

ANNEX A

MEASURING RESULTS FOR ELECTROMAGNETIC EMISSION

For the samples under test, named S/01, S/02 and S/03, and that were formed by the elements described in the clause “Identification of the tested item/items” of this test report.

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1. - CONTINUOUS CONDUCTED EMISSION, POWER LEADS

LIMITS OF INTERFERENCE

The applied limit for continuous conducted emissions in power leads, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (2003/07/22 Ed.) in the frequency range 0,15 to 30 MHz, for Class B equipment was:

Frequency range (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0,15 to 0,5	66-56	56-46
0,5 to 5	56	46
5 to 30	60	50

TEST METHOD

According to Part 15, Subpart B of FCC Rules (2003/07/22 Ed.)

OPERATING MODES OF EUT

Different tested operating modes (OM)

- OM#01: EUT ON. Idle mode.
- OM#04: EUT ON. BT Link established.

TEST RESULTS

CCmmnnxx: CC, Conduction condition°; mm: sample number; nn: operation mode; xx: wire.

- OM#01.

CDmmnnxx	Description	Result
CC01010N	Interference voltage on Neutral wire	PASS
CC0101L1	Interference voltage on phase wire	PASS

- OM#04.

CDmmnnxx	Description	Result
CC01040N	Interference voltage on Neutral wire	PASS
CC0104L1	Interference voltage on phase wire	PASS

2. - RADIATED EMISSION, ELECTROMAGNETIC FIELD

LIMITS OF INTERFERENCE

The applied limit for radiated emissions, 3 m distance below 1 GHz and 1 m above 1 GHz, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (2003/07/22 Ed.) in the frequency range 30 MHz to 2 GHz, for Class B equipment, which is a transmitter in a band below 500 MHz, was:

Frequency range (MHz)	Limit for 3 m (μV/m)	Limit for 3 m (dBμV/m)
30 to 88	100	40
88 to 216	150	43,52
216 to 960	200	46,02
Above 960	500	53,98

TEST METHOD

According to Part 15, Subpart B of FCC Rules (2003/07/22 Ed.)

OPERATING MODES OF EUT

Different tested operating modes (OM)

- OM#01: EUT ON. Manual mode, idle mode.

TEST RESULTS

CRmmnn: CR, Radiated Condition; mm: sample number; nn: operation mode.

- OM#01.

CRmmnn	Description	Result
CR0101	[30 MHz - 1000 MHz]	PASS
CR0201	[30 MHz - 1000 MHz]	PASS
CR0101	[1 GHz – 2 GHz]	PASS
CR0201	[1 GHz – 2 GHz]	PASS

3. - GRAPH RESULTS

See next pages.

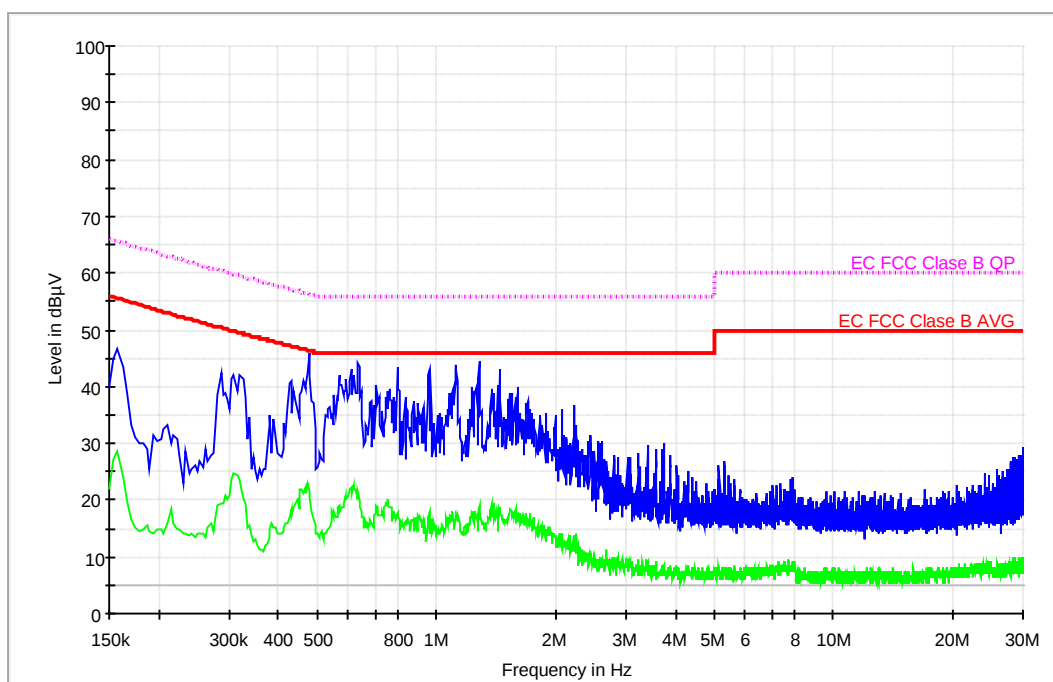
Continuous conducted emission: CC01010N (Peak and average)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/01
 Modo operacion: MO#01
 Fecha: 2004-09-24 17:27
 Setup: EMI conducted
 Description: WILLY + ACP-12. Medida en neutro.

EC FCC Clase B ESIB26 CC



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.158000	46.5	28.7
0.286000	42.4	19.5
0.478000	45.9	21.6
0.634000	44.1	21.6
0.798000	43.4	17.7
0.834000	38.1	16.2
0.958000	43.1	17.9
0.966000	43.1	16.5
1.118000	43.7	17.1
1.234000	39.9	17.5
1.282000	44.3	18.9
1.422000	40.1	18.4
1.442000	43.0	18.6
1.606000	40.0	17.3
2.074000	35.9	13.7
2.230000	36.8	13.7

Frequency (MHz)	MaxPeak- ClearWrite (dBμV)	Average- ClearWrite (dBμV)
2.610000	30.4	9.5
2.810000	28.0	9.5
3.066000	27.7	8.5
3.234000	28.2	9.6
3.398000	29.6	9.1
3.562000	29.1	9.1
3.730000	29.9	8.5
3.886000	27.9	7.4
4.038000	26.2	8.5
4.318000	25.1	8.5
5.158000	26.1	8.6
5.310000	26.8	7.4
25.650000	25.6	8.7
27.990000	27.0	8.2
28.102000	26.5	7.6
28.190000	27.0	8.2
28.274000	27.7	8.8
28.514000	27.5	9.3
28.918000	27.0	9.3
28.974000	27.2	8.8
29.306000	27.8	8.8
29.490000	27.5	8.8
29.822000	28.1	8.2
29.866000	29.2	9.3

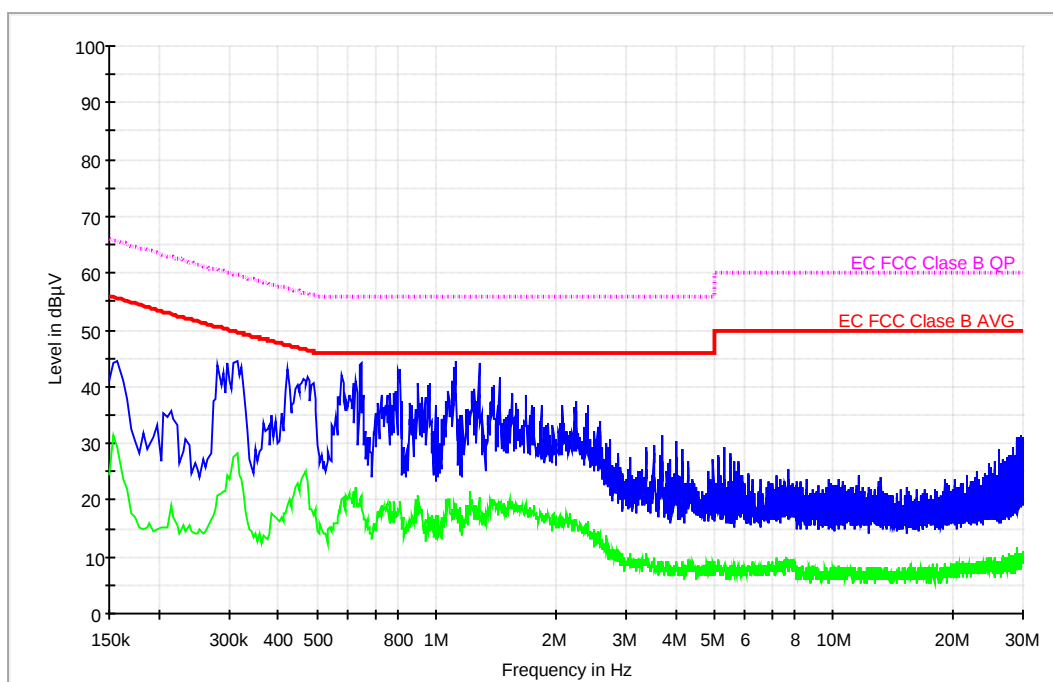
Continuous conducted emission: CC0101L1 (Peak and average)

EMC32 Report

Test Information

Proyecto: 21007.002
 Empresa: NOKIA
 Muestra: M/01
 Modo operacion: MO#01
 Fecha: 2004-09-24 17:23
 Setup: EMI conducted
 Description: WILLY + ACP-12. Medida en fase

EC FCC Clase B ESIB26 CC



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.158000	44.5	29.4
0.314000	44.6	28.3
0.422000	43.1	19.1
0.578000	42.2	20.1
0.646000	44.1	20.7
0.810000	43.1	19.7
0.902000	40.5	20.8
0.962000	40.8	17.1
0.994000	36.6	17.5
1.118000	44.5	19.5
1.282000	44.1	20.4
1.398000	40.1	19.4
1.438000	41.5	19.8
1.554000	39.0	19.8
1.682000	38.6	18.7
2.242000	37.4	16.7

Frequency (MHz)	MaxPeak- ClearWrite (dBμV)	Average- ClearWrite (dBμV)
2.402000	36.8	16.3
3.374000	29.5	10.5
3.526000	29.6	9.6
3.694000	31.3	9.1
3.862000	27.1	8.5
4.006000	30.3	9.1
4.166000	29.0	8.5
4.326000	26.9	9.6
4.982000	27.1	9.1
5.150000	28.0	8.0
5.326000	29.4	8.0
5.478000	28.2	8.6
5.622000	26.8	8.6
5.762000	27.0	8.0
7.730000	25.4	8.6
11.570000	24.4	7.5
25.486000	26.7	8.7
26.114000	29.0	8.7
26.374000	26.5	6.9
26.802000	27.1	8.7
27.246000	27.7	9.3
27.642000	27.8	10.2
27.838000	27.8	9.8
28.010000	27.8	9.8
28.390000	29.2	10.3
28.422000	28.9	9.8
28.842000	31.2	9.3
28.922000	30.3	9.3
29.358000	31.0	10.3
29.438000	30.9	9.8
29.522000	31.6	10.7
29.890000	31.0	9.3

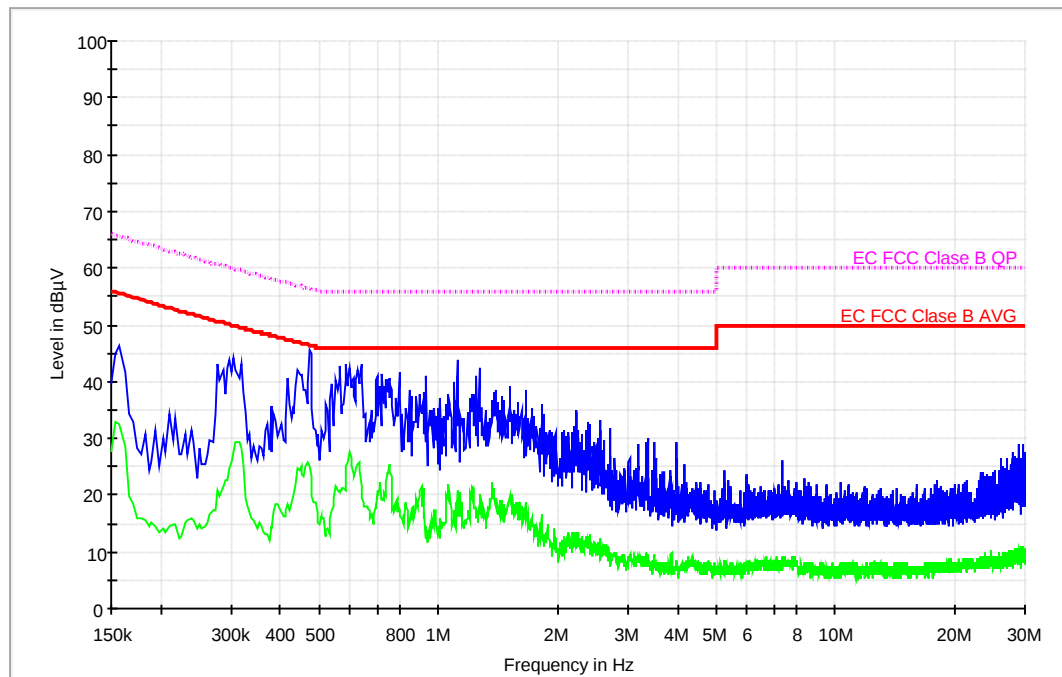
Continuous conducted emission: CC01040N (Peak and average)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/01
 Modo operacion: MO#04
 Fecha: 2004-09-24 18:01
 Setup: EMI conducted
 Description: WILLY + ACP-12. Medida en neutro

EC FCC Clase B ESIB26 CC



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.158000	46.3	32.5	
0.210000	34.4	14.5	
0.306000	44.1	27.6	
0.474000	45.4	25.2	
0.638000	43.1	21.6	
0.798000	41.8	17.5	
0.846000	38.5	15.1	
0.934000	41.1	14.5	
0.978000	35.5	17.5	
1.006000	36.3	14.2	
1.014000	37.0	16.0	
1.094000	40.0	17.3	
1.114000	43.8	20.7	
1.250000	41.0	17.5	
1.266000	42.3	18.2	
1.518000	39.3	18.9	

Frequency (MHz)	MaxPeak- ClearWrite (dBμV)	Average- ClearWrite (dBμV)	Comment
1.666000	38.5	17.1	
1.830000	35.9	14.3	
2.222000	35.1	12.0	
2.346000	31.5	12.7	
2.378000	32.8	12.7	
2.546000	33.2	12.4	
2.702000	31.9	10.0	
3.186000	29.0	9.6	
3.346000	29.5	10.0	
3.358000	29.9	9.6	
3.510000	29.5	9.6	
3.978000	29.5	8.5	
4.150000	25.4	7.4	
7.318000	26.1	8.6	
25.998000	26.5	8.2	
28.934000	29.0	9.8	
29.658000	28.9	9.8	
29.802000	28.8	11.1	

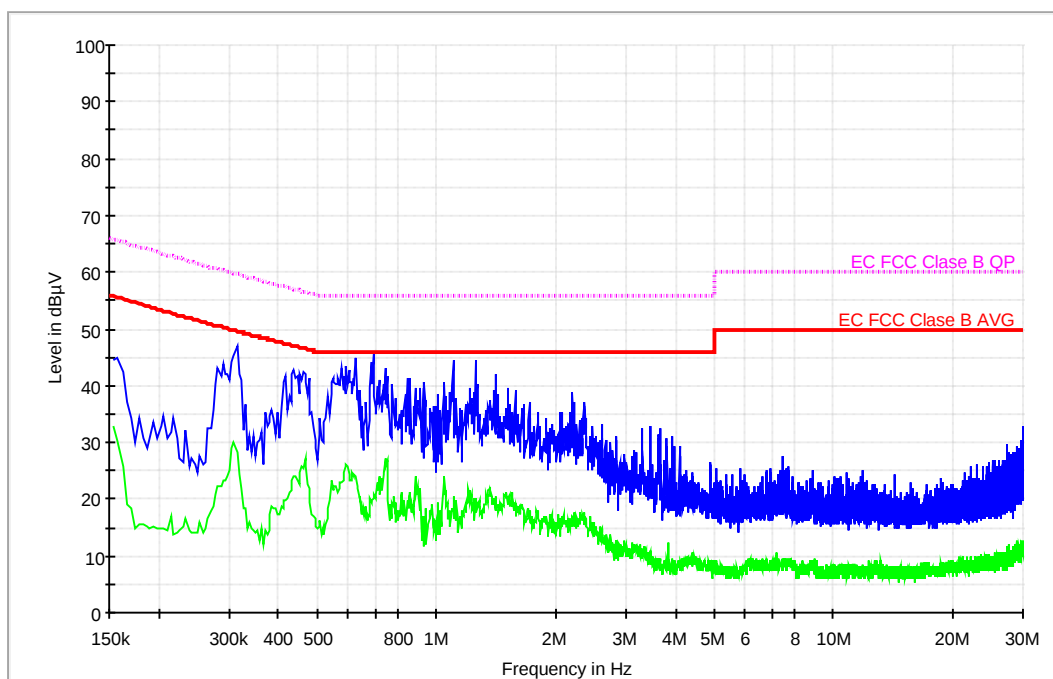
Continuous conducted emission: CC01040N (Peak and average)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/01
 Modo operacion: MO#04
 Fecha: 2004-09-24 18:04
 Setup: EMI conducted
 Description: WILLY + ACP-12. Medida en fase.

EC FCC Clase B ESIB26 CC



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.158000	44.9	30.5
0.314000	47.1	28.2
0.438000	42.7	23.9
0.626000	44.9	24.0
0.694000	45.4	20.3
0.854000	41.4	20.9
0.926000	39.4	17.1
0.934000	40.8	15.3
1.010000	38.5	19.4
1.050000	40.8	24.2
1.102000	44.6	18.2
1.254000	44.6	20.1
1.414000	42.2	17.9
2.206000	38.9	17.1
2.366000	37.1	17.1

Frequency (MHz)	MaxPeak- ClearWrite (dBμV)	Average- ClearWrite (dBμV)
2.838000	31.1	12.4
3.310000	32.4	10.9
3.470000	32.7	10.5
3.646000	32.4	9.6
3.802000	30.7	9.1
3.942000	31.2	9.6
3.958000	29.4	8.5
4.090000	29.5	8.5
7.414000	27.7	9.1
11.882000	25.0	6.8
22.254000	25.9	8.7
25.358000	27.0	10.7
25.950000	26.7	9.8
27.314000	29.7	11.5
27.430000	28.9	10.7
27.642000	28.4	10.7
28.194000	28.3	10.2
29.034000	29.2	11.5
29.550000	30.5	11.1
29.586000	30.3	11.9
29.914000	32.8	12.3

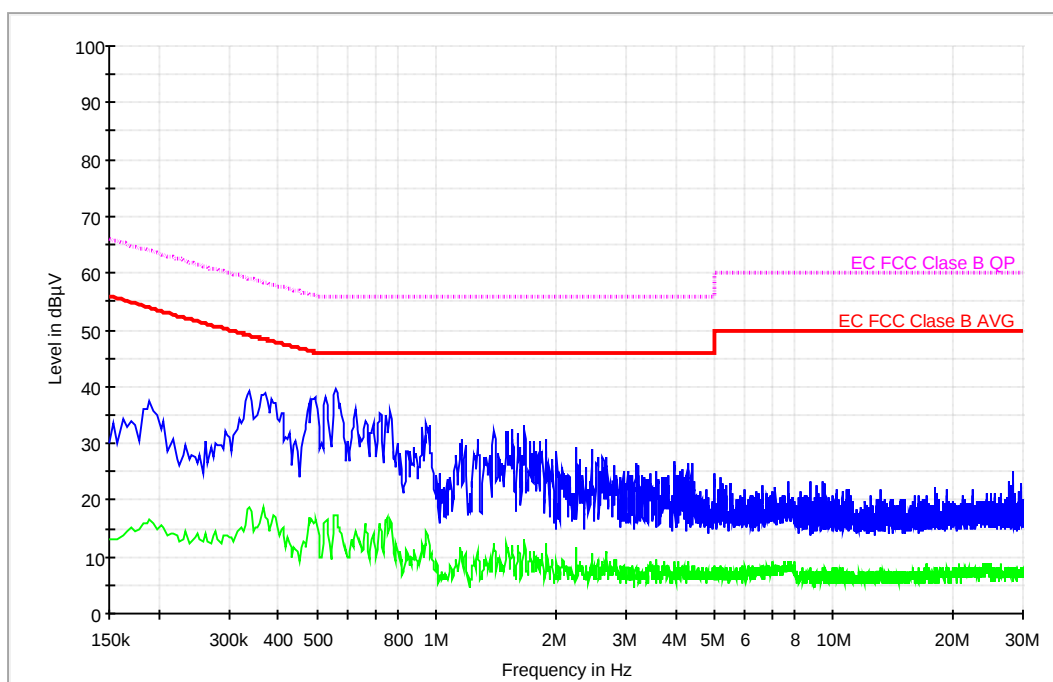
Continuous conducted emission: CC02010N (Peak and average)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/02
 Modo operacion: MO#01
 Fecha: 2004-09-24 18:32
 Setup: EMI conducted
 Description: WILLY + AC-1. Medida en neutro.

EC FCC Clase B ESIB26 CC



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.190000	37.6	16.5
0.338000	39.3	18.6
0.558000	39.7	17.3
0.946000	33.7	14.5
1.158000	30.7	10.9
1.274000	30.8	10.9
1.546000	32.4	12.0
1.610000	31.7	12.0
1.658000	33.3	12.7
1.894000	30.9	12.4
1.950000	27.3	9.5
2.010000	28.8	9.0
2.250000	29.3	10.5
2.306000	27.2	9.0
2.462000	28.9	10.5
2.550000	27.5	8.5

Frequency (MHz)	MaxPeak- ClearWrite (dBμV)	Average- ClearWrite (dBμV)
2.682000	27.5	10.5
3.026000	25.1	8.0
3.174000	26.7	8.0
3.222000	26.2	8.0
3.962000	26.9	8.5
4.174000	25.4	8.5
4.310000	26.5	8.0
4.394000	26.5	8.5
5.006000	24.9	7.4
28.266000	24.9	8.2

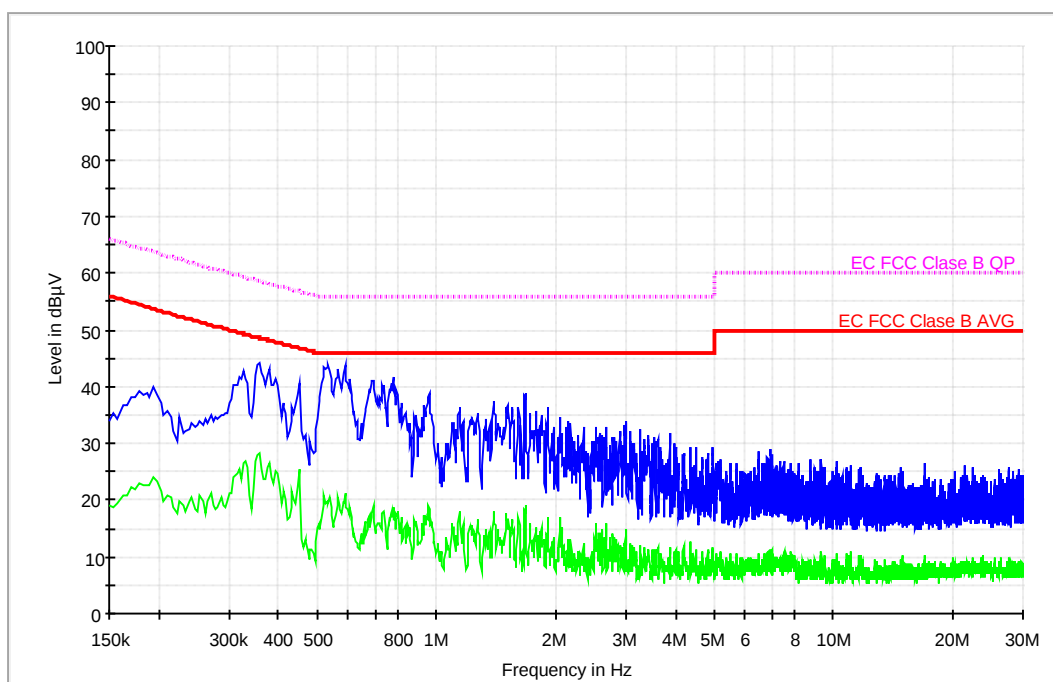
Continuous conducted emission: CC0201L1 (Peak and average)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/012
 Modo operacion: MO#01
 Fecha: 2004-09-24 18:29
 Setup: EMI conducted
 Description: WILLY + AC-1. Medida en fase.

EC FCC Clase B ESIB26 CC



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.358000	44.3	28.3
0.590000	43.7	21.3
0.778000	41.7	18.6
0.958000	39.0	18.4
1.146000	36.3	17.9
1.270000	35.2	16.5
1.398000	37.4	18.1
1.614000	36.3	16.9
1.678000	38.8	18.9
1.778000	35.8	15.3
1.906000	36.3	17.1
2.046000	34.6	17.1
2.342000	33.0	12.4
2.418000	28.2	10.0
2.526000	33.0	15.8
2.670000	32.8	16.0

Frequency (MHz)	MaxPeak- ClearWrite (dBμV)	Average- ClearWrite (dBμV)
2.894000	32.0	12.0
2.998000	34.0	14.8
3.082000	32.2	12.4
3.266000	32.4	12.1
3.410000	31.5	11.3
3.526000	31.1	11.3
3.602000	30.8	11.7
3.670000	29.2	10.5
3.870000	31.8	11.7
3.966000	29.0	10.5
3.990000	30.0	10.9
4.194000	28.3	11.7
4.366000	29.4	12.8
4.522000	29.2	10.5
4.678000	27.6	10.0
4.814000	28.4	11.3
4.974000	29.5	11.7
5.202000	27.2	10.9
5.522000	26.3	10.5
5.682000	26.5	10.5
6.470000	28.5	10.5
6.818000	27.7	10.5
6.974000	28.8	11.3
7.834000	26.4	10.9
8.154000	26.4	9.1
8.782000	27.2	9.1
8.994000	25.8	7.4
9.330000	27.2	11.0
9.478000	26.0	10.1
9.990000	25.2	9.6
10.162000	27.0	10.5
10.762000	26.0	10.6
11.090000	26.1	11.0
11.518000	25.6	10.1
11.658000	25.8	10.1
14.814000	25.8	8.7
17.026000	26.6	10.2
21.506000	26.1	8.7
27.702000	25.7	8.8
29.438000	25.3	9.3

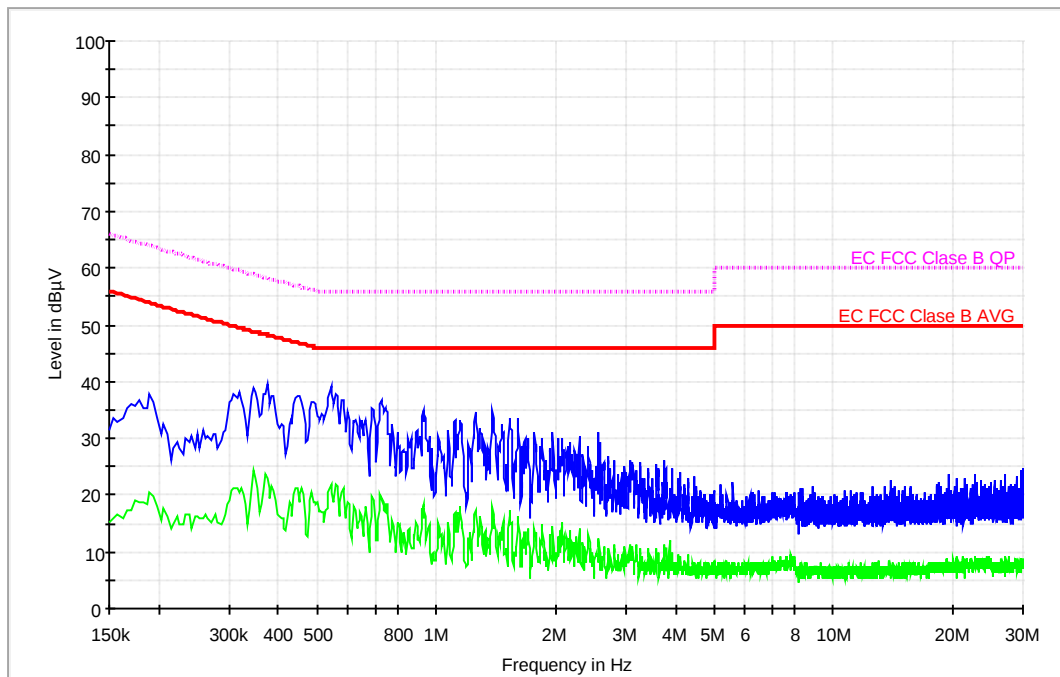
Continuous conducted emission: CC02040N (Peak and average)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/02
 Modo operacion: MO#04
 Fecha: 2004-09-24 18:36
 Setup: EMI conducted
 Description: WILLY + AC-1. Medida en fase.

EC FCC Clase B ESIB26 CC



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.190000	37.8	20.4
0.374000	39.4	22.9
0.542000	39.1	21.9
0.726000	36.6	19.2
0.926000	35.1	18.2
1.014000	30.5	15.1
1.146000	33.3	18.0
1.254000	34.6	17.3
1.386000	35.1	17.9
1.534000	33.7	17.3
1.606000	33.5	16.3
1.698000	29.9	14.0
1.770000	31.2	14.0
1.966000	31.0	14.0
2.078000	30.0	14.5
2.290000	30.5	14.3

Frequency (MHz)	MaxPeak- ClearWrite (dBμV)	Average- ClearWrite (dBμV)
2.414000	28.7	12.0
2.558000	31.2	11.7
2.590000	29.4	10.0
2.710000	26.9	10.5
3.254000	25.9	9.6
3.566000	25.5	9.1
3.738000	26.0	11.3
29.994000	24.7	8.8

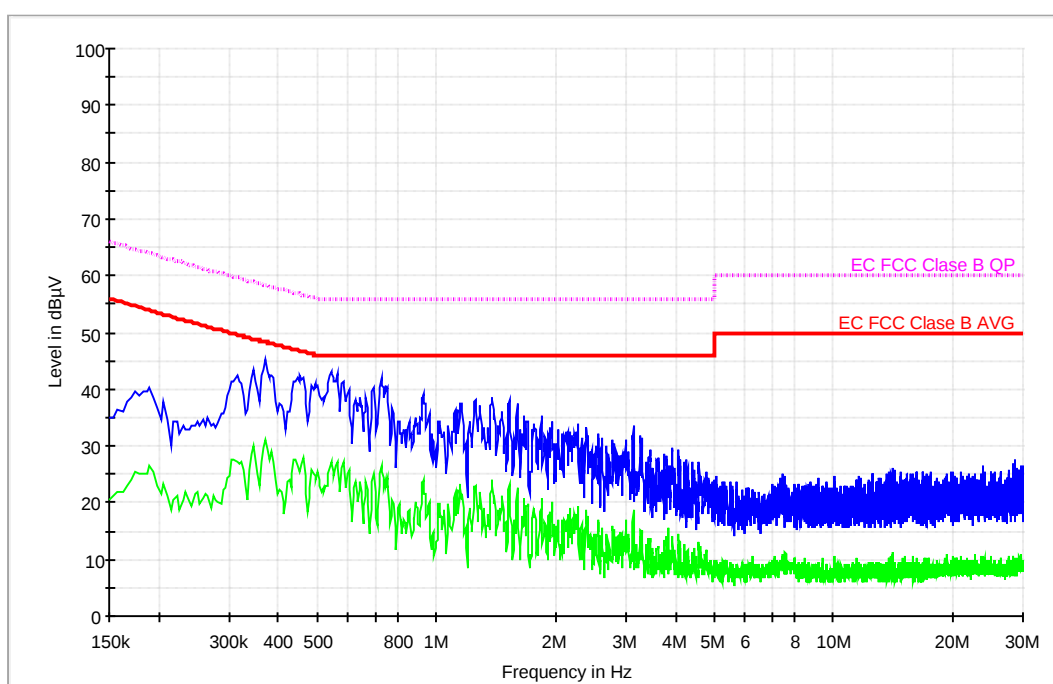
Continuous conducted emission: CC0204L1 (Peak and average)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/02
 Modo operacion: MO#04
 Fecha: 2004-09-24 18:40
 Setup: EMI conducted
 Description: WILLY + AC-1. Medida en neutro.

EC FCC Clase B ESIB26 CC



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.190000	40.4	26.5
0.370000	45.2	30.9
0.542000	43.0	27.3
0.726000	41.9	26.4
0.926000	39.1	24.0
1.150000	37.6	22.7
1.378000	38.6	24.2
1.526000	38.2	23.4
1.598000	37.5	22.7
1.666000	35.4	20.8
1.842000	35.5	20.7
1.954000	34.4	19.4
2.266000	33.9	18.9
2.394000	33.3	17.7

Frequency (MHz)	MaxPeak- ClearWrite (dBμV)	Average- ClearWrite (dBμV)
2.562000	32.3	17.1
2.622000	31.6	15.6
2.998000	31.2	17.1
3.134000	33.6	18.6
3.274000	31.9	15.1
3.446000	29.5	13.4
3.606000	28.0	12.4
3.766000	28.7	12.8
3.934000	29.8	13.7
4.082000	29.4	14.6
4.278000	27.4	11.3
4.590000	27.2	11.7
7.446000	25.2	10.9
14.030000	26.0	10.6
23.694000	26.7	10.2
28.702000	27.4	8.8
29.810000	26.6	9.8

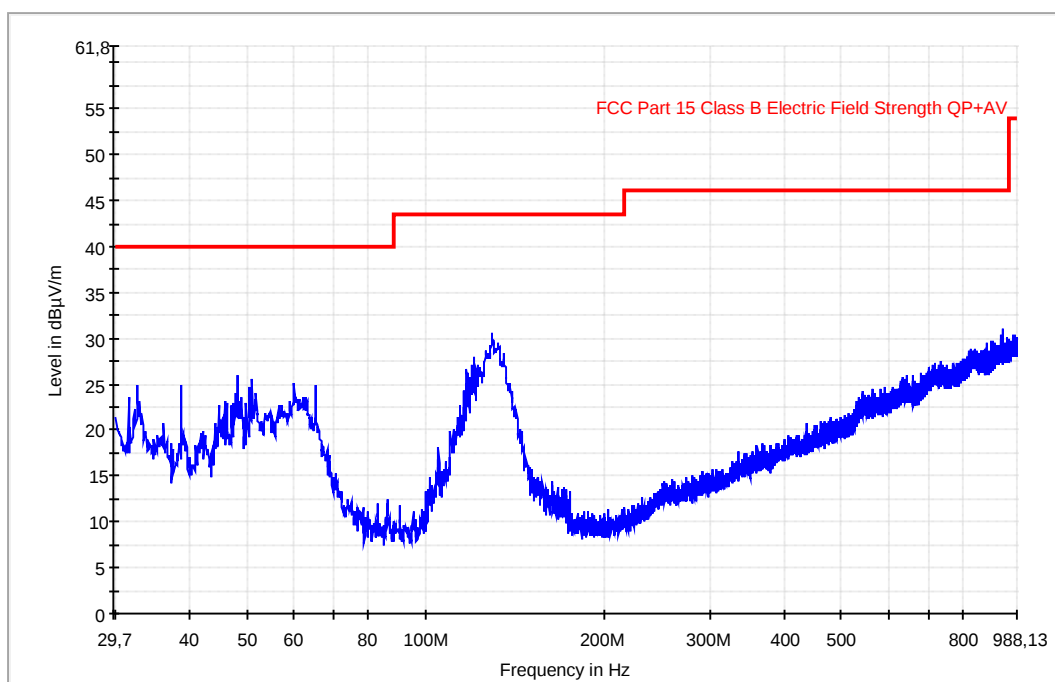
Radiated emission: CR0101 (30 MHz – 1000 MHz)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/01
 Modo operacion: MO#01
 Fecha: 2004-09-22 08:31
 Setup: EMI radiated
 Description: Willy+ACP12. FCC

FCC clase B



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)
33.200000	21.8	150.00	V	93.0
47.700000	24.1	150.00	V	93.0
50.300000	24.7	150.00	V	93.0
60.000000	25.1	150.00	V	93.0
116.400000	25.2	150.00	V	93.0
129.400000	30.0	150.00	V	93.0
892.800000	32.5	150.00	V	93.0

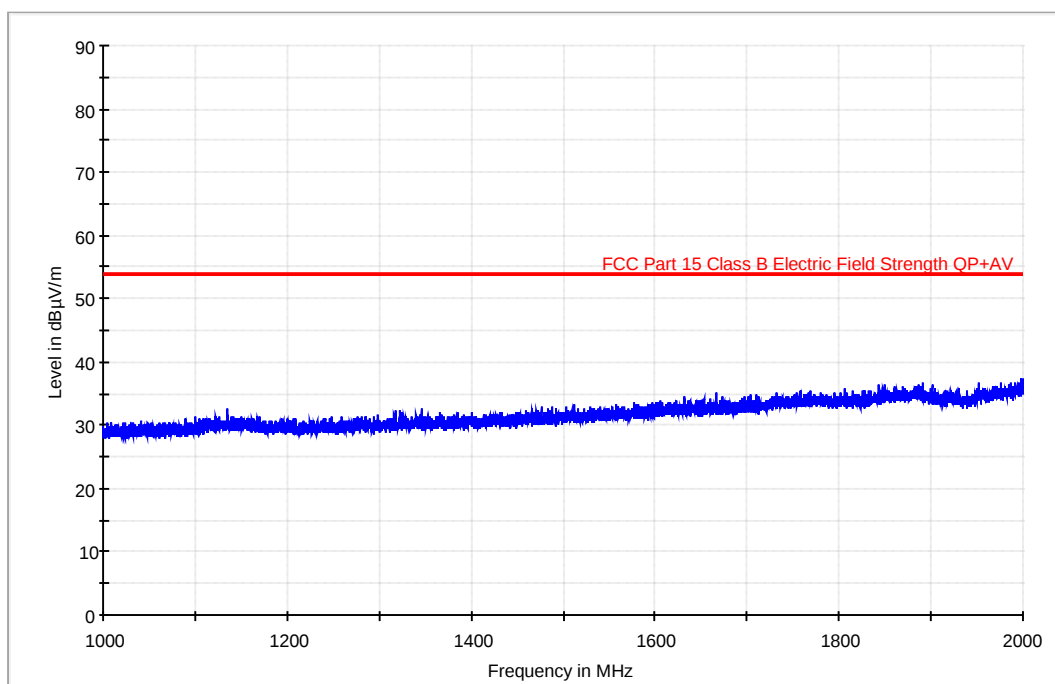
Radiated emission: CR0101 (1 GHz – 2 GHz). Horizontal polarization

EMC32 Report

Test Information

Proyecto:	21007iem.001
Empresa:	NOKIA
Muestra:	M/01
Modo operacion:	MO#01
Fecha:	2004-09-22 08:50
Setup:	EMI radiated
Description	WILLY + ACP-12

ER FCC Clase B 1-2GHz



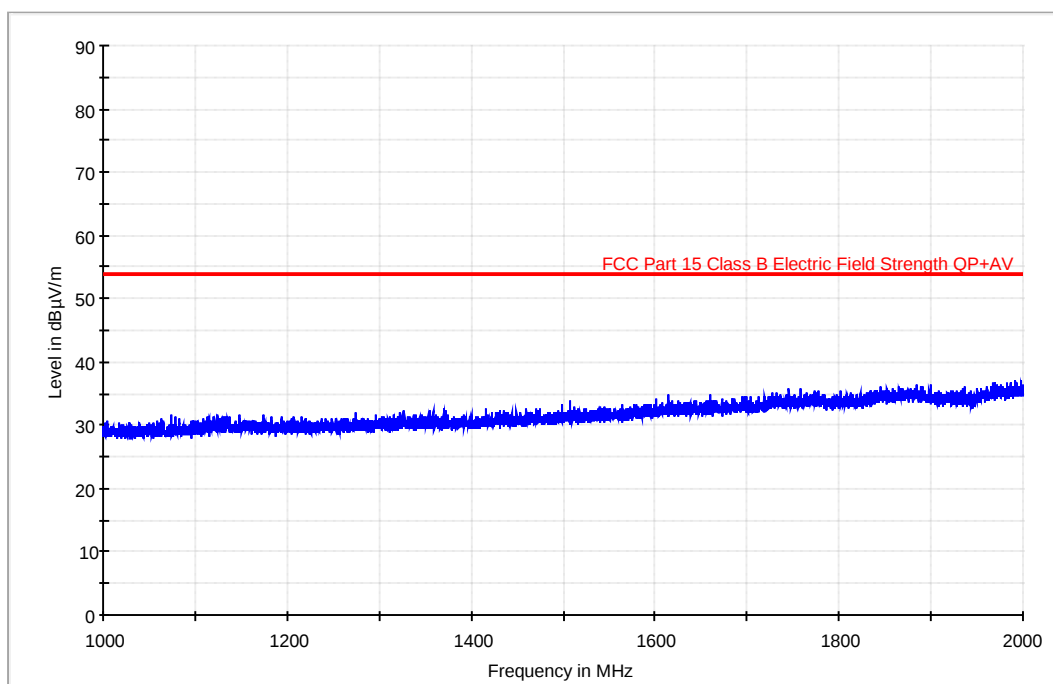
Radiated emission: CR0101 (1 GHz – 2 GHz) Vertical Polarization

EMC32 Report

Test Information

Proyecto:	21007iem.001
Empresa:	NOKIA
Muestra:	M/01
Modo operacion:	MO#01
Fecha:	2004-09-22 08:45
Setup:	EMI radiated
Description	WILLY + ACP-12

ER FCC Clase B 1-2GHz



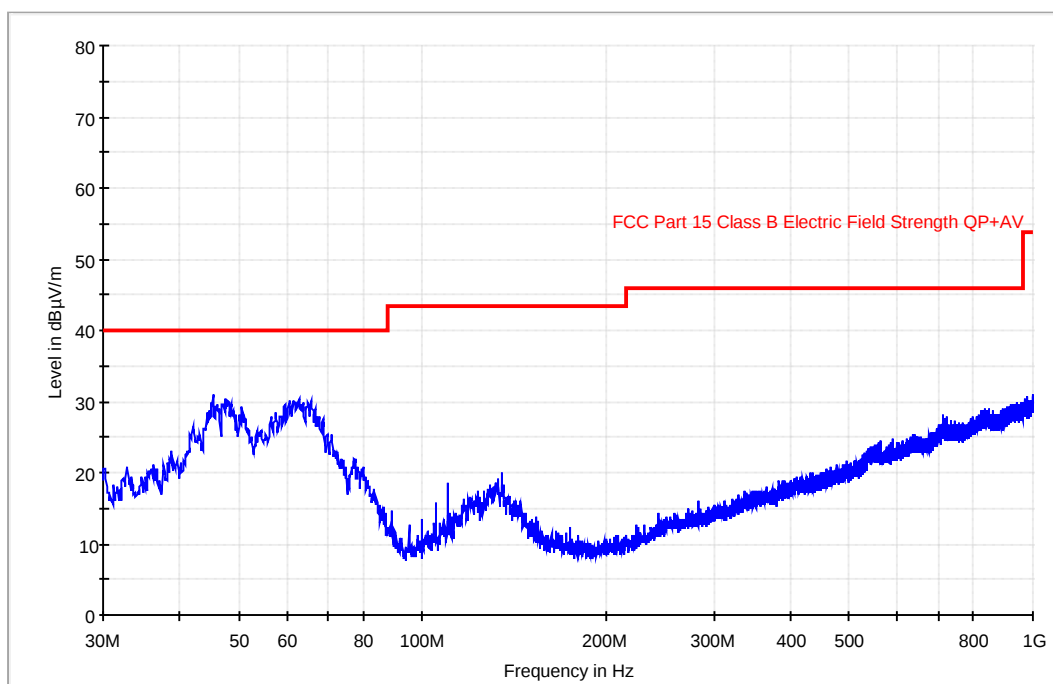
Radiated emission: CR0201 (30 MHz – 1000 MHz)

EMC32 Report

Test Information

Proyecto: 21007iem.002
 Empresa: NOKIA
 Muestra: M/02
 Modo operacion: MO#01
 Fecha: 2004-09-22 09:09
 Setup: EMI radiated
 Description: EUT ON. Idle mode (230 Vac).

FCC clase B



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)
45.400000	30.9	150.00	V	-2.0
62.800000	30.4	150.00	V	93.0
105.000000	15.7	150.00	V	-2.0
110.000000	18.5	150.00	V	-2.0
135.000000	20.1	150.00	V	93.0
999.200000	30.9	150.00	H	-2.0

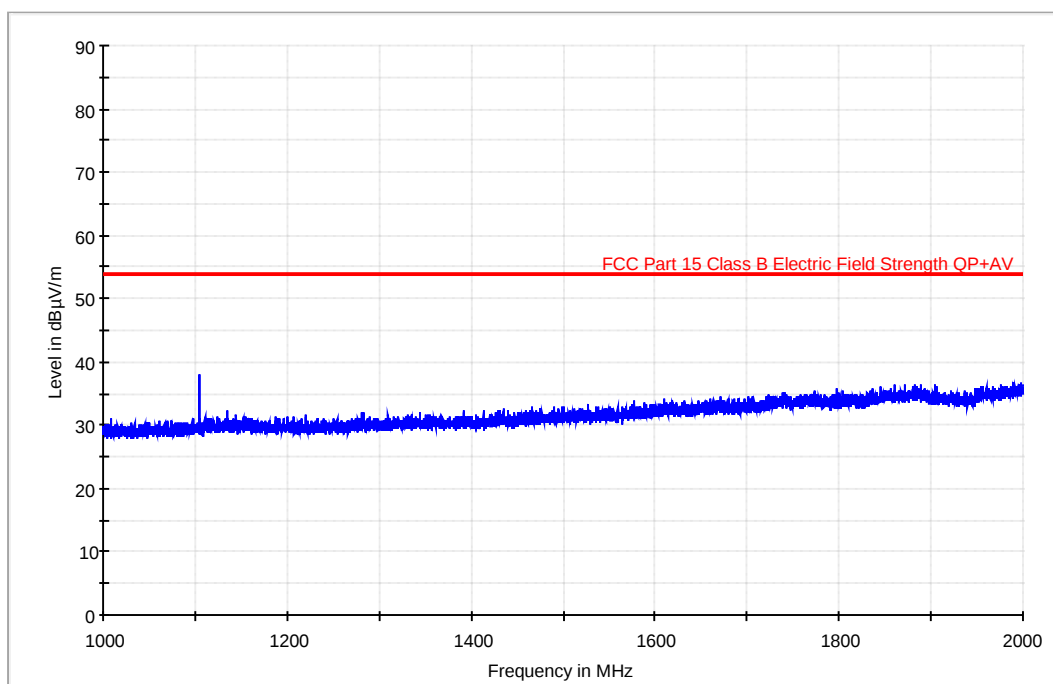
Radiated emission: CR0201 (1 GHz – 2 GHz). Horizontal polarization

EMC32 Report

Test Information

Proyecto:	21007iem.002
Empresa:	NOKIA
Muestra:	M/02
Modo operacion:	MO#01
Fecha:	2004-09-22 09:14
Setup:	EMI radiated
Description:	WILLY + AC-1

ER FCC Clase B 1-2GHz



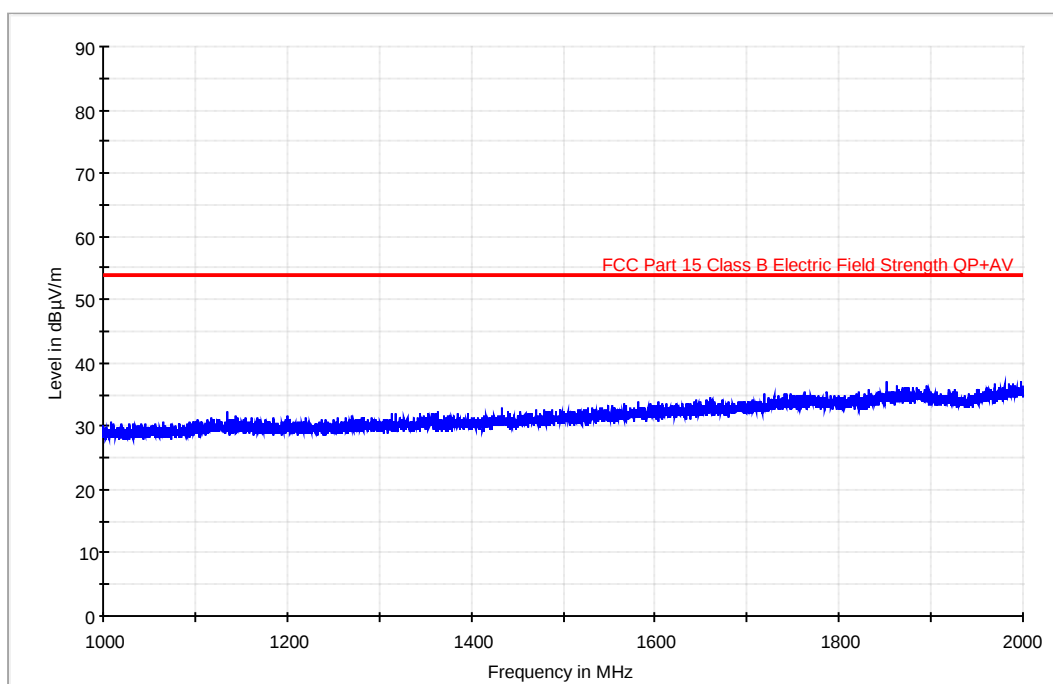
Radiated emission: CR0201 (1 GHz – 2 GHz) Vertical Polarization

EMC32 Report

Test Information

Proyecto:	21007iem.002
Empresa:	NOKIA
Muestra:	M/02
Modo operacion:	MO#01
Fecha:	2004-09-22 09:13
Setup:	EMI radiated
Description	WILLY + AC-1

ER FCC Clase B 1-2GHz



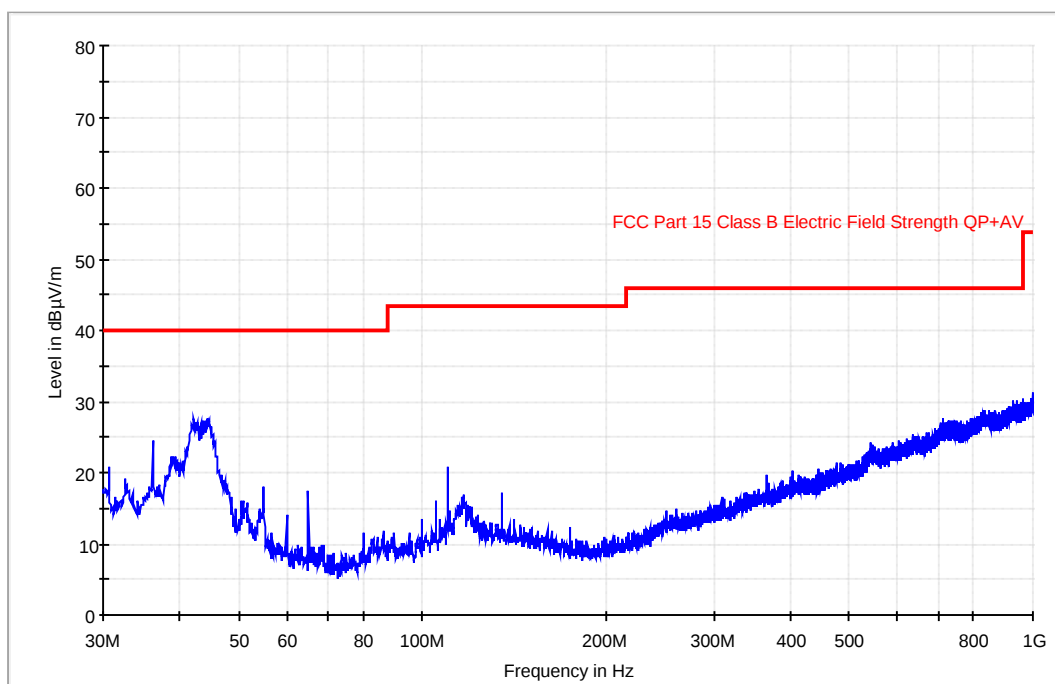
Radiated emission: CR0301 (30 MHz – 1000 MHz)

EMC32 Report

Test Information

Proyecto: 21007iem.001
 Empresa: NOKIA
 Muestra: M/03
 Modo operacion: MO#03
 Fecha: 2004-09-22 09:56
 Setup: EMI radiated
 Description: WILLY + LCH-12 (24 Vdc)

FCC clase B



DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)
44.500000	27.1	150.00	V	93.0
55.000000	18.2	150.00	V	93.0
60.000000	14.2	150.00	V	93.0
65.000000	17.5	150.00	V	93.0
110.000000	16.1	150.00	V	93.0
135.000000	17.1	150.00	V	93.0
999.700000	30.4	150.00	V	93.0

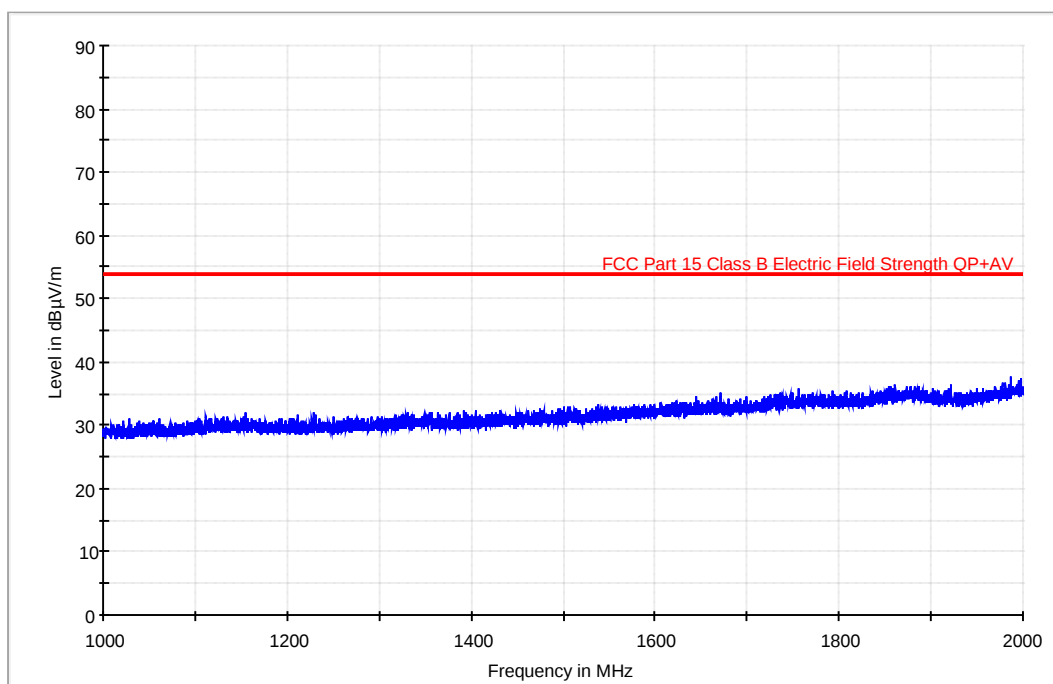
Radiated emission: CR0301 (1 GHz – 2 GHz). Horizontal polarization

EMC32 Report

Test Information

Proyecto:	21007iem.002
Empresa:	NOKIA
Muestra:	M/03
Modo operacion:	MO#03
Fecha:	2004-09-22 09:58
Setup:	EMI radiated
Description:	WILLY + LCH-12 (24Vdc)

ER FCC Clase B 1-2GHz



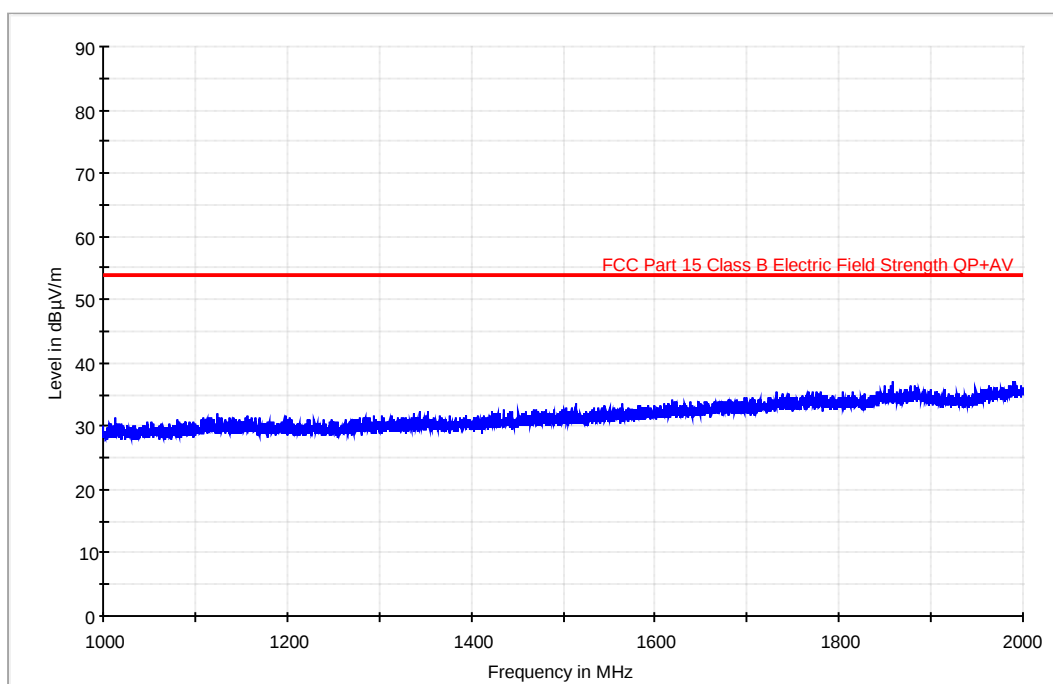
Radiated emission: CR0301 (1 GHz – 2 GHz) Vertical Polarization

EMC32 Report

Test Information

Proyecto:	21007iem.002
Empresa:	NOKIA
Muestra:	M/03
Modo operacion:	MO#03
Fecha:	2004-09-22 09:58
Setup:	EMI radiated
Description	WILLY + LCH-12 (24Vdc)

ER FCC Clase B 1-2GHz



4. - EQUIPMENT UNDER TEST PICTURES



