SKYLAB
Simplify Your System

GNSS + WIFI + BLUETOOTH + UWB+BEACON

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COMPANY PROFILE

Founded in 2002, SKYLAB is a high-tech enterprise specializing in the research and development and application of products related to indoor and outdoor positioning technology and wireless communication technology. SKYLAB has a technical team with nearly 20 years of experience in wireless communication embedded software and hardware development and RF technology. The main product technologies involve high-quality and high-performance modules such as GNSS, Wi-Fi, BLE, UWB and offer relevant application solutions based on our products.We have been striving to create long-term market value and potential growth for our customers, and also provide rich-experienced OEM/ODM and system integration services. Keeping up with the development of the times, We deeply cultivates the professional innovation field of indoor and outdoor positioning, provides location information and perception information for digital twins, and realizes edge computing and cloud computing applications through the integration of short-range and 5G mobile communication technology.

SKYLAB has passed the IATF-16949 automotive electronic quality system certification, and our products meet international standards such as SRRC/FCC/CE/IC/BQB/ROHS/REACH. The company has passed the GB/T-29490 intellectual property management system certification, and has more than 100 intellectual property rights including invention patents, utility model patents, and softwarecopyrights.

At present, We own more than 80 employees, 40% of which are R&D-related personnel. The products developed are sold to more than 50 countries and regions around the world, serving more than 20,000 companies around the world. We focus on customer needs and expectations, provide the best quality products and the best service, and help customers create value continuously. Adhering to the concept of customer-centered and quality-centered, we make unremitting efforts to become a leading supplier in the industry.

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GNSS Module

Series L/W/H (mm)	PN.	Module Type							Satellite						Interface				Feature		
		Dimension (mm)	L1+L5	RTK	DR	Timing	Featured Functions	Low Power Consumption	GPS/QZSS	BDS III	BDS	GLONASS	GALILEO	IRNSS	UART	SPI	RS232	USB	ROM版	Antenna Detection	Antenna Integrated
SKG09 10.1*9.7*2.2	SKG09BL	/							●						●						
	SKG092C	/						●	●	●	●	●	●		●					●	
	SKG093Q	/							●	●	●	●	●		●						
	SKG09F	/							●		●	●	●		●						
	SKGO9D	/							●		●	●	●		●						
	SKG09DT	/				●			●		●	●	●		●						
	SKG093N	/	●						●		●	●	●		●						
	SKG093NT	/	●			●			●		●	●	●		●						
SKG12 16*12.2*2.4	SKG122DB	/								●	●				●					●	
	SKG12BL	/							●						●				●		
	SKG122C	/						●	●	●	●	●	●		●					●	
	SKG123Q	/							●	●	●	●	●		●						
	SKG123QL	/						●	●	●	●	●	●		●						
	SKG12F	/							●		●	●	●		●						
	SKG12D	/							●		●	●	●		●						
	VD-U8	/							●		●	●	●		●						
	SKG123S	/							●		●	●	●			●					
	SKG122ER	/		●					●		●	●	●		●			●		●	
	SKG8212	/	●					●	●	●	●	●	●	●	●						
	SKG122S	/	●						●	●	●	●	●		●			●		●	
	SKG122Y	/	●						●				●	●	●			●		●	
	SKG123L	/	●						●		●	●	●		●						
	SKG123NT	/	●			●			●		●	●	●		●						
	SKG123ND	/	●		●				●		●	●	●		●						
	SKG123MA	/	●				vehicle-grade		●		●	●	●		●						
	SKG123NR	/	●	●					●		●	●	●		●						
	SKG122GR	/	●	●					●	●	●	●	●		●			●		●	
	SKG123NRD	/	●	●	●				●	●	●	●	●		●						
	SKG280A	/	●	●	●				●	●	●	●	●		●						
SKG17 17mm*22mm	SXG17D	/							●		●	●	●		●						
	SKG17DT	/				●			●		●	●	●		●						
	SKG17CT-09	/				●			●	●	●	●	●		●						
	LS-TF9P	/	●	●					●	●	●	●	●		●					●	
Card	SKC505RL	/	●	●			RTK/LORA		●		●	●	●		●						
	SKC605NT	/	●			●			●		●	●	●		●						
	SKC605DT	/				●			●		●	●	●		●						
	SKG18AX-09H	18*18	LF1/LF2/S				BDS			●	●				●						
	SKG18AX-09J	18*18	LF1/LF2/S				BDS			●	●				●						
	SKG30AX-09H	30*35	LF1/LF2/S				BDS			●	●				●						
Built-in Antenna	SKM53	30*20							●		●	●	●		●						●
	SKM61	30*26							●		●	●	●		●		●	●			●
	SKM80D	25*25							●		●	●	●		●						●
	SKM80Q	25*25							●	●	●	●	●		●						●
	SKM80N	25*25							●		●	●	●		●		●				●
	SKM80ER	25*25		●					●		●	●	●		●		●				●
	SKM80NR	25*25	●	●					●		●	●	●		●		●				●
	SKM81	18*18							●		●	●	●		●						●
	SKM86Q	15*15							●	●	●	●	●		●						●
G-mouse	SKM51	50.5*38.5*18							●		●	●	●		●		●				●
	SKM55	46*45*15							●		●	●	●		●		●	●			●
	SKM2102SR	50.7*48.5*18.5	●						●	●	●	●	●		●		●				●
	SKM2102ER	50.7*48.5*18.5		●					●	●	●	●	●		●		●				●
	SKM2105FR	50.7*48.5*18.5							●		●	●	●		●		●				●
	SKM2105DR	50.7*48.5*18.5							●		●	●	●		●		●				●
	SKM2105QR	50.7*48.5*18.5							●	●	●	●	●		●		●				●
	SKM2105NR	50.7*48.5*18.5	●						●		●	●	●		●		●				●
	SKM2302DR	50.7*48.5*18.6	●		●					●	●				●		●				●
	SKM2305NDR	50.7*48.5*18.7	●	●					●	●	●	●	●		●		●				●
	SKM2505NR	50.7*48.5*18.8	●	●	●				●		●	●	●		●		●				●
	SKM3507MR	55*47*16.6	●	●	●				●		●	●	●		●		●				●
	SKM4507MR	81*75*27.2	●	●	●				●		●	●	●		●		●				●

High Performance GPS Modules

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SKG093Q

Highlights

- Supports BDS3, GPS, GLONASS,Galileo, QZSS and SBAS syst
- Extremely fast TTFF: cold start less than 32s, Hot start less than 1s
- Support A-GPS
- Industrial Grade Standards
- Super small size: 10.1 x 9.7 x 2.2m
- Compliance with RoHS, FCC, CE standards
- Get the fastest location time
- Better positioning accuracy and position validity are maintained under weak signal
- Superior quality and reliability

Performance Paramete

Parameter		Performance Evaluatio
Voltage		3.0~3.6V
RF Input	Frequency	GPS/QZSS :L1C/A GLONASS: L1 BeiDou: B1I,B1C GALILEO: E1 SBAS: L1C/A(WAAS, EGNOS, MSAS, GAGAN, SDCM)
	Standing-wave ratio	⩽1.5
	Input impedance	50Ω±10%
	Antenna Gain	0~32dB
Physical Size		10.1 x 9.7 x 2.2mm
Data interface		One UART, TTL level, baud rate adjustable from 1200 to 921600bps, 115200 by default
Antenna testing		Support antenna feed, need external antenna detection circuit
First positioning time TTFF	Cold Start	⩽32s
	Hot Start	⩽1s
	Re-Acquisition	⩽1s
Sensitivity	Tracking Acquisition	-165dBm -148dBm
precision	Position	GNSS Open-Sky CEP<2.5m SBAS Open-Sky CEP<2.0m D-GNSS Open-Sky CEP<1.0
	Speed	GNSS 0.1m/s SBAS 0.05m/s D-GNSS 0.05m/s
dynamic performance	Speed	515m/s
	accelerated speed	4g
	altitude	18000m
PPS		Supported, precision 20ns
data updating rate		1Hz~10Hz /Default1Hz
Navigation data forma		NMEA 0183 V4.1 版

L1+L5 Dual-band GNSS Module

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SKG123N

Highlights

- L1 supports GPS, GLO, GAL, BDS, QZSS systems
- L5 supports GPS, GAL, BDS, and QZSS
- Support SBAS(WAAS, EGNOS, MSAS, GAGAN)
- Support RTCM(v2.3 and v3.3)
- Super small size: 10.1 x 9.7 x 2.2m
- Plug and play standard communication protocol NEMA0183
- Support AGPS: EPO, EASY, NVRAM, hotstil
- TTFF: cold start <28s (CTTFF is 24s with GLO); hot start <1s
- It has better positioning accuracy and location effectiveness under weak signals
- Compliance with RoHS, FCC, CE

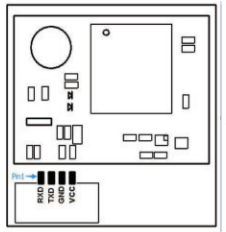
Performance Paramete

Parameter	Description	Performance Evaluatio
Voltage		3.0~3.6V
RF Input	Frequency	GPS:L1C/A+L5 GLONASS:L1 Galileo:L1+E5a BDS:B1I+B2a QZSS:L1C/A+L5 SBAS:L1
	Standing-wave ratio	⩽1.5
	Input impedance	50Ω±10%
	Antenna Gain	0~32dB
Physical Size		16.4*12.2*2.4mm
Data interface		Two UART, TTL level, baud rate adjustable from 1200 to 921600bps, 115200 by default
Antenna testing		Support antenna feed, need external antenna detection circuit
First positioning time TTFF	Cold Start	⩽26s
	Hot Start	⩽1s
	Re-Acquisition	⩽1s
Sensitivity	Tracking Capture Recapture	-165dBm -147dBm -159dBm
precision	Position	GNSS Open-Sky CEP<1.2m SBAS Open-Sky CEP<1m
	Speed	0.2m/s
dynamic performance	Maximum speed	500m/s
	accelerated speed	4g
	altitude	10000m
PPS		Supported, precision 20ns
data updating rate		1Hz~10Hz /Default1Hz
Navigation data forma		NMEA 0183 V4.1 版

SKM80D

Highlights

- GPS only or BDS only or GPS+BDS or GPS+GLONASS
- Ultra high sensitivity: -165dBm
- Extremely fast TTFF at low signal level
- Built-in 12 multi-tone active interference canceller
- Ultra low power consumption
- Advanced Features: AlwaysLocate; AIC; EPO;EASY
- SBAS (WAAS,EGNOS,MSAS,GAGAN)
- ROHS compliance (Lead-free)



Electrical Data			
Power Supply	GPS only or GPS+BDS or GPS+GLONASS		
TTFF	Cold Start	23S	
	Warm Start	2-3s	
	Hot Start	1s	
	Re-Acquisition	<1s	
Sensitivity	3.0m CEP50 without SA(Typical Open Sky)		
Position	0.1m/s without SA		
Velocity	Tracking	-165dBm	Typical
Sensitivity	Re-Acquisition	-160dBm	Typical
	Cold Start	28S	-148dBm
	Warm Start	28s	-148dBm
	Hot Start	1s	-156dBm
Speed accuracy	0.05m/s		
Altitude	Max 18,000m		
Velocity	Max 515m/s		
Acceleration	Less than 4g		
Navigation Data	Max 10Hz		
Update Rate	Default 5Hz		
Assisted GPS support	EPO		

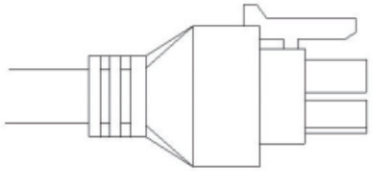
Environmental data,quality & reliability

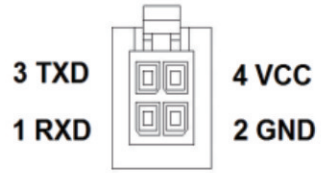
Operation temperature: -40°C to +85°C
Storage Temperature: -40°C to +125°C

SKM2105

Highlights

- Only GPS or only BDS or GPS+BDS or GPS+GLONASS Multisystem reception
- Size:50.7* 48.5* 18.5mm
- Ultra high sensitivity:-165 dBm
- NMEA agreement(default:9600 bps)
- Internal back-up battery
- Embedded patch antenna 35 x 35 x 4.0 mm or 25 x 25 x 4.0mm
- Advanced features: Always Locate; AIC; EPO; EASY





Electrical Data		
Sensitivity	Tracking	-165dBm
	Acquisition	-148dBm
Accuracy	Position	3.0m CEP50 without SA(Typical Open Sky)
	Velocity	0.1m/s without SA
Acquisition Time	Cold Start	23s
	Warm Start	2~3s
	Hot Start	1s
	Re-Acquisition	<1s
Power Consumption	Tracking	31~50mA @5V Typical
	Acquisition	45~66mA @5V
Navigation Data Update Rate	1Hz	
Operational Limits	Altitude	Max 18,000m
	Velocity	Max 515m/s
	Acceleration	Less than 4g

Environmental data,quality & reliability

Operating Temperature: -40°C~85°C
Storage Temperature: -40°C~105°C

Wifi Module Selector Product Selector

Interface Type	Part No.	Chip	Protocol	USBType	Frequency (GHz)	DataRate (Mbps)	Antenna Qty(pcs)	Antenna Type	Packaging	Size (mm)	Bluetooth
USB WiFi	SKW17AE	MT7601	IEEE 802.11bgn (Wi-Fi4)	USB2.0	2.4	150	1	1 IPEX/PCB	SMD	18.3*16.5*2.8	
	WG209	MT7601	IEEE 802.11bgn (Wi-Fi4)	USB2.0	2.4	150	1	1 IPEX/PCB	SMD&Pin header	30*15*2.8	
	WG217	RTL8811	IEEE 802.11ac (Wi-Fi5)	USB2.0	2.4/5	433	1	1 IPEX/PCB	SMD&Pin header	36*15*3.2	
	WG233	RTL8812	IEEE 802.11ac (Wi-Fi5)	USB2.0	2.4/5	433	2	2 IPEX	SMD	29*17*2.8	
	WG236-U	ECR6600U	IEEE 802. 11ax (Wi-Fi6)	USB2.0	2.4	150	1	IPEX	SMD	12.3*12.7	
	SKW92A	MT7628N	IEEE 802.11bgn (Wi-Fi4)	USB2.0/ UART	2.4	300	2	2 IPEX	SMD	40.5*25*3.0	
	WG243	RTL8852BU	IEEE 802.11ax (Wi-Fi6) +ble	USB 2.0/ USB 3.0	2.4/5	433	2	PCB PIN	SMD	13*15*2.3	BLE 5.2
	WG246	SCM2625A	IEEE 802.11ax (Wi-Fi6)	USB2.0	2.4/5G	2.4G:286.8 5G:573.5	BT1; WIFI2	PCB PIN	SMD	13*15	BLE 5.2
AP/Router WiFi	SKW92B	MT7628A	IEEE 802.11bgn (Wi-Fi4)	USB2.0/ PCIE/UART	2.4	150	1	1 IPEX	SMD	40.5*25*3.0	
	SKW95	MT7628A	IEEE 802.11bgn (Wi-Fi4)	USB2.0	2.4	150	1	1 IPEX	SMD	33.2*18.7*3.0	
	SKW99	QCA9531	IEEE 802.11bgn (Wi-Fi4)	USB2.0	2.4G	300	2	2 IPEX	Pin header	48.0*25.7*9.0	
	SKW103	QCA9531	IEEE 802.11bgn (Wi-Fi4)	USB2.0	2.4	300	2	2 IPEX	Pin header	41.2*18.5*9.0	
	SKW93A	MT7628 MT7610E	IEEE 802.11ac (Wi-Fi5)	USB2.0	2.4/5G	2.4G:300 5G:433	2.4G:2 5G:1	3 IPEX	Pin header	36.4 *30.5*14.8	
	SKW78	MT7621A/ MT7603E/ MT7612E	IEEE 802.11ac (Wi-Fi5)	USB2.0	2.4/5	2.4G:300 5G:866	2.4G:2 5G:2	4 IPEX	Pin header	75*52.3*9.0	
	SKW100	QCA9531 QCA9887	IEEE 802.11ac (Wi-Fi5)	USB2.0	2.4/5	2.4G:300 5G:433	2.4G:2 5G:1	3 IPEX	Pin header	47.8*35.4*9.5	
	SKW77	MT7620A	IEEE 802.11bgn (Wi-Fi4)	USB2.0	2.4G	300	2.4G:2	2 IPEX	Pin header	59*28.9*9	
	SKW3000	MT7981A+ MT7976C+ MT7531AE	IEEE 802. 11ax (Wi-Fi6)	USB2.0; USB 3.0 BUS	2.4/5		2.4G:2 5G:3	5 IPEX	Pin header	75*60*20	
	SKW3050	VSPM350 TR5220	IEEE 802. 11ax (Wi-Fi6)	USB2.0; USB 3.0 BUS	2.4/5		2.4G:2 5G:2	5 IPEX	Pin header	79.2*56.9*15	
Uart WiFi	WG219	ESP8266	IEEE 802.11bgn (Wi-Fi4)	uart	2.4	72.2	1	1 IPEX/PCB	SMD	24.0*16.0*2.4	
	WG229	ESP8266	IEEE 802.11bgn (Wi-Fi4)	uart	2.4	72.2	1	1 IPEX/PCB	SMD	24.0*16.0*2.4	
	WG237	ESP32-C2	IEEE 802.11bgn (Wi-Fi4) +ble	uart	2.4	72.2	1	PCB/IPEX	SMD	24.0*16.0*3.1	
	WG239	ESP32-S3	IEEE 802.11bgn (Wi-Fi4) +ble	uart	2.4	150	1	PCB/IPEX	SMD	25.5*18.0*3.1	
	WG236 (Low power) /WG236-A	ECR6600	IEEE 802. 11ax (Wi-Fi6) +ble	uart	2.4	150	1	PCB/IPEX	SMD	24*16.0*3.2	
SDIO WiFi	WG221	RTL8723DS	IEEE 802.11bgn (Wi-Fi4) +ble	SDIO	2.4	150	1	PCB PIN	SMD	12*12*2.3	BLE 4.2
	WG225	RTL8821CS	IEEE 802.11ac (Wi-Fi5)	SDIO	2.4/5	433	1	PCB PIN	SMD	12*12*1.8	BLE 4.2
	WG236-D	ECR6600D	IEEE 802. 11ax (Wi-Fi6) +ble	SDIO	2.4	150	1	PCB PIN	SMD	12*12*2.3	BLE 5.1
	WG821	RTL8821CS	IEEE 802.11bgn (Wi-Fi4) +ble	SDIO 3.0	2.4/5	433	1	PCB PIN	SMD	12*12*1.8	BLE 4.2
	WG244	RTL8852BS	IEEE 802. 11ax (Wi-Fi6) +ble	SDIO	2.4/5	434	2	PCB PIN	SMD	13*15*1.8	BLE 5.2
PCIE WiFi	SKW2625	SCM2625A	IEEE 802. 11ax (Wi-Fi6) +ble	PCIE	2.4/5	1774.5	2	PEX	M.2	22*30	BT2.X/ BLE 5.2

Port:1.USB2.0 2.WAN/LAN 3.UART 4.I²S 5.I²C 6.SPI 7.SD 8.PWM 9.SDIO 10.PCIe

2.4G AP Router WiFi Modules

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SKW92A

Highlights

- Compliant to IEEE 802.11b/g/n
- Main Chipset: MT7628N
- 2T2R mode at 300Mbps PHY data rate
- 580MHz MIPS CPU
- Antenna : 2 IPEX connectors
- Lowest standby current: 180mA
- Working mode: AP/AP Client/Bridge/Repeater/Router mode
- Manufactured in ISO9001/ITAF16949 certified production sites

Interfaces

USB 2.0	Support USB slave devices & 3/4GUSB dongle &USB camera
I2C	1
SD	1
I2S	1
WAN/LAN	1 WAN,4 LAN
PCM	1
PWM	1
SPI Master	Support SPI slave devices
UART	2
GPIO	35

Electrical Data

Size	40.5(L) x 25(W) x 3.0(H) mm
Power Supply	3.3V+/-5%
DDR2	512Mb as default, Customize
Flash	64Mb as default, Customize
Transmit Power	IEEE 802.11n: 16dBm @HT20/40 MCS7
	IEEE 802.11g: 15dBmIEEE 802.11b: 18dBm
	IEEE 802.11b: 18dBm @11MHz
Data rate	300Mbps -2T2R
Wireless	64/128/152-bit WEP encryption
Security	WPA/WPA2 enterprise encryption
	AES-CCM & TKIP encryption

Environmental data,quality & reliability

Operating Temperature: -20°C-50°C

Storage Temperature: -40°C~125°C

Certification

FCC/CE/IC/BQB/ROHS certificated

Dual Band USB WiFi Modules

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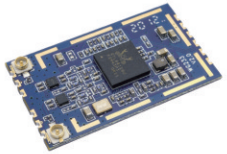
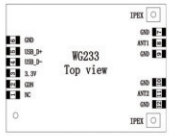
WG233

Highlights

- IEEE 802.11a/b/g/n/ac WLAN
- 2T2R mode
- With support of 867Mbps PHY rate
- IEEE 802.11e QoS Enhancement(WLAN)
- USB LPM/Selective Suspend support
- Fully compliance with USB2.0 High-speed mode
- IEEE 802.11i(WPA, WPA2). Open, shared key, and pair-wise key authentication services





Model Parameter

Antenna Type	IPEX connecter
Voltage	3.0 - 3.6V
Dimensions(L*W*H)	29mm*19mm*2.8mm
Wireless Standards	IEEE 802.11 a/b/g/n/ac
Frequency	2.4/5GHz
Data Rates	IEEE 802.11a Standard Mode: 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11 b Standard Mode: 1,2,5.5,11Mbps
	IEEE 802.11g Standard Mode: 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11n/Draft 2.0 Mode: 300Mbps @ HT40
	IEEE 802.11ac Standard Mode: 867Mbps @VHT80
2.4G Receive Sensitivity	HT40 MCS15: -69dBm@10% PER(MCS7)
	HT20 MCS15 : -72dBm@10% PER(MCS7)
	54M: -74dBm@10% PER
	11M: -89dBm@ 8% PER
5G Receive Sensitivity	VHT80 MCS15: -59dBm@10% PER(MCS9)
	HT40 MCS15: -68dBm@10% PER(MCS7)
	OFDM 54M: -75dBm@10% PER
	OFDM 6M: -90dBm@ 8% PER
Operational Limits	802.11 Legacy b/g/n
	DSSS (DBPSK, DQPSK, CCK)
	OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
	802.11ac
	OFDM (256-QAM)
Wireless Security	Supports WEP64/128, WPA, WPA2, TKIP, WAPI, and AES hardware encryption
5Ghz Transmit Power	IEEE 802.11ac: 9-13dBm @AC80 MCS7
2.4Ghz Transmit Power	IEEE 802.11n: 14-17dBm @HT40 MCS7 14-17dBm@HT20 MCS7
	IEEE 802.11g: 15-17dBm
	IEEE 802.11b: 16-20dBm
Work Mode	AP/Ad-Hoc / Infrastructure mode

Environmental data,quality & reliability

Operating Temperature: -10°C~70°C
Storage Temperature: -40°C~125°C
Operating Humidity: 10%~90% non-condensing
Storage Humidity: 5%~90% non-condensing

Certification

FCC/CE/IC/ROHS certificated

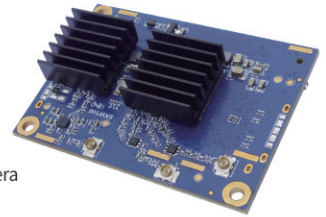
Dual Band AP Router WiFi Modules

SKYLAB
Simplify Your System

SKW100

Highlights

- IEEE 802.11b/g/n/ac
- 3T3R mode with support for a 733Mbps PHY data rate
- DDR2 memory up to 2048Mb
- Flash memory up to 512Mb
- 4 LAN ports and 1 WAN port
- USB 2.0 slave device for USB disk and USB 3G/4G dongle and USB camera
- Support AP/Client/Router mode



Electrical Data

Antenna Type	IPEX
Voltage	3.3V±5%
Dimension(L×W×H)	47.8x 35.4 x 9.5mm
Wireless Standards	IEEE 802.11a/b/g/n/ac
Frequency Range	2412GHz---2484MHz & 5180---5825MHz
Data Rates	IEEE 802.11b : 1,2,5.5,11Mbps
	IEEE 802.11g : 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11n : MCS0--MCS7 @ HT20 /2.4GHz band
	MCS0--MCS7 @ HT40 /2.4GHz band
	MCS0--MCS9 @ HT40 /5GHz band
	IEEE 802.11ac : MCS0--MCS9 @ VHT80 /5GHz band
Receiver Sensitivity	VHT80 MCS9 : -58dBm@10% PER(MCS9) /5GHz band
	HT40 MCS9 : -63dBm@10% PER(MCS9) /5GHz band
	HT40 MCS7 : -70dBm@10% PER(MCS7) /2.4GHz band
	HT20 MCS7 : -71dBm@10% PER(MCS7) /2.4GHz band
	54M: -76dBm@10% PER
	11M: -88dBm@ 8% PER
Modulation Technique	DSSS (DBPSK, DQPSK, CCK)
	OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 125-QAM, 256-QAM)
Wireless Security	WPA/WPA2, WEP, TKIP and AES, WPS2.0, WAPI
Transmit Power	IEEE 802.11ac: 12±2dBm @HT80 MCS9 /5GHz band
	IEEE 802.11ac: 16±2dBm @HT80 MCS0 /5GHz band
	IEEE 802.11n: 14±2dBm @HT20/40 MCS7 /5GHz band
	IEEE 802.11n: 16±2dBm @HT20/40 MCS0 /5GHz band
	IEEE 802.11n: 16±2dBm @HT20/40 MCS7 /2.4GHz band
	IEEE 802.11g: 16±2dBm @54MHz
	IEEE 802.11b: 18±2dBm @11MHz

Environmental data,quality & reliability

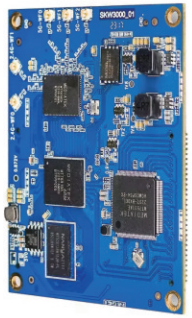
Operating temperature: -20°C ~ 55°C
Storage Temperature: -40°C ~ 85°C

2.4G/5G AP Router WIFI Module

SKYLAB
Simplify Your System

SKW3000

Highlights



- Compliant to 802.11a/b/g/n/ax Wi-Fi6
- Main Chipset MT7981A+MT7976C+MT7531AE
- Suitable for 802.11ac, LTE cat4 / 5, edge, hot spot, VPN, AC (access control).
- Embedded dual-core ARM ®Cortex-A53 MPCore with an operating rate of 1.3 GHz
- Support 144Mbps for 20 MHz channels, 300Mbps for 40 MHz channels, and 866Mbps 5 GHz operations for 160 MHz channels.
- Support Bridging mode, AP/client mode and Gateway mode.

Electrical Data	
Size	75mmX60mmX20mm
Power Supply	5V
CPU	MTK7981 (1200MHz)
RF	2.4G: MT7531AE
	5G: MT7531AE
PHY	MT7976C
Internal storage	DDR3 2Gb by default Maximum2GB
Flash memory	(16MBx1 SPI NOR flash) 128MBx1 NAND flash by default
Gigabit Ethernet	LANx4: 10/100/1000 auto-sensing (MDI/MDX)
	WAN: 10/100/1000 auto-sensing (MDI/MDX)
USB	USB2.0; USB 3.0 BUS
UART	UARTx2
Power adapter	Input DC 4.5—12.0V, 3A

Environmental data,quality & reliability

Operation temperature: -20~ 55°C(Fan heat dissipation can increase the upper limit)

Storage temperature -40~105°C

WIFI + Bluetooth V 5.0 IOT module

SKYLAB
Simplify Your System

WG237

Highlights

- Built-in ESP32-C2 chip, RISC-V 32-bit single-core microprocessor, the main frequency up to 120 MHz
- The module is built-in for Flash 2 / 4MB
- Supports 1T1R mode with data rate up to 72Mbps
- WIFI @ 2.4 GHz, with support for the WEP / WPA-PSK / WPA 2-PSK security mode
- Low-power Bluetooth 5.0 (Bluetooth LE) : Bluetooth 5, Bluetooth mesh
- Rate support: 125Kbps500Kbps, 1Mbps, 2Mbps
- Multiple Advertisement Sets
- Supports GPIO * 14, SPI * 3, UART * 2, I2C, I2S, IR transceiver, PWM Controller * 6, Universal DMA Controller, temperature sensor, SAR M / DC * 5
- Supports the STA / AP / STA + AP working mode
- Support for a remote OTA

Electrical Data	
Antenna type	On-board antenna
Voltage	3.3V+/-10%
Dimensions (LWH)	24.0mm*16.0mm*3.1mm
WIFI Characteristic Parameters	
Wireless standards	IEEE 802.11 b/g/n/ax
Frequency range	2.400-2.4835GHz
Transmission speed	IEEE 802.11b Standard Mode: 1,2,5.5,11Mbps
	IEEE 802.11g Standard Mode: 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11ax Standard Mode: 72.2Mbps @ HT20(MCS7)
2.4G reception sensitivity	IEEE 802.11b: -85dBm@ 8% PER
	IEEE 802.11g: -76dBm@10% PER
	IEEE 802.11n: -73dBm@10% PER(MCS7)
Wireless security	Support of WEP, WPA, WPA2, WPA3 (Personal and Enterprise modes)
Emission power of ±2 dBm	IEEE 802.11b: 17dBm
	IEEE 802.11g: 14dBm
	IEEE 802.11n: 12-14dBm@HT20 MCS7
Work pattern	Soft AP/ Station
BLE Characteristic Parameters	
Working frequency	2402MHz (Min) 2480MHz (Max)
Transmission speed	2Mbps (Max)
Transmitting power	-24dbm(Min) +9dbm(Typ) +21dbm(Max)
Sensibility	-97dBm (Min) -100dBm (Typ) -100dBm(Max)

Environmental data

Operation temperature: -40°C~85°C Storage temperature: -40°C~105°C

Bluetooth Modules, ZigBee Modules

No.Product	TypeBLE Type	Part No.	Dimension (mm)	Chip	Interface	Remark
Bluetooth Modules	BLE 4.2	SKB369_CSPI	17.4*13.7*1.9	nRF52832_QFAA	UART/SPI/I2C/PWM/GPIO	PCB Ant
Bluetooth Modules	BLE 4.2	SKB52832	10.0*7.8*1.7	nRF52832_QFAA	UART/SPI/I2C/PWM/GPIO	Ext Ant
Bluetooth Modules	BLE 5.0	SKB501_CSPI	17.4*13.7*1.9	nRF52840_QFAA	UART/SPI/I2C/PWM/GPIO	PCB Ant
Bluetooth Modules	BLE 5.0	SKB501_CSEI	17.4*13.7*1.9	nRF52840_QFAA	UART/SPI/I2C/PWM/GPIO	Ext Ant
Bluetooth Modules	BLE 5.2	SKB378-CSPI	17.4*13.7*1.9	EFR32BG22C224	UART/SPI/I2C/PWM/GPIO	PCB Ant
Bluetooth Modules	BLE 5.2	SKB378-CSEI	17.4*13.7*1.9	EFR32BG22C224	UART/SPI/I2C/PWM/GPIO	PCB Ant
Bluetooth Modules	BLE 5.2	SKB380	17.4*13.7*1.9	CST92F25	UART/SPI/I2C/PWM/GPIO	Ext Ant
Bluetooth Modules	BLE 5.2 High Power	SKB381	20.0*12.0*2.1	EFR32BG21A020	UART/SPI/I2C/PWM/GPIO	Ext Ant
ZigBee Modules	802.15.4 MAC/PHY	SKZ301	16*24*2.8	TL8258	uart	PCB /Ext Ant
ZigBee Modules	802.15.4 MAC/PHY	SKZ302	15.8*20.3*3.3	TL8258	uart	PCB /Ext Ant
ZigBee Modules	802.15.4 MAC/PHY	SKZ305	14.5*12.0*2.1	EFR32MG21	uart	Ext Ant
ZigBee Modules	802.15.4 MAC/PHY	SKZ306	20.0*12.0*2.1	EFR32MG21	uart	PCB Ant

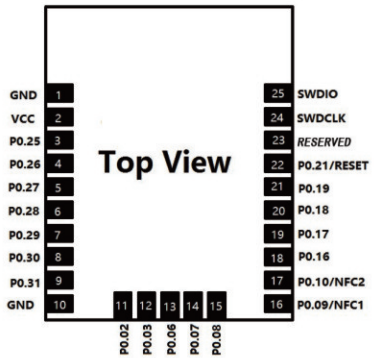
Bluetooth 5.0 Low Energy Module

SKYLAB
Simplify Your System

SKB501

Highlights

- Main Chipset: nRF52840
- Bluetooth 5 ready multi-protocol radio
- Bluetooth 5 data rate: 2Mbs, 1Mbs, 500Kbs, 125Kbs
- 32-bit ARM Cortex-M4F @ 64MHz
- Up to 111 dB link budget for Bluetooth long range mode
- Programmable output power from +8dBm to -20dBm
- -96dBm Sensitivity for Bluetooth low energy
- Dimension: 17.4(L)x13.7(W)x1.9(H) mm
- Manufactured in ISO 9001/IATF 16949 certified production sites



Interfaces

Antenna	PCB Antenna/External Antenna
UART	1
SPI	3
I2C	2
TWI	2
ADC	6
GPIO	20, Controlled over AT commend

Electrical Data	
Power Supply	1.7-3.6V
Power Consumption	Sleep Mode 0.4uA Idle Mode 1.2uA

Environmental data,quality & reliability

Operating Temperature: -40°C~85°C
Storage Temperature: -40°C~125°C

Certification

FCC/CE/IC/BQB/ROHS certificated

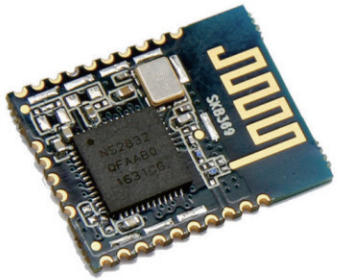
Bluetooth 4.2 Low Energy Module

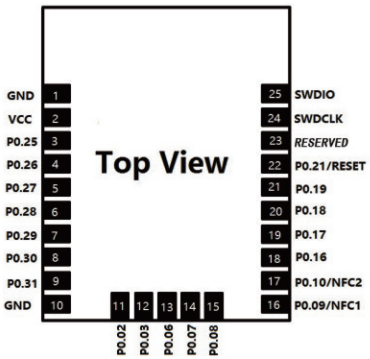
SKYLAB Simplify Your System

SKB369

Highlights

- Main Chipset: nRF52832
- Bluetooth@ 4.2 low energy single-mode
- protocol stack: L2CAP,ATT, GAP, GATT and SM protocols
- Central and Peripheral roles
- Supported data rates up to 1Mbps
- AES HW encryption
- Dimension:17.4(L)*13.7(W)*1.9(H) mm
- Manufacturedin ISO 9001/ATF 16949 certified production sites





Interfaces

Antenna	PCB Antenna/External Antenna
UART	1
SPI	3
I2C	2
ADC	6
GPIO	19, Controlled over AT commend

Electrical Data

Power Supply	17.4×13.7×1.9 mm
Power Consumption	PCB Antenna/ External Antenna(UF.L IPEX-1)

Environmental data,quality & reliability

Operating Temperature: -40°C~85°C

Storage Temperature: -40°C~125°C

Certification

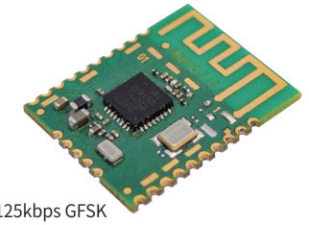
FCC/CE/IC/BQB/ROHS certificated

BLE 5.2 Modules

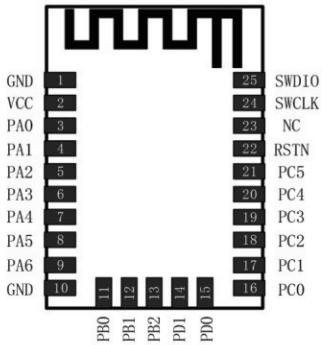
SKYLAB Simplify Your System

SKB378

Highlights



- Main Chip: SILICON LABS EFR32BG22
- BLE® 5.2 protocol
- Support BLE AOA/AOD positioning
- Supported BLE all data rates :125kbps/250kbps/500kbps/1Mbps/2Mbps
- Superior Radio Performance: TX Power 6dBm /RX sensitivity -106.7dBm@125kbps GFSK
- Ultra Low Power consumption: TX 4.1mA@0dBm, RX 3.6mA@1Mbps, Sleep current<1.8uA
- 4x16bit timers+1x32bit RTC timer+1*24bit Low Energy Timer for waveform generation
- 12-bit 1Msps SAR ADC
- 2*USART(UART/SP//SmartCard-S07816/IrDA/2S),2*12C,PDM for Digital Microphone, 12*PRS
- HW encryption: AES 128/256,SHA-1,SHA-2,ECC(up to 256bit),ECDSA(up to 256bit) and ECDH



Interfaces

GPIOs	18
SWD	2
GND	2
VCC	1

Electrical Data

Size	17.4×13.7×1.9 mm
Antenna Type	PCB Antenna/ External Antenna(UF.L IPEX-1)
Voltage	1.71V~3.8V
Frequency Range	2400MHz---2483.5MHz
Transmit Power	-27 to +6dBm(SKB378) -28 to 0dBm(SKB378A)

Environmental data,quality & reliability

Operating Temperature: -40°C~85°C

Storage Temperature: -40

Operating Humidity: 10%~50% Non-condensing

°C~125°C Storage Humidity: 5%~90% Non-condensing

UWB Bracelet

SKYLAB
Simplify Your System

VDU1502A/R

Highlights

- UWB Channel: Default 3774~4243.2MHz, Support channel CH1-5
- Protocol Standard: IEEE 802.15.4-2011 UW
- RF Chain: Support PA
- Build-in Battery: 750mAh Rechargeable Lithium Battery
- Charging Time: About 4 hours
- Heart Rate: Support
- SOS Button: Support
- Step counter: Support (Optional)
- Dustproof Waterproof Level: IP67

Model Parameter	
Main Chipset	UWB:DW1000 BLE:nRF52832
Size	44*46*19.5 mm (not including watchband)
Battery capacity	750 (mAh)
Stand-by Time (default power@1Hz)	About 3 Months
Working Temperature	-20~60°C
Power Consumption	50uA standby, 150mA positioning launch
Charging voltage	DC5V /1A

UWB Tag

SKYLAB
Simplify Your System

VDU1506A/R

Highlights

- UWB Channel: Default 3774~4243.2MHz, Support channel CH1-5
- Protocol Standard: IEEE 802.15.4-2011 UW
- Broadcast Frequency: 1Hz/5Hz
- Build-in Battery: 1000mAh Rechargeable Lithium Battery
- Charging Time: About 4 hours
- Buttons: SOS, ON, OFF
- Dustproof Waterproof Level: IP66
- RF Chain: CH2 Support 2 Class PA+ 1 Class LNA, other frequency support 1 Class PA+ 1 Class LNA

Model Parameter	
Main Chipset	UWB:DW1000 BLE:nRF52832
Size	57.4*38.8*21 mm (not including watchband)
Battery capacity	1000 (mAh)
Stand-by Time (default power@1Hz)	About 4 Months
Working Temperature	-20~80°C
Power Consumption	Standby: 50uA TX standard power: 300mA RX: 70mA

UWB Card

SKYLAB
Simplify Your System

VDU1521A/R

Highlights

- UWB Channel: Default 3774~4243.2MHz, Support channel CH1-5
- Protocol Standard: IEEE 802.15.4-2011 UW
- RF Chain: CH2 Support 2 Class PA+ 1 Class LNA,other frequency support FEM
- Broadcast Frequency: 1Hz/10Hz
- Build-in Battery: 550mAh Rechargeable Lithium Battery
- Charging Time: About 4 hours
- Buttons: SOS, ON, OFF
- Dustproof Waterproof Level: IP66

Model Parameter	
Main Chipset	UWB:DW1000 BLE:nRF52832
Size	85*54*7.5 (mm)
Battery capacity	550 (mAh)
Stand-by Time (default power@1Hz)	About 2 Months
Working Temperature	-20~60°C
Power Consumption	Standby mode 20uA Transmit mode less than 20mA

UWB Anchor

SKYLAB
Simplify Your System

VDU2503(TDOA)/VDU2506(TWR)

Highlights

- UWB Channel: Default 3774~4243.2MHz, Support channel CH1-5
- Power Supply: POE or Power Adapter 5V(4.5V~5.5V)
- Antenna: Build-in UWB Antenna
- Data Upload Method: Default 6.8Mbps Support 110Kbps,850kbps
- Data Transmission Rate: Default 6.8Mbps Support 110Kbps,850kbps
- Positioning Accuracy: <30cm(no obstacle between anchor and Tag)
- Compatible with IEEE802.15.4-2011 UWB protocol

Model Parameter	
Main Chipset	UWB:DW1000 MCU:STM32F4
Power Supply	POE 48V DC 5V1A
LNA	Y
PA	1 Class
Coverage Area	＜50m
Antenna	PCB Antenna
Working temperature	-30°C~70°C
Storage temperature	-40°C~85°C
Waterproof Rating	IP66
Explosion Protection Rating	ExibIIBT4Gb

Bluetooth Beacon With Acceleration / Temperature / Humidity Sensor

SKYLAB Simplify Your System

VDB1611

Highlights

- Low Power Consumption
- Acceleration and temperature and humidity data collection
- Flexible Application
- Easy to deploy(use thick sticky tape)
- Advertise Range up to 70 Meters

Product Parameter	
Dimension	72*45*26mm (L*W*H)
Battery	Size AA
Operating temperature	-20°C~70°C
Acceleration sensor	3 axes, ±2g/4g/8g/16g four-speed adjustable
Humidity sensor	0%RH~100%RH(±%2RH)
Temperature sensor	-20°C~70°C (±0.2°C)
Wireless standards BLE 4.2/5.0	
frequency range	2400MHz——-2483.5MHz
data rate	250kbps / 1Mbps / 2Mbps
modulation technique	FSK
Wireless security	AES
transmission power	-20~+4dBm (4 dB increments)
sensitivity	-93dBm at 1Mbps BLE
operating mode	Peripheral

Battery life

Broadcasting power	Coverage area	Broadcast interval	Battery life (month)
+4dBm	70m	100ms	10.2ms
		200ms	19.7ms
		500ms	45.1ms
		1000ms	78.9ms
+0dBm	50m	100ms	13.8ms
		200ms	26.5ms
		500ms	58.9ms
		1000ms	99.2ms

People/Asset Location Tracking Anti-tamper Bluetooth Beacon

SKYLAB Simplify Your System

VDB03S

Highlights

- Low Power Consumption
- Extra small size: 37.3*23.4*5.1mm
- Prevent the disassembly
- Flexible application
- Easy to deploy
- Broadcast distance of up to 50 m (0dBm)

Product Parameter	
Dimension(L×W×H)	37.3*23.4*5.1mm
Battery	CR2032
Operating Temperature	-30°C~60°C
Wireless Standards	Bluetooth®4.2
Frequency Range	2400MHz---2483.5MHz
Data Rates	1Mbps(Bluetooth ® 4.2)
Modulation Technique	PWM
Wireless Security	AES HW Encryption
Transmit Power	-20, -16, -12, -8, -4, 0dBm
Sensitivity	-94dBm at 1Mbps BLE

Battery life

Broadcast power	Coverage area	Broadcast interval Status	Battery life	Status
0dBm	50m	10000ms	23 months	Button pressed
		2000ms	19 months	Button pops up

BLE5.0 Low Power Bluetooth Beacon

SKYLAB Simplify Your System

VDB01

Highlights

- Low Power Consumption
- Small, Light-weight, Beautiful appearance
- Flexible Application
- Easy to deploy(use thick sticky tape)
- Advertise Range up to 70 Meters
- CE compliance

Product Parameter	
Hardware Features	
Antenna Type	PCB Antenna
Battery	CR2477 950mAh
Voltage	1.8~3.1 V
Dimension(D×H)	47.5*16.1mm
Wireless Features	
Wireless Standards	Bluetooth ®5.0
Frequency Range	2400MHz——-2483.5MHz
Data Rates	125kbps/250kbps/500kbps/1Mbps/2Mbps
Modulation Technique	GFSK
Wireless Security	AES
Transmit Power	-20~+4dBm,Tx Power: -20 to +4dBm in 4dB Steps
Sensitivity	-97dBm @1Mbps BLE
Work Mode	Peripheral
Environment	
Operating Temperature	-20°C~70°C
Storage Temperature	-20°C~70°C
Operating Humidity	10%~90% Non-condensing
Storage Humidity	5%~90% Non-condensing

Battery life

TX Power	Adv. Distance	ms/Adv.interval	mA*h/Power consumption per day	Battery life (day)	Battery life (year)
odBm	50m	100	4.824	162	0.54
		200	2.496	381	1.04
		400	1.344	707	1.93
		500	1.128	842	2.31
		800	0.720	1319	3.61
		1000	0.624	1522	4.17

Animal Cattle Sheep Horse Locator Tracking Ear Tag Bluetooth Beacon

SKYLAB Simplify Your System

VDB06S

Highlights

- Low Power Consumption
- Step counting
- Advertise Range up to 50 Meters
- Easy to deploy
- Using non-toxic biological PE materials

Product Parameter	
Size(L×W×H)	63.0*36.5*22.0mm
Battery Type	CR2032WT 210mAh@20°C
Operating Temperature	-40°C~85°C
Wireless Standards	BLE®4.2(/ 5.0)
Frequency Range	2400MHz---2483.5MHz
Data Rates	Default 1Mbps(Bluetooth ® 4.2) ,Support 2Mbps(Bluetooth ®5.0)
Modulation Technique	GFSK
Wireless Security	AES HW Encryption
Transmit Power	Default 0dBm ,-20dBm~ 0dBm adjustable
Receiver sensitivity	-96.3dBm at 1Mbps BLE
Work Mode	iBeacon
Current Consumption	8.64uA

Battery life

Broadcast power	Coverage	Broadcast interval	Battery life (months)
+4dBm	70m	10000ms (Count steps)	10
		10000ms (Don't count steps)	22
-4dBm	50m (default setting)	10000ms (Count steps)	12
		10000ms (Don't count steps)	25

BLE 4.2+5.0 Gateway

SKYLAB Simplify Your System

VDB2602

Highlights

- POE switch power supply and 4.5V to 12.0V power supply
- IEEE 802.11n,IEEE 802.119, IEEE 802.11b Protocol
- Bluetooth ® 4.2
- One WAN/LAN variable network port

Product Parameter	
Bluetooth standard	BLE4.2
Main chip	BLE:nRF52832 WiFi:MT7688AN
Antenna type	BLE:PCB WiFi:FPC Antenna
MSTXPWR	20dBm
Scan range	100m
Broadcast range	150m
WiFi frequency	2.4GHz
FEM (PA+LNA)	Y
Power Supply	Standard 48V POE DC 5V/1A
Average current	200mA@5V
Size	Diameter124*Height40mm
Physical interface	One network port, one DC power interface
Working mode	Bridge、Gateway、AP Client
Wireless Security	AES HW Encryption
Transmit Power	-20~+4dBm

Environmental data,quality & reliability

Operating temperature:-20°C~70°C

Certification

CE certificated

4G LTE Outdoor High Power BLE Gateway

SKYLAB Simplify Your System

VDB2609

Highlights

- Supports POE power supply and 5V DC power supply
- 4G modem support All Netcom
- Protocol: IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
- Bluetooth 4.2/5.0 (Long-range not included)
- BLE Max Transmission Power is +21dBm
- Self-adjust WAN/LAN port

Product Parameter	
Dimension	L153mm*W137mm*H97mm
Power Supply	DC 5V or POE
Currents	200mA@5V
Operating Temperature	-20°C~70°C
Physical interface	Ethernet port *1, DC port *1
WiFi Protocol	IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
Data Rate	IEEE 802.11 b Standard Mode: 1,2,5.5,11Mbps
	IEEE 802.11g Standard Mode: 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11n : 72Mbps @ HT20 150Mbps @ HT40
Sensitivity	HT40 MCS7 : -70dBm@10% PER(MCS7)
	HT20 MCS7 : -73dBm@10% PER(MCS7)
	54M: -77dBm@10% PER
	11M: -89dBm@ 8% PER
Transmit Power	IEEE 802.11n: 14dBm @HT40 MCS7 15dBm@HT20 MCS7
	IEEE 802.11g: 15dBm
	IEEE 802.11b: 18dBm
Wireless Security	WPA/WPA2, WEP, TKIP, and AES
Working mode	Bridge, Gateway, AP Client
Bluetooth Protocol	Bluetooth 4.2/5.0(Not Support Long Range)
Data Rate	Uncoded:1Mbps/2Mbps,Coded:125kbps(S=8)/500kbps(S=2)
Wireless Security	AES HW Encryption
Coverage area	10m indoor
Transmit Power	Default 20dBm±1.5dBm (Can be adjusted from 0 to 20dBm in 4dBm step)
Receiver sensitivity	<-94dBm
Distance	>200m

Environmental data, quality & reliability

Operating temperature: -20°C ~ 70°C