

TEST REPORT

Ref. n.	MPETR_186690-1	Issue Date:	09/10/2025	Pages:	11
Test object	Type test according to Standards 47 CFR FCC Part 2 Subpart J §2.1093				
Applicant	DATALOGIC S.r.l. Via S. Vitalino 13 - 40012 Lippo Di Calderara Di Reno - Bologna - Italy Phone. +39 051 3147196 Fax +39 051 3147561				
Trade mark					
Manufacturer	DATALOGIC S.r.l.				
Product	Bluetooth radio module				
Tested model	BT-VRG-STD				
FCC Identification number	U4FBT-VRG-STD				
Date of test samples receipt	02/07/2025				
No. of tested samples	1 – Sampled by the manufacturer				
Test date	16/07/2025				
Testing site	PRSLAB S.r.l. Unipersonale - Via Campagna 92 - 22020 Faloppio - Como - Italy				
FCC designation number	IT0012				
Test results	COMPLIANT				
Verifications carried out by	Daniele AOSANI Laboratory Engineer				
Approved by	Luana PARISI Reviewer				

The test results reported in this test report shall refer only to the samples tested.

The sample has been provided by the customer and the results apply to the sample as received.

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PRS refuses any responsibility about information provided by the customer contained in this test report.

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0. RELEASE CONTROL RECORD

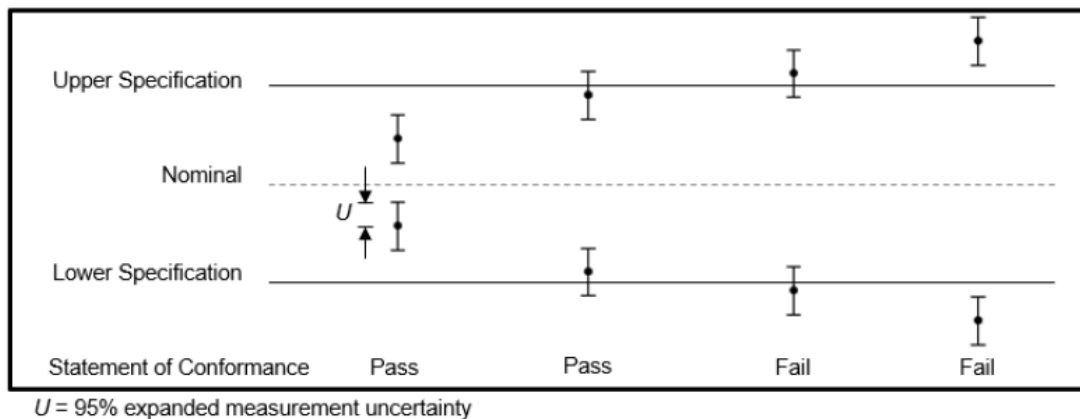
TEST REPORT NUMBER	REASON OF CHANGE	DATE OF ISSUE
MPETR_186690-0	Original release	30/07/2025
MPETR_186690-1	Corrected references to ANSI C63.10:2020	09/10/2025

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

1. DECISION RULE

PRS LAB 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	Radio module
MODEL NAME	BT-VRG-STD
FCC ID	U4FBT-VRG-STD
SERIAL NO.	025EBHIHC
PRSLAB INTERNAL REFERENCE	BC 160/2025 2/4
TRADEMARK	
MANUFACTURER	DATALOGIC S.r.l.
COUNTRY OF MANUFACTURER	Italy
SINGLE UNIT OR SYSTEM	Single
POWER SOURCE	DC power from board
SUPPLY VOLTAGE	3.0 ÷ 3.6Vdc, Typical 3.3Vdc
OPERATING TEMPERATURE	-30°C ÷ +85°C
HARDWARE VERSION (Information provided by Customer)	B
FIRMWARE VERSION (Information provided by Customer)	A
DIMENSIONS	See photographic documentation
EUT STANDING	☒ WALL; ☐ CEILING; ☒ TABLE; ☐ FLOOR; ☐ RACK MOUNTED; ☐ BODY WORN; ☒ HANDLED; ☐ PORTABLE; ☐ MOBILE
HIGHEST INTERNAL FREQUENCY (Information provided by Customer)	☐ <108MHz; ☐ 108MHz<F<500MHz; ☐ 500MHz<F<1GHz; ☒ F>1GHz

4.2 Bluetooth Low Energy module technical data

MODULE MANUFACTURER	
CHIP MANUFACTURER	CSR BlueCore
CHIP TYPE	CSRB5348
ETS CATEGORY	Bluetooth Low Energy
TYPE OF RADIO DEVICE	Transceiver
FREQUENCY BAND	2400 – 2483.5MHz
NUMBER OF CHANNELS	40
CHANNEL BANDWIDTH	2MHz
CHANNEL SPACING	2MHz
TYPE OF MODULATION	GFSK
SENSITIVITY	-96.5dBm
TRANSFER RATES (Mbit/s)	Up to 1
ANTENNA TYPE (Information provided by Customer)	Flexible antenna
ANTENNA GAIN (Information provided by Customer)	2.27dBi
ANTENNA MODEL (Information provided by Customer)	47950-0011
ANTENNA MANUFACTURER (Information provided by Customer)	

4.2.1 Channel List Bluetooth Low Energy

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

4.3 Classic Bluetooth module technical data

MODULE MANUFACTURER			
CHIP MANUFACTURER	CSR BlueCore		
CHIP TYPE	CSRB5348		
ETS CATEGORY	Classic Bluetooth - Basic Rate & Enhanced Data Rate		
TYPE OF RADIO DEVICE	Transceiver		
FREQUENCY BAND	2400 – 2483.5MHz		
NUMBER OF CHANNELS	79		
CHANNEL BANDWIDTH	1MHz		
CHANNEL SPACING	1MHz		
MODE	Basic Rate mode (BR) Enhanced Data Rate (EDR)		
TYPE OF MODULATION	GFSK	$\pi/4$ -DQPSK	8DQPSK
PACKET TYPE	DH5	2DH5	3DH5
SENSITIVITY	-89.5dBm		
TRANSFER RATES (Mbit/s)	Up to 3		
ANTENNA TYPE (Information provided by Customer)	Flexible antenna		
ANTENNA GAIN (Information provided by Customer)	2.27dBi		
ANTENNA MODEL (Information provided by Customer)	47950-0011		
ANTENNA MANUFACTURER (Information provided by Customer)			

4.3.1 Classic Bluetooth Channels list

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

4.4 Ports identification

	PORT	DESCRIPTION	CONNECTION	NOTES
☐	Enclosure	Electronic board	---	---
☐	AC power port	Port not present	---	---
☒	DC power port	3.3Vdc	PIN stripe	---
☐	Signal/control port	Port not present	---	---
☐	Telecommunication port	Port not present	---	---
☒	Antenna port	☐ Internal; ☒ External	UFL	---

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

4.5 Modifications incorporated in E.U.T.

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

- None

4.6 Auxiliary equipment

- Auxiliary laboratory laptop used to set radio channels.
- Auxiliary board to supply radio module and send command via USB connected to the PC.

5. REFERENCE STANDARDS

REFERENCE STANDARD	DESCRIPTION
47 CFR FCC Part 2 Subpart J §2.1093	Radiofrequency radiation exposure evaluation: portable devices.
47 CFR FCC Part 1 Subpart I §1.1310	Radiofrequency radiation exposure limits.
KDB 447498 D01 v06	RF Exposure procedures and equipment authorization policies for mobile and portable devices
ANSI C63.10:2020	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

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 RF Exposure Conditions

The radio module **BT-VRG-STD** is a communication device based on Hooping and Digital transmission technology intended to be used in multiple portable and fixed applications. It is necessary a calculation for portable use demonstrating that the transmitter can be excluded from SAR testing.

6.3 FCC Calculation method and limits

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

$$\frac{EIRP}{d} * \sqrt{f} \leq 7.5$$

Exclusion Threshold Extremity SAR: 3.0 (1-g body SAR):

$$\frac{EIRP}{d} * \sqrt{f} \leq 3.0$$

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

where respectively

f RF channel transmit frequency (GHz)
EIRP Effective Isotropic Radiated Power (mW)
d Evaluation distance (mm)

The result is rounded to one decimal place for comparison

6.4 RF Output Power

EUT has the following operating configuration:

- EUT in DSS hopping transmission, flexible antenna.
- EUT in DTS transmission, flexible antenna.

Mode	Frequency	Antenna Gain	EIRP	EIRP
	MHz	dBi	dBm	mW
DSS Channel 0	2402	2.27	4.88	3.08
DSS Channel 39	2441	2.27	6.97	4.98
DSS Channel 78	2480	2.27	7.49	5.61
DTS Mode Channel 37	2402	2.27	4.64	2.91
DTS Mode Channel 17	2440	2.27	7.21	5.26
DTS Mode Channel 39	2480	2.27	7.68	5.86

6.5 FCC Calculation results

Calculation for the worst-case transmission with flexible antenna.

Antenna flexible

Technology Hopping system (DSS)
 Frequency 2480MHz (channel 78)
 Measured Output Power (included tune up tolerance): 5.61mW
 Minimum test separation distance: 5mm

Exclusion Threshold Extremity SAR: 3.0 (1-g body SAR)

$$\frac{5.61mW}{5mm} * \sqrt{2.480} = 1.77 \leq 3.0$$

Technology Digital transmission system (DTS)
 Frequency 2480MHz (channel 39)
 Measured Output Power (included tune up tolerance): 5.86mW
 Minimum test separation distance: 5mm

Exclusion Threshold Extremity SAR: 3.0 (1-g body SAR)

$$\frac{5.86mW}{5mm} * \sqrt{2.480} = 1.85 \leq 3.0$$

RESULT: The device is excluded from SAR testing.

END OF TEST REPORT