

# **X-Band Doppler Sensor Module**

RF Frequency: 9.90 GHz  
Applicable Regions: France, Italy

Model No. NJR4176

Specifications  
Rev.04 February 19, 2016

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New Japan Radio Co., Ltd.  
Microwave Components Division

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**Scope:**

- This specification covers the general requirements for X-band microwave doppler module.
- This module is designed for motion sensing applications.
- It consists of DRO (Dielectric Resonator Oscillator), balanced Schottky Barrier Diode mixer and Micro- strip Patch Antennas.

**Scope:**

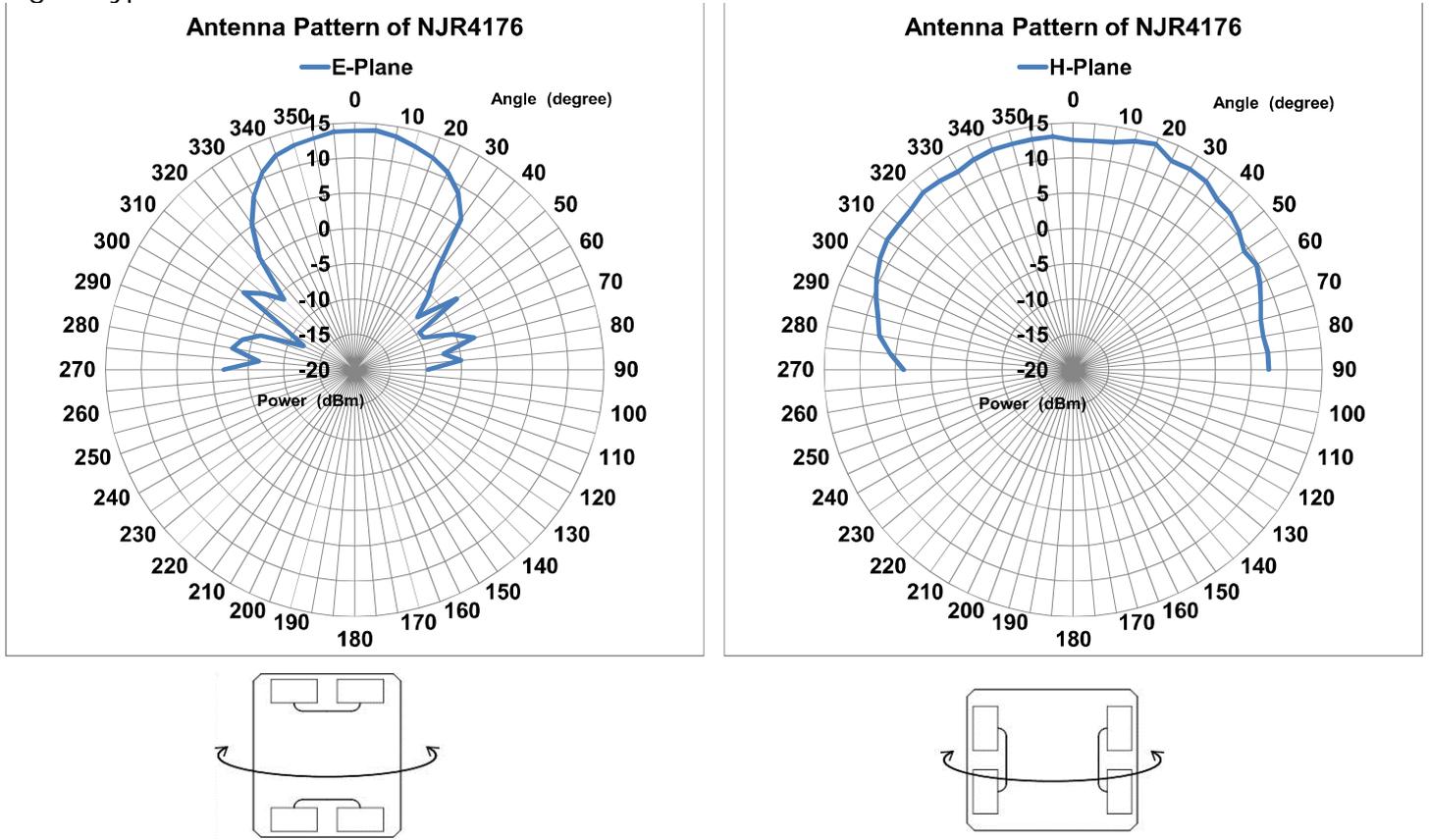
- Compact Size
- Low Operating Current : 30 mA
- Detection Target Range : 30 m

**Specification:**

1. Electrical Characteristics (at +25 °C / +5 VDC)

Item	Specification
1.1 Operating Voltage	5.0 ± 0.2 VDC
1.2 Operating Current	30 mA typ. (CW operation)
1.3 Center Frequency	9.90 GHz typ. 9.895 to 9.905 GHz
1.4 Frequency Stability	±5 MHz max. (-30 to +55 °C)
1.5 Output Power	+14 dBm E.I.R.P. max.
1.6 Return Loss Sensitivity	-90 dBc typ.
1.7 Second Harmonic Emission	1 μW max.
1.8 Antenna Beamwidth (-3dB)	
1.8.1 -3dB beam width (E-plane)	36 deg. nom.
1.8.2 -3dB beam width (H-plane)	72 deg. nom.
1.9 Pulse Mode Operation	
1.9.1 Pulse Width	5 μsec. min.
1.9.2 Duty Cycle	1 % min.

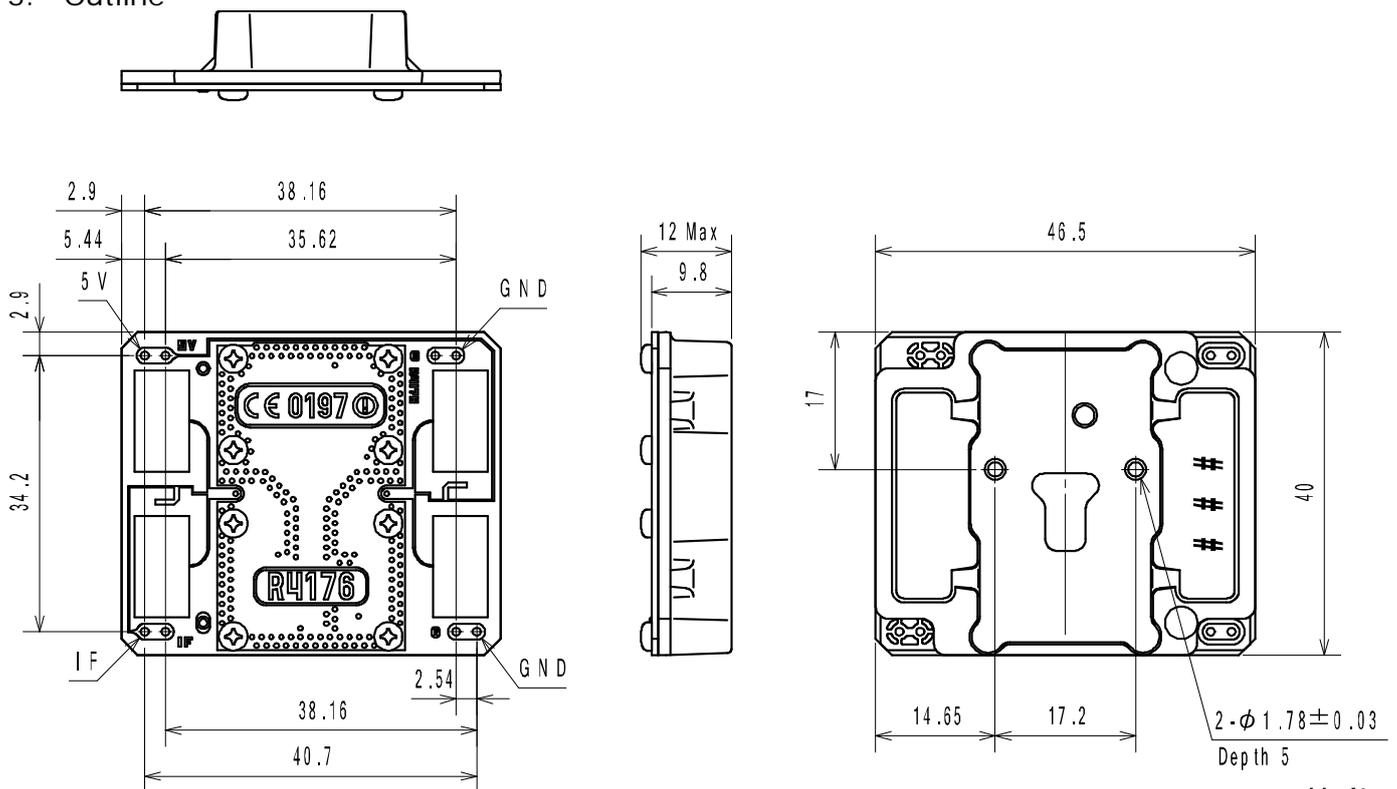
Fig.1: Typical Radiation Pattern



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2. Absolute Maximum Rating	
Item	Specification
2.1 DC Input Voltage	+6 Vdc max.
3. Environmental characteristics	
Item	Specification
3.1 Operating Temperature Range	-30 to +55 °C
3.2 Storage Temperature Range	-40 to +80 °C
3.3 Relative Humidity	95 % at 35 °C
3.4 Vibration	98.07 m/s <sup>2</sup> (G=10) max. (f=30,50 Hz, t=10min., Direction; X, Y, Z)
3.5 Shock	196.13 m/s <sup>2</sup> (G=20) max. (Half Sine, 10msec., Direction; X, Y, Z)
4. Regulations	
Item	Specification
4.1 Regulations for compliance	EU Certification R&TTE Directive 1999/5/EC RoHS Directive 2011/65/EU
4.2 Conformity Standard	ETSI EN300 440
4.3 Comply with RoHS (Restricting the use of Hazardous Substances) directives	

### 5. Outline

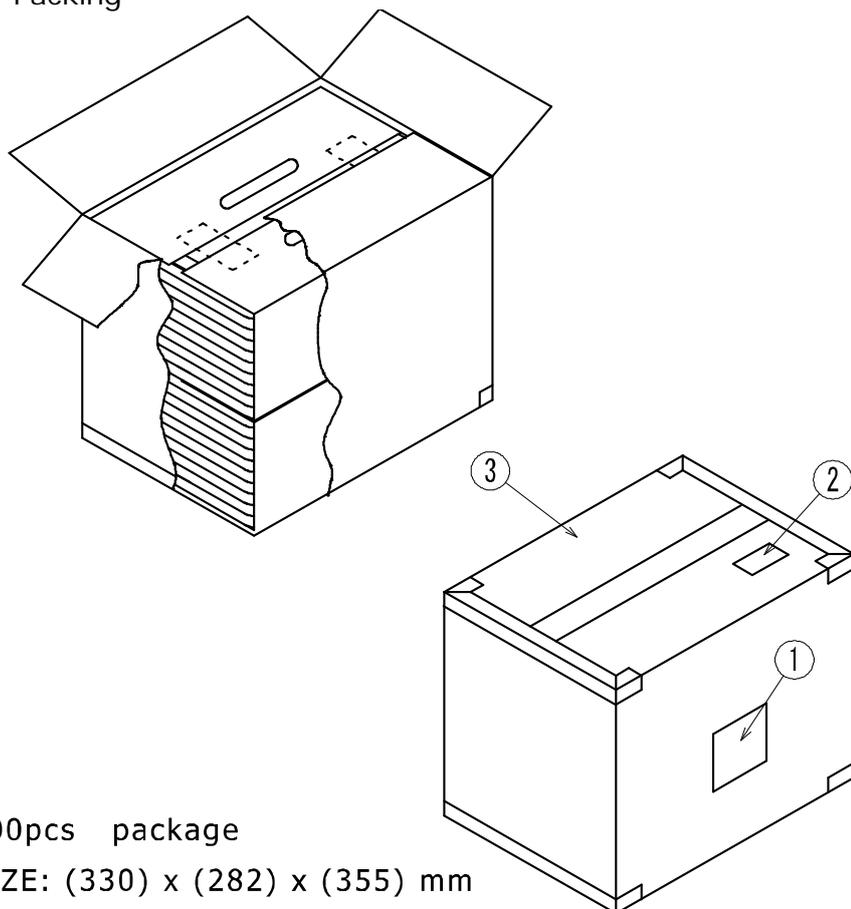


Unit: mm

Tolerance: +/-0.5mm

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## 6 Packing



500pcs package

SIZE: (330) x (282) x (355) mm

- ① : Label
- ② : ESD Warning Label
- ③ : Double Wall Corrugated Fiberboard

### ① Label

MODEL	NJR4176	
NO. (LOT)	###	QUANTITY 500 pcs
<i>New Japan Radio Co., Ltd.</i>		

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