

Annex 1: Measurement diagrams
to
TEST REPORT
No.: 6-0082-11-1-2a

According to:
FCC Regulations
Part 22 & Part 24

IC-Regulations
RSS-132 Issue 2, RSS-133 Issue 5 &
RSS-Gen Issue 3

for
u-blox AG

RF Data-Module LISA-U200
FCC-ID: XPYLISAU200
IC-ID: 8595A-LISAU200







Laboratory Accreditation and Listings			
 <p>DAkKS Deutsche Akkreditierungsstelle D-PL-12047-01-01</p>	 <p>FEDERAL COMMUNICATIONS COMMISSION FCC USA Reg. No.: 736496 MRA US-EU 0003</p>	 <p>Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3</p>	 <p>Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2665, R-2666 C-2914, T-1967, G-301</p>
 <p>WiFi ALLIANCE AUTHORIZED RF LABORATORY</p>	 <p>CTIA Authorized Test Lab LAB CODE 20011130-00</p>		
accredited according to DIN EN ISO/IEC 17025			
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1. Measurement results

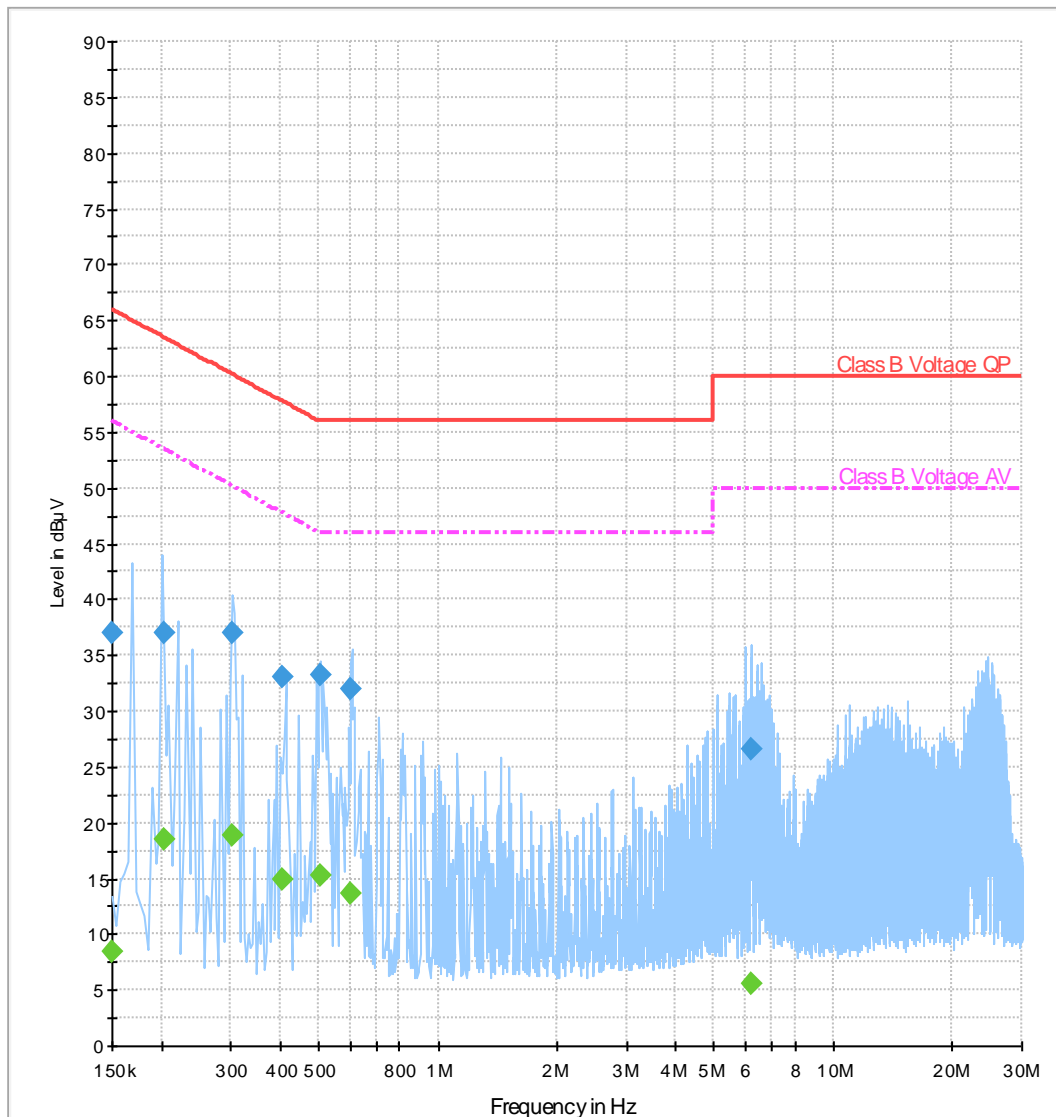
1.1. Conducted emissions on AC-Power lines - G850 Mode

Diagram No. a_1.2

Test Description:	Conducted Voltage Measurement Class B
Testspezifikation:	FCC 15.207 Class B
Technical Data:	Please see next page for detailed information
Diagram:	Shows the peak values as a sum of measured ports (N+L1) in maxhold
Operator name:	HLA
Report.- Nr.	6-0082-11-1-2a

EUT:	LISA-U200
Manufacturer:	U-blox
IMEI:	358901040001734
Operating mode:	EGPRS GSM 850 TX
Measured on line:	Mains AC L1 and N
Power during test:	110 V AC 60 Hz
Comment 1:	channel (128)

01_Class B_Voltage_PK_QPAV_N_L1



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth h (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	36.9	15000.0	0.200	GND	L1	0.0	29.1	66.0
0.203281	37.0	15000.0	9.000	GND	N	0.0	26.5	63.5
0.303750	37.0	15000.0	9.000	GND	N	0.0	23.2	60.1
0.404219	33.1	15000.0	9.000	GND	L1	0.0	24.7	57.8
0.505781	33.3	15000.0	9.000	GND	L1	0.0	22.8	56.0
0.604531	32.0	15000.0	9.000	GND	N	0.0	24.0	56.0
6.206563	26.5	15000.0	9.000	GND	L1	0.1	33.5	60.0

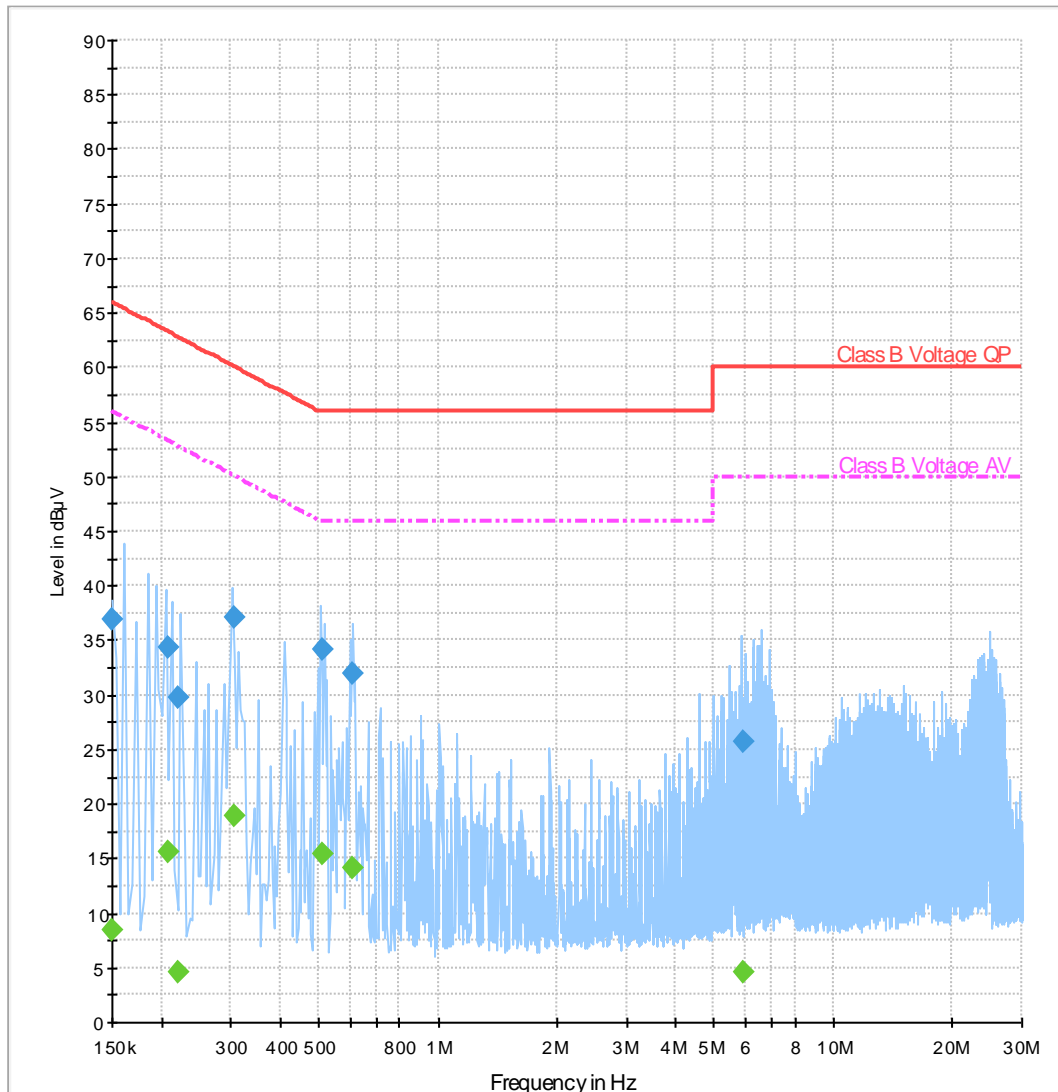
Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	8.4	15000.0	9.000	GND	L1	0.0	47.6	56.0
0.203281	18.5	15000.0	9.000	GND	N	0.0	35.0	53.5
0.303750	18.8	15000.0	9.000	GND	N	0.0	31.4	50.1
0.404219	15.0	15000.0	9.000	GND	L1	0.0	32.8	47.8
0.505781	15.2	15000.0	9.000	GND	L1	0.0	30.8	46.0
0.604531	13.6	15000.0	9.000	GND	N	0.0	32.4	46.0
6.206563	5.6	15000.0	9.000	GND	L1	0.1	44.4	50.0

Diagram No. a_1.3

Test Description:	Conducted Voltage Measurement Class B
Test specification:	FCC 15.207 Class B
Technical Data:	Please see next page for detailed information
Diagram:	Shows the peak values as a sum of measured ports (N+L1) in maxhold
Operator name:	HLa
Report.- Nr.	6-0082-11-1-2a
EUT:	LISA-U200
Manufacturer:	U-blox
IMEI:	358901040001734
Operating mode:	EGPRS GSM 850 TX
Measured on line:	Mains AC L1 and N
Power during test:	110 V AC 60 Hz
Comment 1:	channel (192)
Comment 2:	

01_Class B_Voltage_PK_QPAV_N_L1



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	36.9	15000.0	0.200	GND	L1	0.0	29.1	66.0
0.207188	34.3	15000.0	9.000	GND	N	0.0	29.0	63.3
0.221250	29.8	15000.0	9.000	GND	L1	0.0	33.0	62.8
0.304844	37.1	15000.0	9.000	GND	N	0.0	23.0	60.1
0.507969	34.2	15000.0	9.000	GND	N	0.0	21.8	56.0
0.609531	31.9	15000.0	9.000	GND	L1	0.1	24.1	56.0
5.891875	25.8	15000.0	9.000	GND	N	0.1	34.2	60.0

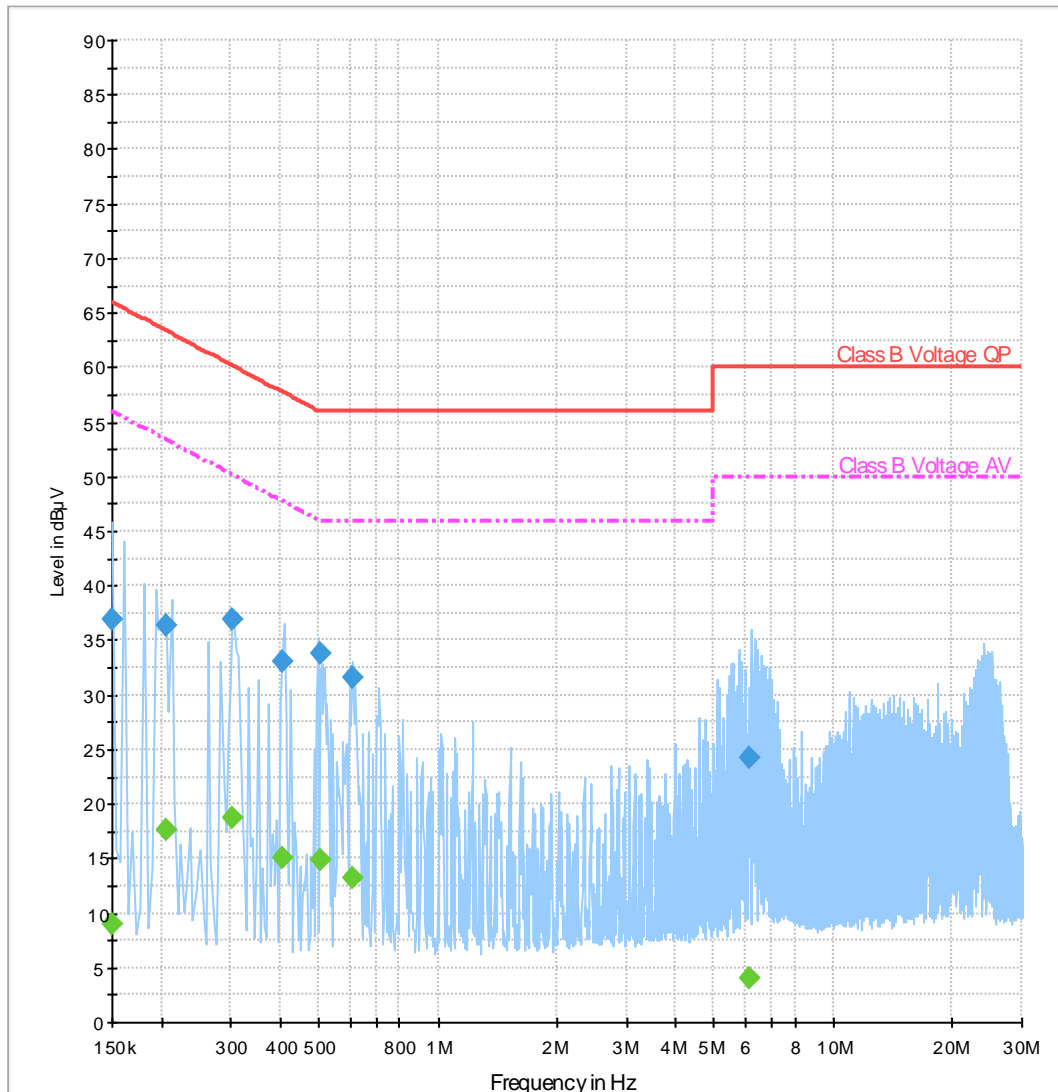
Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	8.4	15000.0	9.000	GND	L1	0.0	47.6	56.0
0.207188	15.7	15000.0	9.000	GND	N	0.0	37.7	53.3
0.221250	4.6	15000.0	9.000	GND	L1	0.0	48.2	52.8
0.304844	19.0	15000.0	9.000	GND	N	0.0	31.1	50.1
0.507969	15.5	15000.0	9.000	GND	N	0.0	30.5	46.0
0.609531	14.1	15000.0	9.000	GND	L1	0.1	31.9	46.0
5.891875	4.5	15000.0	9.000	GND	N	0.1	45.5	50.0

Diagram No. a_1.4

Test Description:	Conducted Voltage Measurement Class B
Test specification:	FCC 15.207 Class B
Technical Data:	Please see next page for detailed information
Diagram:	Shows the peak values as a sum of measured ports (N+L1) in maxhold
Operator name:	HLA
Report.- Nr.	6-0082-11-1-2a
EUT:	LISA-U200
Manufacturer:	U-blox
IMEI:	358901040001734
Operating mode:	EGPRS GSM 850 TX
Measured on line:	Mains AC L1 and N
Power during test:	110 V AC 60 Hz
Comment 1:	channel (251)
Comment 2:	

01_Class B_Voltage_PK_QPAV_N_L1



Date: 27.10.2011 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	37.0	15000.0	0.200	GND	L1	0.0	29.0	66.0
0.205000	36.3	15000.0	9.000	GND	L1	0.0	27.1	63.4
0.303750	36.9	15000.0	9.000	GND	N	0.0	23.2	60.1
0.406406	33.1	15000.0	9.000	GND	L1	0.0	24.6	57.7
0.505156	33.7	15000.0	9.000	GND	L1	0.0	22.3	56.0
0.609531	31.7	15000.0	9.000	GND	L1	0.1	24.3	56.0
6.162656	24.2	15000.0	9.000	GND	N	0.1	35.8	60.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	9.0	15000.0	9.000	GND	L1	0.0	47.0	56.0
0.205000	17.7	15000.0	9.000	GND	L1	0.0	35.7	53.4
0.303750	18.8	15000.0	9.000	GND	N	0.0	31.4	50.1
0.406406	15.0	15000.0	9.000	GND	L1	0.0	32.7	47.7
0.505156	14.8	15000.0	9.000	GND	L1	0.0	31.2	46.0
0.609531	13.2	15000.0	9.000	GND	L1	0.1	32.8	46.0
6.162656	4.0	15000.0	9.000	GND	N	0.1	46.0	50.0

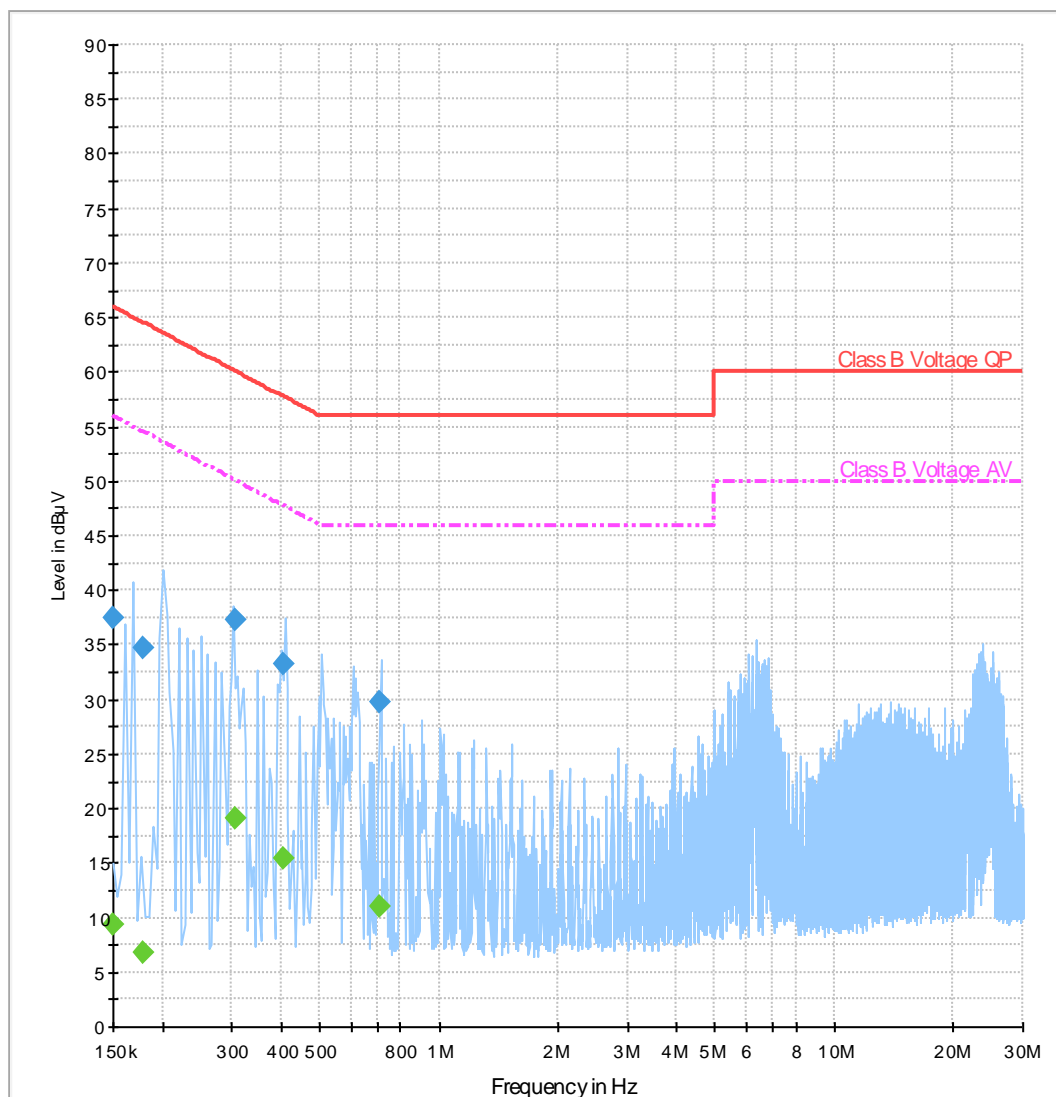
1.2. Conducted emissions on AC-Power lines – PCS1900 Mode

Diagram No. a_1.5

Test Description: Conducted Voltage Measurement Class B
Testspezifikation: FCC 15.207 Class B
Technical Data: Please see next page for detailed information
Diagram: Shows the peak values as a sum of measured ports (N+L1) in maxhold
Operator name: HLa
Report.- Nr. 6-0082-11-1-2a

EUT: LISA-U200
Manufacturer: U-blox
IMEI: 358901040001734
Operating mode: EGPRS GSM 1900 TX
Measured on line: Mains AC L1 and N
Power during test: 110 V AC 60 Hz
Comment 1: channel (512)
Comment 2:

01_Class B_Voltage_PK_QPAV_N_L1



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	37.5	15000.0	0.200	GND	L1	0.0	28.5	66.0
0.178281	34.6	15000.0	9.000	GND	N	0.0	29.9	64.6
0.304844	37.3	15000.0	9.000	GND	N	0.0	22.8	60.1
0.405313	33.2	15000.0	9.000	GND	N	0.0	24.5	57.7
0.708906	29.7	15000.0	9.000	GND	N	0.0	26.3	56.0

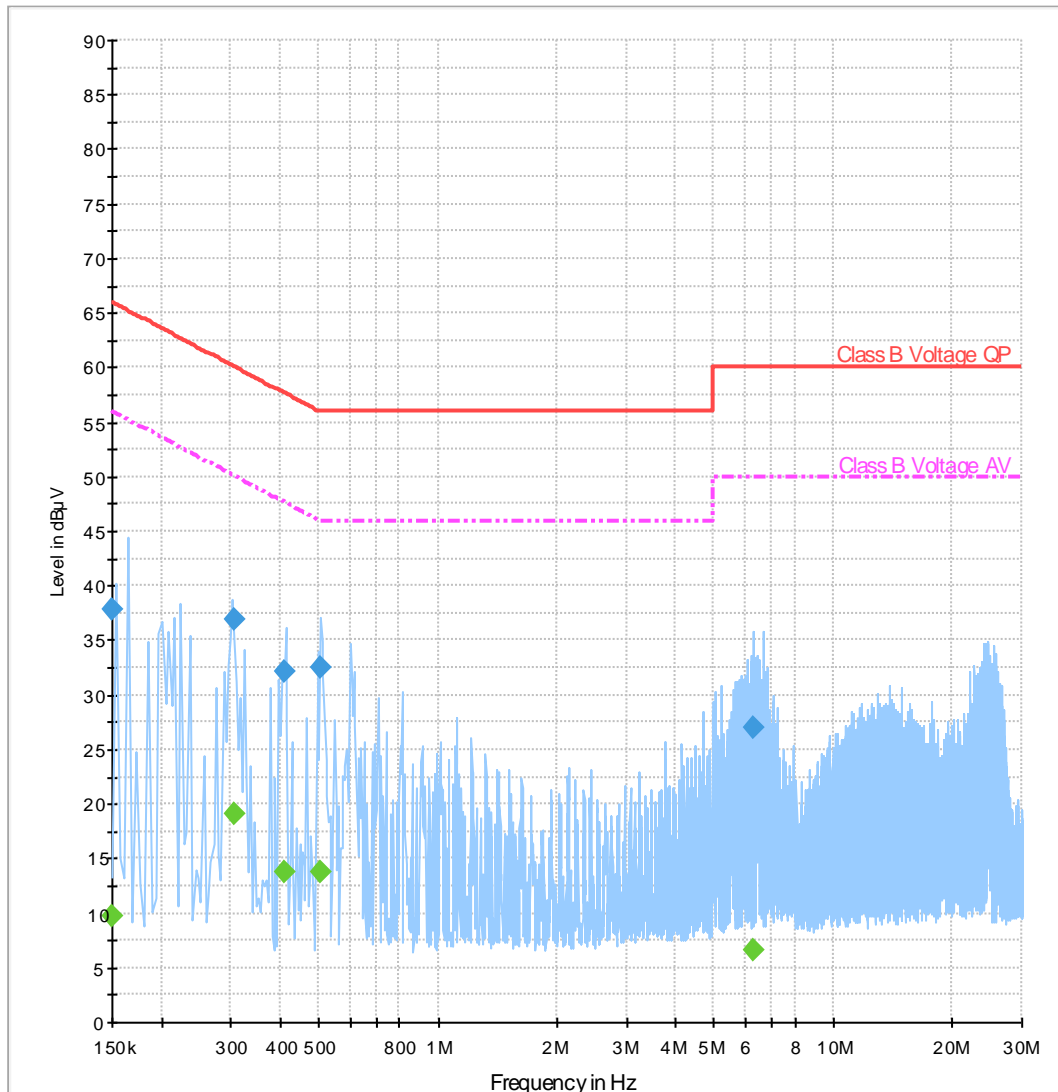
Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	9.4	15000.0	9.000	GND	L1	0.0	46.6	56.0
0.178281	6.8	15000.0	9.000	GND	N	0.0	47.8	54.6
0.304844	19.2	15000.0	9.000	GND	N	0.0	30.9	50.1
0.405313	15.4	15000.0	9.000	GND	N	0.0	32.4	47.7
0.708906	11.0	15000.0	9.000	GND	N	0.0	35.0	46.0

Diagram No. a_1.6

Test Description:	Date: 27.10.2011	Page 1 of 3
Testspezifikation:	Conducted Voltage Measurement Class B	
Technical Data:	FCC 15.207 Class B	
Diagram:	Please see next page for detailed information	
Operator name:	Shows the peak values as a sum of measured ports (N+L1) in maxhold	
Report.- Nr.	HLA	
	6-0082-11-1-2a	
EUT:	LISA-U200	
Manufacturer:	U-blox	
IMEI:	358901040001734	
Operating mode:	EGPRS GSM 1900 TX	
Measured on line:	Mains AC L1 and N	
Power during test:	110 V AC 60 Hz	
Comment 1:	channel (661)	
Comment 2:		

01_Class B_Voltage_PK_QPAV_N_L1



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	37.8	15000.0	0.200	GND	N	0.0	28.2	66.0
0.304844	37.0	15000.0	9.000	GND	N	0.0	23.1	60.1
0.409219	32.2	15000.0	9.000	GND	N	0.0	25.5	57.7
0.502969	32.6	15000.0	9.000	GND	L1	0.0	23.4	56.0
6.305938	27.0	15000.0	9.000	GND	L1	0.1	33.0	60.0

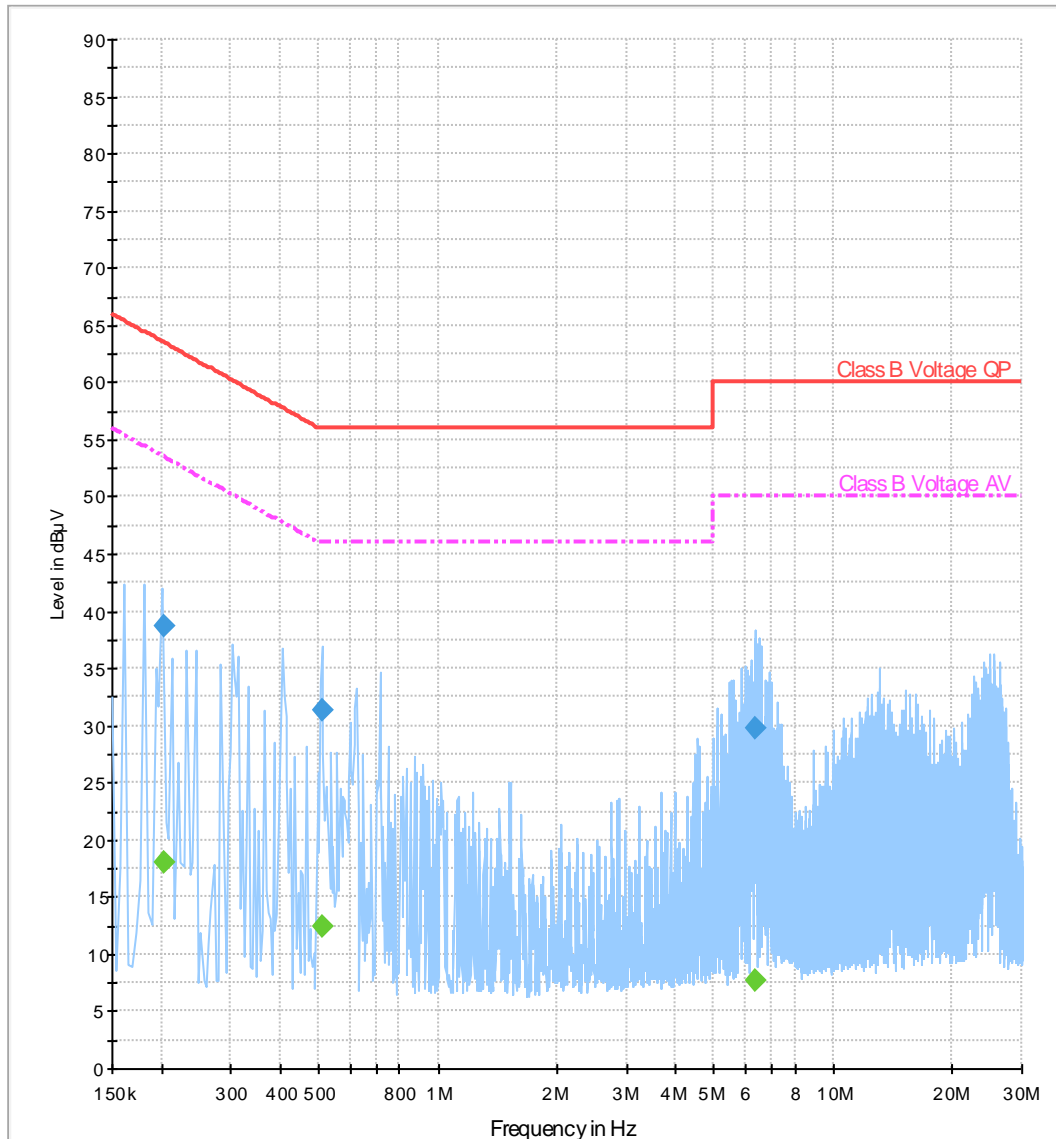
Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	9.8	15000.0	9.000	GND	N	0.0	46.2	56.0
0.304844	19.2	15000.0	9.000	GND	N	0.0	30.9	50.1
0.409219	13.7	15000.0	9.000	GND	N	0.0	33.9	47.7
0.502969	13.8	15000.0	9.000	GND	L1	0.0	32.2	46.0
6.305938	6.7	15000.0	9.000	GND	L1	0.1	43.3	50.0

Diagram No. a_1.7

Test Description:	Conducted Voltage Measurement Class B
Test specification:	FCC 15.207 Class B
Technical Data:	Please see next page for detailed information
Diagram:	Shows the peak values as a sum of measured ports (N+L1) in maxhold
Operator name:	HLA
Report.- Nr.	6-0082-11-1-2a
EUT:	LISA-U200
Manufacturer:	U-blox
Operating mode:	EGPRS GSM 1900 TX
Measured on line:	Mains AC L1 and N
Power during test:	110 V AC 60 Hz
Comment 1:	channel (810)

01_Class B_Voltage_PK_QPAV_N_L1



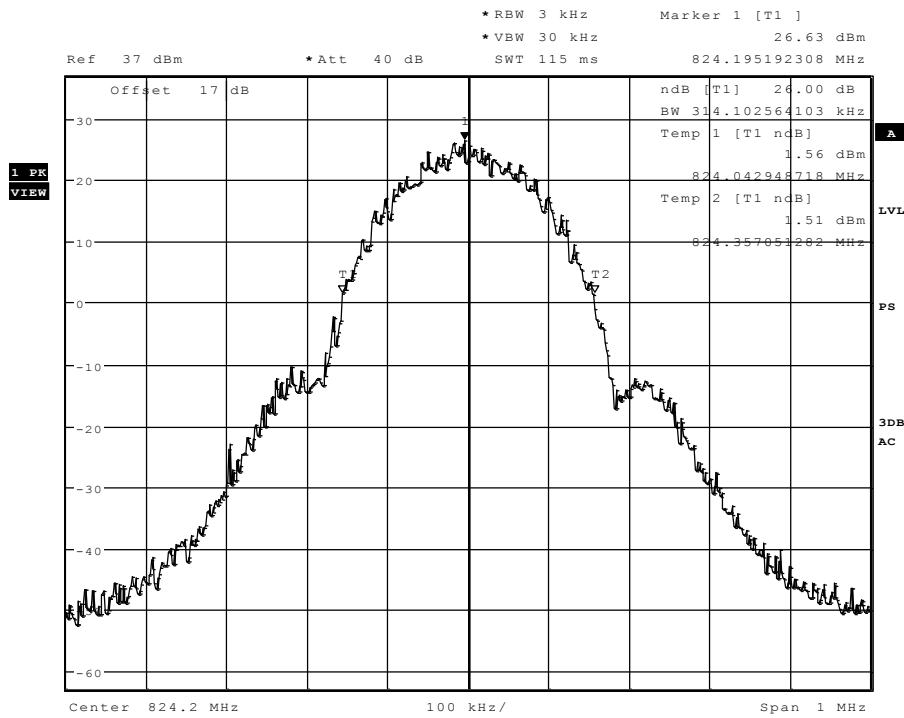
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.203281	38.8	15000.0	9.000	GND	L1	0.0	24.7	63.5
0.511875	31.4	15000.0	9.000	GND	N	0.0	24.6	56.0
6.330469	29.7	15000.0	9.000	GND	L1	0.1	30.3	60.0

Final Result 2

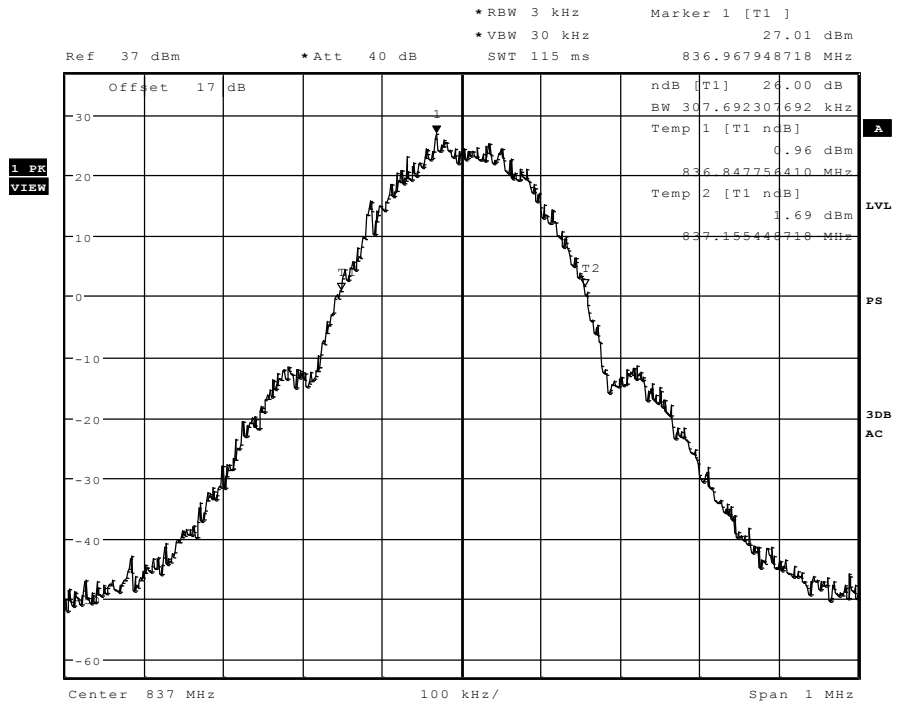
Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.203281	18.0	15000.0	9.000	GND	L1	0.0	35.5	53.5
0.511875	12.4	15000.0	9.000	GND	N	0.0	33.6	46.0
6.330469	7.7	15000.0	9.000	GND	L1	0.1	42.3	50.0

1.3. 26dBc Emission bandwidth GPRS-GSM 850



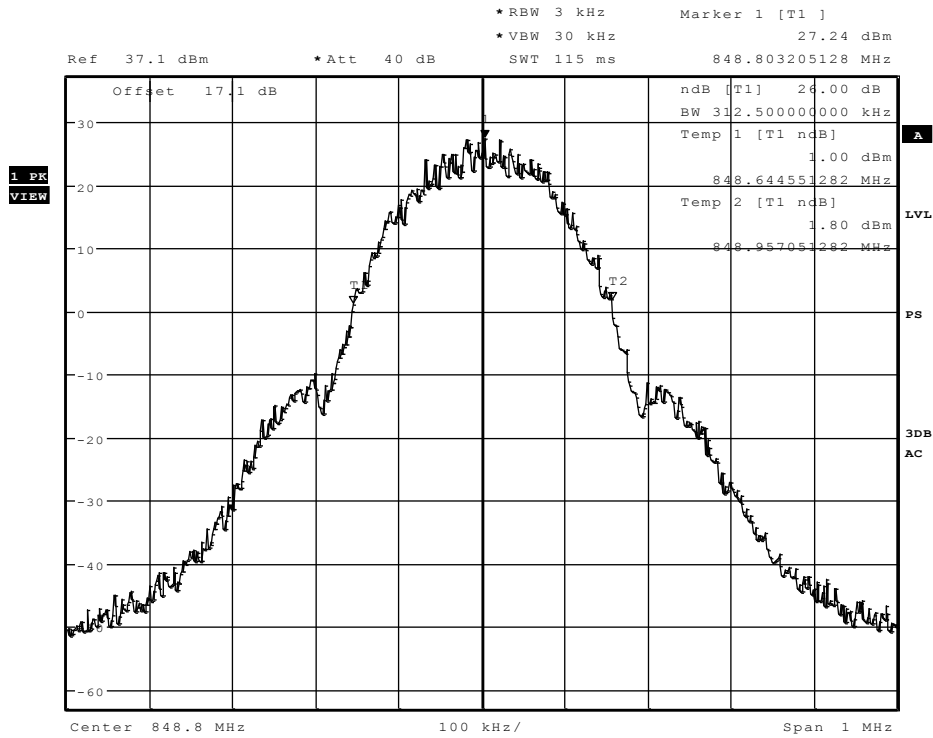
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Channel 128



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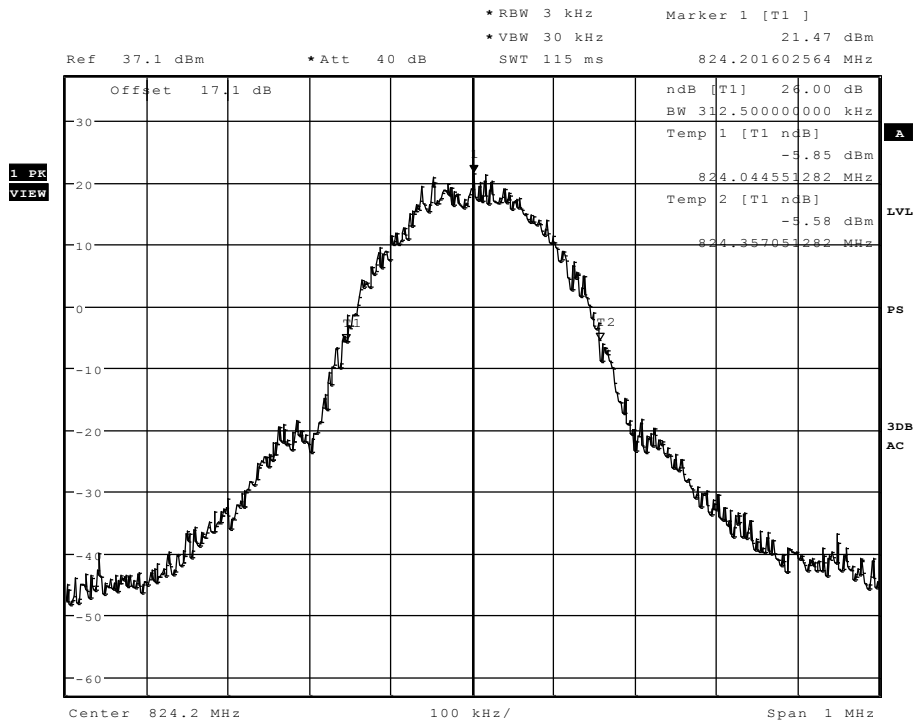
Channel 192



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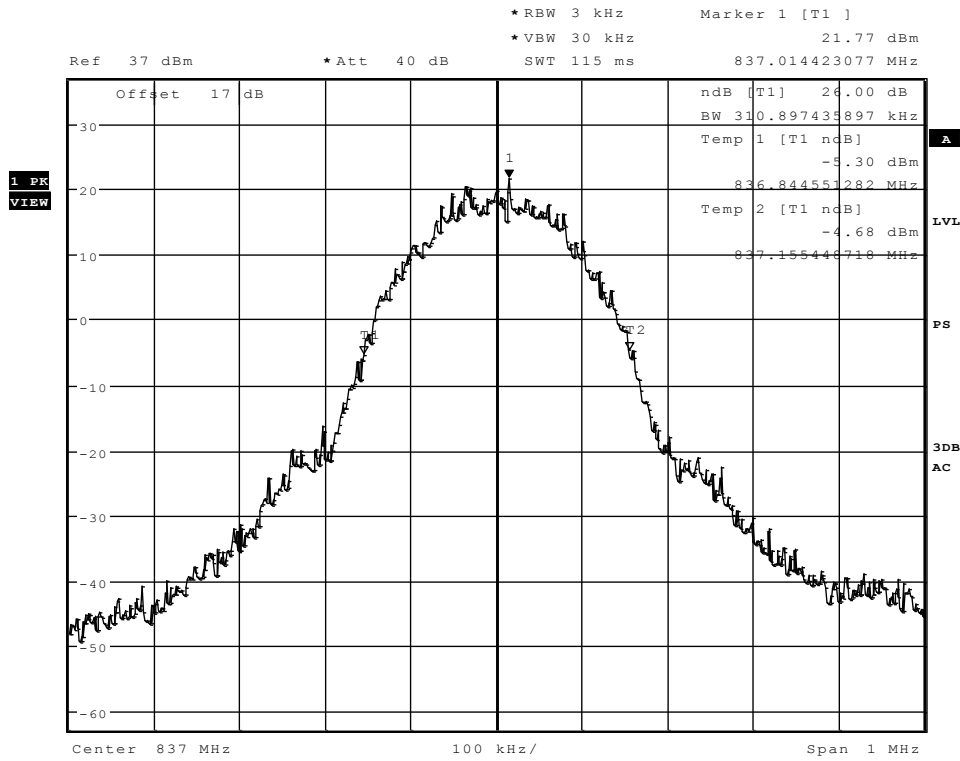
Channel 251

E-GPRS 850



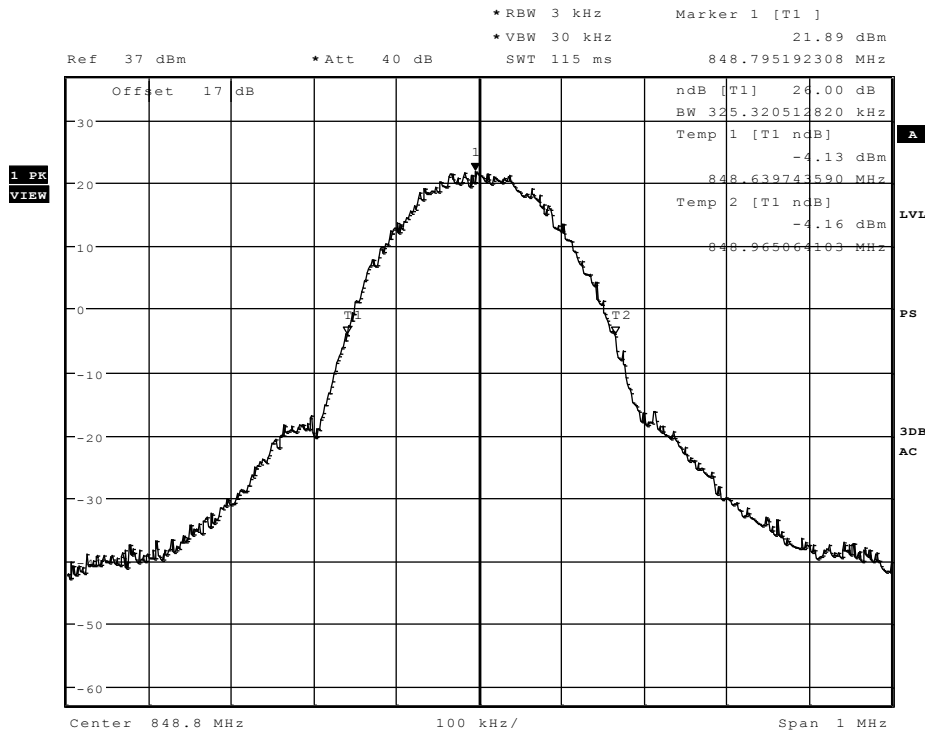
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Channel 128



Date: 31.OCT.2011 10:00:52

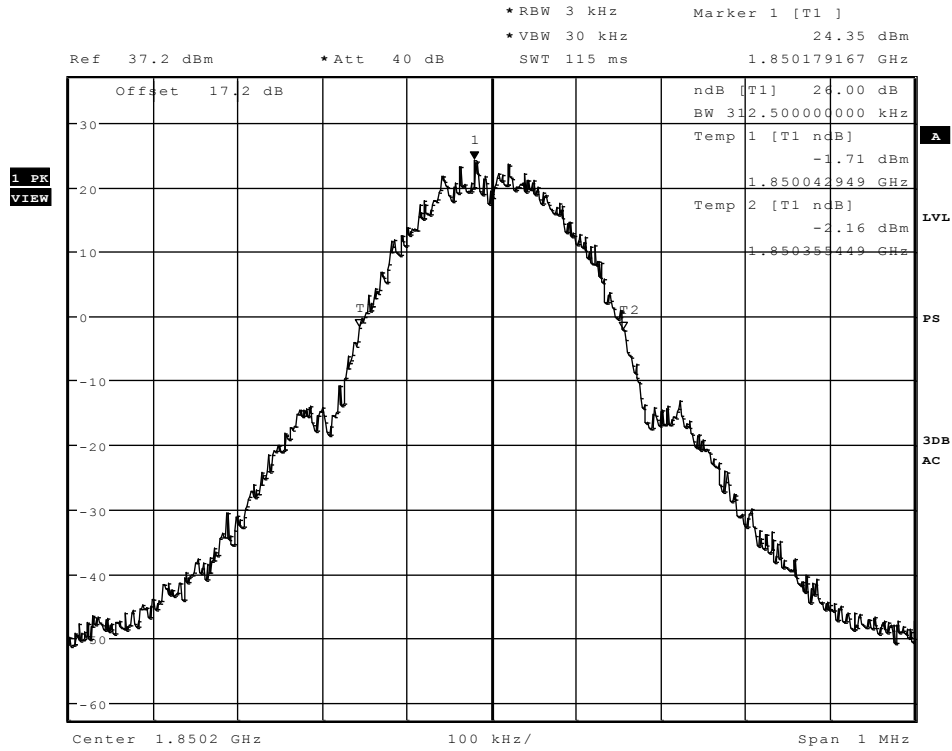
Channel 192



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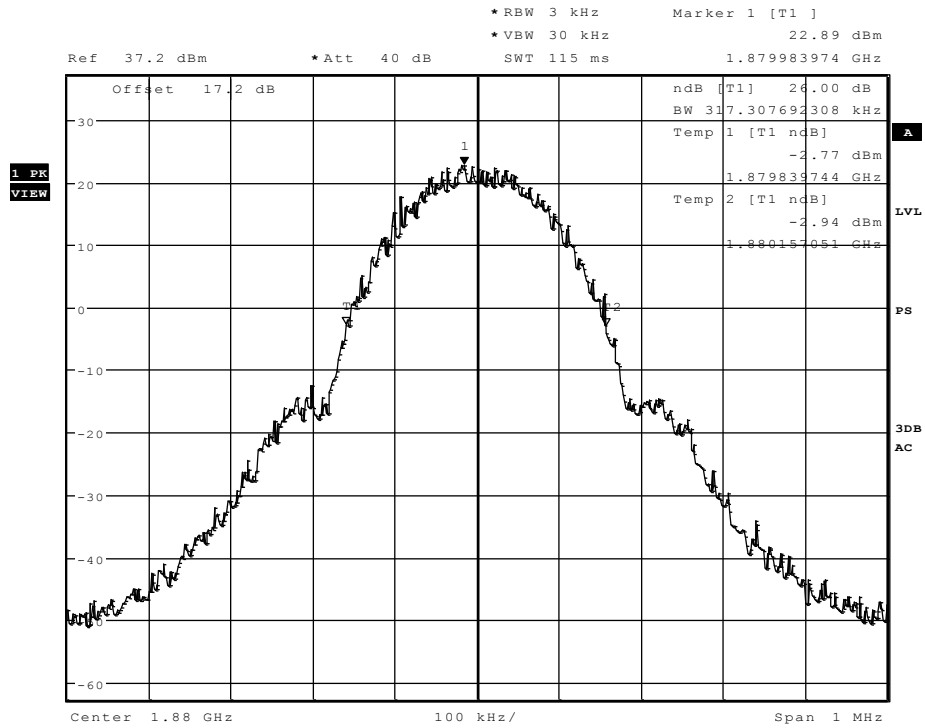
Channel 251

GPRS-PCS 1900



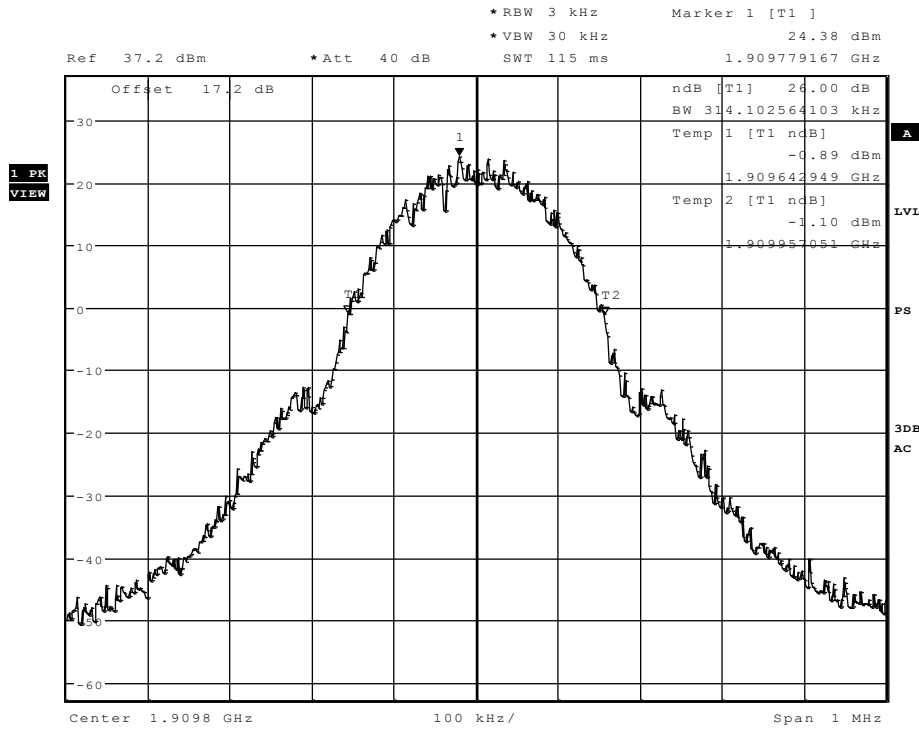
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Channel 512



Date: 10.NOV.2011 14:13:07

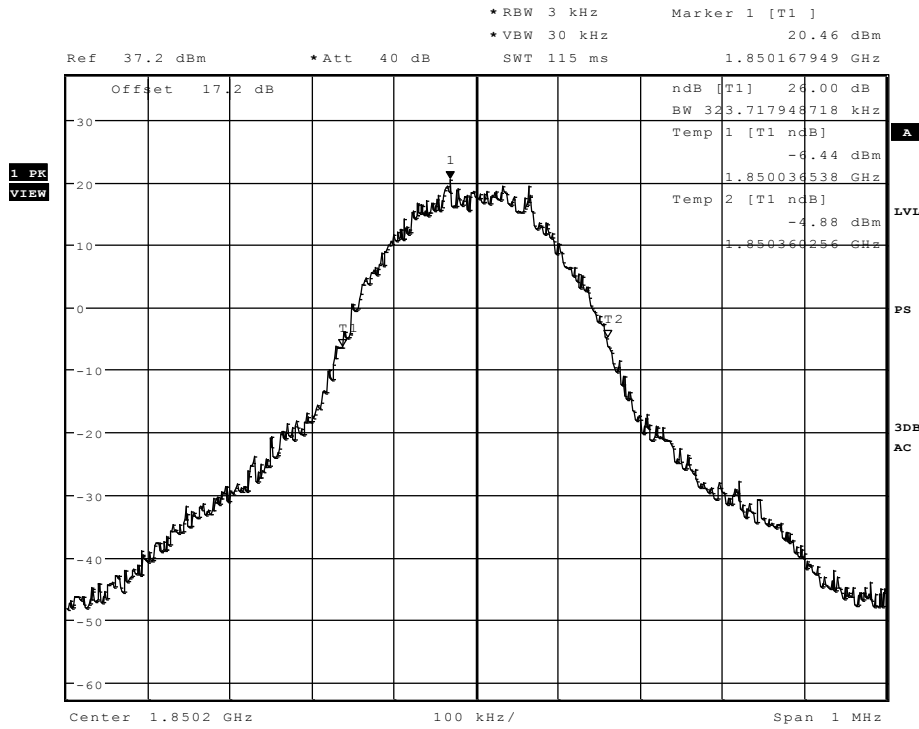
Channel 661



Date: 10.NOV.2011 14:11:04

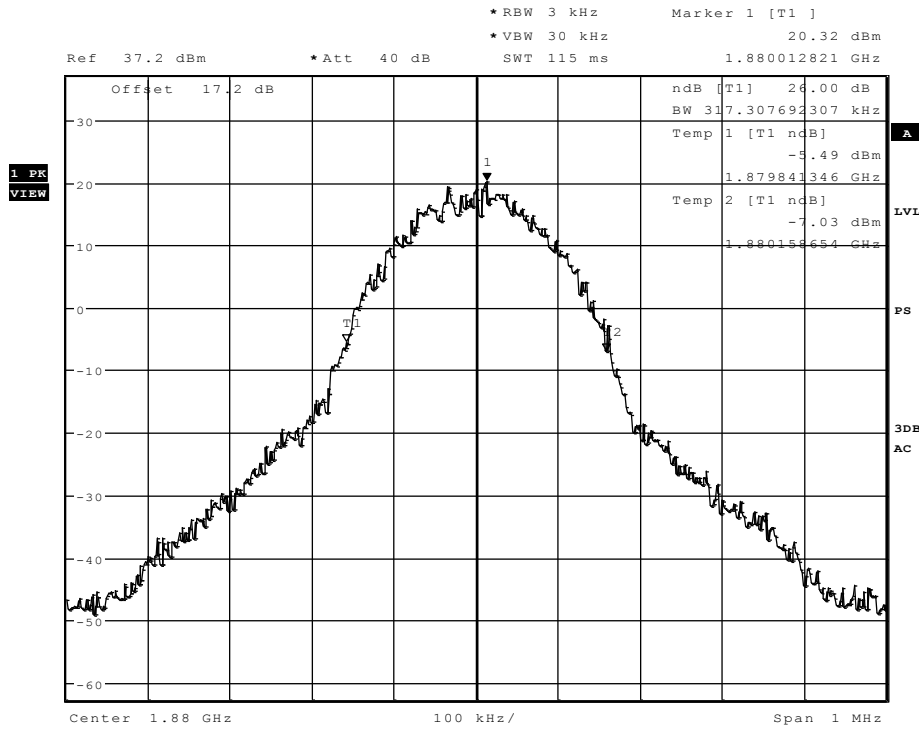
Channel 810

EGPRS_PCS



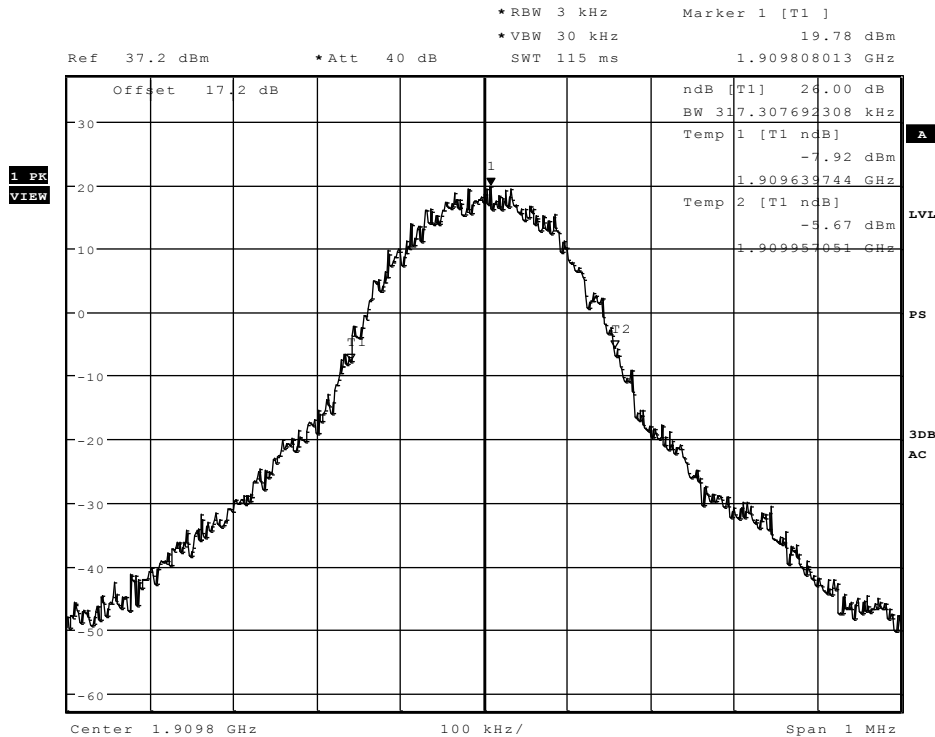
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Channel 512



Date: 31.OCT.2011 11:12:58

Channel 661

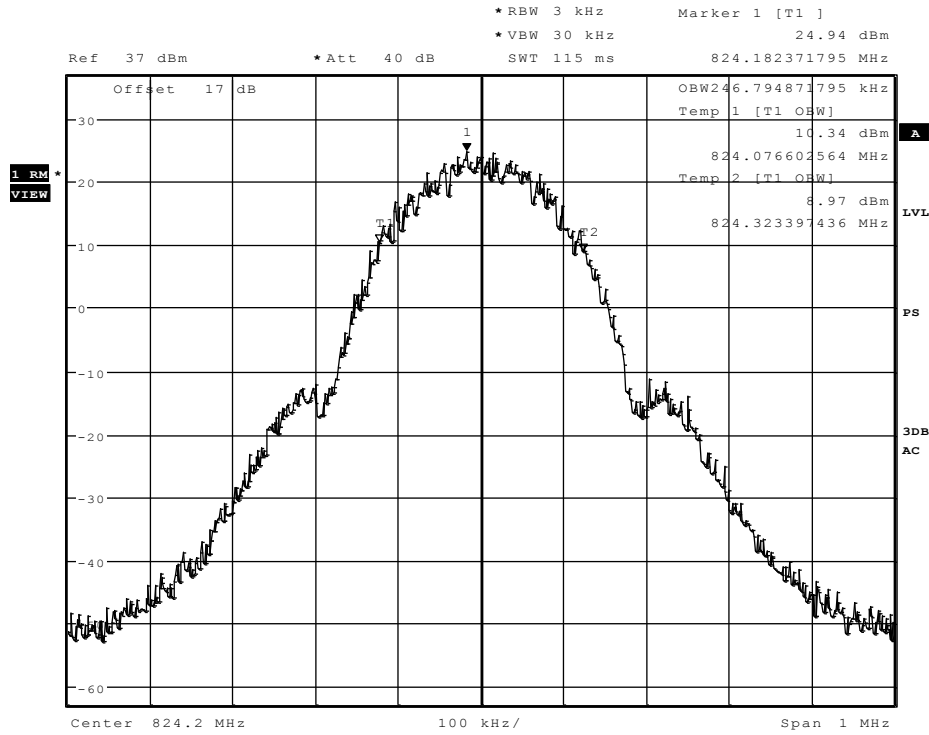


Date: 31.OCT.2011 11:09:46

Channel 810

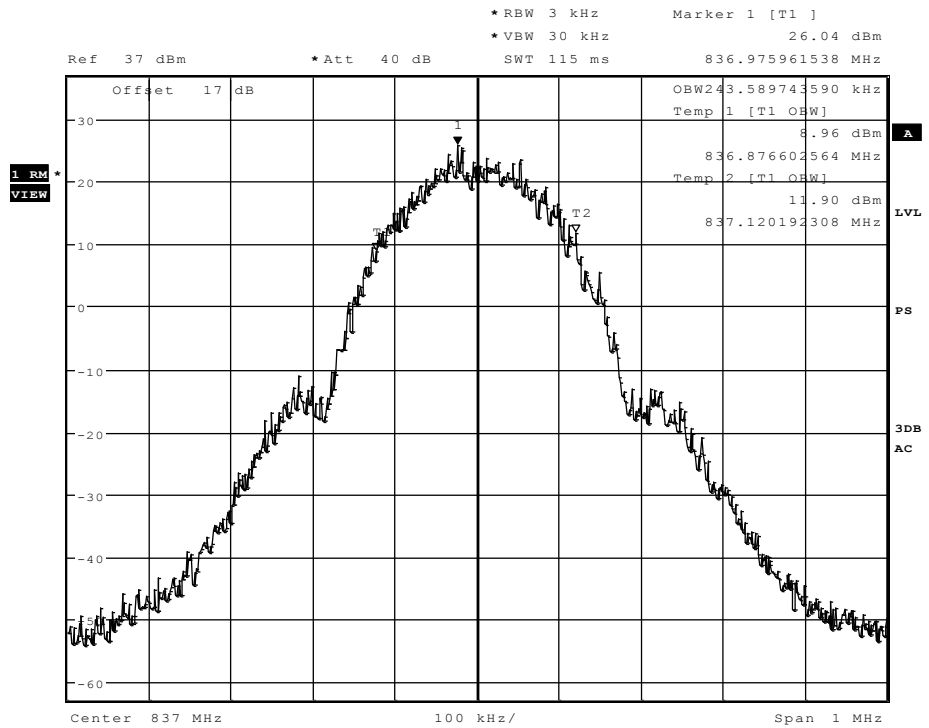
1.4. 99% Occupied bandwidth

GPRSGSM 850



Date: 10.NOV.2011 14:32:32

Channel 128

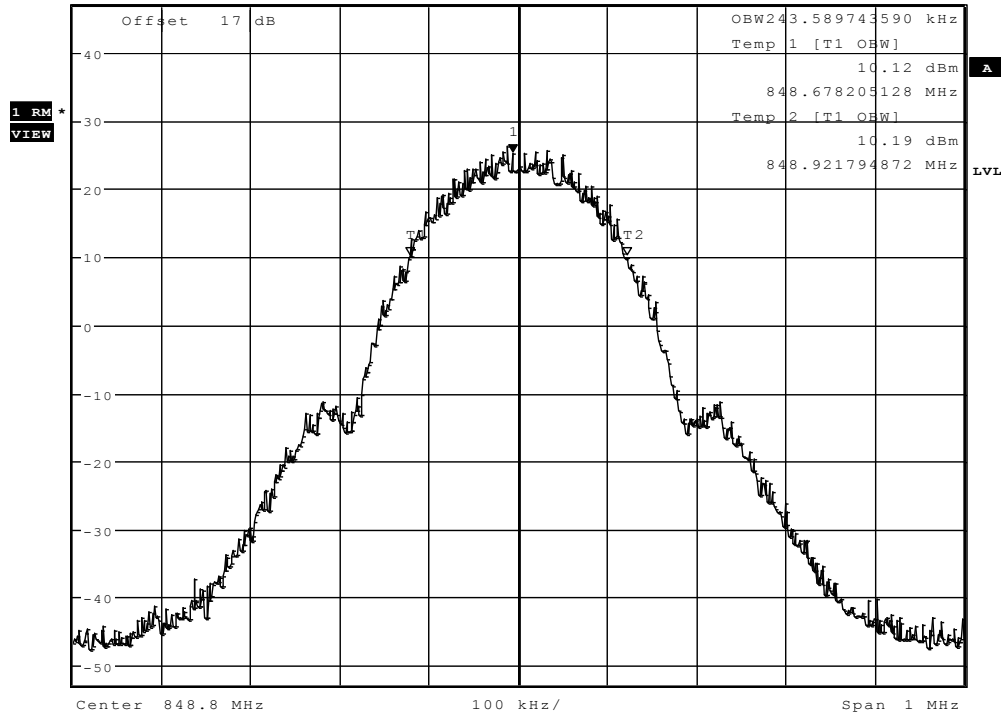


Date: 10.NOV.2011 14:33:46

Channel 192



*RBW 3 kHz Marker 1 [T1]
 VBW 30 kHz 25.29 dBm
 Ref 47 dBm *Att 40 dB SWT 115 ms 848.793589744 MHz

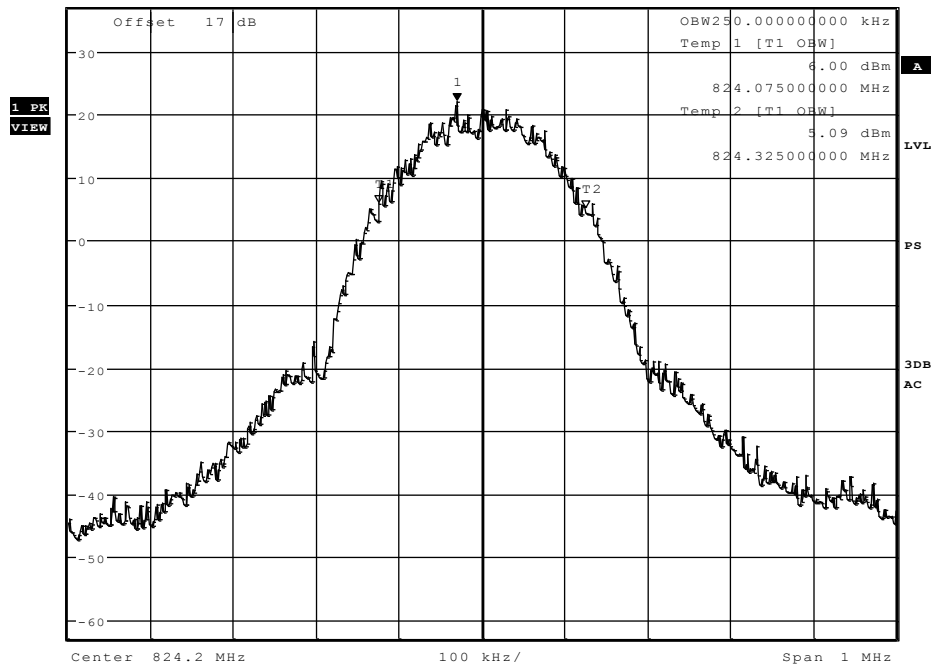


Date: 21.NOV.2011 13:07:12

Channel 251

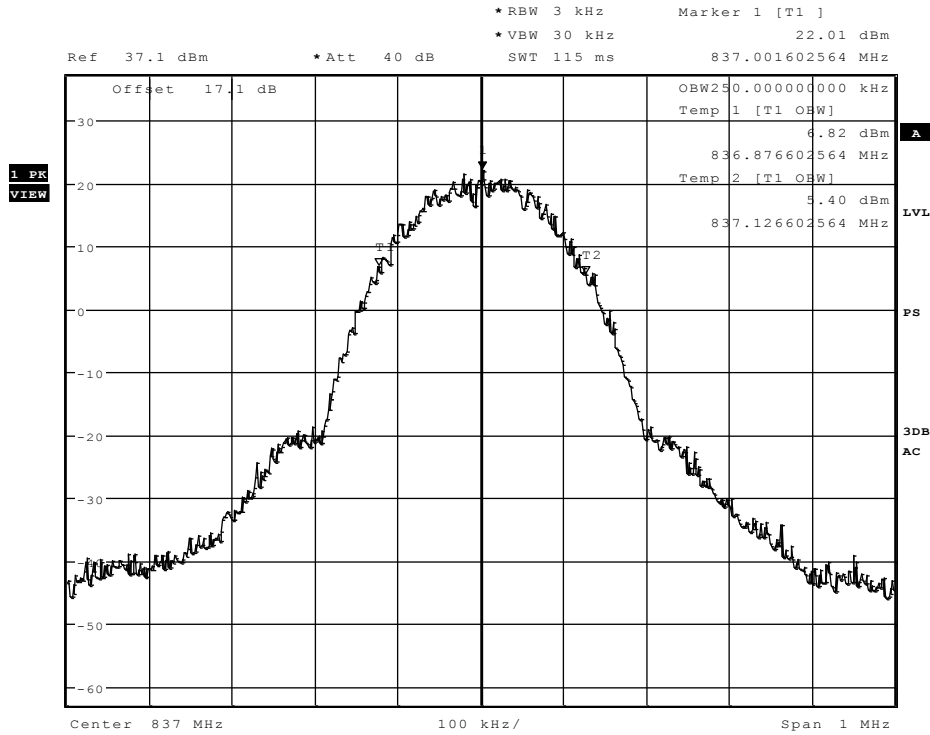
E-GPRS 850

*RBW 3 kHz Marker 1 [T1]
 *VBW 30 kHz 22.26 dBm
 Ref 37 dBm *Att 40 dB SWT 115 ms 824.169551282 MHz



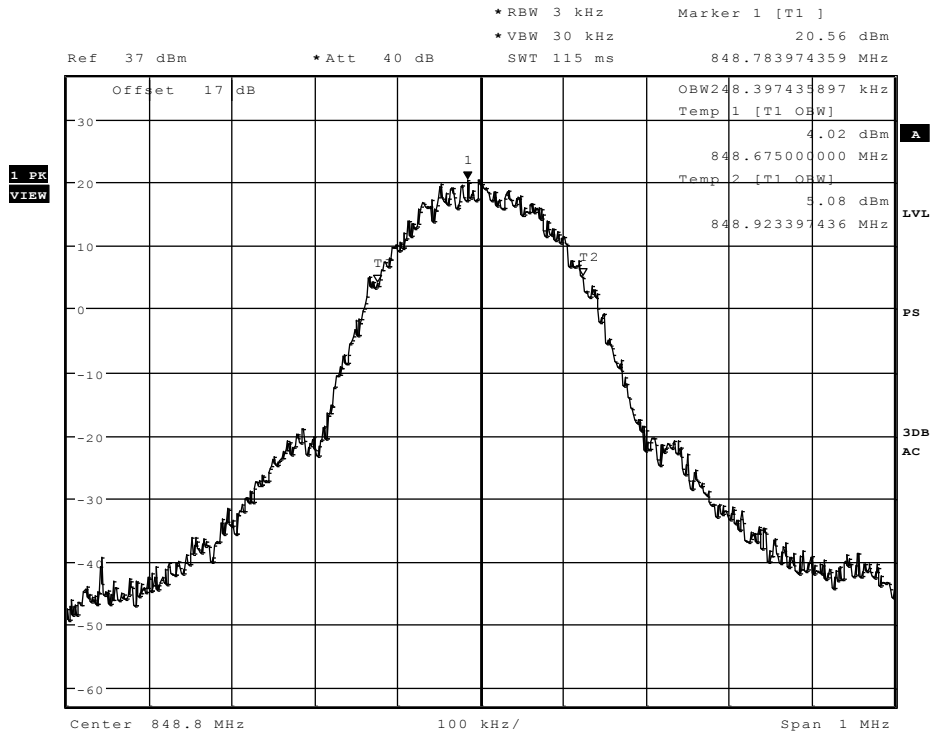
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Channel 128



Date: 31.OCT.2011 10:09:27

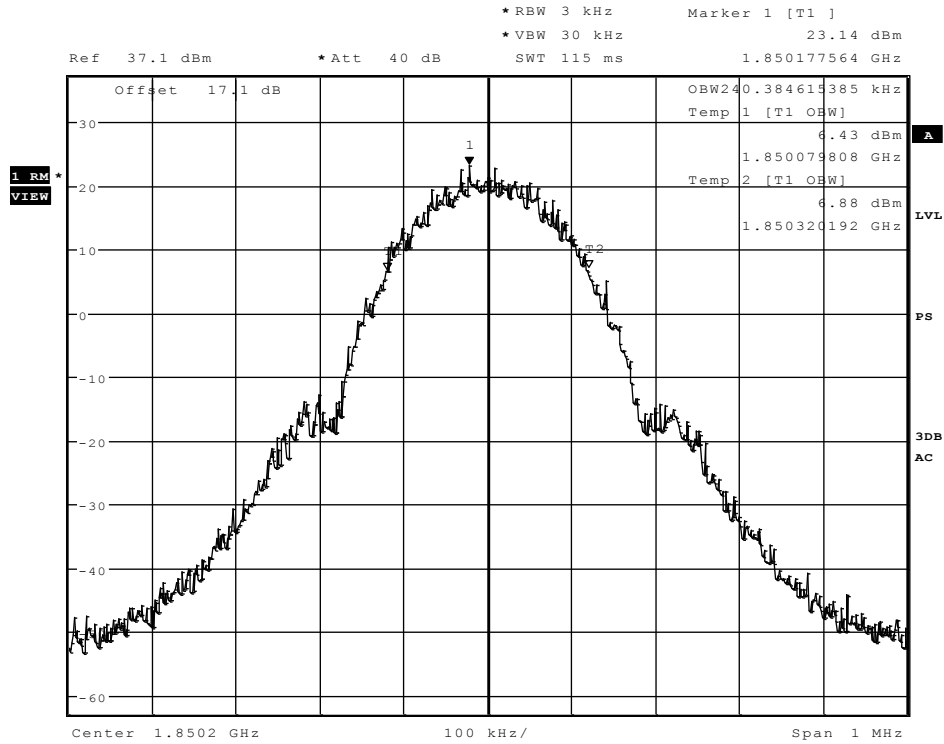
Channel 192



Date: 31.OCT.2011 10:12:26

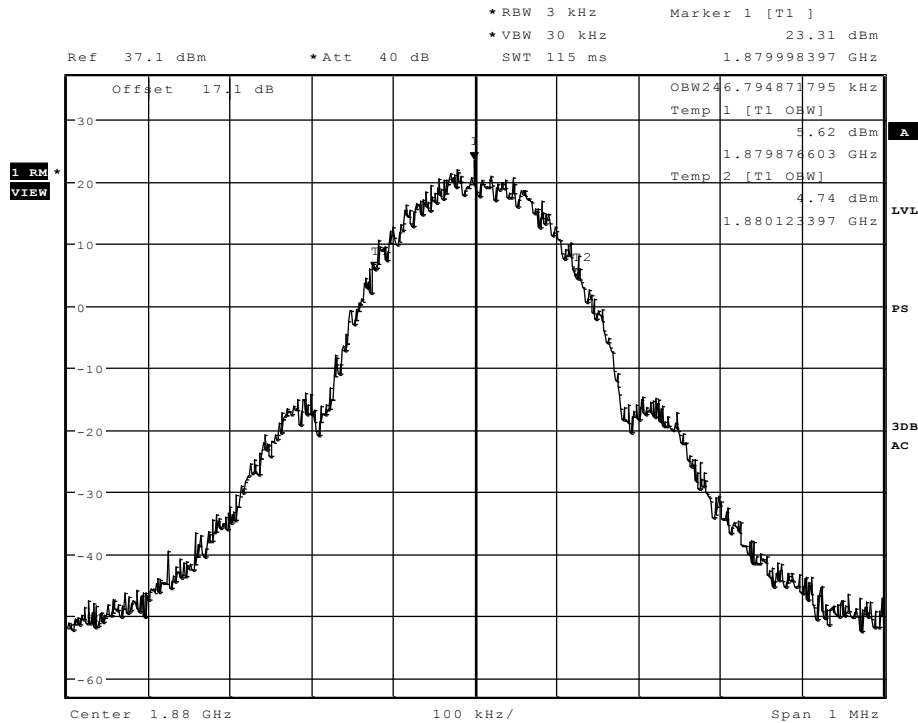
Channel 251

GPRS-PCS1900



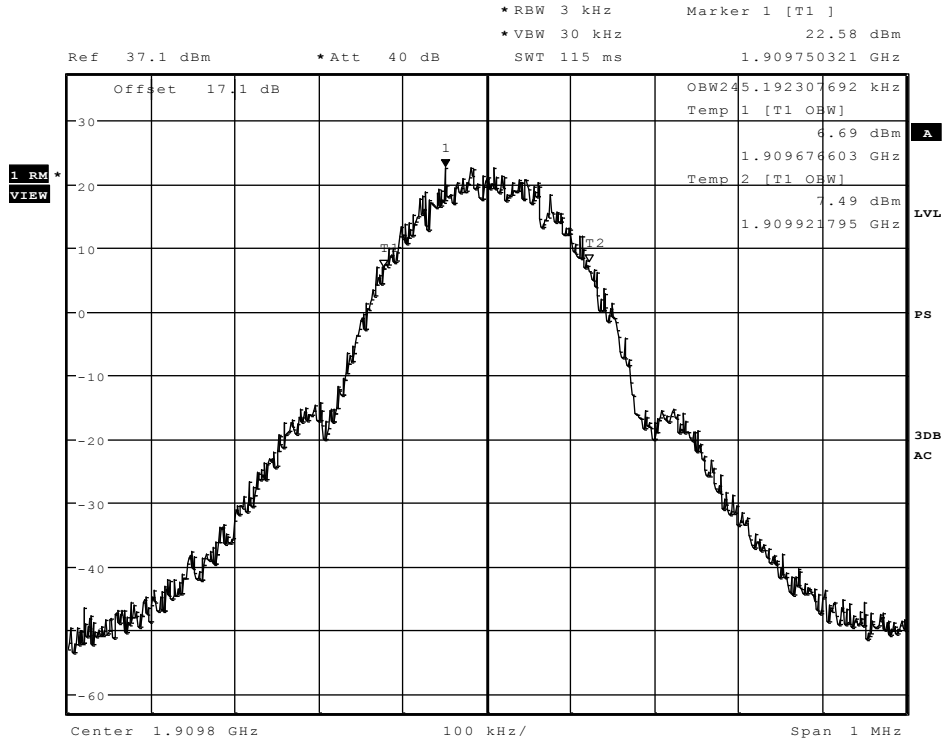
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Channel 512



Date: 10.NOV.2011 14:19:05

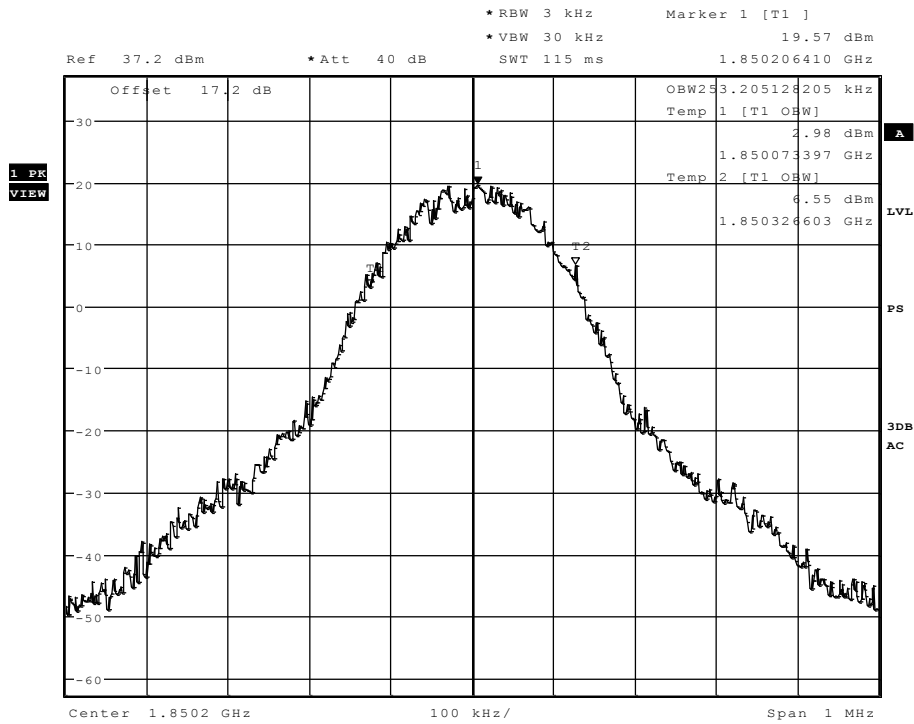
Channel 661



Date: 10.NOV.2011 14:20:29

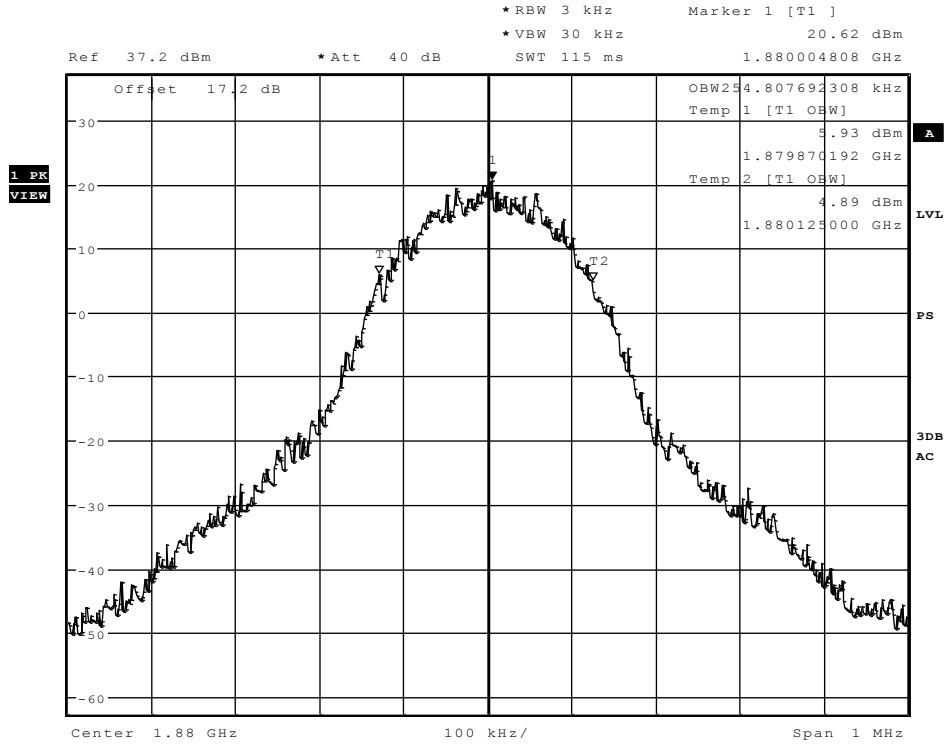
Channel 810

E-GPRS 1900



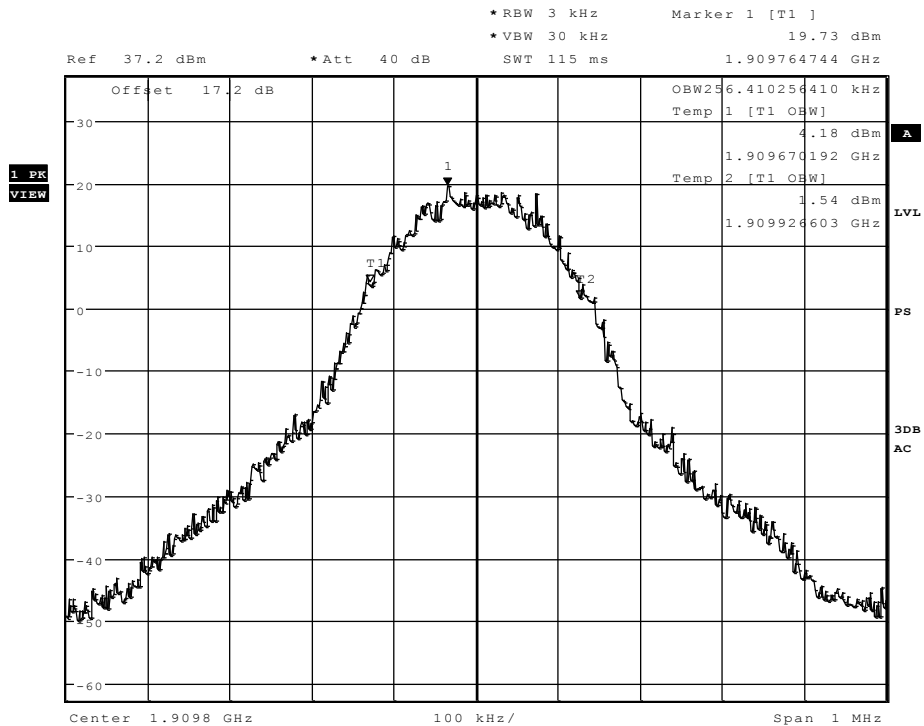
Date: 31.OCT.2011 11:04:34

Channel 512



Date: 31.OCT.2011 11:06:05

Channel 661



Date: 31.OCT.2011 11:07:40

Channel 810

1.5. Field strength < 30MHz (radiated) – G850 Mode Diagram No. a_3.04

Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	lowpass 1200 MHz
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	EGPRS TX-on (max. power on 1 time slot)
Power during tests:	110V/60Hz
Comment 1:	Channel low (128) G850

EUT Information

EUT Name:	M/N LISA-U200
Manufacturer:	u-blox AG
IMEI:	358901040001734
FW:	21.03

FCC15.209_magn hor+vert

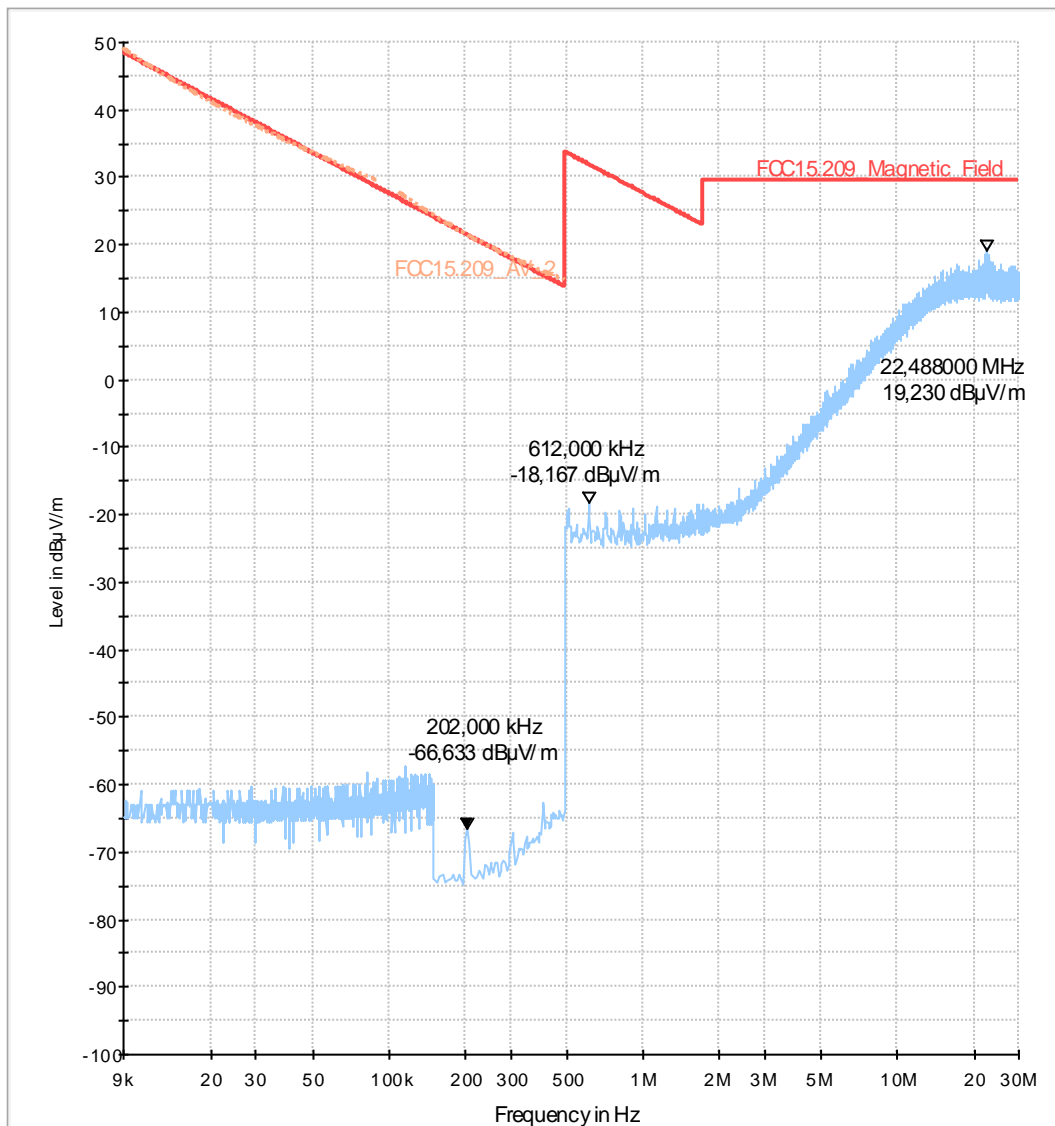


Diagram No. a_3.05

Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	lowpass 1200 MHz
Test specification.:	FCC 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	EGPRS TX-on (max. power on 1 time slot)
Power during tests:	110V/60Hz
Comment 1:	Channel middle (251) G850

EUT Information

EUT Name:	MN LISA-U200
Manufacturer:	u-blox AG
IMEI:	358901040001734
FW:	21.03

FCC15.209_magn hor+vert

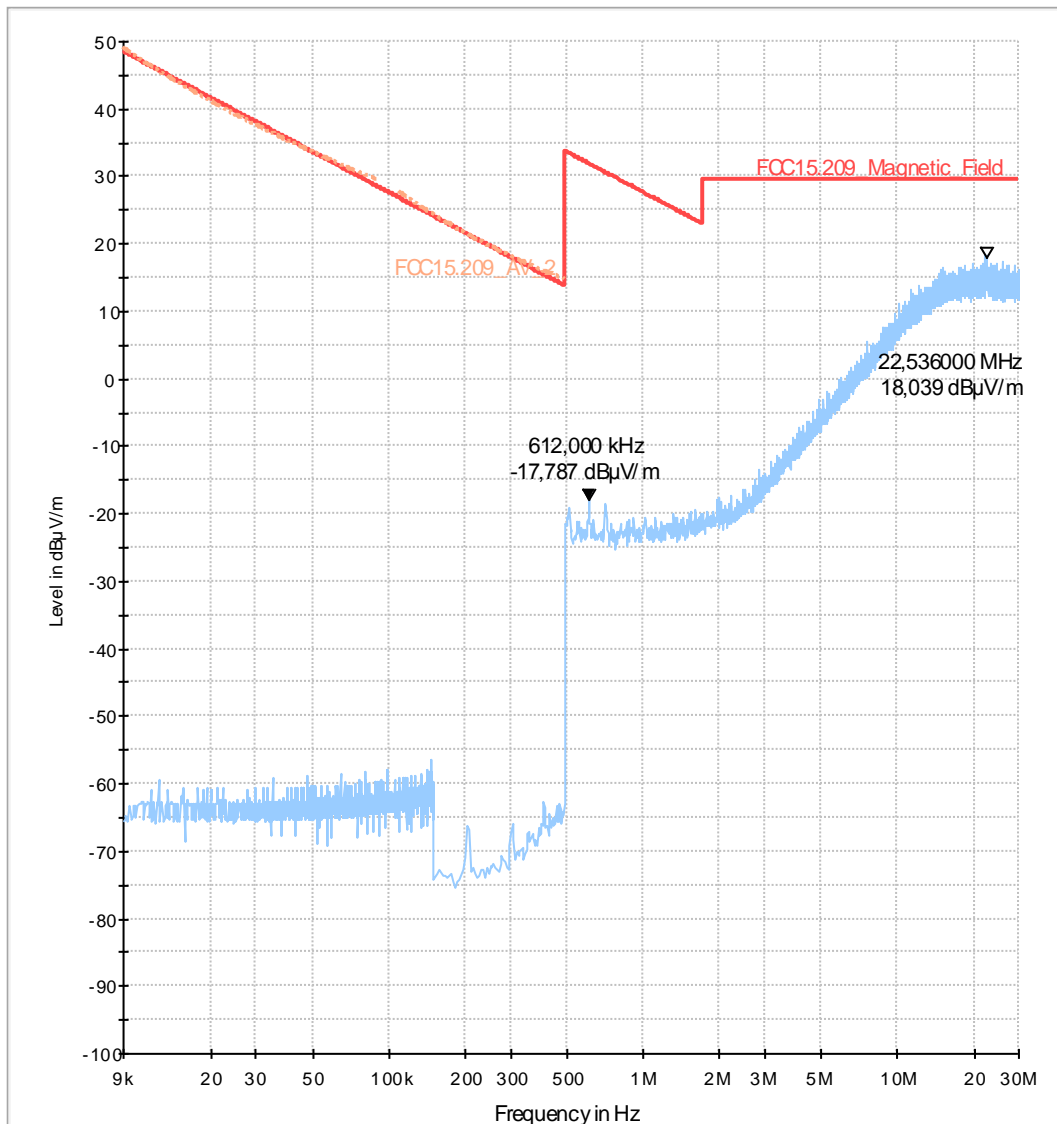


Diagram No. a_3.06

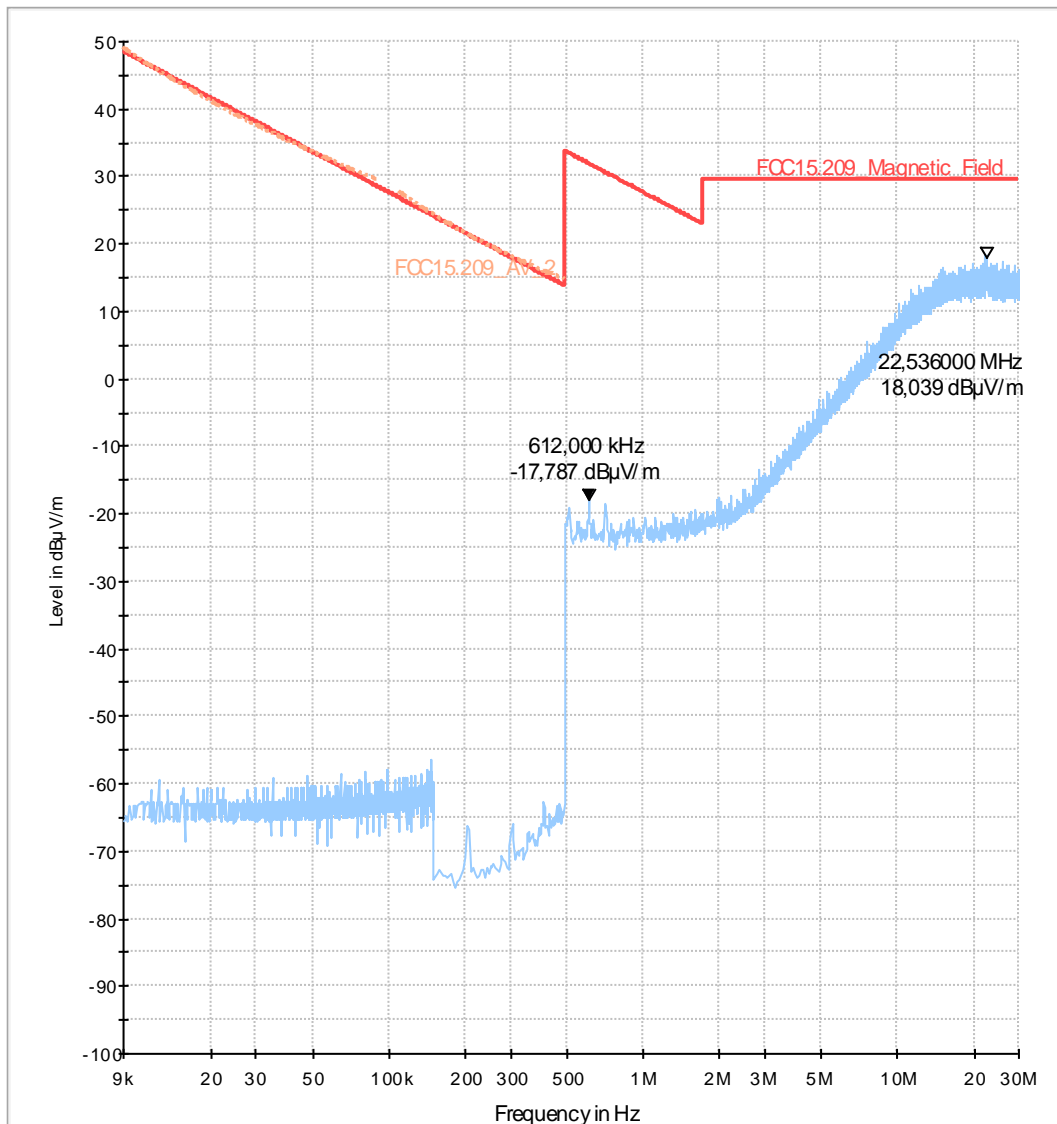
Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	lowpass 1200 MHz
Test specification.:	FCC 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	EGPRS TX-on (max. power on 1 time slot)
Power during tests:	110V/60Hz
Comment 1:	Channel high (251) G850

EUT Information

EUT Name:	MN LISA-U200
Manufacturer:	u-blox AG
IMEI:	358901040001734
FW:	21.03

FCC15.209_magn hor+vert



1.6 Field strength < 30MHz (radiated) – PCS1900 Mode Diagram No. a_3.01

Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	lowpass 1200 MHz
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	EGPRS TX-on (max. power on 1 time slot)
Power during tests:	110V/60Hz
Comment 1:	Channel low (512) PCS 1900

EUT Information

EUT Name:	M/N LISA-U200
Manufacturer:	Ublox
IMEI:	358901040001734
FW:	21.0.3

FCC15.209_magn hor+vert

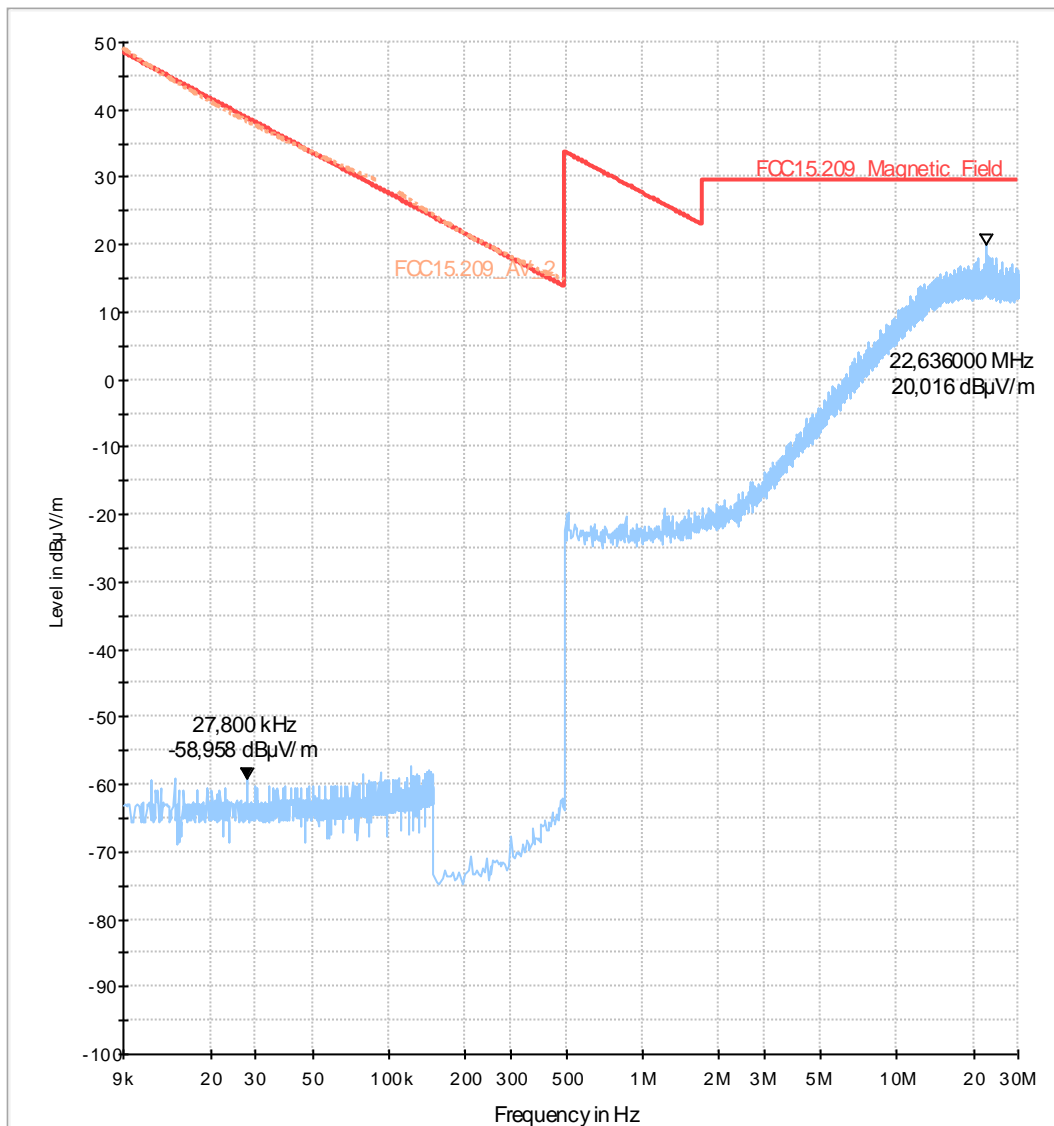


Diagram No. a_3.02

Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	lowpass 1200 MHz
Test specification.:	FCC 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	EGPRS TX-on (max. power on 1 time slot)
Power during tests:	110V/60Hz
Comment 1:	Channel middle(661) PCS 1900

EUT Information

EUT Name:	M/N LISA-U200
Manufacturer:	Ublox
IMEI:	358901040001734
FW:	21.0.3

FCC15.209_magn hor+vert

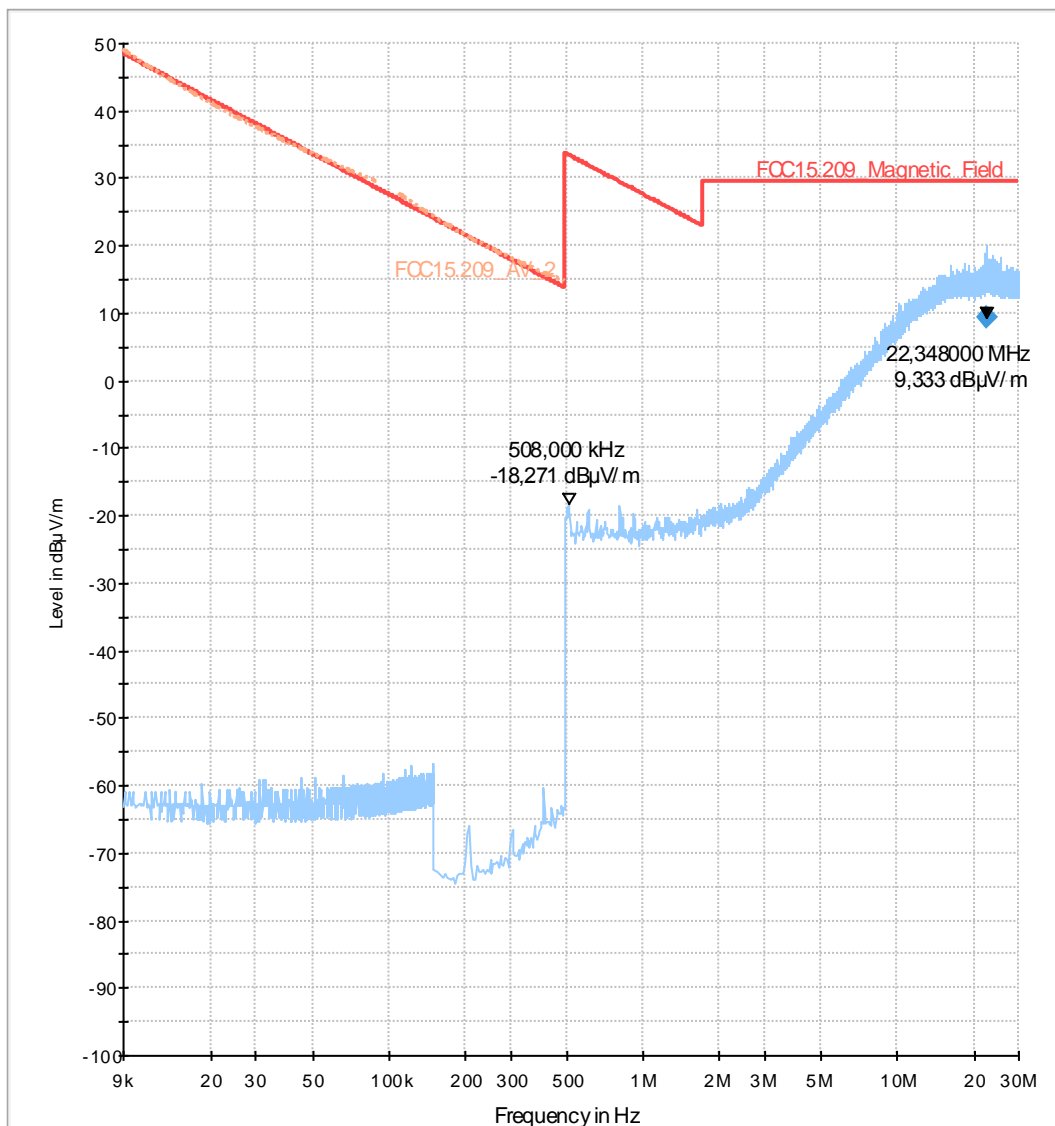


Diagram No. a_3.03

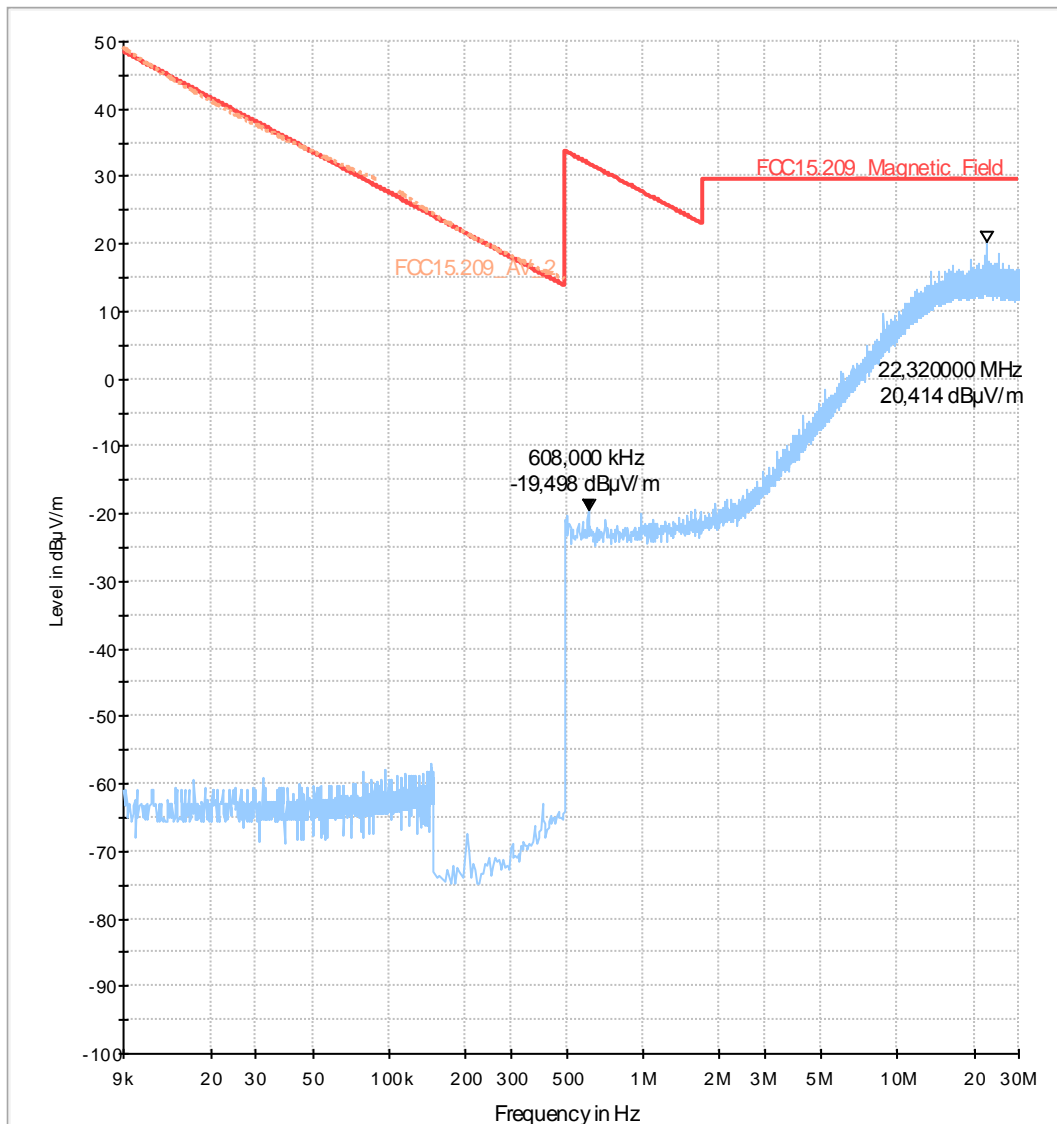
Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	lowpass 1200 MHz
Test specification.:	FCC 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	EGPRS TX-on (max. power on 1 time slot)
Power during tests:	110V/60Hz
Comment 1:	Channel high (810) PCS 1900

EUT Information

EUT Name:	MN LISA-U200
Manufacturer:	u-blox AG
IMEI:	358901040001734
FW:	21.03

FCC15.209_magn hor+vert



1.7 TX Spurious emissions conducted + Block-Edge – GSM850 Mode Diagram No.: 4.01

Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory 1
Test Standard:	FCC Part 22, RSS-132
Test condition:	24.5°C 39%
Operation mode:	EGPRS-TX, G850 (ARFCN 128 low)
Operator Name:	Tas
Comment:	

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1

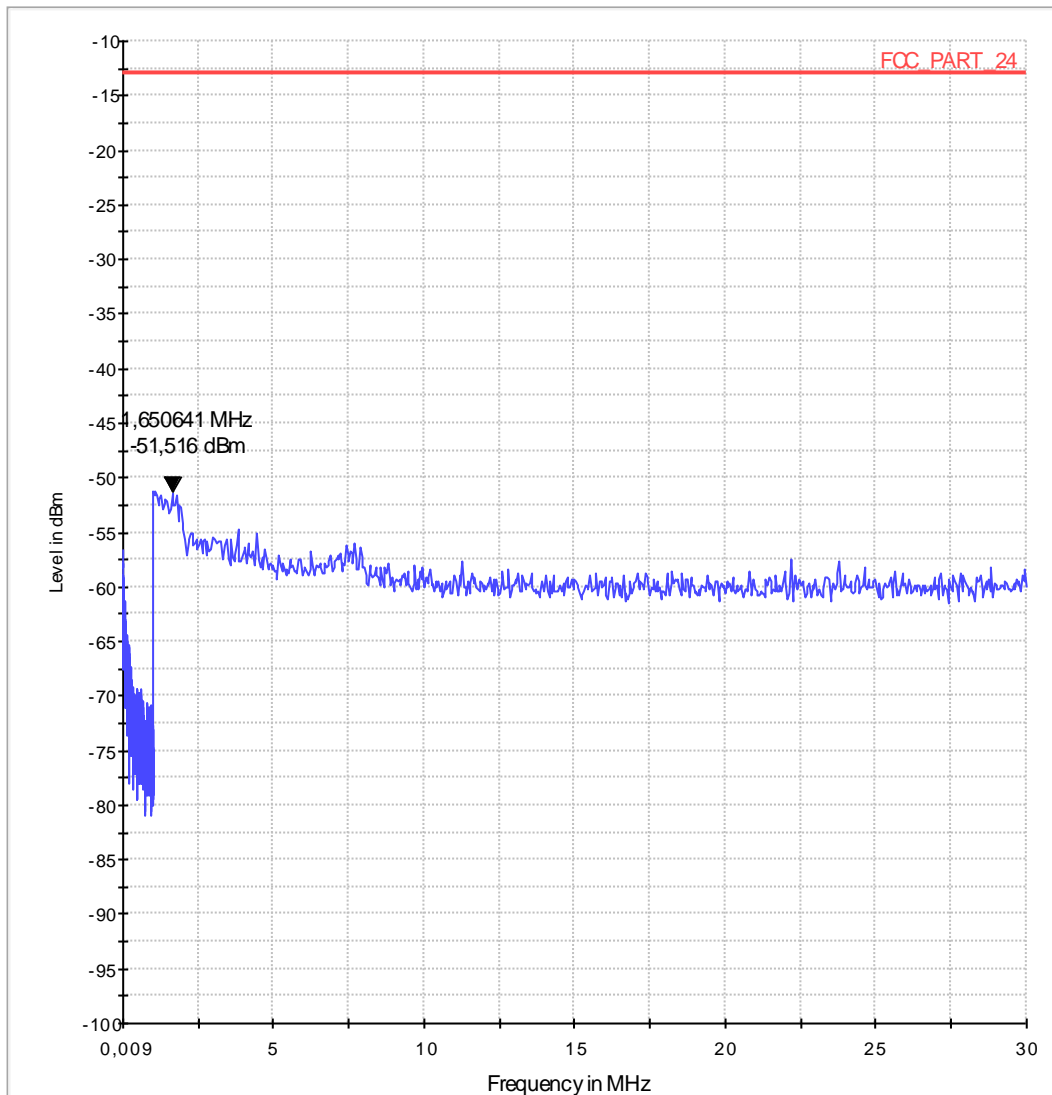
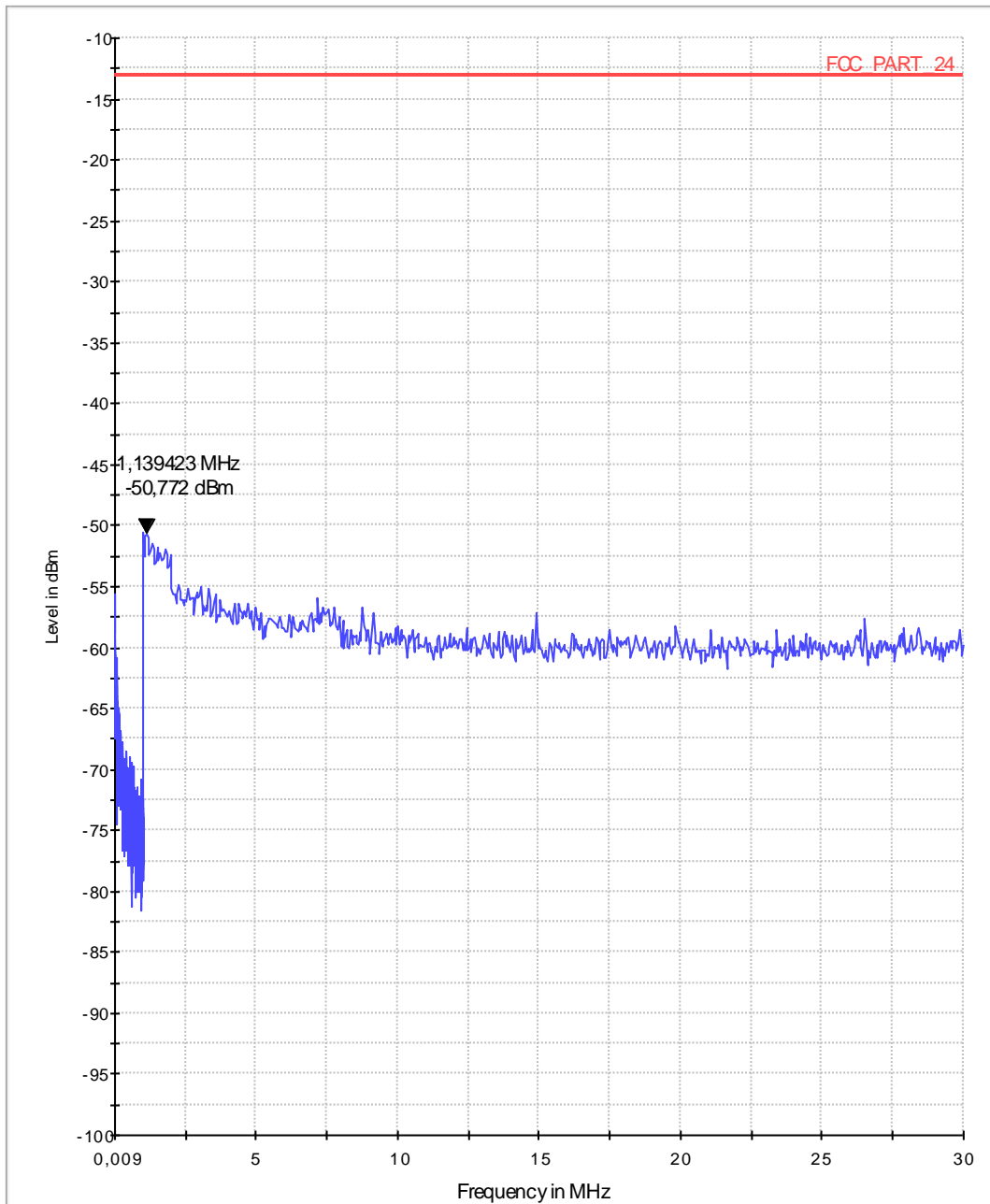


Diagram No.: a_4.02

Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory 1
Test Standard:	FCC Part 22, RSS-132
Test condition:	24.5°C 39%
Operation mode:	EGPRS-TX, G850 (ARFCN 192 middle)
Operator Name:	Tas
Comment:	6-0082-11-1-2a

Sweep_1



Sweep Setup: Sweep_1 [EMI radiated]

Diagram No.: a_4.03

Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory 1
Test Standard:	FCC Part 22, RSS-132
Test condition:	24.5°C 39%
Operation mode:	EGPRS-TX, G850 (ARFCN 251 high)
Operator Name:	Tas
Comment:	6-0082-11-1-2a

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1

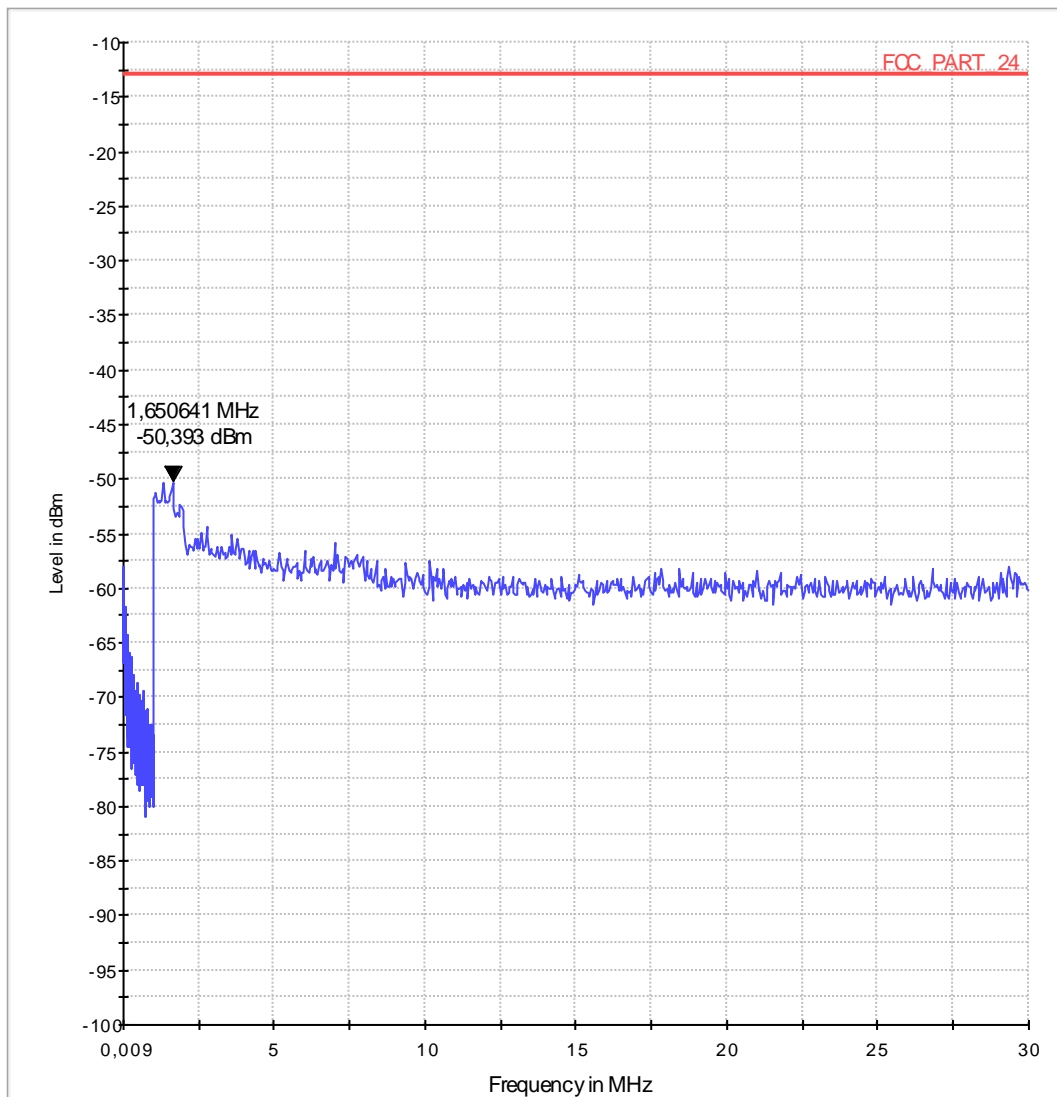


Diagram No.: a_4.04

Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory 1
Test Standard:	FCC Part 22, RSS-132
Test condition:	24.5°C 39%
Operation mode:	EGPRS-TX, G850 (ARFCN 128 low)
Operator Name:	Tas
Comment:	6-0082-11-1-2a

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2 30M till 9 G

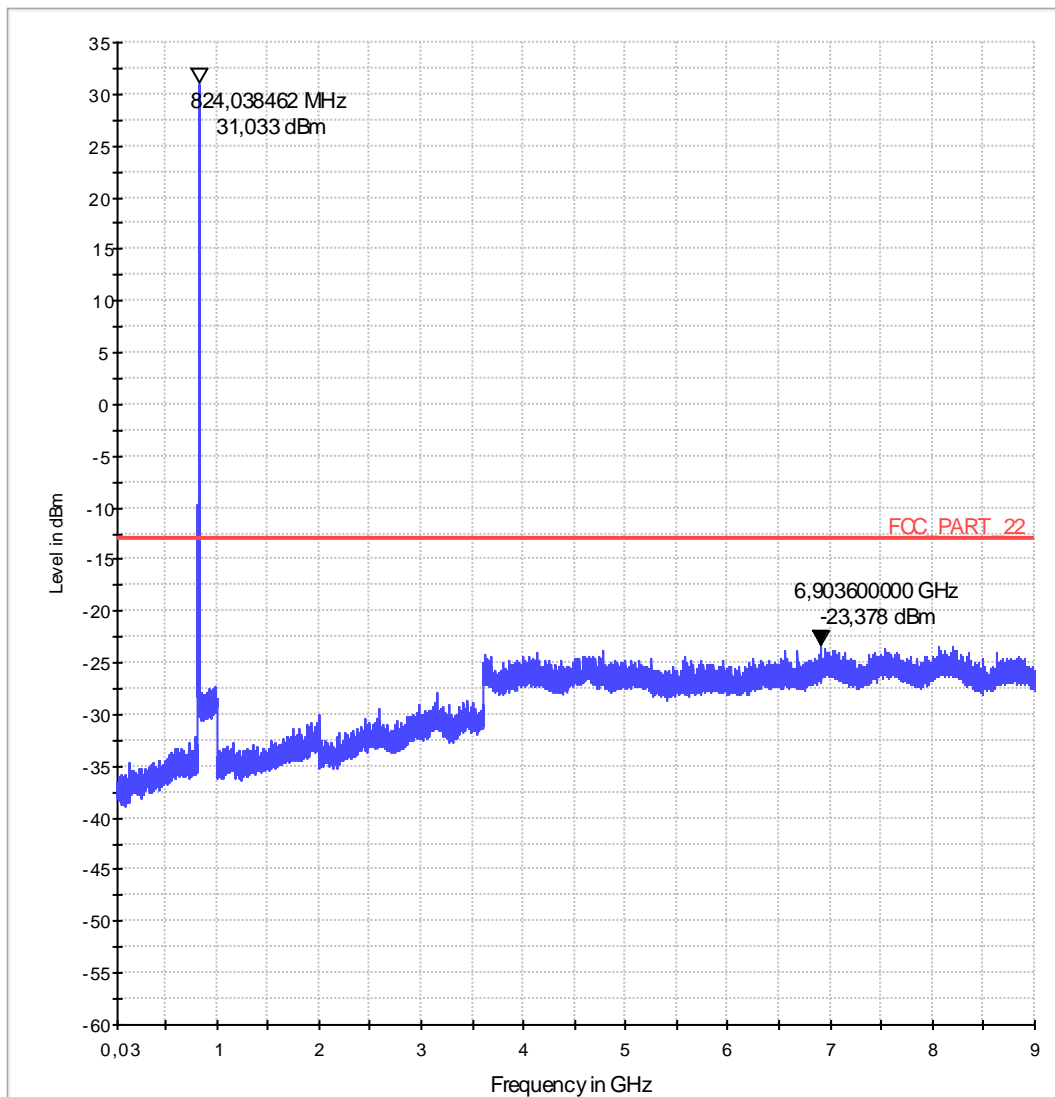


Diagram No.: a_4.05

Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory 1
Test Standard:	FCC Part 22, RSS-132
Test condition:	24.5°C 39%
Operation mode:	EGPRS-TX, G850 (ARFCN 192 middle)
Operator Name:	Tas
Comment:	6-0082-11-1-2a

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2 30M till 9 G

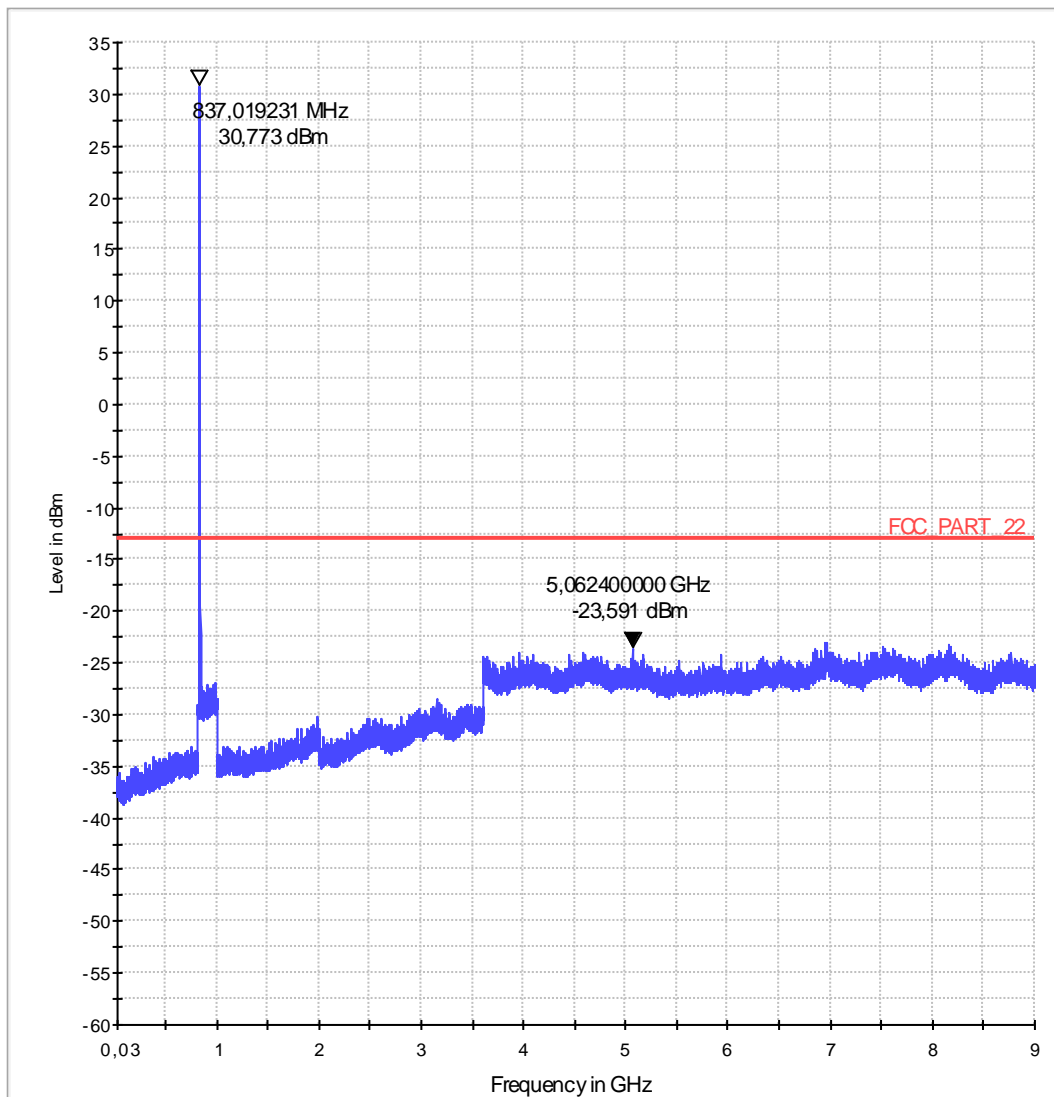


Diagram No.: a_4.06

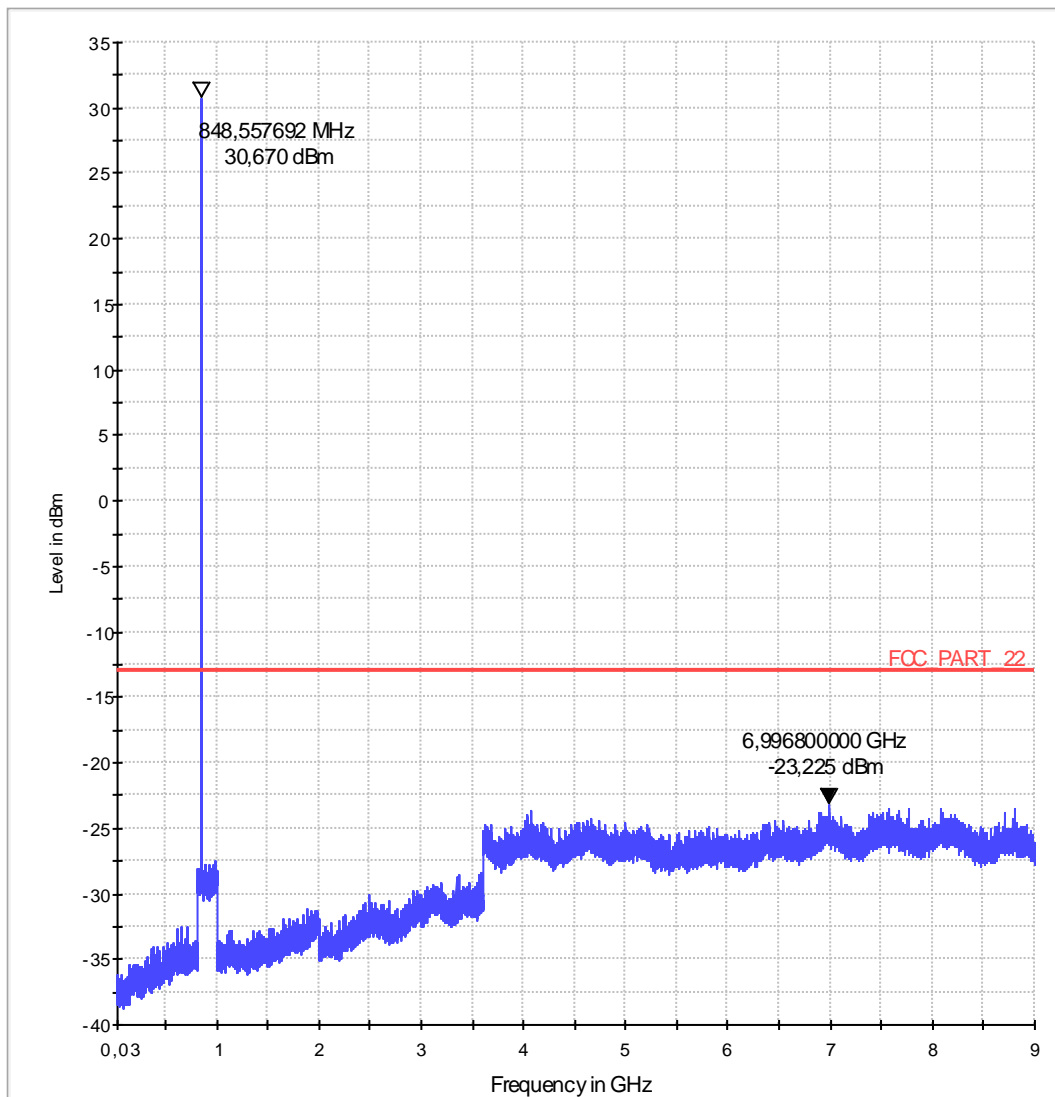
Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory 1
Test Standard:	FCC Part 22, RSS-132
Test condition:	24.5°C 39%
Operation mode:	EGPRS-TX, G850 (ARFCN 251 high)
Operator Name:	Tas
Comment:	6-0082-11-1-2a

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2 30M till 9 G



a_4.17

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 22, RSS-132
Antenna polarisation:	--
Test Mode:	GPRS-TX, GSM 850 , Low Channel 128
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1

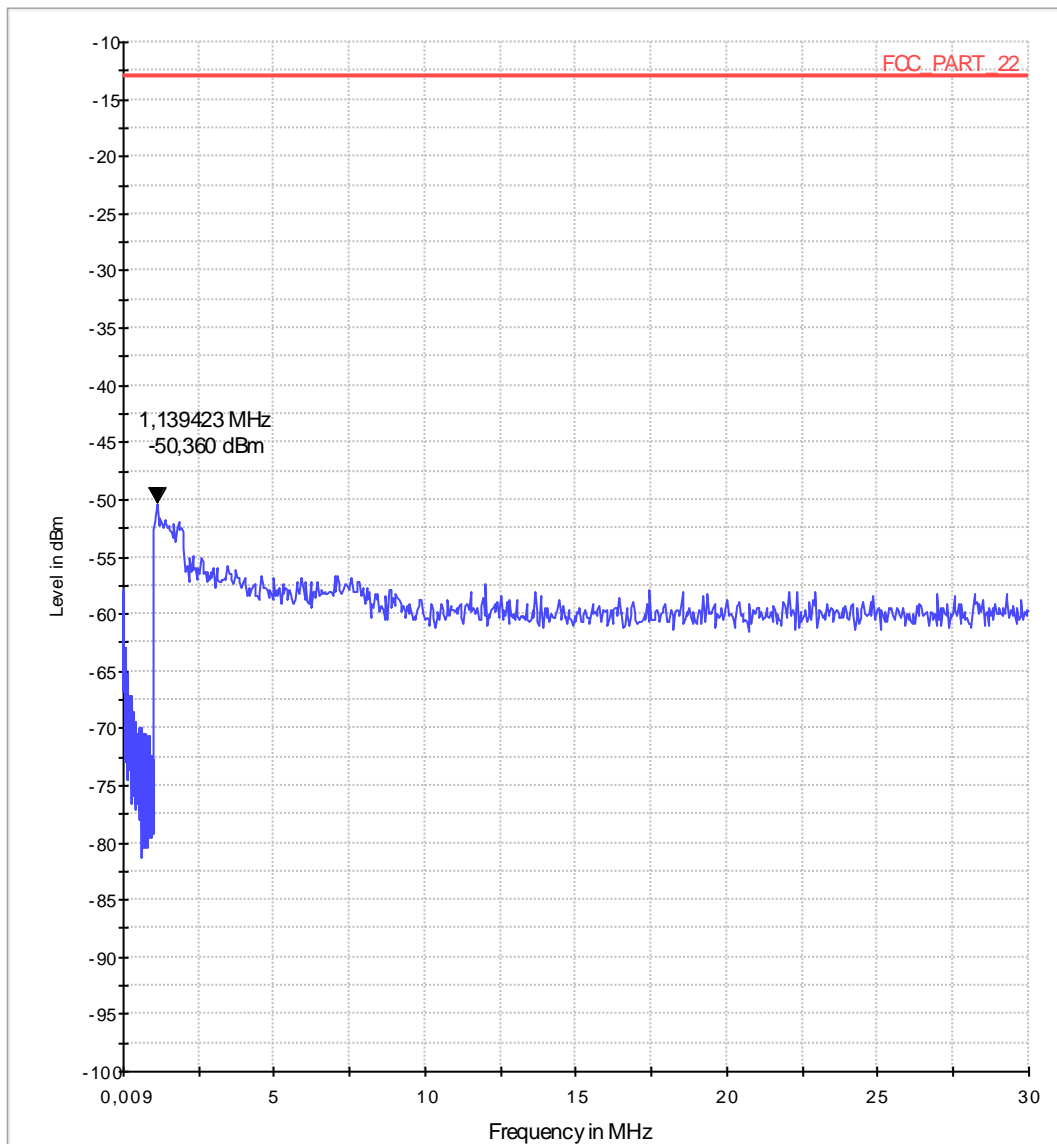


Diagram No.: a_4.18

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 22.917, RSS-132
Antenna polarisation:	--
Test Mode:	GPRS-TX, GSM 850 , Middle Channel 192
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1

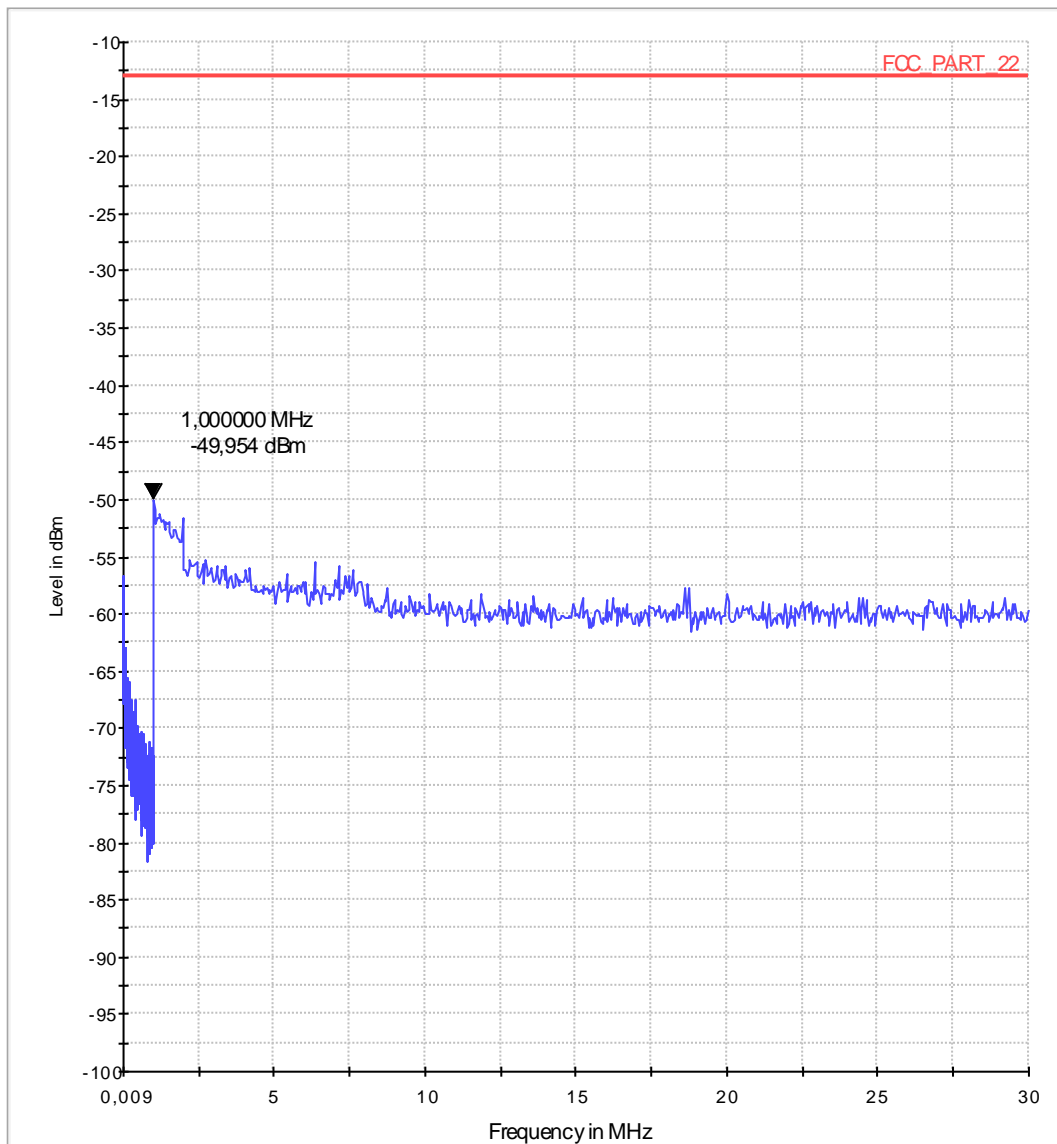


Diagram No.: a_4.19

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 22.917, RSS-132
Antenna polarisation:	--
Test Mode:	GPRS-TX, GSM 850 , High Channel 251
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1

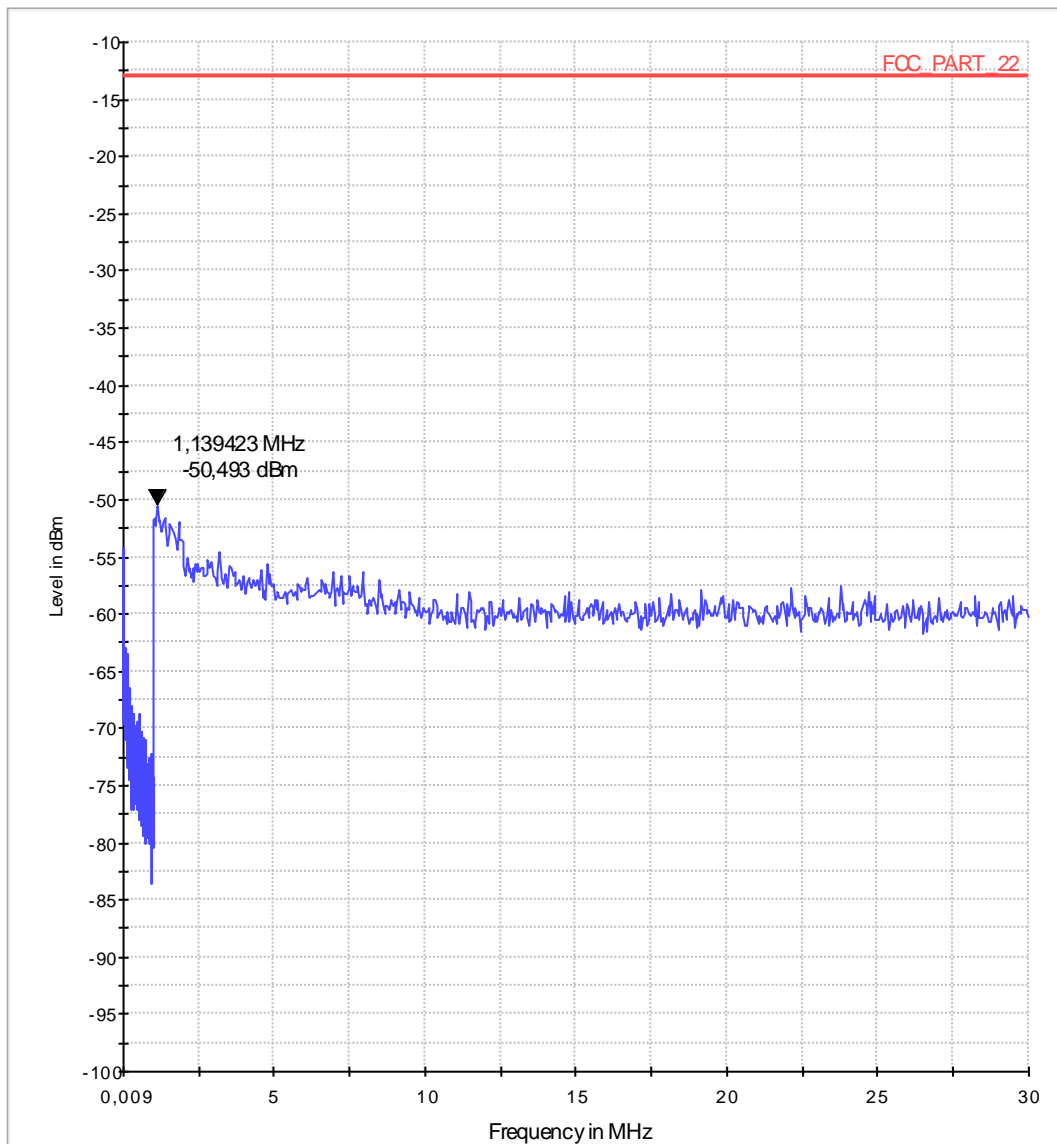


Diagram No.: a_4.20

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 22.917, RSS-132
Antenna polarisation:	--
Test Mode:	GPRS-TX, GSM 850 , Low Channel 128
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2 30M till 9 G

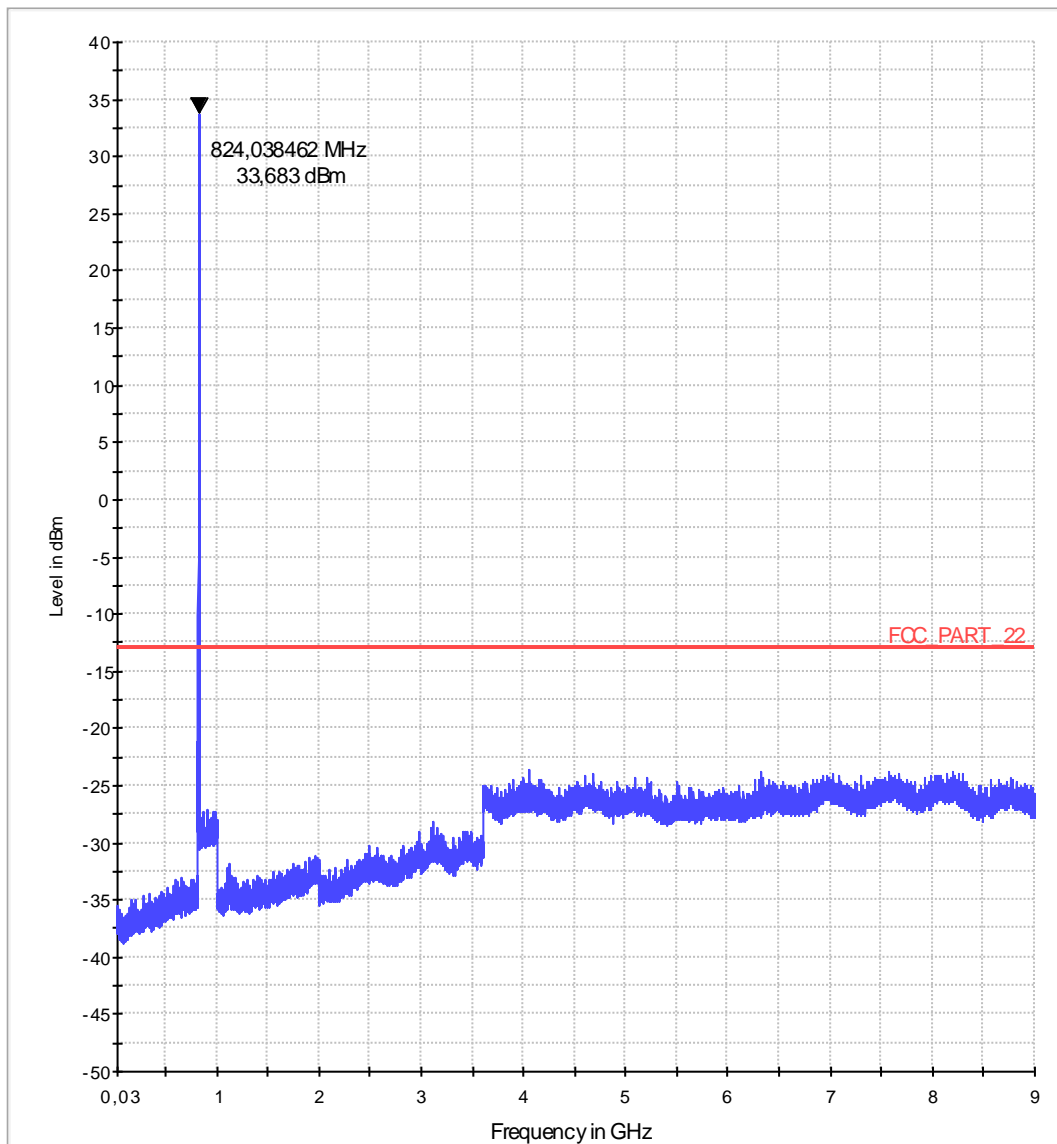


Diagram No.: a_4.21

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 22, RSS-132
Antenna polarisation:	--
Operation mode:	GPRS-TX, GSM 850 , Middle Channel 192
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2 30M till 9 G

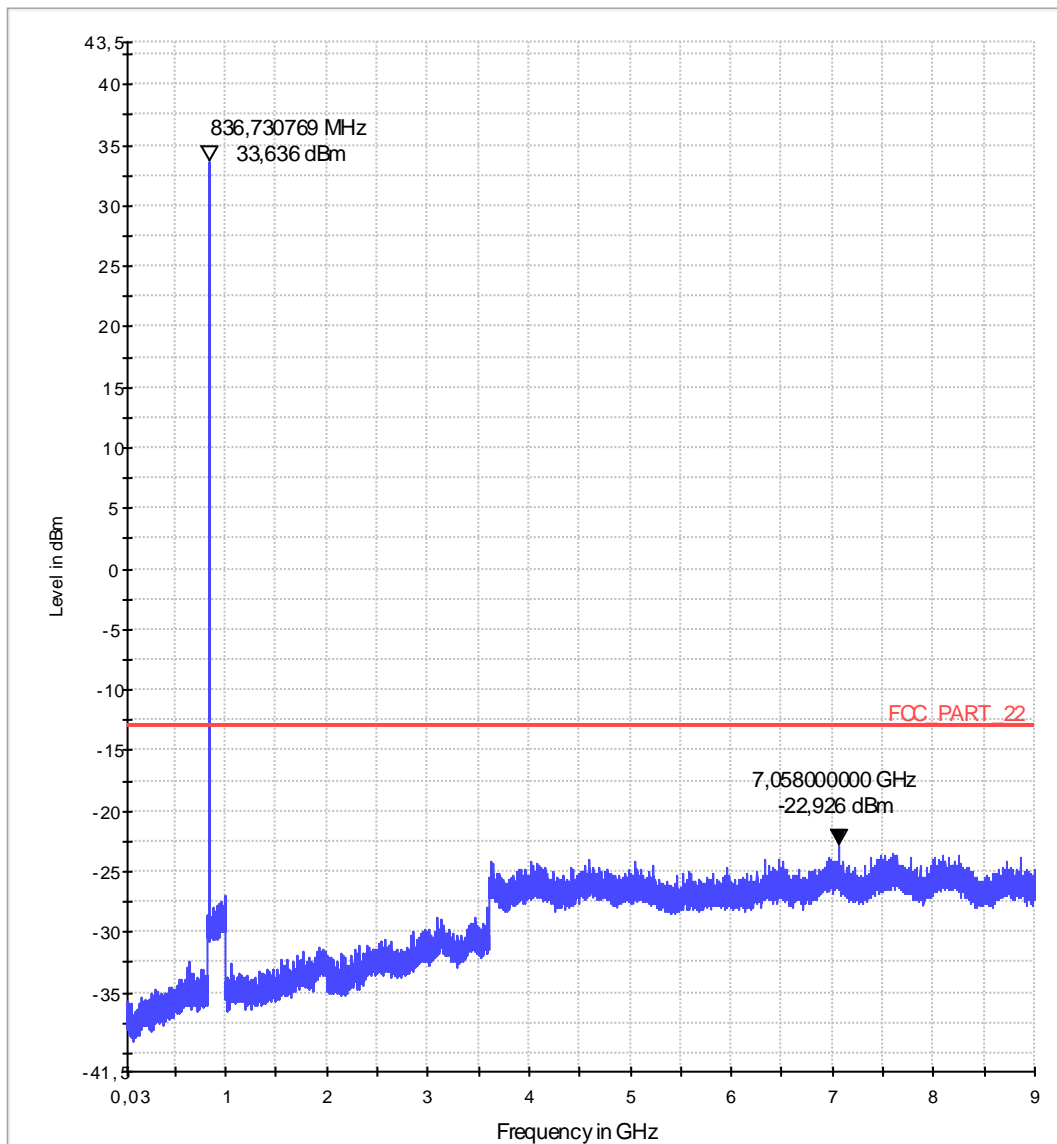


Diagram No.: a_4.22

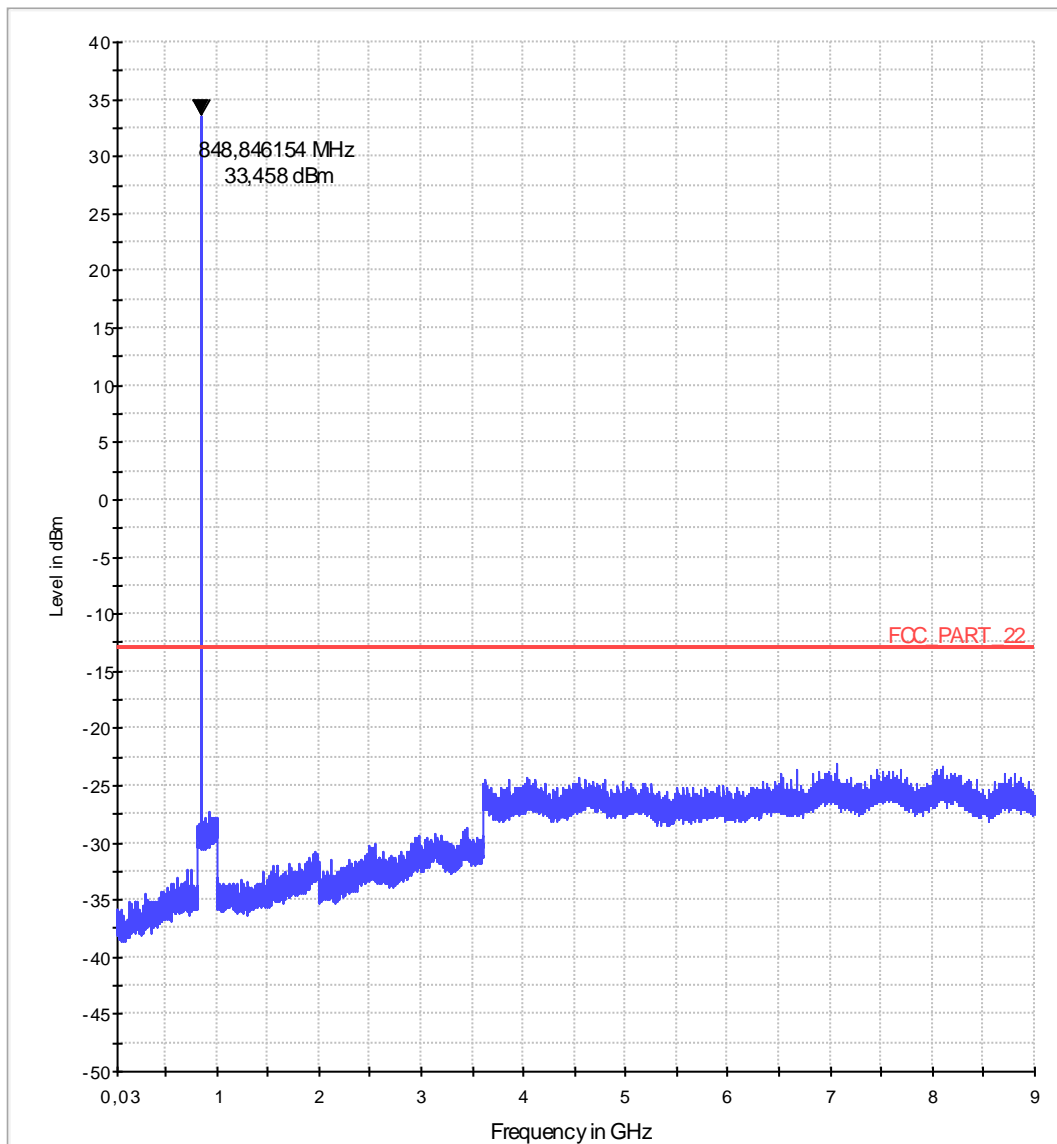
Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 22.917, RSS-132
Antenna polarisation:	--
Test Mode:	GPRS-TX, GSM 850 , High Channel 251
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2 30M till 9 G



a_4.36 (AV)

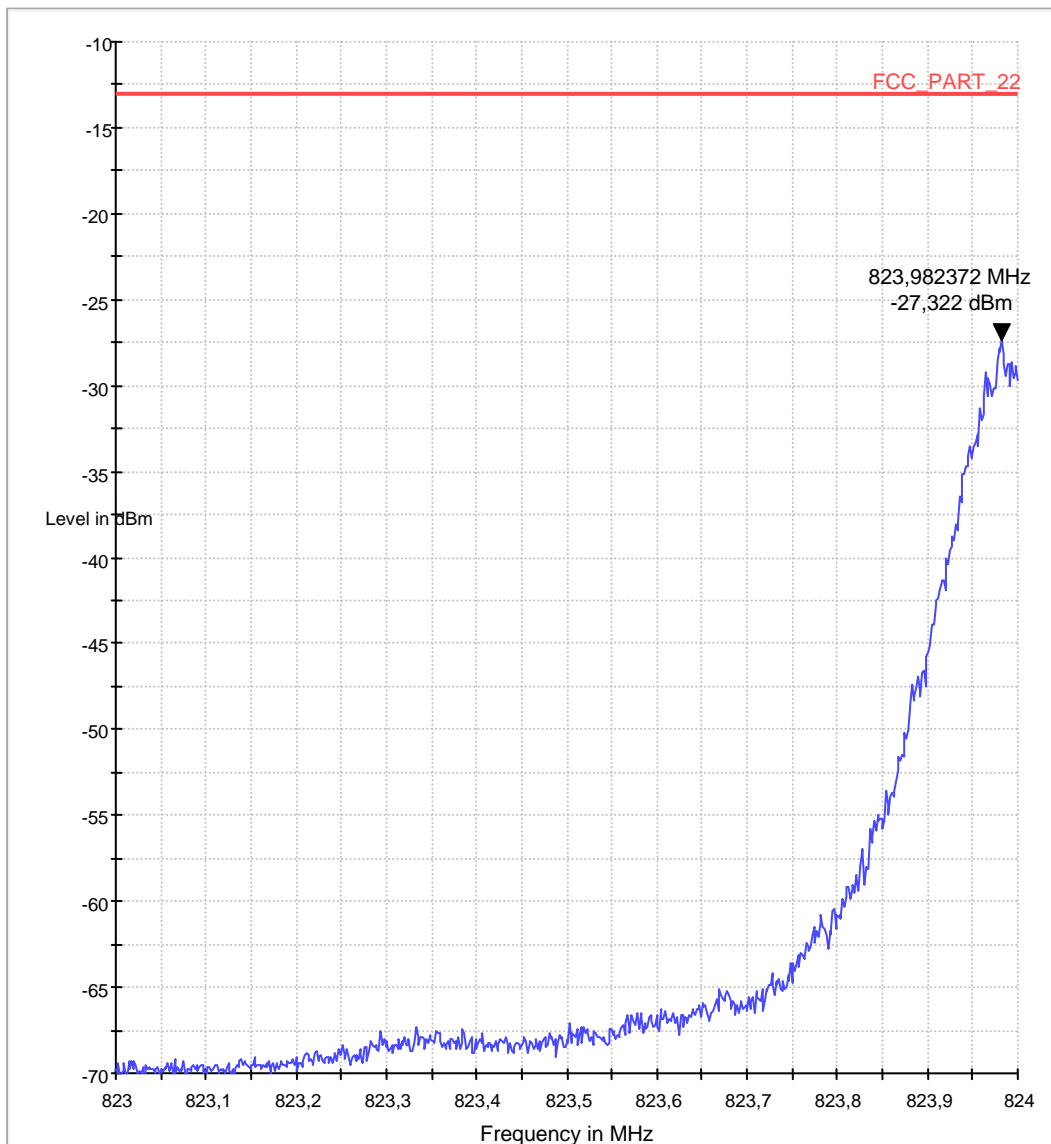
Common Information

Test Description:	Transmitter unwanted emissions (Band-Edge)/ FCC requirements
Test Site:	Radio LAB, CETECOM GmbH, Essen, Germany
Test Standard:	FCC Part 22.917 (a,b)
Environment Conditions:	Normal conditions (Vnominal, Tnominal)
Operator Name:	Tas
Comment:	Performed on TCH channel 128

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_3b_Band_Edge_Channel_128_AV



a_4.38 (AV)

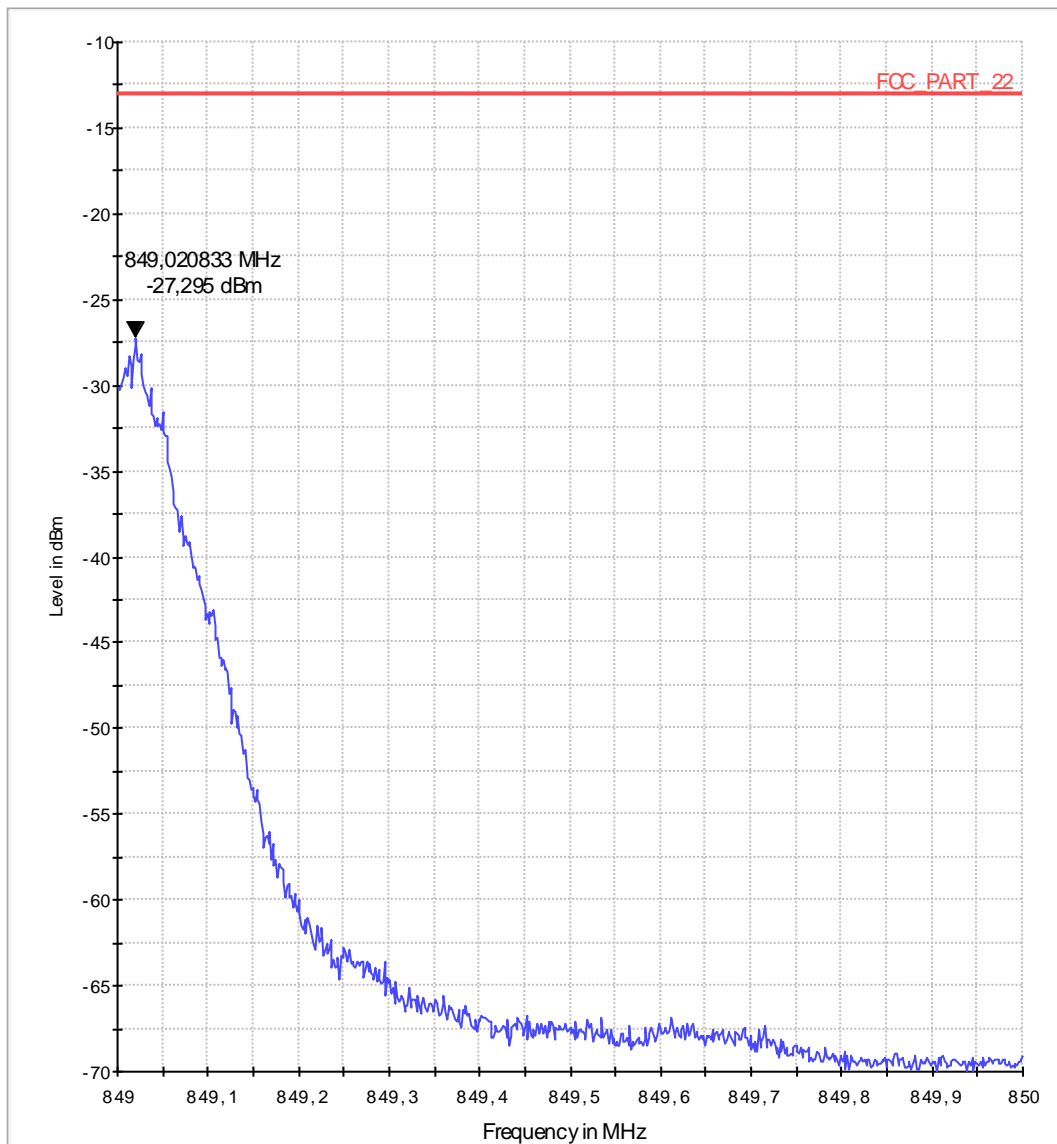
Common Information

Test Description:	Transmitter unwanted emissions (Band-Edge)/ FCC requirements
Test Site:	Radio LAB, CETECOM GmbH, Essen, Germany
Test Standard:	FCC Part 22.917 (a,b)
Environment Conditions:	Normal conditions (Vnominal, Tnominal)
Operator Name:	Tas
Comment:	Performed on TCH channel 251

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_4b_Band_Edge_Channel_251_AV



Diagr No a_4.07

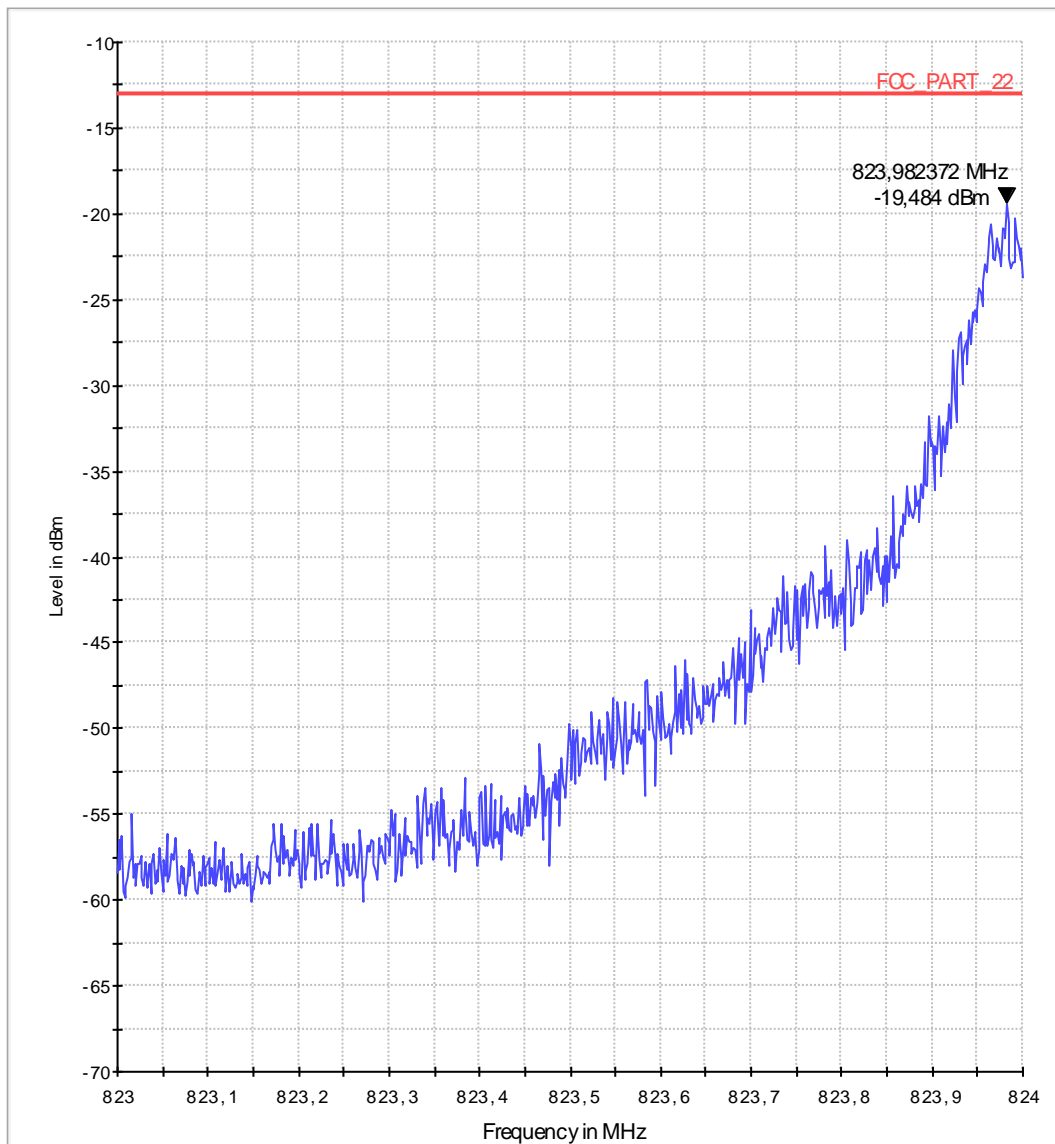
Common Information

Test Description:	Transmitter unwanted emissions (Band-Edge)/ FCC requirements
Operating Conditions:	Radio laboratory
Test specification:	FCC Part 22, RSS-132
Operating mode:	EGPRS-TX, G850 (ARFCN 128 low)
Operator:	Tas
Project no.:	6-0082-11-1-2a

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_3a_Band_Edge_Channel_128_PK



Diagr. no. a_4.08

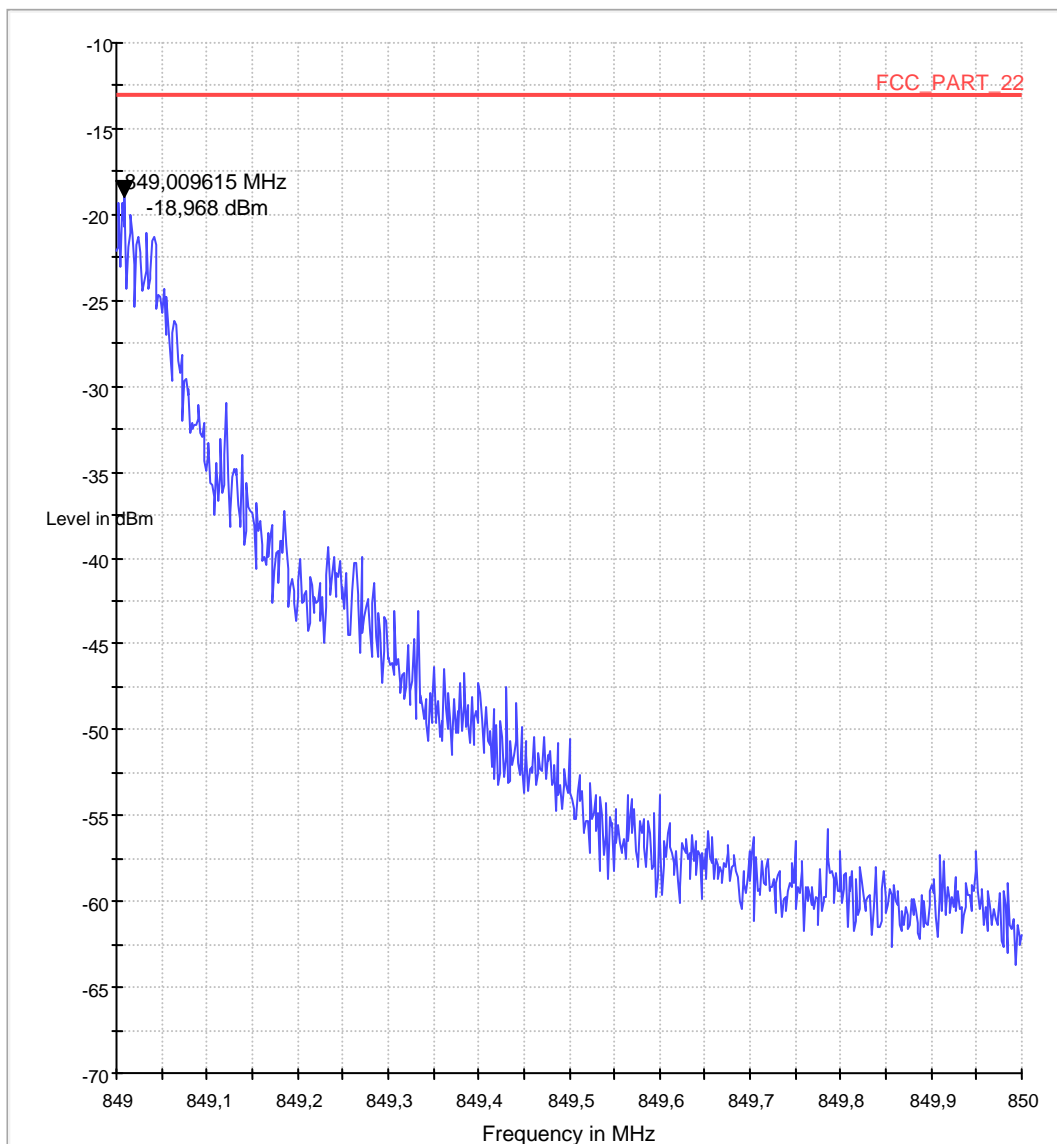
Common Information

Test Description:	Transmitter unwanted emissions (Band-Edge)/ FCC requirements
Operating Conditions:	Radio laboratory
Test specification:	FCC Part 22, RSS-132
Operating mode:	EGPRS-TX, G850 (ARFCN 251 high)
Operator:	Tas
Project no.:	6-0082-11-1-2a

EUT Information

EUT Name:	LISA-U200
Manufacturer:	Lisa u
Serial Number:	u-blox AG
Hardware Rev:	358901040001353
Voltage:	21.03
	3,8 VDC

Sweep_4a_Band_Edge_Channel_251_PK



1.8 TX Spurious emissions conducted + Block-Edge – PCS1900 Mode Diagram No.: a_4.09

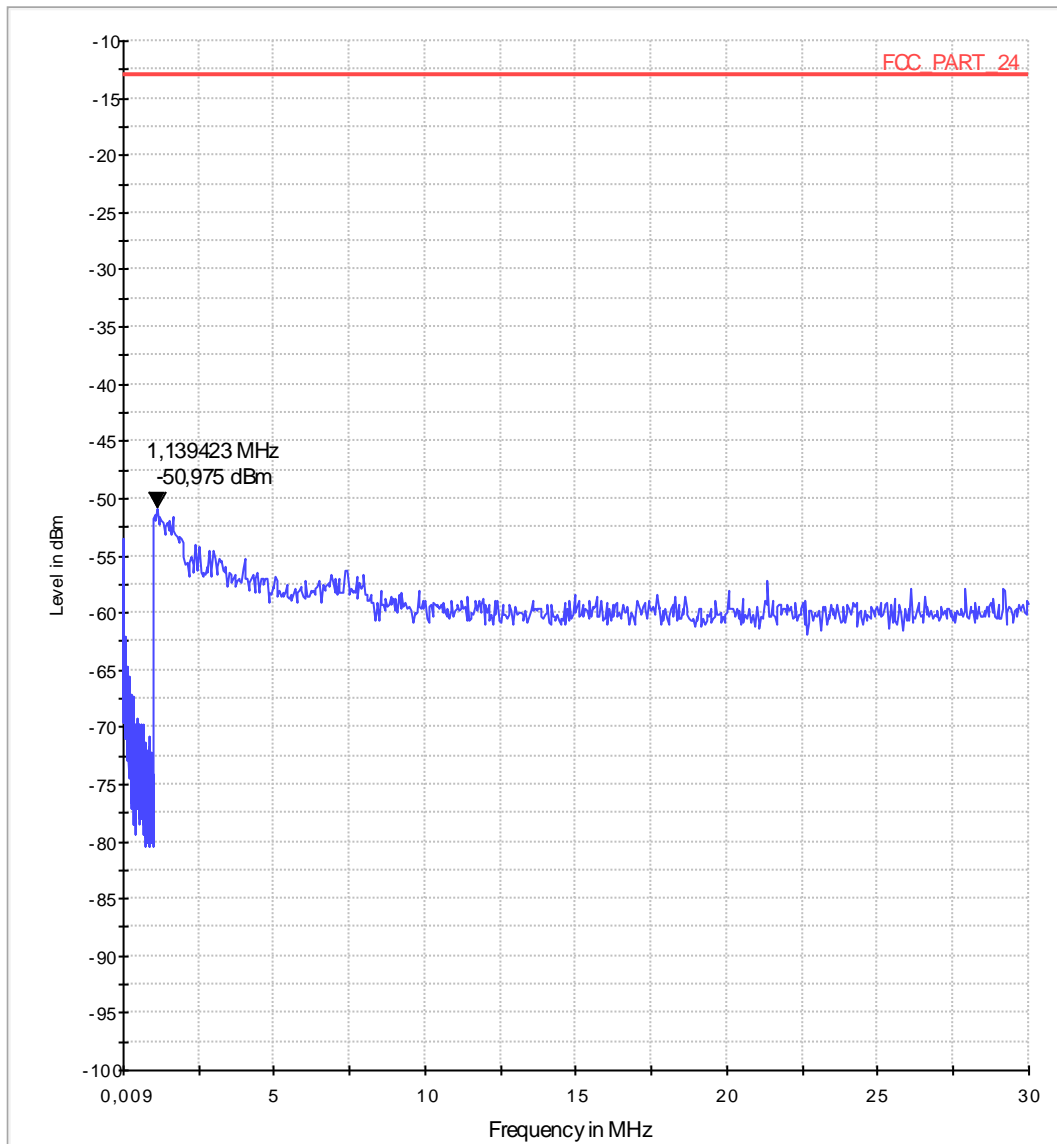
Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory 1
Test Standard:	FCC Part 24, RSS-133
Operation mode:	GPRS-TX, PCS1900 (UL 512)
Operator Name:	HLA

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1



a_4.10

Common Information

Test Description:	TX Spurious Emission conducted
Test side:	Radio laboratory
Test standard:	FCC Part 24, RSS-133
Operating Conditions:	GPRS-TX, PCS1900 (UL 512)

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2

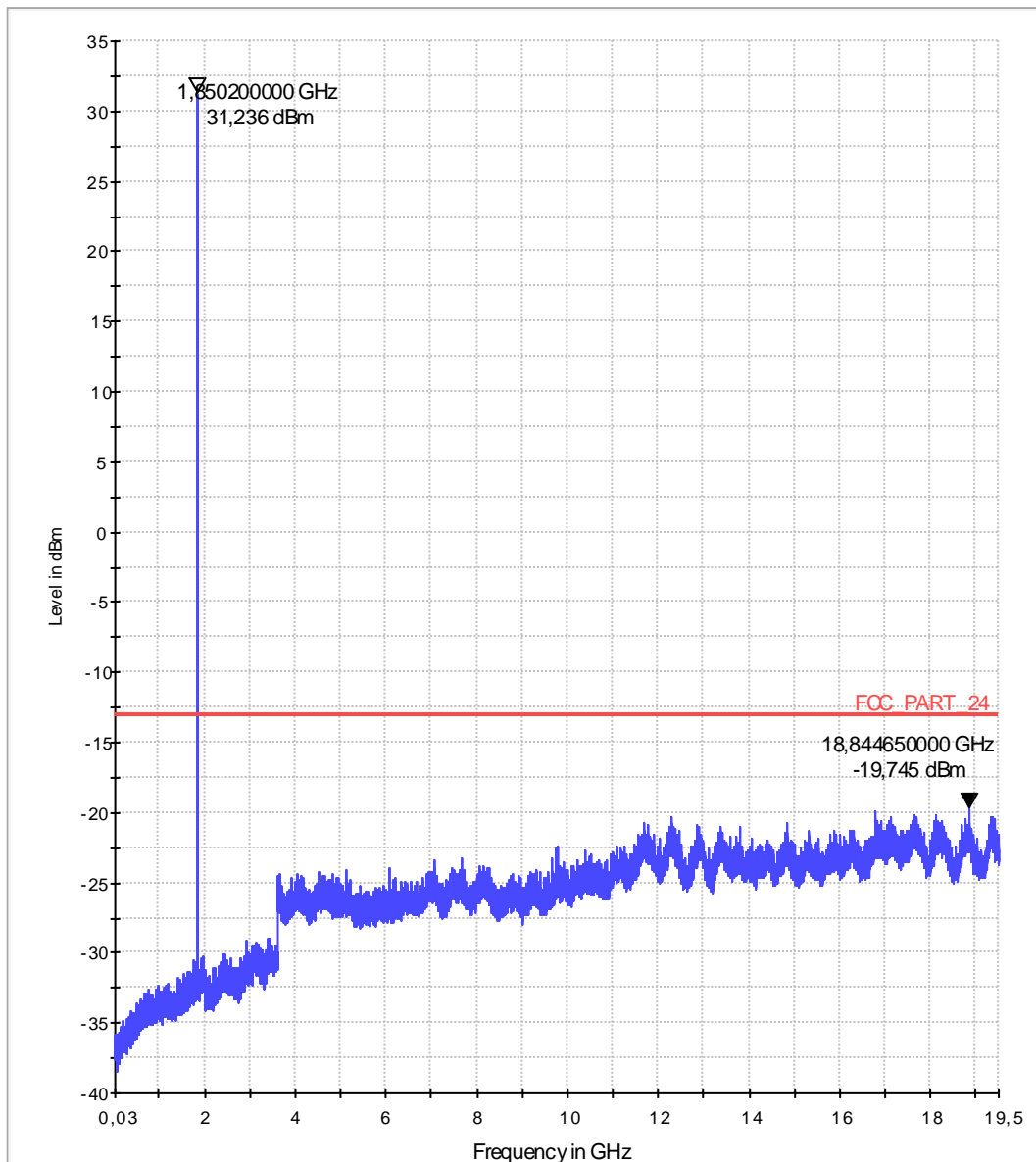


Diagram No.: a_4.11

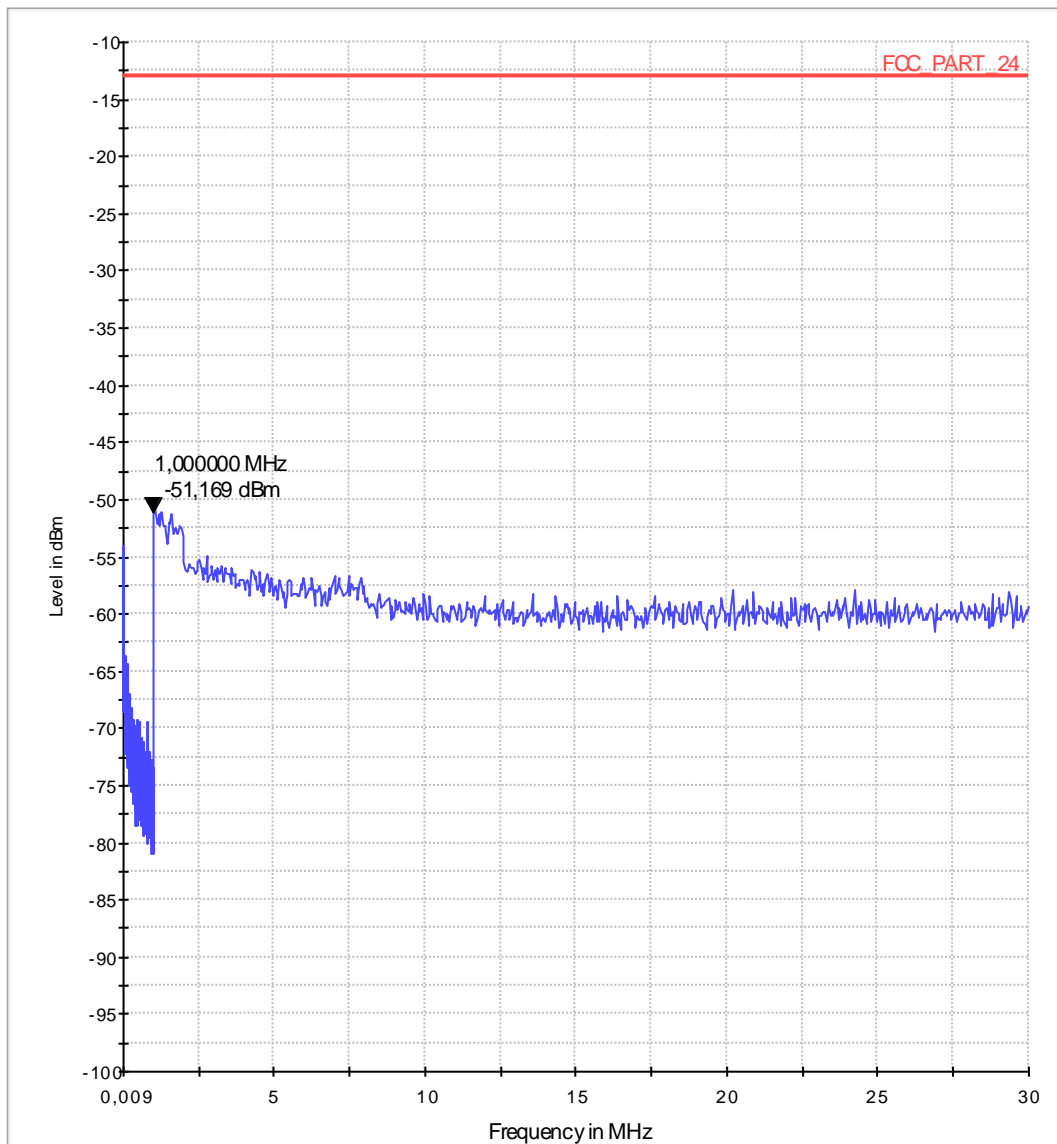
Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory
Test Standard:	FCC Part 24, RSS-133
Operation mode:	GPRS-TX, PCS1900 (UL 661)
Operator Name:	HLA

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1



a_4.12

Common Information

Test Description:	TX Spurious Emission conducted
Test side :	Radio laboratory 1
Test standard:	FCC Part 24, RSS-133
Operating Conditions:	GPRS-TX, PCS1900 (UL 661)
Operator Name:	HLA

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2

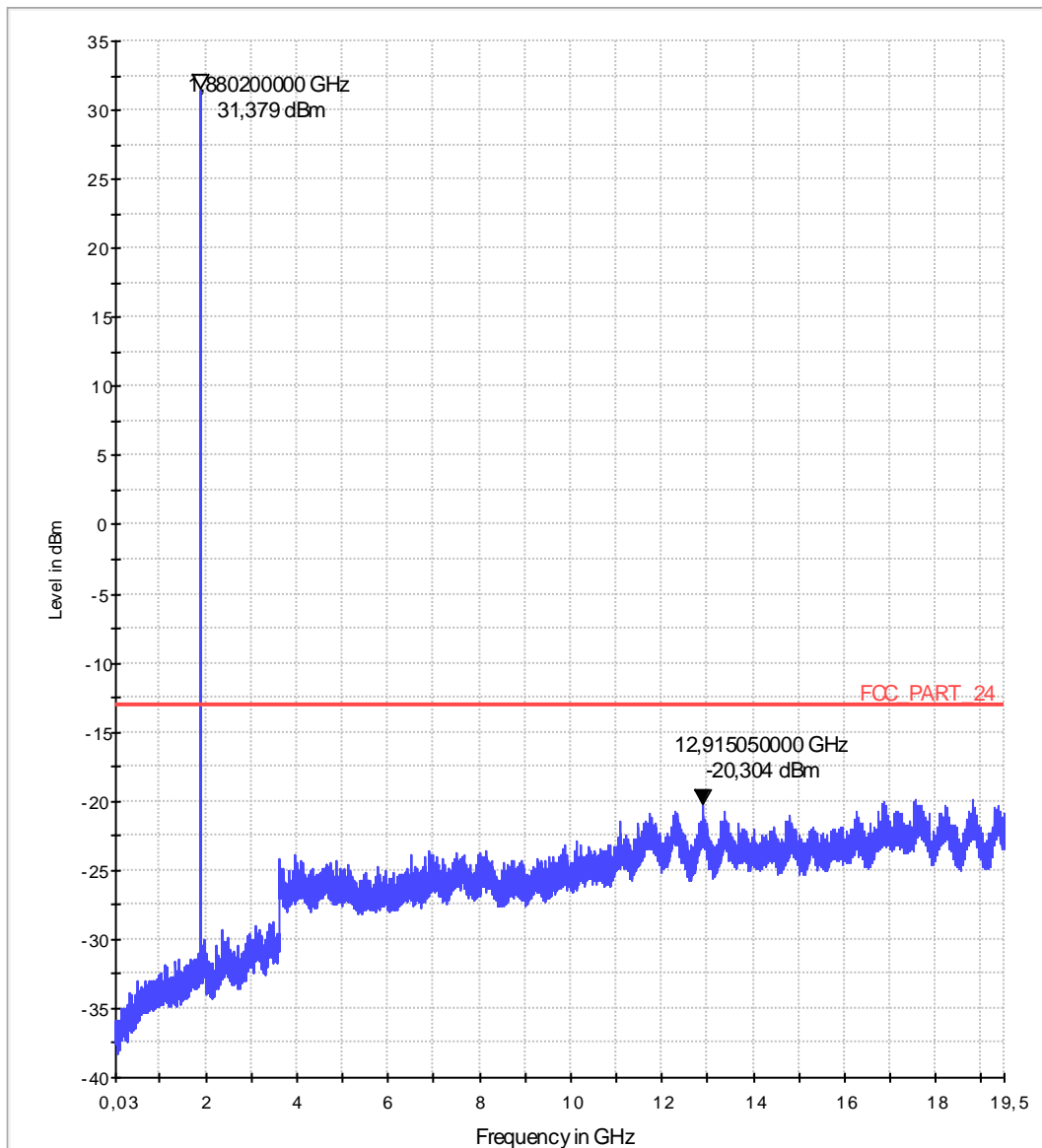


Diagram No.: a_4.13

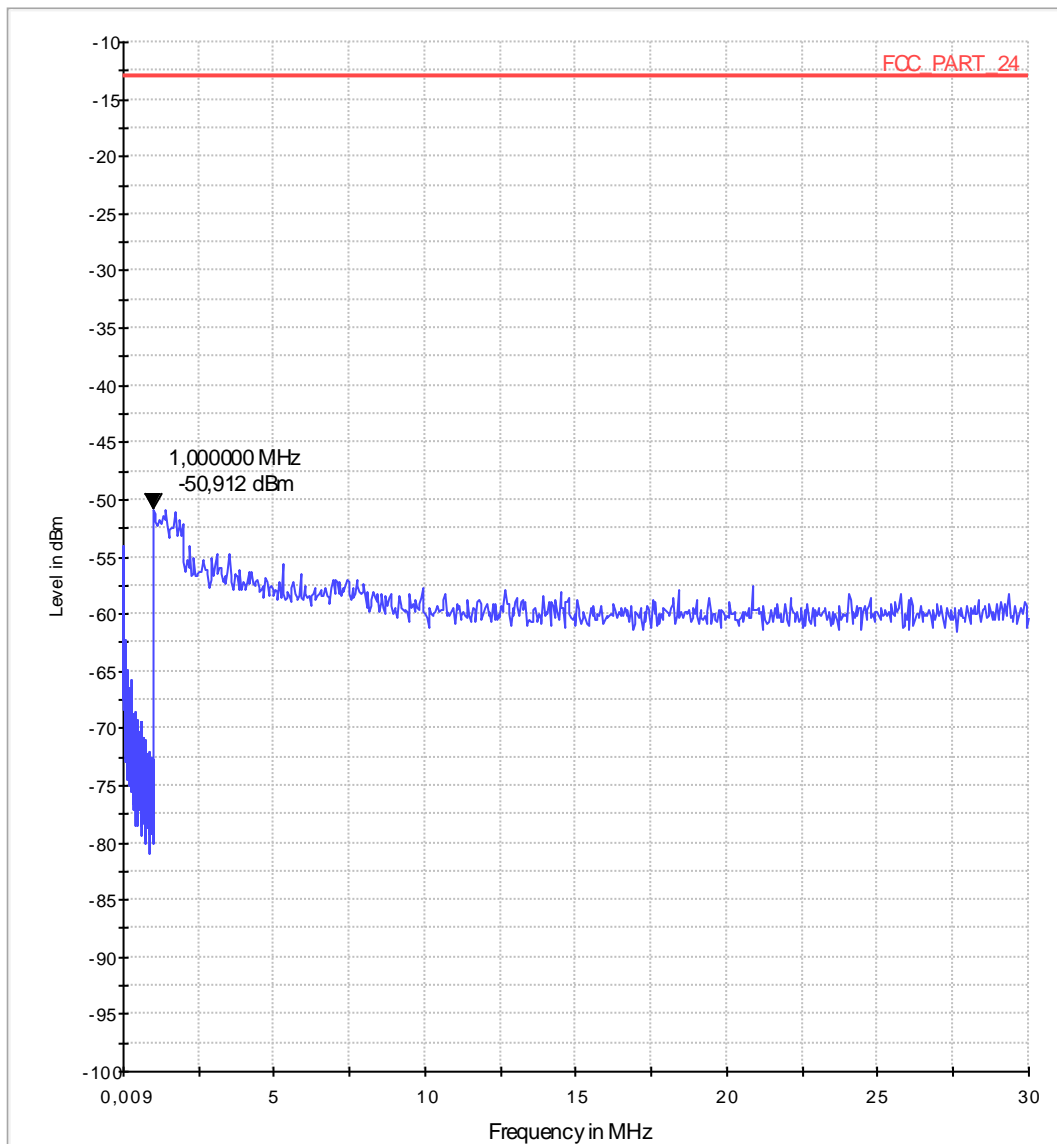
Common Information

Test Description:	TX Spurious Emission conducted
Test Site:	Radio laboratory 1
Test Standard:	FCC Part 22, RSS-132
Operation mode:	GPRS-TX, PCS1900 (UL 810)
Operator Name:	HLa

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1



a_4.14

Common Information

Test Description:	TX Spurious Emission conducted
Test side:	Radio laboratory 1
Test standard :	FCC Part 24, RSS-133
Operating Conditions:	GPRS-TX, PCS1900 (UL 810)
Operator Name:	HLa

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2

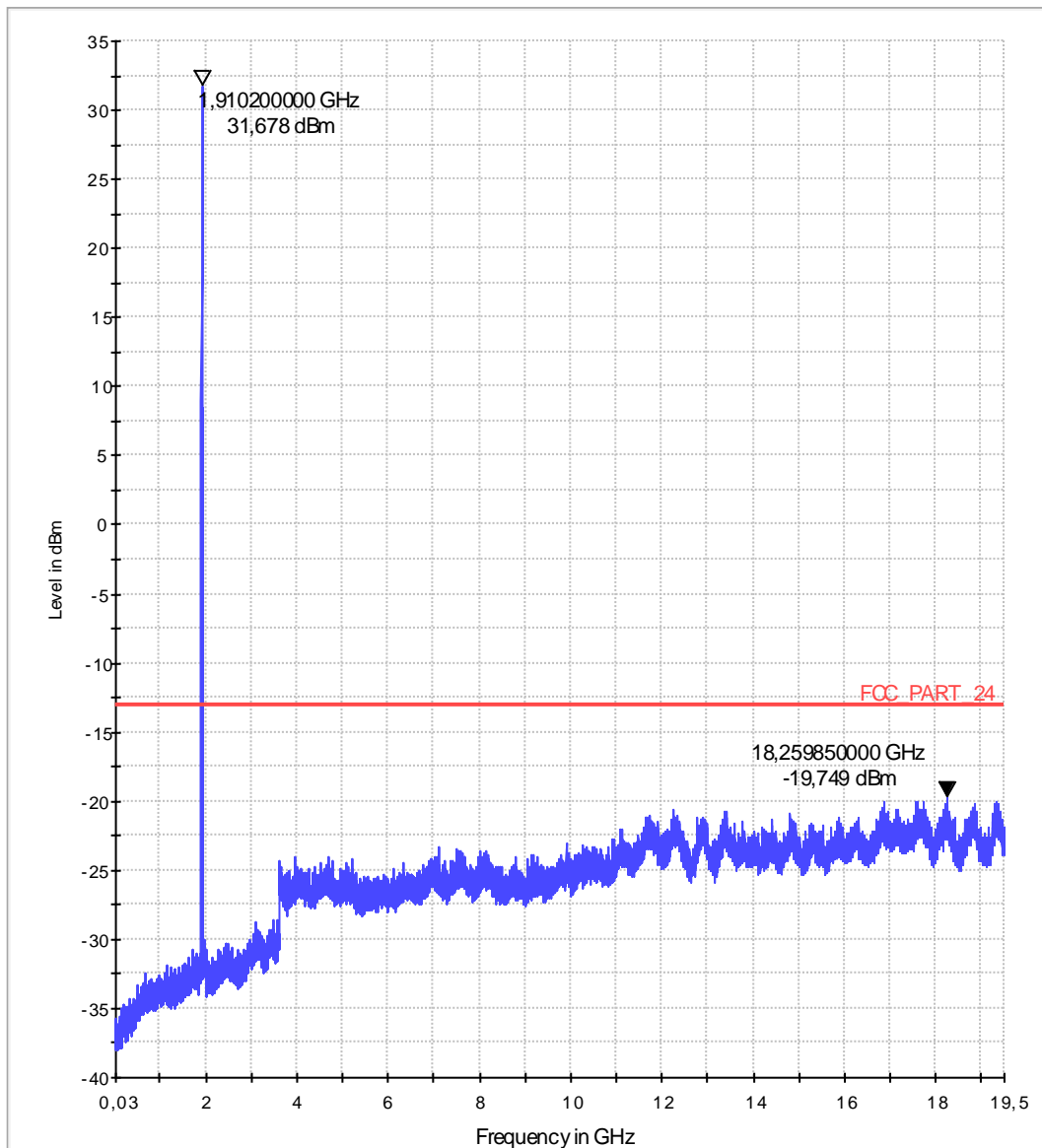


Diagram No.: a_4.23

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 24.238, RSS-133
Antenna polarisation:	--
Test Mode:	EGPRS-TX, PCS1900, Low Channel 512
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1

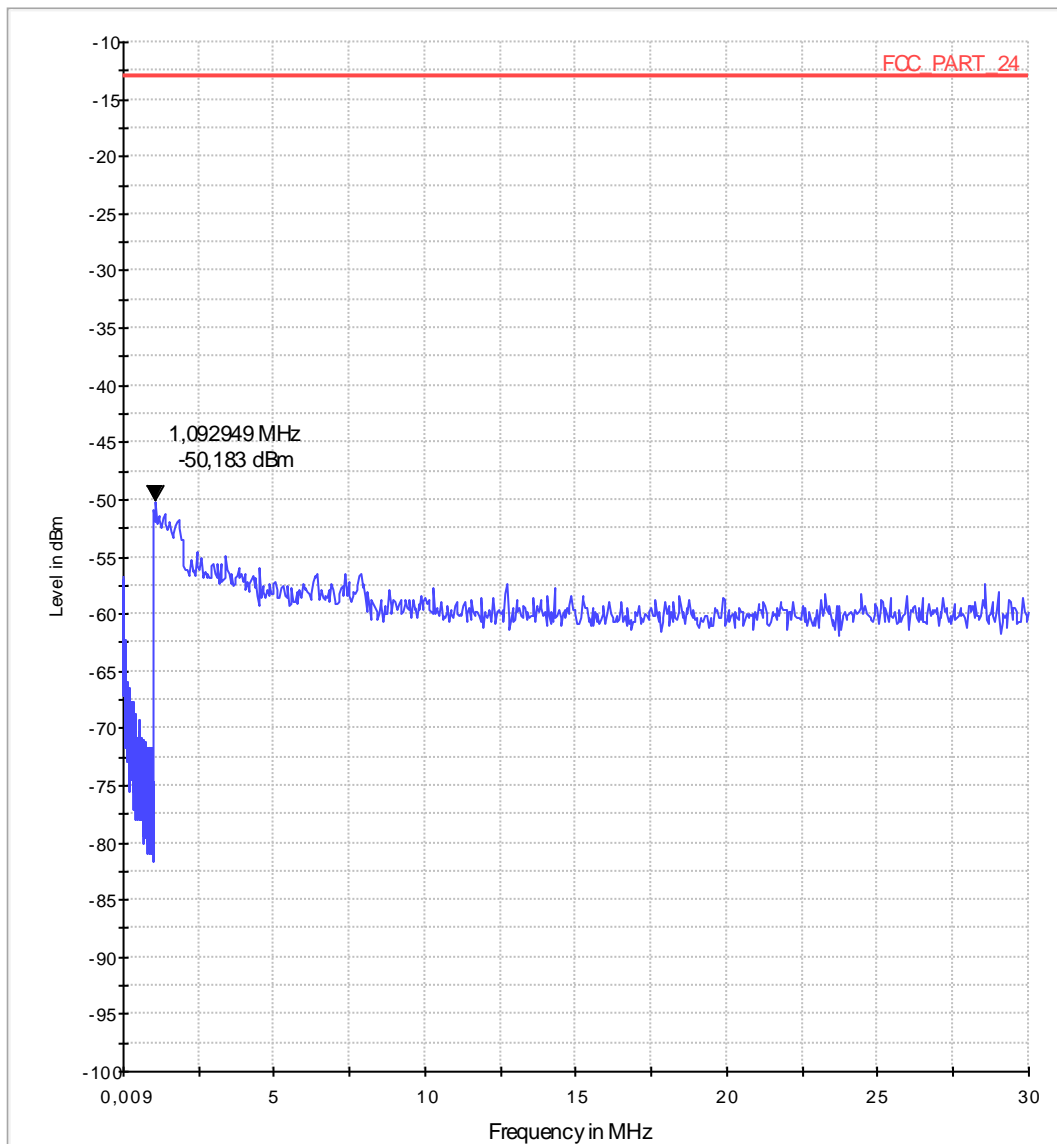


Diagram No.: a_4.24

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 24.238 RSS-133
Antenna polarisation:	--
Test Mode:	EGPRS-TX, PCS1900, Middle Channel 661
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1

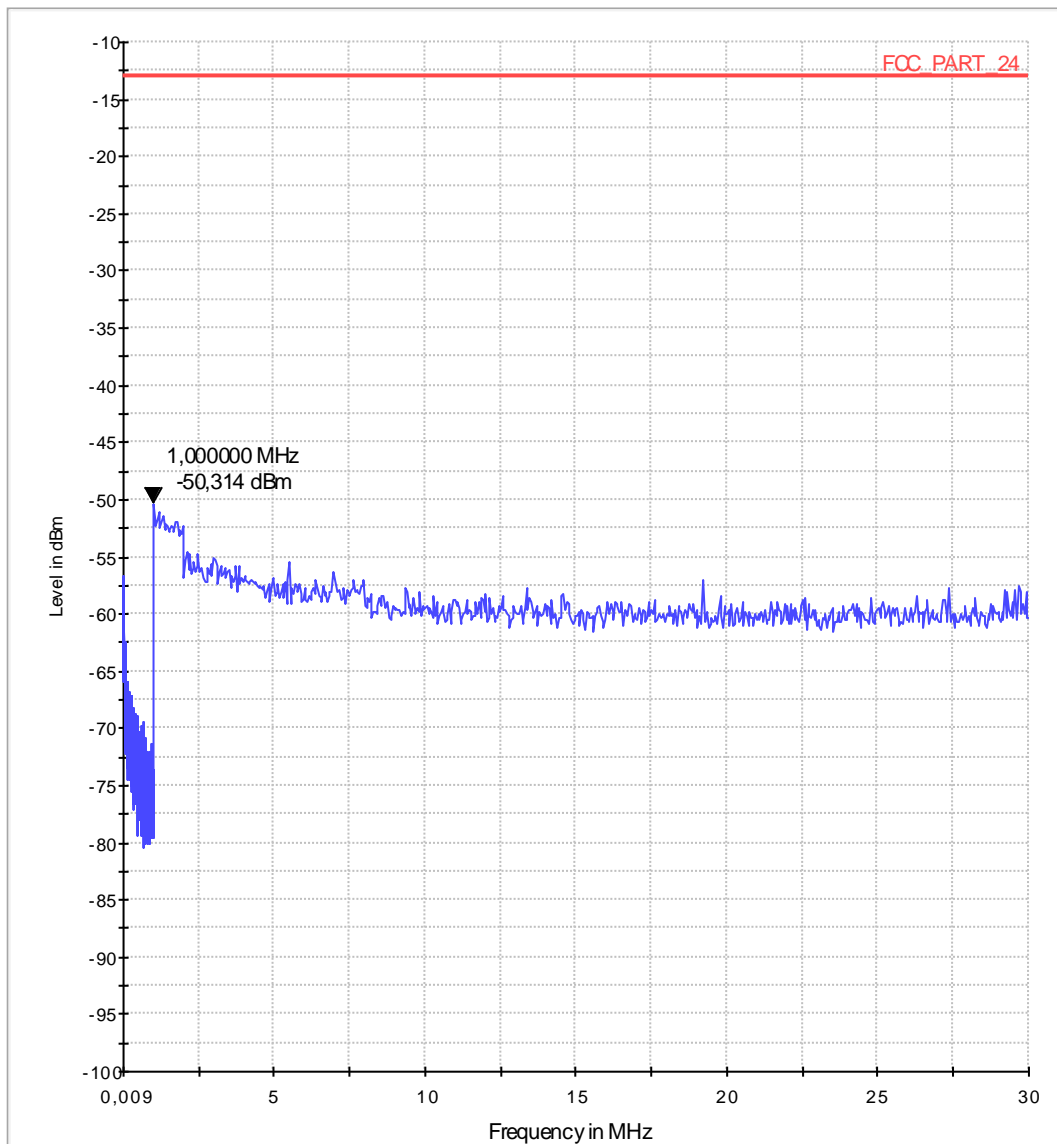


Diagram No.: a_4.25

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 24.238 RSS-133
Antenna polarisation:	--
Test Mode:	EGPRS-TX, PCS1900, High Channel 810
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_1

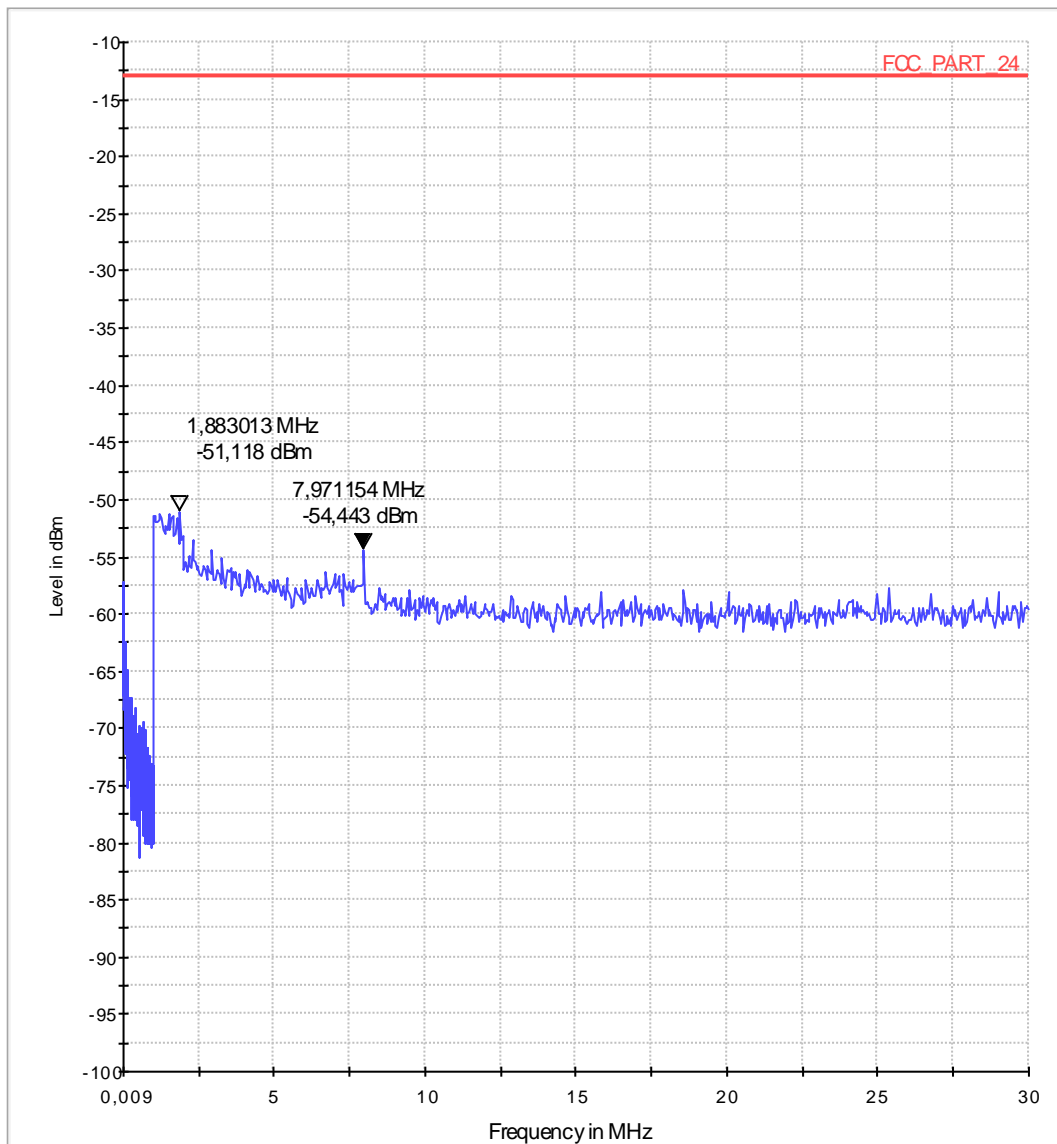


Diagramm Nummer: a_4.26

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 24.238 RSS-133
Test Mode:	EGPRS-TX, PCS1900, Low Channel 512
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2

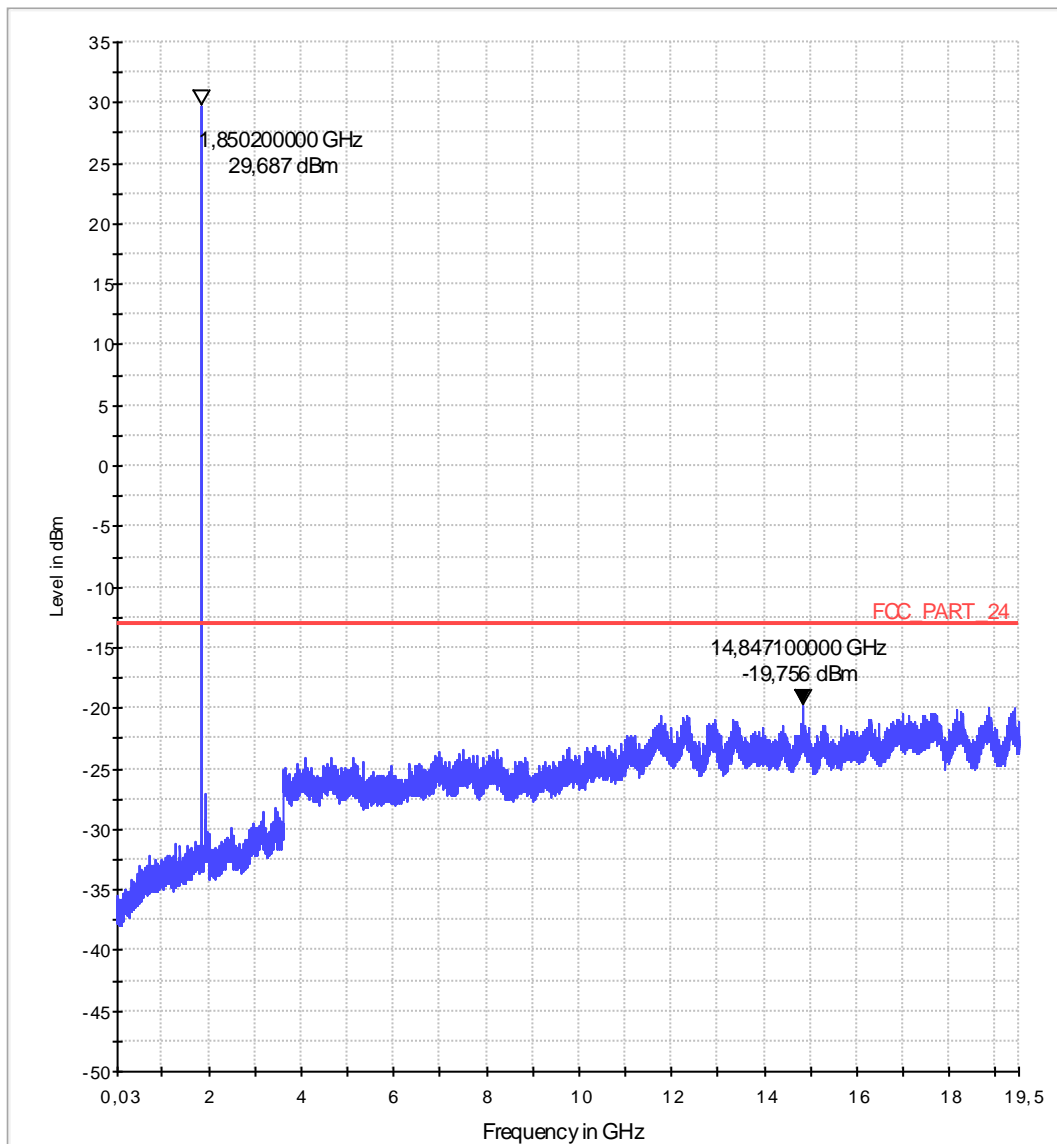


Diagram No.: a_4.27

Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 24.238 RSS-133
Antenna Position:	--
Test Mode:	EGPRS-TX, PCS1900, Middle Channel 661
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2

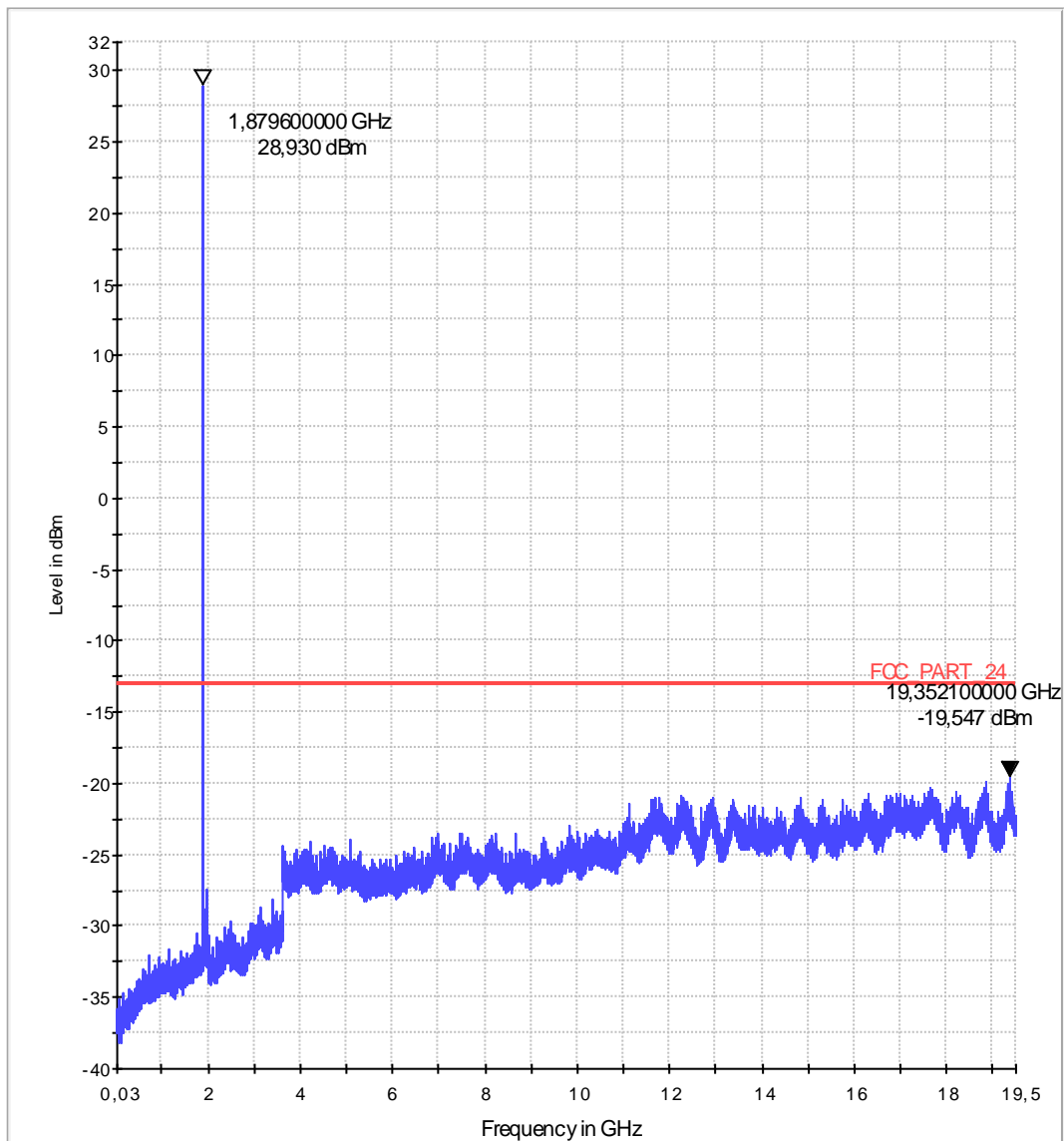


Diagram No.: a_4.28

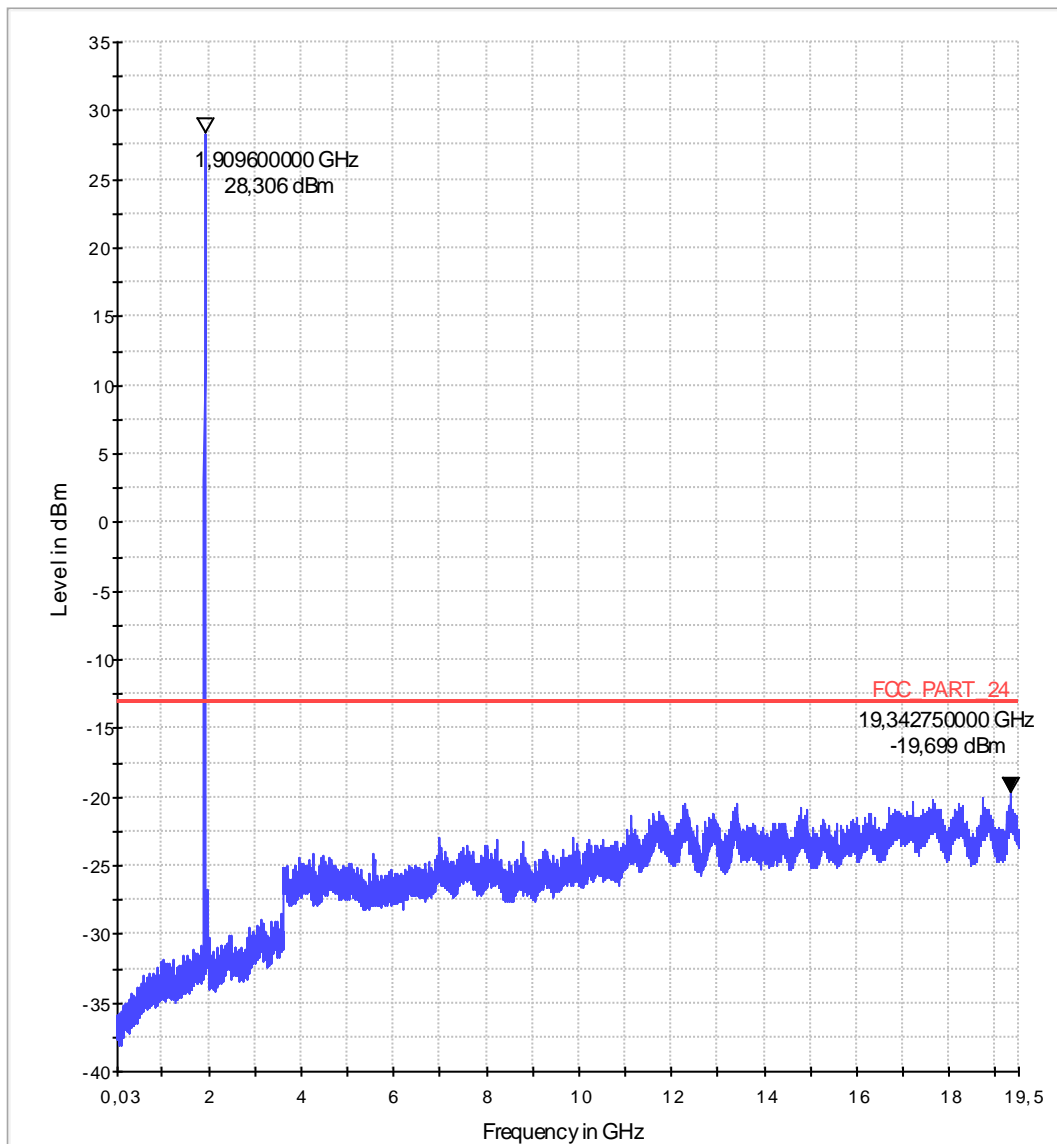
Common Information

Test Description:	Spurious Emission conducted
Test Site:	Radio Laboratory 1
Test Standard:	FCC Part 24.238 RSS-133
Antenna Position:	--
Test Mode:	EGPRS-TX, PCS1900, High Channel 810
Operator Name:	YZH

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_2



a_4.39 (AV)

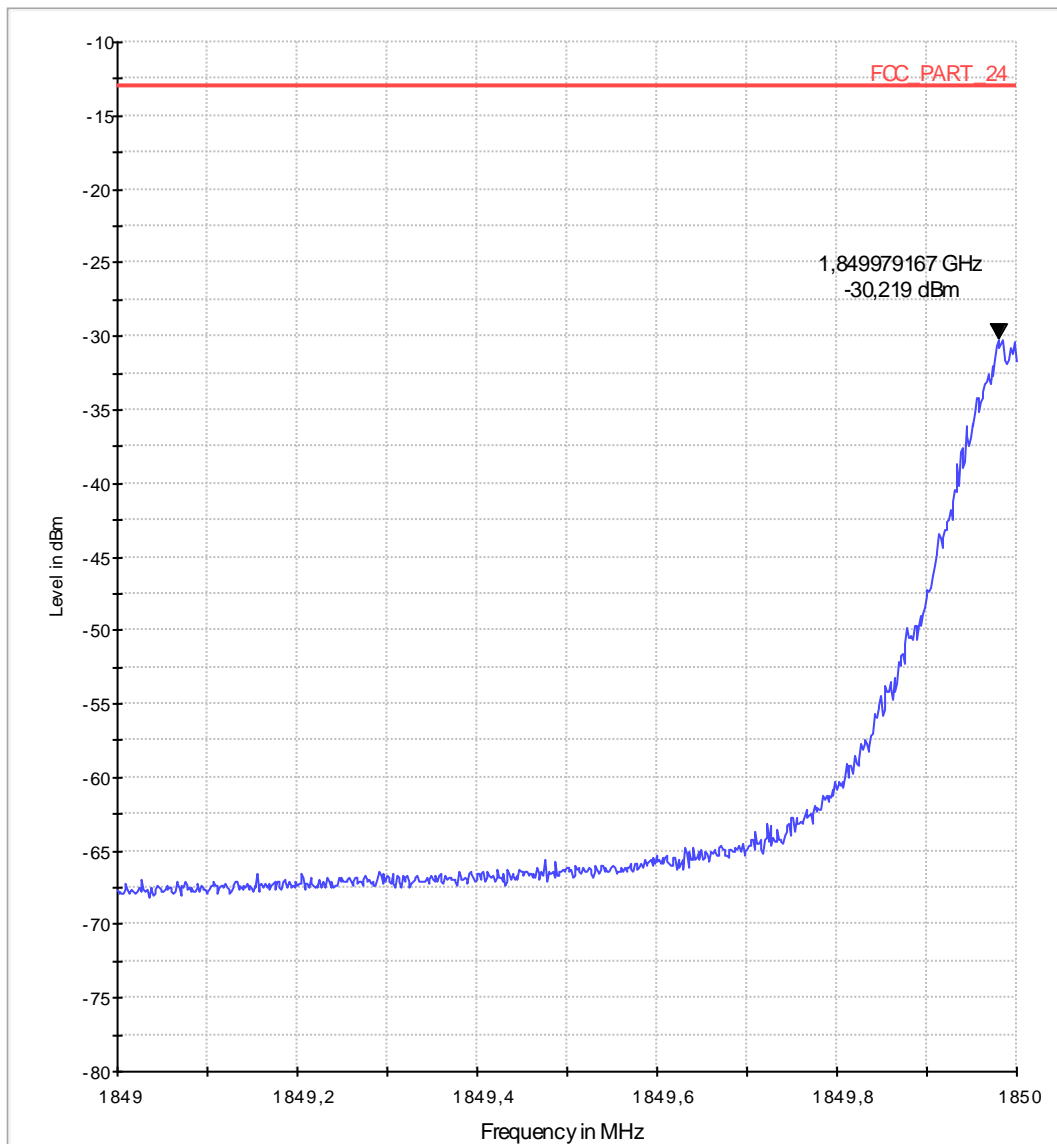
Common Information

Test Description:	Transmitter unwanted emissions (Block-Edge)/ FCC requirements
Test Site:	Radio LAB, CETECOM GmbH, Essen, Germany
Test Standard:	FCC Part 24.238 (a,b)
Environment Conditions:	Normal conditions (Vnominal, Tnominal)
Operator Name:	Tas
Comment:	Performed on channel GPRS-TCH ARFCN 512

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_3b_Band_Edge_Channel_512_AV



a_4.40 (AV)

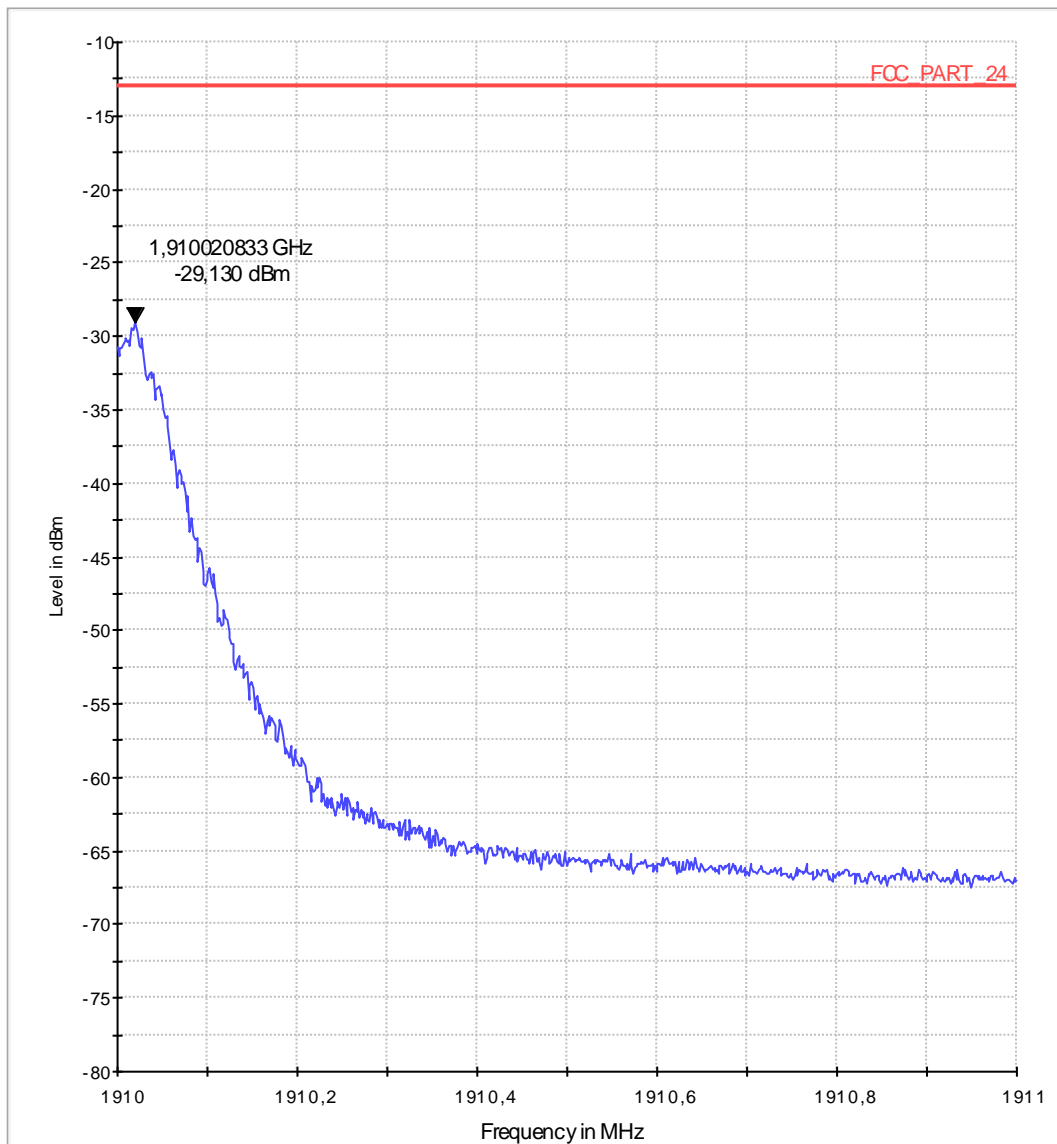
Common Information

Test Description:	Transmitter unwanted emissions (Block-Edge)/ FCC requirements
Test Site:	Radio LAB, CETECOM GmbH, Essen, Germany
Test Standard:	FCC Part 24.238 (a,b)
Environment Conditions:	Normal conditions (Vnominal, Tnominal)
Operator Name:	Tas
Comment:	Performed on channel GPRS-TCH 810

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_4b_Band_Edge_Channel_810_AV



a_4.15

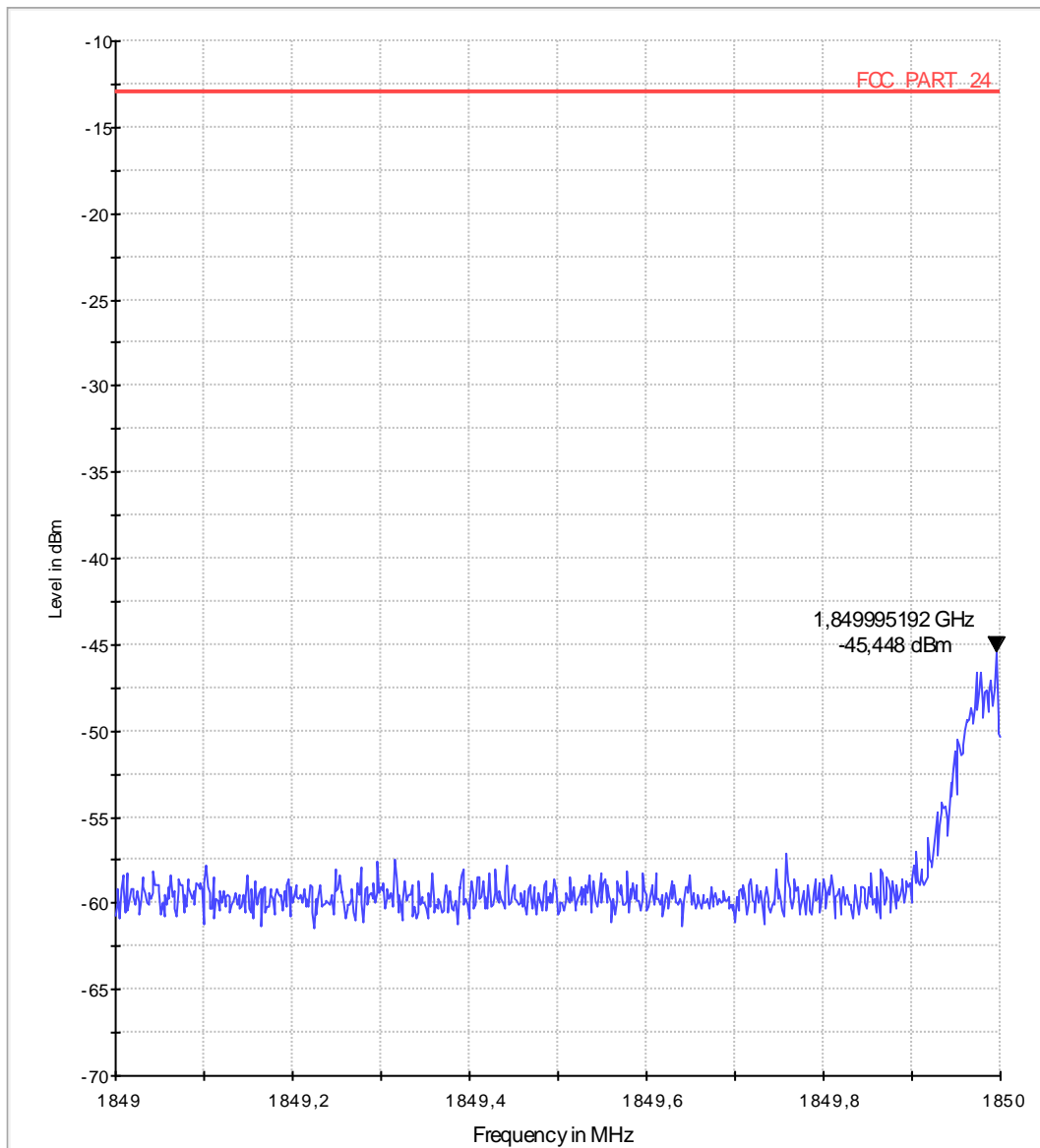
Common Information

Test Description:	TX Spurious Emission conducted
Test side:	Radio laboratory 1
Test standard:	FCC Part 22, RSS-132
Operating Conditions:	EGPRS-TX, PCS1900 (UL 512)
Operator Name:	HLa

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_3a_Band_Edge_Channel_512_PK



a_4.16

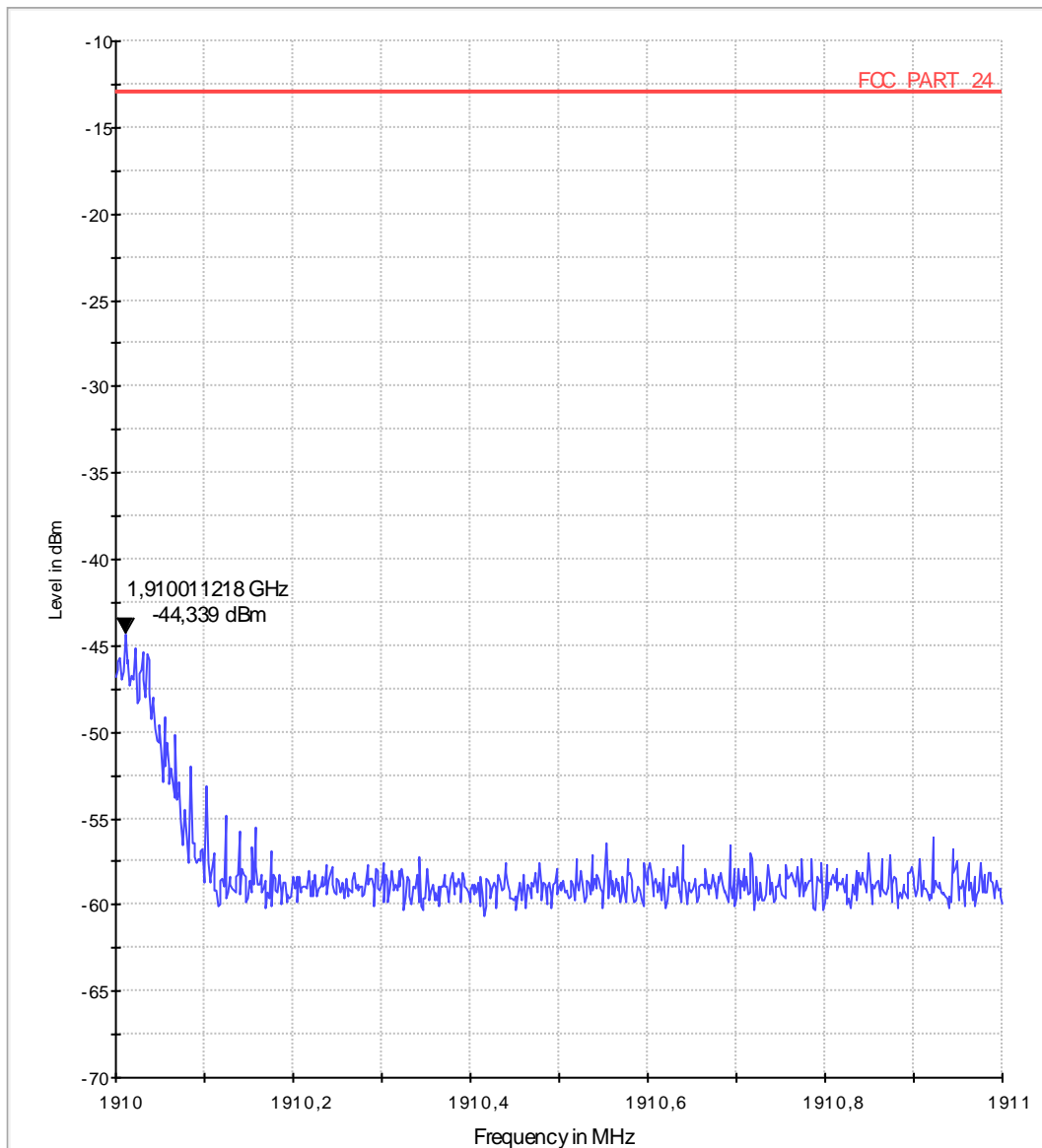
Common Information

Test Description:	TX Spurious Emission conducted
Test side:	Radio laboratory 1
Test standard:	FCC Part 22, RSS-132
Operating Conditions:	EGPRS-TX, PCS1900 (UL 810)
Operator Name:	HLa

EUT Information

EUT Name:	LISA-U200
Manufacturer:	u-blox AG
Serial Number:	358901040001353
Hardware Rev:	21.03
Voltage:	3,8 VDC

Sweep_4a_Band_Edge_Channel_810_PK



1.9 Radiated spurious emissions+ Block-Edge+ E.R.P. – (E)GPRS 850 Mode

a_5.03

Common Information

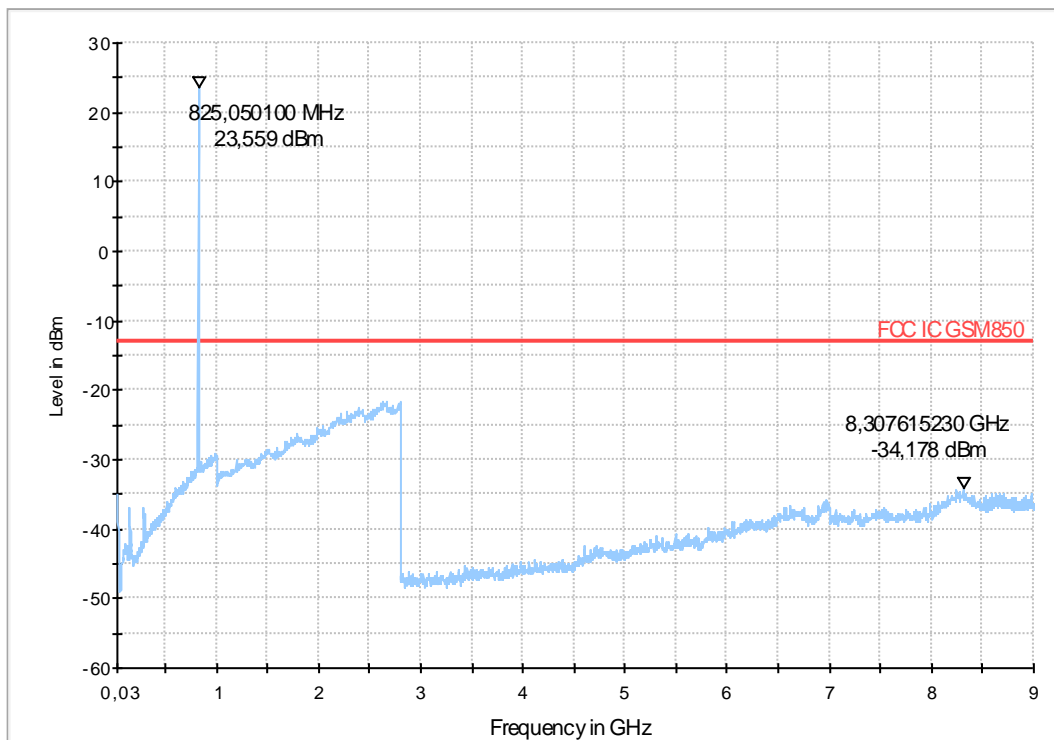
Test Description:	Radiated Spurious Emissions GSM850
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part22.917
Test Case:	-
Operating Mode:	E-GPRS MS allocated UL channel 128
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 49%rH; Temperature: 23°C
Operator:	dpa

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Aux. Devices:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60 Hz
Comments:	

030401e_FCC_Part22_GSM850_TX_Ch190_30M-12G_EGPRS



a_5.03_BE

Common Information

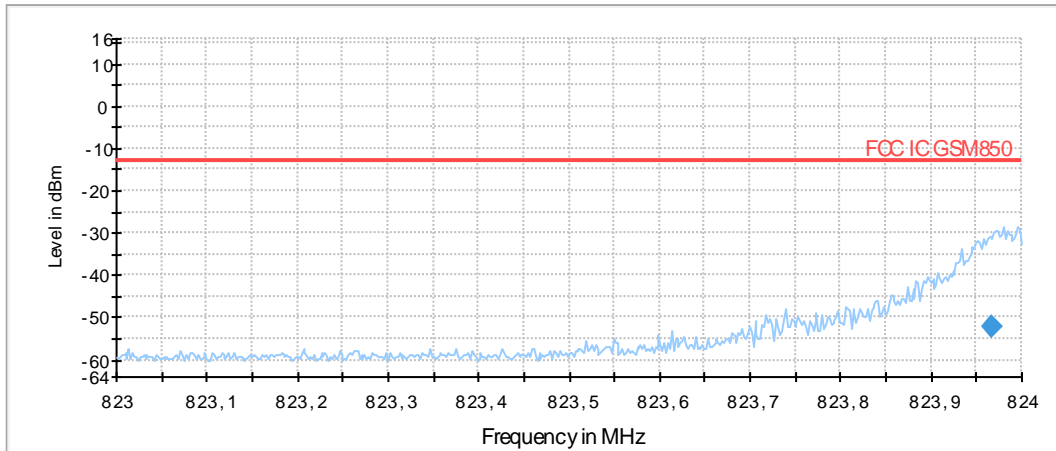
Test Description:	Radiated Emissions GSM850 Band Edge
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917
Comm. Link:	GSM850, EDGE
Operating Mode:	MS allocated channel 128 (UL = 824.2MHz), 1 UL, +33dBm
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 49%rH; Temperature: 23°C
Operator:	dpa

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Aux. Devices:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60 Hz
Comments:	

030402b_FCC_Part22_GSM850_TX_low_channel_band_edge_EGPRS



Final Result 1

Frequency (MHz)	Average (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
823.967936	-52.0	10000.0	3.000	V	32.0	90.0	-75.9	39.0	-13.0

a_5.03_PWR_new

Common Information

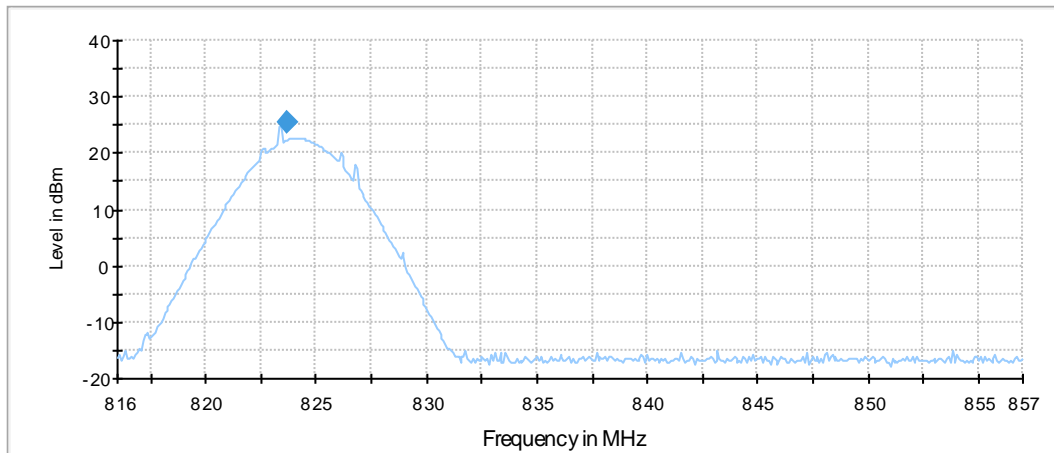
Test Description:	GSM850 - ERP Carrier Measurement
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917
Comm. Link:	GSM850, EDGE
Operating Mode:	MS allocated channel 128 (UL = 824.2MHz), 1 UL, +33dBm
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030407_FCC_Part22_GSM850_ERP_Carrier_measurement



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
823.650301	25.3	5000.0	3000.000	V	28.0	90.0	-76.0

a_5.05

Common Information

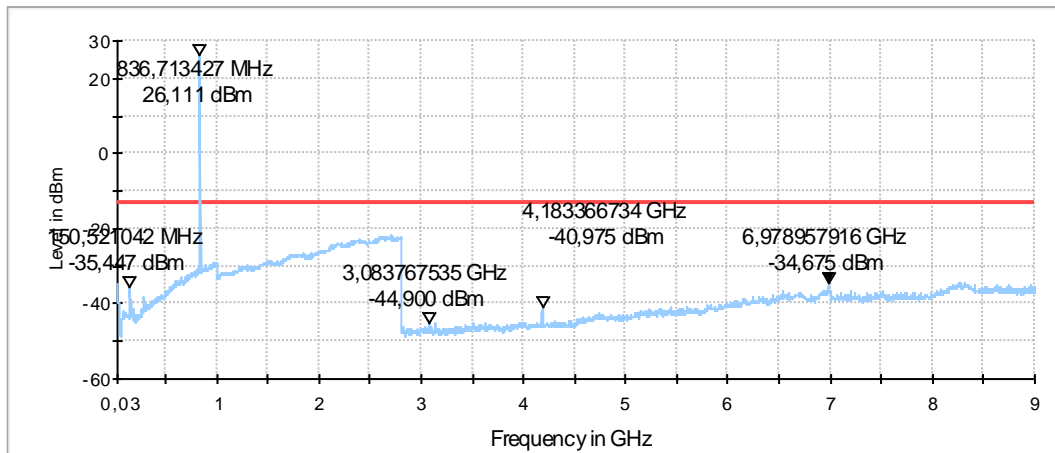
Test Description:	Radiated Emissions GSM850
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part22.917
Test Case:	-
Operating Mode:	MS allocated EDGE UL channel 192
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030401_FCC_Pat22_GSM850_TX_all_channels_30M-12G



a_5.05_PWR

Common Information

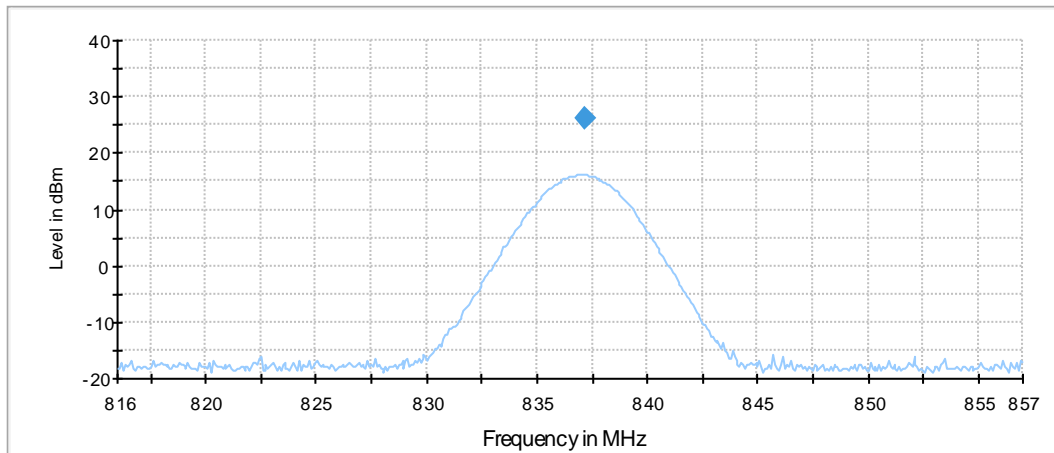
Test Description: GSM850 - ERP Carrier Measurement
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 22.917
 Comm. Link: GSM850, EDGE
 Operating Mode: MS allocated channel 192(UL = 837.0MHz), 1 UL
 Exclusionband: None
 Environmental Conditions: Humidity: 58%rH; Temperature: 20°C
 Operator: Yzh

EUT Information

Manufacturer: u-blox
 Model: LISA-U200
 Type: GSM/WCDMA Module

 EUT: -
 EUT additional information: -
 HW version: -
 SW version: 21.03
 Additional SW: -
 Config: -
 Serial number: 358901040001353
 Connected Interfaces: Magnet Antenna GA107, AC/DC 12V Charger
 Power Supply: AC Charger connected to 110 V / 60Hz
 Comments:

030407e_FCC_Part22_GSM850_ERP_Carrier_measurement_Ch192_EDGE



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
837.176152	26.2	5000.0	3000.000	H	349.0	90.0	-75.8

a_5.04

Common Information

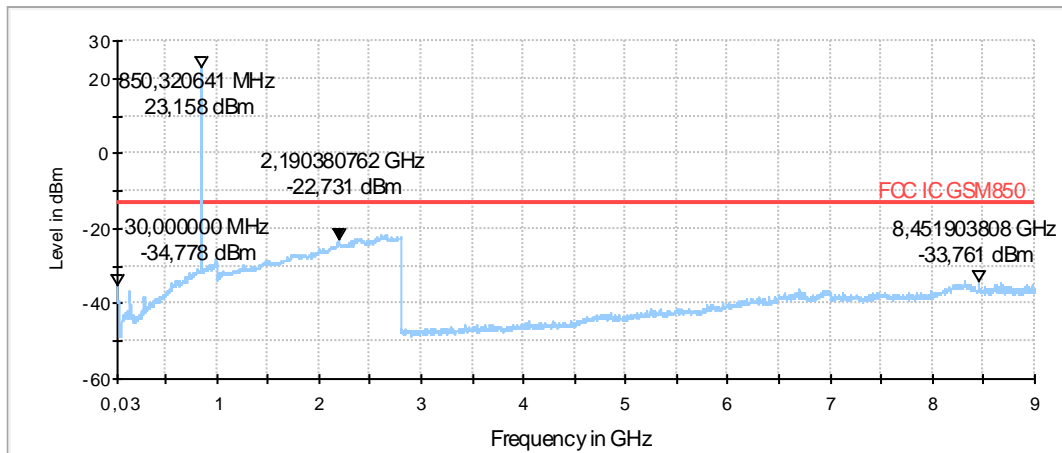
Test Description:	Radiated Emissions GSM850
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part22.917
Test Case:	-
Operating Mode:	MS allocated channel 251EDGE (UL = 848.8MHz), 1 UL
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030401_FCC_Pat22_GSM850_TX_all_channels_30M-12G



a_5.04_BE**Common Information**

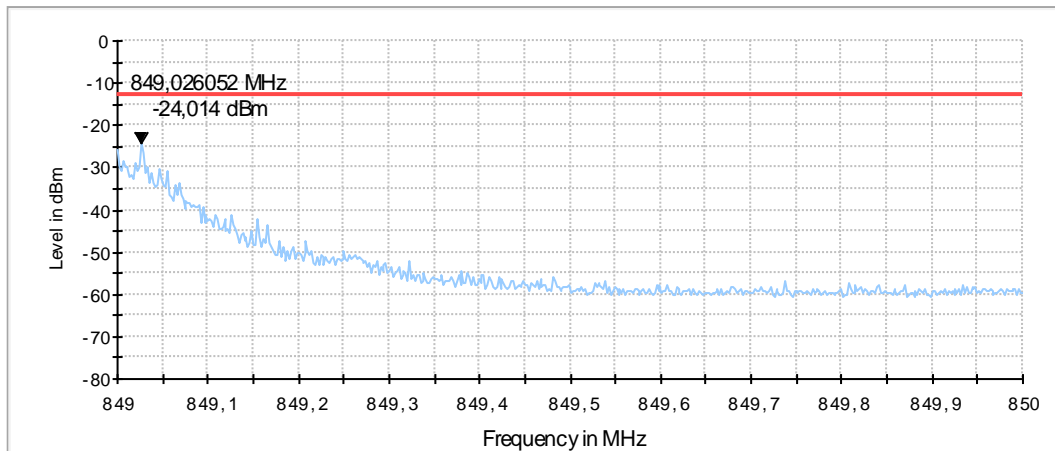
Test Description:	Radiated Spurious Emissions GSM850
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917
Comm. Link:	GSM850, EDGE
Operating Mode:	MS allocated channel 251EDGE (UL = 848.8MHz), 1 UL
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030403b_FCC_Part22_GSM850_TX_high_channel_band_edge_EGPRS



a_5.04_PWR

Common Information

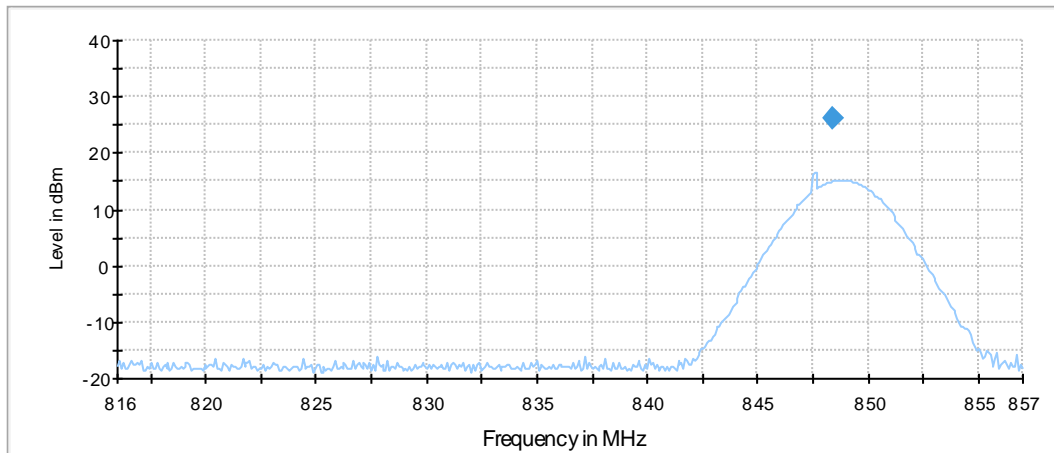
Test Description:	GSM850 - ERP Carrier Measurement
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917
Comm. Link:	GSM850, EDGE
Operating Mode:	MS allocated channel 251 EDGE (UL = 848.8MHz), 1 UL
Exclusionband:	824 - 849MHz
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030407f_FCC_Part22_GSM850_ERP_Carrier_measurement_Ch251_EDGE



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
848.404208	26.1	5000.0	3000.000	H	344.0	90.0	-76.0

2.0 E.R.P.(radiated) – GPRS 850 Mode a_5.17_PWR

Common Information

Test Description: G850 - ERP Carrier Measurement (FCC Part 22)
 Operating Conditions: Fully Anechoic Room (FAR)
 Operator Name: Tas
 Project no.: 6-0082-11-1-2a

EUT Information

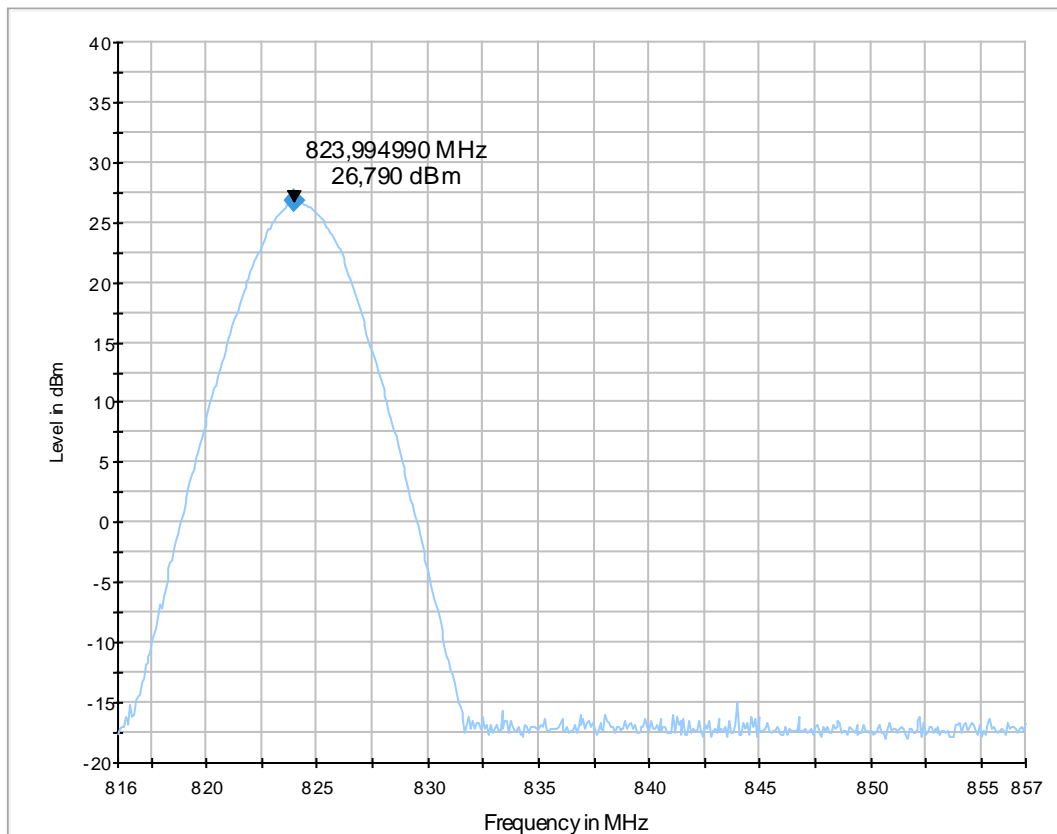
Manufacturer: u-blox
 Model: LISA-U200
 Type: GSM/WCDMA Module

EUT: -
 EUT additional information: -
 HW version: -
 SW version: 21.03
 Additional SW: -
 Config: -
 Serial number: 358901040001353
 Aux. Devices: Magnet Antenna GA107, AC/DC 12V Charger
 Power Supply: AC Charger connected to 110 V / 60 Hz
 Comments:

Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
823.994990	26.8	5000.0	3000.000	V	74.0	0.0	-75.9

030407_FCC_Part22_GSM850_ERP_Carrier_measurement



a_5.18_PWR_m

Common Information

Test Description:	G850 - ERP Carrier Measurement (FCC Part 22)
Operating Conditions:	Fully Anechoic Room (FAR)
Operator:	Tas
Project no.:	6-0082-11-1-2a
Operating mode:	G850-GPRS, TX-mode, ARFCN 192_middle

EUT Information

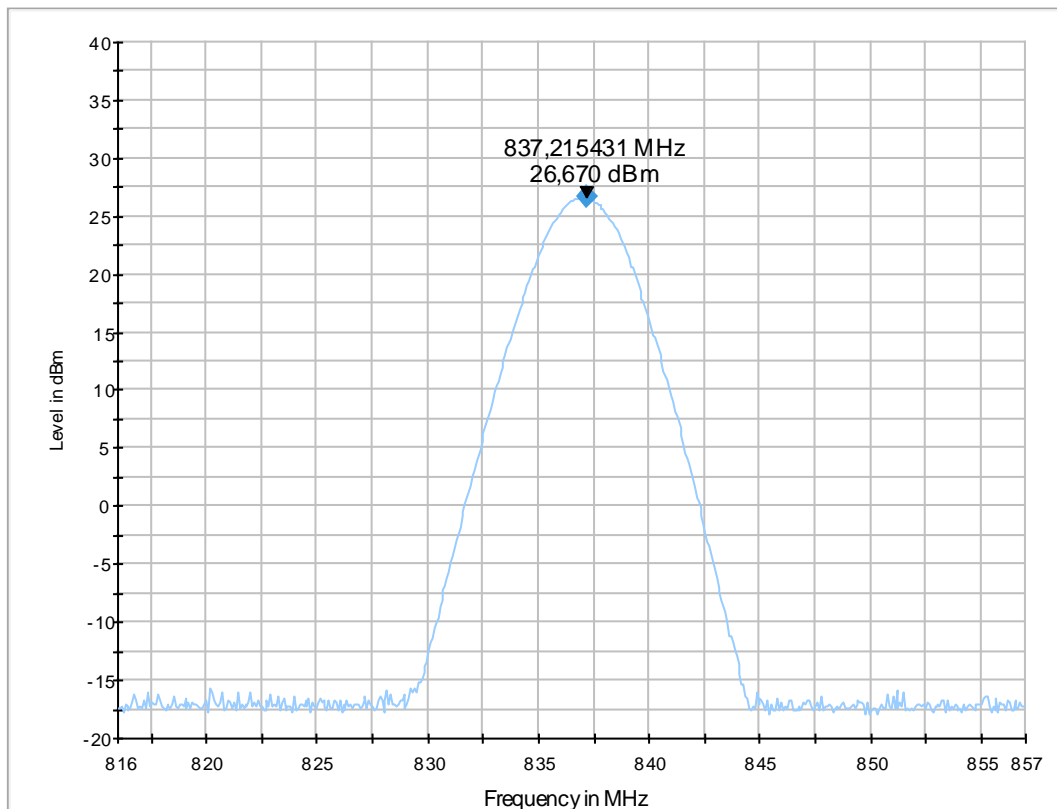
Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Aux. Devices:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60 Hz
Comments:	

Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
837.215431	26.7	5000.0	3000.000	V	75.0	0.0	-75.8

030407_FCC_Part22_GSM850_ERP_Carrier_measurement



a_5.19_PWR_h

Common Information

Test Description:	G850 - ERP Carrier Measurement (FCC Part 22)
Operating Conditions:	Fully Anechoic Room (FAR)
Operator Name:	Tas
Project no.:	6-0082-11-1-2a
Operating mode:	G850-GPRS, TX-mode, ARFCN 251_high

EUT Information

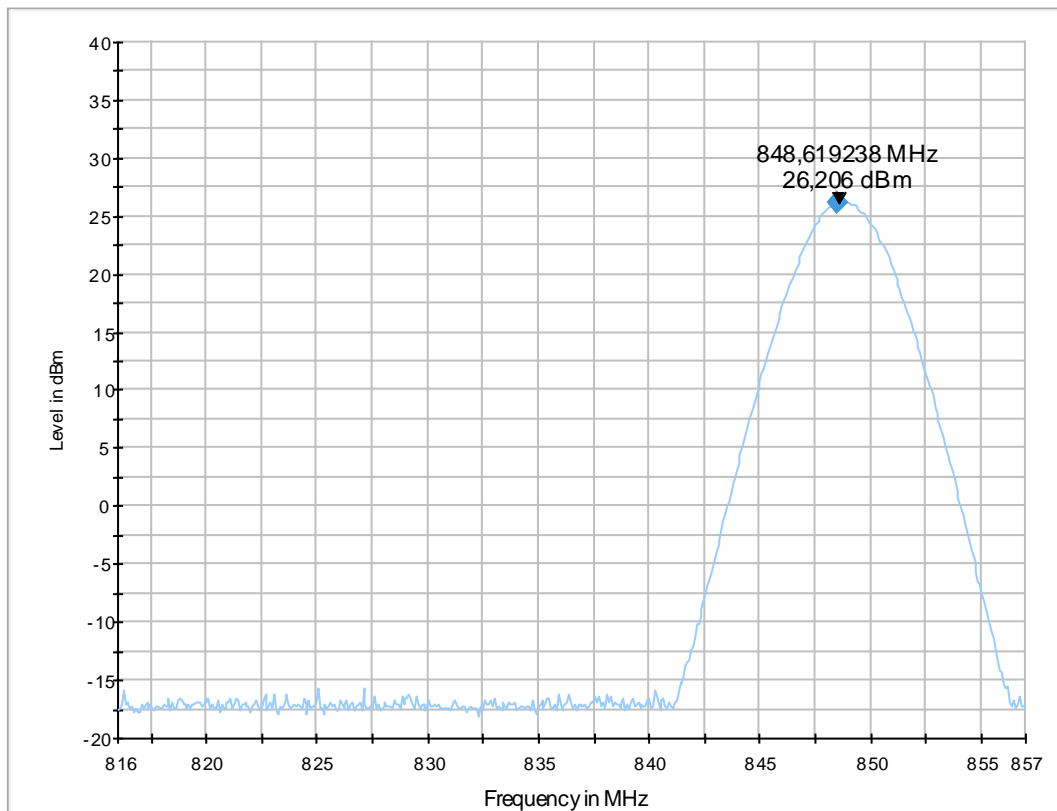
Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Aux. Devices:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60 Hz
Comments:	

Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
848.522044	26.2	5000.0	3000.000	V	72.0	0.0	-76.0

030407_FCC_Part22_GSM850_ERP_Carrier_measurement



2.1 Radiated spurious emissions+ Block-Edge+ E.I.R.P. – (E)GPRS PCS1900 Mode

a_5.06

Common Information

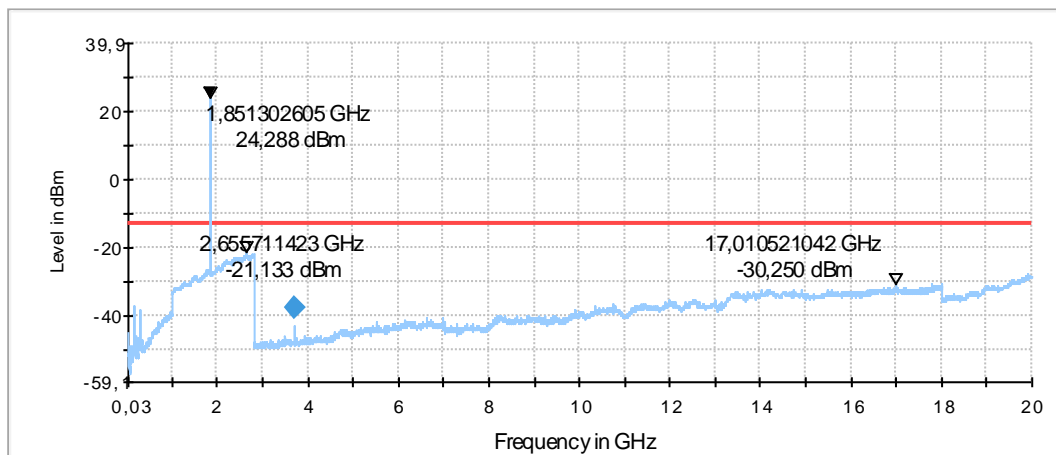
Test Description: Radiated Spurious Emissions GSM1900
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 24.238
 Comm. Link: GSM1900, EDGE
 Operating Mode: MS allocated channel 661 (fc = 1880 MHz), 1UL, +30dBm
 Exclusionband: 1850- 1910MHz
 Environmental Conditions: Humidity: 58%rH: Temperature: 20°C
 Operator: ada

EUT Information

Manufacturer: u-blox
 Model: LISA-U200
 Type: GSM/WCDMA Module

 EUT: -
 EUT additional information: -
 HW version: -
 SW version: 21.03
 Additional SW: -
 Config: -
 Serial number: 358901040001353
 Connected Interfaces: Magnet Antenna GA107, AC/DC 12V Charger
 Power Supply: AC Charger connected to 110 V / 60Hz
 Comments:

030404d_FCC_Part24_GSM1900_TX_Ch512_30M-20G_EGPRS



Final Result 1

Frequency (MHz)	Max Peak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
3700.0050	-37.6	5000	3000	H	297.0	90.0	-94.9	24.6	-13.0

a_5.06_BE

Common Information

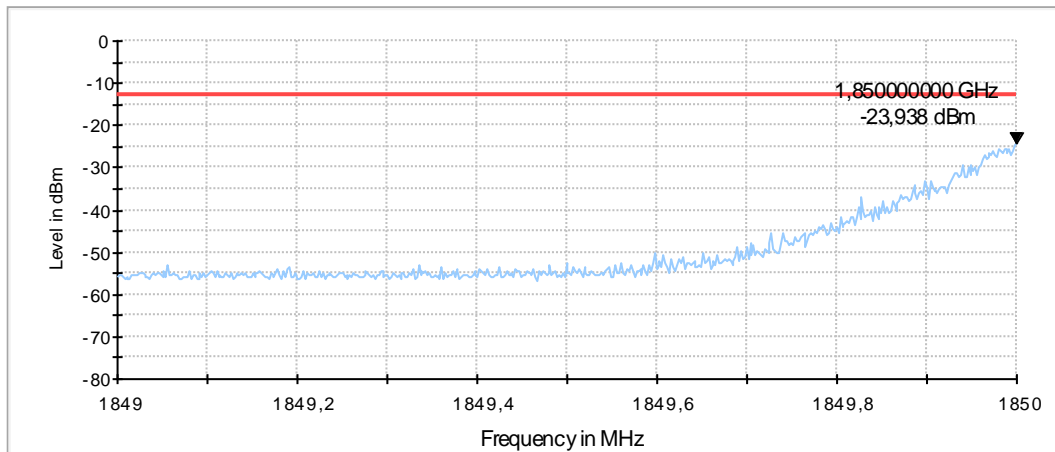
Test Description:	Radiated Emissions GSM1900 Band Edge
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238
Comm. Link:	GSM1900, EDGE
Operating Mode:	MS allocated channel 512 (UL = 1850.2MHz), 1UL
Exclusionband:	1850- 1910MHz
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030405b_FCC_Part24_GSM1900_TX_low_channel_band_edge_EGPRS



a_5.06_PWR

Common Information

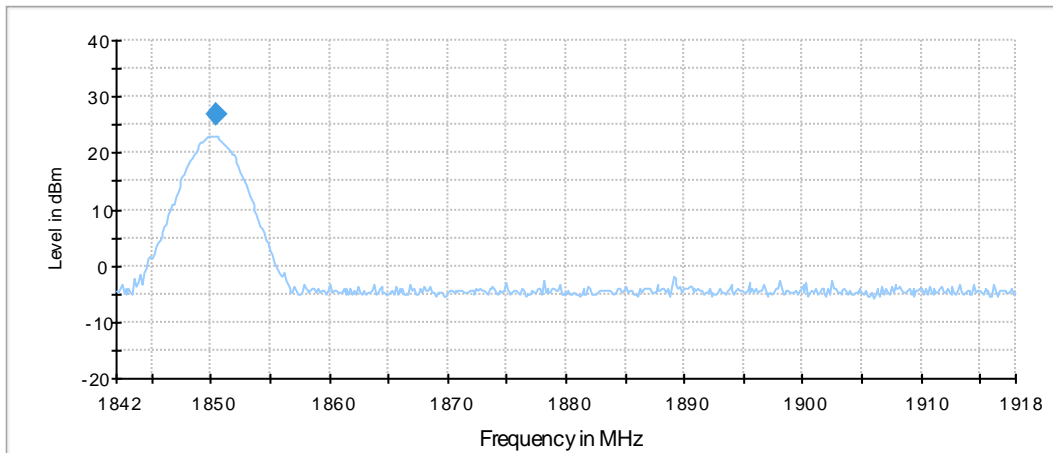
Test Description:	GSM1900 - EIRP Carrier Measurement
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238
Comm. Link:	GSM1900, EDGE
Operating Mode:	MS allocated channel 512 (UL = 1850.2MHz), 1UL
Exclusionband:	None
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030408d_FCC_Part24_GSM1900_EIRP_Carrier_measurement_Ch512_EDGE



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1850.405411	26.9	5000.0	3000.000	H	52.0	90.0	-62.6

a_5.07

Common Information

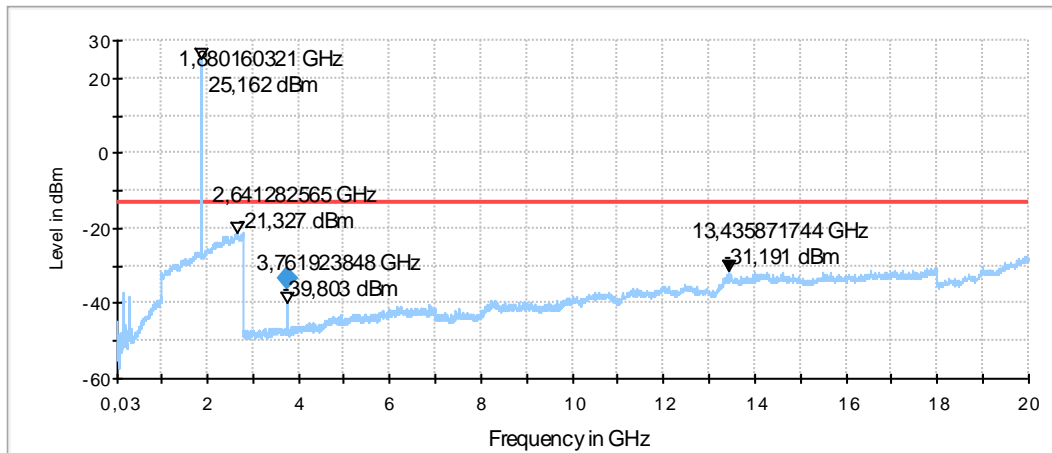
Test Description: Radiated Spurious Emissions GSM1900
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 24.238
 Comm. Link: GSM1900, EDGE
 Operating Mode: MS allocated channel 661 (fc = 1880 MHz), 1UL
 Exclusionband: 1850- 1910MHz
 Environmental Conditions: Humidity: 58%rH; Temperature: 20°C
 Operator: Yzh

EUT Information

Manufacturer: u-blox
 Model: LISA-U200
 Type: GSM/WCDMA Module

 EUT: -
 EUT additional information: -
 HW version: -
 SW version: 21.03
 Additional SW: -
 Config: -
 Serial number: 358901040001353
 Connected Interfaces: Magnet Antenna GA107, AC/DC 12V Charger
 Power Supply: AC Charger connected to 110 V / 60Hz
 Comments:

030404e_FCC_Part24_GSM1900_TX_Ch661_30M-20G_EGPRS



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
3759.994990	-33.2	5000.0	3000.000	H	302.0	90.0	-95.1	20.2	-13.0

a_5.07_PWR

Common Information

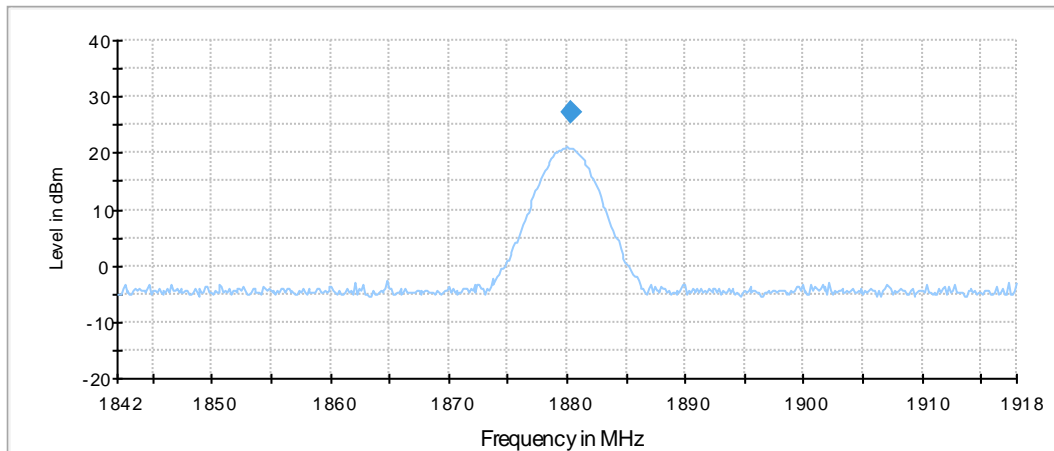
Test Description: GSM1900 - EIRP Carrier Measurement
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 24.238
 Comm. Link: GSM1900, EDGE
 Operating Mode: MS allocated channel 661 (fc = 1880 MHz), 1UL
 Exclusionband: None
 Environmental Conditions: Humidity: 58%rH; Temperature: 20°C
 Operator: Yzh

EUT Information

Manufacturer: u-blox
 Model: LISA-U200
 Type: GSM/WCDMA Module

 EUT: -
 EUT additional information: -
 HW version: -
 SW version: 21.03
 Additional SW: -
 Config: -
 Serial number: 358901040001353
 Connected Interfaces: Magnet Antenna GA107, AC/DC 12V Charger
 Power Supply: AC Charger connected to 110 V / 60Hz
 Comments:

030408e_FCC_Part24_GSM1900_EIRP_Carrier_measurement_Ch661_EDGE



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1880.275551	27.2	5000.0	3000.000	H	50.0	90.0	-62.7

a_5.08

Common Information

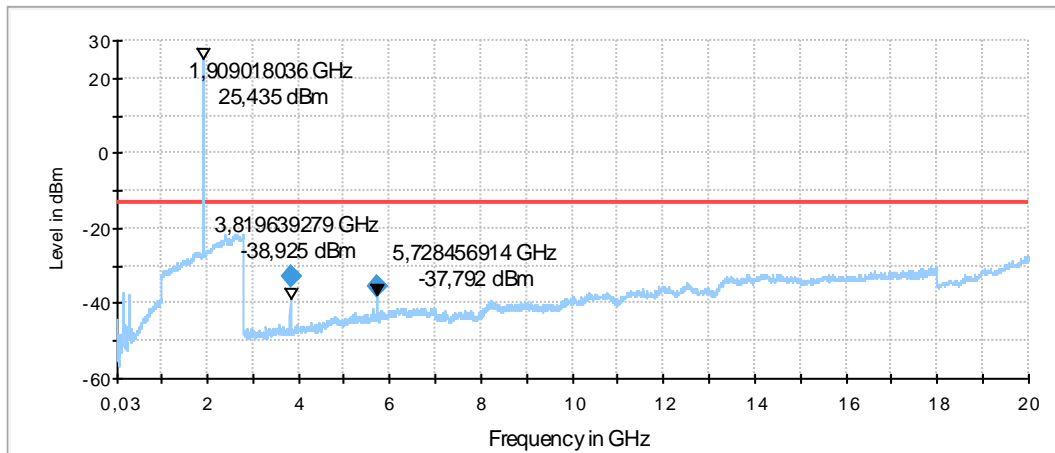
Test Description: Radiated Spurious Emissions GSM1900
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 24.238
 Comm. Link: GSM1900, EDGE
 Operating Mode: MS allocated channel 810 (UL = 1909.8MHz)
 Exclusionband: 1850- 1910MHz
 Environmental Conditions: Humidity: 58%rH; Temperature: 20°C
 Operator: ada

EUT Information

Manufacturer: u-blox
 Model: LISA-U200
 Type: GSM/WCDMA Module

 EUT: -
 EUT additional information: -
 HW version: -
 SW version: 21.03
 Additional SW: -
 Config: -
 Serial number: 358901040001353
 Connected Interfaces: Magnet Antenna GA107, AC/DC 12V Charger
 Power Supply: AC Charger connected to 110 V / 60Hz
 Comments:

030404f_FCC_Part24_GSM1900_TX_Ch810_30M-20G_EGPRS



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
3819.974950	-32.6	5000.0	3000.000	V	42.0	0.0	-95.1	19.6	-13.0
5729.574148	-35.7	5000.0	3000.000	V	263.0	90.0	-90.0	22.7	-13.0

a_5.08_BE

Common Information

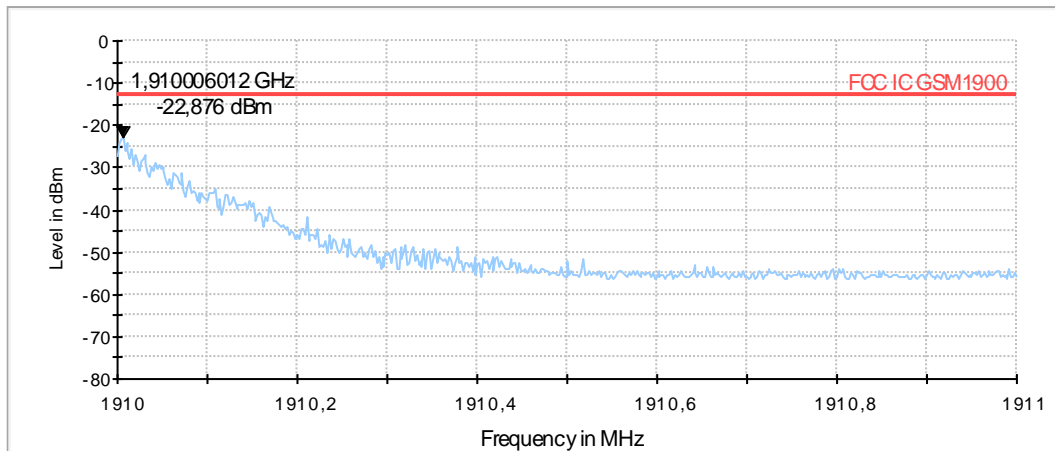
Test Description:	Radiated Emissions GSM1900 Band Edge
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238
Comm. Link:	GSM1900, EDGE
Operating Mode:	MS allocated channel 810 (UL = 1909.8MHz), 1UL, +30dBm
Exclusionband:	1850- 1910MHz
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030406b_FCC_Part24_GSM1900_TX_high_channel_band_edge_EGPRS



a_5.08_PWR

Common Information

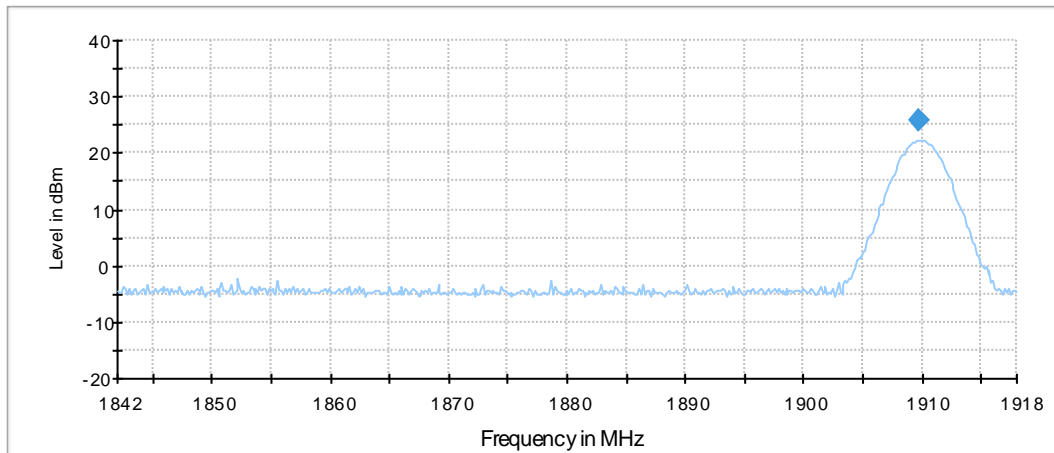
Test Description:	GSM1900 - EIRP Carrier Measurement
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238
Comm. Link:	GSM1900, EDGE
Operating Mode:	MS allocated channel 810 (UL = 1909.8MHz), 1UL
Exclusionband:	None
Environmental Conditions:	Humidity: 58%rH; Temperature: 20°C
Operator:	Yzh

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Connected Interfaces:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60Hz
Comments:	

030408f_FCC_Part24_GSM1900_EIRP_Carrier_measurement_Ch810_EDGE



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1909.704810	25.6	5000.0	3000.000	H	48.0	90.0	-62.7

2.2 E.I.R.P.(radiated) – GPRS PCS1900 Mode

Diagram No.: a_5.20_PWR

Common Information

Test Description:	PCS1900 - EIRP Carrier Measurement (FCC Part 24)
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operation mode:	GPRS(GMSK) - TCH 1900, CHANNEL 512
Operator Name:	Tas
Comment:	6-0082-11-1-2a, External Antenna of EUT used

EUT Information

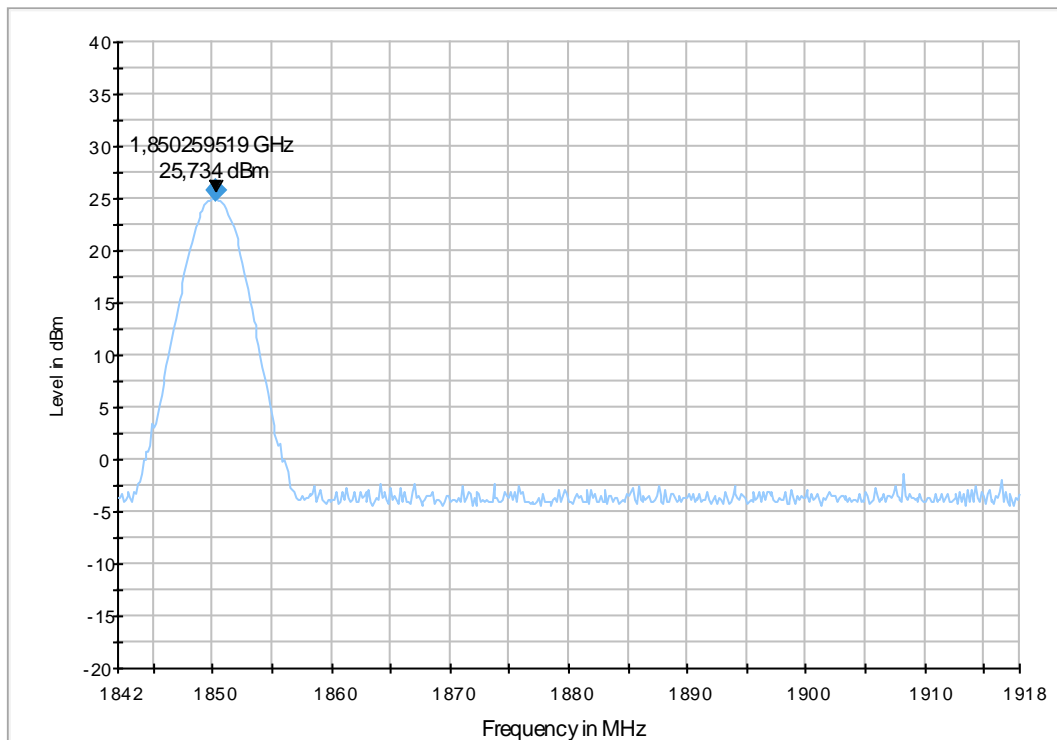
Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Aux. Devices:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60 Hz
Comments:	

Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1850.259519	25.7	5000.0	3000.000	H	215.0	90.0	-62.6

030408_FCC_Part24_GSM1900_Carrier_measurement



a_5.21_PWR

Common Information

Test Description:	PCS1900 - EIRP Carrier Measurement (FCC Part 24)
Operating Conditions:	Fully Anechoic Room (FAR)
Operator Name:	Tas
Proeject no.:	6-0082-11-1-2a
Operating mode	GPRS-PCS1900, TX-mode, ARFCN 661_middle

EUT Information

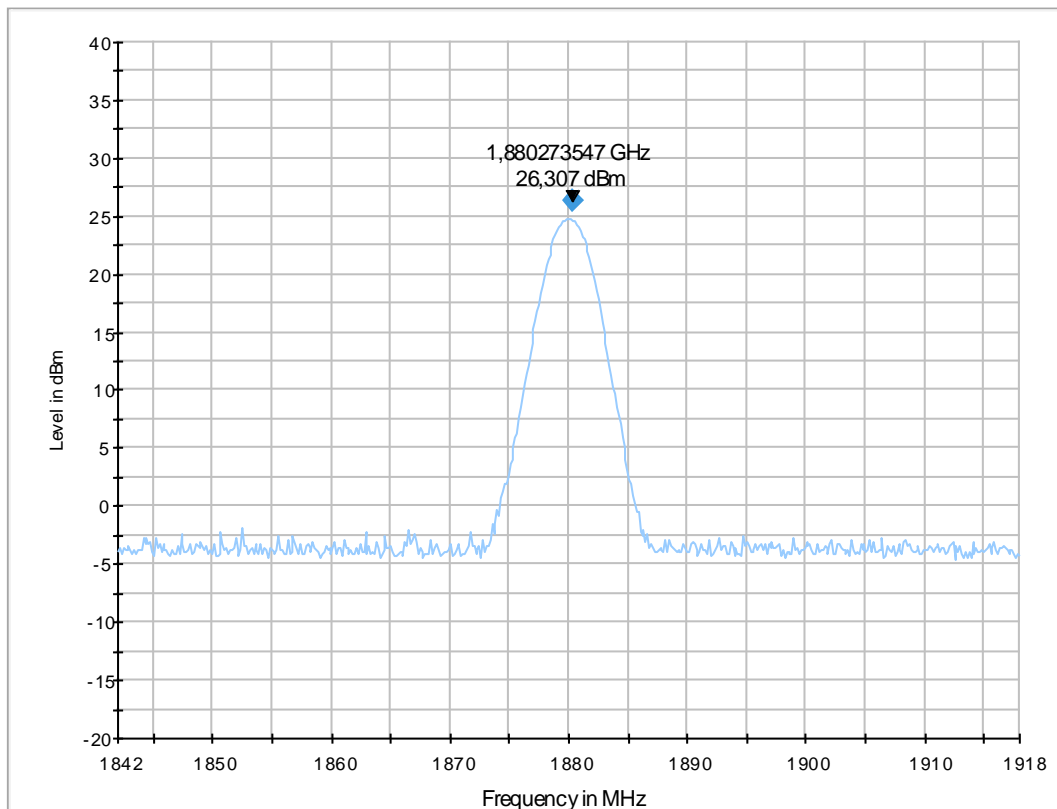
Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Aux. Devices:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60 Hz
Comments:	

Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1880.273547	26.3	5000.0	3000.000	H	333.0	0.0	-62.7

030408_FCC_Part24_GSM1900_Carrier_measurement



a_5.22_PWR

Common Information

Test Description:	PCS1900 - EIRP Carrier Measurement (FCC Part 24)
Operating Conditions:	Fully Anechoic Room (FAR)
Operator Name:	Tas
Project no.	6-0082-11-1-2a
Operating mode	GPRS-PCS1900, TX-mode, ARFCN 810_high

EUT Information

Manufacturer:	u-blox
Model:	LISA-U200
Type:	GSM/WCDMA Module

EUT:	-
EUT additional information:	-
HW version:	-
SW version:	21.03
Additional SW:	-
Config:	-
Serial number:	358901040001353
Aux. Devices:	Magnet Antenna GA107, AC/DC 12V Charger
Power Supply:	AC Charger connected to 110 V / 60 Hz
Comments:	

Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1909.620240	26.2	5000.0	3000.000	H	220.0	90.0	-62.7

030408_FCC_Part24_GSM1900_Carrier_measurement

