

Annex 1: Measurement diagrams
to TEST REPORT
No.: 2-20797620g/11

According to:
FCC Regulations
Part 15 Part B
Part 15.249 (a)(c)(d)(e)
IC Regulations
RSS-Gen, Issue 3
RSS-210: Issue 8

for

Sony Ericsson Mobile Communications AB

Mobile phone AAD-3880110-BV

FCC-ID: PY7A3880110
IC: 4170B-A3880110

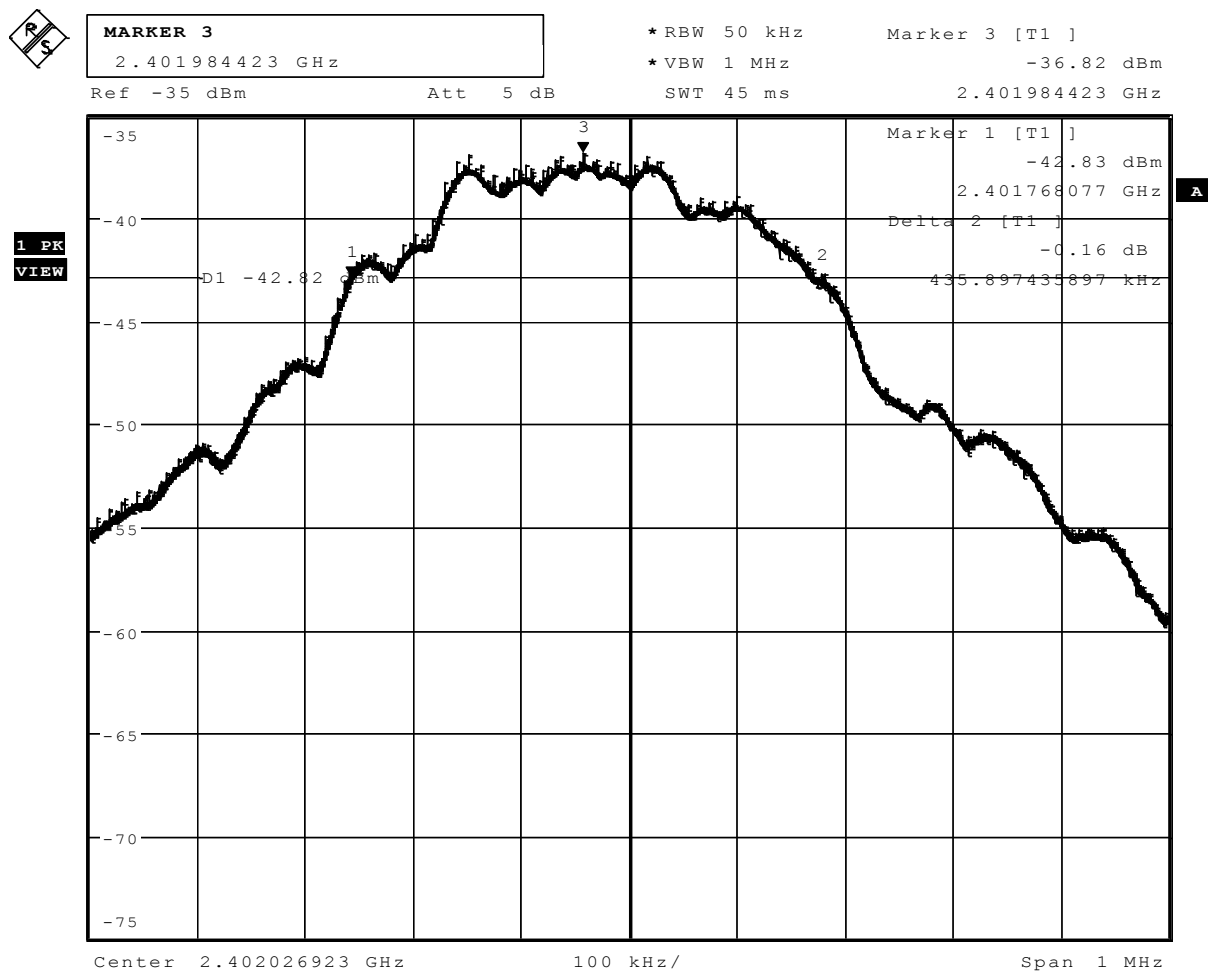
Laboratory Accreditation and Listings			
 Deutsche Akkreditierungsstelle D-PL-12047-01-01	 Reg. No.: 736496 MRA US-EU 0003	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2665, R-2666 C-2914, T-1967, G-301
 AUTHORIZED RF LABORATORY	 LAB CODE 20011130-00		
accredited according to DIN EN ISO/IEC 17025			
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1. Measurement diagrams

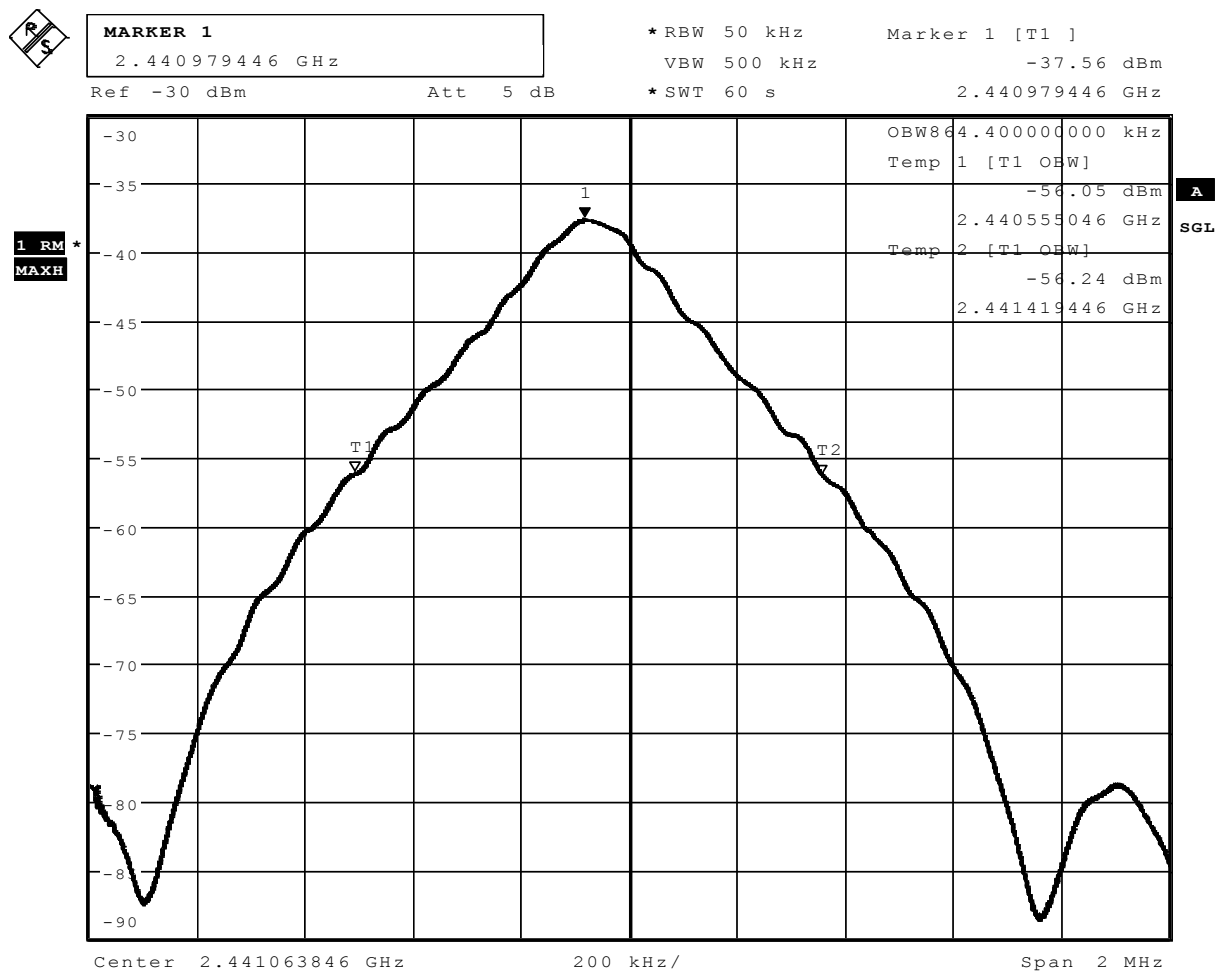
1.1. 6dB bandwidth



Date: 22.JUN.2011 14:37:03

Channel 1

1.2. 99% Occupied bandwidth



Date: 22.JUN.2011 14:49:27

Channel 39

1.3. Radiated field strength (15.209/RSS-Gen.)

1.3.1. Radiated magnetic field strength measurements (f<30MHz)

Diagram No. g_3.01

Common Information

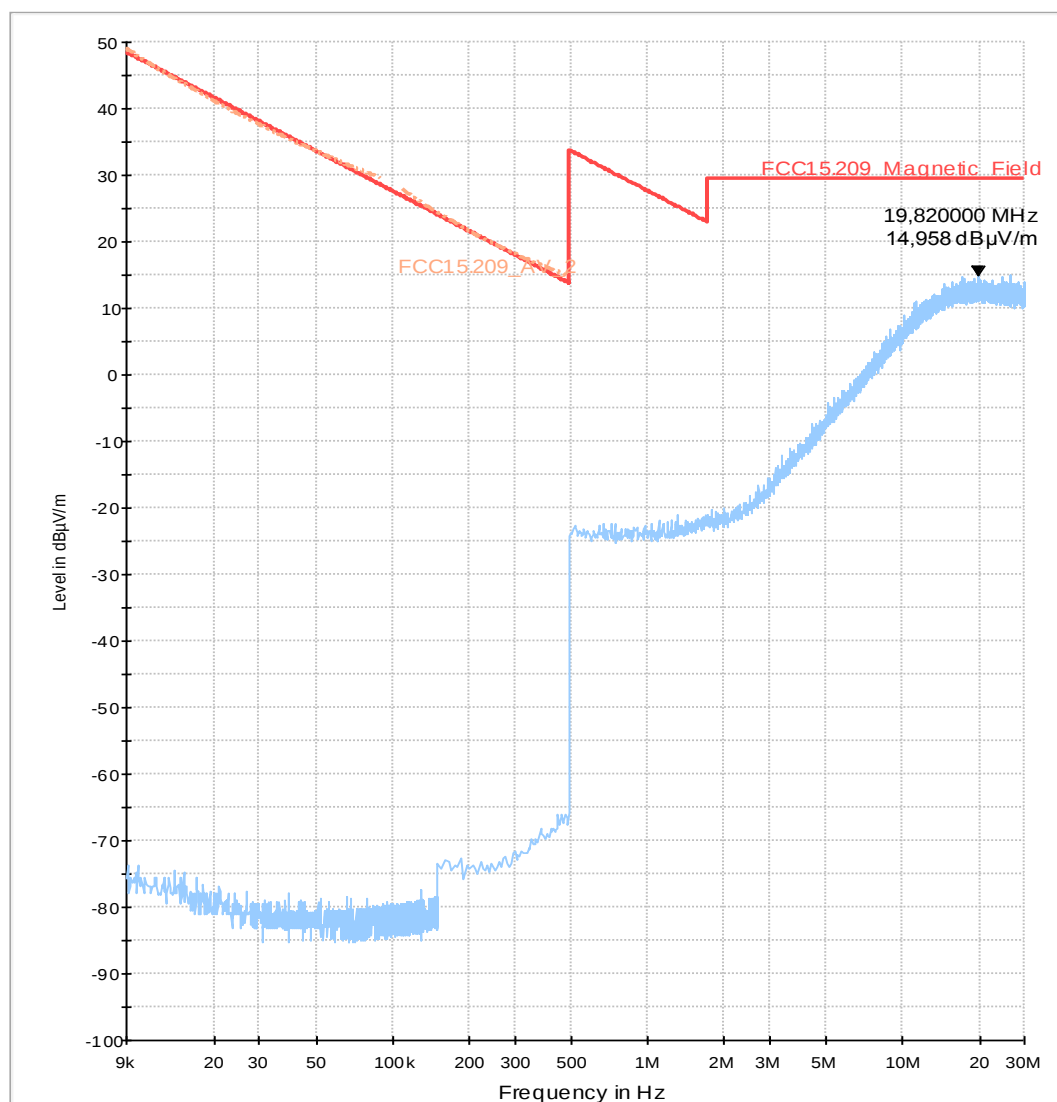
Test description:	Magnetic Fieldstrength Measurement
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	bypass
Test specification.:	FCC 15.205 § 15.209; RSS-Gen: Issue 3

Operator:	TAS
Operating conditions:	TX-on
Power during tests:	full loaded batteries
Comment 1:	Channel low

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	Sony Ericsson
Comment:	S/NCHYCC, ANT+ technology

FCC15.209_magn hor+vert



EMI Auto Test Template: FCC15.209_magn hor+vert

Diagram No. g_3.02

Common Information

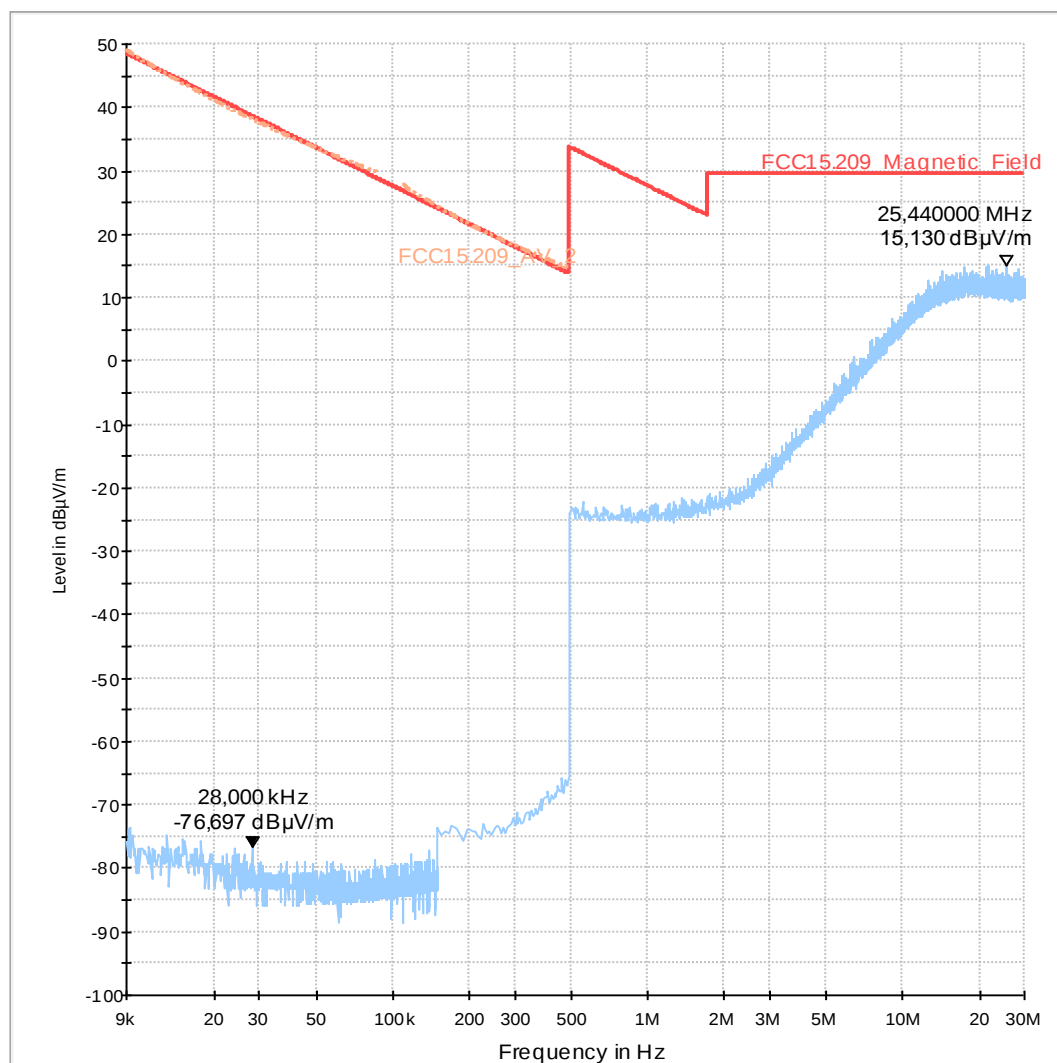
Test description:	Magnetic Fieldstrength Measurement
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	bypass
Test specification.:	FCC 15.205 § 15.209; RSS-Gen: Issue 3

Operator:	TAS
Operating conditions:	TX-on
Power during tests:	full loaded batteries
Comment 1:	Channel middle

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	Sony Ericsson
Comment:	S/NCHYCC, ANT+ technology
Accessories	--

FCC15.209_magn hor+vert



EMI Auto Test Template: FCC15.209_magn hor+vert

Diagram No. g_3.03

Common Information

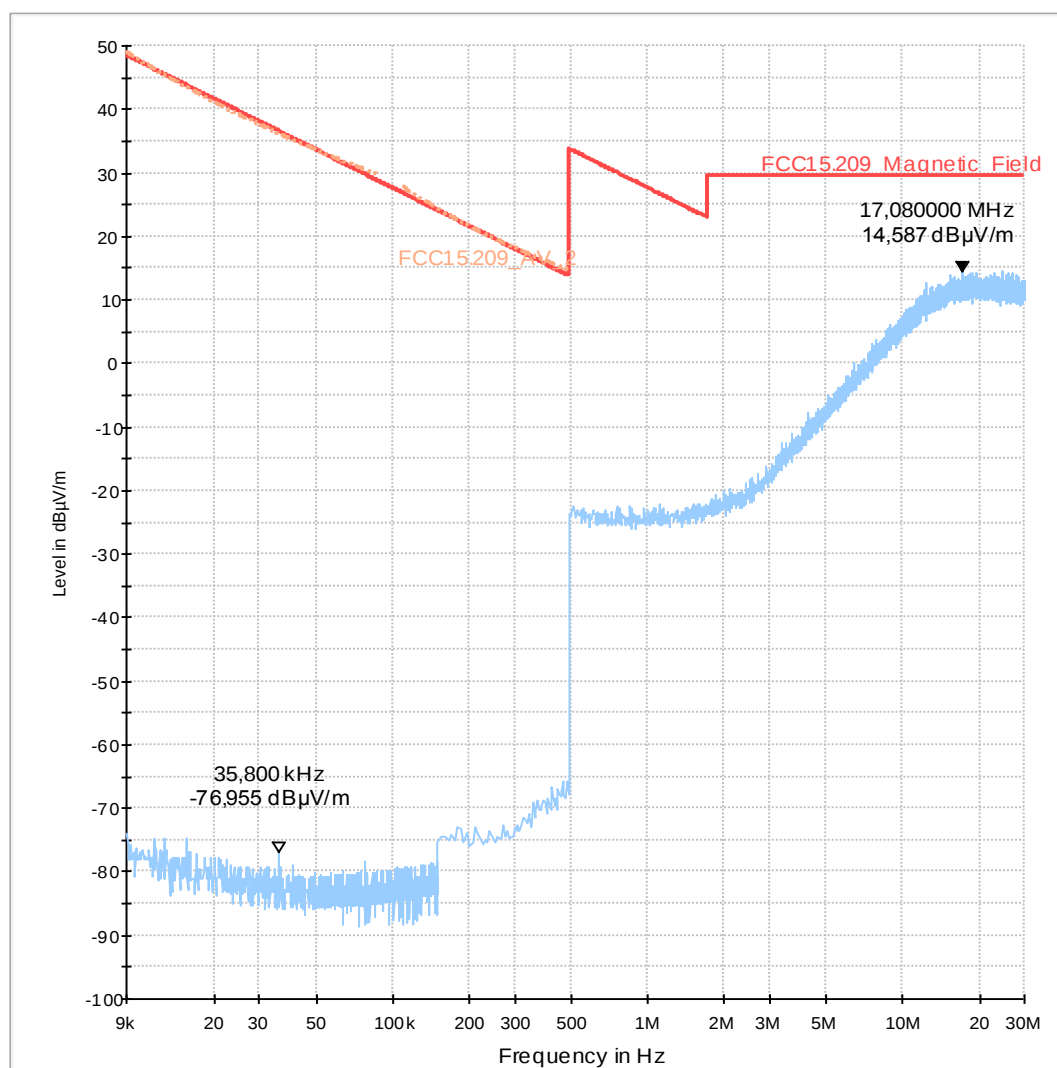
Test description:	Magnetic Fieldstrength Measurement
Test site and distance:	Semi Anechoic Room (SAR) + mobile floor absorbers and 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 3

Operator:	TAS
Operating conditions:	TX-on
Power during tests:	full loaded batteries
Comment 1:	Channel high

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	Sony Ericsson
Comment:	S/NCHYCC, ANT+ technology
Accessories:	--

FCC15.209_magn hor+vert



EMI Auto Test Template: FCC15.209_magn hor+vert

1.3.2. Radiated field strength (30MHz < f < 1GHz)

Diagram No. g_2.07

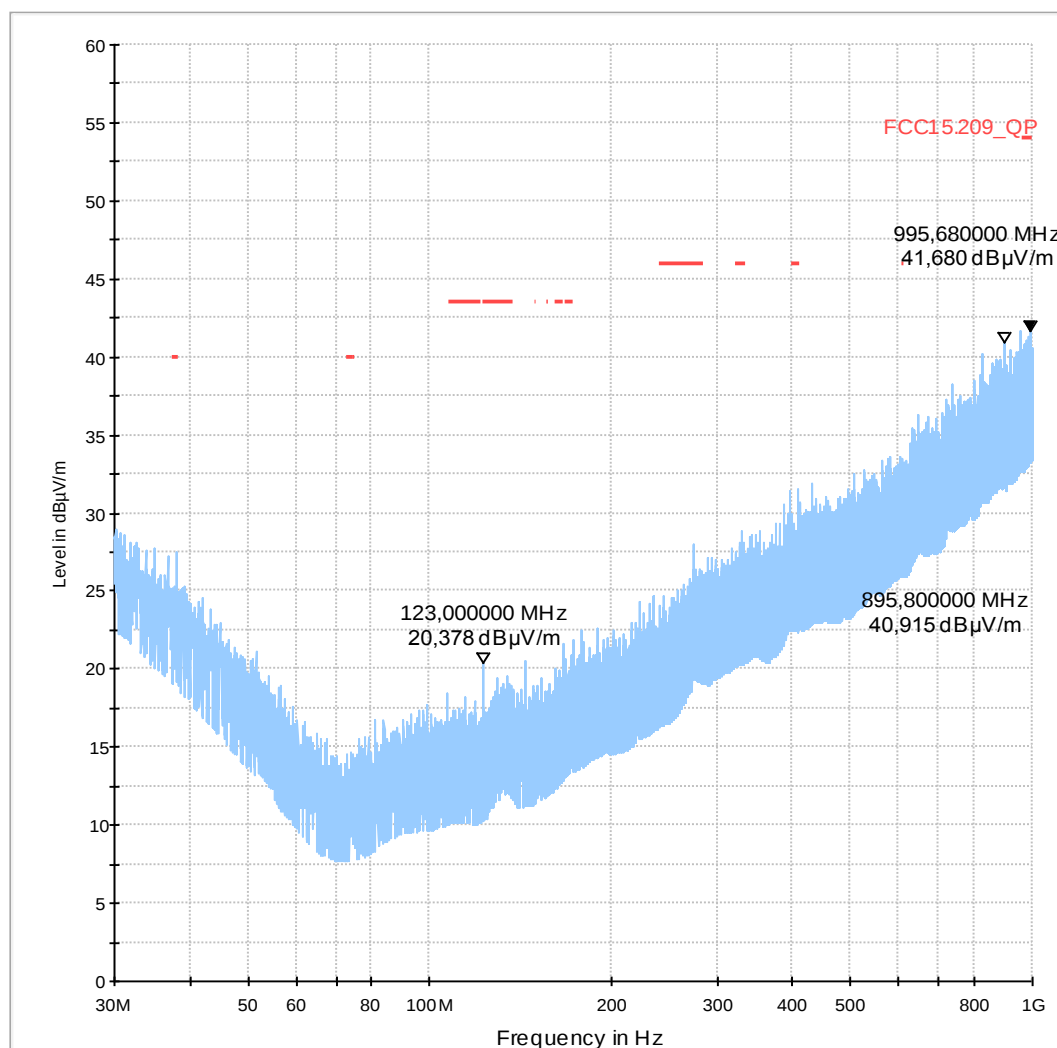
Common Information

Test description:	Electric Fieldstrength Measurement
Test site and distance:	Semi Anechoic Room (SAR) with 3m 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 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	TX-on
Power during tests:	full loaded batteries
Comment 1:	Channel low

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	Sony Ericsson
Comment:	S/NCHYCC, ANT+ technology
Accessories:	--

01_FCC15.209_hor+vert_kipp



EMI Auto Test Template: 01_FCC15.209_hor+vert_kipp

Diagram No. g_2.08

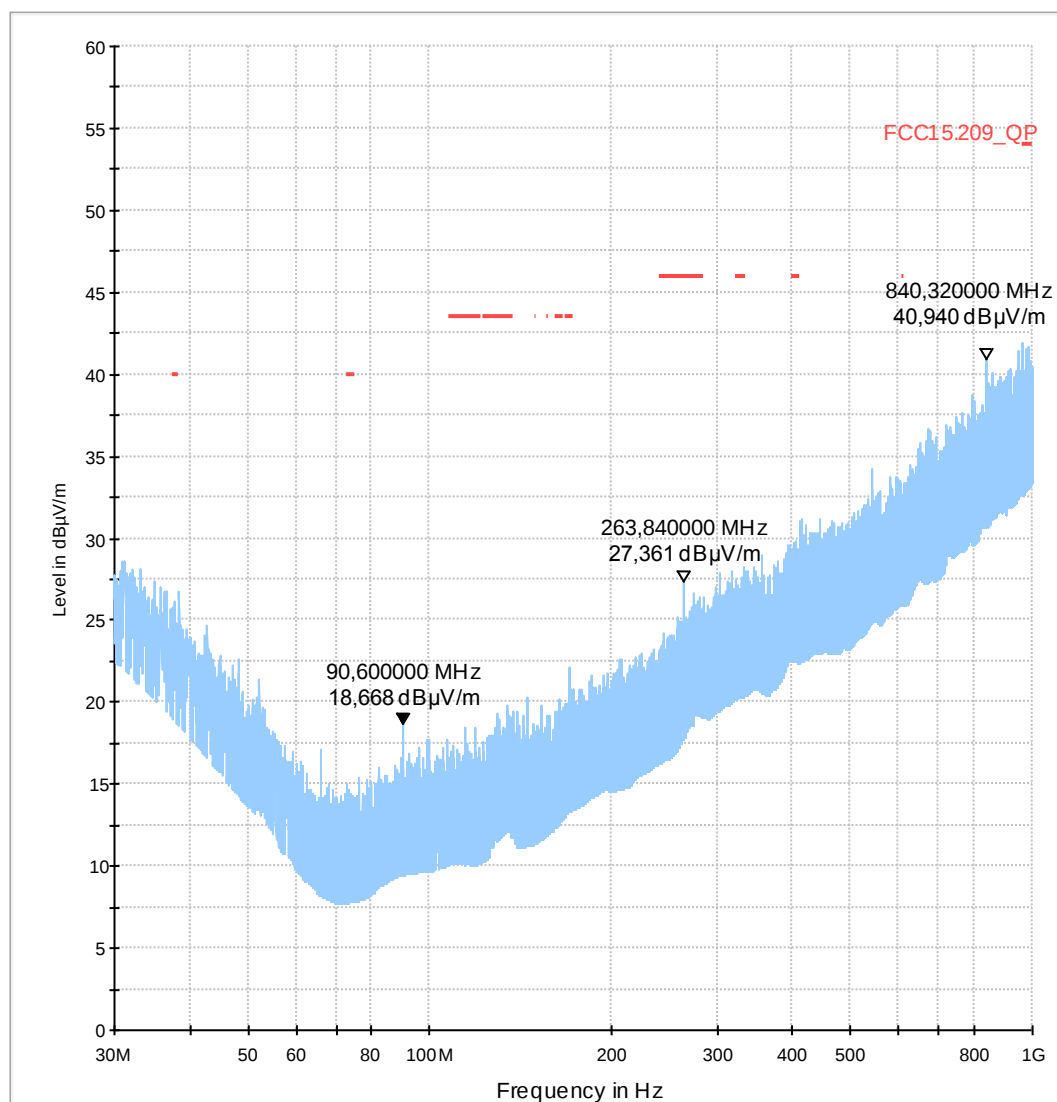
Common Information

Test description:	Electric Fieldstrength Measurement
Test site and distance:	Semi Anechoic Room (SAR) with 3m 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 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	TX-on
Power during tests:	full loaded batteries
Comment 1:	Channel middle

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	Sony Ericsson
Comment:	S/NCHYCC, ANT+ technology
Accessories:	--

01_FCC15.209_hor+vert_kipp



EMI Auto Test Template: 01_FCC15.209_hor+vert_kipp

Diagram No. g_2.09

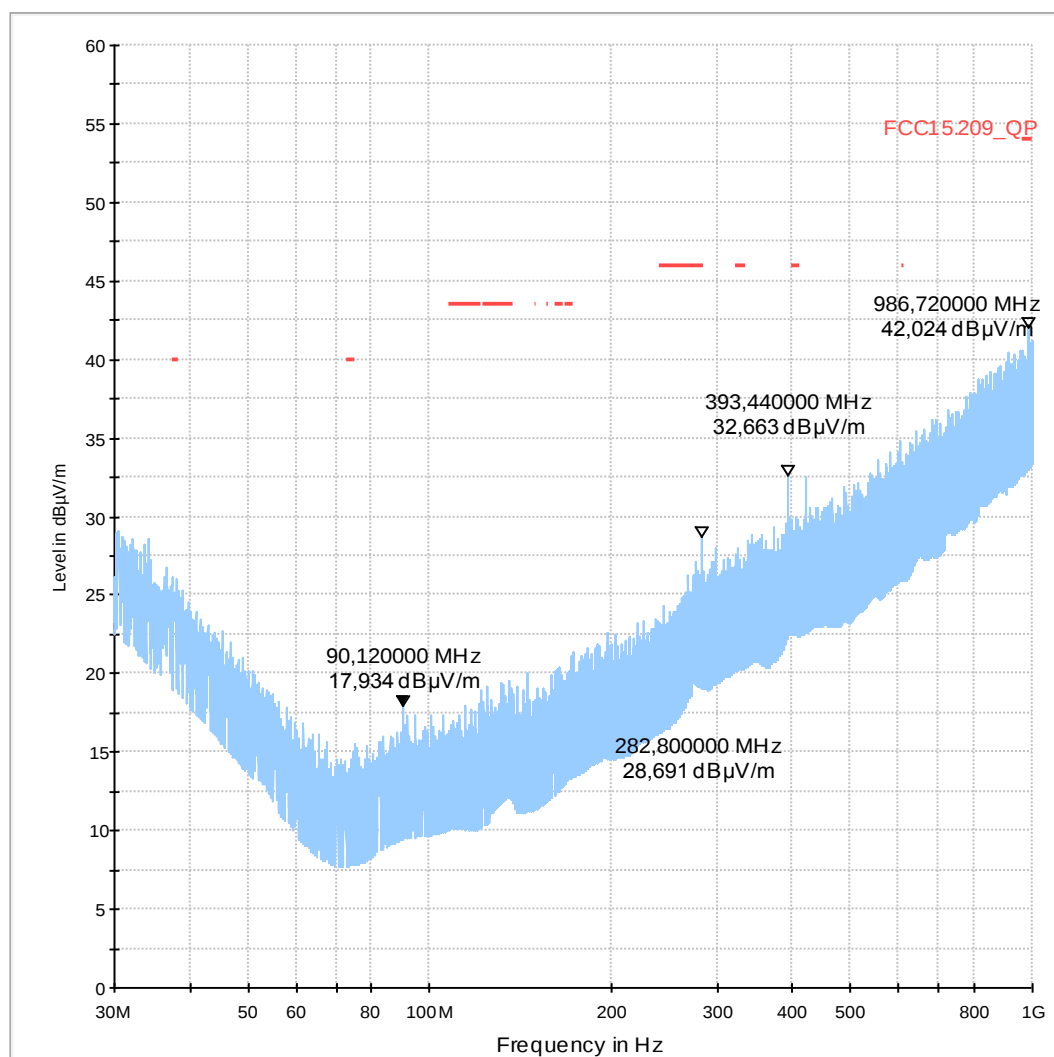
Common Information

Test description:	Electric Fieldstrength Measurement
Test site and distance:	Semi Anechoic Room (SAR) with 3m 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 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	Tas
Operating conditions:	TX-on
Power during tests:	full loaded batteries
Comment 1:	Channel high

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	Sony Ericsson
Comment:	S/NCHYCC, ANT+ technology
Accessories:	--

01_FCC15.209_hor+vert_kipp



EMI Auto Test Template: 01_FCC15.209_hor+vert_kipp

1.3.3. Radiated field strength (1GHz < f < 18GHz)

Diagram No.: g_2.01

Common Information

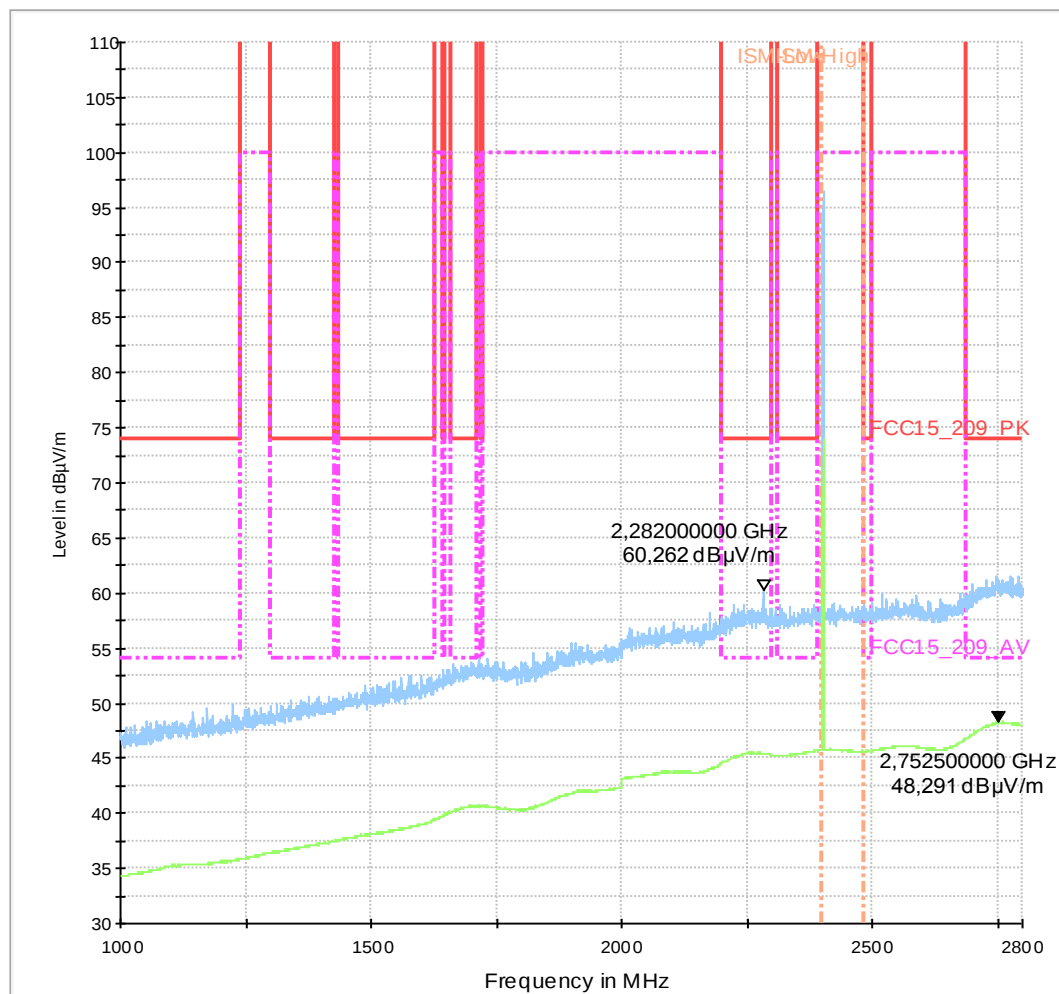
Test Description: Radiated field strength emission accord. §15.249 in 3m distance
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: §15.205 & §15.209 Intentional Radiator
 Antenna polarisation: horizontal/vertical

Operator Name: Tas
 Comment: Channel low

EUT Information

EUT Name: AAD-3880110-BV
 Manufacturer: SEM
 Serial Number: CB5A1CHYCC
 IMEI: 00440214-239780-5
 Comment: ANT+ technology

Sweep1_SM1_KP1_BT



EMI Auto Test Template: Sweep1_SM1_KP1_BT

Diagram No.: g_2.02

Common Information

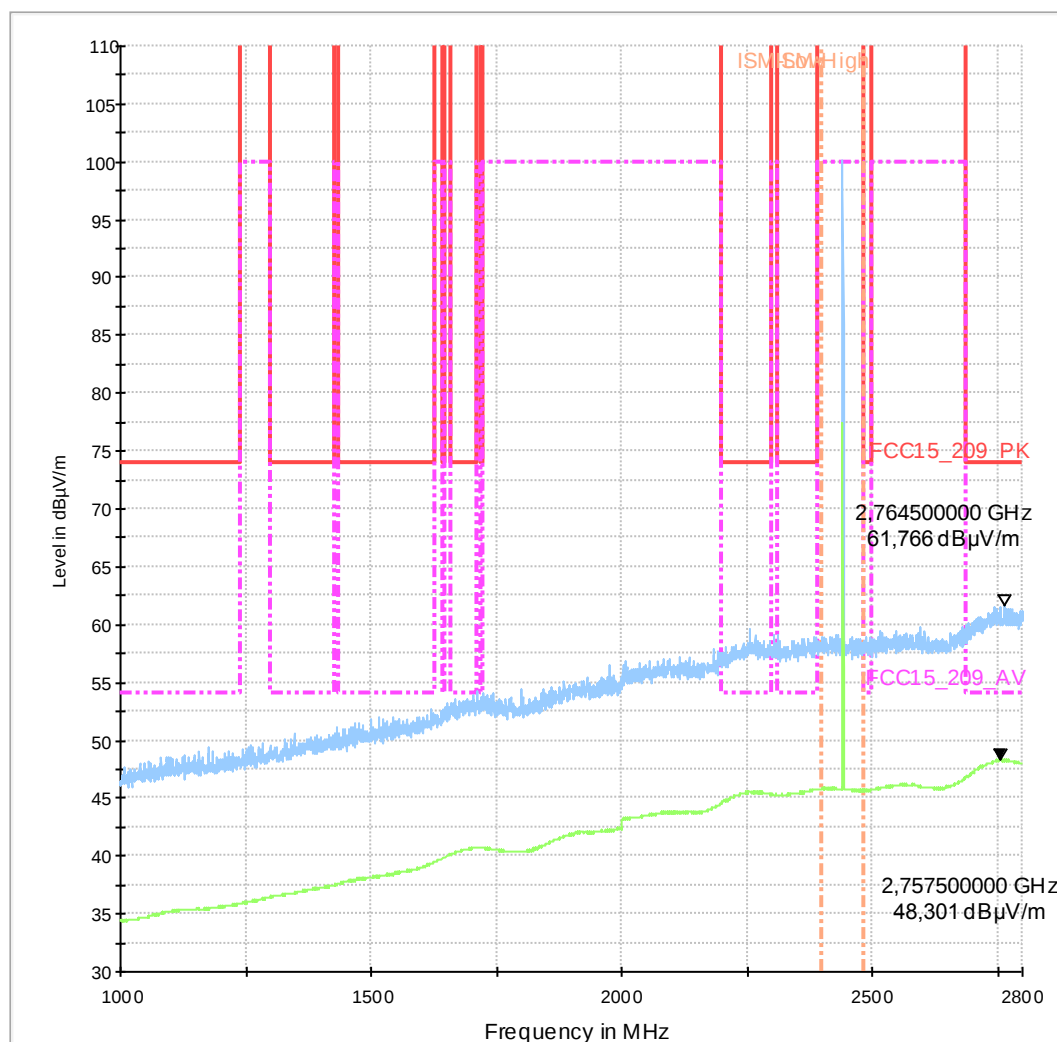
Test Description: Radiated field strength emission accord. §15.249 in 3m distance
Test Site: Fully Anechoic Room (FAR)
Test Standard: §15.205 & §15.209 Intentional Radiator
Antenna polarisation: horizontal/vertical

Operator Name: Tas
Comment: Channel middle

EUT Information

EUT Name: AAD-3880110-BV
Manufacturer: SEM
Serial Number: CB5A1CHYCC
IMEI: 00440214-239780-5
Comment: ANT+ technology

Sweep1_SM1_KP1_BT



EMI Auto Test Template: Sweep1_SM1_KP1_BT

Diagram No.: g_2.03

Common Information

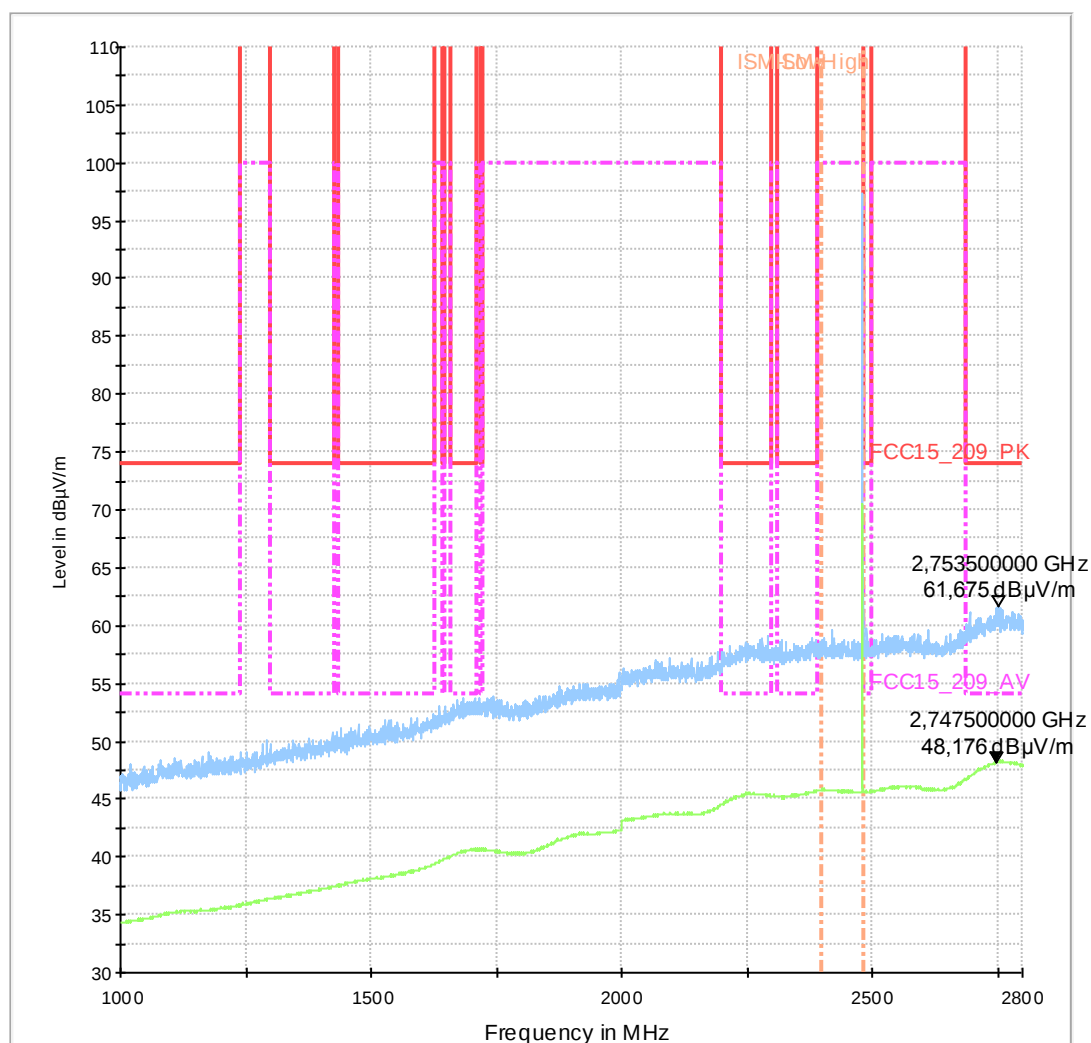
Test Description: Radiated field strength emission accord. §15.249 in 3m distance
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: §15.205 & §15.209 Intentional Radiator
 Antenna polarisation: horizontal/vertical

Operator Name: Tas
 Comment: Channel high

EUT Information

EUT Name: AAD-3880110-BV
 Manufacturer: SEM
 Serial Number: CB5A1CHYCC
 IMEI: 00440214-239780-5
 Comment: ANT+ technology

Sweep1_SM1_KP1_BT



EMI Auto Test Template: Sweep1_SM1_KP1_BT

Diagram No.: g_2.04

Common Information

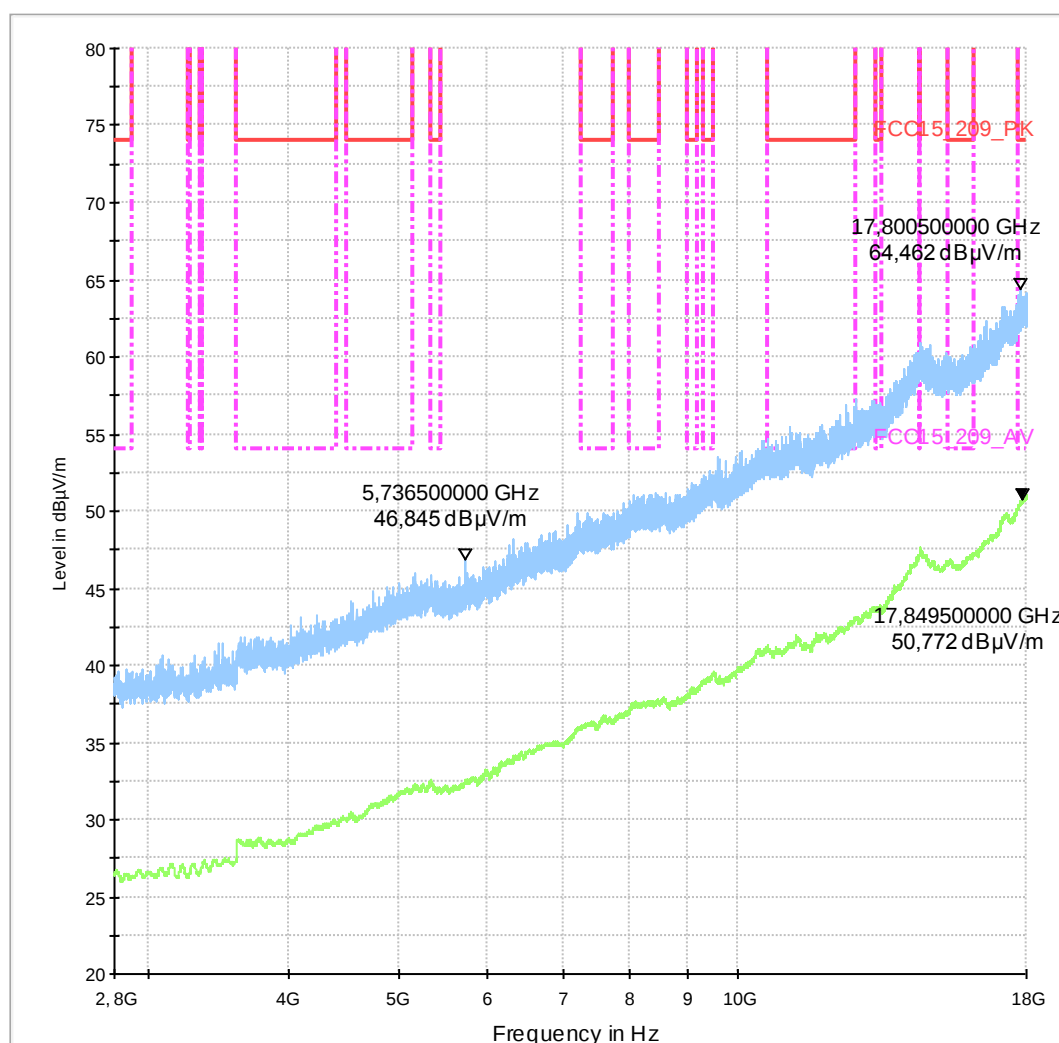
Test Description:	Radiated field strength emission accord. §15.249 in 3m distance
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	§15.205 & §15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical

Operator Name:	Tas
Comment:	Channel low

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	SEM
Serial Number:	CB5A1CHYCC
IMEI:	00440214-239780-5
Comment:	ANT+ technology

Sweep2_SM1_KP1_BT



EMI Auto Test Template: Sweep2_SM1_KP1_BT

Diagram No.: g_2.05

Common Information

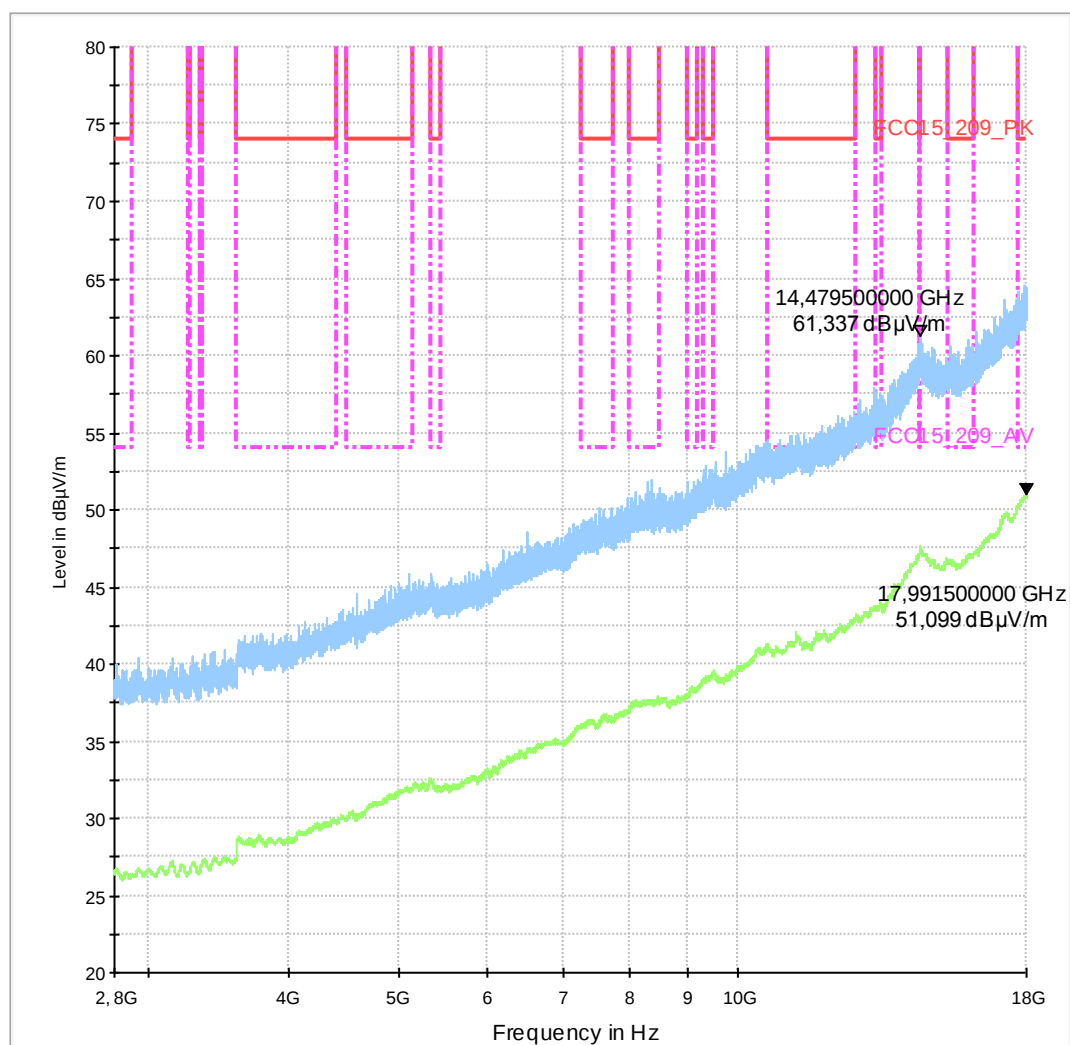
Test Description: Radiated field strength emission accord. §15.249 in 3m distance
Test Site: FAR
Test Standard: §15.205 & §15.209 Intentional Radiator
Antenna polarisation: horizontal/vertical

Operator Name: Tas
Comment: Channel middle

EUT Information

EUT Name: AAD-3880110-BV
Manufacturer: SEM
Serial Number: CB5A1CHYCC
IMEI: 00440214-239780-5
Comment: ANT+ technology

Sweep2_SM1_KP1_BT



EMI Auto Test Template: Sweep2_SM1_KP1_BT

Diagram No.: g_2.06

Common Information

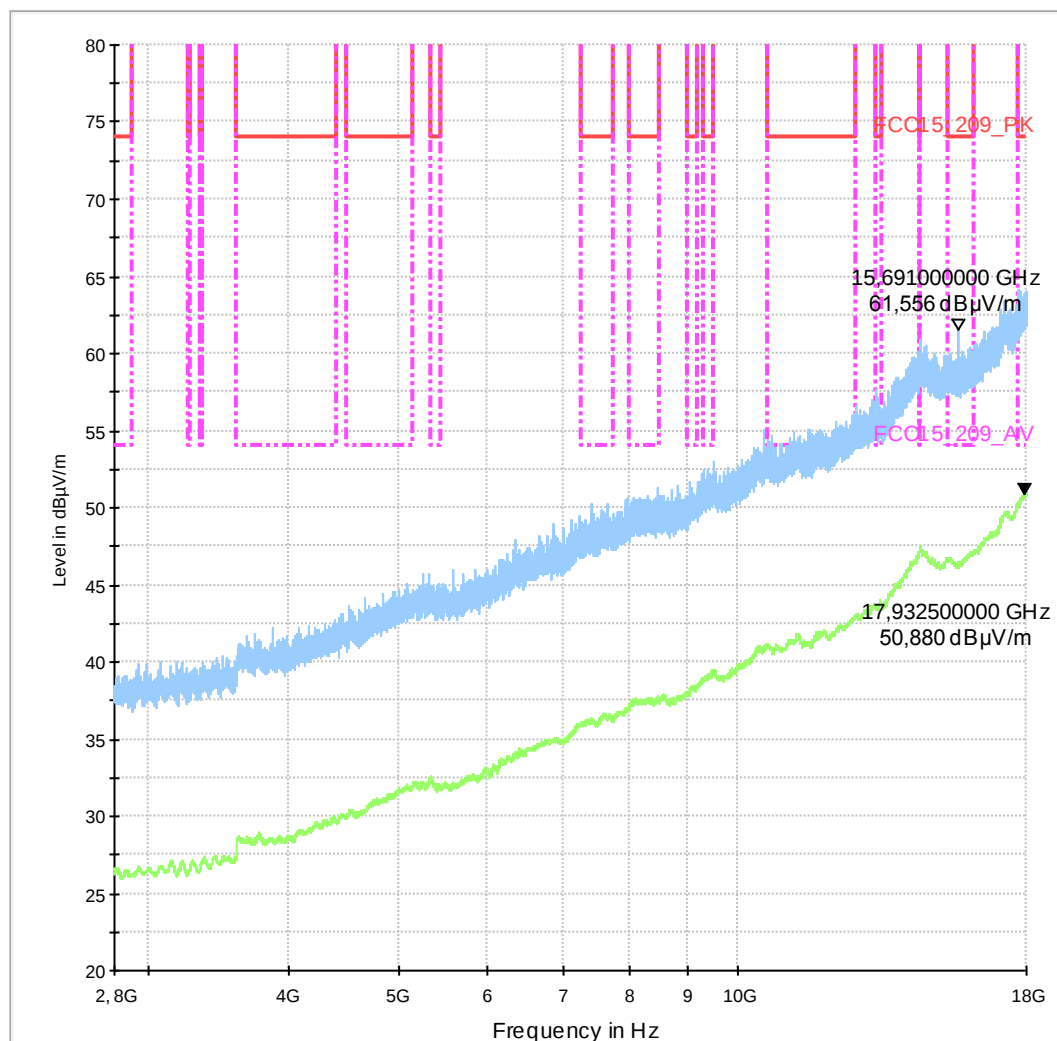
Test Description:	Radiated field strength emission accord. §15.249 in 3m distance
Test Site:	FAR
Test Standard:	§15.205 &15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical

Operator Name: Tas
Comment: Channel high

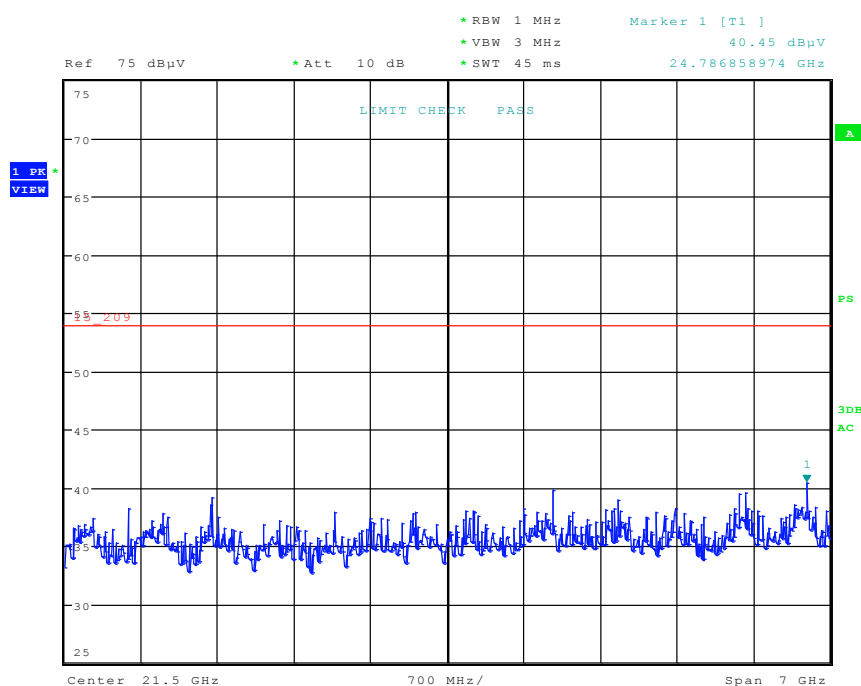
EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	SEM
Serial Number:	CB5A1CHYCC
IMEI:	00440214-239780-5
Comment:	ANT+ technology

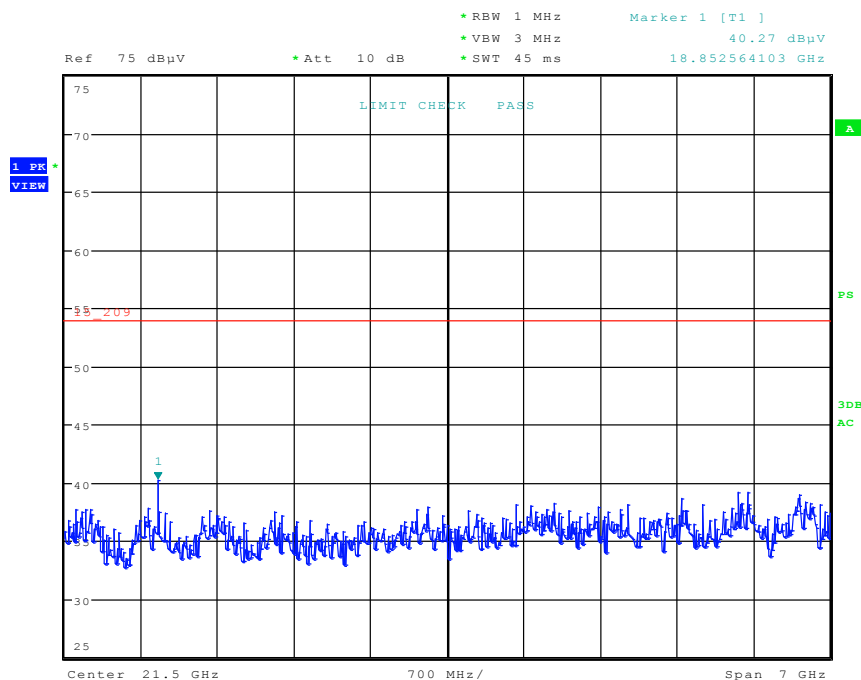
Sweep2_SM1_KP1_BT



EMI Auto Test Template: Sweep2_SM1_KP1_BT

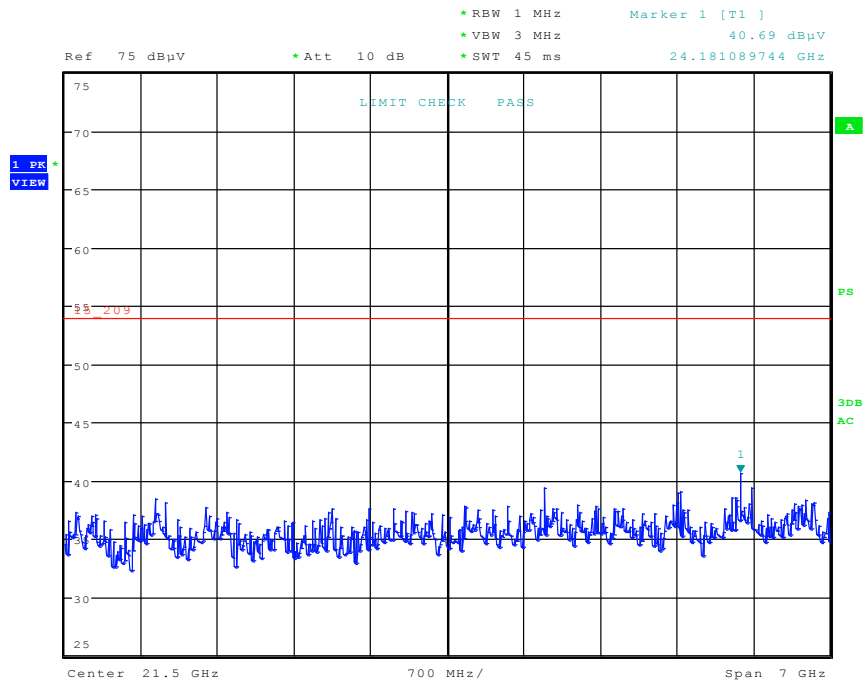
1.3.4. Radiated field strength (18GHz < f < 25GHz)

Date: 18.MAY.2011 10:20:56

Diagram 2.04a - Channel 0, Exploratory measurement

Date: 18.MAY.2011 10:24:19

Diagram 2.05a - Channel 39, Exploratory measurement



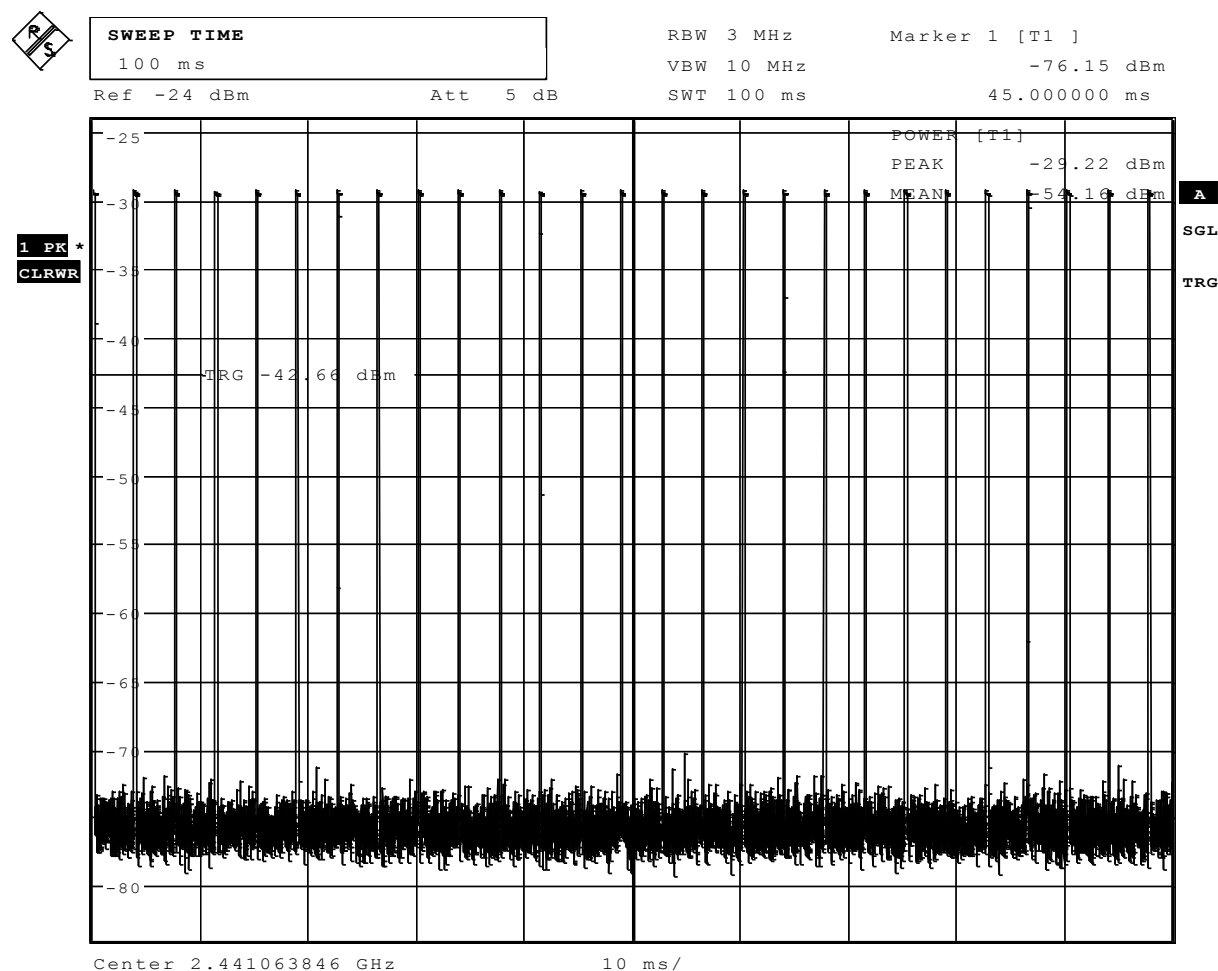
Date: 18.MAY.2011 10:28:05

Diagram 2.06 - Channel 78, Exploratory measurement

1.3.5. Carrier radiated field strength in 3m distance and band-edge compliance radiated according FCC §15.205 & §15.209

Because ANT+ technology is not sending continuously (pulsed emissions), FCC paragraph 15.35(c) applies. The longest duty-cycle possible was considered for this calculations.

Below diagrams are showing the pulsed emissions and the resulting correction factor when averaged over 100ms.

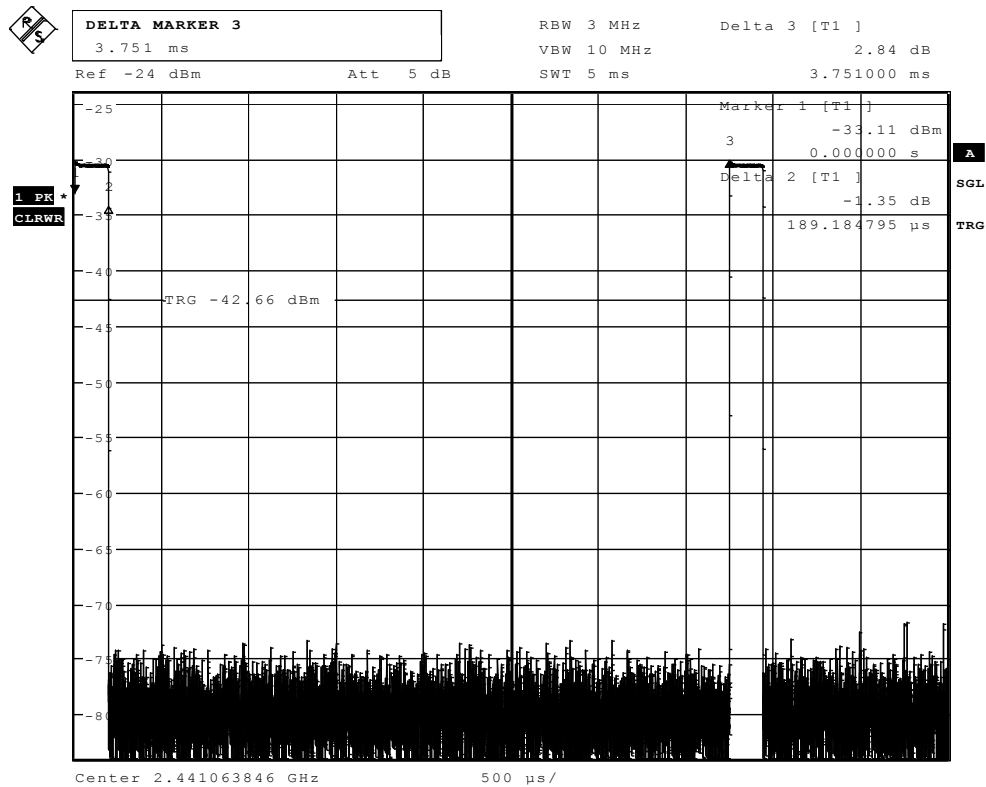


Date: 22.JUN.2011 14:56:44

Diagram: pulses over 100ms

The measured correction factor which applies is around 25dB when averaged over 100ms.

Following diagram show in more details the TX-on and TX-off time:



Date: 22.JUN.2011 15:04:39

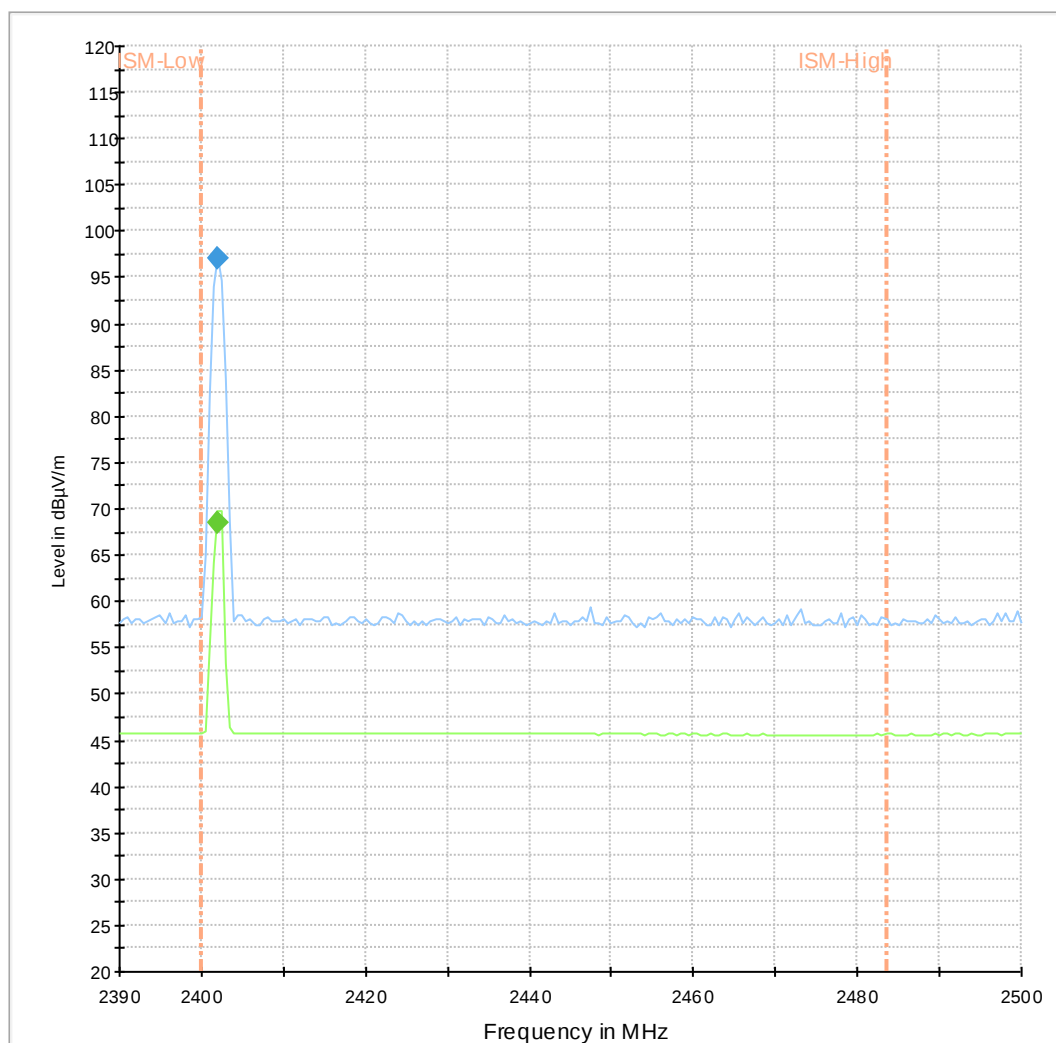
Diagram: TX-on and TX-off time

The calculated resulting Duty Cycle correction factor (PEAK to AVERAGE) = $20 \cdot \log(\text{Tx-on/Tx-off}) = 20 \cdot \log(189\mu\text{s}/3751\mu\text{s}) = 20 \cdot \log(0.05) = -25.94\text{dB}$

1.3.5.1. Channel 1=2402MHz

Diagram No.: g_0.1

Sweep0_SM1_PA0_KP1_BT



Final Result 1

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
2402.000000	97.1	100.0	1000.000	155.0	H	-1.0	0.0	35.5	

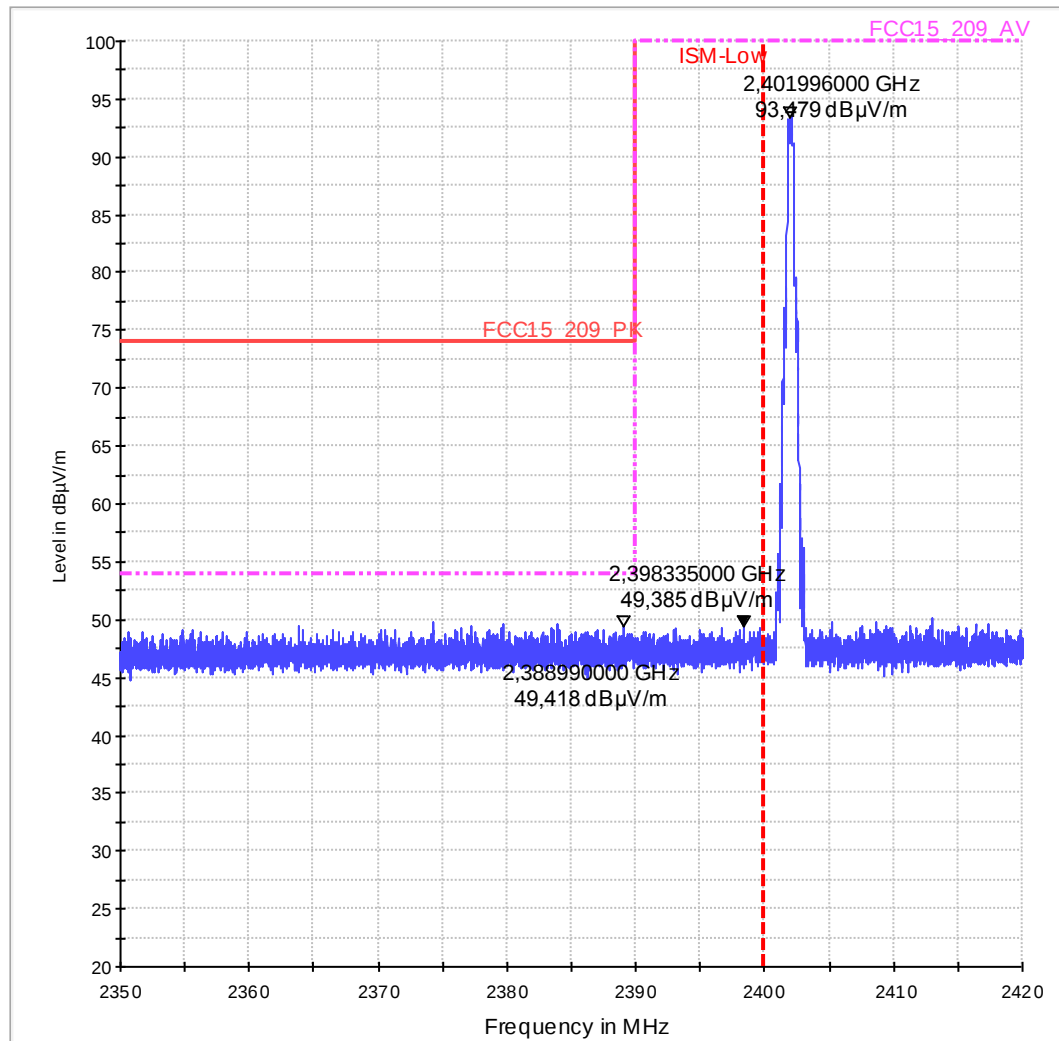
Final Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
2402.000000	68.4	100.0	1000.000	155.0	H	141.0	90.0	35.5	

EMI Auto Test Template: Sweep0_SM1_PA0_KP1_BT

Diagram No.: g_0.1_BE (Band-Edge left)

08_ESU_2.4GHz_Low_Band_Edge_PA0

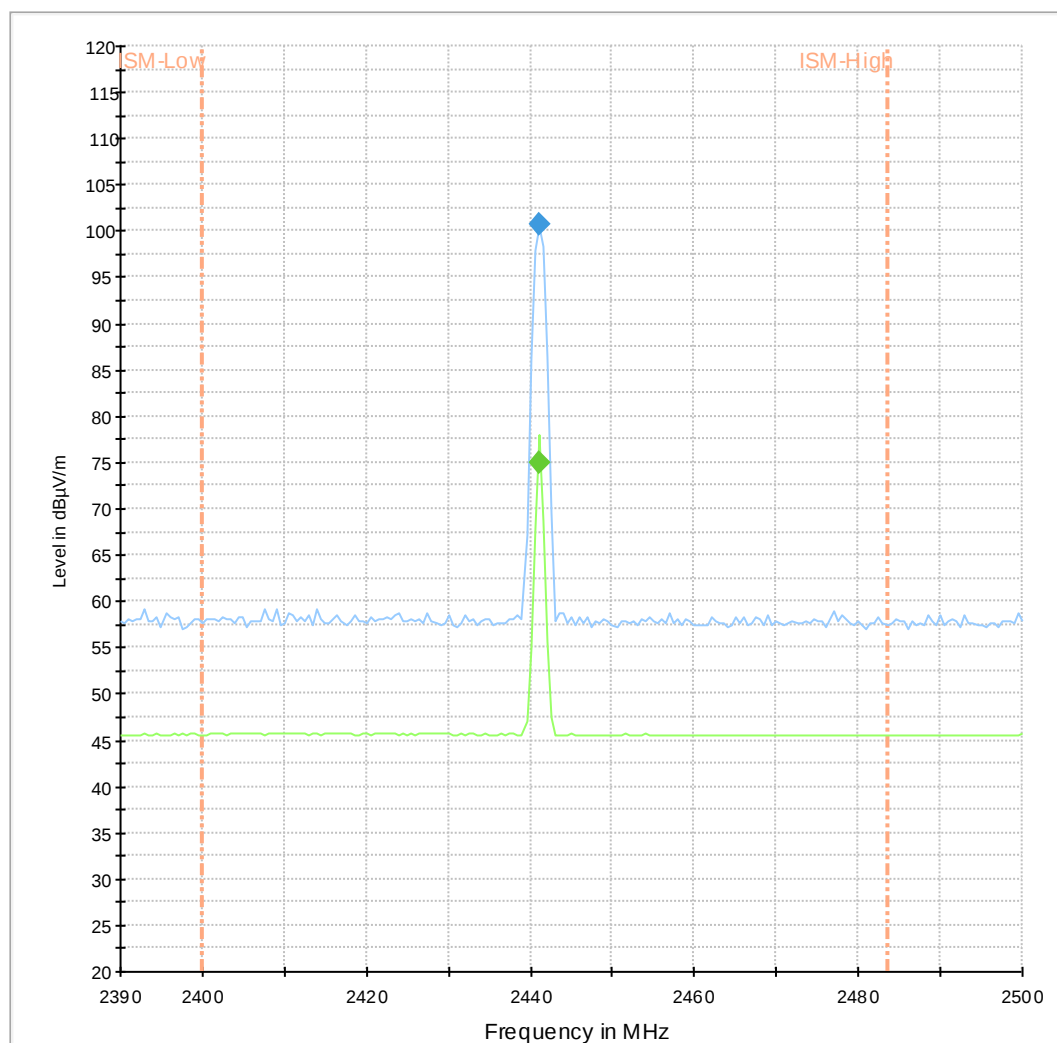


Sweep Setup: 08_ESU_2.4GHz_Low_Band_Edge_PA0 [EMI radiated]

1.3.5.2. Channel 39=2441MHz

Diagram No.: g_0.2

Sweep0_SM1_PA0_KP1_BT



Final Result 1

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
2441.000000	100.8	100.0	1000.000	155.0	H	-5.0	0.0	35.6	

Final Result 2

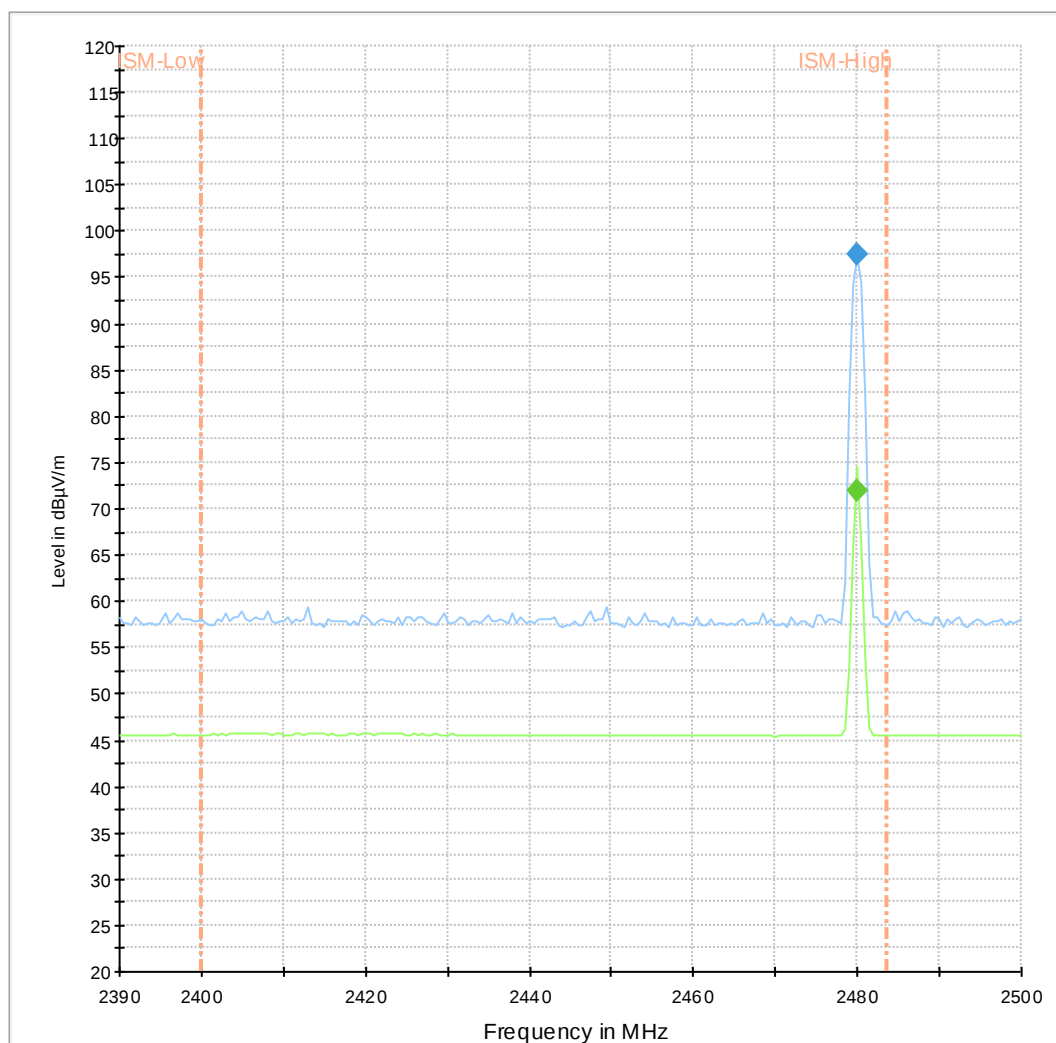
Frequency (MHz)	Average (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
2441.000000	74.9	100.0	1000.000	155.0	H	-6.0	0.0	35.6	

EMI Auto Test Template: Sweep0_SM1_PA0_KP1_BT

1.3.5.3. Channel 78=2480MHz

Diagram No.: g_0.3

Sweep0_SM1_PA0_KP1_BT



Final Result 1

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
2480.000000	97.5	100.0	1000.000	155.0	H	-5.0	0.0	35.7	

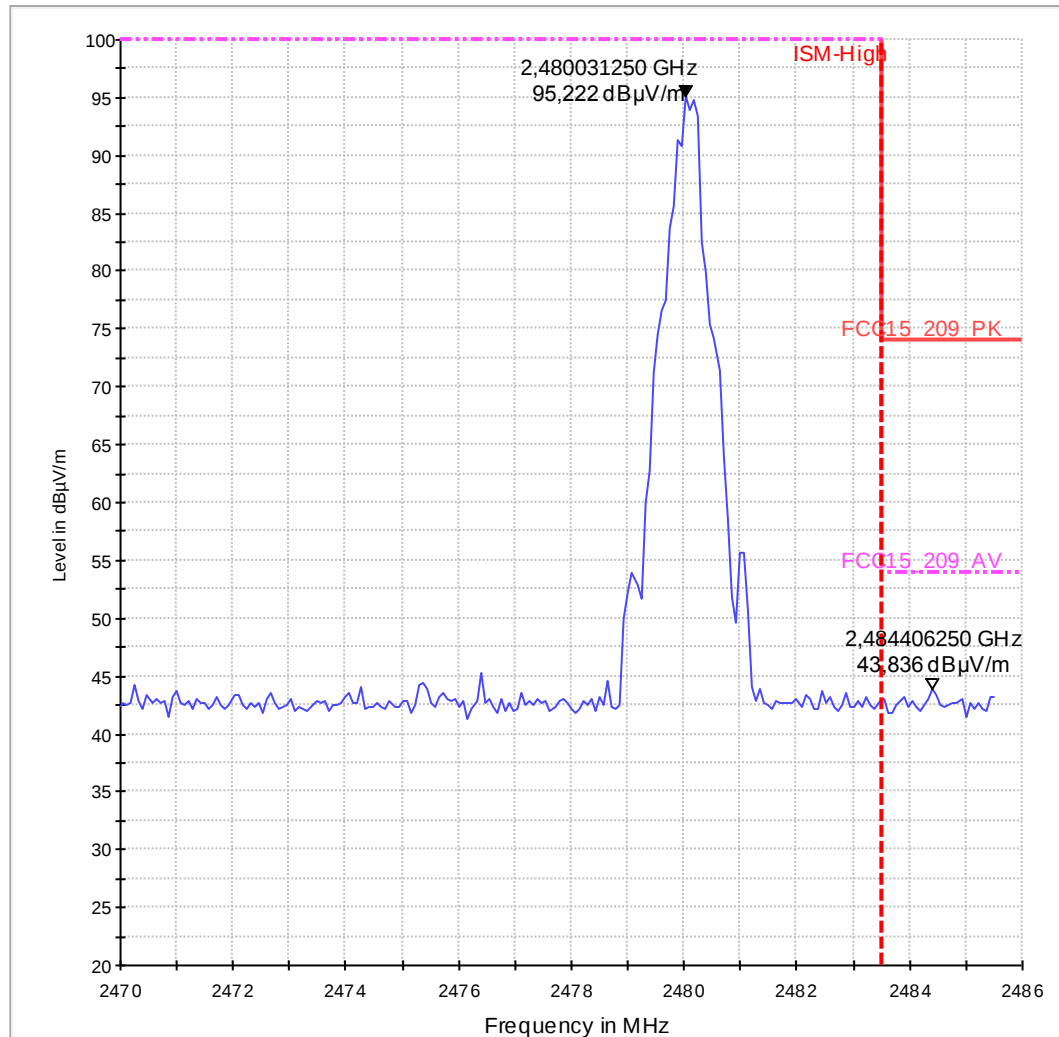
Final Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
2480.000000	72.0	100.0	1000.000	155.0	H	-2.0	0.0	35.7	

EMI Auto Test Template: Sweep0_SM1_PA0_KP1_BT

Diagram No.: g_0.3_BE (Band-Edge right)

09_ESU_2.4GHz_High_Band_Edge_PA0



Sweep Setup: 09_ESU_2.4GHz_High_Band_Edge_PA0 [EMI radiated]

1.4. Radiated field strength (§15.109, Class B and RSS-Gen)

1.4.1. Radiated field strength (30MHz < f < 1GHz)

Diagram No. g_2.10

Common Information

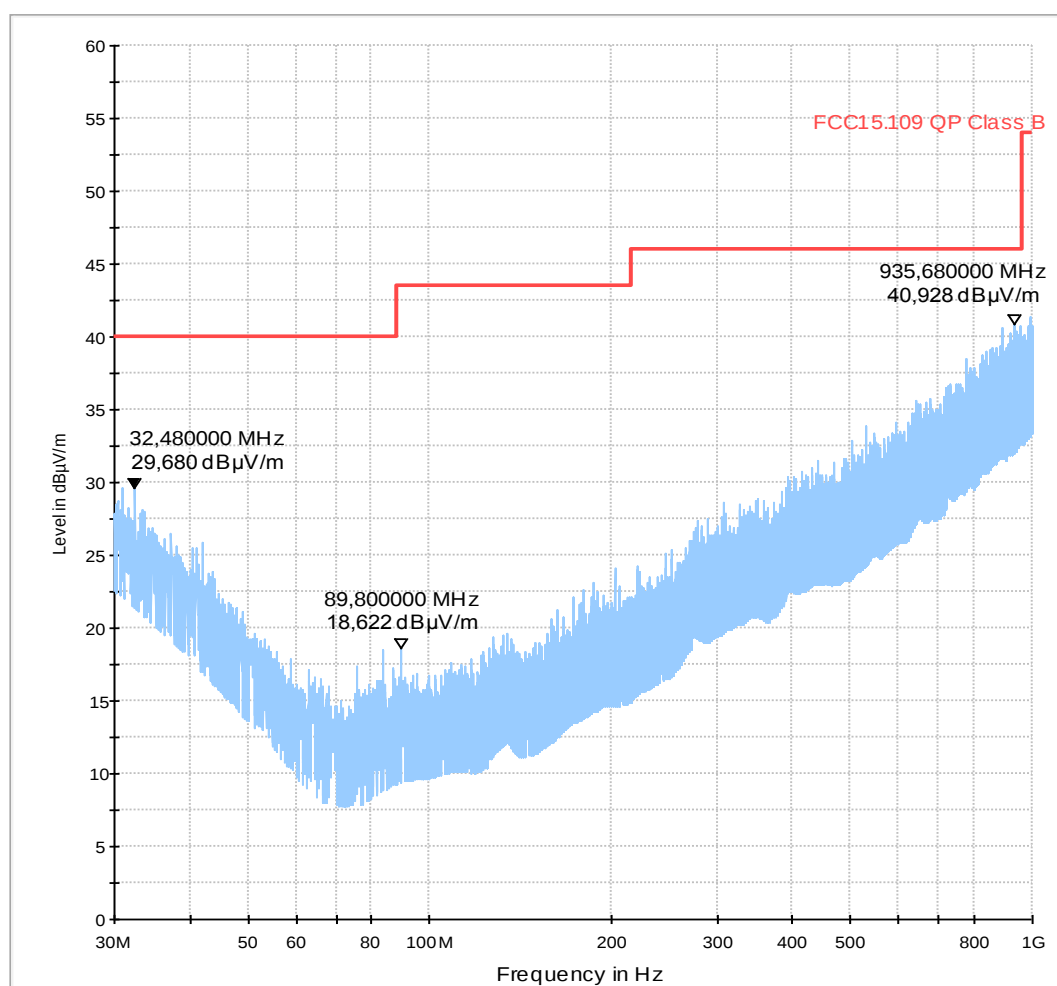
Test description:	Electric Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) with 3m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m and 1.82 m, horizontal and vertical polarisation
Rec. antenna (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 ClassB; RSS-Gen: Issue 3

Operator:	Tas
Operating conditions:	RX
Comment 1:	Channel middle

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	Sony Ericsson
Comment:	S/NCHYCC, ANT+ technology

05_FCC15.109_hor+vert_kipp



EMI Auto Test Template: 05_FCC15.109_hor+vert_kipp

1.4.2. Radiated field strength (1GHz < f < 12.75GHz)

Diagram No.: g_2.50

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	FAR
Test Standard:	FCC 15.109 class B Unintentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	RX (ANT+, Channel middle)
Operator Name:	LOR

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	SEM
Serial Number:	CB5A1CHYCC
IMEI:	00440214-239780-5
Comment:	ANT+ technology

Sweep1_SM1_K1

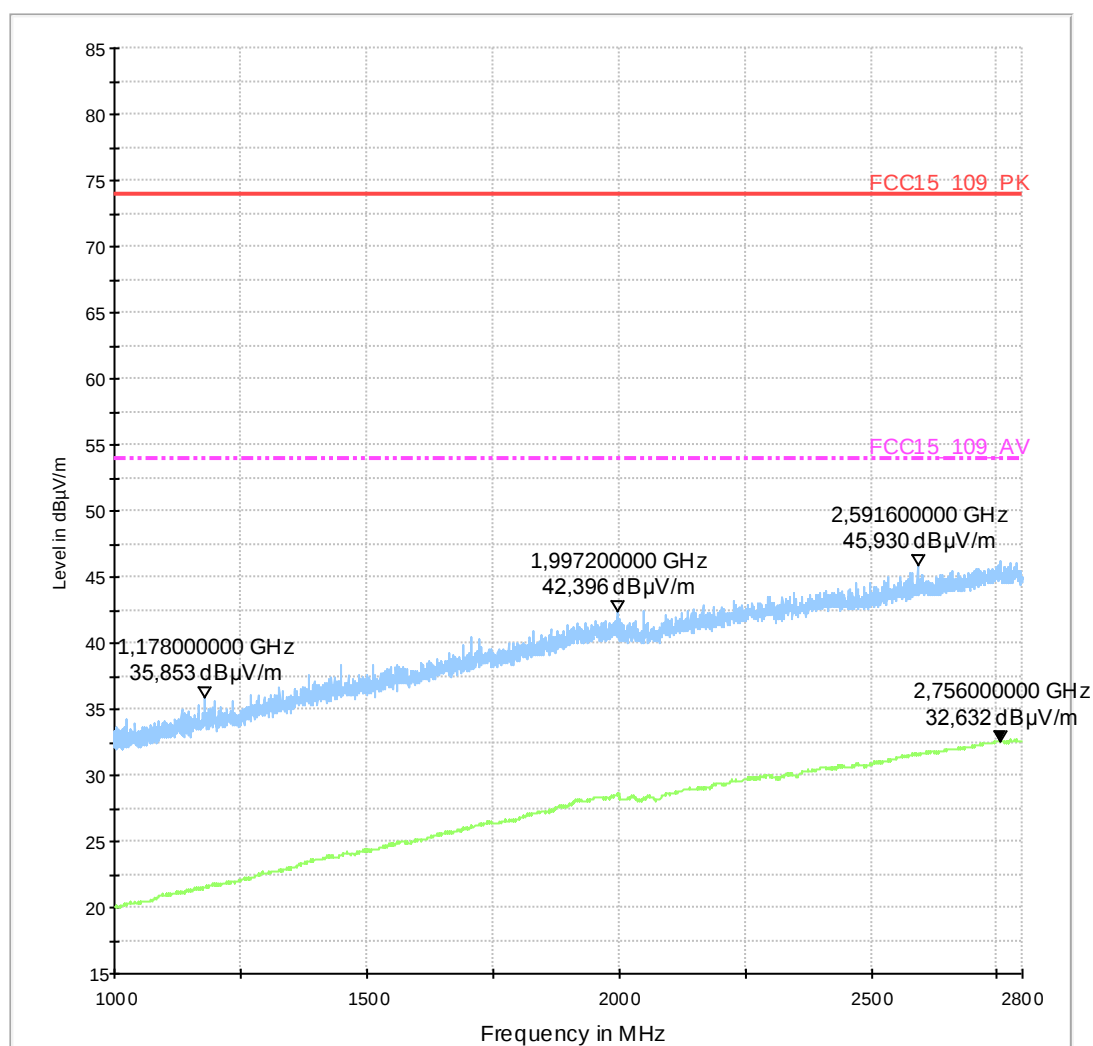


Diagram No.: g_2.51

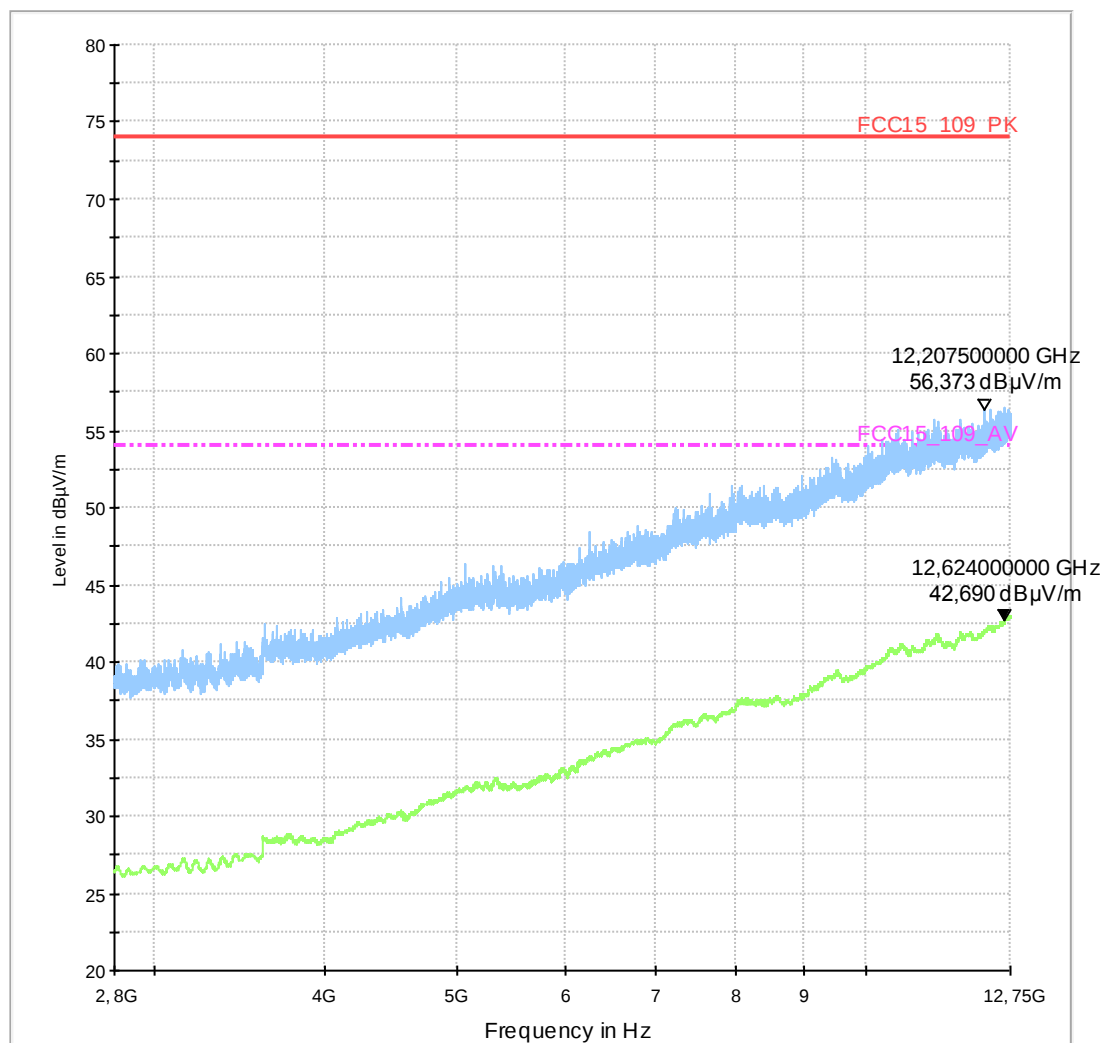
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.109 class B Unintentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	RX (ANT+, Channel middle)
Operator Name:	LOR

EUT Information

EUT Name:	AAD-3880110-BV
Manufacturer:	SEM
Serial Number:	CB5A1CHYCC
IMEI:	00440214-239780-5
Comment:	ANT+ technology

Sweep2_SM1_K0_2



EMI Auto Test Template: Sweep2_SM1_K0_2