

RAPPORTO DI PROVA

TEST REPORT

Rif. / Ref. n.	MPETR_179150-1	Data Emissione /Issue Date:	22/01/2024	Pagine / Pages:	11
Scopo delle prove Test object	Prove di tipo in accordo alla Norme <i>Type test according to Standards</i> 47 CFR FCC part 2 - §2.1093 RSS-102:2015				
Richiedente Applicant	Meta System S.p.A. Via Galimberti 9 - 42124 Reggio Emilia – Italy Tel.: +39 0522364256				
Marchio commerciale Trade mark					
Fabbricante Manufacturer	Meta System S.p.A.				
Prodotto Product	MotorCycle Alarm				
Modello testato Testing model	DEF.COM 3.2 B				
Identificativo FCC/IC FCC/IC ID	FCC ID: P30DEF3 IC ID: 4429A-DEF3				
Data ricevimento campioni Date of test samples receipt	21/01/2022				
Campioni verificati No. of tested samples	3 – Sampled by the manufacturer				
Data verifiche Testing date	From 24/01/2022 to 01/02/2022				
Conformity Assessment Body Identifier (CABID)	IT0005				
Identificativo FCC del sito di prova FCC designation number	IT0012				
Sito di prova Testing site	PRSLAB S.r.l. Unipersonale - Via Campagna 92 - 22020 Faloppio - Como - Italy				
Esito delle valutazioni Assessment results	CONFORME / COMPLIANT				
Verifiche effettuate da Verifications carried out by	Daniele AOSANI Tecnico Laboratorio Laboratory Engineer				
Approvato Approved by	Riccardo PFEIFFER Responsabile Laboratorio Laboratory Manager				

I risultati delle prove riportati nel presente rapporto di prova si riferiscono solo ai campioni esaminati. *The test results reported in this test report shall refer only to the samples tested.* Il campione è stato fornito dal cliente ed i risultati si riferiscono al campione così come ricevuto. *The sample has been provided by the customer and the results apply to the sample as received.* Questo Report non può essere riprodotto in modo parziale, salvo espressa autorizzazione scritta da parte del Laboratorio. *This report may not be partially reproduced, except with the prior written permission of the issuing Laboratory*

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0. RELEASE CONTROL RECORD

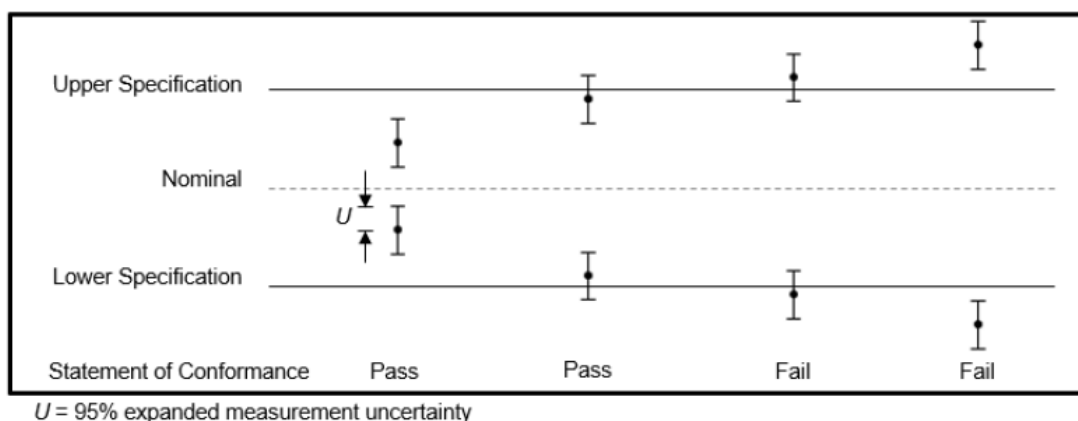
TEST REPORT NUMBER	REASON OF CHANGE	DATE OF ISSUE
MPETR_179150-0	Original release	12/04/2022
MPETR_179150-1	Editorial change at pag.1	22/01/2024

This document is valid in last revision that deletes and replaces the previous one

1. DECISION RULE

PRSLAB specifies that, if the decision rules of conformity of the test results are not indicated in detail in the standard/s object of tests, it takes as a decision rule for the declaration of conformity the simple binary system ($w = 0$) stated in the ILAC-G8-09:2019 document.

The decision rule is applicable for all parts of standard



Statements of conformity are reported as:

- Pass: the measured value is below the acceptance limit, $AL=TL$.
- Fail: the measured value is above the acceptance limit, $AL=TL$.

Definitions

- Guard Band (w): interval between a tolerance limit and a corresponding acceptance limit where length $w=|TL-AL|$.
- Tolerance Limit (TL) (Specification Limit): specified upper or lower bound of permissible values of a property.
- Acceptance Limit (AL): specified upper or lower bound of permissible measured quantity values.

2. INFORMATION PROVIDED BY CUSTOMER

- None

3. GENERAL REMARKS

- None

4. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

4.1 EUT Identification

DESCRIPTION	MotorCycle Alarm
MODEL NAME	DEF.COM 3.2 B
FCC IDENTIFICATION	P3ODEF3
IC IDENTIFICATION	4429A-DEF3
SERIAL NO.	Prototype
PRS LAB INTERNAL REFERENCE	BC 17/2022 1/3 – Sample CH0 BC 17/2022 2/3 – Sample CH19 BC 17/2020 3/3 – Sample CH39
TRADEMARK	
MANUFACTURER	Meta System S.p.A.
COUNTRY OF MANUFACTURER	Italy
SINGLE UNIT OR SYSTEM	Single
POWER SOURCE	Vehicle battery
POWER SUPPLY NOMINAL VOLTAGE	12 V  (Negative GND)
ABSORBED CURRENT	1,8mA
BACKUP BATTERY	Rechargeable Ni-MH Button
BACKUP BATTERY CHARACTERISTICS	7.2V - 150mAh
OPERATING TEMPERATURE	-40°C ÷ +85°C
DIMENSIONS	See photography documentation
ENVIRONMENT	☐ FIXED-USE; ☒ VEHICLE USE; ☐ PORTABLE USE
HIGHEST INTERNAL FREQUENCY	☐ <108MHz; ☐ 108MHz<F<500MHz; ☐ 500MHz<F<1GHz; ☒ F>1GHz; F = 2480MHz

4.2 Bluetooth Low Energy module technical data

MODULE MANUFACTURER	 TEXAS INSTRUMENTS
MODULE TYPE	CC2642R
ETS CATEGORY	Bluetooth Low Energy
FREQUENCY BAND	2400 ÷ 2483.5MHz
NUMBER OF CHANNELS	40
CHANNEL BANDWIDTH	2MHz
CHANNEL SEPARATION	2MHz
TRANSFER RATE	2Mbps
SENSITIVITY	-97dBm
TYPE OF MODULATION	GFSK
ANTENNA TYPE	PCB printed
ANTENNA GAIN	1.9 dBi

4.2.1 Channel List Bluetooth Low Energy

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

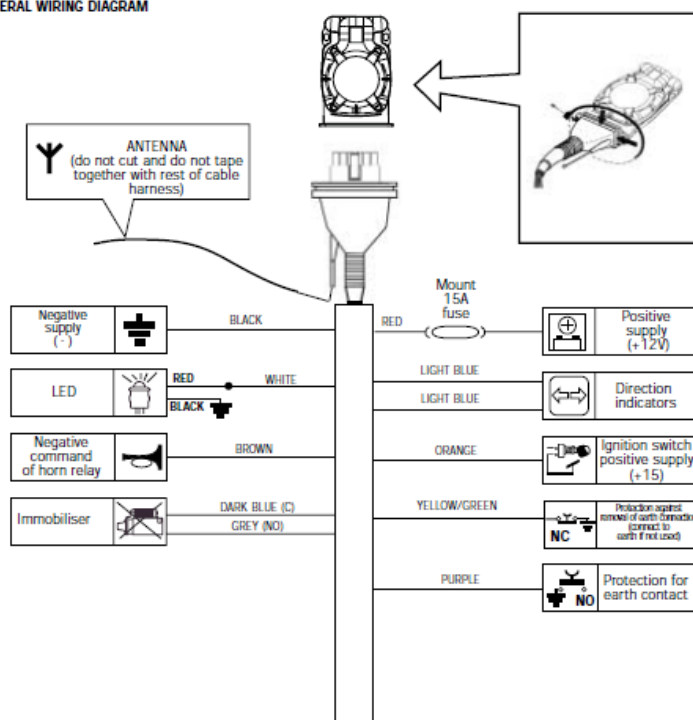
4.3 Ports identification

PORT	DESCRIPTION	CONNECTION	NOTES
☒ Enclosure	Plastic	Screw	---
☐ AC Power input	Port not present	---	---
☒ DC Power input	12Vdc	Cable	>3mt
☒ Signal/Control port	See table bellow	Cable	>3mt
☐ Telecomm. port	Port not present	---	---
☒ Antenna Port	External PCB printed	Cable ---	---

Note:

During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.

Fig.1 GENERAL WIRING DIAGRAM



4.4 Modifications incorporated in E.U.T.

The following items are the modifications introduced in the equipment under test:

- None

4.5 Auxiliary equipment

- None

5. REFERENCE STANDARDS

REFERENCE STANDARD	DESCRIPTION
Title 47 Part 1 Subpart I § 1.1310	Procedures Implementing the National Environmental Policy Act of 1969. Radiofrequency radiation exposure limits.
Title 47 Part 2 Subpart J § 2.1091	Radiofrequency radiation exposure evaluation: mobile devices.
ANSI C63.4: 2014	American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40 GHz

6. MEASUREMENTS AND CALCULATION RESULTS

6.1 SAR exemption

This device has been excluded from SAR testing based on source-based time-averaged conducted output power and KDB 447498 D01 section 4.3.1 1). This document serves as the RF exposure exhibit in the FCC Form 731 application in lieu of a SAR report.

6.2 Operational Description

The **DEF.COM 3.2 B** is a communication device based on BLE technology intended to be used as motorcycle alarm. It is necessary a calculation for portable use demonstrating that the transmitter can be excluded from SAR testing.

6.3 RF Exposure Conditions:

The device is intended for use in the portable exposure condition and the General Population / Uncontrolled RF exposure environment.

6.4 RF Output Power:

Tx frequency range: 2402 – 2480 MHz
Maximum Output Power Channel 0: -6.80dBm (0.21mW)
Maximum Output Power Channel 19: -8.12dBm (0.15mW)
Maximum Output Power Channel 39: -8.10dBm (0.15mW)

6.5 FCC Calculation method and limits

SAR Test Exclusion Thresholds:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [f(\text{GHz})] \leq 3.0 \text{ (for 1-g body SAR) or } 7.5 \text{ (for 10-g extremity SAR)}$$

where respectively

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

6.6 FCC Calculation results

Measured Output Power: 0.21mW
Min Test separation distance: 5mm
f: 2.402GHz (as worst case)

Exclusion Threshold Limb: 7.5 (10-g extremity SAR)

$$\frac{0.21mW}{5mm} * \sqrt{2.402} = 0.065 \leq 7.5$$

Exclusion Threshold body: 3 (10-g extremity SAR)

$$\frac{0.21mW}{5mm} * \sqrt{2.402} = 0.065 \leq 3$$

RESULT: The device is excluded from SAR testing.

6.1 ISED Calculation method and limits

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance^{4,5}

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power. For controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5. If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

For medical implants devices, the exemption limit for routine evaluation is set at 1 mW. The output power of a medical implants device is defined as the higher of the conducted or e.i.r.p to determine whether the device is exempt from the SAR evaluation.

6.2 ISED Calculation results

Frequency (MHz)	Maximum measured output Power (mW)	Limit for Body Worn (mW)	Limit for limb (mW)	Result
2402	0,2	4	10	SAR exempt

END OF TEST REPORT