

R041-13-104897-29A - DM / CBU

This report cancels and replaces test report R041-13-104897-29A Ed.0

RADIO TEST REPORT

According to the standard(s):

FCC part 15 Subpart C
 RSS-Gen _ Issue 3, December 2010
 OET Bulletin 65 (1997), RSS 102 (2010)

Equipment under test:

RFID Reader Module 21-121559

FCC ID: UZ721121559
 IC ID: 109AN-21121559


Company:

MOTOROLA SOLUTIONS

Diffusion: Mr BONNEFOY

(Company: MOTOROLA SOLUTIONS)

Number of pages: 25 without annex

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NAME OF THE EQUIPMENT UNDER TEST (E.U.T.) : RFID Reader Module 21-121559

Installed in HOSTS : 7528XUHFN & 7528XPUHFN

Serial number : None

Part number : None

Software Version : None

MANUFACTURER'S NAME : MOTOROLA SOLUTIONS

APPLICANT'S ADDRESS:

Company : MOTOROLA SOLUTIONS

Address : Parc de la Duranne
135 rue René DESCARTES
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13591 AIX EN PROVENCE Cedex 3
FRANCE

Person(s) present during the tests : Mr LIMONGI

Responsible : Mr BONNEFOY

DATE(S) OF TESTS : July, between 15th and 29th of 2014

TESTS LOCATION(S) : EMITECH MONTPELLIER laboratory in
VENDARGUES (34) - FRANCE
Open area test site in SALINELLES (30) -
FRANCE
FCC Test Firm Registration Number: 954701
IC Filing number : 4379C-1

TESTS SUPERVISOR(S) : None

TESTS OPERATOR(S) : David MONTAULON

CONTENTS

1. <i>INTRODUCTION</i>	4
2. <i>REFERENCE DOCUMENT(S)</i>	4
3. <i>EQUIPMENT UNDER TEST CONFIGURATION</i>	4
4. <i>EQUIPMENT UNDER TEST CONFIGURATION SCHEME</i>	6
5. <i>SUMMARY OF TEST RESULTS</i>	7
6. <i>CONDUCTED EMISSIONS – SECTION 15.207, RSS-GEN §7.2.4</i>	8
7. <i>UNWANTED RADIATED EMISSIONS – SECTION 15.209, RSS-GEN TABLE 5</i>	18

1. INTRODUCTION

This document submits the results of Electromagnetic Compatibility tests performed on the **RFID Reader Module 21-121559** installed in the **Workabout Pro 4: 7528XUHFN & 7528XPUHFN** (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 – Telecommunications Chapter 1 – Federal Communications Commission Part 15 – Radio frequency devices Subpart C – Intentional Radiators
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-Gen: 2010 Issue 3, December 2010	Exigences générales et information relatives à la certification du matériel de radiocommunication

3. EQUIPMENT UNDER TEST CONFIGURATION

Equipment under test (E.U.T.) description: The RFID MODULE 21-121559 consists of an RFID MOTOROLA reader, an interface PCB and 2 variants of antenna (both tested): dipole antenna and patch antenna. The module is plugged into the internal expansion port of the WORKABOUT PRO4 Handheld Computer.

The WORKABOUT PRO4 with integrated 21-121559 is a colour mobile computer. The product is a mobile device and must not be held closer than 20 cm from the rest of the body and must not be used in a holster or on a belt-clip. It also has a Lithium Ion polymer rechargeable battery pack, WLAN, Bluetooth and WWAN radios (7528XPUHFN) and is supplied with an AC/DC adaptor.

The RFID module has to pass Class II Permissive Change approval for FCC and Canadian rules. This module will be approved for use when installed in the following WORKABOUT PRO4 Handheld Computer models 7528XUHFN & 7528XPUHFN:

FCC ID: **UZ72112559**
IC ID: **109AN-21121559**

Model: 7528XUHFN- in co- transmission with Bluetooth module and WLAN

- Permanent transmitter emission (hopping mode) with a Linear antenna (WA9901) and a circular antenna (WA9903)
- Integral antenna, dedicated antenna supplied with the equipment
- Frequency range used by E.U.T.: 902-928MHz (RFID), 2400-2483.5MHz (Wi-Fi and Bluetooth)
- Equipment: multi frequency
- Total channel available: 50 (For RFID module)
- Power supply: 110Vac/60Hz with AC adaptor

Model: 7528XPUHFN in co- transmission with Bluetooth module, WLAN.

NOTE: Co-transmission with WWAN module is not supported by the software application.

- Permanent transmitter emission (hopping mode) with a Linear antenna (WA9901) and a circular antenna (WA9903)
- Integral antenna, dedicated antenna supplied with the equipment
- Frequency range used by E.U.T.: 902-928MHz (RFID), 2400-2483.5MHz (Wi-Fi and Bluetooth) GSM 850, DCS1900.
- Equipment: multi frequency
- Total channel available: 50 (For RFID module)
- Power supply: 110Vac/60Hz with AC adaptor

The following radio modules used in the configurations are already approved:

Model: 21-148603-0B

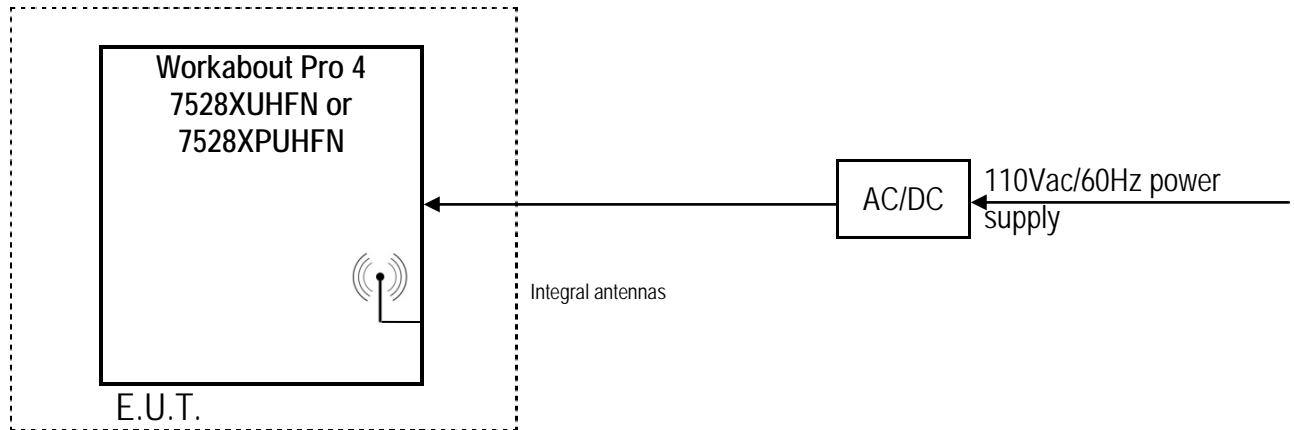
- FCC ID: UZ7211486030B and IC: 109AN-211486030B

Model: 7528P

- FCC ID: UZ77528PA and IC: 109AN-7528PA

Model: 21-121559

- FCC ID: UZ721121559 and IC ID: 109AN-21121559

4. EQUIPMENT UNDER TEST CONFIGURATION SCHEME

Cycle and operating mode during emission tests: Permanent emission mode of all available transmitters. AC/DC direct loading mode is the worst configuration.

Equipment modifications applied during tests: No

5. SUMMARY OF TEST RESULTS

Tests designation	Results satisfying?	Comments
Antenna requirement - FCC part 15.203	YES	Integrated antennas
Restricted band of operation - FCC part 15.205 and RSS Gen:2010 §7.2.2	YES	
Conducted power lines - FCC part 15.207 and RSS Gen:2010 §7.2.4	YES	
Unwanted radiated emissions - FCC part 15.209 and RSS Gen:2010 table 5	YES	
Collocation - OET Bulletin 65:1997, RSS 102:2010	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 Subpart C, RSS-Gen:2010 and to OET Bulletin 65:1997, RSS 102:2010 according to limits specified in this test report.

6. CONDUCTED EMISSIONS – SECTION 15.207, RSS-GEN §7.2.4

Standards: FCC part 15 Subpart C 15.207, RSS Gen: 2010 §7.2.4

Tests methods: ANSI C63.4:2003, RSS Gen: 2010 §7.2.4

Test configuration:

Tested cable(s)	Measure with	E.U.T. height
110Vac/60Hz power supply / 7528XUHFN (WA9901)	L.I.S.N.	80cm
110Vac/60Hz power supply / 7528XPUHFN (WA9901)	L.I.S.N.	80cm
110Vac/60Hz power supply / 7528XUHFN (WA9903)	L.I.S.N.	80cm
110Vac/60Hz power supply / 7528XPUHFN (WA9903)	L.I.S.N.	80cm
110Vac/60Hz power supply+docking station / 7528XUHFN (WA9901)	L.I.S.N.	80cm
110Vac/60Hz power supply+docking station / 7528XPUHFN (WA9901)	L.I.S.N.	80cm
110Vac/60Hz power supply+docking station / 7528XUHFN (WA9903)	L.I.S.N.	80cm
110Vac/60Hz power supply+docking station / 7528XPUHFN (WA9903)	L.I.S.N.	80cm

Frequency band	Tested cable(s)	Resolution bandwidth	Video bandwidth	Detection mode
150kHz-30MHz	110Vac/60Hz power supply / 7528XUHFN (WA9901)	10KHz	30kHz	Peak
150kHz-30MHz	110Vac/60Hz power supply / 7528XPUHFN (WA9901)	10KHz	30kHz	Peak
150kHz-30MHz	110Vac/60Hz power supply / 7528XUHFN (WA9903)	10KHz	30kHz	Peak
150kHz-30MHz	110Vac/60Hz power supply / 7528XPUHFN (WA9903)	10KHz	30kHz	Peak
150kHz-30MHz	110Vac/60Hz power supply+docking station / 7528XUHFN (WA9901)	10KHz	30kHz	Peak
150kHz-30MHz	110Vac/60Hz power supply+docking station / 7528XPUHFN (WA9901)	10KHz	30kHz	Peak
150kHz-30MHz	110Vac/60Hz power supply+docking station / 7528XUHFN (WA9903)	10KHz	30kHz	Peak
150kHz-30MHz	110Vac/60Hz power supply+docking station / 7528XPUHFN (WA9903)	10KHz	30kHz	Peak

Tests with docking station are done for information.

Test method deviation: No

Test equipment list:

CATEGORY	BRAND	TYPE	N° EMITECH	DATE CAL.	DATE VAL
Cable	Emitech	Absorber	10653	17/10/2013	17/12/2015
Cable	Micro-coax	N-1.5m	10534	05/09/2013	05/11/2015
Cable	Micro-coax	N-5m	10528	05/09/2013	05/11/2015
Limiter	Hewlett Packard	11947A	0238	22/01/2014	22/03/2016
LISN	PMM	L3-25	0833	15/11/2013	15/01/2016
PE inductor	EMITECH	CISPR 16-2-1 : 2008	10081	#	#
PE inductor	Emitech	CISPR 16-2-1 : 2008	11042	#	#
Receiver	Agilent Technologies	E7405A	2161	20/01/2014	20/03/2016
Shielded enclosure	RAY PROOF	C.GS1	1423	#	#
Software	Nexio	BAT EMC	0000	#	#

#: Permanent validity

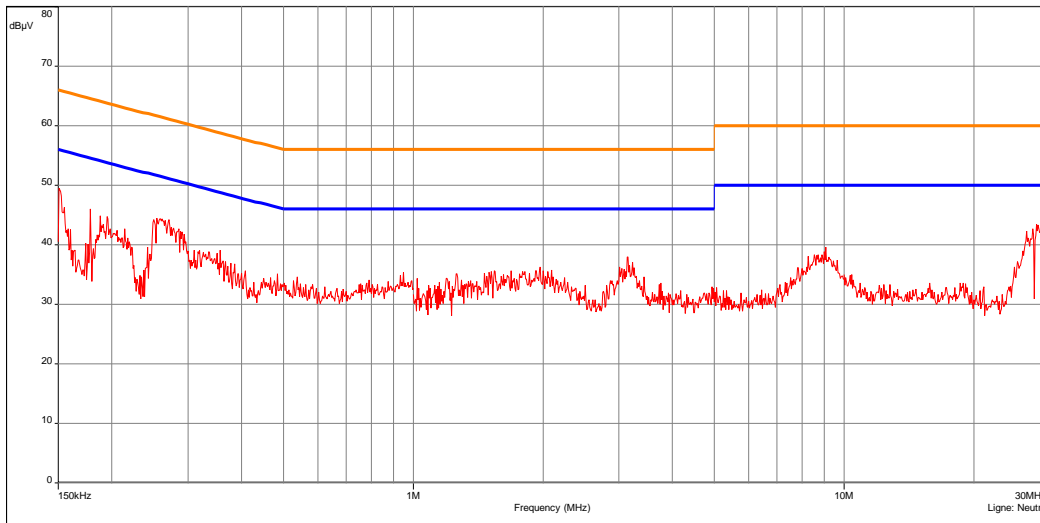
BAT-EMC software version: V3.6.0.32

Results: See **Graph(s)** hereafter. Limits on the graphs are average and quasi-peak limits (upper limit).

Conducted voltage emission (measurement) 110Vac/60Hz power supply / 7528XUHFN (WA9901)

EMI2634

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Neutre)



Date: 30/07/2014 10:19:54

Technician: RB

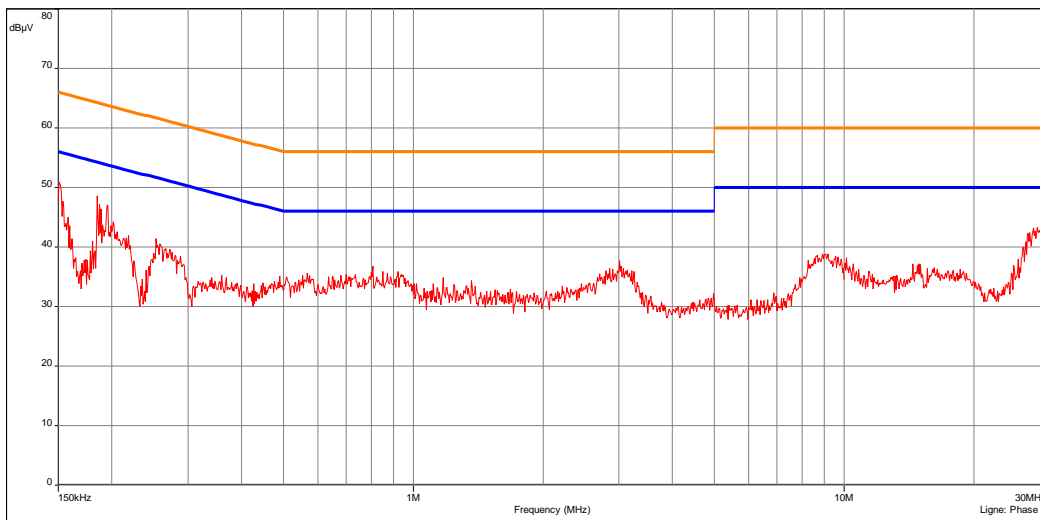
Class: B of the standard

 Detection:
 Peak

 Modification(s) during test:
 No

115Vac60Hz / AC/DC adaptor (PHIHONG ref MJP) / WIFI OFF / RFID ON - 07/30/2014 10:19 - 2634

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Phase 1)



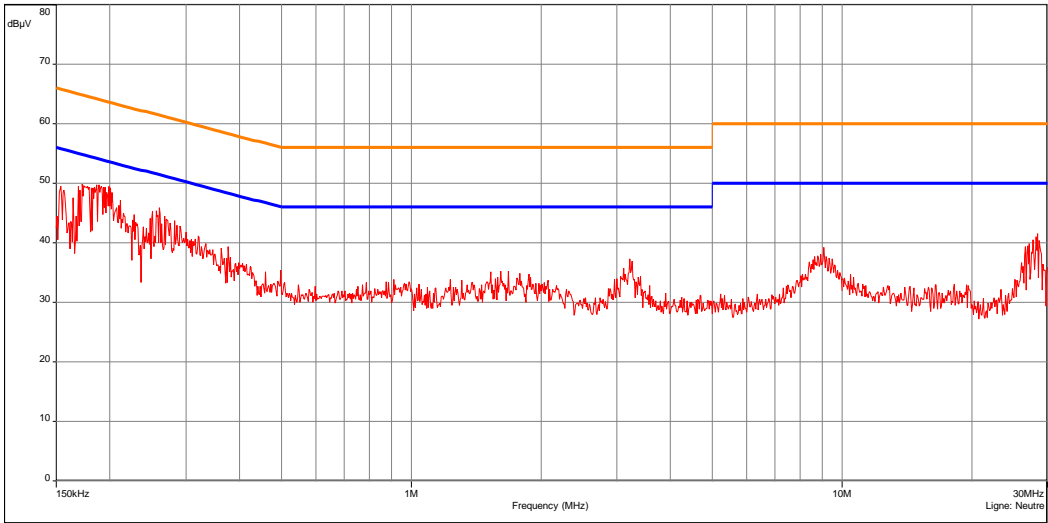
115Vac60Hz / AC/DC adaptor (PHIHONG ref MJP) / WIFI OFF / RFID ON - 07/30/2014 10:19 - 2634

Conducted voltage emission (measurement)

EMI2552

110Vac/60Hz power supply / 7528XPUHFN (WA9901)

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Neutre)



Date: 30/07/2014 09:46:18

Technician: RB

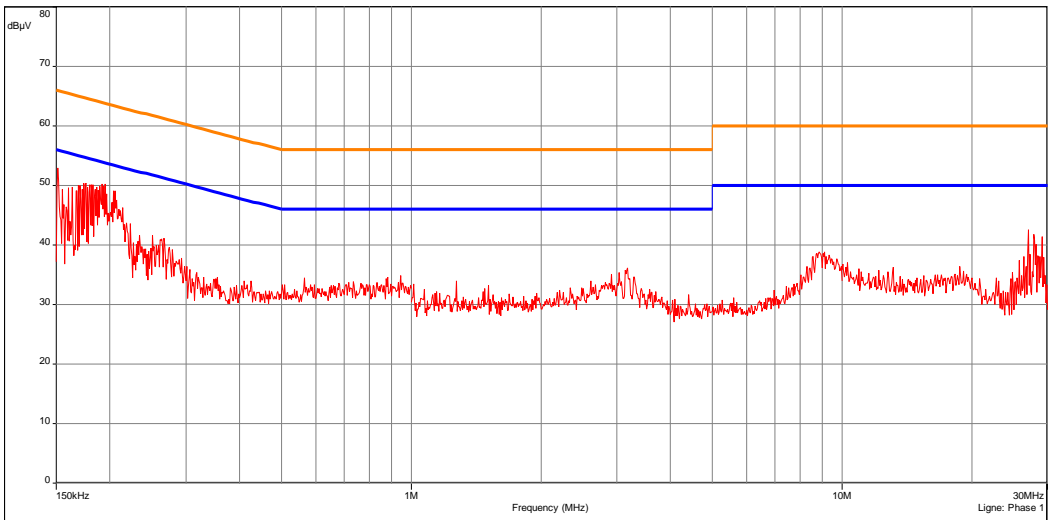
Class: B of the standard

Detection:
Peak

Modification(s) during test:
No

AC/DC adaptor (PHIHONG ref MJP) / GSM and WIFI OFF / RFID ON - 07/30/2014 09:46 - 2552

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Phase 1)

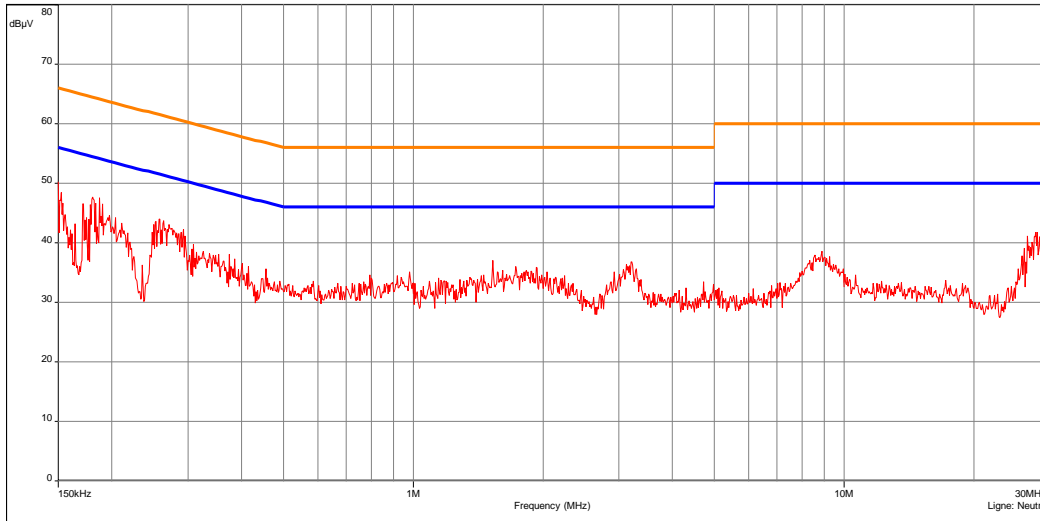


AC/DC adaptor (PHIHONG ref MJP) / GSM and WIFI OFF / RFID ON - 07/30/2014 09:46 - 2552

Conducted voltage emission (measurement) 110Vac/60Hz power supply / 7528XUHFN (WA9903)

EMI2882

— C.E.M. (cW)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (cW)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes. Peak (Neutre)



Date: 30/07/2014 11:10:44

Technician: RB

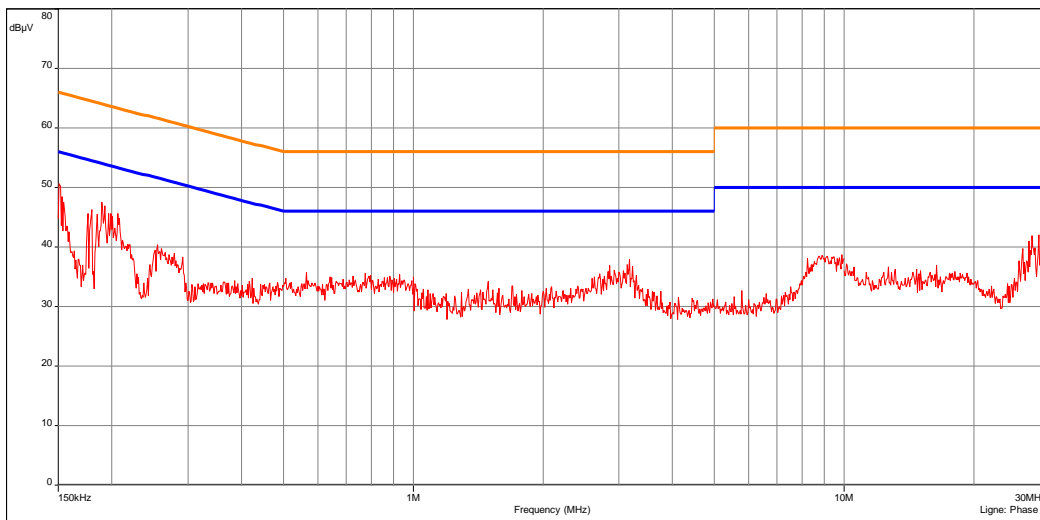
Class: B of the standard

 Detection:
 Peak

 Modification(s) during test:
 No

115Vac60Hz / AC/DC adaptor (PHIHONG ref MJP) / WIFI OFF / RFID ON - 07/30/2014 11:10 - 2882

— C.E.M. (cW)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (cW)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes. Peak (Phase 1)

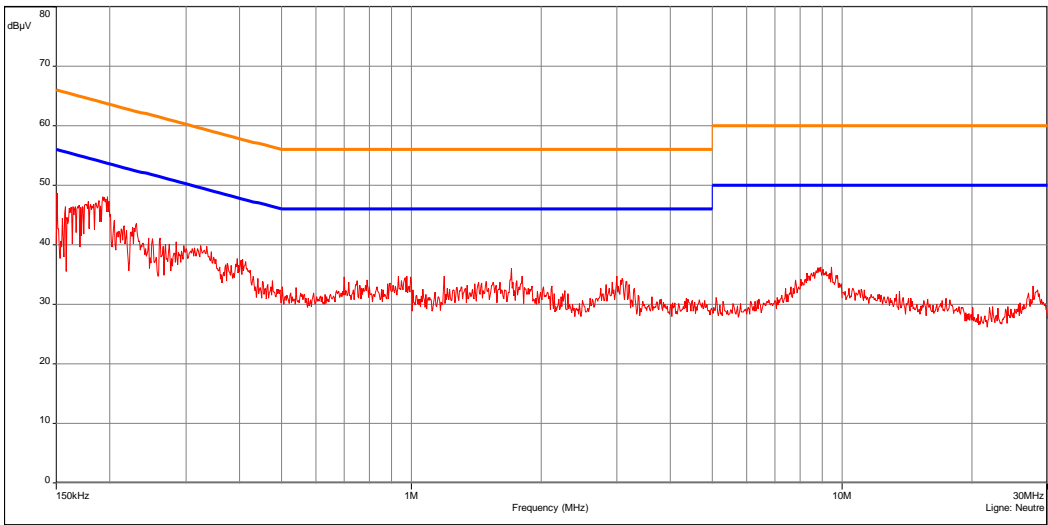


115Vac60Hz / AC/DC adaptor (PHIHONG ref MJP) / WIFI OFF / RFID ON - 07/30/2014 11:10 - 2882

Conducted voltage emission (measurement)
110Vac/60Hz power supply / 7528XPUHFN (WA9903)

EMI2758

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
 — C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
 — Mes.Peak (Neutre)



Date: 30/07/2014 10:29:43

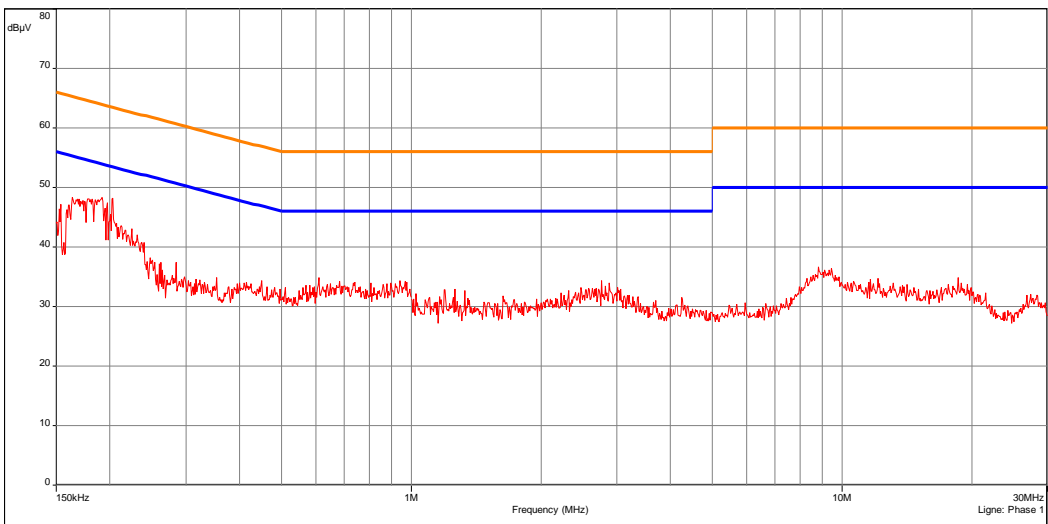
Technician: RB

Class: B of the standard

Detection:
Peak

Modification(s) during test:
No

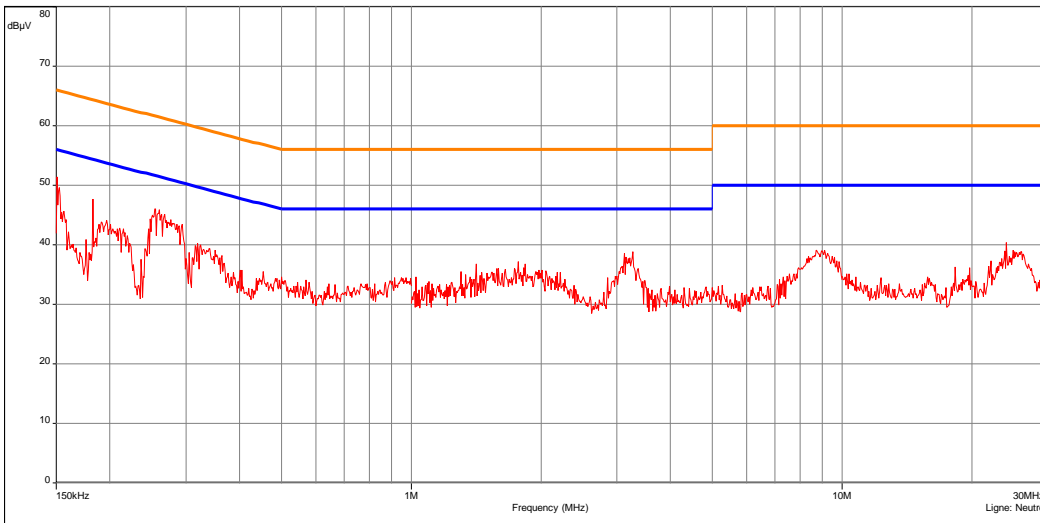
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
 — C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
 — Mes.Peak (Phase 1)



Conducted voltage emission (measurement)
110Vac/60Hz power supply + docking station / 7528XUHFN (WA9901)

EMI2635

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Neutre)



Date: 30/07/2014 10:10:56

Technician: RB

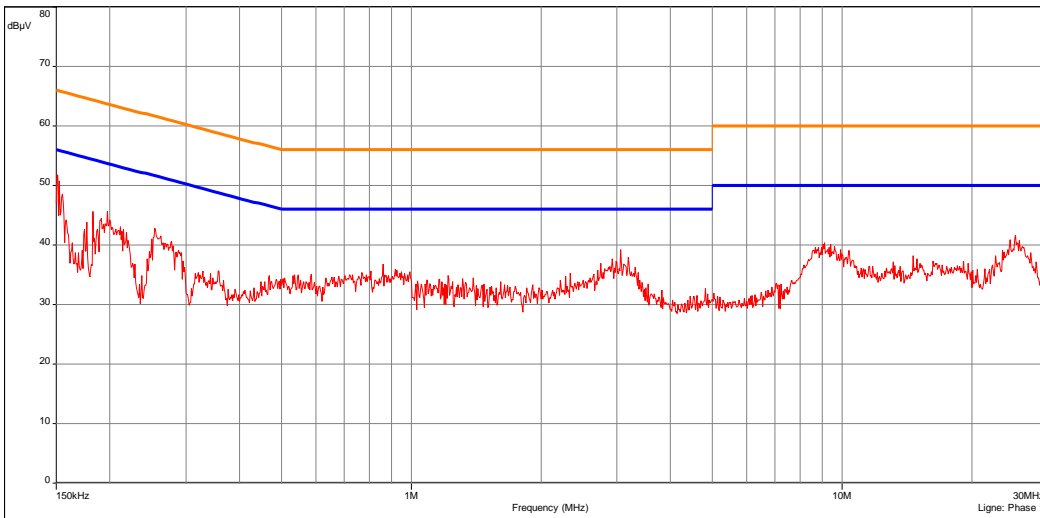
Class: B of the standard

Detection:
Peak

Modification(s) during test:
No

115Vac/60Hz / AC/DC adaptor (PHIHONG ref MJP) connected to docking station / GSM and WIFI OFF / RFID ON - 07/30/2014 10:10 - 2635

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Phase 1)



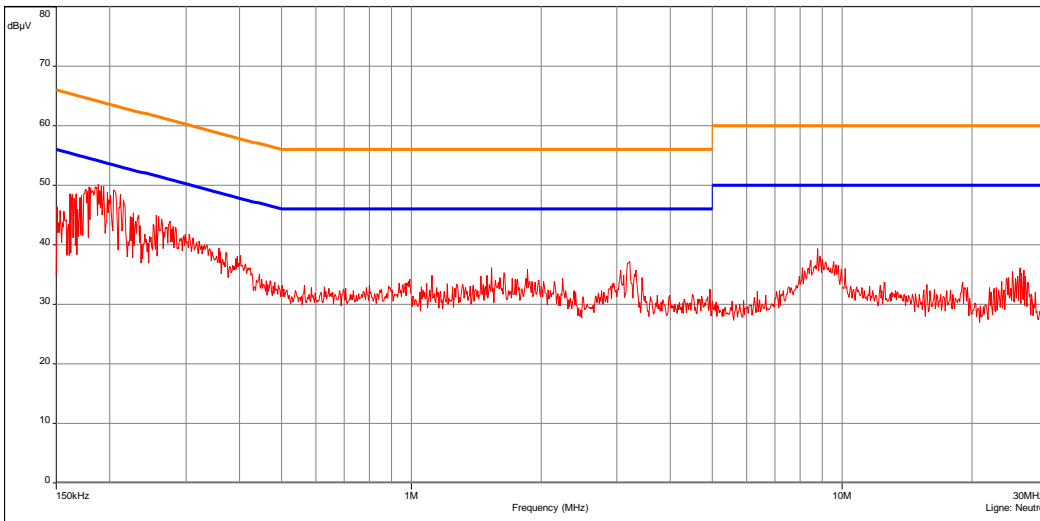
115Vac/60Hz / AC/DC adaptor (PHIHONG ref MJP) connected to docking station / GSM and WIFI OFF / RFID ON - 07/30/2014 10:10 - 2635

Conducted voltage emission (measurement)

EMI2624

110Vac/60Hz power supply + docking station / 7528XPUHFN (WA9901)

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes. Peak (Neutre)



Date: 30/07/2014 09:58:23

Technician: RB

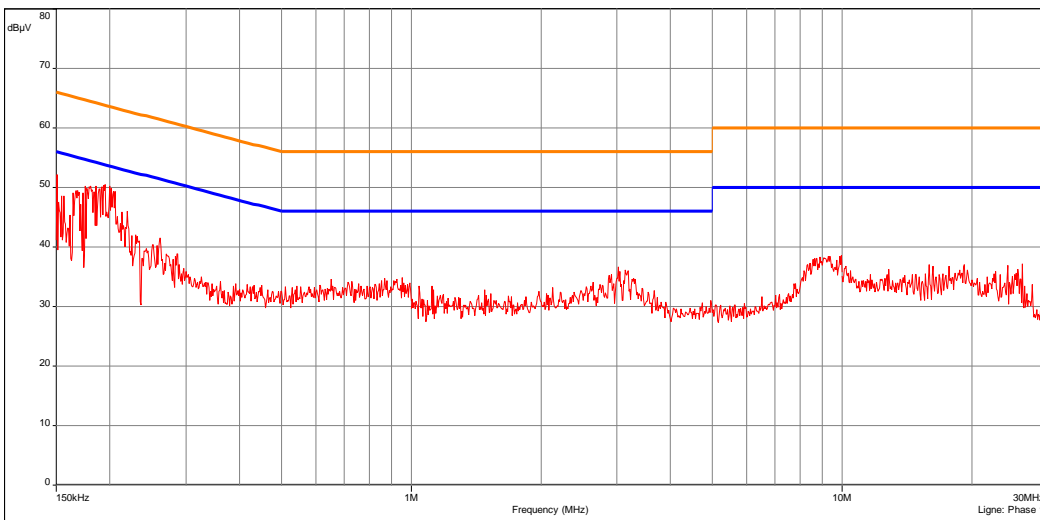
Class: B of the standard

Detection:
Peak

Modification(s) during test:
No

AC/DC adaptor (PHIHONG ref MJP) connected to docking station / GSM and WIFI OFF / RFID ON - 07/30/2014 09:58 - 2624

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes. Peak (Phase 1)

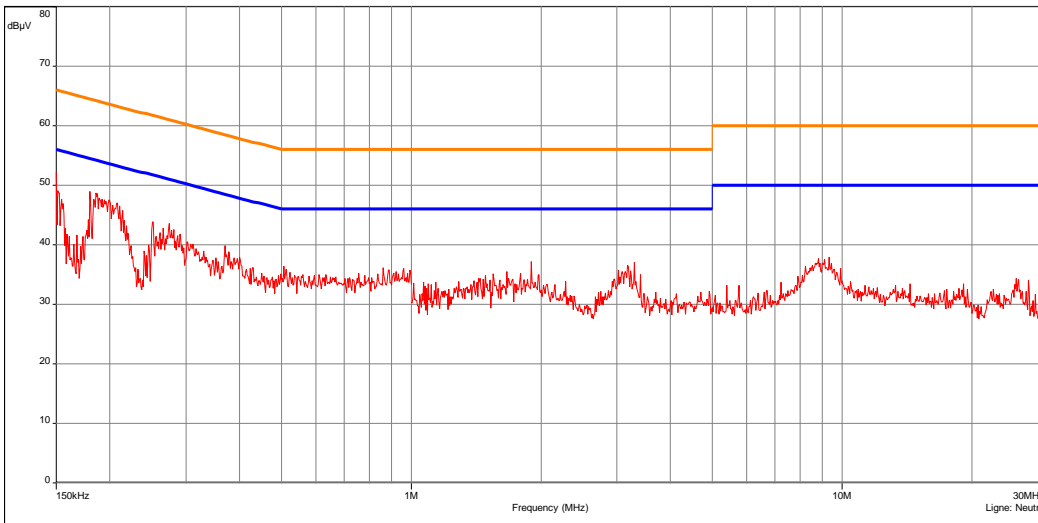


AC/DC adaptor (PHIHONG ref MJP) connected to docking station / GSM and WIFI OFF / RFID ON - 07/30/2014 09:58 - 2624

Conducted voltage emission (measurement)
110Vac/60Hz power supply + docking station / 7528XUHFN (WA9903)

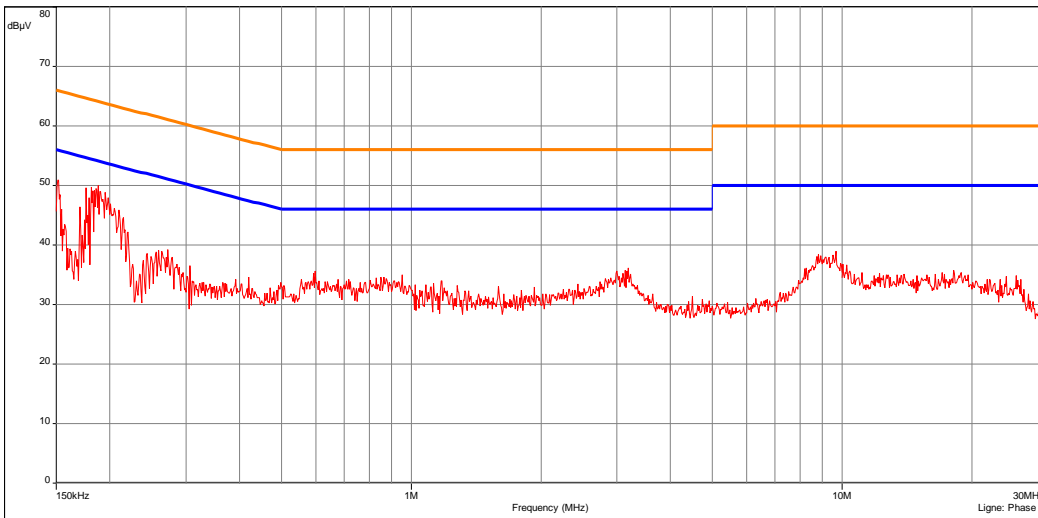
EMI2883

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Neutre)



115Vac60Hz / AC/DC adaptor (PHIHONG ref MJP) connected to docking station / WIFI OFF / RFID ON - 07/30/2014 11:00 - 2883

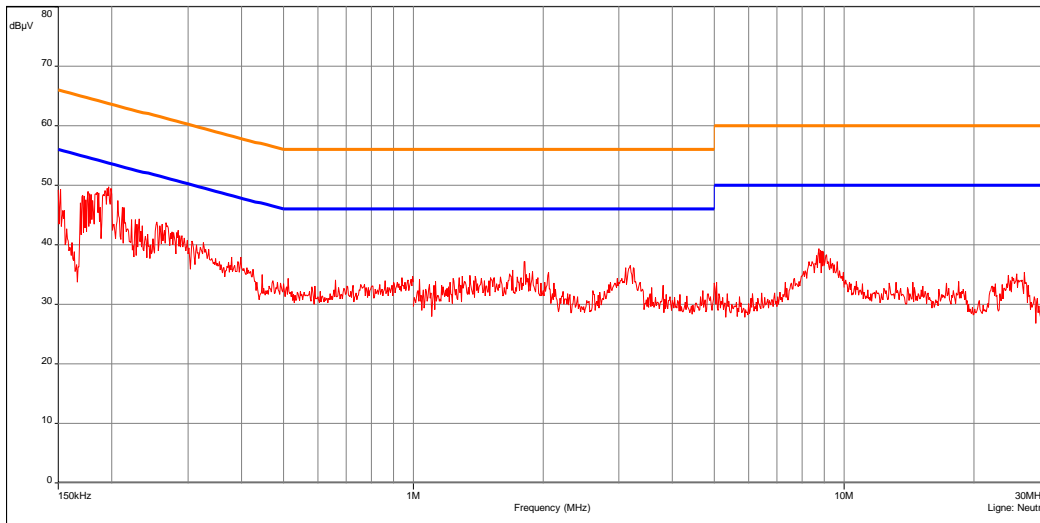
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Phase 1)



115Vac60Hz / AC/DC adaptor (PHIHONG ref MJP) connected to docking station / WIFI OFF / RFID ON - 07/30/2014 11:00 - 2883

Conducted voltage emission (measurement)
EMI2759
110Vac/60Hz power supply + docking station / 7528XPUHFN (WA9903)

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Neutre)



Date: 30/07/2014 10:37:42

Technician: RB

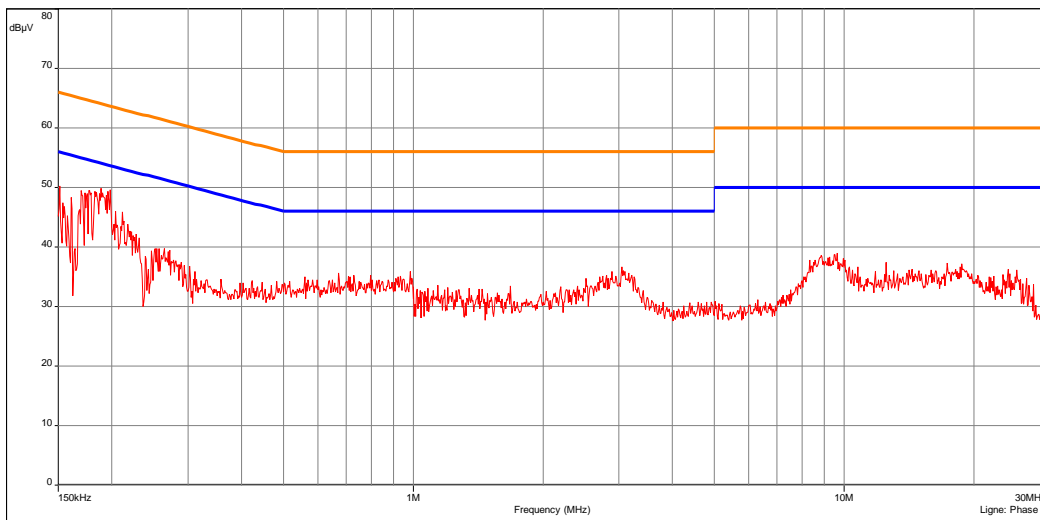
Class: B of the standard

 Detection:
 Peak

 Modification(s) during test:
 No

115Vac60Hz / AC/DC adaptor (PHIHONG ref MJP) connected to docking station / WIFI OFF / RFID ON - 07/30/2014 10:37 - 2759

— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - Moyenne/
— C.E.M. (civl)/EN 55022 : 10 §5.1 - Class B - QCrête/
— Mes.Peak (Phase 1)



115Vac60Hz / AC/DC adaptor (PHIHONG ref MJP) connected to docking station / WIFI OFF / RFID ON - 07/30/2014 10:37 - 2759

7. UNWANTED RADIATED EMISSIONS – SECTION 15.209, RSS-GEN TABLE 5

Standards: FCC part 15 Radio part 15.209, RSS Gen: 2010 and OET Bulletin 65:1997, RSS 102:2010

Tests methods: FCC part 15.209 and ANSI C63.4:2003, RSS-Gen: 2010 Table 5

a) Pre-measurement in semi anechoic chamber:

Frequency band	Tested side	Resolution bandwidth	Video bandwidth	Detection mode	E.U.T. height
150kHz-30MHz	Front side	10kHz	30kHz	Peak	80cm
30MHz-1GHz	Front side	100kHz	300kHz	Peak	80cm
1GHz-18GHz	Front side	1MHz	3MHz	Peak	80cm

Measurements are done in semi anechoic chamber at 3m. E.U.T. is set on a wooden table.

E.U.T. measurements are maximized at 360° in max-hold peak detection.

For collocation measurement, notch filters are used to avoid overloads of measurement system.

Limits:

From 30MHz to 1GHz: quasi peak limit provided is the limit given in 15.209 and RSS Gen.

Above 1GHz average limits in restricted bands and general limits are 54dB μ V/m. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation.

Test method deviation: No

Measuring distance: 3 meters

Test equipment list:

CATEGORY	BRAND	TYPE	N° EMITECH	DATE CAL.	DATE VAL
Antenna	ETS LINDGREN	3117	8387	26/08/2011	26/10/2015
Antenna	Electro-Metrics	BIA-30HF	1107	03/03/2011	03/05/2015
Antenna	Rohde & Schwarz	HL223	1137	03/03/2011	03/05/2015
Cable	C&C	N-1.5m	10553	27/09/2013	27/11/2015
Cable	C&C	N-3m	10557	27/09/2013	27/11/2015
Cable	C&C	N-3m	10558	27/09/2013	27/11/2015
Cable	C&C	N-5m	10559	27/09/2013	27/11/2015
Cable	C&C	N-5m	10561	27/09/2013	27/11/2015
Filter	Micro-Tronics	HPM 11630	4392	19/01/2012	19/08/2014
Filter			7309	17/12/2013	17/02/2016
Filter	MICROTRONICS	HPM 15162	10273	07/06/2013	07/08/2015
Filter	Wainwright	WRCG 2400/2483	9771	19/12/2012	19/02/2015

CATEGORY	BRAND	TYPE	N° EMITECH	DATE CAL.	DATE VAL
Preamplifier	IMPULSE	CA118-546ACN	9169	17/06/2013	17/07/2015
Receiver	Agilent	E4440A	5824	22/10/2013	22/12/2015
Shielded enclosure	RAY PROOF	C.GS3	1123	17/10/2013	17/12/2016
Software	Nexio	BAT EMC	0000	#	#
Thermohygrometer	Bioblock Scientific	Météostar	0963	06/07/2012	06/09/2014

#: Permanent validity

*BAT-EMC software version: V3.6.0.32***Results:** See **Graphs** hereafter.

Radiated electric emission (measurement)
7528XUHFN (WA9901 + Bluetooth + Wi-Fi)
EMI3646

- RADIO/FCC Part 15 §209 - Class:Tx - Moyenne/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - OC/Re/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - Crête/3.0m/
- Mes. Peak (Horizontale)
- Mes. Avg (Horizontale)
- Peak/LimAvg (Horizontale)
- Peak/LimQ-Peak (Horizontale)

Date: 17/07/2014 12:27:42

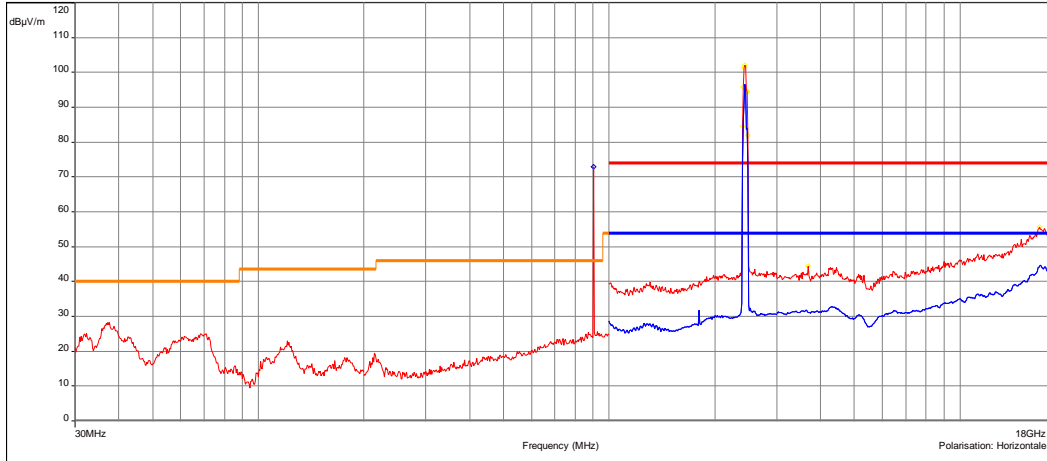
Technician: DM

Class: Tx of the standard

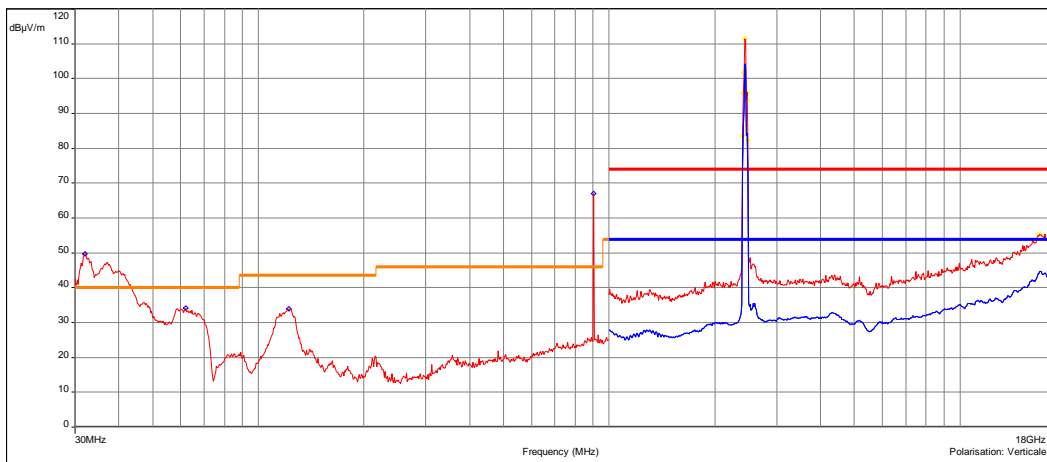
 Detection:
 Peak and average

 Pre measurement - maximized
 at 360°

 Frequencies identification:
 2400-2483.5MHz : Wi-Fi and
 Bluetooth carriers
 902MHz : RFID carrier
 (rejected)

 Modification(s) during test:
 No


- RADIO/FCC Part 15 §209 - Class:Tx - Moyenne/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - OC/Re/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - Crête/3.0m/
- Mes. Peak (Verticale)
- Mes. Avg (Verticale)
- Peak/LimAvg (Verticale)
- Peak/LimQ-Peak (Verticale)



Radiated electric emission (measurement)
7528XPUHFN (WA9901 + Bluetooth + Wi-Fi)
EMI3668

- RADIO/FCC Part 15 §209 - Class:Tx - Moyenne/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - OC/Re/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - Crête/3.0m/
- Mes. Peak (Horizontale)
- Mes. Avg (Horizontale)
- Peak/LimAvg (Horizontale)
- Peak/LimQ-Peak (Horizontale)

Date: 18/07/2014 10:10:23

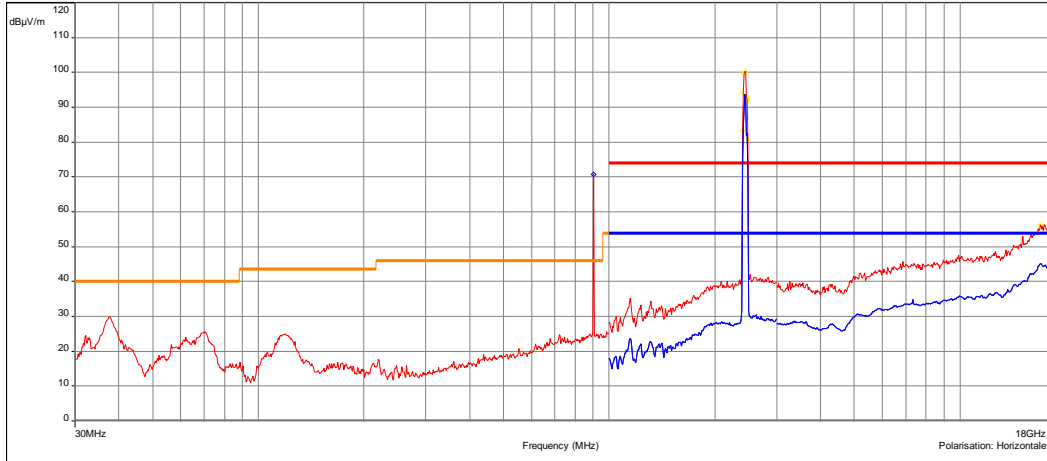
Technician: DM

Class: Tx of the standard

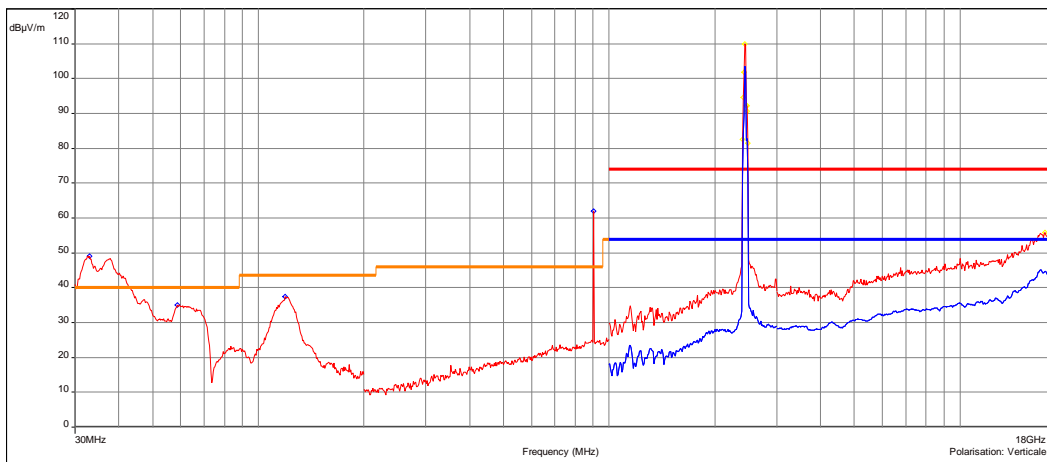
 Detection:
 Peak and average

 Pre measurement - maximized
 at 360°

 Frequencies identification:
 2400-2483.5MHz : Wi-Fi and
 Bluetooth carriers
 902MHz : RFID carrier
 (rejected)

 Modification(s) during test:
 No


- RADIO/FCC Part 15 §209 - Class:Tx - Moyenne/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - OC/Re/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - Crête/3.0m/
- Mes. Peak (Verticale)
- Mes. Avg (Verticale)
- Peak/LimAvg (Verticale)
- Peak/LimQ-Peak (Verticale)



Radiated electric emission (measurement)
7528XUHFN (WA9903 + Bluetooth + Wi-Fi)

EMI3670

- RADIO/FCC Part 15 §209 - Class:Tx - Moyenne/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - OC/Re/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - Cr/Re/3.0m/
- Mes. Peak (Horizontale)
- Mes. Avg (Horizontale)
- Peak/LimAvg (Horizontale)
- Peak/LimQ-Peak (Horizontale)

Date: 18/07/2014 10:51:05

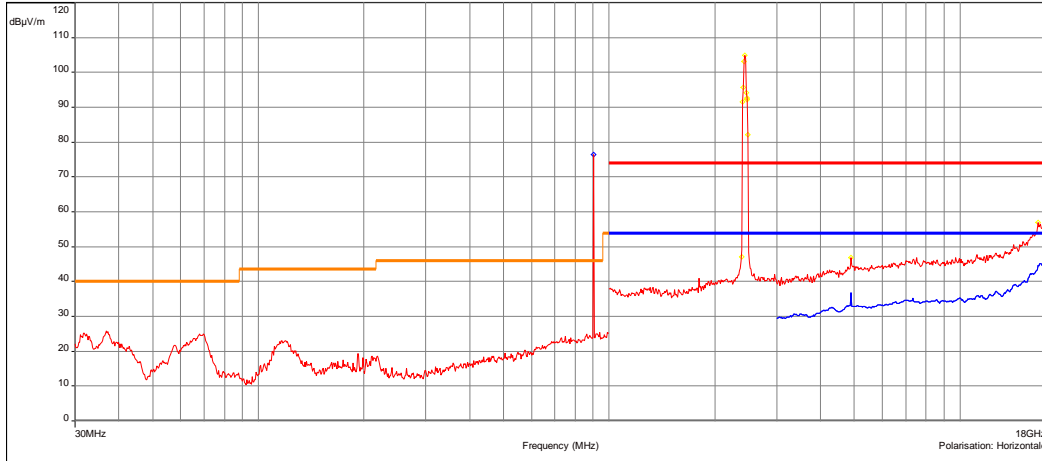
Technician: DM

Detection:
 Peak and average

Pre measurement - maximized
 at 360°

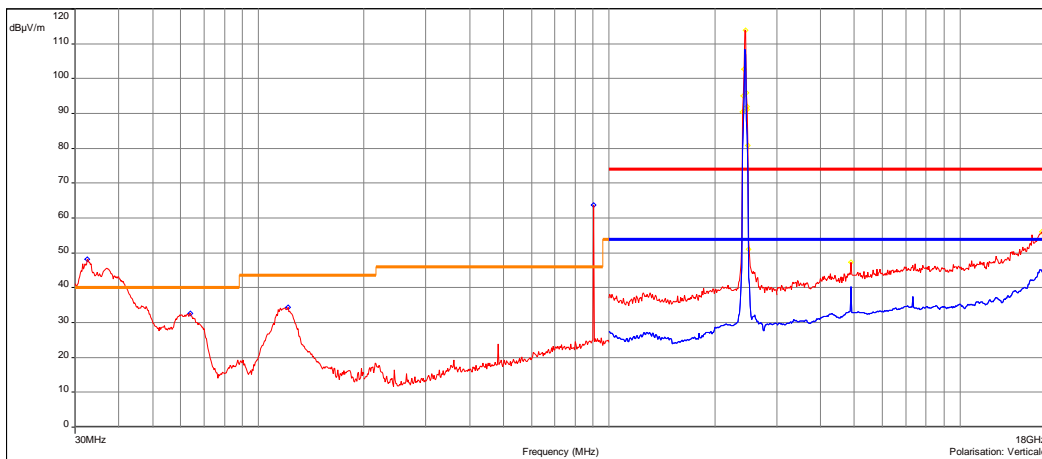
Frequencies identification:
 2400-2483.5MHz : Wi-Fi and
 Bluetooth carriers
 902MHz : RFID carrier
 (rejected)

Modification(s) during test:
 No



RFID UHF + Bluetooth + WiFi - 07/18/2014 10:51 - 3670

- RADIO/FCC Part 15 §209 - Class:Tx - Moyenne/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - OC/Re/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - Cr/Re/3.0m/
- Mes. Peak (Verticale)
- Mes. Avg (Verticale)
- Peak/LimAvg (Verticale)
- Peak/LimQ-Peak (Verticale)



RFID UHF + Bluetooth + WiFi - 07/18/2014 10:51 - 3670

Radiated electric emission (measurement)
7528XPUHFN (WA9903 + Bluetooth + Wi-Fi)
EMI3666

- RADIO/FCC Part 15 §209 - Class:Tx - Moyenne/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - QCRte/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - Crête/3.0m/
- Mes. Peak (Horizontale)
- Mes. Avg (Horizontale)
- Peak/LimAvg (Horizontale)
- Peak/LimQ-Peak (Horizontale)

Date: 18/07/2014 09:21:50

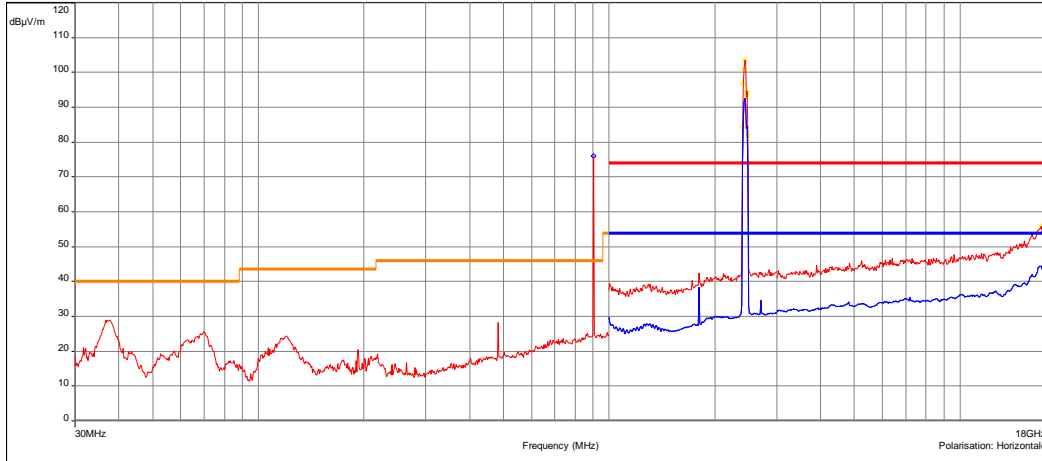
Technician: DM

Class: Tx of the standard

 Detection:
 Peak and average

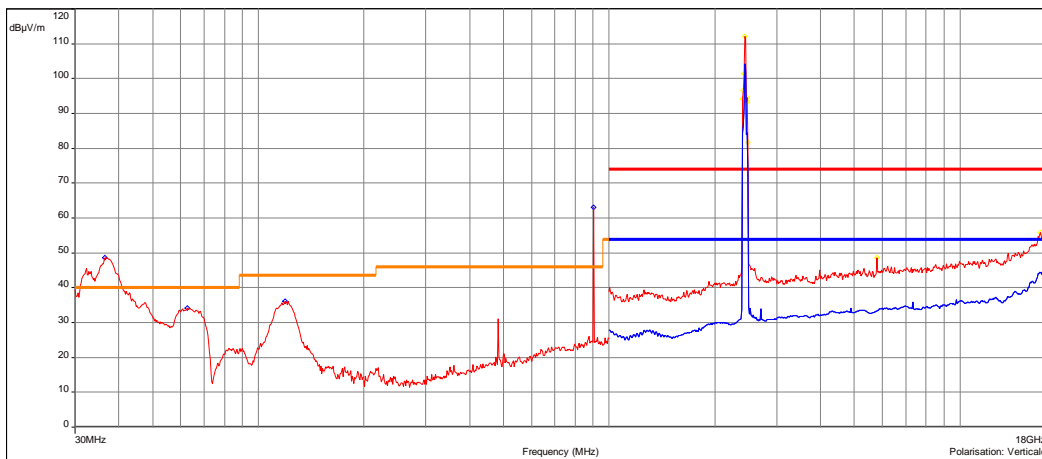
 Pre measurement - maximized
 at 360°

 Frequencies identification:
 2400-2483.5MHz : Wi-Fi and
 Bluetooth carriers
 902MHz : RFID carrier
 (rejected)

 Modification(s) during test:
 No


RFID UHF + Bluetooth + WiFi - 07/18/2014 09:21 - 3666

- RADIO/FCC Part 15 §209 - Class:Tx - Moyenne/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - QCRte/3.0m/
- RADIO/FCC Part 15 §209 - Class:Tx - Crête/3.0m/
- Mes. Peak (Verticale)
- Mes. Avg (Verticale)
- Peak/LimAvg (Verticale)
- Peak/LimQ-Peak (Verticale)



RFID UHF + Bluetooth + WiFi - 07/18/2014 09:21 - 3666

Measurement at 3 meters on open area test site:

Temperature (°C): 24

Humidity (%HR): 36

Pressure (hPa): 1003

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.

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-12.75GHz	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	17/08/2012	17/10/2016
Antenna	Rohde & Schwarz	HL223	3126	03/03/2011	03/05/2015
Antenna	Electro-Metrics	BIA-30HF	1107	03/03/2011	03/05/2015
Antenna mast	INNCO	MA4000-EP-O	10261	#	#
Cable	Cables & Connetiques	N-1.5m	4203	04/06/2013	04/08/2015
Cable	Huber Sumner	N-14m	8146	04/06/2013	04/08/2015
Filter	Micro-Tronics	HPM 11630	4392	19/01/2012	19/03/2014
Filter	MICROTRONICS	HPM 15162	10273	07/06/2013	07/08/2015
Filter			7309	17/12/2013	17/02/2016
Filter	Wainwright	WRCG 2400/2483	9771	19/12/2012	19/02/2015
Mast controller	INNCO	CO3000	10260	#	#
Open area test site	EMITECH	Salinelles	3482	17/04/2014	17/06/2017
Preamplifier	IMPULSE	CA118-546ACN	9169	28/03/2013	28/05/2014
Receiver	Agilent	E4440A	5824	22/10/2013	22/12/2015
Turntable	Heinrich Deisel	D4420	4038	#	#
Turntable controller	Heinrich Deisel	HD100	4036	#	#

#: Permanent validity

Results: See **Boards** hereafter.

7528XUHFN (WA9901) Version

Frequency (MHz)	Polarization	Azimut (degree)	Antenna Height (cm)	Measure (dB μ V/m)	Limit (dB μ V/m)	Comments
32.11	Vertical	0	100	31.11	40	C
37.06	Vertical	0	100	30.11	40	C
61.92	Vertical	0	100	23.92	40	C
122.09	Vertical	0	100	31.61	43	C
37.58	Horizontal	0	100	28.46	40	C

C=Compliant

All other unwanted radiated spurious are at least 20 dB below specified limits

7528XPUHFN (WA9901) Version

Frequency (MHz)	Polarization	Azimut (degree)	Antenna Height (cm)	Measure (dB μ V/m)	Limit (dB μ V/m)	Comments
33.03	Vertical	0	100	30.95	40	C
37.79	Vertical	0	100	30.04	40	C
58.59	Vertical	0	100	24.33	40	C
119.34	Vertical	0	100	31.34	43	C
37.42	Horizontal	0	100	28.48	40	C

C=Compliant

All other unwanted radiated spurious are at least 20 dB below specified limits

7528XUHFN (WA9903) Version

Frequency (MHz)	Polarization	Azimut (degree)	Antenna Height (cm)	Measure (dB μ V/m)	Limit (dB μ V/m)	Comments
32.55	Vertical	0	100	31.03	40	C
37.09	Vertical	0	100	30.11	40	C
64.03	Vertical	0	100	23.79	40	C
121.49	Vertical	0	100	31.56	43	C
36.76	Horizontal	0	100	28.54	40	C

C=Compliant

All other unwanted radiated spurious are at least 20 dB below specified limits

XPUHFN (WA9903) Version

Frequency (MHz)	Polarization	Azimut (degree)	Antenna Height (cm)	Measure (dB μ V/m)	Limit (dB μ V/m)	Comments
32.19	Vertical	0	100	30.79	40	C
36.55	Vertical	0	100	30.56	40	C
62.64	Vertical	0	100	23.67	40	C
119.05	Vertical	0	100	31.00	43	C
37.70	Horizontal	0	100	28.65	40	C

C=Compliant

All other unwanted radiated spurious are at least 20 dB below specified limits

□□□ End of report □□□