

Annex 1: Measurement diagrams to TEST REPORT No.: 6-0668-15-3-13c

According to:
FCC Regulations
Part 15.209
Part 15.247

IC-Regulations
RSS-Gen, Issue 4
RSS-247, Issue 1

for

ACTIA Nordic AB

Telematic Unit for automotive use

ACUII-06

FCC-ID: 2AGKKACUII-06

IC: 20839-ACUII06

PMN: ACUII-06

HVIN: ACUII-06







| Laboratory Accreditation and Listings | | | |
|--|--|---|--|
|  Deutsche Akkreditierungsstelle D-PL-12047-01-01 |  MRA US-EU 0003 |  Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3 |  Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301 |
|  AUTHORIZED RF LABORATORY |  AuthorizedTM Test Lab Lab Code: 20011130-00 | | |
| accredited according to DIN EN ISO/IEC 17025 | | | |
| CETECOM GmbH Laboratory Radio Communications & Electromagnetic Compatibility Im Teelbruch 116 • 45219 Essen • Germany Registered in Essen, Germany, Reg. No.: HRB Essen 8984 Tel.: + 49 (0) 20 54 / 95 19-954 • Fax: + 49 (0) 20 54 / 95 19-964 E-mail: info@cetecom.com • Internet: www.cetecom.com | | | |

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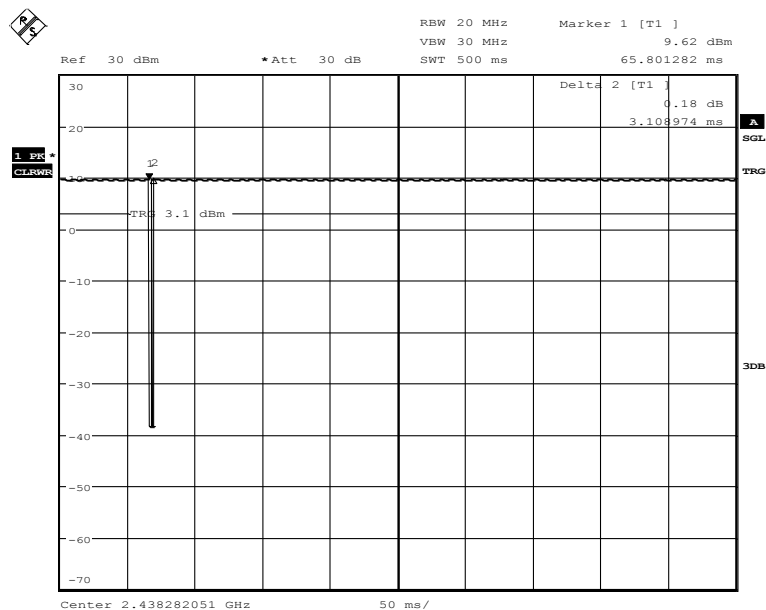
1. Measurement Diagrams

1.1. Conducted EMI measurements on AC-mains port according 15.207, class B

Not applicable since EUT powered from car equipment battery

1.2. Duty Cycle of Transmitter

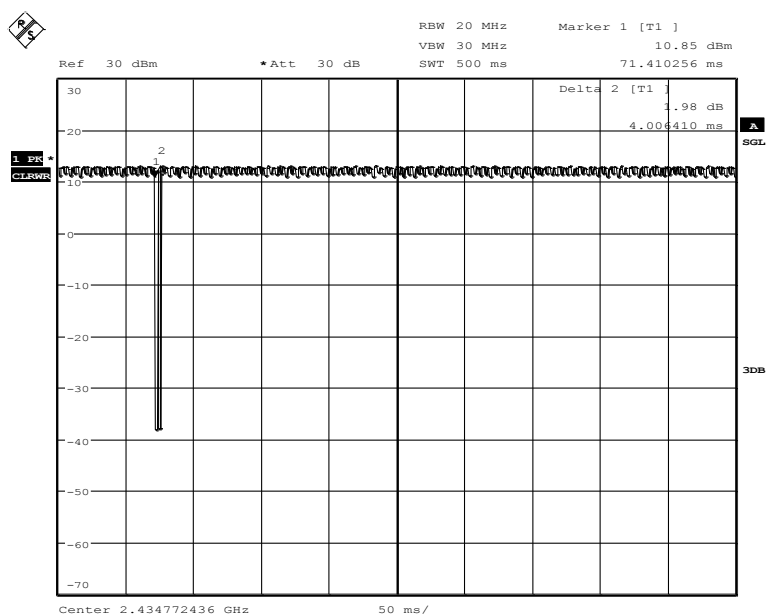
The characteristics of the implemented test mode was checked on middle channel no. 6 only.



Date: 26.FEB.2016 10:03:45

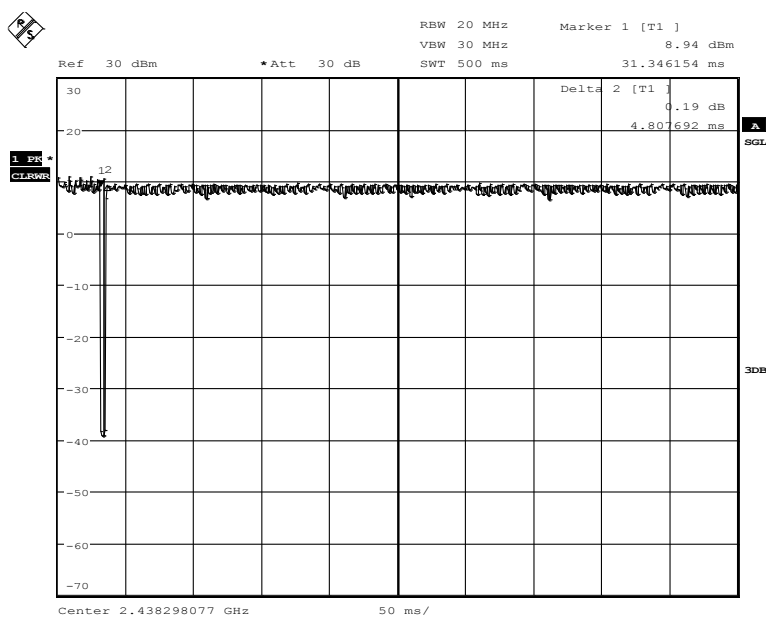
Diagram b-Mode 1Mbit: Duty_Cycle=TXon/(TXon+Txoff)=497ms/500ms=99,4%.
No correction necessary due high constant duty-cycle

SSS



Date: 26.FEB.2016 10:07:28

Diagram g-Mode 6Mbit: Duty_Cycle=TXon/(Txon+Txoff)=496ms/500ms=99.2%. No correction necessary due high constant duty-cycle



Date: 26.FEB.2016 10:09:59

**Diagram n-Mode MCS0: Duty_Cycle=TXon/(Txon+Txoff)=495.2ms/500ms=99.04%
 No correction necessary due high constant duty-cycle**

1.3. Magnetic field strength measurements in the range 9 kHz to 30 MHz

1.3.1. b-Mode Modulation

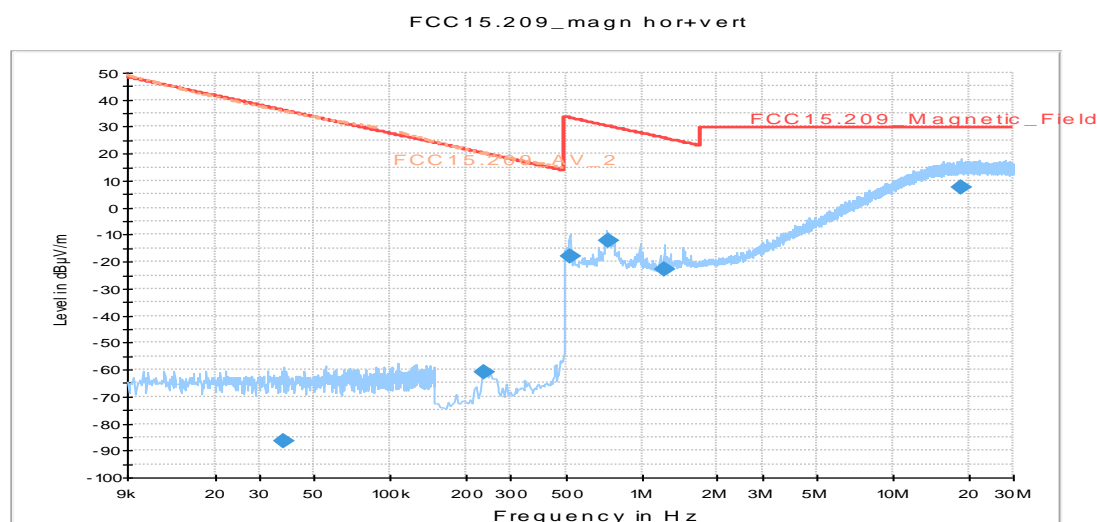
Diagram No. 2.01_Dwn_Ant_WLan_TX_BW20MHz_Ch6_b-Mode_1MBit_17dBm

Common Information

| | |
|--------------------------|---|
| Test description: | Magnetic Field Strength Measurement related to 30/300 m distance |
| Test site and distance: | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware: | EMC32 V8.51.0 |
| Distance correction: | used accord. table, pls. see test report |
| Technical Data: | Please see page 2 for detailed data of measurement setup |
| Rec. antenna (pre-scan): | height 1.00 m, parallel and 90° to EUT polarisation |
| Used filter: | bypass |
| Test specification: | FCC 15.209/15.205; RSS-Gen., Issue 4 |
| Operator: | RI |
| Operating conditions: | TX-on WLAN 802.11b-mode, BW20 MHz channel 6; Data rate 1Mbit; Power: 17 dBm |
| Power during tests: | 13.8 VDC |
| Comment 1: | channel 6(2437 MHz) Downward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |



Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Polarization | Azimuth (deg) | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBµV/m) |
|-----------------|--------------------|-----------------|-----------------|--------------|---------------|------------|-------------------|----------------------|
| 0.037500 | -86.5 | 1000.0 | 0.200 | V | 301.0 | -95.9 | 122.60 | 36.12 |
| 0.234000 | -61.2 | 1000.0 | 10.000 | H | 292.0 | -90.4 | 81.40 | 20.22 |
| 0.516000 | -18.2 | 1000.0 | 10.000 | H | 291.0 | -35.7 | 51.50 | 33.35 |
| 0.736000 | -12.3 | 1000.0 | 10.000 | H | 305.0 | -35.2 | 42.50 | 30.28 |
| 1.228000 | -22.6 | 1000.0 | 10.000 | H | 339.0 | -33.9 | 48.40 | 25.84 |
| 18.760000 | 7.5 | 1000.0 | 10.000 | V | 171.0 | 3.2 | 22.10 | 29.54 |

Diagram No. 2.01_Up_Ant_WLan_TX_BW20MHz_Ch6_b-Mode_1MBit_17dBm

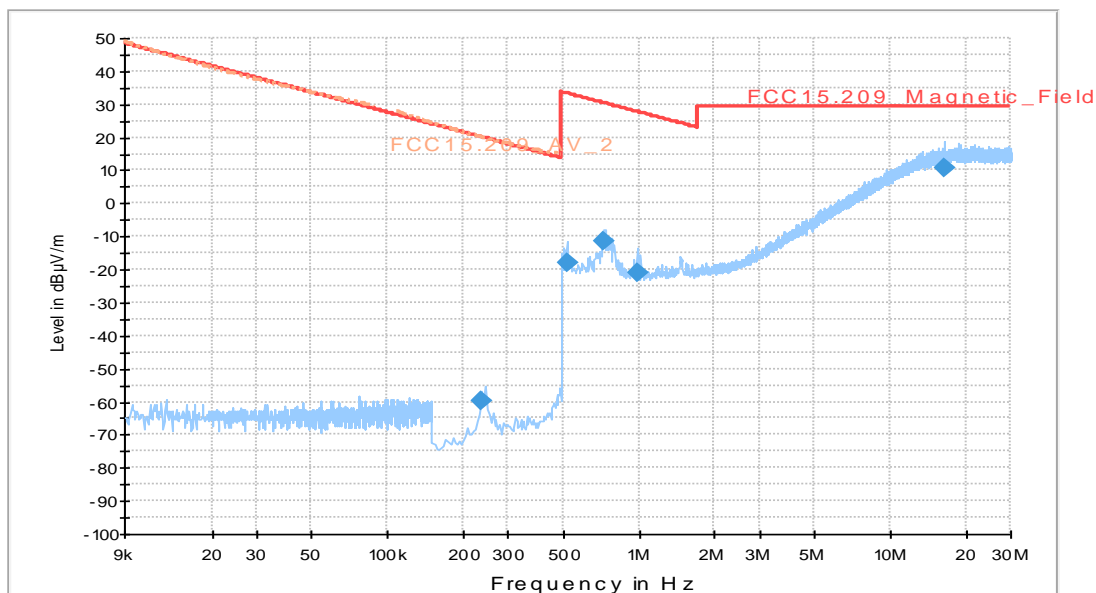
Common Information

Test description: Magnetic Field Strength Measurement related to 30/300 m distance
 Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 Version of Testsoftware: EMC32 V8.51.0
 Distance correction: used accord. table, pls. see test report
 Technical Data: Please see page 2 for detailed data of measurement setup
 Rec. antenna (pre-scan): height 1.00 m, parallel and 90° to EUT polarisation
 Used filter: bypass
 Test specification: FCC 15.209/15.205; RSS-Gen., Issue 4
 Operator: RIs
 Operating conditions: TX-on WLAN 802.11b-mode, B:W: 20 MHz_channel 6; Data rate 1Mbit; Power: 17 dBm
 Power during tests: 13,8 VDC
 Comment 1: channel 6(2437 MHz) | Upward directed WLAN Antenna

EUT Information

Manufacturer: ACTIA Nordic AB
 EuT: ACUII-06
 HW Version: C
 SW Version: 13
 Serial Number: 21790250902642
 Connected Interfaces: MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
 Power Supply: 13.8 VDC
 Antenna Type: LTE Antenna with SDAR
 434-WLAN-GNSS-SDARS-LTE
 50751424 | 15W421 | Portugal AD801
 SDARS Modified #1

FCC15.209_magn hor+vert



Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Polarization | Azimuth (deg) | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBµV/m) |
|-----------------|--------------------|-----------------|-----------------|--------------|---------------|------------|-------------------|----------------------|
| 0.238000 | -59.8 | 1000.0 | 10.000 | H | 286.0 | -90.2 | 79.90 | 20.07 |
| 0.516000 | -17.7 | 1000.0 | 10.000 | H | 295.0 | -35.7 | 51.10 | 33.35 |
| 0.728000 | -11.4 | 1000.0 | 10.000 | H | 288.0 | -35.2 | 41.80 | 30.37 |
| 0.980000 | -20.8 | 1000.0 | 10.000 | H | 282.0 | -34.7 | 48.60 | 27.80 |
| 16.228000 | 10.5 | 1000.0 | 10.000 | V | 21.0 | 2.6 | 19.00 | 29.54 |

1.4. Field strength measurements 30MHz <f <1GHz

1.4.1. b-Mode Modulation

Diagram No. 3.01_Dwn_Ant_WLan_TX_BW20MHz_Ch6_b-Mode_1MBit_17dBm

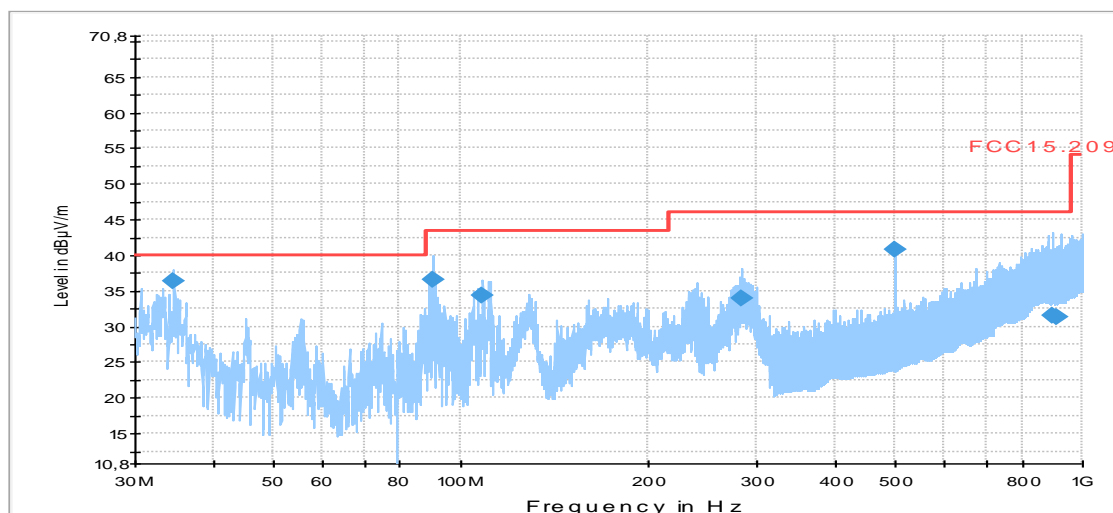
Common Information

| | |
|--------------------------|--|
| Test description: | Electric Field Strength Measurement |
| Test site and distance: | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware: | EMC32 V8.51.0 |
| Distance correction: | not used |
| Used filter: | not used |
| Technical Data: | please see page 2 for detailed data of measurement setup |
| Test specification.: | FCC 15.209; RSS-Gen: Issue 3 |
| Operator: | AHo |
| Operating conditions: | TX-on WLAN 802.11 b-mode, BW 20 MHz channel 6; Data rate 1 MBit; Power: 17 dBm |
| Power during tests: | 13.8V DC |
| Comment 1: | Channel 6 (2437 MHz) Downward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

01_FCC15.209_hor+vert_KP0



Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBμV/m) |
|-----------------|--------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 34.610000 | 36.4 | 1000.0 | 120.000 | 182.0 | H | 111.0 | 19.8 | 3.60 | 40.00 |
| 90.400000 | 36.6 | 1000.0 | 120.000 | 105.0 | V | 165.0 | 8.7 | 6.90 | 43.50 |
| 108.790000 | 34.4 | 1000.0 | 120.000 | 105.0 | V | 8.0 | 8.5 | 9.10 | 43.50 |
| 284.080000 | 33.9 | 1000.0 | 120.000 | 105.0 | H | 98.0 | 14.9 | 12.10 | 46.00 |
| 499.960000 | 40.8 | 1000.0 | 120.000 | 175.0 | H | 191.0 | 19.9 | 5.20 | 46.00 |
| 895.500000 | 31.5 | 1000.0 | 120.000 | 330.0 | V | 312.0 | 27.1 | 14.50 | 46.00 |
| 910.540000 | 31.4 | 1000.0 | 120.000 | 105.0 | V | 344.0 | 27.5 | 14.60 | 46.00 |

Diagram No. 3.01_Up_Ant_WLan_TX_BW20MHz_Ch6_b-Mode_1MBit_17dBm

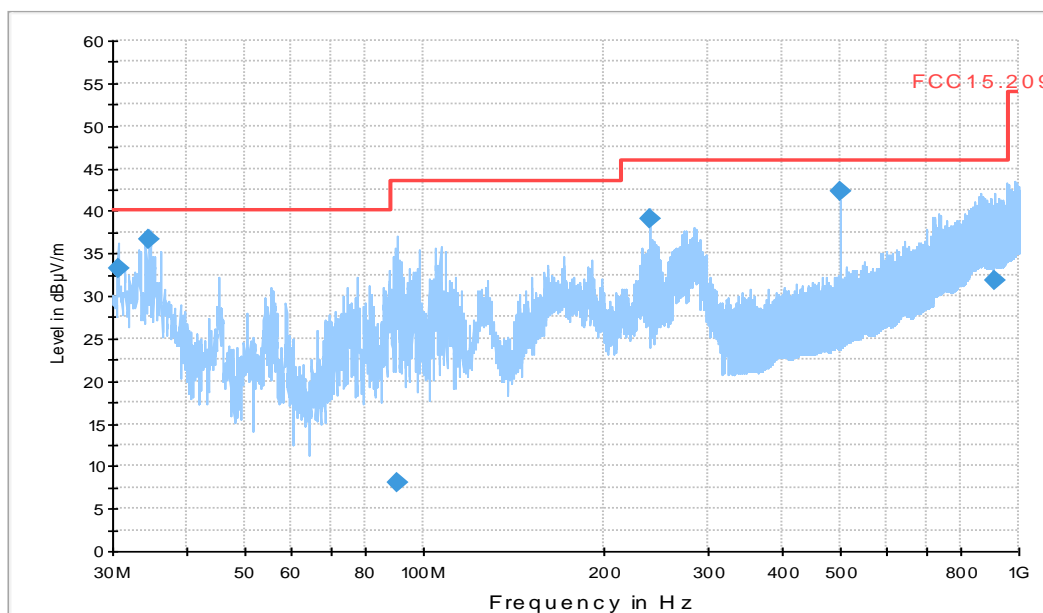
Common Information

Test description: Electric Field Strength Measurement
 Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 Version of Testsoftware: EMC32 V8.51.0
 Distance correction: not used
 Used filter: not used
 Technical Data: please see page 2 for detailed data of measurement setup
 Test specification.: FCC 15.209; RSS-Gen: Issue 3
 Operator: AHo
 Operating conditions: TX-on WLAN 802.11 b-mode, BW 20 MHz channel 6; Data rate 1 MBit; Power: 17 dBm
 Power during tests: 13.8V DC
 Comment 1: Channel 6 (2437 MHz) | Upward directed WLAN Antenna

EUT Information

Manufacturer: ACTIA Nordic AB
 EuT: ACUII-06
 HW Version: C
 SW Version: 13
 Serial Number: 21790250902642
 Connected Interfaces: MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
 Power Supply: 13.8 VDC
 Antenna Type: LTE Antenna with SDAR
 434-WLAN-GNSS-SDARS-LTE
 50751424 | 15W421 | Portugal AD801
 SDARS Modified #1

01_FCC15.209_hor+vert_KP0



Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|--------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 30.630000 | 33.3 | 1000.0 | 120.000 | 123.0 | H | 109.0 | 21.8 | 6.70 | 40.00 |
| 34.610000 | 36.6 | 1000.0 | 120.000 | 210.0 | H | 83.0 | 19.8 | 3.40 | 40.00 |
| 90.340000 | 8.0 | 1000.0 | 120.000 | 105.0 | V | 145.0 | 8.7 | 35.50 | 43.50 |
| 239.990000 | 39.1 | 1000.0 | 120.000 | 117.0 | H | 86.0 | 13.1 | 6.90 | 46.00 |
| 499.950000 | 42.3 | 1000.0 | 120.000 | 183.0 | H | 190.0 | 19.9 | 3.70 | 46.00 |
| 908.860000 | 31.7 | 1000.0 | 120.000 | 306.0 | V | 141.0 | 27.4 | 14.30 | 46.00 |

1.5. Field strength measurements 1GHz < f < 18GHz

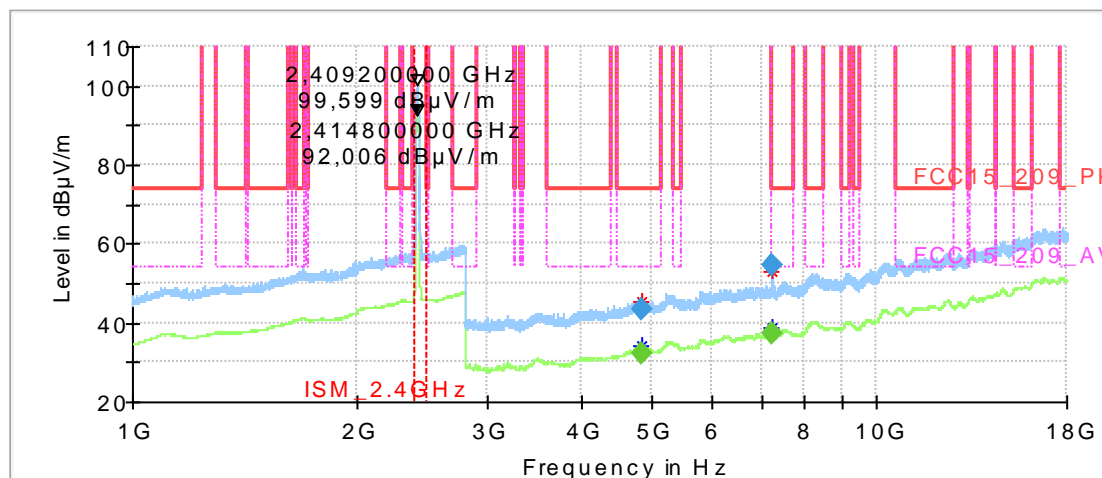
Diagram 4.01_Dwn_An_TX_WLAN_BW20MHz_Ch1_g-Mode_6MBit_13dBm

Common Information

Test Description: Radiated field strength emission in 3m distance
 Test Site: CETECOM GmbH Essen
 Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
 Antenna polarisation: horizontal/vertical
 SW-Version: EMC32 V8.53.0
 Operation mode: WLAN 802.11g-mode,BW 20 MHz channel 1; Data rate 6Mbit Power 13 dBm
 Operator Name: APh
 Comment: Channel no.1 (2412 MHz)| Downward directed WLAN Antenna

EUT Information

Manufacturer: ACTIA Nordic AB
 EuT: ACUII-06
 HW Version: C
 SW Version: 13
 Serial Number: 21790250902642
 Connected Interfaces: MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
 Power Supply: 13.8 VDC
 Antenna Type: LTE Antenna with SDAR
 434-WLAN-GNSS-SDARS-LTE
 50751424 | 15W421 | Portugal AD801
 SDARS Modified #1



Final Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 4821.330000 | 43.64 | --- | 74.00 | 30.36 | 100.0 | 1000.000 | 155.0 | V | 86.0 | 90.0 |
| 4823.970000 | --- | 32.45 | 54.00 | 21.55 | 100.0 | 1000.000 | 155.0 | V | 317.0 | 0.0 |
| 7232.570000 | 54.47 | --- | 150.00 | 95.53 | 100.0 | 1000.000 | 155.0 | H | 228.0 | 90.0 |
| 7233.490000 | --- | 37.14 | 150.00 | 112.86 | 100.0 | 1000.000 | 155.0 | H | 231.0 | 90.0 |

(continuation of the "Final_Result" table from column 16 ...)

| Frequency (MHz) | Correction |
|-----------------|------------|
| 4821.330000 | 4.8 |
| 4823.970000 | 4.8 |
| 7232.570000 | 10.8 |
| 7233.490000 | 10.8 |

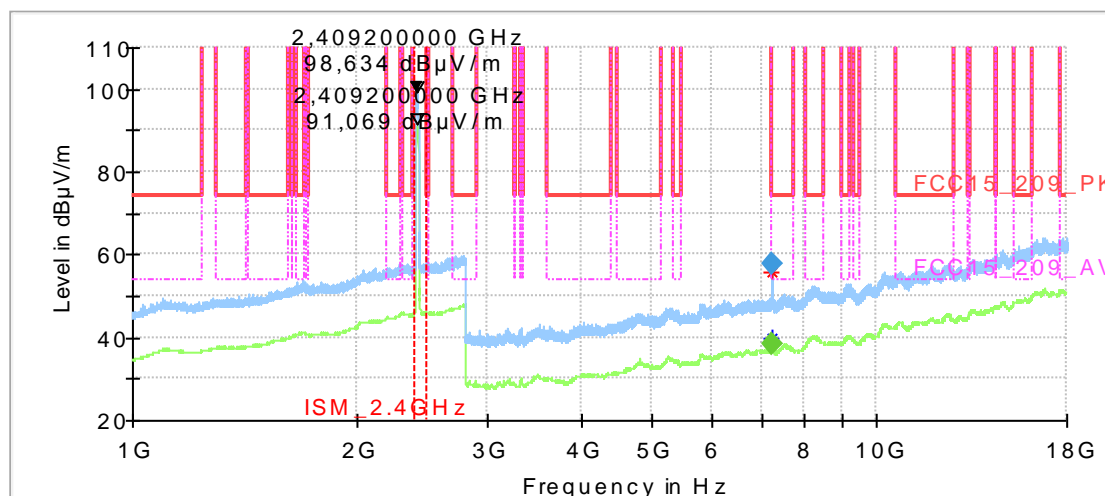
Diagram 4.01_Up_Ant_TX_WLAN_BW20MHz_Ch1_g-Mode_6MBit_13dBm

Common Information

| | |
|-----------------------|---|
| Test Description: | Radiated field strength emission in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11g-mode,BW 20 MHz channel 1; Data rate 6Mbit Power 13 dBm |
| Operator Name: | KMo |
| Comment: | Channel no.1 (2412 MHz) Upward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |



Final Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 7232.530000 | 57.52 | --- | 150.00 | 92.48 | 100.0 | 1000.000 | 155.0 | H | 230.0 | 90.0 |
| 7236.610000 | --- | 38.22 | 150.00 | 111.78 | 100.0 | 1000.000 | 155.0 | H | 233.0 | 90.0 |

(continuation of the "Final_Result" table from column 16 ...)

| Frequency (MHz) | Corr. |
|-----------------|-------|
| 7232.530000 | 10.8 |
| 7236.610000 | 10.8 |

Diagram No.: 4.03_Dwn_Ant_TX_WLAN_Ch6_b-Mode_1MBit

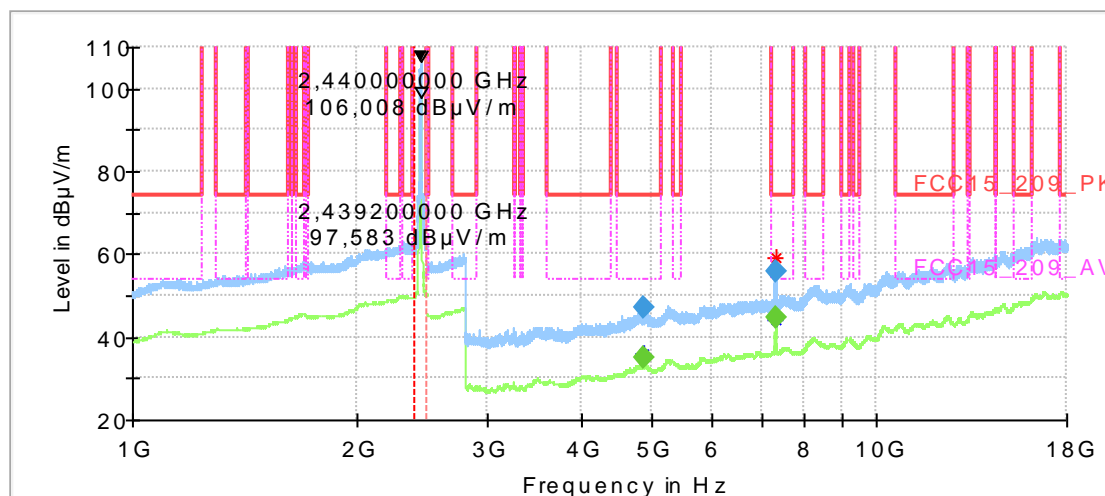
Common Information

Test Description: Radiated Spurious Emissions WLAN 2.4GHz
Test Site: CETECOM GmbH Essen
Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation: horizontal/vertical
Operation mode: WLAN 802.11b-mode,BW 20 MHz channel 6; Data rate 1Mbit Power 17 dBm
Operator: AHO
Comment: Channel no.6,(2437 MHz)| Downward directed WLAN Antenna

EUT Information

Manufacturer: ACTIA Nordic AB
EuT: ACUII-06

HW Version: C
SW Version: 13
Serial Number: 21790250902642
Connected Interfaces: MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply: 13.8 VDC
Antenna Type: LTE Antenna with SDAR
434-WLAN-GNSS-SDARS-LTE
50751424 | 15W421 | Portugal AD801
SDARS Modified #1



Final Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 4872.720000 | 46.91 | --- | 74.00 | 27.09 | 100.0 | 1000.000 | 155.0 | V | 78.0 | 0.0 |
| 4873.960000 | --- | 35.21 | 54.00 | 18.79 | 100.0 | 1000.000 | 155.0 | V | 78.0 | 0.0 |
| 7312.200000 | --- | 44.82 | 54.00 | 9.18 | 100.0 | 1000.000 | 155.0 | H | 222.0 | 90.0 |
| 7315.000000 | 55.65 | --- | 74.00 | 18.35 | 100.0 | 1000.000 | 155.0 | H | 140.0 | 90.0 |

(continuation of the "Final_Result" table from column 16 ...)

| Frequency (MHz) | Corr . |
|-----------------|--------|
| 4872.720000 | 4.7 |
| 4873.960000 | 4.7 |
| 7312.200000 | 10.2 |
| 7315.000000 | 10.2 |

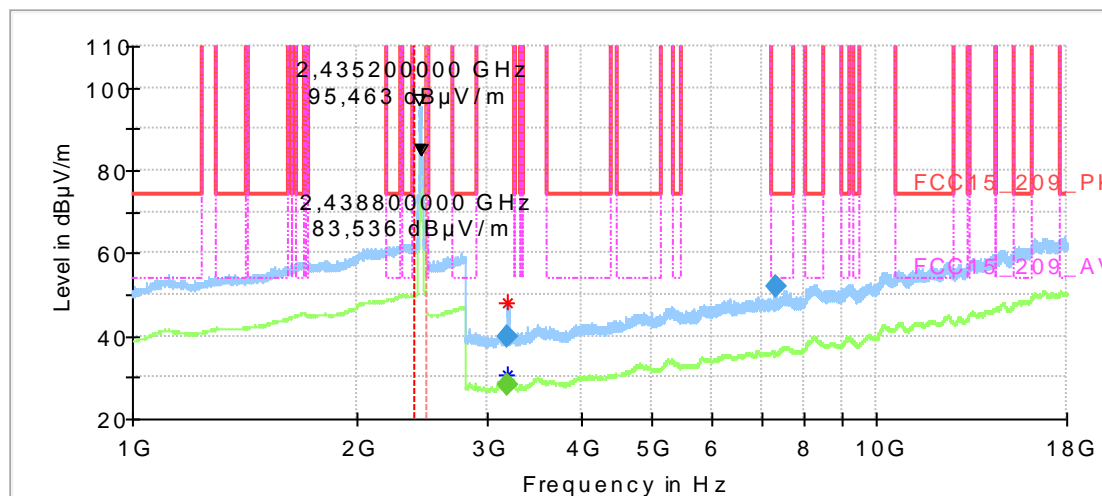
Diagram No.: 4.03_Up_Ant_TX_WLAN_Ch6_b-Mode_1MBit

Common Information

| | |
|-----------------------|---|
| Test Description: | Radiated Spurious Emissions WLAN 2.4GHz |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | TX, continuous |
| Operation mode: | WLAN 802.11b-mode,BW 20 MHz channel 6; Data rate 1Mbit Power 17 dBm |
| Operator | AHo |
| Comment: | Channel no.6(2437 MHz) Downward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |



Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 3191.600000 | 39.97 | --- | 150.00 | 110.03 | 100.0 | 1000.000 | 155.0 | V | 300.0 | 90.0 |
| 3193.000000 | --- | 28.03 | 150.00 | 121.97 | 100.0 | 1000.000 | 155.0 | V | 280.0 | 90.0 |
| 7308.560000 | 52.11 | --- | 74.00 | 21.89 | 100.0 | 1000.000 | 155.0 | H | 231.0 | 90.0 |

(continuation of the "Final_Result" table from column 16 ...)

| Frequency (MHz) | Corr . |
|-----------------|--------|
| 3191.600000 | -0.1 |
| 3193.000000 | -0.1 |
| 7308.560000 | 10.1 |

Diagram No.: 4.05_Dwn_Ant_TX_WLAN_Ch11_b-Mode_1MBit

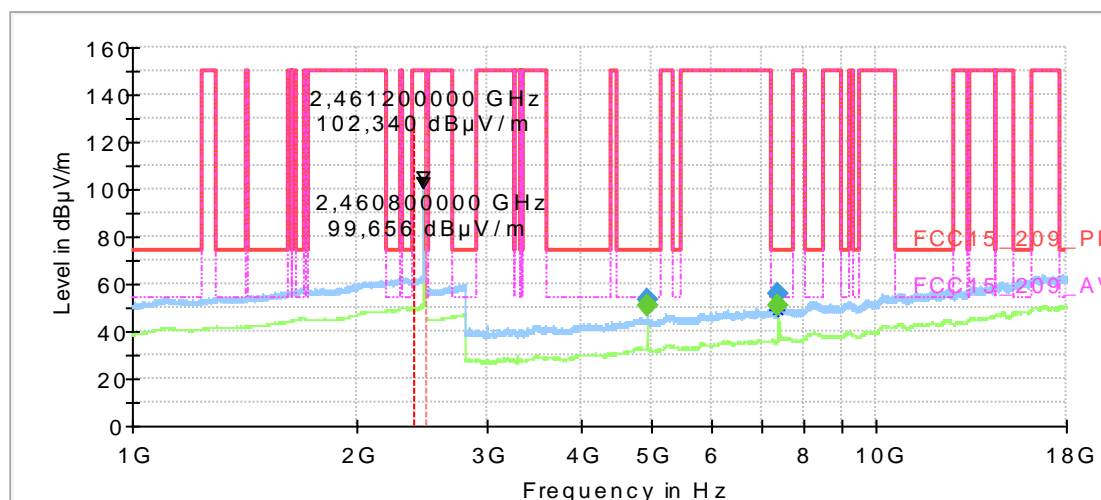
Common Information

Test Description: Radiated Spurious Emissions WLAN 2.4GHz
Test Site: CETECOM GmbH Essen
Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation: horizontal/vertical
Operation mode: WLAN 802.11b-mode,BW 20 MHz channel 11; Data rate 1Mbit Power 17 dBm
Operator: AHO
Comment: Channel no.11,(2462 MHz)| Downward directed WLAN Antenna

EUT Information

Manufacturer: ACTIA Nordic AB
EuT: ACUII-06

HW Version: C
SW Version: 13
Serial Number: 21790250902642
Connected Interfaces: MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply: 13.8 VDC
Antenna Type: LTE Antenna with SDAR
434-WLAN-GNSS-SDARS-LTE
50751424 | 15W421 | Portugal AD801
SDARS Modified #1



Final Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 4923.960000 | --- | 50.54 | 54.00 | 3.46 | 100.0 | 1000.000 | 155.0 | V | 74.0 | 0.0 |
| 4923.960000 | 53.72 | --- | 74.00 | 20.28 | 100.0 | 1000.000 | 155.0 | V | 75.0 | 0.0 |
| 7385.440000 | 55.85 | --- | 74.00 | 18.15 | 100.0 | 1000.000 | 155.0 | H | 235.0 | 90.0 |
| 7386.920000 | --- | 50.62 | 54.00 | 3.38 | 100.0 | 1000.000 | 155.0 | H | 242.0 | 90.0 |

(continuation of the "Final_Result" table from column 16 ...)

| Frequency (MHz) | Corr . |
|-----------------|--------|
| 4923.960000 | 4.4 |
| 4923.960000 | 4.4 |
| 7385.440000 | 10.8 |
| 7386.920000 | 10.8 |

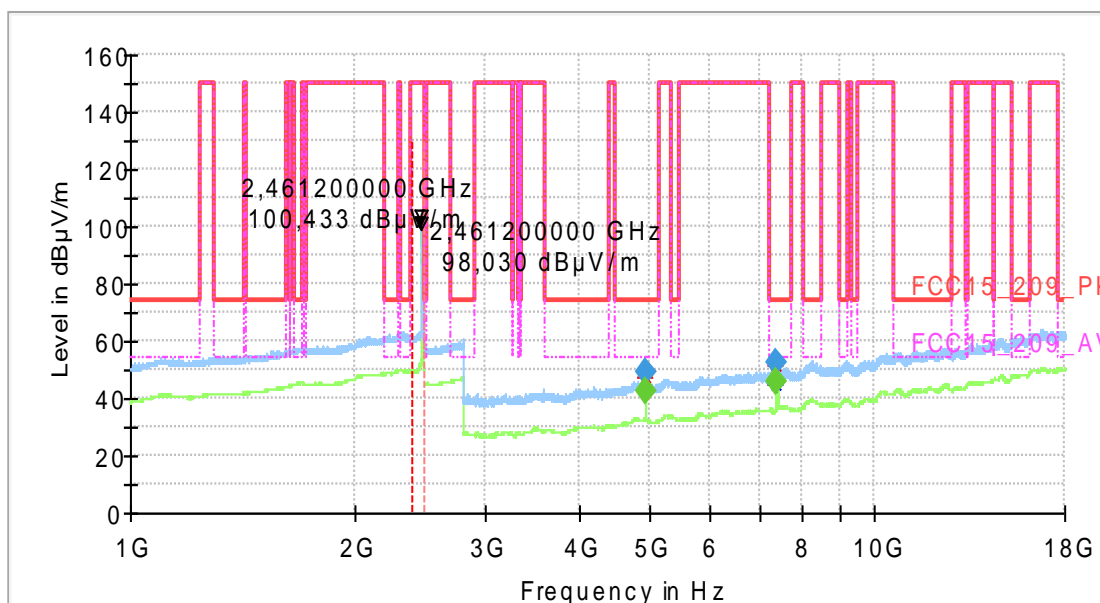
Diagram No.: 4.05_Up_Ant_TX_WLAN_Ch11_b-Mode_1MBit

Common Information

| | |
|-----------------------|--|
| Test Description: | Radiated Spurious Emissions WLAN 2.4GHz |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11b-mode,BW 20 MHz channel 11; Data rate 1Mbit Power 17 dBm |
| Operator | AHo |
| Comment: | Channel no.11,(2462 MHz) Upward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |



Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 4923.960000 | --- | 42.90 | 54.00 | 11.10 | 100.0 | 1000.000 | 155.0 | H | 15.0 | 90.0 |
| 4923.960000 | 49.15 | --- | 74.00 | 24.85 | 100.0 | 1000.000 | 155.0 | H | 14.0 | 90.0 |
| 7381.480000 | 52.90 | --- | 74.00 | 21.10 | 100.0 | 1000.000 | 155.0 | H | 229.0 | 90.0 |
| 7388.920000 | --- | 45.77 | 54.00 | 8.23 | 100.0 | 1000.000 | 155.0 | H | 242.0 | 90.0 |

(continuation of the "Final_Result" table from column 16 ...)

| Frequency (MHz) | Corr . |
|-----------------|--------|
| 4923.960000 | 4.4 |
| 4923.960000 | 4.4 |
| 7381.480000 | 10.8 |
| 7388.920000 | 10.8 |

1.6. Field strength measurements 18GHz < f < 25GHz

Diagram No.: 4.06_Down_Ch1_6MBit_13dBm

Common Information

| | |
|----------------------------|--|
| Test Description: | Radiated field strength emission in 1m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247, 15.205&15.209 &RSS-247, Issue 1 |
| Antenna polarisation: | horizontal/vertical |
| Distance correction factor | 3 to 1m: -10.5 dB applying to measurement results |
| SW-Version: | EMC32 V8.53.0 |
| Operation mode: | TX mode continuous |
| Operator Name: | Lor |
| Comment: | Channel no. low=1, g-Mode,6Mbit, 13dBm, Downward antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 1.1.0.17 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

FCC_Sweep_15.247_18_25GHz_Pre

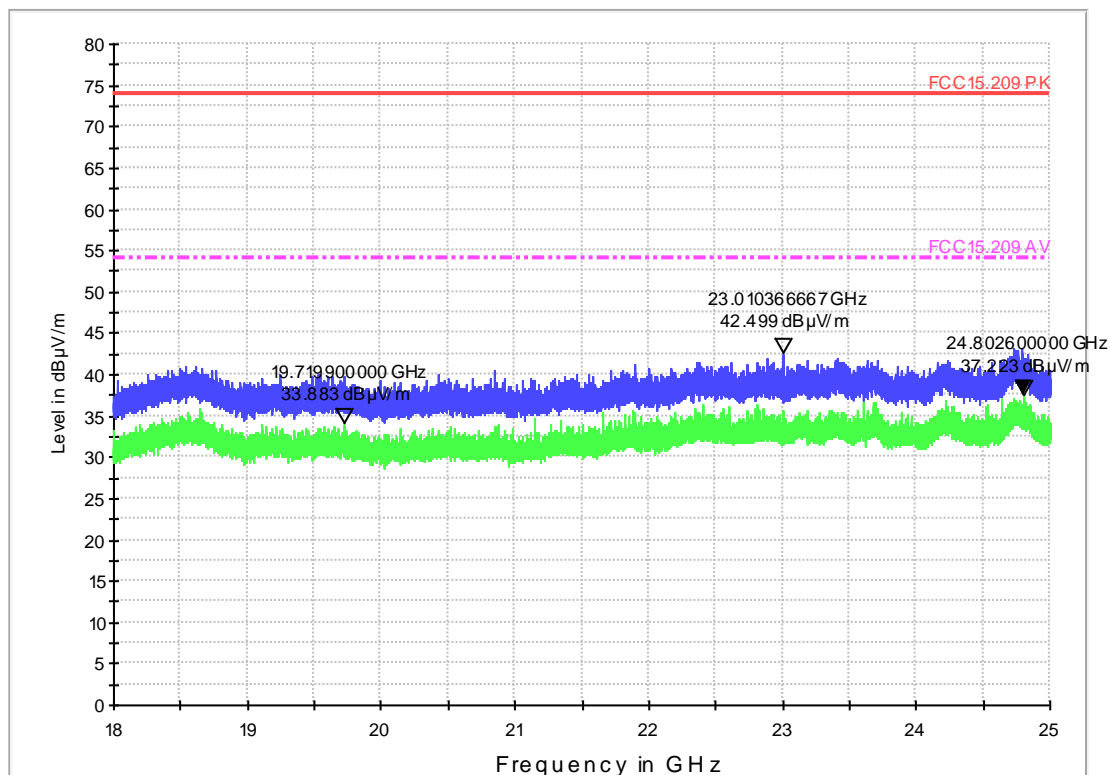


Diagram No.: 4.06_Up_Ch1_6MBit_13dBm

Common Information

| | |
|----------------------------|--|
| Test Description: | Radiated field strength emission in 1m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247, 15.205&15.209 &RSS-247, Issue 1 |
| Antenna polarisation: | horizontal/vertical |
| Distance correction factor | 3 to 1m: -10.5 dB applying to measurement results |
| SW-Version: | EMC32 V8.53.0 |
| Operation mode: | TX mode continuous |
| Operator Name: | Lor |
| Comment: | Channel no. low=1, g-Mode,6Mbit, 13dBm, Upward Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 1.1.0.17 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

FCC_Sweep_15.247_18_25GHz_Pre

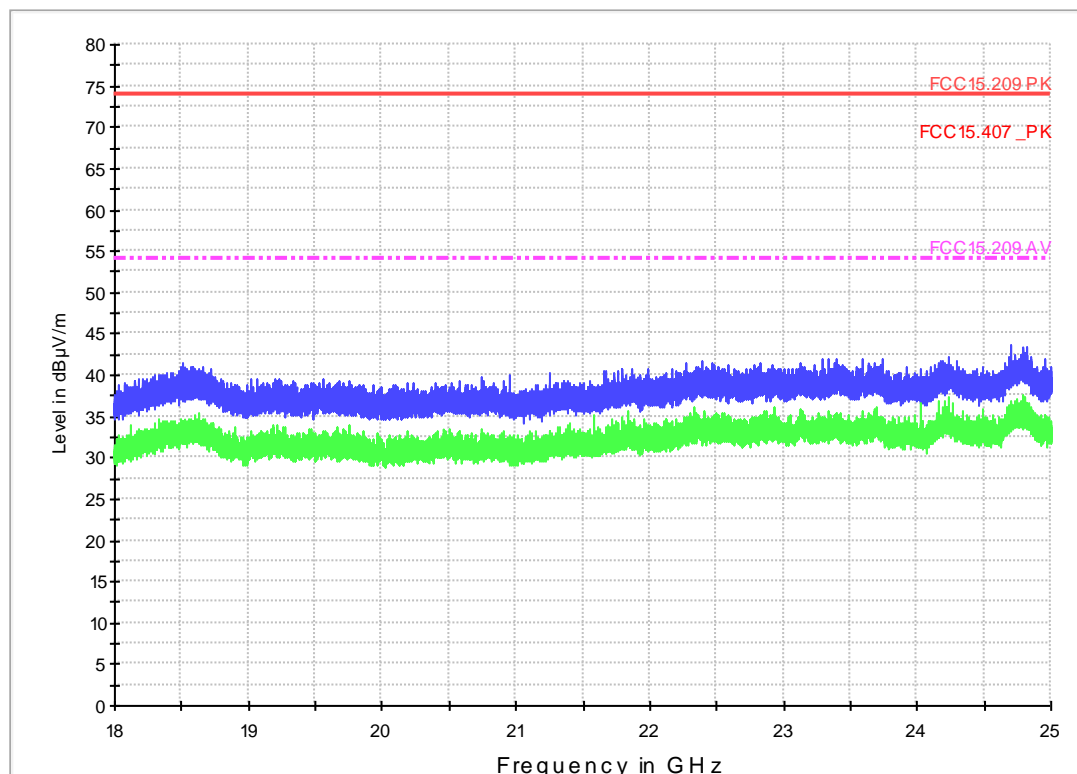


Diagram No.: 4.07_Down_Ch6_1MBit_17dBm

Common Information

| | |
|----------------------------|--|
| Test Description: | Radiated field strength emission in 1m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247, 15.205&15.209 &RSS-247, Issue 1 |
| Antenna polarisation: | horizontal/vertical |
| Distance correction factor | 3 to 1m: -10.5 dB applying to measurement results |
| SW-Version: | EMC32 V8.53.0 |
| Operation mode: | TX mode continuous |
| Operator Name: | Lor |
| Comment: | Channel no. middle=6, b-Mode, 1MBit, 17dBm power, Downward antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 1.1.0.17 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

FCC_Sweep_15.247_18_25GHz_Pre

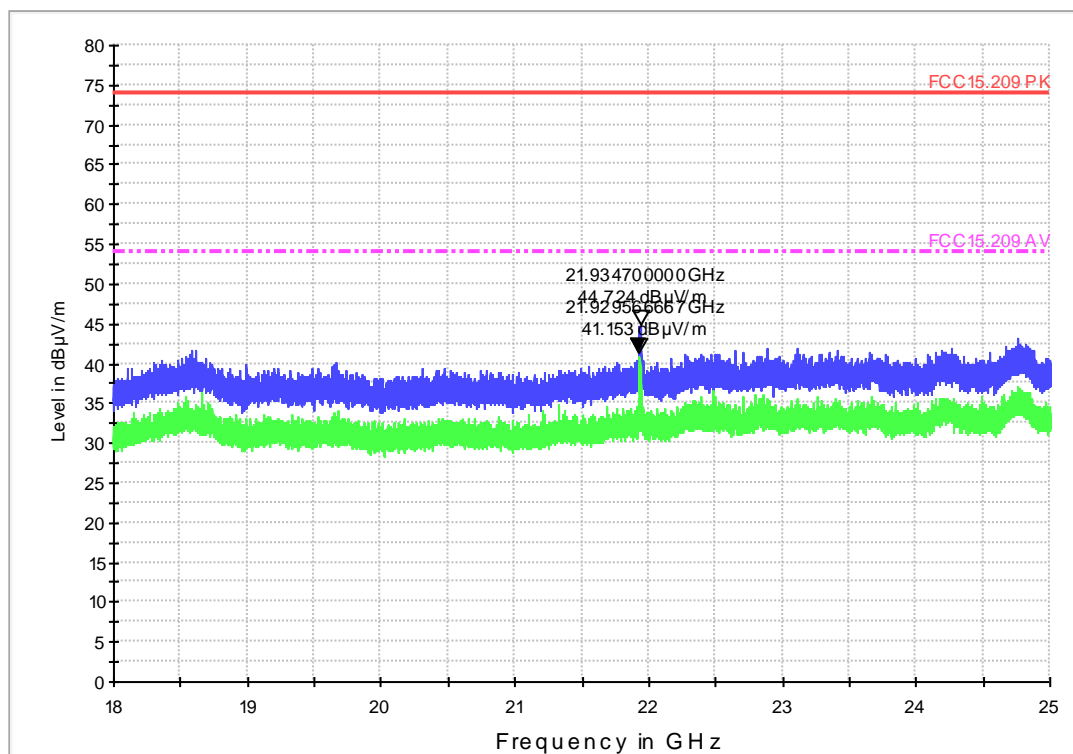


Diagram No.: 4.07_Up_Ch6_1MBit_17dBm

Common Information

| | |
|----------------------------|--|
| Test Description: | Radiated field strength emission in 1m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247, 15.205&15.209 &RSS-247, Issue 1 |
| Antenna polarisation: | horizontal/vertical |
| Distance correction factor | 3 to 1m: -10.5 dB applying to measurement results |
| SW-Version: | EMC32 V8.53.0 |
| Operation mode: | TX mode continuous |
| Operator Name: | Lor |
| Comment: | Channel no. middle=6, b-Mode, 1MBit, 17dBm power, Upward antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 1.1.0.17 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

FCC_Sweep_15.247_18_25GHz_Pre

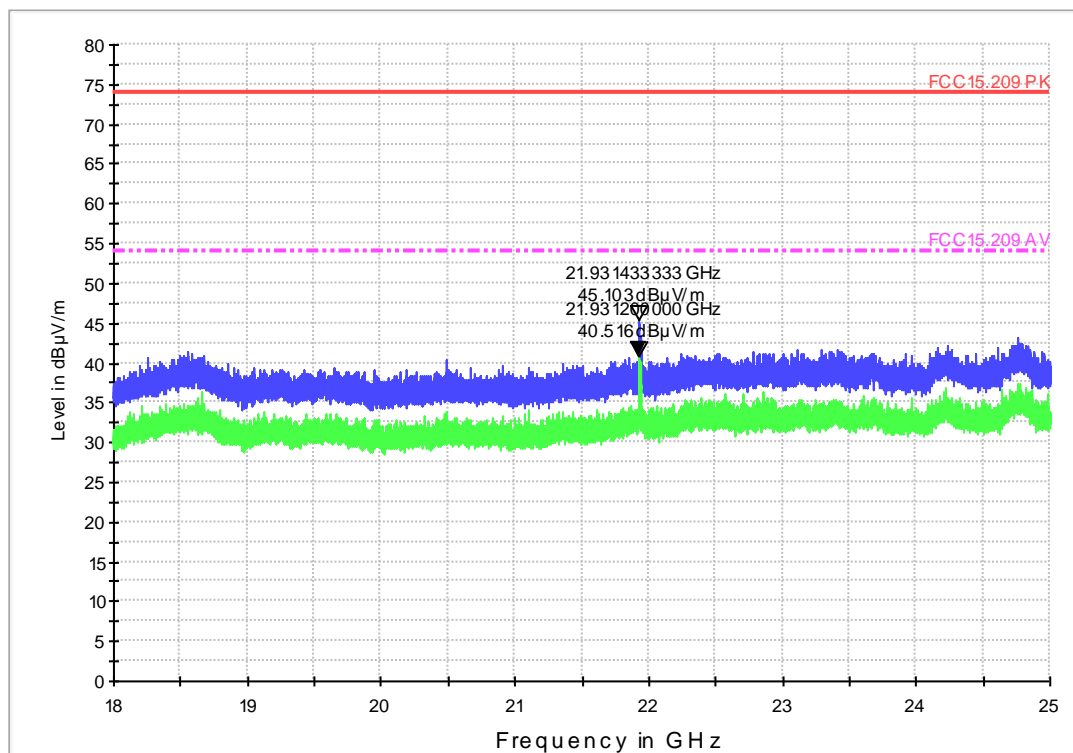


Diagram No.: 4.08_Down_Ch11_1MBit_17dBm

Common Information

| | |
|----------------------------|---|
| Test Description: | Radiated field strength emission in 1m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247, 15.205&15.209 &RSS-247, Issue 1 |
| Antenna polarisation: | horizontal/vertical |
| Distance correction factor | 3 to 1m: -10.5 dB applying to measurement results |
| SW-Version: | EMC32 V8.53.0 |
| Operation mode: | TX mode continuous |
| Operator Name: | Lor |
| Comment: | Channel no. high=11, b-Mode, 1MBit, 17dBm power, Downward antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| ----- | |
| HW Version: | C |
| SW Version: | 1.1.0.17 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

FCC_Sweep_15.247_18_25GHz_Pre

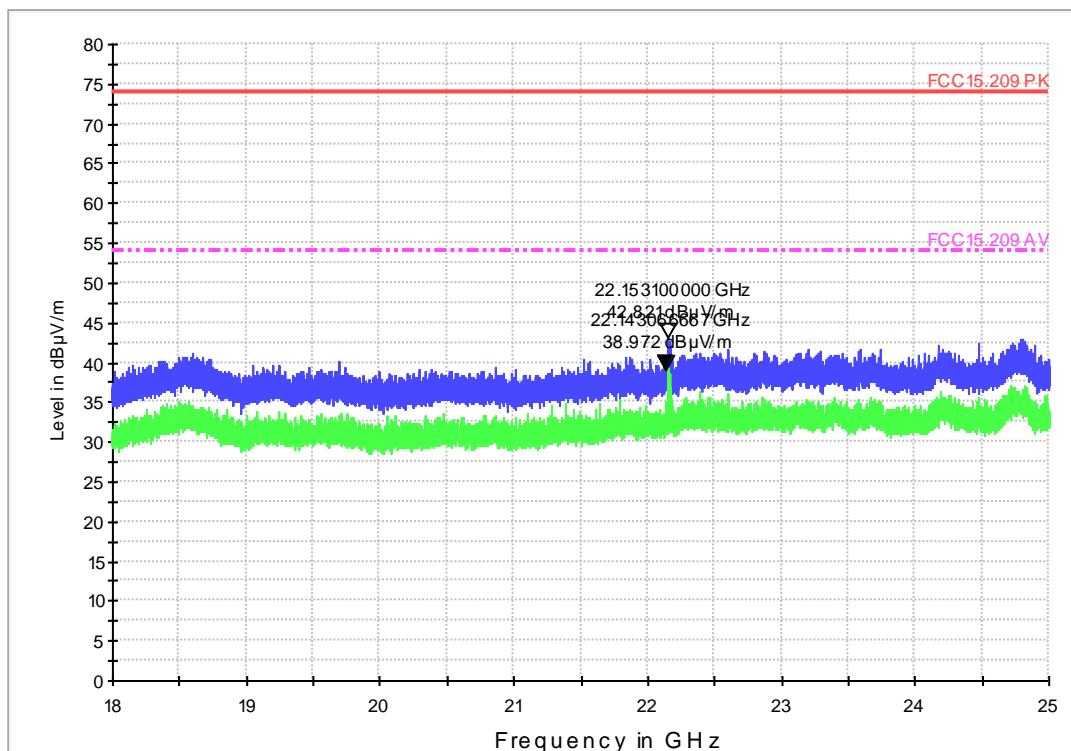


Diagram No.: 4.08_Up_Ch11_1MBit_17dBm

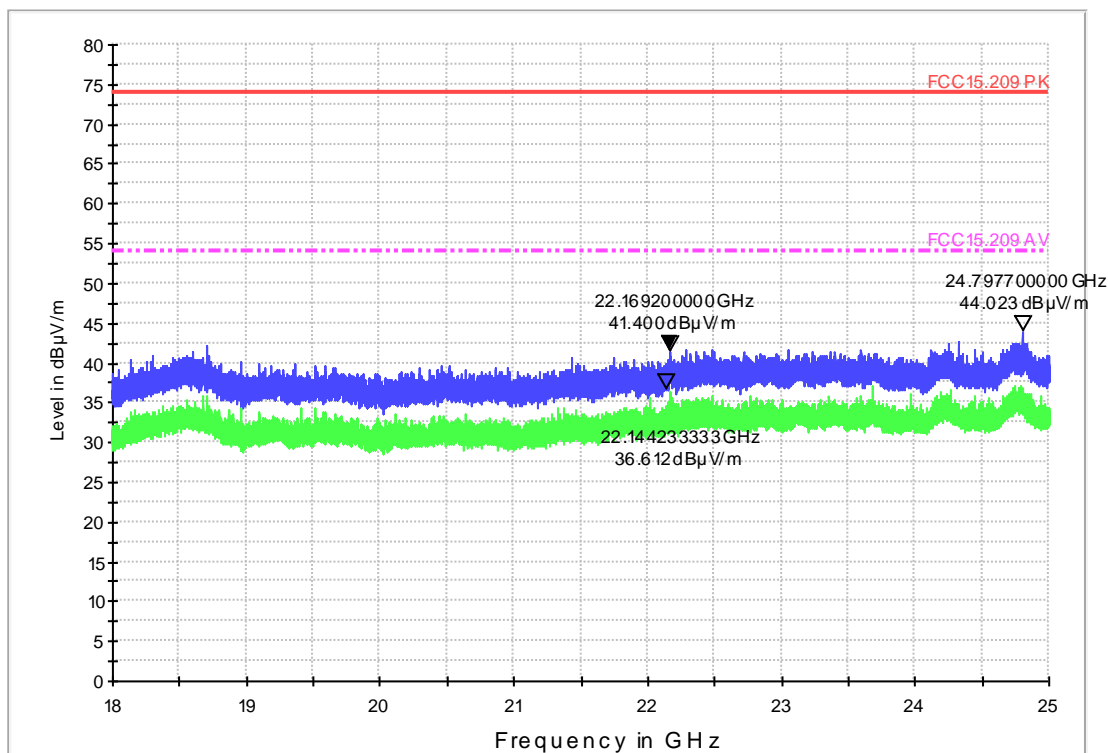
Common Information

| | |
|----------------------------|---|
| Test Description: | Radiated field strength emission in 1m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247, 15.205&15.209 &RSS-247, Issue 1 |
| Antenna polarisation: | horizontal/vertical |
| Distance correction factor | 3 to 1m: -10.5 dB applying to measurement results |
| SW-Version: | EMC32 V8.53.0 |
| Operation mode: | TX mode continuous |
| Operator Name: | Lor |
| Comment: | Channel no. high=11, b-Mode, 1MBit, 17dBm power, Upward antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 1.1.0.17 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

FCC_Sweep_15.247_18_25GHz_Pre



1.7. Radiated band-edge measurements accord. §15.209 & §15.205 (§15.247)

1.7.1. Channel 1 (left band edge)

Diagram No.: 9.01_Dwn_1Mbit_17dBm_Ch1

Common Information

| | |
|-----------------------|---|
| Test Description: | Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11b-mode, BW 20 MHz channel 1; Data rate 1Mbit Power 17 dBm |
| Operator Name: | Lor/KMo |
| Comment: | Channel no.1 High (2412 MHz) Downward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum

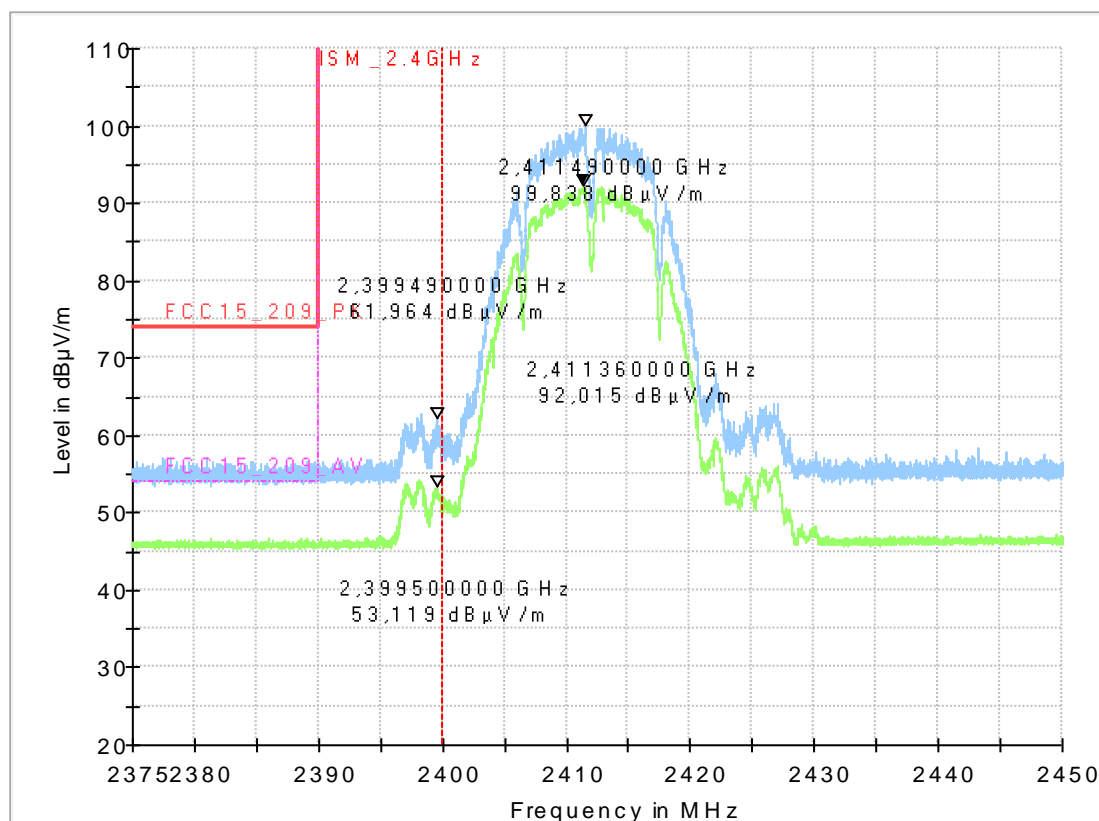


Diagram No.: 9.01_Up_1Mbit_17dBm_Ch1

Common Information

| | |
|-----------------------|--|
| Test Description: | Band-Edge: Radiated Field Strength Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11b-mode, BW 20 MHz channel 1; Data rate 1Mbit Power 17 dBm |
| Operator Name: | Lor |
| Comment: | Channel no.1 High (2412 MHz) Upward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum

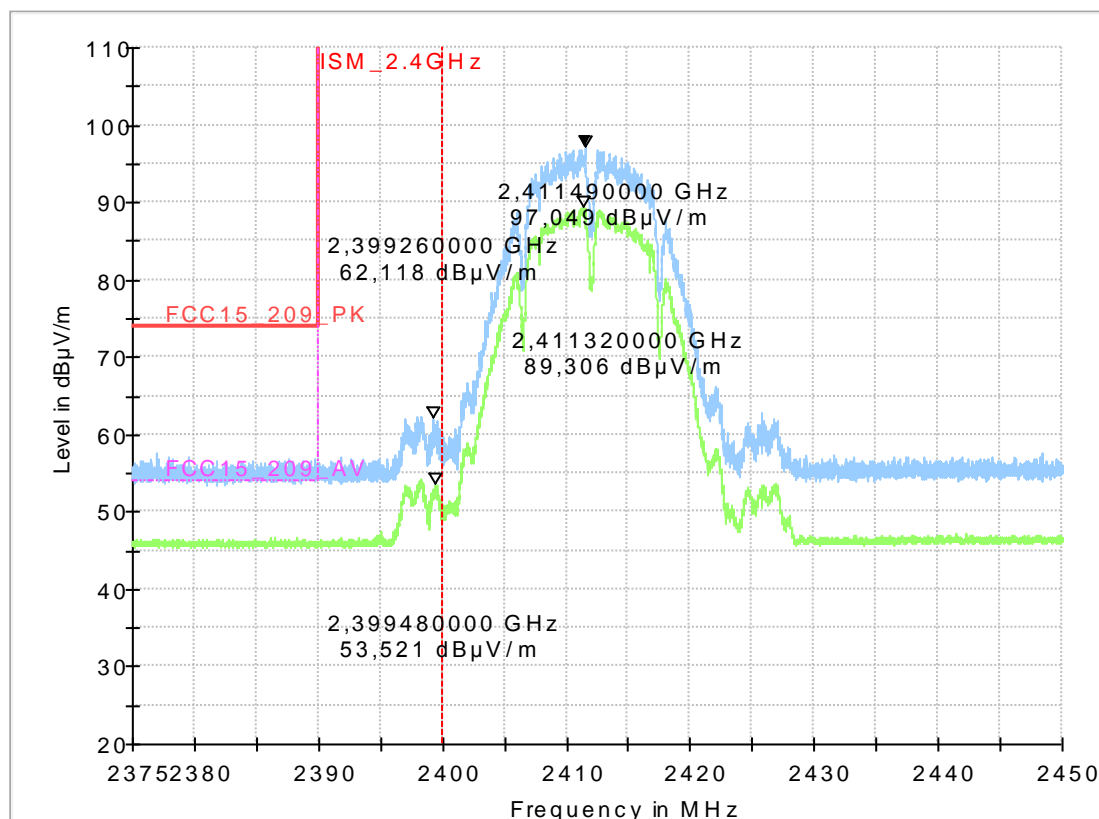


Diagram No.: 9.02_Dwn_6MB_13dBm_Ch1

Common Information

| | |
|-----------------------|---|
| Test Description: | Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | TX, continuous, 6MBit/13dBm power nominal/Downward antenna |
| Operator Name: | Lor/KMo |
| Comment: | Channel no.1 Low (2412 MHz) |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum

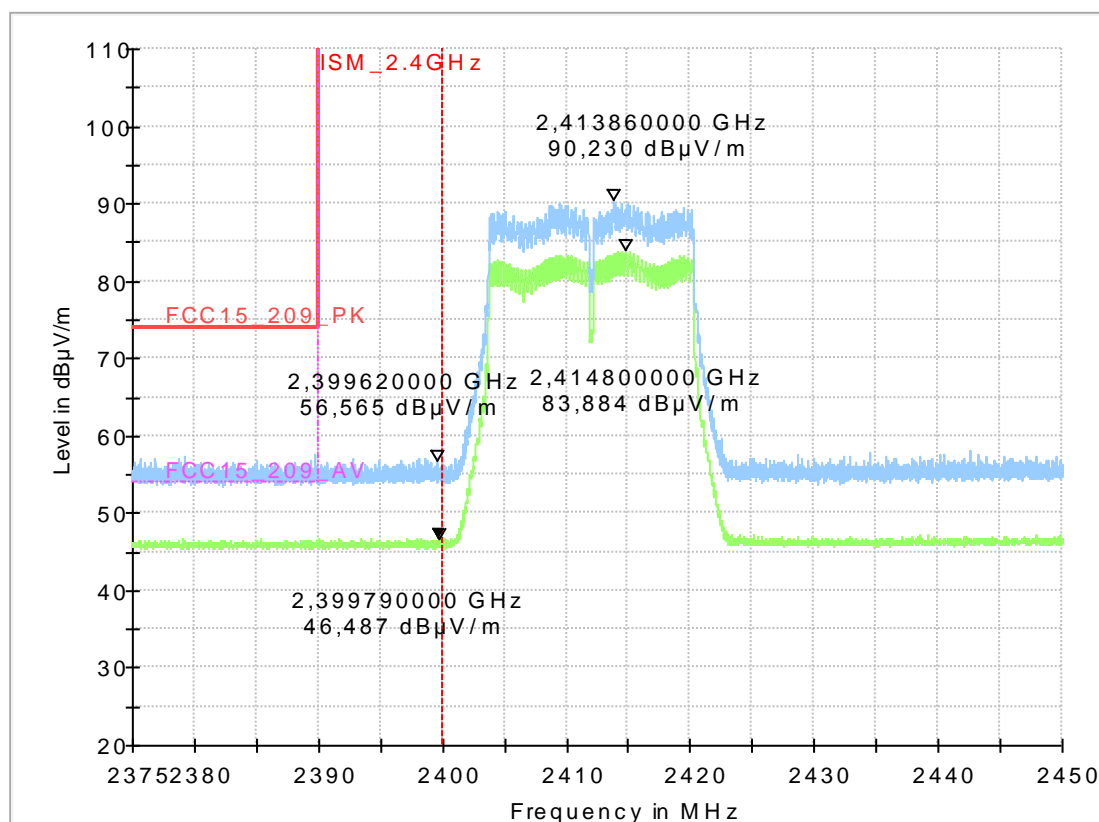


Diagram No.: 9.02_Up_6MB_13dBm_Ch1

Common Information

| | |
|-----------------------|---|
| Test Description: | Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11g-mode, BW 20 MHz channel 1; Data rate 6Mbit Power 13 dBm |
| Operator Name: | Lor/KMo |
| Comment: | Channel no.1 High (2412 MHz) Upward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum

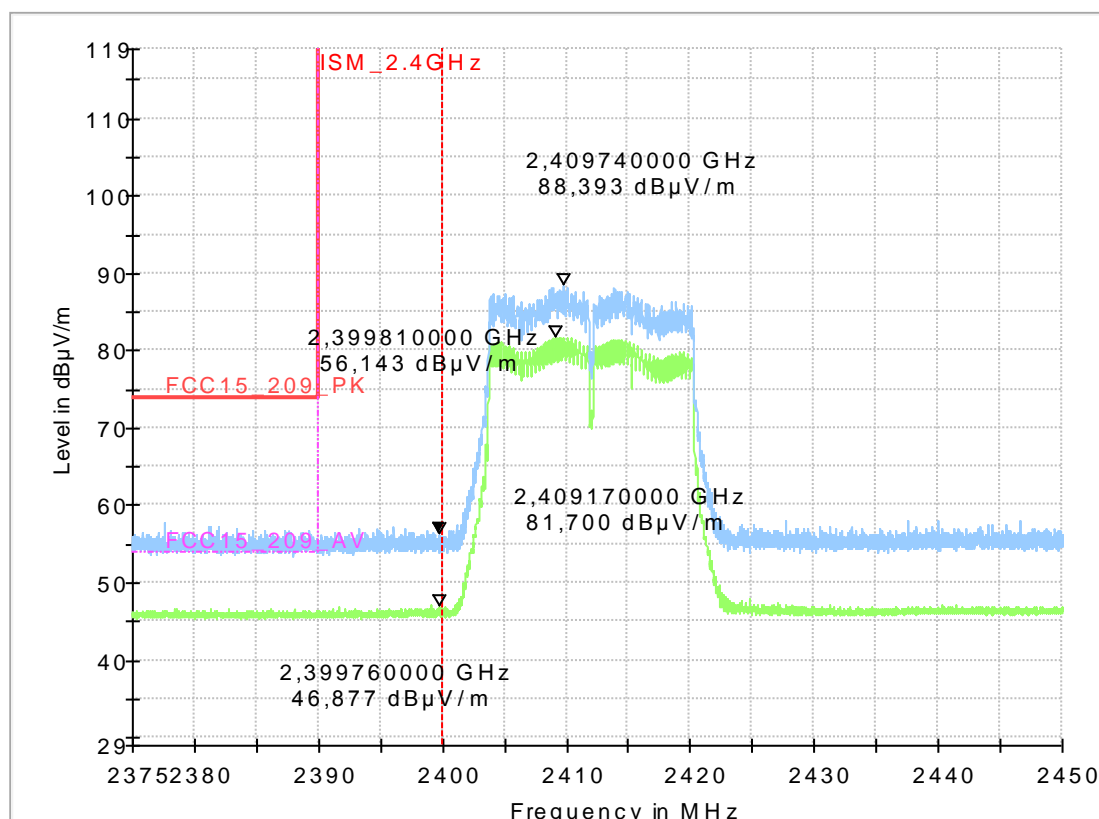


Diagram No.: 9.03_Dwn_MCS0_13dBm_Ch1

Common Information

| | |
|-----------------------|--|
| Test Description: | Band-Edge: Radiated Field Strength Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11g-mode, BW 20 MHz channel 1; Data rate MCS0, Power 13 dBm |
| Operator Name: | Lor/KMo |
| Comment: | Channel no.1 High (2412 MHz) Downward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

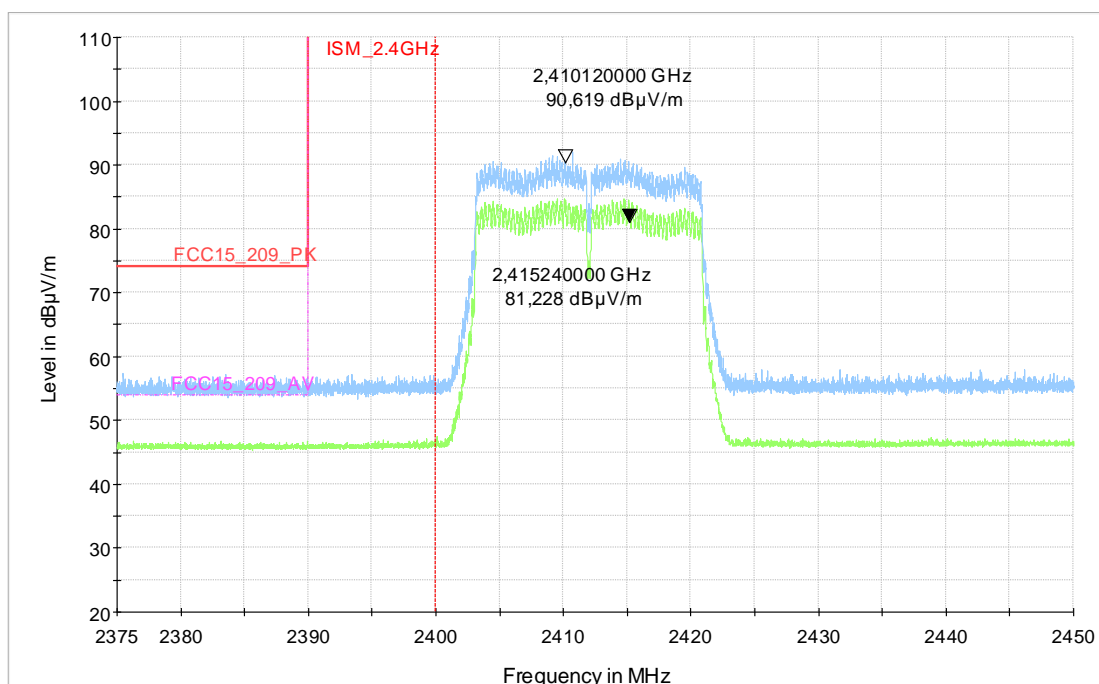


Diagram No.: 9.03_Up_MCS0_13dBm_Ch1

Common Information

| | |
|-----------------------|--|
| Test Description: | Band-Edge: Radiated Field Strength Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11g-mode, BW 20 MHz channel 1; Data rate MCS0, Power 13 dBm |
| Operator Name: | Lor/KMo |
| Comment: | Channel no.1 High (2412 MHz) Upward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

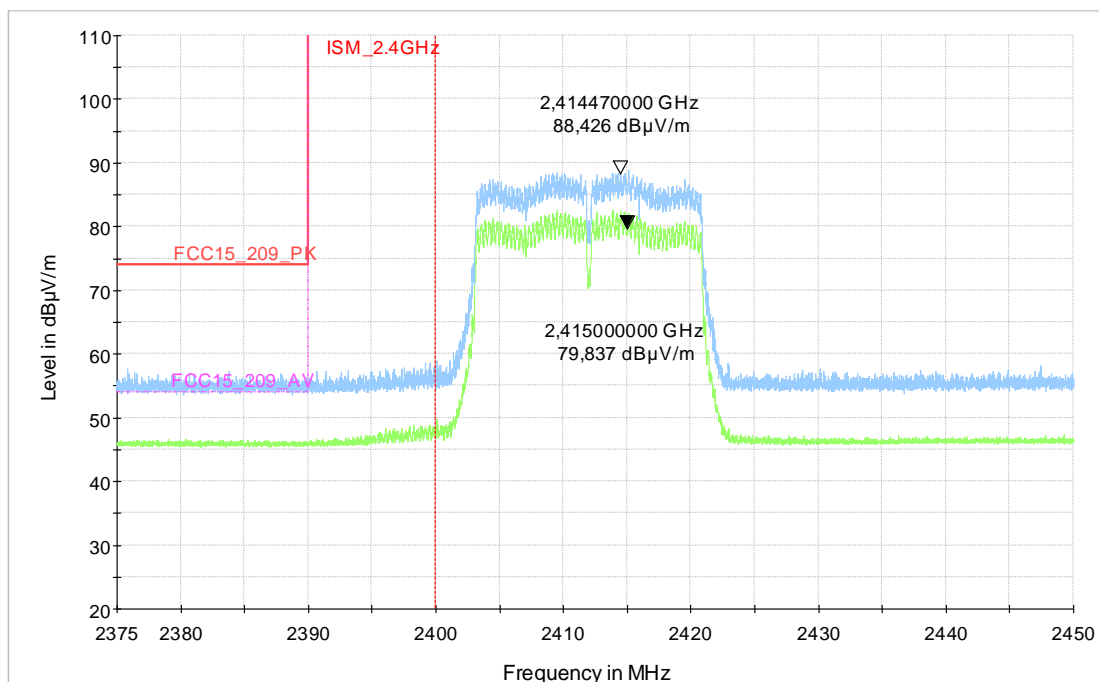


Diagram No.: 9.13_Dwn_9MB_13dBm_Ch1

Common Information

| | |
|-----------------------|---|
| Test Description: | Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11g-mode, 20 MHz channel 1; Data rate 9Mbit Power 13 dBm |
| Operator Name: | KMo |
| Comment: | Channel no.1 High (2412 MHz) Downward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 1.1.0.17 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum

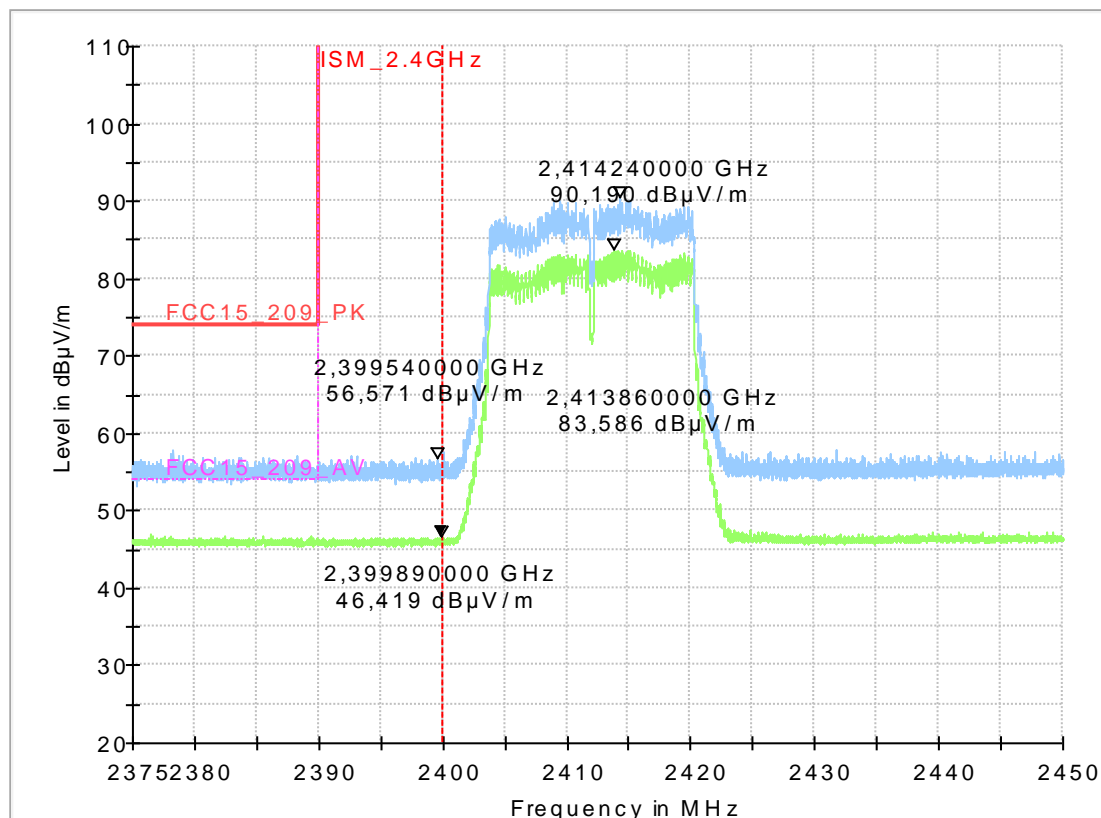


Diagram No.: 9.13_Up_9MB_13dBm_Ch1

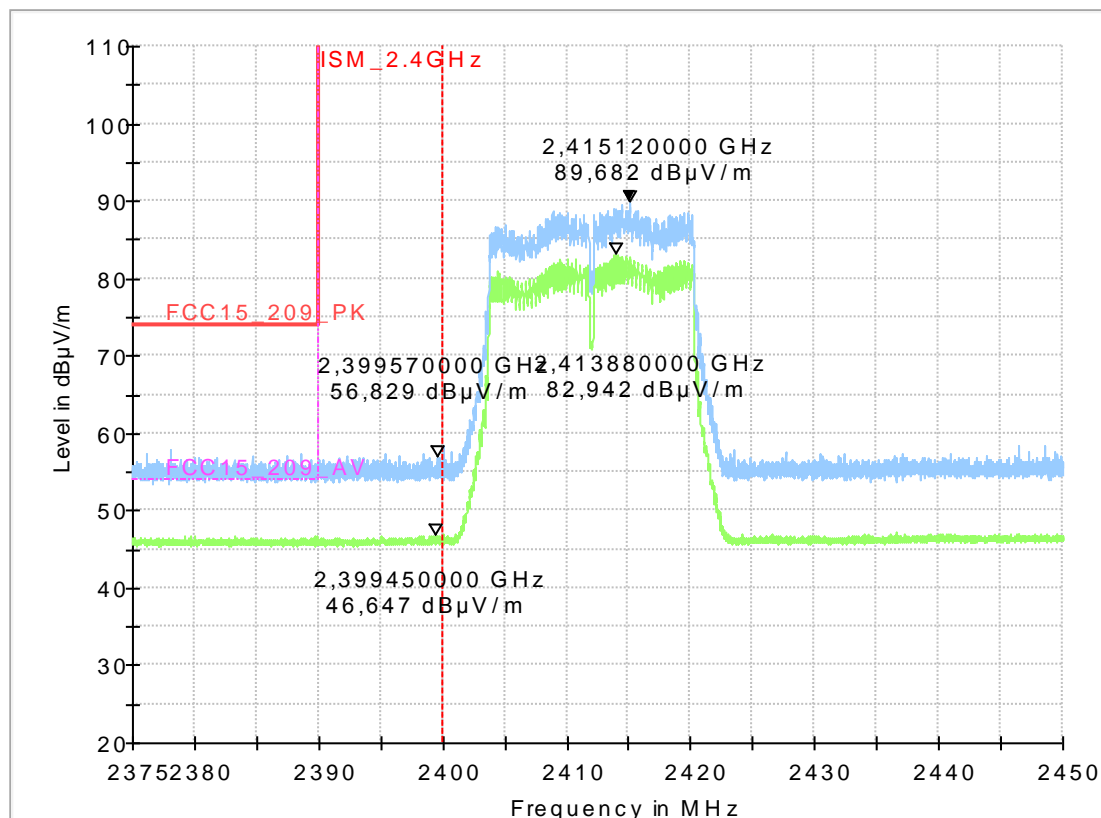
Common Information

| | |
|-----------------------|---|
| Test Description: | Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11g-mode, 20 MHz channel 1; Data rate 9Mbit Power 13 dBm |
| Operator Name: | KMo |
| Comment: | Channel no.1 High (2412 MHz) Upward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 1.1.0.17 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum



1.7.2. Channel 11 (right band edge)

Diagram No.: 9.04Dwn_Ant_BE_TX_Ch11_bMode_1MBit_17dBm

Common Information

| | |
|-----------------------|---|
| Test Description: | Band-Edge: Radiated Field Strength Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11b-mode, BW 20 MHz channel 11; Data rate 1Mbit Power 17 dBm |
| Operator Name: | Kmo |
| Comment: | Channel no.11 High (2462 MHz) Downward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| ----- | |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

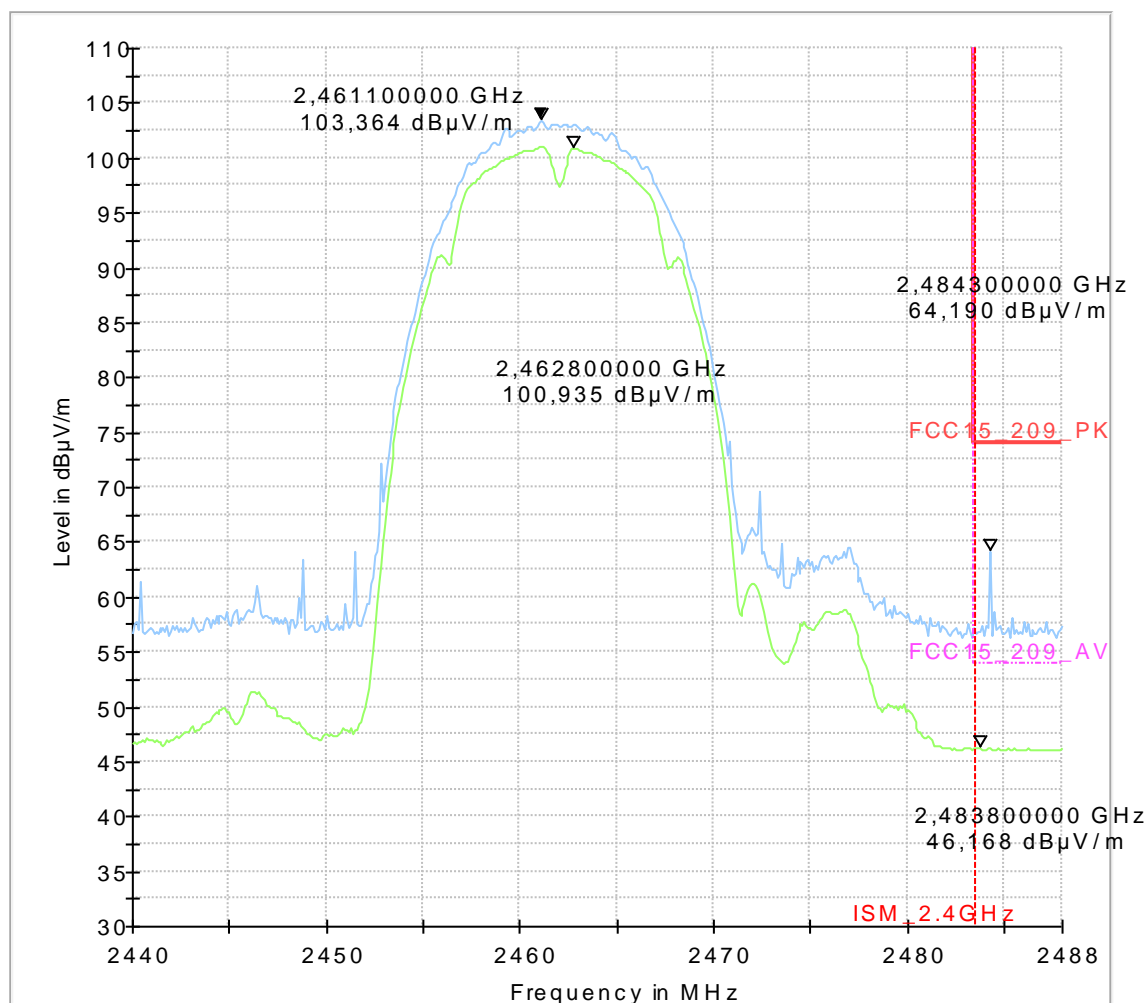


Diagram No.: 9.04Up_Ant_BE_TX_Ch11_bMode_1MBit_17dBm

Common Information

| | |
|-----------------------|--|
| Test Description: | Band-Edge: Radiated Field Strength Emissions in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | WLAN 802.11b-mode,BW 20 MHz channel 11; Data rate 1Mbit Power 17 dBm |
| Operator Name: | Kmo |
| Comment: | Channel no.11 High (2462 MHz) Upward directed WLAN Antenna |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902642 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

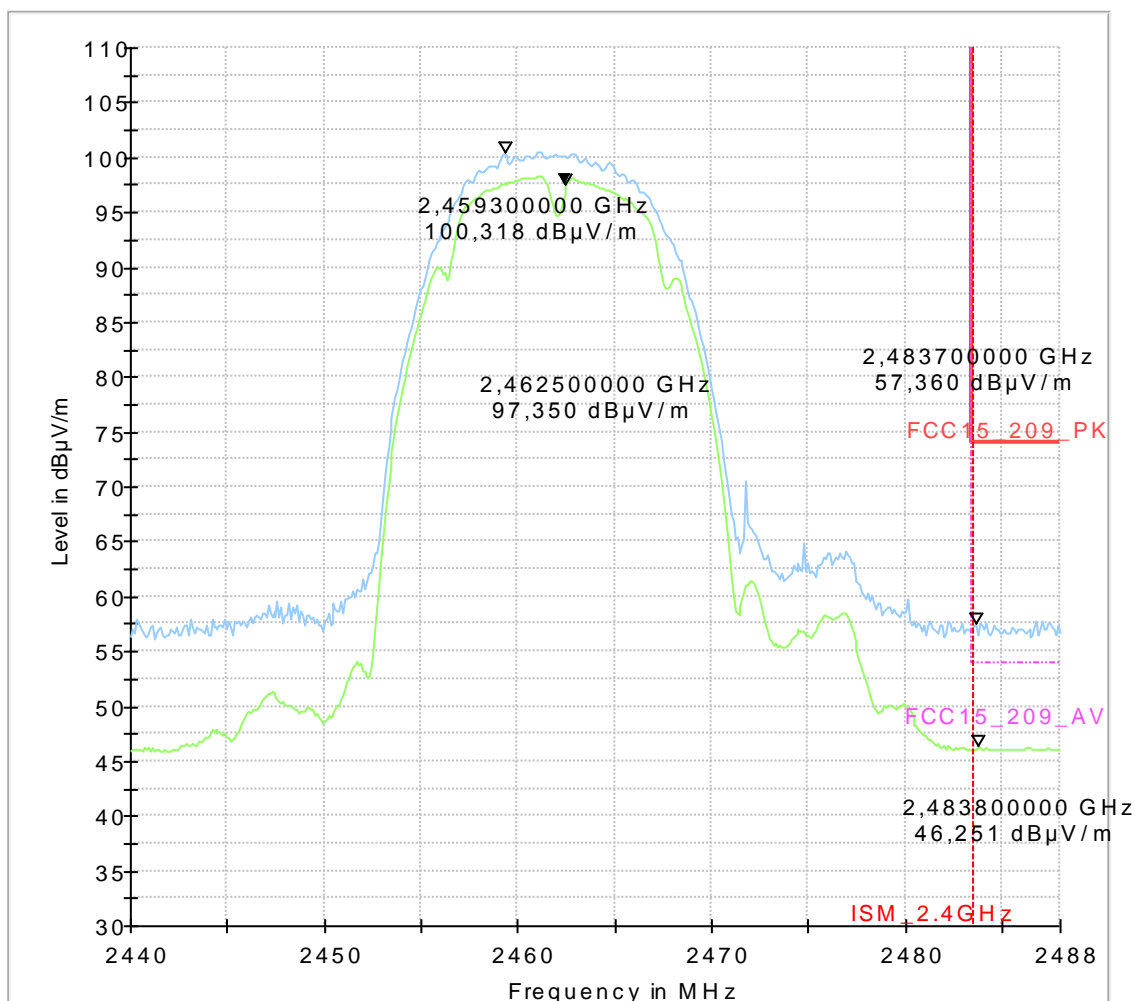


Diagram No.: 9.07_Step1_Dwn_Ch11_6MBit_13dBm

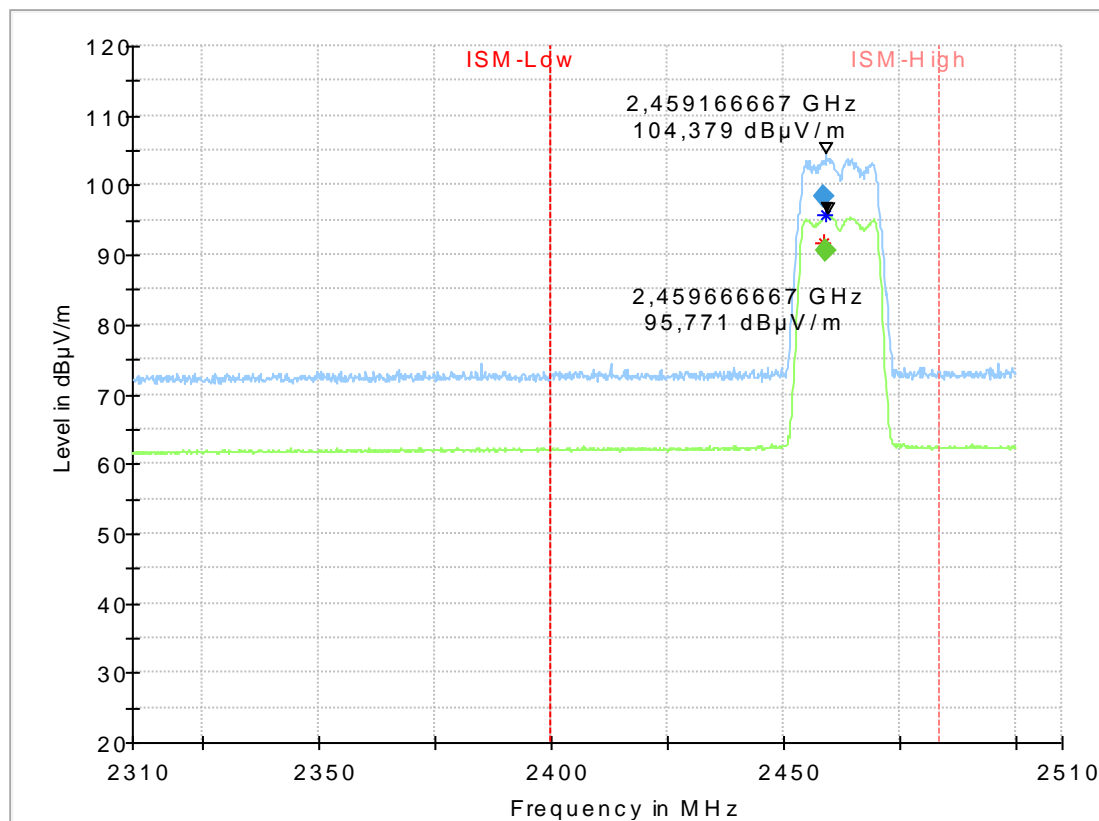
Common Information

| | |
|-----------------------|--|
| Test Description: | Radiated field strength emission in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator |
| Antenna polarisation: | horizontal/vertival |
| Operation mode: | TX, continuous, 6MBit/13dBm power nominal/Downward antenna |
| Operator Name: | Lor |
| Comment: | Channel no.high=11 |
| Remark: | Step1 Delta Marker Method |

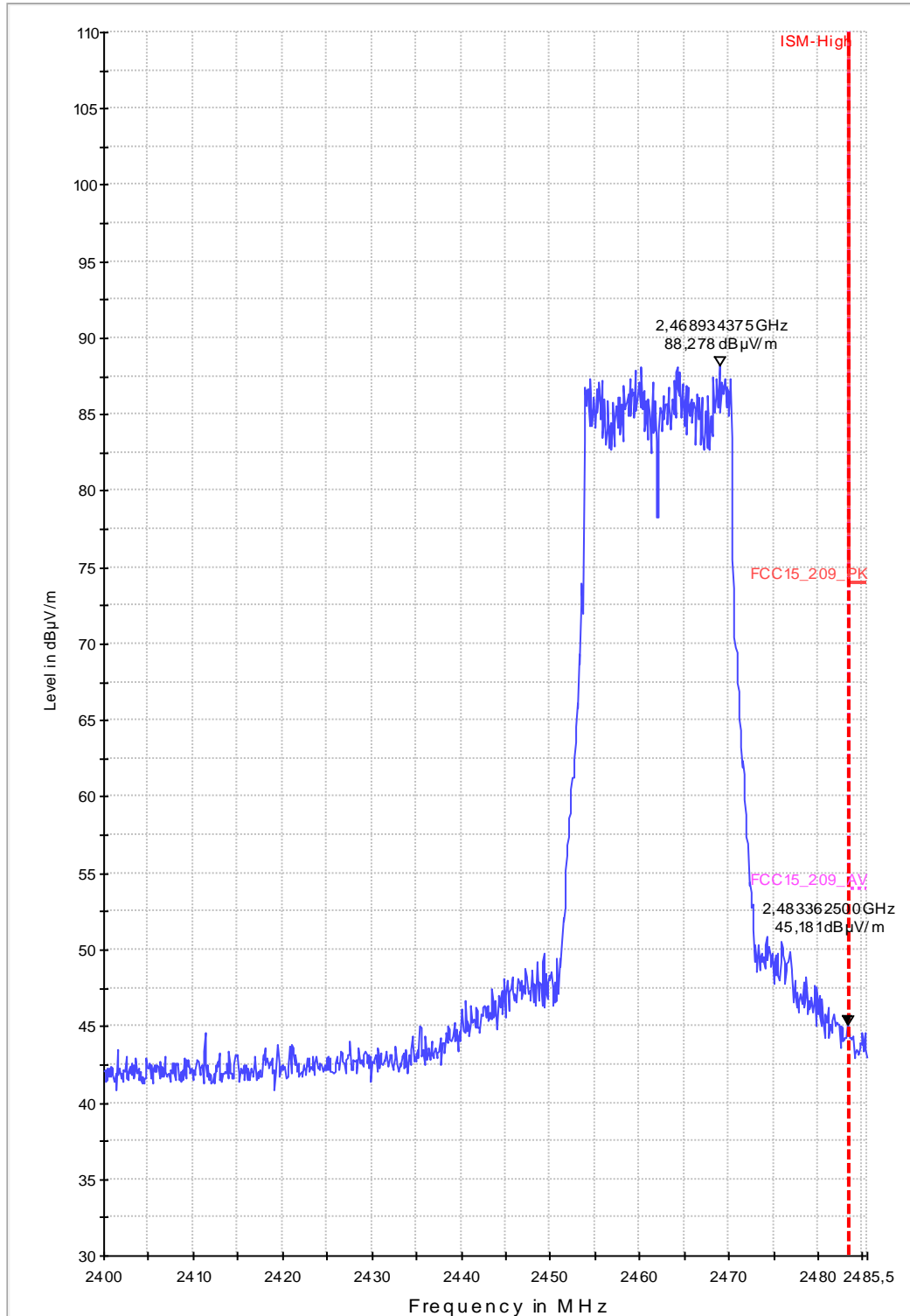
EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum



Step 2 of Delta-Marker-Method:



Delta = 43.09dB

Diagram No.: 9.11_Step1_Up_Ch11_6MBit_13dBm

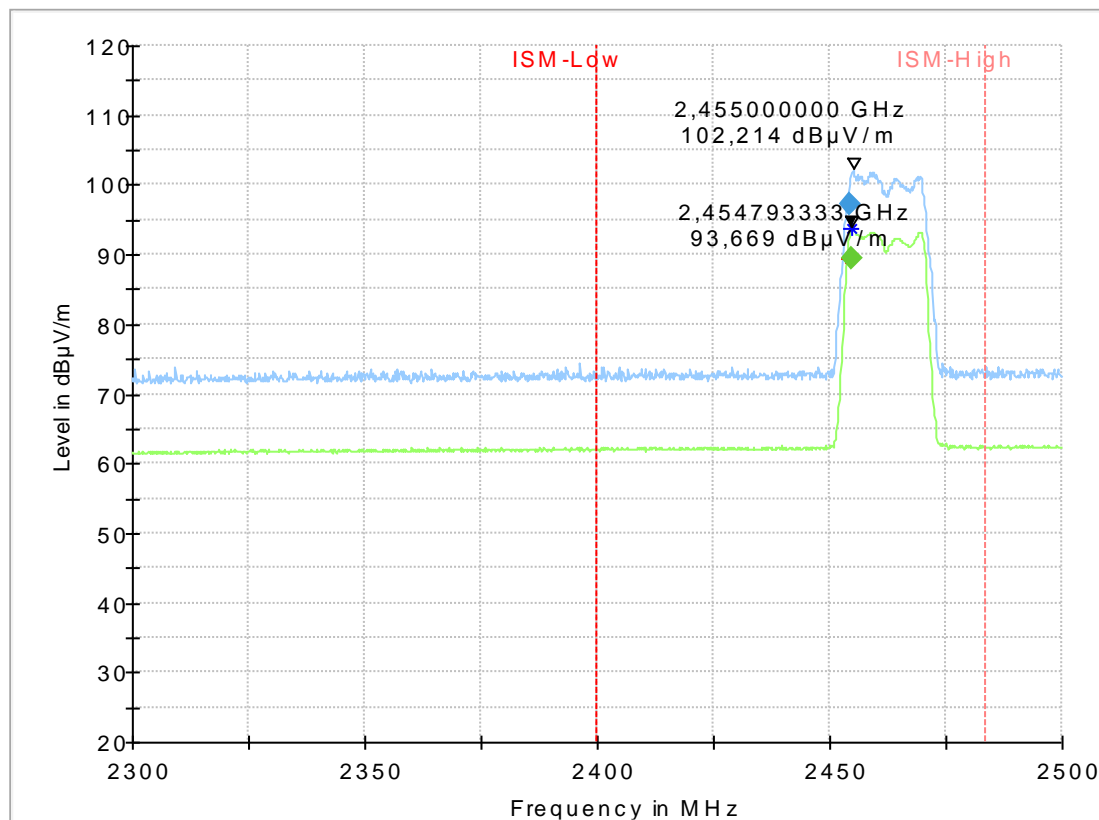
Common Information

| | |
|-----------------------|--|
| Test Description: | Radiated field strength emission in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | TX, continuous, 6MBit/13dBm power nominal/Upward antenna |
| Operator Name: | Lor/KMo |
| Comment: | Channel no.high=11 |
| Remark: | Step1-Delta Marker Method |

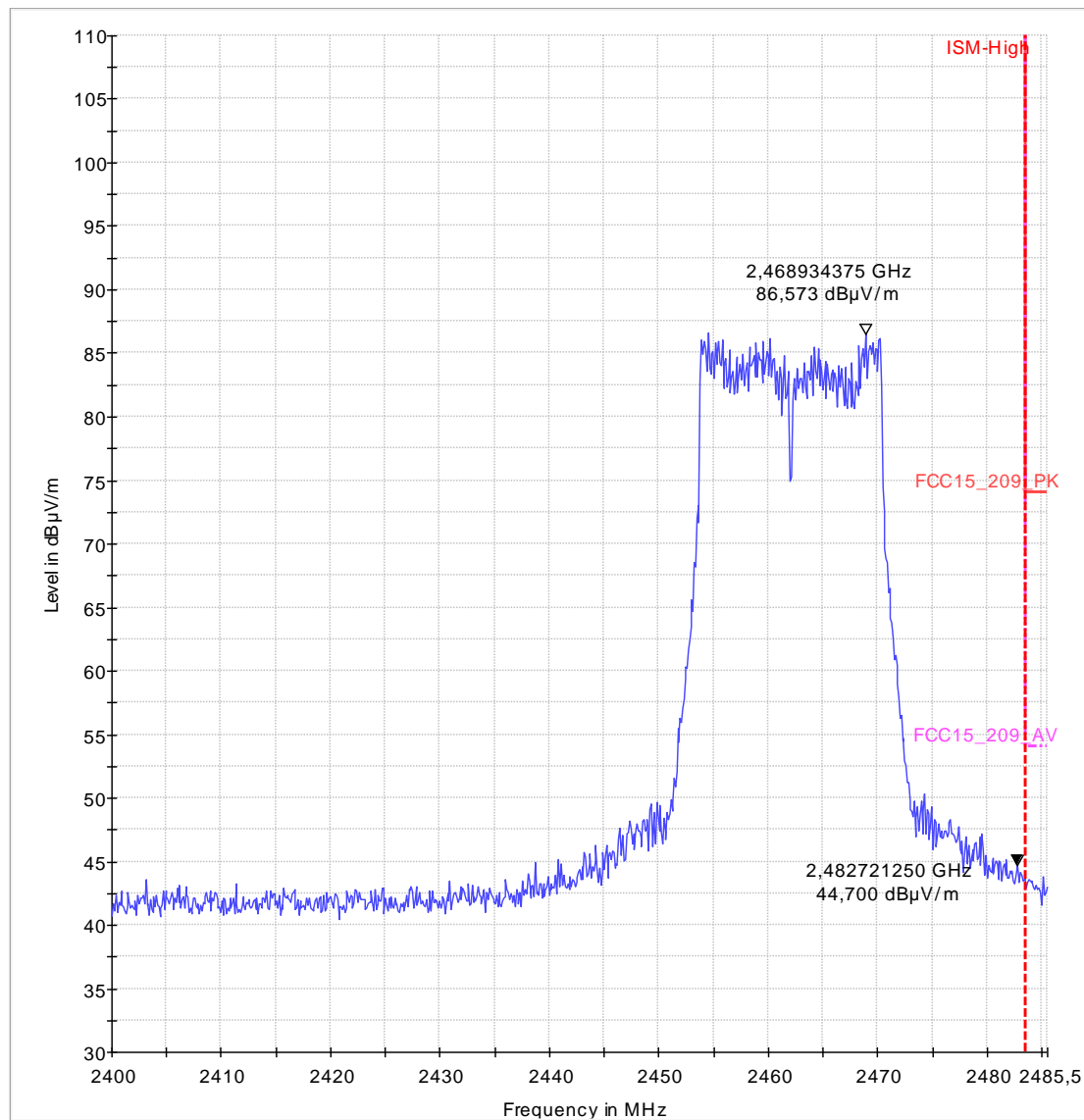
EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum



Step 2 of Delta-Marker-Method:



Delta = 41.87 dB

Diagram No.: 9.09_Step1_Up_Ch11_MCS0_13dBm

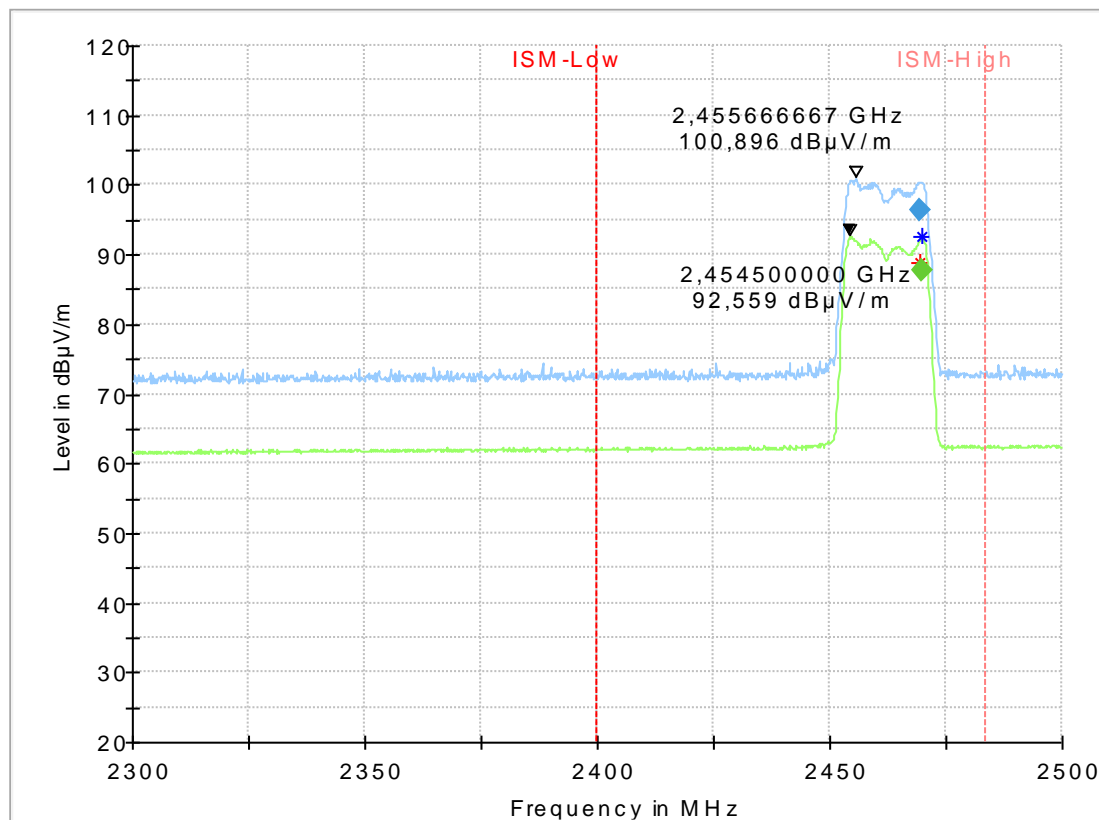
Common Information

| | |
|-----------------------|---|
| Test Description: | Radiated field strength emission in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | TX, continuous, MCS0/13dBm power nominal/Upward antenna |
| Operator Name: | Lor/KMo |
| Comment: | Channel no.high=11 |
| Remark: | Step1 Delta-Marker Method |

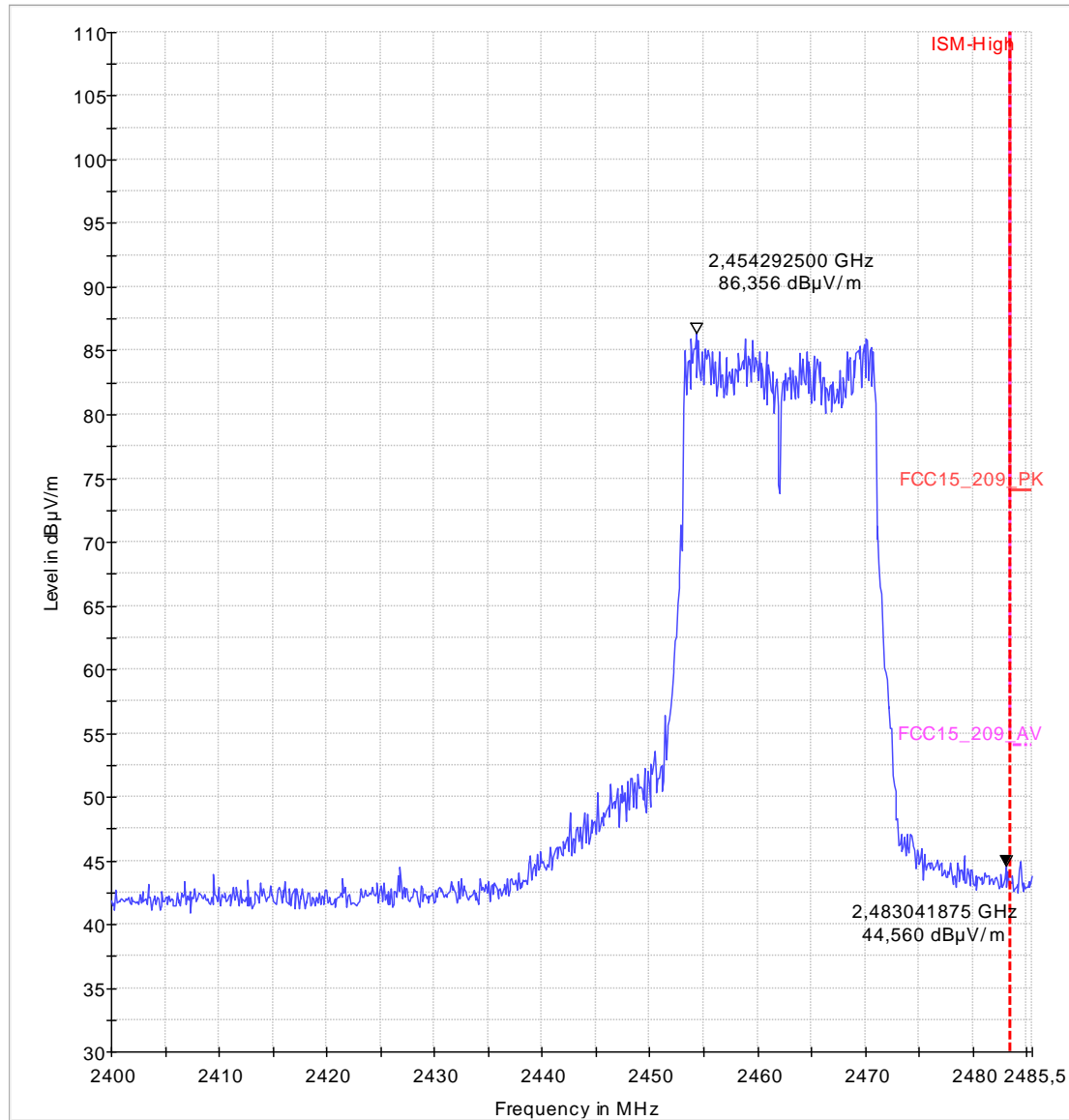
EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |

Full Spectrum



Step 2 of Delta-Marker-Method:



Delta = 41.79 dB

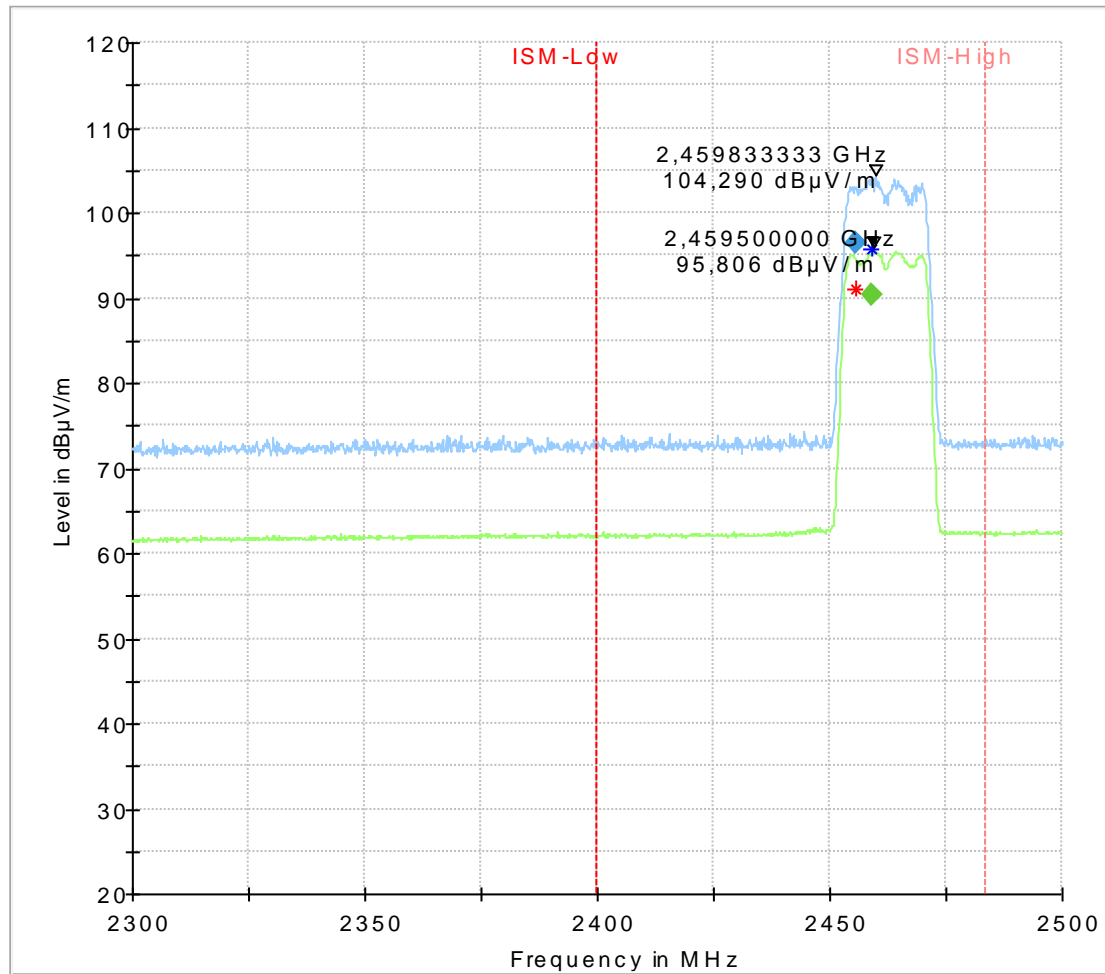
Diagram No.: 9.10_Step1_Down_Ch11_MCS0_13dBm

Common Information

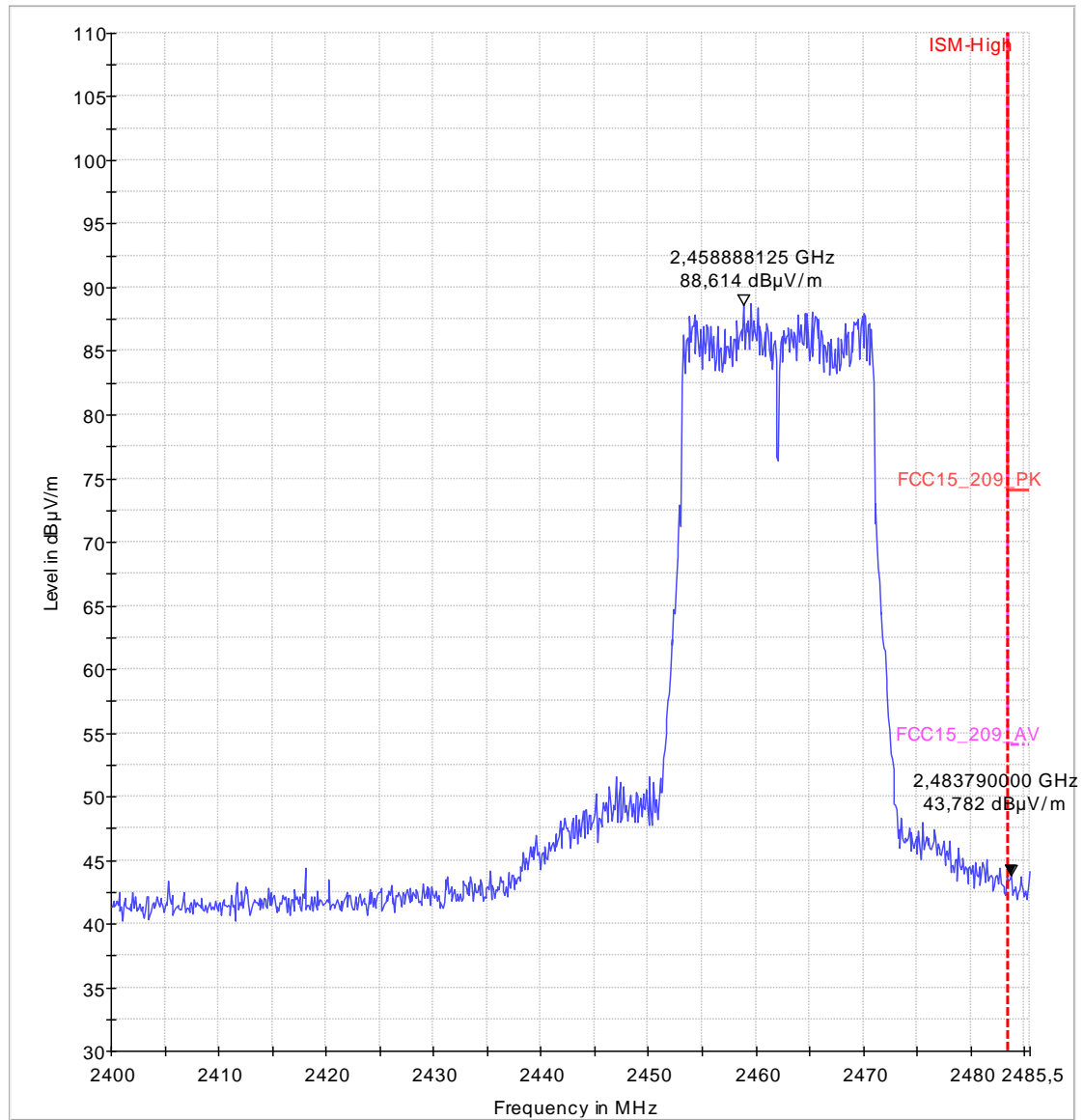
| | |
|-----------------------|---|
| Test Description: | Radiated field strength emission in 3m distance |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FCC 15.247&15.209 Intentional Radiator |
| Antenna polarisation: | horizontal/vertical |
| Operation mode: | TX, continuous, MCS0/13dBm power nominal/Downward antenna |
| Operator Name: | Lor |
| Comment: | Channel no.high=11 |
| Remark: | Step1-Delta Marker Method |

EUT Information

| | |
|-----------------------|--|
| Manufacturer: | ACTIA Nordic AB |
| EuT: | ACUII-06 |
| ----- | ----- |
| HW Version: | C |
| SW Version: | 13 |
| Serial Number: | 21790250902643 |
| Connected Interfaces: | MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector |
| Power Supply: | 13.8 VDC |
| Antenna Type: | LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 15W421 Portugal AD801 SDARS Modified #1 |



Step 2 of Delta-Marker-Method:



Delta = 44.83dB

1.8. Conducted RF-measurements on antenna port

1.8.1. Conducted RF-power

| b-mode | Channel no. / [dBm] | | | Max-Value / [dBm] |
|---------------|----------------------------|-------|-------|-------------------|
| Data rate | 1 | 6 | 11 | |
| 1MBit | 20,20 | 20,89 | 19,36 | 20,89 |
| 2Mbit | 20,13 | 20,81 | 19,33 | |
| 5.5Mbit | 19,46 | 20,06 | 18,46 | |
| 11MBit | 19,79 | 20,36 | 18,92 | |

| g-Mode | Channel no. / [dBm] | | | Max-Value / [dBm] |
|---------------|----------------------------|-------|-------|-------------------|
| Data rate | 1 | 6 | 11 | |
| 6Mbit | 16,75 | 17,22 | 15,32 | 17,41 |
| 9Mbit | 16,85 | 17,41 | 15,46 | |
| 12Mbit | 16,58 | 17,21 | 15,31 | |
| 18Mbit | 16,71 | 17,29 | 15,25 | |
| 24Mbit | 16,49 | 17,25 | 15,05 | |
| 36Mbit | 16,34 | 16,99 | 15,16 | |
| 48Mbit | 16,58 | 17,19 | 15,24 | |
| 54MBit | 16,65 | 17,22 | 15,2 | |

| n-Mode HT20 (1 spatial stream: 1SS) | Channel no. / [dBm] | | | Max-Value / [dBm] |
|--|----------------------------|-------|-------|-------------------|
| Data rate | 1 | 6 | 11 | |
| MCS0 - 6.5Mbps | 16,98 | 17,65 | 15,57 | 17,70 |
| MCS1 - 13Mbps | 16,91 | 17,60 | 15,48 | |
| MCS2 - 19.5Mbps | 17,05 | 17,65 | 17,7 | |
| MCS3 - 26Mbps | 16,93 | 17,41 | 15,41 | |
| MCS4 - 39Mbps | 17,55 | 17,57 | 15,56 | |
| MCS5 - 52Mbps | 16,88 | 17,38 | 15,38 | |
| MCS6 - 58.5Mbps | 17,08 | 17,41 | 15,25 | |
| MCS7 - 65Mbps | 17,18 | 17,59 | 15,48 | |