



LCIE

Bluetooth Low Energy Template: Release August 20th, 2016

# TEST REPORT

N°: 145064-694081A

Version : 01

## Subject

Radio spectrum matters  
tests according to standards:  
47 CFR Part 15.247 [P](#)

## Issued to

**SAGEMCOM BROADBAND SAS**  
250 Route de l' Empereur  
92500 – RUEIL MALMAISON  
FRANCE

## Apparatus under test

[P](#) Product DGC1384 UHD Alt US  
[P](#) Trade mark **SAGEMCOM**  
[P](#) Manufacturer **SAGEMCOM**  
[P](#) Model under test **TheBox (253697282)**  
[P](#) Serial number **616400107098**  
[P](#) FCC ID **VW3DGC1384**

## Test date

: November 9, 2016 to November 22, 2016

## Test location

Fontenay Aux Roses & Ecuelles

## Composition of document

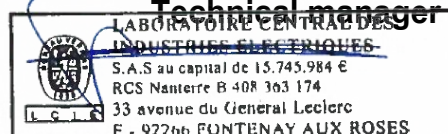
50 pages

## Document issued on

January 9, 2017

Written by :  
Arnaud FAYETTE  
Tests operator

Approved by :  
Stéphane PHOUDIAH  
Technical manager



This document shall not be reproduced, except in full, without the written approval of the LCIE. This document contains results related only to the items tested. It does not imply the conformity of the whole production to the items tested. Unless otherwise specified, the decision of conformity takes into account the uncertainty of measurement. This document doesn't anticipate any certification decision.

**LCIE**

Laboratoire Central des Industries Electriques  
Une société de Bureau Veritas

33, Av du Général Leclerc  
92266 Fontenay Aux Roses  
FRANCE

Tél : +33 1 40 95 60 60  
[contact@lcie.fr](mailto:contact@lcie.fr)  
[www.lcie.fr](http://www.lcie.fr)



## PUBLICATION HISTORY

| Version | Date            | Author         | Modification             |
|---------|-----------------|----------------|--------------------------|
| 01      | January 6, 2017 | Arnaud FAYETTE | Creation of the document |



## SUMMARY

|     |                                                                         |    |
|-----|-------------------------------------------------------------------------|----|
| 1.  | TEST PROGRAM .....                                                      | 4  |
| 2.  | EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER) .....        | 5  |
| 3.  | OCCUPIED BANDWIDTH.....                                                 | 12 |
| 4.  | 6DB EMISSION BANDWIDTH .....                                            | 15 |
| 5.  | DUTY CYCLE .....                                                        | 18 |
| 6.  | MAXIMUM CONDUCTED OUTPUT POWER .....                                    | 20 |
| 7.  | POWER SPECTRAL DENSITY .....                                            | 23 |
| 8.  | UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS AT THE BAND EDGE | 26 |
| 9.  | UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS.....             | 29 |
| 10. | AC POWER LINE CONDUCTED EMISSIONS.....                                  | 32 |
| 11. | UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS .....                  | 37 |
| 12. | UNCERTAINTIES CHART .....                                               | 50 |

## 1. TEST PROGRAM

### References

- 47 CFR Part 15.247
- KDB 558074 D01 DTS Meas Guidance v03r05
- ANSI C63.10-2013

### Radio requirement:

| Clause (47CFR Part 15.247)<br>Test Description                                                        | Test result - Comments                   |                               |                                |                                |
|-------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------|--------------------------------|--------------------------------|
| Occupied Bandwidth <a href="#">P</a>                                                                  | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA    | <input type="checkbox"/> NP(1) |
| 6dB Bandwidth <a href="#">P</a>                                                                       | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA()  | <input type="checkbox"/> NP(1) |
| Duty Cycle <a href="#">P</a>                                                                          | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA    | <input type="checkbox"/> NP(1) |
| Maximum Conducted Output Power <a href="#">P</a>                                                      | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA    | <input type="checkbox"/> NP(1) |
| Power Spectral Density <a href="#">P</a>                                                              | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA    | <input type="checkbox"/> NP(1) |
| Conducted Spurious Emission at the Band Edge <a href="#">P</a>                                        | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA()  | <input type="checkbox"/> NP(1) |
| Unwanted Emissions into Non-Restricted Frequency Bands <a href="#">P</a>                              | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA()  | <input type="checkbox"/> NP(1) |
| AC Power Line Conducted Emission <a href="#">P</a>                                                    | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA(2) | <input type="checkbox"/> NP(1) |
| Unwanted Emissions into Restricted Frequency Bands <a href="#">P</a>                                  | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA    | <input type="checkbox"/> NP(1) |
| Receiver Radiated emissions <a href="#">P</a>                                                         | <input checked="" type="checkbox"/> PASS | <input type="checkbox"/> FAIL | <input type="checkbox"/> NA    | <input type="checkbox"/> NP(1) |
| This table is a summary of test report, see conclusion of each clause of this test report for detail. |                                          |                               |                                |                                |

(1): Limited program

(2): EUT not directly or indirectly connected to the AC Power Public Network

PASS: EUT complies with standard's requirement

FAIL: EUT does not comply with standard's requirement

NA: Not Applicable

NP: Test Not Performed

## 2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)

### 2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):

**SAGEMCOM TheBox (253697282)**

**Serial Number: 616400107098**



Equipment Under Test



**Inputs/outputs - Cable:**

| Access | Type         | Length used (m) | Declared <3m             | Shielded                 | Under test                          | Comments |
|--------|--------------|-----------------|--------------------------|--------------------------|-------------------------------------|----------|
| 1      | Power Supply | -               | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | -        |

**Auxiliary equipment used during test:**

| Type           | Reference             | Sn             | Comments           |
|----------------|-----------------------|----------------|--------------------|
| Laptop         | -                     | -              | Use to set the EUT |
| Power supply°1 | NBS60C120500M2        | 16366C25200017 | P/N:191363252-xx   |
| Power supply°2 | LPL-C060120500ZS      | 1637215590020  | P/N:191363559-XX   |
| Power supply°3 | MSA-Z5000IS12.0-60A-P | H16386E6950010 | P/N:191363695-XX   |
| Power supply°4 | A15-060P1A            | 16413K72800092 | P/N:191363728      |

**Equipment information:**

|                              |                                                      |                                               |                                               |                                          |
|------------------------------|------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|------------------------------------------|
| Bluetooth LE Type:           | <input checked="" type="checkbox"/> BLE              | <input type="checkbox"/> v4.0                 | <input type="checkbox"/> v4.1                 | <input type="checkbox"/> v4.2            |
| Frequency band:              | [2400 – 2483.5] MHz                                  |                                               |                                               |                                          |
| Number of Channel:           | 40                                                   |                                               |                                               |                                          |
| Spacing channel:             | 2MHz                                                 |                                               |                                               |                                          |
| Channel bandwidth:           | 1MHz                                                 |                                               |                                               |                                          |
| Antenna Type:                | <input checked="" type="checkbox"/> Integral         | <input type="checkbox"/> External             | <input type="checkbox"/> Dedicated            |                                          |
| Antenna connector:           | <input checked="" type="checkbox"/> Yes              | <input type="checkbox"/> No                   | <input type="checkbox"/> Temporary for test   |                                          |
| Transmit chains:             | 1                                                    |                                               |                                               |                                          |
|                              | Single antenna                                       |                                               |                                               |                                          |
| Receiver chains              | 1                                                    |                                               |                                               |                                          |
| Type of equipment:           | <input checked="" type="checkbox"/> Stand-alone      | <input type="checkbox"/> Plug-in              | <input type="checkbox"/> Combined             |                                          |
| Ad-Hoc mode:                 | <input type="checkbox"/> Yes                         |                                               | <input checked="" type="checkbox"/> No        |                                          |
| Duty cycle:                  | <input checked="" type="checkbox"/> Continuous duty  | <input type="checkbox"/> Intermittent duty    | <input type="checkbox"/> 100% duty            |                                          |
| Equipment type:              | <input checked="" type="checkbox"/> Production model |                                               | <input type="checkbox"/> Pre-production model |                                          |
| Operating temperature range: | Tmin:                                                | <input type="checkbox"/> -20°C                | <input checked="" type="checkbox"/> 0°C       | <input type="checkbox"/> X°C             |
|                              | Tnom:                                                | 20°C                                          |                                               |                                          |
|                              | Tmax:                                                | <input type="checkbox"/> 35°C                 | <input type="checkbox"/> 55°C                 | <input checked="" type="checkbox"/> 45°C |
| Type of power source:        | <input checked="" type="checkbox"/> AC power supply  | <input type="checkbox"/> DC power supply      | <input type="checkbox"/> Battery              |                                          |
| Operating voltage range:     | Vnom:                                                | <input checked="" type="checkbox"/> 120V/60Hz | <input type="checkbox"/> X Vdc                |                                          |

**Antenna Characteristic**

| Antenna assembly | Gain (dBi) | Frequency Band (MHz) | Impedance(Ω) |
|------------------|------------|----------------------|--------------|
| 1                | 2.6        | 2400-2483.5          | 50           |



### CHANNEL PLAN

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

### DATA RATE

| Data Rate (Mbps) | Modulation Type | Worst Case Modulation               |
|------------------|-----------------|-------------------------------------|
| 1                | GFSK            | <input checked="" type="checkbox"/> |

## 2.2. RUNNING MODE

The EUT is set in the following modes during tests:

- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
- Permanent reception

Following commands with the specific test software "TERATERM" are used to set the product:

- See document "BT command The Box.docx" for the command used during test

## 2.3. EQUIPMENT LABELLING



Power supply n° 1



Power supply n° 2



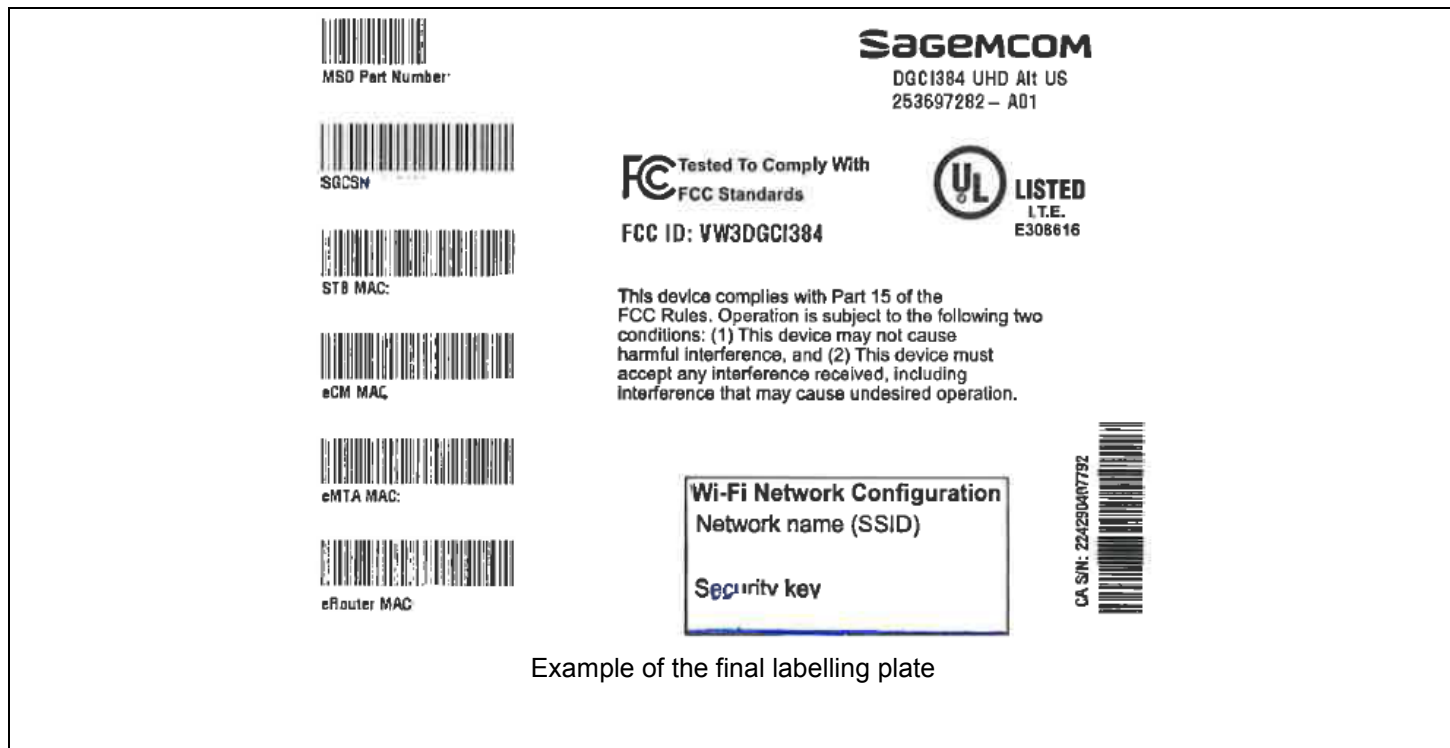
L C I E



Power supply n° 3



Power supply n° 4



## 2.4. EQUIPMENT MODIFICATION

☒ None ☐ Modification:

### 3. OCCUPIED BANDWIDTH

#### 3.1. TEST CONDITIONS

Test performed by : Arnaud FAYETTE  
Date of test : November 14, 2016  
Ambient temperature : 23 °C  
Relative humidity : 45 %

#### 3.2. TEST SETUP

- The Equipment Under Test is installed:

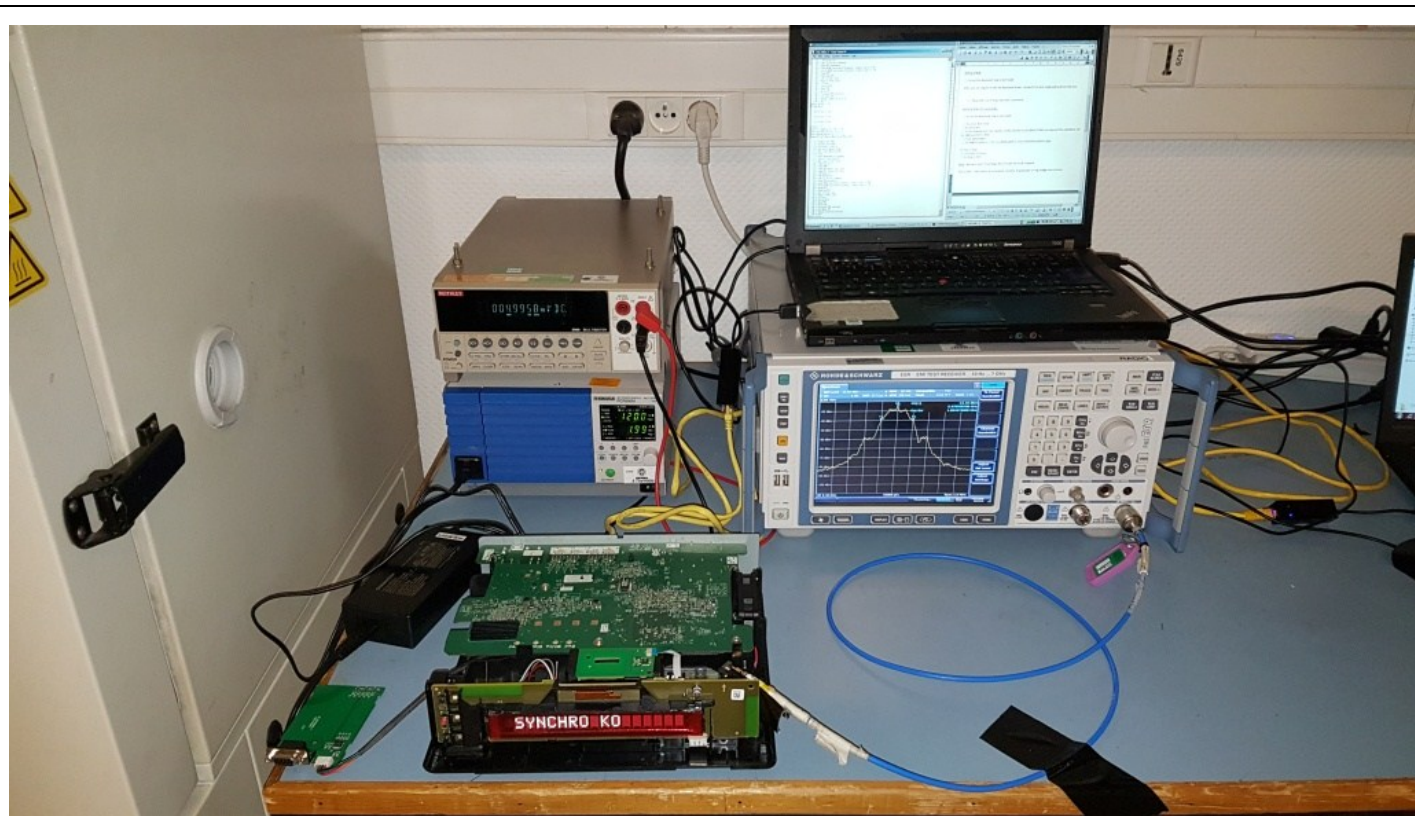
- ☒ On a table
- ☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- ☒ Conducted Method
- ☐ Radiated Method

- Test Procedure:

- ☐ RSS-Gen Issue 4 § 6.6
- ☒ ANSI C63.10 § 6.9.2



Photograph for Occupied bandwidth



### 3.1. LIMIT

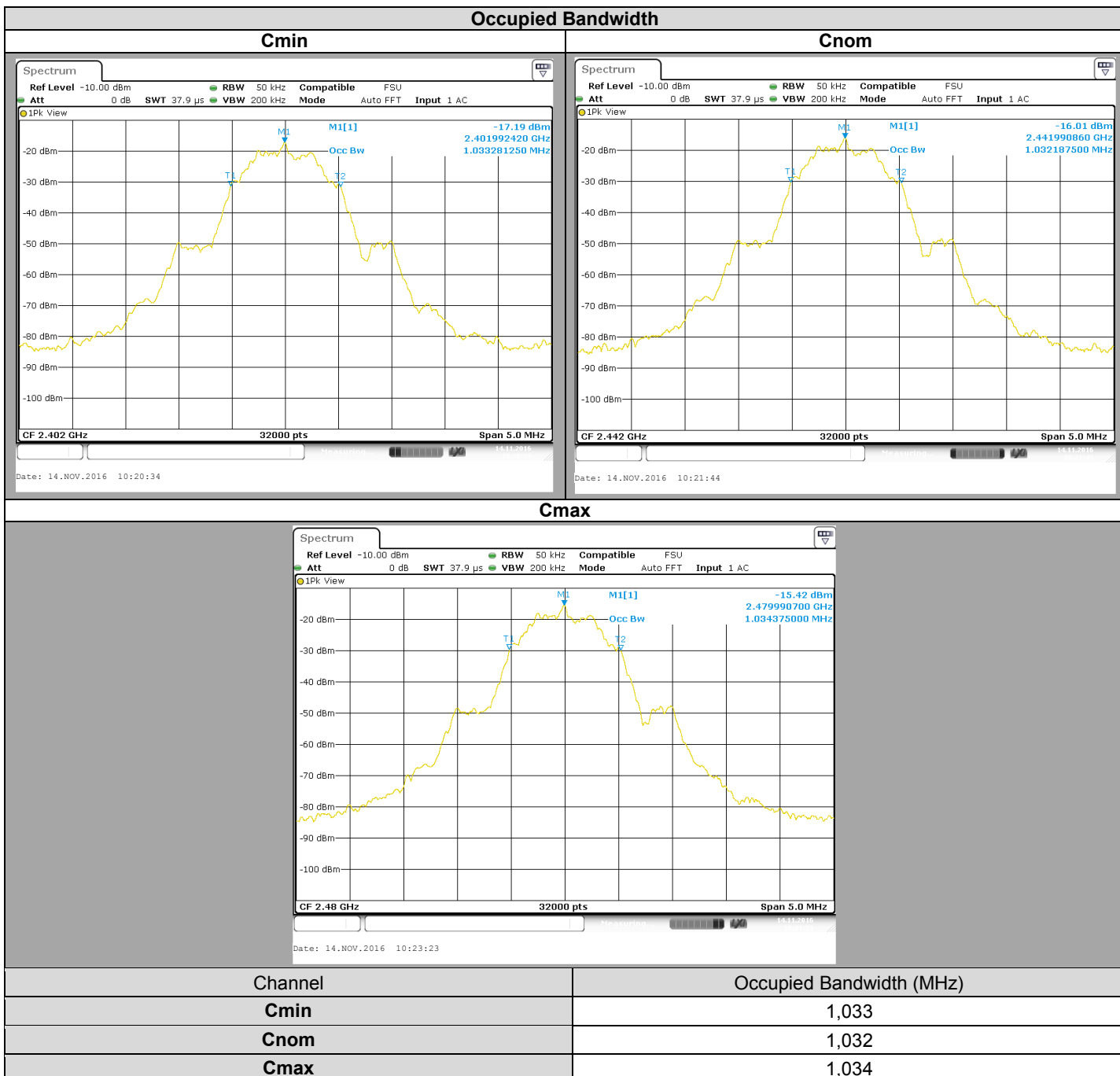
None

### 3.2. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER    | MODEL        | N° LCIE  | Calibration date                    | Calibration due                     |
|---------------------------------|-----------------|--------------|----------|-------------------------------------|-------------------------------------|
| Multi-meter                     | KEITHLEY        | 2000         | A1241084 | 2016/05                             | 2018/05                             |
| Programmable AC/DC power supply | -; KIKUSUI      | PCR500M      | A7049006 | Verified with calibrated multimeter | Verified with calibrated multimeter |
| EMI receiver                    | ROHDE & SCHWARZ | ESR 7        | A2642023 | 2016/09                             | 2017/09                             |
| RF cable & 20 dB attenuator     | Télédyne        | 920-0202-048 | A5329674 | 2016/09                             | 2017/09                             |

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

### 3.3. RESULTS



### 3.1. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

## 4. 6dB EMISSION BANDWIDTH

### 4.1. TEST CONDITIONS

Test performed by : Arnaud FAYETTE  
Date of test : November 14, 2016  
Ambient temperature : 24 °C  
Relative humidity : 45 %

### 4.2. TEST SETUP

- The Equipment Under Test is installed:

- ☒ On a table
- ☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- ☒ Conducted Method
- ☐ Radiated Method

- Test Procedure:

- ☐ KDB 558074 D01 DTS Meas Guidance v03r05 § 8.1
- ☒ KDB 558074 D01 DTS Meas Guidance v03r05 § 8.2



Photograph for 6dB emission bandwidth



#### 4.3. LIMIT

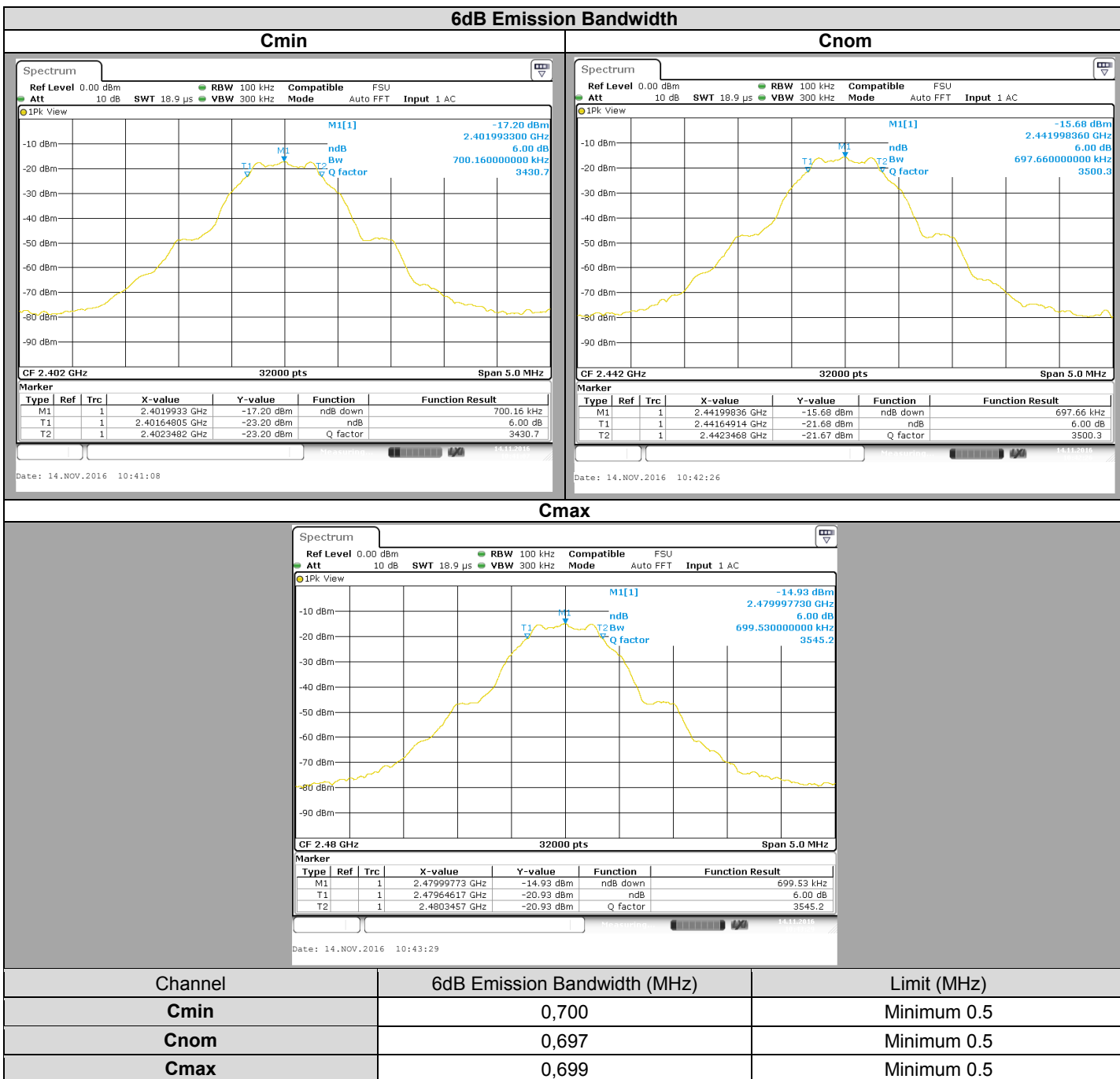
The 6dB bandwidth shall be at least 500kHz

#### 4.4. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER    | MODEL        | N° LCIE  | Calibration date                    | Calibration due                     |
|---------------------------------|-----------------|--------------|----------|-------------------------------------|-------------------------------------|
| Multi-meter                     | KEITHLEY        | 2000         | A1241084 | 2016/05                             | 2018/05                             |
| Programmable AC/DC power supply | -; KIKUSUI      | PCR500M      | A7049006 | Verified with calibrated multimeter | Verified with calibrated multimeter |
| EMI receiver                    | ROHDE & SCHWARZ | ESR 7        | A2642023 | 2016/09                             | 2017/09                             |
| RF cable & 20 dB attenuator     | Télédyne        | 920-0202-048 | A5329674 | 2016/09                             | 2017/09                             |

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

## 4.5. RESULTS



## 4.6. CONCLUSION

6dB Emission Bandwidth measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

## 5. DUTY CYCLE

### 5.1. TEST CONDITIONS

Test performed by : Arnaud FAYETTE  
Date of test : November 14, 2016  
Ambient temperature : 23 °C  
Relative humidity : 45 %

### 5.2. TEST SETUP

- The Equipment Under Test is installed:

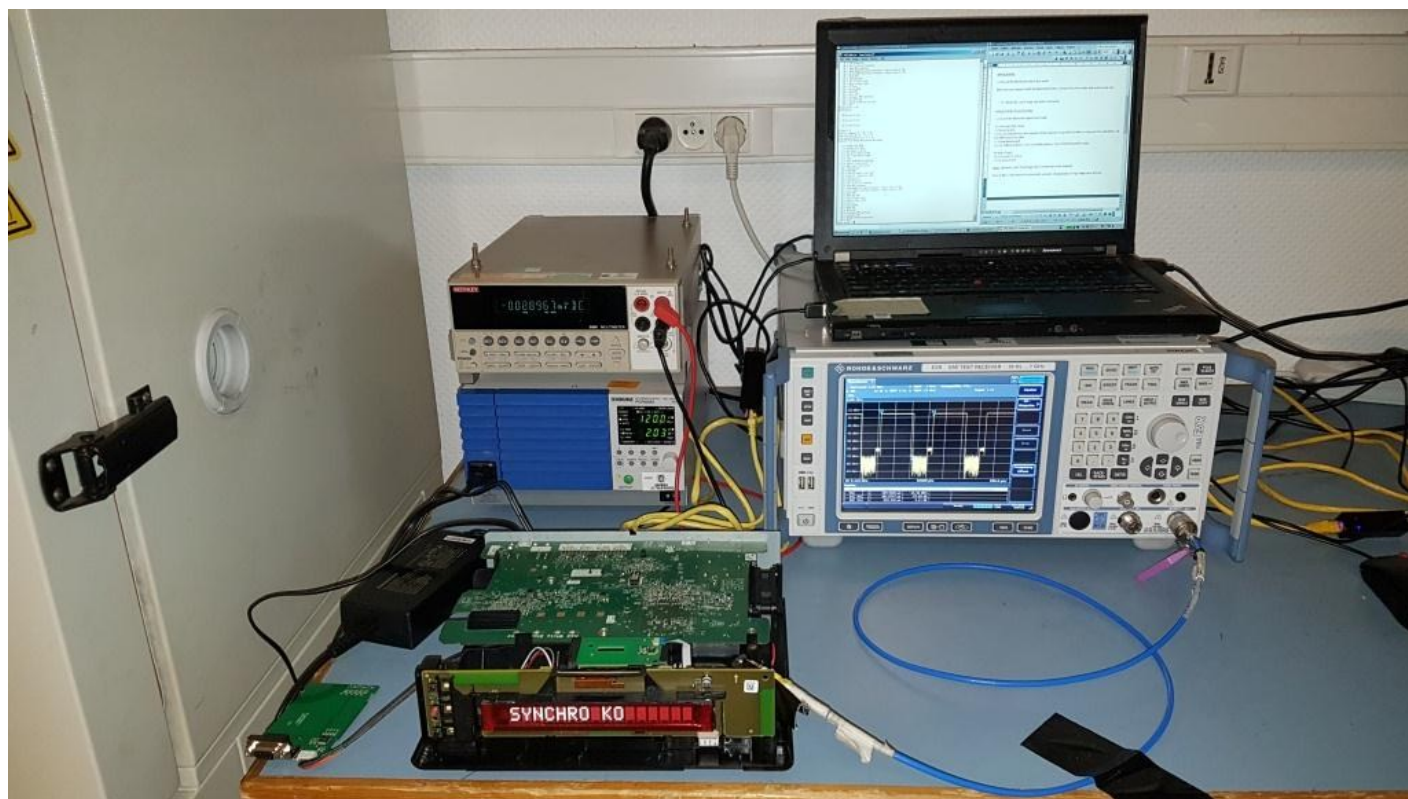
- ☒ On a table
- ☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- ☒ Conducted Method
- ☐ Radiated Method

- Test Procedure:

- ☒ KDB 558074 D01 DTS Meas Guidance v03r05 § 6.0 b)



Photograph for Duty Cycle

### 5.3. LIMIT

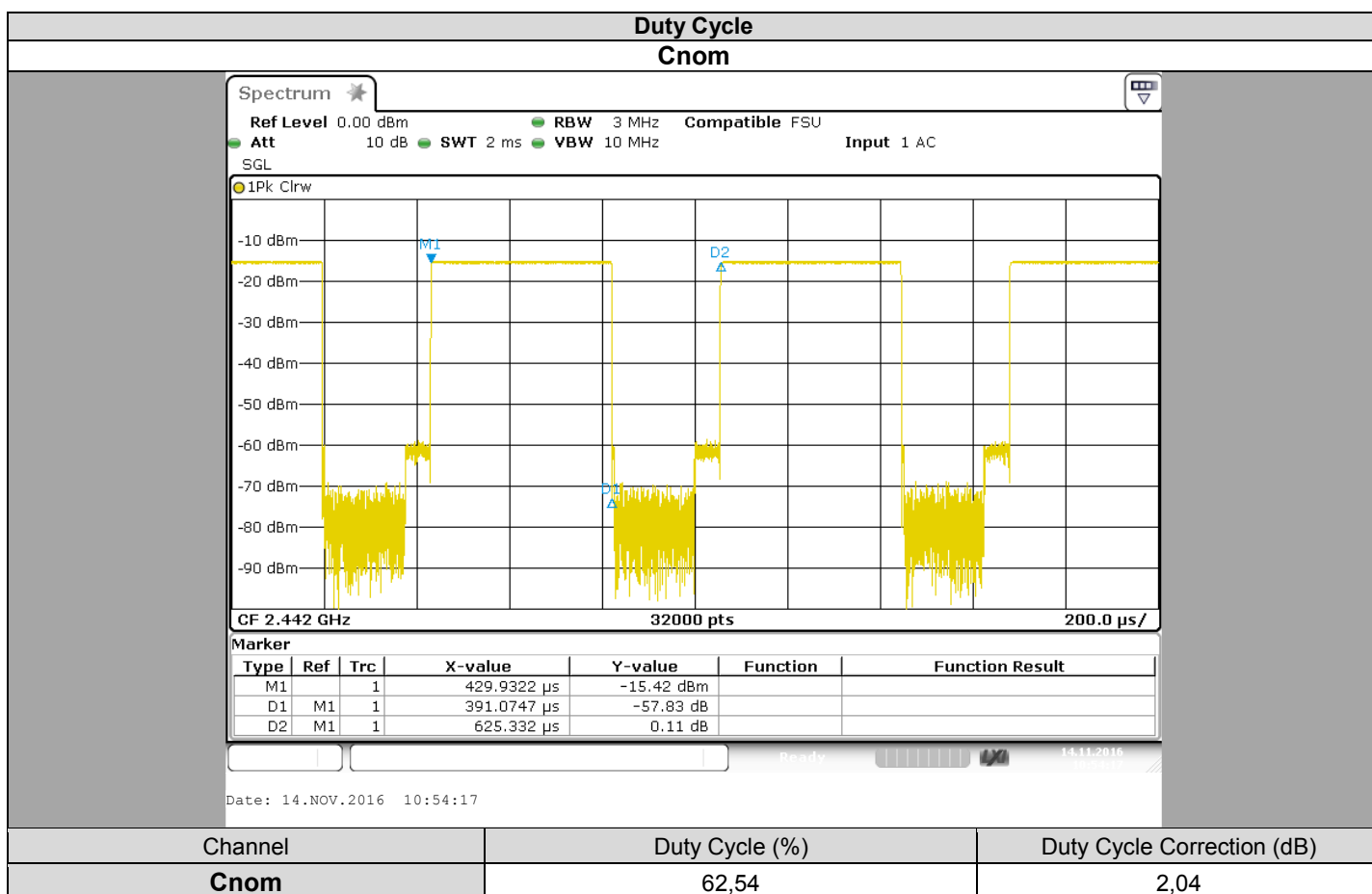
None

### 5.4. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER    | MODEL        | N° LCIE  | Calibration date                    | Calibration due                     |
|---------------------------------|-----------------|--------------|----------|-------------------------------------|-------------------------------------|
| Multi-meter                     | KEITHLEY        | 2000         | A1241084 | 2016/05                             | 2018/05                             |
| Programmable AC/DC power supply | -; KIKUSUI      | PCR500M      | A7049006 | Verified with calibrated multimeter | Verified with calibrated multimeter |
| EMI receiver                    | ROHDE & SCHWARZ | ESR 7        | A2642023 | 2016/09                             | 2017/09                             |
| RF cable & 20 dB attenuator     | Télédynne       | 920-0202-048 | A5329674 | 2016/09                             | 2017/09                             |

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

### 5.5. RESULTS



### 5.6. CONCLUSION

Duty Cycle measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

## 6. MAXIMUM CONDUCTED OUTPUT POWER

### 6.1. TEST CONDITIONS

Test performed by : Arnaud FAYETTE  
Date of test : November 14, 2016  
Ambient temperature : 23 °C  
Relative humidity : 45 %

### 6.2. TEST SETUP

- The Equipment Under Test is installed:

- ☒ On a table
- ☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- ☒ Conducted Method
- ☐ Radiated Method

- Test Procedure:

- ☒ KDB 558074 D01 DTS Meas Guidance v03r05 § 9.1.1 ( $RBW \geq DTS$  bandwidth)



Photograph for Maximum Conducted Output Power



### 6.3. LIMIT

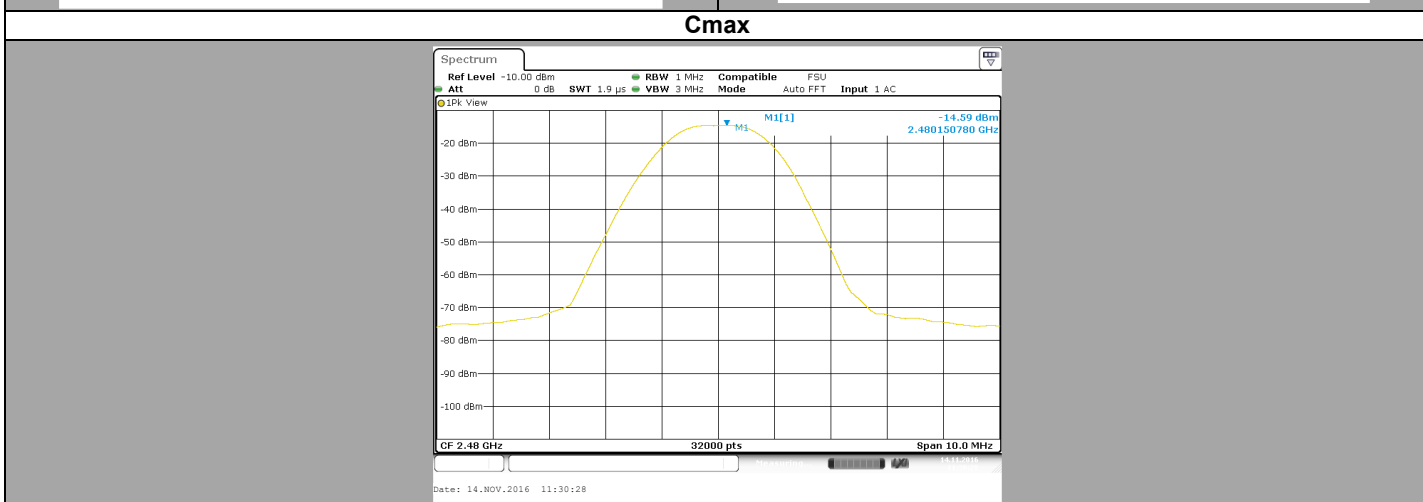
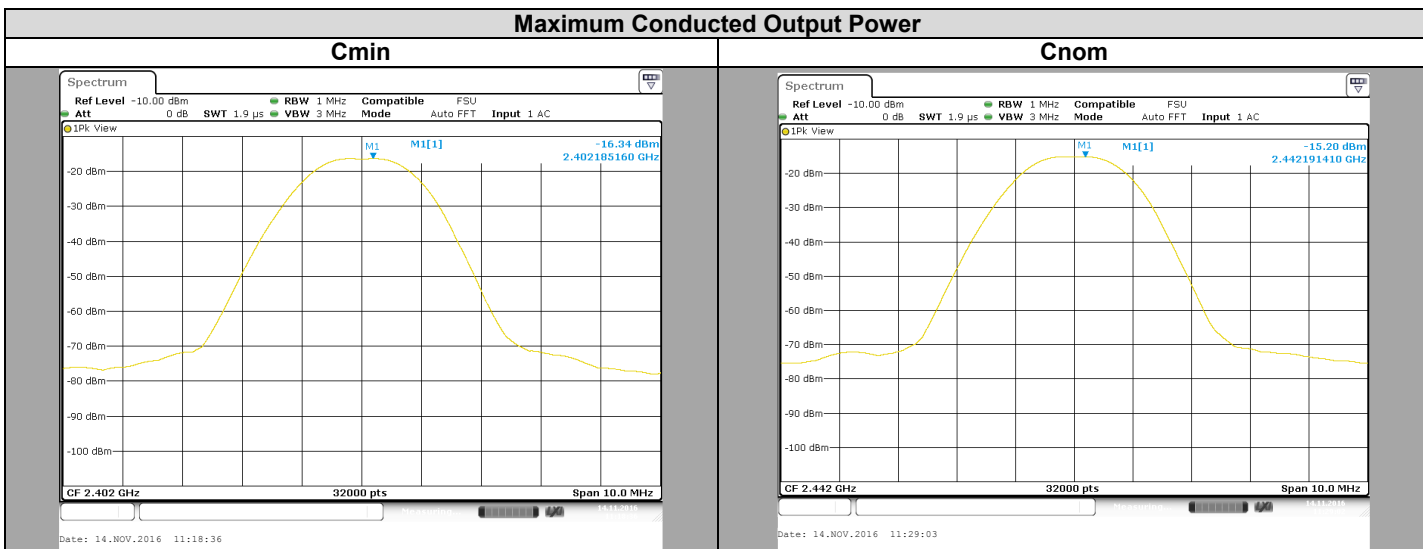
Maximum Conducted Output power:  
2400MHz-2483.5MHz: Shall not exceed 30dBm  
Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

### 6.4. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER    | MODEL        | N° LCIE  | Calibration date                    | Calibration due                     |
|---------------------------------|-----------------|--------------|----------|-------------------------------------|-------------------------------------|
| Multi-meter                     | KEITHLEY        | 2000         | A1241084 | 2016/05                             | 2018/05                             |
| Programmable AC/DC power supply | -; KIKUSUI      | PCR500M      | A7049006 | Verified with calibrated multimeter | Verified with calibrated multimeter |
| EMI receiver                    | ROHDE & SCHWARZ | ESR 7        | A2642023 | 2016/09                             | 2017/09                             |
| RF cable & 20 dB attenuator     | Télédyne        | 920-0202-048 | A5329674 | 2016/09                             | 2017/09                             |

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

## 6.5. RESULTS



| Channel     | Maximum Conducted Power without Offset (dBm) | Offset Cable + Att (dB) | Antenna Gain (dBi) | Maximum Conducted Power (dBm) | Limit (dBm)                                      |
|-------------|----------------------------------------------|-------------------------|--------------------|-------------------------------|--------------------------------------------------|
| <b>Cmin</b> | <b>-16,34</b>                                | <b>21,4</b>             | 2.6                | 5,06                          | 30. Reduced by G-6dBi if Antenna Gain above 6dBi |
| <b>Cnom</b> | <b>-15,20</b>                                | <b>21,4</b>             | 2.6                | 6,20                          | 30. Reduced by G-6dBi if Antenna Gain above 6dBi |
| <b>Cmax</b> | <b>-14,59</b>                                | <b>21,4</b>             | 2.6                | 6,81                          | 30. Reduced by G-6dBi if Antenna Gain above 6dBi |

## 6.6. CONCLUSION

Maximum Conducted Output Power measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

## 7. POWER SPECTRAL DENSITY

### 7.1. TEST CONDITIONS

Test performed by : Arnaud FAYETTE  
Date of test : November 14, 2016  
Ambient temperature : 23 °C  
Relative humidity : 45 %

### 7.2. TEST SETUP

- The Equipment Under Test is installed:

- ☒ On a table
- ☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- ☒ Conducted Method
- ☐ Radiated Method

- Test Procedure:

- ☒ KDB 558074 D01 DTS Meas Guidance v03r05 § 10.2 (Method PKPSD)



Photograph for Power Spectral Density



### 7.3. LIMIT

Power Spectral Density:

2400MHz-2483.5MHz: Shall not exceed 8dBm/3kHz

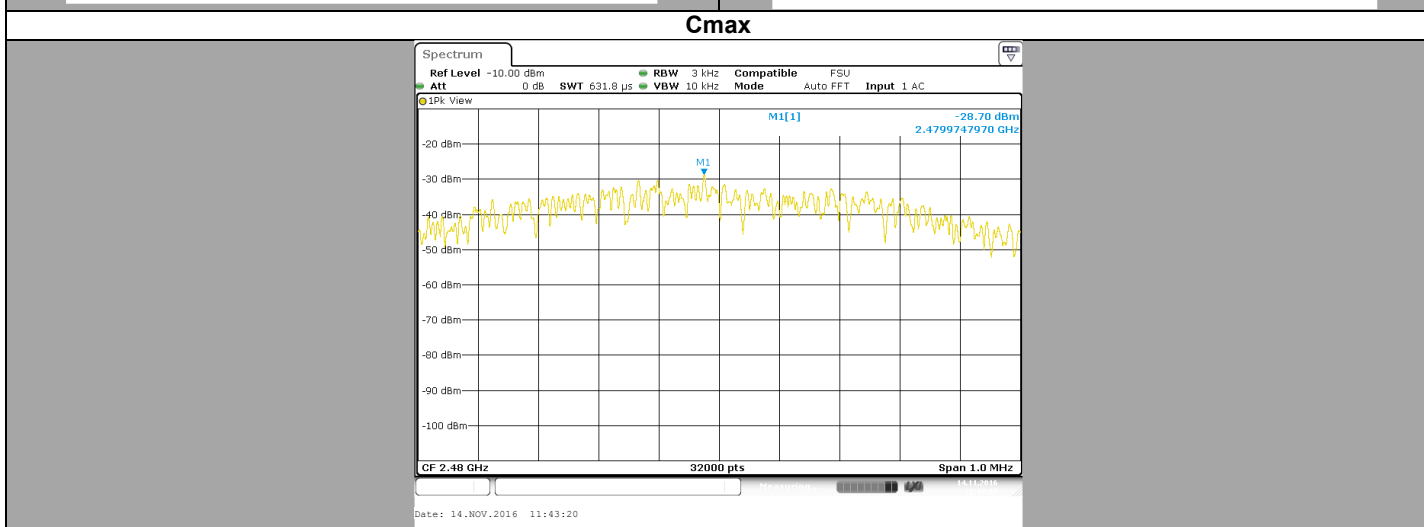
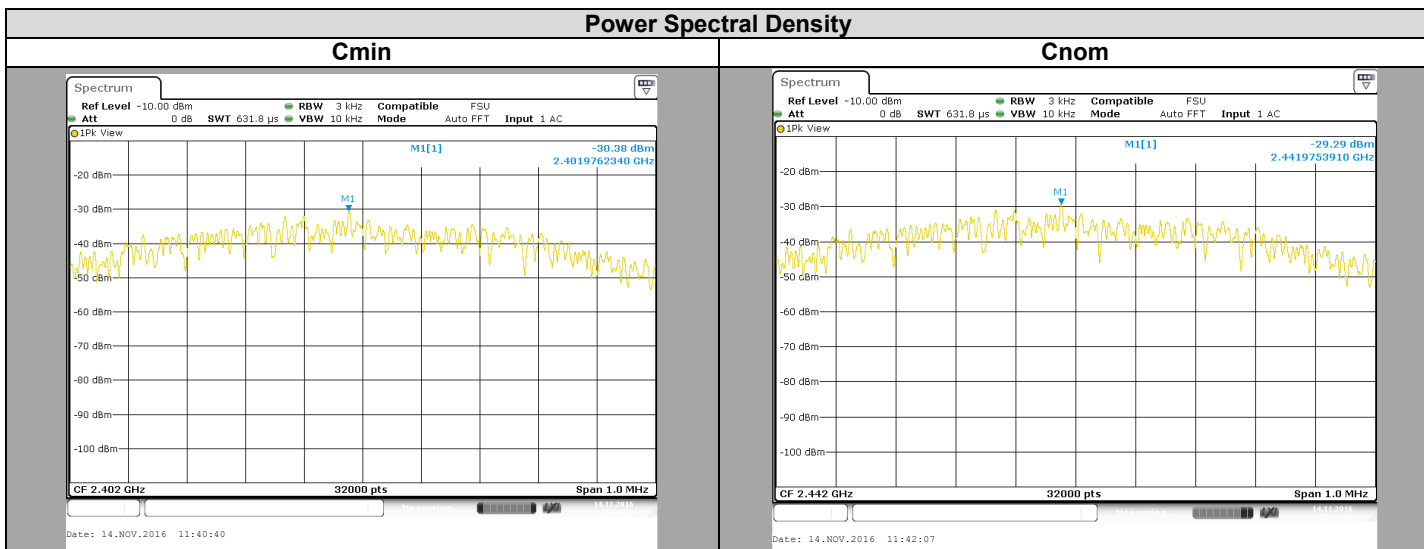
Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

### 7.4. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER    | MODEL        | N° LCIE  | Calibration date                    | Calibration due                     |
|---------------------------------|-----------------|--------------|----------|-------------------------------------|-------------------------------------|
| Multi-meter                     | KEITHLEY        | 2000         | A1241084 | 2016/05                             | 2018/05                             |
| Programmable AC/DC power supply | -; KIKUSUI      | PCR500M      | A7049006 | Verified with calibrated multimeter | Verified with calibrated multimeter |
| EMI receiver                    | ROHDE & SCHWARZ | ESR 7        | A2642023 | 2016/09                             | 2017/09                             |
| RF cable & 20 dB attenuator     | Télédyne        | 920-0202-048 | A5329674 | 2016/09                             | 2017/09                             |

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

## 7.5. RESULTS



| Channel     | Power Spectral Density (dBm/3kHz) | Offset Cable + Att (dB) | Antenna Gain (dBi) | Power Spectral Density (dBm/3kHz) | Limit (dBm/3kHz)                                |
|-------------|-----------------------------------|-------------------------|--------------------|-----------------------------------|-------------------------------------------------|
| <b>Cmin</b> | <b>-30,38</b>                     | <b>21,4</b>             | 2.6                | -8,98                             | 8. Reduced by G-6dBi if Antenna Gain above 6dBi |
| <b>Cnom</b> | <b>-29,29</b>                     | <b>21,4</b>             | 2.6                | -7,89                             | 8. Reduced by G-6dBi if Antenna Gain above 6dBi |
| <b>Cmax</b> | <b>-28,70</b>                     | <b>21,4</b>             | 2.6                | -7,3                              | 8. Reduced by G-6dBi if Antenna Gain above 6dBi |

## 7.6. CONCLUSION

Power Spectral Density measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

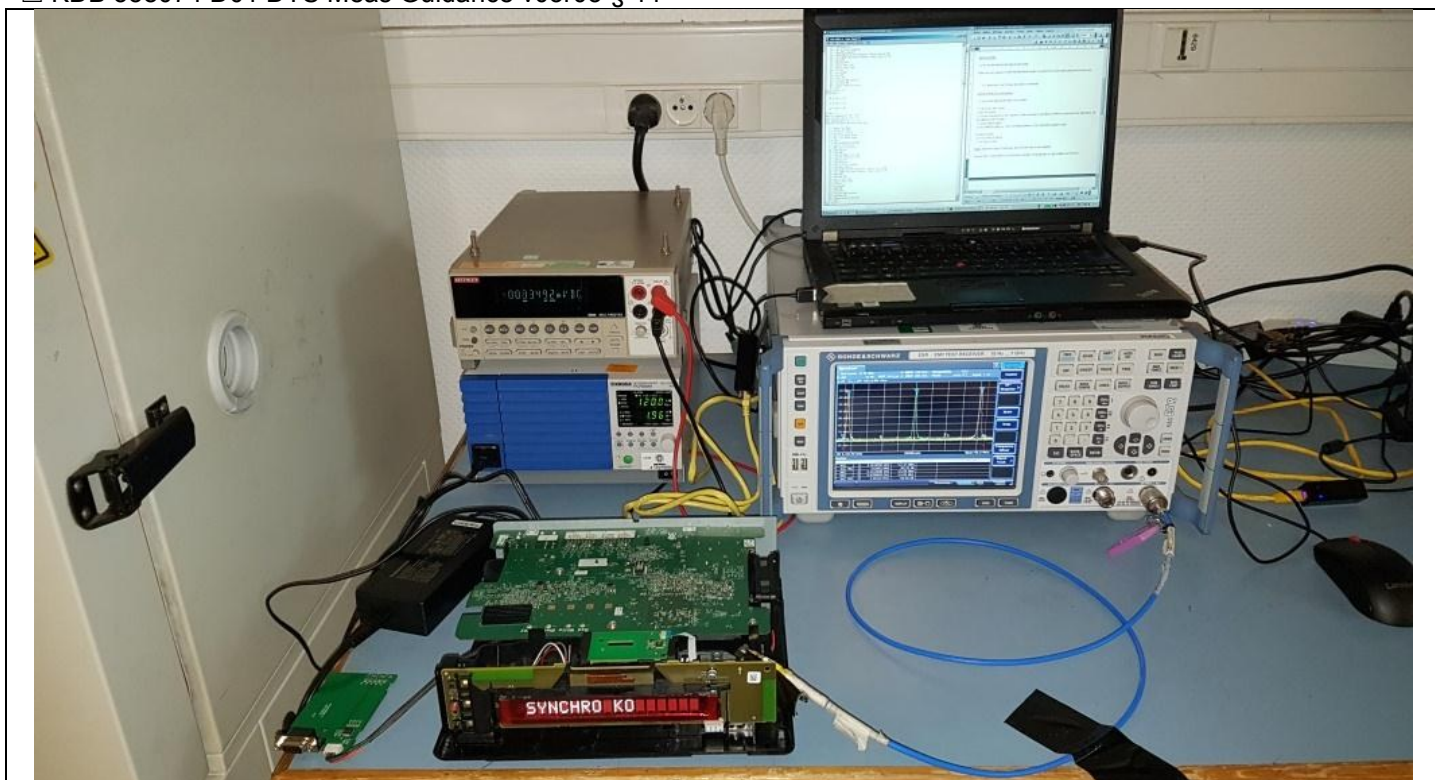
## 8. UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS AT THE BAND EDGE

### 8.1. TEST CONDITIONS

Test performed by : Arnaud FAYETTE  
Date of test : November 14, 2016  
Ambient temperature : 23 °C  
Relative humidity : 45 %

### 8.2. TEST SETUP

- The Equipment Under Test is installed:
  - ☒ On a table
  - ☐ In an anechoic chamber
- Measurement is performed with a spectrum analyzer in:
  - ☒ Conducted Method
  - ☐ Radiated Method
- Test Procedure:
  - ☒ KDB 558074 D01 DTS Meas Guidance v03r05 § 11



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



### 8.3. LIMIT

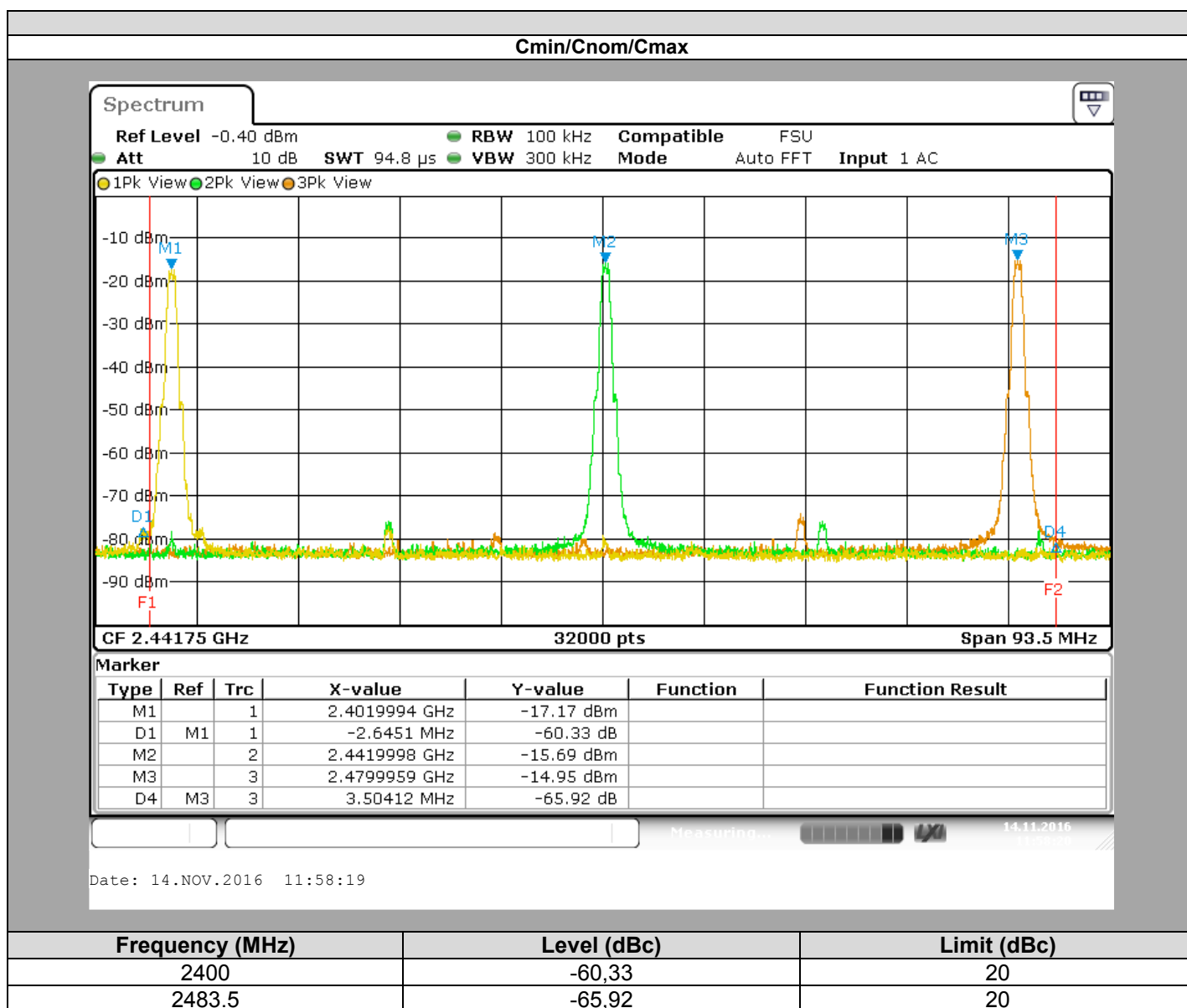
All Spurious Emissions must be at least 20dB below the Fundamental Radiator Level at the Band Edge Edge “2400MHz & 2483,5MHz”

### 8.4. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER    | MODEL        | N° LCIE  | Calibration date                    | Calibration due                     |
|---------------------------------|-----------------|--------------|----------|-------------------------------------|-------------------------------------|
| Multi-meter                     | KEITHLEY        | 2000         | A1241084 | 2016/05                             | 2018/05                             |
| Programmable AC/DC power supply | -; KIKUSUI      | PCR500M      | A7049006 | Verified with calibrated multimeter | Verified with calibrated multimeter |
| EMI receiver                    | ROHDE & SCHWARZ | ESR 7        | A2642023 | 2016/09                             | 2017/09                             |
| RF cable & 20 dB attenuator     | Télédyne        | 920-0202-048 | A5329674 | 2016/09                             | 2017/09                             |

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

## 8.5. RESULTS



## 8.6. CONCLUSION

Unwanted Emission into non-restricted frequency bands at the band edge measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

## 9. UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS

### 9.1. TEST CONDITIONS

Test performed by : Mathieu CERISIER  
Date of test : November 10, 2016  
Ambient temperature : 24 °C  
Relative humidity : 41 %

### 9.2. TEST SETUP

- The Equipment Under Test is installed:
  - ☐ On a table
  - ☒ In an anechoic chamber
- Measurement is performed with a spectrum analyzer in:
  - ☒ Conducted Method
  - ☐ Radiated Method
- Test Procedure:
  - ☒ KDB 558074 D01 DTS Meas Guidance v03r05 § 11



Photograph for Unwanted Emission into non-restricted frequency bands



### 9.3. LIMIT

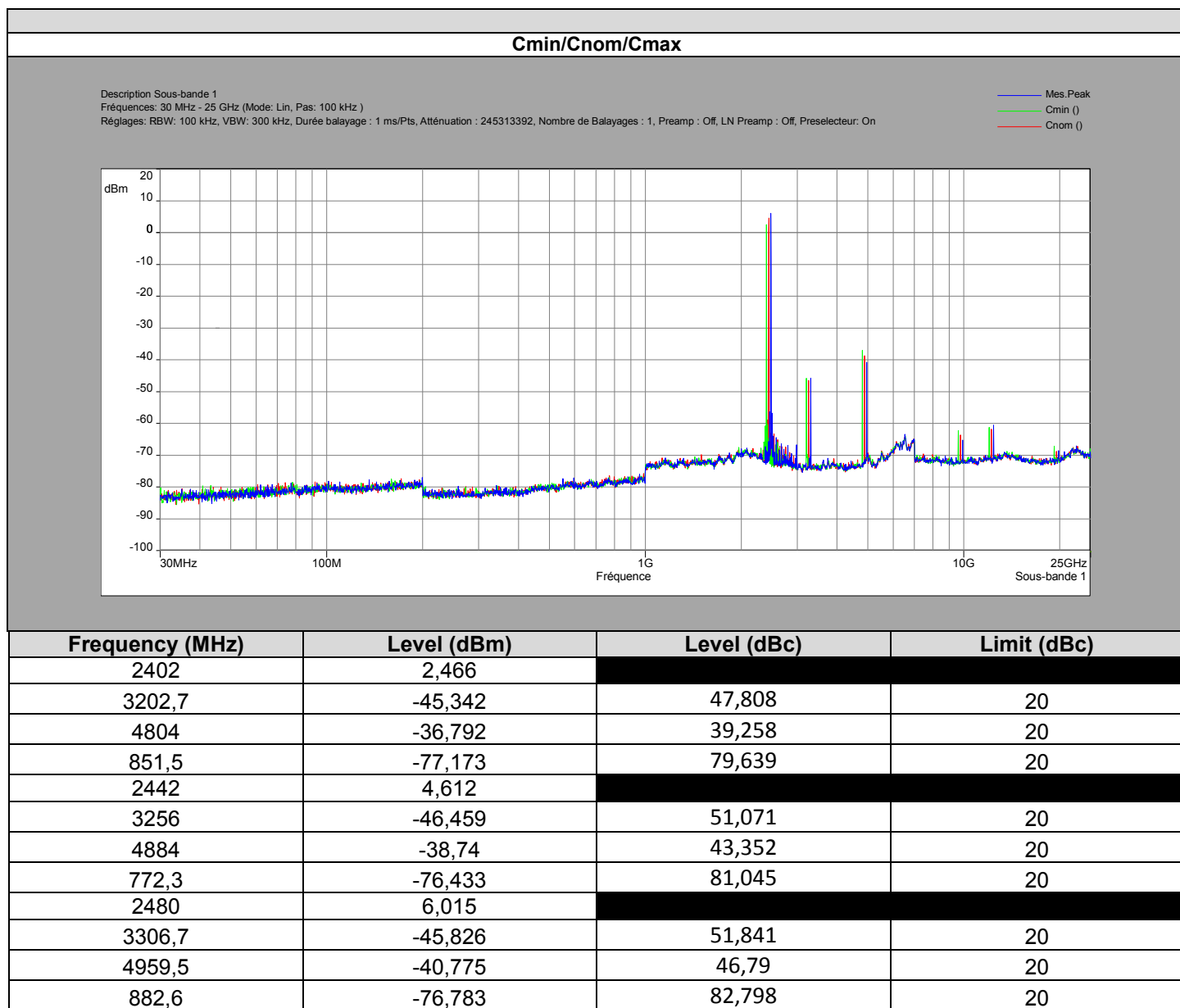
All Spurious Emissions must be at least 20 below the Fundamental Radiator Level

### 9.4. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER    | MODEL                  | N° LCIE  | Cal_Date | Cal_Due |
|---------------------------------|-----------------|------------------------|----------|----------|---------|
| EMI receiver                    | ROHDE & SCHWARZ | ESI40 1088 740K40      | A2642010 | 2016/07  | 2017/07 |
| Measurement RF cable            | Télédyné        | Cordon 082-5454-1.5mtr | A5329624 | 2016/08  | 2018/08 |
| Rejector filter 2,4GHz          | -               | 2.45GHz                | A7484048 | 2016/08  | 2018/08 |
| Programmable AC/DC power supply | -; KIKUSUI      | PCR500M                | A7040079 | 2016/06  | 2018/06 |

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

## 9.5. RESULTS



## 9.6. CONCLUSION

Unwanted Emission into non-restricted frequency bands measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

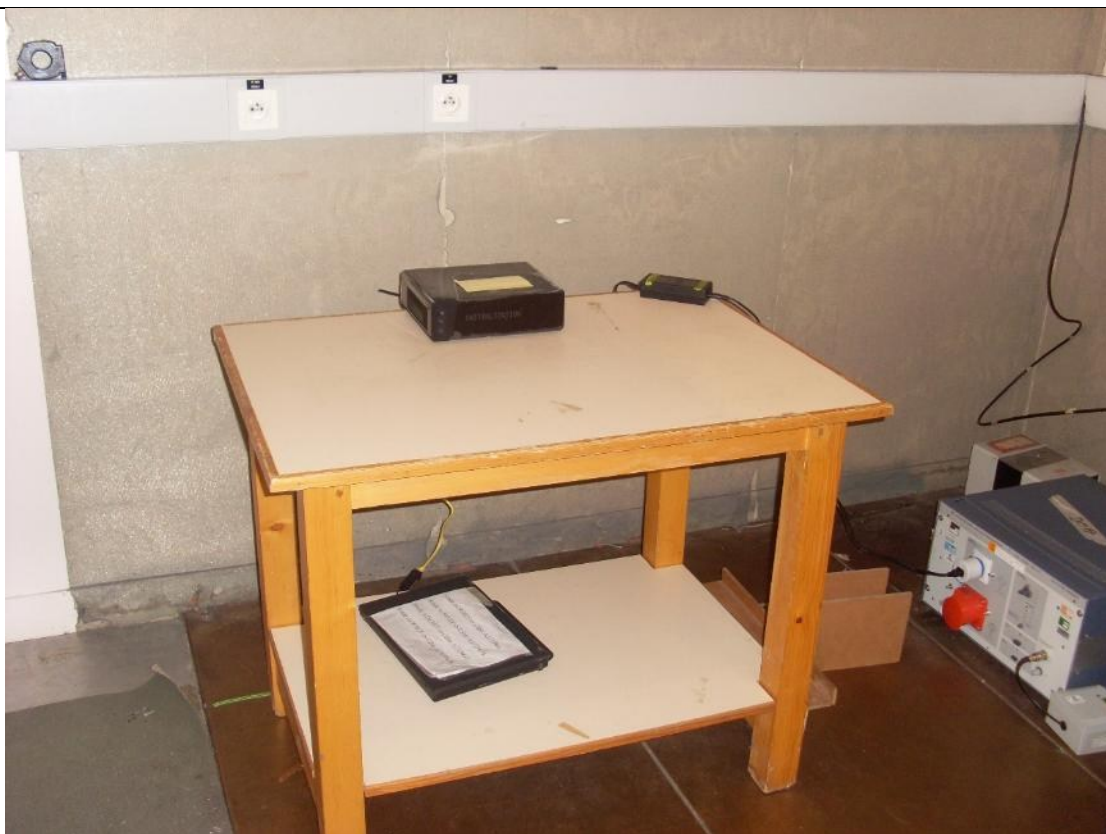
## 10. AC POWER LINE CONDUCTED EMISSIONS

### 10.1. TEST CONDITIONS

Test performed by : Laurent DENEUX  
Date of test : November 21, 2016  
Ambient temperature : Temperature 21°C  
Relative humidity : Humidity 53%

### 10.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013) method. The EUT is placed on the ground reference plane, at 80cm from the LISN. The distance between the EUT and the vertical ground plane is 40cm. Auxiliaries are powered by another LISN. The cable has been shorted to 1meter length. The EUT is powered through the LISN. Measurement is made with a receiver in peak mode. This was followed by a Quasi-Peak, i.e. CISPR measurement for any strong signal. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary. The LISN (measure) is  $50\Omega / 50\mu\text{H}$ . Interconnecting cables and equipment's were moved to position that maximized emission.



Photograph for AC Power Line Conducted Emissions (Front view)



Photograph for AC Power Line Conducted Emissions (Rear view)

### 10.3. LIMIT

#### Quasi-Peak

0,15kHz to 0,5MHz: 66dB $\mu$ V to 56dB $\mu$ V\*

0,5MHz to 5MHz: 56dB $\mu$ V

5MHz to 30MHz: 60dB $\mu$ V

#### Average

0,15kHz to 0,5MHz: 56dB $\mu$ V to 46dB $\mu$ V\*

0,5MHz to 5MHz: 46dB $\mu$ V

5MHz to 30MHz: 50dB $\mu$ V

\*Decreases with the logarithm of the frequency

### 10.4. TEST EQUIPMENT LIST

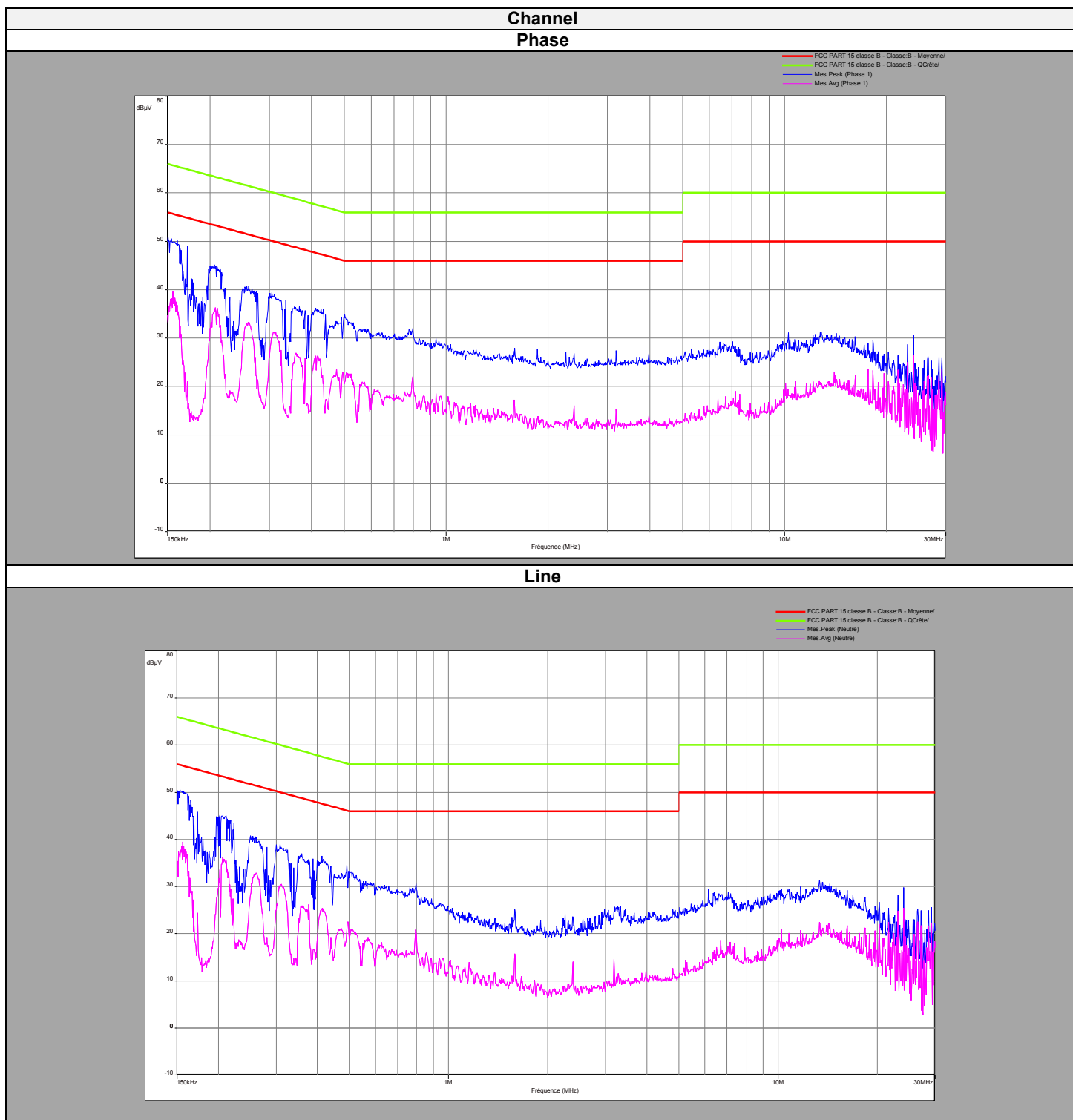
| Test Equipment Used |                 |         |            |           |          |
|---------------------|-----------------|---------|------------|-----------|----------|
| Description         | Manufacturer    | Model   | Identifier | Cal. Date | Cal. Due |
| EMI Test Receiver   | ROHDE & SCHWARZ | ESIB26  | A2642021   | 2015-12   | 2016-12  |
| V ISLN              | ROHDE & SCHWARZ | ESH2-Z5 | C2322001   | 2016-05   | 2017-05  |
| Pulse limiter       | ROHDE & SCHWARZ | ESH3-Z2 | A2649008   | 2016-03   | 2017-03  |
| Cable               | -               | -       | A5329417   | 2016-10   | 2017-10  |
| Cable               | -               | -       | A5329589   | 2016-10   | 2017-10  |
| Ground plane        | LCIE            | -       | -          | -         | -        |

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

### 10.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☒ None      ☐ Divergence:

## 10.6. RESULTS



| Phase Line      |                         |                               |                               |                         |                            |                            |                      |
|-----------------|-------------------------|-------------------------------|-------------------------------|-------------------------|----------------------------|----------------------------|----------------------|
| Frequency (MHz) | Peak Level (dB $\mu$ V) | Quasi-Peak Level (dB $\mu$ V) | Quasi-Peak Limit (dB $\mu$ V) | Margin Quasi-peak limit | Average Level (dB $\mu$ V) | Average Limit (dB $\mu$ V) | Margin Average Limit |
| 0,153           | 50,4                    | -                             | 65,8                          | 15,4                    | 39,5                       | 55,8                       | 16,3                 |
| 0,26            | 40,7                    | -                             | 61,4                          | 20,7                    | 33,3                       | 51,4                       | 18,1                 |
| 1,596           | 28                      | -                             | 56                            | 28                      | 17,3                       | 46                         | 28,7                 |
| 10,262          | 31                      | -                             | 60                            | 29                      | 17,8                       | 50                         | 32,2                 |
| 24              | 31                      | -                             | 60                            | 29                      | 26,4                       | 50                         | 23,6                 |

| Neutral Line    |                         |                               |                               |                         |                            |                            |                      |
|-----------------|-------------------------|-------------------------------|-------------------------------|-------------------------|----------------------------|----------------------------|----------------------|
| Frequency (MHz) | Peak Level (dB $\mu$ V) | Quasi-Peak Level (dB $\mu$ V) | Quasi-Peak Limit (dB $\mu$ V) | Margin Quasi-peak limit | Average Level (dB $\mu$ V) | Average Limit (dB $\mu$ V) | Margin Average Limit |
| 0,158           | 50                      | -                             | 65,6                          | 15,6                    | 39,5                       | 55,6                       | 16,1                 |
| 0,26            | 40,3                    | -                             | 61,4                          | 21,1                    | 32,9                       | 51,4                       | 18,5                 |
| 1,588           | 25                      | -                             | 56                            | 31                      | 16                         | 46                         | 30                   |
| 14,364          | 30,6                    | -                             | 60                            | 29,4                    | 22                         | 50                         | 28                   |
| 24              | 30                      | -                             | 60                            | 30                      | 25,4                       | 50                         | 24,6                 |

## 10.7. CONCLUSION

Ac Power Line Conducted Emission measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.247 limits.

## 11. UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS

### 11.1. TEST CONDITIONS

Test performed by : Laurent DENEUX  
Date of test : November 21, 2016 to November 22, 2016  
Ambient temperature : Temperature 19°C  
Relative humidity : Humidity 46%

### 11.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013). The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **10m**. Test is performed in horizontal (H) and vertical (V) polarization with **bilog** antenna below 1GHz and with a horn antenna above 1GHz. Measurement bandwidth was 120kHz below 1GHz and 1MHz above 1GHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height search was performed from 1 to 4m. The EUT is place at 1.5m high above 1GHz and at 0.8m high under 1GHz.



Photograph for Unwanted Emission in restricted frequency bands



Photograph for Unwanted Emission in restricted frequency bands



Photograph for Unwanted Emission in restricted frequency bands

### 11.3. LIMIT

#### Limit at 10m:

|                    |                         |
|--------------------|-------------------------|
| 30MHz to 88MHz:    | 29.5dB $\mu$ V/m QPeak  |
| 88MHz to 216MHz:   | 33dB $\mu$ V/m QPeak    |
| 216MHz to 960MHz:  | 35.5dB $\mu$ V/m QPeak  |
| 960MHz to 1000MHz: | 43.5dB $\mu$ V/m QPeak  |
| Above 1000MHz:     | 63.5B $\mu$ V/m Peak    |
|                    | 43.5B $\mu$ V/m Average |

### 11.4. TEST EQUIPMENT LIST

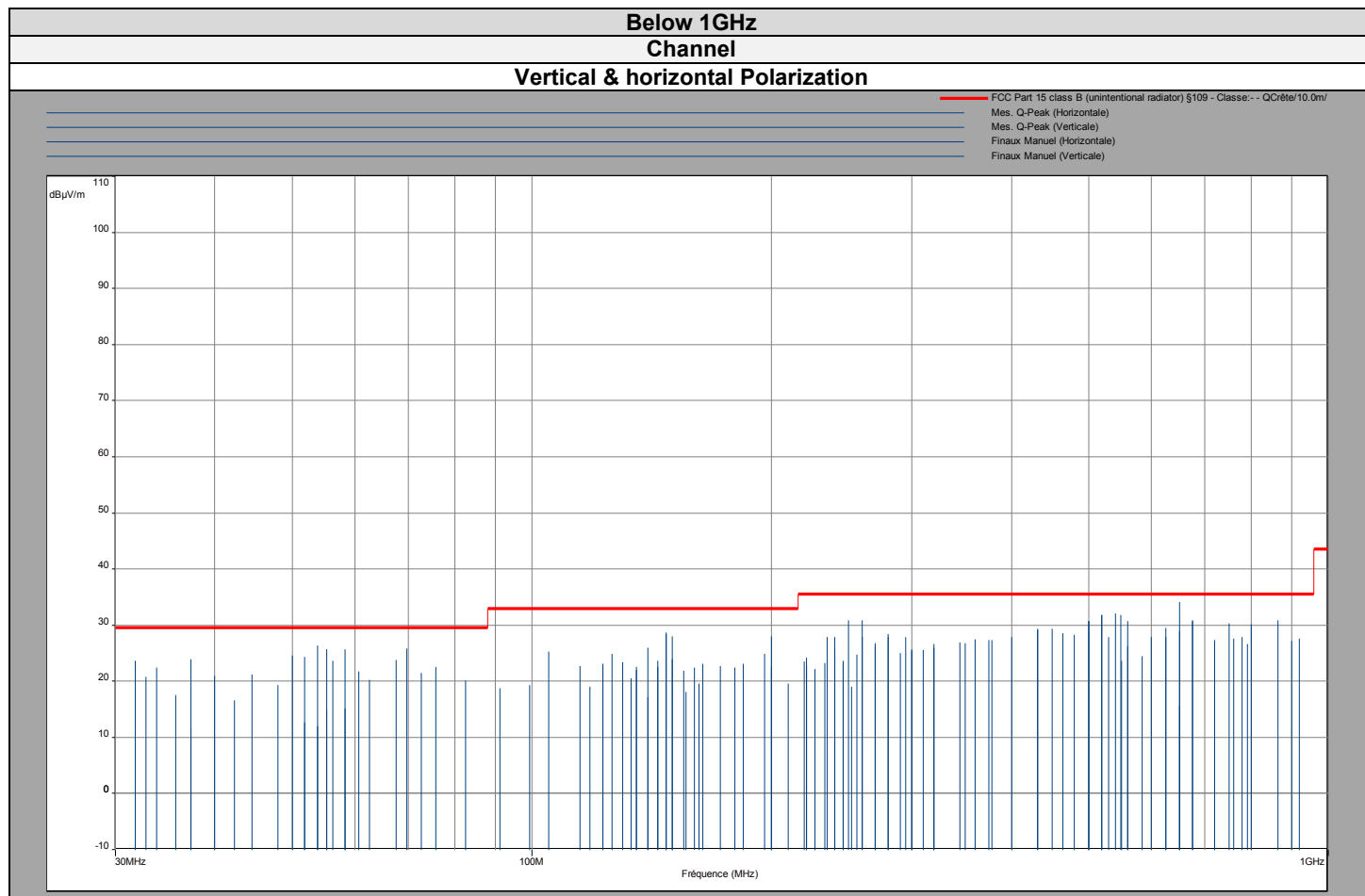
| Apparatus                           | Trade Mark      | Type         | Registration number | Cal. Date | Cal. Due |
|-------------------------------------|-----------------|--------------|---------------------|-----------|----------|
| Open test site                      | LCIE            | -            | F2000400            | 2016-05   | 2017-05  |
| EMI Test Receiver                   | ROHDE & SCHWARZ | ESIB26       | A2642021            | 2015-12   | 2016-12  |
| Preamplifier                        | HEWLETT PACKARD | 8449B        | A7080071            | 2016-01   | 2017-01  |
| Bilog antenna                       | CHASE           | CBL 6112A    | C2040040            | 2016-01   | 2017-01  |
| Measurement horn antenna 18-26,5GHz | PASTERNAK       | PE9852/2F-20 | C2042048            | 2015/05   | 2017/05  |
| Horn                                | ETS             | 3115         | C2042023            | 2016-01   | 2017-01  |
| Cable                               | -               | -            | A5329542            | 2016-03   | 2017-03  |
| Cable                               | -               | -            | A5329449            | 2016-10   | 2017-10  |
| Cable                               | -               | -            | A5329368            | 2016-05   | 2017-05  |
| Cable                               | -               | -            | A5329444            | 2016-10   | 2017-10  |

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

### 11.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☒ None      ☐ Divergence:

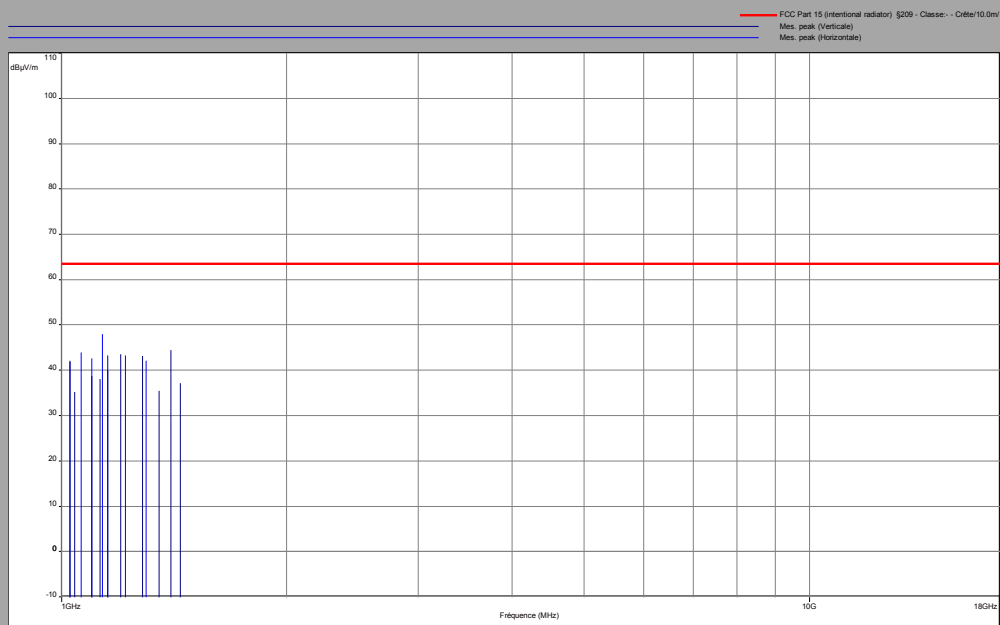
## 11.6. RESULTS



# Above 1GHz

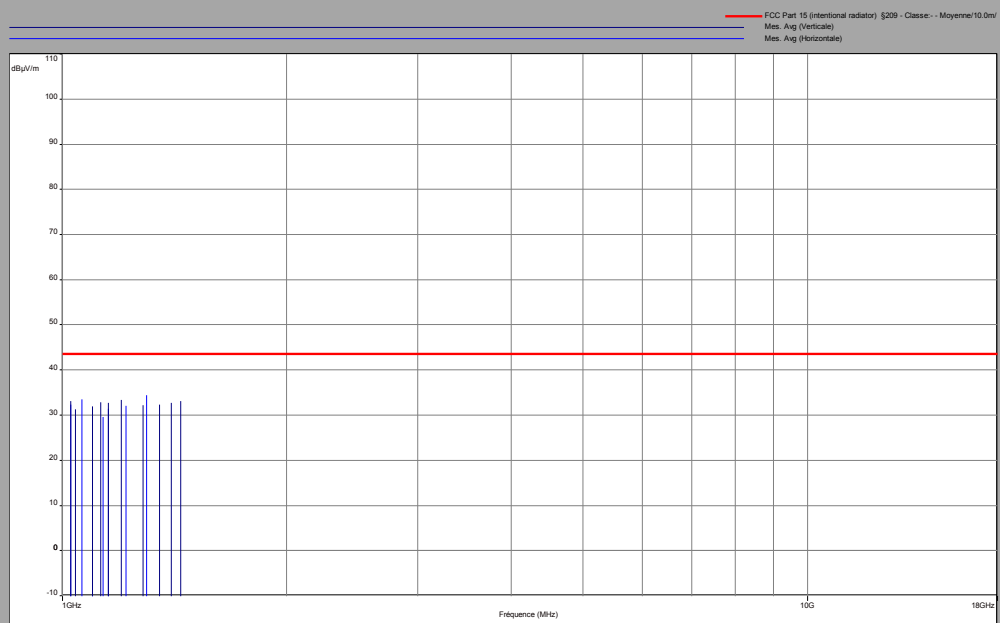
## Cmin/Cnom/Cmax

### Vertical & horizontal Polarization (peak measurement)



No interference has been observed between 18GHz and 26GHz

### Vertical & horizontal Polarization(average value)

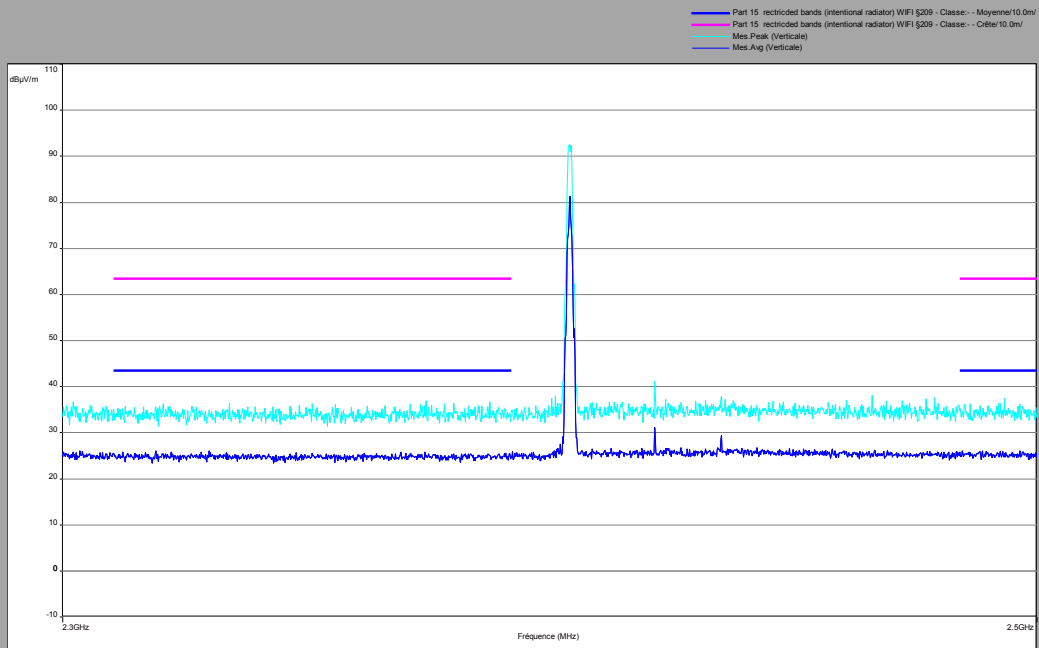


No interference has been observed between 18GHz and 26GHz

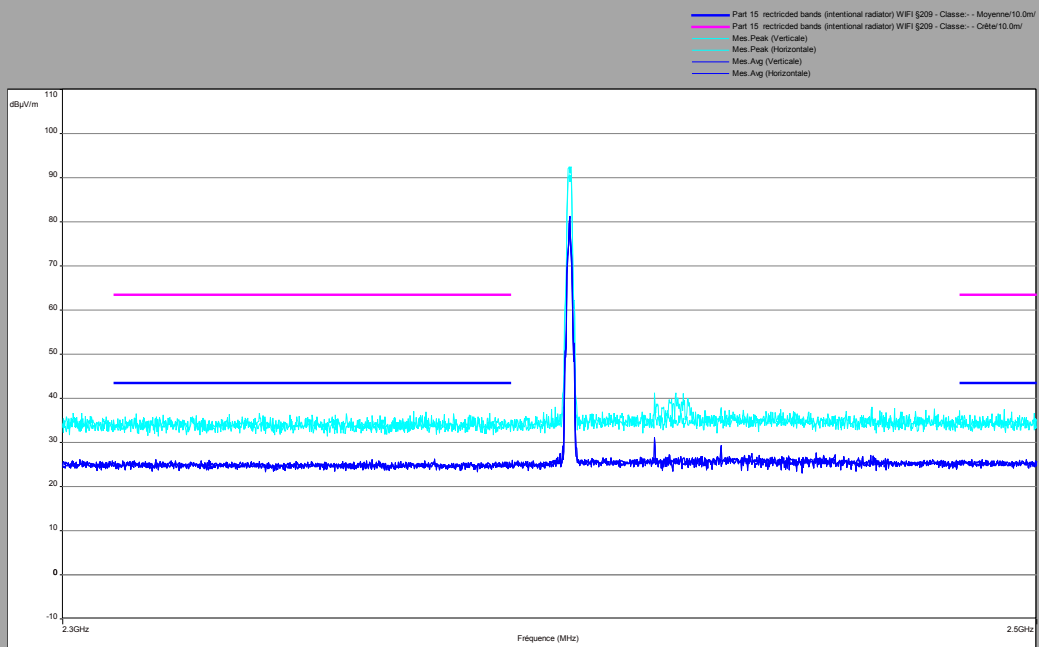
Above 1GHz Zoom 2310MHz-2500MHz

Cmin

Vertical Polarization



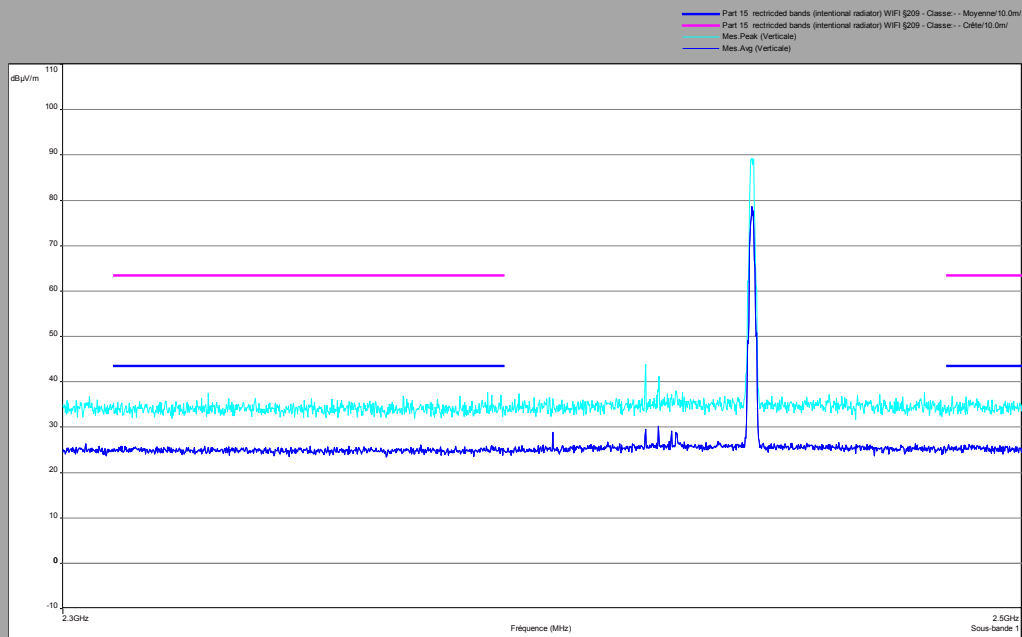
Horizontal polarization



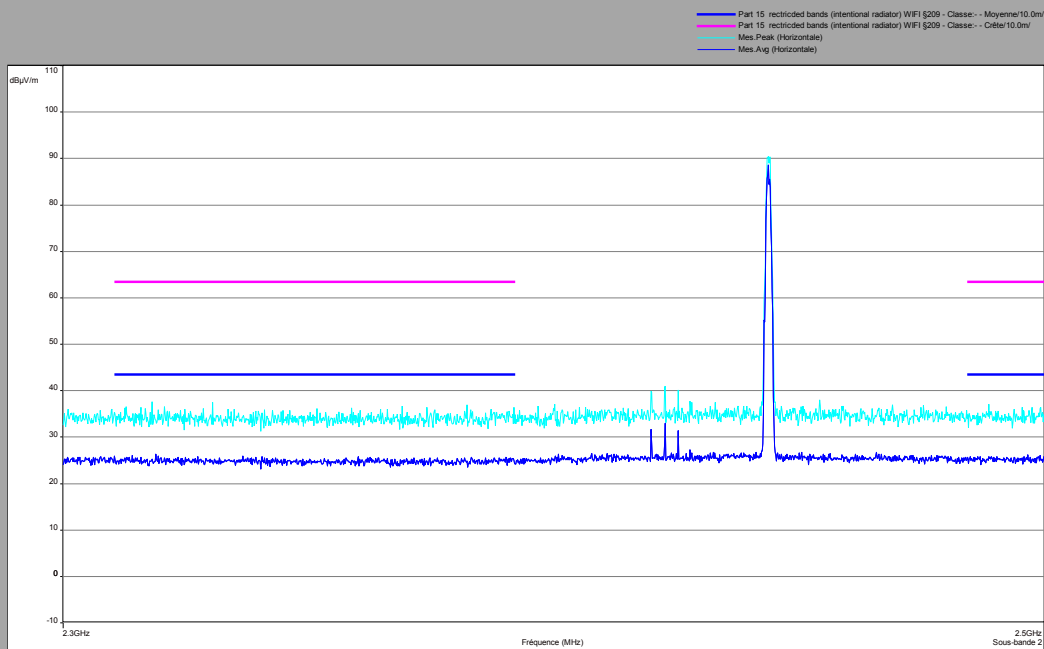
### Above 1GHz Zoom 2310MHz-2500MHz

**Cnom**

#### Vertical Polarization



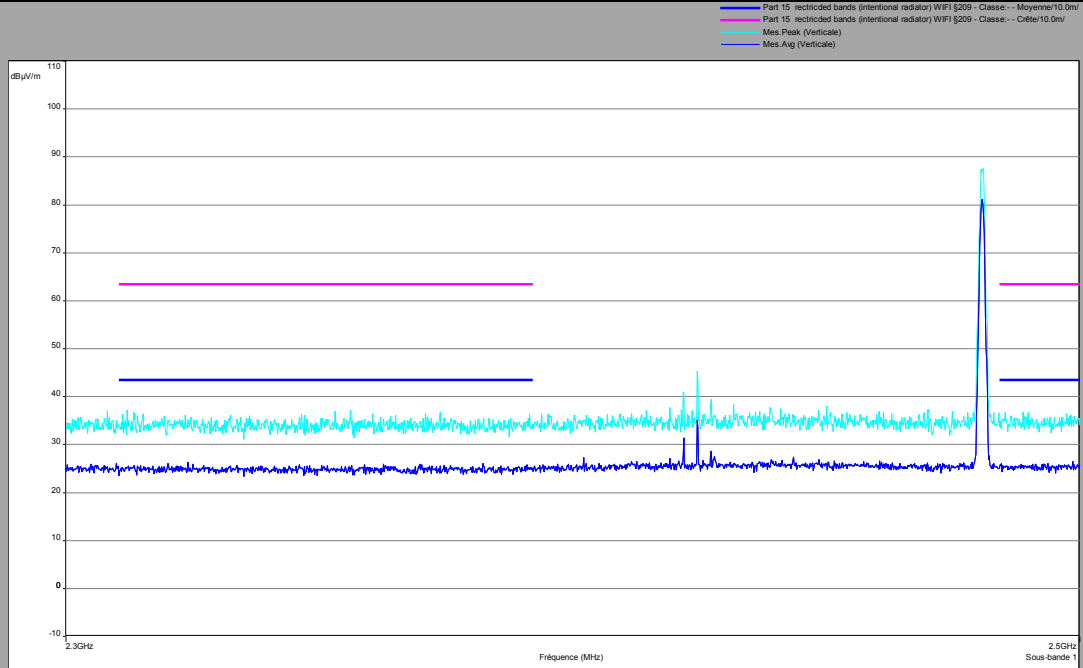
#### Horizontal polarization



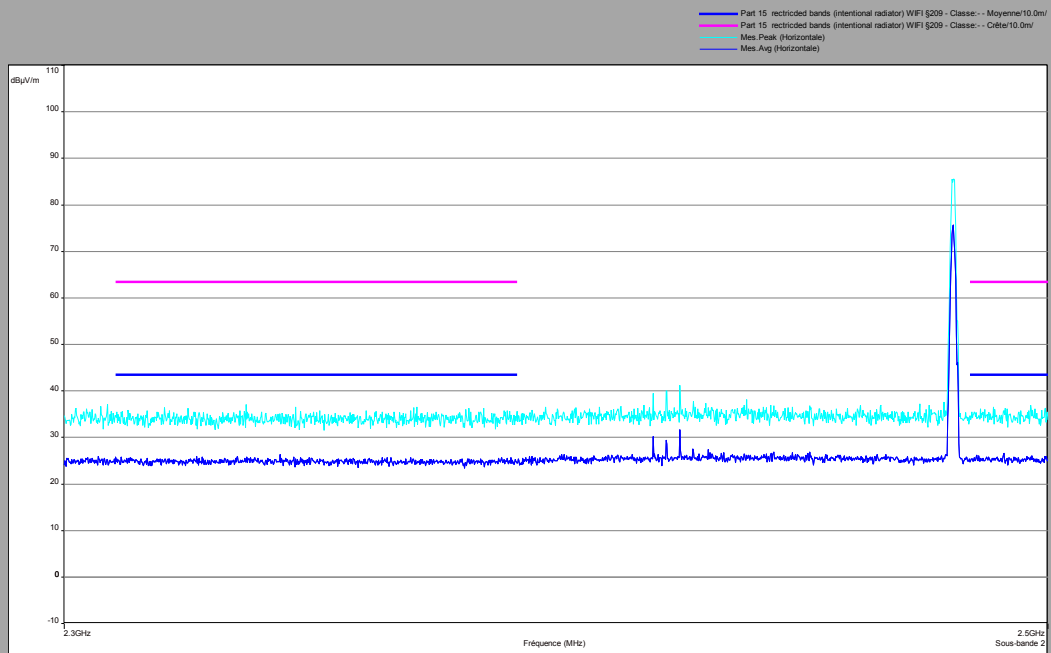
# Above 1GHz Zoom 2310MHz-2500MHz

Cmax

## Vertical Polarization



## Horizontal polarization



Below 1GHz

| Polarisation | Frequency<br>(MHz) | level<br>Quasi peak<br>(dBµV/m) | limit FCC | Margin |
|--------------|--------------------|---------------------------------|-----------|--------|
| vertical     | 31.8               | 23.72                           | 29.5      | 5.78   |
| vertical     | 32.8               | 20.89                           | 29.5      | 8.61   |
| vertical     | 33.8               | 22.55                           | 29.5      | 6.95   |
| vertical     | 35.7               | 17.62                           | 29.5      | 11.88  |
| vertical     | 37.3               | 23.92                           | 29.5      | 5.58   |
| vertical     | 40                 | 20.97                           | 29.5      | 8.53   |
| vertical     | 42.3               | 16.63                           | 29.5      | 12.87  |
| vertical     | 44.5               | 21.25                           | 29.5      | 8.25   |
| vertical     | 48                 | 19.31                           | 29.5      | 10.19  |
| vertical     | 50.1               | 24.72                           | 29.5      | 4.78   |
| vertical     | 51.8               | 24.36                           | 29.5      | 5.14   |
| vertical     | 53.8               | 26.4                            | 29.5      | 3.1    |
| vertical     | 55.3               | 25.8                            | 29.5      | 3.7    |
| vertical     | 56.3               | 23.73                           | 29.5      | 5.77   |
| vertical     | 58.3               | 25.76                           | 29.5      | 3.74   |
| vertical     | 60.6               | 21.76                           | 29.5      | 7.74   |
| vertical     | 62.5               | 20.3                            | 29.5      | 9.2    |
| vertical     | 67.6               | 23.82                           | 29.5      | 5.68   |
| vertical     | 69.7               | 25.82                           | 29.5      | 3.68   |
| vertical     | 72.6               | 21.53                           | 29.5      | 7.97   |
| vertical     | 75.8               | 22.56                           | 29.5      | 6.94   |
| vertical     | 82.6               | 20.22                           | 29.5      | 9.28   |
| vertical     | 91.2               | 18.87                           | 33        | 14.13  |
| vertical     | 99.4               | 19.39                           | 33        | 13.61  |
| vertical     | 105                | 25.35                           | 33        | 7.65   |
| vertical     | 115                | 22.74                           | 33        | 10.26  |
| vertical     | 118.2              | 19.15                           | 33        | 13.85  |
| vertical     | 122.9              | 23.19                           | 33        | 9.81   |
| vertical     | 126                | 24.91                           | 33        | 8.09   |
| vertical     | 130                | 23.45                           | 33        | 9.55   |
| vertical     | 133.3              | 20.55                           | 33        | 12.45  |
| vertical     | 135.2              | 22.01                           | 33        | 10.99  |
| vertical     | 140                | 25.96                           | 33        | 7.04   |
| vertical     | 144                | 23.76                           | 33        | 9.24   |
| vertical     | 147.5              | 28.73                           | 33        | 4.27   |
| vertical     | 150                | 28.11                           | 33        | 4.89   |
| vertical     | 156                | 18.18                           | 33        | 14.82  |

| Polarisation | Frequency<br>(MHz) | level<br>Quasi peak<br>(dBμV/m) | limit FCC | Margin |
|--------------|--------------------|---------------------------------|-----------|--------|
| vertical     | 160                | 22.47                           | 33        | 10.53  |
| vertical     | 162                | 19.6                            | 33        | 13.4   |
| vertical     | 164                | 23.19                           | 33        | 9.81   |
| vertical     | 172.4              | 22.81                           | 33        | 10.19  |
| vertical     | 180                | 22.48                           | 33        | 10.52  |
| vertical     | 184.3              | 23.18                           | 33        | 9.82   |
| vertical     | 196                | 24.91                           | 33        | 8.09   |
| vertical     | 200                | 28.05                           | 33        | 4.95   |
| vertical     | 210                | 19.58                           | 33        | 13.42  |
| vertical     | 221.2              | 24.18                           | 35.5      | 11.32  |
| vertical     | 226.8              | 21.56                           | 35.5      | 13.94  |
| vertical     | 233.5              | 23.31                           | 35.5      | 12.19  |
| vertical     | 240                | 25.73                           | 35.5      | 9.77   |
| vertical     | 245.8              | 23.67                           | 35.5      | 11.83  |
| vertical     | 252                | 19.03                           | 35.5      | 16.47  |
| vertical     | 260                | 27.97                           | 35.5      | 7.53   |
| vertical     | 270                | 26.33                           | 35.5      | 9.17   |
| vertical     | 280                | 28.4                            | 35.5      | 7.1    |
| vertical     | 290                | 25.07                           | 35.5      | 10.43  |
| vertical     | 295                | 27.85                           | 35.5      | 7.65   |
| vertical     | 300                | 25.75                           | 35.5      | 9.75   |
| vertical     | 310                | 25.63                           | 35.5      | 9.87   |
| vertical     | 320                | 26.02                           | 35.5      | 9.48   |
| vertical     | 350                | 26.81                           | 35.5      | 8.69   |
| vertical     | 360                | 27.46                           | 35.5      | 8.04   |
| vertical     | 378                | 27.4                            | 35.5      | 8.1    |
| vertical     | 400                | 27.85                           | 35.5      | 7.65   |
| vertical     | 432                | 29.12                           | 35.5      | 6.38   |
| vertical     | 450                | 29.41                           | 35.5      | 6.09   |
| vertical     | 464.7              | 28.62                           | 35.5      | 6.88   |
| vertical     | 480                | 28.3                            | 35.5      | 7.2    |
| vertical     | 500                | 30.81                           | 35.5      | 4.69   |
| vertical     | 520                | 31.87                           | 35.5      | 3.63   |
| vertical     | 530                | 27.97                           | 35.5      | 7.53   |
| vertical     | 540                | 32.17                           | 35.5      | 3.33   |
| vertical     | 549.1              | 31.93                           | 35.5      | 3.57   |
| vertical     | 560                | 30.81                           | 35.5      | 4.69   |

| Polarisation | Frequency<br>(MHz) | level<br>Quasi peak<br>(dBμV/m) | limit FCC | Margin |
|--------------|--------------------|---------------------------------|-----------|--------|
| vertical     | 583.6              | 24.58                           | 35.5      | 10.92  |
| vertical     | 600                | 27.85                           | 35.5      | 7.65   |
| vertical     | 625                | 27.85                           | 35.5      | 7.65   |
| vertical     | 650                | 29.1                            | 35.5      | 6.4    |
| vertical     | 675                | 30.81                           | 35.5      | 4.69   |
| vertical     | 720                | 27.42                           | 35.5      | 8.08   |
| vertical     | 750                | 30.36                           | 35.5      | 5.14   |
| vertical     | 760                | 27.6                            | 35.5      | 7.9    |
| vertical     | 792                | 26.65                           | 35.5      | 8.85   |
| vertical     | 800                | 30.18                           | 35.5      | 5.32   |
| vertical     | 864                | 30.87                           | 35.5      | 4.63   |

| Polarisation | Frequency<br>(MHz) | level<br>Quasi peak<br>(dB $\mu$ V/m) | limit FCC | Margin |
|--------------|--------------------|---------------------------------------|-----------|--------|
| Horizontal   | 122.9              | 23.01                                 | 33        | 9.99   |
| Horizontal   | 135.2              | 22.63                                 | 33        | 10.37  |
| Horizontal   | 140                | 17.13                                 | 33        | 15.87  |
| Horizontal   | 144                | 22.67                                 | 33        | 10.33  |
| Horizontal   | 147.5              | 28.47                                 | 33        | 4.53   |
| Horizontal   | 150                | 24                                    | 33        | 9      |
| Horizontal   | 155                | 21.89                                 | 33        | 11.11  |
| Horizontal   | 200                | 22.57                                 | 33        | 10.43  |
| Horizontal   | 220                | 23.58                                 | 35.5      | 11.92  |
| Horizontal   | 221.2              | 22.92                                 | 35.5      | 12.58  |
| Horizontal   | 226.8              | 22.22                                 | 35.5      | 13.28  |
| Horizontal   | 235                | 27.97                                 | 35.5      | 7.53   |
| Horizontal   | 240                | 27.91                                 | 35.5      | 7.59   |
| Horizontal   | 245.8              | 23.3                                  | 35.5      | 12.2   |
| Horizontal   | 250                | 30.87                                 | 35.5      | 4.63   |
| Horizontal   | 260                | 30.92                                 | 35.5      | 4.58   |
| Horizontal   | 270                | 26.81                                 | 35.5      | 8.69   |
| Horizontal   | 280                | 27.91                                 | 35.5      | 7.59   |
| Horizontal   | 300                | 25.47                                 | 35.5      | 10.03  |
| Horizontal   | 320                | 26.64                                 | 35.5      | 8.86   |
| Horizontal   | 345                | 26.91                                 | 35.5      | 8.59   |
| Horizontal   | 375.2              | 27.39                                 | 35.5      | 8.11   |
| Horizontal   | 432                | 29.45                                 | 35.5      | 6.05   |
| Horizontal   | 500                | 30.75                                 | 35.5      | 4.75   |
| Horizontal   | 520                | 31.92                                 | 35.5      | 3.58   |
| Horizontal   | 550                | 23.64                                 | 35.5      | 11.86  |
| Horizontal   | 560                | 26.32                                 | 35.5      | 9.18   |
| Horizontal   | 625                | 29.61                                 | 35.5      | 5.89   |
| Horizontal   | 650                | 34.1                                  | 35.5      | 1.4    |
| Horizontal   | 675                | 30.87                                 | 35.5      | 4.63   |
| Horizontal   | 720                | 25.34                                 | 35.5      | 10.16  |
| Horizontal   | 780                | 27.85                                 | 35.5      | 7.65   |
| Horizontal   | 900                | 27.27                                 | 35.5      | 8.23   |
| Horizontal   | 920                | 27.6                                  | 35.5      | 7.9    |

| Above 1GHz     |                 |                            |                        |                        |                      |                     |                     |                   |
|----------------|-----------------|----------------------------|------------------------|------------------------|----------------------|---------------------|---------------------|-------------------|
| Cmin/Cnom/Cmax |                 |                            |                        |                        |                      |                     |                     |                   |
| Polarization   | Frequency (MHz) | Duty cycle correction (dB) | Average Level (dBμV/m) | Average Limit (dBμV/m) | Margin Average Limit | Peak Level (dBμV/m) | Peak Limit (dBμV/m) | Margin Peak Limit |
| Vertical       | 1026            | 2,04                       | 33,14                  | 43,5                   | 10,36                | 42,12               | 63,5                | 21,38             |
| Vertical       | 1040            | 2,04                       | 31,25                  | 43,5                   | 12,25                | 35,16               | 63,5                | 28,34             |
| Vertical       | 1098            | 2,04                       | 31,91                  | 43,5                   | 11,59                | 38,76               | 63,5                | 24,74             |
| Vertical       | 1125            | 2,04                       | 32,82                  | 43,5                   | 10,68                | 38,14               | 63,5                | 25,36             |
| Vertical       | 1152            | 2,04                       | 32,76                  | 43,5                   | 10,74                | 43,31               | 63,5                | 20,19             |
| Vertical       | 1200            | 2,04                       | 33,36                  | 43,5                   | 10,14                | 43,52               | 63,5                | 19,98             |
| Vertical       | 1282            | 2,04                       | 32,21                  | 43,5                   | 11,29                | 43,16               | 63,5                | 20,34             |
| Vertical       | 1350            | 2,04                       | 32,37                  | 43,5                   | 11,13                | 35,49               | 63,5                | 28,01             |
| Vertical       | 1400            | 2,04                       | 32,69                  | 43,5                   | 10,81                | 44,47               | 63,5                | 19,03             |
| Vertical       | 1440            | 2,04                       | 33,16                  | 43,5                   | 10,34                | 37,18               | 63,5                | 26,32             |
| Vertical       | 2390            | 2,04                       | 28                     | 43,5                   | 15,5                 | 39,5                | 63,5                | 24                |
| Vertical       | 2483,5          | 2,04                       | 28,4                   | 43,5                   | 15,1                 | 39                  | 63,5                | 24,5              |
| Horizontal     | 1026            | 2,04                       | 32,4                   | 43,5                   | 11,1                 | 41,82               | 63,5                | 21,68             |
| Horizontal     | 1062            | 2,04                       | 33,48                  | 43,5                   | 10,02                | 43,93               | 63,5                | 19,57             |
| Horizontal     | 1098            | 2,04                       | 31,6                   | 43,5                   | 11,9                 | 42,58               | 63,5                | 20,92             |
| Horizontal     | 1134            | 2,04                       | 29,67                  | 43,5                   | 13,83                | 47,97               | 63,5                | 15,53             |
| Horizontal     | 1152            | 2,04                       | 31,4                   | 43,5                   | 12,1                 | 40,07               | 63,5                | 23,43             |
| Horizontal     | 1216            | 2,04                       | 32,08                  | 43,5                   | 11,42                | 43,23               | 63,5                | 20,27             |
| Horizontal     | 1296            | 2,04                       | 34,46                  | 43,5                   | 9,04                 | 42,11               | 63,5                | 21,39             |
| Horizontal     | 2390            | 2,04                       | 27,8                   | 43,5                   | 15,7                 | 38,4                | 63,5                | 25,1              |
| Horizontal     | 2483,5          | 2,04                       | 28,04                  | 43,5                   | 15,46                | 39,2                | 63,5                | 24,3              |

## 11.7. CONCLUSION

Unwanted Emission in restricted frequency bands measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.247 limits.

## 12. UNCERTAINTIES CHART

| 47 CFR Part 15.209 & 15.207<br>Kind of test                                                             | Wide uncertainty<br>laboratory<br>(k=2) $\pm x(\text{dB}) / (\text{Hz}) / \text{ms}$ | Uncertainty limit |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------|
| Measurement of conducted disturbances in voltage on the AC power port (9 kHz – 150 kHz)                 | 2,67                                                                                 | 3.8               |
| Measurement of conducted disturbances in voltage on the AC power port (150 kHz – 30 MHz)                | 2,67                                                                                 | 3.4               |
| Measurement of conducted disturbances in voltage on the telecommunication port. (AAN)                   | 3,67                                                                                 | 5.0               |
| Measurement of conducted disturbances in current (current clamp)                                        | 2,73                                                                                 | 2.9               |
| Measurement of disturbance power                                                                        | 2,67                                                                                 | 4.5               |
| Measurement of radiated magnetic field from 10kHz to 30MHz in SAC V01                                   | 4,48                                                                                 | /                 |
| Measurement of radiated magnetic field from 10kHz to 30MHz in SAC C01                                   | 4,48                                                                                 | /                 |
| Measurement of radiated electric field from 30 to 1000MHz in horizontal position on the OATS (Ecuelles) | 4,88                                                                                 | 6.3               |
| Measurement of radiated electric field from 1 to 18GHz on the Ecuelles site                             | 5.16                                                                                 | /                 |
| Measurement of radiated electric field from 30 to 1000MHz in vertical position on the OATS (Ecuelles)   | 4,99                                                                                 | 6.3               |
| Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC C01             | 5,08                                                                                 | 6.3               |
| Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC C01               | 5,16                                                                                 | 6.3               |
| Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC V01             | 5,08                                                                                 | 6.3               |
| Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC V01               | 5,15                                                                                 | 6.3               |
| Measurement of radiated electric field from 1 to 6 GHz C01                                              | 5,1                                                                                  | 5.2               |
| Measurement of radiated electric field from 1 to 6 GHz V01                                              | 4,85                                                                                 | 5.2               |
| Measurement of radiated magnetic field from 10kHz to 30MHz on the OATS (Ecuelles)                       | 4,48                                                                                 | /                 |

The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the CISPR. The conformity of the sample is directly established by the applicable limits values. This table includes all uncertainties maximum feasible for testing in the laboratory, whether or not made in this report