

NearSky™ 360 V2.0

User Guide

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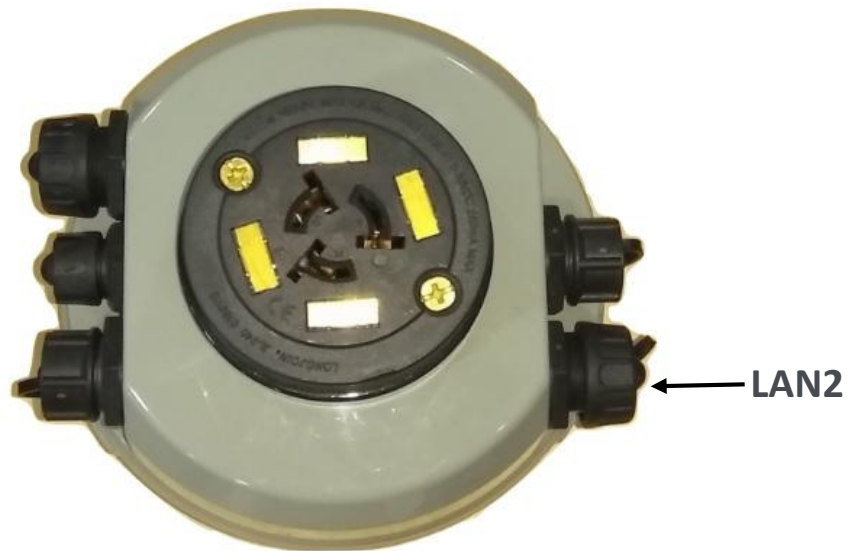
Revision history:

Ver-Rev	Date	Author	Changes	Reviewed by	Approved by
1.0	28 th Mar, 2019				
2.0	20 APR 19		Block diagram updated		
3.0	23 APR 19		Page 8 updated		

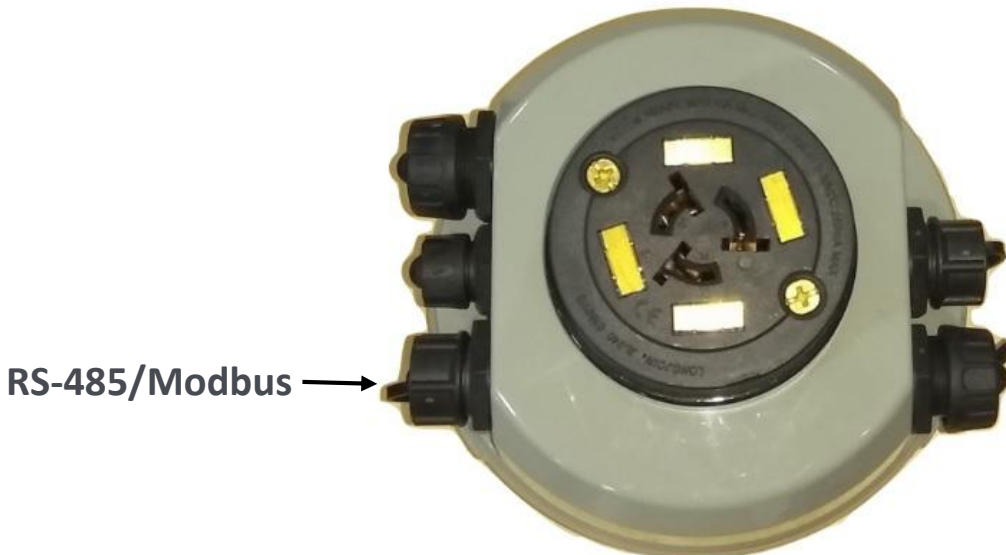
Installation Guide

How to connect peripheral devices with NearSky 360

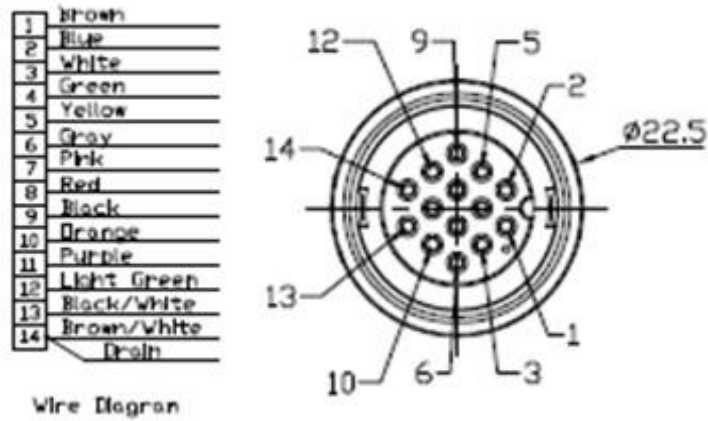
Step-1: Connect POE compatible camera with connector “LAN2” as shown in below snapshot.



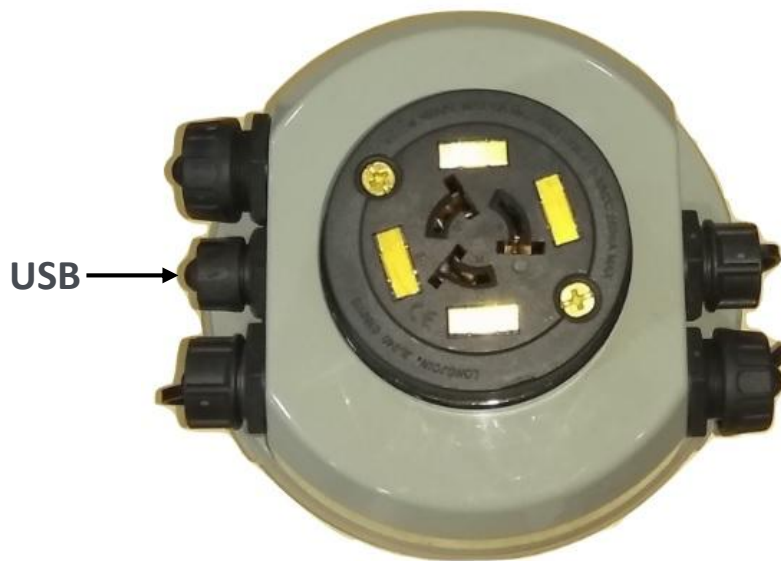
Step-2: Connect Modbus supported sensor with NearSky 360 as per below snapshot.



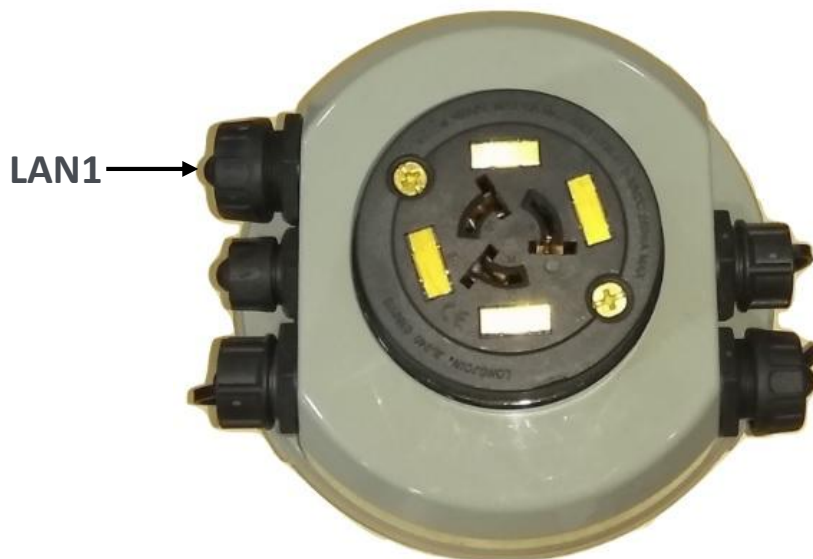
Please refer below snapshot for pin details of external sensor connector



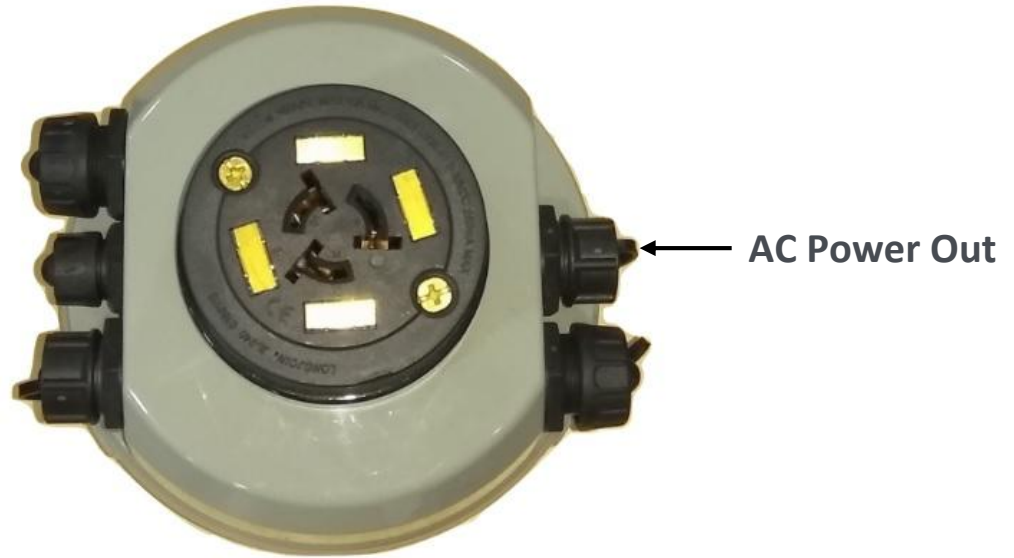
Step-3: Connect USB device as per below snapshot.



Step-4: Connect NearSky 360 with LAN network for Ethernet backhaul at connector “LAN1”



Step-5: Connect 4 pin AC power out connector supplied with unit for external sensor powering.



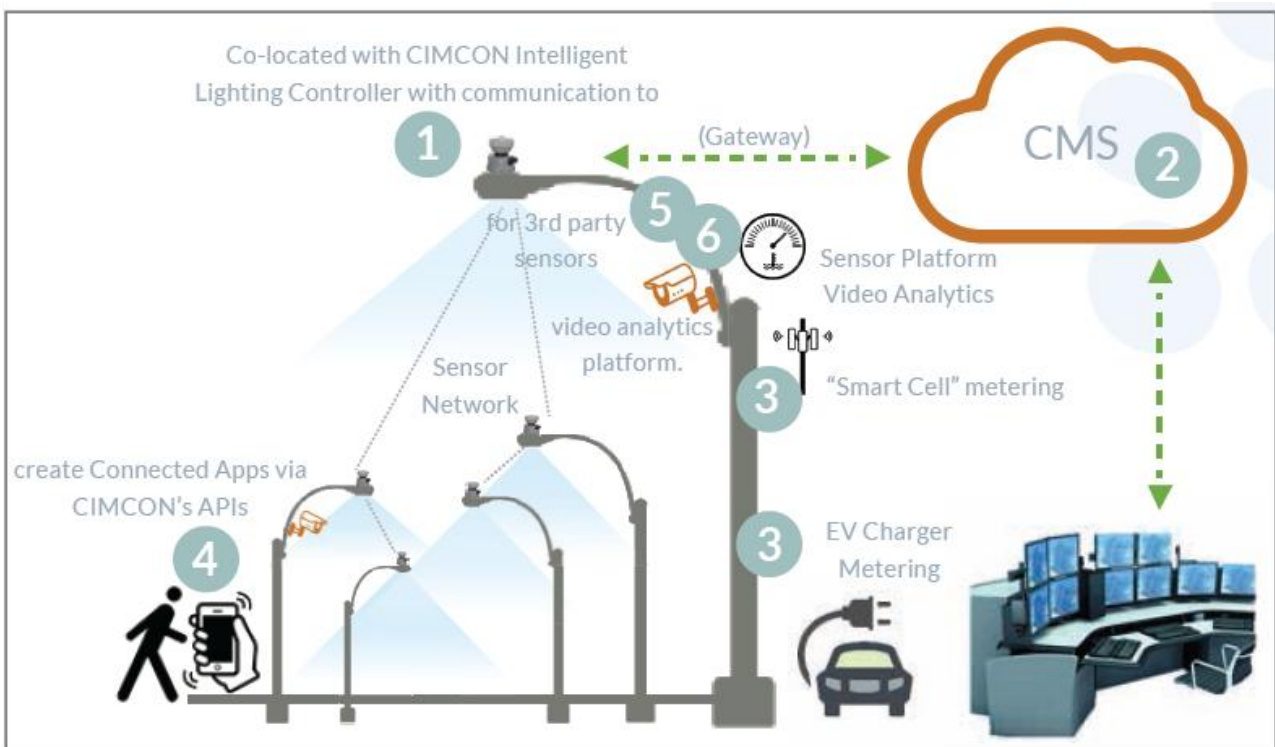
Mechanical Dimension



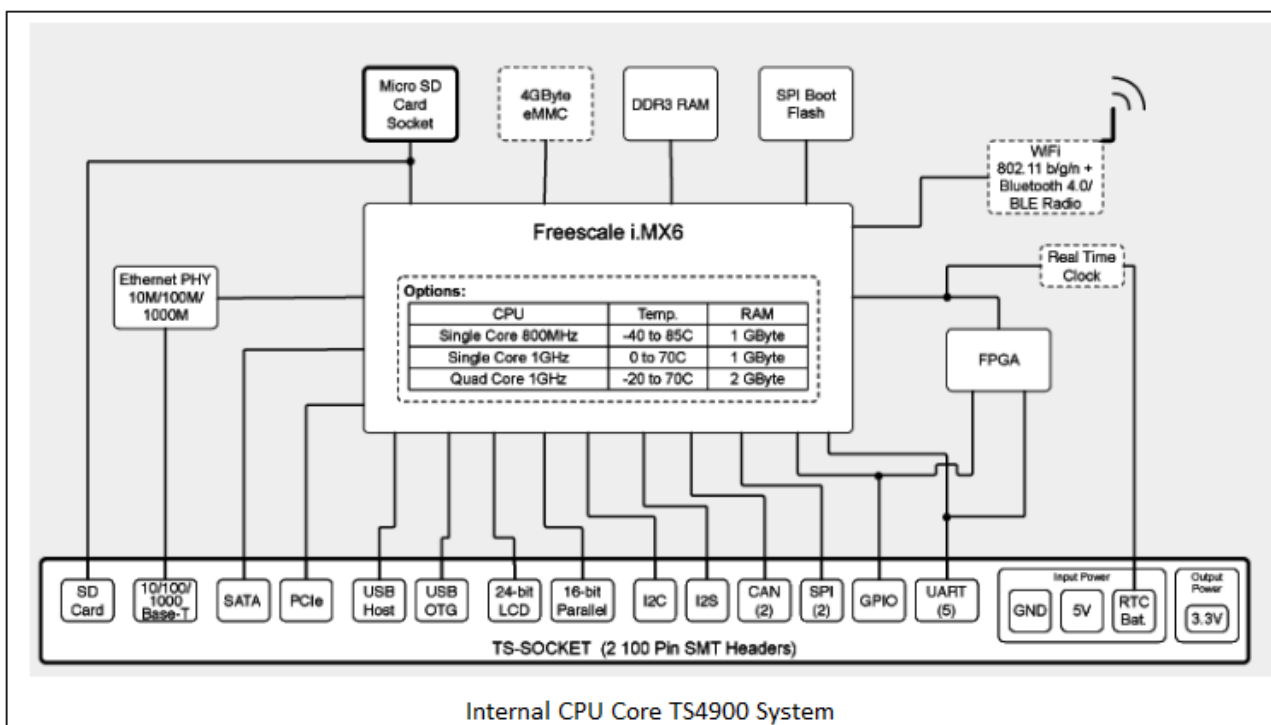
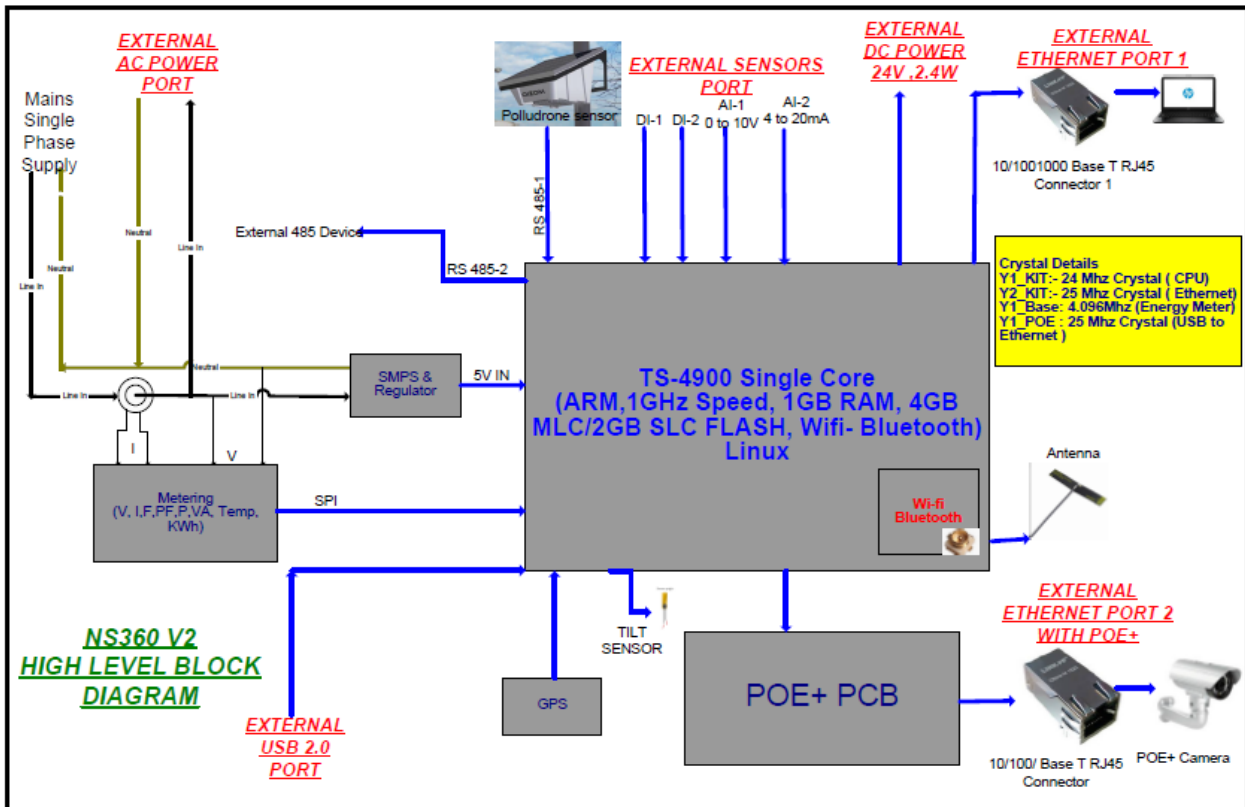
Wiring Diagram



Installation



NS360 V2 Block Diagram



General Characteristics

Parameter	Min	Typ	Max	Unit
WLAN RF frequency range	2412		2462	MHz
WLAN RF data rate	1	802.11 b/g/n rates supported	65	Mbps
BT RF frequency Range	2402		2480	MHz

Transmit Power:

Configuration	Channel	Frequency(MHz)	AV Total Power(dBm)
IEEE 802.11b 1Mbps	1	2412	18.13
	6	2437	17.94
	11	2462	17.79
IEEE 802.11g 6Mbps	1	2412	14.55
	6	2437	16.37
	11	2462	15.92
IEEE 802.11n 20MHz MCS0	1	2412	11.50
	6	2437	12.20
	11	2462	12.05

[Changing Wi-Fi parameters or software updates](#)

Initial user ID and Password will be assigned to authentic user that can access the device and further manage Wi-Fi user ID, password, IP address etc. later. But Wi-Fi parameters, i.e. Channel, Power etc., no one can access OR change it. Same is secured through security key which is generated and managed by CIMCON only if needed to change in future.

Because CIMCON host third party controller module having this WLAN/Bluetooth module assembled over it, there is no access to change OR offer any user interface from which this can be changed. This is always default settings we use.

Module part used is 'TiWi-BLE' from LSR: It is integrated Transceiver Modules for WLAN 802.11 b/g/n, Bluetooth, Bluetooth Low Energy (BLE)



WLAN RF Characteristics

WLAN Transmitter Characteristics (TA=25°C, VBAT=3.6 V)

Parameter	Test Conditions	Min	Typ	Max	Unit
11 Mbps CCK (802.11b) TX Output Power	11 Mbps CCK , 802.11(b) Mask Compliance, 35% EVM RMS power over TX packet	-	20	-	dBm
9 Mbps OFDM (802.11g) TX Output Power	9 Mbps OFDM , 802.11(g) Mask Compliance, -8 dB EVM RMS power over TX packet	-	19	-	dBm
54 Mbps OFDM (802.11g) TX Output Power	54 Mbps OFDM, 802.11(g) Mask Compliance, -25 dB EVM RMS power over TX packet	-	14.5	-	dBm
6.5 Mbps OFDM (802.11n) TX Output Power	6.5 Mbps OFDM, 802.11(n) Mask Compliance, -5 dB EVM RMS power over TX packet	-	19	-	dBm
65 Mbps OFDM (802.11n) TX Output Power	65 Mbps OFDM, 802.11(n) Mask Compliance, -28 dB EVM RMS power over TX packet	-	12.5	-	dBm

WLAN Transmitter RF Characteristics

**WLAN Receiver Characteristics
(TA=25°C, VBAT=3.6 V) [1]**

Parameter	Test Conditions	Min	Typ	Max	Unit
1 Mbps CCK (802.11b) RX Sensitivity	8% PER	-	-97	-	dBm
11 Mbps CCK (802.11b) RX Sensitivity	8% PER	-	-89	-	dBm
9 Mbps OFDM (802.11g) RX Sensitivity	10% PER	-	-90	-	dBm
54 Mbps OFDM (802.11g) RX Sensitivity	10% PER	-	-76	-	dBm
6.5 Mbps OFDM (802.11n) RX Sensitivity	10% PER	-	-91	-	dBm
65 Mbps OFDM (802.11n) RX Sensitivity	10% PER	-	-73	--	dBm
11 Mbps CCK (802.11b) RX Overload Level	8% PER	-	-	-10	dBm
6 Mbps OFDM (802.11g) RX Overload Level	10% PER	-	-	-20	dBm
54 Mbps OFDM (802.11g) RX Overload Level.	10% PER	-	-	-20	dBm
65 Mbps OFDM (802.11n) RX Overload Level	10% PER	-	-	-20	dBm

[1] Up to 2 dB degradation at Channel 13 for 11g/n modes and up to 2 dB degradation at Channel 14 for 11b/g/n modes.

WLAN Receiver RF Characteristics

Bluetooth RF Characteristics

Bluetooth Transmitter GFSK Characteristics, Class 1.5

(TA=25°C, VBAT=3.6 V)

Parameter	Test Conditions	Min	Typ	Max	Bluetooth Spec	Unit
GFSK RF Output Power		-	9.5	-	-	dBm
EDR RF Output Power		-	7	-		dBm
Power Control Step Size		2	4	8	2-8	dB
EDR Relative Power		-2		1	-4/+1	dB

Bluetooth Transmitter RF Characteristics

Bluetooth Receiver Characteristics

(TA=25°C, VBAT=3.6 V)

Parameter	Test Conditions	Min	Typ	Max	Bluetooth Spec	Unit
GFSK Sensitivity	BER=0.1%	-	-92	-	-70	dBm
EDR 2 Mbps Sensitivity	BER=0.01%	-	-91	-	-70	dBm
EDR 3 Mbps Sensitivity	BER=0.01%	-	-82	-	-70	dBm
GFSK Maximum Input Level	BER=0.1%	-	-5	-	-20	dBm
EDR 2 Maximum Input Level	BER=0.1%	-	-10	-	-	dBm
EDR 3 Maximum Input Level	BER=0.1%	-	-10	-	-	-

Bluetooth Receiver RF Characteristics

Bluetooth Low Energy RF Characteristics

Bluetooth BLE Transmitter GMSK and EDR Characteristics, Class 1.5

(TA=25°C, VBAT=3.6 V)

Parameter	Test Conditions	Min	Typ	Max	BT Spec	Unit
GMSK RF Output Power		-	10	-	-	dBm
Power Control Step Size		2	4	8	2-8	dB

(1) BLE spec = 10dBm max can be achieved using normal system losses due to filters etc., or by reducing value through VS command.

Bluetooth Low Energy Transmitter RF Characteristics

Bluetooth BLE Receiver Characteristics

(TA=25°C, VBAT=3.6 V)

Parameter	Test Conditions	Min	Typ	Max	BT Spec	Unit
GMSK Sensitivity	PER = 30.8%	-	-92	-	-70	dBm
GMSK Maximum Input Level	PER = 30.8%	-	-5	-	-20	dBm

Bluetooth Low Energy Receiver RF Characteristics

FCC Statement:

FCC ID: 2ALSZ-CLNSV2

This device complies with Part 15 of the FCC Rules. Operation is subject to following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

FCC 15.21 statement

- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
- This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
- For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible
-

MPE Warning

Mobile Device

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Antenna Information WLAN / Bluetooth:


Both WLAN and Bluetooth share the same antenna port.

NS360V2 has One antenna inside, Both WLAN and Bluetooth share the same antenna port for TX and RX

This device has been designed to operate with the antenna(s) listed below and having a maximum gain of 3.32dBi (on plastic).

Part no: FXP830.07.0100C

Manufacturer: Taoglas

	CIMCON LIGHTING Inc. Nearsky360 System User Guide	Doc Version: V3.0 Doc Date : 25-MAR-2019
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Description: FXP.830 Freedom Wi-Fi 2.4/5 GHz Dipole Antenna. Ground-plane Independent. IPEX MHF1 Connector (U.FL compatible).