

Annex 1: Measurement diagrams
to
TEST REPORT
No.: 6-0754/15-1-3b

According to:
FCC Regulations
Part 22, Part 24

IC-Regulations
RSS-132 Issue 3, RSS-133 Issue 6,
RSS-Gen Issue 4

for

peiker acoustic GmbH & Co. KG

ATM-01 T1-US-4GW
Advanced Telecommunication Module
FCC-ID: QWY-ATM-T-522
IC: 6588A-ATMT522
PMN: ATM trunk version
HVIN ATM-01 T1-US-4GW

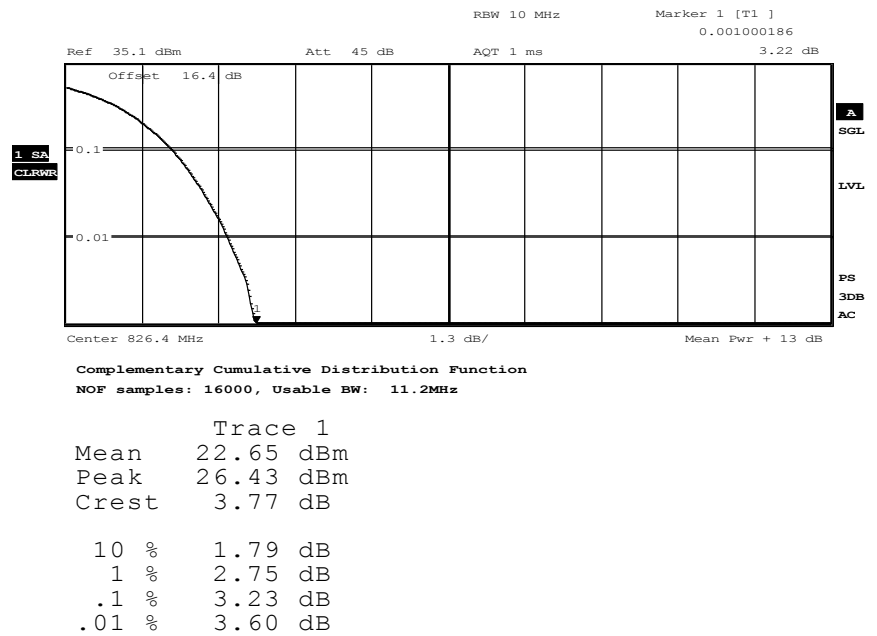
Laboratory Accreditation and Listings			
 DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	 FCC MRA US-EU 0003	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301
 WiFi ALLIANCE AUTHORIZED RF LABORATORY	 CTIA Authorized 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			

Table of contents

1. MEASUREMENT DIAGRAMS MAIN ANTENNA	3
1.1. Peak-to-Average Ratio.....	3
1.2. Spurious emissions radiated (FDD Band II transmitting mode)	6
1.3. Spurious emissions radiated (FDD Band V transmitting mode).....	6
1.4. Radiated emissions on FDD Band II band-edge	8
1.5. Radiated emissions on FDD Band V band-edge.....	10
2. MEASUREMENT DIAGRAMS SECONDARY ANTENNA.....	12
2.1. Spurious emissions radiated (FDD Band II transmitting mode)	12
2.2. Spurious emissions radiated (FDD Band V transmitting mode).....	13
2.3. Radiated emissions on FDD Band II band-edge	14
2.4. Radiated emissions on FDD Band V band-edge.....	16

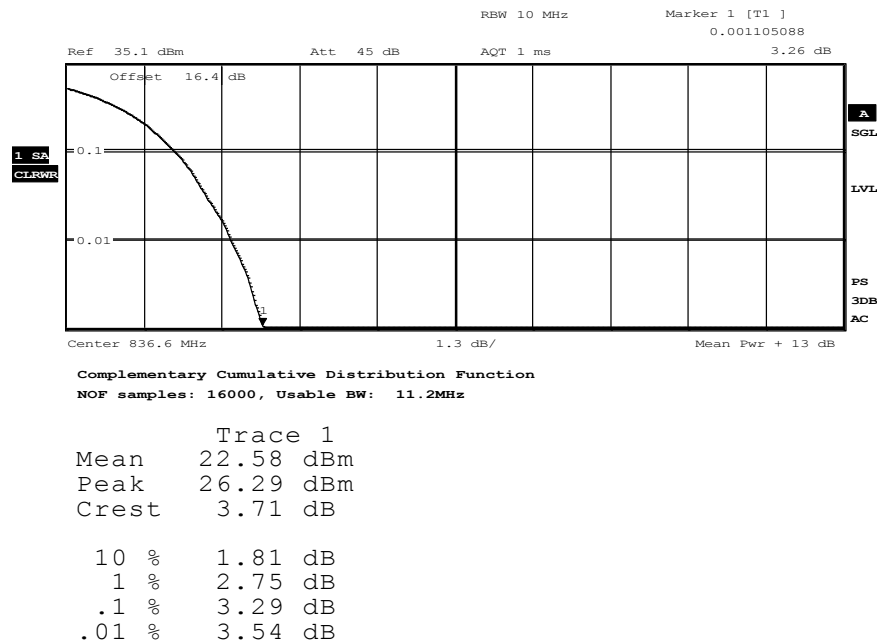
1. Measurement diagrams main Antenna

1.1. Peak-to-Average Ratio



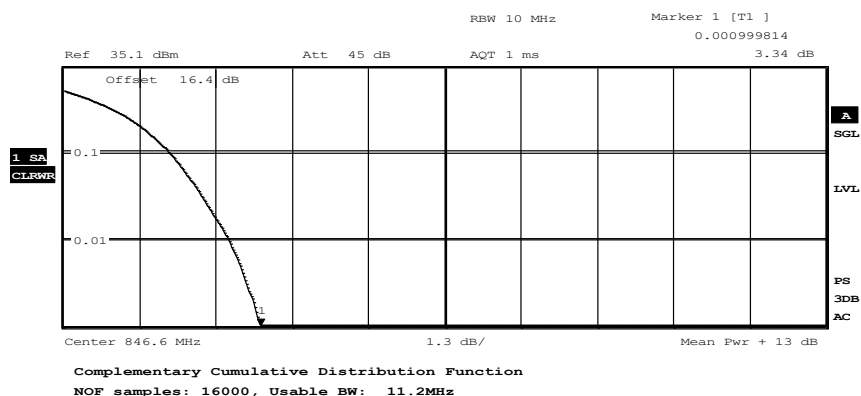
Date: 30.SEP.2015 15:06:39

Channel 4132



Date: 30.SEP.2015 15:07:52

Channel 4183

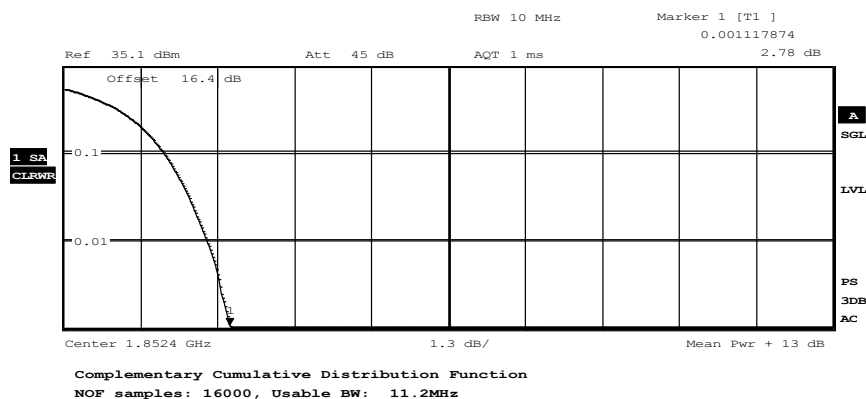


Trace 1

Mean	22.70 dBm
Peak	26.35 dBm
Crest	3.65 dB

10 %	1.81 dB
1 %	2.81 dB
.1 %	3.35 dB
.01 %	3.54 dB

Date: 30.SEP.2015 15:08:59

Channel 4233

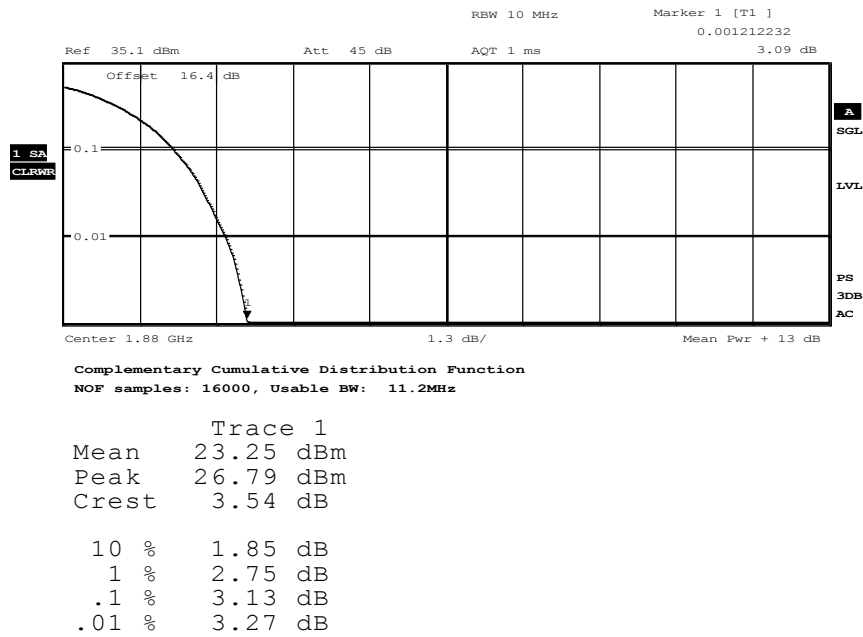
Trace 1

Mean	23.69 dBm
Peak	26.78 dBm
Crest	3.09 dB

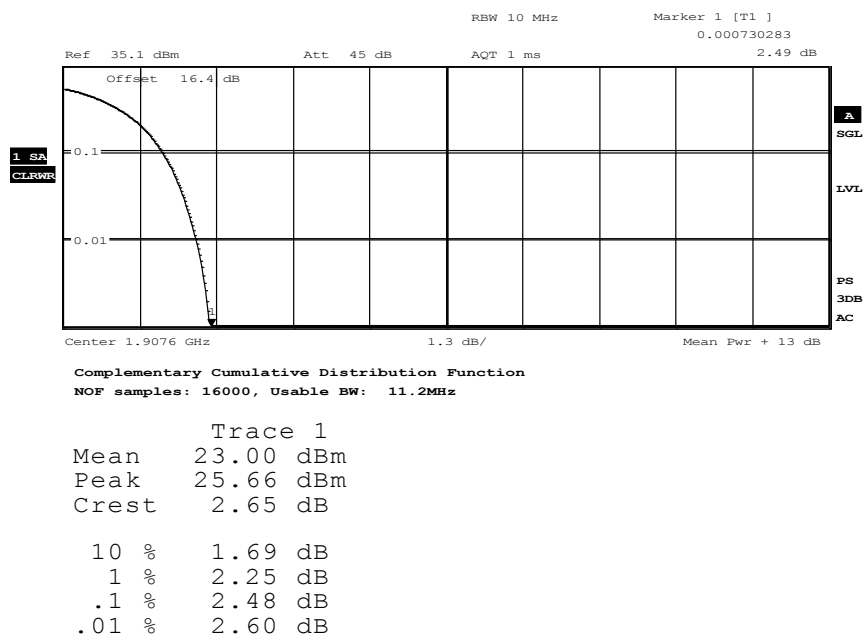
10 %	1.69 dB
1 %	2.42 dB
.1 %	2.81 dB
.01 %	3.00 dB

Date: 30.SEP.2015 15:04:55

Channel 9262



Date: 30.SEP.2015 15:03:51

Channel 9400

Date: 30.SEP.2015 15:02:34

Channel 9538

1.2. Spurious emissions radiated (FDD Band II transmitting mode)

8.25_RSE_R_CH9538

Common Information

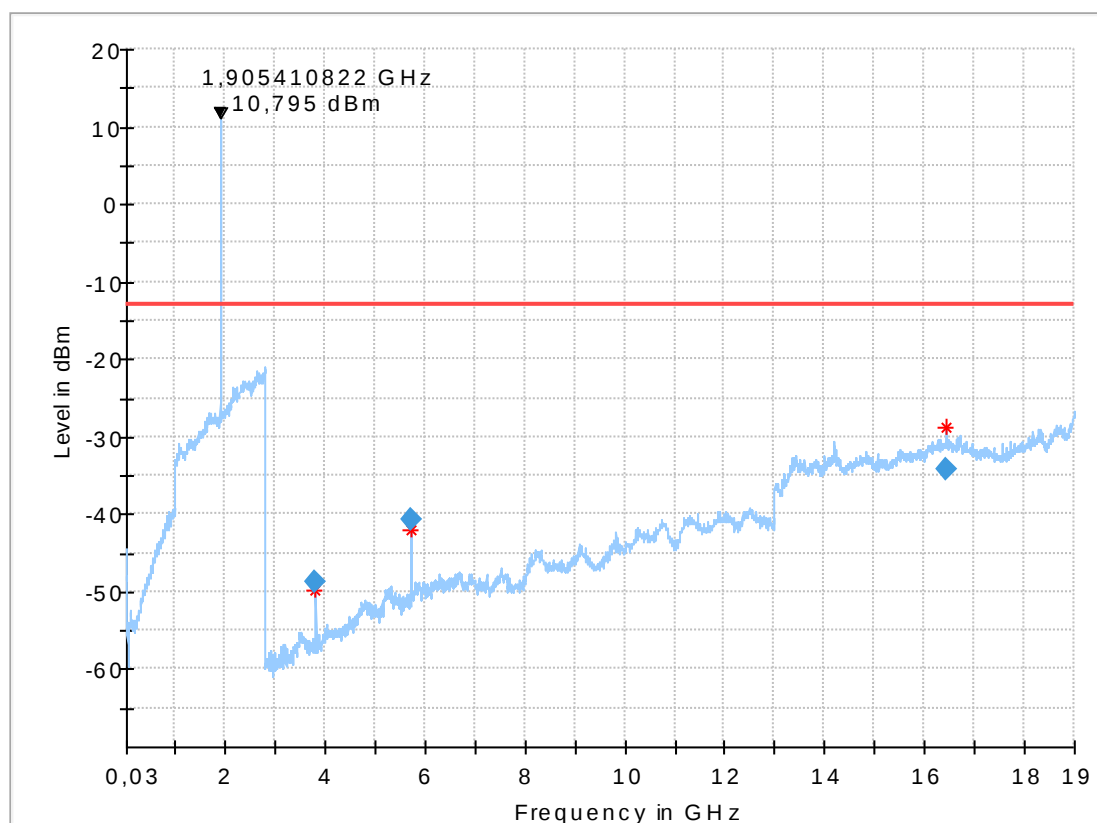
Test Description:	Radiated Spurious Emissions UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24 / RSS-133
Operating Mode:	UE allocated channel 9538 (fc = 1907.6 MHz)
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator:	MFr

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW

HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum



Final Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3817.024048	-	35.82	10000.0	H	325.0	90.0	-95.1
5726.663326	-	27.61	10000.0	H	40.0	90.0	-89.5
16444.478958	-	21.09	10000.0	H	295.0	0.0	-69.6

1.3. Spurious emissions radiated (FDD Band V transmitting mode)

8.54_RSE_R_CH4183_HSUPA

Common Information

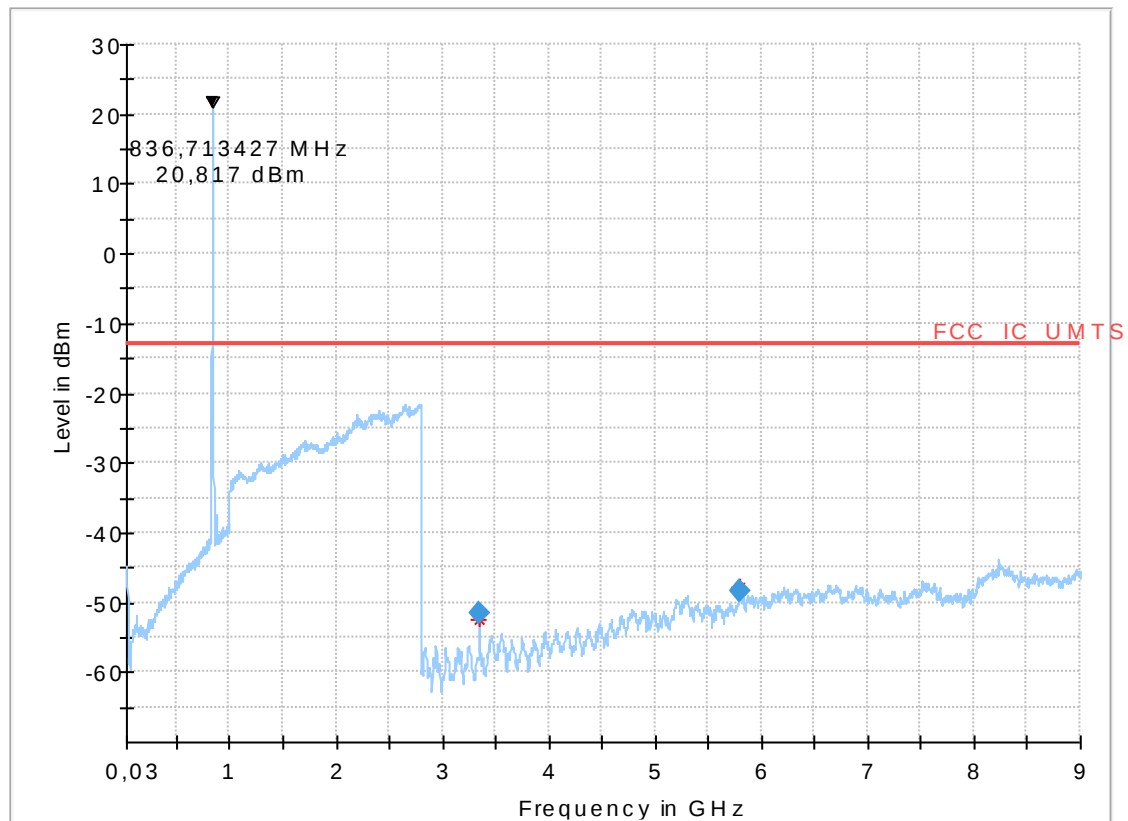
Test Description:	Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a) / RSS-132
Operating Mode:	UE allocated channel 4183 (fc = 836.4,HSUPA
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator:	MFr

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW

HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum



Final Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3348.366733	-	38.64	10000.0	V	165.0	90.0	-95.6
5804.058116	-	35.29	10000.0	H	303.0	0.0	-87.7

1.4. Radiated emissions on FDD Band II band-edge

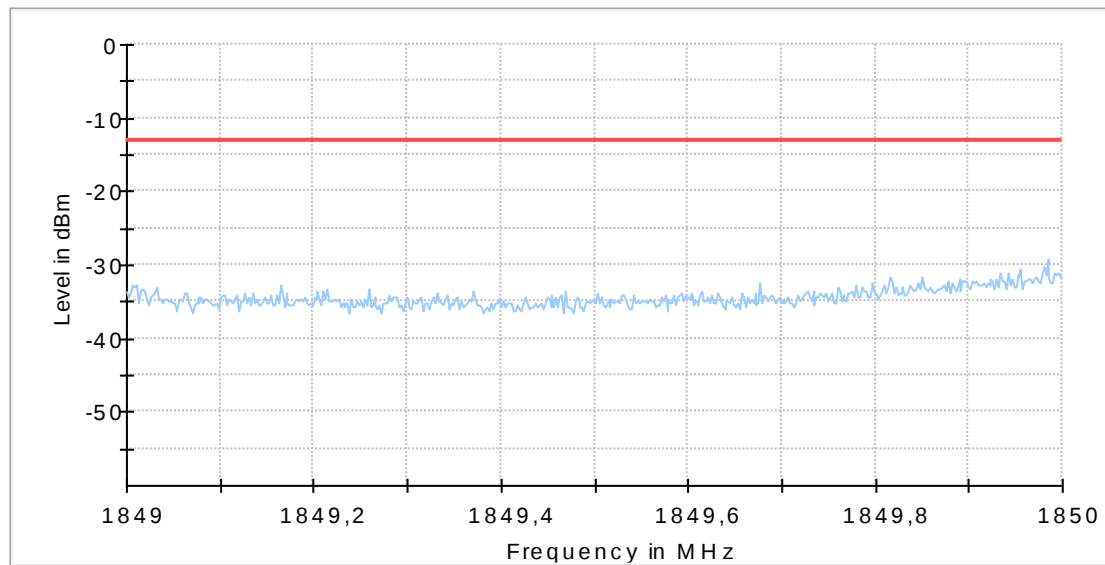
9.20_BE_R_Ch9262

Common Information

Test Description:	Band-Edge low - Radiated Spurious Emissions UMTS FDD II
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238 / RSS-133
Operating Mode:	UE allocated channel 9262
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator Name:	MFr
Comment:	

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW
-----	-----
HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	



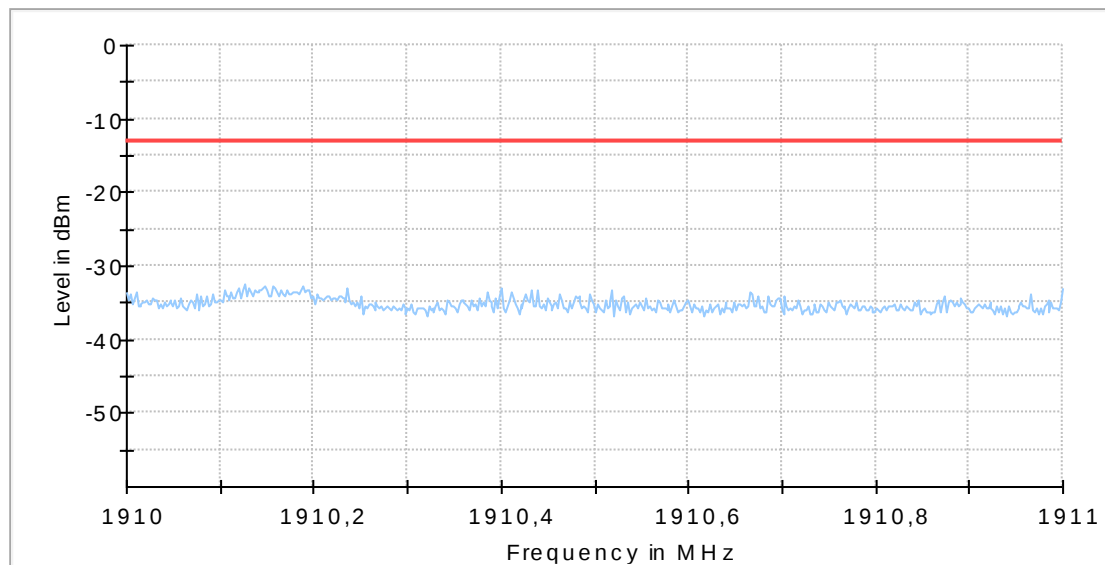
9.21_BE_R_Ch9538

Common Information

Test Description:	Band-Edge low - Radiated Spurious Emissions UMTS FDD II
Test Site Location	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard	FCC Part 24.238 / RSS-133
Operating Mode	UE allocated channel 9538 f=1907MHz
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator Name:	MFr
Comment:	

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW
-----	-----
HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	



1.5. Radiated emissions on FDD Band V band-edge

9.52_BE_R_Ch4132

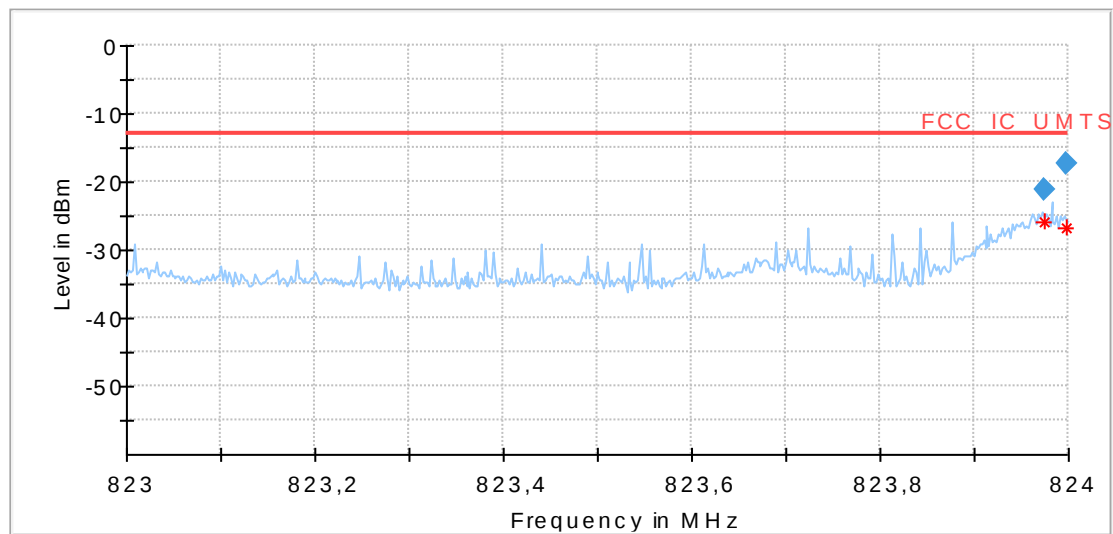
Common Information

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) / RSS-132
Operating Mode:	UE allocated channel 4132
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator:	MFr
Remarks:	EUT - laying/standing position

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW
-----	-----
HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum



Final Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
823.974980	-	8.24	500.0	H	25.0	90.0	-75.8
823.996888	-	4.41	500.0	H	-45.0	90.0	-75.8

9.53_BE_R_Ch4233

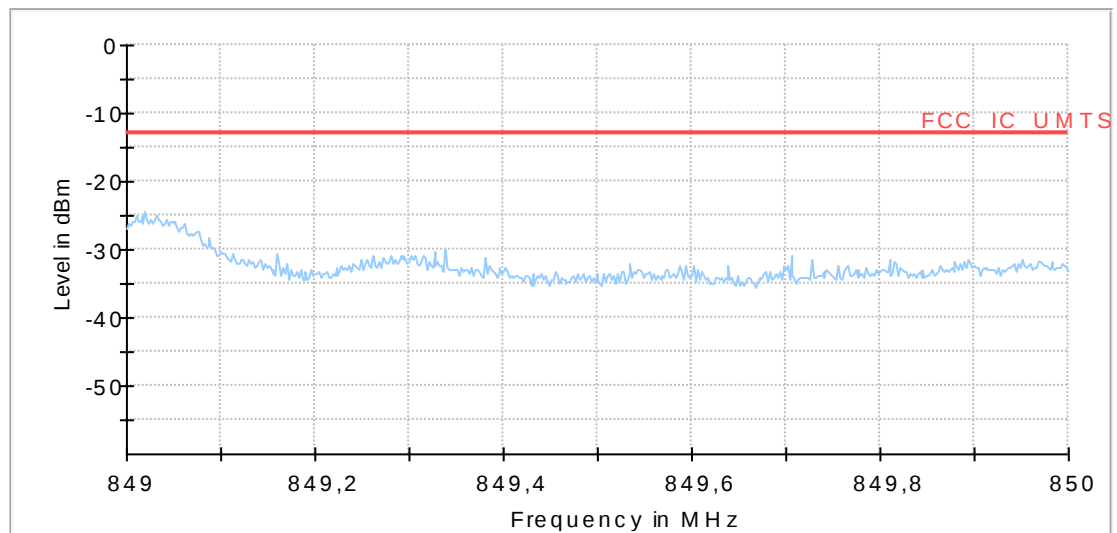
Common Information

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) / RSS-132
Operating Mode:	UE allocated channel 4233
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator:	MFr
Remarks:	EUT - laying/standing position

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW
-----	-----
HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum



2. Measurement diagrams secondary Antenna

2.1. Spurious emissions radiated (FDD Band II transmitting mode)

8.25_Backup_RSE_R_Ch9400

Common Information

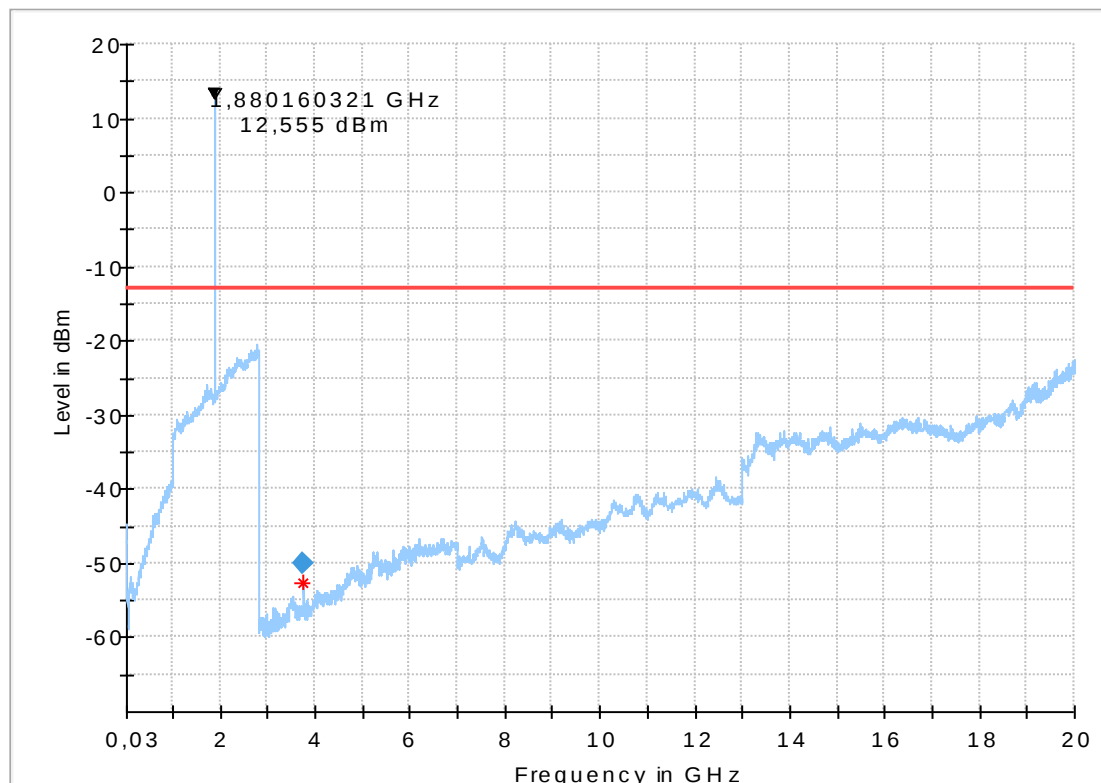
Test Description:	Radiated Spurious Emissions UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24 / RSS-133
Operating Mode:	UE allocated channel 9400/9538 (fc = 1880.0MHz)
Environmental Conditions:	Humidity: __%rH; Temperature: __°C
Operator:	

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW

HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum



Final Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3762.034068	-13.00	36.95	10000.0	1000.000	H	255.0	90.0	-95.1

2.2. Spurious emissions radiated (FDD Band V transmitting mode)

8.54_RSE_R_CH4183

Common Information

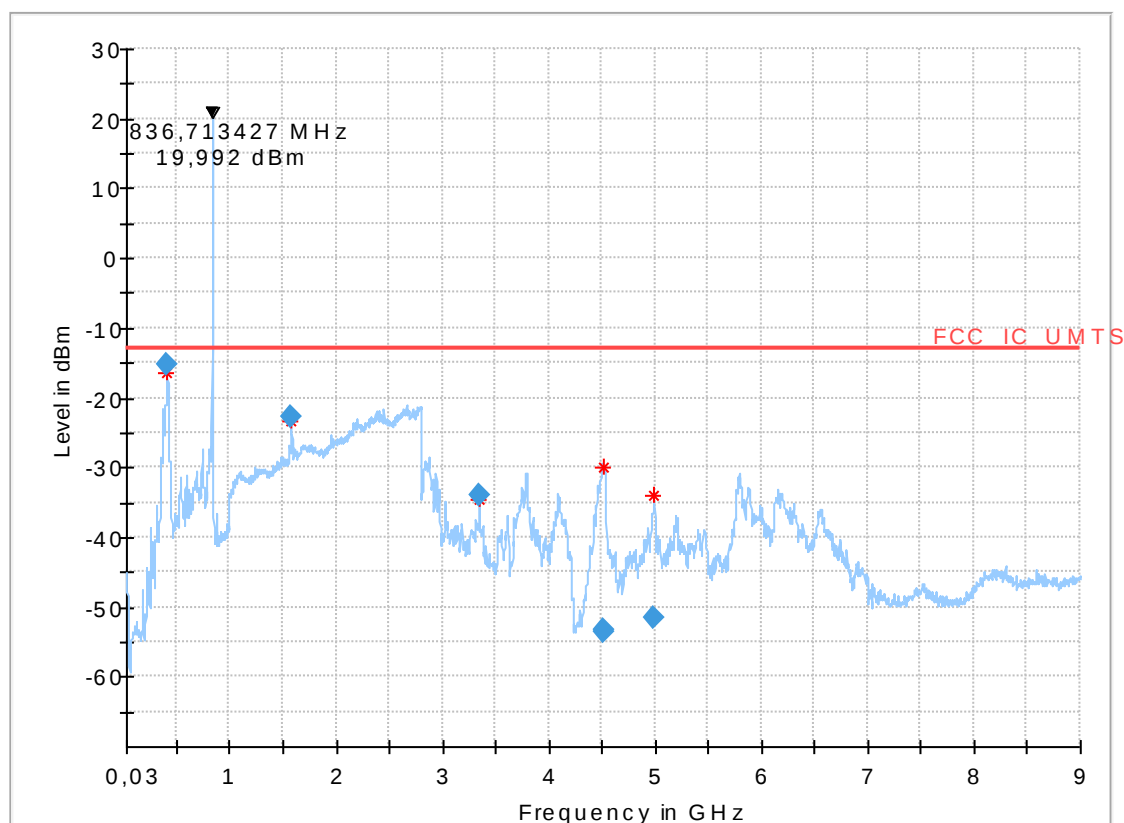
Test Description:	Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a) / RSS-132
Operating Mode:	UE allocated channel 4183 (fc = 836.4, HSUPA)
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator:	MFr

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW

HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum



Final Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
408.146292	-	2.26	10000.0	V	119.0	90.0	-82.3
1581.693387	-	9.78	10000.0	H	308.0	0.0	-64.3
3344.398797	-	20.83	10000.0	V	302.0	90.0	-95.6
4515.260521	-	40.67	10000.0	V	315.0	0.0	-92.6
4515.260521	-	40.41	10000.0	V	315.0	0.0	-92.6
4987.545091	-	38.68	10000.0	V	302.0	0.0	-91.1

2.3. Radiated emissions on FDD Band II band-edge

9.20_Backup_BE_R_Ch9262_HSUPA_FDDII

Common Information

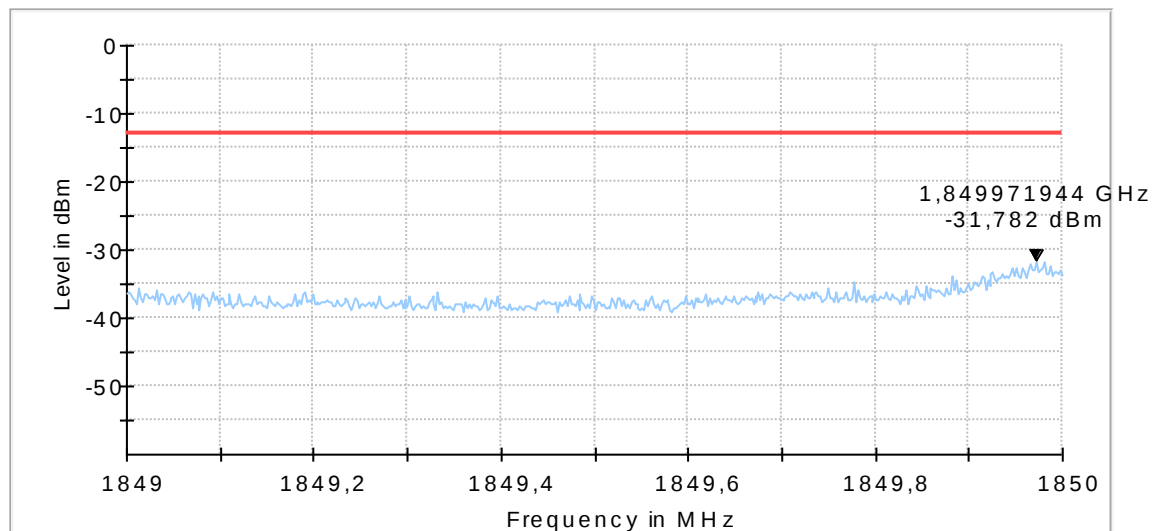
Test Description:	Radiated Band Edge Compliance UMTS-FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917 / RSS-133
Operating Mode:	MS allocated channel 9262 f= 1852MHz
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator:	MFr

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW

HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum



9.21_Backup_BE_R_Ch9538

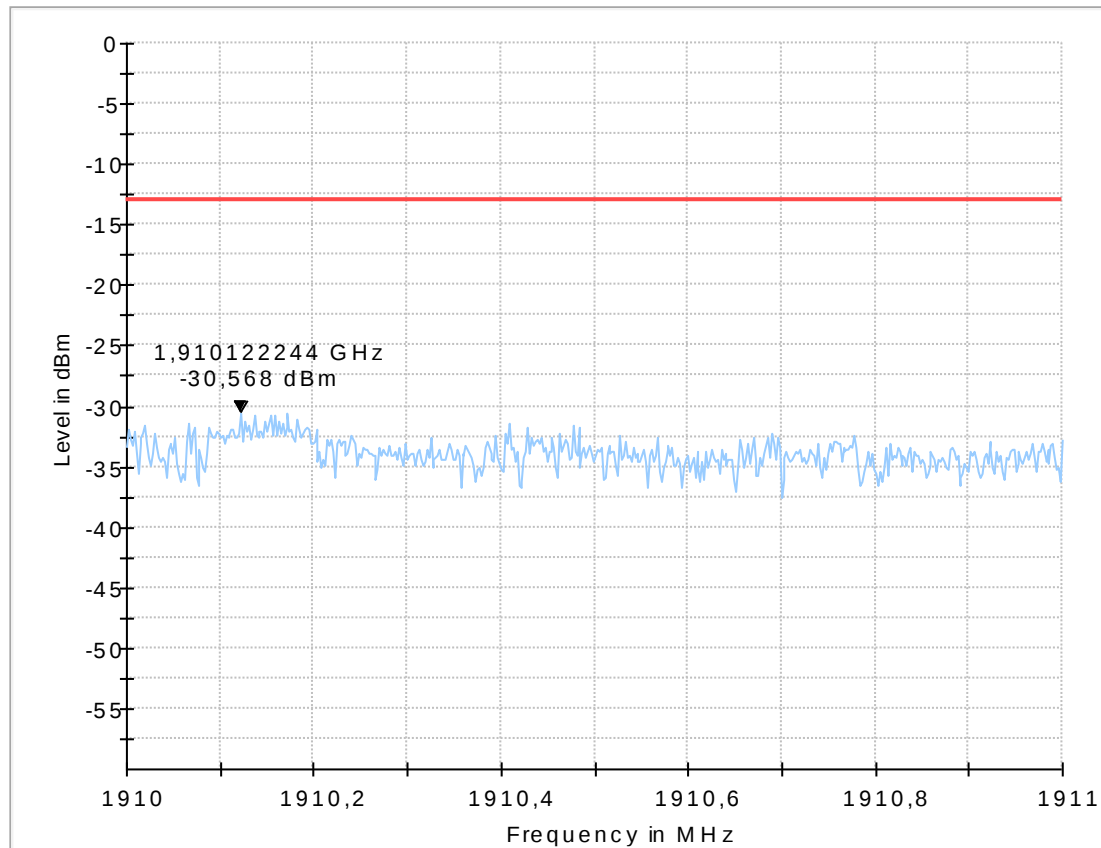
Common Information

Test Description:	Band -Edge high Radiated Spurious Emissions UMTS FDD II
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238 / RSS-133
Operating Mode:	UE allocated Channel 9538
Environmental Conditions:	Humidity: 55%rH; Temperature: 21,5°C
Operator:	MFr

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW

HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	



2.4. Radiated emissions on FDD Band V band-edge

9.52_Backup_BE_R_Ch4132

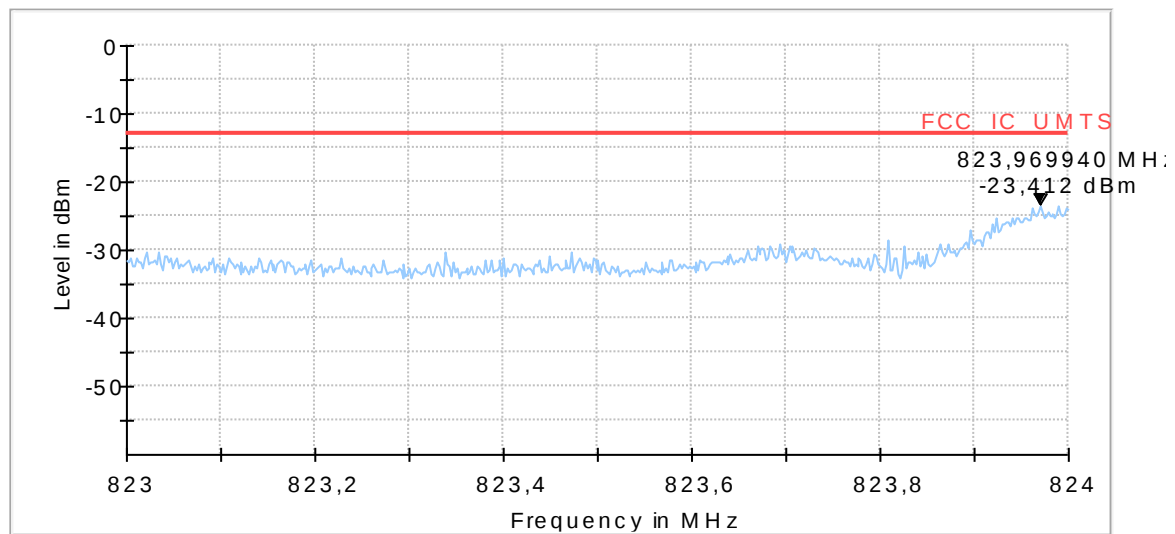
Common Information

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) / RSS-132
Operating Mode:	UE allocated channel 4132
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator:	MFr
Remarks:	EUT - laying/standing position

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW
-----	-----
HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum



9.53_Backup_BE_R_Ch4233

Common Information

Test Description:	Band-Edge high - Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a) / RSS-132
Operating Mode:	UE allocated channel 4233
Environmental Conditions:	Humidity: 53%rH; Temperature: 23°C
Operator:	MFr
Remarks:	EUT - laying/standing position

EUT Information

Manufacturer:	peiker acustic GmbH & Co. KG
EuT:	ATM-01 T1-US-4GW
-----	-----
HW Version:	212.007.007
SW Version:	001.018.103
Serial Number:	0000595569
Connected Interfaces:	
Power Supply:	14 VDC
Comments:	

Full Spectrum

