MATSING®

LENS TECHNOLOGY ENABLED

MBA Installation & Alignment General Guide

(Multi Beam Antenna - Date: 23 Oct 2024, Revision 2)

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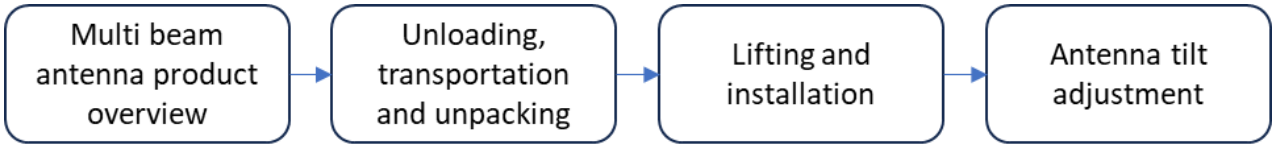


Revision History:

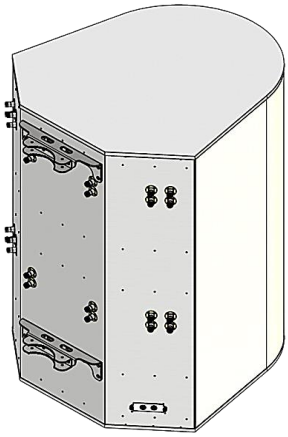
Date	*Description*	*Rev By*	*Check By*	*Rev no*
18-May-2024	*Initial Release*	*RL*	*Pavel*	*0*
07-Oct-2024	*Include MBA models and general update*	*RL*	*Pavel*	*1*
23-Oct-2024	*General update*	*RL*	*Pavel*	*2*

1.00 Multi beam antenna's (MBA) product overview

1.10 MBA-7 series models

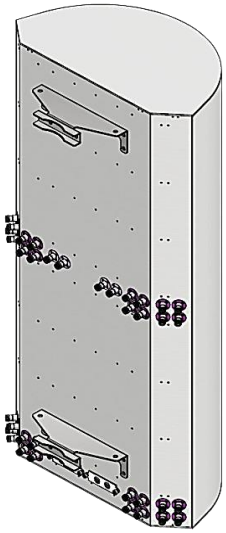
no.	Model	Dimensions (cm)			Weight
		Height	Width	Depth	(kg)
1	MS-MBA-7-C2	63.2	61.9	72.6	21.96
2	MS-MBA-7-F2	63.2	61.9	72.6	21.96

1.20 MBA-6 series models



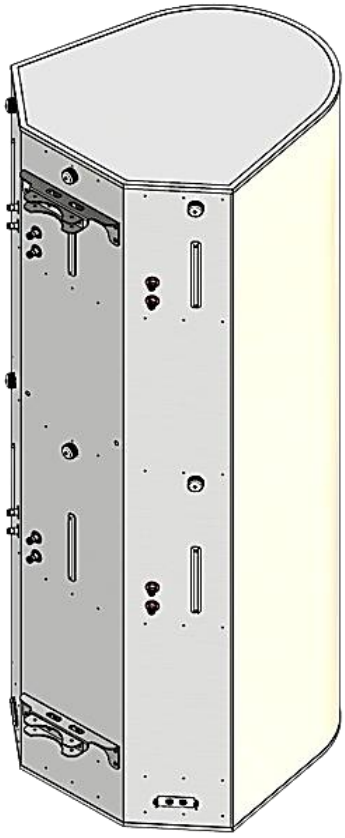
no.	Model	Dimensions (cm)			Weight
		Height	Width	Depth	(kg)
1	MS-MBA-6-H4	126.8	93.7	108.6	76.90
2	MS-MBA-6.6-F2-F2-45M	110.3	61.9	72.3	37.00
3	MS-MBA-6.6-F2-F2	110.3	61.9	72.3	37.10

1.30 MBA-4 series models



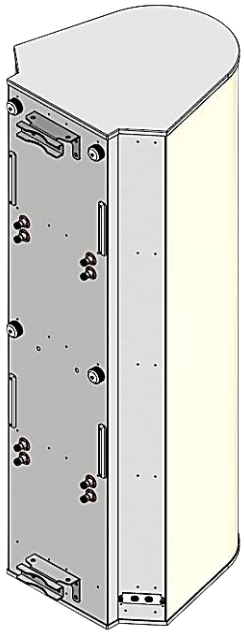
no.	Model	Dimensions (cm)			Weight
		Height	Width	Depth	(kg)
1	MS-MBA-4.4.2-C4-H4-L4	241.9	61.9	72.3	71.22
2	MS-MBA-4.4.2-C4-H2-L2	163.7	62.0	72.2	49.46
3	MS-MBA-4.4.2-F4-H2-L2	163.7	62.0	72.2	49.46
4	MS-MBA-4.4.2-C2-H2-L2	141.2	62.0	72.2	46.12
5	MS-MBA-4.4.2-F2-H2-L2	141.2	62.0	72.2	46.12
6	MS-MBA-4.4-SH2-SH2-45M	110.3	61.9	72.3	36.20
7	MS-MBA-4.4-SH2-SH2-45	110.3	61.9	72.3	36.48
8	MS-MBA-4.4-SH2-SH2	91.2	61.7	68.3	29.82
9	MS-MBA-4.2-H2-L2	109.3	61.9	72.3	33.68
10	MS-MBA-4.2-H2-T2	109.3	61.9	72.3	36.36
11	MS-MBA-4-C8A3	152.7	70.6	52.9	55.10
12	MS-MBA-4-F2	55.0	36.3	46.8	11.86
13	MS-MBA-4-H4	110.3	61.9	72.3	36.32
14	MS-MBA-4-H2	63.5	61.9	72.3	23.54

1.40 MBA-3 series models



no.	Model	Dimensions (cm)			Weight
		Height	Width	Depth	(kg)
1	MS-MBA-3.3.2-C2-H2-L2-I	139.2	61.9	72.3	45.48
2	MS-MBA-3.3.2-C2-H2-L2	139.2	61.9	72.3	44.28
3	MS-MBA-3.3.2-F2-H2-L2	139.2	61.9	72.3	44.28
4	MS-MBA-3.3-C4A3-H4A2-I	210.9	61.8	69.0	66.36
5	MS-MBA-3.3-C4A3-H4A2	210.9	61.8	69.0	64.02
6	MS-MBA-3.3-LAA2-C4	121.4	42.9	36.2	21.06
7	MS-MBA-3.3-LAA2-F4	121.4	42.9	36.2	21.06
8	MS-MBA-3.2-H8-L4	244.0	61.9	72.6	77.58
9	MS-MBA-3.2-H8-T4	244.0	61.9	72.6	77.58
10	MS-MBA-3.2-H4-L4	183.2	61.9	72.3	58.04
11	MS-MBA-3.2-H4-T4	183.2	61.9	72.3	58.04
12	MS-MBA-3.2-H2-L2	99.9	61.9	72.3	32.24
13	MS-MBA-3-F4A5-S	195.8	29.5	37.1	28.90
14	MS-MBA-3-F4A5	195.8	29.5	37.1	28.90
15	MS-MBA-3-C4A3	118.9	29.5	37.1	17.88
16	MS-MBA-3-F4A3	118.9	29.5	37.1	19.34
17	MS-MBA-3-F4	55.7	36.3	46.8	9.94
18	MS-MBA-3-F2	37.0	36.3	46.8	9.44
19	MS-MBA-3-H8A2	241.9	61.8	68.3	80.45
20	MS-MBA-3-H8	164.0	61.8	68.3	51.18
21	MS-MBA-3-H4	89.9	61.8	68.3	30.46
22	MS-MBA-3-H2	52.9	61.8	68.3	19.70
23	MS-MBA-3-L4A2-S	241.9	93.7	108.6	135.42
24	MS-MBA-3-L4A2	241.9	93.7	108.6	135.42
25	MS-MBA-3-T4A2	241.9	93.7	108.6	135.42

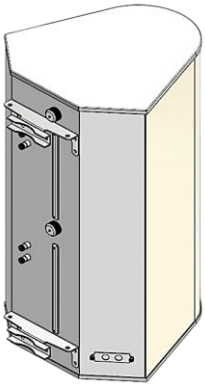
1.50 MBA-2 series models



no.	Model	Dimensions (cm)			Weight
		Height	Width	Depth	(kg)
1	MS-MBA-2-L4A2	177.8	61.9	72.3	52.86
2	MS-MBA-2-L4	112.3	61.9	72.3	36.22
3	MS-MBA-2-L2	63.9	61.3	72.0	24.28
4	MS-MBA-2-T2	63.9	61.3	72.0	24.28

1.60 MBA-1 series models

no.	Model	Dimensions (cm)			Weight
		Height	Width	Depth	(kg)
1	MS-MBA-1-T4	109.8	61.8	68.34	26.38



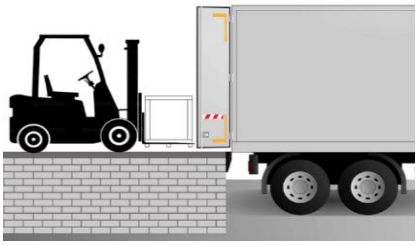
2.00 Antenna unloading, transportation, and unpacking

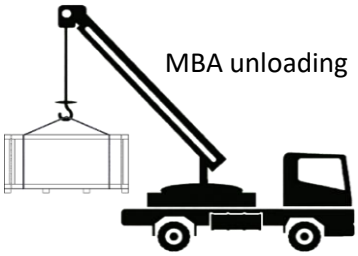
2.10 Safety precaution

DANGER	*Workplace safety and health compliance are required when performing the antenna loading, unloading, lifting, and transportation.* *Approprite personal protection equipment, material handling machinery, equipment's, and tool's should be used together with certified personnel.*

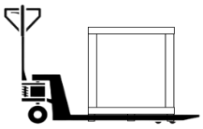
2.20 Antenna wooden crate lifting and handling

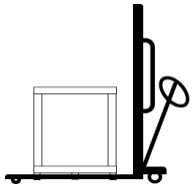
2.21 Unloading using a crane truck, manual hydraulic jack, or forklift





2.22 Point-to-point transport by manual hydraulic jack or forklift

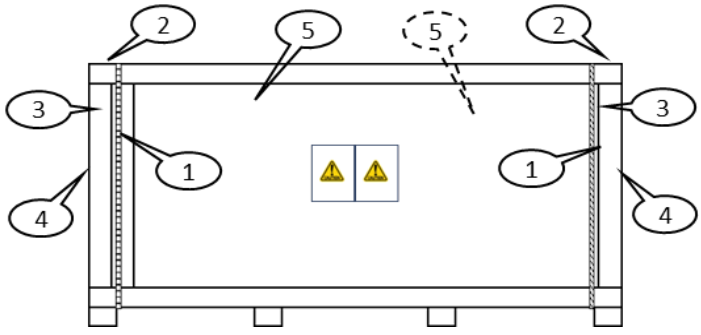


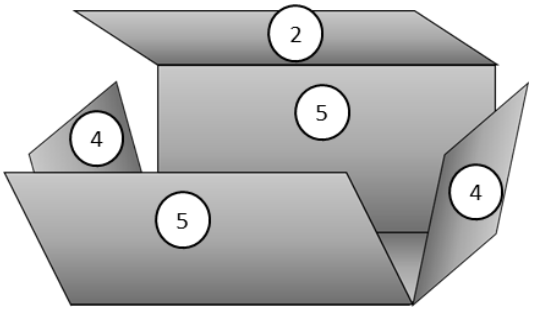


2.30 Antenna wooden crate unpacking and lifting

2.31 Antenna height >1500mm unpacking tools and steps (Example of MS-MBA-3-L4A2)

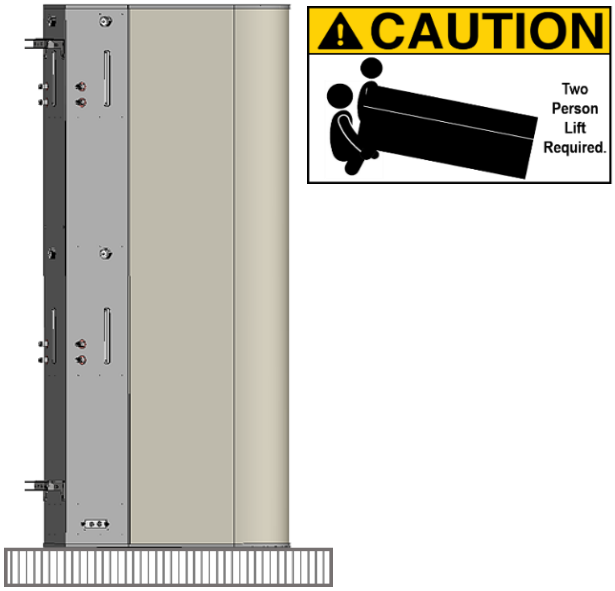
MS-MBA-3-L4A2 Unpacking Step	
Step 1	Use a cutter to cut and remove plastic straps.
Step 2	Unscrew and remove the top panel.
Step 3	Unscrew the left and right sides to remove the rear panel.
Step 4	Remove left and right side panels.
Step 5	Remove front and rear panels.



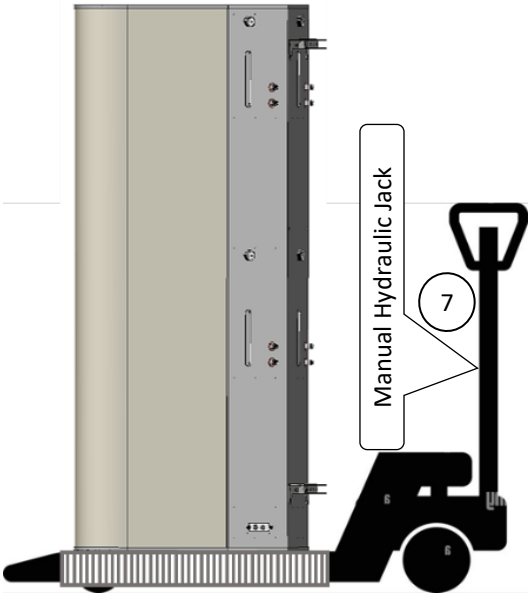


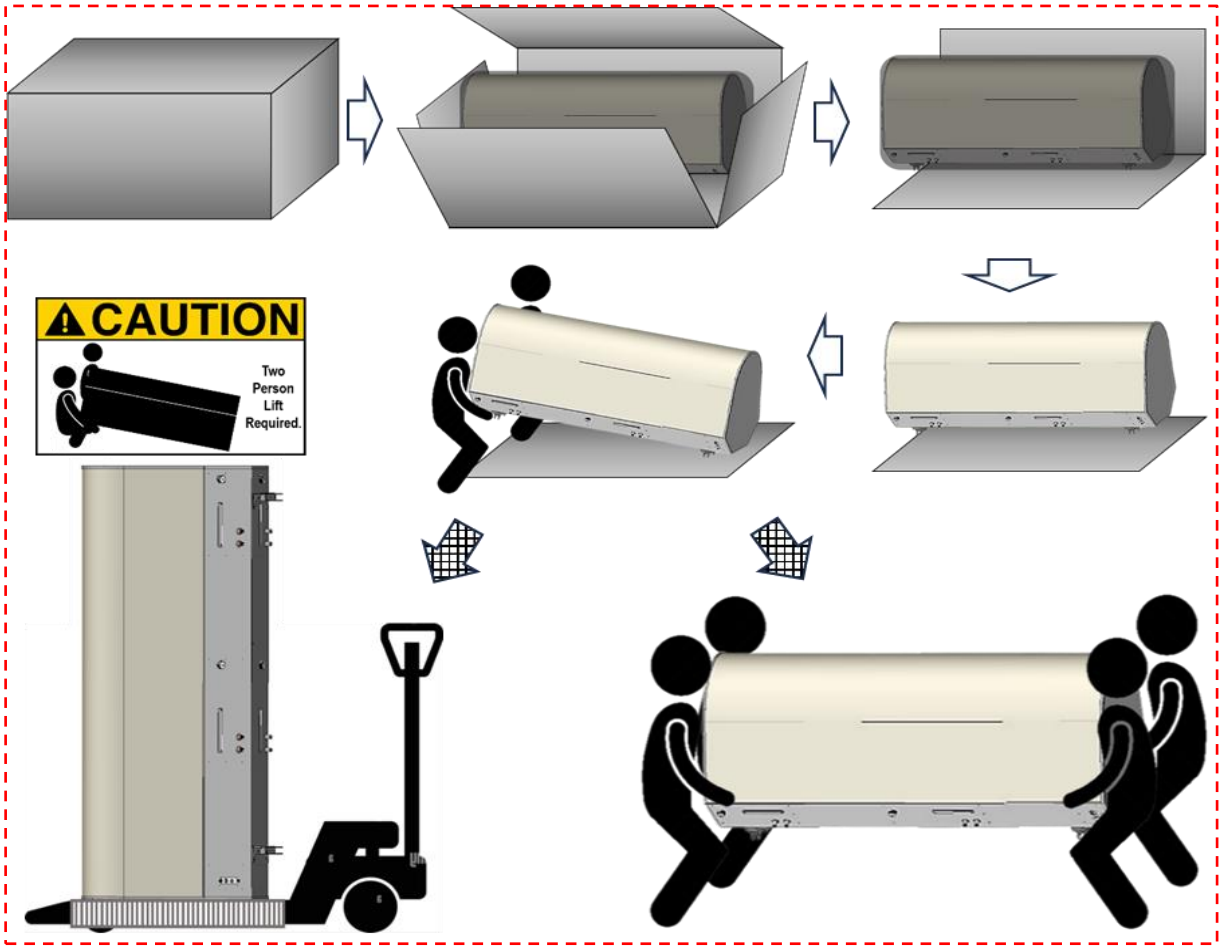
Step 6	Unwrapping shrink wrap.

Step 7	With 2 men, lift up the antenna vertically and place it on the pallet.



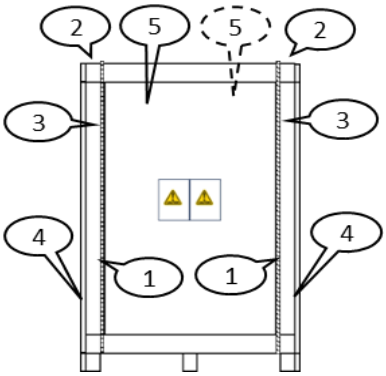
Step 8	Use a manual hydraulic jack for transporting

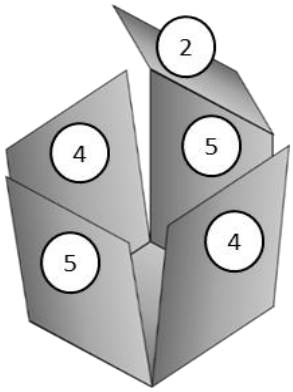




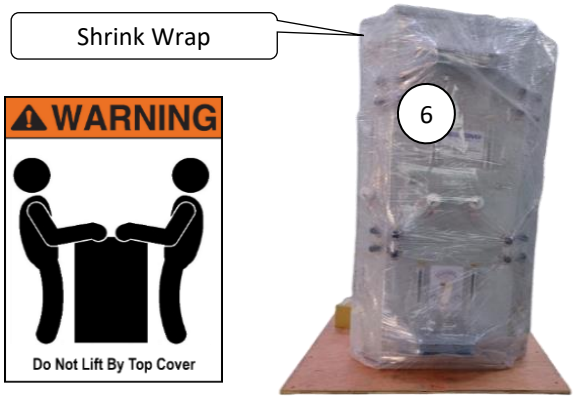
2.32 Antenna height <=1490mm unpacking steps
(Example Of MS-MBA-4.4-SH2-SH2-45M)

MS-MBA-4.4-SH2-SH2-45M Unpacking Step	
Step 1	Use a cutter to cut and remove plastic straps.
Step 2	Unscrew and remove the top panel.
Step 3	Unscrew the left and right sides to remove the rear panel.
Step 4	Remove left and right side panels.
Step 5	Remove front and rear panels.

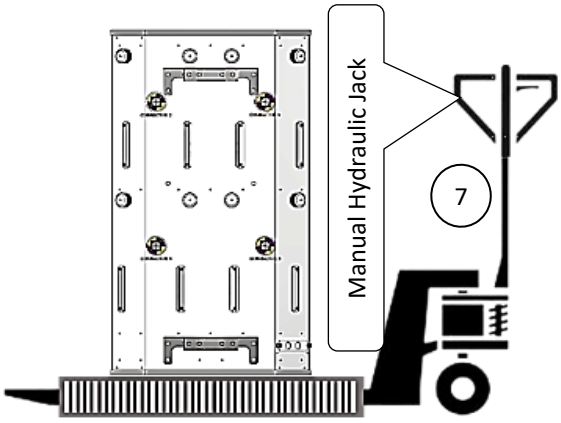


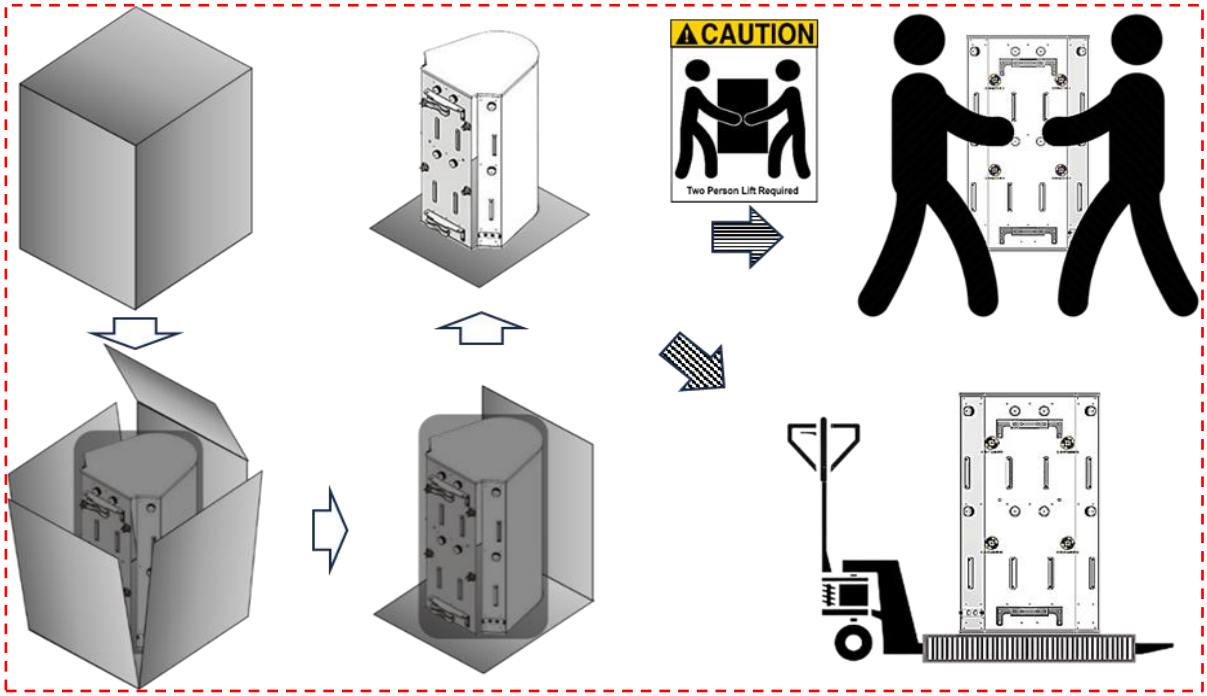


Step 6	Unwrapping the shrink wrap, lift up the antenna, and place it on the pallet.



Step 7	Use a manual hydraulic jack for transporting





3.00 Antenna lifting and installations

3.10 Equipment preparations

CAUTION	*Antenna installation location may vary from point to point in facing different terrains and environments; only appropriate material handling machines, lifting equipment, and working platforms are to be deployed with a certified operator.*

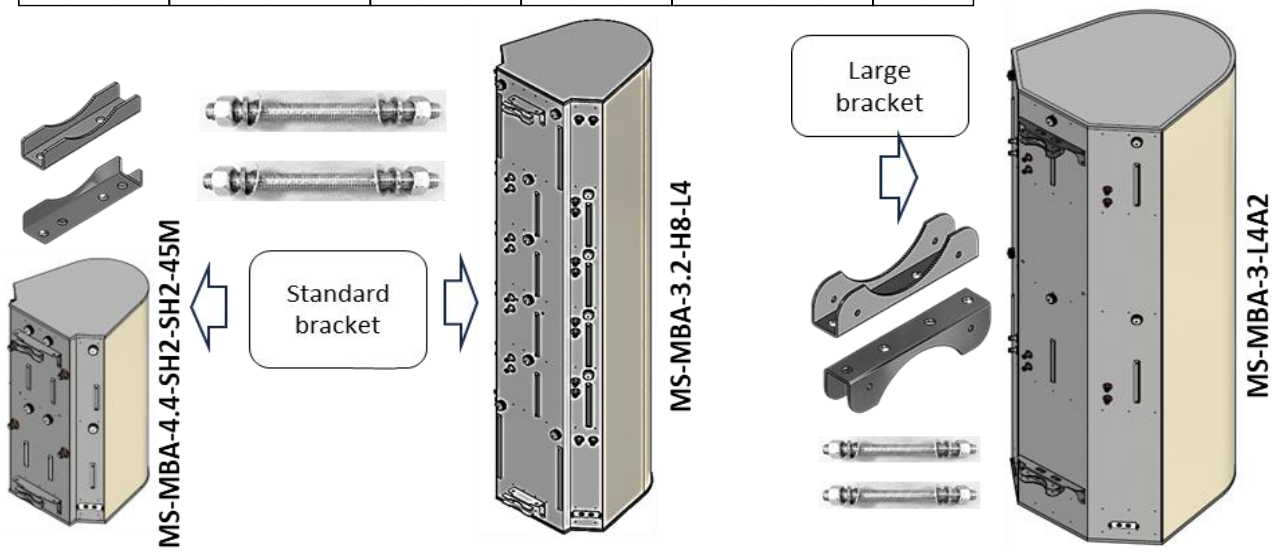
3.20 Planning and execution

CAUTION	*Advance planning for the antenna position and direction is essential to ensure minimum risk and safety compliance during lifting, installation and adjustment.*

3.30 Lifting and installation

3.31 Antenna mounting bracket

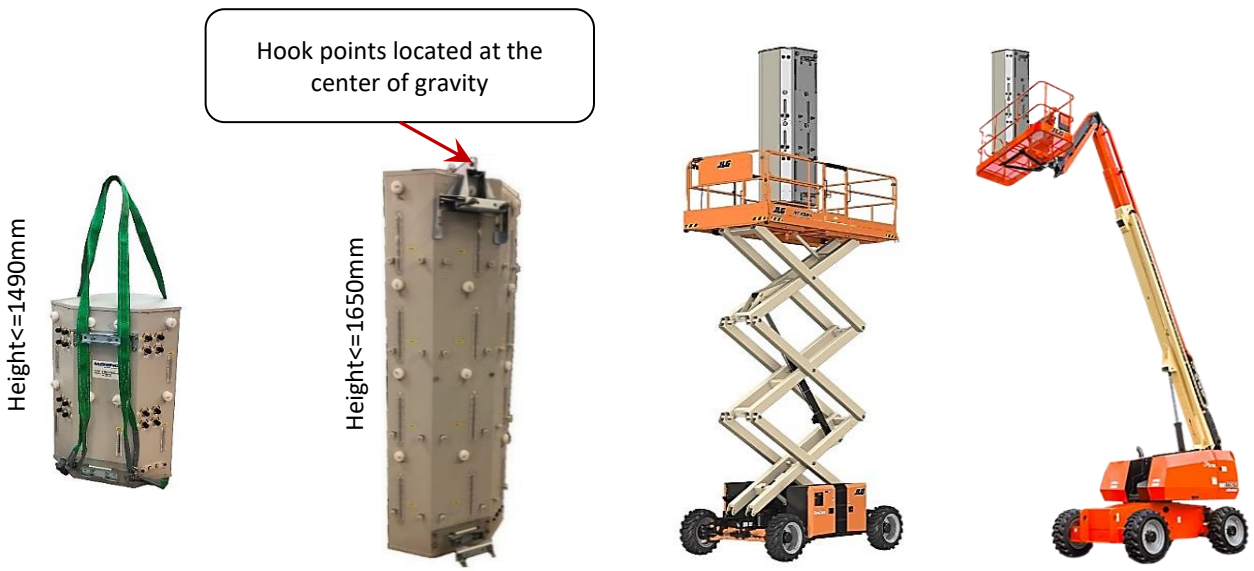
Size	L x W x H (mm)	Thickness (mm)	Holes Size (mm)	Holes Spacing (mm)	Qty
Large	215 x 40 x 50	4	Ø12.5	185	2
Standard	165 x 40 x 26	4	Ø12.5	135	2



3.32 Additional supporting bracket (User custom-make)

Important Notes: The user is required to custom-make the additional supporting bracket and tighten the existing antenna bracket to meet the deployment needs.

3.33 Lifting or hoisting up the antenna



3.34 Antenna installation (on-site picture sample)

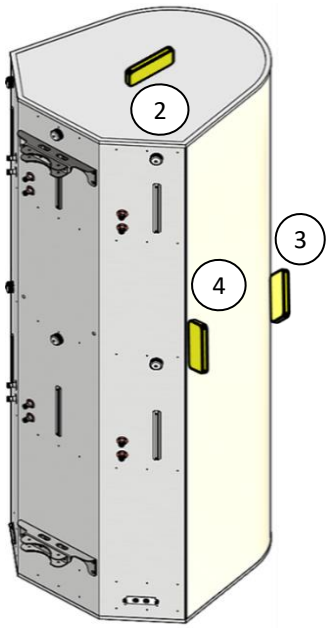
3.35 Antenna leveling and steps (for vertical setting)

Step 1	Digital gauge calibration to zero "0" level

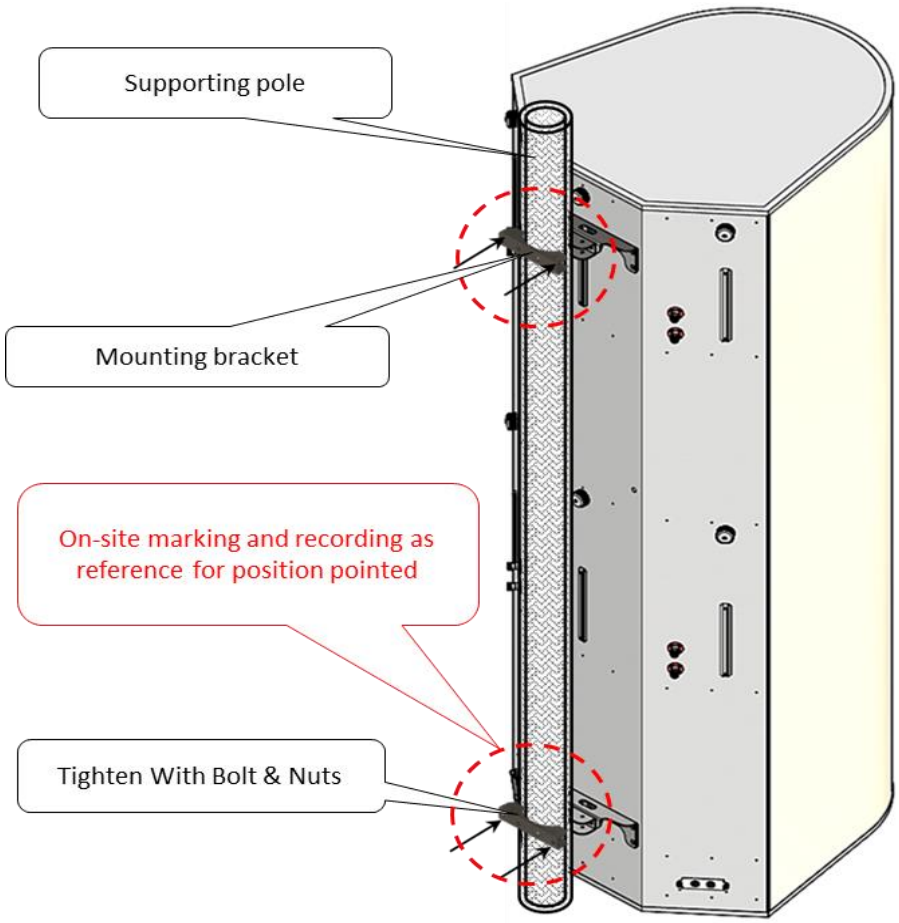
Step 5	Acceptable range (0˚ zero ≤0.2˚)

Step 6	If level is offset, tilt and adjust according to the level display.

Target level is 0˚ (zero) ≤0.2˚	
Step 2	Place the digital gauge on the rear frame top center.
Step 3	Place the digital gauge on the right frame top center.
Step 4	Place the digital gauge on the left frame top center.



3.36 Antenna leveled, secure, and marking



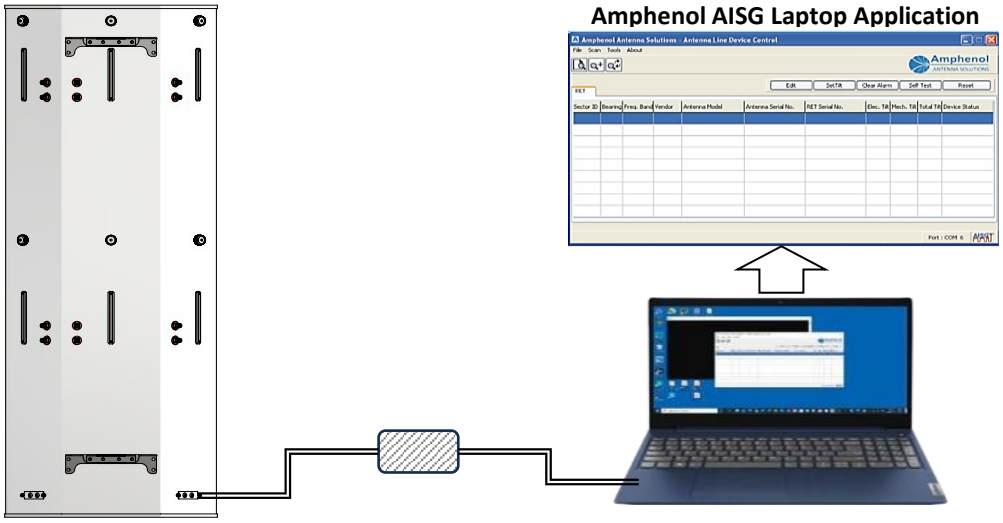
4.00 Antenna tilt adjustment (Elevation)

4.10 Planning and execution

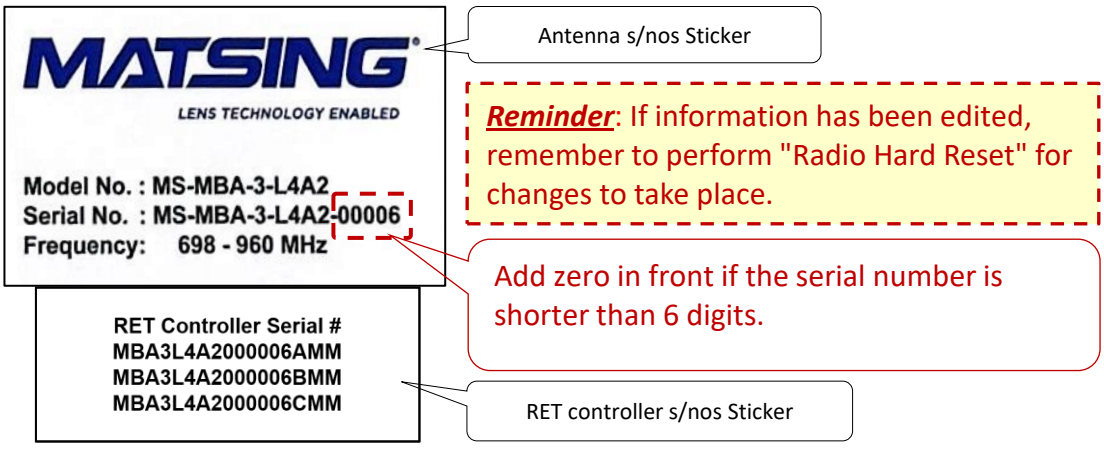
CAUTION	*Advance planning for the antenna position and direction is essential; pre-tilt the angle before the lifting and installation process will be much more helpful in reducing the work load and safety concern.*

4.20 RET connection and operations (Example of MS-MBA-3-L4A2sn: #06)

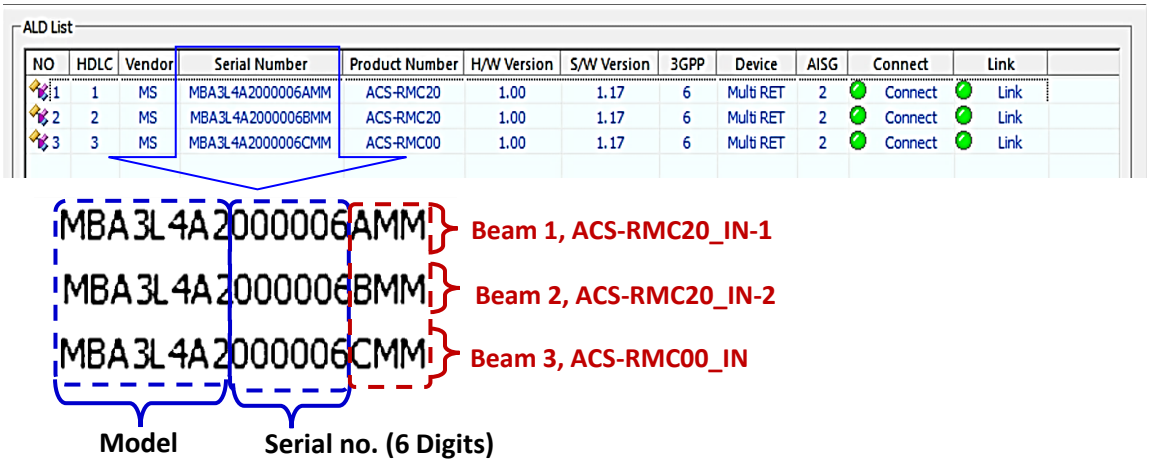
A standard AISG 2.0-compliant cable (not included) is used to connect the MDCU to the AISG interface control. Once connected, use an AISG 2.0-compliant control software to perform a subunit SCAN to identify the RET elements.



4.21 Model and serial nos reference from label



4.22 Information and reference



4.23 Beam nos and port nos display

RET ID : MSMBA3L4A2000006AMM **Beam 1, ACS-RMC20_IN-1 (Port Assigned)**

RET Status and Control

Antenna Information List

NO	Sector ID	Ant Model	Ant Serial	Current Tilt	Status
1/2	LB Beam 1 (Ports 1, 2)	MS-MBA-3-L4A2	MSMBA3L4A20000006	0.0	Normal
2/2	LB Beam 1 (Ports 3, 4)	MS-MBA-3-L4A2	MSMBA3L4A20000006	0.0	Normal

RET ID : MSMBA3L4A2000006BMM **Beam 2, ACS-RMC20_IN-2 (Port Assigned)**

RET Status and Control

Antenna Information List

NO	Sector ID	Ant Model	Ant Serial	Current Tilt	Status
1/2	LB Beam 2 (Ports 5, 6)	MS-MBA-3-L4A2	MSMBA3L4A20000006	0.0	Normal
2/2	LB Beam 2 (Ports 7, 8)	MS-MBA-3-L4A2	MSMBA3L4A20000006	0.0	Normal

RET ID : MSMBA3L4A2000006CMM **Beam 3, ACS-RMC00_IN (Port Assigned)**

RET Status and Control

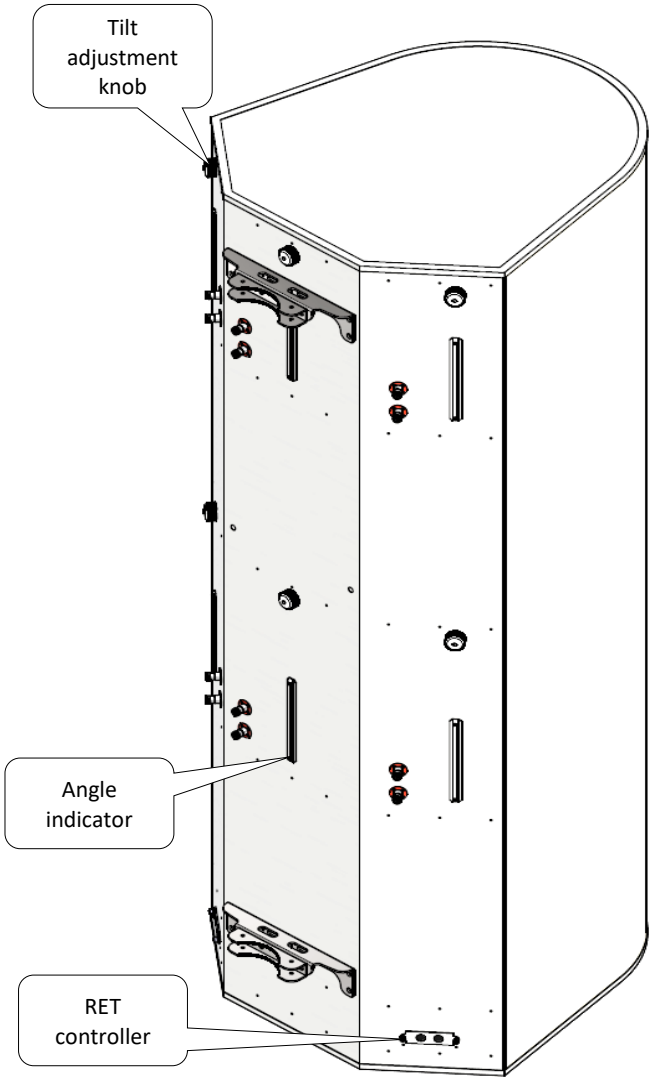
Antenna Information List

NO	Sector ID	Ant Model	Ant Serial	Current Tilt	Status
1/2	LB Beam 3 (Ports 9, 10)	MS-MBA-3-L4A2	MSMBA3L4A20000006	0.0	Normal
2/2	LB Beam 3 (Ports 11, 12)	MS-MBA-3-L4A2	MSMBA3L4A20000006	0.0	Normal

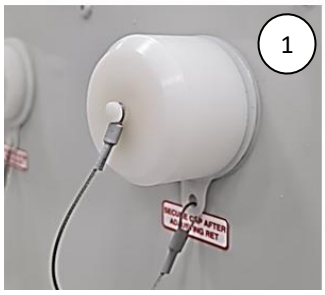
4.30 Manual tilt adjustment (Example of MS-MBA-3-L4A2)

MBA comes in RET mode by default; if needed, it can also be manually adjusted.	
Step 1	Unscrew the cap for the tilt adjustment process.

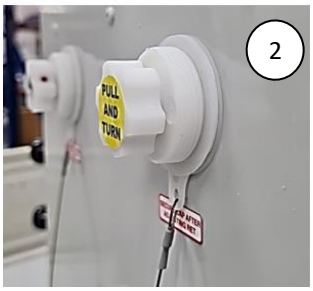
Step 2	Engaged with the internal RET motor position
Step 3	Pull the handle out to disengage RET for tilt adjustment.



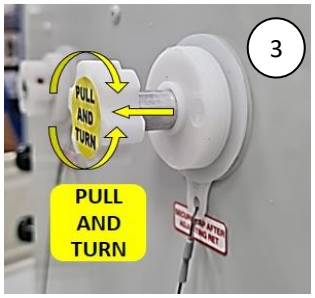
Unscrew/Screw the cap for tilt adjustment process



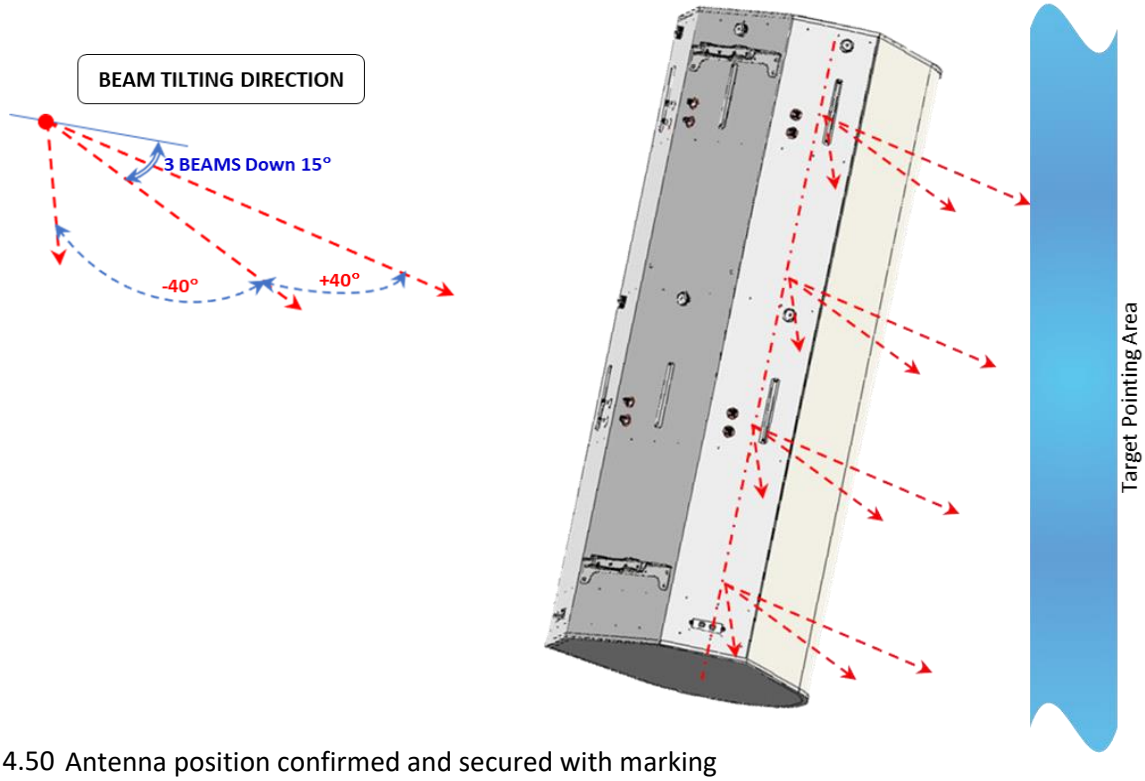
Engaged with internal RET motor position



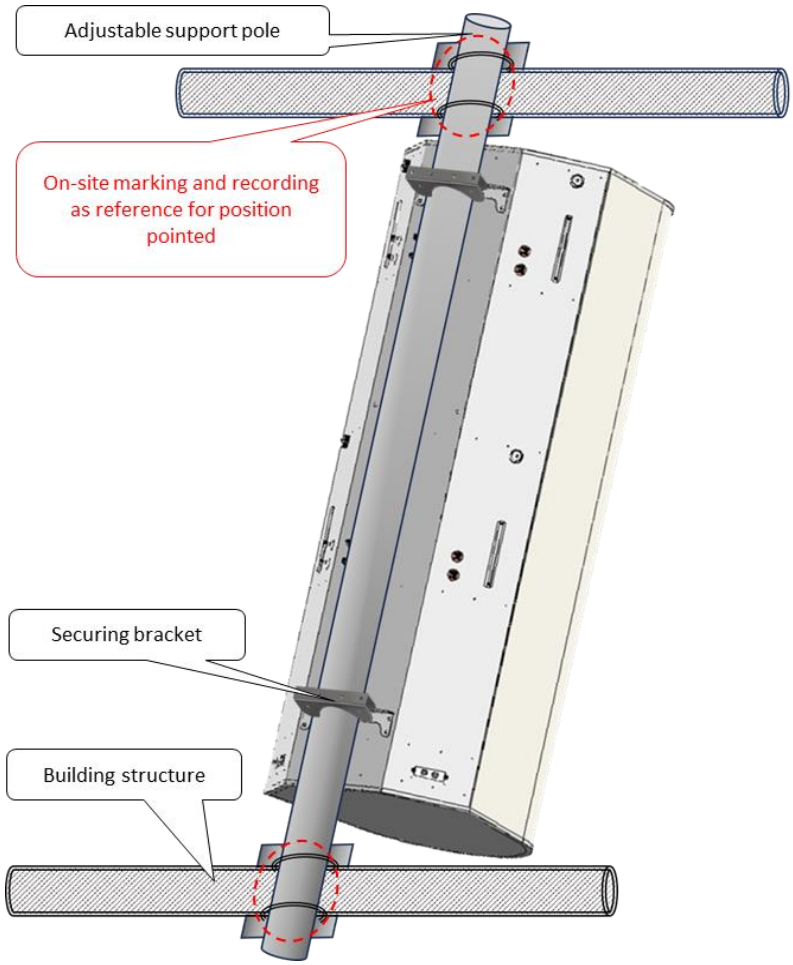
Pull handle out to disengaged RET for tilt adjustment



4.40 Antenna target pointing view (Example of MS-MBA-3-L4A2)



4.50 Antenna position confirmed and secured with marking



Note:

1. This is a mechanical tilt process (difference from the antenna manual or RET tilting).
2. Repeat the same process for another antenna positioning