PRM2143X mmWave Module PRODUCT BRIEF

WIRELESS UNLEASHED[™]

OVERVIEW

PERASO

The PRM2143X is a complete USB 3.0 to 802.11ad module with advanced features for long range, outdoor applications. It utilizes the Peraso X720 802.11ad 60 GHz phased array chipset which includes a baseband processor and a high-power mmWave beamforming transceiver RFIC.

The PRM2143X incorporates a 64-element phased array antenna. This antenna is integrated into the PCB and provides uniform performance over the entire 802.11ad band from 57 to 71 GHz.

The Baseband processor is the PRS4601-B2E. This provides all MAC and PHY layer functionality necessary for 802.11ad operation and supports point-to-point or point-to-multipoint capability.

The PRS1165 RFIC provides 16 RF chains with high transmit power levels. It supports all 6 of the 802.11ad defined channels.



Figure 1: PRM2143X

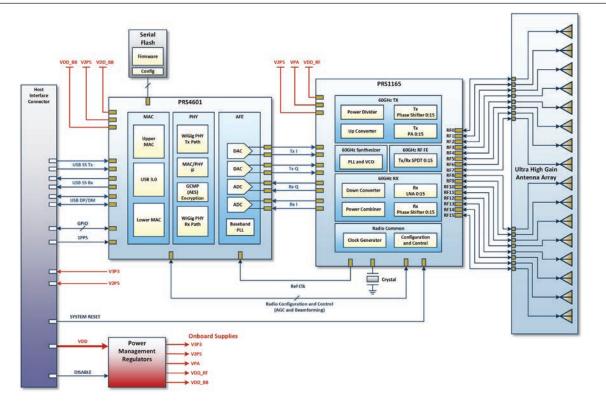
FEATURES

- Operates in the unlicensed 57 to 71 GHz band
- 2.16 GHz and 1.08 GHz channel bandwidth
- pi/2-BPSK, pi/2-QPSK modulation support
- Fully integrated MAC, PHY, radio, and antenna
- 802.11ad MAC and PHY compliance
- Automatic rate adaptation
- Dynamic beamforming
- Automatic calibrations
- AES 128 bit data encryption
- 1PPS synchronization support
- WPA3 Authentication
- A- MSDU, A-MPDU data aggregation
- Peraso Directional Beam Scan and Connect (DBSC) for establishing long-range PtP links

- USB 3.0 data and control interface
- Integrated power management
- 16-element integrated phased array antenna
- -91dBm receive sensitivity @MCS4
- 2Gbps maximum data rate
- 45 dBm EIRP
- Total system DC power:
 - Tx: 13W (at QPSK, 16 elements active)
 - Rx: 5W (at QPSK, 16 elements active)
- -40°C to 85°C operation
- Single 5V power supply input
- Compact 50mm x 50mm form factor

PERASO | WIRELESS UNLEASHEDTM

BLOCK DIAGRAM



KEY SPECIFICATIONS

Parameter	Value			
Data Interface	USB3.0	USB3.0		
Air Protocol	802.11ad	802.11ad		
Modulation Schemes	MCS0-9 (pi/2-BPSK, pi/2-QPSK)	MCS0-9 (pi/2-BPSK, pi/2-QPSK)		
Multiple Access Modes	CBAP, proprietary Long Range CB/	CBAP, proprietary Long Range CBAP and Controlled Access protocols		
Security Modes	128-bit AES WPA3	128-bit AES WPA3		
Networking Support	infrastructure, peer-to-peer, standa	infrastructure , peer-to-peer, standard WLAN, point-to-multipoint		
	Conditions	Value (Typ.)	Units	
RF Frequency		57 to 71	GHz	
Channel bandwidth	802.11ad Channels 1-6	2.16	GHz	
Module size	Length x Width	50 x 50	mm	
Operating Temperature Range		-40 to 85	°C	
TX Parameters				
EIRP	Tamb=25°C, Channel 4, MCS9	45	dBm	
RX Parameters				
Sensitivity	Tamb=25°C, Channel 4, MCS4	-91	dBm	
Beam Forming Parameters				
Azimuth Scan Range	-3dB edge, Channel 4	+/-45	deg	
Elevation Scan Range	-3dB edge, Channel 4	+/-25	deg	
DC Power Consumption			·	
TX DC Power	16 RF chains. 100% duty cycle.	13	W	
RX DC power		5	W	

Information furnished by Peraso Inc. is believed to be accurate and reliable. However, no responsibility is assumed by Peraso Inc. for its use, or responsibility for any infringements of patents or other rights of third parties that may result from its use. Specifications are subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Peraso Inc. Trademarks and registered trademarks are the property of their respective owners.

Peraso Technologies Inc. 2309 Bering Drive, San Jose, CA 95131 www.perasotech.com