AT4 wireless S.A.
Parque Tecnológico de Andalucía,
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MÁLAGA, C.I.F. A29 507 456
Registro Mercantil Tomo 3693 Libro 2604
Folio 174 Hoja MA3729

TEST REPORT

REFERENCE STANDARD:

FCC Rules and Regulations 47 CFR Part 15, Subpart B

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

NIE ..... :	29609REM.003
Approved by (name / position & signature) ..... :	Rafael López EMC Manager Rafael López Martín Firmado digitalmente por Rafael López Martín Fecha: 2009.10.06 08:08:57 +02'00'
Elaboration date ..... :	2009-10-02
Identification of item tested ..... :	TM1Q
Trademark ..... :	Teltonika
Model and/or type reference ..... :	GM1200
Other identification of the product ..... :	S/N: 00426293, 00426295, 00426296, 00543465, 00543466 & 00543468 HW version: GM1200_02 SW version: VilniusSMD 05.94.01
Features ..... :	GPRS Class 10
Description ..... :	Quadband GSM/GPRS module
Applicant ..... :	TELTONIKA JSC
Address ..... :	Saltoniskiu str. 10c. ZIP: LT-08105 Vilnius. Lithuania.
CIF/NIF/Passport ..... :	ID 124429895 / VAT Nº. LT244298917
Contact person ..... :	Miroslav Cikiliov
Telephone / Fax ..... :	+370 699 52377
e-mail: ..... :	miroslav.cikiliov@teltonika.lt

Test samples supplier .....:	TELTONIKA JSC
Address.....:	Saltoniskiu str. 10c. ZIP: LT-08105 Vilnius. Lithuania.
CIF/NIF/Passport .....:	ID 124429895 / VAT Nº. LT244298917
Contact person:.....:	Miroslav Cikiliov
Telephone / Fax.....:	+370 699 52377
e-mail: .....:	miroslav.cikiliov@teltonika.lt
Manufacturer .....:	TELTONIKA JSC
Address.....:	Saltoniskiu str. 10c. ZIP: LT-08105 Vilnius. Lithuania.
CIF/NIF/Passport .....:	ID 124429895 / VAT Nº. LT244298917
Telephone / Fax.....:	+370 699 52377
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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Competences and guarantees

This certificate of conformity was issued in accordance with the decision Nº 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: TECTONIKA JSC

Sample S/01 is composed of the following elements:

Control Nº	Description	Manufacturer	Model	Serial Nº	Date of reception
29609/01	Quadband GSM/GPRS module	TELTONIKA JSC	TM1Q	354330030000056	2009-04-22
29609/02	Switching AC/DC Power Adapter	GEC	SYS1193-0909W2E	G07025017657	2009-04-22
29609/11	Earphones	---	---	---	2009-04-22
29609/13	Antenna	---	---	---	2009-04-22

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

1. Continuous conducted emission, power leads:

   Standard: FCC Rules and Regulations 47 CFR Part 15

   Method: FCC Rules and Regulations 47 CFR Part 15, Subpart B (Class B) 2, June 2007

2. Radiated emission, electromagnetic field:

   Standard: FCC Rules and Regulations 47 CFR Part 15

   Method: FCC Rules and Regulations 47 CFR Part 15, Subpart B (Class B)

Testing period

The performed test started on 2009-07-03 and finished on the 2009-07-17.

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 ºC Max. = 35 ºC
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 ºC Max. = 30 ºC
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 ºC Max. = 30 ºC
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,** 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 Marquez González & Domingo Galvez.

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 150 kHz to 30 MHz is I = ± 3,60 dB for quasi-peak measurements, I = ± 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 = ± 4,57 dB for quasi-peak measurements, I = ± 4,48 dB for peak measurements (k = 2) and from 1 to 12,75 GHz is I = ± 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

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.
OM#02	EUT ON. IDLE 1900 MHz.
OM#03	EUT ON. TCH 850 MHz.
OM#04	EUT ON. TCH 1900 MHz.

RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE.

LIMITS:	Product standard :	FCC RULES AND REGULATIONS 47 CFR PART 15, SUBPART B.
	Test standard :	FCC RULES AND REGULATIONS 47 CFR PART 15, SUBPART B.

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 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 (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

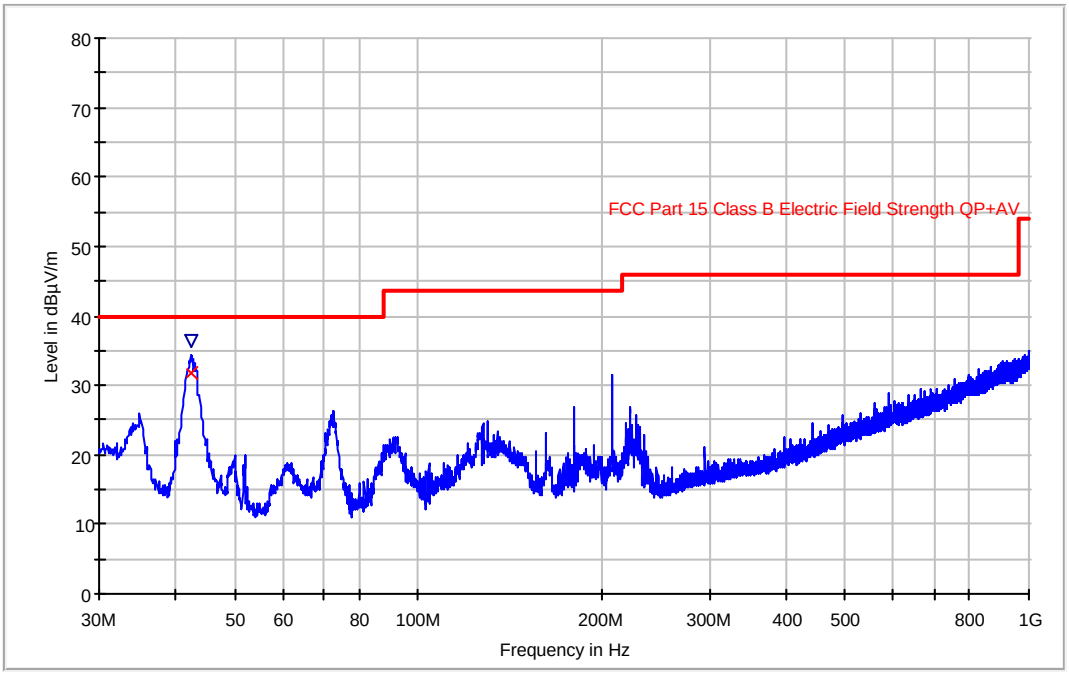
TESTED SAMPLES:	S/01
TESTED OPERATION MODES:	OM#01 & 02
TEST RESULTS :	**CR**mmnn: CR, Radiation Condition; mm: Sample number; nn: Operation mode, xx: Polarisation.

CRmmnn	**Description**	**Result**
CR0101	EUT ON. Idle 850 MHz. Range 30 - 1000 MHz.	P
CR0102	EUT ON. Idle 1900 MHz. Range 30 - 1000 MHz.	P
CR0101PH	EUT ON. Idle 850 MHz. Range 1 – 12.5 GHz. Horizontal polarisation	P
CR0101PV	EUT ON. Idle 850 MHz. Range 1 – 12.5 GHz. Vertical polarisation.	P
CR0102PH	EUT ON. Idle 1900 MHz. Range 1 – 12.5 GHz. Horizontal polarisation	P
CR0102PV	EUT ON. Idle 1900 MHz. Range 1 – 12.5 GHz. Vertical polarisation.	P

Radiated Emission: CR0101 (30MHz to 1GHz)

Project:	29609REM.003
Company:	TELTONIKA
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-07-03 19:23
Setup:	EMI radiated
Mode:	EUT ON. IDLE 850MHz. Charging battery.

FCC class B Bilog Hibrid



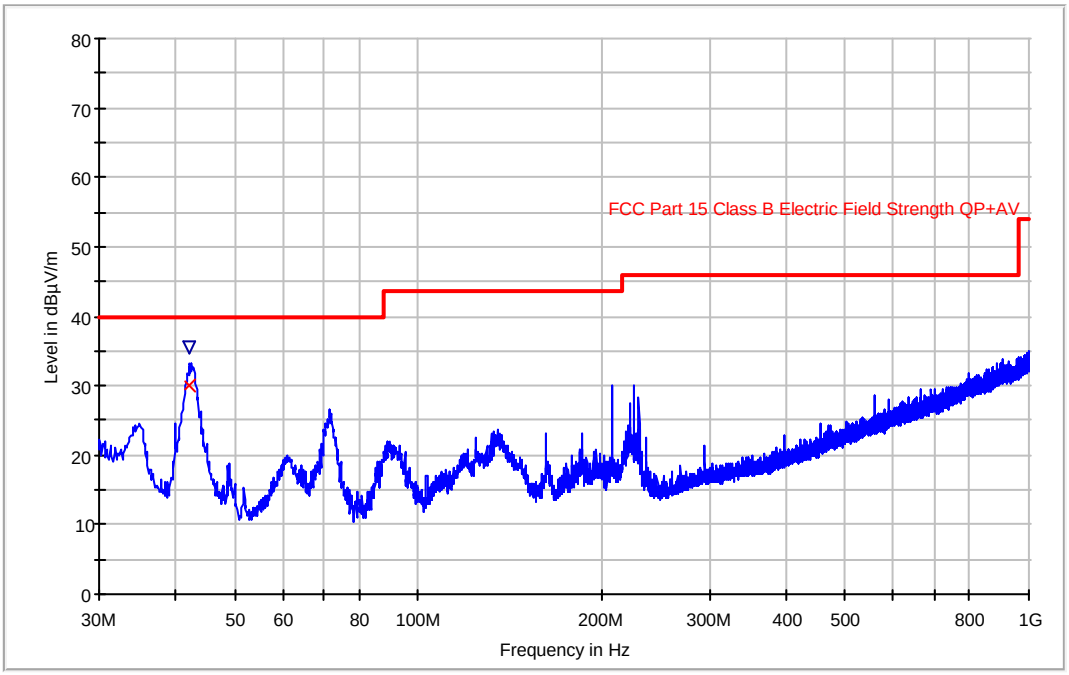
Maximized

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)
42.482766	31.7	36.5	98.00	V	170.0

Radiated Emission: CR0102 (30MHz to 1GHz)

Project:	29609REM.003
Company:	TELTONIKA
Sample:	S/01
Operation Mode:	OM#02
Date:	2009-07-03 18:55
Setup:	EMI radiated
Mode:	EUT ON. IDLE 1900MHz. Charging battery.

FCC class B Bilog Hibrid



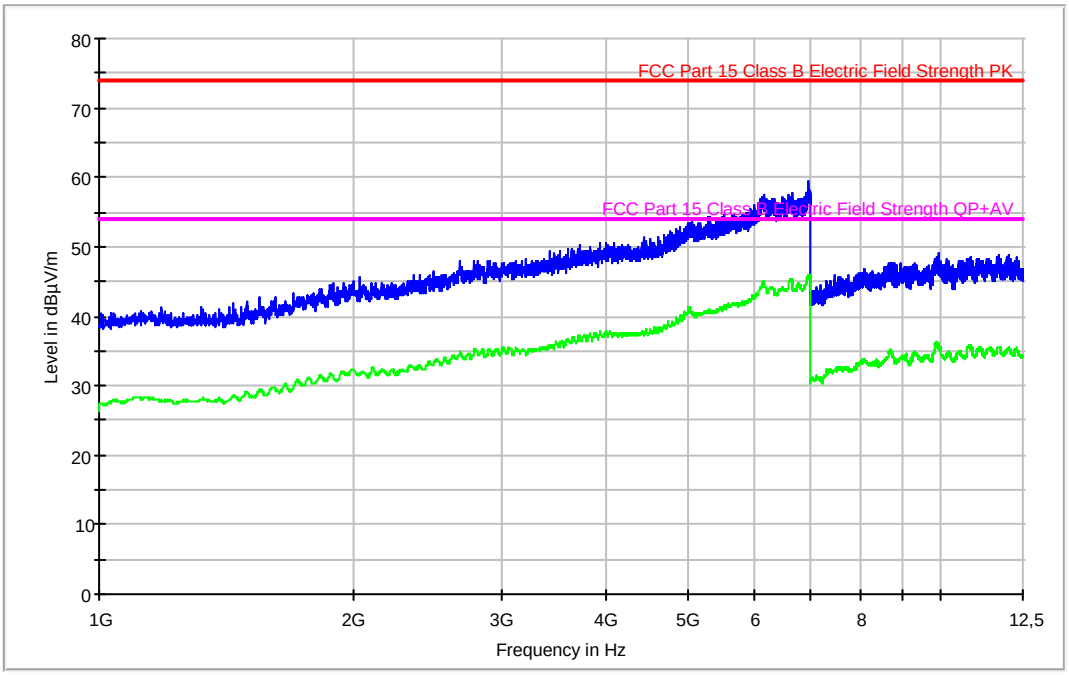
Maximized

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)
42.274549	29.9	35.6	121.00	V	316.0

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

Project:	29609REM.003
Company:	TELTONIKA
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-07-03 17:23
Setup:	EMI radiated
Mode:	EUT ON. IDLE 850MHz. Horizontal polarization.

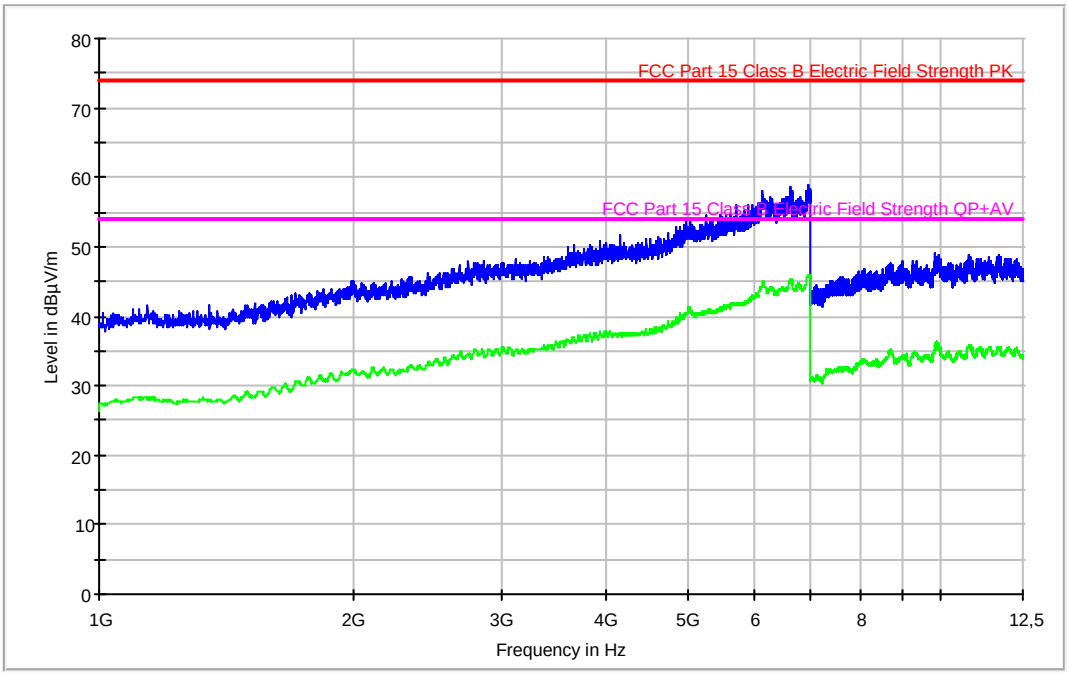
FCC 1-12.5GHz class B



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

Project:	29609REM.003
Company:	TELTONIKA
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-07-03 17:27
Setup:	EMI radiated
Mode:	EUT ON. IDLE 850MHz. Vertical polarization.

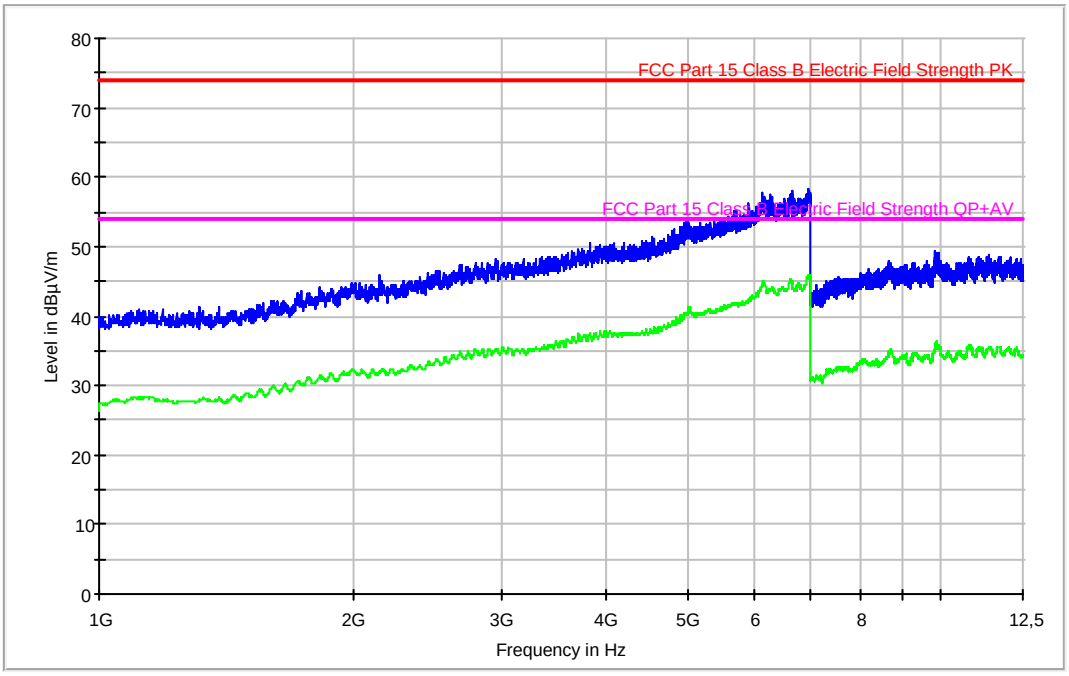
FCC 1-12.5GHz class B



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

Project:	29609REM.003
Company:	TELTONIKA
Sample:	S/01
Operation Mode:	OM#02
Date:	2009-07-03 17:37
Setup:	EMI radiated
Mode:	EUT ON. IDLE 1900MHz. Horizontal polarization.

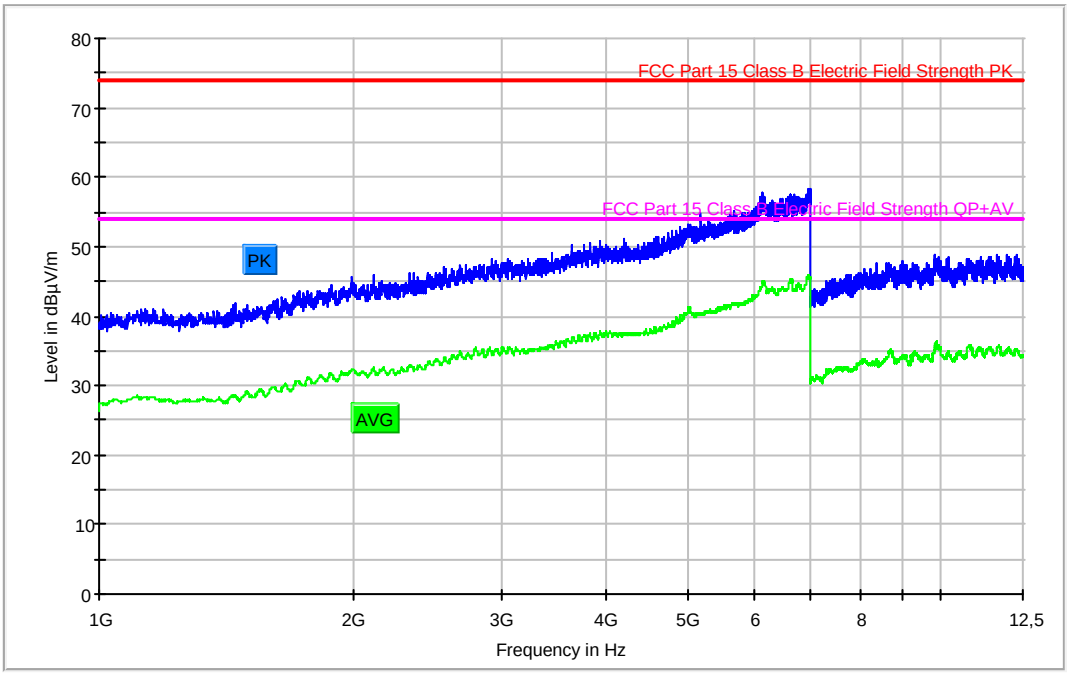
FCC 1-12.5GHz class B



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

Project:	29609REM.003
Company:	TELTONIKA
Sample:	S/01
Operation Mode:	OM#02
Date:	2009-07-03 17:33
Setup:	EMI radiated
Mode:	EUT ON. IDLE 1900MHz. Vertical polarization.

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.
	Test standard :	FCC RULES AND REGULATIONS 47 CFR PART 15, SUBPART B.

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 in the frequency range 0,15 to 30 MHz, for Class B equipment was:

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

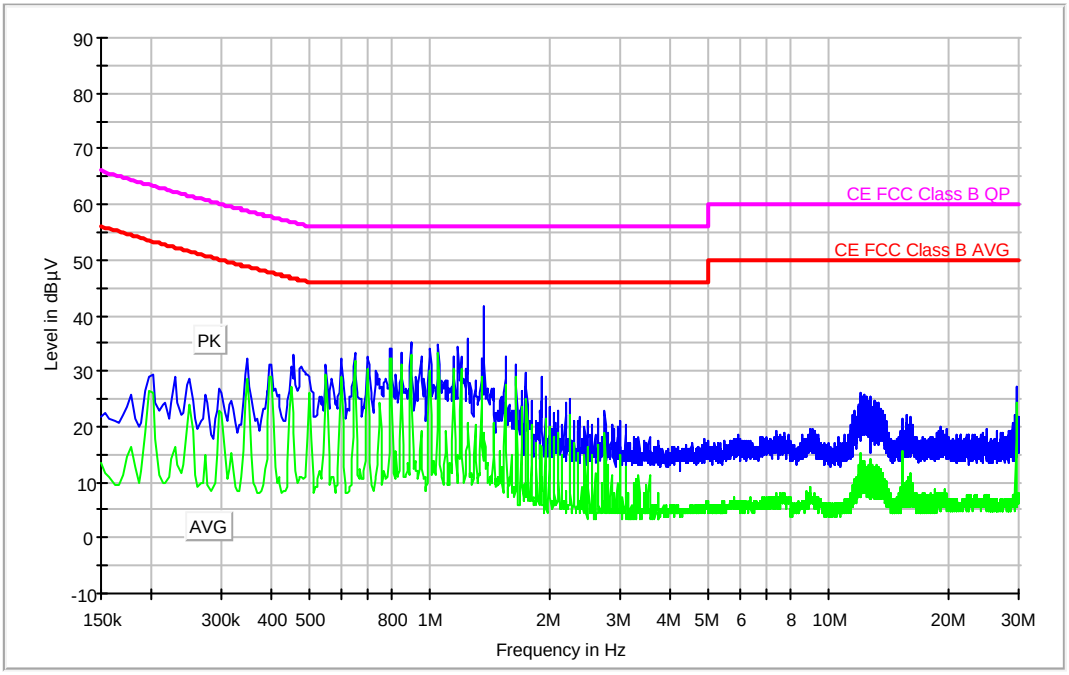
TESTED SAMPLES:	S/01
TESTED OPERATION MODES:	OM#01 to OM#04
TEST RESULTS :	CCmmnnhh: CC, Conducted Condition; mm: Sample number; nn: Operation mode; hh: wire

CCmmnnhh	**Description**	**Result**
CC0101PO	Positive wire noise	P
CC0101NE	Negative wire noise	P
CC0102PO	Positive wire noise	P
CC0102NE	Negative wire noise	P
CC0103PO	Positive wire noise	P
CC0103NE	Negative wire noise	P
CC0104PO	Positive wire noise	P
CC0104NE	Negative wire noise	P

Continuous Conducted emission : CC0101PO	Detector : Peak / Average / Cuasi-peak

Project: 29609REM.003
Company: TELTONIKA
Sample: S/01
Operation Mode: OM#01
Date: 2009-07-17 20:53
Setup: EMI conducted
Mode: EUT ON. IDLE 850MHz. Positive noise.

EC FCC Class B ESIB26 CC



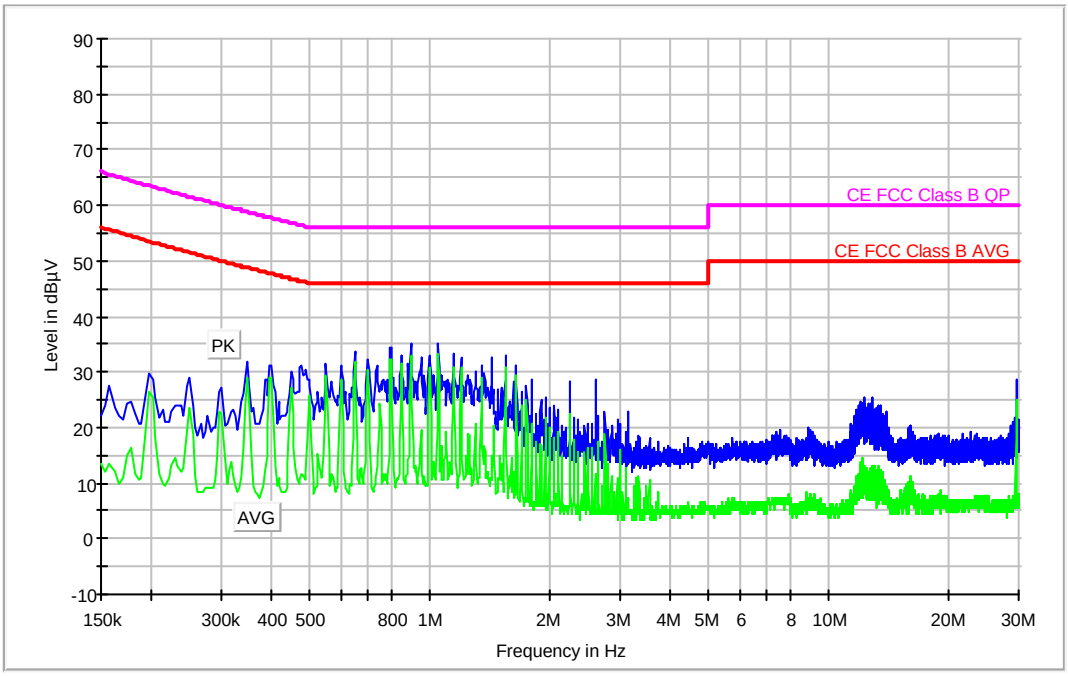
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.650000	33.4	31.8	
0.798000	34.2	32.2	
0.802000	34.0	32.3	
0.850000	33.2	31.3	
0.898000	34.9	32.9	
0.902000	35.3	32.9	
1.002000	34.2	29.3	
1.050000	34.9	33.2	
1.182000	34.3	14.8	
1.246000	36.0	20.7	
1.366000	35.3	16.5	
1.370000	41.8	18.7	

Continuous Conducted emission : CC0101NE	Detector : Peak / Average / Cuasi-peak

Project: 29609REM.003
Company: TELTONIKA
Sample: S/01
Operation Mode: OM#01
Date: 2009-07-17 20:57
Setup: EMI conducted
Mode: EUT ON. IDLE 850MHz. Negative noise.

EC FCC Class B ESIB26 CC



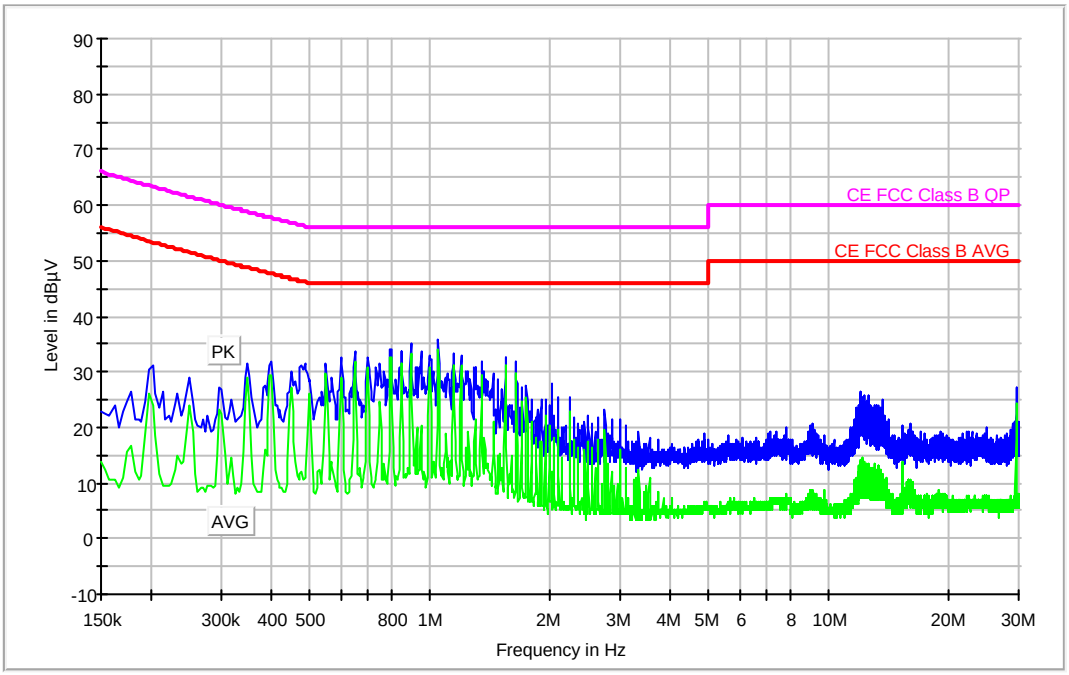
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.650000	33.6	31.8	
0.798000	34.3	32.1	
0.802000	34.6	32.4	
0.850000	33.0	31.3	
0.898000	35.0	33.1	
0.902000	34.7	33.0	
0.954000	32.7	16.7	
0.998000	33.0	30.6	
1.050000	35.3	33.4	
1.150000	33.2	30.7	
1.202000	32.7	30.8	
1.550000	32.8	30.7	

Continuous Conducted emission : CC0102PO	Detector : Peak / Average / Cuasi-peak

Project: 29609REM.003
Company: TELTONIKA
Sample: S/01
Operation Mode: OM#02
Date: 2009-07-17 21:08
Setup: EMI conducted
Mode: EUT ON. IDLE 1900MHz. Positive noise.

EC FCC Class B ESIB26 CC



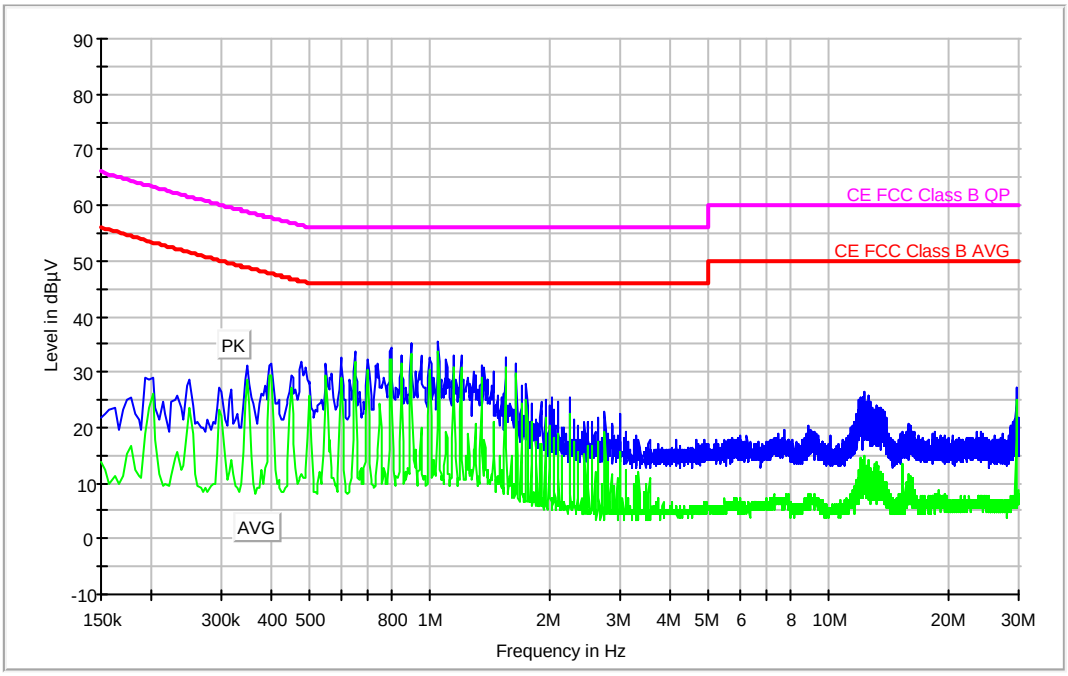
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.650000	33.6	31.8	
0.798000	34.2	32.5	
0.802000	34.2	32.7	
0.850000	33.8	31.6	
0.898000	35.0	33.5	
0.902000	35.0	33.2	
0.950000	33.6	20.4	
0.954000	33.6	17.1	
1.050000	35.8	33.9	
1.150000	33.2	31.1	
1.198000	33.1	31.0	
1.202000	33.0	31.2	

Continuous Conducted emission : CC0102NE	Detector : Peak / Average / Cuasi-peak

Project: 29609REM.003
Company: TELTONIKA
Sample: S/01
Operation Mode: OM#02
Date: 2009-07-17 21:03
Setup: EMI conducted
Mode: EUT ON. IDLE 1900MHz. Negative noise.

EC FCC Class B ESIB26 CC



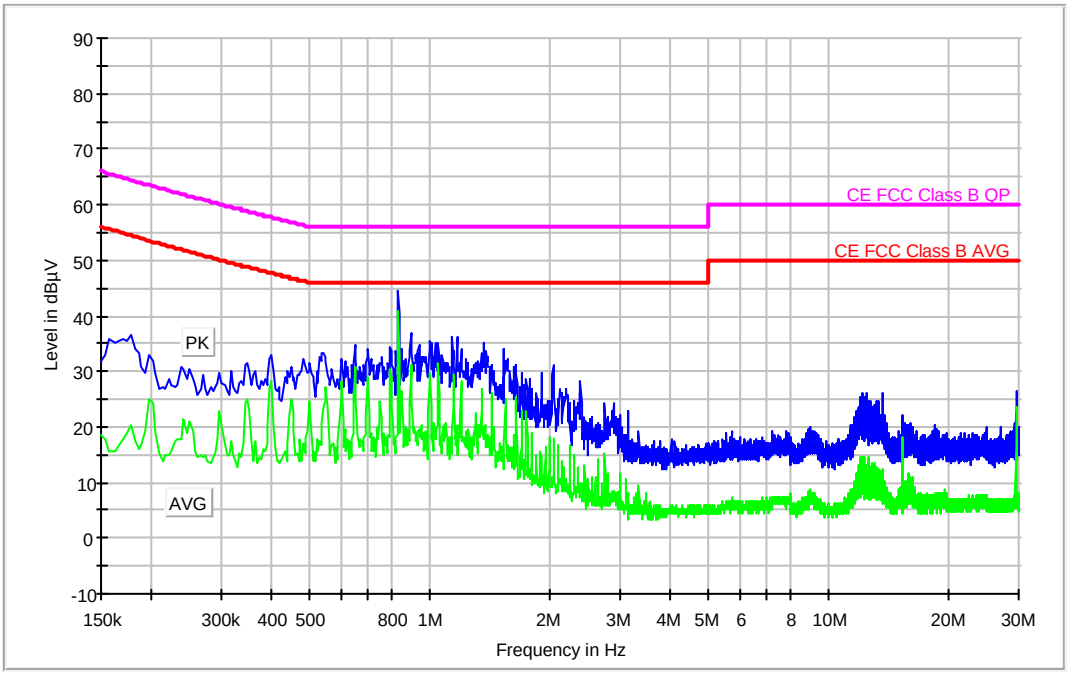
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.650000	33.6	31.7	
0.798000	33.8	32.3	
0.802000	34.4	32.4	
0.850000	33.1	31.3	
0.898000	34.9	33.3	
0.902000	35.1	33.0	
0.950000	32.8	20.0	
1.050000	35.4	33.6	
1.150000	32.8	30.8	
1.198000	32.7	30.6	
1.202000	32.8	30.9	
1.550000	32.7	30.8	

Continuous Conducted emission : CC0103PO	Detector : Peak / Average / Cuasi-peak

Project: 29609REM.003
Company: TELTONIKA
Sample: S/01
Operation Mode: OM#03
Date: 2009-07-17 20:41
Setup: EMI conducted
Mode: EUT ON. TCH 850MHz. Positive noise.

EC FCC Class B ESIB26 CC



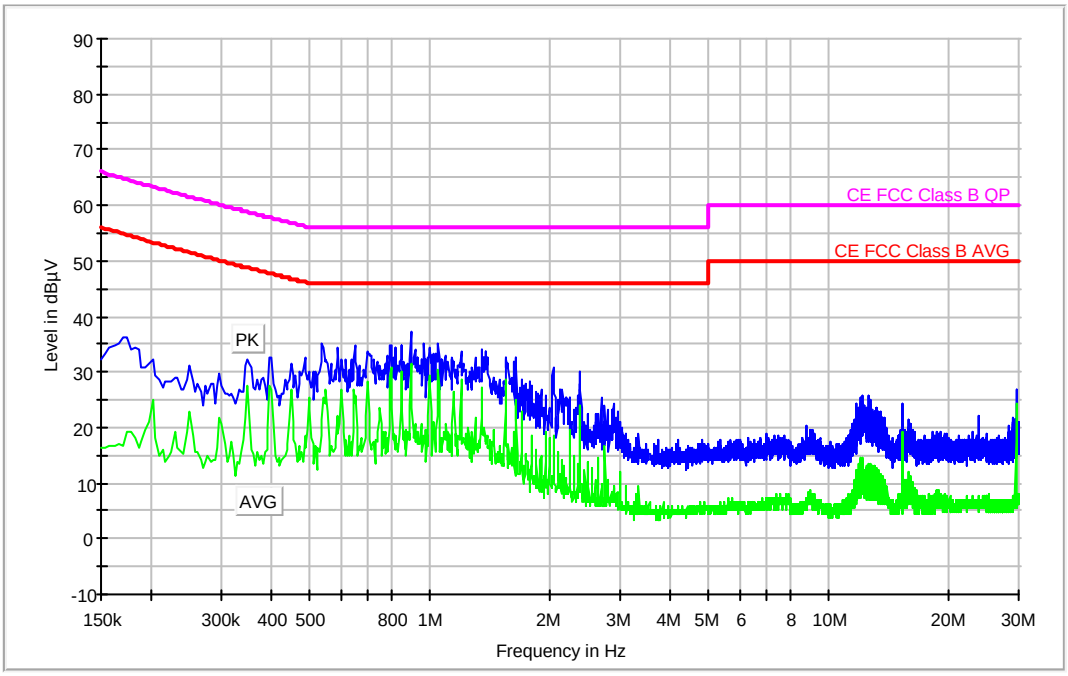
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.158000	35.7	15.8	
0.166000	35.5	16.9	
0.170000	36.0	17.9	
0.174000	35.5	18.9	
0.178000	36.6	20.3	
0.834000	44.5	41.0	
0.838000	40.7	33.0	
0.898000	37.1	29.8	
0.902000	37.1	31.1	
1.002000	35.4	29.6	
1.142000	36.4	19.4	
1.170000	36.2	20.4	

Continuous Conducted emission : CC0103NE	Detector : Peak / Average / Cuasi-peak

Project: 29609REM.003
Company: TELTONIKA
Sample: S/01
Operation Mode: OM#03
Date: 2009-07-17 20:45
Setup: EMI conducted
Mode: EUT ON. TCH 850MHz. Negative noise.

EC FCC Class B ESIB26 CC



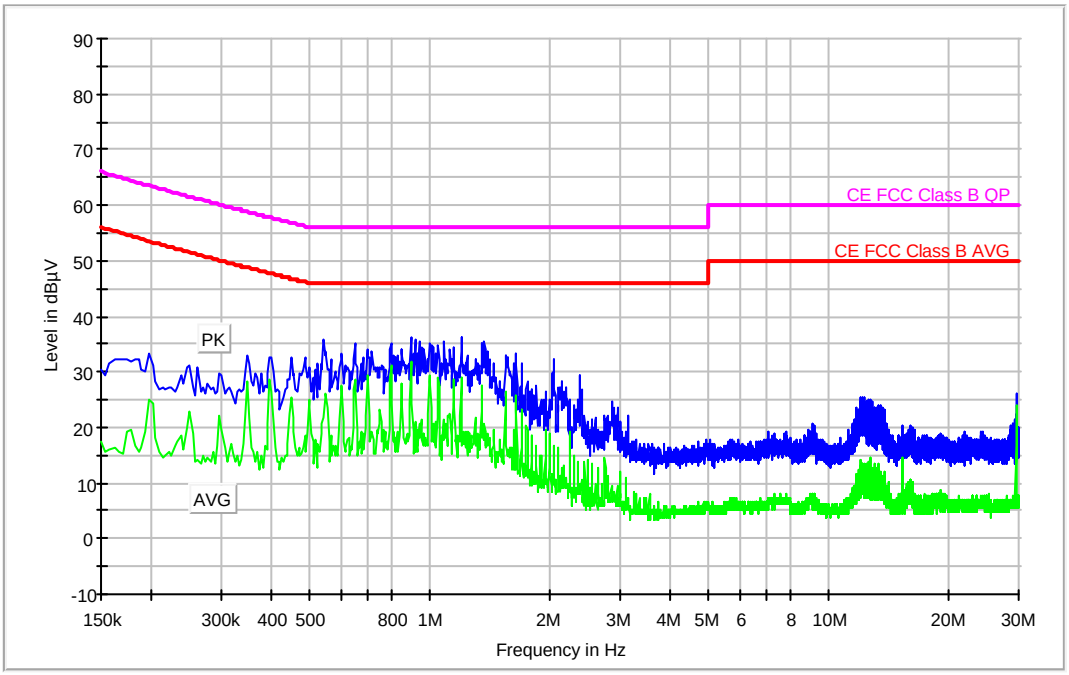
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.162000	34.7	16.9	
0.166000	35.0	17.1	
0.170000	36.1	16.9	
0.174000	36.4	19.1	
0.538000	35.3	21.4	
0.650000	34.9	24.4	
0.802000	34.9	30.9	
0.850000	34.7	30.2	
0.898000	37.2	31.4	
0.902000	35.4	29.1	
0.970000	35.0	18.6	
1.050000	35.3	30.6	

Continuous Conducted emission : CC0104PO	Detector : Peak / Average / Cuasi-peak

Project: 29609REM.003
Company: TELTONIKA
Sample: S/01
Operation Mode: OM#04
Date: 2009-07-17 20:50
Setup: EMI conducted
Mode: EUT ON. TCH 1900MHz. Positive noise.

EC FCC Class B ESIB26 CC



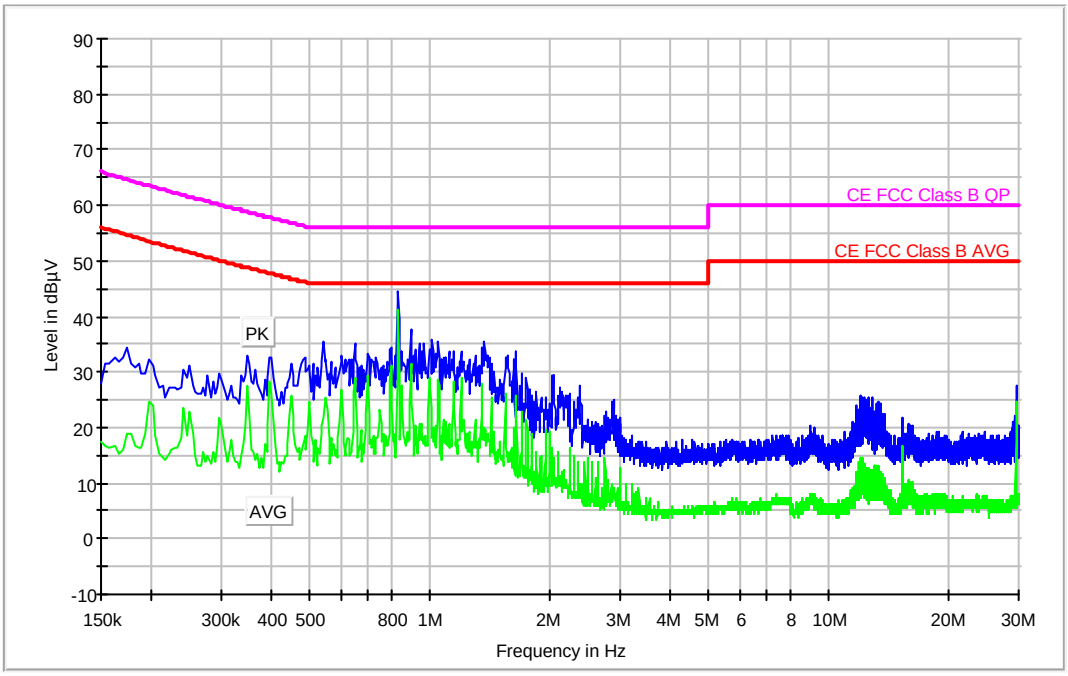
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.542000	35.9	21.9	
0.650000	35.0	28.7	
0.802000	35.0	31.2	
0.898000	36.4	31.9	
0.902000	35.4	27.7	
0.918000	35.9	21.2	
0.942000	35.7	20.7	
1.002000	35.0	28.3	
1.090000	35.4	18.0	
1.202000	36.2	29.0	
1.350000	35.3	27.5	
1.374000	35.4	20.7	

Continuous Conducted emission : CC0104NE	Detector : Peak / Average / Cuasi-peak

Project: 29609REM.003
Company: TELTONIKA
Sample: S/01
Operation Mode: OM#04
Date: 2009-07-17 20:48
Setup: EMI conducted
Mode: EUT ON. TCH 1900MHz. Negative noise.

EC FCC Class B ESIB26 CC



Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)	Comment
0.542000	35.4	21.9	
0.650000	35.0	29.0	
0.830000	42.3	28.5	
0.834000	44.5	41.3	
0.838000	39.4	29.7	
0.898000	37.8	31.4	
0.902000	37.2	29.4	
0.942000	35.3	20.8	
0.970000	35.0	18.0	
1.014000	35.8	18.0	
1.050000	35.5	28.7	
1.374000	35.4	20.0	

APPENDIX B: Pictures