



LENS TECHNOLOGY ENABLED

MS-LSA-SLP-2 User Guide

(Stadium Laser Pointer for 16 Antenna Models)

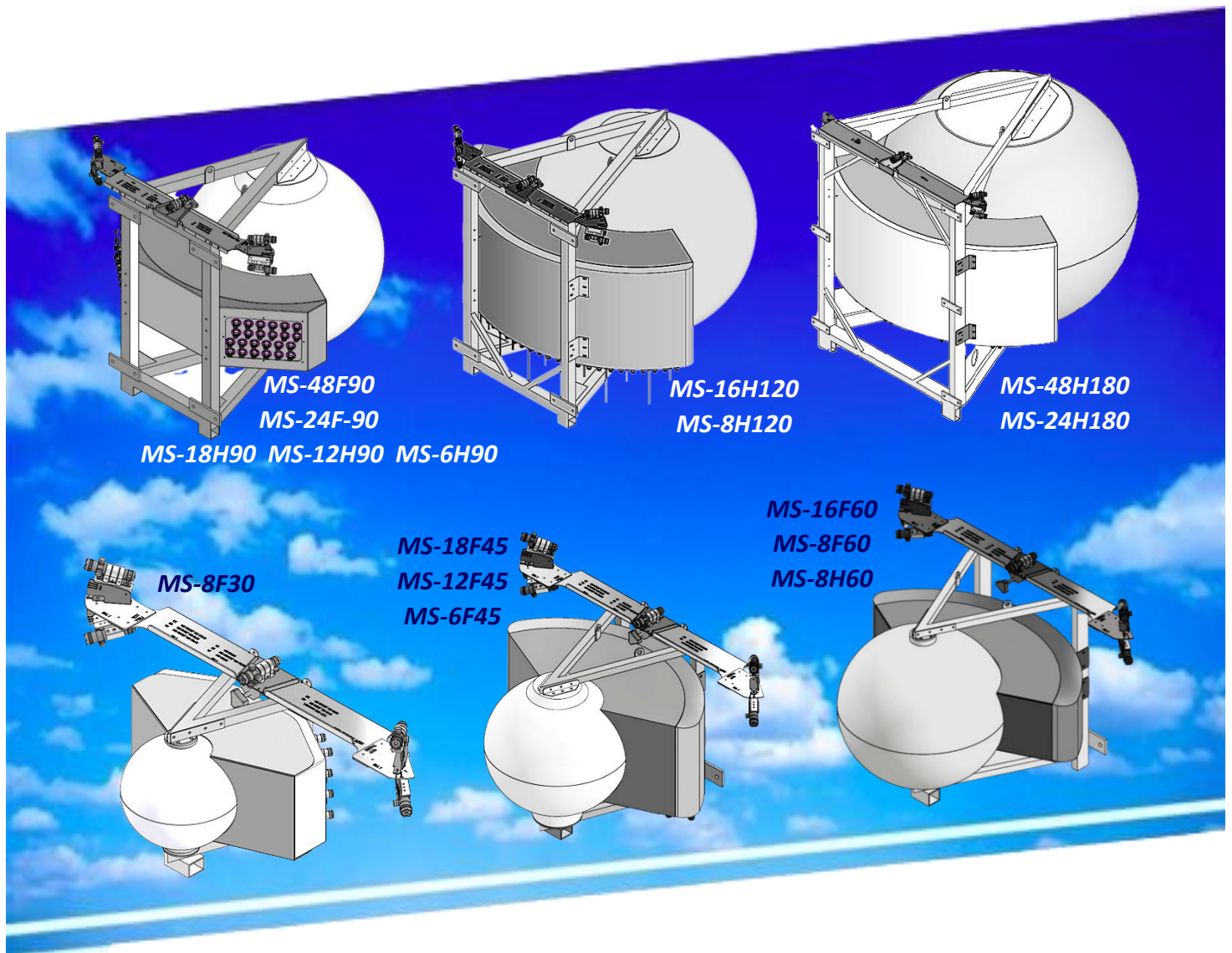


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Revision History:

<u>Date</u>	<u>Description</u>	<u>Rev By</u>	<u>Check By</u>	<u>Rev no</u>
27-Jan-2024	Initial Release	RL	Pavel	0
26-Sep-2024	Document and part renaming and general update	RL	Pavel	1
02-Jan-2025	Add more comprehensive information and illustration picture	RL	Pavel	2
20-Jun-2025	Re-organize the guide by model configuration	RL	Pavel	3

1.00 Applicable Antenna Models

A) 180 cm Lens

1	MS-48H180
2	MS-24H180

B) 120 cm Lens

3	MS-16H120
4	MS-8H120

C) 90 cm Lens

5	MS-48F90
6	MS-24F90
7	MS-18H90
8	MS-12H90
9	MS-6H90

D) 60 cm Lens

10	MS-16F60
11	MS-8F60
12	MS-8H60

E) 45 cm Lens

13	MS-18F45
14	MS-12F45
15	MS-6F45

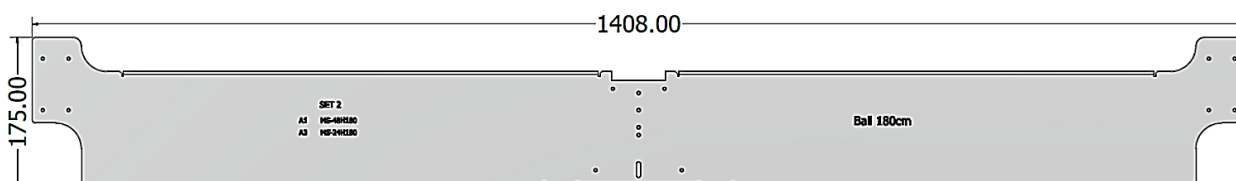
F) 30 cm Lens

16	MS-8F30
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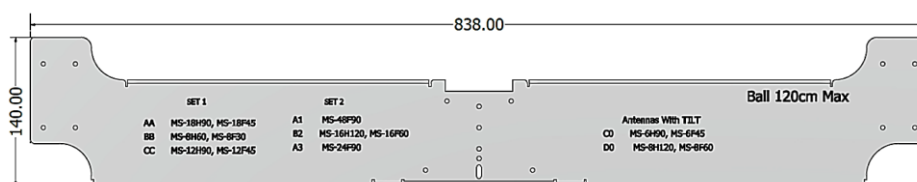
2.00 SLP: Parts and Description

2.10 Main Base Plate

2.11 180cm Main base plate **"Ball 180cm"** (L=1408mm, Engraved with WHITE text)
(For 2 Models: MS-48H180, MS-24H180)



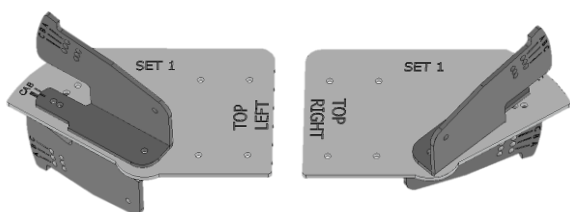
2.12 120cm Main base plate **"Ball 120cm Max"** (L=838mm, Engraved with WHITE text)
(For 14 Models: Lens from 30cm to 120cm Antenna.)



2.20 Pre-Setting Plate

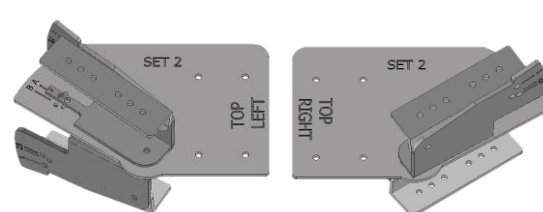
"SET 1" Plate - 6 Models

2.21 (For MS-18H90, MS-18F45, MS-8H60, MS-8F30, MS-12H90, MS-12F45)



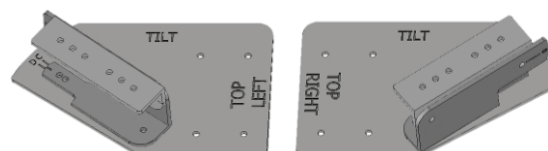
"SET 2" Plate - 6 Models

2.22 (For MS-48H180, MS-48F90, MS-16H120, MS-16F60, MS-24H180, MS-24F90)



"TILT" Plate - 4 Models

2.23 (For MS-6H90, MS-6F45, MS-8H120, MS-8F60)



2.30 Laser Pointer and Beds.

2.31 "PINTY" Laser pointer. (Not included)



2.32 "BUGLEMAN" Laser bed. (Not Included)



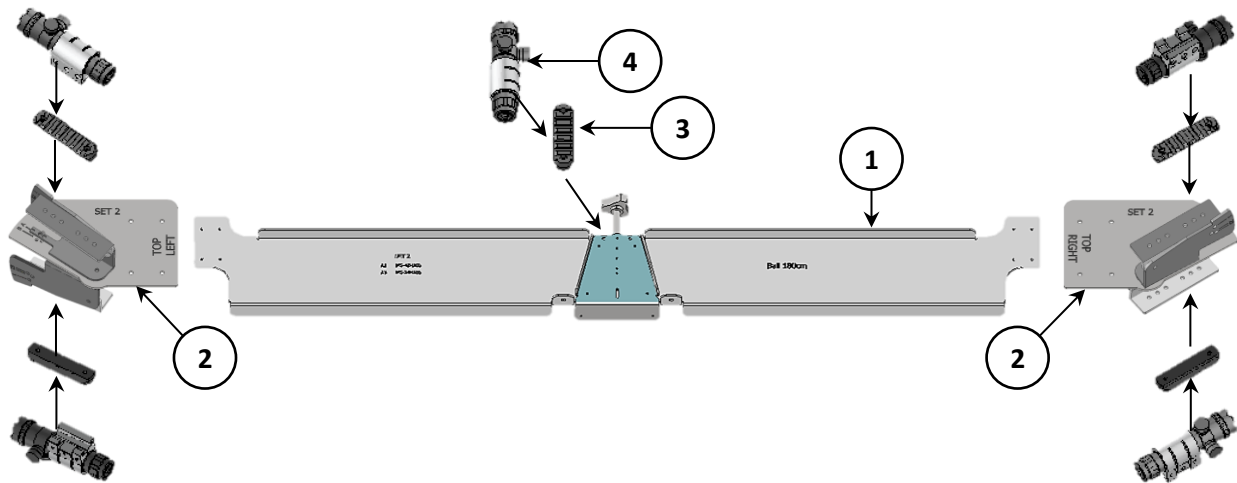
3.00 SLP: Parts Selection and Assembly

3.10 Typical example of Laser Pointer Assembly (Sample Model: **MS-48H180**)

3.11 Select main base plate **"Ball 180cm"**

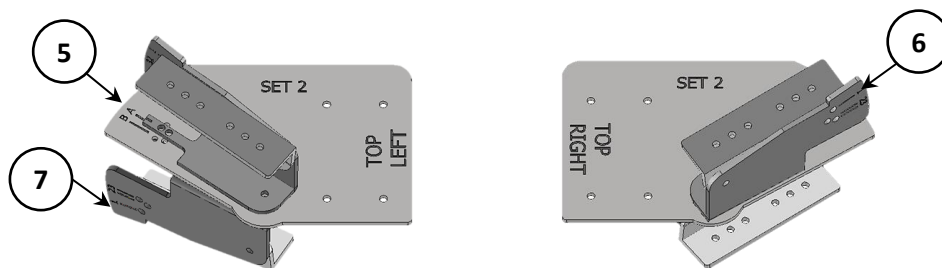
3.12 Select Pre-Setting plate **"SET 2"**

- ① Main base plate: **"Ball 180cm"**.
- ② Secure the **"SET 2"** plate onto the **"Ball 180cm"** base plate.
- ③ Install all **5 Laser beds** securely.
- ④ Install all **5 Lasers pointers** in place.

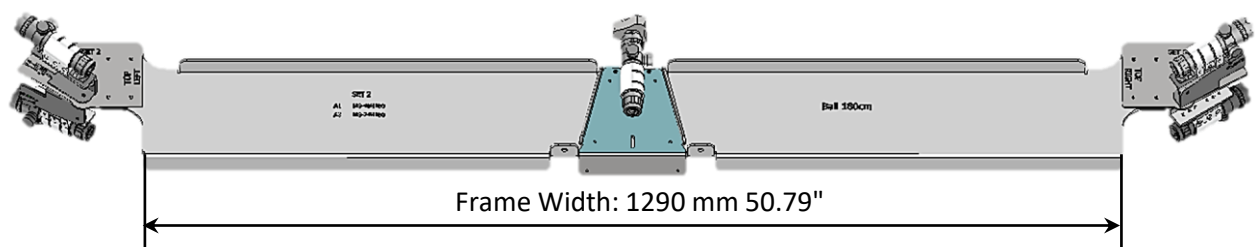


3.20 **"SET 2"** Plate Setting

- ⑤ Adjust to position **"A"** and securely fasten it.
- ⑥ Adjust the top tilting bracket to position **"1"** and securely fasten it.
- ⑦ Adjust the bottom tilting bracket to position **"1"** and securely fasten it.



3.30 Main base plate: **Frame Marking**

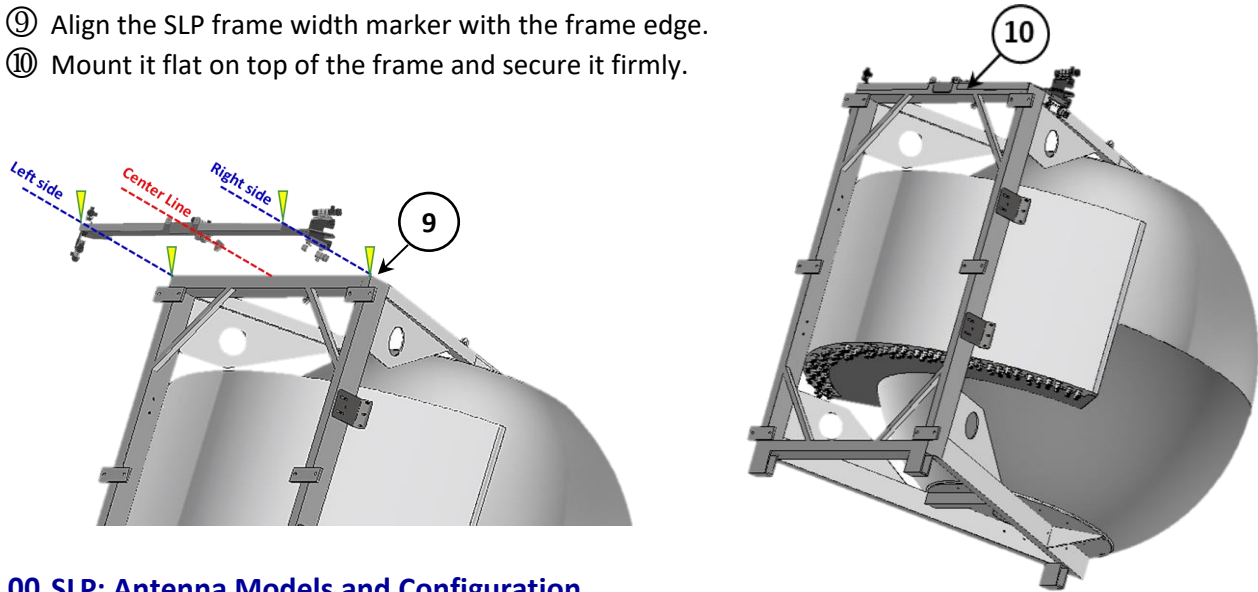


4.00 Laser Pointer: Safety Information and User Guide

- ⚠ **Never** point this device at reflective surfaces to avoid unintended light dispersion.
- ⚠ **Use this device** only in accordance with all applicable local and national laser laws and regulations.
- ⚠ **Never** aim the laser directly at an aircraft or at the eyes of any person or animal. Avoid viewing the laser through magnified or focused optics.
- This product** is resistant to standard precipitation. Avoid exposing it to pressurized water or allowing its internal electronics to become wet. If moisture exposure occurs, immediately remove the batteries and allow all components to dry completely before resuming use.

5.00 SLP: Lifting and Mounting

- ⚠ Workplace safety and health compliance measures must be followed when performing 'Work-At-Height' tasks.
- ⚠ Only certified personnel should use appropriate equipment, safety harnesses, and tools to perform the task safely.
- ⑨ Align the SLP frame width marker with the frame edge.
- ⑩ Mount it flat on top of the frame and secure it firmly.

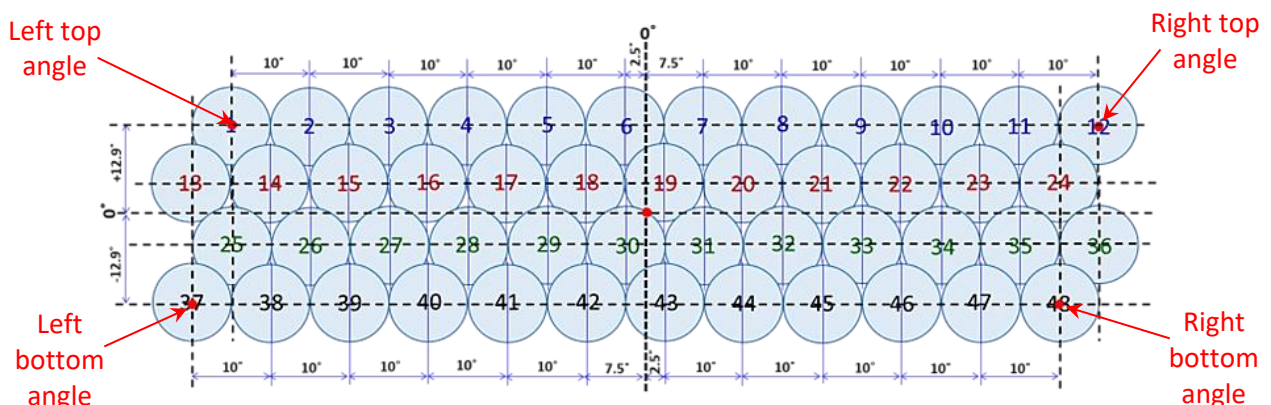


6.00 SLP: Antenna Models and Configuration

6.10 Antenna model and SLP parts configuration chart

no	Model	Main base plate	Pre-setting plate	Frame width (mm/inch)	Base plate setting	Tilt bracket setting	Left top (°)	Right top (°)	Left bottom (°)	Right bottom (°)	Tilt-up (°)	Tilt-down (°)
1	MS-48H180	Ball 180cm	SET 2	1290.00/50.79"	"A"	"1"	-52.5°	+57.5°	-57.5°	+52.5°	+12.9°	-12.9°
2	MS-24H180	Ball 180cm	SET 2	1290.00/50.79"	"A"	"3"	-52.5°	+57.5°	-57.5°	+52.5°	+4.3°	-4.3°
3	MS-16H120	Ball 120cm Max	SET 2	720.00/28.35"	"B"	"2"	-56.2°	+48.8°	-48.8°	+56.2°	+6.5°	-6.5°
4	MS-8H120	Ball 120cm Max	TILT	720.00/28.35"	"D"	"0"	-52.5°	+52.5°				
5	MS-48F90	Ball 120cm Max	SET 2	518.00/20.39"	"A"	"1"	-52.5°	+57.5°	-57.5°	+52.5°	+12.9°	-12.9°
6	MS-24F90	Ball 120cm Max	SET 2	518.00/20.39"	"A"	"3"	-52.5°	+57.5°	-57.5°	+52.5°	+4.3°	-4.3°
7	MS-18H90	Ball 120cm Max	SET 1	620.00/24.41"	"A"	"A"	-55.0°	+45.0°	-55.0°	+45.0°	+17.0°	-17.0°
8	MS-12H90	Ball 120cm Max	SET 1	535.00/21.06"	"C"	"C"	-55.0°	+45.0°	-45.0°	+55.0°	+8.7°	-8.7°
9	MS-6H90	Ball 120cm Max	TILT	612.00/24.09"	"C"	"0"	-50.0°	+50.0°				
10	MS-16F60	Ball 120cm Max	SET 2	466.80/18.38"	"B"	"2"	-56.3°	+48.8°	-48.8°	+56.3°	+6.5°	-6.5°
11	MS-8F60	Ball 120cm Max	TILT	466.80/18.38"	"D"	"0"	-52.5°	+52.5°				
12	MS-8H60	Ball 120cm Max	SET 1	466.80/18.38"	"B"	"B"	-52.5°	+37.5°	-37.5°	+52.5°	+13.0°	-13.0°
13	MS-18F45	Ball 120cm Max	SET 1	350.80/13.81"	"A"	"A"	-55.0°	+45.0°	-55.0°	+45.0°	+17.0°	-17.0°
14	MS-12F45	Ball 120cm Max	SET 1	350.80/13.81"	"C"	"C"	-55.0°	+45.0°	-45.0°	+55.0°	+8.7°	-8.7°
15	MS-6F45	Ball 120cm Max	TILT	350.80/13.81"	"C"	"0"	-50.0°	+50.0°				
16	MS-8F30	Ball 120cm Max	SET 1	220.00/8.66"	"B"	"B"	-52.5°	+37.5°	-37.5°	+52.5°	+13.0°	-13.0°

6.20 Antenna Beam Projection and Position Guide (Sample of MS-48H180)



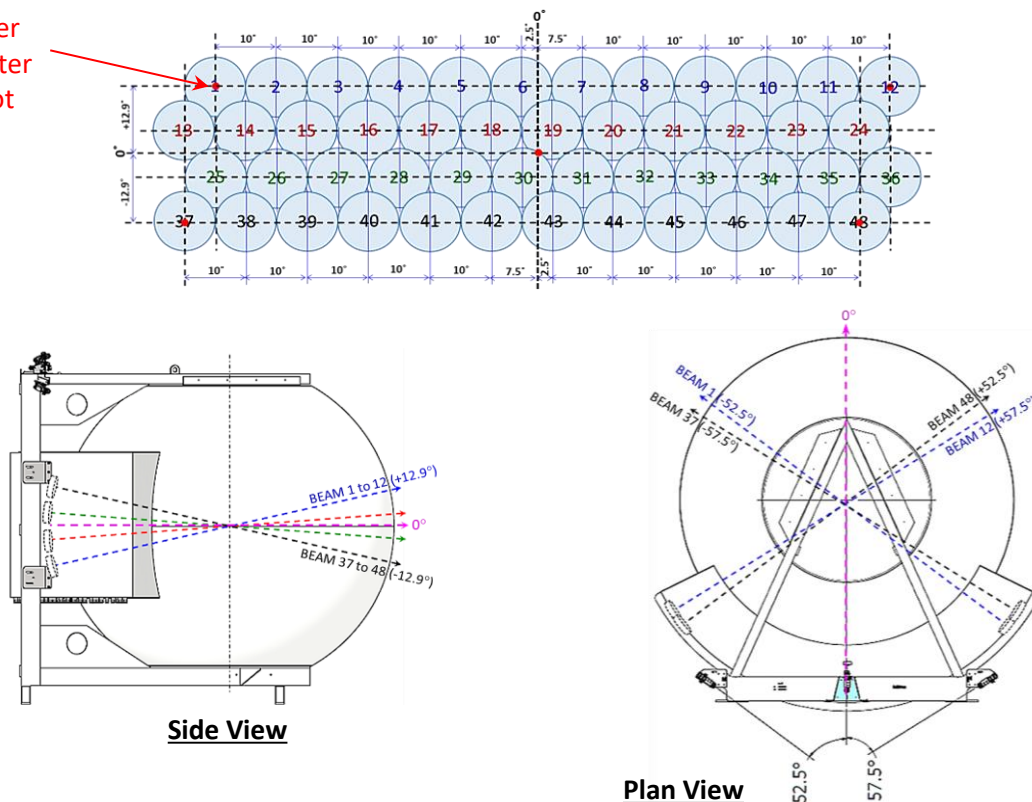
7.00 SLP: Antenna Models Positioning Guide

1 MS-48H180 SLP Configuration

(Frame Width: 1290mm, 50.79")

Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"A"	"1"	-52.5°	+57.5°	-57.5°	+52.5°	+12.9°	-12.9°

Laser pointer spot

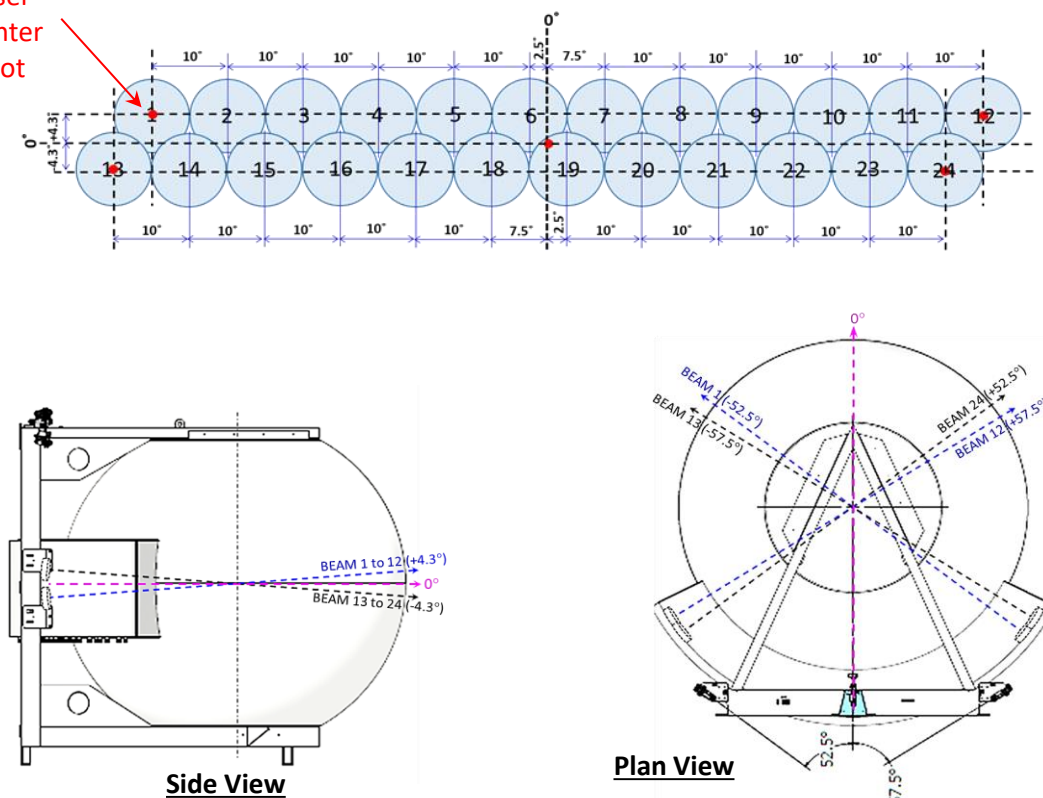


2 MS-24H180 SLP Configuration

(Frame Width: 1290mm, 50.79")

Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"A"	"3"	-52.5°	+57.5°	-57.5°	+52.5°	+4.3°	-4.3°

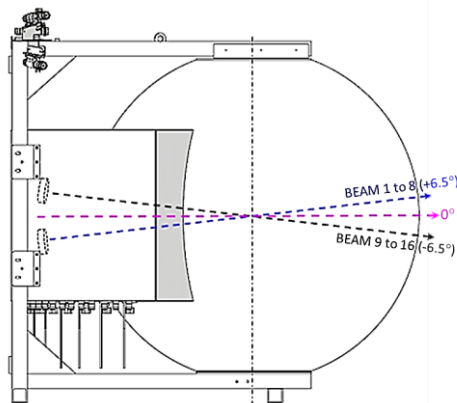
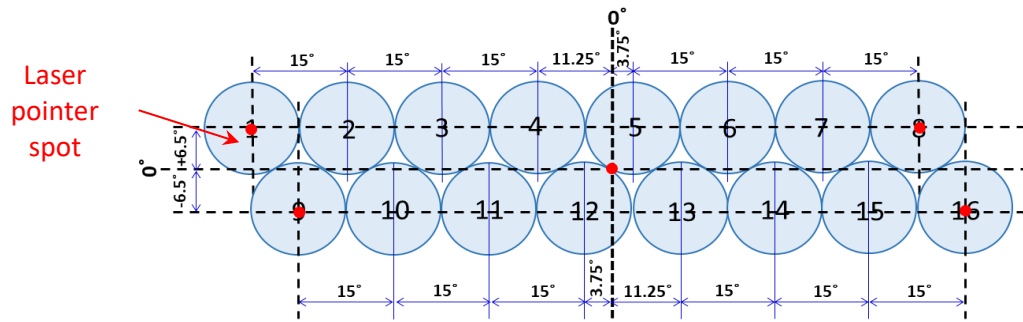
Laser pointer spot



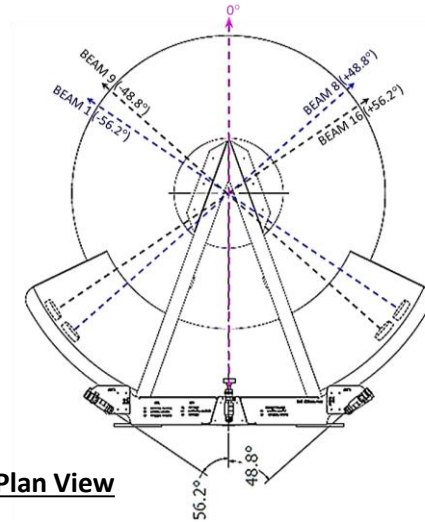
3 MS-16H120 SLP Configuration

(Frame Width: 720mm, 28.35")

Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"B"	"2"	-56.2°	+48.8°	-48.8°	+56.2°	+6.5°	-6.5°



Side View

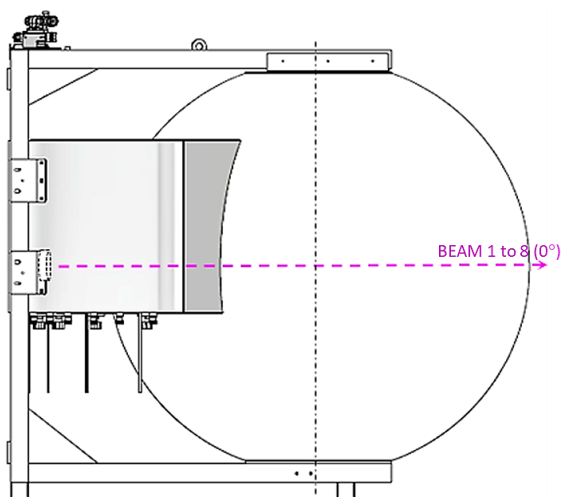
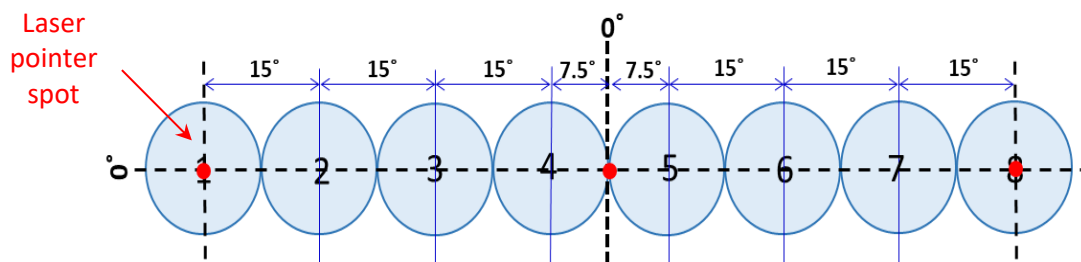


Plan View

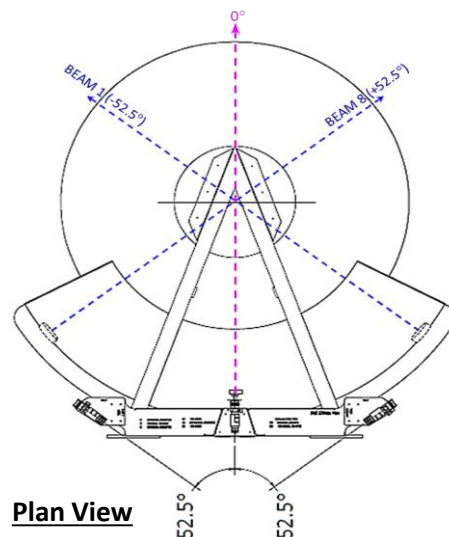
4 MS-8H120 SLP Configuration

(Frame Width: 720mm, 28.35")

Base Plate Setting	Tilt Bracket Setting	Left Top Angle	Right Top Angle
"D"	"0"	-52.5°	+52.5°



Side View



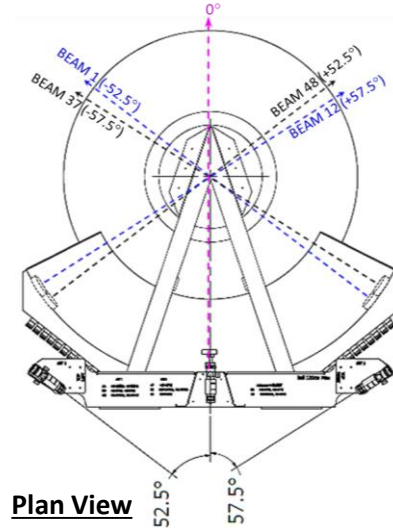
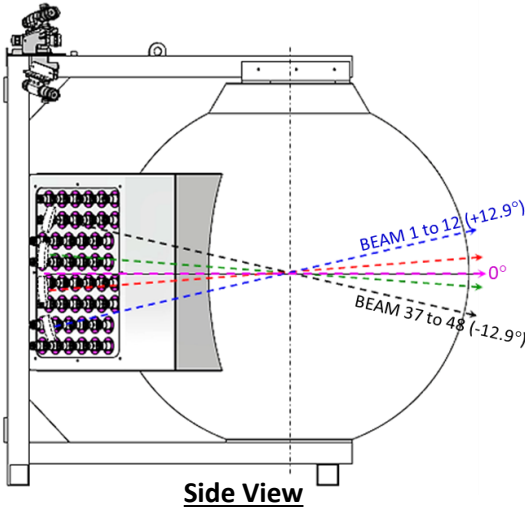
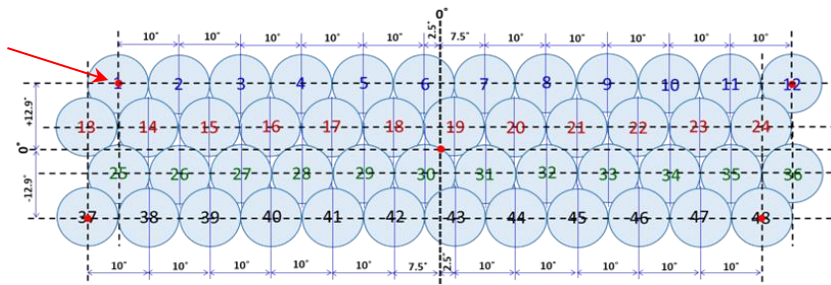
Plan View

5 MS-48F90 SLP Configuration

(Frame Width: 518mm, 20.39")

Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"A"	"1"	-52.5°	+57.5°	-57.5°	+52.5°	+12.9°	-12.9°

Laser pointer spot

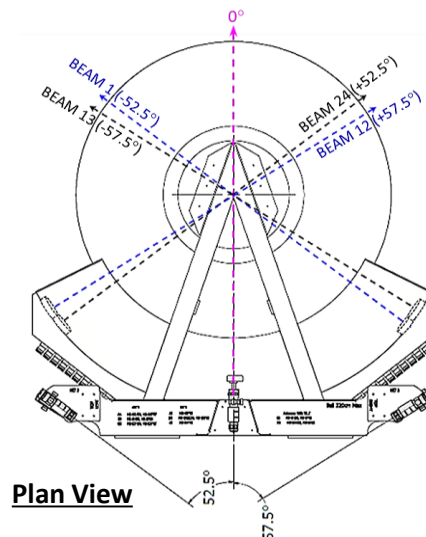
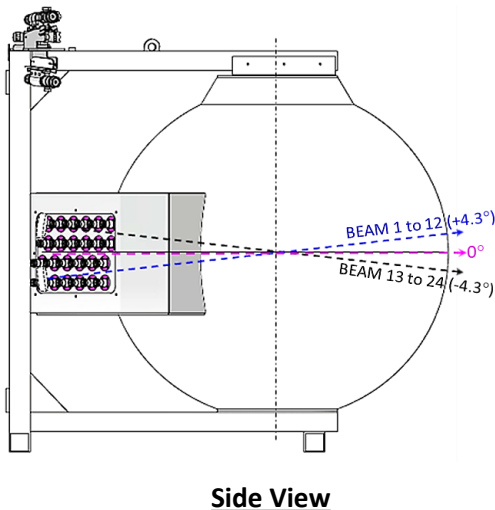
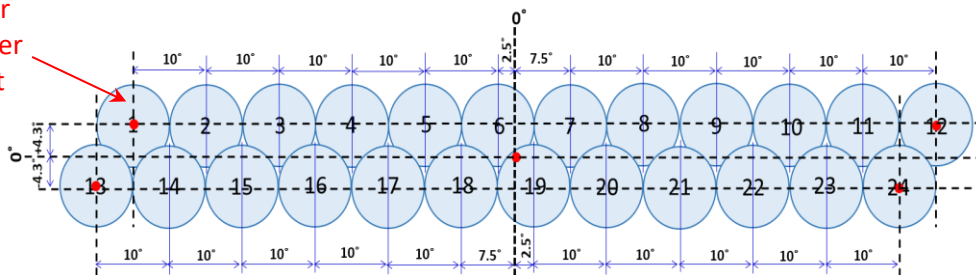


6 MS-24F90 SLP Configuration

(Frame Width: 518mm, 20.39")

Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"A"	"3"	-52.5°	+57.5°	-57.5°	+52.5°	+4.3°	-4.3°

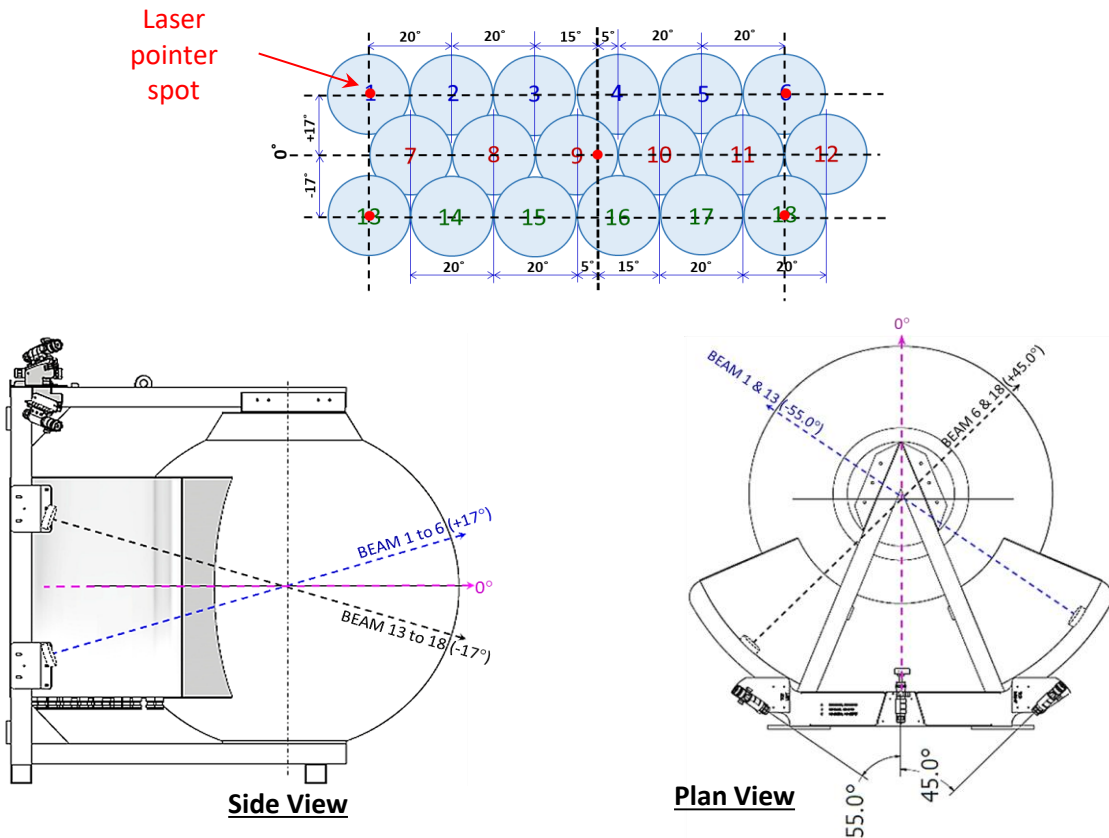
Laser pointer spot



7 MS-18H90 SLP Configuration

(Frame Width: 620.00mm, 24.41")

Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"A"	"A"	-55.0°	+45.0°	-55.0°	+45.0°	+17°	-17°

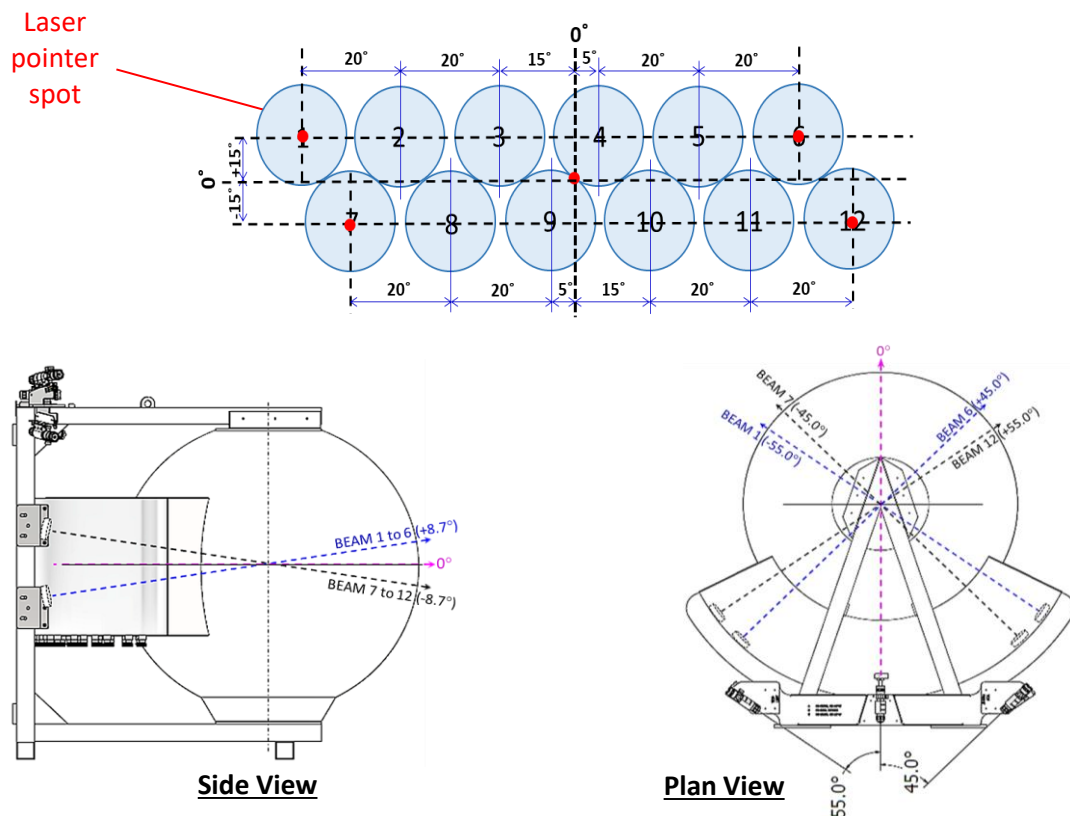


8 MS-12H90 SLP Configuration

(Frame Width: 535mm, 21.06")

Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"C"	"C"	-55.0°	+45.0°	-45.0°	+55.0°	+8.7°	-8.7°

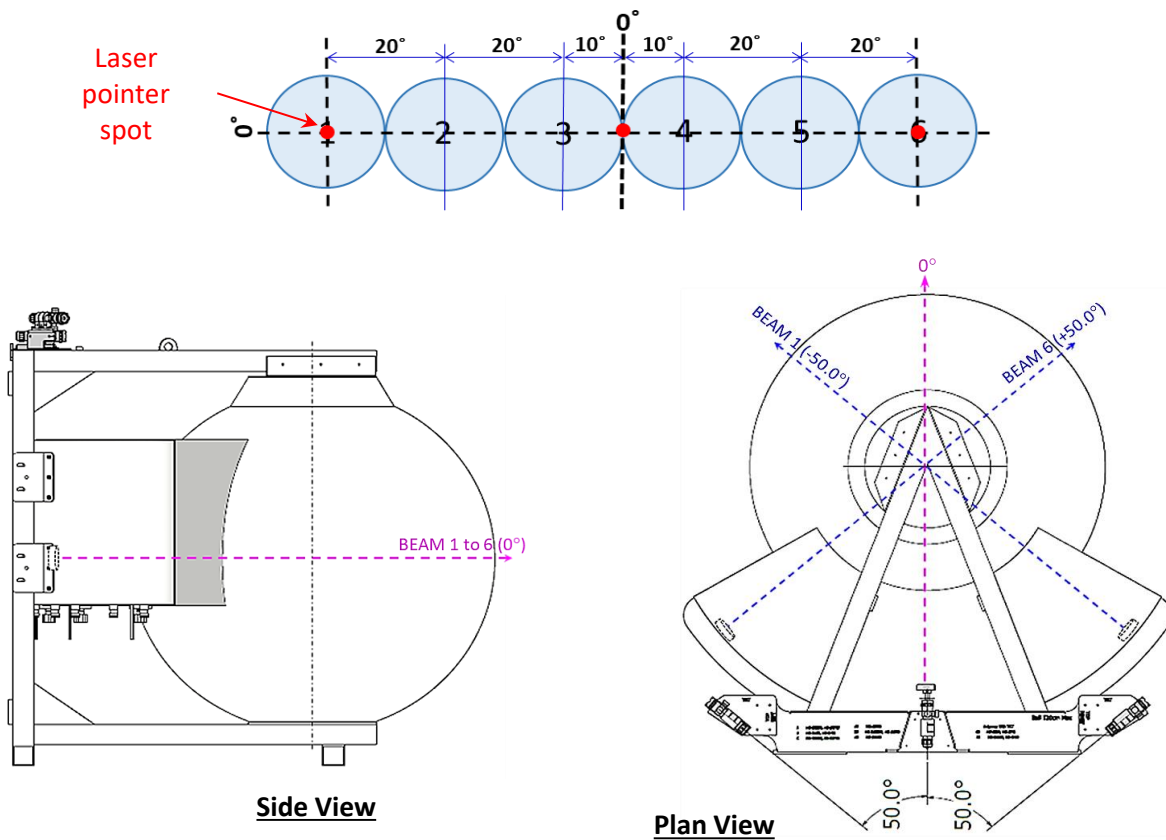
(** **Note** : MS-12H90 Tilt angle need to LOCK at +8.7 ° & -8.7 ° for laser spot positioning)



9 MS-6H90 SLP Configuration

(Frame Width: 612.0mm, 24.09")

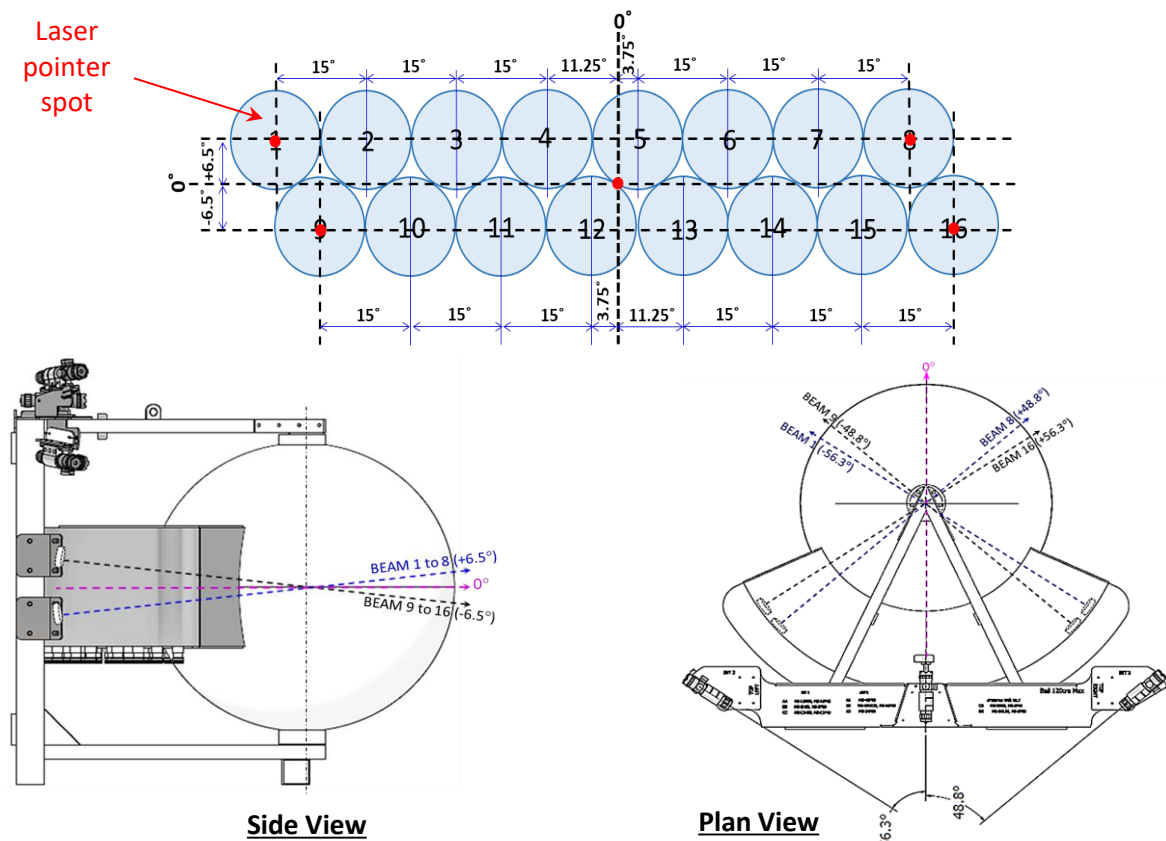
Base Plate Setting	Tilt Bracket Setting	Left Top Angle	Right Top Angle
"C"	"0"	-50.0°	+50.0°



10 MS-16F60 SLP Configuration

(Frame Width: 466.80mm, 18.38")

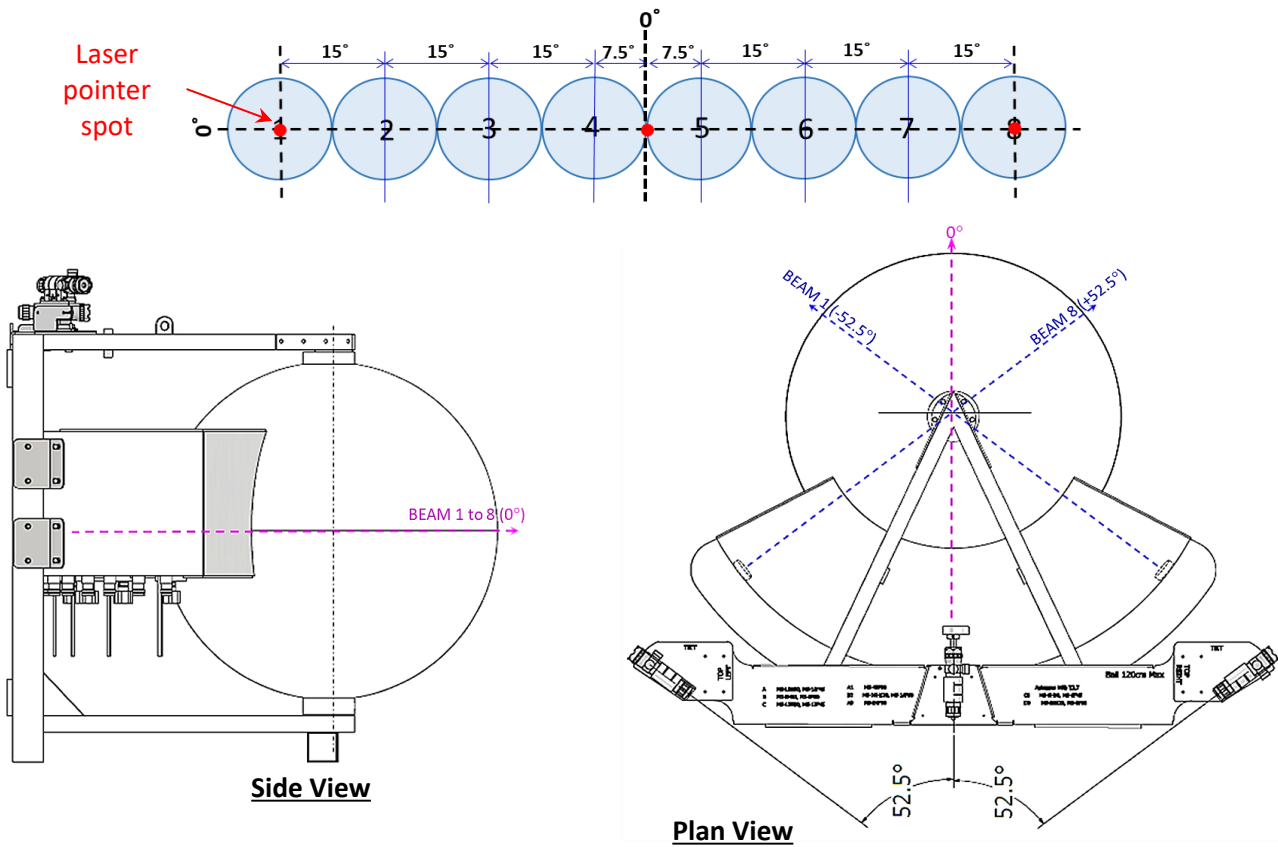
Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"B"	"2"	-56.3°	+48.8°	-48.8°	+56.3°	+6.5°	-6.5°



11 MS-8F60 SLP Configuration

(Frame Width: 466.80mm, 18.38")

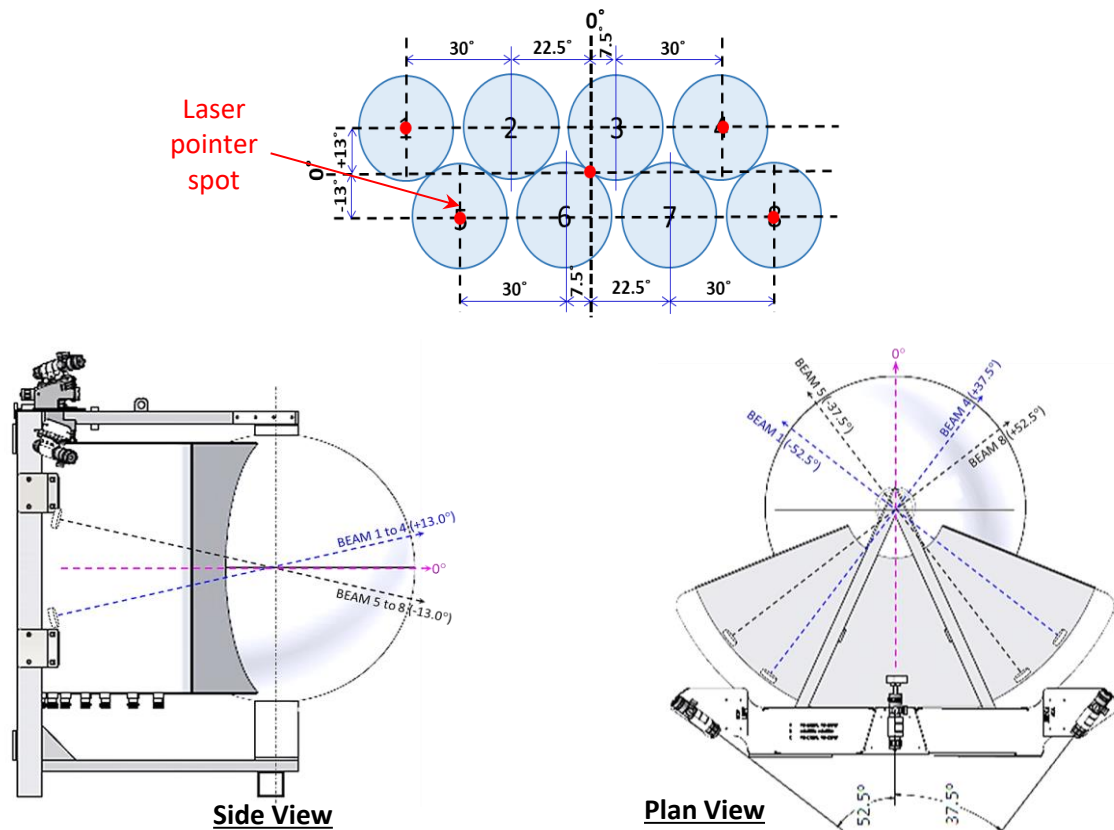
Base Plate Setting	Tilt Bracket Setting	Left Top Angle	Right Top Angle
"D"	"0"	-52.5°	+52.5°



12 MS-8H60 SLP Configuration

(Frame Width: 466.80mm, 18.38")

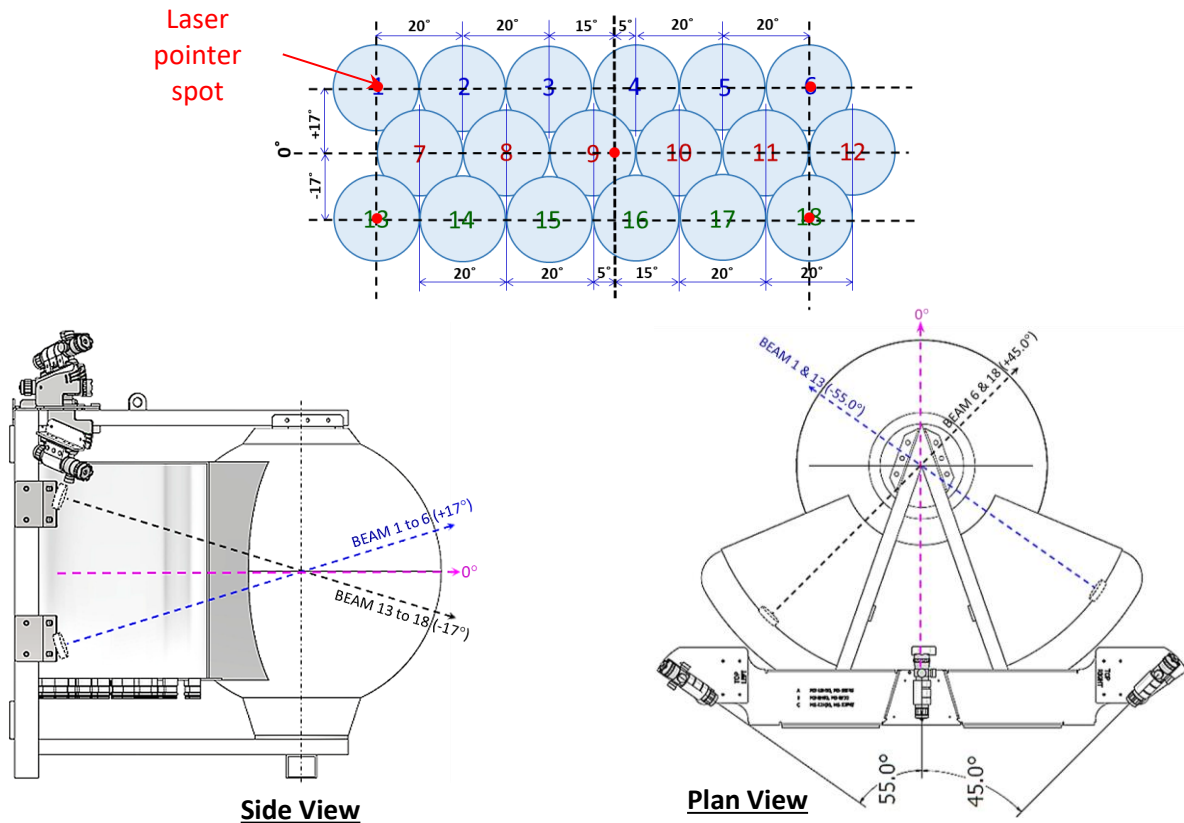
Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"B"	"B"	-52.5°	+37.5°	-37.5°	+52.5°	+13°	-13°



13 MS-18F45 SLP Configuration

(Frame Width: 350.80mm, 13.81")

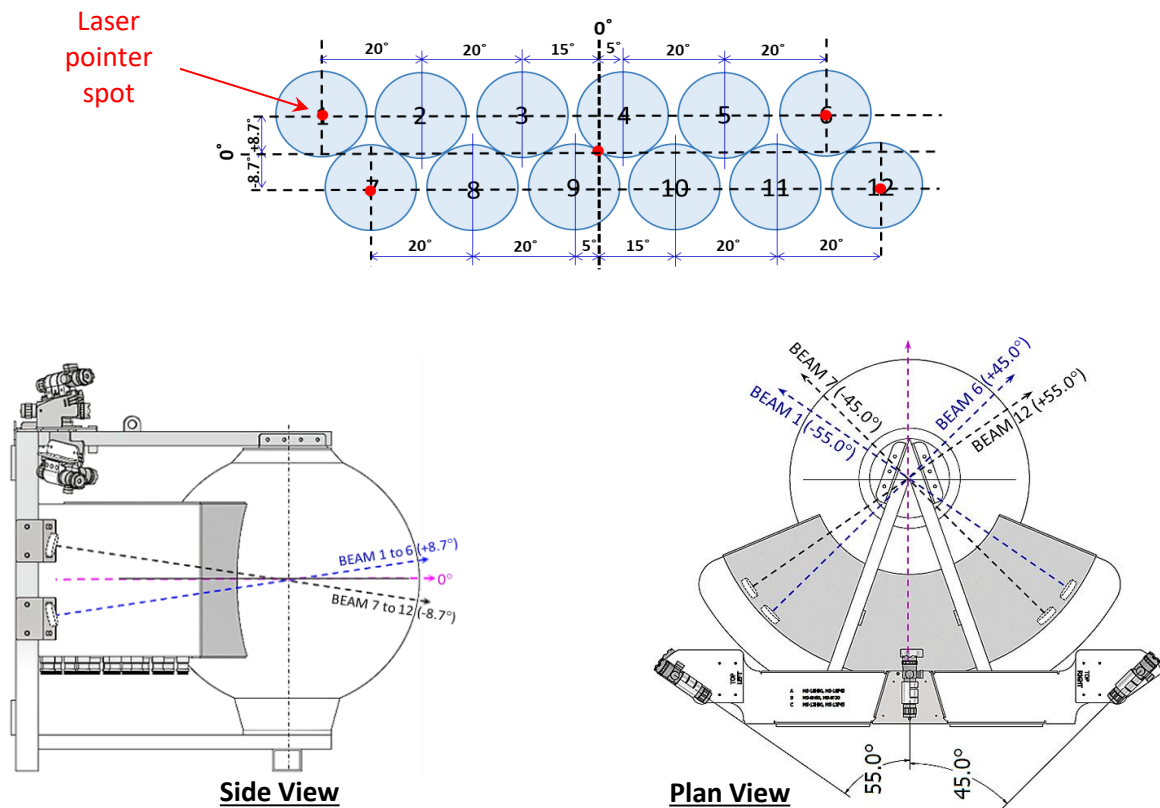
Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"A"	"A"	-55.0°	+45.0°	-55.0°	+45.0°	+17°	-17°



14 MS-12F45 SLP Configuration

(Frame Width: 350.80mm, 13.81")

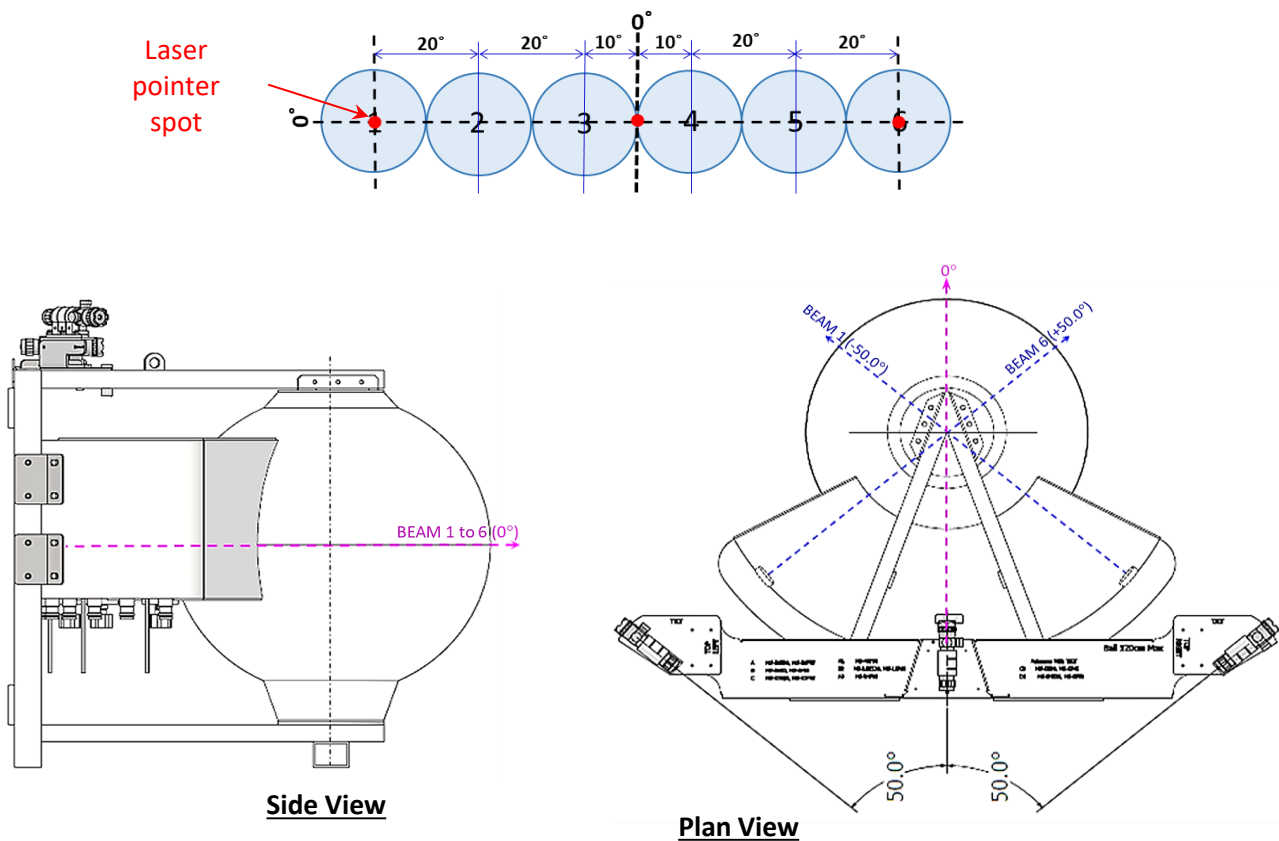
Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"C"	"C"	-55.0°	+45.0°	-45.0°	+55.0°	+8.7°	-8.7°



15 MS-6F45 SLP Configuration

(Frame Width: 350.80mm, 13.81")

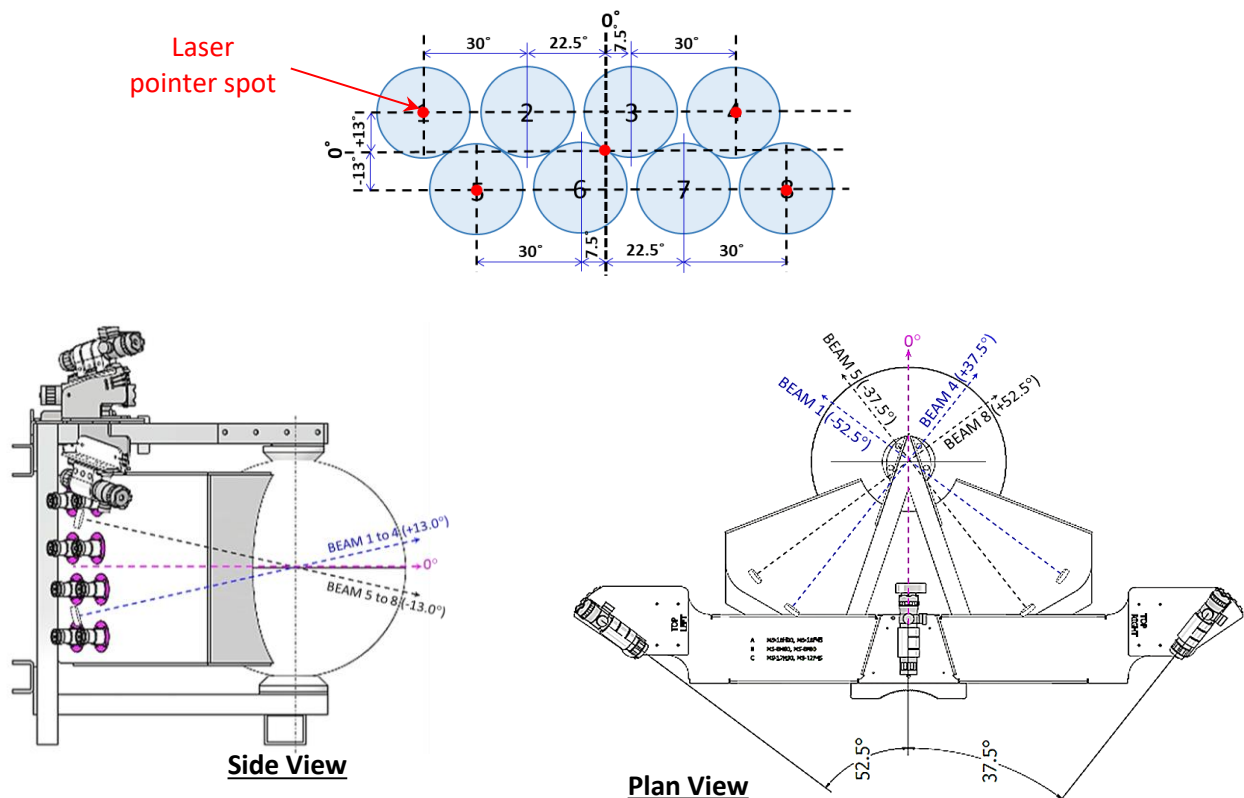
Base Plate Setting	Tilt Bracket Setting	Left Top Angle	Right Top Angle
"C"	"0"	-50.0°	+50.0°



16 MS-8F30 SLP Configuration

(Frame Width: 220.00mm, 8.66")

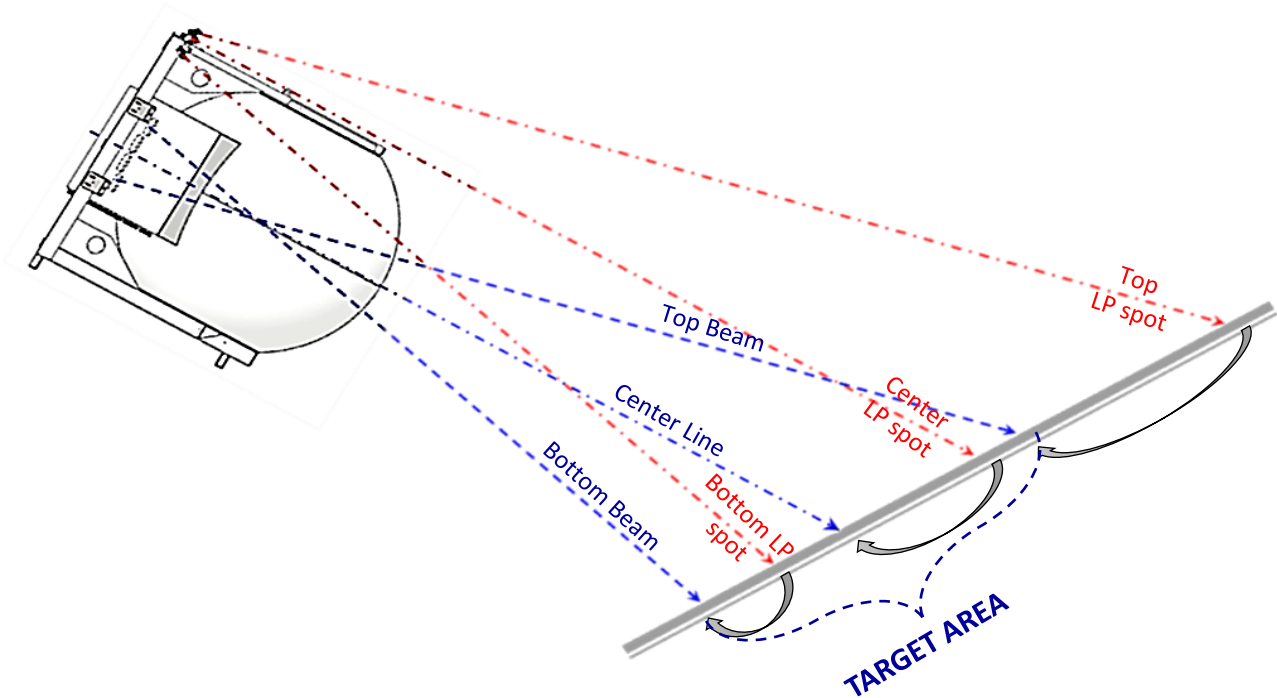
Base Plate Setting	Tilt Bkt Setting	Left Top Angle	Right Top Angle	Left Btm Angle	Right Btm Angle	Tilt-Up Angle	Tilt-Down Angle
"B"	"B"	-52.5°	+37.5°	-37.5°	+52.5°	+13°	-13°



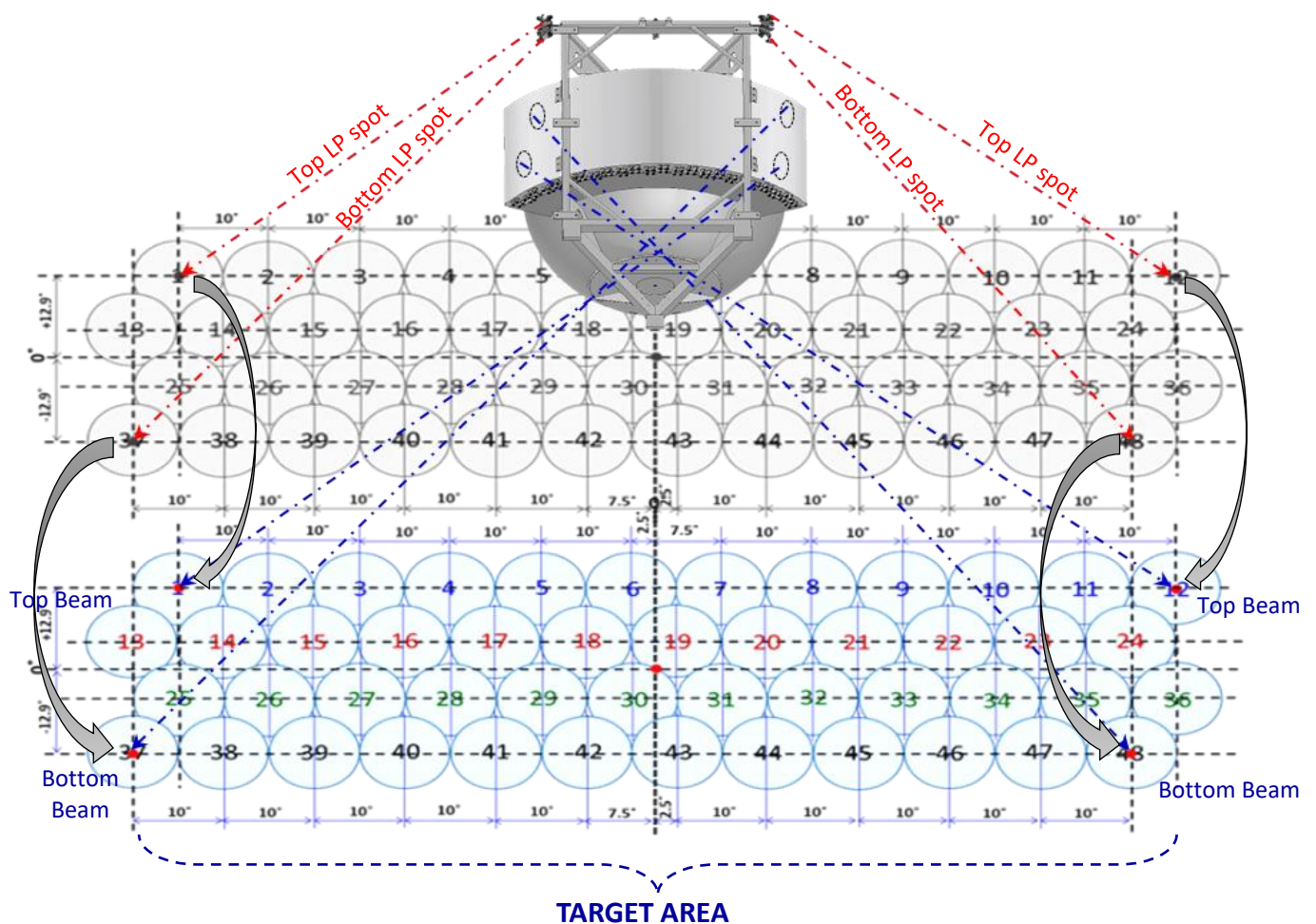
8.00 SLP: Antenna Positioning

8.10 Example of MS-48H180

8.11 Side view



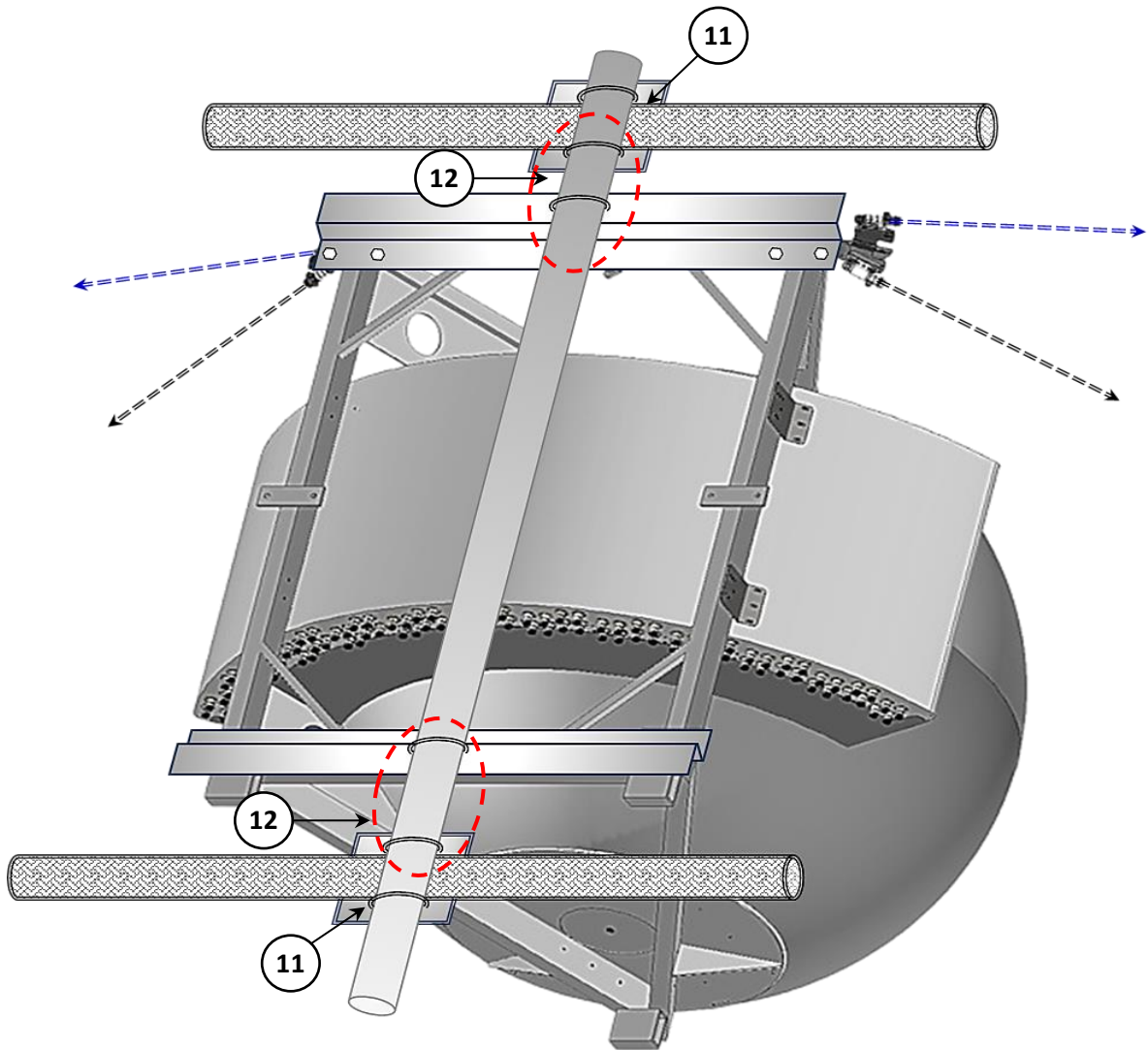
8.12 Rear view



** Picture for illustration purpose

8.20 Position confirmed and secure with marking

- ⑪ Once position confirmed, secure the antenna bracket.
- ⑫ Mark the position and record as a reference.



Note:

- ✓ This laser positioning involves a mechanical tilting process, which differs from antenna RET (Remote Electrical Tilting) or manual element tilting.
- ✓ Repeat the same process for positioning the other antenna.