



## **3x20mm Miniature Magnetic Dipole Antenna for 2.4GHz**

### **Description**

BHWR250G is a miniature magnetic dipole antenna engineered and optimized for embedded wireless communication devices such as Bluetooth Low Energy (BLE) that have extremely tight constraints on space and form factor, including wearable, ingestible and implanted sensors. The ultra-thin 0.2mm flex PCB design allows conformal implementation of the antenna with minimal compromise in RF performance. BHWR250G can be IPX-connectorized to form a tiny “rubber ducky” for direct plug & play on a PCB main board, without any need for extra ground plane, keep-out region, or impedance matching network. Alternatively, it can be soldered directly to the feed point on PCB using standard IPX/UFL cable assembly with proper length that best matches the intended applications.

### **Key Features**

- Foldable Flex PCB Design
- Miniature Size: 3x20x0.2mm
- 2.4-2.48GHz Operation Frequency Range
- VSWR ~ 2:1 over 2.4-2.48GHz
- High Efficiency: TBD
- Complete Half-Wavelength Dipole for Stable VSWR
- No Need for Ground Plane or Matching Network

### **Key Applications**

- Bluetooth Embedded Solutions
- On-Body & In-Body Sensors
- LE Audio, Auracast, ESL, Channel Sounding
- Wi-Fi 3/4/5/6/6E/7
- ZigBee/Thread/Matter IoT Devices
- Generic 2.4GHz Radio Designs
- FPC / LDS Antenna Alternatives

### **Product Information**



3x20x0.2mm Flex PCBA with IPX/UFL Cable Assembly

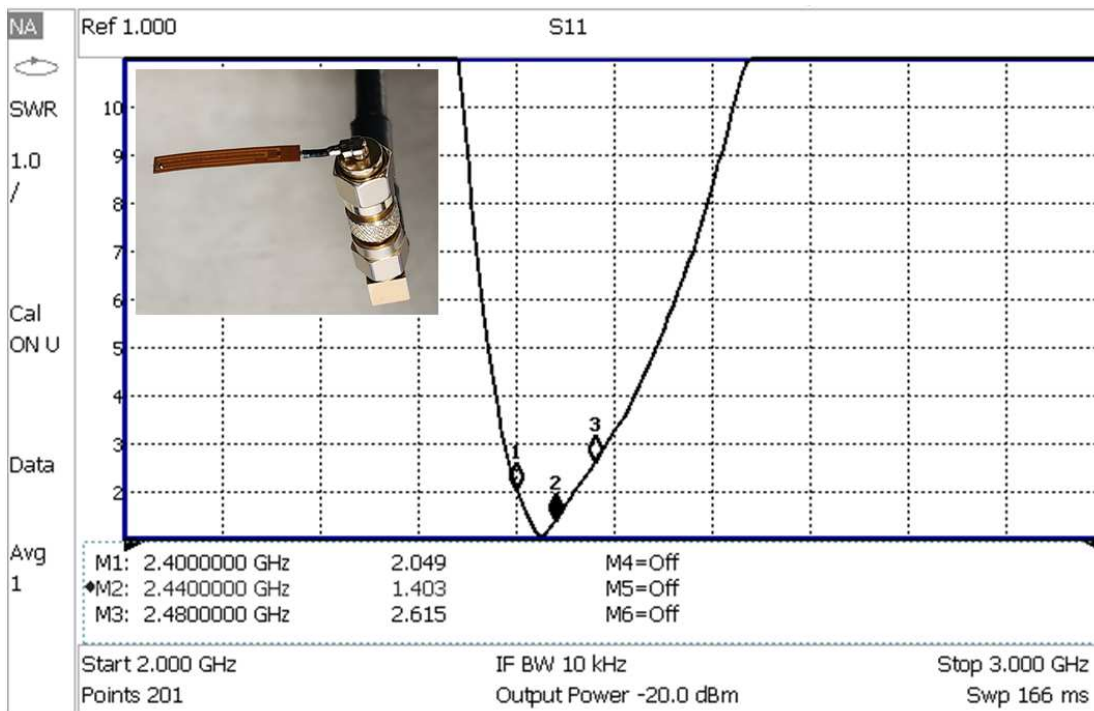


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## Electrical and Mechanical Specifications

Parameter	Condition	Specification			Unit
		Min.	Typ.	Max.	
Operating Frequency		2.4		2.48	GHz
Peak Gain			TBD		dBi
Radiation Efficiency			TBD		%
Input VSWR	Typical Cable & PCB Assembly, Total Length 30mm		2:1		
Height	H		20		mm
Width	W		3		mm
Thickness	T		0.2		mm

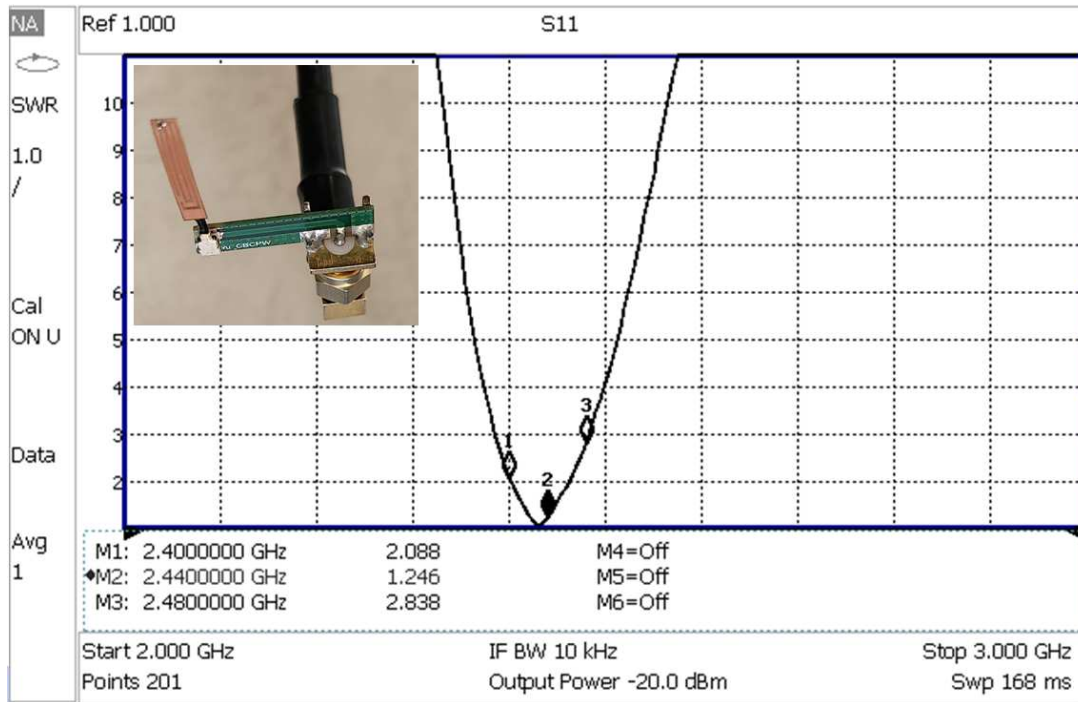
## Typical Input VSWR



Typical measured VSWR with IPX-to-SMA adapter



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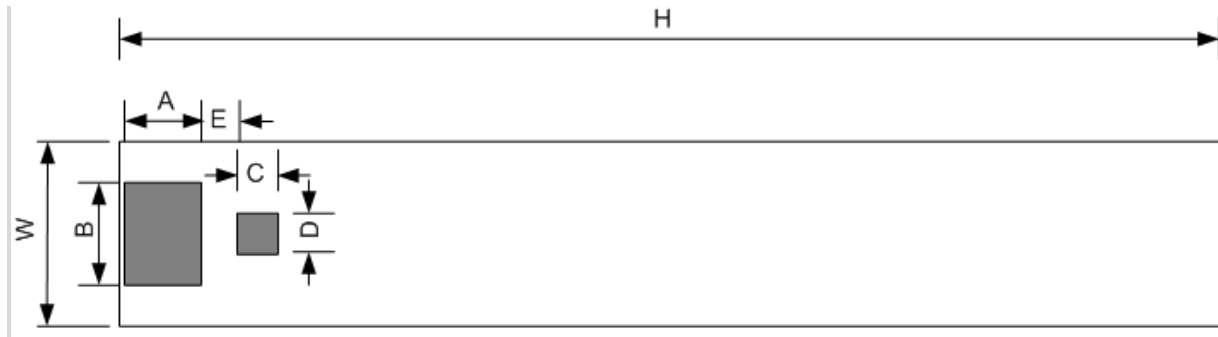


Typical measured VSWR when plugged to IPX socket on PCB with 50 Ohm feed line



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### Mechanical Drawings



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	1.4	1.5	1.6
B	1.9	2.0	2.1
C	0.7	0.8	0.9
D	0.7	0.8	0.9
E	0.6	0.7	0.8
H	19.9	20.0	20.1
W	2.9	3.0	3.1

Note: Grey area is solder mask opening for IPX/UFL cable assembly.