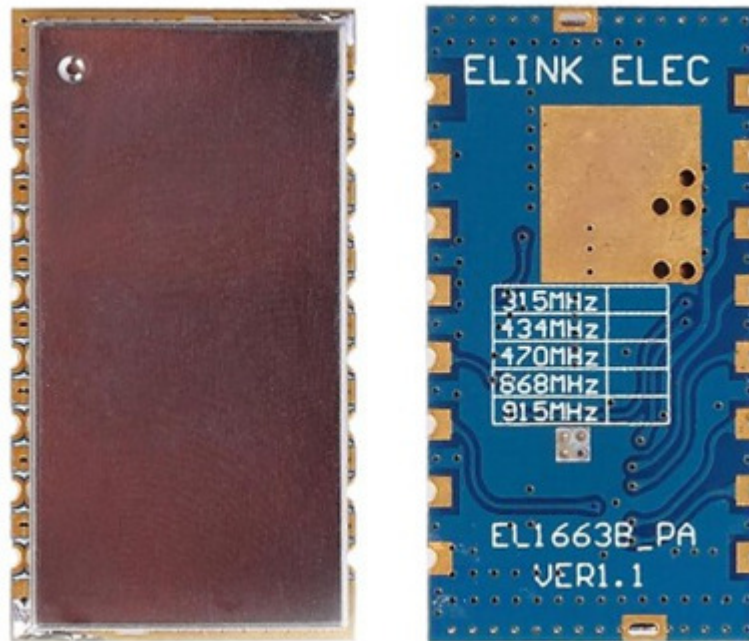# EL1663B_PA_1W High power wireless module

1, Description:

EL1663B_PA_1W is a high power wireless module with 1W output power. It adopts SI4463 core and configurate internal patameters via SPI interface. Communication distance measured from the bridge come to 10KM (air rate 2.4K,frequency deviation 4.8K)

Si446x series from Silicon Labs is 119MHz ~ 1050MHz transceiver with high performance and low current and is one of the member of EZRadioPRO series, Including complete transmitter and receiver. Sensitivity is up to -126dBm, Si4464 operating frequency is 119MHz ~ 960MHz, its maximum output power is up to +20 dBm, PA support +27 DBm or +30 dBm. It adopts (G) FSK, 4 (G) FSK, (G) MSK, OOK and ASK modulation, the data rate is up to 100bps ~ 1Mbps, operating voltage is 1.8 ~ 3.6V, shutdown current is 30nA, standby currentis 50nA. It is mainly used in Smart meters (802.15.4g & MBus), remote control, home security and alarm , garage door openers and , telemetry ,Home automation, sensor network , health monitoring.

Si446x from Silicon Labs' is a high performance , low current transceivers , covering the sub-GHz band from 119MHz ~ 1050MHz. The transceiver is part of EZRadioPRO family,including complete transmitters, receivers and transceivers series , which covers a wide range of applications. All parts/components have excellent sensitivity (to -126dBm), while achieving lower operating and pending electrical energy consumption .

2, Features

size：38x20x2 (mm)

Working frequency：434MH 470MH 868M 915M

Transmitting power：30dBm

Transmitting modulation：OOK/FSK/GFSK/4FSK/4GFSK

Working voltage：5~8V

Voltage	Output power（dBm)	Output power（mW)	Current (mA)
5	28	630.9573445	320
6	29	794.3282347	370
6.5	29.5	891.2509381	410
7	29.7	933.2543008	430
8	30.2	1047.128548	450

Frequency range: 119 MHz to 1050 MHz
Sensitivity: -126dBm
Modulation:(G)FSK，4(G)FSK，(G)MSK, OOK, ASK
PA support +27 or +30dBm
Low consumption
Ultra low current off mode
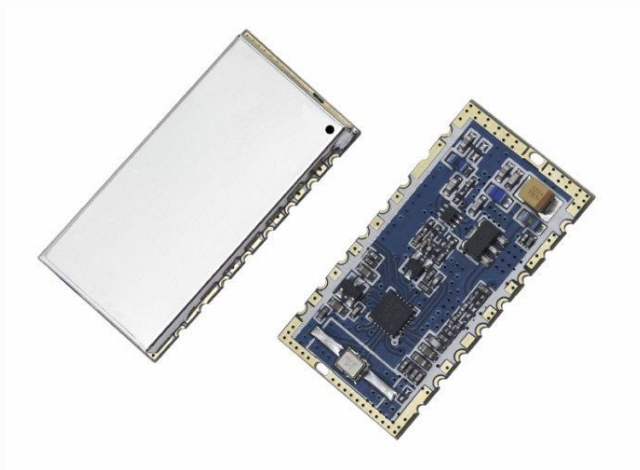30NA off，50nA standby
Data air rate=100bps to 1Mbps

SI4463 and SI4432 :

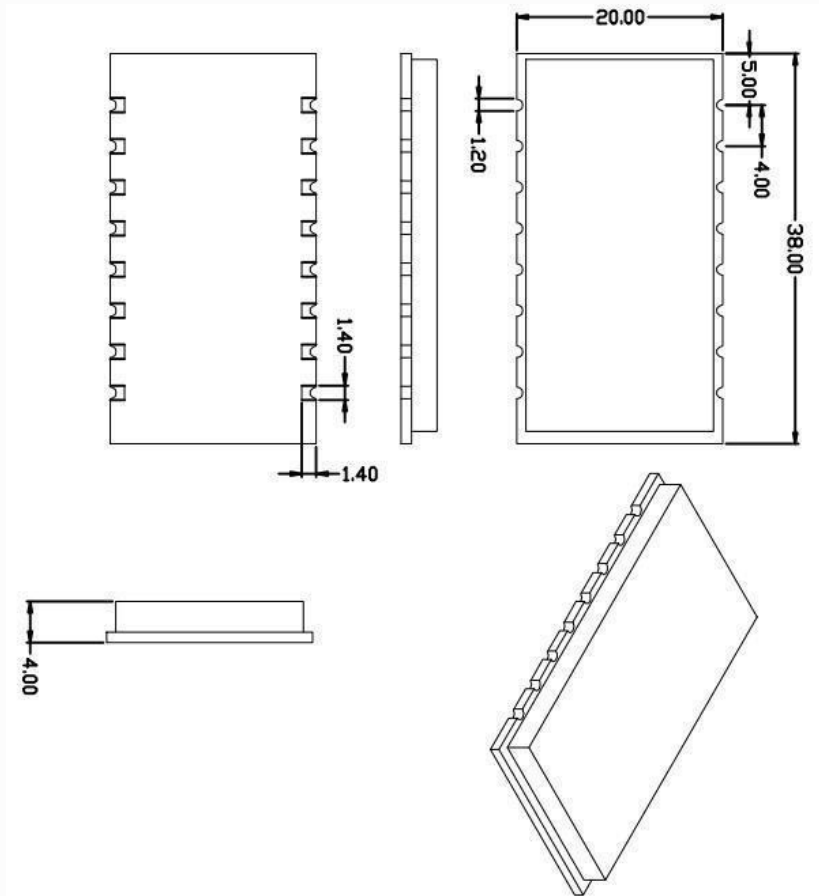| Parameters	EL1663B_PA_1W	EL4463_100MW	EL4432_100MW
Frequency range	119~1050MHz	119~1050MHz	240~960MHz
sensitivity	-126dBm	-126dBm	-121dBm
Transmitting power	30dBm	20 dBm	20 dBm
Off current	30nA	30nA	50nA
Standby current	50 nA	50 nA	800nA
Receiving current	10.0mA	10.0mA	18.5mA
Transmitting current	450MA	75MA	85MA
DATA rate	0.123~1M	0.123~1M	0.123~256K
Distance	10000M	2800M	2300M
	434M 2.4K	434M 2.4K	434M 2.4K

3, Application:

Ø home automation and security access control system

Ø wireless meter reading

Ø vehicle anti-theft

Ø wireless sensor

Ø remote wireless data transmission

Ø remote industrial remote control, remote sensing

Ø garage control

Ø wireless pager

Ø lighting control

Ø smart metering

Ø remote control

Ø family security and alarm

Ø garage door openers

Ø remote keyless entry
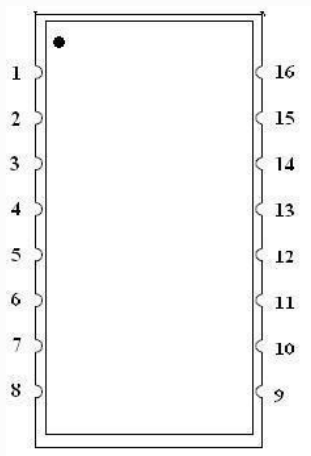
Ø automation

Ø industrial control
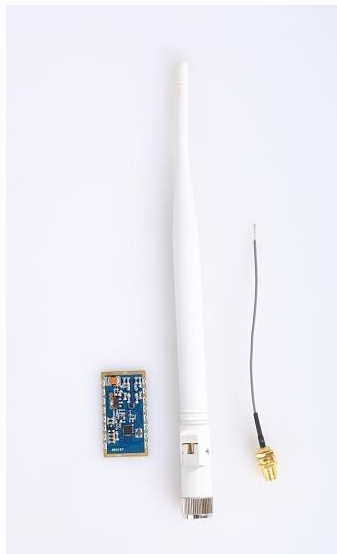
Ø sensor network

4, Shape

Machine size:

4.3: Pin Definition:

Pin NO.	Name	Description
1	VCC	Connect positive power 8VDC
2	GND	Connect power ground
3	+3.3V	inner LDO output
4	GPIO0	Connect the IC of GPIO0(can be used to test sensitivity)
5	GPIO1	Connect the IC of GPIO1(can be used to test sensitivity)
6	SCK	Serial clock input. 0～VDDV digital input。This pin has 4 line serial digital clock function.
7	SDO	0 ~ VDDV digital output, provides serial read back function of internal control register Serial data input
8	SDI	0 ~ VDDV digital input The pin is 4 line serial data bus serial data flow.
9	GND	Connect power ground
10	nSEL	Serial interface select input pin, 0 ~ VDDV digital input. This pin provides four wire serial data bus selection/enabling functions, this signal is used to represent a read/write mode
11	nIRQ	Interrupt output pin, interrupt produce output low level
12	SDN	Close input pin. 0～VDDV digital input. All mode is SCN=0, except in off mode. When the SDN = 1 chip will be completely shut down and the contents of the registers will be lost.
13	NC	
14	NC	
15	GND	Connect power ground
16	ANT	Connect 50 euro coaxial antenna

5, Antenna

6, Testing condition:

Weather：bad

Environment: between the bridge on the river
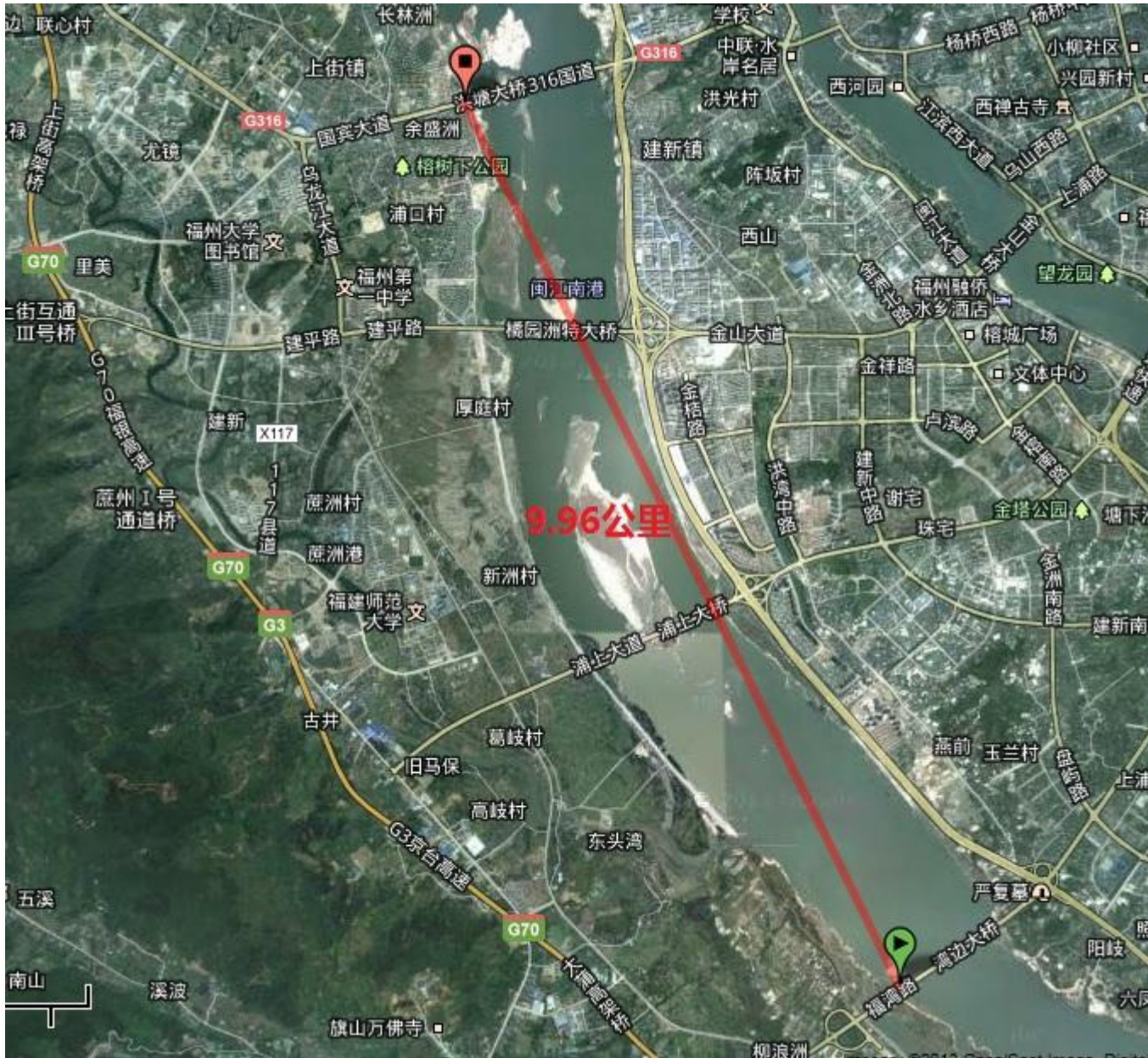
Testing transmitter module：EL1663B_PA_1W

Testing receiver module：SI4463 双天线

Testing frequency：434MH testing air rate：2.4K, frequency deviation 4.8K

Testing weather：cloudy with light rain

Testing temperature: 18 degrees

Wind intensity: Strong

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