

D701-0008 Revision E, October 2016

**Multi-Beam Panel Antenna 2x9NPA2010F**

**General**

This instruction sheet contains all necessary information required to assist in the correct installation of the 2x9NPA2010F Multi-Beam Panel Antenna.

The following symbols can be found next to text outlining important information.



Please follow the procedure marked with this symbol precisely. Non-compliance may lead to damage of the product.



Handy tips when installing product.

**Unpacking**

Make sure that the antenna and the accessory items listed below are provided and have not been damaged during transport.

- Antenna
- Mounting kit
- Installation Instructions (This document)

Mounting Kits	Type	QTY
Fixed Downtilt	F-042-GL-E	2
Mechanical Downtilt	T-041-GL-E	2



Do not install near power lines. Power lines, telephone lines, and guy wires look the same. Assume any wire or line can electrocute you.



Do not install on a wet or windy day or when lightning or thunder is in the area. Do not use metal ladder.



Wear shoes with rubber soles and heels. Wear protective clothing including a long-sleeved shirt and rubber gloves.

## Installation Instructions



- Ensure a torque spanner is used when tightening fasteners, see the mounting kit diagrams on the following pages for the correct torque recommendations.
- Ensure antenna is installed with the connectors and drainage holes at the bottom.

## Installation Instructions - Fixed Downtilt Mounting Kit (F-042-GL-E)

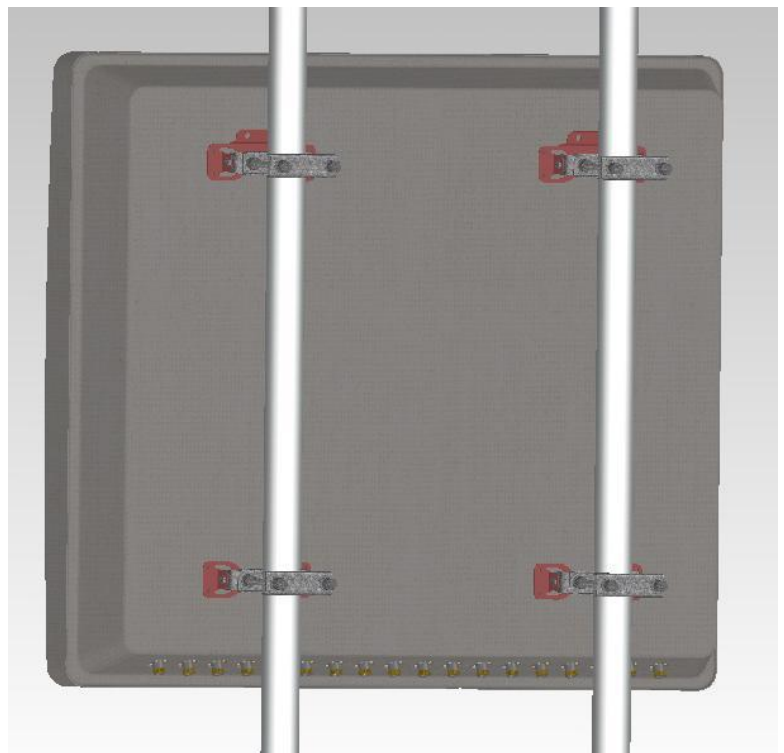
Assemble both mounting brackets to the antenna as per Figures 1, 2 & 3 of this document.



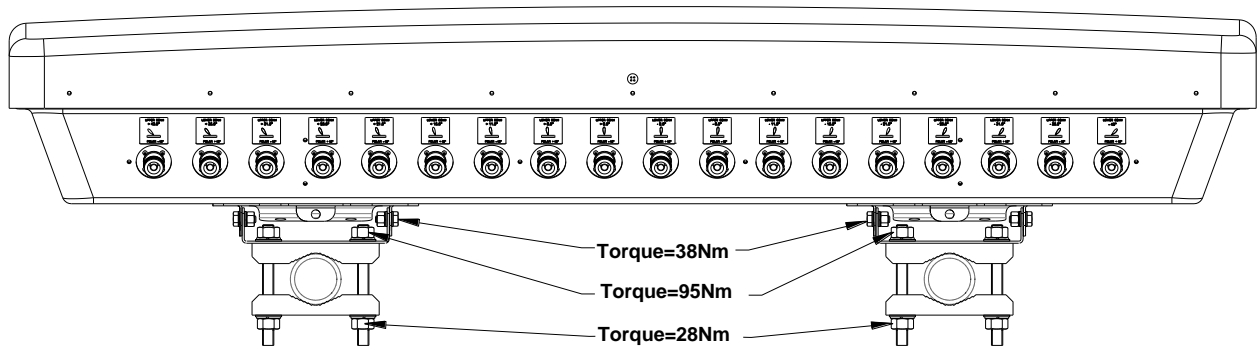
- Attach the mounting kit assembly to the antenna, before trying to clamp the brackets to the pole.



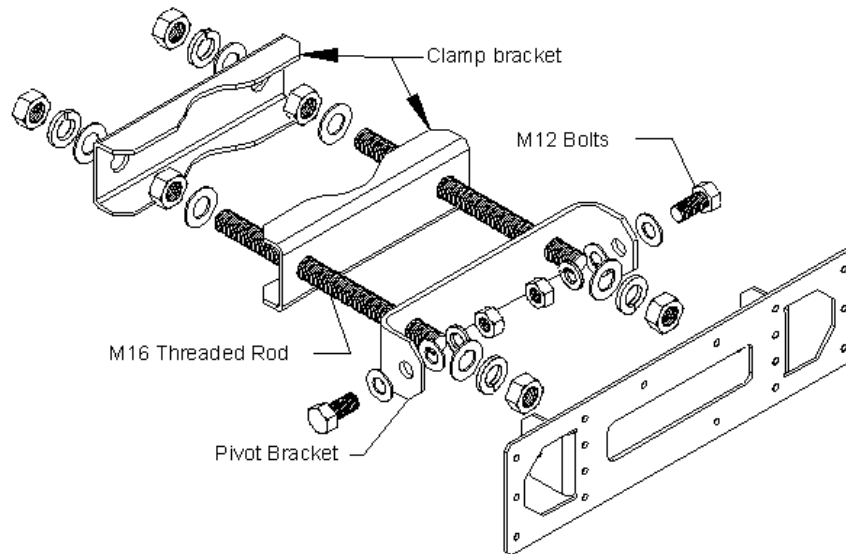
- The clamp brackets can clamp pipe diameters between 75mm (3") & 115mm (4.5"). For typical installations the minimum recommended pipe diameter is 85mm (3.3").



**Figure 1. Correctly Assembled Mounting Brackets for Fixed Downtilt Antenna**



**Figure 2. Fixed Downtilt Mounting Bracket Assembled to Antenna & pole**



**Figure 3. Fixed Downtilt Mounting Bracket Exploded Assembly**

## Installation Instructions - Mechanically Adjustable Downtilt Mounting Kit (T-041-GL-E) , Bracket Spacing 976mm (38.4")

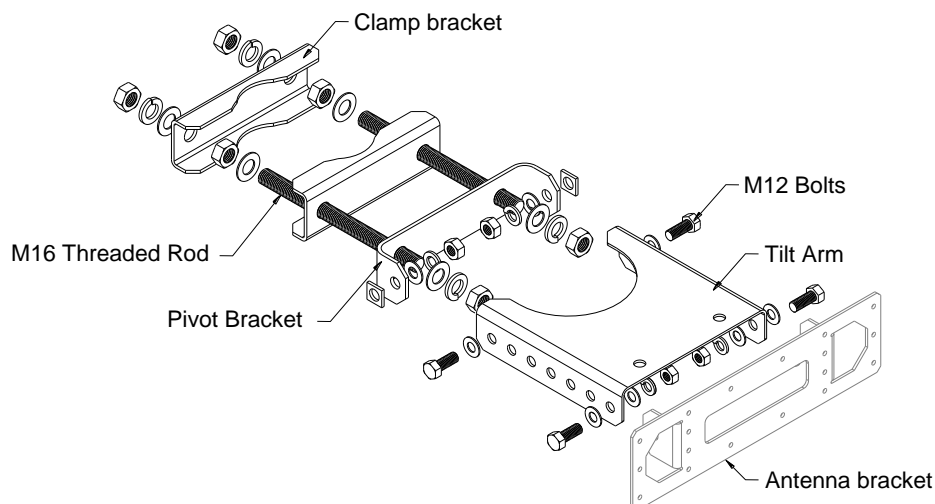
Assemble both mounting brackets as per Figures 3 and 4 of this document.



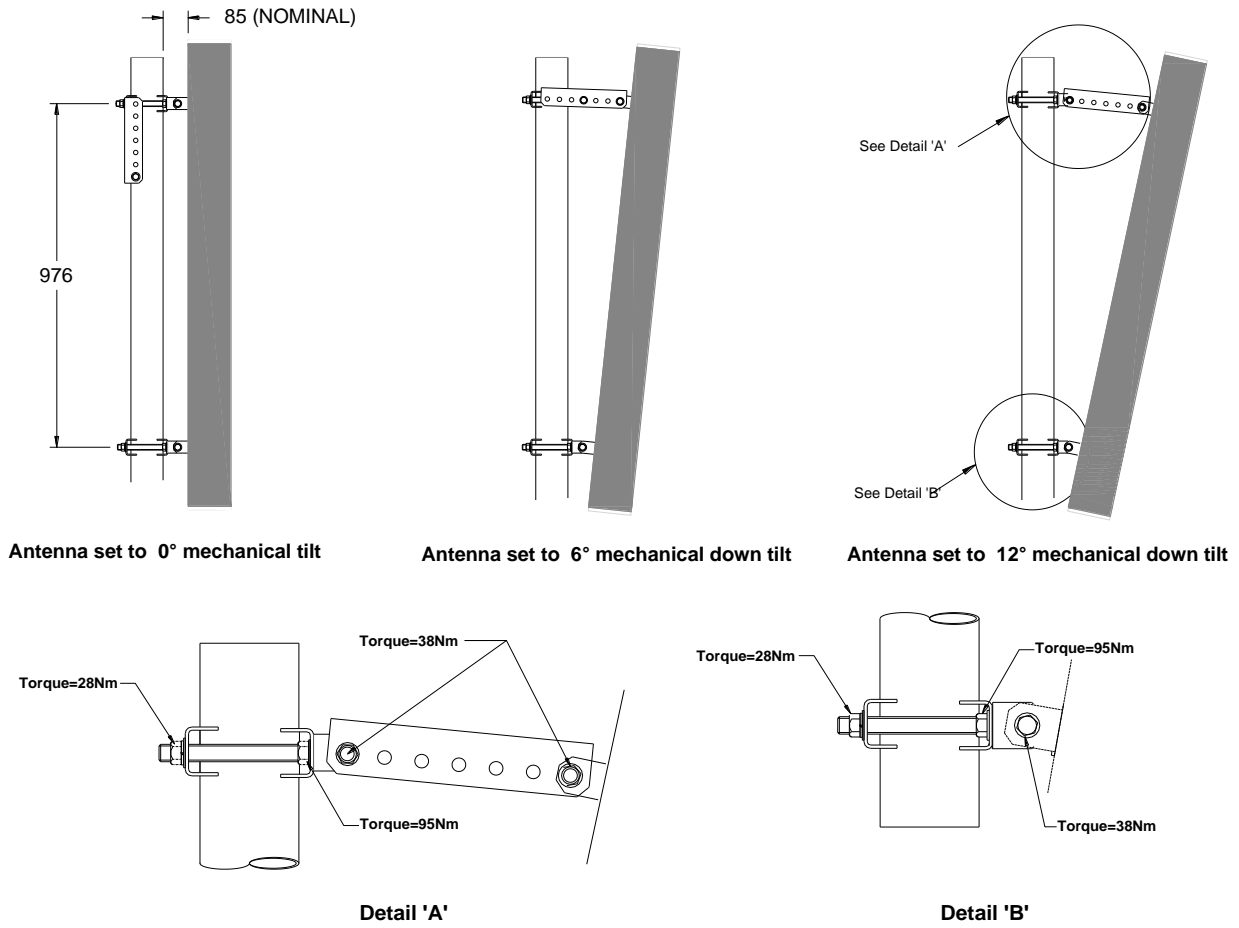
1. Attach the lower and upper mounting bracket assemblies to the antenna, before clamping the brackets to the pole. Mechanical downtilt angles of 0° to 12° in 2° increments can be obtained with the correct setting of the tilt arm bracket. For 0° mechanical downtilt the tilt arm may be stowed as show in Figure 5.
2. 2°-12° mechanical downtilt in 2° steps can be achieved by aligning the corresponding hole in the tilt arm to the pivot bracket which mates against the mounting pole, as shown in Figure 5 or Figure 6. The first hole is for 2° mechanical downtilt, with each consecutive hole resulting in an increased inclination of 2°.
3. When the tilt arm is used in the upper antenna bracket as shown in Figures 5, the mechanical tilt can be set to 0° or to any angle from 2° to 12° in 2° steps. The electrical beams emerge from the front of the antenna with a ±4° electrical downtilt so ±4° needs to be added to the mechanical tilt to find the actual pointing of the beams.
4. When the tilt arm is used in the lower mounting bracket as shown in Figure 6, the mechanical uptilt can be set to 0° or to any angle from 2° to 12° in 2° steps. The electrical beams emerge from the front of the antenna with a ±4° electrical downtilt so the mechanical uptilt needs to be added from the ±4° electrical downtilt to find the actual downtilt of the beams.
5. A positive tilt refers to down tilt.



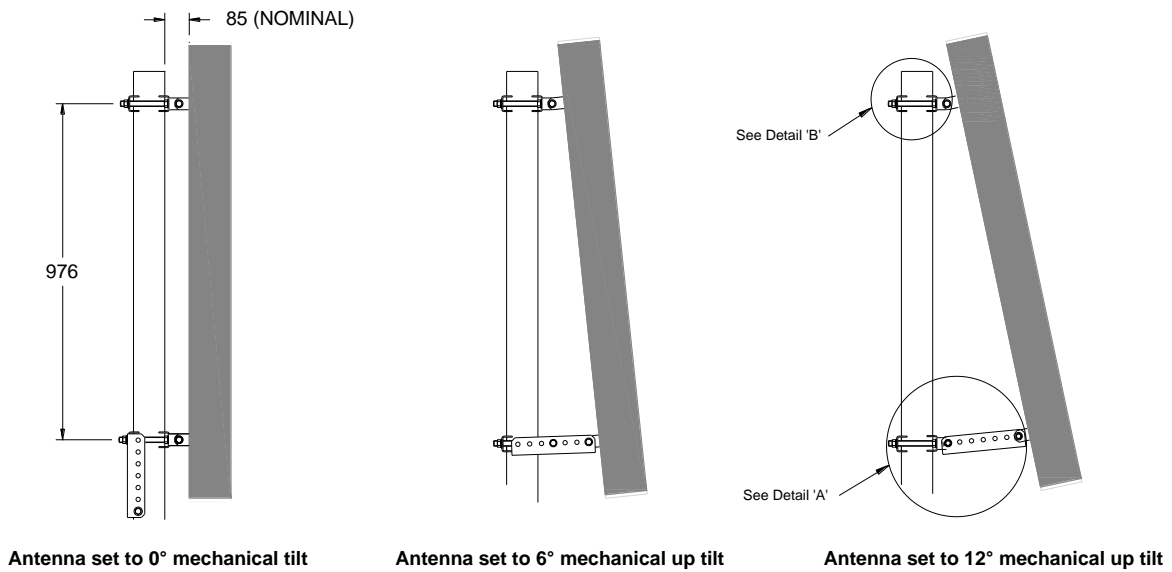
The clamp brackets can clamp pipe diameters between 75mm (3") & 115mm (4.5").  
For typical installations the minimum recommended pipe diameter is 85mm (3.3").

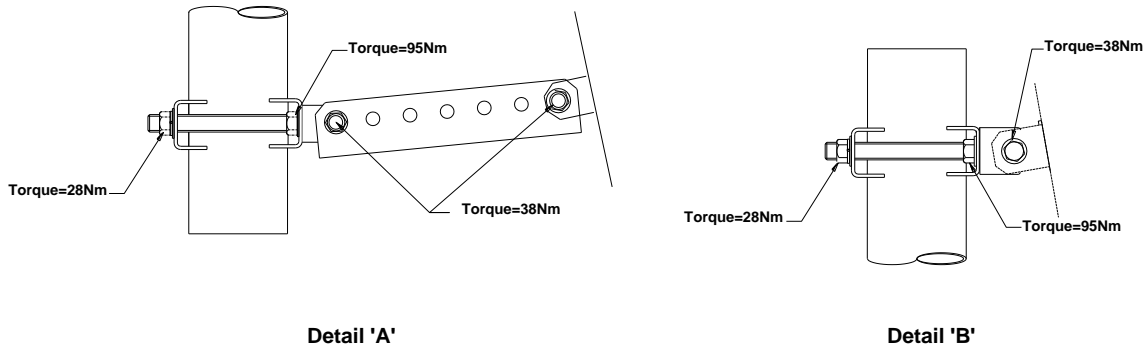


**Figure 4. With Tilt Arm Mounting Bracket Exploded Assembly**



**Figure 5. Setting mechanical downtilt**

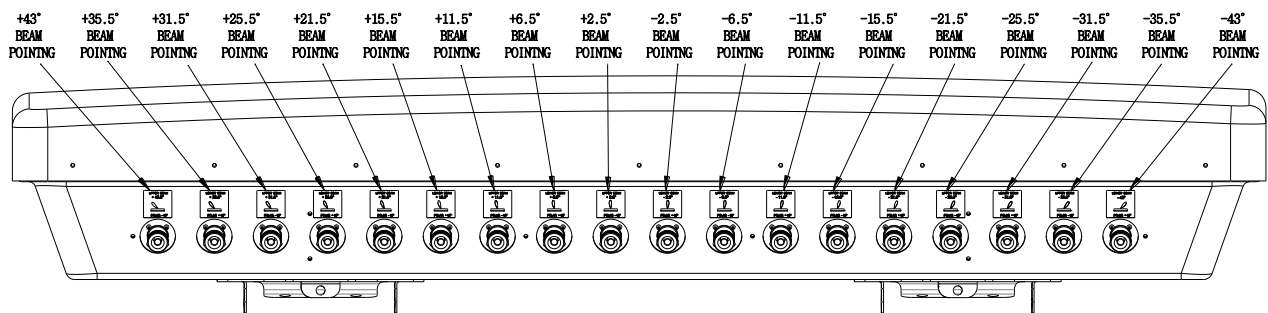




**Figure 6. Setting mechanical uptilt**

## Labelling of Antenna Beams

This antenna radiates 18 beams. As mentioned in connection with tilting of the antenna, the beams point downwards relative to the front face of the antenna at one set angle of  $4 \text{ } (-45^\circ \text{ polarization})$  and another set angle of  $-4 \text{ } (+45^\circ \text{ polarization})$ . In the horizontal plane, the beams are at azimuth angles of  $-43.0^\circ, -35.5^\circ, -31.5^\circ, -25.5^\circ, -21.5^\circ, -15.5^\circ, -11.5^\circ, -6.5^\circ, -2.5^\circ, +2.5^\circ, +6.5^\circ, +11.5^\circ, +15.5^\circ, +21.5^\circ, +25.5^\circ, +31.5^\circ, +35.5^\circ, +43.0^\circ$ . There are 18 connectors to the antenna from left to right (looking at the antenna from the rear), odd connectors stand for beam of the antenna at a polarization of  $-45^\circ$ , even connectors stand for beam of the antenna at a polarization of  $+45^\circ$ . The connectors for each beam direction are shown in Figure 7.



**Figure 7. Arrangement of connectors on the base of the antenna.**

## Operation of Antennas

### RF Cable Connection



The 7-16 female connectors fitted to the antenna are designed to fit jumper cables with a standard 7-16 RF male connector. After ensuring both mating connectors are dry push the male connector in and tighten the connector coupling to 23 - 28Nm (17 -21 ft.lb).

If needed or as required by local procedures a weatherproofing kit may then be fitted to the connection.

If the RF connectors are tightened beyond the recommend torque the RF connection to the antenna may be damaged.

Revision	Changes	Date
A	First Release	2012-04-23
B	More clearly Define the Recommended Installation Requirements and Warnings. Changed drawing template to COMMSCOPE.	2013-07-25
C	Remove a sentence that is mis-leading to customers regarding boresight orientation.	2015-03-01
D	Update with latest CommScope template.	2016-09-02
E	Change “ARGUS” to “the 2x9NPA2010F”, “antennas”to “Antenna”.	2016-10-31