

# TEST REPORT

## No. AI15S0569875-01

### MEASURE OF THE CIRCUIT WATTS AND VOLT-AMPERE

performed in accordance with

Question 3 of the guidance "UMS Charge Code Form Appendix for Lamps" version 4.0 issued by Elexon

<b>PRODUCT</b>	Luminaires
<b>MODEL(s) TESTED</b>	See MODEL (basic) at page 4
<b>TRADE MARK(s)</b>	fivep lite cariboni lite (only for LEVANTE SMALL STRADALE)
<b>APPLICANT</b>	FIVEP SPA VIA G. A PRATO 22 38068 ROVERETO TN

Tested by	Renato Galbusieri <i>[Laboratory Technician]</i>	
Approved by	Matteo Raimondi <i>[Laboratory Manager]</i>	

#### Revision Sheet

Release No.	Date	Revision Description
Rev. 0	2016-01-18	First edition

The results of tests and checks reported in this Test Report refer exclusively to the samples tested and described in the Report itself.

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The authenticity of this Test Report and its contents can be verified by contacting IMQ S.p.A., responsible for this Test Report.

## GENERAL DATA

SAMPLE		
Samples received on	//	Item(s) sampled and sent by applicant
IMQ reference samples	<b>BEM</b>	<b>Not required</b>
Samples tested No.	5 Samples per model	
Object under analysis recognition	<b>Not carried out</b>  Except where stated, characteristics of products were taken from client description and were not verified by the laboratory	

TESTING LOCATION	
Testing dates	2015/11/24, 2015/12/02, 2015/12/22
Testing laboratory.	IMQ S.p.A. - Via Quintiliano, 43 – I-20138 Milano
Testing site	FIVEP S.p.A. – Via della Tecnica, 19 – 23875 OSNAGO (LC)

ENVIRONMENTAL CONDITION	
<i>Parameter</i>	<i>Measured</i>
Ambient Temperature	20 ÷ 25 °C
Relative Humidity	Not measured
Atmospheric Pressure	Not measured

## REFERENCE DOCUMENT

	DOCUMENT	DATE	TITLE
<input checked="" type="checkbox"/>	ELEXON Guidance	26 March 2014	UMS Charge Code Form Appendix for Lamps (ver.4.0)

## SUMMARY OF CONTENTS

Attachment #	Description	Page
Annex 1	UMS Charge Code Form Appendix for Lamps	4
Annex 2	Power meter - Calibration report	4
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**Note:**

Attachments may include Schematics, Components information, Component test Reports, Particular Standard test Reports, Standard test Reports, Information from accompanying documents and similar.

## EQUIPMENT UNDER TEST (EUT) DETAILS

MODEL (basic)	Description
KAI SMALL LT-M	12 LEDs 16 LEDs 28 LEDs
KAI MEDIUM LT-L	54 LEDs
KAI MEDIUM LT-M	44 LEDs 72 LEDs
LEVANTE-SMALL STRADALE	10 LEDs
KALOS-VP-TP-LT-M	20 LEDs 30 LEDs
VARIANTS (derived)	Description
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MANUFACTURER	FIVEP S.p.A. - Via della Tecnica, 19 - 23875 OSNAGO (LC) FIVEP S.p.A. - Via G. A Prato, 22 - 38068 Rovereto (TN)
ASSEMBLY PLANT(s)	-

### GENERAL PRODUCT INFORMATION:

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### COPY OF MARKING PLATE:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



## SUMMARY OF TEST

POSSIBLE TEST CASE VERDICTS:	
Test object does meet the requirement	P(ass)
Test object does not meet the requirement	F(ail)
Test case does not apply to the test object	N.A.
Test object has not been checked	N.C.

TEST PERFORMED	CLAUSE	ITEM NUMBER
--	--	--

### GENERAL REMARKS:

Tests and check results, written here, refers only to tested object that are described in this report.  
 Only full reproductions of this Test Report are allowed without written authorization of IMQ.

Throughout this report a point (comma) is used as the decimal separator.

Unless otherwise stated the uncertainties for the tests and measurements are evaluated in according to IMQ Operational Instruction IO-LAB-001 and IO-LAB-004.

The uncertainties evaluation has been carried out in accordance with IEC Guide 115 "Application of Uncertainty of measurement's to Conformity Assessment Activity in the Electrotechnical Sector" and IECEE CTL decision sheet DSH 251x.

Internal Procedure PI-037 ensure that the requirements for traceability of calibrations, of all test equipment requiring calibration, and calibration intervals are met.

The ability or reliability of this product to perform its intended function in a particular application has not been investigated.

Unless otherwise specified, warnings, installation instruction and/or user manual provided with the sample have been checked in Italian or English version only.

IMQ declines any responsibility derived from missing or wrong information provided aside by the applicant.

## REQUIREMENTS AND TESTS

### KAI SMALL LT-M (12 LEDs – 25 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	29.70	30.31	29.75	29.93	29.47
	VA	30.80	31.58	30.76	31.03	30.81
<b>220 V</b>	Watts	29.84	30.22	29.65	29.83	29.35
	VA	31.08	31.66	30.86	31.10	30.84
<b>230 V</b>	Watts	29.90	30.25	29.63	29.79	29.38
	VA	31.33	31.88	31.01	31.25	31.05
<b>240 V</b>	Watts	29.90	30.15	29.59	29.77	29.33
	VA	31.48	31.97	31.16	31.41	31.22
<b>250 V</b>	Watts	29.91	30.09	29.59	29.79	29.35
	VA	31.75	32.22	31.43	31.72	31.60

### KAI SMALL LT-M (16 LEDs – 34 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	38.19	37.60	37.58	38.08	40.91
	VA	41.09	40.50	40.60	40.89	37.94
<b>220 V</b>	Watts	38.27	37.44	37.45	37.83	37.84
	VA	40.69	39.86	40.09	40.29	40.48
<b>230 V</b>	Watts	38.21	37.37	37.40	37.80	37.94
	VA	40.96	40.01	40.26	40.53	40.76
<b>240 V</b>	Watts	38.15	37.32	37.33	37.73	37.95
	VA	41.07	40.16	40.41	40.64	41.00
<b>250 V</b>	Watts	38.10	37.26	37.29	37.69	37.90
	VA	42.05	41.04	40.92	41.49	41.59

### KAI SMALL LT-M (28 LEDs – 59 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	64.76	62.60	64.57	66.58	65.36
	VA	67.16	65.03	66.86	68.88	67.54
<b>220 V</b>	Watts	65.12	62.44	64.33	66.58	65.52
	VA	67.38	64.64	66.59	68.85	67.73
<b>230 V</b>	Watts	65.02	62.33	64.21	66.32	65.28
	VA	67.41	64.59	66.52	68.80	67.57
<b>240 V</b>	Watts	64.78	62.26	64.08	68.57	64.96
	VA	67.38	64.70	66.57	66.07	67.41
<b>250 V</b>	Watts	64.73	62.33	64.04	66.30	64.99
	VA	67.55	65.02	66.74	69.07	67.77

### KAI MEDIUM LT-L (54 LEDs – 112 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	123.18	124.00	125.00	122.24	122.08
	VA	124.81	125.77	126.70	124.16	123.77
<b>220 V</b>	Watts	121.50	123.18	123.96	121.28	121.05
	VA	123.26	125.06	125.85	123.35	122.84
<b>230 V</b>	Watts	121.02	122.79	123.71	120.90	120.87
	VA	122.97	124.73	125.67	122.94	122.76
<b>240 V</b>	Watts	120.67	122.46	123.57	120.75	120.57
	VA	122.84	124.58	125.71	122.97	122.69
<b>250 V</b>	Watts	120.54	122.16	123.10	120.30	120.40
	VA	122.98	124.54	125.58	122.79	122.85



### KAI MEDIUM LT-M (44 LEDs – 91 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	99.90	101.23	100.27	101.13	101.60
	VA	102.70	103.76	102.85	103.82	104.12
<b>220 V</b>	Watts	99.64	100.94	100.23	101.05	101.44
	VA	102.08	103.58	102.94	103.82	104.20
<b>230 V</b>	Watts	99.61	100.95	99.64	100.63	101.51
	VA	102.69	103.63	102.46	103.57	104.39
<b>240 V</b>	Watts	99.35	101.22	99.57	100.88	101.00
	VA	102.41	104.08	102.56	103.94	104.03
<b>250 V</b>	Watts	99.02	100.61	99.72	101.18	100.98
	VA	102.44	103.73	103.01	104.47	104.25

### KAI MEDIUM LT-M (72 LEDs – 148 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	163.52	162.95	162.36	158,70	160,00
	VA	166.36	165.80	165.23	161,66	162,40
<b>220 V</b>	Watts	162.18	161.70	161.03	158,49	159,90
	VA	165.31	164.85	164.24	161,77	162,70
<b>230 V</b>	Watts	162.16	161.58	161.03	158,57	159,80
	VA	165.86	165.36	164.71	162,15	163,00
<b>240 V</b>	Watts	162.07	161.50	160.92	158,52	159,80
	VA	166.33	165.72	165.18	162,69	163,50
<b>250 V</b>	Watts	162.11	161.38	160.89	158,46	159,70
	VA	166.85	166.14	165.69	163,21	164,00

### LEVANTE-SMALL STRADALE (10 LEDs – 21 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	23.01	23.42	23.17	22.98	24.24
	VA	27.69	27.96	27.69	27.43	28.37
<b>220 V</b>	Watts	22.92	23.39	23.13	22.89	24.15
	VA	26.52	26.93	26.68	26.56	27.49
<b>230 V</b>	Watts	22.93	23.39	23.10	22.91	24.17
	VA	26.70	27.10	26.79	26.71	27.73
<b>240 V</b>	Watts	23.01	23.40	23.15	22.93	24.21
	VA	26.91	27.33	27.08	26.93	27.86
<b>250 V</b>	Watts	23.03	23.46	23.16	22.97	24.23
	VA	27.36	27.73	27.54	27.43	28.25

### KALOS-VP-TP-LT-M (20 LEDs – 42 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	45.81	45.19	45.52	45.54	45.15
	VA	48.01	47.34	47.62	47.60	47.22
<b>220 V</b>	Watts	45.57	45.08	45.38	45.31	45.01
	VA	47.49	47.01	47.29	47.23	46.98
<b>230 V</b>	Watts	45.49	44.95	45.22	45.21	44.87
	VA	47.44	46.90	47.16	47.12	46.78
<b>240 V</b>	Watts	45.47	45.00	45.19	45.28	44.82
	VA	47.46	47.01	47.25	47.34	46.91
<b>250 V</b>	Watts	45.41	45.00	45.15	45.15	44.74
	VA	47.59	47.20	47.32	47.34	46.96

### KALOS-VP-TP-LT-M (30 LEDs – 62 W)

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>210 V</b>	Watts	66.03	67.23	66.19	67.89	66.58
	VA	68.34	70.68	68.43	70.14	68.53
<b>220 V</b>	Watts	65.42	66.24	65.70	69.48	65.96
	VA	67.55	68.77	67.83	67.37	67.92
<b>230 V</b>	Watts	65.07	65.78	65.50	67.11	65.43
	VA	67.29	68.21	67.68	69.24	67.56
<b>240 V</b>	Watts	64.65	65.39	65.19	66.78	65.03
	VA	66.99	67.87	67.51	69.11	67.30
<b>250 V</b>	Watts	64.23	64.95	64.83	65.01	64.54
	VA	66.80	67.58	67.38	67.61	67.06

## COMPONENTS

Object/part No.	Manufacturer/ Trademark	Type/Model	Technical data
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### For: KAI SMALL LT-M (12 LEDs – 25 W)

Electronic control gear for LED module	Gruppo Giordano	StreetLED MF 1x700mA 50V	1x700 mA, 80 Vout max, 35 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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### For: KAI SMALL LT-M (16 LEDs – 34 W)

Electronic control gear for LED module	Gruppo Giordano	StreetLED MF 1x700mA 50V	1x700 mA, 80 Vout max, 35 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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### For: KAI SMALL LT-M (28 LEDs – 59 W)

Electronic control gear for LED module	Gruppo Giordano	StreetLED MF 1x700mA 86V	1x700 mA, 120 Vout max, 60 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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### For: KAI MEDIUM LT-L (54 LEDs – 112 W)

Electronic control gear for LED module	ALVIT	ALSM16070/1-10-IP	700 mA, 235 Vout max, 160 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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### For: KAI MEDIUM LT-M (44 LEDs – 91 W)

Electronic control gear for LED module	Gruppo Giordano	StreetLED MF 1x700mA 135V	1x700 mA, 200 Vout max, 95 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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### For: KAI MEDIUM LT-M (72 LEDs – 148 W)

Electronic control gear for LED module	PHILIPS	XITANIUM 150W .35- .70A GL Prog sXt	350-700 mA, 296 Vout max, 150 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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### For: LEVANTE-SMALL STRADALE (10 LEDs – 21 W)

Electronic control gear for LED module	Gruppo Giordano	HiLED 45W LEV MERIDIANI	350-700 mA, 80 Vout max, 47.7 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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**For: KALOS-VP-TP-LT-M (20 LEDs – 42 W)**

Electronic control gear for LED module	Gruppo Giordano	HiLED 45W LEV MERIDIANI	350-700 mA, 80 Vout max, 47.7 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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**For: KALOS-VP-TP-LT-M (30 LEDs – 62 W)**

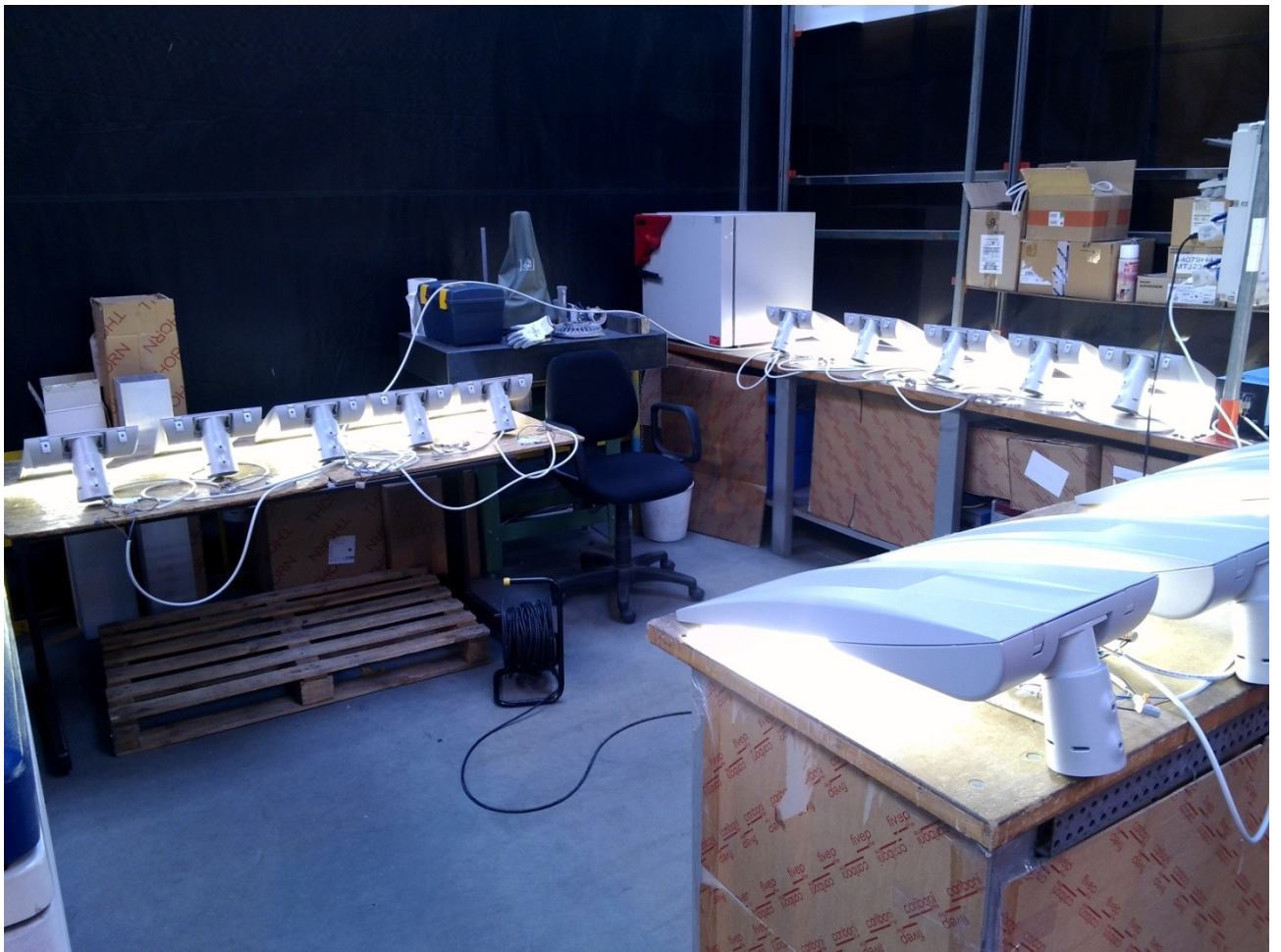
Electronic control gear for LED module	ALVIT	ALSM6070/1-10-IP	700 mA, 110 Vout max, 63 W
LEDs	CREE	XP-G2 (XPGBWT)	--
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## MEASUREMENT EQUIPMENT AND INSTRUMENTATION

Instrument	Manufacturer	Model	IMQ Ref.
Power meter	YOKOGAWA	WT 200	S03067
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## PHOTOGRAPHS

### SET-UP



## ANNEX 1



### UMS Charge Code Form Appendix for Lamps

**This Guidance is intended for use with the UMS Charge Code Form for lamps.**

#### Questions 1-2

The test house must have ISO 17025 accreditation, but can be located anywhere in the world. A PDF of their accreditation certificate *and the schedule to their certificate*, or a link to their certification/schedule on their website would be sufficient evidence of their fitness to perform testing for UMS purposes. *The ISO accreditation of the test house must include the ability to carry out testing on the electrical properties of equipment. It is important that you verify with the test house that their accreditation includes this capability, and discuss any uncertainties with ELEXON in advance of committing to testing, as otherwise we may be unable to process your application.*

#### Question 3

To be issued with a Charge Code, the Circuit Watts and Volt Ampere (VA) of the product should be measured at five different voltage levels, from 210V, increasing in 10V increments up to 250V (at 50Hz). A sample size of five is required **unless, on review of the test data, it is determined that more samples are needed**. Here is an example of the format:

Manufacturer's name and equipment model name

Voltage		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	Watts					
	VA					
220	Watts					
	VA					
230	Watts					
	VA					
240	Watts					
	VA					
250	Watts					
	VA					

The power measurements must include any voltage transformers necessary to operate the equipment from the mains and samples must be tested after operating for sufficient time to reach their steady load state. The accuracy of the measurements shall be stated and the minimum accuracy shall be  $\pm 2\%$  of the recorded value.



Some equipment has functionality which requires a larger number of test samples to be submitted:

Equipment type	Functionality	Additional Testing Requirements
Dimming	Has the facility to dim to a specified level.	5 test samples must be provided for each level the equipment will be dimmed to in live operation AND at full operational power.
Reduced Operation	The equipment can be set to operate at a specified % of its usual full power load.	5 test samples must be provided for each level the equipment will be set to in live operation AND at full operational power.
Control gear (ballasts)	Drives lamps at the same power regardless of the type of lamp.	Test samples should be divided into at least three batches. Each batch (of 5 samples) will be tested with lamps supplied by a different major manufacturer.
Constant Light Output (CLO)	This technology compensates for deterioration in performance over the lifetime of the equipment by drawing more energy to ensure that the light generated is always the same.	We require 5 samples from the start of life for the equipment and 5 samples for the end of life for the equipment.

#### Question 4

A product specification or brochure assists us in understanding your product, provides additional information to the expert group who approve Charge Codes and therefore improves the chances of your product being given a Code in a timely fashion.

#### Question 5

The table below contains *only* the three most common lamps submitted for coding. The codes for all other lamp types, along with further information on the testing requirements for all lamp types, can be found in the [Operational Information Document](#).

If your lamp is going to be used in multiple ways, please list all of the relevant lamp types under this question. For example, if your LED lamp can be used as either sign-back-lighting or street lighting, and it is likely to be used as both, you would enter '40' and '41' in answer to Question 5. Similarly, if your LED lighting product is also capable of being used as traffic equipment (for example, as the lamp for a belisha beacon), you would need to complete a separate 'Signals and Miscellaneous' application form in addition to the 'Lamps' application.

Code	Lamp Type	Code	Lamp Type	Code	Lamp Type
40	Light Emitting Diodes (LEDs)	41	LED Street Lights	50	Electronic Ballasts*

\* If you are intending to submit an application for a '50' Electronic Ballast, please note that we require the ballast be tested with a minimum of two different lamp types. If we receive an application for a '50' type that does not include 5 samples for each lamp type, we will provide you with an appropriate lamp-specific Charge Code.

### Question 6

The nominal wattage of your equipment is the wattage 'on the box', or the wattage you declare to customers. We use this wattage in constructing a Charge Code. It is therefore important that it matches the wattage you sell your products at because it is the best way for end-users to quickly and easily find your product on the Charge Code spreadsheet.

If you are applying for dimmed Charge Codes, we only require a nominal wattage for the product at full power.

### Question 7

The control gear used in conjunction with the lamp forms part of the Charge Code we issue. If you are unsure about which control gear type to choose, please consult the [Operational Information Document](#), and then, if still unsure, contact us at [UMS.Operations@elexon.co.uk](mailto:UMS.Operations@elexon.co.uk).

**If your application is for any kind of LED, or for '50' type electronic ballasts (see the first table under Question 5), control gear type will always be '0'.**

Control gear will be one of the following:

Code	Lamp Type	Code	Lamp Type	Code	Lamp Type
0	No Control Gear	1	Standard Control Gear	2	Low Loss Control Gear
3	High Frequency Electronic Ballast	4	SOX/E Optimum Gear	5	Low Frequency Electronic Ballast
6	Multi-Level Static Dimming				

### Question 8

The name or model number you give for the product should be what appears 'on the box', as sold to customers. The entry for your product on the Charge Code spreadsheet will include a cell with this description, and customers and UMSOs will use it to select the correct product for their inventories. It is therefore important that this description is clear, and matches the name under which your product is sold.

If you are applying for dimmed Charge Codes, please note that your codes will be given dimmed percentage values based on the circuit wattages in your test data. We do not use dimmed values based on Lumen levels in any of the descriptions on the Charge Code spreadsheet.

### Question 9

If you are not the manufacturer of the equipment you are applying for, please specify the manufacturer in the field provided.

Generally, the manufacturer of the equipment is the party who must apply for a Charge Code. The only instance in which an exception can be made to this rule is where the manufacturer will be using you as their sole distributor, and is willing to provide written assurance of the fact to ELEXON.

If you are unsure about how to answer this question, please contact us at the email address provided.

## Useful Links

- Contact [UMS.Operations@elexon.co.uk](mailto:UMS.Operations@elexon.co.uk)
- [Unmetered Supplies](#)
- [UMS Charge Code Form – Lamps](#)
- [Operational Information Document](#)
- [Charge Codes and Switch Regimes](#)

For more information please contact the **BSC Service Desk** at [bscservicedesk@cgi.com](mailto:bscservicedesk@cgi.com) or call **0870 010 6950**.

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## ANNEX 2



**IMQ S.p.A.**  
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Capitale Sociale  
€ 4.000.000

## LABORATORIO DI TARATURA

*Calibration Laboratory*

### RAPPORTO DI TARATURA N. S3067-115

*Calibration Report*

Emesso da <i>Issued by</i>	IMQ S.p.A. - Sede di MILANO Via Quintiliano, 43 I-20138 Milano
E' costituito da <i>number of pages</i>	10 pagine
- in data <i>date</i>	2015-11-04
- destinatario <i>addressee</i>	EG0004
- richiesta <i>application</i>	EM0007
- in data <i>date</i>	2015-10-29
Si riferisce a <i>referring to</i>	
- oggetto <i>device</i>	WATTMETRO
- costruttore <i>manufacturer</i>	YOKOGAWA
- modello <i>model</i>	WT 200
- matricola <i>serial number</i>	12WB08931L
- data delle misure <i>date of measurements</i>	2015-10-30
Requisiti di conformità <i>Compliance requirements</i>	IO-LAB-004 o requisiti del committente

Lo sperimentatore  
*Test Engineer*  
Roberto Masola

Responsabile del Laboratorio  
*Head of the Laboratory*  
Agostino Fiorita\*

*Agostino Fiorita*



Le incertezze di misura dichiarate in questo documento sono state determinate conformemente al documento EA-4/02 e sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura  $k$  corrispondente ad livello di fiducia di circa il 95%. Normalmente tale fattore  $k$  vale 2.  
*The measurement uncertainties stated in this document have been determined according to EA-4/02. They were estimated as extended uncertainty obtained multiplying the standard uncertainty by the coverage factor  $k$  corresponding to a confidence level of about 95%. Normally, this factor  $k$  is 2.*

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MILANO - ROMA - CRACOVIA - MADRID - SHANGHAI

I risultati di misura riportati nel presente Rapporto sono stati ottenuti applicando le procedure n.  
*The measurements results reported in this Report were obtained following procedures No.*

IO-70-UCC05, IO-70-ICC8, IO-70-W03, IO-70-W06, IO-70-UCA8, IO-70-ICA8, IO-70-ICA13, IMQ-E1-M02,  
IO-70-FD2,

la cui catena di riferibilità ha inizio dai campioni muniti di relativo Rapporto di taratura come sotto indicato:  
*Traceability is through standards validated by certificates of calibration No.:*

<b>Campione Standard</b>	<b>Rapporto di taratura Certificate of calibration</b>
CALIBRATORE DI POTENZA rif. IMQ S04655	051576 / FLUKE
CALIBRATORE MULTIFUNZIONE rif. IMQ S02526	S2526-115 / IMQ
FREQUENZIMETRO rif. IMQ S00724	S0724-115 / IMQ
WATTMETRO NUMERALE rif. IMQ S02329	LAT 021 15-049 / IMQ

### INFORMAZIONI SUPPLEMENTARI SULLO STRUMENTO IN TARATURA

Classe di precisione : fare riferimento al manuale d'uso  
N. inventario IMQ : S03067



### MODALITA' DI ESECUZIONE DELLA TARATURA

Lo strumento è stato posto nelle seguenti condizioni di riferimento:

- in equilibrio termico con l'ambiente alla temperatura di  $(23 \pm 2) ^\circ\text{C}$  e umidità relativa di  $(45 \pm 20) \%RH$ ;
- nelle condizioni di messa a punto in cui è stato affidato al Laboratorio di Taratura e riconsegnato al Committente.

Le misure sono state eseguite dopo un tempo di accensione sufficiente al raggiungimento del regime termico.  
Le misure sono state eseguite per le Grandezze e per i punti indicati espressamente dal Committente.

### INCERTEZZE DI MISURA

I valori di incertezza riportati nel presente Rapporto sono stati ricavati tenendo conto di tutti i contributi di incertezza che intervengono nella misura, compresi quelli che derivano dalla risoluzione e dalla stabilità a breve termine dello strumento in taratura.

Le incertezze, simmetriche in più ed in meno, relative ai valori numerici riportati nel presente Rapporto sono riportate nelle tabelle dei risultati.

Per le condizioni di alimentazione

- |             |        |
|-------------|--------|
| - tensione  | : 1%   |
| - frequenza | : 0,5% |

I risultati ottenuti sono relativi alla condizione in cui si trovava lo strumento al momento della sua taratura; essi non sono significativi della capacità dello strumento di mantenere la taratura nel tempo.

L'incertezza di taratura non coincide con l'incertezza d'uso dello strumento. La stima dell'incertezza d'uso è responsabilità dell'utente finale e si ricava mediante la conferma metrologica effettuata secondo l'istruzione operativa IO-LAB-001 in corso di validità.

### CONFERMA METROLOGICA

La conferma metrologica viene effettuata allo scopo di verificare che lo strumento in taratura sia compatibile con le caratteristiche metrologiche richieste dai limiti prescritti dalla IO-LAB-004 in corso di validità o ai limiti più restrittivi segnalati dal committente. Gli esiti della conferma metrologica sono riportati per ogni punto di misura all'interno delle tabelle dei risultati. Per gli eventuali limiti diversi da quelli indicati nella IO-LAB-004 e non preventivamente comunicati, il committente dovrà compilare il mod. 677 di pertinenza.

### NOTE

(\*) Nel caso in cui il documento sia stato emesso in originale elettronico, non saranno presenti le firme manuali ma il documento elettronico conterrà direttamente la firma digitale certificata del Responsabile del Servizio, che potrà essere verificata per mezzo degli appositi strumenti informatici. La firma manuale non compare quindi nelle riproduzioni su carta o pdf del documento. I firmatari del documento sono quelli indicati a piè di pagina.

### POTENZA ATTIVA MONOFASE

Portate strumento in taratura		Condizioni di Taratura				Lett.	Potenza appl.	Errore rel.	Inc. est.	Inc. strum.		Limite EN13032-4	Esito Conf. Metrol.	
Un	In	Ufase	I	f.d.p.	f	P	Pa	e=(P-Pa)/Pa	U(e)	U(str)	U (stry)	Lm	att.	1y
(V)	(A)	(V)	(A)	(cos φ)	(Hz)	(W)	(W)	(%)	(%)	(%)	(%)	(%)	(pass/fail)	
300	5,0 m	300,0	5,0m	1,00	50	1,5	1,50	0,14	0,014	0,15	0,27	0,5	PASS	PASS
300	10,0m	300,0	10,0m	1,00	50	3,0	3,00	0,11	0,013	0,12	0,24	0,5	PASS	PASS
300	200,0m	300,0	200,0m	1,00	50	60,1	60,00	0,12	0,013	0,13	0,25	0,5	PASS	PASS
150	50,0m	120,0	50,0m	1,00	50	6,0064	6,00	0,11	0,013	0,12	0,25	0,5	PASS	PASS
15	5	15,00	5,0	1,00	50	75,09	75,00	0,12	0,013	0,13	0,25	0,5	PASS	PASS
30	5	30,00	5,0	1,00	50	150,2	150,00	0,11	0,014	0,12	0,24	0,5	PASS	PASS
60	5	60,00	5,0	1,00	45	300,4	300,00	0,13	0,013	0,14	0,26	0,5	PASS	PASS
		60,00	5,0	1,00	50	300,4	300,00	0,12	0,013	0,13	0,25	0,5	PASS	PASS
		60,00	5,0	1,00	65	300,4	300,00	0,13	0,013	0,14	0,26	0,5	PASS	PASS
150	5	150,0	5,0	1,00	50	751,0	750,00	0,13	0,013	0,14	0,26	0,5	PASS	PASS
600	5	600,0	5,0	1,00	50	3,0 k	3,00 k	0,14	0,013	0,15	0,27	0,5	PASS	PASS
300	1	300,0	1,0	1,00	45	300,4	300,00	0,14	0,013	0,15	0,27	0,5	PASS	PASS
		300,0	1,0	1,00	50	300,4	300,00	0,14	0,013	0,15	0,27	0,5	PASS	PASS
		300,0	1,0	1,00	65	300,4	300,00	0,13	0,013	0,14	0,26	0,5	PASS	PASS
300	2	300,0	2,0	1,00	50	600,9	600,00	0,15	0,013	0,16	0,28	0,5	PASS	PASS
300	5	300,0	1,0	1,00	50	1,5021 k	1,5000 k	0,14	0,014	0,15	0,2	0,5	PASS	PASS
		300,0	1,000	0,50	50	0,7508 k	0,7500 k	0,11	0,015	0,13	0,27	0,5	PASS	PASS
		300,0	2,500	1,00	50	0,7510 k	0,7500 k	0,13	0,015	0,15	0,29	0,5	PASS	PASS
		300,0	2,500	0,50	50	0,3753 k	0,3750 k	0,08	0,020	0,10	0,34	0,5	PASS	PASS
		300,0	5,000	1,00	50	1,5021 k	1,5000 k	0,14	0,014	0,15	0,27	0,5	PASS	PASS
		300,0	5,000	0,50	50	0,7508 k	0,7500 k	0,11	0,015	0,13	0,27	0,5	PASS	PASS
300	10	300,0	10,00	1,00	50	3,0046 k	3,0000 k	0,15	0,013	0,16	0,21	0,5	PASS	PASS
300	20	300,0	20,00	1,00	50	6,0090 k	6,0000 k	0,15	0,016	0,17	0,21	0,5	PASS	PASS
600	5	300,0	5,000	1,00	50	1,5019 k	1,5000 k	0,13	0,014	0,14	0,25	0,5	PASS	PASS

Filter OFF - AVG ON- Mode RMS -Il cosφ diverso da uno è da intendersi induttivo

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**END OF TEST REPORT**