AT4 wireless, S.A.U.
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2 · 29590 Campanillas · Málaga · España
www.at4wireless.com · C.I.F. A29 507 456

ENAC ENSAYOS Nº 51/LE147

Test report No:

NIE: 51368REM.003A1

Test report (Modification 1)

FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-15 Edition), Secs. 15.107, 15.109 and Subpart C (10-1-15 Edition) Secs. 15.207
&
ICES-003 ISSUE 6 (2016)

Identification of item tested .....:	MANAGEMENT TOOL
Trademark .....:	JCM TECHNOLOGIES, S.A.
Model and/or type reference.....:	ASSISTANT FCC
Other identification of the product .....:	S/N: XRBH-PCNT-PMJG-LNIP
Final HW version.....:	2000554 (S-ASSISTANT FCC)
Final SW version .....:	BBII_02040200
FCC ID .....:	U5Z-ASSISTANT
IC .....:	8572A-ASSISTANT
Features.....:	Not provided data
Manufacturer.....:	JCM TECHNOLOGIES,S.A. C/ Morgades,46 Bajos, 08500, Vic, Barcelona. SPAIN.
Test method requested, standard .....:	FCC CFR 47, Part 15, Subpart B (10-1-15 Edition), Secs. 15.107, 15.109 and Subpart C (10-1-15 Edition) Secs. 15.207 & ICES-003 Issue 6 (2016)
Summary.....:	IN COMPLIANCE
Approved by (name / position & signature).....:	Rafael López EMC Lab Manager Firmado digitalmente por RAFAEL LÓPEZ MARTÍN Fecha: 2017.02.09 10:31:26 +01'00'
Date of issue .....:	2017-02-07
Report template No. .....:	FDT08_18

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Competences and guarantees

AT4 wireless is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance program 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.

The results presented in this Test Report apply only to the particular item under test established in this document.

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 AT4 wireless internal document PODT000.

Usage of samples

Samples under test have been selected by: the Client.

Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial number	Reception date
51368/048	MANAGEMENT TOOL	ASSISTANT FCC	XRBH-PCNT-PMJG-LNIP	2016-11-14
51368/049	Usb cable	---	---	2016-11-14

Auxiliary elements used with the sample S/01:

Control Nº	Description	Model	Serial number	Reception date
51368/052	Laptop	HP	---	2016-11-14
51368/053	Mains cord	---	---	2016-11-14
51368/054	USB cable	---	---	2016-11-23

Test sample description

The test sample consists of a tabletop, installer code management tool. It is supplied with software for PCs and a USB communications cable.

Identification of the client

JCM TECHNOLOGIES,S.A.
C/ Morgades, 46 Bajos, 08500, Vic, Barcelona. SPAIN.

Testing period

The performed test started on 2016-12-06 and finished on2016-12-07 the same day.
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. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

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

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 51368REM.003 related with the same samples, in the next clauses and sub-clauses:

By client requirements it was added some clarifications to the operation modes tested.

This modification test report cancels and replaces the test report 51368REM.003.

Remarks and comments

The tests have been performed by the technical personnel: Alberto Parada & Fco. Javier Fuentes.

The total uncertainty of the measurement system for the measured conducted disturbance characteristics of EUT from 150 kHz to 30 MHz is I = ± 3,9 dB for quasi-peak measurements, I = ± 3,2 dB for average measurements (k = 2)

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is I = ± 4,9 dB for quasi-peak measurements, I = ± 4,6 dB for peak measurements (k = 2)

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 26GHz is I = ± 2,6 dB for peaks and average measurements (k = 2)

Testing verdicts (Legend)

Not applicable ..... :	N/A
Pass ..... :	P
Fail ..... :	F
Not measured ..... :	N/M

List of equipment used during the test					
CONTROL NUMBER	**DESCRIPTION**	**MANUFACTURER**	**MODEL**	**LAST CALIBRATION**	**NEXT CALIBRATION**
2942	EMI TEST Receiver	ROHDE & SCHWARZ	ESU40	2016-06-14	2017-10-09
4578	Bilog Antenna	ETS LINDGREN	3142E	2014-03-17	2017-03-17
4658	Preamplifier	SCHWARZBECK	BBV9743	2016-04-28	2017-04-28
4612	Horn Antenna	SCHWARZBECK	BBHA 9120 D	2013-12-29	2016-12-29
3783	Preamplifier	BONN ELEKTRONIK	BLMA 0118-3A	2016-05-03	2017-05-03
4656	Horn Antenna	SCHWARZBECK	BBHA 9170	2014-03-28	2017-03-28
1975	Preamplifier	MITEQ	JS4-12002600-30-5A	2015-10-06	2017-10-06
4570	Thermohigrometer	HW GROUP	HWg-STE	2016-04-28	2017-04-28
4567	Thermohigrometer	HW GROUP	HWg-STE	2016-04-28	2017-04-28

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.

The operation modes used by the samples to which the present report refers, are shown in the following table:

OPERATION MODE	DESCRIPTION
OM#01	EUT ON. IDLE-reception mode at 868MHz and transmitting data between the tested equipment and the auxiliary PC. Power supply: 5Vdc by USB port through a laptop (Power Supply: 115Vac.)
OM#02	EUT ON. 868MHz TX ON and transmitting data between the tested equipment and the auxiliary PC. Power supply: 5Vdc by USB port through a laptop (Power Supply: 115Vac.)

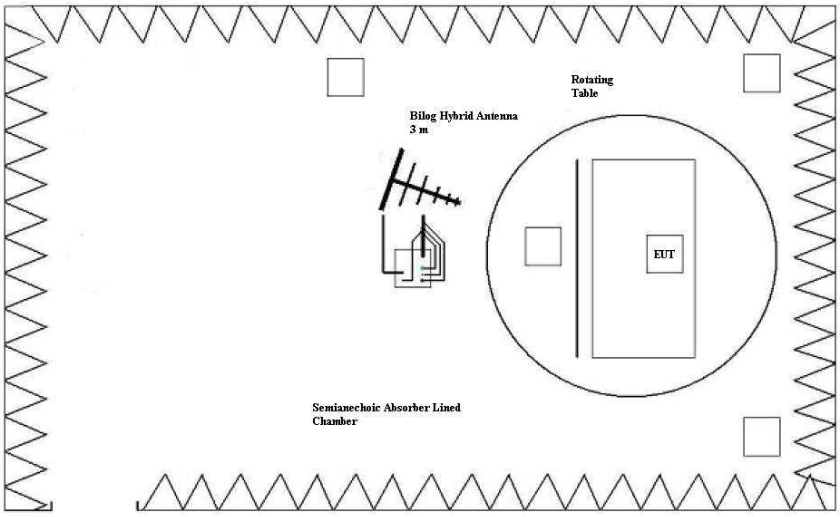
RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE

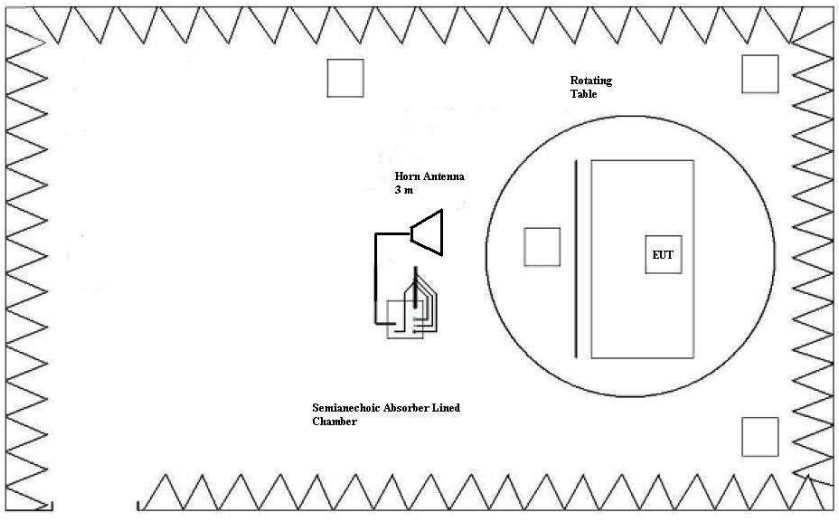
LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart B (10-1-15 Edition), Secs. 15.107, 15.109 and Subpart C (10-1-15 Edition) Secs. 15.207 & ICES-003 Issue 6 (2016)
	Test standard:	FCC CFR 47, Part 15, Subpart B (10-1-15 Edition), Secs. 15.107, 15.109 and Subpart C (10-1-15 Edition) Secs. 15.207 & ICES-003 Issue 6 (2016)

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 (10-01-15 Edition), Secs. 15.107, 15.109 and Subpart C (10-1-15 Edition) Secs. 15.207 & ICES-003 Issue 6 (2016) in the frequency range 30 MHz to 26 GHz, for Class B equipment, which is a transmitter in a band over 500 MHz, was:

Frequency range (MHz)	QP Limit for 3 m (µV/m)	QP 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
Above 1000	Limit for 3m AVG	Limit for 3m PK
	53.98 dBµV/m	73.98 dBµV/m





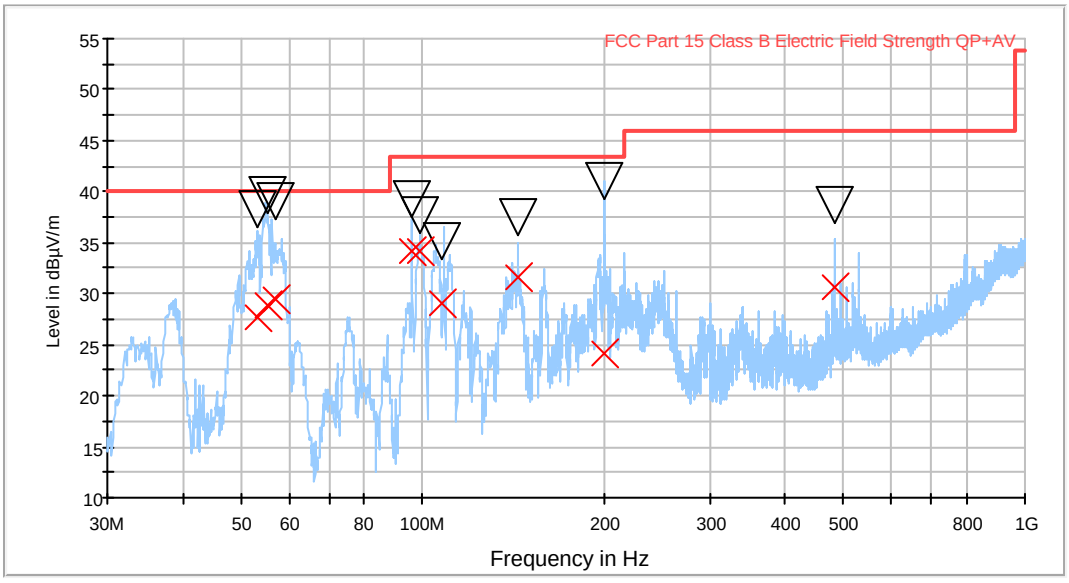
TESTED SAMPLES:	S/01
TESTED OPERATION MODES:	OM#01
TEST RESULTS:	CRmmnnRRPP: CR, Radiation Condition; mm: Sample number; nn: Operation mode; RR: Range; PP: Polarization.

CRmmnnRRPP	Description	Result
CR0101LR	Range: 30 MHz - 1000 MHz.	P
CR0101HR1_PH	Range: 1 GHz - 18 GHz. Horizontal Polarization.	P
CR0101HR1_PV	Range: 1 GHz - 18 GHz. Vertical Polarization.	P

Radiated Emission. CR0101LR

Project:	51368REM.003
Company:	JCM
Sample:	S/01
Operation mode:	OM#01
Description:	EUT ON. IDLE-reception mode at 868MHz. Power supply: 5Vdc by USB port through a laptop (Power Supply: 115Vac.)

FCC class B



FCC Part 15 Class B Electric Field Strength QP+AV
MaxPeak
Peak Preview
QuasiPeak

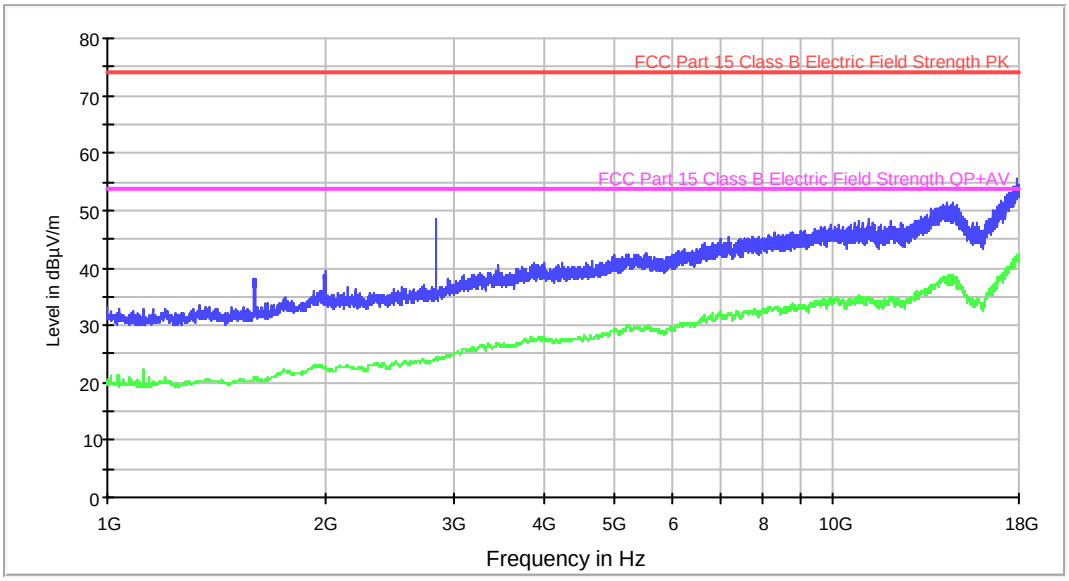
Maximizations

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)
53.375150	38.3	27.7	121.0	V	96.0
55.207415	39.6	28.9	192.0	V	56.0
56.857916	39.0	29.4	110.0	V	118.0
96.266934	39.3	34.2	190.0	H	-1.0
98.858918	37.7	34.2	170.0	H	1.0
108.098597	35.2	29.0	244.0	H	349.0
143.984970	37.4	31.6	149.0	H	337.0
200.617836	41.0	24.1	220.0	V	-1.0
481.458918	38.6	30.6	163.0	H	74.0

Radiated Emission. CR0101HR1_PH

Project:	51368REM.003
Company:	JCM
Sample:	S/01
Operation mode:	OM#01
Description:	EUT ON. IDLE-reception mode at 868MHz. Power supply: 5Vdc by USB port through a laptop (Power Supply: 115Vac.) Horizontal polarization.

FCC 1-18GHz class B



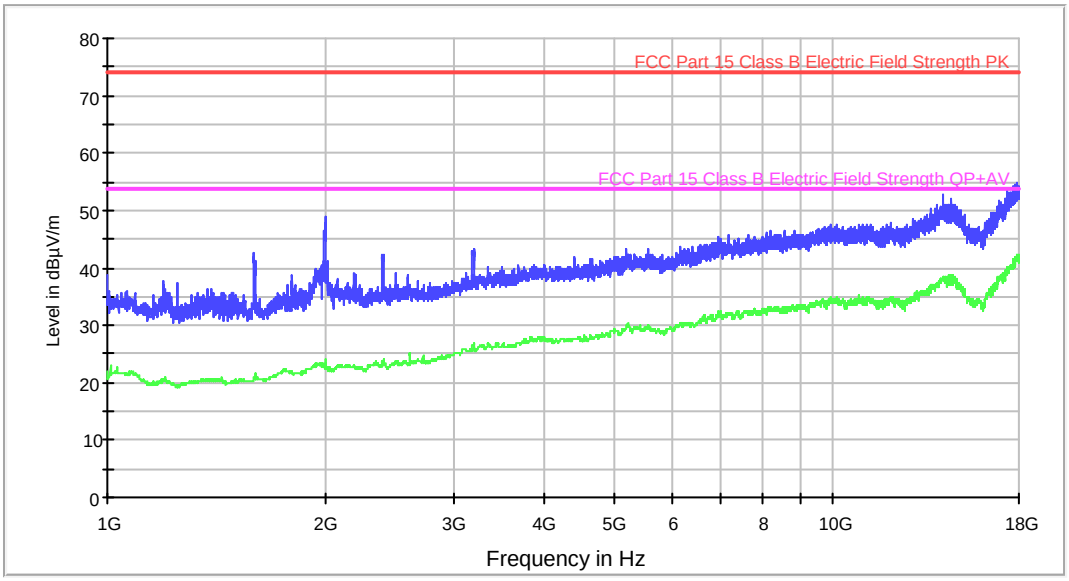
Subrange Maxima

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)	Average-ClearWrite (dBµV/m)
1595.000000	38.0	20.6
1995.000000	39.4	22.7
2841.000000	48.6	24.3
6622.000000	44.4	31.6
10800.000000	48.1	35.1
17878.000000	55.4	41.4

Radiated Emission. CR0101HR1_PV

Project:	51368REM.003
Company:	JCM
Sample:	S/01
Operation mode:	OM#01
Description:	EUT ON. IDLE-reception mode at 868MHz. Power supply: 5Vdc by USB port through a laptop (Power Supply: 115Vac.) Vertical polarization.

FCC 1-18GHz class B



Subrange Maxima

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)	Average-ClearWrite (dBµV/m)
1593.000000	42.5	20.8
1997.000000	48.8	23.3
3194.000000	43.2	26.8
6799.000000	44.4	31.9
10084.000000	47.5	34.4
17884.000000	54.8	41.7

CONTINUOUS CONDUCTED EMISSION

LIMITS:	Product standard :	FCC CFR 47, Part 15, Subpart B (10-1-15 Edition), Secs. 15.107, 15.109 and Subpart C (10-1-15 Edition) Secs. 15.207 & ICES-003 Issue 6 (2016)
	Test standard :	FCC CFR 47, Part 15, Subpart B (10-1-15 Edition), Secs. 15.107, 15.109 and Subpart C (10-1-15 Edition) Secs. 15.207 & ICES-003 Issue 6 (2016)

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 (10-01-15 Edition), Secs. 15.107, 15.109 and Subpart C (10-1-15 Edition) Secs. 15.207 & ICES-003 Issue 6 (2016), 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

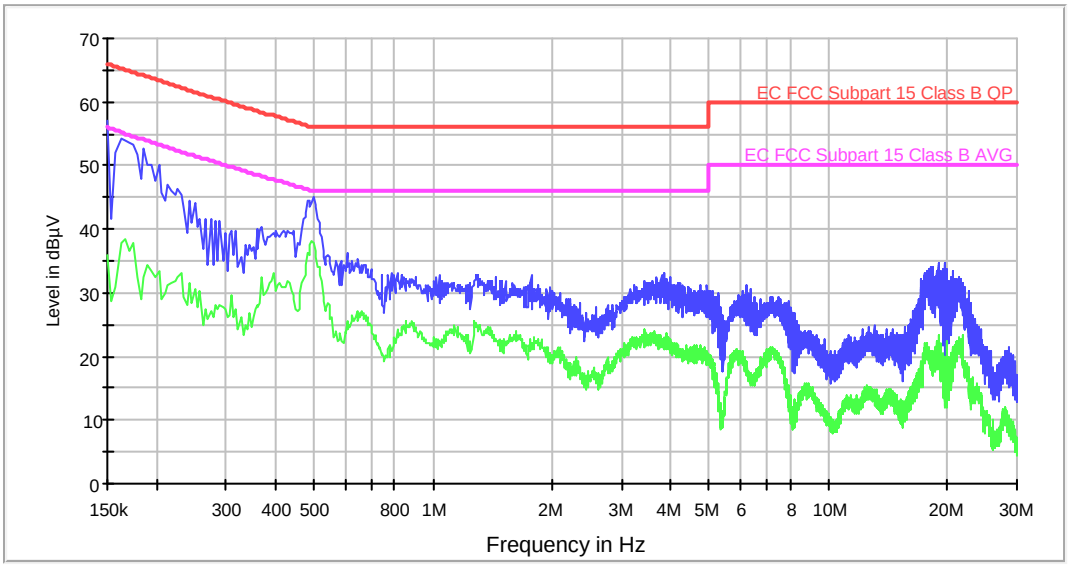
TESTED SAMPLES:	S/01
TESTED OPERATION MODES:	OM#02
TEST RESULTS :	CCmmnnhh: CC, Conducted Condition; mm: Sample number; nn: Operation mode; hh: wire

CCmmnnhh	**Description**	**Result**
CC01020N	Neutral wire noise.	P
CC0102L1	Phase wire noise.	P

Conducted Emission. CC01020N

Project:	51368REM.003
Company:	JCM
Sample:	S/01
Operation mode:	OM#02
Description:	EUT ON. 868MHz TX ON and transmitting data between the tested equipment and the auxiliary PC. Power supply: 5Vdc by USB port through a laptop (Power Supply: 115Vac.) Neutral Wire Noise

EMI EC FCC Subpart 15 Class B CC



Peak Scan
EC FCC Subpart 15 Class B QP
Average Scan
EC FCC Subpart 15 Class B AVG

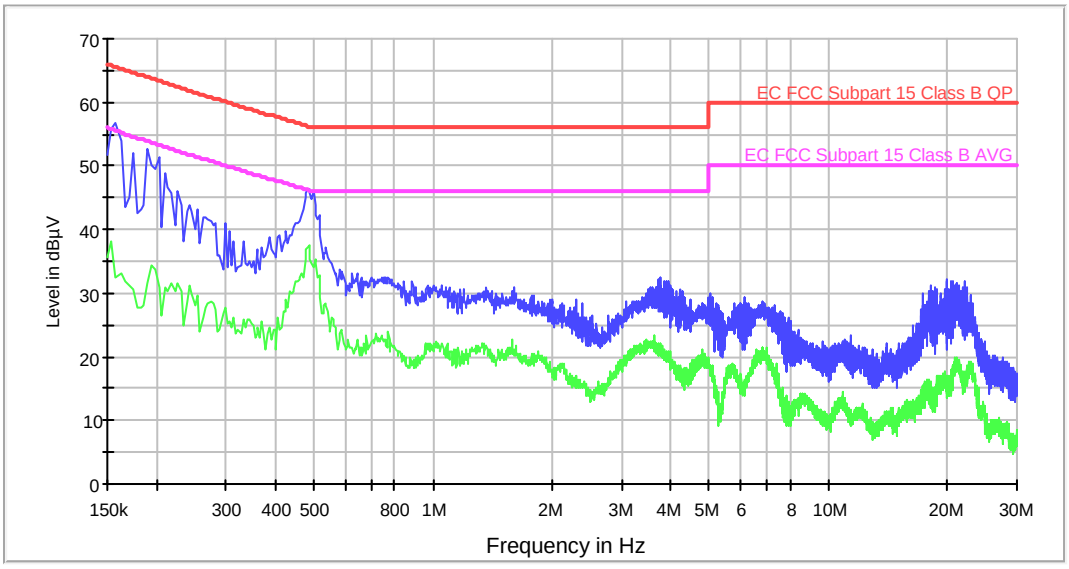
Subrange Maxima

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.150000	57.0	35.8
0.258000	41.7	30.2
0.498000	45.1	38.0
0.810000	33.1	24.3
1.302000	32.9	24.1
3.590000	31.8	22.6
3.850000	33.0	22.8
6.230000	31.2	18.8
17.542000	33.0	20.3
19.634000	34.7	18.9

Conducted Emission. CC0102L1

Project:	51368REM.003
Company:	JCM
Sample:	S/01
Operation mode:	OM#02
Description:	EUT ON. 868MHz TX ON and transmitting data between the tested equipment and the auxiliary PC. Power supply: 5Vdc by USB port through a laptop (Power Supply: 115Vac.) Phase Wire Noise

EMI EC FCC Subpart 15 Class B CC



Subrange Maxima

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Average-ClearWrite (dBµV)
0.158000	56.6	32.4
0.266000	41.9	27.6
0.482000	46.5	37.3
0.746000	32.5	23.2
1.598000	31.0	21.2
3.554000	31.0	21.8
3.742000	32.5	21.6
6.166000	29.2	16.0
17.378000	29.8	14.9
19.838000	32.3	16.3