

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			
 DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	 FEDERAL COMMUNICATIONS COMMISSION FC U.S.A. 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
 WiFi ALLIANCE AUTHORIZED RF LABORATORY	 ctia Authorized TM Test Lab Lab Code: 20011130-00		
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>			

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1. Measurement diagrams

1.1. Peak power output and PAPR-Value

1.1.1. FDD Band II

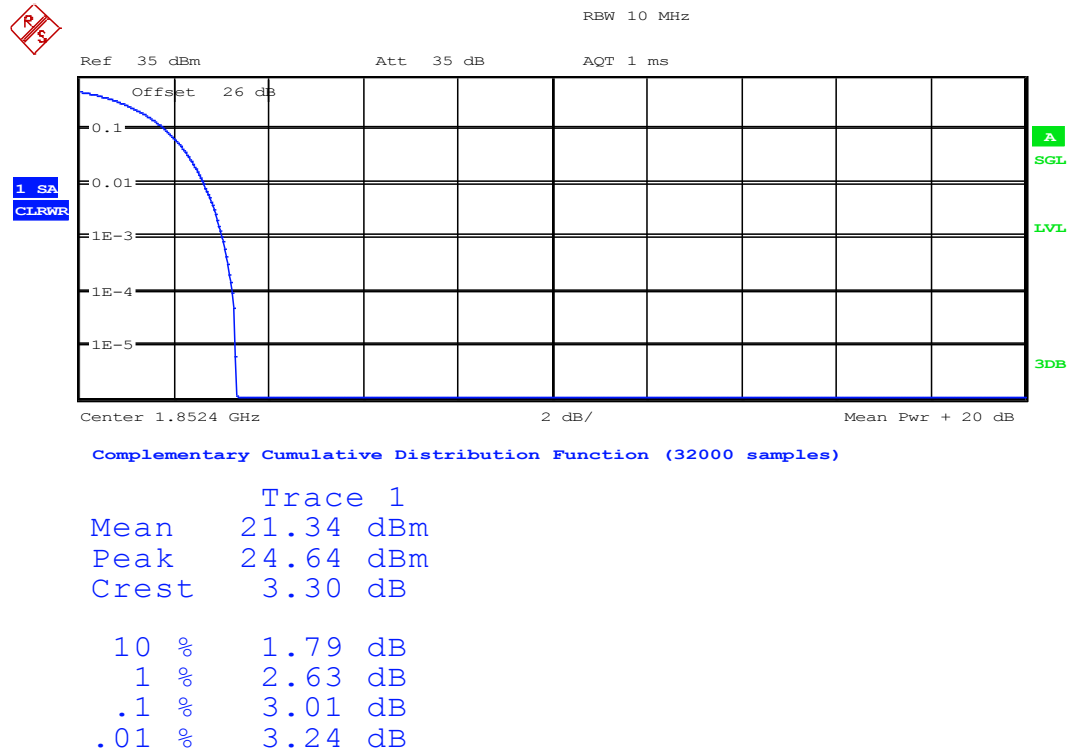


Diagram CCDF_Ch_9262

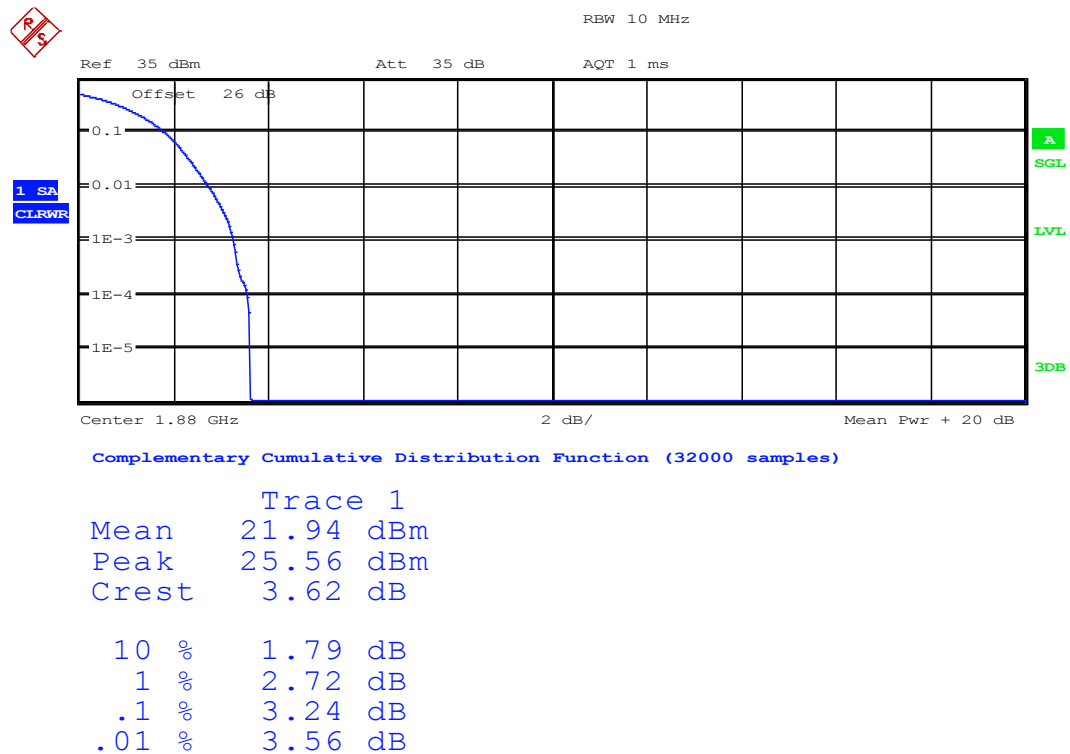
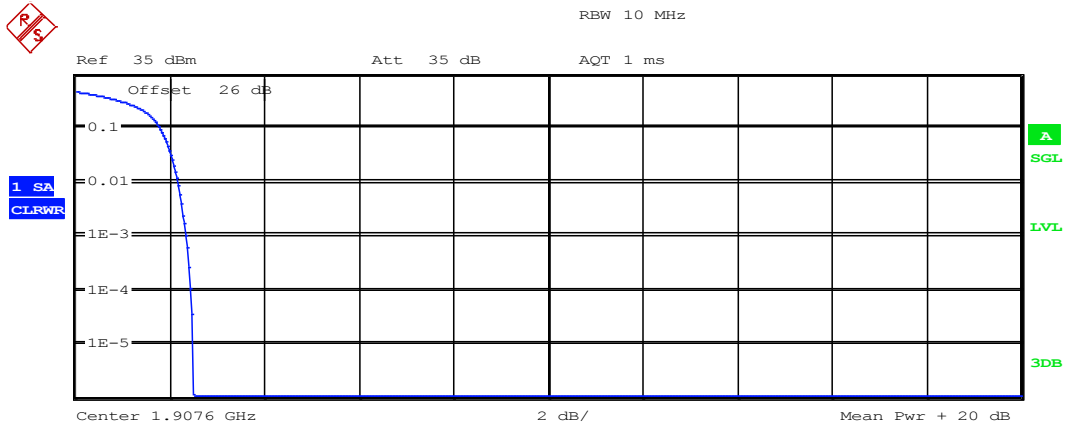


Diagram CCDF_Ch_9400

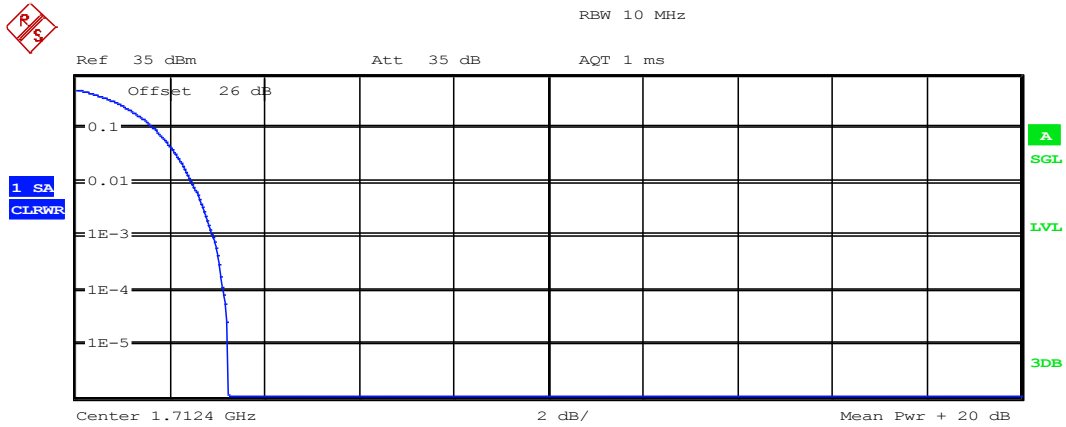


Complementary Cumulative Distribution Function (32000 samples)

Trace 1	
Mean	19.55 dBm
Peak	22.03 dBm
Crest	2.48 dB
10 %	1.76 dB
1 %	2.18 dB
.1 %	2.34 dB
.01 %	2.44 dB

Diagram CCDF_Ch_9538

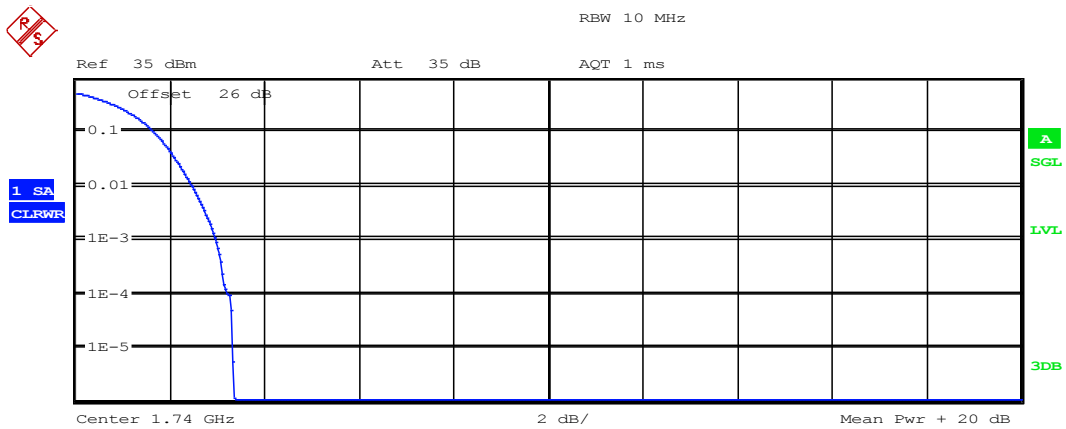
1.1.2. FDD Band IV



Complementary Cumulative Distribution Function (32000 samples)

Trace 1	
Mean	22.26 dBm
Peak	25.49 dBm
Crest	3.23 dB
10 %	1.67 dB
1 %	2.44 dB
.1 %	2.88 dB
.01 %	3.11 dB

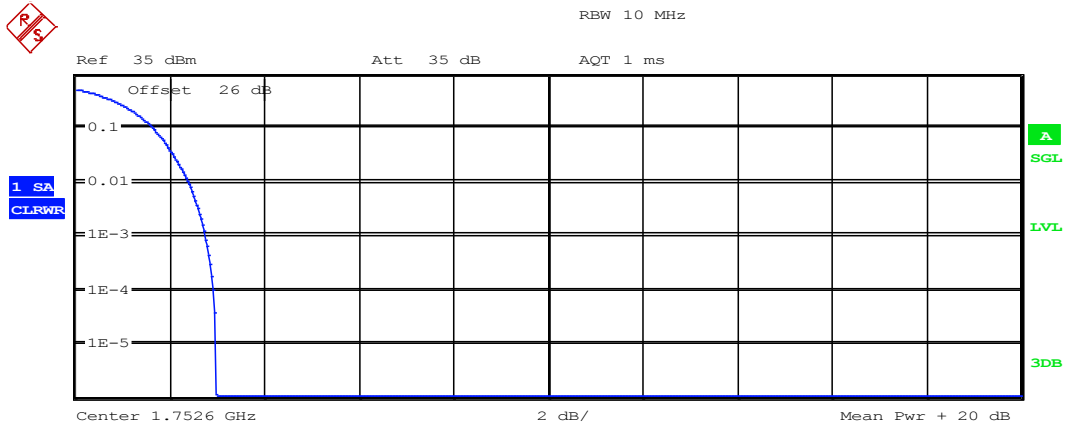
Diagram CCDF_Ch_1312



Complementary Cumulative Distribution Function (32000 samples)

Trace 1	
Mean	21.80 dBm
Peak	25.14 dBm
Crest	3.33 dB
10 %	1.63 dB
1 %	2.47 dB
.1 %	2.95 dB
.01 %	3.21 dB

Diagram CCDF_Ch_1450



Complementary Cumulative Distribution Function (32000 samples)

Trace 1	
Mean	21.75 dBm
Peak	24.71 dBm
Crest	2.96 dB
10 %	1.63 dB
1 %	2.37 dB
.1 %	2.76 dB
.01 %	2.92 dB

Diagram CCDF_Ch_1513

1.1.3. FDD Band 5

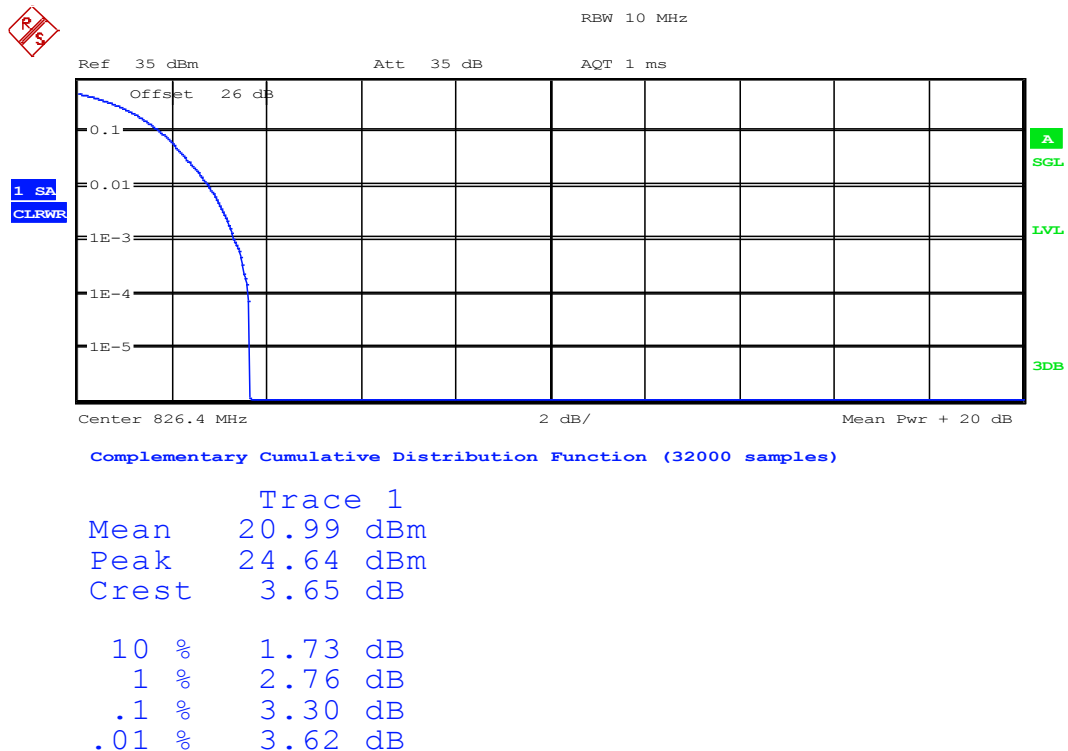


Diagram CCDF_Ch_4132

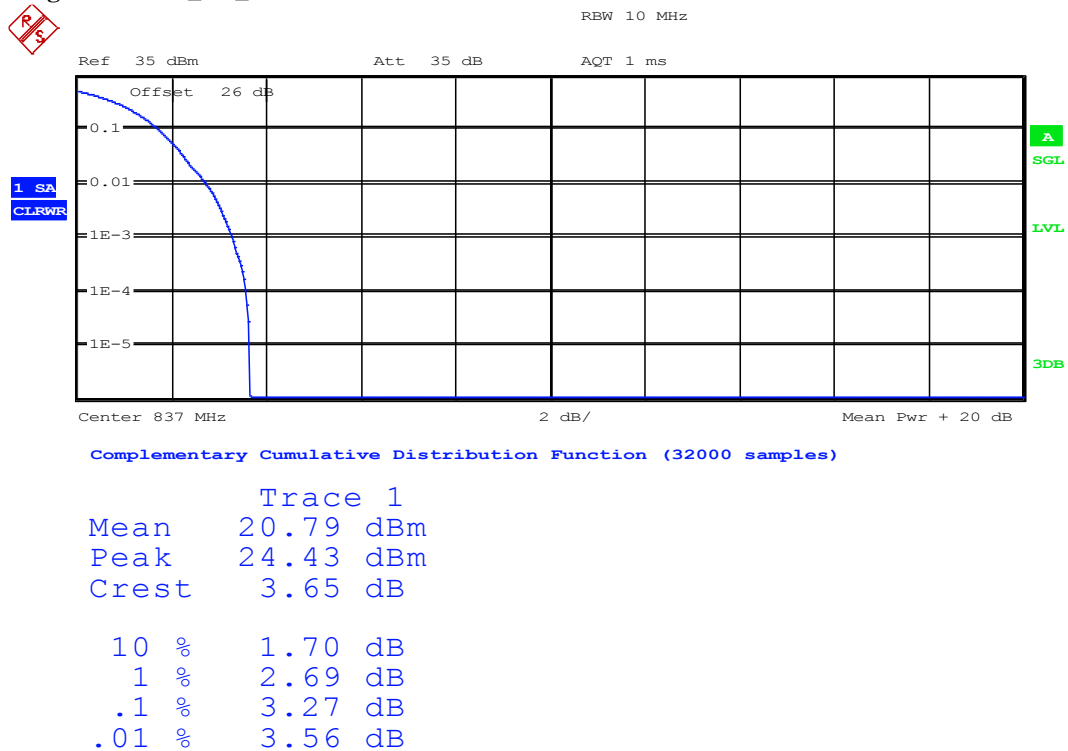
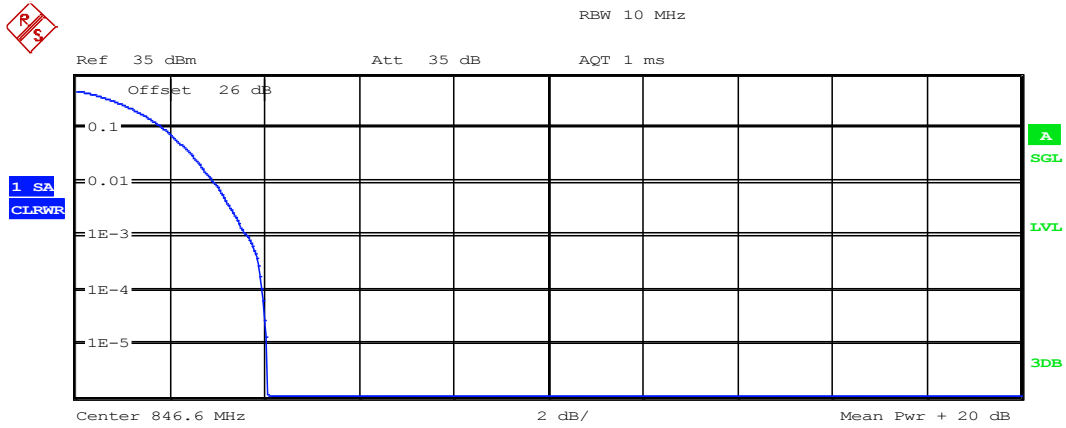


Diagram CCDF_Ch_4185



Complementary Cumulative Distribution Function (32000 samples)

Trace 1	
Mean	21.36 dBm
Peak	25.42 dBm
Crest	4.06 dB
10 %	1.83 dB
1 %	2.92 dB
.1 %	3.65 dB
.01 %	3.94 dB

Diagram CCDF_Ch_4233

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

2.01a_UMTS_FDDII_CH9538_laying

Common Information

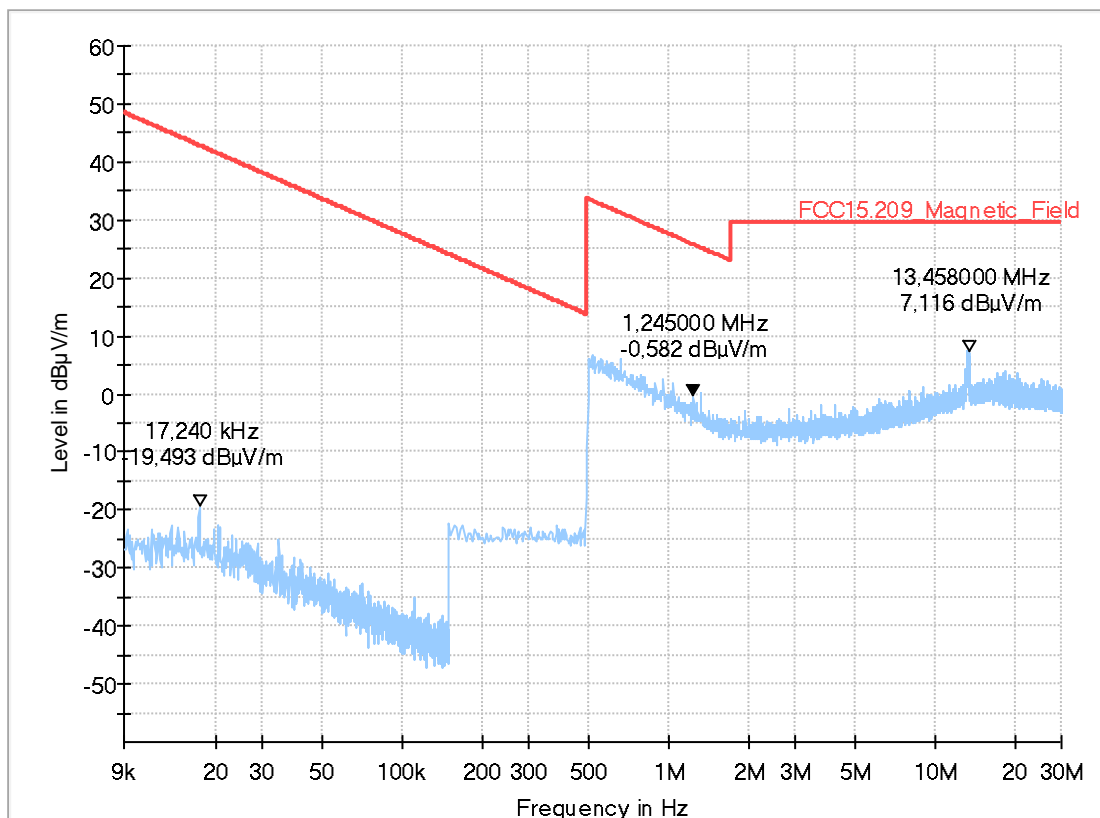
Test Description:	Magnetic Field Strength Measurement related to 30/300m distance
Test site and distance	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware	EMC32 V9.25.0
Rec antenna	height 1.00m parallel and 90° to EUT polarisation
Used filter	bypass
Test Specification	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

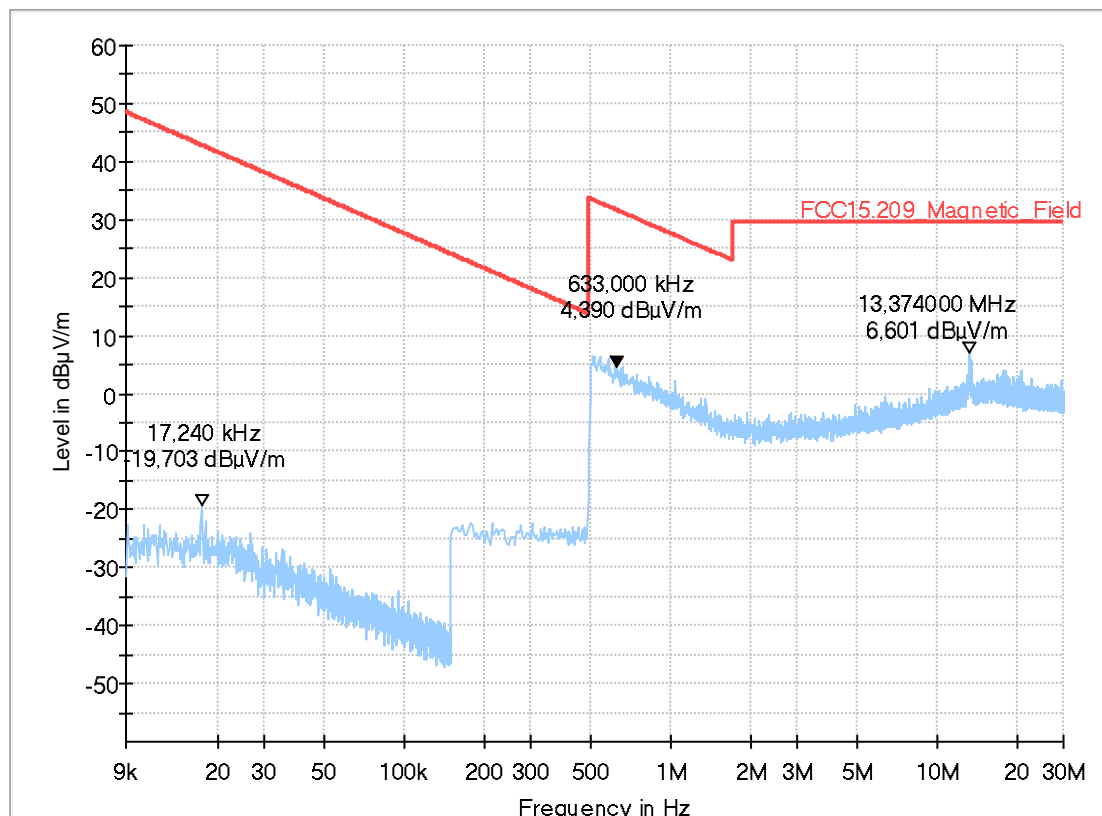
Test Description:	Magnetic Field Strength Measurement related to 30/300m distance
Test site and distance	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware	EMC32 V9.25.0
Rec antenna	height 1.00m parallel and 90° to EUT polarisation
Used filter	bypass
Test Specification	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

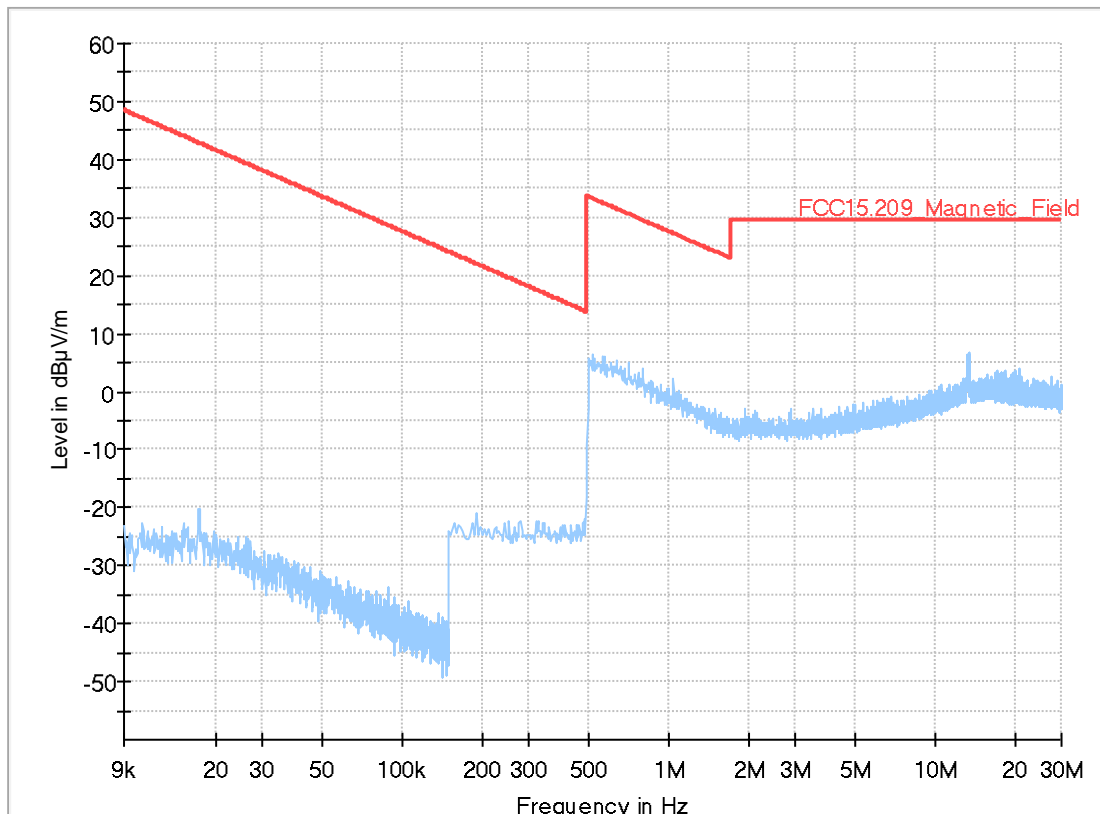
Test Description:	Magnetic Field Strength Measurement related to 30/300m distance
Test site and distance	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware	EMC32 V9.25.0
Rec antenna	height 1.00m parallel and 90° to EUT polarisation
Used filter	bypass
Test Specification	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

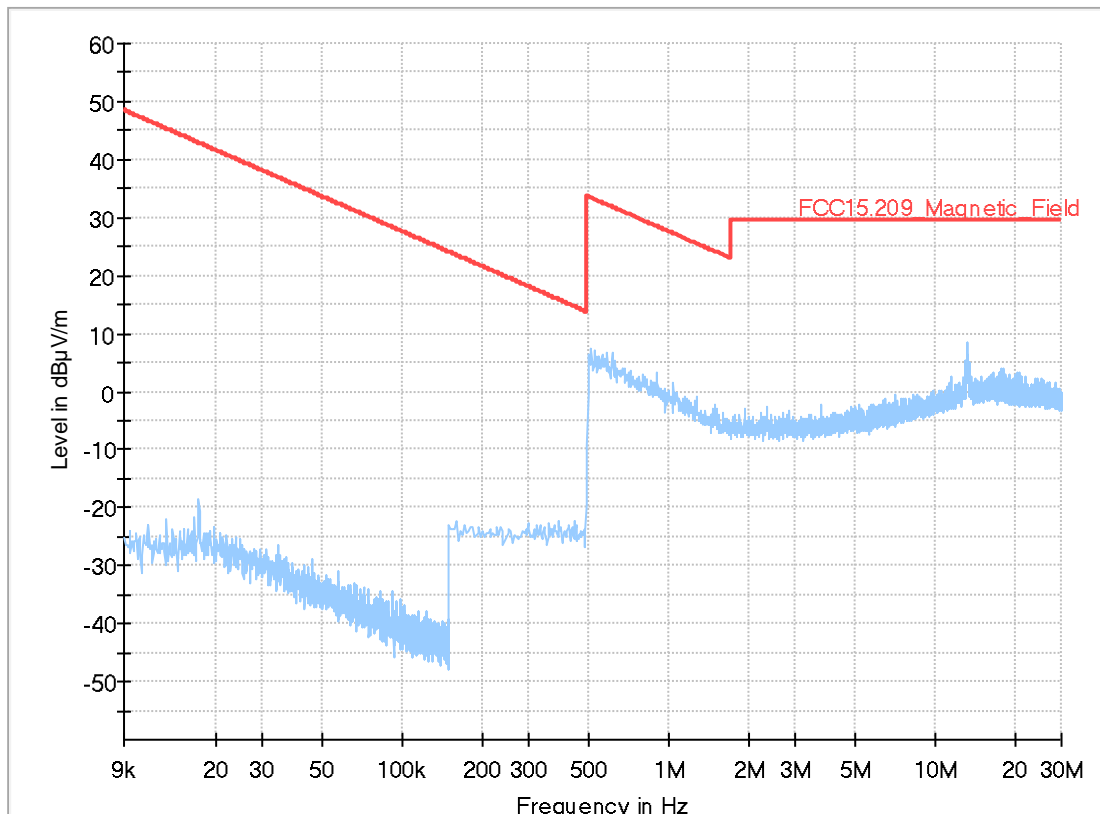
Test Description:	Magnetic Field Strength Measurement related to 30/300m distance
Test site and distance	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware	EMC32 V9.25.0
Rec antenna	height 1.00m parallel and 90° to EUT polarisation
Used filter	bypass
Test Specification	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

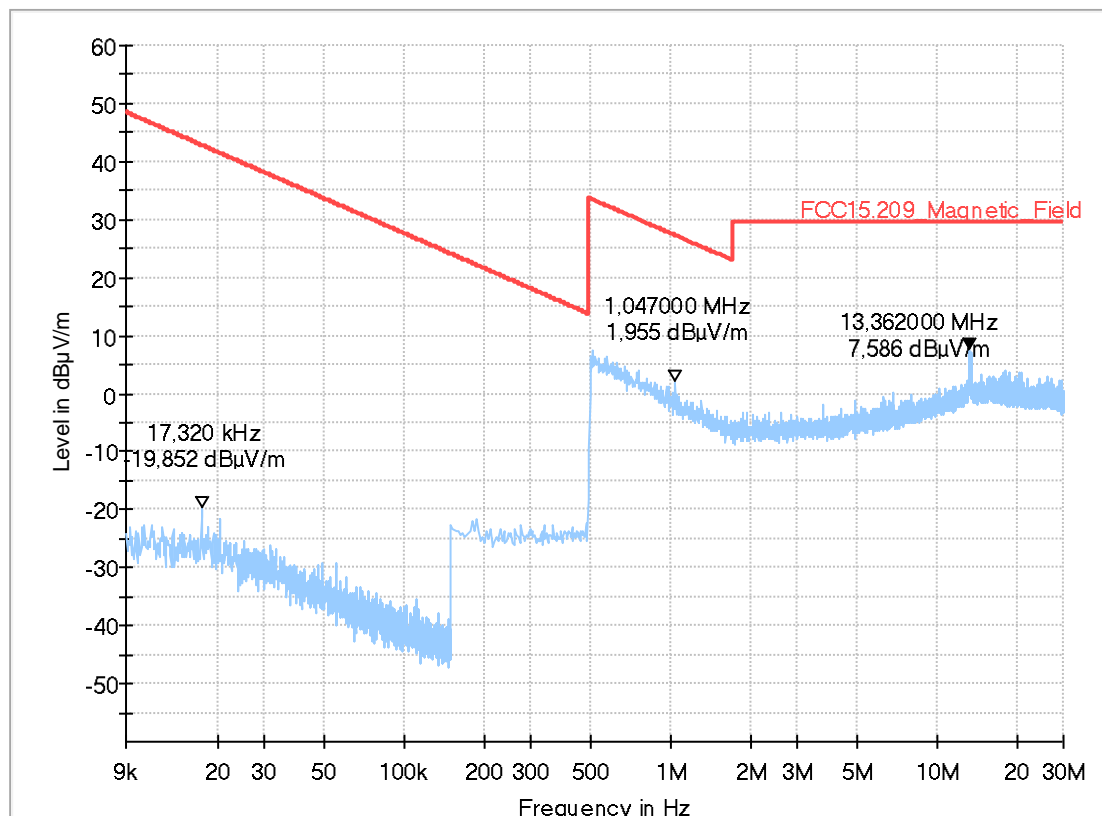
Test Description:	Magnetic Field Strength Measurement related to 30/300m distance
Test site and distance	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware	EMC32 V9.25.0
Rec antenna	height 1.00m parallel and 90° to EUT polarisation
Used filter	bypass
Test Specification	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

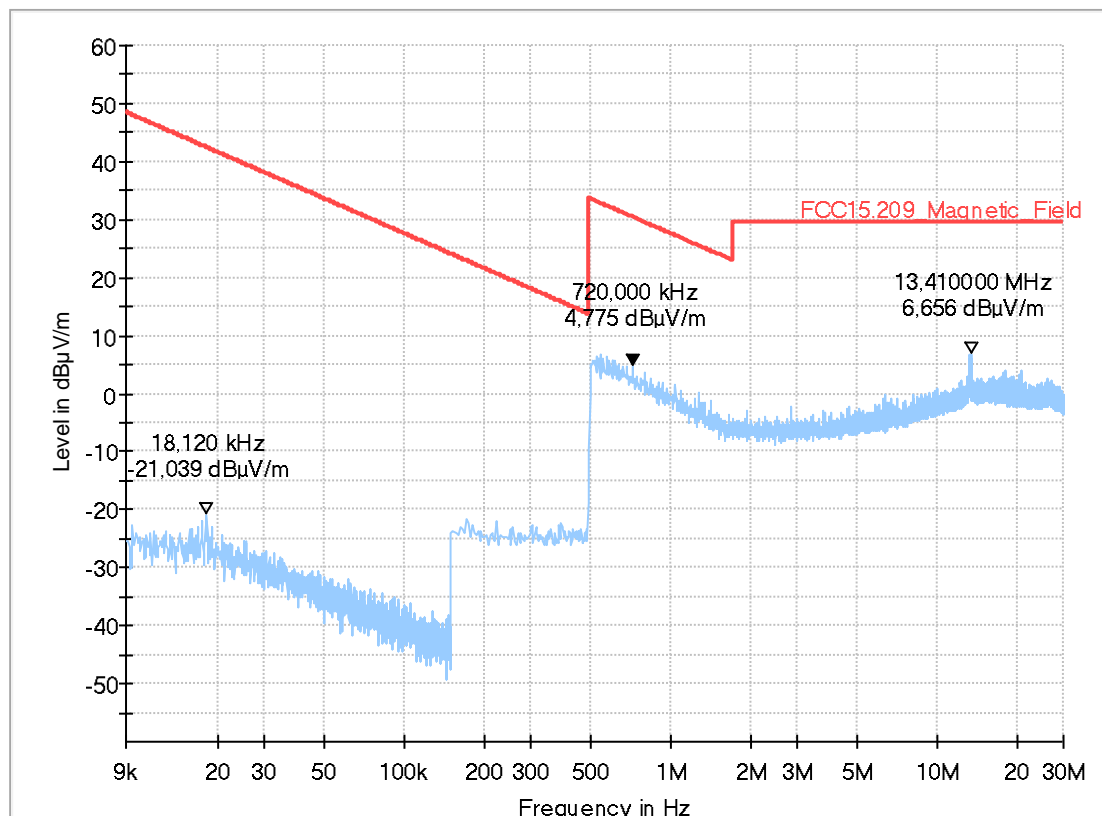
Test Description:	Magnetic Field Strength Measurement related to 30/300m distance
Test site and distance	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware	EMC32 V9.25.0
Rec antenna	height 1.00m parallel and 90° to EUT polarisation
Used filter	bypass
Test Specification	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

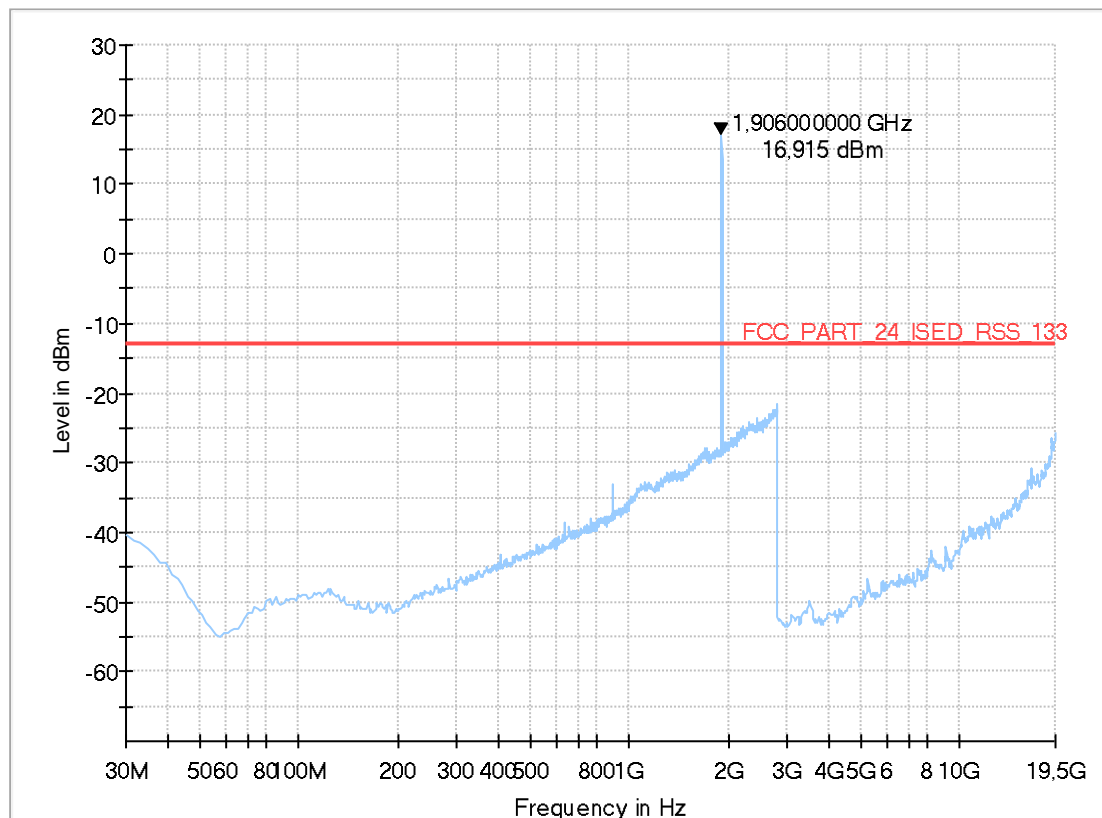
Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Environmental Conditions:	Humidity: 50%rH; Temperature: 20°C
Operation mode:	UMTS_Band 2_CH:9538
Operator Name:	TFR

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

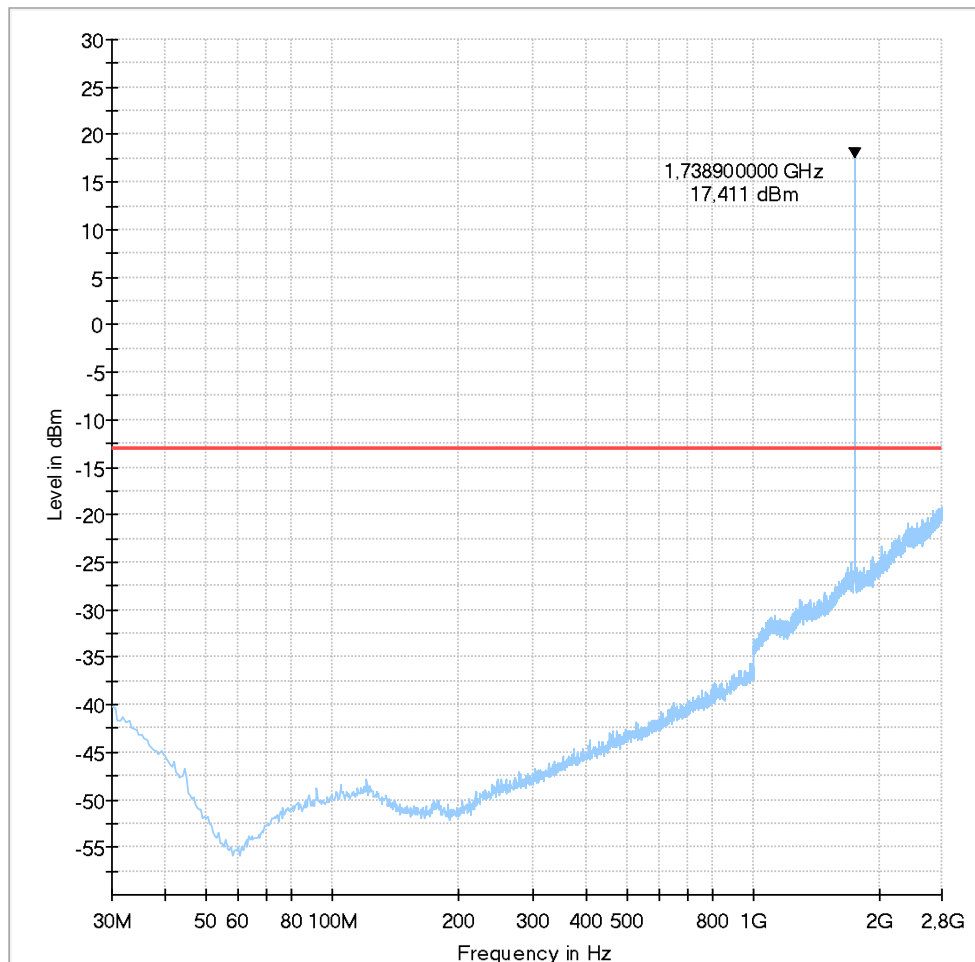
Test Description:	Radiated emission
Test Site:	Fully-Anechoic Room
Test Standard:	FCC FCC Part 27.53(h) AWS emission limits / RSS-139, Issue 3
Antenna polarisation:	vertical / horizontal
Measurement software version	EMC32 V9.26.0
Operation mode:	LTE Band 4, channel no=1450 BW= RB= Modulation=
Operator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

EUT Information

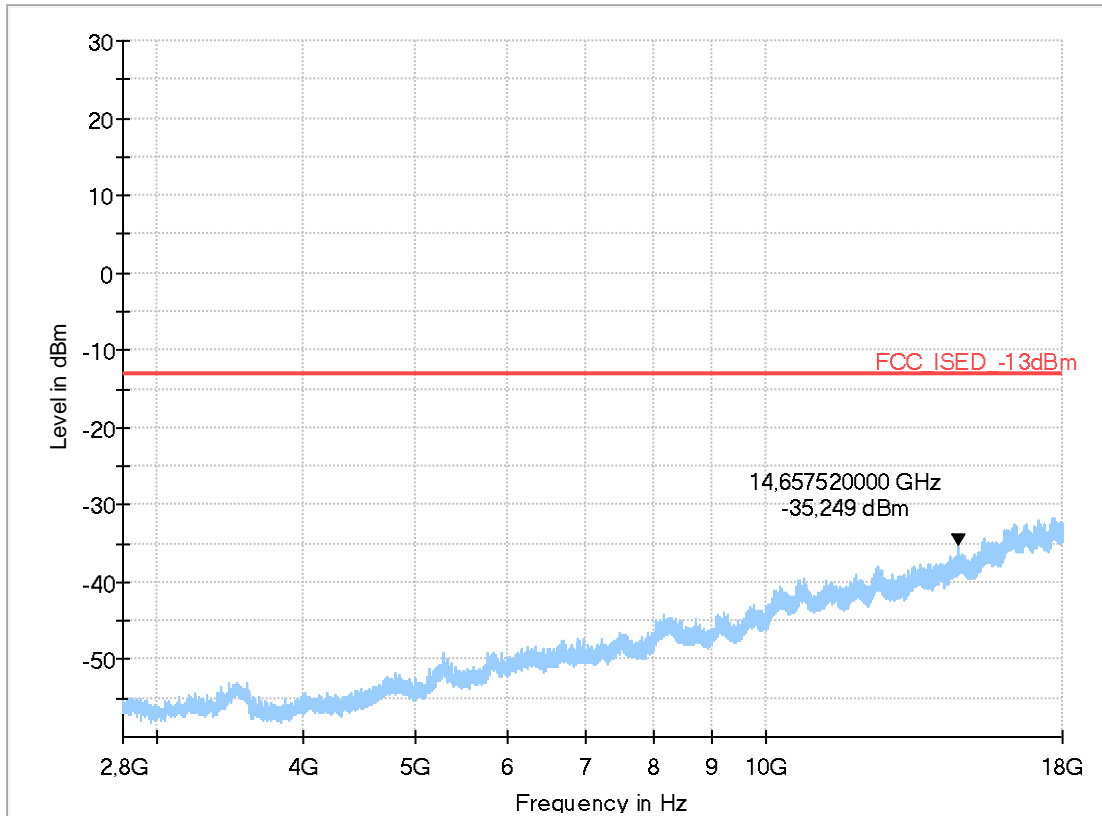
Manufacturer:	Peiker Acoustic GmbH & Co.KG a Valeo brand
Product:	Telematic Device
EUT Model:	AtM-02-US-R1-MEX

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

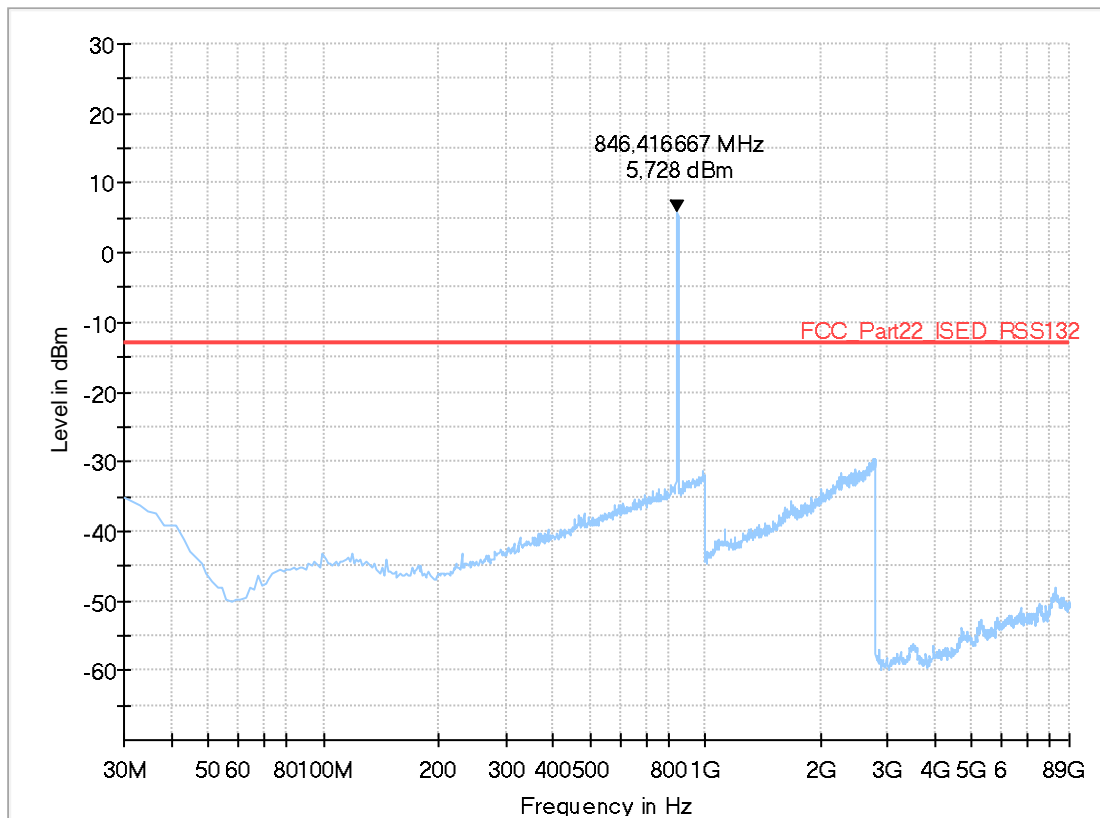
Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	UMTS_Band 5_CH:4233
Operator Name:	TFR

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

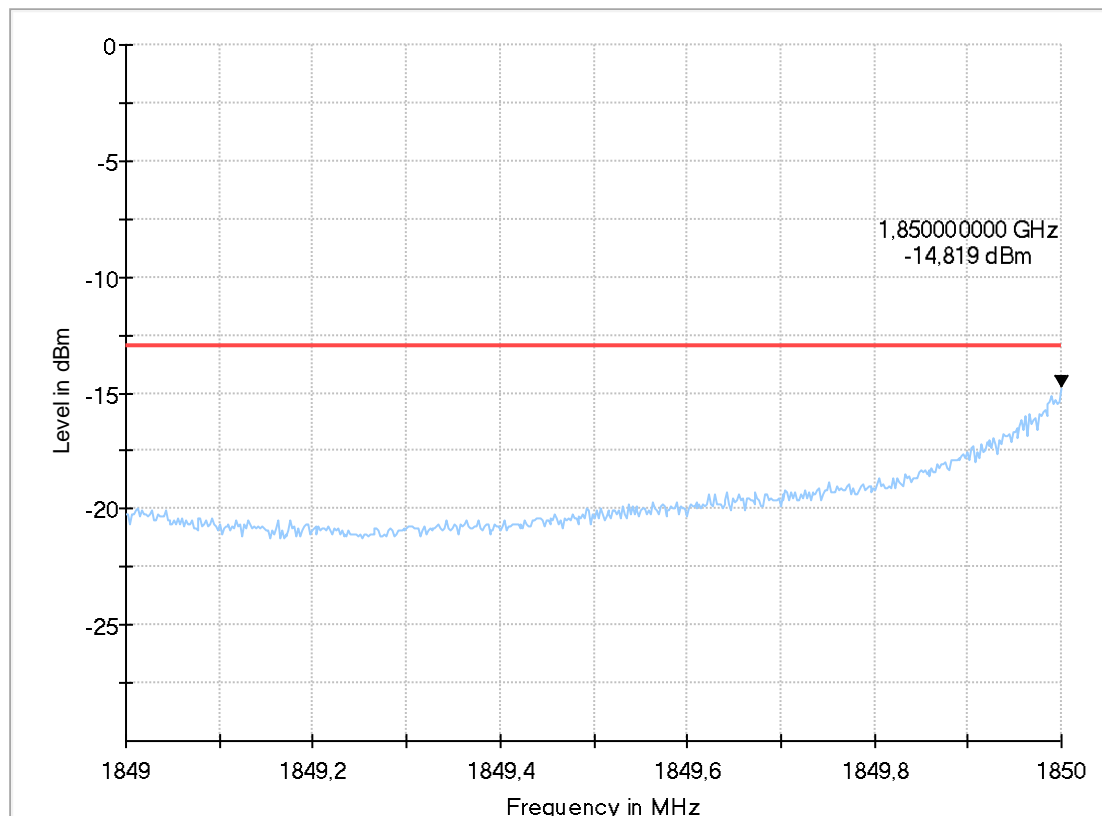
Test Description:	Radiated Band Edge Compliance UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Operating Mode:	MS allocated channel 9262 (fc = 1852 MHz)
Environmental Conditions:	Humidity: 40%rH; Temperature: 20°C
Operator:	TFra

EUT Information

Manufacturer:	Peiker Acoustic GmbH & Co.KG a Valeo brand
Product:	Telematic Device
EUT Model:	AtM-02-US-R1-MEX

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

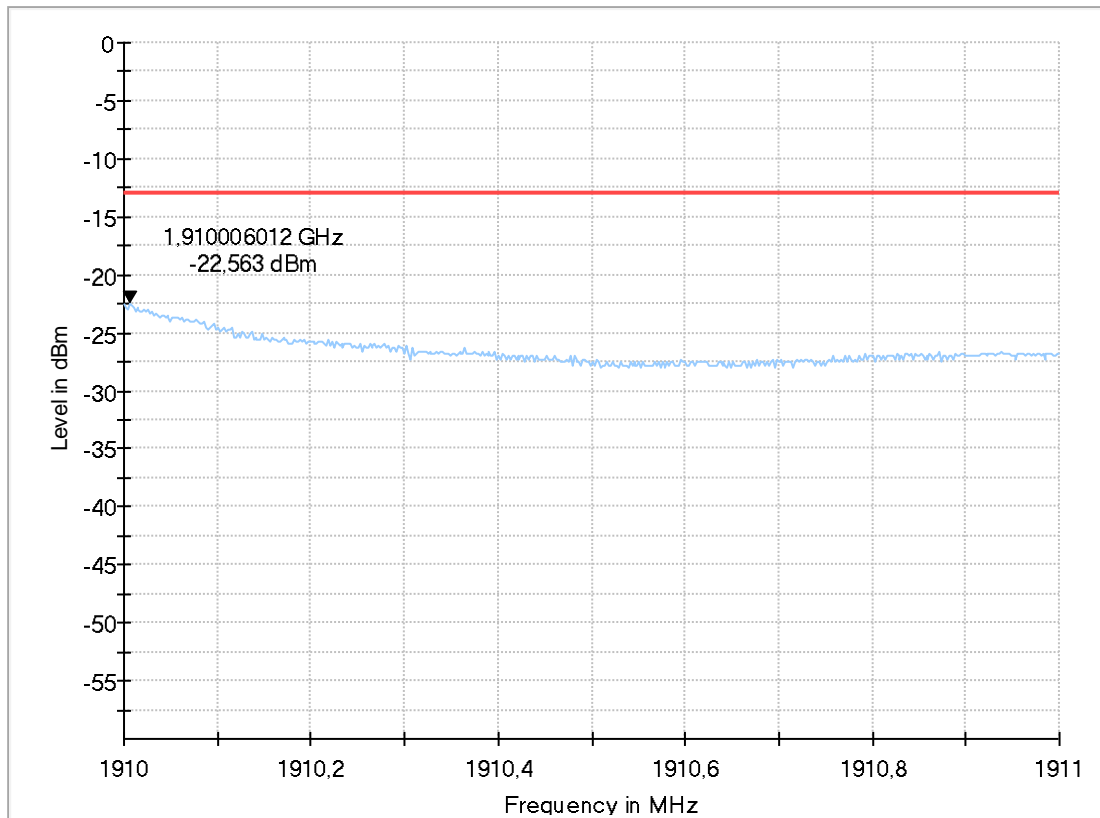
Test Description:	Radiated Band Edge Compliance UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Operating Mode:	MS allocated channel 9538 (fc = 1852 MHz)
Environmental Conditions:	Humidity: 40%rH; Temperature: 20°C
Operator:	TFra

EUT Information

Manufacturer:	Peiker Acoustic GmbH & Co.KG a Valeo brand
Product:	Telematic Device
EUT Model:	AtM-02-US-R1-MEX

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

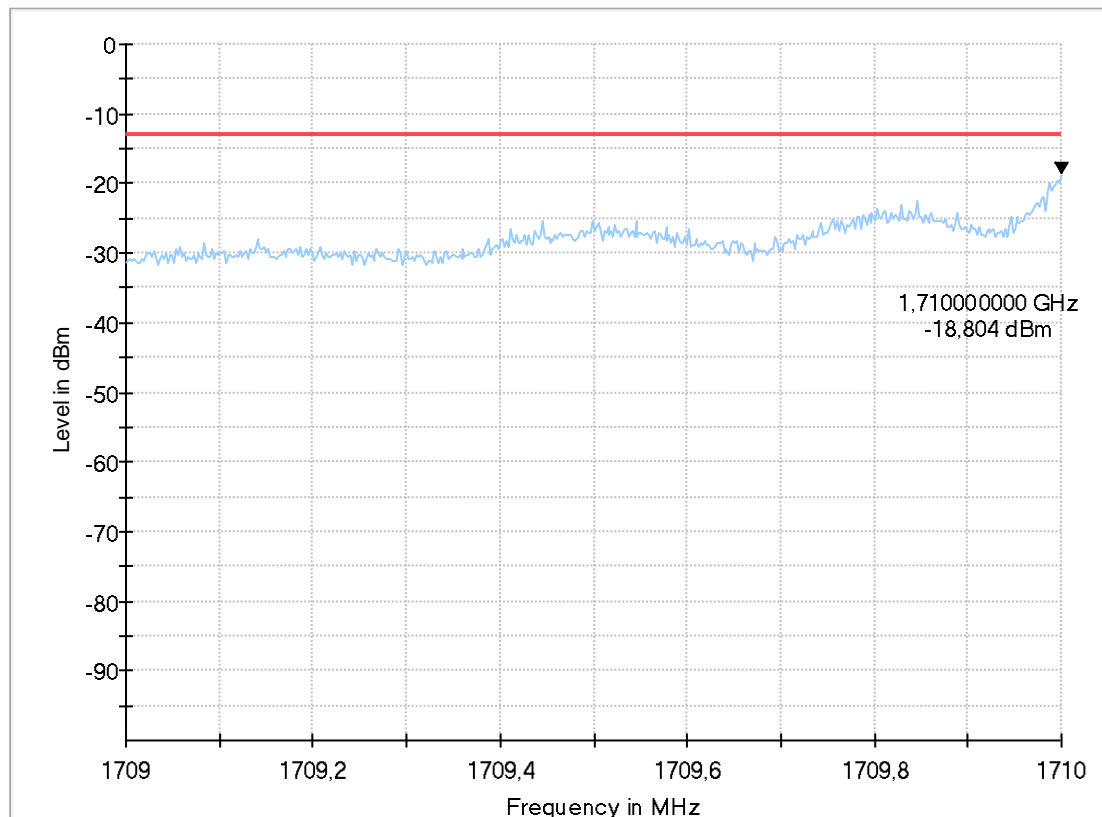
Test Description:	Band-Edge low - Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a)
Operating Mode:	UE allocated channel 1312
Environmental Conditions:	Humidity: 48%rH; Temperature: 20°C
Operator:	TFra
Remarks: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

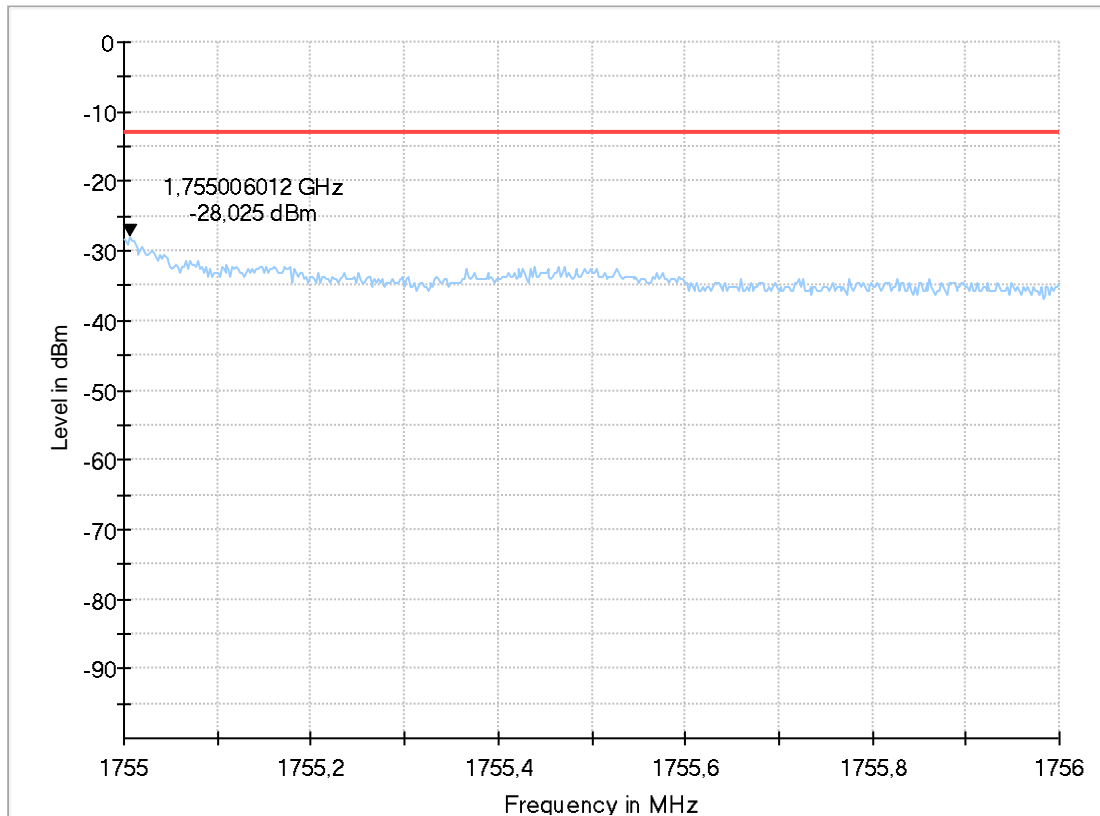
Test Description:	Band-Edge low - Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a)
Operating Mode:	UE allocated channel 1312
Environmental Conditions:	Humidity: 48%RH; Temperature: 20°C
Operator:	TFra
Remarks: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

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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

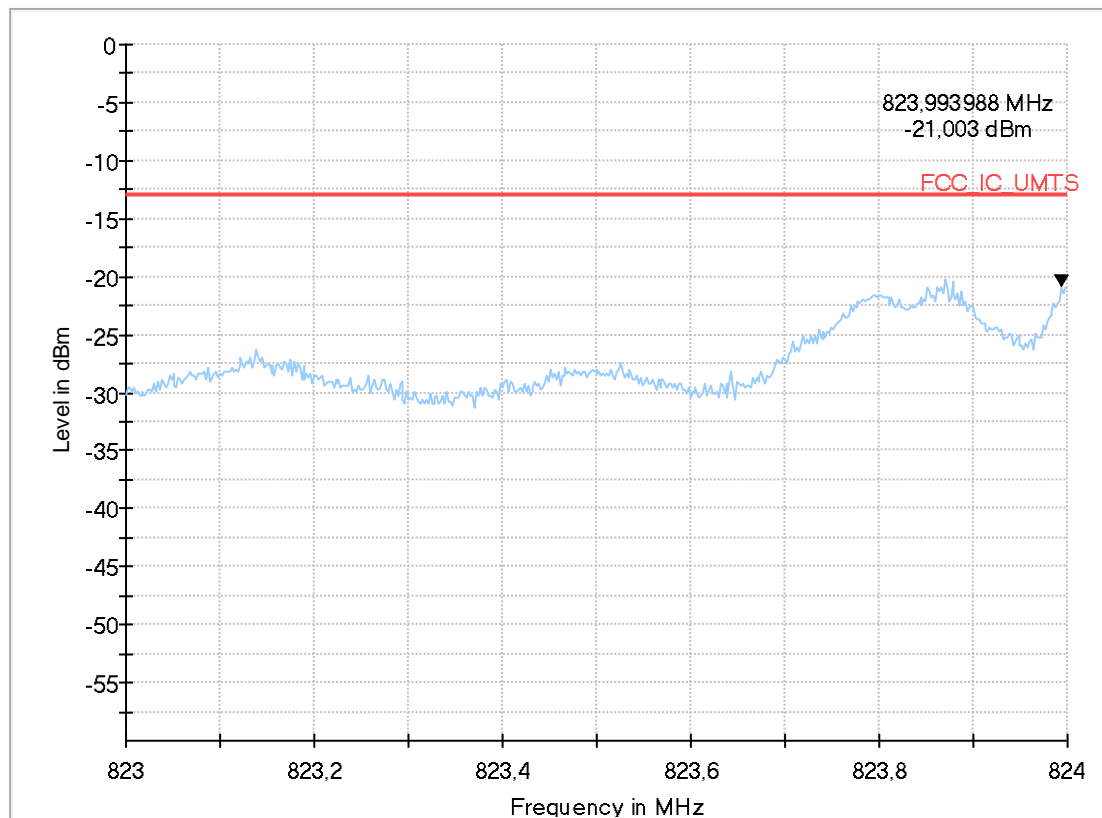
Test Description:	Band-Edge low - Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a)
Operating Mode:	UE allocated channel 4132
Environmental Conditions:	Humidity: 48%rH; Temperature: 20°C
Operator:	TFra
Remarks: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

