



**RCP Director5G-23**  
**5G 23dBi High Gain Panel Antenna**

***White Book***

***V1.0***

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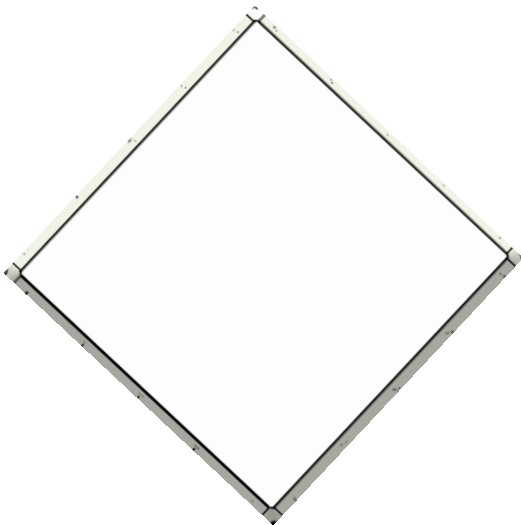
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## Chapter 1 Introduction

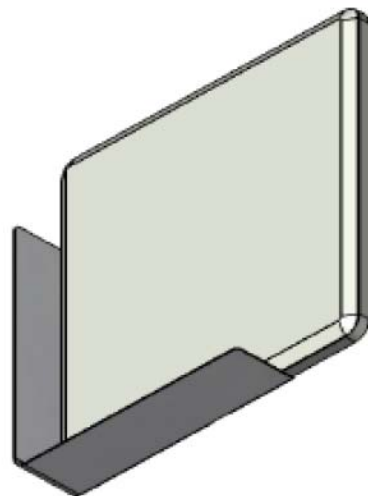
The RCP Director5G-23 is an external 23dBi High Gain Directional Panel Antenna specifically designed for wireless backhaul use across the 5GHz range. It greatly enhances the R2 Extender's throughput and extends the transmission distance.

**It is the ideal deployment solution for relay links, and point to point links that utilize Link Aggregation !!!**

### 1-1 Appearance



**Front**



**Side**

## 1-2 Features and Advantages

### High Performance and Increased Range

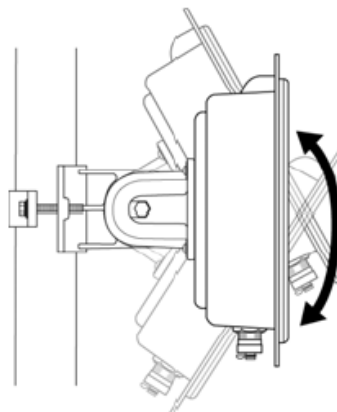
- Its 23dBi, high gain design transmits a clean and efficient signal and thus ensures longer, higher quality links.
- The enclosed V-cut partition board is key for obtaining longer, more stable aggregated links as it effectively isolates the two antennas from suffering adjacent interference. This provides an increase in the data throughput of **over a 100%** when compared to standard antennas available on the market today!

Isolation among Antennas	Throughput (Mbps)
Without V-cut Partition Board	15.67Mbps
with V-cut Partition Board	<b>32.37Mbps</b>

Use of Link Aggregation in CSMA mode at a LOS distance of 10KM (results may vary upon environment)


### Easy & Flexible Installation

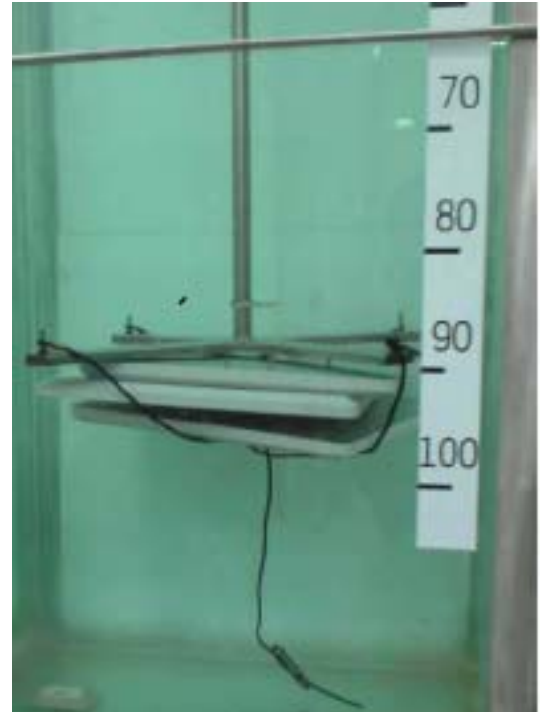
- Mounting kits for both Pole and Wall Mount are provided
- Adjustable mounting bracket gives the antenna the ability move vertically and horizontally easily



## Robust & Reliable Design

Fully-closed design with **IP67 standard compliance** can effectively exclude wind, dust and water and endure almost any harsh outdoor environment.

	
Level of protection against solid objects or materials	Level of protection against water / liquids
0 No Protection	0 No Protection
1 Protected against solid objects up to 50mm	1 Protection against vertically falling drops of water (e.g. condensation)
2 Protected against solid objects up to 12mm	2 Protection against direct sprays of water up to 15 degrees from vertical
3 Protected against solid objects up to 2.5mm	3 Protection against direct sprays of water up to 60 degrees from vertical
4 Protected against solid objects up to 1mm	4 Protection against water sprayed from all directions - limited ingress permitted
5 Protected against dust, limited ingress (no harmful deposit)	5 Protected against low pressure jets of water from all directions - limited ingress permitted
<b>6 Totally protected against dust</b>	6 Protected against low pressure jets of water, limited ingress permitted (e.g. ship deck)
	<b>7 Protected against the effect of immersion between 15cm and 1m</b>
	8 Protected against long periods of immersion under pressure



## 1-3 Package Includes

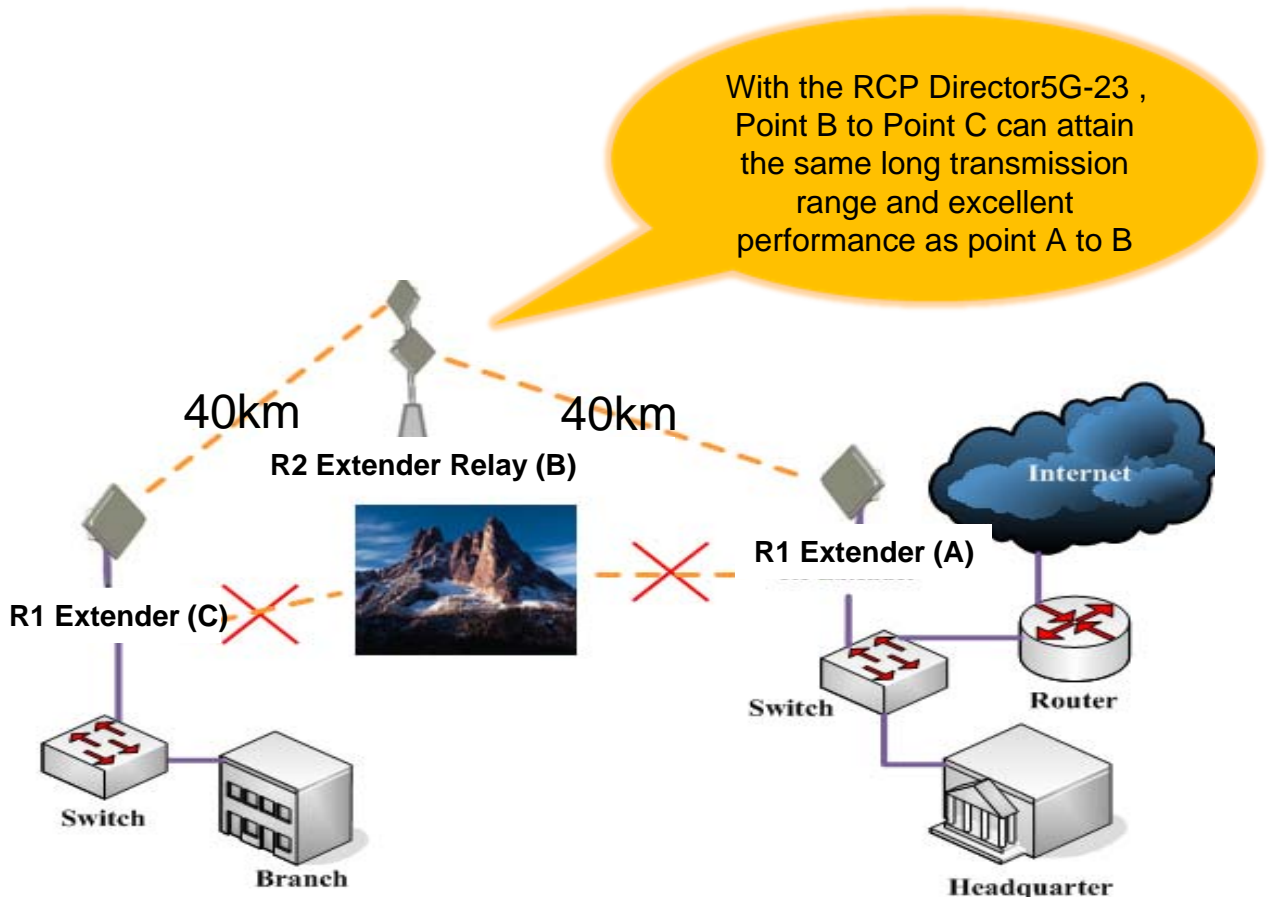
- RCP Director5G-23 with V-cut partition board .....x1
- 1M ULA 300 N Type cable .....x1
- Mounting Kit .....x1

# Chapter 2 Wireless Network Configuration

## 2-1 Relay Mode

The R2 Extender's relay function is significantly useful when there are obstacles between two remote points or when the geographic distance between two RCP bridges exceeds the wireless transmission range of those units. The R2 Extender can use the second radio to bridge to another location, further extending it's overall range, Under this relay condition, the RCP Director5G-23 is highly recommended, due to its excellent antenna isolation characteristics.

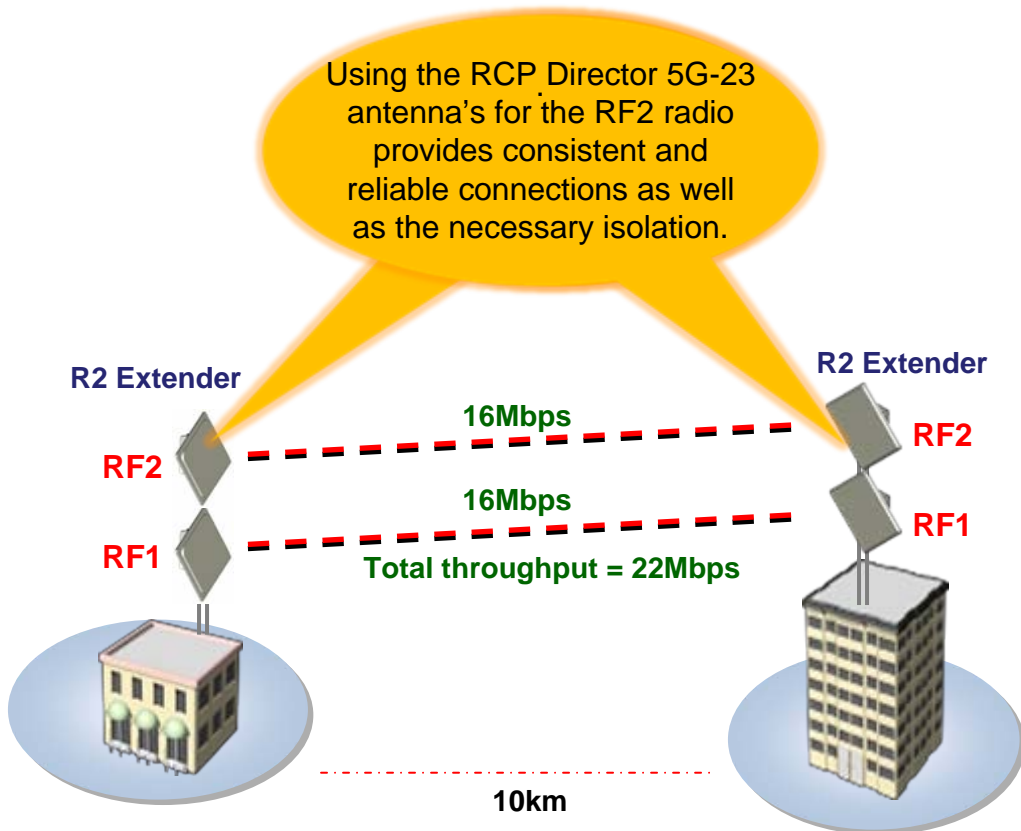
Most importantly, its antenna gain is the same as the built-in antenna of the R2 Extender, balancing the transmission range of to the two remote bridges.



## 2-2 Link Aggregation Mode

Today's applications such as voice and real-time video services are proving to be bandwidth intensive. By taking advantage of the **Link Aggregation** technology as well as the Zcomax RCP 23dBi high gain panel antennas, you can greatly enhance your data rate and maximize the overall performance of your wireless connection.

The Reason for selecting the RCP Director5G-23 antenna for the second radio is that its antenna gain is same as the built-in antenna of the RCP R2 and R1 product lines, This provides equal performance and transmission range between radio's 1 and radio 2.



## Chapter 3 Antenna Installation

### 3-1 Installation Overview

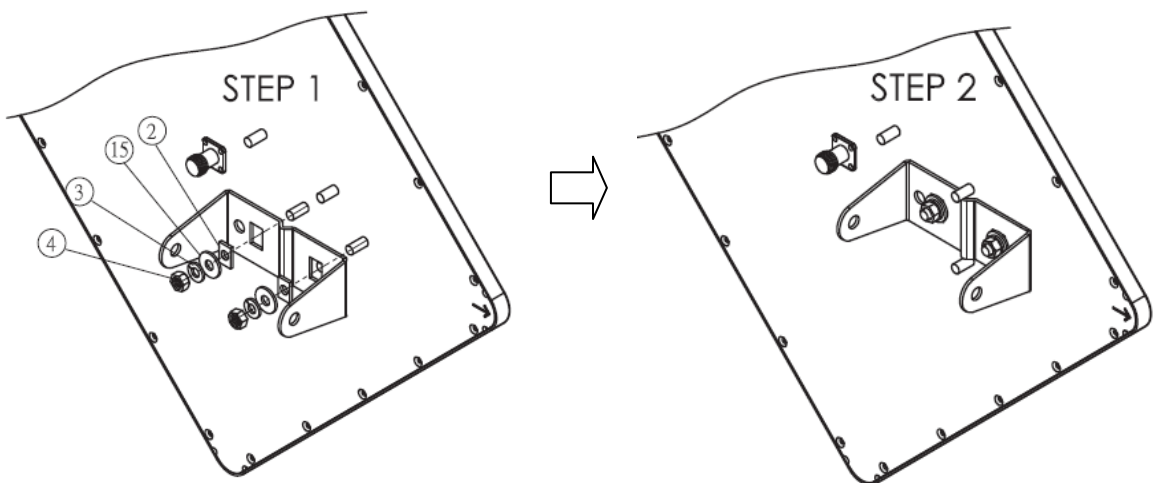
The RCP Director5G-23 must be installed by an antenna installation professional who can determine, provide and install the necessary support structure and grounding system. The antenna installation professional should be licensed or certified in accordance with local regulations.

### 3-2 Mounting Configuration

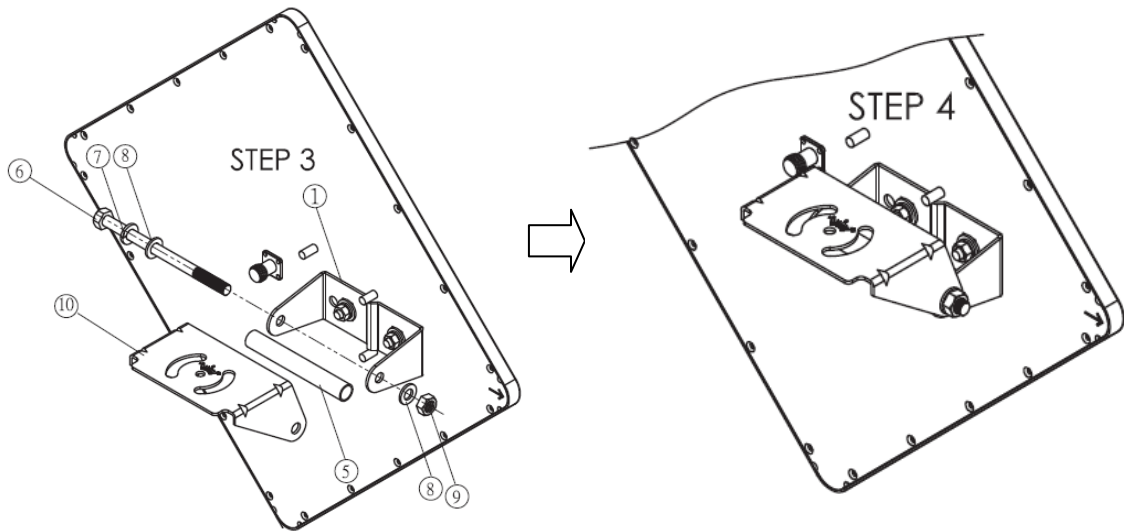
#### Assemble the Mounting Bracket

1. Place the M-Type bracket **1** into the seating and fasten the bracket to the antenna main board with Spacer **2**, M6 Washer **15**, M6 Spring Washer **3**, and M6-1.0 NUT(10\*5) **4** provided in the package.

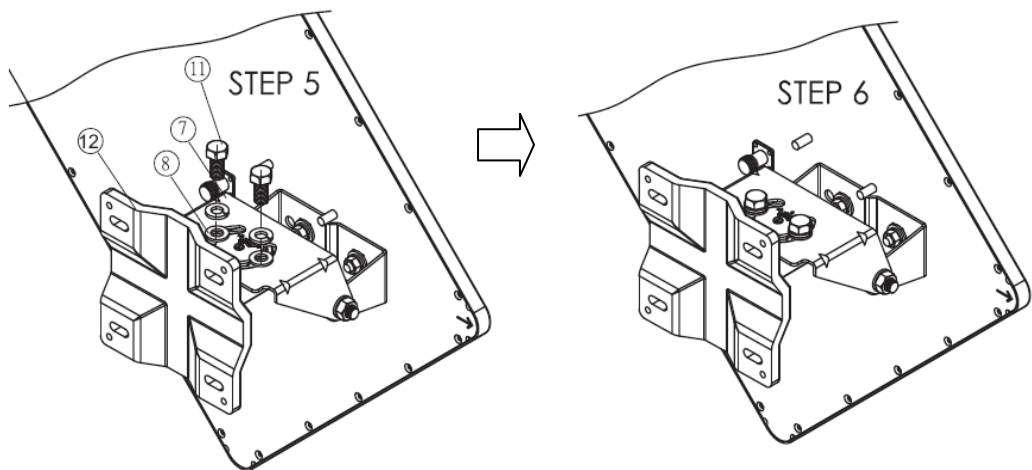
2. Completed assembly view from Step 1



3. Fix the Rotating bracket **10** via a Steel tube 93.5 mm **5** as well as a XHM8-1.25\*120 **6** with the M8 Spring washer **7**, M8 washer **8** and M8 nut **9**.



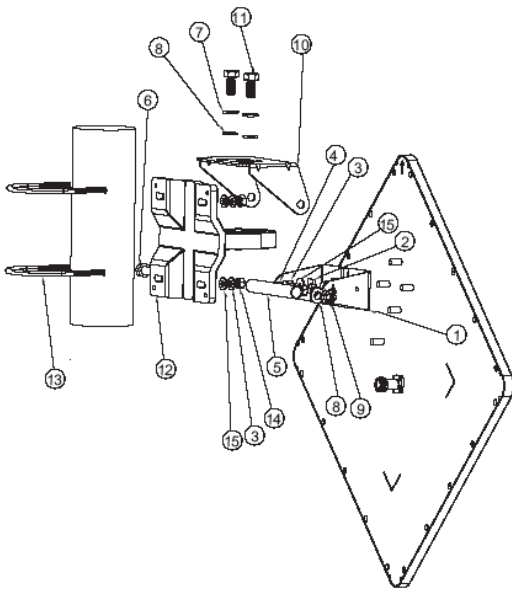
5. Assemble the main bracket by placing Rotating bracket **10** to the Mounting Main frame **12** via two XHM8-1.25\*20 **11** screw through the insertion axe and fix with the M8 spring washer **7** and M8 washer **8**.



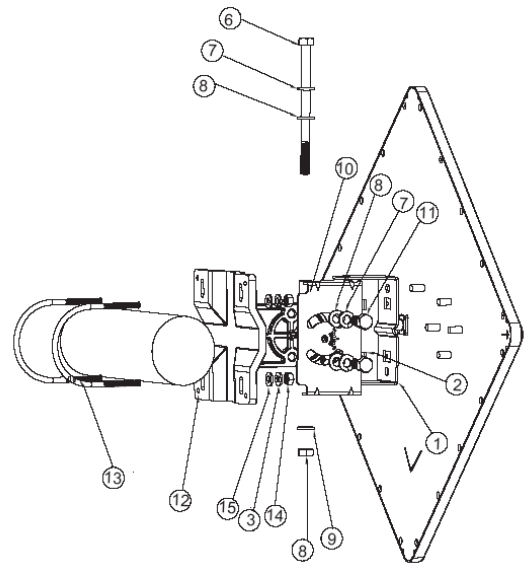
## Pole Mount

There are down-tilt & side-tilt features for both vertical and horizontal mounting methods. Attach mounting Main frame to pole. Before tightening fasteners, make sure that the antenna will be pointing in the correct direction after mounting.

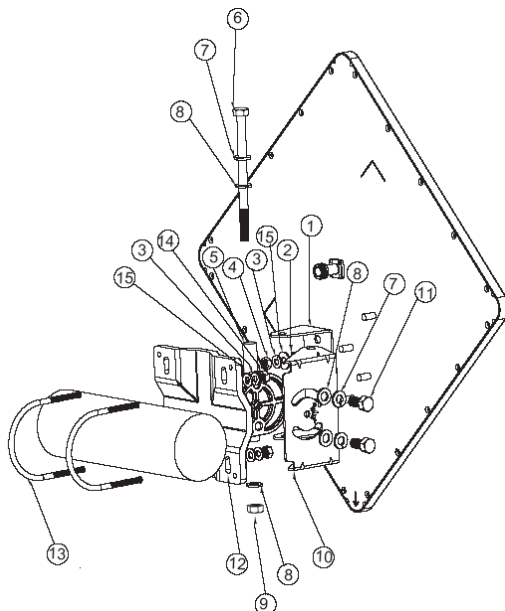
**Vertical Polarization / Vertical Pole Mounting**



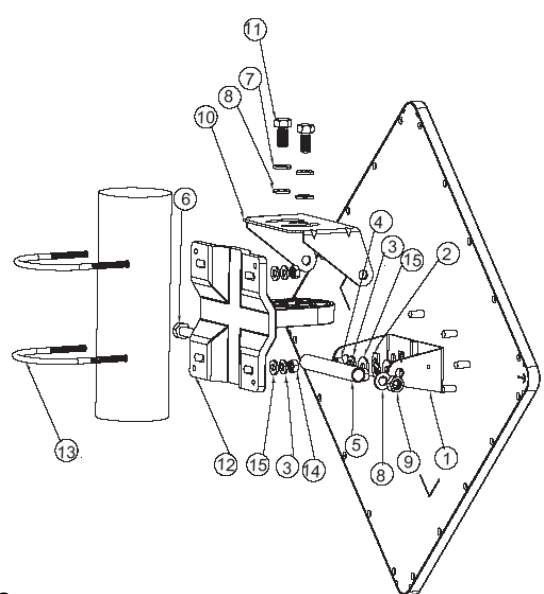
**Horizontal Polarization / Horizontal Pole Mounting**



**Vertical Polarization / Horizontal Pole Mounting**



**Horizontal Polarization / Vertical Pole Mounting**



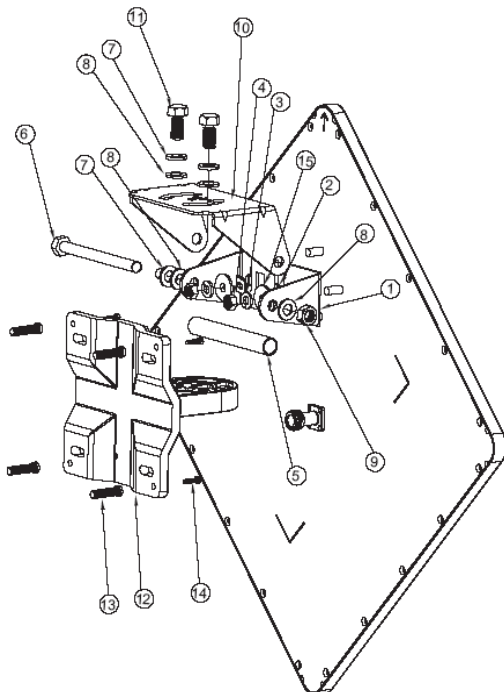
• Pole Mounting Bracket & Fasteners

1.	M-Type Bracket	×1	9.	M8 Nut	×2
2.	Space Keeper	×2	10.	Rotating bracket	×1
3.	M6 Spring Washer	×6	11.	XHM8-1.25*20	×2
4.	M6-1.0 NUT(10*5)	×2	12.	Mounting Main frame	×1
5.	STEEL TUBE	×1	13.	1/ U-Type Screw	×2
6.	XHM8-1.25*120	×1	14.	1/ Nut	×4
7.	M8 Spring Washer	×3	15.	M6 Washer	×6
8.	M8 Washer	×4			

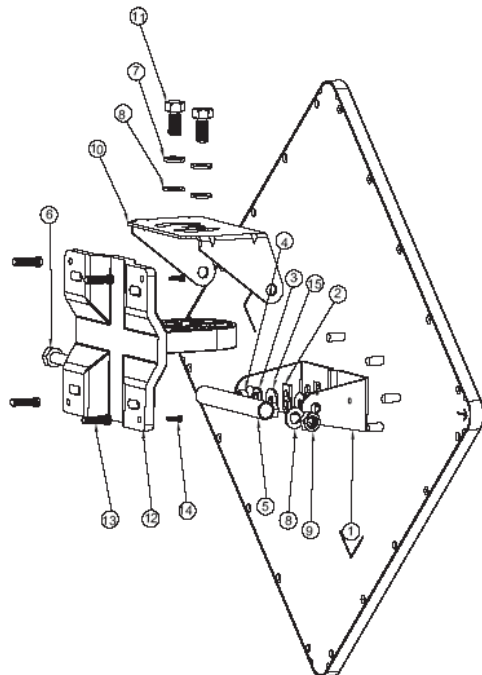
## Wall Mount

There are down-tilt & side-tilt features for both vertical and horizontal mounting methods. Attach mounting Main frame to the wall. Before tightening fasteners, make sure that the antenna will be pointing in the correct direction after mounting.

Vertical Polarization / Wall Mounting



Horizontal Polarization / Wall Mounting



### • Wall Mounting Bracket & Fasteners Parts List

1. M-Type Bracket	×1	9. M8 Nut	×1
2. Space Keeper	×2	10. Rotating bracket	×1
3. M6 Spring Washer	×6	11. XHM8-1.25*20	×2
4. M6-1.0 NUT(10*5)	×2	12. Mounting Main frame	×1
5. STEEL TUBE	×1	13. Wall TIGER	×4
6. XHM8-1.25*120	×1	14. TH 5/32-16*	×4
7. M8 Spring Washer	×3	15. M6 Washer	×1
8. M8 Washer	×4		

### Attach Antenna to R2 Extender

Remove the protective plastic covers from the “N” type RF connectors on both the R2 Extender and the R2 Director5G-23. Next, connect the extension cable onto the RF connectors. To reduce signal interference, the V-type isolation board on the external antenna should be located between the R2 Extender and the R2 Director5G-23 external antenna.

To minimize the influence of obstacles, signal interference or reflections, install any external antenna at a minimum of 30 cm away from the R2 Extender.



# Appendix A Specification

## Electrical Specification

Frequency range	5150-5250 MHz	5250-5875 MHz
Gain	21.5 dBi	22-23 dBi
VSWR	2.0:1 (max.)	
Polarization	Linear, Vertical	
Horizontal HPBW	10°	
Vertical HPBW	10°	
Standard compliance	Co-pol. ETSI EN 302 085 V1.2.3 TS1 – TS3 Cross-pol. ETSI EN 302 085 V1.2.3 TS1 – TS3	
Front-to-back ratio	34 dB (min.)	
Input impedance	50 Ohm	
Connector	N Jack	
Power handling	5 W (cw)	
Lightning protection	DC ground	

## Environmental & Mechanical Characteristics

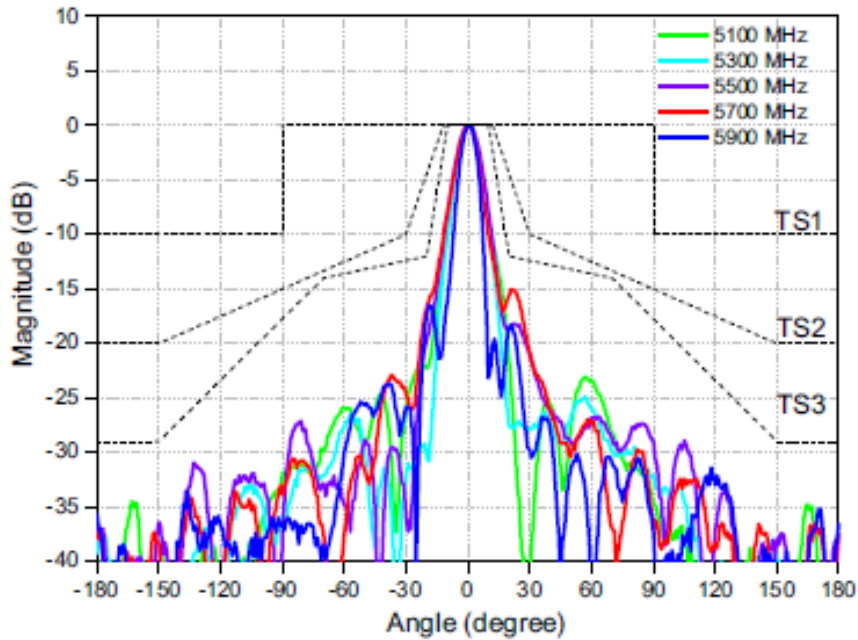
Survival wind speed	216 km/hr
Temperature	-40° C to +80° C
Humidity	95% @ 55° C
Color	Gray-white
Housing material	PC, UV resistant
Weight*	1.2 kg
Dimensions	320 x 320 x 43 mm
Waterproof	IP67
Mounting Kit	Pole mount & Wall mount

\* Includes mounting kit

# Appendix B Radiation

## V-plane

V-plane Co-polarization Pattern



V-plane Cross-polarization Pattern

