

Attachment describing directional antenna orientation
2/24/2011
Brian Waite
iRobot Corporation

The directional antenna is placed on the back of a laptop screen as seen in the images below. The radio is only active when an operator has the laptop open and controlling the robot. Due to the viewing angle of the screen the laptop must be open and the antenna point almost parallel to the horizon. The height of the antenna is typically 3-5 feet off of the ground. Below are 2 images of the minimum and maximum angles of operation of the laptop with directional antenna.



Illustration 1: Maximum operational antenna angle



Illustration 2: Minimum operational antenna angle

ANTENNA EQUIPMENT CHARACTERISTICS

1.		
a. TRANSMITTING	b. RECEIVING	c. TRANSMITTING AND RECEIVING
2. NOMENCLATURES, MANUFACTURER'S MODEL NO. OCU antenna, HG4911P	3. MANUFACTURER'S NAME Hyperlink Technologies	
4. FREQUENCY RANGE 4800-5100 MHz	5. TYPE Planar	
6. POLARIZATION Vertical	7. SCAN CHARACTERISTICS	
		a. TYPE <div style="text-align: right;">N/A</div>
8. GAIN		b. VERTICAL SCAN
a. MAIN BEAM 11 dBi	(1) Max Elev	
b. 1st MAJOR SIDE LOBE	(2) Min Elev	
		(3) Scan Rate
9. BEAMWIDTH		c. HORIZONTAL SCAN
a. HORIZONTAL 30 Degrees	(1) Sector Scanned	
b. VERTICAL 60 Degrees	(2) Scan Rate	
		d. SECTOR BLANKING (<i>X one</i>) (1) YES (2) NO
10. REMARKS ITEM 5: This is a planar antenna as part of the iRobot CommSelect 5140 kit used in place of the existing OCU antennas. The antenna is mounted on the operator's laptop screen so that the antenna can be reoriented to point in the general direction of the vehicle. It enables transmission and receiving of control, video, and audio data between the OCU and vehicle.		