - Classe: B - QCrête/

Mes. Peak (Phase 1)

Mes. Avg (Phase 1)



Line

Description Sous-bande 2

Fréquences: 150 kHz - 30 MHz (Mode: Lin, Pas: 5 kHz)

Réglages: RBW: 9 kHz, VBW: Auto, Durée balayage: 50 ms/Pts, Atténuation: 246746256, Nombre de Balayages: 1, Preamp: Off, LN Preamp: Off, Preselecteur: On

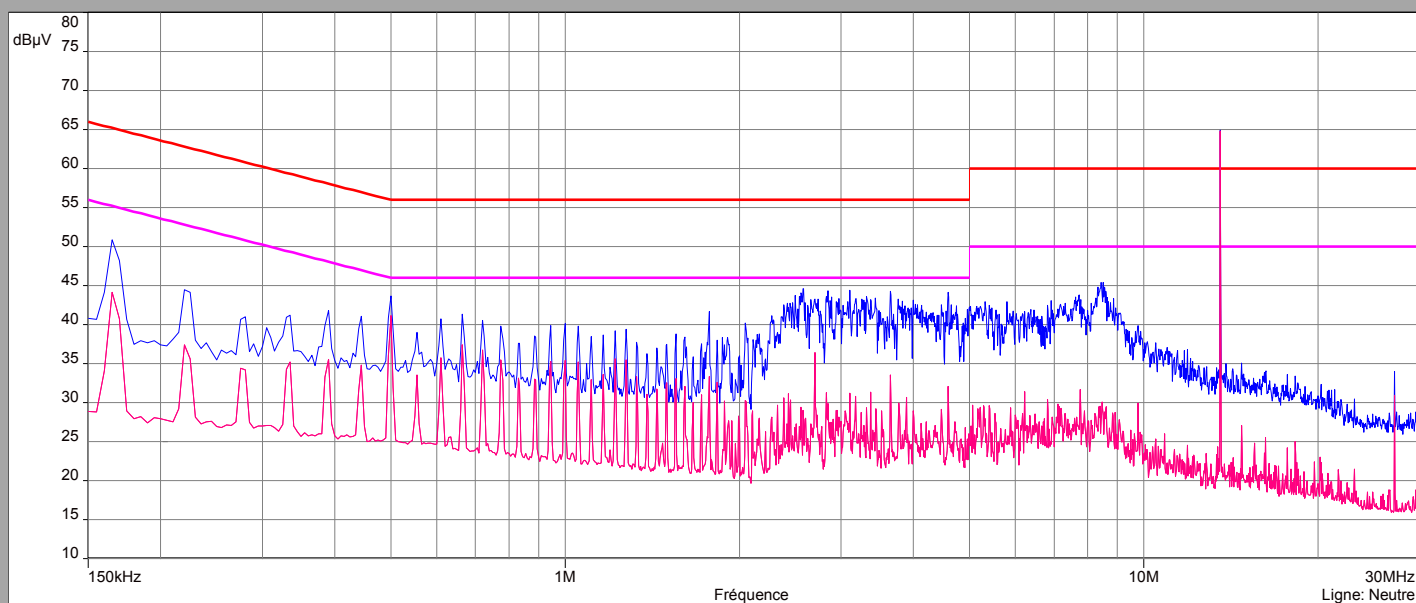
Ligne: Neutre

FCC/FCC 15.207 - Classe: B - Moyenne/

FCC/FCC 15.207 - Classe: B - QCrête/

Mes. Peak (Neutre)

Mes. Avg (Neutre)



Phase Line							
Frequency (MHz)	Peak Level (dBμV)	Quasi-Peak Level (dBμV)	Quasi-Peak Limit (dBμV)	Margin Quasi-Peak (dB)	Average Level (dBμV)	Average Limit (dBμV)	Margin Average (dB)
0.500	44.486	-	56	11.514	41.232	46	4.768
2.11	45.248	-	56	10.752	39.704	46	6.296
2.5	45.570	-	56	10.430	40.189	46	5.811
2.83	46.694	-	56	9.306	38.660	46	7.34
3.055	45.858	-	56	10.142	39.866	46	6.134
3.61	44.371	-	56	11.629	36.289	46	9.711

Neutral Line							
Frequency (MHz)	Peak Level (dBμV)	Quasi-Peak Level (dBμV)	Quasi-Peak Limit (dBμV)	Margin Quasi-Peak (dB)	Average Level (dBμV)	Average Limit (dBμV)	Margin Average (dB)
0.500	43.663	-	56	12.337	41.137	46	4.863
1.775	41.673	-	56	14.327	33.326	46	12.674
2.575	44.584	-	56	11.416	29.029	46	16.983
2.705	43.237	-	56	12.763	36.392	46	9.608
3.65	44.243	-	56	11.757	33.520	46	12.480
4.595	44.143	-	56	11.857	32.070	46	13.930

AC Power Line Conducted Emission without antenna connected

Phase

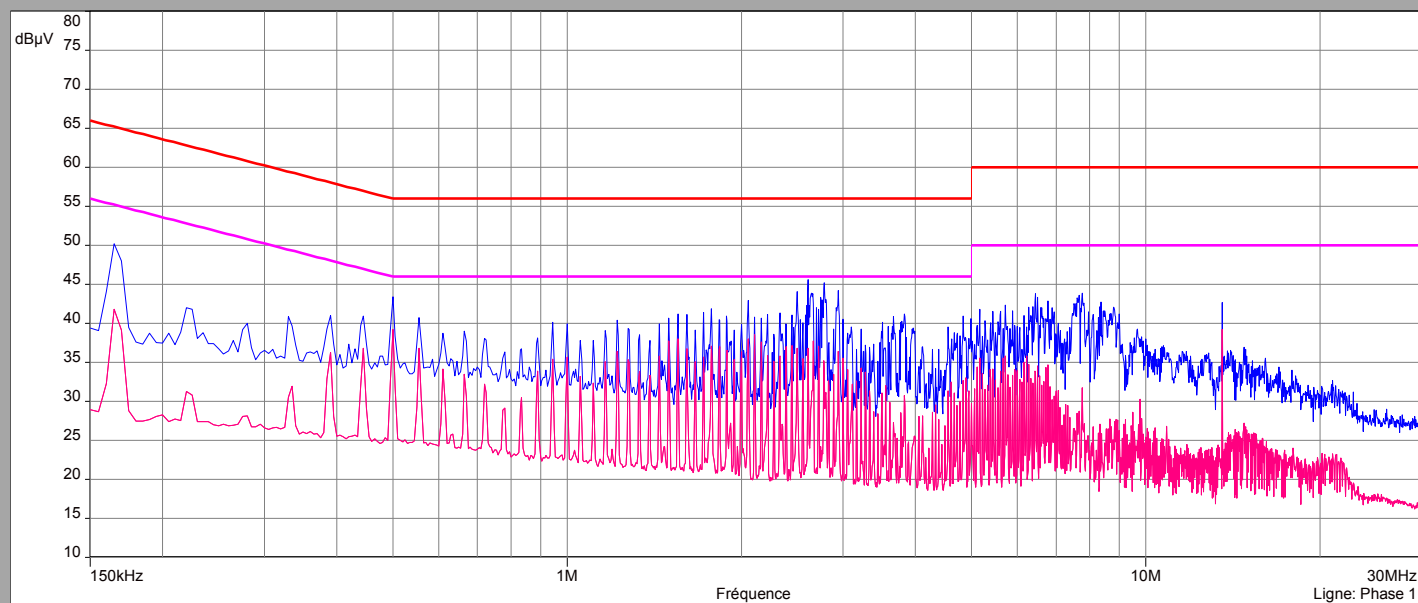
Description Sous-bande 1

Fréquences: 150 kHz - 30 MHz (Mode: Lin, Pas: 5 kHz)

Réglages: RBW: 9 kHz, VBW: Auto, Durée balayage: 50 ms/Pts, Atténuation: 248188112, Nombre de Balayages: 1, Preamp: Off, LN Preamp: Off, Preselecteur: On

Ligne: Phase 1

— FCC/FCC 15.207 - Classe: B - Moyenne/
— FCC/FCC 15.207 - Classe: B - QCrête/
— Mes. Peak (Phase 1)
— Mes. Avg (Phase 1)



Line

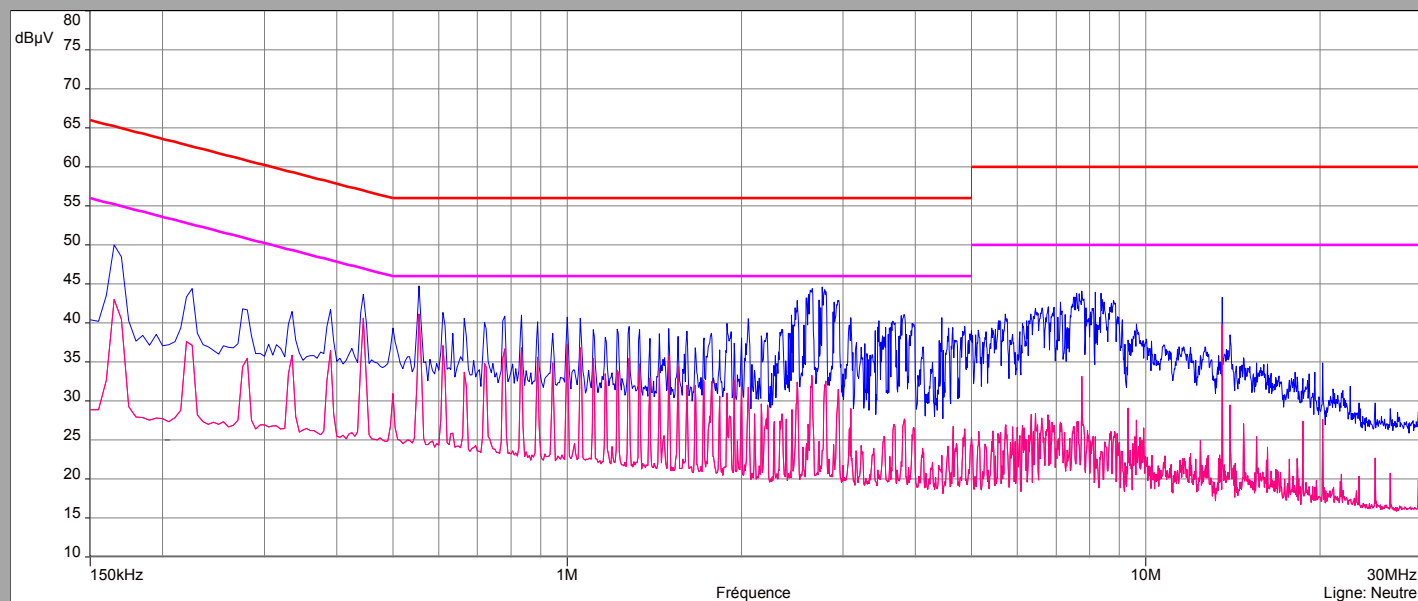
Description Sous-bande 2

Fréquences: 150 kHz - 30 MHz (Mode: Lin, Pas: 5 kHz)

Réglages: RBW: 9 kHz, VBW: Auto, Durée balayage: 50 ms/Pts, Atténuation: 248188048, Nombre de Balayages: 1, Preamp: Off, LN Preamp: Off, Preselecteur: On

Ligne: Neutre

— FCC/FCC 15.207 - Classe: B - Moyenne/
— FCC/FCC 15.207 - Classe: B - QCrête/
— Mes. Peak (Neutre)
— Mes. Avg (Neutre)



Phase Line							
Frequency (MHz)	Peak Level (dBμV)	Quasi-Peak Level (dBμV)	Quasi-Peak Limit (dBμV)	Margin Quasi-Peak (dBμV)	Average Level (dBμV)	Average Limit (dBμV)	Margin Average (dBμV)
0.500	43.424	-	56	12.576	39.193	46	6.807
2.055	42.922	-	56	13.078	38.016	46	7.984
2.5	44.048	-	56	11.952	36.813	46	9.187
2.61	45.594	-	56	10.406	36.796	46	9.204
2.945	44.187	-	56	11.813	36.377	46	9.623
3.83	41.199	-	56	14.801	30.764	46	15.236

Neutral Line							
Frequency (MHz)	Peak Level (dBμV)	Quasi-Peak Level (dBμV)	Quasi-Peak Limit (dBμV)	Margin Quasi-Peak (dBμV)	Average Level (dBμV)	Average Limit (dBμV)	Margin Average (dBμV)
0.550	44.579	-	56	11.421	41.109	46	4.891
2.055	40.533	-	56	15.467	31.738	46	14.262
2.5	42.893	-	56	13.107	32.400	46	13.600
2.655	44.394	-	56	11.606	33.244	46	12.756
2.76	44.608	-	56	11.392	32.550	46	13.450
2.955	42.359	-	56	13.641	31.483	46	14.517

4.7. CONCLUSION

Ac Power Line Conducted Emission measurement performed on the sample of the product **Smartware PST-STAT-4** , SN: **UP#1723AA201023A** , 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 : February 12, 2018 to February 13, 2018
Ambient temperature : 20 °C
Relative humidity : 51 %

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 **10m**.

Test is performed in parallel 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.



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) 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
 30MHz to 88MHz: 40dB μ V/m QPeak

Limit at 10m:

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

5.4. TEST EQUIPMENT LIST

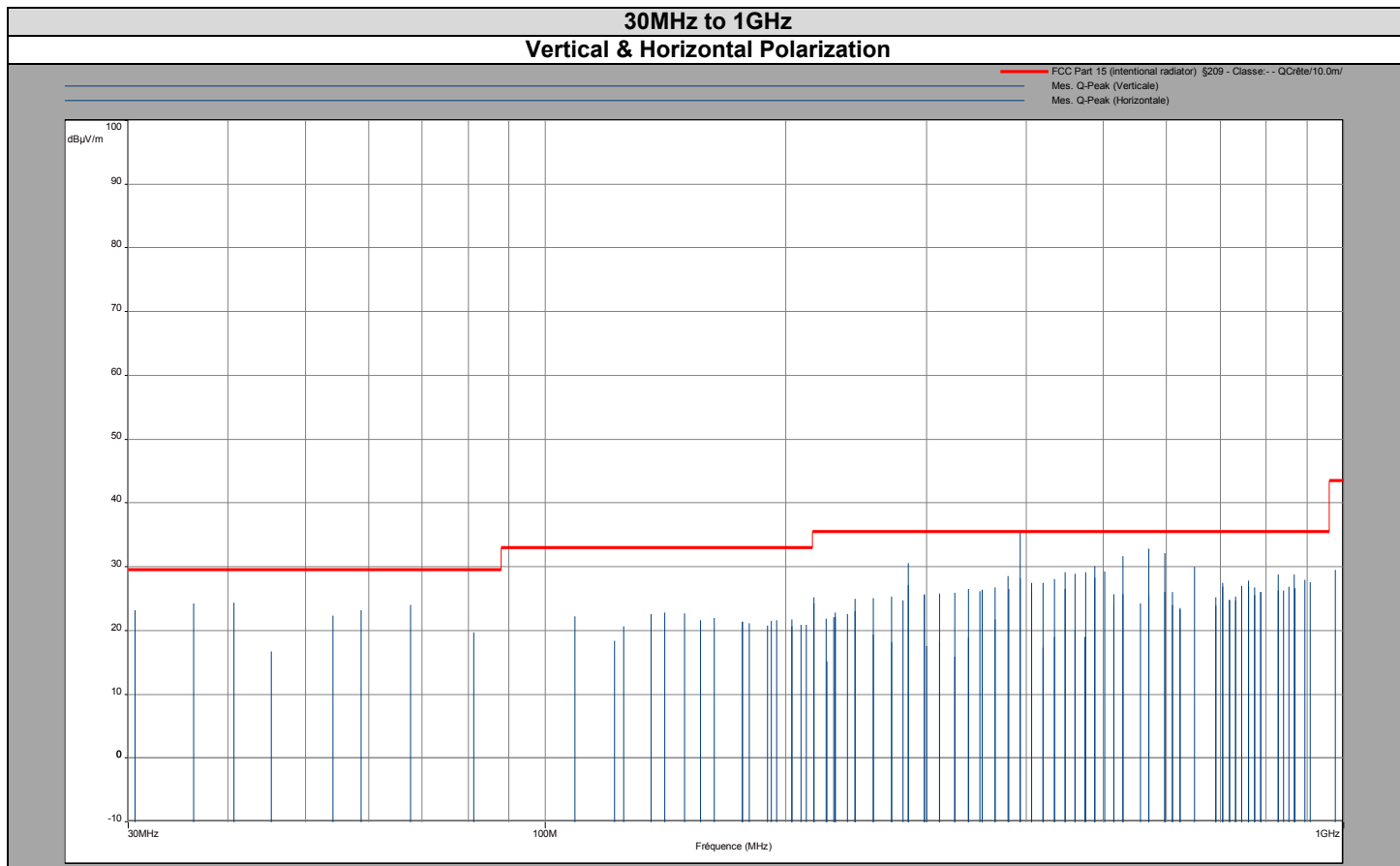
Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Open test site	LCIE	-	F2000400	2017-06	2018-06
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2016-12	2018-12
Bilog antenna	CHASE	CBL 6112A	C2040040	2017-03	2018-03
loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2017-12	2020-12
Cable	-	-	A5329449	2017-09	2018-09
Cable	-	-	A5329380	2017-06	2018-06
cable	-	-	A5329444	2017-09	2018-09

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



9kHz to 30MHz					
Polarization	Frequency (MHz)	Peak Level (dBμV/m)	QPeak Level (dBμV/m)	Limit (dBμV/m)	Margin QPeak (dBμV/m)
No significant spurious has been observed					

30MHz to 1000MHz				
Polarization	Frequency (MHz)	QPeak Level (dBμV/m)	Limit (dBμV/m)	Margin QPeak (dBμV/m)
Vertical	36,2	24,3	29,5	5,2
Vertical	216,9	24,3	35,5	11,2
Vertical	284,8	30,6	35,5	4,9
Vertical	298,3	25,6	35,5	9,9
Vertical	366,1	26,8	35,5	8,7
Vertical	380,7	26,5	35,5	9,0
Vertical	393,3	35,4	35,5	0,1
Vertical	406,8	27,5	35,5	8,1
Vertical	433,9	28,2	35,5	7,4
Vertical	447,5	26,5	35,5	9,0
Vertical	488,2	30,1	35,5	5,4
Vertical	515,3	24,2	35,5	11,3
Vertical	596,7	32,2	35,5	3,3
Vertical	650,9	30,1	35,5	5,4
Vertical	705,2	27,5	35,5	8,0
Vertical	827,2	28,8	35,5	6,7
Vertical	976,4	29,6	35,5	5,9
Horizontal	217	25,3	35,5	10,2
Horizontal	257,7	25,1	35,5	10,4
Horizontal	284,8	27,2	35,5	8,3
Horizontal	379,7	28,6	35,5	6,9
Horizontal	393,3	28,2	35,5	7,3
Horizontal	420,4	27,5	35,5	8,0
Horizontal	447,5	29,2	35,5	6,3
Horizontal	461,1	28,9	35,5	6,6
Horizontal	474,6	29,2	35,5	6,3
Horizontal	488,2	28,4	35,5	7,1
Horizontal	501,7	29,3	35,5	6,2
Horizontal	528,9	31,7	35,5	3,8
Horizontal	556	24,3	35,5	11,3
Horizontal	569,6	32,9	35,5	2,6
Horizontal	867,9	28,8	35,5	6,7
Horizontal	895	28,0	35,5	7,5

5.7. CONCLUSION

Field strength outside of the bands 13.110-14.010 MHz measurement performed on the sample of the product Smartware PST-STAT-4 , SN: UP#**1723AA201023A** , 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 : February 12, 2018 to February 13, 2018
Ambient temperature : 20 °C
Relative humidity : 51 %

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 parallel 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



6.3. 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

6.4. TEST EQUIPMENT LIST

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Open test site	LCIE	-	F2000400	2017-06	2018-06
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2016-12	2018-12
loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2017-12	2020-12
Cable	-	-	A5329449	2017-09	2018-09
Cable	-	-	A5329380	2017-06	2018-06
cable	-	-	A5329444	2017-09	2018-09

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 (dB μ V/m) (3m)	Limit (dB μ V/m) (3m)
Below 13.110	31	69.5
13.110 to 13.410	34	80.5
13.410 to 13.553	37	90.5
13.553 to 13.567	62.1	124
13.567 to 13.710	37.6	90.5
13.710 to 14.010	34	80.5
Above 14.010	30	69.5

Perpendicular Axis		
Frequency (MHz)	QPeak Level (dB μ V/m) (3m)	Limit (dB μ V/m) (3m)
Below 13.110	29.7	69.5
13.110 to 13.410	32.5	80.5
13.410 to 13.553	37.9	90.5
13.553 to 13.567	52.1	124
13.567 to 13.710	39.4	90.5
13.710 to 14.010	35.9	80.5
Above 14.010	32.1	69.5

Ground-parallel Axis		
Frequency (MHz)	QPeak Level (dB μ V/m) (3m)	Limit (dB μ V/m) (3m)
Below 13.110	18.6	69.5
13.110 to 13.410	22.4	80.5
13.410 to 13.553	23.1	90.5
13.553 to 13.567	42.5	124
13.567 to 13.710	28.4	90.5
13.710 to 14.010	23.8	80.5
Above 14.010	21.5	69.5

6.7. CONCLUSION

Field strength within the band 13.110-14.010MHz measurement performed on the sample of the product Smartware PST-STAT-4 , SN: UP#**1723AA201023A** , 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) $\pm x(\text{dB}) / (\text{Hz}) / \text{ms}$	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