MATSING®

LENS TECHNOLOGY ENABLED

MatSing Lens Tools - MLT-MBA-45WiFi

Antenna Alignment Guide

(MS-16.16W45)

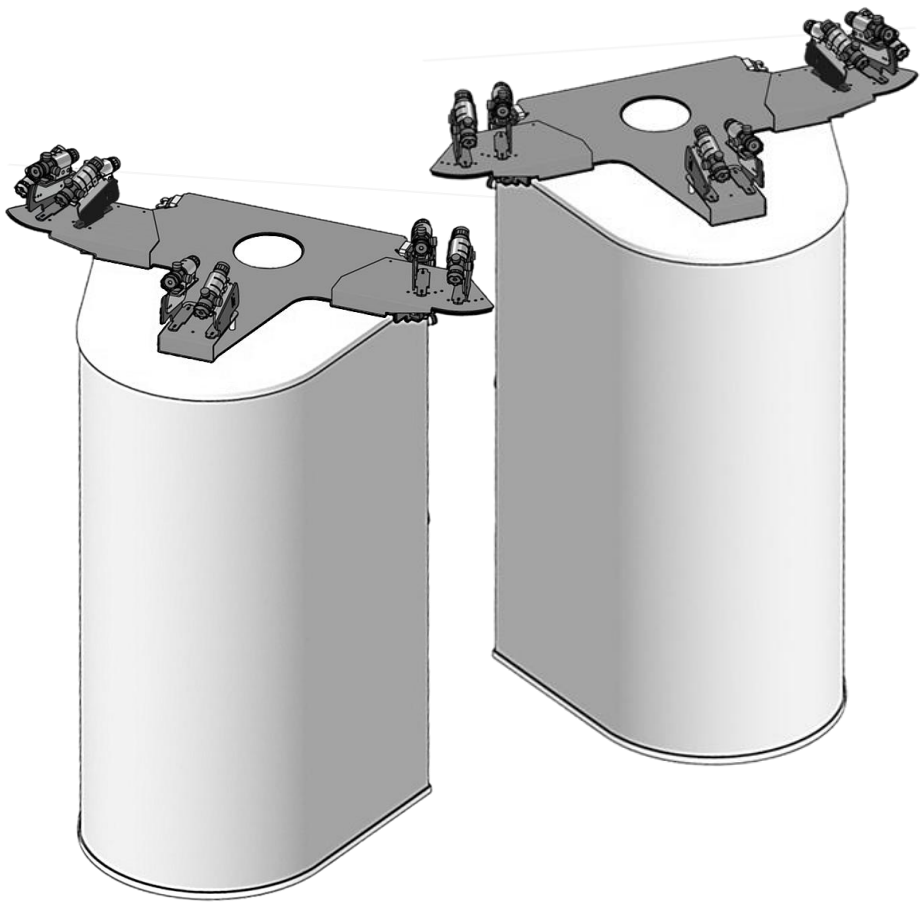

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Table of Contents

1. Safety Instructions

2. Antenna Dimensions

3. Antenna Top Cover

4. MLT-MBA-45WiFi Parts

5. Standard Procedure for Laser Installation

6. Standard Procedure for Lifting and Mounting

7. MS-16.16W45 Setting and Positioning

Revision History

Date	Description	Rev By	Check By	Rev no
30-Mar-2026	Initial Release	RL	Pavel	0
07-May-2026	Revised beam position	RL	Pavel	1

1. Safety Instructions

1.1 Required Tools

• Ensure all necessary hand tools and **calibrated torque wrenches** are available.

⚠ **General:** **Inspect** tools and equipment before lifting/assembly.

⚠ **Personal Protective Equipment (PPE):** All personnel must wear **appropriate PPE** at all times.

⚠ **Work-at-Height:** **Only certified personnel** with proper fall-protection may install and adjust the MLT.

⚠ **Environmental:** The device is **weather-resistant** but not waterproof. In case of moisture ingress, remove batteries and allow to dry completely.

⚠ **Laser Safety:** Adhere to **Class 2 Laser Safety Protocols** (EN60825-1). Never aim lasers at personnel, reflective surfaces, or aircraft.

2. Antenna Dimensions

2.1 Applicable Model:

- **Model:** MS-16.16W45
- **Lens:** 45 cm
- **Width:** 61.9 cm (24.38 in)
- **Depth:** 64.2 cm (25.26 in)
- **Height:** 99.0 cm (38.98 in)

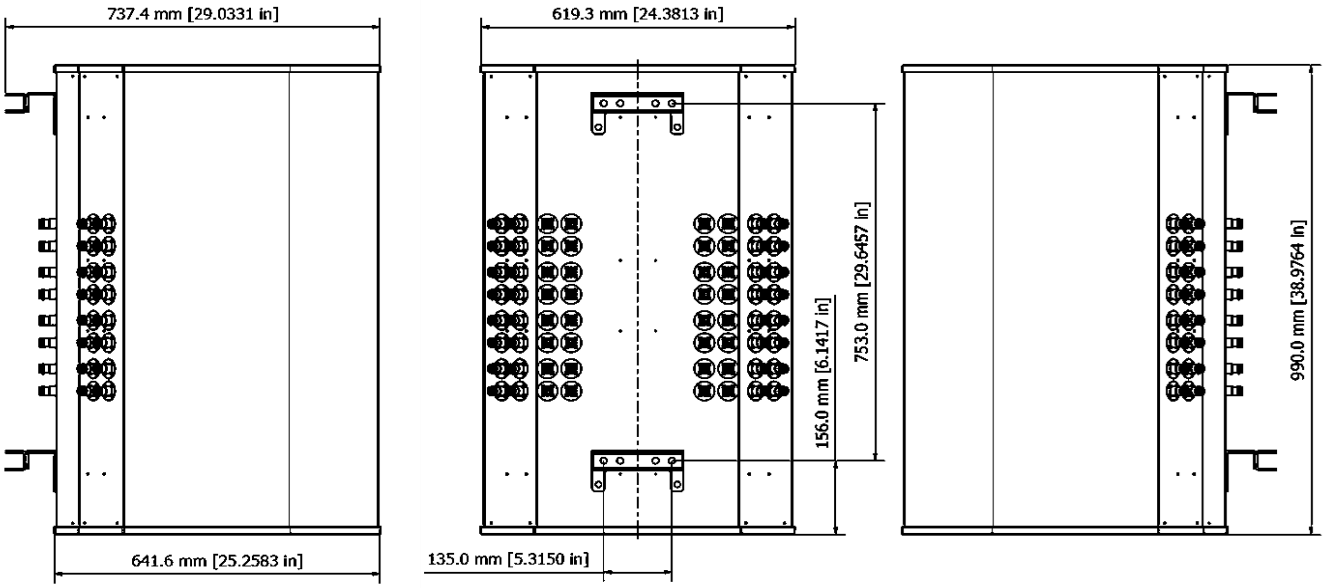

Figure 1: Antenna Dimension

3. Antenna Top Cover

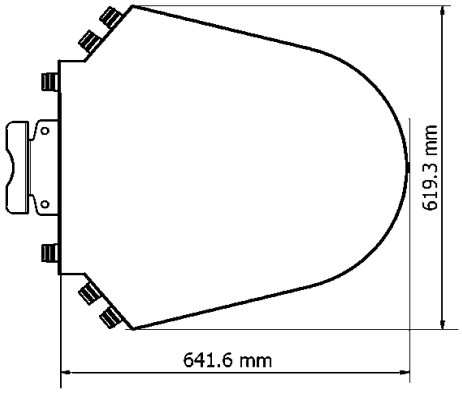

Figure 2: Top Cover

4. MLT-MBA-45WiFi Parts

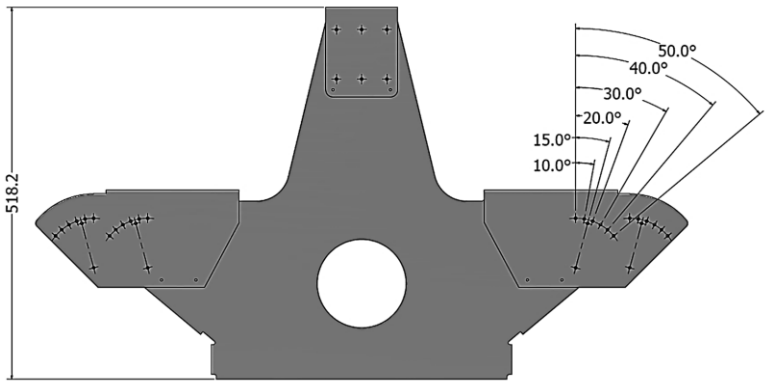

Figure 3: MLT Base Plate

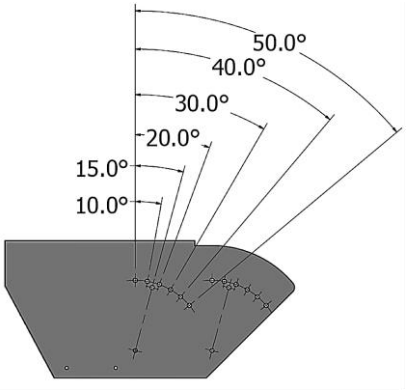

Figure 4: Left & Right Angle

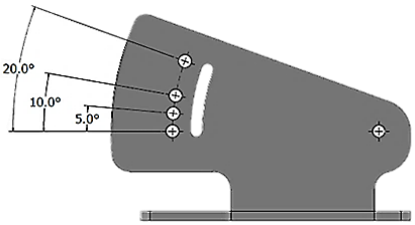

Figure 5: Tilting Angle

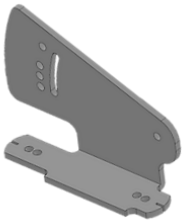

Figure 6: Adjustable Bracket

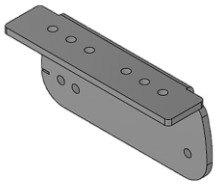

Figure 7: Tilting Bracket

5. Standard Procedure for Laser Installation

5.1 Standard Configuration (USA Parts)

- **6 sets** of Laser sight/rails.
- **Picatinny** Rail: As laser bed.
- **Pinty** Laser sight: Laser alignment.

Figure 8: "PINTY"Laser Sight

Figure 9:"Picatinny" Rail

5.2 USA Parts Assembly

Step 1: Install laser beds (2 x Left, 2 x Right & 2 x Center).
Step 2: Insert laser sight and secure it.
Step 3: Pre-Set left and right to 0°.
Step 4: Pre-Set up and down to 0°.
Note: Each direction (Left, Right, & Center) has two sets of adjustable brackets to be installed in opposite directions for the 'Up and Down' tilt setting.

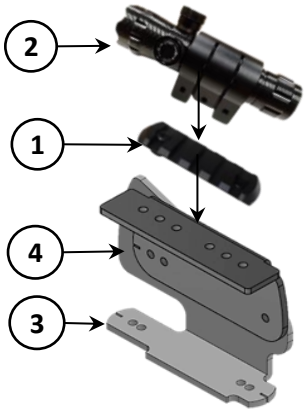

Figure 10: USA Laser Example

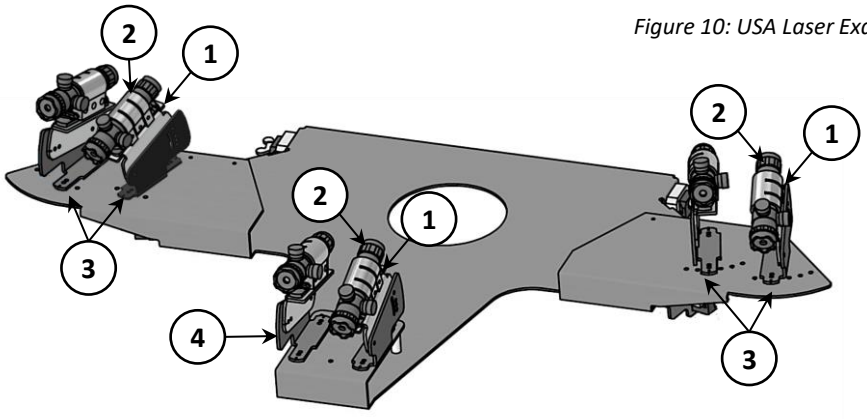

Figure 11: USA Part Assembly

5.3 Alternative Configuration (Europe Parts)

- **Ø22mm** Holder clamp: For Ø16-20mm laser.
- **Ø15mm** Holder clamp: For Ø11-15mm laser.
- **6 sets** of Laser pointer/clamps. (Laser Class2 ≤1 mW EN60825-1)

Figure 12: Ø22mm Holder

Figure 13: Ø15mm Holder

Figure 14: ≤1mW Laser Pointer

5.4 Europe Parts Assembly

Step 1: Install holder clamp (2*Left, 2*Right & 2*Center).
Step 2: Insert laser pointer and clamp it.
Step 3: Pre-Set left and right to 0°.
Step 4: Pre-Set up and down to 0°.
Note: This alternative process is typically used for alignment tools outside of the USA. Please ensure compliance with regional laser regulations.

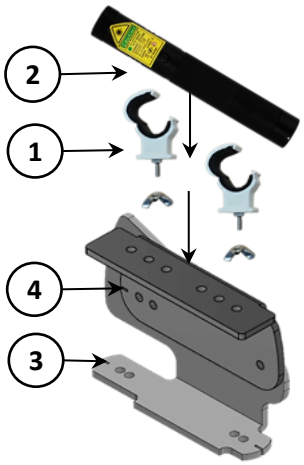

Figure 15: Europe Laser Example

6. Standard Procedure for Lifting and Mounting

6.1 Lifting

- Perform a **pre-hoist torque check** on all primary mounting bolts and verify laser battery levels.
- Ensure **hoisting equipment** is rated for the specific weight of the MLT.
- Lift with **proper rigging**; secure with tag lines.

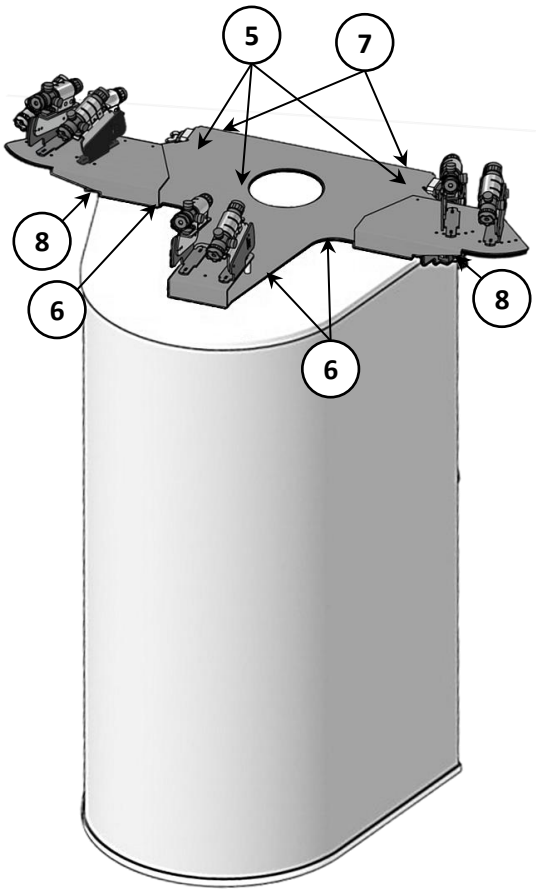

Figure 16: MLT Mounting

6.2 Mounting

Step 5: Position the MLT directly on top of the antenna.
Step 6: Place it down so the MLT sits flat on all surfaces.
Step 7: Ensure the rear side is fully in contact with the cover edge.
Step 8: Once in position, secure the MLT by tightening the 4 corners of the Side-Locks.

7. MS-16.16W45 Setting and Positioning

Beam Row	Left Tilt Angle		Center	Right Tilt Angle		Tilt Angle
Row 1	BEAM 1 -14.1°	BEAM 2 -2.8°	0°	BEAM 3 +8.5°	BEAM 4 +19.8°	+15.0°
Row 2	BEAM 5 -19.8°	BEAM 6 -8.5°	0°	BEAM 7 +2.8°	BEAM 8 +14.1°	+5.0°
Row 3	BEAM 9 -14.1°	BEAM 10 -2.8°	0°	BEAM 11 +8.5°	BEAM 12 +19.8°	-5.0°
Row 4	BEAM 13 -19.8°	BEAM 14 -8.5°	0°	BEAM 15 +2.8°	BEAM 16 +14.1°	-15.0°

Figure 17: Antenna Angle Table

7.1 Angle Plate & Tilt Setting

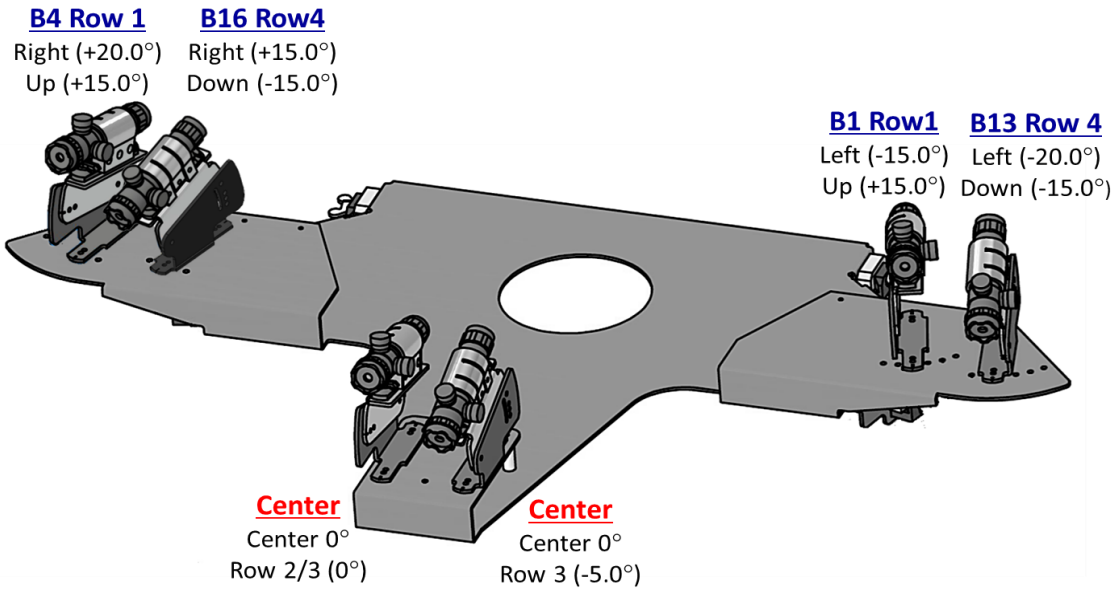

Figure 19: Angle Setting

7.2 Positioning

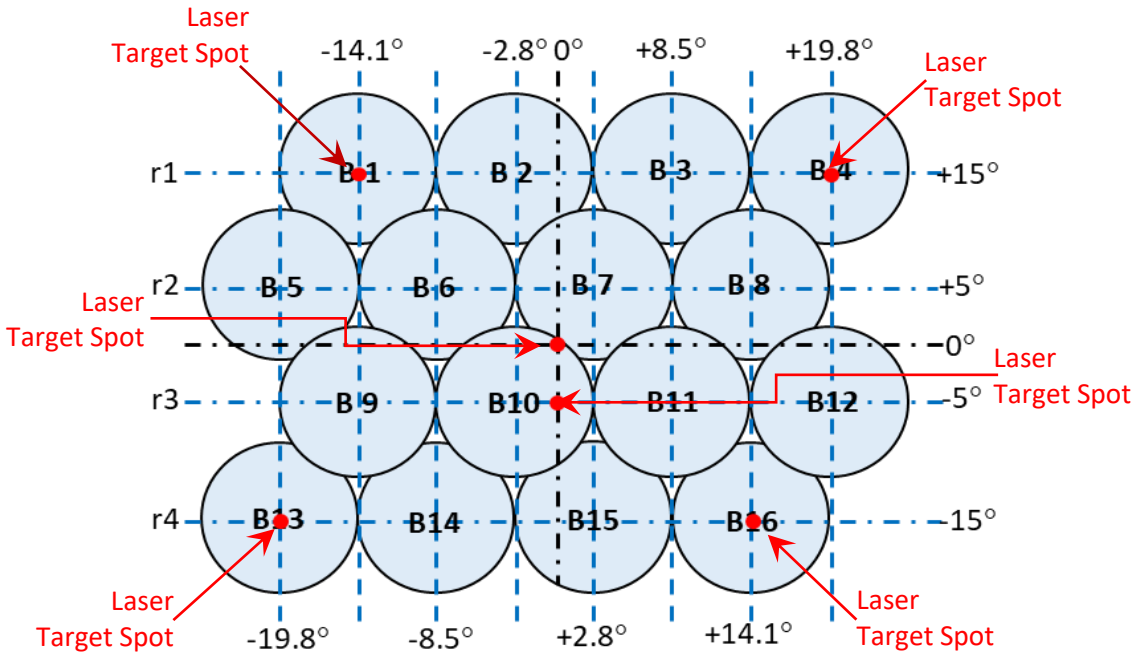

Figure 18: Beam Projection

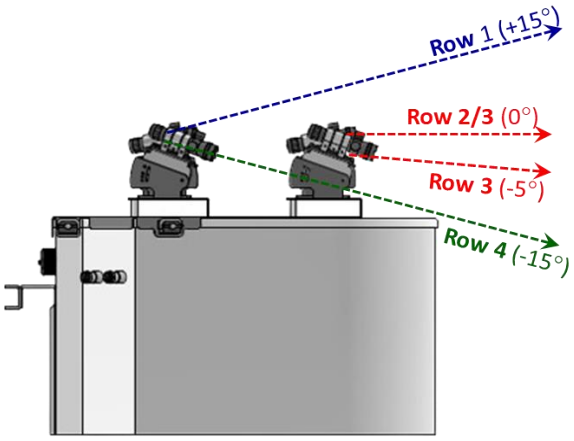

Figure 20: Side View

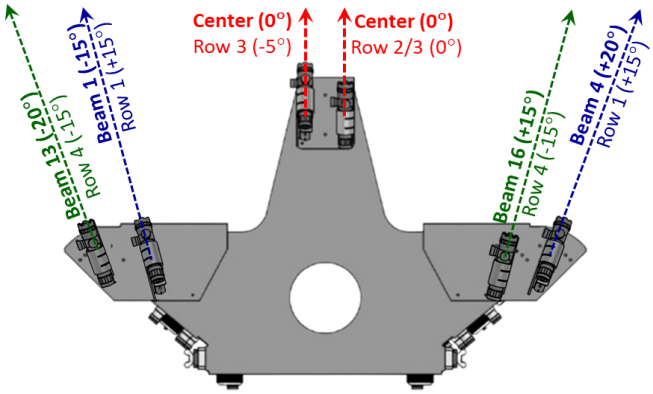

Figure 21: Plan View

7.3 Example of Beam Projection Side View

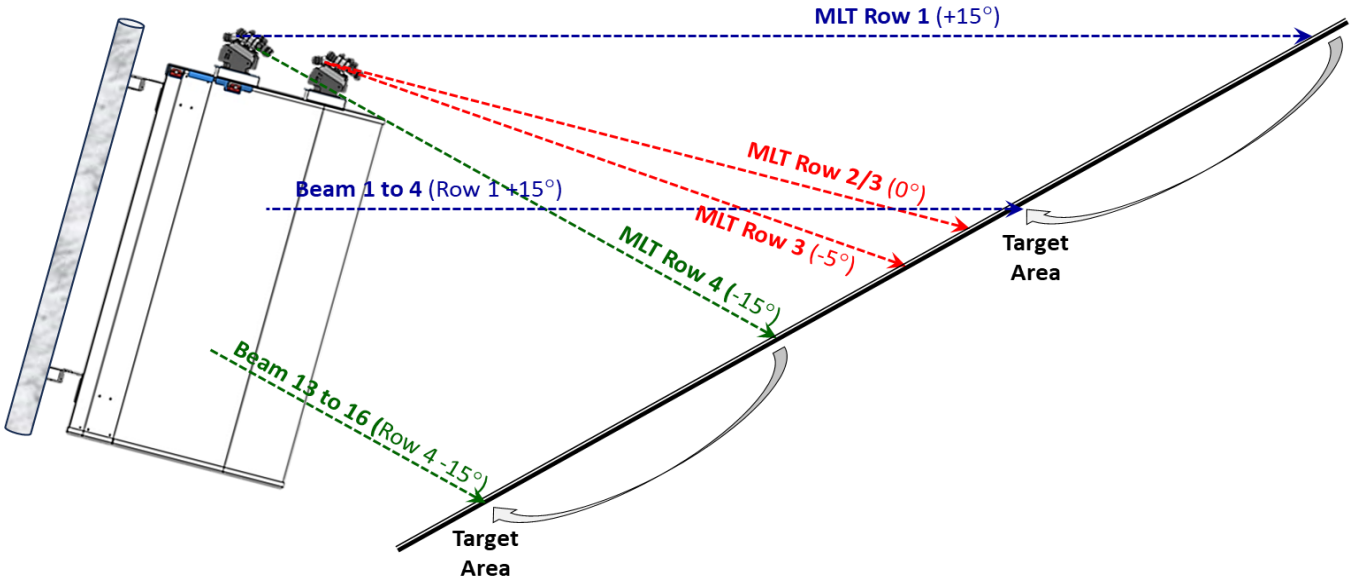

Figure 22: Beam Projection

7.4 Final Positioning Notes

- This is a mechanical antenna tilting process.
- Once the position is confirmed, secure and tighten the antenna bracket.
- Mark the position and record the final mechanical tilt angles in the site closeout package, ensuring tolerances comply with BASTA standards.