

DRAFT

SPECIFICATION

Part No. : MA671.C1051111.G1051111.H105111

Product Name : Spartan Antenna 3in1 MA.671
Low Profile Screw-Mount (Permanent Mount)
3 * MIMO 4.5 ~ 4.9GHz antenna
2 x vertically polarized elements
1 x horizontally polarized element

Feature : IP67 Waterproof
High Efficiency / Peak Gain Outdoor Antenna
Advanced RF Design and Materials
Heavy Duty – Integrated Metal Base/ Ground-plane
RoHS Compliant



I. Introduction

The Spartan MA.671 antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use in remote monitoring and public safety applications.

The Spartan 3 x MIMO antenna is unique in the market because it combines three 4.5~4.9GHz antenna elements in a heavy-duty structure with high efficiency in a low profile compact format. The antenna screws down permanently onto a roof or metal panel and can be pole or wall-mounted. Two of the antenna elements are vertically polarized and one is horizontally polarized to maximize diversity gain and MIMO throughput.

For industries such as remote monitoring, smart meter systems, construction equipment, public safety at only 40mm high, the Spartan provides an unobtrusive, robust, rugged antenna that is durable even in extreme environments.

II. Specification

ELECTRICAL - Antenna 1				
Frequency	4.5	4.7	4.9	GHz
Radiation Efficiency	68.7	82	82	%
Peak Gain	3.9	6.0	6.1	dBi
VSWR	2 Max			
Polarization	Linear (Horizontal)			
Impedance	50			Ω

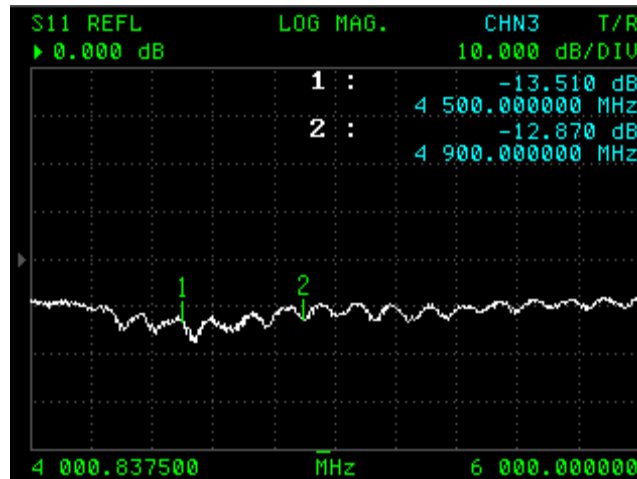
ELECTRICAL - Antenna 2				
Frequency	4.5	4.7	4.9	GHz
Radiation Efficiency	67	79	64	%
Peak Gain	3.7	3.8	3.6	dBi
VSWR	2 Max			
Polarization	Linear (Vertical)			
Impedance	50			Ω

ELECTRICAL - Antenna 3				
Frequency	4.5	4.7	4.9	GHz
Radiation Efficiency	63	70	64	%
Peak Gain	4.7	5.2	5.4	dBi
VSWR	2 Max			
Polarization	Linear (Vertical)			
Impedance	50			Ω

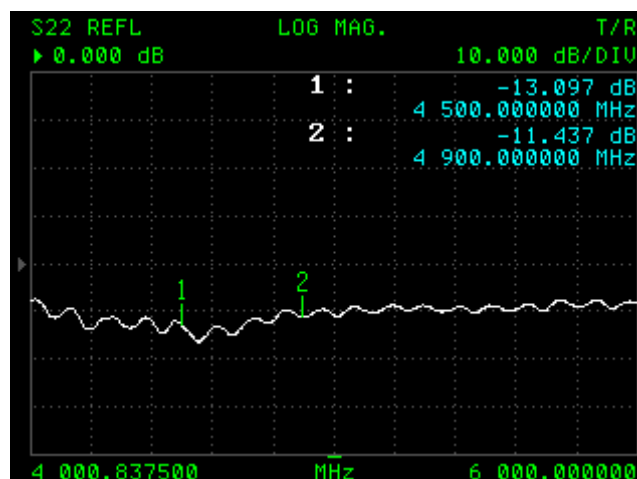
MECHANICAL	
Antenna Dimensions	Height 50mm x Diameter 150mm
Casing	UV resistant PVC
Base and thread	Zinc
Waterproof	IP67
ENVIRONMENTAL	
Temperature Range	-40 °C to 85 °C
Humidity	Non-condensing 65 °C 95% RH

III. Return Loss

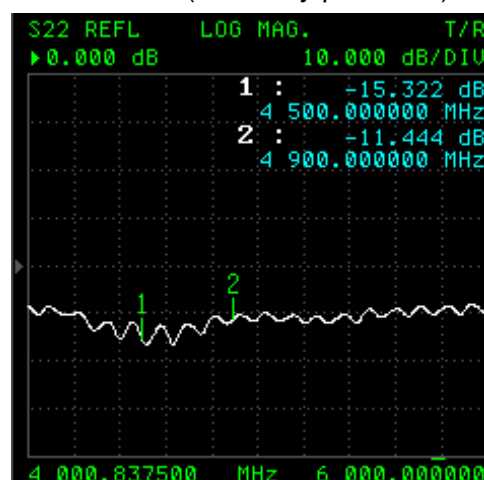
Antenna 1 (Horizontally polarized)



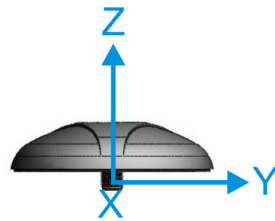
Antenna 2 (Vertically polarized)

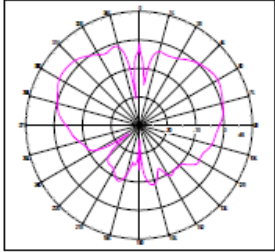
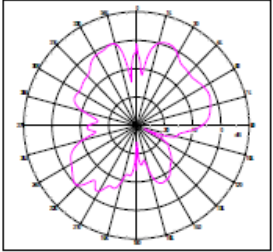
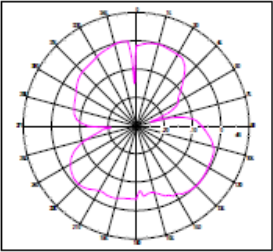
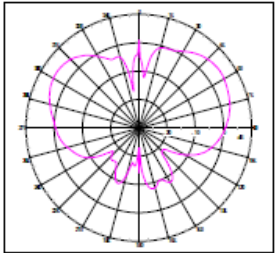
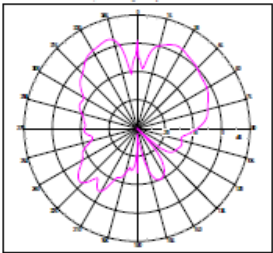
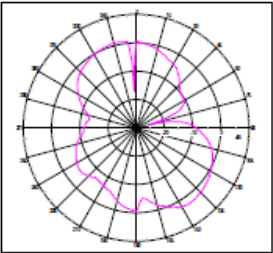
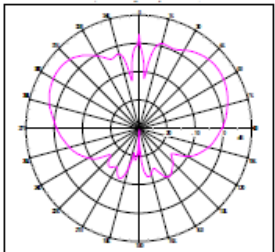
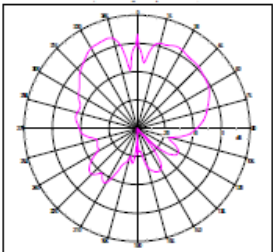
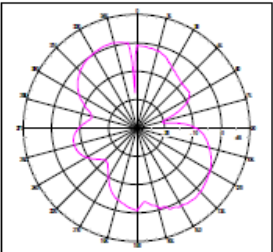


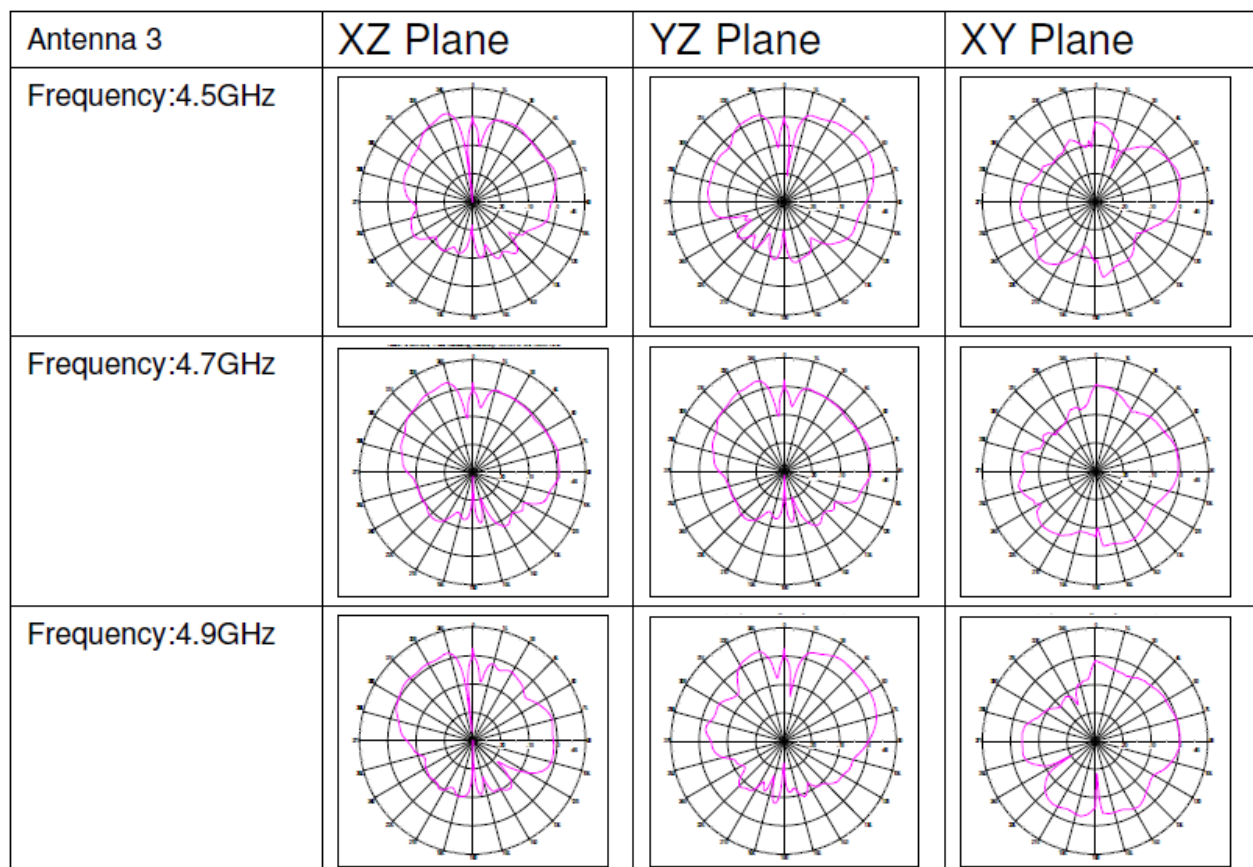
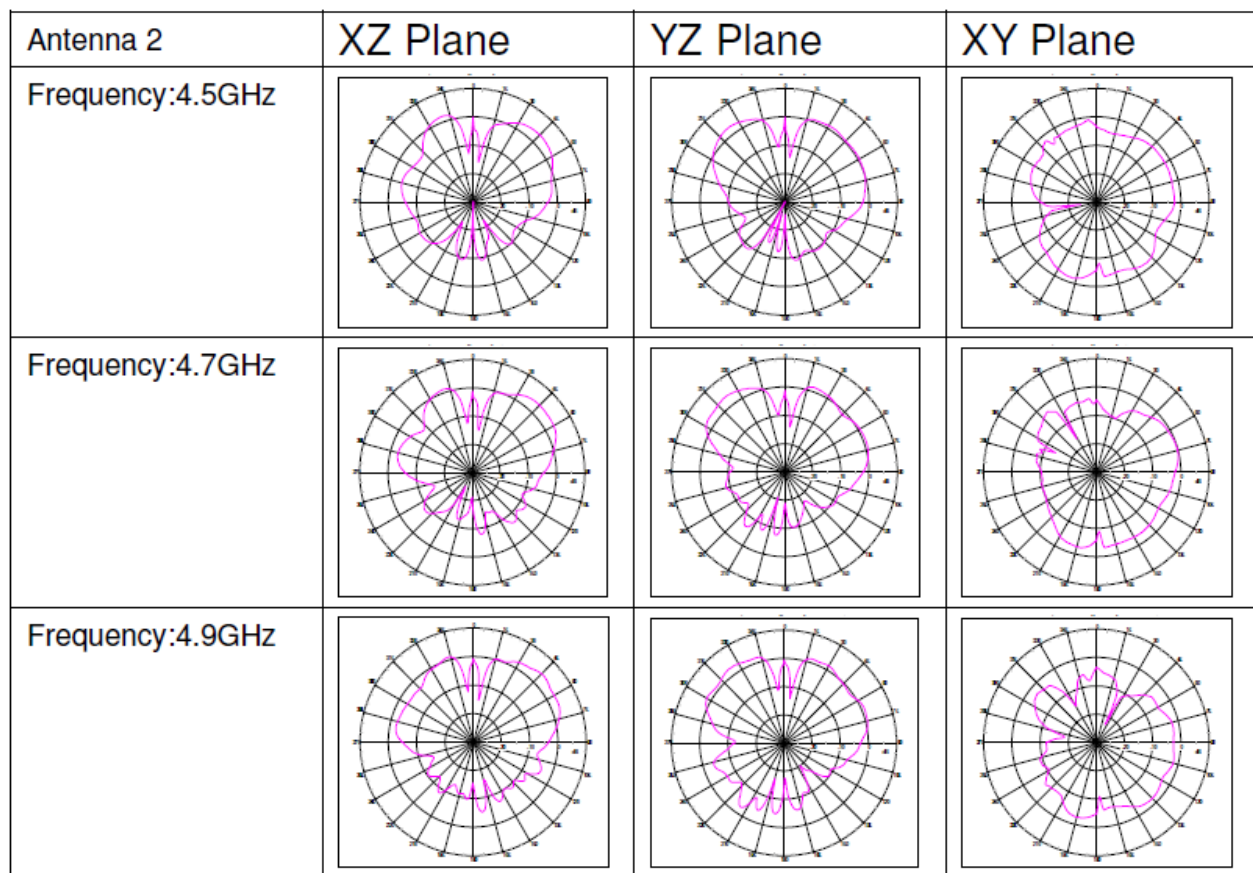
Antenna 3 (Vertically polarized)



IV. Antenna Radiation Patterns

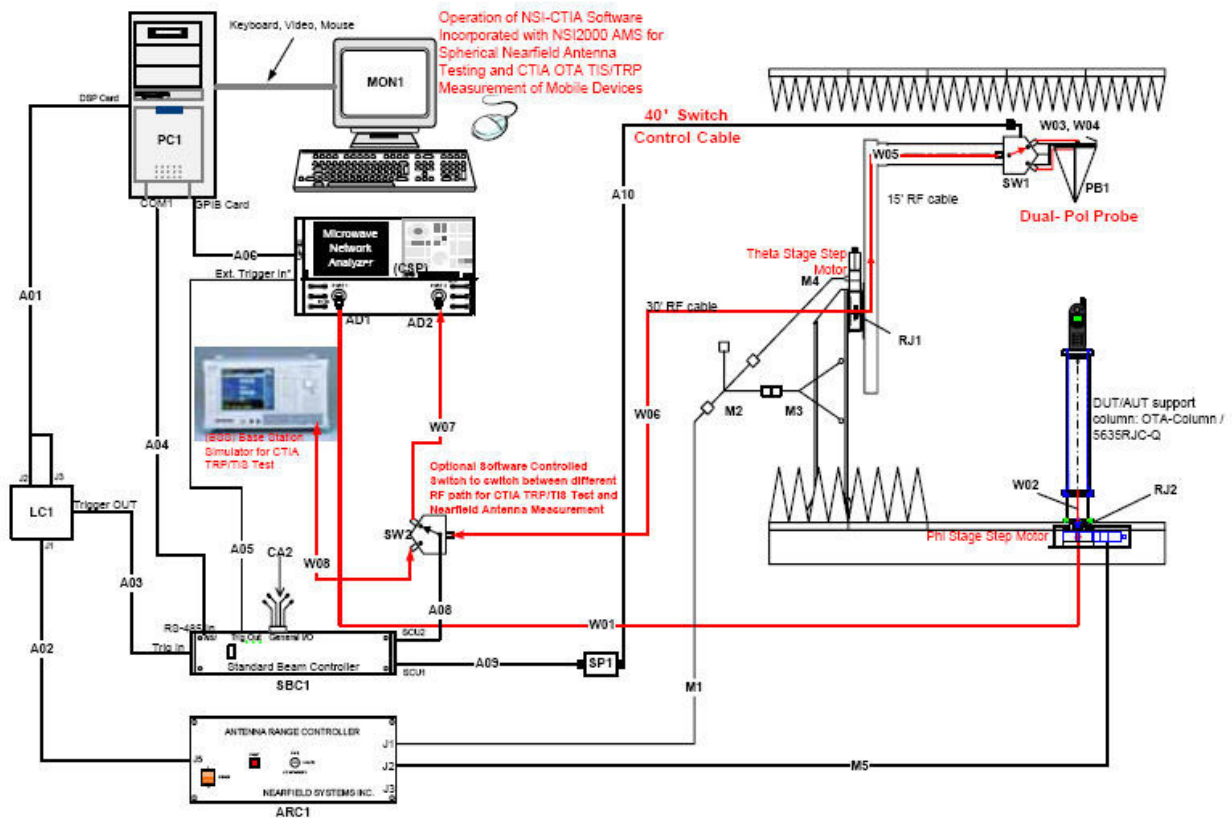
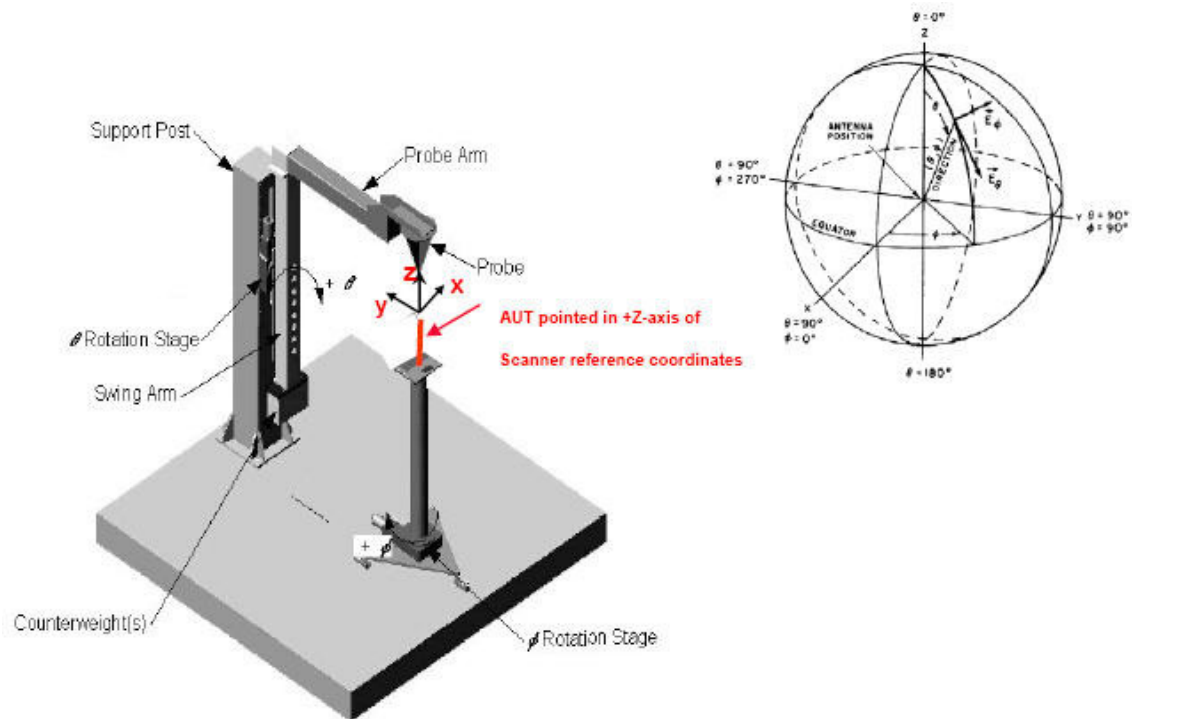


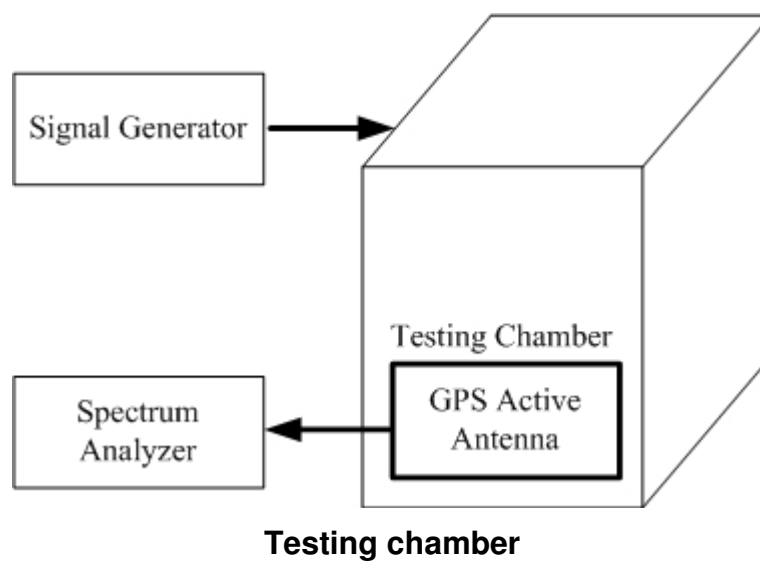
Antenna 1	XZ Plane	YZ Plane	XY Plane
Frequency:4.5GHz			
Frequency:4.7GHz			
Frequency:4.9GHz			



Test setup

Configuration of NFC-500S Chamber





V. Cable attenuation

Cable attenuation (dB/ 100M)												
GHz	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
CFD 200	26	39	49	58	66	73	-	86	-	98	-	109