



WIFI 5GHz Template: Release October 03rd, 2016

# **TEST REPORT**

N°: 152845-715034-D Version : 01

Subject Radio spectrum matters

tests according to standards: 47 CFR Part 15.407 (DFS Only) №

Issued to SAGEMCOM BROADBAND SAS

250 Route de l' Empereur 92500 – RUEIL MALMAISON

**FRANCE** 

Apparatus under test

♥ Product
 ♥ Trade mark
 ♥ Manufacturer
 ♥ Model under test
 ♥ Serial number
 ♥ FCC ID
 DCIW387 ATN
 DCIW387 ATN
 617510000063
 VW3DCIW387

Test date : February 22, 2018 to February 23, 2018

**Test location** Fontenay Aux Roses

Composition of document 34 pages

**Document issued on** April 23, 2018

Written by :
Armand MAHOUNGOU
Tests operator



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Laboratoire Central des Industries Electriques Une société de Bureau Veritas 33, Av du Général Leclerc 92266 Fontenay Aux Roses FRANCE Tél: +33 1 40 95 60 60 contact@lcie.fr www.lcie.fr



## **PUBLICATION HISTORY**

| Version | Date              | Author           | Modification             |
|---------|-------------------|------------------|--------------------------|
| 01      | February 26, 2018 | Armand MAHOUNGOU | Creation of the document |



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## 1. TEST PROGRAM

#### References

- > 47 CFR Part 15.407 (DFS requirements)
- KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
- > KBD 905462 D04 Test Mode New Rules v01
- ➤ KDB 905462 D03 Client Without DFS New Rules v01r01
- > KDB 905462 D06 802.11 Channel Plans New Rules v02
- > KDB905462 D07 Overview UNII Rules v01

Radio requirement:

| Clause (47CFR Part 15.407)  Test Description  |        | Test result - Comments |            |         |  |  |
|---|--------|------------------------|------------|---------|--|--|
| Channel Availability Check Time & DFS Detection Threshold ₽   | □ PASS | □ FAIL                 | ☑ NA(1)(2) | □ NP(3) |  |  |
| U-NII Detection Bandwidth №   | □ PASS | □ FAIL                 | ☑ NA(1)    | □ NP(3) |  |  |
| Statistical Performance Check & DFS Detection Threshold 🏱   | □ PASS | □ FAIL                 | ☑ NA       | □ NP(3) |  |  |
| Channel Closing Transmission Time & Channel Move Time 12  | ☑ PASS | □ FAIL                 | □NA        | □ NP(3) |  |  |
| Non-occupancy period ₽  | ☑ PASS | □ FAIL                 | □ NA(1)    | □ NP(3) |  |  |
| This table is a summary of test report, see conclusion of each clause of this test report for detail. |        |                        |            |         |  |  |

<sup>(1):</sup> Client without radar detection

<sup>(2):</sup> Client with radar detection

<sup>(3):</sup> Limited program



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

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

# Equipment under test (EUT): SAGEMCOM DCIW387 ATN



Serial Number: 617510000063

Front face



\_\_\_\_\_\_

**Equipment Under Test** 







**Equipment Under Test** 

#### Inputs/outputs - Cable:

| mpato/outputo Gable. |      |                 |              |          |            |          |
|----------------------|------|-----------------|--------------|----------|------------|----------|
| Access               | Туре | Length used (m) | Declared <3m | Shielded | Under test | Comments |
| Power supply cable   | -    | -               |              |          |            | -        |
| USB – RS232 cable    | -    | -               |              |          |            | -        |
| Data cable           | -    | -               |              |          |            | -        |

Auxiliary equipment used during test:

| Туре                      | Reference      | Sn             | Comments                 |
|---------------------------|----------------|----------------|--------------------------|
| Laptop computer           | -              | 1              | Use to set the EUT       |
| Wireless AC1750 Dual Band | DLINK DIR-868L | RZ641E8004888  | FCC ID:RRK2012060056-1   |
| Gigabit Cloud Router      | DLINK DIK-000L | 1\2041L0004000 | IC ID: 4833A-WMCA01A1    |
| Laptop                    | _              | _              | Use to set the EUT & the |
| Сартор                    | _              | _              | communication traffic    |
| Laptop                    | _              |                | Use to set the EUT & the |
| Сартор                    | _              | -              | communication traffic    |



**Equipment information:** 

| Type:                               |                                    |         | W                  | IFI           |                       |                     |
|-------------------------------------|------------------------------------|---------|--------------------|---------------|-----------------------|---------------------|
|                                     | ☑ 5150MHz-5250MHz                  |         | ☑ 5250MHz-5350MHz  |               | ☑ 54                  | 470MHz-5725MHz      |
| Frequency band:                     |                                    |         |                    |               |                       |                     |
|                                     | ☑ 802.11a                          |         | ☑ 802.11n HT20     |               | ☑ 802.11n HT40        |                     |
| Standard:                           | ☑ 802.11ac VHT20                   |         | ☑ 802.11ac VHT40   |               | ☑ 802.11ac VHT80      |                     |
|                                     |                                    |         | □ 802.11a          | ac VHT160     |                       |                     |
| Spectrum Modulation:                |                                    |         | <b>☑</b> 0         | FDM           |                       |                     |
| Channel bandwidth:                  | ☑ 20MHz                            | 5       | ☑ 40MHz            | ☑ 80MH        | Z                     | □ 160MHz            |
| Antenna Type:                       |                                    |         | ☐ Exte             | rnal          |                       | □ Dedicated         |
| Antenna connector:                  |                                    |         | □ N                | 0             |                       | Temporary for test  |
| Transmit chains:                    | □ 1                                |         | □ 2                | □ 3           |                       | ☑ 4                 |
|                                     | □ 5                                |         | □ 6                | □ 7           |                       | □ 8                 |
| TPC:                                |                                    | Yes     |                    | □ No          |                       |                     |
| Receiver chains                     | □ 1                                | _ :     |                    | □ 3           |                       | ☑ 4                 |
| receiver chains                     | □ 5 □ 6                            |         |                    | □ 7           |                       | □ 8                 |
| Type of equipment:                  |                                    | ne      | ☐ Pluç             |               |                       | □ Combined          |
|                                     | Tmin:                              | [       | □ -20°C            | ☑ 0°C         |                       | □ X °C              |
| Operating temperature range:        | Tnom:                              |         |                    | 20°C          |                       |                     |
|                                     | Tmax:                              |         | □ 35°C             | □ 55°C        |                       | ☑ 45 °C             |
| Type of power source:               | ☑ AC power su                      | upply   | ☐ DC powe          |               | □ Ba                  | attery Battery Type |
|                                     | Vmin:                              |         | ☑ 120 V/60Hz       |               | ☐ X Vdc               |                     |
| Operating voltage range:            | Vnom:                              |         | ☑ 110 V/60Hz       |               | ☐ X Vdc               |                     |
|                                     | Vmax                               |         | ☑ 100 V/60Hz       |               | ☐ X Vdc               |                     |
|                                     | ☐ Master                           |         | □ Slave with radar |               | ☑ Slave without radar |                     |
| Mode:                               | - Iviastci                         |         | detect             | ion           | detection             |                     |
|                                     |                                    |         |                    | ☐ Mesh        |                       |                     |
| Fixed outdoor P to P/M application: |                                    | □ Yes   |                    | ☑ No          |                       |                     |
| System architectures:               |                                    | IP base |                    | ☐ Frame based |                       |                     |
|                                     |                                    |         |                    |               |                       |                     |
| User access restriction:            | information rega                   |         |                    |               | V                     | No                  |
| Coor access rectification.          | of the detected Radar Waveforms is |         | i ivo              |               |                       |                     |
|                                     | not available to the end user)     |         |                    |               |                       |                     |



|                  | Antenna Characteristic |                      |                       |  |  |  |
|------------------|------------------------|----------------------|-----------------------|--|--|--|
| Antenna assembly | Gain (dBi)             | Frequency Band (MHz) | Impedance( $\Omega$ ) |  |  |  |
| 1                | 1.209                  | 5150-5725            | 50                    |  |  |  |
| 2                | 1.209                  | 5150-5725            | 50                    |  |  |  |
| 3                | 1.209                  | 5150-5725            | 50                    |  |  |  |
| 4                | 1.209                  | 5150-5725            | 50                    |  |  |  |
| Accumulated      | 7.23                   | 5150-5725            | 50                    |  |  |  |
| 1                | 1.619                  | 5725-5850            | 50                    |  |  |  |
| 2                | 1.619                  | 5725-5850            | 50                    |  |  |  |
| 3                | 1.619                  | 5725-5850            | 50                    |  |  |  |
| 4                | 1.619                  | 5725-5850            | 50                    |  |  |  |
| Accumulated      | 7.64                   | 5725-5850            | 50                    |  |  |  |

| Accumulated g   | ain calculation        |              |
|---|------------------------|--------------|
| Formula used for calculation  | KDB                    | Correlated   |
| $Directional\ Gain = \ 10*\log\Biggl(\frac{\left(10^{\frac{G_1}{20}} + 10^{\frac{G_2}{20}} + 10^{\frac{G_3}{20}} + \dots + 10^{\frac{G_N}{20}}\right)^2}{N}\Biggr)$ | KDB 662911 D01 v02r01* | ☑ Yes / □ No |

<sup>\*§</sup> F) 2) d) i)



|         | CHANNEL PLAN                |                   |  |  |
|---------|-----------------------------|-------------------|--|--|
|         | 802.11a / 802.11n HT20/ 802 | 2.11ac VHT20      |  |  |
| Channel | Frequency (MHz)             | Available Channel |  |  |
| 36      | 5180                        | $\square$         |  |  |
| 40      | 5200                        | $\blacksquare$    |  |  |
| 44      | 5220                        | $\square$         |  |  |
| 48      | 5240                        |                   |  |  |
| 52      | 5260                        |                   |  |  |
| 56      | 5280                        |                   |  |  |
| 60      | 5300                        | Ø                 |  |  |
| C6=64   | 5320                        |                   |  |  |
| C7=100  | 5500                        |                   |  |  |
| 104     | 5520                        |                   |  |  |
| 108     | 5540                        |                   |  |  |
| 112     | 5560                        |                   |  |  |
| 116     | 5580                        | $\square$         |  |  |
| 120     | 5600                        |                   |  |  |
| 124     | 5620                        |                   |  |  |
| 128     | 5640                        | Ø                 |  |  |
| 132     | 5660                        | Ø                 |  |  |
| 136     | 5680                        | $\square$         |  |  |
| 140     | 5700                        | <b>V</b>          |  |  |
| 149     | 5745                        | Ø                 |  |  |
| 153     | 5765                        | Ø                 |  |  |
| 157     | 5785                        |                   |  |  |
| 161     | 5805                        | Ø                 |  |  |
| 165     | 5825                        | <b></b>           |  |  |



| CHANNEL PLAN |                                   |          |  |  |
|--------------|-----------------------------------|----------|--|--|
|              | 802.11n HT40/ 802.11a             | nc VHT40 |  |  |
| Channel      | Frequency (MHz) Available Channel |          |  |  |
| 36+40        | 5190                              |          |  |  |
| 44+48        | 5230                              |          |  |  |
| 52+56        | 5270                              |          |  |  |
| C17=60+64    | 5310                              |          |  |  |
| C18=100+104  | 5510                              |          |  |  |
| 108+112      | 5550                              |          |  |  |
| 116+120      | 5590                              |          |  |  |
| 124+128      | 5630                              |          |  |  |
| 132+136      | 5670                              |          |  |  |
| 140+144      | 5710                              | Ø        |  |  |
| 149+153      | 5755                              | Ø        |  |  |
| 157+161      | 5795                              | Ø        |  |  |

| CHANNEL PLAN        |   |           |  |  |  |  |
|---------------------|---|-----------|--|--|--|--|
|                     | 802.11ac VHT80                            |           |  |  |  |  |
| Channel             | Channel Frequency (MHz) Available Channel |           |  |  |  |  |
| 36+40+44+48         | 5210                                      | $\square$ |  |  |  |  |
| C25=52+56+60+64     | 5290                                      |           |  |  |  |  |
| C26=100+104+108+112 | 5530                                      |           |  |  |  |  |
| 116+120+124+128     | 5610                                      |           |  |  |  |  |
| 132+136+140+144     | 5690                                      |           |  |  |  |  |
| 149+153+157+161     | 5775                                      |           |  |  |  |  |

| No DFS Channel                                   |
|--|
| DFS Channel                                      |
| Weather DES Channel (Not Authorised for RSS-247) |



|                  | DATA RATE       |                          |  |  |  |  |  |
|------------------|-----------------|--------------------------|--|--|--|--|--|
|                  | 802.11a         |                          |  |  |  |  |  |
| Data Rate (Mbps) | Modulation Type | Modulation<br>Worst Case |  |  |  |  |  |
| 6                | BPSK            | <b>V</b>                 |  |  |  |  |  |
| 9                | BPSK            |                          |  |  |  |  |  |
| 12               | QPSK            |                          |  |  |  |  |  |
| 18               | QPSK            |                          |  |  |  |  |  |
| 24               | 16-QAM          |                          |  |  |  |  |  |
| 36               | 16-QAM          |                          |  |  |  |  |  |
| 48               | 64-QAM          |                          |  |  |  |  |  |
| 54               | 64-QAM          |                          |  |  |  |  |  |



|                     | DATA RATE    |                 |  |                  |                |                |                     |                            |                       |
|---------------------|--------------|-----------------|--|------------------|----------------|----------------|---------------------|----------------------------|-----------------------|
|                     |              | 1               | 1  |                  | 802.11n        | HT20           | 2.0                 |                            |                       |
| Available for EUT   | MCS<br>Index | Spatial streams |  | Modulation       |                |                | (GI = 800ns)        | ate (Mbps)<br>(GI = 400ns) | Worst Case Modulation |
|                     | 0            | Streams<br>1    |  | BPS              | SK             |                | (GI = 800HS)<br>6.5 | 7.2                        | Wodulation            |
| <u> </u>            | 1            | 1 1             |  | QPS              |                |                | 13                  | 14.4                       |                       |
| ✓                   | 2            | 1               |  | QPS              |                |                | 19.5                | 21.7                       |                       |
| ✓                   | 3            | 1               |  | 16-Q             |                |                | 26                  | 28.9                       |                       |
| ✓                   | 4            | 1               |  | 16-Q             |                |                | 39                  | 43.3                       |                       |
| ✓                   | 5            | 11              |  | 64-Q             |                |                | 52                  | 57.8                       |                       |
| ✓                   | 6            | 1 1             | +  | 64-Q<br>64-Q     |                |                | 58.5<br>65          | 65<br>72.2                 |                       |
| ✓                   | 8            | 2               | 1  | BPS              |                |                | 13                  | 14.4                       |                       |
| ✓                   | 9            | 2               |  | QPS              |                |                | 26                  | 28.9                       |                       |
| ✓                   | 10           | 2               |  | QPS              |                |                | 39                  | 43.3                       |                       |
| ✓                   | 11           | 2               |  | 16-Q             |                |                | 52                  | 57.8                       |                       |
| ✓                   | 12           | 2               |  | 16-Q             |                |                | 78                  | 86.7                       |                       |
| ✓                   | 13           | 2               |  | 64-Q             |                |                | 104                 | 115.6                      |                       |
| ✓                   | 14           | 2               |  | 64-Q             |                |                | 117                 | 130.3                      |                       |
| ✓                   | 15<br>16     | 2               | <del>                                     </del> | 64-Q<br>BPS      |                |                | 130<br>19.5         | 144.4<br>21.7              |                       |
| ✓                   | 17           | 3               | +  | QPS              |                |                | 19.5                | 43.3                       |                       |
| ✓                   | 18           | 3               | +  | QPS              |                |                | 58.5                | 65                         |                       |
| ✓                   | 19           | 3               | 1  | 16-Q             |                |                | 78                  | 86.7                       |                       |
| ✓                   | 20           | 3               | 1  | 16-Q             |                |                | 117                 | 130                        |                       |
| ✓                   | 21           | 3               |  | 64-Q             | AM             |                | 156                 | 173.3                      |                       |
| ✓                   | 22           | 3               |  | 64-Q             |                |                | 175.5               | 195                        |                       |
| ✓                   | 23           | 3               | 1  | 64-Q             |                |                | 195                 | 216.7                      |                       |
| ✓                   | 24           | 4               |  | BPS              |                |                | 26                  | 28.9                       |                       |
| ✓                   | 25           | 4               | 1  | QPS              |                |                | 52                  | 57.8                       |                       |
| ✓                   | 26<br>27     | 4               | +  | QPS<br>16-Q      |                |                | 78<br>104           | 86.7<br>115.6              |                       |
| ✓                   | 28           | 4               | +  | 16-Q             |                |                | 156                 | 173.3                      |                       |
| ✓                   | 29           | 4               | +  | 64-Q             |                |                | 208                 | 231.1                      |                       |
| ✓                   | 30           | 4               |  | 64-Q             |                |                | 234                 | 260                        |                       |
| ✓                   | 31           | 4               |  | 64-Q             |                |                | 260                 | 288.9                      |                       |
| $\checkmark$        | 32           | 1               | BPSK   | -                | -              | -              | -                   | -                          |                       |
| ✓                   | 33           | 2               | 16-QAM   | QPSK             | -              | -              | 39                  | 43.3                       |                       |
|                     | 34           | 2               | 64-QAM   | QPSK             | -              | -              | 52                  | 57.8                       |                       |
|                     | 35           | 2               | 64-QAM   | 16-QAM           | -              | -              | 65                  | 72.2                       |                       |
| ✓                   | 36<br>37     | 2 2             | 16-QAM<br>64-QAM                                 | QPSK<br>QPSK     | -              | -              | 58.5<br>78          | 65<br>86.7                 |                       |
| ✓                   | 38           | 2               | 64-QAM   | 16-QAM           | -              | -              | 97.5                | 108.3                      |                       |
| ✓                   | 39           | 3               | 16-QAM   | QPSK             | QPSK           | -              | 52                  | 57.8                       |                       |
| <u> </u>            | 40           | 3               | 16-QAM   | 16-QAM           | QPSK           | -              | 65                  | 72.2                       |                       |
| ✓                   | 41           | 3               | 64-QAM   | QPSK             | QPSK           | -              | 65                  | 72.2                       |                       |
| $\checkmark$        | 42           | 3               | 64-QAM   | 16-QAM           | QPSK           | -              | 78                  | 86.7                       |                       |
| ✓                   | 43           | 3               | 64-QAM   | 16-QAM           | 16-QAM         | -              | 91                  | 101.1                      |                       |
| ✓                   | 44           | 3               | 64-QAM   | 64-QAM           | QPSK           | -              | 91                  | 101.1                      |                       |
| ✓                   | 45           | 3               | 64-QAM   | 64-QAM           | 16-QAM         | -              | 104                 | 115.6                      |                       |
| ✓                   | 46<br>47     | 3               | 16-QAM<br>16-QAM                                 | QPSK<br>16-QAM   | QPSK<br>QPSK   | -              | 78<br>97.5          | 86.7<br>108.3              |                       |
| ✓                   | 48           | 3               | 64-QAM   | QPSK             | QPSK           | -              | 97.5                | 108.3                      |                       |
| ✓                   | 49           | 3               | 64-QAM   | 16-QAM           | QPSK           | -              | 117                 | 130                        |                       |
| ✓                   | 50           | 3               | 64-QAM   | 16-QAM           | 16-QAM         | -              | 136.5               | 151.7                      |                       |
| ✓                   | 51           | 3               | 64-QAM   | 64-QAM           | QPSK           | -              | 136.5               | 151.7                      |                       |
| ✓                   | 52           | 3               | 64-QAM   | 64-QAM           | 16-QAM         | -              | 156                 | 173.3                      |                       |
| ☑                   | 53           | 4               | 16-QAM   | QPSK             | QPSK           | QPSK           | 65                  | 72.2                       |                       |
| <b></b> ✓           | 54           | 4               | 16-QAM   | 16-QAM           | QPSK           | QPSK           | 78                  | 86.7                       |                       |
| ✓                   | 55           | 4               | 16-QAM   | 16-QAM           | 16-QAM         | QPSK           | 91                  | 101.1                      |                       |
| ✓                   | 56<br>57     | 4               | 64-QAM<br>64-QAM                                 | QPSK<br>16-QAM   | QPSK<br>QPSK   | QPSK<br>QPSK   | 78<br>91            | 86.7<br>101.1              |                       |
| <b>V</b>            | 58           | 4               | 64-QAM   | 16-QAM           | 16-QAM         | QPSK           | 104                 | 115.6                      |                       |
| ✓                   | 59           | 4               | 64-QAM   | 16-QAM           | 16-QAM         | 16-QAM         | 117                 | 130                        |                       |
|                     | 60           | 4               | 64-QAM   | QPSK             | QPSK           | QPSK           | 104                 | 115.6                      |                       |
| ✓                   | 61           | 4               | 64-QAM   | 16-QAM           | 16-QAM         | QPSK           | 117                 | 130                        |                       |
|                     | 62           | 4               | 64-QAM   | 16-QAM           | 16-QAM         | 16-QAM         | 130                 | 144.4                      |                       |
|                     | 63           | 4               | 64-QAM   | 64-QAM           | 64-QAM         | QPSK           | 130                 | 144.4                      |                       |
| ☑                   | 64           | 4               | 64-QAM   | 64-QAM           | 64-QAM         | 16-QAM         | 143                 | 158.9                      |                       |
| <ul><li>✓</li></ul> | 65           | 4               | 16-QAM   | QPSK             | QPSK           | QPSK           | 97.5                | 108.3                      |                       |
| <u> </u>            | 66<br>67     | 4               | 16-QAM<br>16-QAM                                 | 16-QAM<br>16-QAM | QPSK<br>16-QAM | QPSK<br>QPSK   | 117<br>136.5        | 130<br>151.7               |                       |
| <b>∀</b>            | 68           | 4               | 64-QAM   | QPSK             | QPSK           | QPSK           | 130.5               | 130                        |                       |
| <u> </u>            | 69           | 4               | 64-QAM   | 16-QAM           | QPSK           | QPSK           | 136.5               | 151.7                      |                       |
| <u> </u>            | 70           | 4               | 64-QAM   | 16-QAM           | 16-QAM         | QPSK           | 156                 | 173.3                      |                       |
|                     | 71           | 4               | 64-QAM   | 16-QAM           | 16-QAM         | 16-QAM         | 175.5               | 195                        |                       |
|                     | 72           | 4               | 64-QAM   | 64-QAM           | QPSK           | QPSK           | 156                 | 173.3                      |                       |
|                     | 73           | 4               | 64-QAM   | 64-QAM           | 16-QAM         | QPSK           | 175.5               | 195                        |                       |
| <b>☑</b>            | 74           | 4               | 64-QAM   | 64-QAM           | 16-QAM         | 16-QAM         | 195                 | 216.7                      |                       |
| <b>7</b>            | 75<br>76     | 4               | 64-QAM   | 64-QAM           | 64-QAM         | QPSK<br>16 OAM | 195                 | 216.7                      |                       |
| <b>V</b>            | 76           | 4               | 64-QAM   | 64-QAM           | 64-QAM         | 16-QAM         | 214.5               | 238.3                      |                       |



| DATA RATE<br>802.11n HT40     |               |                 |                  |                  |                  |                |                |                            |                       |
|-------------------------------|---------------|-----------------|------------------|------------------|------------------|----------------|----------------|----------------------------|-----------------------|
|                               |               | 1               | 1                |                  |                  |                |                |                            |                       |
| Available<br>for EUT          | MCS<br>Index  | Spatial streams |                  | Modulation       |                  |                | (GI = 800ns)   | ate (Mbps)<br>(GI = 400ns) | Worst Case Modulation |
| IOI                           | 0             | 1               |                  | BPS              | SK               |                | 13             | 15                         | ₩oddiation            |
| <b>V</b>                      | 1             | 1               |                  | QPS              |                  |                | 27             | 30                         |                       |
| <b>V</b>                      | 2             | 1               |                  | QPS              |                  |                | 40.5           | 45                         |                       |
| <b>Ø</b>                      | 3             | 1               | 1                | 16-Q             |                  |                | 54             | 60                         |                       |
| <u>V</u>                      | <u>4</u><br>5 | 1 1             | -                | 16-Q<br>64-Q     |                  |                | 81<br>108      | 90<br>120                  |                       |
| <u> </u>                      | 6             | 1 1             | +                | 64-Q             |                  |                | 121.5          | 135                        |                       |
| <u> </u>                      | 7             | 1               |                  | 64-Q             |                  |                | 135            | 150                        |                       |
| <b>V</b>                      | 8             | 2               |                  | BPS              |                  |                | 27             | 30                         |                       |
| ✓                             | 9             | 2               |                  | QPS              |                  |                | 54             | 60                         |                       |
| ✓                             | 10            | 2               |                  | QPS              |                  |                | 81             | 90                         |                       |
| <b>V</b>                      | 11<br>12      | 2               | +                | 16-Q<br>16-Q     |                  |                | 108<br>162     | 120<br>180                 |                       |
| <u> </u>                      | 13            | 2               | +                | 64-Q             |                  |                | 216            | 240                        |                       |
| ✓                             | 14            | 2               |                  | 64-Q             |                  |                | 243            | 270                        |                       |
| $\checkmark$                  | 15            | 2               |                  | 64-Q             |                  |                | 270            | 300                        |                       |
| ✓                             | 16            | 3               |                  | BPS              |                  |                | 40.5           | 45                         |                       |
| <b>7</b>                      | 17            | 3               |                  | QPS              |                  |                | 81             | 90                         |                       |
| <ul><li>✓</li></ul>           | 18<br>19      | 3               | 1                | QPS<br>16-Q      |                  |                | 121.5<br>162   | 135<br>180                 |                       |
| <u>V</u>                      | 19<br>20      | 3               | +                | 16-Q<br>16-Q     |                  |                | 162<br>243     | 180<br>270                 |                       |
| ✓                             | 21            | 3               | +                | 64-Q             |                  |                | 324            | 360                        |                       |
| <u> </u>                      | 22            | 3               |                  | 64-Q             |                  |                | 364.5          | 405                        |                       |
| <b>V</b>                      | 23            | 3               |                  | 64-Q             | AM               | _              | 405            | 450                        |                       |
| <b>V</b>                      | 24            | 4               |                  | BPS              |                  |                | 54             | 60                         |                       |
| <b>Ø</b>                      | 25            | 4               | 1                | QPS              |                  |                | 108            | 120                        |                       |
| <ul><li>✓</li><li>✓</li></ul> | 26            | 4               | 1                | QPS              |                  |                | 162            | 180                        |                       |
| <u>v</u>                      | 27<br>28      | 4               | +                | 16-Q<br>16-Q     |                  |                | 216<br>324     | 240<br>360                 |                       |
| <u> </u>                      | 29            | 4               | +                | 64-Q             |                  |                | 432            | 480                        |                       |
| <u> </u>                      | 30            | 4               |                  | 64-Q             |                  |                | 486            | 540                        |                       |
| $\checkmark$                  | 31            | 4               |                  | 64-Q             |                  |                | 540            | 600                        |                       |
| ✓                             | 32            | 1               | BPSK             | 1                | -                | -              | 6.0            | 6.7                        |                       |
| ✓                             | 33            | 2               | 16-QAM           | QPSK             | -                | -              | 81             | 90.0                       |                       |
| <ul><li>✓</li></ul>           | 34            | 2               | 64-QAM           | QPSK             | -                | -              | 108            | 120                        |                       |
| <u>v</u>                      | 35<br>36      | 2               | 64-QAM<br>16-QAM | 16-QAM<br>QPSK   | -                | -              | 135<br>121.5   | 150<br>135                 |                       |
| ✓                             | 37            | 2               | 64-QAM           | QPSK             | -                | -              | 162            | 180                        |                       |
| <u> </u>                      | 38            | 2               | 64-QAM           | 16-QAM           | -                | -              | 202.5          | 225                        |                       |
| ✓                             | 39            | 3               | 16-QAM           | QPSK             | QPSK             | -              | 108            | 120                        |                       |
| ✓                             | 40            | 3               | 16-QAM           | 16-QAM           | QPSK             | -              | 135            | 150                        |                       |
| ☑                             | 41            | 3               | 64-QAM           | QPSK             | QPSK             | -              | 135            | 150                        |                       |
| <ul><li>✓</li></ul>           | 42<br>43      | 3               | 64-QAM<br>64-QAM | 16-QAM<br>16-QAM | QPSK<br>16 OAM   | -              | 162<br>189     | 180<br>210                 |                       |
| <u> </u>                      | 44            | 3               | 64-QAM           | 64-QAM           | 16-QAM<br>QPSK   | -              | 189            | 210                        |                       |
| <u> </u>                      | 45            | 3               | 64-QAM           | 64-QAM           | 16-QAM           | -              | 216            | 240                        |                       |
| ✓                             | 46            | 3               | 16-QAM           | QPSK             | QPSK             | -              | 162            | 180                        |                       |
| ✓                             | 47            | 3               | 16-QAM           | 16-QAM           | QPSK             | -              | 202.5          | 225                        |                       |
| <b>7</b>                      | 48            | 3               | 64-QAM           | QPSK             | QPSK             | -              | 202.5          | 225                        |                       |
| <u> </u>                      | 49            | 3               | 64-QAM           | 16-QAM           | QPSK<br>16 OAM   | -              | 243            | 270                        |                       |
| <u>V</u>                      | 50<br>51      | 3               | 64-QAM<br>64-QAM | 16-QAM<br>64-QAM | 16-QAM<br>QPSK   | -              | 283.5<br>283.5 | 315<br>315                 |                       |
| <u>v</u>                      | 52            | 3               | 64-QAM           | 64-QAM           | 16-QAM           | -              | 324            | 360                        |                       |
| <b>V</b>                      | 53            | 4               | 16-QAM           | QPSK             | QPSK             | QPSK           | 135            | 150                        |                       |
| <b>V</b>                      | 54            | 4               | 16-QAM           | 16-QAM           | QPSK             | QPSK           | 162            | 180                        |                       |
| <b>V</b>                      | 55            | 4               | 16-QAM           | 16-QAM           | 16-QAM           | QPSK           | 189            | 210                        |                       |
| ☑                             | 56            | 4               | 64-QAM           | QPSK             | QPSK             | QPSK           | 162            | 180                        |                       |
| <b>7</b>                      | 57            | 4               | 64-QAM           | 16-QAM           | QPSK<br>16 OAM   | QPSK           | 189            | 210                        |                       |
| <u>V</u>                      | 58<br>59      | 4               | 64-QAM<br>64-QAM | 16-QAM<br>16-QAM | 16-QAM<br>16-QAM | QPSK<br>16-QAM | 216<br>243     | 240<br>270                 |                       |
| <u> </u>                      | 60            | 4               | 64-QAM           | QPSK             | QPSK             | QPSK           | 216            | 240                        |                       |
| <b>V</b>                      | 61            | 4               | 64-QAM           | 16-QAM           | 16-QAM           | QPSK           | 243            | 270                        |                       |
| ✓                             | 62            | 4               | 64-QAM           | 16-QAM           | 16-QAM           | 16-QAM         | 270            | 300                        |                       |
| <b>V</b>                      | 63            | 4               | 64-QAM           | 64-QAM           | 64-QAM           | QPSK           | 270            | 300                        |                       |
| <b>7</b>                      | 64            | 4               | 64-QAM           | 64-QAM           | 64-QAM           | 16-QAM         | 297            | 330                        |                       |
| <b>Ø</b>                      | 65            | 4               | 16-QAM           | QPSK<br>16 OAM   | QPSK             | QPSK           | 202.5          | 225                        |                       |
| <u>V</u>                      | 66<br>67      | 4               | 16-QAM<br>16-QAM | 16-QAM<br>16-QAM | QPSK<br>16-QAM   | QPSK<br>QPSK   | 243<br>283.5   | 270<br>315                 |                       |
| <b>✓</b>                      | 68            | 4               | 64-QAM           | QPSK             | QPSK             | QPSK           | 243            | 270                        |                       |
| <b>7</b>                      | 69            | 4               | 64-QAM           | 16-QAM           | QPSK             | QPSK           | 283.5          | 315                        |                       |
| $\checkmark$                  | 70            | 4               | 64-QAM           | 16-QAM           | 16-QAM           | QPSK           | 324            | 360                        |                       |
| ✓                             | 71            | 4               | 64-QAM           | 16-QAM           | 16-QAM           | 16-QAM         | 364.5          | 405                        |                       |
| <b>7</b>                      | 72            | 4               | 64-QAM           | 64-QAM           | QPSK             | QPSK           | 324            | 360                        |                       |
| <b>V</b>                      | 73<br>74      | 4               | 64-QAM           | 64-QAM           | 16-QAM           | QPSK<br>16 OAM | 364.5          | 405                        |                       |
|                               | /4            | 4               | 64-QAM           | 64-QAM           | 16-QAM           | 16-QAM         | 405            | 450                        |                       |
| <b>✓</b>                      | 75            | 4               | 64-QAM           | 64-QAM           | 64-QAM           | QPSK           | 405            | 450                        |                       |



|                   |           |                        | DATA DATE: 002 44cc VUT20                                |             |            |                |                       |
|-------------------|-----------|------------------------|--|-------------|------------|----------------|-----------------------|
| Available for EUT | MCS Index | Nbr of spatial streams | DATA RATE: 802.11ac VHT20<br>Modulation (Stream 1/2/3/4) | Coding rate | GI = 800ns | GI = 400ns     | Worst Case Modulation |
| <u> </u>          | 0         | 1                      | BPSK   | 1/2         | 6,5        | 7,2            | ✓                     |
| ✓                 | 1         | 1                      | QPSK   | 1/2         | 13         | 14,4           |                       |
| ✓                 | 2         | 1                      | QPSK   | 3/4         | 19,5       | 21,7           |                       |
| <b>7</b>          | 3         | 1                      | 16-QAM   | 1/2         | 26         | 28,9           |                       |
| <b>7</b>          | 4         | 1                      | 16-QAM   | 3/4         | 39         | 43,3           |                       |
| <b>V</b>          | 5         | 1                      | 64-QAM   | 2/3         | 52         | 57,8           |                       |
| <u>V</u>          | 6<br>7    | <u>1</u><br>1          | 64-QAM<br>64-QAM   | 3/4<br>5/6  | 58,5<br>65 | 65<br>72,2     |                       |
| <u>V</u>          | 8         | 1<br>1                 | 256-QAM  | 3/4         | 78         | 86,7           |                       |
| <u>V</u>          | 9         | <u></u>                | 256-QAM  | 5/6         | N/A        | N/A            |                       |
| <u> </u>          | 10        | 2                      | BPSK   | 1/2         | 13         | 14,4           |                       |
| <u> </u>          | 11        | 2                      | QPSK   | 1/2         | 26         | 28,8           |                       |
| <b>V</b>          | 12        | 2                      | QPSK   | 3/4         | 39         | 43,4           |                       |
| ✓                 | 13        | 2                      | 16-QAM   | 1/2         | 52         | 57,8           |                       |
| $\checkmark$      | 14        | 2                      | 16-QAM   | 3/4         | 78         | 86,6           |                       |
| <b>V</b>          | 15        | 2                      | 64-QAM   | 2/3         | 104        | 115,6          |                       |
|                   | 16        | 2                      | 64-QAM   | 3/4         | 117        | 130            |                       |
|                   | 17        | 2                      | 64-QAM   | 5/6         | 130        | 144,4          |                       |
|                   | 18        | 2                      | 256-QAM  | 3/4         | 156        | 173,4          |                       |
| <b>V</b>          | 19        | 2                      | 256-QAM  | 5/6         | N/A        | N/A            |                       |
| <u> </u>          | 20        | 3                      | BPSK   | 1/2         | 19,5       | 21,6           |                       |
| ✓                 | 21        | 3                      | QPSK   | 1/2         | 39         | 43,2           |                       |
| <u>V</u>          | 22        | 3                      | QPSK<br>16 OAM   | 3/4         | 58,5<br>78 | 65,1           |                       |
| <u>V</u>          | 23<br>24  | <u>3</u><br>3          | 16-QAM<br>16-QAM   | 1/2<br>3/4  | 78<br>117  | 86,7<br>129,9  |                       |
| <u>V</u>          | 25        | 3                      | 64-QAM   | 2/3         | 156        | 173,4          |                       |
| <u> </u>          | 26        | 3                      | 64-QAM   | 3/4         | 175,5      | 173,4          |                       |
| <u> </u>          | 27        | 3                      | 64-QAM   | 5/6         | 195        | 216,6          |                       |
| <u> </u>          | 28        | 3                      | 256-QAM  | 3/4         | 234        | 260,1          |                       |
| ✓                 | 29        | 3                      | 256-QAM  | 5/6         | N/A        | N/A            |                       |
|                   | 30        | 4                      | BPSK   | 1/2         | 26         | 28,8           |                       |
| $\checkmark$      | 31        | 4                      | QPSK   | 1/2         | 52         | 57,6           |                       |
| <b>V</b>          | 32        | 4                      | QPSK   | 3/4         | 78         | 86,8           |                       |
| <b>V</b>          | 33        | 4                      | 16-QAM   | 1/2         | 104        | 115,6          |                       |
| <b>7</b>          | 34        | 4                      | 16-QAM   | 3/4         | 156        | 173,2          |                       |
| ✓                 | 35        | 4                      | 64-QAM   | 2/3         | 208        | 231,2          |                       |
| ✓                 | 36        | 4                      | 64-QAM   | 3/4         | 234        | 260            |                       |
| <b>V</b>          | 37        | 4                      | 64-QAM   | 5/6         | 260        | 288,8          |                       |
| <u>V</u>          | 38<br>39  | 4                      | 256-QAM<br>256-QAM                                       | 3/4<br>5/6  | 312<br>N/A | 346,8<br>N/A   |                       |
|                   | 40        | <u>4</u> 5             | BPSK   | 1/2         | 32,5       | 36             |                       |
|                   | 41        | 5                      | QPSK   | 1/2         | 65         | 72             |                       |
|                   | 42        | 5                      | QPSK   | 3/4         | 97,5       | 108,5          |                       |
|                   | 43        | 5                      | 16-QAM   | 1/2         | 130        | 144,5          |                       |
|                   | 44        | 5                      | 16-QAM   | 3/4         | 195        | 216,5          |                       |
|                   | 45        | 5                      | 64-QAM   | 2/3         | 260        | 289            |                       |
|                   | 46        | 5                      | 64-QAM   | 3/4         | 292,5      | 325            |                       |
|                   | 47        | 5                      | 64-QAM   | 5/6         | 325        | 361            |                       |
|                   | 48        | 5                      | 256-QAM  | 3/4         | 390        | 433,5          |                       |
|                   | 49        | 5                      | 256-QAM  | 5/6         | N/A        | N/A            |                       |
|                   | 50        | 6                      | BPSK   | 1/2         | 39         | 43,2           |                       |
|                   | 51        | 6                      | QPSK   | 1/2         | 78         | 86,4           |                       |
|                   | 52        | 6                      | QPSK   | 3/4         | 117        | 130,2          |                       |
|                   | 53<br>54  | <u>6</u>               | 16-QAM<br>16-QAM   | 1/2<br>3/4  | 156<br>234 | 173,4<br>259,8 |                       |
|                   | 55        | 6                      | 64-QAM   | 2/3         | 312        | 259,8<br>346,8 |                       |
|                   | 56        | 6                      | 64-QAM   | 3/4         | 351        | 390            |                       |
|                   | 57        | 6                      | 64-QAM   | 5/6         | 390        | 433,2          |                       |
|                   | 58        | 6                      | 256-QAM  | 3/4         | 468        | 520,2          |                       |
|                   | 59        | 6                      | 256-QAM  | 5/6         | N/A        | N/A            |                       |
|                   | 60        | 7                      | BPSK   | 1/2         | 45,5       | 50,4           |                       |
|                   | 61        | 7                      | QPSK   | 1/2         | 91         | 100,8          |                       |
|                   | 62        | 7                      | QPSK   | 3/4         | 136,5      | 151,9          |                       |
|                   | 63        | 7                      | 16-QAM   | 1/2         | 182        | 202,3          |                       |
|                   | 64        | 7                      | 16-QAM   | 3/4         | 273        | 303,1          |                       |
|                   | 65        | 7                      | 64-QAM   | 2/3         | 364        | 404,6          |                       |
|                   | 66        | 7                      | 64-QAM   | 3/4         | 409,5      | 455            |                       |
|                   | 67        | 7                      | 64-QAM   | 5/6         | 455        | 505,4          |                       |
|                   | 68<br>69  | 7 7                    | 256-QAM<br>256-QAM                                       | 3/4<br>5/6  | 546<br>N/A | 606,9<br>N/A   |                       |
|                   | 70        | 8                      | BPSK   | 1/2         | 52         | 57,6           |                       |
|                   | 71        | 8                      | QPSK   | 1/2         | 104        | 115,2          |                       |
|                   | 72        | 8                      | QPSK   | 3/4         | 156        | 173,6          |                       |
|                   | 73        | 8                      | 16-QAM   | 1/2         | 208        | 231,2          |                       |
|                   | 74        | 8                      | 16-QAM   | 3/4         | 312        | 346,4          |                       |
|                   | 75        | 8                      | 64-QAM   | 2/3         | 416        | 462,4          |                       |
|                   | 76        | 8                      | 64-QAM   | 3/4         | 468        | 520            |                       |
|                   | 77        | 8                      | 64-QAM   | 5/6         | 520        | 577,6          |                       |
|                   | 78        | 8                      | 256-QAM  | 3/4         | 624        | 693,6          |                       |
|                   | 79        | 8                      | 256-QAM  | 5/6         | N/A        | N/A            |                       |



|                   |           |                        | DATA DATE 000 (4 1/1/210    |             |            |            |                       |
|-------------------|-----------|------------------------|-----------------------------|-------------|------------|------------|-----------------------|
| Available for FUT | MCC Index | Nhu of anotial atmanua | DATA RATE: 802.11ac VHT40   | Cadina vata | CI = 000== | CI = 400== | Moret Cose Medulation |
| Available for EUT |           | Nbr of spatial streams | Modulation (Stream 1/2/3/4) | Coding rate | GI = 800ns | GI = 400ns | Worst Case Modulation |
| <u> </u>          | 0         | 1                      | BPSK                        | 1/2         | 13,5       | 15         |                       |
|                   | 1         | 11                     | QPSK                        | 1/2         | 27         | 30         |                       |
| ✓                 | 2         | 1                      | QPSK                        | 3/4         | 40,5       | 45         |                       |
| <b>V</b>          | 3         | 1                      | 16-QAM                      | 1/2         | 54         | 60         |                       |
|                   | 4         | 1                      | 16-QAM                      | 3/4         | 81         | 90         |                       |
| $\checkmark$      | 5         | 1                      | 64-QAM                      | 2/3         | 108        | 120        |                       |
| $\checkmark$      | 6         | 1                      | 64-QAM                      | 3/4         | 121,5      | 135        |                       |
| <b>V</b>          | 7         | 1                      | 64-QAM                      | 5/6         | 135        | 150        |                       |
| <b>V</b>          | 8         | 1                      | 256-QAM                     | 3/4         | 162        | 180        |                       |
| <b>V</b>          | 9         | 1                      | 256-QAM                     | 5/6         | 180        | 200        |                       |
| <u> </u>          | 10        | 2                      | BPSK                        | 1/2         | 27         | 30         |                       |
| <u> </u>          | 11        | 2                      | QPSK                        | 1/2         | 54         | 60         |                       |
|                   |           |                        |                             |             |            |            |                       |
| <b>V</b>          | 12        | 2                      | QPSK                        | 3/4         | 81         | 90         |                       |
| ✓                 | 13        | 2                      | 16-QAM                      | 1/2         | 108        | 120        |                       |
| ✓                 | 14        | 2                      | 16-QAM                      | 3/4         | 162        | 180        |                       |
|                   | 15        | 2                      | 64-QAM                      | 2/3         | 216        | 240        |                       |
| $\checkmark$      | 16        | 2                      | 64-QAM                      | 3/4         | 243        | 270        |                       |
| ✓                 | 17        | 2                      | 64-QAM                      | 5/6         | 270        | 300        |                       |
| <b>V</b>          | 18        | 2                      | 256-QAM                     | 3/4         | 324        | 360        |                       |
| <b>V</b>          | 19        | 2                      | 256-QAM                     | 5/6         | 360        | 400        |                       |
| <u> </u>          | 20        | 3                      | BPSK                        | 1/2         | 40,5       | 45         |                       |
| <u> </u>          | 21        | 3                      | QPSK                        | 1/2         | 81         | 90         |                       |
| <u> </u>          | 22        | 3                      | QPSK                        | 3/4         | 121,5      | 135        |                       |
| <u>V</u>          |           |                        |                             |             |            |            |                       |
|                   | 23        | 3                      | 16-QAM                      | 1/2         | 162        | 180        |                       |
| ✓                 | 24        | 3                      | 16-QAM                      | 3/4         | 243        | 270        |                       |
| ✓                 | 25        | 3                      | 64-QAM                      | 2/3         | 324        | 360        |                       |
| <b></b>           | 26        | 3                      | 64-QAM                      | 3/4         | 364,5      | 405        |                       |
| $\checkmark$      | 27        | 3                      | 64-QAM                      | 5/6         | 405        | 450        |                       |
| $\checkmark$      | 28        | 3                      | 256-QAM                     | 3/4         | 486        | 540        |                       |
| $\checkmark$      | 29        | 3                      | 256-QAM                     | 5/6         | 540        | 600        |                       |
| <b>V</b>          | 30        | 4                      | BPSK                        | 1/2         | 54         | 60         |                       |
| <u> </u>          | 31        | 4                      | QPSK                        | 1/2         | 108        | 120        |                       |
| <u> </u>          | 32        | 4                      | QPSK                        | 3/4         | 162        | 180        |                       |
| <u>V</u>          |           |                        |                             |             |            |            |                       |
|                   | 33        | 4                      | 16-QAM                      | 1/2         | 216        | 240        |                       |
| <b>V</b>          | 34        | 4                      | 16-QAM                      | 3/4         | 324        | 360        |                       |
|                   | 35        | 4                      | 64-QAM                      | 2/3         | 432        | 480        |                       |
|                   | 36        | 4                      | 64-QAM                      | 3/4         | 486        | 540        |                       |
| ✓                 | 37        | 4                      | 64-QAM                      | 5/6         | 540        | 600        |                       |
| $\checkmark$      | 38        | 4                      | 256-QAM                     | 3/4         | 648        | 720        |                       |
| <b>V</b>          | 39        | 4                      | 256-QAM                     | 5/6         | 720        | 800        |                       |
|                   | 40        | 5                      | BPSK                        | 1/2         | 67,5       | 75         |                       |
|                   | 41        | 5                      | QPSK                        | 1/2         | 135        | 150        |                       |
|                   | 42        | 5                      | QPSK                        | 3/4         | 202,5      | 225        |                       |
|                   | 43        | 5                      | 16-QAM                      | 1/2         | 270        | 300        |                       |
|                   |           |                        |                             | 3/4         |            |            |                       |
|                   | 44        | 5                      | 16-QAM                      |             | 405        | 450        |                       |
|                   | 45        | 5                      | 64-QAM                      | 2/3         | 540        | 600        |                       |
|                   | 46        | 5                      | 64-QAM                      | 3/4         | 607,5      | 675        |                       |
|                   | 47        | 5                      | 64-QAM                      | 5/6         | 675        | 750        |                       |
|                   | 48        | 5                      | 256-QAM                     | 3/4         | 810        | 900        |                       |
|                   | 49        | 5                      | 256-QAM                     | 5/6         | 900        | 1000       |                       |
|                   | 50        | 6                      | BPSK                        | 1/2         | 81         | 90         |                       |
|                   | 51        | 6                      | QPSK                        | 1/2         | 162        | 180        |                       |
|                   | 52        | 6                      | QPSK                        | 3/4         | 243        | 270        |                       |
|                   | 53        | 6                      | 16-QAM                      | 1/2         | 324        | 360        |                       |
|                   | 54        | 6                      | 16-QAM                      | 3/4         | 486        | 540        |                       |
|                   | 55        | 6                      | 64-QAM                      | 2/3         | 648        | 720        |                       |
|                   |           |                        |                             | 3/4         |            | 810        |                       |
|                   | 56        | 6                      | 64-QAM                      |             | 729        |            |                       |
|                   | 57        | 6                      | 64-QAM                      | 5/6         | 810        | 900        |                       |
|                   | 58        | 6                      | 256-QAM                     | 3/4         | 972        | 1080       |                       |
|                   | 59        | 6                      | 256-QAM                     | 5/6         | 1080       | 1200       |                       |
|                   | 60        | 7                      | BPSK                        | 1/2         | 94,5       | 105        |                       |
|                   | 61        | 7                      | QPSK                        | 1/2         | 189        | 210        |                       |
|                   | 62        | 7                      | QPSK                        | 3/4         | 283,5      | 315        |                       |
|                   | 63        | 7                      | 16-QAM                      | 1/2         | 378        | 420        |                       |
|                   | 64        | 7                      | 16-QAM                      | 3/4         | 567        | 630        |                       |
|                   | 65        | 7                      | 64-QAM                      | 2/3         | 756        | 840        |                       |
|                   |           |                        |                             |             |            | 945        |                       |
|                   | 66        | 7                      | 64-QAM                      | 3/4         | 850,5      |            |                       |
|                   | 67        | 7                      | 64-QAM                      | 5/6         | 945        | 1050       |                       |
|                   | 68        | 7                      | 256-QAM                     | 3/4         | 1134       | 1260       |                       |
|                   | 69        | 7                      | 256-QAM                     | 5/6         | 1260       | 1400       |                       |
|                   | 70        | 8                      | BPSK                        | 1/2         | 108        | 120        |                       |
|                   | 71        | 8                      | QPSK                        | 1/2         | 216        | 240        |                       |
|                   | 72        | 8                      | QPSK                        | 3/4         | 324        | 360        |                       |
|                   | 73        | 8                      | 16-QAM                      | 1/2         | 432        | 480        |                       |
|                   | 74        | 8                      | 16-QAM                      | 3/4         | 648        | 720        |                       |
|                   | 75        | 8                      | 64-QAM                      | 2/3         | 864        | 960        |                       |
|                   | 76        |                        | 64-QAM                      | 3/4         | 972        | 1080       |                       |
|                   |           | 8                      |                             |             |            |            |                       |
|                   | 77        | 8                      | 64-QAM                      | 5/6         | 1080       | 1200       |                       |
|                   | 78        | 8                      | 256-QAM                     | 3/4         | 1296       | 1440       |                       |
|                   | 79        | 8                      | 256-QAM                     | 5/6         | 1440       | 1600       |                       |



|                   |           |                        | DATA DATE: 002 44cc \/UT00                             |             |              |            |                       |
|-------------------|-----------|------------------------|--|-------------|--------------|------------|-----------------------|
| Available for EUT | MCS Indox | Nbr of spatial streams | DATA RATE: 802.11ac VHT80  Modulation (Stream 1/2/3/4) | Coding rate | GI = 800ns   | GI = 400ns | Worst Case Modulation |
| ✓                 | 0         | 1                      |  | 1/2         |              |            |                       |
| <u>V</u>          |           | 1                      | BPSK   |             | 29.3         | 32.5       |                       |
| <u>V</u>          | 1         | 1                      | QPSK   | 1/2         | 58.5         | 65         |                       |
| <u>V</u>          | 2         |                        | QPSK   | 3/4         | 87.8         | 97.5       |                       |
| <u>V</u>          | 3         | <u> </u>               | 16-QAM<br>16-QAM                                       | 1/2<br>3/4  | 117<br>175.5 | 130<br>195 |                       |
| <u>V</u>          |           | 1                      |  |             |              |            |                       |
| <u>V</u>          | 5         |                        | 64-QAM   | 2/3         | 234          | 260        |                       |
|                   | 6         | 1                      | 64-QAM   | 3/4         | 263.3        | 292.5      |                       |
| <b>7</b>          | 7         | 1                      | 64-QAM   | 5/6         | 292.5        | 325        |                       |
| ✓                 | 8         | 11                     | 256-QAM  | 3/4         | 351          | 390        |                       |
| ☑                 | 9         | 1                      | 256-QAM  | 5/6         | 390          | 433.3      |                       |
| <b></b>           | 10        | 2                      | BPSK   | 1/2         | 58.6         | 65         |                       |
|                   | 11        | 2                      | QPSK   | 1/2         | 117          | 130        |                       |
|                   | 12        | 2                      | QPSK   | 3/4         | 175.6        | 195        |                       |
| ✓                 | 13        | 2                      | 16-QAM   | 1/2         | 234          | 260        |                       |
| ✓                 | 14        | 2                      | 16-QAM   | 3/4         | 351          | 390        |                       |
| $\checkmark$      | 15        | 2                      | 64-QAM   | 2/3         | 468          | 520        |                       |
| $\checkmark$      | 16        | 2                      | 64-QAM   | 3/4         | 526.6        | 585        |                       |
| ✓                 | 17        | 2                      | 64-QAM   | 5/6         | 585          | 650        |                       |
| <b>V</b>          | 18        | 2                      | 256-QAM  | 3/4         | 702          | 780        |                       |
| V                 | 19        | 2                      | 256-QAM  | 5/6         | 780          | 866.6      |                       |
| <u> </u>          | 20        | 3                      | BPSK   | 1/2         | 87.9         | 97.5       |                       |
| <u> </u>          | 21        | 3                      | QPSK   | 1/2         | 175.5        | 195        |                       |
| <u> </u>          | 22        | 3                      | QPSK   | 3/4         | 263.4        | 292.5      |                       |
| <u> </u>          | 23        | 3                      | 16-QAM   | 1/2         | 351          | 390        |                       |
| <u> </u>          | 24        | 3                      | 16-QAM   | 3/4         | 526.5        | 585        |                       |
| <u> </u>          | 25        | 3                      | 64-QAM   | 2/3         | 702          | 780        |                       |
| <u>V</u>          | 26        | 3                      | 64-QAM   | 3/4         | 789.9        | 877.5      |                       |
| <u>V</u>          | 27        | 3                      | 64-QAM   | 5/6         | 877.5        | 975        |                       |
| <u>V</u>          |           | 3                      |  | 3/4         |              | 1170       |                       |
| <u>V</u>          | 28        |                        | 256-QAM<br>256-QAM                                     |             | 1053         | 1299.9     |                       |
| <u>V</u>          | 29        | 3                      |  | 5/6         | 1170         |            |                       |
|                   | 30        | 4                      | BPSK   | 1/2         | 117.2        | 130        |                       |
| <b>V</b>          | 31        | 4                      | QPSK   | 1/2         | 234          | 260        |                       |
| <u> </u>          | 32        | 4                      | QPSK   | 3/4         | 351.2        | 390        |                       |
| ✓                 | 33        | 4                      | 16-QAM   | 1/2         | 468          | 520        |                       |
| <b>V</b>          | 34        | 4                      | 16-QAM   | 3/4         | 702          | 780        |                       |
|                   | 35        | 4                      | 64-QAM   | 2/3         | 936          | 1040       |                       |
| ✓                 | 36        | 4                      | 64-QAM   | 3/4         | 1053.2       | 1170       |                       |
| ✓                 | 37        | 4                      | 64-QAM   | 5/6         | 1170         | 1300       |                       |
| $\checkmark$      | 38        | 4                      | 256-QAM  | 3/4         | 1404         | 1560       |                       |
| $\checkmark$      | 39        | 4                      | 256-QAM  | 5/6         | 1560         | 1733.2     |                       |
|                   | 40        | 5                      | BPSK   | 1/2         | 146.5        | 162.5      |                       |
|                   | 41        | 5                      | QPSK   | 1/2         | 292.5        | 325        |                       |
|                   | 42        | 5                      | QPSK   | 3/4         | 439          | 487.5      |                       |
|                   | 43        | 5                      | 16-QAM   | 1/2         | 585          | 650        |                       |
|                   | 44        | 5                      | 16-QAM   | 3/4         | 877.5        | 975        |                       |
|                   | 45        | 5                      | 64-QAM   | 2/3         | 1170         | 1300       |                       |
|                   | 46        | 5                      | 64-QAM   | 3/4         | 1316.5       | 1462.5     |                       |
|                   | 47        | 5                      | 64-QAM   | 5/6         | 1462.5       | 1625       |                       |
|                   | 48        | 5                      | 256-QAM  | 3/4         | 1755         | 1950       |                       |
|                   | 49        | 5                      | 256-QAM  | 5/6         | 1950         | 2166.5     |                       |
|                   | 50        | 6                      | BPSK   | 1/2         | 175.8        | 195        |                       |
|                   | 51        | 6                      | QPSK   | 1/2         | 351          | 390        |                       |
|                   | 52        | 6                      | QPSK   | 3/4         | 526.8        | 585        |                       |
|                   | 53        | 6                      | 16-QAM   | 1/2         | 702          | 780        |                       |
|                   | 54        | 6                      | 16-QAM   | 3/4         | 1053         | 1170       |                       |
|                   | 55        | 6                      | 64-QAM   | 2/3         | 1404         | 1560       |                       |
|                   | 56        | 6                      | 64-QAM   | 3/4         | 1579.8       | 1755       |                       |
|                   | 57        | 6                      | 64-QAM   | 5/6         | 1755         | 1950       |                       |
|                   | 58        | 6                      | 256-QAM  | 3/4         | 2106         | 2340       |                       |
|                   | 59        | 6                      | 256-QAW<br>256-QAM                                     | 5/6         | 2340         | 2599.8     |                       |
|                   | 60        | 7                      | BPSK   | 1/2         | 205.1        | 2599.6     |                       |
|                   |           |                        |  |             |              |            |                       |
|                   | 61        | 7                      | QPSK   | 1/2         | 409.5        | 455        |                       |
|                   | 62        | 7                      | QPSK   | 3/4         | 614.6        | 682.5      |                       |
|                   | 63        | 7                      | 16-QAM   | 1/2         | 819          | 910        |                       |
|                   | 64        | 7                      | 16-QAM   | 3/4         | 1228.5       | 1365       |                       |
|                   | 65        | 7                      | 64-QAM   | 2/3         | 1638         | 1820       |                       |
|                   | 66        | 7                      | 64-QAM   | 3/4         | 1843.1       | 2047.5     |                       |
|                   | 67        | 7                      | 64-QAM   | 5/6         | 2047.5       | 2275       |                       |
|                   | 68        | 7                      | 256-QAM  | 3/4         | 2457         | 2730       |                       |
|                   | 69        | 7                      | 256-QAM  | 5/6         | 2730         | 3033.1     |                       |
|                   | 70        | 8                      | BPSK   | 1/2         | 234.4        | 260        |                       |
|                   | 71        | 8                      | QPSK   | 1/2         | 468          | 520        |                       |
|                   | 72        | 8                      | QPSK   | 3/4         | 702.4        | 780        |                       |
|                   | 73        | 8                      | 16-QAM   | 1/2         | 936          | 1040       |                       |
|                   | 74        | 8                      | 16-QAM   | 3/4         | 1404         | 1560       |                       |
|                   | 75        | 8                      | 64-QAM   | 2/3         | 1872         | 2080       |                       |
|                   | 76        | 8                      | 64-QAM   | 3/4         | 2106.4       | 2340       |                       |
|                   | 77        | 8                      | 64-QAM   | 5/6         | 2340         | 2600       |                       |
|                   | 78        | 8                      | 256-QAM  | 3/4         | 2808         | 3120       |                       |
|                   | 79        | 8                      | 256-QAM  | 5/6         | 3120         | 3466.4     |                       |



Test report reference: N° 152845-715034-C

| 802.11a                  |       |       |  |  |  |
|--------------------------|-------|-------|--|--|--|
| Channel                  | C6    | C7    |  |  |  |
| EIRP TPC Max (dBm)       | 19,9  | 19,9  |  |  |  |
| Occupied Bandwidth (MHz) | 17,09 | 17,17 |  |  |  |

| 802.11n HT20/ac VHT20    |       |       |  |  |  |
|--------------------------|-------|-------|--|--|--|
| Channel                  | C6    | C7    |  |  |  |
| EIRP TPC Max (dBm)       | 20,1  | 20,2  |  |  |  |
| Occupied Bandwidth (MHz) | 18,17 | 18,03 |  |  |  |

| 802.11n HT40/ac VHT40    |       |       |  |  |  |
|--------------------------|-------|-------|--|--|--|
| Channel                  | C17   | C18   |  |  |  |
| EIRP TPC Max (dBm)       | 22,5  | 22,3  |  |  |  |
| Occupied Bandwidth (MHz) | 36,62 | 36,77 |  |  |  |

| 802.11ac VHT80           |       |       |
|--------------------------|-------|-------|
| Channel                  | C25   | C26   |
| EIRP TPC Max (dBm)       | 22,3  | 22,5  |
| Occupied Bandwidth (MHz) | 75,52 | 75,61 |



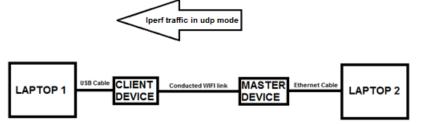
#### 2.2. RUNNING MODE

The EUT is set in the following modes during tests:

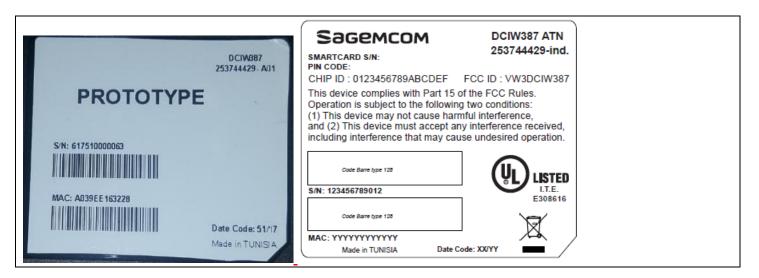
- Emission-reception with a duty cycle above 17% in the data rate that produced the highest output power

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

- See document :"" for the commands used during test.
- -System testings is performed with iperf test software in udp mode from the Master Device to the Client Device on the test channel. The data traffic is performed Laptop 2 to Laptop 1



#### 2.3. EQUIPMENT LABELLING



#### 2.4. EQUIPMENT MODIFICATION

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## 3. DFS DETECTION THRESHOLDS DETERMINATION, REFERENCE NOISE LEVEL & CHANNEL LOADING

#### 3.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU Date of test : February 19, 2018

Ambient temperature : 26 °C Relative humidity : 41 %

#### 3.2. TEST SETUP

- The Equipment Under Test is:

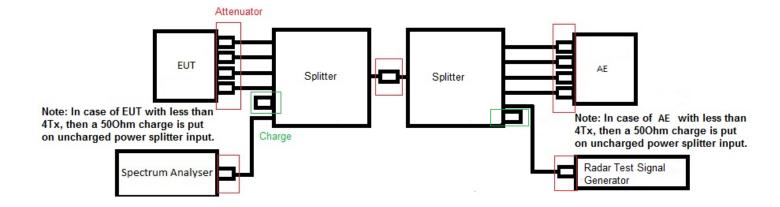
☑ On a table

☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer:

 $\ensuremath{\,\boxtimes\,}$  On the EUT conducted access

☐ On the EUT with a test fixture







Photograph for DFS Detection Thresholds Determination, Reference Noise Level, Channel Loading



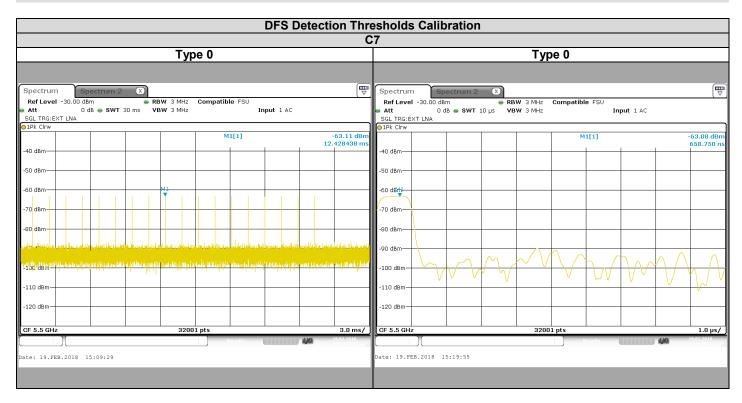
## 3.3. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER             | MODEL                 | N° LCIE  | Cal_Date       | Cal_Due                                     |
|---------------------------------|--------------------------|-----------------------|----------|----------------|---|
| Multi-meter                     | KEITHLEY                 | 2000                  | A1241084 | 2016/05        | 2018/05                                     |
| EMI receiver/ Spectrum analyzer | ROHDE & SCHWARZ          | ESR 7                 | A2642023 | 2016/05        | 2018/05                                     |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329663 | 2016/05        | 2018/05                                     |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329664 | 2016/05        | 2018/05                                     |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329665 | 2016/05        | 2018/05                                     |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329668 | 2016/05        | 2018/05                                     |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329669 | 2016/05        | 2018/05                                     |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329670 | 2016/05        | 2018/05                                     |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329672 | 2016/05        | 2018/05                                     |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329673 | 2016/05        | 2018/05                                     |
| Vector signal generator         | ROHDE & SCHWARZ          | SMJ100A               | A5444007 | receiver/ Spec | calibrated EMI<br>ctrum analyzer<br>testing |
| Programmable AC/DC power supply | KIKUSUI                  | PCR500M               | A7040079 |                | h calibrated<br>efore testing               |
| Attenuator 10dB                 | MINI CIRCUITS            | BW-S10W2+             | A7122229 | 2016/05        | 2018/05                                     |
| Attenuator 10dB                 | MINI CIRCUITS            | BW-S10W2+             | A7122230 | 2016/05        | 2018/05                                     |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329661 | 2016/05        | 2018/05                                     |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329676 | 2016/05        | 2018/05                                     |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329674 | 2016/05        | 2018/05                                     |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329675 | 2016/05        | 2018/05                                     |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122238 | 2016/05        | 2018/05                                     |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122239 | 2016/05        | 2018/05                                     |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122240 | 2016/05        | 2018/05                                     |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122241 | 2016/05        | 2018/05                                     |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122242 | 2016/05        | 2018/05                                     |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122243 | 2016/05        | 2018/05                                     |
| Power splitter                  | Mini-Circuits            | ZN6PD-63W-S+          | A7132040 | 2016/05        | 2018/05                                     |
| Power splitter                  | Mini-Circuits            | ZN6PD-63W-S+          | A7132041 | 2016/05        | 2018/05                                     |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152075 | 2016/05        | 2018/05                                     |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152076 | 2016/05        | 2018/05                                     |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152077 | 2016/05        | 2018/05                                     |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152078 | 2016/05        | 2018/05                                     |

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

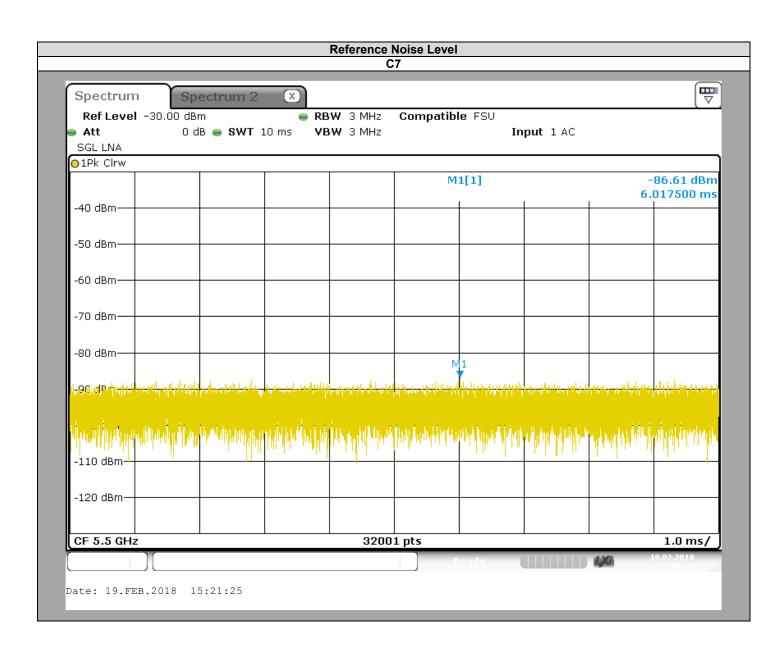


## 3.4. RESULTS

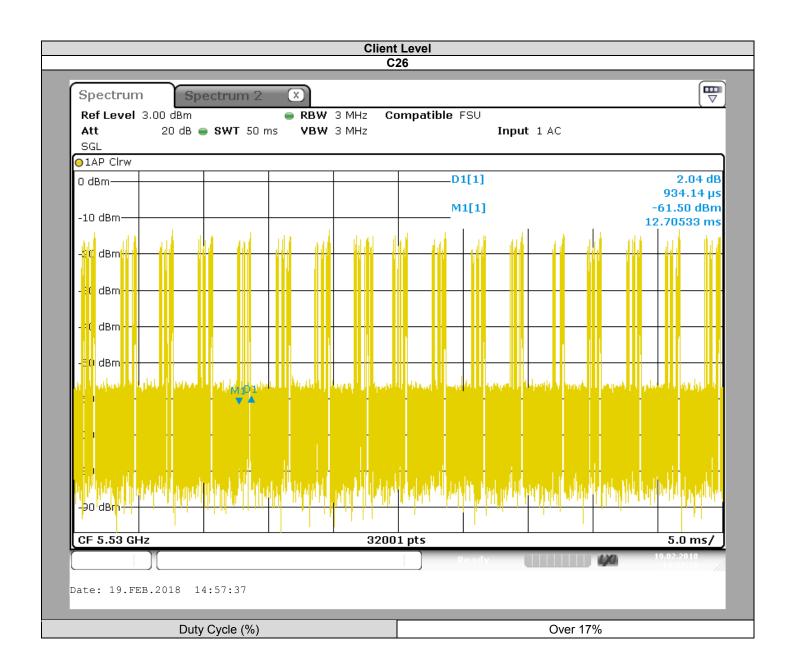


| Channel   | Channel   |
|---|-----------|
| EIRP (See test report from FCC ID: RRK2012060056-1) | 338,065mW |
| DFS Detection thresholds applied                    | -64dBm    |
| Additional Level (dB)                               | 1         |
| DFS Detection thresholds applied                    | -63dBm    |











# 4. DYNAMIC FREQUENCY SELECTION (DFS): CHANNEL CLOSING TRANSMISSION TIME & CHANNEL MOVE TIME

#### 4.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU

Date of test : February 19, 2018 to February 19, 2018

Ambient temperature : 25 °C Relative humidity : 43 %

#### 4.2. TEST SETUP

- The Equipment Under Test is:

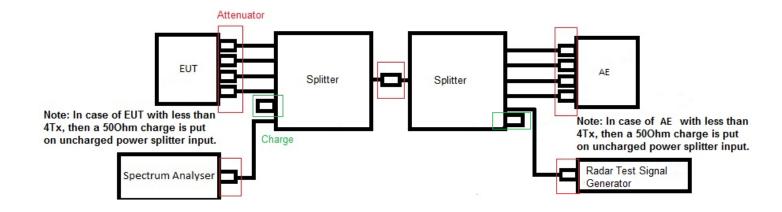
☑ On a table

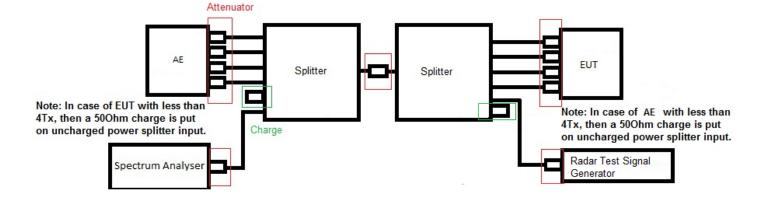
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer:

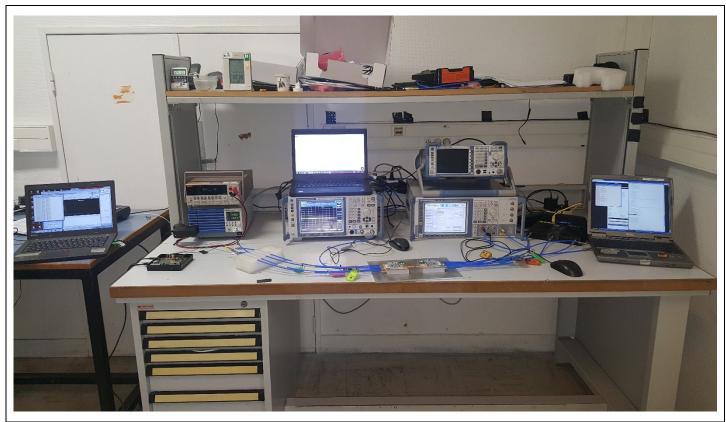
☑ On the EUT conducted access

☐ On the EUT with a test fixture









Photograph for DFS Channel Closing Transmission Time & Channel Move Time



## 4.3. LIMIT

Channel Closing Transmission Time shall not exceed 0.26second Channel Move Time shall not exceed 10seconds

#### 4.4. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER             | MODEL                 | N° LCIE  | Cal_Date  | Cal_Due |
|---------------------------------|--------------------------|-----------------------|----------|---|---------|
| Multi-meter                     | KEITHLEY                 | 2000                  | A1241084 | 2016/05   | 2018/05 |
| EMI receiver/ Spectrum analyzer | ROHDE & SCHWARZ          | ESR 7                 | A2642023 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329663 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329664 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329665 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329668 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329669 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329670 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329672 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329673 | 2016/05   | 2018/05 |
| Vector signal generator         | ROHDE & SCHWARZ          | SMJ100A               | A5444007 | Verified with calibrated EMI<br>receiver/ Spectrum analyzer<br>before testing |         |
| Programmable AC/DC power supply | KIKUSUI                  | PCR500M               | A7040079 | Verified with calibrated multimeter before testing                            |         |
| Attenuator 10dB                 | MINI CIRCUITS            | BW-S10W2+             | A7122229 | 2016/05   | 2018/05 |
| Attenuator 10dB                 | MINI CIRCUITS            | BW-S10W2+             | A7122230 | 2016/05   | 2018/05 |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329661 | 2016/05   | 2018/05 |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329676 | 2016/05   | 2018/05 |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329674 | 2016/05   | 2018/05 |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329675 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122238 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122239 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122240 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122241 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122242 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122243 | 2016/05   | 2018/05 |
| Power splitter                  | Mini-Circuits            | ZN6PD-63W-S+          | A7132040 | 2016/05   | 2018/05 |
| Power splitter                  | Mini-Circuits            | ZN6PD-63W-S+          | A7132041 | 2016/05   | 2018/05 |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152075 | 2016/05   | 2018/05 |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152076 | 2016/05   | 2018/05 |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152077 | 2016/05   | 2018/05 |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152078 | 2016/05   | 2018/05 |

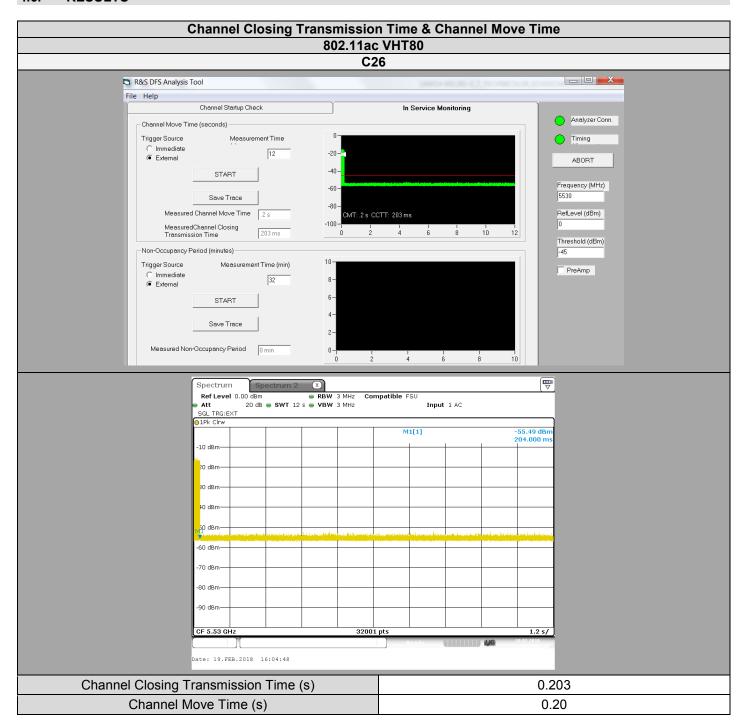
Note: In our quality system, the test equipment calibration due is more & less 2 months

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

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#### 4.6. RESULTS



## 4.7. CONCLUSION

Channel Closing Transmission Time & Channel Move Time measurement performed on the sample of the product **SAGEMCOM DCIW387 ATN**, SN: **617510000063** in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.407 limits.



## 5. DYNAMIC FREQUENCY SELECTION (DFS): NON-OCCUPANCY PERIOD

#### 5.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU

Date of test : February 19, 2018 to February 19, 2018

Ambient temperature : 25 °C Relative humidity : 43 %

#### 5.2. TEST SETUP

- The Equipment Under Test is:

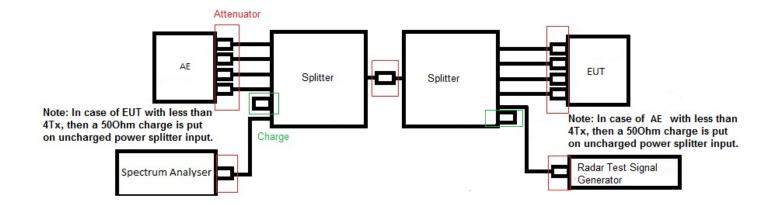
☑ On a table

☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer:

☑ On the EUT conducted access

☐ On the EUT with a test fixture







Photograph for DFS Non-Occupancy Period

## 5.3. LIMIT

Non-Occupancy Period shall exceed 1800 seconds



## 5.4. TEST EQUIPMENT LIST

| DESCRIPTION                     | MANUFACTURER             | MODEL                 | N° LCIE  | Cal_Date  | Cal_Due |
|---------------------------------|--------------------------|-----------------------|----------|---|---------|
| Multi-meter                     | KEITHLEY                 | 2000                  | A1241084 | 2016/05   | 2018/05 |
| EMI receiver/ Spectrum analyzer | ROHDE & SCHWARZ          | ESR 7                 | A2642023 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329663 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329664 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329665 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329668 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329669 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329670 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329672 | 2016/05   | 2018/05 |
| RF cable                        | Télédyne                 | 920-0202-024          | A5329673 | 2016/05   | 2018/05 |
| Vector signal generator         | ROHDE & SCHWARZ          | SMJ100A               | A5444007 | Verified with calibrated EMI receiver/ Spectrum analyzer before testing |         |
| Programmable AC/DC power supply | KIKUSUI                  | PCR500M               | A7040079 | Verified with calibrated multimeter before testing                      |         |
| Attenuator 10dB                 | MINI CIRCUITS            | BW-S10W2+             | A7122229 | 2016/05   | 2018/05 |
| Attenuator 10dB                 | MINI CIRCUITS            | BW-S10W2+             | A7122230 | 2016/05   | 2018/05 |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329661 | 2016/05   | 2018/05 |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329676 | 2016/05   | 2018/05 |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329674 | 2016/05   | 2018/05 |
| RF cable & Attenuator 20dB      | Télédyne & MINI CIRCUITS | 920-0202-024 & FW-20+ | A5329675 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122238 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122239 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122240 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122241 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122242 | 2016/05   | 2018/05 |
| Attenuator 3dB                  | MINI CIRCUITS            | BW-S3W2+              | A7122243 | 2016/05   | 2018/05 |
| Power splitter                  | Mini-Circuits            | ZN6PD-63W-S+          | A7132040 | 2016/05   | 2018/05 |
| Power splitter                  | Mini-Circuits            | ZN6PD-63W-S+          | A7132041 | 2016/05   | 2018/05 |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152075 | 2016/05   | 2018/05 |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152076 | 2016/05   | 2018/05 |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152077 | 2016/05   | 2018/05 |
| Load 50 ohms                    | Fairview Microwave       | ST0635F               | A7152078 | 2016/05   | 2018/05 |

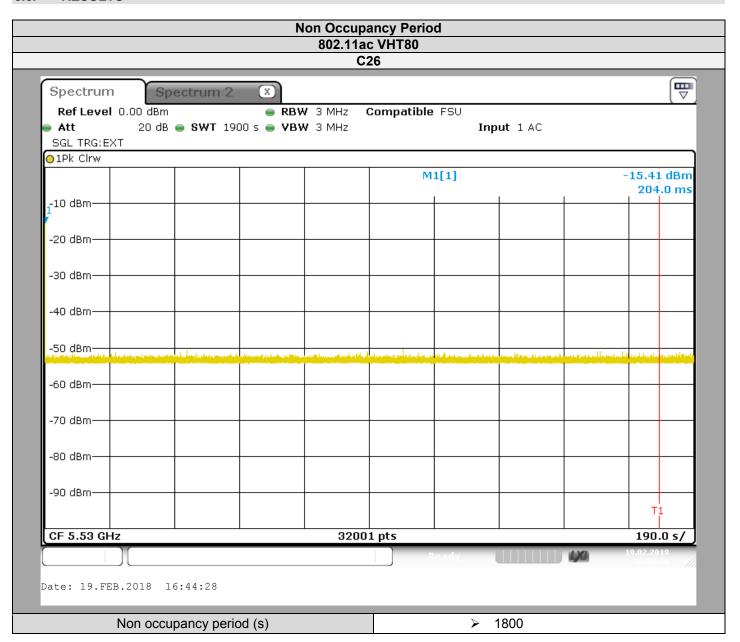
Note: In our quality system, the test equipment calibration due is more & less 2 months

| 5.5.   | DIVER | GENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION |
|--------|-------|--|
| ☑ None | 9     | □ Divergence:  |
|        |       |  |
|        |       |  |

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#### 5.6. RESULTS



#### 5.7. CONCLUSION

Non-Occupancy period measurement performed on the sample of the product **SAGEMCOM DCIW387 ATN**, SN: **61751000063** in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.407 limits.



## 6. ANNEX 3: RADAR TEST SIGNAL TYPE 5 & 0

| TYPE 0           |                    |          |  |
|------------------|--------------------|----------|--|
| Pulses per Burst | Pulse Width (µsec) | PRI (μs) |  |
| 18               | 1                  | 1428     |  |



## 7. UNCERTAINTIES CHART

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

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