

Annex 1: Measurement diagrams to  
**TEST REPORT**  
No.: 17-1-0165401T03

According to:  
**FCC Regulations**  
Part 22, Part 24, Part 27

for

Peiker acoustic GmbH

Telematic Device  
ATM-02-US-R1

**FCC: QWY-ATM2\_R-11**

| Laboratory Accreditation and Listings                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                   |                                                                                                                                                                        |                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>DAkkS</b><br>Deutsche<br>Akkreditierungsstelle<br>D-PL-12047-01-01                                                                                                                                                                                                                                                          | <br>FEDERAL COMMUNICATIONS COMMISSION<br><b>FCC</b><br>USA • MEXICO • CANADA<br>MRA US-EU 0003 | <br>Industry Canada<br>Reg. No.: 3462D-1<br>Reg. No.: 3462D-2<br>Reg. No.: 3462D-3 | <br>Voluntary Controls for<br>Electromagnetic Emissions<br>Reg. No.:<br>R-2666 C-2914,<br>T-1967, G-301 |
| <br><b>WiFi</b><br>ALLIANCE<br>AUTHORIZED<br>RF LABORATORY                                                                                                                                                                                                                                                                         | <br><b>ctia</b> Authorized™<br>Test Lab<br>Lab Code: 20011130-00                               |                                                                                                                                                                        |                                                                                                                                                                                              |
| accredited according to DIN EN ISO/IEC 17025                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                   |                                                                                                                                                                        |                                                                                                                                                                                              |
| <p><b>CETECOM GmbH</b><br/>Laboratory Radio Communications &amp; Electromagnetic Compatibility<br/>Im Teelbruch 116 • 45219 Essen • Germany<br/>Registered in Essen, Germany, Reg. No.: HRB Essen 8984<br/>Tel.: + 49 (0) 20 54 / 95 19-954 • Fax: + 49 (0) 20 54 / 95 19-964<br/>E-mail: <a href="mailto:info@cetecom.com">info@cetecom.com</a> • Internet: <a href="http://www.cetecom.com">www.cetecom.com</a></p> |                                                                                                                                                                                   |                                                                                                                                                                        |                                                                                                                                                                                              |

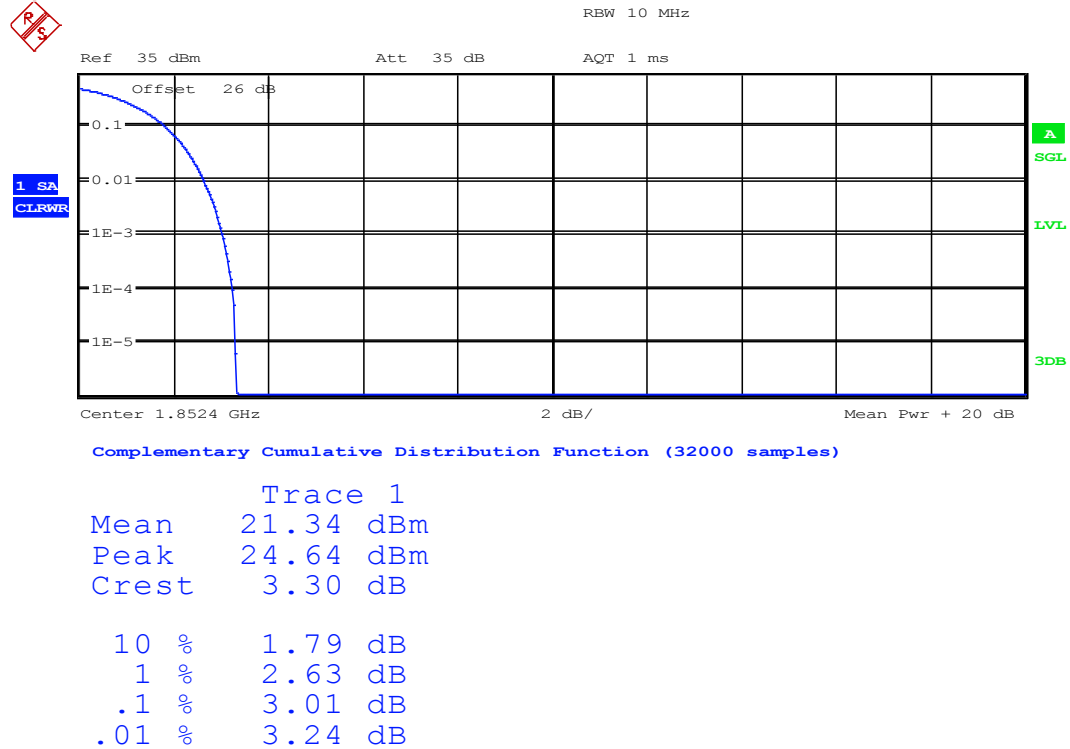
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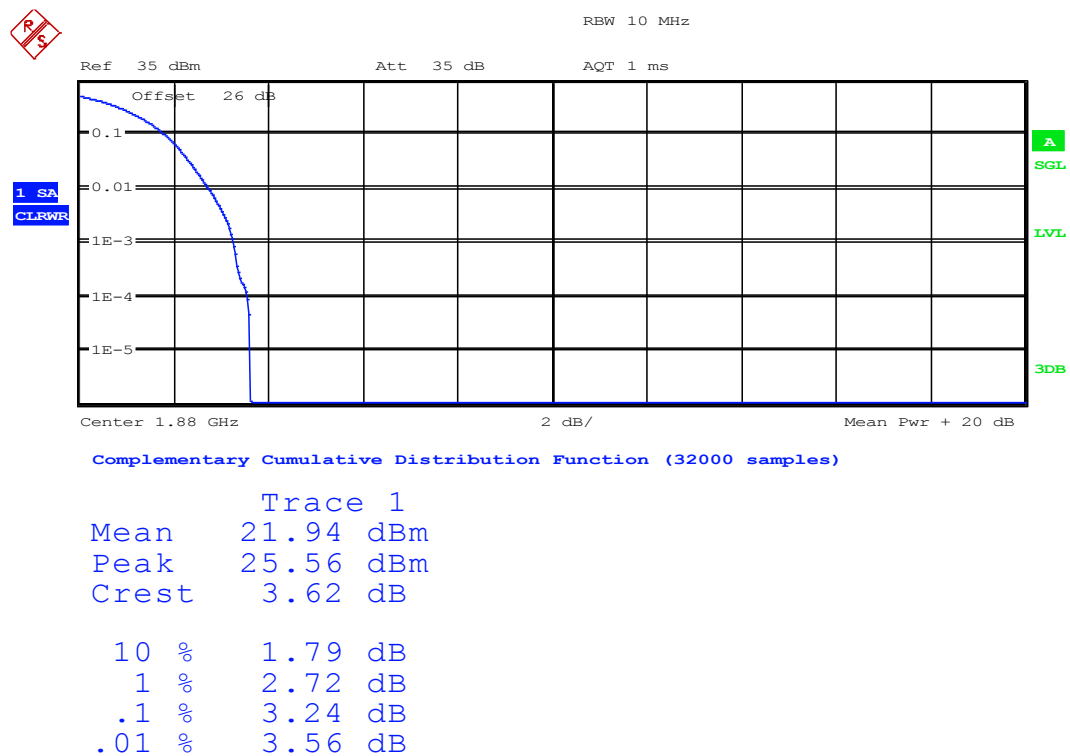
## 1. Measurement diagrams

### 1.1. Peak power output and PAPR-Value

#### 1.1.1. FDD Band II



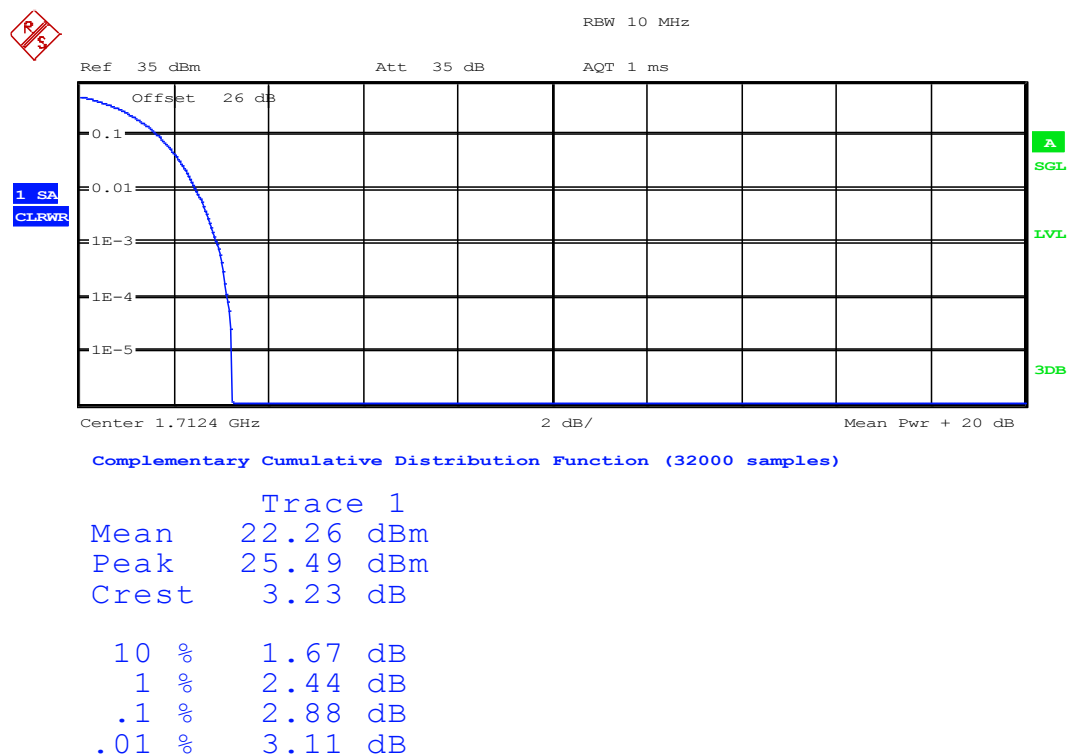
#### Diagram CCDF\_Ch\_9262



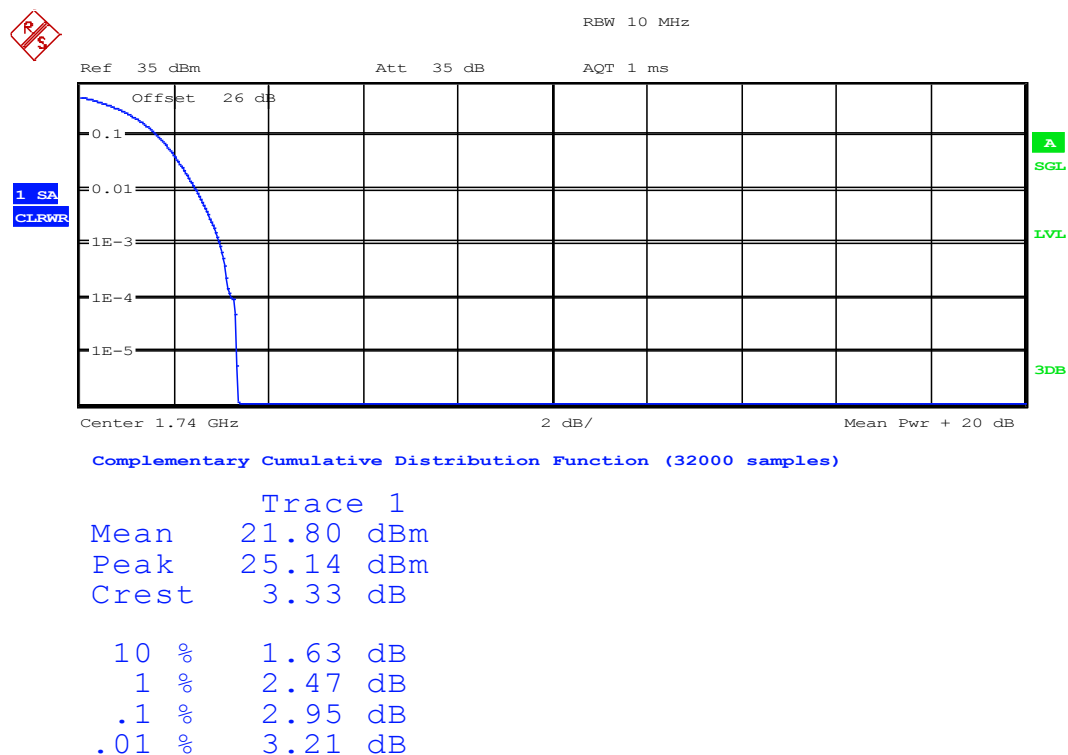
#### Diagram CCDF\_Ch\_9400



## 1.1.2. FDD Band IV



## Diagram CCDF\_Ch\_1312



## Diagram CCDF\_Ch\_1450

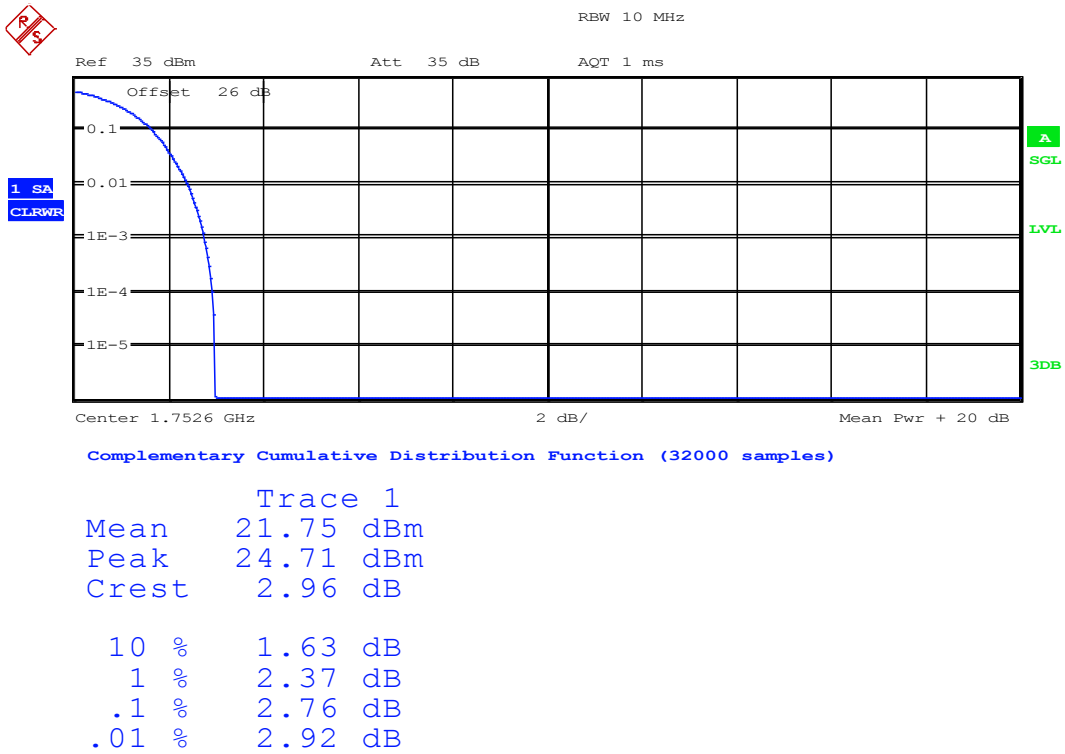


Diagram CCDF\_Ch\_1513

## 1.1.3. FDD Band 5

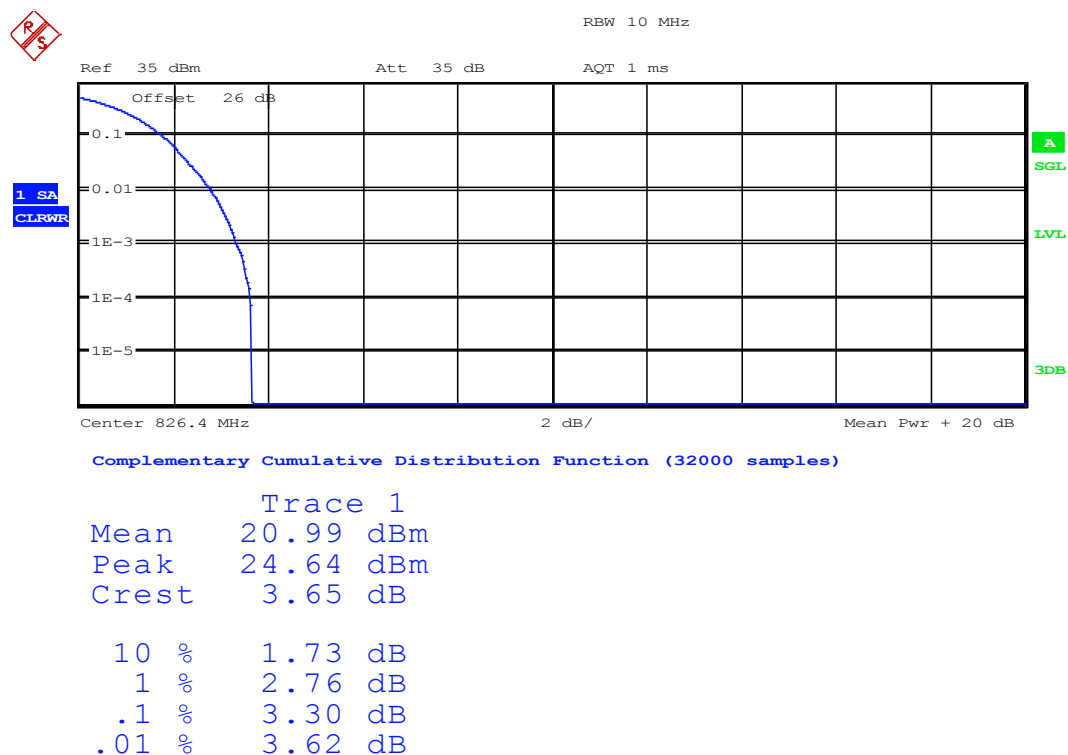


Diagram CCDF\_Ch\_4132

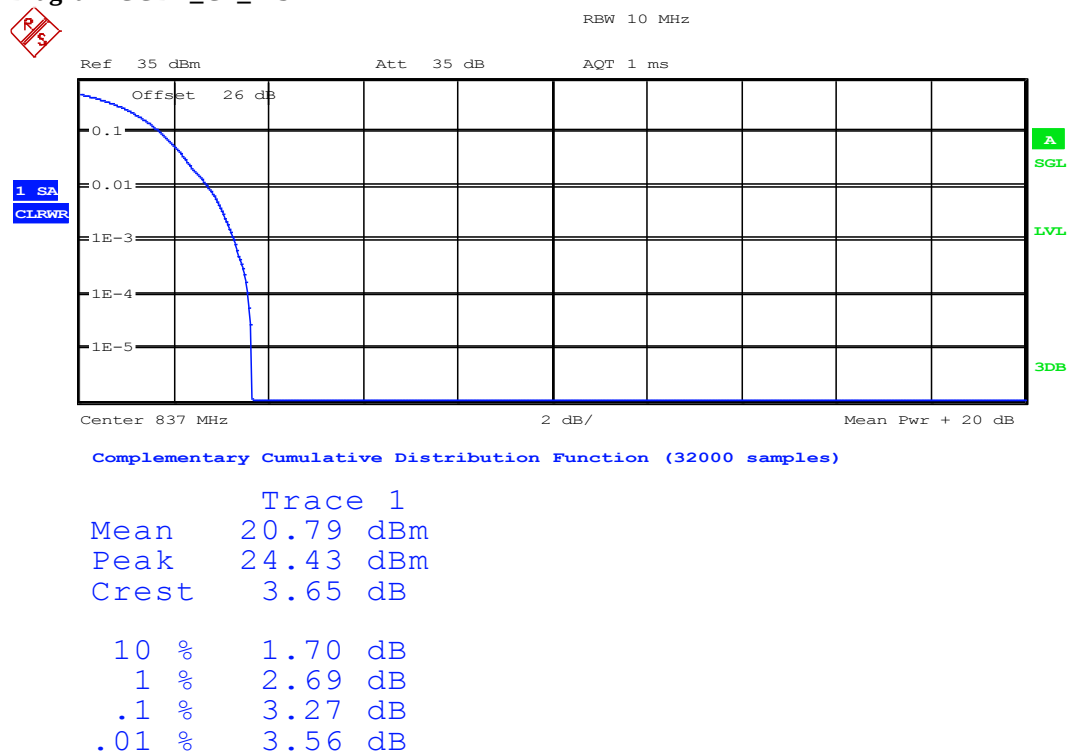


Diagram CCDF\_Ch\_4185





## 1.2. Magnetic field emissions radiated FDD Band II,IV and V transmitting mode

### 2.01a\_UMTS\_FDDII\_CH9538\_laying

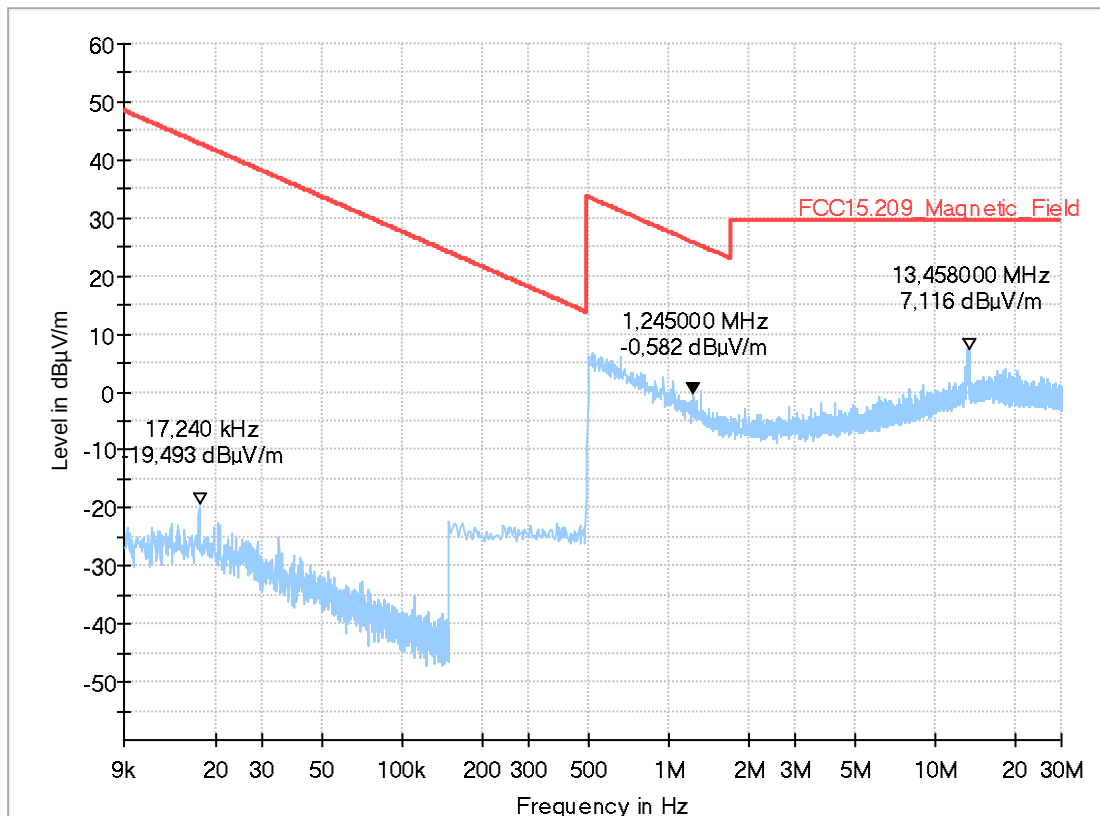
#### Common Information

|                         |                                                                     |
|-------------------------|---------------------------------------------------------------------|
| Test Description:       | Magnetic Field Strength Measurement related to 30/300m distance     |
| Test site and distance  | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware | EMC32 V9.25.0                                                       |
| Rec antenna             | height 1.00m parallel and 90° to EUT polarisation                   |
| Used filter             | bypass                                                              |
| Test Specification      | FCC 15.205 § 15.209;RSS-Gen: Issue 4                                |
| Operating mode          | UMTS FDD II CH 9538                                                 |
| Operating Conditions:   | Humidity: 38%rH, Temperature: 20°C                                  |
| Operator Name:          | Klv                                                                 |
| Comment:                | laying                                                              |

#### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 2.01b\_UMTS\_FDDII\_CH9538\_standing

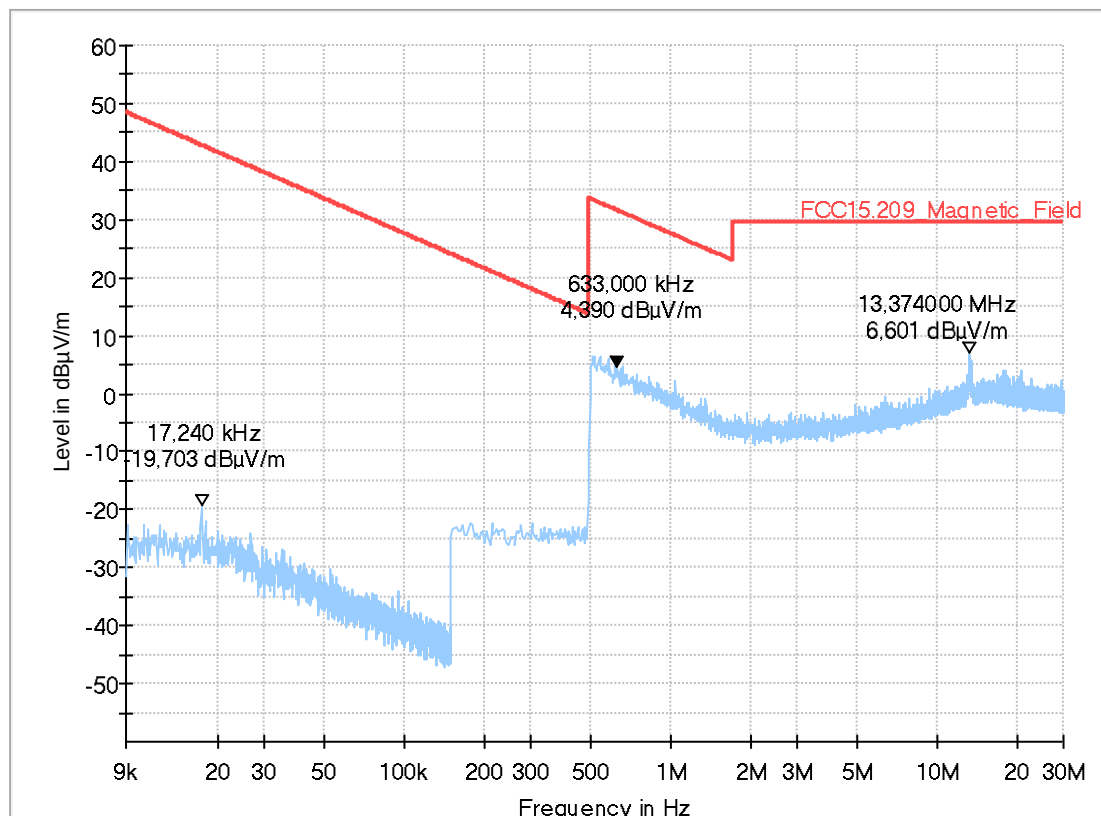
### Common Information

|                         |                                                                     |
|-------------------------|---------------------------------------------------------------------|
| Test Description:       | Magnetic Field Strength Measurement related to 30/300m distance     |
| Test site and distance  | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware | EMC32 V9.25.0                                                       |
| Rec antenna             | height 1.00m parallel and 90° to EUT polarisation                   |
| Used filter             | bypass                                                              |
| Test Specification      | FCC 15.205 § 15.209;RSS-Gen: Issue 4                                |
| Operating mode          | UMTS FDD II CH 9538                                                 |
| Operating Conditions:   | Humidity: 38%rH, Temperature: 20°C                                  |
| Operator Name:          | Klv                                                                 |
| Comment:                | Standing                                                            |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 2.02a\_UMTS\_FDDIV\_CH1450\_standing

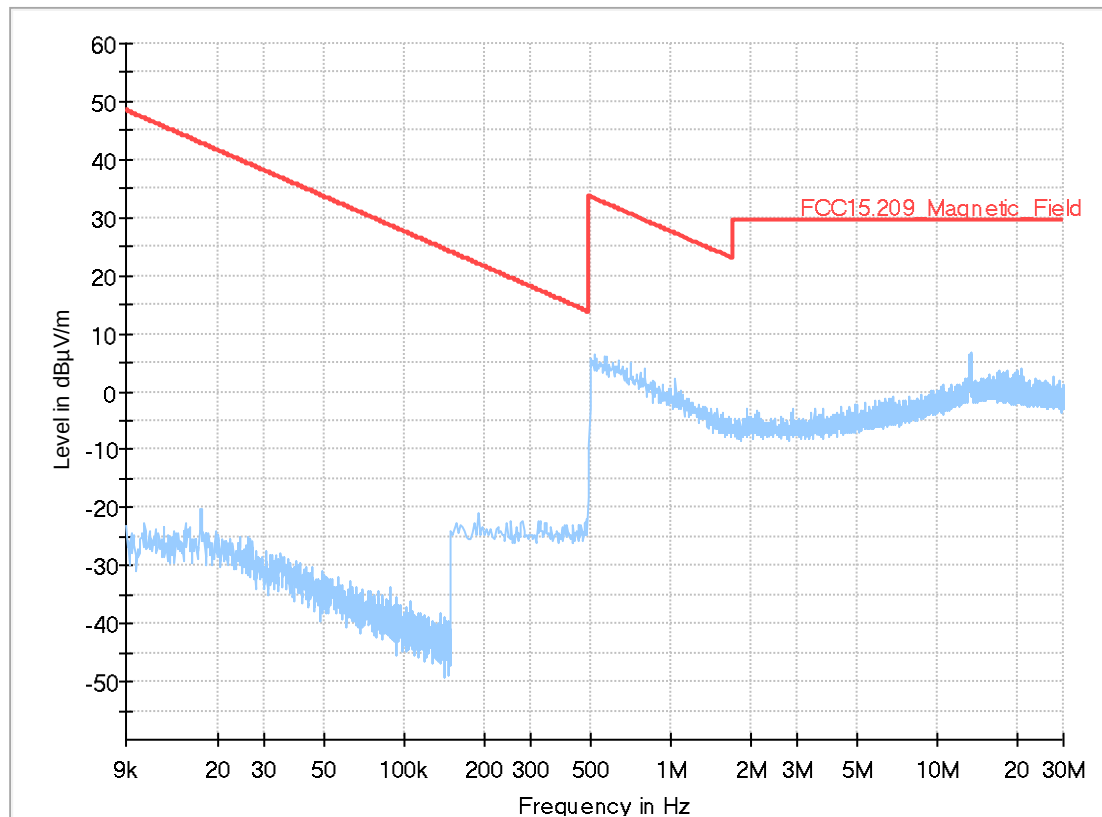
### Common Information

|                         |                                                                     |
|-------------------------|---------------------------------------------------------------------|
| Test Description:       | Magnetic Field Strength Measurement related to 30/300m distance     |
| Test site and distance  | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware | EMC32 V9.25.0                                                       |
| Rec antenna             | height 1.00m parallel and 90° to EUT polarisation                   |
| Used filter             | bypass                                                              |
| Test Specification      | FCC 15.205 § 15.209;RSS-Gen: Issue 4                                |
| Operating mode          | UMTS FDD IV CH 1450                                                 |
| Operating Conditions:   | Humidity: 38%rH, Temperature: 20°C                                  |
| Operator Name:          | DLe                                                                 |
| Comment:                | Standing                                                            |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 2.02b\_UMTS\_FDDIV\_CH1450\_laying

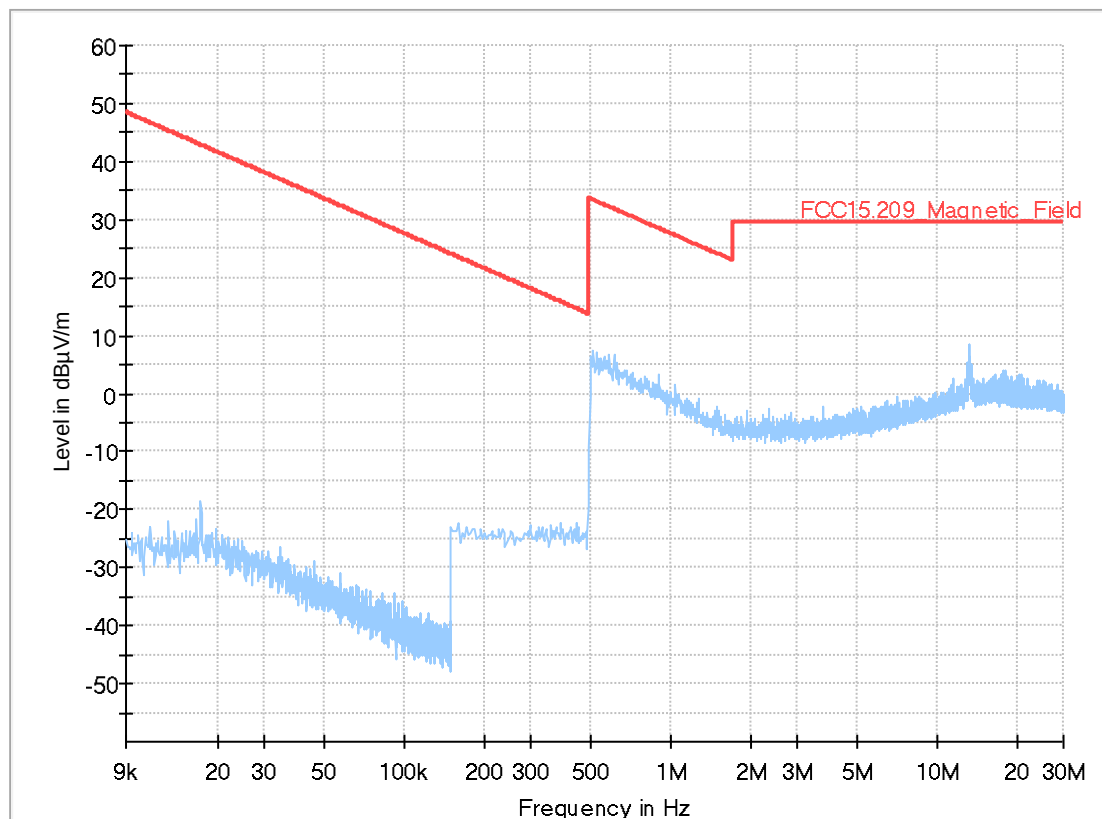
### Common Information

|                         |                                                                     |
|-------------------------|---------------------------------------------------------------------|
| Test Description:       | Magnetic Field Strength Measurement related to 30/300m distance     |
| Test site and distance  | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware | EMC32 V9.25.0                                                       |
| Rec antenna             | height 1.00m parallel and 90° to EUT polarisation                   |
| Used filter             | bypass                                                              |
| Test Specification      | FCC 15.205 § 15.209;RSS-Gen: Issue 4                                |
| Operating mode          | UMTS FDD IV CH 1450                                                 |
| Operating Conditions:   | Humidity: 38%rH, Temperature: 20°C                                  |
| Operator Name:          | DLe                                                                 |
| Comment:                | DUT Laying                                                          |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 2.03a\_UMTS\_FDDV\_CH4233\_laying

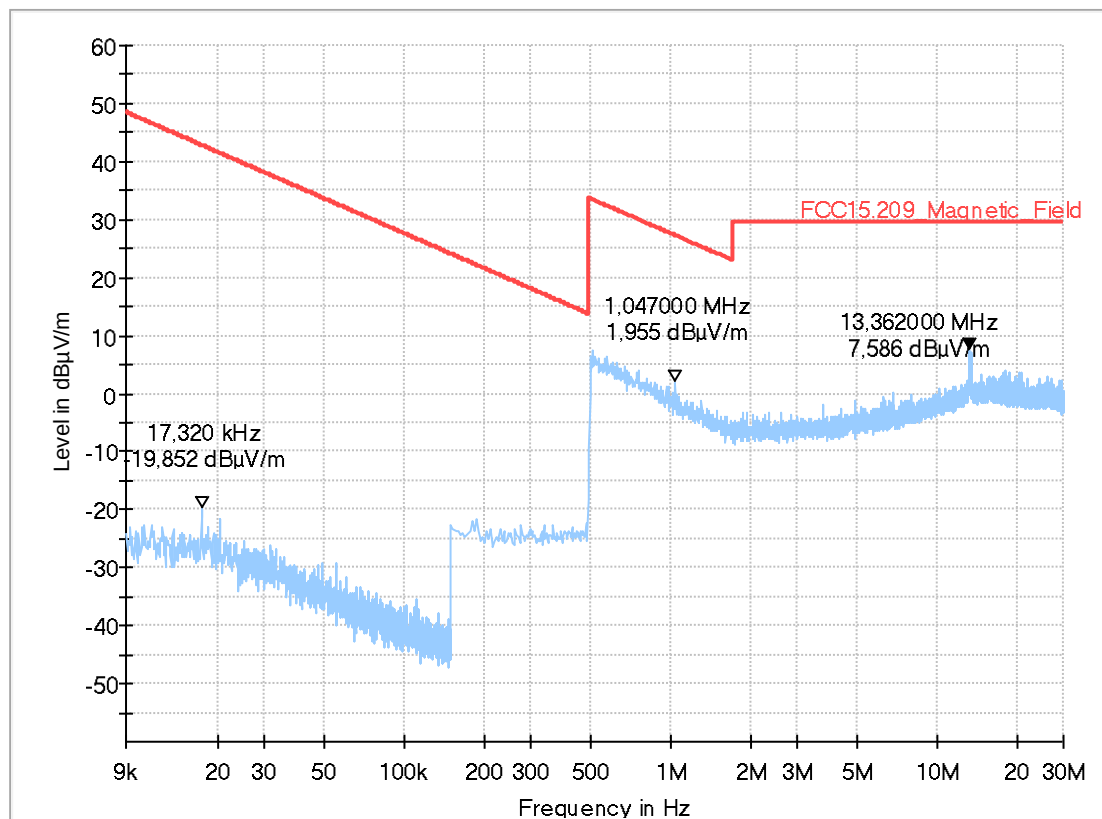
### Common Information

|                         |                                                                     |
|-------------------------|---------------------------------------------------------------------|
| Test Description:       | Magnetic Field Strength Measurement related to 30/300m distance     |
| Test site and distance  | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware | EMC32 V9.25.0                                                       |
| Rec antenna             | height 1.00m parallel and 90° to EUT polarisation                   |
| Used filter             | bypass                                                              |
| Test Specification      | FCC 15.205 § 15.209;RSS-Gen: Issue 4                                |
| Operating mode          | UMTS FDD V CH 4233                                                  |
| Operating Conditions:   | Humidity: 38%rH, Temperature: 20°C                                  |
| Operator Name:          | Klv                                                                 |
| Comment:                | laying                                                              |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 2.03b\_UMTS\_FDDV\_CH4233\_standing

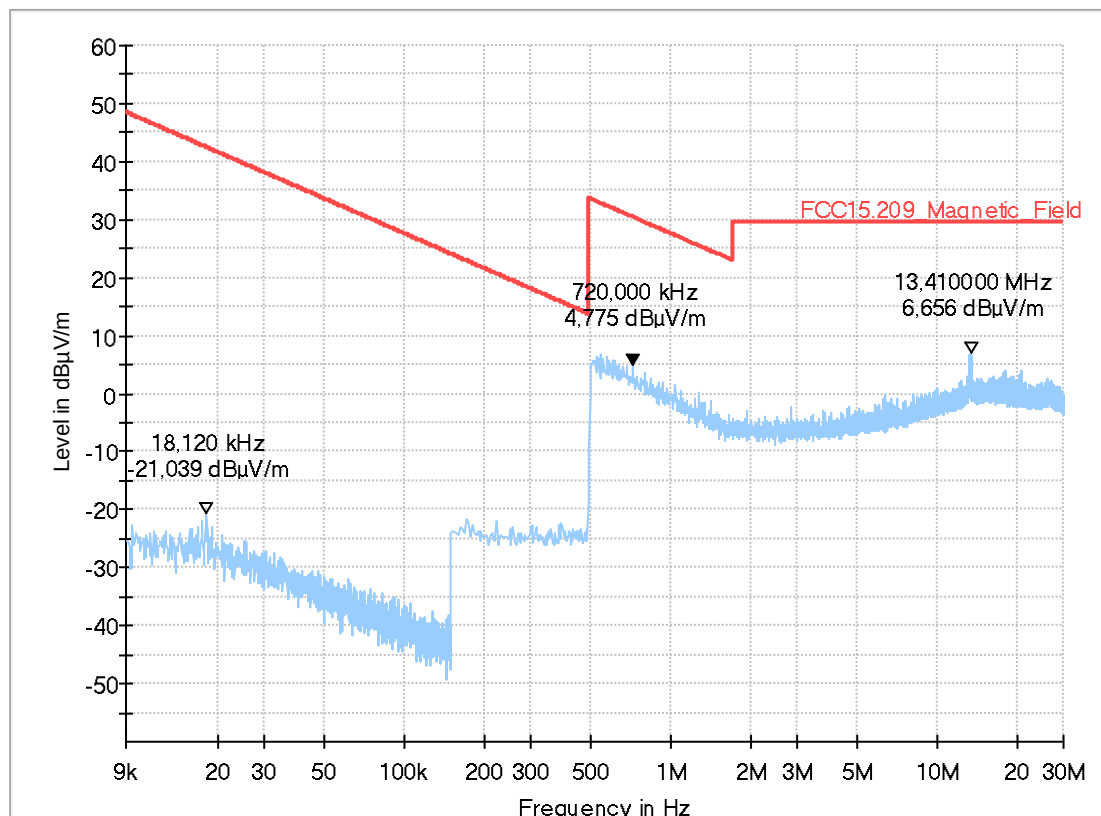
### Common Information

|                         |                                                                     |
|-------------------------|---------------------------------------------------------------------|
| Test Description:       | Magnetic Field Strength Measurement related to 30/300m distance     |
| Test site and distance  | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware | EMC32 V9.25.0                                                       |
| Rec antenna             | height 1.00m parallel and 90° to EUT polarisation                   |
| Used filter             | bypass                                                              |
| Test Specification      | FCC 15.205 § 15.209;RSS-Gen: Issue 4                                |
| Operating mode          | UMTS FDD V CH 4233                                                  |
| Operating Conditions:   | Humidity: 38%rH, Temperature: 20°C                                  |
| Operator Name:          | Klv                                                                 |
| Comment:                | Standing                                                            |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



### 1.3. Spurious emissions radiated FDD Band II transmitting mode

#### 1.3.1. Radiated emissions on (FDD Band II transmitting mode) Main Antenna

## 8.01\_UMTS\_FDDII\_CH9538

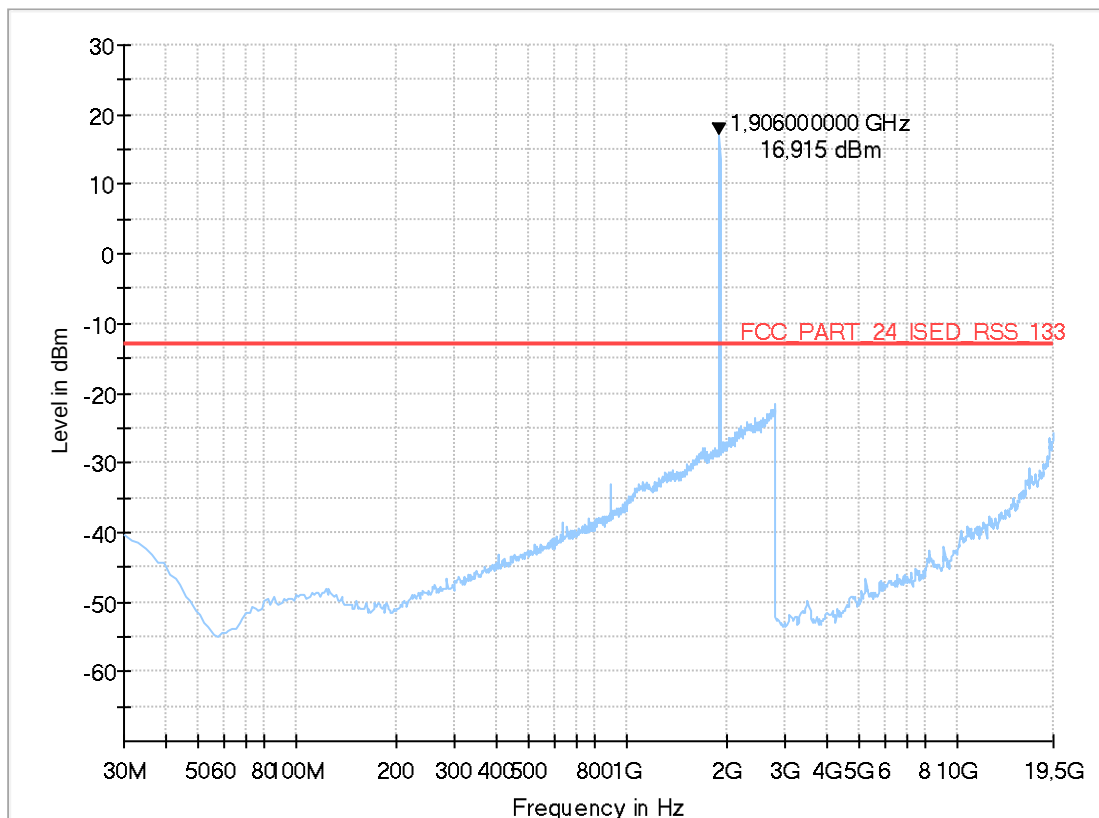
### Common Information

|                           |                                    |
|---------------------------|------------------------------------|
| Test Description:         | Radiated emission related to 1m    |
| Test Site:                | FAR                                |
| Test Standard:            | FCC FCC Part 24.238 Broadband PCS  |
| Antenna polarisation:     | vertical / horizontal              |
| Environmental Conditions: | Humidity: 50%rH; Temperature: 20°C |
| Operation mode:           | UMTS_Band 2_CH:9538                |
| Operator Name:            | TFr                                |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 1.4. Spurious emissions radiated FDD Band IV transmitting mode

### 1.4.1. Radiated emissions on (FDD Band IV transmitting mode) Main Antenna

## 8.02\_UMTS\_FDDIV\_CH1450

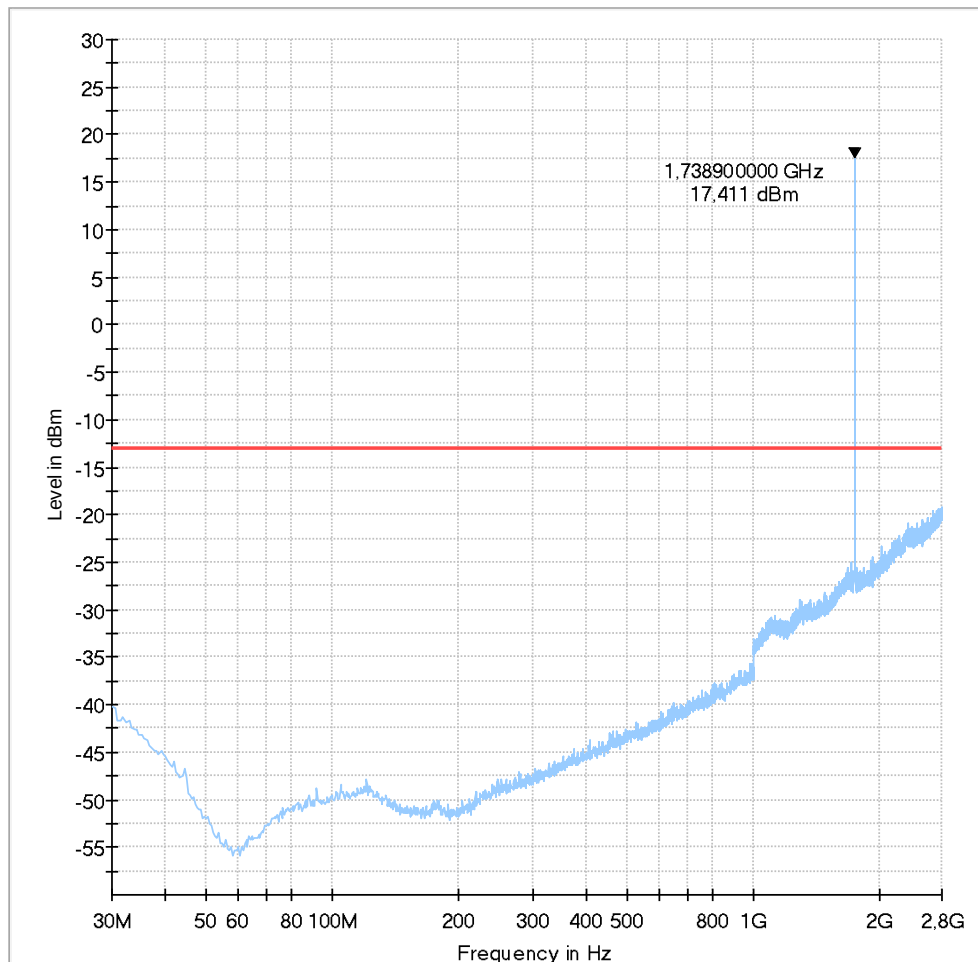
### Common Information

|                              |                                                              |
|------------------------------|--------------------------------------------------------------|
| Test Description:            | Radiated emission                                            |
| Test Site:                   | Fully-Anechoic Room                                          |
| Test Standard:               | FCC FCC Part 27.53(h) AWS emission limits / RSS-139, Issue 3 |
| Antenna polarisation:        | vertical / horizontal                                        |
| Measurement software version | EMC32 V9.26.0                                                |
| Operation mode:              | LTE Band 4, channel no=1450 BW= RB= Modulation=              |
| Operator Name:               | TFra                                                         |
| Comment:                     | 30Mhz-2,8GHz                                                 |

### EUT Information

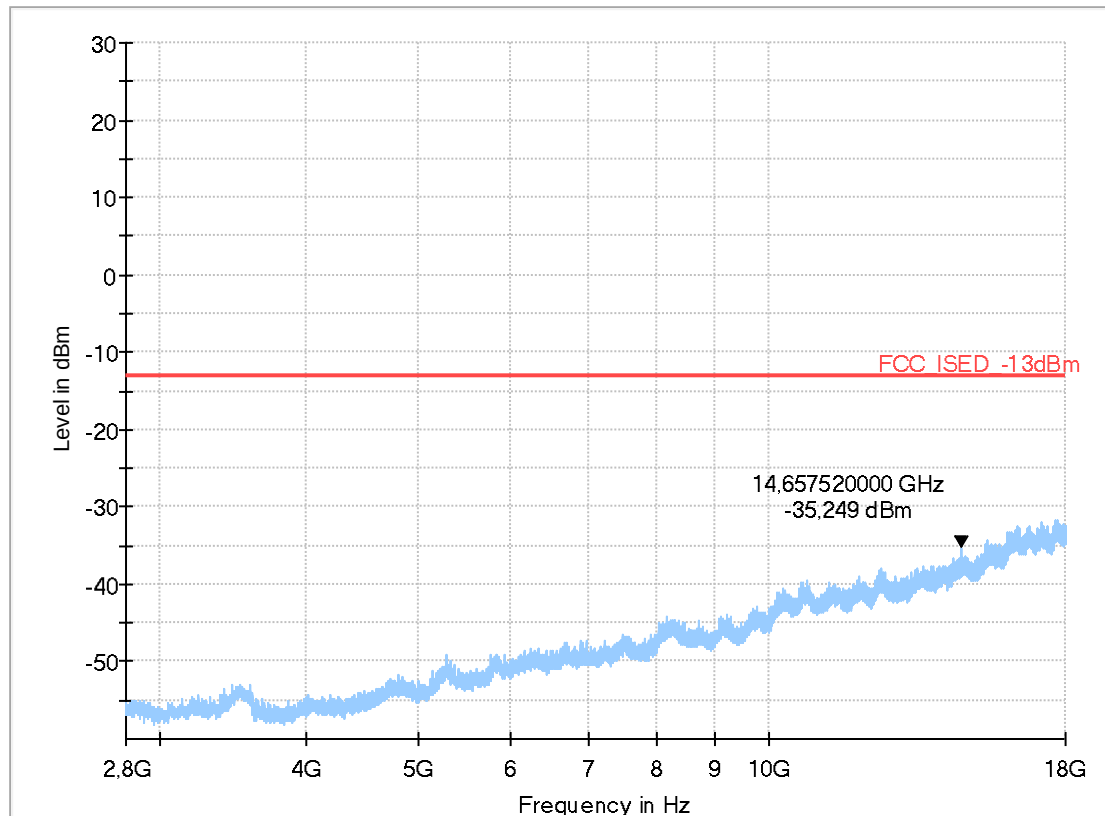
|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum





Full Spectrum



## 1.5. Spurious emissions radiated FDD Band V transmitting mode

### 1.5.1. Radiated emissions on (FDD Band V transmitting mode) Main Antenna

## 8.03\_UMTS\_FDDV\_CH4233

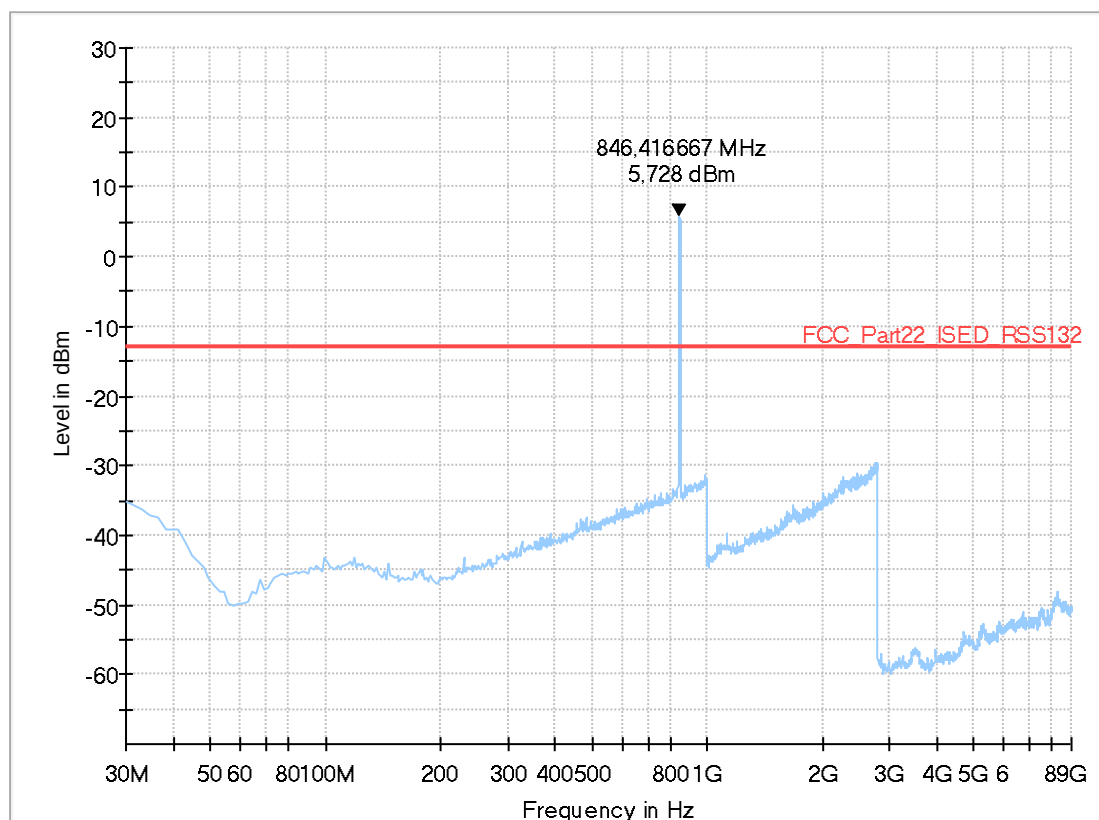
### Common Information

|                       |                                   |
|-----------------------|-----------------------------------|
| Test Description:     | Radiated emission related to 1m   |
| Test Site:            | FAR                               |
| Test Standard:        | FCC FCC Part 24.238 Broadband PCS |
| Antenna polarisation: | vertical / horizontal             |
| Operation mode:       | UMTS_Band 5_CH:4233               |
| Operator Name:        | TFR                               |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 1.6. Radiated emissions on FDD Band II band-edge

### 1.6.1. Radiated emissions on (FDD Band II band-edge) Main Antenna

#### 9.01a\_UMTS\_FDDII\_BE\_Ch9262\_RMC

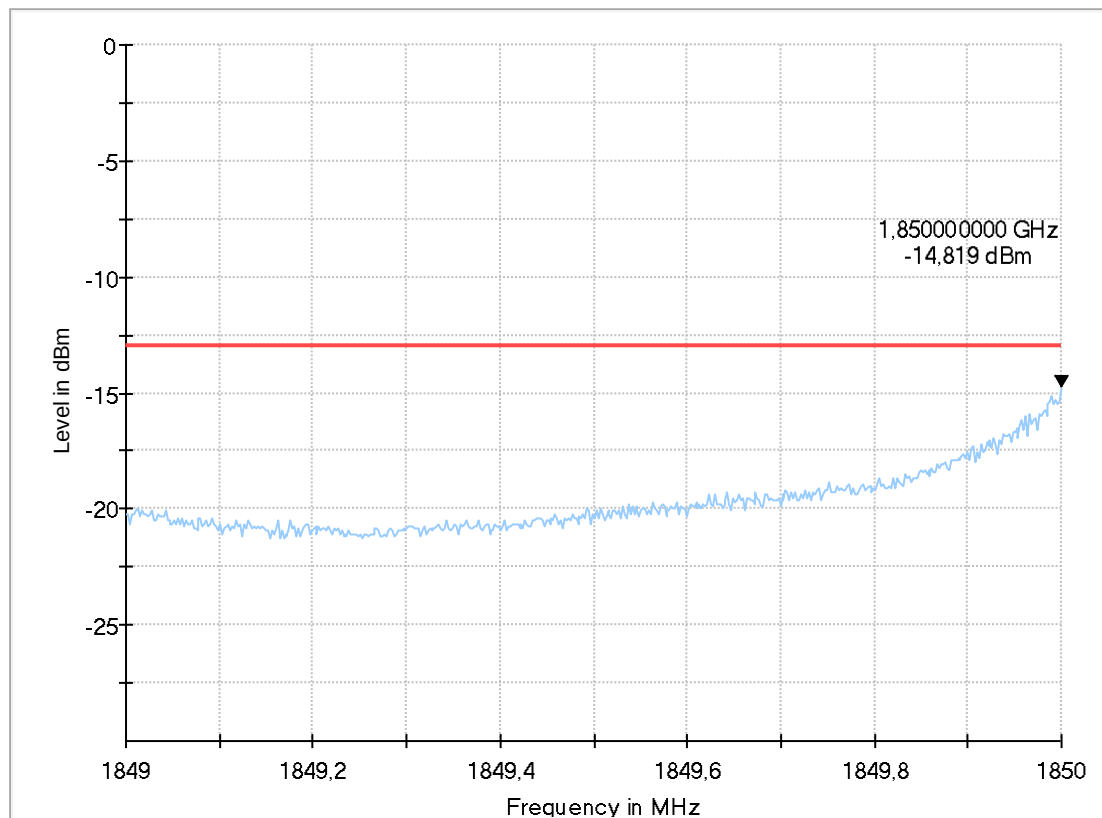
##### Common Information

|                           |                                           |
|---------------------------|-------------------------------------------|
| Test Description:         | Radiated Band Edge Compliance UMTS FDDII  |
| Test Site Location:       | CETECOM GmbH Essen                        |
| Test Site:                | Fully Anechoic Room (FAR)                 |
| Operating Mode:           | MS allocated channel 9262 (fc = 1852 MHz) |
| Environmental Conditions: | Humidity: 40%rH; Temperature: 20°C        |
| Operator:                 | TFra                                      |

##### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| <hr/>                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 9.01b\_UMTS\_FDDII\_BE\_Ch9538\_RMC

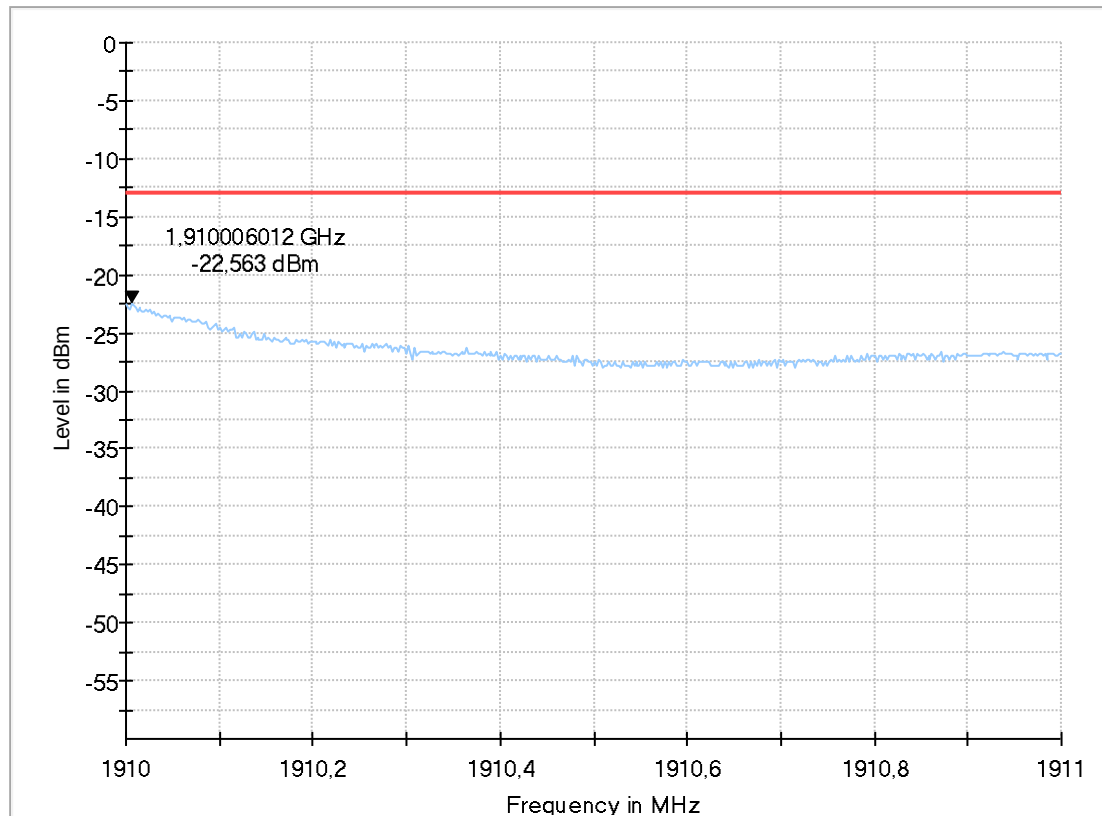
### Common Information

|                           |                                           |
|---------------------------|-------------------------------------------|
| Test Description:         | Radiated Band Edge Compliance UMTS FDDII  |
| Test Site Location:       | CETECOM GmbH Essen                        |
| Test Site:                | Fully Anechoic Room (FAR)                 |
| Operating Mode:           | MS allocated channel 9538 (fc = 1852 MHz) |
| Environmental Conditions: | Humidity: 40%rH; Temperature: 20°C        |
| Operator:                 | TFra                                      |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| <hr/>                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 1.7. Radiated emissions on FDD Band IV band-edge

### 1.7.1. Radiated emissions on (FDD Band IV band-edge ) Main Antenna

#### 9.03a\_UMTS\_FDDIV\_BE\_Ch1312\_RMC

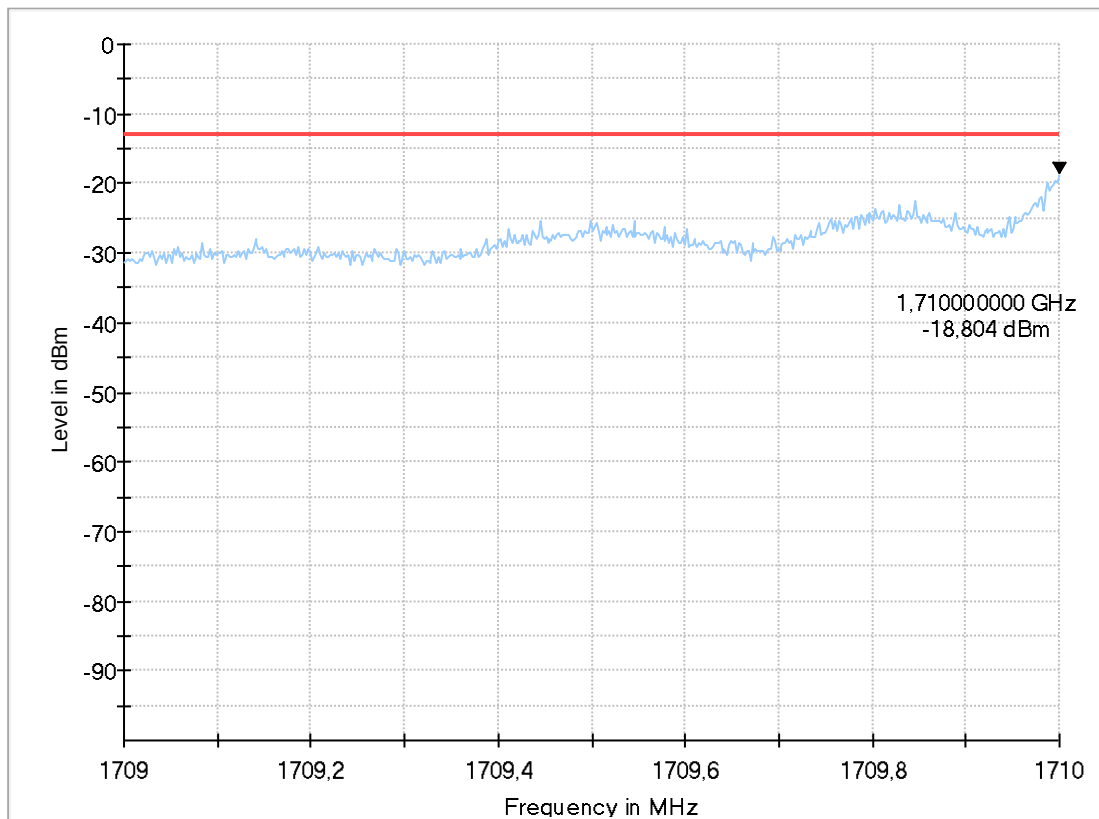
##### Common Information

|                           |                                                       |
|---------------------------|-------------------------------------------------------|
| Test Description:         | Band-Edge low - Radiated Spurious Emissions UMTS FDDV |
| Test Site Location:       | CETECOM GmbH Essen                                    |
| Test Site:                | Fully Anechoic Room (FAR)                             |
| Test Standard:            | FCC Part 22.917(a)                                    |
| Operating Mode:           | UE allocated channel 1312                             |
| Environmental Conditions: | Humidity: 48%rH; Temperature: 20°C                    |
| Operator:                 | TFra                                                  |
| Remarks:                  | EUT - laying/standing position                        |

##### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 9.03b\_UMTS\_FDDIV\_BE\_Ch1513\_RMC

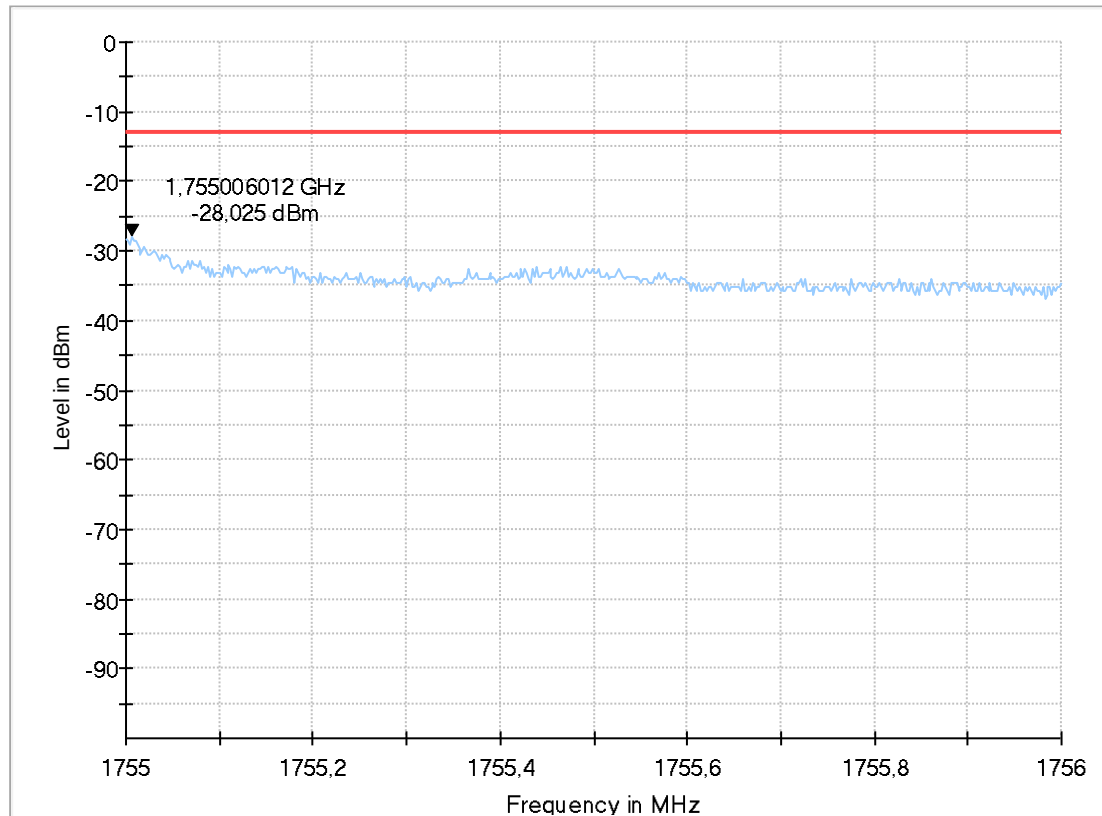
### Common Information

|                           |                                                       |
|---------------------------|-------------------------------------------------------|
| Test Description:         | Band-Edge low - Radiated Spurious Emissions UMTS FDDV |
| Test Site Location:       | CETECOM GmbH Essen                                    |
| Test Site:                | Fully Anechoic Room (FAR)                             |
| Test Standard:            | FCC Part 22.917(a)                                    |
| Operating Mode:           | UE allocated channel 1312                             |
| Environmental Conditions: | Humidity: 48%rH; Temperature: 20°C                    |
| Operator:                 | TFra                                                  |
| Remarks:                  | EUT - laying/standing position                        |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 1.8. Radiated emissions on FDD Band V band-edge

### 1.8.1. Radiated emissions on (FDD Band V band-edge) Main Antenna

## 9.05a\_UMTS\_FDDV\_BE\_Ch4132\_RMC

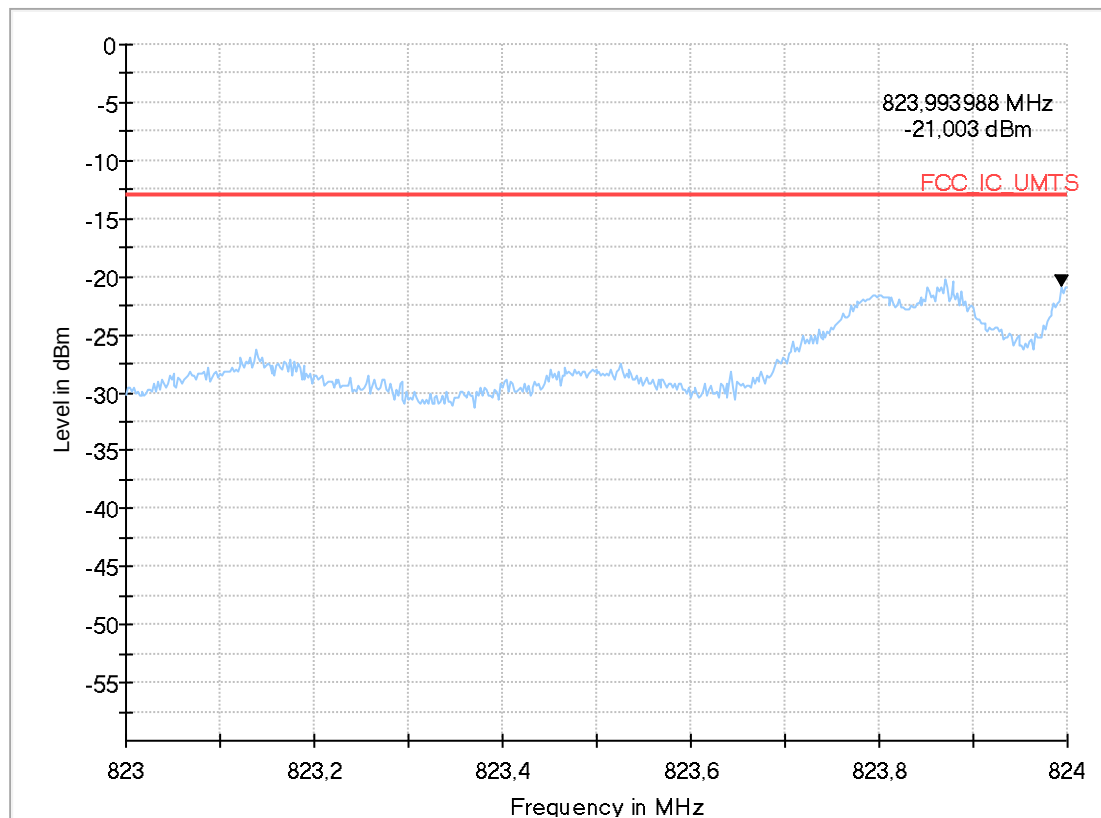
### Common Information

|                           |                                                       |
|---------------------------|-------------------------------------------------------|
| Test Description:         | Band-Edge low - Radiated Spurious Emissions UMTS FDDV |
| Test Site Location:       | CETECOM GmbH Essen                                    |
| Test Site:                | Fully Anechoic Room (FAR)                             |
| Test Standard:            | FCC Part 22.917(a)                                    |
| Operating Mode:           | UE allocated channel 4132                             |
| Environmental Conditions: | Humidity: 48%rH; Temperature: 20°C                    |
| Operator:                 | TFra                                                  |
| Remarks:                  | EUT - laying/standing position                        |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum



## 9.05b\_UMTS\_FDDV\_BE\_Ch4233\_RMC

### Common Information

|                           |                                                       |
|---------------------------|-------------------------------------------------------|
| Test Description:         | Band-Edge low - Radiated Spurious Emissions UMTS FDDV |
| Test Site Location:       | CETECOM GmbH Essen                                    |
| Test Site:                | Fully Anechoic Room (FAR)                             |
| Test Standard:            | FCC Part 22.917(a)                                    |
| Operating Mode:           | UE allocated channel 4233                             |
| Environmental Conditions: | Humidity: 48%rH; Temperature: 20°C                    |
| Operator:                 | TFra                                                  |
| Remarks:                  | EUT - laying/standing position                        |

### EUT Information

|                       |                                            |
|-----------------------|--------------------------------------------|
| Manufacturer:         | Peiker Acoustic GmbH & Co.KG a Valeo brand |
| Product:              | Telematic Device                           |
| EUT Model:            | AtM-02-US-R1-MEX                           |
| -----                 |                                            |
| HW version:           | 103.004.004                                |
| SW version:           | 001.009.020                                |
| SVN:                  | -                                          |
| Serial number:        | 4342                                       |
| Connected Interfaces: | -                                          |

Full Spectrum

