

AUT Report

Prepared for: Timpte Industries, Inc.

Address: 100 Timpte Pkwy
PO Box 347
David City, NE 68632, United States

Product: 400-660-002

Test Report No: R230831-20-A1

Approved by:


Fox Lane,
EMC Test Engineer

DATE: January 24, 2024

Total Pages: 10

The Nebraska Center for Excellence in Electronics (NCEE) authorizes the above-named company to reproduce this report provided it is reproduced in its entirety for use by the company's employees only. Any use that a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. NCEE accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.



Report Number:	R230831-20-A1	Rev	0
Prepared for:	Timpote Industries, Inc.		

REVISION PAGE

Rev. No.	Date	Description
0	24 January 2024	Issued by FLane Prepared by FLane



Report Number: R230831-20-A1

Rev

0

Prepared for: TimpTE Industries, Inc.

CONTENTS

Revision Page	2
1.0 Summary of test results.....	4
2.0 EUT Description.....	4
2.1 Equipment under test	4
3.0 Laboratory and General Test Description	5
3.1 Laboratory description.....	5
3.2 Test personnel.....	5
3.3 Test equipment.....	6
3.4 General Test Procedure and Setup for Radio Measuremnts.....	7
4.0 Results	8
4.1 Antenna Gain	8
REPORT END.....	10



Report Number: R230831-20-A1

Rev

0

Prepared for: TimpTE Industries, Inc.

1.0 SUMMARY OF TEST RESULTS

Antenna gain measurements were reported for the band of operation.

2.0 EUT DESCRIPTION

2.1 EQUIPMENT UNDER TEST

Summary and Operating Condition:

EUT	400-660-002
FCC ID:	2BEKMKPD01
EUT Received	26 July 2023
EUT Tested	26 July 2023 - 25 August 2023
Serial No.	NCEETEST1 (Lab assigned SN)
Operating Band	902.0 – 928.0 MHz
Device Type	Hybrid
Power Supply	1.5V internal AAA battery
Antenna Gain (dBi)	+4.529dBi, PCB Antenna

NOTE: For more detailed features description, please refer to the manufacturer's specifications or user's manual.

	Report Number:	R230831-20-A1	Rev	0
	Prepared for:	Timpote Industries, Inc.		

3.0 LABORATORY AND GENERAL TEST DESCRIPTION

3.1 LABORATORY DESCRIPTION

All testing was performed at the following Facility:

The Nebraska Center for Excellence in Electronics (NCEE Labs)
4740 Discovery Drive
Lincoln, NE 68521

A2LA Certificate Number: 1953.01
FCC Accredited Test Site Designation No: US1060
Industry Canada Test Site Registration No: 4294A
NCC CAB Identification No: US0177

Environmental conditions varied slightly throughout the tests:

Relative humidity of $35 \pm 4\%$
Temperature of $22 \pm 3^\circ$ Celsius



3.2 TEST PERSONNEL

No.	PERSONNEL	TITLE	ROLE
1	Fox Lane	Test Engineer	Testing and report

Notes:

All personnel are permanent staff members of NCEE Labs. No testing or review was sub-contracted or performed by sub-contracted personnel.

	Report Number:	R230831-20-A1	Rev	0
	Prepared for:	TimpTE Industries, Inc.		

3.3 TEST EQUIPMENT

DESCRIPTION AND MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CALIBRATION DATE	CALIBRATION DUE DATE
Keysight MXE Signal Analyzer (26.5GHz)	N9038A	MY56400083	July 17, 2023	July 17, 2025
Keysight EXA Signal Analyzer	N9010A	MY56070862	July 18, 2023	July 17, 2025
SunAR RF Motion	JB1	A091418	July 27, 2023	July 26, 2024
ETS – Lindgren- VSWR on 10m Chamber	10m Semi-anechoic chamber- VSWR	4740 Discovery Drive	July 30, 2020	July 30, 2024
NCEE Labs-NSA on 10m Chamber*	10m Semi-anechoic chamber- NSA	NCEE-001	May 25, 2022	May 25, 2025
RF Cable (antenna to 10m chamber bulkhead)	FSCM 64639	01E3872	June 5, 2023	June 5, 2025
RF Cable (10m chamber bulkhead to control room bulkhead)	FSCM 64639	01E3874	June 5, 2023	June 5, 2025
RF Cable (control room bulkhead to test receiver)	FSCM 64639	01F1206	June 5, 2023	June 5, 2025
N connector bulkhead (10m chamber)	PE9128	NCEEBH1	June 5, 2023	June 5, 2025
N connector bulkhead (control room)	PE9128	NCEEBH2	June 5, 2023	June 5, 2025
TDK Emissions Lab Software	V11.25	700307	NA	NA

*Internal Characterization

Notes:

All equipment is owned by NCEE Labs and stored permanently at NCEE Labs facilities.

	Report Number:	R230831-20-A1	Rev	0
	Prepared for:	Timpte Industries, Inc.		

3.4 GENERAL TEST PROCEDURE AND SETUP FOR RADIO MEASUREMENTS

Measurement type presented in this report (Please see the checked box below):

Conducted ☒

The conducted measurements were performed by connecting the output of the transmitter directly into a spectrum analyzer using an impedance matched cable and connector soldered to the EUT in place of the antenna. The information regarding resolution bandwidth, video bandwidth, span and the detector used can be found in the graphs provided in Appendix C. All the radio measurements were performed using the sections from ANSI C63.10, details about the section used can be found in the spectrum analyzer titles on the graph.

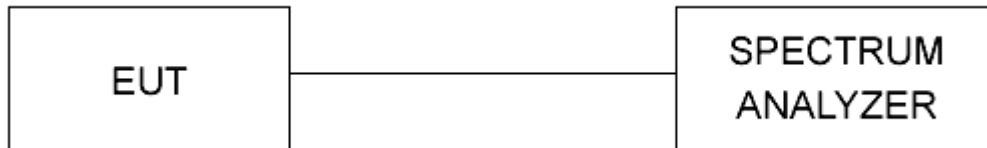


Figure 1 - Bandwidth Measurements Test Setup

Radiated ☒

All the radiated measurements were taken at a distance of 3m from the EUT. The information regarding resolution bandwidth, video bandwidth, span and the detector used can be found in the graphs provided in Appendix C. All the radio measurements were performed using the sections from ANSI C63.10, details about the section used can be found in the spectrum analyzer titles on the graph.

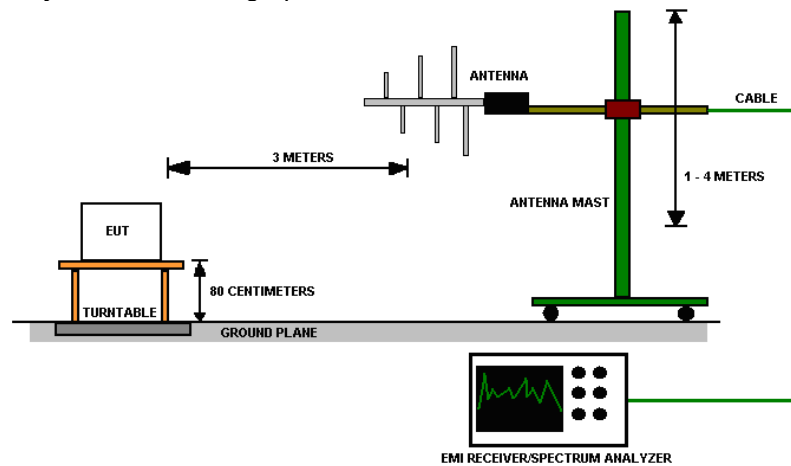


Figure 2 - Radiated Emissions Test Setup



Report Number: R230831-20-A1

Rev

0

Prepared for: Timp Industries, Inc.

4.0 RESULTS

4.1 ANTENNA GAIN

Test procedures:

The device's conducted power was measured then the same measurement was repeated on a radiated sample at 3m test distance and converted to E.I.R.P.

Test setup:

Details can be found in section 2.1 of this report.

EUT operating conditions:

Details can be found in section 2.1 and 2.2 of this report.

Test results:

Antenna Gain:

Radiated Average Power (EIRP) – Conducted Average Power = Antenna gain

12.370dBm – 7.841dBm = +4.529dBi

Comments:

NA

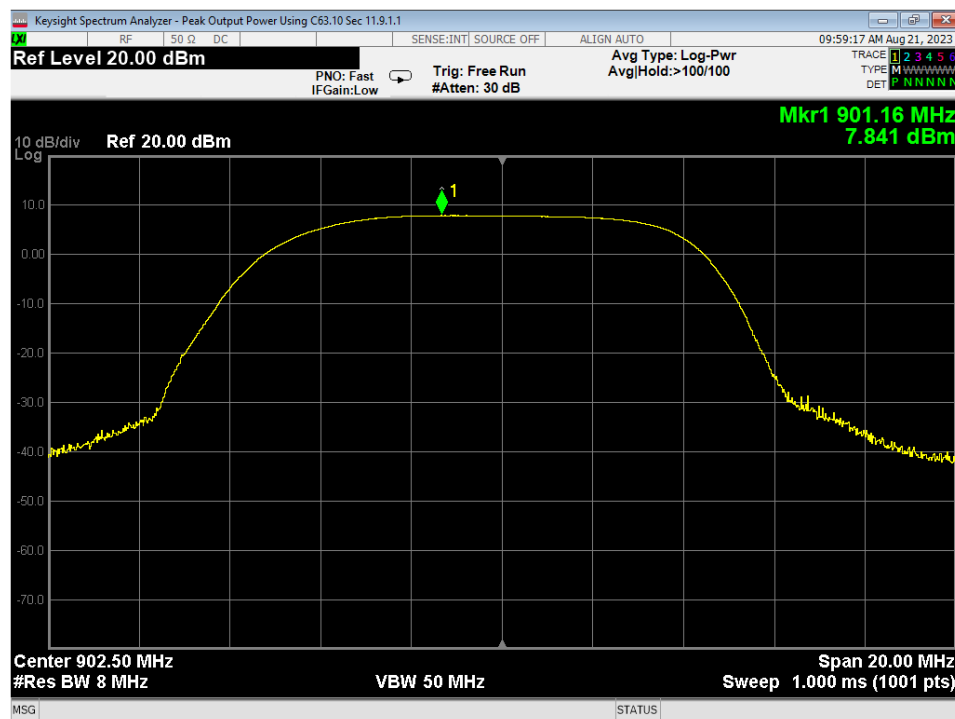


Figure 3 – Conducted Peak Power Measurement

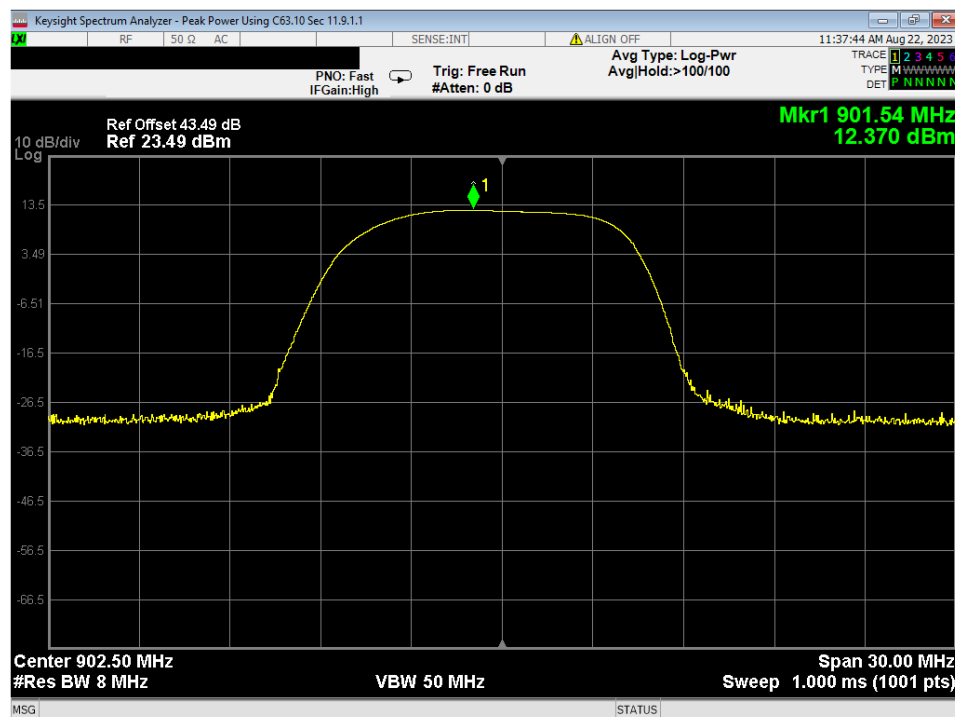


Figure 4 – Radiated Peak Power Measurement

Measurement corrections conversions are included in reference offset.



Report Number:	R230831-20-A1	Rev	0
Prepared for:	Timpote Industries, Inc.		

REPORT END