RE-21-D592-DAV-1-A Ed. 0

MPE test report

According to the standard:

CFR 47 FCC PART 15

Equipment under test:

DAVEYTRONIC REMOTE BLASTER

DRB2

FCC ID: *2AUQC-DRB2DAVEY*

Company:

DAVEY BICKFORD

Distribution: Mrs STOJANOVIC **(Company:** DAVEY BICKFORD**)**

Number of pages: 8 with 1 appendix

Ed.	Date	Modified Page(s)	Technical Verification and Quality Approval Name and Function	Visa
0	2-Dec-22	Creation	M. DUMESNIL, Radio Laboratory Manager	

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DESIGNATION OF PRODUCT:	***DAVEYTRONIC REMOTE BLASTER DRB2***
Serial number (S/N):	*1333*
Reference / model (P/N):	*DRB2 / XB09*
Software version:	*User interface 02.00.41* *Driver 02.00.14* *RTOS 1.60*
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 24-Jan-22 to 1-Feb-22
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:	S. LOUIS **VISA:**
WRITTEN BY:	S. LOUIS

CONTENTS

REVISIONS HISTORY

Revision	Date	Modified pages	Modifications
0	**10-Feb-22**	/	Creation

1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: ***DAVEYTRONIC REMOTE BLASTER DRB2***, in accordance with normative reference.

The device under test integrates:

- A module 915MHz already certified in single modular,
- RFID Reader not already certified,
- GNSS function

The host device of certified module(s) shall be properly labeled to identify the module(s) within.

2. PRODUCT DESCRIPTION

Category of equipment (ISED): I

Class: A

Utilization: Industrial

RFID Part:

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

915MHz SRD radio part:

Antenna type and gain: 5.1 dBi / Whip antenna

Operating frequency range: From 902 MHz to 928 MHz

Number of channels: 64 (Hopping Mode)

Channel spacing: Not concerned

Modulation: FSK

GNSS Radio Part:

Operational Frequency band used: Band from 1559 MHz to 1610 MHz
Number of channel which it can operate: 1
Channel separation: Not concerned

Single frequency device

Power source: 3.65Vdc by li-ion rechargeable battery

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 (2022)	Radio Frequency Devices
ANSI C63.10	2013 Procedures for ComplianceTesting of Unlicensed Wireless Devices.
447498 D04 Interim General RF Exposure Guidance v01	RF Exposure Pocedures and Equipment Authorization Policies for Mobile and Portable Devices

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 = 35.11 dBµV/m = 0.19 x 10^{-6} mW at 13,56 MHz.
with $P = (E \times d)^2 / (30 \times Gp)$ with d = 10 m and Gp = 1

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

915MHz Radio Part in standalone:

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

SAR-Based Exemption according paragraph 2.1.3

The test separation distance measured is 60 mm (with a minimum value of 5 mm) – see appendix 1.

According §1.1307, at frequency 902 MHz for this distance, the ERP exemption threshold is **316 mW ERP**

According §2.1.1 of KDB 447498 D04 Interim General RF Exposure Guidance v01, this exemption threshold is based on a threshold for exposure for 1-g SAR (head and body). For a threshold corresponding to a 10-g extremity SAR exposure, it is necessary to apply a factor of 2.5 to the determined exemption threshold.

Therefore, 10-g extremity SAR IS 316 mW ERP x 2.5 = **789 mW ERP**

According grant, the conducted power of the module FCC ID: MCQ-XB900HP is 298 mW.
The antenna gain declared is 5.1 dBi.
The applicant declares a maximum duty cyle of 33 % on a time period of 30 minutes (Ton = 620ms every 1,851s)

According §3.1.2 of KDB 447498 D04 Interim General RF Exposure Guidance v01, the maximum time-averaged power level resulting is **197 mW ERP.**

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

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

Calculus for simultaneous transmission

$\sum$ of MPE ratio = MPE ratio(13.56 MHz) + MPE ratio(915 MHz) = $0.19 \times 10^{-6} + 0.249 = 0.249 \leq 1.0$

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