MPE CALCULATION

APPLICANT:	Power-One Italy S.p.a. Via San Giorgio, 642 – 52028 Terranuova Bracciolini (AR) Italy Tel. +39 055 91951 E-mail: federico.mastronardi@power-one.com gianfranco.iannuzzi@power-one.com
EUT DESCRIPTION	INVERTER RADIO INTERFACE
EUT TRADEMARK	Power-One
EUT MODEL	PVI-RADIOMODULE-US
Reference standards :	47 CFR FCC part 15.249 47 CFR FCC part 1.1310 OET BULLETIN 65
TEST REPORT NUMBER	MPETR_1001470A-0
DATE of ISSUE	10/03/2011
laboratory	Prima Ricerca & Sviluppo S.r.l. Via Campagna, 92 -22020 Faloppio (Co) –Italy
ISSUED by	Massimo Maltempi

The calculation results reported in this document shall refer only to Test Report above indicated and relevant tested sample

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0. CONTENTS

Page

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1. EUT Technical Data

Brand name:	POWER-ONE
Manufacturer:	POWER-ONE ITALY SPA
Equipment :	INVERTER RADIO INTERFACE
Serial number :	Not present
FCC ID :	X6W-MODNOP
FCC class:	47 CFR FCC Part 15 Subpart C § 15.249
Radio type:	Intentional radiators
Power type :	12 Vdc
Auxiliary Equipment:	(Power One) Inverter type PVI-4.2-OUTD-IT
Modulation :	GFSK
Data Rate (Mbps) :	50 Kbps
Frequency range :	902 – 928 MHz
Channel number :	63
Channel Band Width (20dB) :	440 KHz
Channel space:	400KHz
radiated Output Power :	93.4 dBuV/m radiated
Carrier Frequency:	Channel No.1: 902,65 MHz Channel No.63: 927,45 MHz
Field Antenna :	Antenna Type: Bondale Industrial Ltd. mod. G-RA0K11165032-1460 Gain 2,15 dBi

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2. Assessment method

EM reference level: Power flux density calculation in the Far Field region

3. MEASUREMENTS AND CALCULATION RESULTS

3.1 Calculation Method

Far Field Power flux Calculation model.

This model is applicable in the far-field region and over-estimates in the radiating near-field region. The far-field calculations are accurate when the distance, r, from an antenna of length D to a point of investigation is greater than

$$r = \frac{2D^2}{\lambda}$$

The Power Flux is

$$S = \frac{PG}{4\pi r^2} \quad \text{or equivalent} \quad S = \frac{EIRP}{4\pi r^2}$$

where

P = input power of the antenna

G = antenna gain relative to an isotropic antenna

r = distance from the antenna to the point of investigation.

EIRP = Effective Isotropic Radiated Power

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3.2 Limits

The FCC's MPE limits for field strength and power density are given in Table 1 (and in47 CFR § 1.1310)

Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

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3.3 Calculation Results

Reference Test Report: FCCTR_101470-0 issued by Prima Ricerca&Sviluppo on 10/03/2011

Channel 63 (worst case)

	Conducted (Antenna Connector)		Radiated	
Power at the Antenna	0.0000258 watts		0.0000437 watts	
Antenna Gain in dB	2.15 dBi		0 dBi	
Distance to the Area of Interest	0.656 feet 0.1999 metres		0.656 feet 0.1999 metres	
Frequency of Operation	927.45 MHz		927.45 MHz	
Are Ground reflections Calculated	Yes		No	
Estimated RF Power Density	0.0001 mW/cm^2		0.0001 mW/cm^2	
	Controlled Environment	Uncontrolled Environment	Controlled Environment	Uncontrolled Environment
Maximum Permissible Exposure (MPE)	3.0965 mW/cm^2	0.6233 mW/cm^2	3.0965 mW/cm^2	0.6233 mW/cm^2
Distance to Compliance From Centre of Antenna	0.0517 feet 0.0158 metres	0.0539 feet 0.0164 metres	0.0511 feet 0.0156 metres	0.0525 feet 0.016 metres
Does the Area of Interest Appear to be in Compliance	yes	yes	yes	yes

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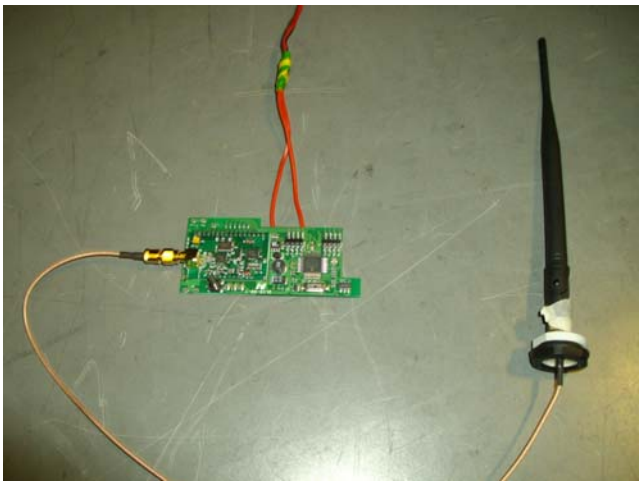
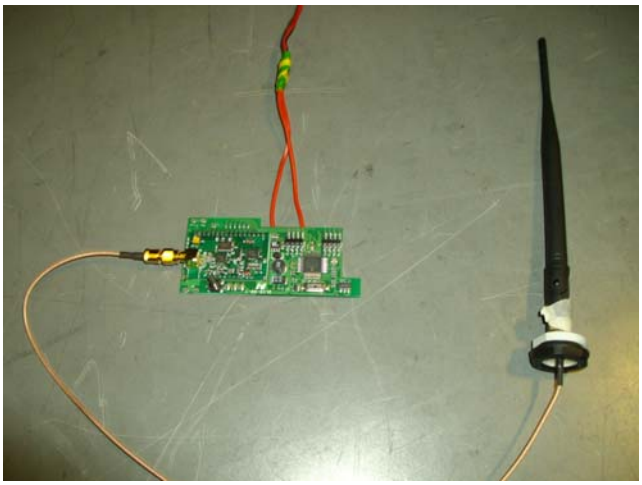
4. EUT Photographic DOCUMENTATION

PHOTO N° 1 – SYSTEM IDENTIFICATION

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