

## Annex 1: Measurement diagrams 22-1-0030601T047a-A1

<b>Number of pages:</b>	24	<b>Date of Report:</b>	2023-Feb-16
<b>Testing company:</b>	cetecom advanced GmbH Im Teelbruch 116 45219 Essen Germany Tel. + 49 (0) 20 54 / 95 19-0 Fax: + 49 (0) 20 54 / 95 19-150	<b>Applicant:</b>	Continental Automotive Technologies GmbH
<b>Product:</b> <b>Model:</b>	Telematic Control Unit BSRF_EA_RW0		
<b>FCC ID:</b>	KR5-BSRFEARW0	<b>IC:</b>	--
<b>Testing has been carried out in accordance with:</b>	<b>FCC Regulations</b> <b>Title 47 CFR, Chapter I, Subchapter A</b> Part 15, Subpart C Intentional Radiators; § 15.209 Radiated emission limits; general requirements <b>Title 47 CFR, Chapter I, Subchapter B</b> Part 22, Subpart H Cellular Radiotelephone Service Part 24, Subpart E Paging and Radiotelephone Service Part 27, Subpart C Miscellaneous Wireless Communications Services <b>ISED-Regulations, Radio Standards Specification</b> <b>RSS-Gen, Issue 5</b> General Requirements for Compliance of Radio Apparatus <b>RSS-132, Issue 3</b> Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz <b>RSS-133, Issue 6, Amendment 1</b> 2 GHz Personal Communications Services <b>RSS-139, Issue 3</b> Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz		

## Table of Contents

1	Measurement diagrams.....	3
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# 1 Measurement diagrams

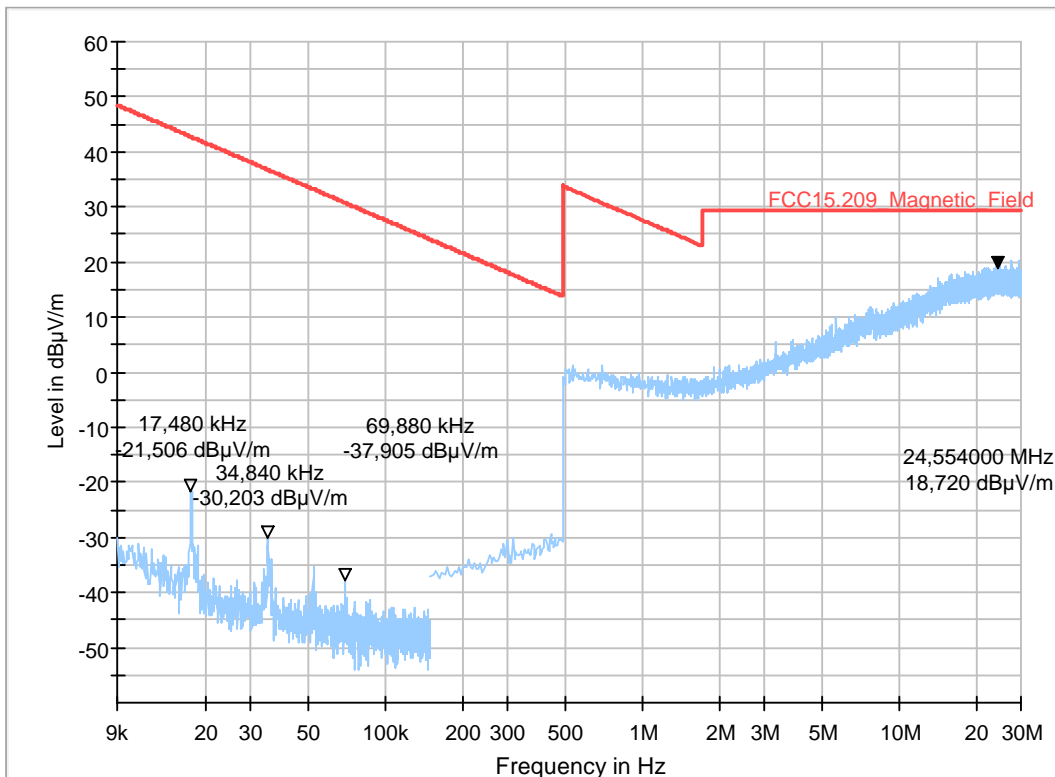
## 2.201\_H\_field\_UMTS\_FDD\_B02\_CH\_9400

### Common Information

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
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 Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	npe
Operating Mode:	UMTS FDDII TCH
Environmental Conditions:	Humidity : 50% rH; Temperature: 21 °C
EUT Setup:	2, laying
Verdict:	Passed

### EUT Information

PMT number	22-1-00306S139_C01
	Full Spectrum



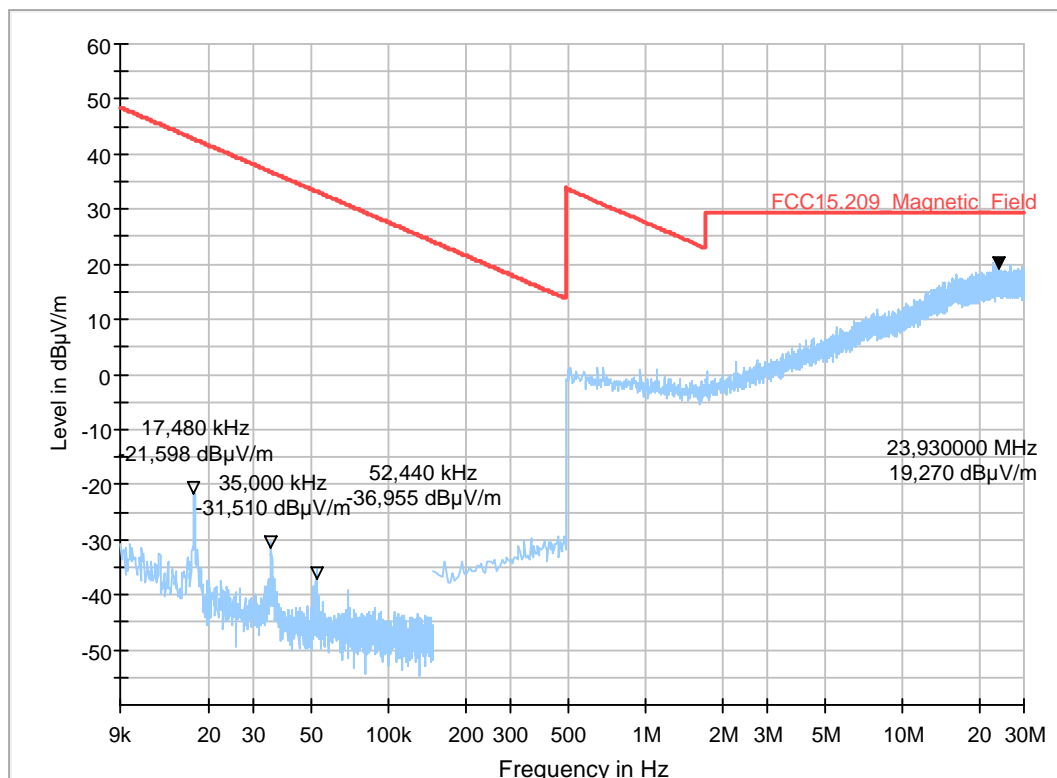
## 2.401\_H\_field\_UMTS\_FDD\_B04\_CH\_1513

### Common Information

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
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 Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	npe
Operating Mode:	UMTS FDDIV TCH
Environmental Conditions:	Humidity : 50% rH; Temperature: 21 °C
EUT Setup:	2, laying
Verdict:	Passed

### EUT Information

PMT number 22-1-00306S139\_C01  
Full Spectrum



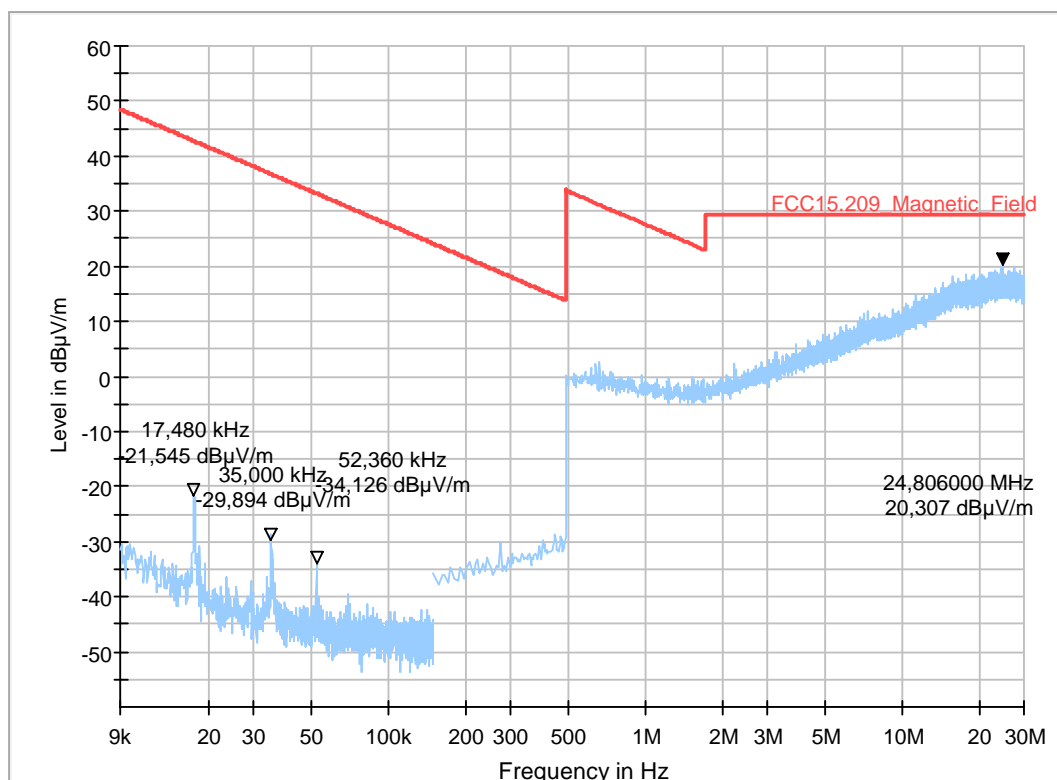
## 2.501\_H\_field\_UMTS\_FDD\_B05\_CH\_4233

### Common Information

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
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 Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	npe
Operating Mode:	UMTS FDDV TCH
Environmental Conditions:	Humidity : 50% rH; Temperature: 21 °C
EUT Setup:	2, laying
Verdict:	Passed

### EUT Information

PMT number	22-1-00306S139_C01
	Full Spectrum



## 8.02\_Traffic\_mode\_UMTS\_FDD\_B02\_CH\_9400

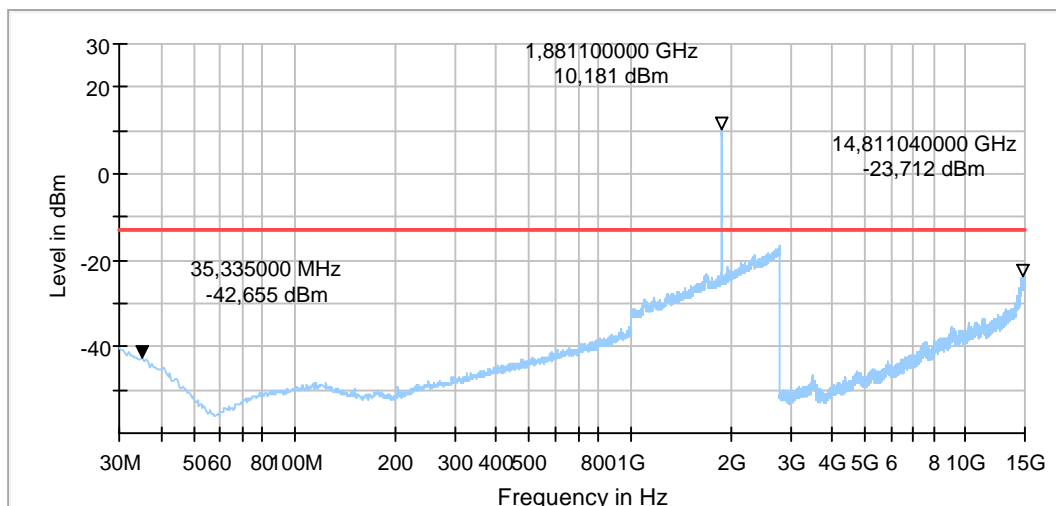
### Common Information

Test Description:	Radiated emission
Test Site:	Fully-Anechoic Chamber
Test Standard:	FCC FCC Part 27.53(h) AWS emission limits / RSS-139, Issue 3
Antenna polarisation:	vertical / horizontal
Measurement software version	EMC32 V10.60.20
Operating Mode:	UMTS FDDII ch9400
Operator:	TFra
EUT Setup:	2
Verdict:	Passed

### EUT Information

PMT number: 22-1-00306S139\_C01

Full Spectrum



Remark: Emission at 1.88 GHz is uplink frequency of UMTS FDD 2 and not related to result.

## 8.03a\_Traffic\_mode\_UMTS\_FDD\_B02\_CH\_9400

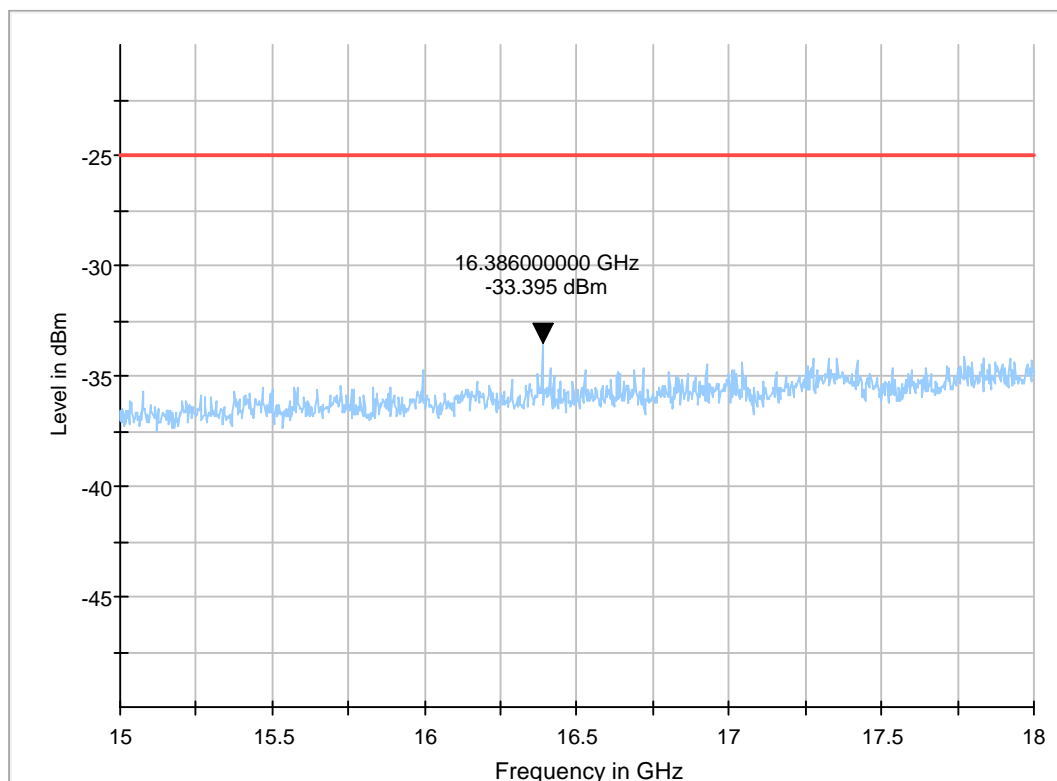
### Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 24
Comm. Link:	WCDMA FDDII
Operating Mode:	MS allocated channel 9400
Exclusionband:	--
Environmental Conditions:	Humidity: 45% rH; Temperature: 21 °C
Operator:	npe
Set-up:	EUT laying, Ant Hor
EUT Setup:	1
Verdict:	Passed

### EUT Information

PMT Sample Nr.	22-1-00306S58_C01
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Full Spectrum



## 8.03b\_Traffic\_mode\_UMTS\_FDD\_B02\_CH\_9400

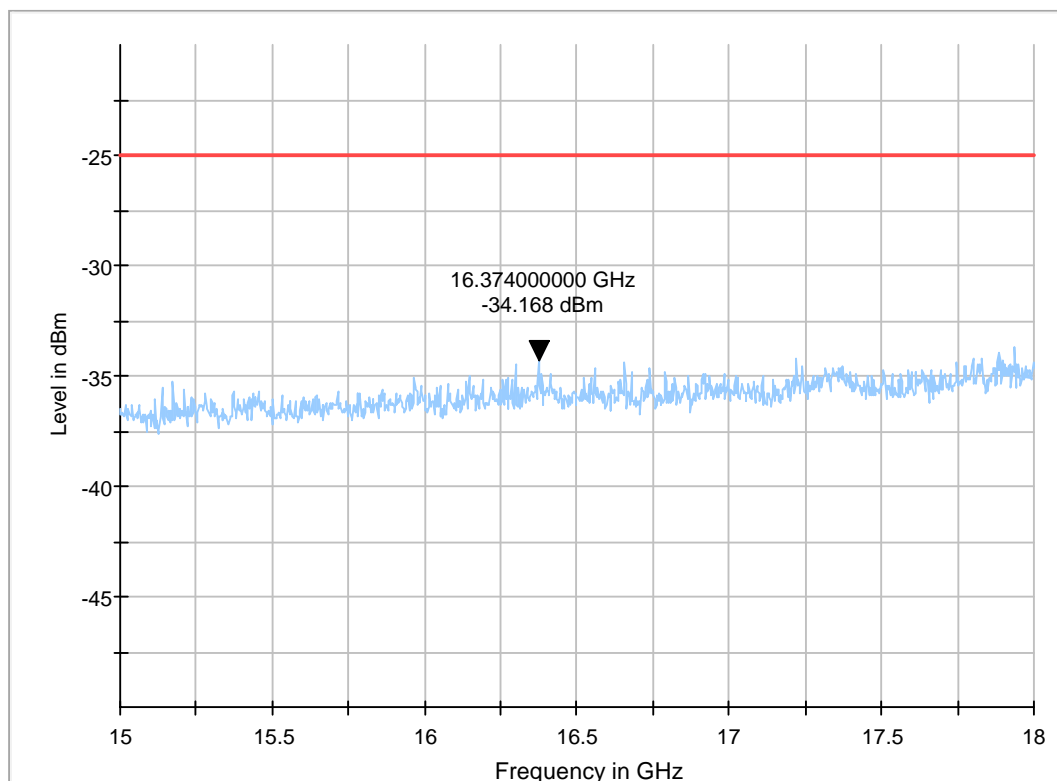
### Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 24
Comm. Link:	WCDMA FDDII
Operating Mode:	MS allocated channel 9400
Exclusionband:	--
Environmental Conditions:	Humidity: 45% rH; Temperature: 21 °C
Operator:	npe
Set-up:	EUT standing, Ant hor
EUT Setup:	1
Verdict:	Passed

### EUT Information

PMT Sample Nr. 22-1-00306S58\_C01

Full Spectrum





# 8.03c\_Traffic\_mode\_UMTS\_FDD\_B02\_CH\_9400

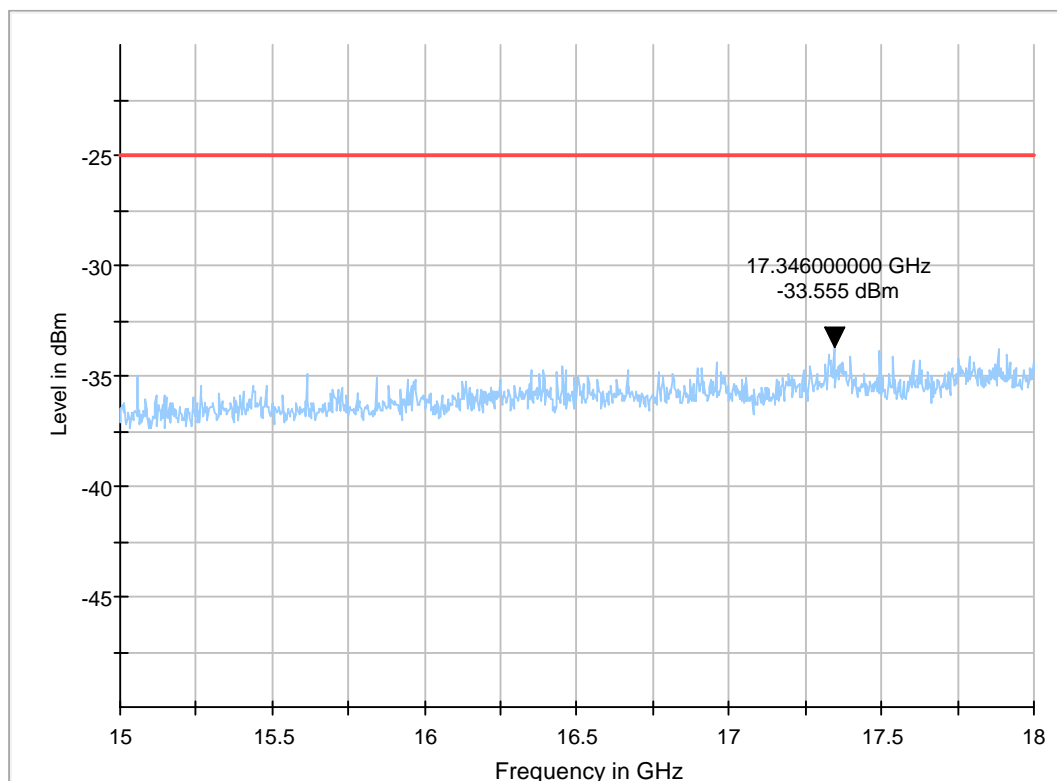
## Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 24
Comm. Link:	WCDMA FDDII
Operating Mode:	MS allocated channel 9400
Exclusionband:	--
Environmental Conditions:	Humidity: 45% rH; Temperature: 21 °C
Operator:	npe
Set-up:	EUT laying, Ant ver
EUT Setup:	1
Verdict:	Passed

## EUT Information

PMT Sample Nr. 22-1-00306S58\_C01

Full Spectrum



## 8.03d\_Traffic\_mode\_UMTS\_FDD\_B02\_CH\_9400

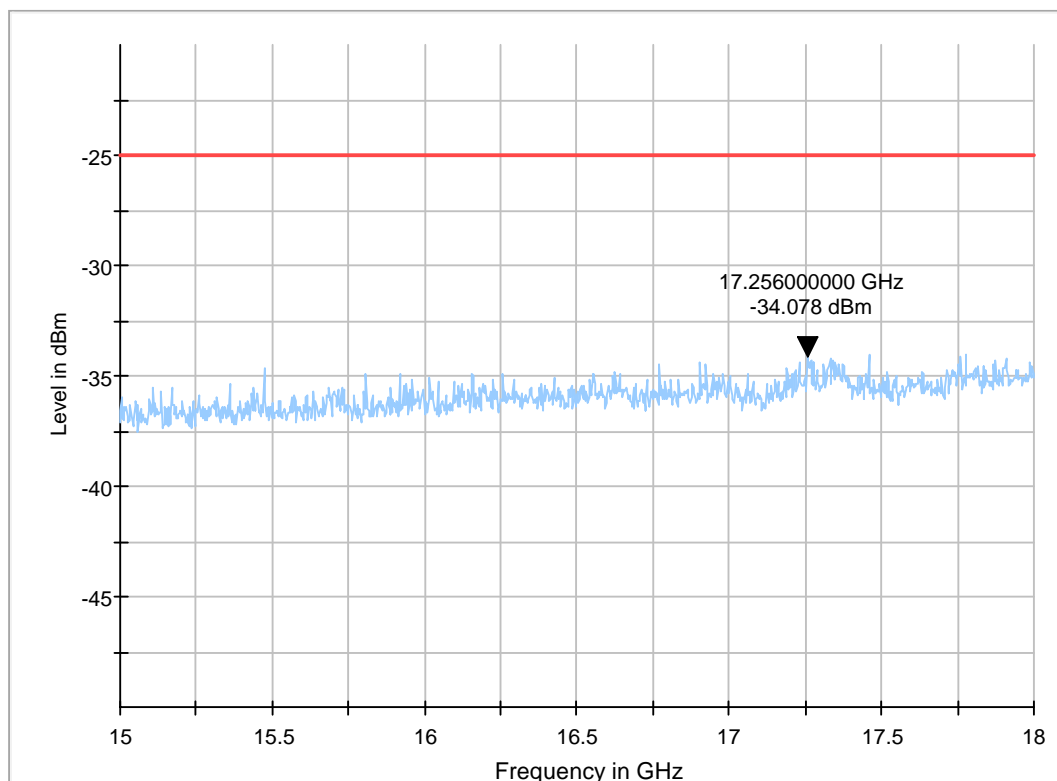
### Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 24
Comm. Link:	WCDMA FDDII
Operating Mode:	MS allocated channel 9400
Exclusionband:	--
Environmental Conditions:	Humidity: 45% rH; Temperature: 21 °C
Operator:	npe
Set-up:	EUT standing, Ant ver
EUT Setup:	1
Verdict:	Passed

### EUT Information

PMT Sample Nr.	22-1-00306S58_C01
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Full Spectrum



## 8.04a\_c\_Traffic\_mode\_UMTS\_FDD\_B02\_CH\_9400\_EUT\_laying

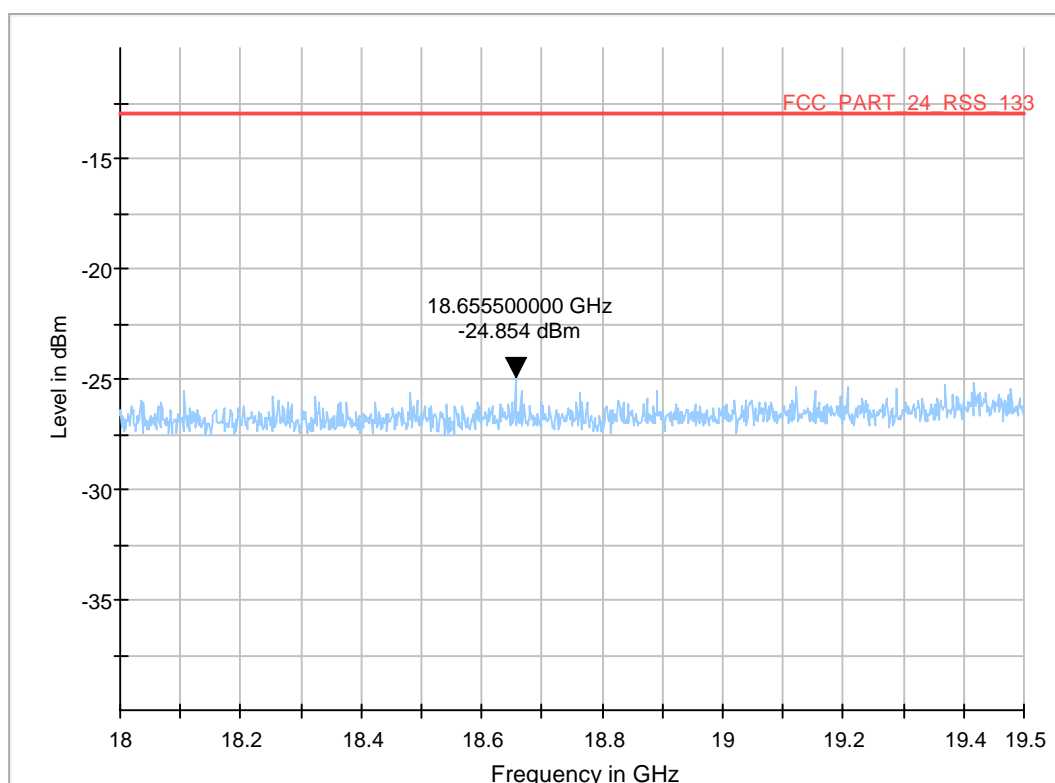
### Common Information

Test Description:	Radiated Spurious Emissions W-CDMA II
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 24.238 / RSS-133
Comm. Link:	WCDMA FDDII
Operating Mode:	MS allocated channel 9400
Exclusionband:	1850- 1910MHz
Environmental Conditions:	Humidity: 45% rH; Temperature: 22.1 °C
Operator:	Lor
EUT Setup:	EUT laying, Ant hor/ver, secondary antenna
EUT Setup:	1
Verdict:	Passed

### EUT Information

PMT Sample Nr.	22-1-00306S58_C01
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Full Spectrum



## 8.04b\_d\_Traffic\_mode\_UMTS\_FDD\_B02\_CH\_9400\_EUT\_standing

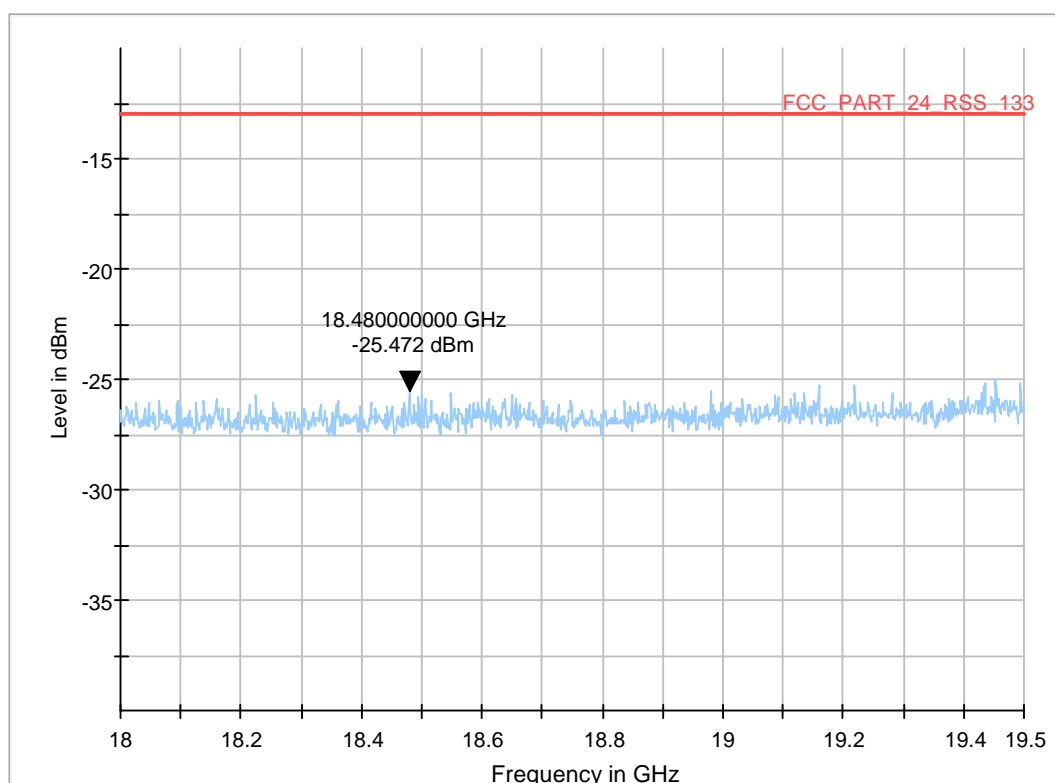
### Common Information

Test Description:	Radiated Spurious Emissions W-CDMA II
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 24.238 / RSS-133
Comm. Link:	WCDMA FDDII
Operating Mode:	MS allocated channel 9400
Exclusionband:	1850- 1910MHz
Environmental Conditions:	Humidity: 45% rH; Temperature: 22.1 °C
Operator:	Lor
EUT Setup:	EUT standing, Ant hor/ver, secondary antenna
EUT Setup:	1
Verdict:	Passed

### EUT Information

PMT Sample Nr.	22-1-00306S58_C01
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Full Spectrum



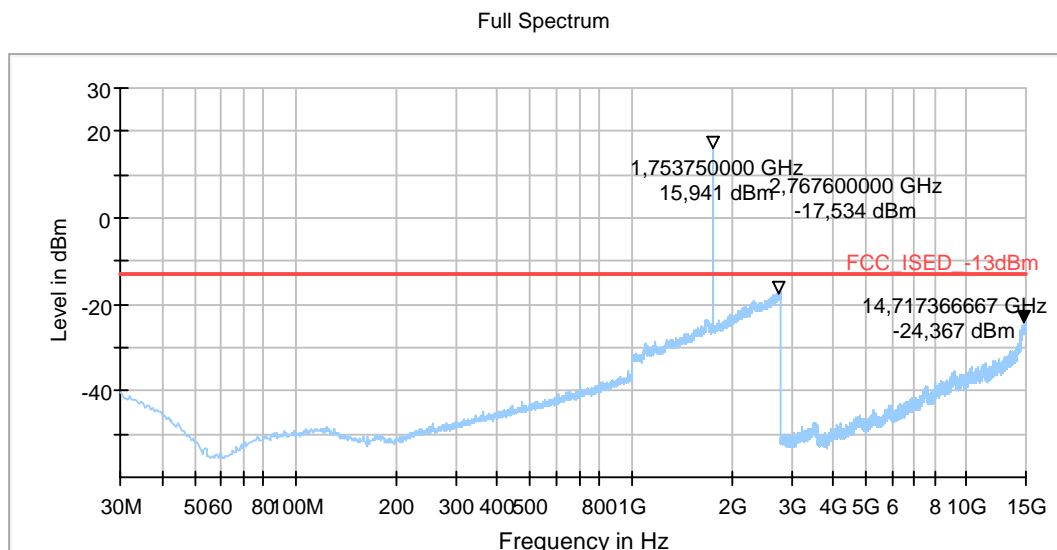
## 8.05\_Traffic\_mode\_UMTS\_FDD\_B04\_CH\_1513

### Common Information

Test Description:	Radiated emission
Test Site:	Fully-Anechoic Chamber
Test Standard:	FCC FCC Part 27.53(h) AWS emission limits / RSS-139, Issue 3
Antenna polarisation:	vertical / horizontal
Measurement software version	EMC32 V10.60.20
Operating Mode:	UMTS FDDIV ch1513 1752.6MHz
Operator:	TFra
EUT Setup:	2
Verdict:	Passed

### EUT Information

PMT number:	22-1-00306S139_C01
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Remark: Emission at 1.75 GHz is uplink frequency of UMTS FDD 4 and not related to result.

## 8.06a\_Traffic\_mode\_UMTS\_FDD\_B04\_CH\_1513

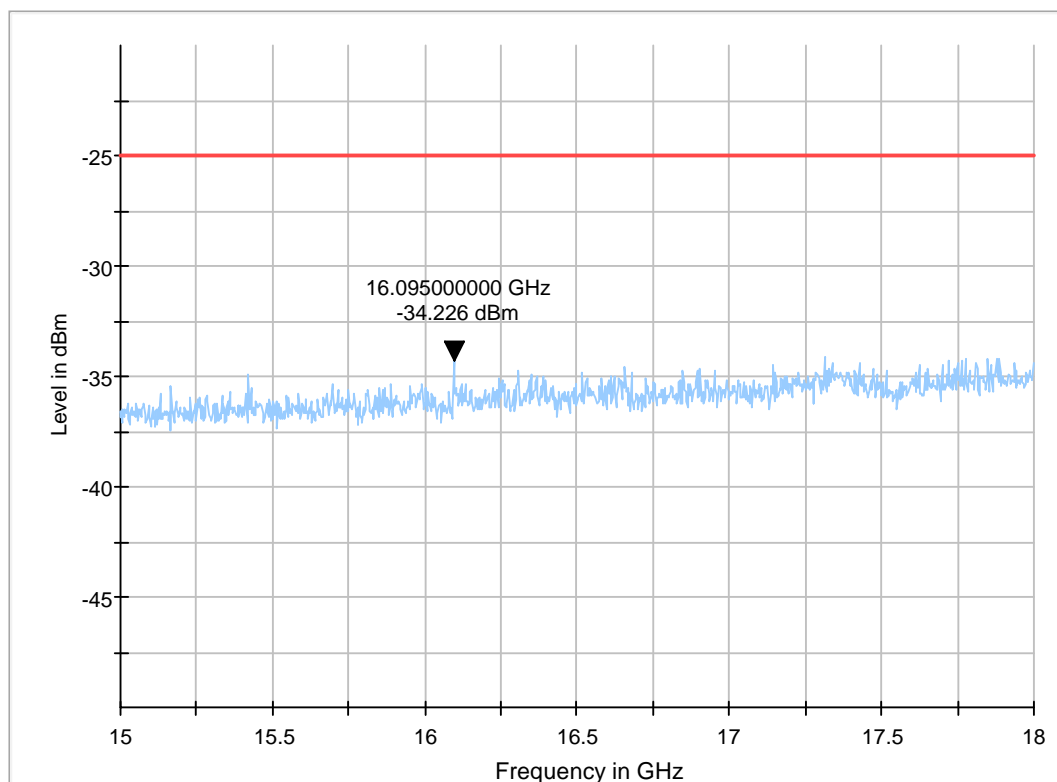
### Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 27.53 (m)(4)/ RSS-139
Comm. Link:	WCDMA FDDIV
Operating Mode:	MS allocated channel 1513
Exclusionband:	--
Environmental Conditions:	Humidity: 45% rH; Temperature: 21 °C
Operator:	npe
Set-up:	1 EUT laying, Ant hor
Verdict:	Passed

### EUT Information

PMT Sample Nr.	22-1-00306S58_C01
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Full Spectrum



# 8.06b\_Traffic\_mode\_UMTS\_FDD\_B04\_CH\_1513

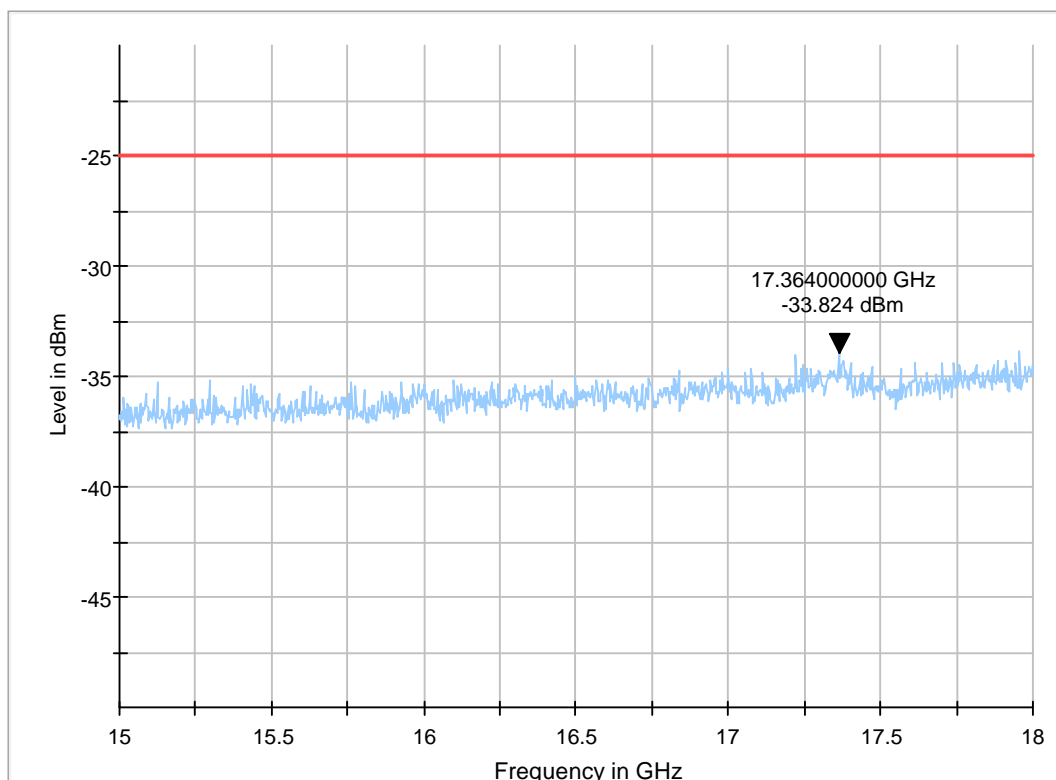
## Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 27.53 (m)(4)/ RSS-139
Comm. Link:	WCDMA FDDIV
Operating Mode:	MS allocated channel 1513
Exclusionband:	--
Environmental Conditions:	Humidity: 45% rH; Temperature: 21 °C
Operator:	npe
Set-up:	1 EUT standing, Ant hor
Verdict:	Passed

## EUT Information

PMT Sample Nr. 22-1-00306S58\_C01

Full Spectrum



# 8.06c\_Traffic\_mode\_UMTS\_FDD\_B04\_CH\_1513

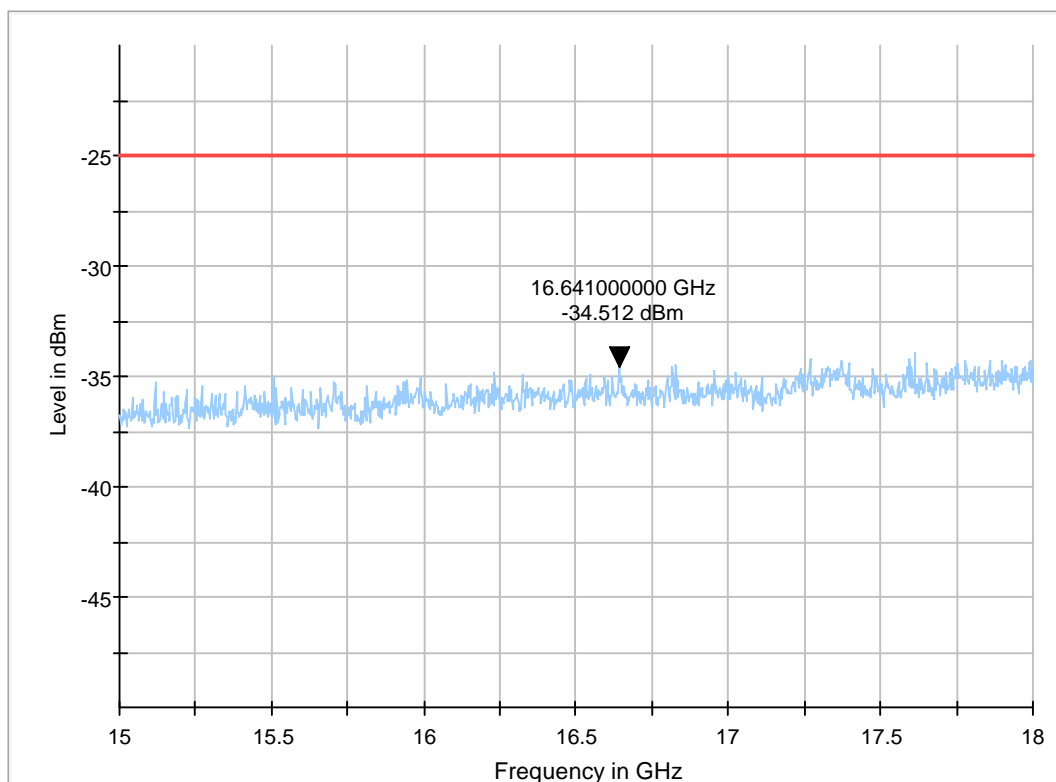
## Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 27
Comm. Link:	WCDMA FDDIV
Operating Mode:	MS allocated channel 1312
Exclusionband:	--
Environmental Conditions:	Humidity: 45% rH; Temperature: 21 °C
Operator:	npe
Set-up:	1 EUT laying, Ant ver
Verdict:	Passed

## EUT Information

PMT Sample Nr. 22-1-00306S58\_C01

Full Spectrum





# 8.06d\_Traffic\_mode\_UMTS\_FDD\_B04\_CH\_1513

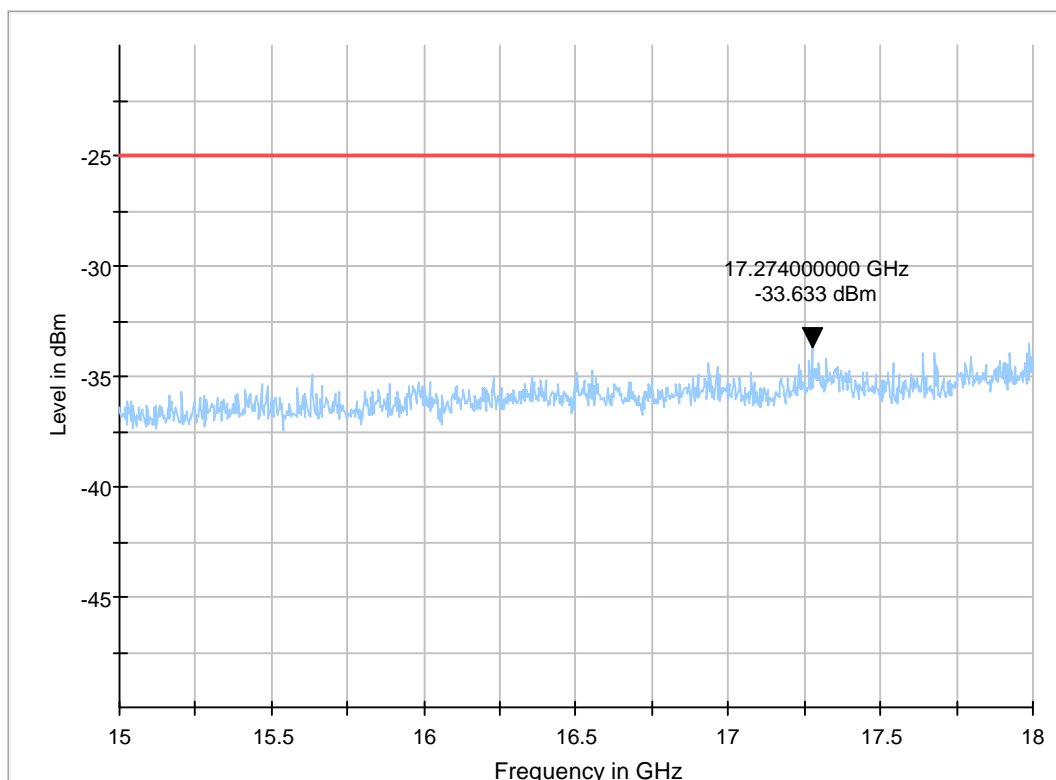
## Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC Part 27
Comm. Link:	WCDMA FDDIV
Operating Mode:	MS allocated channel 1312
Exclusionband:	--
Environmental Conditions:	Humidity: 45% rH; Temperature: 21 °C
Operator:	npe
Set-up:	1 EUT standing, Ant hor
Verdict:	Passed

## EUT Information

PMT Sample Nr. 22-1-00306S58\_C01

Full Spectrum



## 8.07\_Traffic\_mode\_UMTS\_FDD\_B05\_CH\_4233

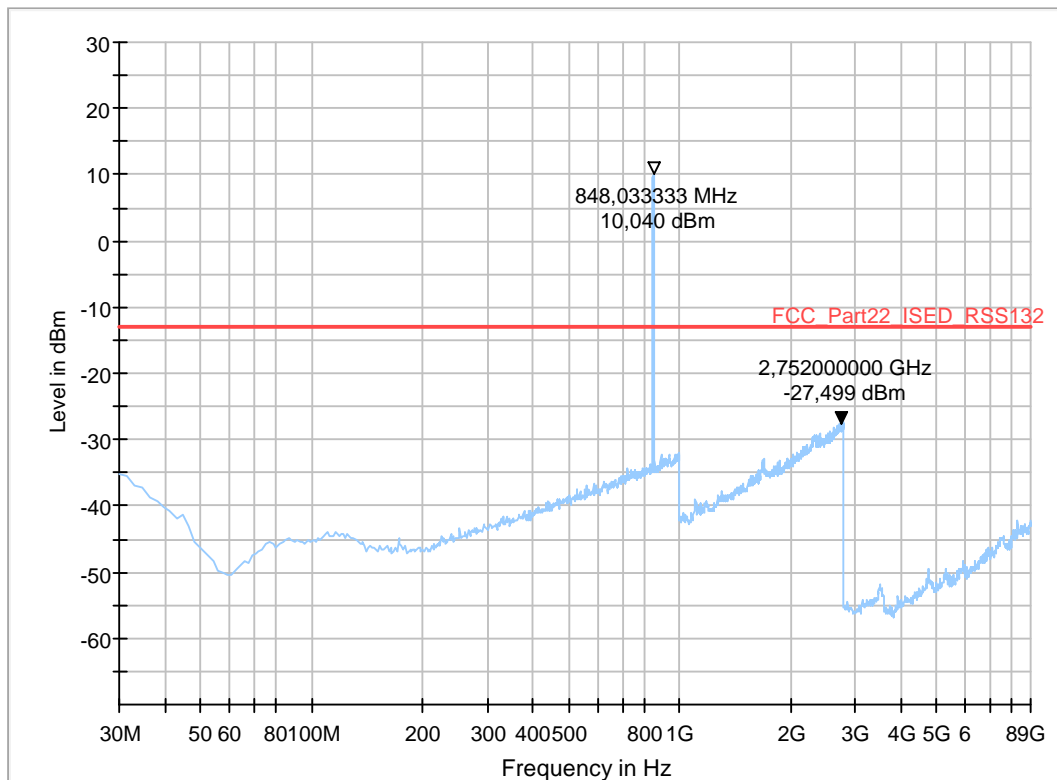
### Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC Part 22
Antenna polarisation:	vertical / horizontal
Manufacturer:	Continental
Operating Mode:	TCH WCDMA FDDV, ch 4233
Operator:	npe
Comment:	backup antenna
Environmental Conditions:	Humidity : 48% rH; Temperature: 20 °C
EUT Setup:	1
Verdict:	Passed

### EUT Information

PMT Sample Nr:	22-1-00306S58_C01
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Full Spectrum



Remark: Emission at 848.03 MHz is uplink frequency of UMTS FDD 5 and not related to result.

## 9.201\_Bandedge\_low\_Channel\_9262\_UL\_1852.4

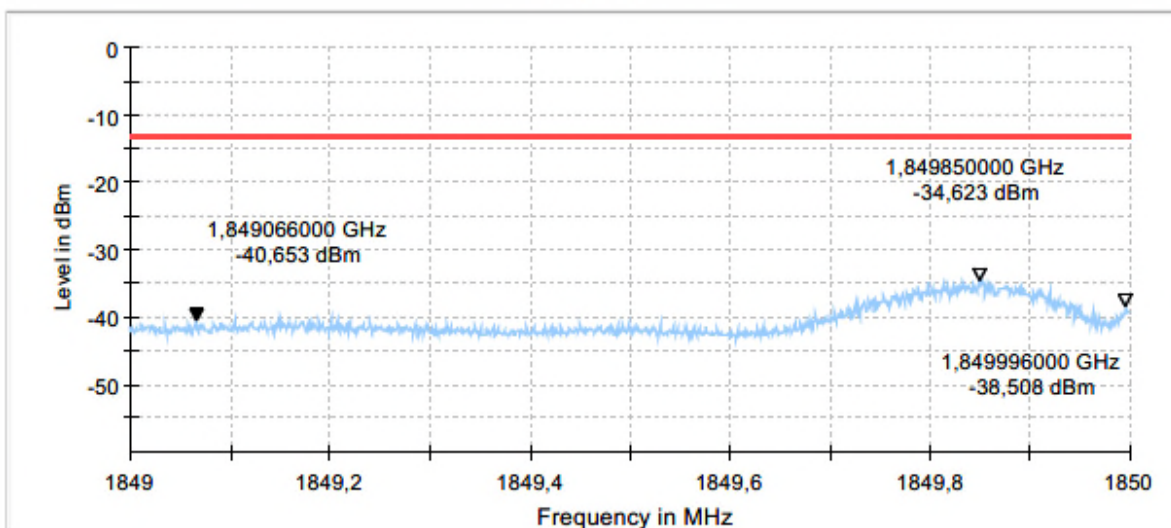
### Common Information

Test Description:	-
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	-
Test Case:	-
Operating Mode:	UMTS FDDII ch9262 1852.4MHz
Environmental Conditions::	Humidity : 45% rH; Temperature: 19 °C
Operator:	TFra
EUT Setup:	2
Verdict:	Passed

### EUT Information

PMT number: 22-1-00306S139\_C01

Full Spectrum



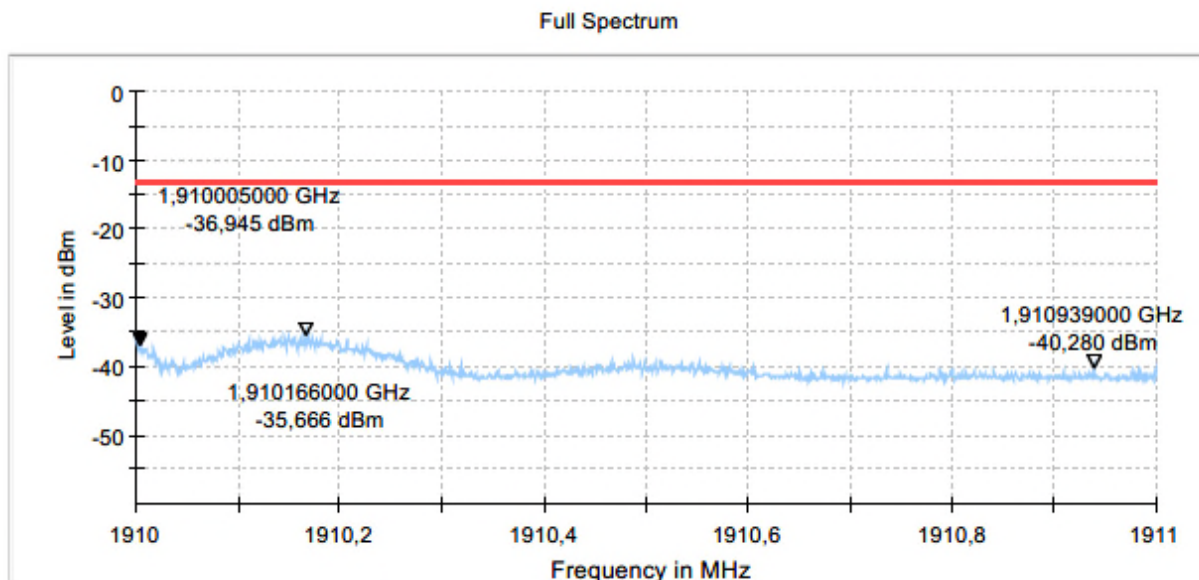
## 9.202\_Bandedge\_high\_Channel\_9538\_UL\_1907.6

### Common Information

Test Description:	-
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	-
Test Case:	-
Operating Mode:	UMTS FDDII ch9538 1907.6MHz
Environmental Conditions:	Humidity : 45% rH; Temperature: 19 °C
Operator:	TFra
EUT Setup:	2
Verdict:	Passed

### EUT Information

PMT number:	22-1-00306S139_C01
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## 9.401\_Bandedge\_low\_Channel\_1312\_UL\_1712.6

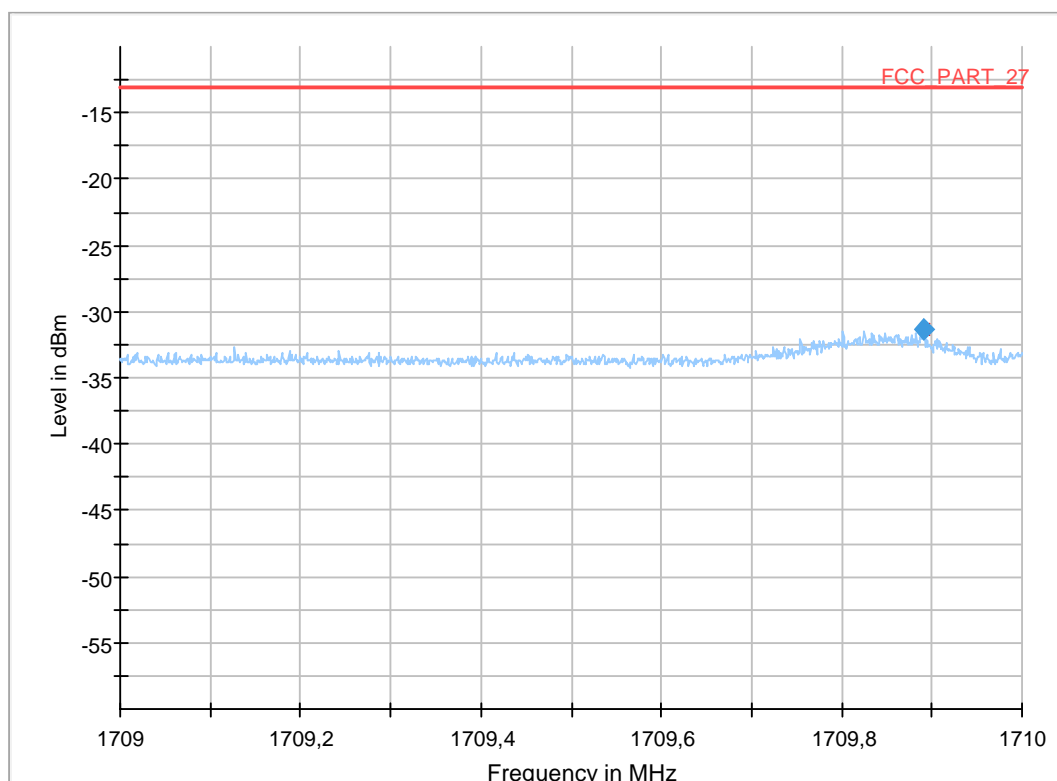
### Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC Part 27
Test Case:	Radiated Band Edge
Operating Mode:	UMTS FDDIV 1312
Environmental Conditions:	Humidity : 40% rH; Temperature: 18 °C
Operator:	npe
EUT Setup:	2
Verdict:	Passed

### EUT Information

PMT number: 22-1-00306S139\_C01

Full Spectrum



### Final Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1709.891000	-31.41	-13.00	18.41	700.0	50.000	H	151.0	90.0	-62

## 9.402\_Bandedge\_high\_Channel\_1513\_UL\_1752.4

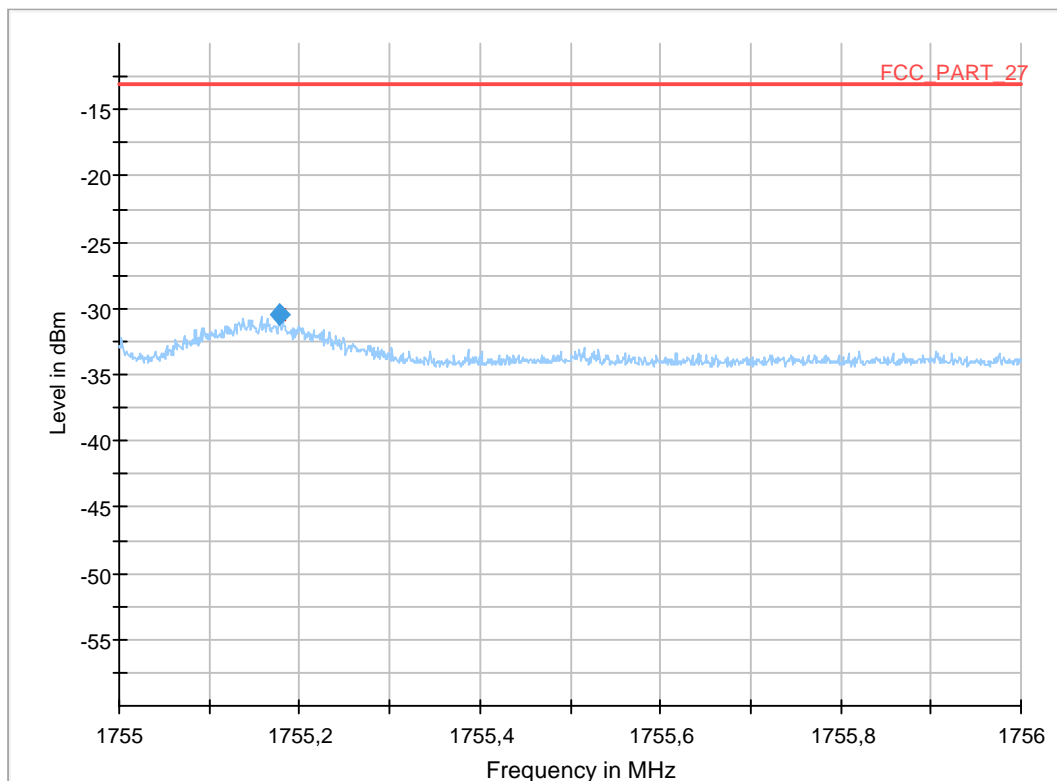
### Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC Part 27
Test Case:	Radiated Band Edge
Operating Mode:	UMTS FDDIV 1513
Environmental Conditions:	Humidity : 40% rH; Temperature: 18 °C
Operator:	npe
EUT Setup:	2
Verdict:	Passed

### EUT Information

PMT number: 22-1-00306S139\_C01

Full Spectrum



### Final Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1755.177000	-30.51	-13.00	17.51	700.0	50.000	H	239.0	90.0	-62

# 9.501\_Bandedge\_low\_Channel\_4132\_UL\_826.4

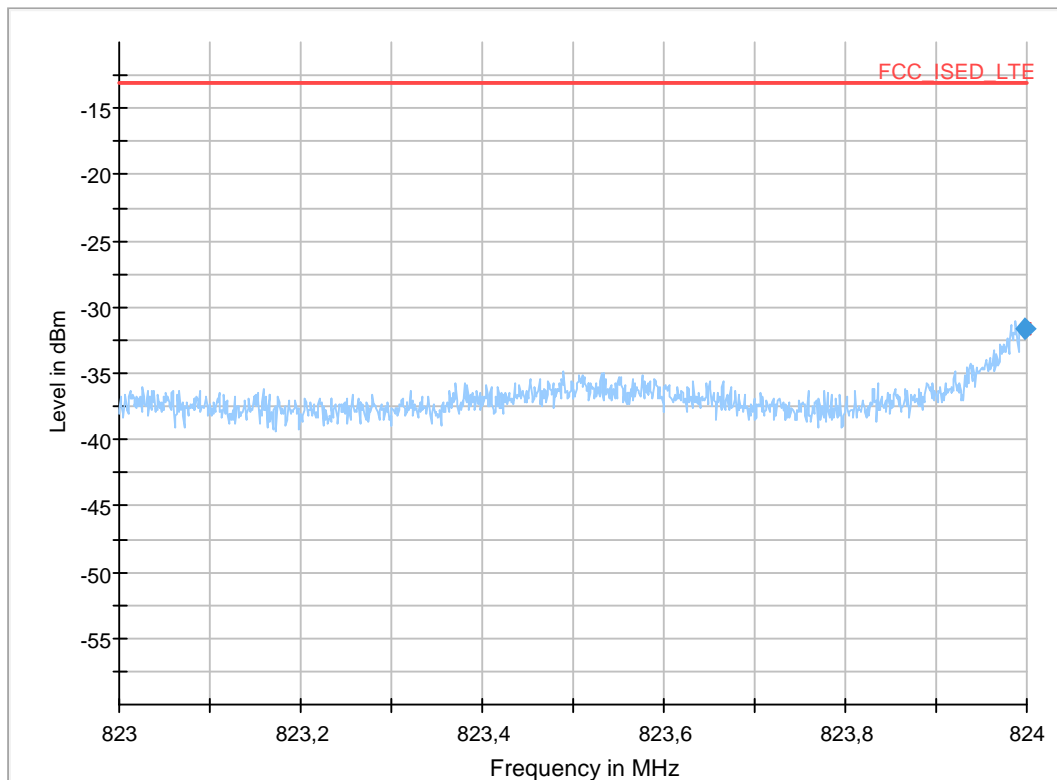
## Common Information

Test Description: Band-Edge low - Radiated Spurious Emissions  
 Test Site Location: CETECOM GmbH Essen  
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20  
 Test Standard: FCC Part 22.917(a) / RSS-132  
 Operating Mode: UE allocated channel 4132  
 Environmental Conditions: Humidity: 40% rH; Temperature: 20 °C  
 Test SW Version: EMC32 V10.60.20  
 Operator: npe  
 EUT Setup: backup ant  
 EUT Setup: 2  
 Verdict: Passed

## EUT Information

PMT number: 22-1-00306S139\_C01

Full Spectrum



## Final Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
823.997000	-31.69	-13.00	18.69	700.0	20.000	H	22.0	90.0	-76

## 9.502\_Bandedge\_high\_Channel\_4233\_UL\_846.6

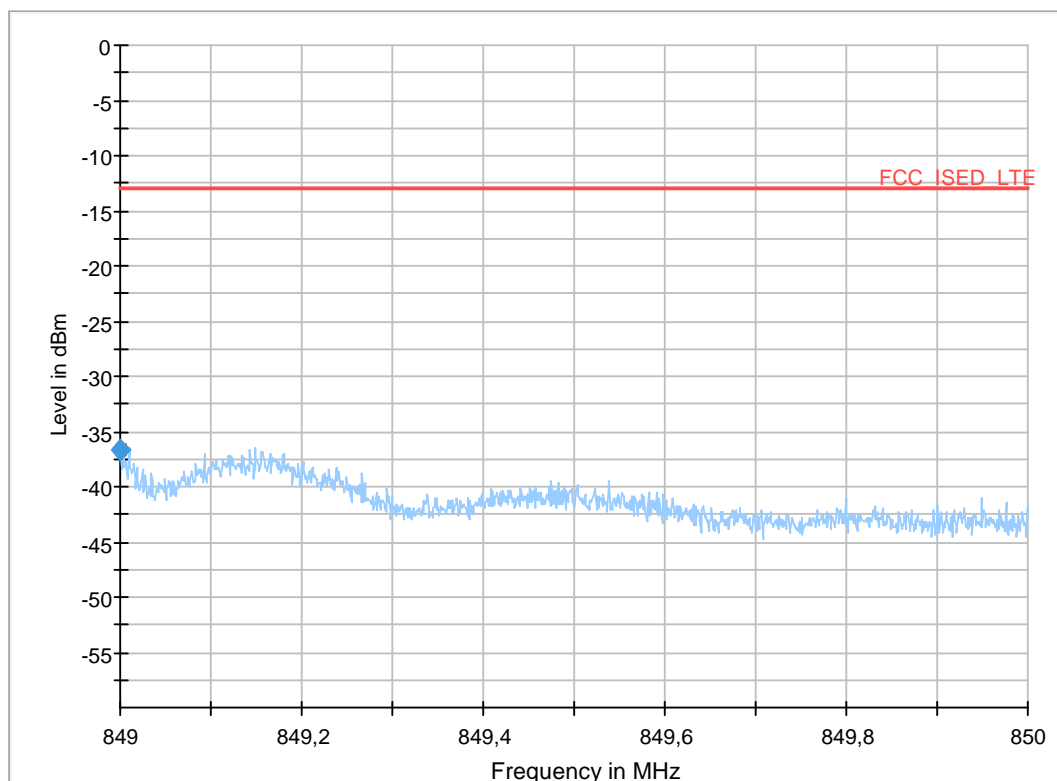
### Common Information

Test Description: Band-Edge low - Radiated Spurious Emissions LTE Band V  
 Test Site Location: CETECOM GmbH Essen  
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20  
 Test Standard: FCC Part 22.917(a) / RSS-132  
 Operating Mode: UE allocated channel 4233  
 Environmental Conditions: Humidity: 40% rH; Temperature: 20 °C  
 Test SW Version: EMC32 V10.60.20  
 Operator: npe  
 EUT Setup: backup ant  
 EUT Setup: 2  
 Verdict: Passed

### EUT Information

PMT number: 22-1-00306S139\_C01

Full Spectrum



### Final Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
849.001000	-36.60	-13.00	23.60	700.0	20.000	H	19.0	90.0	-76

**End Of Annex 1**