





Annex 1: Measurement diagrams to TEST REPORT

No.: 2-20759504c/09

According to:
FCC Regulations
Part 15.109

for
Option N.V.

GSM/(E)GPRS USB Data Stick GI0505
(iCON505)

Laboratory Accreditation and Listings			
 Deutscher Akkreditierungs Rat DAT-P176/94-02	 Reg. No.: 99538 MRA US-EU 0003	 Industry Canada Reg. No.: IC 3465	 Reg. No.: R-2665, R-2666 C-2914, T-339
accredited according to DIN EN ISO/IEC 17025			
<p>CETECOM GmbH Laboratory Radio Communications & Electromagnetic Compatibility Im Teelbruch 116 • 45219 Essen • Germany Registered in Essen, Germany, Reg. No.: HRB Essen 8984 Tel.: + 49 (0) 20 54 / 95 19-954 • Fax: + 49 (0) 20 54 / 95 19-964 E-mail: info@cetecom.de • Internet: www.cetecom.com</p>			

1. ANNEX 1: Measurement diagrams

1.1. RADIATED FIELD STRENGTH (1GHZ < F < 18GHZ)

Diagram No.: 2.01

Common Information

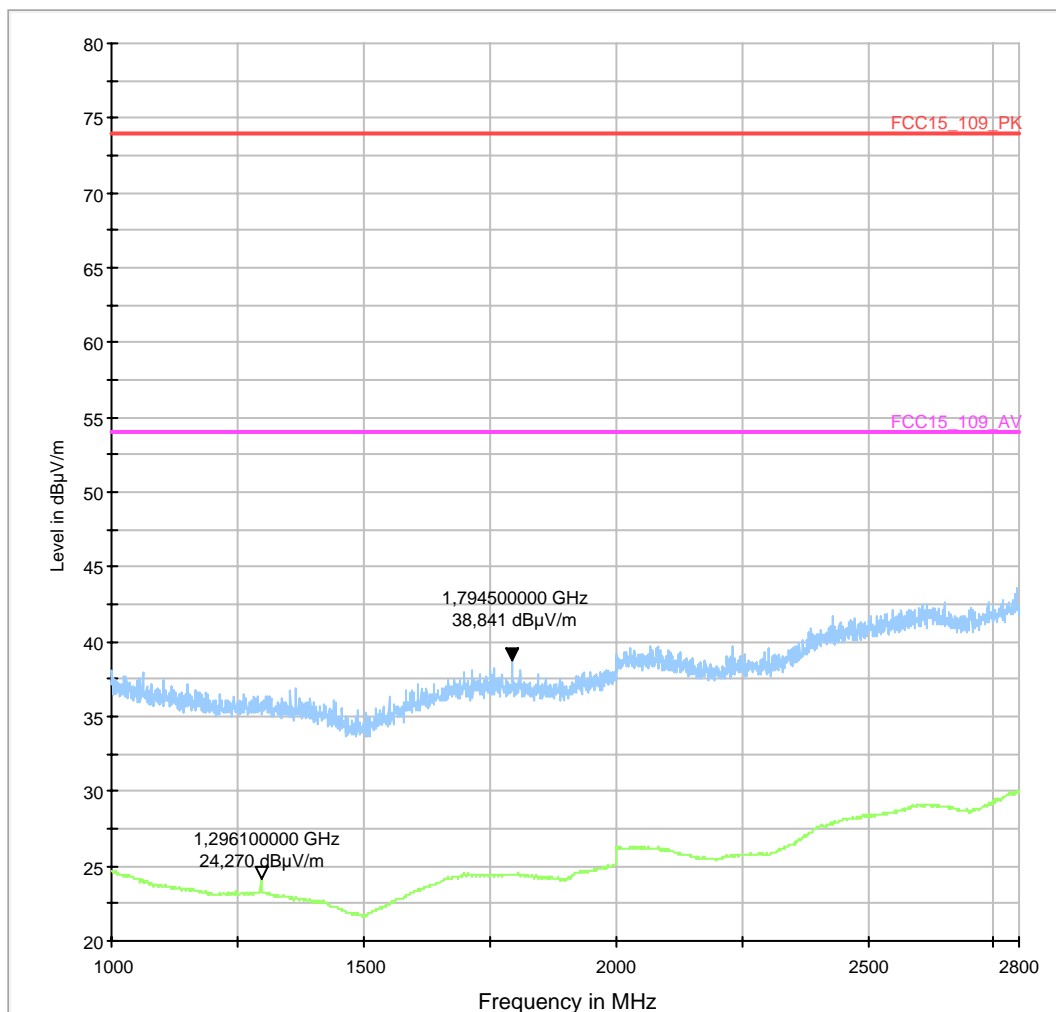
Test Description: Radiated field strength emission in 3m distance
 Test Site: CETECOM GmbH Essen
 Test Standard: FCC 15.109 Unintentional Radiator
 Antenna polarisation: horizontal/vertical

Operation mode: IDLE Mode 850 (RX-Mode)
 Operator Name:
 Comment: Uplink channel middle: --
 Downlink channel middle: 182

EUT Information

Description:
 EUT: iCon505
 Manufacturer: Option N.V.

03_1_2.7G_ohne switch H&V



EMI Auto Test Template: 03_1_2.7G_ohne switch H&V

Hardware Setup: 13_ESU_Horn_18G_Preamp_ohne_SM
Measurement Type: E(I)RP
Frequency Range: 1 GHz - 2,8 GHz
Graphics Level Range: 20 dB μ V/m - 80 dB μ V/m

Preview Measurements:
Scan Test Template: 07_ESU_1_2.7G_pre

Data Reduction:
Limit Line #1: FCC15_109_PK
Limit Line #2: FCC15_109_AV
Peak Search: 6 dB , Maximum Results: 10
Subrange Maxima: 50 Subranges , Maxima per Subrange: 1
Acceptance Offset: -20 dB
Maximum Number of Results: 30
After Data Reduction: Interactive data reduction

Frequency Zoom:
Zoom Scan Template: 09_ESU_1_2.7G_zoom

Adjustment:
Template for Single Meas.: 07_ESU_1_2.7G_pre

Final Measurements:
Template for Single Meas.: 11_ESU_1_2.7G_fin

Template for Single
Meas.:(>1GHz) 11_ESU_1_2.7G_fin

Report Settings:
Report Template: Report Setup FCC 15_109

Actions:
Test start
Notify: "Matrix richtig geschaltet !? Spekki (ESU) angeschlossen ?"

Diagram No.: 2.02

Common Information

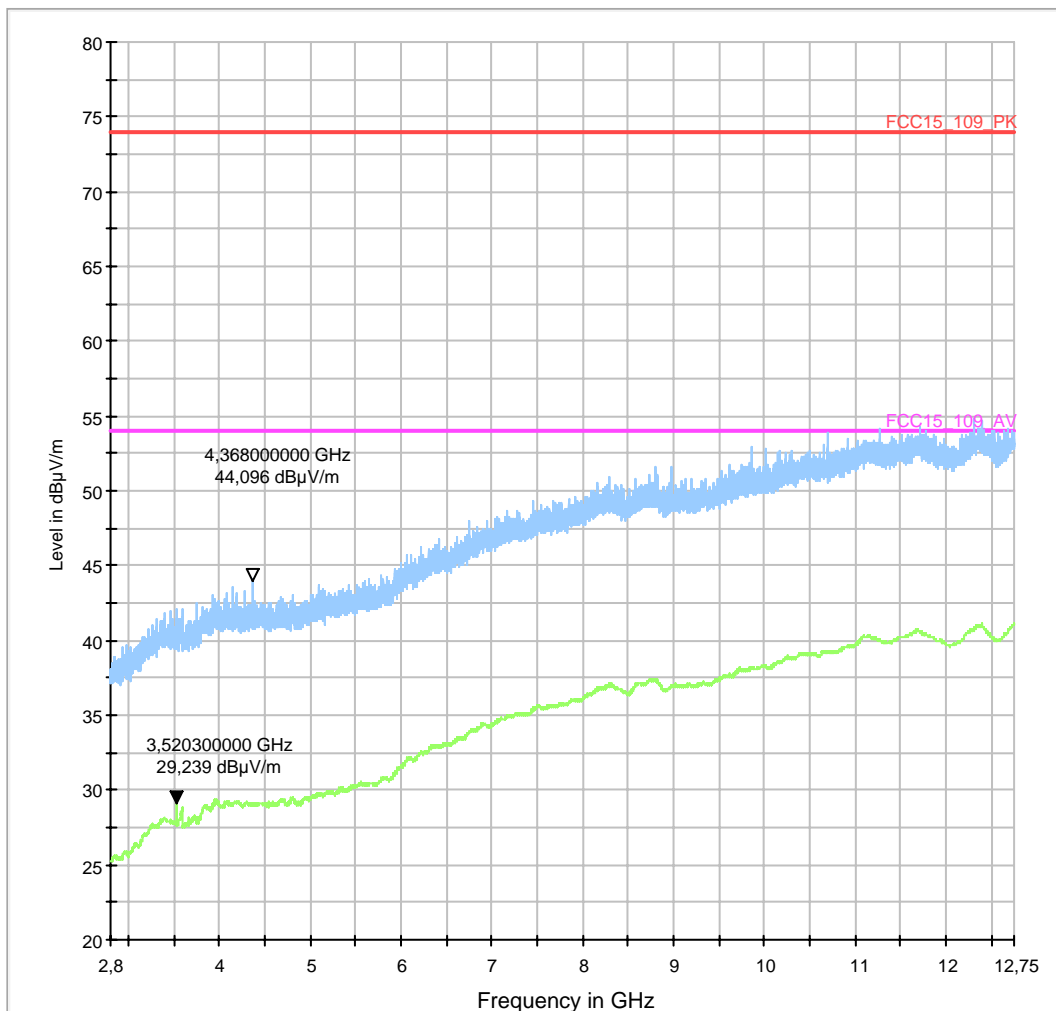
Test Description: Radiated field strength emission in 3m distance
 Test Site: CETECOM GmbH Essen
 Test Standard: FCC 15.109 Unintentional Radiator
 Antenna polarisation: horizontal/vertical

Operation mode: IDLE Mode 850
 Operator Name:
 Comment: Uplink channel middle: --
 Downlink channel middle: 182

EUT Information

Description:
 EUT: iCon505
 Manufacturer: Option N.V.

04_2.7_18G_ohne switch H&V



EMI Auto Test Template: 04_2.7_18G_ohne switch H&V

Hardware Setup: 13_ESU_Horn_18G_Preamp_ohne_SM
Measurement Type: Open-Area-Test-Site
Frequency Range: 2,8 GHz - 12,75 GHz
Graphics Level Range: 20 dB μ V/m - 80 dB μ V/m

Preview Measurements:
Scan Test Template: 08_ESU_ExtPreamp_2.7_18G_pre

Data Reduction:
Limit Line #1: FCC15_109_PK
Limit Line #2: FCC15_109_AV
Peak Search: 6 dB , Maximum Results: 10
Subrange Maxima: 50 Subranges , Maxima per Subrange: 1
Acceptance Offset: -20 dB
Maximum Number of Results: 30
After Data Reduction: Interactive data reduction

Frequency Zoom:
Zoom Scan Template: 10_ESU_ExtPreamp_2.7_18G_zoom

Adjustment:
Template for Single Meas.: 08_ESU_ExtPreamp_2.7_18G_pre

Final Measurements:
Template for Single Meas.: 12_ESU_ExtPreamp_2.7_18G_fin

Template for Single Meas.:(>1GHz) 12_ESU_ExtPreamp_2.7_18G_fin

Report Settings:
Report Template: Report Setup FCC 15_109
Create Electronic Report: PDF
Document Name: dummy EMI Report

Actions:
Test start
Notify: "Switch-Matrix richtig geschaltet ? Spekki (ESU) angeschlossen ?"

Diagram No.: 2.03

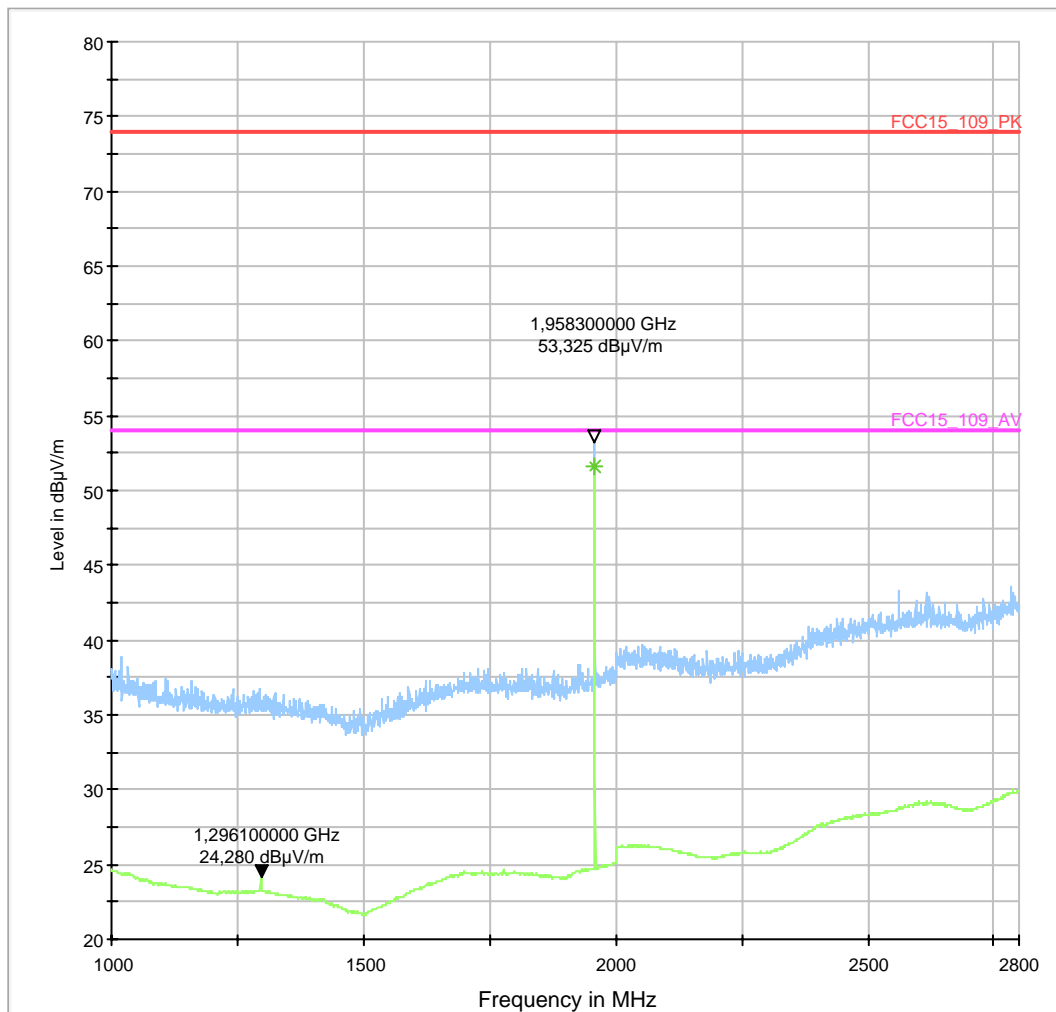
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.109 Unintentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	IDLE Mode 1900
Operator Name:	Lor
Comment:	Signal on 1958.3GHz due to BCCH Signal from CMU200 base signalling station

EUT Information

Description:	
EUT:	iCon505
Manufacturer:	Option N.V.

03_1_2.7G_ohne switch H&V



EMI Auto Test Template: 03_1_2.7G_ohne switch H&V

Hardware Setup: 13_ESU_Horn_18G_Preamp_ohne_SM
Measurement Type: E(I)RP
Frequency Range: 1 GHz - 2,8 GHz
Graphics Level Range: 20 dB μ V/m - 80 dB μ V/m

Preview Measurements:
Scan Test Template: 07_ESU_1_2.7G_pre

Data Reduction:
Limit Line #1: FCC15_109_PK
Limit Line #2: FCC15_109_AV
Peak Search: 6 dB , Maximum Results: 10
Subrange Maxima: 50 Subranges , Maxima per Subrange: 1
Acceptance Offset: -20 dB
Maximum Number of Results: 30
After Data Reduction: Interactive data reduction

Frequency Zoom:
Zoom Scan Template: 09_ESU_1_2.7G_zoom

Adjustment:
Template for Single Meas.: 07_ESU_1_2.7G_pre

Final Measurements:
Template for Single Meas.: 11_ESU_1_2.7G_fin

Template for Single
Meas.:(>1GHz) 11_ESU_1_2.7G_fin

Report Settings:
Report Template: Report Setup FCC 15_109

Actions:
Test start
Notify: "Matrix richtig geschaltet !? Spekki (ESU) angeschlossen ?"

Diagram No.: 2.04

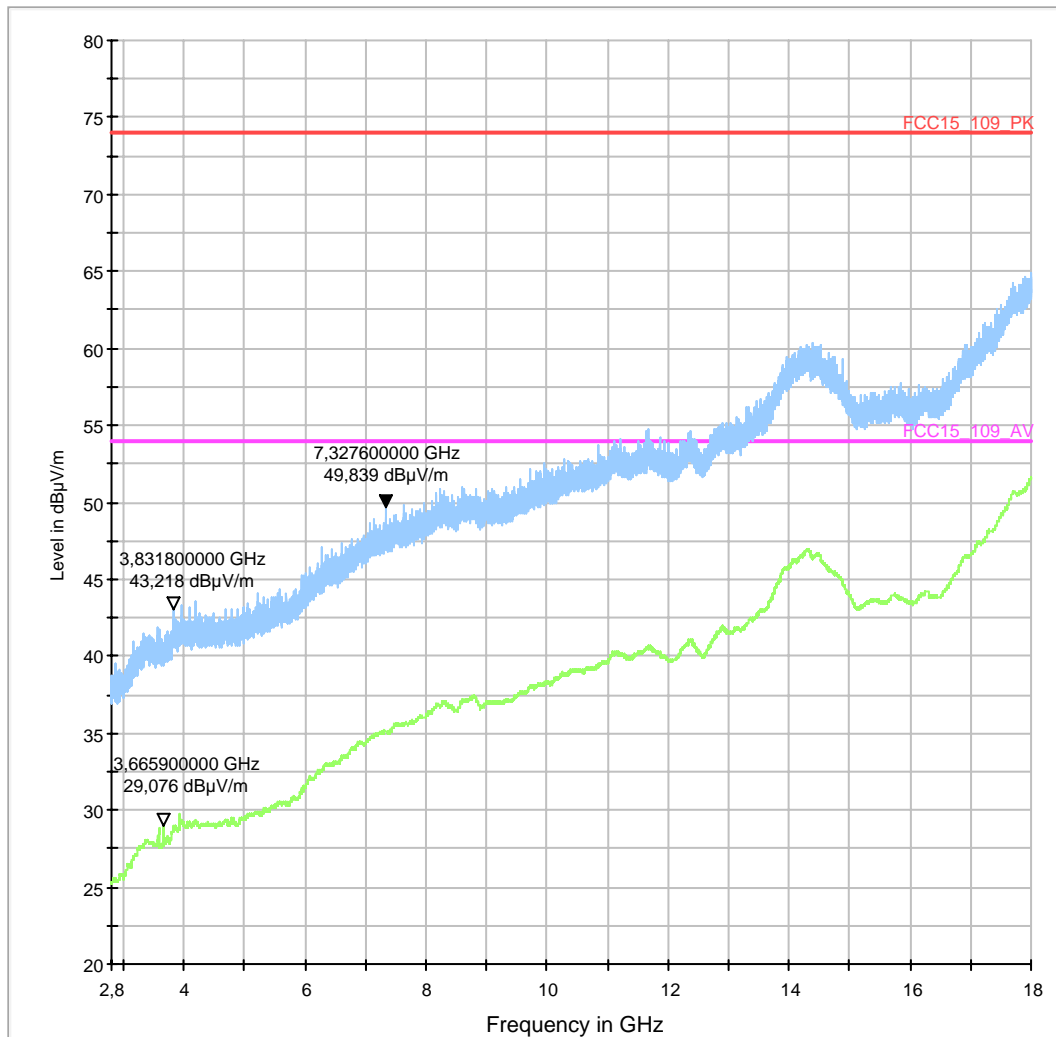
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.109 Unintentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	IDLE Mode 1900
Operator Name:	Lor
Comment:	Downlink channel: 651

EUT Information

Description:	
EUT:	iCon505
Manufacturer:	Option N.V.

04_2.7_18G_ohne switch H&V



EMI Auto Test Template: 04_2.7_18G_ohne switch H&V

Hardware Setup: 13_ESU_Horn_18G_Preamp_ohne_SM
Measurement Type: Open-Area-Test-Site
Frequency Range: 2,8 GHz - 18 GHz
Graphics Level Range: 20 dB μ V/m - 80 dB μ V/m

Preview Measurements:
Scan Test Template: 08_ESU_ExtPreamp_2.7_18G_pre

Data Reduction:
Limit Line #1: FCC15_109_PK
Limit Line #2: FCC15_109_AV
Peak Search: 6 dB , Maximum Results: 10
Subrange Maxima: 50 Subranges , Maxima per Subrange: 1
Acceptance Offset: -20 dB
Maximum Number of Results: 30
After Data Reduction: Interactive data reduction

Frequency Zoom:
Zoom Scan Template: 10_ESU_ExtPreamp_2.7_18G_zoom

Adjustment:
Template for Single Meas.: 08_ESU_ExtPreamp_2.7_18G_pre

Final Measurements:
Template for Single Meas.: 12_ESU_ExtPreamp_2.7_18G_fin

Template for Single Meas.:(>1GHz) 12_ESU_ExtPreamp_2.7_18G_fin

Report Settings:
Report Template: Report Setup FCC 15_109
Create Electronic Report: PDF
Document Name: dummy EMI Report

Actions:
Test start
Notify: "Switch-Matrix richtig geschaltet ? Spekki (ESU) angeschlossen ?"

1.2. RADIATED FIELD STRENGTH (30MHZ < F < 1000MHZ)

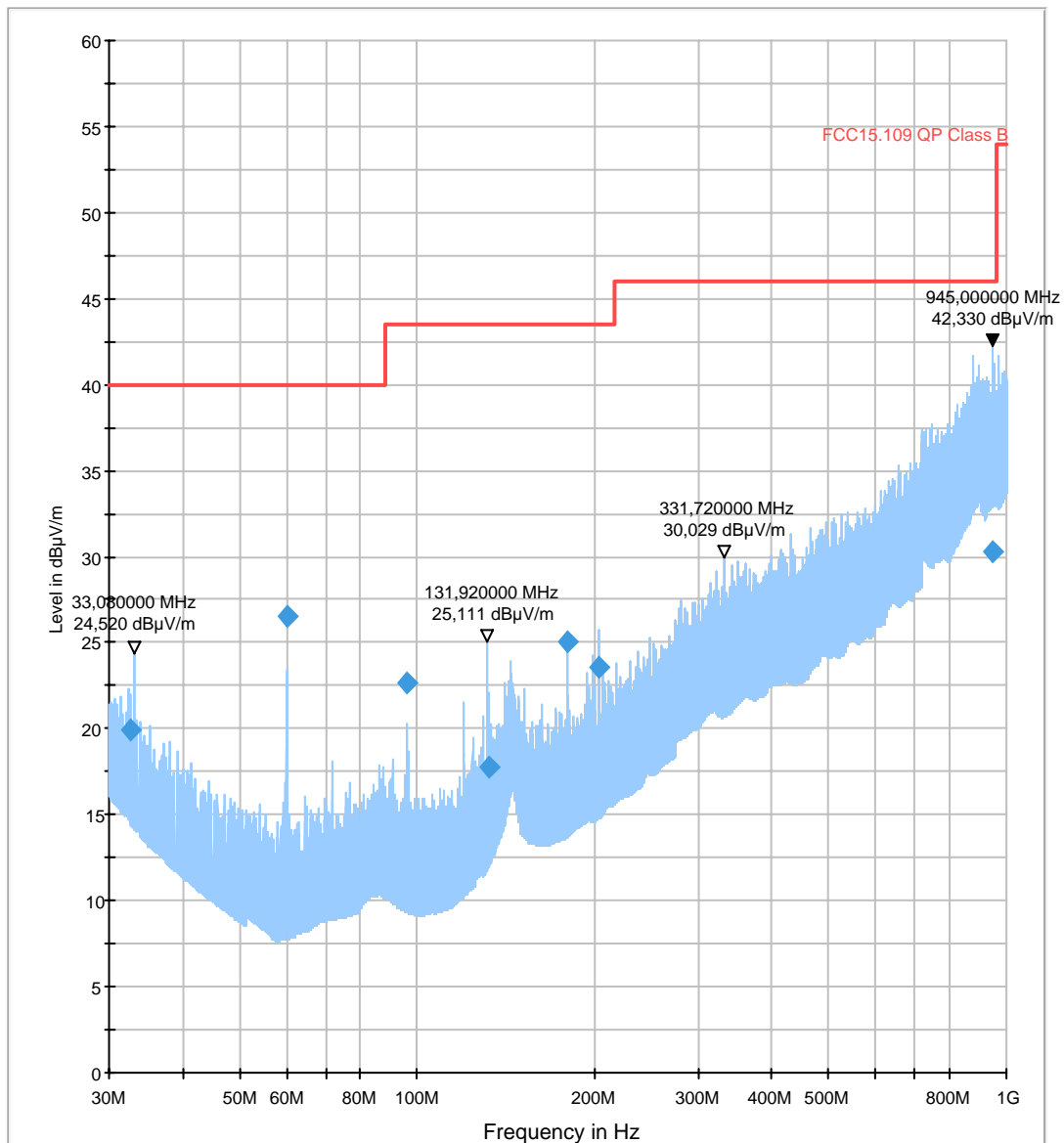
Diagram No. 2.05

Common Information

Test description:	Electric Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) with 3 m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m and 1.82 m, horizontal and vertical polarisation
Rec. antenna (final):	height between 1 m to 4 m, polarisation according to pre-scan results
Turntable step:	90° during pre-scan, continuously turning during final measurement
Used filter:	lowpass 1200 MHz
Test specification.:	FCC 15.109

Operator:	Lor
Operating conditions:	RX-Mode, Idle 850
Comment 1:	GSM Channel middle

FCC15.109_hor+vert



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)
32.570000	19.9	1000.000	120.000	100.0	V	57.0	13.6	20.1
60.000000	26.5	1000.000	120.000	330.0	H	342.0	6.5	13.5
96.010000	22.6	1000.000	120.000	212.0	H	352.0	7.7	20.9
131.990000	17.8	1000.000	120.000	187.0	H	184.0	9.4	25.7
179.980000	25.1	1000.000	120.000	156.0	H	202.0	10.5	18.4
202.880000	23.5	1000.000	120.000	193.0	H	210.0	11.6	20.0
946.080000	30.3	1000.000	120.000	304.0	V	323.0	27.1	15.7

Frequency (MHz)	Limit (dBµV/m)	Comment
32.570000	40.0	
60.000000	40.0	
96.010000	43.5	
131.990000	43.5	
179.980000	43.5	
202.880000	43.5	
946.080000	46.0	

EMI Auto Test Template: FCC15.109_hor+vert

Hardware Setup: HW11_FCC_ESCS30_TP1200
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 30 MHz - 1 GHz
 Graphics Level Range: 0 dBµV/m - 60 dBµV/m

Preview Measurements:
 Antenna height: 100 - 182 cm , Step Size = 82 cm , Speed = 8
 Polarity: H + V
 Turntable position: 0 - 270 deg , Step Size = 90 deg , Speed = 8
 Scan Test Template: EMI Scan 01_fast_FCC 15_209 B

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	MaxPeak	120 kHz	0,00005 s	ESCS 30

Data Reduction:
 Limit Line #1: FCC15.109 QP Class B
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 20
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: EMI Scan 02_20ms_zoom_FCC 15_209 B

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	MaxPeak	120 kHz	0,02 s	ESCS 30

Adjustment:
 Antenna height: Adjustment with full Range , Speed = 3
 Turntable position: Adjustment with full Range , Speed = 3
 Template for Single Meas.: EMI Scan 02_20ms_FCC 15_209 B

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	MaxPeak	120 kHz	0,02 s	ESCS 30

Final Measurements:
 Template for Single Meas.: EMI Scan 03_1s_FCC 15_209 B

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	1 s	ESCS 30

Report Settings:
 Report Template: FCC15_209_vert_hor
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

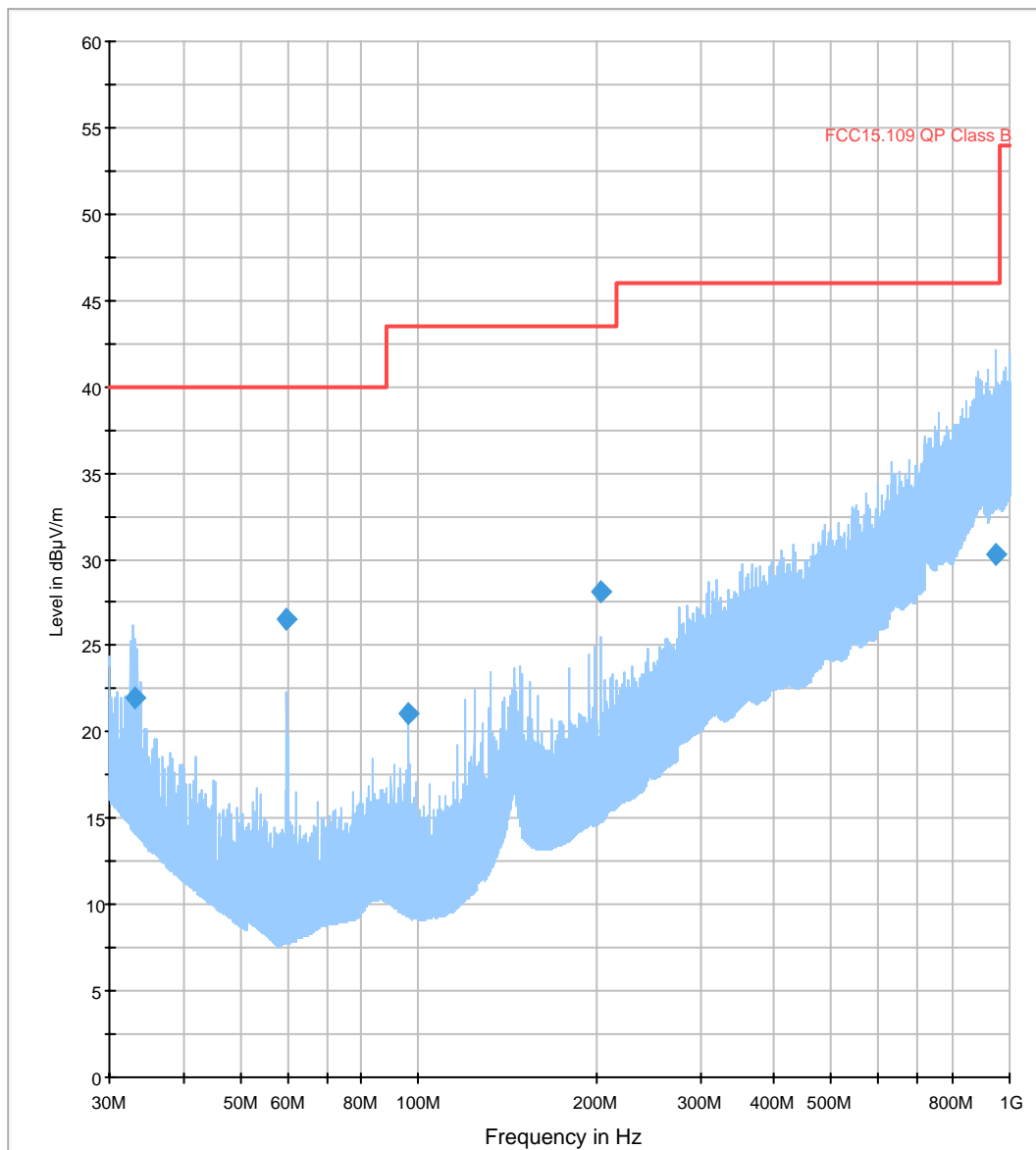
Diagram No. 2.06

Common Information

Test description:	Electric Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) with 3 m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m and 1.82 m, horizontal and vertical polarisation
Rec. antenna (final):	height between 1 m to 4 m, polarisation according to pre-scan results
Turntable step:	90° during pre-scan, continuously turning during final measurement
Used filter:	lowpass 1200 MHz
Test specification.:	FCC 15.109

Operator:	Lor
Operating conditions:	RX-Mode, Idle 1900
Comment 1:	GSM Channel middle

FCC15.109_hor+vert



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)
33.110000	22.0	1000.000	120.000	100.0	V	303.0	13.2	18.0
59.980000	26.6	1000.000	120.000	345.0	H	153.0	6.5	13.4
96.030000	21.0	1000.000	120.000	218.0	H	340.0	7.7	22.5
202.870000	28.2	1000.000	120.000	140.0	H	206.0	11.6	15.3
949.180000	30.3	1000.000	120.000	240.0	V	209.0	27.1	15.7

Frequency (MHz)	Limit (dBµV/m)	Comment
33.110000	40.0	
59.980000	40.0	
96.030000	43.5	
202.870000	43.5	
949.180000	46.0	

EMI Auto Test Template: FCC15.109_hor+vert

Hardware Setup: HW11_FCC_ESCS30_TP1200
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 30 MHz - 1 GHz
 Graphics Level Range: 0 dBµV/m - 60 dBµV/m

Preview Measurements:
 Antenna height: 100 - 182 cm , Step Size = 82 cm , Speed = 8
 Polarity: H + V
 Turntable position: 0 - 270 deg , Step Size = 90 deg , Speed = 8
 Scan Test Template: EMI Scan 01_fast_FCC 15_209 B

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	MaxPeak	120 kHz	0,00005 s	ESCS 30

Data Reduction:
 Limit Line #1: FCC15.109 QP Class B
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 20
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: EMI Scan 02_20ms_zoom_FCC 15_209 B

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	MaxPeak	120 kHz	0,02 s	ESCS 30

Adjustment:
 Antenna height: Adjustment with full Range , Speed = 3
 Turntable position: Adjustment with full Range , Speed = 3
 Template for Single Meas.: EMI Scan 02_20ms_FCC 15_209 B

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	MaxPeak	120 kHz	0,02 s	ESCS 30

Final Measurements:
 Template for Single Meas.: EMI Scan 03_1s_FCC 15_209 B

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	1 s	ESCS 30

Report Settings:
 Report Template: FCC15_209_vert_hor
 Create Electronic Report: RTF PDF
 Document Name: EMI Report