

REM-EMIESS23E444DAV-03Av0

MPE test report**According to the standard:****CFR 47 FCC PART 15****Equipment under test:*****DAVEY TRONIC 5 REMOTE BLASTER*****FCC ID: *2AUQC-DT5GRB*****Company:****DAVEY BICKFORD****Distribution:** Mrs STOJANOVIC**(Company:** DAVEY BICKFORD)**Number of pages:** 8 with 1 appendix

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Information in italics are declared by the manufacturer/customer and are under his responsibility

DESIGNATION OF PRODUCT: *DAVEY TRONIC 5 REMOTE BLASTER*

Serial number (S/N): 9203

Reference / model (P/N): *RB*

Firmware version: *0x17 (LoRa Module)*

MANUFACTURER: *DAVEY BICKFORD*

COMPANY SUBMITTING THE PRODUCT:

Company: DAVEY BICKFORD

Address: LE MOULIN GASPARD
CHEMIN DE LA PYROTECHNIE
89550 HERY
FRANCE

Responsible: Mrs STOJANOVIC

DATES OF TEST: From 27-Sep-23 to 10-Oct-23

TESTING LOCATION: EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE
FCC Accredited under US-EU MRA Designation Number: FR0009
Test Firm Registration Number: 873677

TESTED BY: B. VOVARD

VISA:

WRITTEN BY: B. VOVARD

A handwritten signature in black ink, appearing to read "B. Vovard", with a long horizontal stroke extending to the right.

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REVISIONS HISTORY

Revision	Date	Modified pages	Modifications
0	7-Nov-23	/	Creation

1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: **DAVEY TRONIC 5 REMOTE BLASTER**, in accordance with normative reference.

The equipment under test integrates:

- LoRa 2.4 GHz transceiver radio module not already certified,
- RFID Reader not already certified,
- GNSS module operational in the band 1559MHz – 1610MHz

2. PRODUCT DESCRIPTION

Category of equipment (ISED): I

Class: A

Utilization: Industrial

RFID 13.56 MHz :

Antenna type and gain: integral antenna (unknown gain)

Operating frequency range: From 13.11 MHz to 14.01 MHz

Number of channels: 1

Channel spacing: Not concerned

Modulation: ASK

LoRa 2.4 GHz :

Antenna type and gain: External antenna 2 dBi

Operating frequency band: From 2400 MHz to 2483.5 MHz

Operating frequency range: From 2414.8 MHz to 2473.2 MHz

Number of channels: 17

Frequencies tested: 2414.8 MHz, 2436.4 MHz and 2473.2 MHz

Channel spacing: 0.8 to 8 MHz

Modulation: LoRa

Power soft adjusted to 13

Power source: Rechargeable Internal battery 7.4Vdc 4200mAh
AC/DC adapter (120Vac 60Hz / 19Vdc)

The radio is operational during charge mode.

Power level, frequency range and channels characteristics are not user adjustable.
The details pictures of the product and the circuit boards are joined with this file.

3. NORMATIVE REFERENCE

The standards and testing methods related throughout this report are those listed below.

They are applied on the whole test report even though the extensions (version, date and amendment) are not repeated.

CFR 47 (2023)	Radio Frequency Devices
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ANSI C63.10	2013 Procedures for Compliance Testing of Unlicensed Wireless Devices.
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447498 D04 Interim General and RF Exposure Guidance v01	RF Exposure Procedures and Equipment Authorization Policies for Mobile Portable Devices
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4. RF EXPOSURE

13.56MHz Radio Part in standalone:

In accordance with KDB 447498 D04 Interim General RF Exposure Guidance v01, Paragraph 4.3.1.

1-mW Test Exemption according paragraph 2.1.2

Maximum measured power = $38.32 \text{ dB}\mu\text{V/m} = 0.274 \times 10^{-6} \text{ mW at } 13.56 \text{ MHz}$.

with $P = (E \times d)^2 / (30 \times G_p)$ with $d = 10 \text{ m}$ and $G_p = 1$

The equipment fulfils the requirements on 1-mW Test Exemption according §1.1307(b)(3)(i)(A).

LoRa Radio Part in standalone:

MPE-Based Exemption according paragraph 2.1.4

At frequency 2414.8 MHz, this exemption apply for minimum distance ($\lambda/2\pi$) of 1.98 cm

The test separation distance measured is 12 cm (see appendix 1).

According Table 1 of §1.1307, for this distance, the ERP exemption threshold is **276.48 mW ERP**

Maximum measured power = $107.88 \text{ dB}\mu\text{V/m} = 11.22 \text{ mW ERP at } 2414.8 \text{ MHz}$

with $P = (E \times d)^2 / (30 \times G_p)$ with $d = 3 \text{ m}$ and $G_p = 1.64$

The maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW).

The equipment fulfils the requirements on MPE-Based Exemption according §1.1307(b)(3)(i)(C).

Calculus for simultaneous transmission

$$\sum \text{ of MPE ratio } = \text{MPE ratio}(13.56 \text{ MHz}) + \text{MPE ratio}(\text{LoRa}) = 0.274 \times 10^{-6} + 0.041 = 0.041 \leq 1.0$$

The product meet the requirement for Simultaneous transmission with both SAR-Based and MPE-Based Test exemptions from §2.2.2 of KDB 447498 D04 Interim General RF Exposure Guidance v01

□□□ End of report, 1 appendix to be forwarded □□□

APPENDIX 1: Minimum distance for normal use

