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## ASD-N2 USER GUIDE

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## 1 Summary

### 1.1 Purpose

→ This Device is based on state of the art technology, IEEE 802.11P, is used for the vehicle safety using Wireless communication covering 3 to 27Mbps and 5.86 to 5.92GHz Frequency.

This Device provides short latency communication. It can be easily and comfortably implemented for inside and outside car networking application with its advantages; efficient, robust and reliable networking.

### 1.2 Definition of terms

- IEEE: Institute of Electrical and Electronics Engineers
- IEEE 802.11p: Standard for wireless access in vehicle to vehicle environments
- WAVE(Wireless Access in vehicular Environments)
- V2V: Vehicle-to-Vehicle
- V2I: Vehicle-to-Infrastructure
- RF: Radio Frequency

## 2 Product specification

### 2.1 Electrical specification

Division	Standard	Remark
Input voltage	DC +12V ~ +24V	
Power consumption	12W	
Dimension	115(W)x125(H)x34(D)mm	
Weight	270g	
Operating temperature	-35°C ~ +85°C 01LH	0 ~ 90%

### 2.2 Specification

Division	Standard	Remark
Specification	IEEE 802.11p	
Frequency Range	5.855GHz ~ 5.925GHz	7Channel
RF Output	100mW	MAX
Modulation	BPSK/QPSK/16QAM/64QAM	
Data rate	3, 4.5, 6, 9, 12, 18, 24, 27Mbps	
Channel Bandwidth	10MHz	
RF Impedance	≤ 1 Watt	
Impedance	50 Ω	
Support channel	172(5860MHz), 174(5870MHz), 176(5880MHz), 178(5890MHz), 180(5900MHz), 182(5910MHz), 184(5920MHz)	7ch
Ethernet	1Gbps	

## 2.3 Interface Connector

Division	Standard	Remark
Power Connector	43045-0410	Molex 4p, +12V, +24V
Ethernet Connector	RJ-45	IEEE 802.3 Compliant
UART Connector	SMAW200-16C	Yeonho, Interface
UART Connector	YDAW200-06	Yeonho, Debug
USB Connector	56579-0576	Mini-AB, Interface
WAVE RF Port	Fakra Z Code (M), 2EA	
GPS RF Port	Fakra C Code (M), 1EA	
RF Cable Length	2.5M	FLS100 or Same Specification Cable
Other Cable Length	TBD	

## 2.4 Antenna Specification

### - Shark Type Antenna

Type	Division	Standard	Remark
WAVE	Frequency Range	5.855GHz ~ 5.925GHz	
	Antenna Type	Omni-directional	
	Polarization	Vertical	
	Gain	3.0 dBi (Max)	
	Impedance	50 Ω	
	RF Connector	Fakra Z Code (F)	Port 2ea
	RF Cable	Length: 2.5M, Depth: 2.7φ	
GPS	Frequency Range	1575.42MHz±1.023MHz	
	Antenna Type	Patch	
	Polarization	RHCP	
	Antenna Gain	3dBi	
	LNA Gain	29.0dB	typ.
	Impedance	50 Ω	
	RF Connector	Fakra C Code (F)	Port 1ea
	RF Cable	Length: 2.5M, Depth: 2.7φ	
Dimension		174(W)x76(H)x162(D)mm	
Weight		380g	Cable

## 2.5 Interface Port Description



No	Standard	Description
1	Fakra Z Code (M)	WAVE RF PORT 1
2	Fakra Z Code (M)	WAVE RF PORT 2
3	Fakra C Code (M)	GPS RF PORT
4	SMA Female	N/A
5	43045-0410	Power Connector
6	RJ-45	Ethernet Connector
7	LED Indigator	Power Green LED
8	SMAW200-16C	UART Connector
9	53048-0310	Debug Connector



< Shark Antenna >



< Power Cable >

**Radiofrequency radiation exposure Information:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

**Wireless 5 GHz Band Statements:**

This equipment could only been operated at 5860–5920 MHz frequency band.