

R051-24-10-105079-5/A Ed. 1

“This report cancels and replaces the test report N°R051-24-10-105079-5/A Edition 0”

RADIO test report

according to standard:
FCC Part 15

Equipment under test:
Battletag: Ubiconnect

FCC ID: ZEBUBICONNECT1

Company:
UBISOFT

DISTRIBUTION: Mr SEYDOUX

Company: UBISOFT

Number of pages: 22 including 3 annexes

Ed.	Date	Modified pages	Written by		Technical Verification Quality Approval	
			Name	Visa	Name	Visa
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This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of the whole manufactured products of the tested sample.



PRODUCT: **Battletag**

Reference / model: Ubiconnect

Serial number: not communicated

MANUFACTURER: not communicated

COMPANY SUBMITTING THE PRODUCT:

Company: UBISOFT

Address: 28 rue Armand Carrel
93108 MONTREUIL-SOUS-BOIS CEDEX
FRANCE

Responsible: Mr SEYDOUX

DATE(S) OF TEST: 28 October 2010
02 and 10 November 2010
09 December 2010

TESTING LOCATION: EMITECH ATLANTIQUE laboratory at ANGERS (49) FRANCE
EMITECH ATLANTIQUE open area test site in LA POUEZE (49)
FRANCE
FCC Registration Number: 101696/FRN: 0006 6490 08

TESTED BY: L. BERTHAUD

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1. INTRODUCTION

This document presents the result of RADIO test carried out on the following equipment:
Battletag: Ubiconnect in accordance with normative reference.

2. PRODUCT DESCRIPTION

ITU Emission code:	250KF7D
Class:	B (residential environment)
Utilization:	RF / USB base
Antenna type and gain:	internal antenna, unknown gain
Operating frequency range:	From 915.3 MHz to 915.7 MHz
Number of channels:	3
Channel spacing:	200 kHz
Frequency generation:	Synthesizer
Modulation:	Frequency
Power source:	5 Vd.c. (USB port)

Power level, frequency range and channels characteristics are not user adjustable.
The details pictures of the product and the circuit boards are joined with this file.

3. NORMATIVE REFERENCE

The standards and testing methods related throughout this report are those listed below.
They are applied on the whole test report even though the extensions (version, date and amendment) are not repeated.

FCC Part 15 (2009)	Radio Frequency Devices
ANSI C63.4 (2003)	Methods of Measurement of Radio-Noise Emissions from Low-voltage Electrical and Electronics Equipment in the range of 9 kHz to 40 GHz.

4. TEST METHODOLOGY

Radio performance tests procedures given in part 15:

Subpart B –Unintentional Radiators

Paragraph 107: Conducted limits

Paragraph 109: Radiated emission limits

Paragraph 111: Antenna power conduction limits for receivers

Subpart C – Intentional Radiators

Paragraph 203: Antenna requirement

Paragraph 205: Restricted bands of operation

Paragraph 207: Conducted limits

Paragraph 209: Radiated emission limits; general requirements

Paragraph 212: Modular transmitter

Paragraph 215: Additional provisions to the general radiated emission limitations

Paragraph 249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0-24.25 GHz.

5. ADD ATTACHMENTS FILES

“Synoptic “

“Block diagram “

“External photos and Product labeling “

“Assembly of components “

“Internal photos “

“Layout pcb “

“Bil of materials “

“Schematics “

“Product description “

“User guide “

6. TESTS AND CONCLUSIONS

6.1 unintentional radiator (subpart B)

Test procedure	Description of test	Respected criteria?				Comment
		Yes	No	NAp	NAs	
FCC Part 15.107	CONDUCTED LIMITS			X		
FCC Part 15.109	RADIATED EMISSION LIMITS	X				
FCC Part 15.111	ANTENNA POWER CONDUCTED LIMITS FOR RECEIVER			X		

NAp: Not Applicable

NAs: Not Asked

6.2 intentional radiator (subpart C)

Test procedure	Description of test	Respected criteria?				Comment
		Yes	No	NAp	NAs	
FCC Part 15.203	ANTENNA REQUIREMENT	X				<i>Note 1</i>
FCC Part 15.205	RESTRICTED BANDS OF OPERATION	X				
FCC Part 15.207	CONDUCTED LIMITS			X		
FCC Part 15.209	RADIATED EMISSION LIMITS; general requirements	X				<i>Note 2</i>
FCC Part 15.212	MODULAR TRANSMITTERS			X		
FCC part 15.215	ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS					
	(a) Alternative to general radiated emission limits	X				
	(b) Unwanted emissions outside of §15.249 frequency bands	X				<i>Note 3</i>
	(c) 20 dB bandwidth and band-edge compliance	X				
FCC Part 15.249	OPERATION WITHIN THE BANDS 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz AND 24.0-24.25 GHz					
	(a) Fundamental and harmonics field strength	X				
	(b) Fixed point-to-point operation			X		
	(c) Measurement distance	X				
	(d) Out-of-band emissions	X				
	(e) Field strength limits above 1 GHz	X				
	(f) §15.37 (d) requirement			X		

NAp: Not Applicable

NAs: Not Asked

Note 1: Integral antenna.

Note 2: See FCC part 15.249 (d).

Note 3: See FCC part 15.209. Unwanted emissions levels are all below the fundamental emission field strength level.

Conclusion:

The sample of Battletag: Ubiconnect submitted to the tests complies with the regulations of the standard FCC Part 15 in accordance with the limits or criteria defined in this report.

7. RADIATED EMISSION LIMITS

Standard: FCC Part 15

Test procedure: paragraph 109

Limit class: Class B

Test equipments:

TYPE	BRAND	EMITECH NUMBER
Test receiver	Rohde & Schwarz ESH3	1058
Test receiver	Rohde & Schwarz ESVS10	1219
Spectrum analyzer	Rohde & Schwarz FSP40	4088
Loop antenna	EMCO 6502	1406
Biconical antenna	Hewlett Packard 11966 C	0728
Log periodic antenna	Rohde & Schwarz HL 223	1999
Double ridged guide antenna	Electrometrics EM 6961	1204
Preamplifier 1 to 18 GHz	DBS Microwave DB97-1852	2648
High pass filter	Micro-tronics HPM11630	6609
Open area test site	EMITECH	1274

Test set up:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuths correspond to the front of the equipment under test.

Frequency range: From 9 kHz to 5000 MHz

Detection mode: Quasi-peak ($F < 1$ GHz) Average ($F > 1$ GHz)

Bandwidth: 120 kHz ($F < 1$ GHz) 1 MHz ($F > 1$ GHz)

Distance of antenna: 3 meters

Antenna height: 1 to 4 meters

Antenna polarization: vertical and horizontal (only the highest level is recorded)

Equipment under test operating condition:

The equipment is blocked in standby / reception mode.

Results:

Ambient temperature (°C): 20

Relative humidity (%): 68

Power source: 5 Vd.c. via an USB port

Not any spurious has been detected.

Applicable limits: for $30 \text{ MHz} \leq F < 88 \text{ MHz}$: 40 dB μ V/m
 $88 \text{ MHz} \leq F < 216 \text{ MHz}$: 43.5 dB μ V/m
 $216 \text{ MHz} \leq F < 960 \text{ MHz}$: 46 dB μ V/m
 Above 960 MHz: 54 dB μ V/m

Note: any spurious which has more than 20 dB of margin compared to the applicable limit is not necessarily reported.

Test conclusion:

RESPECTED STANDARD

8. ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS

Standard: FCC Part 15

Test procedure: Paragraph 15.215

Test equipments:

TYPE	MANUFACTURER	EMITECH NUMBER
Spectrum analyzer FSP 40	Rohde & Schwarz	4088
Double ridged guide antenna	Electrometrics EM 6961	1204

Test set up:

Test realized in near field. All field strength measurements are correlated with the radiated maximum peak output power.

The 20 dB bandwidth curves are given in annex 1.

Test operating condition of the equipment:

The equipment under test is blocked in continuous transmission mode, modulated by internal data signal, at the highest output power level which the transmitter is intended to operate (the software output power of the equipment is set to: 0 dBm).

Results:

Ambient temperature (°C): 21
Relative humidity (%): 36

Lower Band Edge: 902 MHz
Upper Band Edge: 928 MHz

Sample n°1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBμV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB)*	Calculated Max Out-of-Band Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
915.3	94	Peak	900.608	-57.9	36.1**	74	37.9
915.7	94	Peak	928.8	-54.2	39.8**	74	34.2

* Marker-Delta method

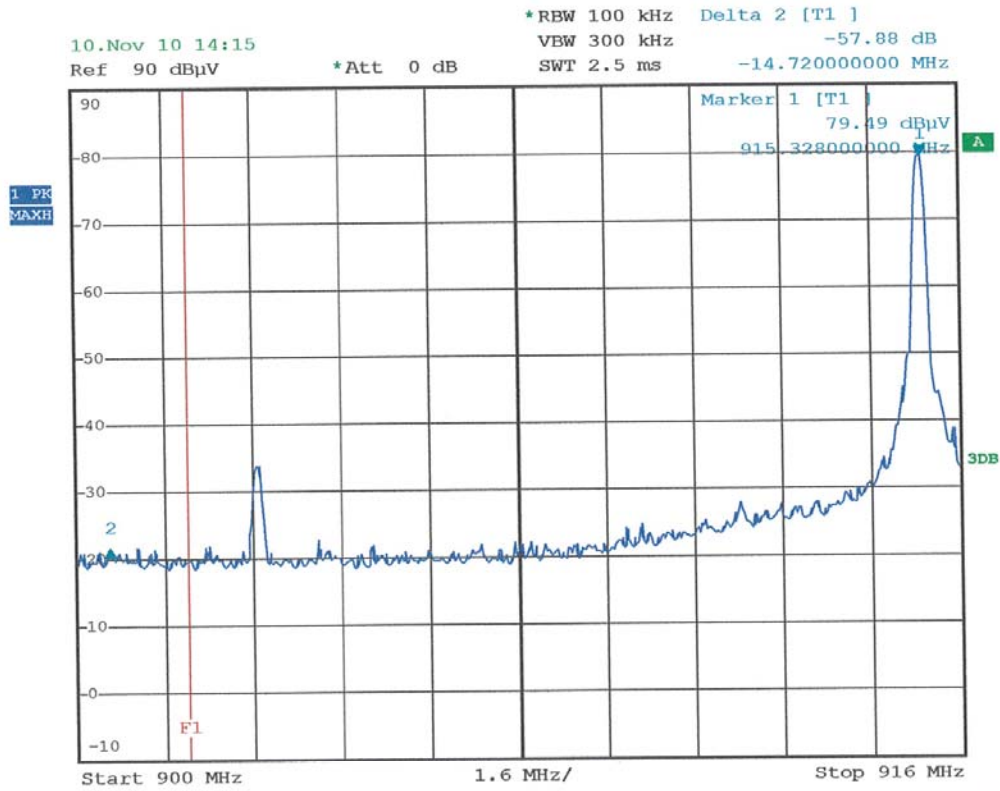
** The peak level is lower than the average limit (54 dBμV/m).

See Curve N° 1 and Curve N° 2 on the following pages.

Test conclusion:

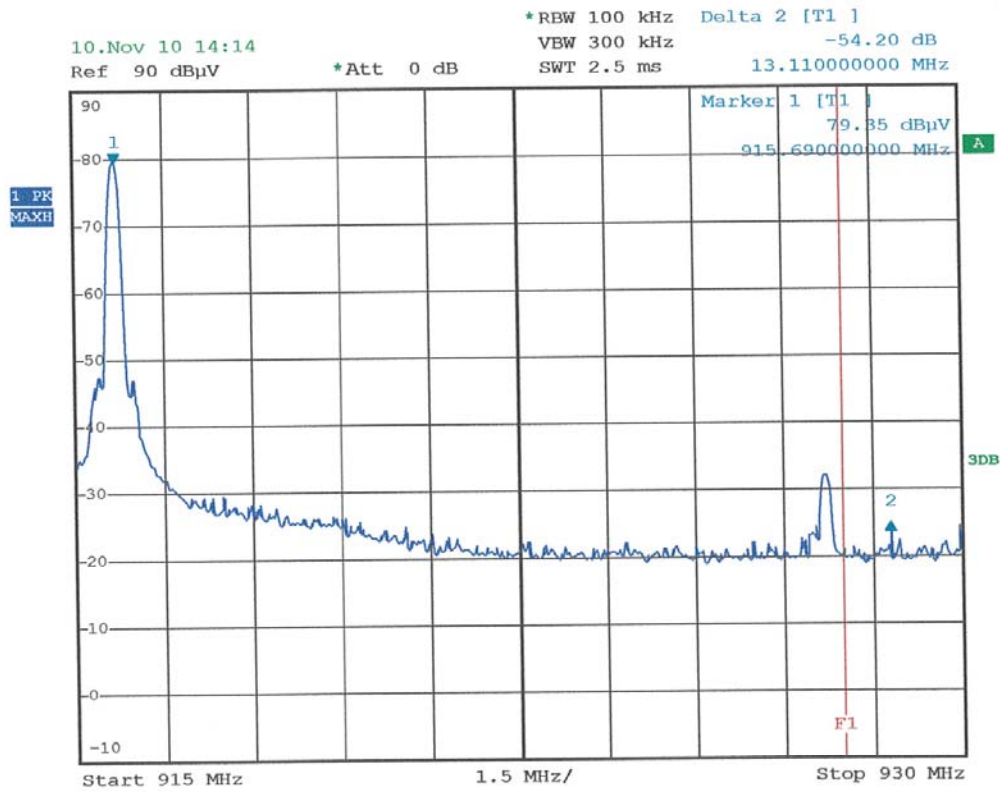
RESPECTED STANDARD

CURVE N° 1.



Date: 10.NOV.2010 14:15:14

CURVE N° 2.



Date: 10.NOV.2010 14:14:20

9. FUNDAMENTAL AND HARMONICS FIELD STRENGTH

Standard: FCC Part 15

Test procedure: paragraph 15.249 (a)

Test equipments:

TYPE	BRAND	EMITECH NUMBER
Spectrum analyzer	Rohde & Schwarz FSP40	4088
Log periodic antenna	Rohde & Schwarz HL 223	1999
Double ridged guide antenna	Electrometrics EM 6961	1204
Open area test site	EMITECH	1274

Test set up:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

We use for this measure outdoor test site. The measuring distance between the equipment and the test antenna is 3 m. The test antenna has been oriented in the two polarizations, we have recorded only the highest level.

Distance of antenna: 3 meters

Antenna height: 1 to 4 meters

Antenna polarization: vertical and horizontal

Equipment under test operating condition:

The equipment under test is blocked in continuous transmission mode, modulated by internal data signal, at the highest output power level which the transmitter is intended to operate (the software output power of the equipment is set to: 0 dBm).

Results:

Ambient temperature (°C): 20

Relative humidity (%): 70

Power source: 5 Vd.c. via an USB port

Channel 1

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak Av: Average	Antenna height (cm)	Azimuth (degree)	resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
915.29*	QP	120	225	120	V	94	94	0
1830.6	Av	150	110	1000	V	47.4	54	6.6
1830.6	P	150	110	1000	V	60.9	74	13.1
2745.9	Av	210	0	1000	V	27.8	54	26.2
2745.9	P	210	0	1000	V	42.1	74	31.9

Channel 2

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak Av: Average	Antenna height (cm)	Azimuth (degree)	resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
915.48*	QP	120	225	120	V	94	94	0
1831	Av	150	95	1000	V	47.2	54	6.8
1831	P	150	95	1000	V	60.7	74	13.3
2746.5	Av	210	0	1000	V	27.2	54	26.8
2746.5	P	210	0	1000	V	41.5	74	32.5

Channel 3

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak Av: Average	Antenna height (cm)	Azimuth (degree)	resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
915.71*	QP	120	225	120	V	94	94	0
1831.4	Av	150	85	1000	V	47.1	54	6.9
1831.4	P	150	85	1000	V	60.6	74	13.4
2747.1	Av	215	0	1000	V	26.9	54	27.1
2747.1	P	215	0	1000	V	41.2	74	32.8

* Fundamental emission

Note: any spurious which has more than 20 dB of margin compared to the limit is not necessarily reported.

Test conclusion:

RESPECTED STANDARD

10. OUT-OF-BAND EMISSIONS

Standard: FCC Part 15

Test procedure: paragraph 15.205
paragraph 15.209
paragraph 15.249 (d)

Test equipments:

TYPE	BRAND	EMITECH NUMBER
Test receiver	Rohde & Schwarz ESH3	1058
Test receiver	Rohde & Schwarz ESVS10	1219
Spectrum analyzer	Rohde & Schwarz FSP40	4088
Loop antenna	EMCO 6502	1406
Biconical antenna	Hewlett Packard 11966 C	0728
Log periodic antenna	Rohde & Schwarz HL 223	1999
Double ridged guide antenna	Electrometrics EM 6961	1204
Preamplifier 1 to 18 GHz	DBS Microwave DB97-1852	2648
High pass filter	Micro-tronics HPM11630	6609
Open area test site	EMITECH	1274

Test set up:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

Frequency range: From 9 kHz to 10th harmonic of the highest fundamental frequency.

Detection mode: Quasi-peak ($F < 1$ GHz) Average ($F > 1$ GHz)

Bandwidth: 120 kHz ($F < 1$ GHz) 1 MHz ($F > 1$ GHz)

Distance of antenna: 3 meters

Antenna height: 1 to 4 meters

Antenna polarization: vertical and horizontal (only the highest level is recorded)

Equipment under test operating condition:

The equipment under test is blocked in continuous transmission mode, modulated by internal data signal, at the highest output power level which the transmitter is intended to operate (the software output power of the equipment is set to: 0 dBm).

Results:

Ambient temperature (°C): 20

Relative humidity (%): 70

Power source: 5 Vd.c. via an USB port

Channel 1

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak Av: Average	Antenna height (cm)	Azimuth (degree)	resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
723.3	QP	145	240	120	V	38.7	46	7.3
903.3	QP	115	0	120	V	45	46	1
927.3	QP	115	0	120	V	44.5	46	1.5

Channel 2

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak Av: Average	Antenna height (cm)	Azimuth (degree)	resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
723.5	QP	145	245	120	V	38.8	46	7.2
903.5	QP	115	0	120	V	45.4	46	0.6
927.5	QP	155	0	120	V	44.6	46	1.4

Channel 3

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak Av: Average	Antenna height (cm)	Azimuth (degree)	resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
723.7	QP	145	250	120	V	38.7	46	7.3
903.7	QP	115	0	120	V	45.8	46	0.2
927.7	QP	115	0	120	V	44.8	46	1.2

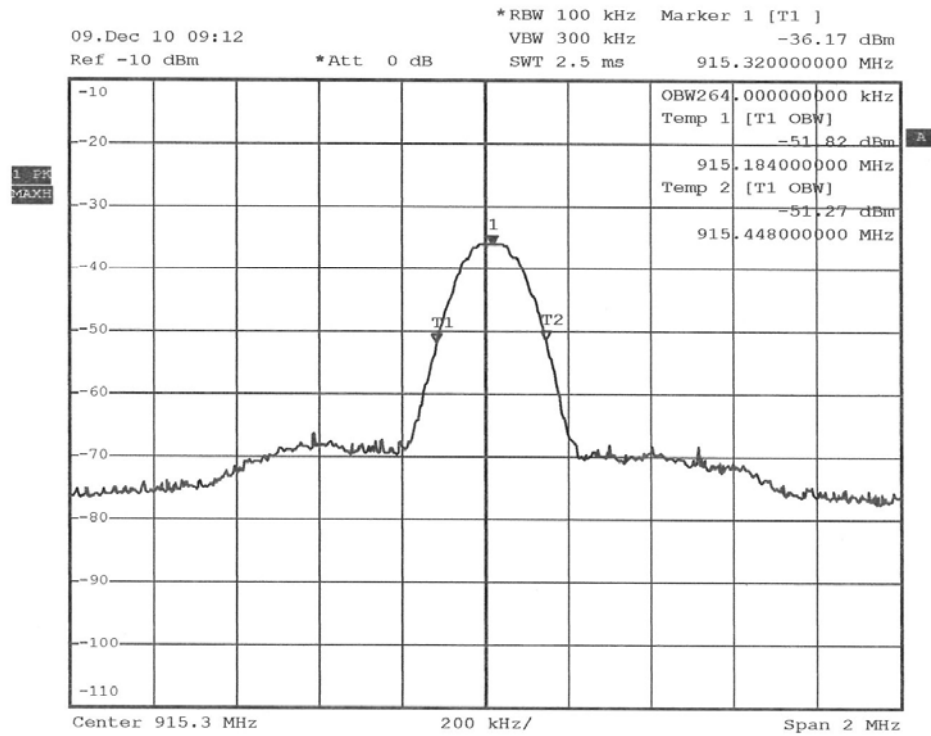
Note: any spurious which has more than 20 dB of margin compared to the applicable limit is not necessarily reported.

Test conclusion:

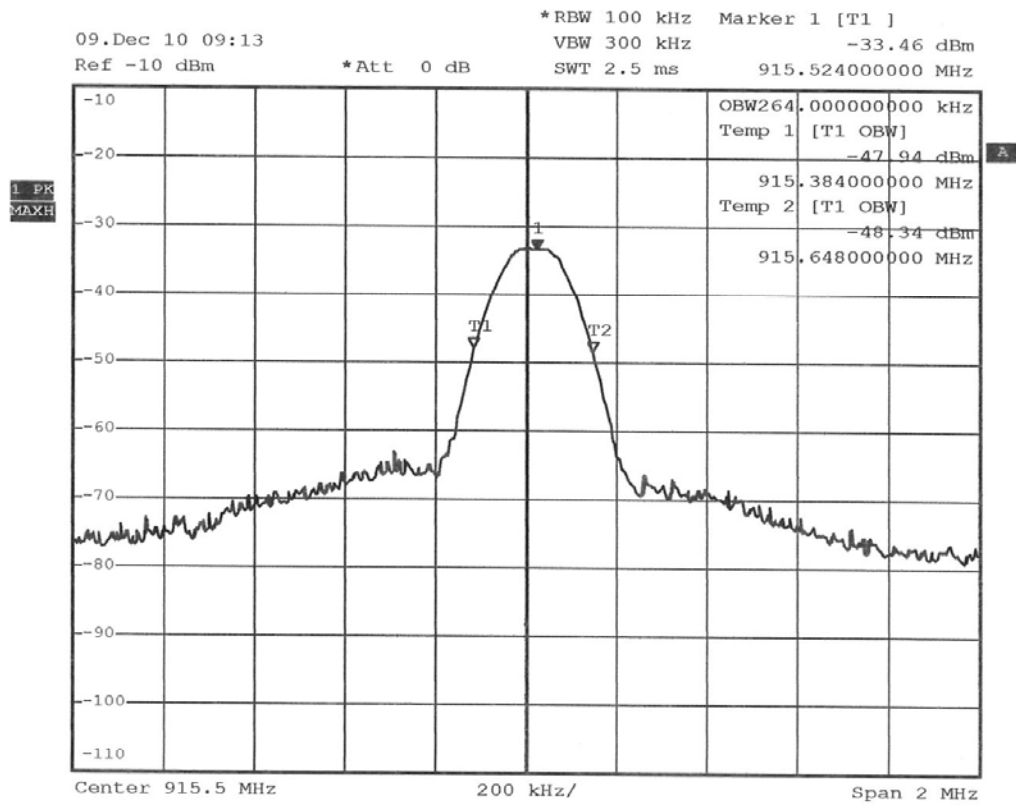
RESPECTED STANDARD

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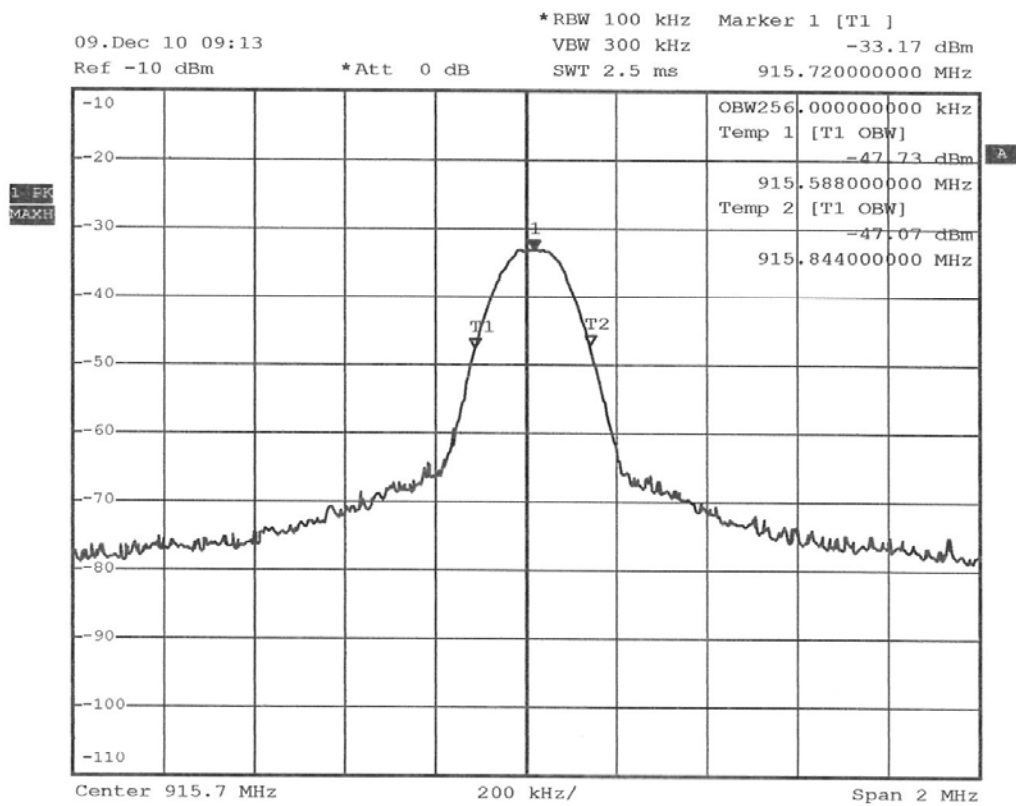
ANNEX 1: 20 dB BANDWIDTH



Date: 9.DEC.2010 09:12:19



Date: 9.DEC.2010 09:13:11



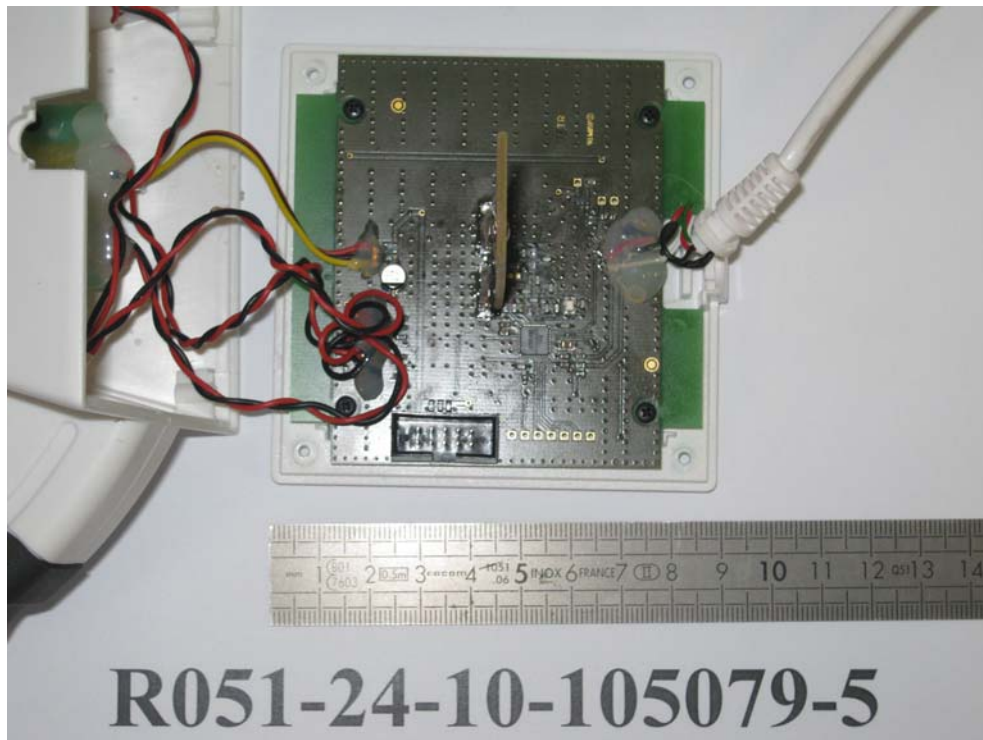
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ANNEX 2: PHOTOS OF THE EQUIPMENT UNDER TEST

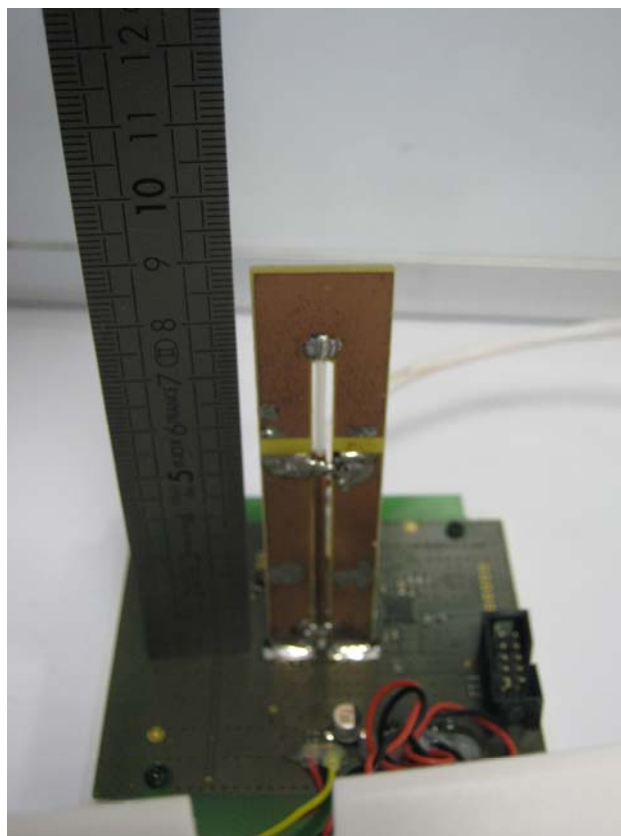
GENERAL VIEW



Internal view



Antenna



ANNEX 3: TEST SET UP

RADIATED MEASUREMENTS



OPEN AREA TEST SITE

