R051-24-10-101516-4/A ED. 0

RADIO Measurement Technical Report

Standard to apply:
EN 50364

Equipment under test:
PLUGGED HF RFID READER
HF-AM1-Ikôn

Company:
PSION TEKLOGIX

DISTRIBUTION: Mr FORNIER **Company: PSION TEKLOGIX**

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PRODUCT:	**PLUGGED HF RFID READER**
Reference / model:	HF-AM1-Ikôn (RFID module)
Serial number:	not communicated (radio module) PX0FC8320970 (terminal sample N°1)
MANUFACTURER:	PSION TEKLOGIX

COMPANY SUBMITTING THE PRODUCT:

Company:	PSION TEKLOGIX
Address:	Parc de la Duranne 135 rue René Descartes 13591 AIX EN PROVENCE FRANCE
Responsible:	Mr FORNIER
DATE(S) OF TEST:	8 April 2010
TESTING LOCATION:	EMITECH ATLANTIQUE laboratory at ANGERS (49) FRANCE EMITECH ATLANTIQUE open area test site in LA POUEZE (49) FRANCE
TESTED BY:	M. DUMESNIL

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1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: PLUGGED HF RFID READER – HF-AM1-Ikôn, in accordance with normative reference.

2. REFERENCE SPECIFICATION

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.

EN 50364	October 2001 Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 10 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications.
EN 50357	October 2001 Evaluation of human exposure to electromagnetic fields from devices used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications.
1999/519/EC	Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)

3. TESTS SUMMARY

Object	A	NA
Basic restrictions for electric, magnetic and electromagnetic fields		X
Reference levels for electric, magnetic and electromagnetic fields	X	
Reference levels for contact currents from conductive objects	X	

A = Applicable
NA = Not Applicable

4. PRESENTATION OF EQUIPMENT FOR TESTING PURPOSES

ANNEX 1	Results board
ANNEX 2	Test Set up
ANNEX 3	Radio applications form (completed by the company submitting the equipment)

5. FREQUENCY IDENTIFICATION

Equipment characteristics:

Band of frequencies used by the transmitter: band from 13.553 MHz to 13.567 MHz
Number of channel which it can operate: 1
Channel separation: not concerned

Equipment ⦿ single-frequency
○ two-frequency
○ multi-frequency

Choice of frequency:

sample N°= 1 ⇨ 13.56 MHz

6. TESTS RESULTS SUMMARY

Object	Respected standard?				Remarks
	Yes	No	NE	I	
Reference levels for electric, magnetic and electromagnetic fields	X				
Reference levels for contact currents from conductive objects	X				

NE = Not Executed
I = Inconclusive

Remark(s):

- the reference levels are provided for practical exposure–assessment purposes to determine whether the basic restrictions are likely to be exceeded. These levels are derived from relevant basic restrictions.

7. REFERENCE LEVELS FOR ELECTRIC, MAGNETIC AND ELECTROMAGNETIC FIELDS

Standard: Council Recommendation of 12 July 1999

Test procedure: EN 50357 § 4.1.2

Test equipments used:

TYPE	MANUFACTURER	EMITECH NUMBER
Spectrum analyzer FSEM30	Rohde & Schwarz	7389
Meteo station AB888	Oregon Scientific	1539
Loop antenna 7.5 cm	-	2464

Measurement conditions:

The sensor is moved in front of the equipment under test according figure 2i of EN 50357.

Test operating conditions of the equipment:

The equipment is blocked in continuous transmission mode without detection tag.

Results:

Sample N° 1

Power supply: 3.7 Vd.c. by internal battery

See results board in annex 1.

Test conclusion:

RESPECTED STANDARD

8. REFERENCE LEVELS FOR CONTACT CURRENTS FROM CONDUCTIVE OBJECTS

Standard: Council Recommendation of 12 July 1999

Test procedure: EN 50357 § 4.4

Test equipments used:

TYPE	MANUFACTURER	EMITECH NUMBER
Spectrum analyzer FSEM30	Rohde & Schwarz	7389
Meteo station AB888	Oregon Scientific	1539
Current probe F-80	FCC	2535

Measurement conditions:

The sensor is placed around the arm of a person and this person comes to touch the radio antenna of the equipment under test with the hand.

Test operating conditions of the equipment:

The equipment is blocked in continuous transmission mode with/without detection tag.

Results:

Sample N° 1

Power supply: 3.7 Vd.c. by internal battery

See results board in annex 1.

Test conclusion:

RESPECTED STANDARD

□□□ End of report, 3 annexes to be forwarded □□□

ANNEX 1: RESULTS BOARD

PLUGGED HF RFID READER

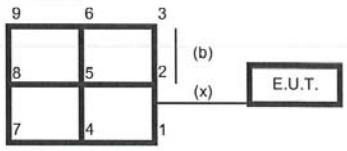
Test configuration : 2 i

distance x=0.1m | T 21.5
a/b/c 0,15 m | Hr 36
hPa 1026

Equipment height 1.05 m

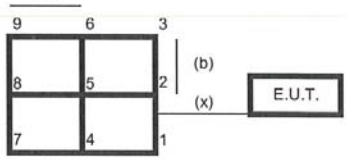
measurement height 0.75 m

measurement point	(dBµV)	records (mV)	corrected level (mA/m)
1	44.80	0.17	0.47
2	46.64	0.21	0.58
3	43.99	0.16	0.42
4	19.35	0.01	0.02
5	27.57	0.02	0.06
6	22.72	0.01	0.04
7	36.03	0.06	0.17
8	39.20	0.09	0.24
9	36.29	0.07	0.17



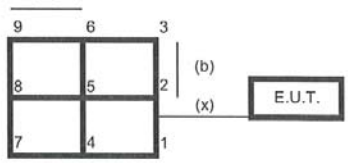
measurement height 0.9 m

measurement point	(dBµV)	records (mV)	corrected level (mA/m)
1	52.17	0.41	1.09
2	40.19	0.10	0.27
3	51.60	0.38	1.02
4	45.06	0.18	0.48
5	52.62	0.43	1.15
6	43.80	0.15	0.42
7	44.51	0.17	0.45
8	47.93	0.25	0.67
9	42.63	0.14	0.36



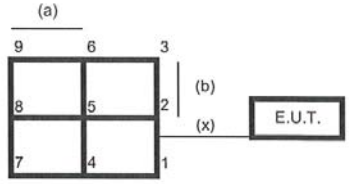
measurement height 1.05 m

measurement point	(dBµV)	records (mV)	corrected level (mA/m)
1	53.93	0.50	1.33
2	88.09	25.38	68.02
3	59.72	0.97	2.59
4	52.85	0.44	1.18
5	64.43	1.67	4.46
6	51.83	0.39	1.05
7	49.15	0.29	0.77
8	49.14	0.29	0.77
9	47.28	0.23	0.62



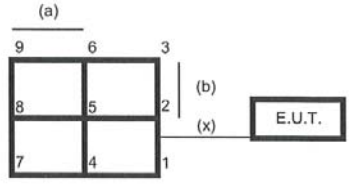
measurement height 1.20 m

measurement point	(dBµV)	records (mV)	corrected level (mA/m)
1	47.60	0.24	0.64
2	50.18	0.32	0.87
3	54.68	0.54	1.45
4	43.86	0.16	0.42
5	56.04	0.63	1.70
6	50.21	0.32	0.87
7	40.50	0.11	0.28
8	45.47	0.19	0.50
9	43.51	0.15	0.40



measurement height 1.35 m

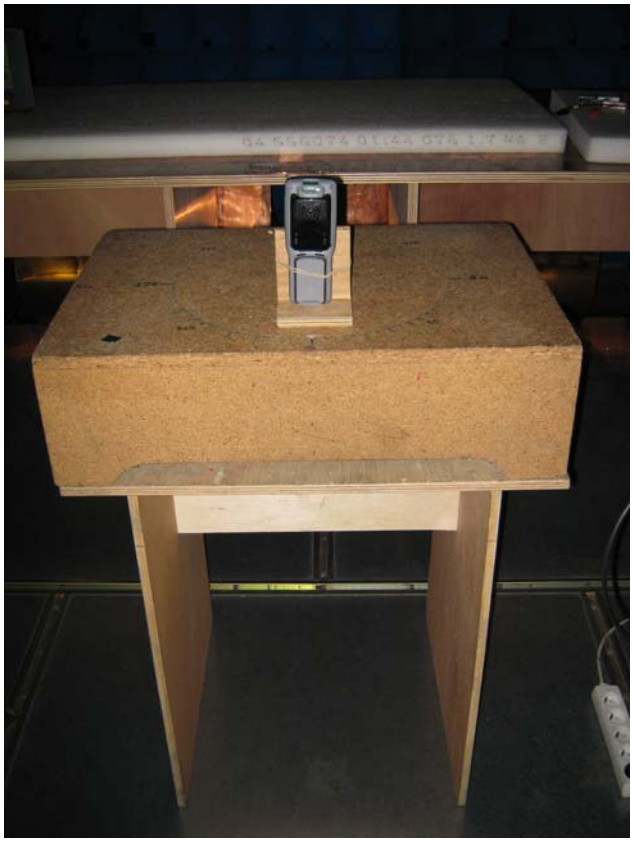
measurement point	(dBµV)	records (mV)	corrected level (mA/m)
1	46.84	0.22	0.59
2	48.67	0.27	0.73
3	46.48	0.21	0.57
4	31.31	0.04	0.10
5	38.40	0.08	0.22
6	37.46	0.07	0.20
7	37.58	0.08	0.20
8	34.52	0.05	0.14
9	34.87	0.06	0.15



		Limits
Spatially averaged measure	10.19 mA/m	73mA/m

	measure (dBµV)	records (mV)		Limits
Mesure in arm	46.55	0.21	0.04 mA	45mA

ANNEX 2: TEST SET UP

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ANNEX 3: RADIO APPLICATION FORM

EMITECH

Questionnaire de demande de prestation

Version française tapez 1 :
English version tape 2: 1

A - PARTIE ADMINISTRATIVE

Il est important de remplir complètement les questionnaires car ils sont nécessaires à l'établissement de notre proposition technique et financière ainsi qu'au bon déroulement de la prestation.

A1 - Client demandeur de la prestation (qui sera destinataire du rapport en diffusion)

Société :	PSION TEKLOGIX				
Contact :	Nicolas FORNIER				
Adresse :	135 rue René Descartes, Parc de la Duranne 13591 Aix en Provence				
Tél :	04.42.908.809	Fax :	04.42.908.888	e-mail :	nicolas.fornier@psiontek!

A2 - Représentant ou Mandataire (à remplir si différent du demandeur)

Société :					
Contact :					
Adresse :					
Tél :		Fax :		e-mail :	

A3 - Constructeur (à remplir si différent du demandeur)

Société :					
Contact :					
Adresse :					
Tél :		Fax :		e-mail :	

A4 - Description du produit / système

Désignation :	Plugged HF RFID Reader
Référence :	RFID module HF-AM1-Ikôn
Type :	
Fonction :	
Autre :	

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B - PARTIE TECHNIQUE

Description du produit / système

Désignation :	Plugged HF RFID Reader
Référence :	RFID module HF-AM1-Ikôn
Numéro de série :	
Fonction :	0
Si le produit est embarqué sur véhicule, type de véhicule :	
Autre :	0

Equipement de série ☐ présérie ☑ prototype ☐

Alimentation

Monophasé :		Vac	Fréquence ou plage de fréquence :	
Triphasé :		Vac	Présence neutre (oui / non) :	
Batterie :	3.7	Vdc	Autres renseignements :	
Alimentation DC :		Vdc		
Adaptateur secteur : ☐				
Puissance :		W		
Courant nominal :	0.2	A		

Autres

Poids (kg) :		Taille (L x l x h) (m) :	75X40X15 mm
Température d'utilisation min :			
Température d'utilisation max :	50°C		
Liquide ou produit dangereux * :			
Connexions spécifiques (eau, gaz, *) :			

* fournir les consignes de sécurité appropriées

Câbles d'entrées / sorties

	Désignation (préciser le type : RTC, RNIS, ADSL, Ethernet, RS 232, ... et quantité)	Blindé (O/N)	Long. déclarée
Cable :	Docking connector	N	
Cable :			
Cable :			
Cable :			
Cable :			
Cable :			
Cable :			
Cable :			
Cable :			
Cable :			

Autre :

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B3 - Partie spécifique RADIO

A renseigner impérativement si votre besoin concerne la RADIO

Emetteur / Récepteur

Type : ☐ Emetteur ☐ Recepteur ☑ Emetteur/Récepteur

☑ Mono freq. ☐ Bi freq. ☐ Multi freq. Nbr de canaux :

Fréquence d'émission :	13,56 MHZ	Puissance :	1 W
Modulation :	Amplitude modulation		
Niveau du signal modulant :			
Rapport cyclique d'émission :	continous		
Fréquence de réception :	13,56 MHZ		
Classe du récepteur :	1		

Autre :

Antenne

Type : ☑ Intégrée ☐ Externe fixe (1) ☐ Externe détachable (1)

(1) décrire le type d'antenne, sa longueur et le type de connecteur :

Antenna loop (55 X 30 mm)

Gain d'antenne : dBi

Autres

Destination de l'équipement : ☐ Transm. data ☐ Télémesure ☐ Télécommande ☐ Téléalarme ☐ Phonie ☑ Autre :

Possibilité de bloquer l'émetteur en ém. permanente : ☑ ☑ Modulé ☑ Non modulé

Possibilité de bloquer le récepteur en réc. permanente : ☐

Autres informations :

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