TEST REPORT

N°: 142808-688286-C **Version : 02**

Subject	**Radio spectrum matters tests according to standards: 47 CFR Part 15.247 & RSS-247 Issue 1 & RSS-Gen Issue 4**
Issued to	**DELSEY 215, avenue des Nations BP 62019 – Tremblay-en-France 95970 Roissy CdG Cedex (France)**
Apparatus under test	
Product	**PLUGGAGE LOCK**
Trade mark	**DELSEY**
Manufacturer	**JIN YU**
Model under test	**PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**
Serial number	**DELPLJY#4716926**
FCC ID	**2AJ97PLUG001ALBLEFG**

Test date	: November 3, 2016 to March 30, 2017
Test location	Fontenay Aux Roses & Ecuelles
Composition of document	37 pages
Document issued on	March 30, 2017

Written by :
Armand MAHOUNGOU
Tests operator

Approved by :
Arnaud FAYETTE
Technical manager

PUBLICATION HISTORY

Version	Date	Author	Modification
01	November 30, 2016	Armand MAHOUNGOU	Creation of the document
02	March 30, 2017	Arnaud Fayette	- Change photo test setup for Unwanted Emissions in Restricted Frequency Bands. - Add Antenna in Test equipment list for Unwanted Emissions in Restricted Frequency Bands. - Add test in chapter 9 from 9kHz to 30MHz

SUMMARY

1. TEST PROGRAM

References

- **47 CFR Part 15.247**
- **RSS 247 Issue 1**
- **RSS Gen Issue 4**
- **KDB 558074 D01 DTS Meas Guidance v03r05**
- **ANSI C63.10-2013**

Radio requirement:

Clause (47CFR Part 15.247 & RSS-247 Issue 1 & RSS-Gen Issue 4) Test Description	Test result - Comments			
Occupied Bandwidth	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
6dB Bandwidth	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
Duty Cycle	☐ PASS	☐ FAIL	☑ NA	☐ NP(1)
Maximum Conducted Output Power	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Power Spectral Density	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Conducted Spurious Emission at the Band Edge	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
Unwanted Emissions into Non-Restricted Frequency Bands	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
AC Power Line Conducted Emission	☐ PASS	☐ FAIL	☑ NA(2)	☐ NP(1)
Unwanted Emissions into Restricted Frequency Bands	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Receiver Radiated emissions	☑ PASS	☐ 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

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 **DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**, SN: **DELPLJY#4716926**. See Table below for difference between products.

Product name	Description	DELSEY Reference
PLUGGAGE LOCK With Fingerprint and connected BLE	Integrated electronic lock device able to connect with a Smartphone by Bluetooth Low Energy and With Fingerprint function	PLUG001AL@#
PLUGGAGE LOCK Without Fingerprint Function and connected BLE	Electronic Lock device able to connect with a Smartphone by Bluetooth Low Energy	PLUG004AL@

Range of cases	Description on DELSEY paper label : Height (cm) + cabin or not + number of wheels	DELSEY Reference
Montmartre Hard Polycarbonate Cases	00 1246810 00 PLUGGAGE – BLACK VALISE TROLLEY 4 ROUES 65CM 65CM 4 WHEEL CABIN TROLLEY CASE	124680100
Montmartre Hard Polycarbonate Cases	00 1246810 00 PLUGGAGE – BLACK VALISE TROLLEY 4 ROUES 65CM 65CM 4 WHEEL CABIN TROLLEY CASE	124681000
Montmartre Hard Polycarbonate Cases	00 1246821 00 PLUGGAGE – BLACK VALISE TROLLEY CABINE 4 ROUES 78CM 78CM 4 WHEEL CABIN TROLLEY CASE	124682100

2.2. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

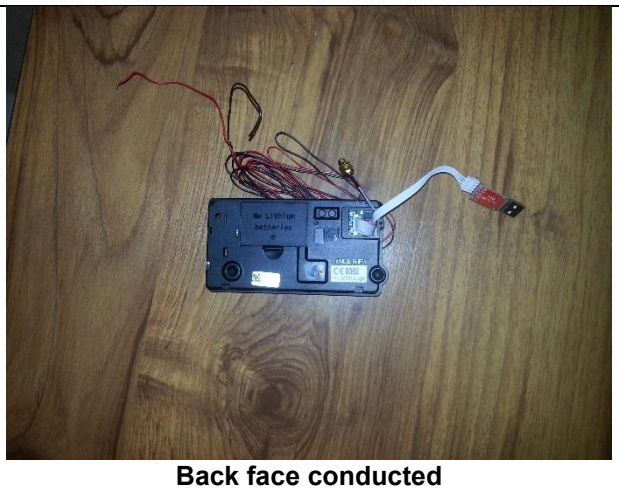
Equipment under test (EUT):
DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@# Serial Number: DELPLJY#4716926

Front face radiated

Back face radiated

Equipment Under Test

Front face conducted



Back face conducted

Equipment Under Test

Equipment information:

Bluetooth LE Type:	☑ **BLE**	☐ **v4.0**	☐ **v4.1**	☐ **v4.2**
Frequency band:	[2400 – 2483.5] MHz			
Number of Channel:	40			
Spacing channel:	2MHz			
Channel bandwidth:	1MHz			
Antenna Type:	☑ Integral	☐ External	☐ Dedicated	
Antenna connector:	☑ Yes	☐ No	☑ Temporary for test	
Transmit chains:	1			
	Single antenna			
Receiver chains	1			
Type of equipment:	☑ Stand-alone	☐ Plug-in	☐ Combined	
Ad-Hoc mode:	☐ Yes	☑ No		
Duty cycle:	☐ Continuous duty	☐ Intermittent duty	☑ 100% duty	
Equipment type:	☐ Production model	☑ Pre-production model		
Operating temperature range:	Tmin:	☐ -20°C	☐ 0°C	☑ -10°C
	Tnom:	20°C		
	Tmax:	☐ 35°C	☐ 55°C	☑ 50°C
Type of power source:	☐ AC power supply	☑ DC power supply	☐ 3*AAA Batteries	
Operating voltage range:	Vnom:	☐ 120V/60Hz	☑ 4,5 Vdc	

Antenna Characteristic			
Antenna assembly	**Gain (dBi)**	**Frequency Band (MHz)**	**Impedance(Ω)**
1	0	2400 – 2483,5	50

CHANNEL PLAN			
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
Cmin: 0	2402	**Cmid: 20**	2442
1	2404	21	2444
2	2406	22	2446
3	2408	23	2448
4	2410	24	2450
5	2412	25	2452
6	2414	26	2454
7	2416	27	2456
8	2418	28	2458
9	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	**Cmax: 39**	2480

DATA RATE		
Data Rate (Mbps)	**Modulation Type**	**Worst Case Modulation**
1	GFSK	☑

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

2.4. EQUIPMENT LABELLING

2.5. EQUIPMENT MODIFICATION

☑ None ☐ Modification:

3. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

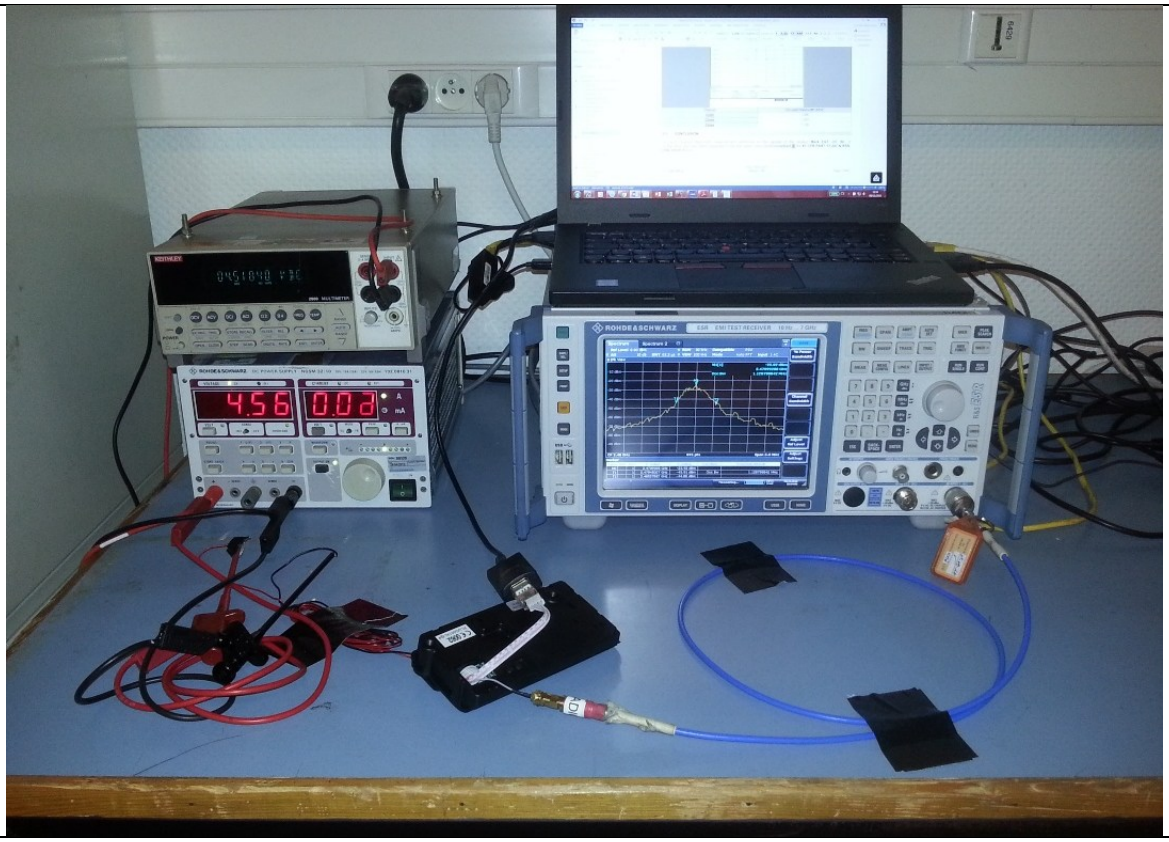
Test performed by : Armand MAHOUNGOU
Date of test : November 9, 2016
Ambient temperature : 22 °C
Relative humidity : 33 %

3.2. TEST SETUP

- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ RSS-Gen Issue 4 § 6.6
☐ ANSI C63.10 § 6.9.2



Photograph for Occupied bandwidth

3.1. LIMIT

None

3.2. TEST EQUIPMENT LIST

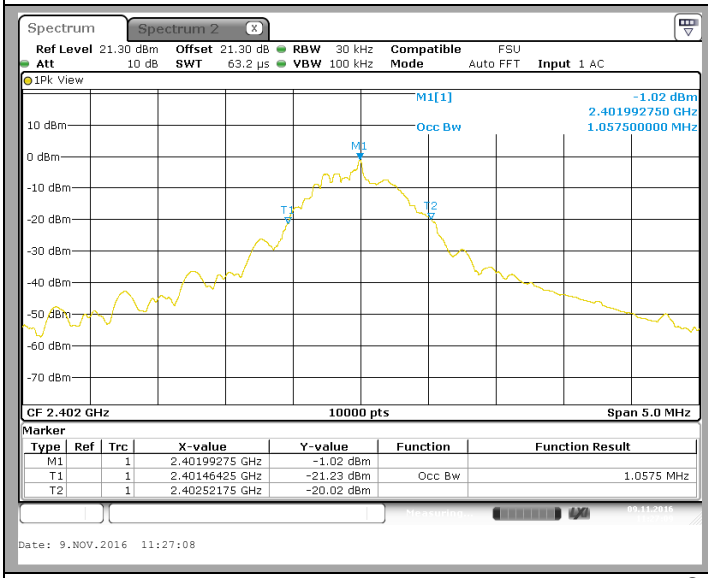
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/03	2017/03
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329661	2016/10	2017/10
Programmable DC power supply	ROHDE & SCHWARZ	NGSM32/10	A7040074	2016/06	2018/06
Multi-meter	KEITHLEY	2000	A1241084	2016/05	2018/05

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

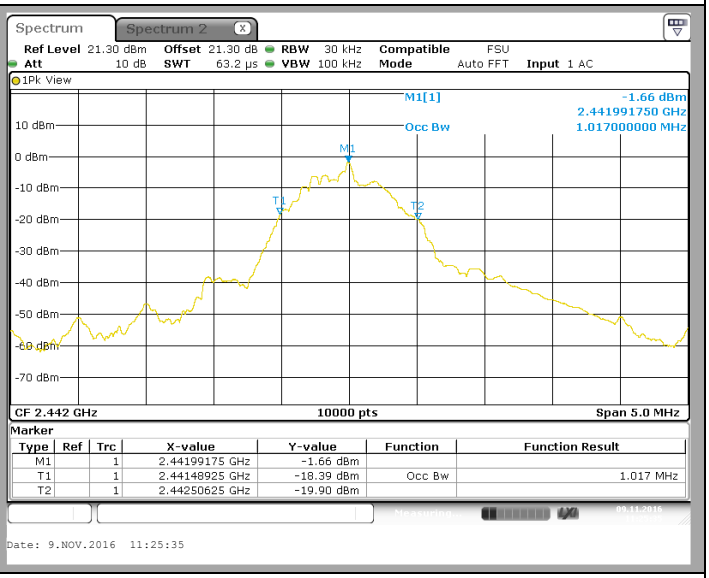
3.3. RESULTS

Occupied Bandwidth

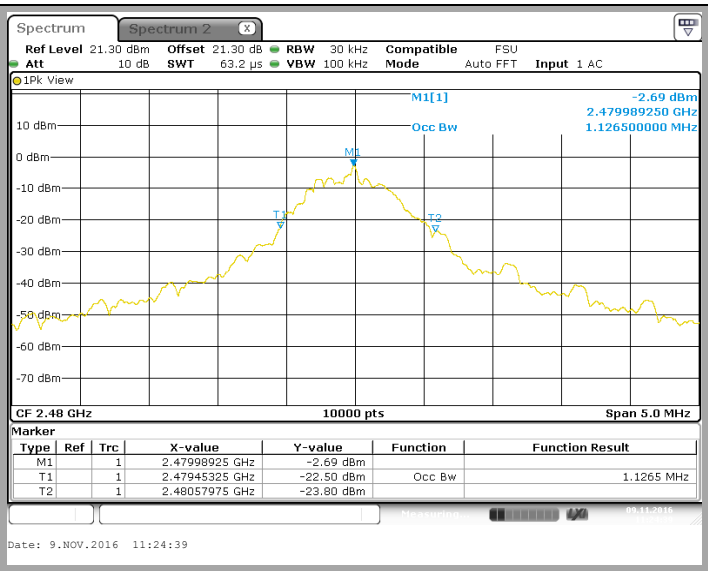
Cmin



Cnom



Cmax



Channel	Occupied Bandwidth (MHz)
Cmin	1.057
Cnom	1.017
Cmax	1.126

3.1. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**, SN: **DELPLJY#4716926** in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS-GEN ISSUE 4** limits.

4. 6DB EMISSION BANDWIDTH

4.1. TEST CONDITIONS

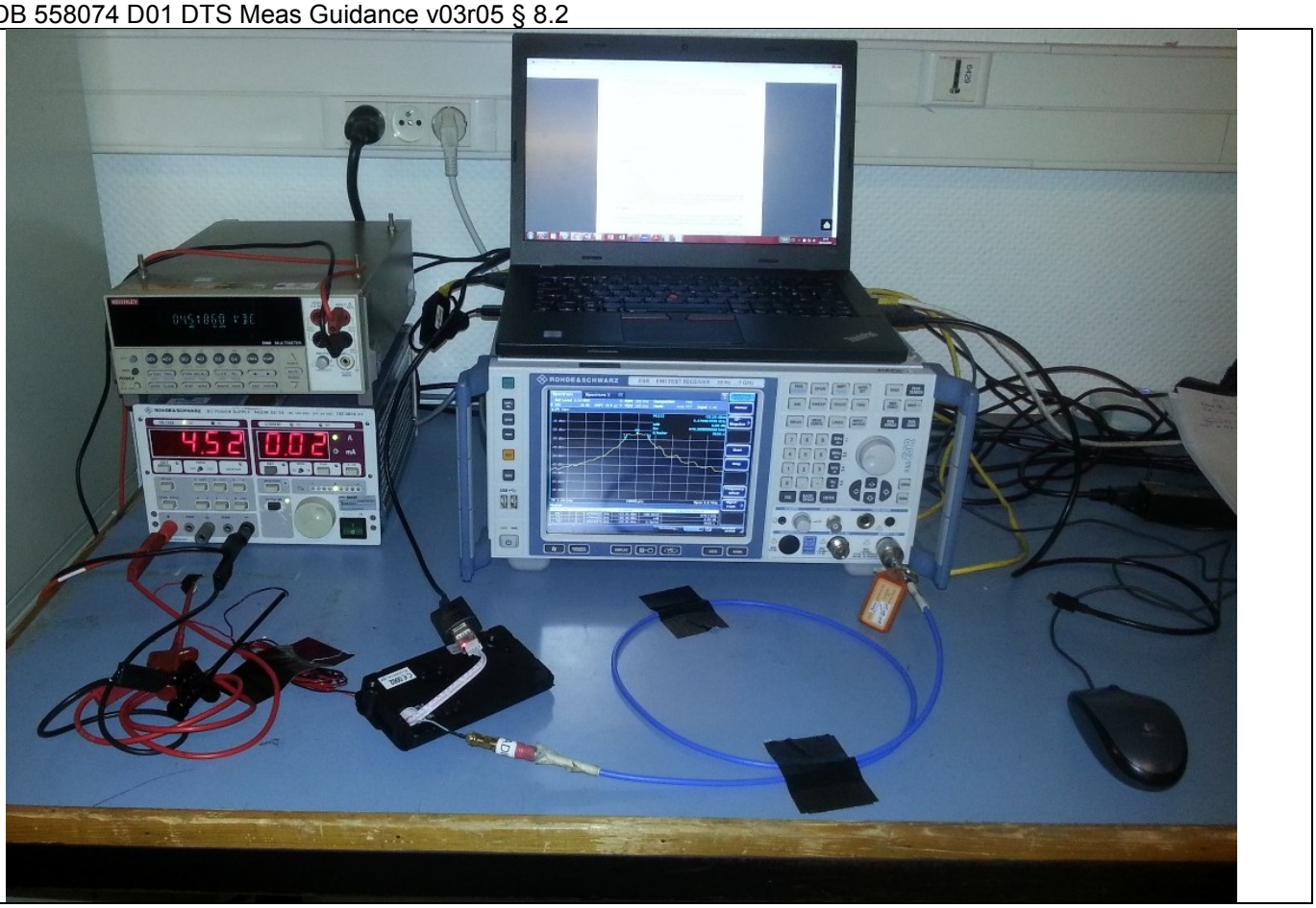
Test performed by : Armand MAHOUNGOU
Date of test : November 9, 2016
Ambient temperature : 22 °C
Relative humidity : 33 %

4.2. TEST SETUP

- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ KDB 558074 D01 DTS Meas Guidance v03r05 § 8.1
☐ KDB 558074 D01 DTS Meas Guidance v03r05 § 8.2



Photograph for 6dB emission bandwidth

4.3. LIMIT

The 6dB bandwidth shall be at least 500kHz

4.4. TEST EQUIPMENT LIST

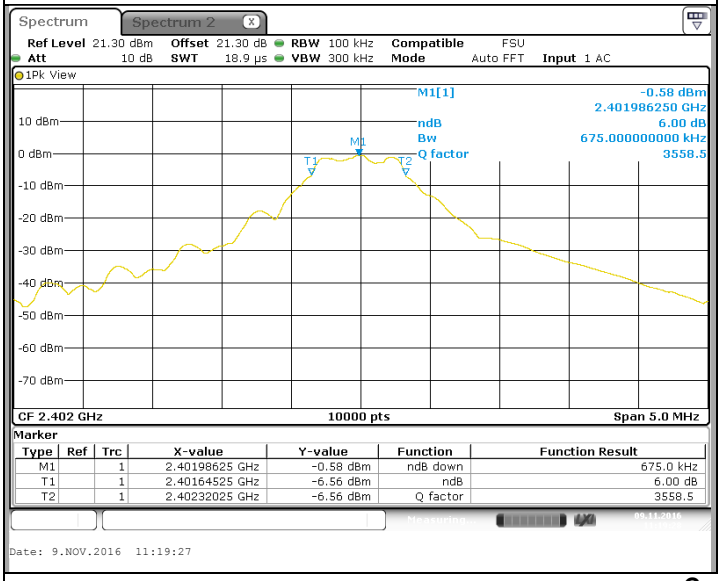
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/03	2017/03
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329661	2016/10	2017/10
Programmable DC power supply	ROHDE & SCHWARZ	NGSM32/10	A7040074	2016/06	2018/06
Multi-meter	KEITHLEY	2000	A1241084	2016/05	2018/05

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

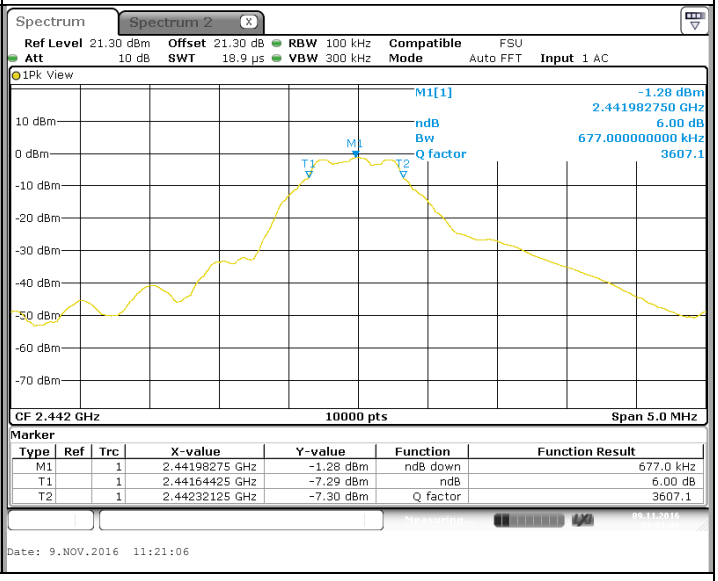
4.5. RESULTS

6dB Emission Bandwidth

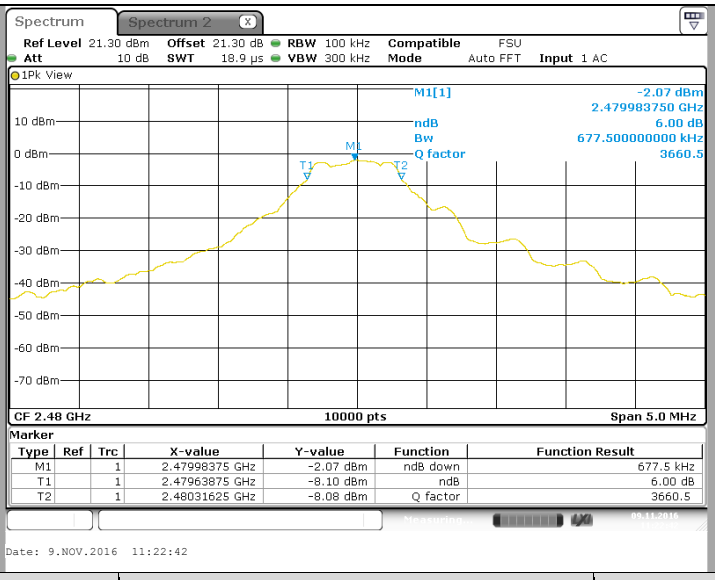
Cmin



Cnom



Cmax



Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	0.675	Minimum 0.5
Cnom	0.677	Minimum 0.5
Cmax	0.677	Minimum 0.5

4.6. CONCLUSION

6dB Emission Bandwidth measurement performed on the sample of the product **DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**, SN: **DELPLJY#4716926**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 1** limits.

5. MAXIMUM CONDUCTED OUTPUT POWER

5.1. TEST CONDITIONS

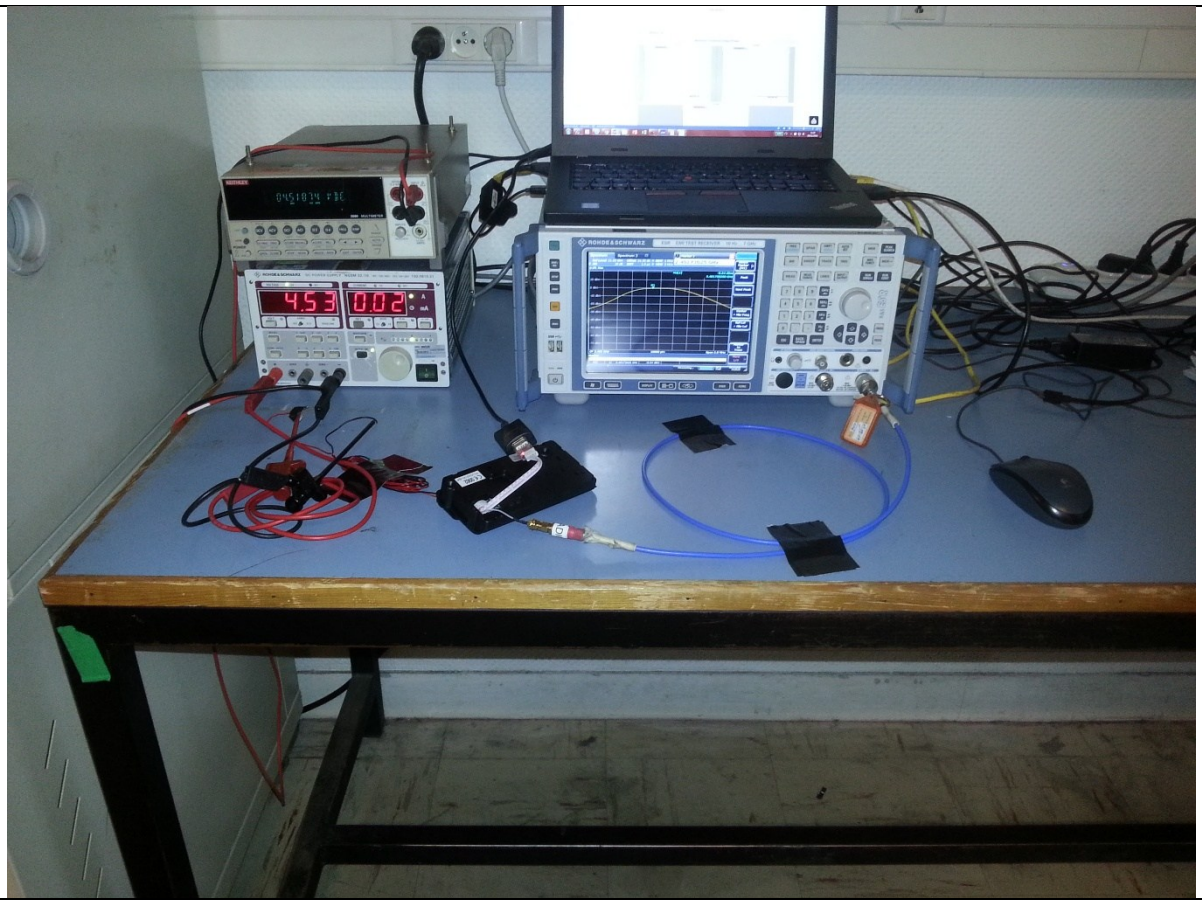
Test performed by : Armand MAHOUNGOU
Date of test : November 9, 2016
Ambient temperature : 21 °C
Relative humidity : 35 %

5.2. TEST SETUP

- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ KDB 558074 D01 DTS Meas Guidance v03r05 § 9.1.1 (RBW≥DTS bandwidth)



Photograph for Maximum Conducted Output Power

5.3. LIMIT

Maximum Conducted Output power:
2400MHz-2483.5MHz: Shall not exceed 30dBm
Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

5.4. TEST EQUIPMENT LIST

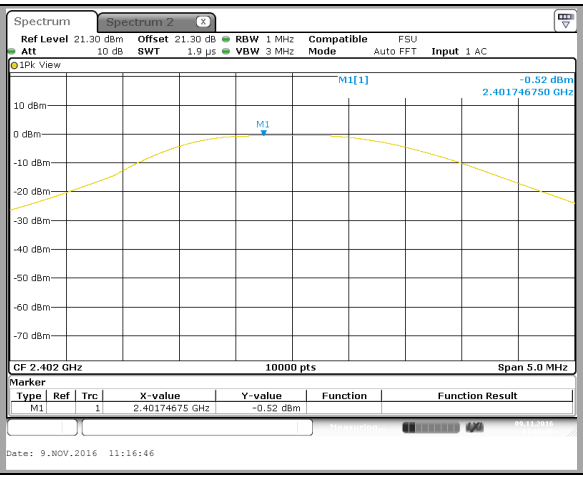
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/03	2017/03
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329661	2016/10	2017/10
Programmable DC power supply	ROHDE & SCHWARZ	NGSM32/10	A7040074	2016/06	2018/06
Multi-meter	KEITHLEY	2000	A1241084	2016/05	2018/05

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

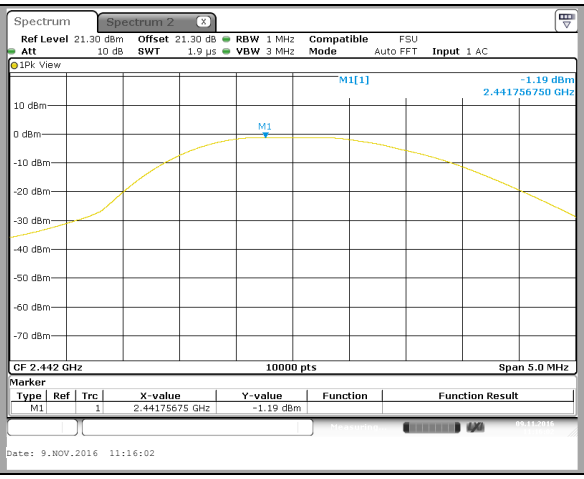
5.5. RESULTS

Maximum Conducted Output Power

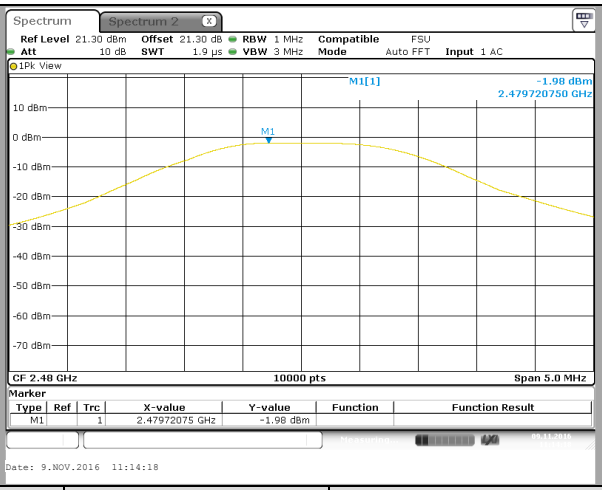
Cmin



Cnom



Cmax



Channel	Offset Cable + Att (dB)	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	21.3	0	-0.52	30. Reduced by G-6dBi if Antenna Gain above 6dBi
Cnom	21.3	0	-1.19	30. Reduced by G-6dBi if Antenna Gain above 6dBi
Cmax	21.3	0	-1.98	30. Reduced by G-6dBi if Antenna Gain above 6dBi

5.6. CONCLUSION

Maximum Conducted Output Power measurement performed on the sample of the product **DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**, SN: **DELPLJY#4716926**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 1** limits.

6. POWER SPECTRAL DENSITY

6.1. TEST CONDITIONS

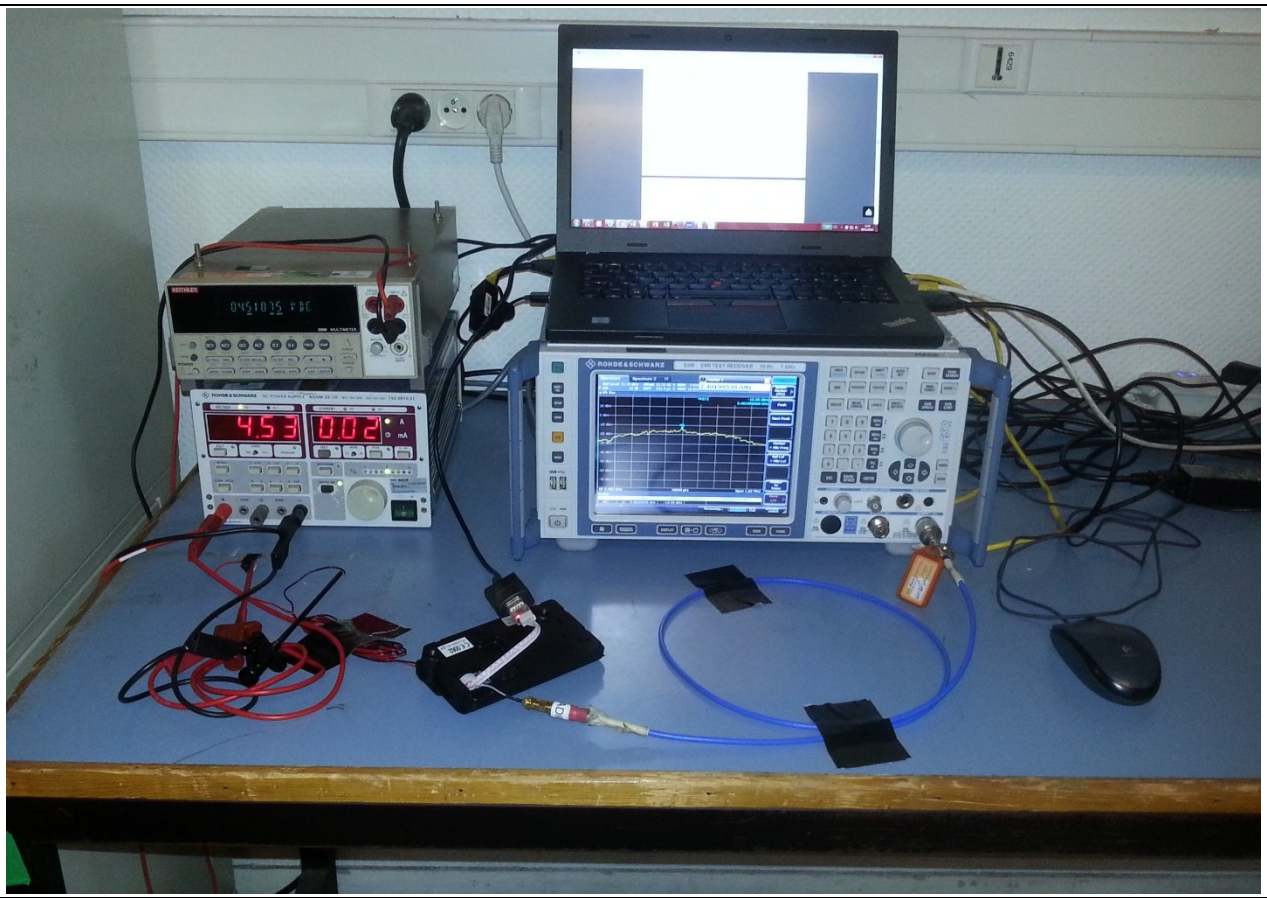
Test performed by : Armand MAHOUNGOU
Date of test : November 9, 2016
Ambient temperature : 21 °C
Relative humidity : 35 %

6.2. TEST SETUP

- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ KDB 558074 D01 DTS Meas Guidance v03r05 § 10.2 (Method PKPSD)



Photograph for Power Spectral Density

6.3. LIMIT

Power Spectral Density:
2400MHz-2483.5MHz: Shall not exceed 8dBm/3kHz
Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

6.4. TEST EQUIPMENT LIST

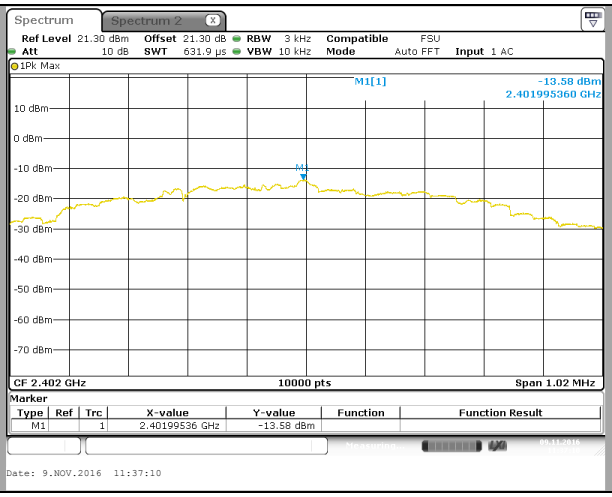
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/03	2017/03
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329661	2016/10	2017/10
Programmable DC power supply	ROHDE & SCHWARZ	NGSM32/10	A7040074	2016/06	2018/06
Multi-meter	KEITHLEY	2000	A1241084	2016/05	2018/05

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

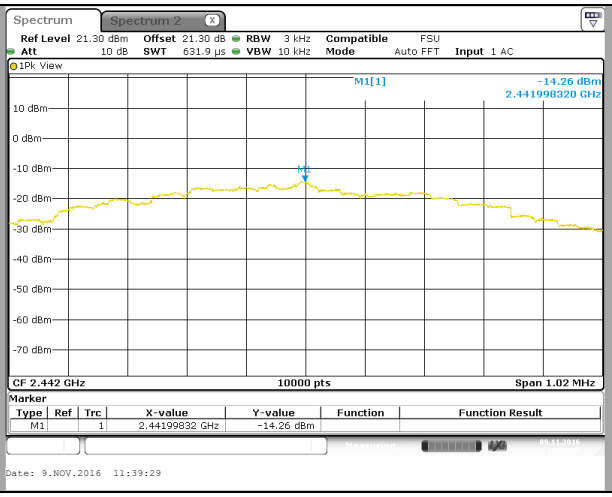
6.5. RESULTS

Power Spectral Density

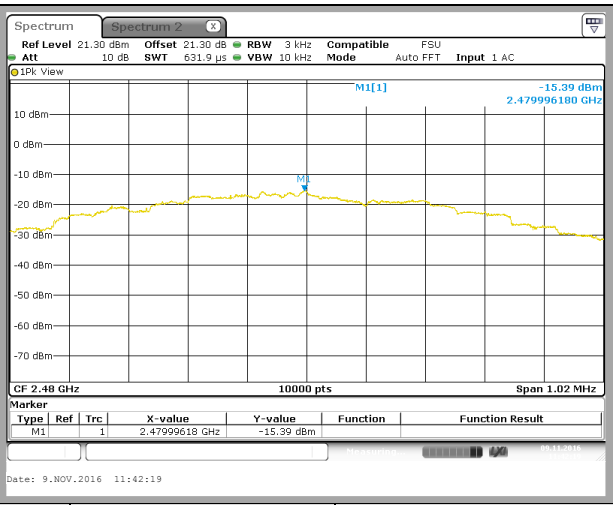
Cmin



Cnom



Cmax



Channel	Offset Cable + Att (dB)	Antenna Gain (dBi)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
Cmin	21.3	0	-13.58	8. Reduced by G-6dBi if Antenna Gain above 6dBi
Cnom	21.3	0	-14.26	8. Reduced by G-6dBi if Antenna Gain above 6dBi
Cmax	21.3	0	-14.39	8. Reduced by G-6dBi if Antenna Gain above 6dBi

6.6. CONCLUSION

Power Spectral Density measurement performed on the sample of the product **DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**, SN: **DELPLJY#4716926** in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 1** limits.

7. UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS AT THE BAND EDGE

7.1. TEST CONDITIONS

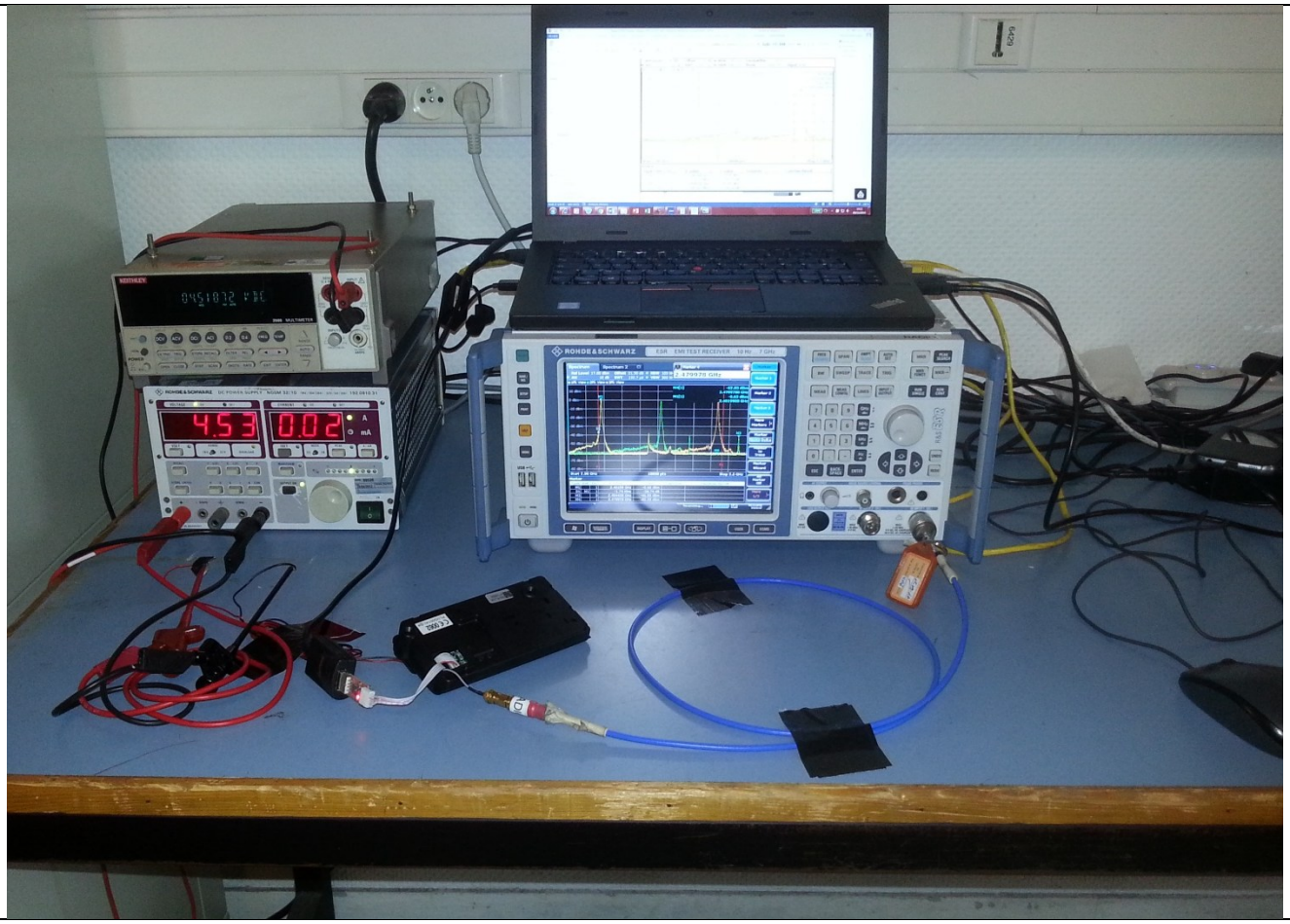
Test performed by : Armand MAHOUNGOU
Date of test : November 9, 2016
Ambient temperature : 24 °C
Relative humidity : 38 %

7.2. TEST SETUP

- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ KDB 558074 D01 DTS Meas Guidance v03r05 § 11



Photograph for Unwanted Emission into non-restricted frequency bands at the band edge

7.3. LIMIT

All Spurious Emissions must be at least 20dB below the Fundamental Radiator Level at the Band Edge Edge “2400MHz & 2483,5MHz”

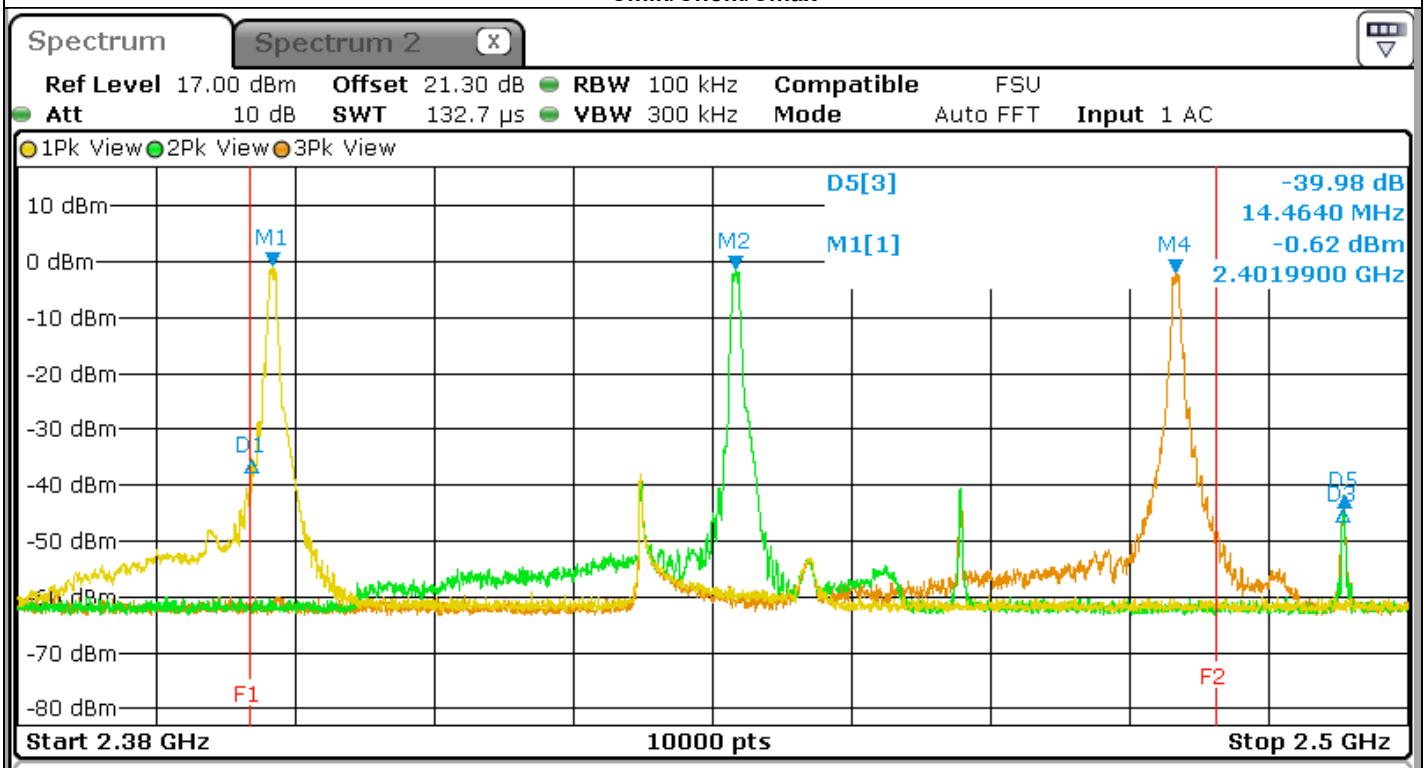
7.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/03	2017/03
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329661	2016/10	2017/10
Programmable DC power supply	ROHDE & SCHWARZ	NGSM32/10	A7040074	2016/06	2018/06
Multi-meter	KEITHLEY	2000	A1241084	2016/05	2018/05

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

7.5. RESULTS

Cmin/Cnom/Cmax



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	34.74	20
2483.5	39.98	20

7.6. CONCLUSION

Unwanted Emission into non-restricted frequency bands at the band edge measurement performed on the sample of the product **DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**, SN: **DELPLJY#4716926** in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 1** limits.

8. UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS

8.1. TEST CONDITIONS

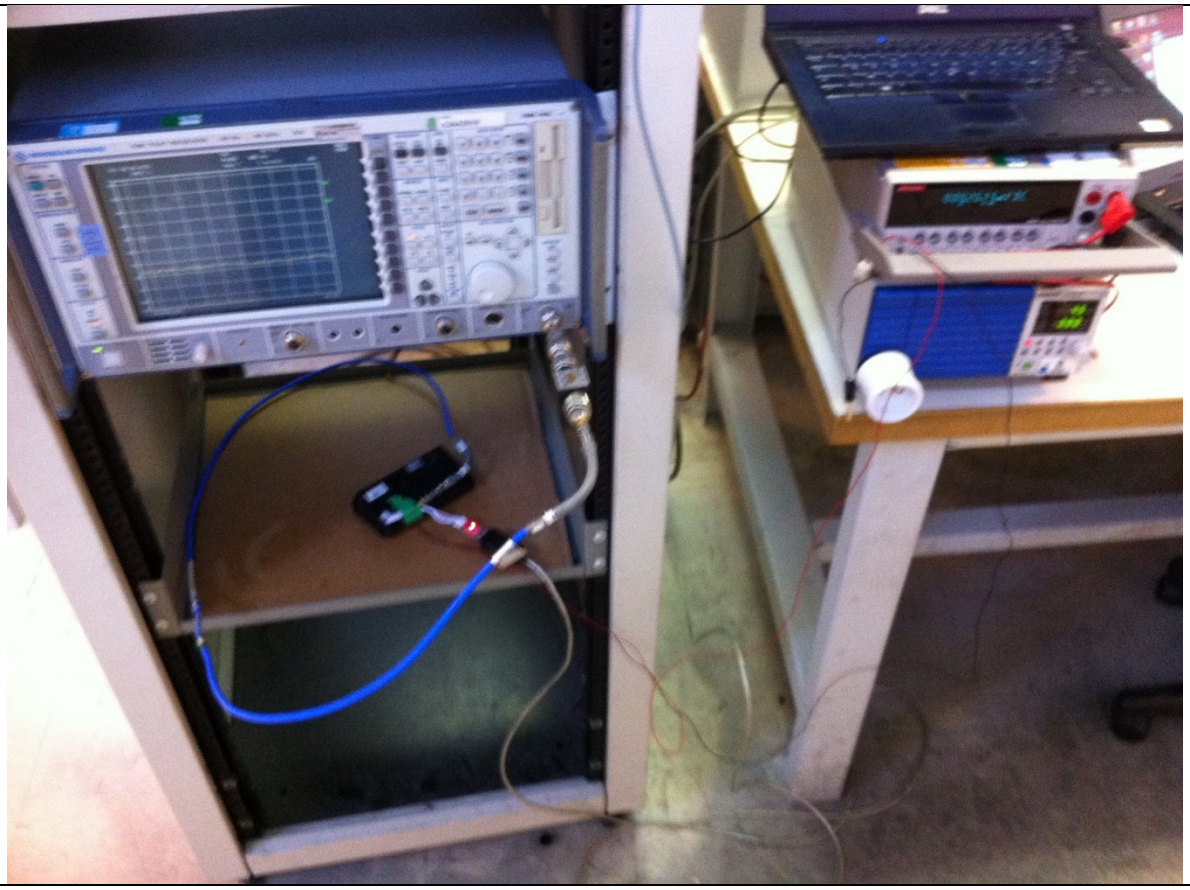
Test performed by : Mathieu CERISIER
Date of test : November 3, 2016
Ambient temperature : 24 °C
Relative humidity : 41 %

8.2. TEST SETUP

- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ KDB 558074 D01 DTS Meas Guidance v03r05 § 11



Photograph for Unwanted Emission into non-restricted frequency bands

8.3. LIMIT

All Spurious Emissions must be at least 20 below the Fundamental Radiator Level

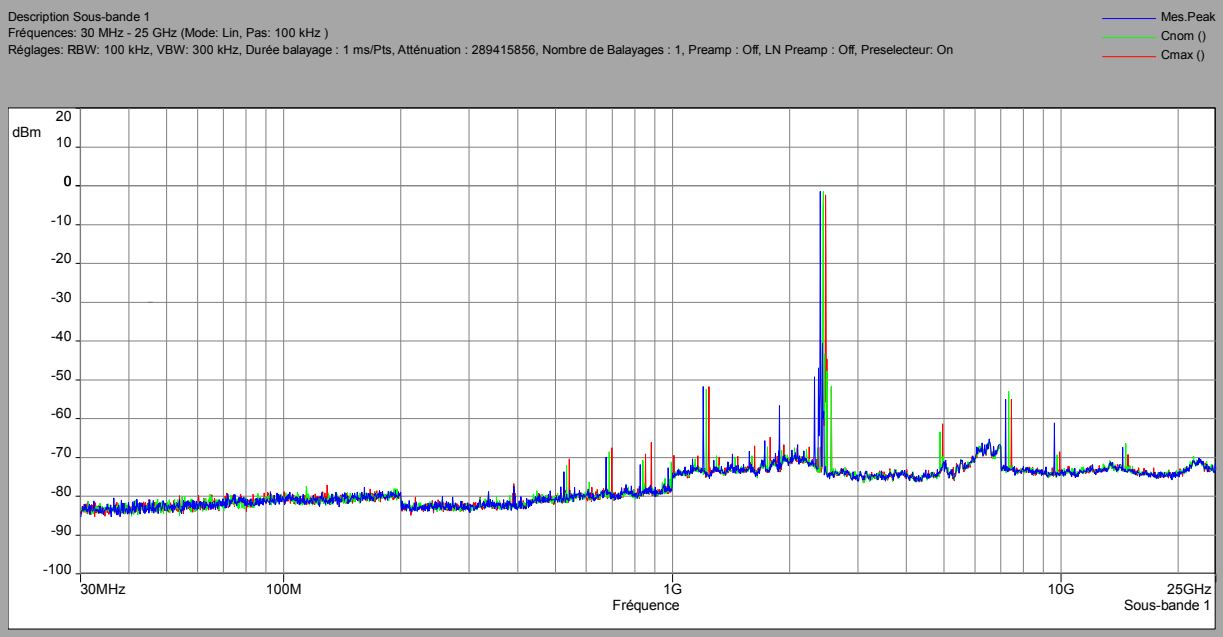
8.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	2016/06	2018/06
Multi-meter	KEITHLEY	2000	A1242090	2015/06	2017/06
EMI receiver	ROHDE & SCHWARZ	ESI40 1088 740K40	A2642010	2016/07	2017/07
Measurement RF cable	-	Cordon 082-5454-1.5mtr	A5329624	2016/07	2018/07
Rejector filter 2,4GHz	-	2.45GHz	A7484048	2015/12	2016/12

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

8.5. RESULTS

Cmin/Cnom/Cmax



Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2402	-1.513		
2317.3	-49.268	47,755	20
1201	-51.732	50,219	20
7206	-55.084	53,571	20
2442	-1.515		
2494.5	-47.745	46,23	20
2563.8	-51.687	50,172	20
1221	-52.403	50,888	20
2480	-2.343		
2433.9	-41.708	39,365	20
1240	-51.735	49,392	20
2563.8	-51.956	49,613	20

8.6. CONCLUSION

Unwanted Emission into non-restricted frequency bands measurement performed on the sample of the product **DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**, SN: **DELPLJY#4716926** in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 1** limits.

9. UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS

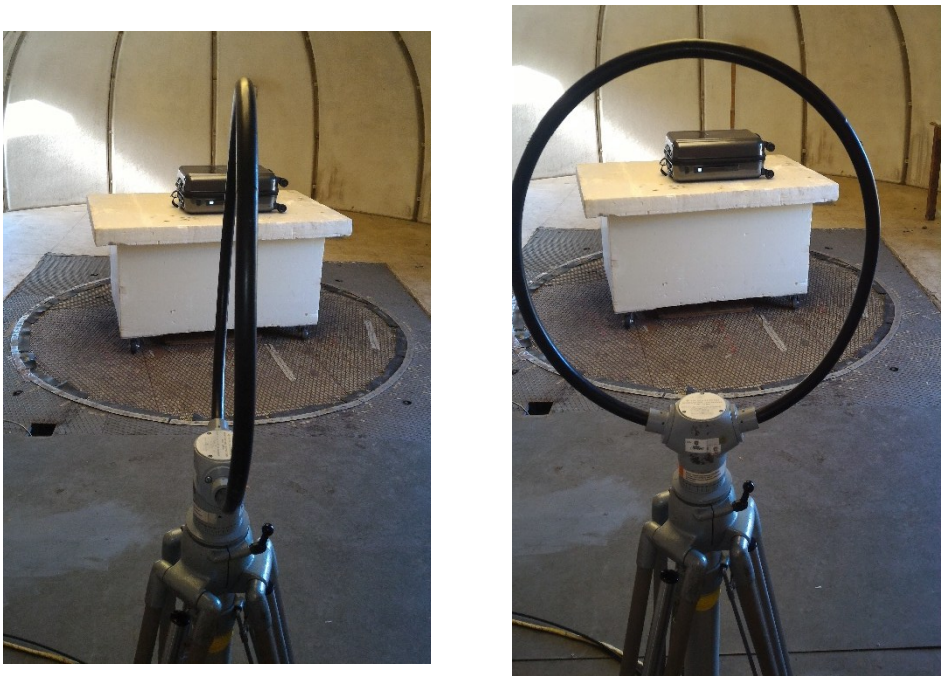
9.1. TEST CONDITIONS

Test performed by : Mathieu CERISIER & Laurent DENEUX
Date of test : November 4, 2016 & March 30, 2017
Ambient temperature : 19 °C to 22°C
Relative humidity : 41 % to 48 %

9.2. TEST SETUP

Below 30MHz
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

Above 30MHz
The product has been tested according to ANSI C63.10 (2013). The EUT is placed **ina semi-anechoic chamber**. Distance between measuring antenna and the EUT is **3m**. Test is performed in horizontal (H) and vertical (V) polarization with **bilog** antenna below 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.

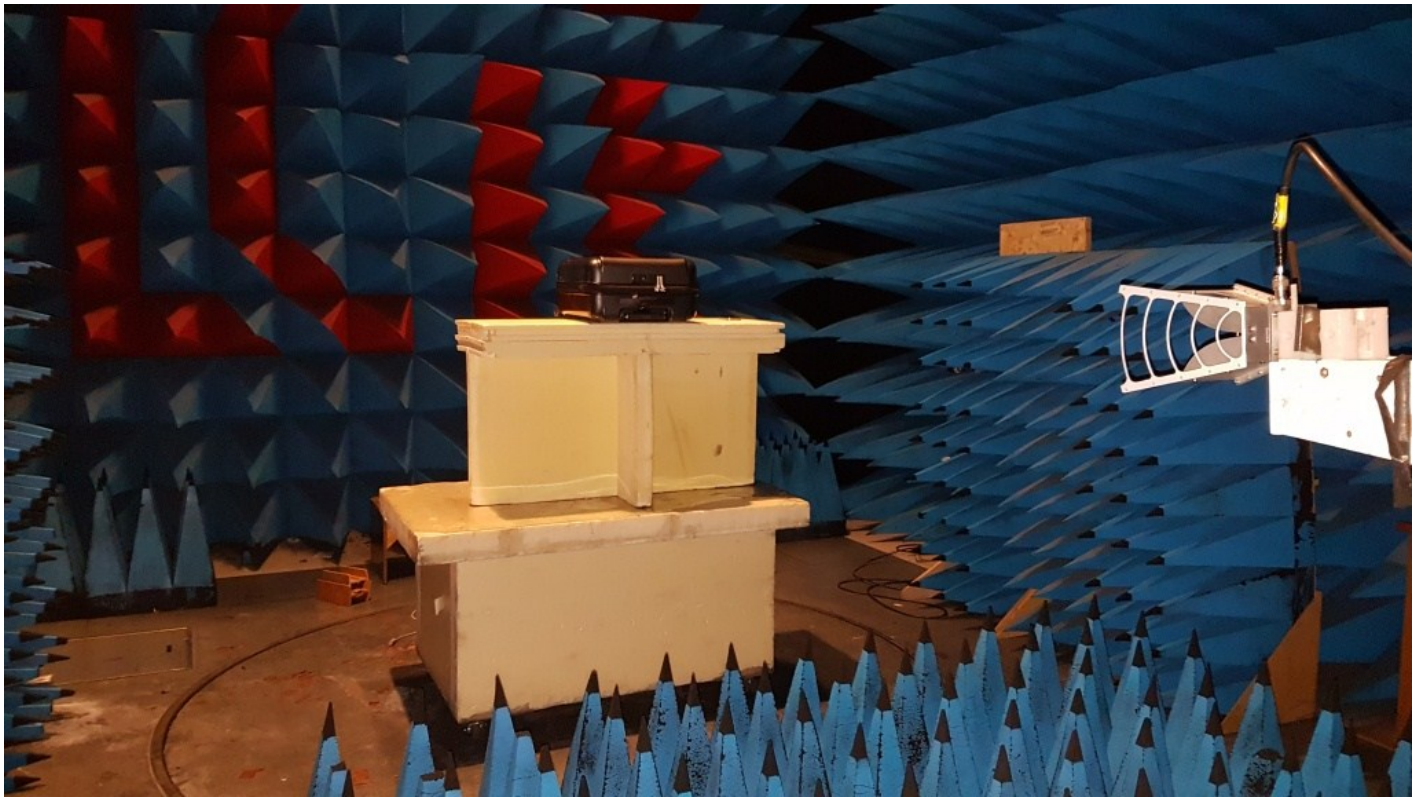


Photograph for Unwanted Emission in restricted

Photograph for Unwanted Emission in restricted frequency bands

Photograph for Unwanted Emission in restricted frequency bands

Photograph for Unwanted Emission in restricted frequency bands



Photograph for Unwanted Emission in restricted frequency bands

9.3. 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
30MHz to 88MHz: 40dBµV/m QPeak
88MHz to 216MHz: 43,5dBµV/m QPeak
216MHz to 960MHz: 46dBµV/m QPeak
960MHz to 1000MHz: 54dBµV/m QPeak
Above 1000MHz: 74dBµV/m Peak
54dBµV/m Average

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

9.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESU26	A2642018	2016/03	2017/03
Cable	CABLES & CONNECTIQUES	3.5MD/CSU528AA/3.5MC/4000	A5329431	2016/03	2017/03
Bilog antenna	SCHWARZBECK	VULB 9160	C2040150	2016/03	2017/03
Horn antenna	A-INFOMW	LB-10180-NF	C2042051	2016/03	2017/03
RF cable	RADIALL; CDI	30990-7M	A5329711	2016/03	2017/03
Preamplifier	BONN Elektronik	BLNA 3018-8F305	A7080053	2016/04	2017/04
Cable	CABLES & CONNECTIQUES	2.9MD/CSU440AA/2.9MD/1000	A5329428	2016/06	2017/06
Open test site	LCIE	-	F2000400	2016/05	2017/05
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2015/12	2017/12
Loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2015/11	2017/11
Cable	-	-	A5329449	2016/10	2017/10
Cable	-	-	A5329368	2016/05	2017/05
Cable	-	-	A5329444	2016/10	2017/10
Measurement horn antenna 18-26,5GHz	PASTERNACK	PE9852/2F-20	C2042048	2015/05	2017/05

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

9.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

9.6. RESULTS

-Below 30MHz

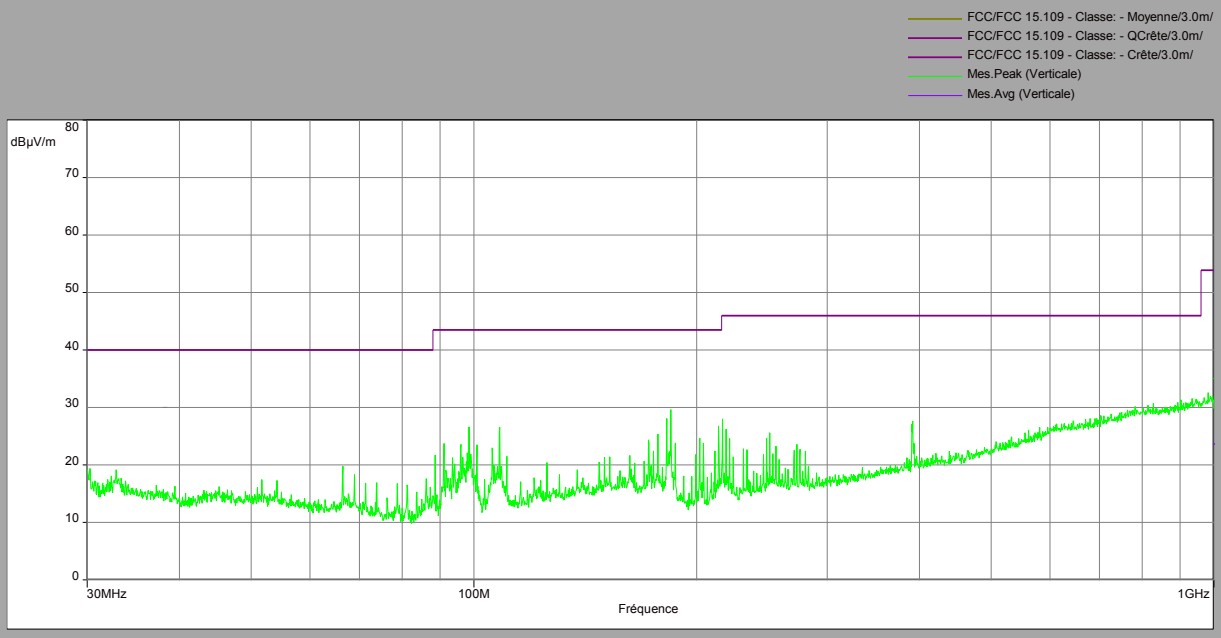
Perpendicular antenna

Frequency (MHz)	QPeak Level (dBµV/m)	Limit (3m) (dBµV/m)
8.04	22.7	69.5
16.1	26	69.5
20.13	21.9	69.5

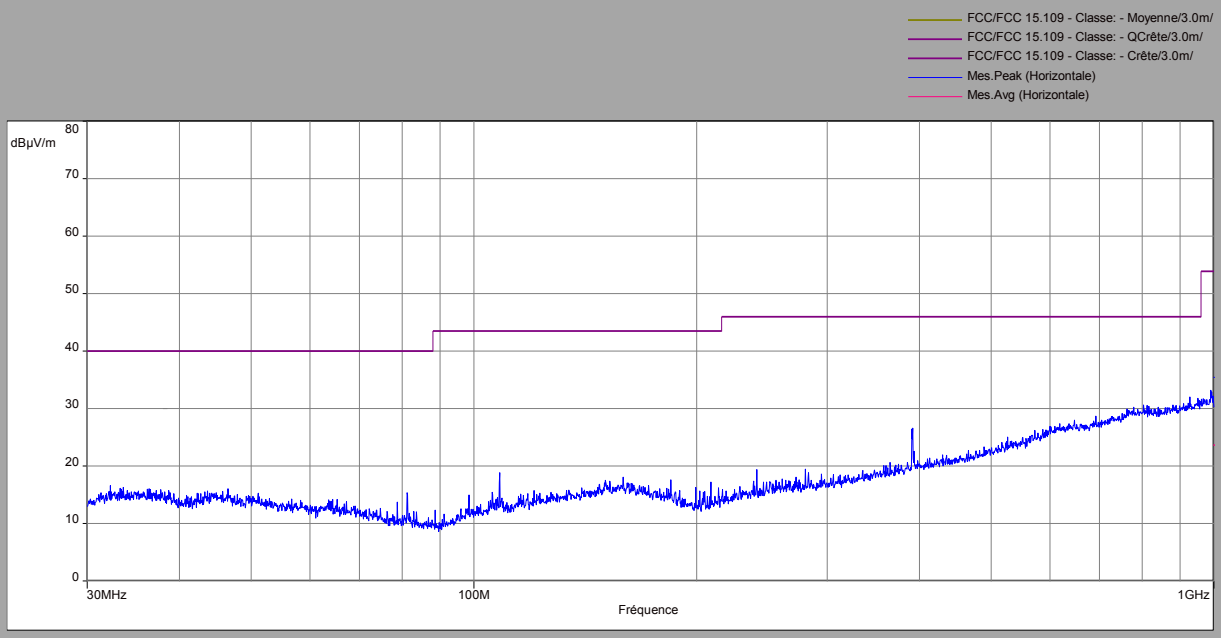
Paralell antenna

Frequency (MHz)	QPeak Level (dBµV/m)	Limit (3m) (dBµV/m)
8.04	23.8	69.5
16.1	27.3	69.5

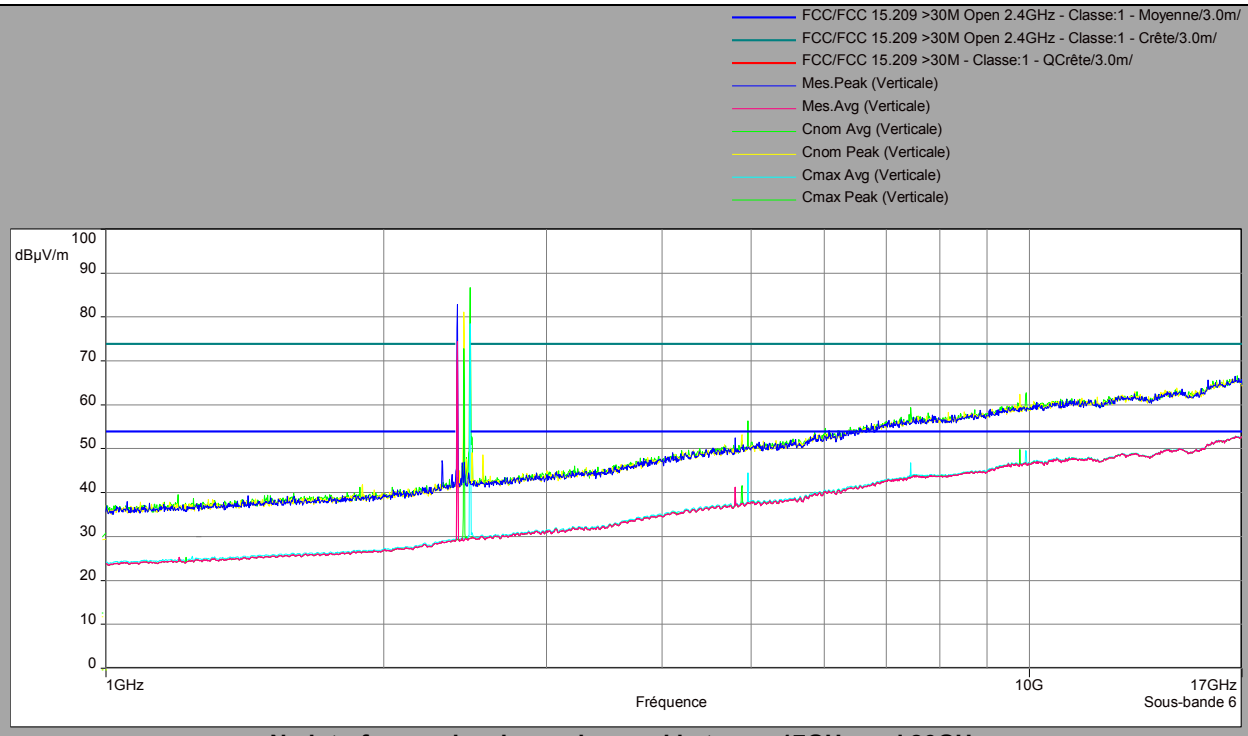
Below 1GHz
Channel
Vertical Polarization



Horizontal polarization

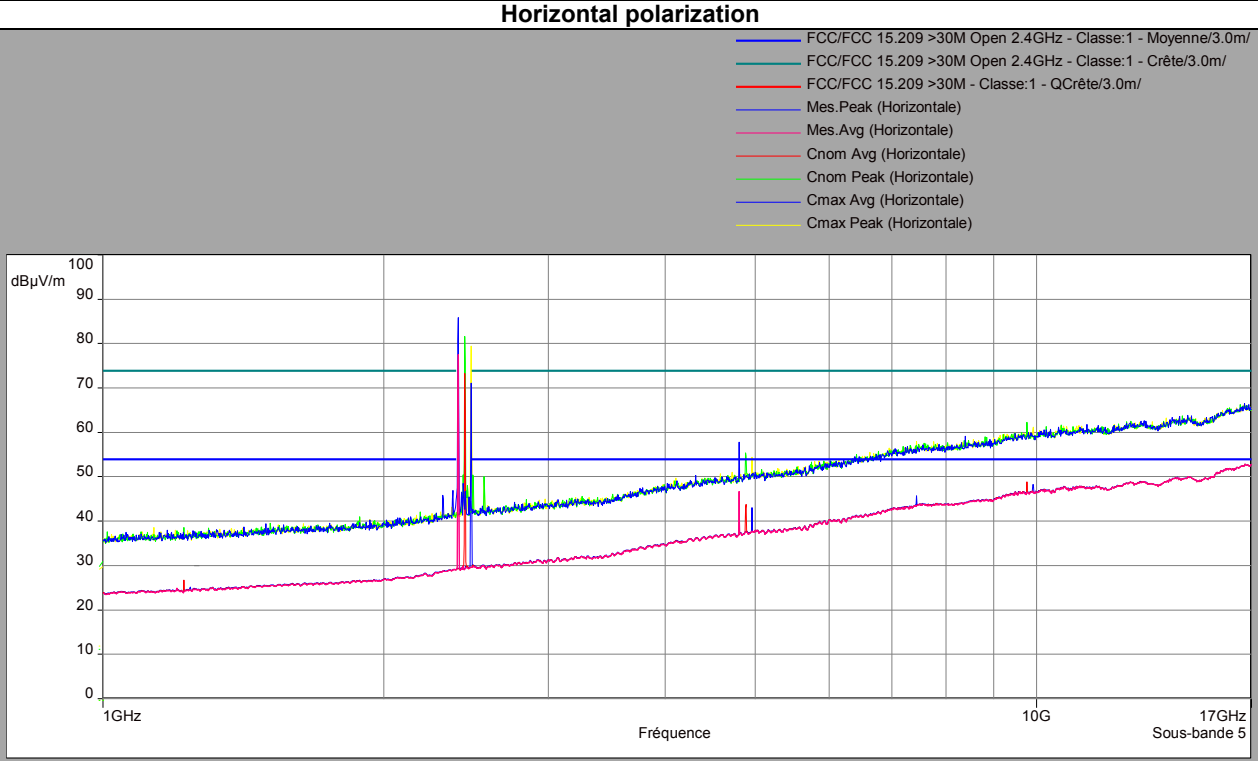


Above 1GHz
Cmin/Cnom/Cmax
Vertical Polarization



No interference has been observed between 17GHz and 26GHz

Horizontal polarization

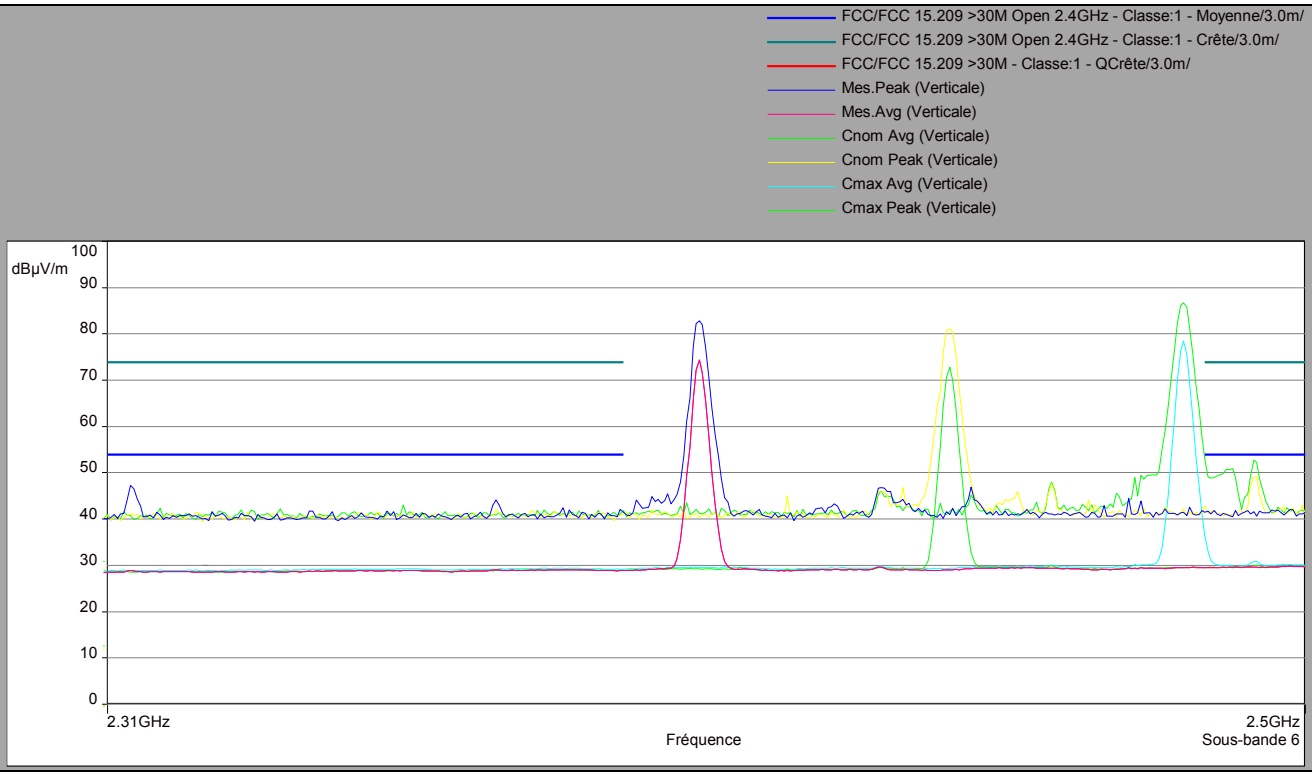


No interference has been observed between 17GHz and 26GHz

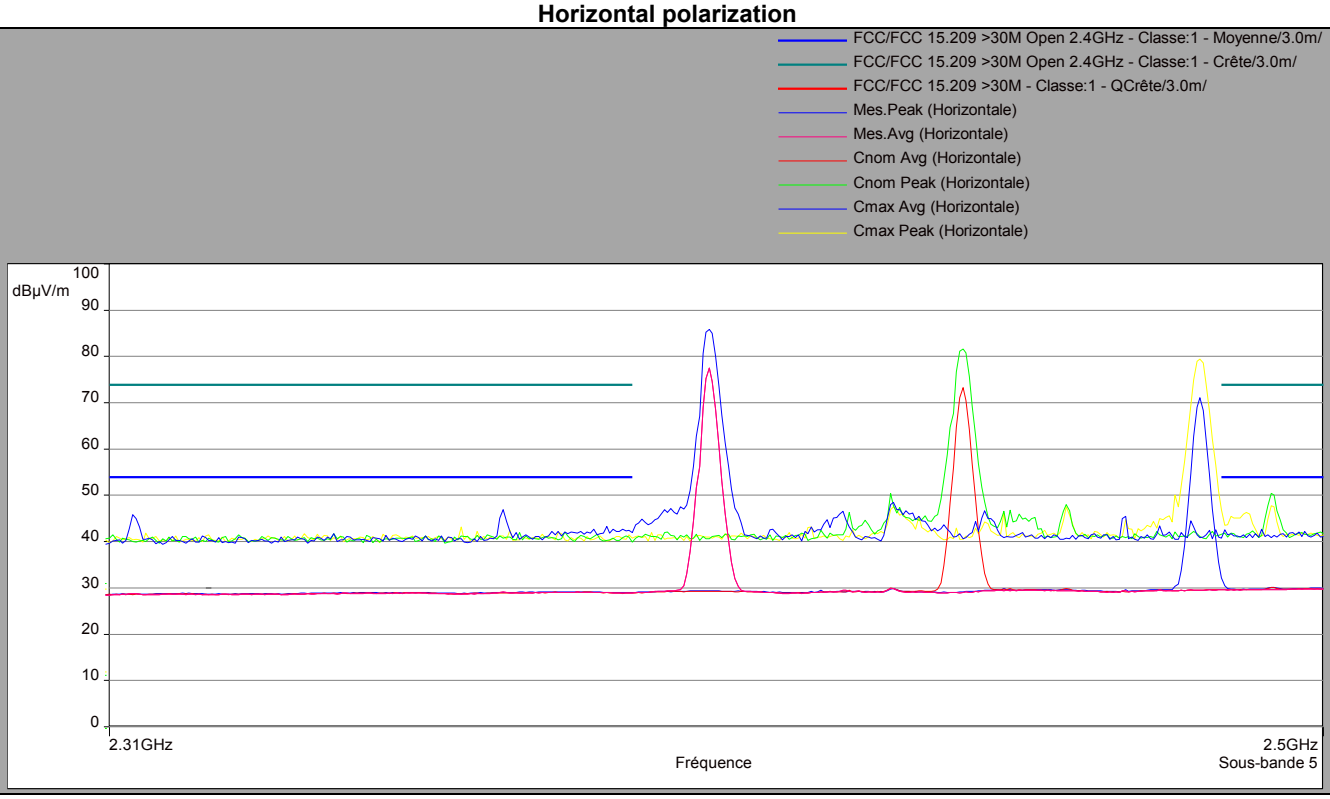
Above 1GHz Zoom 2310MHz-2500MHz

Cmin/Cnom/Cmax

Vertical Polarization



Horizontal polarization



Below 1GHz				
Polarization	**Frequency (MHz)**	**Peak Level (dBµV/m)**	**QPeak Level (dBµV/m)**	**Limit (dBµV/m)**
Verticale	391,88	29,691	-	46
Verticale	216,56	27,598	-	46
Verticale	108,3	25,525	-	43,5
Horizontale	160	20,138	-	43,5
Horizontale	280,52	21,925	-	46
Horizontale	391,88	27,667	-	46

Above 1GHz						
Cmin/Cnom/Cmax						
Polarization	**Frequency (MHz)**	**Duty cycle correction (dB)**	**Average Level (dBµV/m)**	**Average Limit (dBµV/m)**	**Peak Level (dBµV/m)**	**Peak Limit (dBµV/m)**
Horizontale	2307	-	28,355	54	46,95	74
Horizontale	2390	-	28,988	54	41,998	74
Verticale	2390	-	28,947	54	40,79	74
Verticale	2483.5	-	36,46	54	53,027	74
Horizontale	2483,5	-	32,146	54	46,881	74
Verticale	4959,5	-	44,484	54	56,33	74
Verticale	7440	-	46,738	54	59,397	74
Verticale	9920	-	49,572	54	62,743	74
Horizontale	4803,5	-	46,52	54	57,749	74

9.7. CONCLUSION

Unwanted Emission in restricted frequency bands measurement performed on the sample of the product **DELSEY PLUGGAGE LOCK with Fingerprint and connected BLE – PLUG001AL@#**, SN: **DELPLJY#4716926** in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.247 & RSS 247 ISSUE 1 limits.

10. 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