



AT4 wireless S.A.

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TEST REPORT

REFERENCE STANDARD:

FCC Rules and Regulations 47 CFR Part 15, Subpart B

&

IC RSS-Gen Issue 2, June 2007

**FCC Rules and Regulations 47 CFR Part 15, Subpart B: Limits and methods of measurements
for radio frequency devices. Unintentional radiators**

&

**IC RSS-Gen Issue 2, June 2007: General Requirements and Information for the Certification of
Radiocommunication Equipment**

NIE.....: 30575REM.003

Approved by Rafael López
(name / position & signature): EMC Manager

Elaboration date: 2009-11-23

Identification of item tested: Mobile Broadband Module

Trademark: Ericsson

Model and/or type reference: F3607gw / KRD 131 15/01

Other identification of the product: FCC ID: VV7-MBMF3607GW1
IC Type Approval #: 287AG-MBMF3607GW1
SW version: R1K06

Features: QUAD BAND GSM/GPRS/EGPRS class 10, WCDMA Bands I/II/V/VI
HSDPA Cat. 8 HSUPA Cat. 5

Description: Mini-PCIe Wireless WAN card

Applicant: Ericsson AB

Address: Lindholmspiren, 11
SE-417 56
Gothenburg, Sweden

CIF/NIF/Passport.....: N/A

Contact person.....: Jonas Rinman

Telephone / Fax: +46 10 717 5061 / + 46 10 712 6033

e-mail:: Jonas.rinman@ericsson.com

Test samples supplier	: Ericsson AB
Address.....	: Lindholmspiren, 11 SE-417 56 Gothenburg, Sweden
CIF/NIF/Passport	: N/A
Contact person:.....	: Jonas Rinman
Telephone / Fax.....	: +46 10 717 5061 / + 46 10 712 6033
e-mail:	: Jonas.rinman@ericsson.com
Manufacturer	: Ericsson AB
Address.....	: Lindholmspiren, 11 SE-417 56 Gothenburg, Sweden
CIF/NIF/Passport	: N/A
Telephone / Fax.....	: +46 10 717 5061 / + 46 10 712 6033
Test method requested	:
Standard	: FCC Rules and Regulations 47 CFR Part 15 & IC RSS-Gen Issue 2, June 2007
Test procedure.....	: PEEM001; PEEM002
Report template No.	: FDT08_11
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INDEX

Competences and guarantees	4
General conditions	4
Usage of samples.....	5
Testing period	5
Environmental conditions	6
Summary	7
Remarks and comments	7
Testing veredicts	7
APPENDIX A: Test result	32 Pages

Competences and guarantees

This certificate of conformity was issued in accordance with the decision N° 3/2000 of the Joint Committee established under the Agreement on Mutual Recognition between the European Community and the United States of America. By this decision, AT4 wireless can act as Conformity Assessment Body (CAB) on Electromagnetic Compatibility. This Certificate applies to the samples listed at technical reports.

This laboratory is designed by the Federal Communications Commission (ES0004)

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the following AT4 wireless's internal documents:

1. PODT000: Procedure for the measure uncertainty calculation.

Usage of samples

Samples undergoing test have been selected by: Ericsson AB

Sample S/01 is composed of the following elements:

<u>Control Nº</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Serial Nº</u>	<u>Date of reception</u>
30575/05	Mobile Broadband module	Ericsson AB	F3607gw / KRD 131 15/01	FCC ID: VV7-MBMF3607GW1 IC Type Approval #: 287AG-MBMF3607GW1 IMEI: 004401700257484 SW Version: R1K06	2009-11-17
28940/07	Cradle	Ericsson AB	---	---	2008-12-30
28940/20	Antenna	Ericsson AB	---	---	2008-12-30
28940/23	Antenna	Ericsson AB	---	---	2008-12-30
28940/37	AC/DC Adapter	Ericsson AB	---	---	2009-02-20

Samples S/01 has undergone the next test(s):

1. Continuous conducted emission, power leads:

Standard: FCC Rules and Regulations 47 CFR Part 15 / IC RSS-Gen Issue 2, June 2007

Method: FCC Rules and Regulations 47 CFR Part 15, Subpart B (Class B) / IC RSS-Gen Issue 2, June 2007

2. Radiated emission, electromagnetic field:

Standard: FCC Rules and Regulations 47 CFR Part 15 / IC RSS-Gen Issue 2, June 2007

Method: FCC Rules and Regulations 47 CFR Part 15, Subpart B (Class B) / IC RSS-Gen Issue 2, June 2007

Testing period

The performed test started on 2009-11-19 and finished on the 2009-11-23.

The tests have been performed at AT4 wireless.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 80 %
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω

In the semianechoic chamber (21 meters x 11 meters x 8 meters), the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 30 °C
Relative humidity	Min. = 45 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω
Normal site attenuation (NSA)	< ±4 dB at 10 m distance between item under test and receiver antenna, (30 MHz to 1000 MHz)
Field homogeneity	More than 75% of illuminated surface is between 0 and 6 dB (26 MHz to 1000 MHz).

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 30 °C
Relative humidity	Min. = 45 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω

Summary

Considering the results of the performed test according to standard **FCC Rules and Regulations 47 CFR Part 15, Subpart B & IC RSS-Gen Issue 2, June 2007**, the items under test are **IN COMPLIANCE** with the requested specifications specified in the standard.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

Remarks and comments

The tests have been realized by the technical personnel: José Manuel Márquez González & José Carlos Luque Muñoz.

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 150 kHz to 30 MHz is $I = \pm 3,60$ dB for quasi-peak measurements, $I = \pm 3,48$ dB for peak measurements ($k = 2$).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1 GHz is $I = \pm 4,57$ dB for quasi-peak measurements, $I = \pm 4,48$ dB for peak measurements ($k = 2$) and from 1 to 12,75 GHz is $I = \pm 3,43$ dB for average and peak measurements.

Testing veredicts

Not applicable	: NA
Pass.....	: P
Fail	: F
Not measured.....	: NM

APPENDIX A

Test Result

APPENDIX A CONTENT:

DESCRIPTION OF THE OPERATION MODES.....	9
RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE.	10
CONTINUOUS CONDUCTED EMISSION ON POWER LEADS	23

DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. Every operation mode takes a failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

In the following table appears the operation modes used by the samples tested to that it refers the present test report.

OPERATION MODE	DESCRIPTION
OM#01	EUT ON. IDLE 850 MHz. GPS ON.
OM#02	EUT ON. IDLE 1900 MHz. GPS ON.
OM#03	EUT ON. IDLE UMTS FDD II. GPS ON.
OM#04	EUT ON. IDLE UMTS FDD V. GPS ON.
OM#05	EUT ON. TCH 850 MHz. GPS ON.
OM#06	EUT ON. TCH 1900 MHz. GPS ON.
OM#07	EUT ON. TCH UMTS FDD II. GPS ON.
OM#08	EUT ON. TCH UMTS FDD V. GPS ON.

RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE.

LIMITS:	Product standard :	FCC RULES AND REGULATIONS 47 CFR PART 15, SUBPART B & IC RSS-GEN ISSUE 2, JUNE 2007
	Test standard :	FCC RULES AND REGULATIONS 47 CFR PART 15, SUBPART B & IC RSS-GEN ISSUE 2, JUNE 2007

LIMITS OF INTERFERENCE CLASS B

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B & IC RSS-Gen Issue 2, June 2007 in the frequency range 30 MHz to 12,5 GHz, for Class B equipment, which is a transmitter in a band over 500 MHz, was:

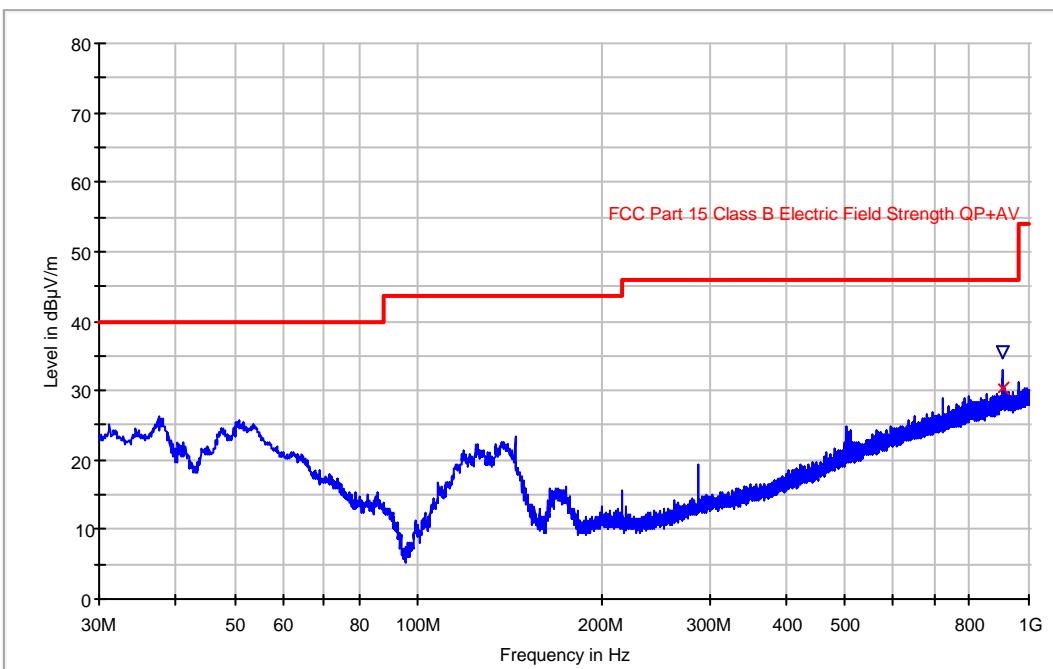
Frequency range (MHz)	Limit for 3 m (μ V/m)	Limit for 3 m (dB μ V/m)
30 to 88	100	40
88 to 216	150	43,52
216 to 960	200	46,02
Above 960	500	53,98

TESTED SAMPLES:	S/01
TESTED OPERATION MODES:	OM#01 to 04
TEST RESULTS :	CRmmnn: CR, Radiation Condition; mm: Sample number; nn: Operation mode, xx: Polarisation.

CRmmnn	Description	Result
CR0101	EUT ON. Idle 850 MHz. GPS ON. Range 30 - 1000 MHz.	P
CR0102	EUT ON. Idle 1900 MHz. GPS ON. Range 30 - 1000 MHz.	P
CR0103	EUT ON. Idle UMTS FDD II. GPS ON. Range 30 - 1000 MHz.	P
CR0104	EUT ON. Idle UMTS FDD V. GPS ON. Range 30 - 1000 MHz.	P
CR0101PH	EUT ON. Idle 850 MHz. GPS ON. Range 1 – 12.5 GHz. Horizontal polarisation.	P
CR0101PV	EUT ON. Idle 850 MHz. GPS ON. Range 1 – 12.5 GHz. Vertical polarisation.	P
CR0102PH	EUT ON. Idle 1900 MHz. GPS ON. Range 1 – 12.5 GHz. Horizontal polarisation.	P
CR0102PV	EUT ON. Idle 1900 MHz. GPS ON. Range 1 – 12.5 GHz. Vertical polarisation.	P
CR0103PH	EUT ON. Idle UMTS FDD II. GPS ON. Range 1 – 12.5 GHz. Horizontal polarisation.	P
CR0103PV	EUT ON. Idle UMTS FDD II. GPS ON. Range 1 – 12.5 GHz. Vertical polarisation.	P
CR0104PH	EUT ON. Idle UMTS FDD V. GPS ON. Range 1 – 12.5 GHz. Horizontal polarisation.	P
CR0104PV	EUT ON. Idle UMTS FDD V. GPS ON. Range 1 – 12.5 GHz. Vertical polarisation.	P

Radiated Emission: CR0101 (30MHz to 1GHz)

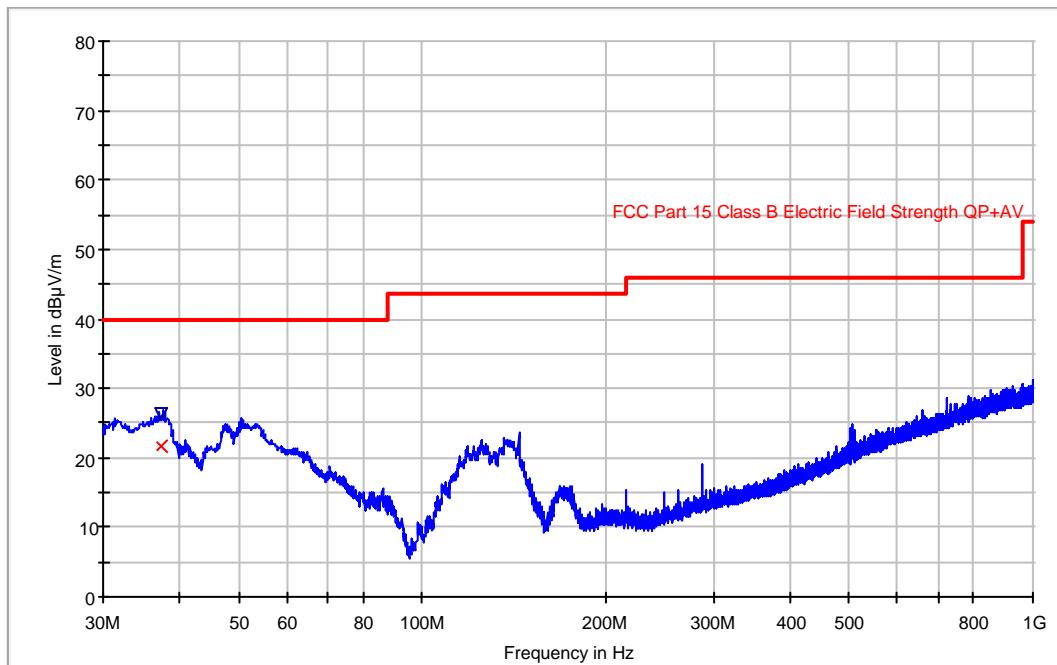
Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#01
 Date: 2009-11-19 21:09
 Setup: EMI radiated
 Mode: EUT ON. IDLE 850MHz. GPS ON.

FCC class B Bilog Hibrid

Maximized

Frequency (MHz)	QuasiPeak (dB μ V/m)	MaxPeak (dB μ V/m)	Antenna height (cm)	Polarity	Turntable position (deg)
905.456914	30.4	35.7	183.00	V	308.0

Radiated Emission: CR0102 (30MHz to 1GHz)

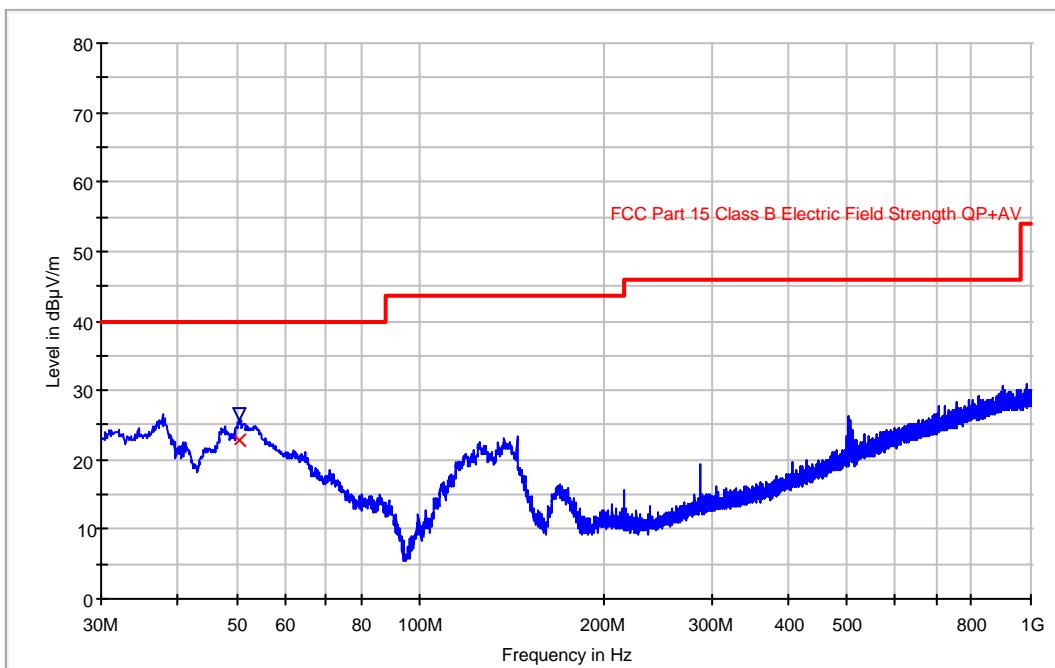
Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#02
 Date: 2009-11-19 20:41
 Setup: EMI radiated
 Mode: EUT ON. IDLE 1900MHz. GPS ON.

FCC class B Bilog Hibrid

Maximized

Frequency (MHz)	QuasiPeak (dB μ V/m)	MaxPeak (dB μ V/m)	Antenna height (cm)	Polarity	Turntable position (deg)
37.458717	21.6	26.3	158.00	V	347.0

Radiated Emission: CR0103 (30MHz to 1GHz)

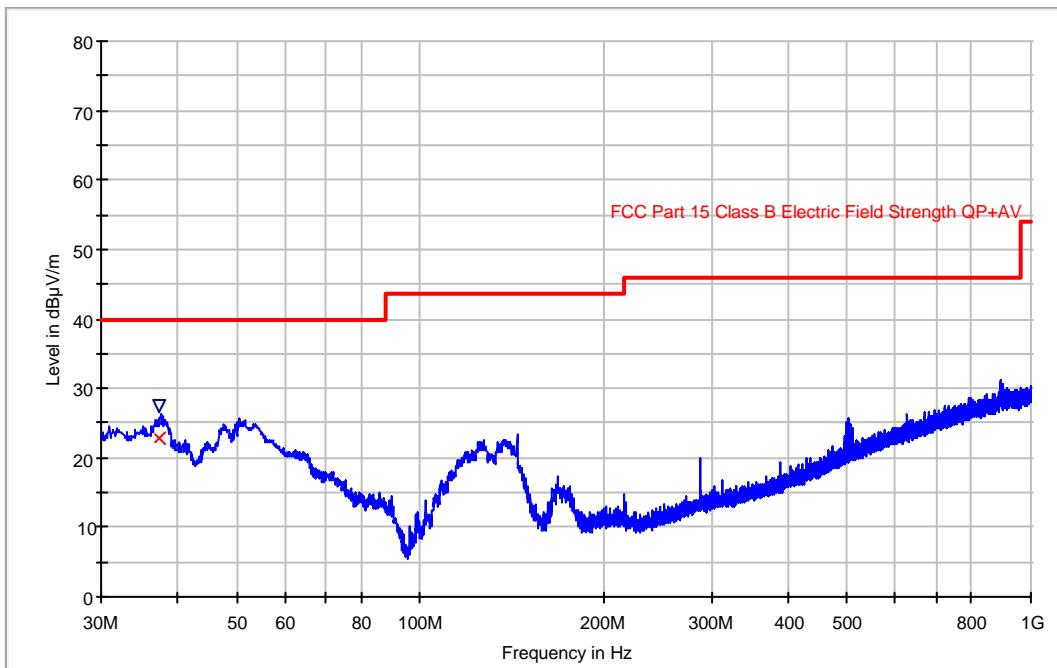
Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#03
 Date: 2009-11-19 21:31
 Setup: EMI radiated
 Mode: EUT ON. IDLE UMTS FDD II. GPS ON.

FCC class B Bilog Hibrid

Maximized

Frequency (MHz)	QuasiPeak (dB μ V/m)	MaxPeak (dB μ V/m)	Antenna height (cm)	Polarity	Turntable position (deg)
50.408417	22.7	26.6	98.00	V	285.0

Radiated Emission: CR0104 (30MHz to 1GHz)

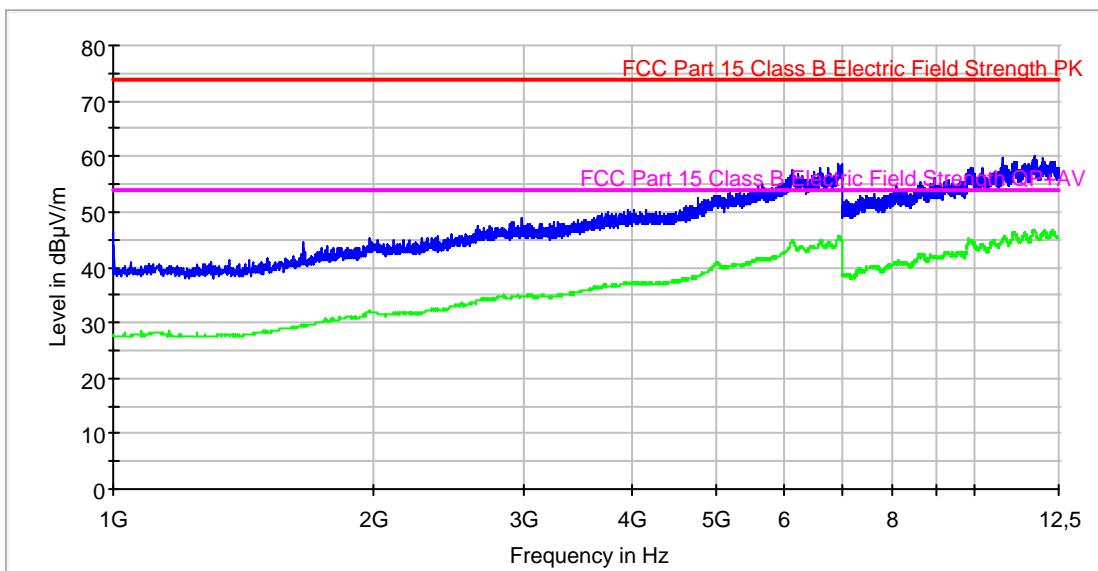
Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#04
 Date: 2009-11-19 21:55
 Setup: EMI radiated
 Mode: EUT ON. IDLE UMTS FDD V. GPS ON.

FCC class B Bilog Hibrid

Maximized

Frequency (MHz)	QuasiPeak (dB μ V/m)	MaxPeak (dB μ V/m)	Antenna height (cm)	Polarity	Turntable position (deg)
37.402605	23.0	27.3	98.00	V	298.0

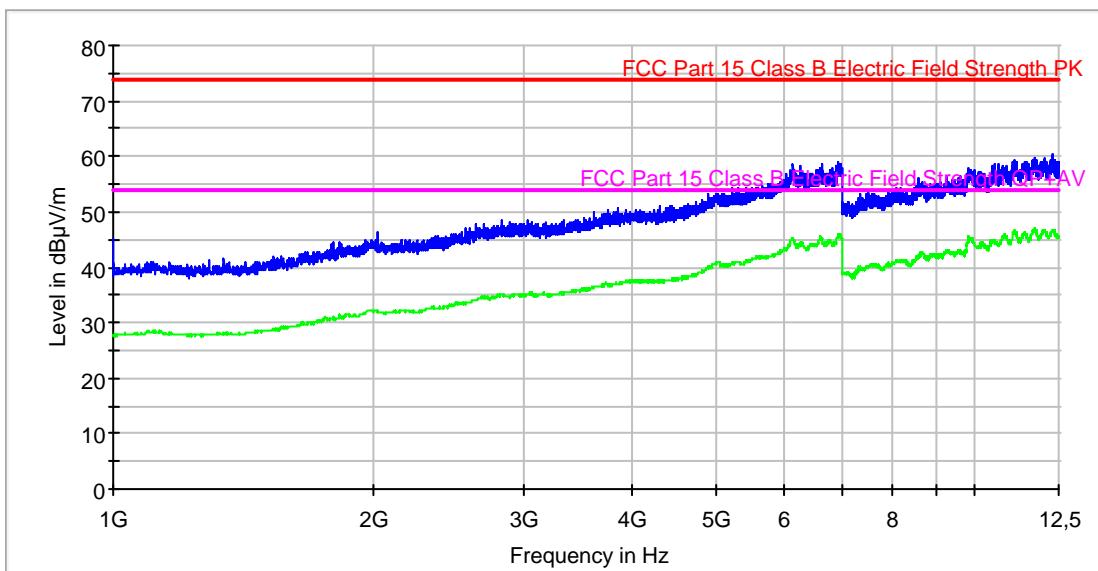
Radiated Emission: CR0101 (1GHz to 12.5GHz Horizontal polarisation)

Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#01
 Date: 2009-11-20 21:06
 Setup: EMI radiated
 Mode: EUT ON. IDLE 850MHz. Horizontal polarisation.

FCC 1-12.5GHz Class B


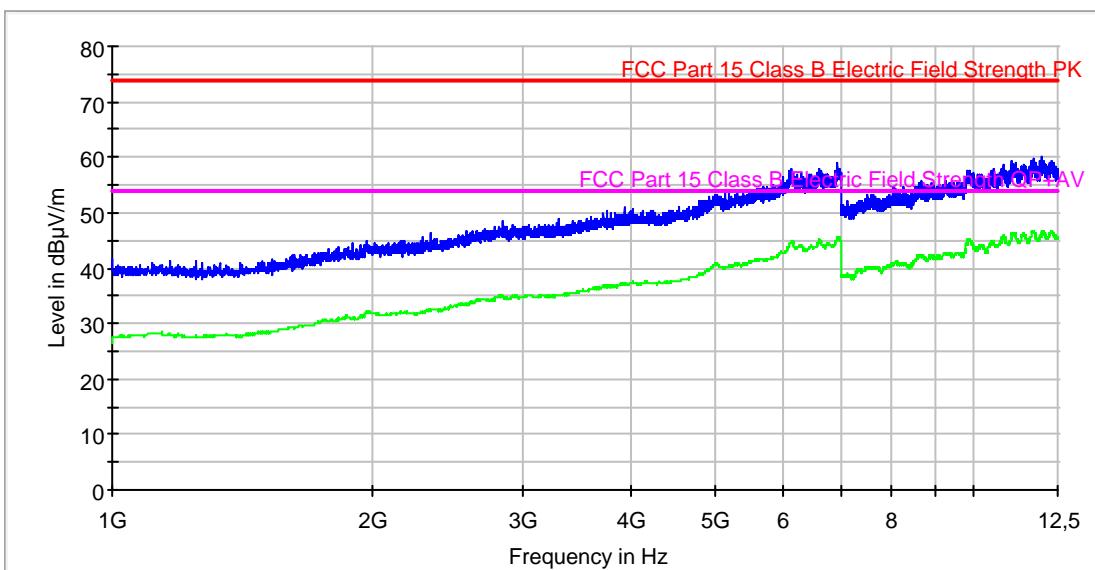
Radiated Emission: CR0101 (1GHz to 12.5GHz Vertical polarisation)

Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#01
 Date: 2009-11-23 07:19
 Setup: EMI radiated
 Mode: EUT ON. IDLE 850MHz. Vertical polarisation.

FCC 1-12.5GHz Class B


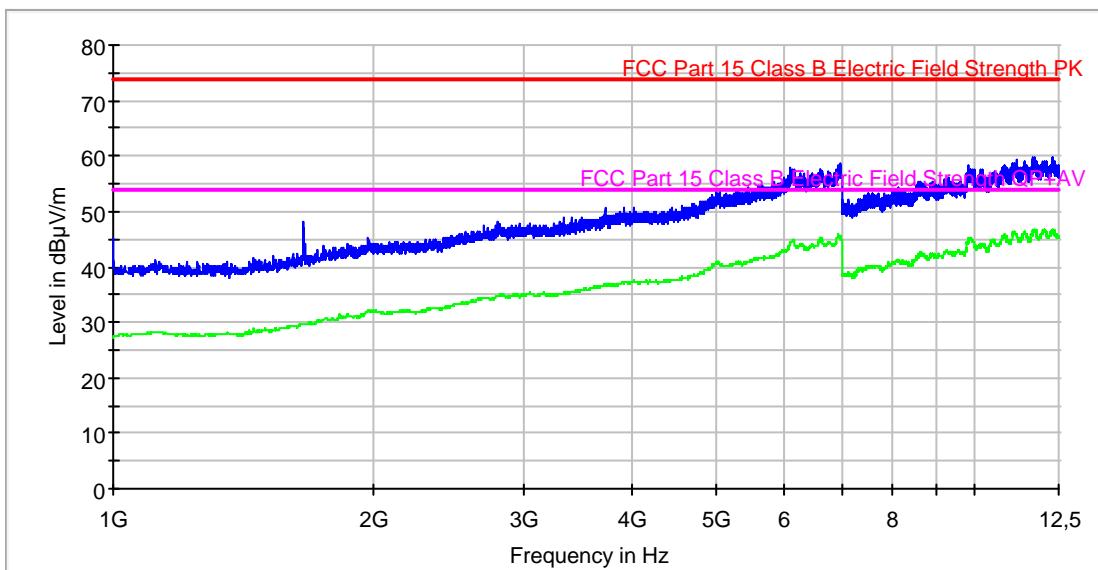
Radiated Emission: CR0102 (1GHz to 12.5GHz Horizontal polarisation)

Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#02
 Date: 2009-11-23 07:31
 Setup: EMI radiated
 Mode: EUT ON. IDLE 1900MHz. Horizontal polarisation.

FCC 1-12.5GHz Class B


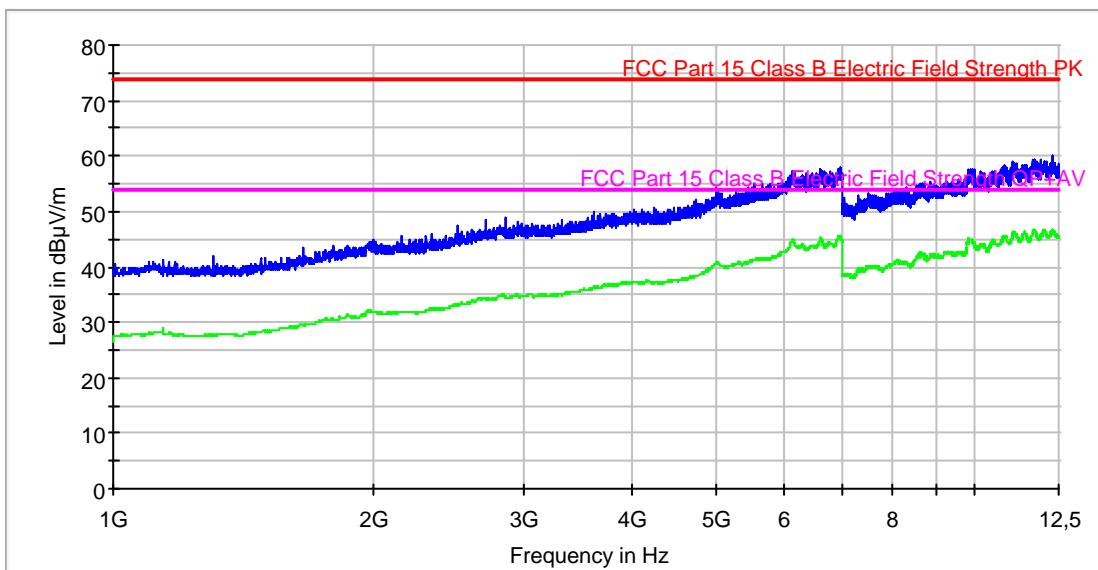
Radiated Emission: CR0102 (1GHz to 12.5GHz Vertical polarisation)

Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#02
 Date: 2009-11-23 07:24
 Setup: EMI radiated
 Mode: EUT ON. IDLE 1900MHz. Vertical polarisation.

FCC 1-12.5GHz Class B


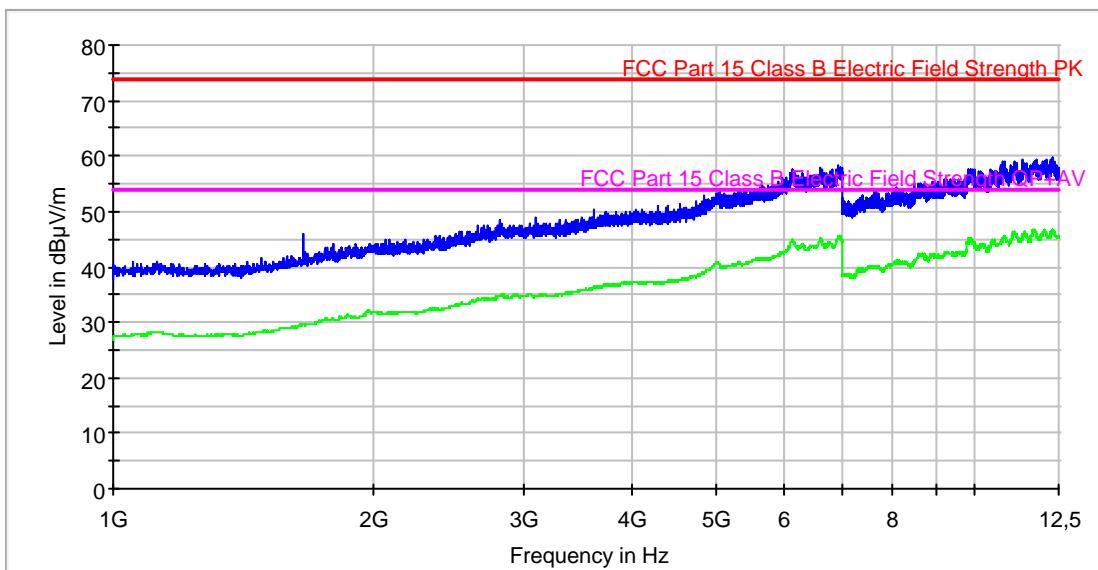
Radiated Emission: CR0103 (1GHz to 12.5GHz Horizontal polarisation)

Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#03
 Date: 2009-11-23 07:35
 Setup: EMI radiated
 Mode: EUT ON. IDLE UMTS FDD II. Horizontal polarisation.

FCC 1-12.5GHz Class B


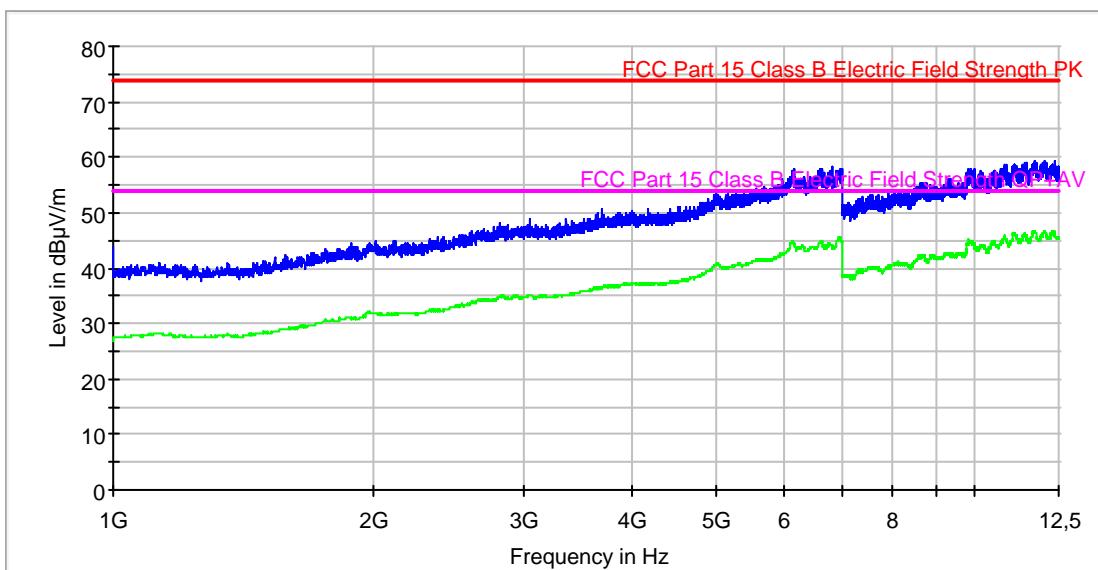
Radiated Emission: CR0103 (1GHz to 12.5GHz Vertical polarisation)

Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#03
 Date: 2009-11-23 07:40
 Setup: EMI radiated
 Mode: EUT ON. IDLE UMTS FDD II. Vertical polarisation.

FCC 1-12.5GHz Class B


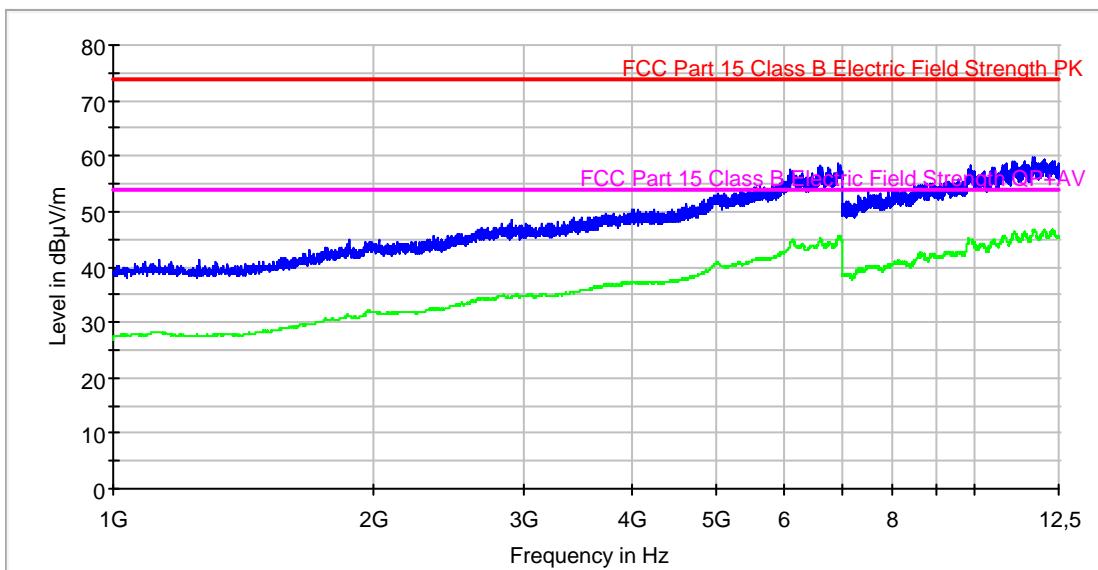
Radiated Emission: CR0104 (1GHz to 12.5GHz Horizontal polarisation)

Project: 30575REM.003
Company: ERICSSON AB
Sample: S/01
Operation Mode: OM#04
Date: 2009-11-23 07:47
Setup: EMI radiated
Mode: EUT ON. IDLE UMTS FDD V. Horizontal polarisation.

FCC 1-12.5GHz Class B

Radiated Emission: CR0104 (1GHz to 12.5GHz Vertical polarisation)

Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#04
 Date: 2009-11-23 07:44
 Setup: EMI radiated
 Mode: EUT ON. IDLE UMTS FDD V. Vertical polarisation.

FCC 1-12.5GHz Class B


CONTINUOUS CONDUCTED EMISSION ON POWER LEADS

LIMITS:	Product standard :	FCC RULES AND REGULATIONS 47 CFR PART 15, SUBPART B & IC RSS-GEN ISSUE 2, JUNE 2007
	Test standard :	FCC RULES AND REGULATIONS 47 CFR PART 15, SUBPART B & IC RSS-GEN ISSUE 2, JUNE 2007

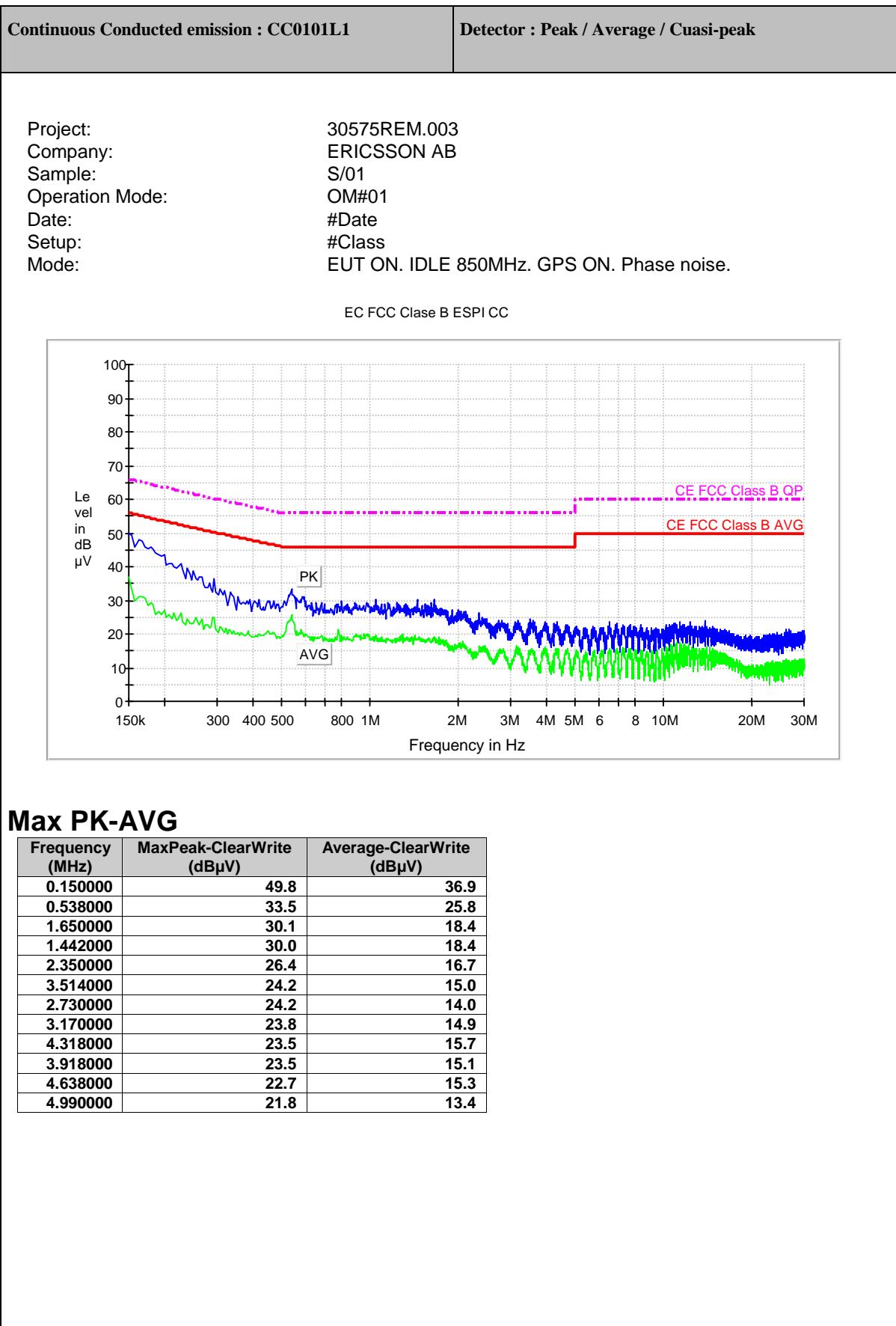
CLASS B

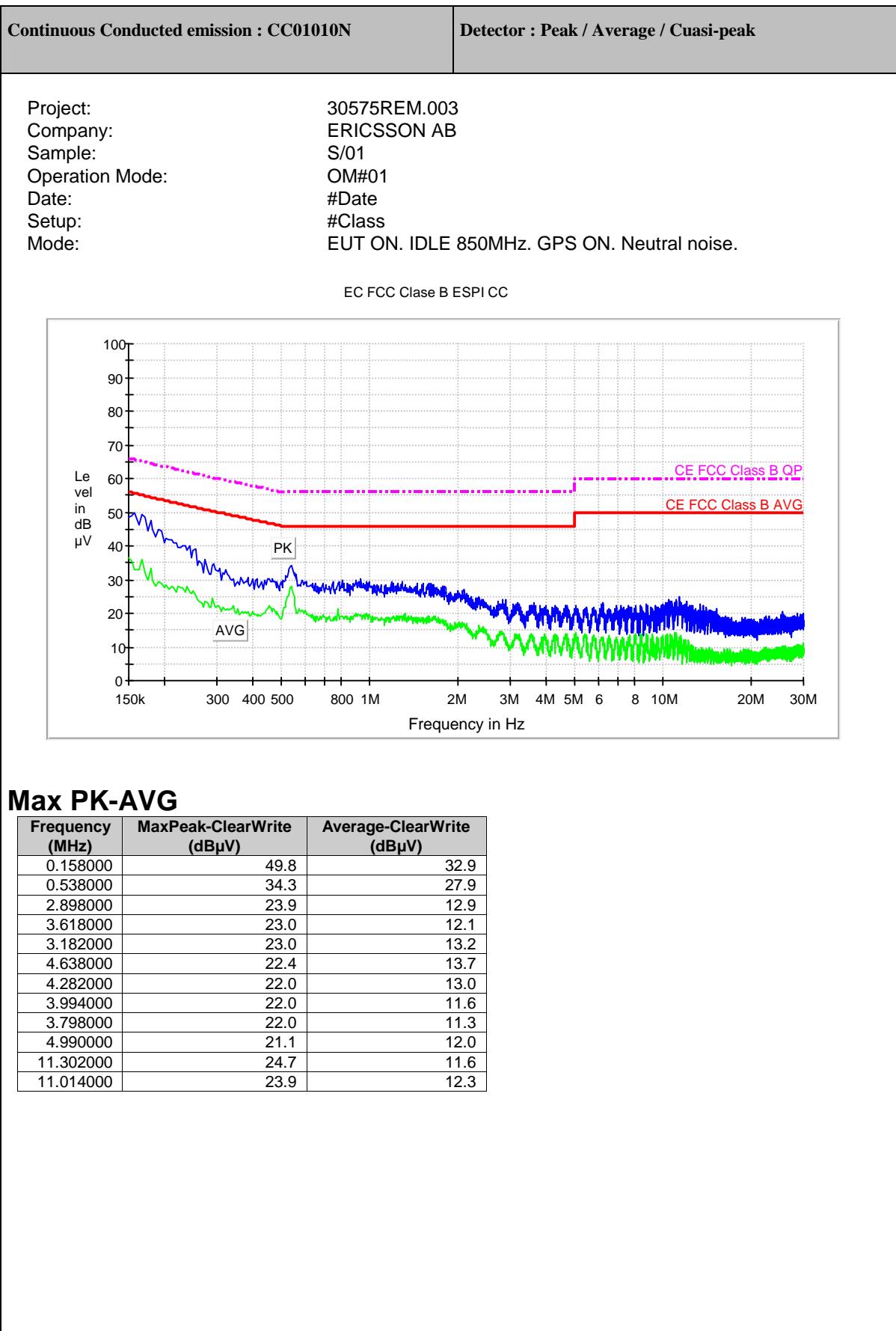
The applied limit for continuous conducted emissions in power leads, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B IC RSS-Gen Issue 2, June 2007 in the frequency range 0,15 to 30 MHz, for Class B equipment was:

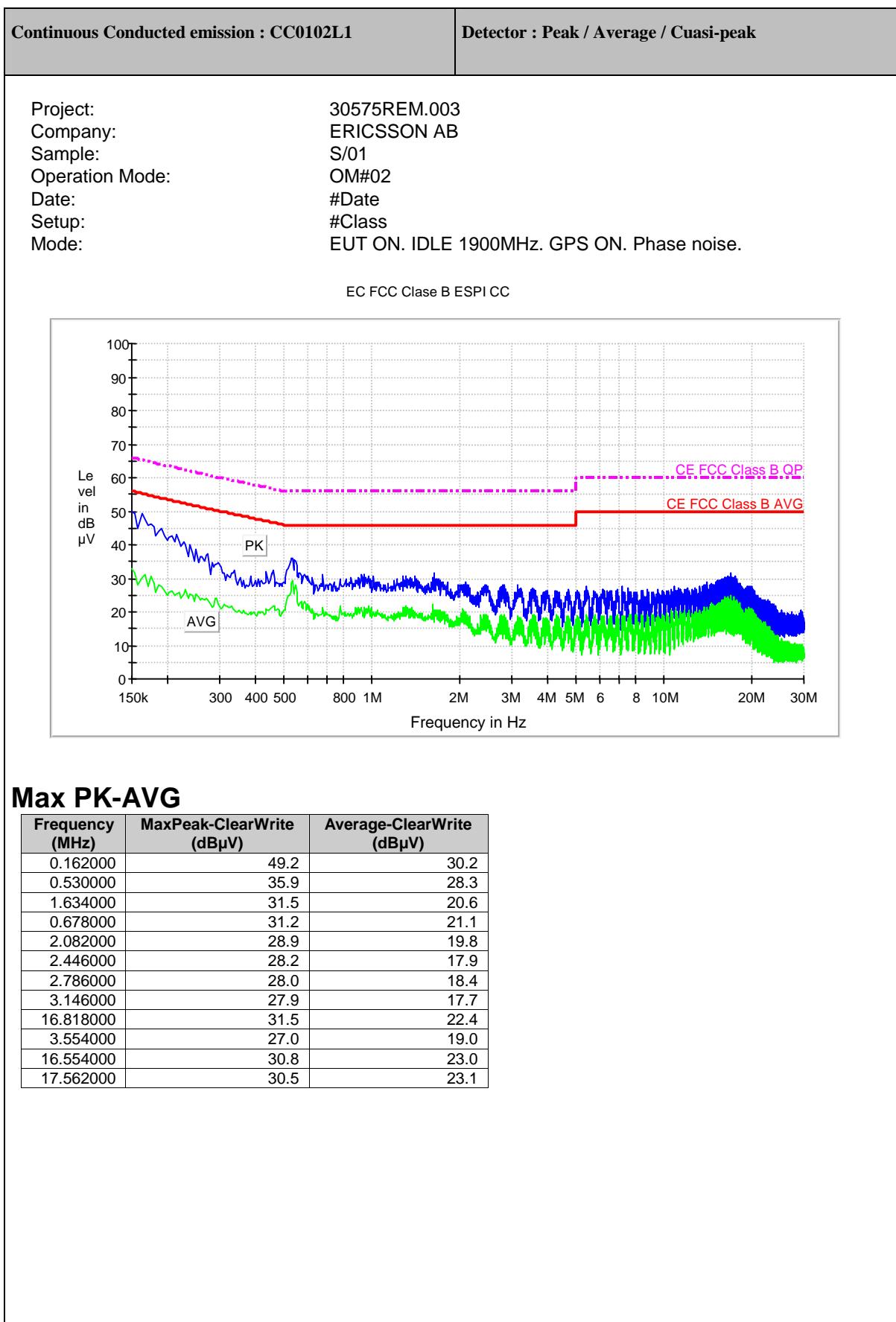
Frequency range (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0,15 to 0,5	66-56	56-46
0,5 to 5	56	46
5 to 30	60	50

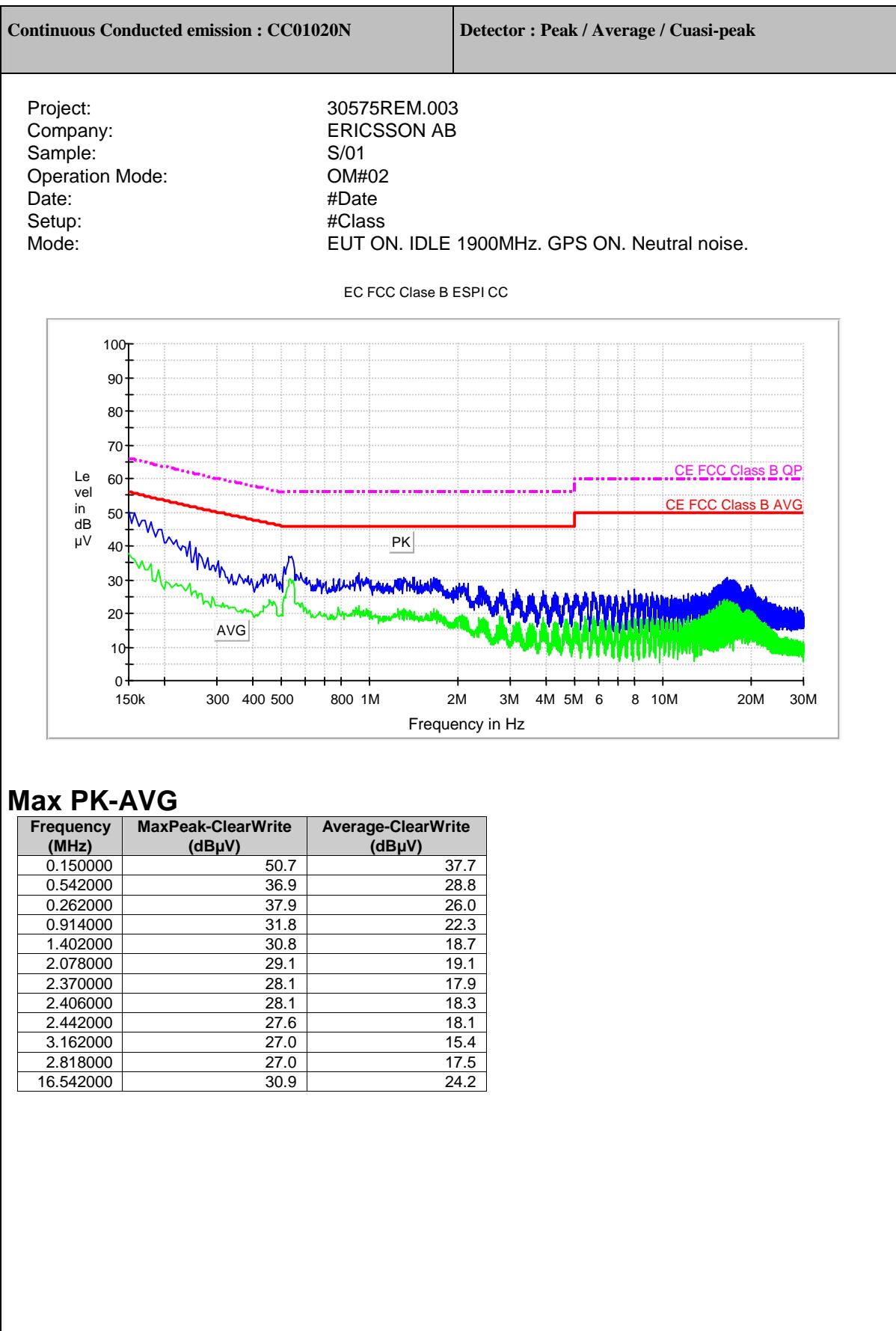
TESTED SAMPLES:	S/01
TESTED OPERATION MODES:	OM#01 to OM#08
TEST RESULTS :	CCmmnnhh: CC, Conducted Condition; mm: Sample number; nn: Operation mode; hh: wire

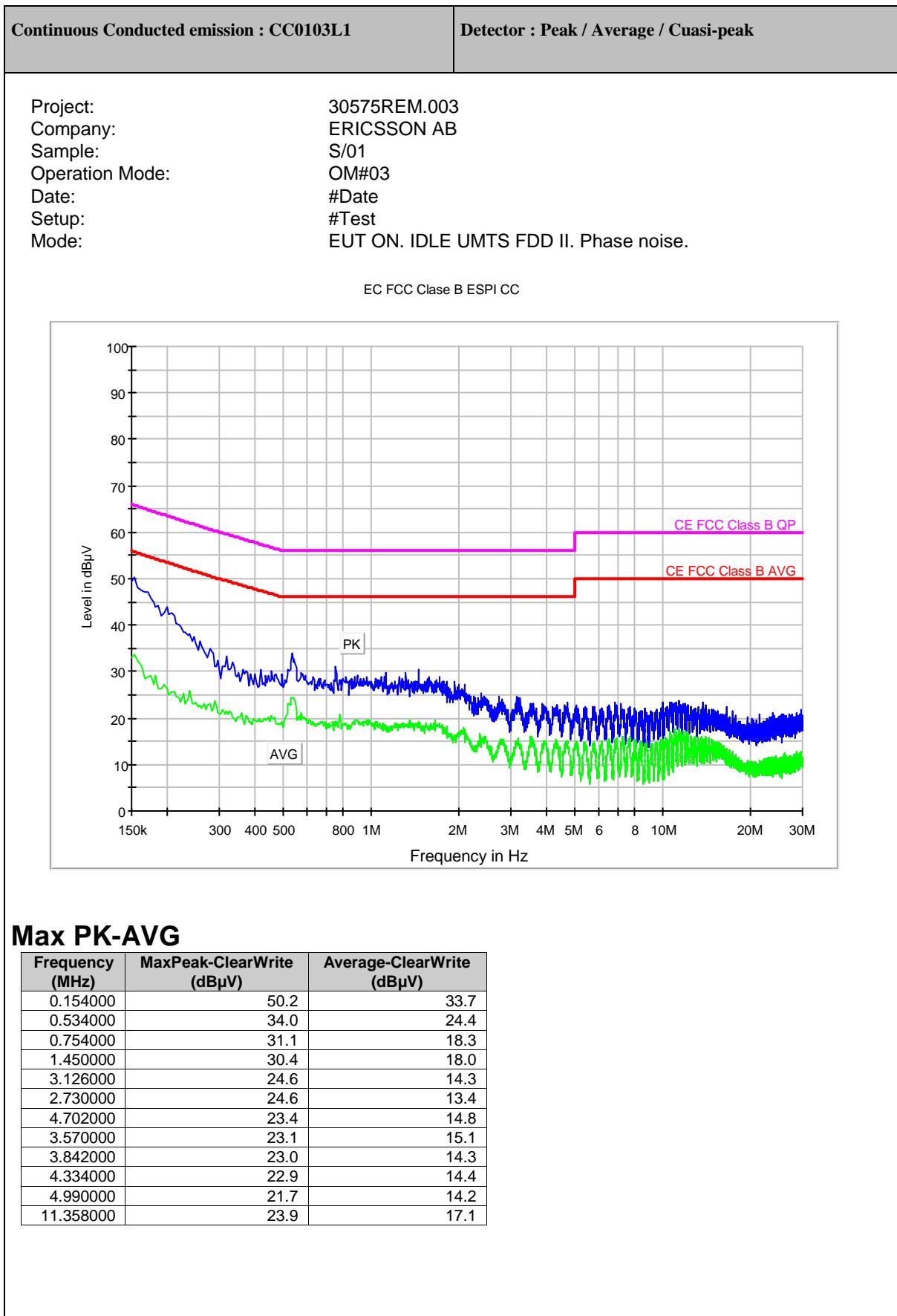
CCmmnnhh	Description	Result
CC0101L1	Phase wire noise	P
CC01010N	Neutral wire noise	P
CC0102L1	Phase wire noise	P
CC01020N	Neutral wire noise	P
CC0103L1	Phase wire noise	P
CC01030N	Neutral wire noise	P
CC0104L1	Phase wire noise	P
CC01040N	Neutral wire noise	P
CC0105L1	Phase wire noise	P
CC01050N	Neutral wire noise	P
CC0106L1	Phase wire noise	P
CC01060N	Neutral wire noise	P
CC0107L1	Phase wire noise	P
CC01070N	Neutral wire noise	P
CC0108L1	Phase wire noise	P
CC01080N	Neutral wire noise	P







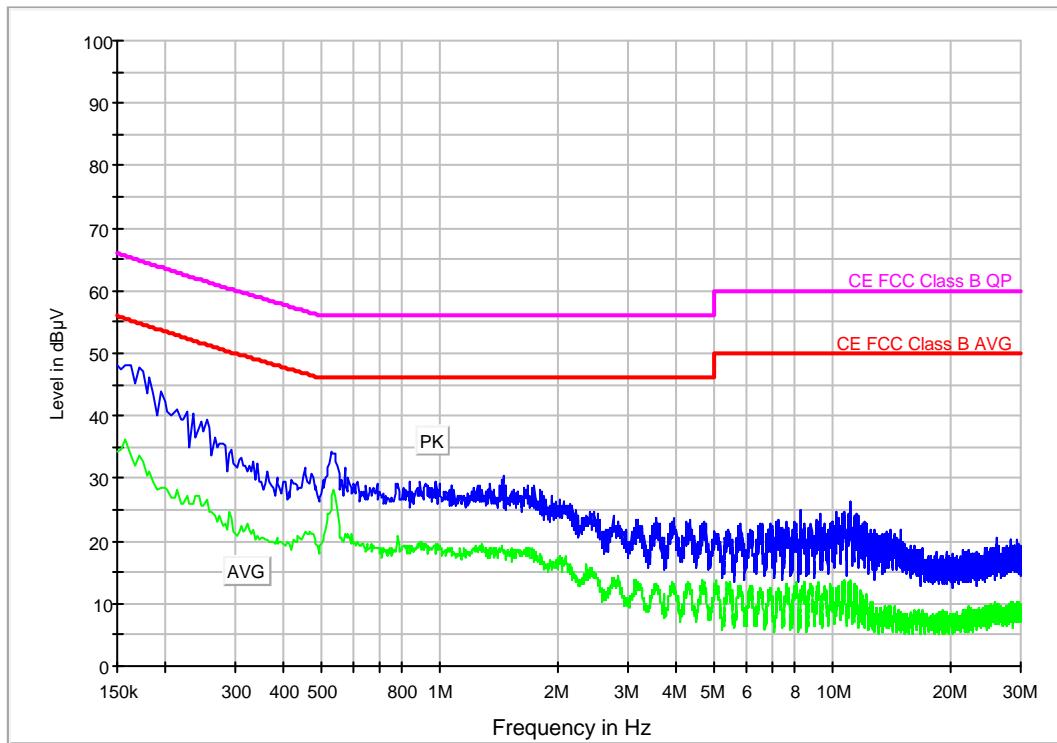




Continuous Conducted emission : CC01030N	Detector : Peak / Average / Cuasi-peak
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Project: 30575REM.003
 Company: ERICSSON AB
 Sample: S/01
 Operation Mode: OM#03
 Date: #Date
 Setup: #Test
 Mode: EUT ON. IDLE UMTS FDD II. Neutral noise.

EC FCC Clase B ESPI CC



Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.170000	47.9	33.5
0.526000	34.3	24.9
0.234000	40.3	26.0
1.442000	30.4	18.1
2.750000	23.9	13.7
3.526000	23.8	12.7
3.910000	23.7	12.6
3.142000	23.5	13.4
4.326000	23.2	12.4
4.670000	23.1	13.6
11.106000	26.2	11.4
4.966000	21.5	13.0

