

RR051-15-104199-3-A Ed. 0

## Certification test report

According to the standard:  
CFR 47 FCC PART 15

Equipment under test:  
GLOBAL POCKET READER GPR+

FCC ID: WMQ-30005

Company:  
ALLFLEX EUROPE SAS

DISTRIBUTION: Mr LANGOUET

(Company: ALLFLEX EUROPE SAS)

Number of pages: 24 with 4 appendixes

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|-----|-------------|----------------|------------|------|---------------------------------------------|------|
|     |             |                | Name       | Visa | Name                                        | Visa |
| 0   | 21-DEC-2015 | Creation       | S. LOUIS   | SL   | T. LEDRESSEUR                               |      |

Duplication of this test report is only permitted for an integral photographic facsimile. It includes the number of pages referenced here above.  
This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of the whole manufactured products of the tested sample.



**DESIGNATION OF PRODUCT:** GLOBAL POCKET READER GPR+

**Serial number (S/N):** C11000012

**Reference / model (P/N):** GPR+, USWR+

**Software version:** —

**MANUFACTURER:** ALLFLEX EUROPE SAS

**COMPANY SUBMITTING THE PRODUCT:**

**Company:** ALLFLEX EUROPE SAS

**Address:** Route des Eaux  
BP 90219  
35502 VITRE Cedex  
FRANCE

**Responsible:** Mr LANGOUET

**DATES OF TEST:** From 15-DEC-2015 to 19-FEB-2016

**TESTING LOCATION:** EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE  
21 rue de la Fuye  
49610 Juigne sur Loire  
France  
FCC Accredited under US-EU MRA Designation Number: FR0009  
Test Firm Registration Number: 873677

**TESTED BY:** S. LOUIS

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## **1. INTRODUCTION**

This report presents the results of radio test carried out on the following equipment: **Global Pocket Reader GPR+**, in accordance with normative reference.

The device under test integrates a 134.2 kHz RFID module.

## **2. PRODUCT DESCRIPTION**

|                            |                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------|
| Class:                     | B                                                                                                |
| Utilization:               | RFID Handheld control terminals                                                                  |
| Antenna type and gain:     | Integral antenna, gain unknown                                                                   |
| Operating frequency range: | From 134.2 kHz                                                                                   |
| Number of channels:        | 1                                                                                                |
| Channel spacing:           | Not concerned                                                                                    |
| Frequency generation:      | A microcontroller with its 24 MHz crystal and an oscillator circuitry with a 17.1776 MHz crystal |
| Power source:              | 7.2 Vdc Ni-MH batteries                                                                          |

The applicant declares that the equipment can't emit during the recharge of batteries.  
The applicant declares that the highest local oscillator used is 24MHz.

Power level, frequency range and channels characteristics are not user adjustable.  
The details pictures of the product and the circuit boards are joined with this file.

### **3. NORMATIVE REFERENCE**

The standards and testing methods related throughout this report are those listed below.

They are applied on the whole test report even though the extensions (version, date and amendment) are not repeated.

CFR 47 FCC Part 15 (2015)      Radio Frequency Devices

ANSI C63.4                      2009

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                    2009

Testing Unlicensed Wireless Devices.

### **4. TEST METHODOLOGY**

Radio performance tests procedures given in CFR 47 part 15:

Subpart A –General

Paragraph 19:    labelling requirements

Paragraph 21:    information to user

Subpart B –Unintentional Radiators

Paragraph 105:   information to the user

Paragraph 107:   conducted limits

Paragraph 109:   radiated emission limits

Subpart C – Intentional Radiators

Paragraph 203:   Antenna requirement

Paragraph 209:   Radiated emission limits; general requirements

Paragraph 215:   Additional provisions to the general radiated emission limitations

## 5. TEST EQUIPMENT CALIBRATION DATES

| Equipment | Model                            | Type                                      | Last verification | Next verification | Validity   |
|-----------|----------------------------------|-------------------------------------------|-------------------|-------------------|------------|
| 0000      | BAT-EMC V3.6.0.32                | Software                                  | /                 | /                 | /          |
| 1406      | EMCO 6502                        | Loop antenna                              | 27/01/2015        | 27/01/2017        | 27/03/2017 |
| 8508      | California instruments 1251RP    | Power source                              | 12/10/2015        | 12/10/2016        | 12/12/2016 |
| 8524      | Hewlett Packard HP 8591EM        | Test receiver                             | 10/09/2015        | 10/09/2017        | 10/11/2017 |
| 8526      | Schwarzbeck VHBB 9124            | Biconical antenna                         | 12/06/2015        | 12/06/2018        | 12/08/2018 |
| 8543      | Schwarzbeck UHALP 9108A          | Log periodic antenna                      | 12/06/2015        | 12/06/2018        | 12/08/2018 |
| 8635      | R&S EZ-25                        | High-pass filter                          | 05/08/2014        | 05/08/2016        | 05/10/2016 |
| 8671      | HUGER                            | Meteo station                             | 04/09/2014        | 04/09/2016        | 04/11/2016 |
| 8676      | ISOTECH IDM106N                  | Multimeter                                | 21/05/2015        | 21/05/2017        | 21/07/2017 |
| 8707      | R&S ESI7                         | Test receiver                             | 11/12/2014        | 11/12/2016        | 11/02/2017 |
| 8719      | Thurbly Thandar Instruments 1600 | LISN                                      | 23/06/2014        | 23/06/2016        | 23/08/2016 |
| 8732      | Emitech                          | OATS                                      | 23/08/2013        | 23/08/2016        | 23/10/2016 |
| 8749      | La Crosse Technology WS-9232     | Meteo station                             | 03/09/2014        | 03/09/2016        | 03/11/2016 |
| 8864      | Champ libre Juigné. V3.4         | Software                                  | /                 | /                 | /          |
| 8893      | Emitech                          | Outside room Hors cage                    | /                 | /                 | /          |
| 8896      | ACQUISYS GPS8                    | Satellite synchronized frequency standard | /                 | /                 | /          |
| 10651     | Absorber sheath current          | Emitech                                   | 16/12/2015        | 16/12/2017        | 16/02/2018 |

## 6. TESTS RESULTS SUMMARY

### 6.1 general (subpart A)

| Test procedure | Description of test    | Respected criteria? |    |     |     | Comment                     |
|----------------|------------------------|---------------------|----|-----|-----|-----------------------------|
|                |                        | Yes                 | No | NAp | NAs |                             |
| FCC Part 15.19 | LABELLING REQUIREMENTS |                     |    |     | X   | See certification documents |
| FCC Part 15.21 | INFORMATION TO USER    |                     |    |     | X   | See certification documents |
|                |                        |                     |    |     |     |                             |

NAp: Not Applicable

NAs: Not Asked

### **LABEL SHALL CONTAIN**

The label shall be located in a conspicuous location on the device

The label shall not be a stick-on, paper label. The label on these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase

### **§15.19: (can be placed in the user manual if the product is too small)**

*This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

### **USER NOTICE SHALL CONTAIN**

The user notice, not provided during tests, shall include the following informations:

### **§15.21:**

*Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

## 6.2 unintentional radiator (subpart B)

| Test procedure  | Description of test                         | Respected criteria? |    |     |     | Comment                     |
|-----------------|---------------------------------------------|---------------------|----|-----|-----|-----------------------------|
|                 |                                             | Yes                 | No | NAp | NAs |                             |
| FCC Part 15.105 | INFORMATION TO THE USER                     |                     |    |     | X   | See certification documents |
| FCC Part 15.107 | CONDUCTED LIMITS                            | X                   |    |     |     | Class B                     |
| FCC Part 15.109 | RADIATED EMISSION LIMITS                    | X                   |    |     |     | Class B                     |
| FCC Part 15.111 | ANTENNA POWER CONDUCTED LIMITS FOR RECEIVER |                     |    | X   |     |                             |
|                 |                                             |                     |    |     |     |                             |

NAp: Not Applicable

NAs: Not Asked

### USER NOTICE SHALL CONTAIN

The user notice, not provided during tests, shall include the following informations:

#### § 15.105:

*NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference's by one or more of the following measures:*

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### 6.3 intentional radiator (subpart C)

| Test procedure  | Description of test                            | Criteria respected ? |    |     |     | Comment |
|-----------------|------------------------------------------------|----------------------|----|-----|-----|---------|
|                 |                                                | Yes                  | No | NAp | NAs |         |
| FCC Part 15.203 | ANTENNA REQUIREMENTS                           | X                    |    |     |     | Note 1  |
| FCC Part 15.207 | CONDUCTED LIMITS                               |                      |    | X   |     | Note 2  |
| FCC Part 15.209 | RADIATED EMISSION LIMITS; GENERAL REQUIREMENTS | X                    |    |     |     |         |
|                 |                                                |                      |    |     |     |         |

NAp: Not Applicable

NAs: Not Asked

Note 1: Integral antenna.

Note 2: The applicant declares that the equipment does not emit during recharge of batteries.

#### RF EXPOSURE:

Maximum measured power = 0.086 mW at 134.2kHz

In accordance with KDB 447498 D01 General RF Exposure Guidance v06, Paragraph 4.3.1.

The product must respect the exclusion limit for 10-g extremity SAR and a separation distances less than 50mm:

$$P(mW) < \frac{\frac{7.5 * 50(mm)}{\sqrt{0.1(GHz)}} * (1 + \log\left(\frac{100}{F(MHz)}\right))}{2}$$

$$P(mW) < \frac{\frac{7.5 * 50(mm)}{\sqrt{0.1(GHz)}} * (1 + \log\left(\frac{100}{0.1342}\right))}{2}$$

$$P(mW) < 2295.95mW$$

## **7. CONDUCTED LIMITS**

**Standard:** FCC Part 15

**Test procedure:** Paragraph 15.107

**Limits:** Class B

**Software used:** BAT-EMC V3.6.0.32

### **Test set up:**

The EUT is isolated and placed on a wooden table, 0.8 m over an horizontal reference plane and 0.4 m from a vertical reference plane. It is powered by an artificial main network placed on the ground reference plane. The equipment is powered via an AC / DC adapter which is supplied by an external power source (120 V / 60 Hz).

See photos in appendix 2

**Frequency range:** 150 kHz - 30 MHz

**Detection mode:** Peak / Quasi-peak / Average

**Bandwidth:** 10 kHz / 9 kHz

### **Equipment under test operating condition:**

The equipment is blocked in charging mode.

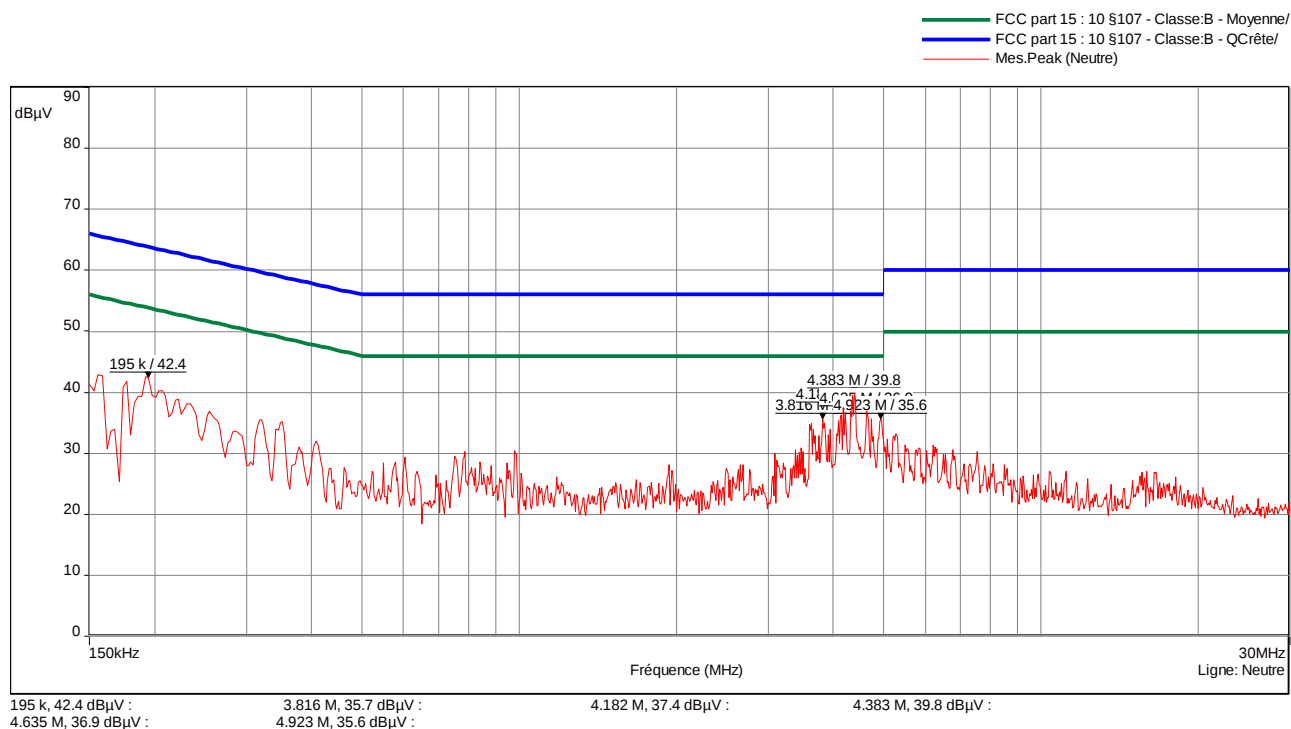
### **Results:**

|                           |      |
|---------------------------|------|
| Ambient temperature (°C): | 22.2 |
| Relative humidity (%):    | 43   |

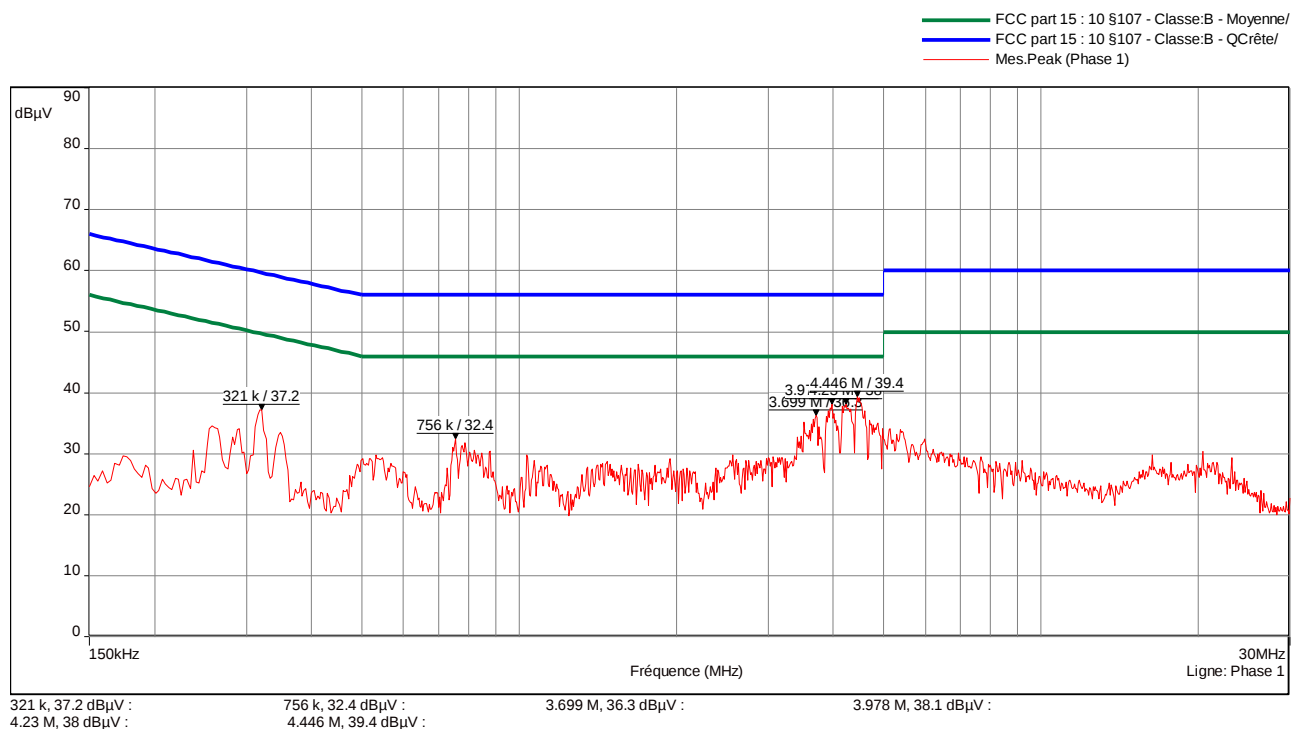
# Sample N° 1: Measurement on the mains power supply:

The measurement is first realized with Peak detector.

Curve N° 1: measurement on the Neutral with peak detector

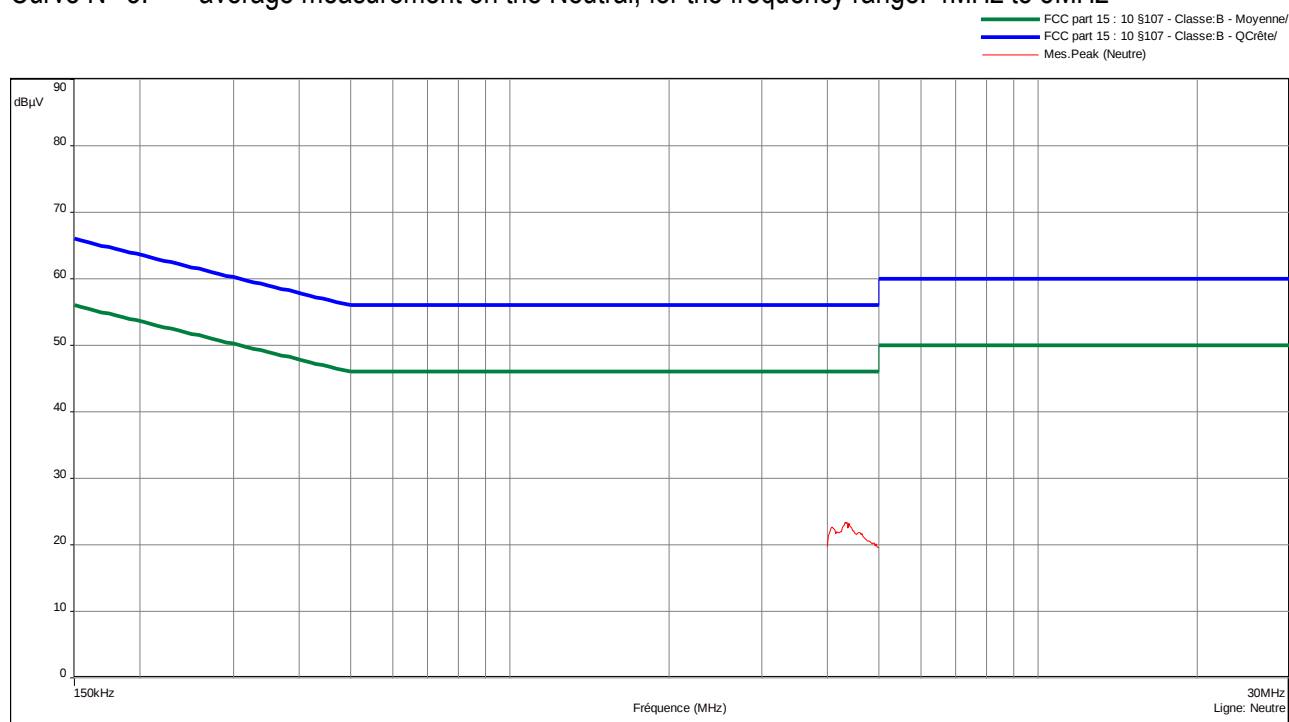


Curve N° 2: measurement on the Line with peak detector

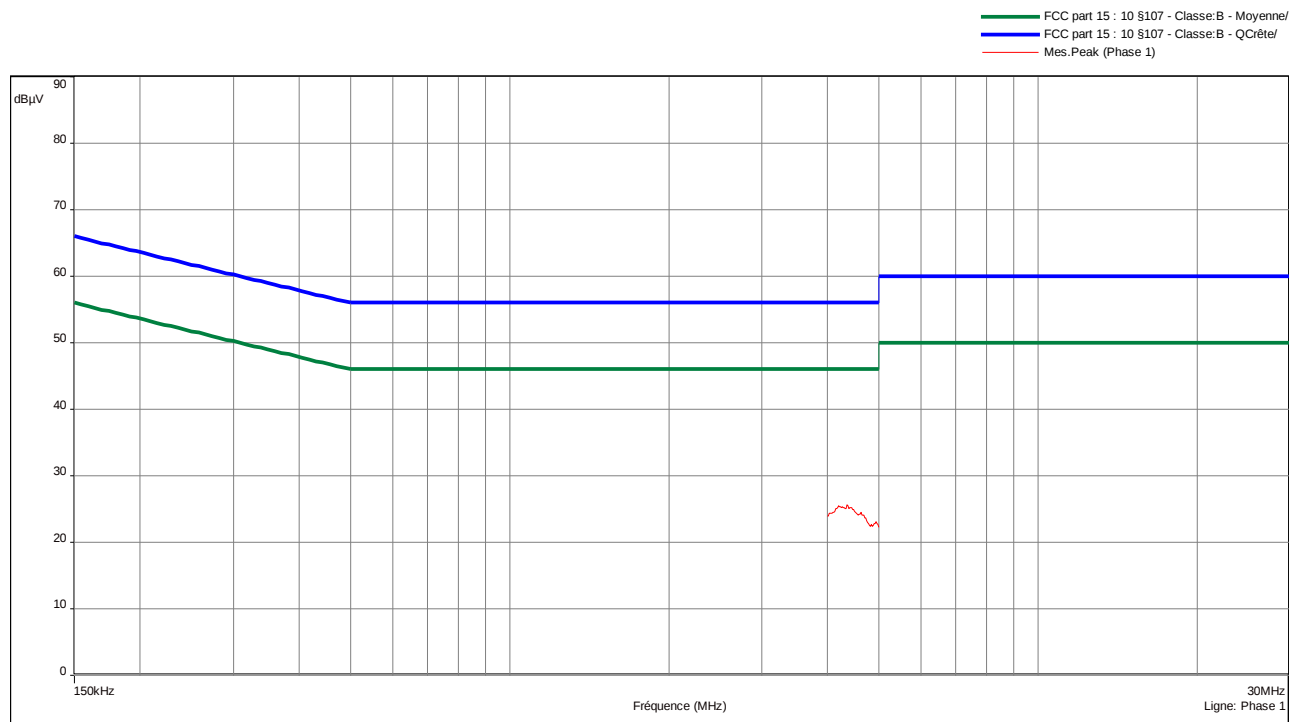


The frequencies which are not 6 dB under the Average limit are then analyzed with Average detector.

Curve N° 3: average measurement on the Neutral, for the frequency range: 4MHz to 5MHz



Curve N° 4: average measurement on the Line, for the frequency range: 4MHz to 5MHz



**Test conclusion:**

RESPECTED STANDARD

**8. RADIATED EMISSION LIMITS**

**Standard:** FCC Part 15

**Test procedure:** paragraph 109

**Limit class:** Class B

**Test set up:**

First an exploratory radiated measurement was performed. During this phase the product is oriented in three orthogonal planes.

Then the final measurement is realized with the product on the most critical orientation.

The measure is realized on open area test site, the EUT is placed on a rotating table, 0.8m from a ground plane.

Zero degree azimuths correspond to the front of the device under test.

See photos in appendix 2.

**Frequency range:** From 30MHz to 1 GHz (the highest local oscillator frequency used is 24MHz)

**Detection mode:** Quasi-peak ( $F < 1$  GHz)

**Bandwidth:** 120 kHz ( $F < 1$  GHz)

**Distance of antenna:** 10 meters (in open area test site)

**Antenna height:** 1 to 4 meters (in open area test site)

**Antenna polarization:** vertical and horizontal (only the highest level is recorded)

**Equipment under test operating condition:**

The equipment is blocked in charging mode.

## Results:

Ambient temperature (°C): 22.5  
Relative humidity (%): 47

Power source: The equipment is powered via an AC / DC adapter which is supplied by an external power source (120 V / 60 Hz).

## Sample N° 1

| FREQUENCIES<br>(MHz) | Detector<br>P: Peak<br>QP: Quasi-<br>Peak | Antenna<br>height<br>(cm) | Azimuth<br>(degree) | Polarization<br>H: Horizontal<br>V: Vertical | Field<br>strength<br>measured<br>at 10 m<br>(dBμV/m) | Field<br>strength<br>correlated<br>at 3m<br>(dBμV/m) | Limits at<br>3m<br>(dBμV/m) | Margin<br>(dB) |
|----------------------|-------------------------------------------|---------------------------|---------------------|----------------------------------------------|------------------------------------------------------|------------------------------------------------------|-----------------------------|----------------|
| 30                   | QP                                        | 100                       | 12                  | V                                            | 22.8                                                 | 33.2                                                 | 40                          | 6.8            |
| 43.1                 | QP                                        | 100                       | 334                 | V                                            | 21.6                                                 | 32                                                   | 40                          | 8              |
| 71.7                 | QP                                        | 175                       | 0                   | V                                            | 23.7                                                 | 34.1                                                 | 40                          | 5.9            |
| 73                   | QP                                        | 167                       | 363                 | V                                            | 10.2                                                 | 20.6                                                 | 40                          | 19.4           |
| 79.6                 | QP                                        | 400                       | 136                 | H                                            | 9.5                                                  | 19.9                                                 | 40                          | 20.1           |
| 128                  | QP                                        | 100                       | 352                 | V                                            | 14.7                                                 | 25.1                                                 | 43.5                        | 18.4           |
| 174.8                | QP                                        | 400                       | 172                 | V                                            | 14.6                                                 | 25                                                   | 43.5                        | 18.5           |
| 204.2                | QP                                        | 159                       | 34                  | V                                            | 19.1                                                 | 29.5                                                 | 43.5                        | 14             |
| 245.9                | QP                                        | 300                       | 131                 | H                                            | 16.8                                                 | 27.2                                                 | 46                          | 18.8           |

Applicable limits: for  $30 \text{ MHz} \leq F \leq 88 \text{ MHz}$  : 40 dBμV/m at 3 meters  
for  $88 \text{ MHz} < F \leq 216 \text{ MHz}$  : 43.5 dBμV/m at 3 meters  
for  $216 \text{ MHz} < F \leq 960 \text{ MHz}$  : 46 dBμV/m at 3 meters  
Above 960 MHz : 54 dBμV/m at 3 meters

## Test conclusion:

RESPECTED STANDARD

## **9. RADIATED EMISSION LIMITS; general requirements**

**Standard:** FCC Part 15

**Test procedure:** paragraph 209

### **Test set up:**

First an exploratory radiated measurement was performed. During this phase the product is oriented in three orthogonal planes.

Then the final measurement is realized with the product on the most critical orientation.

The measure is realized on open area test site, the EUT is placed on a rotating table, 0.8m from a ground plane.

Zero degree azimuths correspond to the front of the device under test.

See photos in appendix 2.

**Frequency range:** From 9 kHz to 1GHz (the highest local oscillator frequency used is 24MHz)

**Detection mode:** Quasi-peak ( $F < 1 \text{ GHz}$ )

Except for the frequency bands 9-90kHz, 110-490kHz. Radiated emission limits in these three bands are based on measurements employing an average detector

**Bandwidth:** 200Hz ( $9 \text{ kHz} < F < 150\text{kHz}$ )  
9 kHz ( $150 \text{ kHz} < F < 30\text{MHz}$ )  
120 kHz ( $30 \text{ MHz} < F < 1 \text{ GHz}$ )  
1 MHz ( $F > 1 \text{ GHz}$ )

**Distance of antenna:** 10 meters (in open area test site)

**Antenna height:** 1 to 4 meters (in open area test site)

**Antenna polarization:** vertical and horizontal (only the highest level is recorded)

### **Equipment under test operating condition:**

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.

## Results:

Ambient temperature (°C): 22.3  
Relative humidity (%): 46

Power source: We used for power source the internal batteries of the equipment fully charged

### Sample N° 1: Carrier

| Frequencies (kHz) | Detector<br>P: Peak<br>Av: Average | Field strength at 10 meters<br>dB $\mu$ V/m <sup>(1)</sup> | Field strength at 300 meters<br>dB $\mu$ V/m <sup>(2)</sup> | Limits 300m<br>dB $\mu$ V/m | Margin (dB) |
|-------------------|------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|-----------------------------|-------------|
| 134.2             | P                                  | 74.1                                                       | 15.0                                                        | 45                          | 30.0        |
| 134.2             | Av                                 | 73.7                                                       | 14.6                                                        | 25                          | 10.4        |

With antenna height: 100 cm; Azimuth: 193°; Polarization antenna: 45°

(1) Field strength measured at 10 meters

(2) Field strength extrapolated at 300 meters using 40dB/decade fall off

### Sample 1: Harmonics:

| Frequencies (kHz) | Detector<br>P: Peak<br>Av: Average | Field strength at 10 meters<br>dB $\mu$ V/m <sup>(3)</sup> | Field strength at 300 meters<br>dB $\mu$ V/m <sup>(4)</sup> | Limits 300m<br>dB $\mu$ V/m | Margin (dB) |
|-------------------|------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|-----------------------------|-------------|
| 268.4             | P                                  | 51.9                                                       | -7.2                                                        | 39                          | 46.2        |
| 268.4             | Av                                 | 51.5                                                       | -7.6                                                        | 19                          | 26.6        |
| 402.7             | P                                  | 50.7                                                       | -8.4                                                        | 35.5                        | 43.9        |
| 402.7             | Av                                 | 50.3                                                       | -8.8                                                        | 15.5                        | 24.3        |

(3) Field strength measured at 10 meters

(4) Field strength extrapolated at 300 meters using 40dB/decade fall off

| Frequencies (kHz) | Detector<br>QP: Q-Peak | Field strength at 10 meters<br>dB $\mu$ V/m <sup>(5)</sup> | Field strength at 30 meters<br>dB $\mu$ V/m <sup>(6)</sup> | Limits 30m<br>dB $\mu$ V/m | Margin (dB) |
|-------------------|------------------------|------------------------------------------------------------|------------------------------------------------------------|----------------------------|-------------|
| 537               | QP                     | 41.1                                                       | 22                                                         | 33                         | 11          |
| 672               | QP                     | 39.0                                                       | 19.9                                                       | 31                         | 11.1        |

(5) Field strength measured at 10 meters

(6) Field strength extrapolated at 30 meters using 40dB/decade fall off

Applicable limits:

|                                     |                                |
|-------------------------------------|--------------------------------|
| for 9 kHz $\leq$ F $\leq$ 490 kHz : | 2400/F(kHz) at 300 meters      |
| for 490 kHz < F $\leq$ 1.705 MHz :  | 24000/F(kHz) at 30 meters      |
| for 1.705 MHz < F $\leq$ 30 MHz :   | 29.5 dB $\mu$ V/m at 30 meters |
| for 30 MHz < F $\leq$ 88 MHz :      | 40 dB $\mu$ V/m at 3 meters    |
| for 88 MHz < F $\leq$ 216 MHz :     | 43.5 dB $\mu$ V/m at 3 meters  |
| for 216 MHz < F $\leq$ 960 MHz :    | 46 dB $\mu$ V/m at 3 meters    |
| Above 960 MHz :                     | 54 dB $\mu$ V/m at 3 meters    |

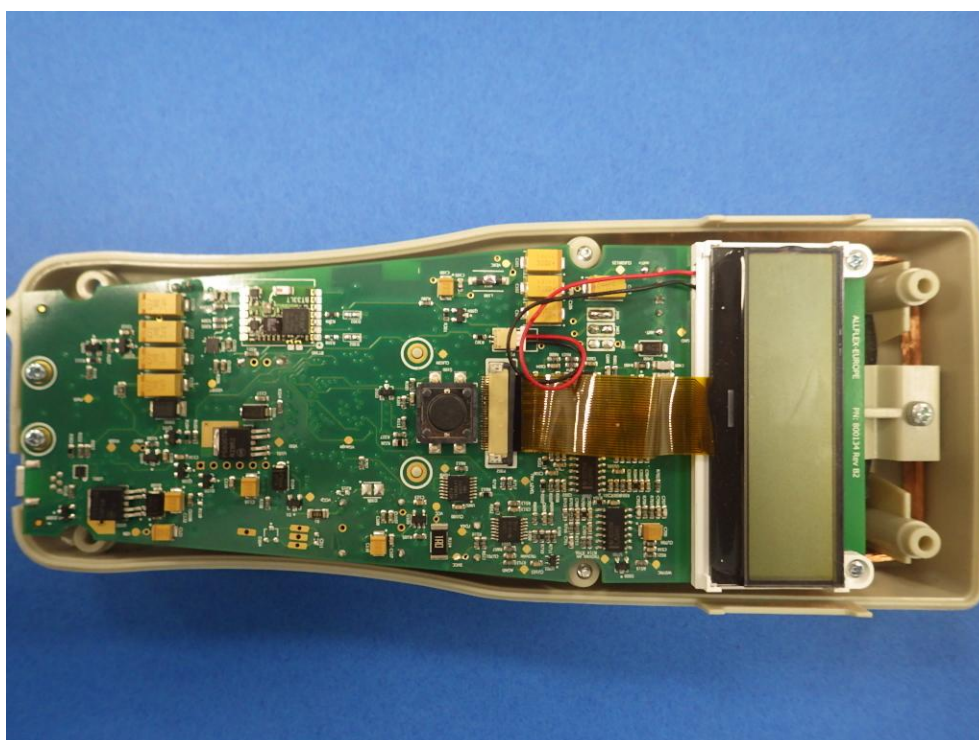
### Test conclusion:

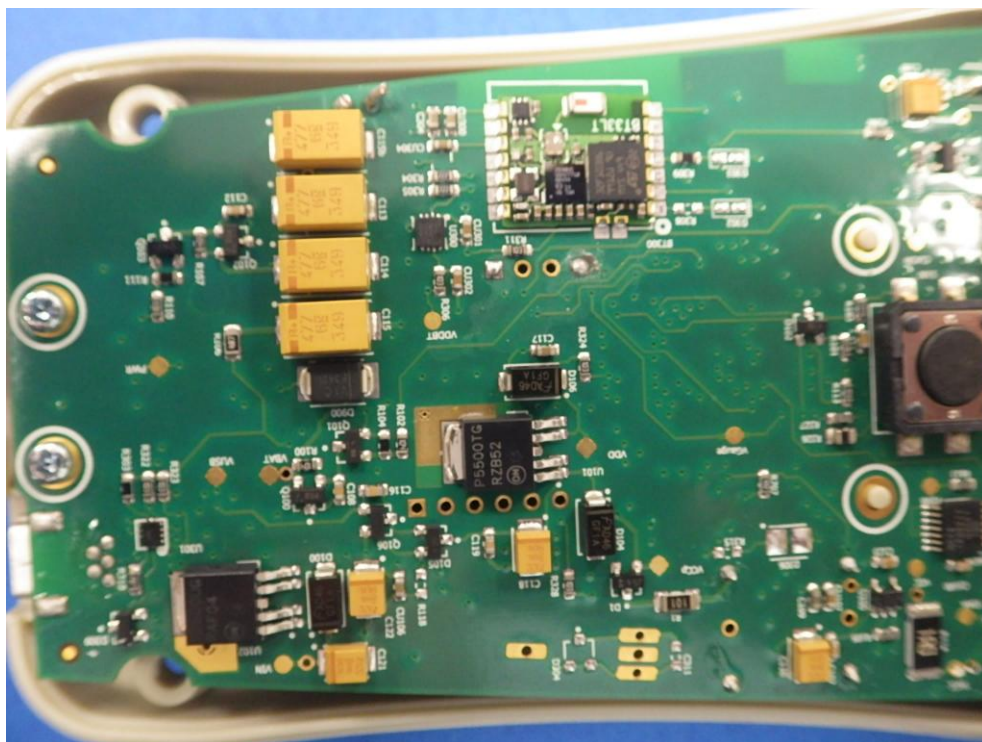
RESPECTED STANDARD

□□□ End of report, 4 annexes to be forwarded □□□

## APPENDIX 1: Photos of the equipment under test







## APPENDIX 2: Test set up

Open Area Test Site – TX mode



Open Area Test Site – RX mode



Conducted tests – RX mode



## APPENDIX 3: Test equipment list

### Conducted limits

| TYPE                                           | MANUFACTURER                | EMITECH NUMBER |
|------------------------------------------------|-----------------------------|----------------|
| Outside room Hors cage                         | Emitech                     | 8893           |
| Satellite synchronized frequency standard GPS8 | ACQUISYS                    | 8896           |
| Test receiver HP 8591EM                        | Hewlett Packard             | 8524           |
| LISN 1600                                      | Thurbly Thandar Instruments | 8719           |
| High-pass filter EZ25                          | R&S                         | 8635           |
| Absorber sheath current                        | Emitech                     | 10651          |
| Power source 1251RP                            | California instruments      | 8508           |
| Multimeter IDM106N                             | ISOTECH                     | 8676           |
| Meteo station                                  | HUGER                       | 8671           |
| Software                                       | BAT-EMC V3.6.0.32           | 0000           |

### Radiated emission limits

| TYPE                                           | MANUFACTURER             | EMITECH NUMBER |
|------------------------------------------------|--------------------------|----------------|
| Open test site                                 | EMITECH                  | 8732           |
| Satellite synchronized frequency standard GPS8 | ACQUISYS                 | 8896           |
| Test receiver ESI7                             | Rohde & Schwarz          | 8707           |
| Biconical antenna VHBB 9124                    | Schwarzbeck              | 8526           |
| Log periodic antenna UHALP 9108A               | Schwarzbeck              | 8543           |
| Power source 1251RP                            | California instruments   | 8508           |
| Multimeter IDM106N                             | ISOTECH                  | 8676           |
| Meteo station WS-9232                          | La Crosse Technology     | 8749           |
| Software                                       | Champ libre Juigné. V3.4 | 8864           |

### Radiated emission limits; general requirements

| TYPE                                           | MANUFACTURER             | EMITECH NUMBER |
|------------------------------------------------|--------------------------|----------------|
| Open test site                                 | EMITECH                  | 8732           |
| Satellite synchronized frequency standard GPS8 | ACQUISYS                 | 8896           |
| Test receiver ESI7                             | Rohde & Schwarz          | 8707           |
| Loop antenna 6502                              | EMCO                     | 1406           |
| Biconical antenna VHBB 9124                    | Schwarzbeck              | 8526           |
| Log periodic antenna UHALP 9108A               | Schwarzbeck              | 8543           |
| Multimeter IDM106N                             | ISOTECH                  | 8676           |
| Meteo station WS-9232                          | La Crosse Technology     | 8749           |
| Software                                       | Champ libre Juigné. V3.4 | 8864           |

## APPENDIX 4: 99% OCCUPIED BANDWIDTH

