R041-12-102605-1A - DM / CHB

⇨ This test report cancels and replaces the report R041-12-102605-1A Ed.0

RADIO TEST REPORT

According to the standard(s):

FCC Part 15 Radio part 15.247
RSS 210_Issue 8 : 2010

Equipment under test:

UHF HANDSFREE COMPACT READER GAT-R5X-X
FCC ID: OVNURF
IC ID:10520A - URF

Company:

STID

Diffusion: Mr POITRAT (Company: STID)

Number of pages: 63 including 1 annex

Ed.	Date	Modified page(s)	Written by Name	Written by Visa	Technical verification Quality approval Name	Technical verification Quality approval Visa
1	15-Jan-13	4, 9, 14, 18, 21, 54 and 55	David MONTAULON		Olivier HEYER	

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NAME OF THE EQUIPMENT UNDER TEST (E.U.T.)	:	UHF HANDSFREE COMPACT READER GAT-R5X-X
Serial number	:	/
P/N	:	FCC ID: OVNURF IC ID:10520A - URF
Software version	:	
MANUFACTURER'S NAME	:	STID

APPLICANT'S ADDRESS:

Company	:	STID
Address	:	283 ZA Les Pradeaux - Boulevard Salvador Allende – 13850 GREASQUE FRANCE
Person(s) present during the tests	:	Mr SEGOYAN
Responsible	:	Mr POITRAT

DATE(S) OF TESTS	:	From June 30th to august 3rd of 2012
TESTS LOCATION(S)	:	Emitech Grand Sud laboratory in Vendargues – FRANCE Open Area Test Site in Salinelles FCC Registration number: 8127-19 IC Filling number : 4379C-1
TESTS SUPERVISOR(S)	:	None
TESTS OPERATOR(S)	:	David MONTAULON

CONTENTS

1. INTRODUCTION

This document submits the results of Radio tests performed on the equipment UHF HANDSFREE COMPACT READER GAT-R5X-X (denominated hereafter E.U.T.: equipment under test) according to document(s) listed below.

2. REFERENCE DOCUMENT(S)

FCC part 15	Code of federal regulations. Title 47- Telecommunication Chapter 1- Federal Communication Commission. Part 15- Radio frequency devices Subpart B- Unintentional Radiators. Limits and methods of measurement of radio disturbance. Characteristic of information technology equipment.
FCC part 15.247	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850MHz. (frequency hopping and digitally modulated)
FCC Public Notice DA 00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems
ANSI C 63.4:2003	American National Standard for Methods of measurement of Radio-Noise from low-voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
RSS 210 Issue 8, December 2010	Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category I Equipment
RSS Gen Issue 3, December 2010	General Requirements and Information for the Certification of Radio communication Equipment

3. EQUIPMENT UNDER TEST CONFIGURATION

Equipment under test (E.U.T.) description:

The GAT hands-free reader can identify a moving person in a 2 or 4 m wide corridor by reading a UHF tag. Single or dual-antenna configurations are possible, depending on the area to be covered. Can be installed indoors or outdoors. Optional passage sensor (counter, direction and detection).

Two versions are available to ensure the highest level of performance, whatever the configuration of buildings:
A single-unit version (2 built-in antennas) or a gate version (2 x 2 antennas).
The single-unit version covers an identification range of up to two metres*.
The gate version extends the reader's coverage to four metres*.
For each configuration, there is only one RF module. It is named URF

The system can use several standard communication interfaces (TTL, RS232 and RS485).

GAT-R5X-X system is identified in several models:

GAT-R52-E: RS232 model, single-unit.
GAT-R51-E: TTL Model (Clock&Data / Wiegand) model, single-unit.
GAT-R53-E: RS485 model, single-unit.
GAT-R52-F: RS232 model, gate version.
GAT-R51-F: TTL Model (Clock&Data / Wiegand) model, gate version.
GAT-R53-F: RS485 model, gate version.

The gate version includes a single unit with another unit (linked by an RF cable connected to URF module) which includes only two deported antennas.

For the purpose of the tests, only GAT-R52-E was fully tested in accordance to reference standard. All other configurations are tested by comparison to this one in order to demonstrate compliance.

FCC ID: OVNURF
IC ID: 10520A - URF
Frequency range: 902MHz – 928MHz
Number of channels: 50
Tested frequencies: 902.78MHz (CH1), 915.75MHz (CH24), 927.27MHz (CH50)
RF max conducted output power: 1W

Power supply: +9 Vdc up to +36 Vdc (+12 Vdc Typical)
Consumption: 2.5 A Under +12 Vdc
Dimensions 80 x 30 x 5 cm (without fixation)
Operating temperatures: - 20°C to + 55°C - Inside / outside use
Mounting: Free-standing or wall-mounted

Antennas:
Brand: LAIRD Integrated antennas with maximum gain declared at 6dBi

Modulation:

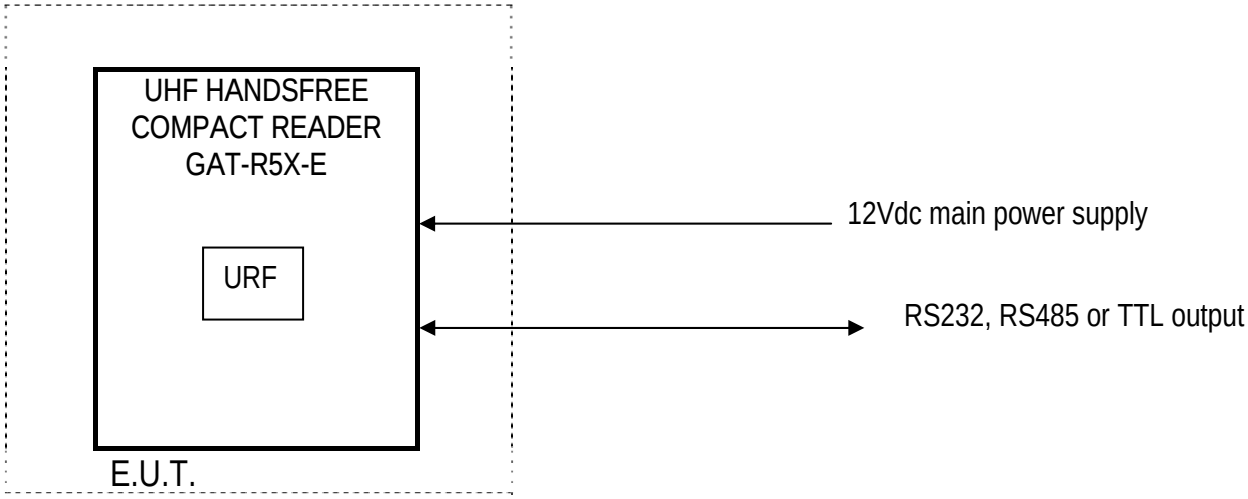
Cycle and operating mode during emission tests: Hoping emission mode on channel 0, 25 or 50

Equipment modifications applied during tests:

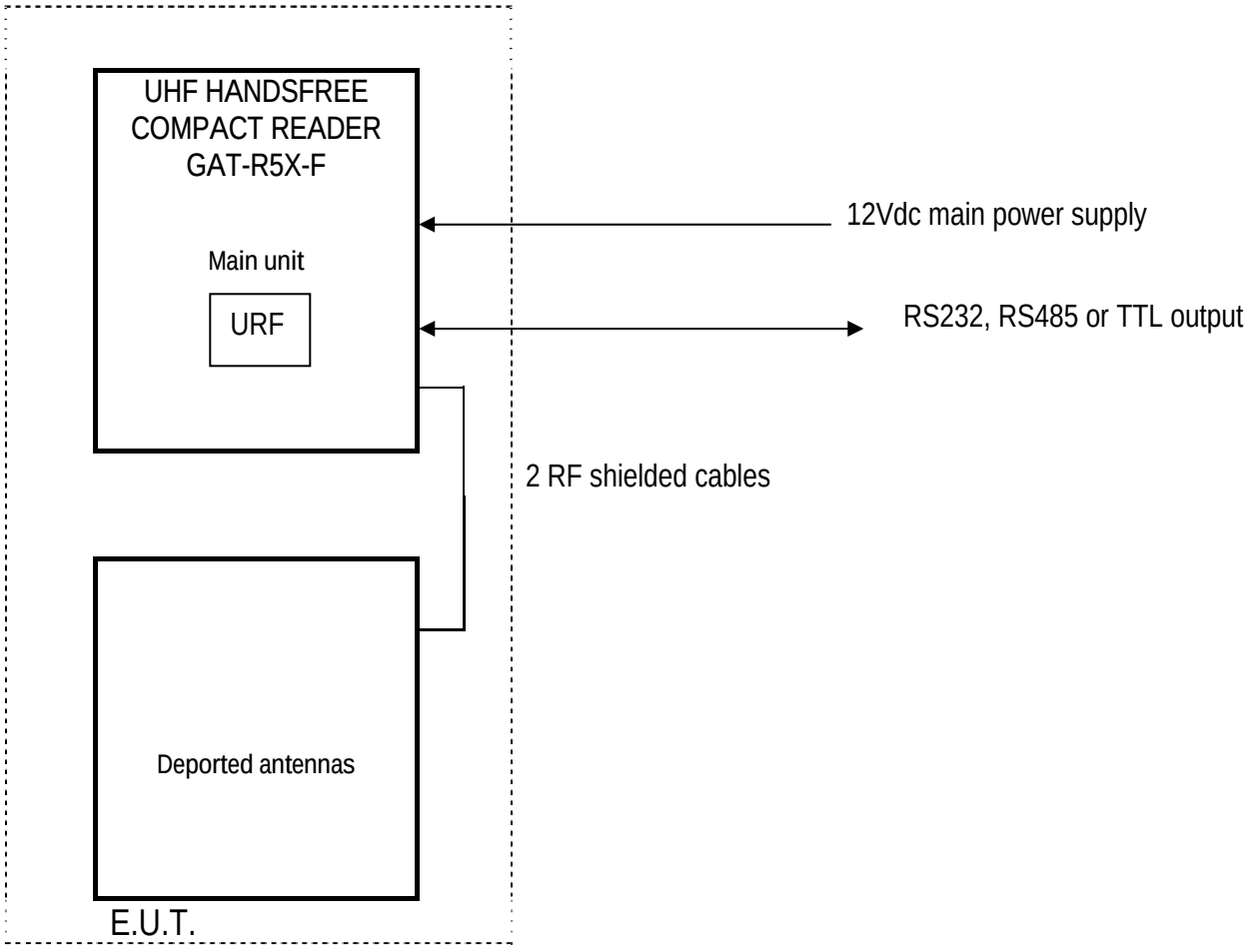
-Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable (see photos in annex)

4. EQUIPMENT UNDER TEST CONFIGURATION SCHEME

Single unit version:



Gate version:



5. SUMMARY OF TEST RESULTS

Tests designation	Results satisfying?	Comments
Conducted power lines FCC part 15.107 and 15.207, RSS-Gen:2010	N.A.	Powered in DC
Frequency hopping and digitally modulated FCC part 15 Radio part 15.247 a) & RSS 210:2010 A8.1	YES	
Maximum peak conducted FCC part 15.247 b) & RSS 210:2010 A8.4	YES	
Intentional radiator FCC part 15.247 d) & RSS 210:2010 A8.5	YES	
Unwanted emissions outside of §15.247 frequency bands FCC part 15.215 b) & RSS-Gen:2010 §7.2	YES	
Measurement of frequency stability §15.215 (c) and RSS-Gen:2010 §4.1	YES	

N.P.: Not Performed. N.A.: Not Applicable.

- In emission:

Sample subject to the test complies with prescriptions of the standard(s) FCC Part 15 Radio part 15.247 and RSS 210 Issue 8, December 2010 according to limits, specified in this test report for tests made only

6. FREQUENCY HOPPING AND DIGITALLY MODULATED

Standards: FCC part 15 Radio part 15.247 & RSS 210:2010

Test methods: FCC part 15.247 a) (1) & a) (1) (i) & RSS 210:2010 A8.1

6.1) Frequency hopping channel separation (15.247 a) (1) RSS210 A8.1)

The system uses 50 channels numbered in hexadecimal from 1 to 50.Tests are done in max-hold mode in order to capture all hopping channels. Measurements are done with a test antenna.

Test method deviation: There is no correlation between carrier levels and curve shown below; these plots are only for showing the number of channels, 20dB bandwidth and channel spacing.

Test equipment list:

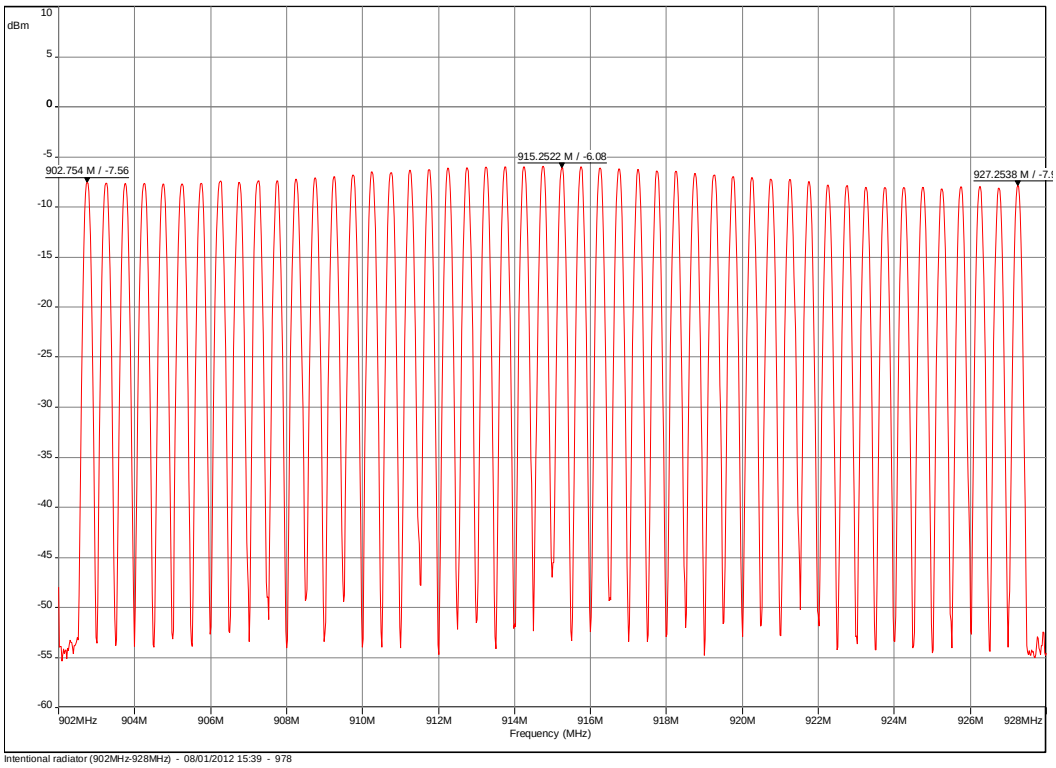
CATEGORY	BRAND	TYPE	N° EMITECH	CAL DATE	DUE DATE
Antenna	ETS LINDGREN	3117	5456	03-jun-2010	16-aug-2012
Attenuator	Radial	R412710124	4390	03-jan-2012	03-mar-2014
Attenuator	Radial	R412720124	4391	03-jan-2011	03-mar-2014
Cable		N-1.5m	3621	25-jul-2011	25-sep-2013
Receiver	Agilent	E4440A	5824	24-aug-2011	24-oct-2013

BAT-EMC software version: V3.6.0.24

Antenna base emission (measurement) | EMI978

Intentional radiator (902MHz-928MHz) number of channels

Frequency (MHz) : 902 MHz - 928 MHz (Analyzer mode)
Settings: RBW: 100 kHz, VBW: 100 kHz, Auto, sweep count 1
RADIO/Band Edge FCC 15.247 § d) ADEUNIS - Class Tr - Crête/
Mes.Peak



Intentional radiator (902MHz-928MHz) - 08/01/2012 15:39 - 978

Date: 01/08/2012 15:39:28

Technician: DM

Detection:
Max hold mode.

T (°C): 23.6
H (%): 65.6
P (hpa): 1005

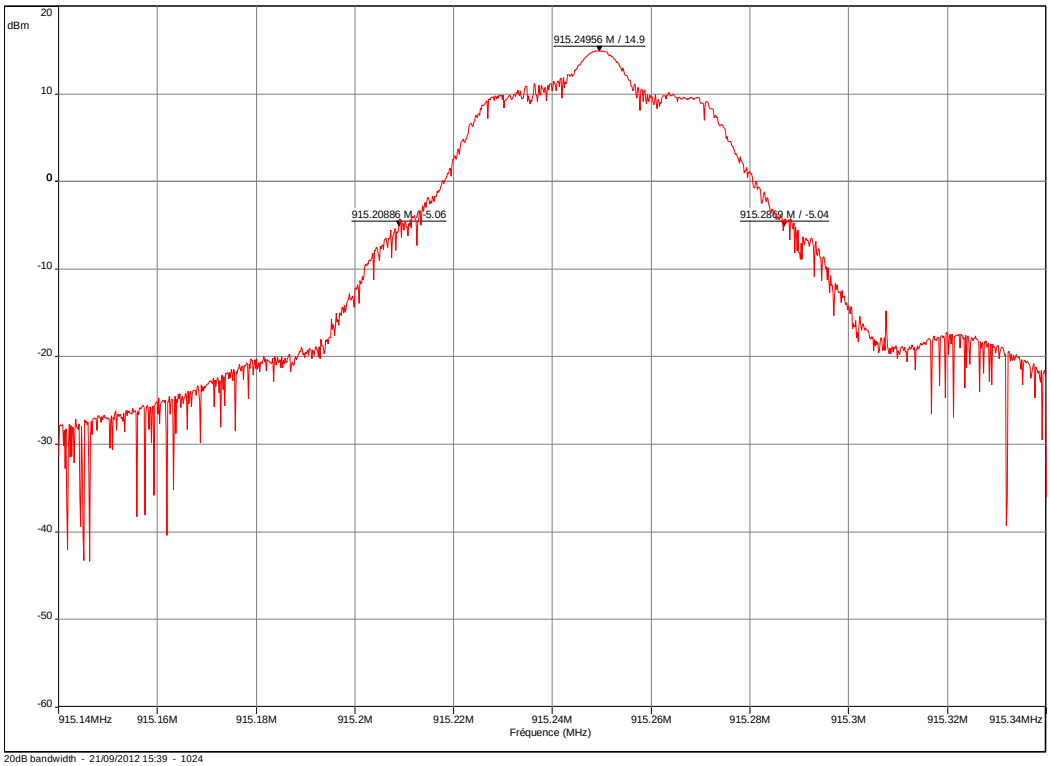
Modification(s) during test:
None

The system uses 50 channels numbered in hexadecimal from 1 to 50.

Antenna base emission (measurement) EMI1021

20dB bandwidth

Fréquence (MHz) : 915.14 MHz - 915.34 MHz (Mode analyseur)
Réglage: RBW: 10 kHz, VBW: 10 kHz, Auto, nombre de Balayages 1



20dB bandwidth - 21/09/2012 15:39 - 1024

Date: 01/08/2012 16:32:51

Technician: DM

Class: Tr of the standard

Detection:

T (°C): 23.6
H (%): 65.6
P (hpa): 1005

Modification(s) during test:
None

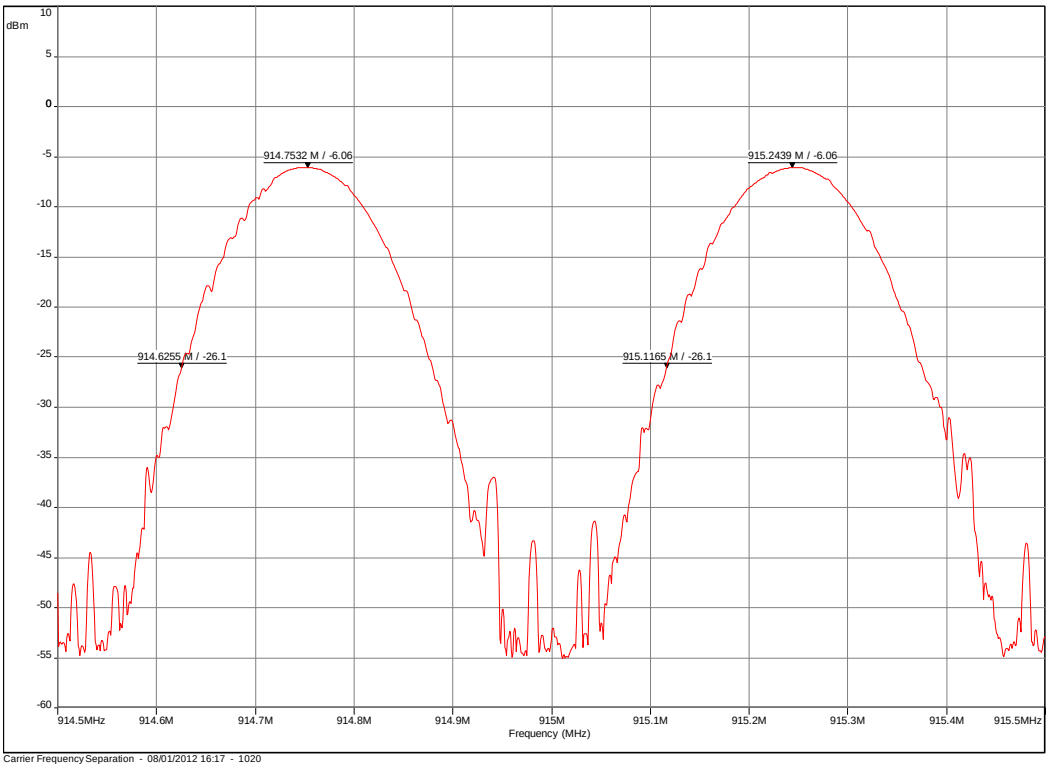
The 20dB bandwidth of each hopping channel is 78.04kHz (in RBW=10kHz).That is less than 500kHz.

Antenna base emission (measurement) EMI1020

Carrier Frequency Separation

Frequency (MHz) : 914.5 MHz - 915.5 MHz (Analyzer mode)
Settings: RBW: 100 kHz, VBW: 300 kHz, Auto, sweep count 1

RADIO/Band Edge FCC 15.247 § d) ADEUNIS - Class Tr - Crête/
Mes.Peak



Carrier Frequency Separation - 08/01/2012 16:17 - 1020

Date: 01/08/2012 16:17:44

Technician: DM

Class: Tr of the standard

Detection:

T (°C): 23.6
H (%): 65.6
P (hpa): 1005

Modification(s) during test:
None

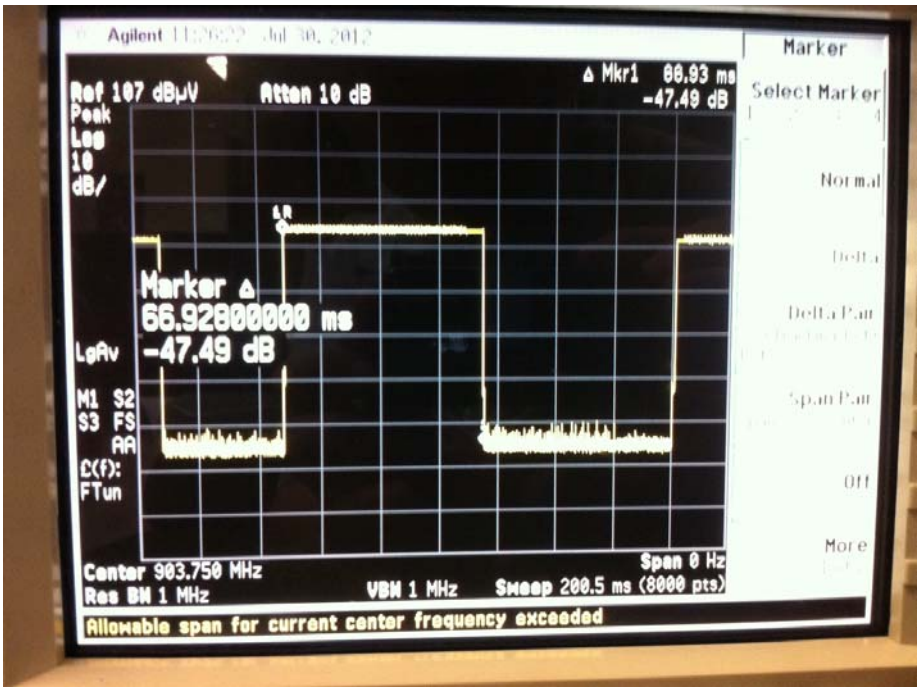
The channel separation is almost 491kHz which is greater than the 20dB bandwidth

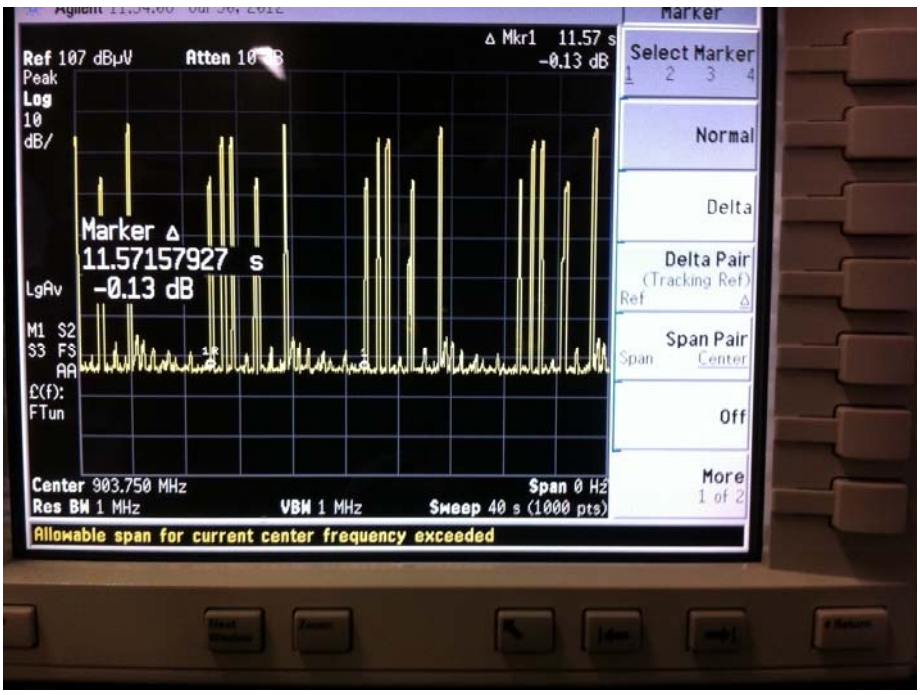
6.1) Frequency hopping channel separation (15.247 a) (1) (i) and RSS210 A8.1 (3))

The system uses 50 channels in any conditions and the averaging time of occupancy on any channel is less than 0.4 seconds within a period of 10.0 seconds.

The measurement during a long transmission gives 66.93ms every 11.57s on each channel, so the average time within a period of 20.0 second is 115.70ms which is less than the 400ms limit.

Thus the duty cycle correction factor is 20 log (66.93/100) = -3.48dB





7. MAXIMUM PEAK CONDUCTED POWER

Standards: FCC part 15 Radio part 15.247 & RSS 210:2010

Test methods: FCC part 15.247 b) (2) & RSS 210:2010 A8.4

Test configuration:

Frequency band	Tested side	Resolution bandwidth	Video bandwidth	Detection mode
902.25MHz-903.25MHz	RF ON CH1 (902.75MHz)	100kHz	300kHz	Max-hold Peak
915.25MHz-916.25MHz	RF ON CH24 (914.75MHz)	100kHz	300kHz	Max-hold Peak
926.75MHz-927.75MHz	RF ON CH50 (927.25MHz)	100kHz	300kHz	Max-hold Peak

Test is done in max-hold peak detection. E.U.T. output is directly connected to a spectrum analyzer. Measurements are performed on channels 1, 24 and 50.

Test method deviation: No

Test equipment list:

CATEGORY	BRAND	TYPE	N° EMITECH	CAL DATE	DUE DATE
Attenuator	Radial	R412710124	4390	03-jan-2011	03-mar-2014
Attenuator	Radial	R412720124	4391	03-jan-2011	03-mar-2014
Cable		N-1.5m	3621	25-jul-2011	25-sep-2013
Receiver	Agilent	E4440A	5824	24-aug-2011	24-oct-2013

BAT-EMC software version: V3.6.0.24

Results:

b) (2) Maximum peak conducted: See **Board** below and **Graph(s)** hereafter.

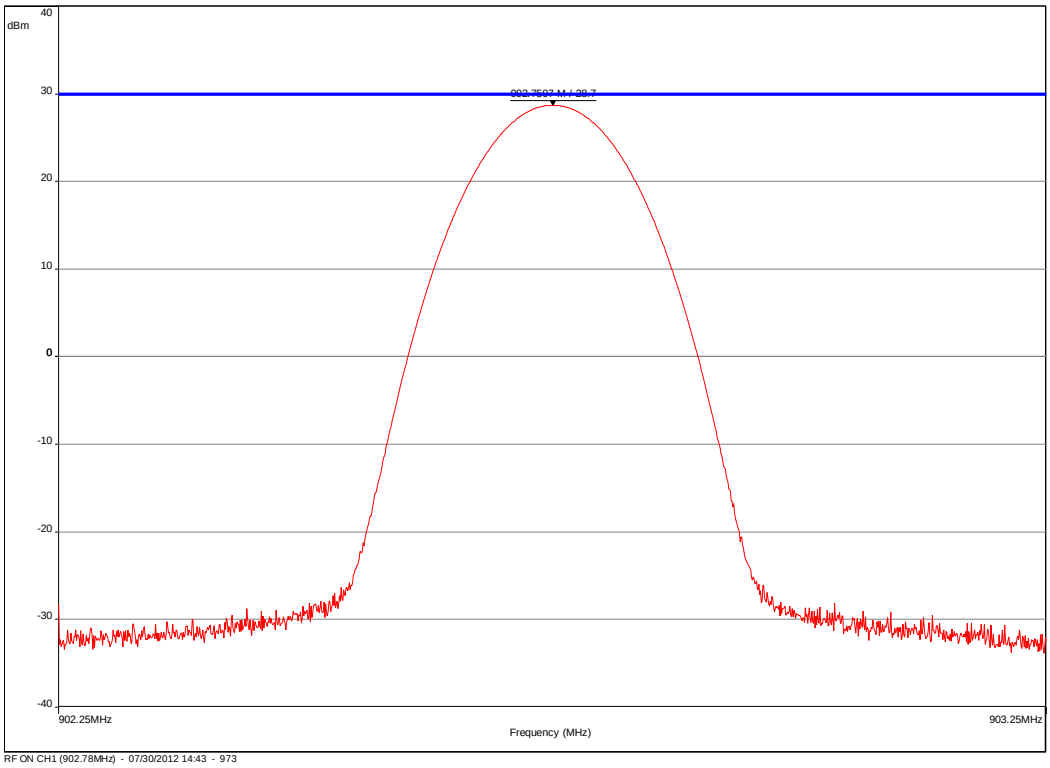
Frequency (MHz)	Channel	Maximum peak power (dBm)	Power limit (dBm)
902.75	1	28.70	30
915.75	24	28.90	30
927.25	50	29.10	30

Antenna base emission (measurement) | EMI973

RF ON CH1 (902.75MHz)

Frequency (MHz) : 902.25 MHz - 903.25 MHz (Analyzer mode)
Settings: RBW: 100 kHz, VBW: 300 kHz, Holding time: 1 ms/Pt, sweep count 1

RADIO/FCC 15.247 § b) (2) - Class Tr - Crête/
Mes.Peak



RF ON CH1 (902.78MHz) - 07/30/2012 14:43 - 973

Date: 30/07/2012 14:43:21

Technician: DM

Class: Tr of the standard

Detection:
Max-hold Peak

T (°C): 23.6
H (%): 65.6
P (hpa): 1005

Modification(s) during test:
None

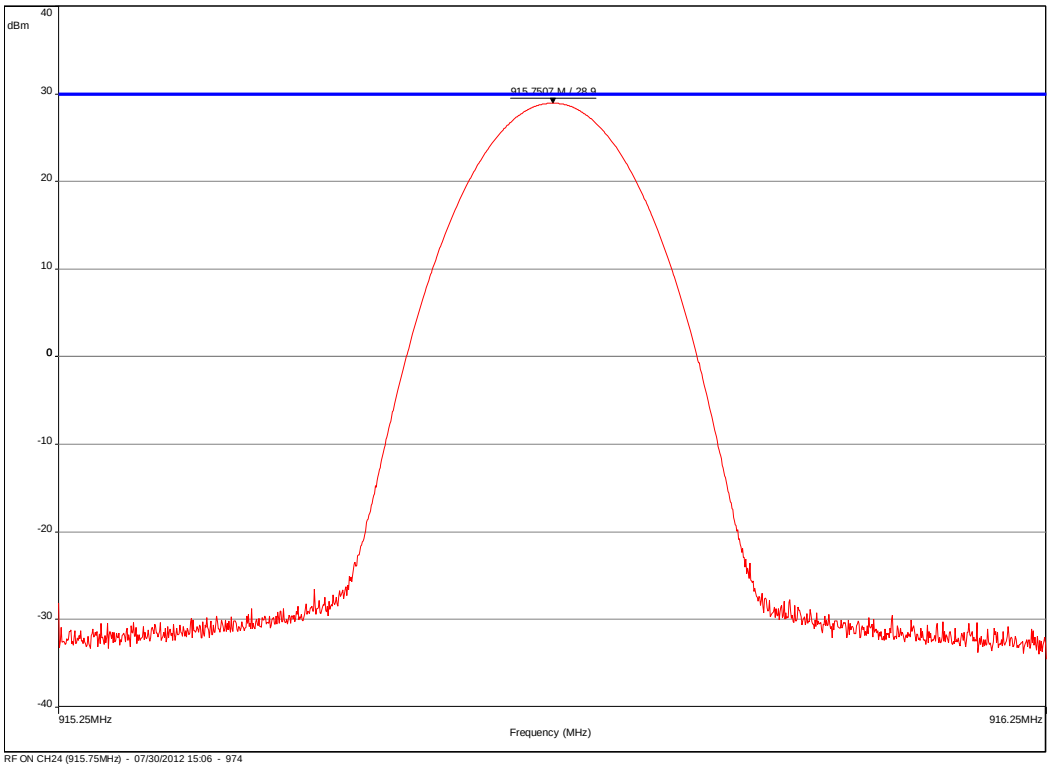
Antenna base emission (measurement)

EMI974

RF ON CH24 (915.75MHz)

Frequency (MHz) : 915.25 MHz - 916.25 MHz (Analyzer mode)
Settings: RBW: 100 kHz, VBW: 300 kHz, Holding time: 1 ms/Pt, sweep count 1

RADIO/FCC 15.247 § b) (2) - Class Tr - Crête/
Mes.Peak



RF ON CH24 (915.75MHz) - 07/30/2012 15:06 - 974

Date: 30/07/2012 15:06:43

Technician: DM

Class: Tr of the standard

Detection:

T (°C): 23.6
H (%): 65.6
P (hpa): 1005

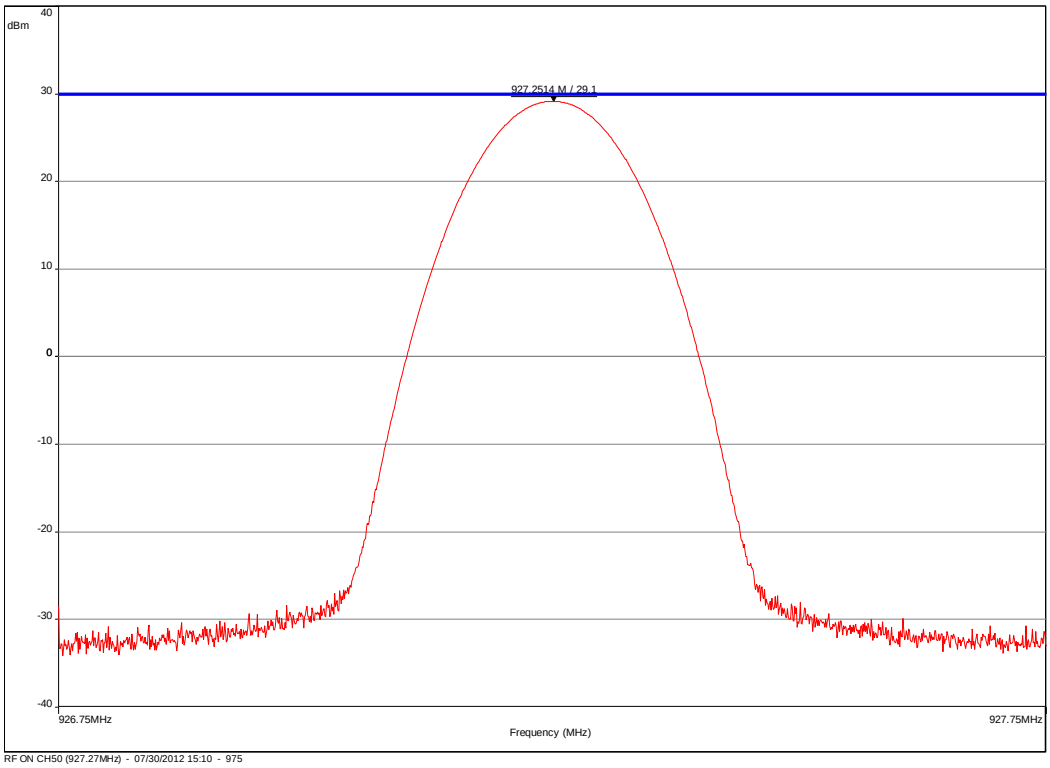
Modification(s) during test:
None

Antenna base emission (measurement) — EMI975

RF ON CH50 (927.25MHz)

Frequency (MHz) : 926.75 MHz - 927.75 MHz (Analyzer mode)
Settings: RBW: 100 kHz, VBW: 300 kHz, Holding time: 1 ms/Pt, sweep count 1

RADIO/FCC 15.247 § b) (2) - Class Tr - Crête/
Mes.Peak



RF ON CH50 (927.27MHz) - 07/30/2012 15:10 - 975

Date: 30/07/2012 15:10:41

Technician: DM

Class: Tr of the standard

Detection:

T (°C): 23.6
H (%): 65.6
P (hpa): 1005

Modification(s) during test:

Calculated radiated power at 3m distance:

Maximum Radiated field is calculated using the formula:

$$E(V/m) = \frac{\sqrt{30 \times P(W) \times G(dB)}}{d(m)}$$ where G is the declared antenna gain.

Channel	Gain (dB)	Radiated power (dBµV/m)
902.75 (CH1)	6	131.70
915.75 (CH24)	6	131.90
927.25 (CH50)	6	132.11

8. INTENTIONAL RADIATOR

Standards: FCC part 15 Radio part 15.247 & RSS 210:2010

Test methods: FCC part 15.247 d) & RSS 210:2010 A8.5

Test configuration:

Frequency band	Tested side	Resolution bandwidth	Video bandwidth	Detection mode	E.U.T. height
900MHz-905MHz	Band Edge CH1 (902.75MHz)	100kHz	300kHz	Max-hold Peak	0cm
925MHz-930MHz	Band Edge CH50 (927.25MHz)	100kHz	300kHz	Max-hold Peak	0cm

Test is done in max-hold peak detection; transmitter output is directly connected to a spectrum analyzer. Measurements are performed on channels 1 and 50 (lower and upper channels).

The purpose of this test is to demonstrate in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

Test method deviation: No

Test equipment list:

CATEGORY	BRAND	TYPE	N° EMITECH	CAL DATE	DUE DATE
Attenuator	Radial	R412720124	4391	03-jan-2011	03-mar-2014
Cable		N-1.5m	3621	25-jul-2011	25-sep-2013
Receiver	Agilent	E4440A	5824	24-aug-2011	24-oct-2013
Software	Nexio	BAT EMC	0000	-	-

BAT-EMC software version: V3.6.0.24

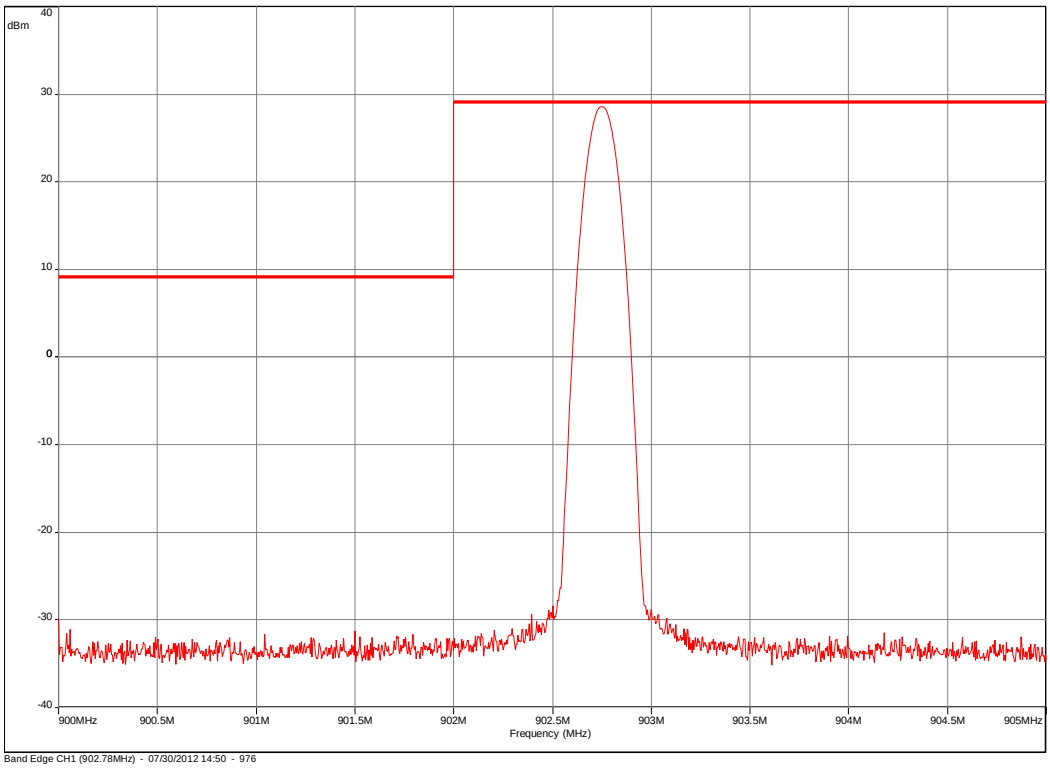
Results: See Graph(s) hereafter.

Antenna base emission (measurement) | EMI976

Band Edge CH1 (902.78MHz)

Frequency (MHz) : 900 MHz - 905 MHz (Analyzer mode)
Settings: RBW: 100 kHz, VBW: 300 kHz, Holding time: 1 ms/Pt, sweep count 1

RADIO/Band Edge FCC 15.247 § d) STID - Class Tr - Crête/
Mes.Peak



Band Edge CH1 (902.78MHz) - 07/30/2012 14:50 - 976

Date: 30/07/2012 14:50:45

Technician: DM

Class: Tr of the standard

Detection:

T (°C): 23.6
H (%): 65.6
P (hpa): 1005

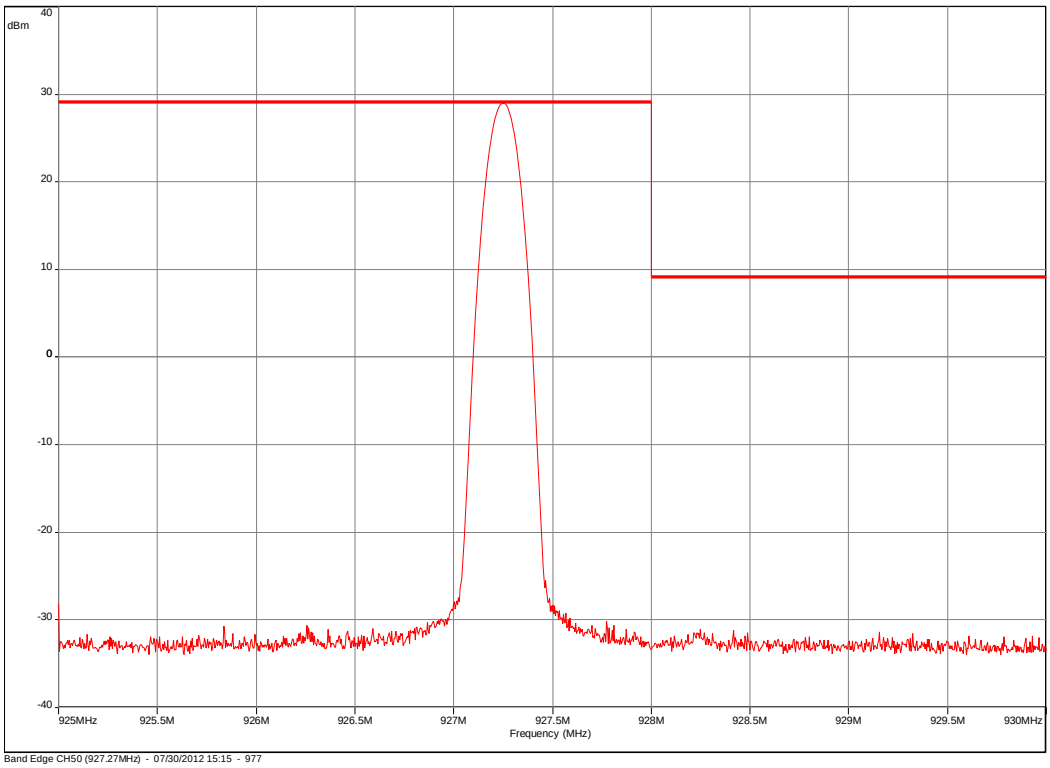
Modification(s) during test:
None

Antenna base emission (measurement) | EMI977

Band Edge CH50 (927.25MHz)

Frequency (MHz) : 925 MHz - 930 MHz (Analyzer mode)
Settings: RBW: 100 kHz, VBW: 300 kHz, Holding time: 1 ms/Pt, sweep count 1

RADIO/Band Edge FCC 15.247 § d) STID - Class Tr - Crête/
Mes.Peak



Band Edge CH50 (927.27MHz) - 07/30/2012 15:15 - 977

Date: 30/07/2012 15:15:19

Technician: DM

Class: Tr of the standard

Detection:

T (°C): 23.6
H (%): 65.6
P (hpa): 1005

Modification(s) during test:
None

9. UNWANTED EMISSIONS OUTSIDE OF §15.247 FREQUENCY BANDS

Standards: FCC part 15 Radio part 15.247 & RSS-Gen: 2010 & RSS 210:2010

Test methods: FCC part 15.109, 15.209, 15.215 b), 15.247, ANSI C63.4:2003 & RSS-Gen: 2010 §7.2 & RSS 210:2010 A8.5

a) Pre-measurement in semi anechoic chamber:

Frequency band	Tested side	Resolution bandwidth	Video bandwidth	Detection mode	E.U.T. height
9kHz-150kHz	Front side	200Hz	1kHz	Peak	80cm
150kHz-30MHz	Front side	10kHz	30kHz	Peak	80cm
30MHz-1GHz	Front side	100kHz	300kHz	Peak	80cm
1GHz-10GHz	Front side	1MHz	3MHz	Peak	80cm

E.U.T. was tested from the lowest frequency generated or used (without going below 9kHz) up to the 10th harmonics of fundamental emission. Measurements below 30MHz are done with a loop antenna as describe in the standard.
Measurements are done in semi anechoic chamber at 3m. E.U.T. is set on a wooden table in all GAT-R5X-X configurations.
Measurements are done in max-hold peak detection in hopping mode.

Limits:

From 9 kHz to 30MHz: Limit indicated on the curves is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

From 30MHz to 1GHz Quasi peak limit provided is the limit given in 15.209.

Above 1GHz average limit in restricted bands §15.205 is 54dBµV/m. Otherwise, the limit is 20dB under carrier emission level at 3m (112.11dBµV/m) without averaging with duty cycle factor.

The averaging correction factor of -3.48dB is used only when necessary in restricted bands as defined in 15.205.

Test method deviation:

From 9 kHz to 30MHz measurements are made in peak detection instead of average mode in frequency band 9 kHz-500 kHz

- Measurements are given in dBµA/m instead of µV/m
- Measuring distance is 3 meters instead of 30 and 300 meters

Radiated emissions limits in this frequency band are specified at 30 or 300 meters. Measurement distance used during the test, subject of this report, is 3 meters. Then published limits come from a theorical conversion using an extrapolation factor of 40dB / decade.

Measuring distance: 3 meters

Test equipment list:

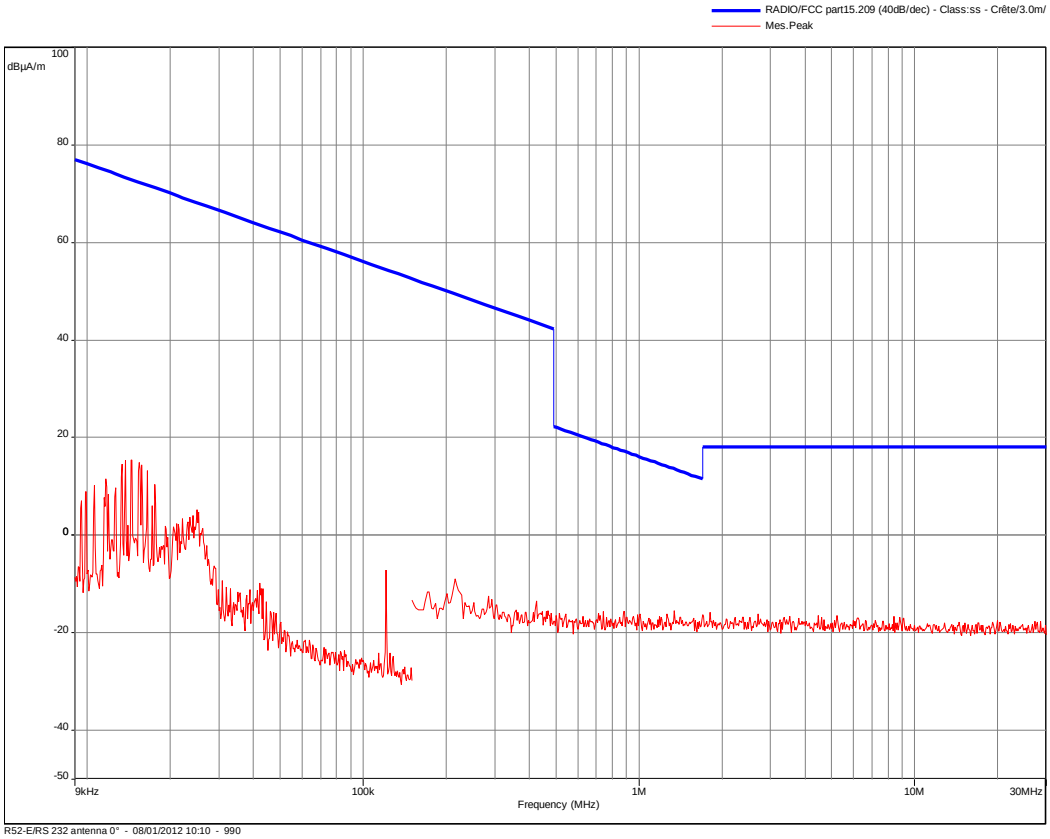
CATEGORY	BRAND	TYPE	N° EMITECH	CAL DATE	DUE DATE
Antenna	Rohde & Schwarz	HFH2-Z2	5825	28-aug-2010	20-oct-2012
Antenna	Emco	3115	1053	03-aug-2010	16-aug-2012
Antenna	Electro-Metrics	BIA-30HF	0824	03-mar-2011	03-may-2015
Antenna	Electro-Metrics	LPA-30	0855	03-mar-2011	03-may-2015
Cable	C&C	N-1.5m	5016	05-dec-2011	05-fev-2014
Cable		N-1m	2701	11-oct-2010	11-dec-12
Cable	C&C	N-6m	5015	11-oct-2010	11-dec-12
Filter	Filtek	HP12/1200-5AA	7310	01-dec-2011	01-fev-2014
Preamplifier	Microwave	C005180F-4B1	9169	27-fev-2012	27-avr-2013
Receiver	Agilent Technologies	E4440A	5824	24-aug-2011	24-oct-2013
Shielded enclosure	RAY PROOF	C.GS1	1423	-	-
Software	Nexio	BAT EMC	0000	-	-

BAT-EMC software version: V3.6.0.24

Results: See **Boards** and **Graphs** hereafter.

Radiated magnetic field emission (measurement)	EMI990

R52-E/RS 232 / antenna 0°



Date: 01/08/2012 10:10:18

Technician: DM

Class: ss of the standard

Detection:
Peak

T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI991

R52-E/RS 232/antenna 45°

Date: 01/08/2012 10:15:02

Technician: DM

Class: ss of the standard

Detection:
Peak

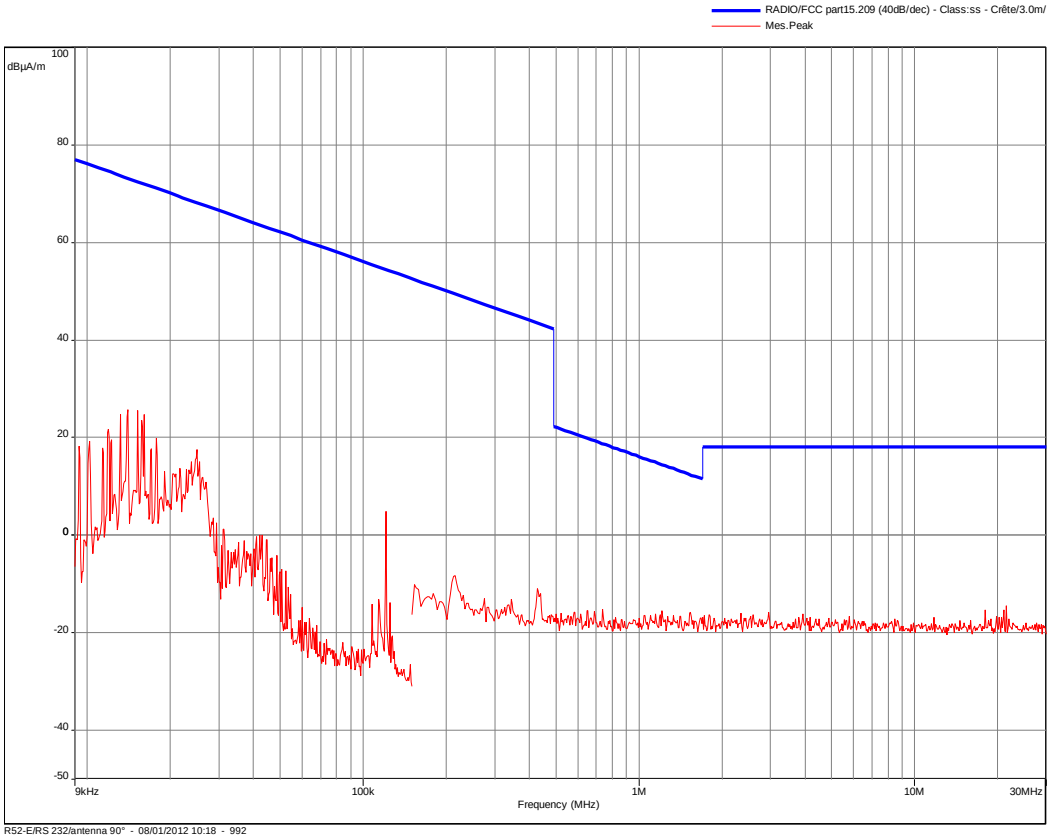
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement) EMI992

R52-E/RS 232/antenna 90°



Date: 01/08/2012 10:18:13

Technician: DM

Class: ss of the standard

Detection:
Peak

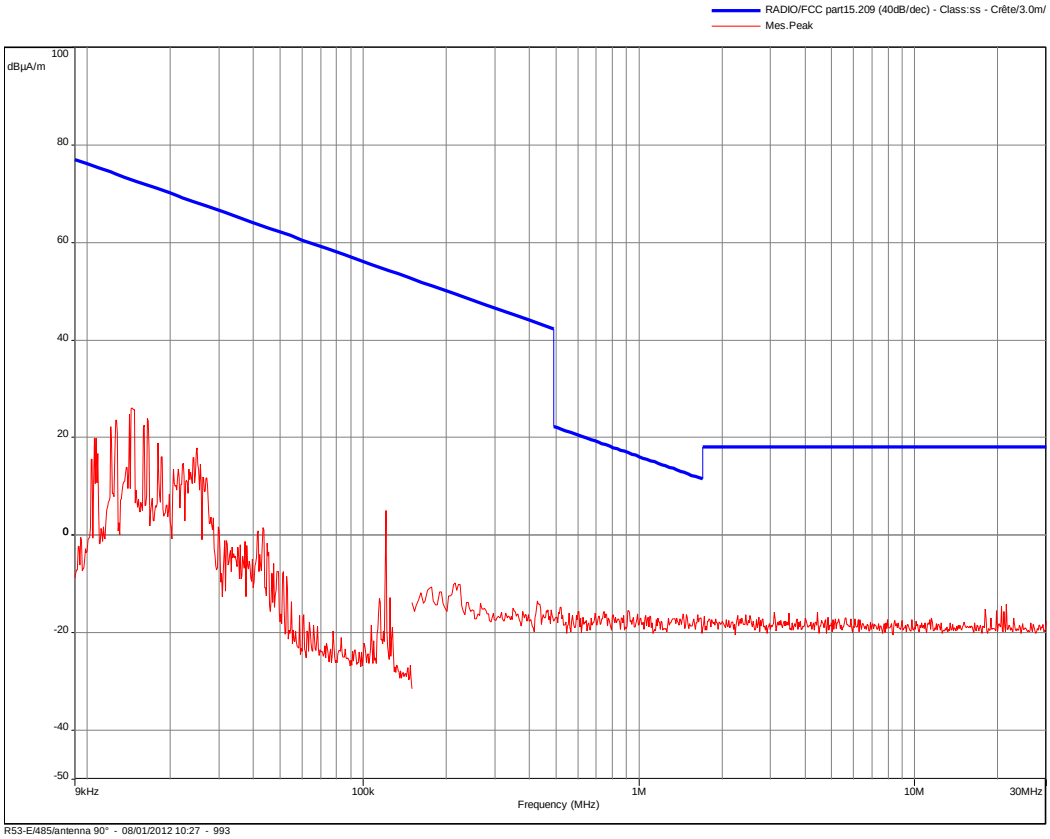
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI993

R53-E/485/antenna 90°



Date: 01/08/2012 10:27:46

Technician: DM

Class: ss of the standard

Detection:
Peak

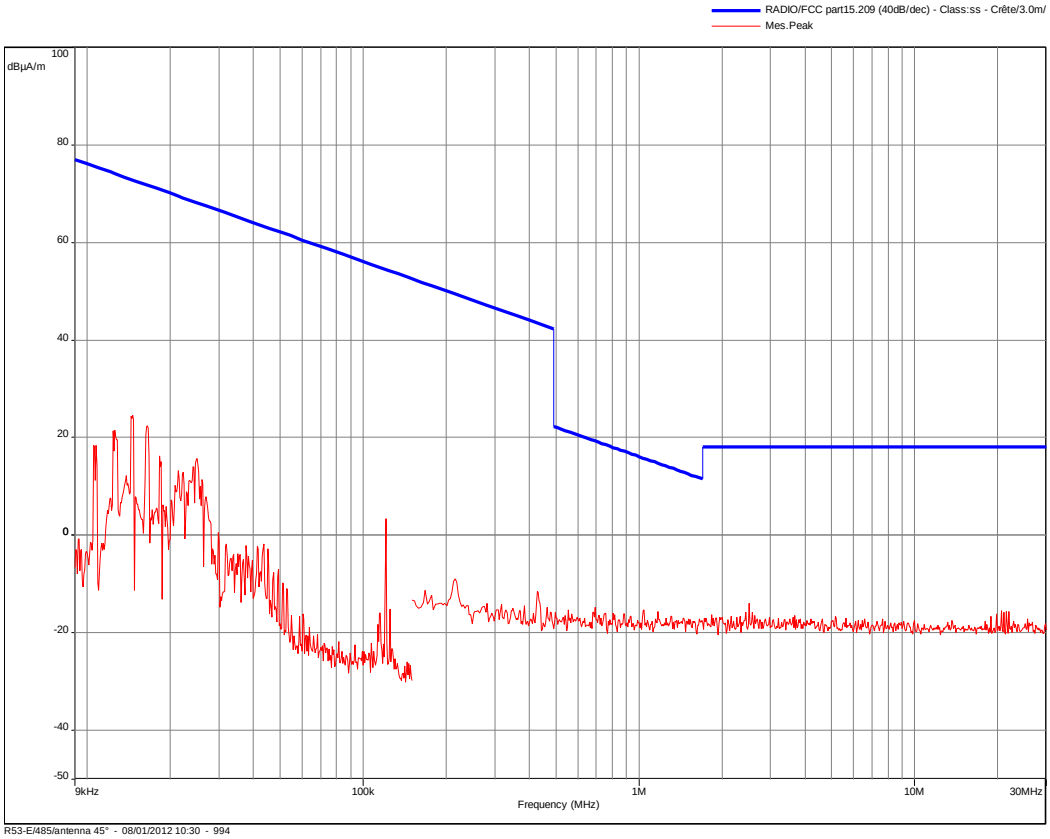
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI994

R53-E/485/antenna 45°



Date: 01/08/2012 10:30:30

Technician: DM

Class: ss of the standard

Detection:
Peak

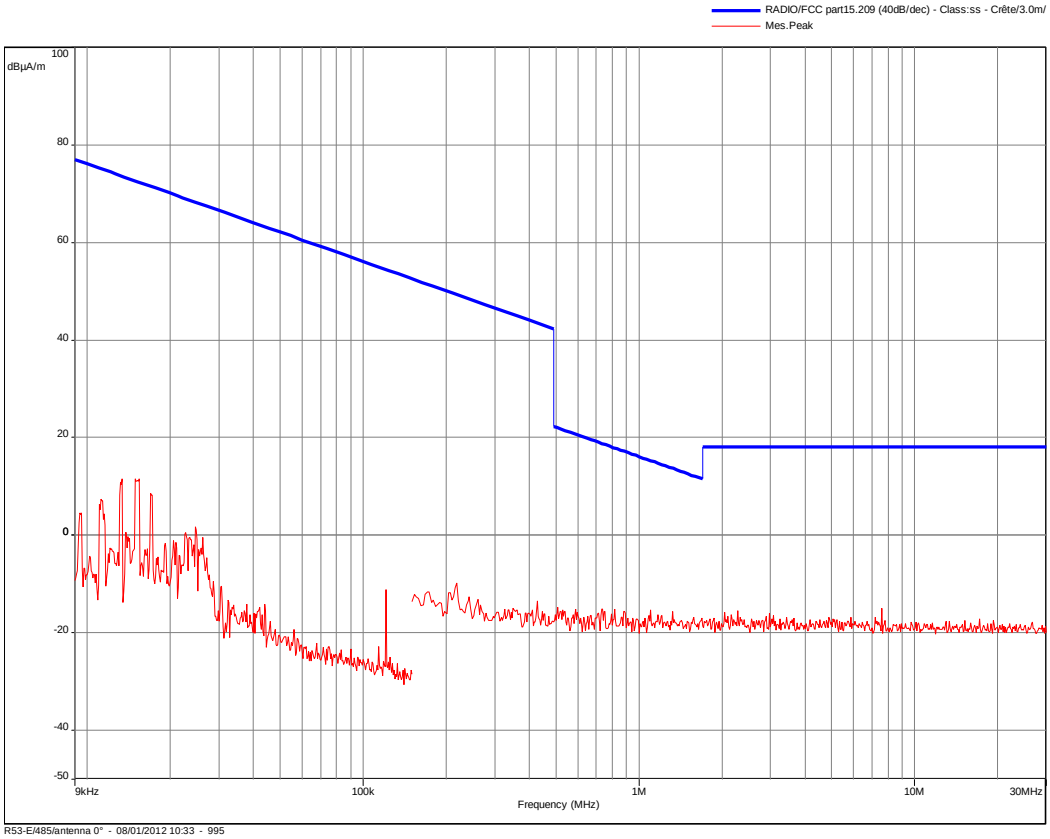
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI995

R53-E/485/antenna 0°



Date: 01/08/2012 10:33:13

Technician: DM

Class: ss of the standard

Detection:
Peak

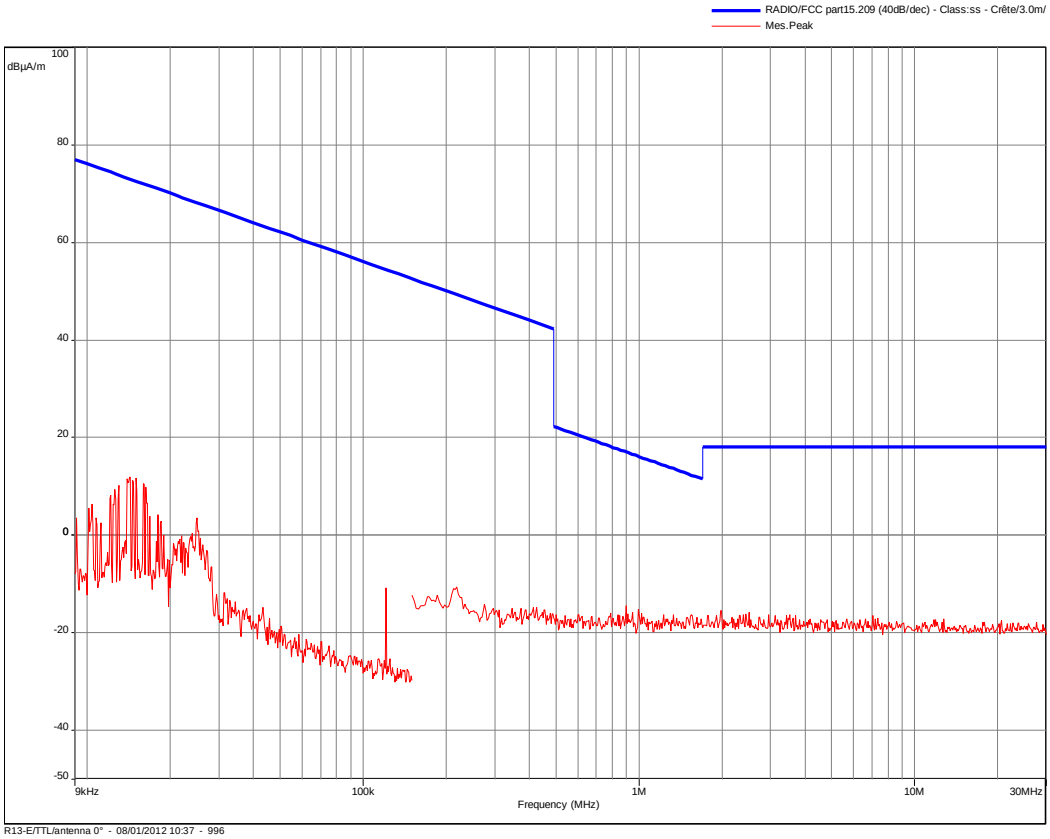
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI996

R51-E/TTL/antenna 0°



Date: 01/08/2012 10:37:08

Technician: DM

Class: ss of the standard

Detection:
Peak

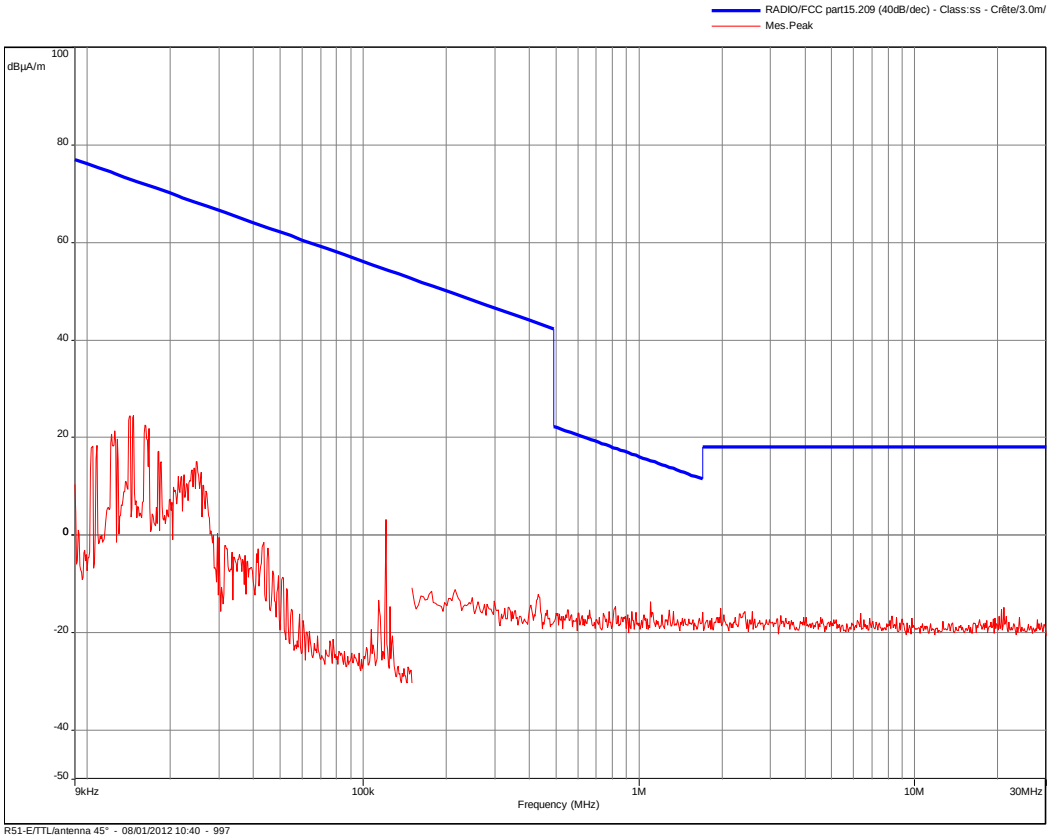
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement) | EMI997

R51-E/TTL/antenna 45°



Date: 01/08/2012 10:40:04

Technician: DM

Class: ss of the standard

Detection:
Peak

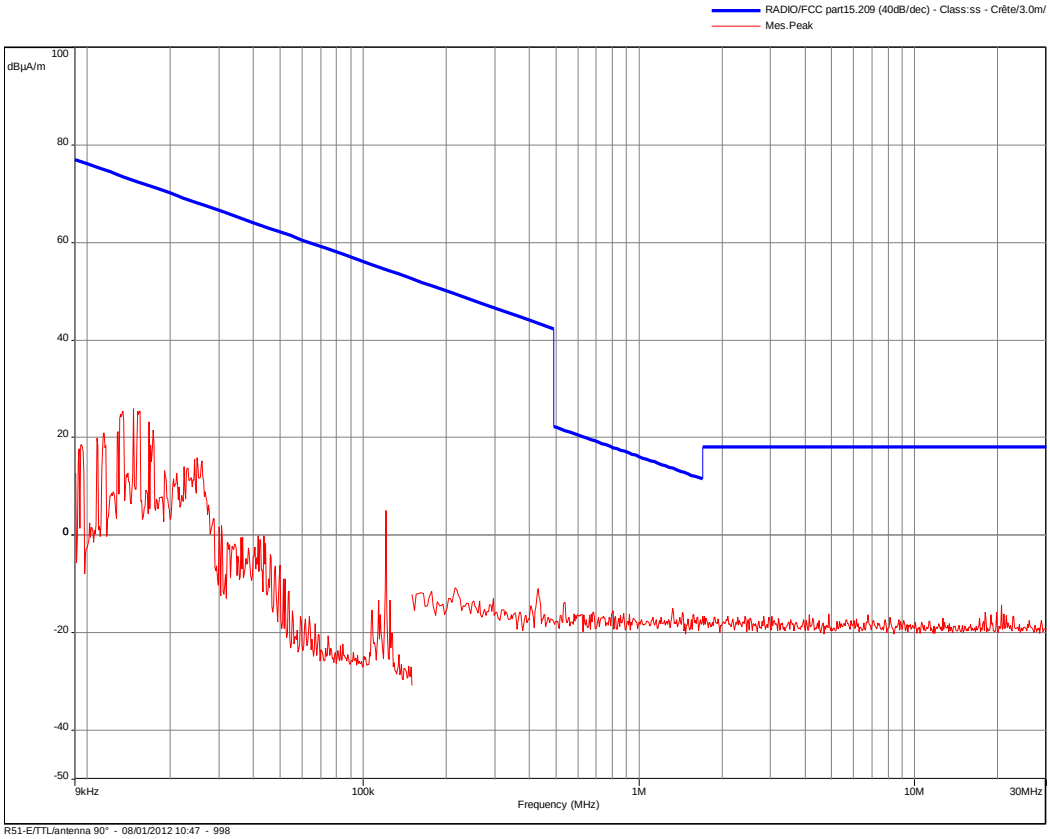
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI998

R51-E/TTL/antenna 90°



Date: 01/08/2012 10:47:31

Technician: DM

Class: ss of the standard

Detection:
Peak

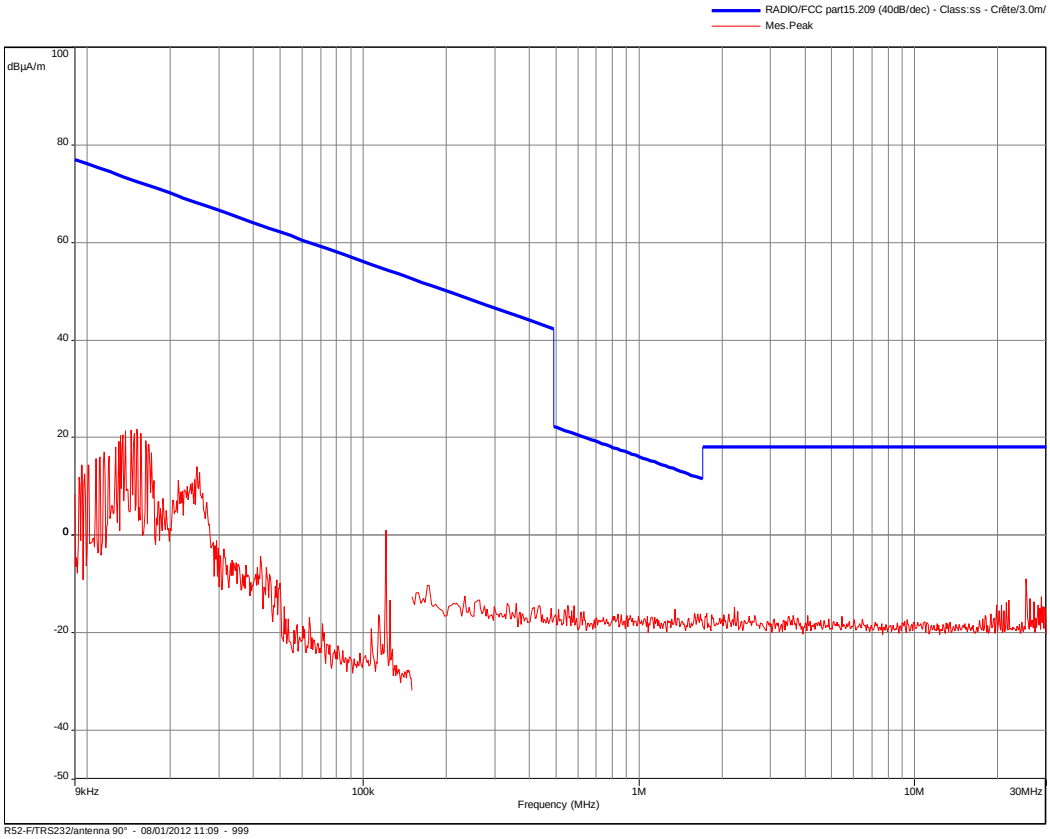
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
Non

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI999

R52-F/RS232/antenna 90°



Date: 01/08/2012 11:09:16

Technician: DM

Class: ss of the standard

Detection:
Peak

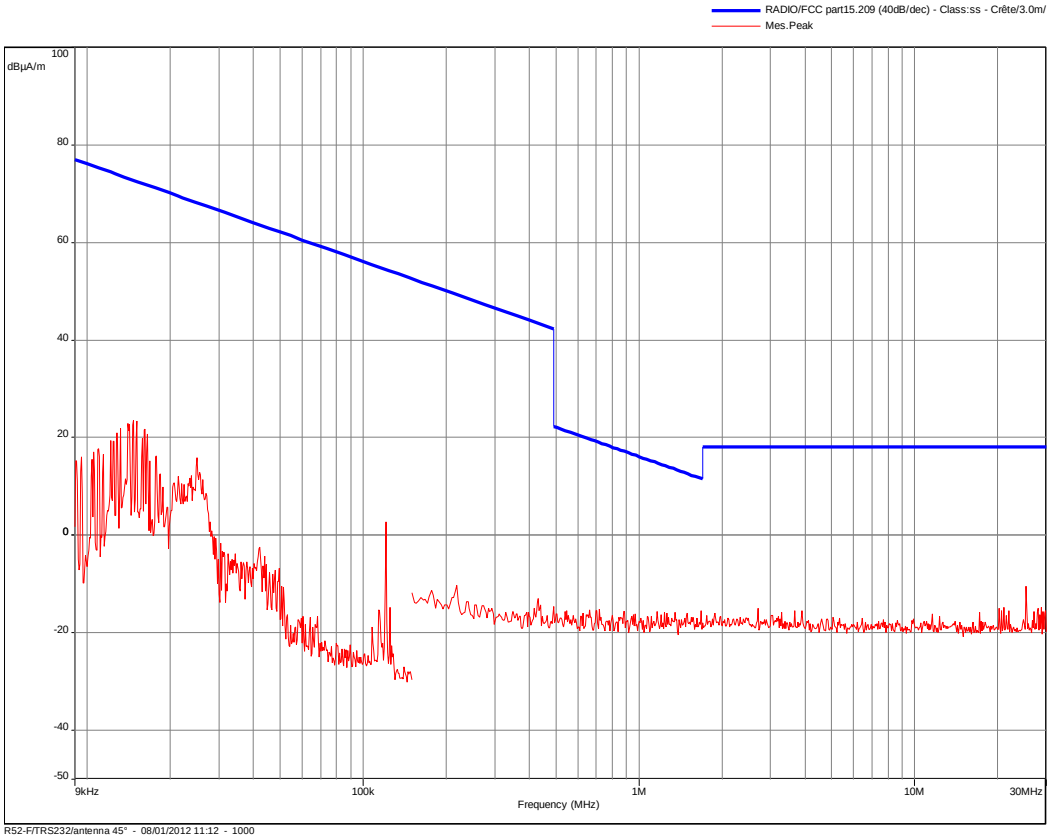
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI1000

R52-F/RS232/antenna 45°



Date: 01/08/2012 11:12:03

Technician: DM

Class: ss of the standard

Detection:
Peak

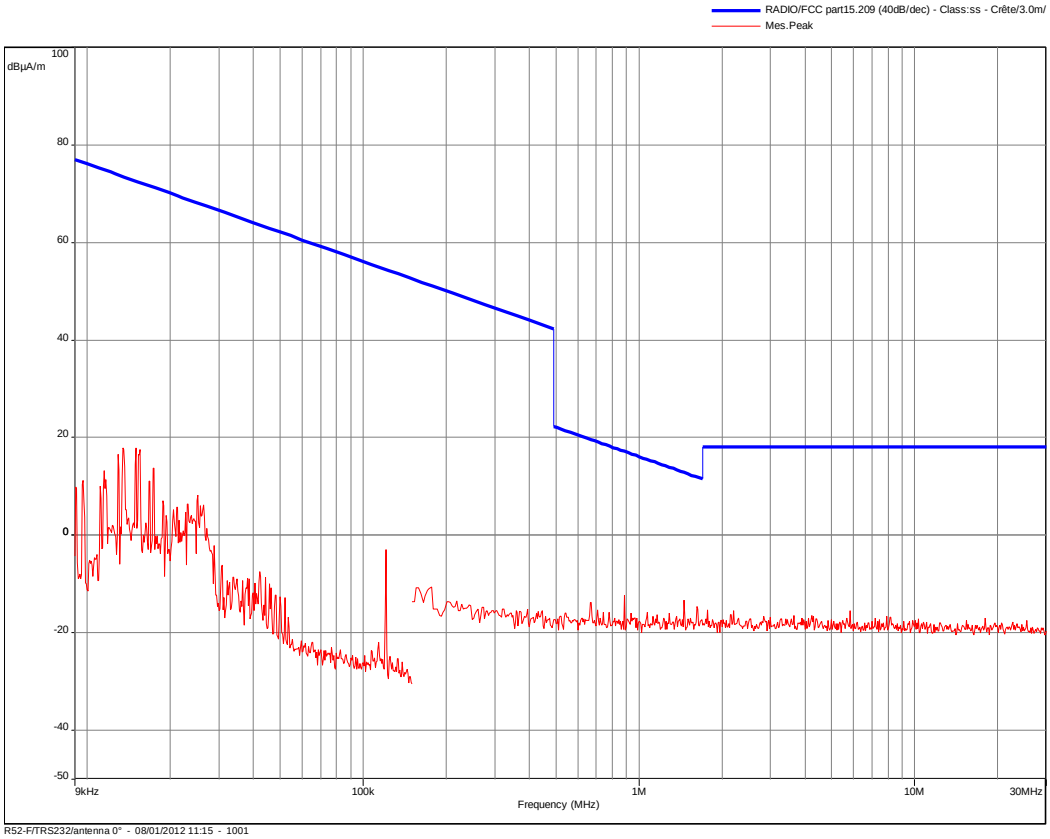
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI1001

R52-F/RS232/antenna 0°



Date: 01/08/2012 11:15:04

Technician: DM

Class: ss of the standard

Detection:
Peak

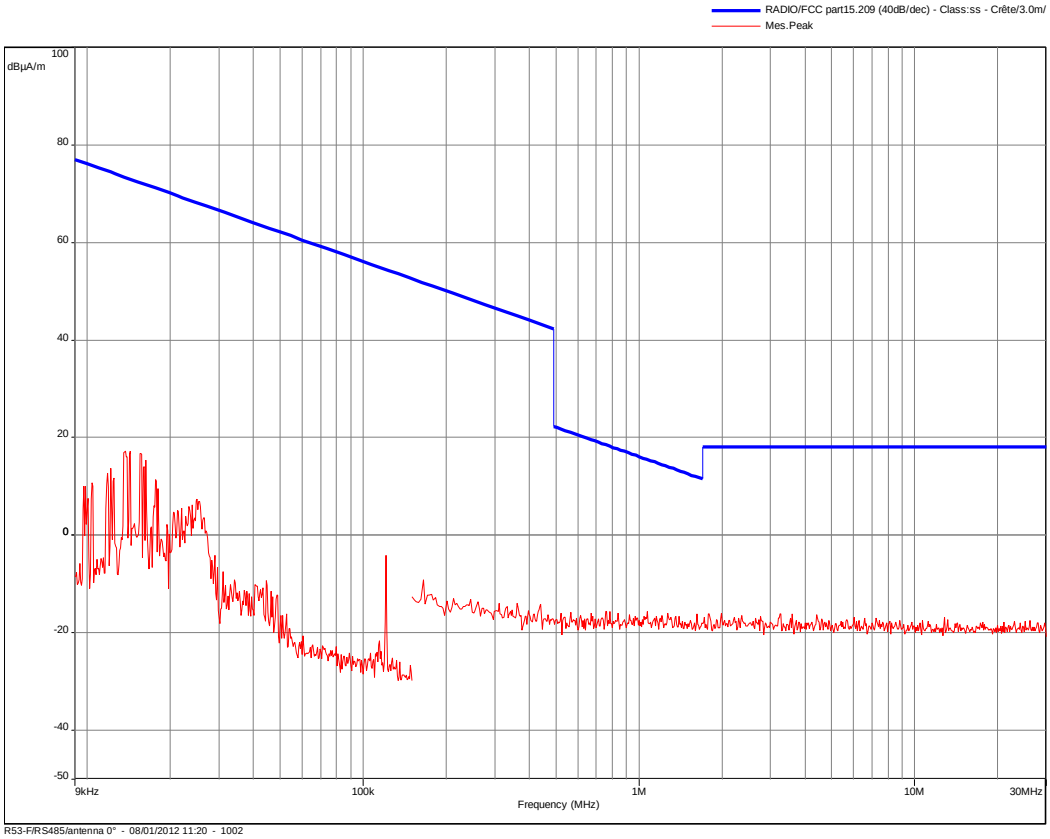
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement) | EMI1002

R53-F/RS485/antenna 0°



Date: 01/08/2012 11:20:15

Technician: DM

Class: ss of the standard

Detection:
Peak

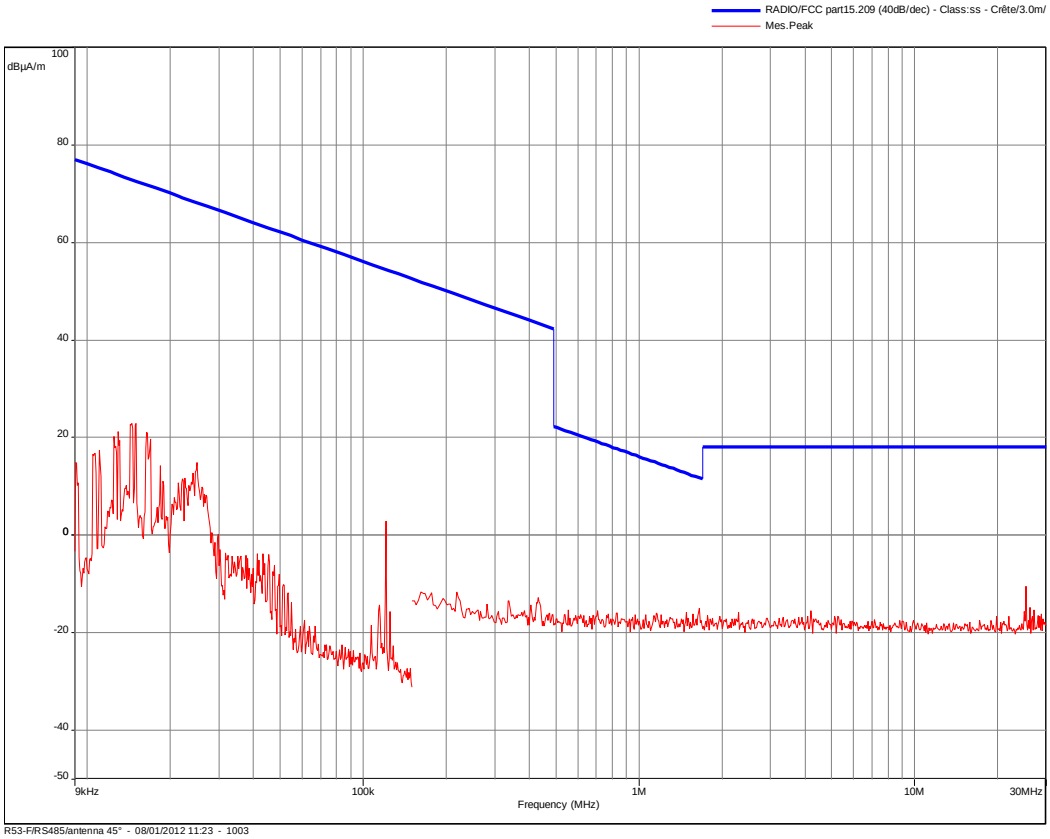
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement) EMI1003

R53-F/RS485/antenna 45°



Date: 01/08/2012 11:23:30

Technician: DM

Class: ss of the standard

Detection:
Peak

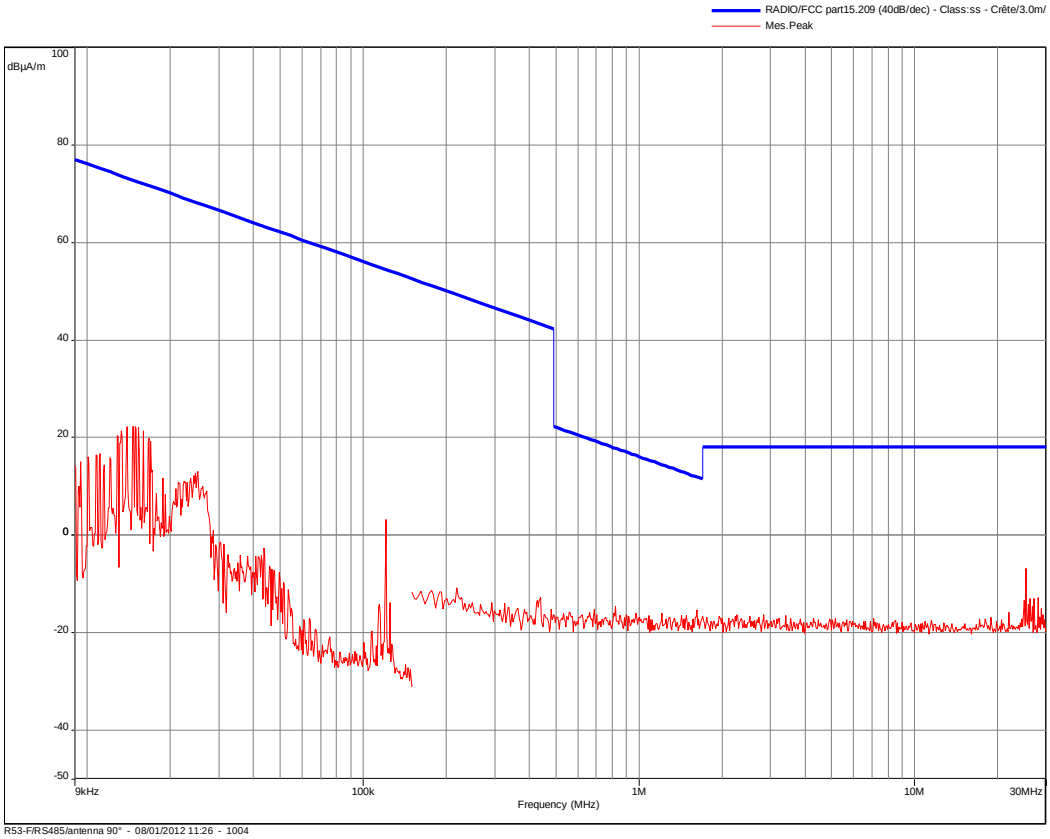
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI1004

R53-F/RS485/antenna 90°



Date: 01/08/2012 11:26:07

Technician: DM

Class: ss of the standard

Detection:
Peak

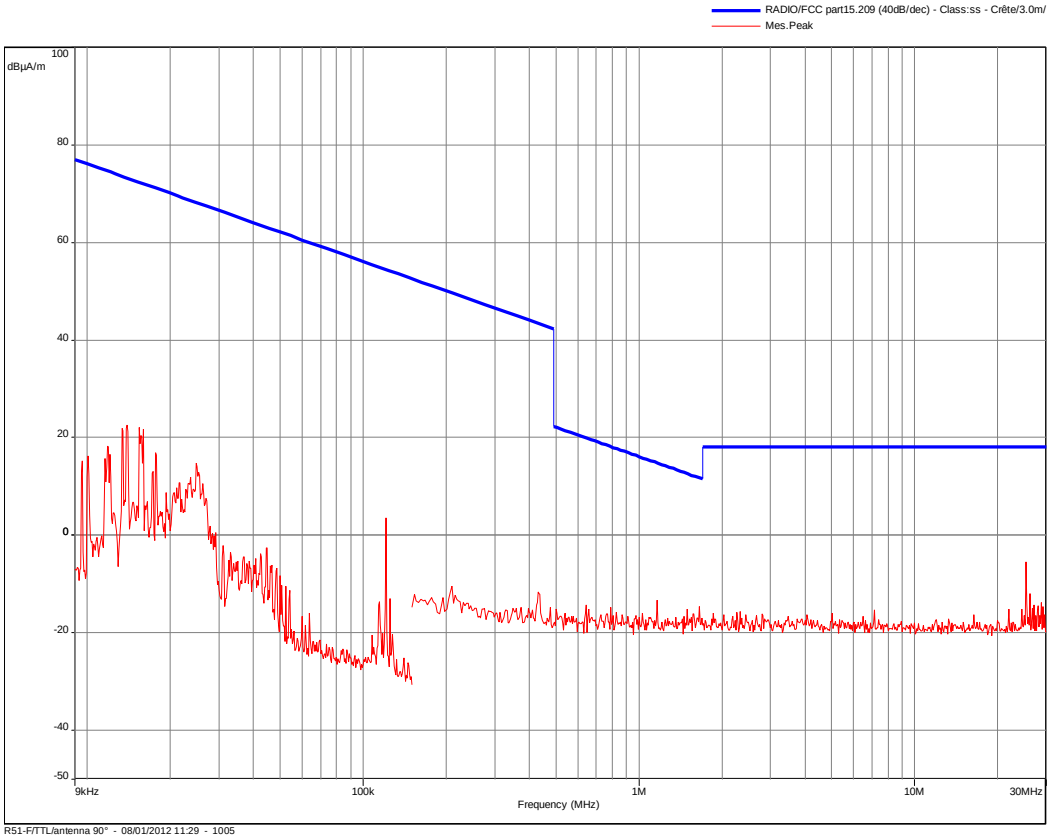
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement) — EMI1005

R51-F/TTL/antenna 90°



Date: 01/08/2012 11:29:45

Technician: DM

Class: ss of the standard

Detection:
Peak

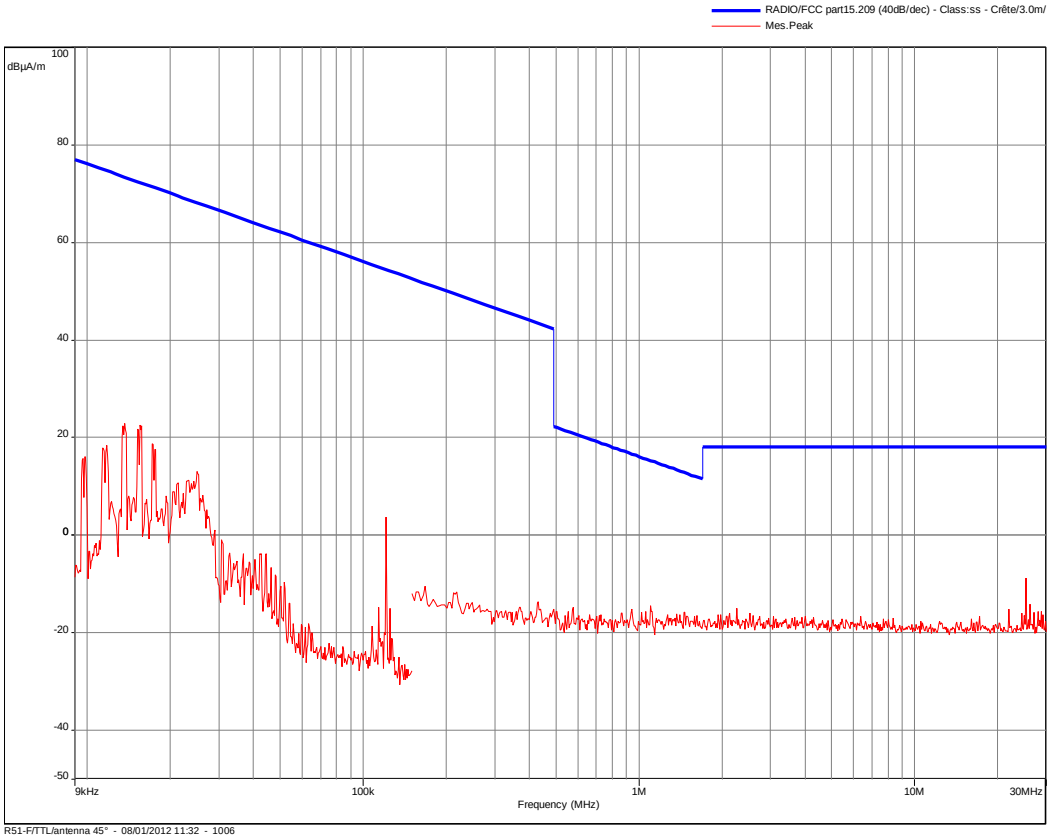
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI1006

R51-F/TTL/antenna 45°



Date: 01/08/2012 11:32:28

Technician: DM

Class: ss of the standard

Detection:
Peak

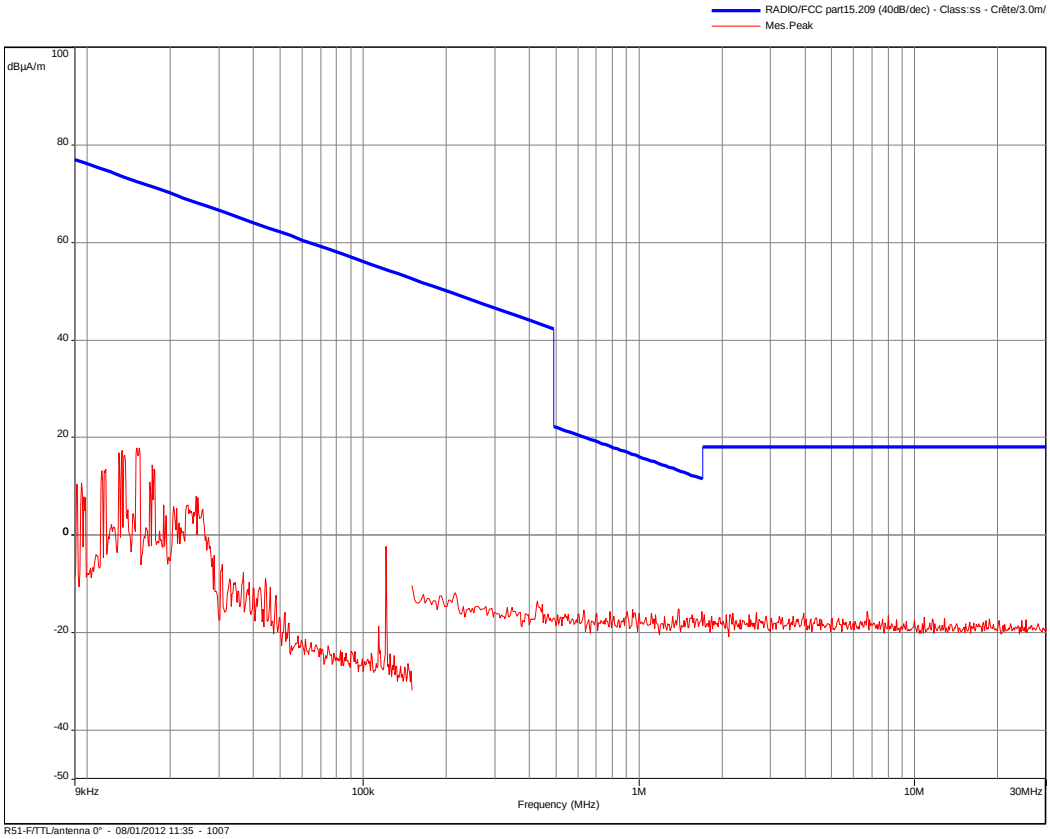
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None+

Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated magnetic field emission (measurement)	EMI1007

R51-F/TTL/antenna 0°



Date: 01/08/2012 11:35:02

Technician: DM

Class: ss of the standard

Detection:
Peak

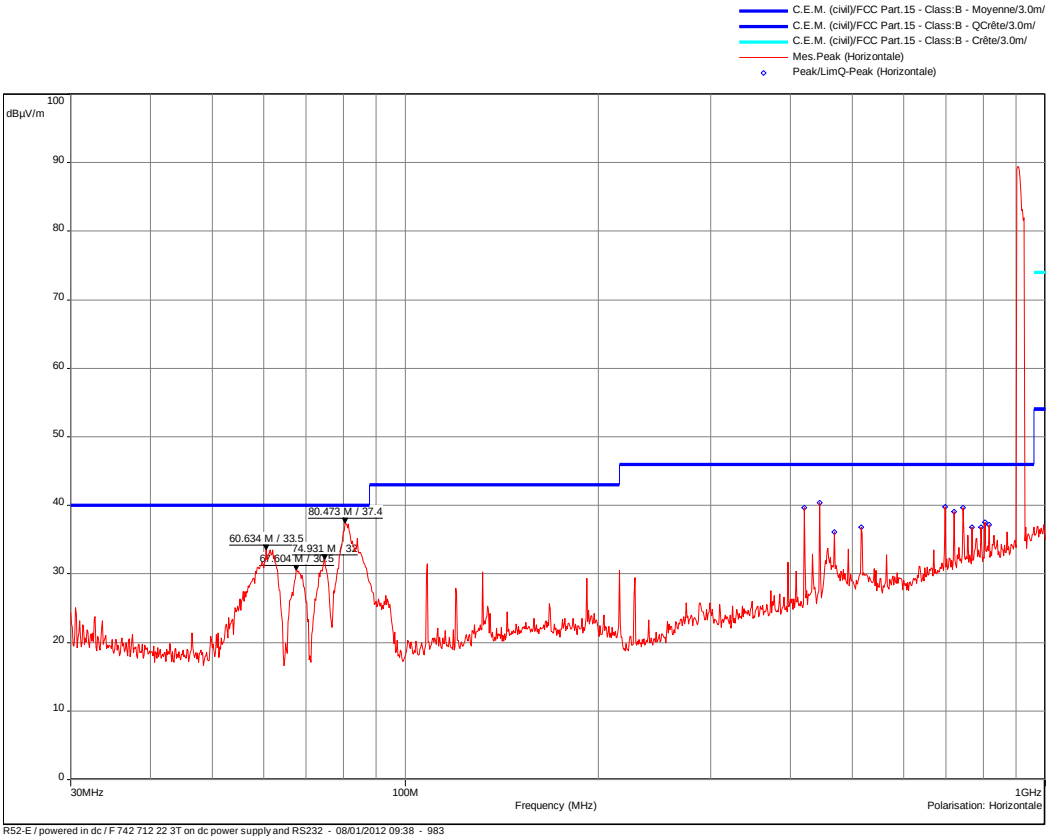
T (°C): 25.9
H (%): 39.1
P (hpa): 1010

Modification(s) during test:
None

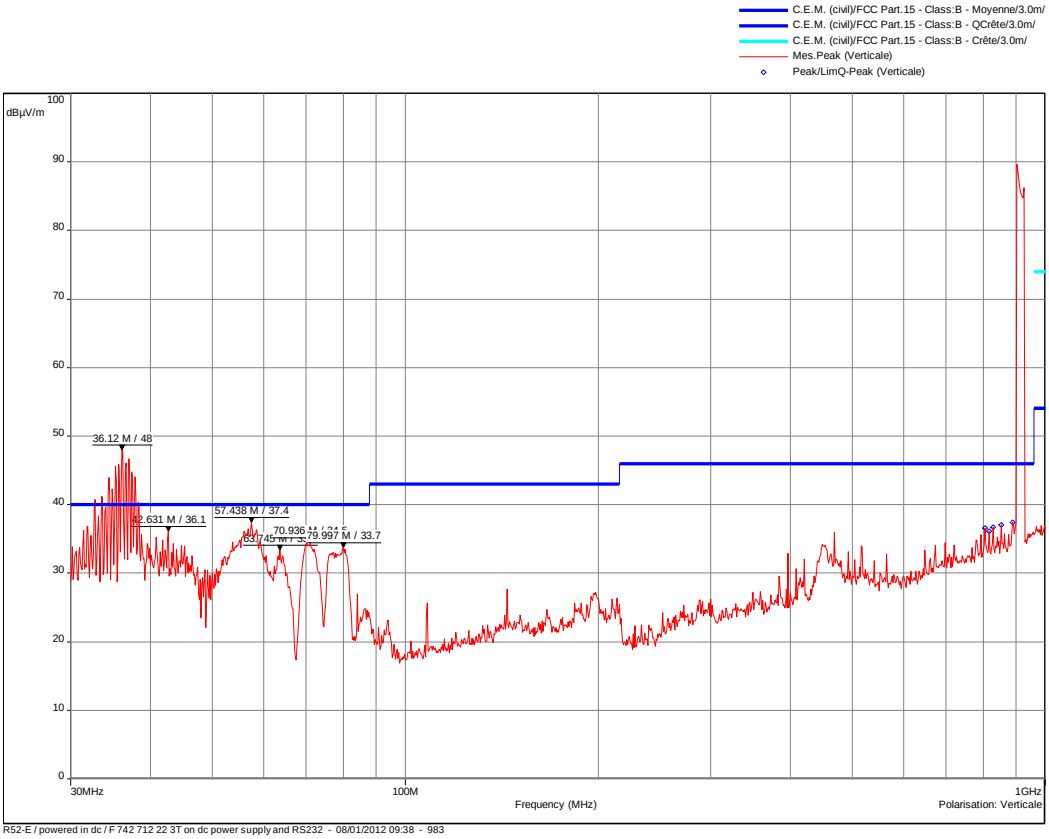
Limit indicated on this plot is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor.

Radiated electric emission (measurement) — EMI983

R52-E



R52-E / powered in dc / F 742 712 22 3T on dc power supply and RS232 - 08/01/2012 09:38 - 983



R52-E / powered in dc / F 742 712 22 3T on dc power supply and RS232 - 08/01/2012 09:38 - 983

Date: 01/08/2012 09:38:06

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

RF output is 40dB rejected in order to avoid overload of measurement system.

Modification(s) during test:

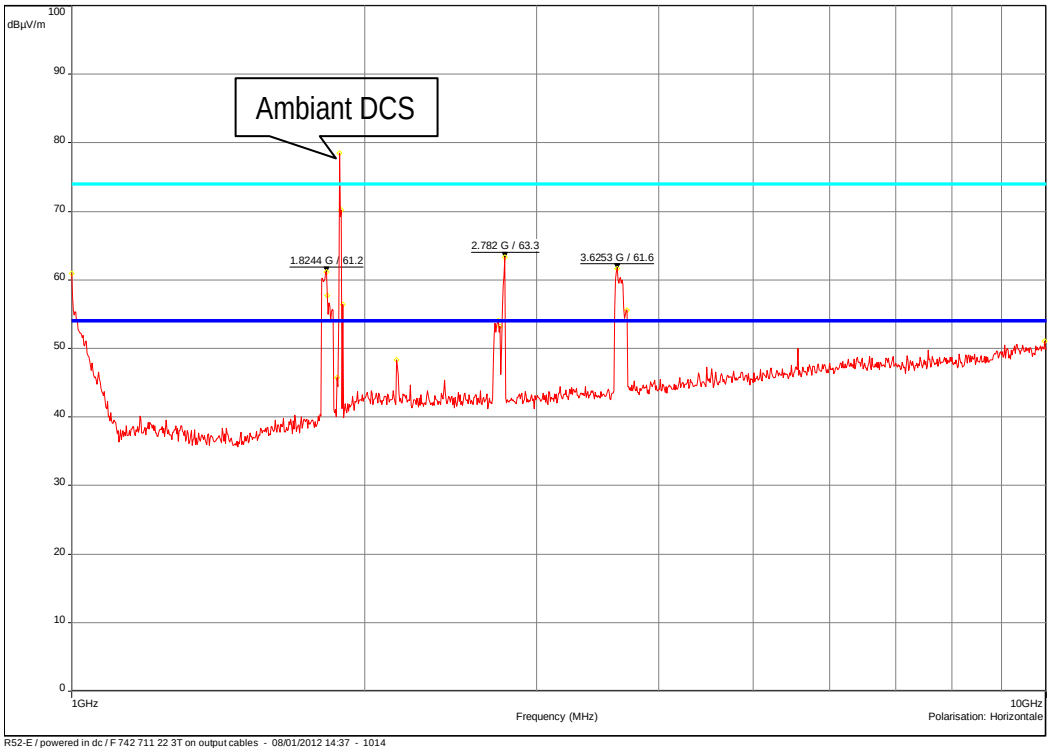
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) — EMI1014

R52-E

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Horizontale
Distance: 3 m

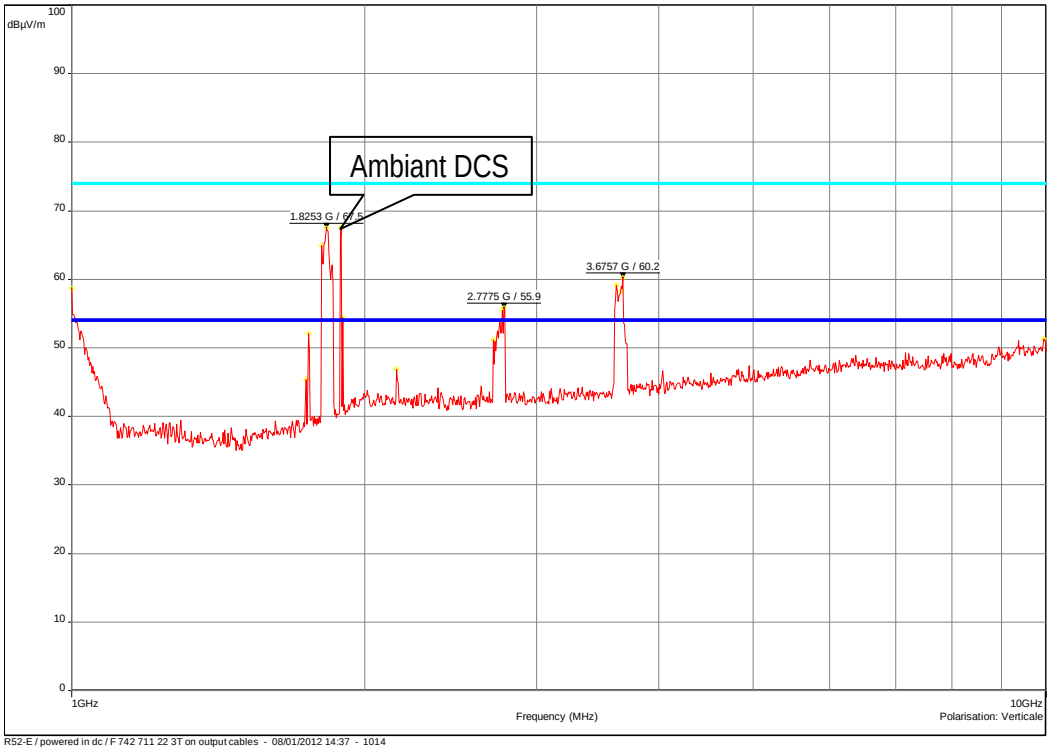
C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Horizontale)
Peak/LimAvg (Horizontale)



R52-E / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 14:37 - 1014

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Verticale
Distance: 3 m

C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Verticale)
Peak/LimAvg (Verticale)



R52-E / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 14:37 - 1014

Date: 01/08/2012 14:37:52

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

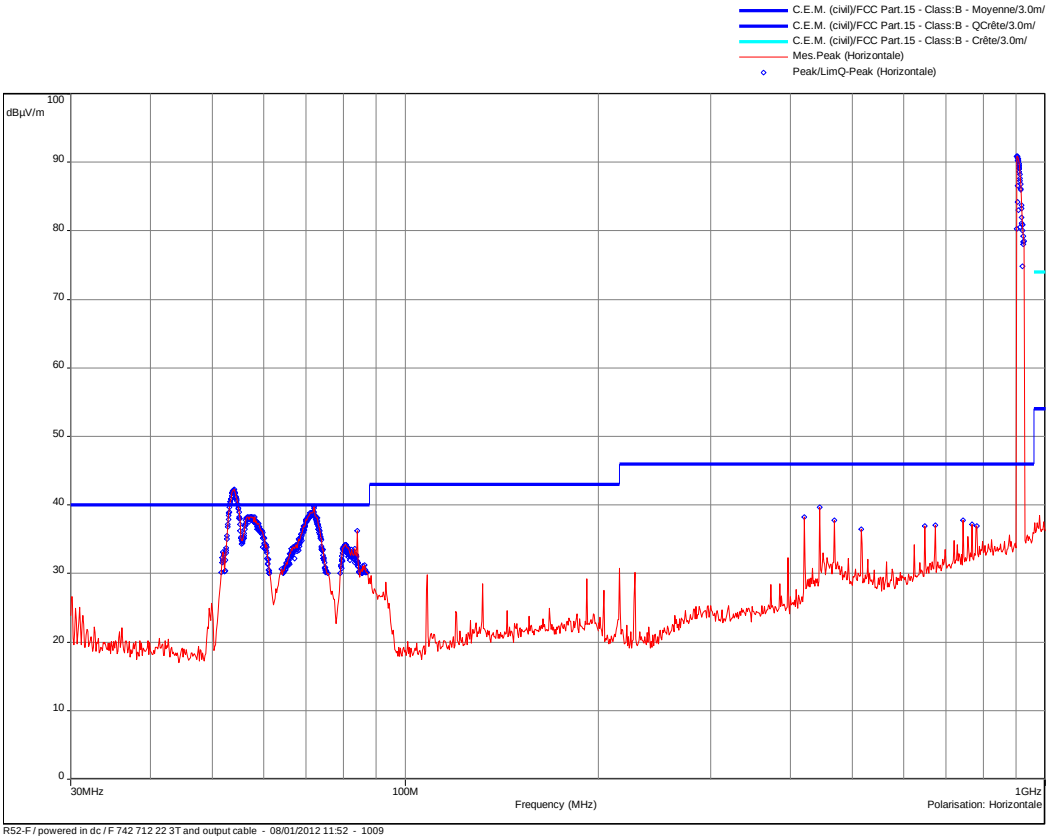
Use of a high pass filter in order to avoid overload of measurement system.

Modification(s) during test:

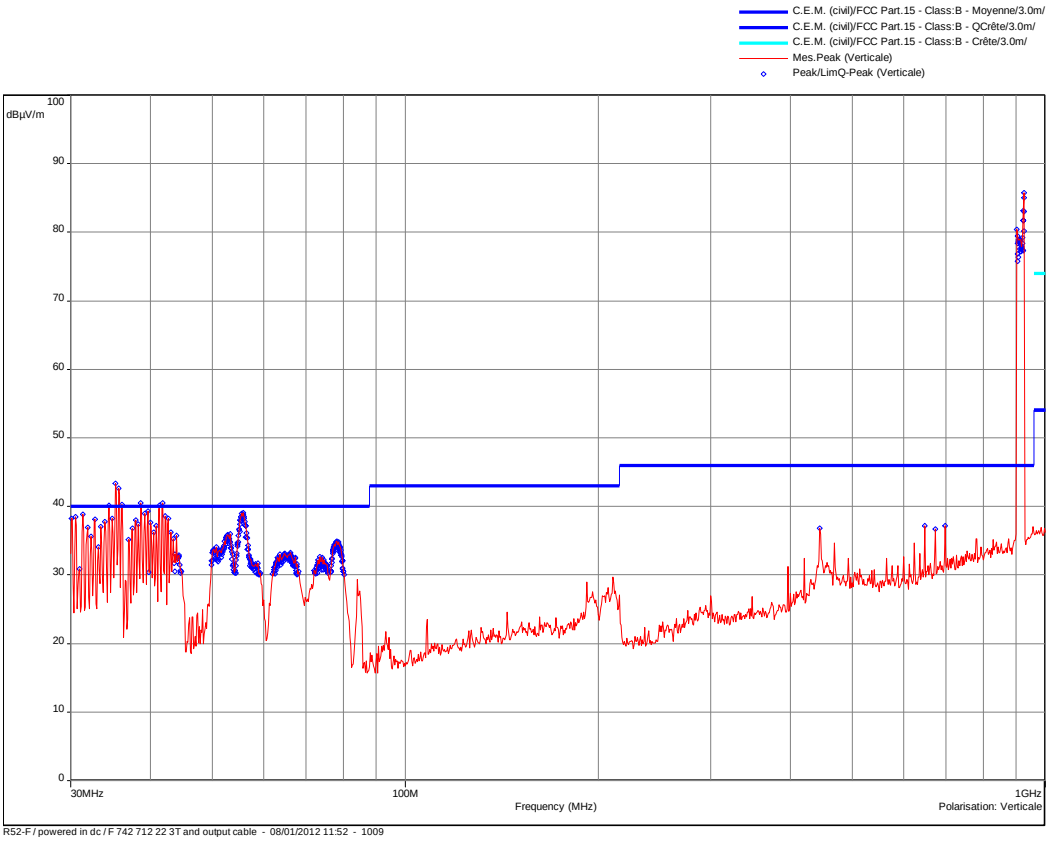
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) EMI1009

R52-F



R52-F / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 11:52 - 1009



R52-F / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 11:52 - 1009

Date: 01/08/2012 11:52:37

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

RF output is 40dB rejected in order to avoid overload of measurement system.

Modification(s) during test:

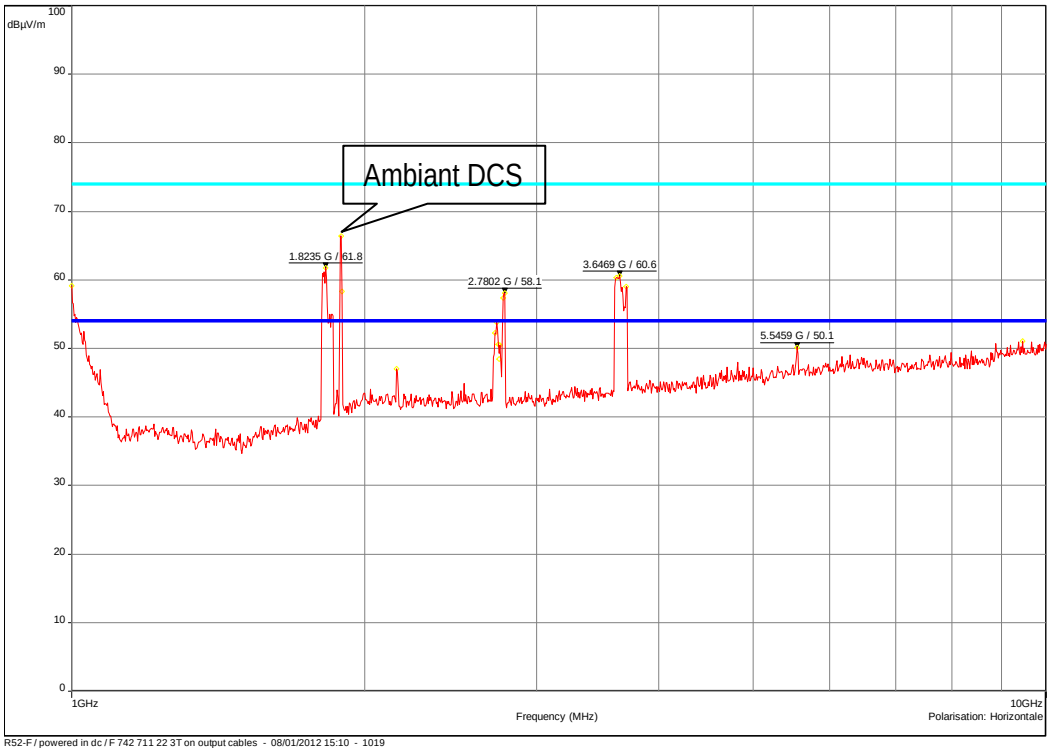
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) — EMI1019

R52-F

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Horizontale
Distance: 3 m

C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Horizontale)
Peak/LimAvg (Horizontale)



R52-F / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 15:10 - 1019

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Verticale
Distance: 3 m

C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Verticale)
Peak/LimAvg (Verticale)

R52-F / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 15:10 - 1019

Date: 01/08/2012 15:10:47

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

Use of a high pass filter in order to avoid overload of measurement system.

Modification(s) during test:

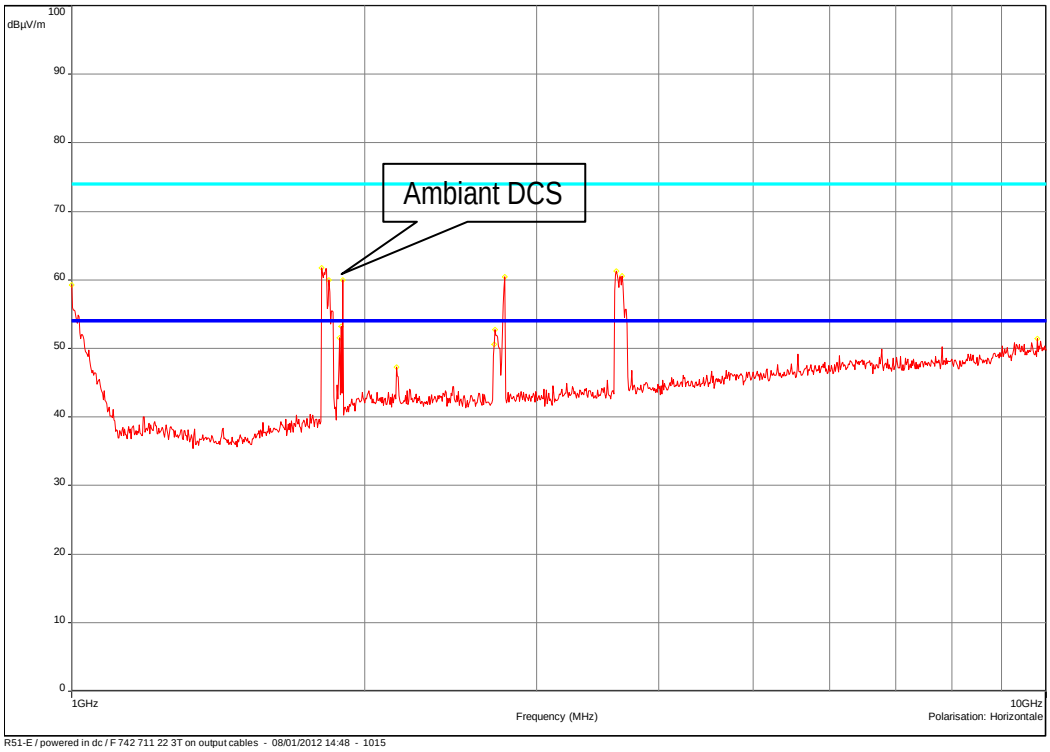
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) — EMI1015

R51-E

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Horizontale
Distance: 3 m

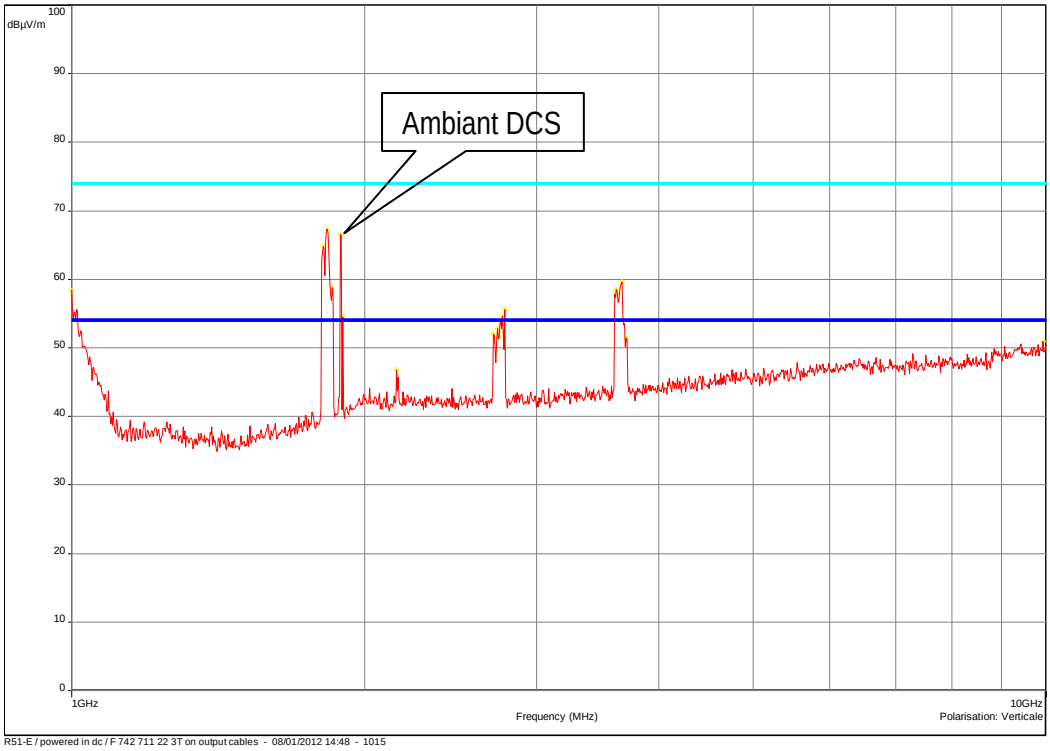
C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Horizontale)
Peak/LimAvg (Horizontale)



R51-E / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 14:48 - 1015

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Verticale
Distance: 3 m

C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Verticale)
Peak/LimAvg (Verticale)



R51-E / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 14:48 - 1015

Date: 01/08/2012 14:48:27

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

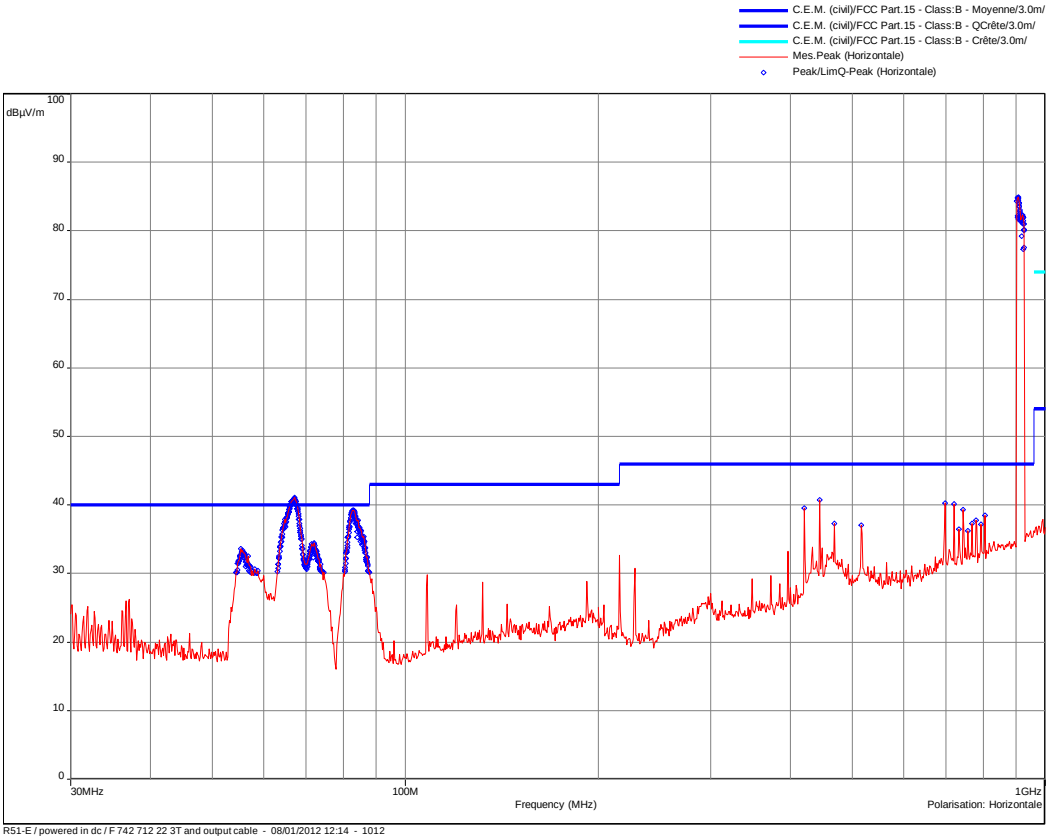
Use of a high pass filter in order to avoid overload of measurement system.

Modification(s) during test:

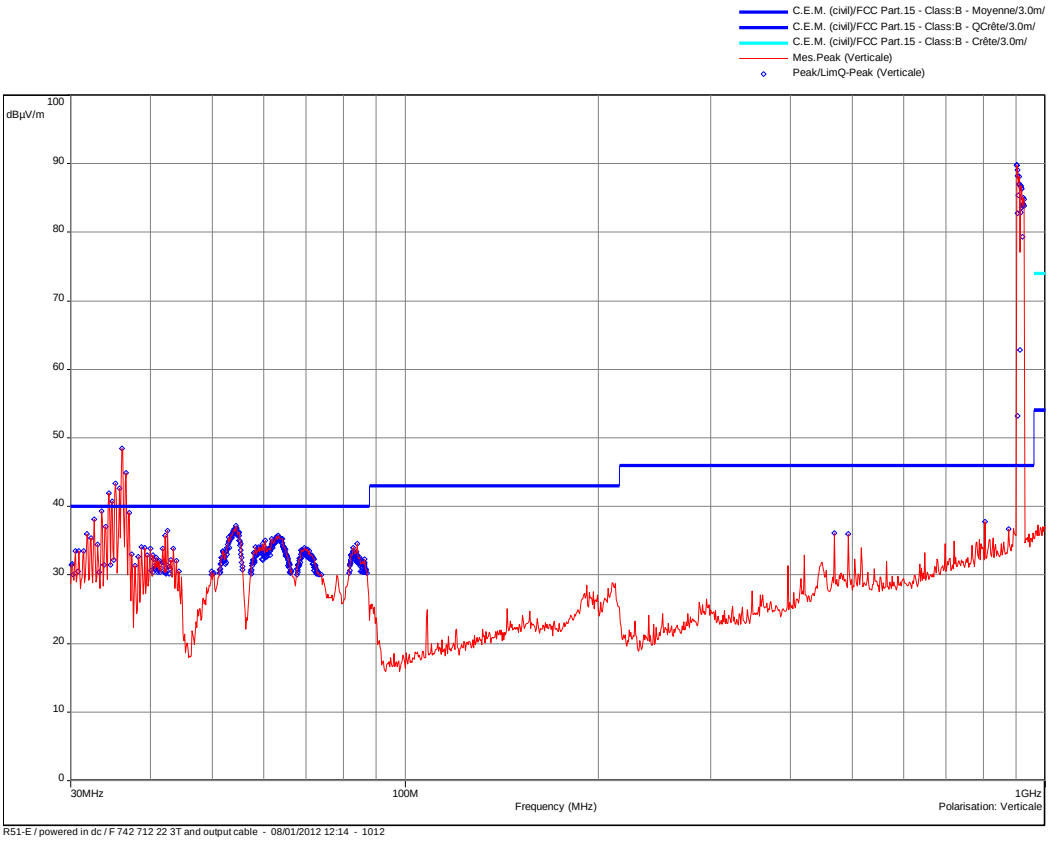
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) — EMI1012

R51-E



R51-E / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 12:14 - 1012



R51-E / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 12:14 - 1012

Date: 01/08/2012 12:14:22

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

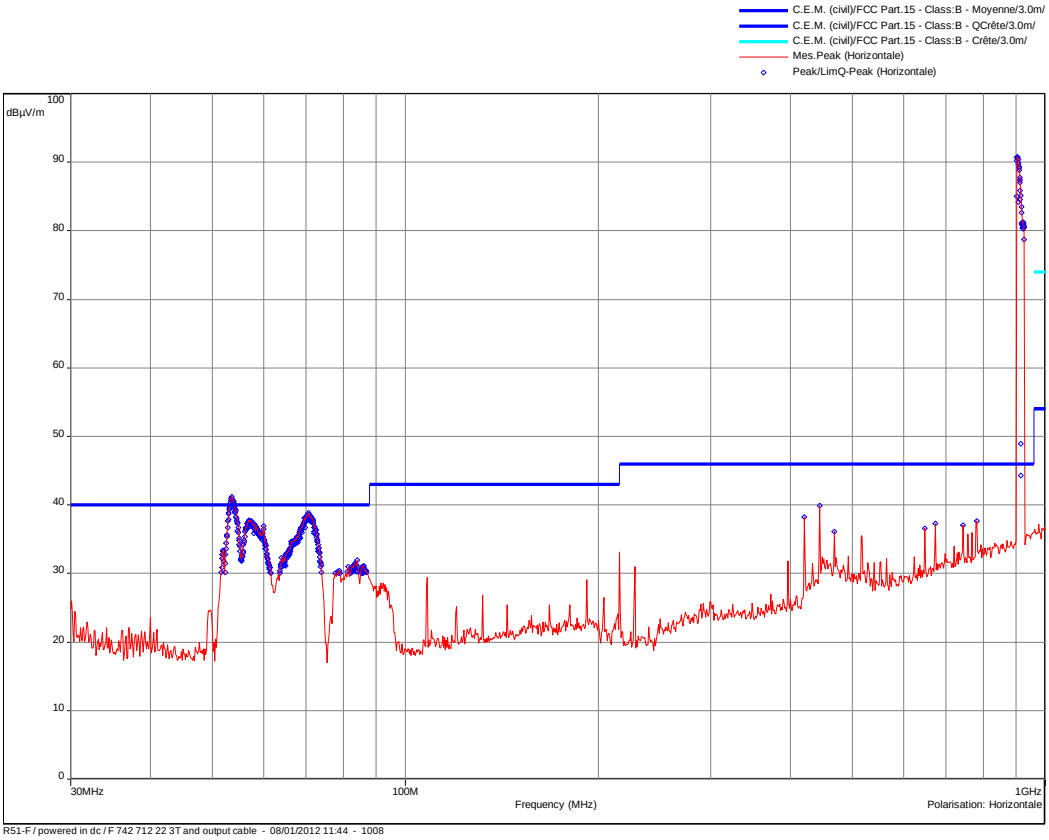
RF output is 40dB rejected in order to avoid overload of measurement system.

Modification(s) during test:

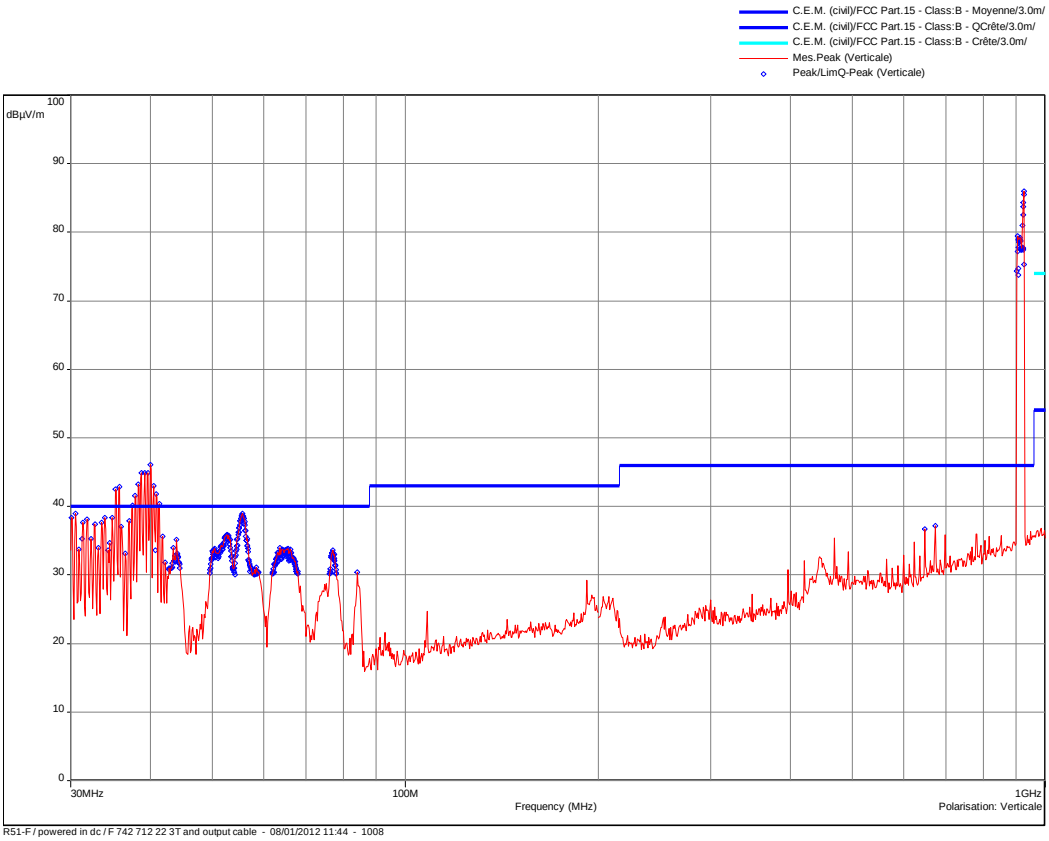
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) — EMI1008

R51-F



R51-F / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 11:44 - 1008



R51-F / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 11:44 - 1008

Date: 01/08/2012 11:44:33

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

RF output is 40dB rejected in order to avoid overload of measurement system.

Modification(s) during test:

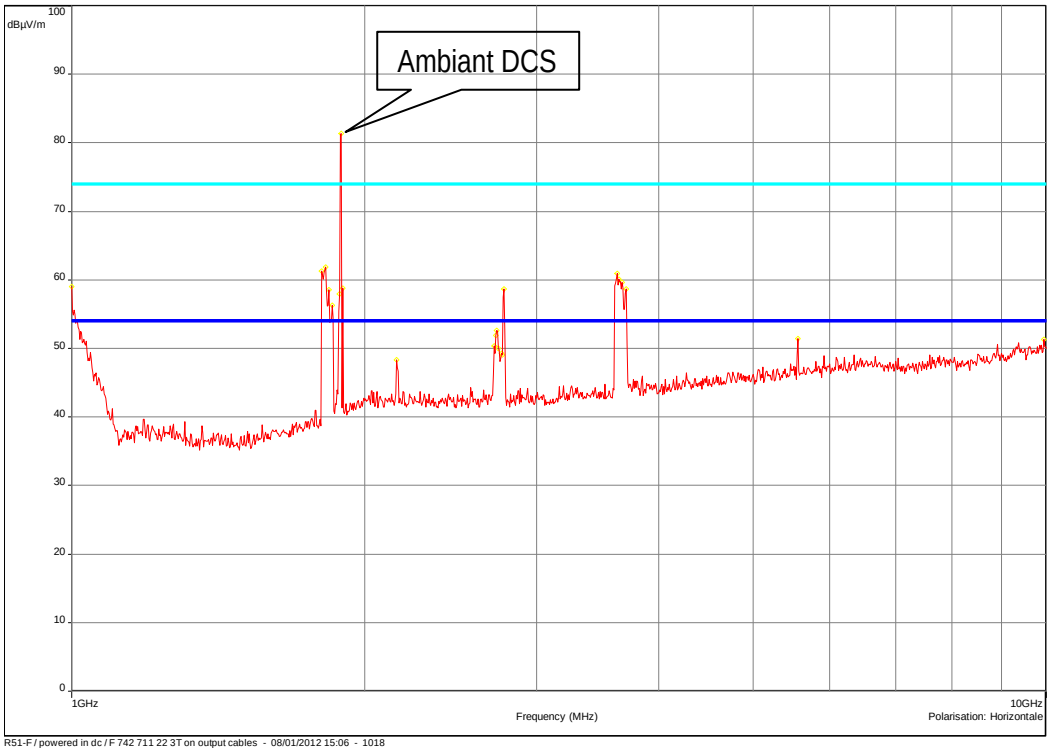
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) — EMI1018

R51-F

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Horizontale
Distance: 3 m

C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Horizontale)
Peak/LimAvg (Horizontale)



R51-F / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 15:06 - 1018

Date: 01/08/2012 15:06:24

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

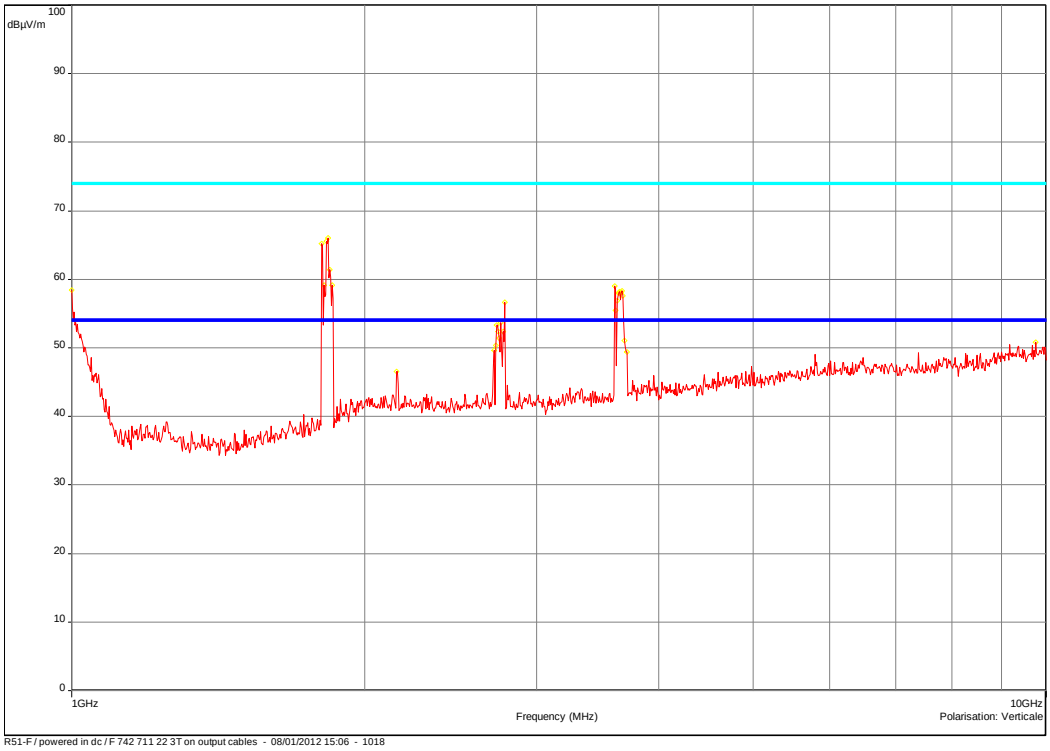
Use of a high pass filter in order to avoid overload of measurement system.

Modification(s) during test:

Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Verticale
Distance: 3 m

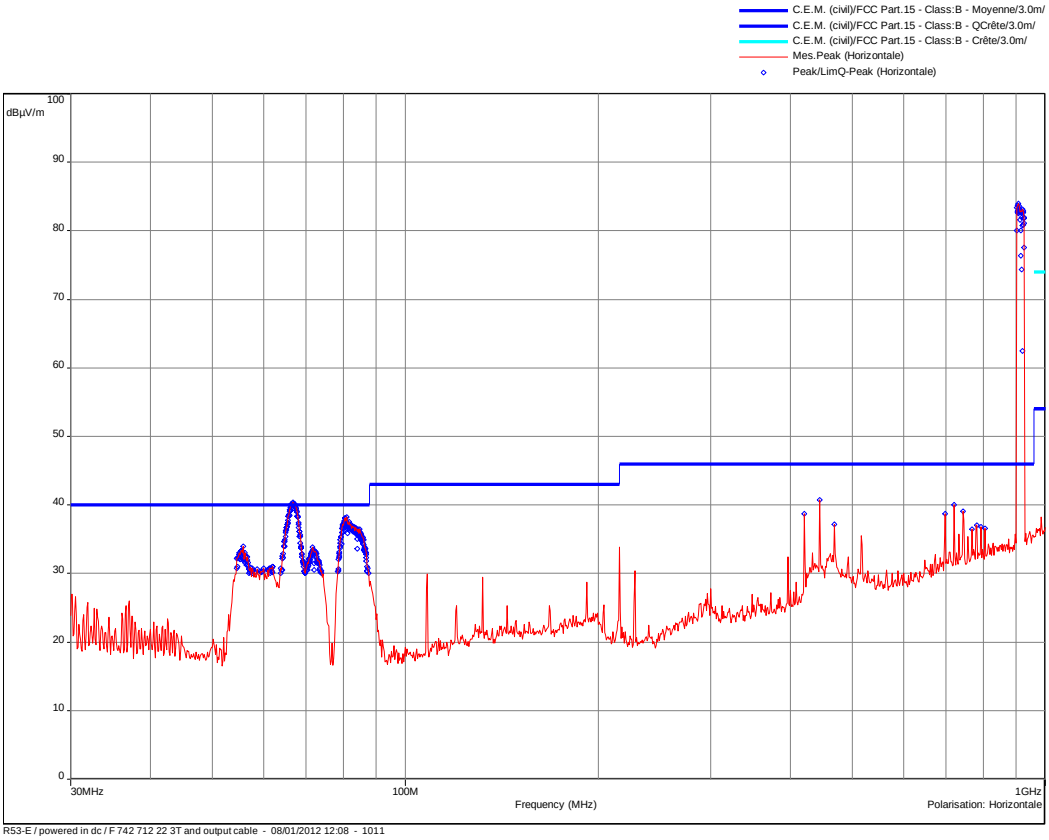
C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Verticale)
Peak/LimAvg (Verticale)



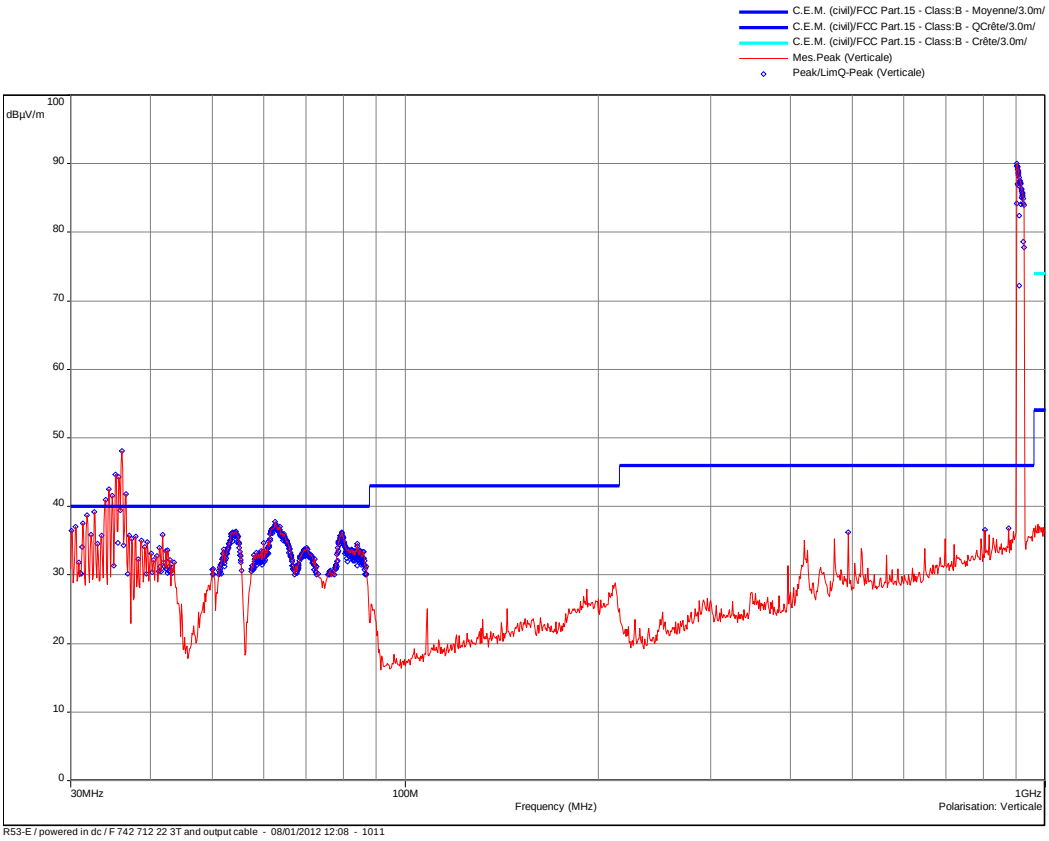
R51-F / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 15:06 - 1018

Radiated electric emission (measurement) — EMI1011

R53-E



R53-E / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 12:08 - 1011



R53-E / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 12:08 - 1011

Date: 01/08/2012 12:08:24

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

RF output is 40dB rejected in order to avoid overload of measurement system.

Modification(s) during test:

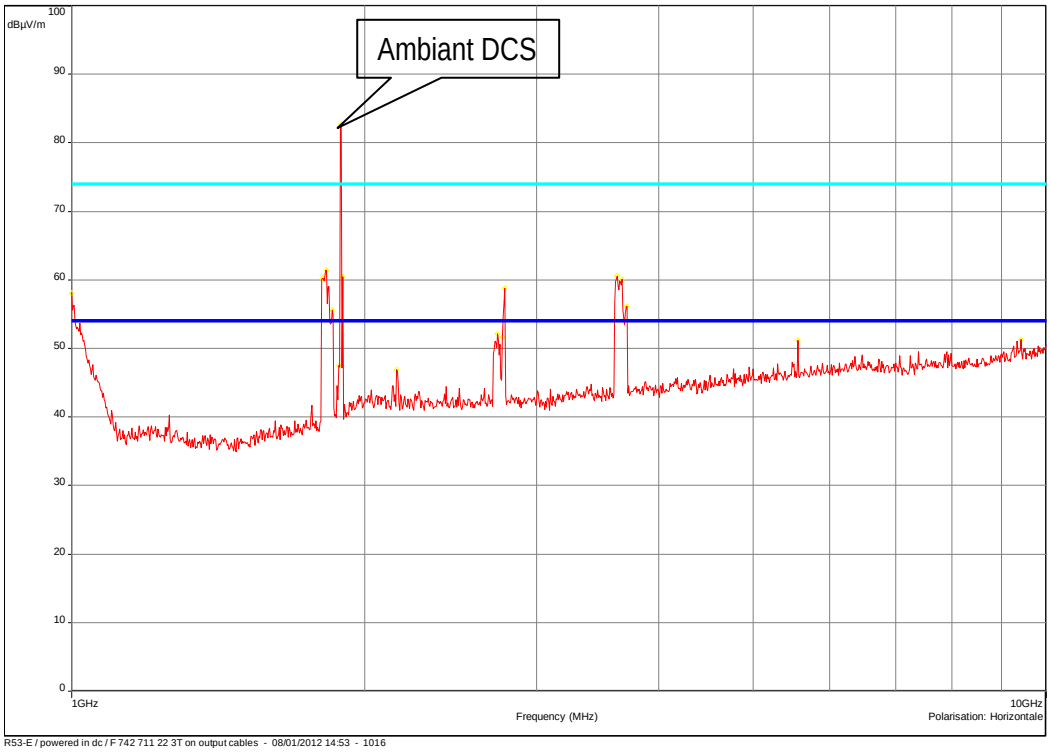
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) — EMI1016

R53-E

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Horizontale
Distance: 3 m

C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Horizontale)
Peak/LimAvg (Horizontale)



R53-E / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 14:53 - 1016

Date: 01/08/2012 14:53:52

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

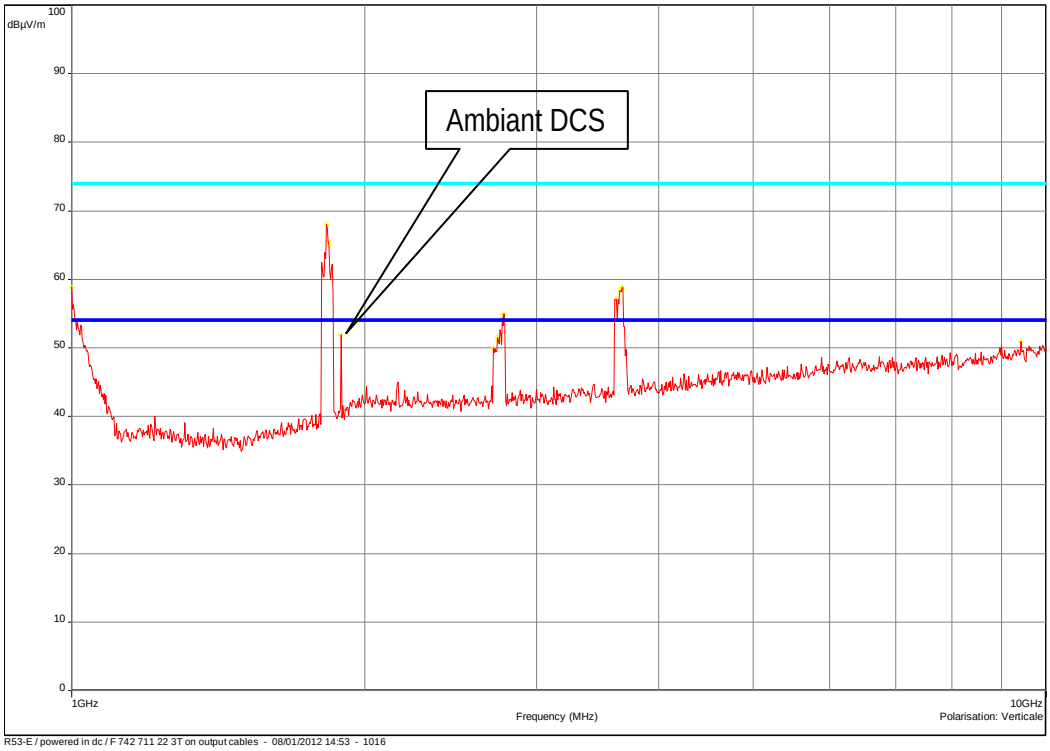
Use of a high pass filter in order to avoid overload of measurement system.

Modification(s) during test:

Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Verticale
Distance: 3 m

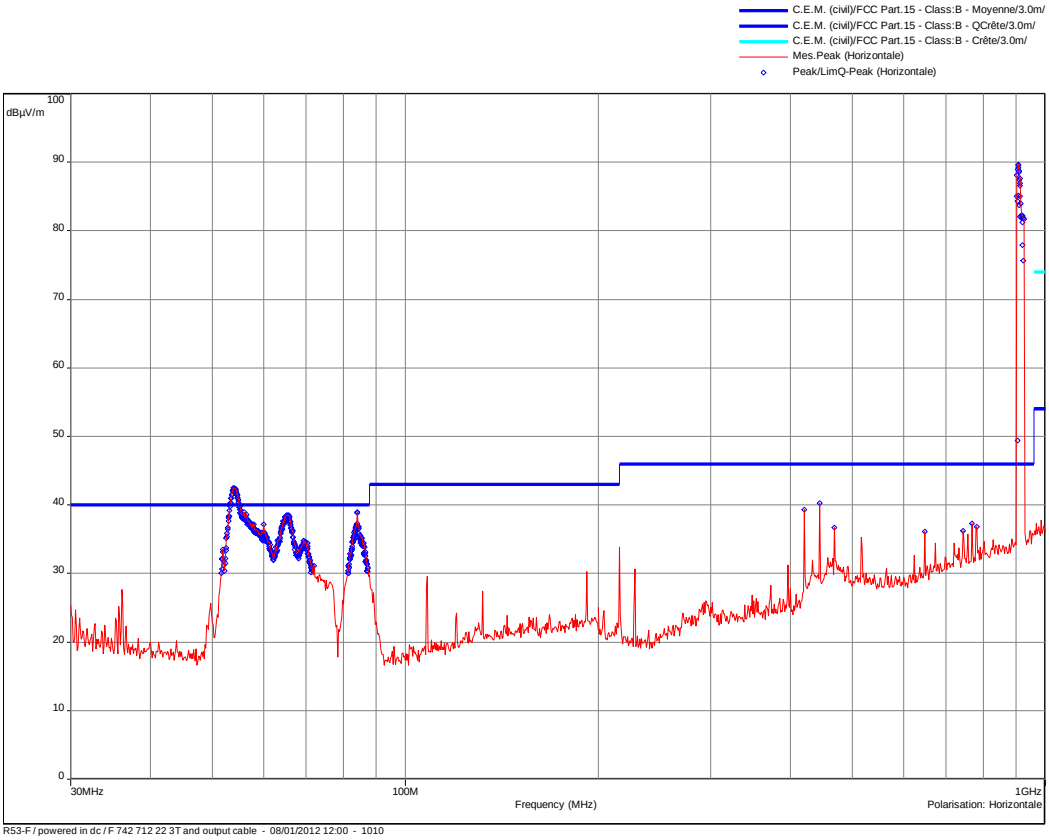
C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Verticale)
Peak/LimAvg (Verticale)



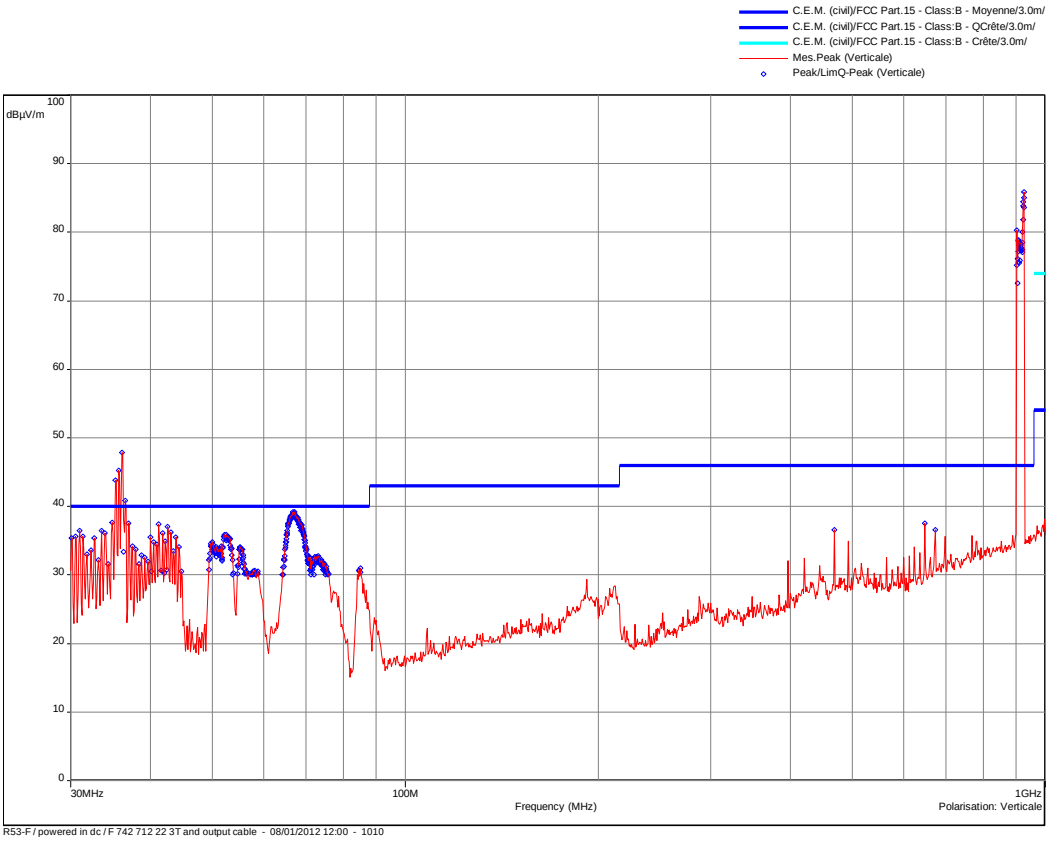
R53-E / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 14:53 - 1016

Radiated electric emission (measurement) EMI1010

R53-F



R53-F / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 12:00 - 1010



R53-F / powered in dc / F 742 712 22 3T and output cable - 08/01/2012 12:00 - 1010

Date: 01/08/2012 12:00:29

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

RF output is 40dB rejected in order to avoid overload of measurement system.

Modification(s) during test:

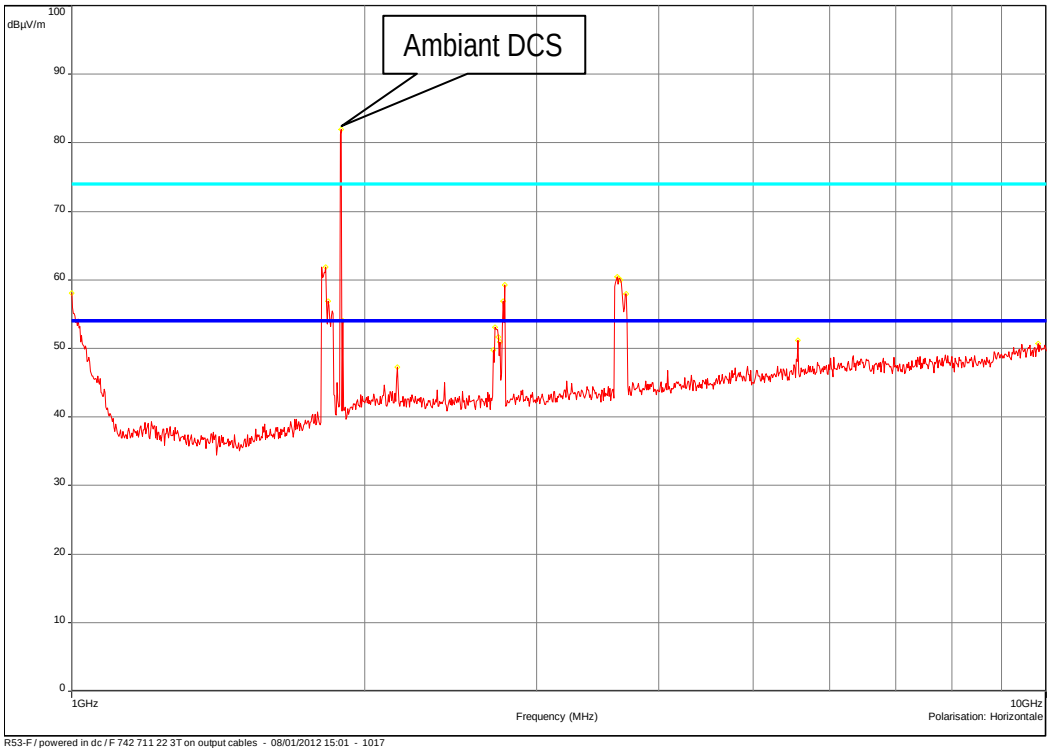
Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Radiated electric emission (measurement) — EMI1017

R53-F

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Horizontale
Distance: 3 m

C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Horizontale)
Peak/LimAvg (Horizontale)



R53-F / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 15:01 - 1017

Date: 01/08/2012 15:01:50

Technician: DM

Class: B of the standard

Detection:
Peak

T (°C): 30.5
H (%): 32.9
P (hpa): 1005

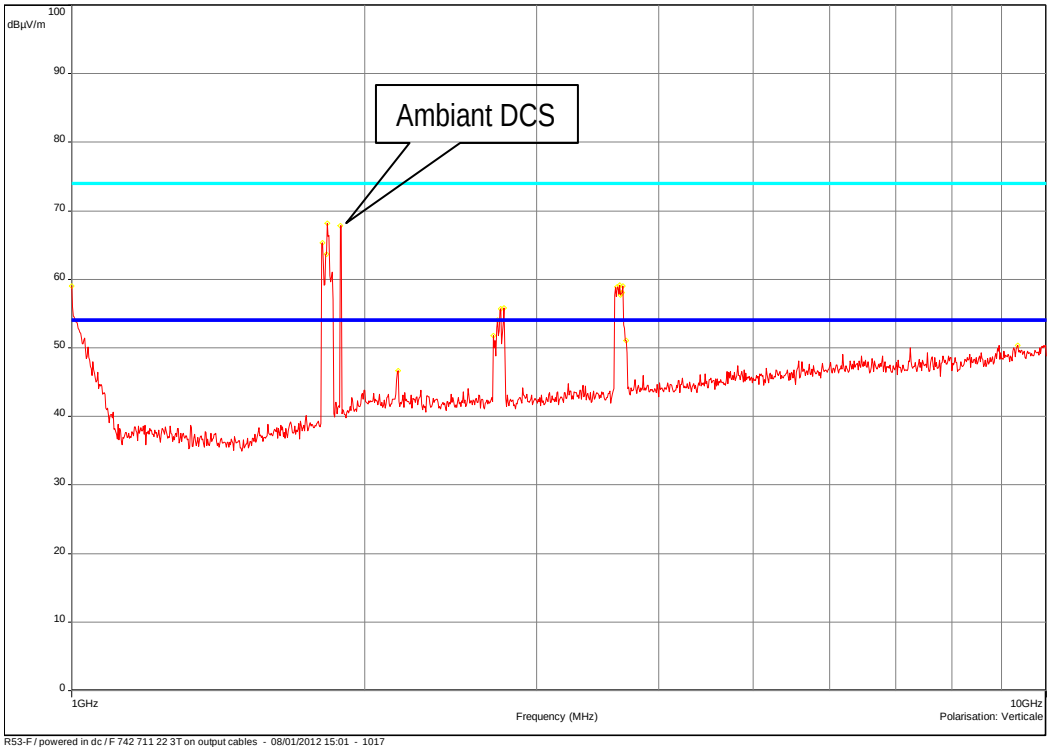
Use of a high pass filter in order to avoid overload of measurement system.

Modification(s) during test:

Add a ferrite (742 711 22 from Würth Elektronik) with 3 turns on power input cable and serial input/output cable

Frequency (MHz) : 1 GHz - 10 GHz (Analyzer mode)
Settings: RBW: 1 MHz, VBW: 3 MHz, Holding time: 1 ms/Pt, sweep count 2
Polarisation : Verticale
Distance: 3 m

C.E.M. (civil)/FCC Part.15 - Class:B - Moyenne/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - QCrête/3.0m/
C.E.M. (civil)/FCC Part.15 - Class:B - Crête/3.0m/
Mes.Peak (Verticale)
Peak/LimAvg (Verticale)



R53-F / powered in dc / F 742 711 22 3T on output cables - 08/01/2012 15:01 - 1017

b) Measurement at 3 meters on open area test site:

Temperature (°C): 21 *Humidity (%HR):* 39 *Pressure (hPa):* 1004

Test configuration: For each measured frequencies, E.U.T. is set via a turntable in order to find the highest level. Test antenna is set between 1m and 4m in order to find the highest level in vertical and horizontal polarization. Only highest levels are recorded on each configurations of E.U.T..

Frequency band	Initial position (0°)	Resolution bandwidth	Measuring distance	Detection mode	E.U.T. height
30MHz-1GHz	Front side	120kHz	3m	Quasi-peak	80cm
1GHz-10GHz	Front side	1MHz	3m	Average	80cm

Test method deviation: No

Test equipment list:

CATEGORY	BRAND	TYPE	N° EMITECH	CAL DATE	DUE DATE
Antenna	ETS LINDGREN	3117	5456	03-jun-2010	16-aug-2012
Antenna	Rohde & Schwarz	HL223	3126	03-mar-2011	03-may-2015
Antenna			0824	03-mar-2011	03-may-2015
Antenna mast	Heinrich Deisel	HD100	4036	-	-
Antenna mast	Heinrich Deisel	MA240	4037	-	-
Cable	Cables & Connetiques	N-1.5m	4203	27-oct-2011	27-dec-2013
Cable	Huber Sumner	N-14m	8146	09-mar-2011	09-may-2013
Filter	Filtek	HP12/1200-5AA	7310	01-dec-2011	01-fev-2014
Open area test site	Emitech	Seminoles	3482	04-mar-2011	04-may-2014
Preamplifier	Microwave	C005180F-4B1	2165	06-oct-2011	06-dec-2012
Receiver	Agilent	E4440A	5824	24-aug-2011	24-aug-2013
Turntable	Heinrich Deisel	D4420	4038	-	-

Results: See Board(s) below.

Frequency (MHz)	Polarization	Level (dBµV/m)	Averaging (with duty cycle correction factor of -3.48dB)	Limit (dBµV/m)	Margin (dB)
36.12	Vertical	39.8	-	40	-0.2
42.60	Vertical	29.33	-	40	-10.67
57.38	Vertical	16.29	-	40	-23.71
60.60	Horizontal	14.69	-	40	-25.31
63.40	Vertical	25.99	-	40	-14.01
67.00	Horizontal	23.64	-	40	-16.36
70.90	Vertical	21.79	-	40	-18.21
75.00	*Horizontal*	*16.29*	-	*40*	*-23.71*
80.00	Vertical	20.71	-	40	-19.29
80.47	Horizontal	17.09	-	40	-22.91
420.49	Horizontal	43.95	-	46	-2.05
444.48	Horizontal	43.38	-	46	-2.62
468.50	Horizontal	39.12	-	46	-6.88
516.50	Horizontal	34.26	-	46	-11.74
696.70	Horizontal	45.46	-	46	-0.51
720.80	Horizontal	41.40	-	46	-4.60
744.80	Horizontal	40.17	-	46	-5.53
792.83	Horizontal	37.10	-	46	-8.90
804.88	Horizontal	38.20	-	46	-7.80
804.88	Vertical	33.14	-	46	-12.86
816.80	Horizontal	34.71	-	46	-11.29
816.88	Vertical	31.50	-	46	-14.50
828.88	Vertical	33.06	-	46	-12.94
853.04	Vertical	34.79	-	46	-11.21
890.72	Vertical	31.65	-	46	-14.35
1823.57	Horizontal	69.02	-	112.11	-43.09
1828.41	Vertical	67.31	-	112.11	-44.80
2777.24	*Horizontal*	*52.74*	*49.26*	*54*	*-4.74*
2777.24	*Vertical*	*49.48*	*46*	*54*	*-8.00*
3646.80	*Horizontal*	*57.06*	*53.58*	*54*	*-0.42*
3646.80	*Vertical*	*54.29*	*50.81*	*54*	*-3.19*

(*) Background noise << limit

Italic values: Restricted bands of operation defined in §15.205

All others radiated spurious are at least 20 dB below specified limits

10. MEASUREMENT OF FREQUENCY STABILITY §15.215 (C) AND RSS-GEN

Standards: FCC part 15 Radio part 15.215 c) and Rss-Gen:2010

Test methods: FCC part 15.215 c) and Rss-Gen:2010

The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Measurements were conducted according to the operating temperature range and voltage range given in the user guide.
Measure is performed in relative measurement with a near field probe.

Test method deviation: Measurement in maxhold mode with modulation.

Test equipment list:

CATEGORY	BRAND	TYPE	N° EMITECH	CAL DATE	DUE DATE
Attenuator	Radial	R412710124	4390	03-jan-2012	03-mar-2014
Attenuator	Radial	R412720124	4391	03-jan-2011	03-mar-2014
Antenna	EMITECH	HM	4653	-	-
Cable		N-1.5m	3621	25-jul-2011	25-sep-2013
Receiver	Agilent	E4440A	5824	24-aug-2011	24-oct-2013

Results: See Board(s) below.

E.U.T. operating mode: Hopping mode

Conditions	Temperature (°C)	Power supply	Frequency (MHz)	Frequency variation (kHz)
Normal test conditions (Laboratory)	20	13Vdc	902.750000	-
		9Vdc	902.744900	-5.1
		36Vdc	902.755800	+5.8
Extremes tests conditions	-20	9Vdc	902.747500	-2.5
		36Vdc	902.746600	-3.4
	+55	9Vdc	902.747500	-2.5
		36Vdc	902.746600	-3.4

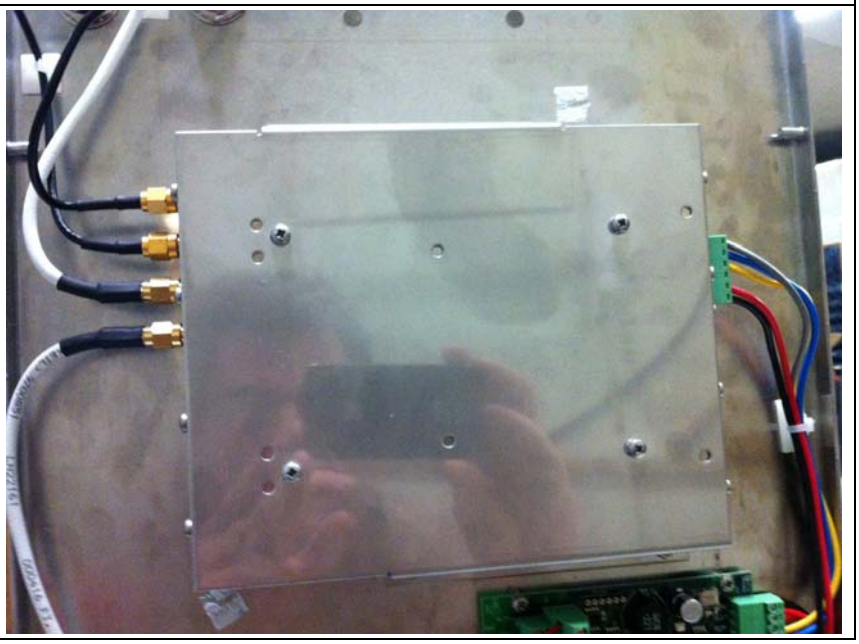
Conclusion: No out of band operation under extremes tests conditions.

End of report – 1 annex to be forwarded

ANNEX:
PHOTOGRAPH(S)

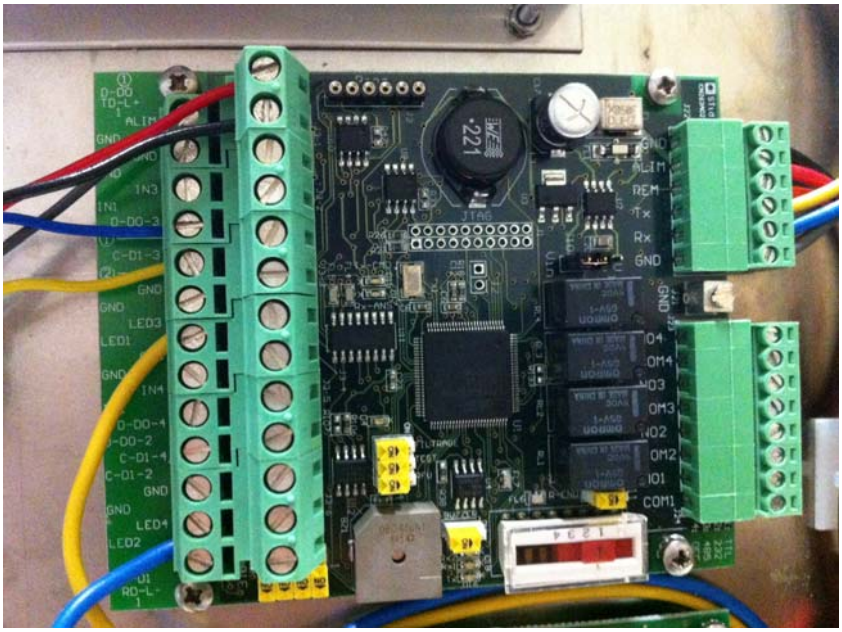
EQUIPMENT UNDER TEST (E.U.T.) PHOTOGRAPH(S)

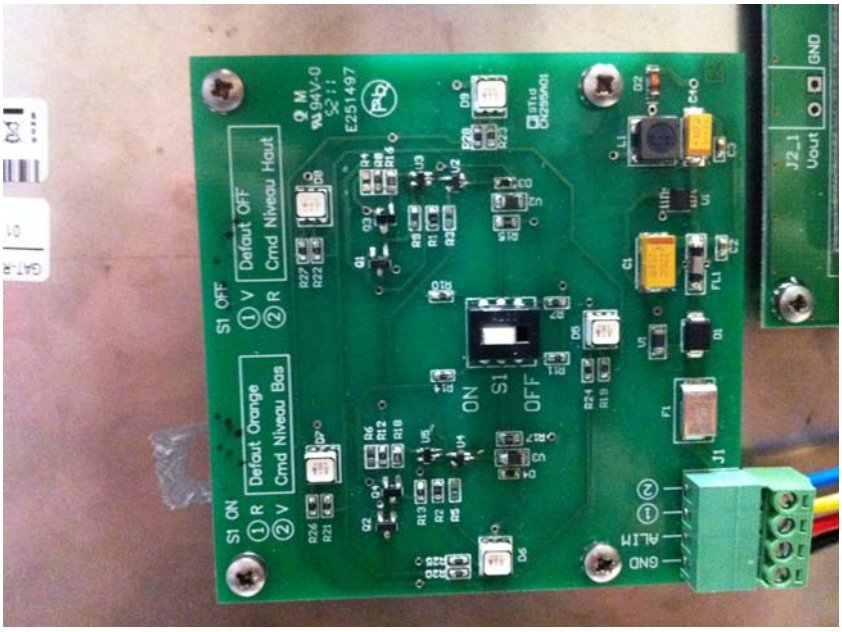
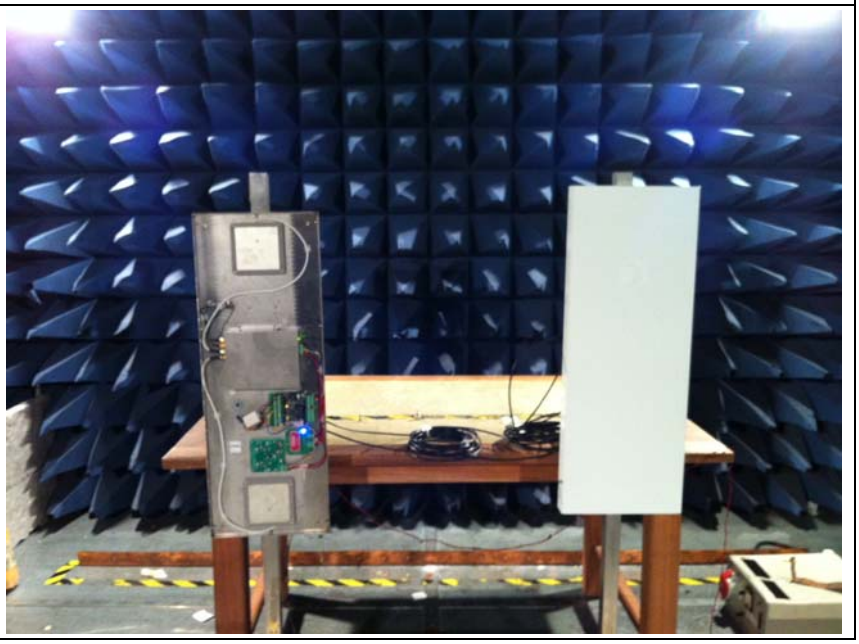
UHF HANDSFREE COMPACT READER GAT-R5X-X

Internal general view	
Internal view RF part	

Internal view: bottom antenna and RF part	
Internal view: bottom antenna and RF part	

Internal view: top antenna	
Internal view:	

Internal view: Dc/dc converter	
Internal view: Main board	

Internal view	
Unwanted emissions: Pre measurement (main unit + deported antennas)	

Unwanted emissions: Open area test site measurement	

E.U.T. Photograph (single unit)	
Extreme tests measurement (main unit)