

Annex 1: Measurement diagrams to
TEST REPORT
 No.: 18-1-0048401T03a

According to:
FCC Regulations
 Part 15.205 & Part 15.209
 Part 15.247

ISED-Regulations
 RSS-Gen, Issue 4
 RSS-247, Issue 2

for

Robert Bosch Car Multimedia
 Navigation System with Bluetooth and WLAN
 AIVIL12F0

FCC ID: YBN-AIVIL12F0
ISED: 9595A-AIVIL12F0








| Laboratory Accreditation and Listings | | |
|--|---|---|
|  Deutsche Akkreditierungsstelle D-PL-12047-01-01 Accredited EMC-Test Laboratory |  Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3 |  Voluntary Controls for Electromagnetic Emissions Reg. No.:4452, C-20009, T-20006, G-20013 |
|   |  Lab Code: 20011130-00 |  FEDERAL COMMUNICATIONS COMMISSION MRA US-EU 0003 |
| accredited according to DIN EN ISO/IEC 17025 | | |
| <p align="center"> 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 </p> | | |

Table of contents

| | |
|---|----------|
| 1. MEASUREMENT DIAGRAMS..... | 3 |
| 1.1. General Limit – Maximum power output conducted | 3 |
| 1.2. General Limit - Radiated field strength emissions below 30 MHz..... | 4 |
| 1.3. General Limit - Radiated field strength emissions, 30 MHz - 1 GHz..... | 6 |
| 1.4. General Limit - Radiated emissions, above 1 GHz..... | 8 |
| 1.5. RF-Parameter - Band Edge compliance measurements | 11 |

1. Measurement diagrams

1.1. General Limit – Maximum power output conducted

| | | | | | |
|------------------------------|--------------------|-------|------------------------------|-------|------|
| Bluetooth FHSS (EDR Mode) | 8DPSK (3 Mbps) | 3-DH1 | Channel No. 0 (2402 MHz) | -5,00 | 0,32 |
| | | | Channel No. 39 (2441 MHz) | -5,20 | 0,30 |
| | | | Channel No. 78 (2480 MHz) | -4,90 | 0,32 |
| | | 3-DH3 | Channel No. 0 (2402 MHz) | -4,90 | 0,32 |
| | | | Channel No. 39 (2441 MHz) | -5,10 | 0,31 |
| | | | Channel No. 78 (2480 MHz) | -4,80 | 0,33 |
| | | 3-DH5 | Channel No. 0 (2402 MHz) | -4,90 | 0,32 |
| | | | Channel No. 39 (2441 MHz) | -5,10 | 0,31 |
| | | | Channel No. 78 (2480 MHz) | -4,90 | 0,32 |

1.2. General Limit - Radiated field strength emissions below 30 MHz

Diagram No. 2.02a_BT_EDR_ch00_laying

| | | |
|--------------------------|---|-------------|
| Date: | 07.07.2018 | Page 1 of 1 |
| 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 V9.25.0 | |
| 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 15.205 § 15.209; RSS-Gen: Issue 4 | |
| Operator: | HEI | |
| Operating conditions: | BT_EDR_CH:0_Packet Data:3-DH5 | |
| Power during tests: | 13,5 Volt | |
| Comment 1: | DUT Laying | |

EUT Information

| | |
|--------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Connected Devices: | -- |

Full Spectrum

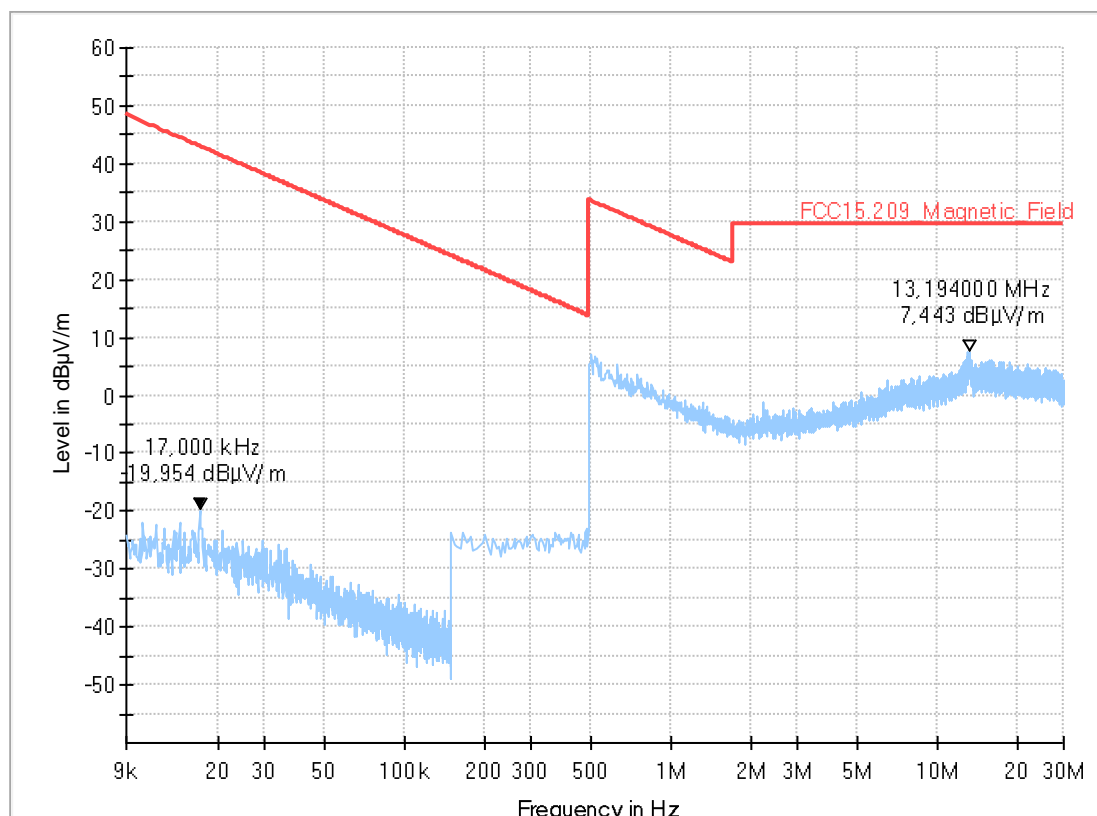


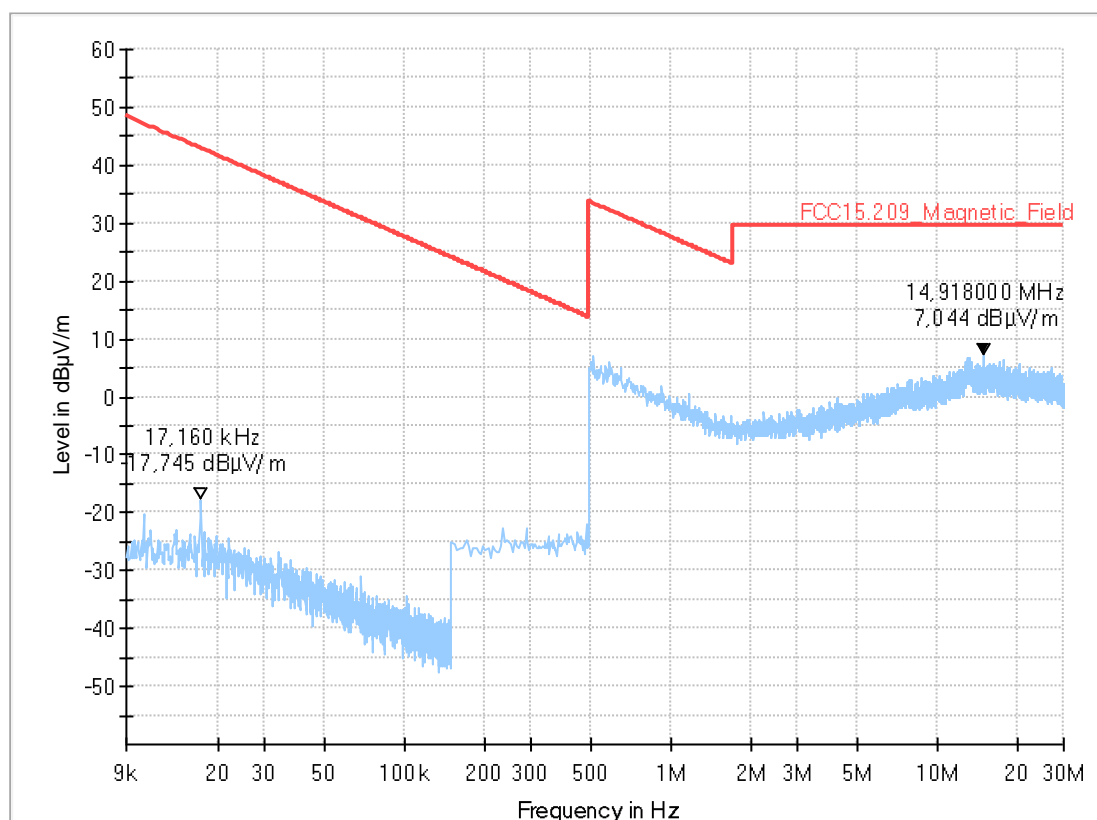
Diagram No. 2.02b_BT_EDR_ch00_standing

| | | |
|--------------------------|---|-------------|
| Date: | 07.07.2018 | Page 1 of 1 |
| 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 V9.25.0 | |
| 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 15.205 § 15.209; RSS-Gen: Issue 4 | |
| Operator: | HEI | |
| Operating conditions: | BT_EDR_CH:0_Packet Data:3-DH5 | |
| Power during tests: | 13,5 Volt | |
| Comment 1: | DUT Standing | |

EUT Information

| | |
|--------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Connected Devices: | -- |

Full Spectrum



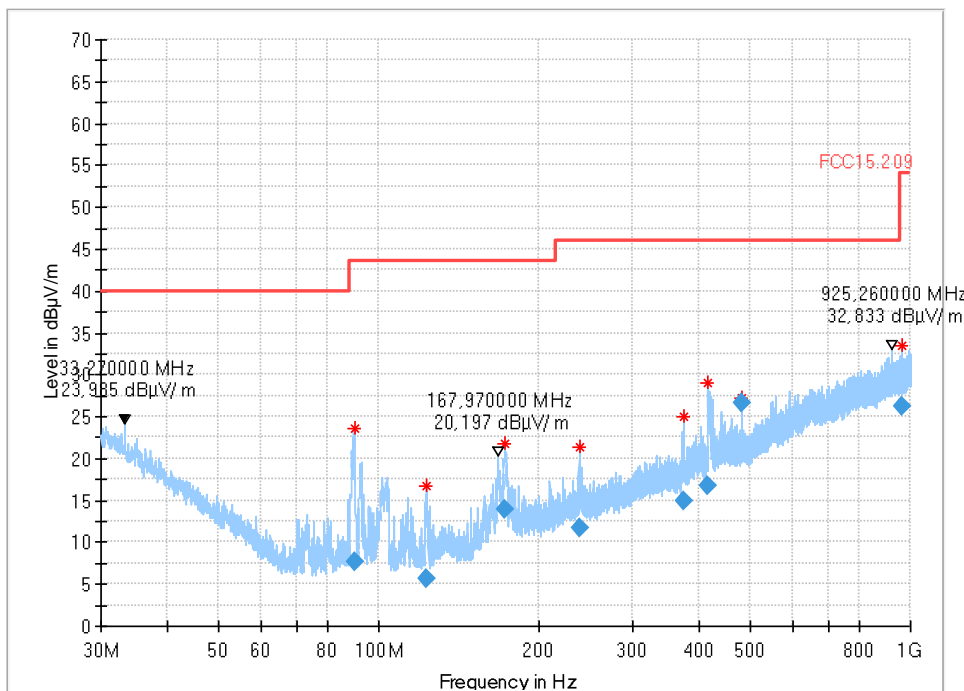
1.3. General Limit - Radiated field strength emissions, 30 MHz - 1 GHz Diagram No. 3.02a_BT_EDR_ch00_laying

| | |
|--------------------------|---|
| Test description: | 07.07.2018 Page 1 of 2 |
| Test site and distance: | Electric Field Strength Measurement |
| Version of Testsoftware: | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Distance correction: | EMC32 V9.25.0 |
| Used filter: | not used |
| Technical Data: | not used |
| Test specification.: | please see page 2 for detailed data of measurement setup |
| Operator: | FCC 15.209; RSS-Gen: Issue 3 |
| Operating conditions: | HEI |
| Power during tests: | BT_EDR_CH:0_PAccket Data:3-DH5 |
| Comment 1: | 13.5Voult |
| | DUT Laying |

EUT Information

| | |
|-------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Conected Devices: | -- |

Full Spectrum



Final Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 89.795000 | 7.68 | 43.50 | 35.82 | 1000.0 | 120.000 | 182.0 | V | 283.0 | 0.0 |
| 122.973000 | 5.62 | 43.50 | 37.88 | 1000.0 | 120.000 | 182.0 | H | 60.0 | 0.0 |
| 172.769000 | 13.98 | 43.50 | 29.52 | 1000.0 | 120.000 | 105.0 | V | 183.0 | 0.0 |
| 238.525000 | 11.73 | 46.00 | 34.27 | 1000.0 | 120.000 | 182.0 | V | 149.0 | 0.0 |
| 374.525000 | 14.85 | 46.00 | 31.15 | 1000.0 | 120.000 | 182.0 | V | 10.0 | 0.0 |
| 415.615000 | 16.69 | 46.00 | 29.31 | 1000.0 | 120.000 | 105.0 | H | 90.0 | 0.0 |
| 479.965000 | 26.66 | 46.00 | 19.34 | 1000.0 | 120.000 | 105.0 | V | 65.0 | 0.0 |
| 963.633000 | 26.28 | 54.00 | 27.72 | 1000.0 | 120.000 | 182.0 | H | 110.0 | 0.0 |

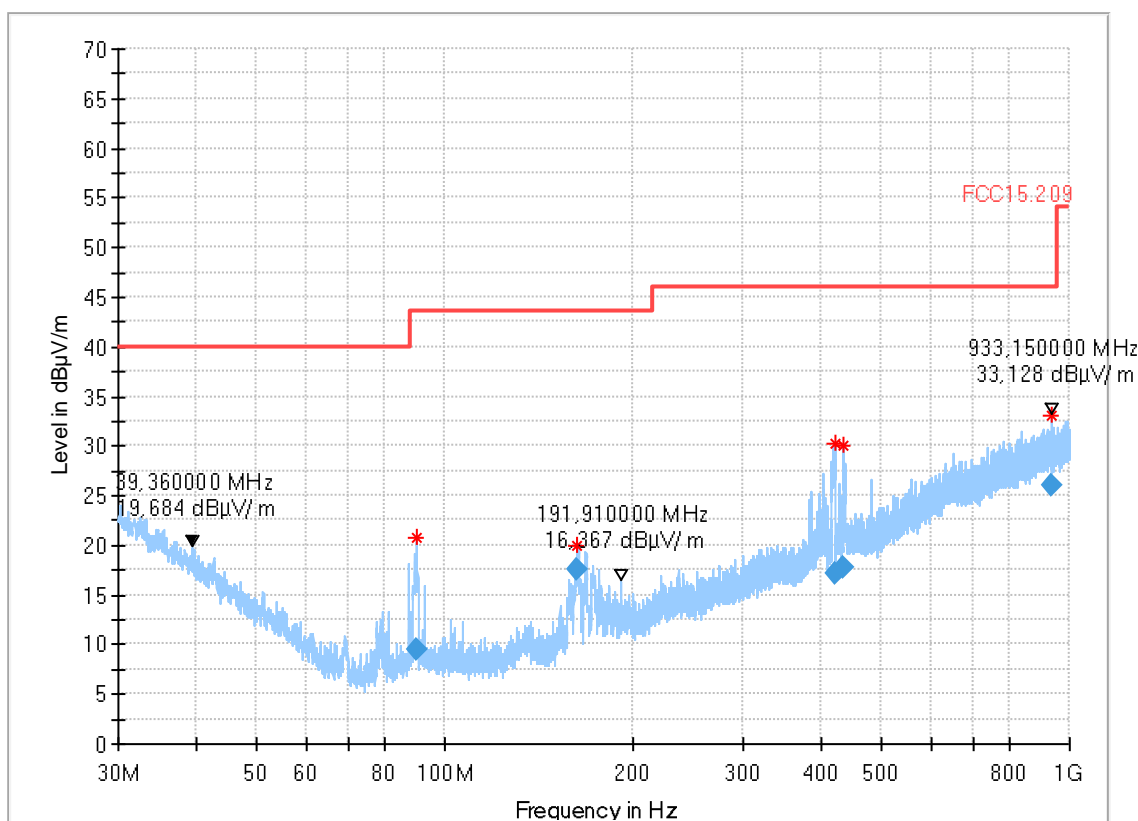
Diagram No. 3.02b_BT_EDR_ch00_standing

07.07.2018 Page 1 of 1
 Electric Field Strength Measurement
 Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 EMC32 V9.25.0
 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: HEI
 Operating conditions: BT_EDR_CH:0_Packet Data:3-DH5
 Power during tests: 13.5Voult
 Comment 1: DUT standing

EUT Information

Manufacturer: Robert Bosch Car Multimedia
 Product: AIVIL12F0
 EUT Model: AIVIL12F0
 HW: 001
 SW: X317
 Serial Nr.: 0007625
 Connected Devices: --

Full Spectrum



Final Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Elevation (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|-----------------|
| 89.879000 | 9.40 | 43.50 | 34.10 | 1000.0 | 120.000 | 105.0 | V | 202.0 | 0.0 |
| 162.925000 | 17.53 | 43.50 | 25.97 | 1000.0 | 120.000 | 105.0 | V | 90.0 | 0.0 |
| 420.725000 | 17.12 | 46.00 | 28.88 | 1000.0 | 120.000 | 182.0 | H | 77.0 | 0.0 |
| 433.235000 | 17.77 | 46.00 | 28.23 | 1000.0 | 120.000 | 105.0 | V | 303.0 | 0.0 |
| 933.153000 | 26.09 | 46.00 | 19.91 | 1000.0 | 120.000 | 182.0 | H | 121.0 | 0.0 |

1.4. General Limit - Radiated emissions, above 1 GHz

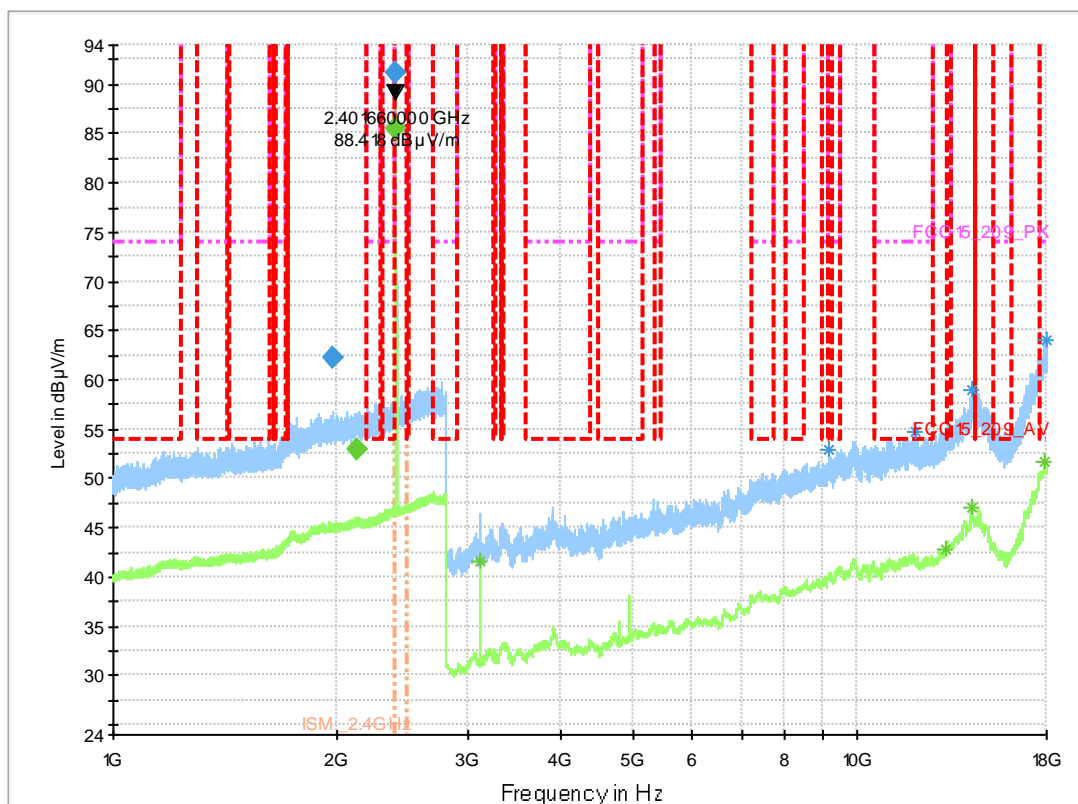
8.02a_BT_EDR_ch00_standing

Common Information

| | |
|-------------------------|--|
| Test Description: | Radiated Spurious Emissions Bluetooth/WLAN 2.4GHz ISM band |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FAR2 FCC Part 15.247, |
| Environment Conditions: | Humidity: 48%rH; Temperature: 18°C |
| Operator Name: | DLe |
| Comment: | DUT Standing |

EUT Information

| | |
|--------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Connected Devices: | -- |



8.02b_BT_EDR_ch00_laying

Common Information

| | |
|-------------------------|--|
| Test Description: | Radiated Spurious Emissions Bluetooth/WLAN 2.4GHz ISM band |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | FAR2 FCC Part 15.247, |
| Environment Conditions: | Humidity: 48%RH; Temperature: 18°C |
| Operator Name: | DLe |
| Comment: | DUT Laying |

EUT Information

| | |
|--------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Connected Devices: | -- |

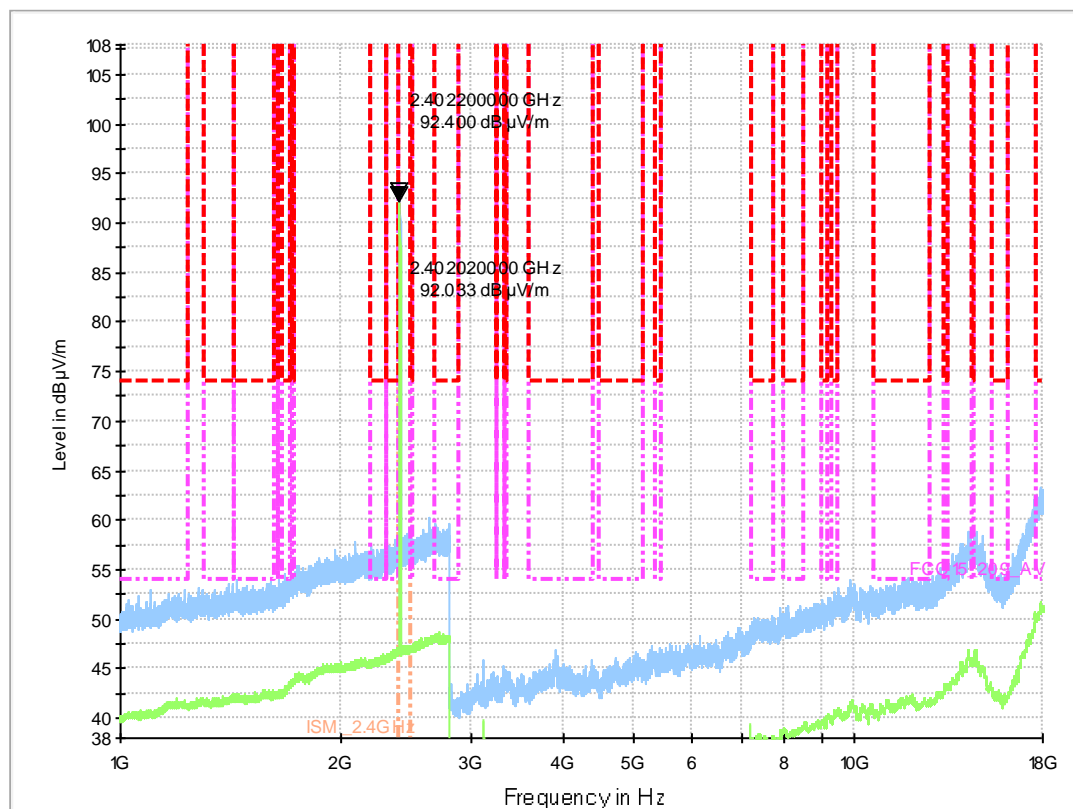
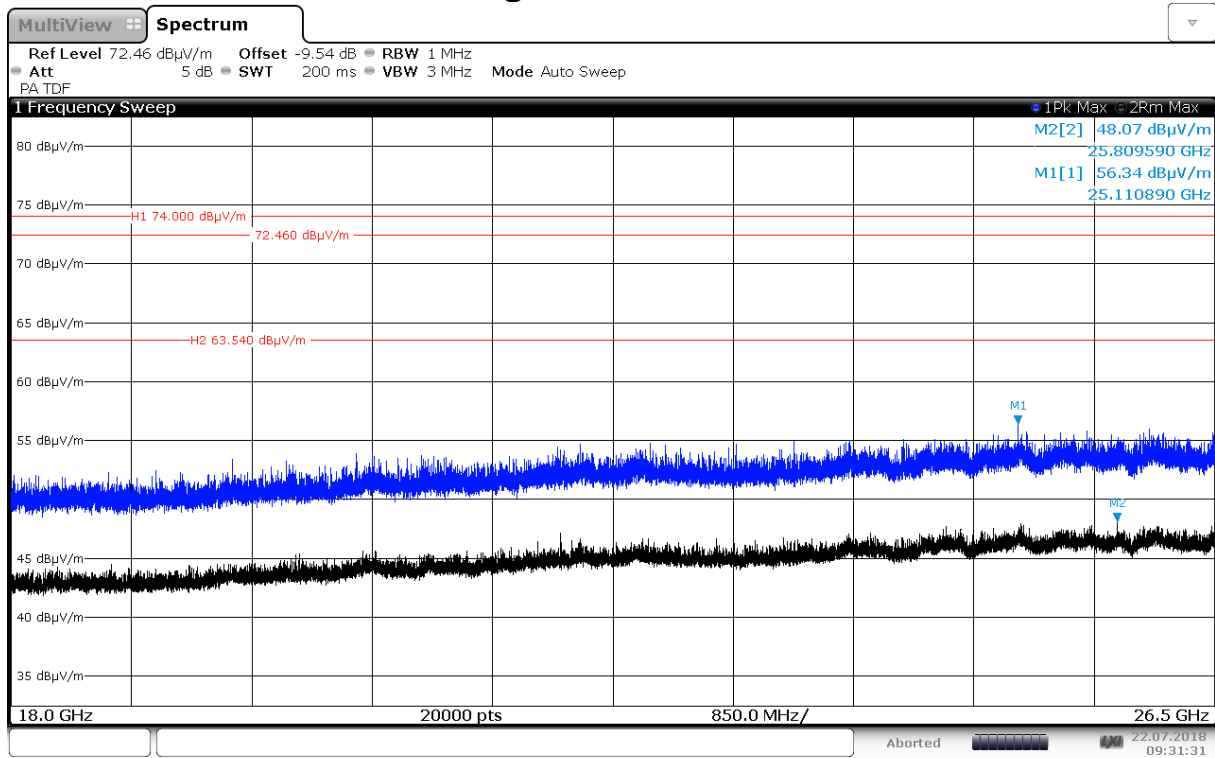


Diagram No.: 4.10c



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1.5. RF-Parameter - Band Edge compliance measurements

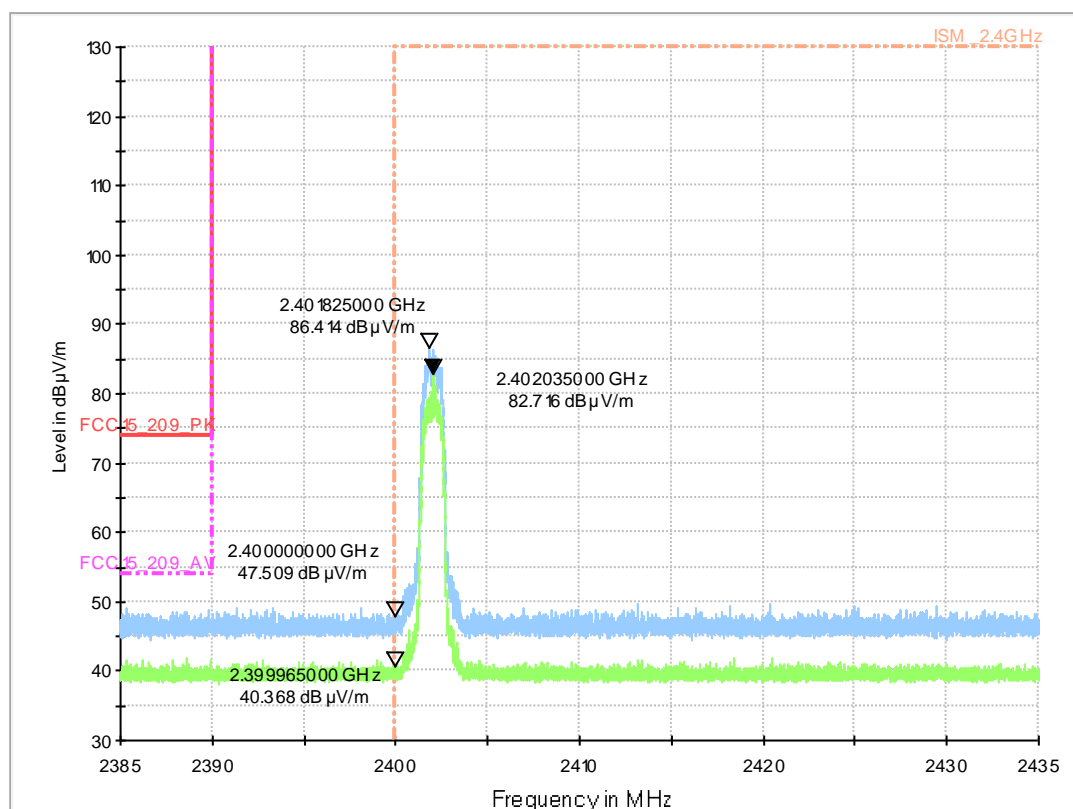
9.02a_BT_EDR_ch00_laying

Common Information

| | |
|-------------------------|------------------------------------|
| Test Description: | Band edge BT-EDR |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | |
| Environment Conditions: | Humidity: 48%rH; Temperature: 18°C |
| Operator Name: | TFR |

EUT Information

| | |
|-------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Conected Devices: | -- |



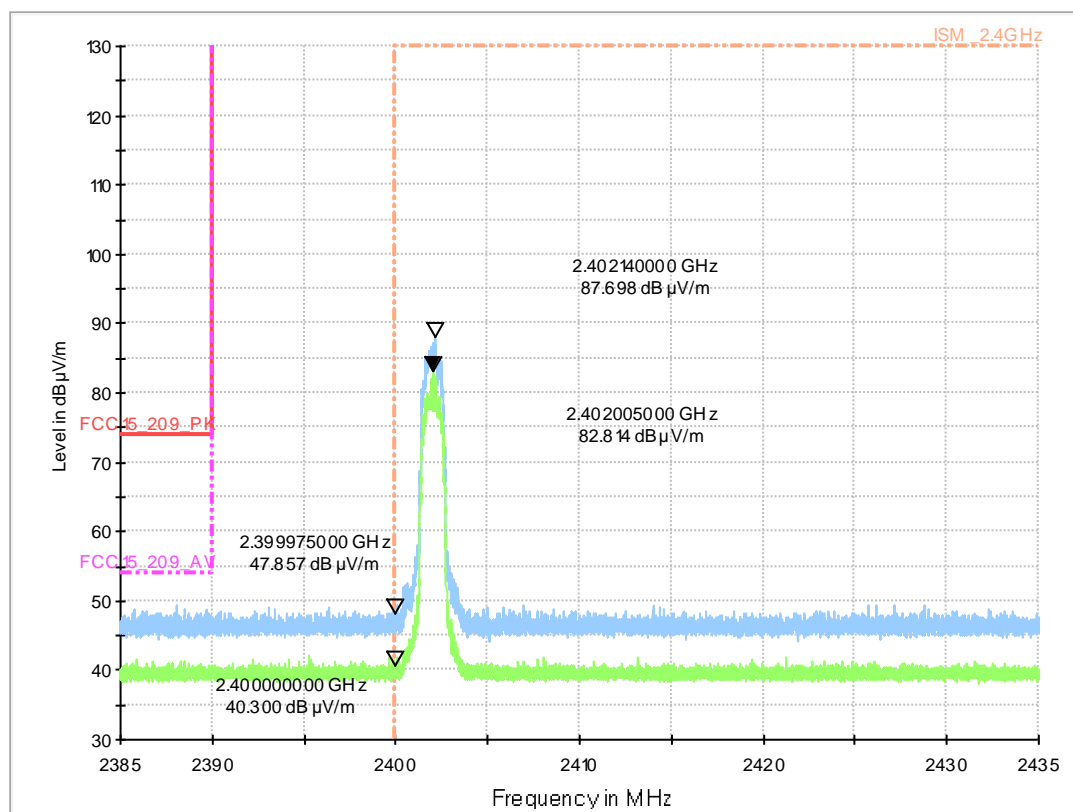
9.02a_BT_EDR_ch00_standing

Common Information

| | |
|-------------------------|------------------------------------|
| Test Description: | Band edge BT-EDR |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | |
| Environment Conditions: | Humidity: 48%rH; Temperature: 18°C |
| Operator Name: | TFr |

EUT Information

| | |
|--------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Connected Devices: | -- |



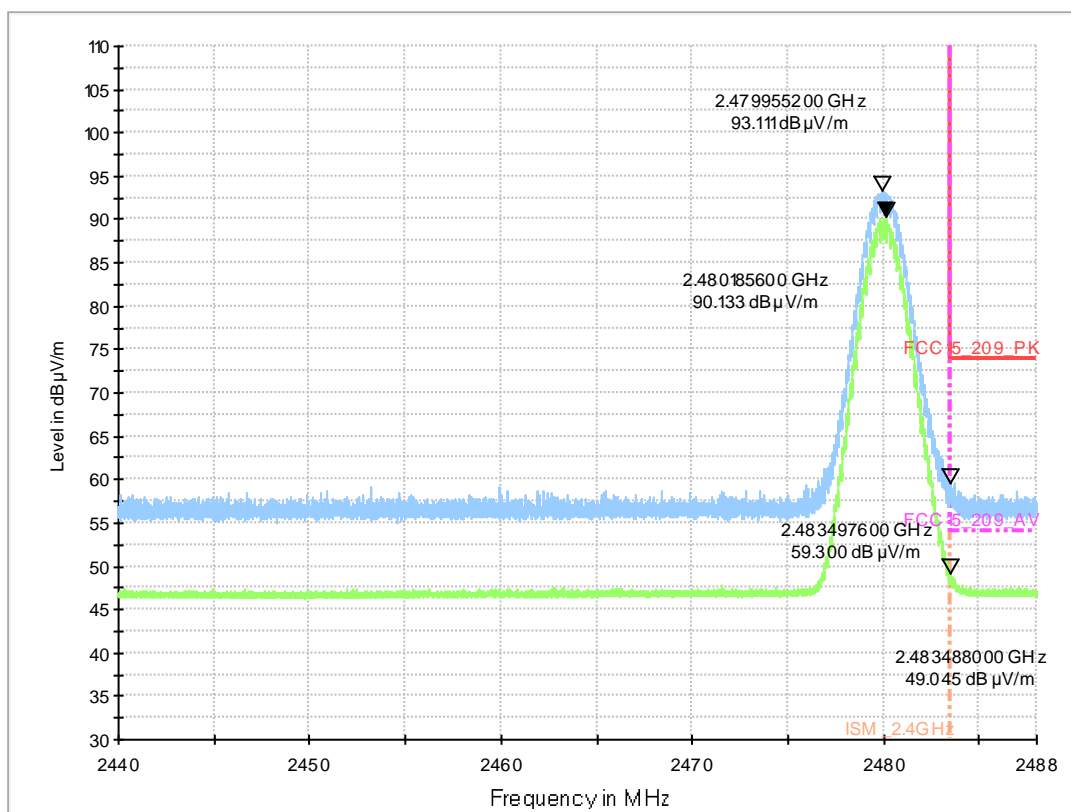
9.02b_BT_EDR_ch78_laying

Common Information

| | |
|-------------------------|------------------------------------|
| Test Description: | Band edge BT-EDR |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | |
| Environment Conditions: | Humidity: 48%RH; Temperature: 18°C |
| Operator Name: | TFr |

EUT Information

| | |
|--------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Connected Devices: | -- |



9.02b_BT_EDR_ch78_standing

Common Information

| | |
|-------------------------|------------------------------------|
| Test Description: | Band edge BT-EDR |
| Test Site: | CETECOM GmbH Essen |
| Test Standard: | |
| Environment Conditions: | Humidity: 48%RH; Temperature: 18°C |

EUT Information

| | |
|--------------------|-----------------------------|
| Manufacturer: | Robert Bosch Car Multimedia |
| Product: | AIVIL12F0 |
| EUT Model: | AIVIL12F0 |
| HW: | 001 |
| SW: | X317 |
| Serial Nr.: | 0007625 |
| Connected Devices: | -- |

