Annex 1: Measurement diagrams
to T E S T R E P O R T
No.: **6-0668-15-3-13b**

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

IC-Regulations
RSS-132 Issue 3, RSS-133 Issue 6,
RSS-139 Issue 2, RSS-Gen Issue 4
RSS-130, Issue 1

for

ACTIA Nordic AB

Telematic unit for automotive use
ACUII-06

FCC-ID: 2AGKKACUII-06
IC: 20839-ACUII06
PMN: ACUII-06
HVIN: ACUII-06

Laboratory Accreditation and Listings			
DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	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
Wi Fi ALLIANCE AUTHORIZED RF LABORATORY	ctia Authorized™ Test Lab Lab Code: 20011130-00		
accredited according to DIN EN ISO/IEC 17025			

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E-mail: info@cetecom.com • Internet: www.cetecom.com

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Table of contents

The listed attachments are an integral part of this report.

1. Measurement diagrams

1.1. Magnetic field emissions in frequency range 9kHz to 30MHz

1.1.1. Magnetic field emissions (GSM-Mode)

Diagram No. 2.01_Ch128_ExtAnt_GPRS

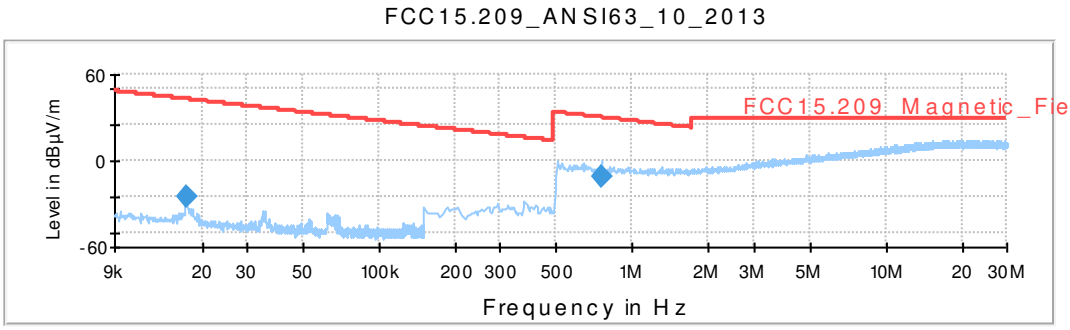
Date: 16.01.2016 Page 1 of 1

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 V8.51.0
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:	Lor
Operating conditions:	GPRS Channel 128
Power during tests:	13.8V DC
Comment 1:	Channel Low
Comment 2:	External Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

FCC15.209_ANSI63_10_2013



Final Result 1

Frequency (MHz)	RMS (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.017240	-25.6	1000.0	0.200	100.0	H	80.0	-58.7	68.50	42.90
0.754000	-11.7	1000.0	10.000	100.0	V	304.0	-20.1	41.70	30.10

(continuation of the "Final Result 1" table from column 10 ...)

Frequency	Comment
0.017240	
0.754000	

Diagram No. 2.02_Ch251_ExtAnt_GPRS

Date: 16.01.2016 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 V8.51.0
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:	Lor
Operating conditions:	Ch251
Power during tests:	13.8V DC
Comment 1:	Channel High
Comment 2:	Internal Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

FCC15.209_ANSI63_10_2013

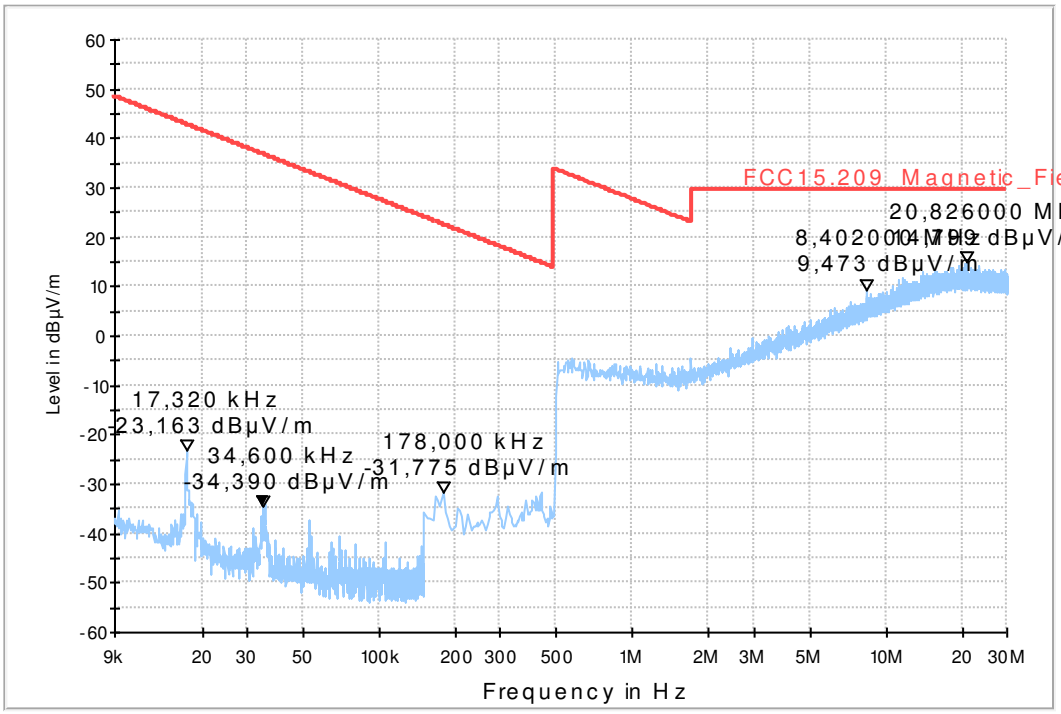


Diagram 2.08_Ch810_GPRS__ExtAnt

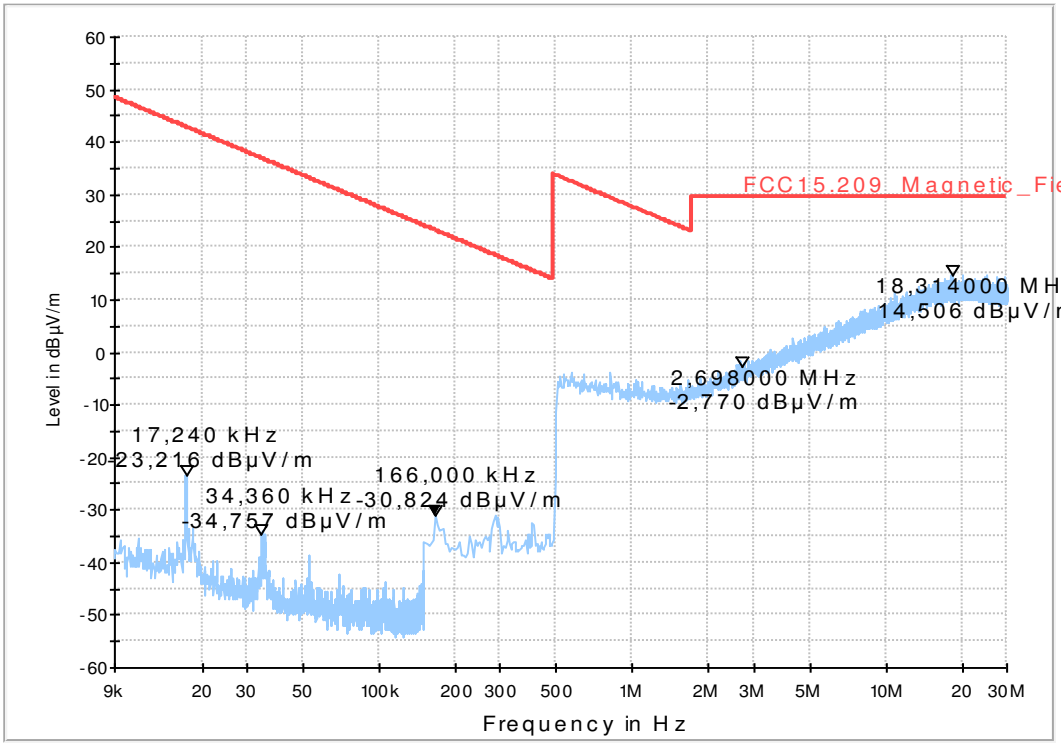
Common Information

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 V8.51.0
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
Operating Conditions:	Ch810
Operator Name:	MFr
Comment 1:	Ch 810
Comment 2:	External Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

FCC15.209_ANSI63_10_2013



1.1.2. Magnetic field emissions (LTE-Mode)

Diagram No. 2.03_Ch23755_BW5MHz_25RBs_QPSK_ExtAnt

Date: 16.01.2016 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 V8.51.0
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:	Lor
Operating conditions:	TX-on, LTE Band 17, low channel =23755
Power during tests:	13.8V DC
Comment 1:	Channel low=23755, QPSK-Modulation, 25RBs (5MHZ BW)
Comment 2:	External Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

FCC15.209_ANSI63_10_2013

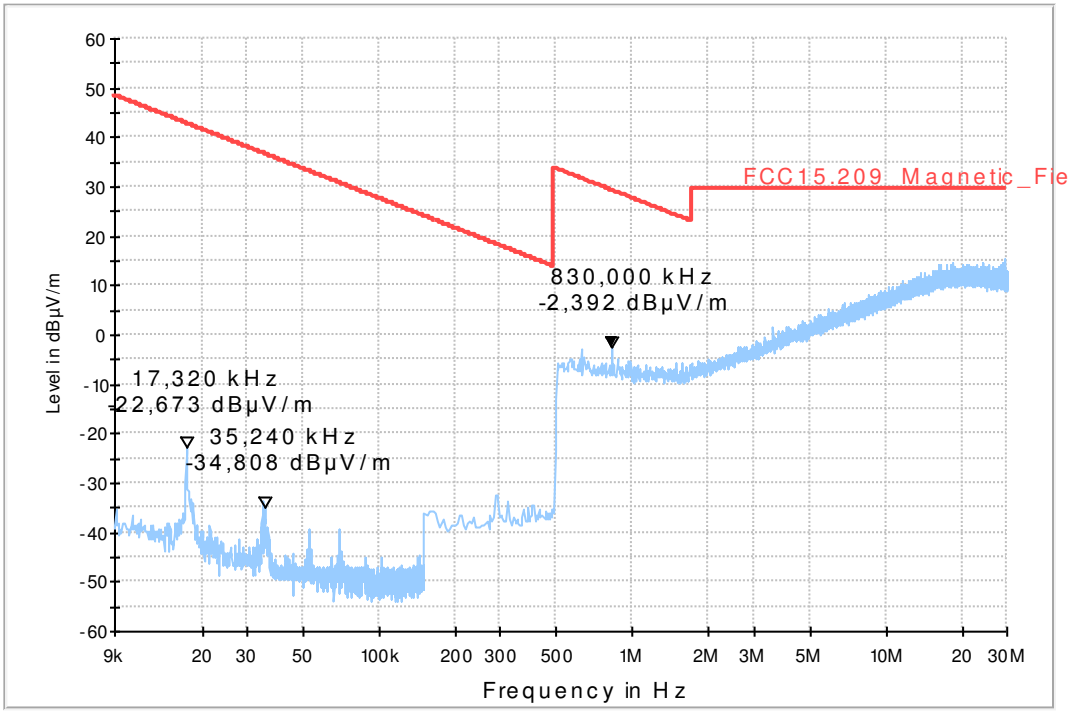


Diagram No. 2.04_Ch23755_BW5MHz_25RBs_QPSK_IntAnt

Date: 16.01.2016 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 V8.51.0
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:	Lor
Operating conditions:	TX-on, LTE Band 7, low channel =23755
Power during tests:	13.8V DC
Comment 1:	Channel high=23825, QPSK, 5MHZ BW
Comment 2:	Internal Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

FCC15.209_ANSI63_10_2013

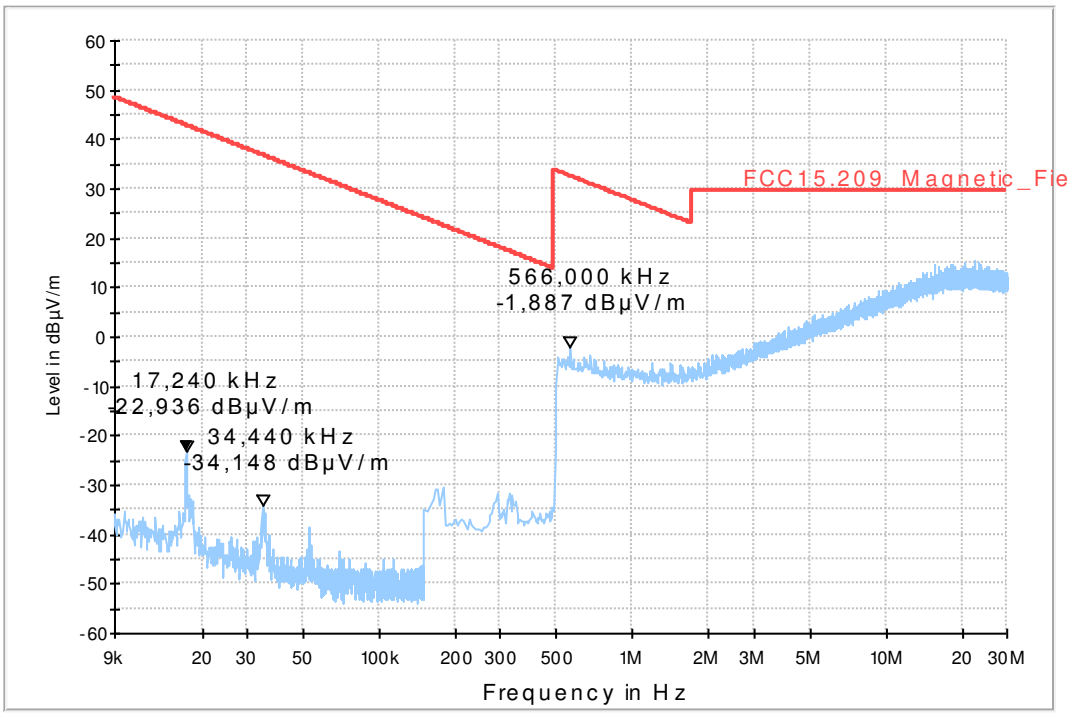


Diagram No. 2.05_Ch19975_BW5MHz_25RBs_QPSK_IntAnt

Date: 16.01.2016 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 V8.51.0
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:	Lor
Operating conditions:	TX, LTE Band 4 / QPSK/ 25RBs /5MHZ BW
Power during tests:	13.8V DC
Comment 1:	Channel low=19975
Comment 2:	Internal Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

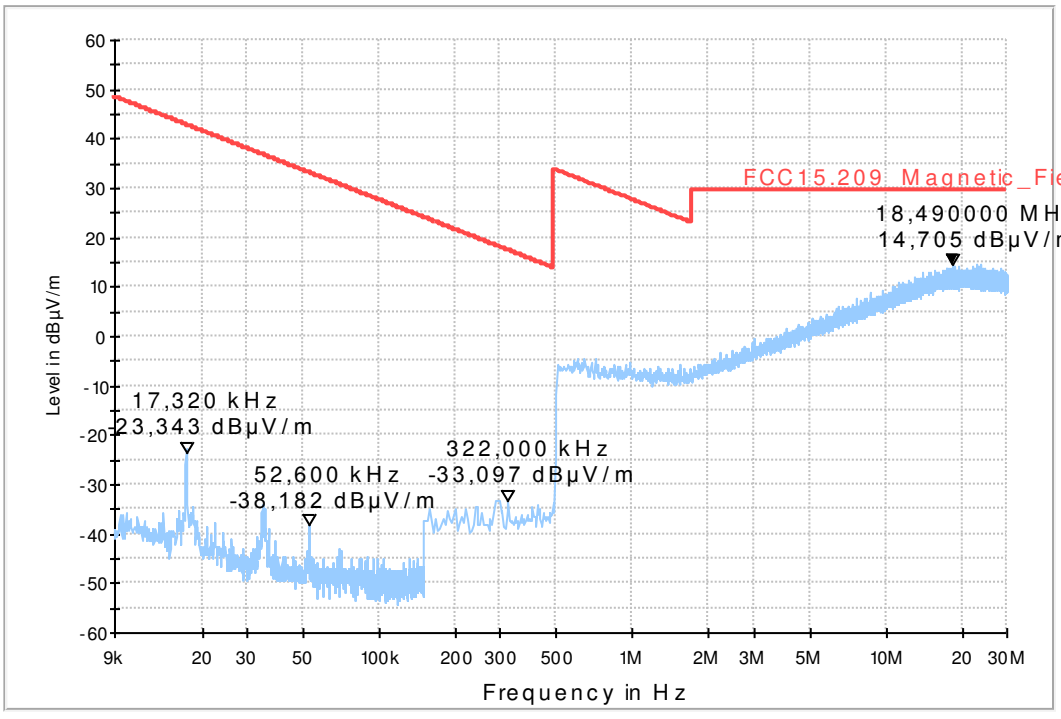


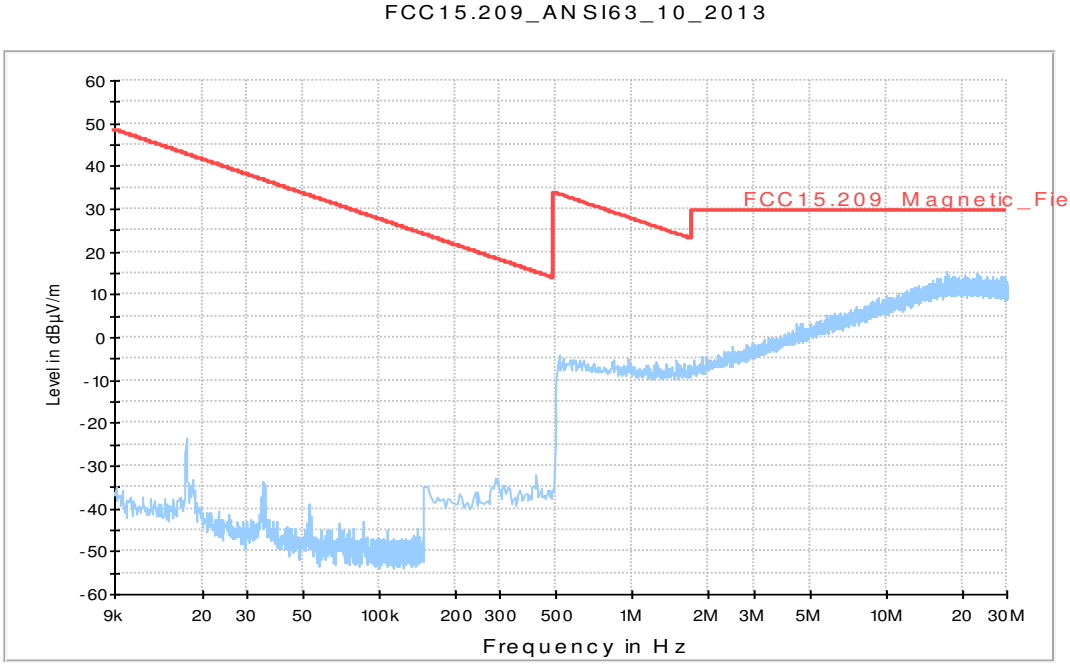
Diagram No. 2.07_Ch18625_BW5MHz_25RBs_QPSK_IntAnt

Date: 16.01.2016 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 V8.51.0
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:	Lor
Operating conditions:	TX, LTE Band 2 / QPSK/ 25RBs /5MHz BW
Power during tests:	13.8V DC
Comment 1:	Channel low=18625
Comment 2:	Internal Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1



1.2. Spurious emissions radiated

1.2.1. Emissions in GSM-Mode

8.04b_RSE_R_CH128_GPRS_ExtAnt

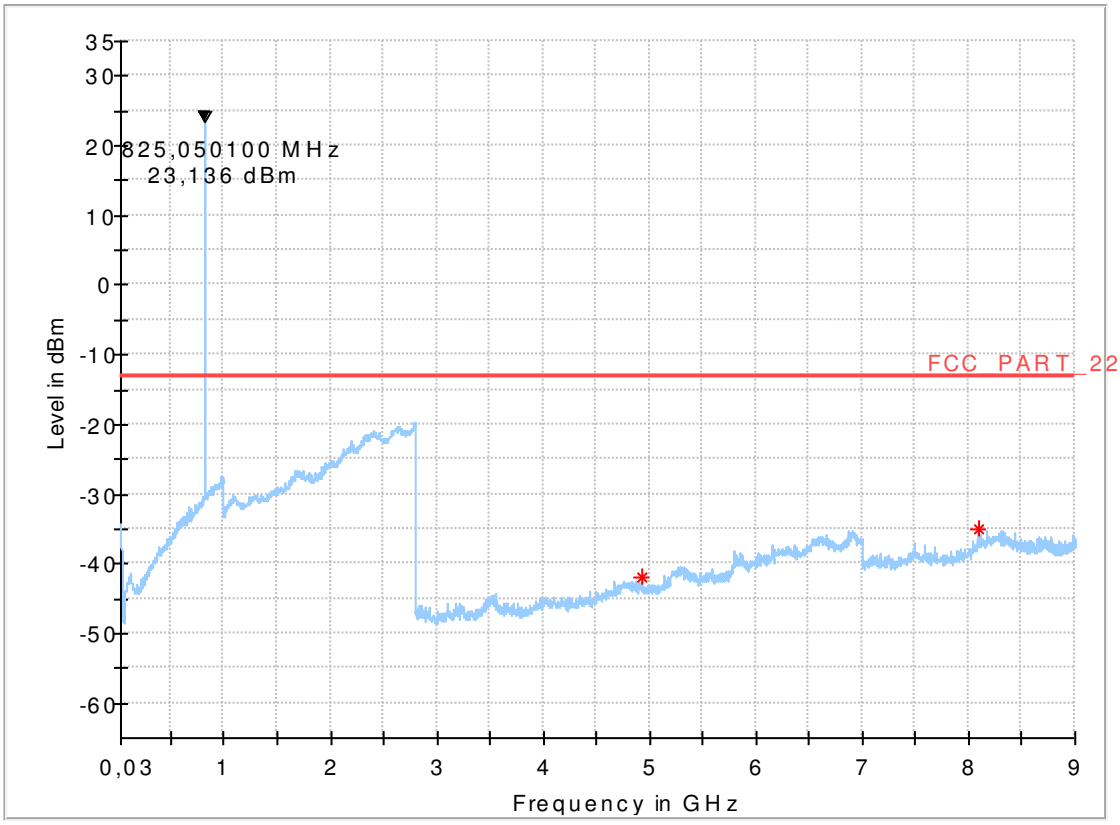
Common Information

Test Description:	Radiated Emissions GSM850
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part22.917 / RSS-132, Issue 3
Software	EMC32 V9.21.0
Operating Mode:	MS allocated UL channel 128
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 35%rH; Temperature: 22.8°C
Operator:	External Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



8.06a_RSE_R_CH251_GPRS_Int.Ant

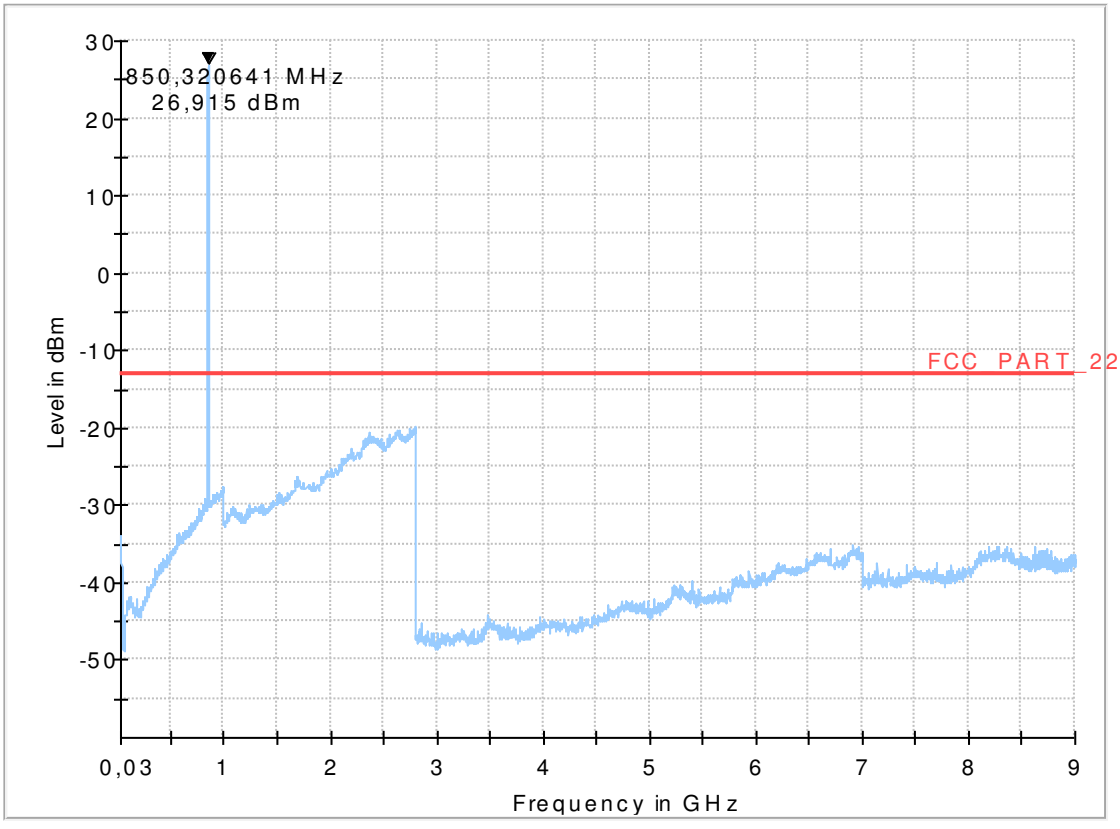
Common Information

Test Description:	Radiated Emissions GSM850
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part22.917 / RSS-132, Issue 3
Test SW.:	EMC32 V9.21.0
Operating Mode:	MS allocated UL channel 251
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 35%rH; Temperature: 23,0°C
Operator:	Lor
Remark:	Internal antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



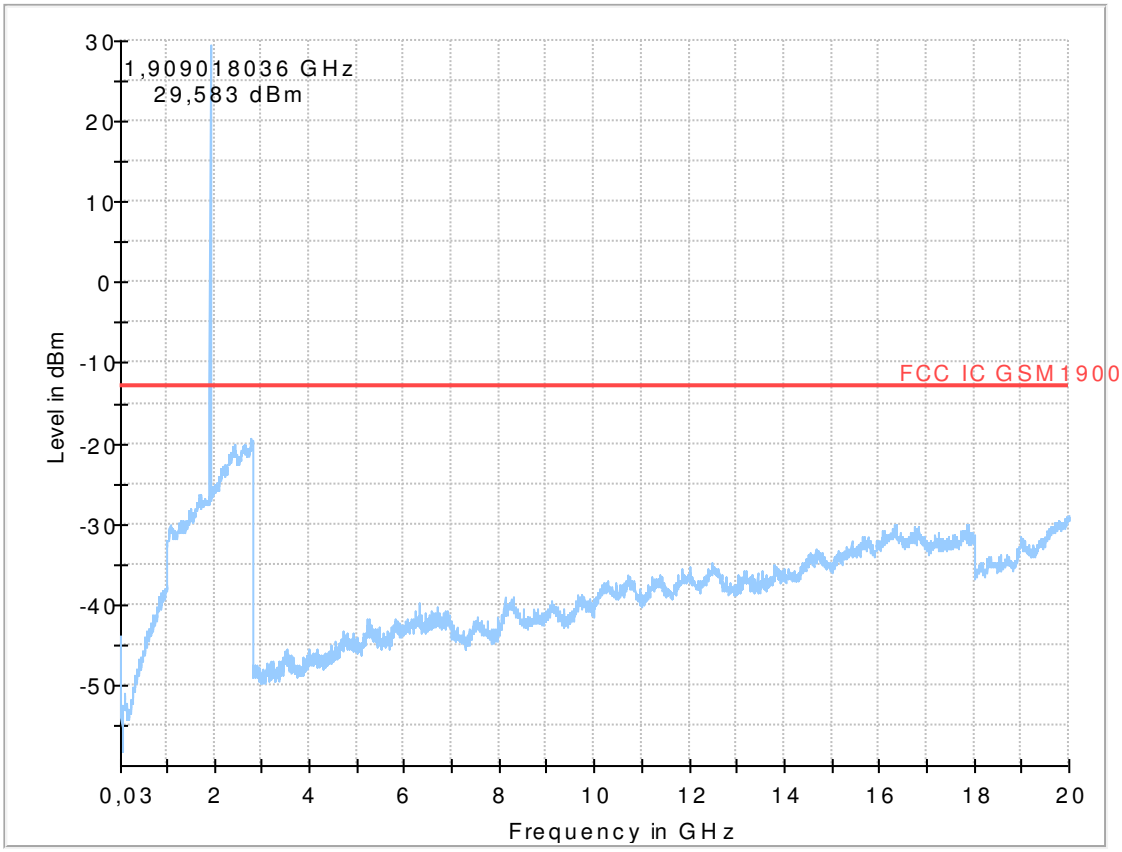
8.13_RSE_R_Ch512_GPRS

Common Information

Test Description:	Radiated Spurious Emissions GSM1900
Test Site Location	CETECOM GmbH Essen
Test Site	Fully Anechoic Room (FAR) - EMC32 V9.21.0
Test Standard	FCC Part 24.238/RSS-133,Issue 3
Test SW.:	EMC32 V9.21.0
Comm. Link	GPRS 1900
Operating Mode	MS allocated channel 512 (fc = 1850.2MHz)
Exclusion Band	1850 - 1910MHz
Environmental Conditions	Humidity: 33%rH; Temperature: 21°C
Operator Name:	AHo

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Comments:	-



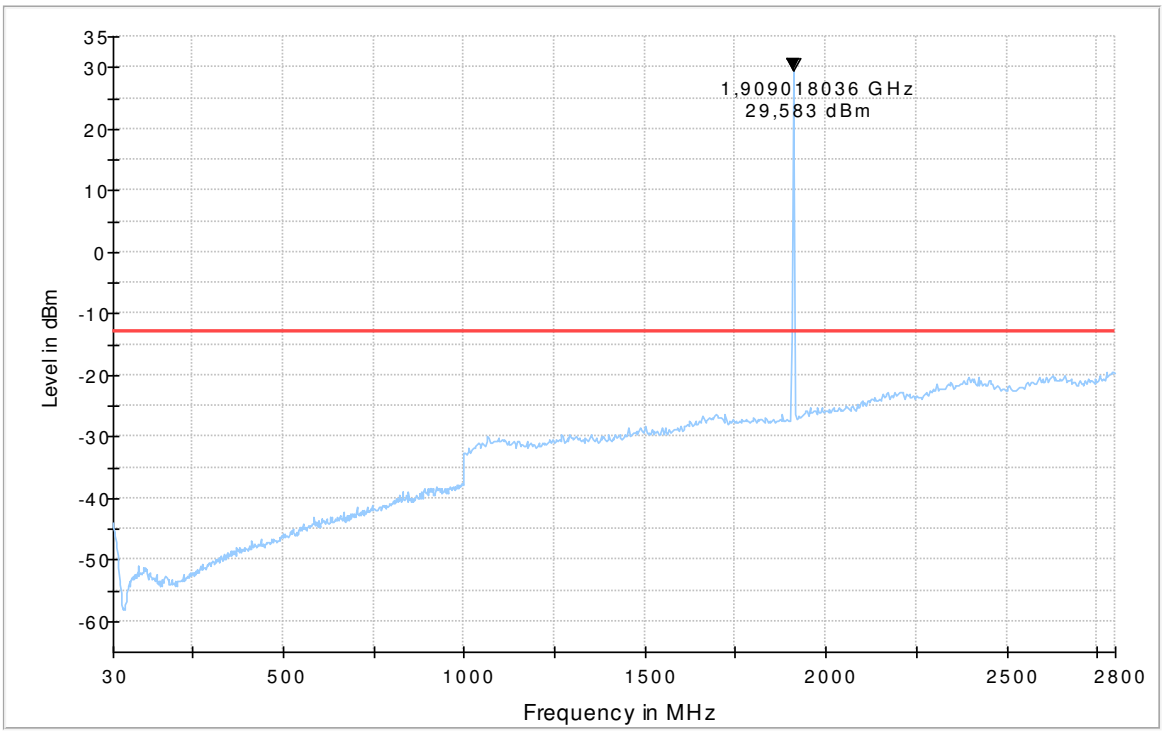
8.15b_RSE_R_Ch810_GPRS

Common Information

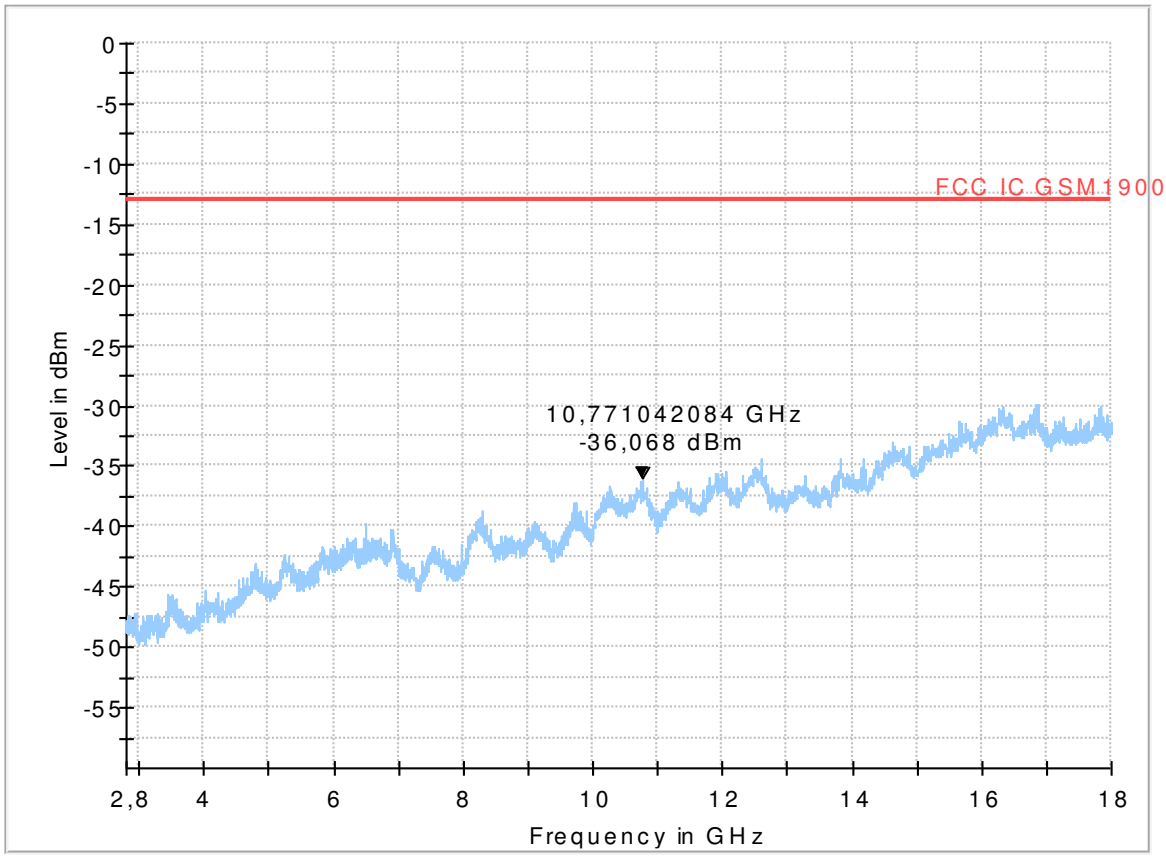
Test Description:	Radiated Emissions GSM850
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part24.238
Test SW.:	EMC32 V9.21.0
Operating Mode:	MS allocated UL channel 512,661,810
Exclusionband:	1850 - 1910MHz
Environmental Conditions:	Humidity: 33%rH; Temperature: 21°C
Operator:	AHo

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Comments:	-



Full Spectrum



1.2.2. Emissions in (W-CDMA-Mode)

Diagram 8.20b_RSE_R_Ch9262_RMC_Ext.Ant

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
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 9262 (fc = 1852.4 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Comment:	External Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum

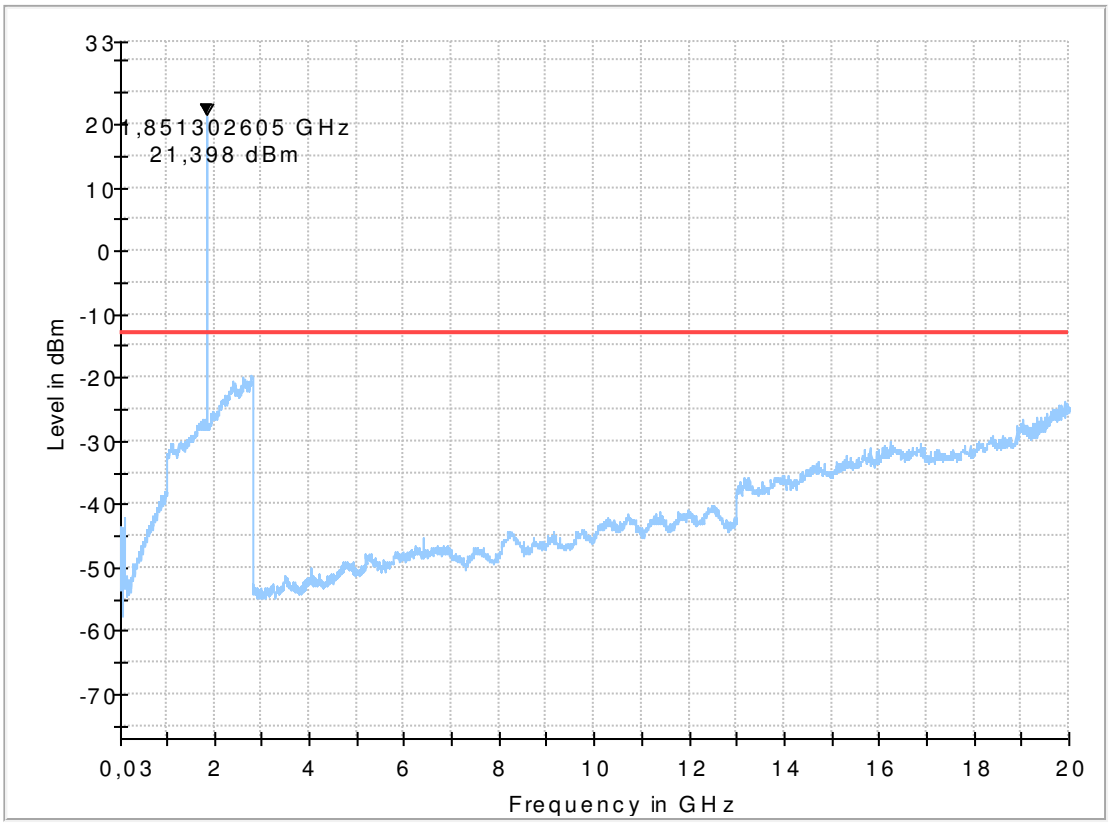


Diagram 8.22a_RSE_R_Ch9538_RMC_FDD2

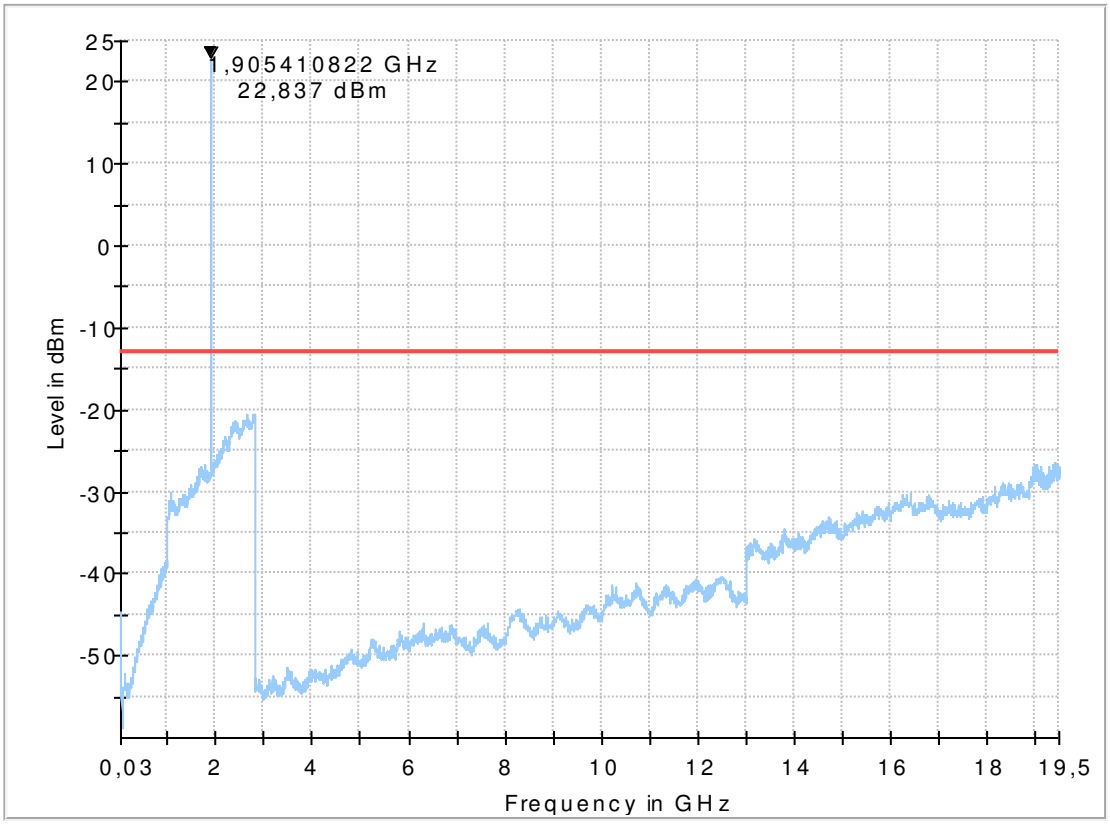
Common Information

Test Description:	Radiated Spurious Emissions UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR) - EMC32 V9.21.0
Test Standard:	FCC Part 24.238/RSS-133,Issue 3
Operating Mode:	UE allocated channel 9538 (fc = 1907.6 MHz)
Environmental Conditions:	Humidity: 49%rH; Temperature: 21,8°C
Operator:	AHo
Remarks:	Internal antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



8.40b_RSE_R_Ch1312_RMC_FDD4_Ext.Ant

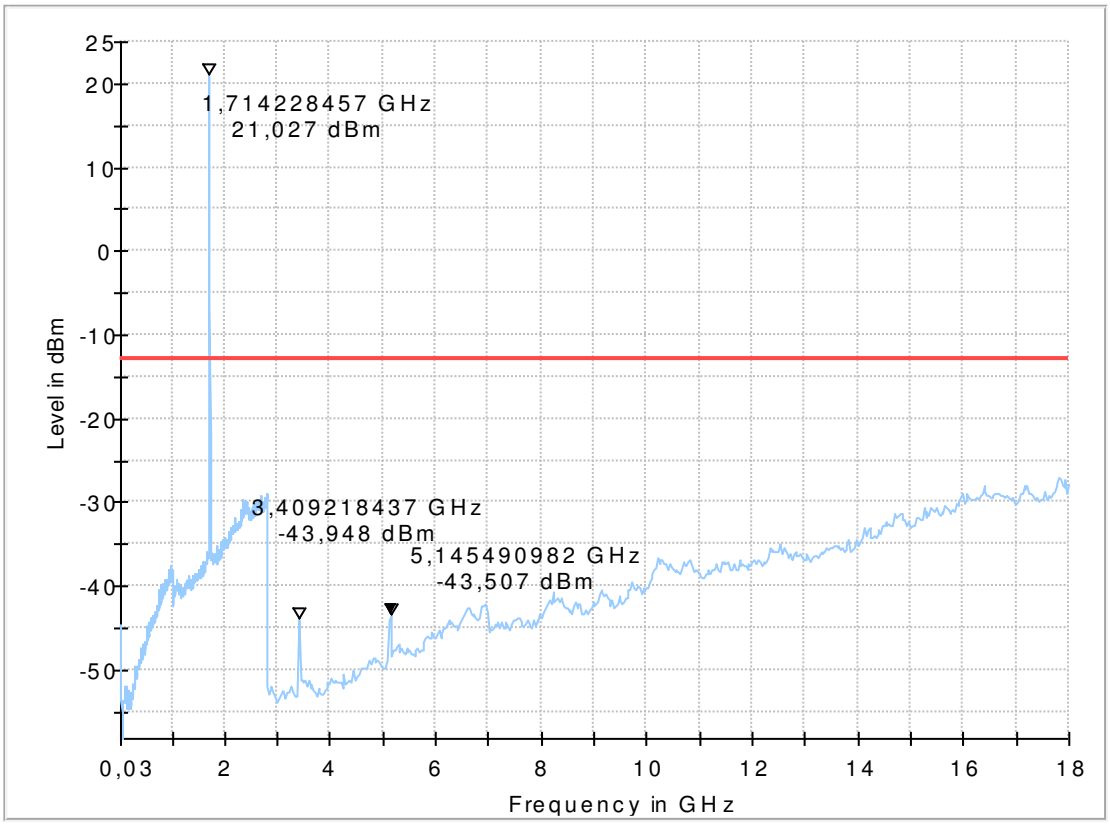
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR) - EMC32 V9.21.0
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 4
Operating Mode:	MS allocated channel 1312
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 47%rH; Temperature: 22°C
Operator:	AHo
Comments	External Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



8.42a_RSE_R_Ch1513_RMC_FDD4_Int.Ant

Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR) - EMC32 V9.21.0
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 4
Operating Mode:	MS allocated channel 1312
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 47%rH; Temperature: 22°C
Operator:	AHo
Comments	Internal Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum

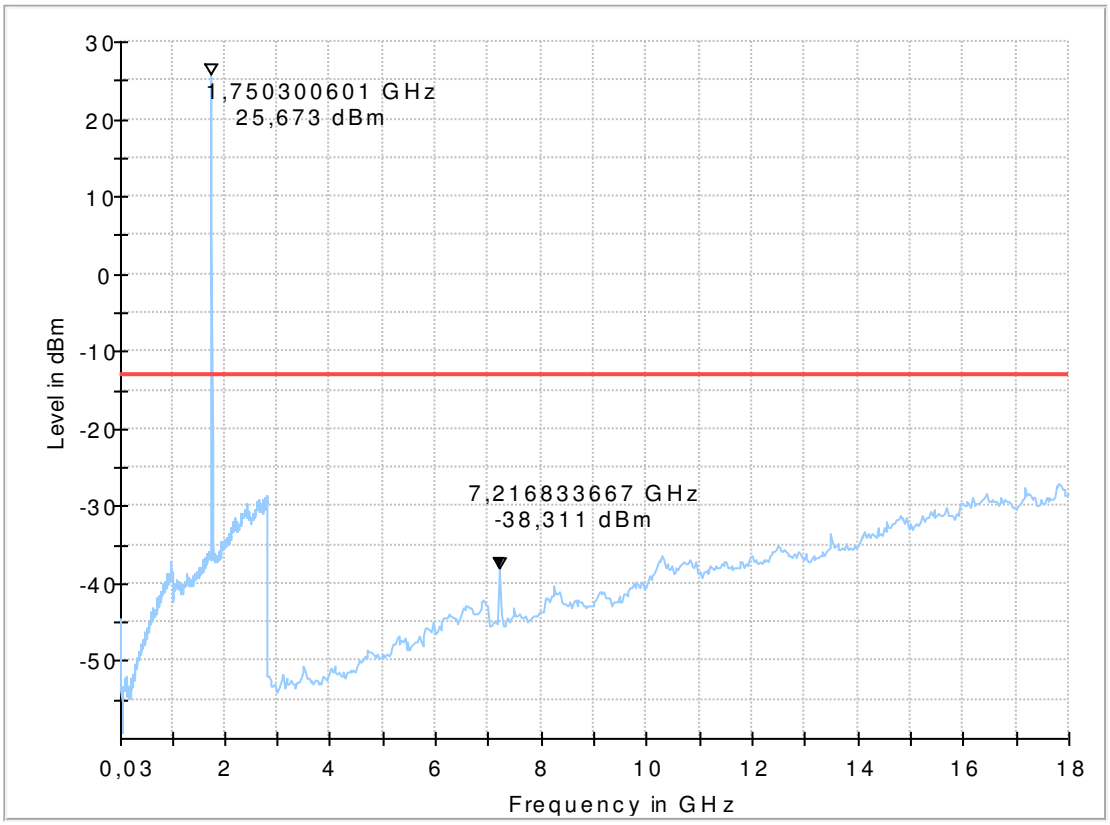


Diagram 8.50b_RSE_R_Ch4132_RMC_Ext.Ant

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)
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 4132 (fc =826.4 MHz), RMC
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Remark:	External Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum

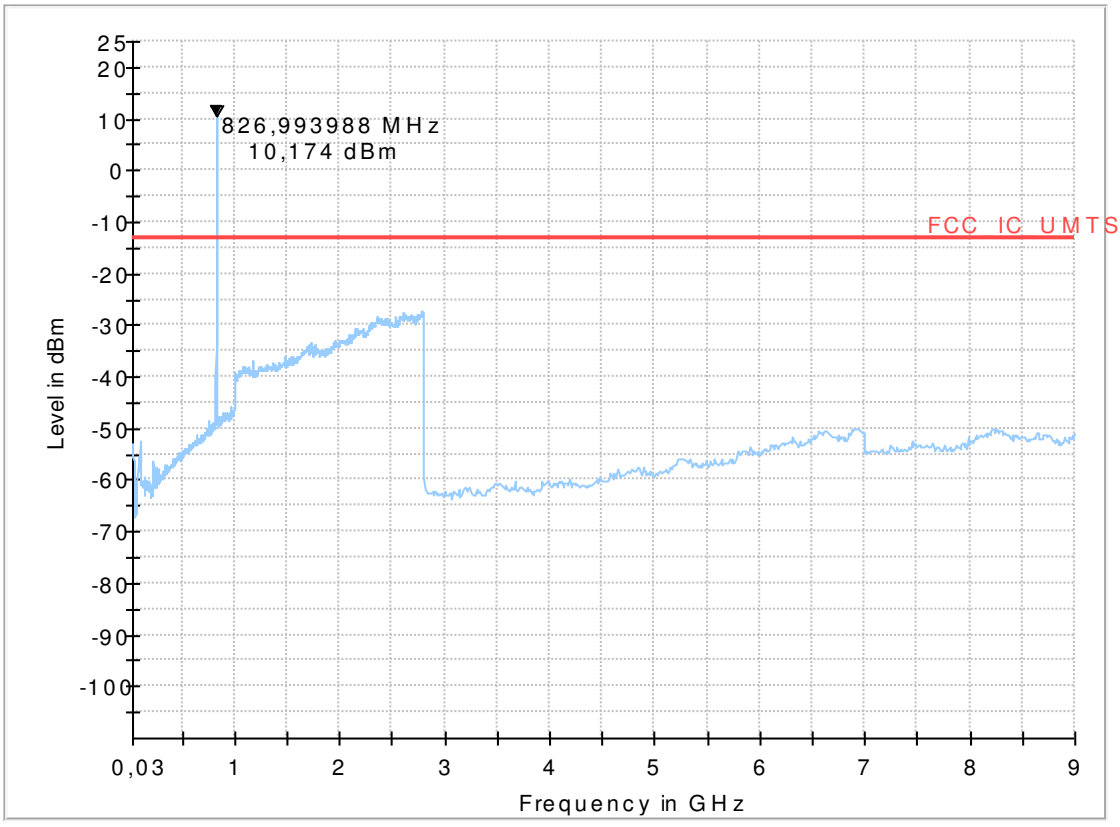


Diagram 8.52a_RSE_R_Ch4233_RMC_Int.Ant

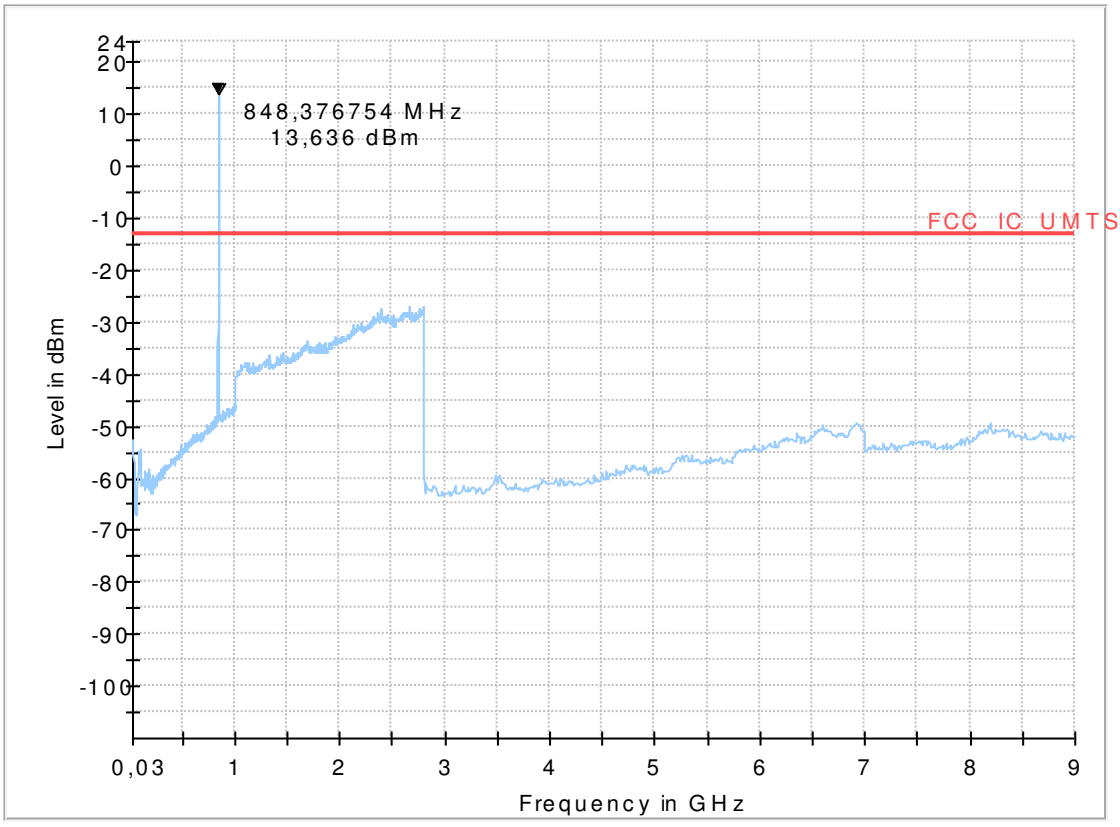
Common Information

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)
Software	EMC32 V9.21.0
Operating Mode:	UE allocated channel 4233 (fc =846.6 MHz), RMC
Environmental Conditions:	Humidity: 35%rH; Temperature: 22.6°C
Operator:	KMo
Comment:	Internal Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



1.2.3. Emissions in (LTE-Mode)

8.22_LTE II_Ch18900_BW_10MHz_50_RB_QPSK_9 bis 19.5GHz

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
Operating Mode:	UE allocated channel 18900 (fc =1880.0MHz),BW=10 MHz, RB=50,Modulation:QPSK
Environmental Conditions:	Humidity: 24 %rH; Temperature: 23 °C
Operator:	KMo

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Comments:	-

Full Spectrum

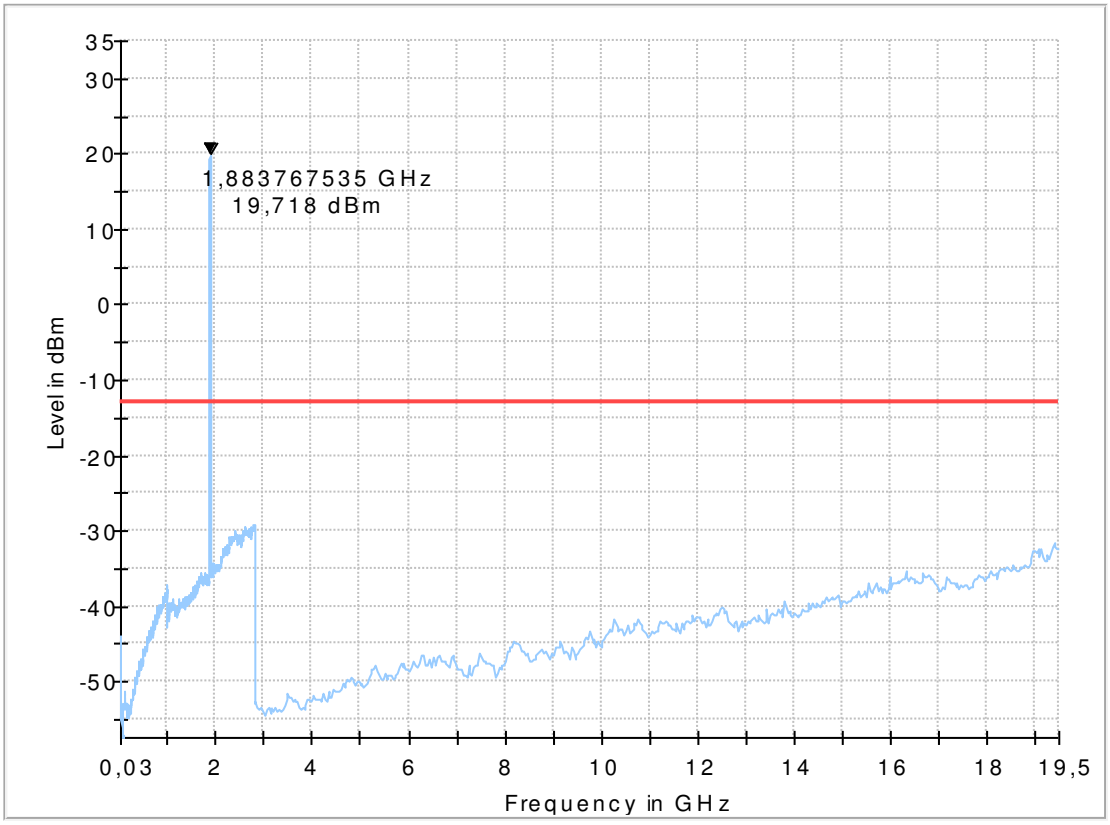


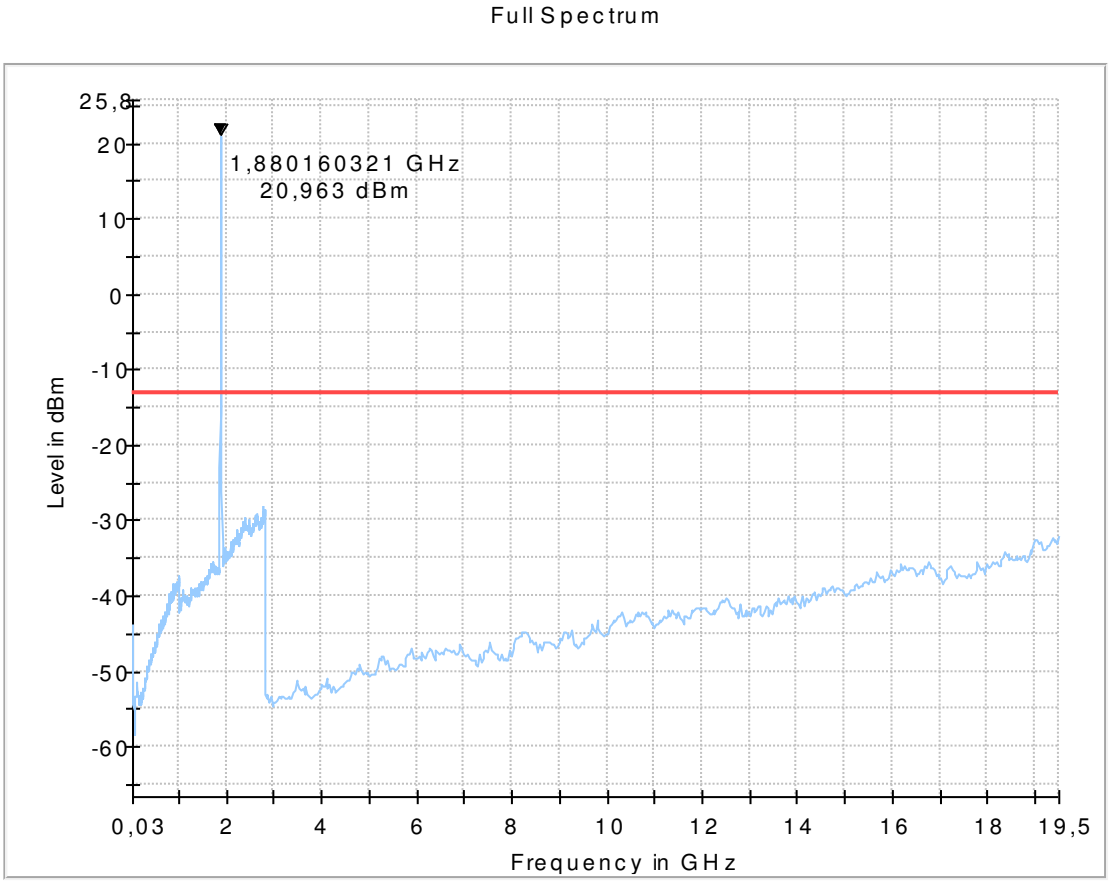
Diagram 8.25_LTE II_Ch18900_BW_10MHz_50_RB_QAM

Common Information

Test Description:	Radiated Spurious Emissions LTE FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Operating Mode:	UE allocated channel 18900 (fc =1880.0MHz),BW=10 MHz, RB=50,Modulation:QAM
Environmental Conditions:	Humidity: 24 %rH; Temperature: 23 °C
Operator:	KMo

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Comments:	-



8.41_RSE_R_Ch20175_BW10_Ext.Ant

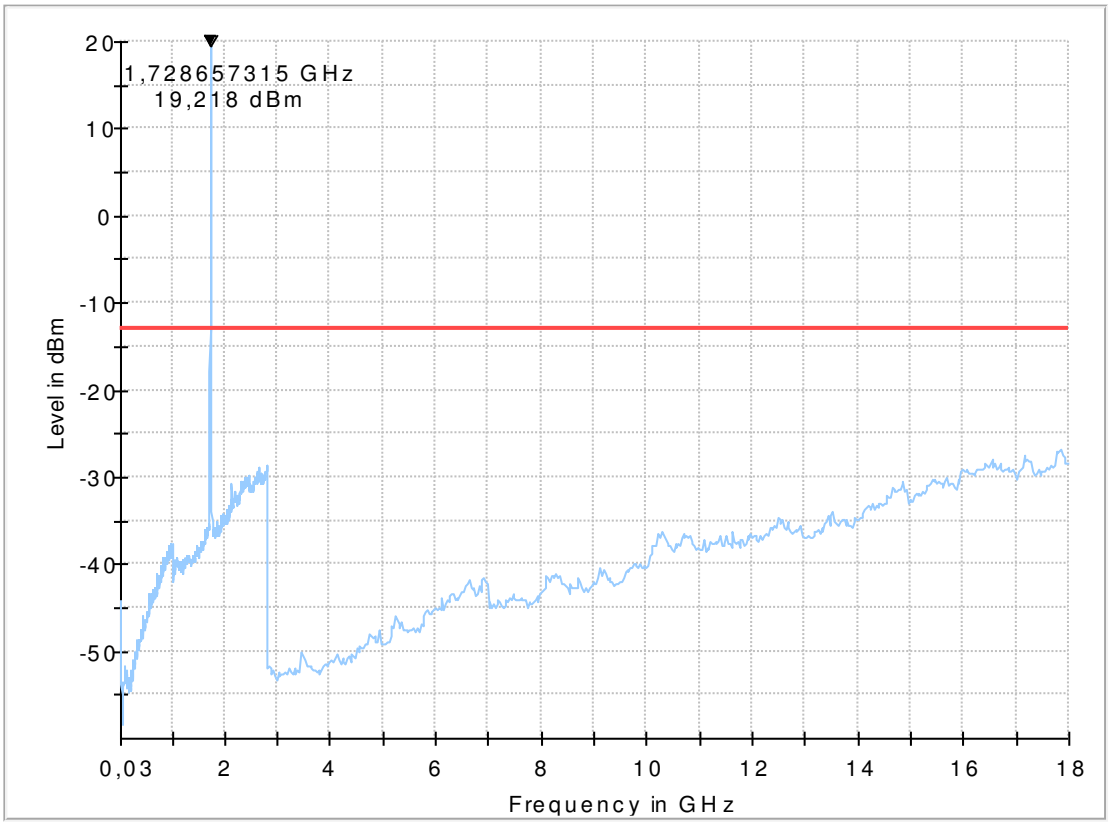
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53 / RSS-139
Operating Mode:	UE allocated channel 20175 (fc = 1732,5MHz), RMC, 10MHz/QPSK/50RB
Environment Conditions:	Humidity: 30%rH; Temperature: 23.2°C
Operator Name:	Ris
Comment:	External Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



8.44_RSE_R_Ch20175_BW10_Int.Ant

Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 4
Operating Mode:	UE allocated channel 20175 (fc = 1732,5MHz), RMC, 10MHz/QAM/50RB
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 31%rH; Temperature: 23,0°C
Operator:	Ris
Comment:	Internal antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum

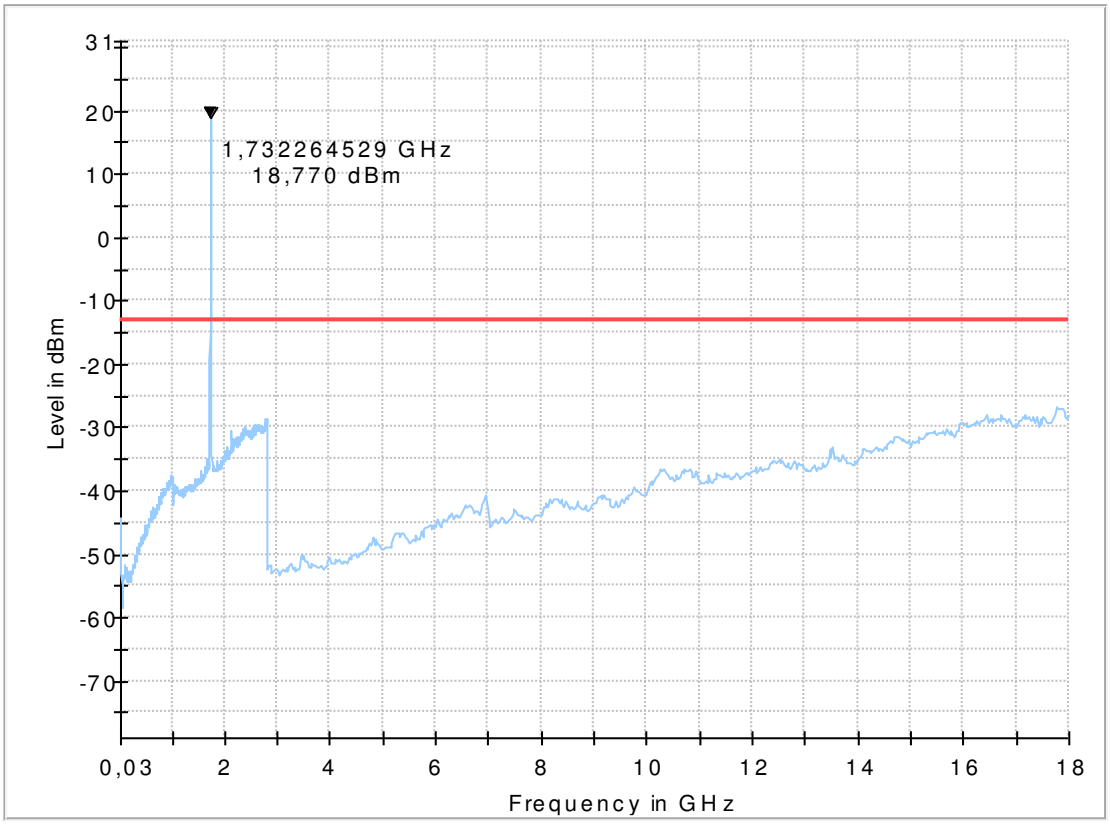


Diagram 8.52_Ch20525_LTE-BANDV_BW-10MHz_QPSK

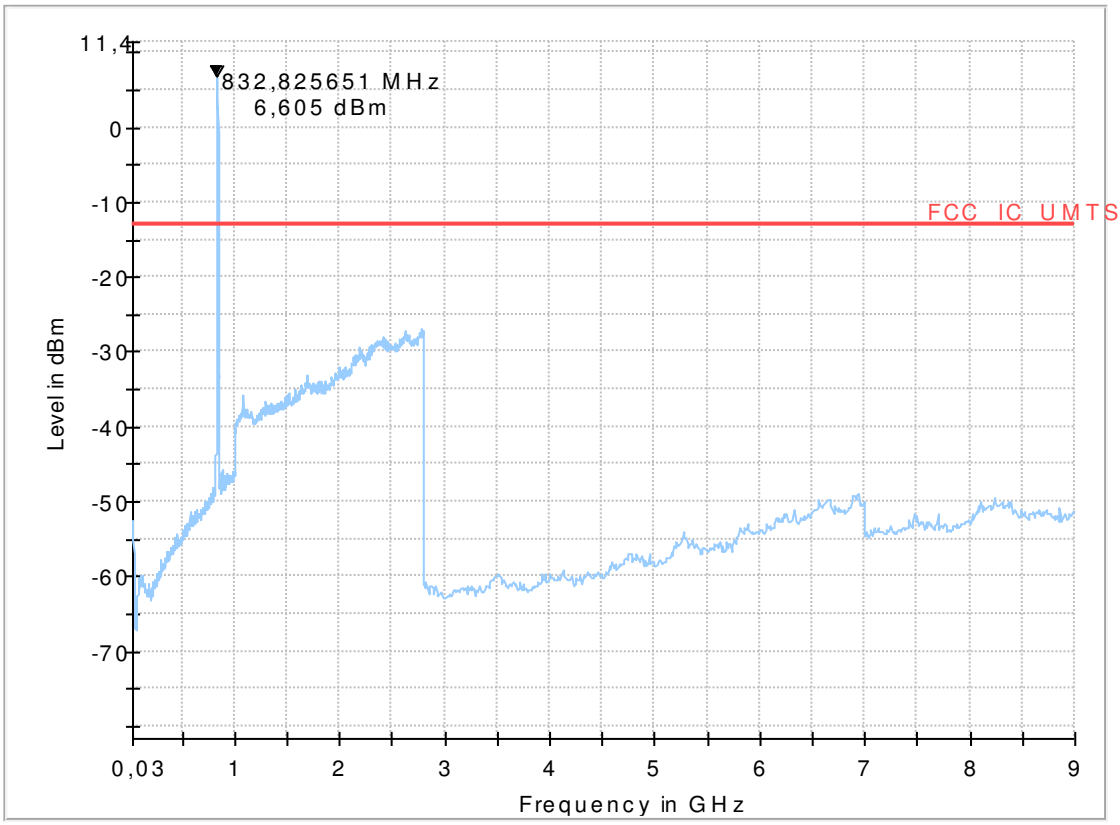
Common Information

Test Description:	Radiated Spurious Emissions LTE 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 20525 (fc = 836.4), BW=10 MHz, RB=50, Modulation:QPSK
Environmental Conditions:	Humidity: 24 %rH; Temperature: 23 °C
Operator:	KMo

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Comments:	-

Full Spectrum



8.55_Ch20525_LTE-BAND V_BW-10MHz_QAM

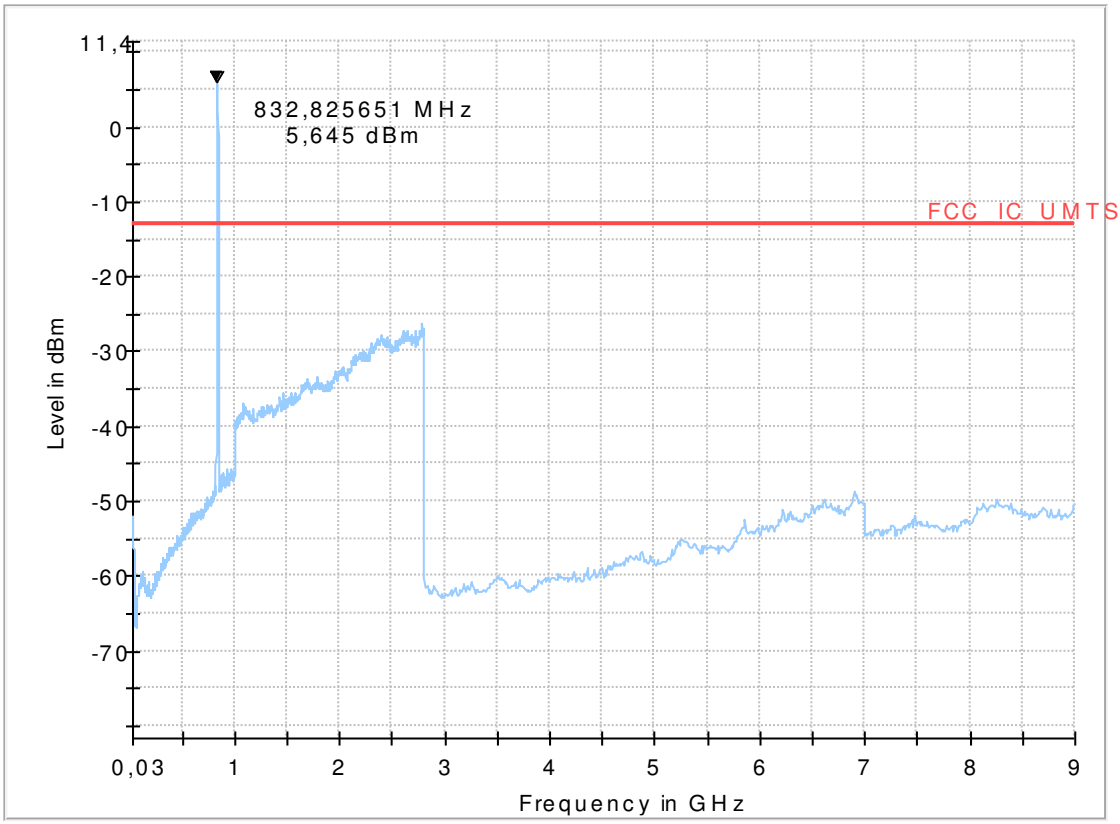
Common Information

Test Description:	Radiated Spurious Emissions LTE 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 20525 (fc = 836.4), BW=10 MHz, RB=50, Modulation:QAM
Environmental Conditions:	Humidity: 24 %rH; Temperature: 23 °C
Operator:	KMo

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Comments:	-

Full Spectrum



8.171_RSE_R_Ch23790_BW5_QPSK_Ext.Ant

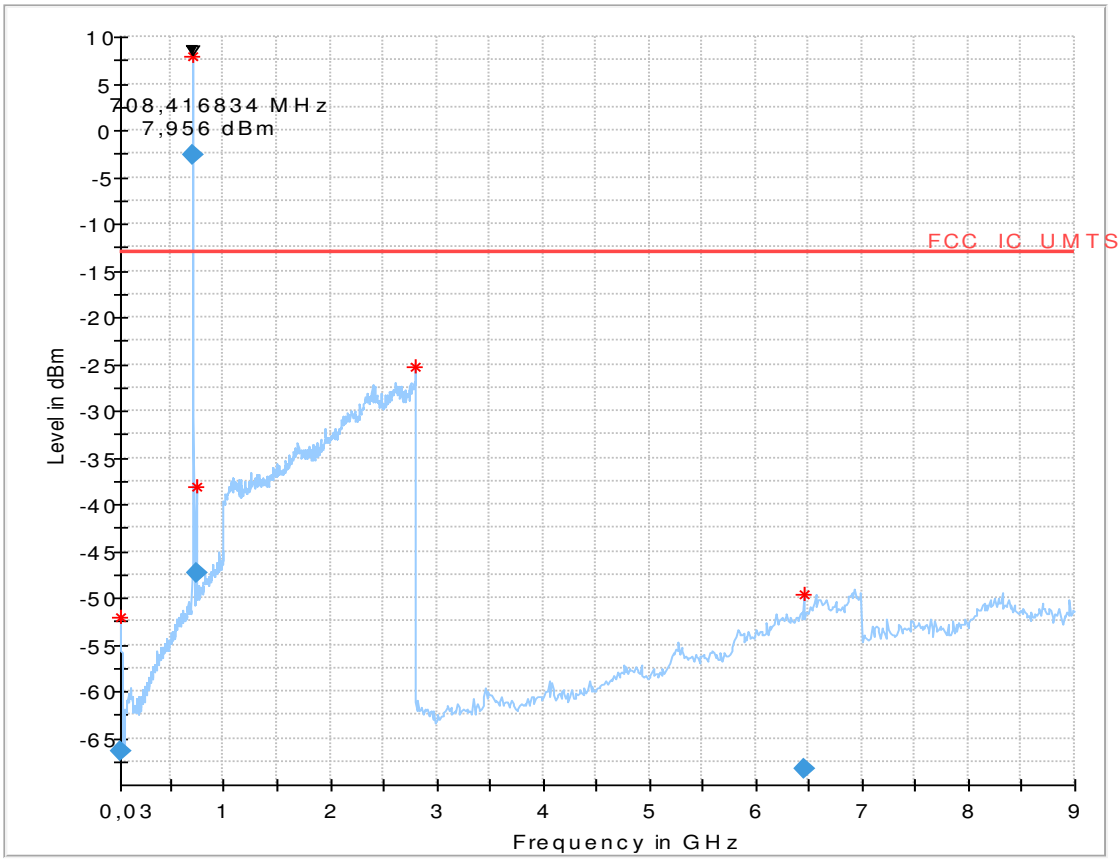
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 17
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a) / RSS-130
Operating Mode:	UE allocated channel 23790 (fc = 710MHz), RMC, 5MHz/QPSK/25RB
Environmental Conditions:	Humidity: 35%rH; Temperature:21,5°C
Operator:	Ris
Remark:	External Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



8.175_RSE_R_Ch23790_BW5_QAM_Int.Ant

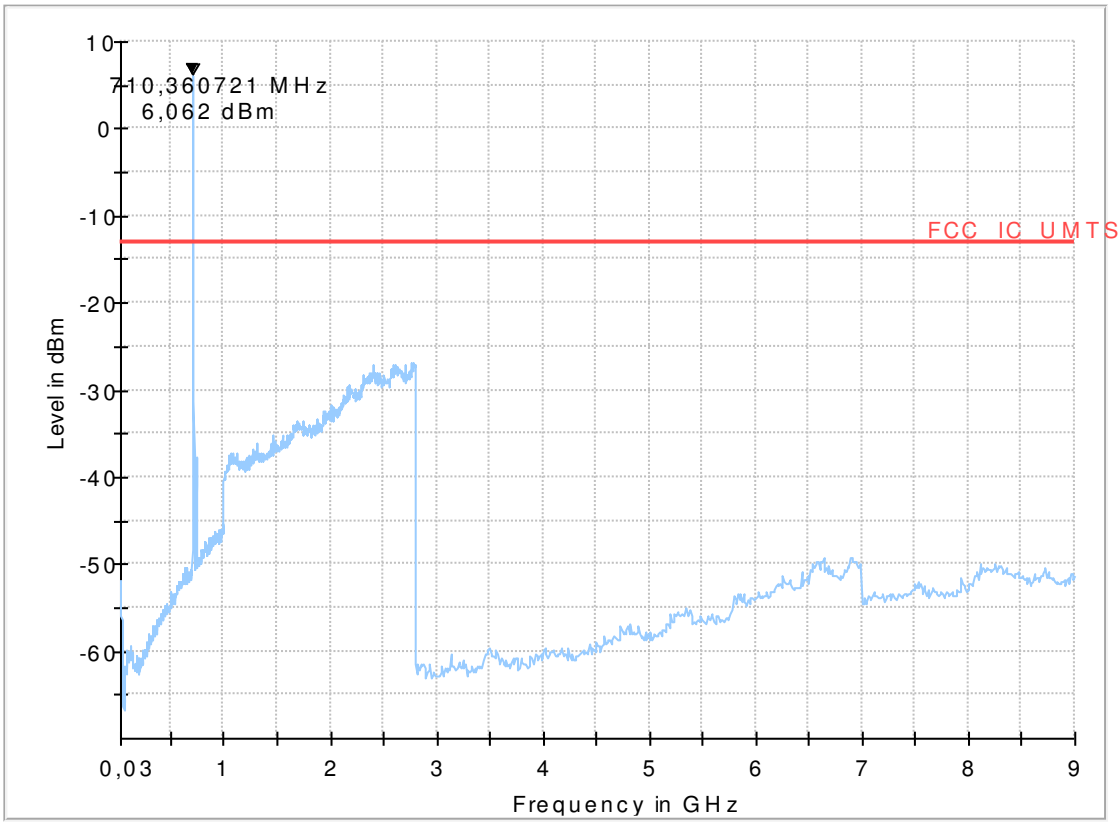
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 17
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a) / RSS-130
Operating Mode:	UE allocated channel 23790 (fc = 710MHz), RMC, 5MHz/QAM/25RB
Environmental Conditions:	Humidity: 34%rH; Temperature: 22°C
Operator:	Ris
Remark	Internal Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



1.3. Radiated emissions – band-edge for GSM – Operating Mode

1.3.1. GSM Mode 1900

1.3.1.1. Internal antenna

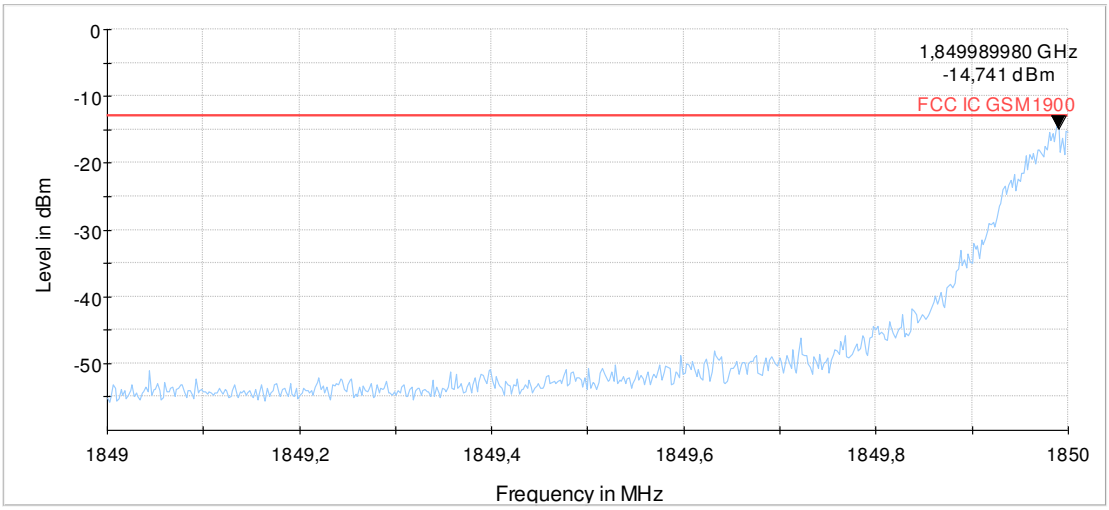


Diagram 9.02a - Ch 512

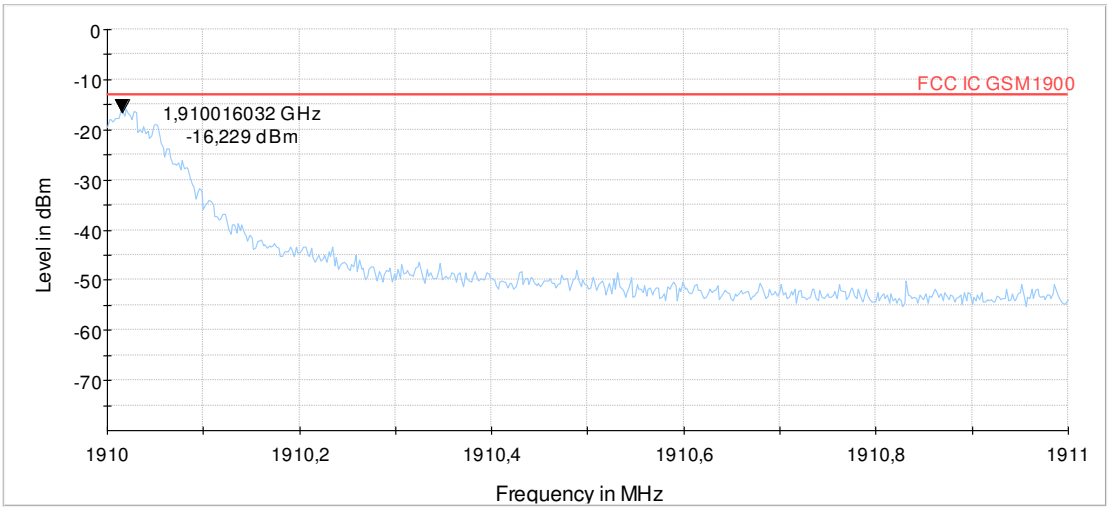


Diagram 9.10a - Ch810

1.3.1.2. External Antenna

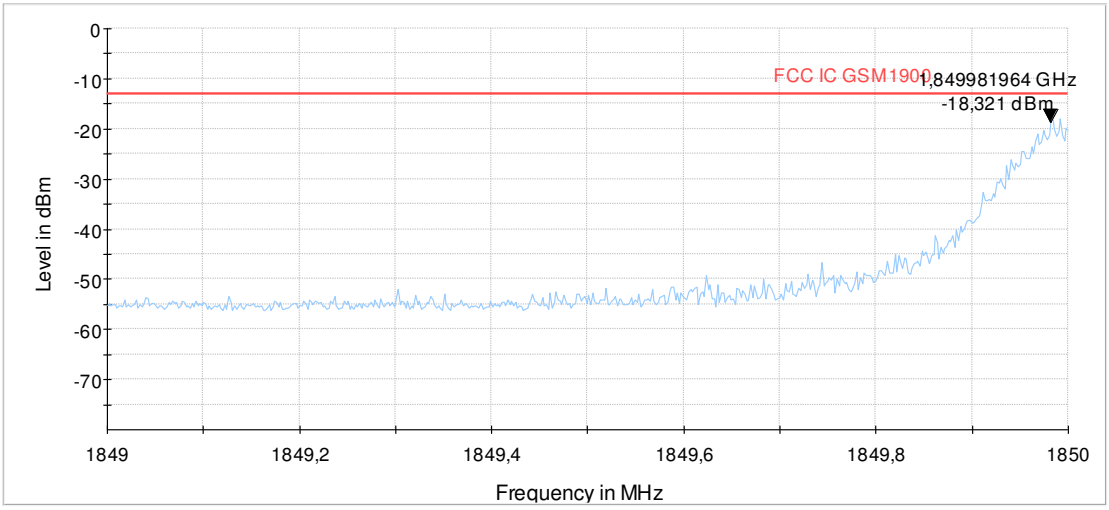


Diagram 9.09b - Ch 512

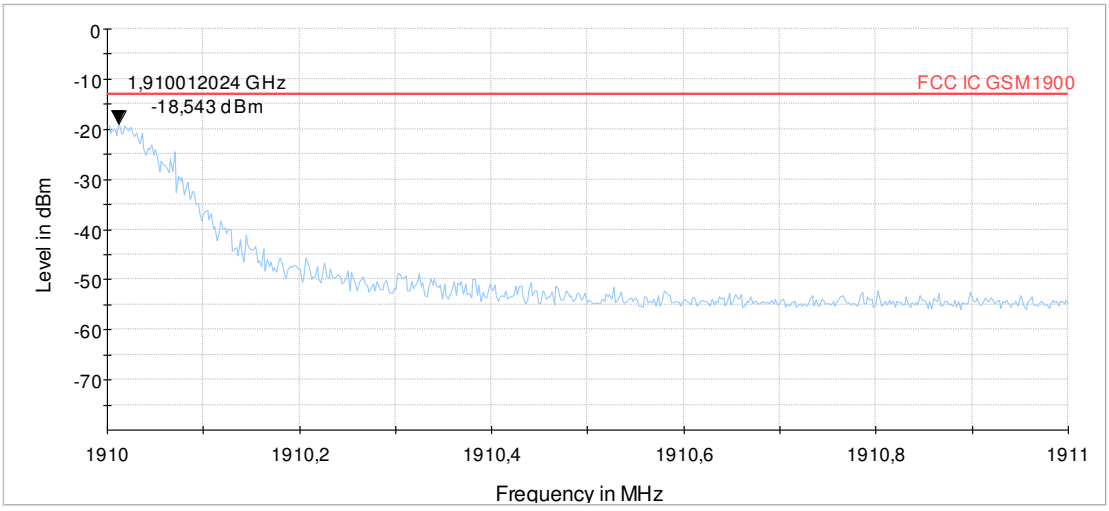


Diagram 9.10b - Ch810

1.3.2. GSM Mode 850

1.3.2.1. Internal antenna

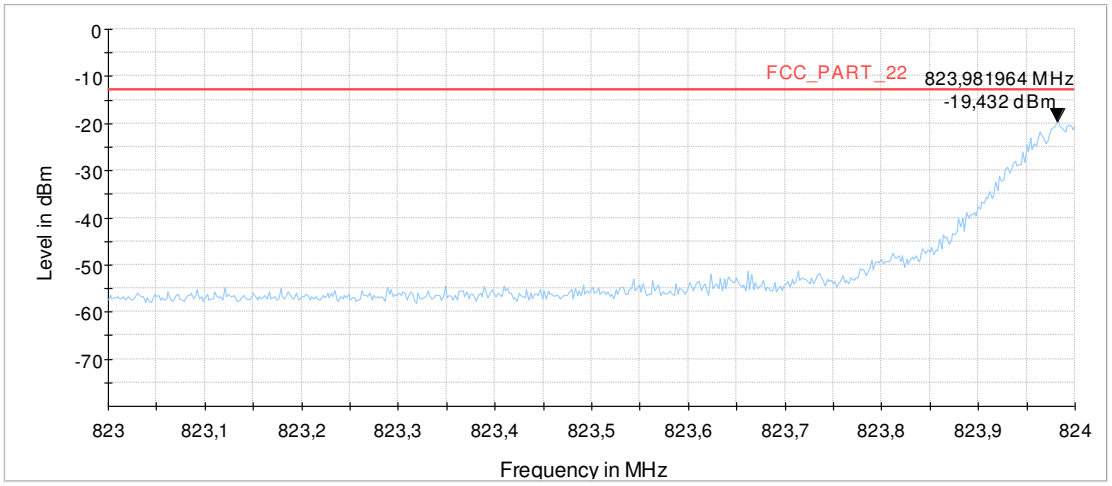


Diagram 9.03a - Ch 128

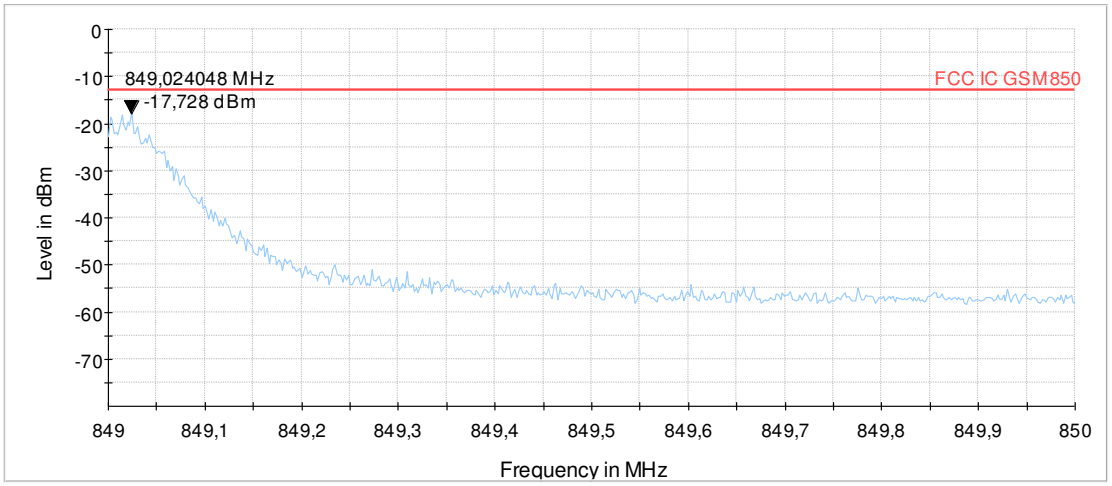


Diagram 9.03a - Ch 251

1.3.2.2. External Antenna

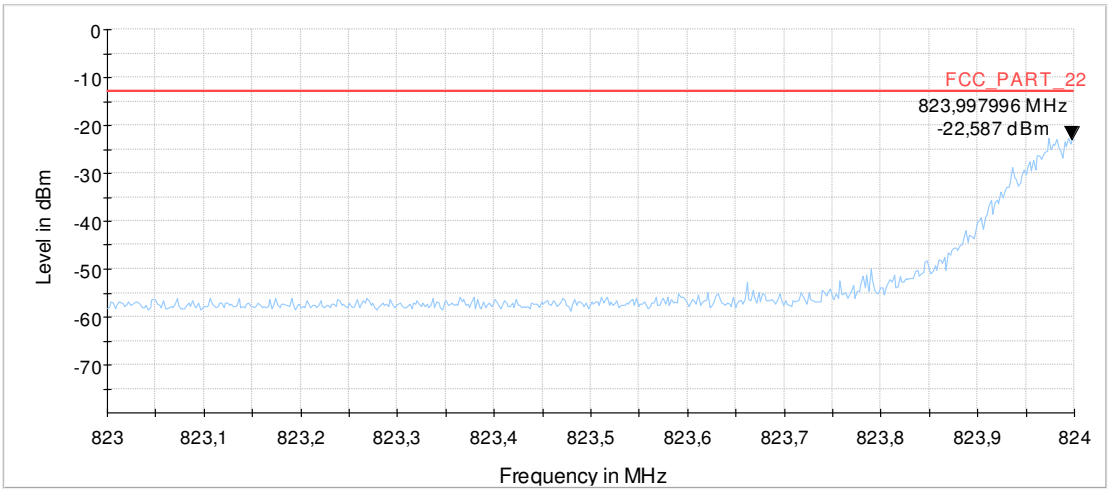


Diagram 9.03b – Ch128

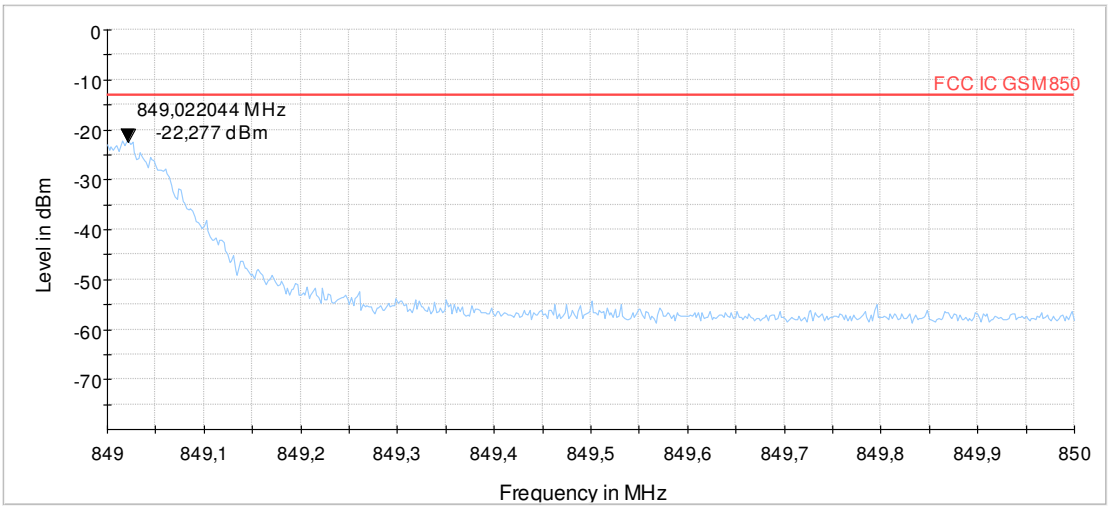


Diagram 9.04b – Ch251

1.4. Radiated emissions – band-edge for W-CDMA Operating Mode

1.4.1. W-CDMA Mode 2

9.20a_RSE_R_Ch9262_RMC_Int.Ant

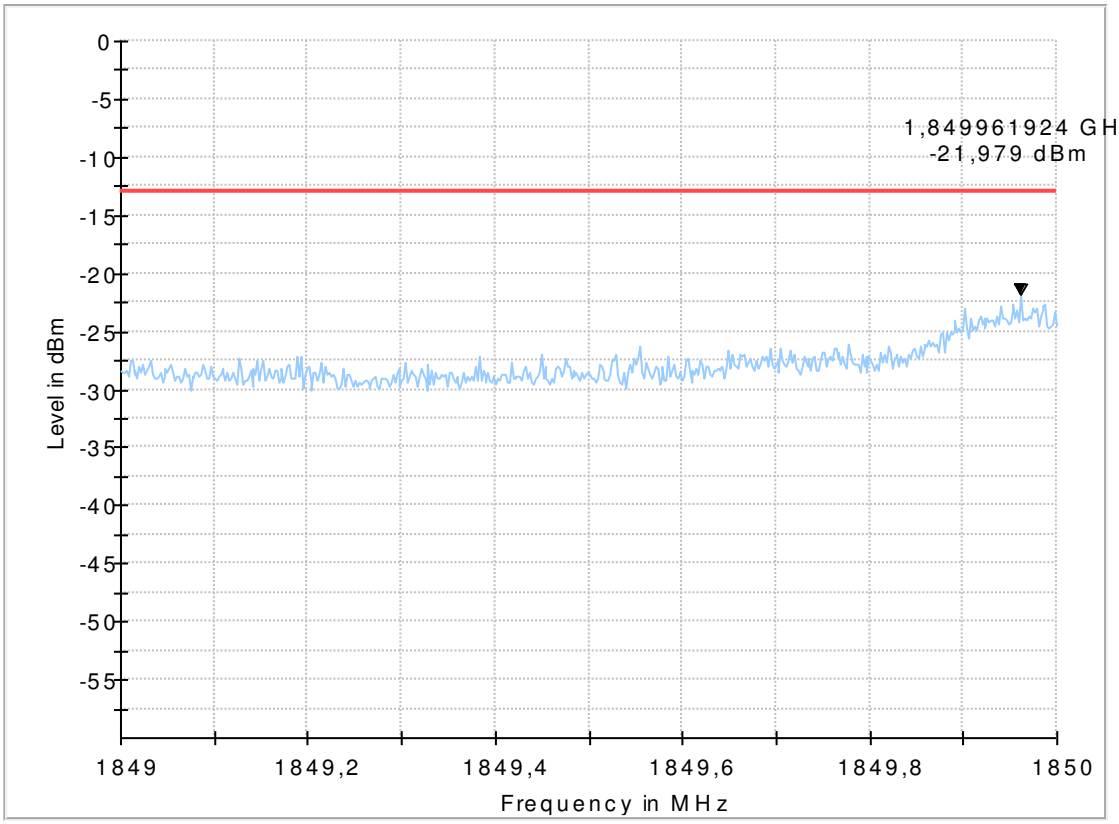
Common Information

Test Description:	Band-Edge low - Radiated Spurious Emissions UMTS FDD 2
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 9262 (fc = 1852.4 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Comment:	Internal Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



9.20b_RSE_R_Ch9262_RMC_Ext.Ant

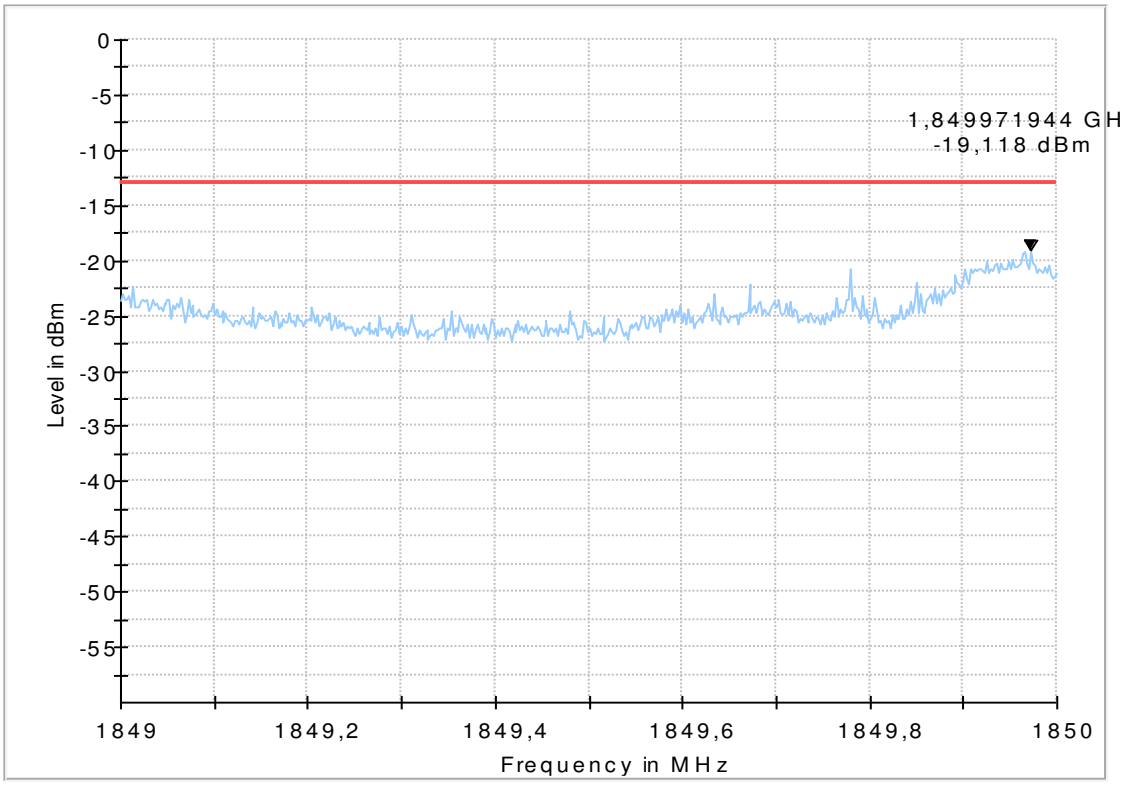
Common Information

Test Description:	Band-Edge low - Radiated Spurious Emissions UMTS FDD 2
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 9262 (fc = 1852.4 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Comment:	External Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



9.21a_RSE_R_Ch9538_RMC_Int.Ant

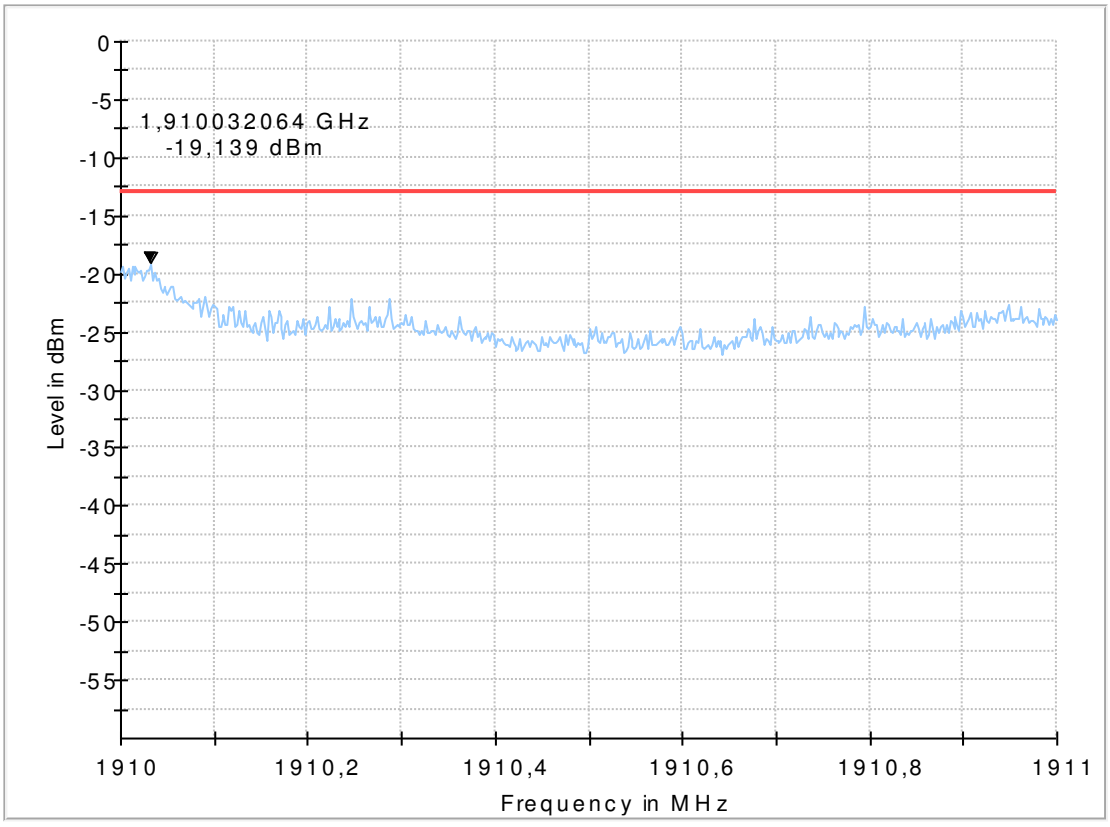
Common Information

Test Description:	Band-Edge high - Radiated Spurious Emissions UMTS FDD 2
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 9538 (fc = 1907.6 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Comment:	Internal Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



9.21b_RSE_R_Ch9538_RMC_Ext.Ant

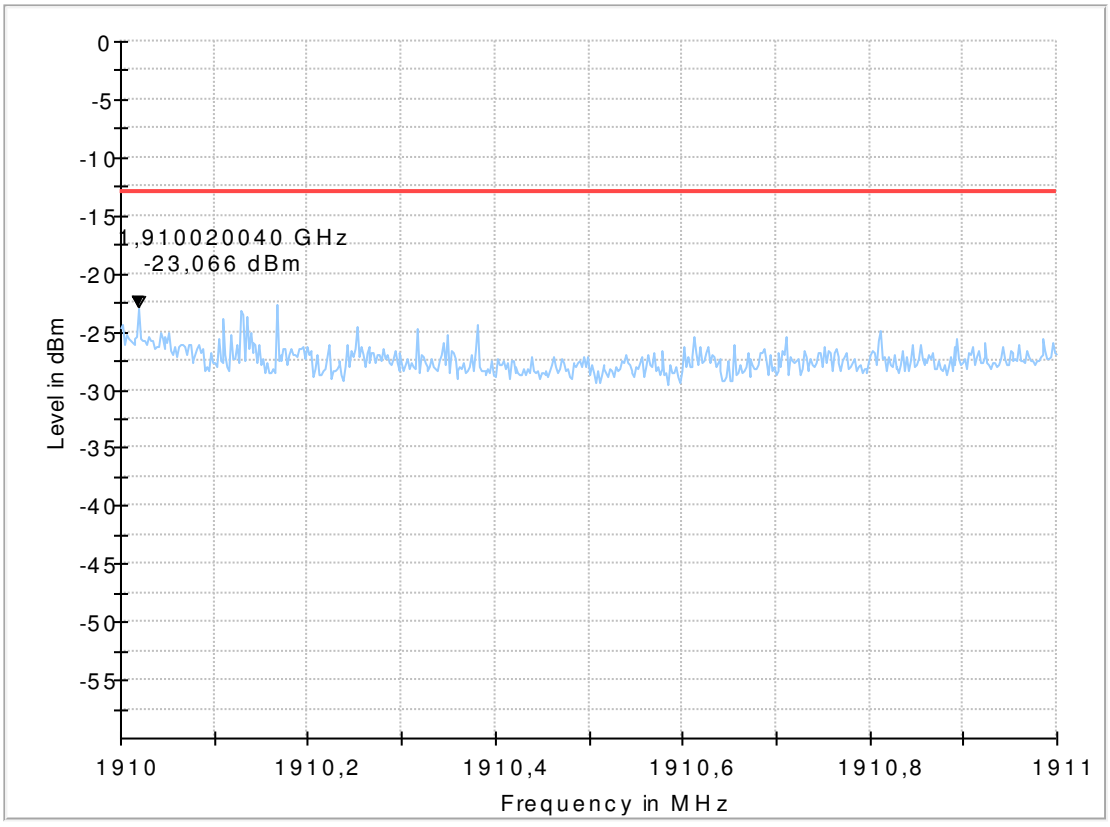
Common Information

Test Description:	Band-Edge high - Radiated Spurious Emissions UMTS FDD 2
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 9538 (fc = 1907.6 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Comment:	External Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



1.4.2. W-CDMA Mode 4

9.40a_BE_R_Ch1312_RMC_IntAnt

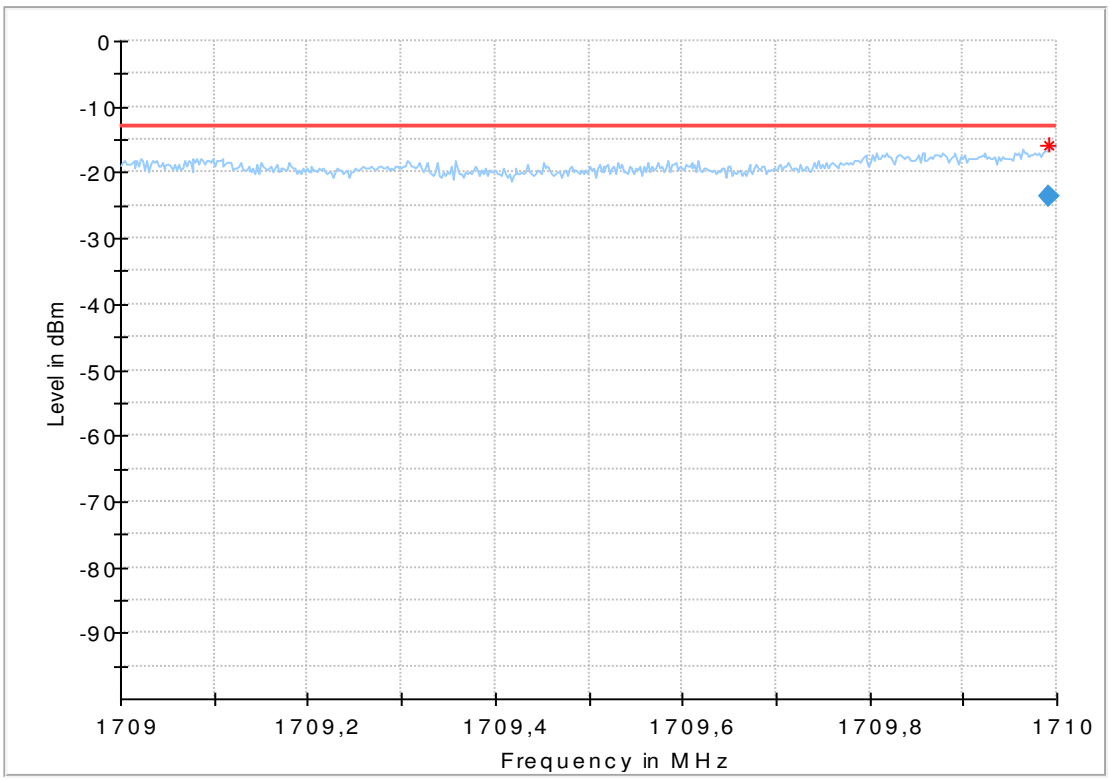
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR) - EMC32 V9.21.0
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 4
Operating Mode:	MS allocated channel 1312
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 47%rH; Temperature: 22°C
Operator:	AHo
Comments	Internal Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



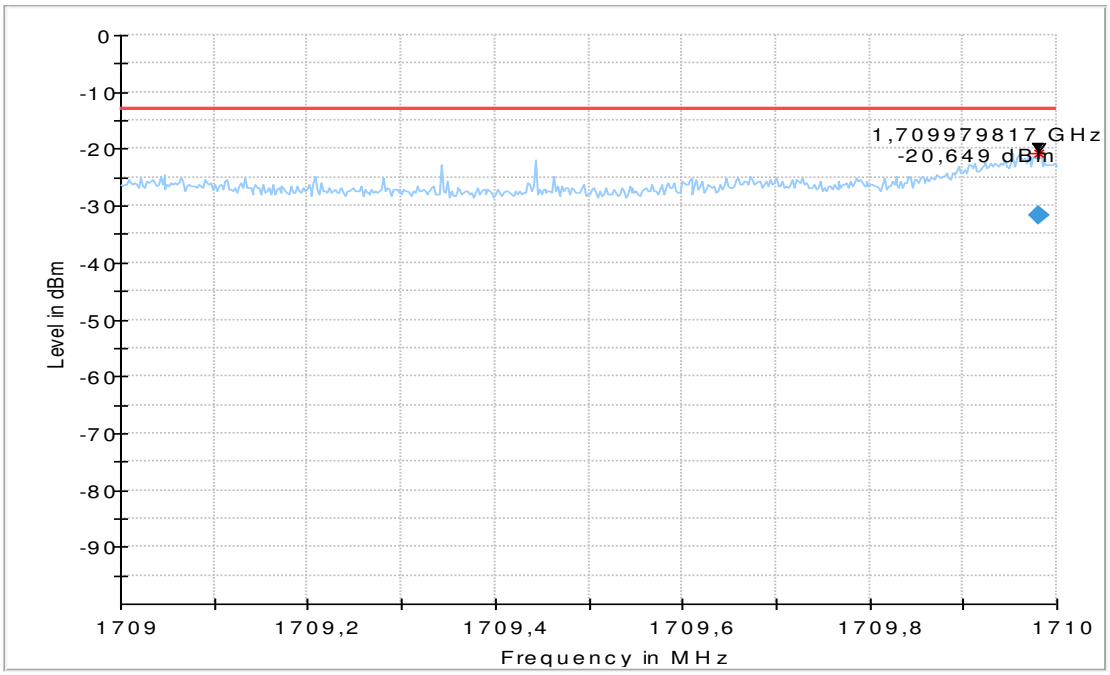
9.40b_BE_R_Ch1312_RMC_Ext.Ant

Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR) - EMC32 V9.21.0
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 4
Operating Mode:	MS allocated channel 1312
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 47%rH; Temperature: 22°C
Operator:	AHo
Comments	External Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1



Final_Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
1709.979817	-13.00	18.68	10000.0	155.0	V	79.0	0.0	-63.3	13:50:36 - 01.02.2016

9.41a_BE_R_Ch1513_FDD4_RMC_Int.Ant

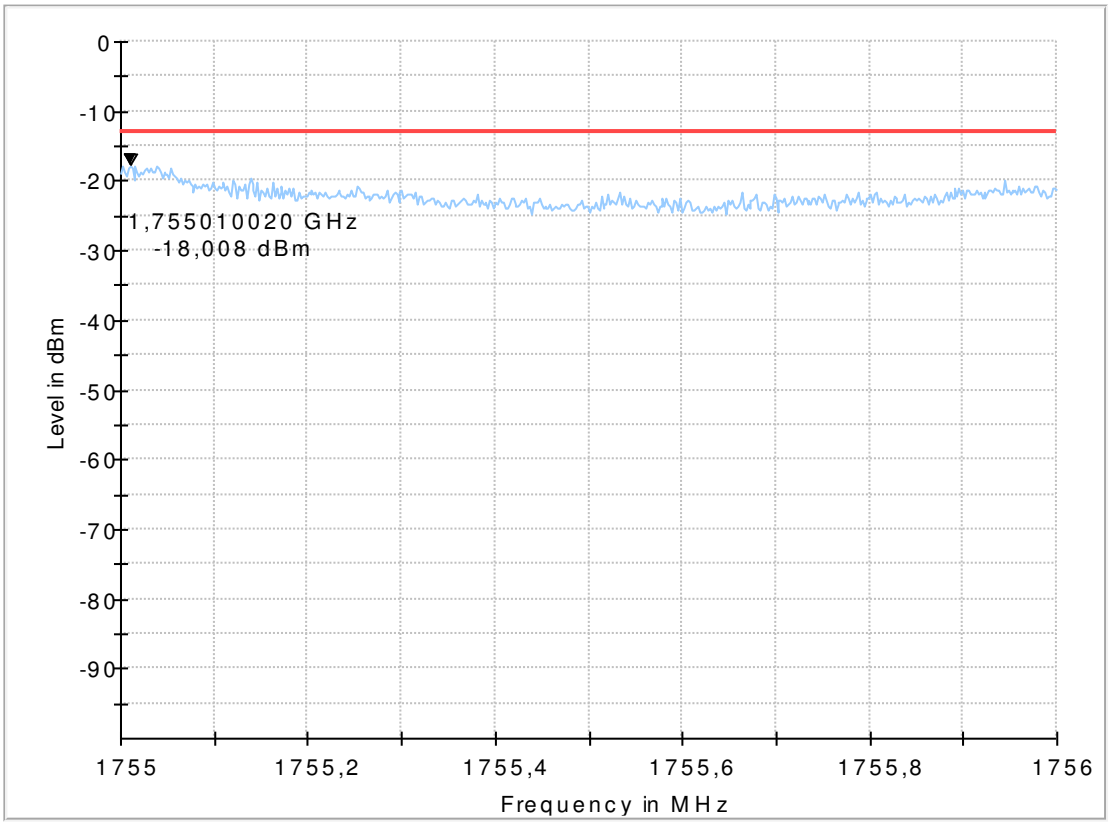
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 4
Operating Mode:	MS allocated channel xxx
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 47%rH; Temperature: 22°C
Operator:	AHo
Comments	Internal Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



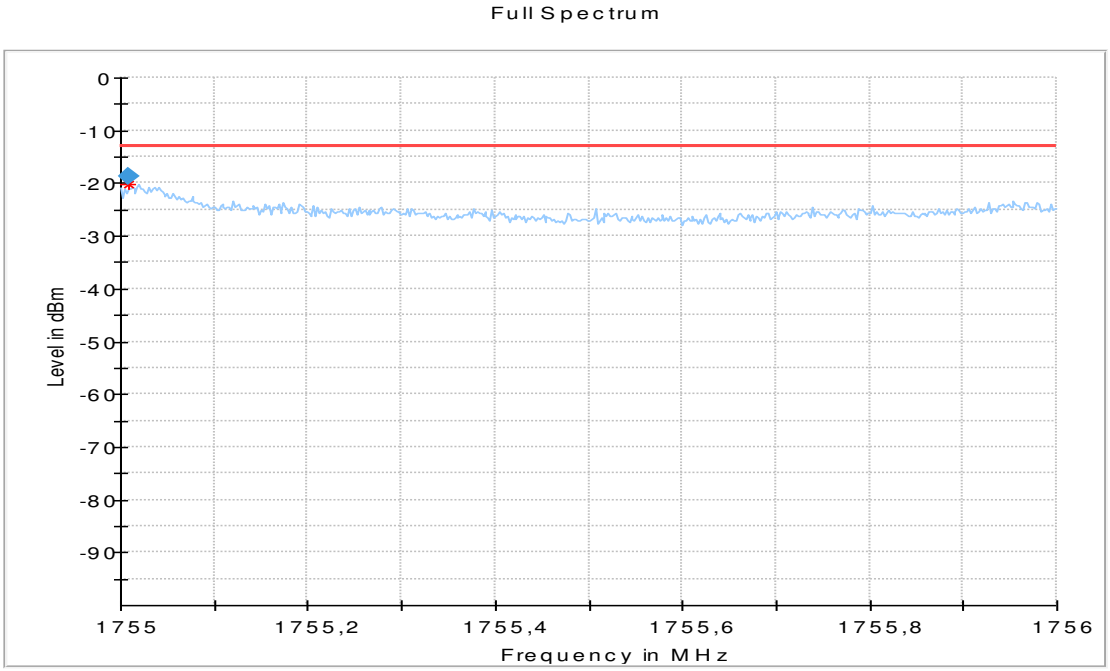
9.41b_BE_R_Ch1513_FDD4_RMC_Ext.Ant

Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR) - EMC32 V9.21.0
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 4
Operating Mode:	MS allocated channel 1513
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 47%rH; Temperature: 22°C
Operator:	AHo
Comments	External Antenna

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1



Final_Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
1755.009379	-13.00	5.75	10000.0	155.0	H	101.0	90.0	-63.6	14:03:38 - 01.02.2016

1.4.3. W-CDMA Mode 5

9.50a_RSE_R_Ch4132_RMC_IntAnt

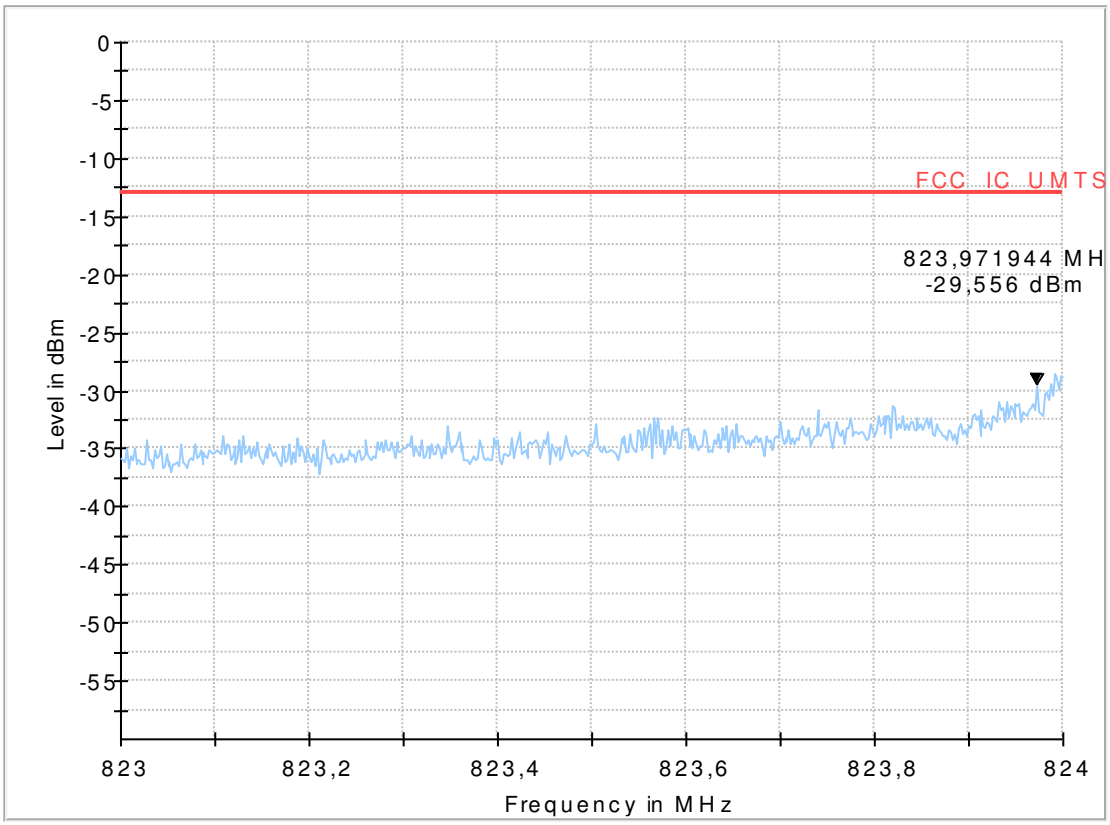
Common Information

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)
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 4132 (fc =826.4 MHz), RMC
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Remarks:	Internal Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



9.50b_RSE_R_Ch4132_RMC_ExtAnt

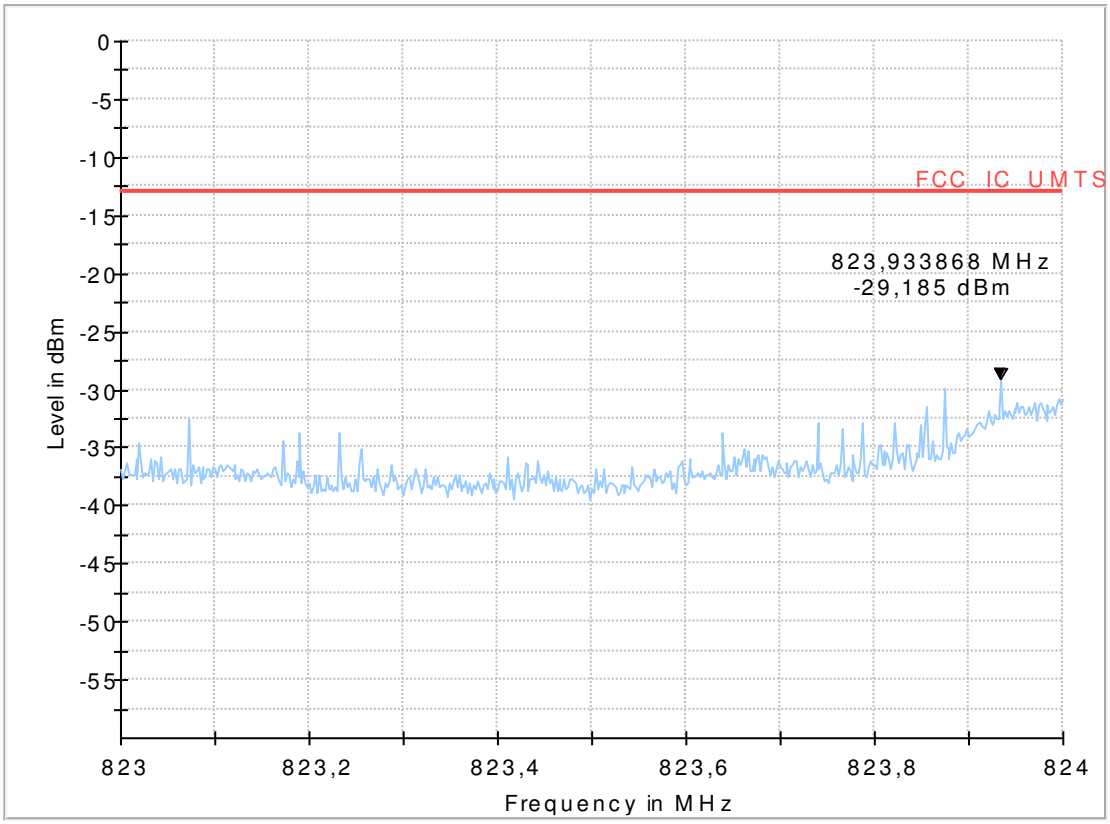
Common Information

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)
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 4132 (fc =826.4 MHz), RMC
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Remarks:	External Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



9.51a_RSE_R_Ch4233_RMC_IntAnt

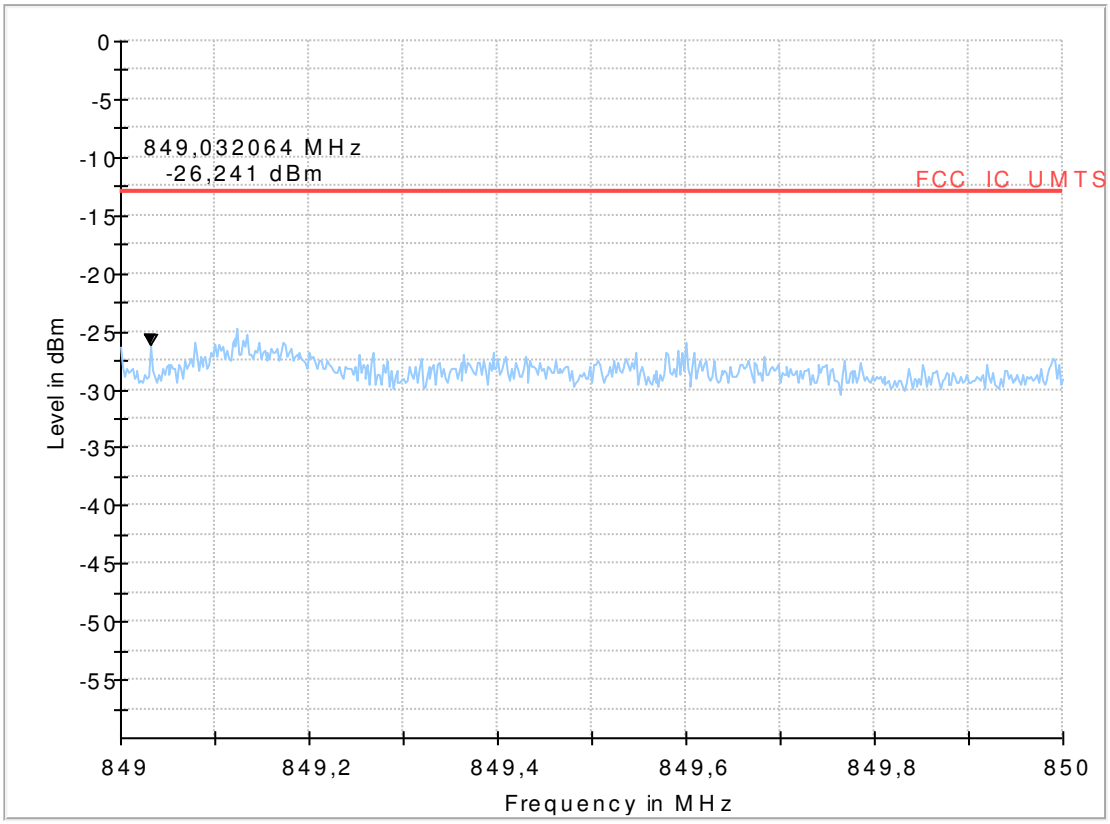
Common Information

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)
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 4233 (fc =846.6 MHz), RMC
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Remarks:	Internal Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



9.51b_RSE_R_Ch4233_RMC_ExtAnt

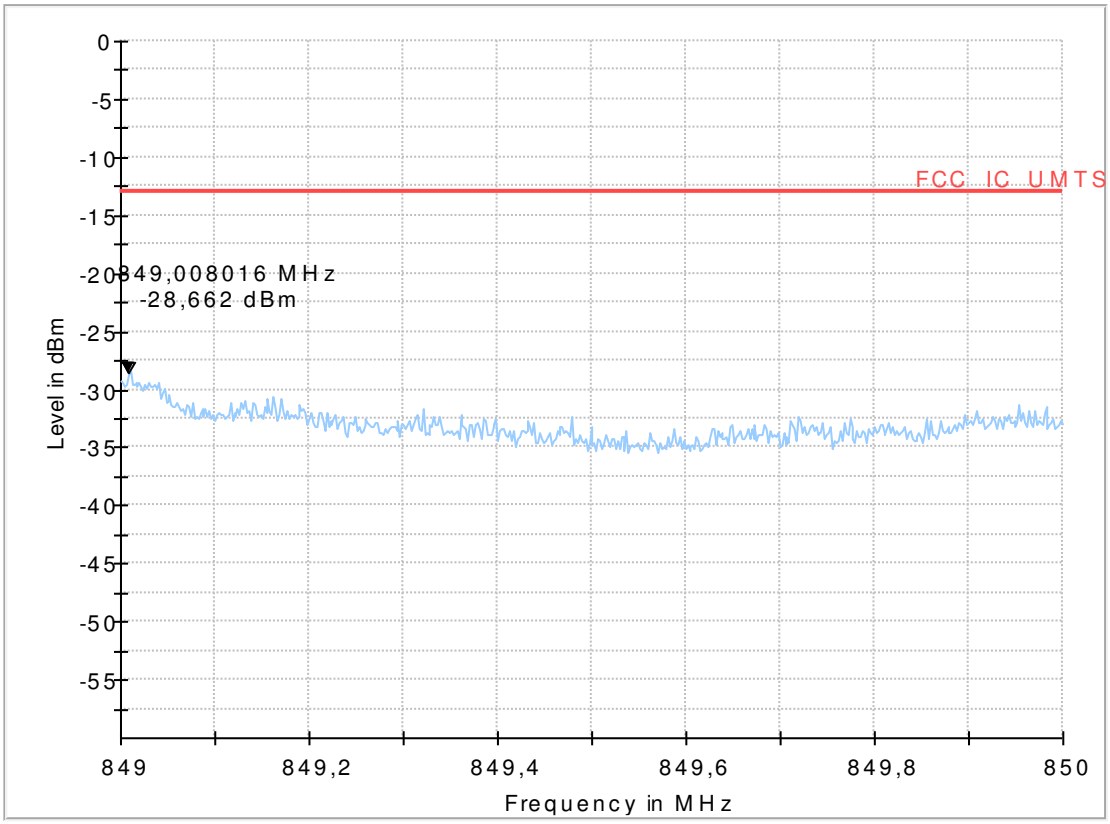
Common Information

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)
Test SW.:	EMC32 V9.21.0
Operating Mode:	UE allocated channel 4233 (fc =846.6 MHz), RMC
Environmental Conditions:	Humidity: 35%rH; Temperature: 22,6°C
Operator:	KMo
Remarks:	External Antenna used

EUT Information

Manufacturer:	ACTIA Nordic AB
EuT:	ACUII-06
---	---
HW Version:	C
SW Version:	13
Serial Number:	21790250902643
Connected Interfaces:	MAIN harness, DCL Ethernet cable, Antenna with power supply cable, WLAN antenna cable, GNSS antenna cable, 2G/3G/4G antenna cable, 3G/4G Diversity antenna cable, Termination for IHU Ethernet connector
Power Supply:	13.8 VDC
Antenna Type:	LTE Antenna with SDAR 434-WLAN-GNSS-SDARS-LTE 50751424 | 15W421 | Portugal AD801 SDARS Modified #1

Full Spectrum



1.5. Radiated emissions – band-edge (LTE Band 2)

1.5.1. Band-Edge Low External Antenna

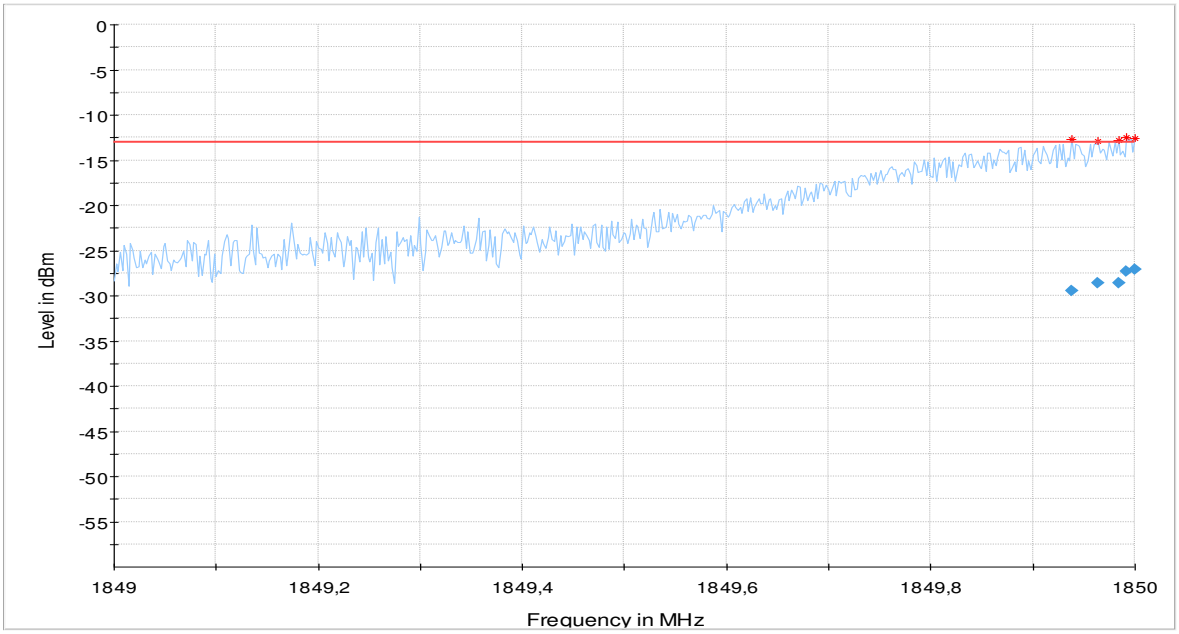


Diagram 9.32a_BE_R_Ch18650_1RB_OFF0_BW10_QPSK_Ext-Ant

Re-Measurement with RMS detector, max-level: -27.09 dBm

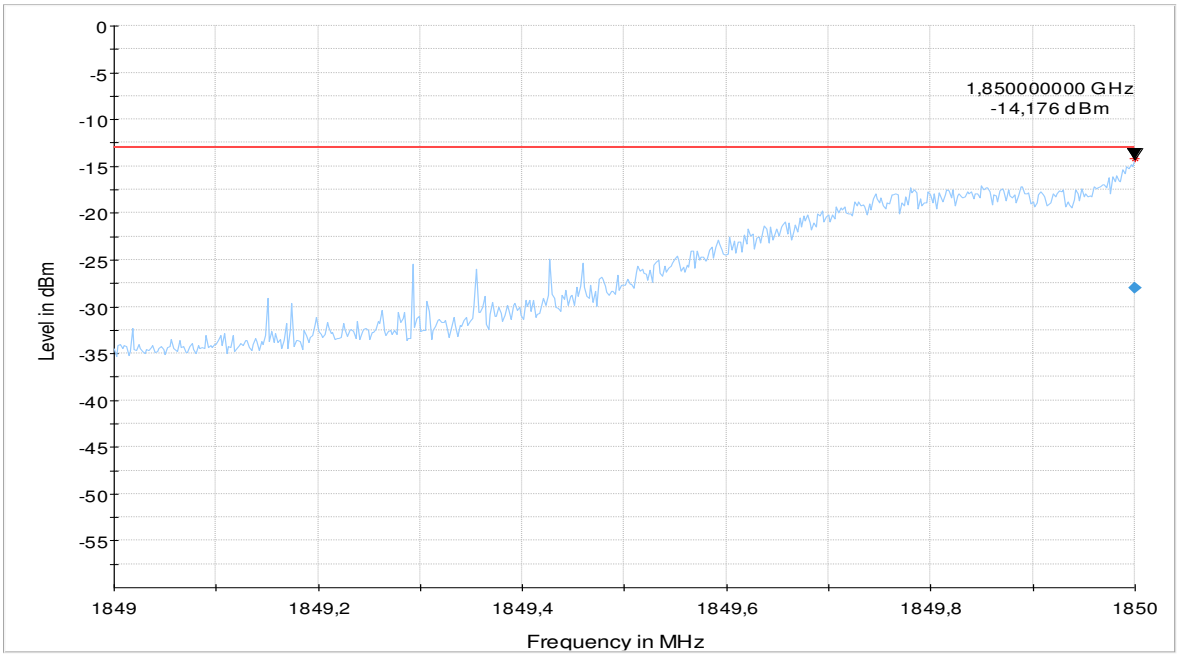


Diagram 9.32b_BE_R_Ch18650_1RB_OFF0_BW10_QAM_Ext-Ant

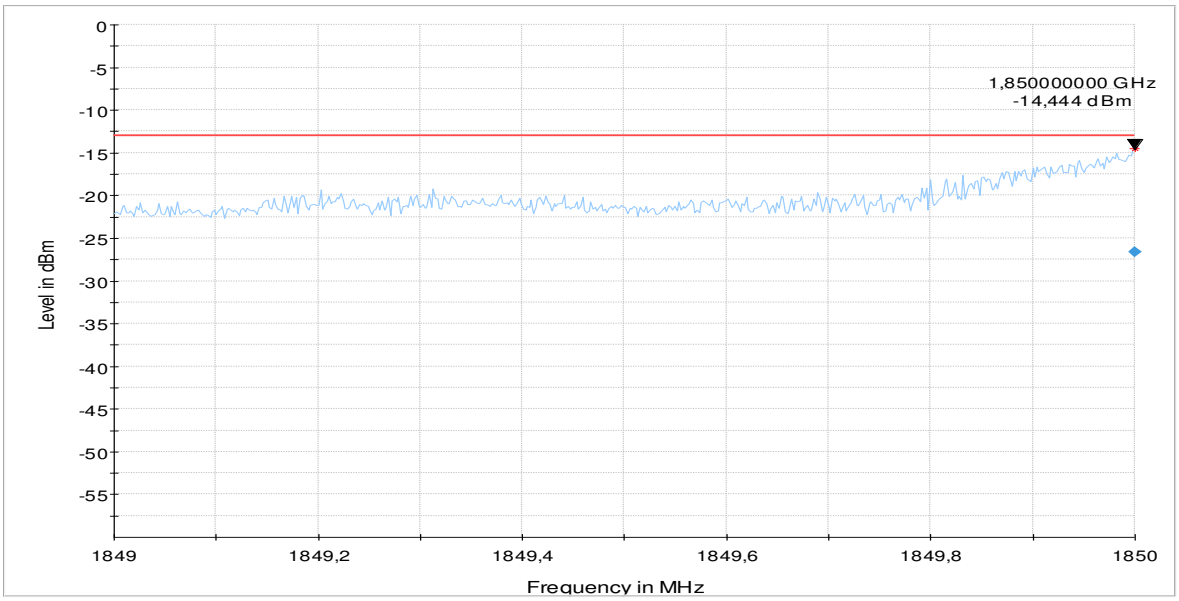


Diagram 9.33a_BE_R_Ch18650_50RB_BW10_QPSK_Ext-Ant

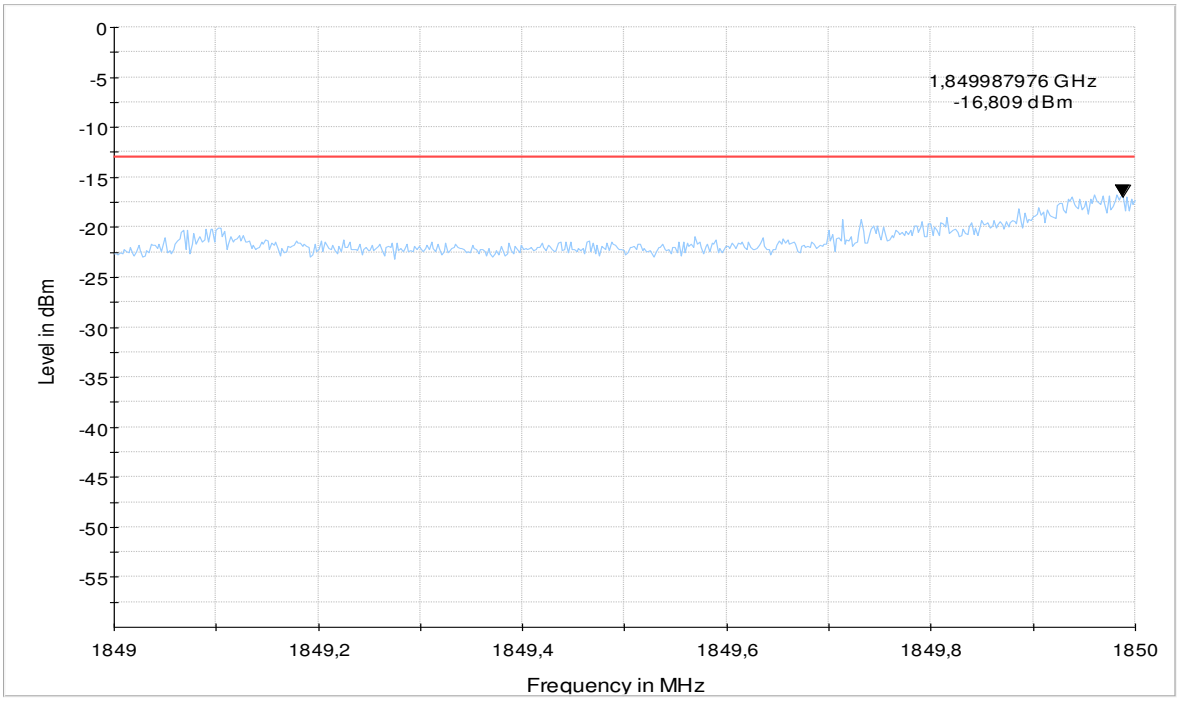


Diagram 9.33b_BE_R_Ch18650_50RB_BW10_QAM_Ext-Ant

1.5.2. Band-Edge Low Internal Antenna

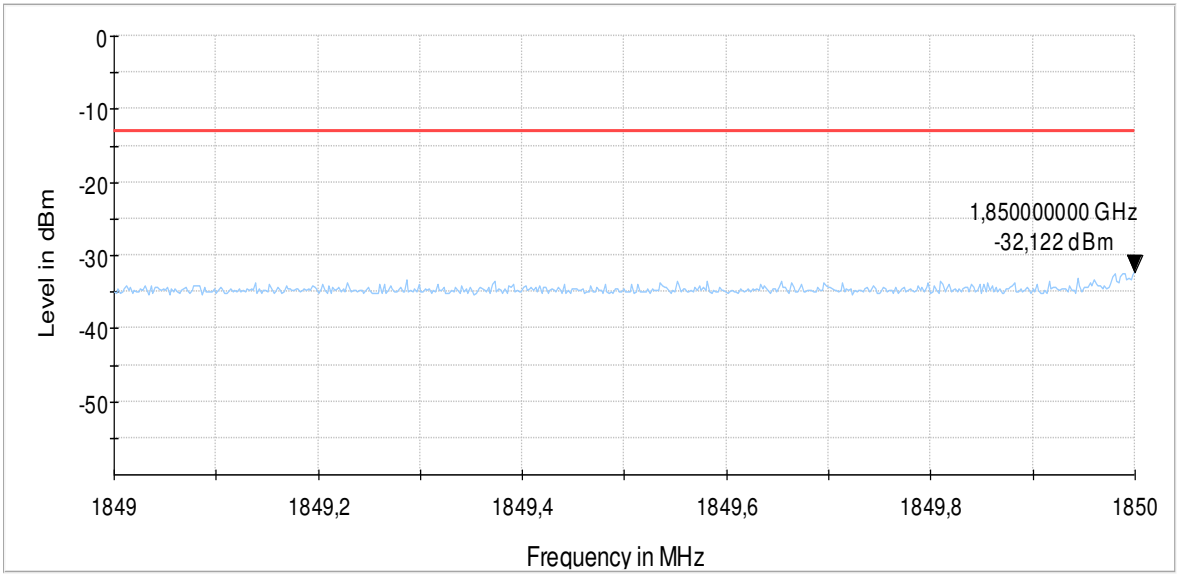


Diagram 9.32a_BE_R_Ch18650_1RB_OFF0_BW10_QPSK_Int-Ant

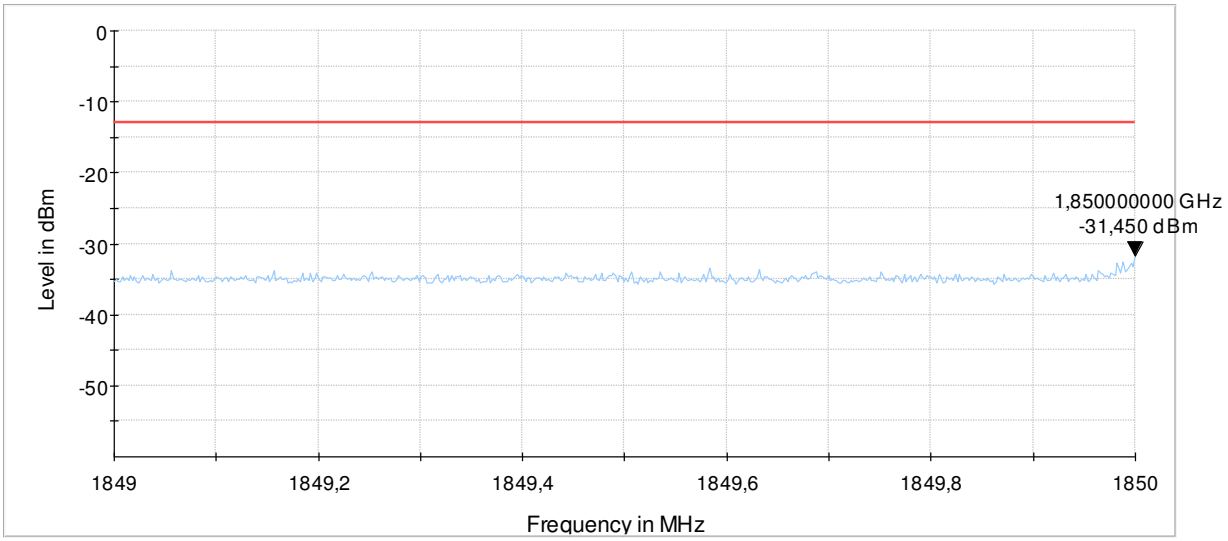


Diagram 9.32b_BE_R_Ch18650_1RB_OFF0_BW10_QAM_Int-Ant

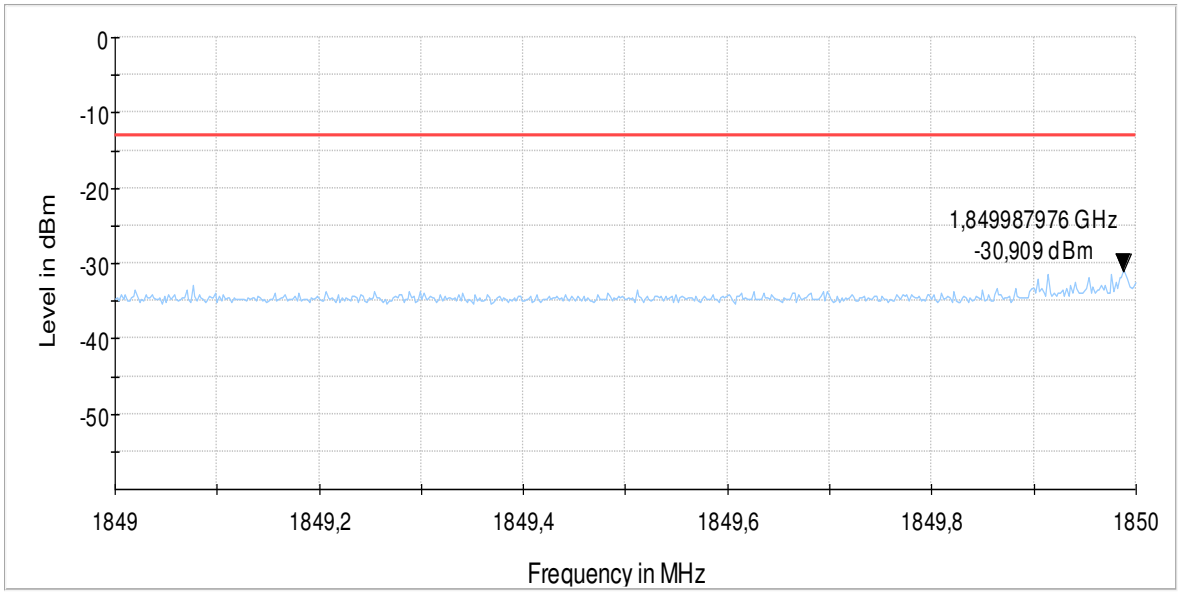


Diagram 9.33a_BE_R_Ch18650_50RB_BW10_QPSK_Int-Ant

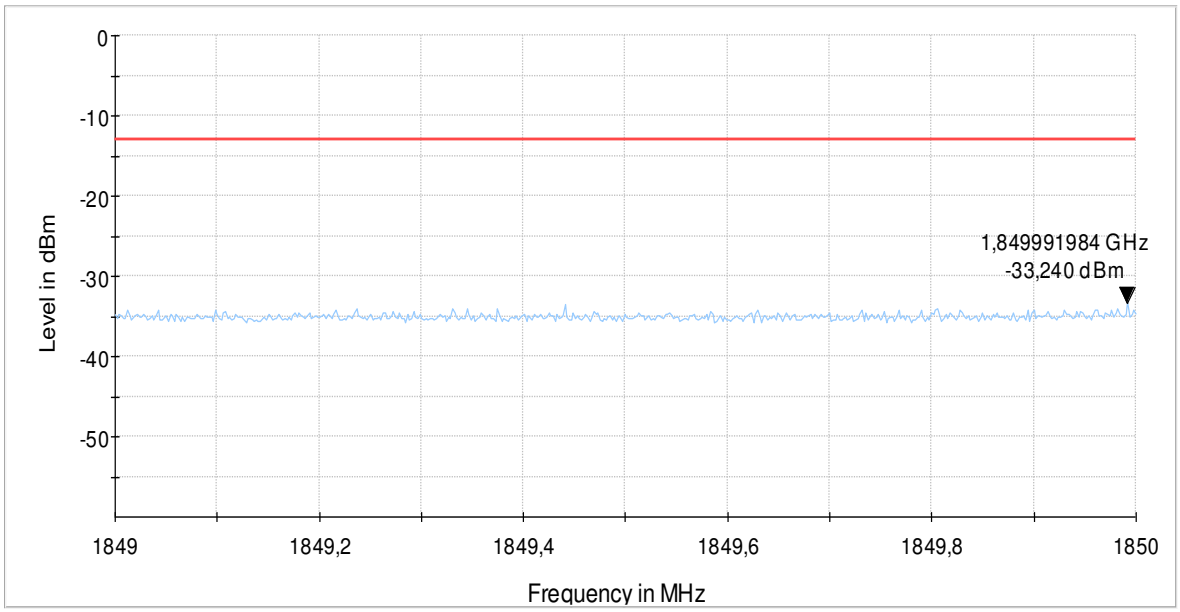


Diagram 9.33b_BE_R_Ch18650_50RB_BW10_QAM_Int-Ant

1.5.3. Band-Edge High External Antenna

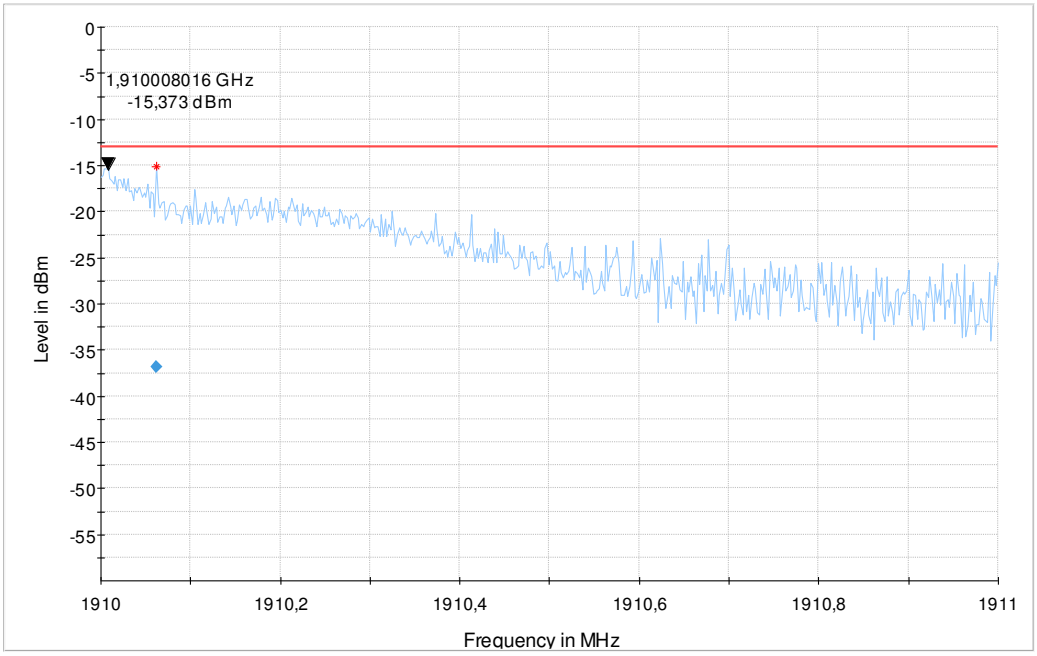


Diagram 9.34a_BE_R_Ch19150_1RB_OFF49_BW10_QPSK_Ext-Ant

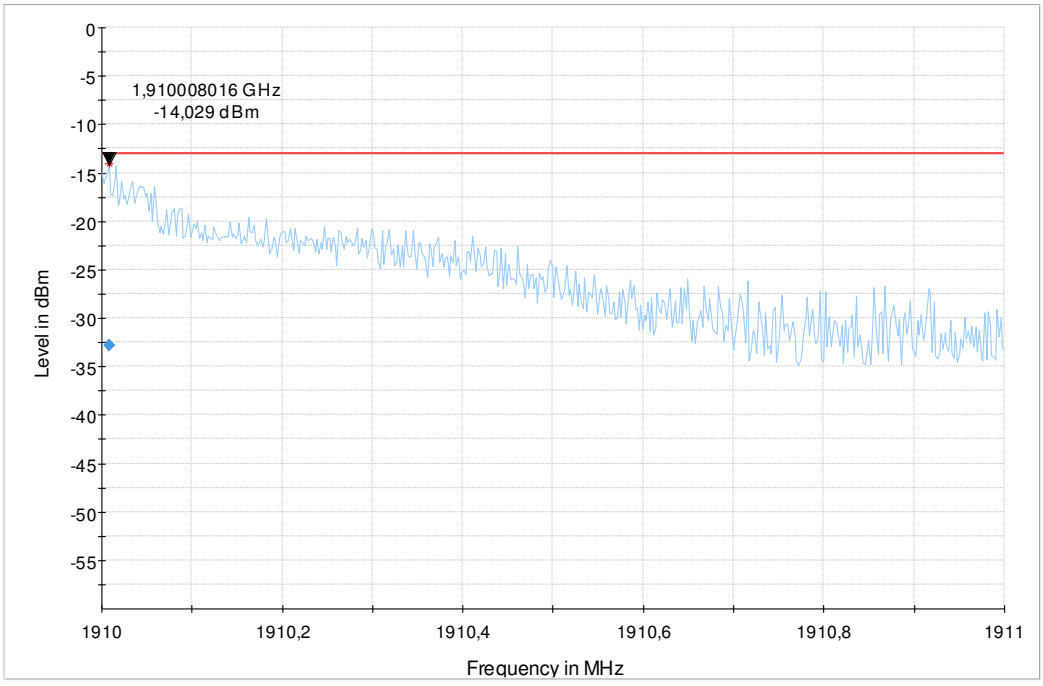


Diagram 9.34b_BE_R_Ch19150_1RB_OFF49_BW10_QAM_Ext-Ant

Re-measurement with RMS detector: -32.84dBm

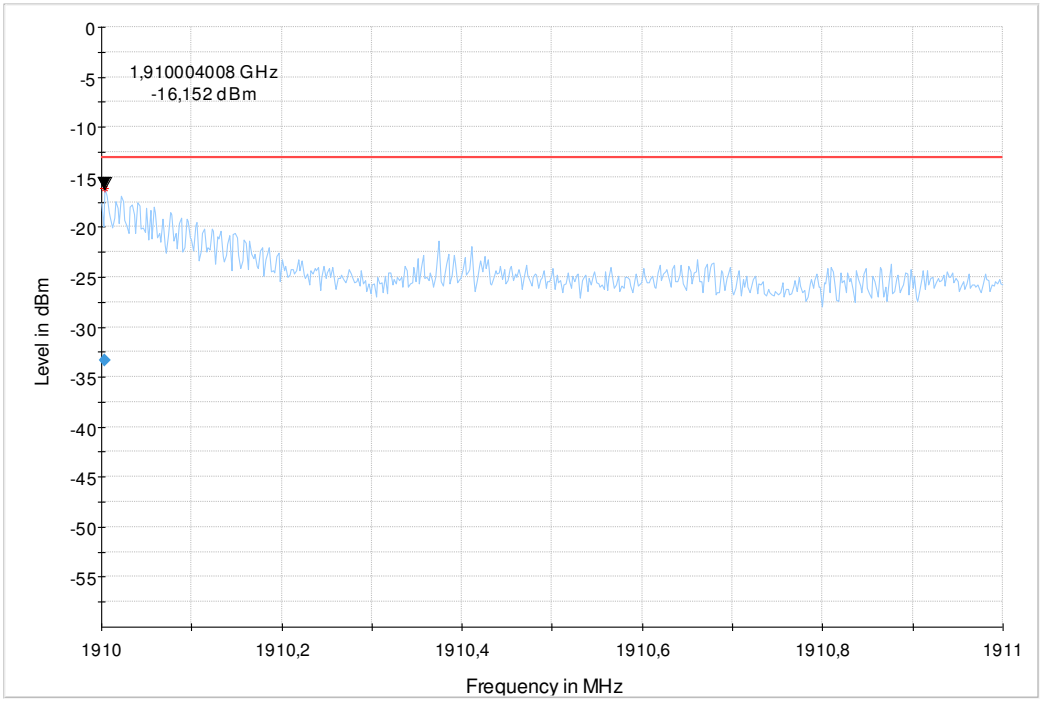


Diagram 9.35a_BE_R_Ch19150_50RB_BW10_QPSK_Ext-Ant

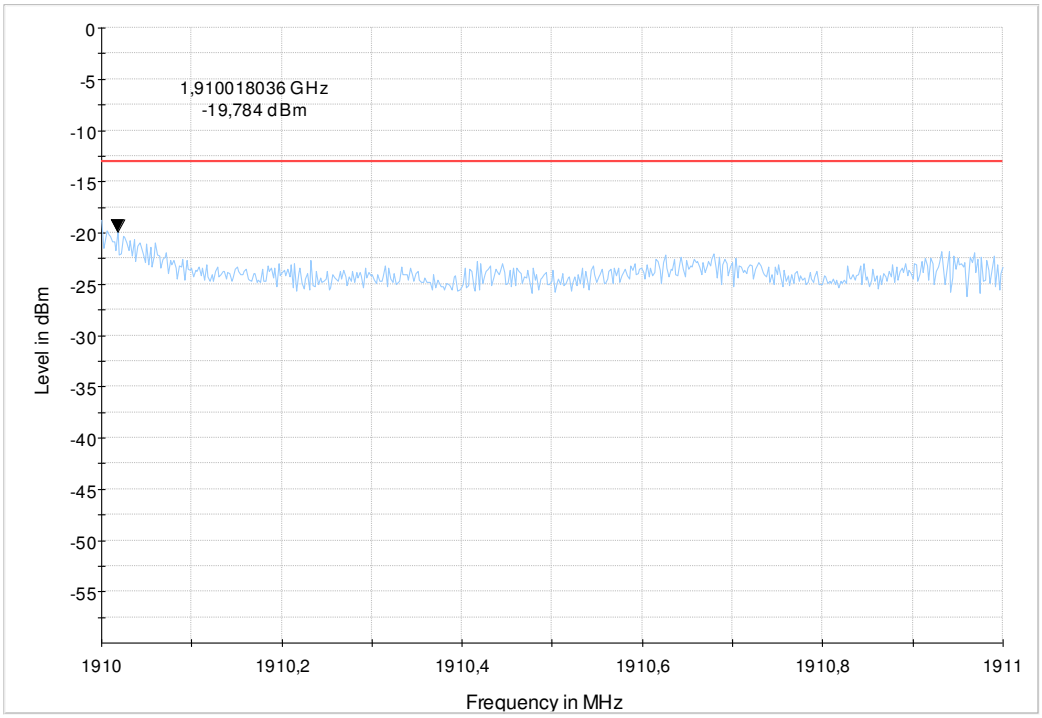


Diagram 9.35b_BE_R_Ch19150_50RB_BW10_QAM_Ext-Ant

1.5.4. Band-Edge High - Internal Antenna

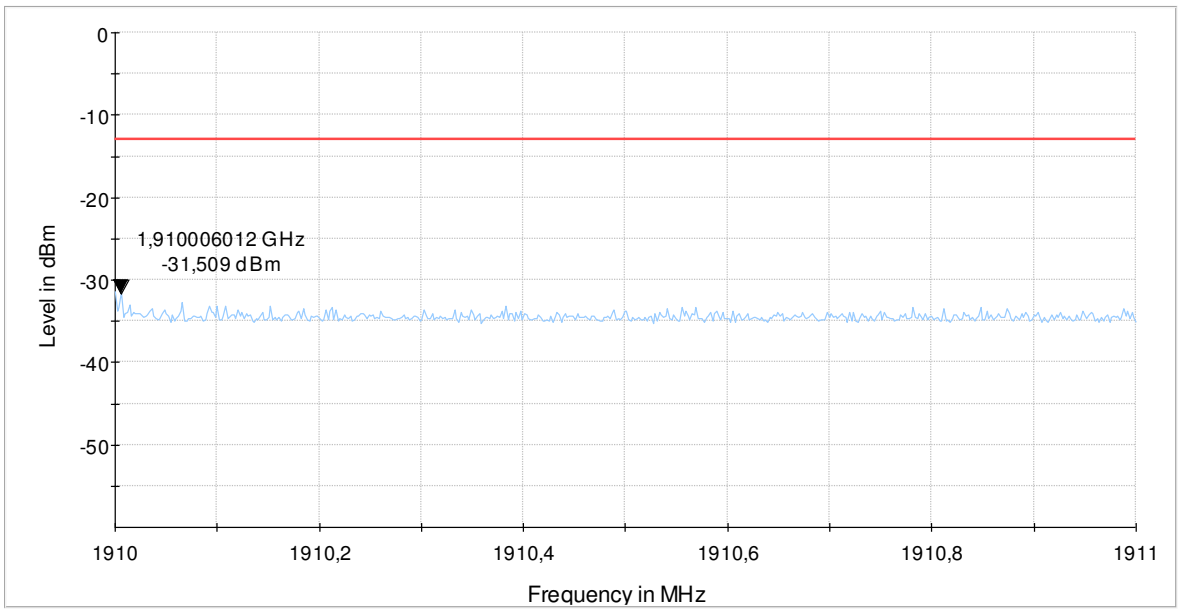


Diagram 9.34a_BE_R_Ch19150_1RB_OFF49_BW10_QPSK_Int-Ant

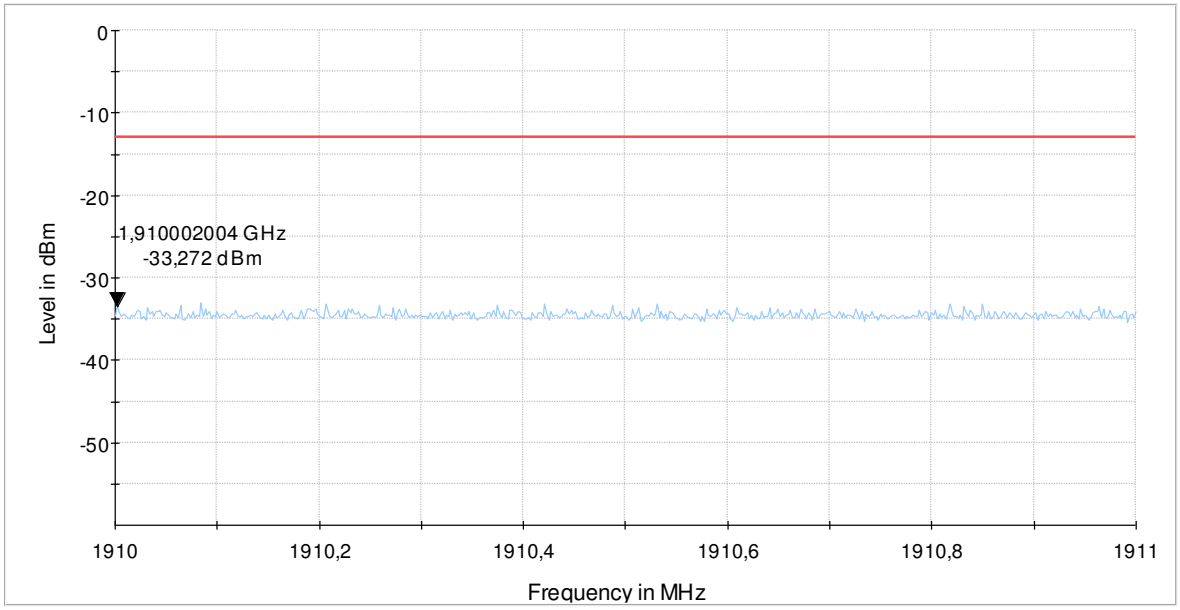


Diagram 9.34b_BE_R_Ch19150_1RB_OFF49_BW10_QAM_Int-Ant

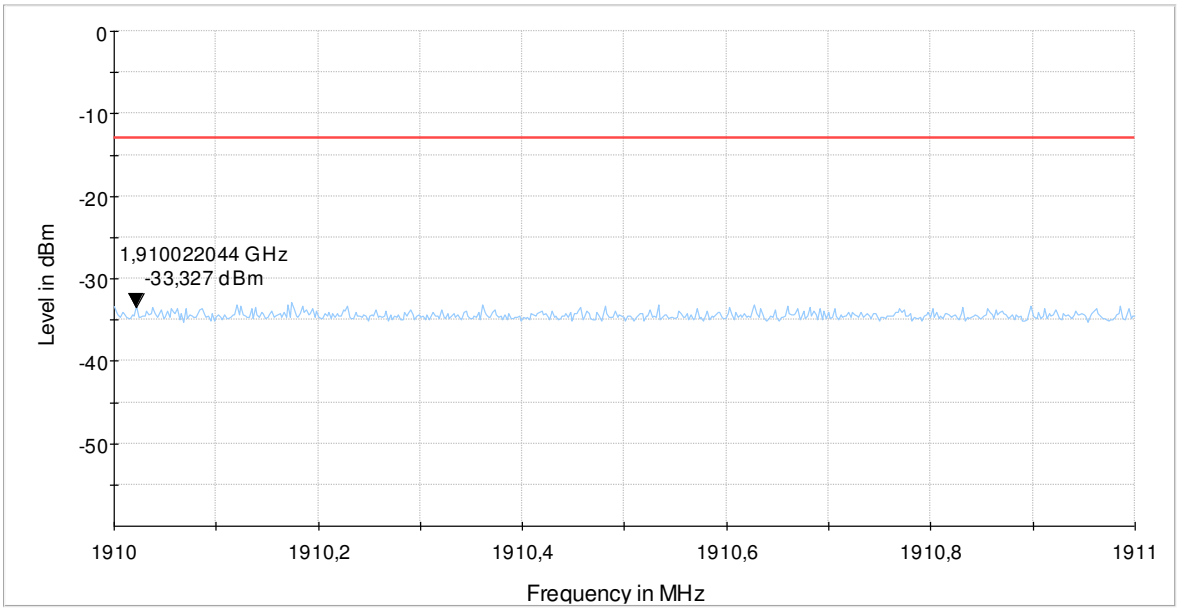


Diagram 9.35a_BE_R_Ch19150_50RB_BW10_QPSK_Int-Ant

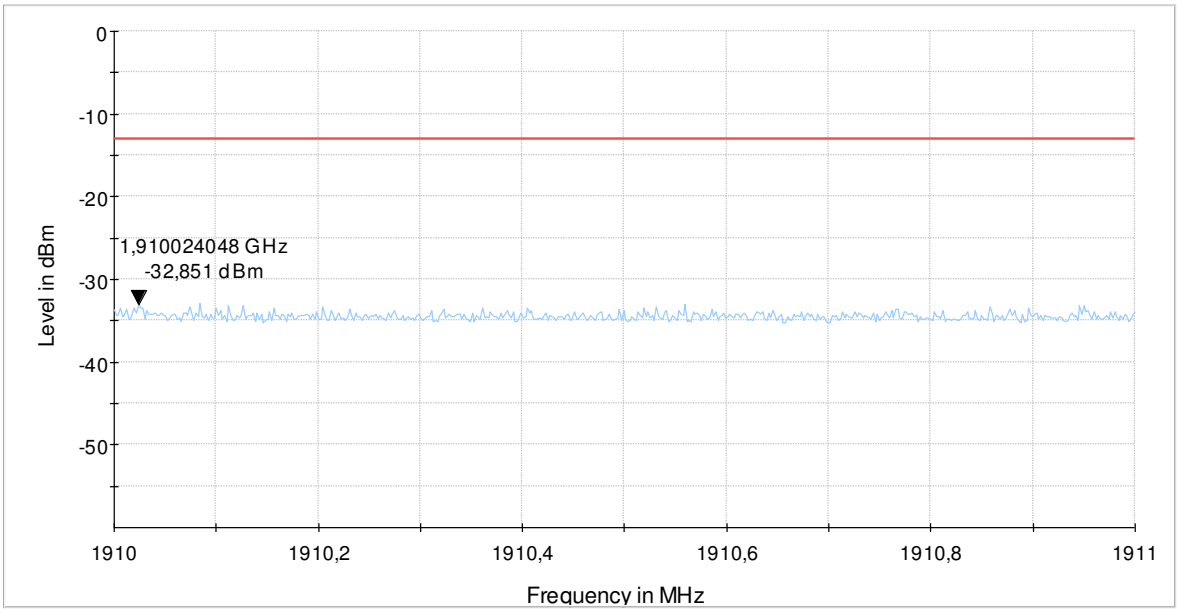


Diagram 9.35b_BE_R_Ch19150_50RB_BW10_QAM_Int-Ant

1.6. Radiated emissions – band-edge (LTE Band 4)

1.6.1. Band-Edge Low External Antenna

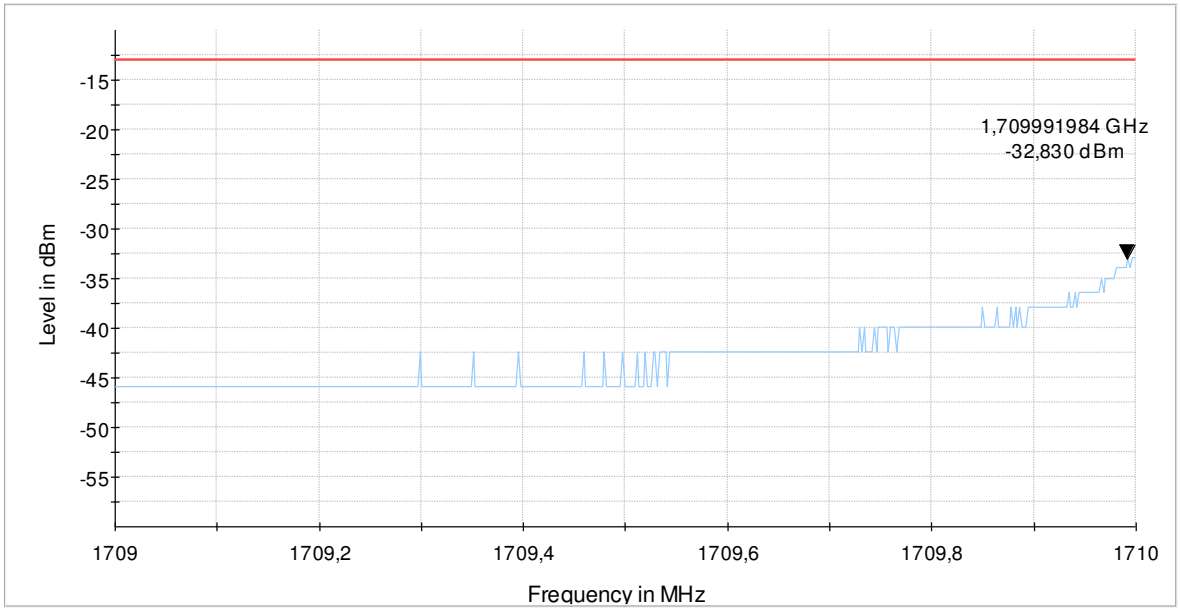


Diagram 9.52a_BE_R_Ch20000_1RB_OFF0_BW10_QPSK_Ext-Ant

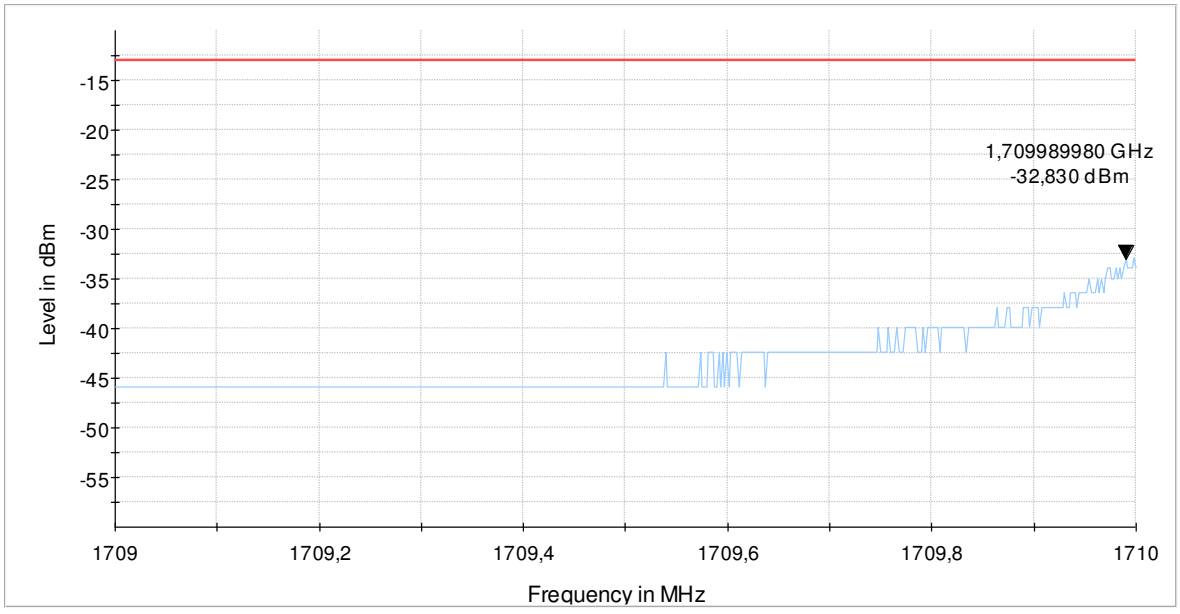


Diagram 9.52b_BE_R_Ch20000_1RB_OFF0_BW10_QAM_Ext-Ant

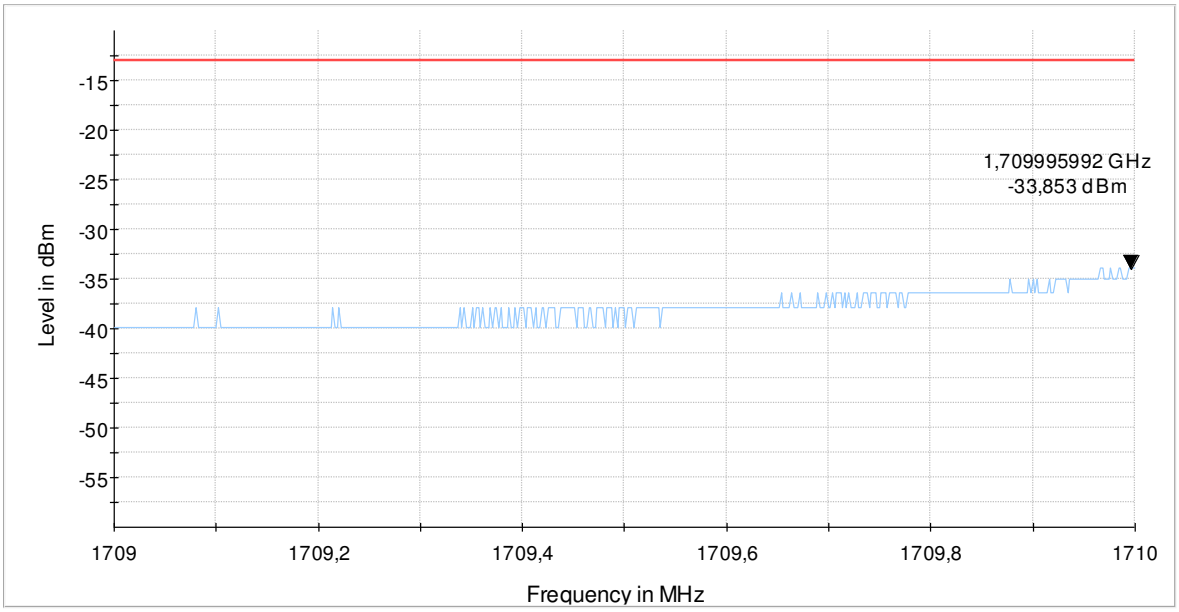


Diagram 9.53a_BE_R_Ch20000_50RB_BW10_QPSK_Ext-Ant

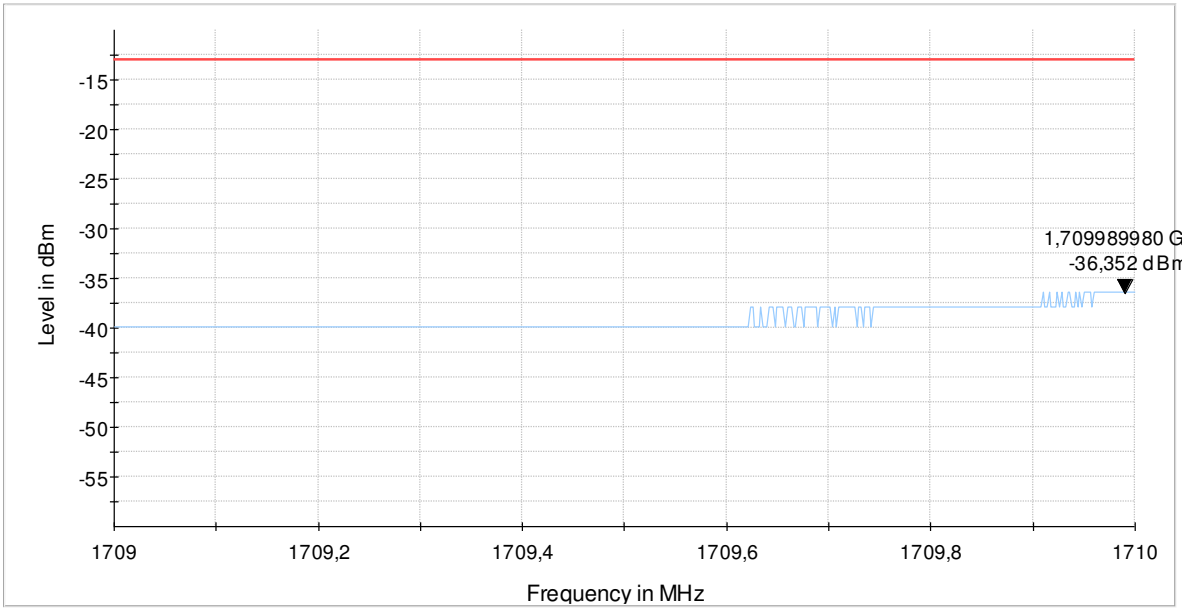


Diagram 9.53b_BE_R_Ch20000_50RB_BW10_QAM_Ext-Ant

1.6.2. Band-Edge Low Internal Antenna

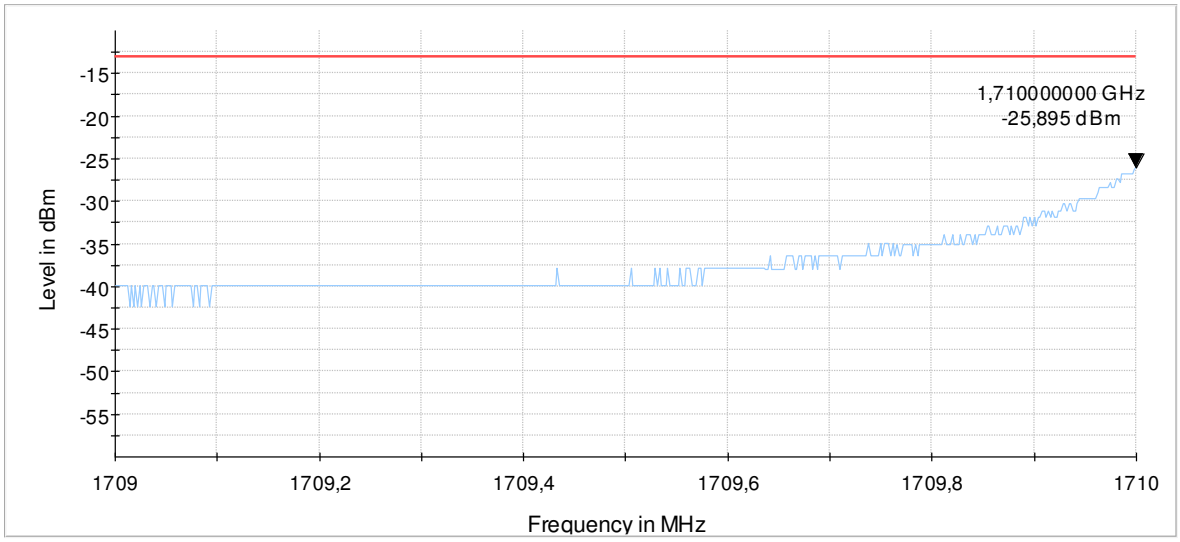


Diagram 9.52a_BE_R_Ch20000_1RB_OFF0_BW10_QPSK_Int-Ant

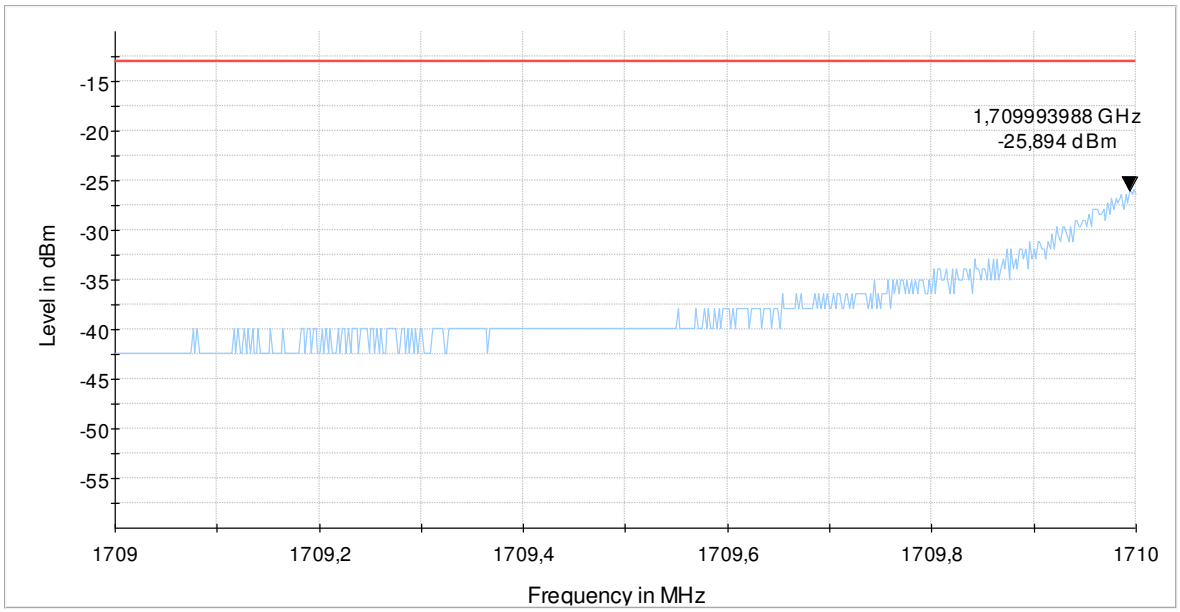


Diagram 9.52b_BE_R_Ch20000_1RB_OFF0_BW10_QAM_Int-Ant

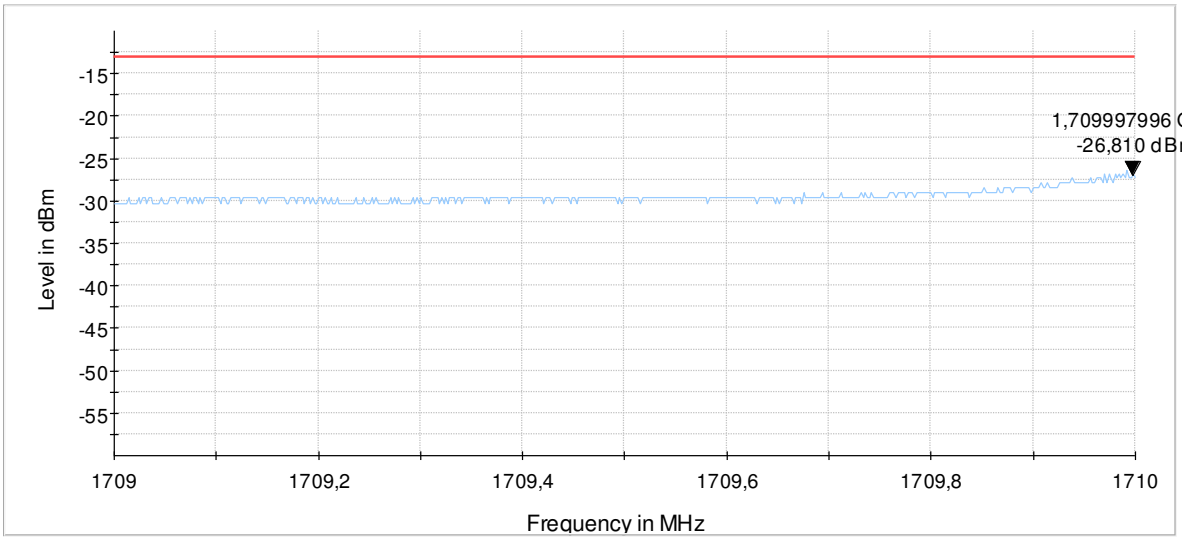


Diagram 9.53a_BE_R_Ch20000_50RB_BW10_QPSK_Int-Ant

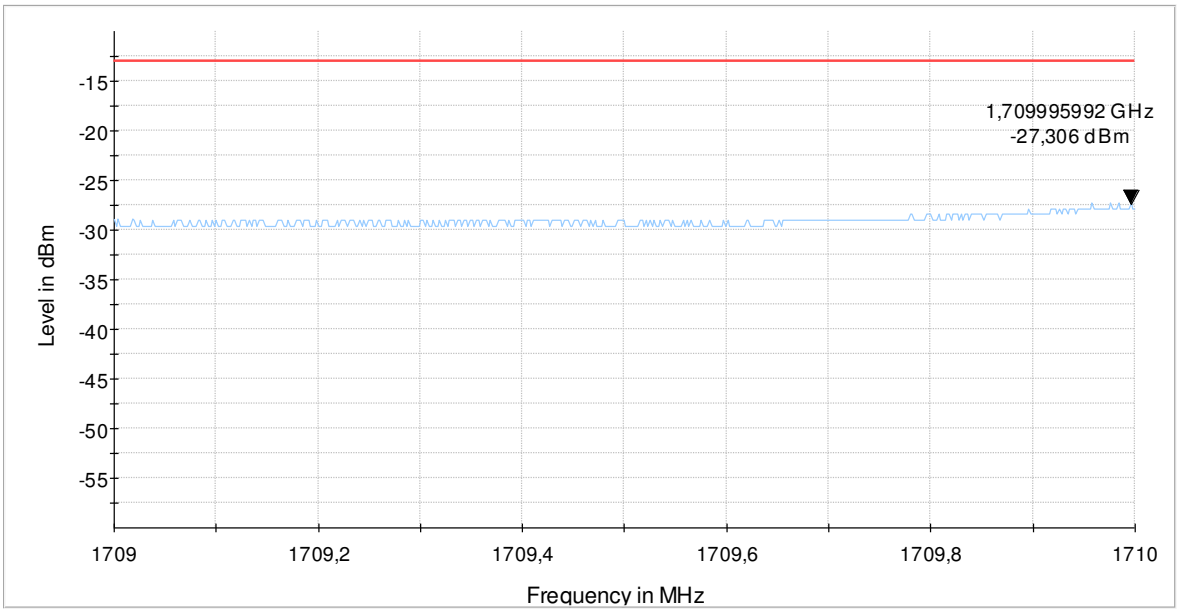


Diagram 9.53b_BE_R_Ch20000_50RB_BW10_QAM_Int-Ant

1.6.3. Band-Edge High - External Antenna

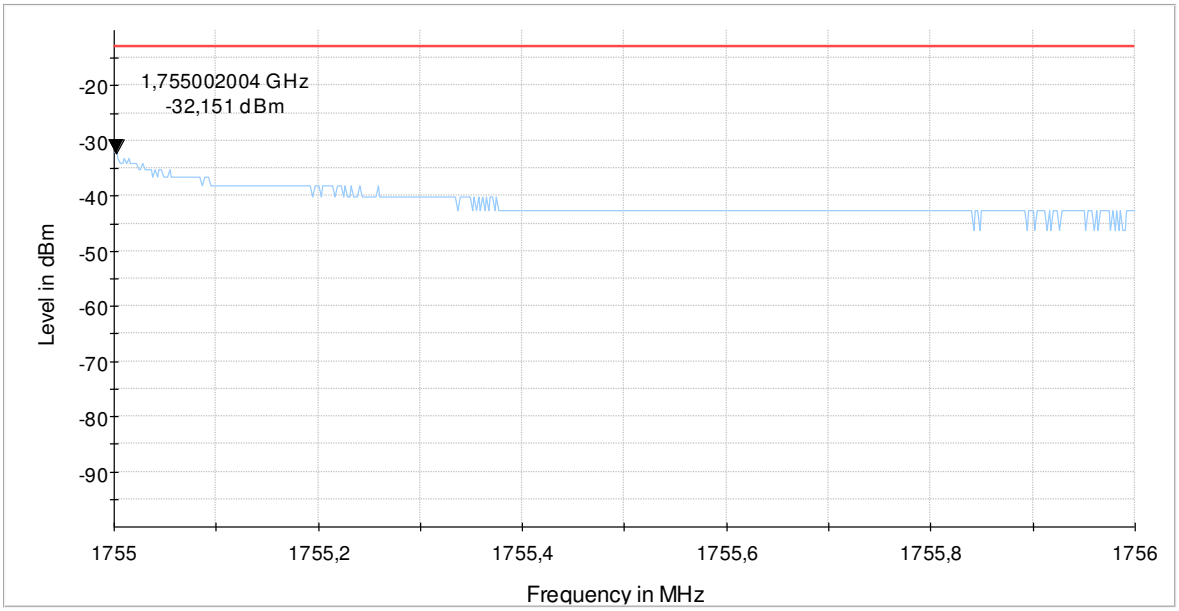


Diagram 9.54a_BE_R_Ch20350_1RB_OFF49_BW10_QPSK_Ext-Ant

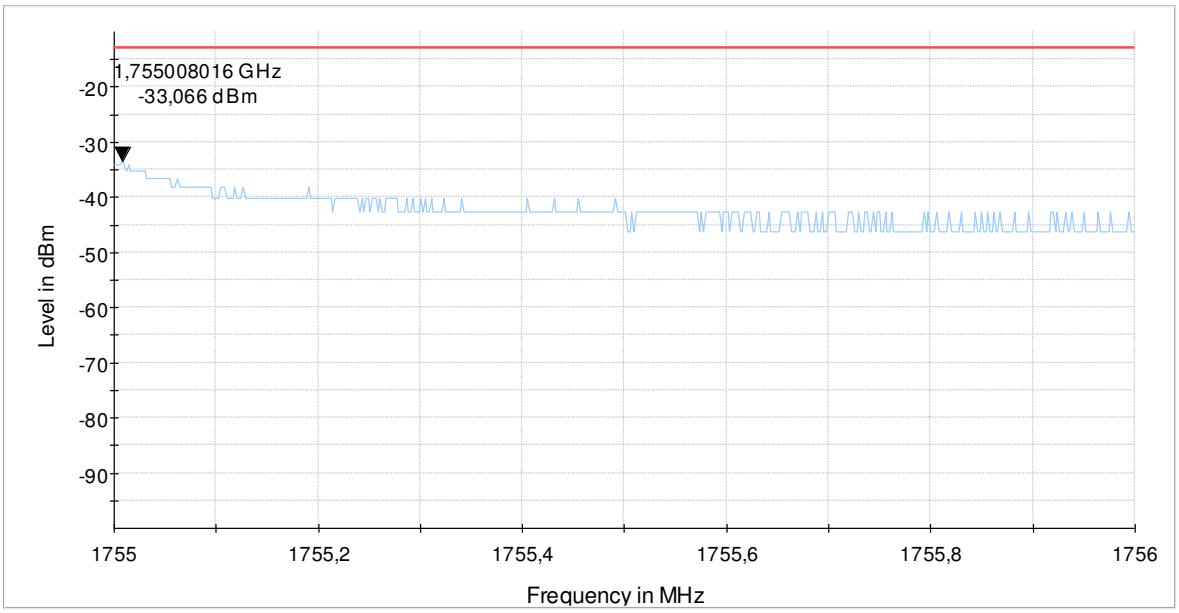


Diagram 9.54b_BE_R_Ch20350_1RB_OFF49_BW10_QAM#_Ext-Ant

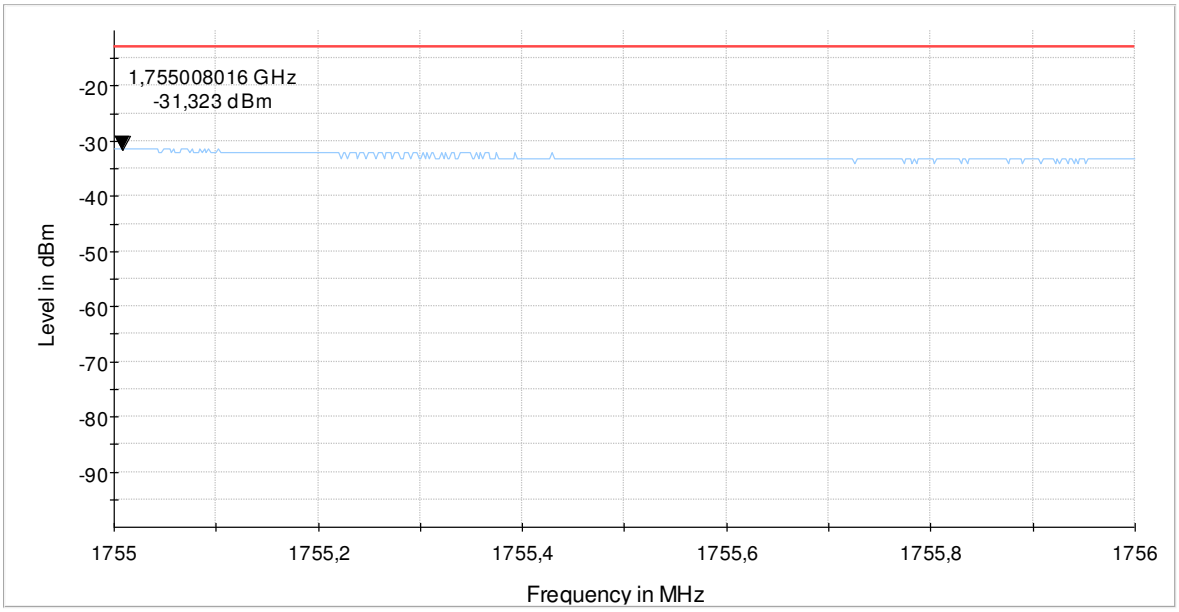


Diagram 9.55a_BE_R_Ch20350_50RB_BW10_QPSK_Ext-Ant

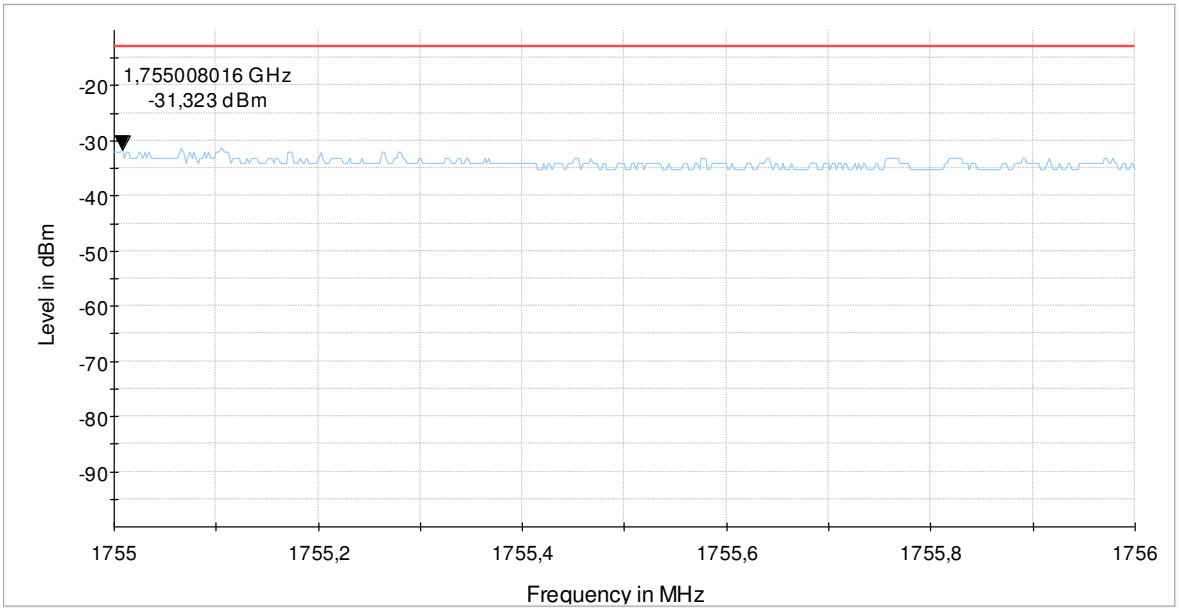


Diagram 9.55b_BE_R_Ch20350_50RB_BW10_QAM_Ext-Ant

1.6.4. Band-Edge High - Internal Antenna

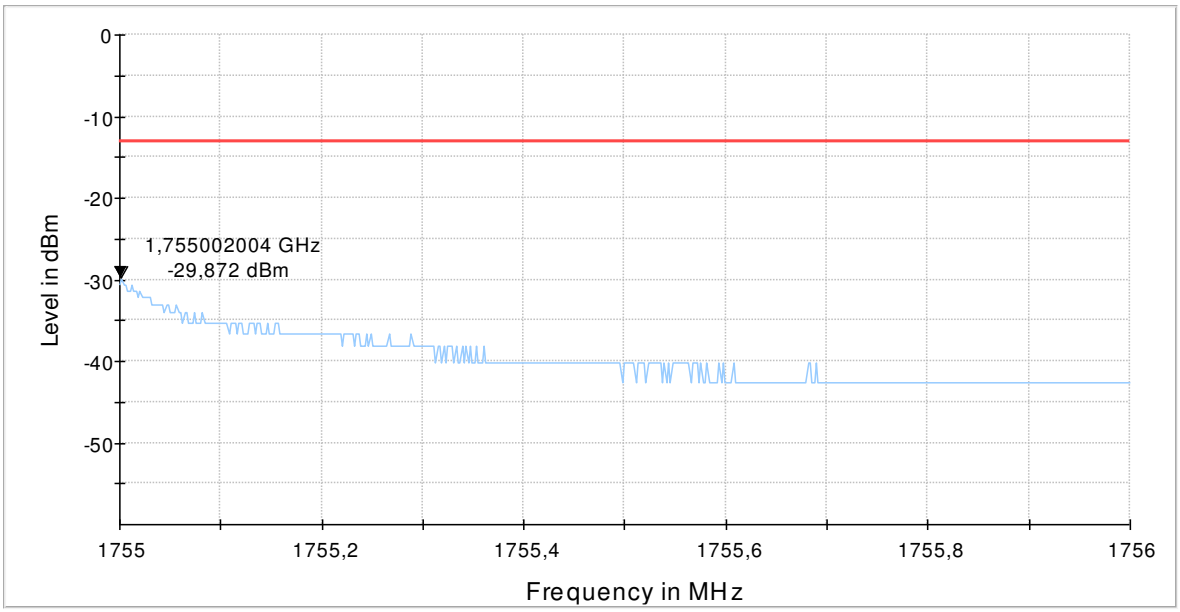


Diagram 9.54a_BE_R_Ch20350_1RB_OFF49_BW10_QPSK_Int-Ant

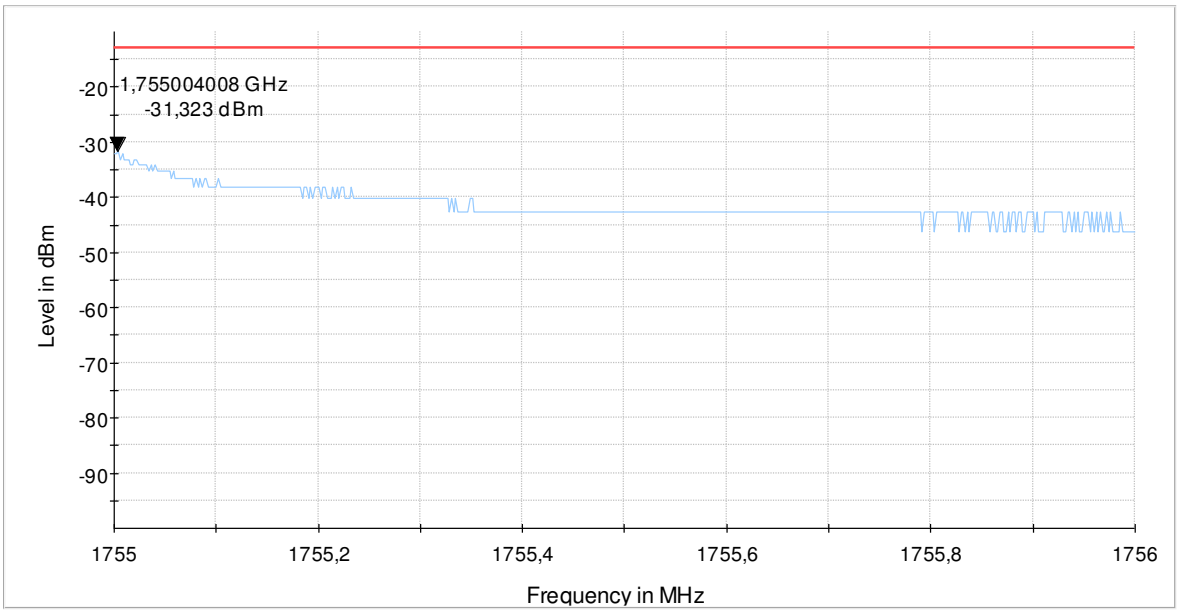


Diagram 9.54b_BE_R_Ch20350_1RB_OFF49_BW10_QAM#_Int-Ant

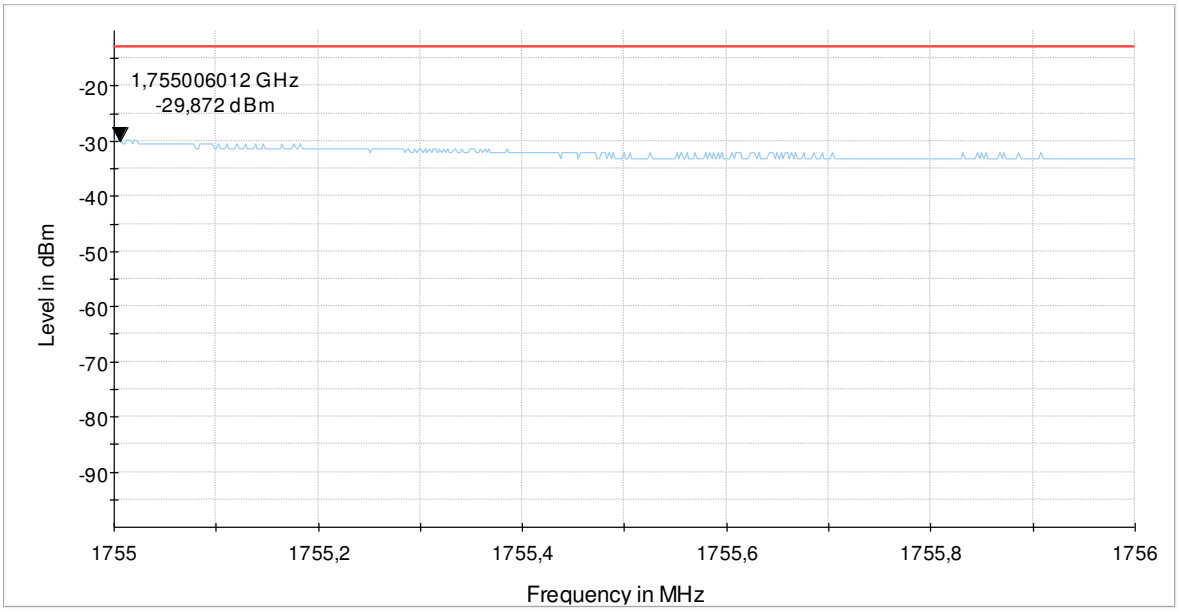


Diagram 9.55a_BE_R_Ch20350_50RB_BW10_QPSK_Int-Ant

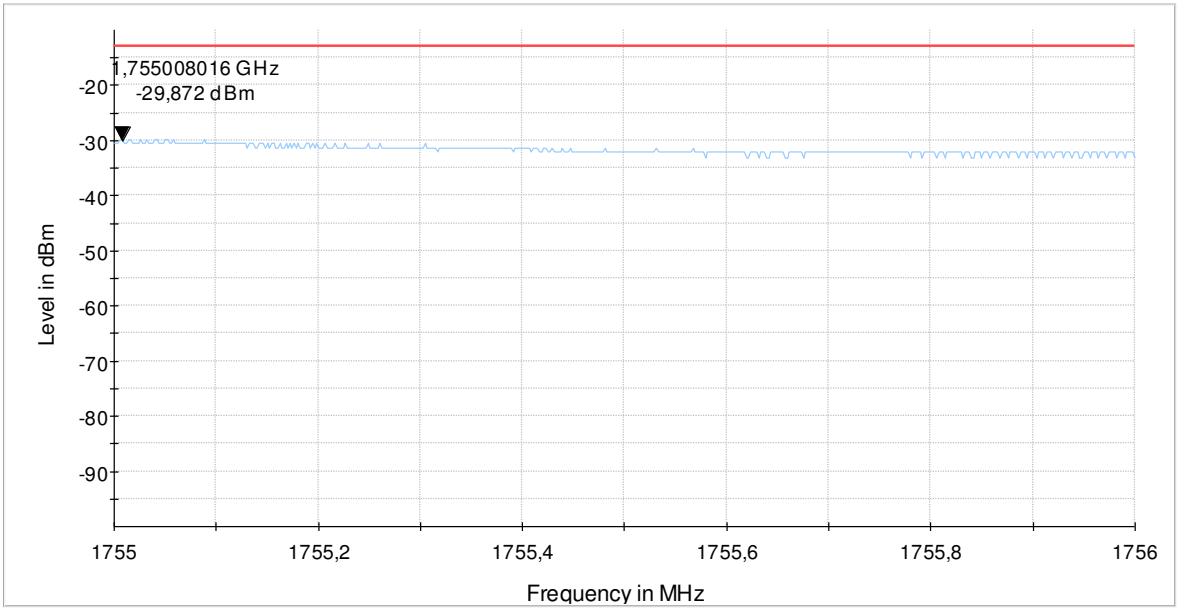


Diagram 9.55b_BE_R_Ch20350_50RB_BW10_QAM_Int-Ant

1.7. Radiated emissions – band-edge (LTE Band 5)

1.7.1. Band-Edge Low External Antenna

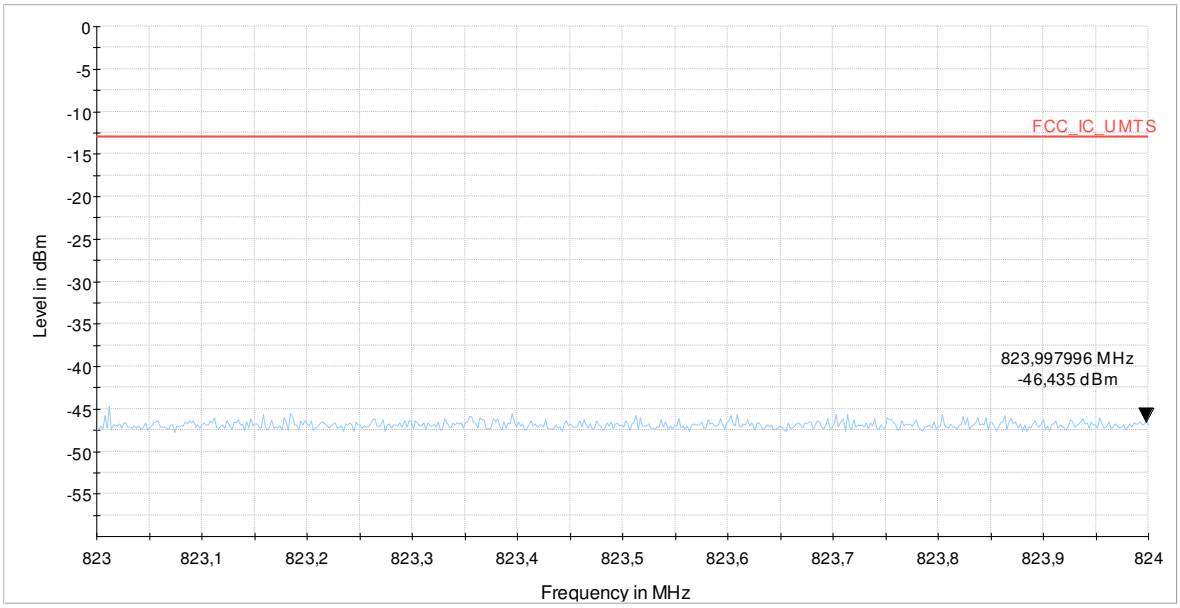


Diagram 9.512a_BE_R_Ch20450_1RB_OFF0_BW10_QPSK_Ext-Ant

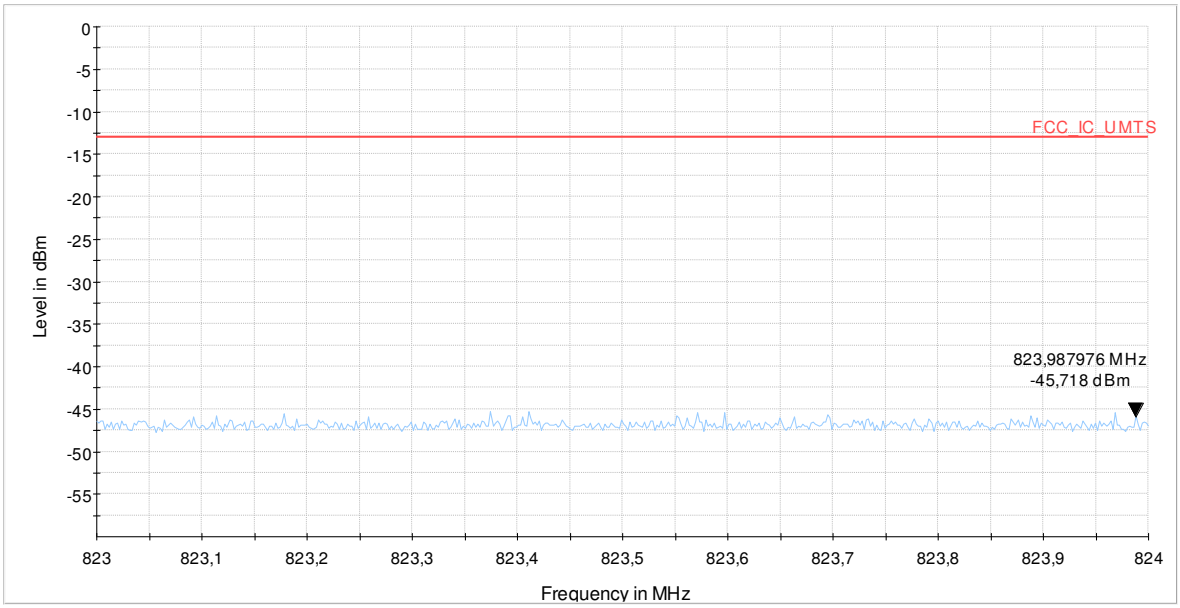


Diagram 9.512b_BE_R_Ch20450_1RB_OFF0_BW10_QAM_Ext-Ant

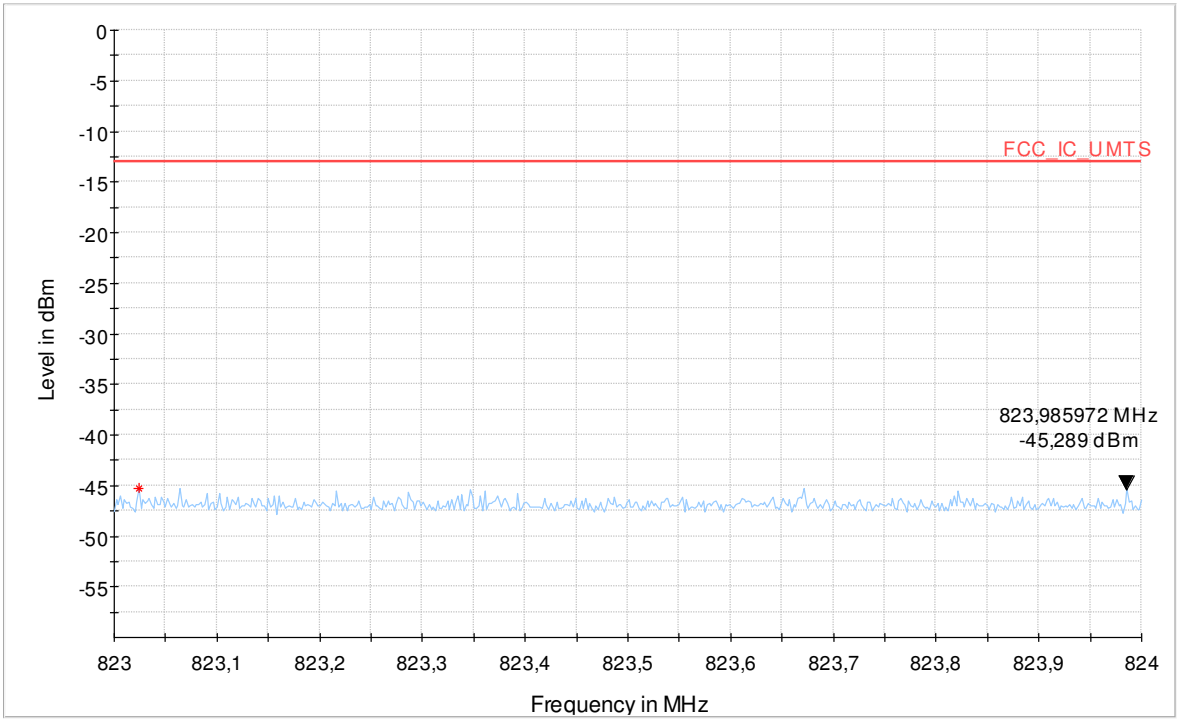


Diagram 9.513a_BE_R_Ch20450_50RB_BW10_QPSK_Ext-Ant

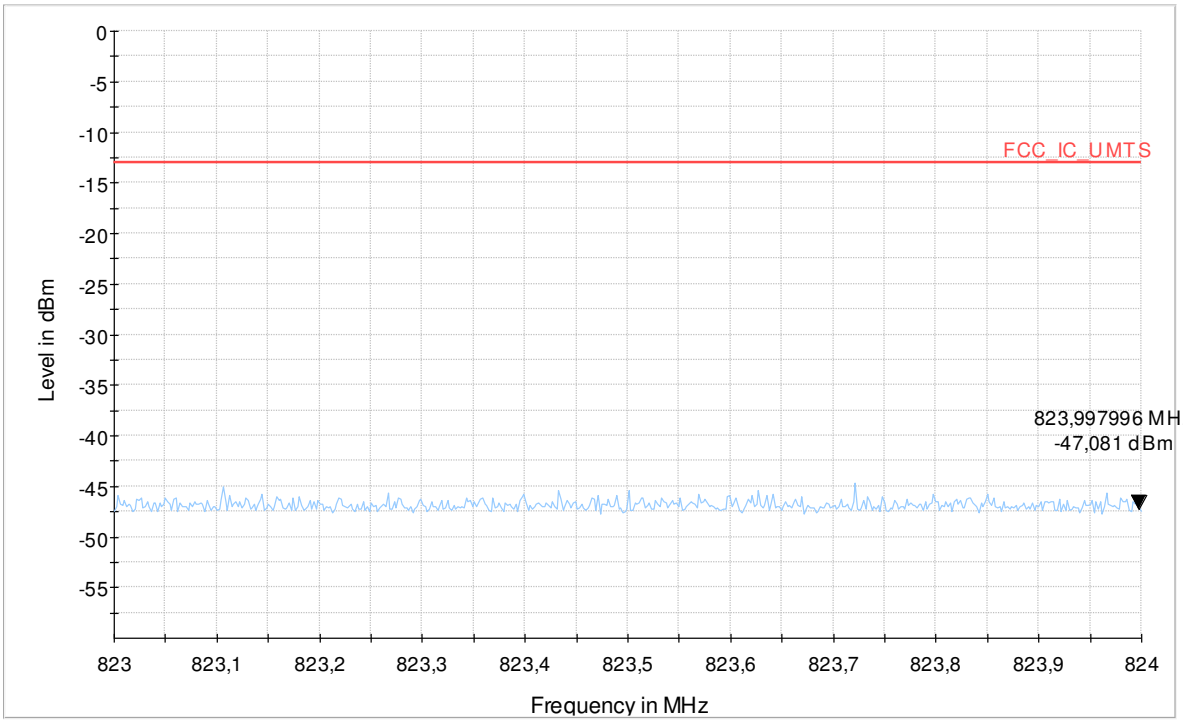


Diagram 9.513b_BE_R_Ch20450_50RB_BW10_QAM_Ext-Ant

1.7.2. Band-Edge Low Internal Antenna

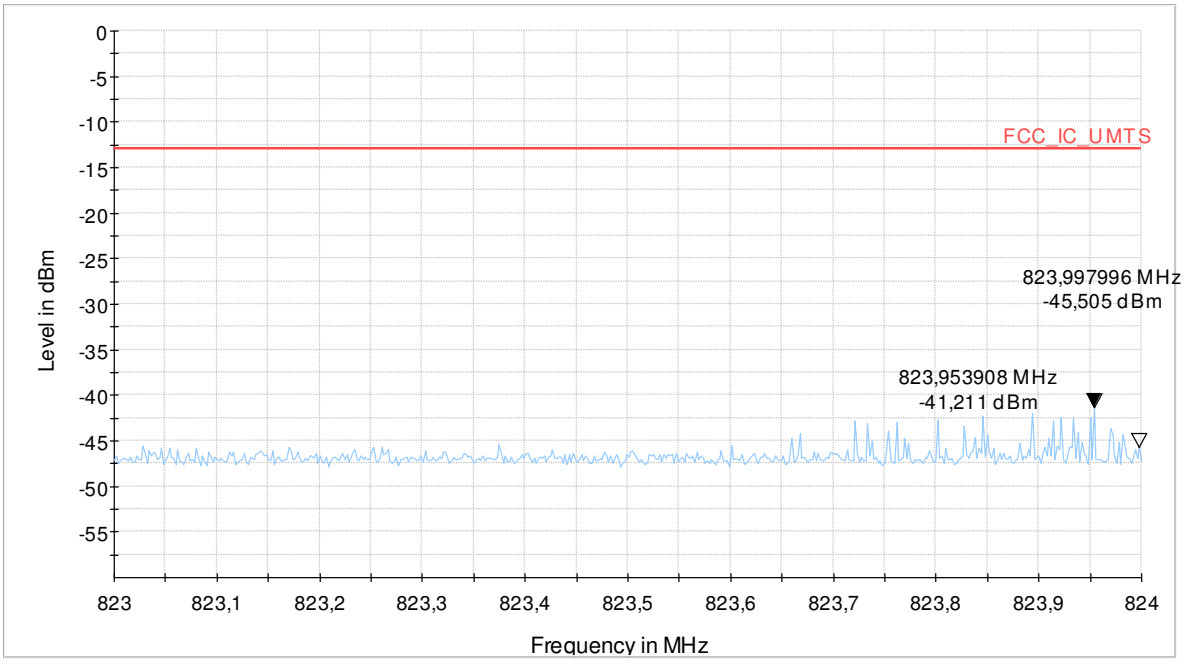


Diagram 9.512a_BE_R_Ch20450_1RB_OFF0_BW10_QPSK_Int-Ant

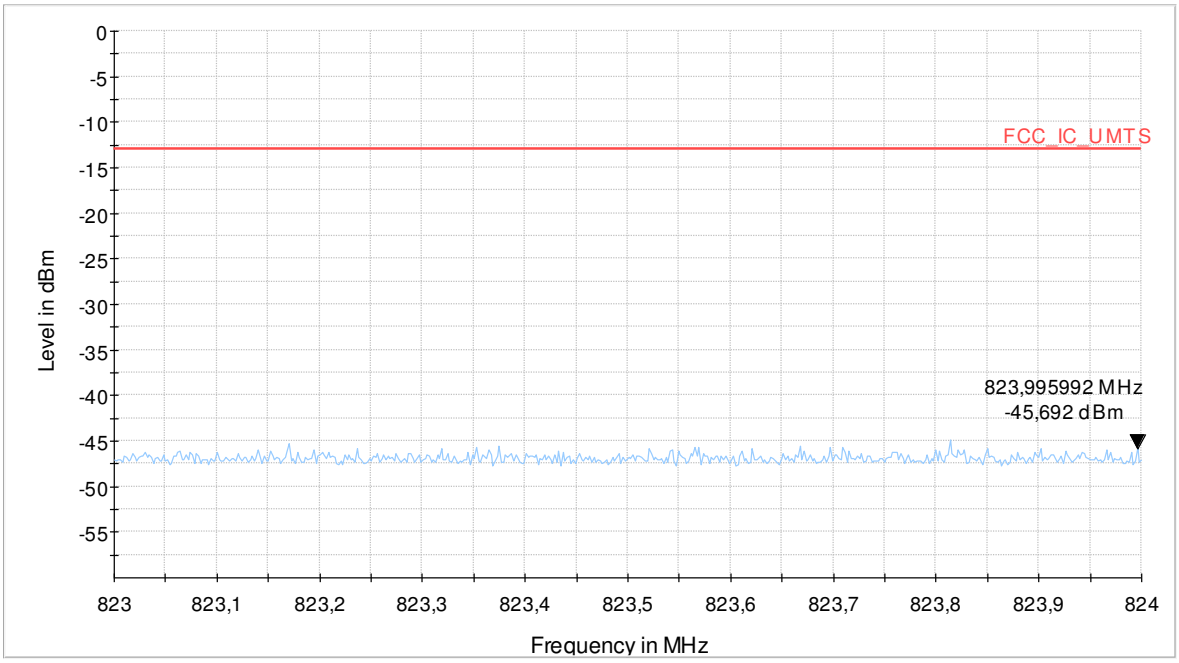


Diagram 9.512b_BE_R_Ch20450_1RB_OFF0_BW10_QAM_Int-Ant

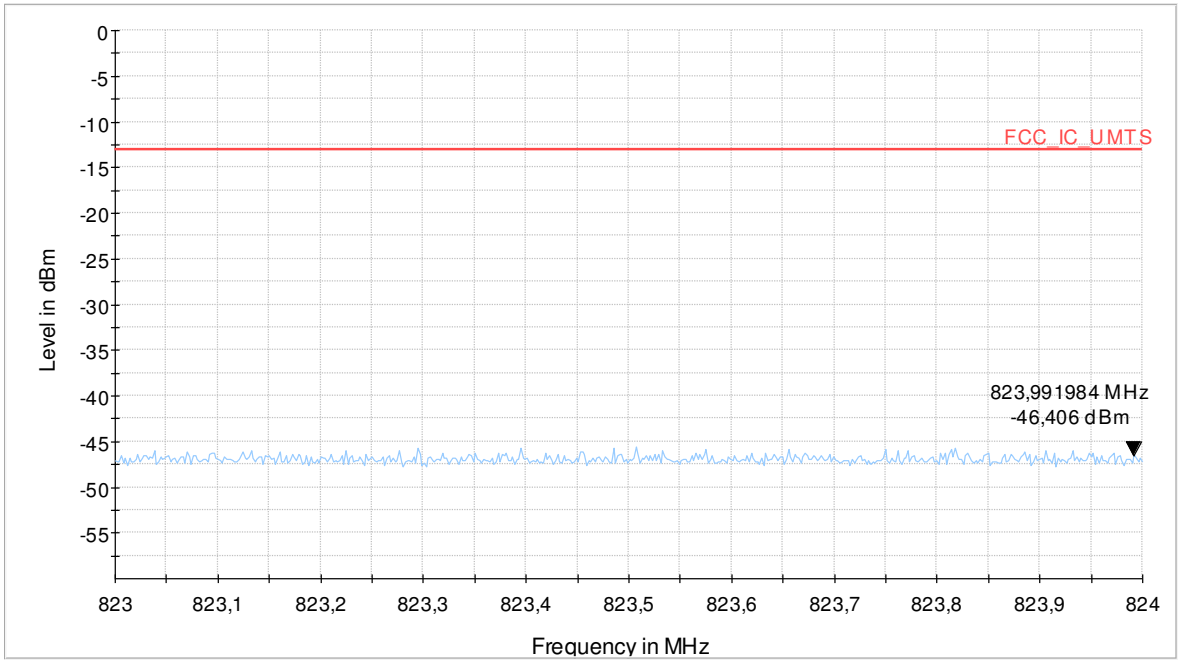


Diagram 9.513a_BE_R_Ch20450_50RB_BW10_QPSK_Int-Ant

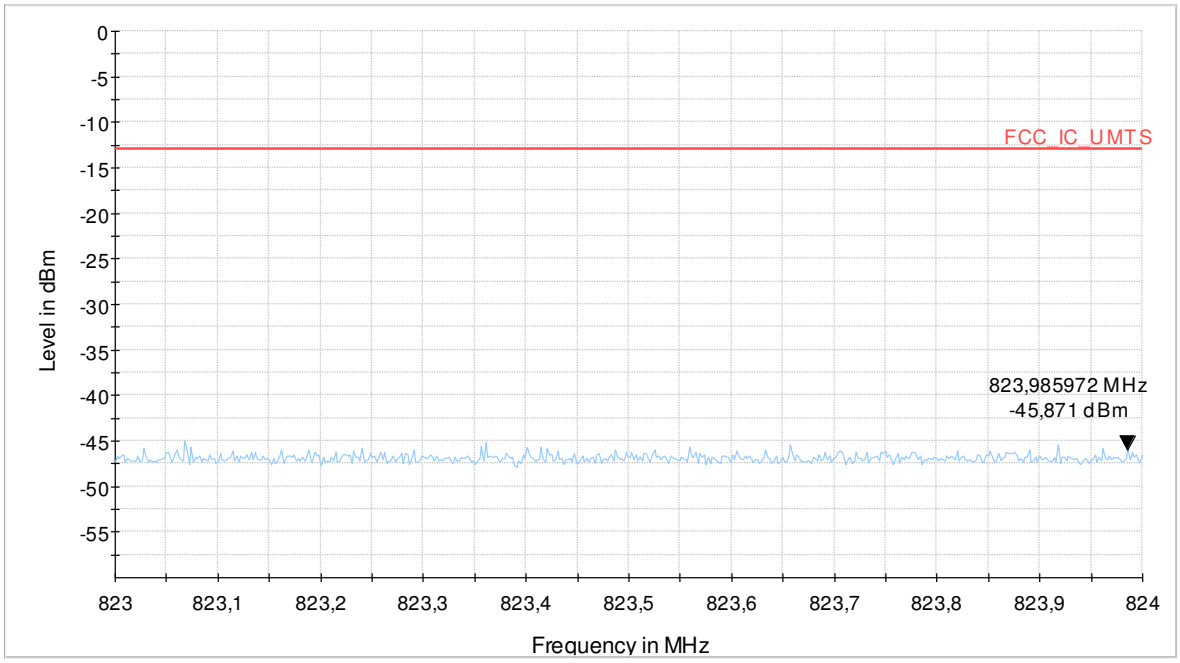


Diagram 9.513b_BE_R_Ch20450_50RB_BW10_QAM_Int-Ant

1.7.3. Band-Edge High External Antenna

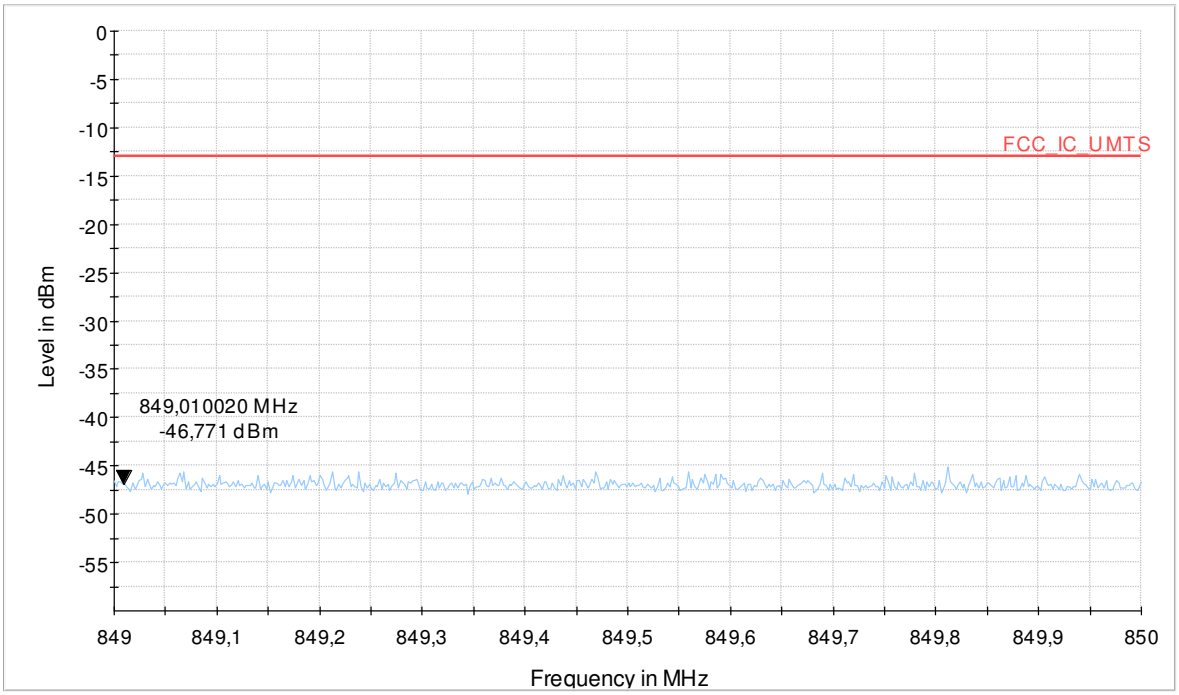


Diagram 9.514a_BE_R_Ch20600_1RB_OFF49_BW10_QPSK_Ext-Ant

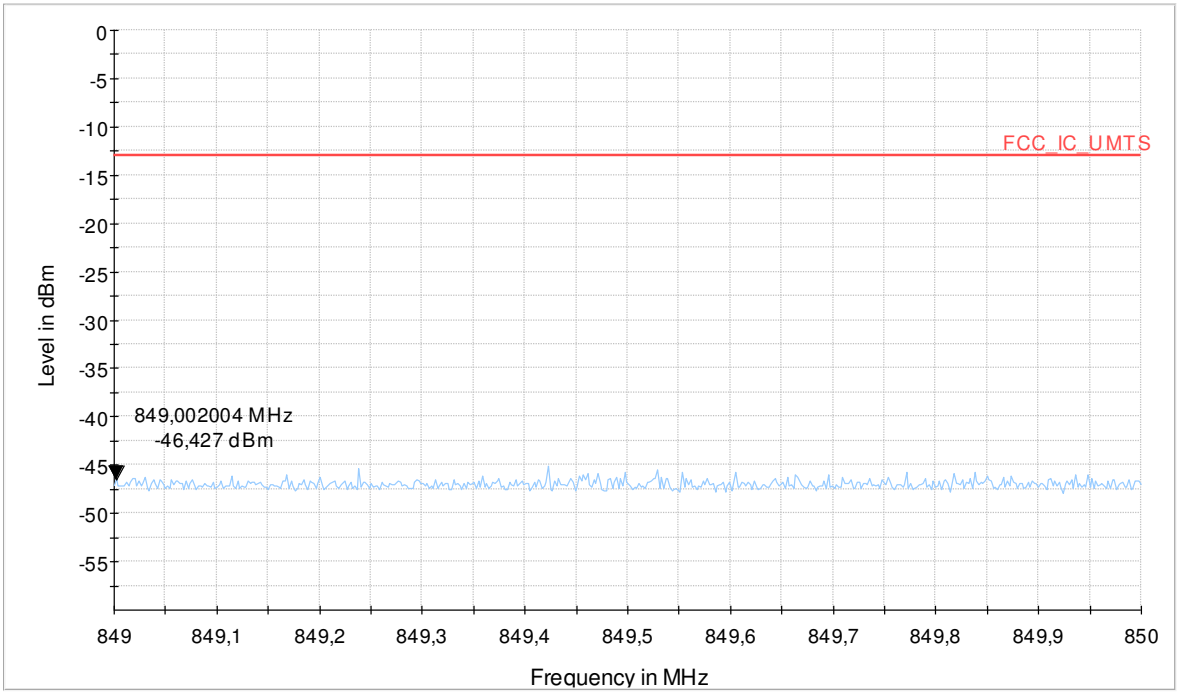


Diagram 9.514b_BE_R_Ch20600_1RB_OFF49_BW10_QAM_Ext-Ant

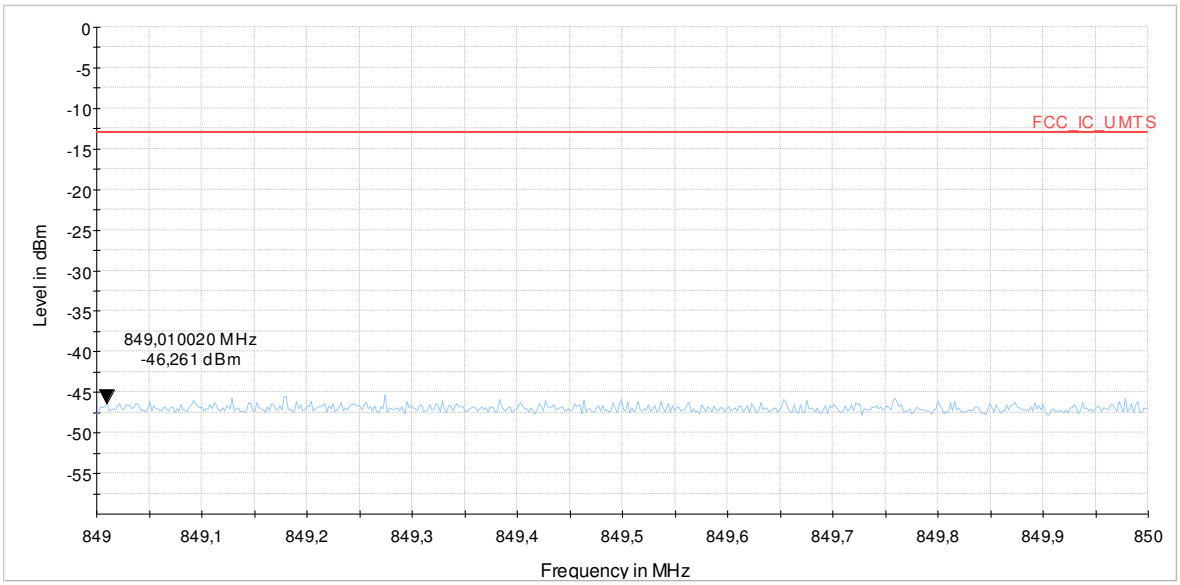


Diagram 9.515a_BE_R_Ch20600_50RB_BW10_QPSK_Ext-Ant

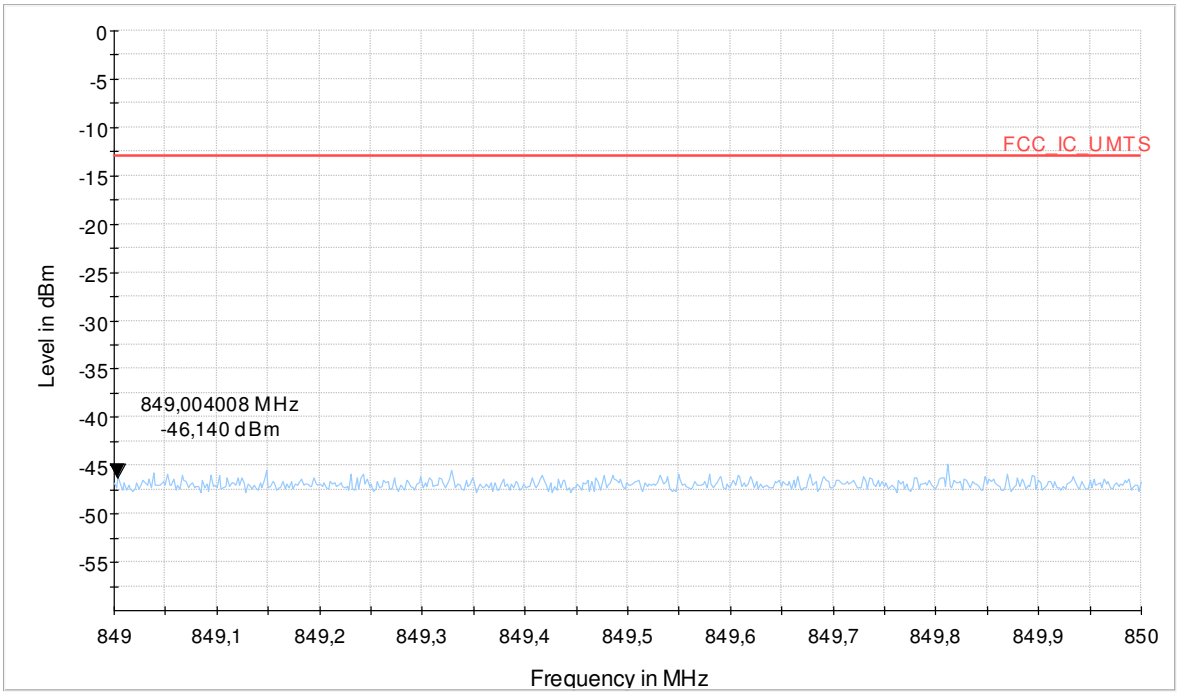


Diagram 9.515b_BE_R_Ch20600_50RB_BW10_QAM_Ext-Ant

1.7.4. Band-Edge High Internal Antenna

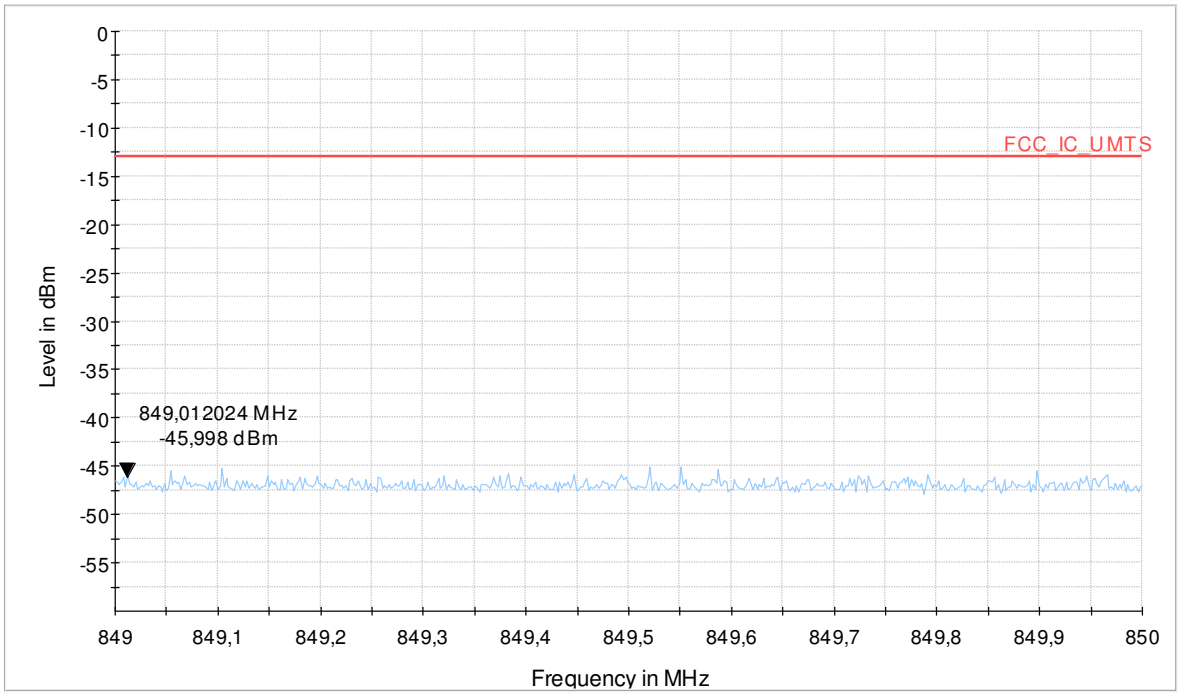


Diagram 9.514a_BE_R_Ch20600_1RB_OFF49_BW10_QPSK_Int-Ant

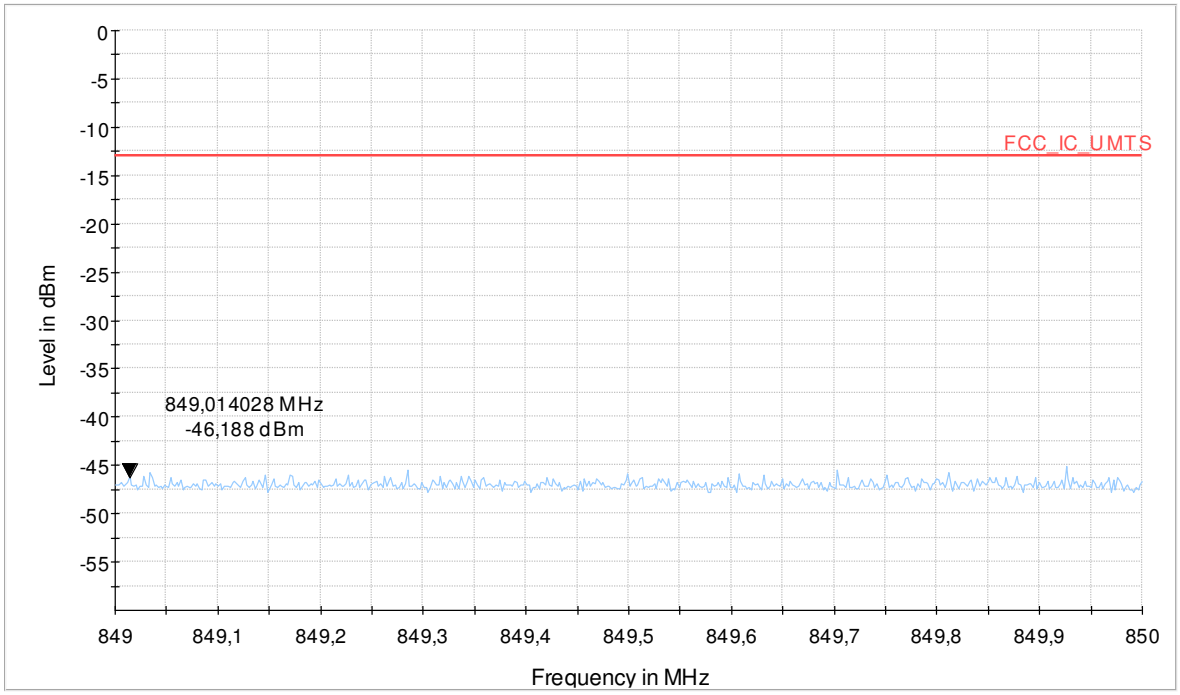


Diagram 9.514b_BE_R_Ch20600_1RB_OFF49_BW10_QAM_Int-Ant

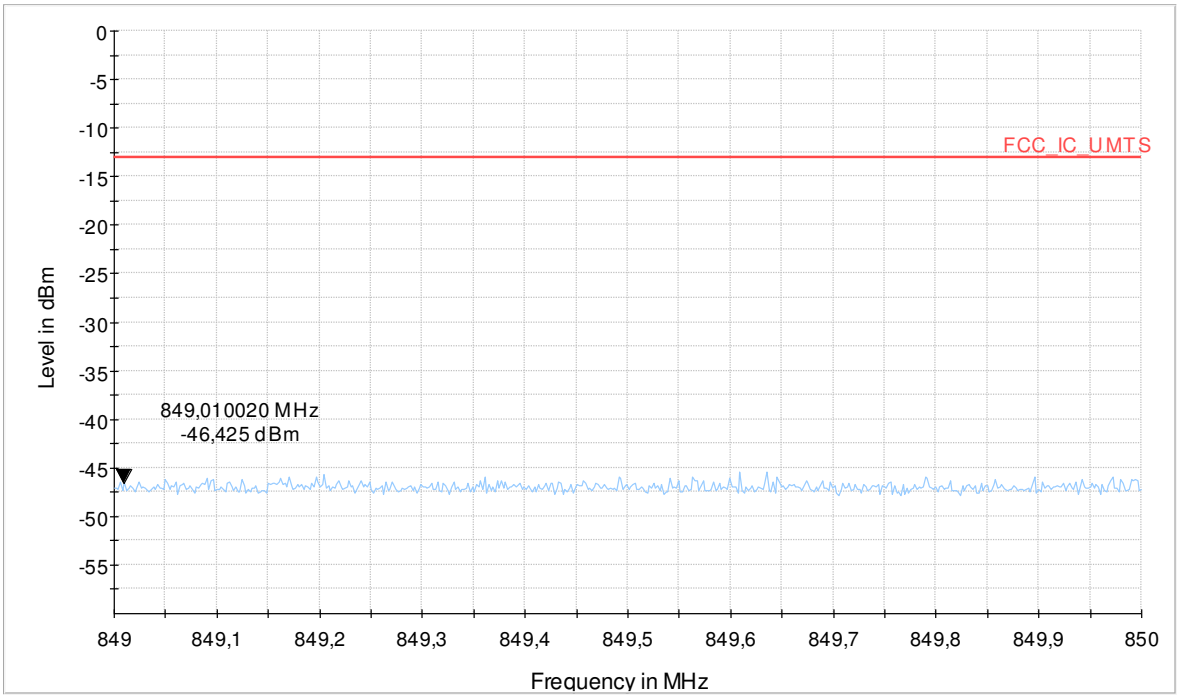


Diagram 9.515a_BE_R_Ch20600_50RB_BW10_QPSK_Int-Ant

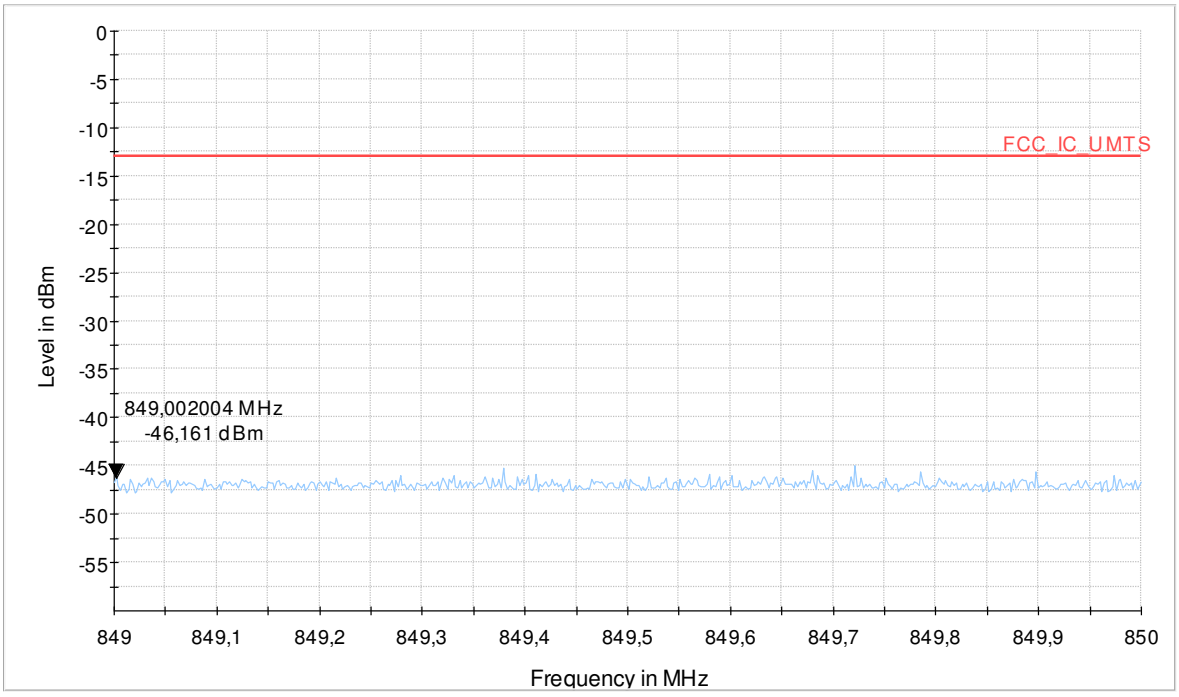


Diagram 9.515b_BE_R_Ch20600_50RB_BW10_QAM_Int-Ant

1.8. Radiated emissions – band-edge (LTE Band 17)

1.8.1. Band-Edge Low External Antenna

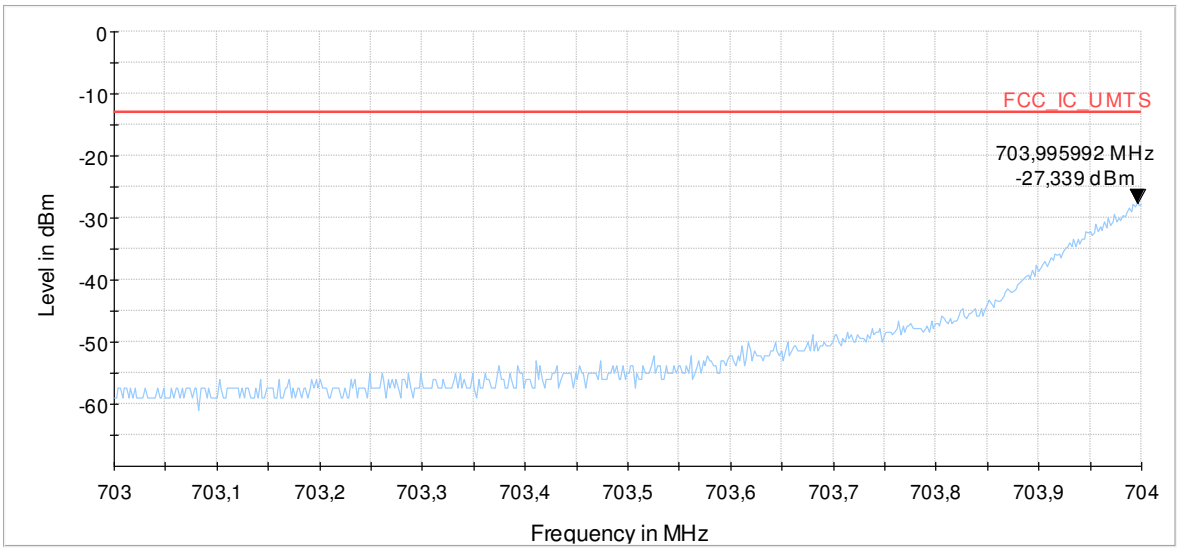


Diagram 9.1701a Ch23755_1RB_OFF0_BW5_QPSK_ExtAnt

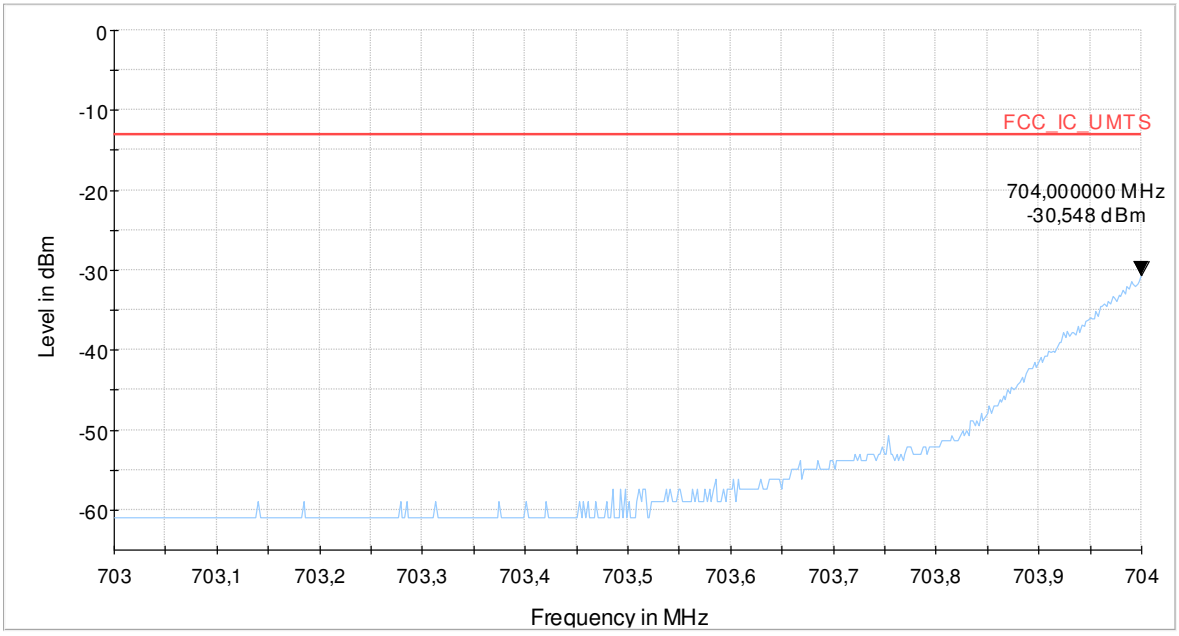


Diagram 9.1701b_BE_R_Ch23755_1RB_OFF0_BW5_QAM_ExtAnt

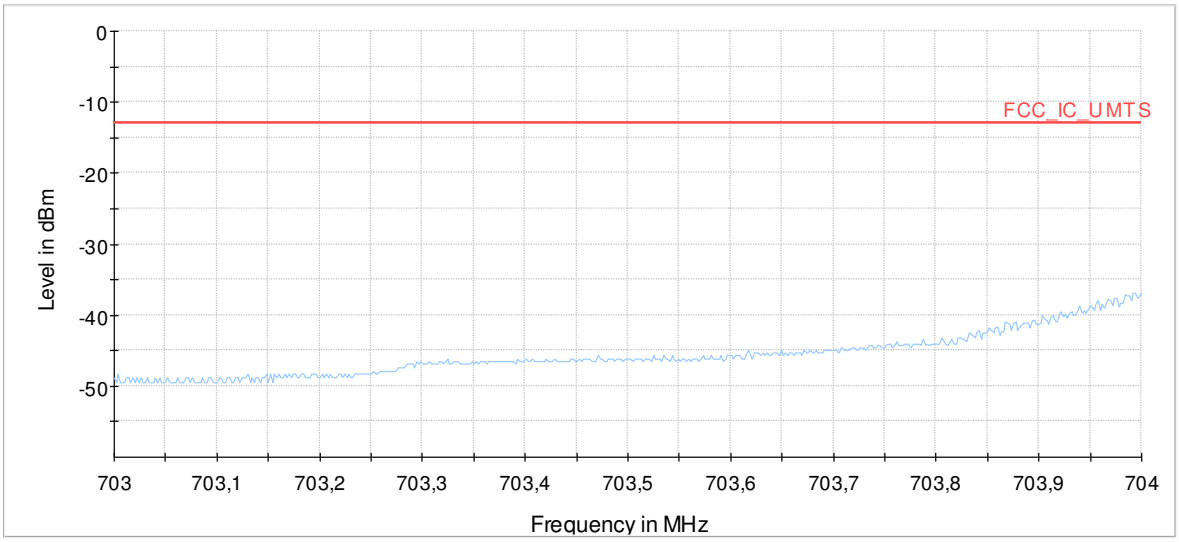


Diagram 9.1702a_BE_R_Ch23755_25RB_BW5_QPSK_ExtAnt

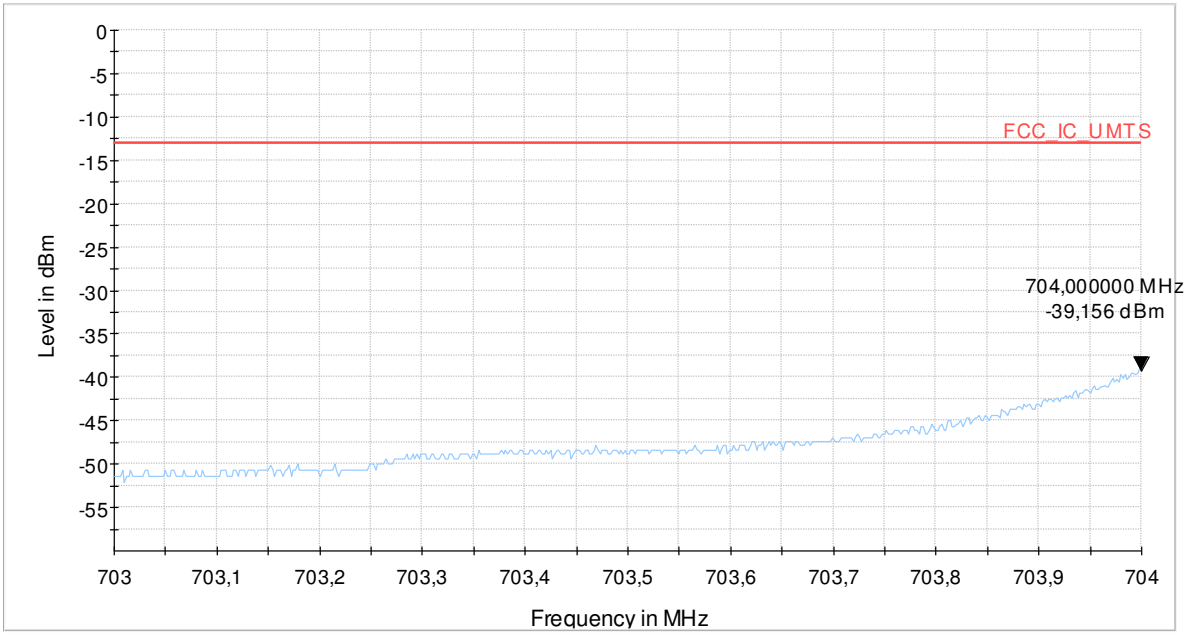


Diagram 9.1702b_BE_R_Ch23755_25RB_BW5_QAM_ExtAnt

1.8.2. Band-Edge Low Internal Antenna

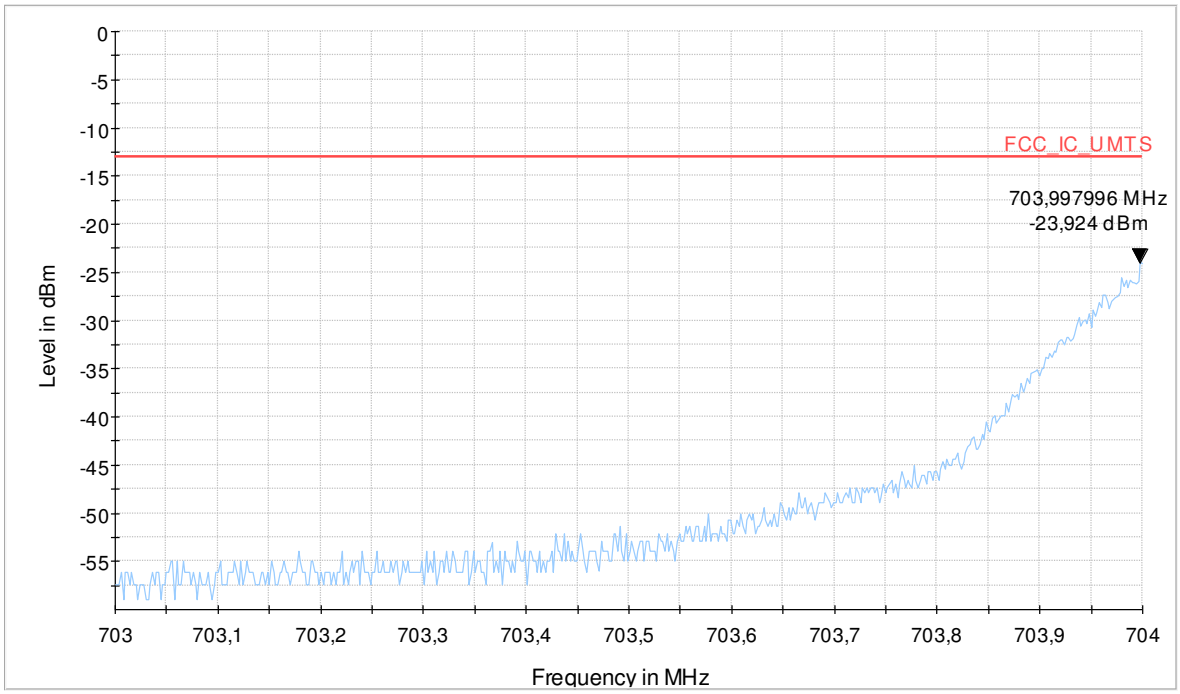


Diagram 9.1701a_BE_R_Ch23755_1RB_OFF0_BW5_QPSK_IntAnt

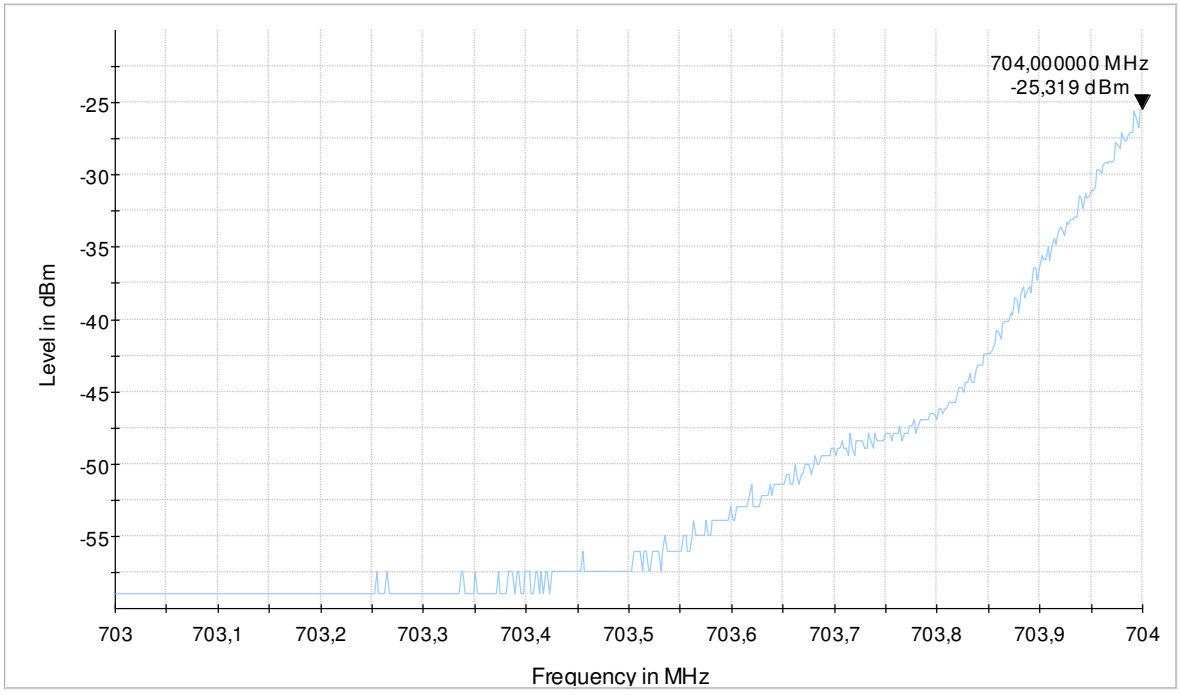


Diagram 9.1701b_BE_R_Ch23755_1RB_OFF0_BW5_QAM_IntAnt

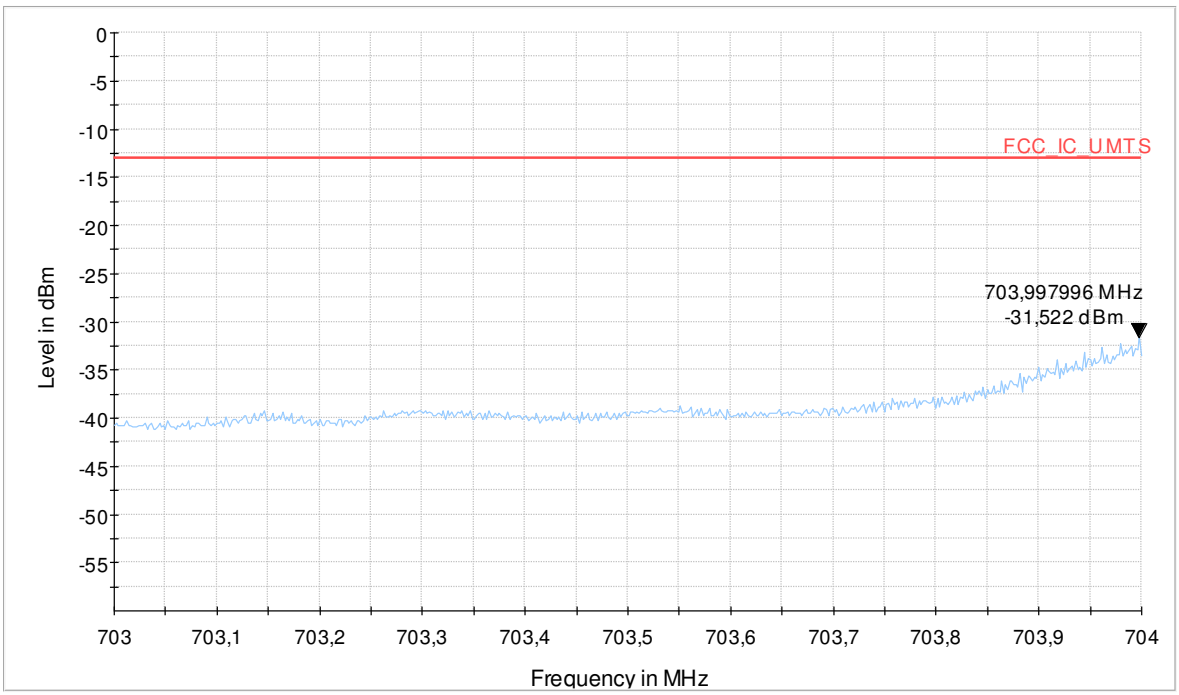


Diagram 9.1702a_BE_R_Ch23755_25RB_BW5_QPSK_IntAnt

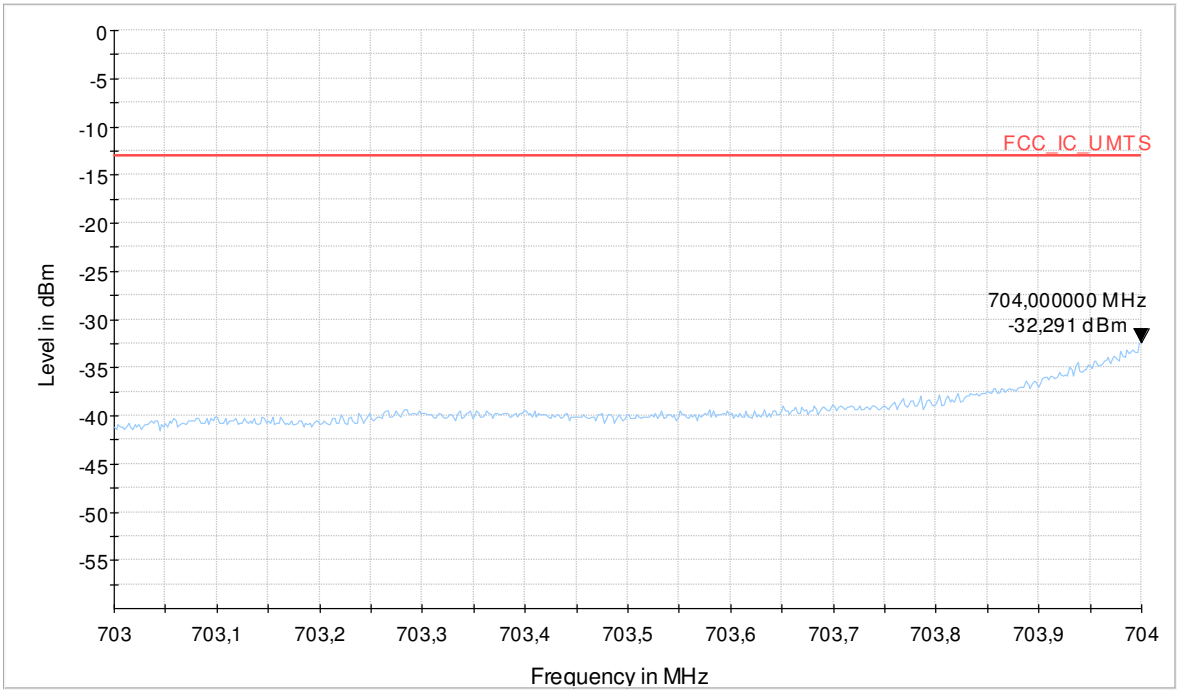


Diagram 9.1702b_BE_R_Ch23755_25RB_BW5_QAM_IntAnt

1.8.3. Band-Edge High External Antenna

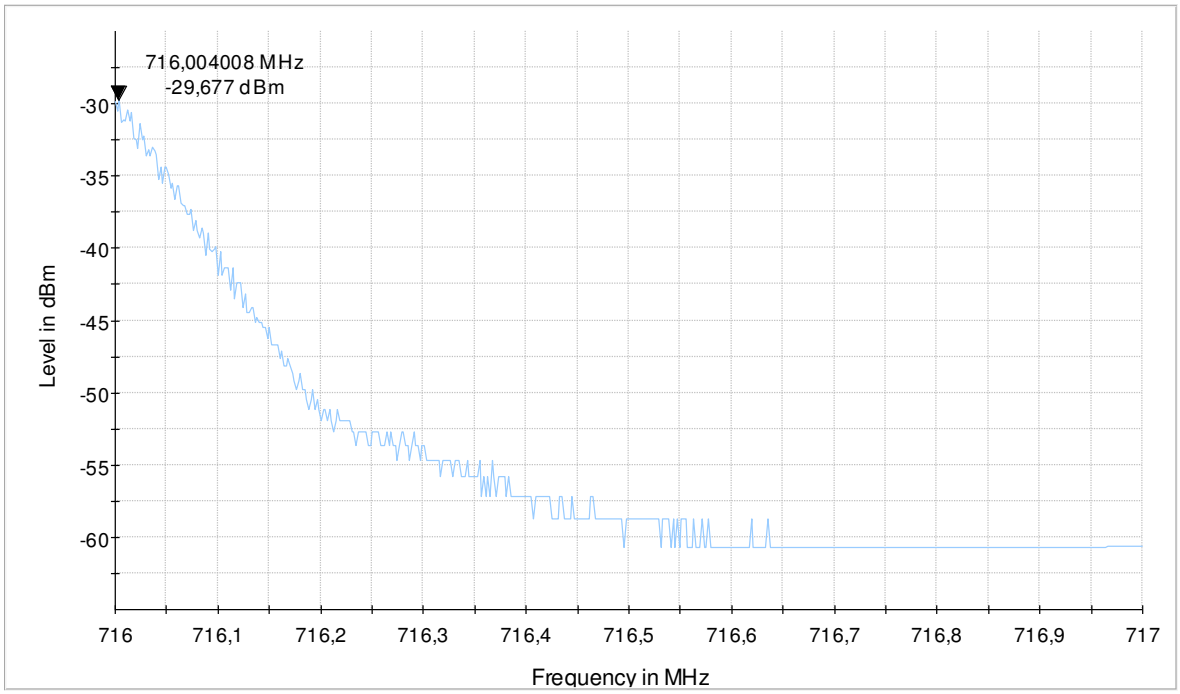


Diagram 9.1703a_BE_R_Ch23825_1RB_OFF24_BW5_QPSK_ExtAnt

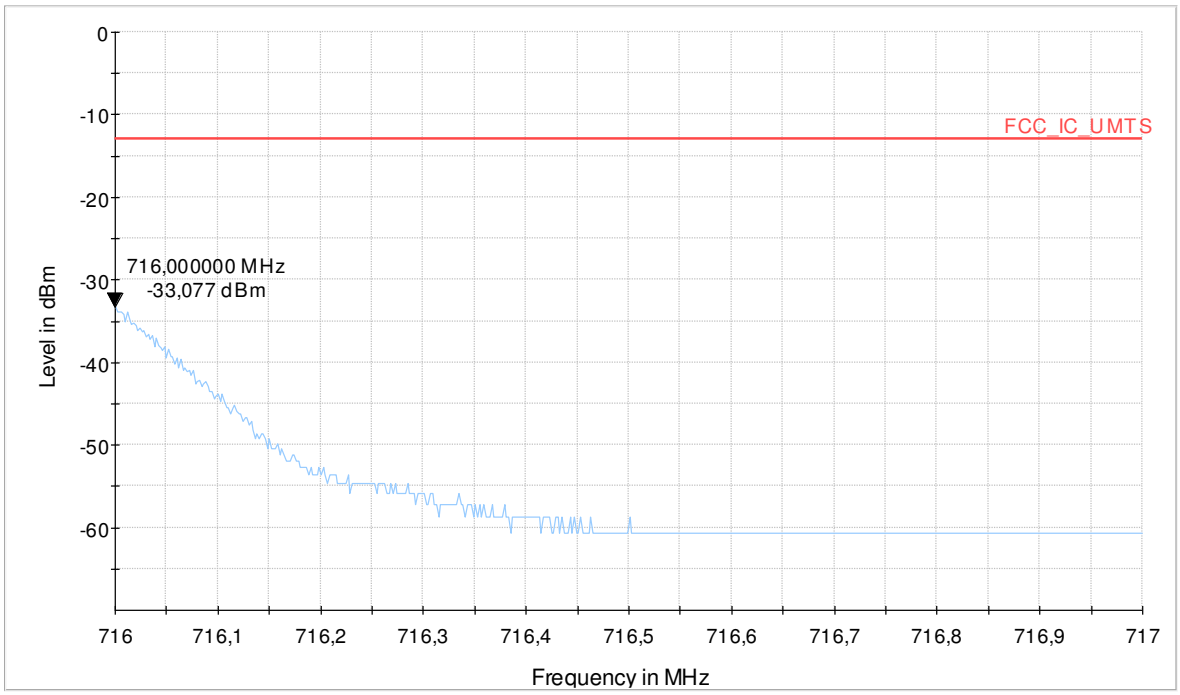


Diagram 9.1703b_BE_R_Ch23825_1RB_OFF24_BW5_QAM_ExtAnt

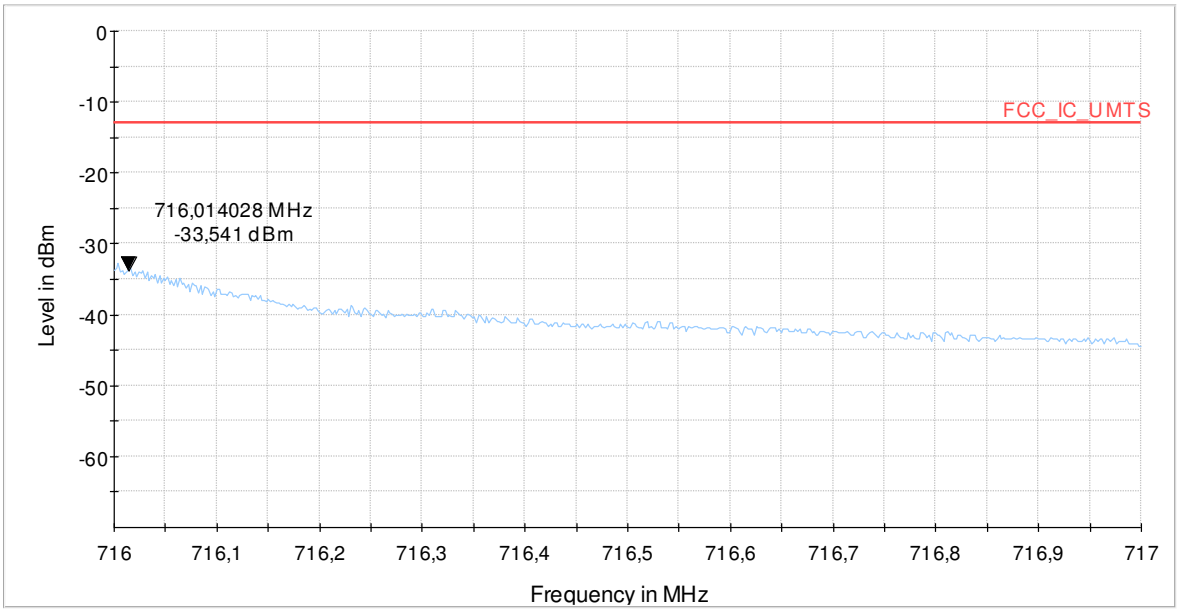


Diagram 9.1704a_BE_R_Ch23825_25RB_BW5_QPSK_ExtAnt

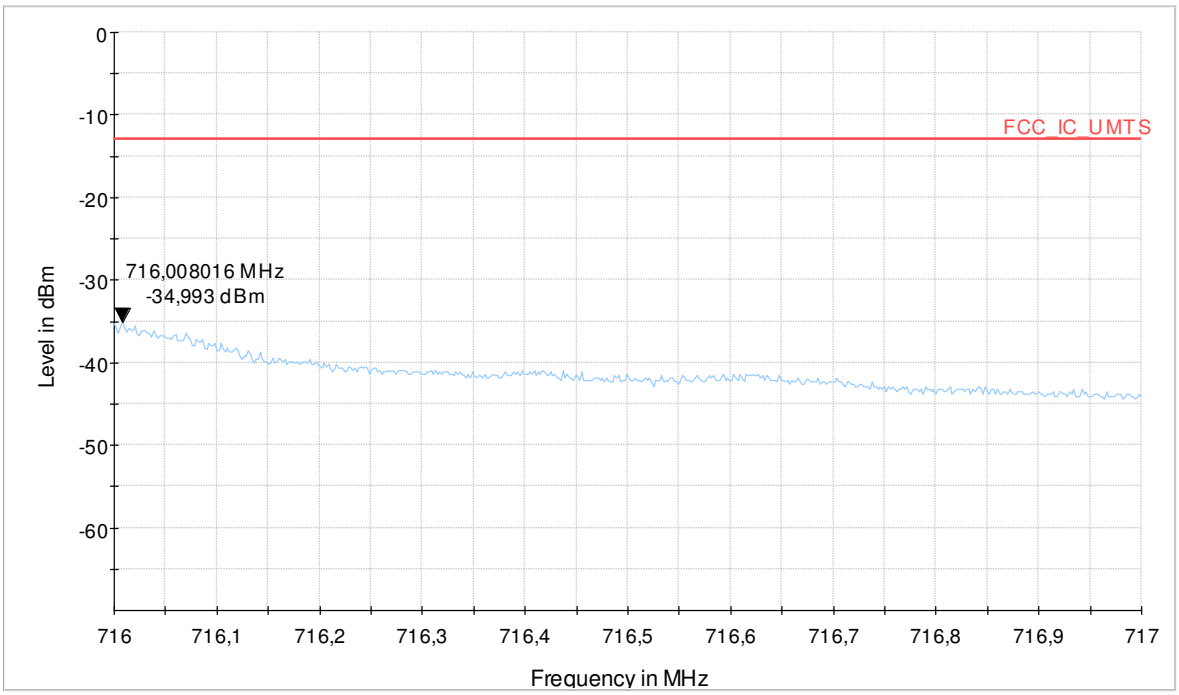


Diagram 9.1704b_BE_R_Ch23825_25RB_BW5_QAM_ExtAnt

1.8.4. Band-Edge High Internal Antenna

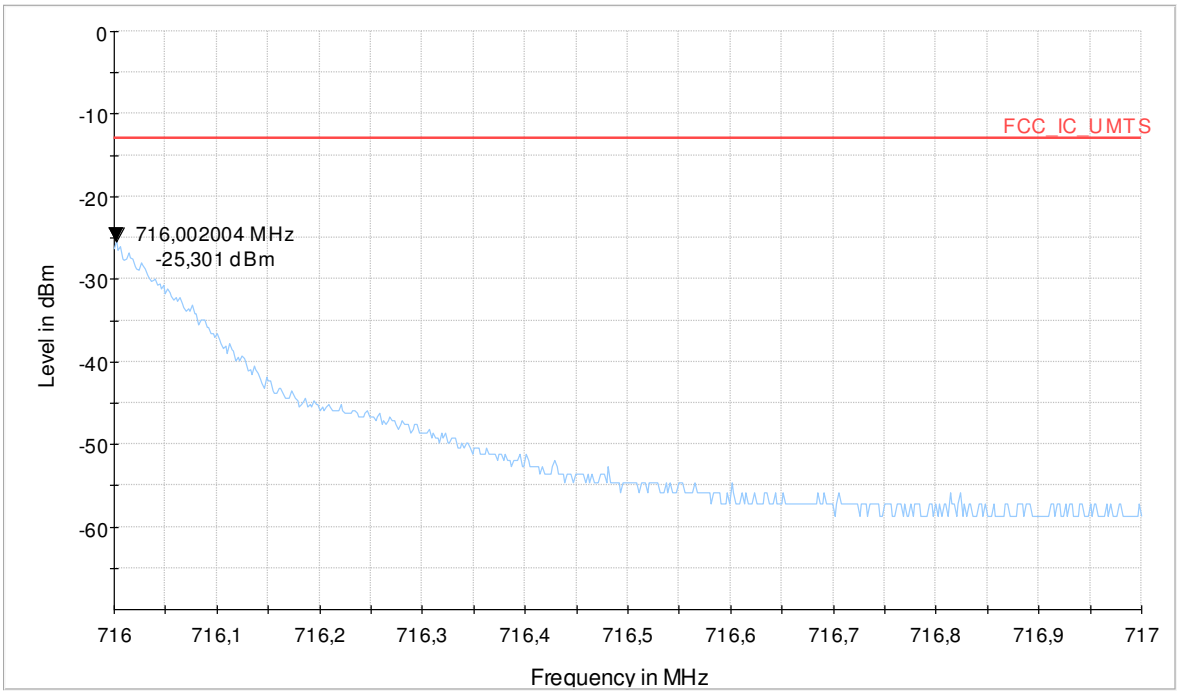


Diagram 9.1703a_BE_R_Ch23825_1RB_OFF24_BW5_QPSK_IntAnt

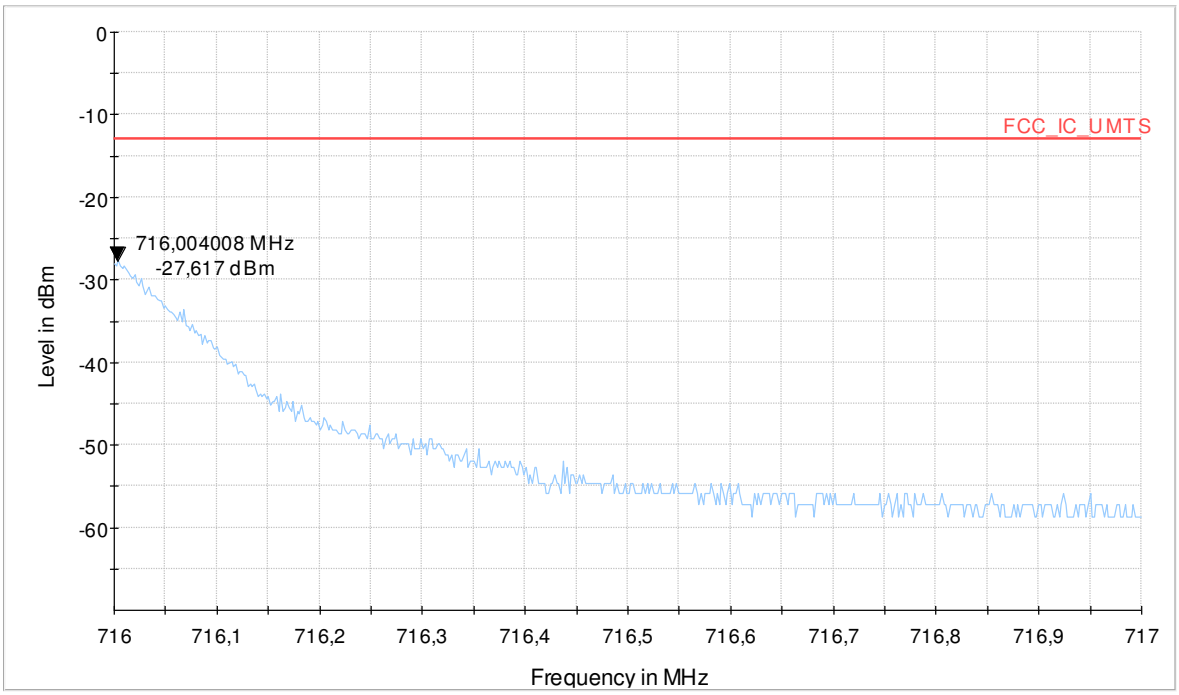


Diagram 9.1703b_BE_R_Ch23825_1RB_OFF24_BW5_QAM_IntAnt

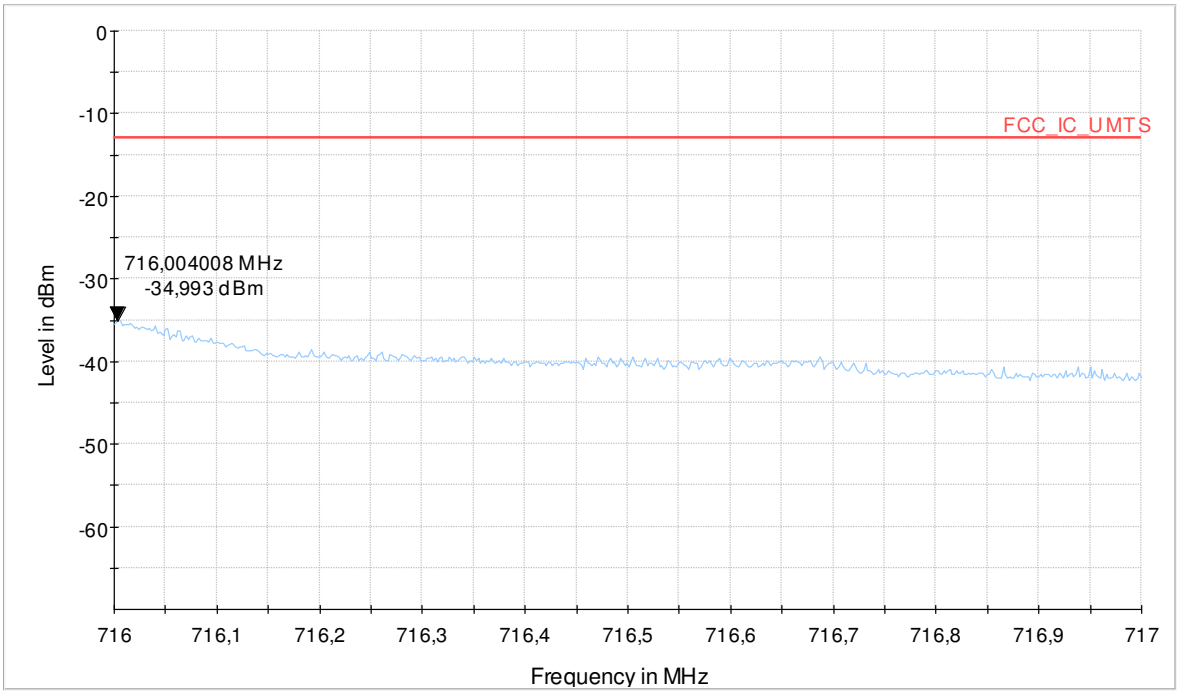


Diagram 9.1704a_BE_R_Ch23825_25RB_BW5_QPSK_IntAnt

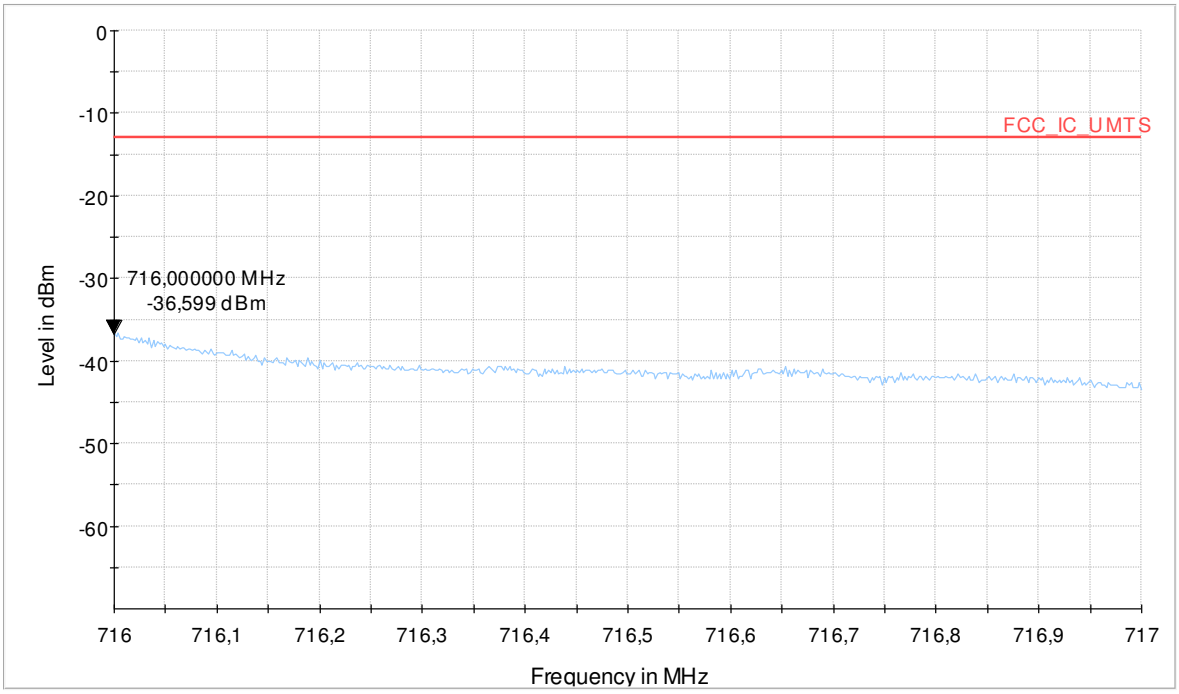


Diagram 9.1704b_BE_R_Ch23825_25RB_BW5_QAM_IntAnt