

**TEST REPORT**  
of the accredited test laboratory

TÜV Nr.: INE-AT/FG-18/155

**Applicant:** StreamUnlimited Engineering GmbH  
High Tech Campus Vienna  
Gutheil-Schoder-Gasse 10  
A-1100 Vienna

**Tested Product:** STREAM1832 Bluetooth / BLE / WIFI streaming module  
Test report for 2,4 GHz WIFI part only

**FCC-ID:** 2AJYB-S1832

**IC-ID:** 20504-S1832

**Manufacturer:** See applicant

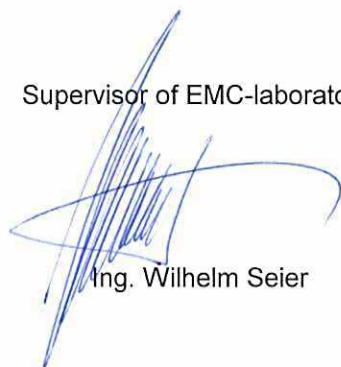
**Output power / field strength:** 43,65 mW cond. **power supply:** 12 VDC

**Frequency range:** 2412 - 2462 MHz **Channel separation:** 5 MHz

**Standard:** FCC: 47 CFR Part 15 (October 1, 2017 edition)  
RSS-247 Issue 2, February 2017

Testing Laboratory,  
Inspection Body,  
Certification Body,  
Calibration Laboratory,  
VerifizierungsstelleNotified Body 0408  
IC 2932K-1Non-executive  
Board of Directors:  
KR DI Johann  
MarihartManagement:  
DI Dr. Stefan Haas  
Mag. Christoph  
WenningerRegistered Office:  
Deutschstrasse 10  
1230 Vienna/AustriaBranch Offices:  
www.tuv.at/standorteCompany Register  
Court / - Number:  
Vienna / FN 288476 fBank Details:  
IBAN  
AT13120005294900106  
BIC BKAUATWWIBAN  
AT15310000010409328  
BIC RZBAATWWVAT ATU63240488  
DVR 3002476**TÜV Austria Services GmbH**  
**Test laboratory for EMC**

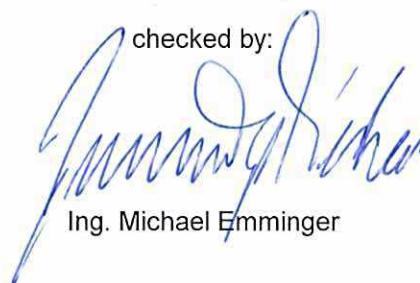
Supervisor of EMC-laboratory:

  
Ing. Wilhelm Seier

06.11.2018

Copy Nbr.: 01

checked by:

  
Ing. Michael Emminger

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The results of this test report only refer to the provided equipment.

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## 1. Applicant

**Company:** StreamUnlimited Engineering GmbH

**Department:** Director Systems

**Address:** High Tech Campus Vienna  
Gutheil-Schoder-Gasse 10  
A-1100 Vienna

**Contact person:** Mr. DI Christoph Apel

**EUT received on:** 05.09.2018

**Tests were performed on:** 05.09. till 05.11.2018

## 2. Description of EUT

|                                                   |                                                                                                                                                                                                                                                                   |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT:</b>                                       | Bluetooth / BLE / WIFI module "STREAM1832"                                                                                                                                                                                                                        |
| <b>Serial Number:</b>                             | Prototype mounted on evaluation board                                                                                                                                                                                                                             |
| <b>Manufacturer:</b>                              | StreamUnlimited Engineering GmbH<br>High Tech Campus Vienna<br>Gutheil-Schoder-Gasse 10<br>A-1100 Vienna                                                                                                                                                          |
| <b>Description:</b>                               | <p>StreamUnlimited Engineering GmbH provided the following configuration for the measurements:</p> <p>Prototype mounted on evaluation board with direct connection for conducted measurements and with antenna type of highest gain for radiated measurements</p> |
| <b>Operating mode:</b>                            | <p>The measurements were carried out at the following running states:</p> <p>test-firmware running, transmitting continuously</p>                                                                                                                                 |
| <b>Technical data EUT:</b>                        | <p>Rated voltage: 12VDC<br/>Rated current: 150mA<br/>Rated frequency: DC</p> <p>Mains voltage during the tests: 12VDC</p>                                                                                                                                         |
| <b>Climatic conditions in the emc laboratory:</b> | <p>Relative humidity: 54%<br/>Temperature: 23°C</p>                                                                                                                                                                                                               |

### 3. Standards / Final result

| Name                                                                                                    | Title                                                                                                                        | Deviation | Result |
|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------|--------|
| Title 47 CFR Part 15<br>October 1 <sup>st</sup> 2017 edition                                            | RADIO FREQUENCY DEVICES                                                                                                      | none      | OK     |
| RSS-247 Issue 2,<br>February 2017                                                                       | Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices | none      | OK     |
| <p>Result: Opinions and interpretation of testing laboratory<br/>OK: EUT passed<br/>NOK: EUT failed</p> |                                                                                                                              |           |        |

## 4. TEST RESULTS

### 4.1. TEST OBJECT DATA

#### General EUT Description

This Bluetooth / BLE / WIFI module is using either 2.4 GHz frequencies or 5 GHz (WIFI only). This test report is only for the 2,4 GHz WIFI part. See additional test reports:

INE-AT/FG-18/153 for Bluetooth

INE-AT/FG-18/154 for BLE and

INE-AT/FG-18/156 for 5 GHz WIFI measurement results including photodocumentation.

#### 2.1033 (c) Technical description

#### 2.1033 (4) Type of emission:

802.11 standards – Channel bandwidths 11,2 MHz (DSSS), 17,2 MHz (20 MHz OFDM) and 37,6 MHz (40 M - aggregation of 2 non-overlapping 20 M OFDM channels) - Channel spacing 5 MHz.

#### 2.1033 (5) Frequency range:

2412 till 2462 MHz (channel center frequencies) in 5 MHz steps resulting in 11 Channels (DSSS and 20 MHz channels)

2422 till 2452 MHz (channel center frequencies) in 5 MHz steps resulting in 7 Channels of 40 MHz bandwidth

2.1033 (6) Power range and Controls: The maximum peak output power is 43,65 mW and there is no power regulation.

2.1033 (7) Maximum output power rating: 43,65 mW.

2.1033 (8) DC Voltage and Current: 12V DC

maximum current consumption: 150 mA

RSS-135 This standard does not apply to:

- 1.1.(a) a receiver that scans radio frequencies for the purpose of enabling its associated transmitter to avoid transmitting in an occupied frequency but which does not have the capability of decoding the message (e.g. converting it to audio voice) contained in the radio signal

Antennas used for all radiated measurements: MOLEX '1461531100'

Worst case Spurious Emissions: 53,2 dBµV/m Average.

Tests were performed September 5<sup>th</sup> till November 5<sup>th</sup> 2018.

#### **4.2. Number of channels and channel spacing**

**§ 2.1033**

##### Conducted Measurement

Rated output power: 43,65 mW

There are 11 Channels used starting at 2412 till 2462 MHz each separated by 5 MHz channel spacing with a maximum bandwidth of 20 MHz.

Two channels spaced by 20 MHz can be used simultaneously to give a RF-Bandwidth of 40 MHz, resulting in 7 different channels with 40 MHz bandwidth and center frequencies of 2422 till 2452 MHz each separated by 5 MHz channel spacing.

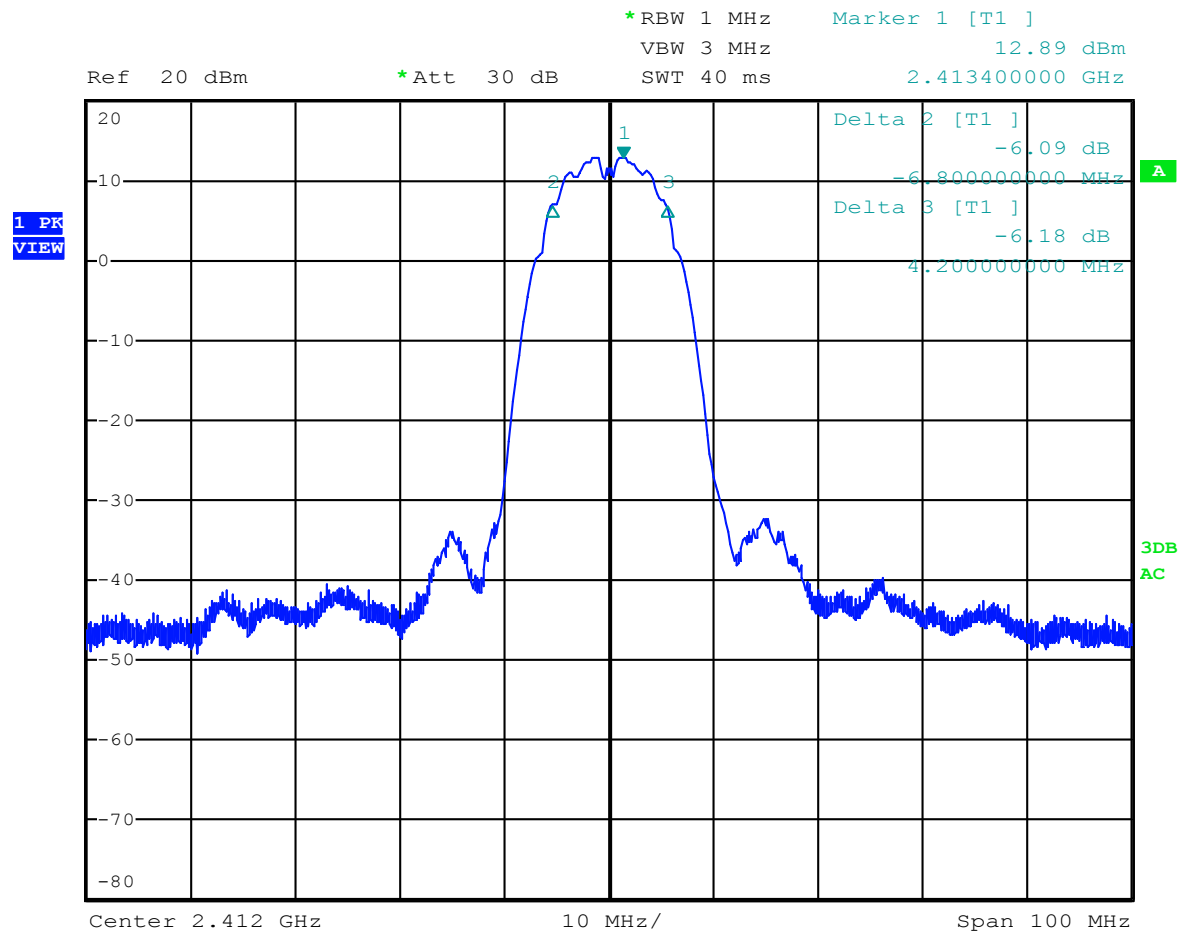
Test Equipment used: N/A

### 4.3. 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 1 (2412 MHz center frequency) – DSSS



Date: 19.SEP.2018 15:28:17

6dB Bandwidth: 11,0 MHz

**LIMIT SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

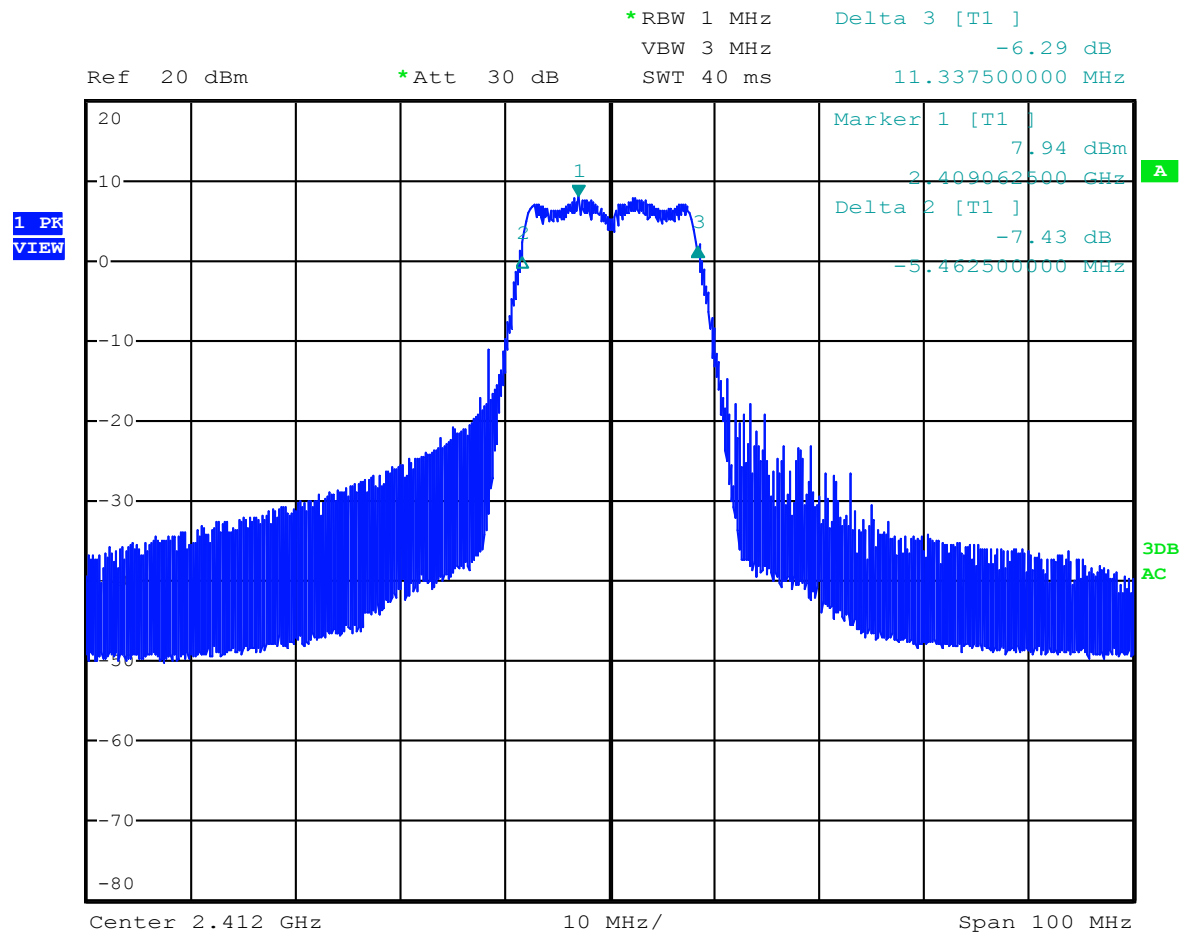
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 1 (2412 MHz center frequency) – OFDM



Date: 19.SEP.2018 15:32:49

6dB Bandwidth: 16,8 MHz

**LIMIT SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

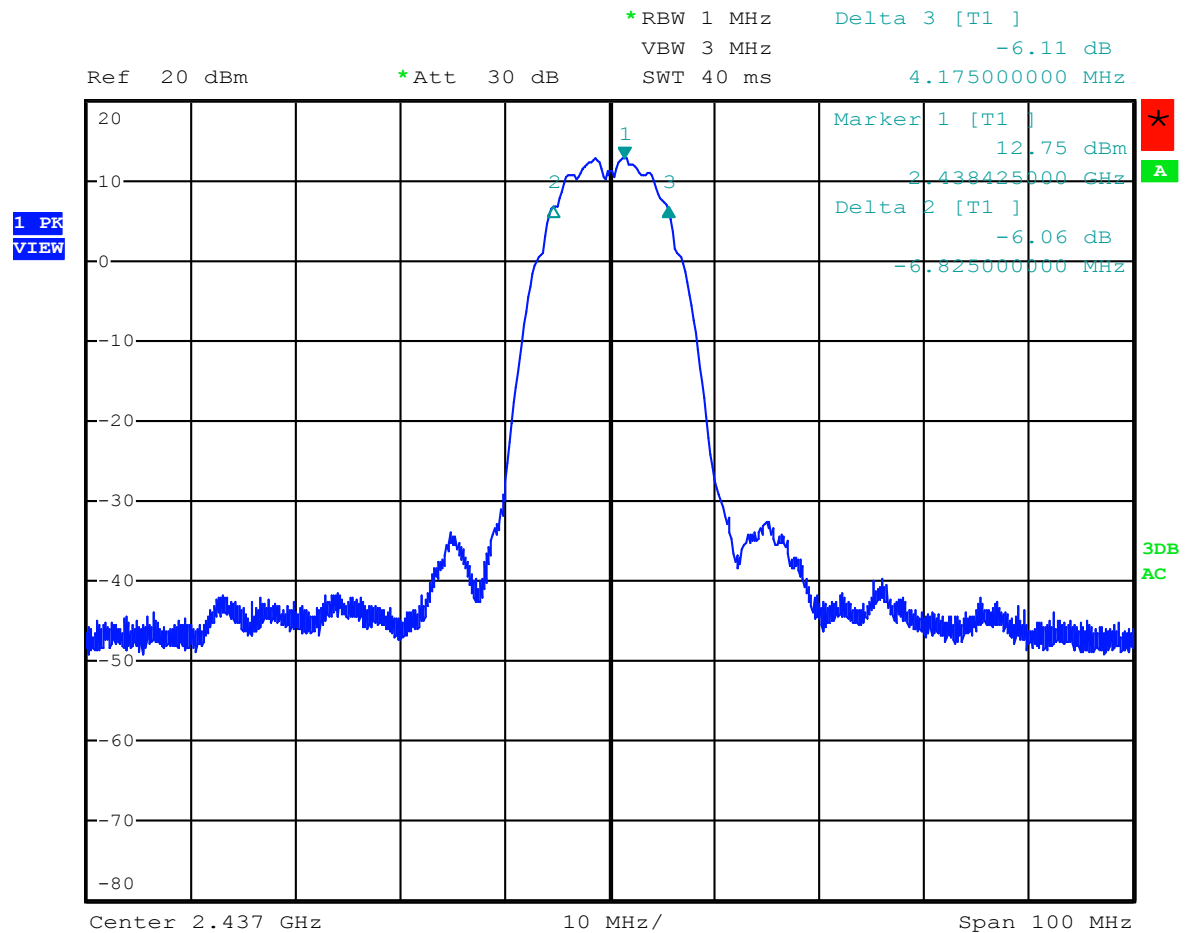
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 6 (2437 MHz center frequency) – DSSS



Date: 19.SEP.2018 15:30:02

6dB Bandwidth: 11,0 MHz

**LIMIT SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

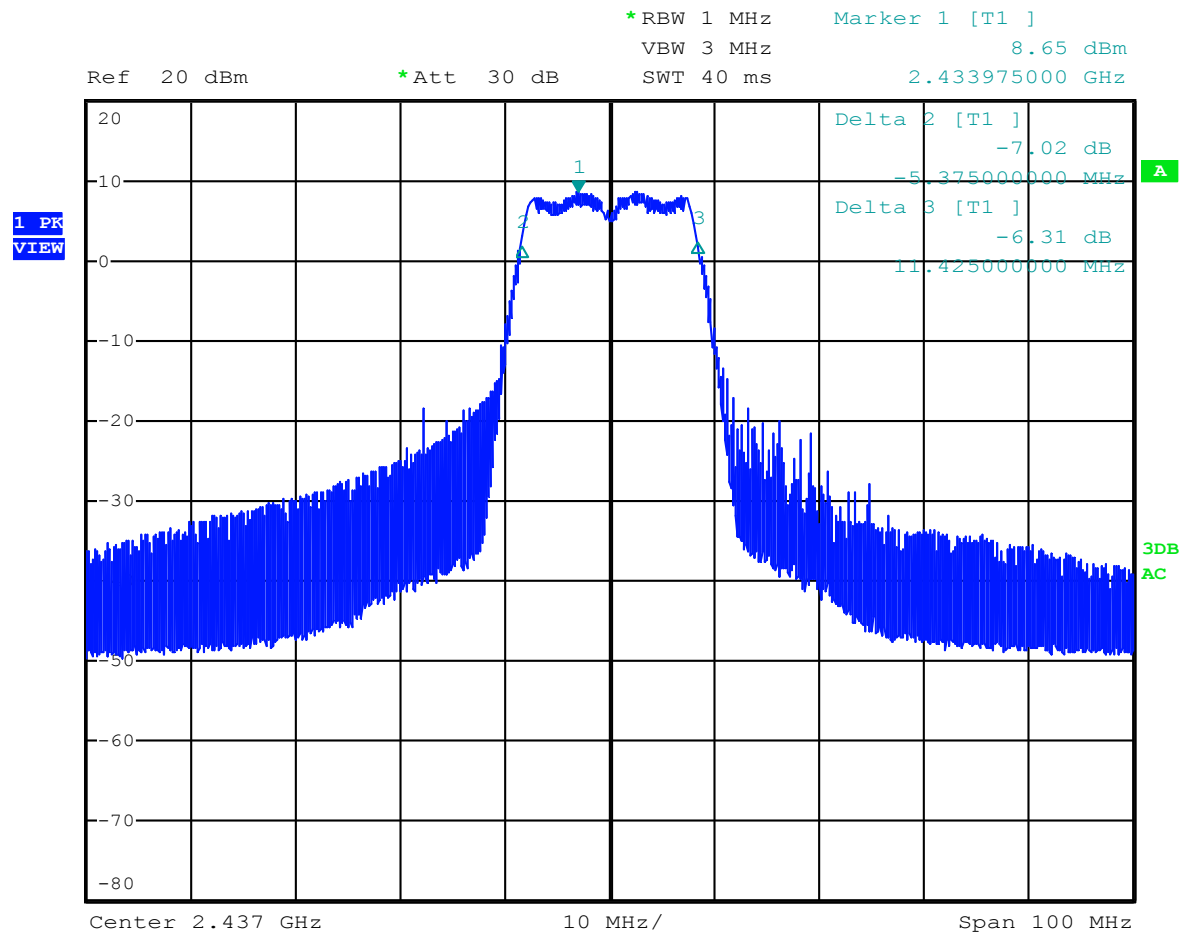
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 6 (2437 MHz center frequency) – OFDM



Date: 19.SEP.2018 15:31:20

6dB Bandwidth: 16,8 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

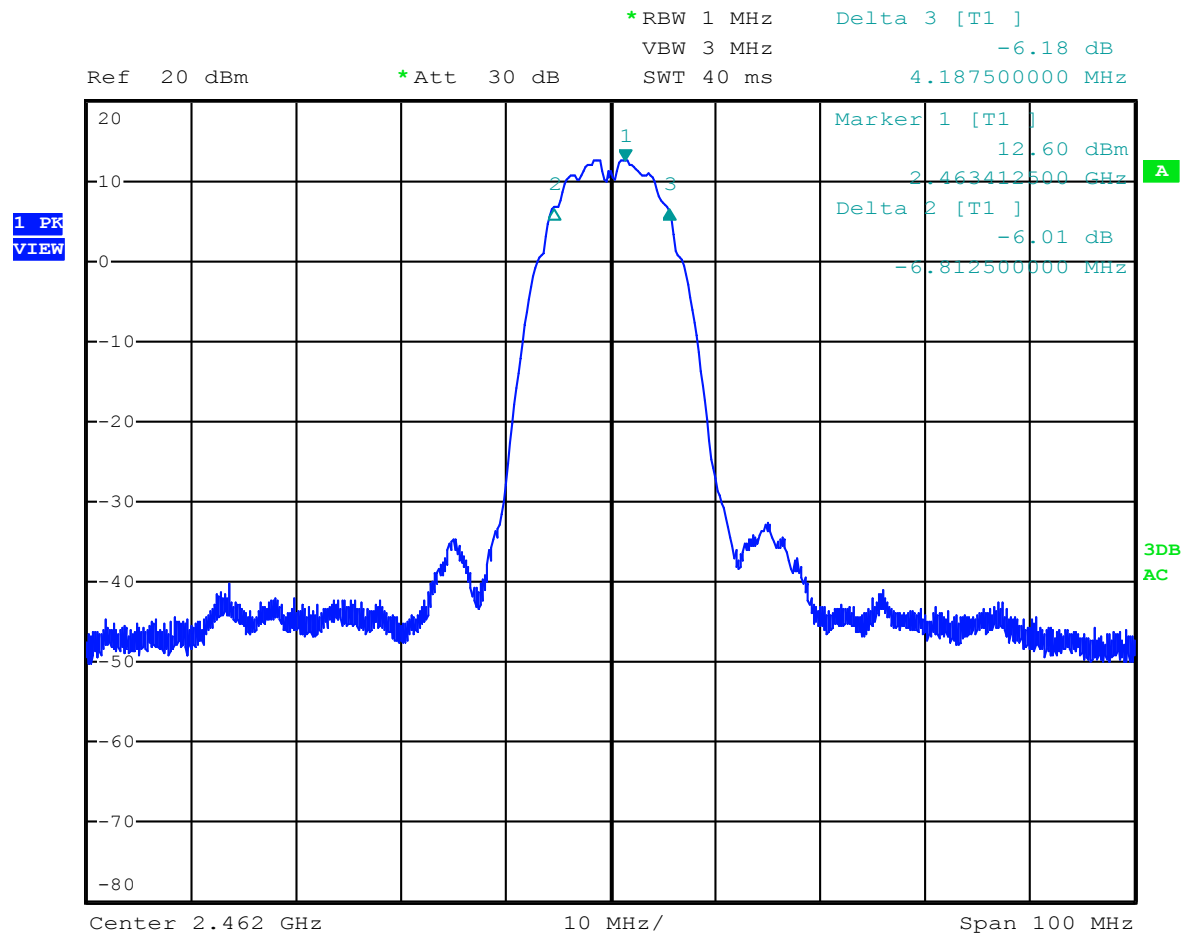
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 11 (2462 MHz center frequency) – DSSS



Date: 19.SEP.2018 15:34:42

6dB Bandwidth: 11,0 MHz

**LIMIT SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

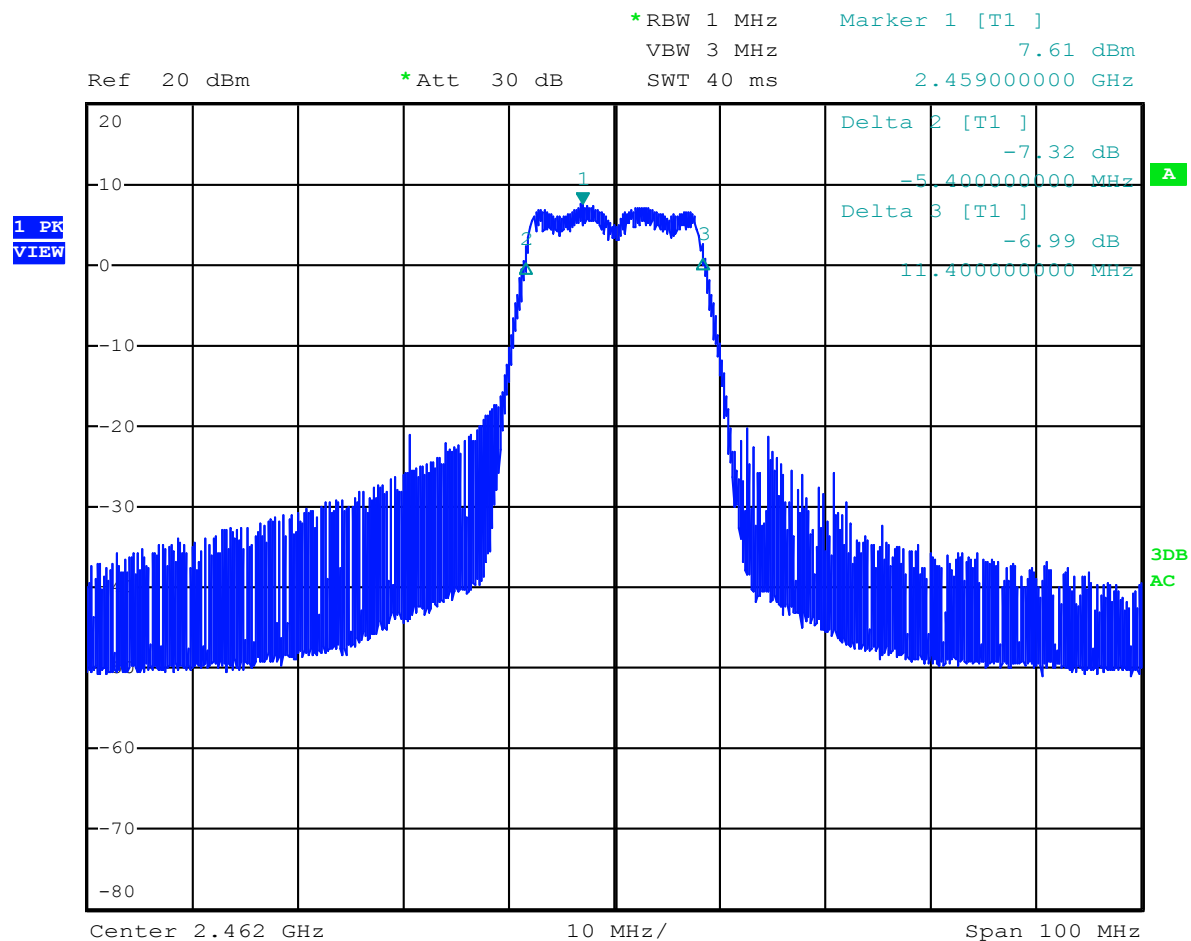
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 11 (2462 MHz center frequency) – OFDM



Date: 19.SEP.2018 15:33:57

6dB Bandwidth: 16,8 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

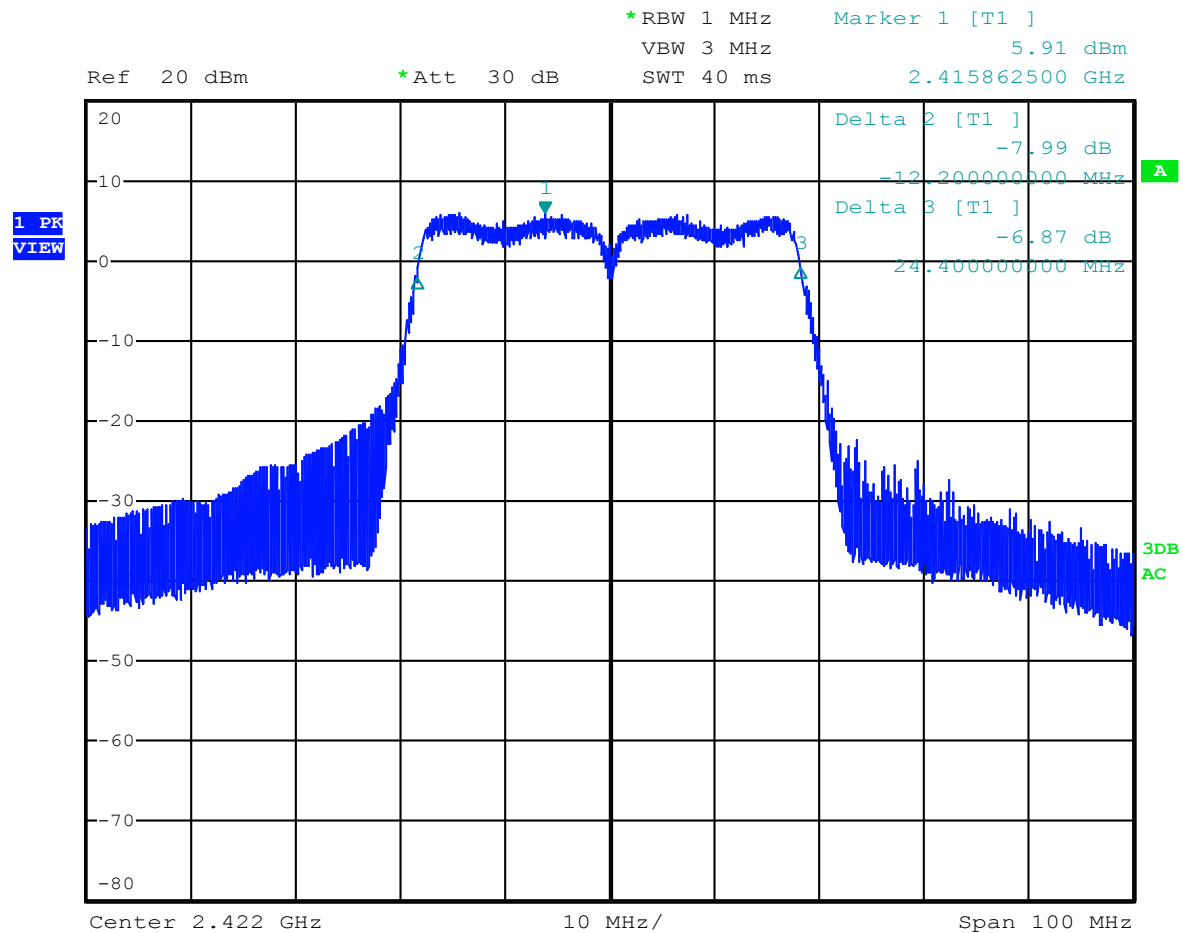
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channels 1+5 (2422 MHz center frequency)



Date: 19.SEP.2018 15:37:02

6dB Bandwidth: 36,6 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

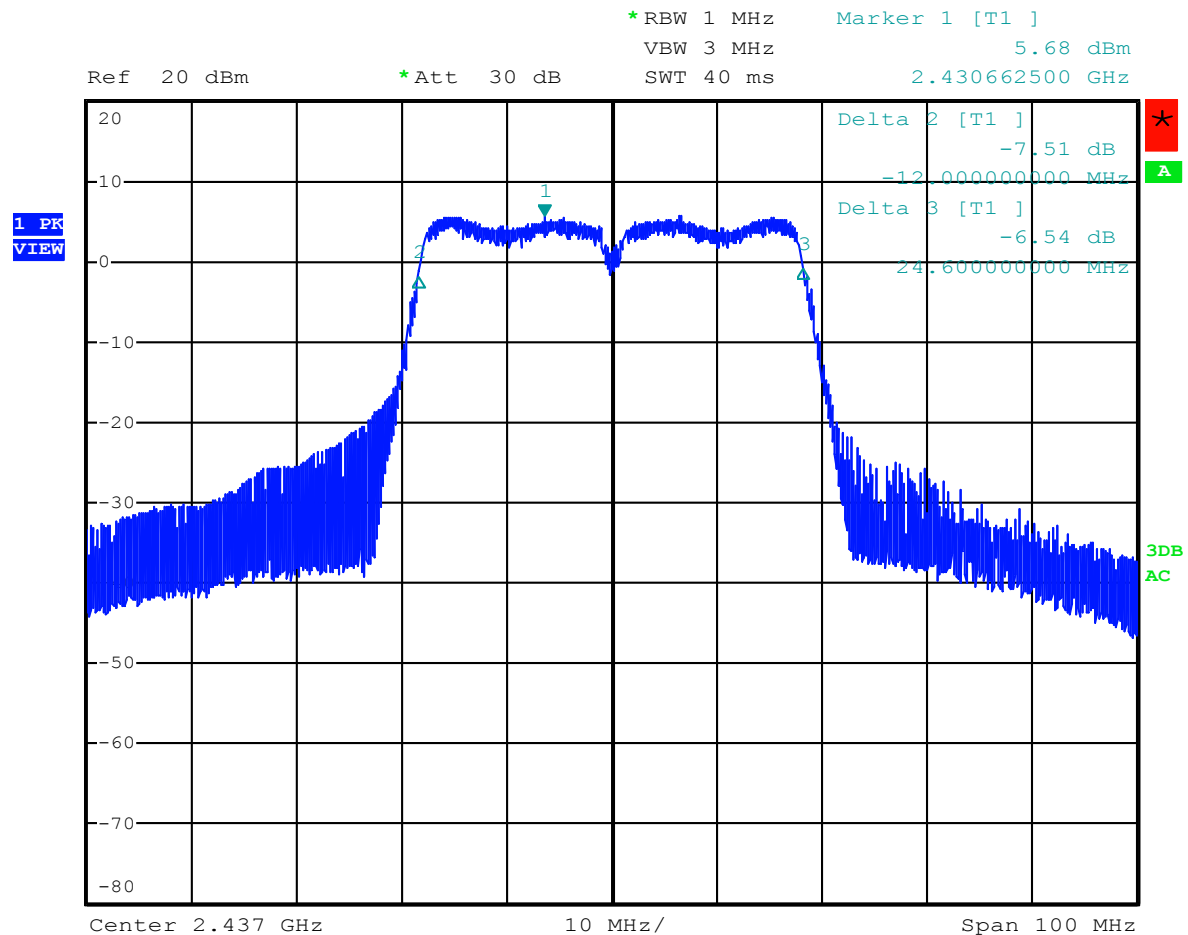
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channels 4 + 8 (2437 MHz center frequency)



Date: 19.SEP.2018 15:38:03

6dB Bandwidth: 36,6 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

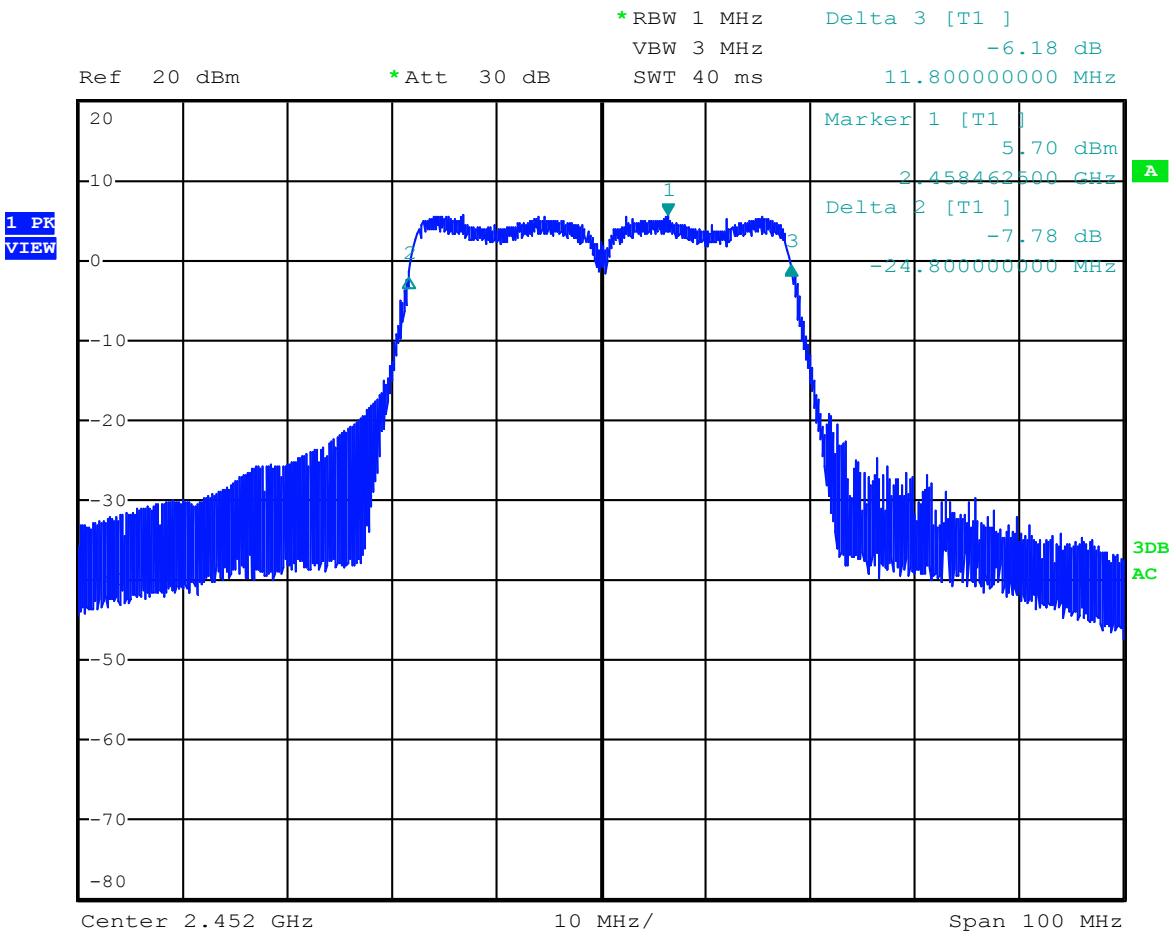
Test Equipment used: NT-203/1

6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 7 + 11 (2452 MHz center frequency)



Date: 19.SEP.2018 15:39:00

6dB Bandwidth: 36,6 MHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(1)

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

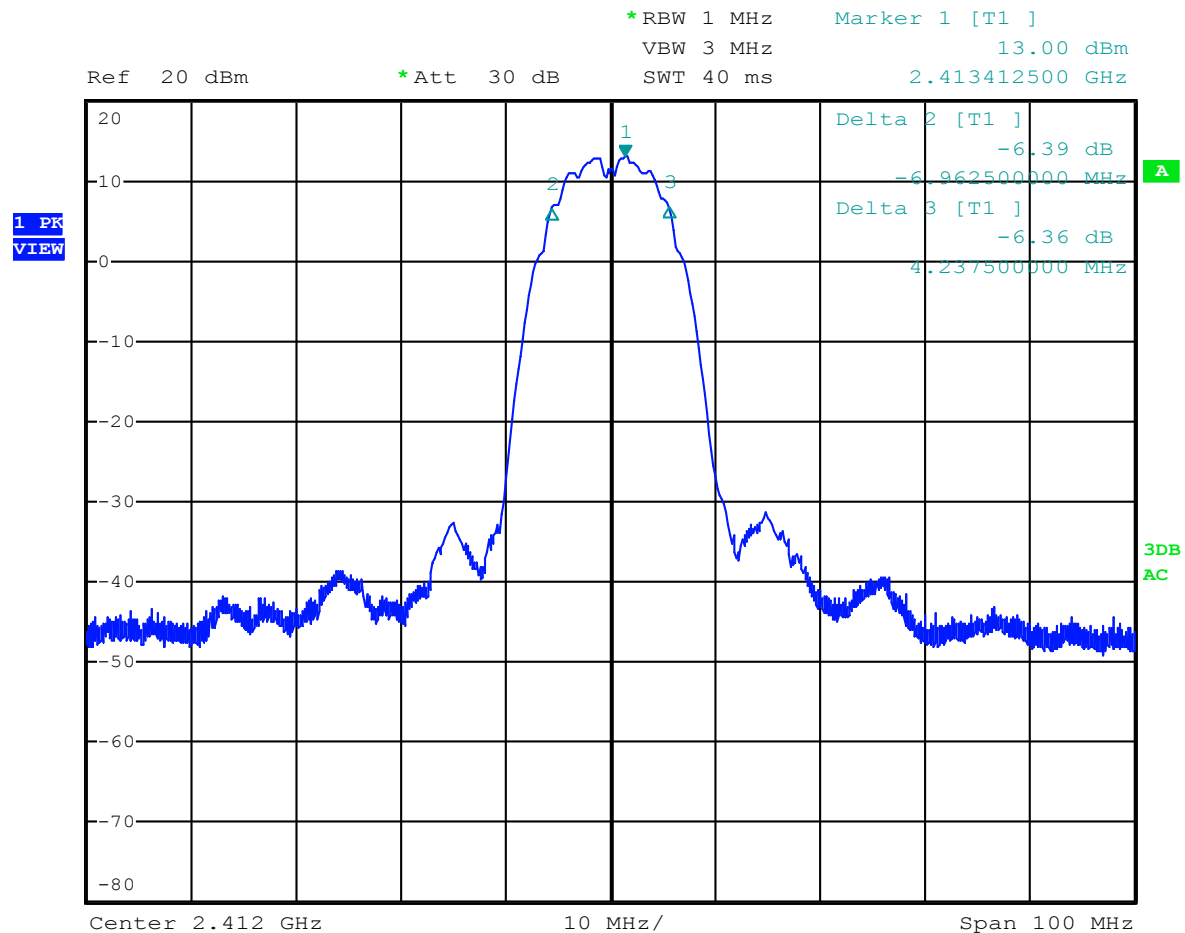
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 1 (2412 MHz center frequency) – DSSS



Date: 19.SEP.2018 17:56:38

6dB Bandwidth: 11,2 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

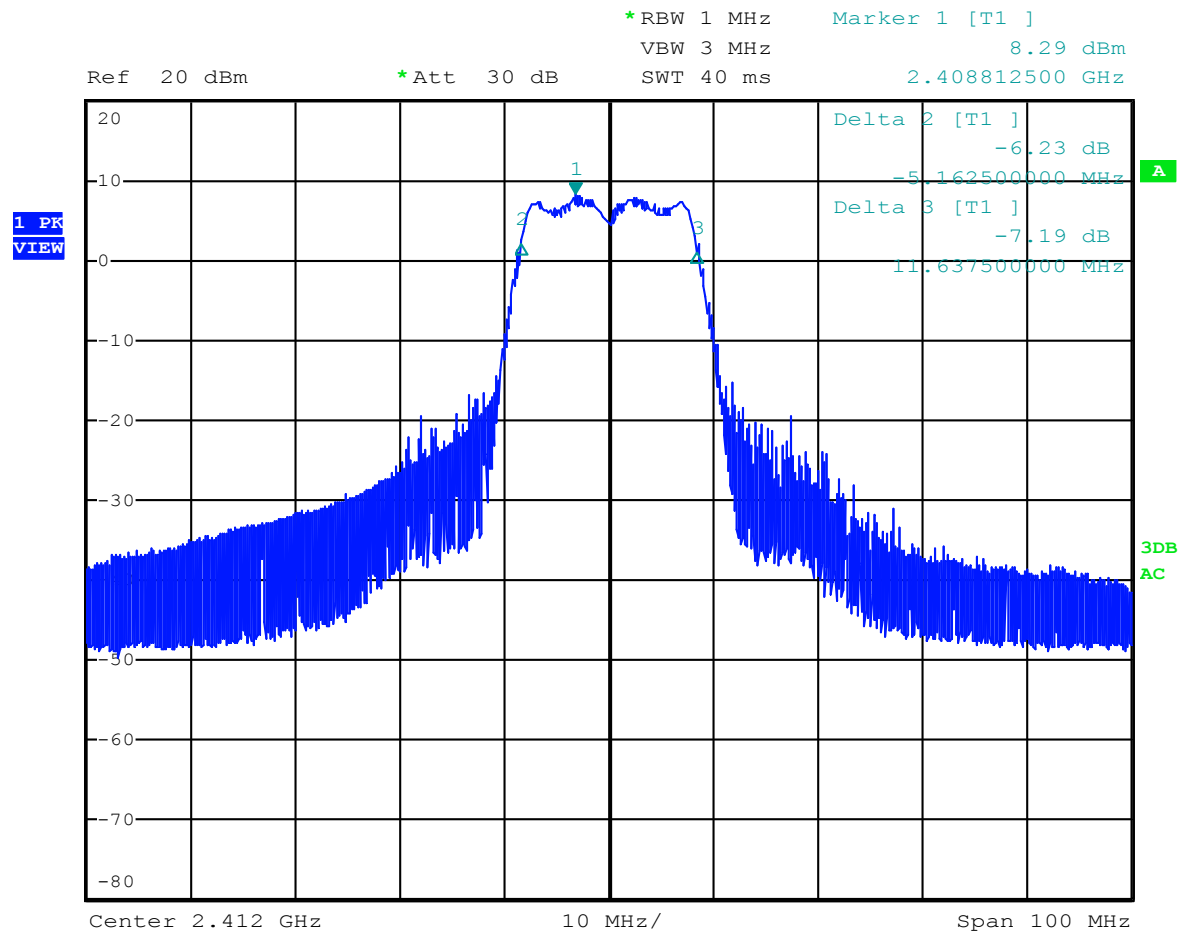
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 1 (2412 MHz center frequency) – OFDM



Date: 19.SEP.2018 17:58:14

6dB Bandwidth: 16,8 MHz

**LIMIT SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

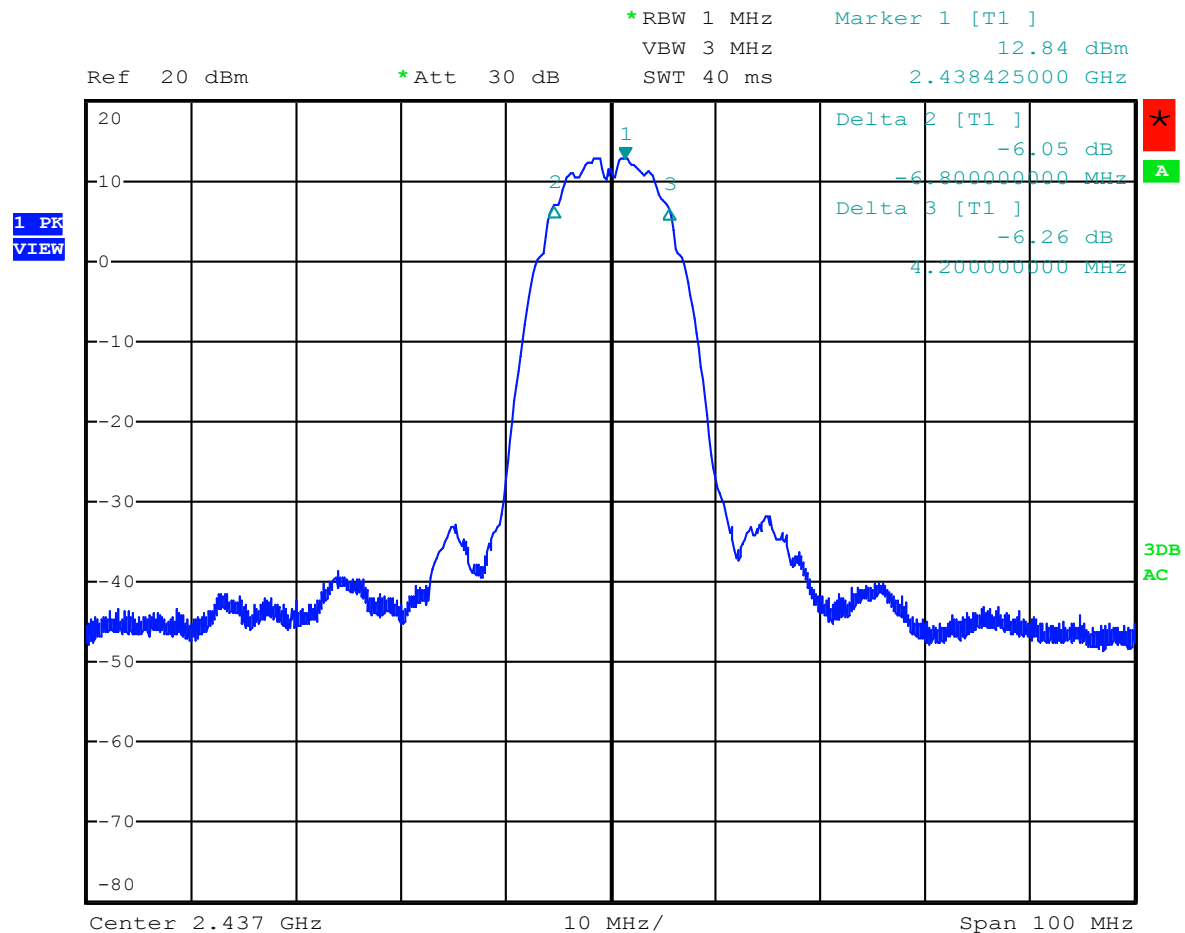
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 6 (2437 MHz center frequency) – DSSS



Date: 19.SEP.2018 17:59:53

6dB Bandwidth: 11,0 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

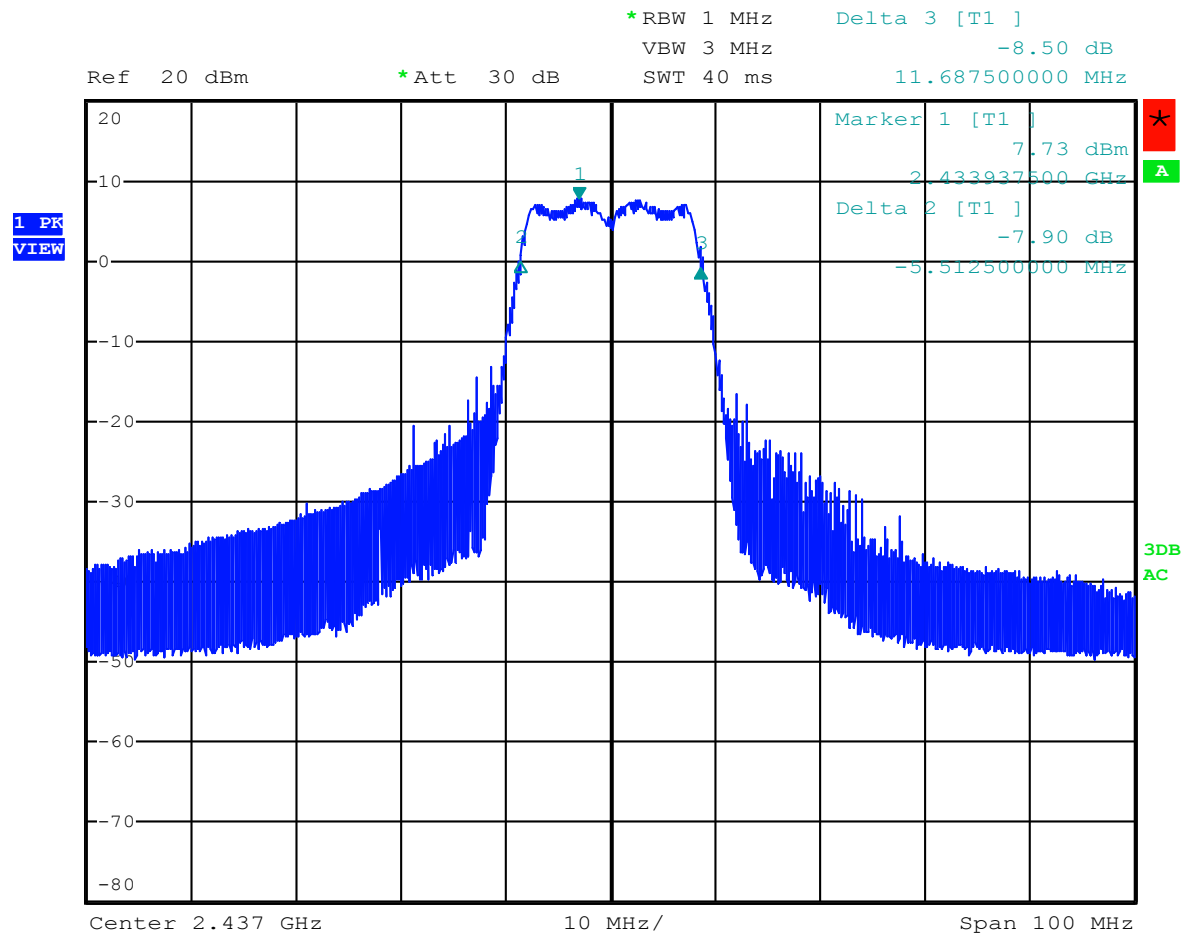
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 6 (2437 MHz center frequency) – OFDM



Date: 19.SEP.2018 18:01:01

6dB Bandwidth: 17,2 MHz

**LIMIT SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

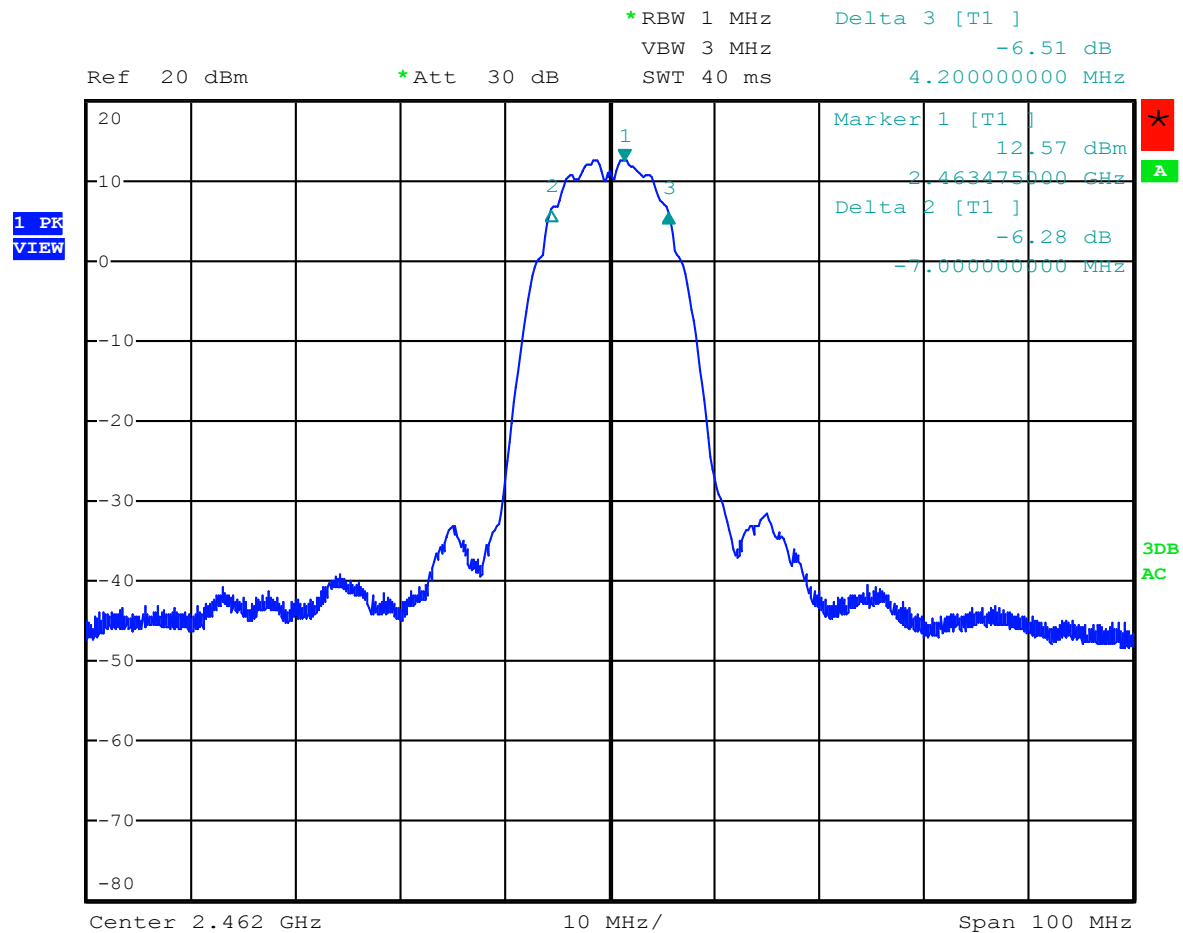
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 11 (2462 MHz center frequency) – DSSS



Date: 19.SEP.2018 18:03:18

6dB Bandwidth: 11,2MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

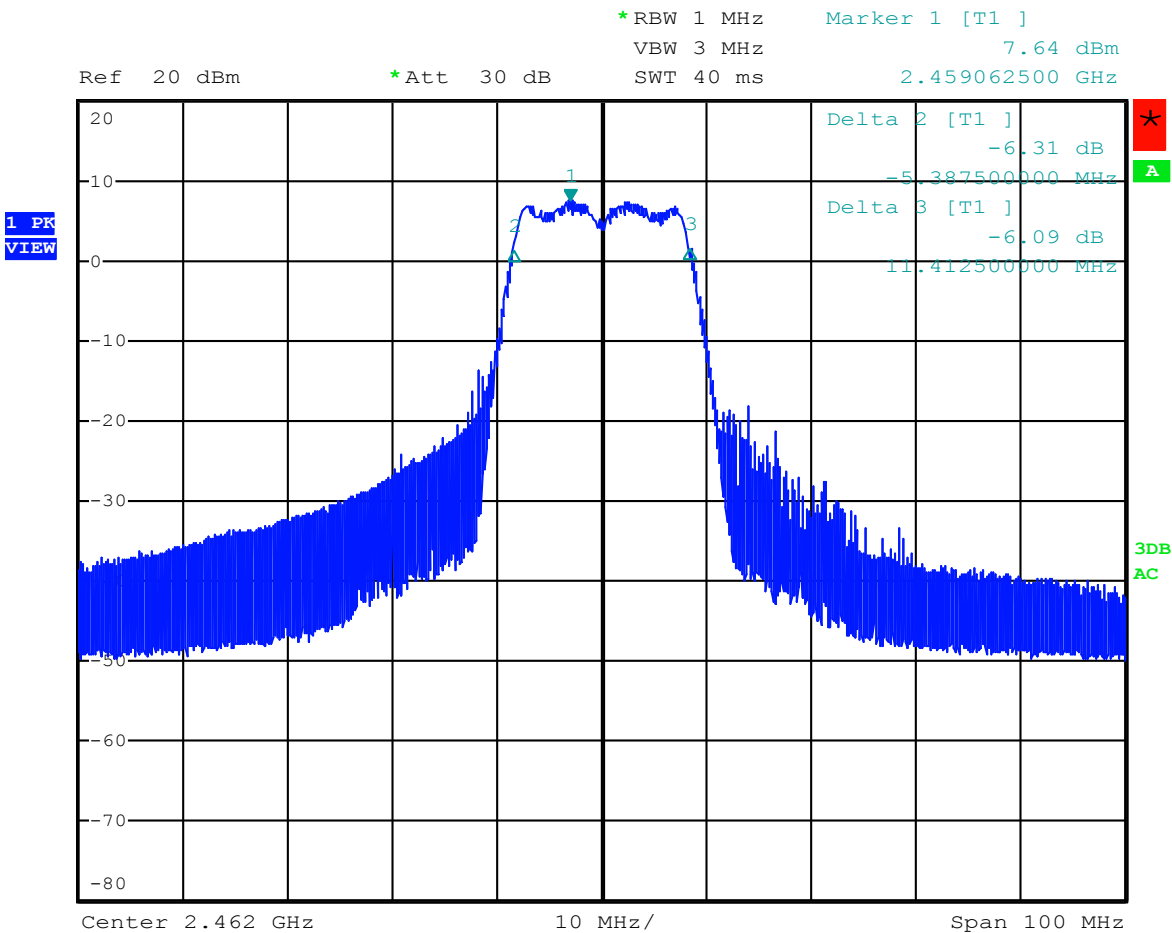
Test Equipment used: NT-203/1

6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 11 (2462 MHz center frequency) – OFDM



Date: 19.SEP.2018 18:04:18

6dB Bandwidth: 16,8 MHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(1)

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

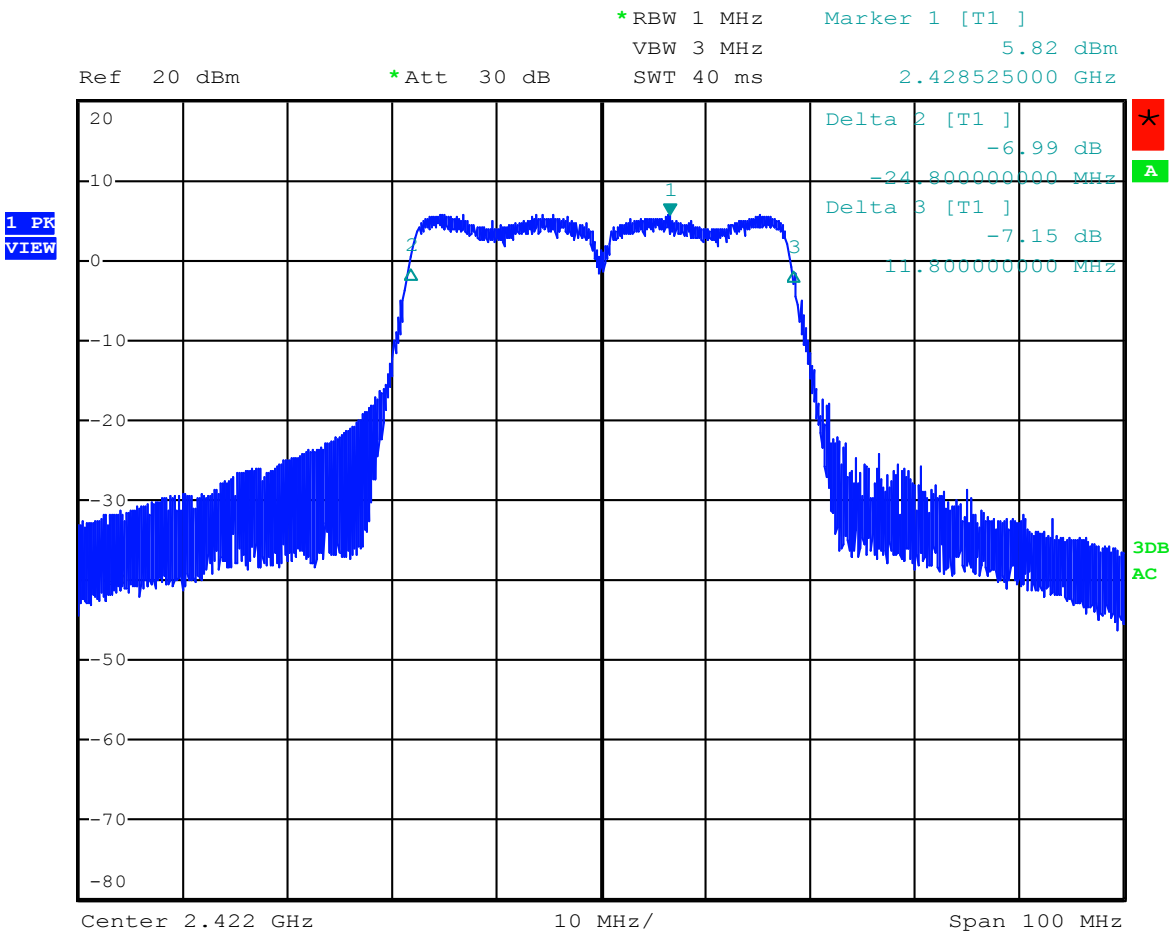
Test Equipment used: NT-203/1

6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channels 1+5 (2422 MHz center frequency)



Date: 19.SEP.2018 18:05:23

6dB Bandwidth: 37,6 MHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(1)

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

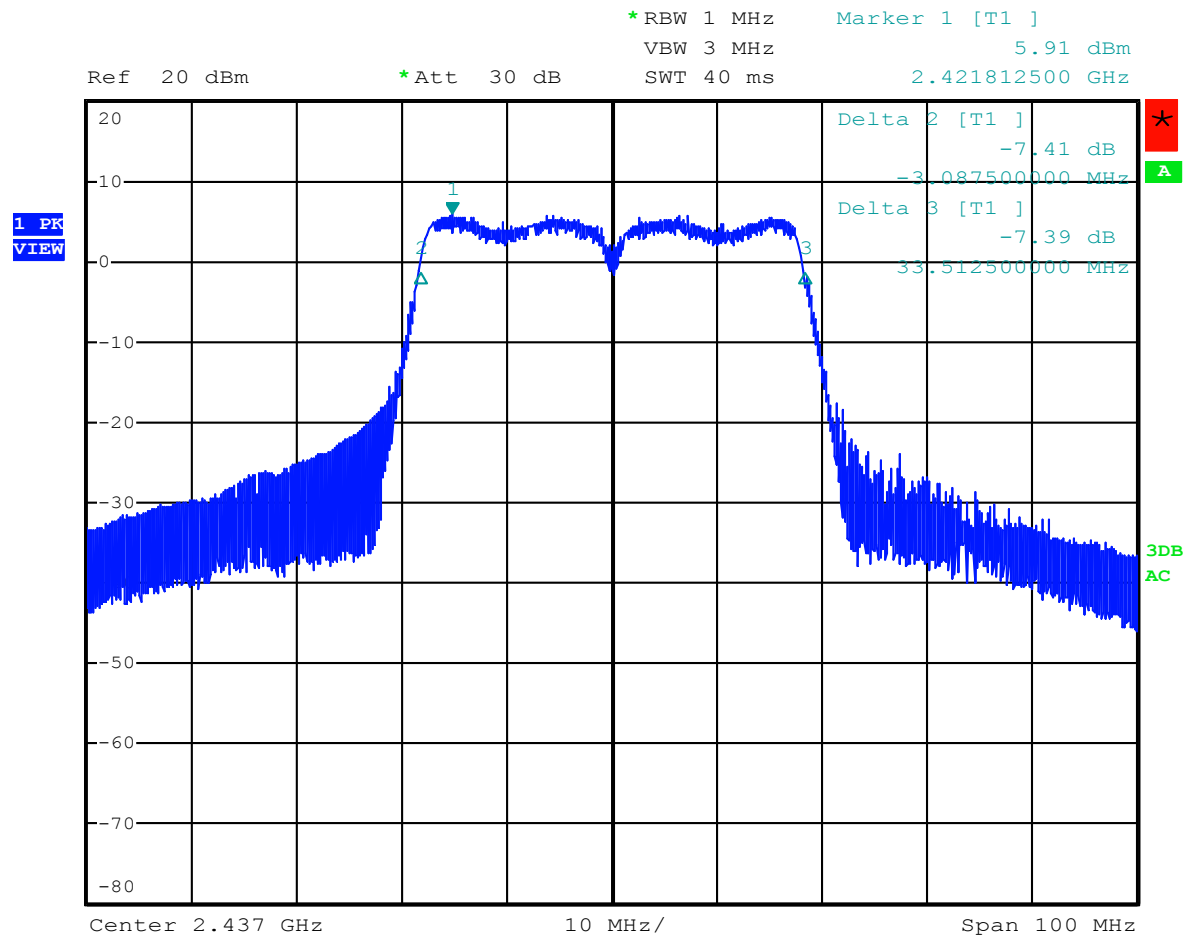
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channels 4 + 8 (2437 MHz center frequency)



Date: 19.SEP.2018 18:06:23

6dB Bandwidth: 36,6 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

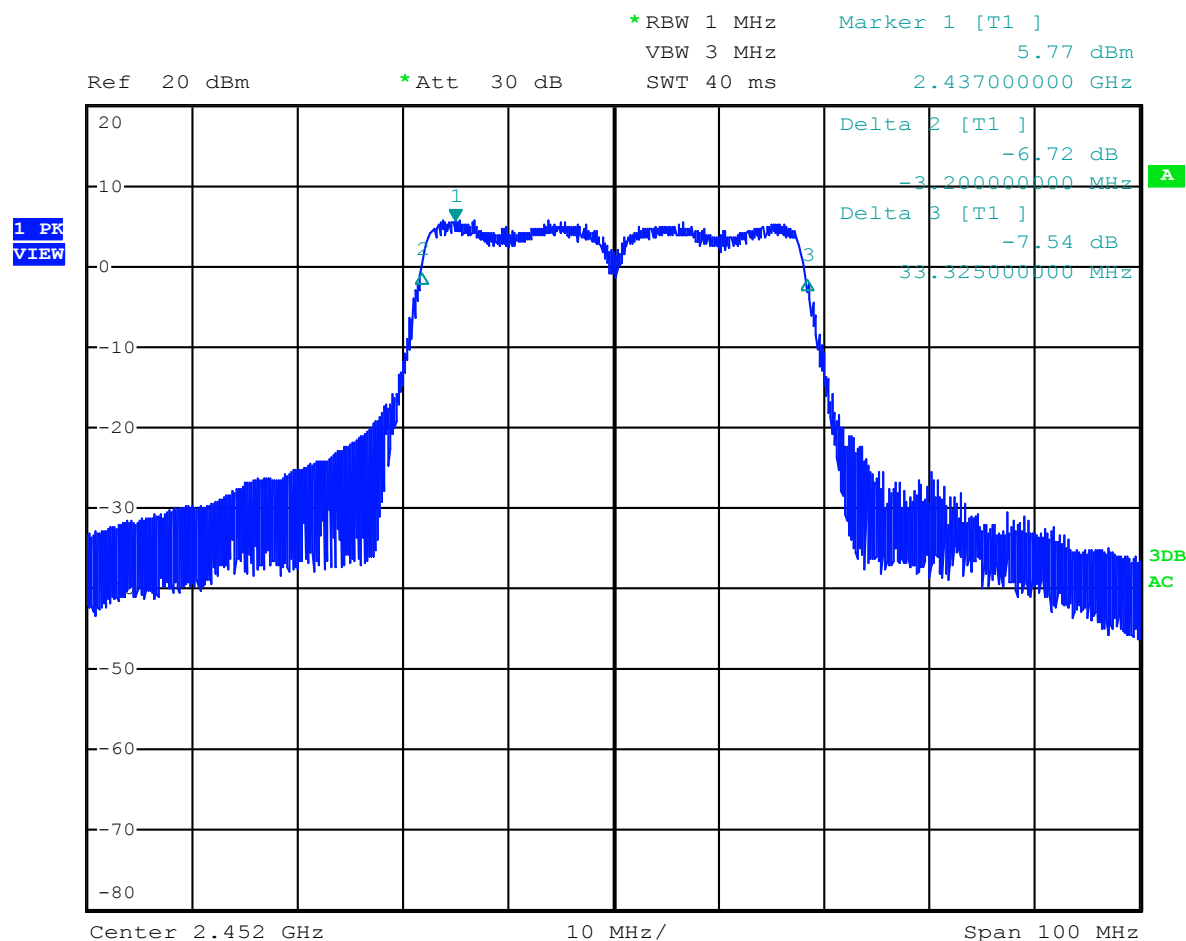
Test Equipment used: NT-203/1

## 6dB Bandwidth

§ 15.247(a)(2)  
5.2(1)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 7 + 11 (2452 MHz center frequency)



Date: 19.SEP.2018 18:07:33

6dB Bandwidth: 36,525 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(1)**

|                             |                                 |
|-----------------------------|---------------------------------|
| Under normal test conditons | 6 dB Bandwidth at least 500 kHz |
|-----------------------------|---------------------------------|

Test Equipment used: NT-203/1

#### 4.4. Maximum Peak RF Power Output (conducted)

§ 15.247(b)(3)  
5.4(4)

Conducted Measurement with thermal power sensor (RMS) – Antenna 1

Rated output power: 43,65 mW

| Test conditions           |               | Transmitter power (mW) |          |                 |
|---------------------------|---------------|------------------------|----------|-----------------|
|                           |               | 2412 (2422) MHz        | 2437 MHz | 2462 (2452) MHz |
| T <sub>nom</sub> ( 23 )°C | DSSS          | 43,65                  | 41,69    | 39,81           |
|                           | OFDM – 20 MHz | 10,96                  | 10,72    | 10,23           |
|                           | OFDM – 40 MHz | 14,13                  | 13,80    | 13,49           |
| Measurement uncertainty   |               | ± 0,75 dB              |          |                 |

#### LIMIT SUBCLAUSE 15.247(b)(3) – 5.4(4)

|                             |                        |
|-----------------------------|------------------------|
| Under normal test conditons | 1W conducted (4W eirp) |
|-----------------------------|------------------------|

Test Equipment used: NT-204

# **Maximum Peak RF Power Output (conducted)**

**§ 15.247(b)(3)  
5.4(4)**

Conducted Measurement with thermal power sensor (RMS) – Antenna 2

Rated output power: 43,65 mW

| Test conditions           |               | Transmitter power (mW) |          |                 |
|---------------------------|---------------|------------------------|----------|-----------------|
|                           |               | 2412 (2422) MHz        | 2437 MHz | 2462 (2452) MHz |
| T <sub>nom</sub> ( 23 )°C | DSSS          | 43,65                  | 41,69    | 39,81           |
|                           | OFDM – 20 MHz | 10,96                  | 10,72    | 10,23           |
|                           | OFDM – 40 MHz | 14,13                  | 13,80    | 13,49           |
| Measurement uncertainty   |               | ± 0,75 dB              |          |                 |

## **LIMIT SUBCLAUSE 15.247(b)(3) – 5.4(4)**

|                             |                        |
|-----------------------------|------------------------|
| Under normal test conditons | 1W conducted (4W eirp) |
|-----------------------------|------------------------|

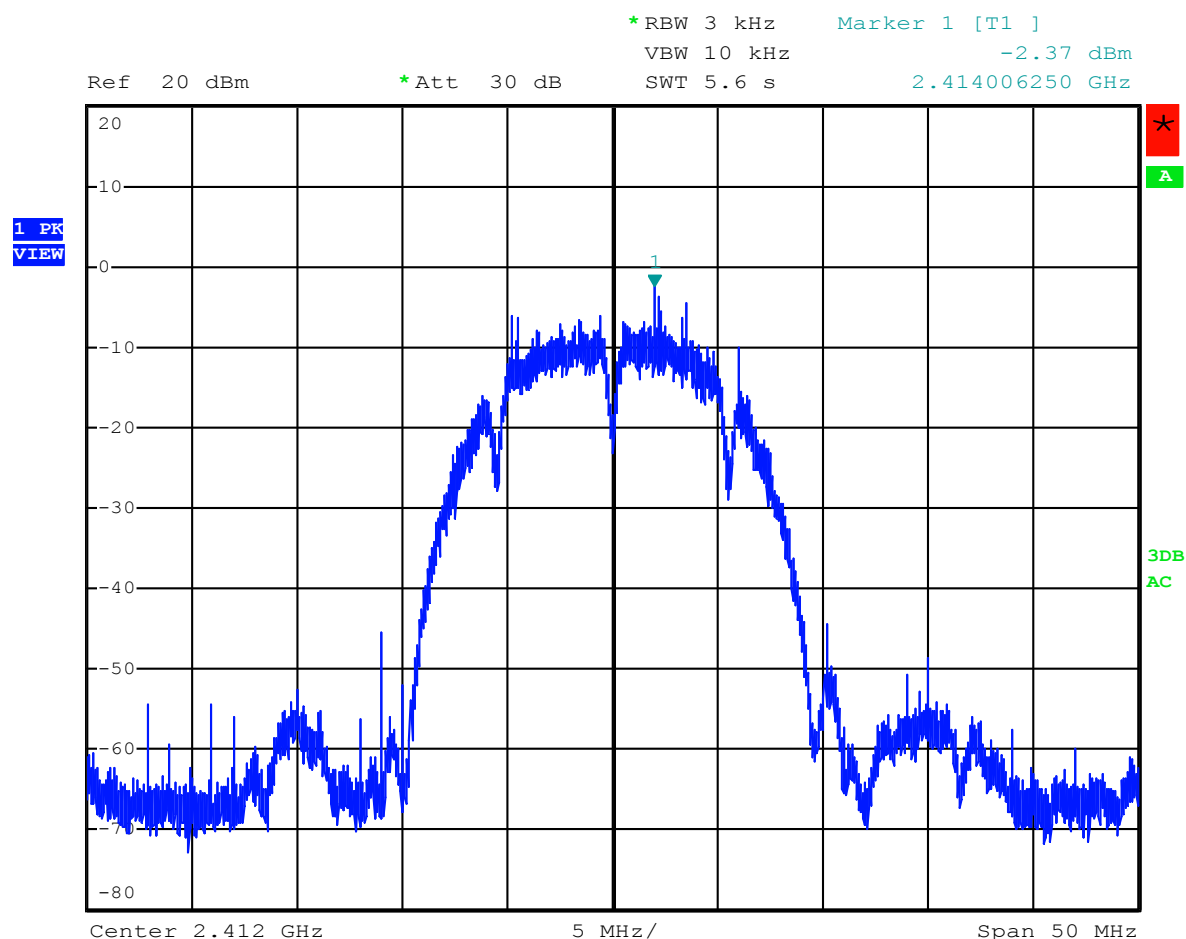
Test Equipment used: NT-204

#### 4.5. Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 1 (2412 MHz center frequency) – DSSS



Date: 19.SEP.2018 15:43:58

Power Spectral density: -2,37 dBm @ 2414,006 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(2)**

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

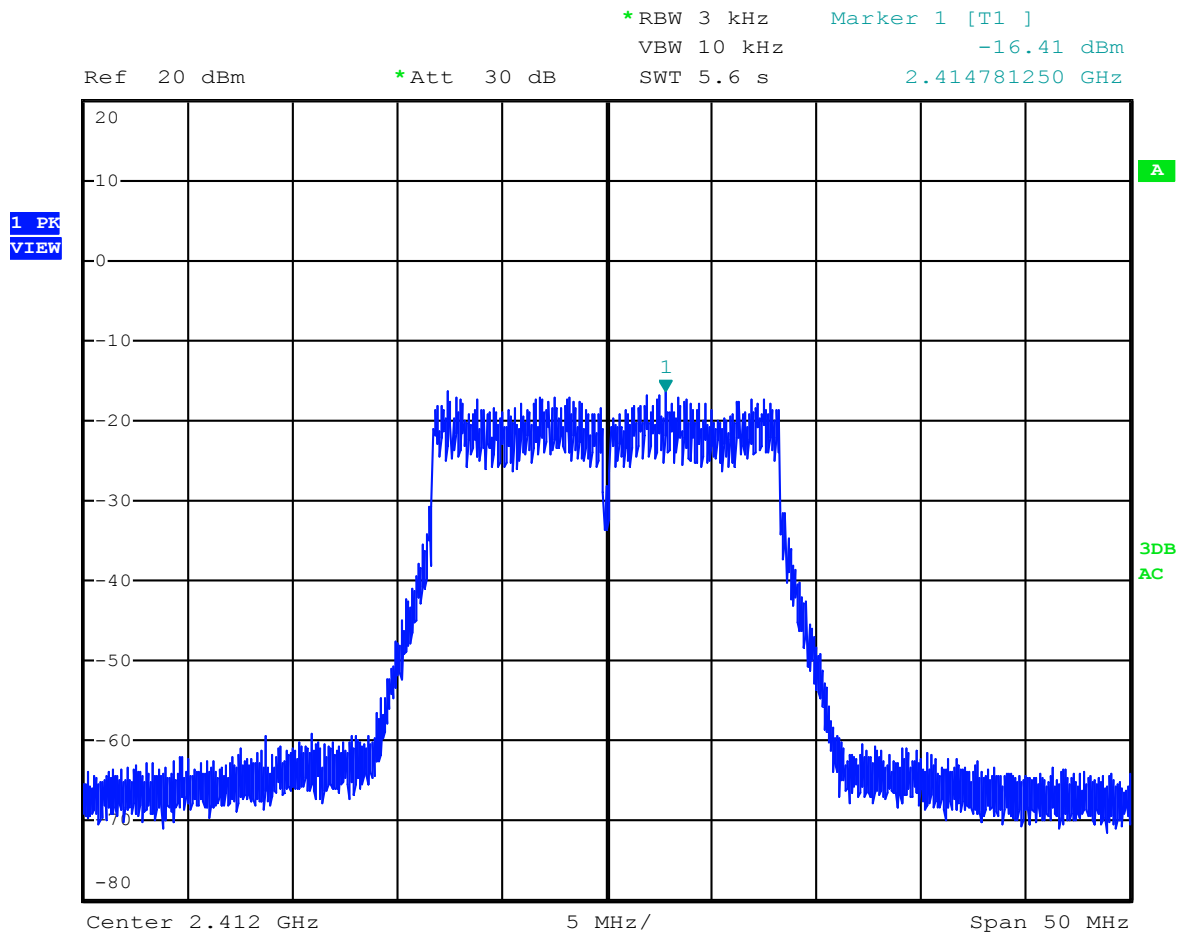
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 1 (2412 MHz center frequency) – OFDM



Date: 19.SEP.2018 15:45:01

Power Spectral density: -16,41 dBm @ 2414,781 MHz

### LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

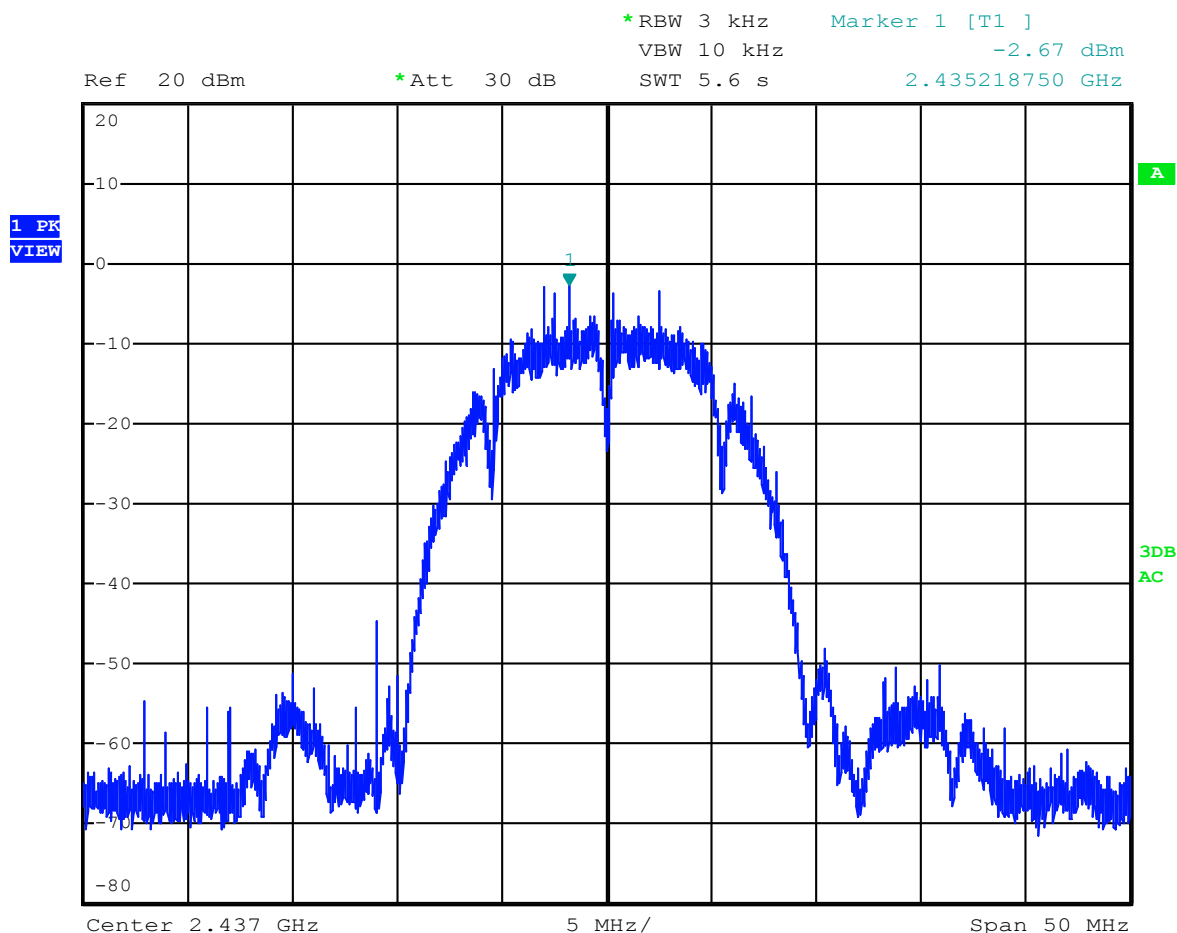
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 6 (2437 MHz center frequency) – DSSS



Date: 19.SEP.2018 15:54:47

Power Spectral density: -2,67 dBm @ 2435,219 MHz

### LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

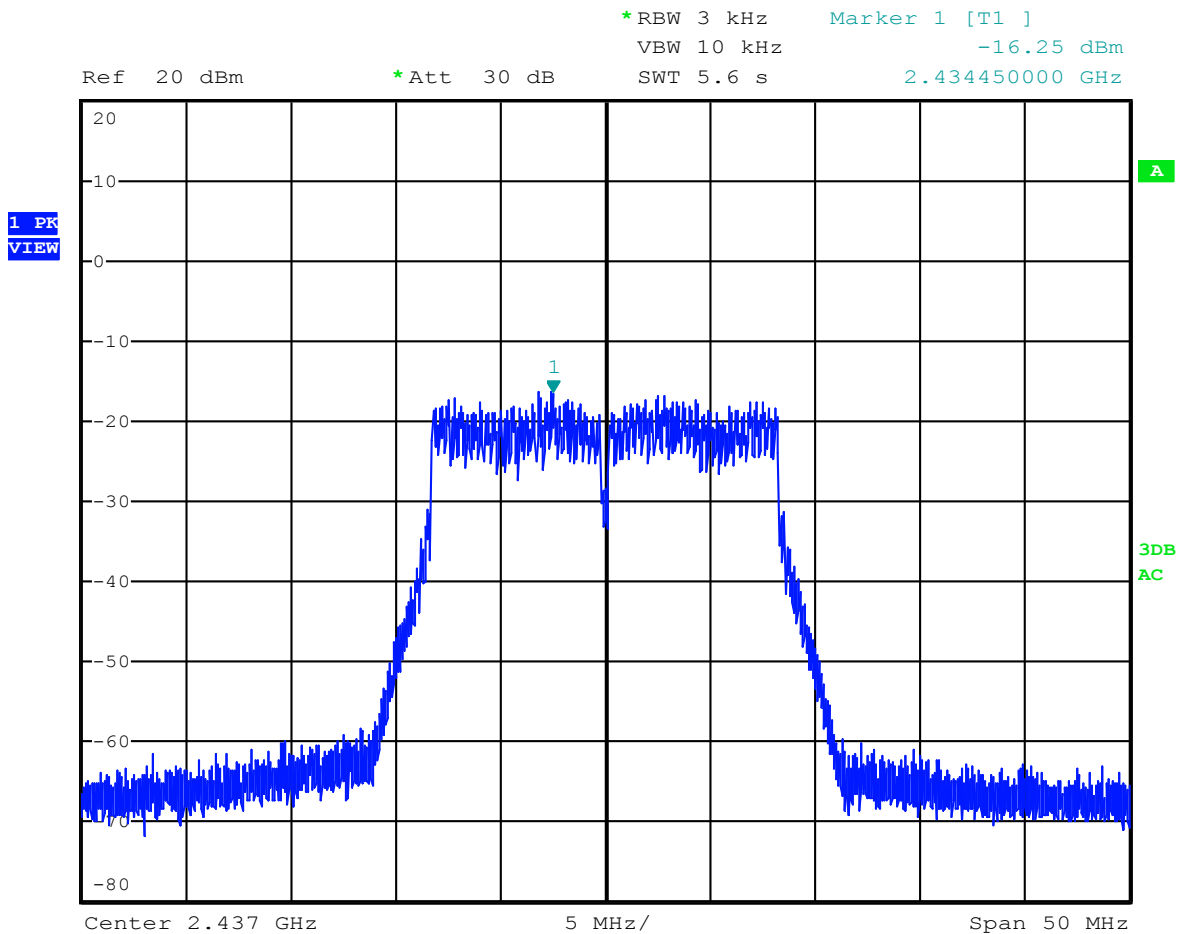
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 6 (2437 MHz center frequency) – OFDM



Date: 19.SEP.2018 15:56:19

Power Spectral density: -16,25 dBm @ 2434,450 MHz

### LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

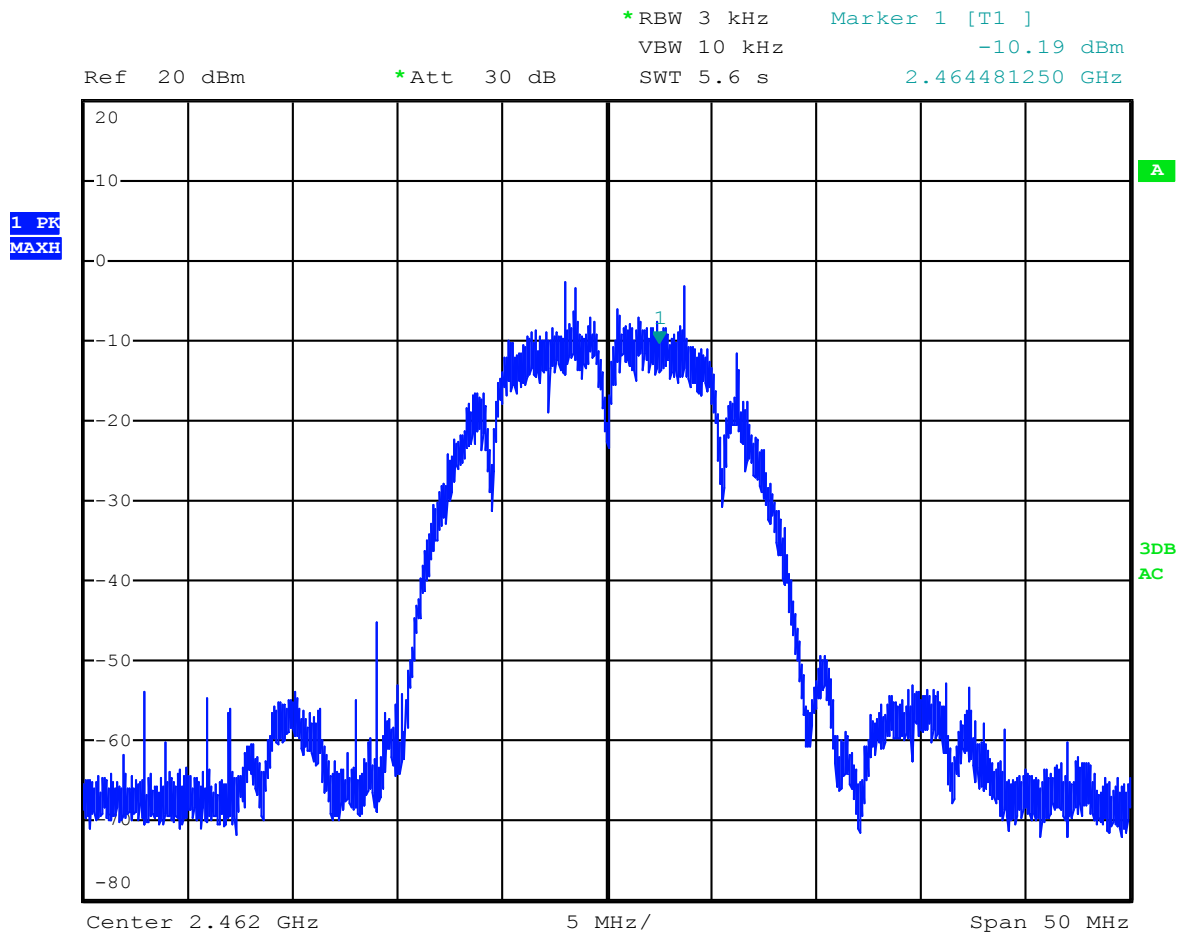
Test Equipment used: NT-203/1

**Power spectral density (conducted)**

**§ 15.247(e)  
5.2(2)**

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 11 (2462 MHz center frequency) – DSSS



Date: 19.SEP.2018 16:00:46

Power Spectral density: -10,19 dBm @ 2464,481 MHz

**LIMIT      SUBCLAUSE 15.247(e) – 5.2(2)**

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

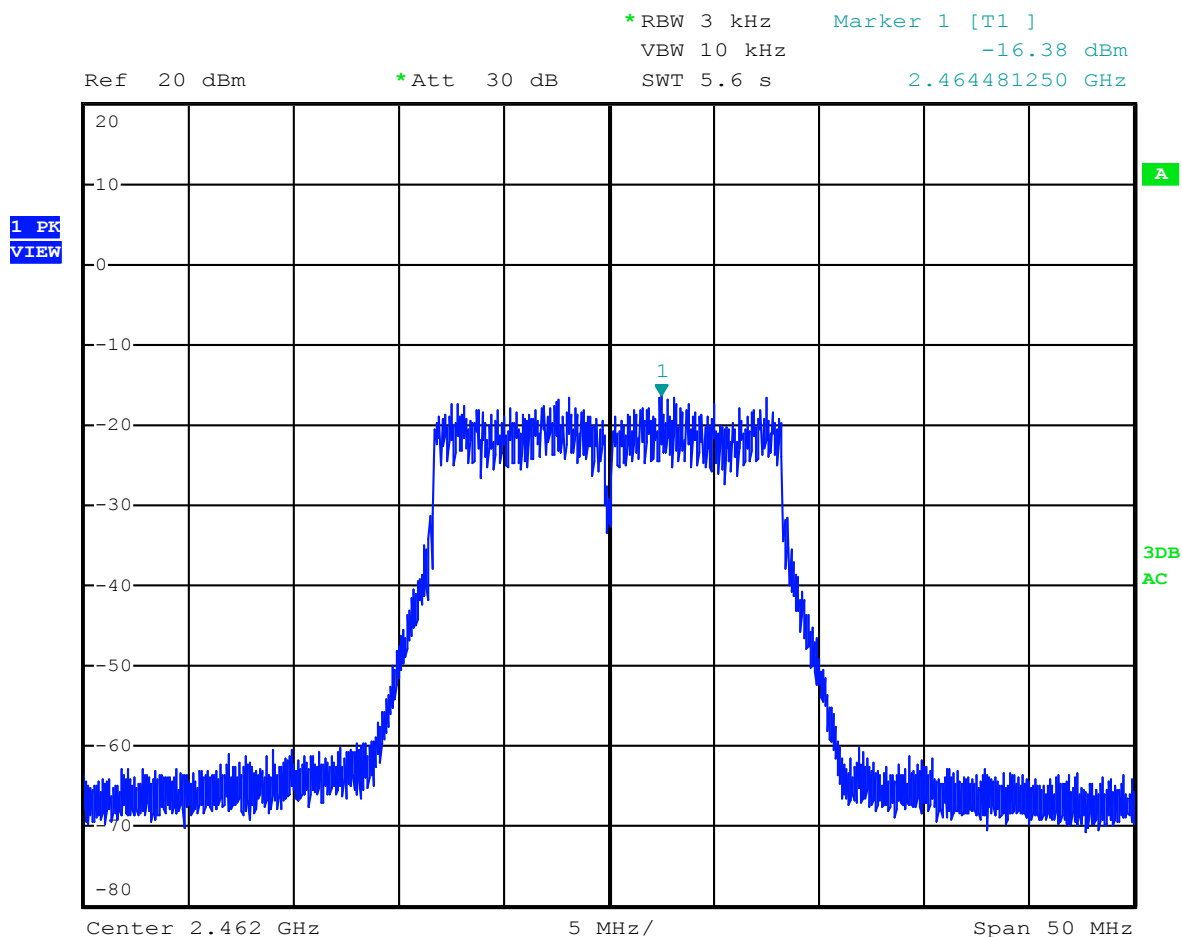
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 11 (2462 MHz center frequency) – OFDM



Date: 19.SEP.2018 15:58:50

Power Spectral density: -16,38 dBm @ 2464,481 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(2)**

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

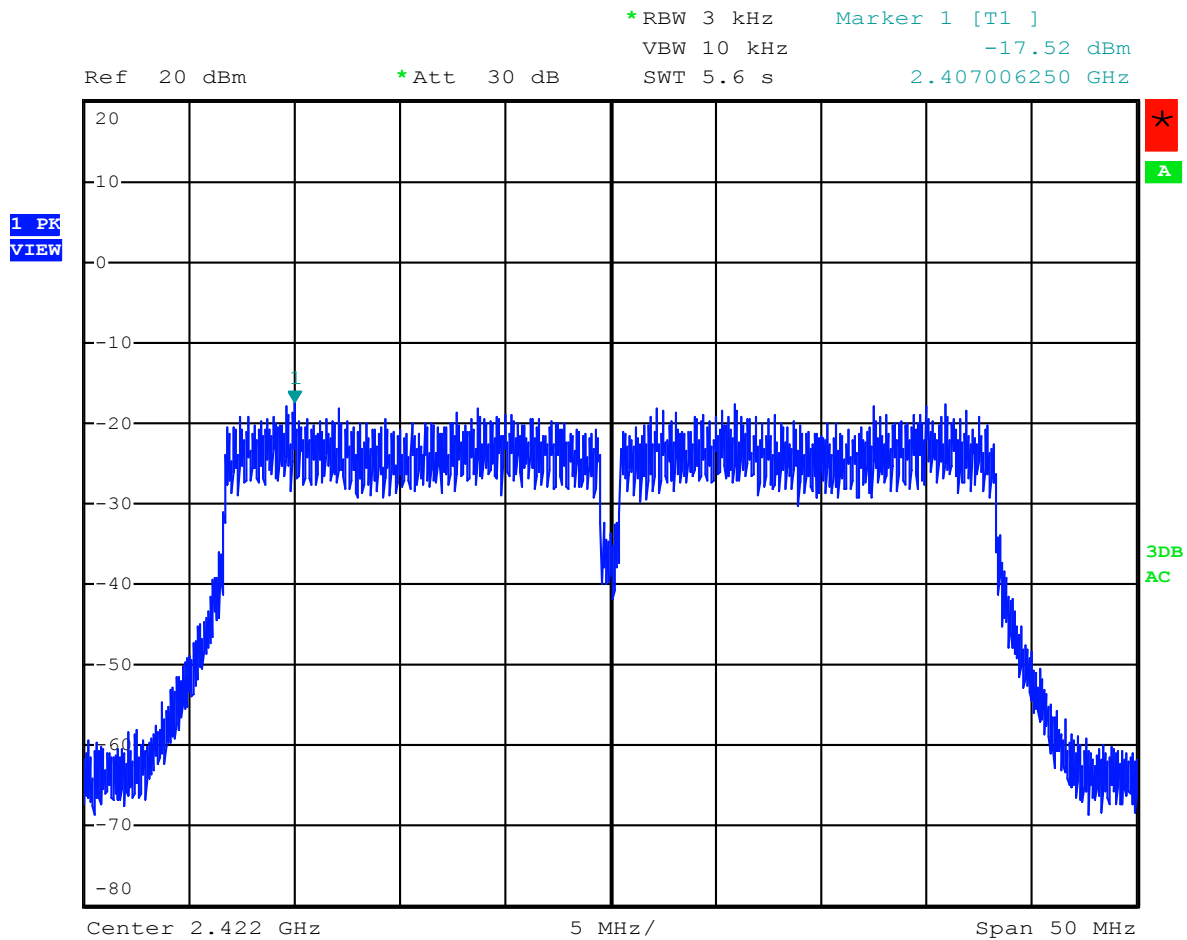
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 1 + 5 (2422 MHz center frequency)



Date: 19.SEP.2018 15:42:49

Power Spectral density: -17,52 dBm @ 2407,006 MHz

### LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

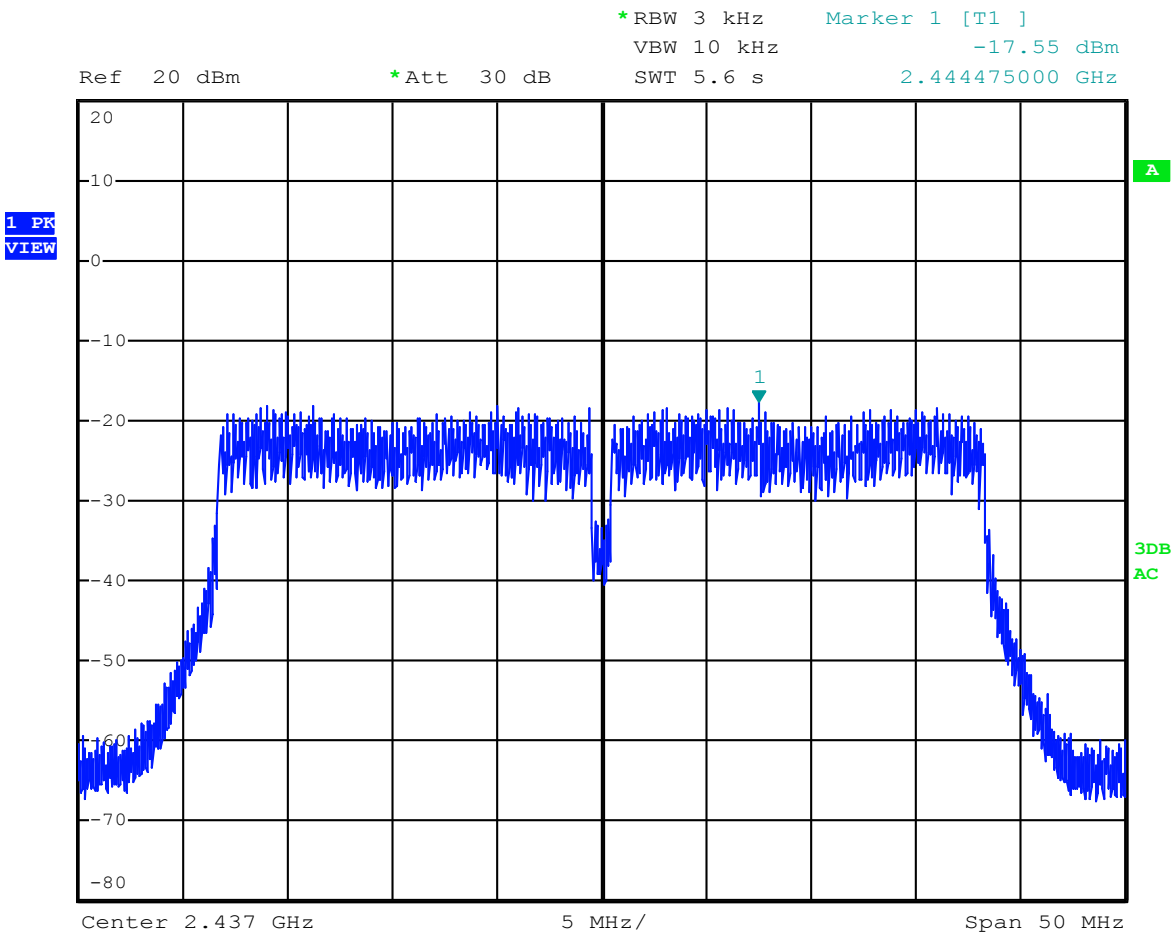
Test Equipment used: NT-203/1

**Power spectral density (conducted)**

**§ 15.247(e)  
5.2(2)**

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 4 + 8 (2437 MHz center frequency)



Date: 19.SEP.2018 15:41:59

Power Spectral density: -17,55 dBm @ 2444,475 MHz

**LIMIT                      SUBCLAUSE 15.247(e) – 5.2(2)**

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

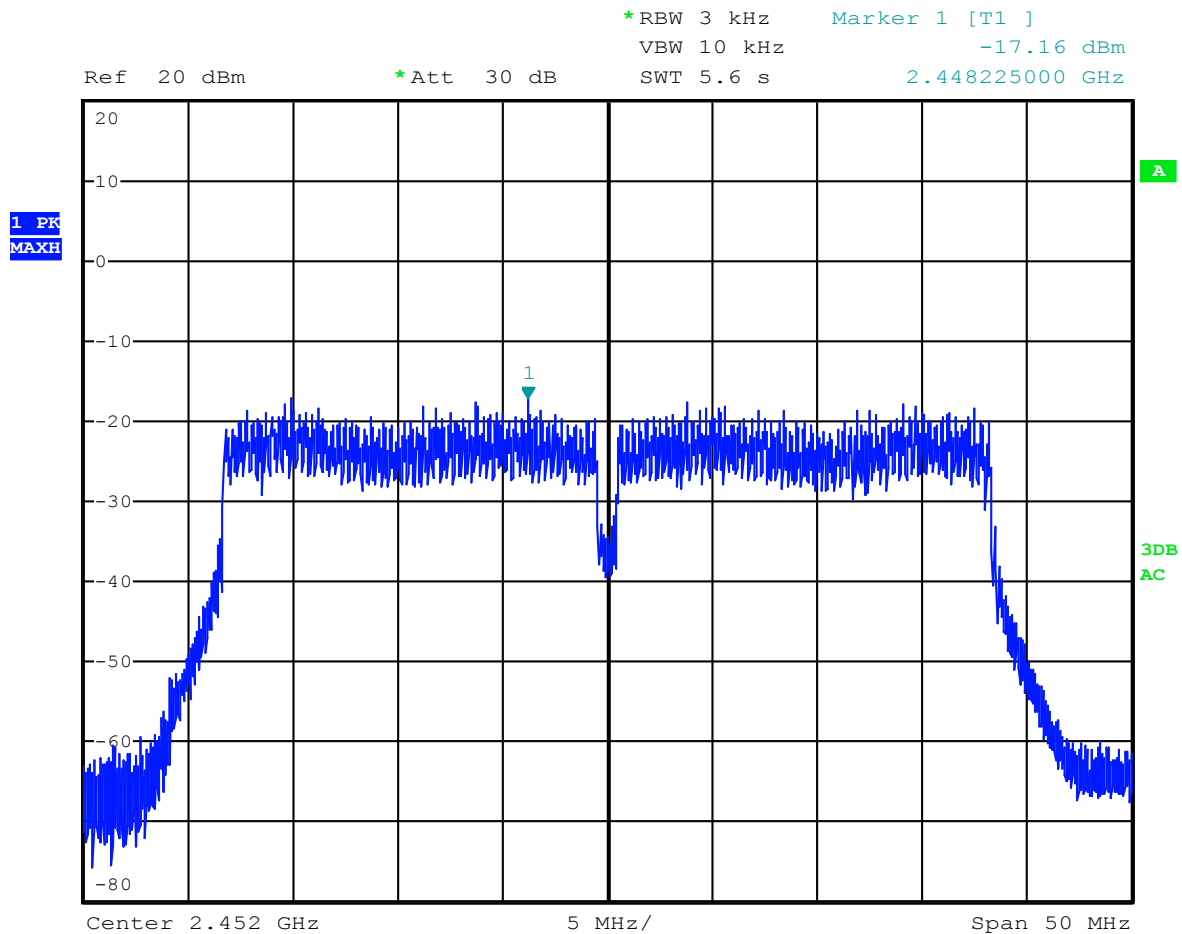
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 1

Rated output power: 43,65 mW Channel 7 + 11 (2452 MHz center frequency)



Date: 19.SEP.2018 15:40:38

Power Spectral density: -17,16 dBm @ 2448,225 MHz

**LIMIT**      **SUBCLAUSE 15.247(e) – 5.2(2)**

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

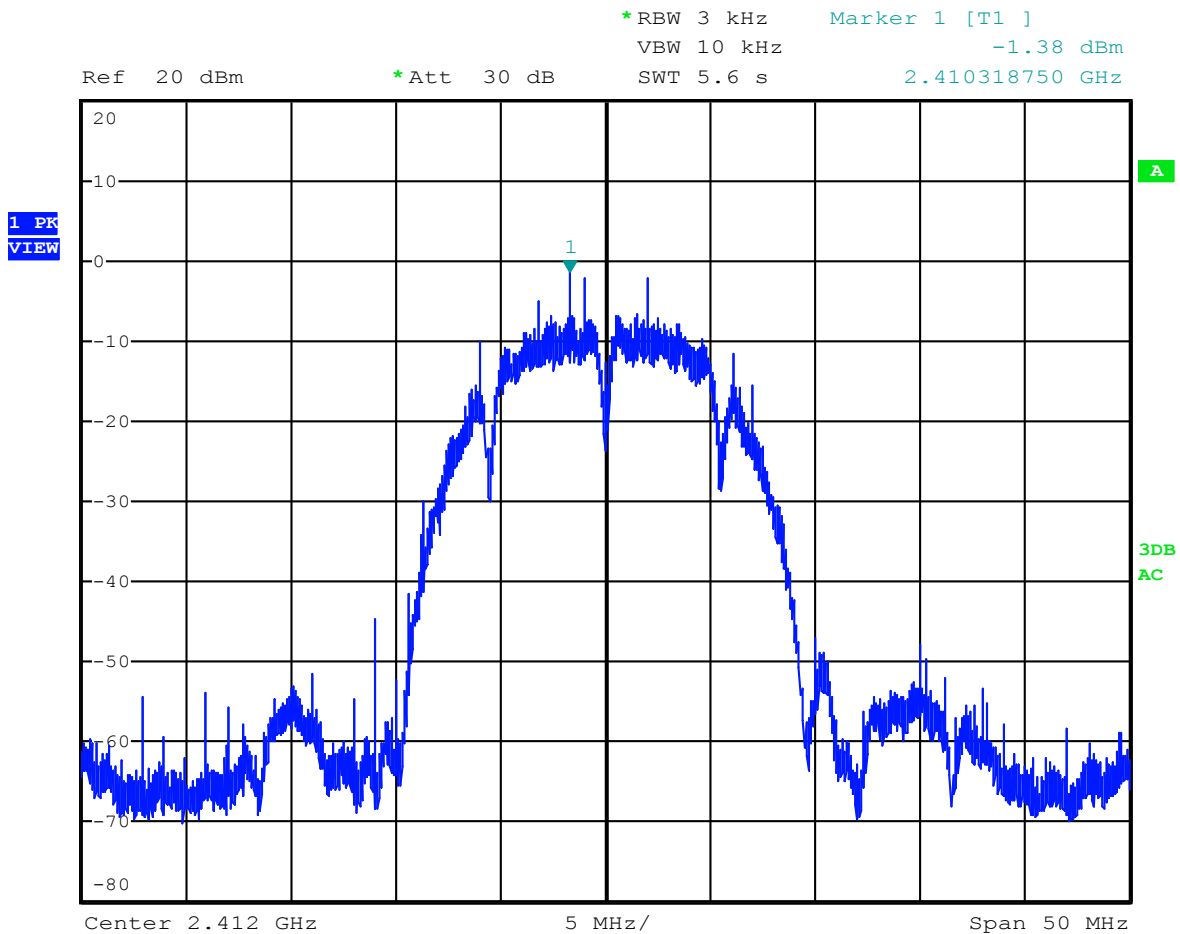
Test Equipment used: NT-203/1

**Power spectral density (conducted)**

**§ 15.247(e)  
5.2(2)**

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 1 (2412 MHz center frequency) – DSSS



Date: 19.SEP.2018 18:19:17

Power Spectral density: -1,38 dBm @ 2410,319 MHz

**LIMIT      SUBCLAUSE 15.247(e) – 5.2(2)**

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

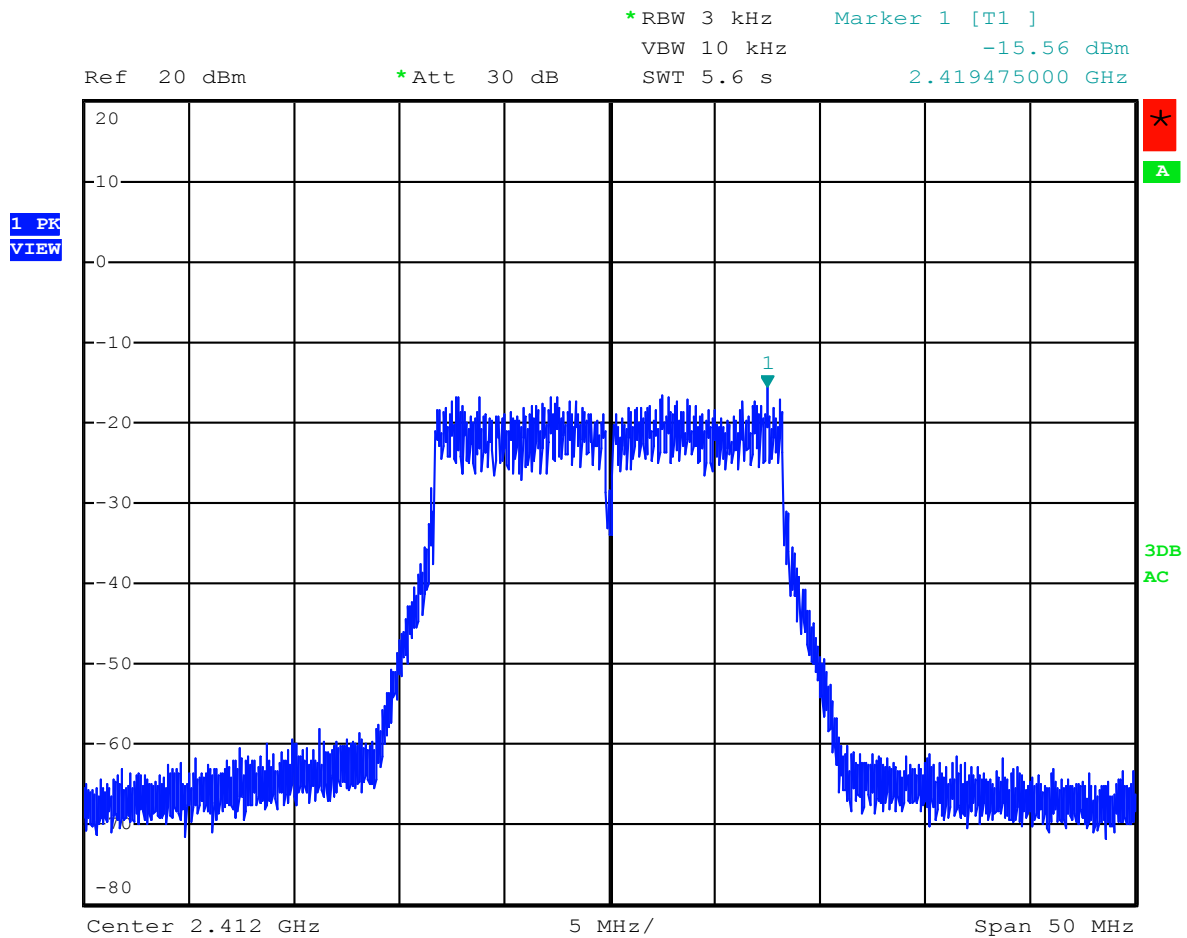
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 1 (2412 MHz center frequency) – OFDM



Date: 19.SEP.2018 18:18:07

Power Spectral density: -15,56 dBm @ 2419,475 MHz

### LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

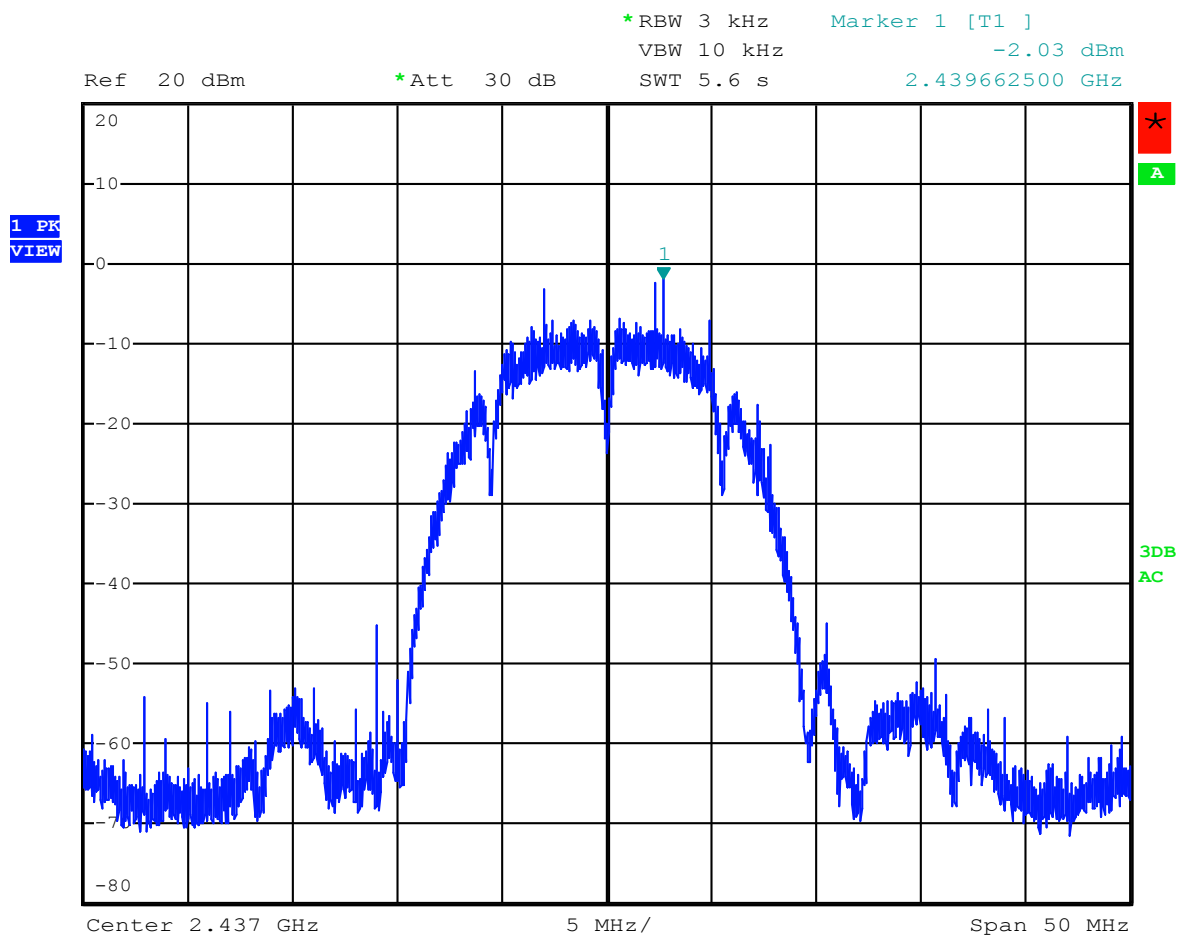
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 6 (2437 MHz center frequency) – DSSS



Date: 19.SEP.2018 18:16:04

Power Spectral density: -2,03 dBm @ 2439,663 MHz

### LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

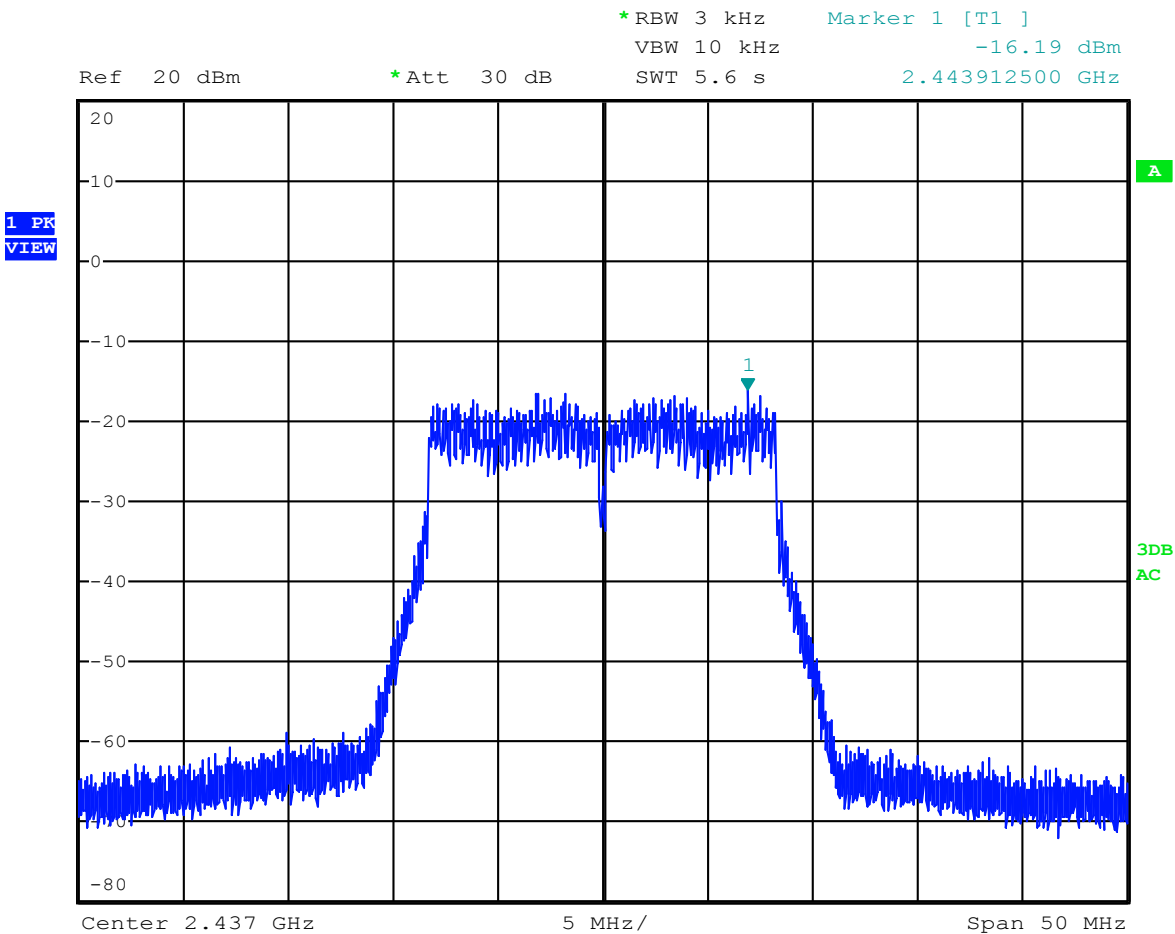
Test Equipment used: NT-203/1

**Power spectral density (conducted)**

**§ 15.247(e)  
5.2(2)**

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 6 (2437 MHz center frequency) – OFDM



Date: 19.SEP.2018 18:17:02

Power Spectral density: -16,19 dBm @ 2443,913 MHz

**LIMIT SUBCLAUSE 15.247(e) – 5.2(2)**

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

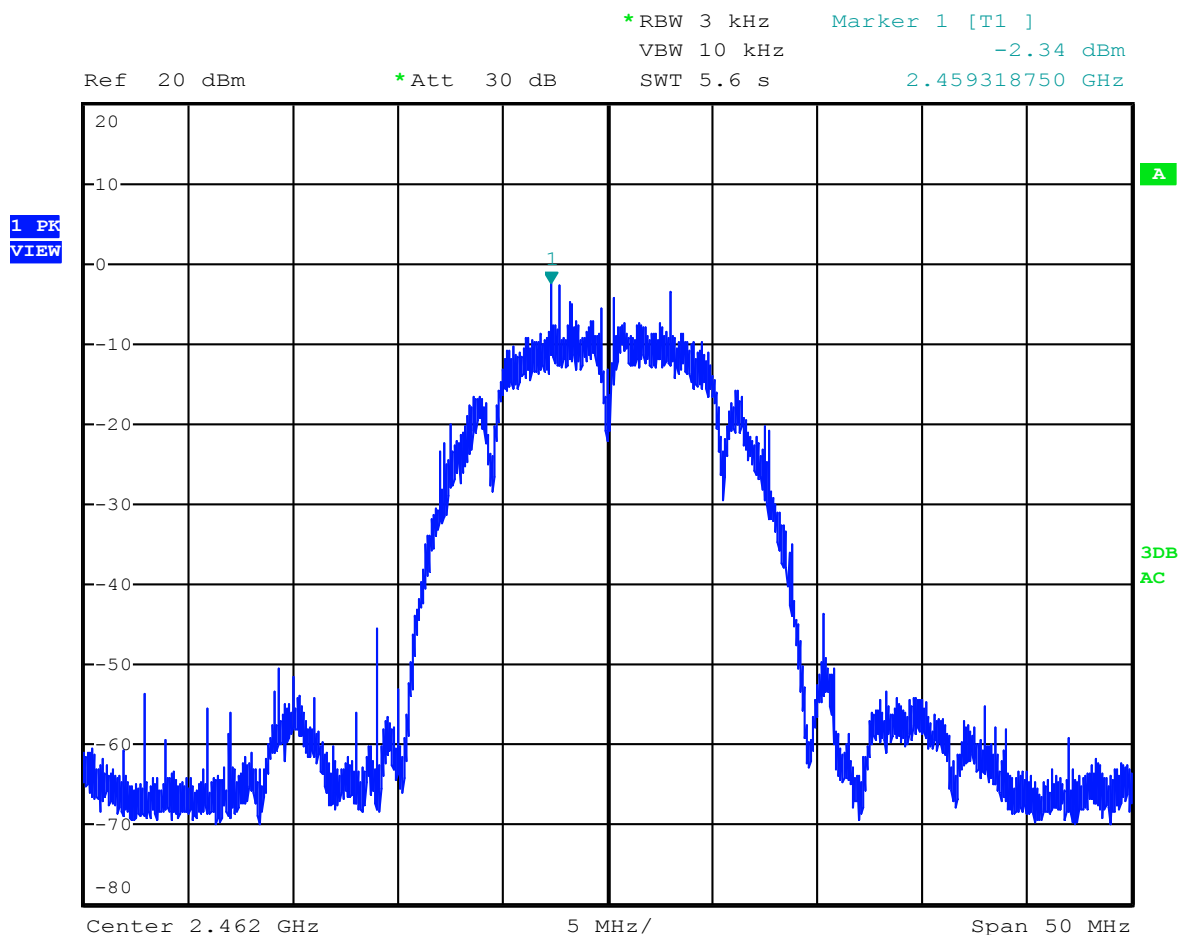
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 11 (2462 MHz center frequency) – DSSS



Date: 19.SEP.2018 18:15:08

Power Spectral density: -2,34 dBm @ 2459,319 MHz

## LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

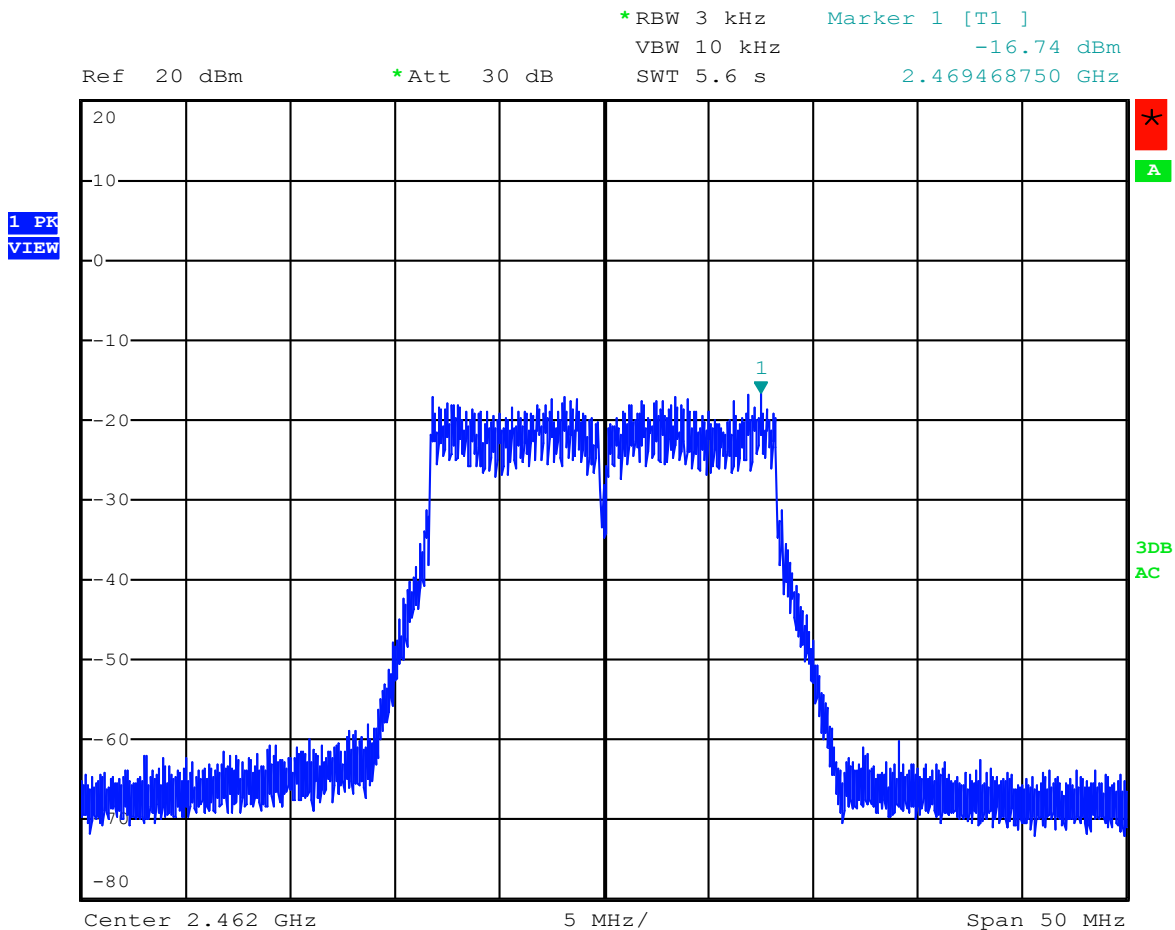
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 11 (2462 MHz center frequency) – OFDM



Date: 19.SEP.2018 18:13:48

Power Spectral density: -16,47 dBm @ 2469,469 MHz

## LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

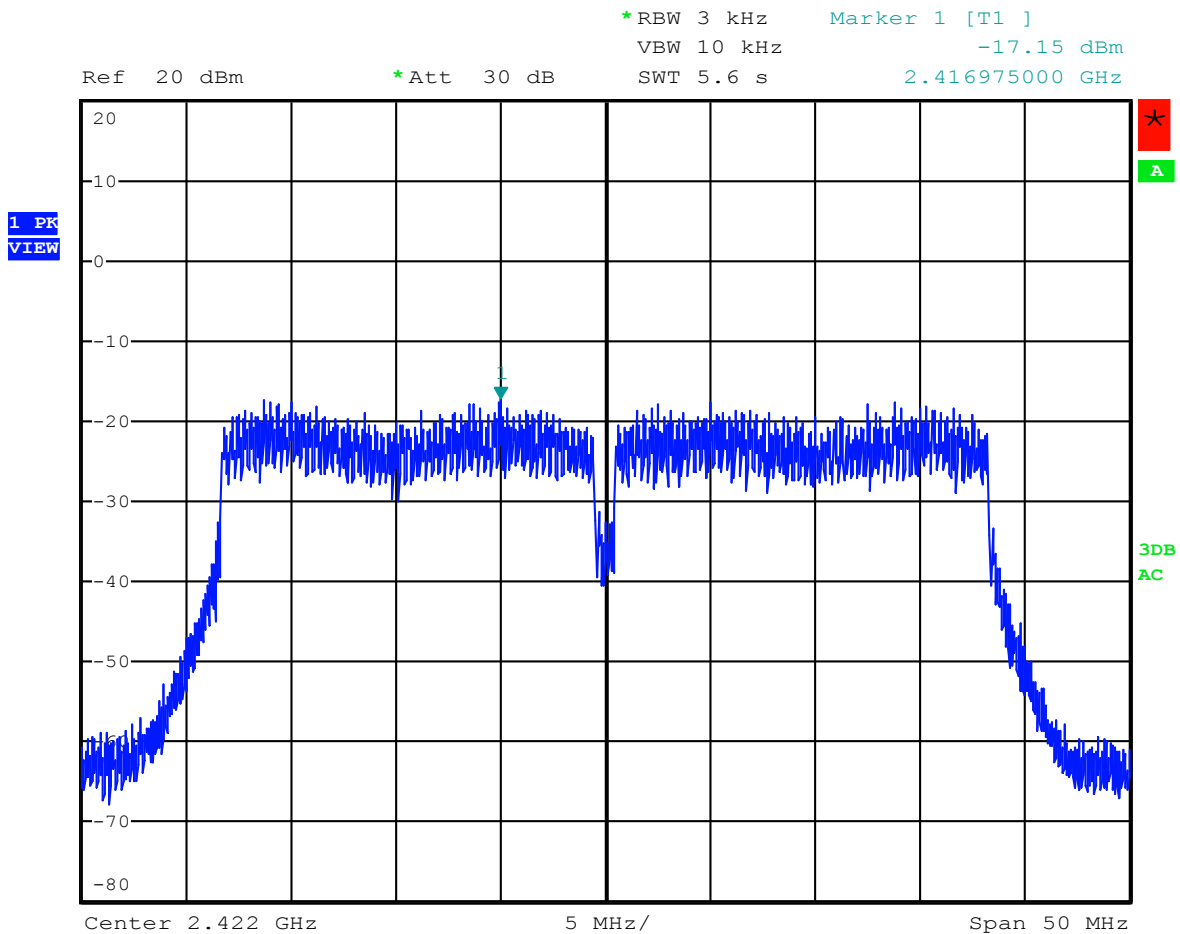
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 1 + 5 (2422 MHz center frequency)



Date: 19.SEP.2018 18:12:38

Power Spectral density: -17,15 dBm @ 2416,975 MHz

### LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

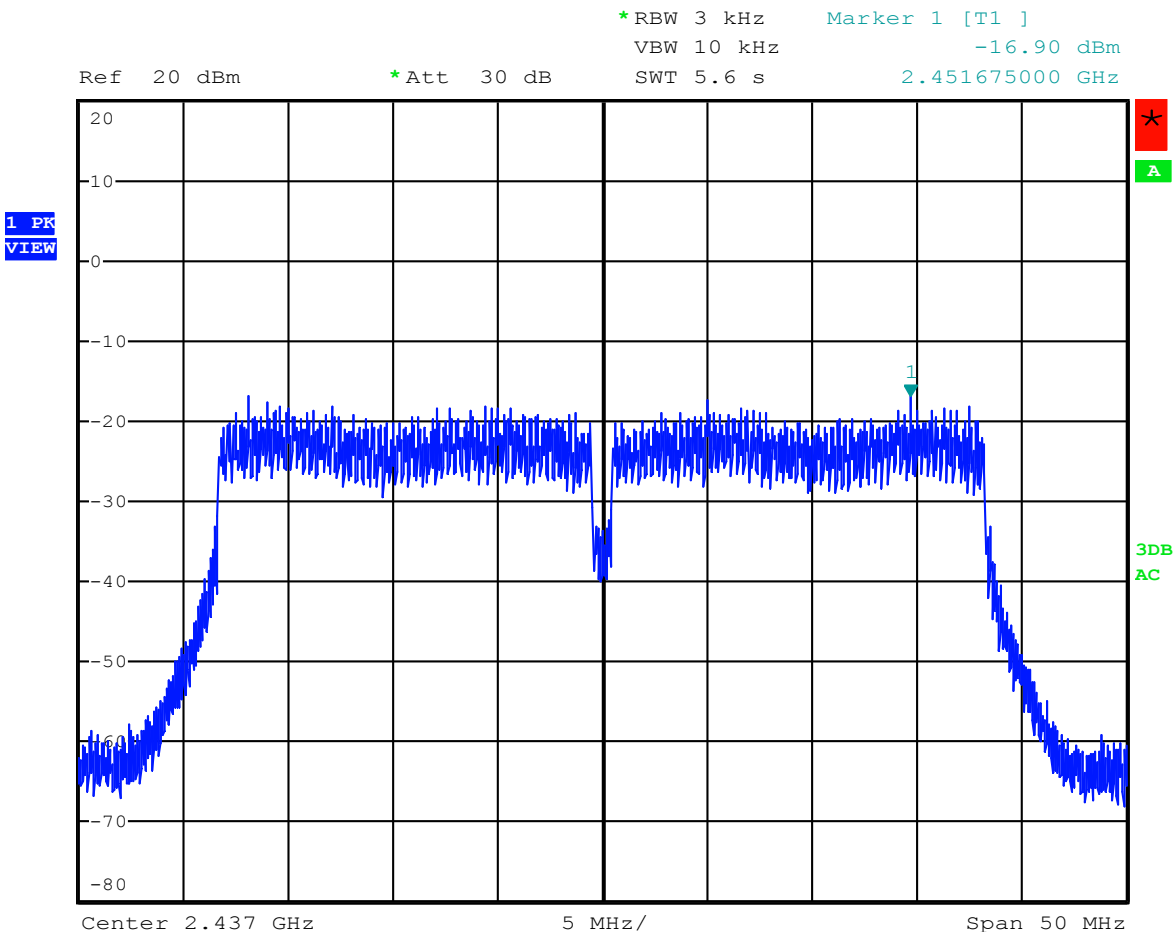
Test Equipment used: NT-203/1

**Power spectral density (conducted)**

**§ 15.247(e)  
5.2(2)**

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 4 + 8 (2437 MHz center frequency)



Date: 19.SEP.2018 18:11:21

Power Spectral density: -16,90 dBm @ 2451,675 MHz

**LIMIT      SUBCLAUSE 15.247(e) – 5.2(2)**

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

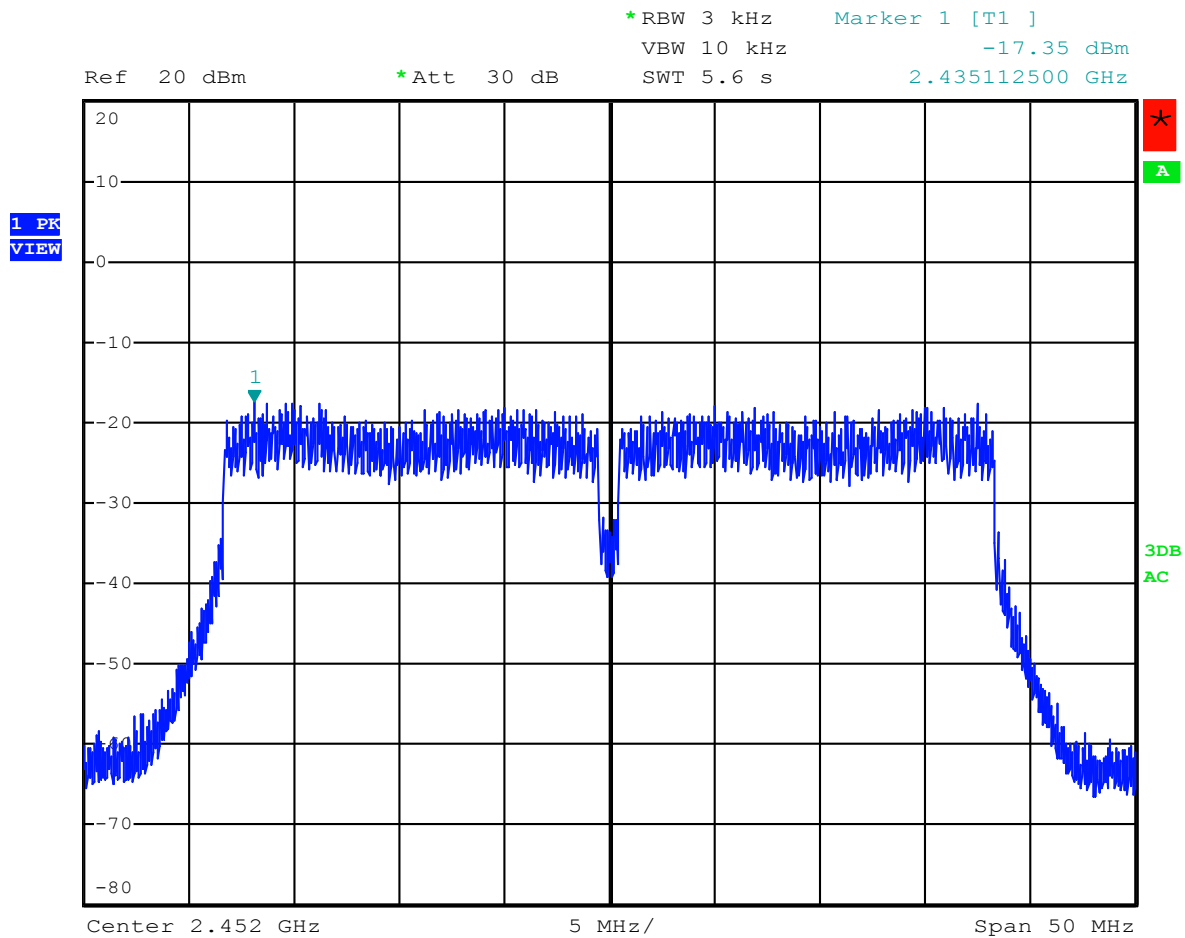
Test Equipment used: NT-203/1

## Power spectral density (conducted)

§ 15.247(e)  
5.2(2)

Conducted Measurement – Antenna 2

Rated output power: 43,65 mW Channel 7 + 11 (2452 MHz center frequency)



Date: 19.SEP.2018 18:10:11

Power Spectral density: -17,35 dBm @ 2435,113 MHz

### LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

|                             |                         |
|-----------------------------|-------------------------|
| Under normal test conditons | +8dBm in any 3 kHz band |
|-----------------------------|-------------------------|

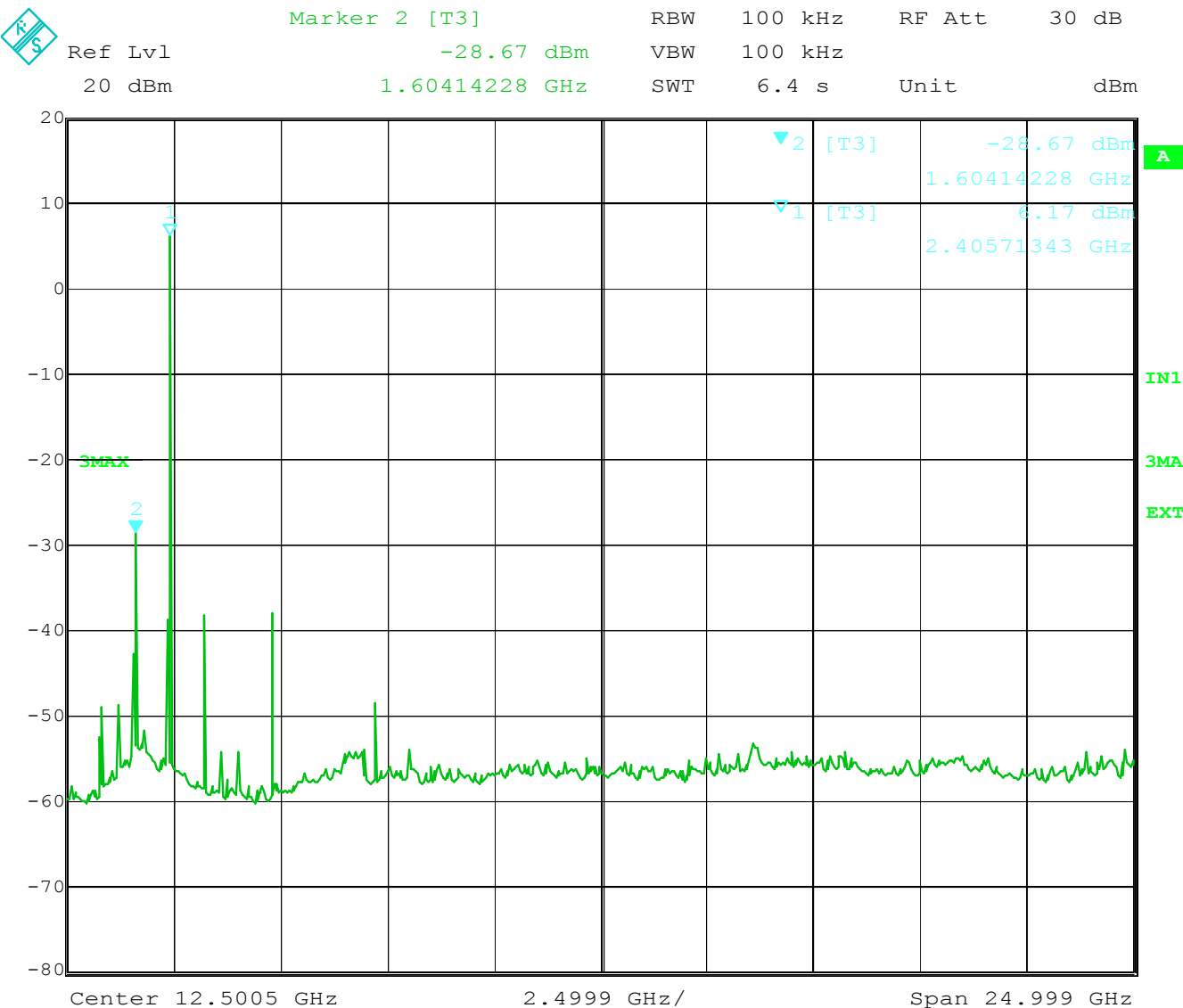
Test Equipment used: NT-203/1

4.6. Out-of-band Emission  
Unwanted Emissions

§ 15.247(d)  
5.5

Conducted Measurement – Antenna 1

Setup: CH 1: 2412 MHz – DSSS



Date: 28.SEP.2018 14:23:15

LIMIT SUBCLAUSE 15.247(d) – 5.5

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

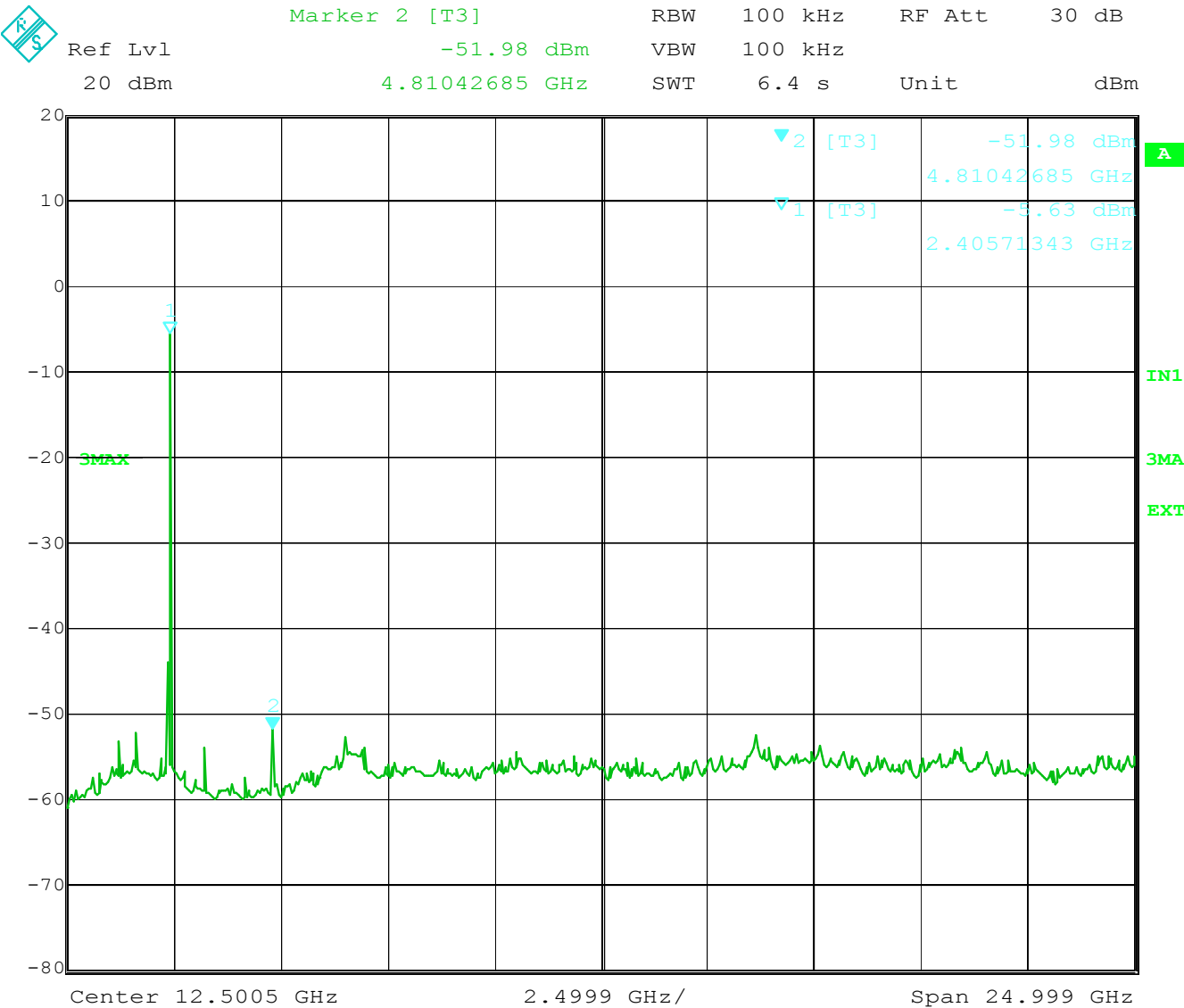
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 1

Setup: CH 1: 2412 MHz – OFDM



Date: 28.SEP.2018 14:28:29

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

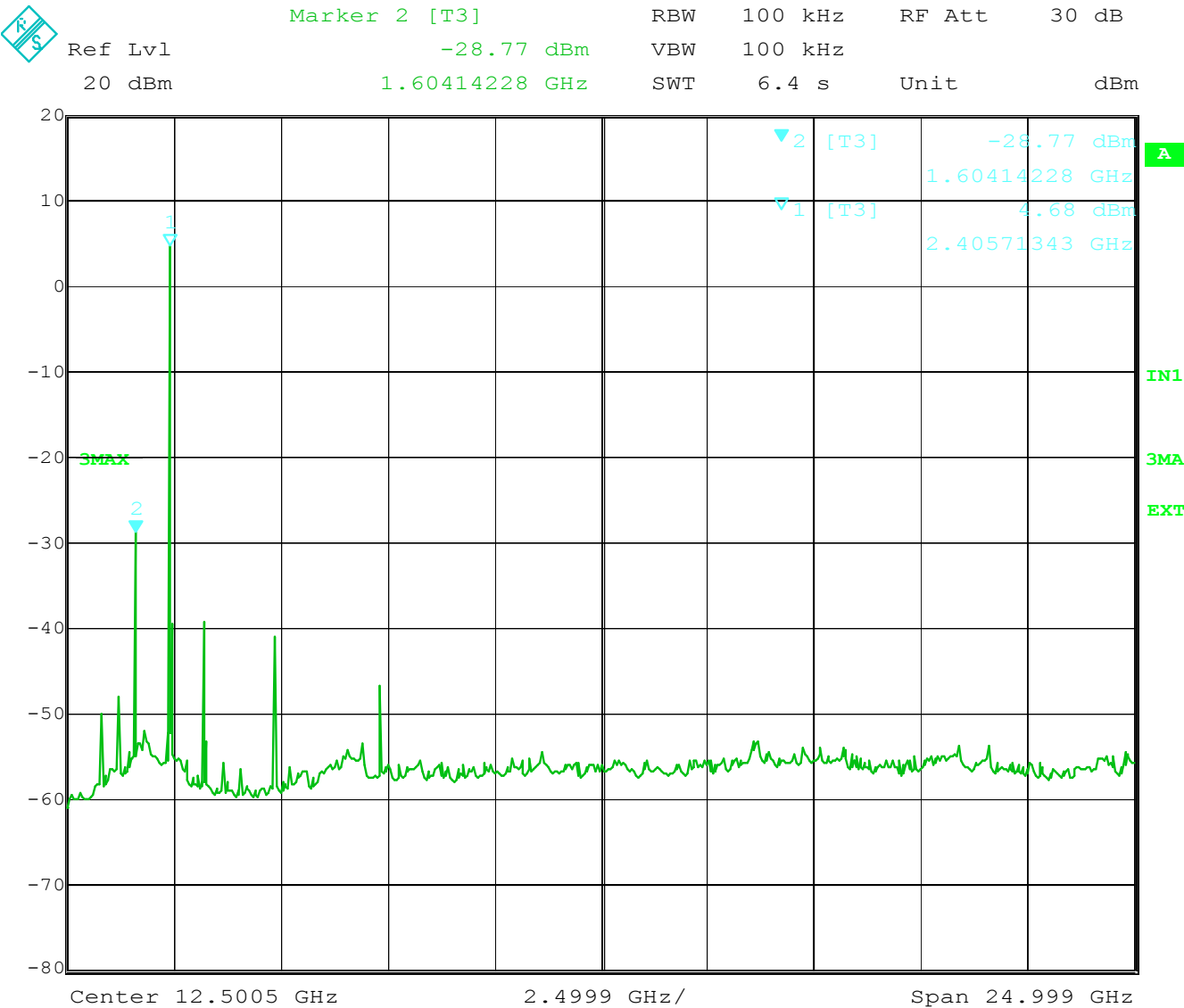
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 1

Setup: CH 6: 2437 MHz – DSSS



Date: 28.SEP.2018 14:24:30

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

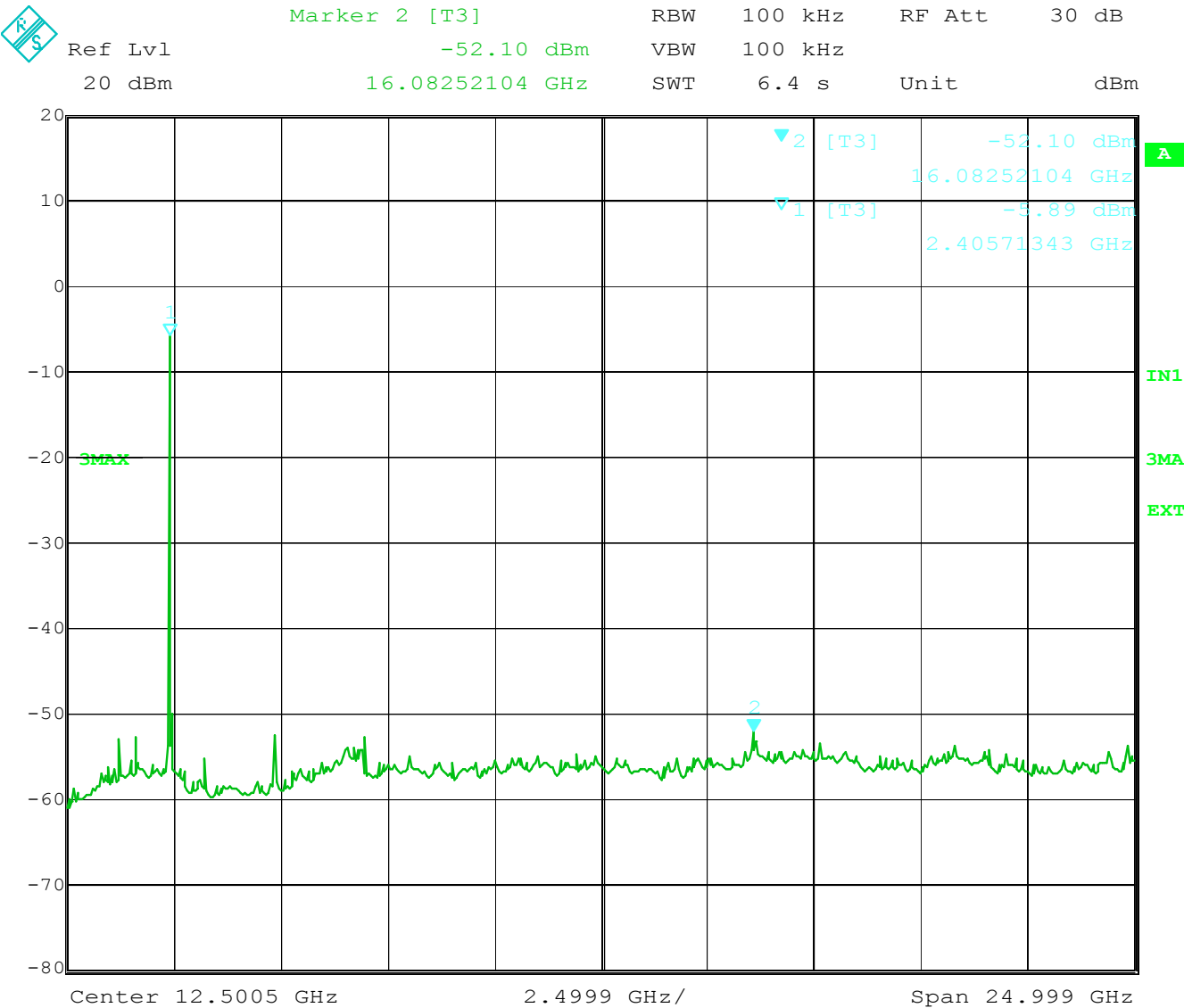
Test Equipment used: NT-207

Out-of-band Emission  
Unwanted Emissions

§ 15.247(d)  
5.5

Conducted Measurement – Antenna 1

Setup: CH 6: 2437 MHz – OFDM



Date: 28.SEP.2018 14:27:37

LIMIT SUBCLAUSE 15.247(d) – 5.5

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

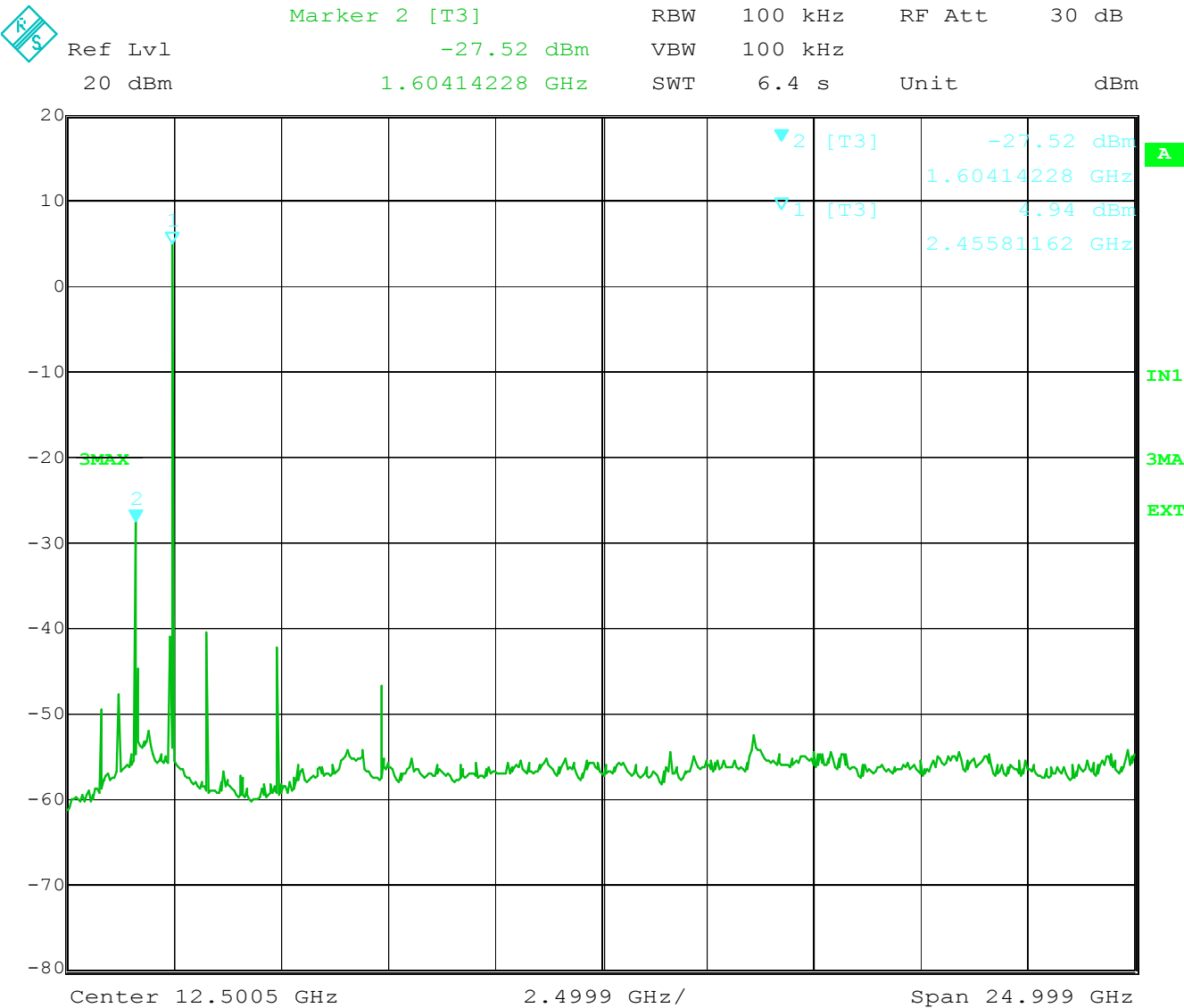
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 1

Setup: CH 11: 2462 MHz – DSSS



Date: 28.SEP.2018 14:25:23

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

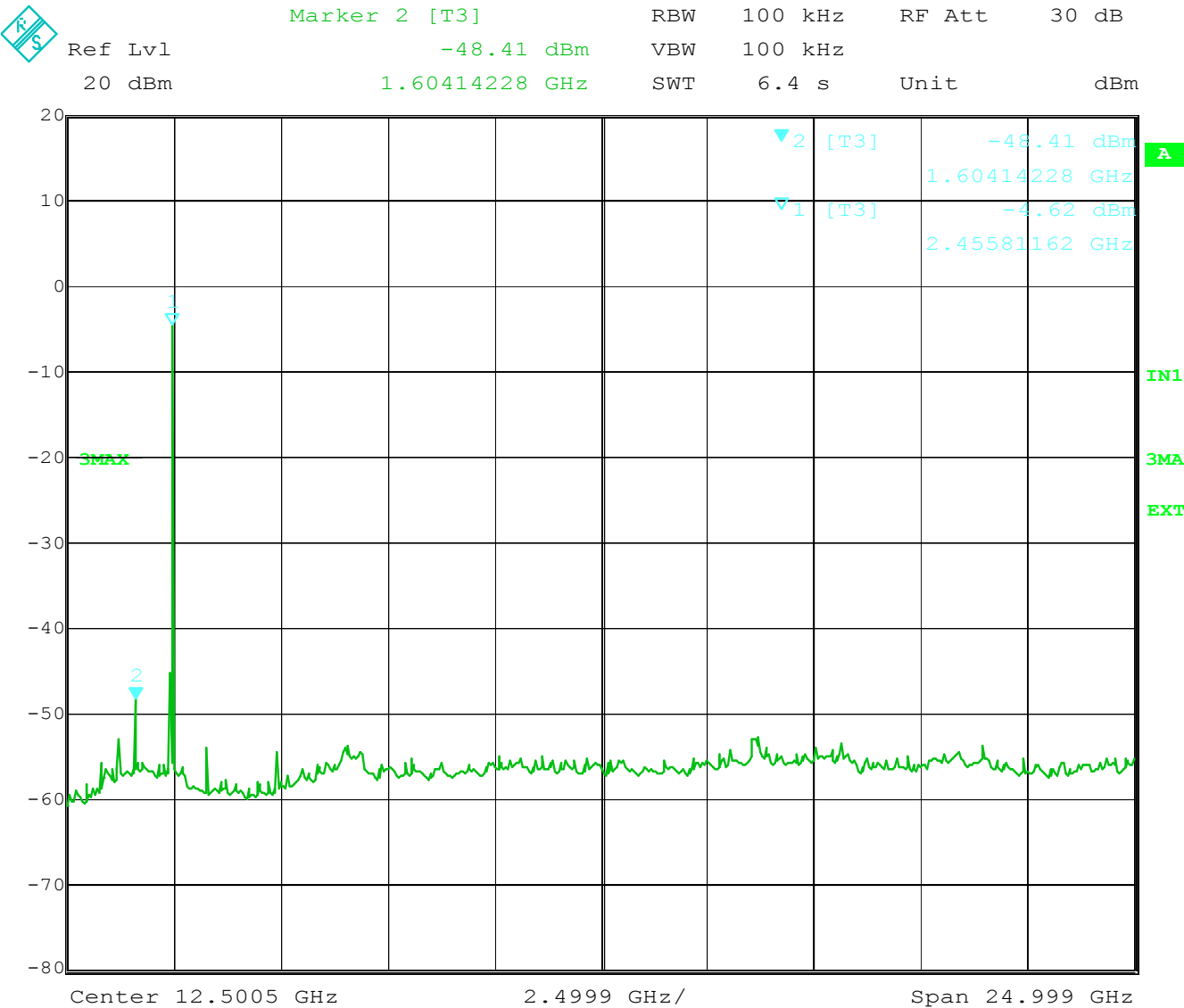
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 1

Setup: CH 11: 2462 MHz – OFDM



Date: 28.SEP.2018 14:26:30

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

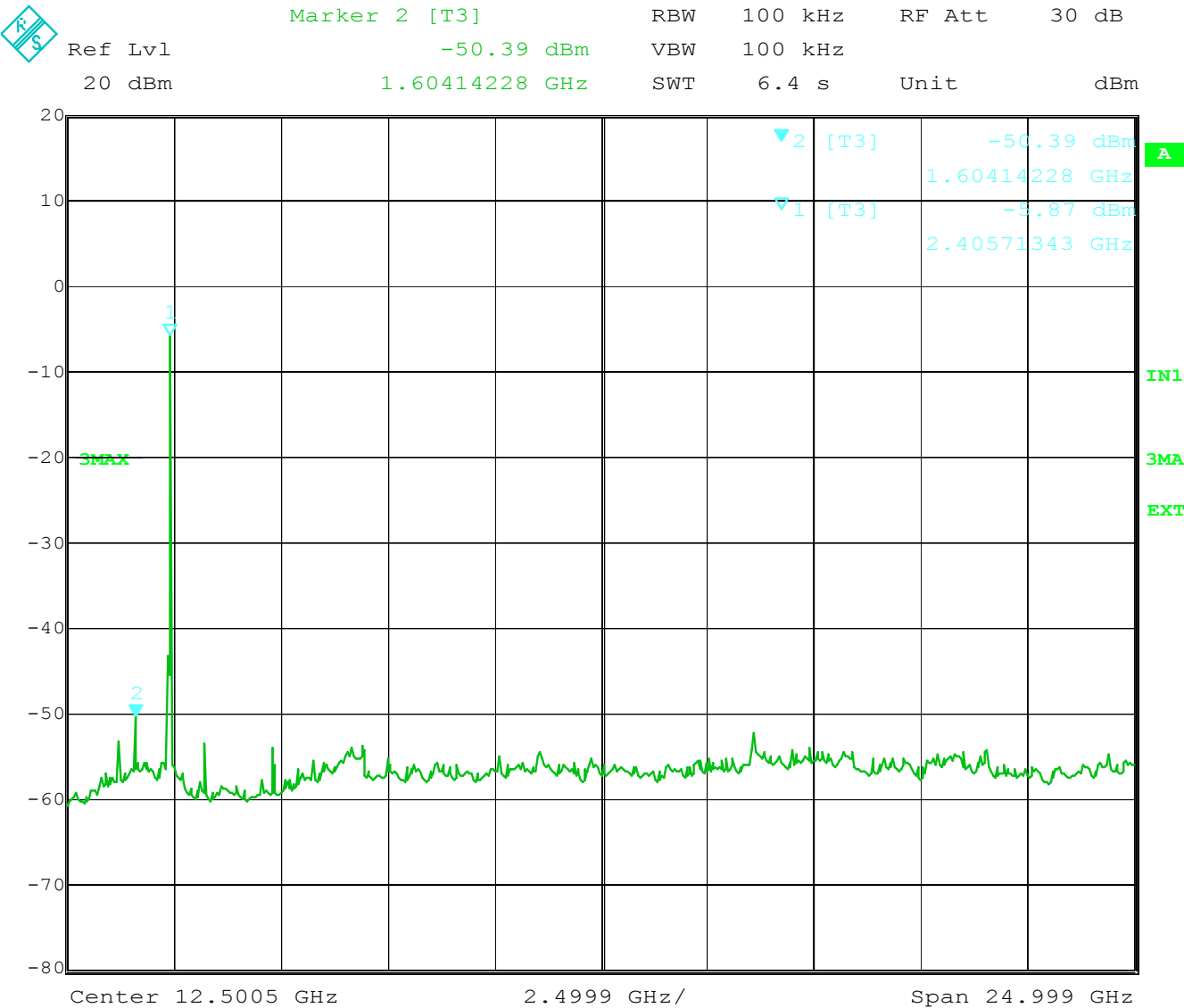
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 1

Setup: CH 1 + 5: 2422 MHz



Date: 28.SEP.2018 14:29:20

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

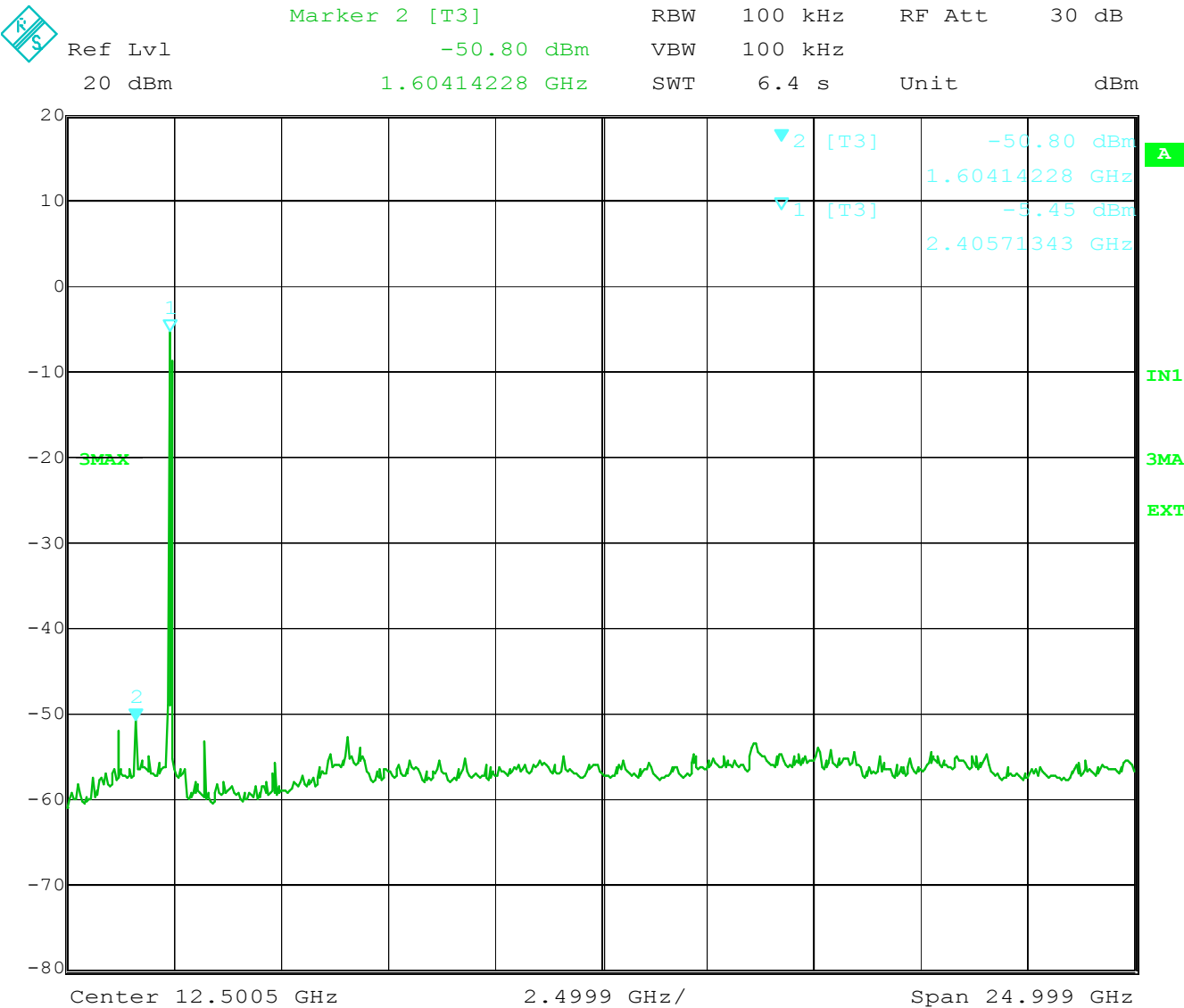
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 1

Setup: CH 4 + 8: 2437 MHz



Date: 28.SEP.2018 14:30:05

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

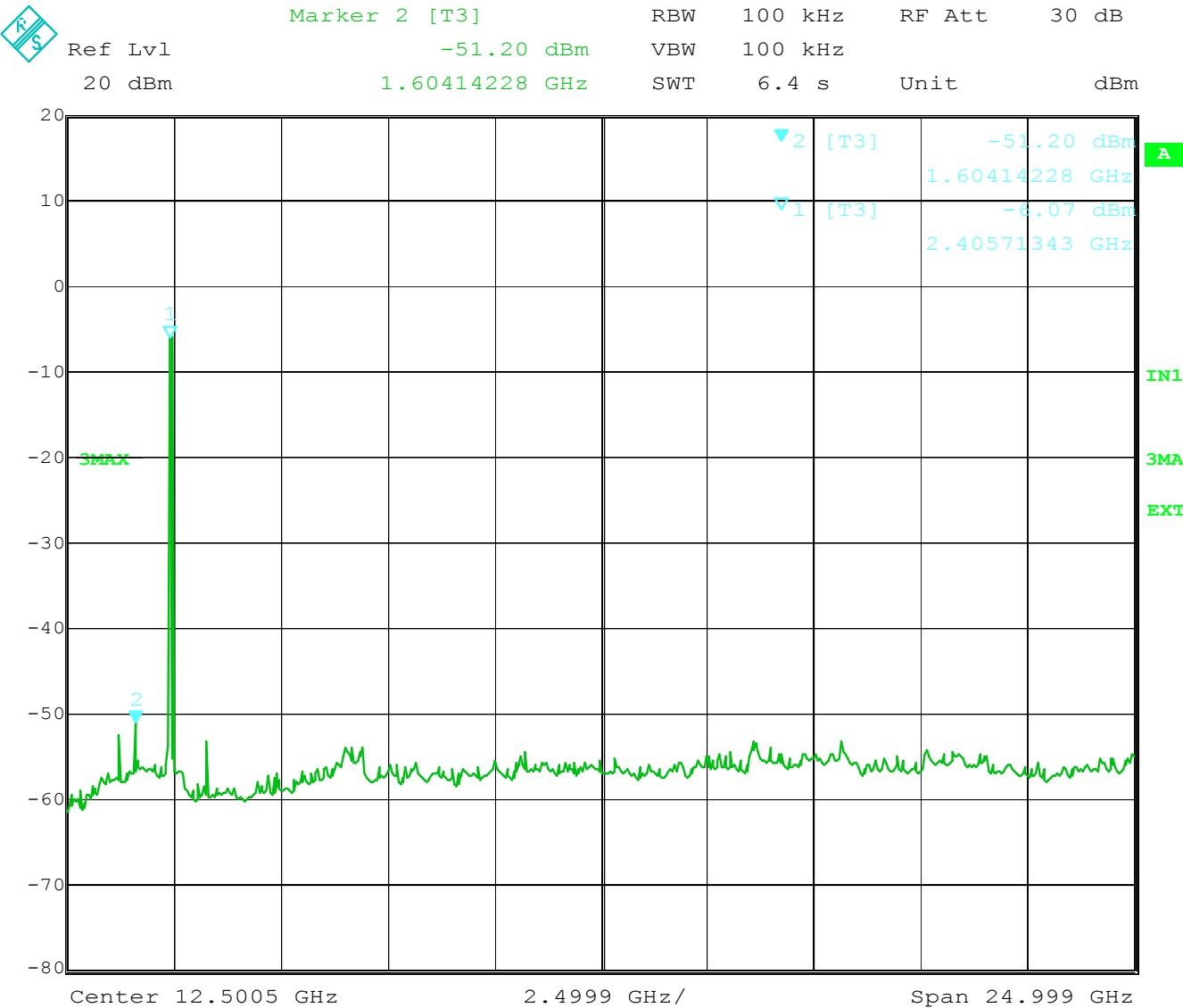
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 1

Setup: CH 7 + 11: 2452 MHz



Date: 28.SEP.2018 14:31:39

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

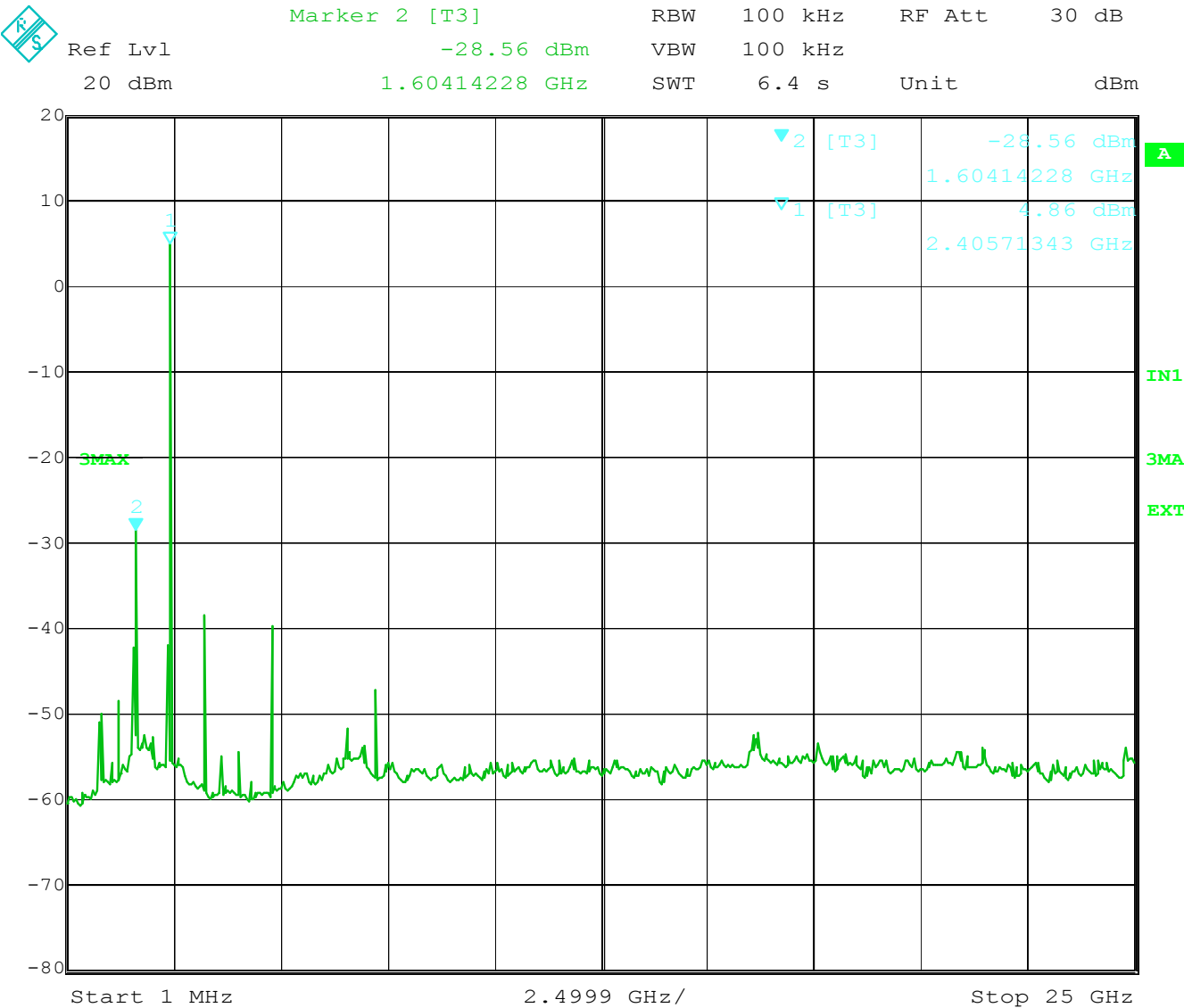
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 1: 2412 MHz – DSSS



Date: 27.SEP.2018 16:28:47

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

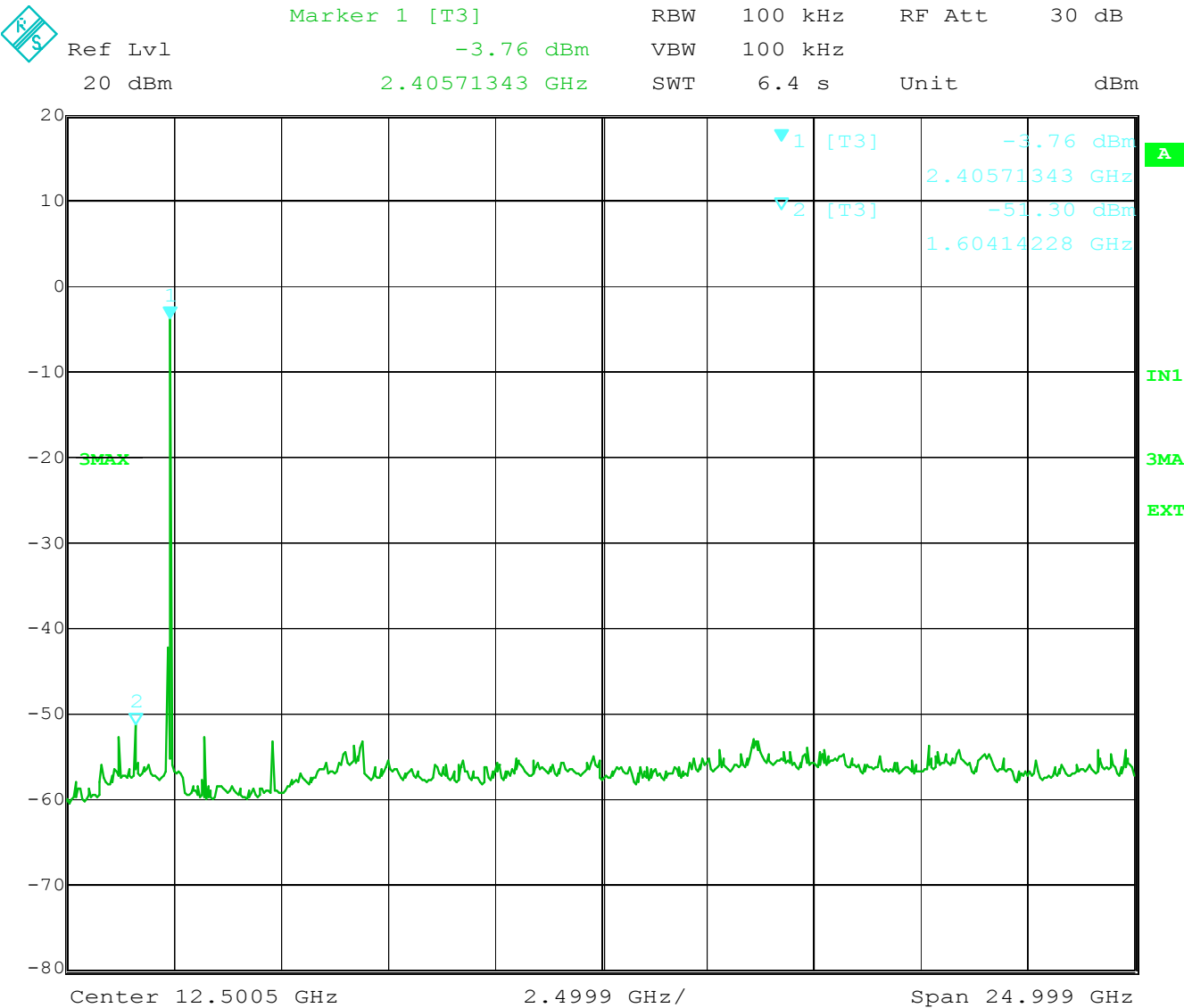
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 1: 2412 MHz – OFDM



Date: 27.SEP.2018 16:31:13

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

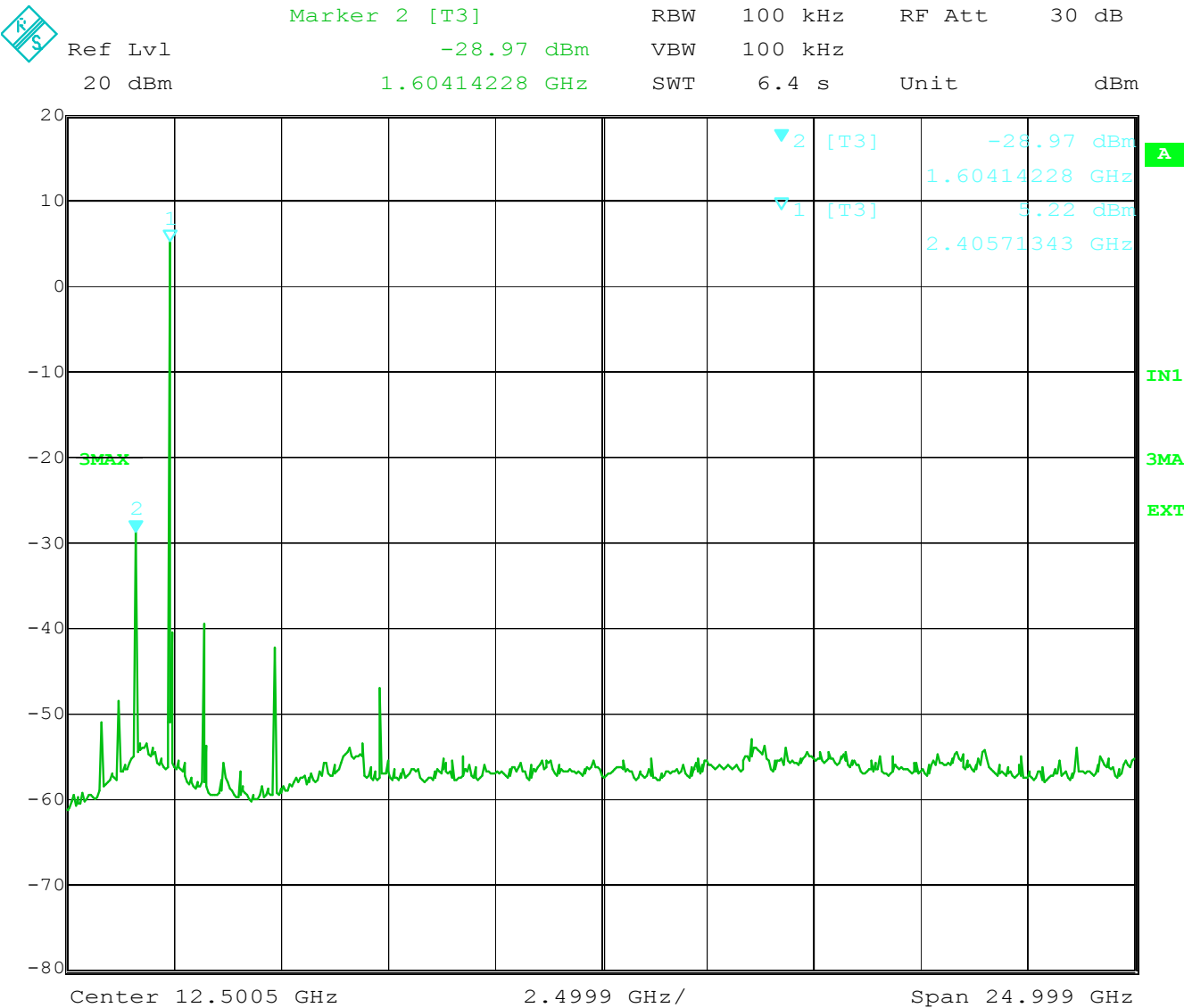
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 6: 2437 MHz – DSSS



Date: 27.SEP.2018 16:29:40

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

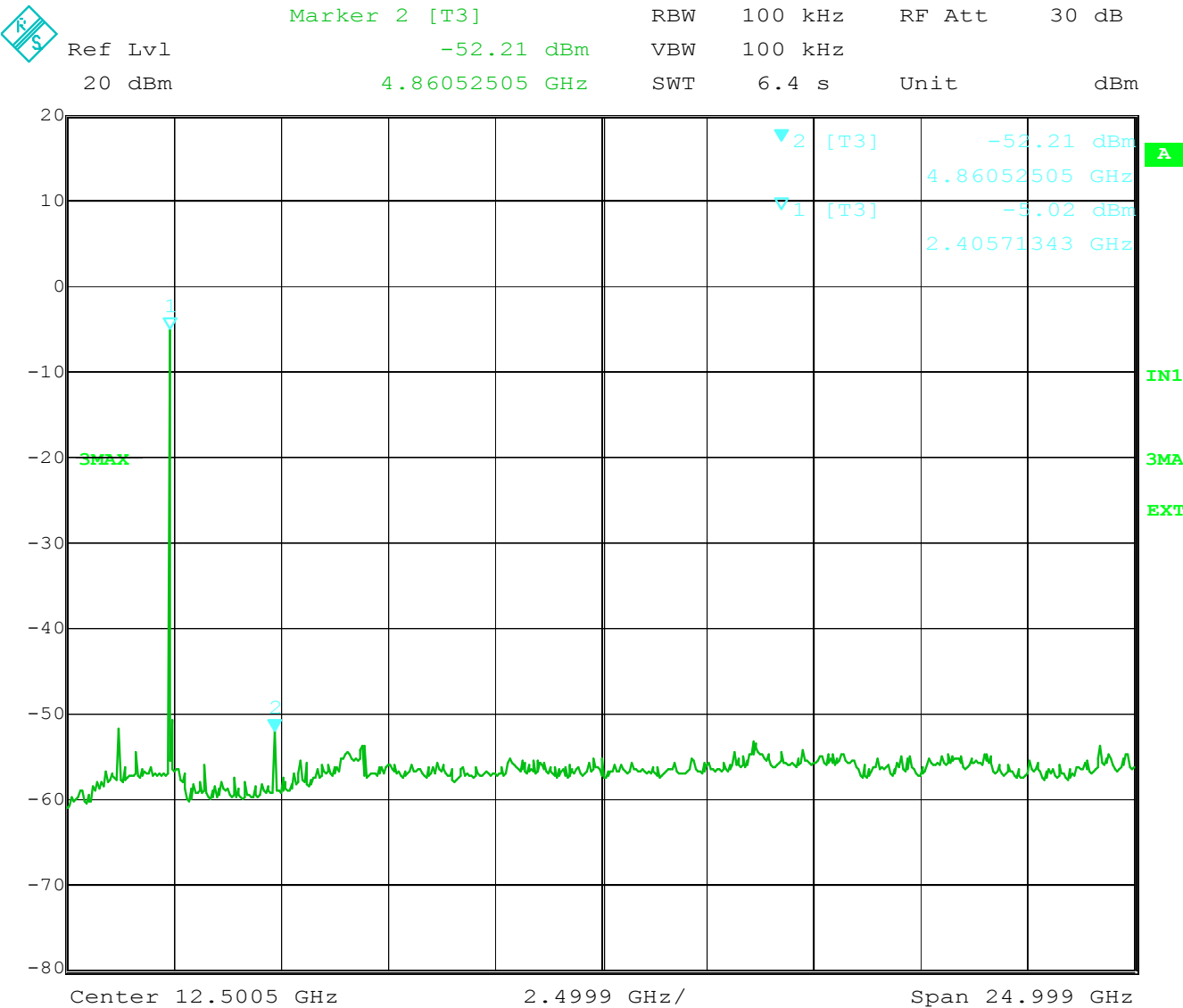
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 6: 2437 MHz – OFDM



Date: 27.SEP.2018 16:32:04

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

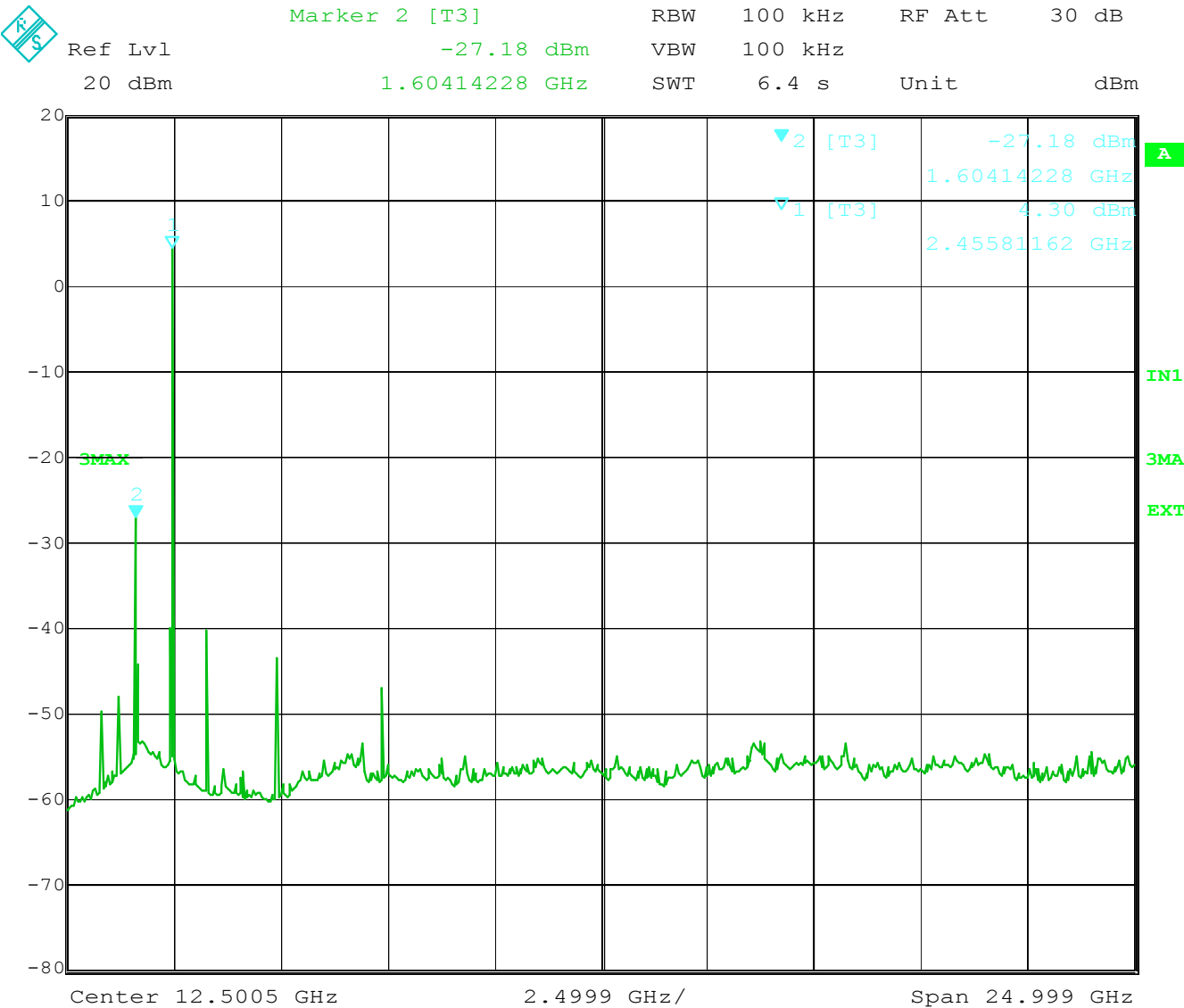
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 11: 2462 MHz – DSSS



Date: 27.SEP.2018 16:30:25

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

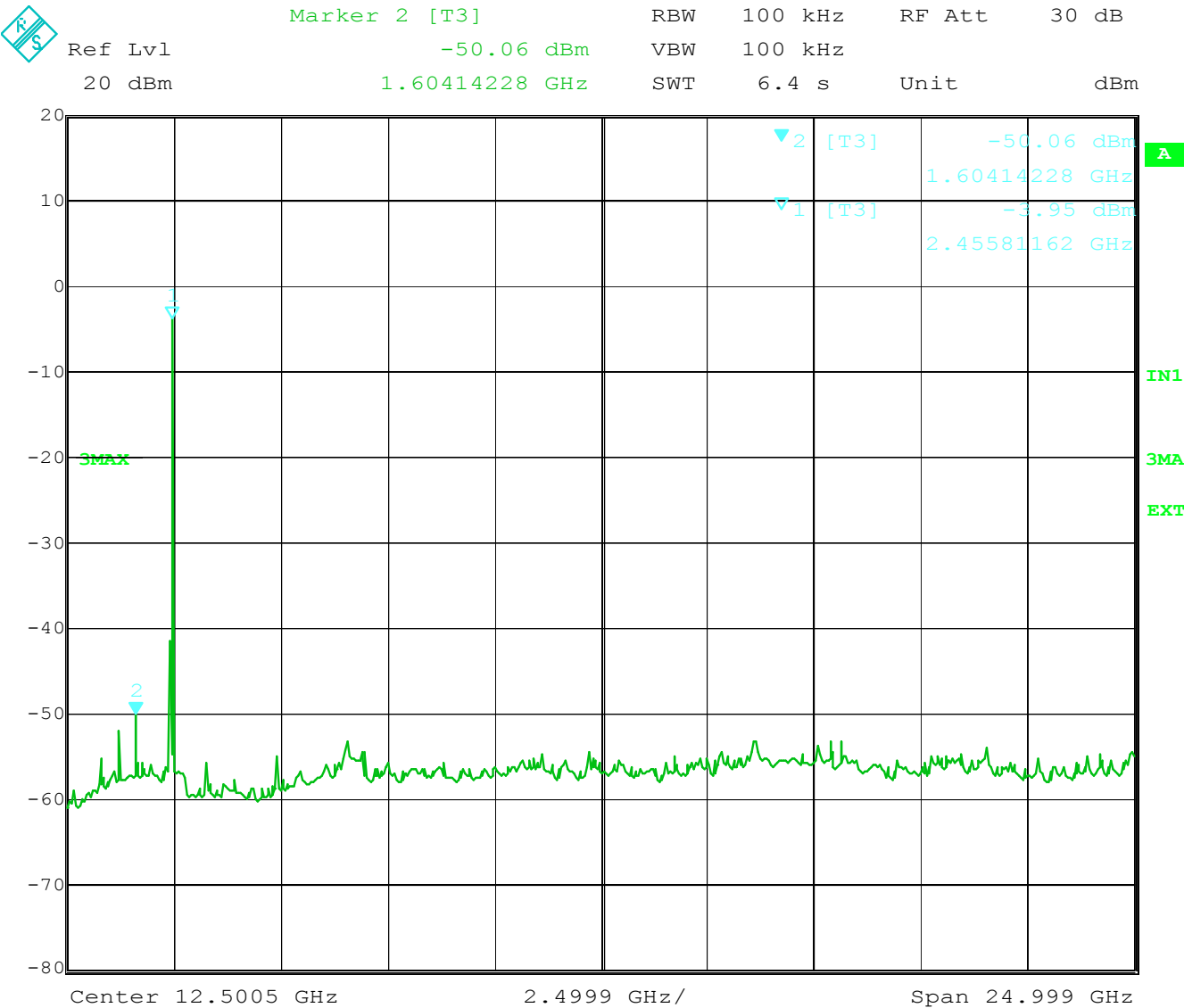
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 11: 2462 MHz – OFDM



Date: 27.SEP.2018 16:32:48

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

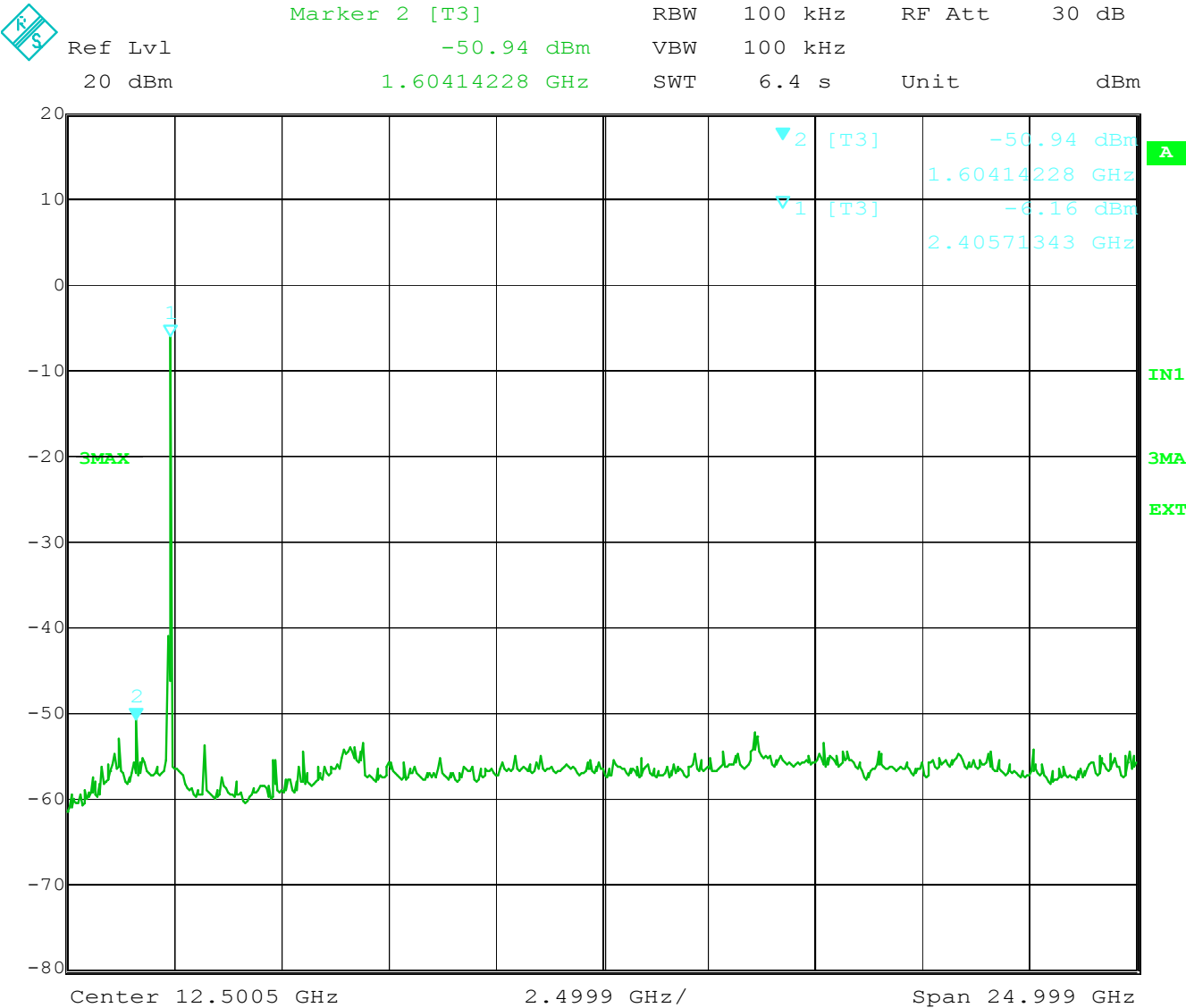
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 1 + 5: 2422 MHz



Date: 27.SEP.2018 16:33:38

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

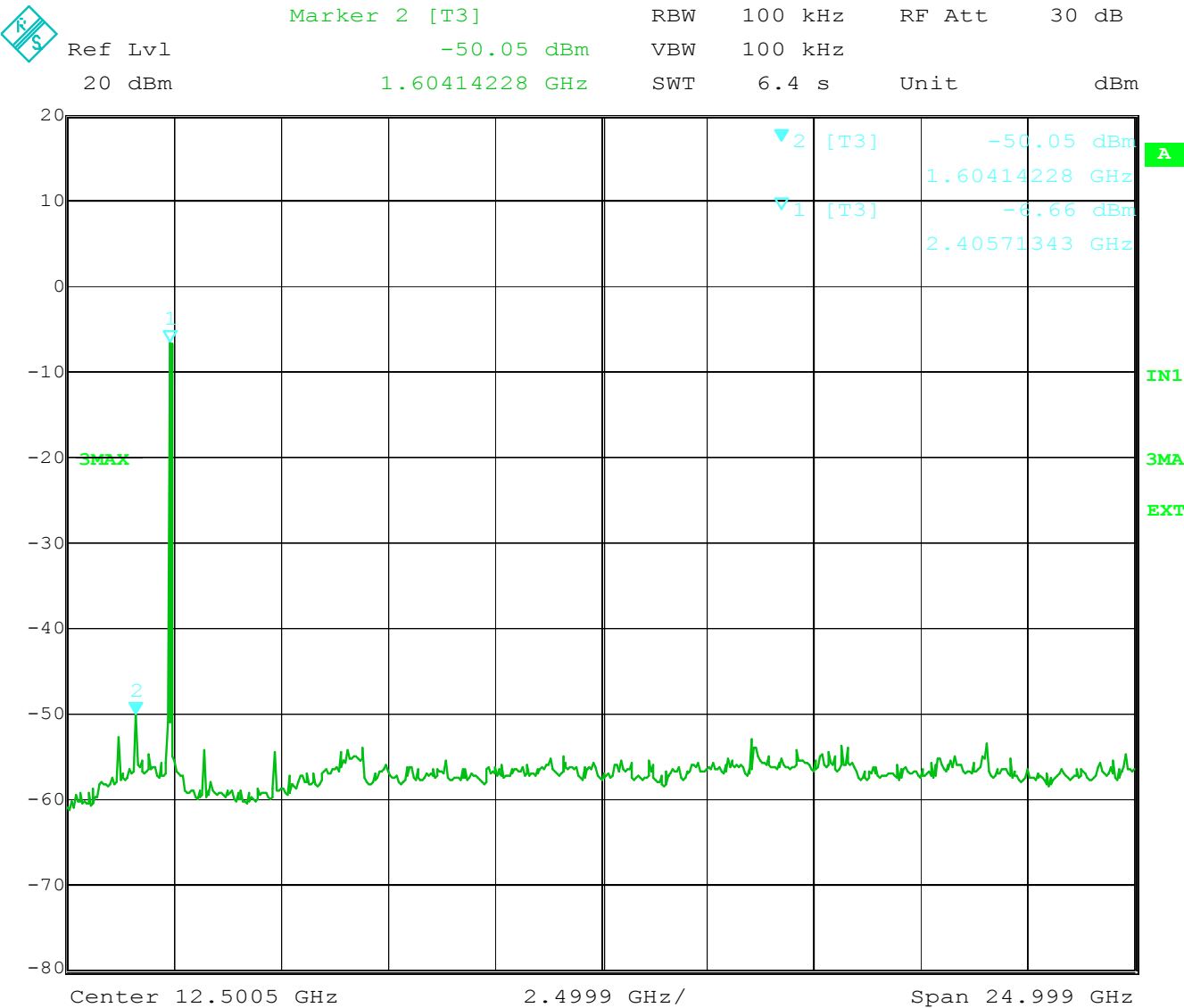
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 4 + 8: 2437 MHz



Date: 27.SEP.2018 16:34:30

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

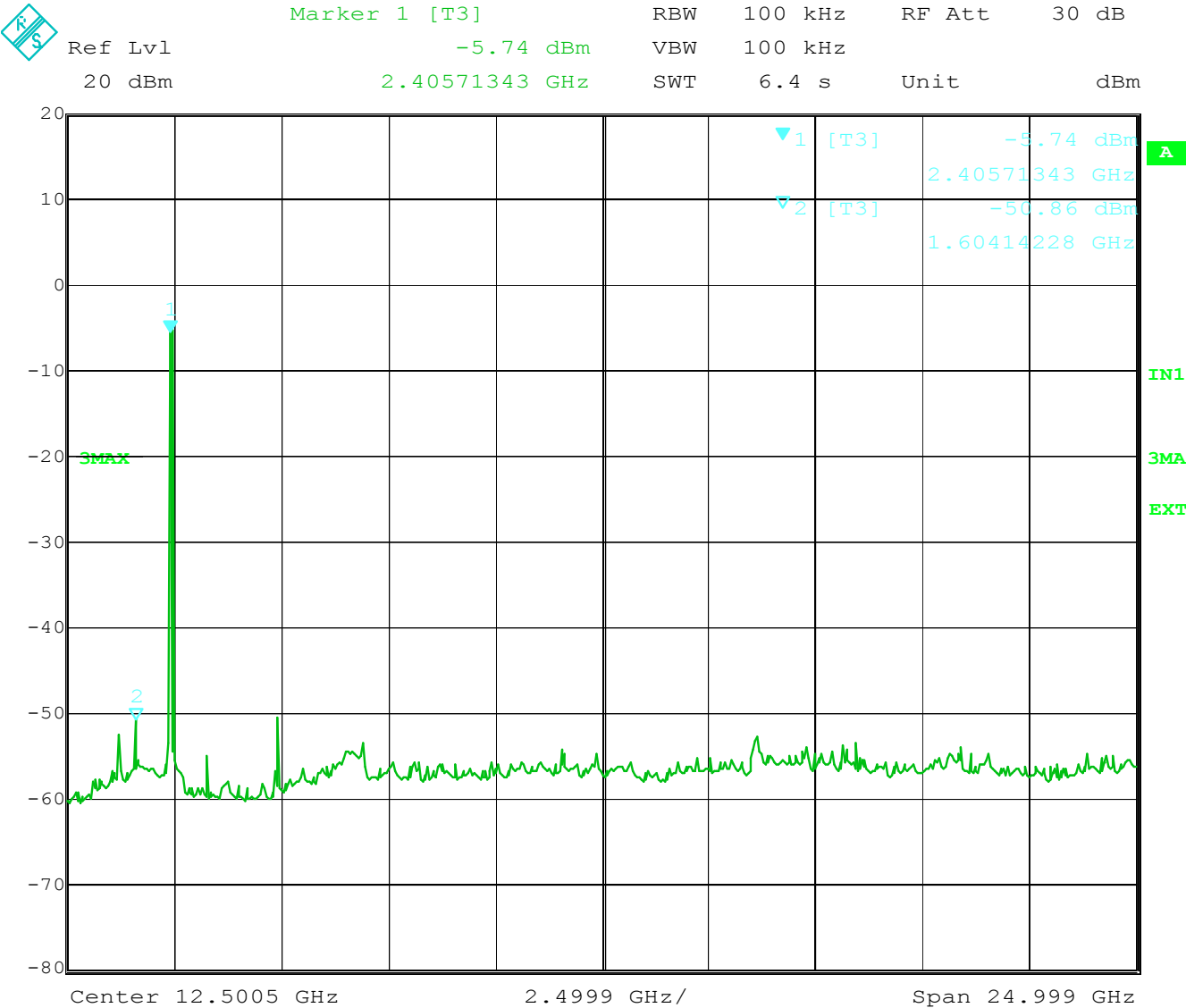
Test Equipment used: NT-207

**Out-of-band Emission  
Unwanted Emissions**

**§ 15.247(d)  
5.5**

Conducted Measurement – Antenna 2

Setup: CH 7 + 11: 2452 MHz



Date: 27.SEP.2018 16:35:25

**LIMIT SUBCLAUSE 15.247(d) – 5.5**

|                                                                                             |                                                                                                                              |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| In any 100 kHz bandwidth outside the frequency band in which the radio device is operating. | At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

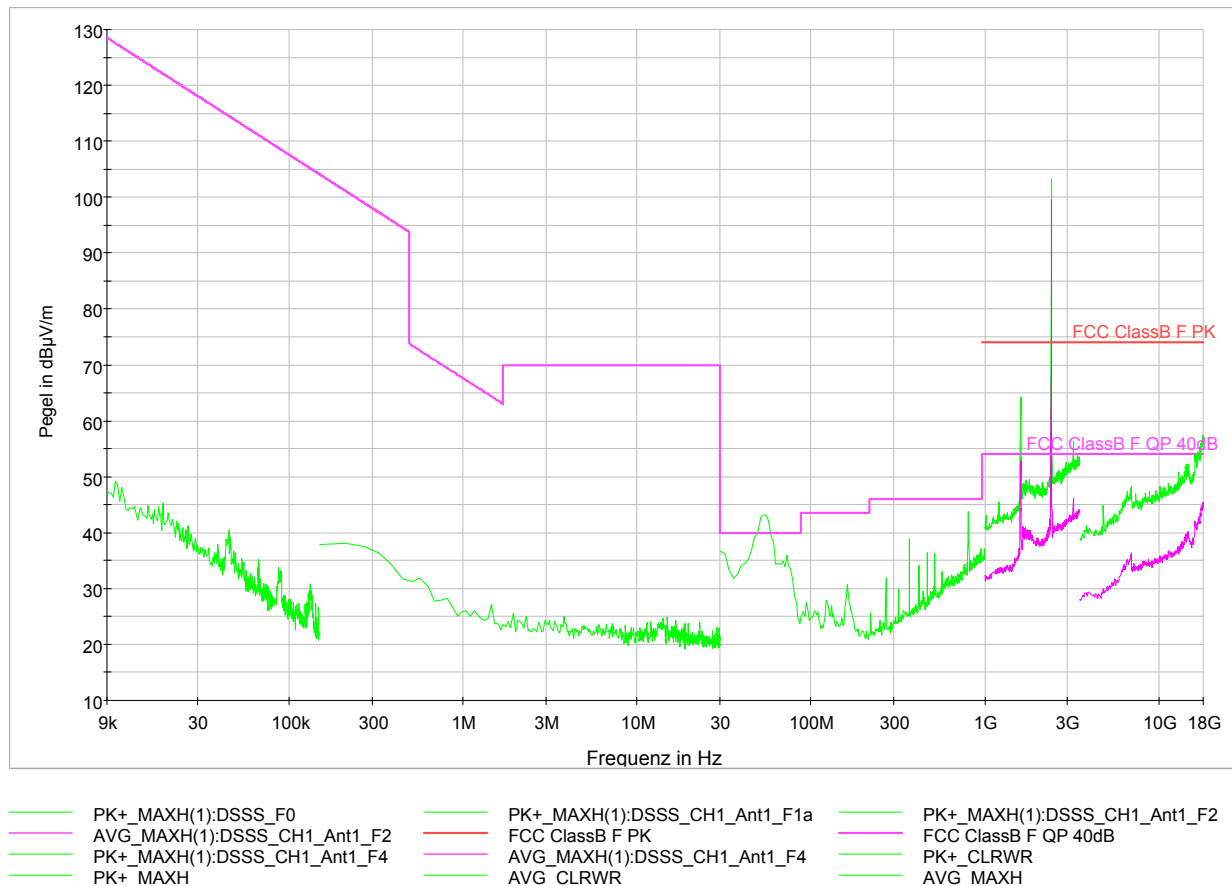
Test Equipment used: NT-207

#### 4.7. Emissions in restricted bands Emissions falling within restricted frequency bands

§ 15.209(a)  
RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1: 2412 MHz – DSSS – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m; 53,2 dBµV/m @ 1608 MHz

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the thenth harmonics of the transmitter frequency.

#### LIMIT SUBCLAUSE 15.209(a) – RSS-Gen

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

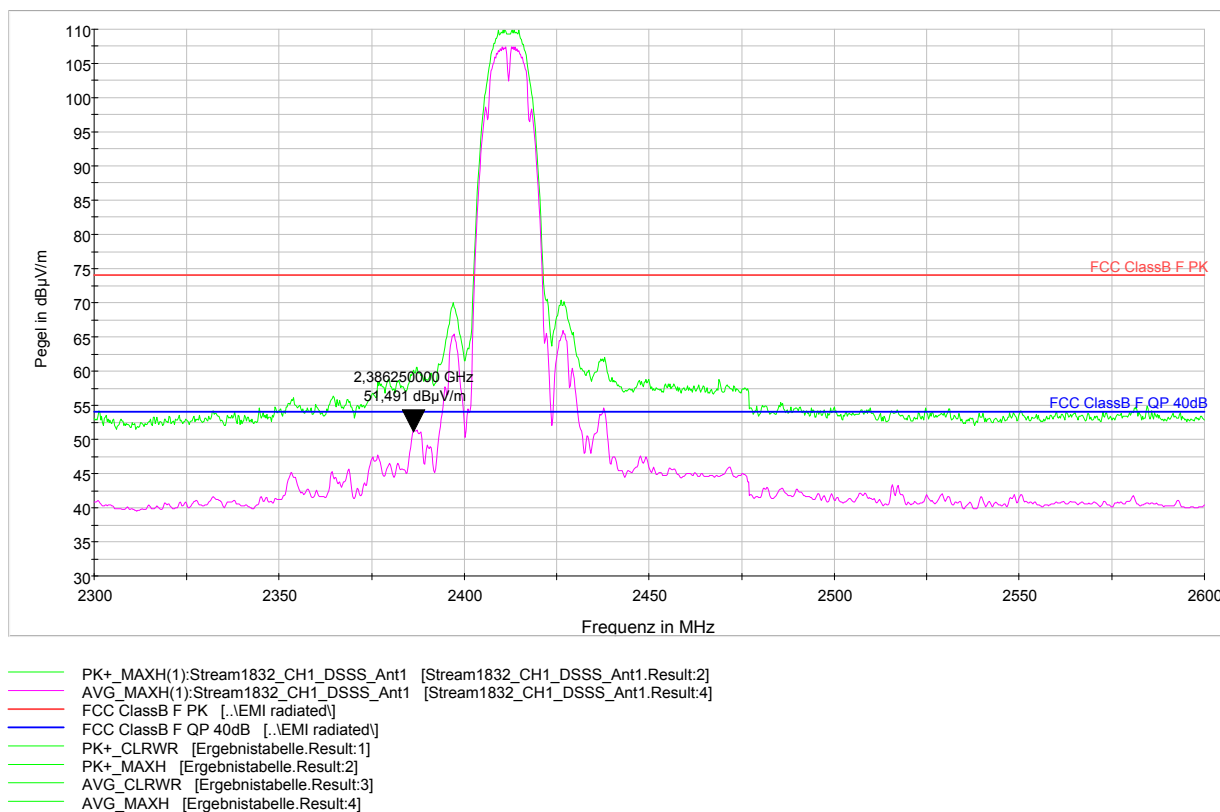
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112;  
EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

## Emissions in restricted bands Emissions falling within restricted frequency bands

## § 15.209(a) RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 1: 2412 MHz – DSSS – Antenna 1



### LIMIT

### SUBCLAUSE 15.209(a) – RSS-Gen

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

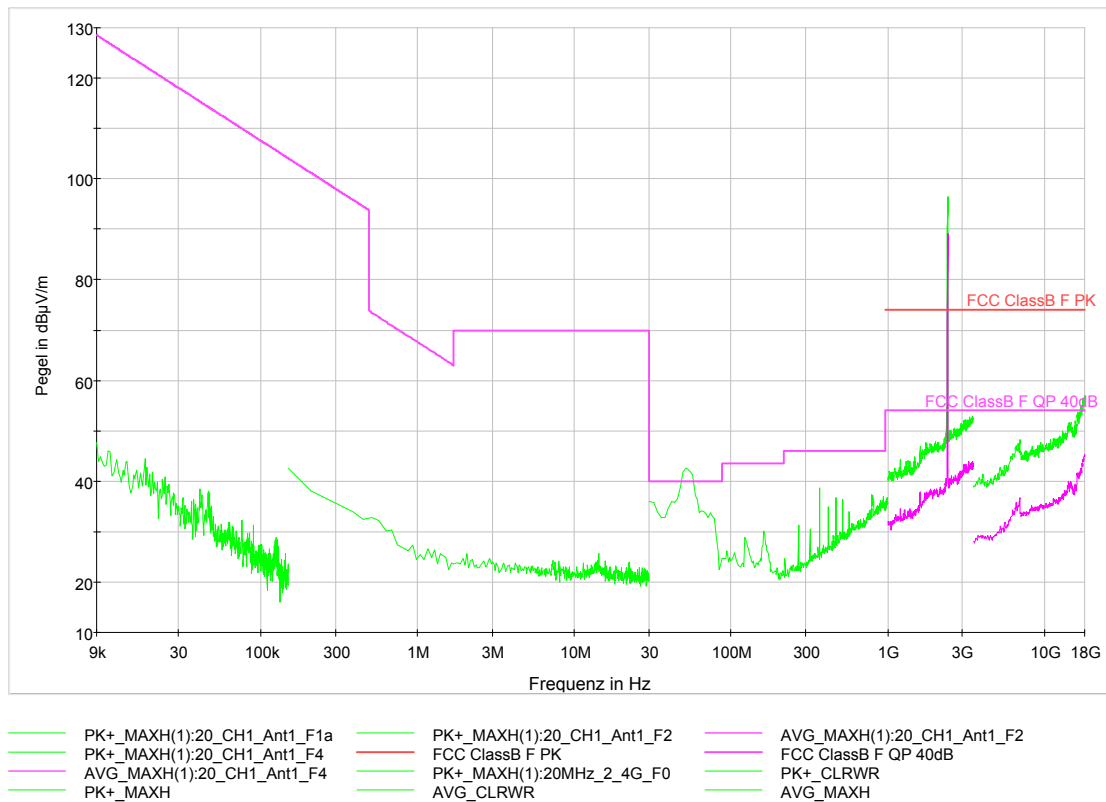
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1: 2412 MHz – OFDM – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

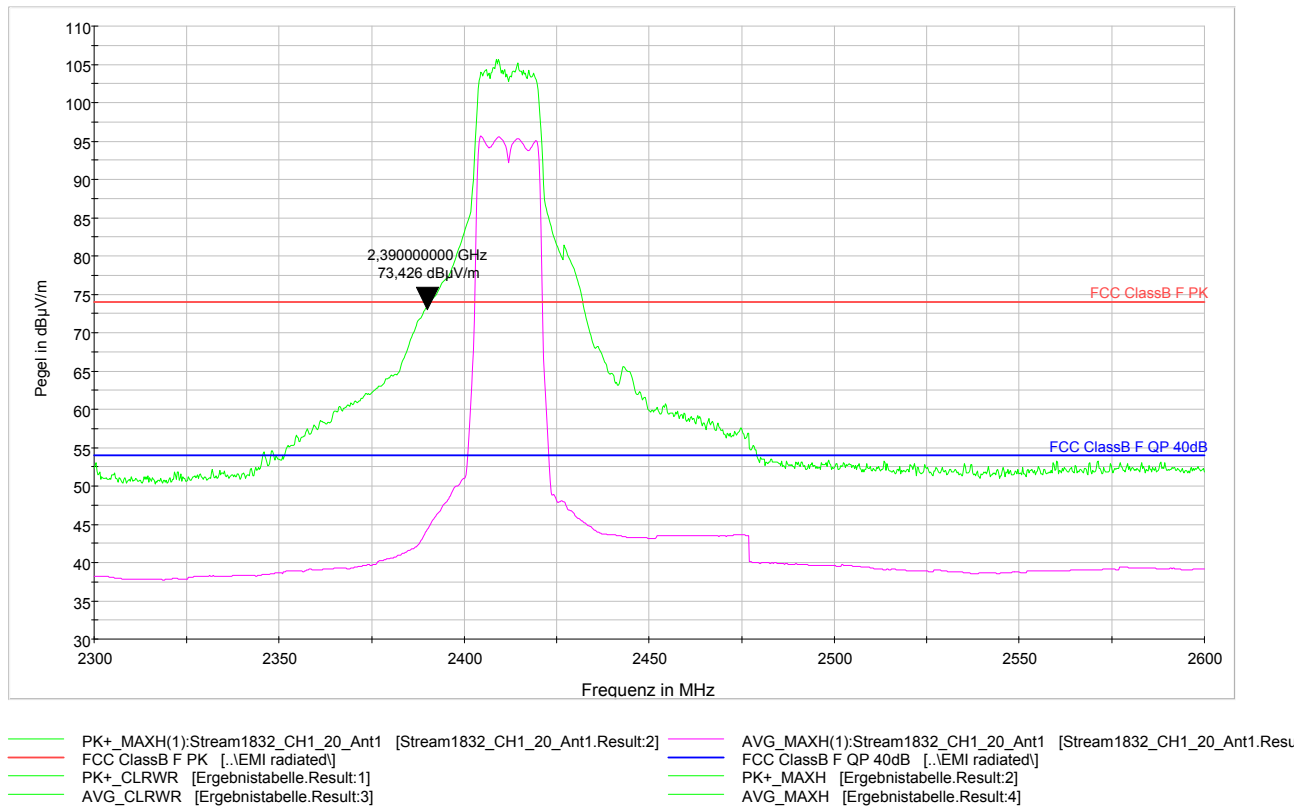
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

## Emissions in restricted bands Emissions falling within restricted frequency bands

## § 15.209(a) RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 1: 2412 MHz – OFDM – Antenna 1



## LIMIT

## SUBCLAUSE 15.209(a) – RSS-Gen

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

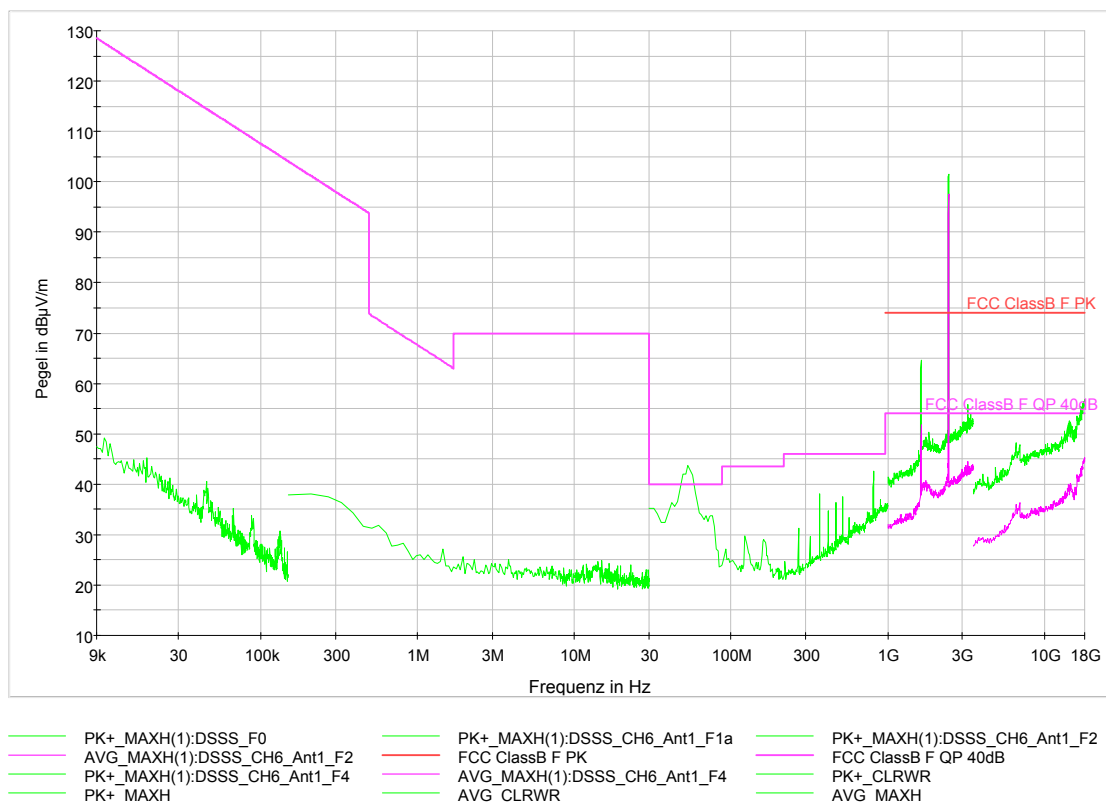
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 6: 2437 MHz – DSSS – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m; 52,1 dBµV/m @ 1624,7 MHz

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

### **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

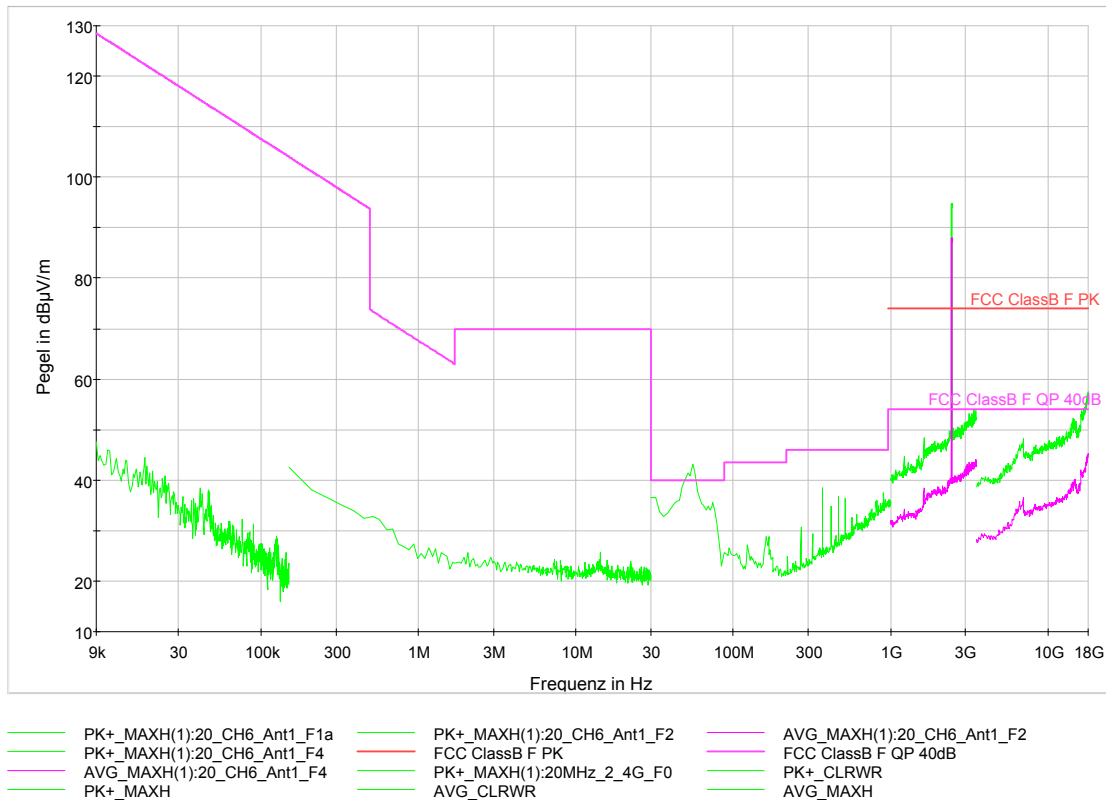
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 6: 2437 MHz – OFDM – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

### **LIMIT**                      **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

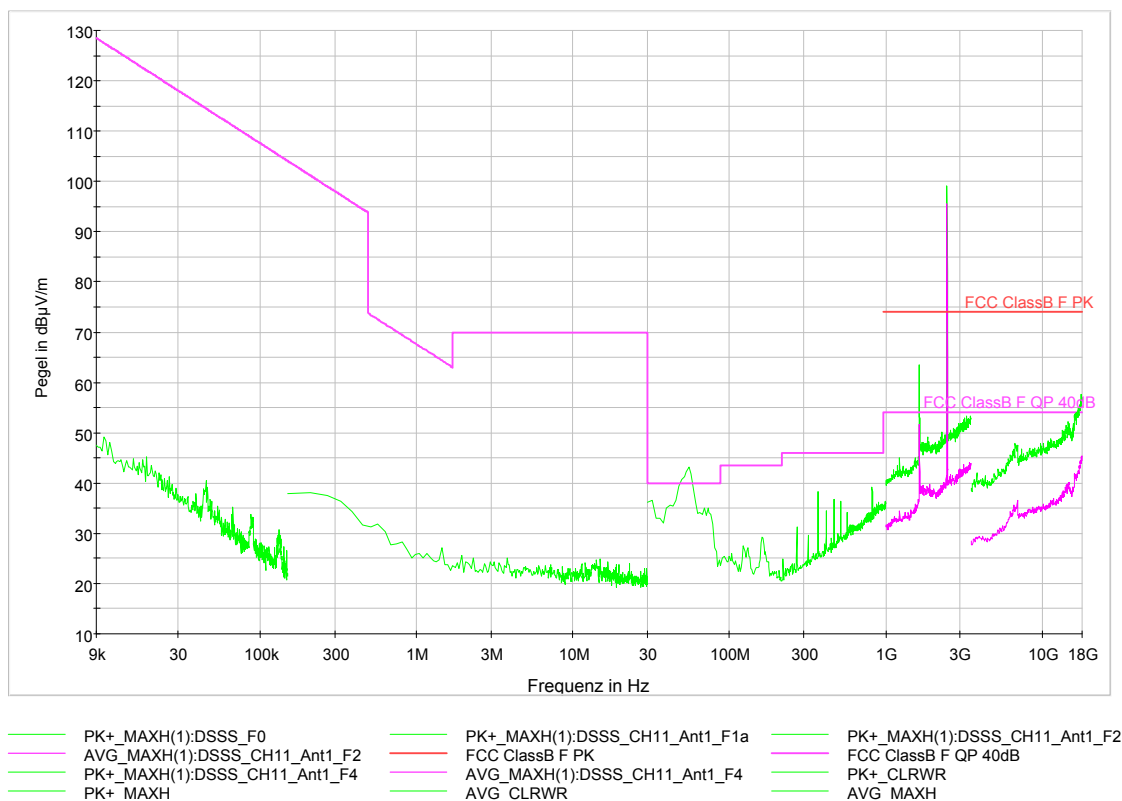
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 11: 2462 MHz – DSSS – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m; 51,9 dBµV/m @ 1641,3 MHz

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT**                      **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

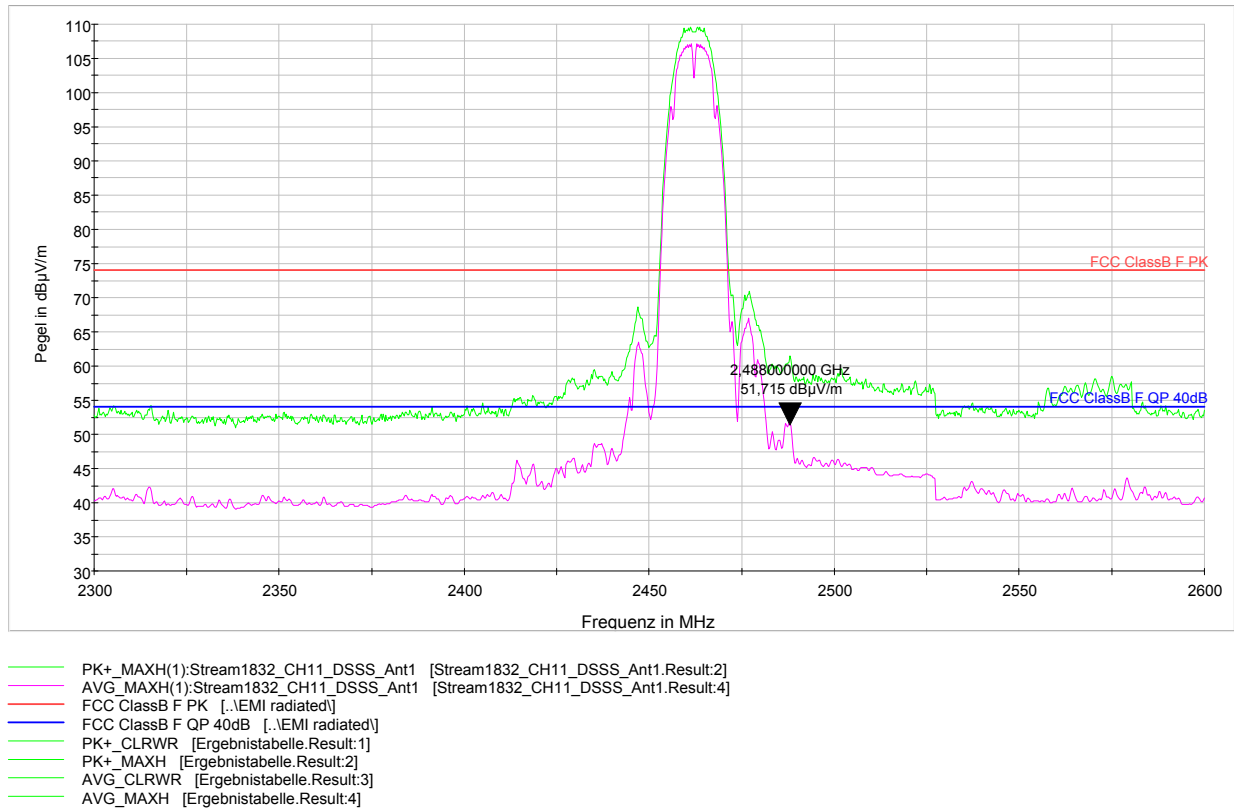
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

## Emissions in restricted bands Emissions falling within restricted frequency bands

## § 15.209(a) RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 11: 2462 MHz – DSSS – Antenna 1



## LIMIT

## SUBCLAUSE 15.209(a) – RSS-Gen

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

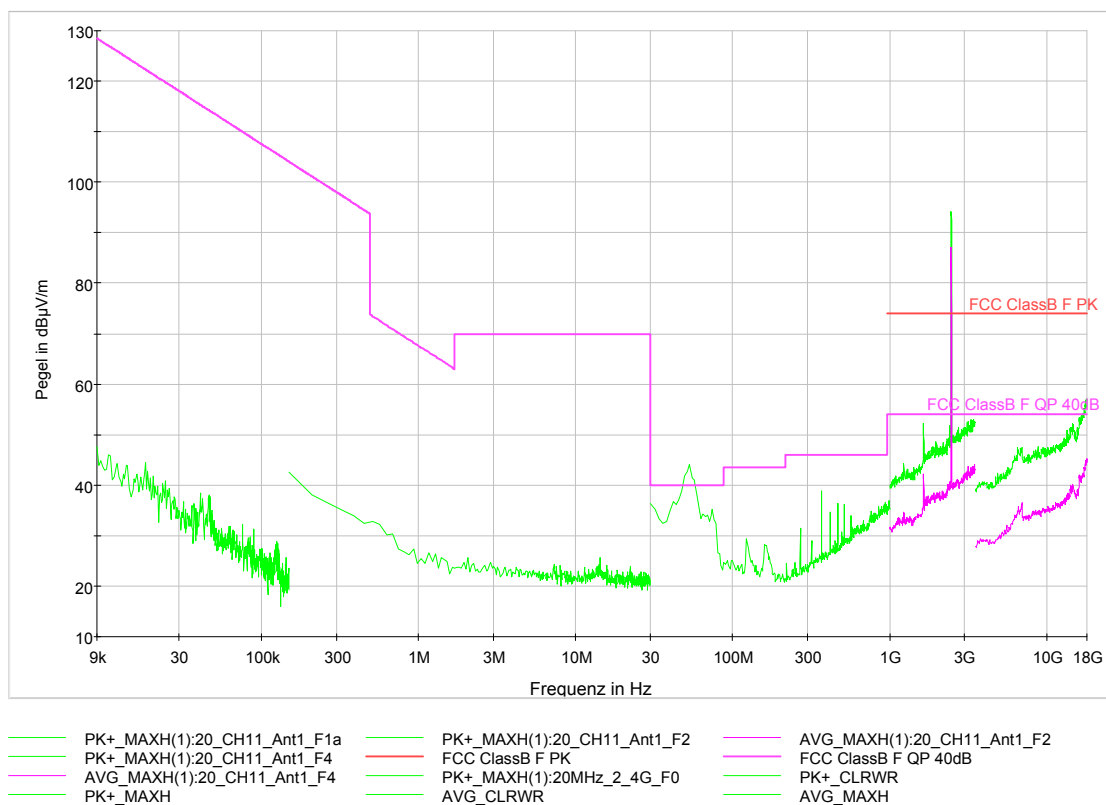
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 11: 2462 MHz – OFDM – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m; 43,0 dBµV/m @ 1641,3 MHz

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

### **LIMIT**

### **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

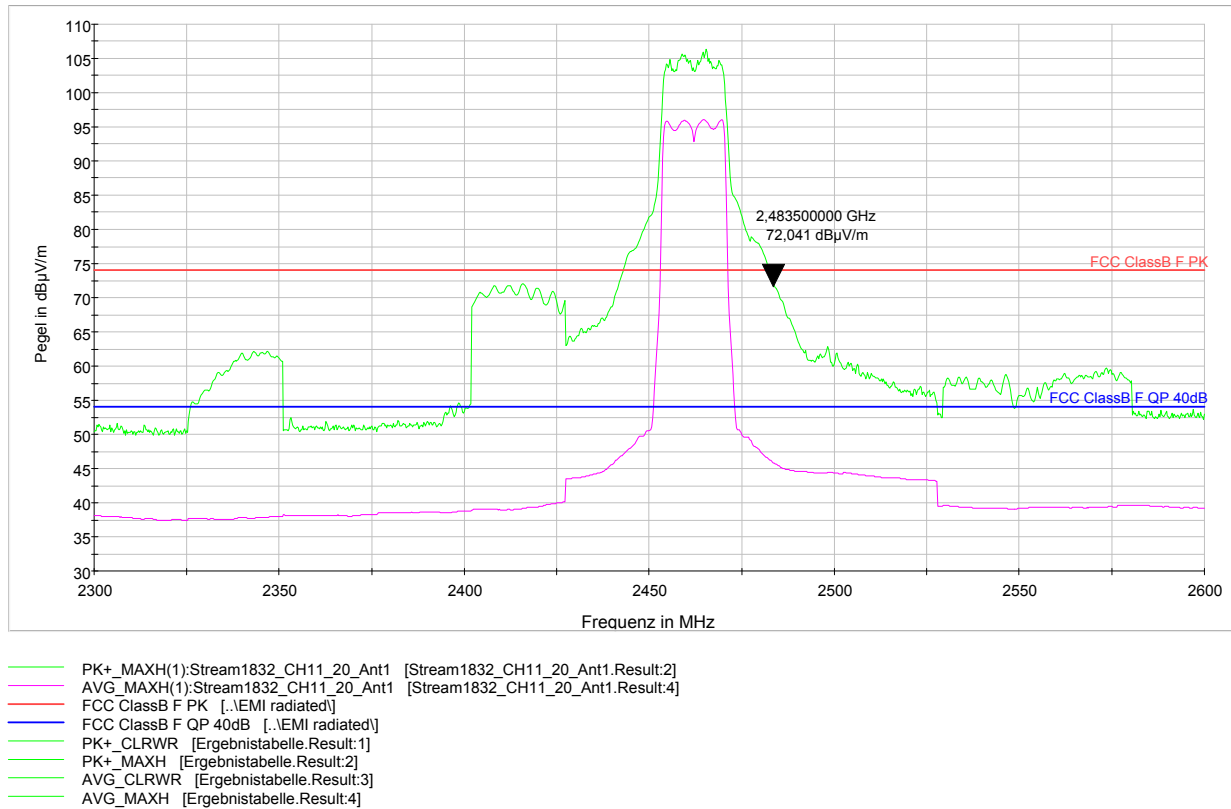
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 11: 2462 MHz – OFDM – Antenna 1



## **LIMIT**

## **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

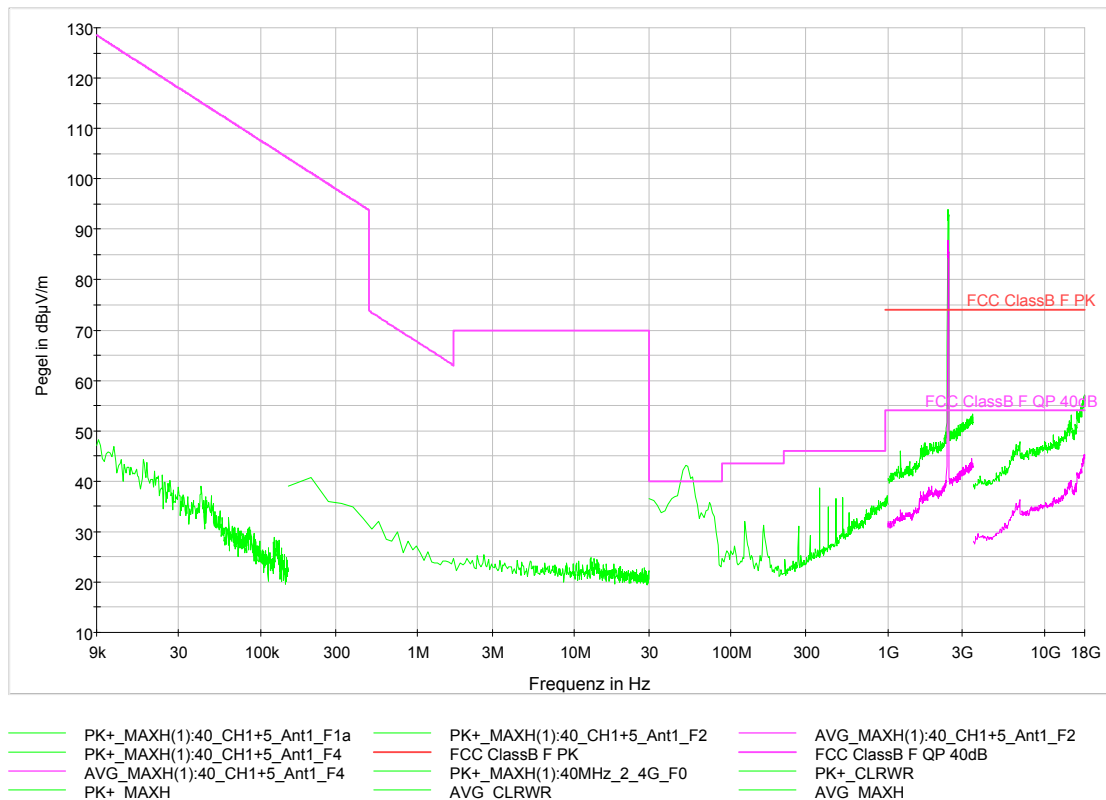
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1 + 5: 2422 MHz – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

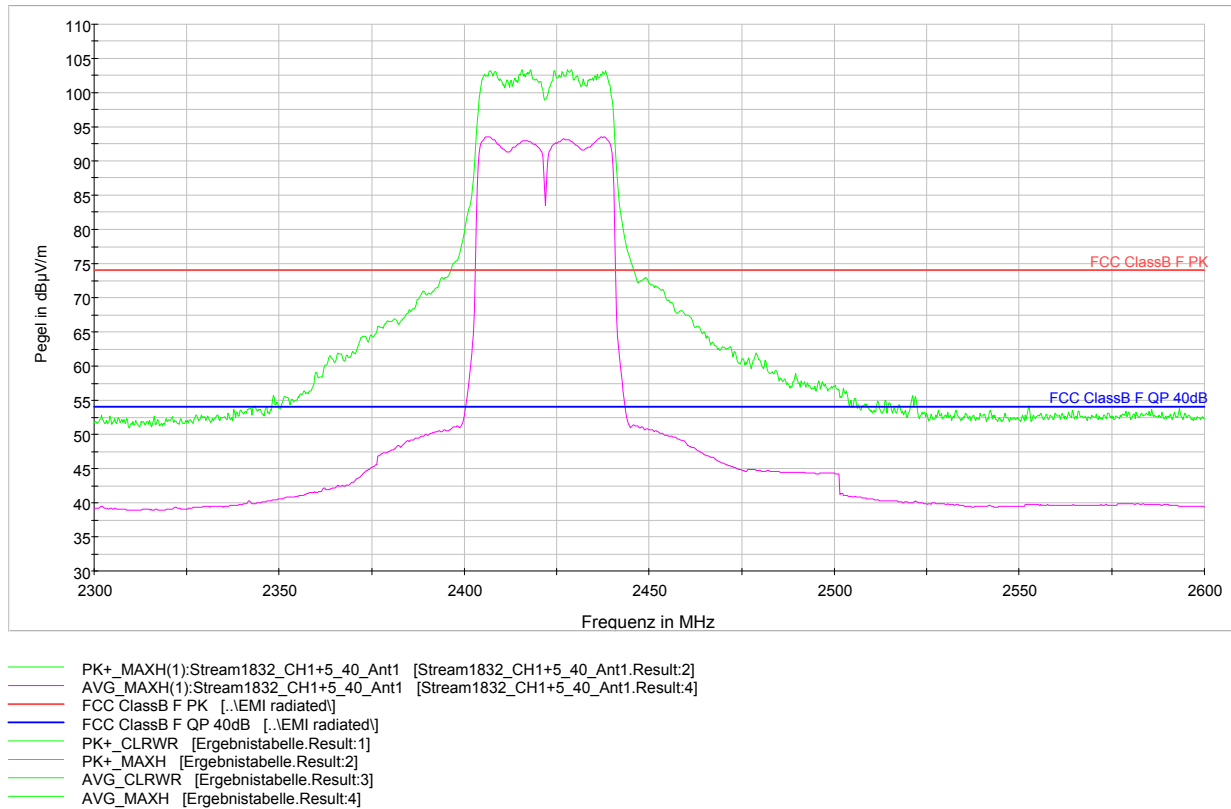
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 1 + 5: 2422 MHz – Antenna 1



## **LIMIT**

## **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

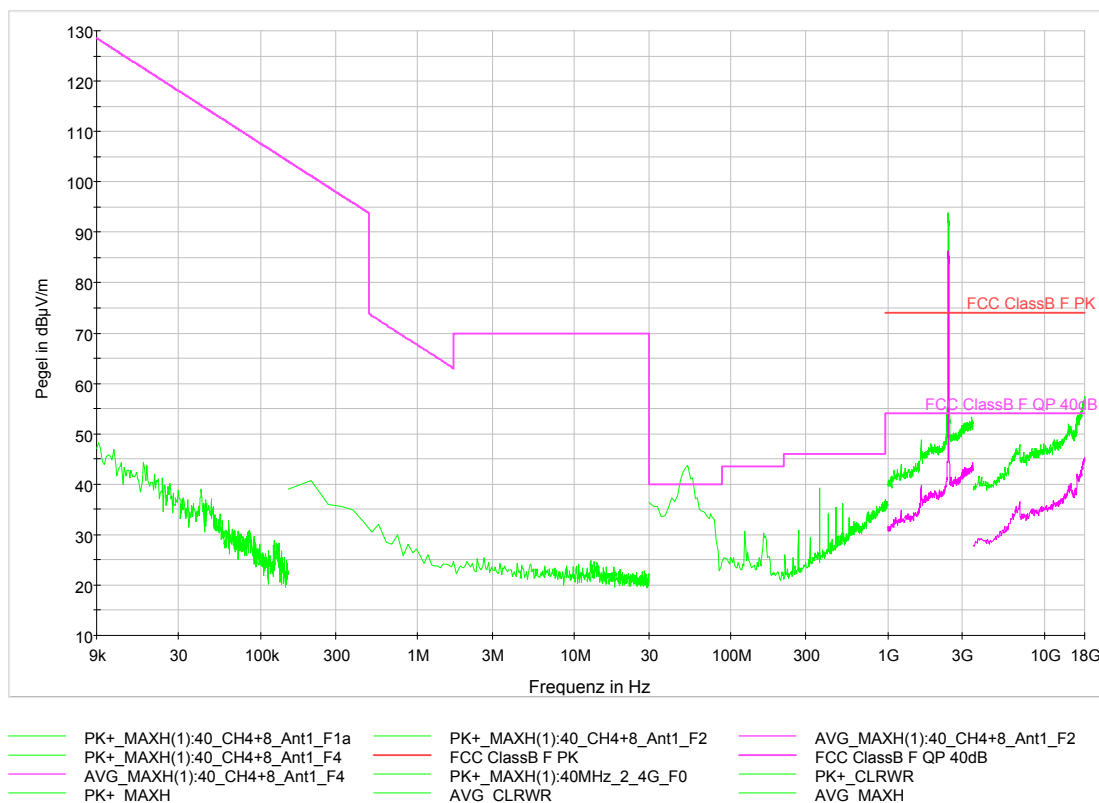
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 4 + 8: 2437 MHz – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

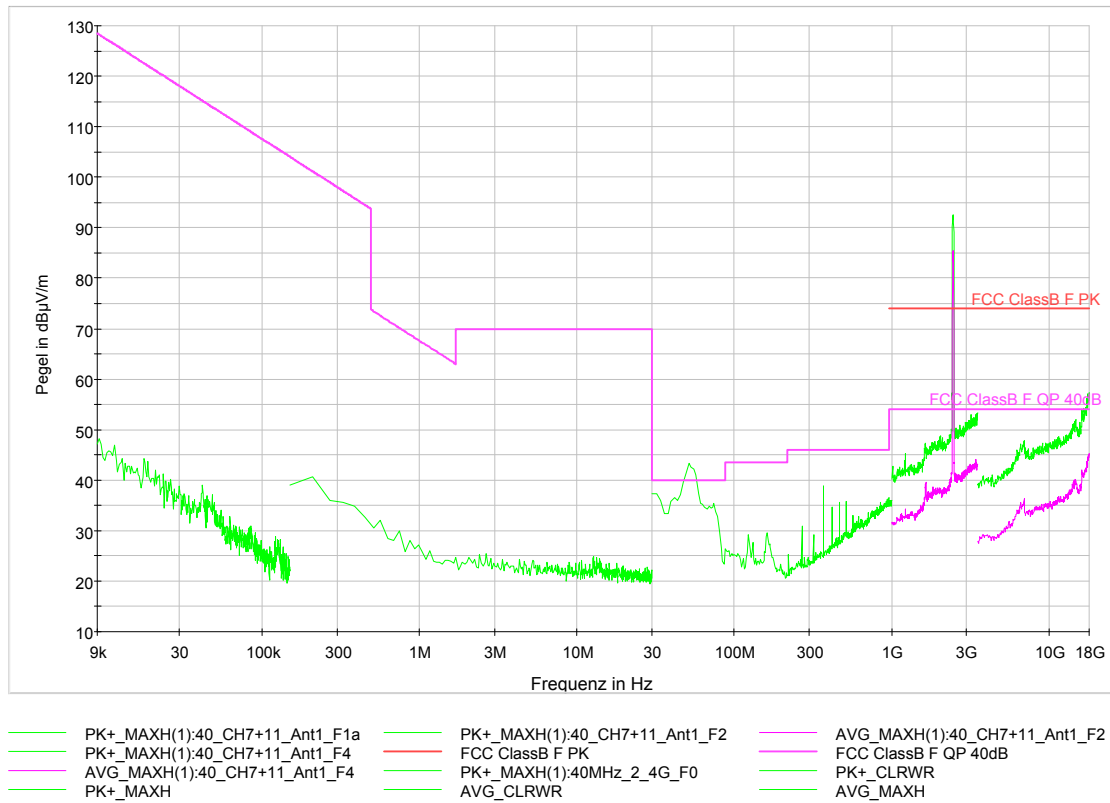
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 7 + 11: 2452 MHz – Antenna 1



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

### **LIMIT**                      **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

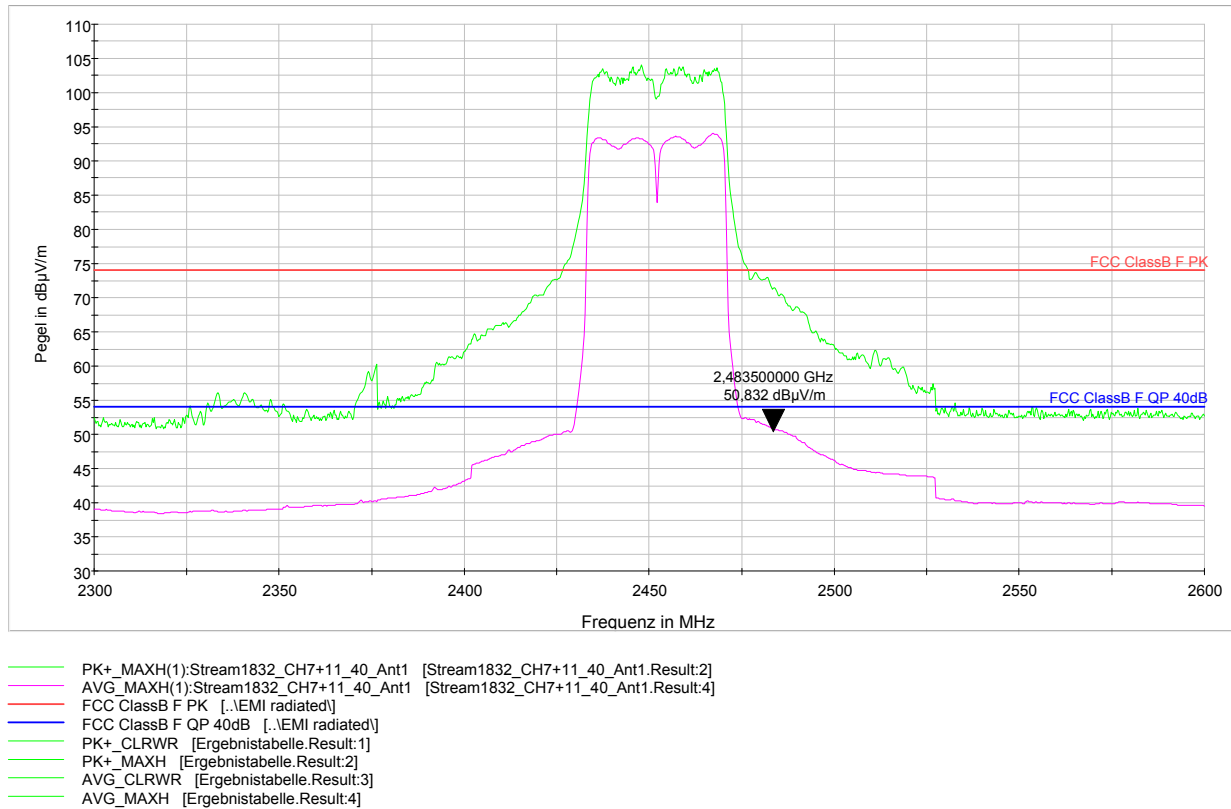
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 7 + 11: 2452 MHz – Antenna 1



### **LIMIT**

### **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

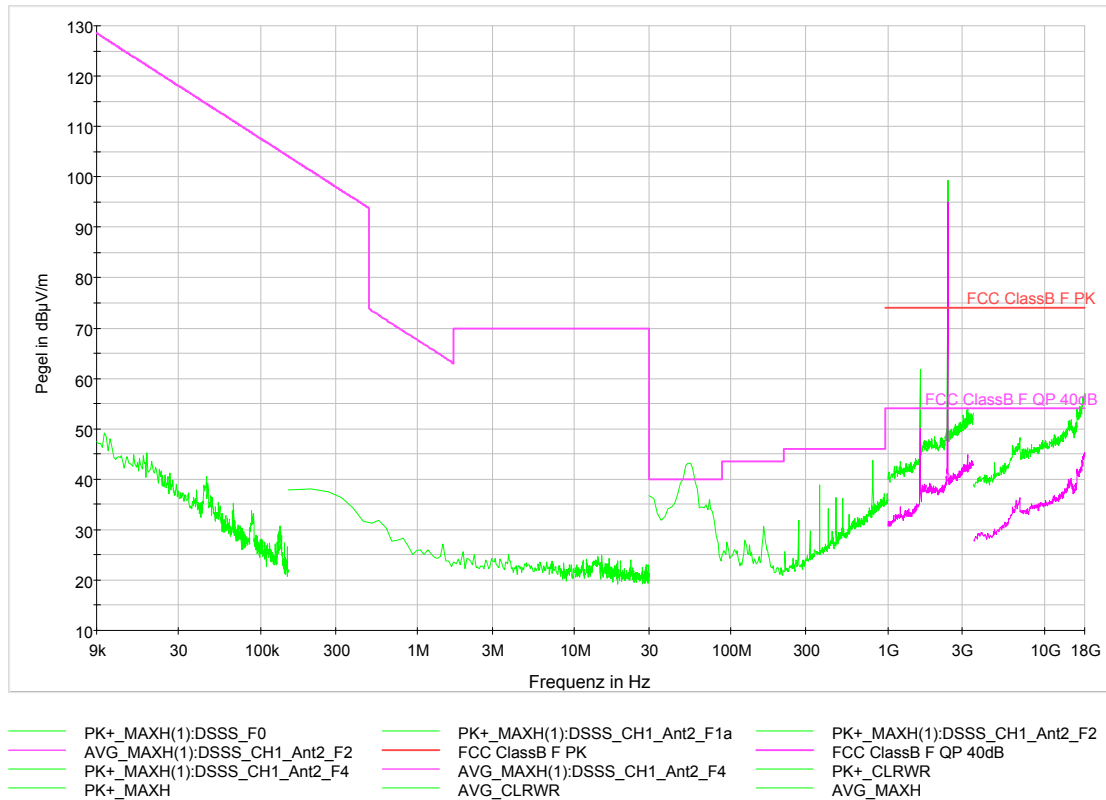
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1: 2412 MHz – DSSS – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m; 50,2 dBµV/m @ 4824 MHz

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

### **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

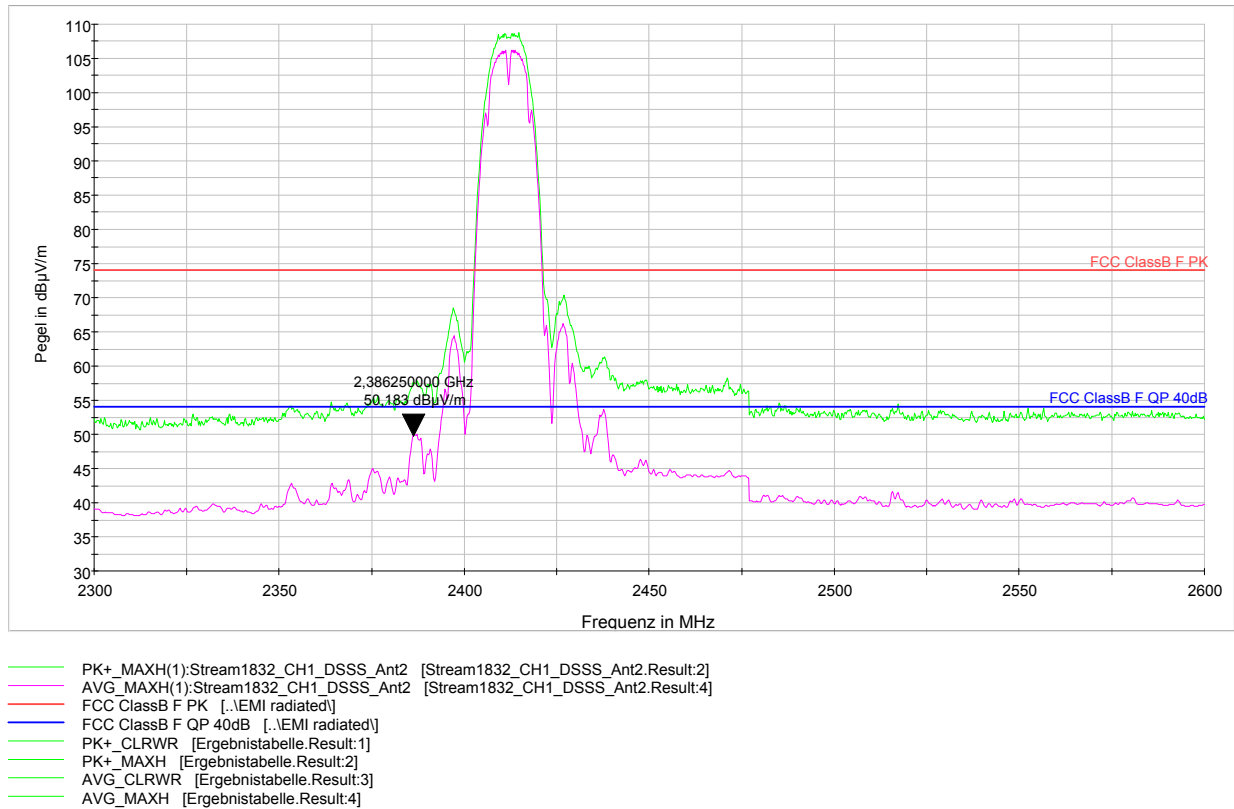
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

## Emissions in restricted bands Emissions falling within restricted frequency bands

## § 15.209(a) RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 1: 2412 MHz – DSSS – Antenna 2



## LIMIT

## SUBCLAUSE 15.209(a) – RSS-Gen

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

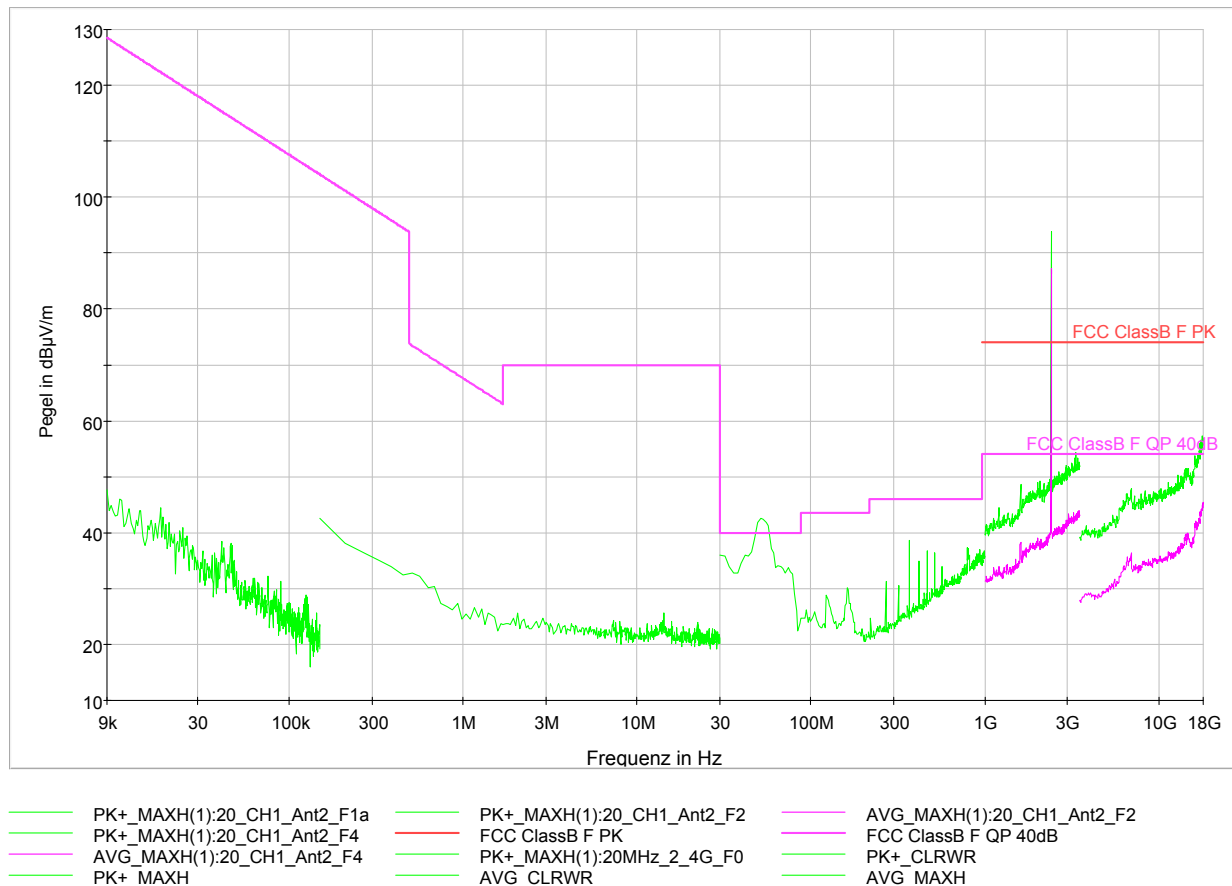
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1: 2412 MHz – OFDM – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the thenth harmonics of the transmitter frequency.

## **LIMIT SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

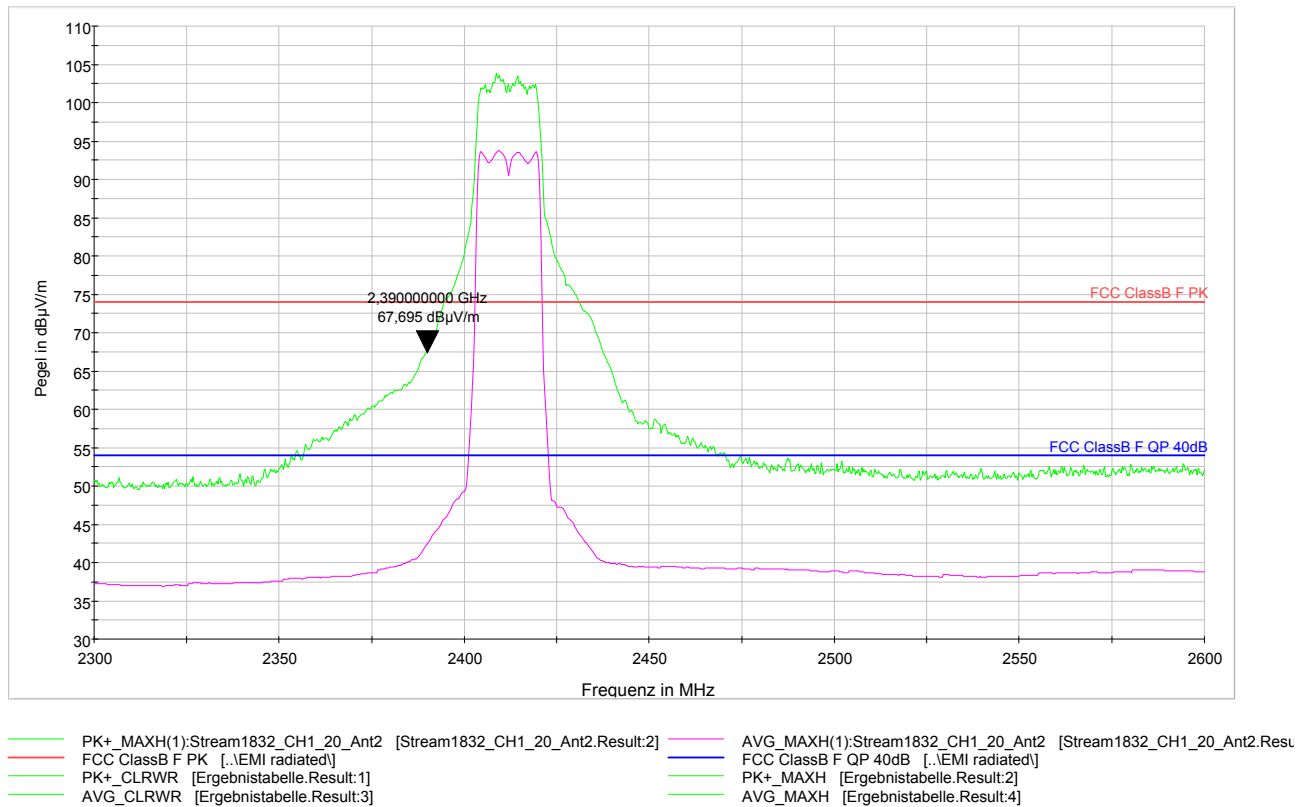
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

## Emissions in restricted bands Emissions falling within restricted frequency bands

## § 15.209(a) RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 1: 2412 MHz – OFDM – Antenna 2



## LIMIT

## SUBCLAUSE 15.209(a) – RSS-Gen

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

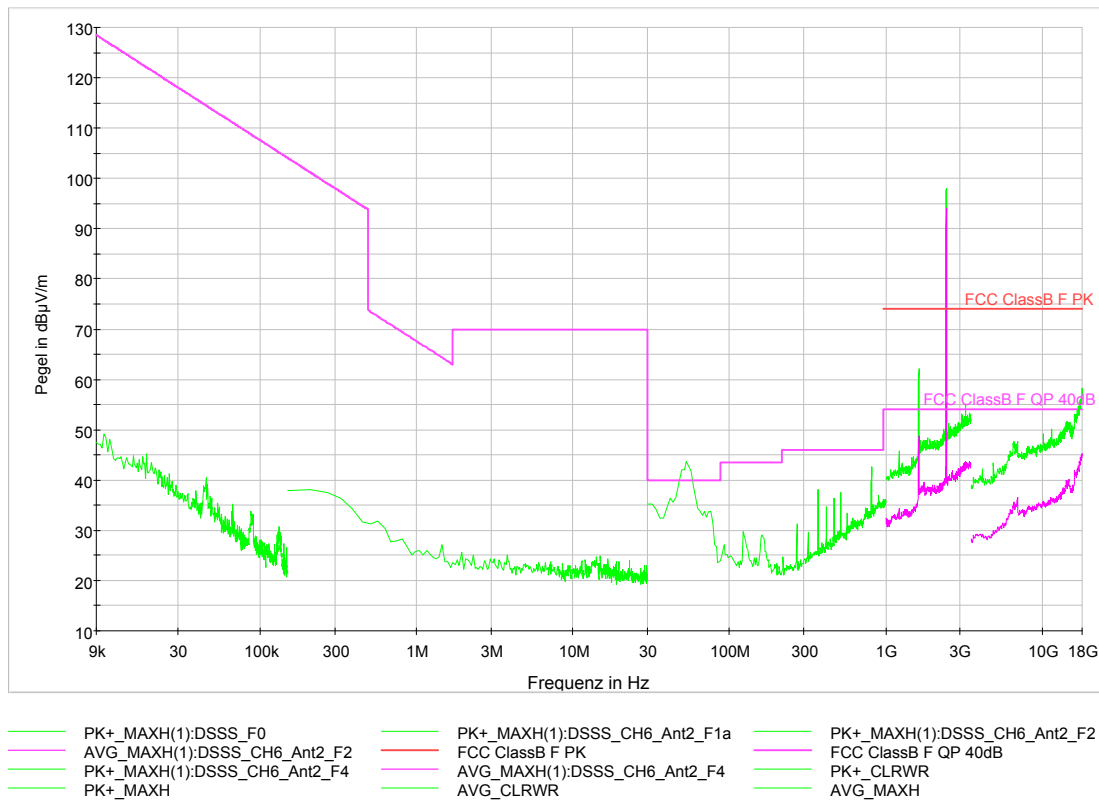
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 6: 2437 MHz – DSSS – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m; 49,1 dBµV/m @ 1624,7 MHz

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

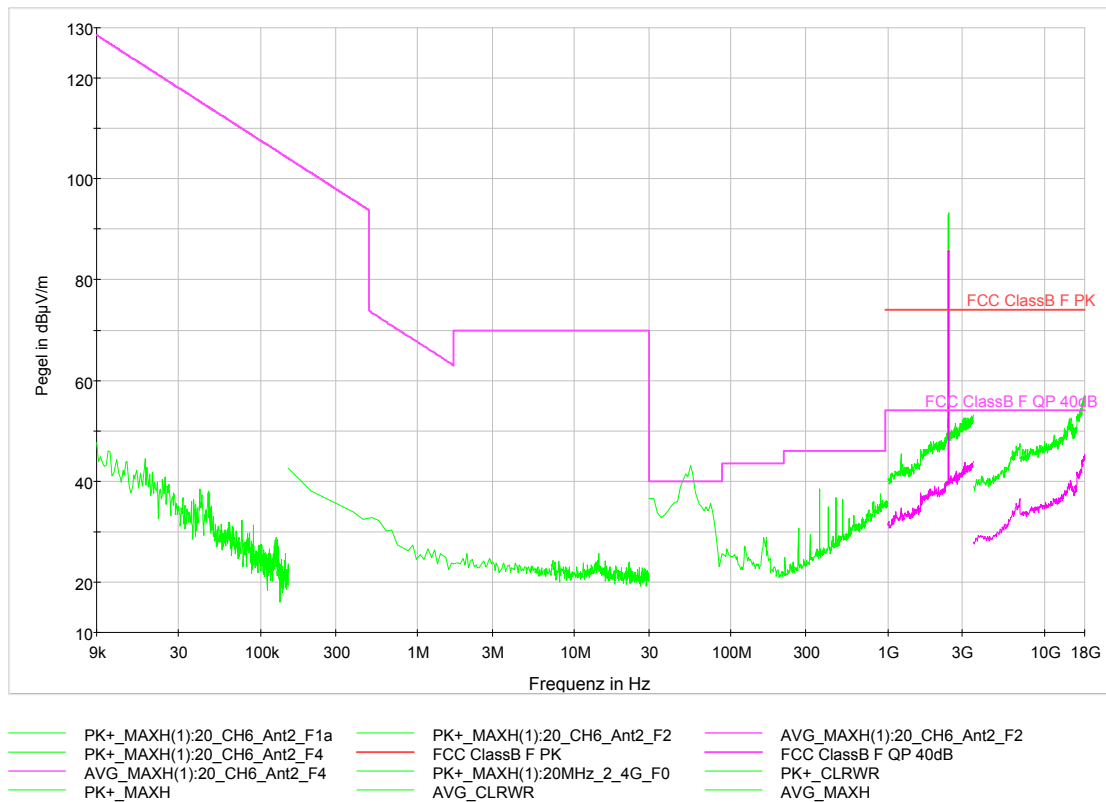
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 6: 2437 MHz – OFDM – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT**                      **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

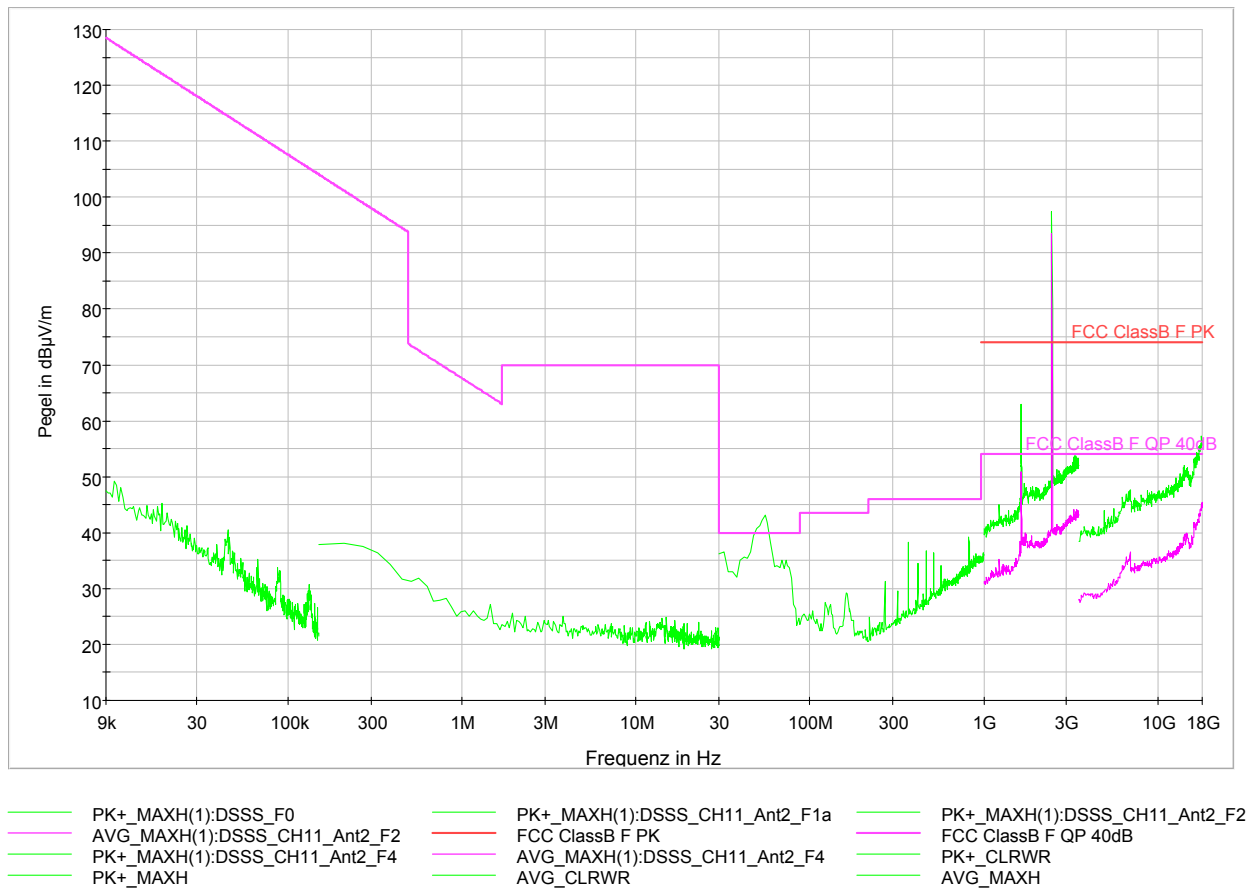
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

**§ 15.209(a)**  
**RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 11: 2462 MHz – DSSS – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m; 50,9 dBµV/m @ 1641,3 MHz

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the thenth harmonics of the transmitter frequency.

## **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

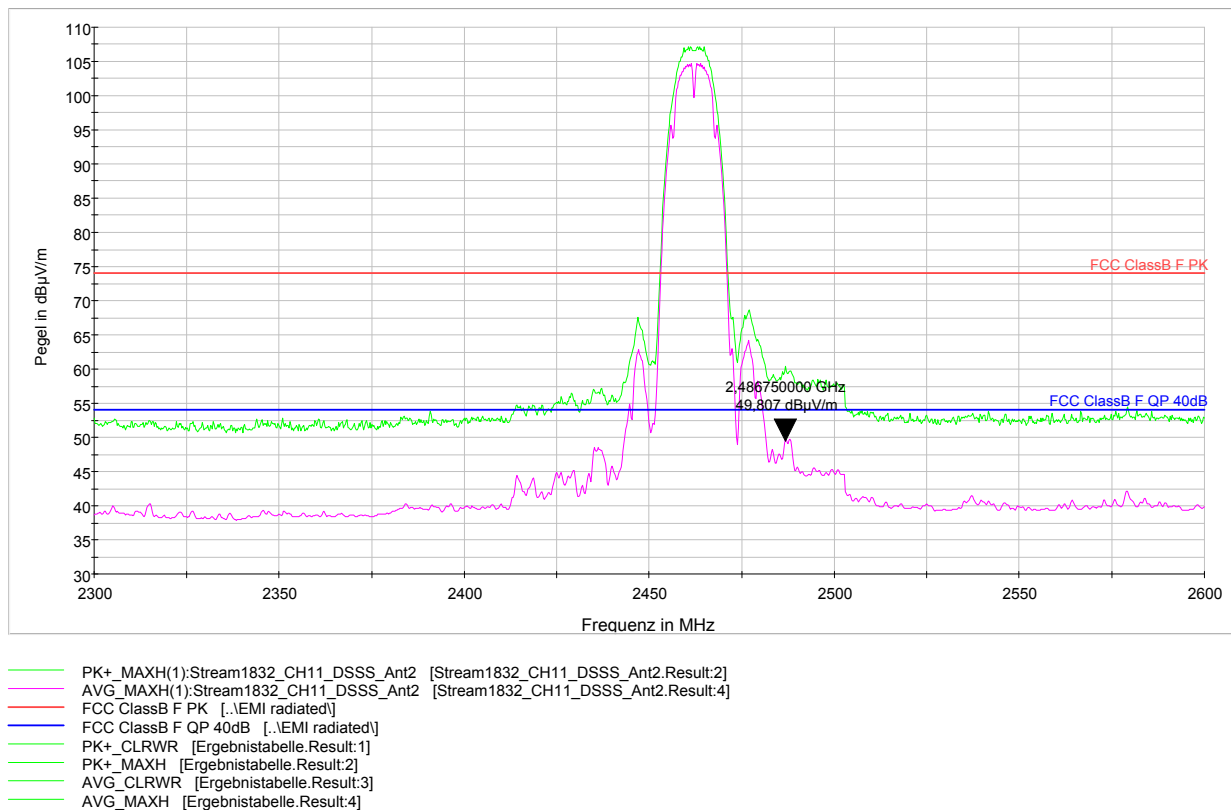
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112;  
EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 11: 2462 MHz – DSSS – Antenna 2



## **LIMIT**

## **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

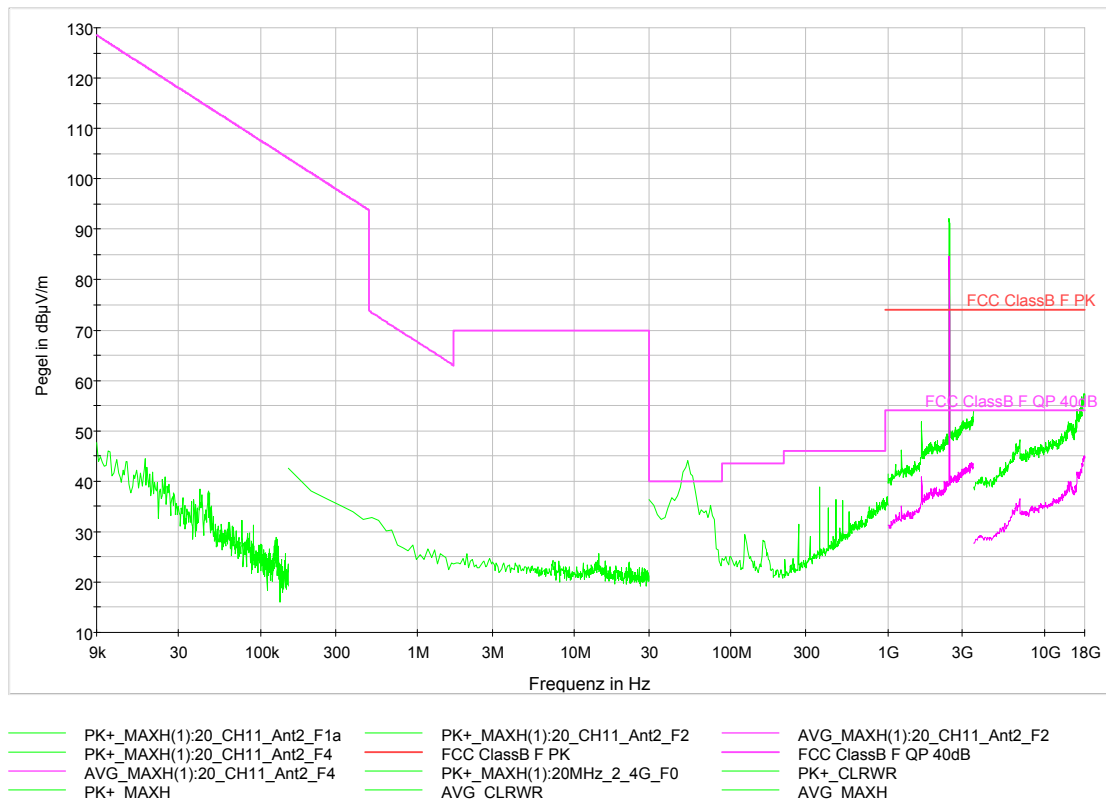
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 11: 2462 MHz – OFDM – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

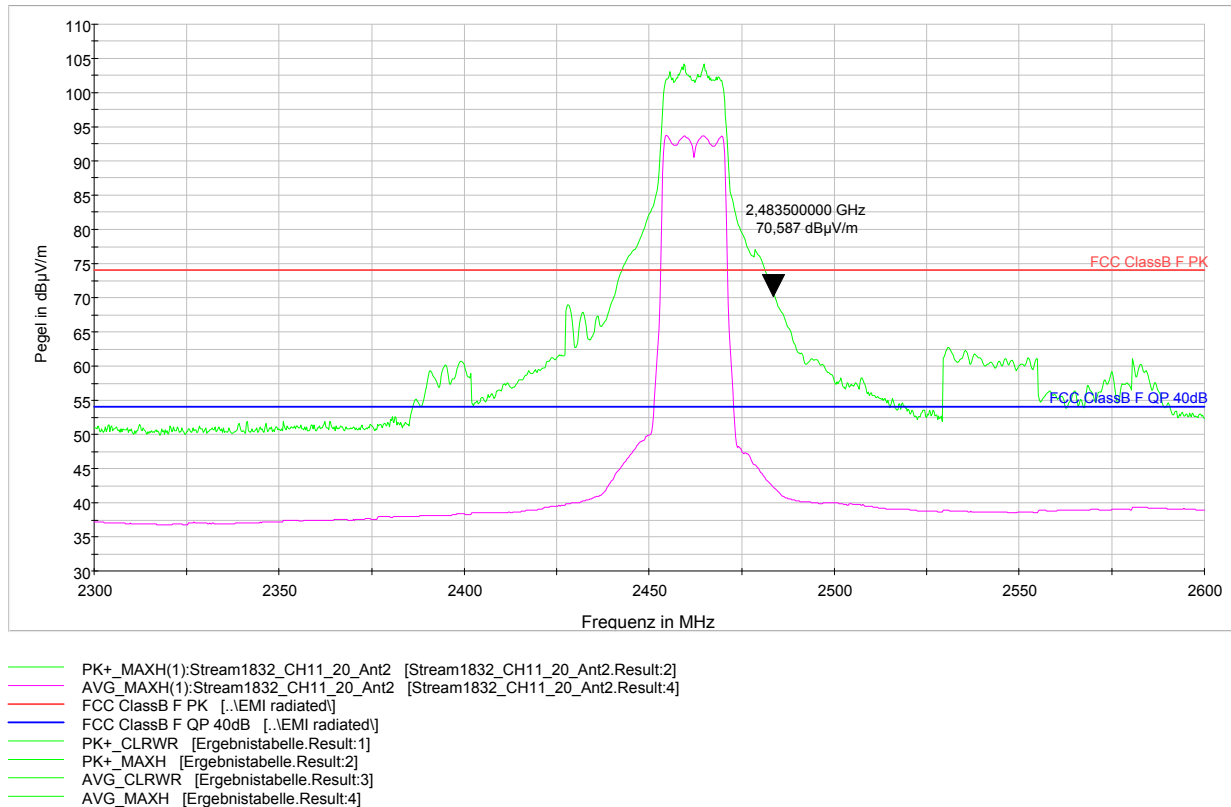
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 11: 2462 MHz – OFDM – Antenna 2



## **LIMIT**

## **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

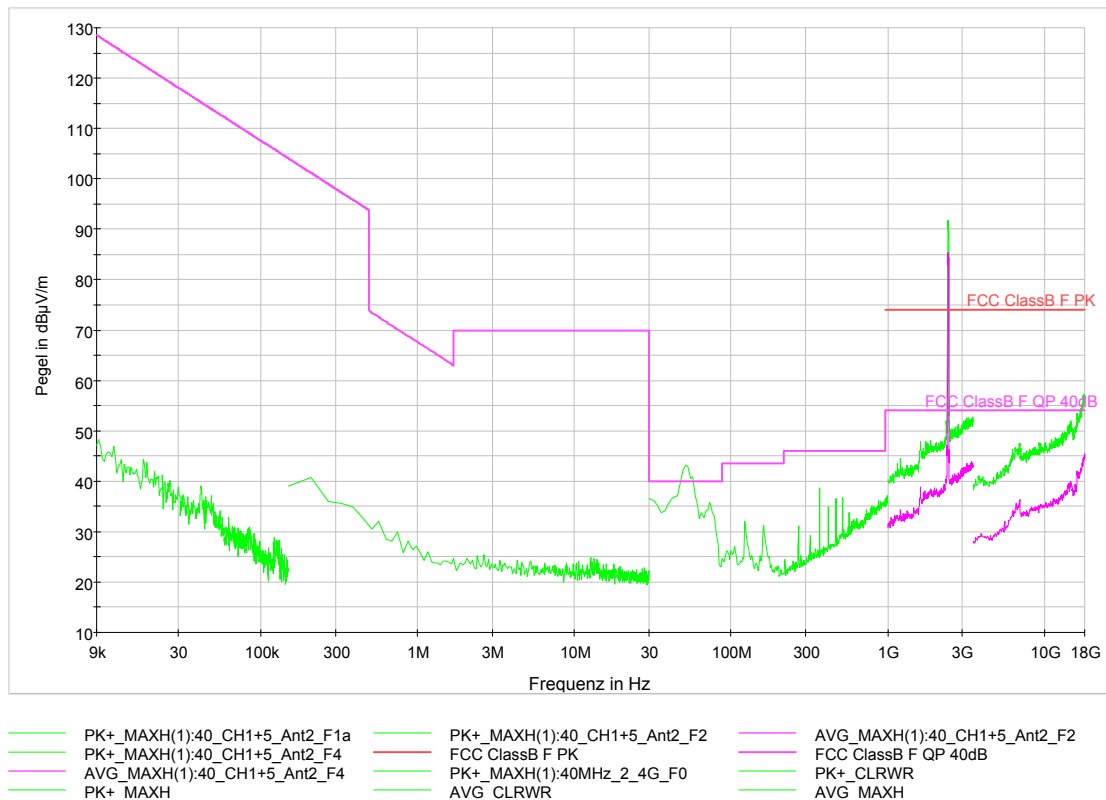
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1 + 5: 2422 MHz – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

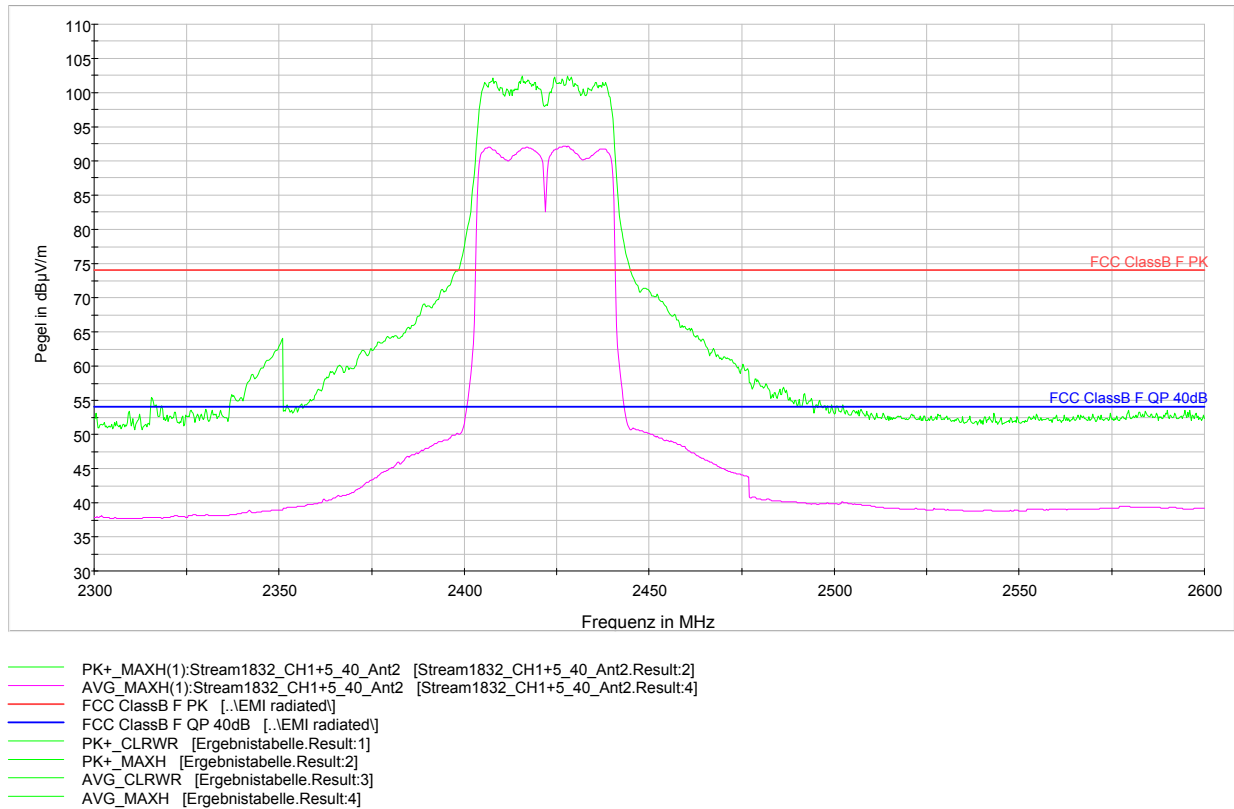
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 1 + 5: 2422 MHz – Antenna 2



## **LIMIT**

## **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

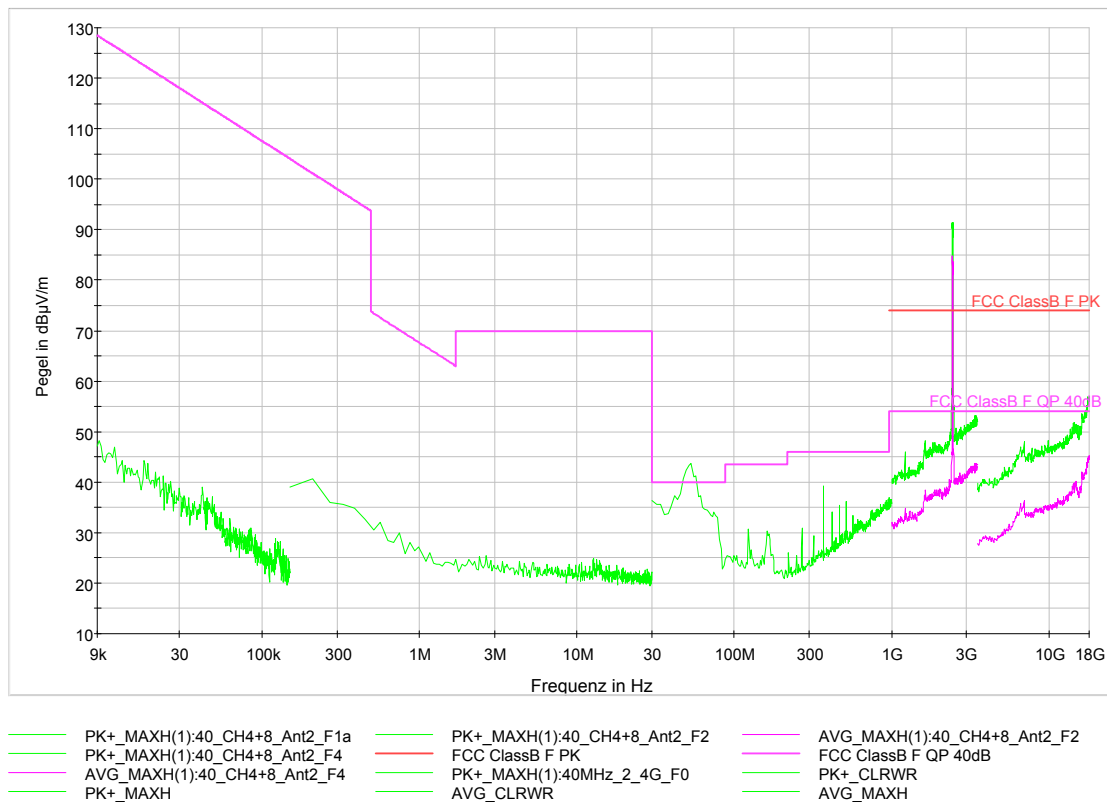
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 4 + 8: 2437 MHz – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

## **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

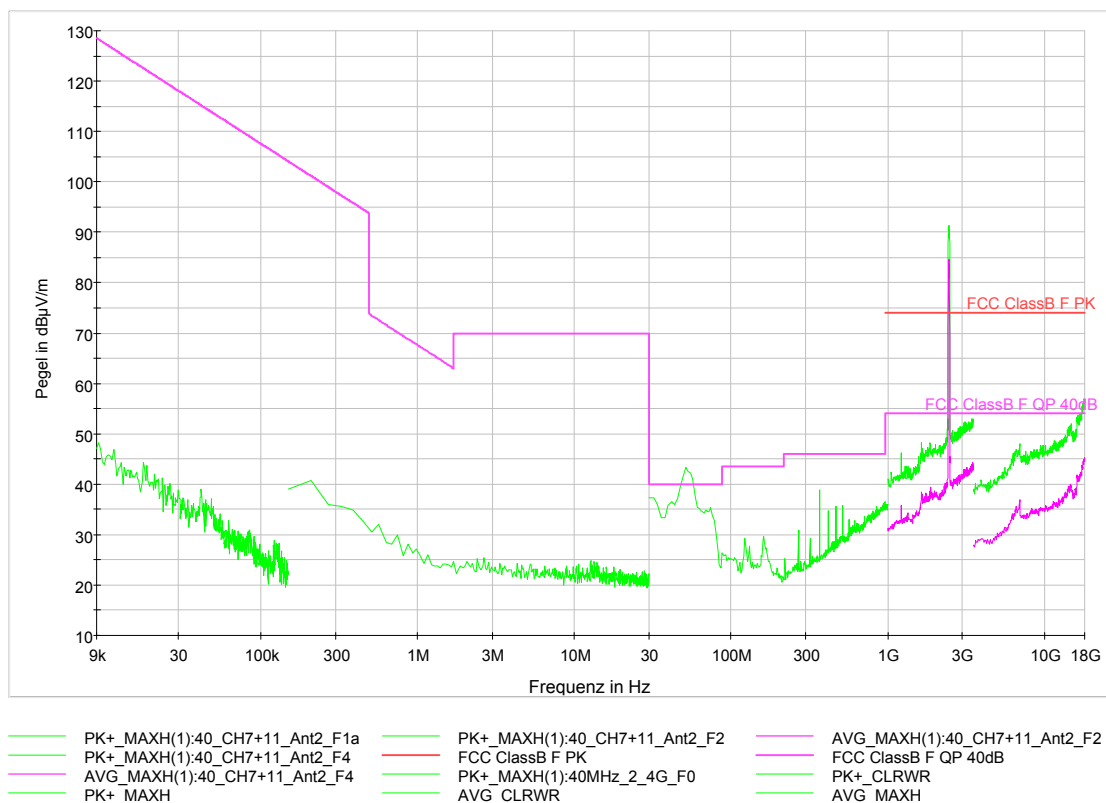
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

# **Emissions in restricted bands** **Emissions falling within restricted frequency bands**

## **§ 15.209(a)** **RSS-Gen**

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 7 + 11: 2452 MHz – Antenna 2



Worst case emission: Quasipeak @ 54,0 MHz 38,5 dBµV/m

Remark: Although the measurement above ends at 18 GHz, all measurements were performed up to the tenth harmonics of the transmitter frequency.

### **LIMIT** **SUBCLAUSE 15.209(a) – RSS-Gen**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

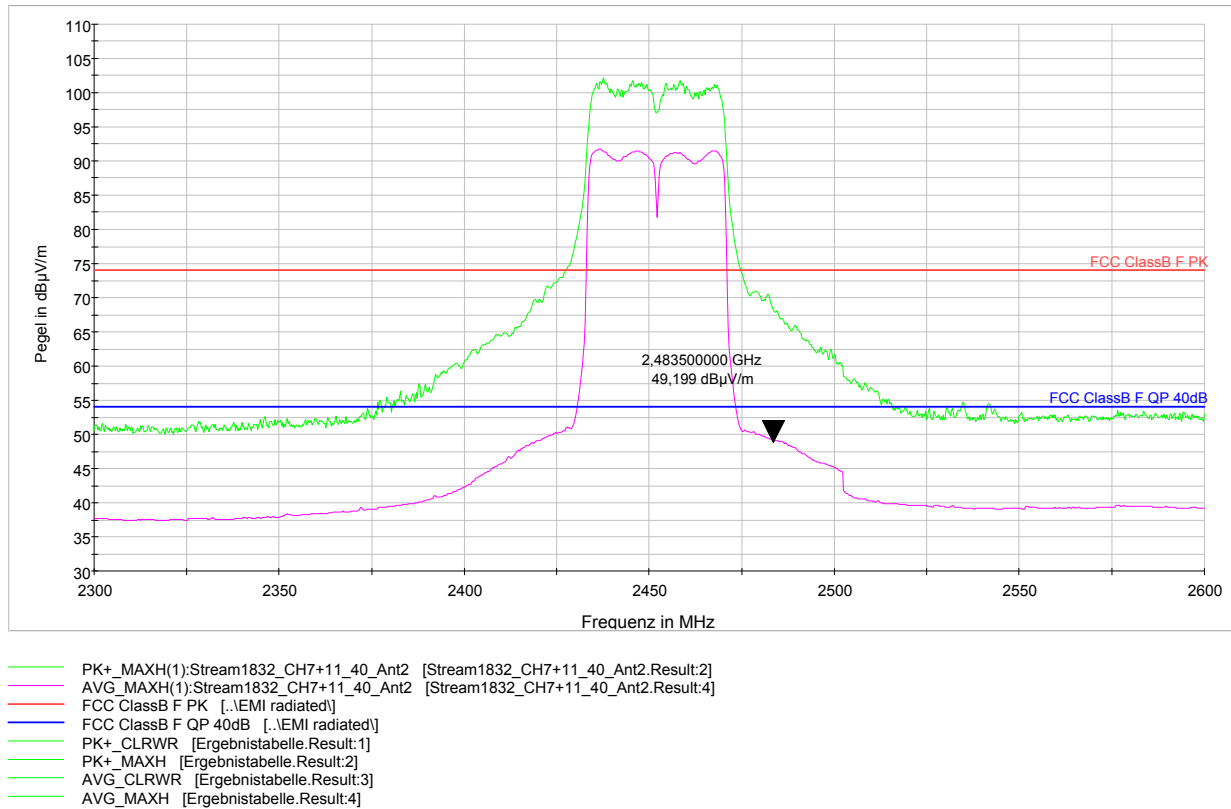
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-111; EMV-112; EMV-114; EMV-200; EMV-205; NT-122; NT-126; NT-416

## Emissions in restricted bands Emissions falling within restricted frequency bands

## § 15.209(a) RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 7 + 11: 2452 MHz – Antenna 2



## LIMIT

## SUBCLAUSE 15.209(a) – RSS-Gen

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100**                             | 3                             |
| 88-216          | 150**                             | 3                             |
| 216-960         | 200**                             | 3                             |
| Above 960       | 500                               | 3                             |

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

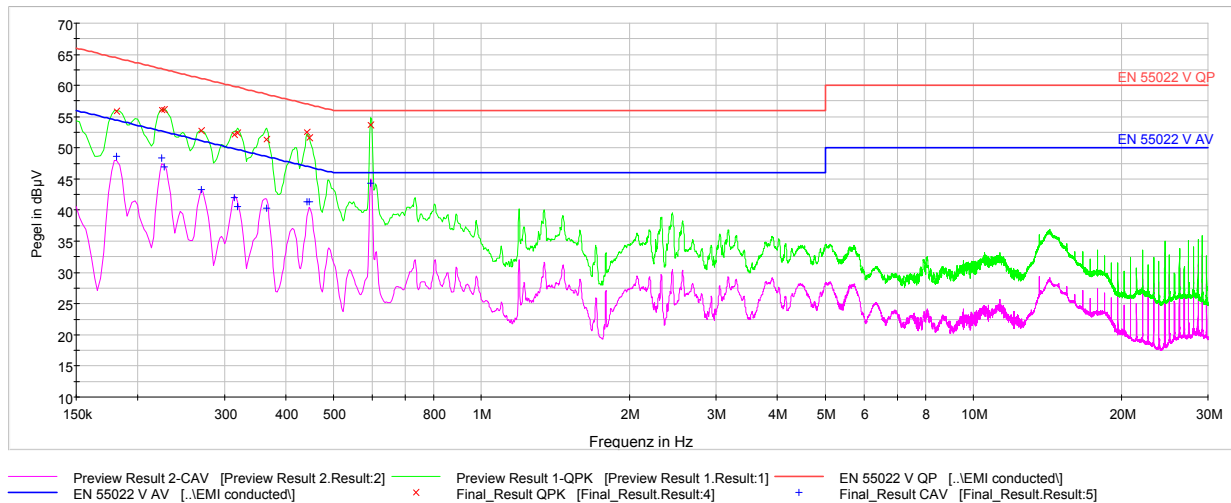
Test Equipment used: EMV-100; EMV-101; EMV-102; EMV-103; EMV-105; EMV-110; EMV-200

#### 4.8. Conducted Limits

#### § 15.207 RSS-Gen 8.8

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1: 2412 MHz – DSSS



#### LIMIT

#### SUBCLAUSE 15.207(a) – RSS-Gen 8.8

| 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.

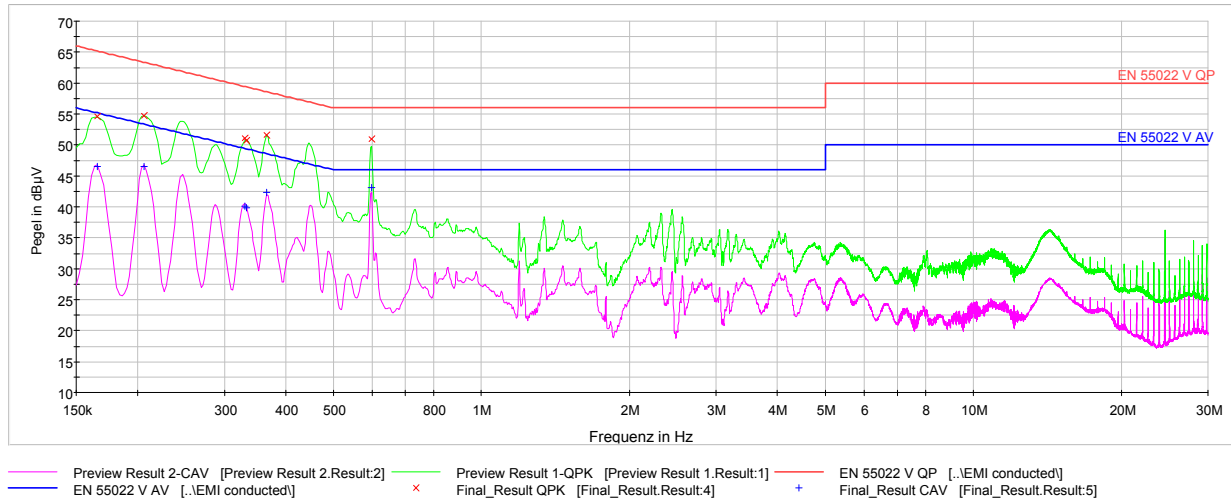
Test Equipment used: EMV-105; EMV-151; EMV-200; EMV-405

## Conducted Limits

## § 15.207 RSS-Gen 8.8

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1: 2412 MHz – OFDM



## LIMIT

## SUBCLAUSE 15.207(a) – RSS-Gen 8.8

| 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.

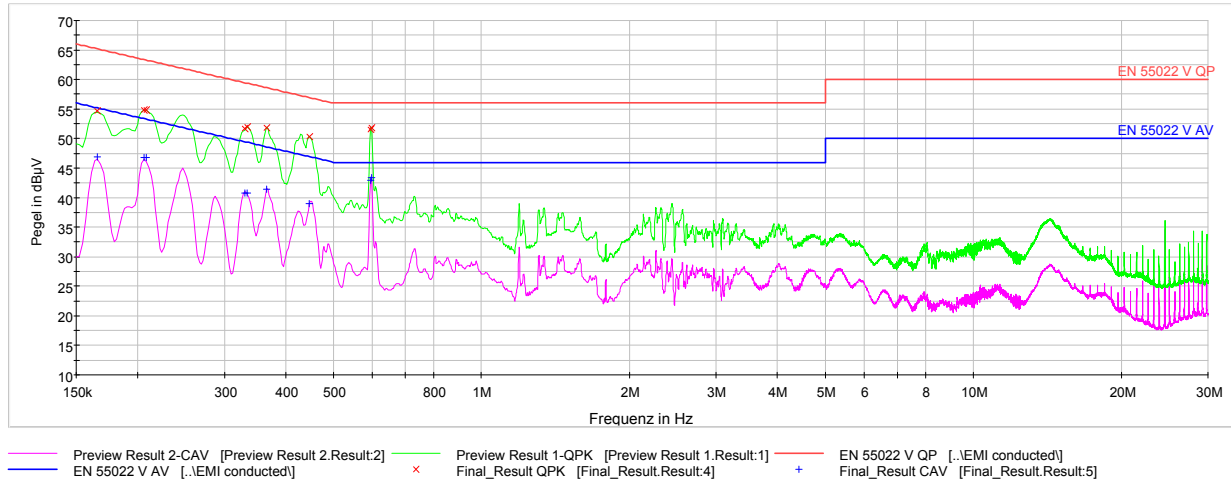
Test Equipment used: EMV-105; EMV-151; EMV-200; EMV-405

## Conducted Limits

## § 15.207 RSS-Gen 8.8

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 1 + 5: 2422 MHz – OFDM



## LIMIT

## SUBCLAUSE 15.207(a) – RSS-Gen 8.8

| 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.

Test Equipment used: EMV-105; EMV-151; EMV-200; EMV-405

#### **4.9. Maximum permissible Exposure**

#### **§ 15.247(i)**

This kind of radio equipment is categorically excluded from routine environmental evaluation.

# Appendix 1

## Test equipment used

|                          |                                                     |                    |                          |                                                        |           |
|--------------------------|-----------------------------------------------------|--------------------|--------------------------|--------------------------------------------------------|-----------|
| <input type="checkbox"/> | Anechoic Chamber with 3m measurement distance       | NT-100             | <input type="checkbox"/> | Spectrum analyzer – FSP7<br>9 kHz – 7 GHz              | NT-200    |
| <input type="checkbox"/> | Stripline according to ISO 11452-5                  | NT-108             | <input type="checkbox"/> | ESCI - Test receiver<br>9 kHz – 7 GHz                  | NT-203/1  |
| <input type="checkbox"/> | MA4000 - Antenna mast<br>1 - 4 m height             | NT-110/1           | <input type="checkbox"/> | ESI26 – Test receiver<br>20 Hz – 26,5 GHz              | NT-207    |
| <input type="checkbox"/> | DS - Turntable<br>0 - 400 ° Azimuth                 | NT-111/1           | <input type="checkbox"/> | Digital Radio Tester<br>CTS55                          | NT-208    |
| <input type="checkbox"/> | CO3000 Controller<br>Mast+Turntable                 | NT-112/1           | <input type="checkbox"/> | Noise-gen., ITU-R 559-2<br>20 Hz – 20 kHz              | NT-209    |
| <input type="checkbox"/> | HUF-Z3 - Log. Per. Antenna<br>200 - 1000 MHz        | NT-121             | <input type="checkbox"/> | CMTA - Radiocommunication<br>analyzer ; 0,1 - 1000 MHz | NT-210    |
| <input type="checkbox"/> | FMZB1513 - Loop Antenna<br>9 kHz - 30 MHz           | NT-122/1           | <input type="checkbox"/> | 3271 - Spectrum analyzer<br>100 Hz - 26,5 GHz          | NT-211    |
| <input type="checkbox"/> | HFH-Z6 - Rod Antenna<br>9 kHz - 30 MHz              | NT-123             | <input type="checkbox"/> | Digital Radio Tester<br>Aeroflex 3920                  | NT-212/1  |
| <input type="checkbox"/> | 3121C - Dipole Antenna<br>28 - 1000 MHz             | NT-124             | <input type="checkbox"/> | Mixer M28HW<br>26,5 GHz - 40 GHz                       | NT-214    |
| <input type="checkbox"/> | 3115 - Horn Antenna<br>1 - 18 GHz (immunity)        | NT-125             | <input type="checkbox"/> | RubiSource T&M<br>Timing reference                     | NT-216    |
| <input type="checkbox"/> | 3116 - Horn Antenna<br>18 - 40 GHz                  | NT-126             | <input type="checkbox"/> | Radiocommunication analyzer<br>SWR 1180 MD             | NT-217    |
| <input type="checkbox"/> | SAS-200/543 - Bicon. Antenna<br>20 MHz - 300 MHz    | NT-127             | <input type="checkbox"/> | Mixer M19HWD<br>40 GHz – 60 GHz                        | NT-218    |
| <input type="checkbox"/> | AT-1080 - Log. Per. Antenna<br>80 - 1000 MHz        | NT-128             | <input type="checkbox"/> | Mixer M12HWD<br>60 GHz – 90 GHz                        | NT-219    |
| <input type="checkbox"/> | HK-116 - bicon. Antenna<br>20 MHz - 300 MHz         | NT-129             | <input type="checkbox"/> | DSO9104<br>Digital scope                               | NT-220/1  |
| <input type="checkbox"/> | HK-116 - bicon. Antenna<br>20 MHz - 300 MHz         | NT-130             | <input type="checkbox"/> | TPS 2014<br>Digital scope                              | NT-222    |
| <input type="checkbox"/> | 3146 - Log. Per. Antenna<br>200 – 1000 MHz          | NT-131             | <input type="checkbox"/> | Artificial Ear<br>according to IEC 60318               | NT-224    |
| <input type="checkbox"/> | VULB 9163 Trilog Antenna<br>30 – 3000 MHz           | NT-131/1           | <input type="checkbox"/> | 1 kHz Sound calibrator                                 | NT-225    |
| <input type="checkbox"/> | Loop Antenna<br>H-Field                             | NT-132             | <input type="checkbox"/> | B10 - Harmonics and<br>flicker analyzer                | NT-232    |
| <input type="checkbox"/> | Horn Antenna<br>500 MHz - 2900 MHz                  | NT-133             | <input type="checkbox"/> | SRM-3006<br>Spectrum analyzer                          | NT-233/1a |
| <input type="checkbox"/> | Horn Antenna<br>500 MHz - 6000 MHz                  | NT-133/1           | <input type="checkbox"/> | E-field probe SRM<br>75 MHz – 3 GHz                    | NT-234    |
| <input type="checkbox"/> | Log. per. Antenna<br>800 MHz - 2500 MHz             | NT-134             | <input type="checkbox"/> | Field Meter NBM-500<br>incl. E- and H-Field probes     | NT-240a-e |
| <input type="checkbox"/> | Log. per. Antenna<br>800 MHz - 2500 MHz             | NT-135             | <input type="checkbox"/> | Hall-Teslameter<br>ETM-1                               | NT-241    |
| <input type="checkbox"/> | BiConiLog Antenna<br>26 MHz – 2000 MHz              | NT-137             | <input type="checkbox"/> | EFA-3<br>H-field- / E-field probe                      | NT-243    |
| <input type="checkbox"/> | Conical Dipol Antenna<br>PCD8250                    | NT-138             | <input type="checkbox"/> | EHP-50F<br>H-field- / E-field probe                    | NT-243/1  |
| <input type="checkbox"/> | HF 906 - Horn Antenna<br>1 - 18 GHz (emission)      | NT-139             | <input type="checkbox"/> | Field Meter EMR-200<br>100 kHz – 3 GHz                 | NT-244    |
| <input type="checkbox"/> | HZ-1<br>Antenna tripod                              | NT-150             | <input type="checkbox"/> | E-field probe<br>100 kHz – 3 GHz                       | NT-245    |
| <input type="checkbox"/> | BN 1500<br>Antenna tripod                           | NT-151             | <input type="checkbox"/> | H-field probe<br>300 kHz – 30 MHz                      | NT-246    |
| <input type="checkbox"/> | Ant. tripod for EN61000-4-3<br>Model TP1000A        | NT-156             |                          |                                                        |           |
| <input type="checkbox"/> | Power quality analyzer<br>Fluke 1760 (complete set) | NT-160 -<br>NT-173 |                          |                                                        |           |

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## Test equipment used

|                          |                                                       |             |                          |                                                    |          |
|--------------------------|-------------------------------------------------------|-------------|--------------------------|----------------------------------------------------|----------|
| <input type="checkbox"/> | E-field probe<br>3 MHz – 18 GHz                       | NT-247      | <input type="checkbox"/> | 500W1000M7 - RF-Amplifier<br>80 - 1000 MHz / 500 W | NT-332   |
| <input type="checkbox"/> | H-field probe<br>27 MHz – 1 GHz                       | NT-248      | <input type="checkbox"/> | AS0102-65R - RF-Amplifier<br>1 GHz - 2 GHz         | NT-333   |
| <input type="checkbox"/> | ELT-400<br>1 Hz – 400 kHz                             | NT-249      | <input type="checkbox"/> | APA01 – RF-Amplifier<br>0,5 GHz – 2,5 GHz          | NT-334   |
| <input type="checkbox"/> | MDS 21 - Absorbing clamp<br>30 - 1000 MHz             | NT-250      | <input type="checkbox"/> | Preamplifier<br>1 GHz - 4 GHz                      | NT-335   |
| <input type="checkbox"/> | FCC-203I<br>EM Injection clamp                        | NT-251      | <input type="checkbox"/> | Preamplifier for GPS<br>MKU 152 A                  | NT-336   |
| <input type="checkbox"/> | FCC-203I-DCN<br>Ferrite decoupling network            | NT-252      | <input type="checkbox"/> | Preamplifier<br>100 MHz – 23 GHz                   | NT-337   |
| <input type="checkbox"/> | PR50<br>Current Probe                                 | NT-253      | <input type="checkbox"/> | DC Block 10 MHz – 18 GHz<br>Model 8048             | NT-338   |
| <input type="checkbox"/> | i310s<br>Current Probe                                | NT-254/1    | <input type="checkbox"/> | 2-97201<br>Electronic load                         | NT-341   |
| <input type="checkbox"/> | Fluke 87 V<br>True RMS Multimeter                     | NT-260      | <input type="checkbox"/> | TSX3510P - Power supply<br>0-30 V / 0 - 10 A       | NT-344   |
| <input type="checkbox"/> | Model 2000<br>Digital Multimeter                      | NT-261      | <input type="checkbox"/> | TSX3510P - Power supply<br>0-30 V / 0 - 10 A       | NT-345   |
| <input type="checkbox"/> | Fluke 87 V<br>Digital Multimeter                      | NT-262/1    | <input type="checkbox"/> | VDS 200<br>Mobil-impuls-generator                  | NT-350   |
| <input type="checkbox"/> | ESH2-Z5-U1 Artificial mains<br>network 4x25A          | NT-300      | <input type="checkbox"/> | LD 200<br>Mobil-impuls-generator                   | NT-351   |
| <input type="checkbox"/> | ESH3-Z5-U1 Artificial mains<br>network 2x10A          | NT-301      | <input type="checkbox"/> | MPG 200<br>Mobil-Impuls-Generators                 | NT-352   |
| <input type="checkbox"/> | ESH3-Z6-U1 Artificial mains<br>network 1x100A         | NT-302      | <input type="checkbox"/> | EFT 200<br>Mobil-impuls-generator                  | NT-353   |
| <input type="checkbox"/> | ESH3-Z6-U1 Artificial mains<br>network 1x100A         | NT-302a     | <input type="checkbox"/> | AN 200 S1<br>Artificial Network                    | NT-354   |
| <input type="checkbox"/> | PHE 4500/B<br>Power amplifier                         | NT-304      | <input type="checkbox"/> | FP-EFT 32M<br>3 ph. Coupling filter (Burst)        | NT-400/1 |
| <input type="checkbox"/> | EZ10<br>T-Artificial Network                          | NT-305      | <input type="checkbox"/> | PHE 4500 - Mains impedance<br>network              | NT-401   |
| <input type="checkbox"/> | SMG - Signal generator<br>0,1 - 1000 MHz              | NT-310      | <input type="checkbox"/> | IP 6.2 Coupling filter for<br>data lines (Surge)   | NT-403   |
| <input type="checkbox"/> | SMA100A - Signal generator<br>9 kHz - 6 GHz           | NT-310/1    | <input type="checkbox"/> | TK 9421 High Power Volt. Probe<br>150 kHz - 30 MHz | NT-409   |
| <input type="checkbox"/> | RefRad<br>Reference generator                         | NT-312      | <input type="checkbox"/> | ESH2-Z3 - Probe<br>9 kHz - 30 MHz                  | NT-410   |
| <input type="checkbox"/> | SMP 02 Signal generator<br>10 MHz - 20 GHz            | NT-313      | <input type="checkbox"/> | IP 4 - Capacitive clamp<br>(Burst)                 | NT-411   |
| <input type="checkbox"/> | 40 MHz Arbitrary Generator<br>TGA1241                 | NT-315      | <input type="checkbox"/> | Highpass-Filter<br>100 MHz – 3 GHz                 | NT-412   |
| <input type="checkbox"/> | Artificial mains network<br>NSLK 8127-PLC             | NT-316      | <input type="checkbox"/> | Highpass-Filter<br>600 MHz – 4 GHz                 | NT-413   |
| <input type="checkbox"/> | ESD 30 System<br>up to 25 kV                          | NT-321      | <input type="checkbox"/> | Highpass-Filter<br>1250 MHz – 4 GHz                | NT-414   |
| <input type="checkbox"/> | PSURGE 4.1<br>Surge generator                         | NT-324      | <input type="checkbox"/> | Highpass-Filter<br>1800 MHz – 16 GHz               | NT-415   |
| <input type="checkbox"/> | IMU4000<br>Immunity test system                       | NT-325/1    |                          |                                                    |          |
| <input type="checkbox"/> | VCS 500-M6<br>Surge-Generator                         | NT-326      |                          |                                                    |          |
| <input type="checkbox"/> | Oscillatory Wave Simulator incl.<br>Coupling networks | NT-328a+b+c |                          |                                                    |          |
| <input type="checkbox"/> | BTA-250 - RF-Amplifier<br>9 kHz - 220 MHz / 250 W     | NT-330      |                          |                                                    |          |
| <input type="checkbox"/> | T82-50 RF-Amplifier<br>2 GHz – 8 GHz                  | NT-331      |                          |                                                    |          |

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| <input type="checkbox"/> | Highpass-Filter<br>3500 MHz – 18 GHz           | NT-416 | <input type="checkbox"/> | FCC-801-AF10<br>Coupling decoupling network           | NT-461             |
| <input type="checkbox"/> | RF-Attenuator 10 dB<br>DC – 18 GHz / 50 W      | NT-417 | <input type="checkbox"/> | FCC-801-S25<br>Coupling decoupling network            | NT-462             |
| <input type="checkbox"/> | RF-Attenuator 6 dB<br>DC – 18 GHz / 50 W       | NT-418 | <input type="checkbox"/> | FCC-801-T4<br>Coupling decoupling network             | NT-463             |
| <input type="checkbox"/> | RF-Attenuator 3 dB<br>DC – 18 GHz / 50 W       | NT-419 | <input type="checkbox"/> | FCC-801-C1<br>Coupling decoupling network             | NT-464             |
| <input type="checkbox"/> | RF-Attenuator 20 dB<br>DC - 1000 MHz / 25 W    | NT-421 | <input type="checkbox"/> | SW 9605 - Current probe<br>150 kHz – 30 MHz           | NT-465/1           |
| <input type="checkbox"/> | RF-Attenuator 30 dB<br>DC - 1000 MHz / 1 W     | NT-423 | <input type="checkbox"/> | 95242-1 – Current probe<br>1 MHz – 400 MHz            | NT-468             |
| <input type="checkbox"/> | RF-Attenuator<br>30 dB                         | NT-424 | <input type="checkbox"/> | 94106-1L-1 – Current probe<br>100 kHz – 450 MHz       | NT-471             |
| <input type="checkbox"/> | RF-Attenuator 6 dB<br>DC - 1000 MHz / 1 W      | NT-425 | <input type="checkbox"/> | GA 1240 Power amplifier<br>according to EN 61000-4-16 | NT-480             |
| <input type="checkbox"/> | RF-Attenuator 6 dB<br>DC - 1000 MHz / 1 W      | NT-426 | <input type="checkbox"/> | Coupling networks<br>according to EN 61000-4-16       | NT-481 -<br>NT-483 |
| <input type="checkbox"/> | RF-Attenuator<br>6 dB                          | NT-428 | <input type="checkbox"/> | Van der Hoofden Test Head                             | NT-484             |
| <input type="checkbox"/> | RF-Attenuator<br>0 dB - 81 dB                  | NT-429 | <input type="checkbox"/> | EMC Video/Audiosystem                                 | NT-511/1           |
| <input type="checkbox"/> | WRU 27 - Band blocking<br>27 MHz               | NT-430 | <input type="checkbox"/> | ES-K1 Version 1.71 SP2<br>Test software               | NT-520             |
| <input type="checkbox"/> | WHJ450C9 AA - High pass<br>450 MHz             | NT-431 | <input type="checkbox"/> | EMC32 Version 10.40.00<br>Test software               | NT-520/1           |
| <input type="checkbox"/> | WHJ250C9 AA - High pass<br>250 MHz             | NT-432 | <input type="checkbox"/> | SRM-TS Version 1.3<br>software for SRM-3000           | NT-522             |
| <input type="checkbox"/> | RF-Load<br>150 W                               | NT-433 | <input type="checkbox"/> | SRM-TS Version 1.3.1<br>software for SRM-3006         | NT-522/1           |
| <input type="checkbox"/> | Impedance transducer<br>1:4 ; 1:9 ; 1:16       | NT-435 | <input type="checkbox"/> | Spitzenberger und Spies<br>Test software V4.1         | NT-525             |
| <input type="checkbox"/> | RF-Attenuator DC – 18 GHz<br>6 dB              | NT-436 | <input type="checkbox"/> | Noise power test apparatus<br>according to EN 55014   | NT-530             |
| <input type="checkbox"/> | RF-Attenuator DC – 18 GHz<br>6 dB              | NT-437 | <input type="checkbox"/> | Vertical coupling plane<br>(ESD)                      | NT-531             |
| <input type="checkbox"/> | RF-Attenuator DC – 18 GHz<br>10 dB             | NT-438 | <input type="checkbox"/> | Test cable #4<br>for EN 61000-4-6                     | NT-553             |
| <input type="checkbox"/> | RF-Attenuator DC – 18 GHz<br>20 dB             | NT-439 | <input type="checkbox"/> | Test cable #3<br>for conducted emission               | NT-554             |
| <input type="checkbox"/> | I+P 7780 Directional coupler<br>100 - 2000 MHz | NT-440 | <input type="checkbox"/> | Test cable #5+#6<br>ESD-cable (2x470k)                | NT-555 +<br>NT-556 |
| <input type="checkbox"/> | ESH3-Z2 - Pulse limiter<br>9 kHz - 30 MHz      | NT-441 | <input type="checkbox"/> | Test cable #8<br>Sucoflex 104EA                       | NT-559             |
| <input type="checkbox"/> | Power Divider<br>6 dB/1 W/50 Ohm               | NT-443 | <input type="checkbox"/> | Test cable #9<br>(for outdoor measurements)           | NT-580             |
| <input type="checkbox"/> | Directional coupler<br>0,1 MHz – 70 MHz        | NT-444 | <input type="checkbox"/> | Test cable #10<br>(for outdoor measurements)          | NT-581             |
| <input type="checkbox"/> | Directional coupler<br>0,1 MHz – 70 MHz        | NT-445 | <input type="checkbox"/> | Test cable #13<br>Sucoflex 104PE                      | NT-584             |
| <input type="checkbox"/> | Tube imitations<br>according to EN 55015       | NT-450 | <input type="checkbox"/> | Test cable #21<br>for SRM-3000                        | NT-592             |
| <input type="checkbox"/> | FCC-801-M3-16A<br>Coupling decoupling network  | NT-458 | <input type="checkbox"/> | Shield chamber                                        | NT-600             |
| <input type="checkbox"/> | FCC-801-M2-50A<br>Coupling decoupling network  | NT-459 | <input type="checkbox"/> | Climatic chamber                                      | M-1200             |
| <input type="checkbox"/> | FCC-801-M5-25<br>Coupling decoupling network   | NT-460 |                          |                                                       |                    |

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|                          |                                                     |             |
|--------------------------|-----------------------------------------------------|-------------|
| <input type="checkbox"/> | Anechoic Chamber<br>3 m / 5 m measuring distance    | EMV-100     |
| <input type="checkbox"/> | Turntabel<br>6 m diameter                           | EMV-101     |
| <input type="checkbox"/> | Antenna mast<br>1 – 4 m                             | EMV-102     |
| <input type="checkbox"/> | Mast and Turntable controller<br>FC-06              | EMV-103     |
| <input type="checkbox"/> | EMC Video/Audiosystem                               | EMV-104     |
| <input type="checkbox"/> | EMC Software<br>EMC32 Version 10.40.00              | EMV-105     |
| <input type="checkbox"/> | Hornantenna 1 – 18 GHz<br>HF 907                    | EMV-110     |
| <input type="checkbox"/> | Antennapre.amp. 1 – 18 GHz<br>ERZ-LNA0200-1800-30-2 | EMV-111     |
| <input type="checkbox"/> | Trilog Antenna 30-3000 MHz<br>VULB9163              | EMV-112     |
| <input type="checkbox"/> | Monopol 9 kHz – 30 MHz<br>VAMP 9243                 | EMV-113     |
| <input type="checkbox"/> | Antennapre.amp 18 – 40 GHz<br>BBV 9721              | EMV-114     |
| <input type="checkbox"/> | Hornantenna 200 – 2000 MHz<br>AH-220                | EMV-115     |
| <input type="checkbox"/> | DC Artificial Network<br>PVDC 8300                  | EMV-150     |
| <input type="checkbox"/> | AC Artificial Network<br>NNLK 8121 RC               | EMV-151     |
| <input type="checkbox"/> | EMI Receiver<br>ESR26                               | EMV-200     |
| <input type="checkbox"/> | Signalgenerator 9 kHz – 40 GHz<br>N5173B            | EMV-201     |
| <input type="checkbox"/> | GPS Frequency normal<br>B-88                        | EMV-202     |
| <input type="checkbox"/> | DC Power supply<br>N5745A                           | EMV-203     |
| <input type="checkbox"/> | Spektrum Analyzator<br>FSV40                        | EMV-205     |
| <input type="checkbox"/> | Thd Multimeter<br>Model 2015                        | EMV-206     |
| <input type="checkbox"/> | Poweramplifier<br>PAS15000                          | EMV-207/abc |
| <input type="checkbox"/> | Inrush Current Source                               | EMV-208/abc |
| <input type="checkbox"/> | Arb.-generator<br>Sycore                            | EMV-209     |
| <input type="checkbox"/> | Harmonics/Flicker analyzer<br>ARS 16/3              | EMV-210     |
| <input type="checkbox"/> | HF- Amplifier 9 kHz-250 MHz<br>BBA150               | EMV-300     |
| <input type="checkbox"/> | HF- Amplifier 80 -1000 MHz<br>BBA150                | EMV-301     |
| <input type="checkbox"/> | HF- Amplifier 0,8 - 6 GHz<br>BBA150                 | EMV-302     |
| <input type="checkbox"/> | High Power Ant. 20-200 MHz<br>VHBD 9134             | EMV-303     |
| <input type="checkbox"/> | Log.per Antenna 80-2700 MHz<br>STLP 9128 E special  | EMV-304     |

|                          |                                                   |             |
|--------------------------|---------------------------------------------------|-------------|
| <input type="checkbox"/> | Log.per Antenna 0,7 – 9 GHz<br>STLP9149           | EMV-305     |
| <input type="checkbox"/> | HF- Amplifier 9 kHz-250 MHz<br>BBA150 (low noise) | EMV-306     |
| <input type="checkbox"/> | Load Dump Generator<br>LD 200N                    | EMV-350     |
| <input type="checkbox"/> | Ultra Compact Symulator<br>UCS 200N100            | EMV-351     |
| <input type="checkbox"/> | Automotive Power fail module<br>PFM 200N100.1     | EMV-352     |
| <input type="checkbox"/> | Voltage Drop Symulator<br>VDS 200Q100             | EMV-353     |
| <input type="checkbox"/> | Arb. Generator<br>AutoWave                        | EMV-354     |
| <input type="checkbox"/> | Ultra Compact Symulator<br>UCS 500N7              | EMV-355     |
| <input type="checkbox"/> | Coupling decoupling network<br>CNI 503B7 / 32 A   | EMV-356     |
| <input type="checkbox"/> | Coupling decoupling network<br>CNI 503B7 / 63 A   | EMV-357     |
| <input type="checkbox"/> | Telecom Surge Generator<br>TSurge 7               | EMV-358     |
| <input type="checkbox"/> | Coupling decoupling network<br>CNI 508N2          | EMV-359     |
| <input type="checkbox"/> | Coupling decoupling network<br>CNV 504N2.2        | EMV-360     |
| <input type="checkbox"/> | Immunity generator<br>NSG4060/NSG4060-1           | EMV-361     |
| <input type="checkbox"/> | Coupling network<br>CDND M316-2                   | EMV-362     |
| <input type="checkbox"/> | Coupling network<br>CT419-5                       | EMV-363     |
| <input type="checkbox"/> | ESD Generator<br>NSG 437                          | EMV-364     |
| <input type="checkbox"/> | Pulse Limiter<br>VTSD 9561-F BNC                  | EMV-405     |
| <input type="checkbox"/> | Transient emission<br>BSM200N40+BS200N100         | EMV-450+451 |
| <input type="checkbox"/> | Cap. Coupling Clamp<br>HFK                        | EMV-455     |
| <input type="checkbox"/> | Mag. Field System<br>MS100N+MC26100+MC2630        | EMV-456-458 |
| <input type="checkbox"/> | Coupling network<br>CDN M2-100A                   | EMV-459     |
| <input type="checkbox"/> | Coupling network<br>CDN M3-32A                    | EMV-460     |
| <input type="checkbox"/> | Coupling network<br>CDN M5-100A                   | EMV-461     |
| <input type="checkbox"/> | Current Clamp<br>CIP 9136A                        | EMV-462     |
| <input type="checkbox"/> | DC Artificial Network<br>HV-AN 150                | EMV-464+465 |
| <input type="checkbox"/> | Coupling Clamp<br>EM 101                          | EMV-466     |
| <input type="checkbox"/> | Decoupling Clamp<br>FTC 101                       | EMV-467     |
| <input type="checkbox"/> | Power attenuator<br>10 dB / 250 Watt              | EMV-469/2   |

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