

# FCC Measurement/Technical Report on

## Daimler RSE

### FCC ID: WUQ-DAIRSE

**Test Report Reference:** MDE\_PANAS\_1704\_FCC03

**Test Laboratory:**

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D-PL-12140-01-00

**Note:**

The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

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## 1 APPLIED STANDARDS AND TEST SUMMARY

### 1.1 APPLIED STANDARDS

#### **Type of Authorization**

Certification for an Intentional Radiator (Digital Device / Spread Spectrum).

#### **Applicable FCC Rules**

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 2 (10-1-18 Edition) and 15 (10-1-18 Edition). The following subparts are applicable to the results in this test report.

Part 2, Subpart J - Equipment Authorization Procedures, Certification

Part 15, Subpart C – Intentional Radiators

§ 15.201 Equipment authorization requirement

§ 15.207 Conducted limits

§ 15.209 Radiated emission limits; general requirements

Part 15, Subpart E – Unlicensed National Information Infrastructure Devices

§ 15.403 Definitions

§ 15.407 General technical requirements

#### **Note:**

The tests were selected and performed with reference to the FCC Public Notice "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E, 789033 D02 General U-NII Test Procedures New Rules v02r01, 2017-12-14".

ANSI C63.10-2013 is applied.

FCC ET Docket No. 13-49, FIRST REPORT AND ORDER, April 1, 2014 ("new rules") is applied.

## Summary Test Results:

The EUT complied with all performed tests as listed in chapter 1.3 Measurement Summary / Signatures.

## 1.2 FCC-IC CORRELATION TABLE

### Correlation of measurement requirements for UNII / LE-LAN (e.g. WLAN 5 GHz) equipment from FCC and IC

#### UNII equipment

| Measurement                                                                              | FCC reference                                    | IC reference                                                                                            |
|------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Conducted emissions on AC Mains                                                          | § 15.207                                         | RSS-Gen Issue 5: 8.8                                                                                    |
| Occupied bandwidth                                                                       | § 15.403 (i) (26 dB)<br>/<br>§ 15.407 (e) (6 dB) | RSS-247 Issue 2: 6.2.1.1,<br>6.2.2.1, 6.2.3.1 (99%)<br>RSS-247 Issue 2: 6.2.4.1 (6 dB)                  |
| Maximum conducted output power                                                           | § 15.407 (a)<br>(1),(2),(3),(4)                  | RSS-247 Issue 2: 6.2.1.1,<br>6.2.2.1, 6.2.3.1, 6.2.4.1                                                  |
| Maximum power spectral density                                                           | § 15.407 (a)<br>(1),(2),(3),(5)                  | RSS-247 Issue 2: 6.2.1.1,<br>6.2.2.1, 6.2.3.1, 6.2.4.1                                                  |
| Transmitter undesirable emissions;<br>General Field Strength Limits,<br>Restricted Bands | § 15.407 (b)<br>§ 15.209 (a)                     | RSS-Gen Issue 5:<br>6.13/8.9/8.10;<br>RSS-247 Issue 2: 3.3/6.2<br>6.2.1.2, 6.2.2.2, 6.2.3.2,<br>6.2.4.2 |
| Frequency stability                                                                      | § 15.407 (g)                                     | RSS-Gen Issue 5: 6.11/8.11                                                                              |
| Transmit Power Control (TPC) and<br>Dynamic Frequency Selection<br>(DFS)                 | § 15.407 (h)                                     | RSS-247 Issue 2: 6.2.2.1,<br>6.2.3.1, 6.3                                                               |
| Antenna requirement                                                                      | § 15.203 / 15.204                                | RSS-Gen Issue 5: 8.3                                                                                    |
| Receiver spurious emissions                                                              | -                                                | -                                                                                                       |

### 1.3 MEASUREMENT SUMMARY / SIGNATURES

#### Android Core 0

#### 47 CFR CHAPTER I FCC PART 15 Subpart E §15.407

#### FCC §15.31, §15.403 (i)

26 dB Bandwidth

The measurement was performed according to ANSI C63.10

#### Final Result

#### OP-Mode

Radio Technology, Operating Frequency, Subband

| OP-Mode                                        | Setup    | FCC       |
|------------------------------------------------|----------|-----------|
| Radio Technology, Operating Frequency, Subband |          |           |
| WLAN a, high, U-NII-1                          | S01_AR04 | Performed |
| WLAN a, high, U-NII-3                          | S01_AR04 | Performed |
| WLAN a, low, U-NII-1                           | S01_AR04 | Performed |
| WLAN a, low, U-NII-3                           | S01_AR04 | Performed |
| WLAN a, mid, U-NII-1                           | S01_AR04 | Performed |
| WLAN a, mid, U-NII-3                           | S01_AR04 | Performed |
| WLAN ac 20 MHz, high, U-NII-1                  | S01_AR04 | Performed |
| WLAN ac 20 MHz, high, U-NII-3                  | S01_AR04 | Performed |
| WLAN ac 20 MHz, low, U-NII-1                   | S01_AR04 | Performed |
| WLAN ac 20 MHz, low, U-NII-3                   | S01_AR04 | Performed |
| WLAN ac 20 MHz, mid, U-NII-1                   | S01_AR04 | Performed |
| WLAN ac 20 MHz, mid, U-NII-3                   | S01_AR04 | Performed |
| WLAN ac 40 MHz, high, U-NII-1                  | S01_AR04 | Performed |
| WLAN ac 40 MHz, high, U-NII-3                  | S01_AR04 | Performed |
| WLAN ac 40 MHz, low, U-NII-1                   | S01_AR04 | Performed |
| WLAN ac 40 MHz, low, U-NII-3                   | S01_AR04 | Performed |
| WLAN ac 80 MHz, mid, U-NII-1                   | S01_AR04 | Performed |
| WLAN ac 80 MHz, mid, U-NII-3                   | S01_AR04 | Performed |
| WLAN n 20 MHz, high, U-NII-1                   | S01_AR04 | Performed |
| WLAN n 20 MHz, high, U-NII-3                   | S01_AR04 | Performed |
| WLAN n 20 MHz, low, U-NII-1                    | S01_AR04 | Performed |
| WLAN n 20 MHz, low, U-NII-3                    | S01_AR04 | Performed |
| WLAN n 20 MHz, mid, U-NII-1                    | S01_AR04 | Performed |
| WLAN n 20 MHz, mid, U-NII-3                    | S01_AR04 | Performed |
| WLAN n 40 MHz, high, U-NII-1                   | S01_AR04 | Performed |
| WLAN n 40 MHz, high, U-NII-3                   | S01_AR04 | Performed |
| WLAN n 40 MHz, low, U-NII-1                    | S01_AR04 | Performed |
| WLAN n 40 MHz, low, U-NII-3                    | S01_AR04 | Performed |

#### 47 CFR CHAPTER I FCC PART 15 Subpart E §15.407

#### FCC §15.31, §15.407 (e)

6 dB Bandwidth

The measurement was performed according to ANSI C63.10

#### Final Result

#### OP-Mode

Radio Technology, Operating Frequency, Subband

| OP-Mode                                        | Setup    | FCC    |
|------------------------------------------------|----------|--------|
| Radio Technology, Operating Frequency, Subband |          |        |
| WLAN a, high, U-NII-3                          | S01_AR04 | Passed |
| WLAN a, low, U-NII-3                           | S01_AR04 | Passed |
| WLAN a, mid, U-NII-3                           | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-3                  | S01_AR04 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (e)**

6 dB Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN ac 20 MHz, low, U-NII-3

**Setup**

S01\_AR04

**FCC**

Passed

WLAN ac 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, low, U-NII-3

S01\_AR04

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, IC RSS 247 Ch. 6.2.x**

99 % Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

**Setup**

S01\_AR04

**FCC**

Performed

WLAN a, high, U-NII-3

S01\_AR04

Performed

WLAN a, low, U-NII-1

S01\_AR04

Performed

WLAN a, low, U-NII-3

S01\_AR04

Performed

WLAN a, mid, U-NII-1

S01\_AR04

Performed

WLAN a, mid, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN ac 40 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN ac 40 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN ac 80 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN n 40 MHz, high, U-NII-1

S01\_AR04

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.31, IC RSS 247 Ch.  
6.2.x**

99 % Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN n 40 MHz, high, U-NII-3

WLAN n 40 MHz, low, U-NII-1

WLAN n 40 MHz, low, U-NII-3

**Setup**

S01\_AR04

S01\_AR04

S01\_AR04

**FCC**

Performed

Performed

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.31, §15.407 (a)(1)**

Maximum Conducted Output Power

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

WLAN a, high, U-NII-3

WLAN a, low, U-NII-1

WLAN a, low, U-NII-3

WLAN a, mid, U-NII-1

WLAN a, mid, U-NII-3

WLAN ac 20 MHz MIMO, high, U-NII-1

WLAN ac 20 MHz MIMO, high, U-NII-3

WLAN ac 20 MHz MIMO, low, U-NII-1

WLAN ac 20 MHz MIMO, low, U-NII-3

WLAN ac 20 MHz MIMO, mid, U-NII-1

WLAN ac 20 MHz MIMO, mid, U-NII-3

WLAN ac 20 MHz, high, U-NII-1

WLAN ac 20 MHz, high, U-NII-3

WLAN ac 20 MHz, low, U-NII-1

WLAN ac 20 MHz, low, U-NII-3

WLAN ac 20 MHz, mid, U-NII-1

WLAN ac 20 MHz, mid, U-NII-3

WLAN ac 40 MHz MIMO, high, U-NII-1

WLAN ac 40 MHz MIMO, high, U-NII-3

WLAN ac 40 MHz MIMO, low, U-NII-1

WLAN ac 40 MHz MIMO, low, U-NII-3

WLAN ac 40 MHz, high, U-NII-1

WLAN ac 40 MHz, high, U-NII-3

WLAN ac 40 MHz, low, U-NII-1

WLAN ac 40 MHz, low, U-NII-3

WLAN ac 80 MHz MIMO, mid, U-NII-1

WLAN ac 80 MHz MIMO, mid, U-NII-3

WLAN ac 80 MHz, mid, U-NII-1

WLAN ac 80 MHz, mid, U-NII-3

WLAN n 20 MHz MIMO, high, U-NII-1

WLAN n 20 MHz MIMO, high, U-NII-3

**Setup**

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

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S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

**FCC**

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)(1)**

Maximum Conducted Output Power

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

| OP-Mode                                        | Setup    | FCC    |
|------------------------------------------------|----------|--------|
| Radio Technology, Operating Frequency, Subband |          |        |
| WLAN n 20 MHz MIMO, low, U-NII-1               | S01_AR04 | Passed |
| WLAN n 20 MHz MIMO, low, U-NII-3               | S01_AR04 | Passed |
| WLAN n 20 MHz MIMO, mid, U-NII-1               | S01_AR04 | Passed |
| WLAN n 20 MHz MIMO, mid, U-NII-3               | S01_AR04 | Passed |
| WLAN n 20 MHz, high, U-NII-1                   | S01_AR04 | Passed |
| WLAN n 20 MHz, high, U-NII-3                   | S01_AR04 | Passed |
| WLAN n 20 MHz, low, U-NII-1                    | S01_AR04 | Passed |
| WLAN n 20 MHz, low, U-NII-3                    | S01_AR04 | Passed |
| WLAN n 20 MHz, mid, U-NII-1                    | S01_AR04 | Passed |
| WLAN n 20 MHz, mid, U-NII-3                    | S01_AR04 | Passed |
| WLAN n 40 MHz MIMO, high, U-NII-1              | S01_AR04 | Passed |
| WLAN n 40 MHz MIMO, high, U-NII-3              | S01_AR04 | Passed |
| WLAN n 40 MHz MIMO, low, U-NII-1               | S01_AR04 | Passed |
| WLAN n 40 MHz MIMO, low, U-NII-3               | S01_AR04 | Passed |
| WLAN n 40 MHz, high, U-NII-1                   | S01_AR04 | Passed |
| WLAN n 40 MHz, high, U-NII-3                   | S01_AR04 | Passed |
| WLAN n 40 MHz, low, U-NII-1                    | S01_AR04 | Passed |
| WLAN n 40 MHz, low, U-NII-3                    | S01_AR04 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)**  
**(1),(5)**

Peak Power Spectral Density

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

| OP-Mode                                        | Setup    | FCC    |
|------------------------------------------------|----------|--------|
| Radio Technology, Operating Frequency, Subband |          |        |
| WLAN a, high, U-NII-1                          | S01_AR04 | Passed |
| WLAN a, high, U-NII-3                          | S01_AR04 | Passed |
| WLAN a, low, U-NII-1                           | S01_AR04 | Passed |
| WLAN a, low, U-NII-3                           | S01_AR04 | Passed |
| WLAN a, mid, U-NII-1                           | S01_AR04 | Passed |
| WLAN a, mid, U-NII-3                           | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, high, U-NII-1             | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, high, U-NII-3             | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, low, U-NII-1              | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, low, U-NII-3              | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, mid, U-NII-1              | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, mid, U-NII-3              | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-1                  | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-3                  | S01_AR04 | Passed |
| WLAN ac 20 MHz, low, U-NII-1                   | S01_AR04 | Passed |
| WLAN ac 20 MHz, low, U-NII-3                   | S01_AR04 | Passed |
| WLAN ac 20 MHz, mid, U-NII-1                   | S01_AR04 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)**  
**(1),(5)**

Peak Power Spectral Density

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

|                                    | <b>Setup</b> | <b>FCC</b> |
|------------------------------------|--------------|------------|
| WLAN ac 20 MHz, mid, U-NII-3       | S01_AR04     | Passed     |
| WLAN ac 40 MHz MIMO, high, U-NII-1 | S01_AR04     | Passed     |
| WLAN ac 40 MHz MIMO, high, U-NII-3 | S01_AR04     | Passed     |
| WLAN ac 40 MHz MIMO, low, U-NII-1  | S01_AR04     | Passed     |
| WLAN ac 40 MHz MIMO, low, U-NII-3  | S01_AR04     | Passed     |
| WLAN ac 40 MHz, high, U-NII-1      | S01_AR04     | Passed     |
| WLAN ac 40 MHz, high, U-NII-3      | S01_AR04     | Passed     |
| WLAN ac 40 MHz, low, U-NII-1       | S01_AR04     | Passed     |
| WLAN ac 40 MHz, low, U-NII-3       | S01_AR04     | Passed     |
| WLAN ac 80 MHz MIMO, mid, U-NII-1  | S01_AR04     | Passed     |
| WLAN ac 80 MHz MIMO, mid, U-NII-3  | S01_AR04     | Passed     |
| WLAN ac 80 MHz, mid, U-NII-1       | S01_AR04     | Passed     |
| WLAN ac 80 MHz, mid, U-NII-3       | S01_AR04     | Passed     |
| WLAN n 20 MHz MIMO, high, U-NII-1  | S01_AR04     | Passed     |
| WLAN n 20 MHz MIMO, high, U-NII-3  | S01_AR04     | Passed     |
| WLAN n 20 MHz MIMO, low, U-NII-1   | S01_AR04     | Passed     |
| WLAN n 20 MHz MIMO, low, U-NII-3   | S01_AR04     | Passed     |
| WLAN n 20 MHz MIMO, mid, U-NII-1   | S01_AR04     | Passed     |
| WLAN n 20 MHz MIMO, mid, U-NII-3   | S01_AR04     | Passed     |
| WLAN n 20 MHz, high, U-NII-1       | S01_AR04     | Passed     |
| WLAN n 20 MHz, high, U-NII-3       | S01_AR04     | Passed     |
| WLAN n 20 MHz, low, U-NII-1        | S01_AR04     | Passed     |
| WLAN n 20 MHz, low, U-NII-3        | S01_AR04     | Passed     |
| WLAN n 20 MHz, mid, U-NII-1        | S01_AR04     | Passed     |
| WLAN n 20 MHz, mid, U-NII-3        | S01_AR04     | Passed     |
| WLAN n 40 MHz MIMO, high, U-NII-1  | S01_AR04     | Passed     |
| WLAN n 40 MHz MIMO, high, U-NII-3  | S01_AR04     | Passed     |
| WLAN n 40 MHz MIMO, low, U-NII-1   | S01_AR04     | Passed     |
| WLAN n 40 MHz MIMO, low, U-NII-3   | S01_AR04     | Passed     |
| WLAN n 40 MHz, high, U-NII-1       | S01_AR04     | Passed     |
| WLAN n 40 MHz, high, U-NII-3       | S01_AR04     | Passed     |
| WLAN n 40 MHz, low, U-NII-1        | S01_AR04     | Passed     |
| WLAN n 40 MHz, low, U-NII-3        | S01_AR04     | Passed     |

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4); FCC §15.205,  
§15.209, §15.407 (b) (5),(6)**

Undesirable Emissions; General Field Strength Limits

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Measurement range, Subband

**Setup**

**FCC**

|                                             |          |        |
|---------------------------------------------|----------|--------|
| WLAN a, high, 1GHz - 26GHz, U-NII-3         | S01_AG01 | Passed |
| WLAN a, low, 1GHz - 26GHz, U-NII-1          | S01_AG01 | Passed |
| WLAN a, low, 1GHz - 26GHz, U-NII-3          | S01_AG01 | Passed |
| WLAN a, low, 9kHz - 30MHz, U-NII-1          | S01_AG01 | Passed |
| WLAN a, mid, 1GHz - 26GHz, U-NII-3          | S01_AG01 | Passed |
| WLAN a, mid, 30MHz - 1GHz, U-NII-1          | S01_AG01 | Passed |
| WLAN ac 40 MHz, high, 1GHz - 26GHz, U-NII-1 | S01_AD01 | Passed |
| WLAN ac 40 MHz, high, 1GHz - 26GHz, U-NII-3 | S01_AD01 | Passed |
| WLAN ac 40 MHz, low, 1GHz - 26GHz, U-NII-1  | S01_AD01 | Passed |
| WLAN ac 40 MHz, low, 1GHz - 26GHz, U-NII-3  | S01_AD01 | Passed |
| WLAN n 20 MHz, high, 1GHz - 26GHz, U-NII-3  | S01_AG01 | Passed |
| WLAN n 20 MHz, low, 1GHz - 26GHz, U-NII-3   | S01_AG01 | Passed |
| WLAN n 20 MHz, mid, 1GHz - 26GHz, U-NII-3   | S01_AG01 | Passed |
| WLAN n 40 MHz, high, 1GHz - 26GHz, U-NII-1  | S01_AD01 | Passed |
| WLAN n 40 MHz, high, 1GHz - 26GHz, U-NII-3  | S01_AD01 | Passed |
| WLAN n 40 MHz, low, 1GHz - 26GHz, U-NII-1   | S01_AD01 | Passed |
| WLAN n 40 MHz, low, 1GHz - 26GHz, U-NII-3   | S01_AD01 | Passed |
| WLAN n 40 MHz, low, 30MHz - 1GHz, U-NII-1   | S01_AG01 | Passed |
| WLAN n 40 MHz, low, 9kHz - 30MHz, U-NII-1   | S01_AG01 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4)**

Band Edge

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

**Setup**

**FCC**

|                                   |          |        |
|-----------------------------------|----------|--------|
| WLAN a, low, U-NII-1              | S01_AG01 | Passed |
| WLAN ac 20 MHz, low, U-NII-1      | S01_AS04 | Passed |
| WLAN ac 20 MHz MIMO, low, U-NII-1 | S01_AS04 | Passed |
| WLAN ac 20 MHz, high, U-NII-3     | S01_AL01 | Passed |
| WLAN ac 40 MHz, high, U-NII-3     | S01_AD01 | Passed |
| WLAN ac 40 MHz, low, U-NII-1      | S01_AL01 | Passed |
| WLAN ac 40 MHz, low, U-NII-3      | S01_AD01 | Passed |
| WLAN ac 80 MHz MIMO, mid, U-NII-1 | S01_AD01 | Passed |
| WLAN ac 80 MHz MIMO, mid, U-NII-3 | S01_AD01 | Passed |
| WLAN ac 80 MHz, mid, U-NII-1      | S01_AD01 | Passed |
| WLAN ac 80 MHz, mid, U-NII-3      | S01_AD01 | Passed |
| WLAN n 20 MHz, low, U-NII-1       | S01_AS04 | Passed |
| WLAN n 20 MHz, high, U-NII-3      | S01_AG01 | Passed |
| WLAN n 20 MHz, low, U-NII-3       | S01_AG01 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4)**

Band Edge

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN n 40 MHz, high, U-NII-3

WLAN n 40 MHz, low, U-NII-1

WLAN n 40 MHz, low, U-NII-3

**Setup**

S01\_AD01

S01\_AD01

S01\_AD01

**FCC**

Passed

Passed

Passed

**Android Core 1**

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.31, §15.403 (i)**

26 dB Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

WLAN a, high, U-NII-3

WLAN a, low, U-NII-1

WLAN a, low, U-NII-3

WLAN a, mid, U-NII-1

WLAN a, mid, U-NII-3

WLAN ac 20 MHz, high, U-NII-1

WLAN ac 20 MHz, high, U-NII-3

WLAN ac 20 MHz, low, U-NII-1

WLAN ac 20 MHz, low, U-NII-3

WLAN ac 20 MHz, mid, U-NII-1

WLAN ac 20 MHz, mid, U-NII-3

WLAN ac 40 MHz, high, U-NII-1

WLAN ac 40 MHz, high, U-NII-3

WLAN ac 40 MHz, low, U-NII-1

WLAN ac 40 MHz, low, U-NII-3

WLAN ac 80 MHz, mid, U-NII-1

WLAN ac 80 MHz, mid, U-NII-3

WLAN n 20 MHz, high, U-NII-1

WLAN n 20 MHz, high, U-NII-3

WLAN n 20 MHz, low, U-NII-1

WLAN n 20 MHz, low, U-NII-3

WLAN n 20 MHz, mid, U-NII-1

WLAN n 20 MHz, mid, U-NII-3

WLAN n 40 MHz, high, U-NII-1

WLAN n 40 MHz, high, U-NII-3

WLAN n 40 MHz, low, U-NII-1

WLAN n 40 MHz, low, U-NII-3

**Setup**

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

**FCC**

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (e)**

6 dB Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-3

**Setup**

S01\_AR04

**FCC**

Passed

WLAN a, low, U-NII-3

S01\_AR04

Passed

WLAN a, mid, U-NII-3

S01\_AR04

Passed

WLAN ac 20 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN ac 20 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN ac 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, low, U-NII-3

S01\_AR04

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, IC RSS 247 Ch.**  
**6.2.x**

99 % Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

**Setup**

S01\_AR04

**FCC**

Performed

WLAN a, high, U-NII-3

S01\_AR04

Performed

WLAN a, low, U-NII-1

S01\_AR04

Performed

WLAN a, low, U-NII-3

S01\_AR04

Performed

WLAN a, mid, U-NII-1

S01\_AR04

Performed

WLAN a, mid, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN ac 40 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN ac 40 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN ac 80 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.31, IC RSS 247 Ch.  
6.2.x**

99 % Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN n 20 MHz, low, U-NII-1

**Setup**

S01\_AR04

**FCC**

Performed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN n 40 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN n 40 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN n 40 MHz, low, U-NII-3

S01\_AR04

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.31, §15.407 (a)(1)**

Maximum Conducted Output Power

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

**Setup**

S01\_AR04

**FCC**

Passed

WLAN a, high, U-NII-3

S01\_AR04

Passed

WLAN a, low, U-NII-1

S01\_AR04

Passed

WLAN a, low, U-NII-3

S01\_AR04

Passed

WLAN a, mid, U-NII-1

S01\_AR04

Passed

WLAN a, mid, U-NII-3

S01\_AR04

Passed

WLAN ac 20 MHz, high, U-NII-1

S01\_AR04

Passed

WLAN ac 20 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN ac 20 MHz, low, U-NII-1

S01\_AR04

Passed

WLAN ac 20 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN ac 20 MHz, mid, U-NII-1

S01\_AR04

Passed

WLAN ac 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, high, U-NII-1

S01\_AR04

Passed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, low, U-NII-1

S01\_AR04

Passed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN ac 80 MHz, mid, U-NII-1

S01\_AR04

Passed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, high, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, low, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, mid, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, high, U-NII-1

S01\_AR04

Passed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, low, U-NII-1

S01\_AR04

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)(1)**

Maximum Conducted Output Power

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN n 40 MHz, low, U-NII-3

**Setup**

S01\_AR04

**FCC**

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)**  
**(1),(5)**

Peak Power Spectral Density

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

WLAN a, high, U-NII-3

WLAN a, low, U-NII-1

WLAN a, low, U-NII-3

WLAN a, mid, U-NII-1

WLAN a, mid, U-NII-3

WLAN ac 20 MHz, high, U-NII-1

WLAN ac 20 MHz, high, U-NII-3

WLAN ac 20 MHz, low, U-NII-1

WLAN ac 20 MHz, low, U-NII-3

WLAN ac 20 MHz, mid, U-NII-1

WLAN ac 20 MHz, mid, U-NII-3

WLAN ac 40 MHz, high, U-NII-1

WLAN ac 40 MHz, high, U-NII-3

WLAN ac 40 MHz, low, U-NII-1

WLAN ac 40 MHz, low, U-NII-3

WLAN ac 80 MHz, mid, U-NII-1

WLAN ac 80 MHz, mid, U-NII-3

WLAN n 20 MHz, high, U-NII-1

WLAN n 20 MHz, high, U-NII-3

WLAN n 20 MHz, low, U-NII-1

WLAN n 20 MHz, low, U-NII-3

WLAN n 20 MHz, mid, U-NII-1

WLAN n 20 MHz, mid, U-NII-3

WLAN n 40 MHz, high, U-NII-1

WLAN n 40 MHz, high, U-NII-3

WLAN n 40 MHz, low, U-NII-1

WLAN n 40 MHz, low, U-NII-3

**Setup**

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

**FCC**

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4); FCC §15.205,  
§15.209, §15.407 (b) (5),(6)**

Undesirable Emissions; General Field Strength Limits

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Measurement range,  
Subband

**Setup**

**FCC**

WLAN a, high, 1GHz - 26GHz, U-NII-3

S01\_AG01

Passed

WLAN a, low, 1GHz - 26GHz, U-NII-3

S01\_AG01

Passed

WLAN a, mid, 1GHz - 26GHz, U-NII-3

S01\_AG01

Passed

WLAN a, mid, 26GHz - 40GHz, U-NII-3

S01\_AG01

Passed

WLAN a, mid, 9kHz - 30MHz, U-NII-1

S01\_AD01

Passed

WLAN n 20 MHz, high, 1GHz - 26GHz, U-NII-1

S01\_AD01

Passed

WLAN n 20 MHz, low, 1GHz - 26GHz, U-NII-1

S01\_AG01

Passed

WLAN n 20 MHz, mid, 1GHz - 26GHz, U-NII-1

S01\_AD01

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4)**

Band Edge

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

**Setup**

**FCC**

WLAN a, high, U-NII-3

S01\_AG01

Passed

WLAN a, low, U-NII-3

S01\_AG01

Passed

WLAN ac 20 MHz, low, U-NII-1

S01\_AL01

Passed

WLAN ac 20 MHz, low, U-NII-3

S01\_AL01

Passed

WLAN n 20 MHz, low, U-NII-1

S01\_AG01

Passed

## Linux Core 0

### 47 CFR CHAPTER I FCC PART 15 Subpart E §15.407

### FCC §15.31, §15.403 (i)

26 dB Bandwidth

The measurement was performed according to ANSI C63.10

#### Final Result

#### OP-Mode

Radio Technology, Operating Frequency, Subband

| OP-Mode                       | Setup    | FCC       |
|-------------------------------|----------|-----------|
| WLAN a, high, U-NII-1         | S01_AR04 | Performed |
| WLAN a, high, U-NII-3         | S01_AR04 | Performed |
| WLAN a, low, U-NII-1          | S01_AR04 | Performed |
| WLAN a, low, U-NII-3          | S01_AR04 | Performed |
| WLAN a, mid, U-NII-1          | S01_AR04 | Performed |
| WLAN a, mid, U-NII-3          | S01_AR04 | Performed |
| WLAN ac 20 MHz, high, U-NII-1 | S01_AR04 | Performed |
| WLAN ac 20 MHz, high, U-NII-3 | S01_AR04 | Performed |
| WLAN ac 20 MHz, low, U-NII-1  | S01_AR04 | Performed |
| WLAN ac 20 MHz, low, U-NII-3  | S01_AR04 | Performed |
| WLAN ac 20 MHz, mid, U-NII-1  | S01_AR04 | Performed |
| WLAN ac 20 MHz, mid, U-NII-3  | S01_AR04 | Performed |
| WLAN ac 40 MHz, high, U-NII-1 | S01_AR04 | Performed |
| WLAN ac 40 MHz, high, U-NII-3 | S01_AR04 | Performed |
| WLAN ac 40 MHz, low, U-NII-1  | S01_AR04 | Performed |
| WLAN ac 40 MHz, low, U-NII-3  | S01_AR04 | Performed |
| WLAN ac 80 MHz, mid, U-NII-1  | S01_AR04 | Performed |
| WLAN ac 80 MHz, mid, U-NII-3  | S01_AR04 | Performed |
| WLAN n 20 MHz, high, U-NII-1  | S01_AR04 | Performed |
| WLAN n 20 MHz, high, U-NII-3  | S01_AR04 | Performed |
| WLAN n 20 MHz, low, U-NII-1   | S01_AR04 | Performed |
| WLAN n 20 MHz, low, U-NII-3   | S01_AR04 | Performed |
| WLAN n 20 MHz, mid, U-NII-1   | S01_AR04 | Performed |
| WLAN n 20 MHz, mid, U-NII-3   | S01_AR04 | Performed |
| WLAN n 40 MHz, high, U-NII-1  | S01_AR04 | Performed |
| WLAN n 40 MHz, high, U-NII-3  | S01_AR04 | Performed |
| WLAN n 40 MHz, low, U-NII-1   | S01_AR04 | Performed |
| WLAN n 40 MHz, low, U-NII-3   | S01_AR04 | Performed |

### 47 CFR CHAPTER I FCC PART 15 Subpart E §15.407

### FCC §15.31, §15.407 (e)

6 dB Bandwidth

The measurement was performed according to ANSI C63.10

#### Final Result

#### OP-Mode

Radio Technology, Operating Frequency, Subband

| OP-Mode                       | Setup    | FCC    |
|-------------------------------|----------|--------|
| WLAN a, high, U-NII-3         | S01_AR04 | Passed |
| WLAN a, low, U-NII-3          | S01_AR04 | Passed |
| WLAN a, mid, U-NII-3          | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-3 | S01_AR04 | Passed |
| WLAN ac 20 MHz, low, U-NII-3  | S01_AR04 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (e)**

6 dB Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN ac 20 MHz, mid, U-NII-3

**Setup**

S01\_AR04

**FCC**

Passed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, low, U-NII-3

S01\_AR04

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, IC RSS 247 Ch. 6.2.x**

99 % Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

S01\_AR04

Performed

WLAN a, high, U-NII-3

S01\_AR04

Performed

WLAN a, low, U-NII-1

S01\_AR04

Performed

WLAN a, low, U-NII-3

S01\_AR04

Performed

WLAN a, mid, U-NII-1

S01\_AR04

Performed

WLAN a, mid, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN ac 40 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN ac 40 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN ac 80 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN n 40 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, IC RSS 247 Ch. 6.2.x**

99 % Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN n 40 MHz, low, U-NII-1

WLAN n 40 MHz, low, U-NII-3

**Setup**

S01\_AR04

S01\_AR04

**FCC**

Performed

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)(1)**

Maximum Conducted Output Power

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

WLAN a, high, U-NII-3

WLAN a, low, U-NII-1

WLAN a, low, U-NII-3

WLAN a, mid, U-NII-1

WLAN a, mid, U-NII-3

WLAN ac 20 MHz MIMO, high, U-NII-1

WLAN ac 20 MHz MIMO, high, U-NII-3

WLAN ac 20 MHz MIMO, low, U-NII-1

WLAN ac 20 MHz MIMO, low, U-NII-3

WLAN ac 20 MHz MIMO, mid, U-NII-1

WLAN ac 20 MHz MIMO, mid, U-NII-3

WLAN ac 20 MHz, high, U-NII-1

WLAN ac 20 MHz, high, U-NII-3

WLAN ac 20 MHz, low, U-NII-1

WLAN ac 20 MHz, low, U-NII-3

WLAN ac 20 MHz, mid, U-NII-1

WLAN ac 20 MHz, mid, U-NII-3

WLAN ac 40 MHz MIMO, high, U-NII-1

WLAN ac 40 MHz MIMO, high, U-NII-3

WLAN ac 40 MHz MIMO, low, U-NII-1

WLAN ac 40 MHz MIMO, low, U-NII-3

WLAN ac 40 MHz, high, U-NII-1

WLAN ac 40 MHz, high, U-NII-3

WLAN ac 40 MHz, low, U-NII-1

WLAN ac 40 MHz, low, U-NII-3

WLAN ac 80 MHz MIMO, mid, U-NII-1

WLAN ac 80 MHz MIMO, mid, U-NII-3

WLAN ac 80 MHz, mid, U-NII-1

WLAN ac 80 MHz, mid, U-NII-3

WLAN n 20 MHz MIMO, high, U-NII-1

WLAN n 20 MHz MIMO, high, U-NII-3

WLAN n 20 MHz MIMO, low, U-NII-1

**Setup**

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

**FCC**

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)(1)**

Maximum Conducted Output Power

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

| OP-Mode                                        | Setup    | FCC    |
|------------------------------------------------|----------|--------|
| Radio Technology, Operating Frequency, Subband |          |        |
| WLAN n 20 MHz MIMO, low, U-NII-3               | S01_AR04 | Passed |
| WLAN n 20 MHz MIMO, mid, U-NII-1               | S01_AR04 | Passed |
| WLAN n 20 MHz MIMO, mid, U-NII-3               | S01_AR04 | Passed |
| WLAN n 20 MHz, high, U-NII-1                   | S01_AR04 | Passed |
| WLAN n 20 MHz, high, U-NII-3                   | S01_AR04 | Passed |
| WLAN n 20 MHz, low, U-NII-1                    | S01_AR04 | Passed |
| WLAN n 20 MHz, low, U-NII-3                    | S01_AR04 | Passed |
| WLAN n 20 MHz, mid, U-NII-1                    | S01_AR04 | Passed |
| WLAN n 20 MHz, mid, U-NII-3                    | S01_AR04 | Passed |
| WLAN n 40 MHz MIMO, high, U-NII-1              | S01_AR04 | Passed |
| WLAN n 40 MHz MIMO, high, U-NII-3              | S01_AR04 | Passed |
| WLAN n 40 MHz MIMO, low, U-NII-1               | S01_AR04 | Passed |
| WLAN n 40 MHz MIMO, low, U-NII-3               | S01_AR04 | Passed |
| WLAN n 40 MHz, high, U-NII-1                   | S01_AR04 | Passed |
| WLAN n 40 MHz, high, U-NII-3                   | S01_AR04 | Passed |
| WLAN n 40 MHz, low, U-NII-1                    | S01_AR04 | Passed |
| WLAN n 40 MHz, low, U-NII-3                    | S01_AR04 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)**  
**(1),(5)**

Peak Power Spectral Density

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

| OP-Mode                                        | Setup    | FCC    |
|------------------------------------------------|----------|--------|
| Radio Technology, Operating Frequency, Subband |          |        |
| WLAN a, high, U-NII-1                          | S01_AR04 | Passed |
| WLAN a, high, U-NII-3                          | S01_AR04 | Passed |
| WLAN a, low, U-NII-1                           | S01_AR04 | Passed |
| WLAN a, low, U-NII-3                           | S01_AR04 | Passed |
| WLAN a, mid, U-NII-1                           | S01_AR04 | Passed |
| WLAN a, mid, U-NII-3                           | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, high, U-NII-1             | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, high, U-NII-3             | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, low, U-NII-1              | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, low, U-NII-3              | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, mid, U-NII-1              | S01_AR04 | Passed |
| WLAN ac 20 MHz MIMO, mid, U-NII-3              | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-1                  | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-3                  | S01_AR04 | Passed |
| WLAN ac 20 MHz, low, U-NII-1                   | S01_AR04 | Passed |
| WLAN ac 20 MHz, low, U-NII-3                   | S01_AR04 | Passed |
| WLAN ac 20 MHz, mid, U-NII-1                   | S01_AR04 | Passed |
| WLAN ac 20 MHz, mid, U-NII-3                   | S01_AR04 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (a)**  
**(1),(5)**

Peak Power Spectral Density

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN ac 40 MHz MIMO, high, U-NII-1

**Setup**

**FCC**

S01\_AR04

Passed

WLAN ac 40 MHz MIMO, high, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz MIMO, low, U-NII-1

S01\_AR04

Passed

WLAN ac 40 MHz MIMO, low, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, high, U-NII-1

S01\_AR04

Passed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN ac 40 MHz, low, U-NII-1

S01\_AR04

Passed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN ac 80 MHz MIMO, mid, U-NII-1

S01\_AR04

Passed

WLAN ac 80 MHz MIMO, mid, U-NII-3

S01\_AR04

Passed

WLAN ac 80 MHz, mid, U-NII-1

S01\_AR04

Passed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz MIMO, high, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz MIMO, high, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz MIMO, low, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz MIMO, low, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz MIMO, mid, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz MIMO, mid, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, high, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, low, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, mid, U-NII-1

S01\_AR04

Passed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz MIMO, high, U-NII-1

S01\_AR04

Passed

WLAN n 40 MHz MIMO, high, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz MIMO, low, U-NII-1

S01\_AR04

Passed

WLAN n 40 MHz MIMO, low, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, high, U-NII-1

S01\_AR04

Passed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, low, U-NII-1

S01\_AR04

Passed

WLAN n 40 MHz, low, U-NII-3

S01\_AR04

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.407 (b),**  
**(1),(2),(3),(4); FCC §15.205,**  
**§15.209, §15.407 (b) (5),(6)**

Undesirable Emissions; General Field Strength Limits

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Measurement range,  
Subband

**Setup**

**FCC**

WLAN a, high, 1GHz - 26GHz, U-NII-3

S01\_AG01

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4); FCC §15.205,  
§15.209, §15.407 (b) (5),(6)**

Undesirable Emissions; General Field Strength Limits

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Measurement range,  
Subband

**Setup**

**FCC**

WLAN a, low, 1GHz - 26GHz, U-NII-3

S01\_AG01

Passed

WLAN a, low, 26GHz - 40GHz, U-NII-3

S01\_AL01

Passed

WLAN a, low, 9kHz - 30MHz, U-NII-1

S01\_AG01

Passed

WLAN a, mid, 1GHz - 26GHz, U-NII-3

S01\_AG01

Passed

WLAN n 20 MHz, high, 1GHz - 26GHz, U-NII-1

S01\_AD01

Passed

WLAN n 20 MHz, low, 1GHz - 26GHz, U-NII-1

S01\_AD01

Passed

WLAN n 20 MHz, mid, 1GHz - 26GHz, U-NII-1

S01\_AG01

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4)**

Band Edge

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

**Setup**

**FCC**

WLAN a, high, U-NII-3

S01\_AG01

Passed

WLAN a, low, U-NII-3

S01\_AG01

Passed

WLAN ac 20 MHz, low, U-NII-1

S01\_AL01

Passed

WLAN ac 20 MHz MIMO, low, U-NII-1

S01\_AS04

Passed

WLAN ac 20 MHz, low, U-NII-3

S01\_AL01

Passed

WLAN ac 80 MHz MIMO, mid, U-NII-1

S01\_AD01

Passed

WLAN ac 80 MHz MIMO, mid, U-NII-3

S01\_AD01

Passed

WLAN n 20 MHz, low, U-NII-1

S01\_AD01

Passed

WLAN n 20 MHz MIMO, low, U-NII-1

S01\_AS04

Passed

## Linux Core 1

### 47 CFR CHAPTER I FCC PART 15 Subpart E §15.407

### FCC §15.31, §15.403 (i)

26 dB Bandwidth

The measurement was performed according to ANSI C63.10

#### Final Result

#### OP-Mode

Radio Technology, Operating Frequency, Subband

| OP-Mode                       | Setup    | FCC       |
|-------------------------------|----------|-----------|
| WLAN a, high, U-NII-1         | S01_AR04 | Performed |
| WLAN a, high, U-NII-3         | S01_AR04 | Performed |
| WLAN a, low, U-NII-1          | S01_AR04 | Performed |
| WLAN a, low, U-NII-3          | S01_AR04 | Performed |
| WLAN a, mid, U-NII-1          | S01_AR04 | Performed |
| WLAN a, mid, U-NII-3          | S01_AR04 | Performed |
| WLAN ac 20 MHz, high, U-NII-1 | S01_AR04 | Performed |
| WLAN ac 20 MHz, high, U-NII-3 | S01_AR04 | Performed |
| WLAN ac 20 MHz, low, U-NII-1  | S01_AR04 | Performed |
| WLAN ac 20 MHz, low, U-NII-3  | S01_AR04 | Performed |
| WLAN ac 20 MHz, mid, U-NII-1  | S01_AR04 | Performed |
| WLAN ac 20 MHz, mid, U-NII-3  | S01_AR04 | Performed |
| WLAN ac 40 MHz, high, U-NII-1 | S01_AR04 | Performed |
| WLAN ac 40 MHz, high, U-NII-3 | S01_AR04 | Performed |
| WLAN ac 40 MHz, low, U-NII-1  | S01_AR04 | Performed |
| WLAN ac 40 MHz, low, U-NII-3  | S01_AR04 | Performed |
| WLAN ac 80 MHz, mid, U-NII-1  | S01_AR04 | Performed |
| WLAN ac 80 MHz, mid, U-NII-3  | S01_AR04 | Performed |
| WLAN n 20 MHz, high, U-NII-1  | S01_AR04 | Performed |
| WLAN n 20 MHz, high, U-NII-3  | S01_AR04 | Performed |
| WLAN n 20 MHz, low, U-NII-1   | S01_AR04 | Performed |
| WLAN n 20 MHz, low, U-NII-3   | S01_AR04 | Performed |
| WLAN n 20 MHz, mid, U-NII-1   | S01_AR04 | Performed |
| WLAN n 20 MHz, mid, U-NII-3   | S01_AR04 | Performed |
| WLAN n 40 MHz, high, U-NII-1  | S01_AR04 | Performed |
| WLAN n 40 MHz, high, U-NII-3  | S01_AR04 | Performed |
| WLAN n 40 MHz, low, U-NII-1   | S01_AR04 | Performed |
| WLAN n 40 MHz, low, U-NII-3   | S01_AR04 | Performed |

### 47 CFR CHAPTER I FCC PART 15 Subpart E §15.407

### FCC §15.31, §15.407 (e)

6 dB Bandwidth

The measurement was performed according to ANSI C63.10

#### Final Result

#### OP-Mode

Radio Technology, Operating Frequency, Subband

| OP-Mode                       | Setup    | FCC    |
|-------------------------------|----------|--------|
| WLAN a, high, U-NII-3         | S01_AR04 | Passed |
| WLAN a, low, U-NII-3          | S01_AR04 | Passed |
| WLAN a, mid, U-NII-3          | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-3 | S01_AR04 | Passed |
| WLAN ac 20 MHz, low, U-NII-3  | S01_AR04 | Passed |
| WLAN ac 20 MHz, mid, U-NII-3  | S01_AR04 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, §15.407 (e)**

6 dB Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN ac 40 MHz, high, U-NII-3

**Setup**

**FCC**

S01\_AR04

Passed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Passed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Passed

WLAN n 40 MHz, low, U-NII-3

S01\_AR04

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E**  
**§15.407**

**FCC §15.31, IC RSS 247 Ch.**  
**6.2.x**

99 % Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

**Setup**

**FCC**

S01\_AR04

Performed

WLAN a, high, U-NII-3

S01\_AR04

Performed

WLAN a, low, U-NII-1

S01\_AR04

Performed

WLAN a, low, U-NII-3

S01\_AR04

Performed

WLAN a, mid, U-NII-1

S01\_AR04

Performed

WLAN a, mid, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN ac 20 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN ac 20 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN ac 40 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN ac 40 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN ac 40 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN ac 40 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN ac 80 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN ac 80 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, low, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, low, U-NII-3

S01\_AR04

Performed

WLAN n 20 MHz, mid, U-NII-1

S01\_AR04

Performed

WLAN n 20 MHz, mid, U-NII-3

S01\_AR04

Performed

WLAN n 40 MHz, high, U-NII-1

S01\_AR04

Performed

WLAN n 40 MHz, high, U-NII-3

S01\_AR04

Performed

WLAN n 40 MHz, low, U-NII-1

S01\_AR04

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.31, IC RSS 247 Ch.  
6.2.x**

99 % Bandwidth

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN n 40 MHz, low, U-NII-3

**Setup**

S01\_AR04

**FCC**

Performed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.31, §15.407 (a)(1)**

Maximum Conducted Output Power

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

WLAN a, high, U-NII-1

WLAN a, high, U-NII-3

WLAN a, low, U-NII-1

WLAN a, low, U-NII-3

WLAN a, mid, U-NII-1

WLAN a, mid, U-NII-3

WLAN ac 20 MHz, high, U-NII-1

WLAN ac 20 MHz, high, U-NII-3

WLAN ac 20 MHz, low, U-NII-1

WLAN ac 20 MHz, low, U-NII-3

WLAN ac 20 MHz, mid, U-NII-1

WLAN ac 20 MHz, mid, U-NII-3

WLAN ac 40 MHz, high, U-NII-1

WLAN ac 40 MHz, high, U-NII-3

WLAN ac 40 MHz, low, U-NII-1

WLAN ac 40 MHz, low, U-NII-3

WLAN ac 80 MHz, mid, U-NII-1

WLAN ac 80 MHz, mid, U-NII-3

WLAN n 20 MHz, high, U-NII-1

WLAN n 20 MHz, high, U-NII-3

WLAN n 20 MHz, low, U-NII-1

WLAN n 20 MHz, low, U-NII-3

WLAN n 20 MHz, mid, U-NII-1

WLAN n 20 MHz, mid, U-NII-3

WLAN n 40 MHz, high, U-NII-1

WLAN n 40 MHz, high, U-NII-3

WLAN n 40 MHz, low, U-NII-1

WLAN n 40 MHz, low, U-NII-3

**Setup**

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

S01\_AR04

**FCC**

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

Passed

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.31, §15.407 (a)  
(1),(5)**

Peak Power Spectral Density

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

| OP-Mode                       | Setup    | FCC    |
|-------------------------------|----------|--------|
| WLAN a, high, U-NII-1         | S01_AR04 | Passed |
| WLAN a, high, U-NII-3         | S01_AR04 | Passed |
| WLAN a, low, U-NII-1          | S01_AR04 | Passed |
| WLAN a, low, U-NII-3          | S01_AR04 | Passed |
| WLAN a, mid, U-NII-1          | S01_AR04 | Passed |
| WLAN a, mid, U-NII-3          | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-1 | S01_AR04 | Passed |
| WLAN ac 20 MHz, high, U-NII-3 | S01_AR04 | Passed |
| WLAN ac 20 MHz, low, U-NII-1  | S01_AR04 | Passed |
| WLAN ac 20 MHz, low, U-NII-3  | S01_AR04 | Passed |
| WLAN ac 20 MHz, mid, U-NII-1  | S01_AR04 | Passed |
| WLAN ac 20 MHz, mid, U-NII-3  | S01_AR04 | Passed |
| WLAN ac 40 MHz, high, U-NII-1 | S01_AR04 | Passed |
| WLAN ac 40 MHz, high, U-NII-3 | S01_AR04 | Passed |
| WLAN ac 40 MHz, low, U-NII-1  | S01_AR04 | Passed |
| WLAN ac 40 MHz, low, U-NII-3  | S01_AR04 | Passed |
| WLAN ac 80 MHz, mid, U-NII-1  | S01_AR04 | Passed |
| WLAN ac 80 MHz, mid, U-NII-3  | S01_AR04 | Passed |
| WLAN n 20 MHz, high, U-NII-1  | S01_AR04 | Passed |
| WLAN n 20 MHz, high, U-NII-3  | S01_AR04 | Passed |
| WLAN n 20 MHz, low, U-NII-1   | S01_AR04 | Passed |
| WLAN n 20 MHz, low, U-NII-3   | S01_AR04 | Passed |
| WLAN n 20 MHz, mid, U-NII-1   | S01_AR04 | Passed |
| WLAN n 20 MHz, mid, U-NII-3   | S01_AR04 | Passed |
| WLAN n 40 MHz, high, U-NII-1  | S01_AR04 | Passed |
| WLAN n 40 MHz, high, U-NII-3  | S01_AR04 | Passed |
| WLAN n 40 MHz, low, U-NII-1   | S01_AR04 | Passed |
| WLAN n 40 MHz, low, U-NII-3   | S01_AR04 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4); FCC §15.205,  
§15.209, §15.407 (b) (5),(6)**

Undesirable Emissions; General Field Strength Limits

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Measurement range, Subband

| OP-Mode                             | Setup    | FCC    |
|-------------------------------------|----------|--------|
| WLAN a, high, 1GHz - 26GHz, U-NII-1 | S01_AG01 | Passed |
| WLAN a, low, 1GHz - 26GHz, U-NII-1  | S01_AG01 | Passed |
| WLAN a, mid, 1GHz - 26GHz, U-NII-1  | S01_AG01 | Passed |
| WLAN a, mid, 30MHz - 1GHz, U-NII-3  | S01_AG01 | Passed |
| WLAN a, mid, 9kHz - 30MHz, U-NII-3  | S01_AD01 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4); FCC §15.205,  
§15.209, §15.407 (b) (5),(6)**

Undesirable Emissions; General Field Strength Limits

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Measurement range, Subband

**Setup**

**FCC**

|                                             |          |        |
|---------------------------------------------|----------|--------|
| WLAN ac 40 MHz, high, 1GHz - 26GHz, U-NII-1 | S01_AD01 | Passed |
| WLAN ac 40 MHz, high, 1GHz - 26GHz, U-NII-3 | S01_AD01 | Passed |
| WLAN ac 40 MHz, low, 1GHz - 26GHz, U-NII-1  | S01_AD01 | Passed |
| WLAN ac 40 MHz, low, 1GHz - 26GHz, U-NII-3  | S01_AD01 | Passed |
| WLAN n 20 MHz, high, 1GHz - 26GHz, U-NII-3  | S01_AG01 | Passed |
| WLAN n 20 MHz, low, 1GHz - 26GHz, U-NII-3   | S01_AG01 | Passed |
| WLAN n 20 MHz, mid, 1GHz - 26GHz, U-NII-3   | S01_AG01 | Passed |
| WLAN n 40 MHz, high, 1GHz - 26GHz, U-NII-1  | S01_AD01 | Passed |
| WLAN n 40 MHz, high, 1GHz - 26GHz, U-NII-3  | S01_AD01 | Passed |
| WLAN n 40 MHz, high, 26GHz - 40GHz, U-NII-3 | S01_AL01 | Passed |
| WLAN n 40 MHz, low, 1GHz - 26GHz, U-NII-1   | S01_AD01 | Passed |
| WLAN n 40 MHz, low, 1GHz - 26GHz, U-NII-3   | S01_AD01 | Passed |

**47 CFR CHAPTER I FCC PART 15 Subpart E  
§15.407**

**FCC §15.407 (b),  
(1),(2),(3),(4)**

Band Edge

The measurement was performed according to ANSI C63.10

**Final Result**

**OP-Mode**

Radio Technology, Operating Frequency, Subband

**Setup**

**FCC**

|                               |          |        |
|-------------------------------|----------|--------|
| WLAN a, low, U-NII-1          | S01_AG01 | Passed |
| WLAN ac 20 MHz, low, U-NII-1  | S01_AS04 | Passed |
| WLAN ac 20 MHz, high, U-NII-3 | S01_AL01 | Passed |
| WLAN ac 40 MHz, high, U-NII-3 | S01_AD01 | Passed |
| WLAN ac 40 MHz, low, U-NII-1  | S01_AD01 | Passed |
| WLAN ac 40 MHz, low, U-NII-3  | S01_AD01 | Passed |
| WLAN ac 80 MHz, mid, U-NII-1  | S01_AD01 | Passed |
| WLAN ac 80 MHz, mid, U-NII-3  | S01_AD01 | Passed |
| WLAN n 20 MHz, low, U-NII-1   | S01_AS04 | Passed |
| WLAN n 20 MHz, high, U-NII-3  | S01_AG01 | Passed |
| WLAN n 40 MHz, high, U-NII-3  | S01_AD01 | Passed |
| WLAN n 40 MHz, low, U-NII-1   | S01_AD01 | Passed |
| WLAN n 40 MHz, low, U-NII-3   | S01_AD01 | Passed |

N/A: Not applicable

N/P: Not performed

## 2 REVISION HISTORY

| Report version control |              |                    |                  |
|------------------------|--------------|--------------------|------------------|
| Version                | Release date | Change Description | Version validity |
| initial                | 2019-08-23   | --                 | valid            |
| --                     | --           | --                 | --               |

COMMENT: -



7 layers GmbH, Borsigstr. 11  
40880 Ratingen, Germany  
Phone +49 (0)2102 749 0



(responsible for accreditation scope)  
Dipl.-Ing. Marco Kullik



(responsible for testing and report)  
Dipl.-Ing. Daniel Gall

### 3 ADMINISTRATIVE DATA

#### 3.1 TESTING LABORATORY

Company Name: 7layers GmbH  
Address: Borsigstr. 11  
40880 Ratingen  
Germany

The test facility is accredited by the following accreditation organisation:

Laboratory accreditation no: DAkkS D-PL-12140-01-00  
FCC Designation Number: DE0015  
FCC Test Firm Registration: 929146  
ISED CAB Identifier: DE0007; ISED#: 3699A

Responsible for accreditation scope: Dipl.-Ing. Marco Kullik  
Report Template Version: 2019-02-12

#### 3.2 PROJECT DATA

Responsible for testing and report: Dipl.-Ing. Daniel Gall  
Employees who performed the tests: documented internally at 7Layers  
Date of Report: 2019-08-23  
Testing Period: 2019-02-03 to 2019-06-29

#### 3.3 APPLICANT DATA

Company Name: Panasonic Automotive Systems Europe GmbH  
Address: Robert-Bosch Str 27-29  
63225 Langen  
Germany  
Contact Person: Mr. Mario Müller

#### 3.4 MANUFACTURER DATA

Company Name: please see Applicant Data

## 4 TEST OBJECT DATA

### 4.1 GENERAL EUT DESCRIPTION

|                                       |                                                                                                                                                                                                                                                                                              |                                                        |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Kind of Device<br>product description | Rear Seat Entertainment<br>The EUT is a rear seat entertainment system, it is using Bluetooth and WLAN radio technology in the 2.4 GHz and 5 GHz ISM band.<br>RSE Uses two chips to Handle WLAN: Chip0 - STA mode /BT and is controlled by Android and CHIP 1 - STA mode controlled by Linux |                                                        |
| Product name                          | Daimler RSE                                                                                                                                                                                                                                                                                  |                                                        |
| Type                                  | BR167                                                                                                                                                                                                                                                                                        |                                                        |
| Declared EUT data by the supplier     |                                                                                                                                                                                                                                                                                              |                                                        |
| Voltage Type                          | DC (vehicular battery)                                                                                                                                                                                                                                                                       |                                                        |
| Voltage Level                         | 13.5 V                                                                                                                                                                                                                                                                                       |                                                        |
| Tested Modulation Type                | OFDM:BPSK                                                                                                                                                                                                                                                                                    |                                                        |
| General product<br>description        | The EUT is a rear seat entertainment system, it is using Bluetooth and WLAN radio technology in the 2.4 GHz and 5 GHz ISM band.<br>RSE Uses two chips to Handle WLAN: Chip0 - STA mode /BT and is controlled by Android and CHIP 1 - STA mode controlled by Linux                            |                                                        |
| Specific product<br>description       | WLAN mode a, n20/40 and ac20/40/80 MHz are supported in the 5 GHz band by the device. Since DFS is not supported, only the Sub-bands 1 and 3 are supported.                                                                                                                                  |                                                        |
| Ports of the device                   | <ul style="list-style-type: none"><li>- Cable Harness incl. DC</li><li>- HDMI</li><li>- USB</li><li>- Audio jack</li></ul>                                                                                                                                                                   |                                                        |
| Antenna Gain                          | Antenna 1<br>(Android 1)                                                                                                                                                                                                                                                                     | UNII SB1 Gain [dBi]: 5,89<br>UNII SB3 Gain [dBi]: 4,07 |
|                                       | Antenna 2<br>(Android 0)                                                                                                                                                                                                                                                                     | UNII SB1 Gain [dBi]: 4,79<br>UNII SB3 Gain [dBi]: 2,19 |
|                                       | Antenna 3<br>(Linux 1)                                                                                                                                                                                                                                                                       | UNII SB1 Gain [dBi]: 6,91<br>UNII SB3 Gain [dBi]: 5,70 |
|                                       | Antenna 4<br>(Linux 0)                                                                                                                                                                                                                                                                       | UNII SB1 Gain [dBi]: 5,16<br>UNII SB3 Gain [dBi]: 4,02 |
| Tested Datarates                      | WLAN a: 6 Mbps<br>WLAN n/ac: MCS0                                                                                                                                                                                                                                                            |                                                        |
| Special software used<br>for testing  | Integrated software controlled by touchscreen                                                                                                                                                                                                                                                |                                                        |

**The main components of the EUT are listed and described in chapter 3.2 EUT Main components.**

## 4.2 EUT MAIN COMPONENTS

| Sample Name      | Sample Code    | Description     |
|------------------|----------------|-----------------|
| EUT D            | DE1238002ad01  | Radiated Sample |
| Sample Parameter | Value          |                 |
| Serial No.       | PA1703J0000559 |                 |
| HW Version       | CR-FPM8X0AE*   |                 |
| SW Version       | 2019-07        |                 |
| Comment          | -              |                 |
| Integral Antenna |                |                 |

| Sample Name      | Sample Code    | Description     |
|------------------|----------------|-----------------|
| EUT G            | DE1238002ag01  | Radiated Sample |
| Sample Parameter | Value          |                 |
| Serial No.       | PA1703J0000364 |                 |
| HW Version       | CR-FPM8X0AE*   |                 |
| SW Version       | 2019-07        |                 |
| Comment          |                |                 |
| Integral Antenna |                |                 |

| Sample Name      | Sample Code    | Description     |
|------------------|----------------|-----------------|
| EUT L            | DE1238002al01  | Radiated Sample |
| Sample Parameter | Value          |                 |
| Serial No.       | PA1703J0000549 |                 |
| HW Version       | CR-FPM8X0AE*   |                 |
| SW Version       | 2019-07        |                 |
| Comment          | -              |                 |
| Integral Antenna |                |                 |

| Sample Name      | Sample Code                             | Description      |
|------------------|-----------------------------------------|------------------|
| EUT M            | DE1238002am01                           | Conducted Sample |
| Sample Parameter | Value                                   |                  |
| Serial No.       | PA1703J0000760                          |                  |
| HW Version       | CR-FPM8X0AE*                            |                  |
| SW Version       | 2019-07                                 |                  |
| Comment          | -                                       |                  |
| Integral Antenna | Replaced by temporary antenna connector |                  |

| Sample Name      | Sample Code                             | Description      |
|------------------|-----------------------------------------|------------------|
| EUT AR           | DE1238002ar04                           | Conducted Sample |
| Sample Parameter | Value                                   |                  |
| Serial No.       | PA1703J0001456                          |                  |
| HW Version       | CR-FPM8X0AE*                            |                  |
| SW Version       | 2019-07                                 |                  |
| Comment          | -                                       |                  |
| Integral Antenna | Replaced by temporary antenna connector |                  |

| Sample Name      | Sample Code                             | Description      |
|------------------|-----------------------------------------|------------------|
| EUT AS           | DE1238002as04                           | Conducted Sample |
| Sample Parameter | Value                                   |                  |
| Serial No.       | PA1703J0001468                          |                  |
| HW Version       | CR-FPM8X0AE*                            |                  |
| SW Version       | 2019-07                                 |                  |
| Comment          | -                                       |                  |
| Integral Antenna | Replaced by temporary antenna connector |                  |

NOTE: The short description is used to simplify the identification of the EUT in this test report.

#### 4.3 ANCILLARY EQUIPMENT

For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Ancillary Equipment can influence the test results.

| Device | Details<br>(Manufacturer, Type Model, OUT Code) | Description |
|--------|-------------------------------------------------|-------------|
| -      | -                                               | -           |

#### 4.4 AUXILIARY EQUIPMENT

For the purposes of this test report, auxiliary equipment is defined as equipment which is used temporarily to enable operational and control features especially used for the tests of the EUT which is not used during normal operation or equipment that is used during the tests in combination with the EUT but is not subject of this test report. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Auxiliary Equipment can influence the test results.

| Device | Details<br>(Manufacturer, Type Model, HW, SW, S/N) | Description |
|--------|----------------------------------------------------|-------------|
| -      | -                                                  | -           |

#### 4.5 EUT SETUPS

This chapter describes the combination of EUTs and equipment used for testing. The rationale for selecting the EUTs, ancillary and auxiliary equipment and interconnecting cables, is to test a representative configuration meeting the requirements of the referenced standards.

| Setup    | Combination of EUTs | Description and Rationale       |
|----------|---------------------|---------------------------------|
| S01_AR04 | EUT AR,             | Setup for conducted measurement |
| S01_AD01 | EUT D,              | Setup for radiated measurement  |
| S01_AG01 | EUT G,              | Setup for radiated measurement  |
| S01_AL01 | EUT L,              | Setup for radiated measurement  |
| S01_AM01 | EUT M,              | Setup for conducted measurement |
| S01_AS04 | EUT AS,             | Setup for conducted measurement |

## 4.6 OPERATING MODES

This chapter describes the operating modes of the EUTs used for testing.

### 4.6.1 TEST CHANNELS

| U-NII-Subband 1<br>5150 - 5250 MHz |      |      | U-NII-Subband 3<br>5725 - 5850 MHz |      |      | Nom.<br>BW |
|------------------------------------|------|------|------------------------------------|------|------|------------|
| low                                | mid  | high | low                                | mid  | high | 20 MHz     |
| 36                                 | 44   | 48   | 149                                | 157  | 165  | Ch.-No.    |
| 5180                               | 5220 | 5240 | 5745                               | 5785 | 5825 | MHz        |

| low  | mid | high | low  | mid  | high | 40 MHz  |
|------|-----|------|------|------|------|---------|
| 38   | -   | 46   | 151  | -    | 159  | Ch.-No. |
| 5190 | -   | 5230 | 5755 | -    | 5795 | MHz     |
| low  | mid | high | low  | mid  | high | 80 MHz  |
| 42   | -   | -    | -    | 155  | -    | Ch.-No. |
| 5210 | -   | -    | -    | 5775 | -    | MHz     |

## 4.7 PRODUCT LABELLING

### 4.7.1 FCC ID LABEL

Please refer to the documentation of the applicant.

### 4.7.2 LOCATION OF THE LABEL ON THE EUT

Please refer to the documentation of the applicant.

## 5 TEST RESULTS

### 5.1 26 DB BANDWIDTH

Standard **FCC Part 15 Subpart E**

**The test was performed according to:**  
ANSI C63.10

#### 5.1.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was set up to perform the occupied bandwidth measurements.

The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical.

The results recorded were measured with the modulation which produce the worst-case (widest) emission bandwidth.

The EUT was connected to spectrum analyzer via a short coax cable with a known loss.

Analyzer settings:

- Please see measurement plots

#### 5.1.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart E, §15.403 (i)

There exist no applicable limits for the U-NII subbands 1, 2A and 2C. The test was performed to determine the limits for the "Maximum Conducted Output Power" test case. Therefore no result was applied.

### 5.1.3 TEST PROTOCOL

#### Android Core 0

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | Subband | 26 dB Bandwidth [MHz] |
|------------------|---------------------|---------|-----------------------|
| WLAN a           | low                 | U-NII-1 | 21.6                  |
| WLAN a           | mid                 | U-NII-1 | 21.5                  |
| WLAN a           | high                | U-NII-1 | 21.5                  |
| WLAN a           | low                 | U-NII-3 | 21.4                  |
| WLAN a           | mid                 | U-NII-3 | 21.5                  |
| WLAN a           | high                | U-NII-3 | 21.5                  |
| WLAN n 20 MHz    | low                 | U-NII-1 | 22.0                  |
| WLAN n 20 MHz    | mid                 | U-NII-1 | 22.1                  |
| WLAN n 20 MHz    | high                | U-NII-1 | 21.9                  |
| WLAN n 20 MHz    | low                 | U-NII-3 | 22.0                  |
| WLAN n 20 MHz    | mid                 | U-NII-3 | 22.0                  |
| WLAN n 20 MHz    | high                | U-NII-3 | 22.0                  |
| WLAN n 40 MHz    | low                 | U-NII-1 | 40.7                  |
| WLAN n 40 MHz    | high                | U-NII-1 | 40.4                  |
| WLAN n 40 MHz    | low                 | U-NII-3 | 40.2                  |
| WLAN n 40 MHz    | high                | U-NII-3 | 40.4                  |
| WLAN ac 20 MHz   | low                 | U-NII-1 | 22.1                  |
| WLAN ac 20 MHz   | mid                 | U-NII-1 | 22.0                  |
| WLAN ac 20 MHz   | high                | U-NII-1 | 22.1                  |
| WLAN ac 20 MHz   | low                 | U-NII-3 | 22.0                  |
| WLAN ac 20 MHz   | mid                 | U-NII-3 | 21.9                  |
| WLAN ac 20 MHz   | high                | U-NII-3 | 22.0                  |
| WLAN ac 40 MHz   | low                 | U-NII-1 | 40.7                  |
| WLAN ac 40 MHz   | high                | U-NII-1 | 40.4                  |
| WLAN ac 40 MHz   | low                 | U-NII-3 | 40.4                  |
| WLAN ac 40 MHz   | high                | U-NII-3 | 40.1                  |
| WLAN ac 80 MHz   | mid                 | U-NII-1 | 84.0                  |
| WLAN ac 80 MHz   | mid                 | U-NII-3 | 83.0                  |

#### Android Core 1

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | Subband | 26 dB Bandwidth [MHz] |
|------------------|---------------------|---------|-----------------------|
| WLAN a           | low                 | U-NII-1 | 21.7                  |
| WLAN a           | mid                 | U-NII-1 | 21.5                  |
| WLAN a           | high                | U-NII-1 | 21.5                  |
| WLAN a           | low                 | U-NII-3 | 21.6                  |
| WLAN a           | mid                 | U-NII-3 | 21.6                  |
| WLAN a           | high                | U-NII-3 | 21.6                  |
| WLAN n 20 MHz    | low                 | U-NII-1 | 22.1                  |
| WLAN n 20 MHz    | mid                 | U-NII-1 | 21.9                  |
| WLAN n 20 MHz    | high                | U-NII-1 | 22.0                  |
| WLAN n 20 MHz    | low                 | U-NII-3 | 22.1                  |
| WLAN n 20 MHz    | mid                 | U-NII-3 | 22.0                  |
| WLAN n 20 MHz    | high                | U-NII-3 | 22.1                  |
| WLAN n 40 MHz    | low                 | U-NII-1 | 40.4                  |
| WLAN n 40 MHz    | high                | U-NII-1 | 40.5                  |
| WLAN n 40 MHz    | low                 | U-NII-3 | 40.2                  |
| WLAN n 40 MHz    | high                | U-NII-3 | 40.1                  |
| WLAN ac 20 MHz   | low                 | U-NII-1 | 21.9                  |
| WLAN ac 20 MHz   | mid                 | U-NII-1 | 22.0                  |
| WLAN ac 20 MHz   | high                | U-NII-1 | 21.9                  |
| WLAN ac 20 MHz   | low                 | U-NII-3 | 22.0                  |
| WLAN ac 20 MHz   | mid                 | U-NII-3 | 21.9                  |
| WLAN ac 20 MHz   | high                | U-NII-3 | 22.0                  |

|                |      |         |      |
|----------------|------|---------|------|
| WLAN ac 40 MHz | low  | U-NII-1 | 40.4 |
| WLAN ac 40 MHz | high | U-NII-1 | 40.4 |
| WLAN ac 40 MHz | low  | U-NII-3 | 40.4 |
| WLAN ac 40 MHz | high | U-NII-3 | 40.5 |
| WLAN ac 80 MHz | mid  | U-NII-1 | 83.5 |
| WLAN ac 80 MHz | mid  | U-NII-3 | 82.5 |

## Linux Core 0

Ambient temperature: 25 °C  
 Air Pressure: 1010 hPa  
 Humidity: 30 %

| Radio Technology | Operating Frequency | Subband | 26 dB Bandwidth [MHz] |
|------------------|---------------------|---------|-----------------------|
| WLAN a           | low                 | U-NII-1 | 21.6                  |
| WLAN a           | mid                 | U-NII-1 | 21.5                  |
| WLAN a           | high                | U-NII-1 | 21.4                  |
| WLAN a           | low                 | U-NII-3 | 21.5                  |
| WLAN a           | mid                 | U-NII-3 | 21.5                  |
| WLAN a           | high                | U-NII-3 | 21.6                  |
| WLAN n 20 MHz    | low                 | U-NII-1 | 21.8                  |
| WLAN n 20 MHz    | mid                 | U-NII-1 | 21.9                  |
| WLAN n 20 MHz    | high                | U-NII-1 | 22.0                  |
| WLAN n 20 MHz    | low                 | U-NII-3 | 22.1                  |
| WLAN n 20 MHz    | mid                 | U-NII-3 | 22.0                  |
| WLAN n 20 MHz    | high                | U-NII-3 | 21.9                  |
| WLAN n 40 MHz    | low                 | U-NII-1 | 40.4                  |
| WLAN n 40 MHz    | high                | U-NII-1 | 40.1                  |
| WLAN n 40 MHz    | low                 | U-NII-3 | 40.2                  |
| WLAN n 40 MHz    | high                | U-NII-3 | 40.4                  |
| WLAN ac 20 MHz   | low                 | U-NII-1 | 22.0                  |
| WLAN ac 20 MHz   | mid                 | U-NII-1 | 21.9                  |
| WLAN ac 20 MHz   | high                | U-NII-1 | 21.9                  |
| WLAN ac 20 MHz   | low                 | U-NII-3 | 22.0                  |
| WLAN ac 20 MHz   | mid                 | U-NII-3 | 22.0                  |
| WLAN ac 20 MHz   | high                | U-NII-3 | 21.8                  |
| WLAN ac 40 MHz   | low                 | U-NII-1 | 40.5                  |
| WLAN ac 40 MHz   | high                | U-NII-1 | 40.1                  |
| WLAN ac 40 MHz   | low                 | U-NII-3 | 40.4                  |
| WLAN ac 40 MHz   | high                | U-NII-3 | 40.2                  |
| WLAN ac 80 MHz   | mid                 | U-NII-1 | 83.5                  |
| WLAN ac 80 MHz   | mid                 | U-NII-3 | 83.5                  |

## Linux Core 1

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | Subband | 26 dB Bandwidth [MHz] |
|------------------|---------------------|---------|-----------------------|
| WLAN a           | low                 | U-NII-1 | 21.5                  |
| WLAN a           | mid                 | U-NII-1 | 21.5                  |
| WLAN a           | high                | U-NII-1 | 21.5                  |
| WLAN a           | low                 | U-NII-3 | 21.6                  |
| WLAN a           | mid                 | U-NII-3 | 21.6                  |
| WLAN a           | high                | U-NII-3 | 21.6                  |
| WLAN n 20 MHz    | low                 | U-NII-1 | 21.9                  |
| WLAN n 20 MHz    | mid                 | U-NII-1 | 22.0                  |
| WLAN n 20 MHz    | high                | U-NII-1 | 21.9                  |
| WLAN n 20 MHz    | low                 | U-NII-3 | 22.0                  |
| WLAN n 20 MHz    | mid                 | U-NII-3 | 21.9                  |
| WLAN n 20 MHz    | high                | U-NII-3 | 22.1                  |
| WLAN n 40 MHz    | low                 | U-NII-1 | 40.2                  |
| WLAN n 40 MHz    | high                | U-NII-1 | 40.4                  |
| WLAN n 40 MHz    | low                 | U-NII-3 | 40.1                  |
| WLAN n 40 MHz    | high                | U-NII-3 | 40.2                  |
| WLAN ac 20 MHz   | low                 | U-NII-1 | 21.9                  |
| WLAN ac 20 MHz   | mid                 | U-NII-1 | 21.9                  |
| WLAN ac 20 MHz   | high                | U-NII-1 | 21.9                  |
| WLAN ac 20 MHz   | low                 | U-NII-3 | 21.9                  |
| WLAN ac 20 MHz   | mid                 | U-NII-3 | 21.9                  |
| WLAN ac 20 MHz   | high                | U-NII-3 | 21.8                  |
| WLAN ac 40 MHz   | low                 | U-NII-1 | 40.4                  |
| WLAN ac 40 MHz   | high                | U-NII-1 | 40.2                  |
| WLAN ac 40 MHz   | low                 | U-NII-3 | 40.1                  |
| WLAN ac 40 MHz   | high                | U-NII-3 | 40.4                  |
| WLAN ac 80 MHz   | mid                 | U-NII-1 | 83.5                  |
| WLAN ac 80 MHz   | mid                 | U-NII-3 | 83.5                  |

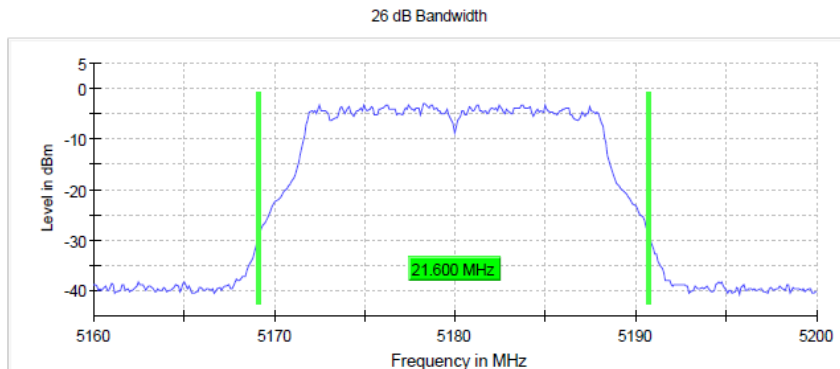
Remark: Please see next sub-clause for the measurement plot.

#### 5.1.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

##### Android Core 0

Radio Technology = WLAN a, Operating Frequency = low, Subband = U-NII-1 (S01\_AR04)

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5180.000000         | 21.600000       | ---             | ---             | 5169.150000          | 5190.750000           | -2.9            | PASS   |

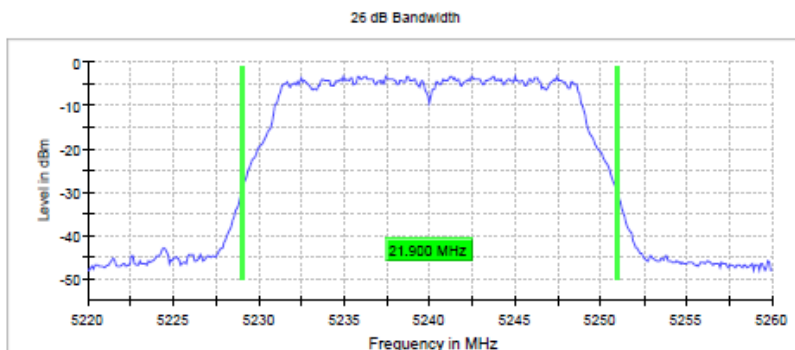


| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.18000 GHz      |
| Stop Frequency        | 5.20000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 $\mu$ s   |
| Reference Level       | 0.000 dBm        |
| Attenuation           | 20.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 31 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.27 dB          |

Radio Technology = WLAN n 20 MHz, Operating Frequency = high, Subband = U-NII-1 (S01\_AR04)

##### 26 dB Bandwidth

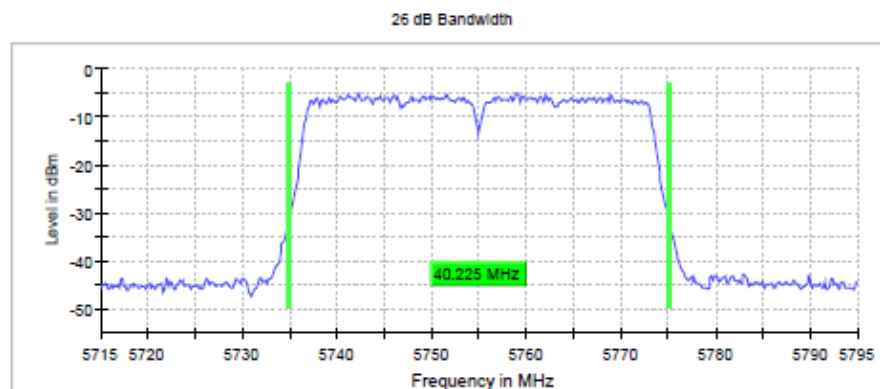
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5240.000000         | 21.900000       | ---             | ---             | 5229.050000          | 5250.950000           | -3.2            | PASS   |



##### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.22000 GHz      |
| Stop Frequency        | 5.26000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 42 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.13 dB          |

Radio Technology = WLAN n 40 MHz, Operating Frequency = low, Subband = U-NII-3 (S01\_AR04)



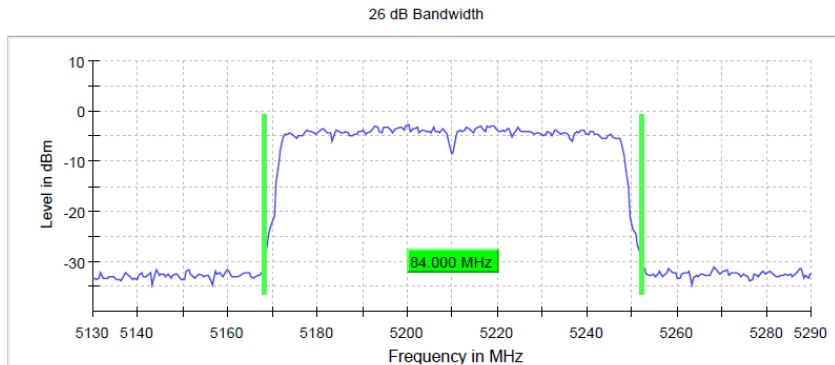
##### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.71500 GHz      |
| Stop Frequency        | 5.79500 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 300.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 533              |
| SweepTime             | 31.621 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 103 / max. 150   |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.22 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-3  
(S01\_AR04)

#### 26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5210.000000         | 84.000000       | ---             | ---             | 5168.250000          | 5252.250000           | -2.7            | PASS   |



#### Measurement

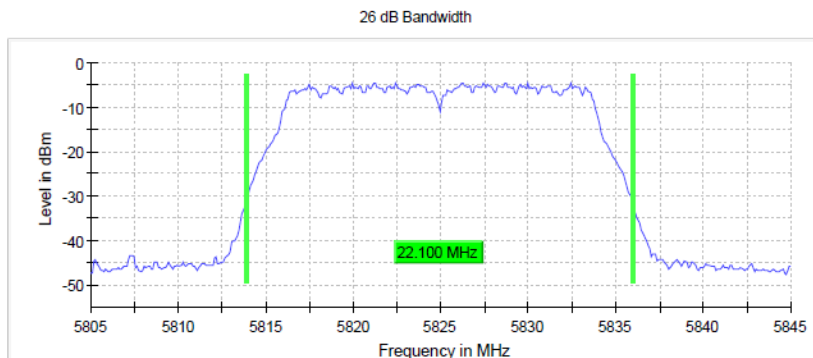
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.13000 GHz      |
| Stop Frequency        | 5.29000 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 22.875 $\mu$ s   |
| Reference Level       | 0.000 dBm        |
| Attenuation           | 20.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 94 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

#### Android Core 1

Radio Technology = WLAN n 20 MHz, Operating Frequency = high, Subband = U-NII-3  
(S01\_AR04)

#### 26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5825.000000         | 22.100000       | ---             | ---             | 5813.850000          | 5835.950000           | -4.5            | PASS   |



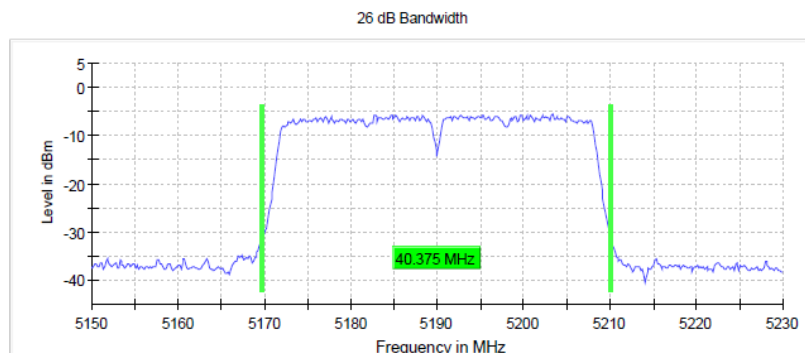
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.80500 GHz      |
| Stop Frequency        | 5.84500 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 90 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.06 dB          |

Radio Technology = WLAN n 40 MHz, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)

#### 26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5190.000000         | 40.375234       | ---             | ---             | 5169.737336          | 5210.112570           | -5.6            | PASS   |



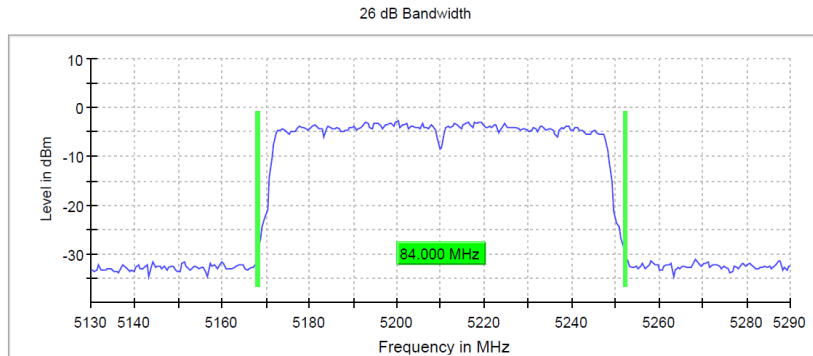
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.15000 GHz      |
| Stop Frequency        | 5.23000 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 300.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 533              |
| SweepTime             | 31.621 $\mu$ s   |
| Reference Level       | 0.000 dBm        |
| Attenuation           | 20.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 88 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.24 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1  
(S01\_AR04)

#### 26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5210.000000         | 84.000000       | ---             | ---             | 5168.250000          | 5252.250000           | -2.7            | PASS   |



#### Measurement

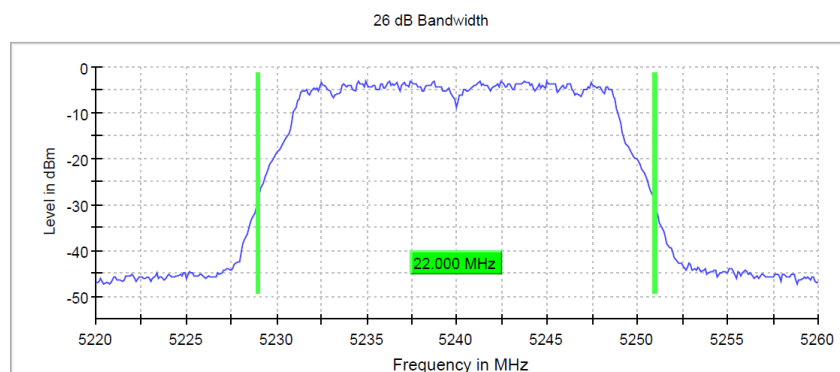
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.13000 GHz      |
| Stop Frequency        | 5.29000 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 22.875 $\mu$ s   |
| Reference Level       | 0.000 dBm        |
| Attenuation           | 20.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 101 / max. 150   |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.24 dB          |

#### Linux Core 0

Radio Technology = WLAN n 20 MHz, Operating Frequency = high, Subband = U-NII-1  
(S01\_AR04)

#### 26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5240.000000         | 22.000000       | ---             | ---             | 5228.950000          | 5250.950000           | -3.1            | PASS   |



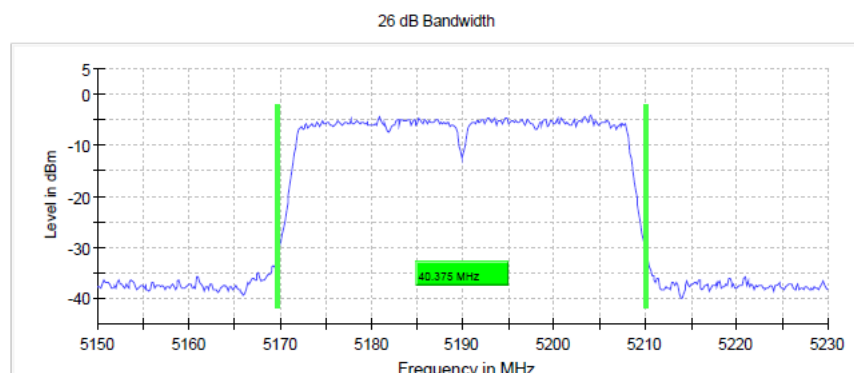
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.22000 GHz      |
| Stop Frequency        | 5.26000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 100 / max. 150   |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN n 40 MHz, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)

#### 26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5190.000000         | 40.375234       | ---             | ---             | 5169.737336          | 5210.112570           | -4.2            | PASS   |



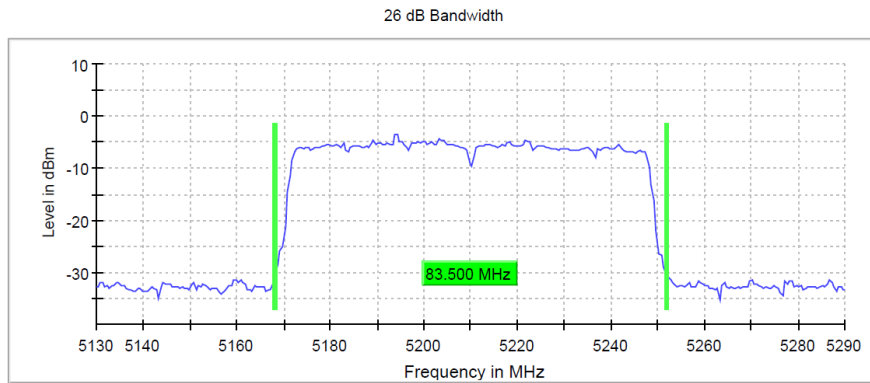
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.15000 GHz      |
| Stop Frequency        | 5.23000 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 300.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 533              |
| SweepTime             | 31.621 $\mu$ s   |
| Reference Level       | 0.000 dBm        |
| Attenuation           | 20.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 95 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1  
(S01\_AR04)

#### 26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5210.000000         | 83.500000       | ---             | ---             | 5168.250000          | 5251.750000           | -3.4            | PASS   |



#### Measurement

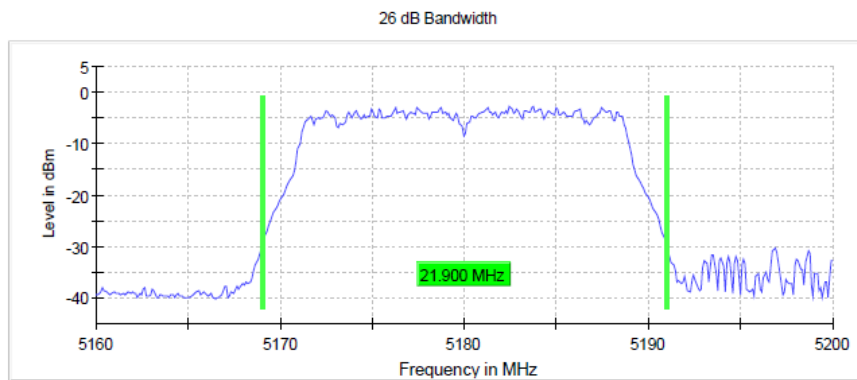
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.13000 GHz      |
| Stop Frequency        | 5.29000 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 22.875 $\mu$ s   |
| Reference Level       | 0.000 dBm        |
| Attenuation           | 20.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 79 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.28 dB          |

#### Linux Core 1

Radio Technology = WLAN n 20 MHz, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)

#### 26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5180.000000         | 21.900000       | ---             | ---             | 5169.050000          | 5190.950000           | -2.8            | PASS   |



#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.16000 GHz      |
| Stop Frequency        | 5.20000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 $\mu$ s   |
| Reference Level       | 0.000 dBm        |
| Attenuation           | 20.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 79 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.22 dB          |

#### 5.1.5 TEST EQUIPMENT USED

- R&S TS8997

## 5.2 6 DB BANDWIDTH

Standard **FCC Part 15 Subpart E**

**The test was performed according to:**  
ANSI C63.10

### 5.2.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was setup in a shielded room to perform the occupied bandwidth measurements.

The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical.

The results recorded were measured with the modulation which produce the worst-case (smallest) emission bandwidth.

The EUT was connected to spectrum analyzer via a short coax cable with a known loss.

Analyzer settings:

- See measurement plots

### 5.2.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart E, §15.407 (e)

Within the 5.725-5.850 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

### 5.2.3 TEST PROTOCOL

#### Android Core 0

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | 6 dB Bandwidth [MHz] | Limit [MHz] | Margin [MHz] | Min. 6 dB Frequency [MHz] | Max. 6 dB Frequency [MHz] |
|------------------|---------------------|----------------------|-------------|--------------|---------------------------|---------------------------|
| WLAN a           | low                 | 16.5                 | 0.5         | 15.95        | 5736.78                   | 5753.23                   |
| WLAN a           | mid                 | 16.5                 | 0.5         | 15.95        | 5776.78                   | 5793.23                   |
| WLAN a           | high                | 16.5                 | 0.5         | 15.95        | 5816.78                   | 5833.23                   |
| WLAN n 20 MHz    | low                 | 17.6                 | 0.5         | 17.15        | 5736.18                   | 5753.83                   |
| WLAN n 20 MHz    | mid                 | 17.6                 | 0.5         | 17.15        | 5776.18                   | 5793.83                   |
| WLAN n 20 MHz    | high                | 17.6                 | 0.5         | 17.15        | 5816.18                   | 5833.83                   |
| WLAN n 40 MHz    | low                 | 36.5                 | 0.5         | 36.05        | 5736.73                   | 5773.28                   |
| WLAN n 40 MHz    | high                | 36.5                 | 0.5         | 36.05        | 5776.73                   | 5813.28                   |
| WLAN ac 20 MHz   | low                 | 17.6                 | 0.5         | 17.15        | 5736.18                   | 5753.83                   |
| WLAN ac 20 MHz   | mid                 | 17.6                 | 0.5         | 17.15        | 5776.18                   | 5793.83                   |
| WLAN ac 20 MHz   | high                | 17.6                 | 0.5         | 17.15        | 5816.18                   | 5833.83                   |
| WLAN ac 40 MHz   | low                 | 36.5                 | 0.5         | 36.05        | 5736.73                   | 5773.28                   |
| WLAN ac 40 MHz   | high                | 36.5                 | 0.5         | 36.05        | 5776.73                   | 5813.28                   |
| WLAN ac 80 MHz   | mid                 | 76.5                 | 0.5         | 75.95        | 5736.78                   | 5813.23                   |

#### Android Core 1

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | 6 dB Bandwidth [MHz] | Limit [MHz] | Margin [MHz] | Min. 6 dB Frequency [MHz] | Max. 6 dB Frequency [MHz] |
|------------------|---------------------|----------------------|-------------|--------------|---------------------------|---------------------------|
| WLAN a           | low                 | 16.5                 | 0.5         | 15.95        | 5736.78                   | 5753.23                   |
| WLAN a           | mid                 | 16.5                 | 0.5         | 15.95        | 5776.78                   | 5793.23                   |
| WLAN a           | high                | 16.5                 | 0.5         | 15.95        | 5816.78                   | 5833.23                   |
| WLAN n 20 MHz    | low                 | 16.5                 | 0.5         | 15.95        | 5736.78                   | 5753.23                   |
| WLAN n 20 MHz    | mid                 | 16.5                 | 0.5         | 15.95        | 5776.78                   | 5793.23                   |
| WLAN n 20 MHz    | high                | 16.5                 | 0.5         | 15.95        | 5816.78                   | 5833.23                   |
| WLAN n 40 MHz    | low                 | 36.5                 | 0.5         | 36.05        | 5736.73                   | 5773.28                   |
| WLAN n 40 MHz    | high                | 36.5                 | 0.5         | 36.05        | 5776.73                   | 5813.28                   |
| WLAN ac 20 MHz   | low                 | 17.6                 | 0.5         | 17.15        | 5736.18                   | 5753.83                   |
| WLAN ac 20 MHz   | mid                 | 17.6                 | 0.5         | 17.15        | 5776.18                   | 5793.83                   |
| WLAN ac 20 MHz   | high                | 17.6                 | 0.5         | 17.15        | 5816.18                   | 5833.83                   |
| WLAN ac 40 MHz   | low                 | 36.5                 | 0.5         | 36.05        | 5736.73                   | 5773.28                   |
| WLAN ac 40 MHz   | high                | 36.5                 | 0.5         | 36.05        | 5776.73                   | 5813.28                   |
| WLAN ac 80 MHz   | mid                 | 76.5                 | 0.5         | 76.05        | 5736.73                   | 5813.28                   |

## Linux Core 0

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | 6 dB Bandwidth [MHz] | Limit [MHz] | Margin [MHz] | Min. 6 dB Frequency [MHz] | Max. 6 dB Frequency [MHz] |
|------------------|---------------------|----------------------|-------------|--------------|---------------------------|---------------------------|
| WLAN a           | low                 | 16.40                | 0.5         | 15.90        | 5736.78                   | 5753.18                   |
| WLAN a           | mid                 | 16.40                | 0.5         | 15.90        | 5776.78                   | 5793.18                   |
| WLAN a           | high                | 16.40                | 0.5         | 15.90        | 5816.78                   | 5833.18                   |
| WLAN n 20 MHz    | low                 | 17.70                | 0.5         | 17.20        | 5736.13                   | 5753.83                   |
| WLAN n 20 MHz    | mid                 | 17.70                | 0.5         | 17.20        | 5776.13                   | 5793.83                   |
| WLAN n 20 MHz    | high                | 17.70                | 0.5         | 17.20        | 5816.13                   | 5833.83                   |
| WLAN n 40 MHz    | low                 | 36.40                | 0.5         | 35.90        | 5736.78                   | 5773.18                   |
| WLAN n 40 MHz    | high                | 36.40                | 0.5         | 35.90        | 5776.78                   | 5813.18                   |
| WLAN ac 20 MHz   | low                 | 17.70                | 0.5         | 17.20        | 5736.13                   | 5753.83                   |
| WLAN ac 20 MHz   | mid                 | 17.70                | 0.5         | 17.20        | 5776.13                   | 5793.83                   |
| WLAN ac 20 MHz   | high                | 17.70                | 0.5         | 17.20        | 5816.13                   | 5833.83                   |
| WLAN ac 40 MHz   | low                 | 36.40                | 0.5         | 35.90        | 5736.78                   | 5773.18                   |
| WLAN ac 40 MHz   | high                | 36.40                | 0.5         | 35.90        | 5776.78                   | 5813.18                   |
| WLAN ac 80 MHz   | mid                 | 76.05                | 0.5         | 75.55        | 5736.73                   | 5812.78                   |

## Linux Core 1

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | 6 dB Bandwidth [MHz] | Limit [MHz] | Margin [MHz] | Min. 6 dB Frequency [MHz] | Max. 6 dB Frequency [MHz] |
|------------------|---------------------|----------------------|-------------|--------------|---------------------------|---------------------------|
| WLAN a           | low                 | 16.40                | 0.5         | 15.90        | 5736.78                   | 5753.18                   |
| WLAN a           | mid                 | 16.40                | 0.5         | 15.90        | 5776.78                   | 5793.18                   |
| WLAN a           | high                | 16.40                | 0.5         | 15.90        | 5816.78                   | 5833.18                   |
| WLAN n 20 MHz    | low                 | 17.70                | 0.5         | 17.20        | 5736.13                   | 5753.83                   |
| WLAN n 20 MHz    | mid                 | 17.70                | 0.5         | 17.20        | 5776.13                   | 5793.83                   |
| WLAN n 20 MHz    | high                | 17.70                | 0.5         | 17.20        | 5816.13                   | 5833.83                   |
| WLAN n 40 MHz    | low                 | 36.40                | 0.5         | 35.90        | 5736.78                   | 5773.18                   |
| WLAN n 40 MHz    | high                | 36.40                | 0.5         | 35.90        | 5776.78                   | 5813.18                   |
| WLAN ac 20 MHz   | low                 | 17.70                | 0.5         | 17.20        | 5736.13                   | 5753.83                   |
| WLAN ac 20 MHz   | mid                 | 17.70                | 0.5         | 17.20        | 5776.13                   | 5793.83                   |
| WLAN ac 20 MHz   | high                | 17.70                | 0.5         | 17.20        | 5816.13                   | 5833.83                   |
| WLAN ac 40 MHz   | low                 | 36.40                | 0.5         | 35.90        | 5736.78                   | 5773.18                   |
| WLAN ac 40 MHz   | high                | 36.40                | 0.5         | 35.90        | 5776.78                   | 5813.18                   |
| WLAN ac 80 MHz   | mid                 | 76.15                | 0.5         | 75.65        | 5737.03                   | 5813.18                   |

Remark: Please see next sub-clause for the measurement plot.

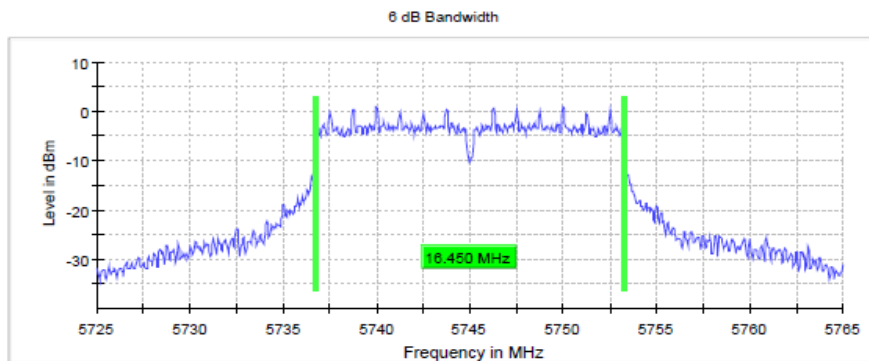
## 5.2.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

### Android Core 0

Radio Technology = WLAN a, Operating Frequency = low, Subband = U-NII-3  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5745.000000         | 16.450000       | 0.500000        | ---             | 5736.775000          | 5753.225000           | 0.8             | PASS   |



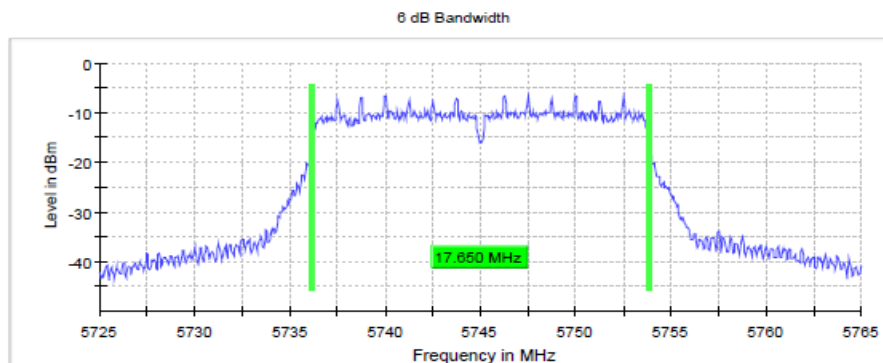
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.72500 GHz      |
| Stop Frequency        | 5.76500 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 800              |
| SweepTime             | 56.836 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 41 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.21 dB          |

### Android Core 1

Radio Technology = WLAN ac 20 MHz, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5745.000000         | 17.650000       | 0.500000        | ---             | 5736.175000          | 5753.825000           | -6.6            | PASS   |



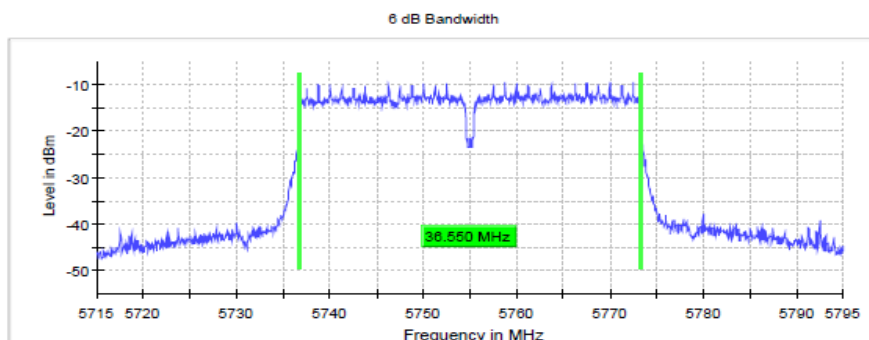
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.72500 GHz      |
| Stop Frequency        | 5.76500 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 800              |
| SweepTime             | 56.836 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 43 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.11 dB          |

Radio Technology = WLAN n 40 MHz, Operating Frequency = low, Subband = U-NII-I  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5755.000000         | 36.550000       | 0.500000        | ---             | 5736.725000          | 5773.275000           | -9.4            | PASS   |



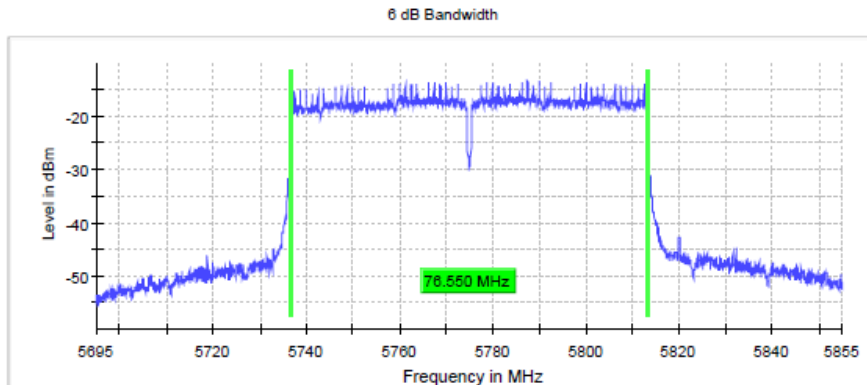
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.71500 GHz      |
| Stop Frequency        | 5.79500 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 1600             |
| SweepTime             | 94.727 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 101 / max. 150   |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-I  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5775.000000         | 76.550000       | 0.500000        | ---             | 5736.725000          | 5813.275000           | -13.3           | PASS   |



#### Measurement

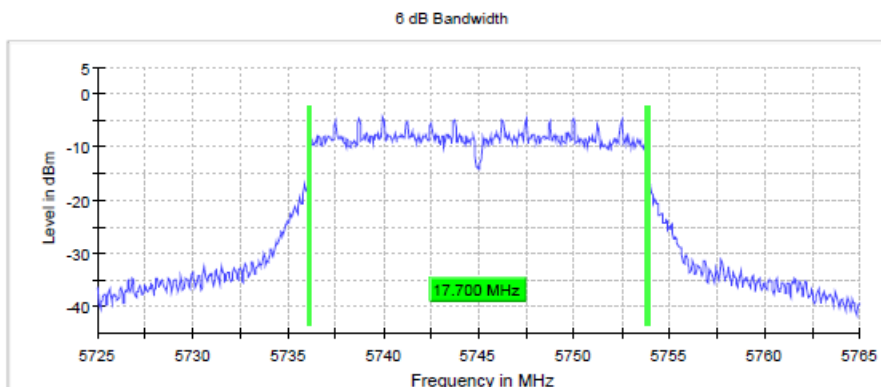
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.69500 GHz      |
| Stop Frequency        | 5.85500 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 3200             |
| SweepTime             | 189.453 $\mu$ s  |
| Reference Level       | -20.000 dBm      |
| Attenuation           | 0.000 dB         |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 120 / max. 150   |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

#### Linux Core 0

Radio Technology = WLAN n 20 MHz, Operating Frequency = low, Subband = U-NII-3  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5745.000000         | 17.700000       | 0.500000        | ---             | 5736.125000          | 5753.825000           | -4.4            | PASS   |



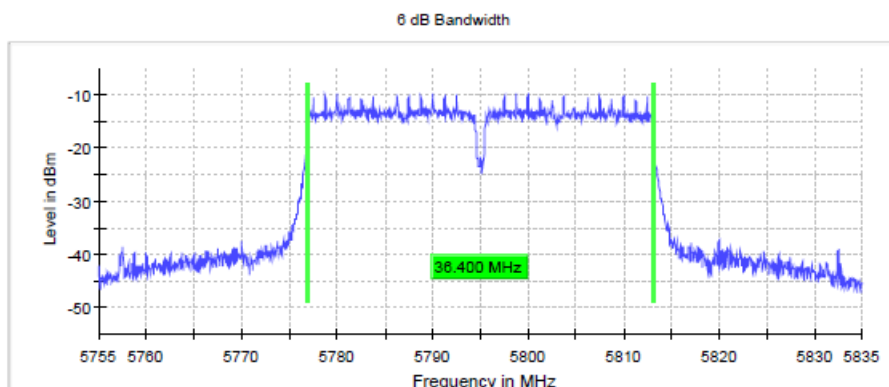
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.72500 GHz      |
| Stop Frequency        | 5.76500 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 800              |
| SweepTime             | 56.836 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 70 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.24 dB          |

Radio Technology = WLAN n 40 MHz, Operating Frequency = low, Subband = U-NII-I  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5795.000000         | 36.400000       | 0.500000        | ---             | 5776.775000          | 5813.175000           | -9.7            | PASS   |



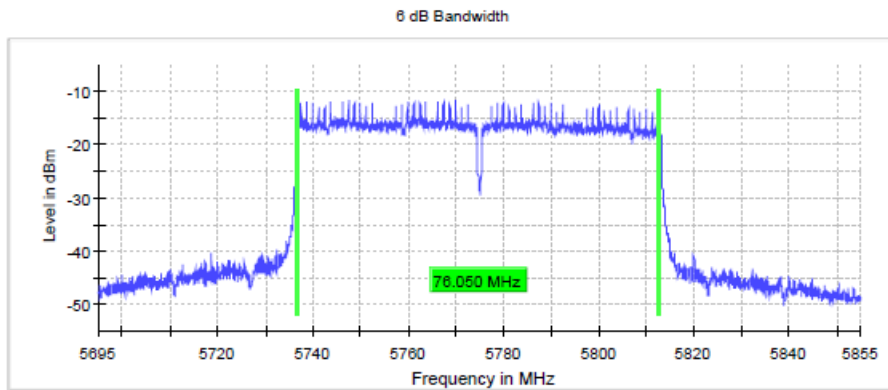
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.75500 GHz      |
| Stop Frequency        | 5.83500 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 1600             |
| SweepTime             | 94.727 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 87 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.21 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-I  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5775.000000         | 76.050000       | 0.500000        | ---             | 5736.725000          | 5812.775000           | -11.7           | PASS   |



#### Measurement

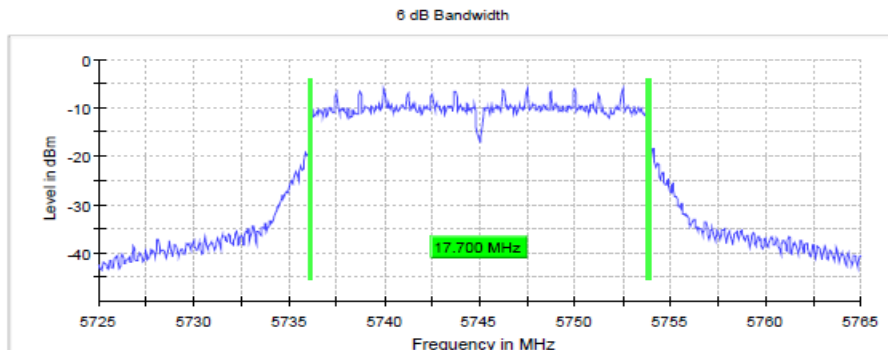
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.69500 GHz      |
| Stop Frequency        | 5.85500 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 3200             |
| SweepTime             | 189.453 $\mu$ s  |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 94 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

#### Linux Core 1

Radio Technology = WLAN n 20 MHz, Operating Frequency = low, Subband = U-NII-3  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5745.000000         | 17.700000       | 0.500000        | ---             | 5736.125000          | 5753.825000           | -6.1            | PASS   |



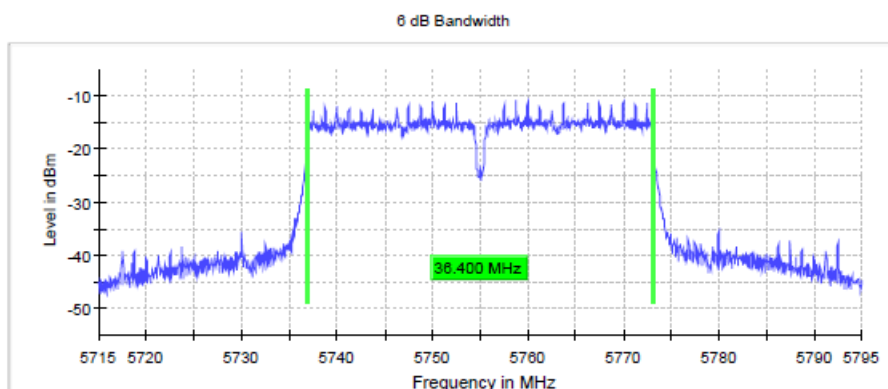
#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.72500 GHz      |
| Stop Frequency        | 5.76500 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 800              |
| SweepTime             | 56.836 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 78 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN n 40 MHz, Operating Frequency = low, Subband = U-NII-3  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5755.000000         | 36.400000       | 0.500000        | ---             | 5736.775000          | 5773.175000           | -10.7           | PASS   |



#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.71500 GHz      |
| Stop Frequency        | 5.79500 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 1600             |
| SweepTime             | 94.727 $\mu$ s   |
| Reference Level       | -20.000 dBm      |
| Attenuation           | 0.000 dB         |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 84 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

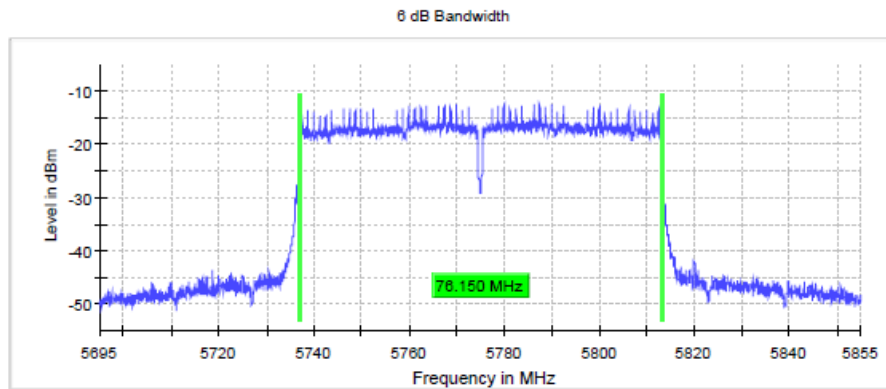
Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-I  
(S01\_AR04)

#### 6 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|-----------------|--------|
| 5775.000000         | 76.150000       | 0.500000        | ---             | 5737.025000          | 5813.175000           | -12.4           | PASS   |

#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.69500 GHz      |
| Stop Frequency        | 5.85500 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 100.000 kHz      |
| VBW                   | 300.000 kHz      |
| SweepPoints           | 3200             |
| SweepTime             | 189.453 $\mu$ s  |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 87 / max 150     |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |



#### 5.2.5 TEST EQUIPMENT USED

- R&S TS8997

### 5.3 99 % BANDWIDTH

Standard **FCC Part 15 Subpart E**

**The test was performed according to:**  
ANSI C63.10

#### 5.3.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was set up to perform the occupied bandwidth measurements.

The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical.

The results recorded were measured with the modulation which produce the worst-case (widest) emission bandwidth.

The EUT was connected to spectrum analyzer via a short coax cable with a known loss.

Analyzer settings:

- Please see measurement plots

#### 5.3.2 TEST REQUIREMENTS / LIMITS

No applicable limit:

### 5.3.3 TEST PROTOCOL

#### Android Core 0

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | Subband | 99% Bandwidth [MHz] |
|------------------|---------------------|---------|---------------------|
| WLAN a           | low                 | U-NII-1 | 16.8                |
| WLAN a           | mid                 | U-NII-1 | 16.8                |
| WLAN a           | high                | U-NII-1 | 16.8                |
| WLAN a           | low                 | U-NII-3 | 16.8                |
| WLAN a           | mid                 | U-NII-3 | 16.8                |
| WLAN a           | high                | U-NII-3 | 16.8                |
| WLAN n 20 MHz    | low                 | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | mid                 | U-NII-1 | 17.9                |
| WLAN n 20 MHz    | high                | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | low                 | U-NII-3 | 18.0                |
| WLAN n 20 MHz    | mid                 | U-NII-3 | 18.0                |
| WLAN n 20 MHz    | high                | U-NII-3 | 18.0                |
| WLAN n 40 MHz    | low                 | U-NII-1 | 36.8                |
| WLAN n 40 MHz    | high                | U-NII-1 | 36.5                |
| WLAN n 40 MHz    | low                 | U-NII-3 | 36.8                |
| WLAN n 40 MHz    | high                | U-NII-3 | 36.8                |
| WLAN ac 20 MHz   | low                 | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | mid                 | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | high                | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | low                 | U-NII-3 | 18.0                |
| WLAN ac 20 MHz   | mid                 | U-NII-3 | 18.1                |
| WLAN ac 20 MHz   | high                | U-NII-3 | 18.0                |
| WLAN ac 40 MHz   | low                 | U-NII-1 | 36.8                |
| WLAN ac 40 MHz   | high                | U-NII-1 | 36.5                |
| WLAN ac 40 MHz   | low                 | U-NII-3 | 36.8                |
| WLAN ac 40 MHz   | high                | U-NII-3 | 36.8                |
| WLAN ac 80 MHz   | mid                 | U-NII-1 | 76.0                |
| WLAN ac 80 MHz   | mid                 | U-NII-3 | 76.5                |

#### Android Core 1

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | Subband | 99% Bandwidth [MHz] |
|------------------|---------------------|---------|---------------------|
| WLAN a           | low                 | U-NII-1 | 16.8                |
| WLAN a           | mid                 | U-NII-1 | 16.7                |
| WLAN a           | high                | U-NII-1 | 16.8                |
| WLAN a           | low                 | U-NII-3 | 16.8                |
| WLAN a           | mid                 | U-NII-3 | 16.8                |
| WLAN a           | high                | U-NII-3 | 16.8                |
| WLAN n 20 MHz    | low                 | U-NII-1 | 17.9                |
| WLAN n 20 MHz    | mid                 | U-NII-1 | 17.9                |
| WLAN n 20 MHz    | high                | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | low                 | U-NII-3 | 18.1                |
| WLAN n 20 MHz    | mid                 | U-NII-3 | 18.0                |
| WLAN n 20 MHz    | high                | U-NII-3 | 18.0                |
| WLAN n 40 MHz    | low                 | U-NII-1 | 36.8                |
| WLAN n 40 MHz    | high                | U-NII-1 | 36.8                |
| WLAN n 40 MHz    | low                 | U-NII-3 | 36.8                |
| WLAN n 40 MHz    | high                | U-NII-3 | 36.8                |
| WLAN ac 20 MHz   | low                 | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | mid                 | U-NII-1 | 18.1                |
| WLAN ac 20 MHz   | high                | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | low                 | U-NII-3 | 18.0                |
| WLAN ac 20 MHz   | mid                 | U-NII-3 | 17.9                |

|                |      |         |      |
|----------------|------|---------|------|
| WLAN ac 20 MHz | high | U-NII-3 | 18.0 |
| WLAN ac 40 MHz | low  | U-NII-1 | 36.8 |
| WLAN ac 40 MHz | high | U-NII-1 | 36.8 |
| WLAN ac 40 MHz | low  | U-NII-3 | 36.8 |
| WLAN ac 40 MHz | high | U-NII-3 | 36.5 |
| WLAN ac 80 MHz | mid  | U-NII-1 | 76.5 |
| WLAN ac 80 MHz | mid  | U-NII-3 | 76.5 |

## Linux Core 0

Ambient temperature: 25 °C  
 Air Pressure: 1010 hPa  
 Humidity: 30 %

| Radio Technology | Operating Frequency | Subband | 99% Bandwidth [MHz] |
|------------------|---------------------|---------|---------------------|
| WLAN a           | low                 | U-NII-1 | 16.8                |
| WLAN a           | mid                 | U-NII-1 | 16.8                |
| WLAN a           | high                | U-NII-1 | 16.8                |
| WLAN a           | low                 | U-NII-3 | 16.8                |
| WLAN a           | mid                 | U-NII-3 | 16.8                |
| WLAN a           | high                | U-NII-3 | 16.8                |
| WLAN n 20 MHz    | low                 | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | mid                 | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | high                | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | low                 | U-NII-3 | 18.0                |
| WLAN n 20 MHz    | mid                 | U-NII-3 | 18.0                |
| WLAN n 20 MHz    | high                | U-NII-3 | 18.0                |
| WLAN n 40 MHz    | low                 | U-NII-1 | 36.8                |
| WLAN n 40 MHz    | high                | U-NII-1 | 36.8                |
| WLAN n 40 MHz    | low                 | U-NII-3 | 36.8                |
| WLAN n 40 MHz    | high                | U-NII-3 | 36.8                |
| WLAN ac 20 MHz   | low                 | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | mid                 | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | high                | U-NII-1 | 17.9                |
| WLAN ac 20 MHz   | low                 | U-NII-3 | 18.0                |
| WLAN ac 20 MHz   | mid                 | U-NII-3 | 18.0                |
| WLAN ac 20 MHz   | high                | U-NII-3 | 18.0                |
| WLAN ac 40 MHz   | low                 | U-NII-1 | 36.5                |
| WLAN ac 40 MHz   | high                | U-NII-1 | 36.8                |
| WLAN ac 40 MHz   | low                 | U-NII-3 | 36.8                |
| WLAN ac 40 MHz   | high                | U-NII-3 | 36.8                |
| WLAN ac 80 MHz   | mid                 | U-NII-1 | 76.5                |
| WLAN ac 80 MHz   | mid                 | U-NII-3 | 76.0                |

Remark: Please see next sub-clause for the measurement plot.

## Linux Core 1

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

| Radio Technology | Operating Frequency | Subband | 99% Bandwidth [MHz] |
|------------------|---------------------|---------|---------------------|
| WLAN a           | low                 | U-NII-1 | 16.7                |
| WLAN a           | mid                 | U-NII-1 | 16.8                |
| WLAN a           | high                | U-NII-1 | 16.8                |
| WLAN a           | low                 | U-NII-3 | 16.8                |
| WLAN a           | mid                 | U-NII-3 | 16.8                |
| WLAN a           | high                | U-NII-3 | 16.8                |
| WLAN n 20 MHz    | low                 | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | mid                 | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | high                | U-NII-1 | 18.0                |
| WLAN n 20 MHz    | low                 | U-NII-3 | 18.0                |
| WLAN n 20 MHz    | mid                 | U-NII-3 | 18.0                |
| WLAN n 20 MHz    | high                | U-NII-3 | 18.0                |
| WLAN n 40 MHz    | low                 | U-NII-1 | 36.8                |
| WLAN n 40 MHz    | high                | U-NII-1 | 36.8                |
| WLAN n 40 MHz    | low                 | U-NII-3 | 36.8                |
| WLAN n 40 MHz    | high                | U-NII-3 | 36.8                |
| WLAN ac 20 MHz   | low                 | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | mid                 | U-NII-1 | 18.0                |
| WLAN ac 20 MHz   | high                | U-NII-1 | 17.9                |
| WLAN ac 20 MHz   | low                 | U-NII-3 | 18.0                |
| WLAN ac 20 MHz   | mid                 | U-NII-3 | 17.9                |
| WLAN ac 20 MHz   | high                | U-NII-3 | 18.0                |
| WLAN ac 40 MHz   | low                 | U-NII-1 | 36.8                |
| WLAN ac 40 MHz   | high                | U-NII-1 | 36.8                |
| WLAN ac 40 MHz   | low                 | U-NII-3 | 37.0                |
| WLAN ac 40 MHz   | high                | U-NII-3 | 36.5                |
| WLAN ac 80 MHz   | mid                 | U-NII-1 | 76.0                |
| WLAN ac 80 MHz   | mid                 | U-NII-3 | 76.5                |

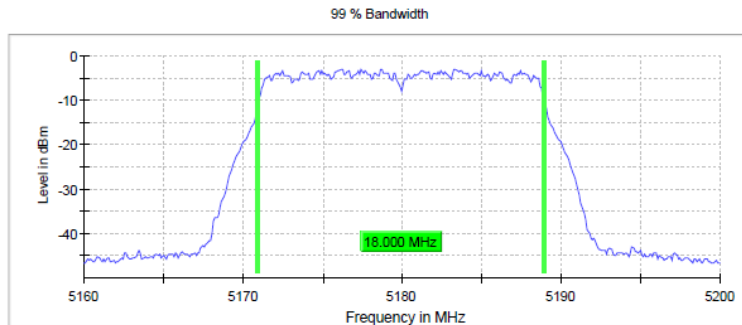
### 5.3.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

#### Android Core 0

Radio Technology = WLAN n 20 MHz, Operating Frequency = high, Subband = U-NII-1 (S01\_AR04)

##### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5180.000000         | 18.000000       | ---             | ---             | 5170.950000          | 5188.950000           | PASS   |

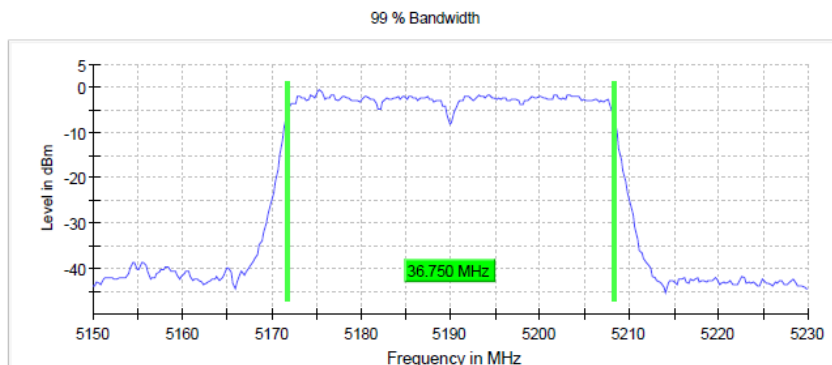


| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.16000 GHz      |
| Stop Frequency        | 5.20000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 μs        |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 72 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.14 dB          |

Radio Technology = WLAN ac 40 MHz, Operating Frequency = low, Subband = U-NII-1 (S01\_AR04)

##### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5190.000000         | 36.750000       | ---             | ---             | 5171.625000          | 5208.375000           | PASS   |



##### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.15000 GHz      |
| Stop Frequency        | 5.23000 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 500.000 kHz      |
| VBW                   | 2.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 18.906 μs        |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 79 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1 (S01\_AR04)

##### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5775.000000         | 76.500000       | ---             | ---             | 5736.750000          | 5813.250000           | PASS   |



##### Measurement

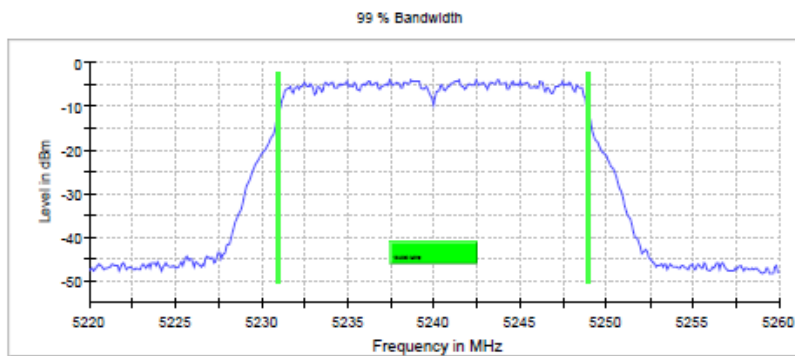
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.69500 GHz      |
| Stop Frequency        | 5.85500 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 22.875 μs        |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 78 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

## Android Core 1

Radio Technology = WLAN ac 20 MHz, Operating Frequency = high, Subband = U-NII-1 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5240.000000         | 18.000000       | --              | --              | 5230.950000          | 5248.950000           | PASS   |



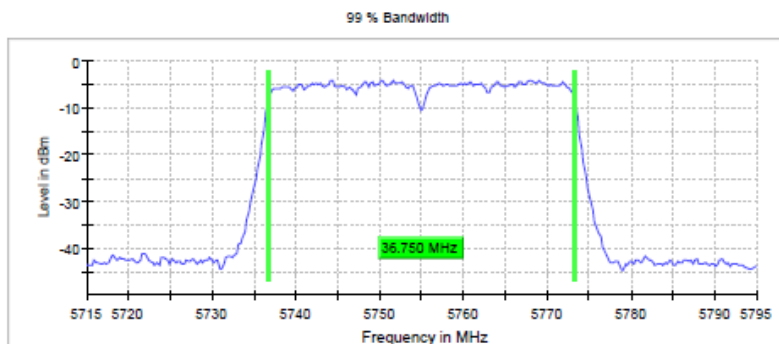
### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.22000 GHz      |
| Stop Frequency        | 5.26000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 39 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.08 dB          |

Radio Technology = WLAN ac 40 MHz, Operating Frequency = low, Subband = U-NII-3 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5755.000000         | 36.750000       | --              | --              | 5738.250000          | 5773.750000           | PASS   |



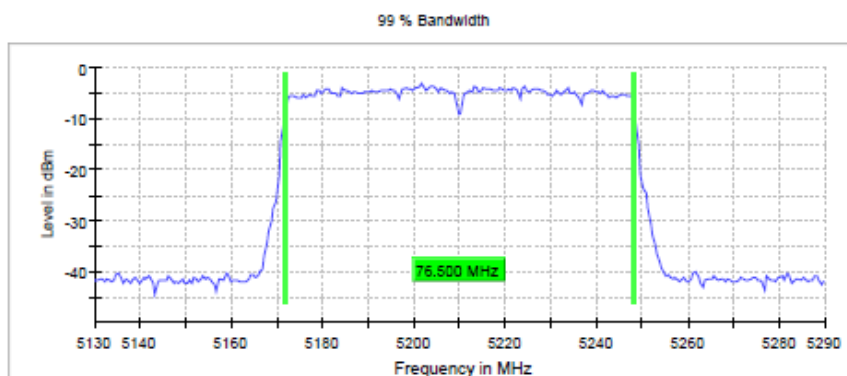
### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.71500 GHz      |
| Stop Frequency        | 5.79500 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 500.000 kHz      |
| VBW                   | 2.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 18.906 $\mu$ s   |
| Reference Level       | -20.000 dBm      |
| Attenuation           | 0.000 dB         |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 73 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.14 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5210.000000         | 76.500000       | --              | --              | 5171.750000          | 5248.250000           | PASS   |



### Measurement

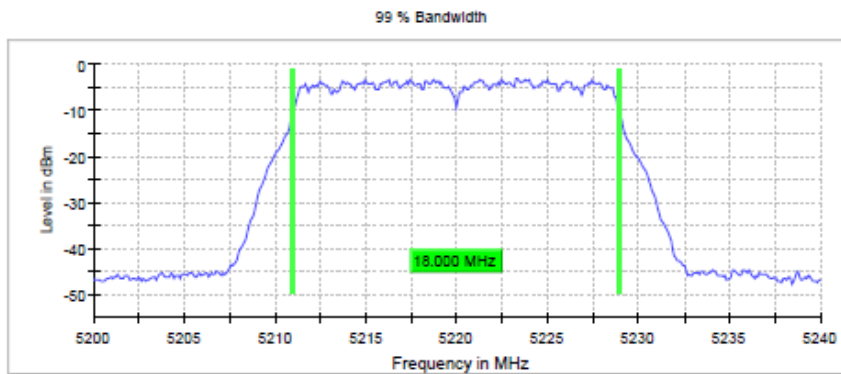
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.13000 GHz      |
| Stop Frequency        | 5.29000 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 22.875 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 94 / max. 150    |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

## Linux Core 0

Radio Technology = WLAN n 20 MHz, Operating Frequency = mid, Subband = U-NII-1 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5220.000000         | 18.000000       | --              | --              | 5210.950000          | 5228.950000           | PASS   |



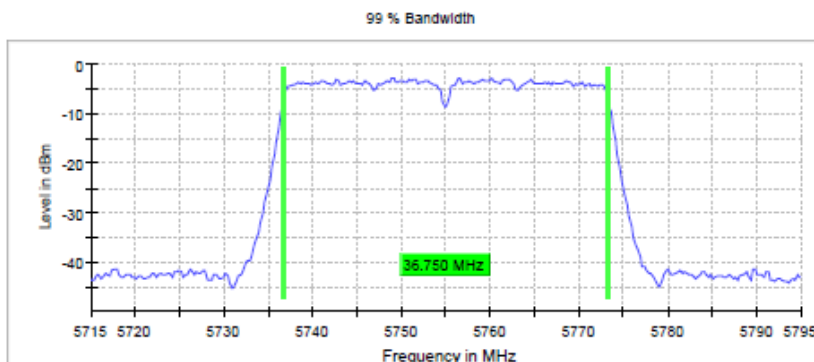
### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.20000 GHz      |
| Stop Frequency        | 5.24000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 μs        |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 60 / max 150     |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 40 MHz, Operating Frequency = low, Subband = U-NII-3 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5755.000000         | 36.750000       | --              | --              | 5736.625000          | 5773.375000           | PASS   |



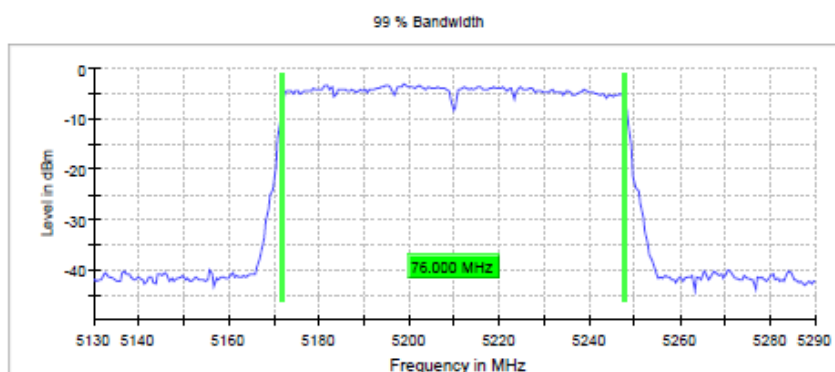
### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.71500 GHz      |
| Stop Frequency        | 5.79500 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 500.000 kHz      |
| VBW                   | 2.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 18.906 μs        |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 43 / max 150     |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5210.000000         | 76.000000       | --              | --              | 5171.750000          | 5247.750000           | PASS   |



### Measurement

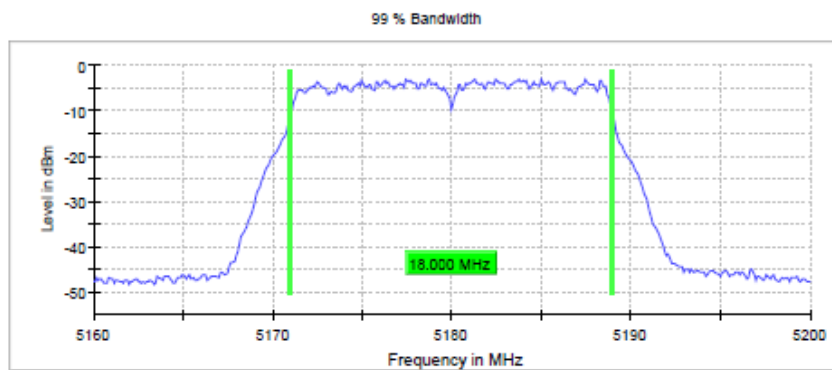
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.13000 GHz      |
| Stop Frequency        | 5.29000 GHz      |
| Span                  | 160.000 MHz      |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 22.875 μs        |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 74 / max 150     |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.08 dB          |

## Linux Core 1

Radio Technology = WLAN n 20 MHz, Operating Frequency = low, Subband = U-NII-1 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5180.000000         | 18.000000       | ---             | ---             | 5170.950000          | 5188.950000           | PASS   |



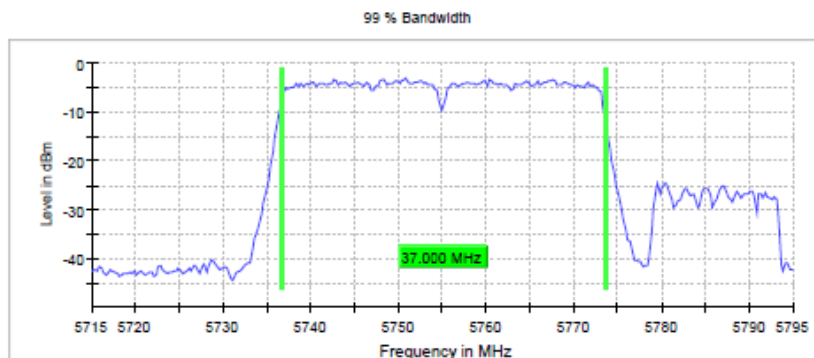
### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.180000 GHz     |
| Stop Frequency        | 5.200000 GHz     |
| Span                  | 40.000 MHz       |
| RBW                   | 200.000 kHz      |
| VBW                   | 1.000 MHz        |
| SweepPoints           | 400              |
| SweepTime             | 28.477 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 58 / max 150     |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 40 MHz, Operating Frequency = low, Subband = U-NII-3 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5755.000000         | 37.000000       | ---             | ---             | 5736.625000          | 5773.625000           | PASS   |



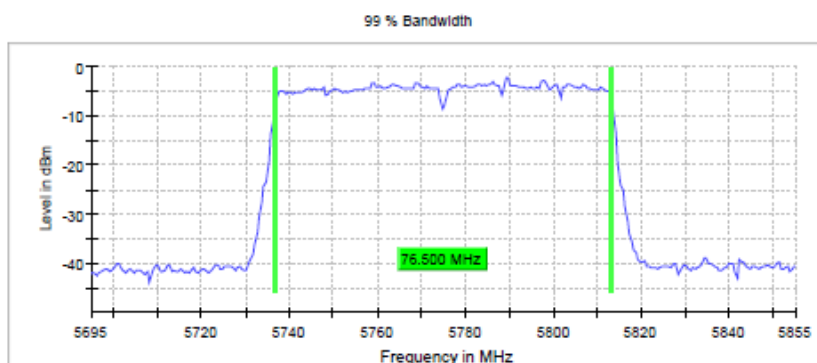
### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.715000 GHz     |
| Stop Frequency        | 5.795000 GHz     |
| Span                  | 80.000 MHz       |
| RBW                   | 500.000 kHz      |
| VBW                   | 2.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 18.906 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 97 / max 150     |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-3 (S01\_AR04)

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) | Result |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|--------|
| 5775.000000         | 76.500000       | ---             | ---             | 5736.750000          | 5813.250000           | PASS   |



### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.695000 GHz     |
| Stop Frequency        | 5.855000 GHz     |
| Span                  | 160.000 MHz      |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 320              |
| SweepTime             | 22.875 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | MaxPeak          |
| SweepCount            | 200              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 63 / max 150     |
| Stable                | 5 / 5            |
| Max Stable Difference | 0.00 dB          |

#### 5.3.5 TEST EQUIPMENT USED

- R&S TS8997

## 5.4 MAXIMUM CONDUCTED OUTPUT POWER

Standard **FCC Part 15 Subpart E**

**The test was performed according to:**  
ANSI C63.10

### 5.4.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was set up to perform the output power measurements. The results recorded were measured with the modulation which produces the worst-case (highest) output power.

The EUT was connected to a gated RF average power meter

Analyzer settings:

- See measurement plots

### 5.4.2 TEST REQUIREMENTS / LIMITS

#### **A) FCC**

For systems using digital modulation techniques in the 5.15 – 5.25 GHz bands:

§15.407 (a) (1)

Limit: 50 mW (17 dBm) or 4 dBm + 10 log (26 dB bandwidth/MHz) whatever is the lesser.

FCC ET Docket No. 13-49, FIRST REPORT AND ORDER, April 1, 2014 ("new rules"):

§15.407 (a) (1) (i): Outdoor access point:

Limit: 1 W (30 dBm) provided the maximum antenna gain does not exceed 6 dBi.

The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

§15.407 (a) (1) (ii): Indoor access point:

Limit: 1 W (30 dBm) provided the maximum antenna gain does not exceed 6 dBi.

§15.407 (a) (1) (iv): Mobile and portable client devices:

Limit: 250 mW (24 dBm) provided the maximum antenna gain does not exceed 6 dBi.

For systems using digital modulation techniques in the 5.25 – 5.35 GHz and 5.47 – 5.725 GHz bands:

§15.407 (a) (2)

Limit: 250 mW (24 dBm) or 11 dBm + 10 log (26 dB bandwidth/MHz) whatever is the lesser.

For systems using digital modulation techniques in the 5.725 – 5.850 GHz bands:

§15.407 (a) (3)

Limit: 1 W (30 dBm) or 17 dBm + 10 log (26 dB bandwidth/MHz) whatever is the lesser.

FCC ET Docket No. 13-49, FIRST REPORT AND ORDER, April 1, 2014 ("new rules"):

§15.407 (a) (3):

Limit: 1 W (30 dBm).

§15.407 (a) (4):

The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

## **B) IC**

Different frequency bands and limits apply, as compared to the FCC requirements.

RSS-247, 6.2.1 (1), Band 5150-5250 MHz, indoor operation only:

Limit (e.i.r.p.): 200 mW (23 dBm) or  $10 + 10 \log_{10} B$  [dBm], whichever power is less.

B is the 99% emission bandwidth in MHz.

RSS-247, 6.2.2 (1), Band 5250-5350 MHz:

Limits:

Maximum conducted Power: 250 mW (24 dBm) or  $11 + 10 \log_{10} B$  [dBm], whichever power is less.

e.i.r.p.: 1.0 W (30 dBm) or  $17 + 10 \log_{10} B$  [dBm], whichever power is less.

Note: For EUTs operating at a higher e.i.r.p. than 200 mW (23 dBm), compliance with the e.i.r.p. elevation mask is required.

RSS-247, 6.2.3 (1), Bands 5470-5600 MHz and 5650-5725 MHz:

Limits:

Maximum conducted Power: 250 mW (24 dBm) or  $11 + 10 \log_{10} B$  [dBm], whichever power is less.

e.i.r.p.: 1.0 W (30 dBm) or  $17 + 10 \log_{10} B$  [dBm], whichever power is less.

RSS-247, 6.2.4 (1), Band 5725-5825 MHz:

Limits:

Maximum conducted Power: 1W (30 dBm) or  $17 + 10 \log_{10} B$  [dBm], whichever power is less.

e.i.r.p.: 4.0 W (36 dBm) or  $23 + 10 \log_{10} B$  [dBm], whichever power is less.

All frequency bands: B is the 99% emission bandwidth in MHz.

### 5.4.3 TEST PROTOCOL

#### Android Core 0

Ambient temperature:  
Air Pressure:  
Humidity:  
WLAN a-Mode; 20 MHz; 6 Mbit/s

23 °C  
1010 hPa  
47 %

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 7.3               | 12.1       | 24.0                  | 16.7        |
|               | 44      | 5220        | 7.2               | 12.0       | 24.0                  | 16.8        |
|               | 48      | 5240        | 7.2               | 12.0       | 24.0                  | 16.8        |
| 3             | 149     | 5745        | 6.7               | 8.9        | 30.0                  | 23.3        |
|               | 157     | 5785        | 7.2               | 9.4        | 30.0                  | 22.8        |
|               | 165     | 5825        | 7.4               | 9.6        | 30.0                  | 22.6        |

WLAN n-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 7.4               | 12.2       | 24.0                  | 16.6        |
|               | 44      | 5220        | 7.1               | 11.8       | 24.0                  | 16.9        |
|               | 48      | 5240        | 7.3               | 12.1       | 24.0                  | 16.7        |
| 3             | 149     | 5745        | 6.8               | 9.0        | 30.0                  | 23.2        |
|               | 157     | 5785        | 7.2               | 9.4        | 30.0                  | 22.8        |
|               | 165     | 5825        | 7.4               | 9.6        | 30.0                  | 22.6        |

WLAN n-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 38      | 5190        | 6.7               | 11.5       | 24.0                  | 17.3        |
|               | 46      | 5230        | 6.6               | 11.4       | 24.0                  | 17.4        |
| 3             | 151     | 5755        | 6.3               | 8.5        | 30.0                  | 23.7        |
|               | 159     | 5795        | 6.4               | 8.6        | 30.0                  | 23.6        |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 7.5               | 12.2       | 24.0                  | 16.5        |
|               | 44      | 5220        | 7.1               | 11.9       | 24.0                  | 16.9        |
|               | 48      | 5240        | 7.0               | 11.8       | 24.0                  | 17.0        |
| 3             | 149     | 5745        | 6.8               | 9.0        | 30.0                  | 23.2        |
|               | 157     | 5785        | 7.1               | 9.3        | 30.0                  | 22.9        |
|               | 165     | 5825        | 7.2               | 9.4        | 30.0                  | 22.8        |

WLAN ac-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 38      | 5190        | 6.9               | 11.7       | 24.0                  | 17.1        |
|               | 46      | 5230        | 6.6               | 11.4       | 24.0                  | 17.4        |
| 3             | 151     | 5755        | 6.0               | 8.2        | 30.0                  | 24.0        |
|               | 159     | 5795        | 6.3               | 8.5        | 30.0                  | 23.7        |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 42      | 5210        | 5.5               | 10.3       | 24.0                  | 18.5        |
| 3             | 155     | 5775        | 5.0               | 7.2        | 30.0                  | 25.0        |

### Android MIMO

Ambient temperature: 23 °C  
Air Pressure: 1010 hPa  
Humidity: 47 %

WLAN n-Mode; 20 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 36      | 5180        | 6.2               | 11.0       | 24.0                  | 17.8        |
|                | 44      | 5220        | 6.4               | 11.2       | 24.0                  | 17.6        |
|                | 48      | 5240        | 6.2               | 11.0       | 24.0                  | 17.8        |
| 3              | 149     | 5745        | 4.6               | 6.8        | 30.0                  | 25.4        |
|                | 157     | 5785        | 5.1               | 7.3        | 30.0                  | 24.9        |
|                | 165     | 5825        | 4.9               | 7.1        | 30.0                  | 25.1        |

WLAN n-Mode; 40 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 38      | 5190        | 6.5               | 11.3       | 24.0                  | 17.5        |
|                | 46      | 5230        | 6.3               | 11.1       | 24.0                  | 17.7        |
|                | 151     | 5755        | 5.2               | 7.4        | 30.0                  | 24.8        |
|                | 159     | 5795        | 5.4               | 7.6        | 30.0                  | 24.6        |

WLAN ac-Mode; 20 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 36      | 5180        | 6.4               | 11.2       | 24.0                  | 17.6        |
|                | 44      | 5220        | 6.5               | 11.3       | 24.0                  | 17.5        |
|                | 48      | 5240        | 6.1               | 10.9       | 24.0                  | 17.9        |
| 3              | 149     | 5745        | 5.0               | 7.2        | 30.0                  | 25.0        |
|                | 157     | 5785        | 5.1               | 7.3        | 30.0                  | 24.9        |
|                | 165     | 5825        | 4.9               | 7.0        | 30.0                  | 25.1        |

WLAN ac-Mode; 40 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 38      | 5190        | 6.7               | 11.5       | 24.0                  | 17.3        |
|                | 46      | 5230        | 6.4               | 11.2       | 24.0                  | 17.6        |
|                | 151     | 5755        | 5.1               | 7.3        | 30.0                  | 24.9        |
|                | 159     | 5795        | 5.7               | 7.8        | 30.0                  | 24.3        |

WLAN ac-Mode; 80 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 42      | 5210        | 6.1               | 10.9       | 24.0                  | 17.9        |
|                | 155     | 5775        | 5.3               | 7.5        | 30.0                  | 24.7        |

## Android Core 1

Ambient temperature: 25 °C  
 Air Pressure: 1010 hPa  
 Humidity: 30 %  
 WLAN a-Mode; 20 MHz; 6 Mbit/s

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 36      | 5180        | 6.5               | 12.4       | 24.0                  | 17.5        |
|                | 44      | 5220        | 6.7               | 12.6       | 24.0                  | 17.3        |
|                | 48      | 5240        | 6.7               | 12.6       | 24.0                  | 17.3        |
| 3              | 149     | 5745        | 5.5               | 9.6        | 30.0                  | 24.5        |
|                | 157     | 5785        | 4.4               | 8.5        | 30.0                  | 25.6        |
|                | 165     | 5825        | 5.7               | 9.8        | 30.0                  | 24.3        |

WLAN n-Mode; 20 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 36      | 5180        | 6.7               | 12.6       | 24.0                  | 17.3        |
|                | 44      | 5220        | 6.6               | 12.5       | 24.0                  | 17.4        |
|                | 48      | 5240        | 6.7               | 12.6       | 24.0                  | 17.3        |
| 3              | 149     | 5745        | 5.1               | 9.2        | 30.0                  | 24.9        |
|                | 157     | 5785        | 5.7               | 9.8        | 30.0                  | 24.3        |
|                | 165     | 5825        | 5.8               | 9.9        | 30.0                  | 24.2        |

WLAN n-Mode; 40 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 38      | 5190        | 6.2               | 12.1       | 24.0                  | 17.8        |
|                | 46      | 5230        | 6.1               | 12.0       | 24.0                  | 17.9        |
| 3              | 151     | 5755        | 4.7               | 8.8        | 30.0                  | 25.3        |
|                | 159     | 5795        | 5.0               | 9.1        | 30.0                  | 25.0        |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 36      | 5180        | 6.8               | 12.7       | 24.0                  | 17.2        |
|                | 44      | 5220        | 6.7               | 12.6       | 24.0                  | 17.3        |
|                | 48      | 5240        | 6.7               | 12.6       | 24.0                  | 17.3        |
| 3              | 149     | 5745        | 4.8               | 8.9        | 30.0                  | 25.2        |
|                | 157     | 5785        | 5.4               | 9.5        | 30.0                  | 24.6        |
|                | 165     | 5825        | 5.4               | 9.5        | 30.0                  | 24.6        |

WLAN ac-Mode; 40 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 38      | 5190        | 6.2               | 12.1       | 24.0                  | 17.8        |
|                | 46      | 5230        | 6.2               | 12.1       | 24.0                  | 17.8        |
| 3              | 151     | 5755        | 4.6               | 8.7        | 30.0                  | 25.4        |
|                | 159     | 5795        | 5.1               | 9.1        | 30.0                  | 24.9        |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 42      | 5210        | 4.8               | 10.7       | 24.0                  | 19.2        |
| 3              | 155     | 5775        | 3.6               | 7.7        | 30.0                  | 26.4        |

## Linux Core 0

Ambient temperature: 23 °C  
 Air Pressure: 1010 hPa  
 Humidity: 47 %  
 WLAN a-Mode; 20 MHz; 6 Mbit/s

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 7.7               | 12.9       | 24.0                  | 16.3        |
|               | 44      | 5220        | 7.7               | 12.9       | 24.0                  | 16.3        |
|               | 48      | 5240        | 7.6               | 12.7       | 24.0                  | 16.4        |
| 3             | 149     | 5745        | 4.3               | 8.3        | 30.0                  | 25.7        |
|               | 157     | 5785        | 4.6               | 8.6        | 30.0                  | 25.4        |
|               | 165     | 5825        | 4.9               | 8.9        | 30.0                  | 25.1        |

WLAN n-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 7.8               | 12.9       | 24.0                  | 16.2        |
|               | 44      | 5220        | 7.5               | 12.6       | 24.0                  | 16.5        |
|               | 48      | 5240        | 7.6               | 12.7       | 24.0                  | 16.4        |
| 3             | 149     | 5745        | 4.1               | 8.2        | 30.0                  | 25.9        |
|               | 157     | 5785        | 4.4               | 8.4        | 30.0                  | 25.6        |
|               | 165     | 5825        | 4.9               | 9.0        | 30.0                  | 25.1        |

WLAN n-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 38      | 5190        | 7.3               | 12.5       | 24.0                  | 16.7        |
|               | 46      | 5230        | 7.0               | 12.1       | 24.0                  | 17.0        |
| 3             | 151     | 5755        | 3.5               | 7.5        | 30.0                  | 26.5        |
|               | 159     | 5795        | 3.6               | 7.7        | 30.0                  | 26.4        |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 5.4               | 10.6       | 24.0                  | 18.6        |
|               | 44      | 5220        | 5.3               | 10.5       | 24.0                  | 18.7        |
|               | 48      | 5240        | 5.4               | 10.5       | 24.0                  | 18.6        |
| 3             | 149     | 5745        | 7.3               | 11.4       | 30.0                  | 22.7        |
|               | 157     | 5785        | 7.5               | 11.5       | 30.0                  | 22.5        |
|               | 165     | 5825        | 7.7               | 11.7       | 30.0                  | 22.3        |

WLAN ac-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 38      | 5190        | 5.0               | 10.1       | 24.0                  | 19.0        |
|               | 46      | 5230        | 4.7               | 9.9        | 24.0                  | 19.3        |
| 3             | 151     | 5755        | 6.2               | 10.2       | 30.0                  | 23.8        |
|               | 159     | 5795        | 6.6               | 10.6       | 30.0                  | 23.4        |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 42      | 5210        | 3.0               | 8.1        | 24.0                  | 21.0        |
| 3             | 155     | 5775        | 4.9               | 8.9        | 30.0                  | 25.1        |

## Linux Core MIMO

Ambient temperature: 23 °C  
 Air Pressure: 1010 hPa  
 Humidity: 47 %  
 WLAN n-Mode; 20 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 36      | 5180        | 6.1               | 11.2       | 24.0                  | 17.9        |
|                | 44      | 5220        | 5.8               | 10.9       | 24.0                  | 18.2        |
|                | 48      | 5240        | 5.9               | 11.1       | 24.0                  | 18.1        |
| 3              | 149     | 5745        | 5.7               | 9.8        | 30.0                  | 24.3        |
|                | 157     | 5785        | 5.4               | 9.4        | 30.0                  | 24.6        |
|                | 165     | 5825        | 5.6               | 9.6        | 30.0                  | 24.4        |

WLAN n-Mode; 40 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 38      | 5190        | 6.1               | 11.2       | 24.0                  | 17.9        |
|                | 46      | 5230        | 5.7               | 10.9       | 24.0                  | 18.3        |
| 3              | 151     | 5755        | 5.5               | 9.5        | 30.0                  | 24.5        |
|                | 159     | 5795        | 5.8               | 9.8        | 30.0                  | 24.2        |

WLAN ac-Mode; 20 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 36      | 5180        | 6.1               | 11.3       | 24.0                  | 17.9        |
|                | 44      | 5220        | 5.8               | 11.0       | 24.0                  | 18.2        |
|                | 48      | 5240        | 6.0               | 11.2       | 24.0                  | 18.0        |
| 3              | 149     | 5745        | 5.5               | 9.6        | 30.0                  | 24.5        |
|                | 157     | 5785        | 5.7               | 9.7        | 30.0                  | 24.3        |
|                | 165     | 5825        | 5.6               | 9.6        | 30.0                  | 24.4        |

WLAN ac-Mode; 40 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 38      | 5190        | 5.9               | 11.1       | 24.0                  | 18.1        |
|                | 46      | 5230        | 5.8               | 11.0       | 24.0                  | 18.2        |
| 3              | 151     | 5755        | 5.5               | 9.5        | 30.0                  | 24.5        |
|                | 159     | 5795        | 5.8               | 9.8        | 30.0                  | 24.2        |

WLAN ac-Mode; 80 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|----------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1              | 42      | 5210        | 5.6               | 10.8       | 24.0                  | 18.4        |
| 3              | 155     | 5775        | 5.6               | 9.7        | 30.0                  | 24.4        |

## Linux Core 1

Ambient temperature: 25 °C  
 Air Pressure: 1010 hPa  
 Humidity: 30 %  
 WLAN a-Mode; 20 MHz; 6 Mbit/s

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 7.4               | 14.4       | 24.0                  | 16.6        |
|               | 44      | 5220        | 7.3               | 14.2       | 24.0                  | 16.7        |
|               | 48      | 5240        | 7.4               | 14.3       | 24.0                  | 16.6        |
| 3             | 149     | 5745        | 7.2               | 12.9       | 30.0                  | 22.8        |
|               | 157     | 5785        | 7.6               | 13.3       | 30.0                  | 22.4        |
|               | 165     | 5825        | 7.6               | 13.3       | 30.0                  | 22.4        |

WLAN n-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 7.5               | 14.4       | 24.0                  | 16.5        |
|               | 44      | 5220        | 7.2               | 14.1       | 24.0                  | 16.8        |
|               | 48      | 5240        | 7.1               | 14.0       | 24.0                  | 16.9        |
| 3             | 149     | 5745        | 7.1               | 12.8       | 30.0                  | 22.9        |
|               | 157     | 5785        | 7.9               | 13.6       | 30.0                  | 22.1        |
|               | 165     | 5825        | 7.5               | 13.2       | 30.0                  | 22.5        |

WLAN n-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 38      | 5190        | 6.7               | 13.6       | 24.0                  | 17.3        |
|               | 46      | 5230        | 6.5               | 13.4       | 24.0                  | 17.5        |
| 3             | 151     | 5755        | 6.1               | 11.8       | 30.0                  | 23.9        |
|               | 159     | 5795        | 6.7               | 12.4       | 30.0                  | 23.3        |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 36      | 5180        | 7.2               | 14.1       | 24.0                  | 16.8        |
|               | 44      | 5220        | 7.2               | 14.1       | 24.0                  | 16.8        |
|               | 48      | 5240        | 7.0               | 13.9       | 24.0                  | 17.0        |
| 3             | 149     | 5745        | 6.8               | 12.5       | 30.0                  | 23.2        |
|               | 157     | 5785        | 7.4               | 13.1       | 30.0                  | 22.6        |
|               | 165     | 5825        | 7.6               | 13.3       | 30.0                  | 22.4        |

WLAN ac-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 38      | 5190        | 6.8               | 13.7       | 24.0                  | 17.2        |
|               | 46      | 5230        | 6.5               | 13.4       | 24.0                  | 17.5        |
| 3             | 151     | 5755        | 5.4               | 11.1       | 30.0                  | 24.6        |
|               | 159     | 5795        | 6.1               | 11.8       | 30.0                  | 24.0        |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Freq. [MHz] | Cond. Power [dBm] | EIRP [dBm] | FCC Cond. Limit [dBm] | Margin [dB] |
|---------------|---------|-------------|-------------------|------------|-----------------------|-------------|
| 1             | 42      | 5210        | 5.6               | 12.6       | 24.0                  | 18.4        |
| 3             | 155     | 5775        | 4.6               | 10.3       | 30.0                  | 25.4        |

Remark: Please see next sub-clause for the measurement plot.

## 5.4.4 TEST EQUIPMENT USED

- R&S TS8997

## 5.5 PEAK POWER SPECTRAL DENSITY

Standard **FCC Part 15 Subpart E**

**The test was performed according to:**  
ANSI C63.10

### 5.5.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was set up in a shielded room to perform the Maximum Power Spectral Density measurements.

The results recorded were measured with the modulation which produces the worst-case (highest) output power.

The EUT was connected to the spectrum analyzer via a short coax cable with a known loss.

Analyzer settings:

- Resolution Bandwidth (RBW): 1 MHz
- Video Bandwidth (VBW): 3 MHz
- Trace: Average, RMS power averaging mode
- Sweeps: 100
- Sweep time: 5 ms
- Detector: RMS
- Trigger: gated mode

Note:

The analyser settings are according FCC Public Note "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E, 789033 D02", method **SA-1**.

### 5.5.2 TEST REQUIREMENTS / LIMITS

#### **A) FCC**

FCC Part 15, Subpart E, §15.407 (a) (1)

For systems using digital modulation techniques in the 5.15 – 5.25 GHz bands:

(i) and (ii), outdoor and indoor access points: Limit: 17 dBm/MHz.

(iv), mobile and portable client devices: Limit: 11 dBm/MHz.

FCC Part 15, Subpart E, §15.407 (a) (2)

For systems using digital modulation techniques in the 5.25 – 5.35 GHz and 5.47 – 5.725 GHz bands:

Limit: 11 dBm/MHz.

FCC Part 15, Subpart E, §15.407 (a) (3)

For systems using digital modulation techniques in the 5.725 – 5.850 GHz bands:

Limit: 30 dBm/500 kHz.

Note: The limit will be also fulfilled when measuring at any bandwidth greater than 500 kHz.

This applies to signals where the maximum conducted output power was measured at a bandwidth exceeding 500 kHz and which fulfil that limit of 30 dBm.

#### **B) IC**

Different frequency bands and limits apply, as compared to the FCC requirements.

RSS-247, 6.2.1 (1), Band 5150-5250 MHz, indoor operation only:  
Limit (e.i.r.p.): 10 dBm/MHz.

RSS-247, 6.2.2 (1), Band 5250-5350 MHz:  
Limit: 11 dBm/MHz.

RSS-247, 6.2.3 (1), Bands 5470-5600 MHz and 5650-5725 MHz:  
Limit: 11 dBm/MHz.

RSS-247, 6.2.4 (1), Band 5725-5850 MHz:  
Limit: 30 dBm/500 kHz.

### 5.5.3 TEST PROTOCOL

#### Android Core 0

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

WLAN a-Mode; 20 MHz; 6 Mbit/s ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.2                | 11.0                    | 15.2        |
|                | 44      | 5220        | -4.2                | 11.0                    | 15.2        |
|                | 48      | 5240        | -4.5                | 11.0                    | 15.5        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -7.5                | 30.0                    | 37.5        |
|                | 157     | 5785        | -7.1                | 30.0                    | 37.1        |
|                | 165     | 5825        | -7.1                | 30.0                    | 37.1        |

WLAN n-Mode; 20 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.5                | 11.0                    | 15.5        |
|                | 44      | 5220        | -4.9                | 11.0                    | 15.9        |
|                | 48      | 5240        | -4.7                | 11.0                    | 15.7        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -7.9                | 30.0                    | 37.9        |
|                | 157     | 5785        | -7.6                | 30.0                    | 37.6        |
|                | 165     | 5825        | 7.5                 | 30.0                    | 22.5        |

WLAN n-Mode; 40 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -4.7                | 11.0                    | 15.7        |
|                | 46      | 5230        | -4.8                | 11.0                    | 15.8        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -7.3                | 30.0                    | 37.3        |
|                | 159     | 5795        | -6.9                | 30.0                    | 36.9        |

WLAN ac-Mode; 20 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.7                | 11.0                    | 15.7        |
|                | 44      | 5220        | -5.1                | 11.0                    | 16.1        |
|                | 48      | 5240        | -5.1                | 11.0                    | 16.1        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -8.2                | 30.0                    | 38.2        |
|                | 157     | 5785        | -7.8                | 30.0                    | 37.8        |
|                | 165     | 5825        | -7.8                | 30.0                    | 37.8        |

WLAN ac-Mode; 40 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -3.6                | 11.0                    | 14.6        |
|                | 46      | 5230        | -3.4                | 11.0                    | 14.4        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -7.5                | 30.0                    | 37.5        |
|                | 159     | 5795        | -6.7                | 30.0                    | 36.7        |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 42      | 5210        | -7.5                | 11.0                    | 18.5        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 155     | 5775        | -10.0               | 30.0                    | 40.0        |

## Android Core MIMO

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

WLAN n-Mode; 20 MHz; MCS0 ; MISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -5.6                | 11.0                    | 16.6        |
|                | 44      | 5220        | -5.6                | 11.0                    | 16.6        |
|                | 48      | 5240        | -5.8                | 11.0                    | 16.8        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -10.5               | 30.0                    | 40.5        |
|                | 157     | 5785        | -10.1               | 30.0                    | 40.1        |
|                | 165     | 5825        | -10.3               | 30.0                    | 40.3        |

WLAN n-Mode; 40 MHz;MCS0 ; MISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -4.8                | 11.0                    | 15.8        |
|                | 46      | 5230        | -5.3                | 11.0                    | 16.3        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -8.3                | 30.0                    | 38.3        |
|                | 159     | 5795        | -8.3                | 30.0                    | 38.3        |

WLAN ac-Mode; 20 MHz;MCS0 ; MISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 5180    | -1.3        | -5.2                | 11.0                    | 16.2        |
|                | 5220    | -1.3        | -5.3                | 11.0                    | 16.3        |
|                | 5240    | -1.6        | -5.8                | 11.0                    | 16.8        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 5745    | -4.6        | -10.3               | 30.0                    | 40.3        |
|                | 5785    | -4.6        | -10.1               | 30.0                    | 40.1        |
|                | 5825    | -4.5        | -10.0               | 30.0                    | 40.0        |

WLAN ac-Mode; 40 MHz;MCS0 ; MISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -4.4                | 11.0                    | 15.4        |
|                | 46      | 5230        | -4.9                | 11.0                    | 15.9        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -8.0                | 30.0                    | 38.0        |
|                | 159     | 5795        | -7.8                | 30.0                    | 37.8        |

WLAN ac-Mode; 80 MHz; MCS0; MISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 42      | 5210        | -7.2                | 11.0                    | 18.2        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 155     | 5775        | -10.6               | 30.0                    | 40.6        |

## Android Core 1

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

WLAN a-Mode; 20 MHz; 6 Mbit/s ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.8                | 11.0                    | 15.8        |
|                | 44      | 5220        | -4.8                | 11.0                    | 15.8        |
|                | 48      | 5240        | -4.9                | 11.0                    | 15.9        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -9.1                | 30.0                    | 39.1        |
|                | 157     | 5785        | -9.2                | 30.0                    | 39.2        |
|                | 165     | 5825        | -9.2                | 30.0                    | 39.2        |

WLAN n-Mode; 20 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -5.2                | 11.0                    | 16.2        |
|                | 44      | 5220        | -5.3                | 11.0                    | 16.3        |
|                | 48      | 5240        | -5.2                | 11.0                    | 16.2        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -9.7                | 30.0                    | 39.7        |
|                | 157     | 5785        | -9.5                | 30.0                    | 39.5        |
|                | 165     | 5825        | -9.1                | 30.0                    | 39.1        |

WLAN n-Mode; 40 MHz;MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -5.4                | 11.0                    | 16.4        |
|                | 46      | 5230        | -4.7                | 11.0                    | 15.7        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -8.6                | 30.0                    | 38.6        |
|                | 159     | 5795        | -8.1                | 30.0                    | 38.1        |

WLAN ac-Mode; 20 MHz;MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -5.4                | 11.0                    | 16.4        |
|                | 44      | 5220        | -5.5                | 11.0                    | 16.5        |
|                | 48      | 5240        | -5.4                | 17.0                    | 22.4        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -10.4               | 30.0                    | 40.4        |
|                | 157     | 5785        | -9.9                | 30.0                    | 39.9        |
|                | 165     | 5825        | -9.9                | 30.0                    | 39.9        |

WLAN ac-Mode; 40 MHz;MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -3.6                | 11.0                    | 14.6        |
|                | 46      | 5230        | -5.3                | 11.0                    | 16.3        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -8.3                | 30.0                    | 38.3        |
|                | 159     | 5795        | -8.3                | 30.0                    | 38.3        |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 42      | 5210        | -8.5                | 11.0                    | 19.5        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 155     | 5775        | -12.8               | 30.0                    | 42.8        |

**Linux Core 0**

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

WLAN a-Mode; 20 MHz; 6 Mbit/s ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.1                | 11.0                    | 15.1        |
|                | 44      | 5220        | -4.3                | 11.0                    | 15.3        |
|                | 48      | 5240        | -4.2                | 11.0                    | 15.2        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -10.3               | 30.0                    | 40.3        |
|                | 157     | 5785        | 10.0                | 30.0                    | 20.0        |
|                | 165     | 5825        | -9.6                | 30.0                    | 39.6        |

WLAN n-Mode; 20 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.5                | 11.0                    | 15.5        |
|                | 44      | 5220        | -4.9                | 11.0                    | 15.9        |
|                | 48      | 5240        | -4.8                | 11.0                    | 15.8        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -10.9               | 30.0                    | 40.9        |
|                | 157     | 5785        | -10.6               | 30.0                    | 40.6        |
|                | 165     | 5825        | -10.1               | 30.0                    | 40.1        |

WLAN n-Mode; 40 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -3.9                | 11.0                    | 14.9        |
|                | 46      | 5230        | -3.4                | 11.0                    | 14.4        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -9.6                | 30.0                    | 39.6        |
|                | 159     | 5795        | -9.4                | 30.0                    | 39.4        |

WLAN ac-Mode; 20 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -6.6                | 11.0                    | 17.6        |
|                | 44      | 5220        | -6.7                | 11.0                    | 17.7        |
|                | 48      | 5240        | -6.7                | 11.0                    | 17.7        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -7.7                | 30.0                    | 37.7        |
|                | 157     | 5785        | -7.5                | 30.0                    | 37.5        |
|                | 165     | 5825        | -7.4                | 30.0                    | 37.4        |

WLAN ac-Mode; 40 MHz; MCS0 ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -5.3                | 11.0                    | 16.3        |
|                | 46      | 5230        | -6.7                | 11.0                    | 17.7        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -6.5                | 30.0                    | 36.5        |
|                | 159     | 5795        | -5.7                | 30.0                    | 35.7        |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 42      | 5210        | -9.4                | 11.0                    | 20.4        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 155     | 5775        | -10.1               | 30.0                    | 40.1        |

## Linux Core MIMO

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

WLAN n-Mode; 20 MHz; MCS0 ; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -6.1                | 11.0                    | 17.1        |
|                | 44      | 5220        | -6.3                | 11.0                    | 17.3        |
|                | 48      | 5240        | -6.4                | 11.0                    | 17.4        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -9.5                | 30.0                    | 39.5        |
|                | 157     | 5785        | -9.7                | 30.0                    | 39.7        |
|                | 165     | 5825        | -9.6                | 30.0                    | 39.6        |

WLAN n-Mode; 40 MHz; MCS0 ; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -3.9                | 11.0                    | 14.9        |
|                | 46      | 5230        | -4.7                | 11.0                    | 15.7        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -7.8                | 30.0                    | 37.8        |
|                | 159     | 5795        | -7.5                | 30.0                    | 37.5        |

WLAN ac-Mode; 20 MHz; MCS0 ; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -6.0                | 11.0                    | 17.0        |
|                | 44      | 5220        | -6.2                | 11.0                    | 17.2        |
|                | 48      | 5240        | -6.2                | 11.0                    | 17.2        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -9.7                | 30.0                    | 39.7        |
|                | 157     | 5785        | -9.5                | 30.0                    | 39.5        |
|                | 165     | 5825        | -9.5                | 30.0                    | 39.5        |

WLAN ac-Mode; 40 MHz; MCS0 ; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -4.8                | 11.0                    | 15.8        |
|                | 46      | 5230        | -4.8                | 11.0                    | 15.8        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -7.8                | 30.0                    | 37.8        |
|                | 159     | 5795        | -7.7                | 30.0                    | 37.7        |

WLAN ac-Mode; 80 MHz; MCS0; MIMO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 42      | 5210        | -5.9                | 11.0                    | 16.9        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 155     | 5775        | -10.1               | 30.0                    | 40.1        |

## Linux Core 1

Ambient temperature: 25 °C  
Air Pressure: 1010 hPa  
Humidity: 30 %

WLAN a-Mode; 20 MHz; 6 Mbit/s ; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.1                | 11.0                    | 15.1        |
|                | 44      | 5220        | -4.5                | 11.0                    | 15.5        |
|                | 48      | 5240        | -4.6                | 11.0                    | 15.6        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -7.5                | 30.0                    | 37.5        |
|                | 157     | 5785        | -7.3                | 30.0                    | 37.3        |
|                | 165     | 5825        | -7.4                | 30.0                    | 37.4        |

WLAN n-Mode; 20 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.8                | 11.0                    | 15.8        |
|                | 44      | 5220        | -5.1                | 11.0                    | 16.1        |
|                | 48      | 5240        | -5.2                | 11.0                    | 16.2        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -8.2                | 30.0                    | 38.2        |
|                | 157     | 5785        | -7.7                | 30.0                    | 37.7        |
|                | 165     | 5825        | -8.0                | 30.0                    | 38.0        |

WLAN n-Mode; 40 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -4.3                | 11.0                    | 15.3        |
|                | 46      | 5230        | -5.0                | 11.0                    | 16.0        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -7.2                | 30.0                    | 37.2        |
|                | 159     | 5795        | -6.7                | 30.0                    | 36.7        |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 36      | 5180        | -4.7                | 11.0                    | 15.7        |
|                | 44      | 5220        | -5.1                | 11.0                    | 16.1        |
|                | 48      | 5240        | -5.2                | 11.0                    | 16.2        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 149     | 5745        | -8.2                | 30.0                    | 38.2        |
|                | 157     | 5785        | -8.0                | 30.0                    | 38.0        |
|                | 165     | 5825        | -7.5                | 30.0                    | 37.5        |

WLAN ac-Mode; 40 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 38      | 5190        | -4.5                | 11.0                    | 15.5        |
|                | 46      | 5230        | -4.5                | 11.0                    | 15.5        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 151     | 5755        | -7.3                | 30.0                    | 37.3        |
|                | 159     | 5795        | -7.0                | 30.0                    | 37.0        |

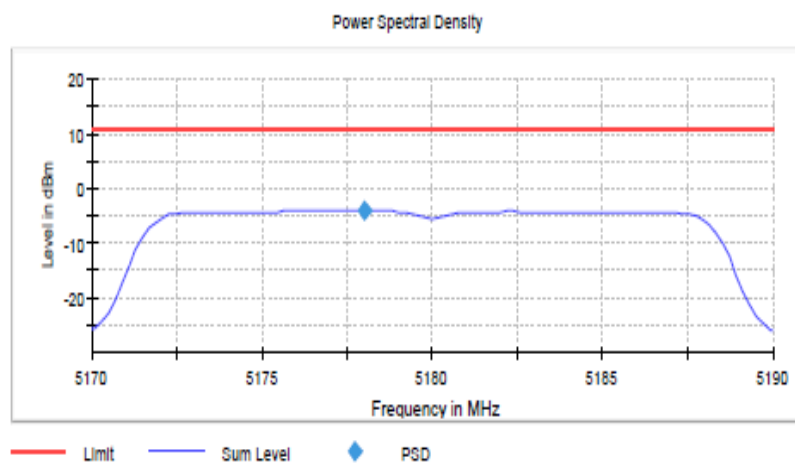
WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ MHz]     | FCC Limit [dBm/MHz]     | Margin [dB] |
|----------------|---------|-------------|---------------------|-------------------------|-------------|
| 1              | 42      | 5210        | -6.9                | 11.0                    | 17.9        |
| U-NII- Subband | Ch. No. | Freq. [MHz] | MPSD [dBm/ 500 kHz] | FCC Limit [dBm/500 kHz] | Margin [dB] |
| 3              | 155     | 5775        | -10.4               | 30.0                    | 40.4        |

#### 5.5.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

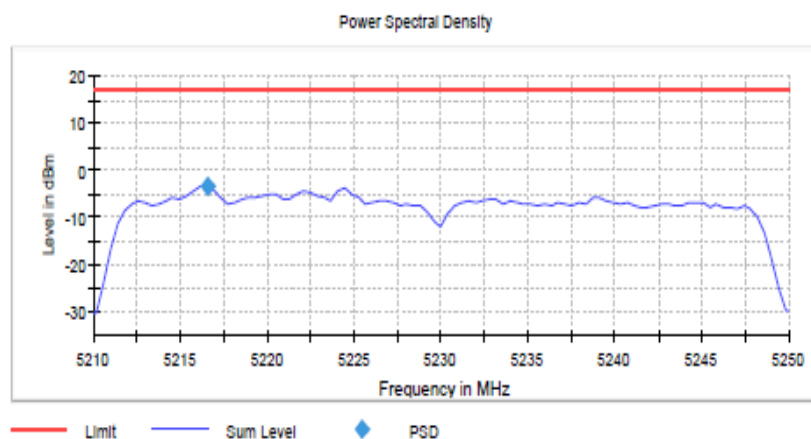
##### Android Core 0

Radio Technology = WLAN a 20 MHz, Operating Frequency = low, Subband = U-NII-1 (S01\_AR04)



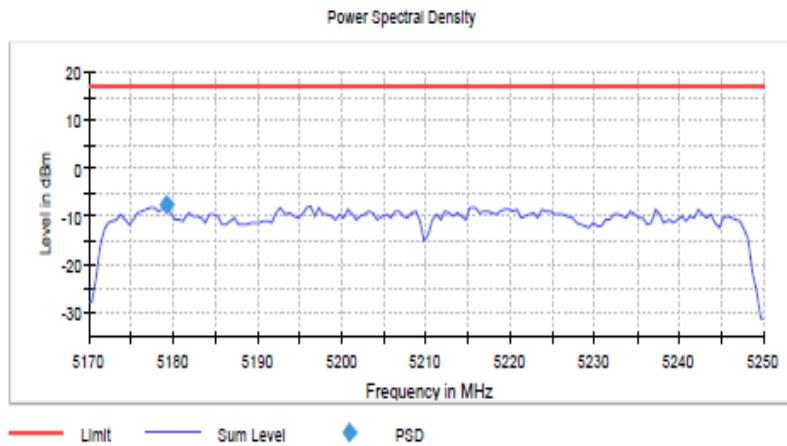
| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.19000 GHz      |
| Span                  | 20.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 101              |
| SweepTime             | 505.000 ms       |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 119              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | Sweep            |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 4 / max. 15      |
| Stable                | 3 / 3            |
| Max Stable Difference | 0.04 dB          |

Radio Technology = WLAN ac 40 MHz , Operating Frequency = high, Subband = U-NII-1 (S01\_AR04)



| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.21000 GHz      |
| Stop Frequency        | 5.25000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 101              |
| SweepTime             | 11.000 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 0                |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamp                | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 15 / max. 15     |
| Stable                | 2 / 3            |
| Max Stable Difference | 0.00 dB          |

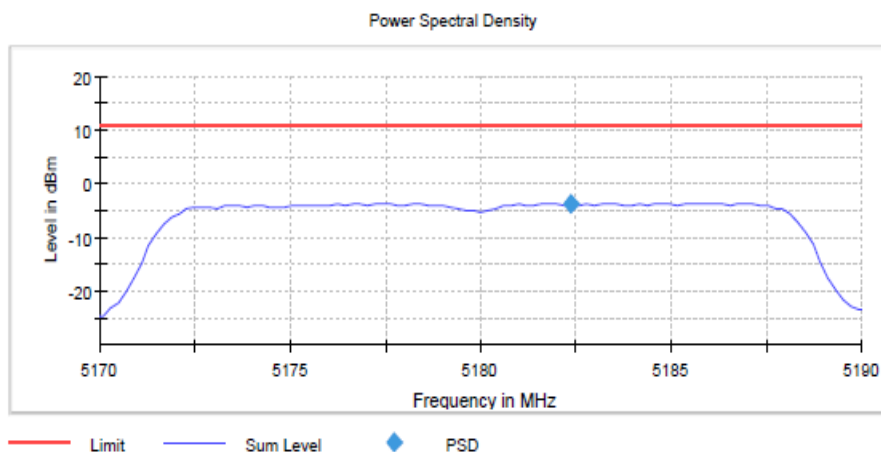
Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1  
(S01\_AH02)



| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.25000 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 160              |
| SweepTime             | 16.000 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 0                |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 12 / max. 15     |
| Stable                | 3 / 3            |
| Max Stable Difference | 0.00 dB          |

### Android Core 1

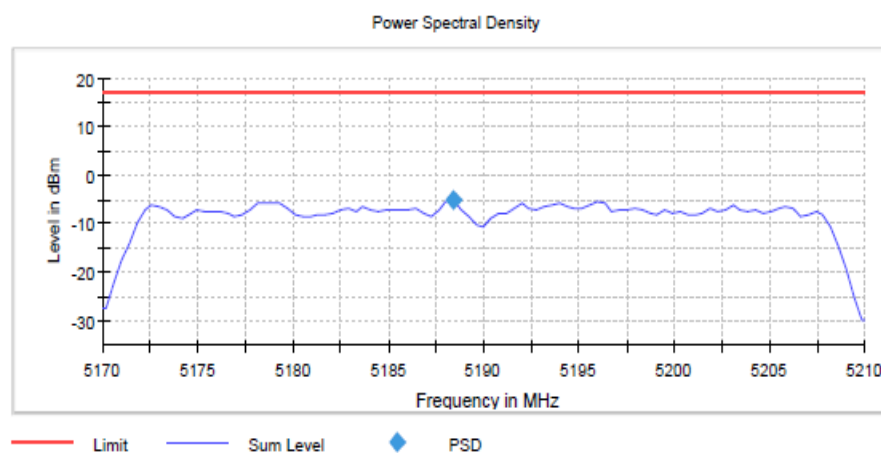
Radio Technology = WLAN a-mode , Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)



### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.19000 GHz      |
| Span                  | 20.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 101              |
| SweepTime             | 505.000 ms       |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 119              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | Sweep            |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 14 / max. 15     |
| Stable                | 3 / 3            |
| Max Stable Difference | 0.21 dB          |

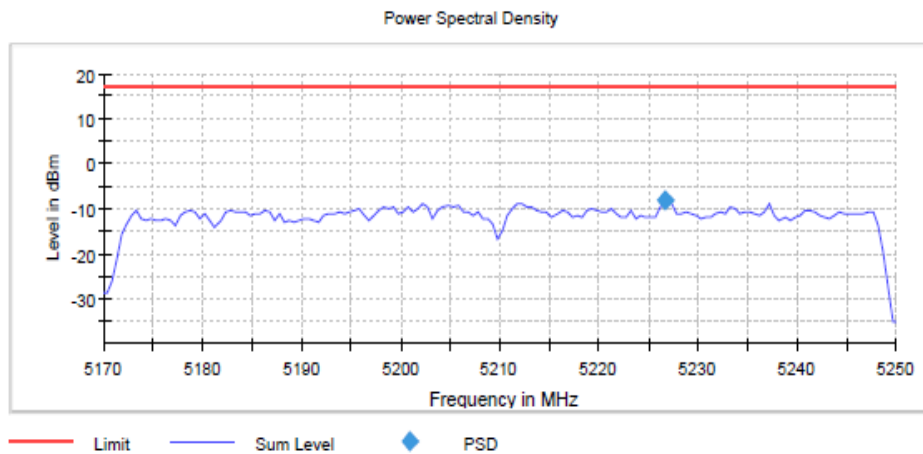
Radio Technology = WLAN ac 40 MHz, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)



### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.21000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 101              |
| SweepTime             | 11.000 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 0                |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 15 / max. 15     |
| Stable                | 3 / 3            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1  
(S01\_AR04)

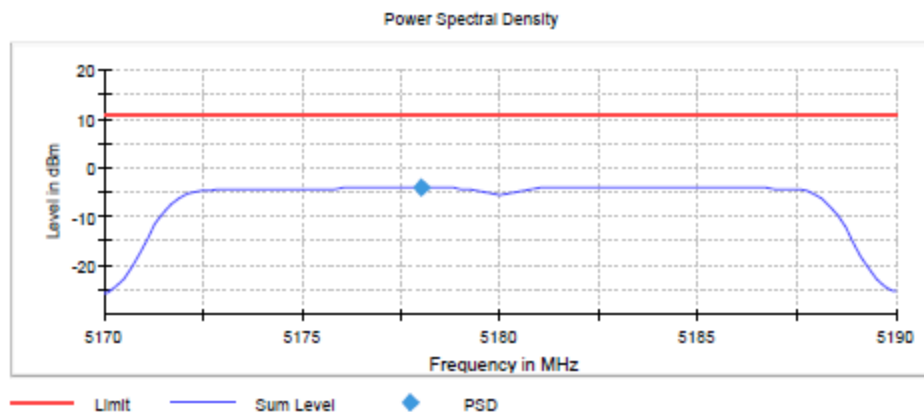


#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.25000 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 160              |
| SweepTime             | 16.000 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 0                |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 14 / max. 15     |
| Stable                | 3 / 3            |
| Max Stable Difference | 0.00 dB          |

#### Linux Core 0

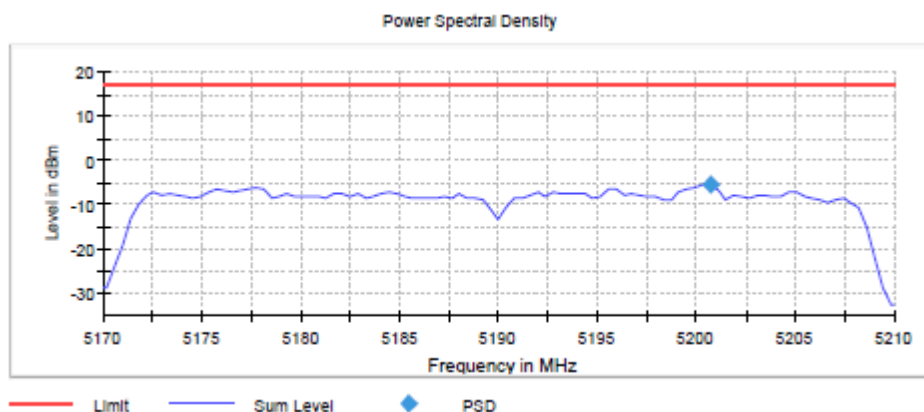
Radio Technology = WLAN a mode, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)



#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.19000 GHz      |
| Span                  | 20.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 101              |
| SweepTime             | 505.000 ms       |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 119              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | Sweep            |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 4 / max. 15      |
| Stable                | 3 / 3            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 40 MHz, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)

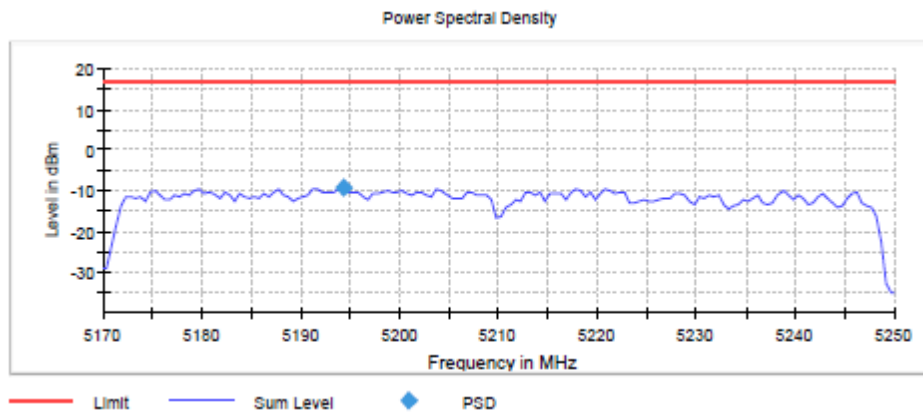


#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.21000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 101              |
| SweepTime             | 11.000 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 0                |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 14 / max. 15     |
| Stable                | 3 / 3            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1

(S01\_AR04)

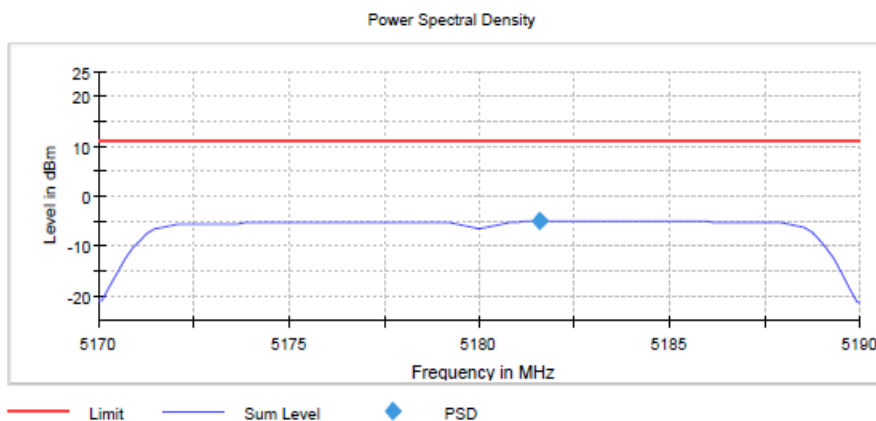


#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.25000 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 160              |
| SweepTime             | 16.000 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 0                |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 15 / max. 15     |
| Stable                | 2 / 3            |
| Max Stable Difference | 0.00 dB          |

#### Linux Core 1

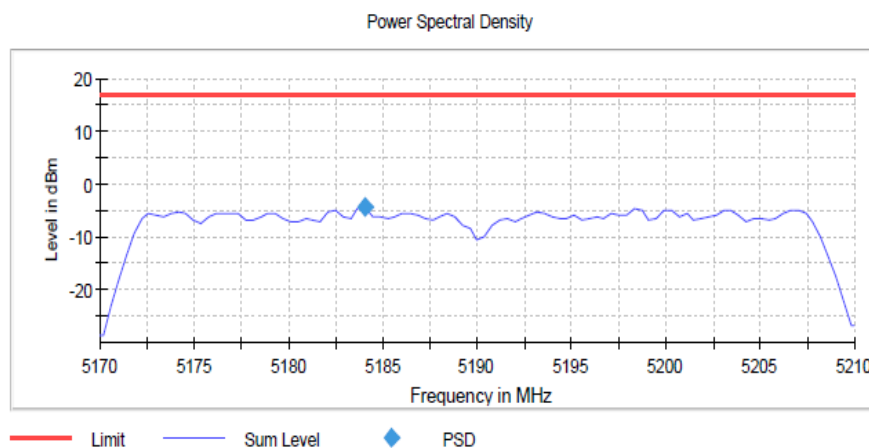
Radio Technology = WLAN n-mode 20 MHz, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)



#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.19000 GHz      |
| Span                  | 20.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 101              |
| SweepTime             | 505.000 ms       |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 119              |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | Sweep            |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 4 / max. 15      |
| Stable                | 3 / 3            |
| Max Stable Difference | 0.05 dB          |

Radio Technology = WLAN n 40 MHz, Operating Frequency = low, Subband = U-NII-1  
(S01\_AR04)

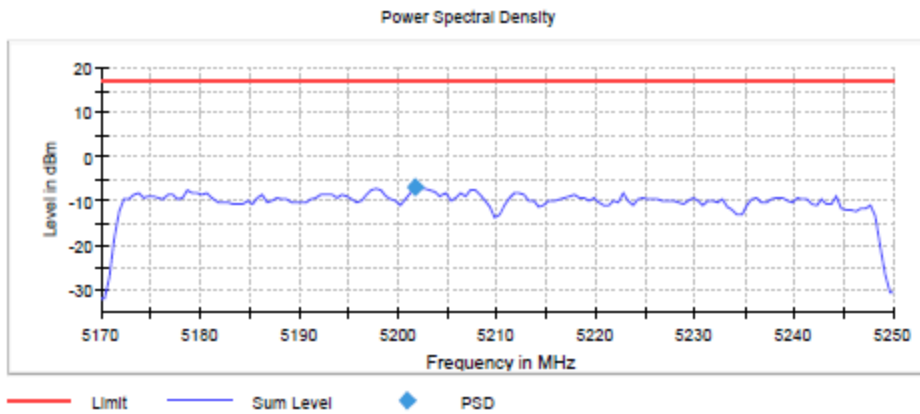


#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.21000 GHz      |
| Span                  | 40.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 101              |
| SweepTime             | 11.000 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 0                |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 15 / max. 15     |
| Stable                | 1 / 3            |
| Max Stable Difference | 0.00 dB          |

Radio Technology = WLAN ac 80 MHz, Operating Frequency = mid, Subband = U-NII-1

(S01\_AR04)



#### Measurement

| Setting               | Instrument Value |
|-----------------------|------------------|
| Start Frequency       | 5.17000 GHz      |
| Stop Frequency        | 5.25000 GHz      |
| Span                  | 80.000 MHz       |
| RBW                   | 1.000 MHz        |
| VBW                   | 3.000 MHz        |
| SweepPoints           | 160              |
| SweepTime             | 16.000 $\mu$ s   |
| Reference Level       | -10.000 dBm      |
| Attenuation           | 10.000 dB        |
| Detector              | RMS              |
| SweepCount            | 0                |
| Filter                | 3 dB             |
| Trace Mode            | Max Hold         |
| SweepType             | FFT              |
| Preamplifier          | off              |
| Stablemode            | Trace            |
| Stablevalue           | 0.30 dB          |
| Run                   | 15 / max. 15     |
| Stable                | 1 / 3            |
| Max Stable Difference | 0.00 dB          |

#### 5.5.5 TEST EQUIPMENT USED

- R&S TS8997

## 5.6 UNDESIRABLE EMISSIONS; GENERAL FIELD STRENGTH LIMITS

Standard **FCC Part 15 Subpart E**

**The test was performed according to:**  
ANSI C63.10

### 5.6.1 TEST DESCRIPTION

The test set-up was made in accordance to the general provisions of ANSI C63.10 in a typical installation configuration. The Equipment Under Test (EUT) was set up on a non-conductive table 1.0 x 2.0 m<sup>2</sup> in the semi-anechoic chamber. The influence of the EUT support table that is used between 30–1000 MHz was evaluated.

The measurement procedure is implemented into the EMI test software EMC32 from R&S. Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is also performed at 3 axes. A pre-check is performed while the EUT is powered from a DC power source.

#### 1. Measurement up to 30 MHz

The Loop antenna HFH2-Z2 is used.

##### Step 1: pre measurement

- Anechoic chamber
- Antenna distance: 3 m
- Detector: Peak-Maxhold
- Frequency range: 0.009 - 0.15 MHz and 0.15 - 30 MHz
- Frequency steps: 0.05 kHz and 2.25 kHz
- IF-Bandwidth: 0.2 kHz and 9 kHz
- Measuring time / Frequency step: 100 ms (FFT-based)

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

##### Step 2: final measurement

For the relevant emissions determined in step 1, an additional measurement with the following settings will be performed. Intention of this step is to find the maximum emission level.

- Open area test site
- Antenna distance: according to the Standard
- Detector: Quasi-Peak
- Frequency range: 0.009 - 30 MHz
- Frequency steps: measurement at frequencies detected in step 1
- IF-Bandwidth: 0.2 - 10 kHz
- Measuring time / Frequency step: 1 s

#### 2. Measurement above 30 MHz and up to 1 GHz

##### Step 1: Preliminary scan

This is a preliminary test to identify the highest amplitudes relative to the limit.

Settings for step 1:

- Antenna distance: 3 m
- Detector: Peak-Maxhold / Quasipeak (FFT-based)
- Frequency range: 30 - 1000 MHz
- Frequency steps: 30 kHz
- IF-Bandwidth: 120 kHz
- Measuring time / Frequency step: 100 ms

- Turntable angle range:  $-180^{\circ}$  to  $90^{\circ}$
- Turntable step size:  $90^{\circ}$
- Height variation range: 1 – 3 m
- Height variation step size: 2 m
- Polarisation: Horizontal + Vertical

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

#### **Step 2: Adjustment measurement**

In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.

For each frequency, which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will slowly vary by  $\pm 45^{\circ}$  around this value. During this action, the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position, the antenna height will also slowly vary by  $\pm 100$  cm around the antenna height determined. During this action, the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.

- Detector: Peak – Maxhold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100 ms
- Turntable angle range:  $\pm 45^{\circ}$  around the determined value
- Height variation range:  $\pm 100$  cm around the determined value
- Antenna Polarisation: max. value determined in step 1

#### **Step 3: Final measurement with QP detector**

With the settings determined in step 3, the final measurement will be performed:

EMI receiver settings for step 4:

- Detector: Quasi-Peak ( $< 1$  GHz)
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

After the measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement.

### **3. Measurement above 1 GHz**

The following modifications apply to the measurement procedure for the frequency range above 1 GHz:

#### **Step 1:**

The Equipment Under Test (EUT) was set up on a non-conductive support (tilt device) at 1.5 m height in the fully-anechoic chamber.

All steps were performed with one height (1.5 m) of the receiving antenna only.

The EUT is turned during the preliminary measurement across the elevation axis, with a step size of  $90^{\circ}$ .

The turn table step size (azimuth angle) for the preliminary measurement is  $45^{\circ}$ .

Above 26 GHz the measurement distance is reduced to 1 m.

#### **Step 2:**

Due to the fact, that in this frequency range the test is performed in a fully anechoic room, the height scan of the receiving antenna instep 2 is omitted. Instead of this, a maximum search with a step size  $\pm 45^{\circ}$  for the elevation axis is performed.

The turn table azimuth will slowly vary by  $\pm 22.5^{\circ}$ .

The elevation angle will slowly vary by  $\pm 45^{\circ}$

EMI receiver settings (for all steps):

- Detector: Peak, Average
- IF Bandwidth = 1 MHz

**Step 3:**

Spectrum analyser settings for step 3:

- Detector: Peak / Average
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 1 MHz
- Measuring time: 1 s

## 5.6.2 TEST REQUIREMENTS / LIMITS

### A) FCC

FCC Part 15 Subpart E, §15.407 (b)(1)

For transmitters operating in the 5150–5250 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5150–5350 MHz.

FCC Part 15 Subpart E, §15.407 (b)(2)

For transmitters operating in the 5250–5350 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5150–5350 MHz.

FCC Part 15 Subpart E, §15.407 (b)(3)

For transmitters operating in the 5470–5725 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5470–5725 MHz.

FCC Part 15 Subpart E, §15.407 (b)(4)(i)

All emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

### B) IC

Different frequency bands and limits apply, as compared to the FCC requirements.

RSS-247, 6.2.1.1, Emissions outside the band 5150-5250 MHz, indoor operation only:

Limit: –27 dBm/MHz EIRP outside of the band 5150–5250 MHz.

RSS-247, 6.2.2.2, Emissions outside the band 5250-5350 MHz:

Limit: –27 dBm/MHz EIRP outside of the band 5250–5350 MHz.

RSS-247, 6.2.3.2, Emissions outside the bands 5470-5600 MHz and 5650-5725 MHz:

Limit: –27 dBm/MHz EIRP outside of the band 5470–5725 MHz.

Note: No operation is permitted for the frequency range 5600–5650 MHz.

RSS-247, 6.2.4.2, Emissions outside the band 5725-5825 MHz:

- a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;
- b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
- c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to –27 dBm/MHz at 75 MHz above or below the band edges; and
- d) –27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

## C) FCC & IC

FCC Part 15 Subpart E, §15.405

The provisions of §§ 15.203 and 15.205 are included.

§15.407 (b)(6)

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

§15.407 (b)(7)

The provisions of §15.205 apply to intentional radiators operating under this section

FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

| Frequency in MHz | Limit (µV/m)     | Measurement distance (m) | Limits (dBµV/m)    |
|------------------|------------------|--------------------------|--------------------|
| 0.009 – 0.49     | 2400/F(kHz)@300m | 3                        | (48.5 – 13.8)@300m |
| 0.49 – 1.705     | 24000/F(kHz)@30m | 3                        | (33.8 – 23.0)@30m  |
| 1.705 – 30       | 30@30m           | 3                        | 29.5@30m           |

The measured values are corrected with an inverse linear distance extrapolation factor (40 dB/decade) according FCC 15.31 (2).

| Frequency in MHz | Limit (µV/m) | Measurement distance (m) | Limits (dBµV/m) |
|------------------|--------------|--------------------------|-----------------|
| 30 – 88          | 100@3m       | 3                        | 40.0@3m         |
| 88 – 216         | 150@3m       | 3                        | 43.5@3m         |
| 216 – 960        | 200@3m       | 3                        | 46.0@3m         |
| 960 – 26000      | 500@3m       | 3                        | 54.0@3m         |
| 26000 – 40000    | 500@3m       | 1                        | 54.0@3m         |

The measured values above 26 GHz are corrected with an inverse linear distance extrapolation factor (20 dB/decade).

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor:

- Limit (dBµV/m) = 20 log (Limit (µV/m)/1µV/m)
- Limit (dBµV/m) = EIRP [dBm] – 20 log (d [m]) + 104.8

Limit types (in result tables on next page):

RB – Emissions falls into a "Restricted Band" according FCC §§15.205 and 15.209 \*)

UE – "Undesirable Emission Limit" according FCC §15.407

BE-RB – Band Edge Limit basing on "Restricted Band Limits"

BE-UE – Band Edge Limit basing on "Undesirable Emission Limit"

\*) Below 1 GHz the limits of §15.209 are applied for all frequencies.

### 5.6.3 TEST PROTOCOL

#### Android Core 0

Ambient temperature: 23–26 °C  
 Air Pressure: 1002–1014 hPa  
 Humidity: 32–43 %  
 WLAN a-Mode; 20 MHz; 6 Mbit/s

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 36      | 5180                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 44      | 5220                   | 81.6                 | 25.0                    | QP       | 120       | 40.0           | 15.0        | UE         |
| 44      | 5220                   | 131.8                | 24.3                    | QP       | 120       | 43.5           | 19.2        | UE         |
| 44      | 5220                   | 271.2                | 32.1                    | QP       | 120       | 46.0           | 13.9        | UE         |
| 44      | 5220                   | 337.8                | 35.6                    | QP       | 120       | 46.0           | 10.4        | UE         |

WLAN n-Mode; 20 MHz; MCS0

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 149     | 5745                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 157     | 5785                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 165     | 5825                   | -                    | -                       | -        | -         | -              | >6          | -          |

WLAN n-Mode; 40 MHz; MCS0; SISO

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 38      | 5190                   | 67.7                 | 20.3                    | QP       | 120       | 40.0           | 19.7        | RB         |
| 38      | 5190                   | 271.3                | 27.4                    | QP       | 120       | 46.0           | 18.6        | RB         |
| 38      | 5190                   | 280.4                | 10.8                    | QP       | 120       | 46.0           | 35.2        | RB         |
| 38      | 5190                   | 337.8                | 35.3                    | QP       | 120       | 46.0           | 10.7        | RB         |
| 38      | 5190                   | 743.0                | 22.5                    | QP       | 120       | 46.0           | 23.5        | RB         |
| 46      | 5230                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 151     | 5755                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 159     | 5795                   | -                    | -                       | -        | -         | -              | >6          | -          |

WLAN ac-Mode; 40 MHz; MCS0; SISO

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 38      | 5190                   | 2459.5               | 48.7                    | PEAK     | 1000      | 68.2           | 19.5        | RB         |
| 46      | 5230                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 151     | 5755                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 159     | 5795                   | -                    | -                       | -        | -         | -              | >6          | -          |

## Android Core 1

Ambient temperature: 23-26 °C  
 Air Pressure: 1002-1014 hPa  
 Humidity: 32-43 %  
 WLAN a-mode; 20 MHz; 6 Mbit/s

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 44      | 5220                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 149     | 5745                   | 1717.7               | 45.1                    | PEAK     | 1000      | 68.2           | 23.1        | UE         |
| 149     | 5745                   | 1718.0               | 45.5                    | PEAK     | 1000      | 68.2           | 22.7        | UE         |
| 149     | 5745                   | 1720.2               | 32.4                    | AV       | 1000      | 54.0           | 21.6        | RB         |
| 149     | 5745                   | 1720.2               | 45.7                    | PEAK     | 1000      | 74.0           | 28.3        | RB         |
| 149     | 5745                   | 17854.2              | 54.2                    | PEAK     | 1000      | 74.0           | 19.8        | RB         |
| 149     | 5745                   | 22092.1              | 54.3                    | PEAK     | 1000      | 74.0           | 19.7        | RB         |
| 157     | 5785                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 165     | 5825                   | -                    | -                       | -        | -         | -              | >6          | -          |

WLAN n-Mode; 20 MHz; MCS0; SISO

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 36      | 5180                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 44      | 5220                   | 5139.0               | 56.7                    | PEAK     | 1000      | 68.2           | 11.5        | UE         |
| 44      | 5220                   | 5138.5               | 43.7                    | AV       | 1000      | 68.2           | 24.5        | UE         |
| 48      | 5240                   | 5149.4               | 67.9                    | PEAK     | 1000      | 68.2           | 0.3         | UE         |
| 48      | 5240                   | 5148.2               | 49.6                    | AV       | 1000      | 68.2           | 18.6        | UE         |

## Linux Core 0

Ambient temperature: 23-26 °C  
 Air Pressure: 1002-1014 hPa  
 Humidity: 32-43 %  
 WLAN a-Mode; 20 MHz; 6 Mbit/s

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 149     | 5745                   | -                    | -                       | -        | -         | -              | >6          | -          |
| 157     | 5785                   | 1717.7               | 45.1                    | PEAK     | 1000      | 68.2           | 23.1        | UE         |
| 157     | 5785                   | 1718.0               | 45.5                    | PEAK     | 1000      | 68.2           | 22.7        | UE         |
| 157     | 5785                   | 1720.2               | 32.4                    | AV       | 1000      | 54.0           | 21.6        | RB         |
| 157     | 5785                   | 1720.2               | 45.7                    | PEAK     | 1000      | 74.0           | 28.3        | RB         |
| 157     | 5785                   | 17854.2              | 54.2                    | PEAK     | 1000      | 74.0           | 19.8        | RB         |
| 157     | 5785                   | 22092.1              | 54.3                    | PEAK     | 1000      | 74.0           | 19.7        | RB         |
| 165     | 5825                   | -                    | -                       | -        | -         | -              | >6          | -          |

WLAN n-Mode; 20 MHz; MCS0; SISO

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 36      | 5180                   | 5149.4               | 67.9                    | PEAK     | 1000      | 68.2           | 0.3         | UE         |
| 36      | 5180                   | 5148.2               | 49.6                    | AV       | 1000      | 68.2           | 18.6        | UE         |
| 48      | 5240                   | 5139.0               | 56.7                    | PEAK     | 1000      | 68.2           | 11.5        | UE         |
| 48      | 5240                   | 5138.5               | 43.7                    | AV       | 1000      | 68.2           | 24.5        | UE         |

## Linux Core 1

Ambient temperature: 23–26 °C  
 Air Pressure: 1002–1014 hPa  
 Humidity: 32–43 %  
 WLAN a-Mode; 20 MHz; MCS0

| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 157     | 5785                   | 81.6                 | 25.0                    | QP       | 1000      | 40.0           | 15.0        | UE         |
| 157     | 5785                   | 131.7                | 24.3                    | QP       | 1000      | 43.5           | 19.2        | UE         |
| 157     | 5785                   | 271.1                | 32.1                    | QP       | 1000      | 46.0           | 13.9        | UE         |
| 157     | 5785                   | 35.6                 | 35.6                    | QP       | 1000      | 46.0           | 10.4        | UE         |

WLAN ac-Mode; 40 MHz; MCS0; SISO

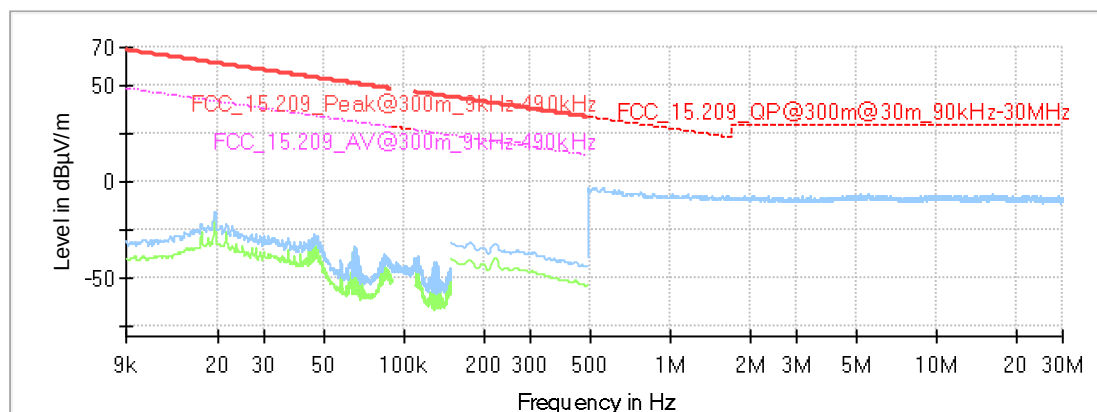
| Ch. No. | Ch. Center Freq. [MHz] | Spurious Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type |
|---------|------------------------|----------------------|-------------------------|----------|-----------|----------------|-------------|------------|
| 38      | 5190                   | 2450.0               | 48.5                    | PEAK     | 1000      | 68.2           | 19.7        | RB         |

Remark: Please see next sub-clause for the measurement plot.

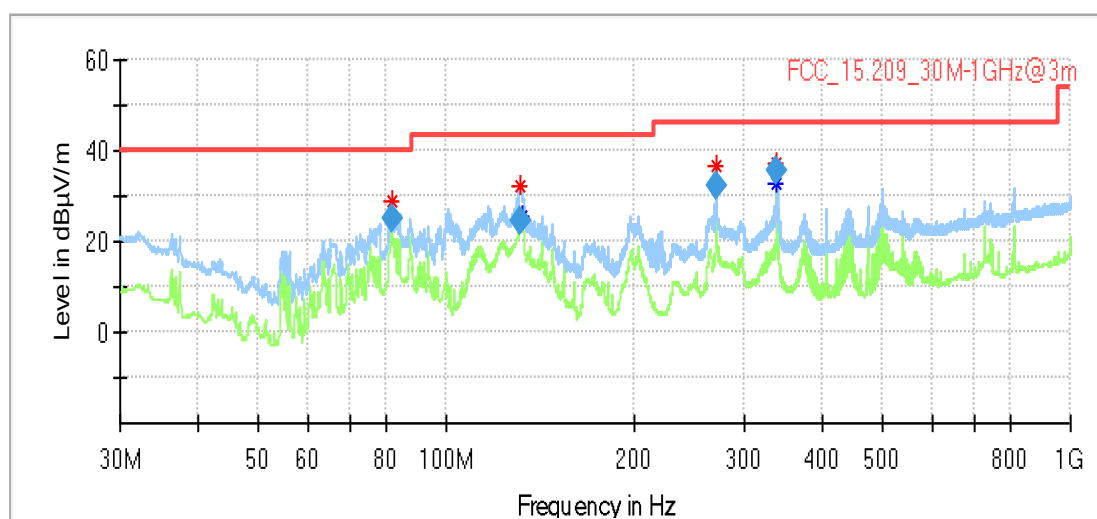
#### 5.6.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

##### Android Core 0

9 kHz – 30 MHz, WLAN a 6Mbps, Ch. 44



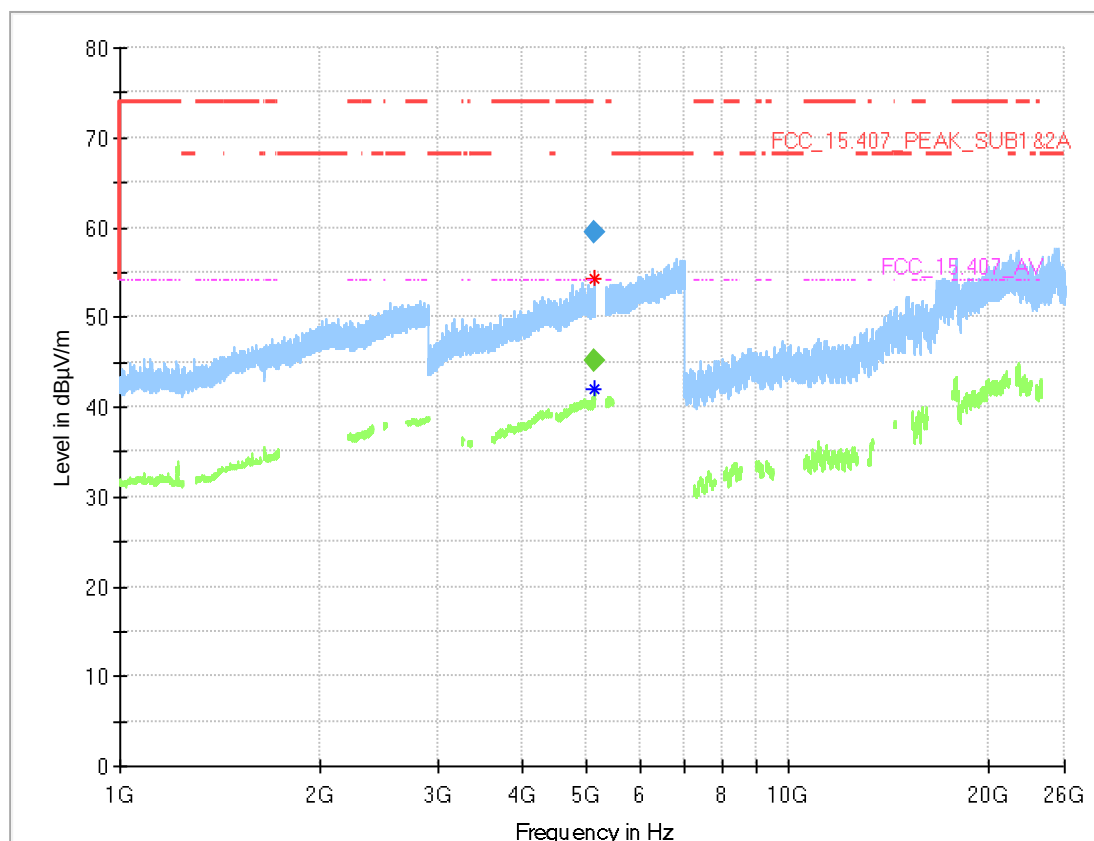
30 MHz – 1 GHz, WLAN a 6Mbps, Ch. 44



#### Final Result

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|---------|
| 81.600000       | 25.04              | 40.00          | 14.96       | 1000.0          | 120.000         | 115.0       | V   | -198.0        | 10.2         |         |
| 131.760000      | 24.35              | 43.50          | 19.15       | 1000.0          | 120.000         | 113.0       | V   | -91.0         | 10.4         |         |
| 271.170000      | 32.11              | 46.00          | 13.89       | 1000.0          | 120.000         | 111.0       | H   | -55.0         | 12.1         |         |
| 337.800000      | 35.64              | 46.00          | 10.36       | 1000.0          | 120.000         | 100.0       | H   | 113.0         | 14.6         |         |

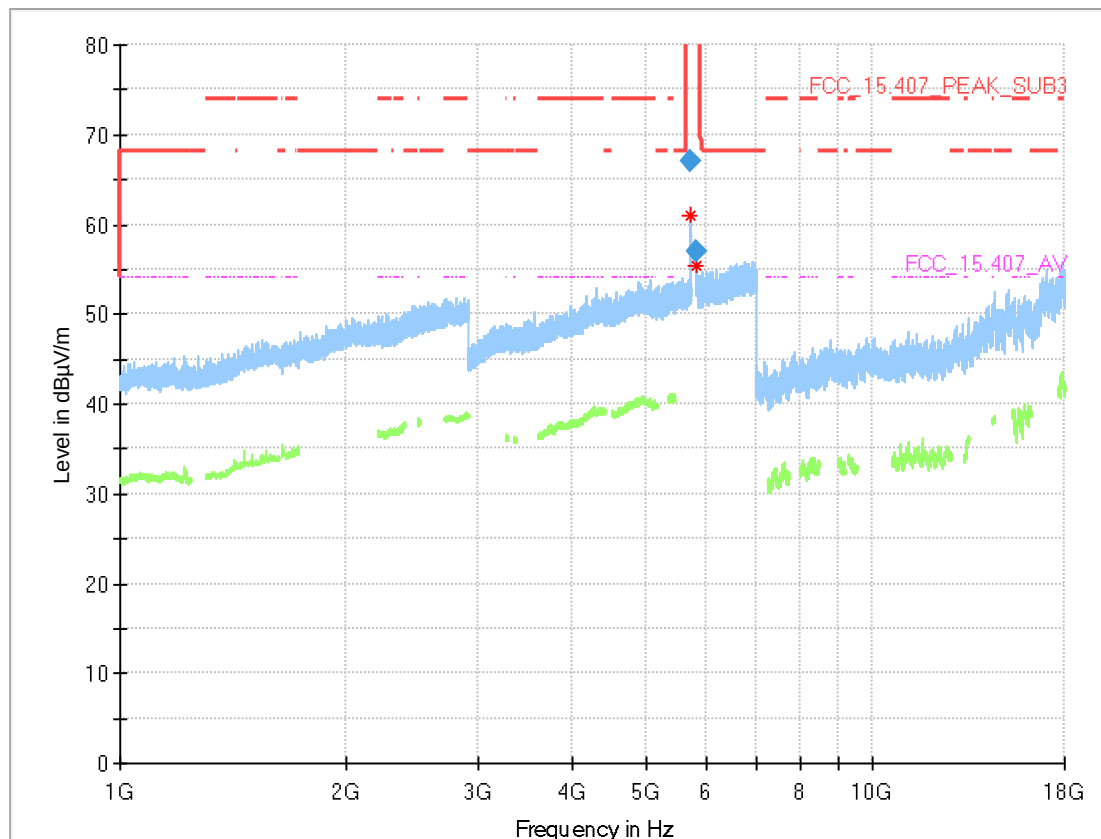
1 GHz – 26 GHz, WLAN a 6Mbps, Ch. 36



## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5149.025        | 59.4             | ---               | 74.00          | 14.58       | 1000.0          | 1000.000        | 150.0       | V   | 83.0          | -3.0            |
| 5149.838        | ---              | 45.1              | 54.00          | 8.86        | 1000.0          | 1000.000        | 150.0       | V   | 85.0          | -4.0            |

1 GHz – 18 GHz, WLAN n-mode 20MHz MCS0, Ch. 149

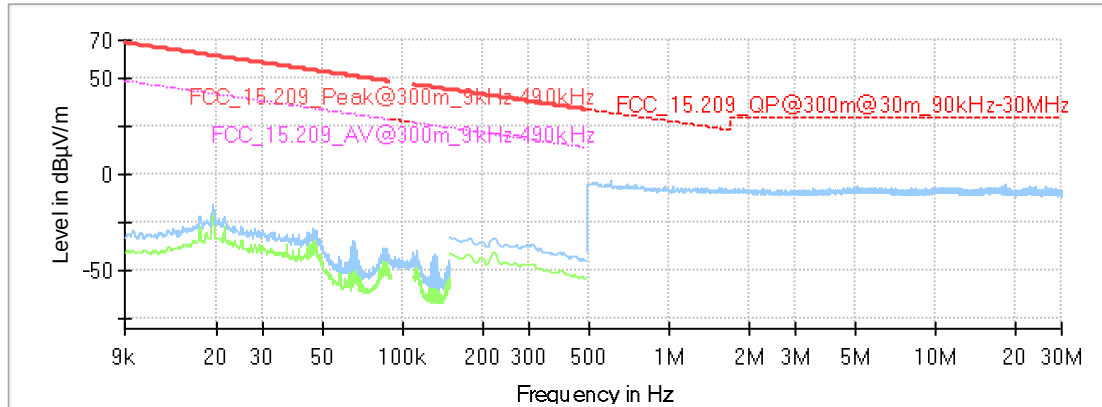


## Final\_Result

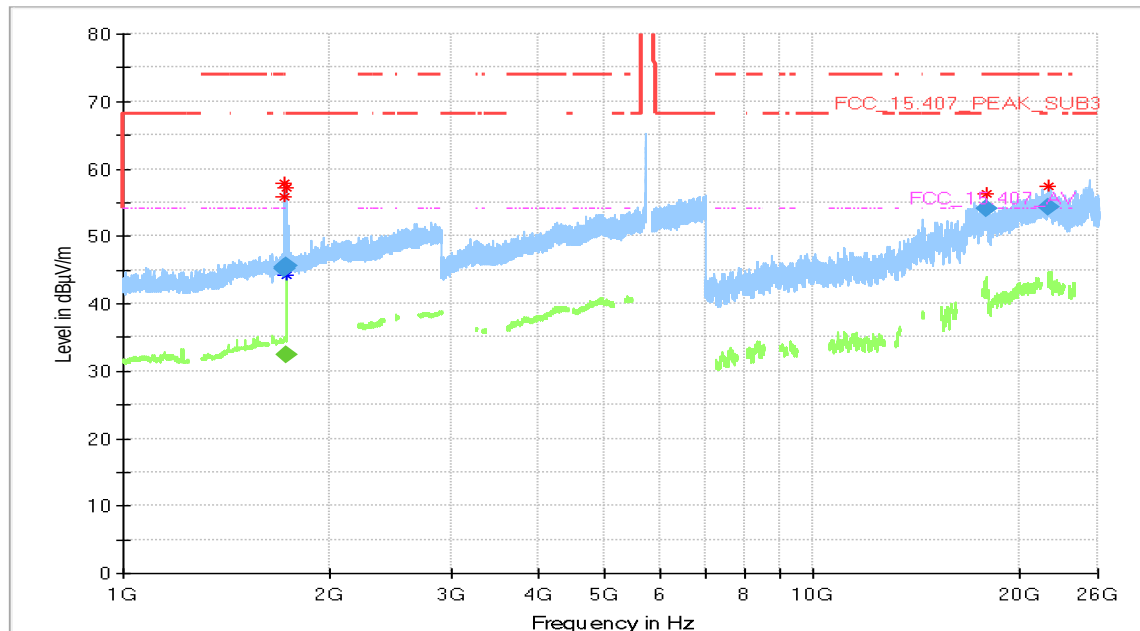
| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5724.300        | 67.0             | ---               | 120.60         | 53.63       | 1000.0          | 1000.000        | 150.0       | V   | 11.0          | -2.0            |
| 5850.700        | 57.1             | ---               | 120.60         | 63.54       | 1000.0          | 1000.000        | 150.0       | V   | -191.0        | 104.0           |

## Android Core 1

9 kHz – 30 MHz, WLAN a-mode 6Mbps, Ch. 157



1 GHz – 26 GHz, WLAN a-mode 6Mbps, Ch. 149



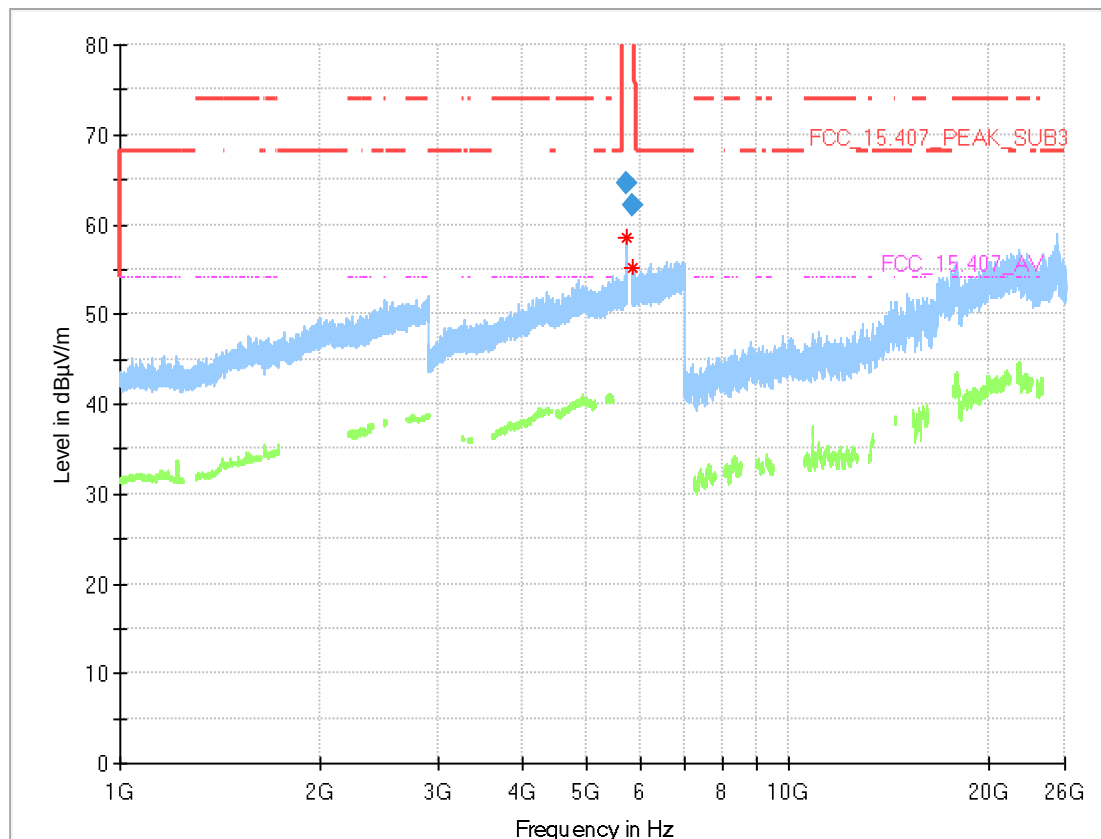
## Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 1717.744        | 57.9             | ---              | 68.20          | 10.29       | ---             | ---             | 150.0       | V   | -85.0         | 78.0            |
| 1718.008        | 55.9             | ---              | 68.20          | 12.32       | ---             | ---             | 150.0       | V   | -1.0          | 89.0            |
| 1720.194        | 57.2             | ---              | 74.00          | 16.80       | ---             | ---             | 150.0       | V   | 7.0           | 15.0            |
| 1720.194        | ---              | 44.3             | 54.00          | 9.72        | ---             | ---             | 150.0       | V   | -6.0          | 15.0            |
| 17854.200       | 56.4             | ---              | 74.00          | 17.64       | ---             | ---             | 150.0       | V   | -173.0        | 82.0            |
| 22092.140       | 57.5             | ---              | 74.00          | 16.55       | ---             | ---             | 150.0       | V   | -51.0         | 2.0             |

## Final\_Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 1717.744        | 45.1             | ---               | 68.20          | 23.14       | 1000.0          | 1000.000        | 150.0       | V   | -85.0         | 78.0            |
| 1718.008        | 45.5             | ---               | 68.20          | 22.74       | 1000.0          | 1000.000        | 150.0       | V   | -1.0          | 89.0            |
| 1720.194        | ---              | 32.4              | 54.00          | 21.64       | 1000.0          | 1000.000        | 150.0       | V   | -6.0          | 15.0            |
| 1720.194        | 45.7             | ---               | 74.00          | 28.32       | 1000.0          | 1000.000        | 150.0       | V   | 7.0           | 15.0            |
| 17854.200       | 54.2             | ---               | 74.00          | 19.82       | 1000.0          | 1000.000        | 150.0       | V   | -173.0        | 82.0            |

# 1 GHz – 26 GHz, WLAN a-mode 6Mbps, Ch. 165



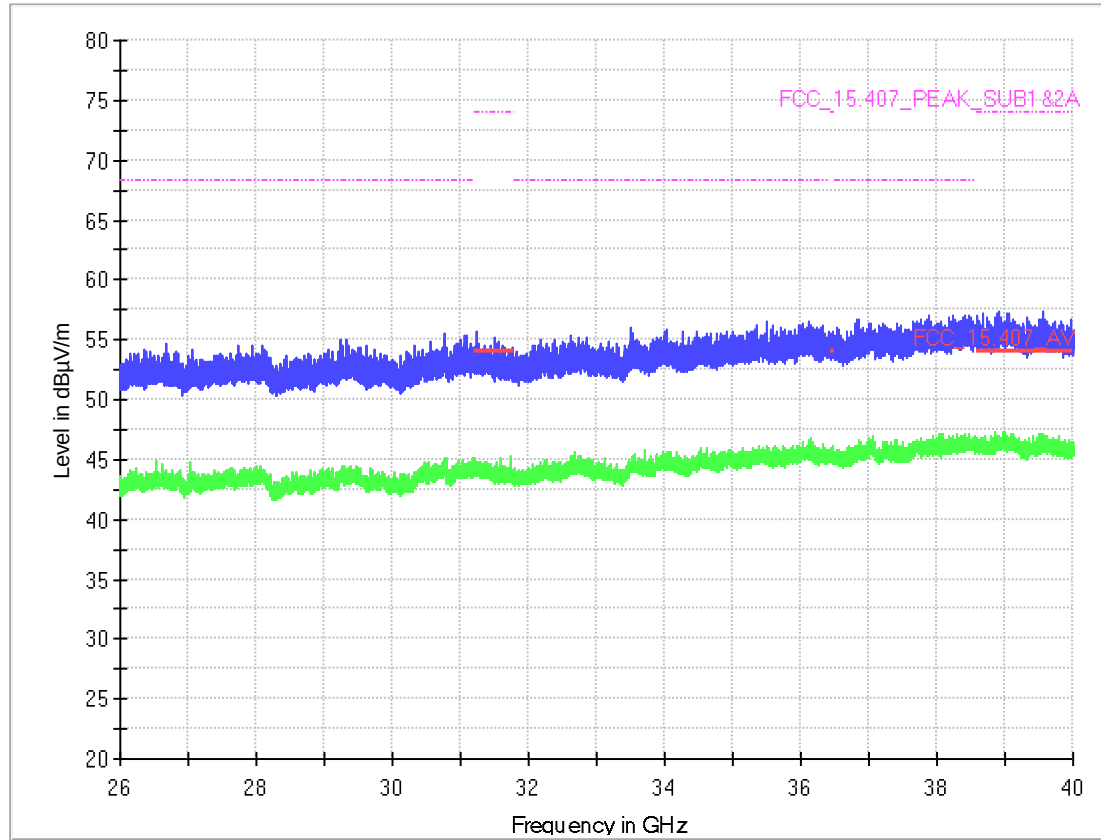
## Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5724.200        | 58.6             | ---              | 120.38         | 61.79       | ---             | ---             | 150.0       | H   | -190.0        | 92.0            |
| 5850.300        | 55.2             | ---              | 121.52         | 66.30       | ---             | ---             | 150.0       | V   | -132.0        | 86.0            |

## Final\_Result

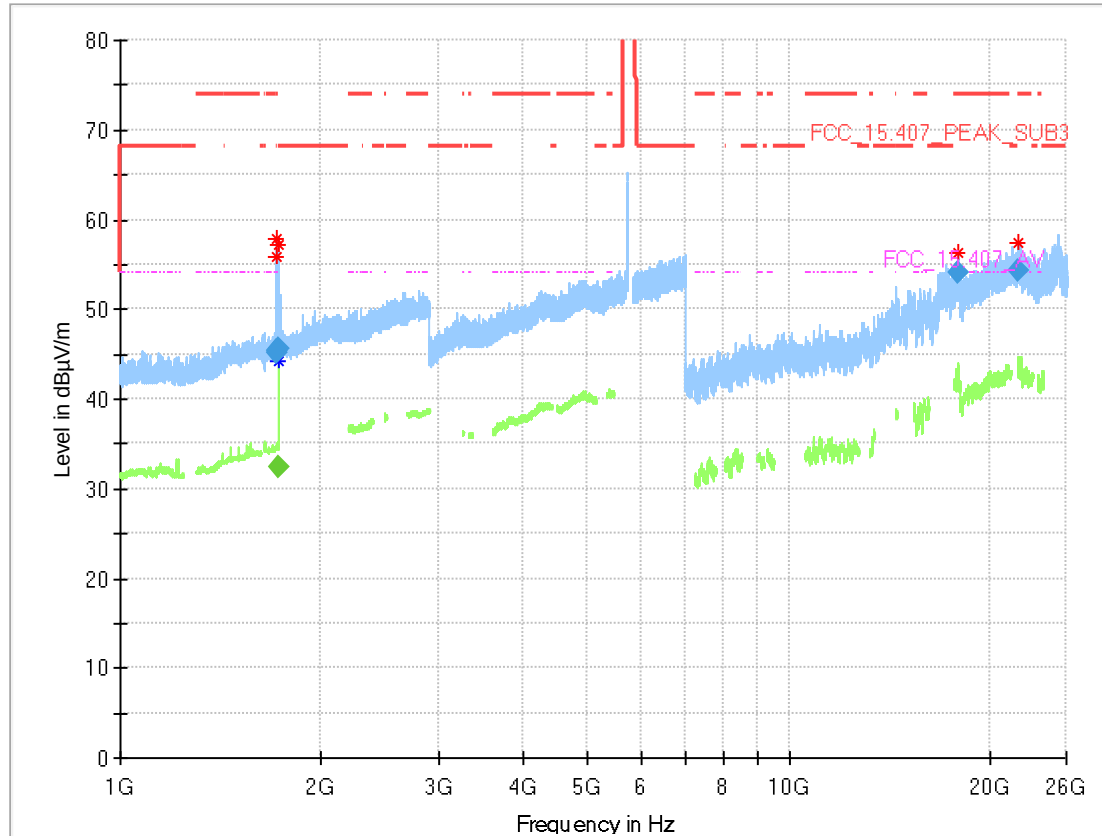
| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5724.200        | 64.6             | ---               | 120.38         | 55.73       | 1000.0          | 1000.000        | 150.0       | H   | -190.0        | 92.0            |
| 5850.300        | 62.2             | ---               | 121.52         | 59.30       | 1000.0          | 1000.000        | 150.0       | V   | -132.0        | 86.0            |

26 GHz – 40 GHz, WLAN n-mode 20MHz MCS0, Ch. 157



## Linux Core 0

1 GHz – 26 GHz, WLAN a-mode MCS0, Ch. 157



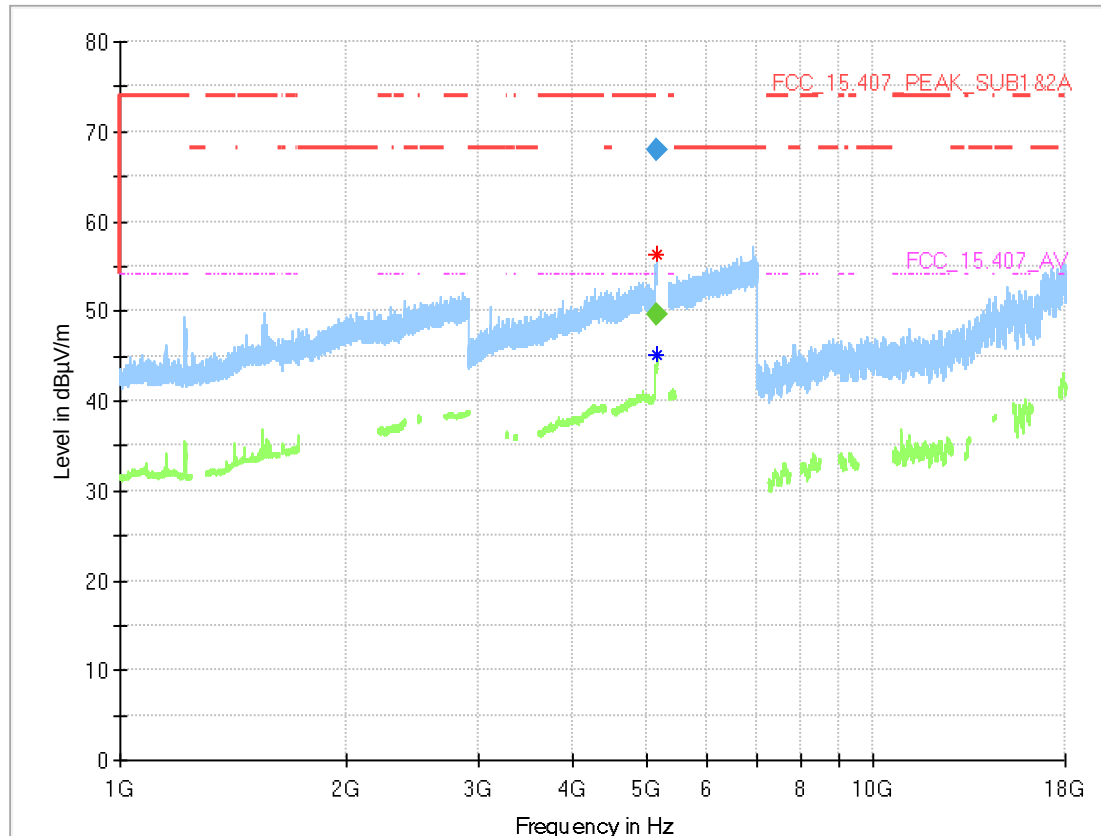
## Critical Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 1717.744        | 57.9             | ---              | 68.20          | 10.29       | ---             | ---             | 150.0       | V   | -85.0         | 78.0            |
| 1718.008        | 55.9             | ---              | 68.20          | 12.32       | ---             | ---             | 150.0       | V   | -1.0          | 89.0            |
| 1720.194        | 57.2             | ---              | 74.00          | 16.80       | ---             | ---             | 150.0       | V   | 7.0           | 15.0            |
| 1720.194        | ---              | 44.3             | 54.00          | 9.72        | ---             | ---             | 150.0       | V   | -6.0          | 15.0            |
| 17854.200       | 56.4             | ---              | 74.00          | 17.64       | ---             | ---             | 150.0       | V   | -173.0        | 82.0            |
| 22092.140       | 57.5             | ---              | 74.00          | 16.55       | ---             | ---             | 150.0       | V   | -51.0         | 2.0             |

## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 1717.744        | 45.1             | ---               | 68.20          | 23.14       | 1000.0          | 1000.000        | 150.0       | V   | -85.0         | 78.0            |
| 1718.008        | 45.5             | ---               | 68.20          | 22.74       | 1000.0          | 1000.000        | 150.0       | V   | -1.0          | 89.0            |
| 1720.194        | ---              | 32.4              | 54.00          | 21.64       | 1000.0          | 1000.000        | 150.0       | V   | -6.0          | 15.0            |
| 1720.194        | 45.7             | ---               | 74.00          | 28.32       | 1000.0          | 1000.000        | 150.0       | V   | 7.0           | 15.0            |
| 17854.200       | 54.2             | ---               | 74.00          | 19.82       | 1000.0          | 1000.000        | 150.0       | V   | -173.0        | 82.0            |
| 22092.140       | 54.3             | ---               | 74.00          | 19.71       | 1000.0          | 1000.000        | 150.0       | V   | -51.0         | 2.0             |

# 1 GHz – 18 GHz, WLAN n-mode 20MHz MCS0, Ch. 36



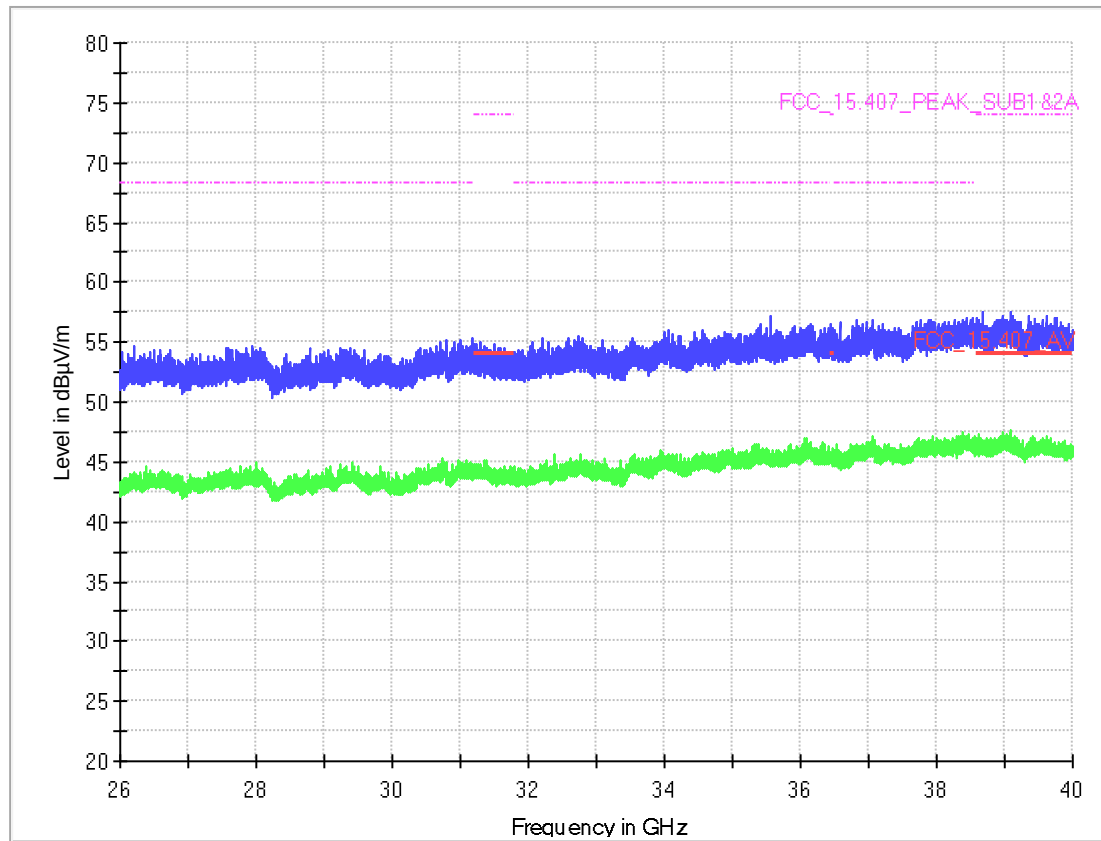
## Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5148.213        | ---              | 45.0             | 54.00          | 8.96        | ---             | ---             | 150.0       | V   | 142.0         | 2.0             |
| 5149.350        | 56.3             | ---              | 74.00          | 17.73       | ---             | ---             | 150.0       | V   | 143.0         | 8.0             |

## Final\_Result

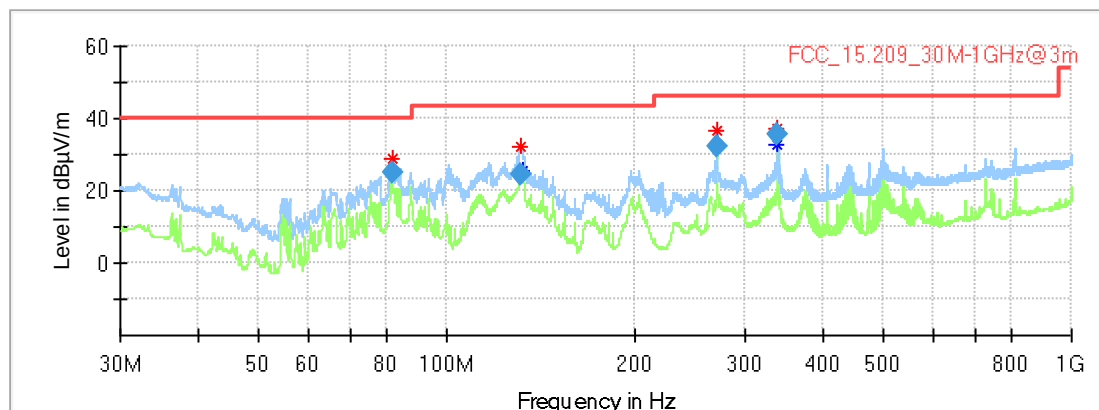
| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5148.213        | ---              | 49.6              | 54.00          | 4.43        | 1000.0          | 1000.000        | 150.0       | V   | 142.0         | 2.0             |
| 5149.350        | 67.9             | ---               | 74.00          | 6.12        | 1000.0          | 1000.000        | 150.0       | V   | 143.0         | 8.0             |

26 GHz – 40 GHz, WLAN a-mode MCS0, Ch. 44



## Linux Core 1

30 MHz – 1 GHz, WLAN a-mode 6mbps, Ch. 157

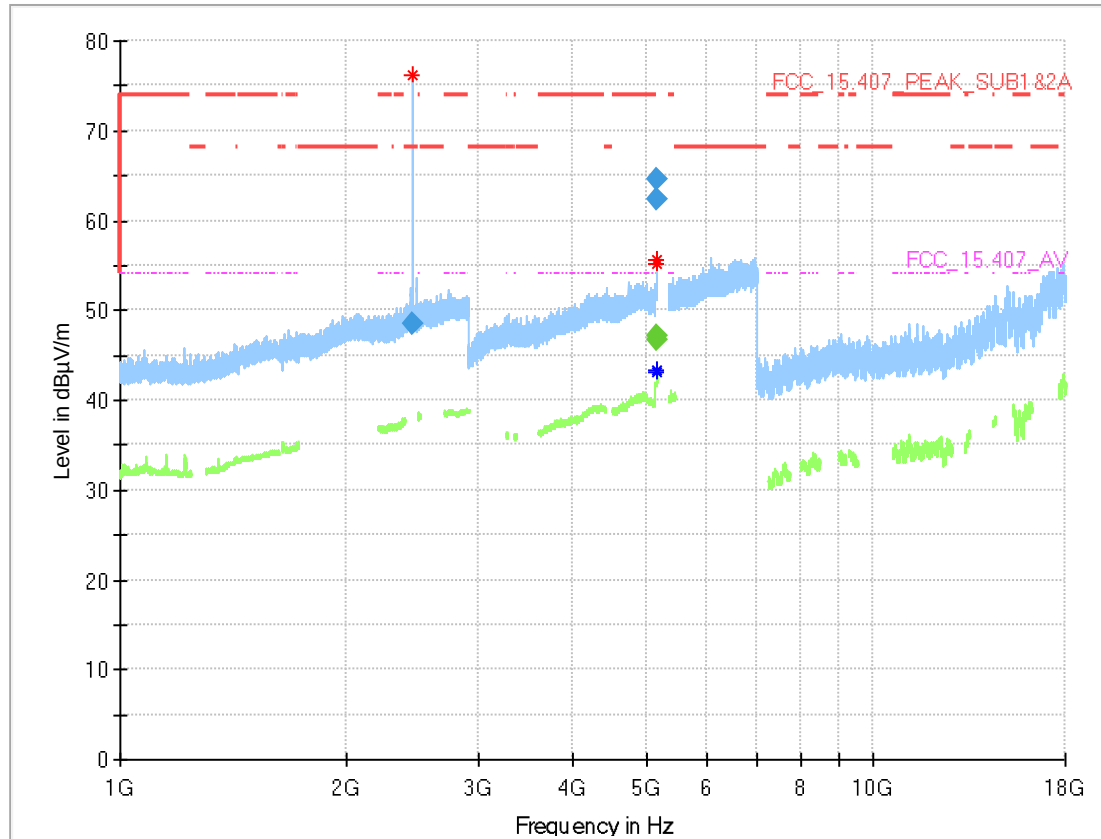


## Final Result

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|---------|
| 81.600000       | 25.04              | 40.00          | 14.96       | 1000.0          | 120.000         | 115.0       | V   | -198.0        | 10.2         |         |
| 131.760000      | 24.35              | 43.50          | 19.15       | 1000.0          | 120.000         | 113.0       | V   | -91.0         | 10.4         |         |
| 271.170000      | 32.11              | 46.00          | 13.89       | 1000.0          | 120.000         | 111.0       | H   | -55.0         | 12.1         |         |
| 337.800000      | 35.64              | 46.00          | 10.36       | 1000.0          | 120.000         | 100.0       | H   | 113.0         | 14.6         |         |

30 MHz – 1 GHz, WLAN a-mode 6mbps, Ch. 157

## 1 GHz – 18 GHz, WLAN ac-mode 40 MHz, Ch. 38



### Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 2450.214        | 76.3             | ---              | 68.20          | -8.05       | ---             | ---             | 150.0       | H   | 143.0         | 0.0             |
| 5148.538        | ---              | 43.0             | 54.00          | 10.97       | ---             | ---             | 150.0       | V   | -92.0         | -12.0           |
| 5148.538        | 55.6             | ---              | 74.00          | 18.38       | ---             | ---             | 150.0       | V   | -92.0         | -15.0           |
| 5149.838        | ---              | 43.3             | 54.00          | 10.72       | ---             | ---             | 150.0       | V   | -92.0         | -12.0           |
| 5149.838        | 55.2             | ---              | 74.00          | 18.76       | ---             | ---             | 150.0       | V   | -91.0         | 15.0            |

### Final\_Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 2450.214        | 48.5             | ---               | 68.20          | 19.71       | 1000.0          | 1000.000        | 150.0       | H   | 143.0         | 0.0             |
| 5148.538        | ---              | 46.8              | 54.00          | 7.24        | 1000.0          | 1000.000        | 150.0       | V   | -92.0         | -12.0           |
| 5148.538        | 62.4             | ---               | 74.00          | 11.60       | 1000.0          | 1000.000        | 150.0       | V   | -92.0         | -15.0           |
| 5149.838        | ---              | 47.2              | 54.00          | 6.79        | 1000.0          | 1000.000        | 150.0       | V   | -92.0         | -12.0           |
| 5149.838        | 64.5             | ---               | 74.00          | 9.50        | 1000.0          | 1000.000        | 150.0       | V   | -91.0         | 15.0            |

### 5.6.5 TEST EQUIPMENT USED

- Radiated Emissions

## 5.7 BAND EDGE

Standard **FCC Part 15 Subpart E**

**The test was performed according to:**  
ANSI C63.10

### 5.7.1 TEST DESCRIPTION

Please see test description for the test case "Spurious Radiated Emissions"

### 5.7.2 TEST REQUIREMENTS / LIMITS

For band edges connected to a restricted band, the limits are specified in Section 15.209(a)

FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

| Frequency in MHz | Limit (μV/m)     | Measurement distance (m) | Limits (dBμV/m)    |
|------------------|------------------|--------------------------|--------------------|
| 0.009 – 0.49     | 2400/F(kHz)@300m | 3                        | (48.5 – 13.8)@300m |
| 0.49 – 1.705     | 24000/F(kHz)@30m | 3                        | (33.8 – 23.0)@30m  |
| 1.705 – 30       | 30@30m           | 3                        | 29.5@30m           |

The measured values are corrected with an inverse linear distance extrapolation factor (40 dB/decade) according FCC 15.31 (2).

| Frequency in MHz | Limit (μV/m) | Measurement distance (m) | Limits (dBμV/m) |
|------------------|--------------|--------------------------|-----------------|
| 30 – 88          | 100@3m       | 3                        | 40.0@3m         |
| 88 – 216         | 150@3m       | 3                        | 43.5@3m         |
| 216 – 960        | 200@3m       | 3                        | 46.0@3m         |
| 960 – 26000      | 500@3m       | 3                        | 54.0@3m         |
| 26000 – 40000    | 500@3m       | 1                        | 54.0@3m         |

The measured values above 26 GHz are corrected with an inverse linear distance extrapolation factor (20 dB/decade).

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor:  $\text{Limit (dB}\mu\text{V/m)} = 20 \log (\text{Limit } (\mu\text{V/m})/1\mu\text{V/m})$

### 5.7.3 TEST PROTOCOL

#### Android Core 0

Ambient temperature: 23–26 °C  
 Air Pressure: 1007–1013 hPa  
 Humidity: 30 – 37 %  
 WLAN a-Mode; 20 MHz; 6 Mbit/s

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 59.4                    | PEAK     | 1000      | 74.0           | 14.6        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 45.1                    | AV       | 1000      | 54.0           | 8.9         | BE-RB      | FCC&IC   |

WLAN n-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 56.5                    | PEAK     | 1000      | 74.0           | 17.5        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 44.4                    | AV       | 1000      | 54.0           | 9.6         | BE-RB      | FCC&IC   |
| 3             | 149     | 5745                   | 5725.0                | 67.0                    | PEAK     | 1000      | 120.6          | 53.6        | BE-UE      | FCC&IC   |
|               | 165     | 5825                   | 5850.0                | 59.8                    | PEAK     | 1000      | 120.6          | 60.8        | BE-UE      | FCC&IC   |

WLAN n-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 38      | 5190                   | 5150.0                | 63.1                    | PEAK     | 1000      | 74.0           | 10.9        | BE-RB      | FCC&IC   |
|               | 38      | 5190                   | 5150.0                | 46.7                    | AV       | 1000      | 54.0           | 7.3         | BE-RB      | FCC&IC   |
| 3             | 151     | 5755                   | 5725.0                | 67.0                    | PEAK     | 1000      | 121.7          | 54.7        | BE-UE      | FCC&IC   |
|               | 159     | 5795                   | 5850.0                | 57.4                    | PEAK     | 1000      | 120.6          | 63.2        | BE-UE      | FCC&IC   |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 57.3                    | PEAK     | 1000      | 74.0           | 16.7        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 44.9                    | AV       | 1000      | 54.0           | 9.1         | BE-RB      | FCC&IC   |
| 3             | 165     | 5825                   | 5850.0                | 71.5                    | PEAK     | 1000      | 120.6          | 49.1        | BE-UE      | FCC&IC   |

WLAN ac-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 38      | 5190                   | 5150.0                | 63.1                    | PEAK     | 1000      | 74.0           | 10.9        | BE-RB      | FCC&IC   |
|               | 38      | 5190                   | 5150.0                | 46.7                    | AV       | 1000      | 54.0           | 7.3         | BE-RB      | FCC&IC   |
| 3             | 151     | 5755                   | 5725.0                | 66.2                    | PEAK     | 1000      | 120.6          | 54.4        | BE-UE      | FCC&IC   |
|               | 159     | 5795                   | 5850.0                | 56.9                    | PEAK     | 1000      | 120.6          | 63.7        | BE-UE      | FCC&IC   |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 42      | 5210                   | 5150.0                | 61.1                    | PEAK     | 1000      | 74.0           | 12.9        | BE-RB      | FCC&IC   |
|               | 42      | 5210                   | 5150.0                | 46.0                    | AV       | 1000      | 54.0           | 8.0         | BE-RB      | FCC&IC   |
| 3             | 155     | 5775                   | 5725.0                | 63.0                    | PEAK     | 1000      | 120.6          | 57.6        | BE-UE      | FCC&IC   |
|               | 155     | 5775                   | 5850.0                | 59.4                    | PEAK     | 1000      | 120.6          | 61.2        | BE-UE      | FCC&IC   |

WLAN ac-Mode; 20 MHz; MCS0; MIMO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 56.7                    | PEAK     | 1000      | 74.0           | 17.3        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 45.0                    | AV       | 1000      | 54.0           | 9.0         | BE-RB      | FCC&IC   |

WLAN ac-Mode; 80 MHz; MCS8; MIMO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 42      | 5210                   | 5150.0                | 64.0                    | PEAK     | 1000      | 74.0           | 10.0        | BE-RB      | FCC&IC   |
|               | 42      | 5210                   | 5150.0                | 48.2                    | AV       | 1000      | 54.0           | 5.8         | BE-RB      | FCC&IC   |
| 3             | 155     | 5775                   | 5725.0                | 65.1                    | PEAK     | 1000      | 118.1          | 53.0        | BE-UE      | FCC&IC   |
|               | 155     | 5775                   | 5850.0                | 63.4                    | PEAK     | 1000      | 119.7          | 56.3        | BE-UE      | FCC&IC   |

## Android Core 1

Ambient temperature: 23–26 °C  
 Air Pressure: 1007-1013 hPa  
 Humidity: 30-37 %

WLAN a-Mode; 20 MHz; 6 Mbit/s

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 3             | 149     | 5745                   | 5725.0                | 72.3                    | PEAK     | 1000      | 120.6          | 48.3        | BE-UE      | FCC&IC   |
|               | 165     | 5825                   | 5850.0                | 62.2                    | PEAK     | 1000      | 120.6          | 58.4        | BE-UE      | FCC&IC   |

WLAN n-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 61.9                    | PEAK     | 1000      | 74.0           | 12.1        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 46.9                    | AV       | 1000      | 54.0           | 7.1         | BE-RB      | FCC&IC   |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 67.7                    | PEAK     | 1000      | 74.0           | 6.3         | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 48.7                    | AV       | 1000      | 54.0           | 5.3         | BE-RB      | FCC&IC   |
| 3             | 149     | 5745                   | 5725.0                | 80.4                    | PEAK     | 1000      | 120.6          | 40.2        | BE-UE      | FCC&IC   |

## Linux Core 0

Ambient temperature: 23–26 °C  
 Air Pressure: 1007-1013 hPa  
 Humidity: 30-37 %

WLAN a-Mode; 20 MHz; 6 Mbit/s SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 3             | 149     | 5745                   | 5725.0                | 64.6                    | PEAK     | 1000      | 120.6          | 56.0        | BE-UE      | FCC&IC   |
|               | 165     | 5825                   | 5850.0                | 58.6                    | PEAK     | 1000      | 120.6          | 62.0        | BE-UE      | FCC&IC   |

WLAN n-Mode; 20 MHz MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 67.9                    | PEAK     | 1000      | 74.0           | 6.1         | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 49.6                    | AV       | 1000      | 54.0           | 4.4         | BE-RB      | FCC&IC   |

WLAN n-Mode; 20 MHz MCS0; MIMO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 57.7                    | PEAK     | 1000      | 74.0           | 10.2        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 43.9                    | AV       | 1000      | 54.0           | 16.3        | BE-RB      | FCC&IC   |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 59.6                    | PEAK     | 1000      | 74.0           | 14.4        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 44.4                    | AV       | 1000      | 54.0           | 9.6         | BE-RB      | FCC&IC   |
| 3             | 149     | 5745                   | 5725.0                | 78.8                    | PEAK     | 1000      | 120.6          | 41.8        | BE-UE      | FCC&IC   |

WLAN ac-Mode; 20 MHz; MCS0; MIMO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 56.5                    | PEAK     | 1000      | 74.0           | 17.5        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 43.7                    | AV       | 1000      | 54.0           | 10.3        | BE-RB      | FCC&IC   |

WLAN ac-Mode; 80 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 42      | 5210                   | 5150.0                | 65.0                    | PEAK     | 1000      | 74.0           | 9.0         | BE-RB      | FCC&IC   |
|               | 42      | 5210                   | 5150.0                | 48.7                    | AV       | 1000      | 54.0           | 5.3         | BE-RB      | FCC&IC   |
| 3             | 155     | 5775                   | 5725.0                | 65.0                    | PEAK     | 1000      | 120.6          | 55.6        | BE-UE      | FCC&IC   |
|               | 155     | 5775                   | 5850.0                | 60.3                    | PEAK     | 1000      | 120.6          | 60.3        | BE-UE      | FCC&IC   |

Remark: Please see next sub-clause for the measurement plot.

## Linux Core 1

Ambient temperature: 23–26 °C  
 Air Pressure: 1007–1013 hPa  
 Humidity: 30–37 %  
 WLAN a-Mode; 20 MHz; 6 Mbit/s

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 61.7                    | PEAK     | 1000      | 74.0           | 12.3        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 46.5                    | AV       | 1000      | 54.0           | 7.5         | BE-RB      | FCC&IC   |

WLAN n-Mode; 20 MHz; 6 Mbit/s ; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 57.3                    | PEAK     | 1000      | 74.0           | 16.7        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 44.5                    | AV       | 1000      | 54.0           | 9.5         | BE-RB      | FCC&IC   |
| 3             | 165     | 5825                   | 5850.0                | 57.1                    | PEAK     | 1000      | 120.6          | 63.5        | BE-UE      | FCC&IC   |

WLAN n-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 38      | 5190                   | 5150.0                | 62.5                    | PEAK     | 1000      | 74.0           | 11.5        | BE-RB      | FCC&IC   |
|               | 38      | 5190                   | 5150.0                | 44.1                    | AV       | 1000      | 54.0           | 9.9         | BE-RB      | FCC&IC   |
| 3             | 151     | 5755                   | 5725.0                | 64.3                    | PEAK     | 1000      | 120.6          | 56.3        | BE-UE      | FCC&IC   |
|               | 159     | 5795                   | 5850.0                | 57.4                    | PEAK     | 1000      | 120.6          | 63.2        | BE-UE      | FCC&IC   |

WLAN ac-Mode; 20 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 36      | 5180                   | 5150.0                | 58.1                    | PEAK     | 1000      | 74.0           | 15.9        | BE-RB      | FCC&IC   |
|               | 36      | 5180                   | 5150.0                | 44.6                    | AV       | 1000      | 54.0           | 9.4         | BE-RB      | FCC&IC   |
| 3             | 165     | 5825                   | 5850.0                | 70.2                    | PEAK     | 1000      | 120.6          | 50.4        | BE-UE      | FCC&IC   |

WLAN ac-Mode; 40 MHz; MCS0; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 38      | 5190                   | 5150.0                | 64.5                    | PEAK     | 1000      | 74.0           | 9.5         | BE-RB      | FCC&IC   |
|               | 38      | 5190                   | 5150.0                | 47.2                    | AV       | 1000      | 54.0           | 6.8         | BE-RB      | FCC&IC   |
| 3             | 151     | 5755                   | 5725.0                | 64.8                    | PEAK     | 1000      | 120.6          | 55.8        | BE-UE      | FCC&IC   |
|               | 159     | 5795                   | 5850.0                | 57.6                    | PEAK     | 1000      | 120.6          | 63.0        | BE-UE      | FCC&IC   |

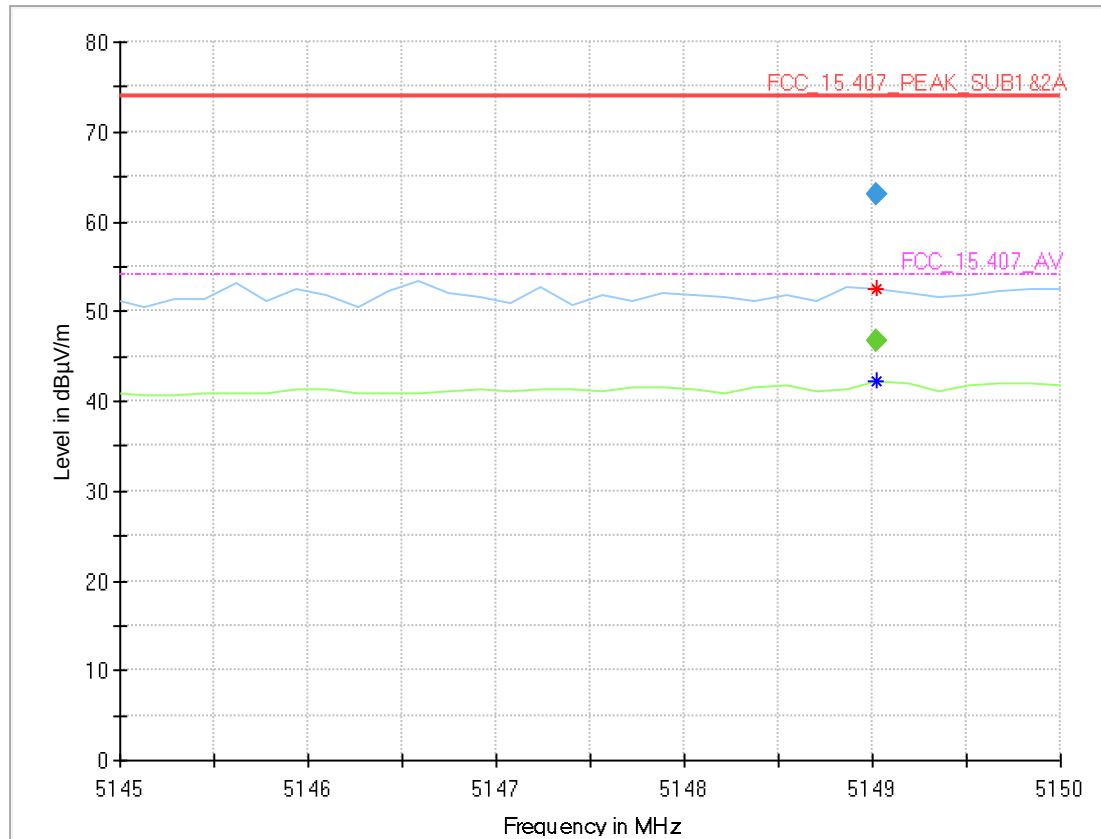
WLAN ac-Mode; 80 MHz; MCS8; SISO

| U-NII-Subband | Ch. No. | Ch. Center Freq. [MHz] | Band Edge Freq. [MHz] | Spurious Level [dBμV/m] | Detector | RBW [kHz] | Limit [dBμV/m] | Margin [dB] | Limit Type | FCC /IC? |
|---------------|---------|------------------------|-----------------------|-------------------------|----------|-----------|----------------|-------------|------------|----------|
| 1             | 42      | 5210                   | 5150.0                | 58.1                    | PEAK     | 1000      | 74.0           | 15.9        | BE-RB      | FCC&IC   |
|               | 42      | 5210                   | 5150.0                | 43.7                    | AV       | 1000      | 54.0           | 10.3        | BE-RB      | FCC&IC   |
| 3             | 155     | 5775                   | 5725.0                | 60.0                    | PEAK     | 1000      | 120.6          | 60.6        | BE-UE      | FCC&IC   |
|               | 155     | 5775                   | 5850.0                | 60.0                    | PEAK     | 1000      | 120.6          | 60.6        | BE-UE      | FCC&IC   |

#### 5.7.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

##### Android Core 0

WLAN n 40 MHz, Ch. 38 SISO



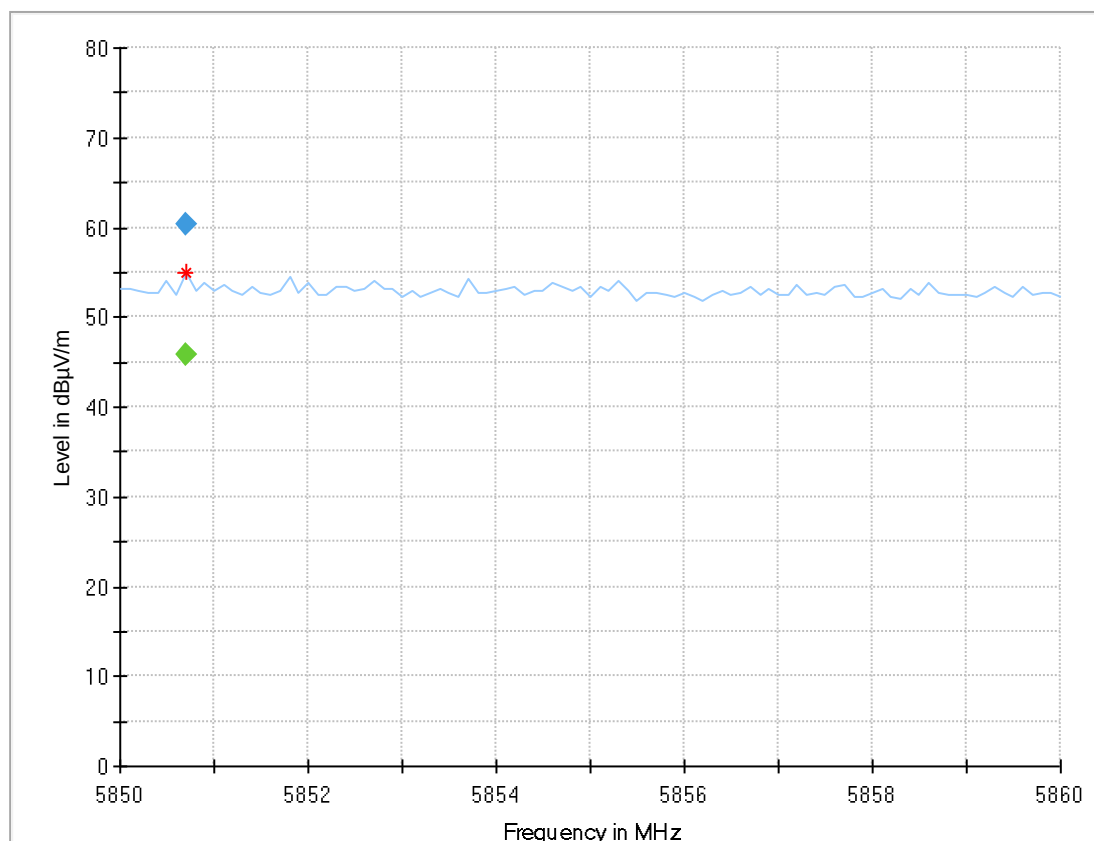
#### Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5149.025        | ---              | 42.2             | 54.00          | 11.82       | ---             | ---             | 150.0       | V   | -124.0        | 95.0            |
| 5149.025        | 52.6             | ---              | 74.00          | 21.44       | ---             | ---             | 150.0       | V   | -124.0        | 98.0            |

#### Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5149.025        | 63.1             | ---               | 74.00          | 10.91       | 1000.0          | 1000.000        | 150.0       | V   | -124.0        | 98.0            |
| 5149.025        | ---              | 46.7              | 54.00          | 7.27        | 1000.0          | 1000.000        | 150.0       | V   | -124.0        | 95.0            |

# WLAN ac-mode 80 MHz MCS8, Ch. 155 MIMO



## Critical\_Freqs

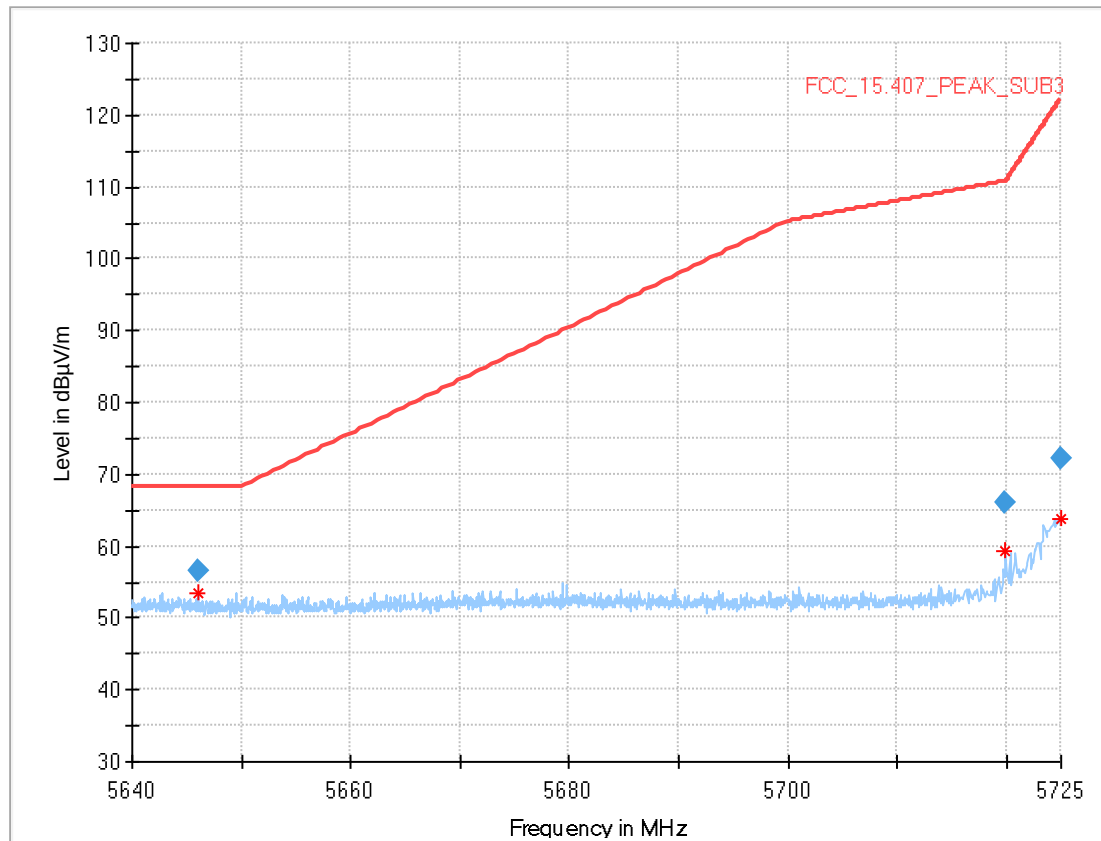
| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5850.700        | 54.9             | ---              | 120.60         | 65.68       | ---             | ---             | 150.0       | H   | 43.0          | 1.0             |

## Final\_Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5850.700        | ---              | 45.7              | ---            | ---         | 1000.0          | 1000.000        | 150.0       | H   | 43.0          | 1.0             |
| 5850.700        | 60.3             | ---               | 120.60         | 60.30       | 1000.0          | 1000.000        | 150.0       | H   | 43.0          | 1.0             |

## Android Core 1

WLAN a-mode 6 Mbps, Ch. 149



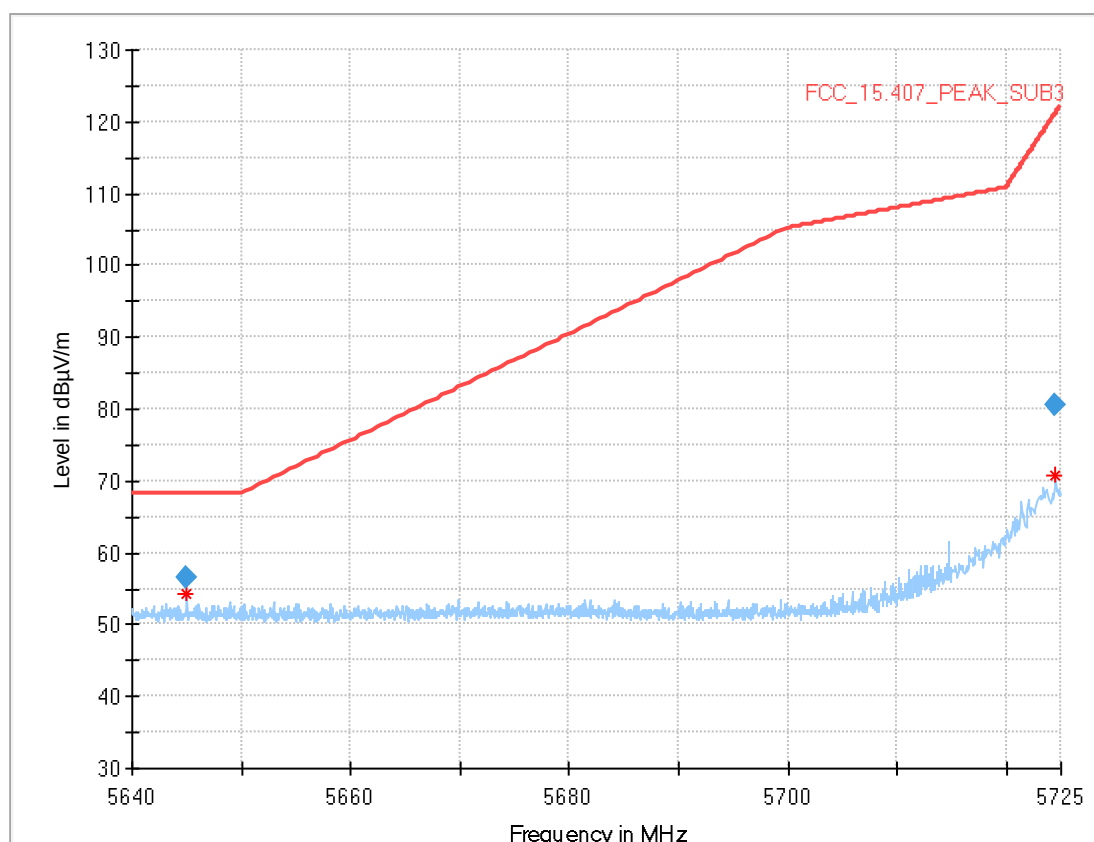
## Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5646.075        | 53.5             | ---              | 68.20          | 14.70       | ---             | ---             | 150.0       | V   | -129.0        | 96.0            |
| 5719.900        | 59.4             | ---              | 110.77         | 51.37       | ---             | ---             | 150.0       | V   | -128.0        | 85.0            |
| 5725.000        | 63.9             | ---              | 122.20         | 58.34       | ---             | ---             | 150.0       | V   | -134.0        | 83.0            |

## Final Result

| Frequency (MHz) | MaxPeak (dBµV/m) | CAverage (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5646.075        | 56.5             | ---               | 68.20          | 11.74       | 1000.0          | 1000.000        | 150.0       | V   | -129.0        | 96.0            |
| 5719.900        | 66.1             | ---               | 110.77         | 44.71       | 1000.0          | 1000.000        | 150.0       | V   | -128.0        | 85.0            |
| 5725.000        | 72.3             | ---               | 122.20         | 49.92       | 1000.0          | 1000.000        | 150.0       | V   | -134.0        | 83.0            |

# WLAN ac-mode20 MHz 6 Mbps, Ch. 149



## Critical Freqs

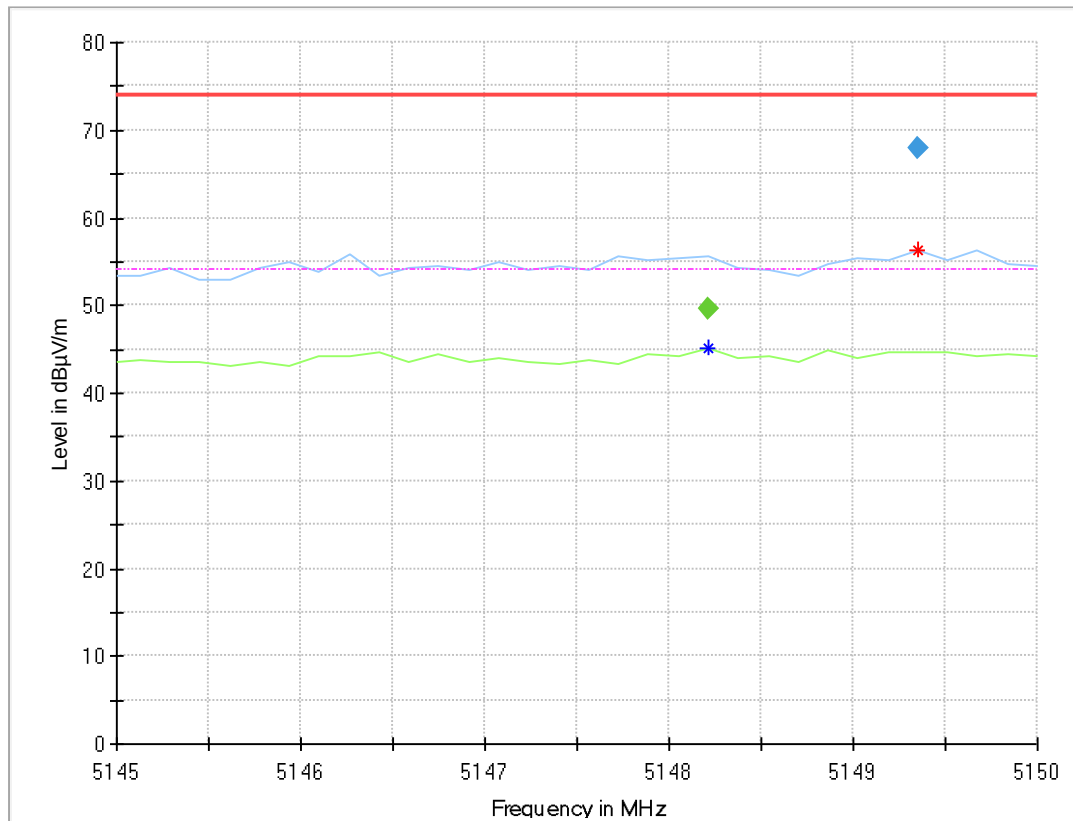
| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5645.025        | 54.2             | ---              | 68.20          | 14.00       | ---             | ---             | 150.0       | V   | -179.0        | -2.0            |
| 5724.500        | 70.7             | ---              | 121.06         | 50.41       | ---             | ---             | 150.0       | V   | -169.0        | 105.0           |

## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5645.025        | 56.6             | ---               | 68.20          | 11.62       | 1000.0          | 1000.000        | 150.0       | V   | -179.0        | -2.0            |
| 5724.500        | 80.4             | ---               | 121.06         | 40.61       | 1000.0          | 1000.000        | 150.0       | V   | -169.0        | 105.0           |

## Linux Core 0

WLAN n 20 MHz, Ch. 36 SISO



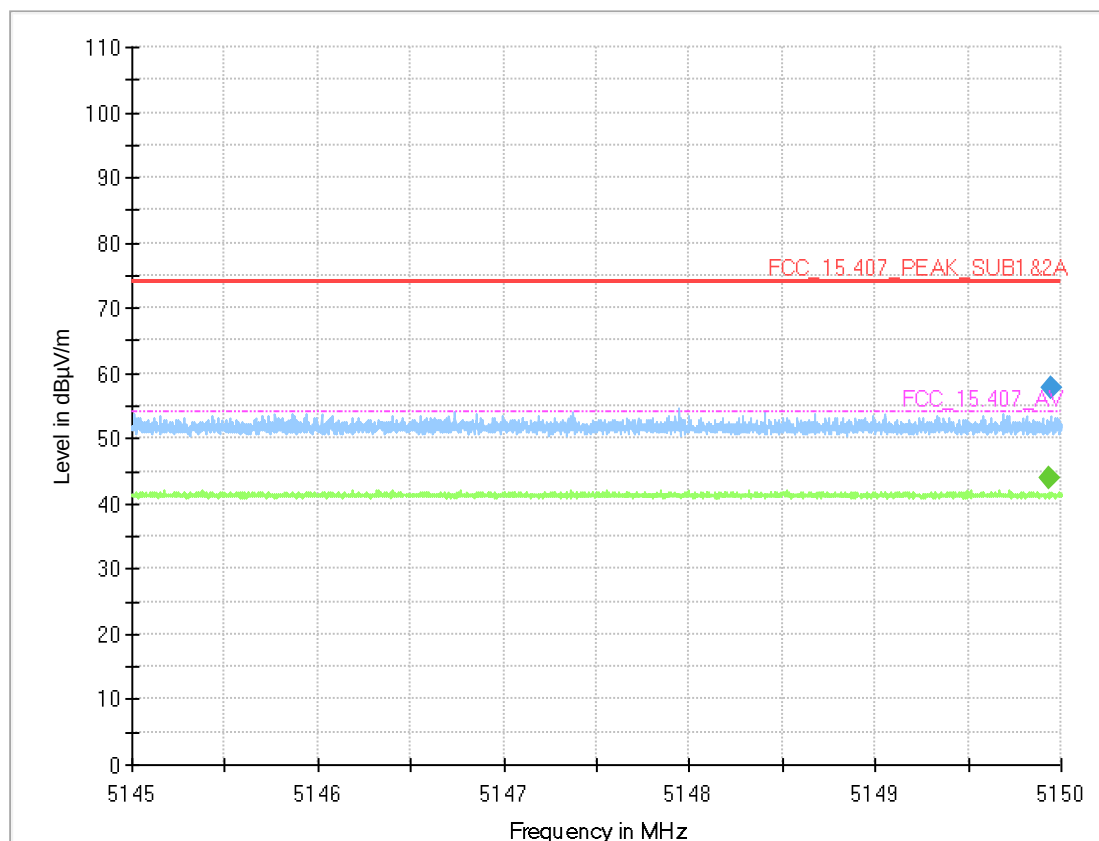
## Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5148.213        | ---              | 45.0             | 54.00          | 8.96        | ---             | ---             | 150.0       | V   | 142.0         | 2.0             |
| 5149.350        | 56.3             | ---              | 74.00          | 17.73       | ---             | ---             | 150.0       | V   | 143.0         | 8.0             |

## Final\_Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5148.213        | ---              | 49.6              | 54.00          | 4.43        | 1000.0          | 1000.000        | 150.0       | V   | 142.0         | 2.0             |
| 5149.350        | 67.9             | ---               | 74.00          | 6.12        | 1000.0          | 1000.000        | 150.0       | V   | 143.0         | 8.0             |

# WLAN n 20 MHz, Ch. 36 MIMO



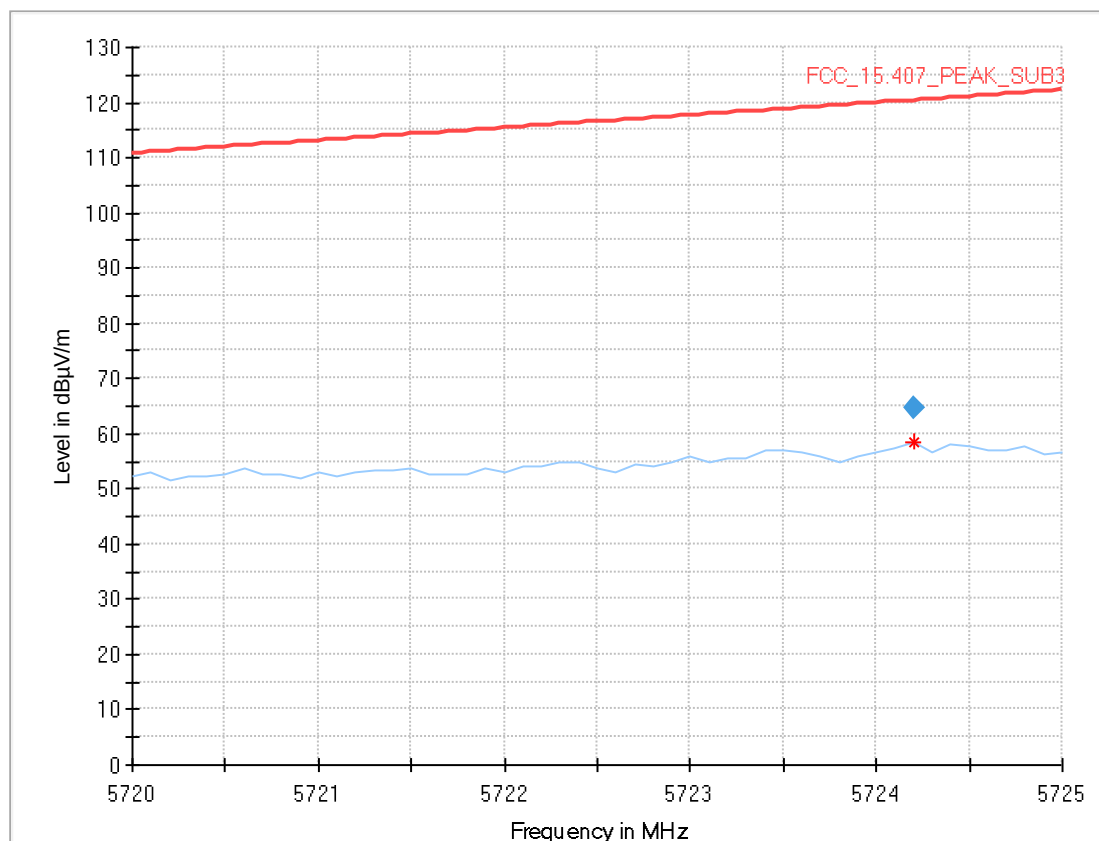
## Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin | Meas. Time (ms) | Bandwidth (h) | Height (t) | Pol | Azimuth (h) | Elevation (n) |
|-----------------|------------------|------------------|----------------|--------|-----------------|---------------|------------|-----|-------------|---------------|
| 5149.936        | ---              | 43.9             | 54.00          | 12.37  | ---             | ---           | 150.0      | V   | -93.0       | -4.0          |
| 5149.941        | 58.2             | ---              | 74.00          | 20.39  | ---             | ---           | 150.0      | H   | 146.0       | 105.0         |

## Final\_Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin | Meas. Time (ms) | Bandwidth (h) | Height (t) | Pol | Azimuth (h) | Elevation (n) |
|-----------------|------------------|-------------------|----------------|--------|-----------------|---------------|------------|-----|-------------|---------------|
| 5149.936        | ---              | 43.8              | 54.00          | 10.16  | 1000.0          | 1000.000      | 150.0      | V   | -93.0       | -4.0          |
| 5149.941        | 57.7             | ---               | 74.00          | 16.26  | 1000.0          | 1000.000      | 150.0      | H   | 146.0       | 105.0         |

# WLAN a-mode, Ch. 149 SISO



## Critical Freqs

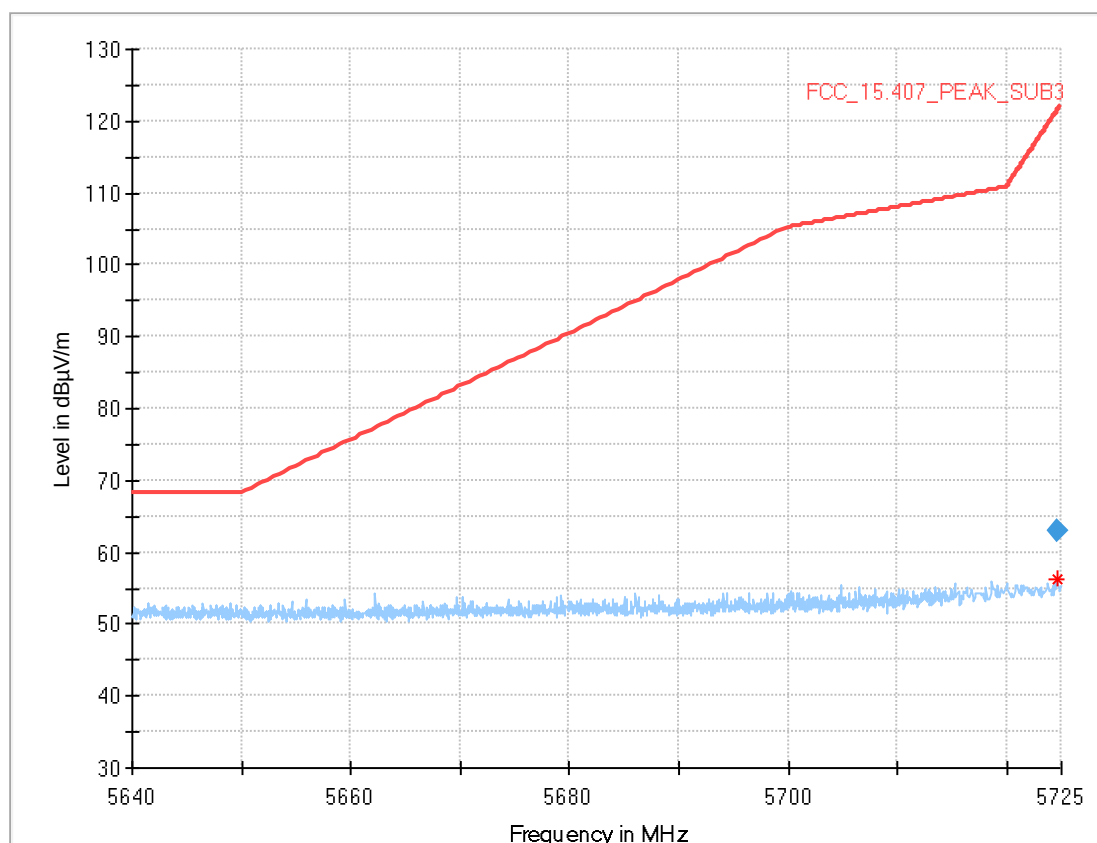
| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5724.200        | 58.6             | ---              | 120.38         | 61.79       | ---             | ---             | 150.0       | H   | -190.0        | 92.0            |
| 5850.300        | 55.2             | ---              | 121.52         | 66.30       | ---             | ---             | 150.0       | V   | -132.0        | 86.0            |

## Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5724.200        | 64.6             | ---               | 120.38         | 55.73       | 1000.0          | 1000.000        | 150.0       | H   | -190.0        | 92.0            |
| 5850.300        | 62.2             | ---               | 121.52         | 59.30       | 1000.0          | 1000.000        | 150.0       | V   | -132.0        | 86.0            |

## Linux Core 1

WLAN ac-mode 80 MHz, Ch. 155 SISO



### Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5724.600        | 56.4             | ---              | 121.29         | 64.93       | ---             | ---             | 150.0       | V   | -176.0        | 87.0            |

### Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 5724.600        | 63.0             | ---               | 121.29         | 58.26       | 1000.0          | 1000.000        | 150.0       | V   | -176.0        | 87.0            |

## 5.7.5 TEST EQUIPMENT USED

- Radiated Emissions

## 6 TEST EQUIPMENT

1 R&S TS8997  
EN300328/301893 Test Lab

| Ref.No. | Device Name          | Description                                | Manufacturer                      | Serial Number  | Last Calibration   | Calibration Due    |
|---------|----------------------|--------------------------------------------|-----------------------------------|----------------|--------------------|--------------------|
| 1.1     | SMB100A              | Signal Generator 9 kHz - 6 GHz             | Rohde & Schwarz                   | 107695         | 2017-07            | 2020-07            |
| 1.2     | MFS                  | Rubidium Frequency Standard                | Datum-Beverly                     | 5489/001       | 2018-07            | 2019-07            |
| 1.3     | 1515 / 93459         | Broadband Power Divider SMA (Aux)          | Weinschel Associates              | LN673          |                    |                    |
| 1.4     | FSV30                | Signal Analyzer 10 Hz - 30 GHz             | Rohde & Schwarz                   | 103005         | 2018-04            | 2020-04            |
| 1.5     | Fluke 177            | Digital Multimeter 03 (Multimeter)         | Fluke Europe B.V.                 | 86670383       | 2018-04            | 2020-04            |
| 1.6     | VHF-3100+            | High Pass Filter                           |                                   | -              |                    |                    |
| 1.7     | VT 4002              | Temperature Chamber                        | Vötsch                            | 58566002150010 | 2018-04            | 2020-04            |
| 1.8     | A8455-4              | 4 Way Power Divider (SMA)                  |                                   | -              |                    |                    |
| 1.9     | Opus10 THI (8152.00) | ThermoHygro Datalogger 03 (Environ)        | Lufth Mess- und Regeltechnik GmbH | 7482           | 2017-04<br>2019-05 | 2019-04<br>2021-05 |
| 1.10    | SMBV100A             | Vector Signal Generator 9 kHz - 6 GHz      | Rohde & Schwarz                   | 259291         | 2016-10            | 2019-10            |
| 1.11    | OSP120               | Switching Unit with integrated power meter | Rohde & Schwarz                   | 101158         | 2018-05            | 2021-05            |

2 Radiated Emissions  
Lab to perform radiated emission tests

| Ref.No. | Device Name          | Description                               | Manufacturer                       | Serial Number | Last Calibration   | Calibration Due    |
|---------|----------------------|-------------------------------------------|------------------------------------|---------------|--------------------|--------------------|
| 2.1     | NRV-Z1               | Sensor Head A                             | Rohde & Schwarz GmbH & Co. KG      | 827753/005    | 2018-07            | 2019-07            |
| 2.2     | MFS                  | Rubidium Frequency Normal MFS             | Datum GmbH                         | 002           | 2018-10            | 2020-10            |
| 2.3     | Opus10 TPR (8253.00) | ThermoAirpressure Datalogger 13 (Environ) | Lufth Mess- und Regeltechnik GmbH  | 13936         | 2017-04<br>2019-05 | 2019-04<br>2021-05 |
| 2.4     | ESW44                | EMI Test Receiver                         | Rohde & Schwarz GmbH & Co. KG      | 101603        | 2018-05            | 2019-11            |
| 2.5     | Anechoic Chamber     | 10.58 x 6.38 x 6.00 m <sup>3</sup>        | Frankonia                          | none          | 2018-06            | 2020-06            |
| 2.6     | FS-Z60               | Harmonic Mixer 40 - 60 GHz                | Rohde & Schwarz Messgerätebau GmbH | 100178        | 2016-12            | 2019-12            |

| Ref.No. | Device Name          | Description                                            | Manufacturer                       | Serial Number      | Last Calibration   | Calibration Due    |
|---------|----------------------|--------------------------------------------------------|------------------------------------|--------------------|--------------------|--------------------|
| 2.7     | FS-Z220              | Harmonic Mixer 140 - 220 GHz                           | Rohde & Schwarz Messgerätebau GmbH | 101005             | 2017-03            | 2020-03            |
| 2.8     | SGH-05               | Standard Gain / Pyramidal Horn Antenna (140 - 220 GHz) | RPG-Radiometer Physics GmbH        | 075                |                    |                    |
| 2.9     | HL 562               | Ultralog new biconicals                                | Rohde & Schwarz                    | 830547/003         | 2018-07            | 2021-07            |
| 2.10    | 5HC2700/12750-1.5-KK | High Pass Filter                                       | Trilithic                          | 9942012            |                    |                    |
| 2.11    | ASP 1.2/1.8-10 kg    | Antenna Mast                                           | Maturo GmbH                        | -                  |                    |                    |
| 2.12    | Fully Anechoic Room  | 8.80m x 4.60m x 4.05m (l x w x h)                      | Albatross Projects                 | P26971-647-001-PRB | 2018-06            | 2020-06            |
| 2.13    | Fluke 177            | Digital Multimeter 03 (Multimeter)                     | Fluke Europe B.V.                  | 86670383           | 2018-04            | 2020-04            |
| 2.14    | NRVD                 | Power Meter                                            | Rohde & Schwarz GmbH & Co. KG      | 828110/016         | 2018-07            | 2019-07            |
| 2.15    | HF 906               | Double-ridged horn                                     | Rohde & Schwarz                    | 357357/002         | 2018-09            | 2021-09            |
| 2.16    | JS4-18002600-32-5P   | Broadband Amplifier 18 GHz - 26 GHz                    | Miteq                              | 849785             |                    |                    |
| 2.17    | FSW 43               | Spectrum Analyzer                                      | Rohde & Schwarz                    | 103779             | 2019-02            | 2021-02            |
| 2.18    | 3160-09              | Standard Gain / Pyramidal Horn Antenna 26.5 GHz        | EMCO Elektronik GmbH               | 00083069           |                    |                    |
| 2.19    | SGH-19               | Standard Gain / Pyramidal Horn Antenna (40 - 60 GHz)   | RPG-Radiometer Physics GmbH        | 093                |                    |                    |
| 2.20    | WHKX 7.0/18G-8SS     | High Pass Filter                                       | Wainwright                         | 09                 |                    |                    |
| 2.21    | 4HC1600/12750-1.5-KK | High Pass Filter                                       | Trilithic                          | 9942011            |                    |                    |
| 2.22    | Chroma 6404          | AC Power Source                                        | Chroma ATE INC.                    | 64040001304        |                    |                    |
| 2.23    | JS4-00102600-42-5A   | Broadband Amplifier 30 MHz - 26 GHz                    | Miteq                              | 619368             |                    |                    |
| 2.24    | TT 1.5 WI            | Turn Table                                             | Maturo GmbH                        | -                  |                    |                    |
| 2.25    | HL 562 Ultralog      | Log.-per. Antenna                                      | Rohde & Schwarz                    | 100609             | 2016-04<br>2019-05 | 2019-04<br>2022-05 |
| 2.26    | HF 906               | Double-ridged horn                                     | Rohde & Schwarz                    | 357357/001         | 2018-03            | 2021-03            |
| 2.27    | FS-Z325              | Harmonic Mixer 220 - 325 GHz                           | Rohde & Schwarz Messgerätebau GmbH | 101006             | 2017-03            | 2020-03            |

| Ref.No. | Device Name                   | Description                                            | Manufacturer                       | Serial Number          | Last Calibration   | Calibration Due    |
|---------|-------------------------------|--------------------------------------------------------|------------------------------------|------------------------|--------------------|--------------------|
| 2.28    | 3160-10                       | Standard Gain / Pyramidal Horn Antenna 40 GHz          | EMCO Elektronik GmbH               | 00086675               |                    |                    |
| 2.29    | SGH-08                        | Standard Gain / Pyramidal Horn Antenna (90 - 140 GHz)  | RPG-Radiometer Physics GmbH        | 064                    |                    |                    |
| 2.30    | SGH-12                        | Standard Gain / Pyramidal HornAntenna (60 - 90 GHz)    | RPG-Radiometer Physics GmbH        | 326                    |                    |                    |
| 2.31    | 5HC3500/18000-1.2-KK          | High Pass Filter                                       | Trilithic                          | 200035008              |                    |                    |
| 2.32    | FS-Z140                       | Harmonic Mixer 90 -140 GHz                             | Rohde & Schwarz Messgerätebau GmbH | 101007                 | 2017-02            | 2020-02            |
| 2.33    | HFH2-Z2                       | Loop Antenna                                           | Rohde & Schwarz                    | 829324/006             | 2018-01            | 2021-01            |
| 2.34    | Opus10 THI (8152.00)          | ThermoHygro Datalogger 12 (Environ)                    | Lufft Mess- und Regeltechnik GmbH  | 12482                  | 2017-03<br>2019-04 | 2019-04<br>2021-05 |
| 2.35    | ESR 7                         | EMI Receiver / Spectrum Analyzer                       | Rohde & Schwarz                    | 101424                 | 2019-01            | 2020-01            |
| 2.36    | JS4-00101800-35-5P            | Broadband Amplifier 30 MHz - 18 GHz                    | Miteq                              | 896037                 |                    |                    |
| 2.37    | AS 620 P                      | Antenna mast                                           | HD GmbH                            | 620/37                 |                    |                    |
| 2.38    | Tilt device Maturo (Rohacell) | Antrieb TD1.5-10kg                                     | Maturo GmbH                        | TD1.5-10kg/024/3790709 |                    |                    |
| 2.39    | SGH-03                        | Standard Gain / Pyramidal Horn Antenna (220 - 325 GHz) | RPG-Radiometer Physics GmbH        | 060                    |                    |                    |
| 2.40    | FS-Z90                        | Harmonic Mixer 60 - 90 GHz                             | Rohde & Schwarz Messgerätebau GmbH | 101686                 | 2017-03            | 2020-03            |
| 2.41    | ESIB 26                       | Spectrum Analyzer                                      | Rohde & Schwarz                    | 830482/004             | 2018-01            | 2020-01            |
| 2.42    | PAS 2.5 - 10 kg               | Antenna Mast                                           | Maturo GmbH                        | -                      |                    |                    |
| 2.43    | AFS42-00101800-25-S-42        | Broadband Amplifier 25 MHz - 18 GHz                    | Miteq                              | 2035324                |                    |                    |
| 2.44    | AM 4.0                        | Antenna mast                                           | Maturo GmbH                        | AM4.0/180/11920513     |                    |                    |
| 2.45    | HF 907                        | Double-ridged horn                                     | Rohde & Schwarz                    | 102444                 | 2018-07            | 2021-07            |

The calibration interval is the time interval between "Last Calibration" and "Calibration Due"

## 7 ANTENNA FACTORS, CABLE LOSS AND SAMPLE CALCULATIONS

This chapter contains the antenna factors with their corresponding path loss of the used measurement path for all antennas as well as the insertion loss of the LISN.

### 7.1 LISN R&S ESH3-Z5 (150 KHZ – 30 MHZ)

| Frequency |  | Corr. | LISN<br>insertion<br>loss<br>ESH3-<br>Z5 | cable<br>loss<br>(incl. 10<br>dB<br>atten-<br>uator) |
|-----------|--|-------|------------------------------------------|------------------------------------------------------|
| MHz       |  | dB    | dB                                       | dB                                                   |
| 0.15      |  | 10.1  | 0.1                                      | 10.0                                                 |
| 5         |  | 10.3  | 0.1                                      | 10.2                                                 |
| 7         |  | 10.5  | 0.2                                      | 10.3                                                 |
| 10        |  | 10.5  | 0.2                                      | 10.3                                                 |
| 12        |  | 10.7  | 0.3                                      | 10.4                                                 |
| 14        |  | 10.7  | 0.3                                      | 10.4                                                 |
| 16        |  | 10.8  | 0.4                                      | 10.4                                                 |
| 18        |  | 10.9  | 0.4                                      | 10.5                                                 |
| 20        |  | 10.9  | 0.4                                      | 10.5                                                 |
| 22        |  | 11.1  | 0.5                                      | 10.6                                                 |
| 24        |  | 11.1  | 0.5                                      | 10.6                                                 |
| 26        |  | 11.2  | 0.5                                      | 10.7                                                 |
| 28        |  | 11.2  | 0.5                                      | 10.7                                                 |
| 30        |  | 11.3  | 0.5                                      | 10.8                                                 |

#### Sample calculation

$$U_{\text{LISN}} (\text{dB } \mu\text{V}) = U (\text{dB } \mu\text{V}) + \text{Corr. (dB)}$$

U = Receiver reading

LISN Insertion loss = Voltage Division Factor of LISN

Corr. = sum of single correction factors of used LISN, cables, switch units (if used)

Linear interpolation will be used for frequencies in between the values in the table.

## 7.2 ANTENNA R&S HFH2-Z2 (9 KHZ – 30 MHZ)

| Frequency | AF       | Corr. | cable loss 1     | cable loss 2      | cable loss 3  | cable loss 4  | distance corr.  | d <sub>Limit</sub>       | d <sub>used</sub>       |
|-----------|----------|-------|------------------|-------------------|---------------|---------------|-----------------|--------------------------|-------------------------|
| MHz       | dB (1/m) | dB    | (inside chamber) | (outside chamber) | (switch unit) | (to receiver) | (-40 dB/decade) | (meas. distance (limit)) | (meas. distance (used)) |
|           |          |       | dB               | dB                | dB            | dB            | dB              | m                        | m                       |
| 0.009     | 20.50    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.01      | 20.45    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.015     | 20.37    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.02      | 20.36    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.025     | 20.38    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.03      | 20.32    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.05      | 20.35    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.08      | 20.30    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.1       | 20.20    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.2       | 20.17    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.3       | 20.14    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.49      | 20.12    | -79.6 | 0.1              | 0.1               | 0.1           | 0.1           | -80             | 300                      | 3                       |
| 0.490001  | 20.12    | -39.6 | 0.1              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 0.5       | 20.11    | -39.6 | 0.1              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 0.8       | 20.10    | -39.6 | 0.1              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 1         | 20.09    | -39.6 | 0.1              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 2         | 20.08    | -39.6 | 0.1              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 3         | 20.06    | -39.6 | 0.1              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 4         | 20.05    | -39.5 | 0.2              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 5         | 20.05    | -39.5 | 0.2              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 6         | 20.02    | -39.5 | 0.2              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 8         | 19.95    | -39.5 | 0.2              | 0.1               | 0.1           | 0.1           | -40             | 30                       | 3                       |
| 10        | 19.83    | -39.4 | 0.2              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 12        | 19.71    | -39.4 | 0.2              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 14        | 19.54    | -39.4 | 0.2              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 16        | 19.53    | -39.3 | 0.3              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 18        | 19.50    | -39.3 | 0.3              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 20        | 19.57    | -39.3 | 0.3              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 22        | 19.61    | -39.3 | 0.3              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 24        | 19.61    | -39.3 | 0.3              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 26        | 19.54    | -39.3 | 0.3              | 0.1               | 0.2           | 0.1           | -40             | 30                       | 3                       |
| 28        | 19.46    | -39.2 | 0.3              | 0.1               | 0.3           | 0.1           | -40             | 30                       | 3                       |
| 30        | 19.73    | -39.1 | 0.4              | 0.1               | 0.3           | 0.1           | -40             | 30                       | 3                       |

### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

distance correction =  $-40 * \text{LOG}(d_{\text{Limit}}/d_{\text{used}})$

Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values

### 7.3 ANTENNA R&S HL562 (30 MHZ – 1 GHZ)

( $d_{\text{Limit}} = 3 \text{ m}$ )

| Frequency | AF<br>R&S<br>HL562 | Corr. |
|-----------|--------------------|-------|
| MHz       | dB (1/m)           | dB    |
| 30        | 18.6               | 0.6   |
| 50        | 6.0                | 0.9   |
| 100       | 9.7                | 1.2   |
| 150       | 7.9                | 1.6   |
| 200       | 7.6                | 1.9   |
| 250       | 9.5                | 2.1   |
| 300       | 11.0               | 2.3   |
| 350       | 12.4               | 2.6   |
| 400       | 13.6               | 2.9   |
| 450       | 14.7               | 3.1   |
| 500       | 15.6               | 3.2   |
| 550       | 16.3               | 3.5   |
| 600       | 17.2               | 3.5   |
| 650       | 18.1               | 3.6   |
| 700       | 18.5               | 3.6   |
| 750       | 19.1               | 4.1   |
| 800       | 19.6               | 4.1   |
| 850       | 20.1               | 4.4   |
| 900       | 20.8               | 4.7   |
| 950       | 21.1               | 4.8   |
| 1000      | 21.6               | 4.9   |

| cable<br>loss 1<br>(inside<br>chamber) | cable<br>loss 2<br>(outside<br>chamber) | cable<br>loss 3<br>(switch<br>unit) | cable<br>loss 4<br>(to<br>receiver) | distance<br>corr.<br>(-20 dB/<br>decade) | $d_{\text{Limit}}$<br>(meas.<br>distance<br>(limit)) | $d_{\text{used}}$<br>(meas.<br>distance<br>(used)) |
|----------------------------------------|-----------------------------------------|-------------------------------------|-------------------------------------|------------------------------------------|------------------------------------------------------|----------------------------------------------------|
| dB                                     | dB                                      | dB                                  | dB                                  | dB                                       | m                                                    | m                                                  |
| 0.29                                   | 0.04                                    | 0.23                                | 0.02                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.39                                   | 0.09                                    | 0.32                                | 0.08                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.56                                   | 0.14                                    | 0.47                                | 0.08                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.73                                   | 0.20                                    | 0.59                                | 0.12                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.84                                   | 0.21                                    | 0.70                                | 0.11                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.98                                   | 0.24                                    | 0.80                                | 0.13                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.04                                   | 0.26                                    | 0.89                                | 0.15                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.18                                   | 0.31                                    | 0.96                                | 0.13                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.28                                   | 0.35                                    | 1.03                                | 0.19                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.39                                   | 0.38                                    | 1.11                                | 0.22                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.44                                   | 0.39                                    | 1.20                                | 0.19                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.55                                   | 0.46                                    | 1.24                                | 0.23                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.59                                   | 0.43                                    | 1.29                                | 0.23                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.67                                   | 0.34                                    | 1.35                                | 0.22                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.67                                   | 0.42                                    | 1.41                                | 0.15                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.87                                   | 0.54                                    | 1.46                                | 0.25                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.90                                   | 0.46                                    | 1.51                                | 0.25                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.99                                   | 0.60                                    | 1.56                                | 0.27                                | 0.0                                      | 3                                                    | 3                                                  |
| 2.14                                   | 0.60                                    | 1.63                                | 0.29                                | 0.0                                      | 3                                                    | 3                                                  |
| 2.22                                   | 0.60                                    | 1.66                                | 0.33                                | 0.0                                      | 3                                                    | 3                                                  |
| 2.23                                   | 0.61                                    | 1.71                                | 0.30                                | 0.0                                      | 3                                                    | 3                                                  |

( $d_{\text{Limit}} = 10 \text{ m}$ )

|      |      |      |
|------|------|------|
| 30   | 18.6 | -9.9 |
| 50   | 6.0  | -9.6 |
| 100  | 9.7  | -9.2 |
| 150  | 7.9  | -8.8 |
| 200  | 7.6  | -8.6 |
| 250  | 9.5  | -8.3 |
| 300  | 11.0 | -8.1 |
| 350  | 12.4 | -7.9 |
| 400  | 13.6 | -7.6 |
| 450  | 14.7 | -7.4 |
| 500  | 15.6 | -7.2 |
| 550  | 16.3 | -7.0 |
| 600  | 17.2 | -6.9 |
| 650  | 18.1 | -6.9 |
| 700  | 18.5 | -6.8 |
| 750  | 19.1 | -6.3 |
| 800  | 19.6 | -6.3 |
| 850  | 20.1 | -6.0 |
| 900  | 20.8 | -5.8 |
| 950  | 21.1 | -5.6 |
| 1000 | 21.6 | -5.6 |

|      |      |      |      |       |    |   |
|------|------|------|------|-------|----|---|
| 0.29 | 0.04 | 0.23 | 0.02 | -10.5 | 10 | 3 |
| 0.39 | 0.09 | 0.32 | 0.08 | -10.5 | 10 | 3 |
| 0.56 | 0.14 | 0.47 | 0.08 | -10.5 | 10 | 3 |
| 0.73 | 0.20 | 0.59 | 0.12 | -10.5 | 10 | 3 |
| 0.84 | 0.21 | 0.70 | 0.11 | -10.5 | 10 | 3 |
| 0.98 | 0.24 | 0.80 | 0.13 | -10.5 | 10 | 3 |
| 1.04 | 0.26 | 0.89 | 0.15 | -10.5 | 10 | 3 |
| 1.18 | 0.31 | 0.96 | 0.13 | -10.5 | 10 | 3 |
| 1.28 | 0.35 | 1.03 | 0.19 | -10.5 | 10 | 3 |
| 1.39 | 0.38 | 1.11 | 0.22 | -10.5 | 10 | 3 |
| 1.44 | 0.39 | 1.20 | 0.19 | -10.5 | 10 | 3 |
| 1.55 | 0.46 | 1.24 | 0.23 | -10.5 | 10 | 3 |
| 1.59 | 0.43 | 1.29 | 0.23 | -10.5 | 10 | 3 |
| 1.67 | 0.34 | 1.35 | 0.22 | -10.5 | 10 | 3 |
| 1.67 | 0.42 | 1.41 | 0.15 | -10.5 | 10 | 3 |
| 1.87 | 0.54 | 1.46 | 0.25 | -10.5 | 10 | 3 |
| 1.90 | 0.46 | 1.51 | 0.25 | -10.5 | 10 | 3 |
| 1.99 | 0.60 | 1.56 | 0.27 | -10.5 | 10 | 3 |
| 2.14 | 0.60 | 1.63 | 0.29 | -10.5 | 10 | 3 |
| 2.22 | 0.60 | 1.66 | 0.33 | -10.5 | 10 | 3 |
| 2.23 | 0.61 | 1.71 | 0.30 | -10.5 | 10 | 3 |

#### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + \text{AF (dB 1/m)} + \text{Corr. (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

distance correction =  $-20 * \text{LOG} (d_{\text{Limit}} / d_{\text{used}})$

Linear interpolation will be used for frequencies in between the values in the table.

Tables show an extract of values.

## 7.4 ANTENNA R&S HF907 (1 GHZ – 18 GHZ)

| Frequency | AF<br>R&S<br>HF907 | Corr. |
|-----------|--------------------|-------|
| MHz       | dB (1/m)           | dB    |
| 1000      | 24.4               | -19.4 |
| 2000      | 28.5               | -17.4 |
| 3000      | 31.0               | -16.1 |
| 4000      | 33.1               | -14.7 |
| 5000      | 34.4               | -13.7 |
| 6000      | 34.7               | -12.7 |
| 7000      | 35.6               | -11.0 |

| cable<br>loss 1<br>(relay +<br>cable<br>inside<br>chamber) | cable<br>loss 2<br>(outside<br>chamber) | cable<br>loss 3<br>(switch<br>unit,<br>atten-<br>uator &<br>pre-amp) | cable<br>loss 4 (to<br>receiver) |  |  |
|------------------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------|----------------------------------|--|--|
| dB                                                         | dB                                      | dB                                                                   | dB                               |  |  |
| 0.99                                                       | 0.31                                    | -21.51                                                               | 0.79                             |  |  |
| 1.44                                                       | 0.44                                    | -20.63                                                               | 1.38                             |  |  |
| 1.87                                                       | 0.53                                    | -19.85                                                               | 1.33                             |  |  |
| 2.41                                                       | 0.67                                    | -19.13                                                               | 1.31                             |  |  |
| 2.78                                                       | 0.86                                    | -18.71                                                               | 1.40                             |  |  |
| 2.74                                                       | 0.90                                    | -17.83                                                               | 1.47                             |  |  |
| 2.82                                                       | 0.86                                    | -16.19                                                               | 1.46                             |  |  |

| Frequency | AF<br>R&S<br>HF907 | Corr. |
|-----------|--------------------|-------|
| MHz       | dB (1/m)           | dB    |
| 3000      | 31.0               | -23.4 |
| 4000      | 33.1               | -23.3 |
| 5000      | 34.4               | -21.7 |
| 6000      | 34.7               | -21.2 |
| 7000      | 35.6               | -19.8 |

| cable<br>loss 1<br>(relay<br>inside<br>chamber) | cable<br>loss 2<br>(inside<br>chamber) | cable<br>loss 3<br>(outside<br>chamber) | cable<br>loss 4<br>(switch<br>unit,<br>atten-<br>uator &<br>pre-amp) | cable<br>loss 5 (to<br>receiver) | used<br>for<br>FCC<br>15.247 |
|-------------------------------------------------|----------------------------------------|-----------------------------------------|----------------------------------------------------------------------|----------------------------------|------------------------------|
| dB                                              | dB                                     | dB                                      | dB                                                                   | dB                               |                              |
| 0.47                                            | 1.87                                   | 0.53                                    | -27.58                                                               | 1.33                             |                              |
| 0.56                                            | 2.41                                   | 0.67                                    | -28.23                                                               | 1.31                             |                              |
| 0.61                                            | 2.78                                   | 0.86                                    | -27.35                                                               | 1.40                             |                              |
| 0.58                                            | 2.74                                   | 0.90                                    | -26.89                                                               | 1.47                             |                              |
| 0.66                                            | 2.82                                   | 0.86                                    | -25.58                                                               | 1.46                             |                              |

| Frequency | AF<br>R&S<br>HF907 | Corr. |
|-----------|--------------------|-------|
| MHz       | dB (1/m)           | dB    |
| 7000      | 35.6               | -57.3 |
| 8000      | 36.3               | -56.3 |
| 9000      | 37.1               | -55.3 |
| 10000     | 37.5               | -56.2 |
| 11000     | 37.5               | -55.3 |
| 12000     | 37.6               | -53.7 |
| 13000     | 38.2               | -53.5 |
| 14000     | 39.9               | -56.3 |
| 15000     | 40.9               | -54.1 |
| 16000     | 41.3               | -54.1 |
| 17000     | 42.8               | -54.4 |
| 18000     | 44.2               | -54.7 |

| cable<br>loss 1<br>(relay<br>inside<br>chamber) | cable<br>loss 2<br>(High<br>Pass) | cable<br>loss 3<br>(pre-<br>amp) | cable<br>loss 4<br>(inside<br>chamber) | cable<br>loss 5<br>(outside<br>chamber) | cable<br>loss 6<br>(to<br>receiver) |
|-------------------------------------------------|-----------------------------------|----------------------------------|----------------------------------------|-----------------------------------------|-------------------------------------|
| dB                                              | dB                                | dB                               | dB                                     | dB                                      | dB                                  |
| 0.56                                            | 1.28                              | -62.72                           | 2.66                                   | 0.94                                    | 1.46                                |
| 0.69                                            | 0.71                              | -61.49                           | 2.84                                   | 1.00                                    | 1.53                                |
| 0.68                                            | 0.65                              | -60.80                           | 3.06                                   | 1.09                                    | 1.60                                |
| 0.70                                            | 0.54                              | -61.91                           | 3.28                                   | 1.20                                    | 1.67                                |
| 0.80                                            | 0.61                              | -61.40                           | 3.43                                   | 1.27                                    | 1.70                                |
| 0.84                                            | 0.42                              | -59.70                           | 3.53                                   | 1.26                                    | 1.73                                |
| 0.83                                            | 0.44                              | -59.81                           | 3.75                                   | 1.32                                    | 1.83                                |
| 0.91                                            | 0.53                              | -63.03                           | 3.91                                   | 1.40                                    | 1.77                                |
| 0.98                                            | 0.54                              | -61.05                           | 4.02                                   | 1.44                                    | 1.83                                |
| 1.23                                            | 0.49                              | -61.51                           | 4.17                                   | 1.51                                    | 1.85                                |
| 1.36                                            | 0.76                              | -62.36                           | 4.34                                   | 1.53                                    | 2.00                                |
| 1.70                                            | 0.53                              | -62.88                           | 4.41                                   | 1.55                                    | 1.91                                |

### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

Linear interpolation will be used for frequencies in between the values in the table.

Tables show an extract of values.

## 7.5 ANTENNA EMCO 3160-09 (18 GHZ – 26.5 GHZ)

| Frequency | AF<br>EMCO<br>3160-09 | Corr. | cable<br>loss 1<br>(inside<br>chamber) | cable<br>loss 2<br>(pre-<br>amp) | cable<br>loss 3<br>(inside<br>chamber) | cable<br>loss 4<br>(switch<br>unit) | cable<br>loss 5<br>(to<br>receiver) |
|-----------|-----------------------|-------|----------------------------------------|----------------------------------|----------------------------------------|-------------------------------------|-------------------------------------|
| MHz       | dB (1/m)              | dB    | dB                                     | dB                               | dB                                     | dB                                  | dB                                  |
| 18000     | 40.2                  | -23.5 | 0.72                                   | -35.85                           | 6.20                                   | 2.81                                | 2.65                                |
| 18500     | 40.2                  | -23.2 | 0.69                                   | -35.71                           | 6.46                                   | 2.76                                | 2.59                                |
| 19000     | 40.2                  | -22.0 | 0.76                                   | -35.44                           | 6.69                                   | 3.15                                | 2.79                                |
| 19500     | 40.3                  | -21.3 | 0.74                                   | -35.07                           | 7.04                                   | 3.11                                | 2.91                                |
| 20000     | 40.3                  | -20.3 | 0.72                                   | -34.49                           | 7.30                                   | 3.07                                | 3.05                                |
| 20500     | 40.3                  | -19.9 | 0.78                                   | -34.46                           | 7.48                                   | 3.12                                | 3.15                                |
| 21000     | 40.3                  | -19.1 | 0.87                                   | -34.07                           | 7.61                                   | 3.20                                | 3.33                                |
| 21500     | 40.3                  | -19.1 | 0.90                                   | -33.96                           | 7.47                                   | 3.28                                | 3.19                                |
| 22000     | 40.3                  | -18.7 | 0.89                                   | -33.57                           | 7.34                                   | 3.35                                | 3.28                                |
| 22500     | 40.4                  | -19.0 | 0.87                                   | -33.66                           | 7.06                                   | 3.75                                | 2.94                                |
| 23000     | 40.4                  | -19.5 | 0.88                                   | -33.75                           | 6.92                                   | 3.77                                | 2.70                                |
| 23500     | 40.4                  | -19.3 | 0.90                                   | -33.35                           | 6.99                                   | 3.52                                | 2.66                                |
| 24000     | 40.4                  | -19.8 | 0.88                                   | -33.99                           | 6.88                                   | 3.88                                | 2.58                                |
| 24500     | 40.4                  | -19.5 | 0.91                                   | -33.89                           | 7.01                                   | 3.93                                | 2.51                                |
| 25000     | 40.4                  | -19.3 | 0.88                                   | -33.00                           | 6.72                                   | 3.96                                | 2.14                                |
| 25500     | 40.5                  | -20.4 | 0.89                                   | -34.07                           | 6.90                                   | 3.66                                | 2.22                                |
| 26000     | 40.5                  | -21.3 | 0.86                                   | -35.11                           | 7.02                                   | 3.69                                | 2.28                                |
| 26500     | 40.5                  | -21.1 | 0.90                                   | -35.20                           | 7.15                                   | 3.91                                | 2.36                                |

### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values.

## 7.6 ANTENNA EMCO 3160-10 (26.5 GHZ – 40 GHZ)

| Frequency<br>GHz | AF<br>EMCO<br>3160-10<br>dB (1/m) | Corr.<br>dB | cable<br>loss 1<br>(inside<br>chamber)<br>dB | cable<br>loss 2<br>(outside<br>chamber)<br>dB | cable<br>loss 3<br>(switch<br>unit)<br>dB | cable<br>loss 4<br>(to<br>receiver)<br>dB | distance<br>corr.<br>(-20 dB/<br>decade)<br>dB | d <sub>Limit</sub><br>(meas.<br>distance<br>(limit)<br>m | d <sub>used</sub><br>(meas.<br>distance<br>(used)<br>m |
|------------------|-----------------------------------|-------------|----------------------------------------------|-----------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|
| 26.5             | 43.4                              | -11.2       | 4.4                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 27.0             | 43.4                              | -11.2       | 4.4                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 28.0             | 43.4                              | -11.1       | 4.5                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 29.0             | 43.5                              | -11.0       | 4.6                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 30.0             | 43.5                              | -10.9       | 4.7                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 31.0             | 43.5                              | -10.8       | 4.7                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 32.0             | 43.5                              | -10.7       | 4.8                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 33.0             | 43.6                              | -10.7       | 4.9                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 34.0             | 43.6                              | -10.6       | 5.0                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 35.0             | 43.6                              | -10.5       | 5.1                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 36.0             | 43.6                              | -10.4       | 5.1                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 37.0             | 43.7                              | -10.3       | 5.2                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 38.0             | 43.7                              | -10.2       | 5.3                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 39.0             | 43.7                              | -10.2       | 5.4                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |
| 40.0             | 43.8                              | -10.1       | 5.5                                          |                                               |                                           |                                           | -9.5                                           | 3                                                        | 1.0                                                    |

### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

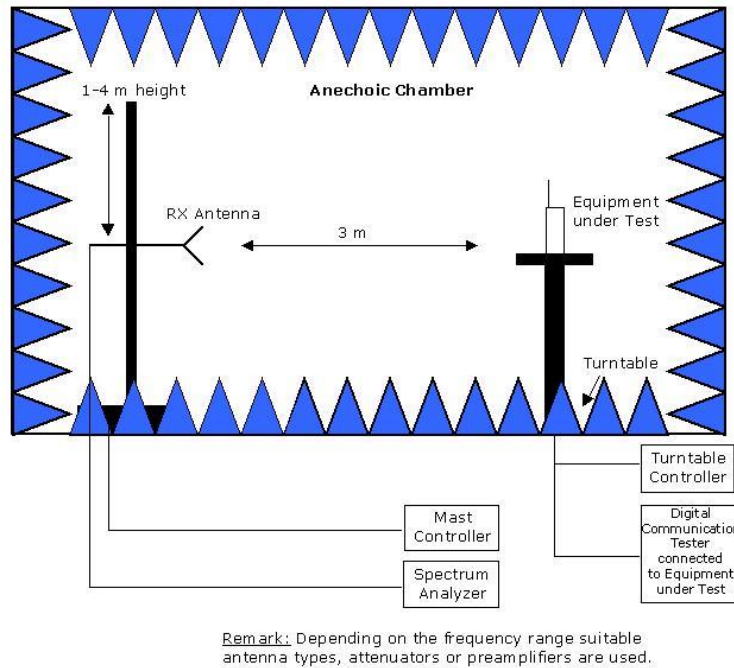
Linear interpolation will be used for frequencies in between the values in the table.

distance correction =  $-20 * \text{LOG} (d_{\text{Limit}} / d_{\text{used}})$

Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values.

## 8 SETUP DRAWINGS

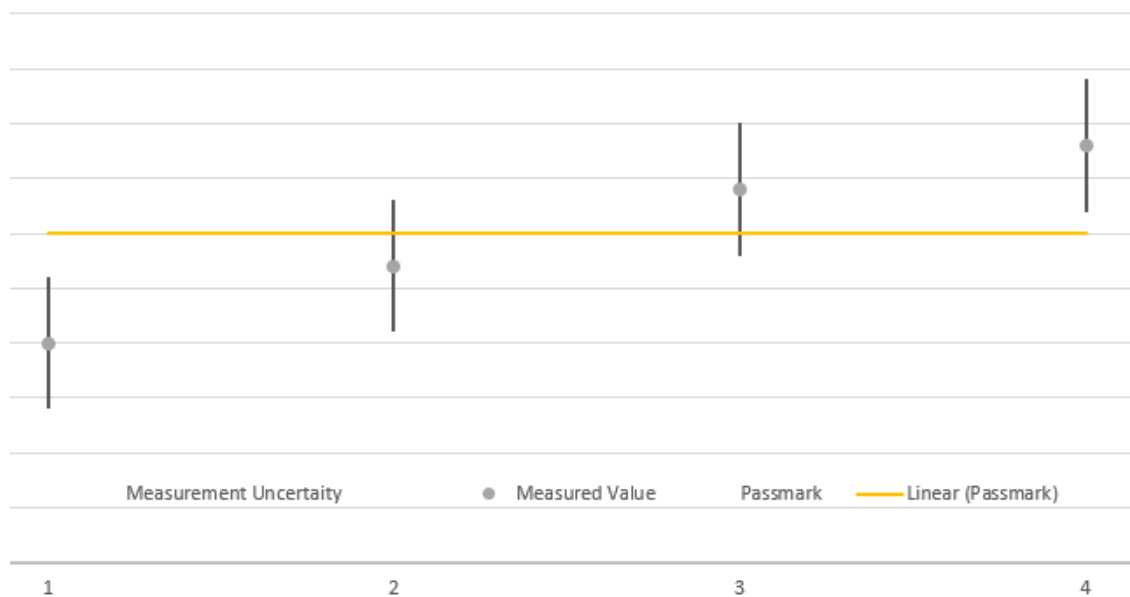


**Drawing 1:** Setup in the Anechoic chamber. For measurements below 1 GHz the ground was replaced by a conducting groundplane.

## 9 MEASUREMENT UNCERTAINTIES

| Test Case                            | Parameter          | Uncertainty                    |
|--------------------------------------|--------------------|--------------------------------|
| AC Power Line                        | Power              | $\pm 3.4$ dB                   |
| Field Strength of spurious radiation | Power              | $\pm 5.5$ dB                   |
| 6 dB / 26 dB / 99% Bandwidth         | Power<br>Frequency | $\pm 2.9$ dB<br>$\pm 11.2$ kHz |
| Conducted Output Power               | Power              | $\pm 2.2$ dB                   |
| Band Edge Compliance                 | Power<br>Frequency | $\pm 2.2$ dB<br>$\pm 11.2$ kHz |
| Frequency Stability                  | Frequency          | $\pm 25$ Hz                    |
| Power Spectral Density               | Power              | $\pm 2.2$ dB                   |

The measurement uncertainties for all parameters are calculated with an expansion factor (coverage factor)  $k = 1.96$ . This means, that the true value is in the corresponding interval with a probability of 95 %.



The verdicts in this test report are given according the above diagram:

| Case | Measured Value  | Uncertainty Range | Verdict |
|------|-----------------|-------------------|---------|
| 1    | below pass mark | below pass mark   | Passed  |
| 2    | below pass mark | within pass mark  | Passed  |
| 3    | above pass mark | within pass mark  | Failed  |
| 4    | above pass mark | above pass mark   | Failed  |

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so called shared risk principle.

## 10 PHOTO REPORT

Please see separate photo report.