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The Netherlands
Chamber of Commerce
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telefication

# FCC and ISED Test report for subparts 15C, sections 15.107, 15.109, 15.207 and 15.247; RSS-247 and RSS-Gen

| | |
|---|---|
| Product name | : G4 transformer US/C |
| Applicant | : in-lite |
| FCC ID | : 2AU26-SMARTHUBG4 |
| ISED ID | : 25679-SMARTHUBG4 |

Test report No. : 200901122 01 V1.10

# Laboratory information

## Accreditation

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:2017. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie).

Telefication is designated by the FCC as an Accredited Test Firm for compliance testing of equipment subject to Certification under Parts 15 & 18. The Designation number is: NL0001.

Telefication is a Wireless Device Testing laboratory recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.

Telefication is a registered Conformity Assessment body (CAB) under the Japan-EC MRA (Agreement on Mutual Recognition between Japan and the European Community). The registration number is: 201.

## Documentation

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at Telefication Netherlands.

## Testing Location

| | |
|---|---|
| **Test Site** | KIWA Telefication BV |
| **Test Site location** | Wilmersdorf 50<br>7327 AC Apeldoorn<br>The Netherlands<br><br>Tel. +31 88998 3393 |
| **Test Site FCC** | NL0001 |

## Revision History

| Version | Date | Remarks | By |
|---|---|---|---|
| v0.50 | 26-01-2021 | First draft | PS |
| v1.00 | 07-05-2021 | First release | PS |
| v1.10 | 16-09-2021 | Emission designator in section 1.4 updated | PS |

# Table of Contents

## Summary of Test results

| FCC | ISED | Description | Section in report | Verdict |
|---|---|---|---|---|
| 15.109(a)<br>15.247(d)<br>15.209 (a) | RSS-Gen §8.9 | Radiated spurious emissions | 3.1/3.2 | Pass |
| 15.205 (a) | RSS Gen §8.10 | Spurious emissions in the restricted bands | 3.1/3.2 | Pass |
| 15.247(a) (1) | RSS-247 §5.1(b) | Carrier frequency separation | 3.5 | Pass |
| 15.247(a) (1) (iii) | RSS-247 §5.1(d) | Average time of occupancy | 3.7 | Pass |
| 15.247(a) (1) (iii) | RSS-247 §5.1(d) | Number of hopping channels | 3.6 | Pass |
| 15.247 (a) | RSS-247 §5.1(a) | 20 dB bandwidth | 3.3 | Pass |
| -- | RSS-Gen §6.7 | 99% bandwidth | 3.4 | Pass |
| 15.247 (b) | RSS-247 §5.4 (d) | RF output power | 3.8 | Pass |
| 15.247 (d) | RSS-247 §5.5 | Band edge | 3.9 | Pass |
| 15.107 (a)<br>15.207 (c) | RSS-Gen §8.8 | Conducted spurious emissions on AC mains | 3.10 | Pass |

# 1 General Description

## 1.1 Applicant

| | |
|---|---|
| **Client name:** | in-lite design bv |
| **Address** | Stephensonweg 18 |
| **Zip code:** | 4207 HB Gorinchem |
| **Telephone:** | +31 18 46 88 760 |
| **E-mail:** | wilbrand.menzo@in-lite.nl |
| **Contact name:** | Wilbrand Menzo |

## 1.2 Manufacturer

| | |
|---|---|
| **Manufacturer name:** | in-lite design bv |
| **Address:** | Stephensonweg 18 |
| **Zip code:** | 4207 HB Gorinchem |
| **Telephone:** | +31 18 46 88 760 |
| **E-mail:** | wilbrand.menzo@in-lite.nl |
| **Contact name:** | Wilbrand Menzo |

## 1.3 Tested Equipment Under Test (EUT)

| | |
|---|---|
| **Product name:** | G4 transformer US/C |
| **Brand name:** | in-lite |
| **FCC ID:** | 2AU26-SMARTHUBG4 |
| **ISED ID:** | 25679-SMARTHUBG4 |
| **Product type:** | Wideband data transmission equipment |
| **Model(s):** | SMARTHUBG4 |
| **Batch and/or serial No.** | -- |
| **Software version:** | -- |
| **Hardware version:** | -- |
| **Date of receipt** | 23-11-2020 |
| **Tests started:** | 25-11-2020 |
| **Testing ended:** | 26-01-2021 |

## 1.4 Product specifications of Equipment under test

| | |
|---|---|
| **Tx Frequency:** | 2400 – 2483.5 MHz |
| **Rx frequency:** | 2400 – 2483.5 MHz |
| **Antenna type** | External |
| **Antenna gain** | 1.1 dBi |
| **Type of modulation:** | GFSK |
| **Emission designator** | 1M08G1D |

## 1.5 Environmental conditions

| | | |
|---|---|---|
| **Test date** | 24-11-2020 | 26-01-2021 |
| **Ambient temperature** | 20.8 °C | 18.1 °C |
| **Humidity** | 44.5 % RH | 38.5 % RH |

## 1.6 Measurement standards

- ANSI C63.4:2014
- ANSI C63.10:2013
- KDB 558074 D01 V05R02

## 1.7 Applicable standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC Part 15 subpart C §15.107, 15.109, 15.207
- RSS-Gen Issue 5
- RSS-247 Issue 2

## 1.8 Observation and remarks

For the purpose of testing the RF power was set to 18 dBm.

## 1.9 Conclusions

The sample of the product showed **NO NON-COMPLIANCES** to the specifications stated in paragraph 1.7 of this report.

The results of the test as stated in this report, are exclusively applicable to the product items as identified in this report. Telefication accepts no responsibility for any properties of product items in this test report, which are not supported by the tests as specified in paragraph 1.7 *"Applicable standards".*

All conducted tests are performed by:

Name : ing P.A. Suringa

Review of test methods and report by:

Name : ing R. van Barneveld

The above conclusions have been verified by the following signatory:

Date : 23-09-2021

Name : ing R. van Barneveld

Function : Test Engineer

Signature :

# 2 Test configuration of the Equipment Under Test

## 2.1 Test mode

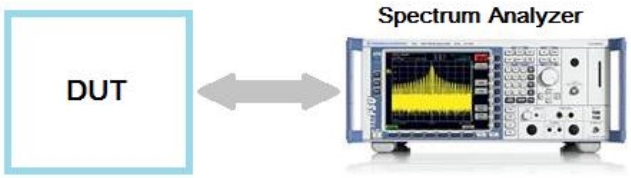
The applicant provided test mode firmware with which it was possible to configure the radio to transmit continuously.

## 2.2 Tested channels

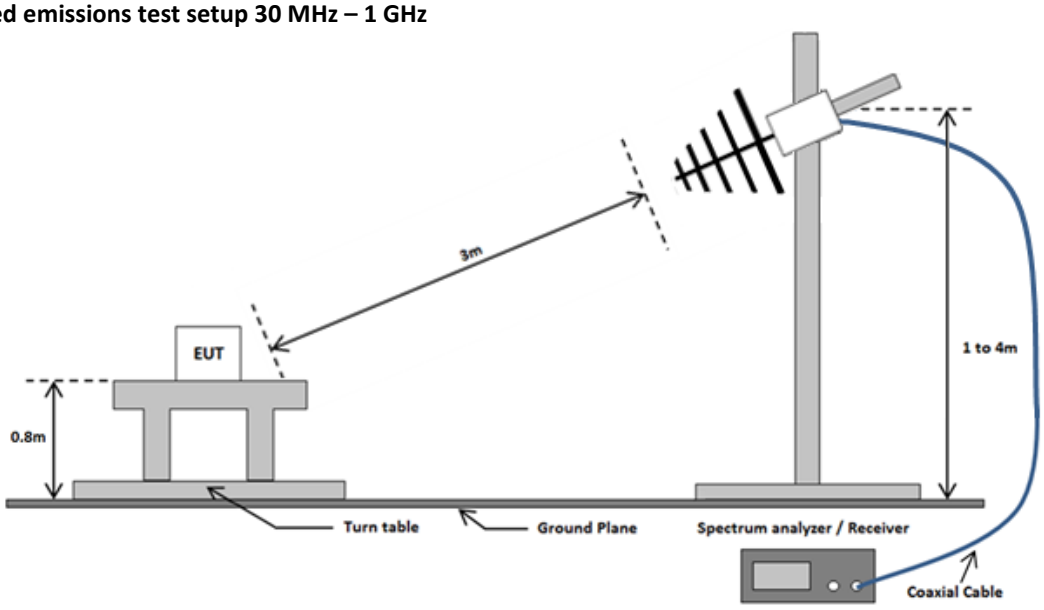
| Technology Std | Channel | Frequency (MHz) |
|---|---|---|
| Proprietary | 37 | 2402 |
| | 19 | 2440 |
| | 39 | 2480 |

## 2.3 Test setups

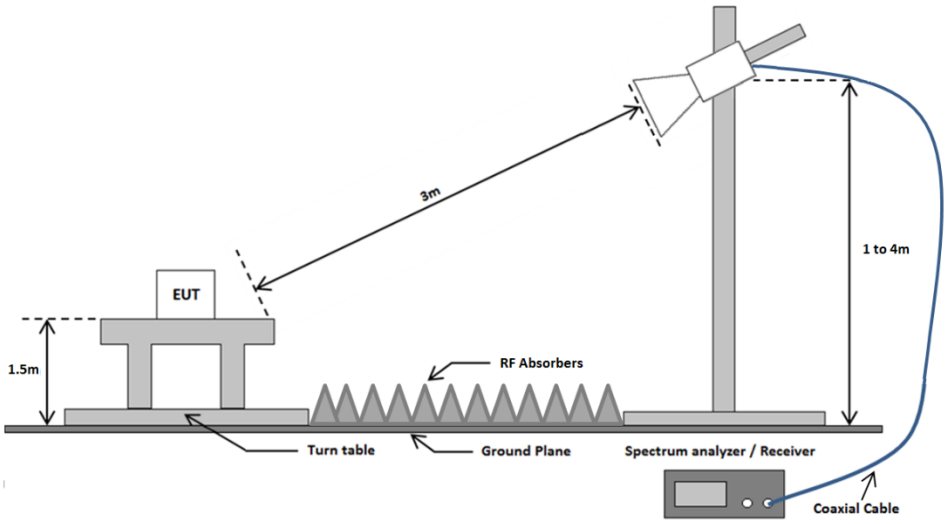
**Conducted test setup**




**Radiated emissions test setup 30 MHz – 1 GHz**

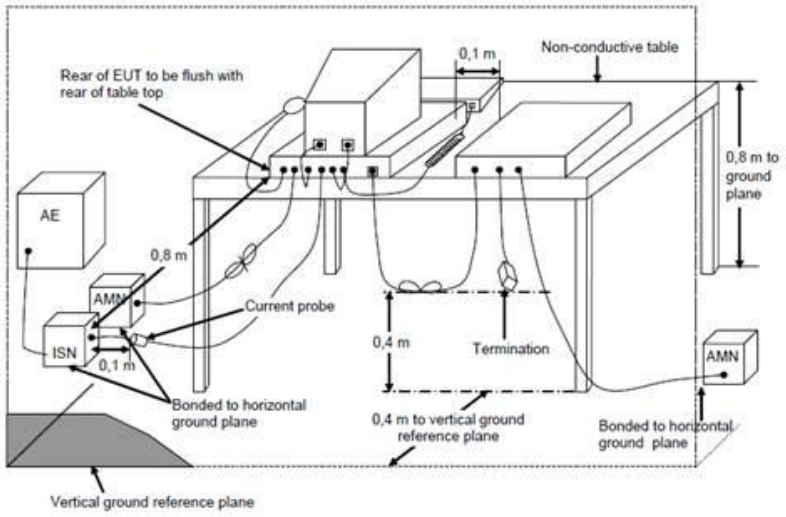


**Radiated emissions test setup above 1 GHz**




**Conducted emissions test setup**

*Emissions test at AC mains*



## 2.4 Equipment used in the test configuration

| Description | Manufacturer | Model | ID | Used at Par. |
|---|---|---|---|---|
| Spectrum Analyzer | Rohde & Schwarz | FSP40 | TE11125 | 3.1 |
| Spectrum Analyzer | Rohde & Schwarz | ESR7 | TE01220 | 3.2 – 3.9 |
| Software | D.A.R.E Instruments | Radimation | 2019.1.8 | 3.1 |
| Biconilog Antenna | Chase | CBL6112A | TE00967 | 3.1 |
| Horn Antenna | EMCO The Electro – Mechanics Co | 3115 | TE00531 | 3.1 |
| Semi Anechoic Chamber | ETS Lindgren | - | | 3.1 |
| Attenuator 20 dB | Hewlett Packard | 8491B | TE00408 | 3.2, 3.3, 3.8 |
| Artificial Mains Network (AMN) | Rohde & Schwarz | ESH3-Z5 | TE00208 | 3.10 |
| Pulse limiter | Rohde & Schwarz | ESH3-Z2 | TE00756 | 3.10 |
| AC source | Croma | 61601 | TE02001 | 3.10 |
| High pass filter | Wainwright instruments | WHK10-2520-3000-18000 | TE01146 | 3.1 |

## 2.5 Sample calculations

Field Strength Measurement example(see chapter 3.3):

| Frequency (MHz) | Polarization | Height(m) | Quasi-Peak (dBµV/m) |
|---|---|---|---|
| 135,6 | Horizontal | 1 | 40,4 |

The following relation applies:

E (dBµV/m) = U(dBµV) + AF (dB/m) + CL (dB)

Where:

E = Electric field strength
U = Measuring receiver voltage
AF = Antenna factor
CL = Cable loss

(40.4 = 27.23 + 11.8 + 1.37)

# 3 Test results

## 3.1 Spurious emissions (incl. spurious emissions in the restricted bands) (cabinet radiated)

### 3.1.1 Limit

§ 15.247(d)
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the RF power shall be at least 20 dB attenuation below that in the 100 kHz bandwidth within the band that contains the highest level of desired power, based on either a conducted or radiated measurement.

§15.205(c)
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### 3.1.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

### 3.1.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

### 3.1.4 Test procedure

According to ANSI C63.10: 2013; sections 5.6, 6.6
IRN 026_14.1 Radiated electrical disturbance (V per m); methods 1, 2, 3

### 3.1.5 Test results of the radiated spurious emission measurements

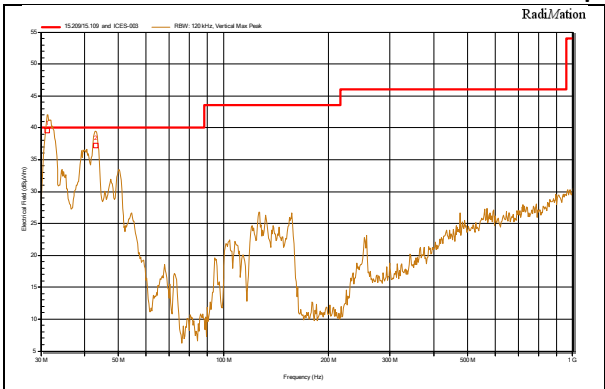
See next pages.

### 3.1.6 Measurement uncertainty

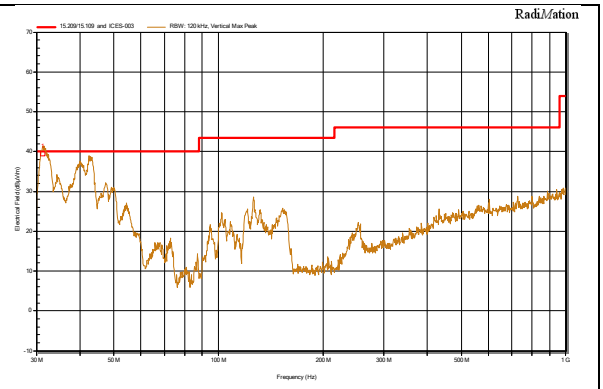
| Horizontal polarization | |
|---|---|
| 30 – 200 MHz | 4.5 dB |
| 200 – 1000 MHz | 3.6 dB |
| 1000 – 18000 MHz | 5.7 dB |
| 18000 – 26000 MHz | 4.9 dB |
| Vertical polarization | |
| 30 – 200 MHz | 5.4 dB |
| 200 – 1000 MHz | 4.6 dB |
| 1000 – 18000 MHz | 5.7 dB |
| 18000 – 26000 MHz | 4.9 dB |

**30 -1000 MHz**

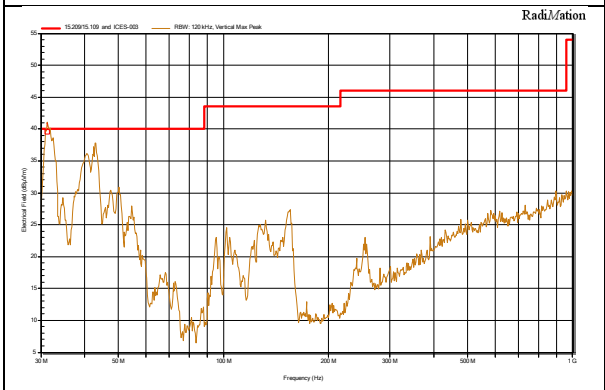
**Vertical polarization**




2402 MHz




2440 MHz




2480 MHz

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**Final measurement values (Ch 37)**

| Frequency | Quasi-Peak | Quasi-Peak Limit | Status | Angle | Height | Polarization |
|---|---|---|---|---|---|---|
| 31,306 MHz | 39,6 dBµV/m | 40 dBµV/m | Pass | 168 degrees | 1 m | Vertical |
| 43,185 MHz | 37,3 dBµV/m | 40 dBµV/m | Pass | 168 degrees | 1 m | Vertical |

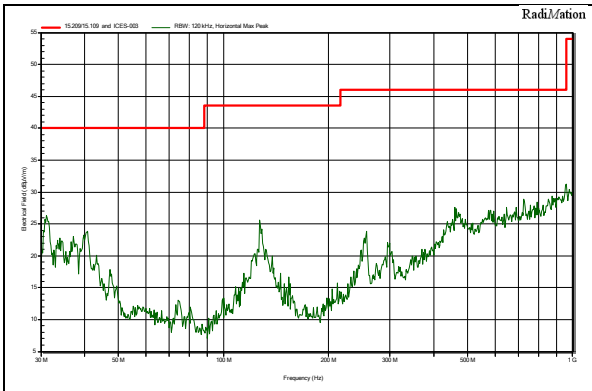
**Final measurement values (Ch 19)**

| Frequency | Quasi-Peak | Quasi-Peak Limit | Status | Angle | Height | Polarization |
|---|---|---|---|---|---|---|
| 31,26 MHz | 39,5 dBµV/m | 40 dBµV/m | Pass | 239 degrees | 1 m | Vertical |

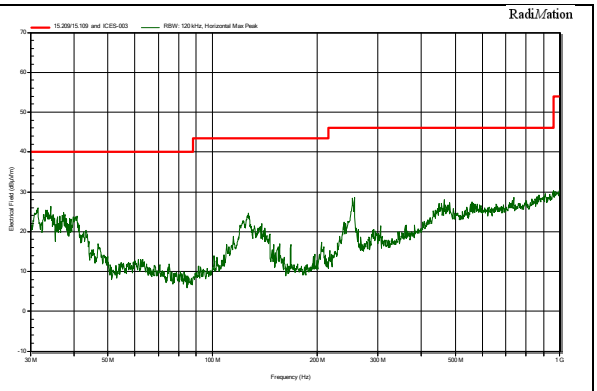
**Final measurement values (Ch 39)**

| Frequency | Quasi-Peak | Quasi-Peak Limit | Status | Angle | Height | Polarization |
|---|---|---|---|---|---|---|
| 31,285 MHz | 39,6 dBµV/m | 40 dBµV/m | Pass | 143 degrees | 1 m | Vertical |

**Horizontal polarization**

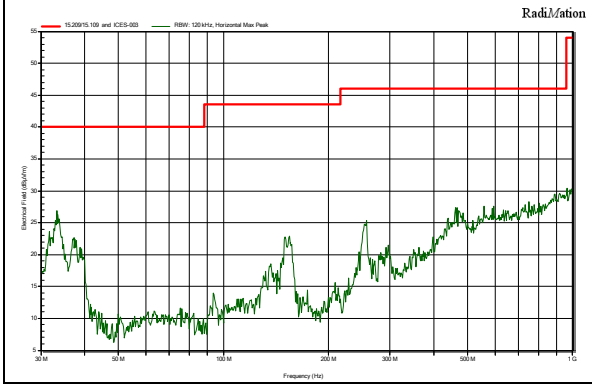



2402 MHz




2440 MHz

2480 MHz

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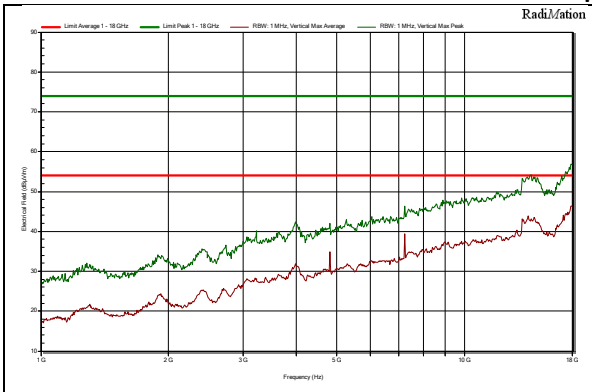
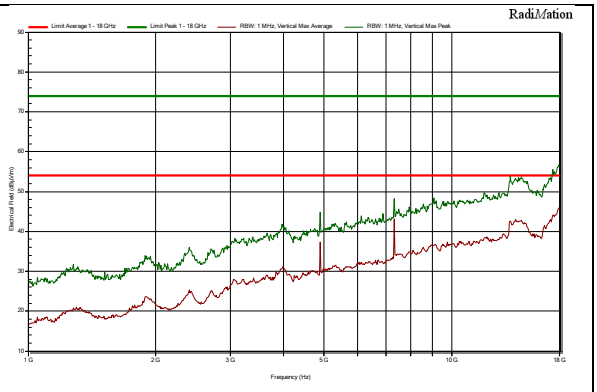
**1 – 18 GHz**

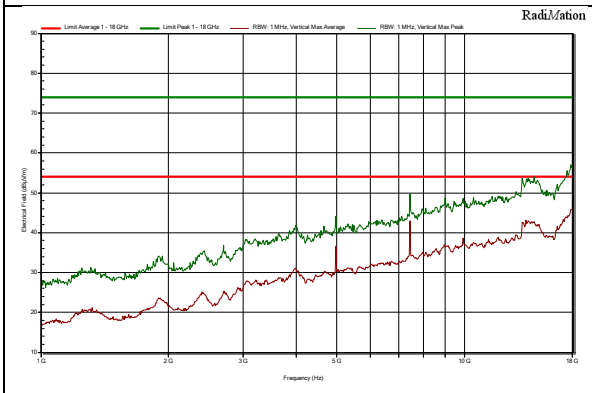
**Vertical polarization**




2402 MHz




2440 MHz




2480 MHz

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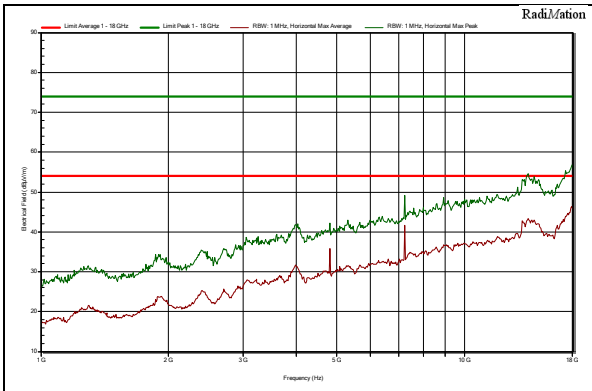
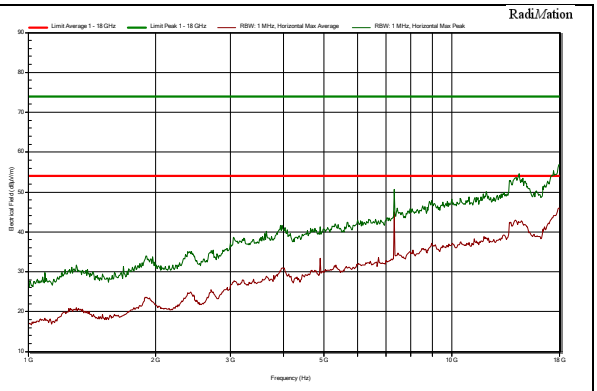
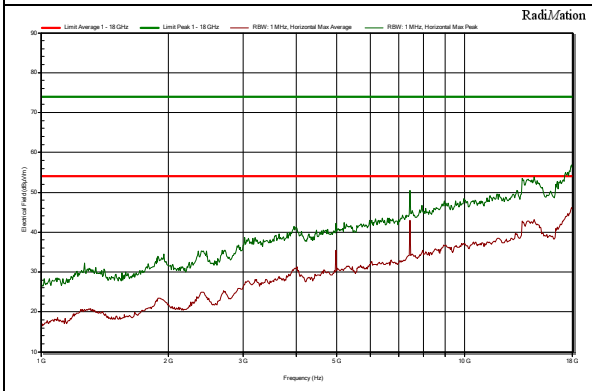
**Horizontal polarization**




2402 MHz




2440 MHz




2480 MHz

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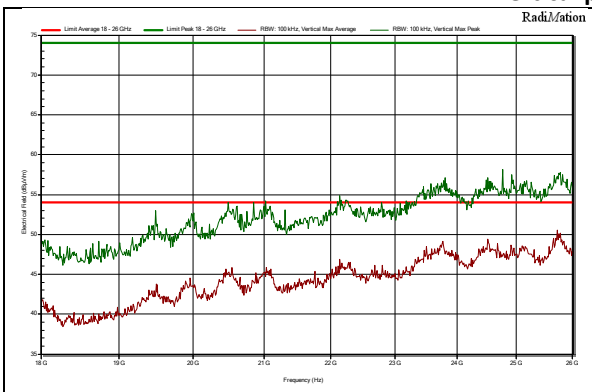
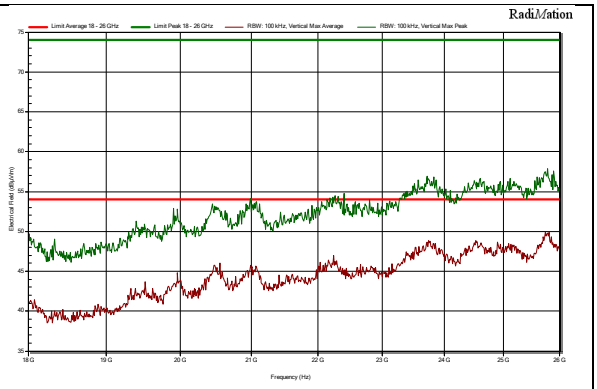
**18 – 26 GHz**

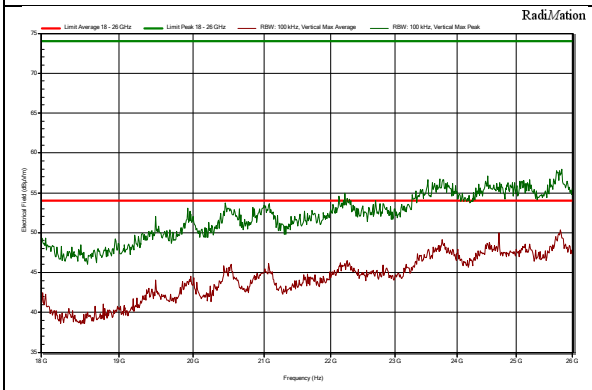
**Vertical polarization**




2402 MHz




2440 MHz




2480 MHz

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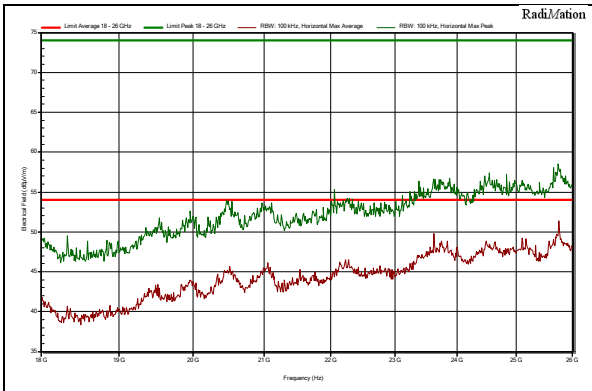
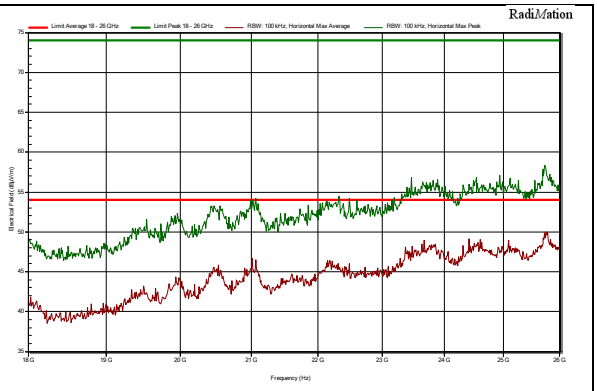
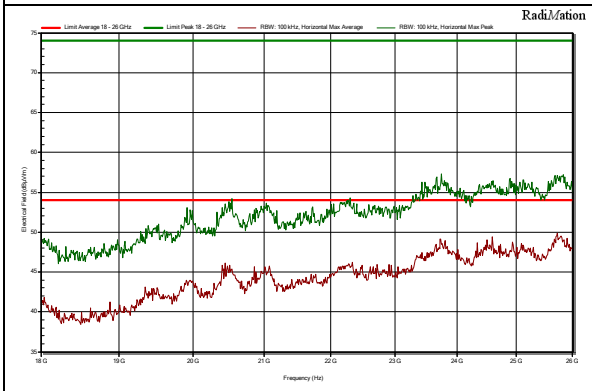
**Horizontal polarization**




2402 MHz




2440 MHz




2480 MHz

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## 3.2 Spurious emissions (incl. spurious emissions in the restricted bands) (conducted)

### 3.2.1 Limit

§ 15.247(d)
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the RF power shall be at least 20 dB attenuation below that in the 100 kHz bandwidth within the band that contains the highest level of desired power, based on either a conducted or radiated measurement.

### 3.2.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

### 3.2.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

### 3.2.4 Test procedure

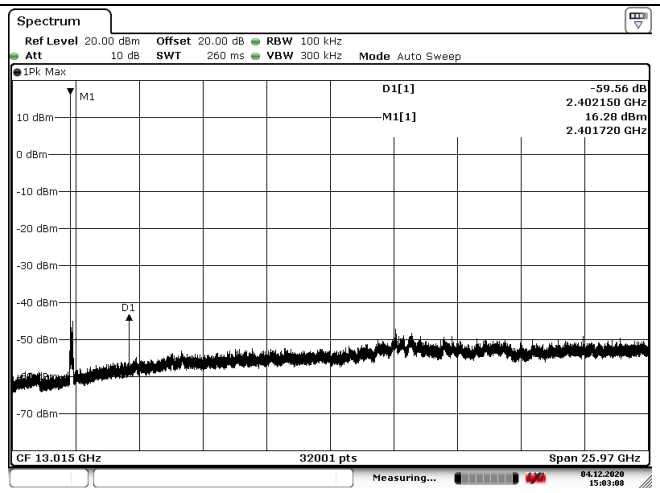
According to ANSI C63.10: 2013; sections 5.6, 6.6
IRN 026_14.1 Radiated electrical disturbance (V per m); methods 1, 2, 3

### 3.2.5 Test results of the radiated spurious emission measurements

See next pages.

### 3.2.6 Measurement uncertainty

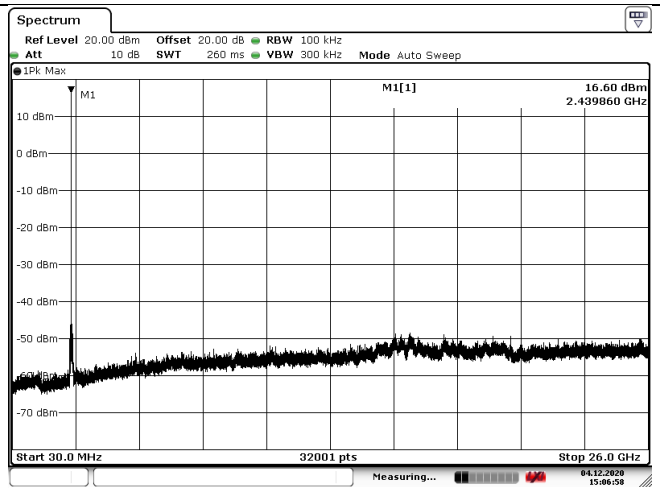
| | |
|---|---|
| 0.03 – 1 GHz | 1.1 dB |
| 1 – 18 GHz | 1.1 dB |
| 18 – 26 GHz | |




Band edge

Date: 4.DEC.2020 15:03:08

2402 MHz




Band edge

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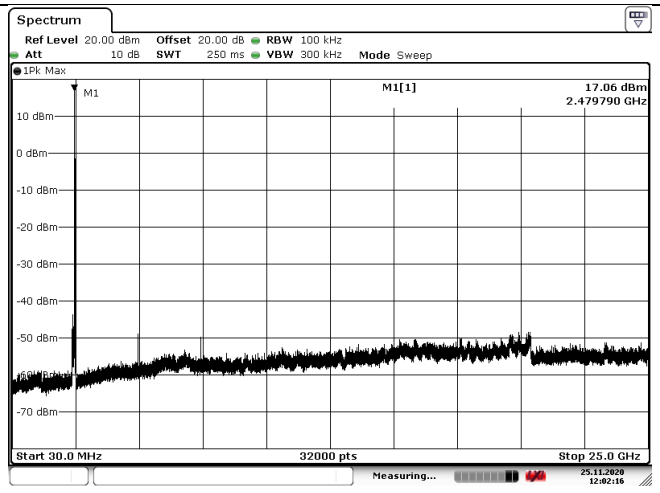
**2440 MHz**




Date: 25.NOV.2020 12:02:16

**2480 MHz**

## 3.3 20 dB bandwidth Measurement

### 3.3.1 Limit

No limit applies.

### 3.3.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

### 3.3.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

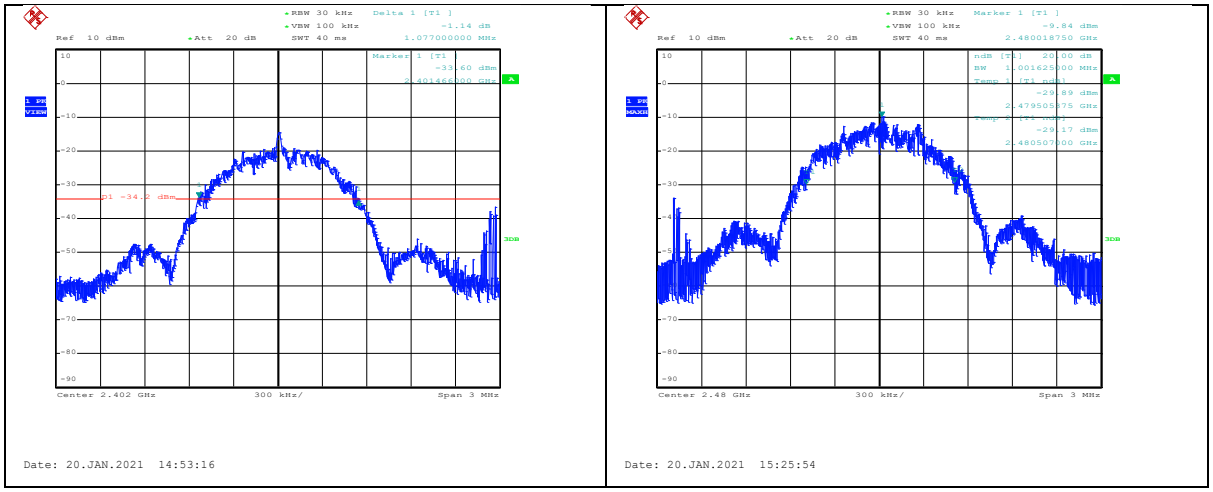
### 3.3.4 Test procedure

According to ANSI C63.10: 2013, section 6.9.2
IRN 017 - Occupied bandwidth (Hz) Method 2 – Relative method.

### 3.3.5 Test Results of the 20 dB bandwidth Measurement

| Technology Std. | Channel | Frequency (MHz) | Data rate | 20dB bandwidth (kHz) |
|---|---|---|---|---|
| Proprietary | 37 | 2402 | 1 Mbps | 1077 |
| | -- | -- | -- | -- |
| | 39 | 2480 | 1 Mbps | 1002 |
| Uncertainty | ± 26 kHz | | | |

### 3.3.6 Plots of the 20 dB bandwidth measurement



## 3.4 99% Occupied Bandwidth

### 3.4.1 Limit

No limit, according to RSS-Gen 6.7

### 3.4.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

### 3.4.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

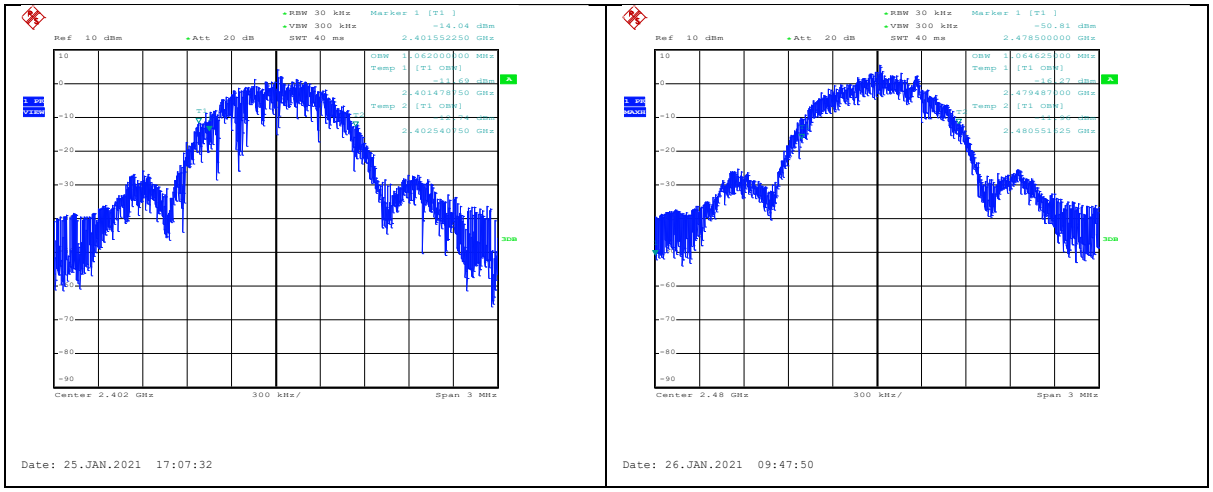
### 3.4.4 Test procedure

RSS -GEN section 6.7
IRN 017 - Occupied bandwidth (Hz) Method 1 – XX % power bandwidth.

### 3.4.5 Test results of the 99% occupied bandwidth measurement

| Technology Std. | Channel | Frequency (MHz) | Data rate | 99% bandwidth (kHz) |
|---|---|---|---|---|
| Proprietary | 37 | 2402 | 1 Mbps | 1062 |
| | -- | -- | -- | -- |
| | 39 | 2480 | 1 Mbps | 1064 |
| Uncertainty | ± 26 kHz | | | |

### 3.4.6 Plots of the 99% occupied bandwidth measurement



## 3.5 Carrier frequency separation

### 3.5.1 Limit

Frequency hopping systems shall have hopping channel frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

### 3.5.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

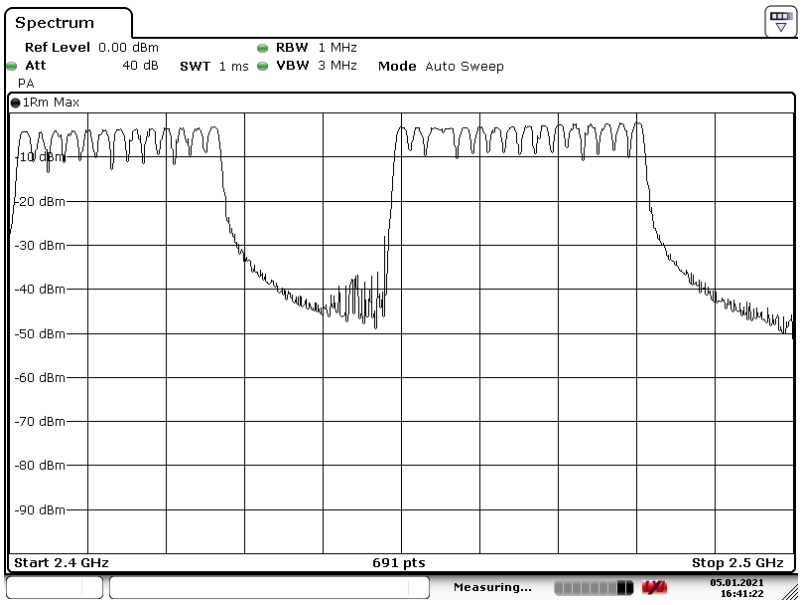
### 3.5.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

### 3.5.4 Test procedure

According to ANSI C63.10: 2013, Section 7.8.2
IRN 005_12.1 Frequency (Hz) – Method 4

#### 3.5.4.1 Plot of the carrier frequency separation measurement




Date: 5.JAN.2021 16:41:22

From the plot above, each division is 10 MHz
In each 10 MHz section filled with peaks, the separation is: 10 MHz/5 = 2 MHz

### 3.5.5 Measurement uncertainty

+/- 1 MHz

## 3.6 Number of hopping frequencies

### 3.6.1 Limit

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 channels.

### 3.6.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

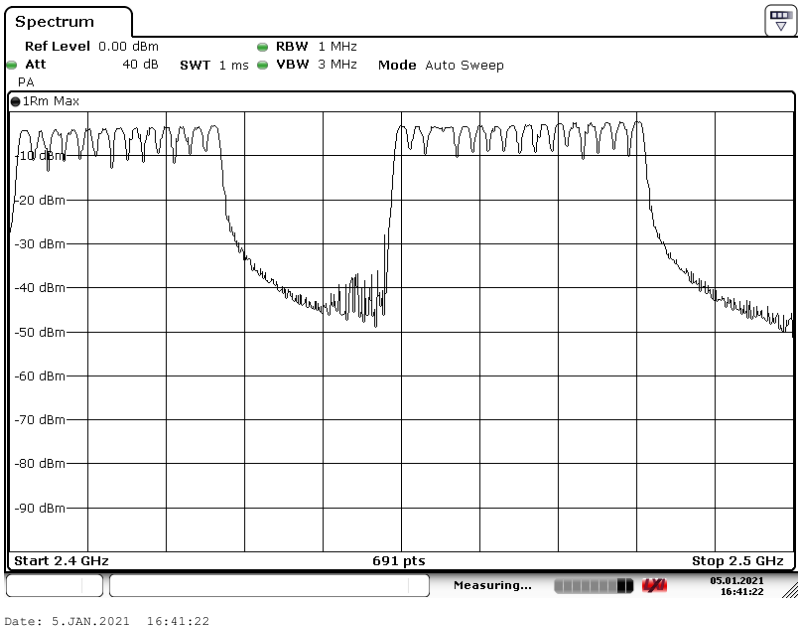
### 3.6.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

### 3.6.4 Test procedure

According to ANSI C63.10: 2013, Section 7.8.3
IRN 005_12.1 Frequency (Hz) – Method 4

#### 3.6.4.1 Plot of the number of hopping frequencies




Date: 5.JAN.2021 16:41:22

The number of hopping frequencies is: 29

### 3.6.5 Measurement uncertainty

Not applicable.

## 3.7 Average time of occupancy

### 3.7.1 Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of channels employed.

### 3.7.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

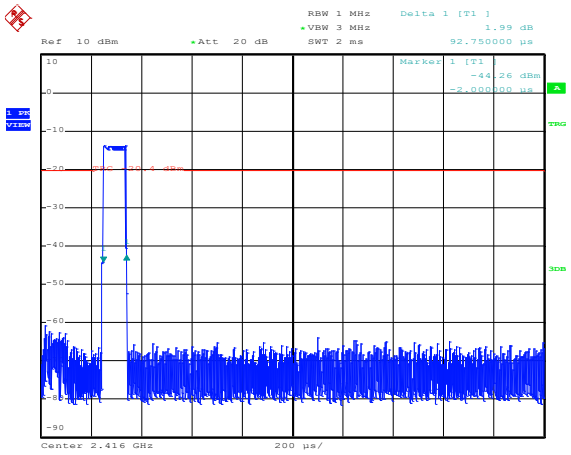
### 3.7.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

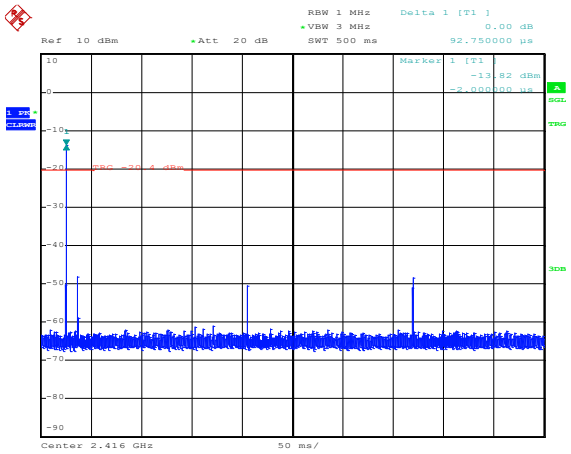
### 3.7.4 Test procedure

According to ANSI C63.10: 2013, Section 7.8.4
IRN 013_08.1 Duty cycle (%) - Method 2

#### 3.7.4.1 Plots of the average time of occupancy measurement




Date: 20.JAN.2021 11:00:48




Date: 20.JAN.2021 11:24:55

From the plots above:

Each ≤ 500 milliseconds one 93 µsec data pulse occurs.

The average time of occupancy in 0.4x29 = 11.6 seconds: 11600/500 x 0.093 msec = ≤ 2.15 msec

### 3.7.5 Measurement uncertainty

+/ - 0.1%

## 3.8 Output Power Measurement

### 3.8.1 Limit

The maximum conducted output power of the intentional radiator shall not exceed 125 mW for frequency hopping systems in the 2400 – 2483.5 MHz band employing less than 75 non-overlapping channels.

If transmitting antenna of directional gain greater than 6 dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point to point operation, the limit has to be reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

### 3.8.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

### 3.8.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

### 3.8.4 Test procedure

ANSI C63.10: 2013, section 7.8.5

IRN 014 - RF power (W) - Method 1 – AVGSA (DTS) according to ANSI C63.10.

### 3.8.5 Test results of Output Power Measurement

**Peak method**

| Technology Std. | Channel | Frequency (MHz) | Data rate | Peak output power (dBm) |
|---|---|---|---|---|
| Proprietary | 37 | 2402 | 1 Mbps | 17.0 |
| | 17 | 2440 | 1 Mbps | 18.0 |
| | 39 | 2480 | 1 Mbps | 18.4 |
| Uncertainty | ±0.71 dB | | | |

## 3.9 Band edge Measurement

### 3.9.1 Limit

At the edge of the authorized band the RF power shall be at least 20 dB down.

### 3.9.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

### 3.9.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

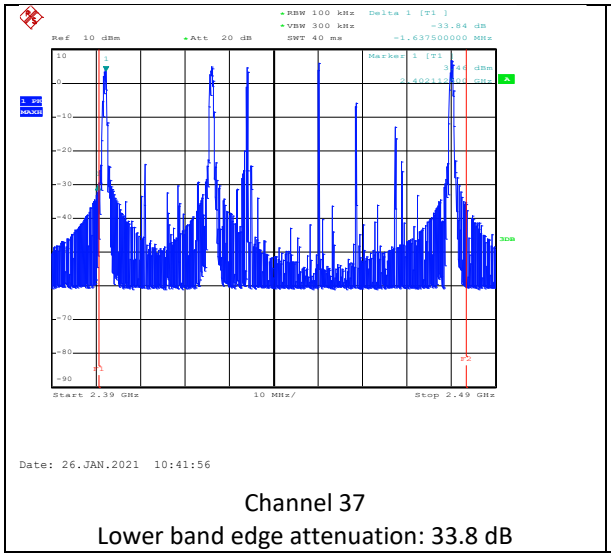
### 3.9.4 Test procedure

According to ANSI C63.10, section 6.10

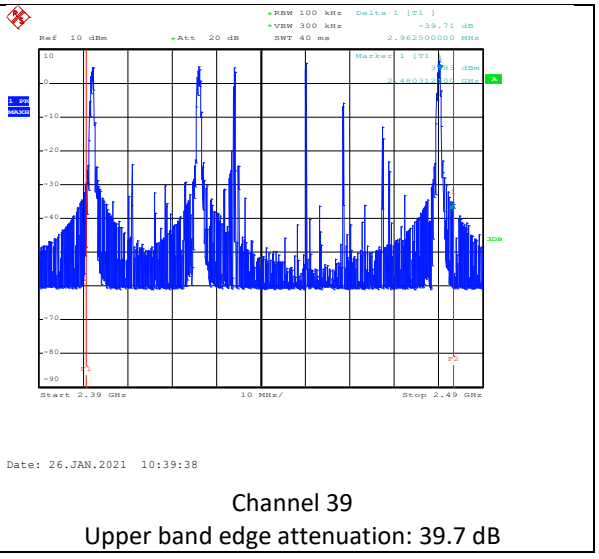
### 3.9.5 Measurement Uncertainty

± 2.5 dB.

### 3.9.6 Test results of the Band edge Measurements (hopping function on)

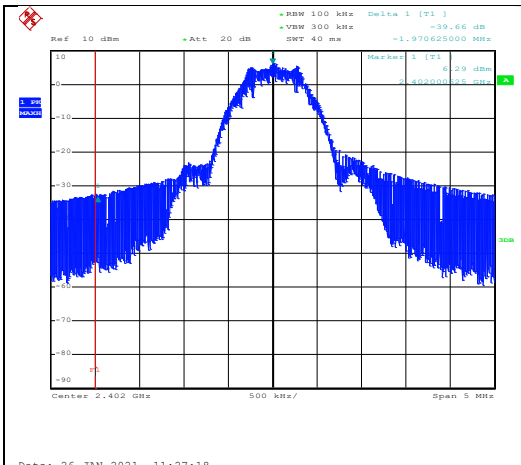



Channel 37
Lower band edge attenuation: 33.8 dB

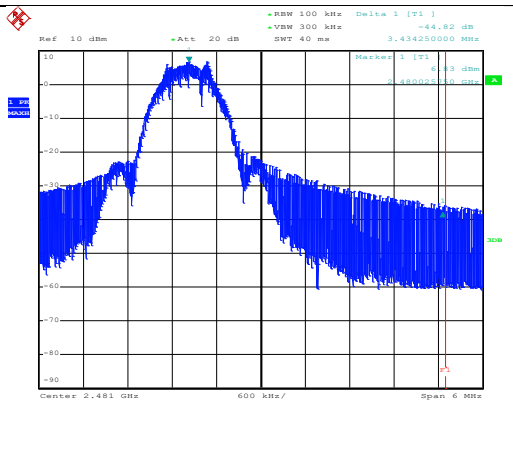



Channel 39
Upper band edge attenuation: 39.7 dB

### 3.9.7 Test results of the Band edge Measurements (hopping function off)




Channel 37
Lower band edge attenuation: 39.7 dB




Channel 39
Upper band edge attenuation: 44.8 dB

## 3.10 Conducted emissions

### 3.10.1 Limit

According to 15.207 (a)

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

| Frequency of emission (MHz) | Conducted limit (dBµV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15–0.5 | 66 to 56* | 56 to 46* |
| 0.5–5 | 56 | 46 |
| 5–30 | 60 | 50 |

*Decreases with the logarithm of the frequency.

### 3.10.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

### 3.10.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

### 3.10.4 Test procedure

According to ANSI C63.4: 2014, section 13.3
IRN 029 – Method 1

### 3.10.5 Test results and plots of the AC mains conducted measurement

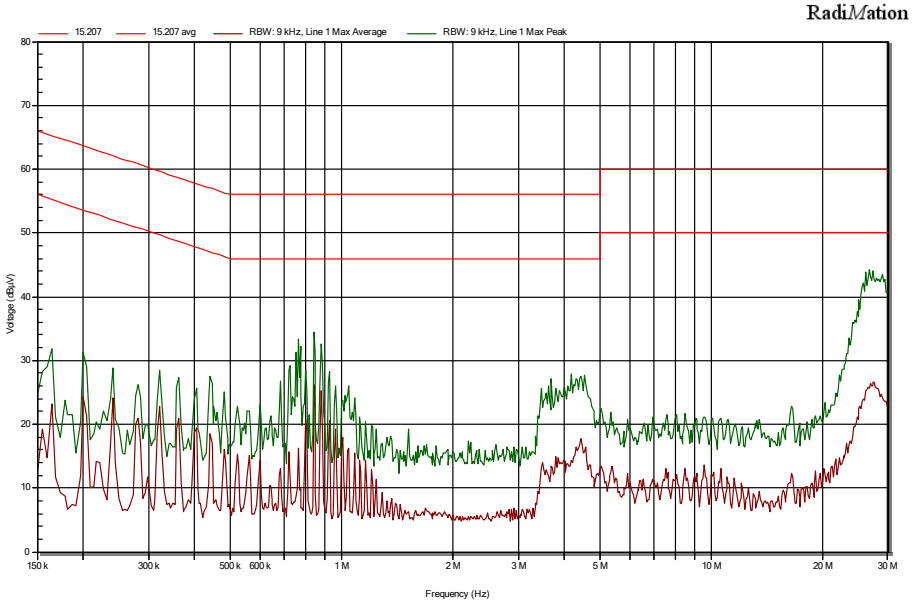
See next page.

### 3.10.6 Measurement uncertainty

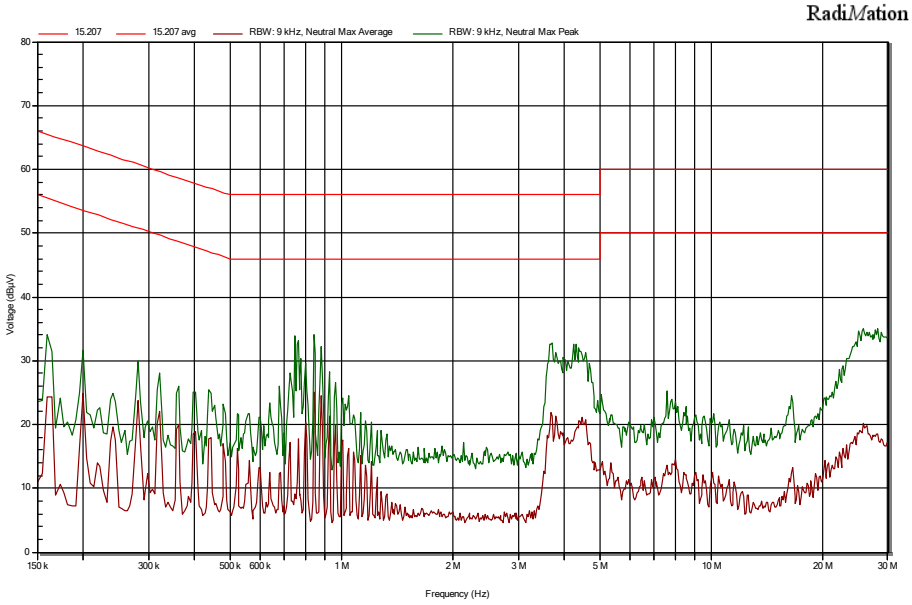
+/- 3.6 dB

## 3.10.7 Plots of the AC mains conducted spurious measurement

**110 Vac Phase**




**110 Vac Neutral**




Note: the upper trace is to be compared with the upper limit line and the lower trace with the lower limit line.

## 3.11 Sample calculations

All formulas for data conversions and conversion factors are reported in this chapter.

Conducted emission Measurement:

Ulisn (dBµV) = U (dBµV) + Corr. (dB)

Where:
U = Measuring receiver voltage
LISN insertion loss = Voltage division factor of LISN
Corr. = sum of single correction factors of used LISN, cables and pulse limiter.
Linear interpolation will be used for frequencies in between the values in the table.

| **Frequency (Mhz)** | **Voltage division LISN (db)** | **Insertion Loss Pulse limiter (dB)** | **Cable loss (dB)** | **Corr. (dB)** |
|---|---|---|---|---|
| | **TE 00208 SN: 892785/004 Rohde & Schwarz ESH3-Z5** | **TE 00756 SN: 5SM03153 Rohde & Schwarz ESH3-Z2** | **TE 11134** | |
| 0,15 | 0,09 | 9,87 | 0,02 | 9,98 |
| 0,2 | 0,1 | 9,87 | 0,03 | 10 |
| 0,3 | 0,1 | 9,87 | 0,03 | 10 |
| 0,5 | 0,1 | 9,87 | 0,08 | 10,05 |
| 0,7 | 0,12 | 9,87 | 0,25 | 10,24 |
| 0,8 | 0,12 | 9,87 | 0,25 | 10,24 |
| 1 | 0,13 | 9,87 | 0,11 | 10,11 |
| 2 | 0,16 | 9,87 | 0,15 | 10,18 |
| 3 | 0,19 | 9,87 | 0,21 | 10,27 |
| 5 | 0,26 | 9,88 | 0,21 | 10,35 |
| 7 | 0,36 | 9,89 | 0,25 | 10,5 |
| 8 | 0,39 | 9,89 | 0,25 | 10,53 |
| 10 | 0,46 | 9,91 | 0,29 | 10,66 |
| 15 | 0,77 | 9,93 | 0,34 | 11,04 |
| 20 | 0,95 | 9,96 | 0,37 | 11,28 |
| 25 | 1,12 | 9,99 | 0,43 | 11,54 |
| 30 | 1,1 | 10,04 | 0,45 | 11,59 |

Field Strength Measurement:

E (dBµV/m) = U(dBµV) + AF (dB/m) + Corr. (dB)

Where:
E = Electric field strength
U = Measuring receiver voltage
AF = Antenna factor
CL = Cable loss

Corr. = sum of single correction factors of used cable and amplifier (if applicable).
Linear interpolation will be used for frequencies in between the values in the table.
Tables shows an extract of the values.

| **Frequency (MHz)** | **AF (dB/m)**<br>**TE 00967**<br>**Chase CBL6112A**<br>**SN: 2308** | **Cable loss (dB)**<br>**Id: SAR cable** | **Corr. (dB)** |
|---|---|---|---|
| 30 | 18,6 | 0,68 | 19,28 |
| 100 | 10,7 | 1,15 | 11,85 |
| 150 | 10,6 | 1,41 | 12,01 |
| 200 | 9,3 | 1,63 | 10,93 |
| 250 | 12,6 | 1,93 | 14,53 |
| 300 | 13,3 | 2,12 | 15,42 |
| 350 | 14,6 | 2,2 | 16,8 |
| 400 | 15,5 | 2,29 | 17,79 |
| 450 | 16,9 | 2,53 | 19,43 |
| 500 | 17,5 | 2,67 | 20,17 |
| 550 | 18,4 | 2,9 | 21,3 |
| 600 | 18,8 | 3,02 | 21,82 |
| 650 | 19,2 | 3,09 | 22,29 |
| 700 | 19 | 3,22 | 22,22 |
| 750 | 19,8 | 3,56 | 23,36 |
| 800 | 19,7 | 3,69 | 23,39 |
| 900 | 20,4 | 3,81 | 24,21 |
| 950 | 20,8 | 3,91 | 24,71 |
| 1000 | 21,2 | 4,3 | 25,5 |

| Frequency (MHz) | AF (dB/m)<br>TE 00531<br>Emco 3115<br>SN: 9412-4377 | Gain (dB)<br>TE 11132<br>Miteq<br>JS4-18004000-30-8P-A1 | Cable loss (dB)<br>TE 01315 | Corr. (dB) |
|---|---|---|---|---|
| 1000 | 23,6 | 40,4 | 2,0 | 66 |
| 1500 | 25,1 | 40,5 | 2,4 | 68 |
| 2000 | 27,1 | 40,5 | 2,7 | 70,3 |
| 2500 | 28,6 | 40,7 | 3,2 | 72,5 |
| 3000 | 30,5 | 40,7 | 3,2 | 74,4 |
| 3500 | 31,2 | 40,7 | 3,4 | 75,3 |
| 4000 | 32,7 | 40,9 | 4,9 | 78,5 |
| 4500 | 32,4 | 40,9 | 4,4 | 77,7 |
| 5000 | 33,2 | 40,7 | 4,6 | 78,5 |
| 5500 | 34,0 | 40,5 | 4,5 | 79 |
| 6000 | 34,6 | 40,0 | 5,2 | 79,8 |
| 6500 | 34,3 | 39,4 | 5,9 | 79,6 |
| 7000 | 35,2 | 38,6 | 5,7 | 79,5 |
| 7500 | 36,4 | 39,2 | 5,9 | 81,5 |
| 8000 | 37,0 | 38,9 | 6,3 | 82,2 |
| 8500 | 37,5 | 38,4 | 6,4 | 82,3 |
| 9000 | 38,1 | 37,4 | 6,5 | 82 |
| 9500 | 37,8 | 37,0 | 7,1 | 81,9 |
| 10000 | 38,2 | 36,5 | 7,3 | 82 |
| 10500 | 38,1 | 36,7 | 7,6 | 82,4 |
| 11000 | 38,3 | 36,9 | 8,3 | 83,5 |
| 11500 | 38,5 | 37,6 | 8,1 | 84,2 |
| 12000 | 39,1 | 38,3 | 8,4 | 85,8 |
| 12500 | 38,7 | 38,5 | 8,3 | 85,5 |
| 13000 | 39,2 | 38,9 | 9,2 | 87,3 |
| 13500 | 40,5 | 40,2 | 8,3 | 89 |
| 14000 | 41,1 | 40,0 | 8,2 | 89,3 |
| 14500 | 41,4 | 40,1 | 8,2 | 89,7 |
| 15000 | 40,2 | 41,4 | 8,3 | 89,9 |
| 15500 | 37,9 | 41,4 | 8,6 | 87,9 |
| 16000 | 37,5 | 42,8 | 9,2 | 89,5 |
| 16500 | 38,6 | 42,3 | 8,8 | 89,7 |
| 17000 | 41,1 | 43,1 | 9,4 | 93,6 |
| 17500 | 42,7 | 43,2 | 9,4 | 95,3 |
| 18000 | 44,0 | 44,2 | 9,8 | 98 |

| Frequency (MHz) | AF (dB/m)<br>TE 00531<br>Emco 3115<br>SN: 9412-4377 | Gain (dB)<br>TE 11132<br>Miteq<br>JS4-18004000-30-8P-A1 | Cable loss (dB)<br>TE 01315 | Corr. (dB) |
|---|---|---|---|---|
| 18000 | 31,3 | 26,2 | 9,8 | 67,3 |
| 19000 | 31,5 | 26,1 | 9,6 | 67,2 |
| 20000 | 31,7 | 25,9 | 11 | 68,6 |
| 21000 | 31,9 | 24,3 | 10,7 | 66,9 |
| 22000 | 32,1 | 18,3 | 10,5 | 60,9 |
| 23000 | 32,2 | 18,9 | 10,8 | 61,9 |
| 24000 | 32,3 | 23,6 | 11,4 | 67,3 |
| 25000 | 32,4 | 24,5 | 11,6 | 68,5 |
| 26000 | 32,5 | 25,3 | 11,7 | 69,5 |