

Annex 1: Measurement diagrams to
PARTIAL TEST REPORT
No.: 17-1-0221001T21a-C1

According to:
FCC Regulations
Part 22, Part 24

ISED-Regulations
RSS-132 Issue 3, RSS-133 Issue 6,
RSS-Gen Issue 5

for

Actia Nordic AB

Telematic Device
ACUII-06

FCC ID: 2AGKKACUII-06H2
ISED: 20839-ACUII06H2

Laboratory Accreditation and Listings		
 Accredited EMC-Test Laboratory	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-4452, C-20009, T-20006, G-20013
 AUTHORIZED RF LABORATORY	 Authorized Test Lab Lab Code: 20011130-00	 FEDERAL COMMUNICATIONS COMMISSION MRA US-EU 0003
accredited according to DIN EN ISO/IEC 17025		
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Laboratory Accreditation and Listings		

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1. Measurement diagrams

1.1. Magnetic field emissions radiated (850 MHz transmitting mode)

External Antenna

Diagram 2.01a

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:	EMC.V9.25.00
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
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	Aho
Power during tests:	13.8 V DC
Comment 1:	GSM850_GPRS Ch_192
Comment 2:	DUT Standing, External Antenna

EUT Information

Manufacturer:	Actia Nordic AB
Model:	ACUII-06
Type:	Telematic Device
HW version:	H2
SW version:	14
Serial number:	30207090/22726872069718
Power Supply:	13.8VDC

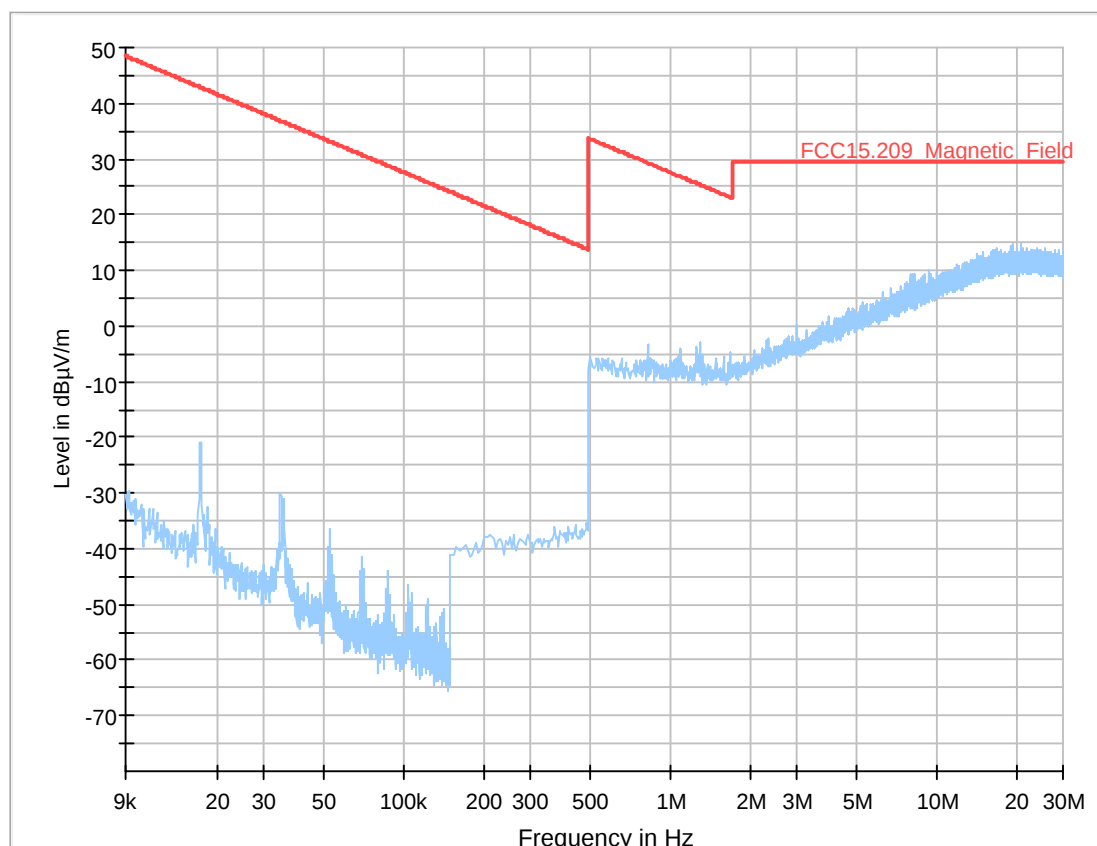


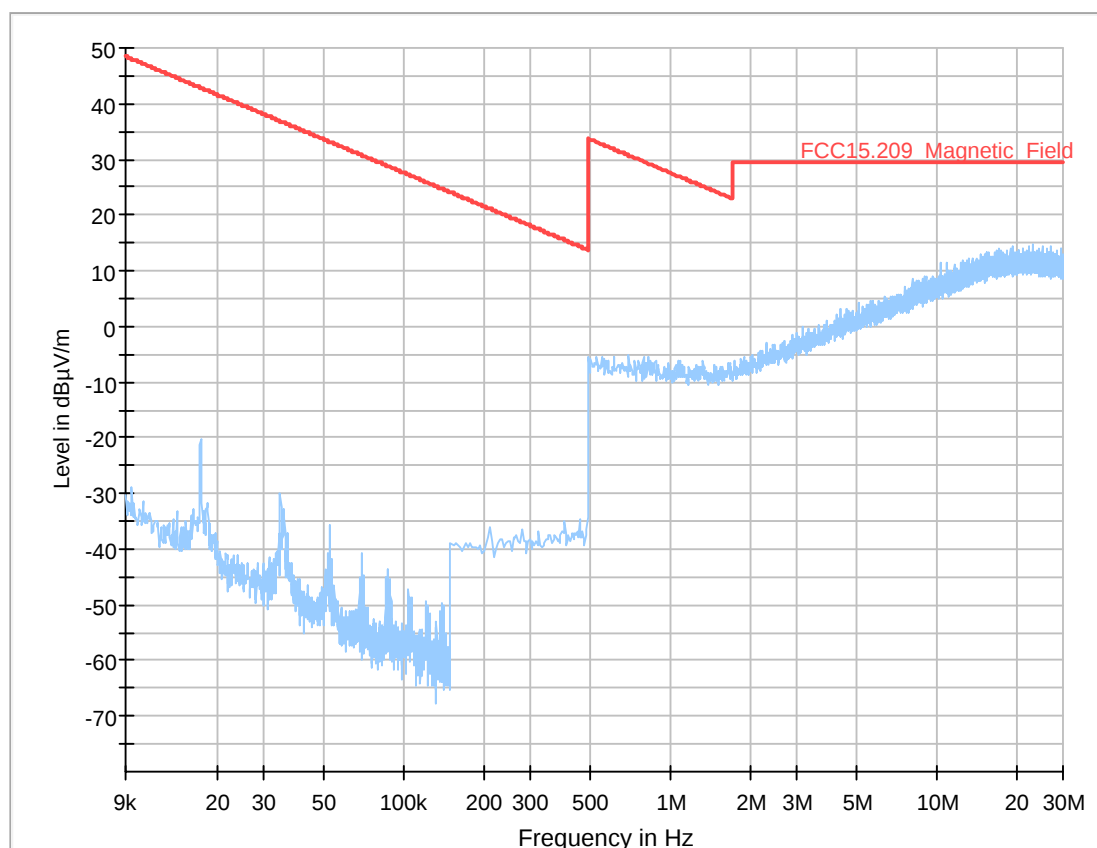
Diagram 2.01b

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:	EMC.V9.25.00
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
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	SRa
Power during tests:	13.8 V DC
Comment 1:	GSM850_GPRS Ch_192
Comment 2:	DUT Laying, External Antenna

EUT Information

Please see Diagram 2.01a



Internal Antenna

Diagram 2.03a

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:	EMC.V9.25.00
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
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	SRa
Power during tests:	13.8 V DC
Comment 1:	GSM850_GPRS Ch_192
Comment 2:	DUT Standing Internal Antenna

EUT Information

Please see Diagram 2.01a

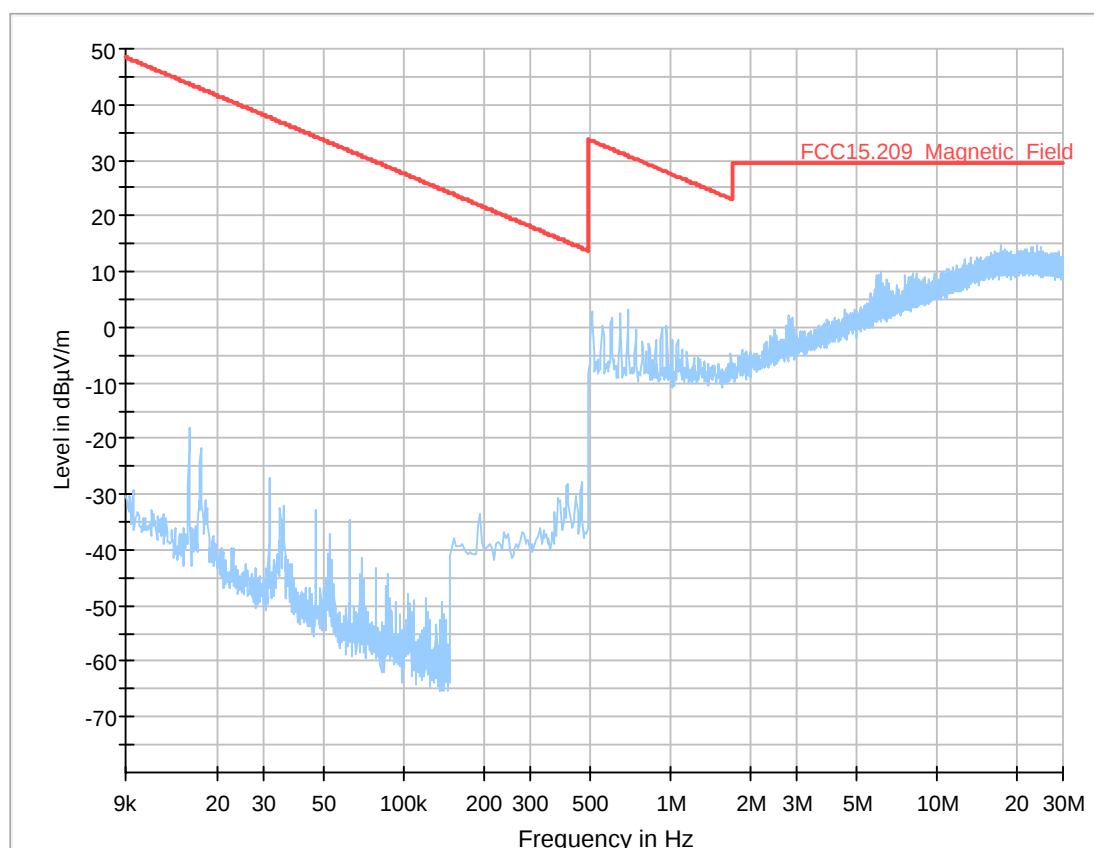


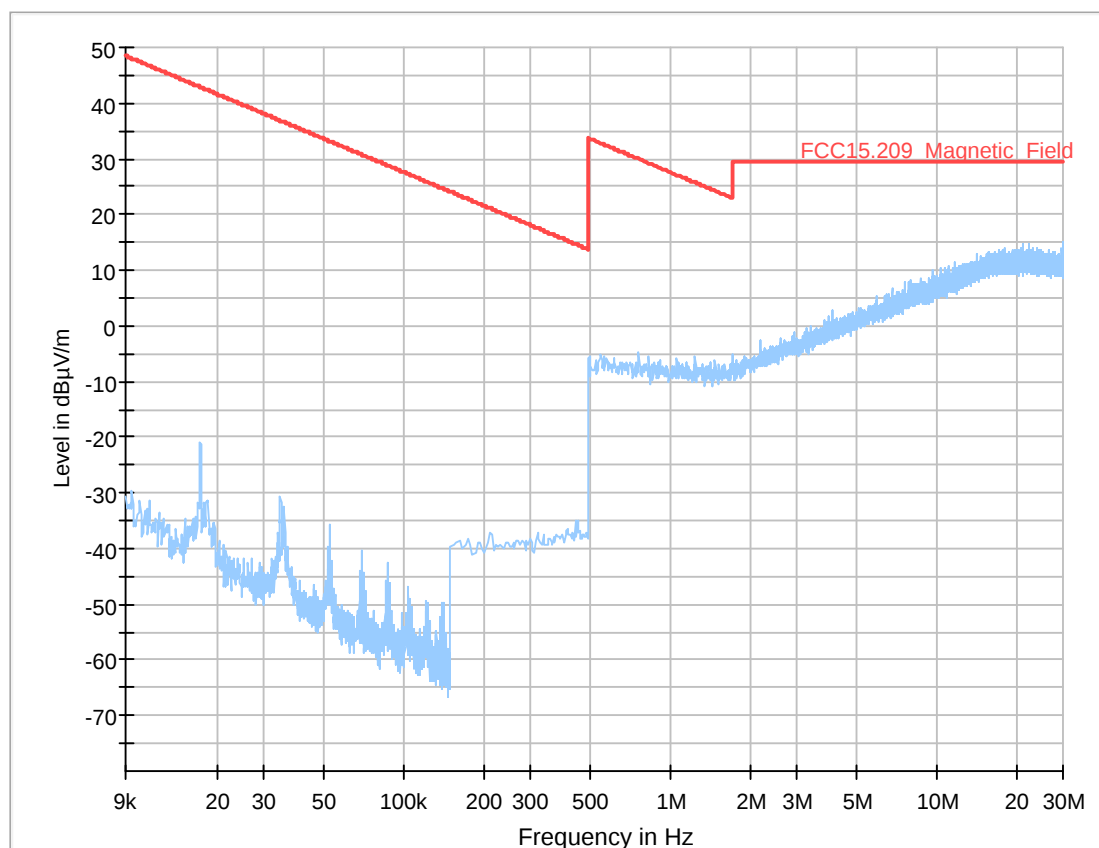
Diagram 2.03b

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:	EMC.V9.25.00
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
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	SRa
Power during tests:	13.8 V DC
Comment 1:	GSM850_GPRS Ch_192
Comment 2:	DUT Laying, Internal Antenna

EUT Information

Please see Diagram 2.01a



1.2. Magnetic field emissions radiated (1900 MHz transmitting mode) External Antenna

Diagram 2.02a

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:	EMC.V9.25.00
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
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	SRa
Power during tests:	13.8 V DC
Comment 1:	GSM1900_GPRS Ch_661
Comment 2:	DUT Standing, External Antenna

EUT Information

Please see Diagram 2.01a

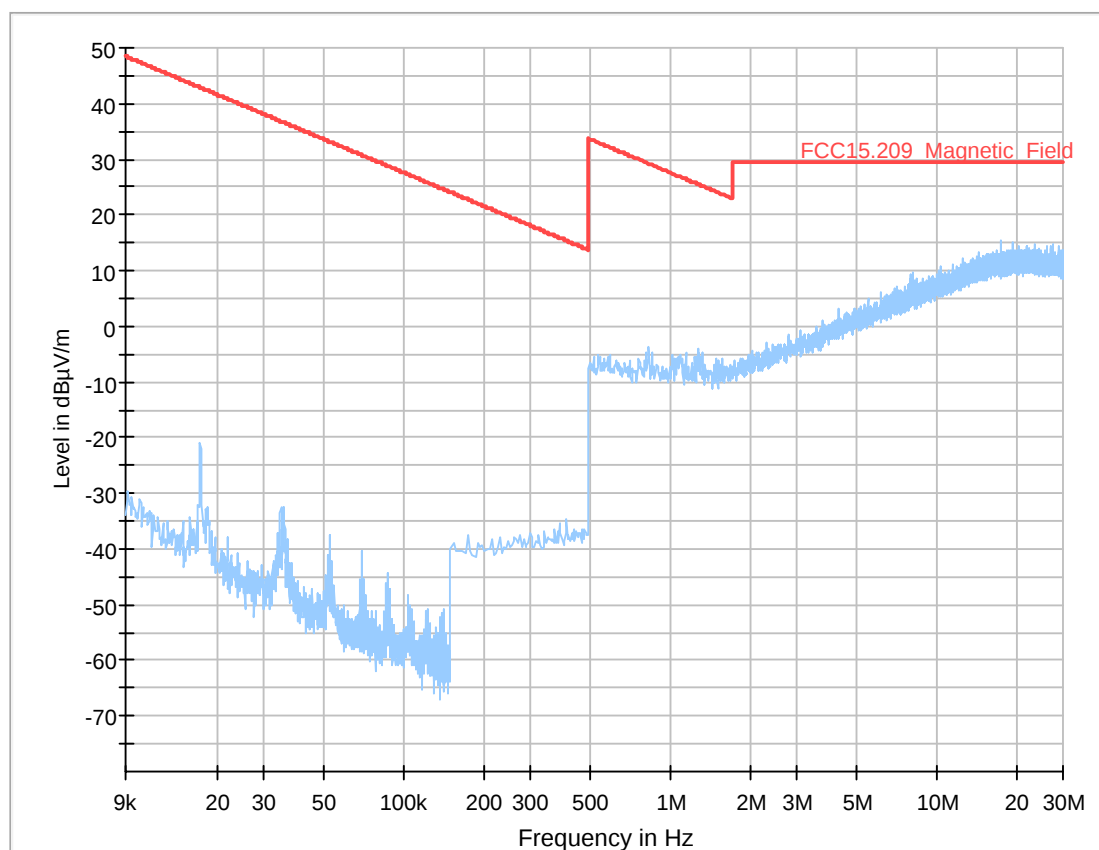


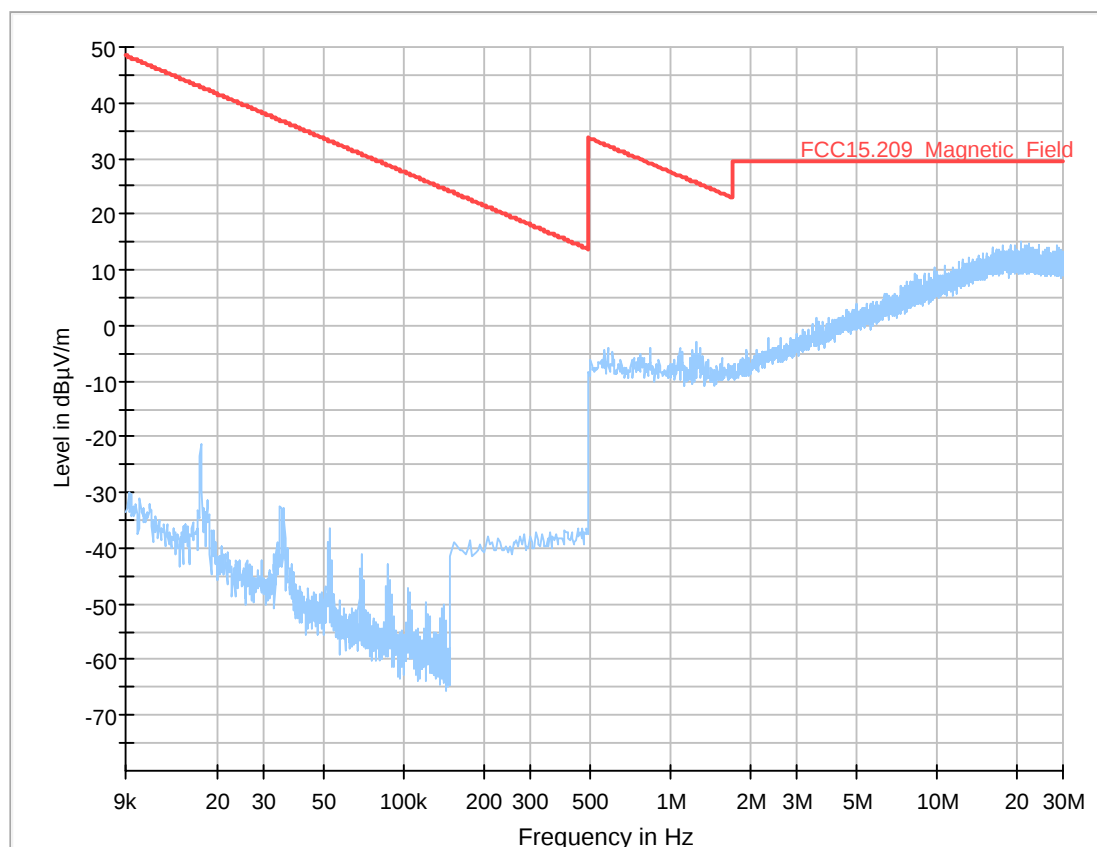
Diagram 2.02b

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:	EMC.V9.25.00
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
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	SRa
Power during tests:	13.8 V DC
Comment 1:	GSM1900_GPRS Ch_661
Comment 2:	DUT Laying, External Antenna

EUT Information

Please see Diagram 2.01a



Internal Antenna

Diagram 2.04a

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:	EMC.V9.25.00
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
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	HEI
Power during tests:	13.8 V DC
Comment 1:	GSM1900_GPRS Ch_661
Comment 2:	DUT Standing, Internal Antenna

EUT Information

Please see Diagram 2.01a

Full Spectrum

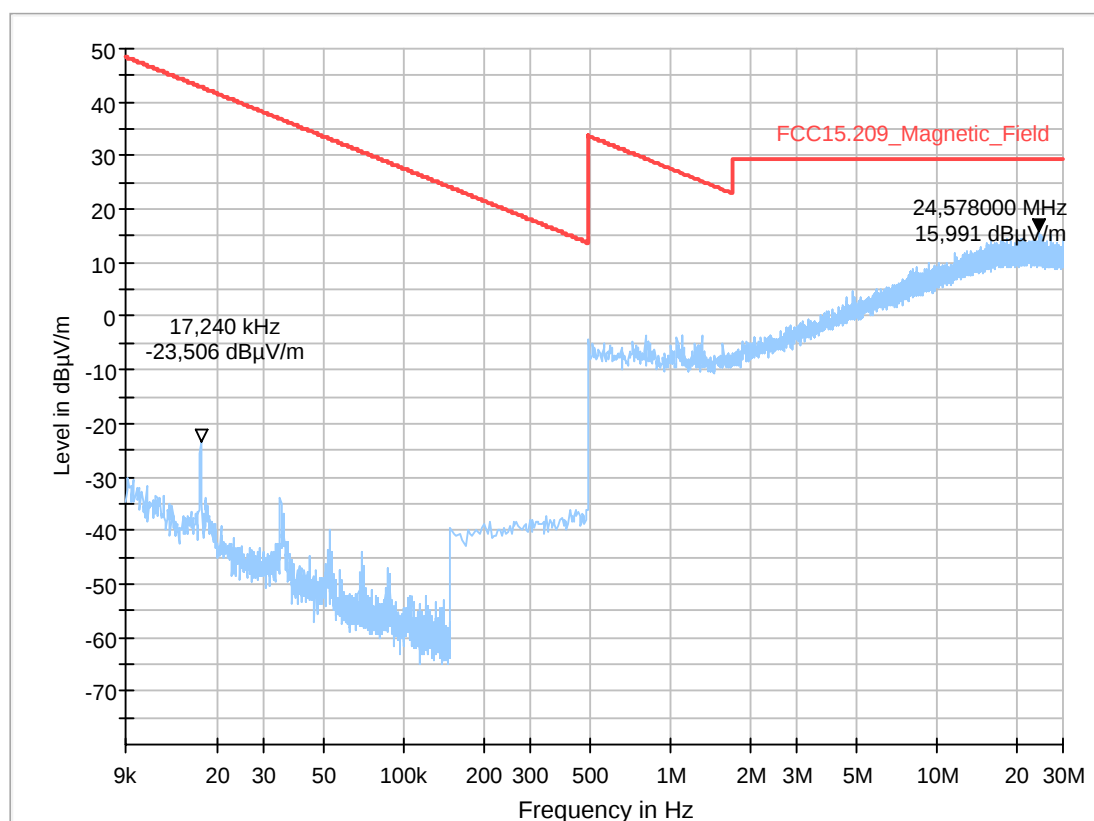


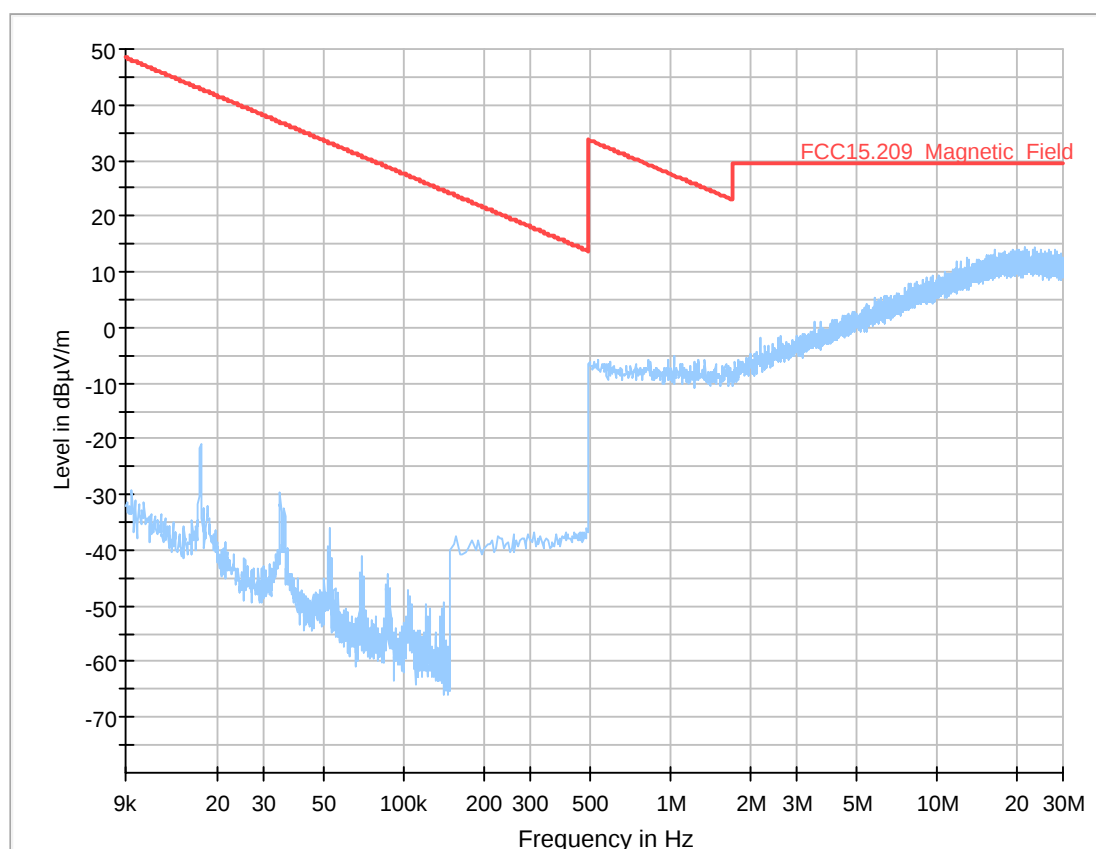
Diagram 2.04b

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:	EMC.V9.25.00
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
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	SRa
Power during tests:	13.8 V DC
Comment 1:	GSM1900_GPRS Ch_661
Comment 2:	DUT Laying, Internal Antenna

EUT Information

Please see Diagram 2.01a



1.3. Spurious emissions radiated (850 MHz transmitting mode) External Antenna

Diagram 8.01a

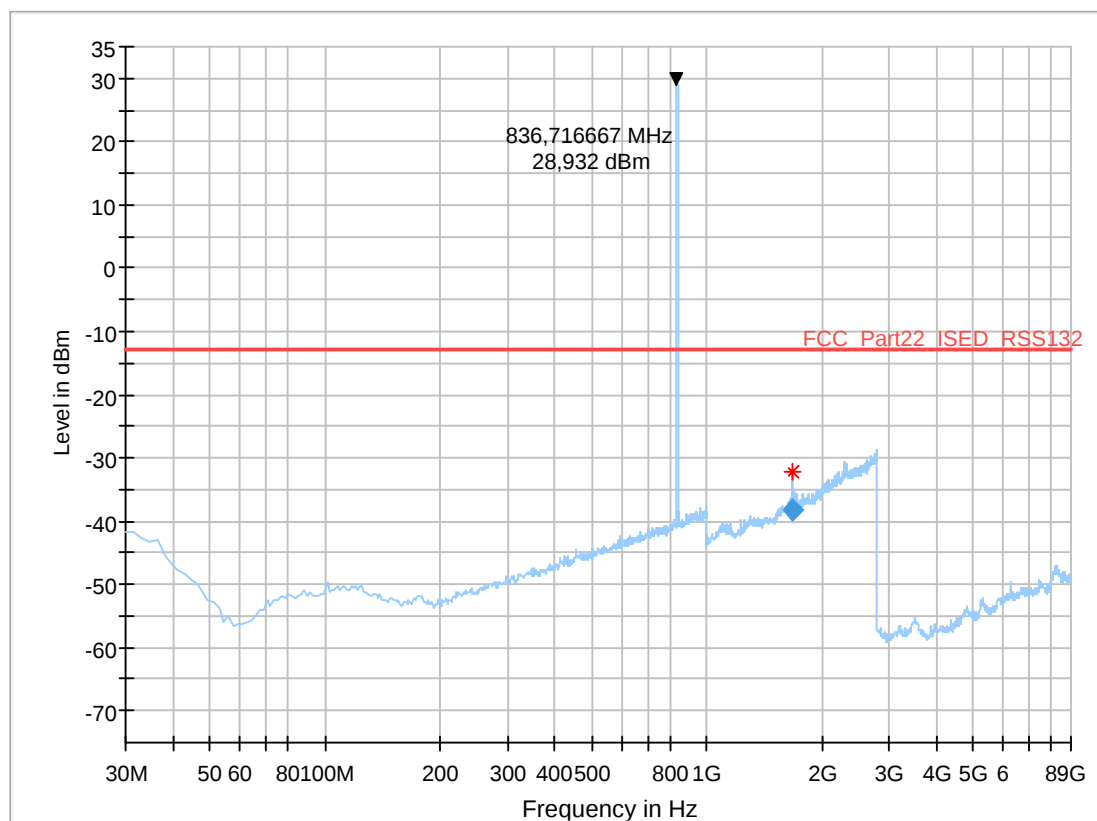
Common Information

Test Description:	Radiated Spurious Emissions GSM850
Test Site:	Fully-Anechoic Room
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	GSM-850, Channel_192
Operator Name:	RIs
Comment:	EUT Standing_External Antenna

EUT Information

Please see Diagram 2.01a

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB)
1670.683333	-38.12	-13.00	25.12	1000.0	100.000	H	45.0	-63.1

Diagram 8.01b

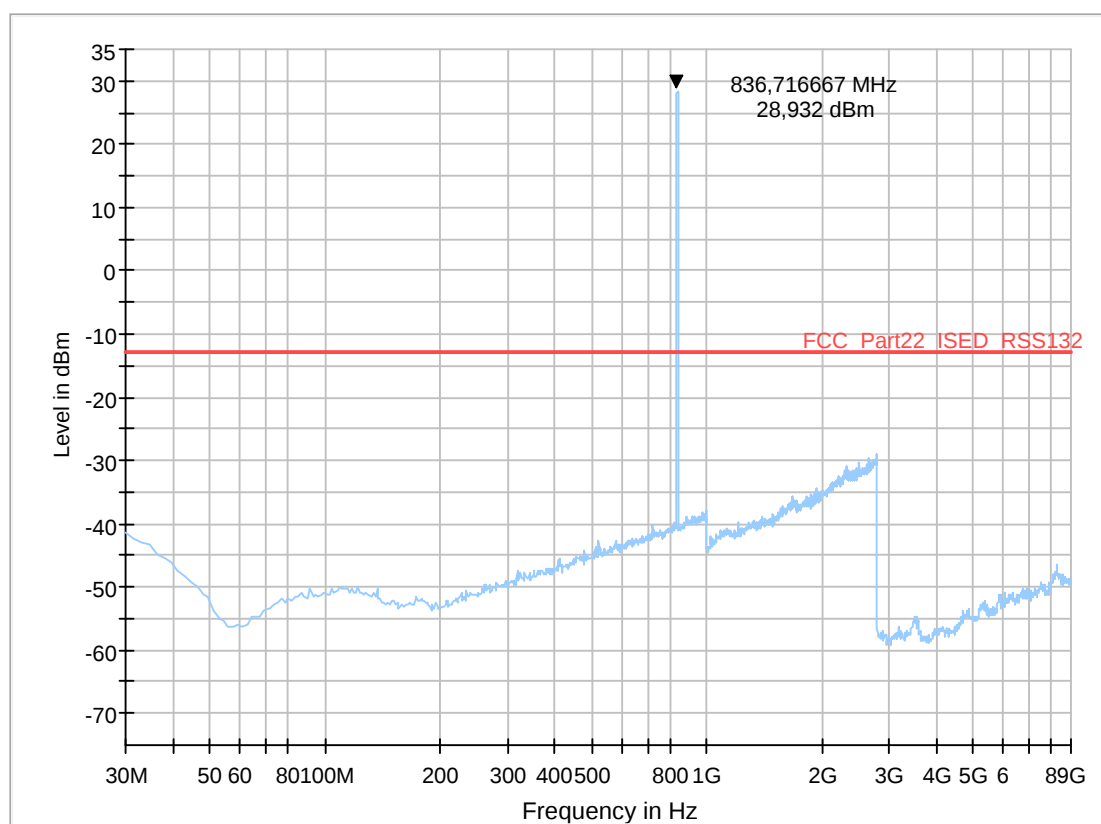
Common Information

Test Description:	Radiated Spurious Emissions GSM850
Test Site:	Fully-Anechoic Room
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	TCH850, CHANNEL192
Operator Name:	HEI
Comment:	EUT Laying _External Antenna

EUT Information

Please see Diagram 2.01a

Full Spectrum



Internal Antenna

Diagram 8.03a

Common Information

Test Description:	Radiated Spurious Emissions GSM850
Test Site:	Fully-Anechoic Room
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	GSM_850, Channel192
Operator Name:	HEI
Comment:	EUT Standing_ Internal Antenna

EUT Information

Please see Diagram 2.01a

Full Spectrum

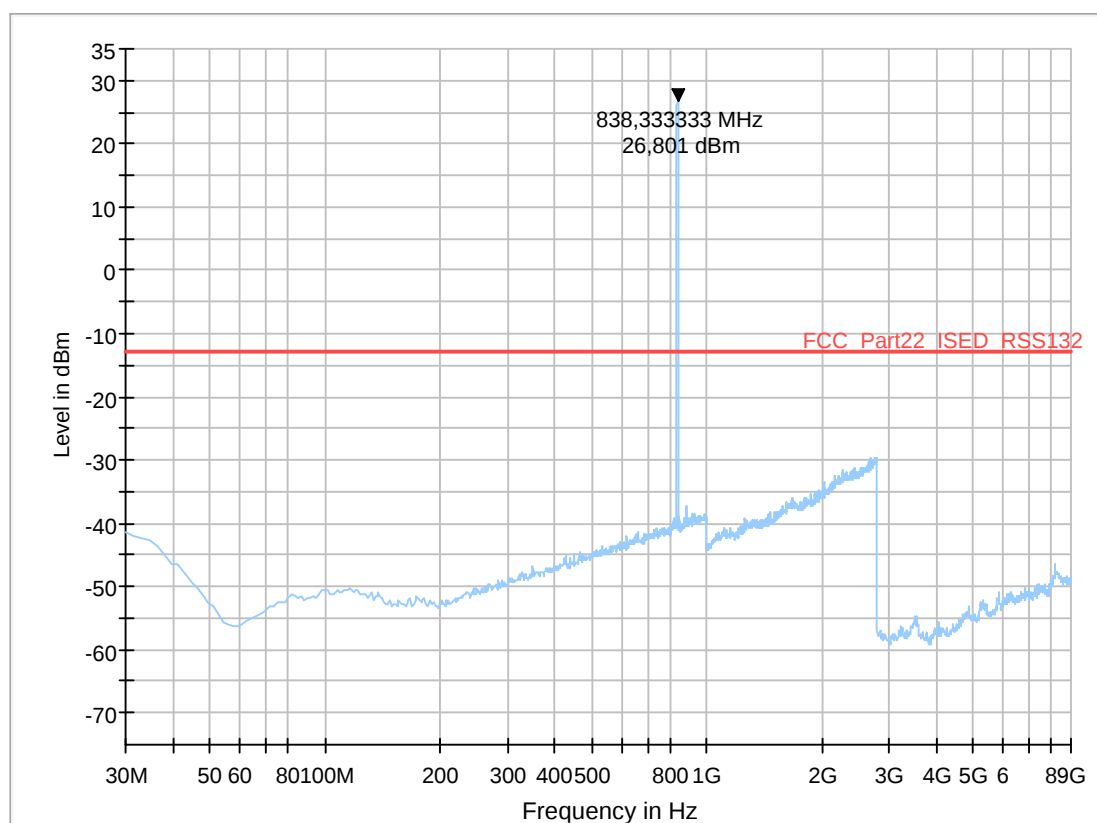


Diagram 8.03b

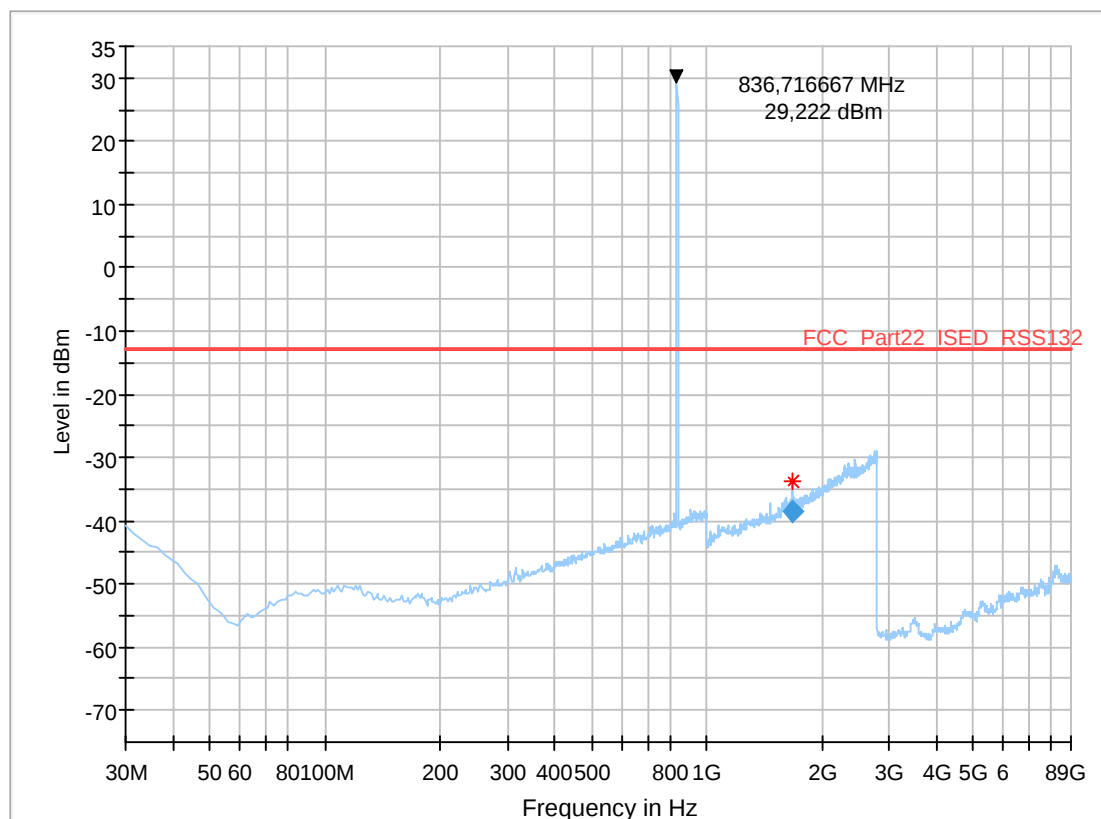
Common Information

Test Description:	Radiated Spurious Emissions GSM850
Test Site:	Fully-Anechoic Room
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	GSM_850, Channel_192
Operator Name:	HEI
Comment:	EUT Laying_ Internal Antenna

EUT Information

Please see Diagram 2.01a

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1671.266667	-38.53	-13.00	25.53	1000.0	100.000	154.0	H	0.0	-63.1

1.4. Spurious emissions radiated (1900 MHz transmitting mode)

External Antenna

Diagram 8.02a

Common Information

Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	GSM_1900, Channel_661
Operation Condition:	Humidity: 40%rH; Temperature: 20°C
Operator Name:	HEI
Comment:	EUT Standing_External Antenna

EUT Information

Please see Diagram 2.01a

Full Spectrum

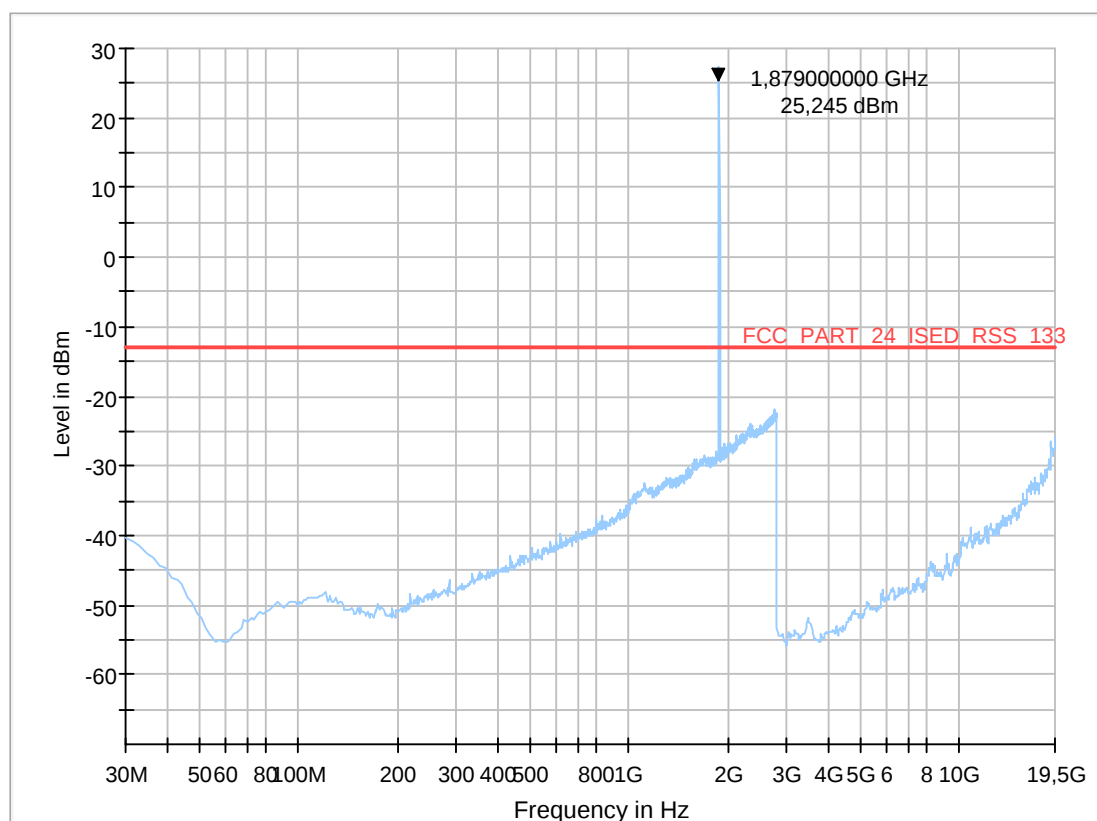


Diagram 8.02b

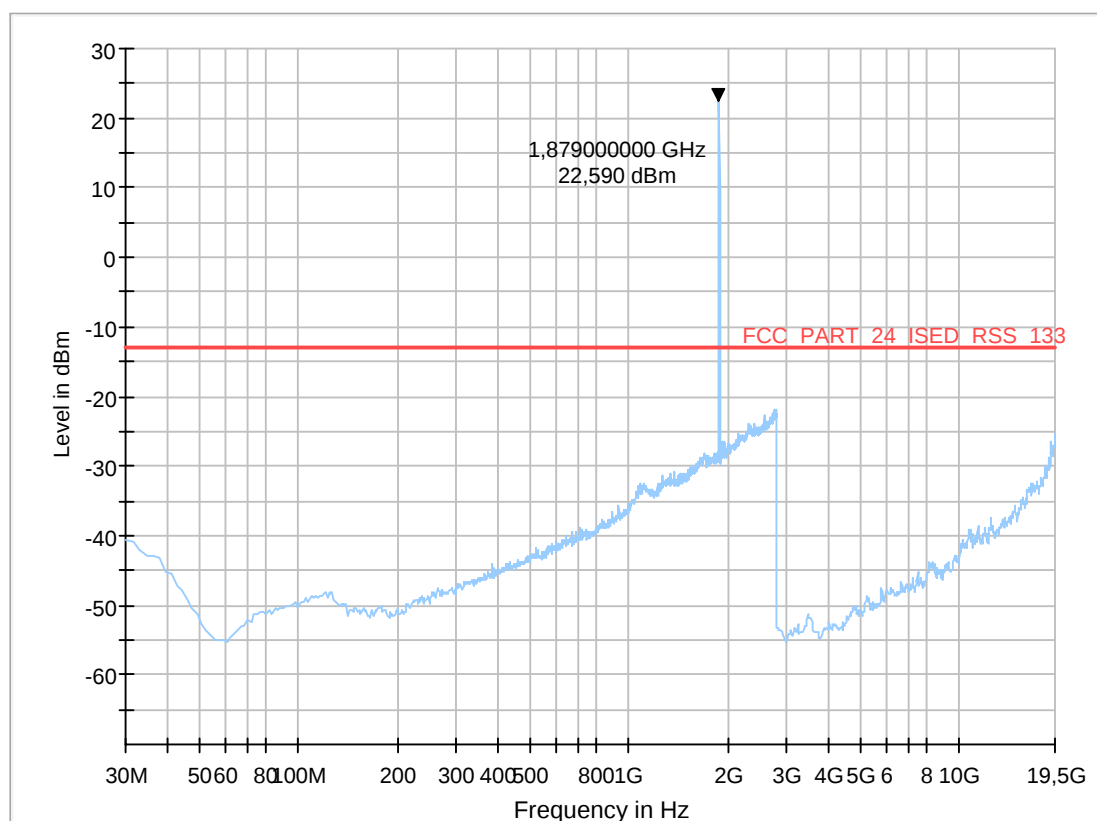
Common Information

Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	GSM_1900, Channel_661
Operation Condition:	Humidity: 40%rH; Temperature: 20°C
Operator Name:	HEI
Comment:	EUT Laying _ External Antenna

EUT Information

Please see Diagram 2.01a

Full Spectrum



Internal Antenna

Diagram 8.04a

Common Information

Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	GSM_1900, Channel_661
Operation Condition:	Humidity: 40%rH; Temperature: 20°C
Operator Name:	HEI
Comment:	EUT Standing _Internal Antenna

EUT Information

Please see Diagram 2.01a

Full Spectrum

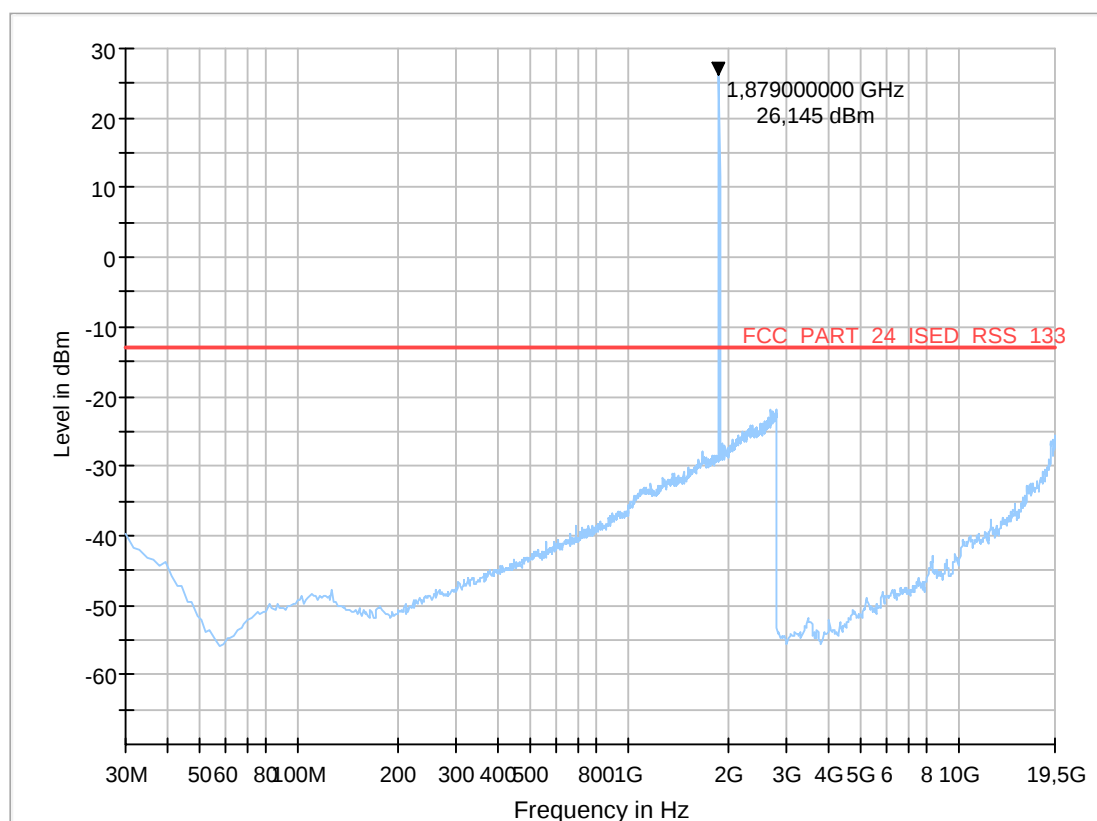


Diagram 8.04b

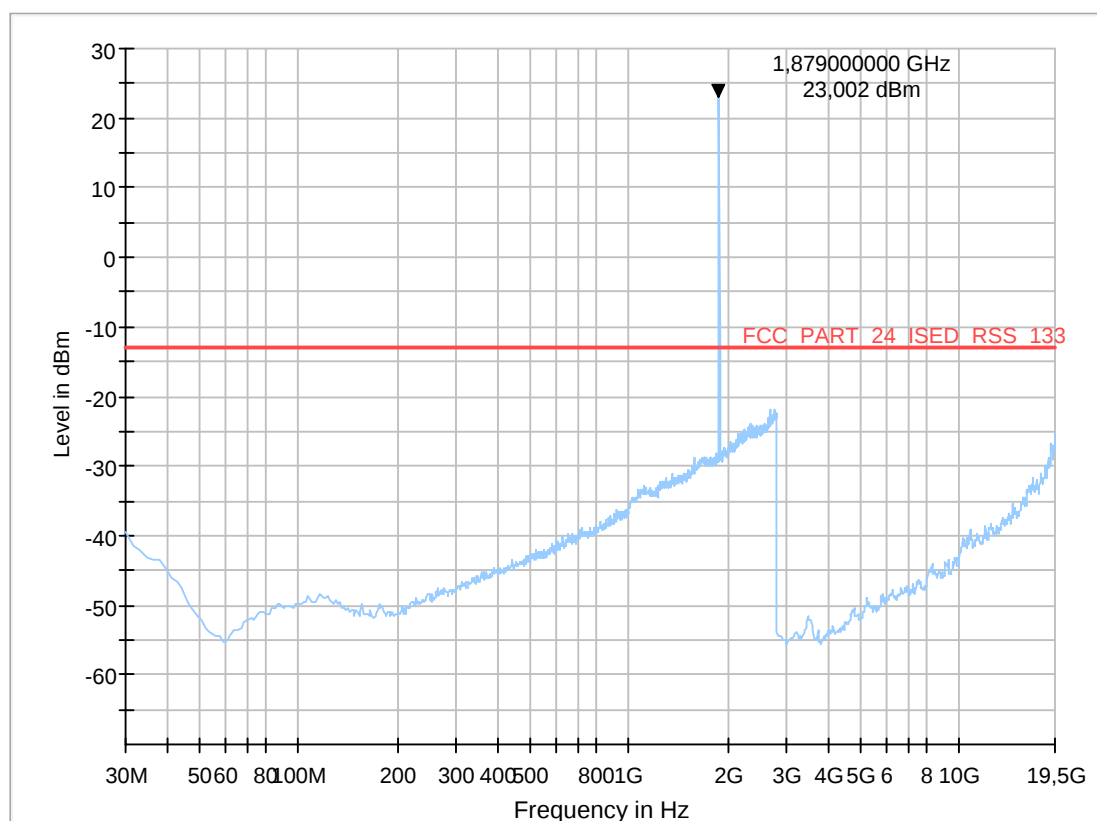
Common Information

Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	GSM_1900, Channel_661
Operation Condition:	Humidity: 40%rH; Temperature: 20°C
Operator Name:	HEI
Comment:	EUT Laying _Internal Antenna

EUT Information

Please see Diagram 2.01a

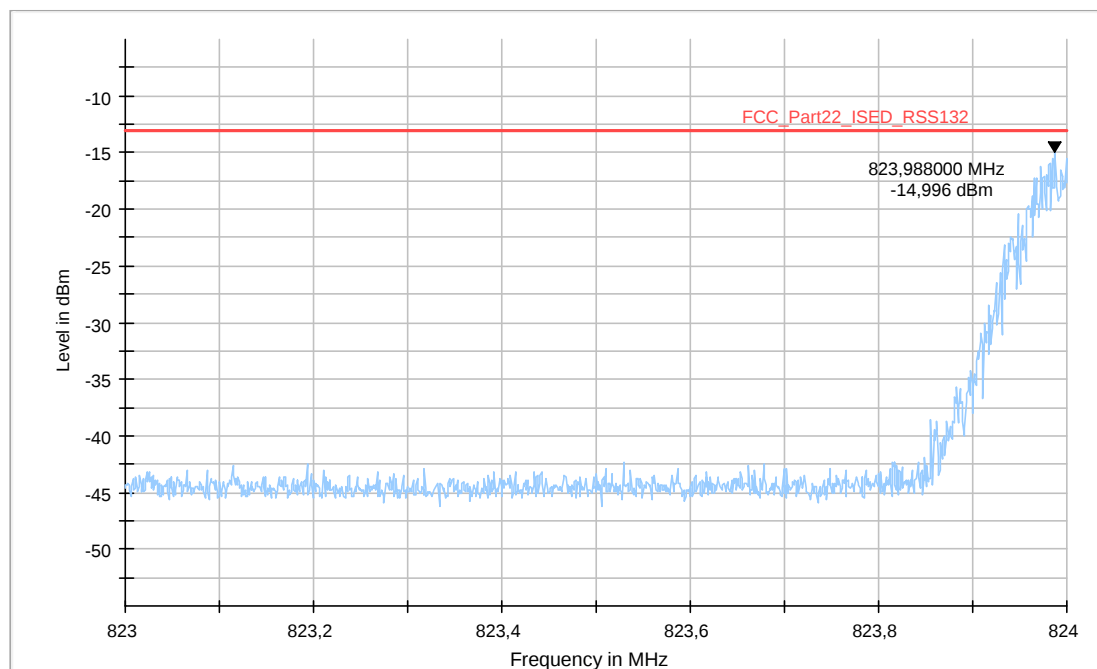
Full Spectrum



1.5. Radiated emissions Band Edge on 850 MHz (transmitting mode) External Antenna

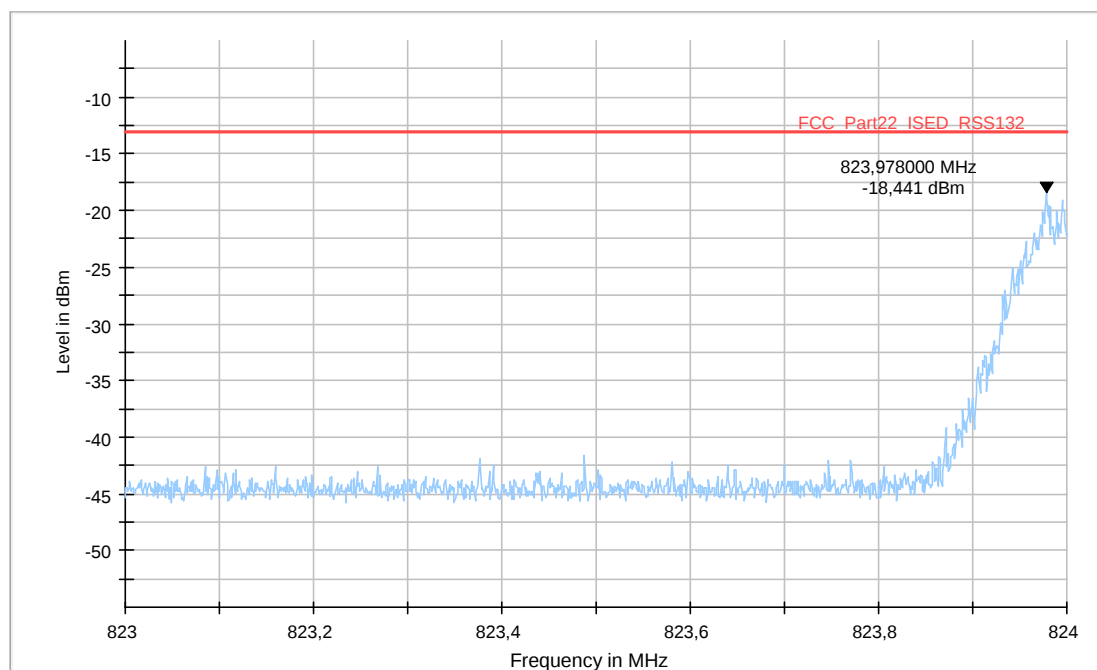
9.01a_RSE_GSM-850_Channel-128_GPRS_EUT_Standing

Full Spectrum



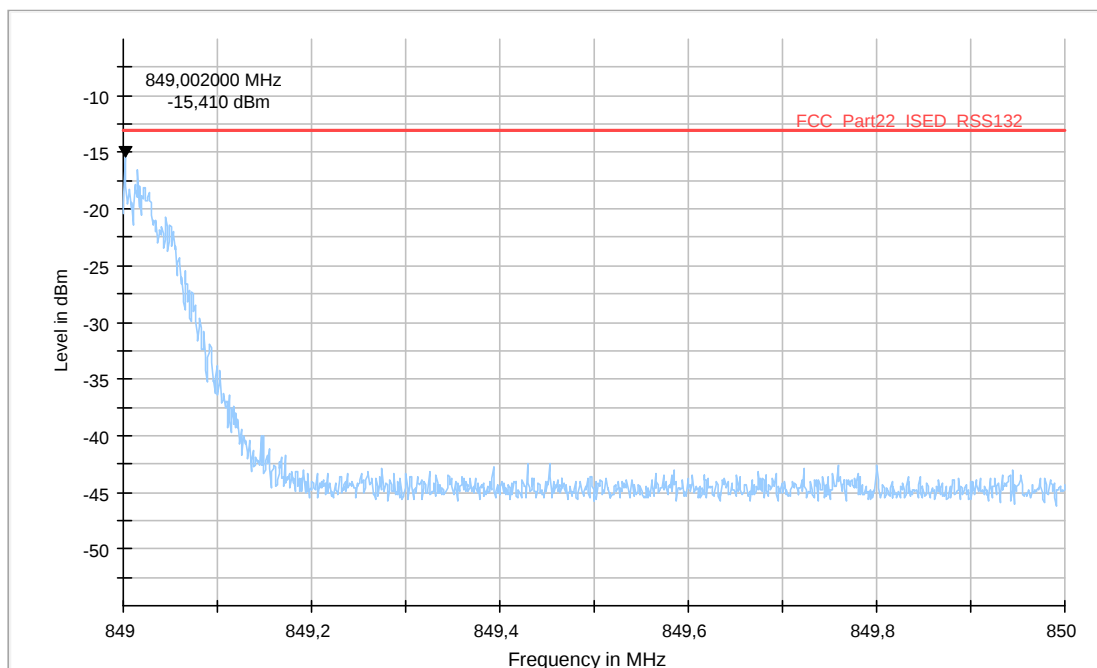
9.01b_RSE_GSM-850_Channel-128_GPRS_EUT_Laying

Full Spectrum



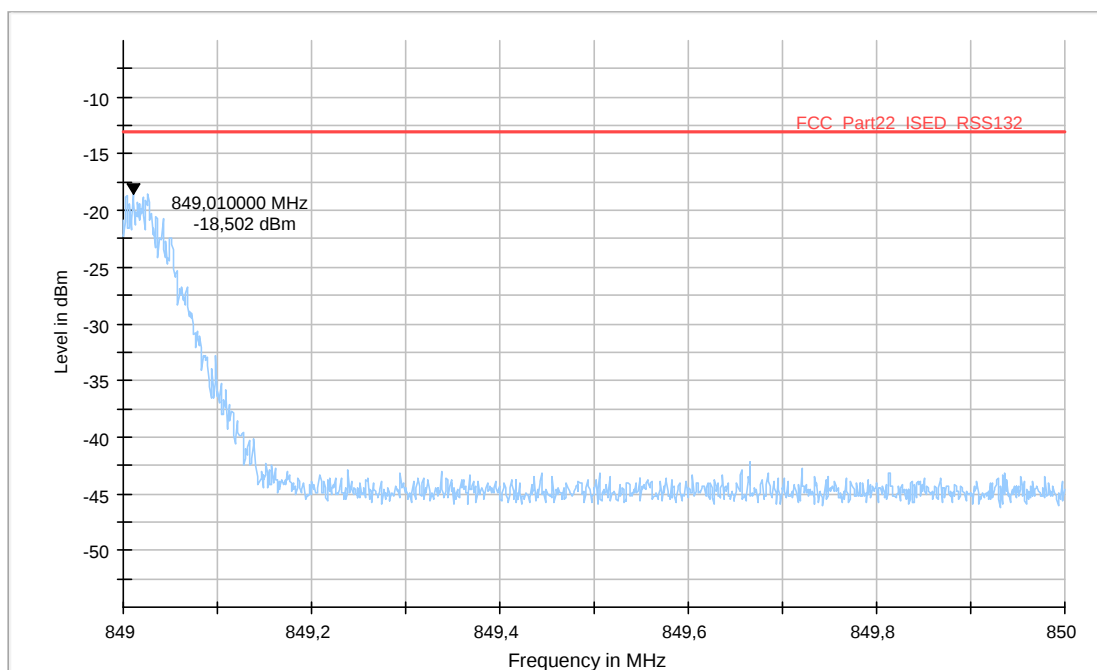
9.02a_RSE_GSM-850_Channel-251_GPRS_EUT_Standing

Full Spectrum



9.02b_RSE_GSM-850_Channel-251_GPRS_EUT_Laying

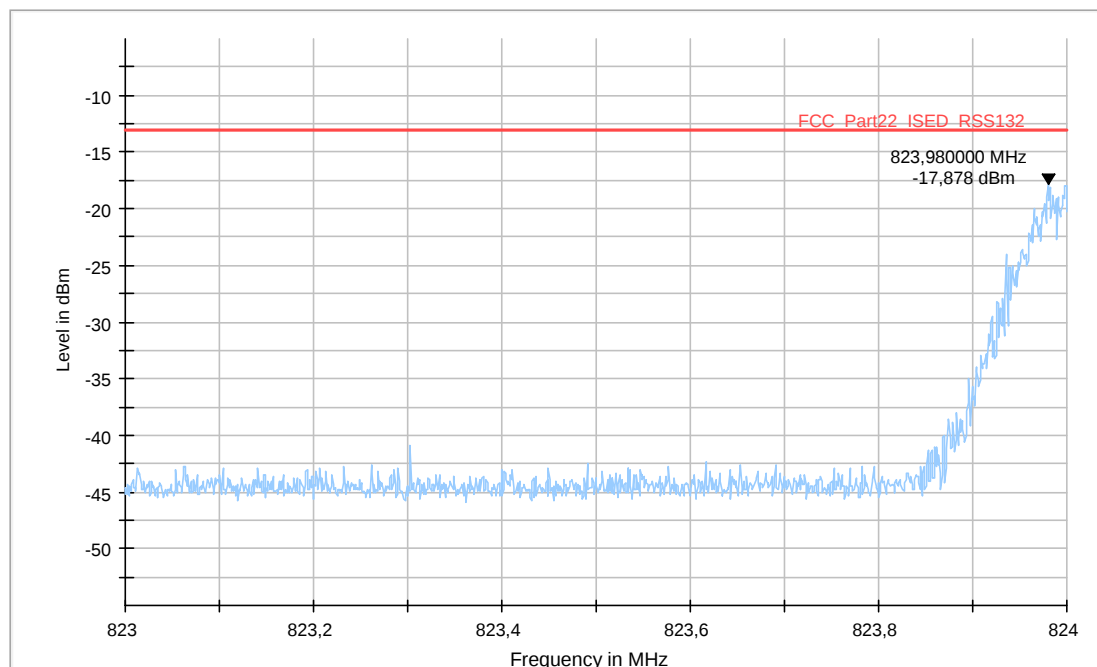
Full Spectrum



Internal Antenna

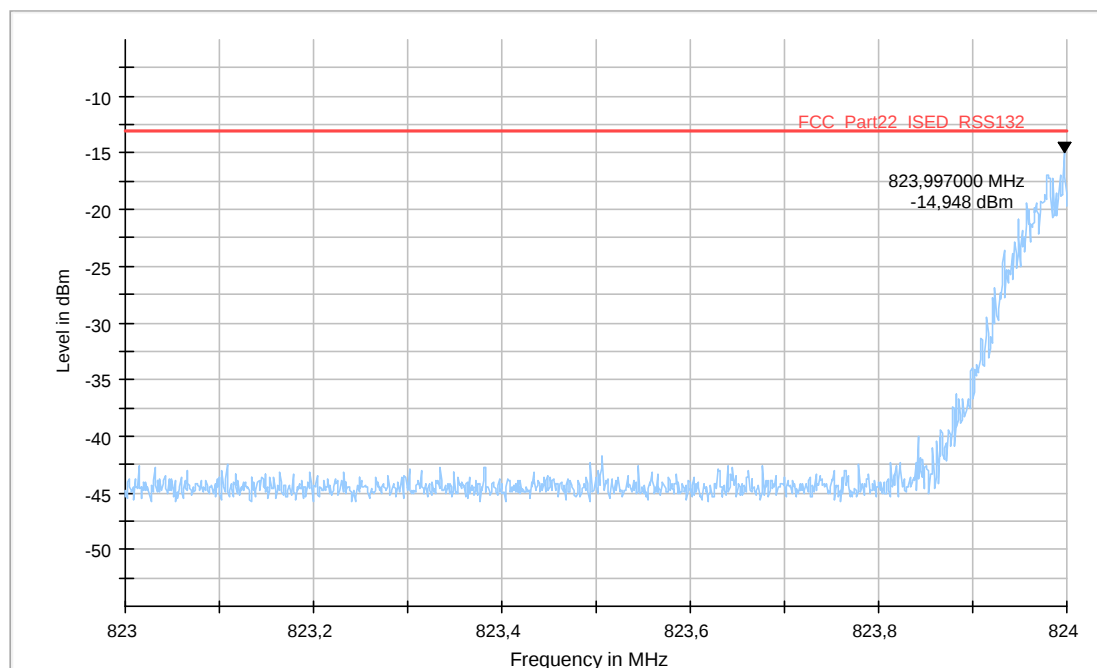
9.05a_RSE_GSM-850_Channel-128_GPRS_EUT_Standing

Full Spectrum



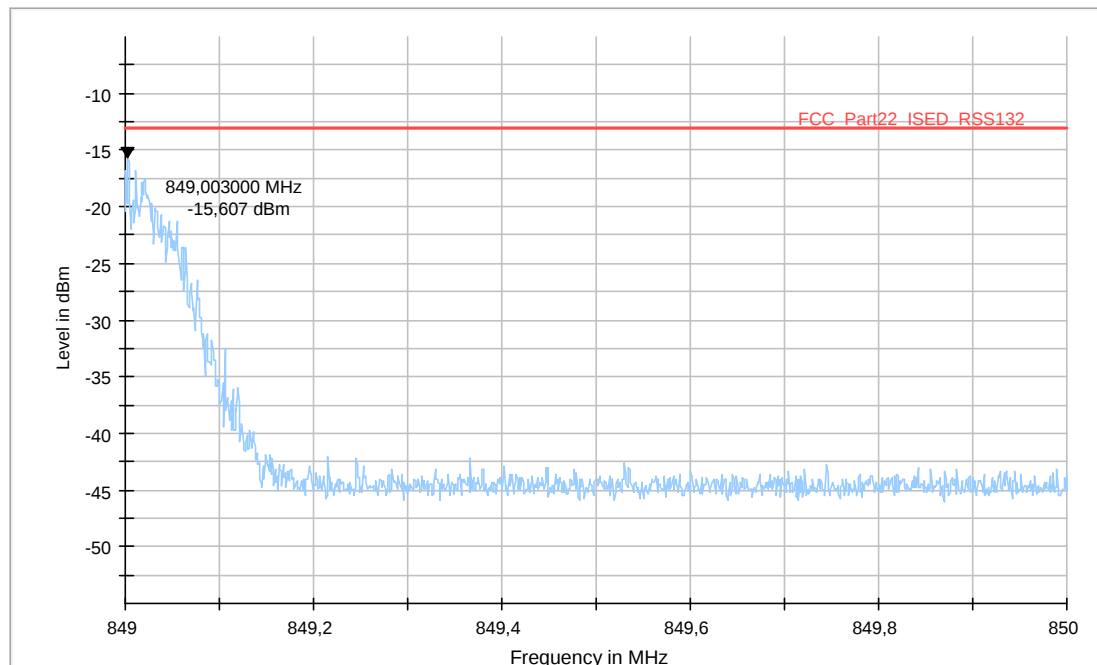
9.05b_RSE_GSM-850_Channel-128_GPRS_EUT_Laying

Full Spectrum



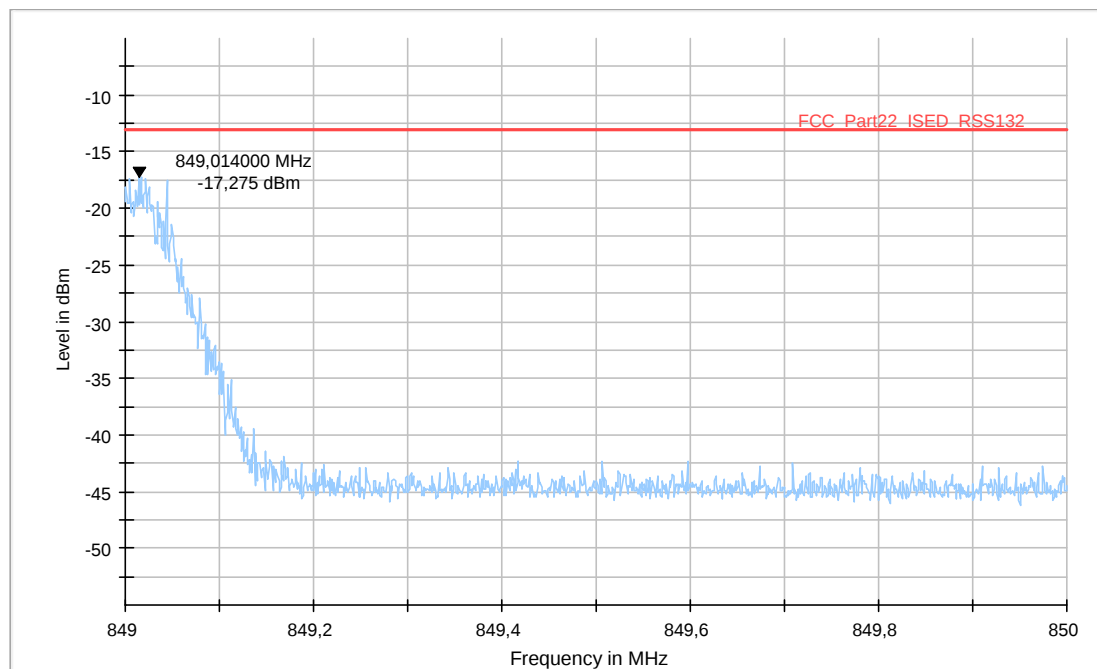
9.06a_RSE_GSM-850_Channel-251_GPRS_EUT_Standing

Full Spectrum



9.06b_RSE_GSM-850_Channel-251_GPRS_EUT_Laying

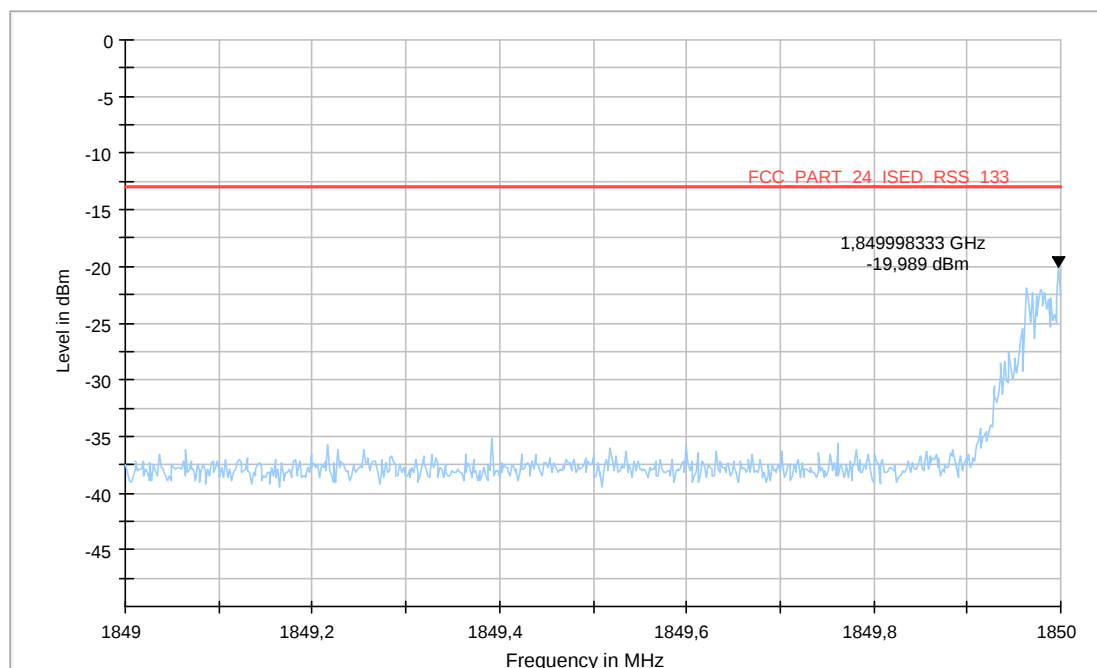
Full Spectrum



1.6. Radiated emissions Band Edge on 1900 MHz (transmitting mode) External Antenna

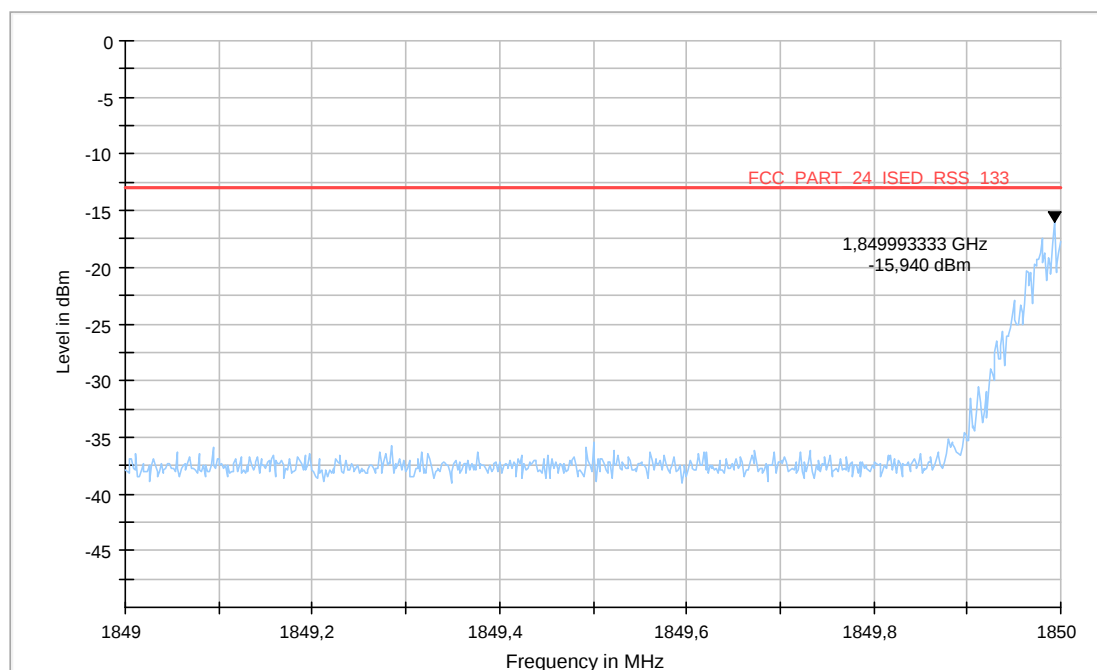
9.03a_RSE_GSM-1900_Channel-512_GPRS_EUT_Standing

Full Spectrum



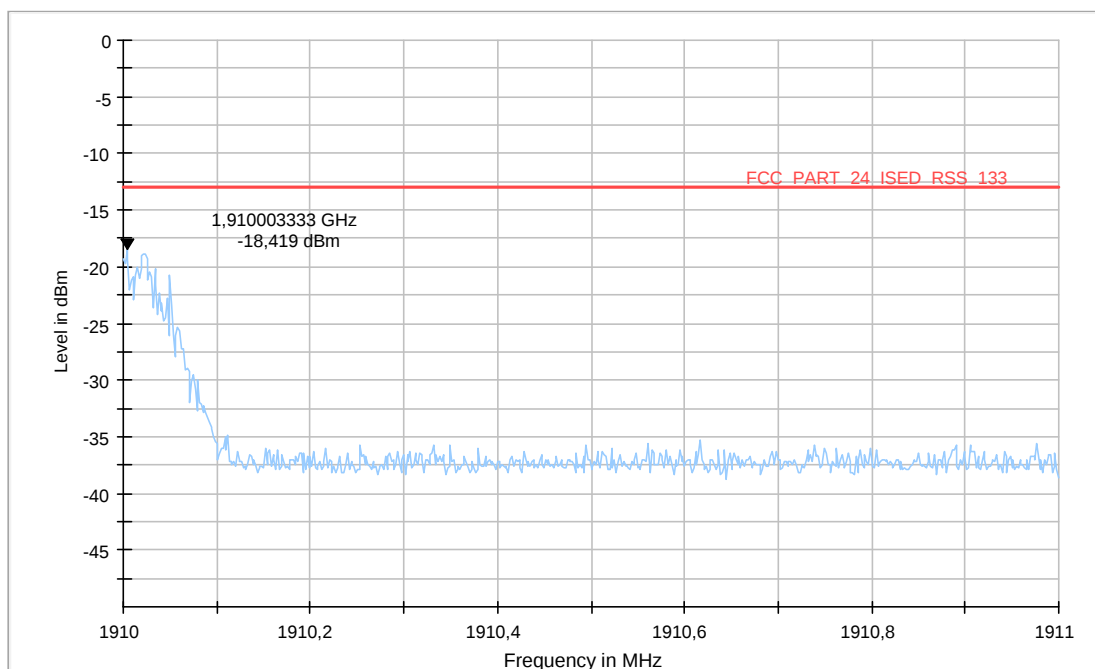
9.03b_RSE_GSM-1900_Channel-512_GPRS_EUT_Laying

Full Spectrum



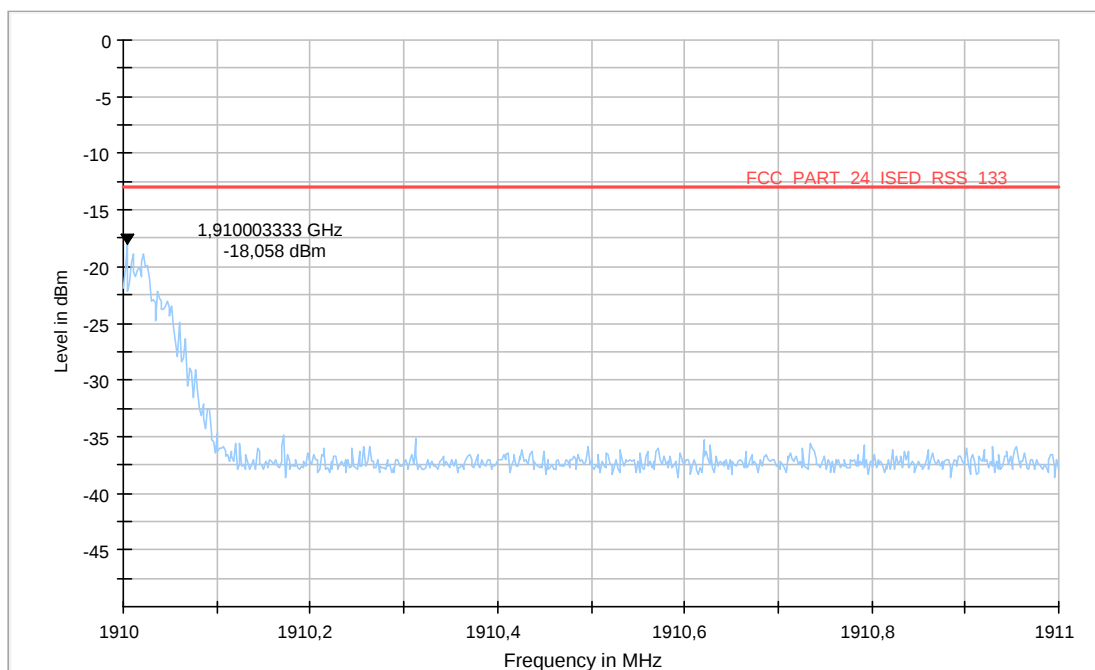
9.04a_RSE_GSM-1900_Channel-810_GPRS_EUT_Standing

Full Spectrum



9.04b_RSE_GSM-1900_Channel-810_GPRS_EUT_Laying

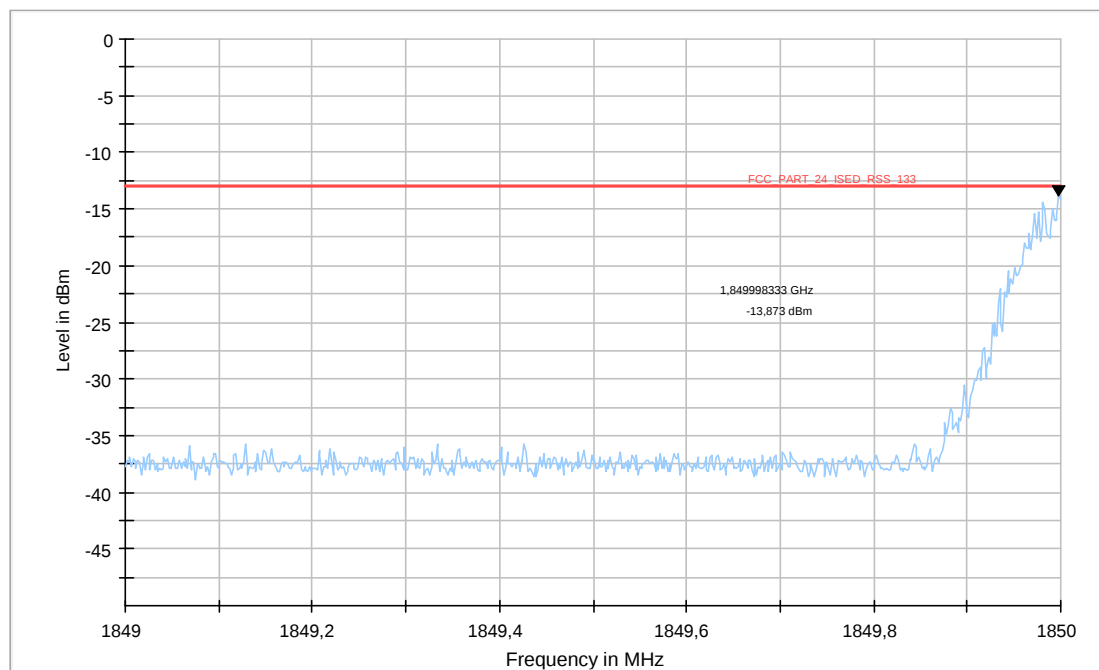
Full Spectrum



Internal Antenna

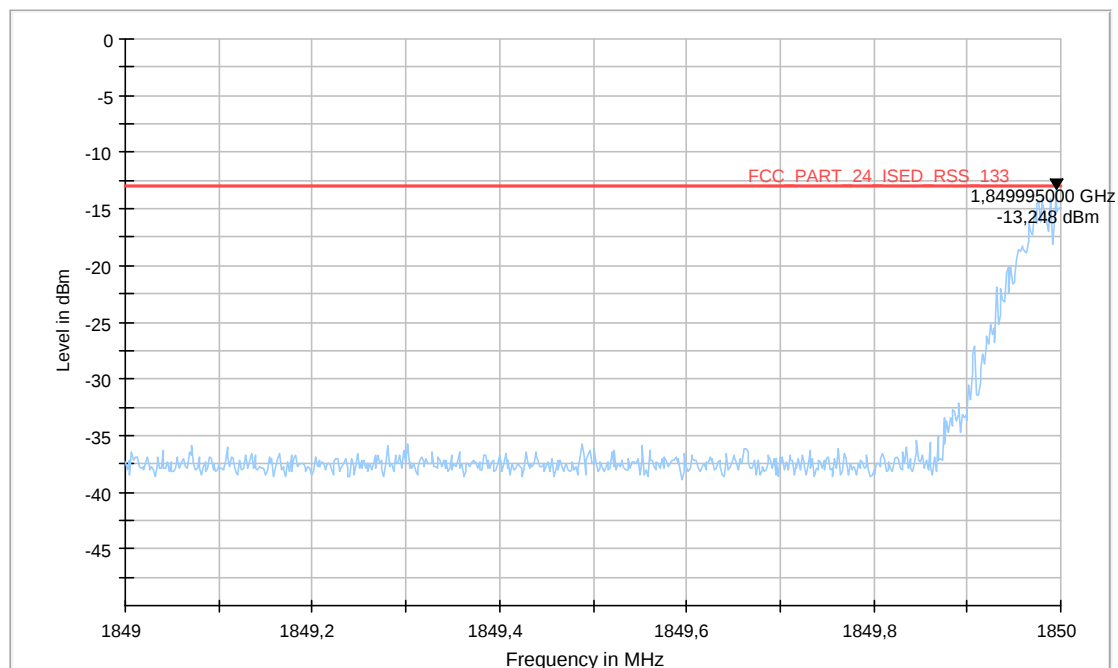
9.07a_RSE_GSM-1900_Channel-512_GPRS_EUT_Standing

Full Spectrum



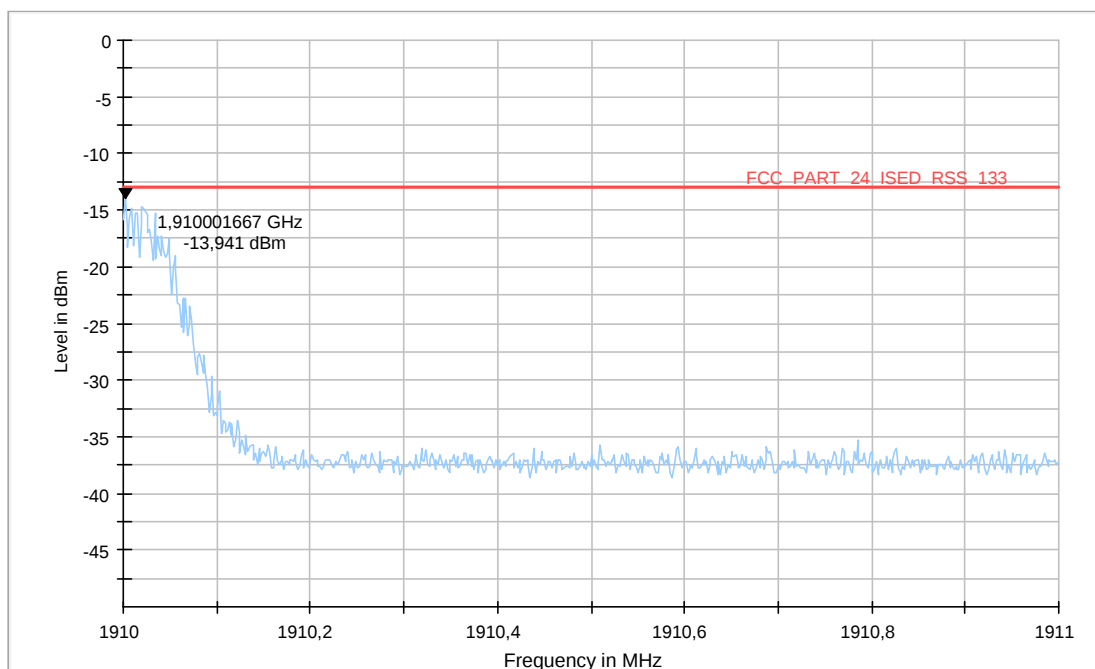
9.07b_RSE_GSM-1900_Channel-512_GPRS_EUT_Laying

Full Spectrum



9.08a_RSE_GSM-1900_Channel-810_GPRS_EUT_Standing

Full Spectrum



9.08b_RSE_GSM-1900_Channel-810_GPRS_EUT_Laying

Full Spectrum

