

# Detailed Product Comparison

	XBee ZigBee™ (2.4 GHz) OEM RF Module	XBee-PRO ZigBee™ (2.4 GHz) OEM RF Module	9XTend (900 MHz) OEM RF Module	9XStream (900 MHz) OEM RF Module	24XStream (2.4 GHz) OEM RF Module	9XCite (900 MHz) OEM RF Module				
<b>Performance</b>										
<b>Transmit Power Output</b>	1 mW (0 dBm)	60 mW (18 dBm), 100 mW (20 dBm) EIRP	1 Watt (30 dBm)	100 mW (20 dBm)	50 mW (17 dBm)	4 mW (6 dBm)				
<b>Indoor/Urban Range</b>	up to 100 ft. (30 m)	up to 300 ft. (100 m)	up to 3000 ft. (900 m)	up to 1500 ft. (450 m)	up to 600 ft. (180 m)	up to 300 ft. (90 m)				
<b>Outdoor RF Line-of-sight Range</b>	up to 300 ft. (100 m)	up to 1 mile (1.6 km)	up to 14 miles (22 km)	up to 7 miles (11 km)	up to 3 miles (5 km)	up to 1000 ft. (300 m)				
<b>Outdoor RF Line-of-sight Range (w/ high gain antenna)</b>	-	-	up to 40 miles (64 km) @ 9600 bps throughput data rate	up to 20 miles (32 km)	up to 10 miles (16 km)	-				
<b>Serial Interface Data Rate (software selectable)</b>	1200 - 115200 bps (non-standard baud rates also supported)		1200 - 230400 bps (non-standard baud rates also supported)	1200 - 57600 bps (non-standard baud rates also supported)		1200 - 57600 bps				
<b>Throughput Data Rate</b>	80000 bps		9600 bps	115200 bps	9600 bps	19200 bps	9600 bps	19200 bps	9600 bps	38400 bps
<b>RF Data Rate</b>	250000 bps		10000 bps	125000 bps	10000 bps	20000 bps	10000 bps	20000 bps	10000 bps	41666 bps
<b>Receiver Sensitivity</b>	-92 dBm (1% packet error rate)	-100 dBm (1% packet error rate)	-110 dBm	-100 dBm	-110 dBm	-107 dBm	-105 dBm	-102 dBm	-108 dBm	-104 dBm
<b>General</b>										
<b>Serial Data Interface</b>	CMOS UART interface, no configuration required		TTL UART interface, no configuration required	CMOS UART interface, no configuration required		CMOS UART interface, no configuration required				
<b>Frequency Band</b>	ISM 2.4000 - 2.4835 GHz		ISM 902 - 928 MHz	ISM 902 - 928 MHz	ISM 2.4000 - 2.4835 GHz	ISM 902 - 928 MHz				
<b>Module Frequency Range</b>	2.405 - 2.480 GHz		905 - 925 MHz	910 - 917 MHz	2.45 - 2.46 GHz	910 - 917 MHz				
<b>Channels (software selectable)</b>	16 direct sequence channels	12 direct sequence channels	10 hop sequences share 50 frequencies	7 hop sequences share 25 frequencies		7 hop sequences or 25 single frequency channels				
<b>Spread Spectrum Type</b>	DSSS (Direct Sequence Spread Spectrum)		FHSS (Frequency Hopping Spread Spectrum)							
<b>Modulation</b>	QPSK (Quadrature Phase-Shift Keying)		Direct FM modulator, FSK (Frequency Shift Keying)							
<b>Networking &amp; Security</b>										
<b>Encryption</b>	AES 128-bit		AES 256-bit	n/a						
<b>Supported Network Types</b>	Point-to-point, Point-to-multipoint, Peer-to-peer & Mesh		Point-to-point, Point-to-multipoint, Peer-to-peer & Repeater (XTend & XStream only)							
<b>Error Handling</b>	Retries & acknowledgements, CRC		Retries & acknowledgements, Multiple transmissions, CRC	Retries and acknowledgements, CRC		CRC				
<b>Addressing</b>	2 <sup>64</sup> addresses (64-bit) on each channel		65535 addresses on each channel							
<b>Addressing Options</b>	PAN ID, channel & addresses		Vendor ID, channel & addresses							
<b>Power Requirements</b>										
<b>Supply Voltage</b>	2.8 – 3.4 VDC regulated		2.80 – 5.50 VDC regulated	4.75 - 5.25 VDC regulated		2.85 to 5.50 VDC regulated				
<b>Operating Current (Transmit)</b>	45 mA (@ 3.3 V)	215 mA (@ 3.3 V, 60 mW transmit power output)	90 mA (3.30 V, 1 mW), 110 mA (5 V, 1 mW), 730 mA (5 V, 1 W)	150 mA (@ 5 V)		55 mA (@ 2.85 V)				
<b>Operating Current (Receive / Idle)</b>	50 mA (@ 3.3 V)	55 mA (@ 3.3 V)	80 mA (@ 5 V)	50 mA (@ 5 V)		45 mA (@ 2.85 V), 55 mA (@ 5.00 V)				
<b>Shutdown Current</b>	n/a	n/a	5 µA typical	n/a		n/a				
<b>Cyclic Sleep Current (when Sleeping)</b>	< 50 µA (@ 3.0 V)		< 1.6 mA	< 76 µA (@ 5.0 V)		< 76 µA				
<b>Pin Sleep Current</b>	< 10 µA (@ 3.0 V)		< 147 µA	< 26 µA (@ 5.0 V)		< 20 µA				
<b>Mechanical Properties</b>										
<b>Dimensions</b>	0.960" x 1.087" (2.438 cm x 2.761 cm)	0.960" x 1.297" (2.438 cm x 3.294 cm)	1.44" x 2.38" x 0.20" (3.65 cm x 6.05 cm x 0.51 cm)	1.600" x 2.825" x 0.350" (4.06 cm x 7.18 cm x 0.89 cm)						
<b>Weight</b>			0.64 oz. (18 g)	0.8 oz. (24 g)						
<b>Antenna Connector Options</b>	U.FL connector, chip antenna or integrated whip antenna		RPSMA or MMCX	RPSMA, MMCX or integrated whip antenna		RPSMA or integrated whip antenna				
<b>Operation Temperature</b>	Industrial (-40 to 85 C)		Industrial or tested industrial (-40 to 85 C)	Commercial (0 to 70 C), industrial or tested industrial (-40 to 85 C)		Commercial (0 to 70 C) or industrial (-40 to 85 C)				
<b>Government Agency Certifications</b>										
<b>FCC (United States)</b>	OUR-XBEE	OUR-XBEEPRO	OUR-9XTEND	OUR9XSTREAM	OUR-24XSTREAM	OUR-9XCITE				
<b>IC (Canada)</b>	4214A-XBEE	4214A-XBEEPRO	4214A-9XTEND	4214A-9XSTREAM	4214A 12008	4214A-9XCITE				
<b>Europe</b>	ETSI	ETSI (max. 10 mW TX power output)	-	-	ETSI	-				
<b>Class I, Division 2 Compliant</b>	Available	Available	Available	Available	Available	Available				
<b>RoHS</b>	Available	Available	July 06	July 06	July 06	July 06				