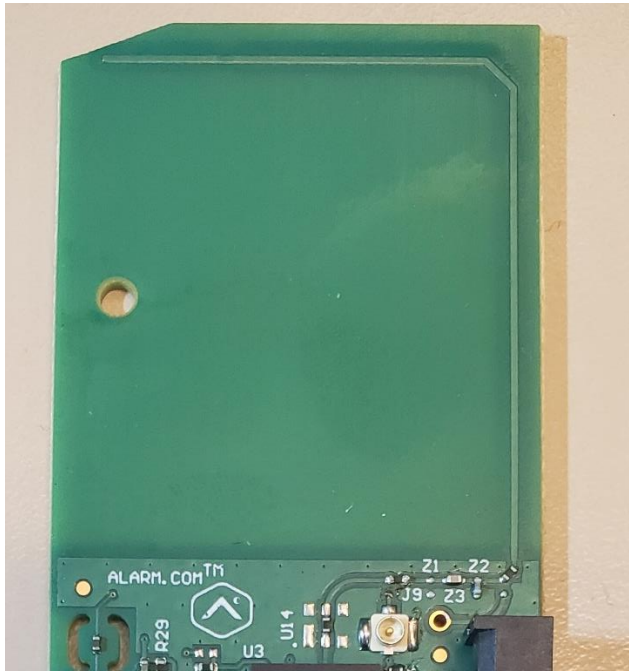




Water Dragon Z-Wave Antenna Datasheet



Antenna Type: Microstrip PCB Trace

Antenna Frequency Range: 902 – 928 MHz

1. Description

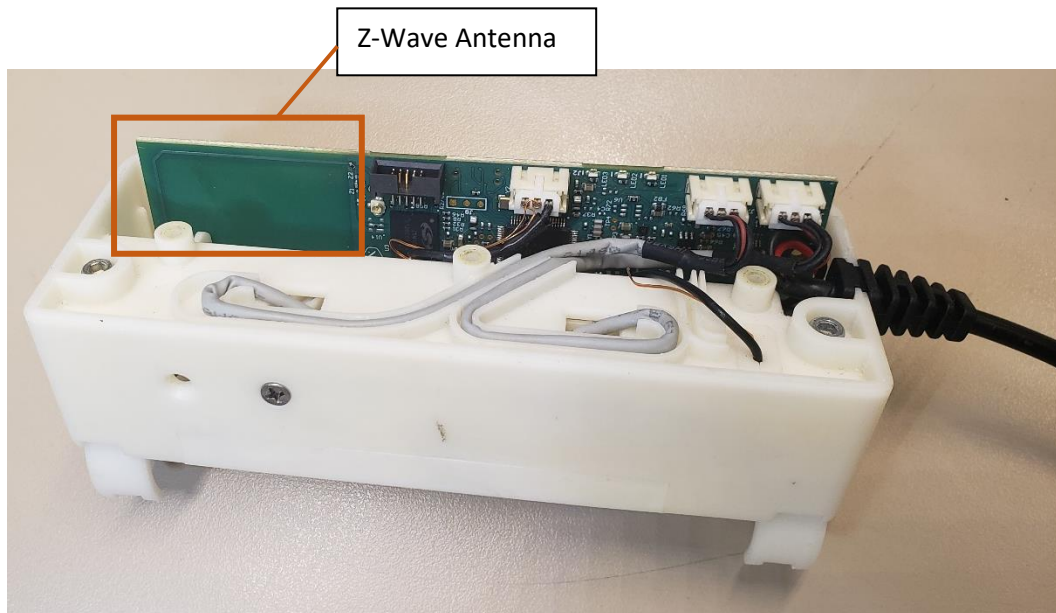
The Alarm.com Water Dragon uses a microstrip PCB trace antenna for Z-Wave. The purpose of this datasheet is to provide antenna specifications for the 902-928 MHz frequency band.

2. Key Specifications

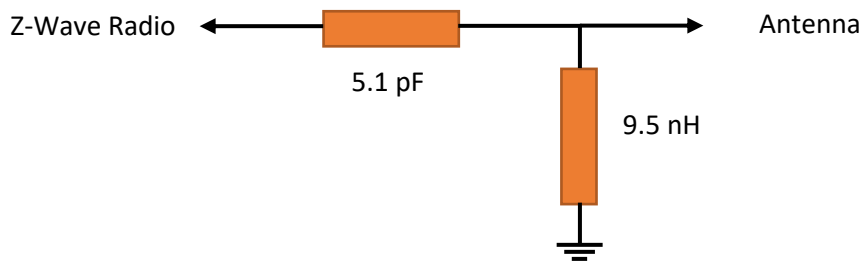
Frequency Range	902 – 928 MHz
Peak Gain	2.65 dBi
VSWR	< 2.0:1
Impedance	50 ohm
Polarization	Linear

Frequency (MHz)	Antenna Efficiency (%)	Peak Gain (dBi)
908.4	50.464	2.215
912	47.199	2.645
916	41.215	2.114
920	53.641	1.902

3. Antenna Location



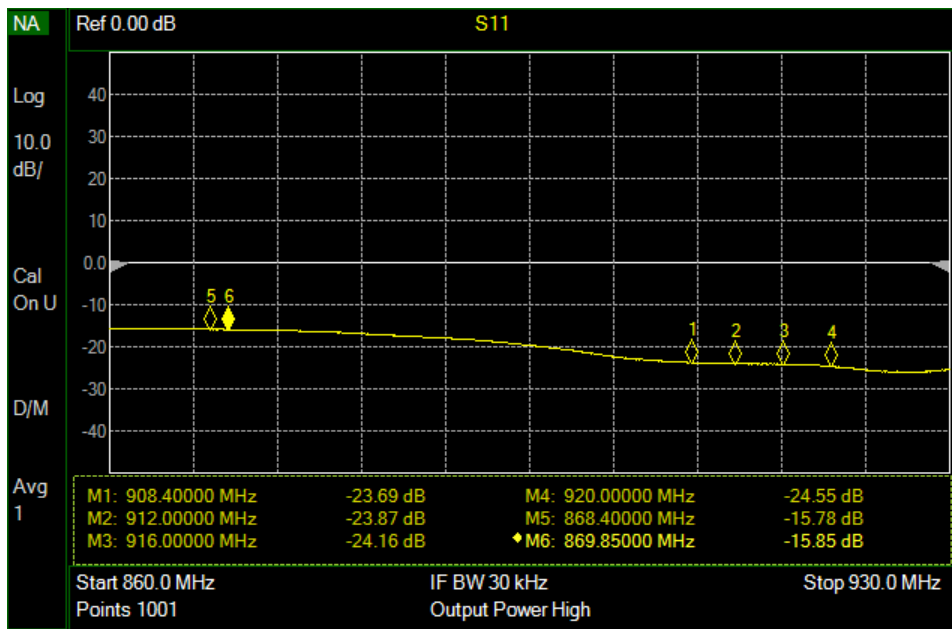
4. Matching Circuit



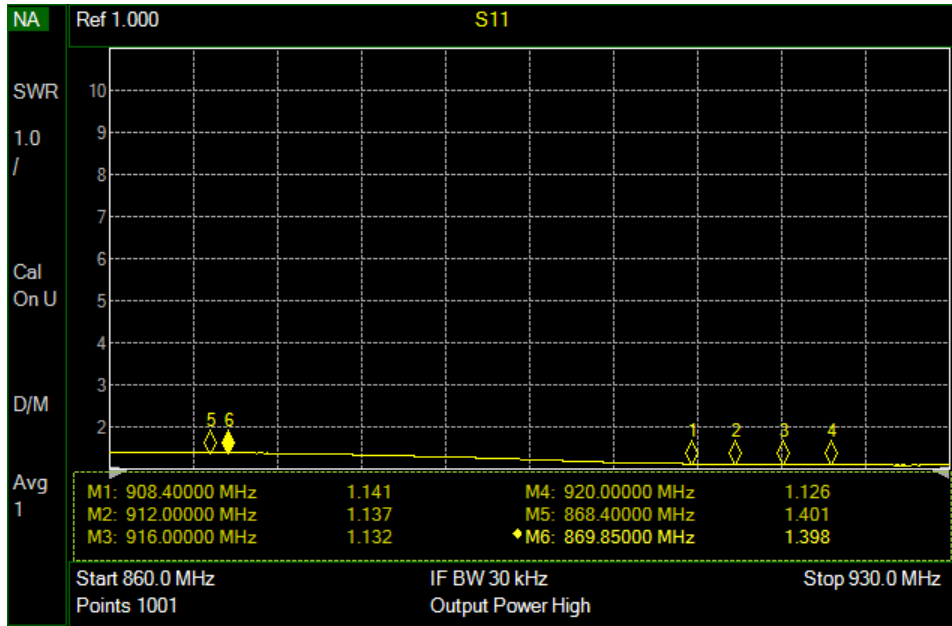
5. S11 Measurements

Equipment	Manufacturer	Model	Serial Number	Cal Date
Network Analyzer	Keysight	N9912A	US48310257	October 2020

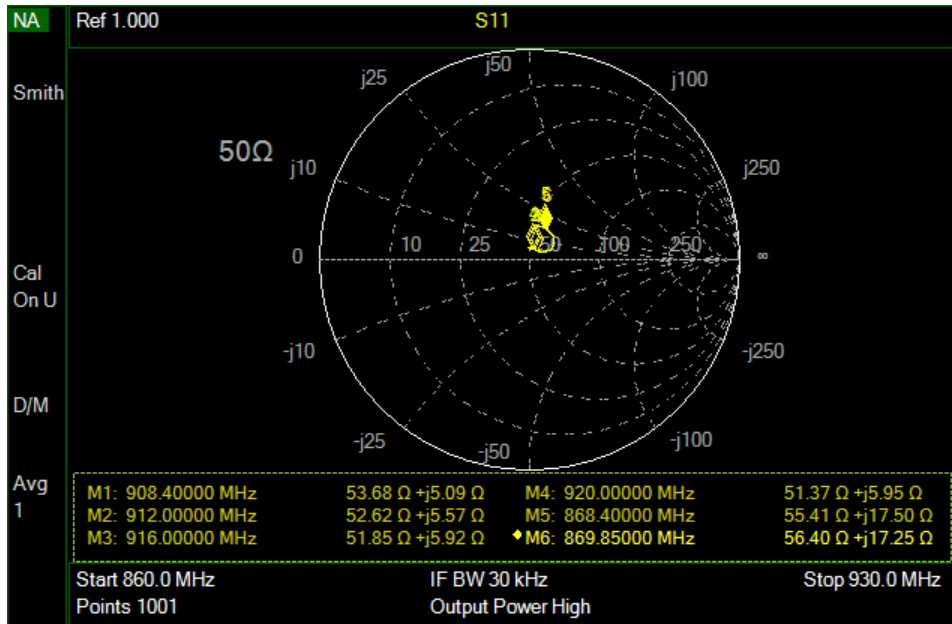
Return Loss



VSWR

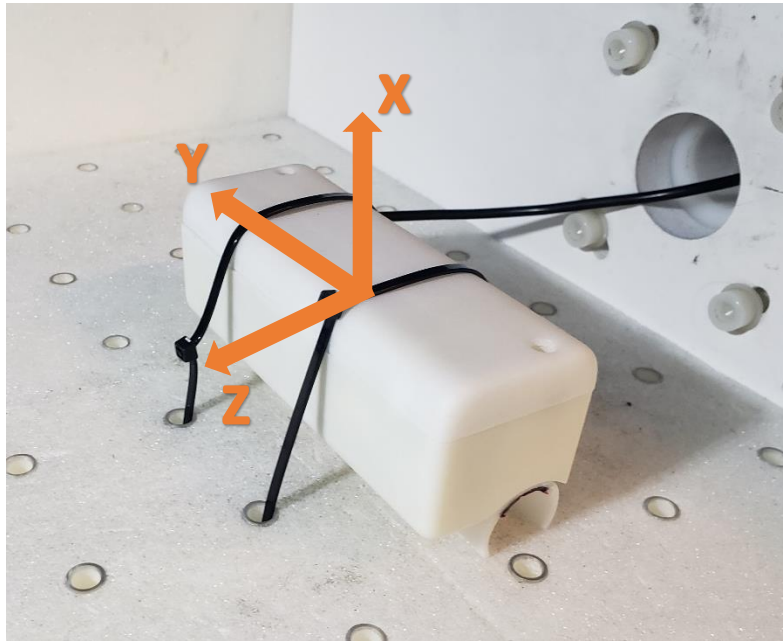


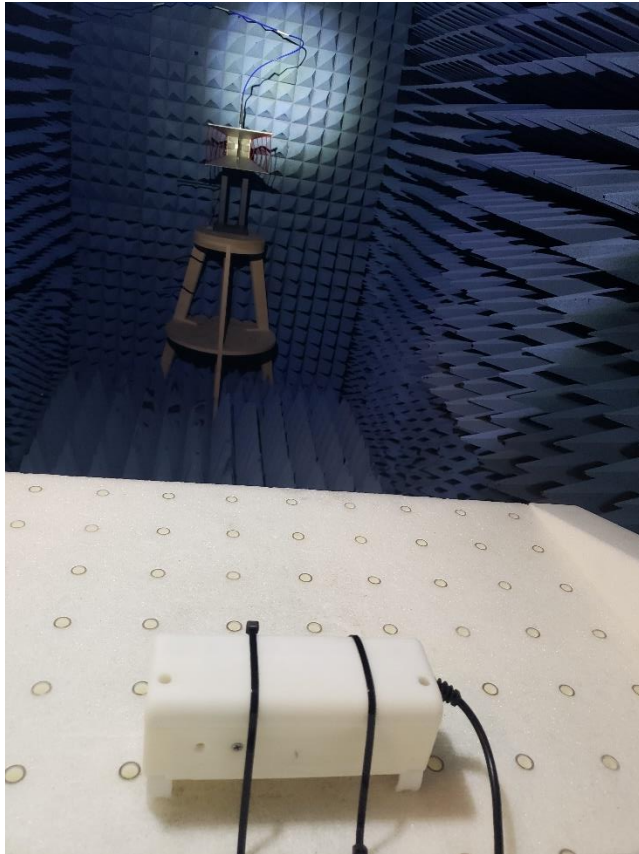
Impedance



6. Radiation Pattern Measurements

Equipment	Manufacturer	Model	Serial Number	Cal Date
Spectrum Analyzer	Tektronix	RSA507A	B010176	May 2021

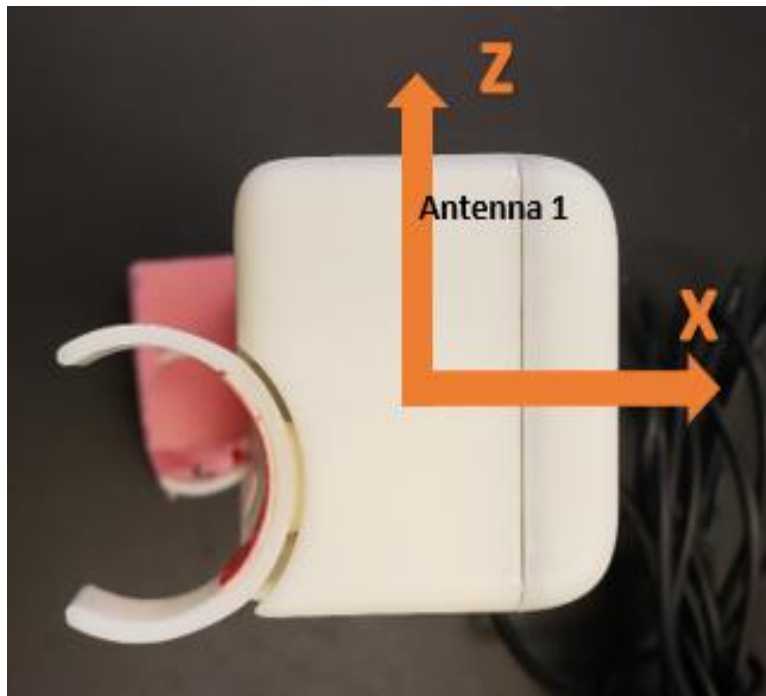
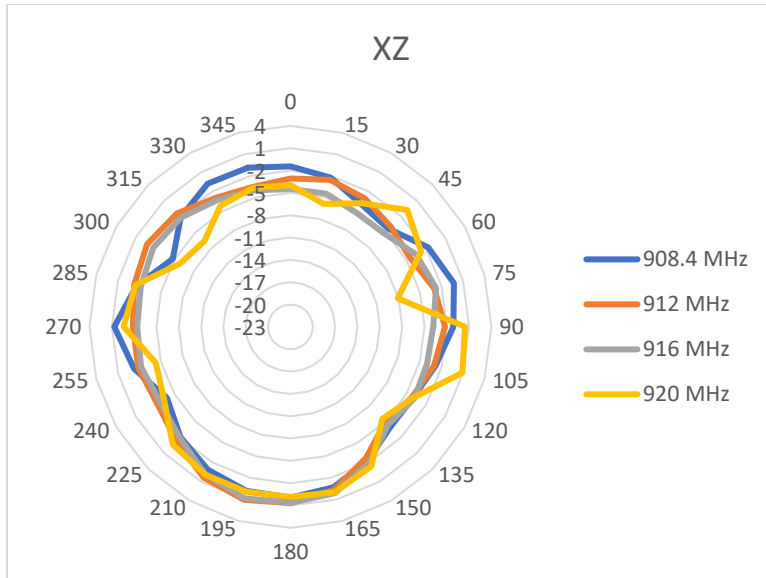




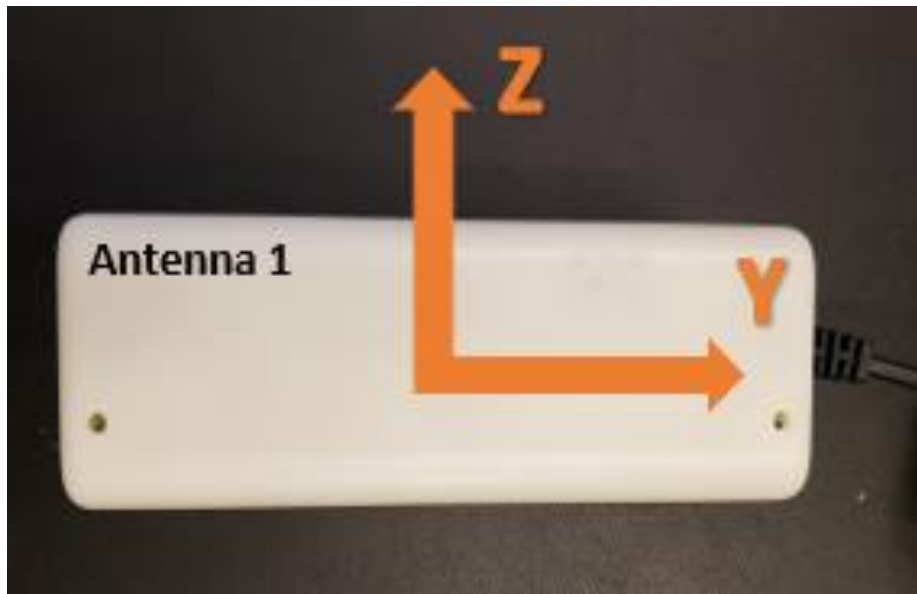
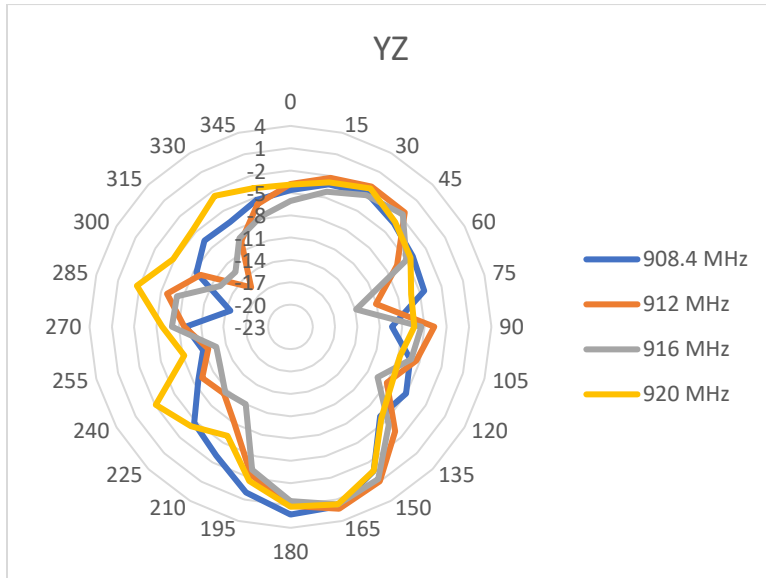
Test Dates: November 9-16, 2021

Radiation pattern measurements are tested with the Z-Wave radio transmitting at power setting 140 (14 dBm nominal). The results presented here are normalized to 0 dBm.

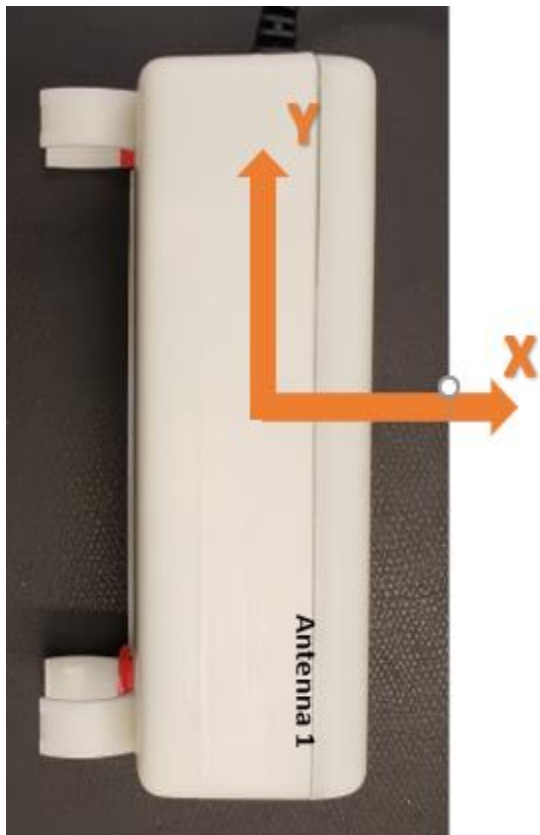
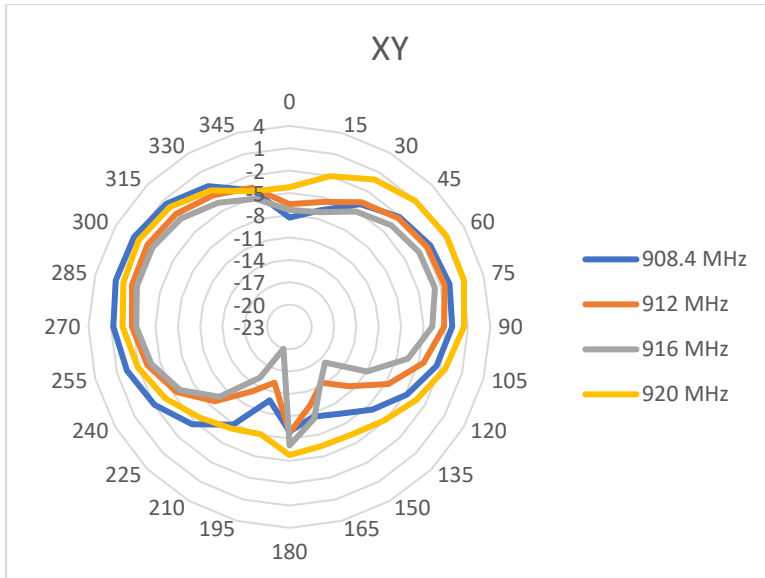
Frequency (MHz)	Normalized Conducted Power (dBm)	TRP (dBm)	EIRP (dBm)	Antenna Efficiency (%)	Peak Gain (dBi)
908.4	0	-2.97	2.215	50.464	2.215
912	0	-3.26	2.645	47.199	2.645
916	0	-3.85	2.114	41.215	2.114
920	0	-2.71	1.902	53.641	1.902



Note: "Antenna 1" indicates approximate location of antenna



Note: "Antenna 1" indicates approximate location of antenna



Note: "Antenna 1" indicates approximate location of antenna