

FCC Test Firm Designation Number: FR0014  
Industry Canada Test Firm Number: Site# 9545A-1 / 9545A-2

Matériel testé :  
*Equipment under test:*

**SEVENHUGS / Smart Remote SR1A (BLE mode)**  
*(Trademark / Marketing name or product reference)*

Client / Demandeur:  
*Customer / Applicant :* **Sevenhugs**  
Stephane Jaubertou  
29 bd Romain Rolland  
75014 Paris - France

Fabricant :  
*Manufacturer:* **Sevenhugs**  
29 bd Romain Rolland  
75014 Paris - France

Numéro d'affaire :  
*Work number :* 12114

Référence de la proposition :  
*Proposal number:* 032017-22416

Date de l'essai :  
*Date of test:* Du 4 au 8 juin 2018  
*June 4th to 8th, 2018*

Objectif des essais :  
*Test purpose:* EMC qualification accordingly to following standards:  
- CFR 47, FCC Part 15, Subpart B & C  
*(Chapter 15.247 - Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz)*  
- Industry Canada ICES-003 Issue 6 & RSS-247, Issue 2  
*(Digital Transmission Systems Operating in the Bands 2400-2483.5 MHz)*

Lieu du test:  
*Test location:* SMEE, Rue de Taille  
38500 VOIRON - France

Test réalisé par :  
*Test realized by:* Laurent CHAPUS

Conclusion :  
*Conclusion:* L'équipement satisfait aux prescriptions des normes citées en référence.  
*The appliance complies with requirements of above mentioned standards.*

| Ed. | Date              | Modifications Pages / | Written by :<br>Visa | Approved by:<br>Visa |
|-----|-------------------|-----------------------|----------------------|----------------------|
| 1   | August 21th, 2018 | Initial Edition       | Laurent Chapus       | Régis ANCEL          |

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**Contents**

|  |    |
|--|----|
| 1. NORMATIVES REFERENCES .....   | 3  |
| 2. TEST SYNTHESIS .....  | 4  |
| 3. EQUIPMENT UNDER TEST (EUT).....   | 5  |
| 4. TEST CONDITIONS.....  | 5  |
| 5. MODIFICATIONS OF THE EUT.....   | 6  |
| 6. SPECIAL ACCESSORY .....   | 6  |
| 7. CONDUCTED EMISSION MEASUREMENT (150KHZ-30MHZ).....                      | 7  |
| 8. RADIATED EMISSION MEASUREMENT (30MHZ-5GHZ).....                         | 10 |
| 9. 6DB BANDWIDTH.....  | 16 |
| 10. MAXIMUM PEAK OUTPUT POWER.....   | 20 |
| 11. MAXIMUM POWER SPECTRAL DENSITY LEVEL IN THE FUNDAMENTAL EMISSION ..... | 23 |
| 12. UNWANTED EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS.....              | 27 |
| 13. UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS.....                  | 32 |
| 14. OCCUPIED BANDWIDTH (99%).....  | 46 |

**1. Normatives References**

| FCC qualification according to: |         |  |
|---------------------------------|---------|--|
| Standards                       | Applied | Title  |
| ANSI C63.4<br>(2014)            | X       | American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz. |
| ANSI C63.10<br>(2013)           | X       | American National Standard for Testing Unlicensed Wireless Devices   |
| CFR47, Part 15                  | X       | Telecommunication – Federal Communication Commission – Radio frequency devices,<br>Sections 15.107 / 15.109 / 15.207 / 15.209 / 15.247                               |

| Industry Canada qualification according to: |         |  |
|---|---------|--|
| Standards                                   | Applied | Title  |
| ICES-003<br>(Issue 6/2016)                  | X       | Information Technology Equipment (ITE) – Limits and methods of measurement   |
| RSS-Gen<br>(Issue 5/2018)                   | X       | General Requirements and Information for the Certification of Radio Apparatus  |
| RSS-247<br>(Issue2/2017)                    | X       | Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices |

**Note:** Following guidance are used

- DTS Measurement Guidance 558074 D01 v04
- Determining ERP and EIRP Guidance 412172 D01 v01r01

Deviation from standard: None

## 2. Test synthesis

| TEST   | Paragraph number<br>FCC Part 15 /<br>IC RSS-247 / RSS-GEN                                 | Spec.<br>FCC Part 15 /<br>IC RSS-247 / RSS-GEN   | RESULTS<br>(comments) |
|--|---|--|-----------------------|
| Conducted emissions test                               | 15.207 (a)<br>RSS-Gen § 8.8   | Table 15.207 (a)<br>Table 4 / RSS-Gen  | <b>PASS</b>           |
| Radiated emission test                                 | 15.209 (a)<br>ICES-003  | Table 15.209 (a)<br>Table 5 & 7 , § 6.2  | <b>PASS [1]</b>       |
| 6dB Bandwidth  | 15.247 (a) (2)<br>RSS-247 § 5.2 (a)   | At least 500kHz  | <b>PASS</b>           |
| Maximum Peak Output Power                              | 15.247 (b) (3)<br>RSS-247 § 5.4 (d)   | 1W max / 30dBm (Conducted)<br>4W max / 36dBm (EIRP)  | <b>PASS</b>           |
| Maximum Power Spectral Density                         | 15.247 (e)<br>RSS-247 § 5.2 (b)   | 8dBm in a 3kHz band segment  | <b>PASS</b>           |
| Unwanted emissions into Non Restricted Frequency Bands | 15.247 (d) /<br>RSS-247 § 5.5   | -20dBc in any 100kHz outside frequency band.   | <b>PASS</b>           |
| Unwanted emissions into Restricted Frequency Bands     | 15.209 (a) / 15.247 (d) /<br>15.205 (a)<br>RSS-GEN § 7.1, §8.9, §<br>8.10 / RSS-247 § 3.3 | <u>Measure at 300m</u><br>9-490kHz: 2400µV/m/F(kHz)<br><u>Measure at 30m</u><br>0.490-1.705: 24000µV/m/F(kHz)<br>1.705-30MHz: 30µV/m<br><u>Measure at 3m</u><br>30MHz-88MHz : 40 dBµV/m<br>88MHz-216MHz : 43.5 dBµV/m<br>216MHz-960MHz : 46.0 dBµV/m<br>Above 960MHz : 54.0 dBµV/m | <b>PASS</b>           |
| Occupied Bandwidth                                     | RSS-GEN § 6.7   | BW at 99%  | <b>PASS</b>           |

N/A: Not Applicable

[1]: For battery charging mode with all non-RF functions.

- General conclusion:**

Measures and tests performed on the sample of the product *SEVENHUGS Smart Remote SR1A*, in configuration and description presented in this test report, show compliance with standards FCC CFR 47, PART 15, Subpart B & C and Industry Canada ICES-003, RSS-Gen & RSS-247.

### 3. Equipment Under Test (EUT)

Nom /  
Identification

**SEVENGUGS Smart Remote SR1A**

Sn: PP3

FCC ID:  
IC:  
Model:

FCC ID: 2AEVC-SR1A  
IC: 20292-SR1A  
SR1A

Alimentation /  
Power supply

5V DC from power adapter.  
AC/DC power adapter: Dong Guan City GangQi Electronic Co  
Model:GQ06-050120-AX  
Input:100-240 V -50/60 Hz 0.3 Amax  
Output:5V/1.2A (1.8m cable)

Auxiliaires /  
Auxiliaries

Charging base CB1A / Sevenhugs

Entrées-Sorties /  
Input / Output

|            | Câbles pour essai /<br>Cables for test | Blindé /<br>Shielded | Prévu pour >3m /<br>Intended for >3m |
|------------|--|----------------------|--------------------------------------|
| AC Mains * | 2 wires / 1m                           | No                   | Mains                                |
| DC cable * | 2 wires / 1.8m                         | No                   | No                                   |

\*: Power supply of charging base. No cable on Remote.

Version programme /  
Firmware version

Certification\_v10.1

Mode de fonctionnement /  
Running mode

The tested sample is able to:

- Transmit a carrier frequency on low, middle and high channels (Bluetooth Low Energy) without battery charging mode (Standalone mode)
- Transmit a carrier frequency on low, middle and high channels (Bluetooth Low Energy) with battery charging
- Battery charging with all others non-RF functions (IR, Sound, Vibrator, MEMS, LCD tests)

Programme de test /  
Test program /

None

Fréquence max interne EST /  
Max internal EUT frequency  
Information sur l'équipement /  
Equipment information

1GHz (Except RF frequency)

- ISM Frequency band: 2400 to 2483.5 MHz (Tx & Rx, Wideband Data Transmission systems)
- Power Setting: Power is set at its maximum (+8dBm)
- Modulation: Bluetooth Low Energy
- Antenna type: Integral (PCB trace, peak gain 1.2dBi)
- Powered by 3.7V DC from internal battery / Recharge from charging base)
- Equipment intended for use as a portable station
- Equipment designed for continuous operation

### 4. Test conditions

Power supply voltage:  
Equipment under test:

Internal battery Lipo 3.7V (Remote)  
5V DC from external power adapter (For charging base)

Auxiliaries:

230V/50Hz (Radiated emission)  
110V/60Hz (Conducted emission)

**5. Modifications of the EUT**

None

**6. Special accessory**

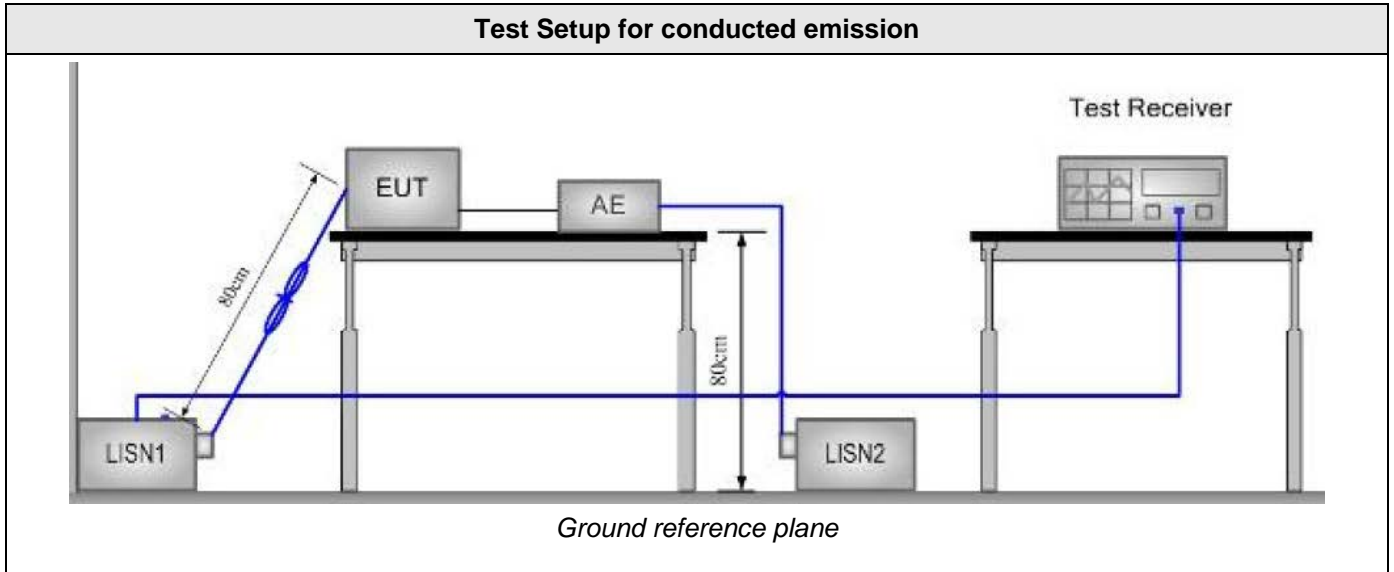
None

**7. Conducted Emission Measurement (150kHz-30MHz)**

| <b>TEST: Limits for conducted disturbance 150kHz – 30MHz</b>   |               |                                      |         | <b>Verdict</b>                        |  |
|--|---------------|--------------------------------------|---------|---------------------------------------|--|
| <p><b>Method:</b> The LISN is placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment were at least 0,8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on lines were made at the output of the LISN. The EUT is 80cm above the ground reference plane and 40cm from the vertical ground plane. The AC power cable is 1m length.</p> |               |                                      |         | <b>Pass</b>                           |  |
| <b>Laboratory Parameters:</b>  |               | Required prior to the test           |         | During the test                       |  |
| Ambient Temperature  |               | 20 to 30 °C                          |         | 22°C ± 2                              |  |
| Relative Humidity  |               | 25 to 70 %                           |         | 64% ± 5                               |  |
| Fully configured sample scanned over the following frequency range   |               | Frequency range on each side of line |         | Measurement Point                     |  |
|  |               | 150kHz to 30MHz                      |         | AC input port (110V)<br>Power adapter |  |
| <b>Limits</b>  |               |                                      |         |                                       |  |
| Frequency (MHz)  | Limit dB (µV) |                                      |         |                                       |  |
|  | Quasi-Peak    | Result                               | Average | Result                                |  |
| 0.15 – 0.50  | 66 \ 56       | <b>PASS</b>                          | 56 \ 46 | <b>PASS</b>                           |  |
| 0.50 - 5   | 56            | <b>PASS</b>                          | 46      | <b>PASS</b>                           |  |
| 5 – 30   | 60            | <b>PASS</b>                          | 50      | <b>PASS</b>                           |  |
| Supplementary information:   |               |                                      |         |                                       |  |
| Test location: SMEE  |               |                                      |         |                                       |  |
| Test date: June 4 <sup>th</sup> , 2018. Tested by L. CHAPUS  |               |                                      |         |                                       |  |
| Power supply voltage: 5V from power adapter (AC mains 110V/60Hz)   |               |                                      |         |                                       |  |

| <b>Test Equipment Used</b> |               |              |             |           |          |
|----------------------------|---------------|--------------|-------------|-----------|----------|
| Description                | Manufacturer  | Model        | Identifier  | Cal. Date | Cal. Due |
| Attenuator / limiter       | SMEE          | ATT#2        | ATT-171-010 | 2017/6    | 2018/6   |
| Cable RF                   | Div           | 1m           | CAB-101-021 | 2018/4    | 2019/4   |
| LISN (50Ω / 50µH) (Meas.)  | AFJ           | LS16C        | RSI-101-001 | 2017/6    | 2019/6   |
| Measuring receiver         | Rohde&Schwarz | ESRP         | REC-151-002 | 2017/3    | 2019/3   |
| EMC Software               | NEXIO         | BAT EMC V3.8 | SOF-101-001 | -         | -        |
| AC power supply            | PACIFIC POWER | AMX-125      | 101-002     | -         | -        |

## Test Setup for conducted emission

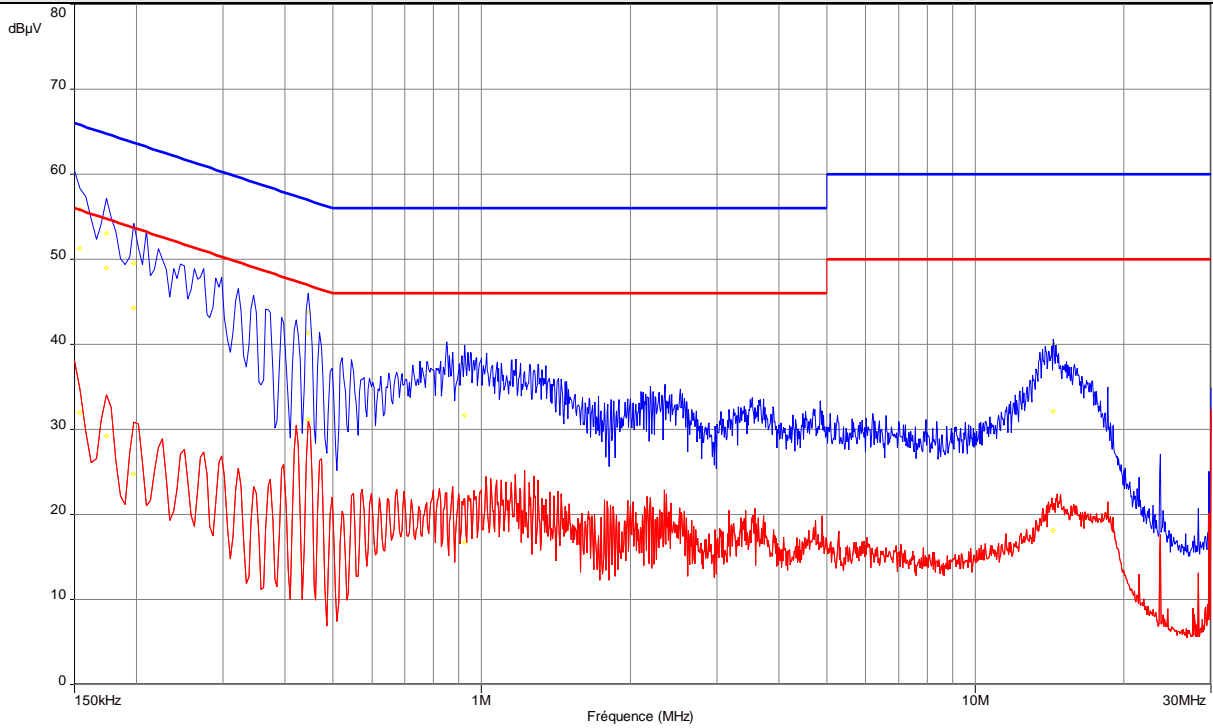


## Tabulated Results for Mains Terminal Disturbance Voltage on AC port

| FREQ<br>(MHz)                        | Meas. PK<br>(dB $\mu$ V) | Mes. QP<br>(dB $\mu$ V) | LIMIT QP<br>(dB $\mu$ V)   | Margin QP<br>(dB) | Mes. AV<br>(dB $\mu$ V) | LIMIT AV<br>(dB $\mu$ V) | Margin AV<br>(dB) | Line    |
|--------------------------------------|--------------------------|-------------------------|--|-------------------|-------------------------|--------------------------|-------------------|---------|
| 0.154                                | 55.9                     | 51.3                    | 65.8   | -14.5             | 32.0                    | 55.8                     | -23.8             | L1      |
| 0.174                                | 53.0                     | 49.0                    | 64.8   | -15.8             | 29.2                    | 54.8                     | -25.6             | L1      |
| 0.198                                | 49.5                     | 44.3                    | 63.7   | -19.4             | 24.8                    | 53.7                     | -28.9             | L1      |
| 0.446                                | 43.8                     | 41.4                    | 57.0   | -15.6             | 31.1                    | 47.0                     | -15.9             | L1      |
| 0.926                                | 37.7                     | 31.6                    | 56.0   | -24.4             | 16.7                    | 46.0                     | -29.3             | L1      |
| 14.372                               | 40.0                     | 32.1                    | 60.0   | -27.9             | 18.2                    | 50.0                     | -31.9             | L1      |
| 0.154                                | 54.4                     | 50.3                    | 65.8   | -15.5             | 30.7                    | 55.8                     | -25.1             | Neutral |
| 0.182                                | 52.4                     | 45.1                    | 64.4   | -19.3             | 24.0                    | 54.4                     | -30.4             | Neutral |
| 0.234                                | 47.3                     | 40.7                    | 62.3   | -21.7             | 20.2                    | 52.3                     | -32.1             | Neutral |
| 0.418                                | 44.4                     | 42.2                    | 57.5   | -15.3             | 30.2                    | 47.5                     | -17.3             | Neutral |
| 13.168                               | 33.7                     | 24.3                    | 60.0   | -35.7             | 10.8                    | 50.0                     | -39.2             | Neutral |
| <b>Frequency band investigated:</b>  |                          |                         | 150kHz-30MHz   |                   |                         |                          |                   |         |
| <b>RBW:</b>                          |                          |                         | 9kHz   |                   |                         |                          |                   |         |
| <b>Voltage:</b>                      |                          |                         | 230V/50Hz  |                   |                         |                          |                   |         |
| <b>Limit:</b>                        |                          |                         | FCC Part 15.209 a) / RSS-Gen: Issue 5, §8.8 Table 4  |                   |                         |                          |                   |         |
| <b>Final measurement detector:</b>   |                          |                         | Quasi-Peak and CISPR Average (AV)  |                   |                         |                          |                   |         |
| <b>Wide Measurement Uncertainty:</b> |                          |                         | $\pm 3.5$ dB (k=2)   |                   |                         |                          |                   |         |
| <b>RESULT:</b>                       |                          |                         | PASS   |                   |                         |                          |                   |         |
| <b>Measured value calculation:</b>   |                          |                         | <p>The measured value (level) is calculated by adding the Cable Factor, the Transient suppressor attenuation and LISN attenuation from the receiver amplitude reading. The basic equation is as follow:</p> $\text{Meas.} = \text{RA} + \text{CF} + \text{ATT}_{\text{TRAN}} + \text{ATT}_{\text{LISN}}$ <p>Where</p> <ul style="list-style-type: none"> <li>Meas. = Level (dB<math>\mu</math>V)</li> <li>RA = Receiver Amplitude</li> <li>CF = Cable Factor</li> <li>ATT<sub>TRAN</sub> = Transient suppressor attenuation</li> <li>ATT<sub>LISN</sub> = LISN attenuation</li> </ul> <p>Margin value = Emission level – Limit value (A negative margin shows compliance to limit)</p> |                   |                         |                          |                   |         |



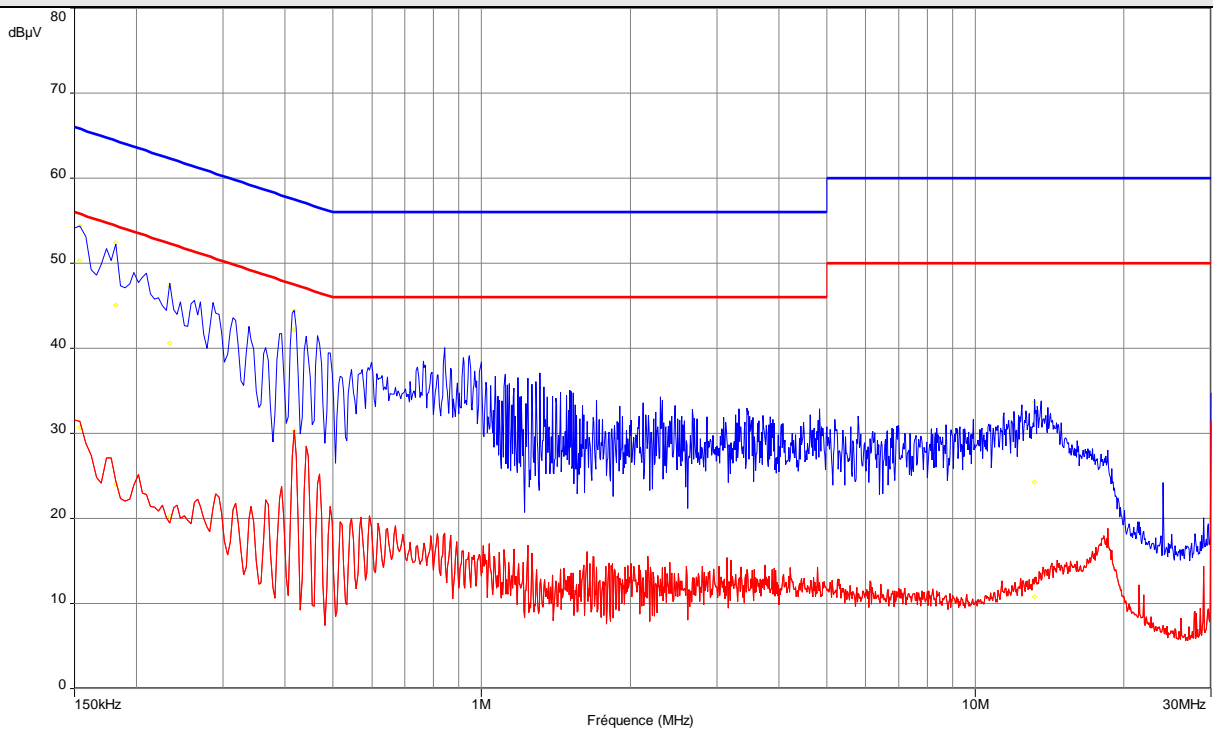
## Graphical representation of Conducted Disturbance Measurement (Peak and Average detection) AC port, Line L1 – Power adapter



----: Peak

----: Average

## Graphical representation of Conducted Disturbance Measurement (Peak and Average detection) AC port, Line Neutral – Power adapter



----: Peak

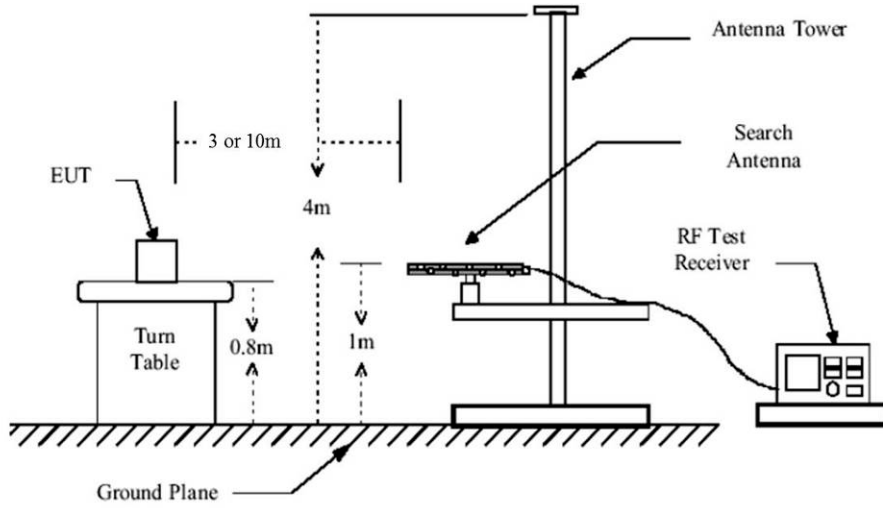
----: Average

**8. Radiated Emission Measurement (30MHz-5GHz)**

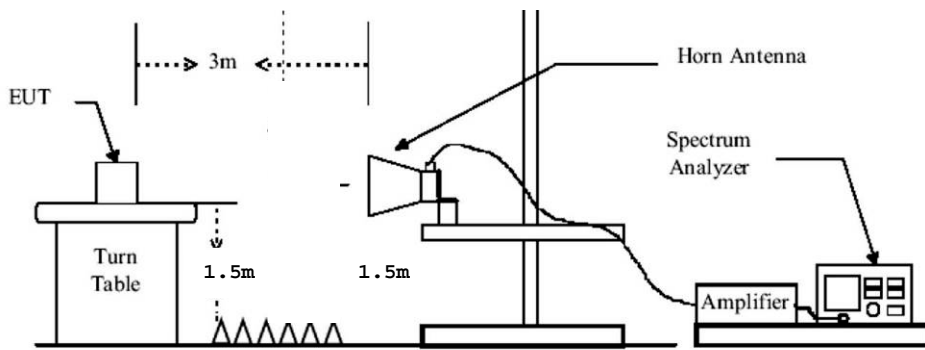
| <b>TEST: Limits for radiated disturbance 30 MHz – 5 GHz</b>  |  | <b>Verdict</b>           |
|--|--|--------------------------|
| <p><b>Method:</b> Measurements were performed on a 3-meter Open Area Test Site (OATS) for frequency below 1GHz. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (Peak) were then performed by rotating the EUT on 360° and adjusting the receive antenna height from 1 to 4 m</p> <p>For frequency above 1GHz, final measurements were made at 3m in a Full Anechoic Chamber (FAC) that complies with ANSI C63.10. Measurements were performed at an antenna to EUT separation distance of 3 meter. The EUT was rotated 360° about its azimuth with the receive antenna in horizontal and vertical polarities.</p> <p>Three orthogonal axis measurements on EUT are performed to obtain the maximum peak field strength, with 60° rotation on each axis.(Clause 6.6.5 of ANSI C63.10).</p> <p>A pre-scan frequency identification of the EUT has been performed in full anechoic chamber. The measured radiated field of the EUT is performed (or corrected) at 3-meters of distance. Antenna is 1.25-meters high. The pre-characterization graphs are obtained in PEAK detection with 360° continuous rotation of the device under test.</p> |  | <b>Pass</b>              |
| Laboratory Parameters:   | Required prior to the test                     | During the test          |
| Ambient Temperature  | 20 to 30 °C                                    | 22°C ± 2                 |
| Relative Humidity  | 25 to 70 %                                     | 64% ± 5                  |
| Fully configured sample scanned over the following frequency range   | Frequency range on each side of line           | Measurement Point        |
|  | 30MHz – 5GHz                                   | 3 m measurement distance |
| Running mode   | Battery Charging / All others non-RF functions |                          |
| <b>Limits</b>  |  |                          |
| Frequency (MHz)  | Limit at 3m (dBµV/m)                           |                          |
|  | Level / Detector                               | Results                  |
| 30 to 88   | 40.0 (QP)                                      | <b>Pass</b>              |
| 88 to 216  | 43.5 (QP)                                      | <b>Pass</b>              |
| 216 to 960   | 46.0 (QP)                                      | <b>Pass</b>              |
| 960 to 1000  | 54.0 (QP)                                      | <b>Pass</b>              |
| Above 1GHz   | 54.0 (AV)<br>74.0 (PK)                         | <b>Pass</b>              |
| Supplementary information:   |  |                          |
| Test location: SMEE.   |  |                          |
| Test date: June 4 <sup>th</sup> , 2018. Tested by L. CHAPUS  |  |                          |

| Test Equipment Used  |                |              |             |           |          |
|----------------------|----------------|--------------|-------------|-----------|----------|
| Description          | Manufacturer   | Model        | Identifier  | Cal. Date | Cal. Due |
| Log-periodic antenna | TDK            | PLP3003      | ANT-101-001 | 2017/5    | 2019/5   |
| Biconnic antenna     | COM-POWER      | AB- 900      | ANT-101-003 | 2017/5    | 2019/5   |
| Loop antenna         | EMCO           | 6502         | ANT-101-009 | 2017/8    | 2019/8   |
| BiConiLog antenna    | EMCO           | 3142B        | ANT-101-010 | 2017/7    | 2019/7   |
| Horn antenna         | ETS-LINDGREN   | 3115         | ANT-141-013 | 2014/3    | 2019/3   |
| Spectrum analyzer    | Rohde&Schwarz  | FSV40        | ASP-171-004 | 2017/5    | 2019/5   |
| RF cable             | Div            | OATS/25m     | CAB-101-017 | 2018/4    | 2019/4   |
| RF cable             | Pasternack RF  | PE302-120    | CAB-131-024 | 2018/4    | 2019/4   |
| RF cable             | HUBER+SUHNER   | RG214U       | CAB-141-026 | 2018/4    | 2019/4   |
| RF cable             | HUBER+SUHNER   | RG214U       | CAB-141-029 | 2018/4    | 2019/4   |
| RF cable             | HUBER+SUHNER   | SF104        | CAB-141-030 | 2018/4    | 2019/4   |
| Anechoic chamber     | COMTEST        | 214263       | CAG-141-001 | 2017/6    | 2020/6   |
| Antenna mast         | Innco- Systems | MA4000EP     | MAT-101-001 | -         | -        |
| Turntable            | Innco- Systems | DS1200S      | PLA-101-001 | -         | -        |
| Turntable            | Innco- Systems | CT0800       | PLA-141-001 |           |          |
| Pre-amplifier        | PE             | 1524         | PRE-101-002 | 2017/6    | 2018/6   |
| Pre-amplifier        | SMEE           | 18-40GHz     | PRE-171-004 | 2017/12   | 2018/12  |
| Measuring receiver   | Rohde&Schwarz  | ESRP         | REC-151-003 | 2017/3    | 2019/3   |
| OATS                 | Div            | 10m          | SIT-101-001 | 2017/7    | 2020/7   |
| EMC Software         | NEXIO          | BAT EMC V3.8 | SOF-101-001 | -         | -        |

**Test Setup for radiated emission**



*Test setup for 30-1000MHz*



*Test setup for 1-25GHz*

**Tabulated Results for Radiated Disturbance  
(3m measurement on Open Area Test Site, 30MHz-1GHz)**

| FREQ    | Meter reading   | Meter reading   | Total Factor | Field level       | Field level       | Pol | Antenna height | Table angle | Limit             | Margin       |
|---------|-----------------|-----------------|--------------|-------------------|-------------------|-----|----------------|-------------|-------------------|--------------|
| MHz     | (QP) dB $\mu$ V | (Pk) dB $\mu$ V | dB           | (QP) dB $\mu$ V/m | (Pk) dB $\mu$ V/m |     | cm             | Degré       | (QP) dB $\mu$ V/m | dB           |
| 63.586  | 19.8            | 25.6            | 9.9          | <b>29.7</b>       | 35.5              | V   | 100            | 170         | 40.0              | <b>-10.3</b> |
| 179.987 | 14.1            | 16.8            | 17.9         | <b>32.0</b>       | 34.7              | V   | 125            | 160         | 43.5              | <b>-11.5</b> |
| 419.960 | 20.9            | 23.8            | 20.2         | <b>41.1</b>       | 44.0              | V   | 155            | 45          | 46.0              | <b>-4.9</b>  |

Supplementary information:

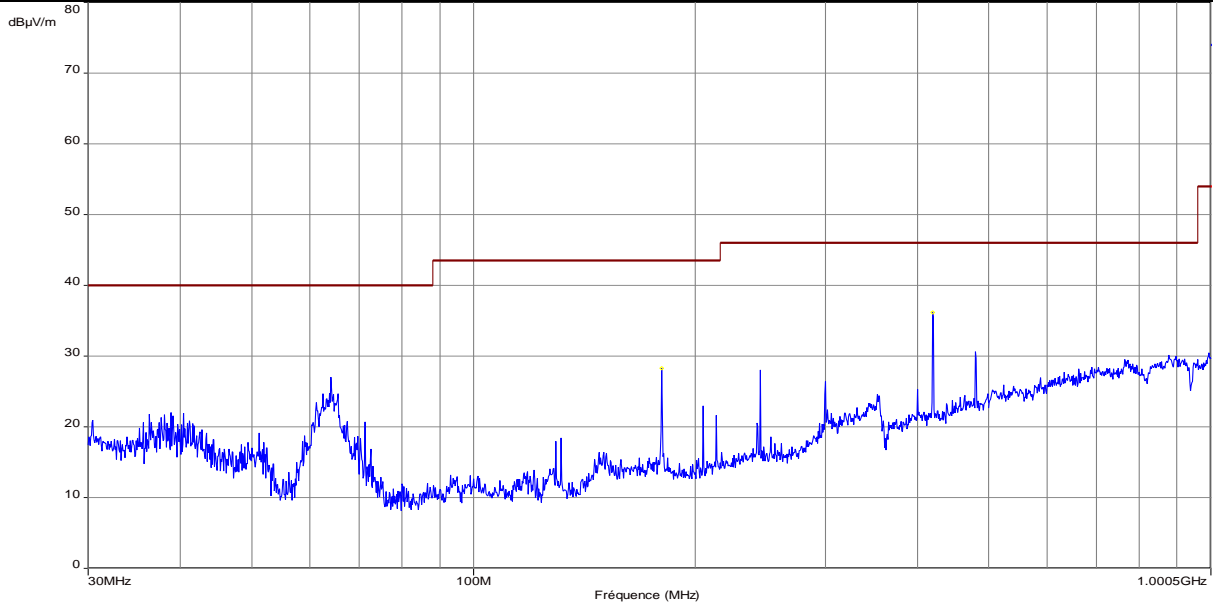
Frequency list measured on the Open Area Test Site is created with pre-scan results.

|                                      |  |
|--------------------------------------|--|
| <b>Frequency band investigated:</b>  | 30MHz-1GHz   |
| <b>RBW:</b>                          | 120kHz   |
| <b>Measurement distance:</b>         | 3m   |
| <b>Limit:</b>                        | FCC Part 15.109 / 15.209 / ICES-003  |
| <b>Final measurement detector:</b>   | Quasi-Peak   |
| <b>Wide Measurement Uncertainty:</b> | $\pm 5.6$ dB (k=2)   |
| <b>RESULT:</b>                       | PASS   |
| <b>Field Strength Calculation:</b>   | <p>The field strength (level) is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follow:</p> $FS = RA + AF + CF - AG$ <p>Where FS = Field Strength (Level)<br/> RA = Receiver Amplitude (Meter reading)<br/> AF = Antenna Factor<br/> CF = Cable Factor<br/> AG = Amplifier Gain</p> <p>Total factor (dB) is AF + CF – AG<br/> Margin value = Emission level – Limit value</p> |

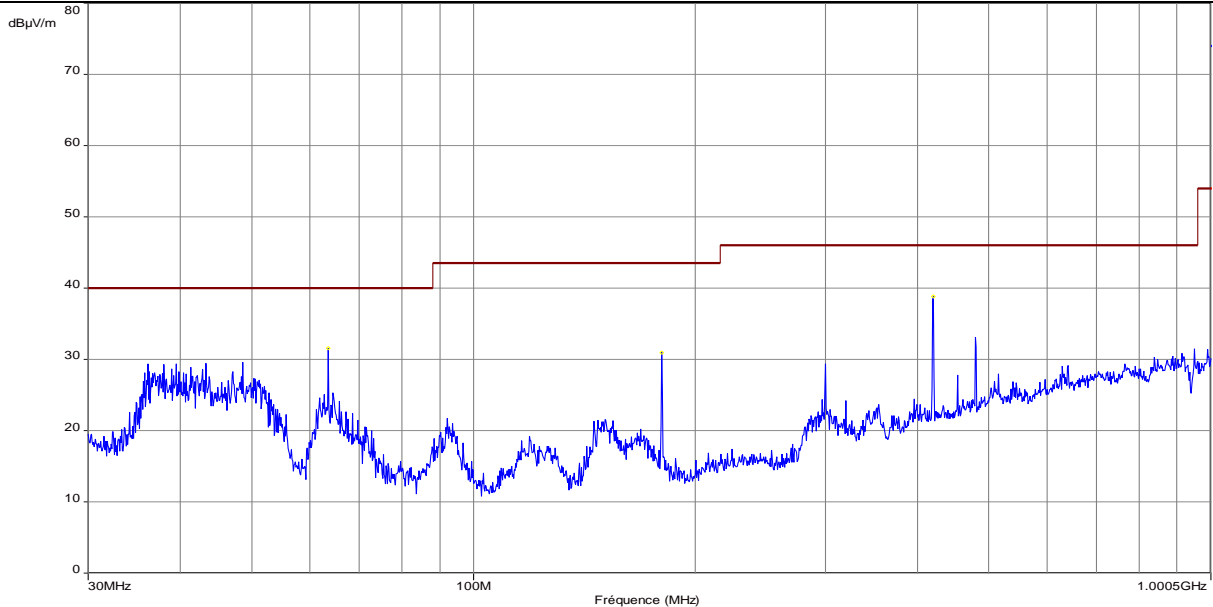
## Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 30MHz-1GHz / 3m)

Battery charging, with audio, IR, Mems, LCD

Horizontal polarization



Vertical polarization



----- : Peak measure

----- : Class B limit (3m)

Note: Pre-scan graph only for identification purpose.

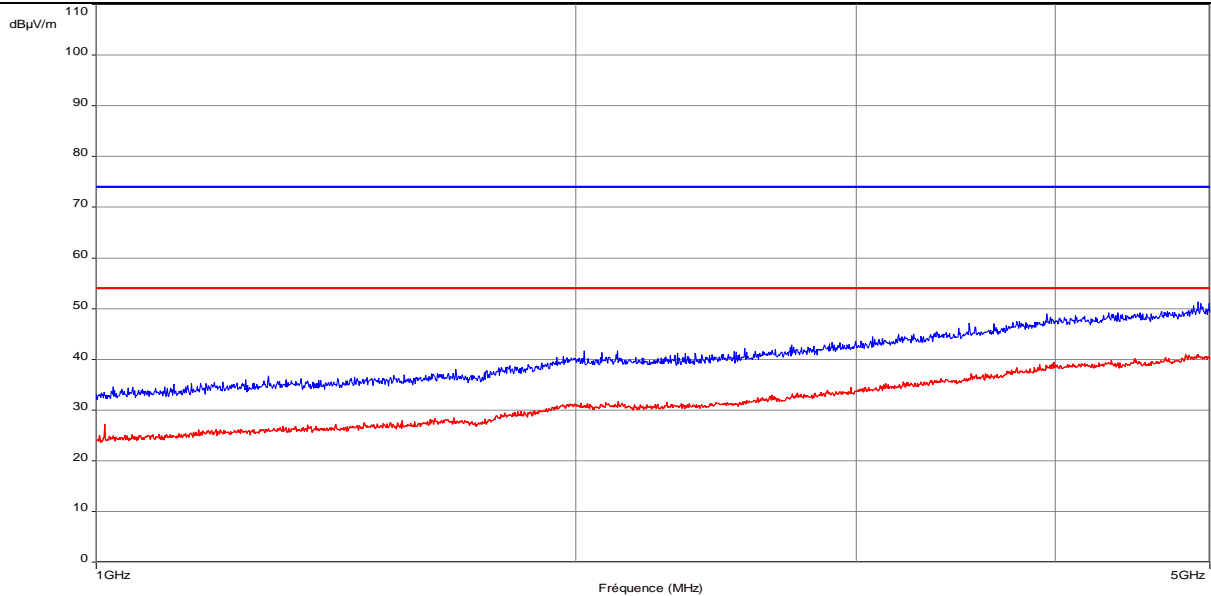
Marker List :

| Frequency (MHz) | Peak Level (dBµV/m) | Limit (dBµV/m) | Polarization |
|-----------------|---------------------|----------------|--------------|
| 419.959         | 36.2                | 46.5           | Horizontal   |
| 63.558          | 32.1                | 40.0           | Vertical     |
| 179.977         | 31.0                | 43.5           | Vertical     |
| 419.959         | 38.9                | 46.0           | Vertical     |

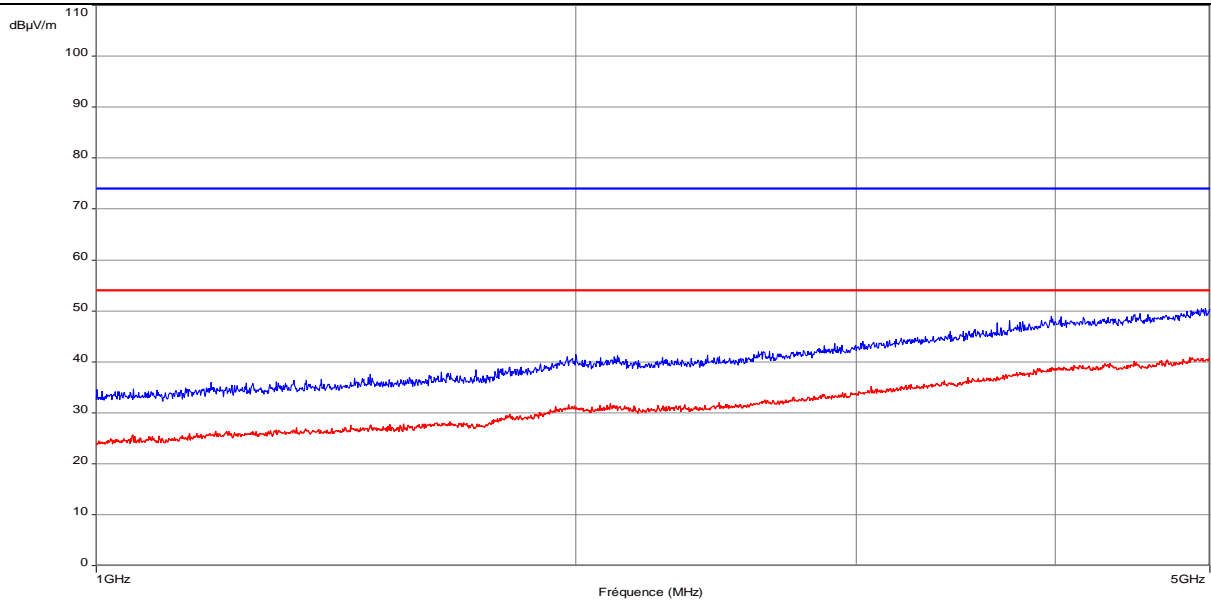
## Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 1GHz-5GHz / 3m)

Battery charging, with audio, IR, Mems, LCD

Horizontal polarization



Vertical polarization



----- : Peak measure / limit

----- : Average measure / limit

Note: Pre-scan graph only for identification purpose.

Marker List :

| Frequency (MHz) | Peak Level (dBµV/m) | Limit (dBµV/m) | Polarization |
|-----------------|---------------------|----------------|--------------|
| -               | -                   | -              | -            |

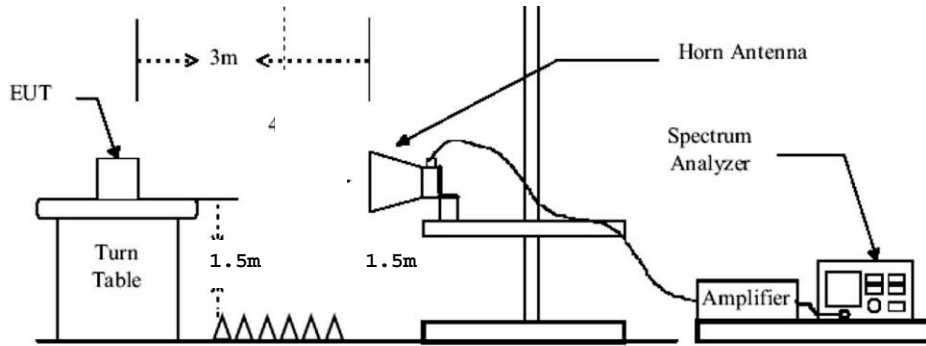
**9. 6dB Bandwidth**

| <b>TEST: 6dB Bandwidth</b>  |                                    |                 | <b>Verdict</b> |  |                            |                 |                     |             |              |                   |            |
|---|------------------------------------|-----------------|----------------|--|----------------------------|-----------------|---------------------|-------------|--------------|-------------------|------------|
| <p><u>Method:</u> The setup is in an anechoic chamber. The spectrum analyzer is connected to the measuring antenna. A radiated measurement is performed.<br/>           The RBW is 100kHz, with VBW <math>\geq 3 \times</math> RBW.<br/>           The SPAN is wide enough to capture all products of the modulation process.<br/>           A MaxHold Peak detector is used.<br/>           The tested equipment is set to transmit operation with modulation on low, mid and high channels.</p>   |                                    |                 | <b>Pass</b>    |  |                            |                 |                     |             |              |                   |            |
| <p>Laboratory Parameters:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;"></th> <th style="width: 33%;">Required prior to the test</th> <th style="width: 33%;">During the test</th> </tr> </thead> <tbody> <tr> <td>Ambient Temperature</td> <td style="text-align: center;">20 to 30 °C</td> <td style="text-align: center;">23°C <math>\pm</math> 2</td> </tr> <tr> <td>Relative Humidity</td> <td style="text-align: center;">25 to 70 %</td> <td style="text-align: center;">64% <math>\pm</math> 5</td> </tr> </tbody> </table> |                                    |                 |                |  | Required prior to the test | During the test | Ambient Temperature | 20 to 30 °C | 23°C $\pm$ 2 | Relative Humidity | 25 to 70 % |
|   | Required prior to the test         | During the test |                |  |                            |                 |                     |             |              |                   |            |
| Ambient Temperature   | 20 to 30 °C                        | 23°C $\pm$ 2    |                |  |                            |                 |                     |             |              |                   |            |
| Relative Humidity   | 25 to 70 %                         | 64% $\pm$ 5     |                |  |                            |                 |                     |             |              |                   |            |
| <b>Limits – FCC Part 15.247 (a) / RSS-247 §5.2 (a)</b>  |                                    |                 |                |  |                            |                 |                     |             |              |                   |            |
| Frequency (MHz)   | Level for Bandwidth                | Limit           |                |  |                            |                 |                     |             |              |                   |            |
| 2402.0  | 6dB below the maximum output power | At least 500kHz |                |  |                            |                 |                     |             |              |                   |            |
| 2440.0  |                                    |                 |                |  |                            |                 |                     |             |              |                   |            |
| 2480.0  |                                    |                 |                |  |                            |                 |                     |             |              |                   |            |
| <p>Supplementary information:<br/>           Test location: SMEE.<br/>           Test date: June 8<sup>th</sup>, 2018. Tested by L. CHAPUS</p>  |                                    |                 |                |  |                            |                 |                     |             |              |                   |            |

| <b>Test Equipment Used</b> |                |           |             |           |          |
|----------------------------|----------------|-----------|-------------|-----------|----------|
| Description                | Manufacturer   | Model     | Identifier  | Cal. Date | Cal. Due |
| Horn antenna               | ETS-LINDGREN   | 3115      | ANT-141-013 | 2014/3    | 2019/3   |
| RF cable                   | Pasternack RF  | PE302-120 | CAB-131-024 | 2018/4    | 2019/4   |
| RF cable                   | HUBER+SUHNER   | SF104     | CAB-141-030 | 2018/4    | 2019/4   |
| Anechoic chamber           | COMTEST        | 214263    | CAG-141-001 | 2017/6    | 2020/6   |
| Turntable                  | Innco- Systems | CT0800    | PLA-141-001 | -         | -        |
| Measuring receiver         | Rohde&Schwarz  | ESRP      | REC-151-003 | 2017/3    | 2019/3   |



**Test Setup for radiated emission**

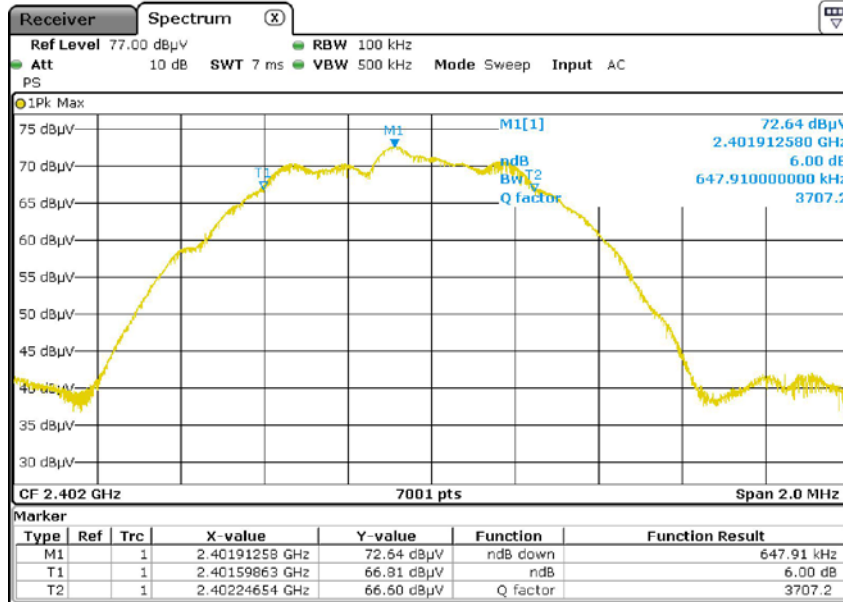


*Test setup for 1-25GHz*

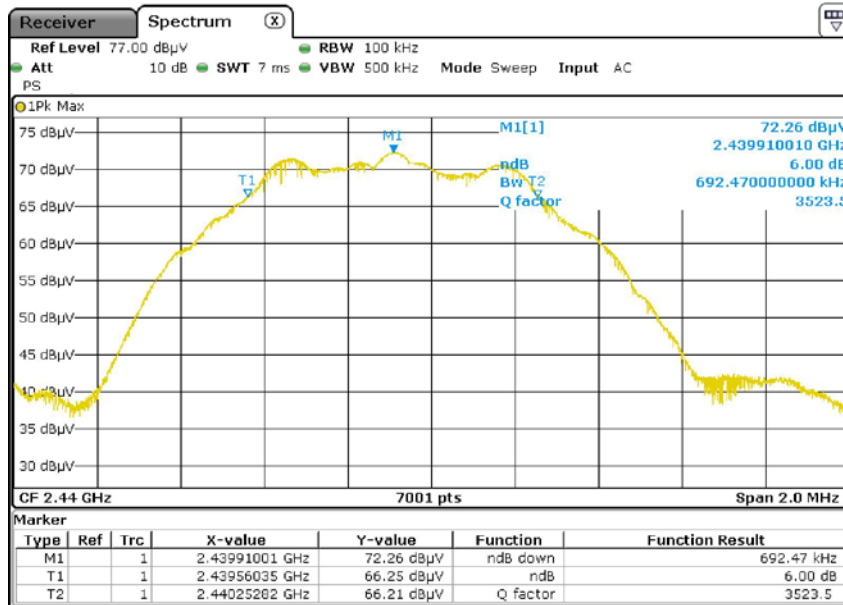
**Tabulated Results for Occupied Bandwidth**

| Frequency (MHz) | 6dB Bandwidth (kHz) | Result |
|-----------------|---------------------|--------|
| 2402.0          | 647.91              | Pass   |
| 2440.0          | 692.47              | Pass   |
| 2480.0          | 667.05              | Pass   |

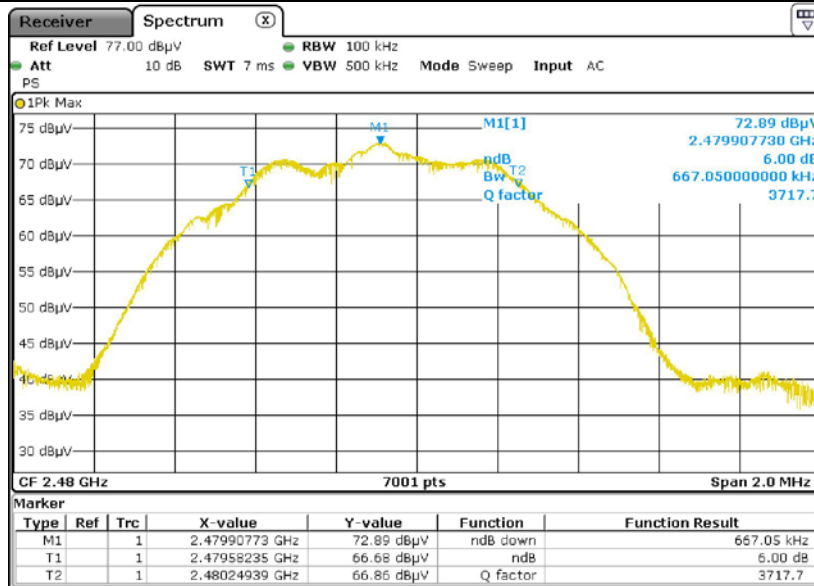
## Graphical representation of 6dB Bandwidth



Low channel



Mid channel



*High channel*

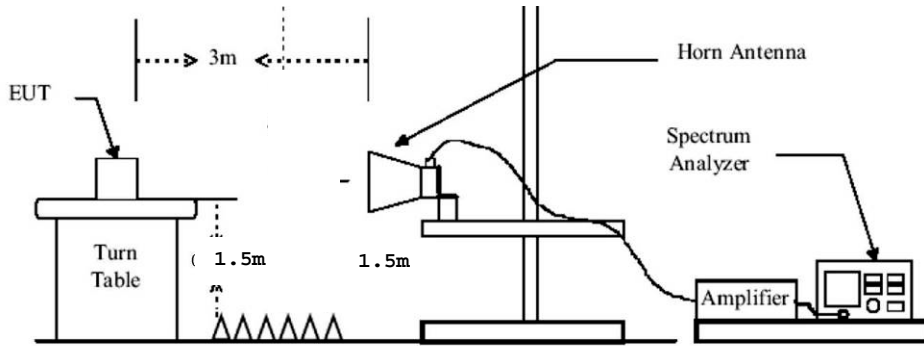
|                                     |                      |
|-------------------------------------|----------------------|
| <b>Frequency band investigated:</b> | 2400MHz to 2483.5MHz |
| <b>RBW :</b>                        | 100kHz               |
| <b>Measurement detector :</b>       | Peak                 |

**10. Maximum Peak Output power**

| <b>TEST: Maximum peak conducted output power</b>  |                             | <b>Verdict</b>  |
|---|-----------------------------|-----------------|
| <p><u>Method:</u> A radiated measurement is performed.<br/>           The RBW is wide enough to capture the maximum amplitude level (&gt;1MHz).<br/>           The SPAN is wide enough to capture all products of the modulation process.<br/>           A MaxHold Peak detector is used.<br/>           Radiated field strength of RF Output Power is measured at 3m in a Full Anechoic Chamber (FAC) that complies with ANSI C63.10.<br/>           Maximum field strength (Peak) is performed by rotating the EUT 360°. All frequencies were investigated in both horizontal and vertical antenna polarity.<br/>           Three orthogonal axis measurements on EUT are performed to obtain the maximum peak field strength, with a 60° rotation on each axis. (Clause 6.6.5 of ANSI C63.10).<br/>           The tested equipment is set to transmit operation with modulation on low, mid and high channels.</p> |                             | <b>Pass</b>     |
| Laboratory Parameters:  | Required prior to the test  | During the test |
| Ambient Temperature   | 20 to 30 °C                 | 23°C ± 2        |
| Relative Humidity   | 25 to 70 %                  | 64% ± 5         |
| <b>Limits – FCC Part 15.247 (b) / RSS-247 §5.4 (d)</b>  |                             |                 |
| Frequency (MHz)   | Limits (dBµV/m)             |                 |
|   | Level / Detector            | Results         |
| 2400 to 2483.5  | 36 dBm / Pk / 3m (Radiated) | <b>Pass</b>     |
| 2400 to 2483.5  | 30 dBm / Pk (Conducted)     | <b>Pass</b>     |
| Supplementary information:<br>Test location: SMEE.<br>Test date: June 6 <sup>th</sup> , 2018. Tested by L. CHAPUS   |                             |                 |

| <b>Test Equipment Used</b> |                |           |             |           |          |
|----------------------------|----------------|-----------|-------------|-----------|----------|
| Description                | Manufacturer   | Model     | Identifier  | Cal. Date | Cal. Due |
| Horn antenna               | ETS-LINDGREN   | 3115      | ANT-141-013 | 2014/3    | 2019/3   |
| RF cable                   | Pasternack RF  | PE302-120 | CAB-131-024 | 2018/4    | 2019/4   |
| RF cable                   | HUBER+SUHNER   | SF104     | CAB-141-030 | 2018/4    | 2019/4   |
| Anechoic chamber           | COMTEST        | 214263    | CAG-141-001 | 2017/6    | 2020/6   |
| Turntable                  | Innco- Systems | CT0800    | PLA-141-001 | -         | -        |
| Measuring receiver         | Rohde&Schwarz  | ESRP      | REC-151-003 | 2017/3    | 2019/3   |

## Test Setup for radiated emission



*Test setup for 1-25GHz*

### Tabulated Results for Maximum peak output power (Radiated measurement)

| FREQ<br>(MHz)                        | Field Strength 3m<br>(dBμV/m)  | Calculated EIRP<br>(dBm) | Limit<br>(dBm) | Result |
|--------------------------------------|--|--------------------------|----------------|--------|
| 2402                                 | 102.5  | 7.2                      | 36.0           | Pass   |
| 2440                                 | 104.5  | 9.2                      | 36.0           | Pass   |
| 2480                                 | 101.7  | 6.5                      | 36.0           | Pass   |
| <b>RBW:</b>                          | 1MHz   |                          |                |        |
| <b>Measurement distance:</b>         | 3m   |                          |                |        |
| <b>Limit:</b>                        | FCC Part 15.247 / RSS-247  |                          |                |        |
| <b>Final measurement detector:</b>   | Peak   |                          |                |        |
| <b>Wide Measurement Uncertainty:</b> | ± 5.6dB (k=2)  |                          |                |        |
| <b>RESULT:</b>                       | PASS   |                          |                |        |
| <b>Note:</b>                         | <p>(1): The field strength (level) is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follow:<br/> <math display="block">FS = RA + AF + CF - AG</math>           Where FS = Field Strength<br/>           RA = Receiver Amplitude<br/>           AF = Antenna Factor<br/>           CF = Cable Factor<br/>           AG = Amplifier Gain<br/>           Total factor (dB) is AF + CF - AG<br/>           Margin value = Emission level - Limit value</p> <p>(2): EIRP is calculated using the following equation:<br/> <math display="block">EIRP = E + 20 \times \log(D) - 104.8 - GR</math>           Where EIRP = Equivalent Isotropic Radiated Power in dBm<br/>           E = Electric field strength in dBμV/m<br/>           D = Measuring distance in meter<br/>           GR = Ground reflection in dB (0dB above 1GHz)</p> |                          |                |        |

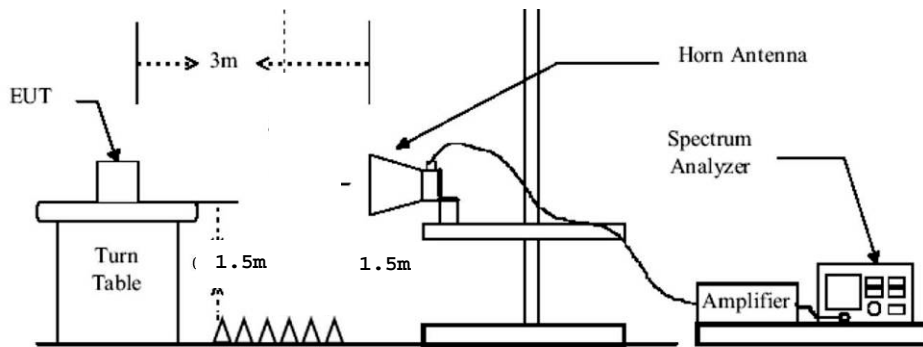
| Tabulated Results for Maximum peak output power (Conducted) |   |                |             |
|---|---|----------------|-------------|
| FREQ<br>(MHz)   | Conducted power<br>(dBm)  | Limit<br>(dBm) | Result      |
| 2402  | <b>6.0</b>  | 30.0           | <b>Pass</b> |
| 2441  | <b>8.0</b>  | 30.0           | <b>Pass</b> |
| 2480  | <b>5.2</b>  | 30.0           | <b>Pass</b> |
| <b>RBW:</b>   | 1MHz  |                |             |
| <b>Limit:</b>   | FCC Part 15.247 / IC RSS-247  |                |             |
| <b>Final measurement detector:</b>                          | Peak  |                |             |
| <b>RESULT:</b>  | PASS  |                |             |
| <b>Note:</b>  | (1): Maximum conducted Peak output power is calculated as follow:<br>$P_c = EIRP - G$ Where $P_c$ = Conducted power dBm<br>$EIRP$ = Equivalent Isotropic Radiated Power in dBm<br>$G$ = Antenna gain in dBi (1.2dBi, as declared by the manufacturer) |                |             |

**11. Maximum Power Spectral Density Level in the fundamental emission**

| <b>TEST: Maximum Peak Power Spectral Density</b>  |                            |                 | <b>Verdict</b> |
|---|----------------------------|-----------------|----------------|
| <p><u>Method:</u> A radiated measurement is performed.<br/>           The SPAN is wide enough to capture all products of the modulation process.<br/>           Radiated field strength of RF Output Power is measured at 3m in a Full Anechoic Chamber (FAC) that complies with ANSI C63.10.<br/>           Maximum field strength is performed by rotating the EUT 360°. All frequencies were investigated in both horizontal and vertical antenna polarity.<br/>           Three orthogonal axis measurements on EUT are performed to obtain the maximum peak field strength, with a 60° rotation on each axis. (Clause 6.6.5 of ANSI C63.10).<br/>           The tested equipment is set to transmit operation with modulation on low, mid and high channels.</p> |                            |                 | <b>Pass</b>    |
| Laboratory Parameters:  | Required prior to the test | During the test |                |
| Ambient Temperature   | 20 to 30 °C                | 23°C ± 2        |                |
| Relative Humidity   | 25 to 70 %                 | 64% ± 5         |                |
| <b>Limits – FCC Part 15.247 (e) / RSS-247 §5.2 (b)</b>  |                            |                 |                |
| <b>Frequency (MHz)</b>  | <b>Level (Detector)</b>    | <b>Limit</b>    |                |
| 2402-2480   | 8 dBm/3kHz (Pk)            | <b>Pass</b>     |                |
| Supplementary information:<br>Test location: SMEE.<br>Test date: June 6 <sup>th</sup> , 2018. Tested by L. CHAPUS   |                            |                 |                |

| <b>Test Equipment Used</b> |                |           |             |           |          |
|----------------------------|----------------|-----------|-------------|-----------|----------|
| Description                | Manufacturer   | Model     | Identifier  | Cal. Date | Cal. Due |
| Horn antenna               | ETS-LINDGREN   | 3115      | ANT-141-013 | 2014/3    | 2019/3   |
| RF cable                   | Pasternack RF  | PE302-120 | CAB-131-024 | 2018/4    | 2019/4   |
| RF cable                   | HUBER+SUHNER   | SF104     | CAB-141-030 | 2018/4    | 2019/4   |
| Anechoic chamber           | COMTEST        | 214263    | CAG-141-001 | 2017/6    | 2020/6   |
| Turntable                  | Innco- Systems | CT0800    | PLA-141-001 | -         | -        |
| Measuring receiver         | Rohde&Schwarz  | ESRP      | REC-151-003 | 2017/3    | 2019/3   |

## Test Setup for radiated emission



*Test setup for 1-25GHz*

## Tabulated Results for Maximum Spectral Density (Radiated measurement)

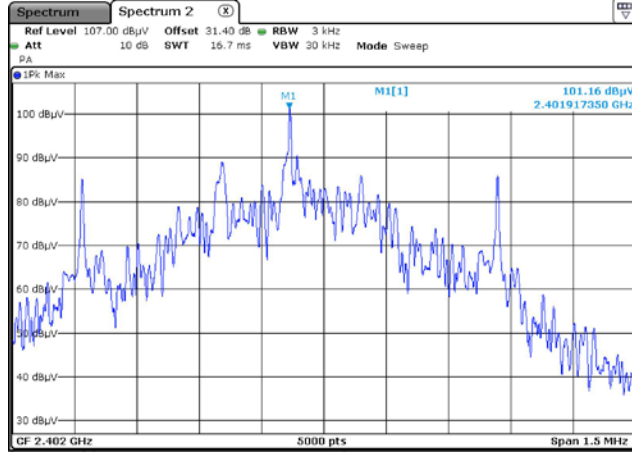
| FREQ<br>(MHz)                        | Field Strength 3m<br>(dB $\mu$ V/m)   | Calculated<br>Radiated PSD<br>(EIRP)<br>(dBm) | Limit<br>(dBm) | Result |
|--------------------------------------|---|---|----------------|--------|
| 2402                                 | 101.2   | 5.9   | -              | -      |
| 2440                                 | 102.1   | 6.8   | -              | -      |
| 2480                                 | 102.7   | 7.4   | -              | -      |
| <b>RBW:</b>                          | 3kHz  |   |                |        |
| <b>Measurement distance:</b>         | 3m  |   |                |        |
| <b>Limit:</b>                        | FCC Part 15.247 / RSS-247   |   |                |        |
| <b>Final measurement detector:</b>   | Peak (maxhold)  |   |                |        |
| <b>Wide Measurement Uncertainty:</b> | $\pm 5.6$ dB (k=2)  |   |                |        |
| <b>Note:</b>                         | <p>(1): The field strength (level) is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follow:<br/> <math display="block">FS = RA + AF + CF - AG</math>           Where FS = Field Strength<br/>           RA = Receiver Amplitude<br/>           AF = Antenna Factor<br/>           CF = Cable Factor<br/>           AG = Amplifier Gain<br/>           Total factor (dB) is AF + CF - AG<br/>           Margin value = Emission level - Limit value</p> <p>(2): EIRP/PSD is calculated using the following equation:<br/> <math display="block">EIRP = E + 20 \times \log(D) - 104.8 - GR</math>           Where EIRP = Equivalent Isotropic Radiated Power in dBm<br/>           E = Electric field strength in dB<math>\mu</math>V/m<br/>           D = Measuring distance in meter<br/>           GR = Ground reflection in dB (0dB above 1GHz)</p> |   |                |        |



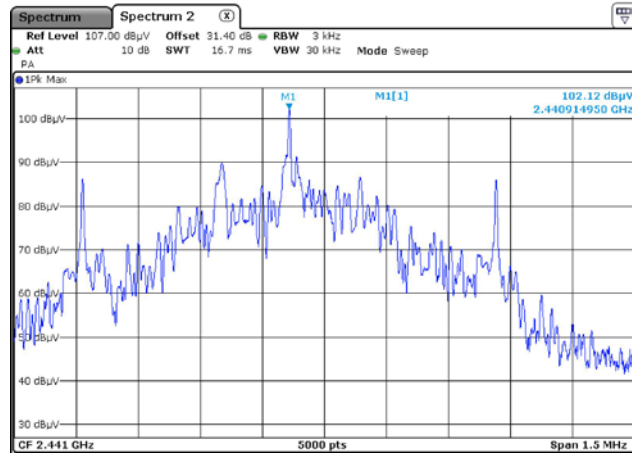
## Tabulated Results for Maximum Conducted Power Spectral Density

| Frequency (MHz)                    | PSD (dBm/3kHz)   | Limit     | Result |
|------------------------------------|--|-----------|--------|
| 2402.0                             | 4.7  | 8dBm/3kHz | Pass   |
| 2441.0                             | 5.6  | 8dBm/3kHz | Pass   |
| 2480.0                             | 6.2  | 8dBm/3kHz | Pass   |
| <b>RBW:</b>                        | 3kHz   |           |        |
| <b>Limit:</b>                      | FCC Part 15.247 / RSS-247  |           |        |
| <b>Final measurement detector:</b> | Peak   |           |        |
| <b>RESULT:</b>                     | PASS   |           |        |
| <b>Note:</b>                       | <p>(1): Maximum conducted power spectral density is calculated as follow:<br/> <math display="block">P_{SD} = EIRP - G</math>           Where <math>P_{SD}</math> = Conducted power spectral density<br/>           EIRP = Equivalent Isotropic Radiated Power in dBm<br/>           G = Antenna gain in dBi (1.2dBi, as declared by the manufacturer)</p> |           |        |

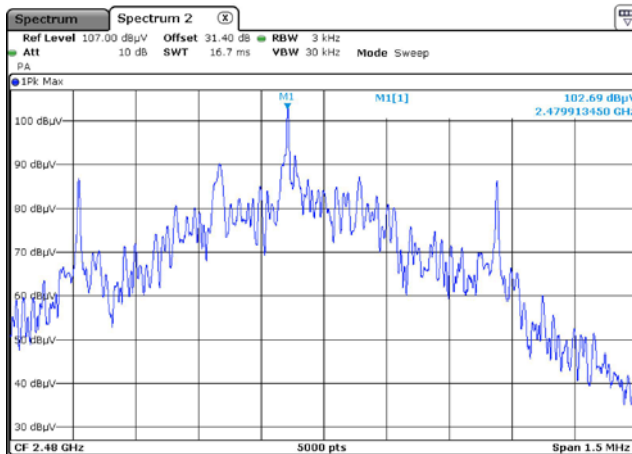
## Graphical representation for Maximum Power Spectral Density



*Low channel*



*Mid channel*



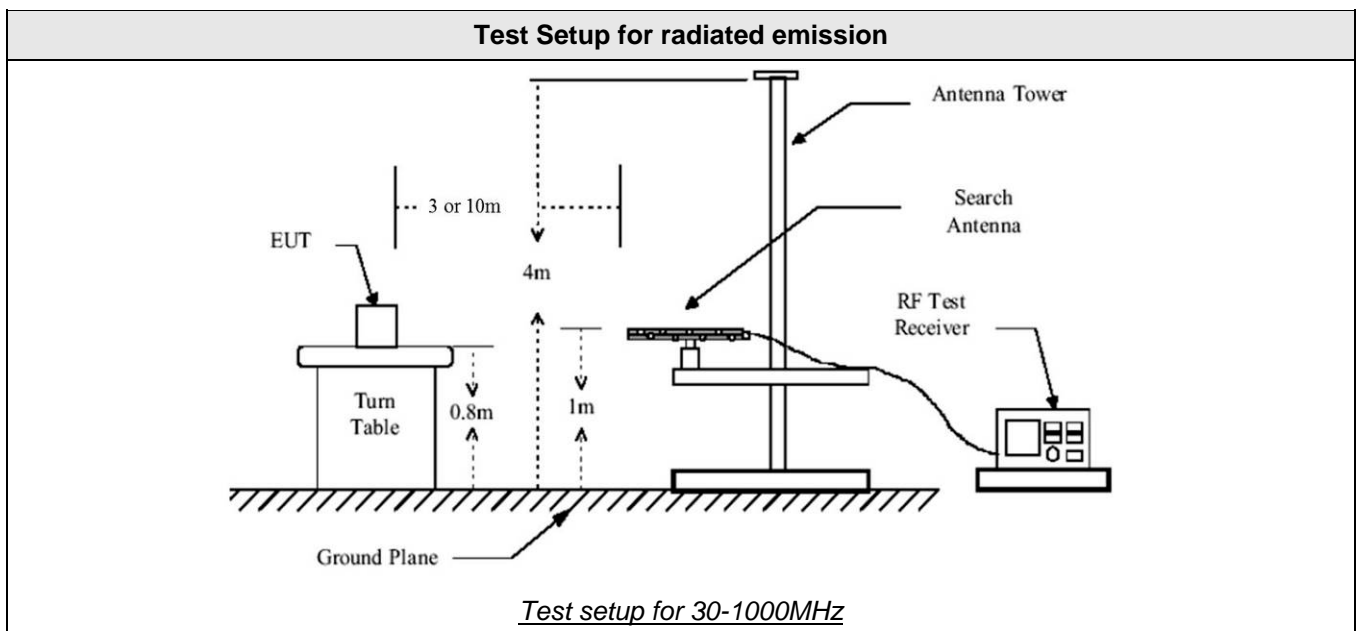
*High channel*

## 12. Unwanted emissions in Non-Restricted Frequency bands

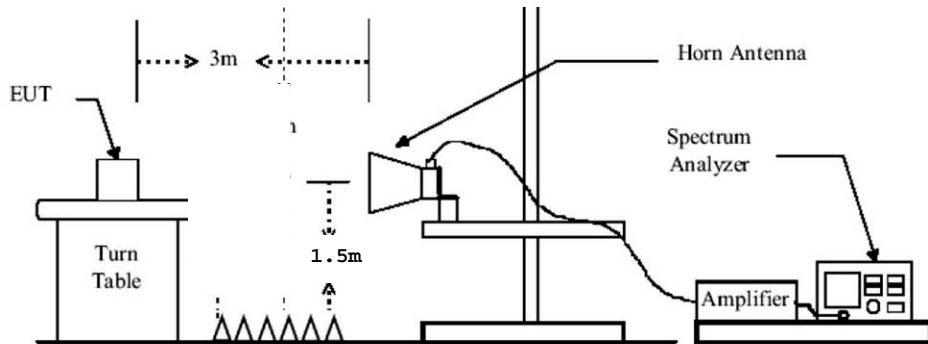
| TEST: Unwanted emissions in Non-Restricted Frequency Bands  |                                      |                                   | Verdict     |
|---|--------------------------------------|-----------------------------------|-------------|
| <p><b>Method:</b> Measurements were performed on a 3-meter Open Area Test Site (OATS) for frequency below 1GHz. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (Peak) were then performed by rotating the EUT on 360° and adjusting the receive antenna height from 1 to 4 m<br/>           For frequency above 1GHz, final measurements were made at 3m in a Full Anechoic Chamber (FAC) that complies with ANSI C63.10. Measurements were performed at an antenna to EUT separation distance of 3 meter. The EUT was rotated 360° about its azimuth with the receive antenna in horizontal and vertical polarities.<br/>           Three orthogonal axis measurements on EUT are performed to obtain the maximum peak field strength, with 60° rotation on each axis. (Clause 6.6.5 of ANSI C63.10).<br/>           A pre-scan frequency identification of the EUT has been performed in full anechoic chamber. The measured radiated field of the EUT is performed (or corrected) at 3-meters of distance. Antenna is 1.25-meters high. The pre-characterization graphs are obtained in PEAK detection with 360° continuous rotation of the device under test.</p> |                                      |                                   | <b>Pass</b> |
| Laboratory Parameters:  | Required prior to the test           | During the test                   |             |
| Ambient Temperature   | 20 to 30 °C                          | 23°C ± 2                          |             |
| Relative Humidity   | 25 to 70 %                           | 64% ± 5                           |             |
| Fully configured sample scanned over the following frequency range  | Frequency range on each side of line | Measurement Point                 |             |
|   | 30MHz – 25GHz                        | 3 m measurement distance          |             |
| <b>Limits – FCC Part 15.247 (d) / RSS-247 § 5.5</b>   |                                      |                                   |             |
| Frequency (MHz)   | Limits (dBµV/m)                      |                                   |             |
|   | Detector / Analyser RBW              | Limit                             | Results     |
| 30 to 25000   | Pk / 100kHz                          | 20dB below the maximum Peak level | <b>Pass</b> |
| Supplementary information:  |                                      |                                   |             |
| Test location: SMEE.  |                                      |                                   |             |
| Test date: June 6 <sup>th</sup> and 7 <sup>th</sup> , 2018. Tested by L. CHAPUS   |                                      |                                   |             |

| Test Equipment Used  |               |           |             |           |          |
|----------------------|---------------|-----------|-------------|-----------|----------|
| Description          | Manufacturer  | Model     | Identifier  | Cal. Date | Cal. Due |
| Log-periodic antenna | TDK           | PLP3003   | ANT-101-001 | 2017/5    | 2019/5   |
| Biconnic antenna     | COM-POWER     | AB- 900   | ANT-101-003 | 2017/5    | 2019/5   |
| Loop antenna         | EMCO          | 6502      | ANT-101-009 | 2017/8    | 2019/8   |
| BiConiLog antenna    | EMCO          | 3142B     | ANT-101-010 | 2017/7    | 2019/7   |
| Horn antenna         | ETS-LINDGREN  | 3115      | ANT-141-013 | 2014/3    | 2019/3   |
| Horn antenna         | ETS-LINDGREN  | 3116      | ANT-161-014 | 2017/12   | 2022/12  |
| Spectrum analyzer    | Rohde&Schwarz | FSV40     | ASP-171-004 | 2017/5    | 2019/5   |
| RF cable             | Div           | OATS/25m  | CAB-101-017 | 2018/4    | 2019/4   |
| RF cable             | Pasternack RF | PE302-120 | CAB-131-024 | 2018/4    | 2019/4   |
| RF cable             | HUBER+SUHNER  | RG214U    | CAB-141-026 | 2018/4    | 2019/4   |

| Test Equipment Used |                |              |             |           |          |
|---------------------|----------------|--------------|-------------|-----------|----------|
| Description         | Manufacturer   | Model        | Identifier  | Cal. Date | Cal. Due |
| RF cable            | HUBER+SUHNER   | RG214U       | CAB-141-029 | 2018/4    | 2019/4   |
| RF cable            | HUBER+SUHNER   | SF104        | CAB-141-030 | 2018/4    | 2019/4   |
| RF cable            | HUBER+SUHNER   | SF102 (K/2m) | CAB-171-034 | 2017/5    | 2019/5   |
| RF cable            | HUBER+SUHNER   | SF102 (K/3m) | CAB-171-034 | 2017/5    | 2019/5   |
| Anechoic chamber    | COMTEST        | 214263       | CAG-141-001 | 2017/6    | 2020/6   |
| Antenna mast        | Innco- Systems | MA4000EP     | MAT-101-001 | -         | -        |
| Turntable           | Innco- Systems | DS1200S      | PLA-101-001 | -         | -        |
| Turntable           | Innco- Systems | CT0800       | PLA-141-001 |           |          |
| Pre-amplifier       | PE             | 1524         | PRE-101-002 | 2017/6    | 2018/6   |
| Pre-amplifier       | SMEE           | 18-40GHz     | PRE-171-004 | 2017/12   | 2018/12  |
| Measuring receiver  | Rohde&Schwarz  | ESRP         | REC-151-003 | 2017/3    | 2019/3   |
| OATS                | Div            | 10m          | SIT-101-001 | 2017/7    | 2020/7   |
| EMC Software        | NEXIO          | BAT EMC V3.8 | SOF-101-001 | -         | -        |



## Test Setup for radiated emission



*Test setup for 1-25GHz*

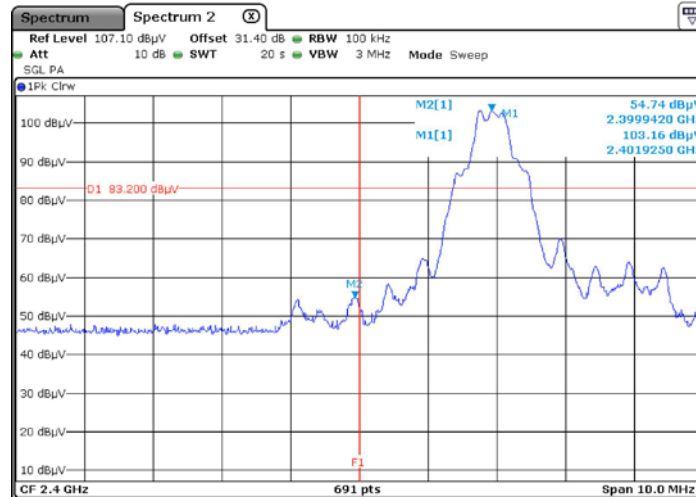
## Tabulated Results for Peak Output Power Reference level

### Normal mode (Standalone)

| FREQ<br>(MHz)                        | Field Strength 3m<br>(dB $\mu$ V/m)  |
|--------------------------------------|--|
| 2402.0                               | 103.2  |
| 2440.0                               | 103.7  |
| 2480.0                               | 100.7  |
| <b>RBW:</b>                          | 100kHz   |
| <b>Measurement distance:</b>         | 3m   |
| <b>Limit:</b>                        | Ref. level only – For 15.247 (d) / RSS-247 § 5.5   |
| <b>Final measurement detector:</b>   | Peak   |
| <b>Wide Measurement Uncertainty:</b> | $\pm 5.6$ dB (k=2)   |
| <b>Note:</b>                         | (1): Only for identification of limit in non-restricted band<br>Limit is <b>83.7 dB<math>\mu</math>V/m</b> Peak for out-of-band frequencies in Non-Restricted bands (with a 100kHz RBW on the spectrum analyser) |

| Tabulated Results for Unwanted emissions in Non-Restricted bands |  |                |                 |                 |
|--|--|----------------|-----------------|-----------------|
| FREQ (MHz)   | Field Strength 3m (dBµV/m)   | Limit (dBµV/m) | Margin (dBµV/m) | Result (dBµV/m) |
| 2399.942   | 54.7   | 83.7           | <b>-29.0</b>    | <b>Pass</b>     |
| 7206.000   | 56.8   | 83.7           | <b>-26.9</b>    | <b>Pass</b>     |
| <b>RBW:</b>  | 100kHz   |                |                 |                 |
| <b>Measurement distance:</b>                                     | 3m   |                |                 |                 |
| <b>Limit:</b>  | 15.247 / RSS-247   |                |                 |                 |
| <b>Final measurement detector:</b>                               | Peak   |                |                 |                 |
| <b>Wide Measurement Uncertainty:</b>                             | ± 5.6dB (k=2)  |                |                 |                 |
| <b>RESULT:</b>   | PASS   |                |                 |                 |
| <b>Note:</b>   | <p>(1): The field strength (level) is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follow:<br/> <math>FS = RA + AF + CF - AG</math><br/>           Where FS = Field Strength<br/>           RA = Receiver Amplitude<br/>           AF = Antenna Factor<br/>           CF = Cable Factor<br/>           AG = Amplifier Gain<br/>           Total factor (dB) is <math>AF + CF - AG</math><br/>           Margin value = Emission level – Limit value</p> <p>(2): Peak pre-scans not performed at 3-meters distance are corrected as follow:<br/> <math>M@3m = M@D_m + 20 \times \log(D_m / 3m)</math><br/>           Where D is the measurement distance in meter</p> <p>(3): All frequencies not specified have margin &lt; -10dB<br/>           (4): Worst case between charge mode and normal used mode<br/>           (5): 3-axis measurement performed for device under test.</p> |                |                 |                 |

## Graphical representation of Band-edge compliance (LOW)



### Low bandedge compliance

Radiated Peak level is 54.7dBµV/m (limit 83.7dBµV/m)

F1 = 2400MHz

RESULT: PASS

Note: radiated measurement (3m in FAC)

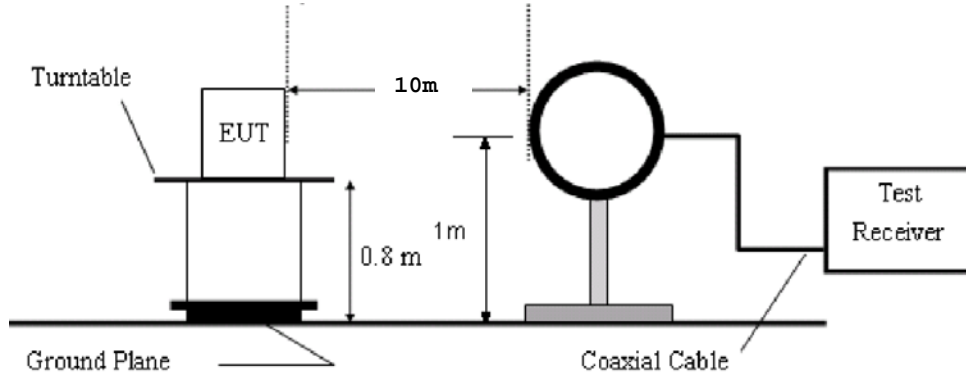
**13. Unwanted emissions in Restricted Frequency bands**

| <b>TEST: Unwanted emissions into Restricted Frequency Bands</b>  |   | <b>Verdict</b>            |
|--|---|---------------------------|
| <p><u>Method:</u> Measurements were performed on a 3-meter Open Area Test Site (OATS) for frequency below 1GHz. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (Peak) were then performed by rotating the EUT on 360° and adjusting the receive antenna height from 1 to 4 m</p> <p>For frequency above 1GHz, final measurements were made at 3m in a Full Anechoic Chamber (FAC) that complies with ANSI C63.10. Measurements were performed at an antenna to EUT separation distance of 3 meter. The EUT was rotated 360° about its azimuth with the receive antenna in horizontal and vertical polarities.</p> <p>Three orthogonal axis measurements on EUT are performed to obtain the maximum peak field strength, with 60° rotation on each axis.(Clause 6.6.5 of ANSI C63.10).</p> <p>A pre-scan frequency identification of the EUT has been performed in full anechoic chamber. The measured radiated field of the EUT is performed (or corrected) at 3-meters of distance. Antenna is 1.25-meters high. The pre-characterization graphs are obtained in PEAK detection with 360° continuous rotation of the device under test.</p> |   | <b>Pass</b>               |
| Laboratory Parameters:   | Required prior to the test                          | During the test           |
| Ambient Temperature  | 20 to 30 °C   | 23°C ± 2                  |
| Relative Humidity  | 25 to 70 %  | 64% ± 5                   |
| Fully configured sample scanned over the following frequency range   | Frequency range on each side of line                | Measurement Point         |
|  | 9kHz – 30MHz  | 10 m measurement distance |
|  | 30MHz – 25GHz                                       | 3 m measurement distance  |
| <b>Limits – FCC Part 15.205, 15.209 (a), 15.247 (d) / RSS-GEN §8.9, §8.10, RSS-247 §3.3</b>  |   |                           |
| Frequency (MHz)  | Limits (dBµV/m)                                     |                           |
|  | Level / Detector / Distance                         | Results                   |
| 0.009 to 0.090   | 107.6 – 87.6 / AV / 10m<br>127.6 – 107.6 / PK / 10m | <b>Pass</b>               |
| 0.090 to 0.110   | 87.6 – 85.9 / QP / 10m                              | <b>Pass</b>               |
| 0.110 to 0.490   | 85.7 – 72.9 / AV / 10m<br>105.7 – 92.9 / PK / 10m   | <b>Pass</b>               |
| 0.490 to 1.705   | 52.9 – 42.1 / QP / 10m                              | <b>Pass</b>               |
| 1.705 to 30  | 48.6 / QP / 10m                                     | <b>Pass</b>               |
| 30 to 88   | 40.0 / QP / 3m                                      | <b>Pass</b>               |
| 88 to 216  | 43.5 / QP / 3m                                      | <b>Pass</b>               |
| 216 to 960   | 46.0 / QP / 3m                                      | <b>Pass</b>               |
| 960-1000   | 54.0 / QP / 3m                                      | <b>Pass</b>               |
| Above 1GHz   | 54.0 / AV / 3m<br>74.0 / PK / 3m                    | <b>Pass</b>               |
| Supplementary information:<br>Test location: SMEE.<br>Test date: June 6 <sup>th</sup> and 7 <sup>th</sup> , 2018. Tested by L. CHAPUS  |   |                           |

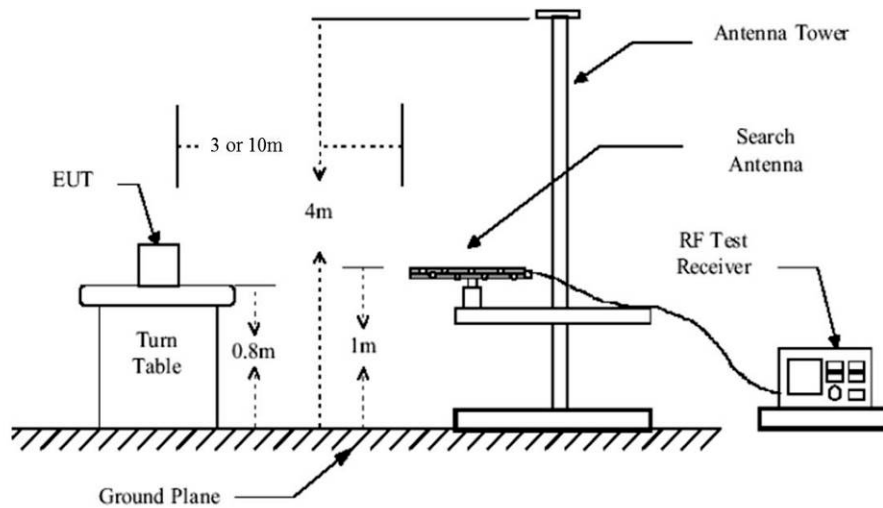


| Test Equipment Used  |                |              |             |           |          |
|----------------------|----------------|--------------|-------------|-----------|----------|
| Description          | Manufacturer   | Model        | Identifier  | Cal. Date | Cal. Due |
| Log-periodic antenna | TDK            | PLP3003      | ANT-101-001 | 2017/5    | 2019/5   |
| Biconnic antenna     | COM-POWER      | AB- 900      | ANT-101-003 | 2017/5    | 2019/5   |
| Loop antenna         | EMCO           | 6502         | ANT-101-009 | 2017/8    | 2019/8   |
| BiConiLog antenna    | EMCO           | 3142B        | ANT-101-010 | 2017/7    | 2019/7   |
| Horn antenna         | ETS-LINDGREN   | 3115         | ANT-141-013 | 2014/3    | 2019/3   |
| Horn antenna         | ETS-LINDGREN   | 3116         | ANT-161-014 | 2017/12   | 2022/12  |
| Spectrum analyzer    | Rohde&Schwarz  | FSV40        | ASP-171-004 | 2017/5    | 2019/5   |
| RF cable             | Div            | OATS/25m     | CAB-101-017 | 2018/4    | 2019/4   |
| RF cable             | Pasternack RF  | PE302-120    | CAB-131-024 | 2018/4    | 2019/4   |
| RF cable             | HUBER+SUHNER   | RG214U       | CAB-141-026 | 2018/4    | 2019/4   |
| RF cable             | HUBER+SUHNER   | RG214U       | CAB-141-029 | 2018/4    | 2019/4   |
| RF cable             | HUBER+SUHNER   | SF104        | CAB-141-030 | 2018/4    | 2019/4   |
| RF cable             | HUBER+SUHNER   | SF102 (K/2m) | CAB-171-034 | 2017/5    | 2019/5   |
| RF cable             | HUBER+SUHNER   | SF102 (K/3m) | CAB-171-034 | 2017/5    | 2019/5   |
| Anechoic chamber     | COMTEST        | 214263       | CAG-141-001 | 2017/6    | 2020/6   |
| Antenna mast         | Innco- Systems | MA4000EP     | MAT-101-001 | -         | -        |
| Turntable            | Innco- Systems | DS1200S      | PLA-101-001 | -         | -        |
| Turntable            | Innco- Systems | CT0800       | PLA-141-001 |           |          |
| Pre-amplifier        | PE             | 1524         | PRE-101-002 | 2017/6    | 2018/6   |
| Pre-amplifier        | SMEE           | 18-40GHz     | PRE-171-004 | 2017/12   | 2018/12  |
| Measuring receiver   | Rohde&Schwarz  | ESRP         | REC-151-003 | 2017/3    | 2019/3   |
| OATS                 | Div            | 10m          | SIT-101-001 | 2017/7    | 2020/7   |
| EMC Software         | NEXIO          | BAT EMC V3.8 | SOF-101-001 | -         | -        |

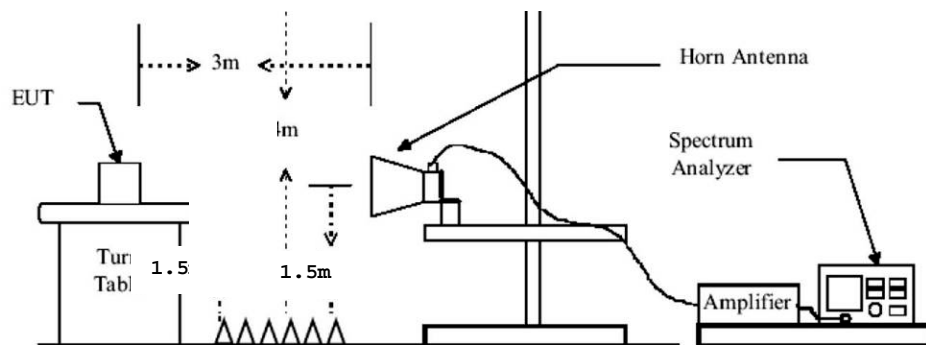
Test Setup for radiated emission



*Test setup for 9k-30MHz*



*Test setup for 30-1000MHz*



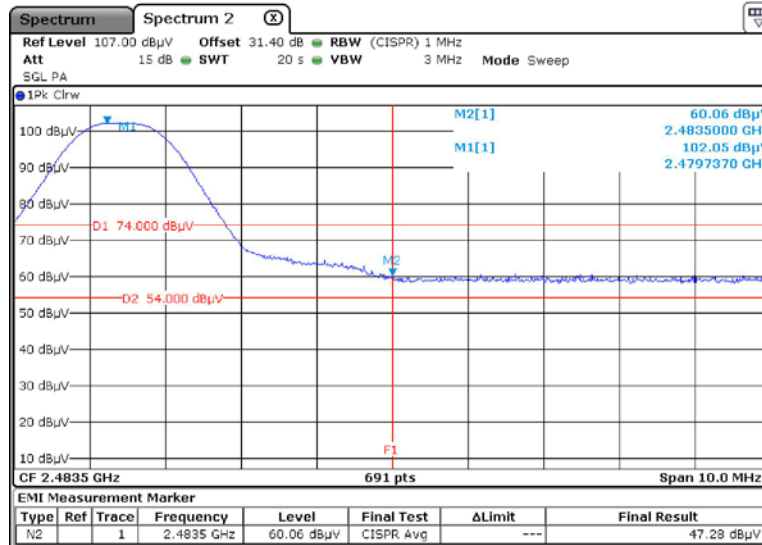
*Test setup for 1-25GHz*

| Tabulated Results for Unwanted emissions (9kHz-30MHz)  |                   |                   |        |  |             |                    |
|--|-------------------|-------------------|--------|--|-------------|--------------------|
| FREQ   | RF field @ 30m    | Limit @ 30m       | Margin | Antenna angle  | Table angle | Correc. Fact. (CF) |
| MHz  | (QP) dB $\mu$ V/m | (QP) dB $\mu$ V/m | dB     | Degree   | Degree      | dB                 |
| Margin < -10dB   |                   |                   |        |  |             |                    |
| Supplementary information:<br>Frequency list measured on the Open Area Test Site has been created with pre-scan results. |                   |                   |        |  |             |                    |
| <b>Frequency band investigated:</b>  |                   |                   |        | 9kHz-30MHz   |             |                    |
| <b>RBW:</b>  |                   |                   |        | 200Hz (9kHz-150kHz)<br>9kHz (150kHz-30MHz)   |             |                    |
| <b>Measurement distance:</b>   |                   |                   |        | 10m  |             |                    |
| <b>Limit:</b>  |                   |                   |        | FCC Part 15.205 - 15.209 / RSS-GEN   |             |                    |
| <b>Final measurement detector:</b>   |                   |                   |        | Peak / Quasi-Peak / Average  |             |                    |
| <b>Wide Measurement Uncertainty:</b>   |                   |                   |        | $\pm 3.5$ dB (k=2)   |             |                    |
| <b>Note:</b>   |                   |                   |        | CF: Correction factor = Antenna factor + Cable loss<br>*1: Measure have been done at 10m distance and corrected according to requirements of 15.209.e)<br>(M@30m = M@10m-19.1dB) |             |                    |

| Tabulated Results for Unwanted emissions (30MHz-1GHz)  |                 |                 |              |  |                   |     |                |             |                   |              |
|--|-----------------|-----------------|--------------|--|-------------------|-----|----------------|-------------|-------------------|--------------|
| FREQ   | Meter reading   | Meter reading   | Total factor | Field level  | Field level       | Pol | Antenna height | Table angle | Limit             | Margin       |
| MHz  | (QP) dB $\mu$ V | (Pk) dB $\mu$ V | dB           | (QP) dB $\mu$ V/m  | (Pk) dB $\mu$ V/m |     | cm             | Degré       | (QP) dB $\mu$ V/m | dB           |
| 63.586   | 19.8            | 25.6            | 9.9          | <b>29.7</b>  | 35.5              | V   | 100            | 170         | 40.0              | <b>-10.3</b> |
| 179.987  | 14.1            | 16.8            | 17.9         | <b>32.0</b>  | 34.7              | V   | 125            | 160         | 43.5              | <b>-11.5</b> |
| 419.960  | 20.9            | 23.8            | 20.2         | <b>41.1</b>  | 44.0              | V   | 155            | 45          | 46.0              | <b>-4.9</b>  |
| Supplementary information:<br>Frequency list measured on the Open Area Test Site has been created with pre-scan results. |                 |                 |              |  |                   |     |                |             |                   |              |
| <b>Frequency band investigated:</b>  |                 |                 |              | 30MHz-1GHz   |                   |     |                |             |                   |              |
| <b>RBW:</b>  |                 |                 |              | 120kHz   |                   |     |                |             |                   |              |
| <b>Measurement distance:</b>   |                 |                 |              | 3m   |                   |     |                |             |                   |              |
| <b>Limit:</b>  |                 |                 |              | FCC Part 15.205 - 15.209 / RSS-GEN   |                   |     |                |             |                   |              |
| <b>Final measurement detector:</b>   |                 |                 |              | Quasi-Peak   |                   |     |                |             |                   |              |
| <b>Wide Measurement Uncertainty:</b>   |                 |                 |              | $\pm 5.6$ dB (k=2)   |                   |     |                |             |                   |              |
| <b>RESULT:</b>   |                 |                 |              | PASS   |                   |     |                |             |                   |              |
| <b>Field Strength Calculation:</b>   |                 |                 |              | (1): The field strength (level) is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follow:<br>$FS = RA + AF + CF - AG$<br>Where FS = Field Strength<br>RA = Receiver Amplitude<br>AF = Antenna Factor<br>CF = Cable Factor<br>AG = Amplifier Gain<br>Total factor (dB) is AF + CF - AG<br>Margin value = Emission level - Limit value<br>(2): Same results for all running mode (Low, mid, high channels)<br>(3): Worst case results reported for battery charging mode. |                   |     |                |             |                   |              |

| Tabulated Results for Unwanted emissions<br>(1GHz-25GHz) |                               |   |                   |                    |        |
|--|-------------------------------|---|-------------------|--------------------|--------|
| FREQ<br>(MHz)  | Field Strength 3m<br>(dBμV/m) | Detector  | Limit<br>(dBμV/m) | Margin<br>(dBμV/m) | Result |
| 2483.5   | 60.1                          | Pk  | 74                | -13.9              | Pass   |
| 2483.5   | 47.3                          | Avg   | 54                | -6.7               | Pass   |
| 4804.0   | 52.9                          | Pk  | 74                | -21.1              | Pass   |
| 4804.0   | 40.8                          | Avg   | 54                | -13.2              | Pass   |
| 4882.0   | 56.6                          | Pk  | 74                | -17.4              | Pass   |
| 4882.0   | 44.7                          | Avg   | 54                | -9.3               | Pass   |
| 4960.0   | 54.8                          | Pk  | 74                | -19.2              | Pass   |
| 4960.0   | 43.4                          | Avg   | 54                | -10.6              | Pass   |
| 7323.0   | 60.6                          | Pk  | 74                | -13.4              | Pass   |
| 7323.0   | 48.2                          | Avg   | 54                | -5.8               | Pass   |
| 7440.0   | 60.9                          | Pk  | 74                | -13.1              | Pass   |
| 7440.0   | 48.3                          | Avg   | 54                | -5.7               | Pass   |
| <b>RBW / VBW</b>   |                               | 1MHz / 3MHz   |                   |                    |        |
| <b>Measurement distance:</b>                             |                               | 3m  |                   |                    |        |
| <b>Limit:</b>  |                               | FCC Part 15.205, 15.209, 15.247 / RSS-Gen, RSS-247  |                   |                    |        |
| <b>Final measurement detector:</b>                       |                               | Peak / Average  |                   |                    |        |
| <b>Wide Measurement Uncertainty:</b>                     |                               | ± 5.6dB (k=2)   |                   |                    |        |
| <b>RESULT:</b>   |                               | PASS  |                   |                    |        |
| <b>Notes:</b>  |                               | <p>(1): The field strength (level) is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follow:<br/> <math>FS = RA + AF + CF - AG</math><br/>           Where FS = Field Strength<br/>           RA = Receiver Amplitude<br/>           AF = Antenna Factor<br/>           CF = Cable Factor<br/>           AG = Amplifier Gain<br/>           Total factor (dB) is <math>AF + CF - AG</math><br/>           Margin value = Emission level – Limit value</p> <p>(2): Peak pre-scans not performed at 3-meters distance are corrected as follow:<br/> <math>M@3m = M@Dm + 20 \times \log(Dm / 3m)</math><br/>           Where D is the measurement distance in meter</p> <p>(3): All frequencies not specified have margin &lt; -10dB (for peak and average detector)</p> <p>(4): Worst case results reported for standalone or charging mode.</p> <p>(5): 3-axis measurement performed for device under test.</p> |                   |                    |        |

## Graphical representation of Band-edge compliance (HIGH)



### High bandedge compliance

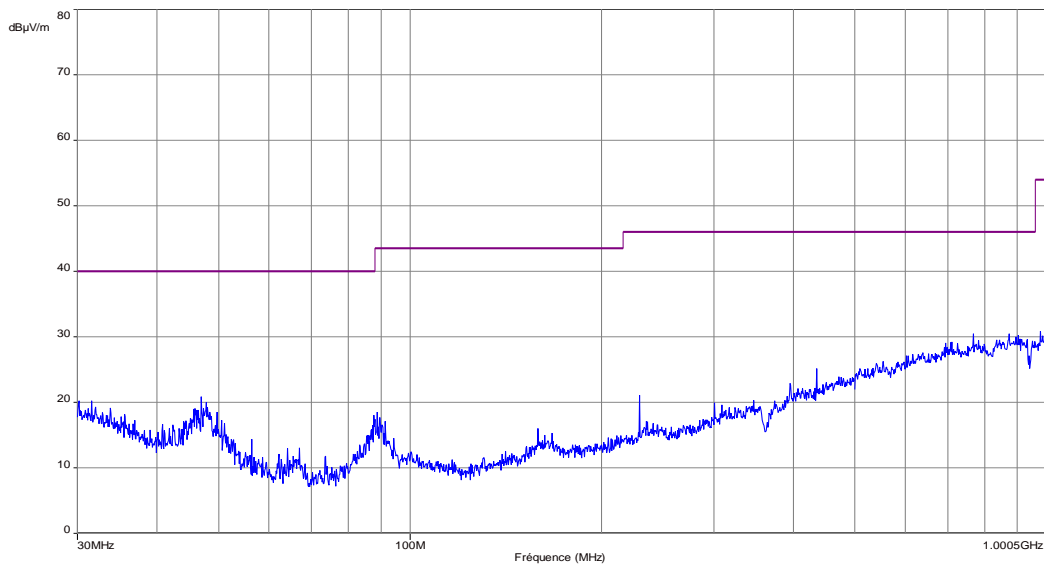
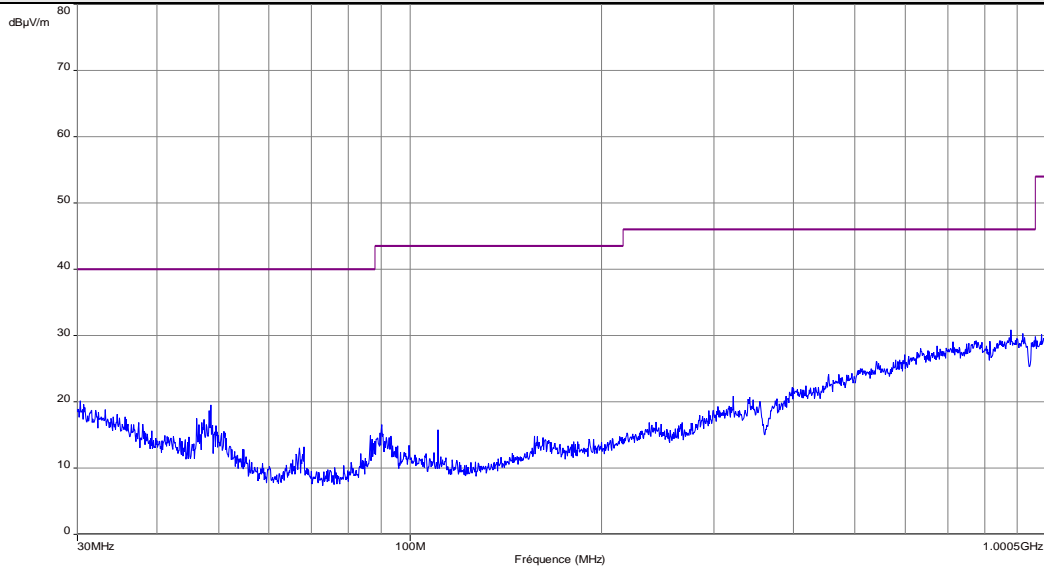
Radiated Peak level is 60.1dBµV/m (limit 74dBµV/m)

Radiated Average level is 47.3dBµV/m (limit 54dBµV/m, CISPR Average detector measurement)

RESULT: PASS

Note: radiated measurement (FAC 3m)

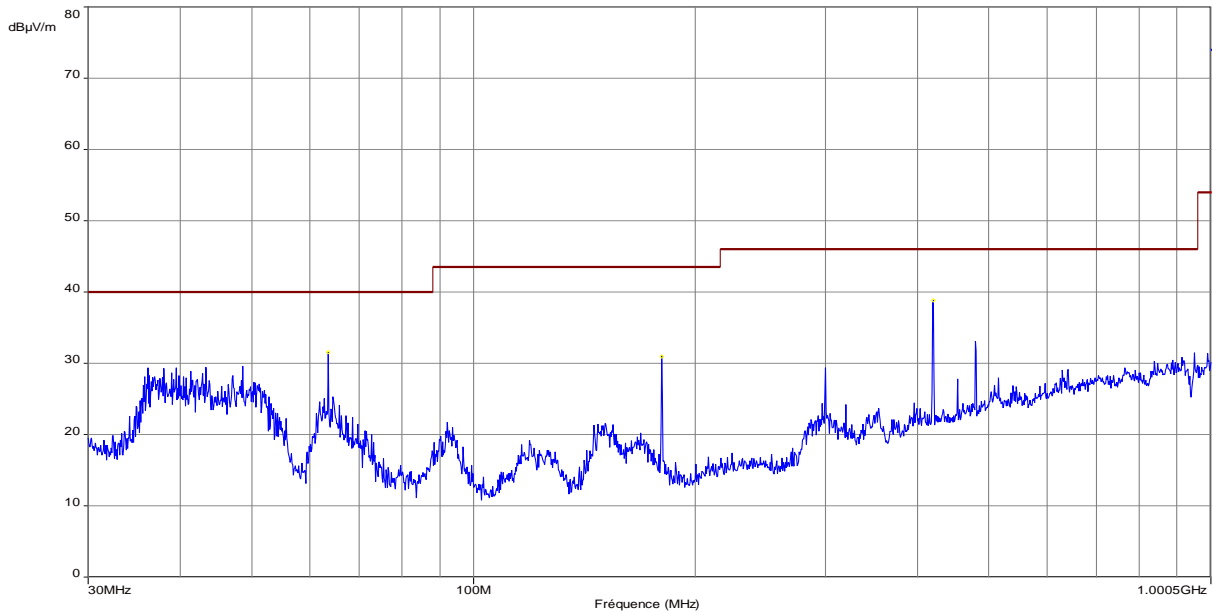
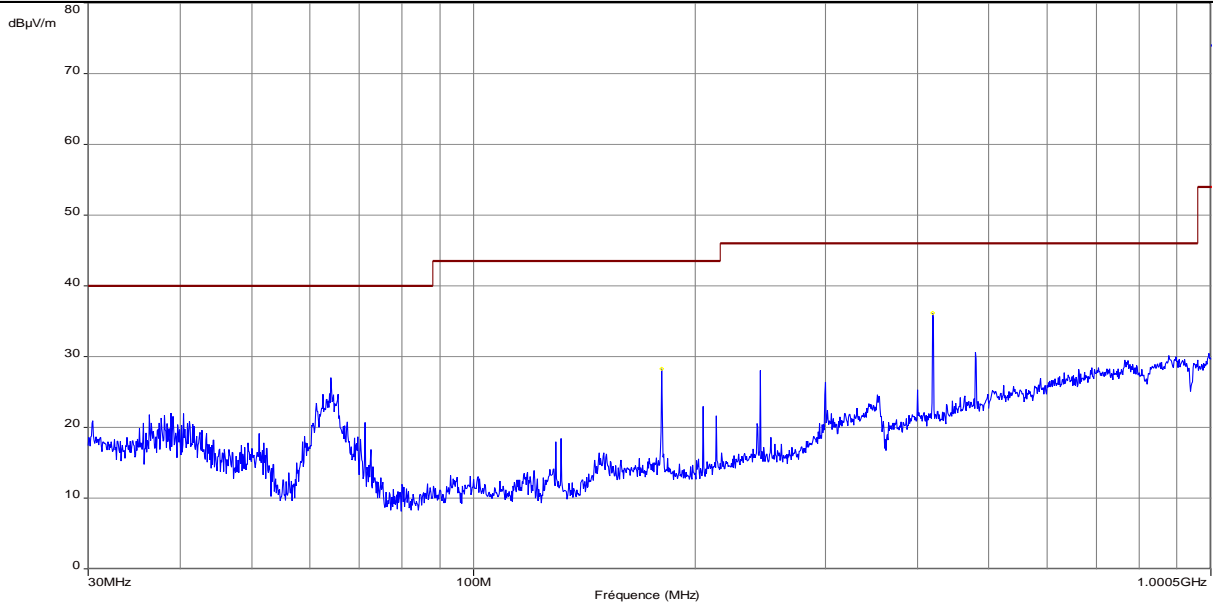
**Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 30MHz-1GHz / 3m / Horizontal & Vertical/ Transmit mode) – Standalone**



Note: Pre-scan graph only for identification purpose. Worst case between low, mid and high channels.

|                                      |                            |
|--------------------------------------|----------------------------|
| <b>Frequency band investigated:</b>  | 30MHz-1GHz                 |
| <b>Unit :</b>                        | dBµV/m                     |
| <b>RBW :</b>                         | 100kHz                     |
| <b>Antenna polarization :</b>        | Horizontal & Vertical      |
| <b>Voltage:</b>                      | 3.7V DC (Internal battery) |
| <b>Limit:</b>                        | FCC 15.209 / RSS-GEN       |
| <b>Measurement detector:</b>         | Peak                       |
| <b>Wide Measurement Uncertainty:</b> | ± 5.6dB (k=2)              |

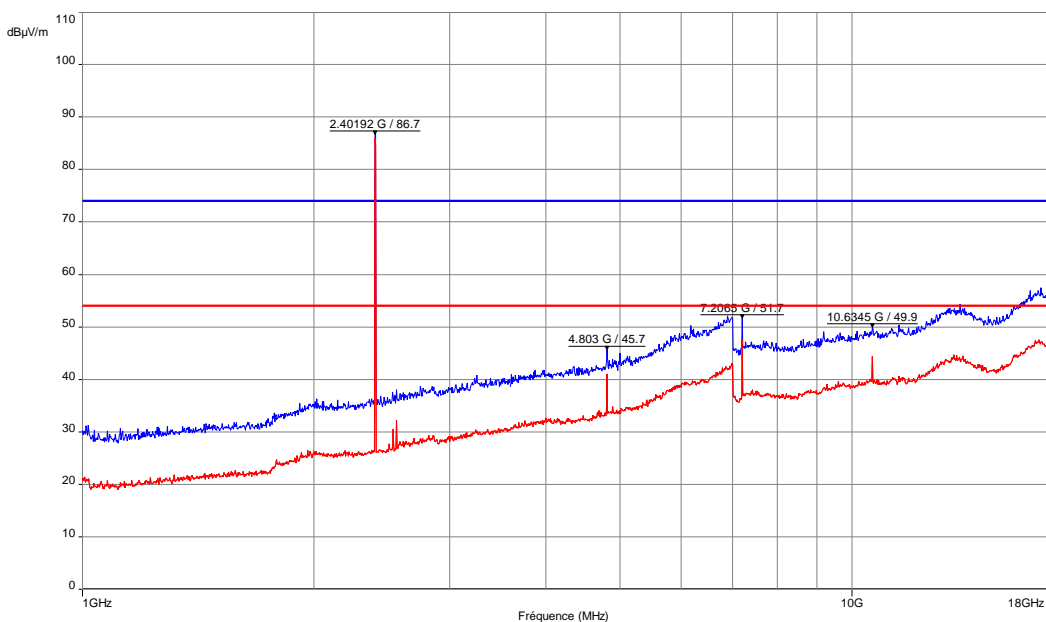
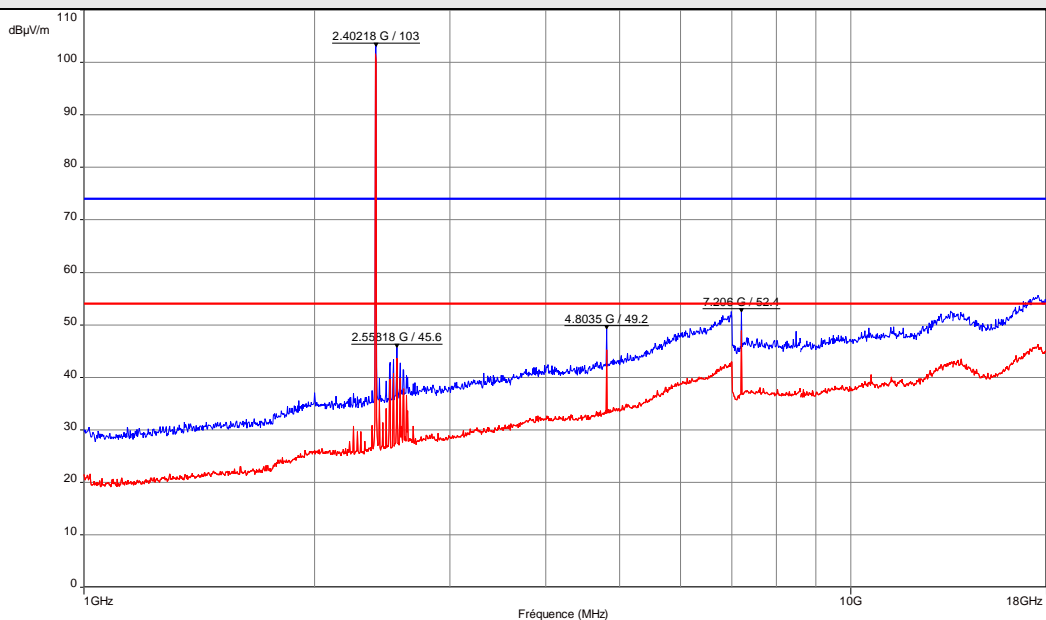
**Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 30MHz-1GHz / 3m / Horizontal & Vertical/ Transmit mode) – Battery charging**



Note: Pre-scan graph only for identification purpose. Worst case between low, mid and high channels.

|                                      |                            |
|--------------------------------------|----------------------------|
| <b>Frequency band investigated:</b>  | 30MHz-1GHz                 |
| <b>Unit :</b>                        | dBµV/m                     |
| <b>RBW :</b>                         | 100kHz                     |
| <b>Antenna polarization :</b>        | Horizontal & Vertical      |
| <b>Voltage:</b>                      | 3.7V DC (Internal battery) |
| <b>Limit:</b>                        | FCC 15.209 / RSS-GEN       |
| <b>Measurement detector:</b>         | Peak                       |
| <b>Wide Measurement Uncertainty:</b> | ± 5.6dB (k=2)              |

## Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 1GHz-18GHz / 3m / Horizontal & Vertical/ Transmit mode) – Low channel

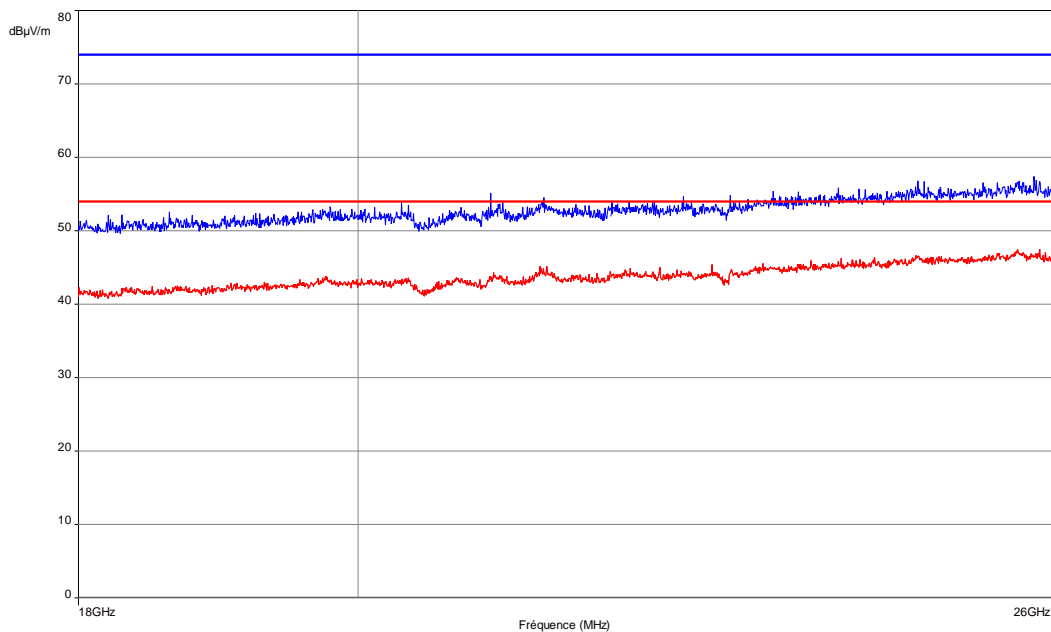
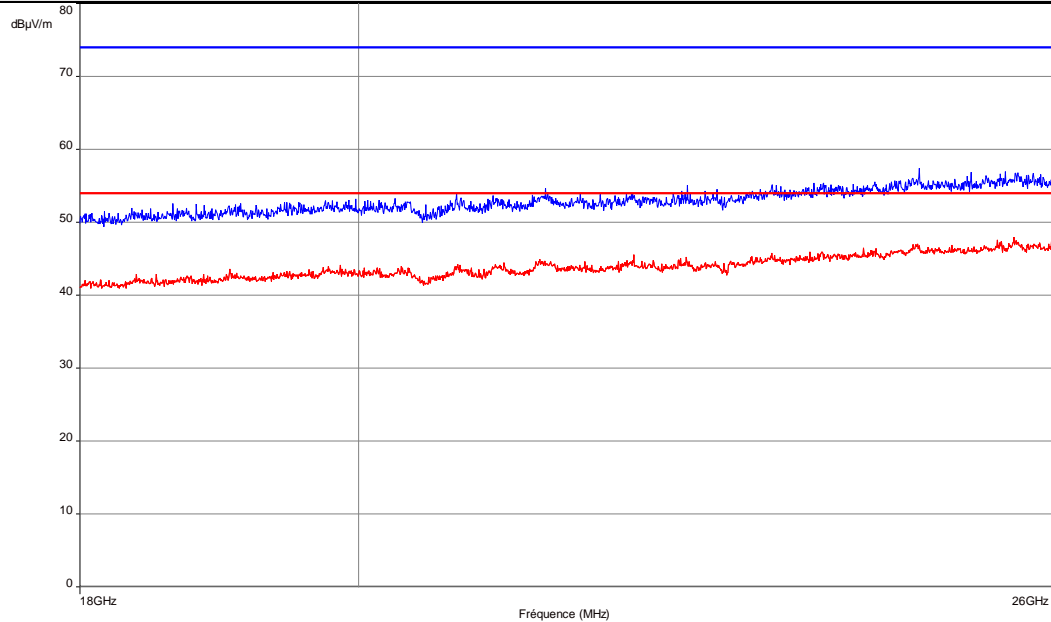


Note: Pre-scan graph only for identification purpose. Worst case result for standalone / battery charging.

| ----- : Peak measure                 | ----- : Average measure            |
|--------------------------------------|------------------------------------|
| <b>Frequency band investigated:</b>  | 1GHz-18GHz                         |
| <b>Unit :</b>                        | dBµV/m                             |
| <b>RBW :</b>                         | 1MHz                               |
| <b>Antenna polarization :</b>        | Horizontal & Vertical              |
| <b>Voltage:</b>                      | 3.7V DC (Normal mode) / Worst case |
| <b>Limit:</b>                        | FCC 15.209 / RSS-GEN               |
| <b>Measurement detector:</b>         | Peak                               |
| <b>Wide Measurement Uncertainty:</b> | ± 5dB (k=2)                        |



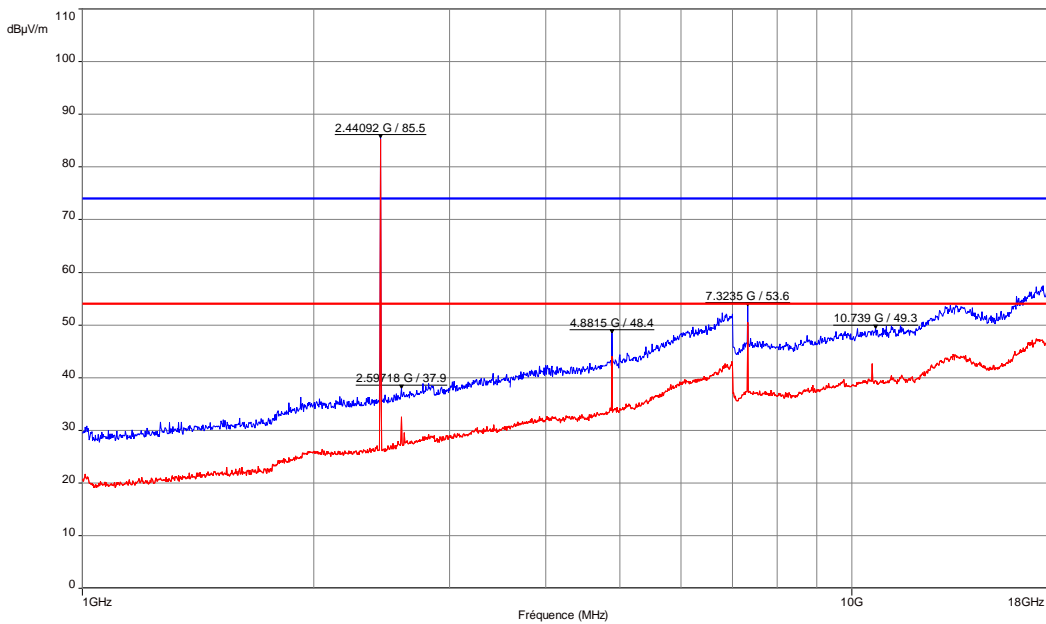
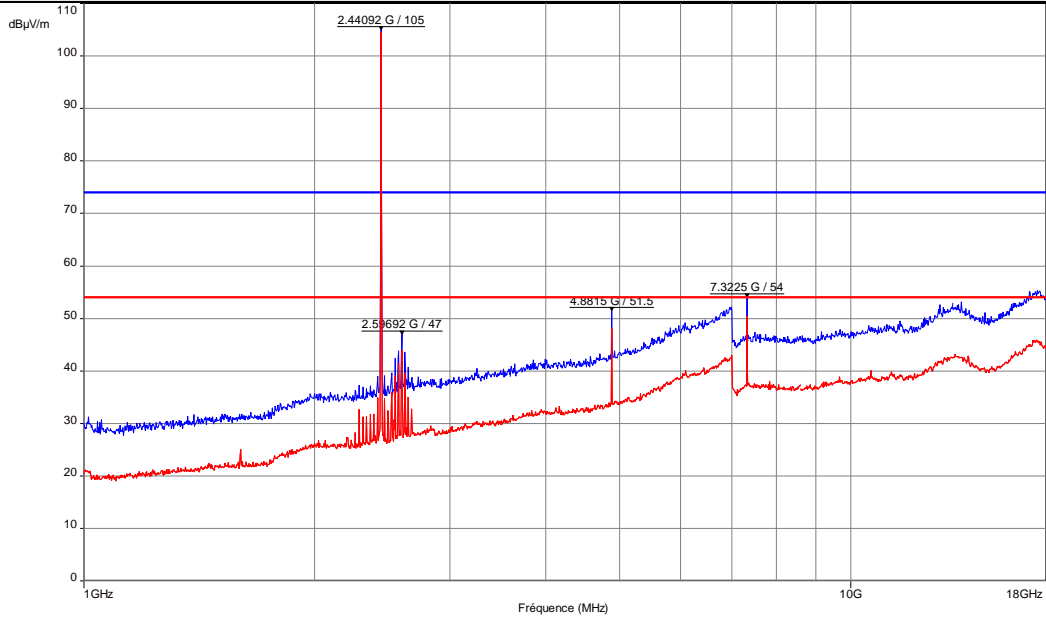
## Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 18GHz-26GHz / 3m / Horizontal & Vertical/ Transmit mode) – Low channel



Note: Pre-scan graph only for identification purpose. Worst case result for standalone / battery charging.

|                                      |                                    |
|--------------------------------------|------------------------------------|
| ----- : Peak measure                 | ----- : Average measure            |
| <b>Frequency band investigated:</b>  | 18GHz-26GHz                        |
| <b>Unit :</b>                        | dBµV/m                             |
| <b>RBW :</b>                         | 1MHz                               |
| <b>Antenna polarization :</b>        | Horizontal & Vertical              |
| <b>Voltage:</b>                      | 3.7V DC (Normal mode) / Worst case |
| <b>Limit:</b>                        | FCC 15.209 / RSS-GEN               |
| <b>Measurement detector:</b>         | Peak                               |
| <b>Wide Measurement Uncertainty:</b> | ± 5dB (k=2)                        |

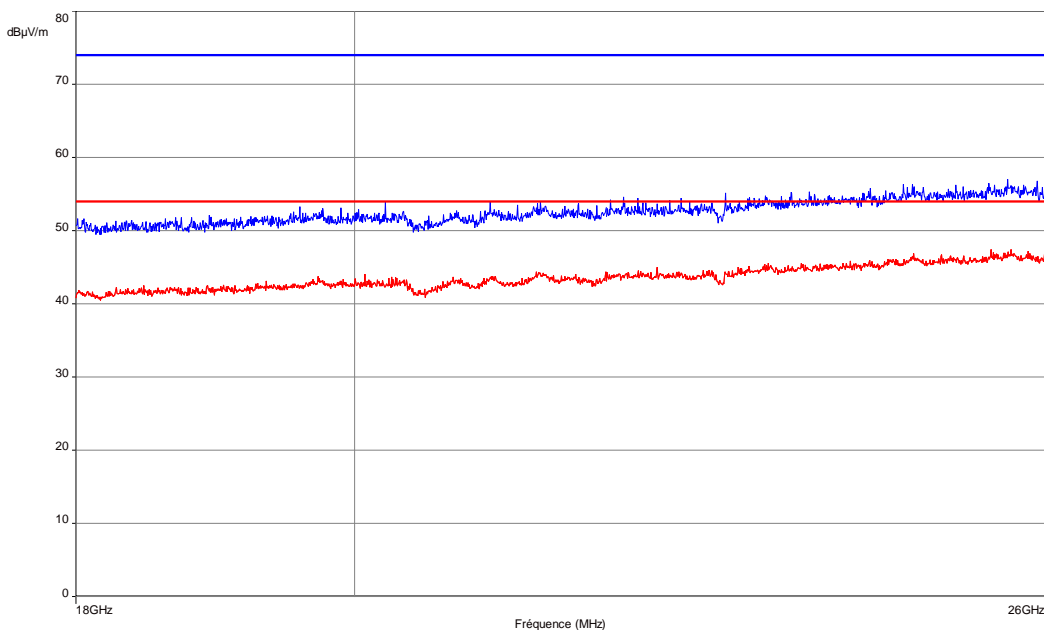
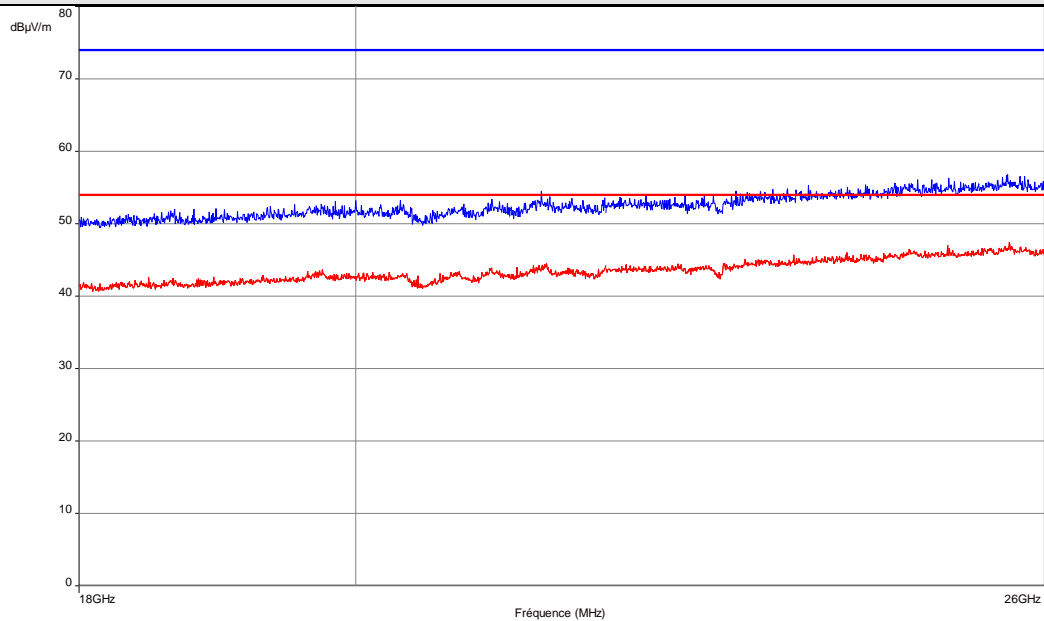
## Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 1GHz-18 GHz / 3m / Horizontal & Vertical/ Transmit mode) – Mid channel



Note: Pre-scan graph only for identification purpose. Worst case result for standalone / battery charging.

| ----- : Peak measure                 | ----- : Average measure            |
|--------------------------------------|------------------------------------|
| <b>Frequency band investigated:</b>  | 1GHz-18GHz                         |
| <b>Unit :</b>                        | dBµV/m                             |
| <b>RBW :</b>                         | 1MHz                               |
| <b>Antenna polarization :</b>        | Horizontal & Vertical              |
| <b>Voltage:</b>                      | 3.7V DC (Normal mode) / Worst case |
| <b>Limit:</b>                        | FCC 15.209 / RSS-GEN               |
| <b>Measurement detector:</b>         | Peak                               |
| <b>Wide Measurement Uncertainty:</b> | ± 5dB (k=2)                        |

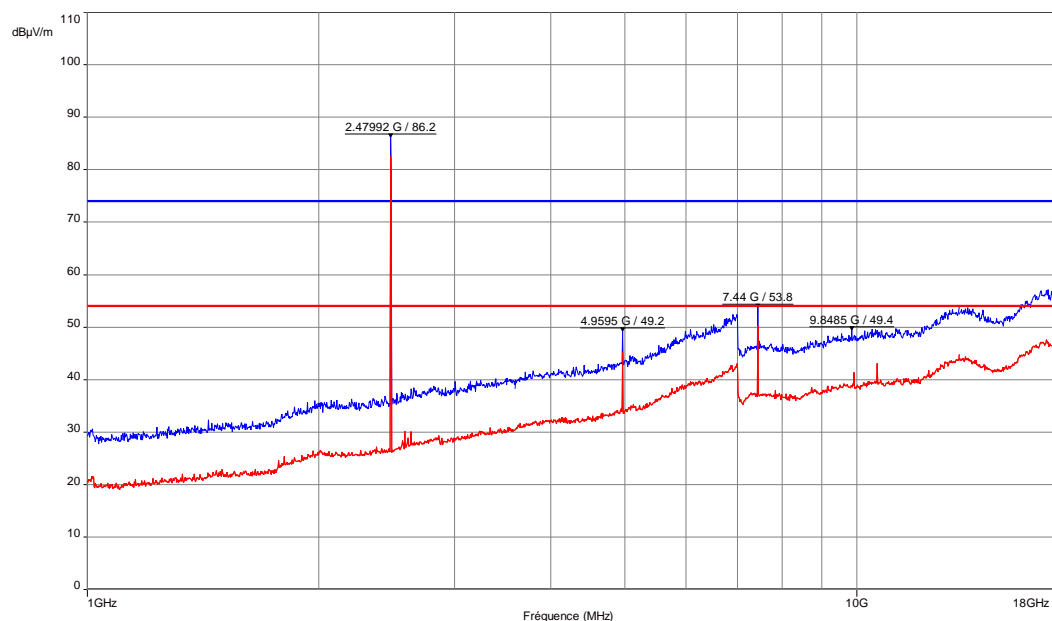
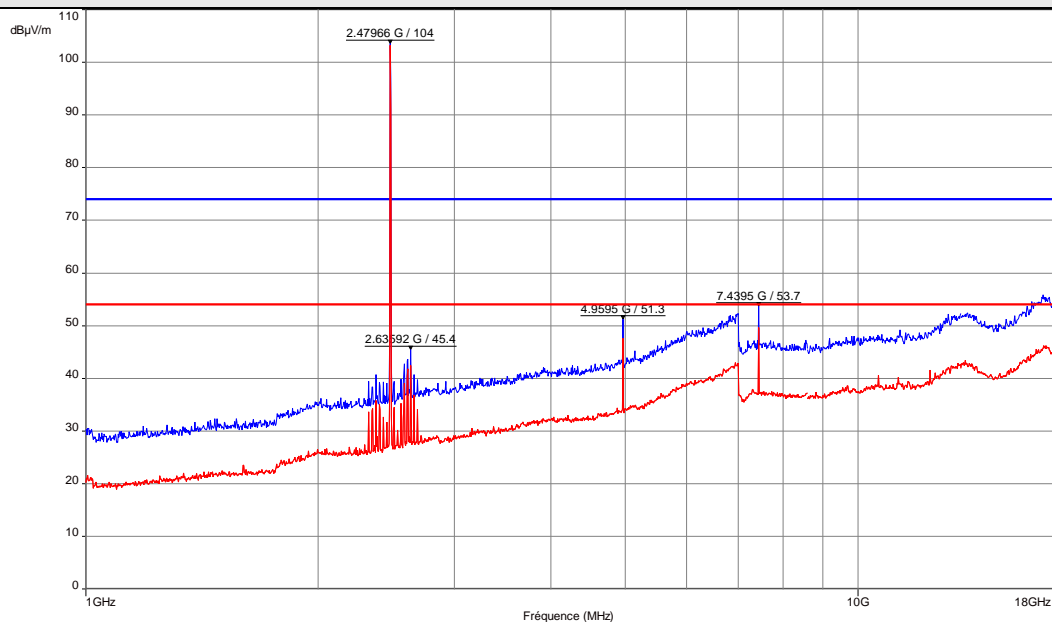
**Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 18GHz-26GHz / 3m / Horizontal & Vertical/ Transmit mode) – Mid channel**



Note: Pre-scan graph only for identification purpose. Worst case result for standalone / battery charging.

| ----- : Peak measure                 | ----- : Average measure            |
|--------------------------------------|------------------------------------|
| <b>Frequency band investigated:</b>  | 18GHz-26GHz                        |
| <b>Unit :</b>                        | dBµV/m                             |
| <b>RBW :</b>                         | 1MHz                               |
| <b>Antenna polarization :</b>        | Horizontal & Vertical              |
| <b>Voltage:</b>                      | 3.7V DC (Normal mode) / Worst case |
| <b>Limit:</b>                        | FCC 15.209 / RSS-GEN               |
| <b>Measurement detector:</b>         | Peak                               |
| <b>Wide Measurement Uncertainty:</b> | ± 5dB (k=2)                        |

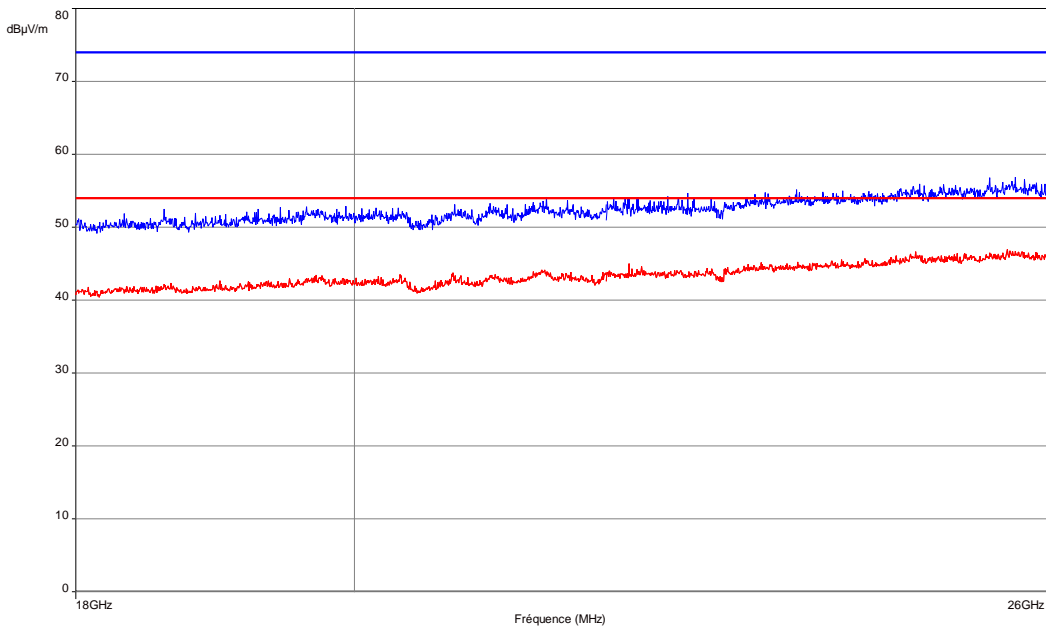
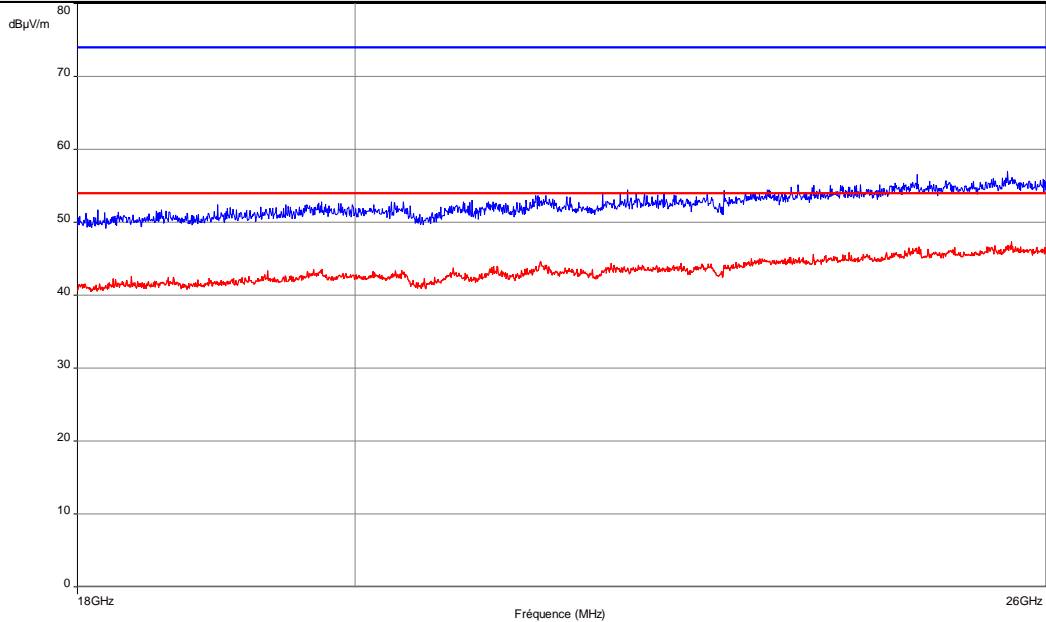
## Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 1GHz-18GHz / 3m / Horizontal & Vertical/ Transmit mode) – High channel



Note: Pre-scan graph only for identification purpose. Worst case result for standalone / battery charging.

|                                      |                                    |
|--------------------------------------|------------------------------------|
| ----- : Peak measure                 | ----- : Average measure            |
| <b>Frequency band investigated:</b>  | 1GHz-18GHz                         |
| <b>Unit :</b>                        | dBµV/m                             |
| <b>RBW :</b>                         | 1MHz                               |
| <b>Antenna polarization :</b>        | Horizontal & Vertical              |
| <b>Voltage:</b>                      | 3.7V DC (Normal mode) / Worst case |
| <b>Limit:</b>                        | FCC 15.209 / RSS-GEN               |
| <b>Measurement detector:</b>         | Peak                               |
| <b>Wide Measurement Uncertainty:</b> | ± 5dB (k=2)                        |

## Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 18GHz-26GHz / 3m / Horizontal & Vertical/ Transmit mode) – High channel



Note: Pre-scan graph only for identification purpose. Worst case result for standalone / battery charging.

| ----- : Peak measure                 | ----- : Average measure            |
|--------------------------------------|------------------------------------|
| <b>Frequency band investigated:</b>  | 18GHz-26GHz                        |
| <b>Unit :</b>                        | dBµV/m                             |
| <b>RBW :</b>                         | 1MHz                               |
| <b>Antenna polarization :</b>        | Horizontal & Vertical              |
| <b>Voltage:</b>                      | 3.7V DC (Normal mode) / Worst case |
| <b>Limit:</b>                        | FCC 15.209 / RSS-GEN               |
| <b>Measurement detector:</b>         | Peak                               |
| <b>Wide Measurement Uncertainty:</b> | ± 5dB (k=2)                        |

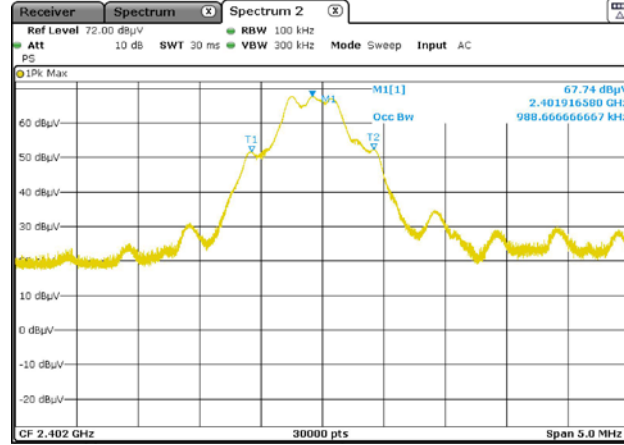
**14. Occupied bandwidth (99%)**

| <b>TEST: Occupied bandwidth (99%) / RSS-GEN</b>   |                            |                 | <b>Verdict</b> |
|---|----------------------------|-----------------|----------------|
| <p><u>Method:</u> The setup is in an anechoic chamber. The spectrum analyzer is connected to the measuring antenna. A radiated measurement is performed.<br/>           The RBW is set in the range of 1% to 5% of the occupied bandwidth, with VBW <math>\geq 3 \times</math> RBW.<br/>           The SPAN is wide enough to capture all products of the modulation process.<br/>           A MaxHold Peak detector is used.<br/>           Measure is performed with OBW 99% function of the spectrum analyser.<br/>           The tested equipment is set to transmit operation with modulation on low, mid and high channels.</p> |                            |                 | <b>Pass</b>    |
| Laboratory Parameters:  | Required prior to the test | During the test |                |
| Ambient Temperature   | 20 to 30 °C                | 23°C $\pm$ 2    |                |
| Relative Humidity   | 25 to 70 %                 | 64% $\pm$ 5     |                |
| Supplementary information:<br>Test location: SMEE.<br>Test date: June 8 <sup>th</sup> , 2018. Tested by L. CHAPUS   |                            |                 |                |

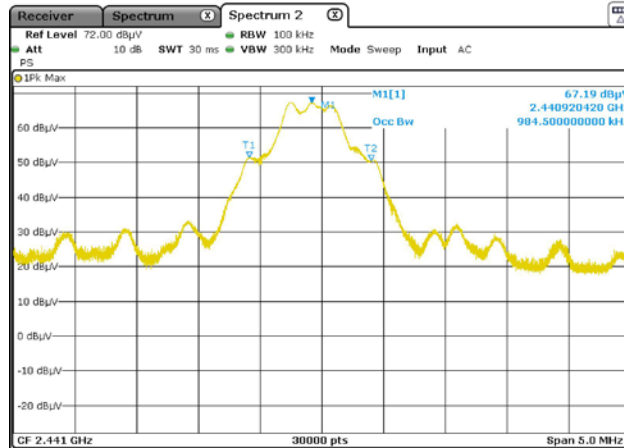
| <b>Test Equipment Used</b> |                |           |             |           |          |
|----------------------------|----------------|-----------|-------------|-----------|----------|
| Description                | Manufacturer   | Model     | Identifier  | Cal. Date | Cal. Due |
| Horn antenna               | ETS-LINDGREN   | 3115      | ANT-141-013 | 2014/3    | 2019/3   |
| RF cable                   | Pasternack RF  | PE302-120 | CAB-131-024 | 2018/4    | 2019/4   |
| RF cable                   | HUBER+SUHNER   | SF104     | CAB-141-030 | 2018/4    | 2019/4   |
| Anechoic chamber           | COMTEST        | 214263    | CAG-141-001 | 2017/6    | 2020/6   |
| Turntable                  | Innco- Systems | CT0800    | PLA-141-001 | -         | -        |
| Measuring receiver         | Rohde&Schwarz  | ESRP      | REC-151-003 | 2017/3    | 2019/3   |

| <b>Tabulated Results for Occupied Bandwidth</b> |                                 |
|---|---------------------------------|
| Frequency<br>(MHz)                              | 99% Occupied Bandwidth<br>(kHz) |
| 2402.0  | 988.666                         |
| 2440.0  | 984.500                         |
| 2480.0  | 985.000                         |

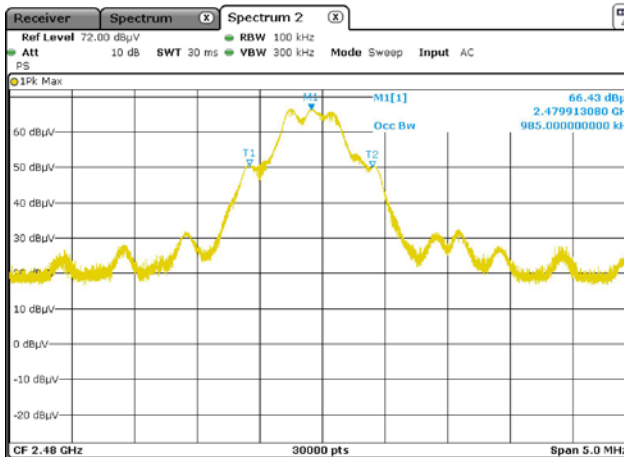
## Graphical representation of Occupied Bandwidth



Low Channel



Mid Channel



High Channel

|                              |                      |
|------------------------------|----------------------|
| Frequency band investigated: | 2400MHz to 2483.5MHz |
| RBW :                        | 100kHz               |
| Measurement detector:        | Peak                 |