TEST REPORT

N°: 154631-718945 **Version : 03**

Subject	**Radio spectrum matters tests according to standards: 47 CFR Part 15.209 & Part 15.207**
Issued to	ADVEEZ 12 Rue Michel Labrousse, Bâtiment 6 31100 TOULOUSE FRANCE
Apparatus under test	
Product	TRACKING SYSTEMS
Trade mark	ADVEEZ
Manufacturer	ADVEEZ
Model under test	FAMAv3
Serial number	AD-P02-0315-149
Test date	April 13, 2018
Test location	LCIE, Fontenay Aux Roses
Test performed by	**Fostoki Medjoudj**
Composition of document	14 pages
Document issued on	November 23, 2018

Written by :
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PUBLICATION HISTORY

Version	Date	Author	Modification
01	April 13, 2018	**Fostoki Medjoudj**	Creation of the document
02	November 12, 2018	**Fostoki Medjoudj**	Modification of test report
03	November 23, 2018	**Fostoki Medjoudj**	Modification of product name in page 1. Add FCC ID in page 7

SUMMARY

1. Test Program

References

- **47 CFR Part 15.209 & 15.207**
- **ANSI C63.10-2013**

Emission tests:

Test Description	Main characteristics	Test result - Comments
Measurement of radiated electric field in shielded room 15.209	☐ **Class A** ☑ **Class B**	☑ **PASS** ☐ **FAIL** ☐ **NA** ☐ **NP (Limited Program)**
Measurement of radiated electric field in open space	☐ **Class A** ☐ **Class B**	☐ **PASS** ☐ **FAIL** ☑ **NA** ☐ **NP (Limited Program)**
Measurement of conducted disturbance on the AC main power port 15.207	☐ **Class A** ☐ **Class B**	☐ **PASS** ☐ **FAIL** ☑ **NA (1)** ☐ **NP (Limited Program)** **Vehicular used**

(1): EUT not directly or indirectly connected to the AC Power Public Network

The product is compliant according to CFR 47 Part 15 Subpart C - Radio frequency devices - Intentional radiators October 2013 standards.

PASS: EUT complies with standard's requirement
FAIL: EUT does not comply with standard's requirement
NA: Not Applicable
NP: Test Not Performed

2. Equipment Description (declared by provider)

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT): FAMAv3

Serial Number: AD-P02-0315-149

Equipment Under Test

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Power supply DC	12Vdc	2	☑	☐	☑	-
Antenna cable	Input	3	☐	☑	☑	-
Antenna cable	Output	2	☑	☐	☑	6x0.25m
Antenna cable	-	3	☑	☐	☑	-

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
DC Power supply	-	-	-
-	-	-	-
-	-	-	-

Equipment information: (Declared by provider)

Apparatus Description	Fleet and asset management system			
Type of power source:	☐ AC power supply	☑ DC power supply	☐ Battery (Select Type)	
Test source voltage:	Vmin-Vmax:	☐ 120V -60Hz	☑ 8-30Vdc	
Operating Modes	Mode 1	Nominal – Radio module are in standby		
	Mode 2	-		
	Mode 3	-		
	Mode 4	-		
Performance level defined by the manufacturer (only for immunity tests)	No immunity tests			

EUT Internal Operating Frequencies	
Frequency[1] (Mhz)	**Description[2]**
125KHz	RFID Tx
915MHz	Rx
1.5GHz	GPS
2.4GHz	BLE
700 MHz /850 MHz /1700 MHz /1900 MHz Bands	GSM/LTE

2.2. EQUIPMENT LABELLING

FCC ID: R8T-FAMAv3
Model: FAMAv3
Contains FCC ID: 2ACT6LLRXR27
Contains FCC ID: QOQBLE112

2.3. EQUIPMENT MODIFICATIONS

☑ None ☐ Modification:

3. Measurement of radiated emissions

3.1. ENVIRONMENTAL CONDITIONS

Test performed by	: **Fostoki Medjoudj**
Date of test	: April 13, 2018
Ambient temperature	: 20°C
Relative humidity	: 40%

3.2. TEST SETUP

Specifications:

Frequency	9kHz – 30 MHz	RBW 9 kHz
	30 – 1000 MHz	RBW 120 kHz
	1-6GHz	RBW 1MHz
Detector	Peak and Quasi-Peak	

Pre characterization in semi anechoic room is performed to define the critical frequencies

Operating conditions:

- The Equipment under Test is installed:

☑ Measure in semi anechoic room

☐ Measure in open area site

- Measuring distance:

☑ 3m

☐ 10m

- Deviation method:

☐ Yes

☑ No

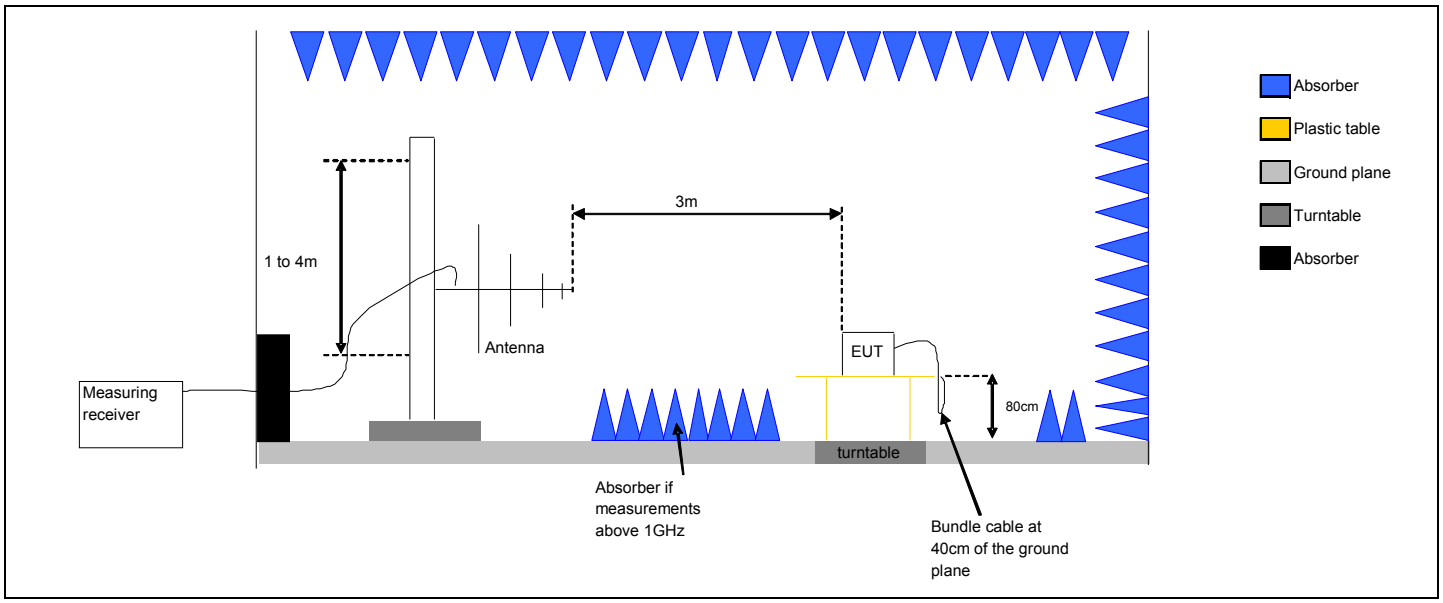
-Product installation:

☑ The EUT was tested as a tabletop equipment and was placed on a non-conducting platform the top of which is 0.8m above the metal ground plane.

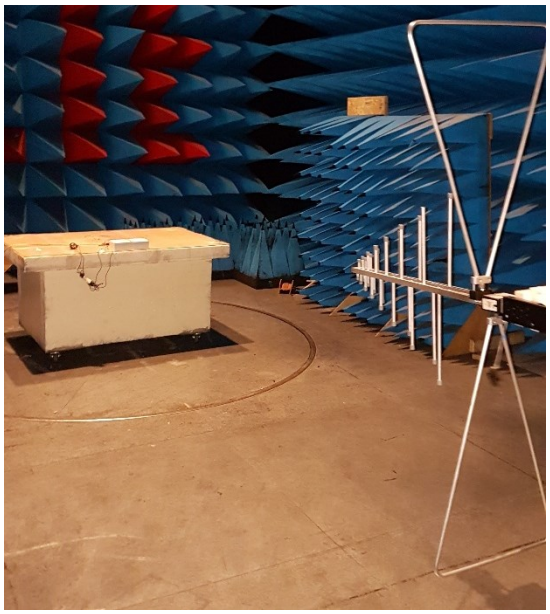
☐ The EUT is at 10cm height from reference plane

Operating mode:

☑ Mode 1 ☐ Mode 2 ☐ Mode 3 …



Test Set up for radiated measurement in semi anechoic chamber



Measurement of radiated disturbances.

3.3. LIMIT

☑ at 3m Class B

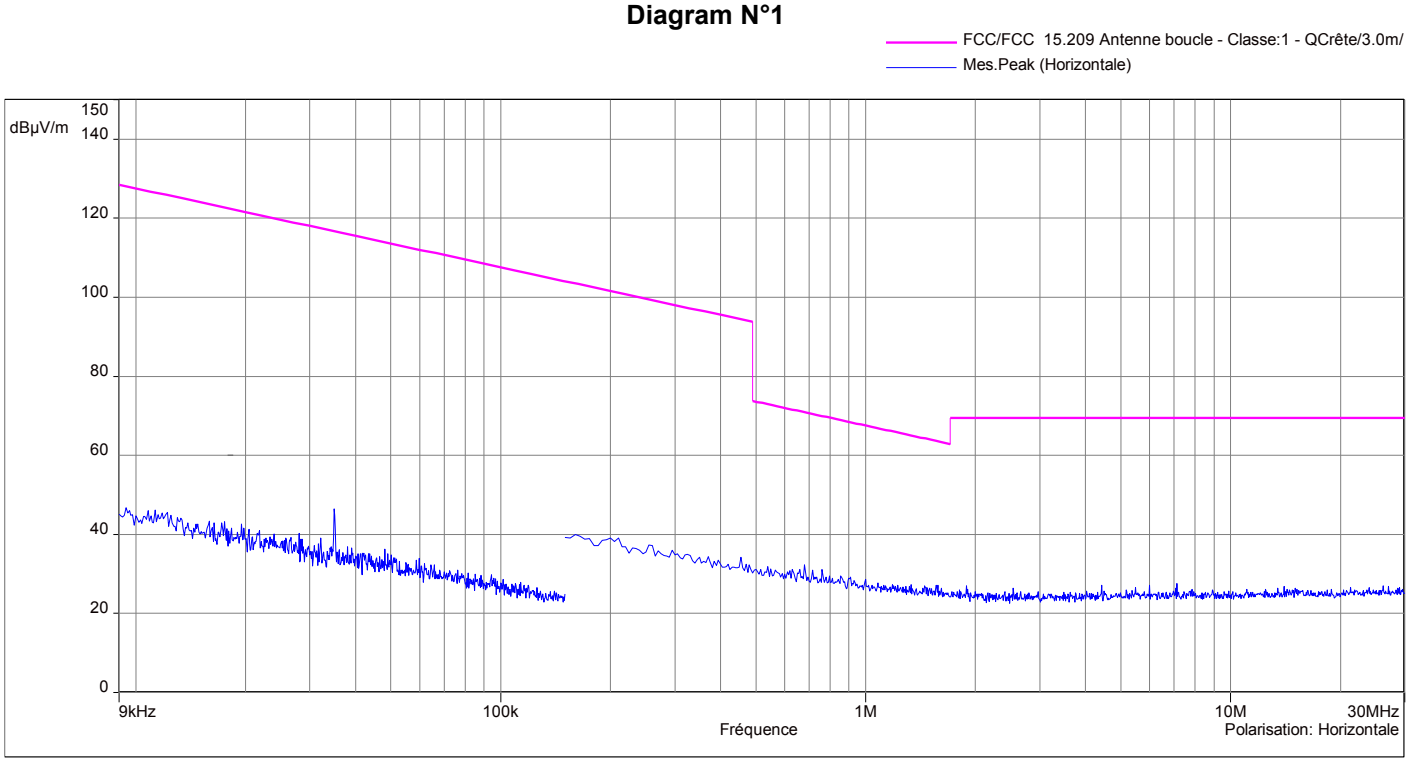
Frequency Bands/frequencies	dB (µV/m) quasi-peak	dB (µV/m) peak	dB (µV/m) average
9kHz to 0,490MHz	128,5 à 93,8	-	-
0,490MHz to 1.705MHz	73,8 à 62,9	-	-
1.705MHz to 30MHz:	69.5	-	-
30-88MHz	40	-	-
88 – 216MHz	43.5	-	-
216 – 960 MHz	46	-	-
960 – 1000 MHz	53.9	-	-
1000-6000MHz	-	73.9	53.9

3.4. TEST EQUIPMENT LIST

Description	Constructor	Model	N°	Cal. Date	Cal. Due
Bilog antenna	SCHWARZBECK	VULB9160	C2040150	2016/04	2018/04
Horn antenna	EMCO	3115	C2042018	2017/04	2018/04
SEMI ANECHOIC CHAMBER	SIEPEL	C01	D3044008	2017/06	2018/06
Cable	-	-	A5329711	2017/06	2018/06
EMI Receiver	ROHDE & SCHWARZ	ESU26	A2642018	2016/10	2018/10
Preamplifier	LCIE	-	A7086012	2018/03	2019/03
Cable	-	-	A5329436	2018/03	2019/03
Cable	-	-	A5329460	2018/03	2019/03
Loop antenna	SCHWARZBECK	FMZB1513	C2040209	2018/03	2020/03

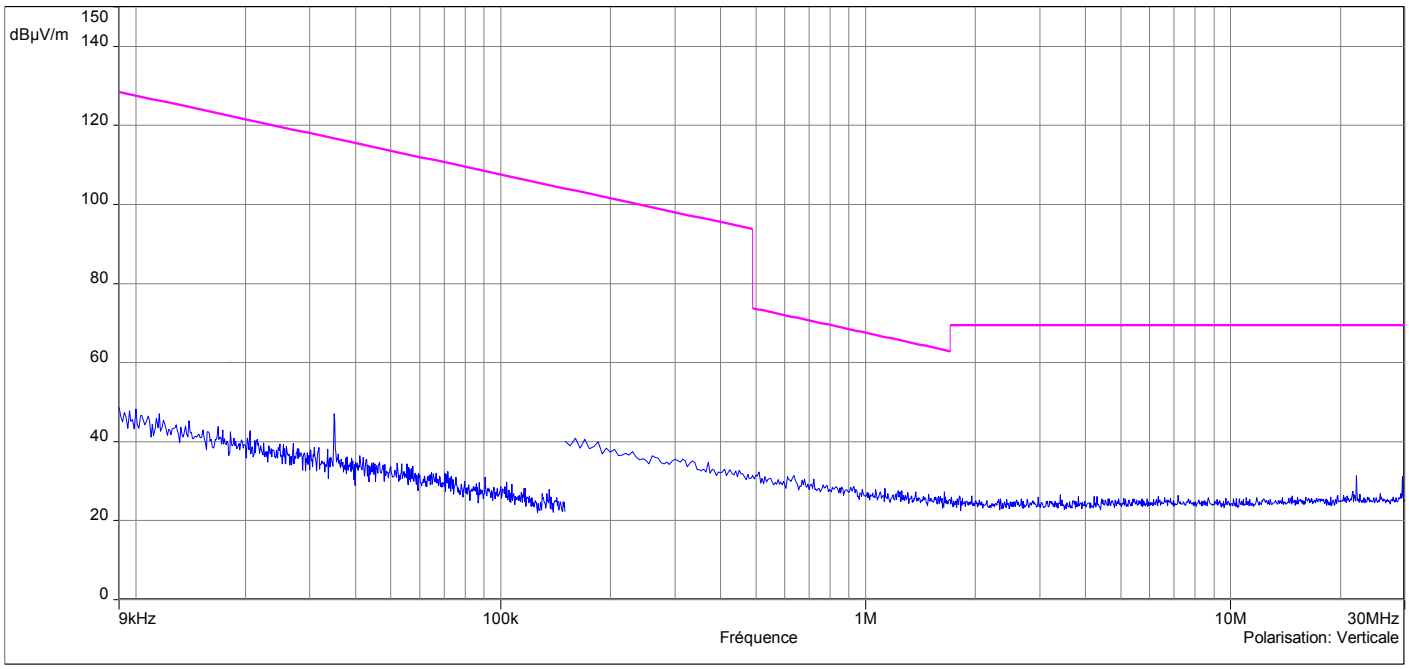
3.5. RESULTS

Diagram N°1



Parallel Polarization

Diagram N°2



Perpendicular Polarization

Diagram N°3
Horizontal Polarization (30MHz-6GHz)

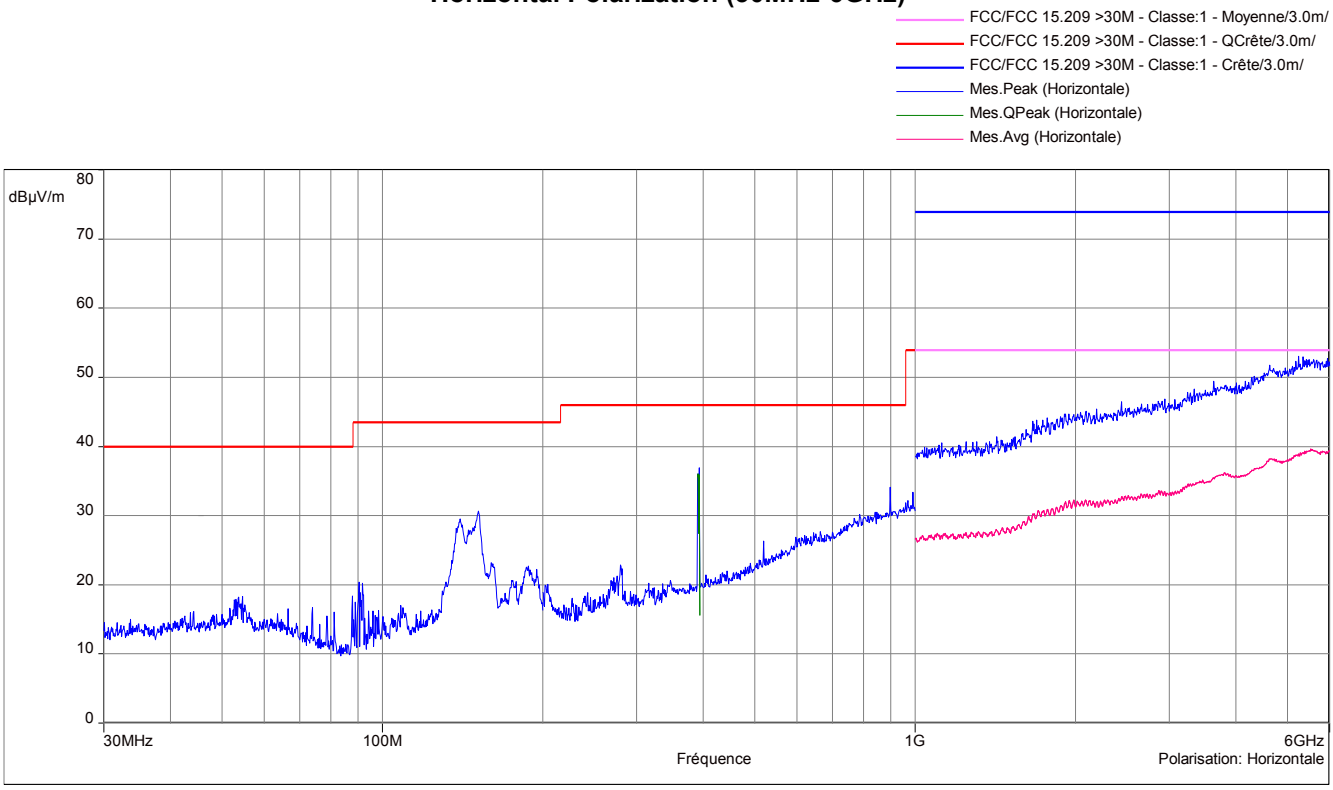
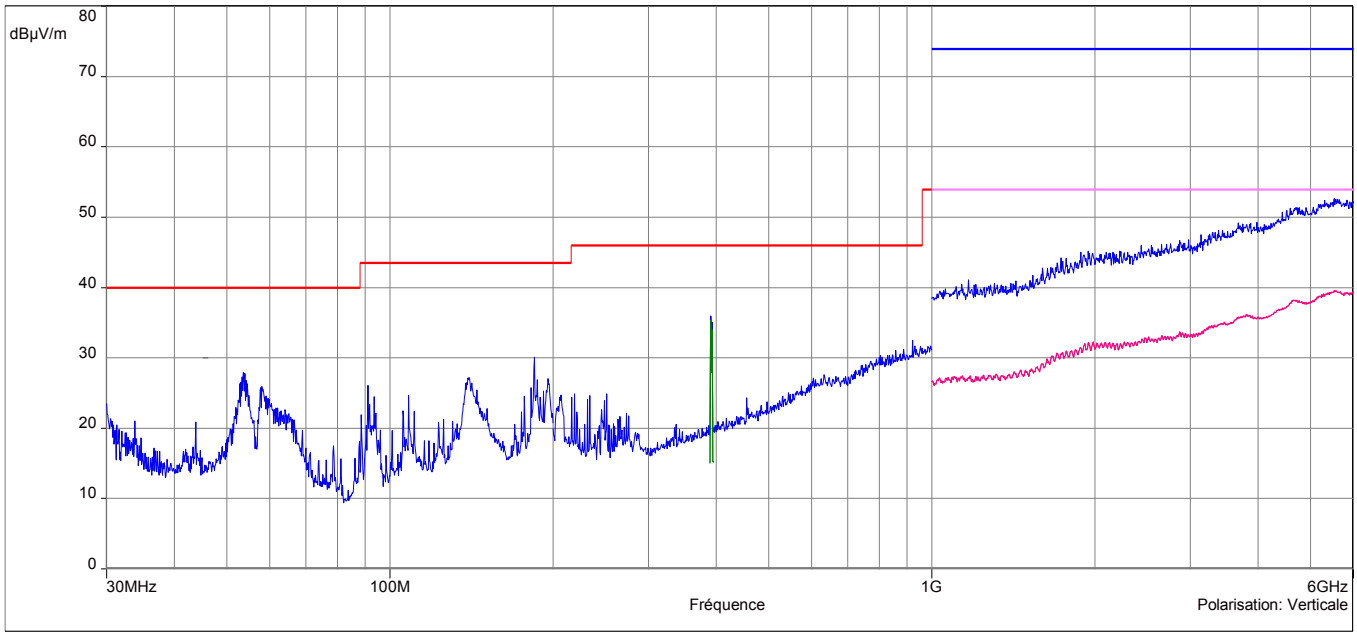


Diagram N°4
Vertical Polarization (30MHz-6GHz)



3.6. CONCLUSION

Measures of Radiated Emission, performed on the sample of the product FAMAv3, SN: AD-P02-0315-149, in configuration and description presented in this test report, show levels conform to the 47 CFR PART 15.209 limit.

4. Uncertainties Chart

Kind of measurement	Wide uncertainty laboratory (k=2) ±x(dB)	CISPR uncertainty limit ±y(dB)
Measurement of conducted disturbances in voltage on the AC power port (9 kHz – 150 kHz)	2,67	3.8
Measurement of conducted disturbances in voltage on the AC power port (150 kHz – 30 MHz)	2,67	3.4
Measurement of conducted disturbances in voltage on the telecommunication port. (AAN)	3,67	5.0
Measurement of conducted disturbances in current (current clamp)	2,73	2.9
Measurement of disturbance power	2,67	4.5
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC V01	4,48	/
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC C01	4,48	/
Measurement of radiated electric field from 30 to 1000MHz in horizontal position on the OATS (Ecuelles)	4,88	6.3
Measurement of radiated electric field from 1 to 18GHz on the Ecuelles site	5.16	/
Measurement of radiated electric field from 30 to 1000MHz in vertical position on the OATS (Ecuelles)	4,99	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC C01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC C01	5,16	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC V01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC V01	5,15	6.3
Measurement of radiated electric field from 1 to 6 GHz C01	5,1	5.2
Measurement of radiated electric field from 1 to 6 GHz V01	4,85	5.2
Measurement of radiated magnetic field from 10kHz to 30MHz on the OATS (Ecuelles)	4,48	/

End of test report