



Test report issued under the responsibility of:  
EMITECH ILE DE FRANCE Laboratory  
MRA US-EU Designation Number: FR0004  
IC Assigned Code: 4379A

## RADIO TESTS REPORT

FCC 47 CFR PART 15: 2022  
RSS-210\_Issue 10 : 2019  
RSS-Gen\_Issue 5 : 2018 / AMD1 : 2019 / AMD2 : 2021

Company ..... : **MASTERNAUT**  
Address..... : *1 Avenue des Falaises*  
*27100 VAL DE REUIL*  
*France*

Test item description. .... : **TPMS Wireless Repeater unit**  
Trade Mark. .... : MASTERNAUT  
Manufacturer..... : MASTERNAUT  
Model/Type reference..... : 720-31180 / 720-31181 / 720-31182  
Ratings..... : 9 to 32 Vdc

Testing Laboratory ..... : **EMITECH ILE DE FRANCE Laboratory**  
Address..... : 30-32, AVENUE DES 3 PEUPLES  
78180 MONTIGNY LE BRETONNEUX  
FRANCE

Report Reference No..... : **RRA-EMIESS22M181MAS-01A v0**  
Test procedure. .... : FCC and CANADA marking  
Diffusion..... : Mr SAUDE  
Applicant's name. .... : MASTERNAUT  
Date of issue..... : November 02<sup>nd</sup> 2022  
Total number of pages..... : 60  
Revision. .... : v0  
Modified pages. .... : Creation  
Compiled by..... : C. ZIMMERMANN (Tests Technician)  
Approved by (+ signature). .... :

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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.

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**REVISION HISTORY:**

| Revision | Date       | Modified pages | Modifications |
|----------|------------|----------------|---------------|
| v0       | 02/11/2022 | Creation       |               |

## 1. GENERAL INFORMATION

This document submits the results of Radio tests performed on the equipment (denominated hereafter E.U.T.: equipment under test) according to documents listed in §2 of this test report.

| TESTING PROCEDURE AND TESTING LOCATION:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                       |     |                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----|---------------------------------|
| Testing Laboratory .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EMITECH ILE DE FRANCE Laboratory                                      |     |                                 |
| Address. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 30-32, AVENUE DES 3 PEUPLES<br>78180 MONTIGNY LE BRETONNEUX<br>FRANCE |     |                                 |
| Test procedure. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FCC and CANADA marking                                                |     |                                 |
| Tested by .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | C. ZIMMERMANN                                                         |     |                                 |
| Test supervisor .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -                                                                     |     |                                 |
| Date of receipt of test item .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | October 06 <sup>th</sup> 2022                                         |     |                                 |
| Dates of performance of tests .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | October 06 and 07 <sup>th</sup> 2022                                  |     |                                 |
| APPLICANT'S GENERAL INFORMATION:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                       |     |                                 |
| Company name .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | MASTERNAUT                                                            |     |                                 |
| Company address. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 Avenue des Falaises<br>27100 VAL DE REUIL<br>France                 |     |                                 |
| Person present during the tests. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | None                                                                  |     |                                 |
| Responsible .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Mr SAUDE                                                              |     |                                 |
| GENERAL REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                       |     |                                 |
| <p><b><i>The information in italics is declared by the manufacturer and is under his responsibility.</i></b></p> <p><b>The test results presented in this report relate only to the object tested.</b></p> <p><b>The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.</b></p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>"(see Enclosure #)" refers to additional information appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report the decimal separator is point.</p> |                                                                       |     |                                 |
| POSSIBLE TEST CASE VERDICTS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                       |     |                                 |
| Test case does not apply to the test object.:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                   |     |                                 |
| Test case not performed.....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/P                                                                   |     |                                 |
| Test object does meet the requirement.....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | P (Pass)                                                              |     |                                 |
| Test object does not meet the requirement. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | F (Fail)                                                              |     |                                 |
| Test object was not subjected to all tests...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | I (Inconclusive)                                                      |     |                                 |
| DEFINITIONS AND ABBREVIATIONS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                       |     |                                 |
| E.U.T.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Equiptement under test                                                | AE  | Auxiliary /Associated equipment |
| RBW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Resolution bandwidth                                                  | VBW | Video bandwidth                 |
| OATS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Open area test site                                                   | FAR | Full anechoic room              |
| RF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Radio frequency                                                       | NTR | Nothing to report               |

## 2. REFERENCE DOCUMENTS

### NORMATIVE REFERENCES:

The following referenced documents are necessary for the application of the present test report.

**FCC 47 CFR Part 15 : 2022**

Code of federal regulations

Title 47- Telecommunication Chapter 1- Federal Communication Commission

Part 15- Radio frequency devices Subpart B- Unintentional Radiators

Limits and methods of measurement of radio disturbance

Characteristic of information technology equipment.

**RSS-210\_Issue 10 : 2019**

Licence-Exempt Radio Apparatus: Category I Equipment

**RSS-Gen Issue 5 : 2018 / AMD1 : 2019 / AMD2 : 2021**

General Requirements and Information for the Certification of Radio Apparatus

### INFORMATIVE REFERENCES:

The following referenced documents are not necessary for the application of the present test report but they assist the user with regard to a particular subject area.

**ANSI C63.10 : 2013**

American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

**KDB 558074 D01 DTS Meas Guidance V05 r02**

Guidance for performing compliance measurement on Digital Transmission Systems (DTS) operating under § 15.247.

### 3. EQUIPMENT TECHNICAL DESCRIPTION

#### 3.1. Test Conditions

Test item description. .... : *TPMS Wireless Repeater unit*

Model/Type reference..... : 720-31180 (TPMS Wireless Receiver unit 434MHz – F01) (LDL)  
720-31181 (TPMS Wireless Receiver unit 434MHz – A01) (Gobiz)  
720-31182 (TPMS Wireless Receiver unit 434MHz – F02) (Orange)

Trade Mark. .... : *Wireless Receiver/Repeater*

Serial number (S/N)..... : 72031110 (TPMS Wireless Receiver unit 434MHz – F01)  
72031111 (TPMS Wireless Receiver unit 434MHz – F01)  
72031112 (TPMS Wireless Receiver unit 434MHz – F01)

Part number (P/N). .... : -

Software version..... : v1.469

Firmware version. .... : v1.469

Fcc ID ..... : 2A8SB31110

N°IC ..... : 29178-31110

Type of sample..... : *Serial production*

Function..... : *Wireless Repeater : repeats the frames send by TPMS sensors installed in vehicle*

Manufacturer name. .... : *MASTERNAUT*

Address. .... : 1 Avenue des Falaises  
27100 Val de Reuil  
France

**General product information: No**

### 3.2. EUT Overview



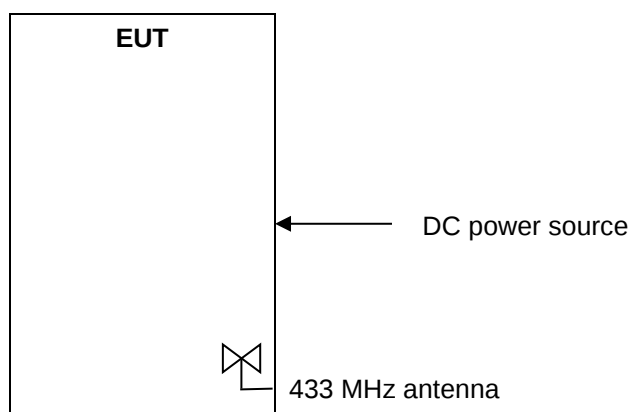
**3.3.EUT Marking Plate**

### 3.4. EUT Mechanical and Electrical Design

Power supply ..... : 13.5 Vdc  
 Power supply range..... : 9 Vdc to 32 Vdc  
 Power type..... : DC  
 Power (W)..... : 3  
 Nominal current (mA). ..... : 90  
 Dimensions (H x W x L) (cm). ..... : 20 \* 20 \* 3 (full system)  
 Weight (g). ..... : 720  
 Temperature range (°C). ..... : -40 to +70  
 Ground bounding strap..... : No

**Comments:** -

### 3.5. EUT Input/Output ports



| PORT | NAME            | TYPE | LENGHT | CABLE TYPE | COMMENTS |
|------|-----------------|------|--------|------------|----------|
| 0    | Main frame      | N/E  | N/A    | Plastic    | internal |
| 1    | 433MHz antenna  | RF   | N/A    | N/A        |          |
| 2    | DC power source | DC   | >3m    | Unshielded |          |

AC/DC: AC/DC Converter port

I/O: Input or Output port

N/E: Non Electrical port

AC:

Alternative current port

TP:

Telecommunication port

DC:

Discontinuous current port

RF:

Radio frequency port

**3.6. Supporting Equipment Used During Test**

Sample subject to the tests was tested with following equipment.

| PRODUCT TYPE | MANUFACTURER | MODEL   | N°EMITECH / COMMENTS |
|--------------|--------------|---------|----------------------|
| Power supply | Voltcraft    | LPS1305 | 14585                |

(AE)

-

### 3.7. EUT Radio Specifications

| a) GENERAL INFORMATION                     |                                                                                                                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| According to manufacturer's declarations : |                                                                                                                                                                                                |
| EUT type.....                              | Transceiver                                                                                                                                                                                    |
| Technology .....                           | 433 MHz                                                                                                                                                                                        |
| Environmental profile.....                 | Automotive                                                                                                                                                                                     |
| Temperature range.....                     | -40°C to + 70°C                                                                                                                                                                                |
| Antenna type .....                         | Internal                                                                                                                                                                                       |
| Antenna Gain.....                          | 433.92 MHz : -2.9 dBi                                                                                                                                                                          |
| <b>Comments:</b> No                        |                                                                                                                                                                                                |
| b) TRANSMITTER PARAMITERS (Tx)             |                                                                                                                                                                                                |
| Frequency bands.....                       | 433.92 MHz                                                                                                                                                                                     |
| RF Power.....                              | < 9 dBm                                                                                                                                                                                        |
| Number of channels / Separation.....       | Single /<br>150kHz (TPMS Wireless Receiver unit 434MHz – F01) (LDL)<br>150kHz (TPMS Wireless Receiver unit 434MHz – F01) (Orange)<br>180kHz (TPMS Wireless Receiver unit 434MHz – A01) (Gobiz) |
| Modulation type .....                      | ASK (TPMS Wireless Receiver unit 434MHz – A01) (Gobiz)<br>2 FSK (TPMS Wireless Receiver unit 434MHz – F01) (LDL)<br>2 FSK (TPMS Wireless Receiver unit 434MHz – F01) (Orange)                  |
| Duty cycle .....                           | < 1%                                                                                                                                                                                           |
| Tested frequency.....                      | 433.92 MHz                                                                                                                                                                                     |

#### 4. RESULT SUMMARY

Subpart B of the standard FCC part 15 – Unintentional radiators

| TEST DESIGNATION                                           | TEST PROCEDURE | VERDICT | COMMENTS                                |
|------------------------------------------------------------|----------------|---------|-----------------------------------------|
| <b>Measurement of conducted emission on AC mains ports</b> | 15.107         | N/A     | Not connected to AC public power supply |
| <b>Radiated emission limits</b>                            | 15.109         | PASS    |                                         |

Subpart C of the standard FCC part 15 – Intentional radiators

| TEST DESIGNATION                                               | TEST PROCEDURE | VERDICT | COMMENTS                                |
|----------------------------------------------------------------|----------------|---------|-----------------------------------------|
| <b>Restriction bands of operation</b>                          | 15.205         | PASS    | Not connected to AC public power supply |
| <b>Measurement of conducted emission on AC mains ports</b>     | 15.207         | N/A     |                                         |
| <b>Radiated emission limits; general requirements</b>          | 15.209         | PASS    |                                         |
| <b>Periodic operation in band 40.66-40.70 and above 70MHz</b>  |                |         |                                         |
| - Manually transmission timeout                                | 15.231 (a)(1)  | N/A     |                                         |
| - Automaticaly transmission timeout                            | 15.231 (a)(2)  | PASS    |                                         |
| - Field strength of fundamental                                | 15.231 (b) (1) | N/A     |                                         |
| - Field strength of spurious emissions                         | 15.231 (b) (2) | N/A     |                                         |
| - Transmitter timeout                                          | 15.231(a)(2)   | PASS    |                                         |
| - 20dB bandwidth and 99% Occupied bandwidth                    | 15.231(c)      | PASS    |                                         |
| - Field strength of fundamental (periodic transmission)        | 15.231(e)      | PASS    |                                         |
| - Field strength of spurious emissions (periodic transmission) | 15.231(e)      | PASS    |                                         |

Standard RSS-Gen Issue 5 : 2018 / AMD1 : 2019 / AMD2 : 2021

| TEST DESIGNATION                                                                 | TEST PROCEDURE | VERDICT | COMMENTS                                |
|----------------------------------------------------------------------------------|----------------|---------|-----------------------------------------|
| <b>6 Technical Requirements</b>                                                  |                |         |                                         |
| - 6.7 Occupied Bandwidth                                                         | -              | PASS    |                                         |
| - 6.12 Transmitter Output Power                                                  | -              | PASS    |                                         |
| - 6.13 Transmitter unwanted emissions                                            | -              | PASS    |                                         |
| <b>8.Licence-Exempt radio Apparatus</b>                                          |                |         |                                         |
| - 8.8 AC Power Line Conducted Emission Limits for licence-Exempt Radio Apparatus | -              | N/A     | Not connected to AC public power supply |

Standard RSS-210 Issue 9 : 2016

| TEST DESIGNATION                                                                                      | TEST PROCEDURE | VERDICT | COMMENTS |
|-------------------------------------------------------------------------------------------------------|----------------|---------|----------|
| <b>3. Certification Requirements</b>                                                                  |                |         |          |
| - 3.1 RSS-gen compliance                                                                              | -              | N/A     |          |
| <b>7. Technical specification</b>                                                                     |                |         |          |
| 7.1 Emissions falling within restricted frequency bands                                               | -              | PASS    |          |
| 7.2 General field strength limits                                                                     | -              | PASS    |          |
| 7.3 Transmitters with wanted and unwanted emissions that are within the general field strength limits | -              | PASS    |          |
| 7.4 Cordless telephones                                                                               | -              | N/A     |          |
| <b>Annex A</b>                                                                                        |                |         |          |
| A.1.1 (b) Momentarily operated devices                                                                | -              | PASS    |          |
| A.1.2 (a) FIELD STRENGTH OF FUNDAMENTAL                                                               | -              | N/A     |          |
| <b>A.1.2 (b) FIELD STRENGTH OF SPURIOUS EMISSIONS</b>                                                 | -              | N/A     |          |
| A.1.3 Bandwith of momentary signals                                                                   | -              | PASS    |          |
| A.1.4 (b) Reduce field strengths – Transmission times                                                 | -              | PASS    |          |
| A.1.4 (b) Reduce field strengths – On time transmission and silent period                             | -              | PASS    |          |
| A.1.4 (c) Reduce field strengths – Field strength                                                     | -              | PASS    |          |
| A.1.4 (d) FIELD STRENGTH OF SPURIOUS EMISSIONS – Field strength                                       | -              | PASS    |          |

To declare, or not, the compliance with the specifications, it was not explicitly taken account of uncertainty associated with the results.

Modifications : No

## 5. MEASUREMENT UNCERTAINTY

| PARAMETER                                           | MAXIMAL EMITECH<br>UNCERTAINTY   | MINIMAL STANDARD<br>UNCERTAINTY    |
|-----------------------------------------------------|----------------------------------|------------------------------------|
| Radio frequency                                     | $\pm 1 \times 10^{-7}$           | $\pm 1 \times 10^{-7}$             |
| RF power, conducted                                 |                                  |                                    |
| RF power                                            | $\pm 0.8\text{dB}$               | $\pm 1 \text{ dB}$                 |
| RF power (EN 300328 / EN 301893)                    | $\pm 1.3\text{dB}$               | $\pm 1.5 \text{ dB}$               |
| Power spectral density                              | $\pm 2.3\text{dB}$               | $\pm 3 \text{ dB}$                 |
| Occupied bandwidth                                  |                                  |                                    |
| RF power                                            | $\pm 3.8 \%$                     | $\pm 5 \%$                         |
| RF power (EN 300328 / EN 301893)                    | $\pm 3.8 \%$                     | $\pm 5 \%$                         |
| Maximum frequency deviation                         |                                  |                                    |
| 300 Hz < audio frequency < 6 kHz                    | $\pm 1.2 \%$                     | $\pm 5 \%$                         |
| 6 kHz < audio frequency < 25 kHz                    | $\pm 1.2 \%$                     | $\pm 3 \text{ dB}$                 |
| Adjacent channel power                              | $\pm 1.6 \text{ dB}$             | $\pm 3 \text{ dB}$                 |
| Sensibility of receiver (conducted)                 | $\pm 2.0 \text{ dB}$             | $\pm 3 \text{ dB}$                 |
| Blocking                                            | $\pm 4.0 \text{ dB}$             | $\pm 4 \text{ dB}$                 |
| Transient                                           |                                  |                                    |
| Amplitude                                           | $\pm 8.5 \%$                     | $\pm 20 \%$                        |
| At the frequency                                    | $\pm 166 \text{ Hz}$             | $\pm 250 \text{ Hz}$               |
| Conducted emission (spurious)                       |                                  |                                    |
| $f \leq 1 \text{ GHz}$                              | $\pm 0.8 \text{ dB}$             | $\pm 3 \text{ dB}$                 |
| 1 GHz - 12.75 GHz                                   | $\pm 1.6 \text{ dB}$             |                                    |
| Radiated emission (PAR / PIRE / RNE)                |                                  |                                    |
| $f \leq 62.5 \text{ MHz}$                           | $\pm 5.7 \text{ dB}$             | $\pm 6 \text{ dB}$                 |
| 62.5 MHz - 1 GHz                                    | $\pm 5.8 \text{ dB}$             | $\pm 6 \text{ dB}$                 |
| 1 GHz - 18 GHz                                      | $\pm 5.6 \text{ dB}$             | $\pm 6 \text{ dB}$                 |
| 18 GHz – 40 GHz                                     | $\pm 5.6 \text{ dB}$             | $\pm 6 \text{ dB}$                 |
| 40 GHz – 110 GHz                                    | $\pm 5.9 \text{ dB}$             | Between $\pm 6$ to $10 \text{ dB}$ |
| 180-1000 MHz / 1 – 12.75 GHz (EN 301 908-1)         | $\pm 3.0 / 2.9 \text{ dB}$       | $\pm 3 \text{ dB}$                 |
| RF power (EN 300328 / EN 301893)                    | $\pm 5.3 \text{ dB}$             | $\pm 6 \text{ dB}$                 |
| PIRE and power spectral density with diode          | $\pm 5.7 \text{ dB}$             | $\pm 6 \text{ dB}$                 |
| Radiated emission (magnetic field)                  |                                  |                                    |
| 9kHz – 30MHz                                        | $\pm 3.4 \text{ dB}$             | $\pm 6 \text{ dB}$                 |
| RF level for a given BER                            | $\pm 0.8 \text{ dB}$             | $\pm 1.5 \text{ dB}$               |
| Supply voltages                                     | $\pm 3 \%$                       | $\pm 3 \%$                         |
| Temperature                                         | $\pm 1 \text{ }^{\circ}\text{C}$ | $\pm 1^{\circ}\text{C}$            |
| Humidity                                            | $\pm 5 \%$                       | $\pm 5 \%$                         |
| Time / Duty cycle                                   | $\pm 4.4 \%$                     | $\pm 5 \%$                         |
| Adaptivity                                          | $\pm 2.9 \text{ dB}$             | /                                  |
| Conducted emission (FCC)                            |                                  |                                    |
| (Artificial Mains Network) 150kHz – 30MHz           | $\pm 3.4 \text{ dB}$             | $\pm 3.4 \text{ dB}$               |
| Radiated emission (electric field for FCC standard) |                                  |                                    |
| 9kHz – 30MHz                                        | $\pm 2.7 \text{ dB}$             | /                                  |
| 30MHz – 1GHz                                        | $\pm 5.0 \text{ dB}$             | /                                  |
| 1GHz – 18GHz                                        | $\pm 5.3 \text{ dB}$             | /                                  |
| 18GHz – 40GHz                                       | $\pm 6.1 \text{ dB}$             | /                                  |
| 40GHz – 140GHz                                      | $\pm 5.7 \text{ dB}$             | /                                  |

For the calcul of expanded uncertainty, the confidence interval is 95 % (k=2).

## 6. TEST CONDITIONS AND RESULTS

### 6.1. On time transmission and silent period

|                                                                                                                                                                  |                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| <b>Reference standard:</b>                                                                                                                                       | FCC 47 CFR PART 15 : 2022<br>RSS-210 Issue 10: 2019 |
| <b>Test method:</b>                                                                                                                                              | FCC part 15 § 15.231 (e)<br>RSS-210 Annex A.1.4 (b) |
| <b>General test setup:</b> E.U.T. is set on an insulating support at 150 cm above the ground reference plane.<br>Measurement are done on a normalized test site. |                                                     |

| LABORATORY PARAMETERS:           | REQUIRED PRIOR TO THE TEST | DURING THE TEST |
|----------------------------------|----------------------------|-----------------|
| Ambient Temperature              | 10 to 40 °C                | 25°C            |
| Relative Humidity                | 10 to 90 %                 | 40 %            |
| Atmospheric pressure             | N/A                        | N/A             |
| <b>Test method deviation:</b> No |                            |                 |
| Supplementary information: -     |                            |                 |

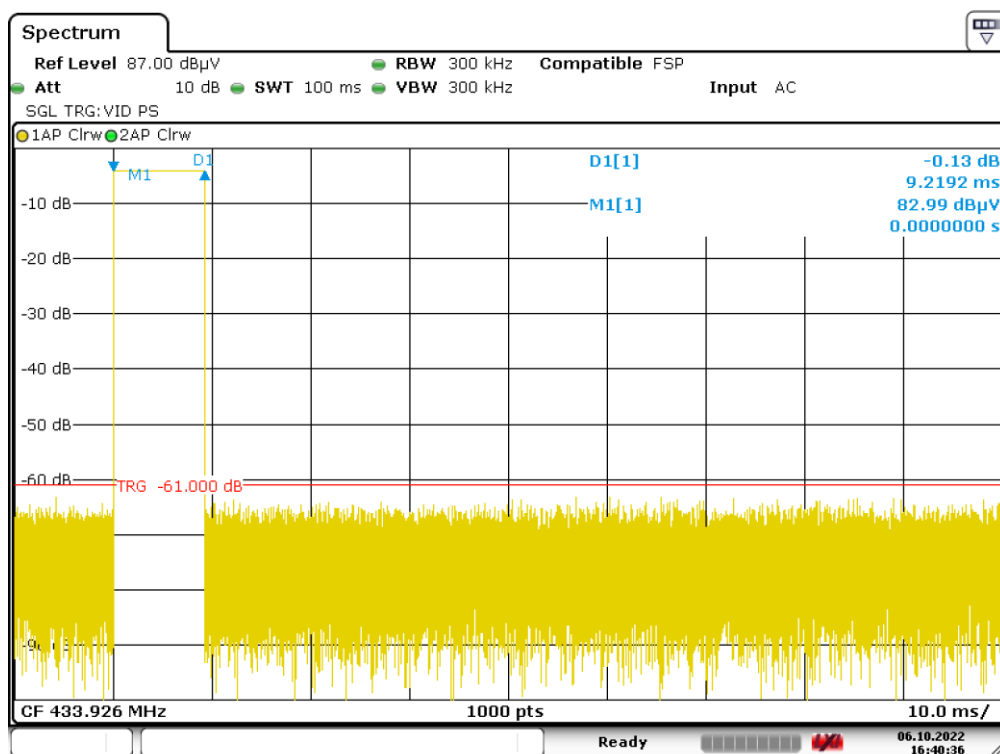
| TEST EQUIPMENT USED |                 |        |            |            |            |
|---------------------|-----------------|--------|------------|------------|------------|
| CATEGORY            | BRAND           | TYPE   | IDENTIFIER | CAL. DATE  | CAL. DUE   |
| Antenna             | Rohde & Schwarz | HL223  | 00294      | 21/04/2020 | 21/06/2023 |
| Cable               | C&C             | N-5m   | 11184      | 25/02/2022 | 25/04/2024 |
| Cable               | C&C             | N-4m   | 14226      | 25/02/2022 | 25/04/2024 |
| Cable               | Micro-Coax      | N-8m   | 08061      | 25/02/2022 | 25/04/2024 |
| Receiver            | Rohde & Schwarz | ESRP7  | 10517      | 16/08/2022 | 16/10/2024 |
| Shielded enclosure  | Comtest         | SAC 3m | 14622      | 27/04/2022 | 27/06/2025 |

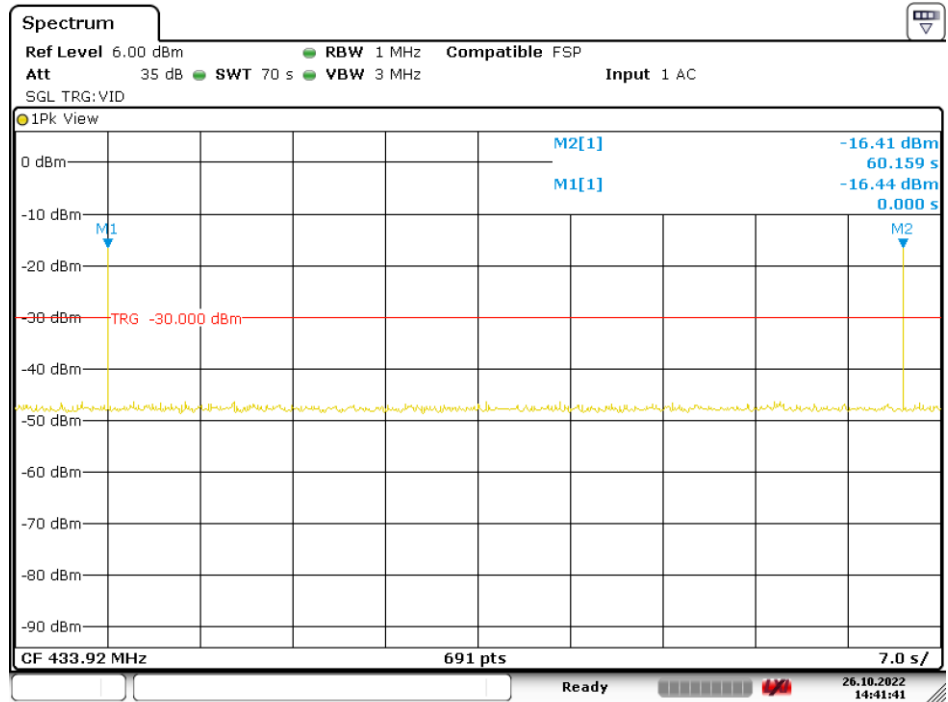
Blank cells = Permanent validity

## On time and duty cycle

| E.U.T.                                                       | Transmission time (On time) (ms) | Limit of transmission time (s) | Silent period (Off time) (ms) | Limit of Silent period (s) |
|--------------------------------------------------------------|----------------------------------|--------------------------------|-------------------------------|----------------------------|
| 720-31182(TPMS Wireless Receiver unit 434MHz – F02) (Orange) | 9.22                             | ≤60                            | 60.159                        | (1)                        |

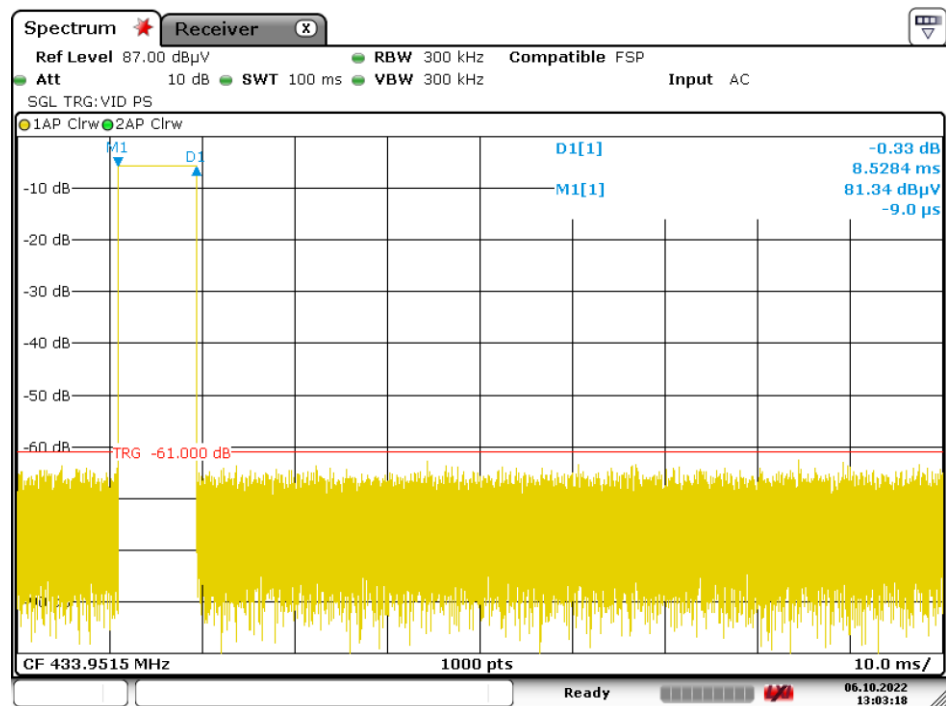
(1): ≥30 time of transmission duration but not less 10s



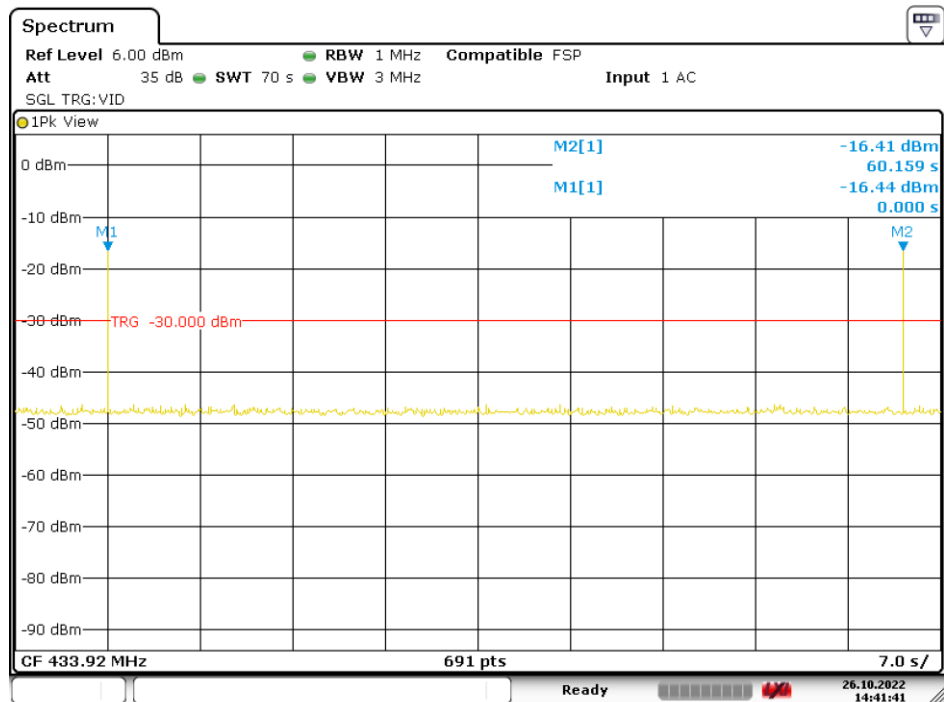


| E.U.T.                                                       | Transmission time (On time) (ms) | Limit of transmission time (s) | Silent period (Off time) (ms) | Limit of Silent period (s) |
|--------------------------------------------------------------|----------------------------------|--------------------------------|-------------------------------|----------------------------|
| 720-31181 (TPMS Wireless Receiver unit 434MHz – A01) (Gobiz) | 8.528                            | ≤60                            | 60.159                        | (1)                        |

(1): ≥30 time of transmission duration but not less 10s

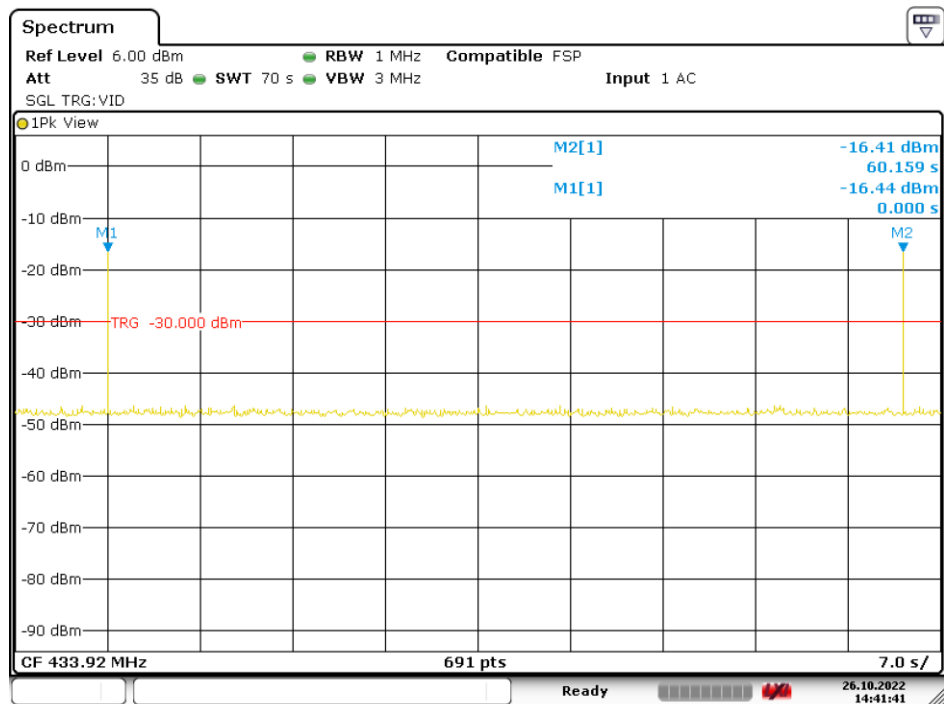
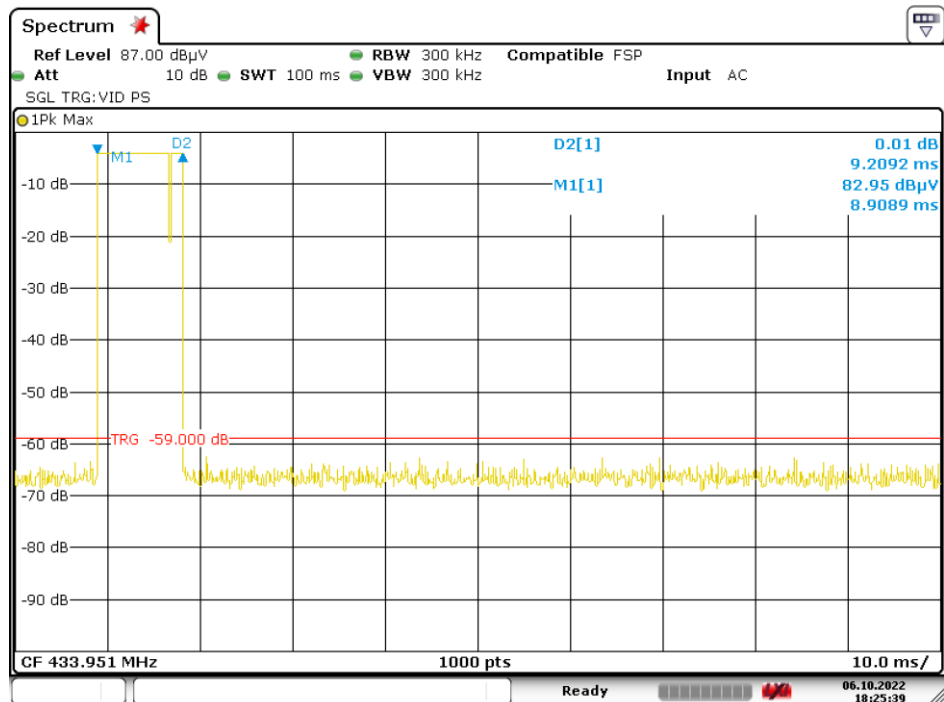


Date: 6.OCT.2022 13:03:18



| E.U.T.                                                     | Transmission time (On time) (ms) | Limit of transmission time (s) | Silent period (Off time) (ms) | Limit of Silent period (s) |
|------------------------------------------------------------|----------------------------------|--------------------------------|-------------------------------|----------------------------|
| 720-31180 (TPMS Wireless Receiver unit 434MHz – F01) (LDL) | 9.209                            | ≤60                            | 60.159                        | (1)                        |

(1): ≥30 time of transmission duration but not less 10s

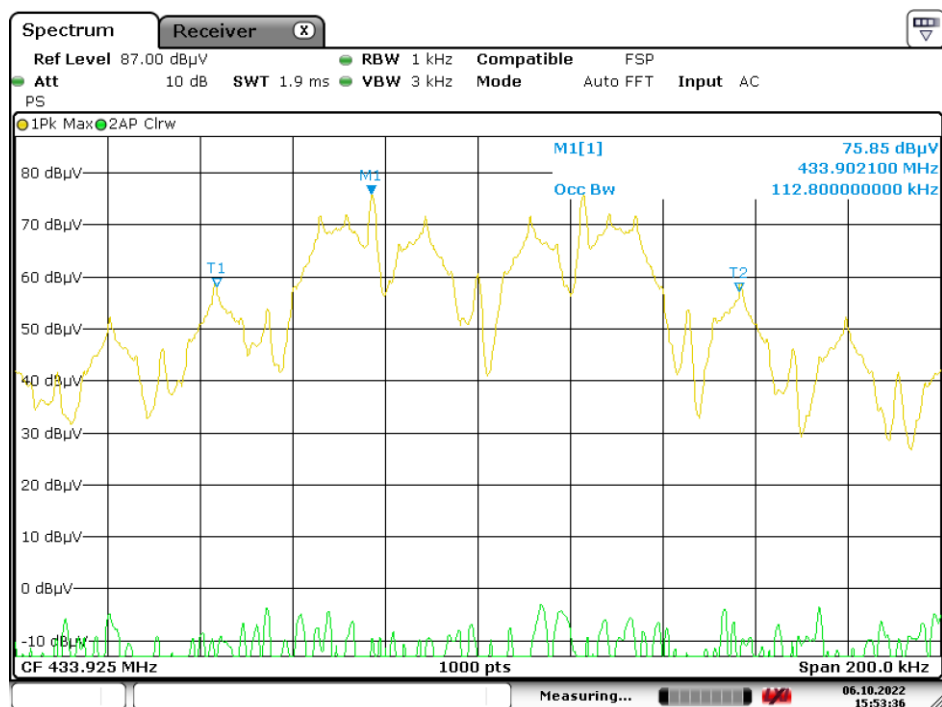


## 6.2. 20dB bandwidth and 99% Occupied bandwidth

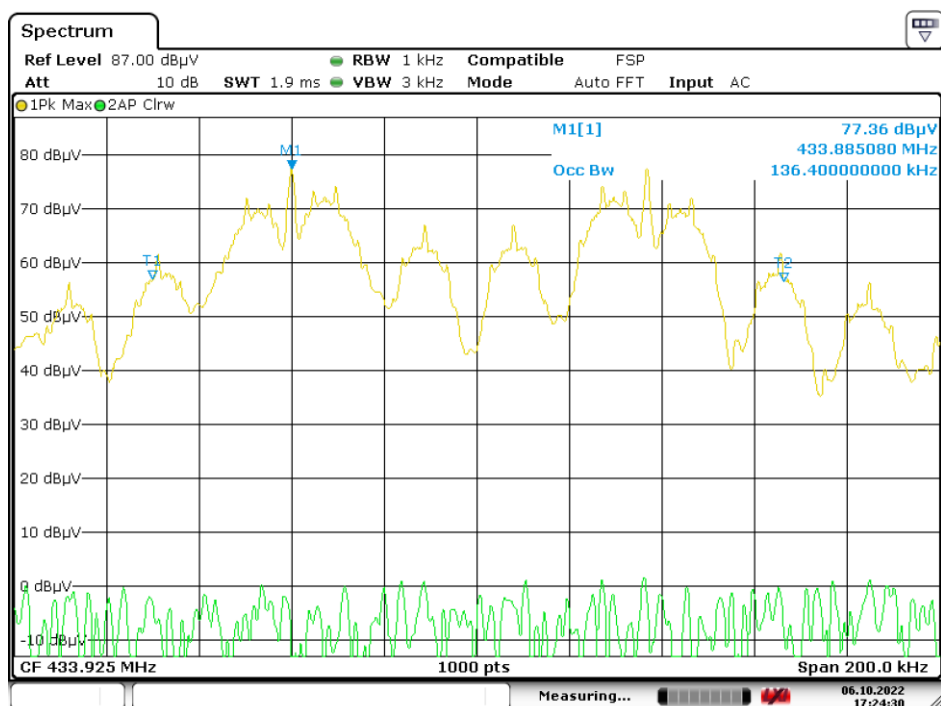
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reference standard:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FCC 47 CFR PART 15 : 2022<br>RSS-210 Issue 10: 2019<br>RSS-Gen Issue 5 : 2018 / AMD1 : 2019 / AMD2 : 2021                                    |
| <b>Test method:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | § 15.231 (c ) of FCC 47 CFR PART 15 : 2022<br>A.1.3 of RSS-210 Issue 9 : 2016<br>§ 6.7 of RSS-Gen Issue 5 : 2018 / AMD1 : 2019 / AMD2 : 2021 |
| <b>General test setup:</b> E.U.T. is set on an insulating support at 150 cm above the ground reference plane.<br>The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected.<br>For portable equipments a research of maximum level is done on the 3 axes. Only the highest levels are recorded. |                                                                                                                                              |

### 99% Bandwidth

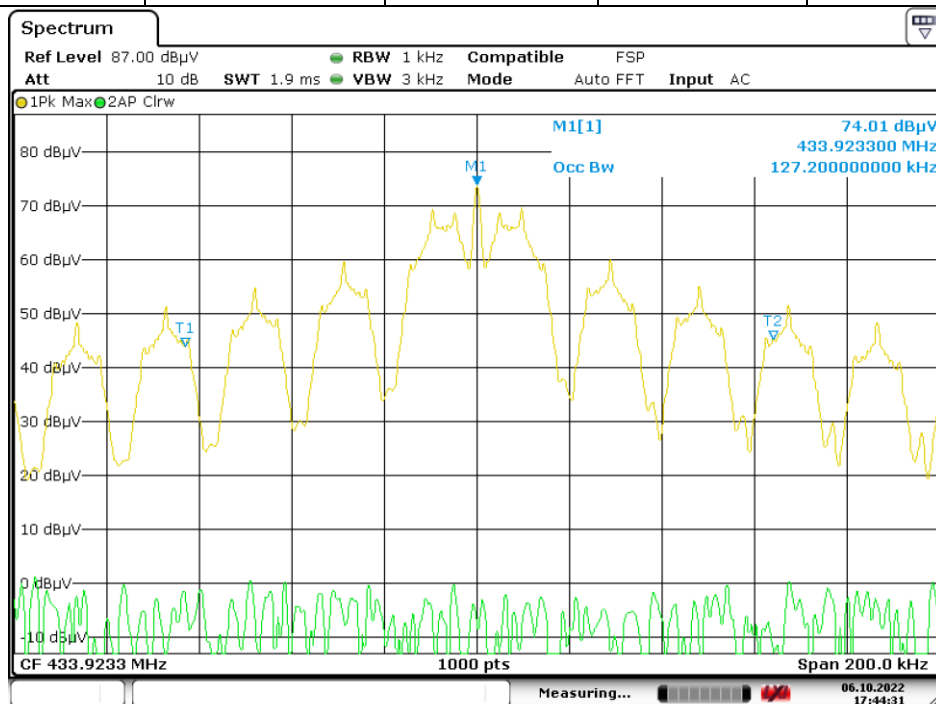
| E.U.T.                                                     | Antenna type | Frequency     | Results (kHz) | Limit (MHz) |
|------------------------------------------------------------|--------------|---------------|---------------|-------------|
| 720-31180 (TPMS Wireless Receiver unit 434MHz – F01) (LDL) | internal     | <b>433.92</b> | 112.8         | 1.08        |



| E.U.T. position                                                       | Antenna type | Frequency     | Results (kHz) | limit (MHz) |
|-----------------------------------------------------------------------|--------------|---------------|---------------|-------------|
| 720-31182(TPMS<br>Wireless Receiver<br>unit 434MHz – F02)<br>(Orange) | internal     | <b>433.92</b> | 136.4         | 1.08        |



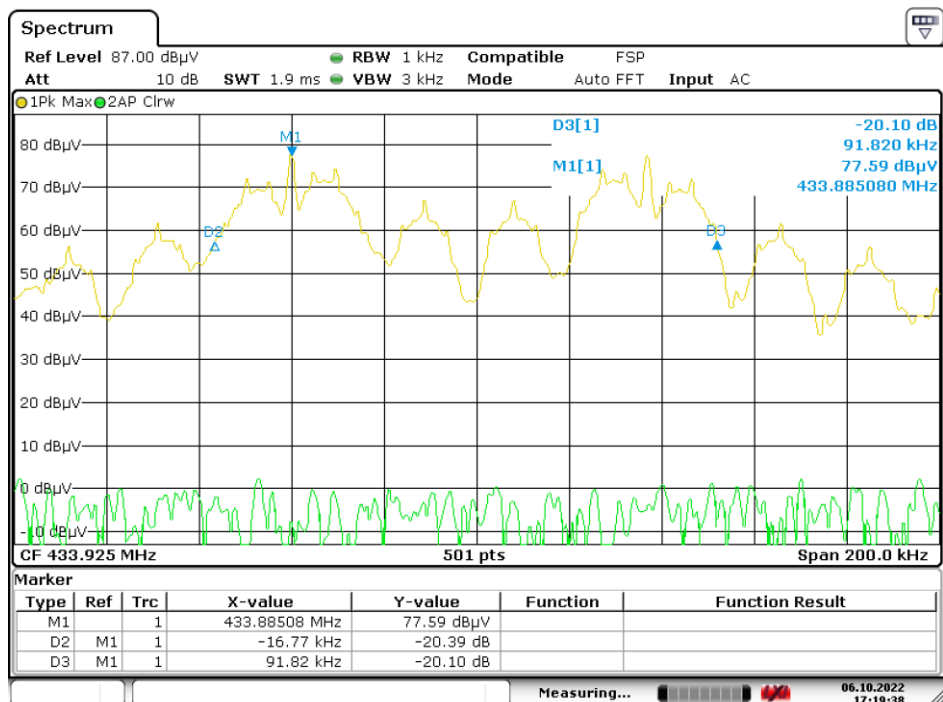
| E.U.T. position                                              | Antenna type | Frequency | Results (KHz) | Limit (MHz) |
|--------------------------------------------------------------|--------------|-----------|---------------|-------------|
| 720-31181 (TPMS Wireless Receiver unit 434MHz – A01) (Gobiz) | internal     | 433.92    | 127.2         | 1.08        |



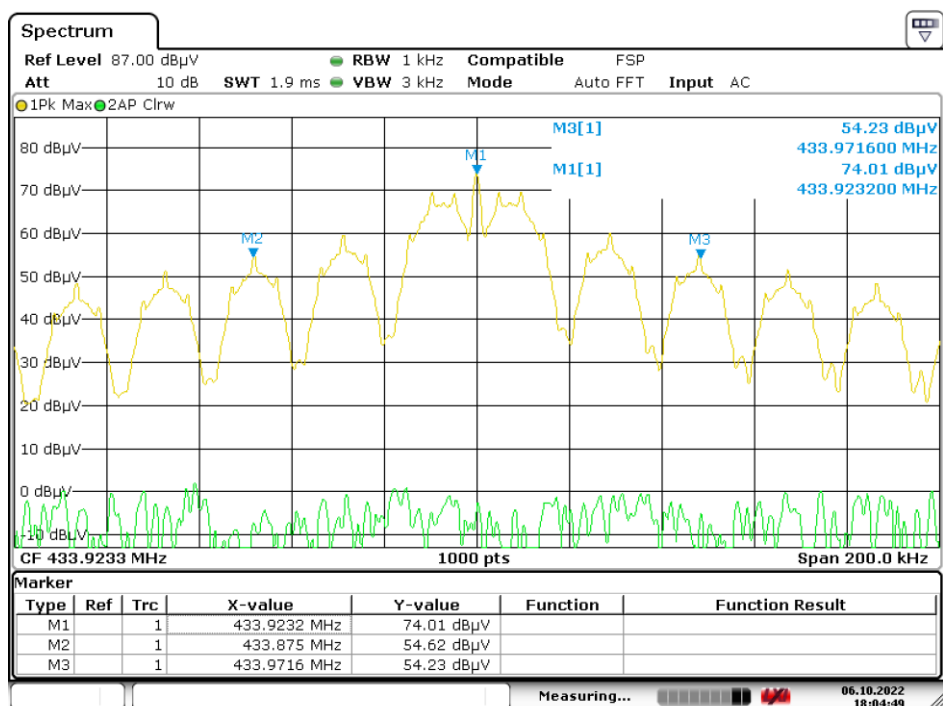
| E.U.T.                                                     | Antenna type | Frequency     | Results (kHz) | Limit (MHz) |
|------------------------------------------------------------|--------------|---------------|---------------|-------------|
| 720-31180 (TPMS Wireless Receiver unit 434MHz – F01) (LDL) | internal     | <b>433.92</b> | 80.6          | 1.08        |



| E.U.T. position                                              | Antenna type | Frequency     | Results (kHz) | limit (MHz) |
|--------------------------------------------------------------|--------------|---------------|---------------|-------------|
| 720-31182(TPMS Wireless Receiver unit 434MHz – F02) (Orange) | internal     | <b>433.92</b> | 108.6         | 1.08        |



| E.U.T. position                                              | Antenna type | Frequency     | Results (kHz) | limit (MHz) |
|--------------------------------------------------------------|--------------|---------------|---------------|-------------|
| 720-31181 (TPMS Wireless Receiver unit 434MHz – A01) (Gobiz) | internal     | <b>433.92</b> | 96.6          | 1.08        |



### 6.3. Transmitter output power

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Reference standard:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FCC 47 CFR PART 15 : 2022<br>RSS-210 Issue 9 : 2016                             |
| <b>Test method:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | § 15.231(e) of FCC 47 CFR PART 15 : 2022<br>§ A.1.4 © of RSS-210 Issue 9 : 2016 |
| <p><b>General test setup:</b> E.U.T. is set on an insulating support at 150 cm above the ground reference plane. Measurement are done on a normalized test site.</p> <p>The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected.</p> <p>For portable equipments a research of maximum level is done on the 3 axes. Only the highest levels are recorded.</p> |                                                                                 |

| LABORATORY PARAMETERS:           | REQUIRED PRIOR TO THE TEST | DURING THE TEST |
|----------------------------------|----------------------------|-----------------|
| Ambient Temperature              | 10 to 40 °C                | 25°C            |
| Relative Humidity                | 10 to 90 %                 | 40 %            |
| Atmospheric pressure             | N/A                        | N/A             |
| <b>Test method deviation:</b> No |                            |                 |
| Supplementary information: -     |                            |                 |

| TEST EQUIPMENT USED |                 |           |            |            |            |
|---------------------|-----------------|-----------|------------|------------|------------|
| CATEGORY            | BRAND           | TYPE      | IDENTIFIER | CAL. DATE  | CAL. DUE   |
| Antenna             | ETS lindgren    | 3142E     | 14287      | 18/03/2021 | 18/05/2024 |
| Antenna             | Emco            | 3121C-DB4 | 14695      | 27/08/2020 | 27/10/2023 |
| Cable               | C&C             | N-5m      | 11184      | 25/02/2022 | 25/04/2024 |
| Cable               | C&C             | N-4m      | 14226      | 25/02/2022 | 25/04/2024 |
| Cable               | Huber + Suhner  | N-2m      | 11417      | 25/02/2022 | 25/04/2024 |
| Cable               | Micro-Coax      | N-8m      | 08061      | 25/02/2022 | 25/04/2024 |
| Cable               | Huber + Suhner  | N-10m     | 17268      | 03/12/2020 | 03/02/2023 |
| Milliwattmeter      | Rohde & Schwarz | NRVD      | 14419      | 07/04/2021 | 07/06/2023 |
| Power probe         | Rohde & Schwarz | NRV-Z1    | 14420      | 01/03/2021 | 01/05/2023 |
| Receiver            | Rohde & Schwarz | ESRP7     | 10517      | 16/08/2022 | 16/10/2024 |
| Shielded enclosure  | Comtest         | SAC 3m    | 14622      | 27/04/2022 | 27/06/2025 |
| Synthesizer         | Rohde & Schwarz | SMB100A   | 12817      | 22/01/2021 | 22/03/2024 |

Blank cells = Permanent validity

## FCC results

| E.U.T.                                                                   | Frequency         | Electro-magnetic field(*)<br>(dBμV/m) | Duty cycle<br>factor (dB)<br>(1) | Final<br>Result<br>(dBμV/m) | Limit<br>(dBμV/m) |
|--------------------------------------------------------------------------|-------------------|---------------------------------------|----------------------------------|-----------------------------|-------------------|
| 720-31182(TPMS<br>Wireless Receiver<br>unit 434MHz –<br>F02) (Orange)    | <b>433.92 MHz</b> | 100.8                                 | 31.9                             | 68.9                        | 80.8              |
| 720-31181<br>(TPMS Wireless<br>Receiver unit<br>434MHz – A01)<br>(Gobiz) |                   | 103.7                                 | 31.9                             | 71.8                        | 80.8              |
| 720-31180<br>(TPMS Wireless<br>Receiver unit<br>434MHz – F01)<br>(LDL)   |                   | 105.1                                 | 32.6                             | 72.5                        | 80.8              |

(1) Duty cycle factor =  $20\log(T_{on}/T_{off})$

(2) Linear interpolation with, f, MHz: For 260-470MHz: Field strength ( $\mu\text{V/m}$ ) =  $(41.67 \cdot f) - 7083$

E.U.T. position:



#### 6.4. Intentional radiated emissions and transmitter unwanted emission in the band 9 kHz – 6 GHz

|                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reference standard:</b>                                                                                                                                                                                                                                                                                                                                                   | FCC 47 CFR PART 15 : 2022<br>RSS-Gen Issue 9 : 2016<br>RSS-210 Issue 9: 2016                                                                                          |
| <b>Test method:</b>                                                                                                                                                                                                                                                                                                                                                          | § 15.205; § 15.209 and § 15.231 (e) of FCC 47 CFR PART 15 : 2022<br>§ 6.13 of RSS-Gen Issue 5 : 2018 / AMD1 : 2019 / AMD2 : 2021<br>A.1.4(d) of RSS-210 Issue 9: 2016 |
| <b>General test setup:</b> E.U.T. is set on an insulating support at 0.8 m (<1GHz) and 1.5 m (>1GHz) above the ground reference plane.<br>For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane for 9 kHz - 25 GHz. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization. |                                                                                                                                                                       |

| TESTED CONFIGURATION                   | PARAMETER  | VERDICT     |
|----------------------------------------|------------|-------------|
| Maxhold 360° - Parallel antenna        | 9kHz-30MHz | <b>PASS</b> |
| Maxhold 360° - Parallel antenna        | 9kHz-30MHz | <b>PASS</b> |
| Maxhold 360° - Parallel antenna        | 9kHz-30MHz | <b>PASS</b> |
| Maxhold 360° - Horizontal polarization | 30MHz-1GHz | <b>PASS</b> |
| Maxhold 360° - Vertical polarization   | 30MHz-1GHz | <b>PASS</b> |
| Maxhold 360° - Horizontal polarization | 1GHz-6GHz  | <b>PASS</b> |
| Maxhold 360° - Vertical polarization   | 1GHz-6GHz  | <b>PASS</b> |

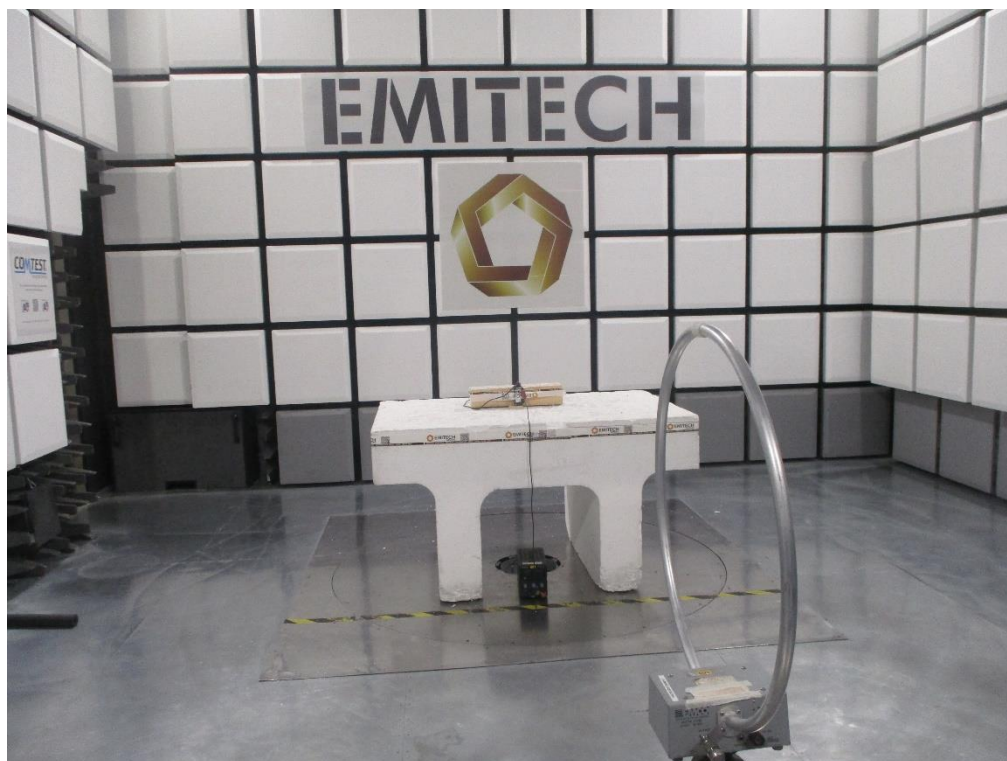
| LABORATORY PARAMETERS:           | REQUIRED PRIOR TO THE TEST | DURING THE TEST |
|----------------------------------|----------------------------|-----------------|
| Ambient Temperature              | 10 to 40 °C                | 25°C            |
| Relative Humidity                | 10 to 90 %                 | 40%             |
| Atmospheric pressure             | N/A                        | N/A             |
| <b>Test method deviation:</b> No |                            |                 |
| Supplementary information:       |                            |                 |

| TEST EQUIPMENT USED |                 |               |            |            |            |
|---------------------|-----------------|---------------|------------|------------|------------|
| CATEGORY            | BRAND           | TYPE          | IDENTIFIER | CAL. DATE  | CAL. DUE   |
| Amplifier           | Hewlett Packard | 8447F H64     | 16970      | 28/03/2022 | 28/05/2023 |
| Antenna             | Rohde & Schwarz | HL223         | 00294      | 21/04/2020 | 21/06/2023 |
| Antenna             | Rohde & Schwarz | HK116         | 00293      | 30/09/2021 | 30/11/2024 |
| Antenna             | Emco            | 3115          | 00941      | 01/03/2022 | 01/05/2025 |
| Antenna             | Emco            | 6502          | 09579      | 16/08/2021 | 16/10/2023 |
| Cable               | C&C             | N-5m          | 11184      | 25/02/2022 | 25/04/2024 |
| Cable               | C&C             | N-4m          | 14226      | 25/02/2022 | 25/04/2024 |
| Cable               | Huber + Suhner  | N-2m          | 11417      | 25/02/2022 | 25/04/2024 |
| Cable               | Micro-Coax      | N-8m          | 08061      | 25/02/2022 | 25/04/2024 |
| Filter              | Trilithic       | 5EHLX500-3-KK | 01529      | 20/10/2022 | 20/12/2025 |
| Receiver            | Rohde & Schwarz | ESRP7         | 10517      | 16/08/2022 | 16/10/2024 |
| Shielded enclosure  | Comtest         | SAC 3m        | 14622      | 27/04/2022 | 27/06/2025 |
| Software            | Nexio           | BAT EMC       | 00000      |            |            |

BAT-EMC software version: V3.18.0.26

Blank cells = Permanent validity

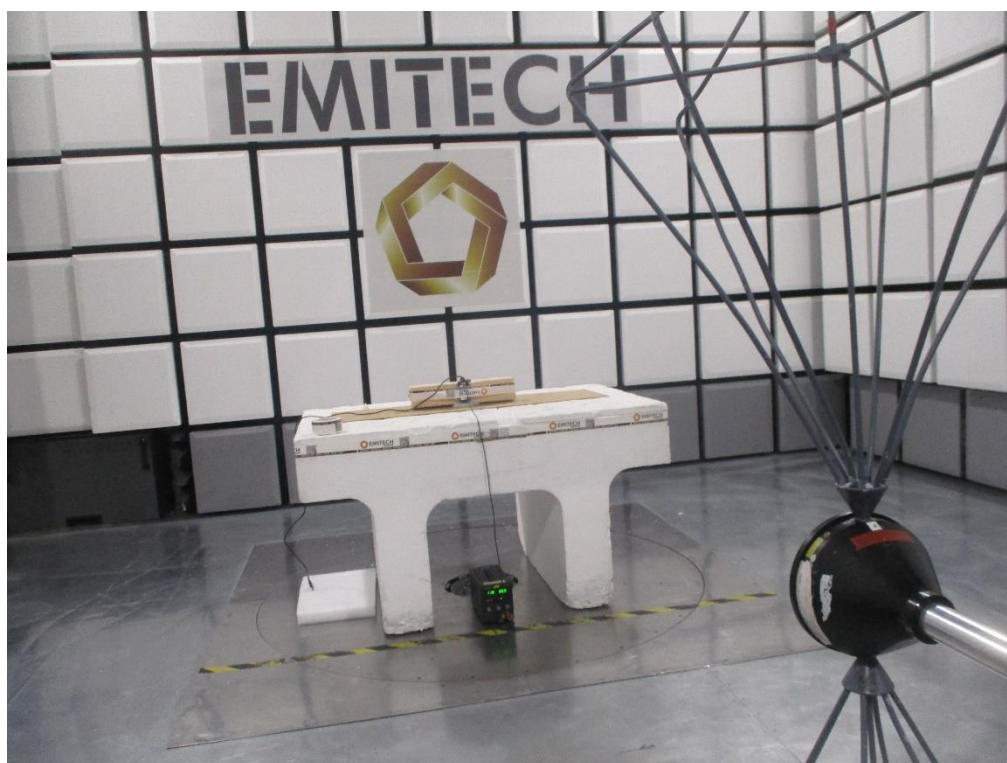
TEST SETUP PHOTOS - 9kHz – 30MHz



TEST SETUP PHOTOS - 9kHz – 30MHz

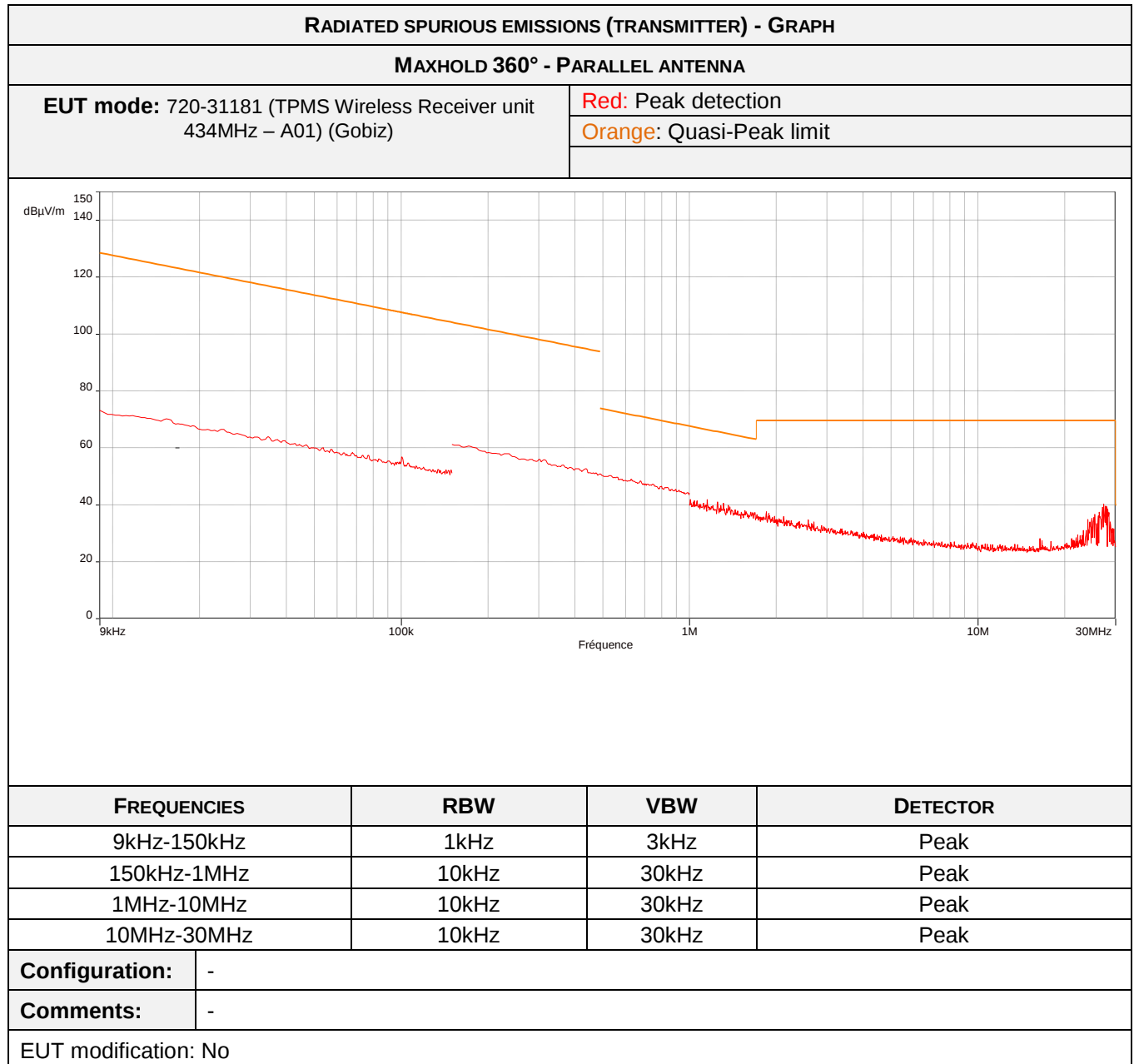


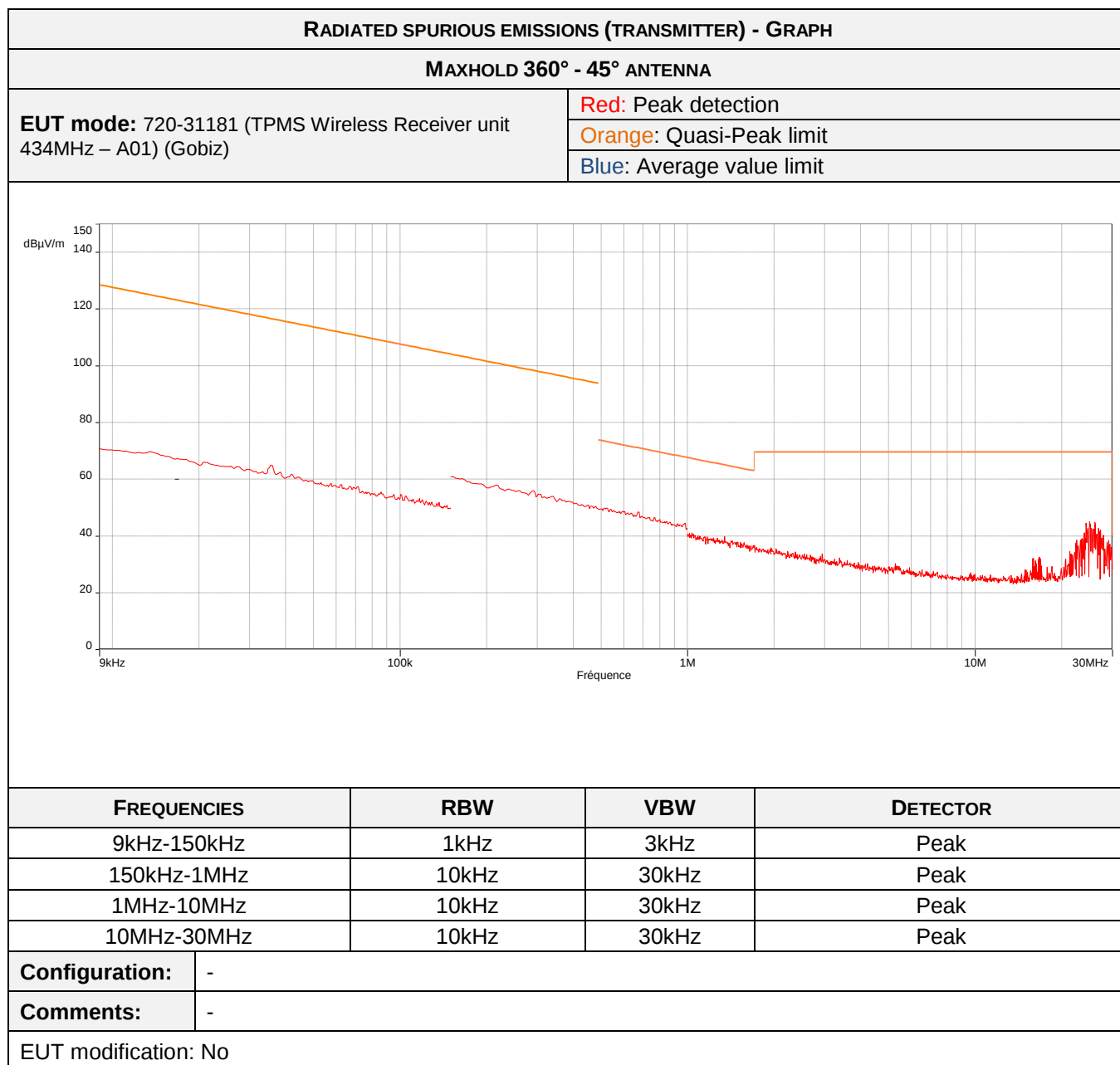
TEST SETUP PHOTOS - 30MHz – 1GHz

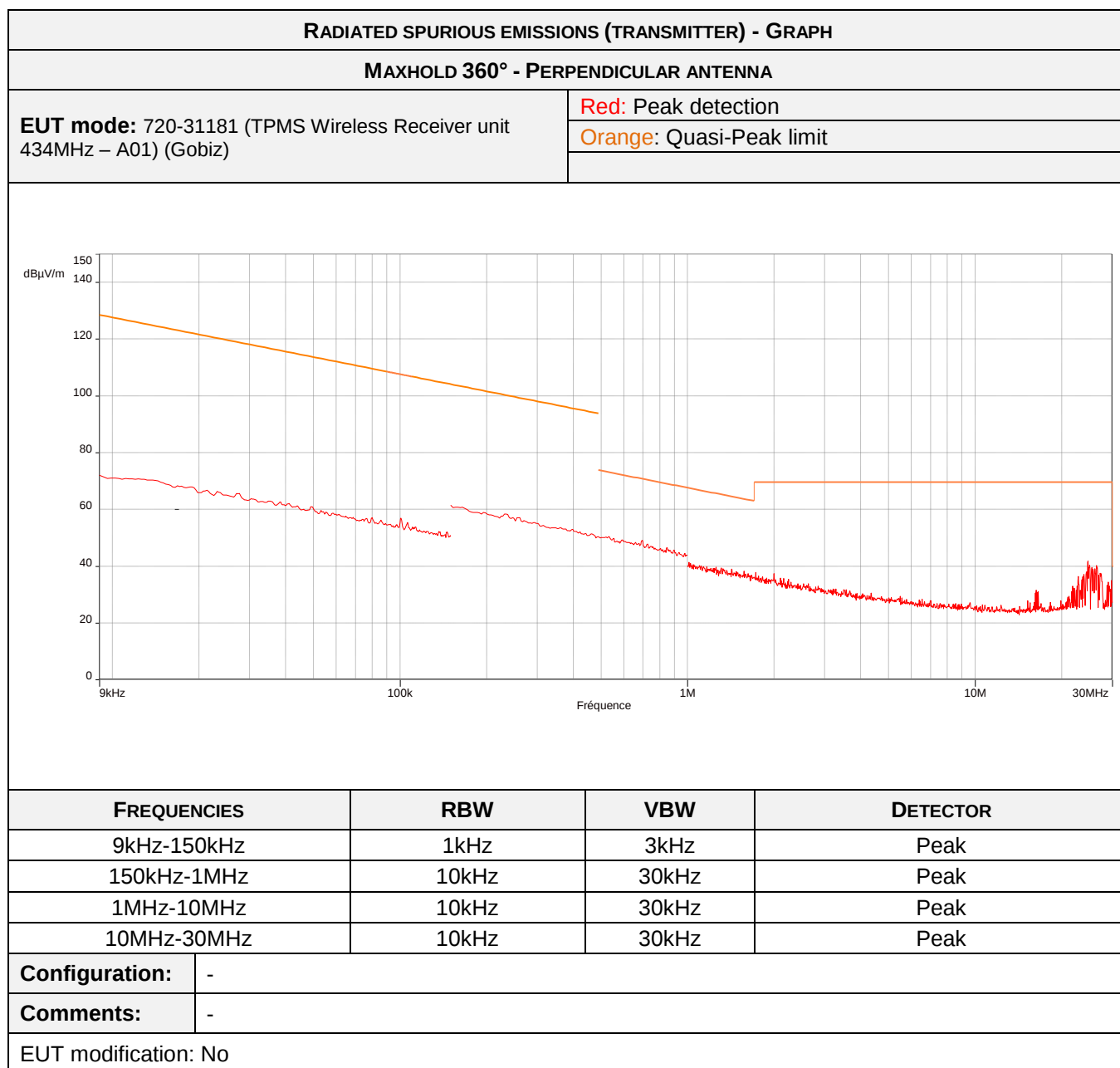


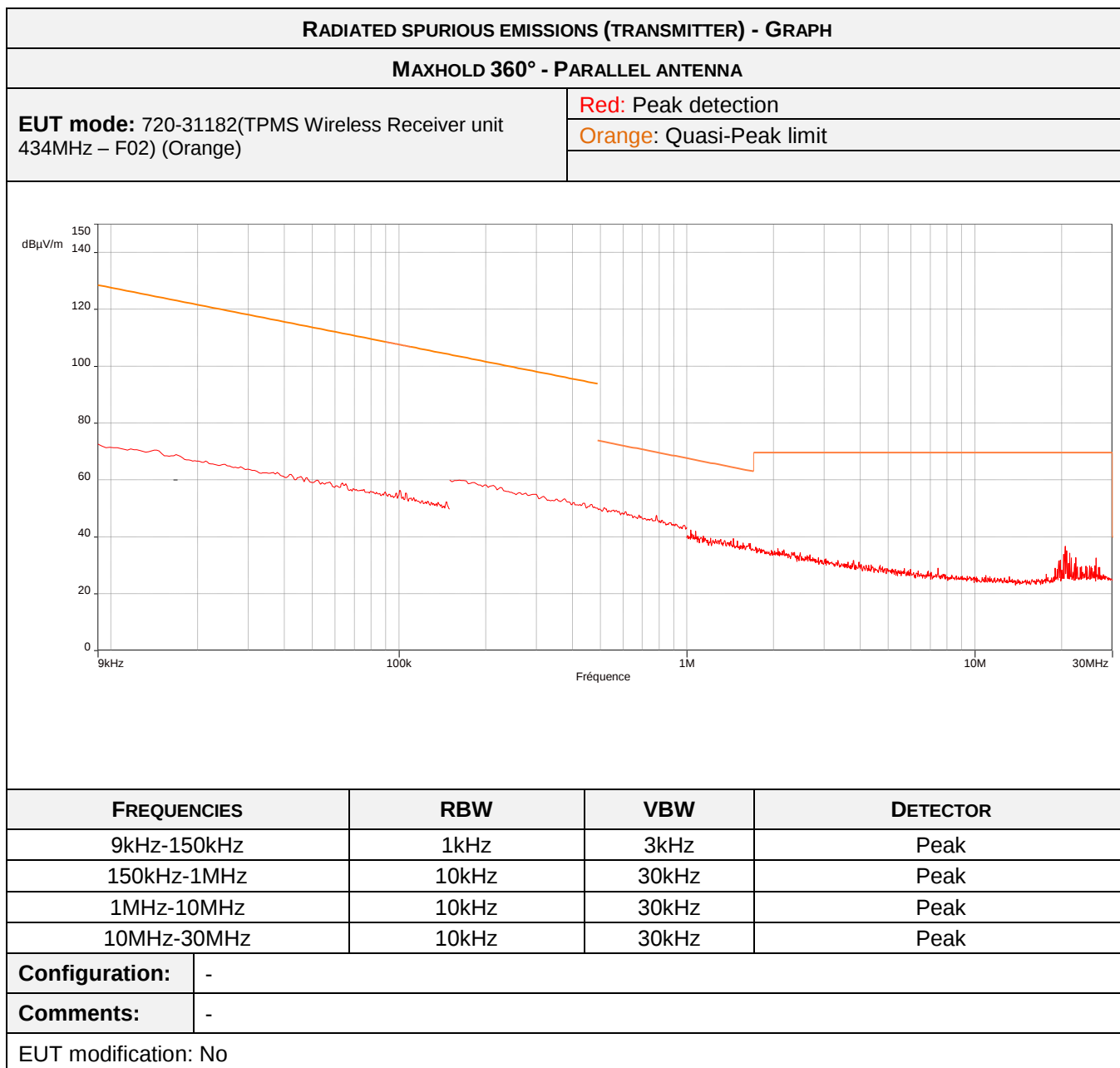
TEST SETUP PHOTO - 1GHz – 6GHz

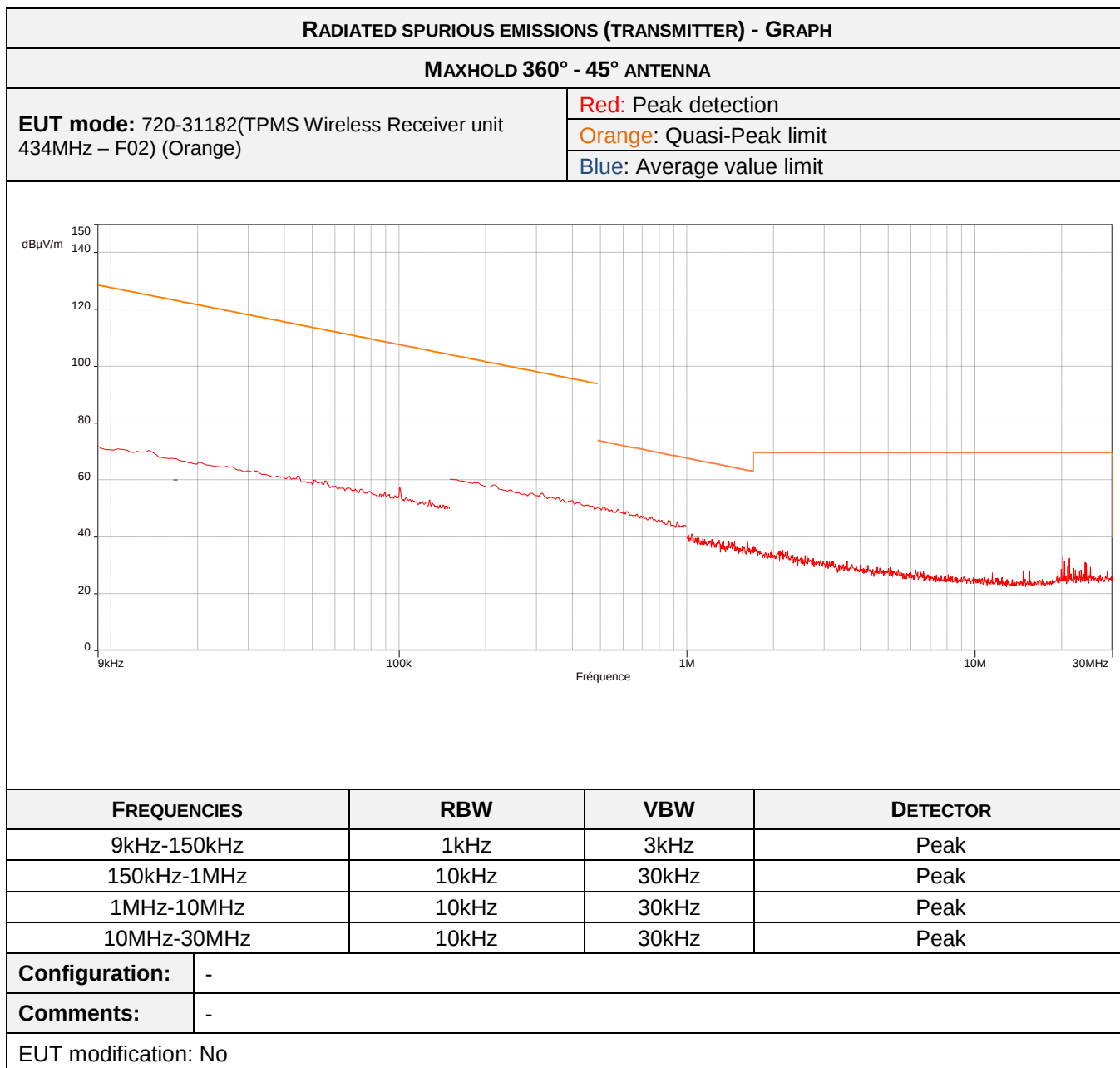


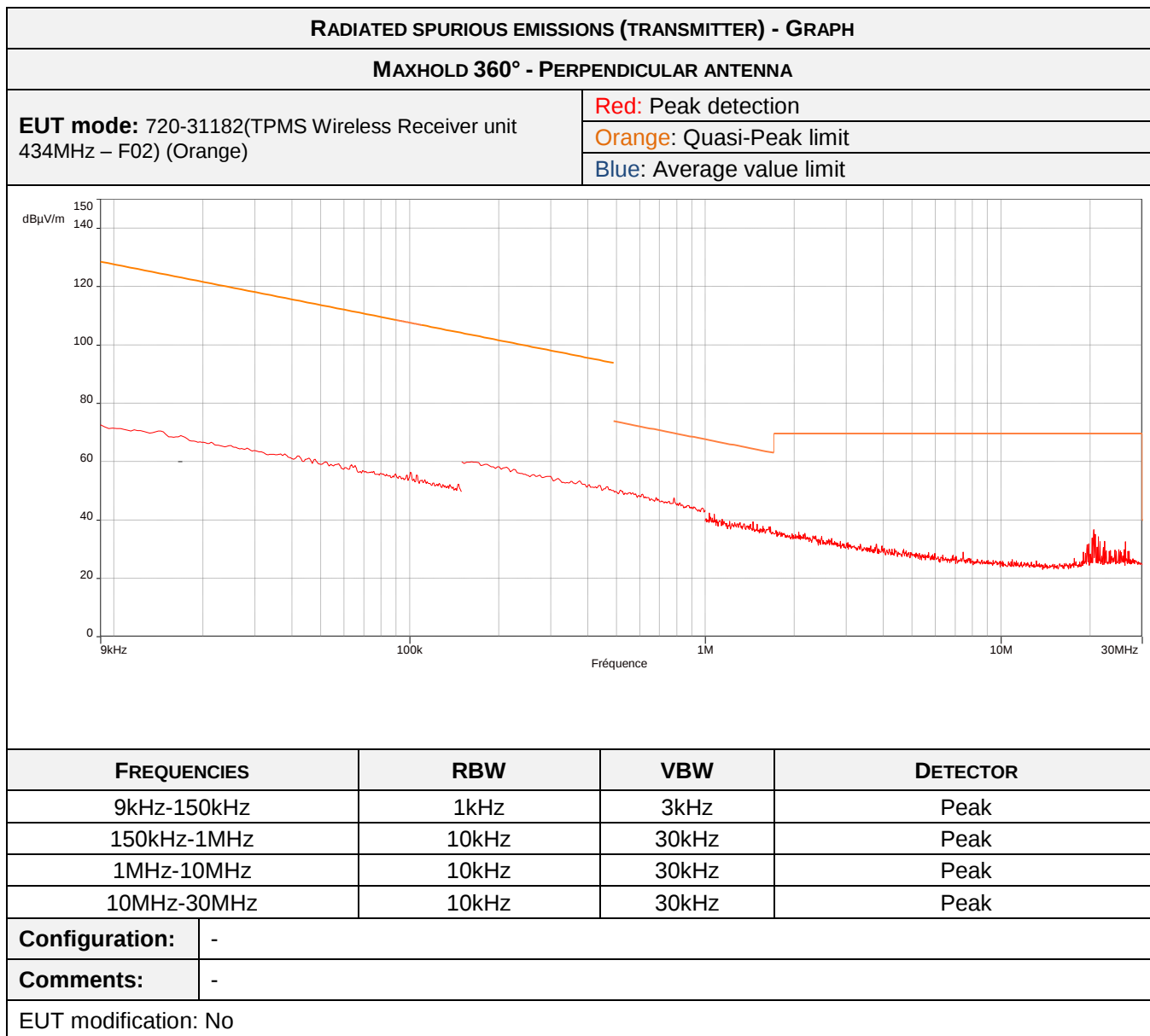


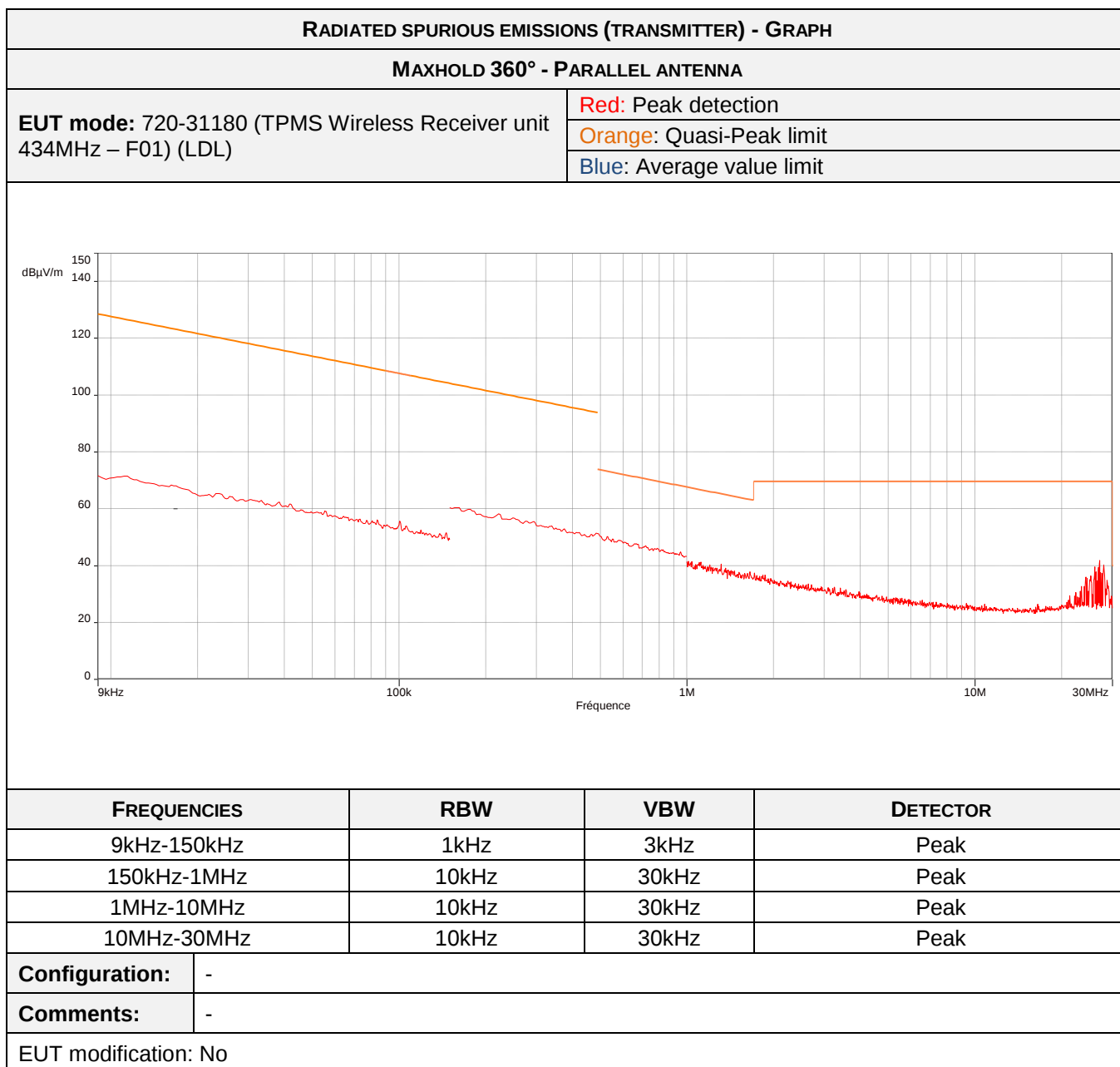


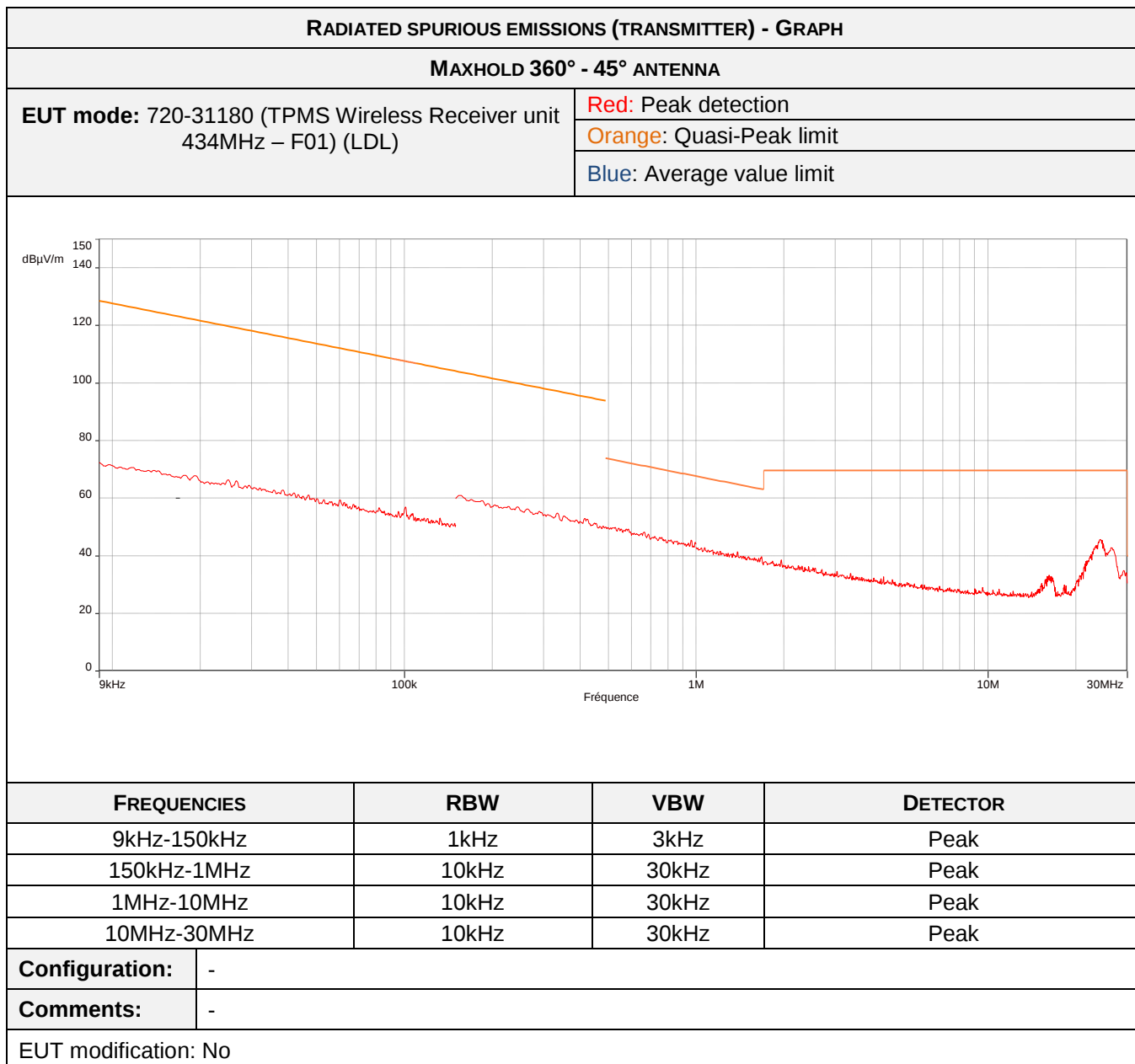


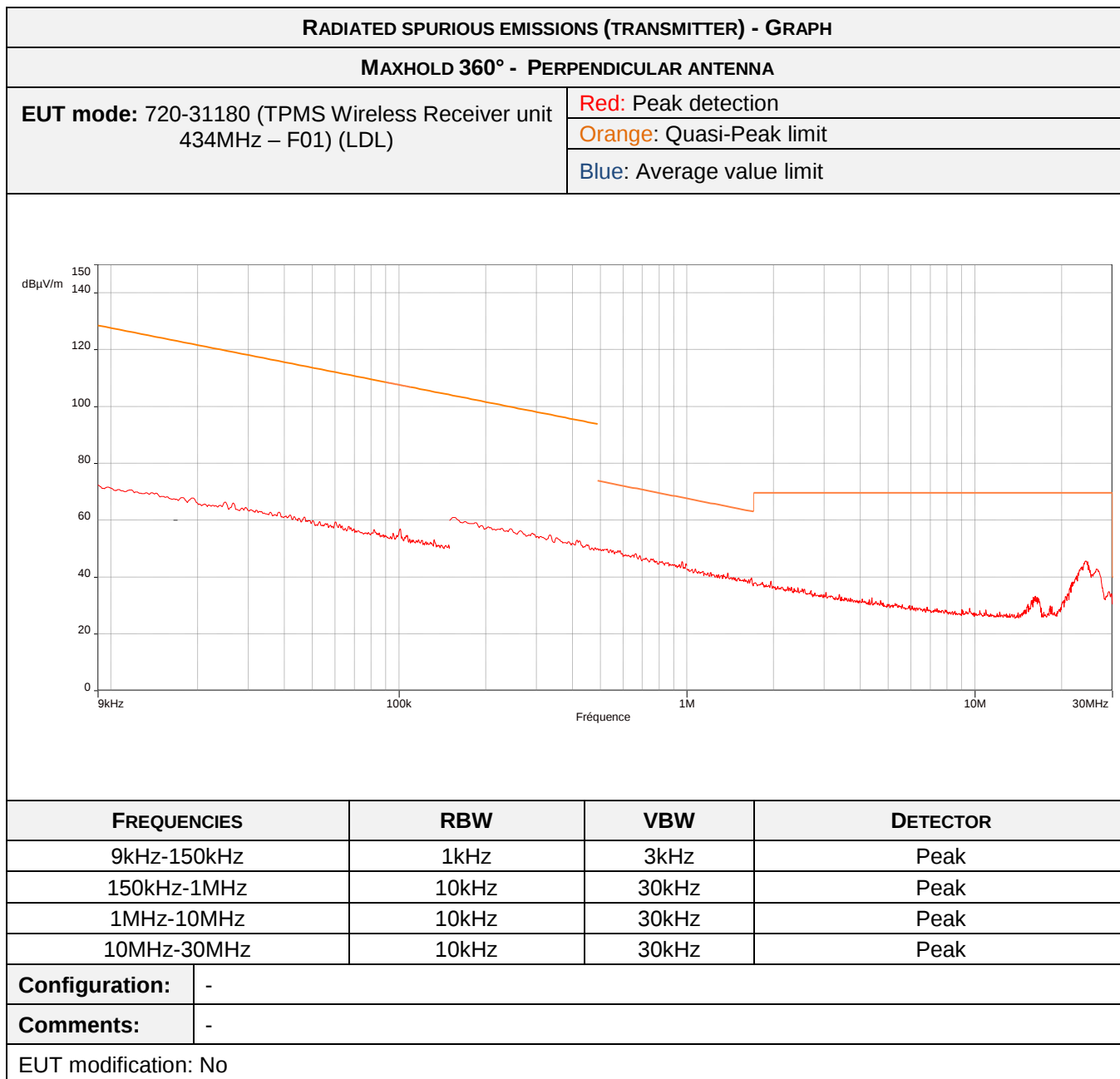






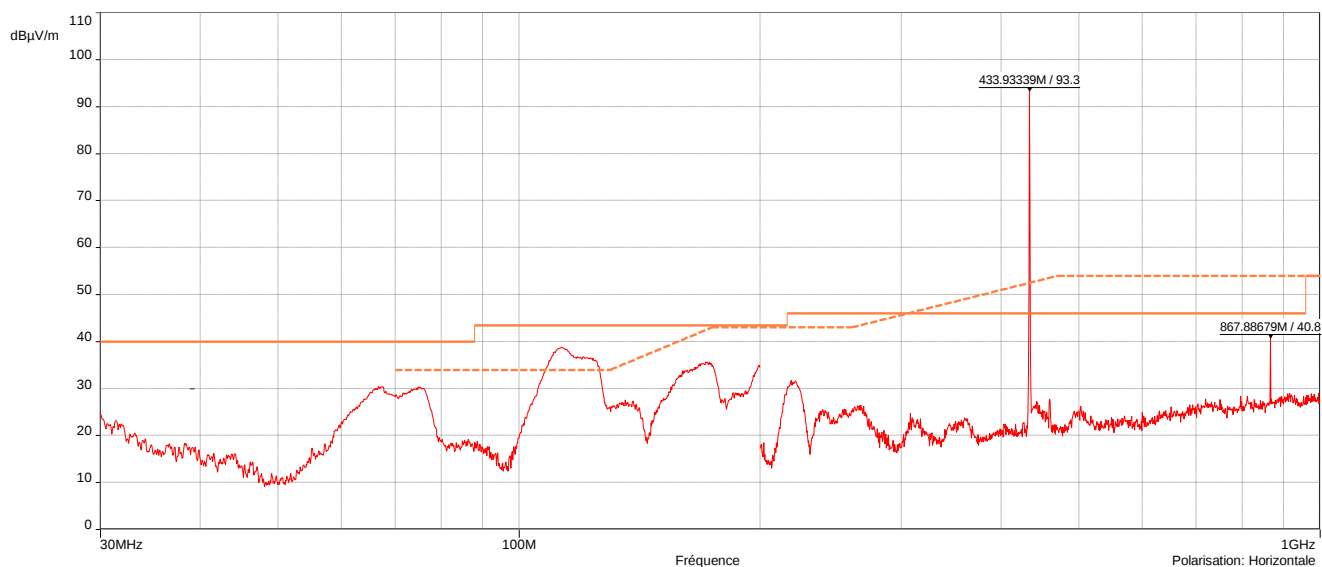
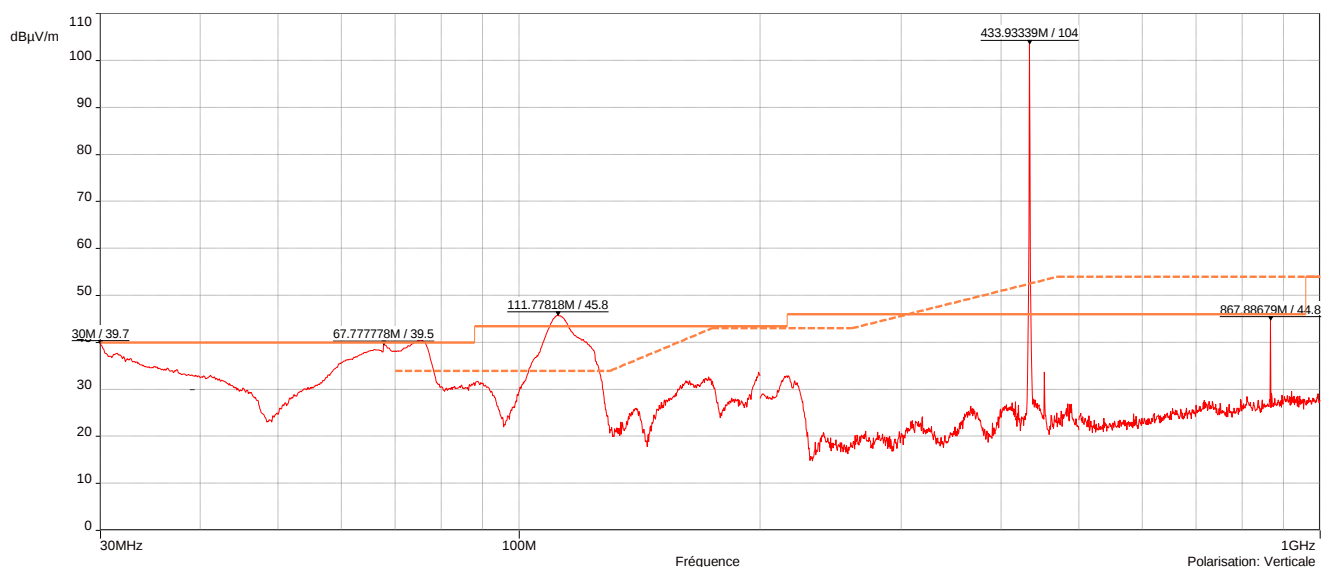






**RADIATED SPURIOUS EMISSIONS (TRANSMITTER) - GRAPH**
**MAXHOLD 360°**
**EUT mode:** 720-31180 (TPMS Wireless Receiver unit  
434MHz – F01) (LDL)

**Red:** detection maxhold

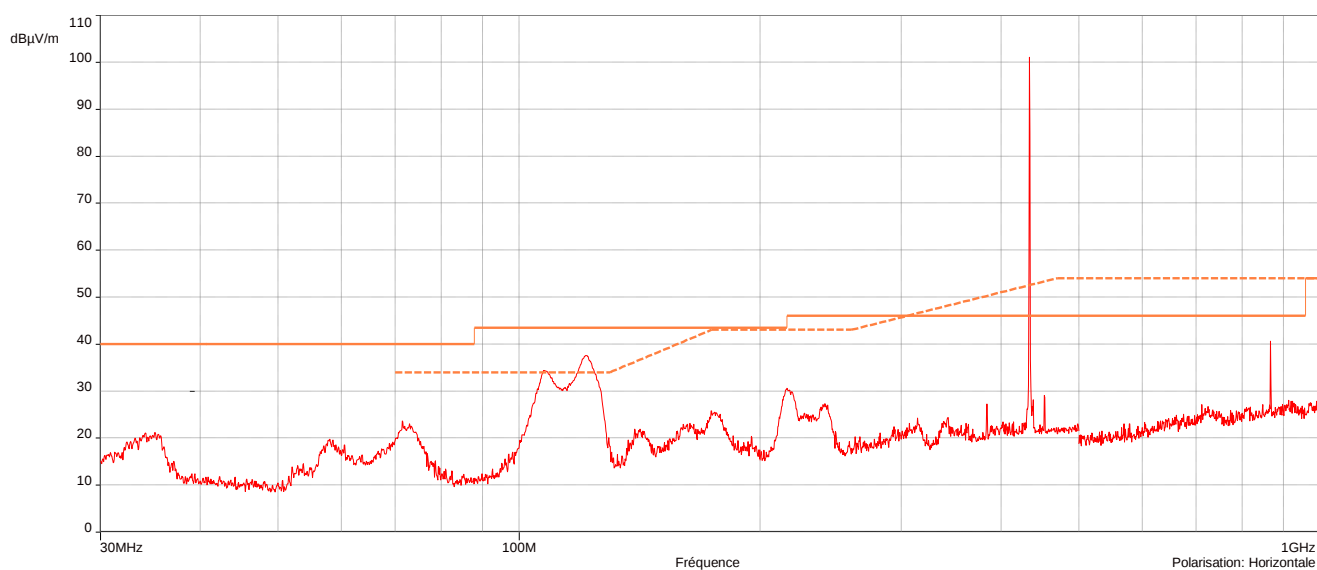
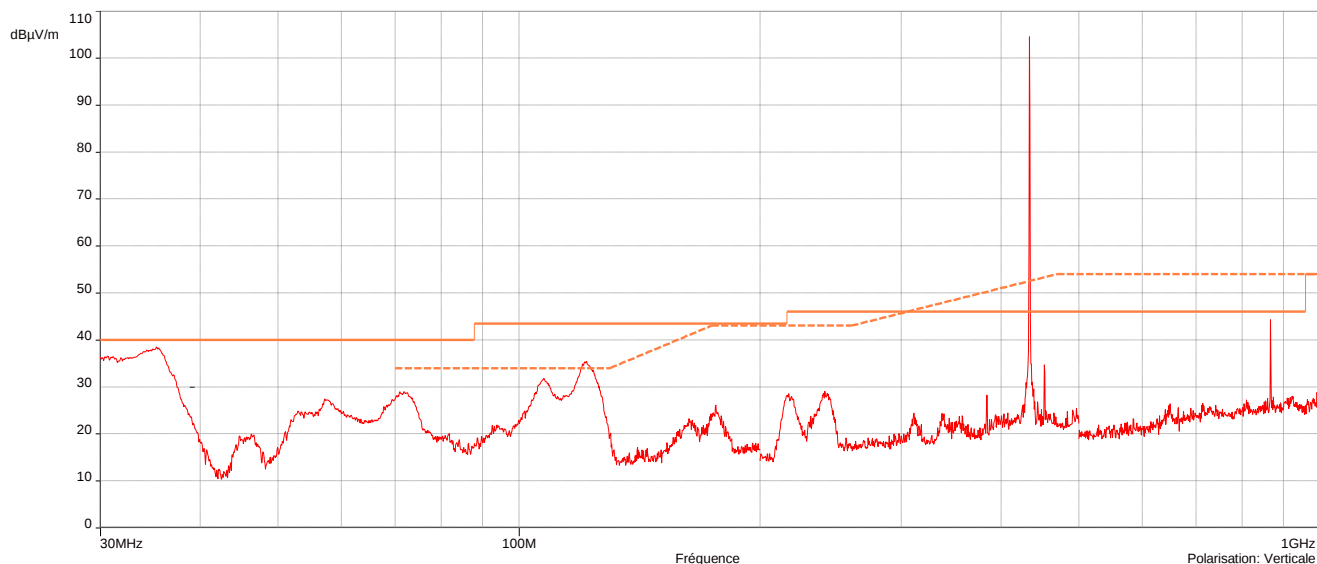
**Orange:** limit Quasi-Peak 15.209 and 15.231


| FREQUENCIES          |                                  | RBW    | VBW    | DETECTOR |
|----------------------|----------------------------------|--------|--------|----------|
| 30MHz-140MHz         |                                  | 100kHz | 300kHz | Peak     |
| 140MHz-300MHz        |                                  | 100kHz | 300kHz | Peak     |
| 300MHz-600MHz        |                                  | 100kHz | 300kHz | Peak     |
| 600MHz-1GHz          |                                  | 100kHz | 300kHz | Peak     |
| Configuration:       | -                                |        |        |          |
| Comments:            | 433.93 MHz is carrier frequency. |        |        |          |
| EUT modification: No |                                  |        |        |          |

| RECEIVER SPURIOUS EMISSIONS - TABULATED RESULTS |                      |                     |               |             |                  |                  |                |                |             |
|-------------------------------------------------|----------------------|---------------------|---------------|-------------|------------------|------------------|----------------|----------------|-------------|
| MAXHOLD 360° - 30 MHz – 1 GHz                   |                      |                     |               |             |                  |                  |                |                |             |
| Test Freq. (MHz)                                | Meter Reading (dBμV) | Detector (Pk/QP/Av) | Ant. position | Azimuth (°) | Ant. Height (cm) | Cor. Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| 30.0                                            | /                    | QP                  | Vertical      | 0           | 100              | /                | 36.6           | 40             | 3.7         |
| 65.6                                            | /                    | QP                  | Vertical      | 70          | 100              | /                | 35.0           | 40             | 5.0         |
| 112.0                                           | /                    | QP                  | Vertical      | 250         | 100              | /                | 28.4           | 43.5           | 15.1        |
| 867.8                                           | /                    | QP                  | Vertical      | 0           | 100              | /                | 42.5           | 54             | 11.5        |
| Supplementary information: No                   |                      |                     |               |             |                  |                  |                |                |             |

**RADIATED SPURIOUS EMISSIONS (TRANSMITTER) - GRAPH**
**MAXHOLD 360°**
**EUT mode:** 720-31182(TPMS Wireless Receiver unit  
434MHz – F02) (Orange)

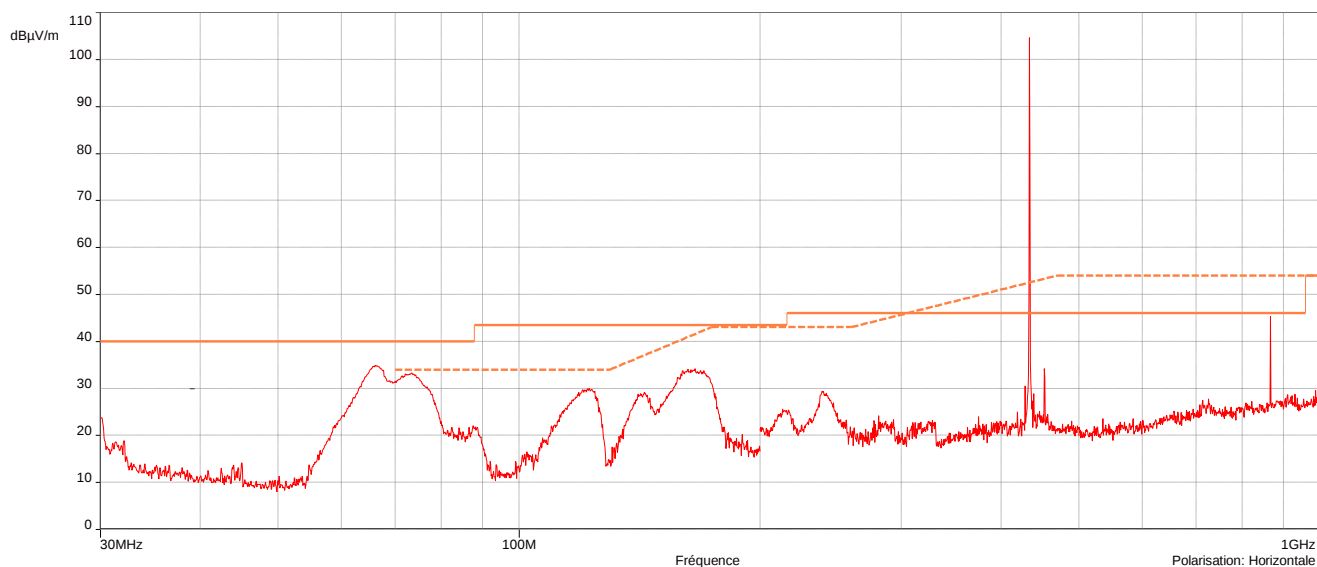
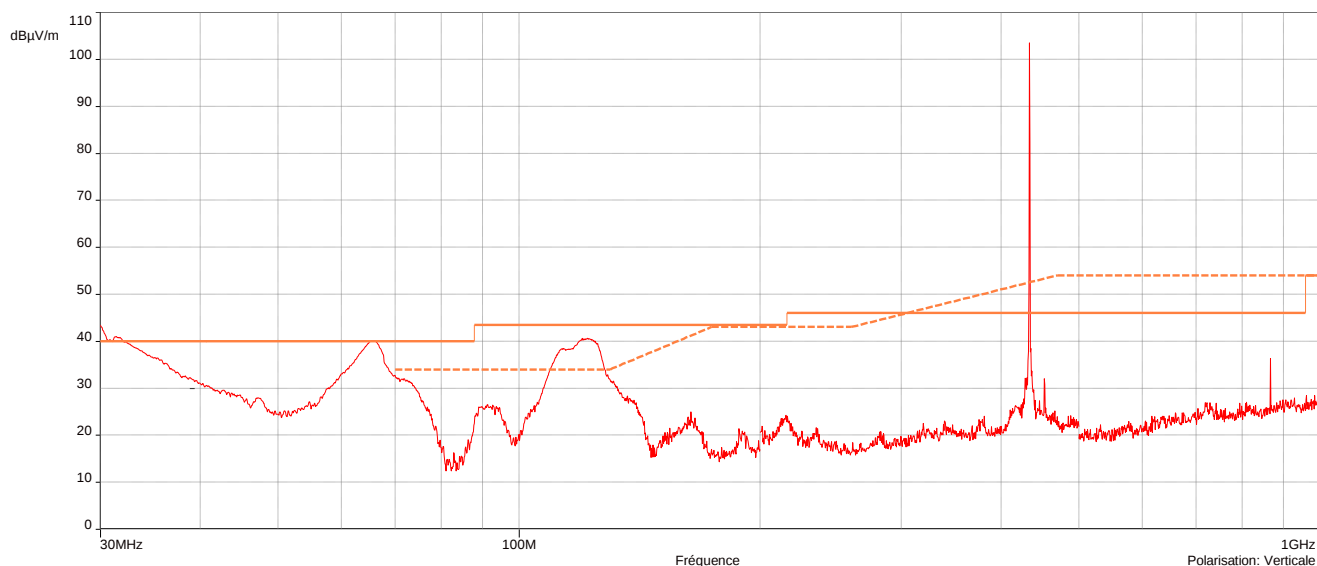
**Red:** detection maxhold

**Orange:** limit Quasi-Peak 15.209 and 15.231


| FREQUENCIES          |                                 | RBW    | VBW    | DETECTOR |
|----------------------|---------------------------------|--------|--------|----------|
| 30MHz-140MHz         |                                 | 100kHz | 300kHz | Peak     |
| 140MHz-300MHz        |                                 | 100kHz | 300kHz | Peak     |
| 300MHz-600MHz        |                                 | 100kHz | 300kHz | Peak     |
| 600MHz-1GHz          |                                 | 100kHz | 300kHz | Peak     |
| Configuration:       | -                               |        |        |          |
| Comments:            | 433.92 MHz is carrier frequency |        |        |          |
| EUT modification: No |                                 |        |        |          |

**RADIATED SPURIOUS EMISSIONS (TRANSMITTER) - GRAPH**
**MAXHOLD 360°**
**EUT mode:** 720-31180 (TPMS Wireless Receiver unit  
434MHz – F01) (LDL)

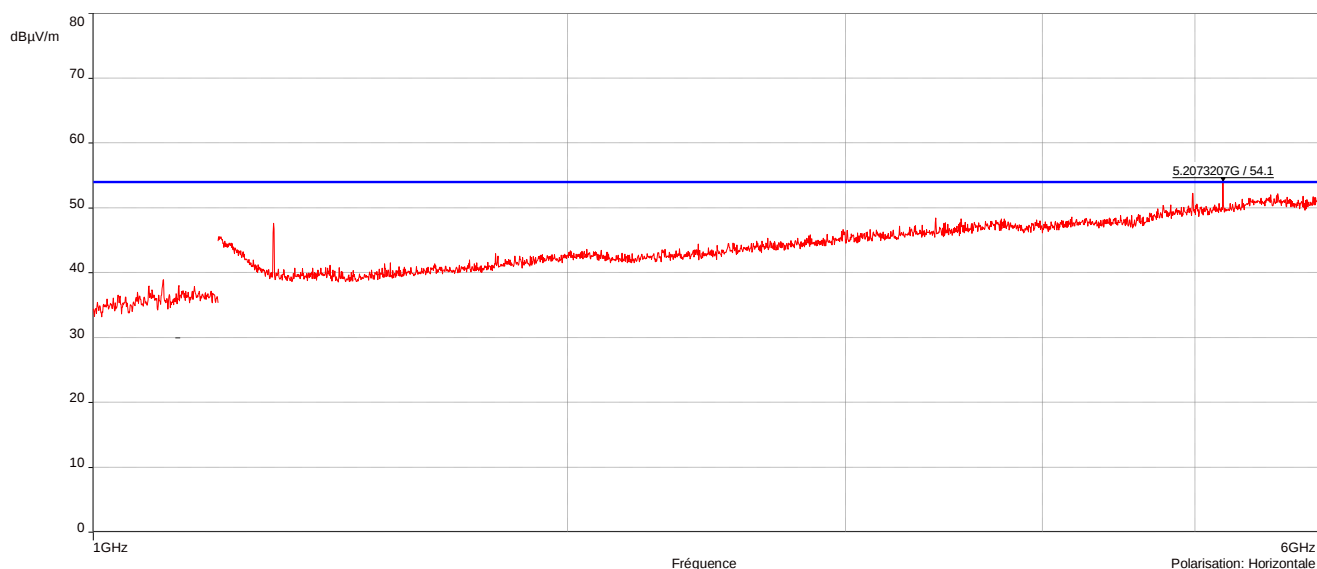
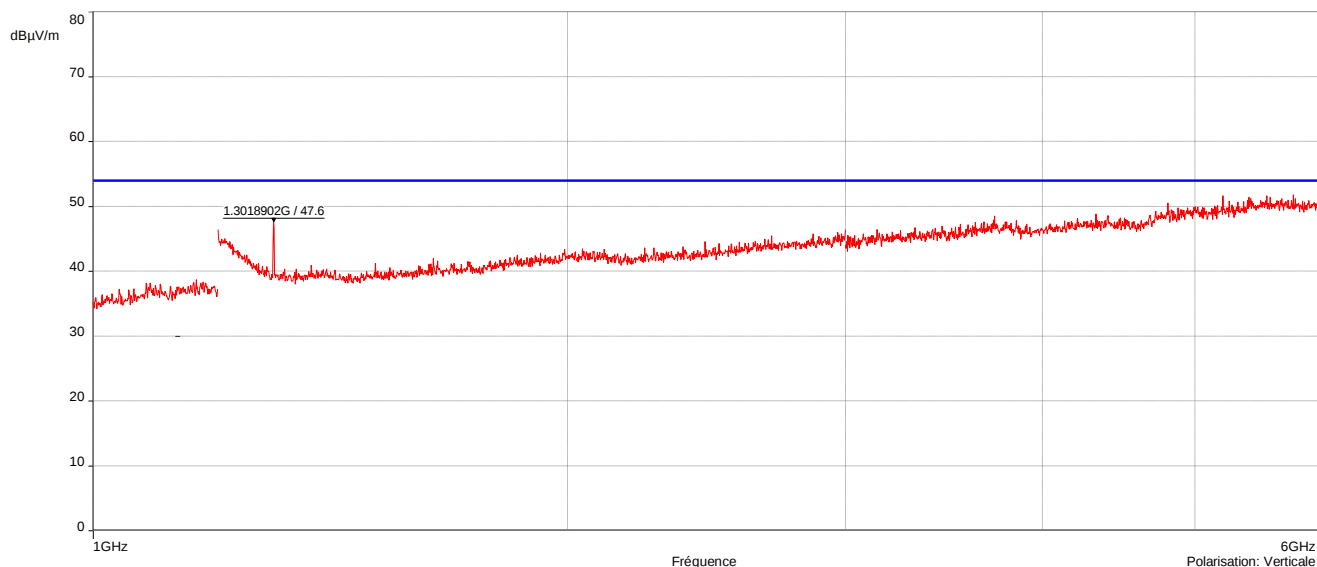
**Red:** detection maxhold

**Orange:** limit Quasi-Peak 15.209 and 15.231


| FREQUENCIES          |                                  | RBW    | VBW    | DETECTOR |
|----------------------|----------------------------------|--------|--------|----------|
| 30MHz-140MHz         |                                  | 100kHz | 300kHz | Peak     |
| 140MHz-300MHz        |                                  | 100kHz | 300kHz | Peak     |
| 300MHz-600MHz        |                                  | 100kHz | 300kHz | Peak     |
| 600MHz-1GHz          |                                  | 100kHz | 300kHz | Peak     |
| Configuration:       | -                                |        |        |          |
| Comments:            | 433.92 MHz is carrier frequency. |        |        |          |
| EUT modification: No |                                  |        |        |          |

**RADIATED SPURIOUS EMISSIONS (TRANSMITTER) - GRAPH**
**MAXHOLD 360°**
**EUT mode:** 720-31180 (TPMS Wireless Receiver unit  
434MHz – F01) (LDL)

**Red:** Peak detection and limit

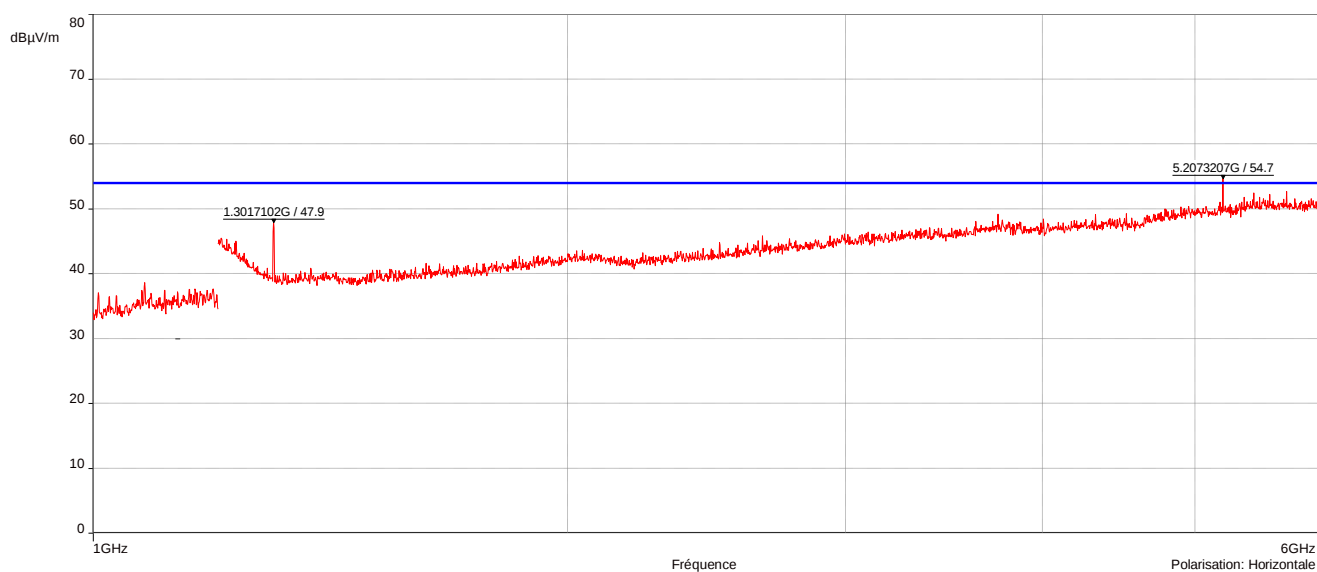
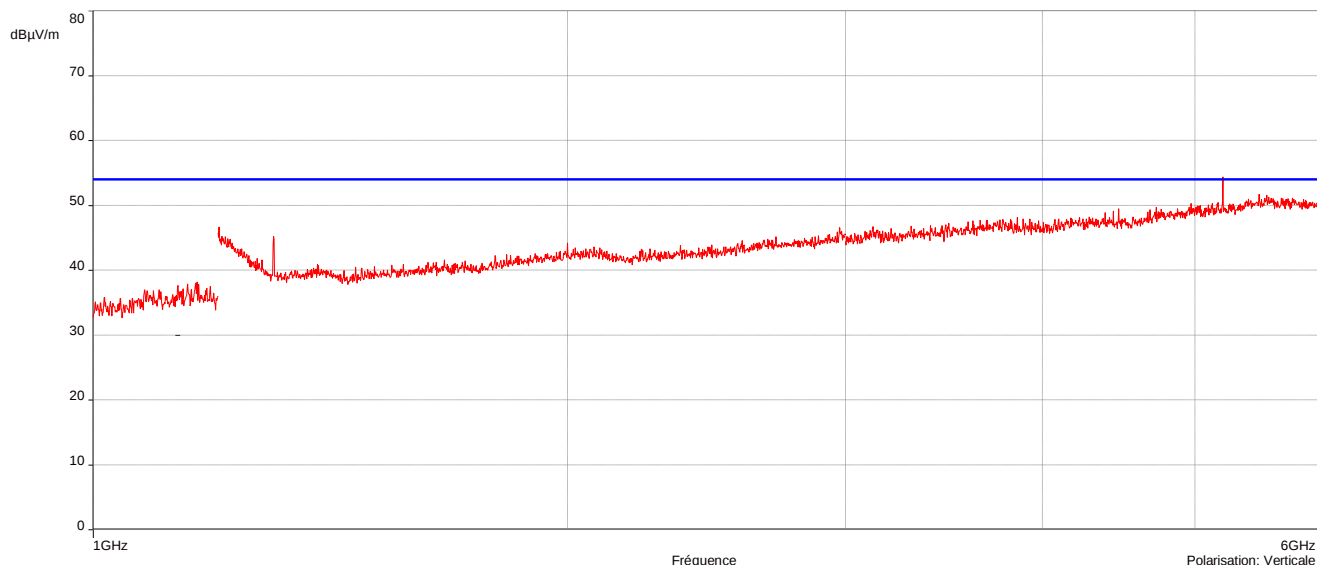
**Blue:** Average value limit


| FREQUENCIES          |   | RBW  | VBW  | DETECTOR |
|----------------------|---|------|------|----------|
| 1GHz-3.2GHz          |   | 1MHz | 3MHz | Peak     |
| 3.2GHz-6GHz          |   | 1MHz | 3MHz | Peak     |
| Configuration:       | - |      |      |          |
| Comments:            |   |      |      |          |
| EUT modification: No |   |      |      |          |

| RECEIVER SPURIOUS EMISSIONS - TABULATED RESULTS |                      |                     |               |             |                  |                  |                |                |             |
|-------------------------------------------------|----------------------|---------------------|---------------|-------------|------------------|------------------|----------------|----------------|-------------|
| MAXHOLD 360° - 1 GHz – 6 GHz                    |                      |                     |               |             |                  |                  |                |                |             |
| Test Freq. (GHz)                                | Meter Reading (dBμV) | Detector (Pk/QP/Av) | Ant. position | Azimuth (°) | Ant. Height (cm) | Cor. Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| 1.3018                                          | /                    | Av                  | Vertical      | 30          | 130              | /                | 27.9           | 54.0           | 26.1        |
| 5.2073                                          | /                    | Av                  | Horizontal    | 170         | 130              | /                | 35.6           | 54.0           | 18.4        |
| Supplementary information: No                   |                      |                     |               |             |                  |                  |                |                |             |

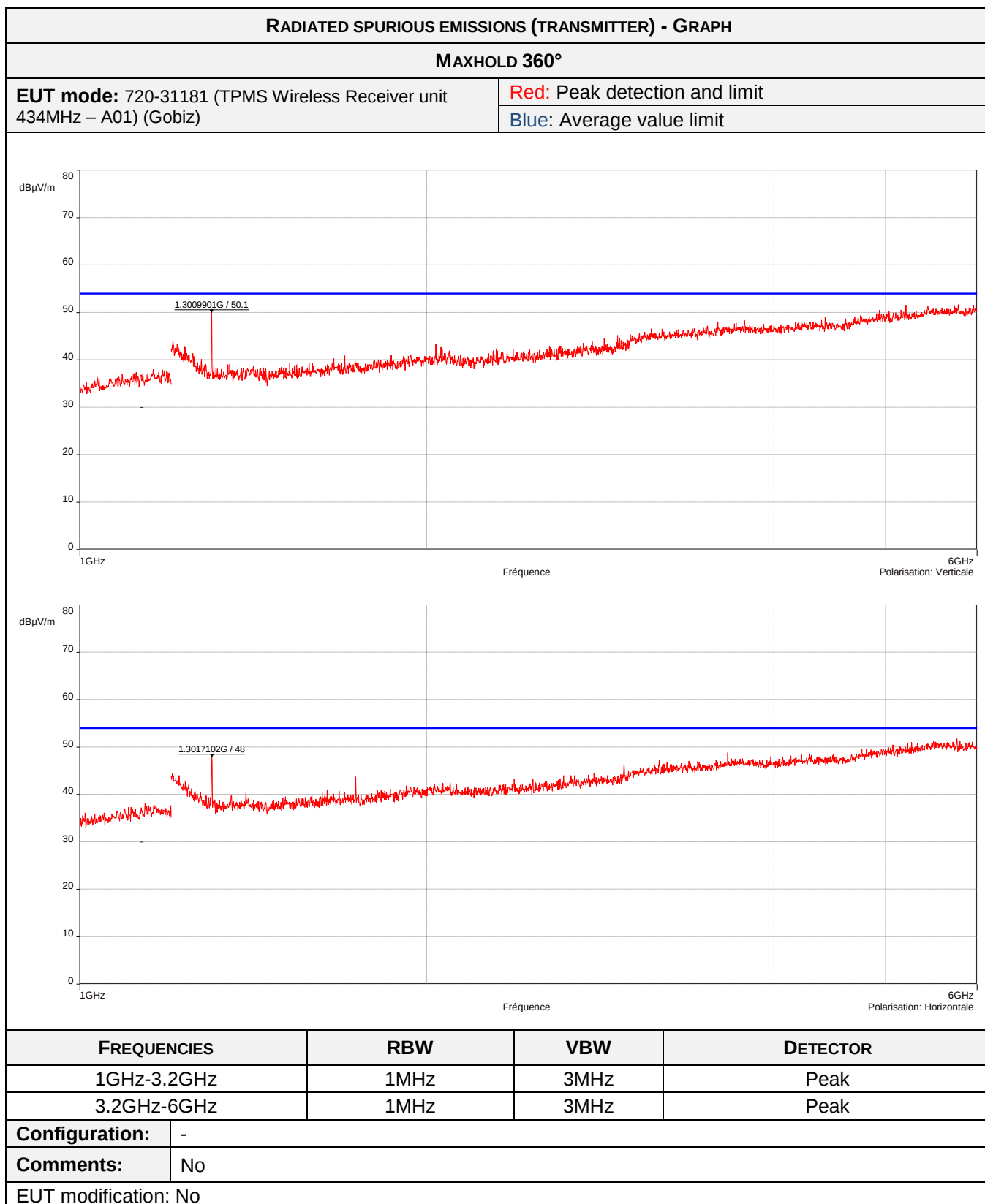
**RADIATED SPURIOUS EMISSIONS (TRANSMITTER) - GRAPH**
**MAXHOLD 360°**
**EUT mode:** 720-31182(TPMS Wireless Receiver unit  
434MHz – F02) (Orange)

**Red:** Peak detection and limit

**Blue:** Average value limit


| FREQUENCIES          |    | RBW  | VBW  | DETECTOR |
|----------------------|----|------|------|----------|
| 1GHz-3.2GHz          |    | 1MHz | 3MHz | Peak     |
| 3.2GHz-6GHz          |    | 1MHz | 3MHz | Peak     |
| Configuration:       | -  |      |      |          |
| Comments:            | No |      |      |          |
| EUT modification: No |    |      |      |          |

| RECEIVER SPURIOUS EMISSIONS - TABULATED RESULTS |                      |                     |               |             |                  |                  |                |                |             |
|-------------------------------------------------|----------------------|---------------------|---------------|-------------|------------------|------------------|----------------|----------------|-------------|
| MAXHOLD 360° - 1 GHz – 6 GHz                    |                      |                     |               |             |                  |                  |                |                |             |
| Test Freq. (GHz)                                | Meter Reading (dBμV) | Detector (Pk/QP/Av) | Ant. position | Azimuth (°) | Ant. Height (cm) | Cor. Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| 1.3018                                          | /                    | Av                  | Vertical      | 30          | 130              | /                | 27.9           | 54.0           | 26.1        |
| 5.2073                                          | /                    | Av                  | Horizontal    | 170         | 130              | /                | 35.6           | 54.0           | 18.4        |
| Supplementary information: No                   |                      |                     |               |             |                  |                  |                |                |             |



| RECEIVER SPURIOUS EMISSIONS - TABULATED RESULTS |                      |                     |               |             |                  |                  |                |                |             |
|-------------------------------------------------|----------------------|---------------------|---------------|-------------|------------------|------------------|----------------|----------------|-------------|
| MAXHOLD 360° - 1 GHz – 6 GHz                    |                      |                     |               |             |                  |                  |                |                |             |
| Test Freq. (GHz)                                | Meter Reading (dBμV) | Detector (Pk/QP/Av) | Ant. position | Azimuth (°) | Ant. Height (cm) | Cor. Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| 1.3018                                          | /                    | Av                  | Vertical      | 30          | 130              | /                | 27.9           | 54.0           | 26.1        |
| Supplementary information: No                   |                      |                     |               |             |                  |                  |                |                |             |

## 6.5. Unintentional radiated emissions in the band 30 MHz – 6 GHz

|                                                                                                                                                                                                                                                                                                                                                                               |                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Reference standard:</b>                                                                                                                                                                                                                                                                                                                                                    | FCC 47 CFR PART 15 : 2022<br>RSS-210 Issue 9 : 2016                             |
| <b>Test method:</b>                                                                                                                                                                                                                                                                                                                                                           | § 15.231(e) of FCC 47 CFR PART 15 : 2022<br>§ A.1.4 © of RSS-210 Issue 9 : 2016 |
| <b>General test setup:</b> E.U.T. is set on an insulating support at 0.8 m (<1GHz) and 1.5 m (>1GHz) above the ground reference plane.<br>For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane for 30 MHz - 25 GHz. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization. |                                                                                 |

| TESTED CONFIGURATION                   | PARAMETER  | VERDICT     |
|----------------------------------------|------------|-------------|
| Maxhold 360° - Horizontal polarization | 30MHz-1GHz | <b>PASS</b> |
| Maxhold 360° - Vertical polarization   | 30MHz-1GHz | <b>PASS</b> |
| Maxhold 360° - Horizontal polarization | 1GHz-6GHz  | <b>PASS</b> |
| Maxhold 360° - Vertical polarization   | 1GHz-6GHz  | <b>PASS</b> |

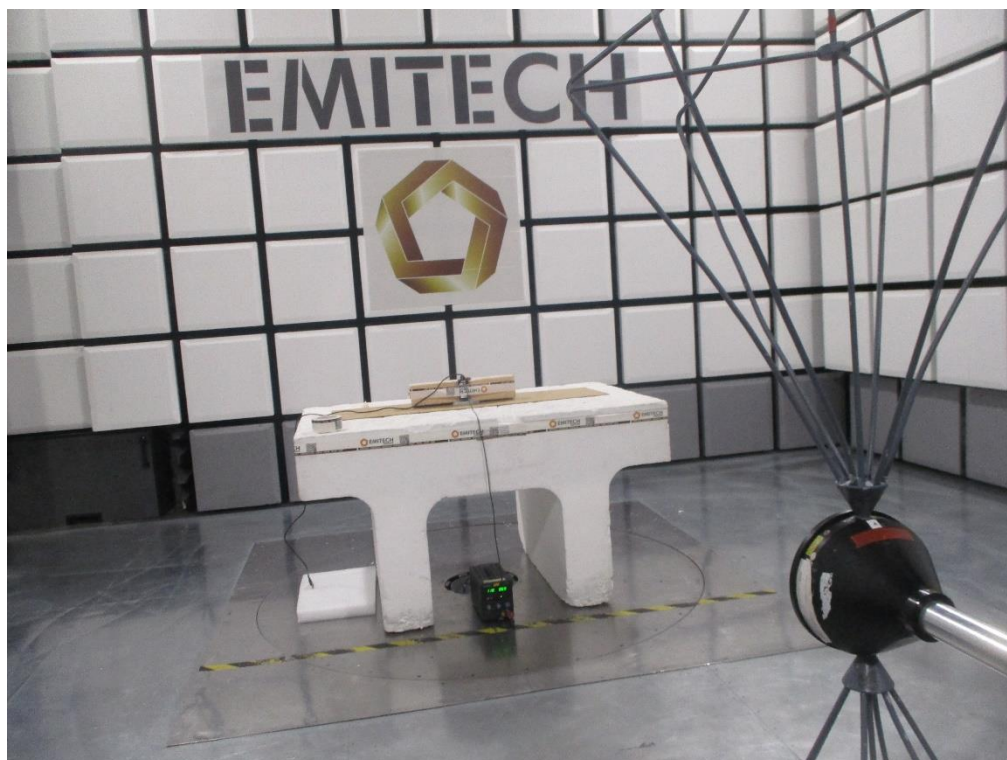
| LABORATORY PARAMETERS:           | REQUIRED PRIOR TO THE TEST | DURING THE TEST |
|----------------------------------|----------------------------|-----------------|
| Ambient Temperature              | 10 to 40 °C                | 24°C            |
| Relative Humidity                | 10 to 90 %                 | 40%             |
| Atmospheric pressure             | N/A                        | N/A             |
| <b>Test method deviation:</b> No |                            |                 |
| Supplementary information: -     |                            |                 |

| TEST EQUIPMENT USED |                 |               |            |            |            |
|---------------------|-----------------|---------------|------------|------------|------------|
| CATEGORY            | BRAND           | TYPE          | IDENTIFIER | CAL. DATE  | CAL. DUE   |
| Amplifier           | Hewlett Packard | 8447F H64     | 16970      | 28/03/2022 | 28/05/2023 |
| Antenna             | Rohde & Schwarz | HL223         | 00294      | 21/04/2020 | 21/06/2023 |
| Antenna             | Rohde & Schwarz | HK116         | 00293      | 30/09/2021 | 30/11/2024 |
| Antenna             | Emco            | 3115          | 00941      | 01/03/2022 | 01/05/2025 |
| Antenna             | Emco            | 6502          | 09579      | 16/08/2021 | 16/10/2023 |
| Cable               | C&C             | N-5m          | 11184      | 25/02/2022 | 25/04/2024 |
| Cable               | C&C             | N-4m          | 14226      | 25/02/2022 | 25/04/2024 |
| Cable               | Huber + Suhner  | N-2m          | 11417      | 25/02/2022 | 25/04/2024 |
| Cable               | Micro-Coax      | N-8m          | 08061      | 25/02/2022 | 25/04/2024 |
| Filter              | Trilithic       | 5EHLX500-3-KK | 01529      | 20/10/2022 | 20/12/2025 |
| Receiver            | Rohde & Schwarz | ESRP7         | 10517      | 16/08/2022 | 16/10/2024 |
| Shielded enclosure  | Comtest         | SAC 3m        | 14622      | 27/04/2022 | 27/06/2025 |
| Software            | Nexio           | BAT EMC       | 00000      |            |            |

BAT-EMC software version: V3.18.0.26

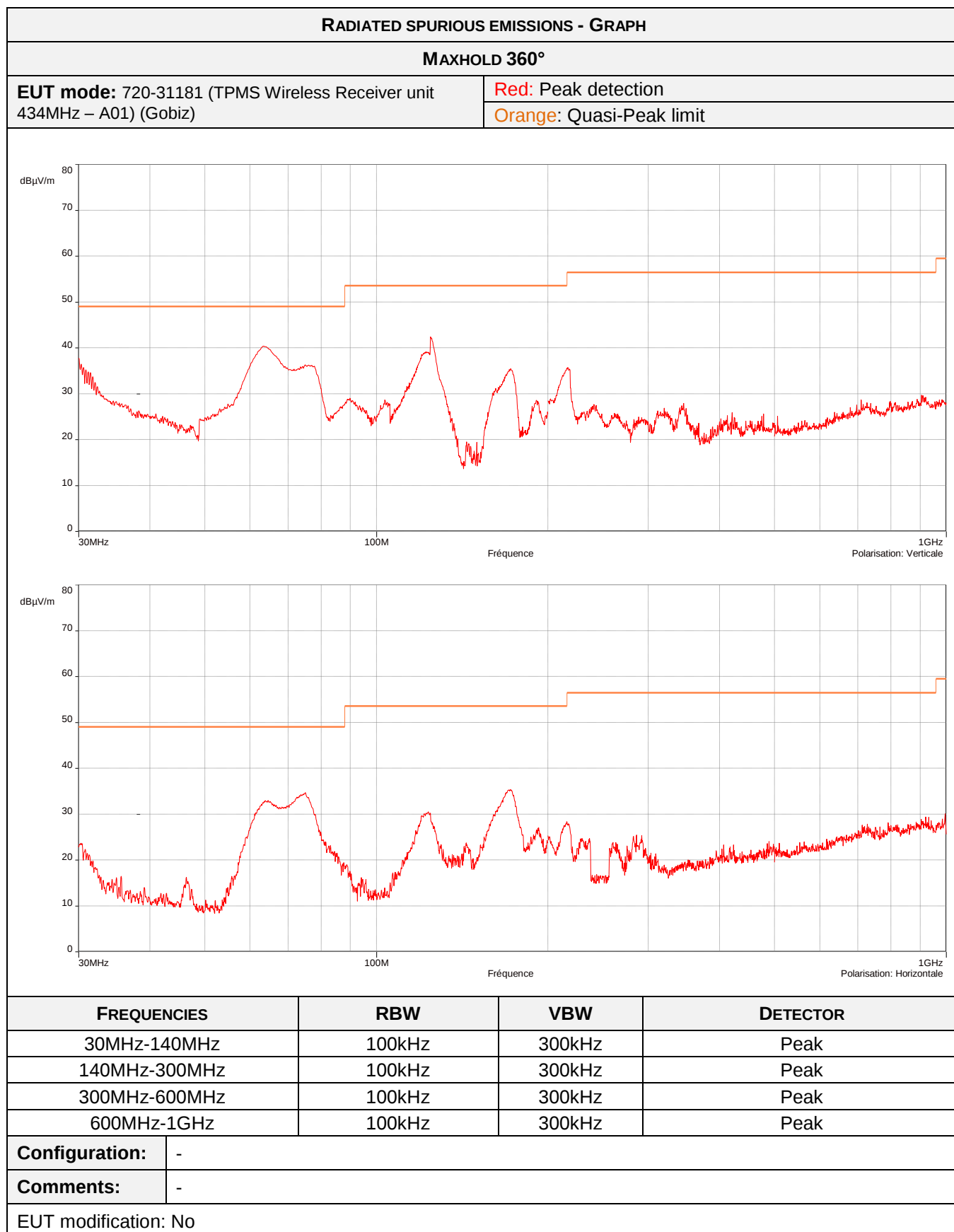
Blank cells = Permanent validity

TEST SETUP PHOTOS - 30MHz – 1GHz



TEST SETUP PHOTO - 1GHz – 6GHz

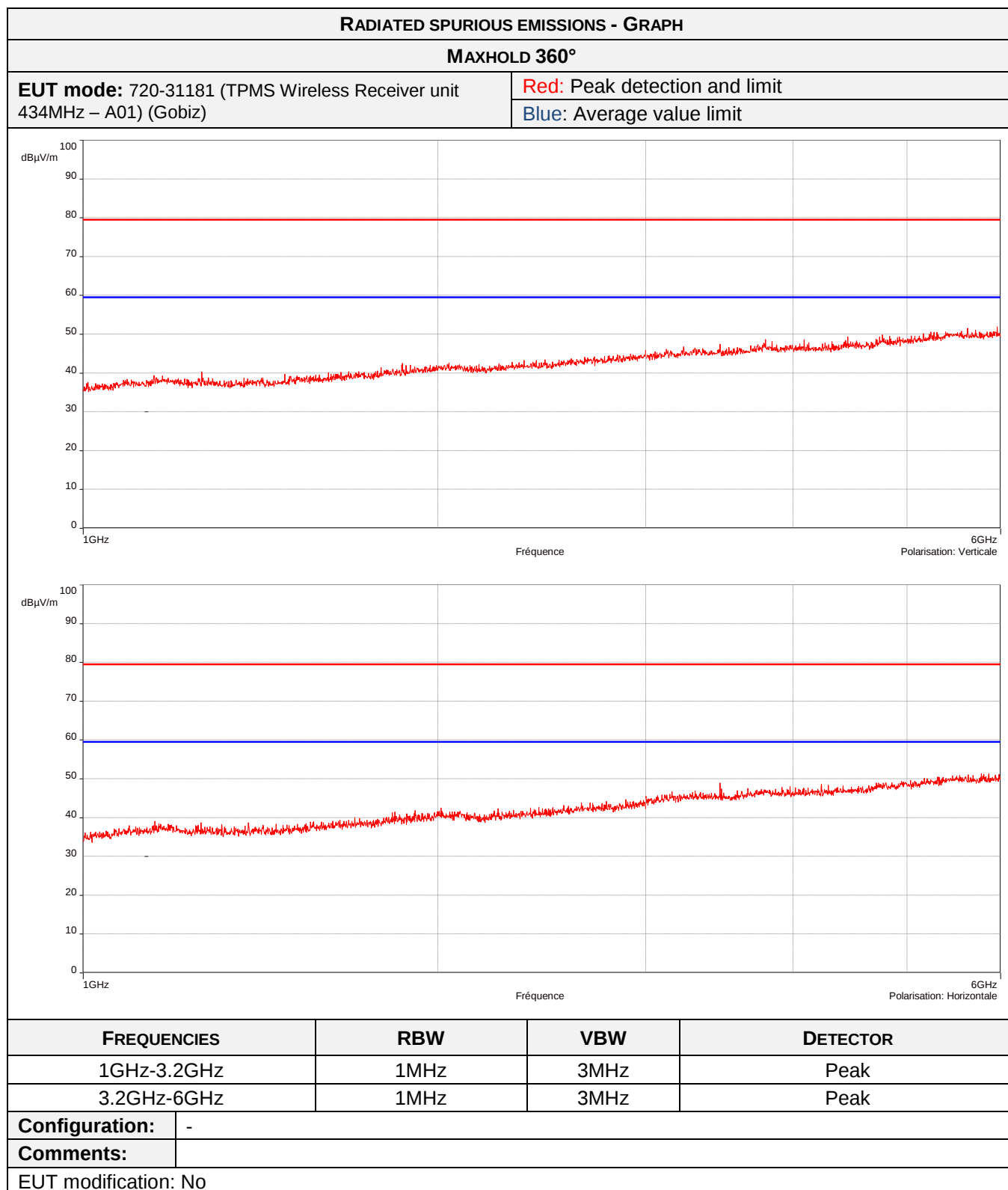




| RECEIVER SPURIOUS EMISSIONS - TABULATED RESULTS |                      |                     |               |              |                  |                  |                |                |             |
|-------------------------------------------------|----------------------|---------------------|---------------|--------------|------------------|------------------|----------------|----------------|-------------|
| MAXHOLD 360° - 30 MHz – 1 GHz – RX GOBIZ        |                      |                     |               |              |                  |                  |                |                |             |
| Test Freq. (MHz)                                | Meter Reading (dBμV) | Detector (Pk/QP/Av) | Ant. position | Azim uth (°) | Ant. Height (cm) | Cor. Factor (dB) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| -                                               | -                    | -                   | -             | -            | -                | -                | -              | -              | -           |
| Supplementary information: No                   |                      |                     |               |              |                  |                  |                |                |             |

| RADIATED SPURIOUS EMISSIONS - GRAPH                                    |                                                  |                          |          |
|------------------------------------------------------------------------|--------------------------------------------------|--------------------------|----------|
| MAXHOLD 360°                                                           |                                                  |                          |          |
| EUT mode: 720-31182(TPMS Wireless Receiver unit 434MHz – F02) (Orange) |                                                  | Red: Peak detection      |          |
|                                                                        |                                                  | Orange: Quasi-Peak limit |          |
|                                                                        |                                                  |                          |          |
| FREQUENCIES                                                            | RBW                                              | VBW                      | DETECTOR |
| 30MHz-140MHz                                                           | 100kHz                                           | 300kHz                   | Peak     |
| 140MHz-300MHz                                                          | 100kHz                                           | 300kHz                   | Peak     |
| 300MHz-600MHz                                                          | 100kHz                                           | 300kHz                   | Peak     |
| 600MHz-1GHz                                                            | 100kHz                                           | 300kHz                   | Peak     |
| Configuration:                                                         | -                                                |                          |          |
| Comments:                                                              | No curve, measurement performed manually → N.T.R |                          |          |
| EUT modification: No                                                   |                                                  |                          |          |

| RADIATED SPURIOUS EMISSIONS - GRAPH                                  |                                                  |                          |          |
|----------------------------------------------------------------------|--------------------------------------------------|--------------------------|----------|
| MAXHOLD 360°                                                         |                                                  |                          |          |
| EUT mode: 720-31180 (TPMS Wireless Receiver unit 434MHz – F01) (LDL) |                                                  | Red: Peak detection      |          |
|                                                                      |                                                  | Orange: Quasi-Peak limit |          |
|                                                                      |                                                  |                          |          |
| FREQUENCIES                                                          | RBW                                              | VBW                      | DETECTOR |
| 30MHz-140MHz                                                         | 100kHz                                           | 300kHz                   | Peak     |
| 140MHz-300MHz                                                        | 100kHz                                           | 300kHz                   | Peak     |
| 300MHz-600MHz                                                        | 100kHz                                           | 300kHz                   | Peak     |
| 600MHz-1GHz                                                          | 100kHz                                           | 300kHz                   | Peak     |
| Configuration:                                                       | -                                                |                          |          |
| Comments:                                                            | No curve, measurement performed manually → N.T.R |                          |          |
| EUT modification: No                                                 |                                                  |                          |          |



| RADIATED SPURIOUS EMISSIONS - GRAPH                                    |                                                  |                               |          |
|------------------------------------------------------------------------|--------------------------------------------------|-------------------------------|----------|
| MAXHOLD 360°                                                           |                                                  |                               |          |
| EUT mode: 720-31182(TPMS Wireless Receiver unit 434MHz – F02) (Orange) |                                                  | Red: Peak detection and limit |          |
|                                                                        |                                                  | Blue: Average value limit     |          |
|                                                                        |                                                  |                               |          |
| FREQUENCIES                                                            | RBW                                              | VBW                           | DETECTOR |
| 1GHZ-3.2GHZ                                                            | 1MHZ                                             | 3MHZ                          | Peak     |
| 3.2GHZ-6GHZ                                                            | 1MHZ                                             | 3MHZ                          | Peak     |
| Configuration:                                                         | -                                                |                               |          |
| Comments:                                                              | No curve, measurement performed manually → N.T.R |                               |          |
| EUT modification: No                                                   |                                                  |                               |          |

| RADIATED SPURIOUS EMISSIONS - GRAPH |                                                  |                               |          |
|-------------------------------------|--------------------------------------------------|-------------------------------|----------|
| MAXHOLD 360°                        |                                                  |                               |          |
| EUT mode: Rx LDL                    |                                                  | Red: Peak detection and limit |          |
|                                     |                                                  | Blue: Average value limit     |          |
|                                     |                                                  |                               |          |
| FREQUENCIES                         | RBW                                              | VBW                           | DETECTOR |
| 1GHZ-3.2GHZ                         | 1MHZ                                             | 3MHZ                          | Peak     |
| 3.2GHZ-6GHZ                         | 1MHZ                                             | 3MHZ                          | Peak     |
| Configuration:                      | -                                                |                               |          |
| Comments:                           | No curve, measurement performed manually → N.T.R |                               |          |
| EUT modification: No                |                                                  |                               |          |

●●● End of test report ●●●