Annex 4: Measurement diagrams
to
TEST REPORT
No.: 6-0333-13-1-2b

According to:
FCC Regulations
Part 15.207, Part 15.209

IC-Regulations
RSS-Gen, Issue 3

for

Salcomp(Shenzhen)Co., Ltd.

Wireless Charger VUBK-T
FCC-ID: SZQ-T100

Laboratory Accreditation and Listings			
DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	Reg. No.: 736496 MRA US-EU 0003	Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2665, R-2666 C-2914, T-1967, G-301
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accredited according to DIN EN ISO/IEC 17025			

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Table of contents

1. MEASUREMENT RESULTS.....3

1.1. Emission measurements on AC-mains 3
1.2. Magnetic field strength measurement (9kHz < f < 30MHz).....6
1.3. Electric field measurements (30MHz < f < 1GHz).....10
1.4. Occupied 99% bandwidth.....12

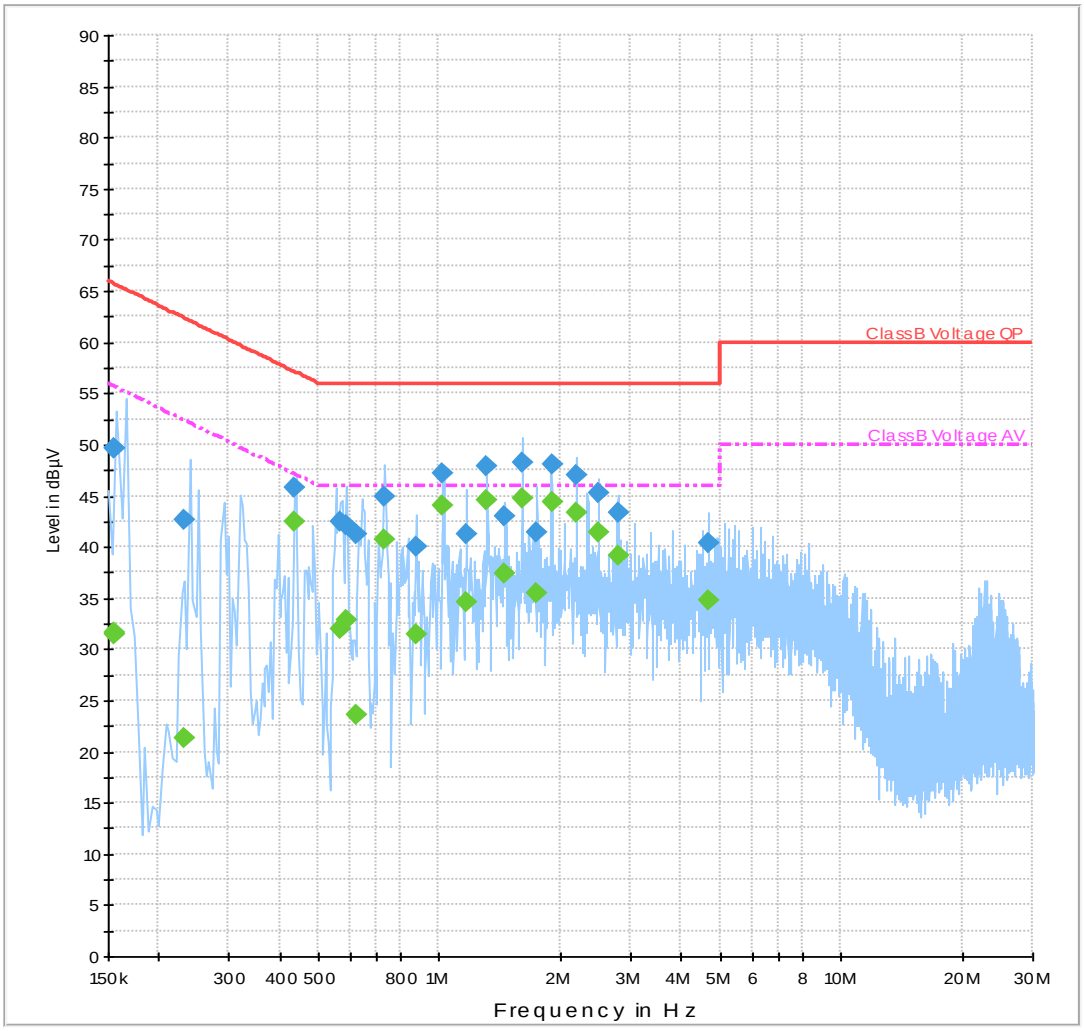
1. Measurement results

1.1. Emission measurements on AC-mains

Diagram No. 1.02

Test Description:	Date: 04.04.2013 Page 1 of 3
Test Description:	Ref.-Nr. 348, Conducted Voltage Measurement Class B
Version of Testsoftware:	EMC32 V8.52.0
Testspecification:	FCC 15.107, FCC 15.207
Technical Data:	Please see next page for detailed information
Diagram:	Shows the peak values as a sum of measured ports (N+L1) in maxhold mode
Operator name:	Mar
Report.- Nr.	6-0333-13-1
EUT:	WLS-1
Manufacturer:	Salcomp
Operating mode:	charging mode
Measured on line:	Mains AC L1 and N
Power during test:	110 V AC 60 Hz
Comment 1:	
Comment 2:	

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 04.04.2013 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr.	Margin (dB)	Limit (dBµV)
0.155000	49.6	1000.0	9.000	GND	N	0.1	16.2	65.7
0.155000	49.7	1000.0	9.000	GND	N	0.1	16.1	65.7
0.232344	42.7	1000.0	9.000	GND	L1	0.1	19.6	62.4
0.436563	45.8	1000.0	9.000	GND	N	0.1	11.4	57.1
0.569844	42.4	1000.0	9.000	GND	N	0.1	13.6	56.0
0.585000	42.1	1000.0	9.000	GND	N	0.1	13.9	56.0
0.624688	41.2	1000.0	9.000	GND	L1	0.2	14.8	56.0
0.729531	45.0	1000.0	9.000	GND	L1	0.2	11.0	56.0
0.875156	40.0	1000.0	9.000	GND	L1	0.3	16.0	56.0
1.022500	47.3	1000.0	9.000	GND	N	0.3	8.8	56.0
1.167031	41.2	1000.0	9.000	GND	N	0.3	14.8	56.0
1.316563	47.9	1000.0	9.000	GND	N	0.3	8.1	56.0
1.461094	43.1	1000.0	9.000	GND	N	0.3	13.0	56.0
1.609531	48.2	1000.0	9.000	GND	N	0.3	7.8	56.0
1.754063	41.3	1000.0	9.000	GND	L1	0.3	14.7	56.0
1.902500	48.0	1000.0	9.000	GND	N	0.3	8.0	56.0
2.195469	47.1	1000.0	9.000	GND	N	0.3	8.9	56.0
2.488438	45.3	1000.0	9.000	GND	N	0.2	10.7	56.0
2.781406	43.4	1000.0	9.000	GND	N	0.3	12.6	56.0
4.679844	40.4	1000.0	9.000	GND	N	0.4	15.6	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr.	Margin (dB)	Limit (dBµV)
0.155000	31.6	1000.0	9.000	GND	N	0.1	24.1	55.7
0.155000	31.5	1000.0	9.000	GND	N	0.1	24.2	55.7
0.232344	21.2	1000.0	9.000	GND	L1	0.1	31.1	52.4
0.436563	42.4	1000.0	9.000	GND	N	0.1	4.7	47.1
0.569844	32.1	1000.0	9.000	GND	N	0.1	13.9	46.0
0.585000	32.9	1000.0	9.000	GND	N	0.1	13.1	46.0
0.624688	23.7	1000.0	9.000	GND	L1	0.2	22.3	46.0
0.729531	40.7	1000.0	9.000	GND	L1	0.2	5.3	46.0
0.875156	31.5	1000.0	9.000	GND	L1	0.3	14.5	46.0
1.022500	44.0	1000.0	9.000	GND	N	0.3	2.0	46.0
1.167031	34.6	1000.0	9.000	GND	N	0.3	11.4	46.0
1.316563	44.6	1000.0	9.000	GND	N	0.3	1.4	46.0
1.461094	37.5	1000.0	9.000	GND	N	0.3	8.5	46.0
1.609531	44.7	1000.0	9.000	GND	N	0.3	1.3	46.0
1.754063	35.6	1000.0	9.000	GND	L1	0.3	10.4	46.0
1.902500	44.5	1000.0	9.000	GND	N	0.3	1.5	46.0
2.195469	43.4	1000.0	9.000	GND	N	0.3	2.6	46.0
2.488438	41.5	1000.0	9.000	GND	N	0.2	4.5	46.0
2.781406	39.1	1000.0	9.000	GND	N	0.3	6.9	46.0
4.679844	34.7	1000.0	9.000	GND	N	0.4	11.3	46.0

Technical Data of Measurements with R&S EMC32 V8.52.0

EMI Auto Test Template: 01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1

Hardware Setup: ESH2-Z5
Measurement Type: 4 Line LISN
Frequency Range: 150 kHz - 30 MHz
Graphics Level Range: 0 dBµV - 90 dBµV

Preview Measurements:
Scan Test Template: 02_Class B pre_PK_fast

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	61.035 Hz	PK+	200 Hz	0,00005 s	0 dB
150 kHz - 30 MHz	3.906 kHz	PK+	9 kHz	0,00005 s	0 dB

Receiver: [ESCS 30]

Data Reduction:

Limit Line #1:	Class B Voltage QP
Limit Line #2:	Class B Voltage AV
Peak Search:	6 dB , Maximum Results: 10
Subrange Maxima:	25 Subranges , Maxima per Subrange: 1
Acceptance Offset:	-13 dB
Maximum Number of Results:	30
After Data Reduction:	Interactive data reduction

Frequency Zoom:

Zoom Scan Template: 08_Class B maxZoom_PK100mS

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	5 kHz	PK+	200 Hz	0,1 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	9 kHz	0,1 s	0 dB

Receiver: [ESCS 30]

Final Measurements:

Template for Single Meas.: 07a_FCC Class B fin AV QP 1sek

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	1 s	0 dB

Receiver: [ESCS 30]

Report Settings:

Report Template:	Ctc_Standard_class_B_FCC
Create Electronic Report:	RTF PDF
Document Name:	EMI Report

Actions:

Test stop

Notify: "End of Test"

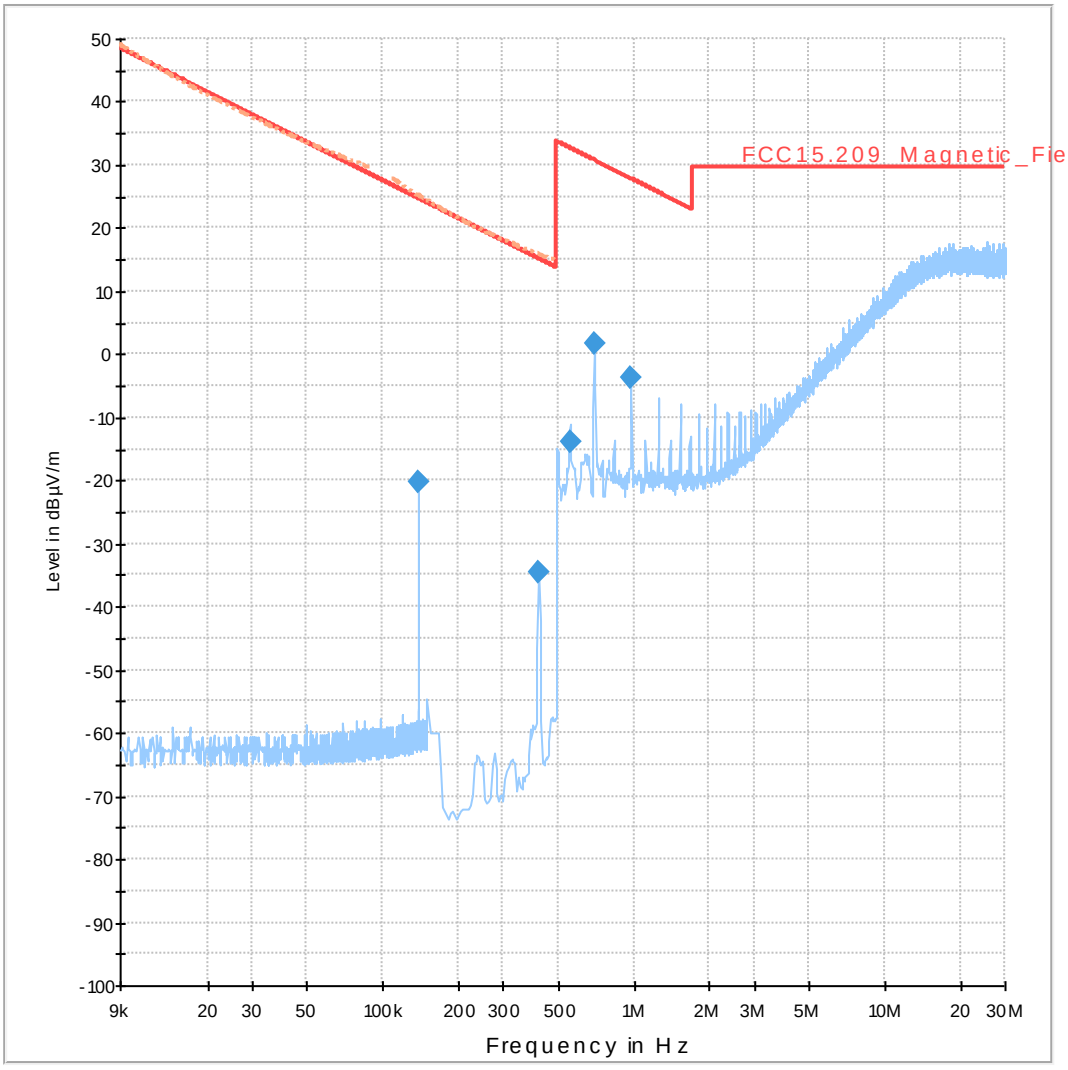
1.2. Magnetic field strength measurement (9kHz < f < 30MHz)

Diagram No. 02.01

Date: 05.04.2013 Page 1 of 3

Test description:	Magnetic Fieldstrength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V8.51.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	not used
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	FTe/MWe
EUT:	WLS 1
Manufacturer	Salcomp
Operating conditions:	Charging Mode (PNom=5W)
Power during tests:	120V/60Hz
Comment 1:	EUT horizontal position
Comment 2:	

FCC15.209_magn hor+vert



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.138900	-20.1	1000.0	0.200	H	40.0	-94.3	44.90	24.70
0.418000	-34.6	1000.0	10.000	H	51.0	-82.0	49.80	15.20
0.556000	-13.9	1000.0	10.000	H	200.0	-36.2	46.60	32.70
0.696000	1.8	1000.0	10.000	H	48.0	-35.8	29.00	30.80
0.972000	-3.8	1000.0	10.000	H	48.0	-35.2	31.70	27.90

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

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
Measurement Type: Open-Area-Test-Site
Frequency Range: 9 kHz - 30 MHz
Graphics Level Range: -100 dBµV/m - 50 dBµV/m

Preview Measurements:
- Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
- Polarization: H + V
- Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
- Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
- Limit Line #1: FCC15.209_Magnetic_Field
- Limit Line #2: FCC15.209_AV_2
- Peak Search: 20 dB , Maximum Results: 10
- Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
- Acceptance Offset: -10 dB
- Maximum Number of Results: 10
- After Data Reduction: Interactive data reduction

Adjustment:
- Antenna height: Adjustment with full Range , Measuring Speed = 1
- Turntable position: Adjustment with full Range , Measuring Speed = 3
- Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
- Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
- Report Template: FCC15_209_magn_vert_hor
- Create Electronic Report: RTF PDF
- Document Name: EMI Report

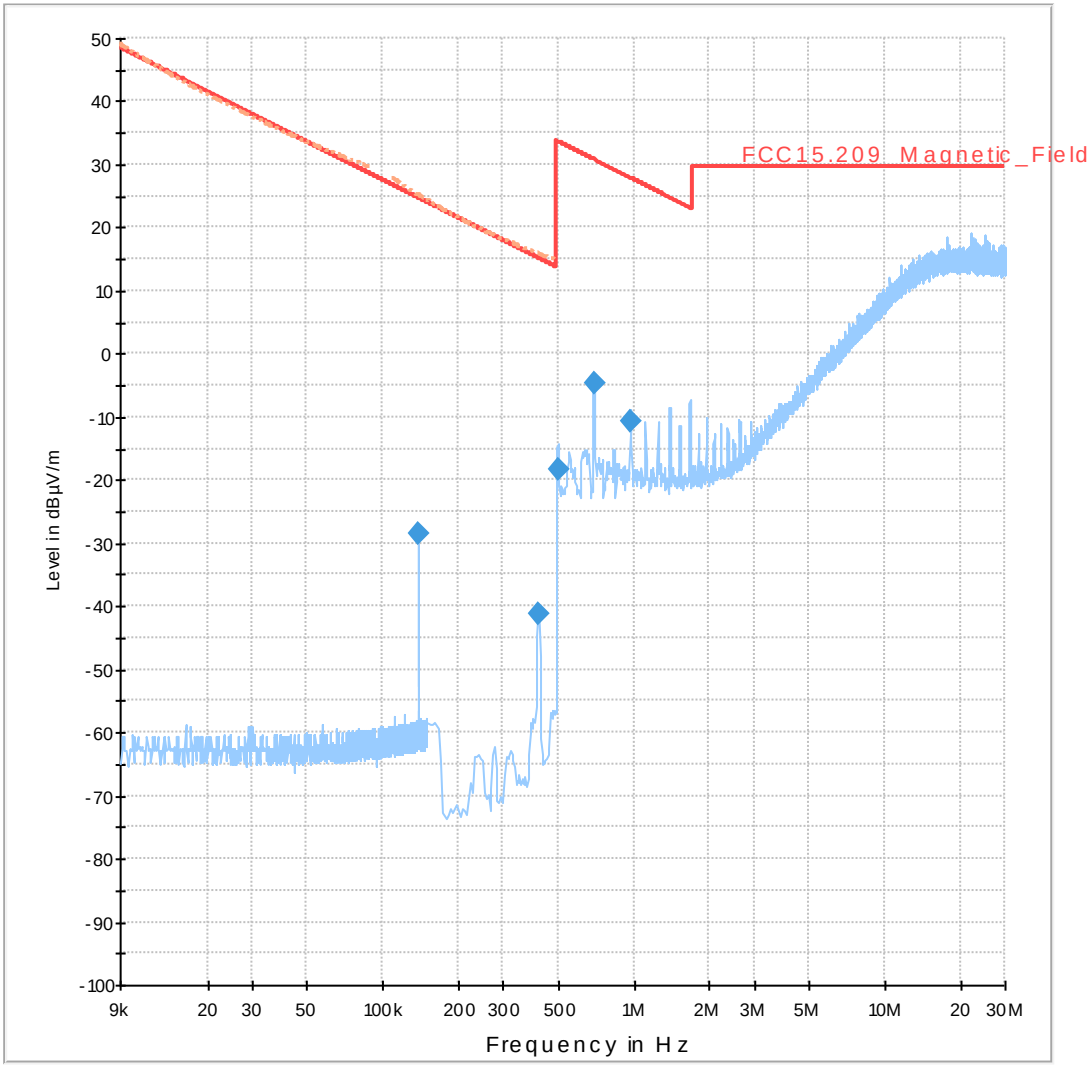
Actions:
- Preview Measurements: Before
  - Notify: "Achtung: es gibt Frequenzbereich mit AVERAGE detector als Ergebniss..."
- Data Reduction: Before

Diagram No. 02.02

Date: 05.04.2013 Page 1 of 3

Test description:	Magnetic Fieldstrength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V8.51.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	not used
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 3
Operator:	FTe/MWe
EUT:	WLS 1
Manufacturer	Salcomp
Operating conditions:	Charging Mode (PNom=5W)
Power during tests:	120V/60Hz
Comment 1:	EUT vertical position
Comment 2:	

FCC15.209_magn hor+vert



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.138400	-28.4	1000.0	0.200	H	128.0	-94.3	53.20	24.80
0.414000	-41.2	1000.0	10.000	H	122.0	-82.1	56.50	15.30
0.498000	-18.3	1000.0	10.000	H	122.0	-36.3	51.90	33.70
0.692000	-4.8	1000.0	10.000	H	103.0	-35.8	35.60	30.80
0.968000	-10.8	1000.0	10.000	H	80.0	-35.2	38.70	27.90

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

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
Measurement Type: Open-Area-Test-Site
Frequency Range: 9 kHz - 30 MHz
Graphics Level Range: -100 dBµV/m - 50 dBµV/m

Preview Measurements:
- Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
- Polarization: H + V
- Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
- Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
- Limit Line #1: FCC15.209_Magnetic_Field
- Limit Line #2: FCC15.209_AV_2
- Peak Search: 20 dB , Maximum Results: 10
- Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
- Acceptance Offset: -10 dB
- Maximum Number of Results: 10
- After Data Reduction: Interactive data reduction

Adjustment:
- Antenna height: Adjustment with full Range , Measuring Speed = 1
- Turntable position: Adjustment with full Range , Measuring Speed = 3
- Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
- Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
- Report Template: FCC15_209_magn_vert_hor
- Create Electronic Report: RTF PDF
- Document Name: EMI Report

Actions:
- Preview Measurements: Before
  - Notify: "Achtung: es gibt Frequenzbereich mit AVERAGE detector als Ergebniss..."
- Data Reduction: Before
  - Notify: Sound (WAV file) 'tada.wav'

1.3. Electric field measurements (30MHz < f < 1GHz)

Diagram No. 03.02

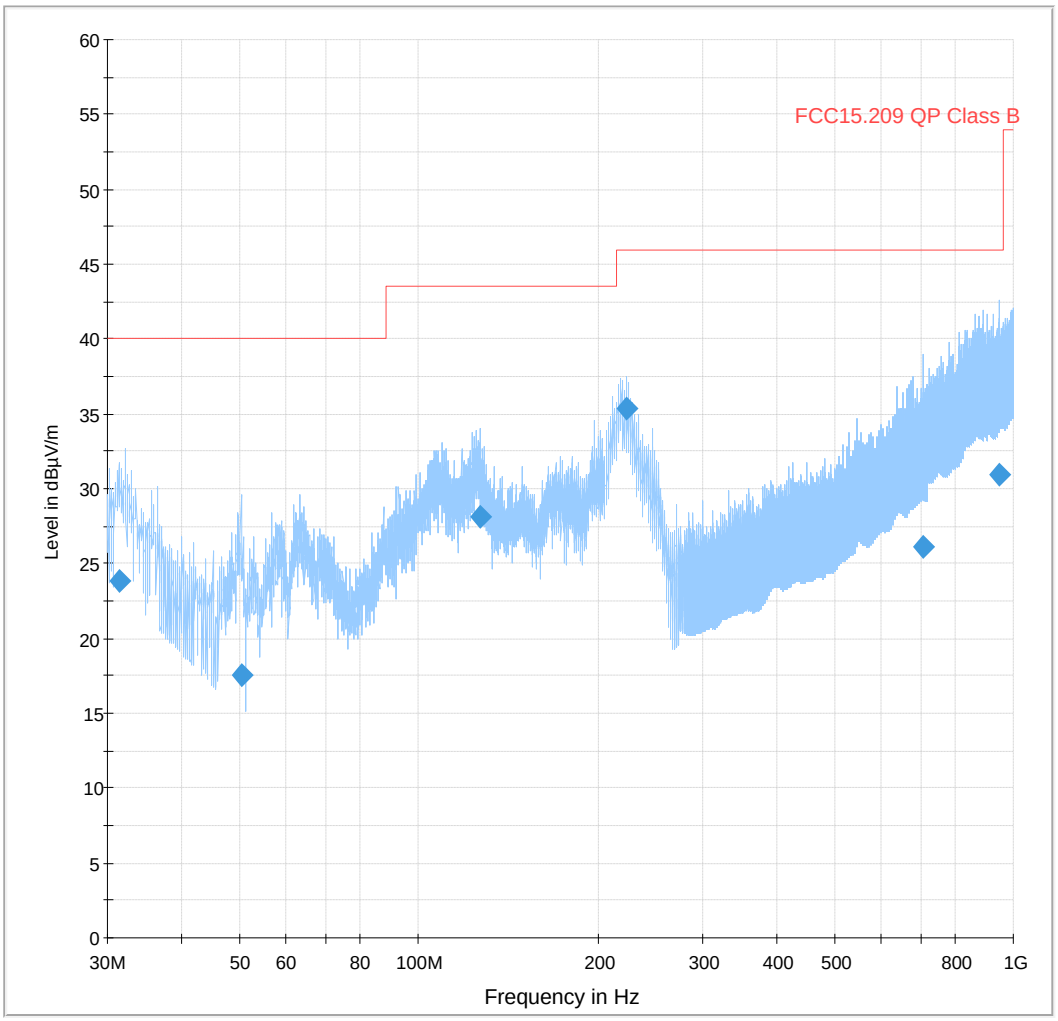
05.04.2013 Page 1 of 3

Test description:	Electric Fieldstrength Measurement
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V8.51.0
Distance correction:	not used
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209 Class B; RSS-Gen. Issue 3
Operator:	FTe/MWe
Operating conditions:	Charging Mode (PNom=5W)
Power during tests:	120V 60Hz
Comment 1:	

EUT Information

EUT Name:	WLS 1
Manufacturer:	Salcomp
Operating mode:	Charging mode

FCC15.209_hor+vert



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth	Corr. (dB)	Margin (dB)
31.380000	23.8	1000.0	120.000	285.0	H	93.0	21.4	16.2
50.530000	17.6	1000.0	120.000	100.0	V	338.0	13.4	22.4
127.430000	28.2	1000.0	120.000	139.0	V	0.0	8.8	15.3
223.040000	35.4	1000.0	120.000	197.0	V	191.0	12.6	10.6
705.010000	26.2	1000.0	120.000	233.0	H	314.0	24.1	19.8
949.760000	30.9	1000.0	120.000	140.0	V	73.0	27.5	15.1

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 , Positioning Speed = 8
- Polarization: H + V
- Turntable position: 0 - 270 deg , Step Size = 90 deg , Positioning Speed = 8
- Scan Test Template: EMI Scan 01_fast_FCC 15_209 B

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	40 kHz	PK+	120 kHz	0,00005 s	0 dB

Receiver: [ESS]

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: 10
- After Data Reduction: Interactive data reduction

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

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	10 kHz	PK+	120 kHz	0,02 s	0 dB

Receiver: [ESS]

Adjustment:
- Antenna height: Adjustment with full Range , Measuring Speed = 8
- Turntable position: Adjustment with full Range , Measuring Speed = 4
- Template for Single Meas.: EMI Scan 02_20ms_FCC 15_209 B

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	100 kHz	PK+	120 kHz	0,02 s	0 dB

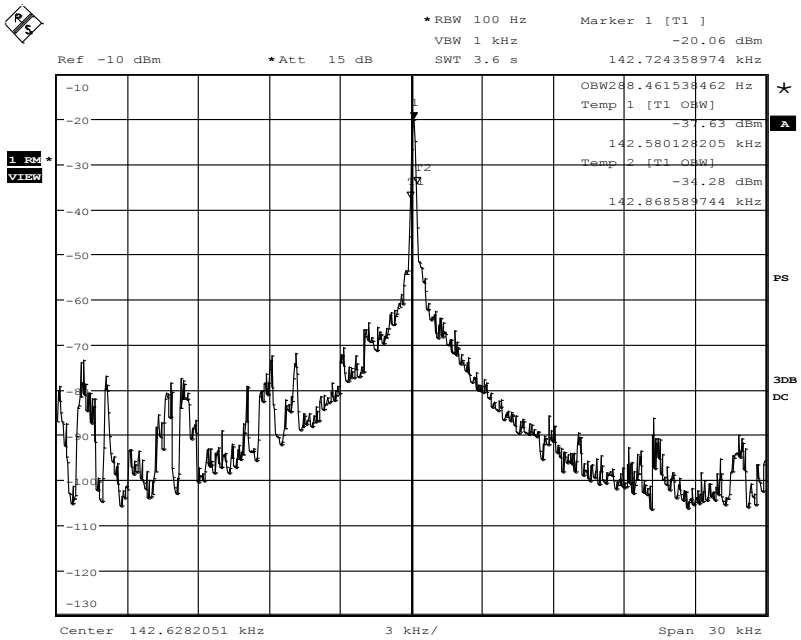
Receiver: [ESS]

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

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	100 kHz	QPK	120 kHz	1 s	0 dB

Receiver: [ESS]

1.4. Occupied 99% bandwidth



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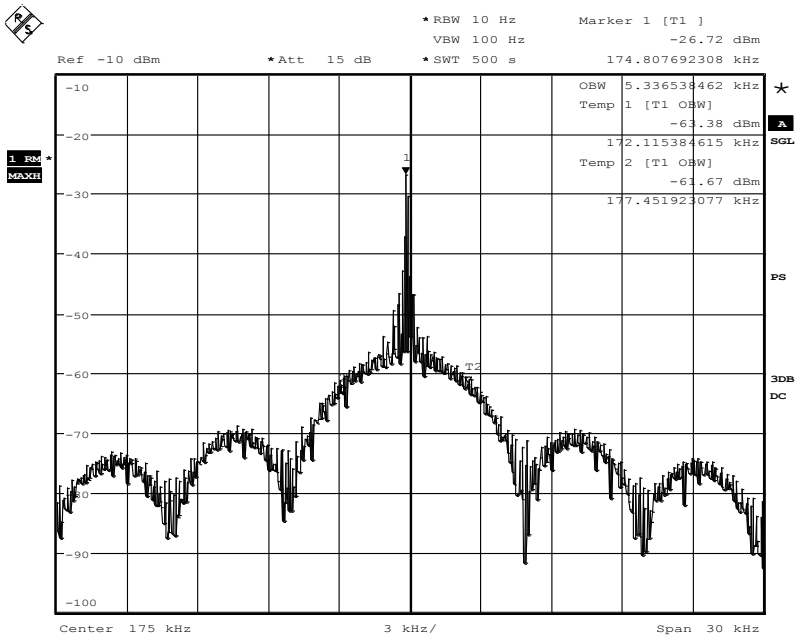
Occupied bandwidth under operating mode 1: Power transfer 5Watt maximum



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Occupied bandwidth under operating mode 2: ping-mode