Introduction

Antenna data sheet prepared by Laird Connectivity W66 N220 Commerce Ct. Cedarburg, WI 52012 for Enovation Controls 5311 S. 122nd E. Ave Tulsa, OK 74146.

The Johanson Technology integrated chip antenna part number 2450AT18D0100 was utilized with the Laird Connectivity BT850 module as designed by Enovation Controls.

Summary

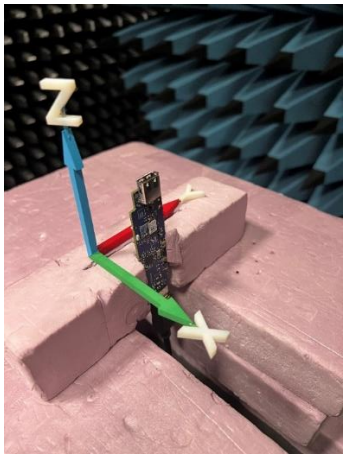
Below is a table summary for the BT850 module and internal ceramic antenna integrated on the host PCBA. Efficiency is flat across the band, but slightly lower than the DVK, likely due to PCBA size or aspect ratio.

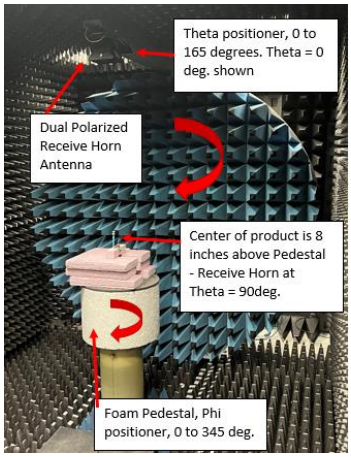
	f(MHz)	Antenna P (dBm)	TRP (dBm)	Max EIRP (dBm)	Efficiency (dB)	Gain (dBi)	Directivity (dB)
Integrated Antenna	2402	7.70	1.26	4.73	-6.4	-3.0	3.5
	2440	8.30	1.51	5.64	-6.8	-2.7	4.1
	2480	8.00	0.98	4.52	-7.0	-3.5	3.5

NOTES:
Antenna P = Antenna input power (measured).
TRP = Total Radiated Power (measured).
EIRP = Equivalent Isotropic (ideal) Radiated Power (measured).
Efficiency = TRP - Antenna P (calculated).
Gain = Max. EIRP - Antenna P (calculated).

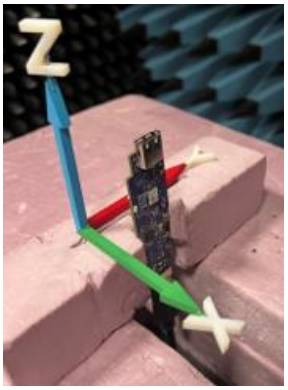
Antenna Chamber Setup:

An Anechoic Antenna Chamber using the Howland 3100 Dual Positioner System was used to measure the Total Radiated Power (TRP). The Theta positioner rotates from 0 to 165 degrees in 15-degree increments. For each value of Theta, the Phi positioner rotates from 0 to 360 degrees.

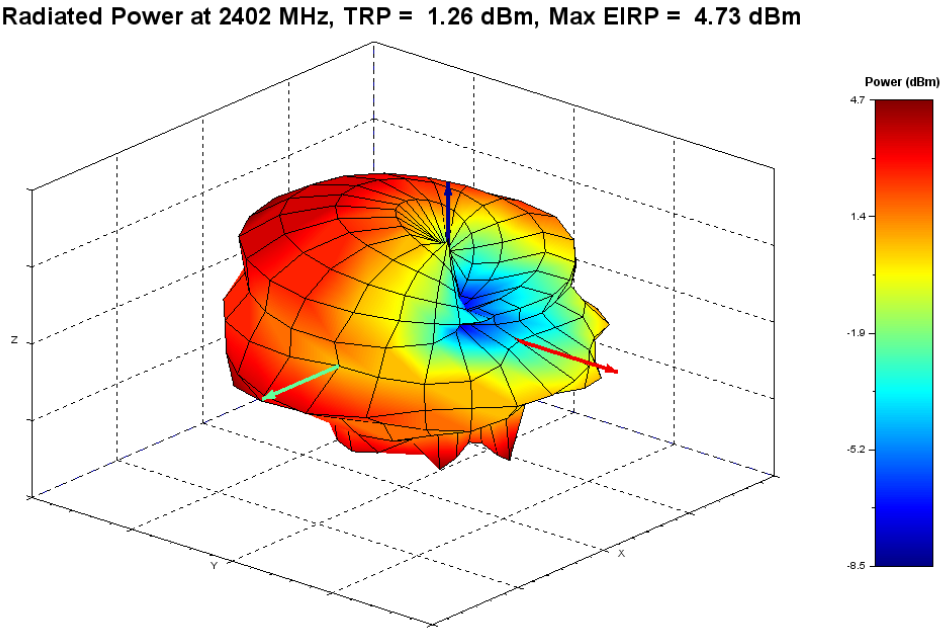




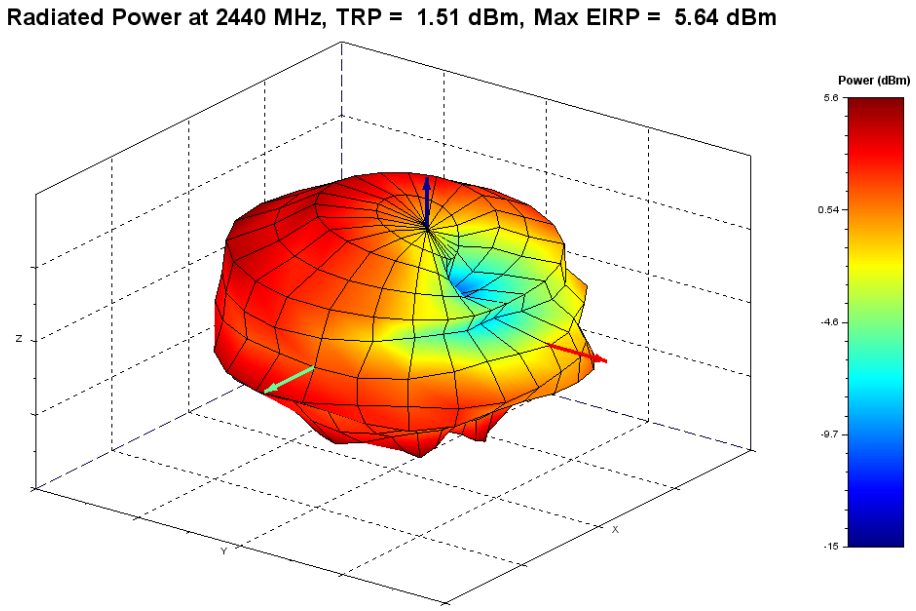
Total Radiated Power (TRP)



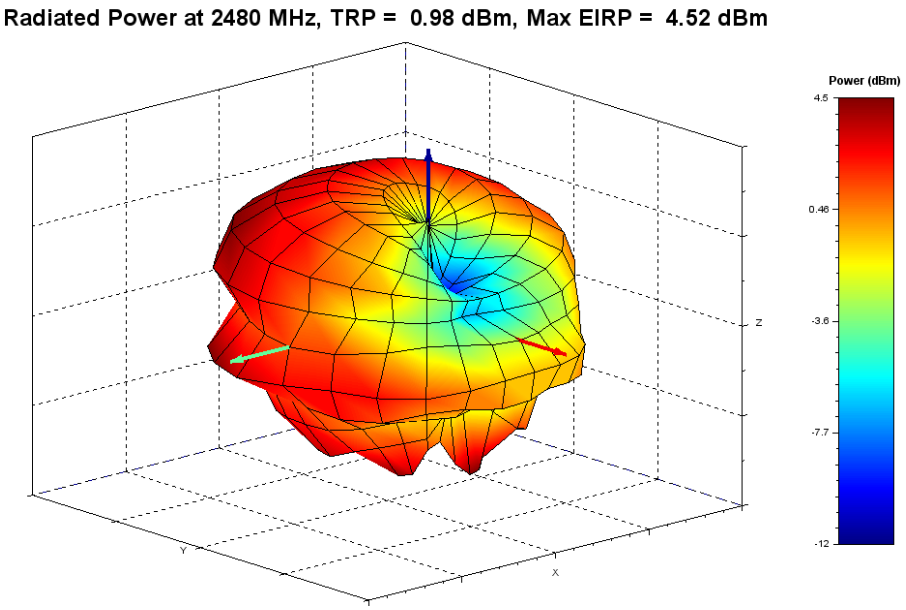
Integrated Module Chip Antenna - TRP at 2402MHz

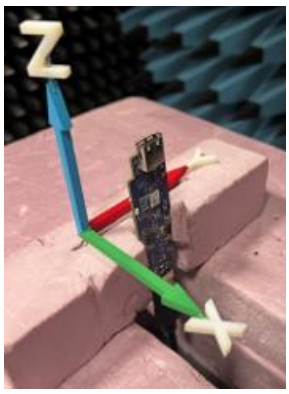


Integrated Module Trace Antenna - TRP at 2440MHz



Integrated Module Trace Antenna - TRP at 2480MHz

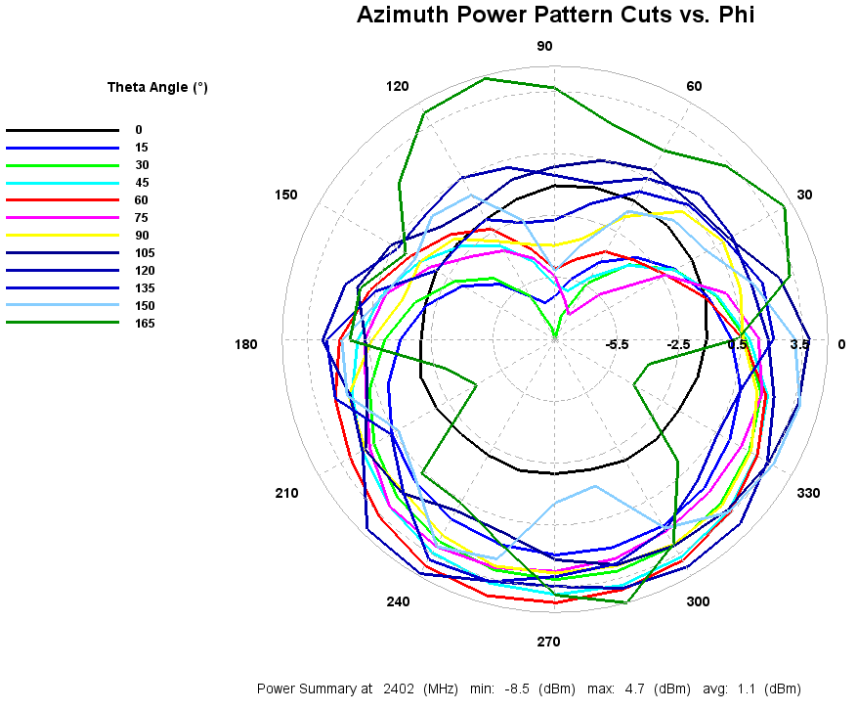




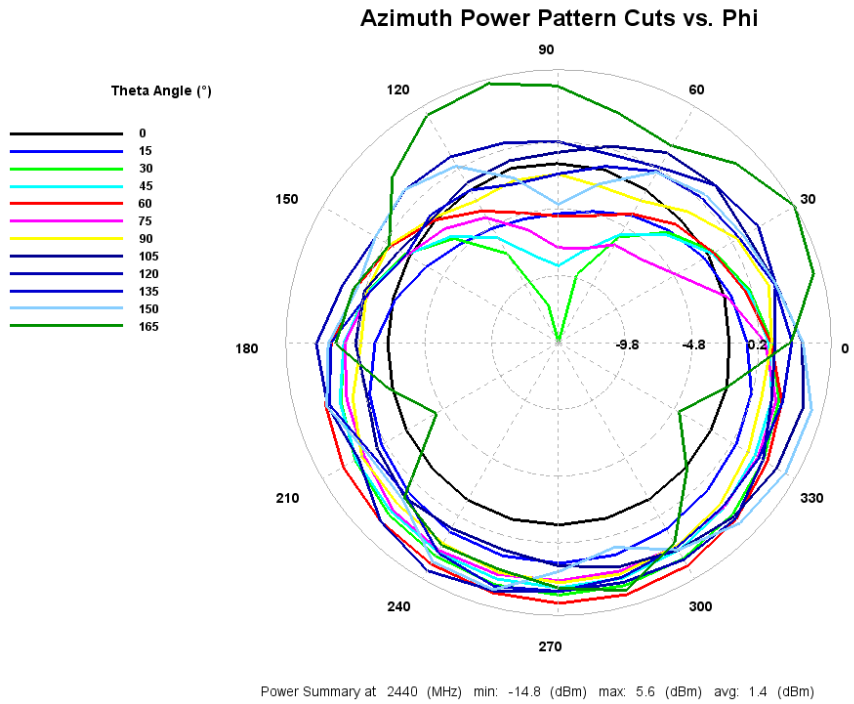
Note: Null in the antenna patterns identified in the +Y Axis across the band.

Azimuth Power Pattern Cuts vs. Phi

Integrated Module Chip Antenna – 2402MHz

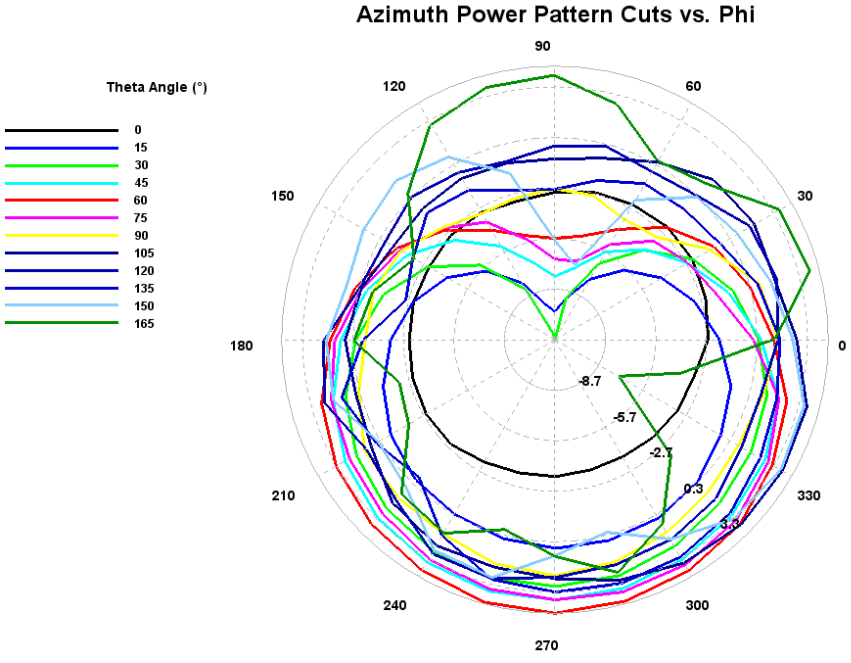


Integrated Module Chip Antenna – 2440MHz



Power Summary at 2440 (MHz) min: -14.8 (dBm) max: 5.6 (dBm) avg: 1.4 (dBm)

Integrated Module Chip Antenna – 2480MHz



Power Summary at 2480 (MHz) min: -11.7 (dBm) max: 4.5 (dBm) avg: 0.7 (dBm)