



RF Exposure Evaluation Report

APPLICANT	VALENTINE RESEARCH INC.
ADDRESS	10280 ALLIANCE ROAD CINCINNATI OHIO 45242-4710 USA
FCC ID	QJAG2
MODEL NUMBER	V1 Gen 2
PRODUCT DESCRIPTION	RADAR DETECTOR WITH BT
DATE SAMPLE RECEIVED	04/04/2019
FINAL TEST DATE	04/04/2019
PREPARED BY	Tim Royer
TEST RESULTS	☒ PASS ☐ FAIL

Report Number	Report Version	Description	Issue Date
792CUT19 MPETestReport_	Rev1	Initial Issue	11/26/2019
792CUT19 MPETestReport_	Rev2	Update Power Density	03/03/2020
	Rev3	Updated FCC ID	03/03/2020
	Rev4	Updated SAR Exclusion	03/03/2020

THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.

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GENERAL REMARKS

Summary

The device under test does:

- ☒ Fulfill the general approval requirements as identified in this test report and was selected by the customer.
- ☐ Not fulfill the general approval requirements as identified in this test report

Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669
Designation #: US1070

Prepared by:

A blue ink signature of Tim Royer is written over a circular purple stamp. The stamp contains the text 'TIMCO ENGINEERING, INC.' around the perimeter and 'US1070' in the center.

Name and Title Tim Royer, Project Manager / EMC Engineer

Date 11/25/2019

GENERAL INFORMATION

EUT Description	RADAR DETECTOR WITH BT		
Model Number	V1 Gen 2		
EUT Power Source	☐ 110–120Vac, 50–60Hz	☒ DC Power (13.8 VDC)	☐ Battery Operated
Test Item	☐ Engineering Prototype	☒ Pre-Production	☐ Production
Type of Equipment	☐ Fixed	☒ Mobile	☐ Portable
Antenna Connector	None		
Test Conditions	The temperature was 26°C Relative humidity of 50%.		
Modification to the EUT	No Modification to EUT.		
Applicable Standards	FCC CFR 47 Part 2.1091		
Test Facility	Timco Engineering Inc. at 849 NW State Road 45 Newberry, FL 32669 USA. Designation #: US1070		

ANTENNA INFORMATION

Antenna is Provided	Type	Max Gain (dBi)
Yes	PCB Trace/Integral	0.0

RF POWER OUTPUT

Frequency (MHz)	Output Power (W)
2402	0.00047
2440	0.00042
2480	0.00038

Maximum Power Output: 0.00042 W.

MPE CALCULATION

The minimum separation distance is calculated as follows:

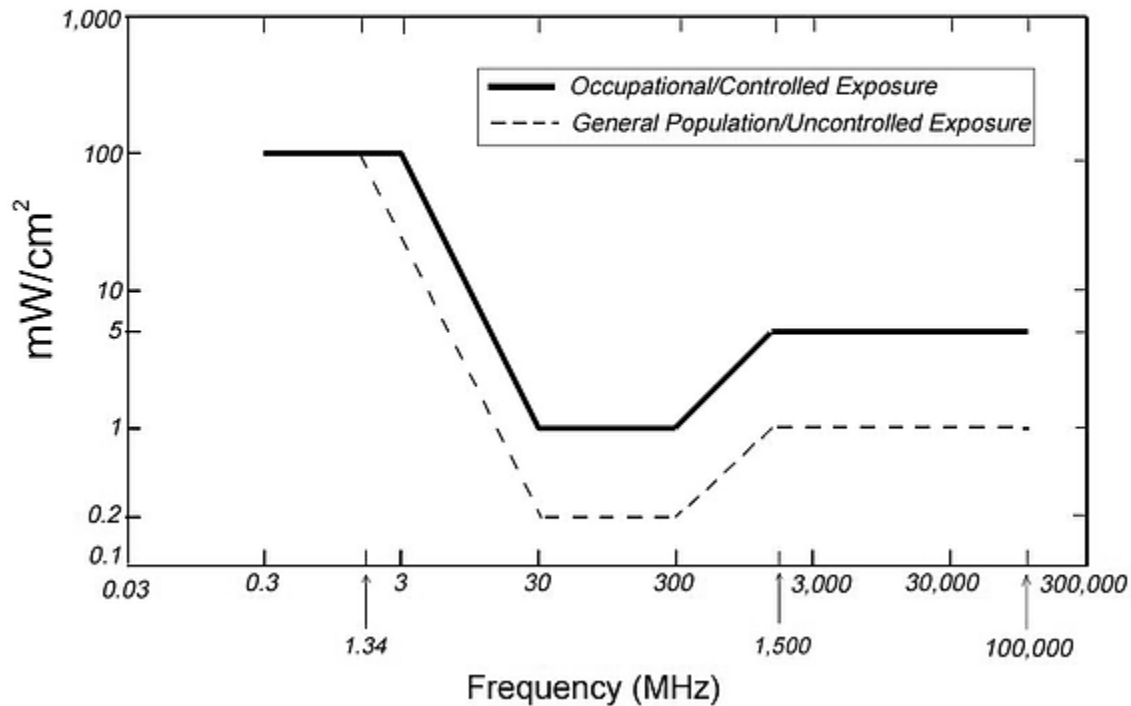
$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$$

MPE LIMITS

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)

Plane-wave Equivalent Power Density



SAR Exclusion

KDB 447498 D01 General RF Exposure Guidance v05r02

4.3.1. Standalone SAR test exclusion considerations

100 MHz to 6 GHz at separation distance less than or equal to 50 mm

SAR Test Exclusion Calculator for Portable Devices

Insert values in yellow highlighted boxes to determine SAR Exclusion

Max Power **0.47** mW

Min Separation **5** mm

Frequency **2.4** GHz

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Answer **0.15** **Must be less than or equal to 3.0 for SAR Exclusion** **7.5 for extremities**

KDB 388624 D02 Permit But Ask List v15r03, Item II. A. 5.

PBA is required if:

General Population: The Answer is equal to or greater than 24 (8x threshold)

Controlled Use: The Answer is equal to or greater than 60 (20x threshold)

and, when published RF exposure KDB procedures are not established for SAR testing or when SAR data is not provided to support compliance.

Please also note the following: *[FCC KDB quote]* These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface. *[End quote]*