RAPPORTO DI PROVA / *TEST REPORT*

Rif./*Ref*.No. MPETR_161683-2	**Data / D*ate:* 02/08/2018**	Pagine / *Pages*: **7**
Scopo delle prove /*Test object :*	Prove di tipo in accordo a / *Type test according to* **FCC Cfr 47 part 2 - §2.1091, part 1 - §1.1310**	
Richiedente / *Applicant :*	**CARLO GAVAZZI CONTROLS SPA** 32100 Belluno (Italy) - Via Safforze, 8 Tel. 0437 355811	
Persona di riferimento / *Applicant's referee :*	**ING. BORGHI** claudio.borghi@gavazziacbu.it	
Marchio commerciale / *Trade mark* :	CARLO GAVAZZI	
Fabbricante / *Manufacturer :*	CARLO GAVAZZI CONTROLS SPA	
Prodotto / *Product :*	**PC CONVERTER BY EXCHANGE INFORMATION**	
Modello / *Model :*	**OptoProg**	
EUT FCC ID	SNJOPT	
Data ricevimento campioni / *Date of test samples receipt*:	Jun 2017	
Campioni verificati / *No. of tested samples*	1	
Data verifiche / *Testing date* :	Jun 2017- September 2017	
Sito di prova / *Testing site :*	PRS LAB S.r.l. Unipersonale - Via Campagna, 92 - 22020 Faloppio (Co) - Italy	
Esito delle valutazioni / *Assessment results :*	**CONFORME / COMPLIANT**	
Verifiche effettuate da / *Verifications carried out by :*	Daniele AOSANI Tecnico Laboratorio EMC & RADIO / *EMC & RADIO Laboratory Technician*	Daniele Aosani
Approvato / *Approved by :*	Riccardo PFEIFFER Responsabile Laboratori / *Laboratory Manager*	Riccardo Pfeiffer

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*

CONTENUTO / TABLE OF CONTENTS

0 RELEASE CONTROL RECORD

TEST REPORT NUMBER	REASON OF CHANGE	DATE OF ISSUE
MPETR_161683-0	Original Release	21/09/2017
MPETR_161683-1	Editorial change	02/05/2018
MPETR_161683-2	Editorial change	02/08/2018

1 TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

1.1 Identification

Trademark:	CARLO GAVAZZI
Manufacturer:	CARLO GAVAZZI CONTROLS SPA
Type of Equipment :	PC CONVERTER BY EXCHANGE INFORMATION
Model name:	OptoProg
Serial number :	Prototype
FCC ID :	SNJOPT
Country of manufacturer:	Italy

Technical data

Product type:	Radio Equipment – Bluetooth 4.1*
Radio type:	Intentional radiators
Product description / application	PC converter by exchange information
Power supply requirements :	3,7V 1200mAh (internal battery rechargeable)
Operating Frequency range	2400-2483.5MHz
Operating Frequency:	From 2402MHz to 2480MHz
Channel bandwidth	1MHz
Channel spacing	1MHz
Number of Channel	0-78 [79]
Type of modulation :	BT: BR GFSK (Tested as worst case) EDR π/4-DQPSK, EDR 8-DPSK
Antenna Type	Integrated antenna

.*The Chip is a BT 4.1 + LE dual mode, but the LE function has been disabled by the Manufacturer and will not be used.

1.2 Ports identification

This section contains descriptions of all signal ports and AC/DC power input/output ports, the length and the type of the cable provided by manufacturer needed for the tests. Moreover it is specified if the ports are ever or optionally connected.

Port		***Description***	***Connection***
1	**Enclosure**	Plastic	---
2	**AC Power Supply**	Port not present	---
3	**DC power supply**	5 V powered by Micro USB	Micro USB
4	**Signal lines**	USB	Micro USB
5	**Telecomm. Lines**	Port not present	---
6	**Antenna port**	Integrated antenna	---
Note: During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.			

1.3 Auxiliary equipment

- None

2 REFERENCE STANDARDS

CODE OF FEDERAL REGULATIONS	
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	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

3 MEASUREMENTS AND CALCULATION RESULTS

3.1 RF Output Power:

Tx frequency range: 2402 – 2480 MHz
Maximum Measured Radiated Output Power: 2.8dBm (1.9054mW)

3.2 Calculation method and limits

SAR Test Exclusion Thresholds:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 (for 1-g body SAR) or 7.5 (for 10-g extremity SAR)

where respectively

- f(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

3.3 Calculation results

Maximum Conducted Output Power					
Condition		RF Output Power (dBm)			
Modulation Mode	Freq. (MHz)	Average Power (dBm)	Rated Power (dBm)	Rated Power (mW)	Antenna Gain (dBi)
BR GFSK	2402	1.3	12	15.9	1.5
BR GFSK	2440	-4.7	12	15.9	1.5
BR GFSK	2480	-13.8	12	15.9	1.5

(20mW/5mm)*radq(2.480GHz)=6.3<7.5

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 (for 1-g body SAR) or 7.5 (for 10-g extremity SAR)

RESULT: The device is excluded from SAR testing.