

Annex 1: Measurement diagrams 20-1-0060701T66a-C1-A1

Number of pages:	16	Date of Report:	2021-Jul-27
Testing company:	CETECOM GmbH Im Teelbruch 116 45219 Essen Germany Tel. + 49 (0) 20 54 / 95 19-0 Fax: + 49 (0) 20 54 / 95 19-150	Applicant:	VALEO Telematik und Akustik GmbH
Product:	Telematic Device		
Model:	ATM-02-MEX-R1		
FCC ID:	QWY-ATM2-R-11	IC:	--
Testing has been carried out in accordance with:	Title 47 CFR, Chapter I FCC Regulations, Subchapter B Part 22 Subpart H, Part 24 Subpart E Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		

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1 Measurement diagrams

2.01_Magnetic_field_Emission_GSM_850_EUT_laying

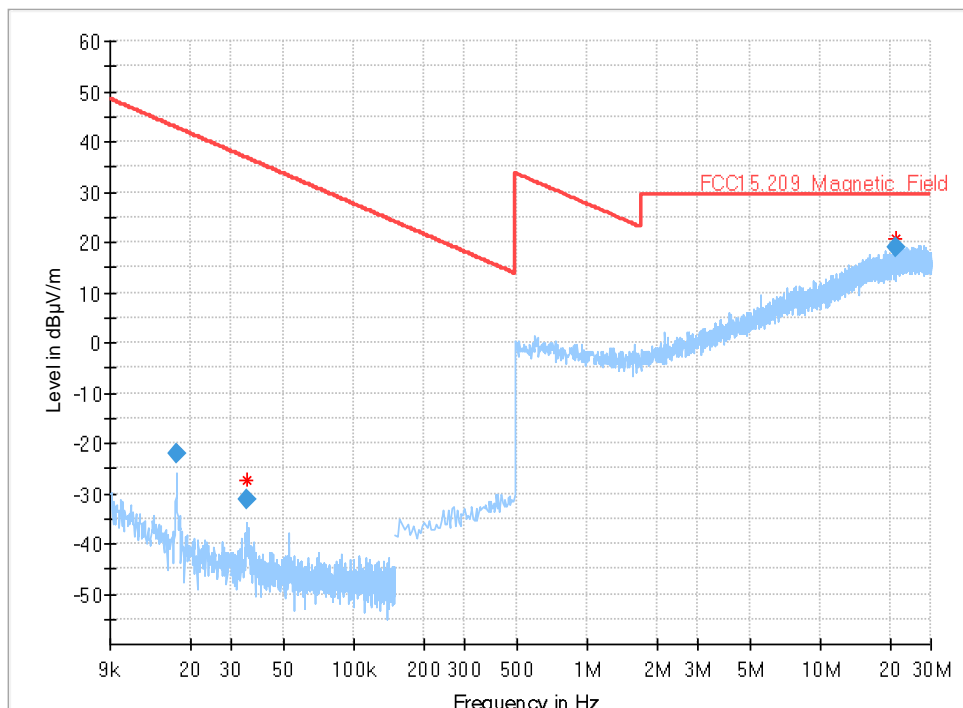
Common Information

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 4
Operator:	HEI
Operating Mode:	GSM 850
Power during tests:	12 V DC, 110V/60Hz, full loaded batteries
Comment 1:	Channel low/middle/high
Environmental Conditions:	Humidity : 54% rH; Temperature: 18 °C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-00607S216_C01
Power Supply:	12 V DC

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
0.017320	-22.21	42.83	65.04	1000.0	0.200	V	219.0	-59.5	00:42:45 - 09.01.2021
0.035000	-31.10	36.72	67.82	1000.0	0.200	V	193.0	-60.3	00:39:07 - 09.01.2021
21.138000	19.11	29.54	10.43	1000.0	9.000	V	164.0	1.2	00:34:18 - 09.01.2021

2.02_Magnetic_field_Emission_GSM_850_EUT_standing

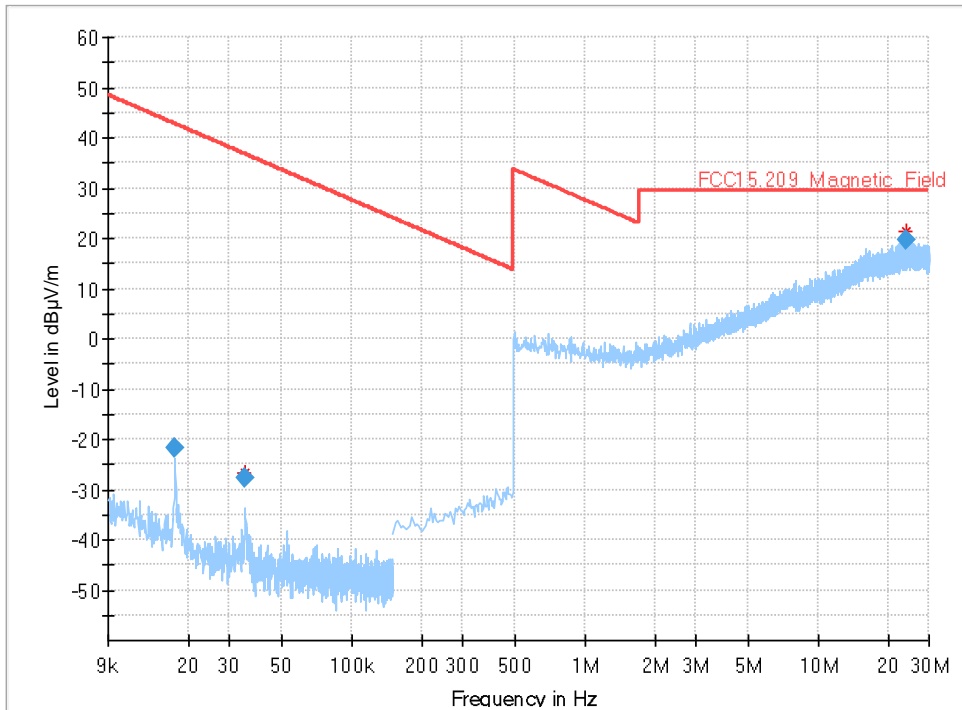
Common Information

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 4
Operator:	HEI
Operating Mode:	TX normal mode
Power during tests:	12 V DC, 110V/60Hz, full loaded batteries
Comment 1:	Channel low/middle/high
Environmental Conditions:	Humidity : 54% rH; Temperature: 18 °C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-00607S216_C01
Power Supply:	12 V DC

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
0.017400	-21.90	42.79	64.68	1000.0	0.200	H	34.0	-59.5	01:35:37 - 09.01.2021
0.034920	-27.84	36.74	64.58	1000.0	0.200	H	130.0	-60.3	01:40:00 - 09.01.2021
23.902000	19.61	29.54	9.93	1000.0	9.000	H	84.0	1.7	01:44:53 - 09.01.2021

2.03_Magnetic_field_Emission_GSM_1900_EUT_laying

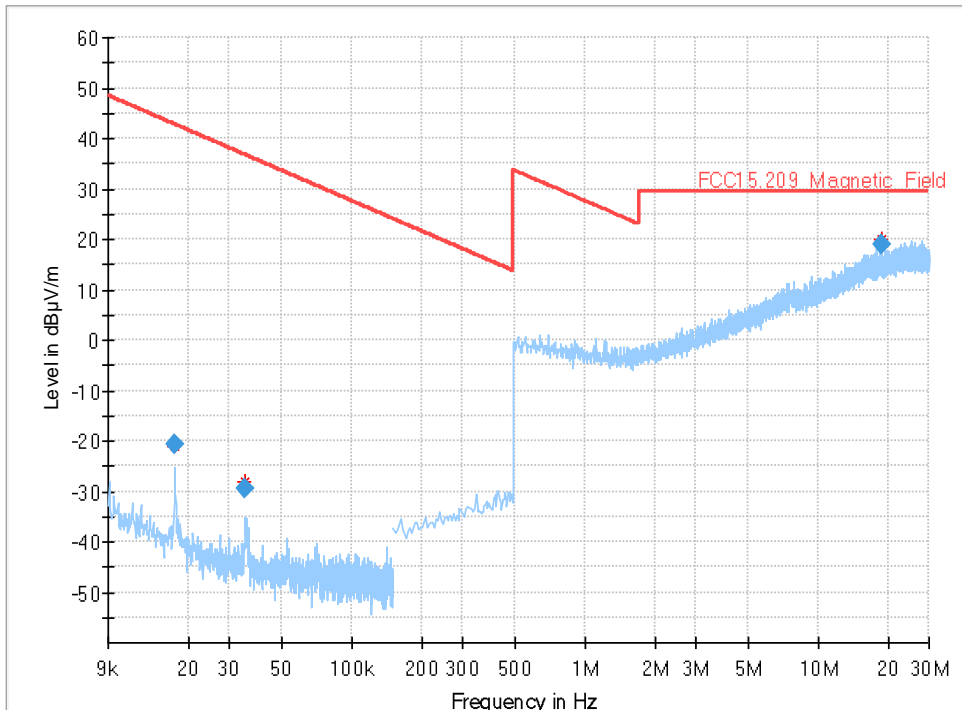
Common Information

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 4
Operator:	HEI
Operating Mode:	GSM 1900
Power during tests:	12 V DC, 110V/60Hz, full loaded batteries
Comment 1:	Channel low/middle/high
Environmental Conditions:	Humidity : 54% rH; Temperature: 18 °C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-00607S216_C01
Power Supply:	12 V DC

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
0.017400	-20.75	42.79	63.54	1000.0	0.200	V	261.0	-59.5	02:48:41 - 09.01.2021
0.035080	-29.36	36.70	66.06	1000.0	0.200	V	44.0	-60.3	02:54:07 - 09.01.2021
18.718000	19.04	29.54	10.50	1000.0	9.000	V	156.0	0.6	02:44:53 - 09.01.2021

2.04_Magnetic_field_Emission_GSM_1900_EUT_standing

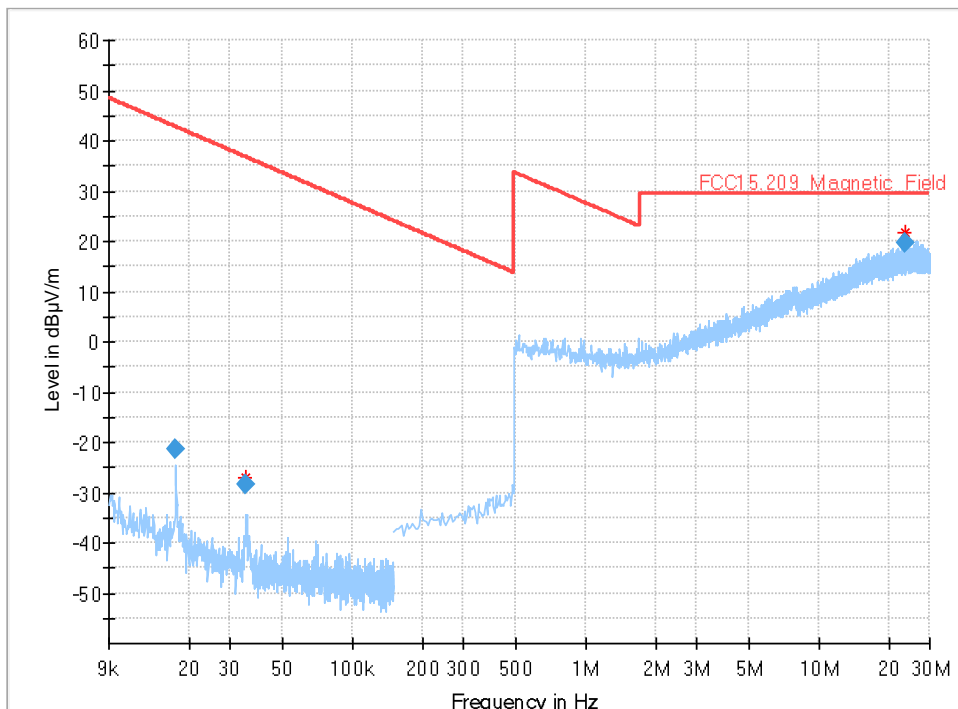
Common Information

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 4
Operator:	HEI
Operating Mode:	GSM 1900
Power during tests:	12 V DC, 110V/60Hz, full loaded batteries
Comment 1:	Channel low/middle/high
Environmental Conditions:	Humidity : 54% rH; Temperature: 18 °C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-00607S216_C01
Power Supply:	12 V DC

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
0.017400	-21.45	42.79	64.23	1000.0	0.200	H	13.0	-59.5	02:12:36 - 09.01.2021
0.034840	-28.44	36.76	65.19	1000.0	0.200	H	25.0	-60.3	02:17:27 - 09.01.2021
23.558000	19.56	29.54	9.98	1000.0	9.000	H	236.0	1.6	02:21:09 - 09.01.2021

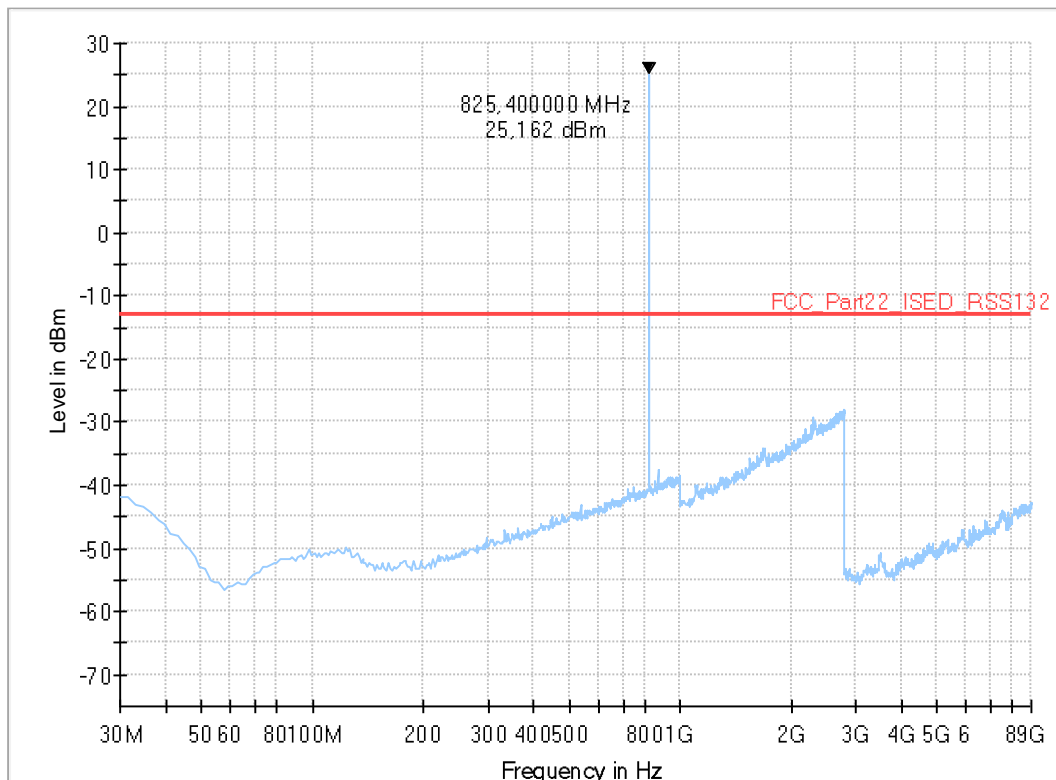
8.01_Traffic_mode_GSM_850_Channel_128_UL_824.2 MHz_Standing

Common Information

Test Description:	Radiated emission related to 1m
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operating Mode:	GSM850 ch128
Operator:	TFra
Environmental Conditions:	Humidity : 55% rH; Temperature: 20 °C
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number: 20-1-00607S218_C01
Full Spectrum



Remark: Emission at 825.4 MHz is uplink frequency of GSM 850 and not realted to results.

Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
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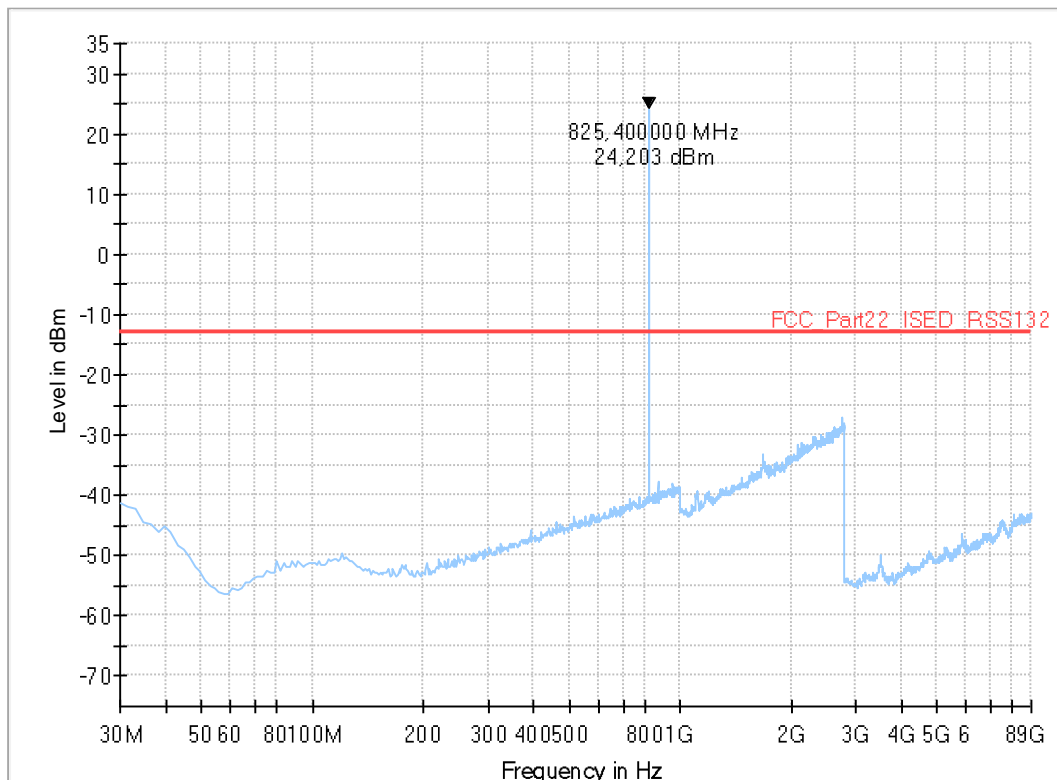
8.02_Traffic_mode_GSM_850_Channel_128_UL_824.2 MHz_Laying

Common Information

Test Description:	Radiated emission related to 1m
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operating Mode:	GSM850 ch128
Operator:	SSanthakum
Environmental Conditions:	Humidity : 59% rH; Temperature: 20 °C
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number: 20-1-00607S218_C01
Full Spectrum



Remark: Emission at 825.4 MHz is uplink frequency of GSM 850 and not related to results.

Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB)
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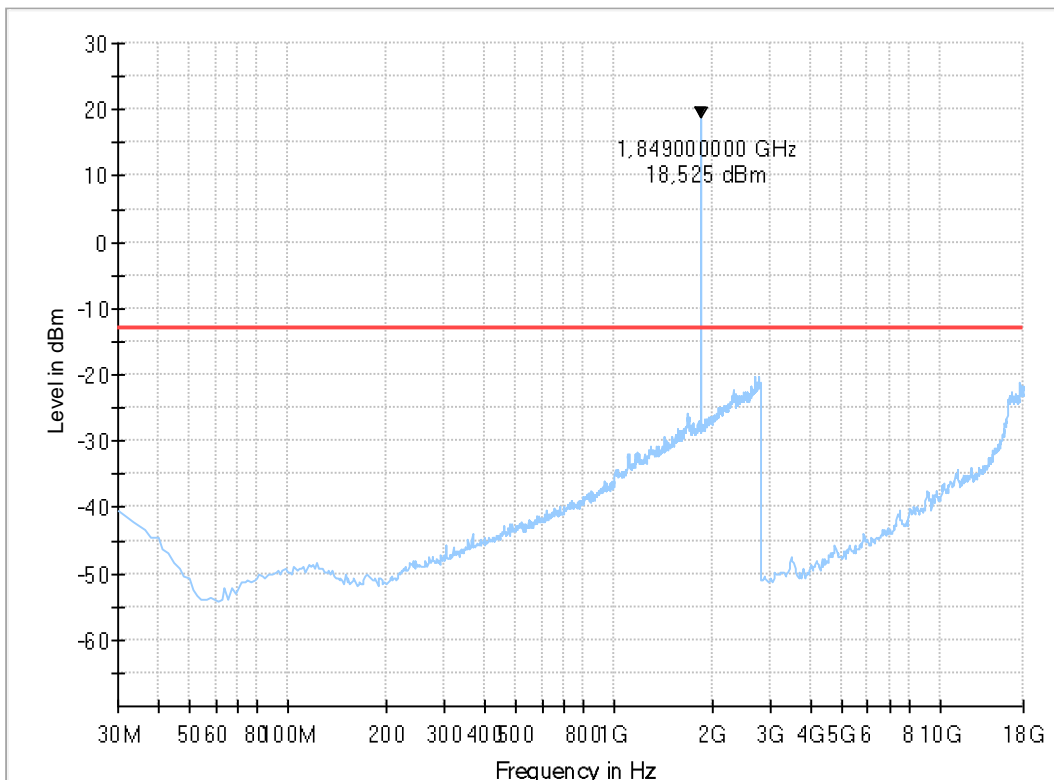
8.03_Traffic_mode_GSM_1900_Channel_512_UL_1850.2MHz_Standing

Common Information

Test Description: Radiated emission related to 1m
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
 Test Standard: FCC FCC Part 24.238 Broadband PCS
 Antenna polarisation: vertical / horizontal
 Operating Mode: GSM1900 ch512
 Operator: SSanthakum
 Environmental Conditions: Humidity : 59% rH; Temperature: 20 °C
 EUT Setup: 2
 Verdict: Passed

EUT Information

PMT number: 20-1-00607S218_C01
 Full Spectrum



Remark: Emission at 1.849 GHz is uplink frequency of GSM 1900 and not related to results.

Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Comment
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8.03a_Traffic_mode_GSM_1900_Channel_512_UL_1850.2M Hz_Standing

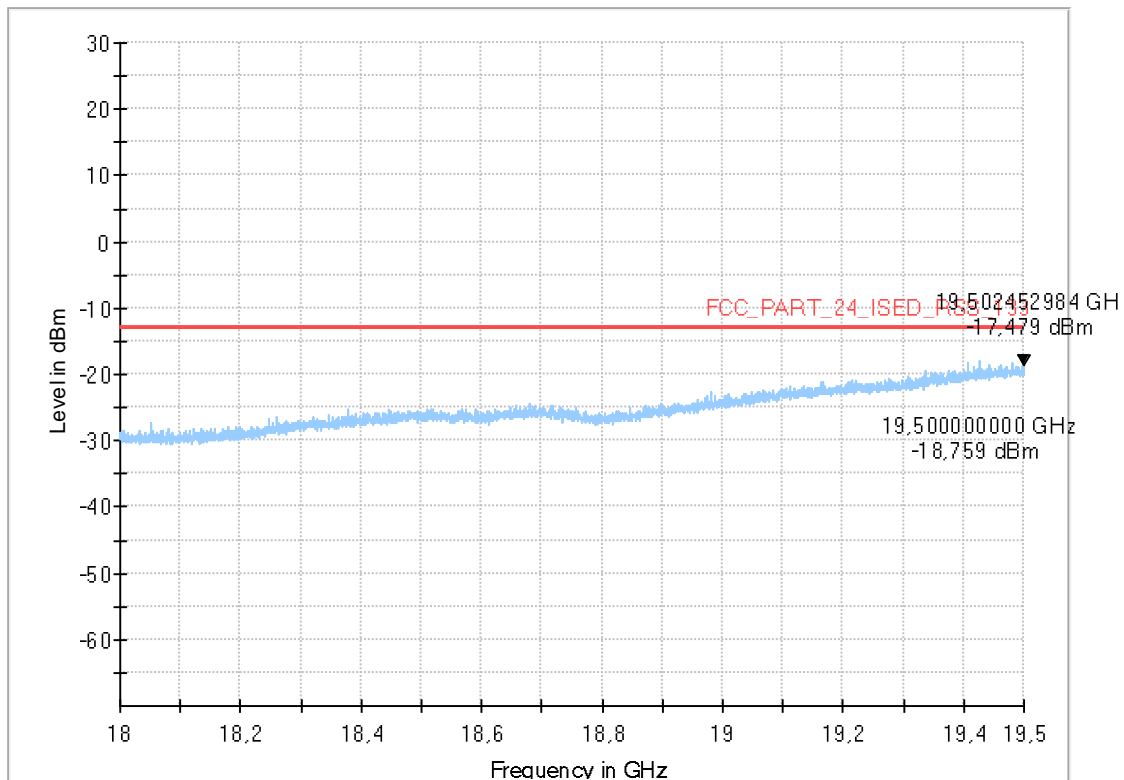
Common Information

Test Description:	Radiated emission related to 1m
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operating Mode:	GSM1900 ch512
Operator:	SOz
Environmental Conditions:	Humidity : 60% rH; Temperature: 20 °C
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number:	20-1-00607S218_C01
Power Supply:	12 V DC

Full Spectrum



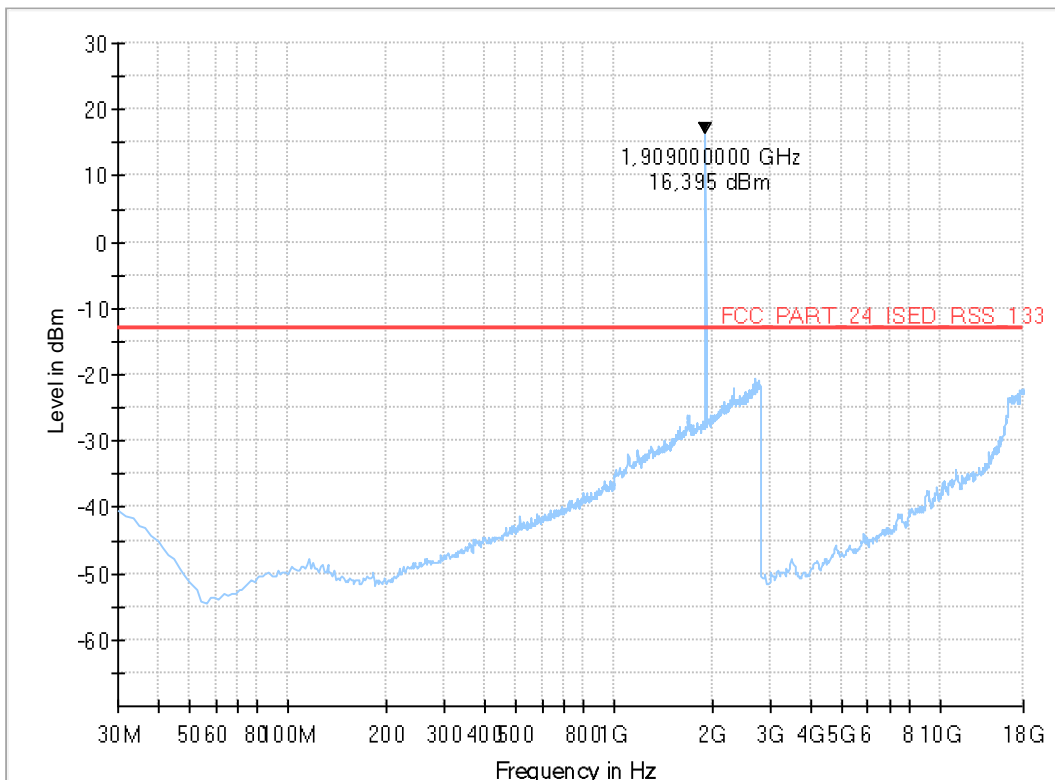
8.04_Traffic_mode_GSM_1900_Channel_512_UL_1850.2MHz_Laying

Common Information

Test Description:	Radiated emission related to 1m
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operating Mode:	GSM1900 ch512
Operator:	SSanthakum
Environmental Conditions:	Humidity : 59% rH; Temperature: 20 °C
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number: 20-1-00607S218_C01
Full Spectrum



Remark: Emission at 1.909 GHz is uplink frequency of GSM 1900 and not related to results.

Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Comment
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8.04a_Traffic_mode_GSM_1900_Channel_512_UL_1850.2M Hz_Laying

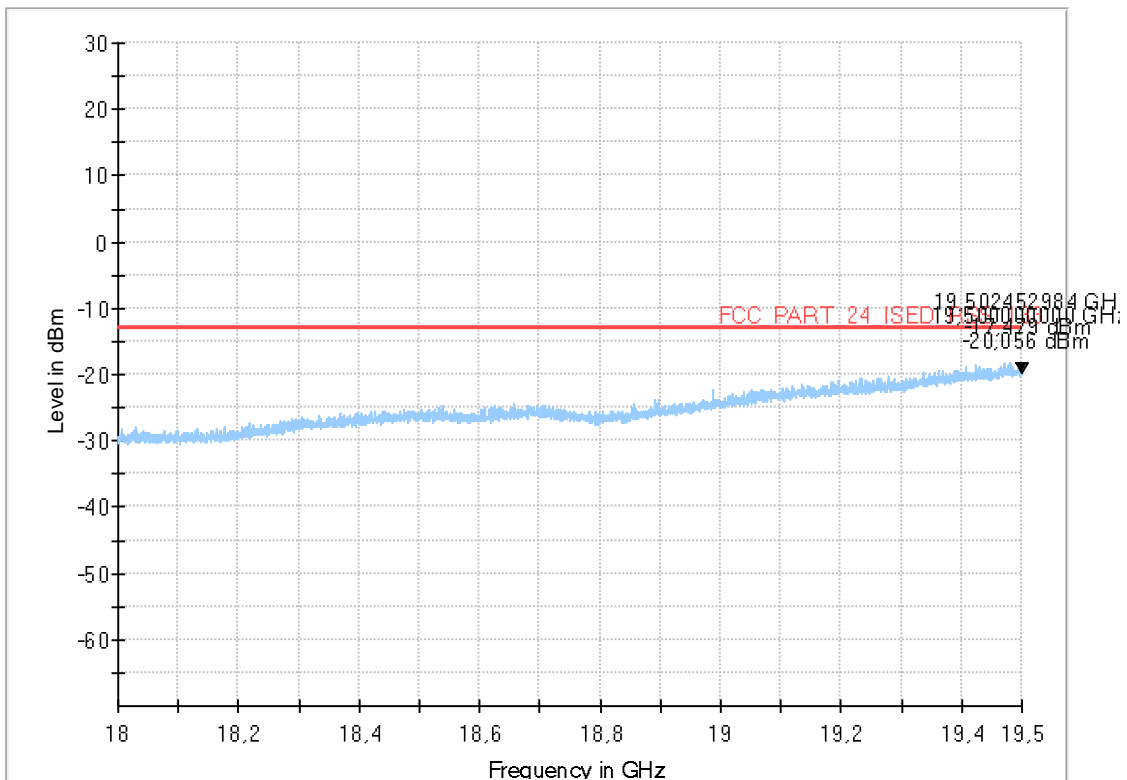
Common Information

Test Description:	Radiated emission related to 1m
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operating Mode:	GSM1900 ch512
Operator:	SOz
Environmental Conditions:	Humidity : 60% rH; Temperature: 20 °C
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number:	20-1-00607S218_C01
Power Supply:	12 V DC

Full Spectrum



9.01_GSM850_ch128

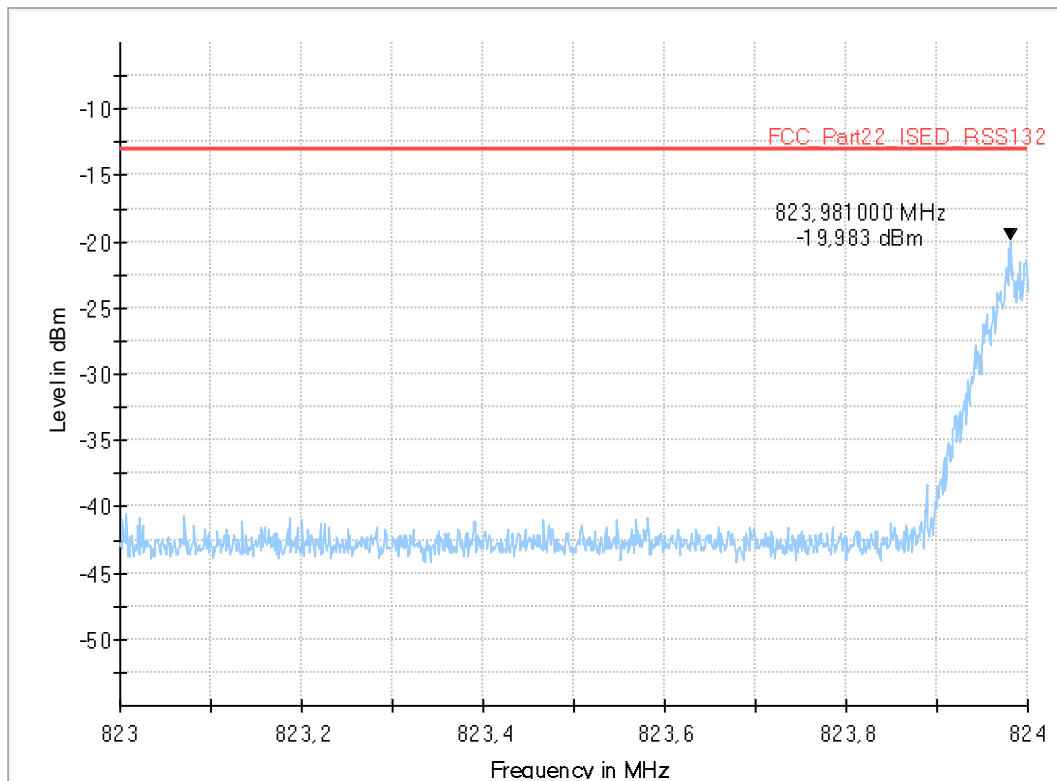
Common Information

Test Description: Radiated emission related to 1m
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
 Test Standard: FCC FCC Part 24.238 Broadband PCS
 Antenna polarisation: vertical / horizontal
 Operating Mode: GSM850
 Operator: TFra
 Environmental Conditions: Humidity : 55% rH; Temperature: 20 °C
 EUT Setup: 1
 Verdict: Passed

EUT Information

PMT number: 20-1-00607S216_C01
 Power Supply: 12 V DC

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
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9.02_GSM850_ch251

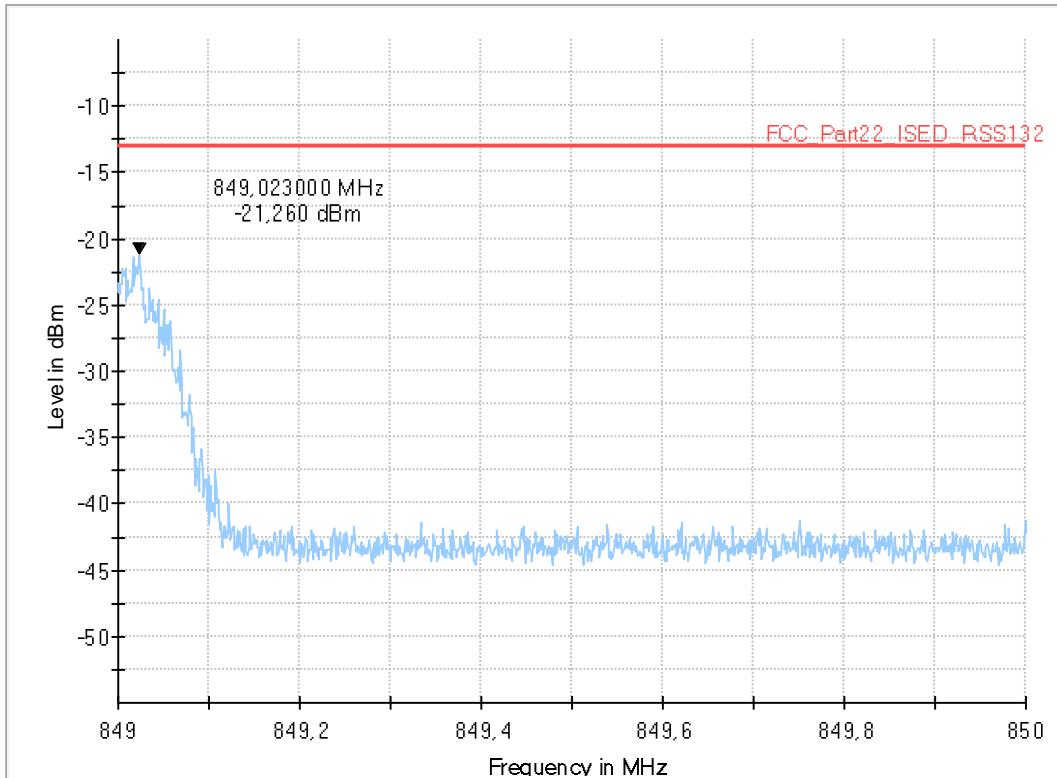
Common Information

Test Description: Radiated emission related to 1m
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
 Test Standard: FCC FCC Part 24.238 Broadband PCS
 Antenna polarisation: vertical / horizontal
 Operating Mode: GSM850
 Operator: TFra
 Environmental Conditions: Humidity : 55% rH; Temperature: 20 °C
 EUT Setup: 1
 Verdict: Passed

EUT Information

PMT number: 20-1-00607S216_C01
 Power Supply: 12 V DC

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
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9.1900_Band-Edge_Channel_512_UL_1850.2MHz

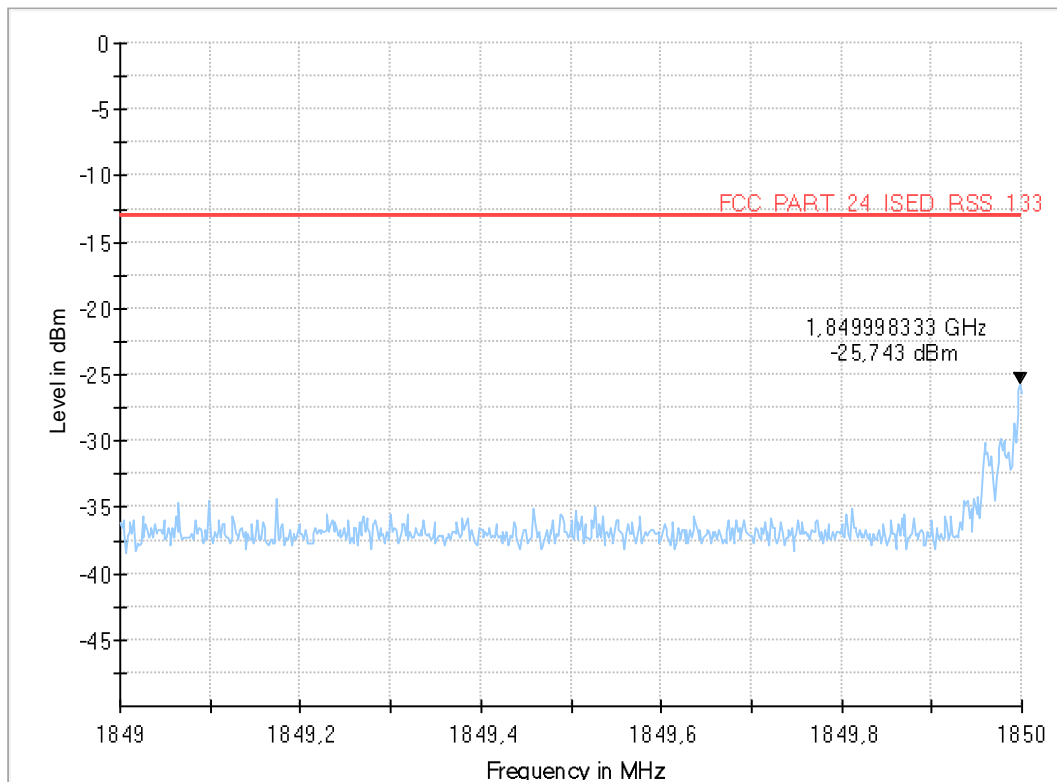
Common Information

Test Description: Radiated Spurious Emissions GSM1900
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
 Test Standard: -
 Test Case: -
 Operating Mode: GSM 1900TCH ch 512
 Environmental Conditions: Humidity : 60% rH; Temperature: 20 °C
 Operator: TFra
 EUT Setup: 1
 Verdict: Passed
 Comment:

EUT Information

PMT number: 20-1-00607S216_C01
 Power Supply: 12 V DC

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
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9.1901_Band-Edge_Channel_810_UL_1909.8MHz

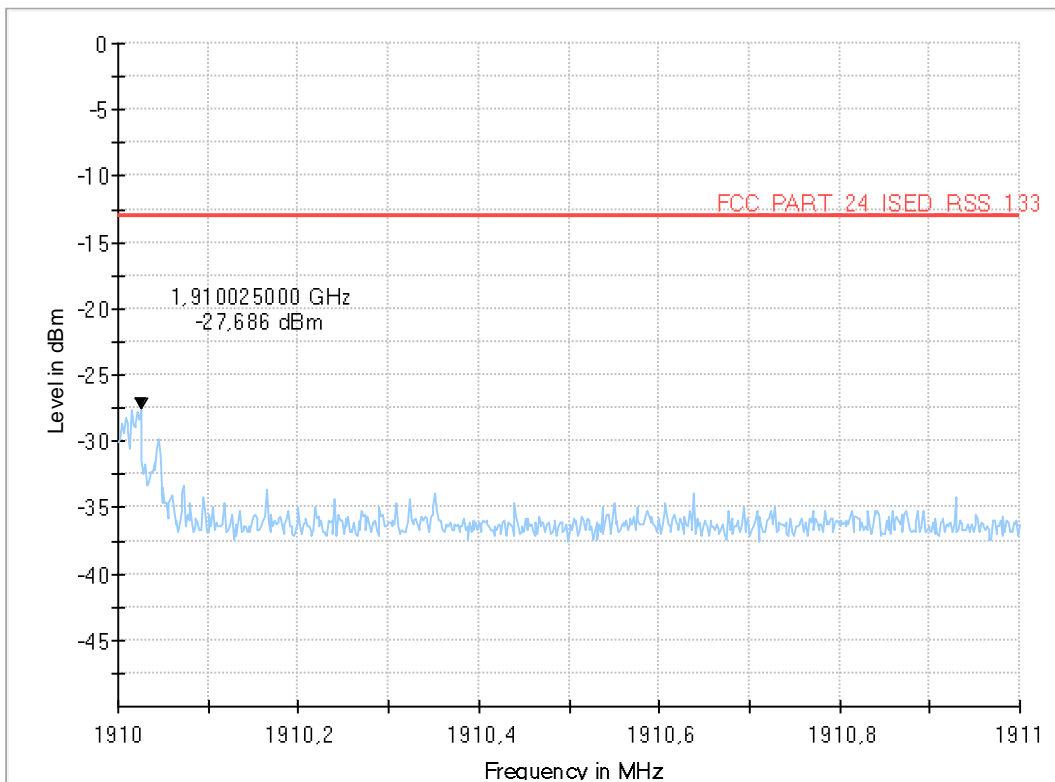
Common Information

Test Description: Radiated Spurious Emissions GSM1900
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
 Test Standard: -
 Test Case: -
 Operating Mode: GSM 1900TCH ch 810
 Environmental Conditions: Humidity : 60% rH; Temperature: 20 °C
 Operator: TFra
 EUT Setup: 1
 Verdict: Passed

EUT Information

PMT number: 20-1-00607S216_C01
 Power Supply: 12 V DC

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
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End of Annex 1