

WIRELESS IOT CONNECTIVITY OPTIONS

	BLUETOOTH LOW ENERGY (without Cassia Networks)	BLUETOOTH LOW ENERGY (with Cassia Networks)	WI-FI	ZIGBEE	LTE-M	NB-IOT	LORAWAN
RANGE	Approximately 10 m - 30 m	Up to 400m with Bluetooth 4 Up to 1.5km with Bluetooth 5 ^[1] Up to 100m for indoor environments	15 m - 100 m	30 m - 100 m	1 km - 10 km	1 km - 10 km	2 km - 20 km
MAXIMUM THROUGHPUT & SIMULTANEOUS CONNECTIONS	Up to 2 Mbps Typically less than 8 simultaneous connections	Up to 2 Mbps per chip/ Up to 60 simultaneous bi-directional connections per Cassia Gateway	54 Mbps - 1.3 Gbps	20 kbps - 250 kbps	375 kbps	60 kbps	10 kbps - 50 kbps
POWER CONSUMPTION	Low	Low	High	Low	Medium	Low	Low
MODULE COST PER DEVICE	Under \$5 (typically \$0.5-\$2)	Under \$5 (typically \$0.5-\$2)	Under \$10	Under \$10	Approx. \$8-\$20	Approx. \$8-\$20	Approx. \$8-\$15
ONGOING COST	NO	NO	NO	NO	Recurring	Recurring	NO
SHIPMENTS IN 2019 (in millions)	~3500	~3500	~3200	~120	~7	~16	~45
COMPATIBILITY & SUPPORTED COUNTRIES OF OPERATION	Excellent compatibility and works in all countries	Excellent compatibility and works in all countries	Excellent compatibility and works in all countries	Incompatibility between manufacturers	Excellent compatibility but frequency band is different in different countries	Excellent compatibility but frequency band is different in different countries	Poor compatibility and frequency band is different in different countries
PRIMARY USE CASES	Digital Health, Industrial IoT, Personnel & Asset Tracking, Smart Campus and more	Digital Health, Industrial IoT, Personnel & Asset Tracking, Smart Campus and more	Broadband Communication	Smart Home, Building Automation, Industrial IoT	Logistics, Healthcare Devices, Automotive	Smart City, Smart Meter, Smart Agriculture	Smart City, Smart Meter,

[1] In open space direct line of sight