THPR1006| 40W | 2402-2478 MHz
RANGE ENHANCED PMDDL2450 RADIO SYSTEM

LONGER RANGE |HIGHER DATA RATES | LOWEST SWAP

Triad's THPR series break performance barriers for MIMO radios and enable first-run link success. They eliminate the need to integrate stand-alone components for long range wireless links. Triad combines our high power RF sub-systems with a PicoRadio pMDDL2450 OEM core radio in a low SwAP package. THPR products contain BDAs, RF filtering, and innovative SoC-based monitoring and controls, with real-time power measurements and link diagnostics.

FEATURES

Fully Integrated High Power RF Sub-System and Radio
Extended Range / Data Rate over Stand-Alone Radio
Enhanced RF Link Control via USB & Serial
Wide Vin, Single DC Supply
RF Power Equalization over Frequency - Temperature

APPLICATIONS

Long Distance - High Datarate ISR Links
UAS, UGV and USV Video / Data Links
Military MANET
Maritime High Throughput LOS/NLOS Systems
Point-To-Point / Mesh Networking

RF SPECIFICATIONS	
Core Radio Utilized	pMDDL2450
Operating Frequency	2402 - 2478 MHz
Power Output (Max Power Setting Selected)	40 W total at 9 Mbps
Power Output(Max Data Rate Setting Selected)	20 W total at ~24 Mbps
The above table depicts only the end points of the THPR's variable power settings. The THPR series is modulation agnostic and supports all modulations, data rates, and channel bandwidths possible. The data rates listed are for a 20 MHz CH BW.	

LINK DISTANCE ESTIMATES FOR VARIOUS DATA-RATES AND USAGE SCENARIOS

CONTACT TRIAD FOR AN EXPERT ASSESSMENT OF YOUR REQUIREMENTS BY OUR ISR LINK TEAM

Data Rate / Link Distance Options	***Short Range Link Configuration***	***Long Range Link Configuration***
	Ground Station: 9 dBi Omni Antenna Air Vehicle: 2-5 dBi blade	**Ground Station: 24 dBi Tracking Antenna Air Vehicle: 2-5 dBi blade**
Low data rate application - ~1-3 Mbps for telemetry and low BW video	*185 km*	*200+ km*
Mid data rate application - ~4-8 Mbps for high BW video, single EO/IR Stream + C2/Telemetry	*82 km*	*200+ km*
High data rate application – 30+ Mbps multiple high BW video streams and other data with high throughput requirements	*16 km*	*93 km*

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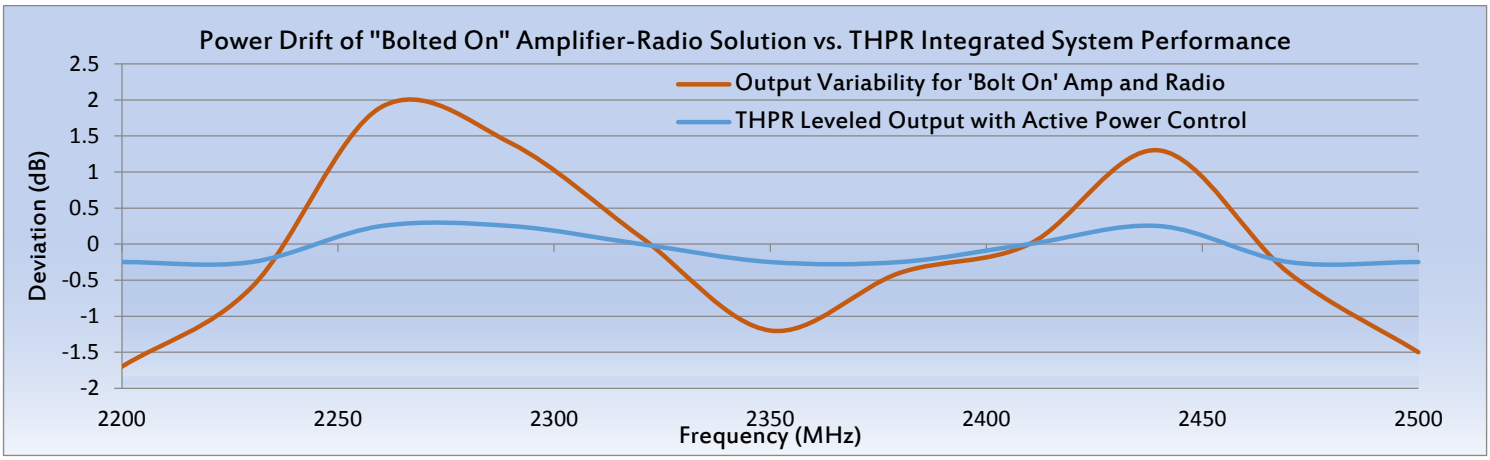
rev 06/8/20

THE TRIAD THPR ADVANTAGE

Unmatched RF Link Stability via Real-Time Monitoring and Equalization

5x – 20x Range Improvement over Stock Radio

Capturing every dB of link margin is essential for reliable long distance, high throughput RF links. In a typical integration, there are several sources of RF power drift – ***in most systems, power can vary by almost 5 dB*** over frequency, temperature, and radio-amplifier mis-matches.

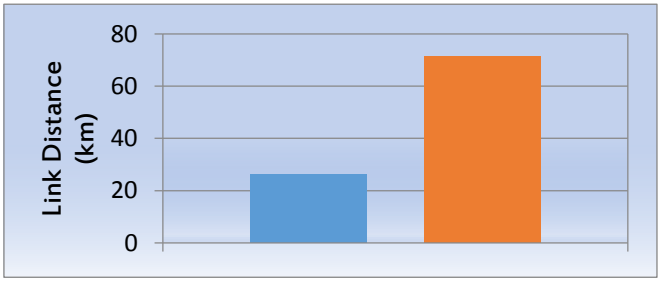


The THPR Series of range-enhanced radios employ **Active Power Control** to ensure that the both the **RF Output Power and SNR** delivered to the antennas remains **ultra-stable** in the presence of fluctuations arising from the above factors. This results in:

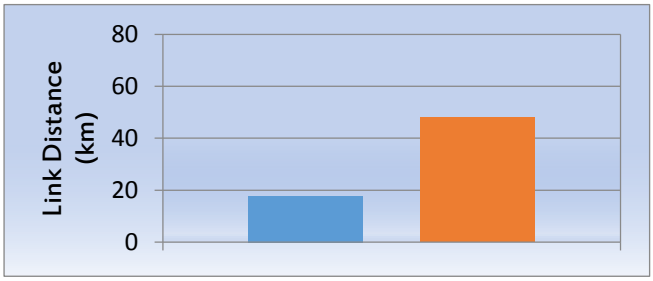
- **Un-matched reliability:** RF output power that drifts too low or high during operation can cause unexpected link failures, especially when a target data rate needs to be achieved.
- **Ease of use:** Triad's THPR series radio enhancements yield links that are easier to integrate, deploy, and maintain than any other solution in the industry.

LINK PERFORMANCE IMPROVEMENT OVERVIEW

Below is actual test data for a stock pMDDL2450 radio, along with the link distance and data rate improvements achieved with the THPR version. Two use cases are illustrated and described below the graphs.



*Stock pMDDL2450 vs. THPR performance, for a link has been configured to achieve **maximum distance**, regardless of data rate.*



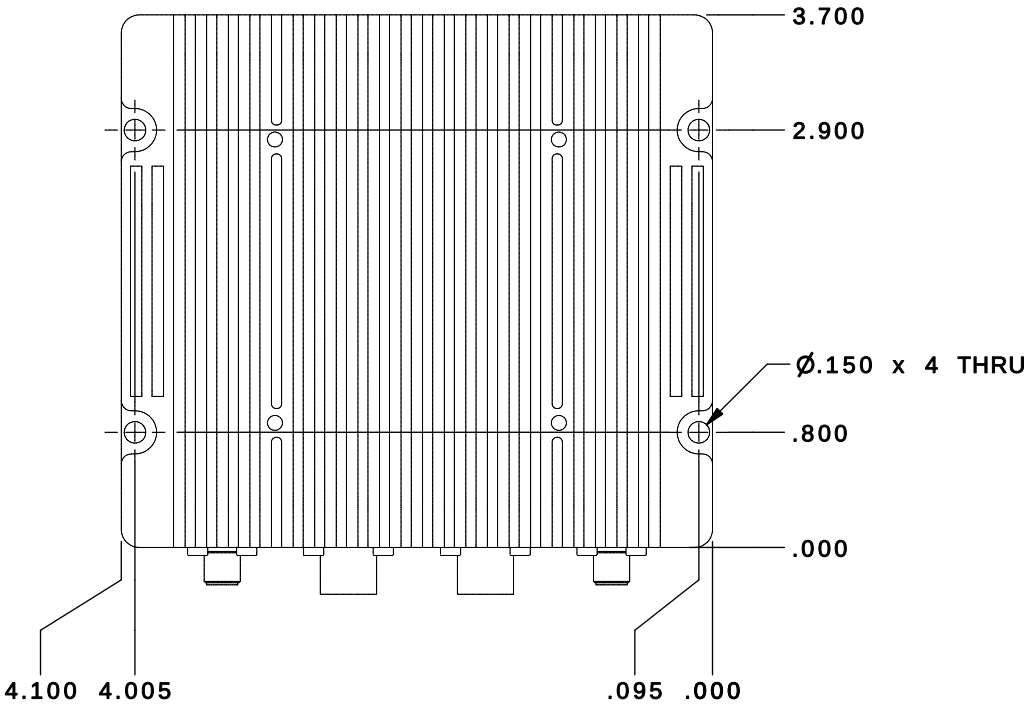
*Stock pMDDL2450 vs. THPR performance, for a link has been configured to achieve the **maximum data rate** the radio is capable of.*

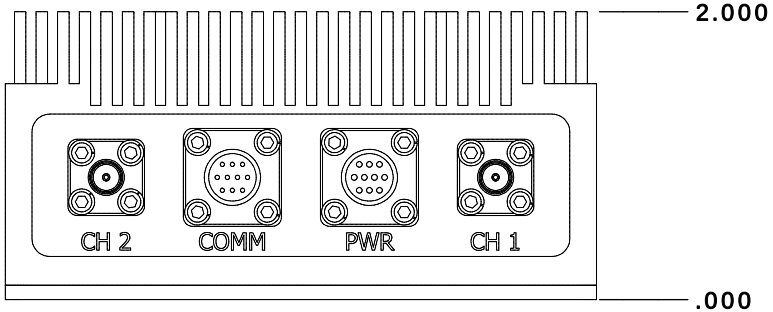
MECHANICAL		
PARAMETER	VALUE	UNIT
Dimensions (L x W x H)	3.7 x 4.1 x 2	in
RF Connectors (Input / Output)	SMA-F / SMA-F	--
DC / Control Connector	Circular Locking	--
Mounting	6-32 Through Holes	--
Weight	20	oz.

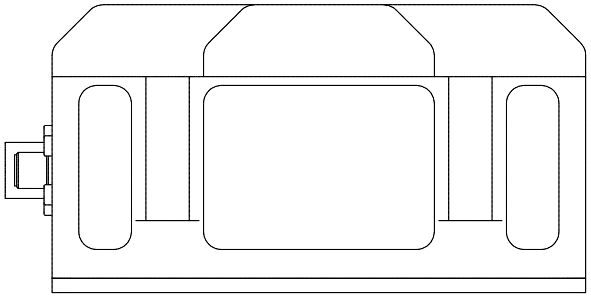
ENVIRONMENTAL / PROTECTIONS			
PARAMETER	MIN	MAX	UNIT
Ambient Operating Temperature	-40	+85	°C
Ingress Protection Rating	IP67		--
Altitude	0-50,000		ft.
Shock / Vibration	MIL-STD-810 and equivalents		--

ELECTRICAL SPECIFICATIONS				
PARAMETER	MIN	TYP	MAX	UNIT
Operating Voltage	10	28	36	VDC
Current Draw @28VDC		1.35	2.93	A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	1/14/20	SNB







DRAWN	SNB	1/14/2020
DESIGNED	scoppi	9/10/2019
CHECKED		
ENG APPROVED		
MFG APPROVED		

DIMENSIONS ARE IN INCHES
UNLESS SPECIFIED OTHERWISE
TOLERANCES
DECIMALS .XX ±.01 .XXX ±.005
FRACTIONS ±1/32
ANGLES ±2°

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Housing Outline 226

SIZE	DWG NO.	REV
A	OL_226	0

SCALE: NONE | CAGE CODE 67DZ3 | SHEET 1 OF 1