

# **MATSING<sup>®</sup>**

LENS TECHNOLOGY ENABLED

## **MS-LSA-SLP-2 Mounting Guide**

*(Large sphere antenna stadium laser pointer for 16 models)*



# Table of Contents

## 1.00 SLP (Stadium Laser Pointer ) antenna models over view

- 1.10 Applicable antenna models
- 1.30 120cm lens antenna
- 1.50 60cm lens antenna
- 1.70 30cm lens antenna
- 1.20 180cm lens antenna
- 1.40 90cm lens antenna
- 1.60 45cm lens antenna
- 1.80 Antenna mechanical and SLP table

## 2.00 Stadium laser pointer (SLP) overview

- 2.10 SLP Description
  - 2.11 **5 laser pointers** fitting
  - 2.13 **"Ball 180cm"** Center top laser
  - 2.15 **"SET 1"** Left and right laser
  - 2.17 **"TILT"** Left and right laser
  - 2.12 **3 laser pointers** fitting
  - 2.14 **"Ball 120cm MAX"** Center top laser
  - 2.16 **"SET 2"** Left and right laser
- 2.20 SLP pre-assembly parts detail
  - 2.21 **"Ball 180cm "** - Main base plate  
**"SET 1 "** - Left and right base plate
  - 2.22 **"Ball 120cm Max "** - Main base plate  
**"SET 2 "** - Left and right base plate
  - 2.23 **"A,B,C "** - Adjustable base plate (x4)  
Tilting bracket (x4)  
**"TILT"** - Left and right base plate
  - 2.24 **"1,2,3 "** - Adjustable base plate (x4)  
Tilting bracket (x4)
  - 2.25 **"O "** - Adjustable base plate (x2)  
Tilting bracket (x2)

## 3.00 SLP General assembly guide

- 3.10 SLP Model's assembly guide table
- 3.20 Tools, laser parts and fittings
- 3.21 Tools
- 3.22 "PINTY" Laser pointer
- 3.23 "BUGLEMAN" Picatinny rails
- 3.24 Parts and fittings
- 3.30 **5 laser pointers** antenna model **"MS-18H90"** SLP assembly guide
  - Step 1: Main base plate and left and right plate assembly
  - Step 2: Center laser picatinny rail assembly
  - 3.31 Step 3: Top left and right laser picatinny rail assembly
  - Step 4: Bottom left and right laser picatinny rail assembly
  - 3.32 Center laser pointer assembly
  - 3.33 Left and right laser pointer assembly
  - 3.34 Assembly completed
- 3.40 **3 laser pointers** antenna model **"MS-8H120"** SLP assembly guide
  - Step 1: Main base plate and left and right plate assembly
  - 3.41 Step 2: Center laser picatinny rail assembly
  - Step 3: Left and right laser picatinny rail assembly
  - 3.42 Center laser pointer assembly
  - 3.43 Left and right laser pointer assembly
  - 3.44 Assembly completed
  - 3.50 Final assembled and configured SLP for 16 antenna model

## 4.00 SLP mounting on antenna general guide

- 4.10 Safety caution and planning
- 4.20 SLP and antenna model positioning guide
  - 4.21 **"Ball 180cm"** Main base plate model guide
  - 4.22 **"Ball 120cm Max"** Main base plate model guide

- 4.30 SLP mounting
  - 4.31 SLP and frame alignment
  - 4.33 SLP center line check
  - 4.35 Tighten SLP onto the frame
- 4.32 SLP aligned and seated flat in position
- 4.34 Frame center line label visible
- 4.36 Final check ensure all parts secured

## 5.00 Laser pointer user guide

- 5.10 Safety information
- 5.20 Specifications
- 5.30 Product diagram
- 5.40 Maintenance information

## 6.00 SLP on antenna positioning general guide

- 6.10 SLP antenna model
- 6.20 Antenna model beam direction
 

1 (AA) MS-18H90	2 (AA) MS-18F45	3 (BB) MS-8H60	4 (BB) MS-8F30
5 (CC) MS-12H90	6 (CC) MS-12F45	7 (A1) MS-48H180	8 (A1) MS-48F90
9 (B2) MS-16H120	10 (B2) MS-16F60	11 (A3) MS-24H180	12 (A3) MS-24F90
13 (C0) MS-6H90	14 (C0) MS-6F45	15 (D0) MS-8H120	16 (D0) MS-8F60
- 6.30 **5 laser pointers** positioning guide
  - 6.31 5 laser pointer SLP configure table
  - 6.32 MS-48H180 Assembled with "Ball 180cm" base plate and "A1" setting
  - 6.33 Horizontal rear view beam direction
  - 6.34 Plan view beam direction
  - 6.35 Side view beam direction
  - 6.36 On-site positioning guide from side view
  - 6.37 On-site positioning guide from rear view
  - 6.38 Antenna position confirmed and secure with marking
- 6.40 **3 laser pointers** positioning guide
  - 6.41 3 laser pointer SLP configure table
  - 6.42 MS-8H120 Assembled with "Ball 120cm Max" base plate and "D0" setting
  - 6.43 Horizontal rear view beam direction
  - 6.44 Plan view beam direction
  - 6.45 Side view beam direction
  - 6.46 On-site positioning guide from side view
  - 6.47 On-site positioning guide from rear view
  - 6.48 Antenna position confirmed and secure with marking

### 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

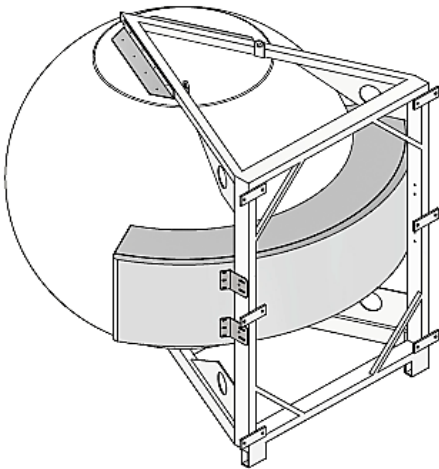
## 1.00 SLP (Stadium Laser Pointer ) antenna models over view

### 1.10 Applicable antenna models

1	MS-18H90	5	MS-12H90	9	MS-16H120	13	MS-6H90
2	MS-18F45	6	MS-12F45	10	MS-16F60	14	MS-6F45
3	MS-8H60	7	MS-48H180	11	MS-24H180	15	MS-8H120
4	MS-8F30	8	MS-48F90	12	MS-24F90	16	MS-8F60

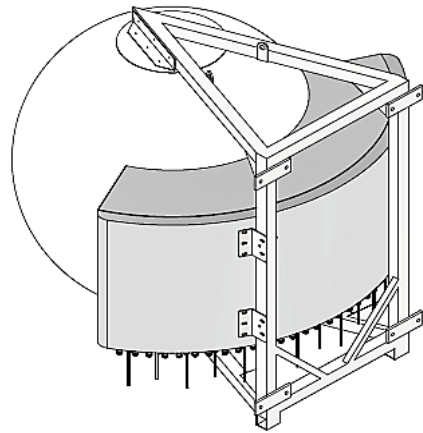
### 1.20 180cm lens antenna

Model	Dimensions (cm)			Weight (kg)
	Height	Width	Depth	
MS-48H180	187.4	206.6	207.2	251.4
MS-24H180	187.9	206.6	207.2	241.0



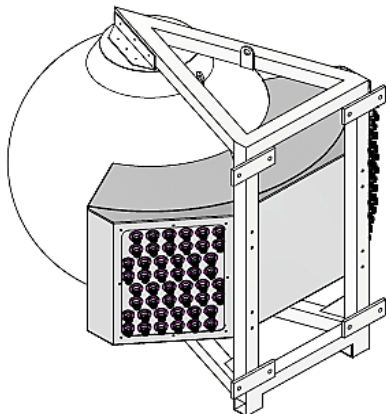
### 1.30 120cm lens antenna

Model	Dimensions (cm)			Weight (kg)
	Height	Width	Depth	
MS-16H120	128.2	149.2	142.5	87.2
MS-8H120	128.2	145.7	142.5	80.7



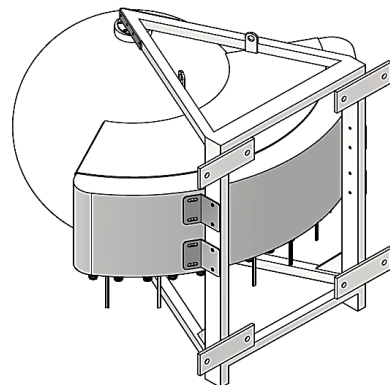
### 1.40 90cm lens antenna

Model	Dimensions			Weight (kg)
	Height	Width	Depth	
MS-48F90	105.4	108.7	110.0	54.2
MS-24F90	105.4	108.7	110.0	43.9
MS-18H90	105.4	118.4	110.0	56.2
MS-12H90	105.4	122.6	114.7	54.9
MS-6H90	105.4	116.6	113.4	51.4



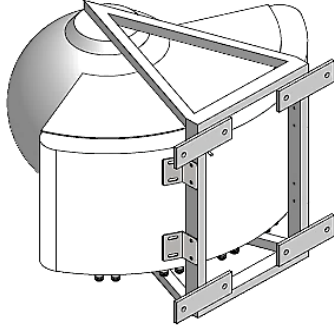
### 1.50 60cm lens antenna

Model	Dimensions			Weight (kg)
	Height	Width	Depth	
MS-16F60	72.6	88.8	80.0	21.9
MS-8H60	81.6	92.7	80.0	26.6
MS-8F60	72.6	86.1	80.0	20.8



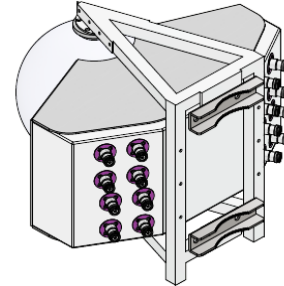
1.60 45cm lens antenna

Model	Dimensions			Weight (kg)
	Height	Width	Depth	
MS-18F45	55.2	79.2	69.5	20.0
MS-12F45	62.0	79.2	69.5	18.3
MS-6F45	62.0	73.0	67.9	12.8



1.70 30cm lens antenna

Model	Dimensions			Weight (kg)
	Height	Width	Depth	
MS-8F30	40.6	52.2	48.4	10.6



1.80 Antenna mechanical and SLP assembly configuration table

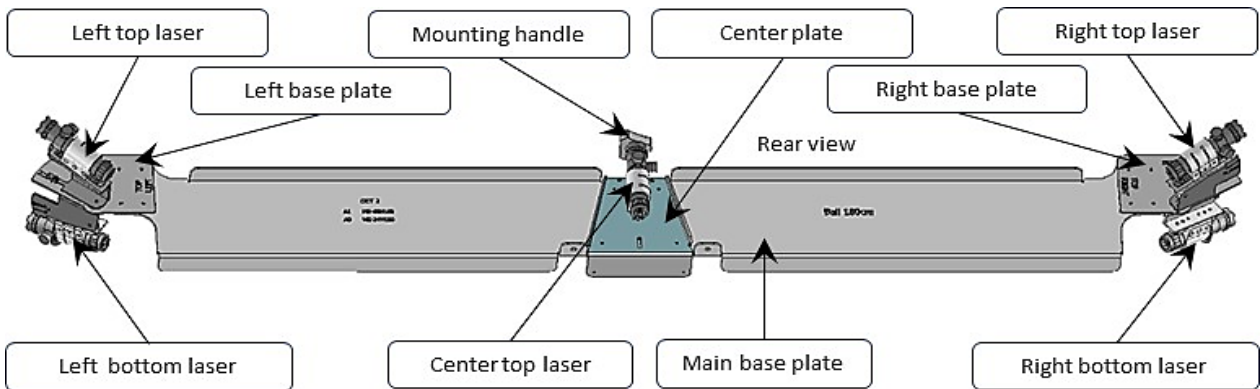
Setting	Model	Dimensions (cm)			Weight (kg)	Connect or position	Angle tilting	AISG chain	Group motors	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting	Left Top Angle	Right Top Angle	Nos of Rows	Tilt Up	Row nos.	Tilt Down	Row nos.
		Height	Width	Depth																	
AA	MS-18H90	105.4	118.4	110.0	56.2	Bottom	Fixed			620.00 (24.41")	Ball 120cm Max	SET 1	A	A	55	45	3	-17	Row 1	17	Row 3
AA	MS-18F45	55.2	79.2	69.5	20.0	Bottom	Fixed			350.80 (13.81")	Ball 120cm Max	SET 1	A	A	55	45	3	-17	Row 1	17	Row 3
BB	MS-8H60	81.6	92.7	80.0	26.6	Bottom	Fixed			466.82 (18.38")	Ball 120cm Max	SET 1	B	B	52.5	37.5	2	-13	Row 1	13	Row 2
BB	MS-8F30	40.6	52.2	48.4	10.6	L & R Side	Fixed			220.00 (8.66")	Ball 120cm Max	SET 1	B	B	52.5	37.5	2	-13	Row 1	13	Row 2
CC	MS-12H90	105.4	122.6	114.7	54.9	Bottom	Manual only			535.00 (21.06")	Ball 120cm Max	SET 1	C	C	55	45	2	-8.7	Row 1	8.7	Row 2
CC	MS-12F45	62.0	79.2	69.5	18.3	Bottom	Fixed			350.80 (13.81")	Ball 120cm Max	SET 1	C	C	55	45	2	-8.7	Row 1	8.7	Row 2
A1	MS-48H180	187.4	206.6	207.2	251.4	Bottom	Fixed			1290.00 (50.79")	Ball 180cm	SET 2	A	1	52.5	57.5	4	-12.9	Row 1	12.9	Row 4
A1	MS-48F90	105.4	108.7	110.0	54.2	L & R Side	Fixed			518.00 (20.39")	Ball 120cm Max	SET 2	A	1	52.5	57.5	4	-12.9	Row 1	12.9	Row 4
B2	MS-16H120	128.2	149.2	142.5	87.2	Bottom	Manual only			720.00 (28.35")	Ball 120cm Max	SET 2	B	2	56.2	48.8	2	-6.5	Row 1	6.5	Row 2
B2	MS-16F60	72.6	88.8	80.0	21.9	Bottom	Fixed			466.80 (18.38")	Ball 120cm Max	SET 2	B	2	56.3	48.8	2	-6.5	Row 1	6.5	Row 2
A3	MS-24H180	187.9	206.6	207.2	241.0	Bottom	Fixed			1290.00 (50.79")	Ball 180cm	SET 2	A	3	52.5	57.5	2	-4.3	Row 1	4.3	Row 2
A3	MS-24F90	105.4	108.7	110.0	43.9	L & R Side	Fixed			518.00 (20.39")	Ball 120cm Max	SET 2	A	3	52.5	57.5	2	-4.3	Row 1	4.3	Row 2
C0	MS-6H90	105.4	116.6	113.4	51.4	Bottom	RET/Manual	1	6	612.00 (24.09")	Ball 120cm Max	TILT	C	0	50	50	1				
C0	MS-6F45	62.0	73.0	67.9	12.8	Bottom	RET/Manual	1	6	350.80 (13.81")	Ball 120cm Max	TILT	C	0	50	50	1				
D0	MS-8H120	128.2	145.7	142.5	80.7	Bottom	RET/Manual	2	4	720.00 (28.35")	Ball 120cm Max	TILT	D	0	52.5	52.5	1				
D0	MS-8F60	72.6	86.1	80.0	20.8	Bottom	RET/Manual	2	4	466.80 (18.38")	Ball 120cm Max	TILT	D	0	52.5	52.5	1				



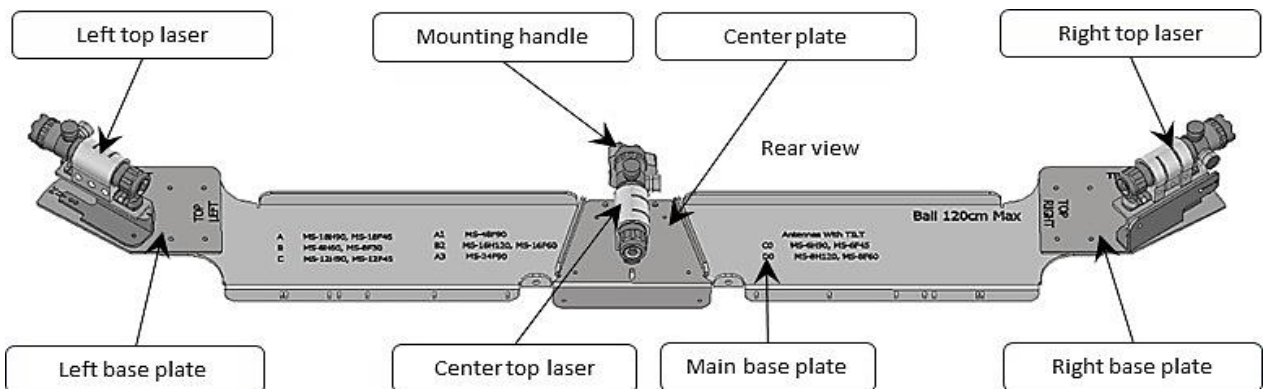
## 2.00 Stadium laser pointer (SLP) overview

### 2.10 SLP Description

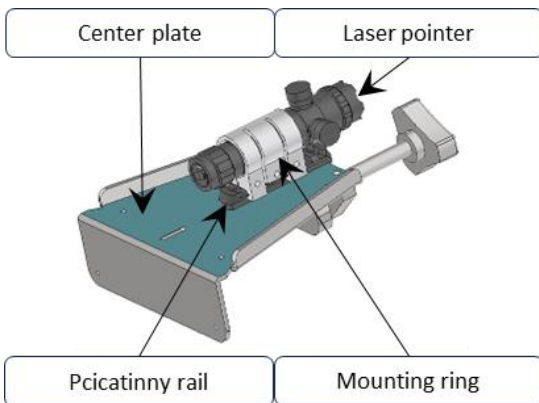
#### 2.11 5 laser pointers fitting (1=center, 1=right top and bottom, 1=left top and bottom)



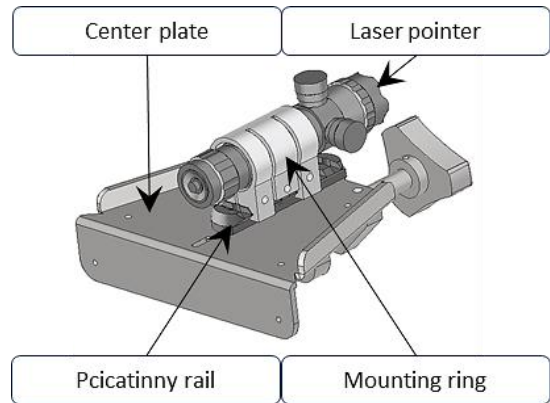
#### 2.12 3 laser pointers fitting (1=center, 1=right top, 1=left top)



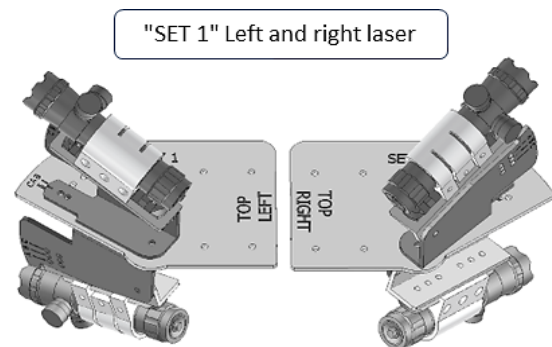
#### 2.13 "Ball 180cm" Center top laser



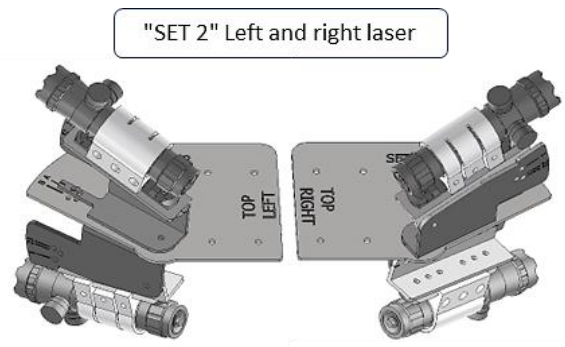
#### 2.14 "Ball 120cm MAX" Center top laser



#### 2.15 "SET 1" Left and right laser

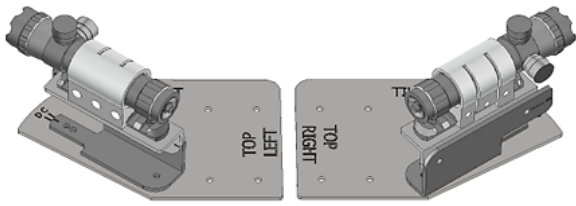


#### 2.16 "SET 2" Left and right laser



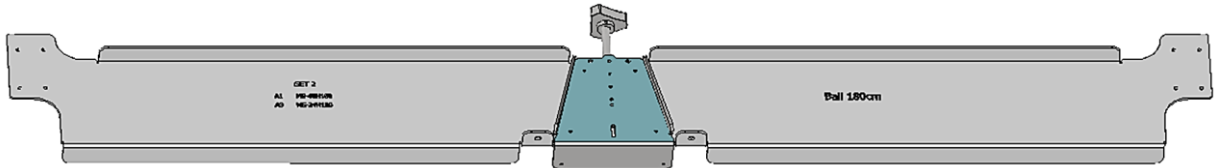
2.17 **"TILT"** Left and right laser

"TILT" Left and right laser

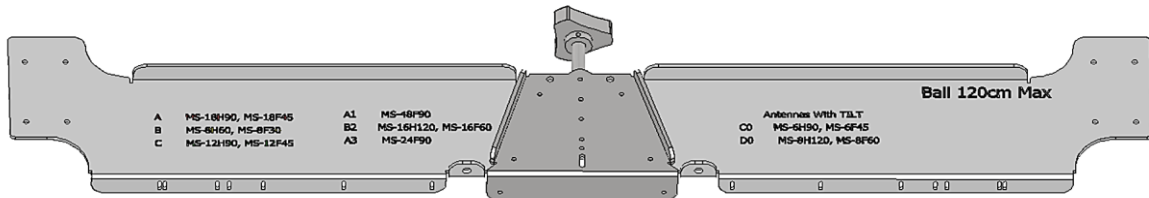


2.20 SLP pre-assembly parts detail

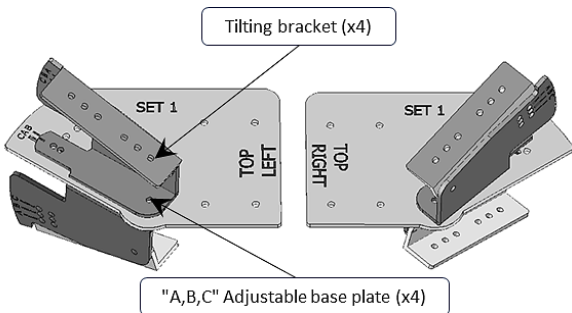
2.21 **"Ball 180cm"** - Main base plate (With mounting handle)



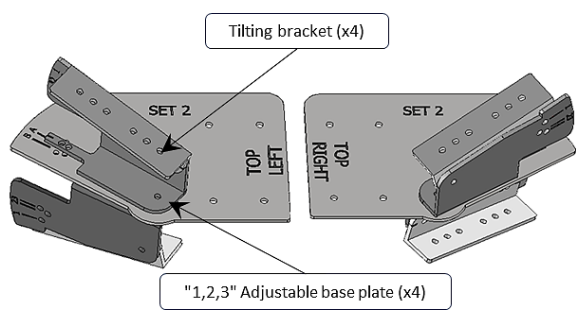
2.22 **"Ball 120cm Max"** - Main base plate (With mounting handle)



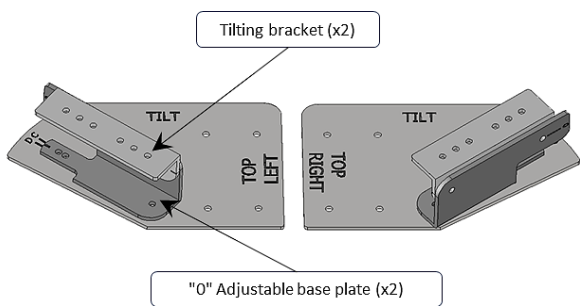
2.23 **"SET 1"** - Left and right base plate  
**"A,B,C"** - Adjustable base plate (x4)  
 Tilting bracket (x4)



2.24 **"SET 2"** - Left and right base plate  
**"1,2,3"** - Adjustable base plate (x4)  
 Tilting bracket (x4)



2.25 **"TILT"** - Left and right base plate  
**"O"** - Adjustable base plate (x2)  
 Tilting bracket (x2)



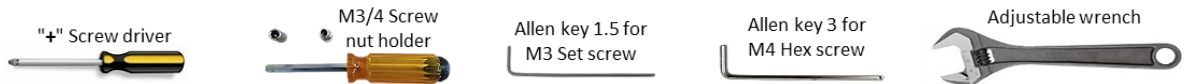
### 3.00 SLP General assembly guide

#### 3.10 SLP Model's assembly guide table

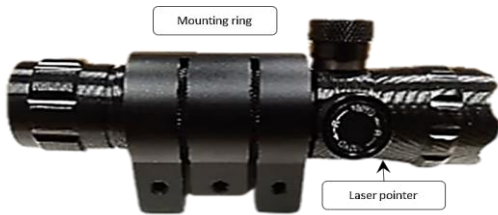
Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting	Left Top Angle	Right Top Angle	Nos of Rows	Tilt Up	Row nos.	Tilt Down	Row nos.
AA	MS-18H90	620.00 (24.41")	Ball 120cm Max	SET 1	A	A	55	45	3	-17	Row 1	17	Row 3
AA	MS-18F45	350.80 (13.81")	Ball 120cm Max	SET 1	A	A	55	45	3	-17	Row 1	17	Row 3
BB	MS-8H60	466.82 (18.38")	Ball 120cm Max	SET 1	B	B	52.5	37.5	2	-13	Row 1	13	Row 2
BB	MS-8F30	220.00 (8.66")	Ball 120cm Max	SET 1	B	B	52.5	37.5	2	-13	Row 1	13	Row 2
CC	MS-12H90	535.00 (21.06")	Ball 120cm Max	SET 1	C	C	55	45	2	-8.7	Row 1	8.7	Row 2
CC	MS-12F45	350.80 (13.81")	Ball 120cm Max	SET 1	C	C	55	45	2	-8.7	Row 1	8.7	Row 2
A1	MS-48H180	1290.00 (50.79")	Ball 180cm	SET 2	A	1	52.5	57.5	4	-12.9	Row 1	12.9	Row 4
A1	MS-48F90	518.00 (20.39")	Ball 120cm Max	SET 2	A	1	52.5	57.5	4	-12.9	Row 1	12.9	Row 4
B2	MS-16H120	720.00 (28.35")	Ball 120cm Max	SET 2	B	2	56.2	48.8	2	-6.5	Row 1	6.5	Row 2
B2	MS-16F60	466.80 (18.38")	Ball 120cm Max	SET 2	B	2	56.3	48.8	2	-6.5	Row 1	6.5	Row 2
A3	MS-24H180	1290.00 (50.79")	Ball 180cm	SET 2	A	3	52.5	57.5	2	-4.3	Row 1	4.3	Row 2
A3	MS-24F90	518.00 (20.39")	Ball 120cm Max	SET 2	A	3	52.5	57.5	2	-4.3	Row 1	4.3	Row 2
C0	MS-6H90	612.00 (24.09")	Ball 120cm Max	TILT	C	0	50	50	1				
C0	MS-6F45	350.80 (13.81")	Ball 120cm Max	TILT	C	0	50	50	1				
D0	MS-8H120	720.00 (28.35")	Ball 120cm Max	TILT	D	0	52.5	52.5	1				
D0	MS-8F60	466.80 (18.38")	Ball 120cm Max	TILT	D	0	52.5	52.5	1				

#### 3.20 Tools, laser parts and fittings

##### 3.21 Tools



##### 3.22 "PINTY" Laser pointer



##### 3.23 "BUGLEMAN" Picatinny rails



##### 3.24 Parts and fittings

LP (Laser pointer Total=5)		
Center top	Left top, bottom	Right top, bottom
1	2	2

Picatinny rail (Total=5)		
LR	MR	SR
Large rail for center top LP	Medium rail for left and right top LP	Small rail for left and right bottom LP
1	2	2

Main with left and right plate assembly				
Step 1	M4 x 12mm PH screw + Locknut			
	SET 1	SET 2	TILT	Total
	8	8	8	24
Center top laser rail assembly				
Step 2	M4 x 8mm PH screw			
	SET 1	SET 2	TILT	Total
	2	2	2	6
Left and right top and bottom rail assembly				
Step 3	M4 x 12mm PH screw + Locknut			
	SET 1	SET 2	TILT	Total
	8	8	4	20



### 3.30 **5 laser pointers** antenna model **"MS-18H90"** SLP assembly guide

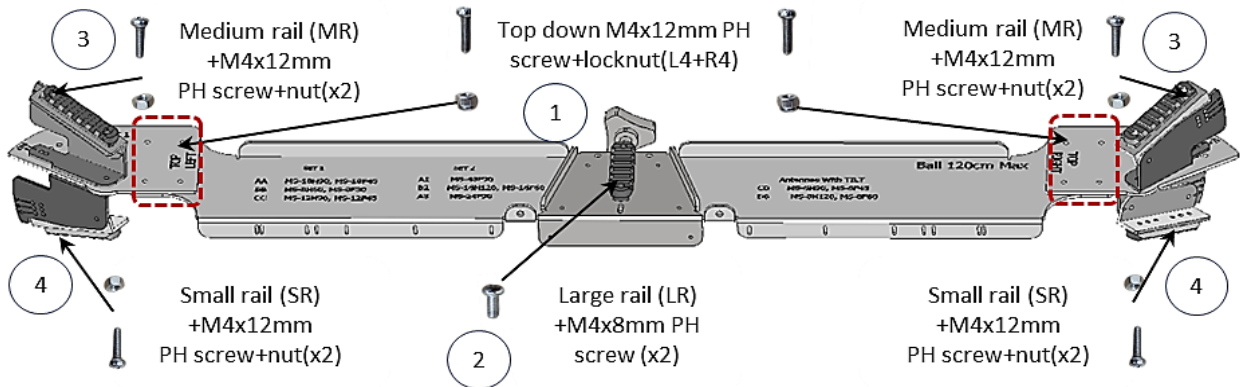
(Select pre-assembled **"Ball 120cm Max"** base plate + **"SET 1"** left and right base plate)

Step 1: Main base plate and left and right plate assembly

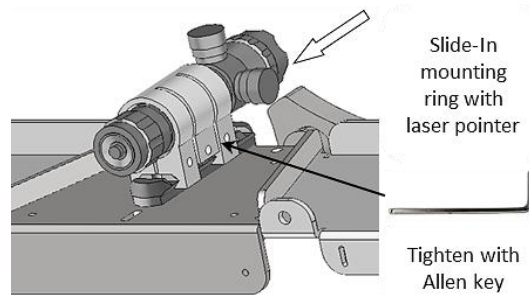
Step 2: Center laser picatinny rail assembly

3.31 Step 3: Top left and right laser picatinny rail assembly

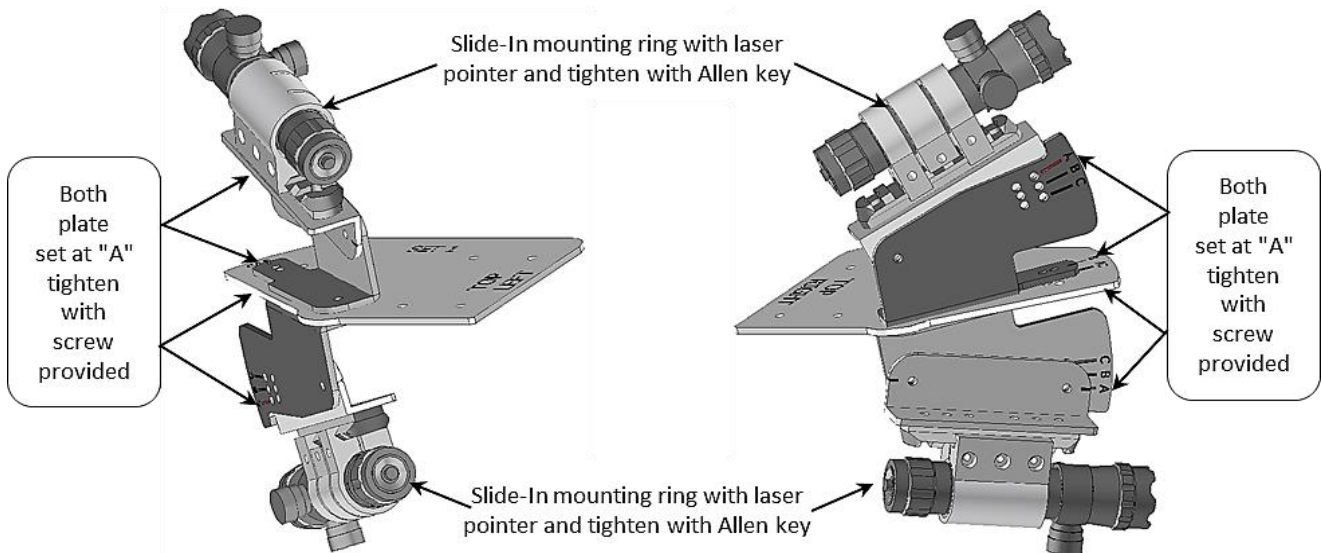
Step 4: Bottom left and right laser picatinny rail assembly



### 3.32 Center laser pointer assembly

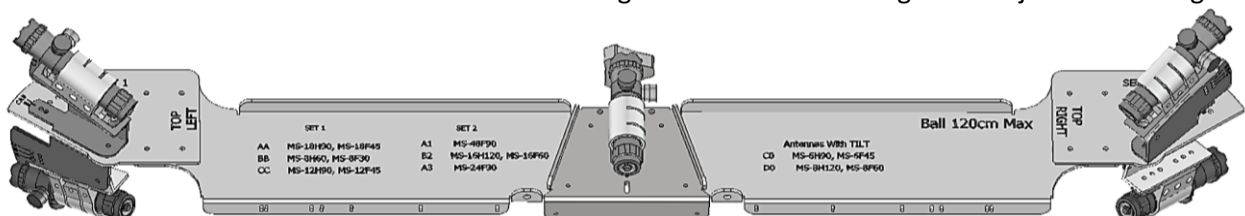


### 3.33 Left and right laser pointer assembly



### 3.34 Assembly completed (Refer to table to ensure all settings are correct)

"Ball 120cm Max" + "SET 1" Left and Right Plate" + Base Setting "A" + Adjustable Setting "A"



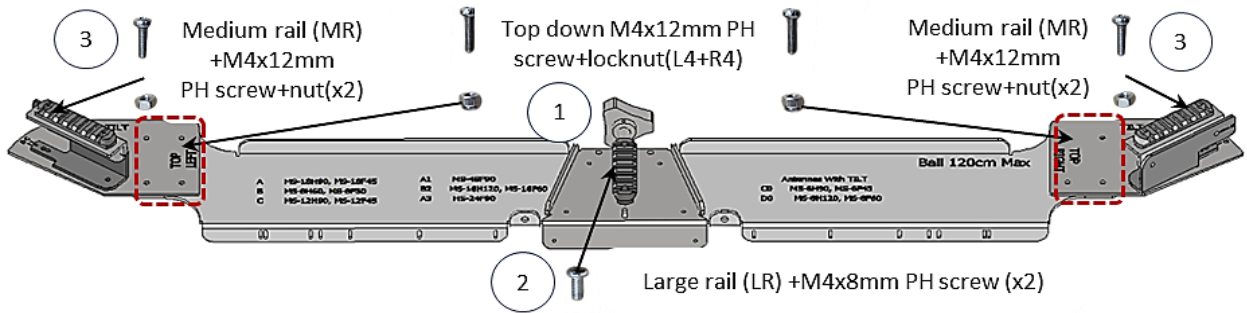
3.40 **3 laser pointers** antenna model **"MS-8H120"** SLP assembly guide

(Select pre-assembled **"Ball 120cm Max"** base plate + **"TILT"** left and right base plate)

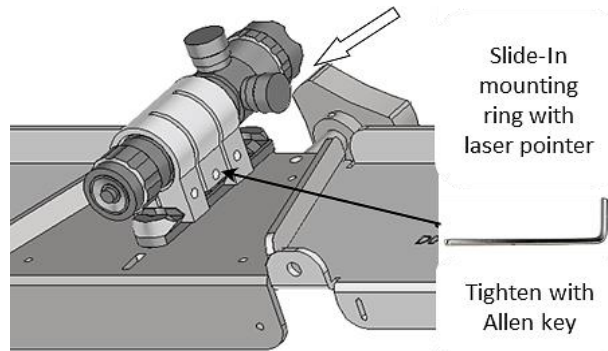
Step 1: Main base plate and left and right plate assembly

3.41 Step 2: Center laser picatinny rail assembly

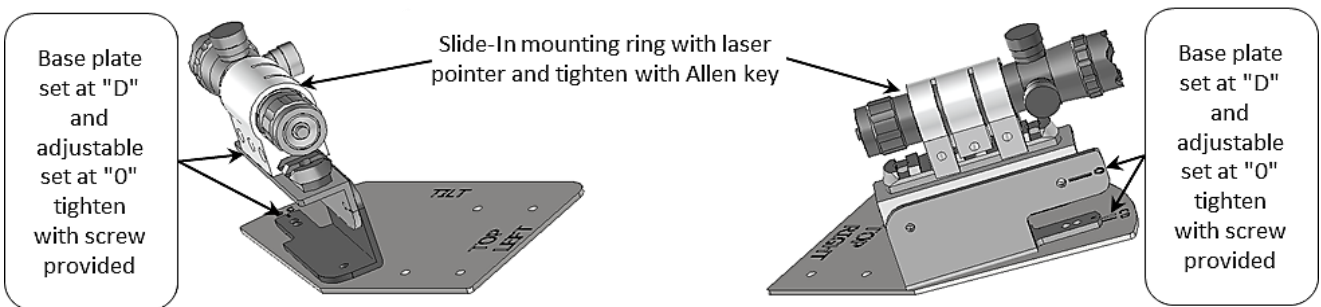
Step 3: Left and right laser picatinny rail assembly



3.42 Center laser pointer assembly

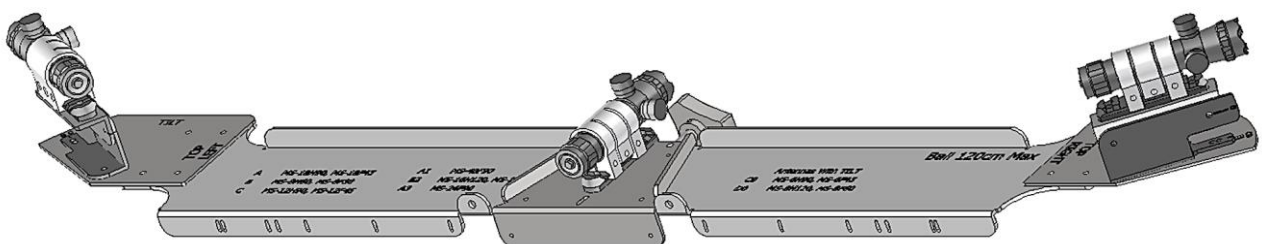


3.43 Left and right laser pointer assembly



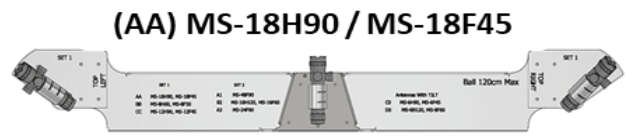
3.44 Assembly completed (Refer to table to ensure all settings are correct)

"Ball 120cm Max" + "TILT" Left and Right Plate" + Base Setting "D" + Adjustable Setting "0"

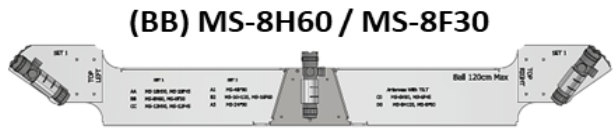


### 3.50 Final assembled and configured SLP for 16 antenna model

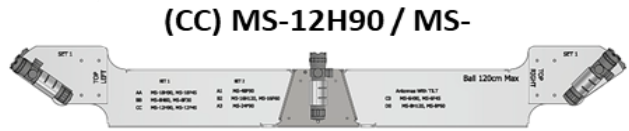
Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
AA	MS-18H90	620.00 (24.41")	Ball 120cm Max	SET 1	A	A
AA	MS-18F45	350.80 (13.81")	Ball 120cm Max	SET 1	A	A



Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
BB	MS-8H60	466.82 (18.38")	Ball 120cm Max	SET 1	B	B
BB	MS-8F30	220.00 (8.66")	Ball 120cm Max	SET 1	B	B



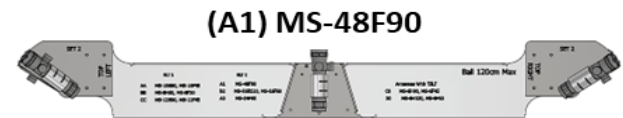
Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
CC	MS-12H90	535.00 (21.06")	Ball 120cm Max	SET 1	C	C
CC	MS-12F45	350.80 (13.81")	Ball 120cm Max	SET 1	C	C



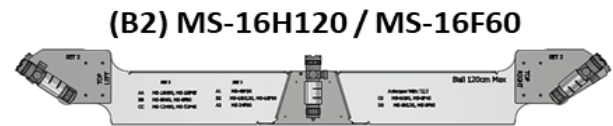
Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
A1	MS-48H180	1290.00 (50.79")	Ball 180cm	SET 2	A	1



Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
A1	MS-48F90	518.00 (20.39")	Ball 120cm Max	SET 2	A	1



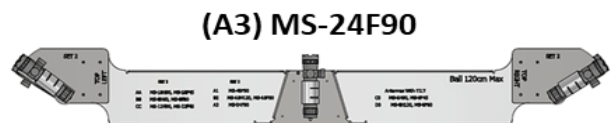
Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
B2	MS-16H120	720.00 (28.35")	Ball 120cm Max	SET 2	B	2
B2	MS-16F60	466.80 (18.38")	Ball 120cm Max	SET 2	B	2



Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
A3	MS-24H180	1290.00 (50.79")	Ball 180cm	SET 2	A	3



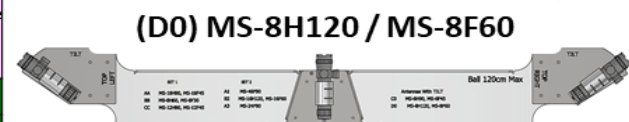
Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
A3	MS-24F90	518.00 (20.39")	Ball 120cm Max	SET 2	A	3



Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
C0	MS-6H90	612.00 (24.09")	Ball 120cm Max	TILT	C	0
C0	MS-6F45	350.80 (13.81")	Ball 120cm Max	TILT	C	0



Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting
D0	MS-8H120	720.00 (28.35")	Ball 120cm Max	TILT	D	0
D0	MS-8F60	466.80 (18.38")	Ball 120cm Max	TILT	D	0



## 4.00 SLP mounting on antenna general guide

### 4.10 Safety caution and planning



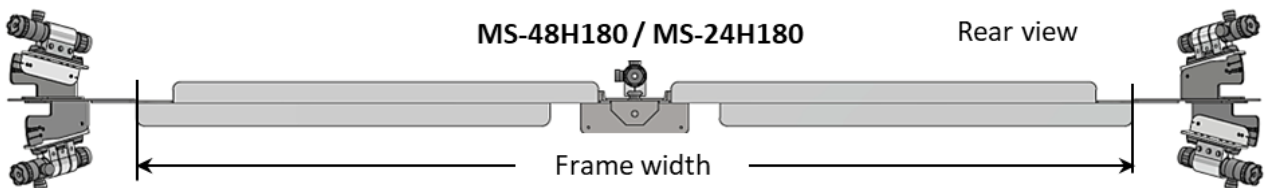
*Workplace safety and health compliance measures are required when performing "Work-At-Height." Appropriate material handling equipment, safety harnesses, and tools should be used, with only certified personnel to perform the task.*



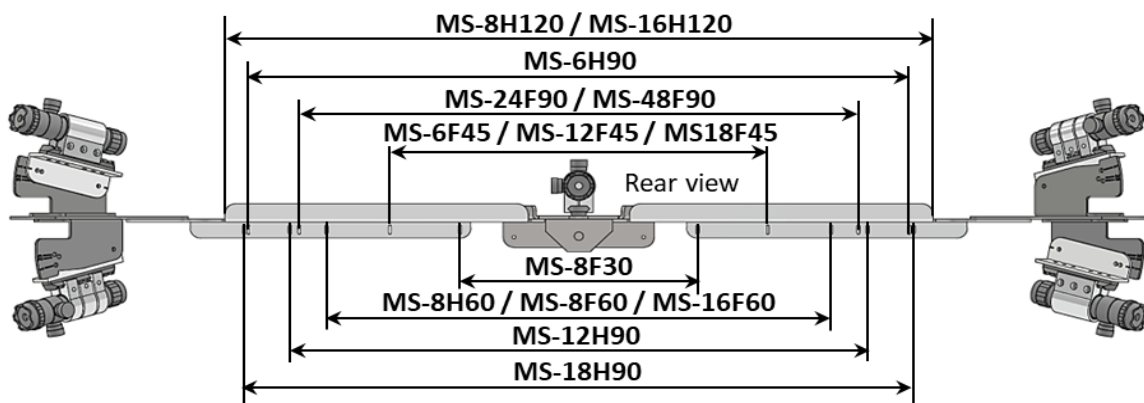
*Pre-assembly of the SLP for the antenna model going for positioning and adjustment is essential; it will be much more helpful in reducing the workload and safety concern during "Work-At-Height."*

### 4.20 SLP and antenna model positioning guide

#### 4.21 "Ball 180cm" Main base plate model guide

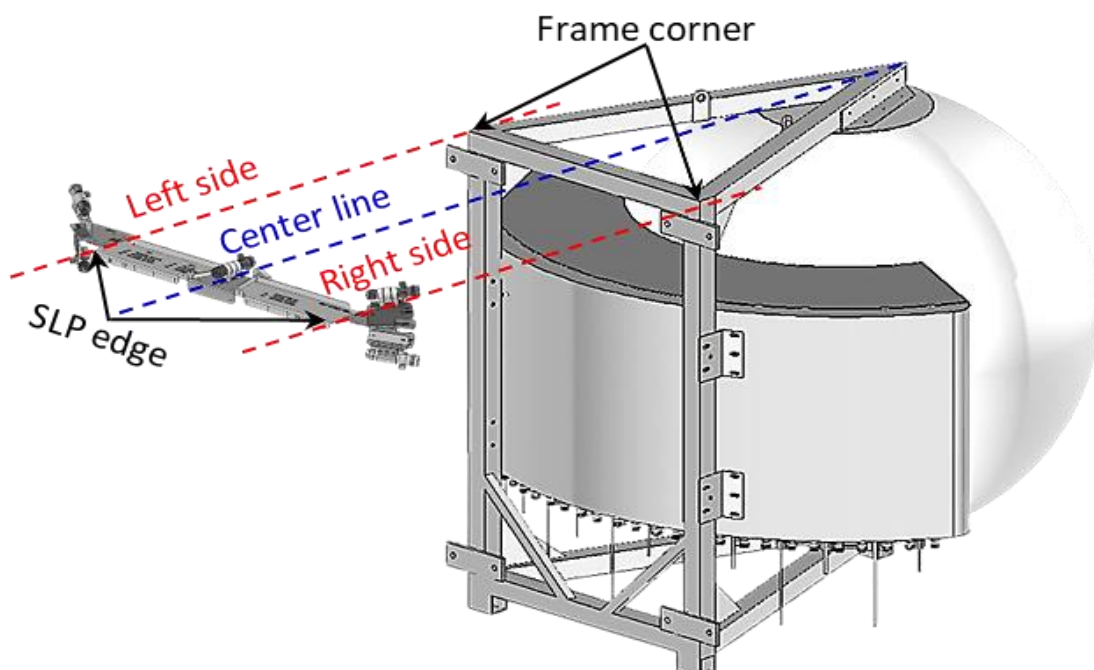


#### 4.22 "Ball 120cm Max" Main base plate model guide



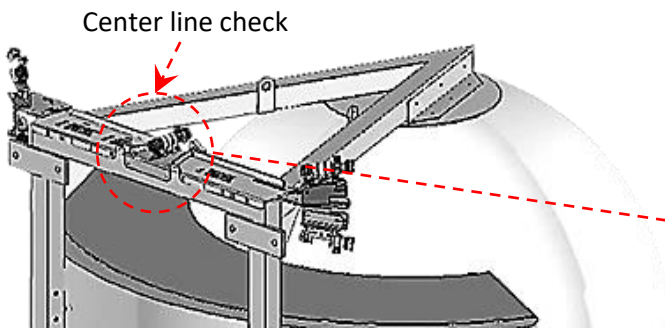
### 4.30 SLP mounting

#### 4.31 SLP and frame alignment

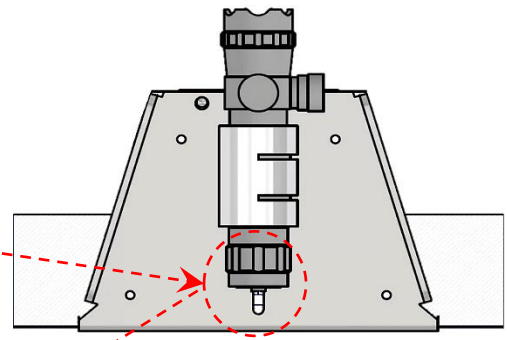




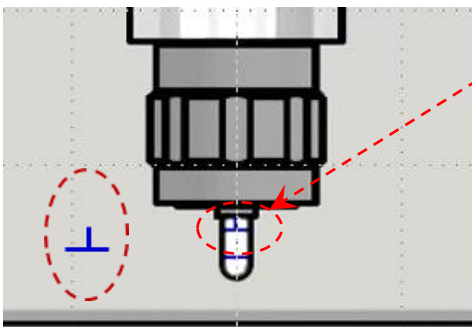
4.32 SLP aligned and seated flat in position



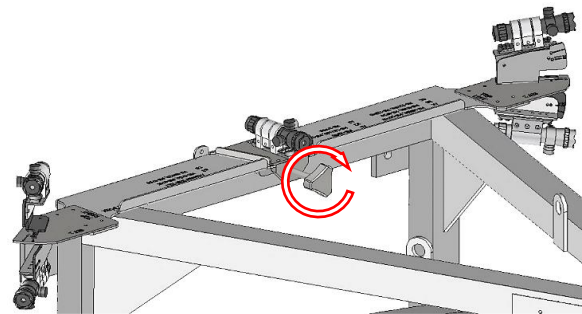
4.33 SLP center line check



4.34 Frame center line label visible

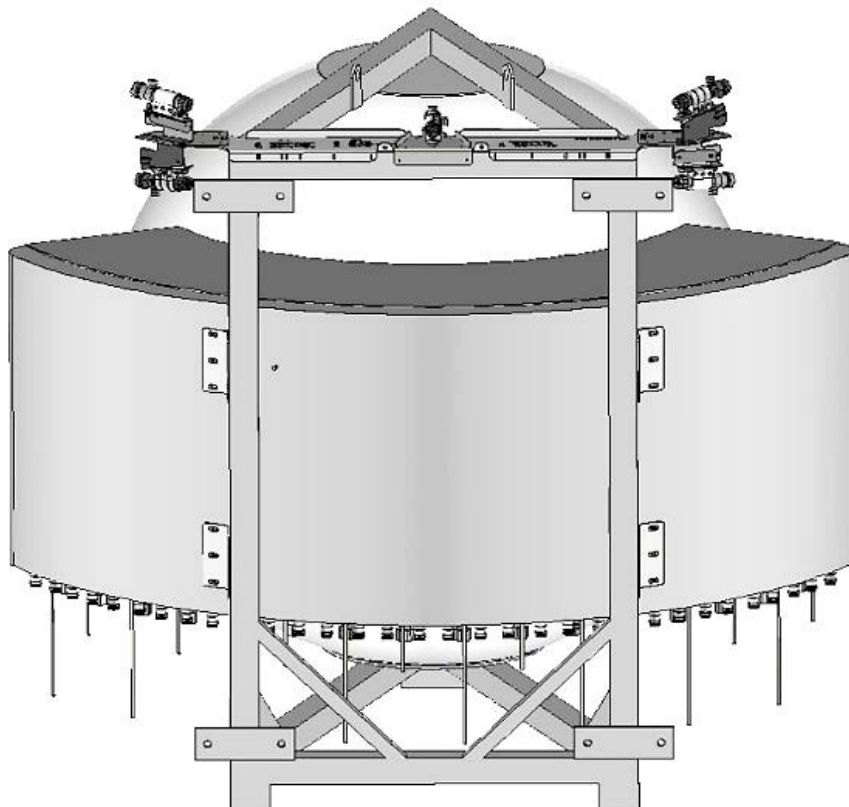


4.35 Tighten SLP onto the frame



4.36 Final check ensure all parts secured

- a. Antenna model & SLP matching
- b. SLP and antenna width matching
- c. Left top and bottom laser pointer setting
- d. Right top and bottom laser pointer setting
- e. SLP seated flat and fully tighten
- f. Laser pointer seated and fully tighten
- g. Check all laser pointer battery power
- h. Check and clean all laser pointer lens





## 5.00 Laser pointer user guide



### Warning!

*Read carefully before use, keep for future reference*

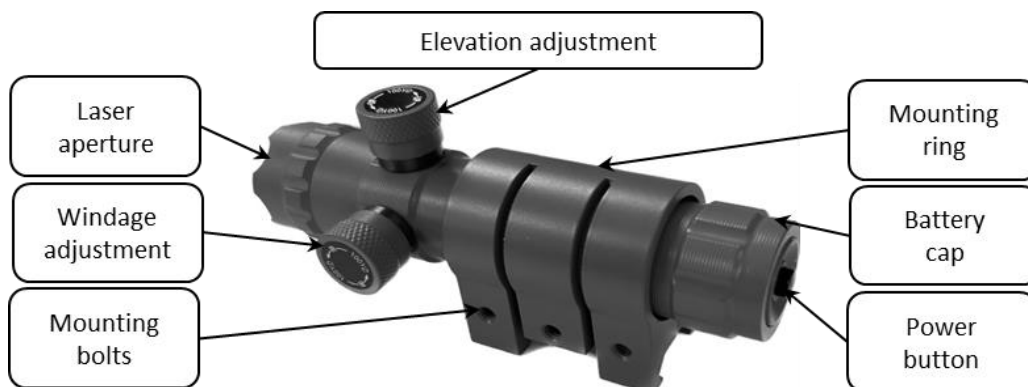
#### 5.10 Safety information

- a. **ONLY** use this device in compliance with all local and national laws and regulations concerning the use of the lasers.
- b. **NEVER** direct this device towards a reflective surface.
- c. **NEVER** aim the laser directly at an aircraft or directly into the eyes of any person or animal. Do not view this laser through focused or magnified optics.  
This product is waterproof against standard precipitation. Do not direct pressurized water against it or allow its inner electronics to become wet. If they accidentally become wet,
- d. remove the batteries and wait for all components to dry completely before any further use.

#### 5.20 Specifications

	<b>Material</b>	6061 Aluminum Alloy	
<b>Laser</b>	<b>Class</b>	3	
	<b>Max. Output Power</b>	5 mW	
	<b>Color (Wavelength)</b>	Green (532nm)	
	<b>Max. Range</b>	985 ft.	300 m
	<b>Max. Wind. / Elev. Adj.</b>	+15 MOA	
	<b>Adj. per Click</b>	1 MOA	
	<b>Battery Type</b>	1 * C123A	
	<b>Net Weight</b>	4.5 oz.	128 g.

#### 5.30 Product diagram



#### 5.40 Maintenance information

- Clean the laser pointer as needed using a soft, dry, or slightly damp cloth. Do not use
- a. abrasive cleaners or caustic chemicals. This product is waterproof against standard precipitation but do not direct pressurized water against it.
  - b. Check all parts of the pointer for any wear or damage between uses. Repair or replace any problematic parts before further use.  
If the pointer will not be used for a prolonged period of time, clean it and take out all the
  - c. batteries before storing it in a cool, dry place away from direct sunlight and inaccessible to children.

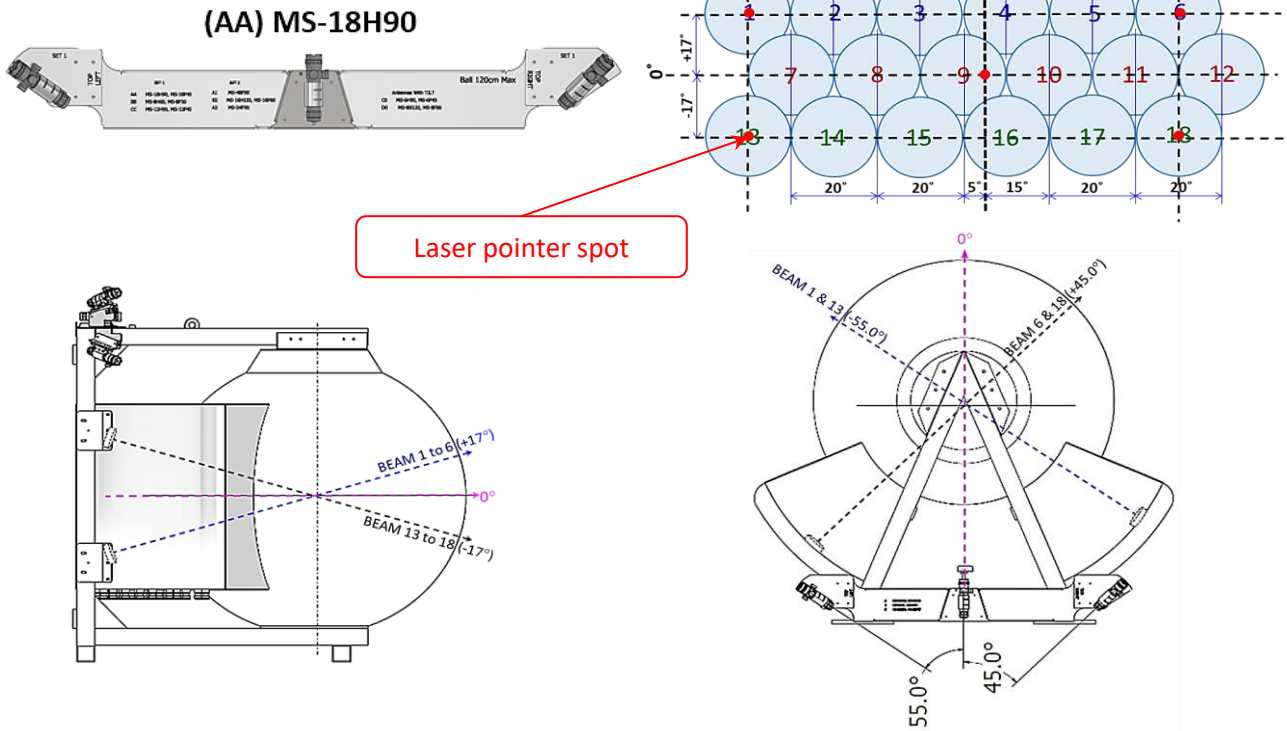
## 6.00 SLP on antenna positioning general guide

### 6.10 SLP antenna model

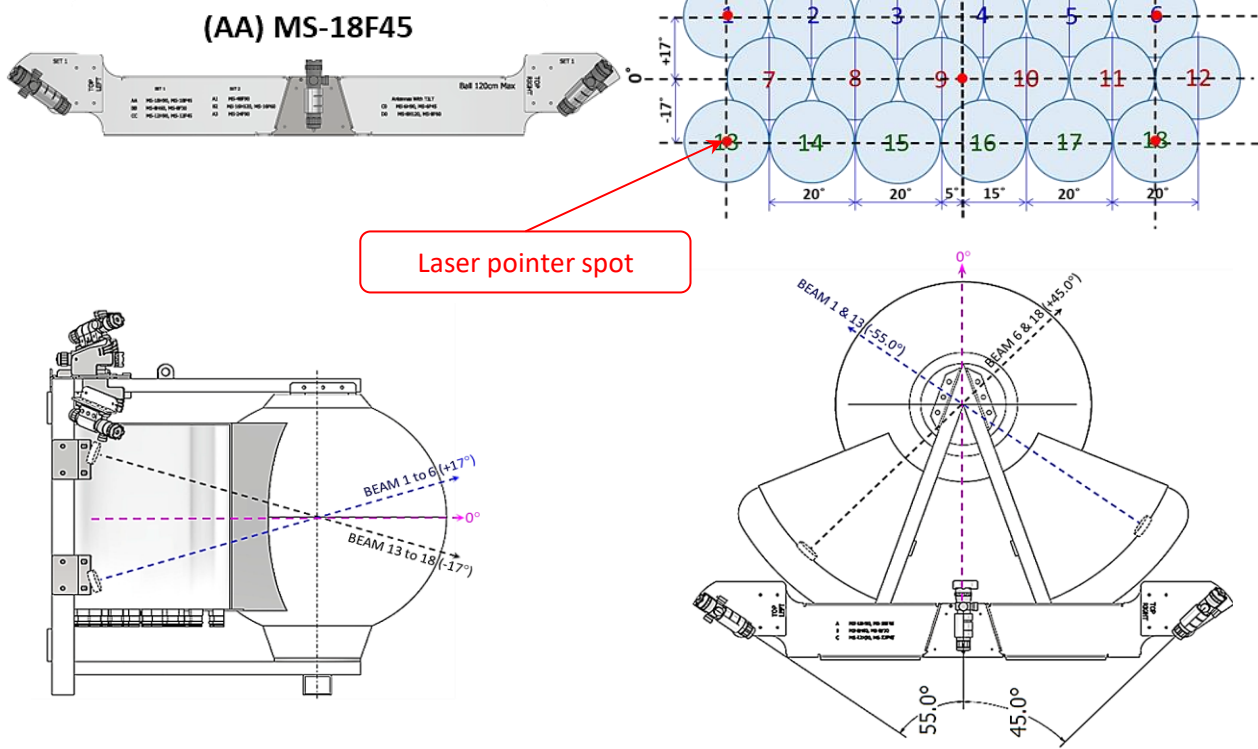
1	MS-18H90	5	MS-12H90	9	MS-16H120	13	MS-6H90
2	MS-18F45	6	MS-12F45	10	MS-16F60	14	MS-6F45
3	MS-8H60	7	MS-48H180	11	MS-24H180	15	MS-8H120
4	MS-8F30	8	MS-48F90	12	MS-24F90	16	MS-8F60

### 6.20 Antenna model beam direction

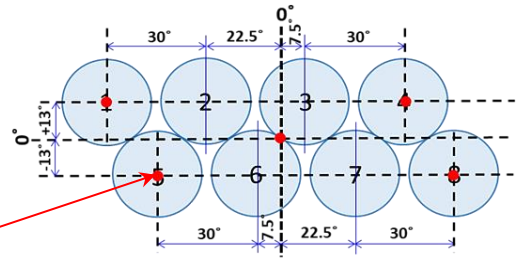
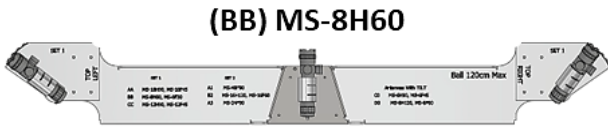
#### 1 (AA) MS-18H90



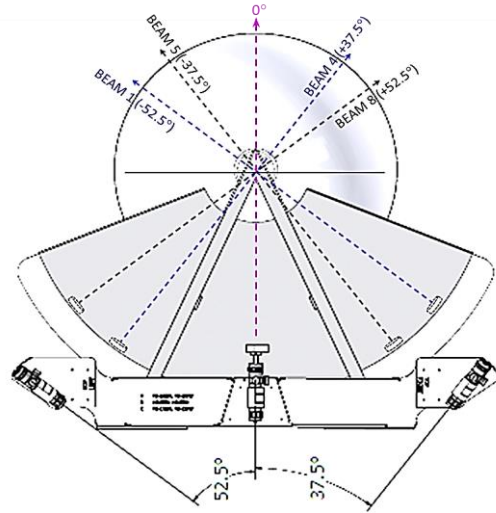
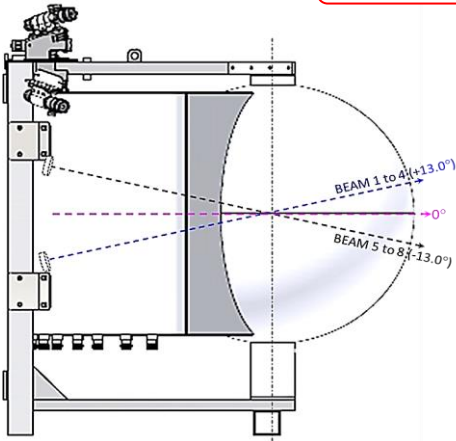
#### 2 (AA) MS-18F45



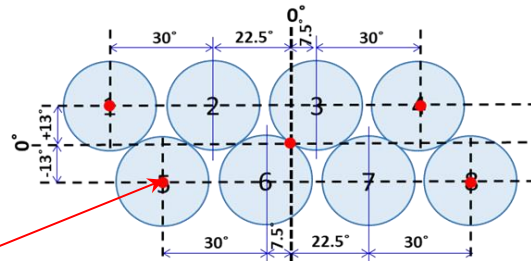
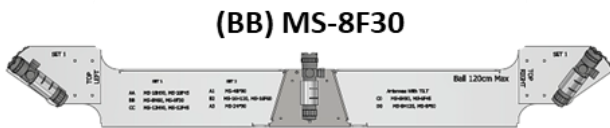
3 (BB) MS-8H60



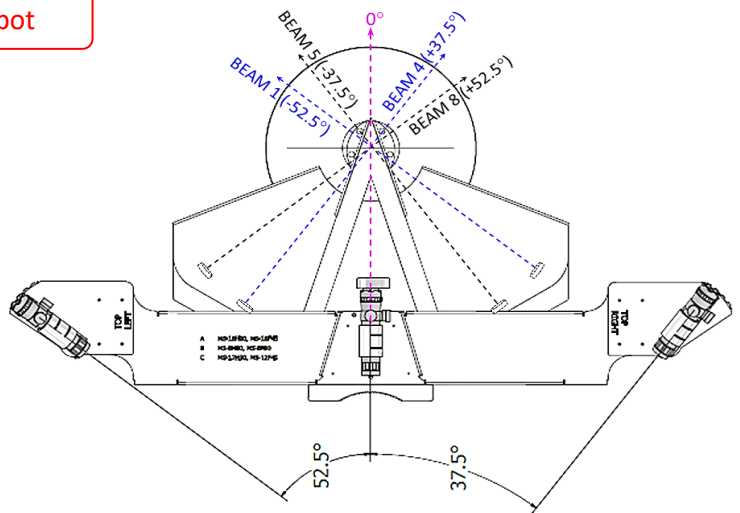
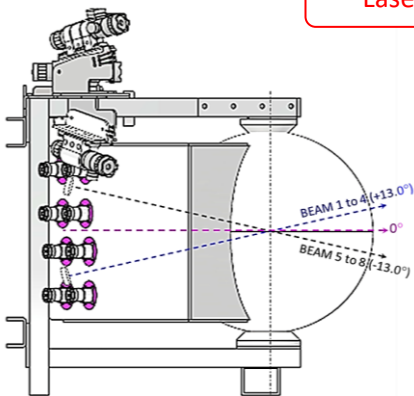
Laser pointer spot



4 (BB) MS-8F30

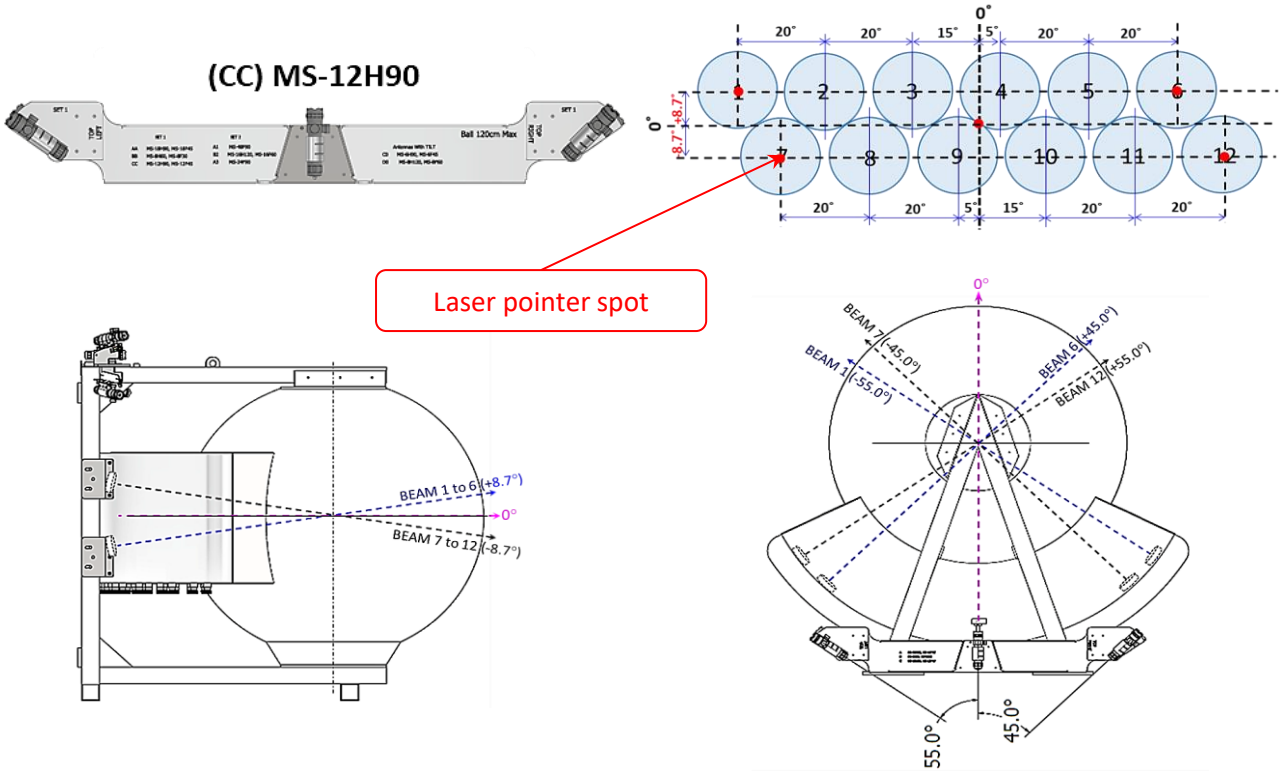


Laser pointer spot

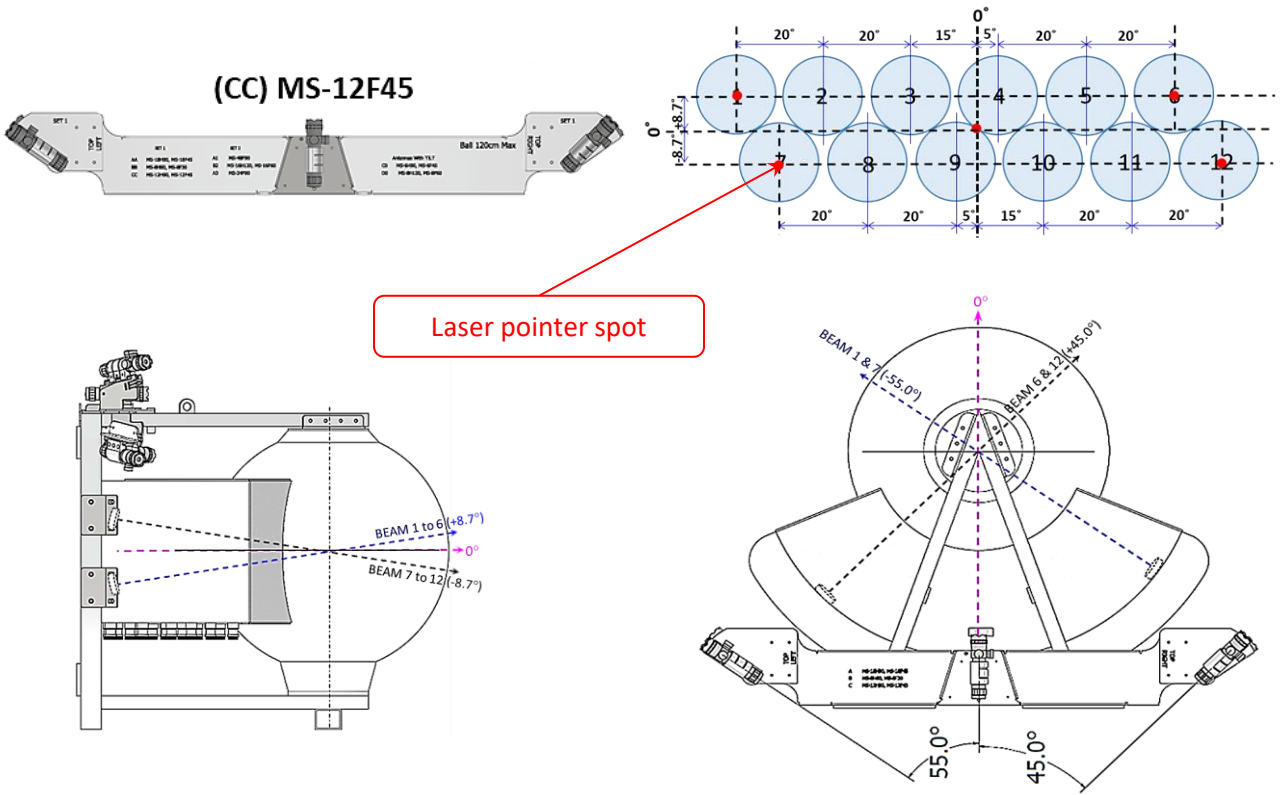


5 (CC) MS-12H90

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



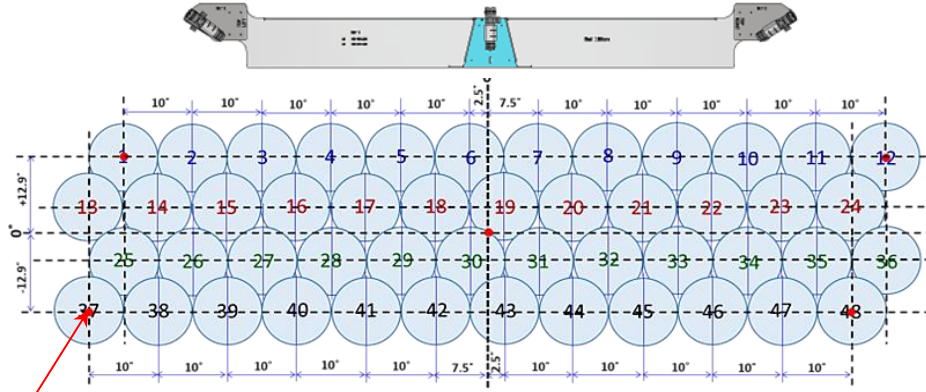
6 (CC) MS-12F45



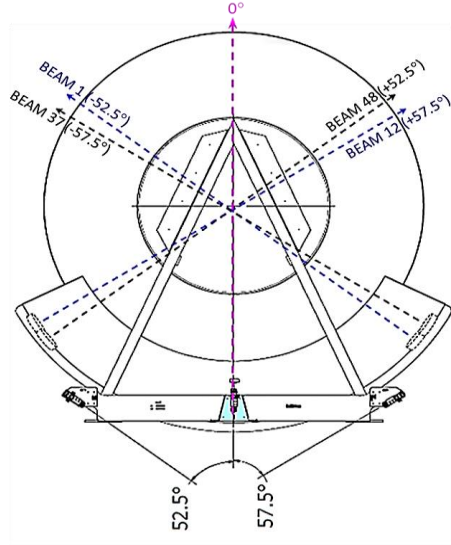
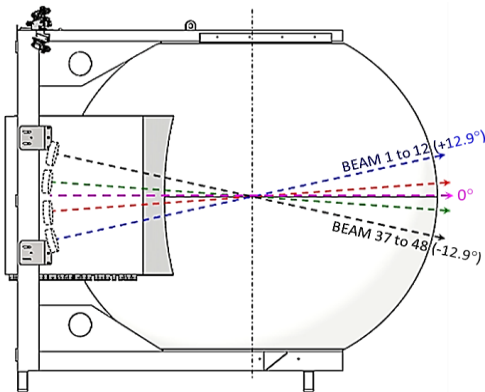


7 (A1) MS-48H180

(A1) MS-48H180

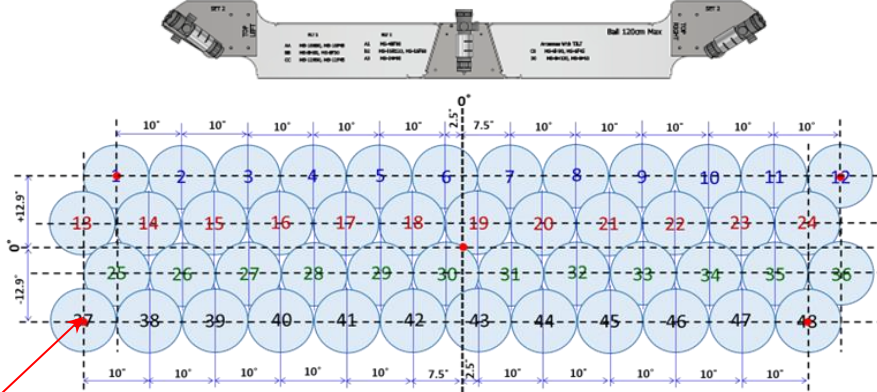


Laser pointer spot

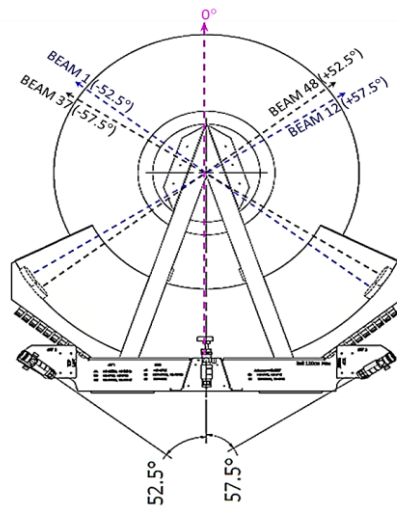
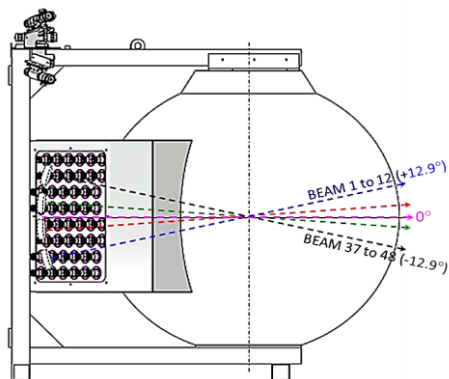


8 (A1) MS-48F90

(A1) MS-48F90

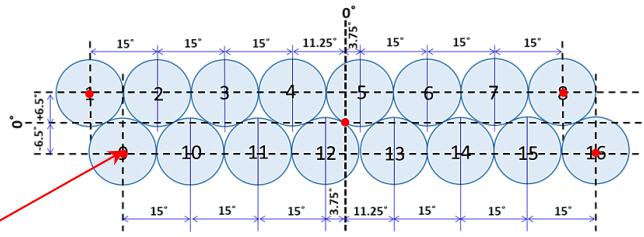
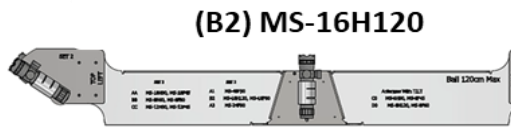


Laser pointer spot

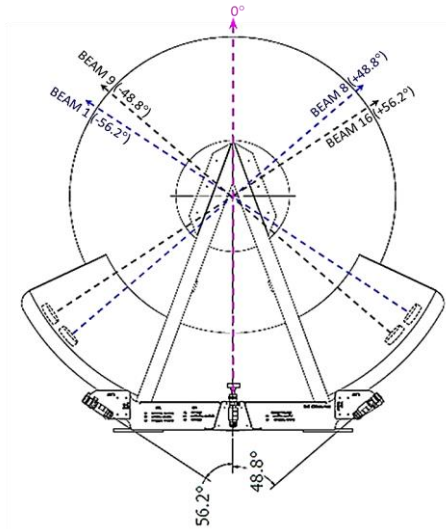
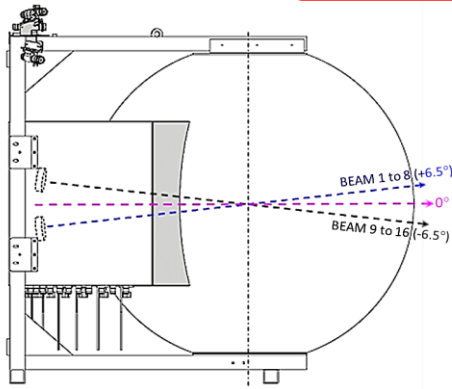




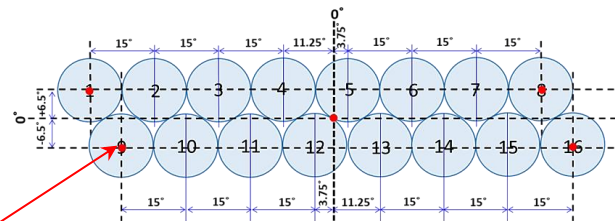
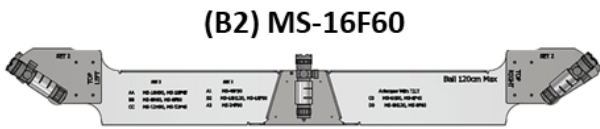
9 (B2) MS-16H120



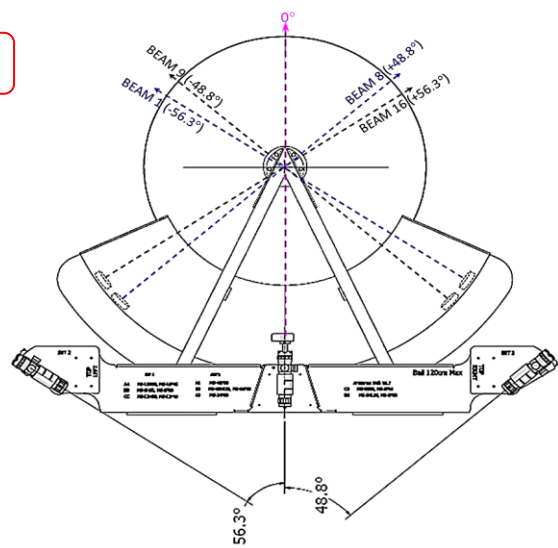
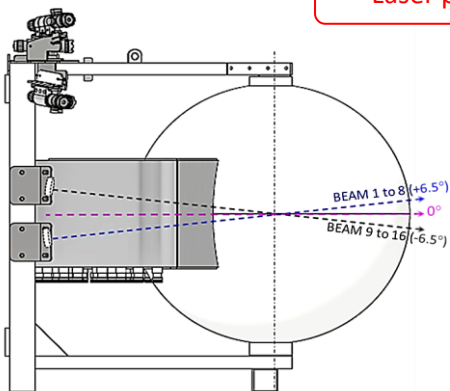
Laser pointer spot



10 (B2) MS-16F60

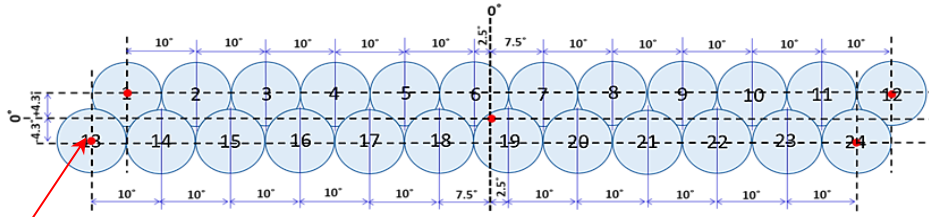
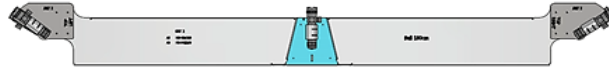


Laser pointer spot

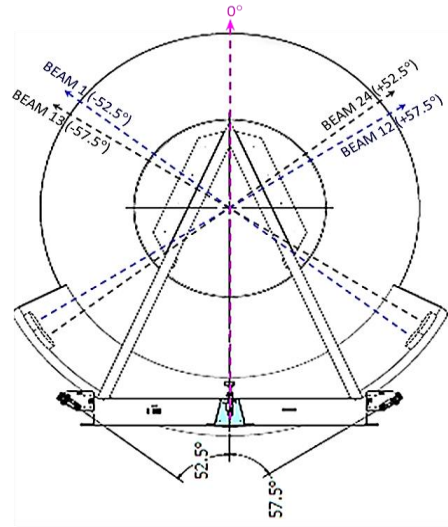
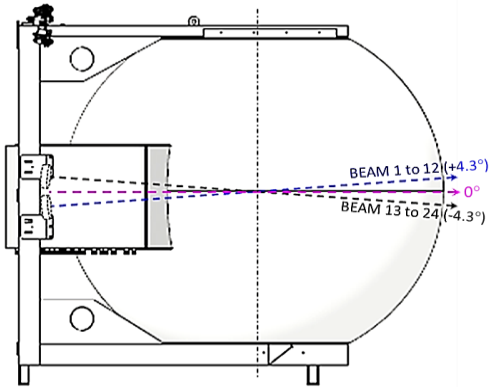


11 (A3) MS-24H180

(A3) MS-24H180

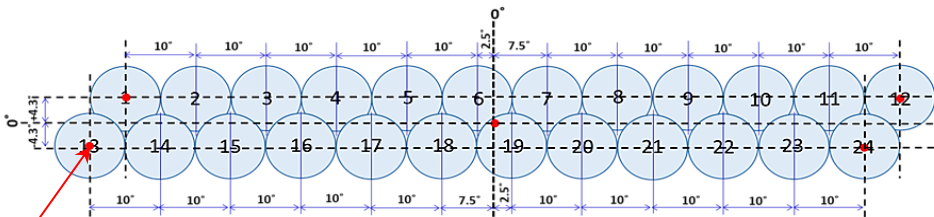
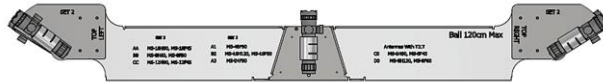


Laser pointer spot

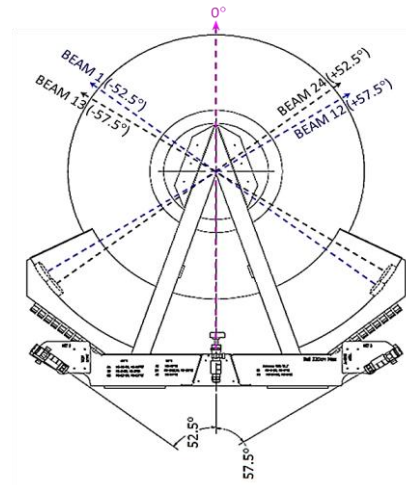
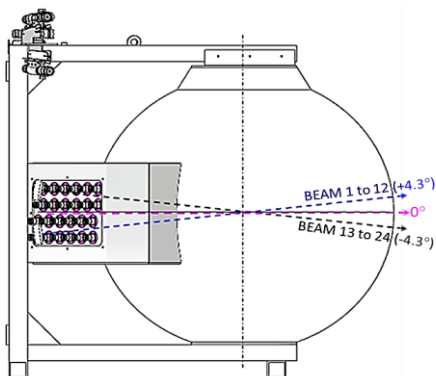


12 (A3) MS-24F90

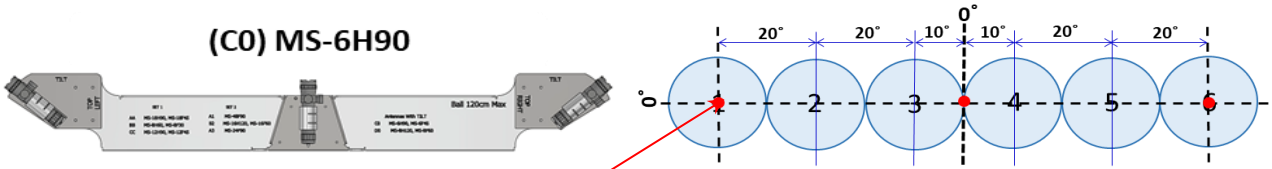
(A3) MS-24F90



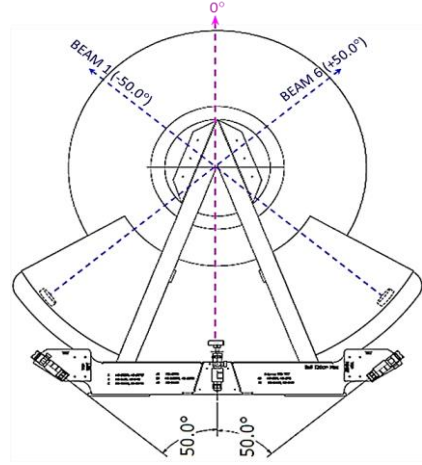
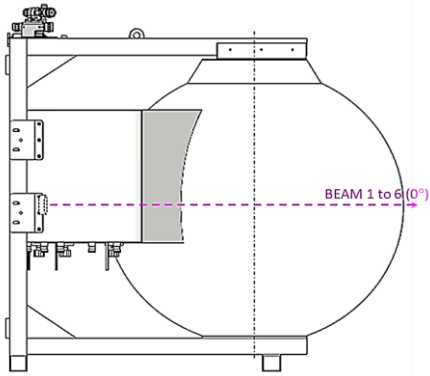
Laser pointer spot



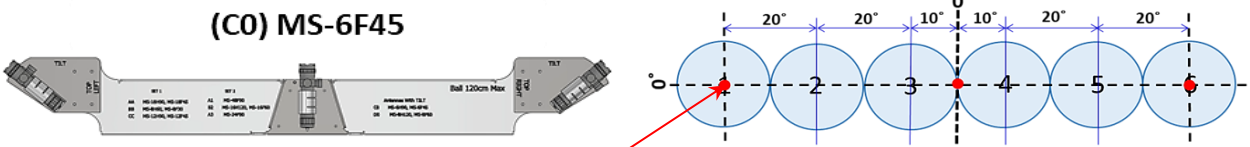
13 (C0) MS-6H90



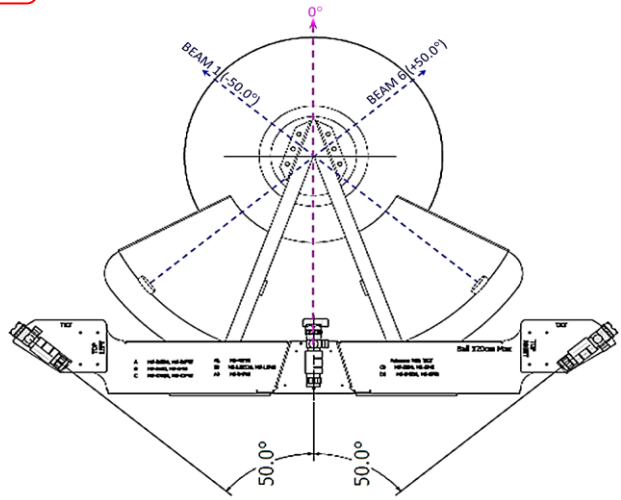
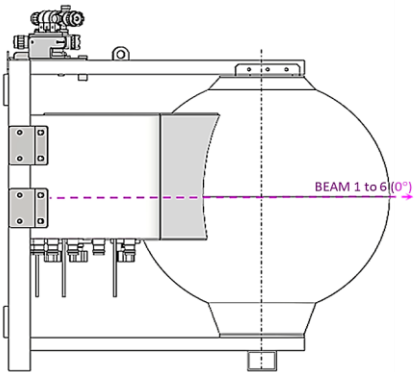
Laser pointer spot



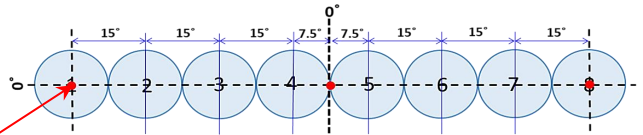
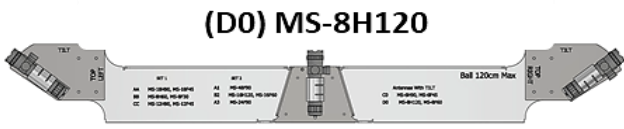
14 (C0) MS-6F45



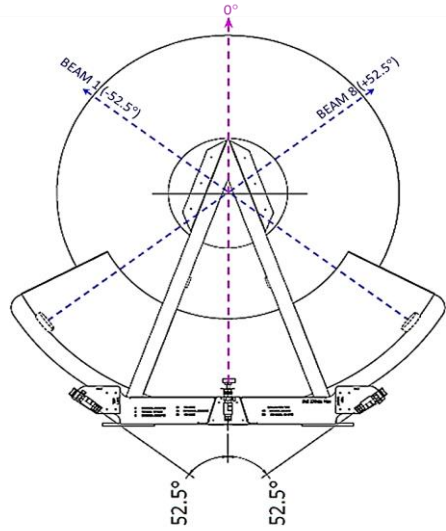
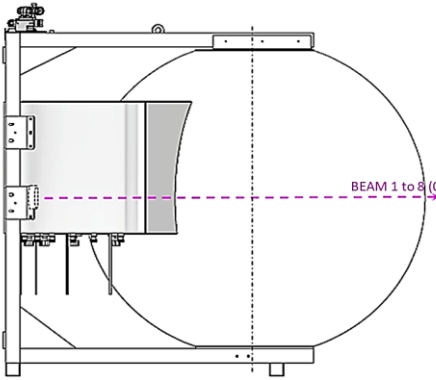
Laser pointer spot



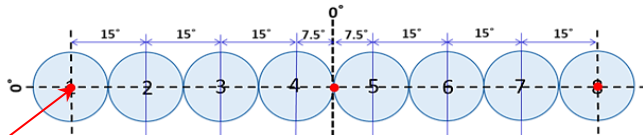
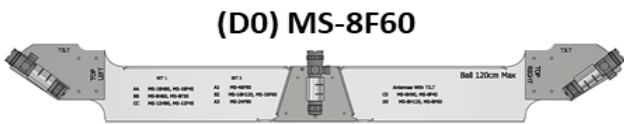
15 (D0) MS-8H120



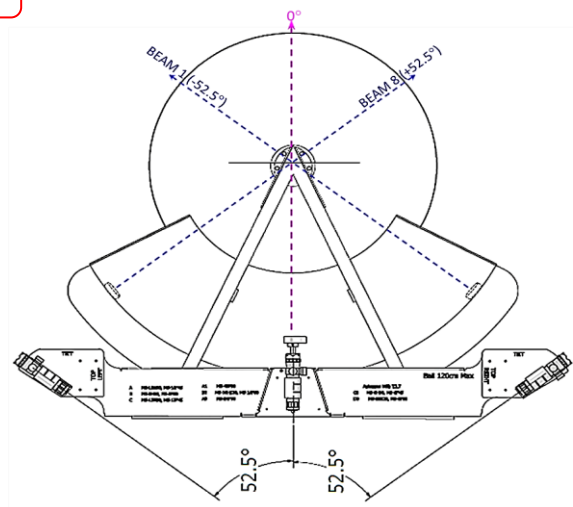
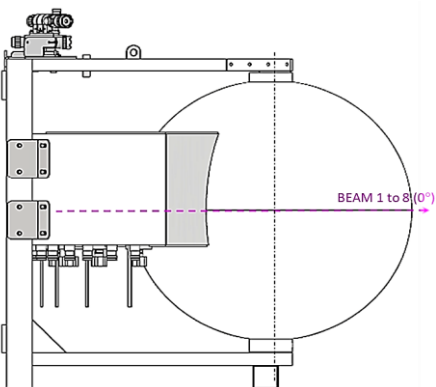
Laser pointer spot



16 (D0) MS-8F60



Laser pointer spot



6.30 **5 laser pointers** positioning guide

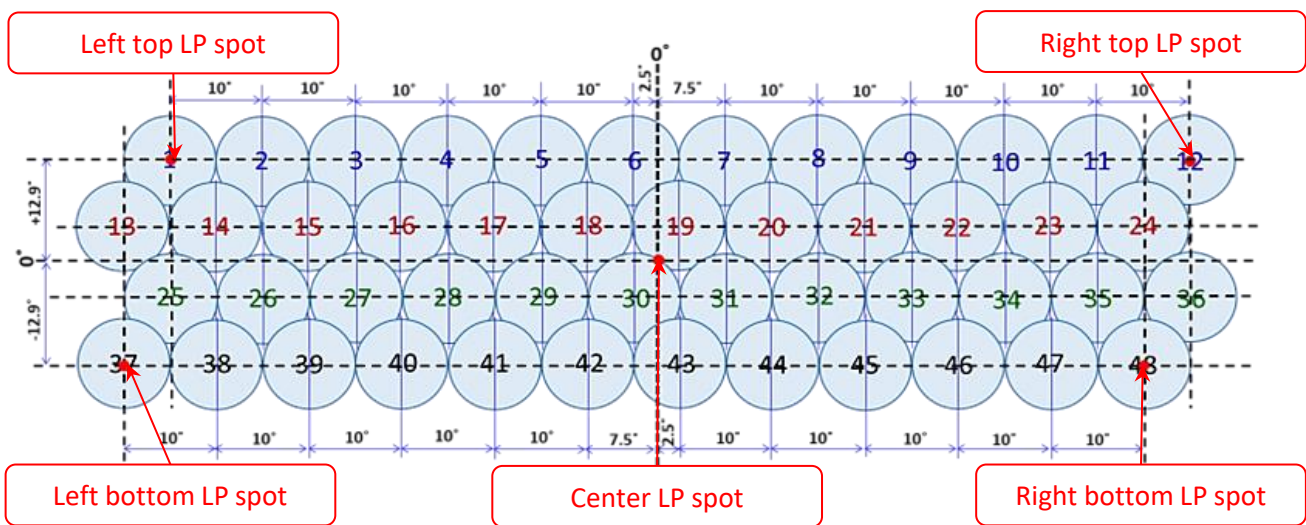
6.31 5 laser pointer SLP configure table (Example of MS-48H180)

Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting	Left Top Angle	Right Top Angle	Nos of Rows	Tilt Up	Row nos.	Tilt Down	Row nos.
A1	MS-48H180	1290.00 (50.79")	Ball 180cm	SET 2	A	1	52.5	57.5	4	-12.9	Row 1	12.9	Row 4

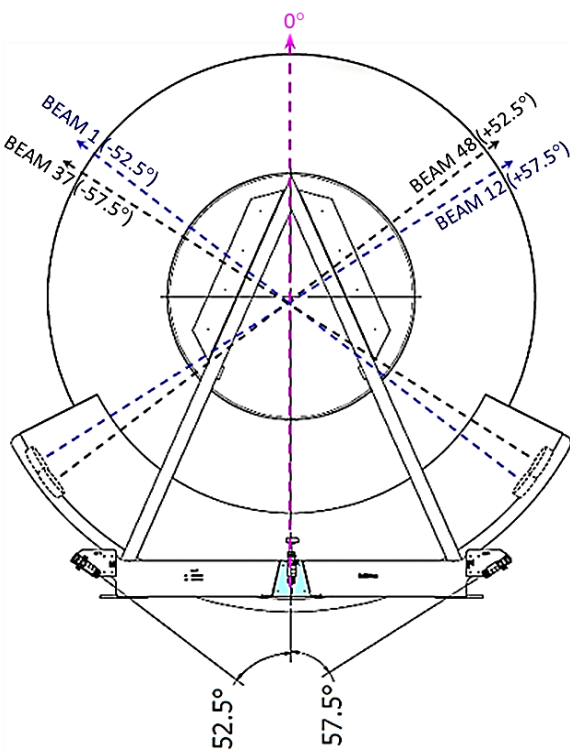
6.32 MS-48H180 Assembled with "Ball 180cm" base plate and "A1" setting



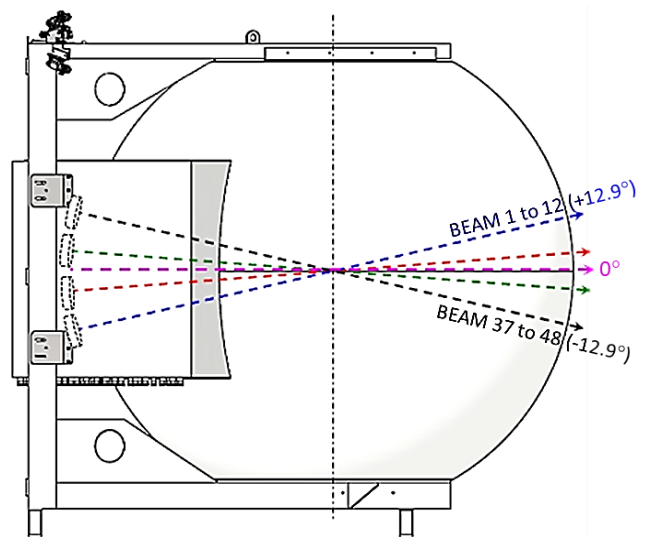
6.33 Horizontal rear view beam direction



6.34 Plan view beam direction

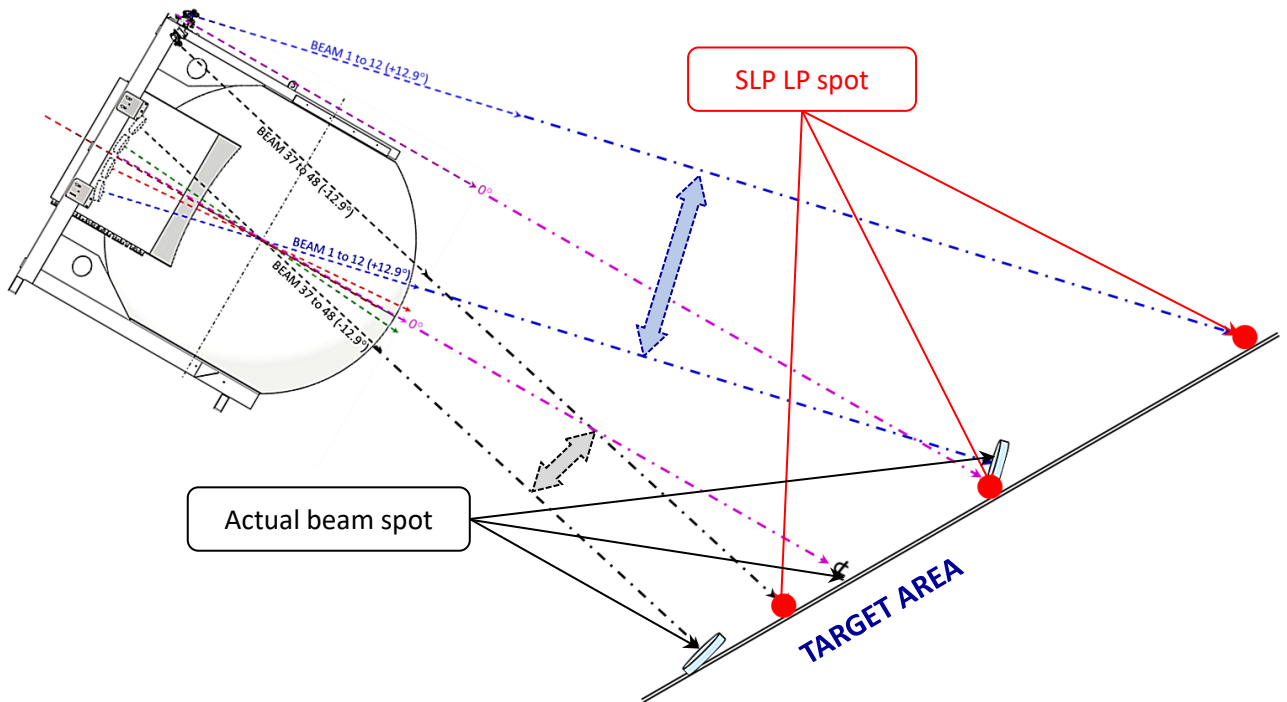


6.35 Side view beam direction

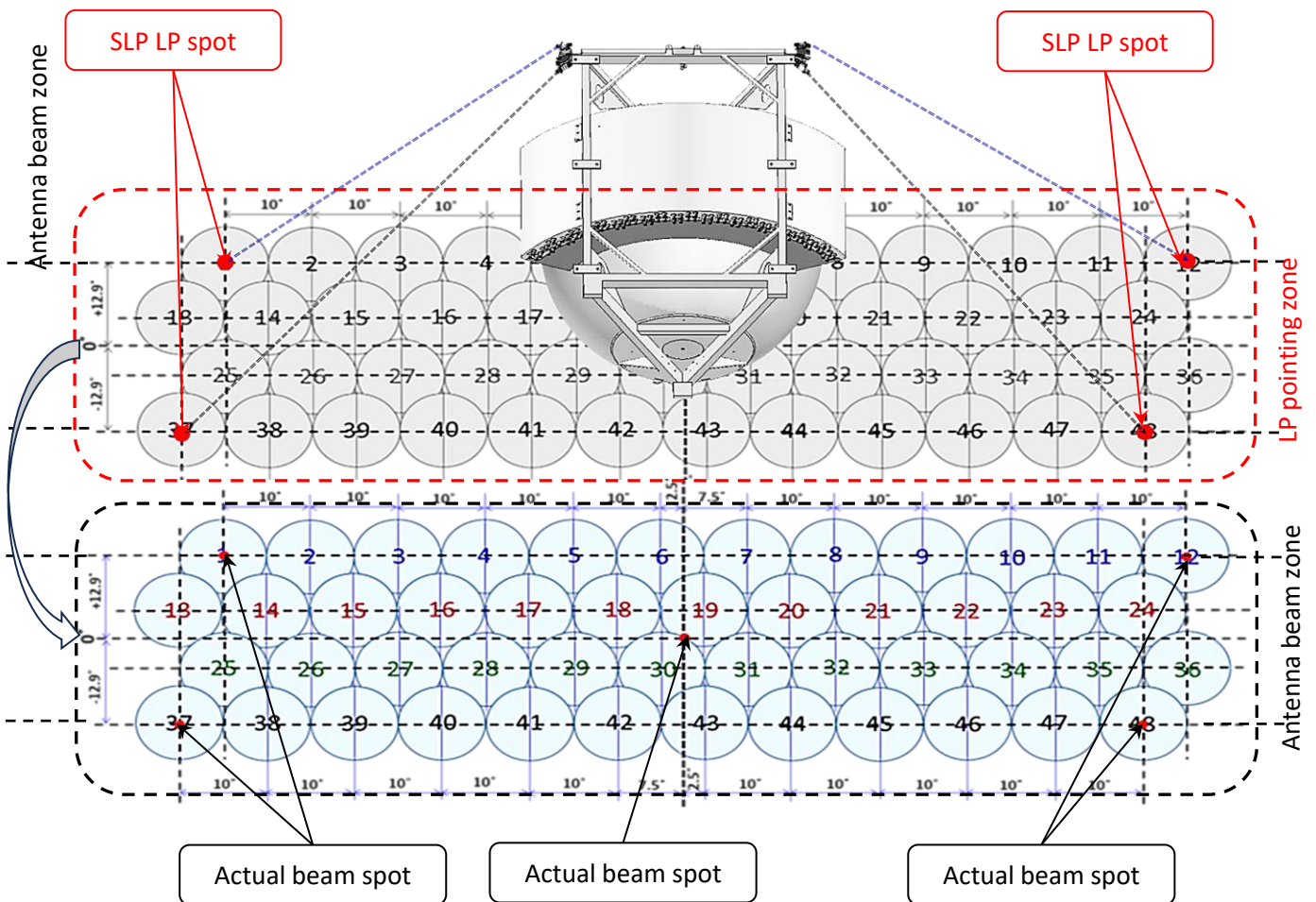




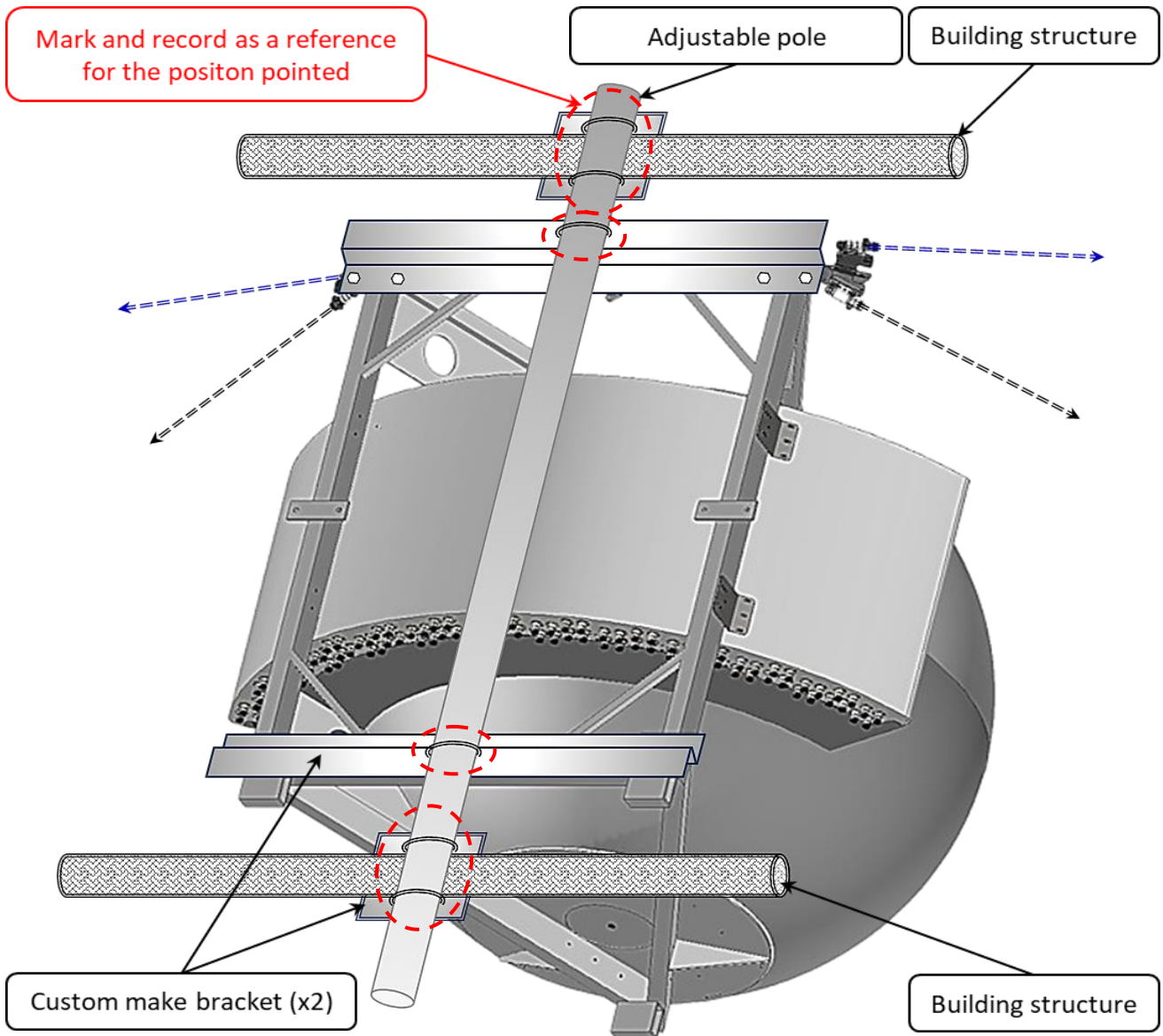
6.36 On-site positioning guide from side view  
 (Picture for illustration purpose)



6.37 On-site positioning guide from rear view  
 (Picture for illustration purpose)



6.38 Antenna position confirmed and secure with marking  
(Picture for illustration purpose)



**Note:**

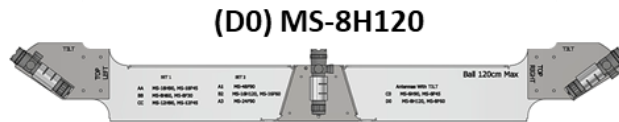
1. This laser positioning is a mechanical tilt process  
(Difference from the antenna RET [Remote Electrical Tilting] or manual tilt.)
2. Repeat the same process for another antenna positioning.

6.40 **3 laser pointers** positioning guide

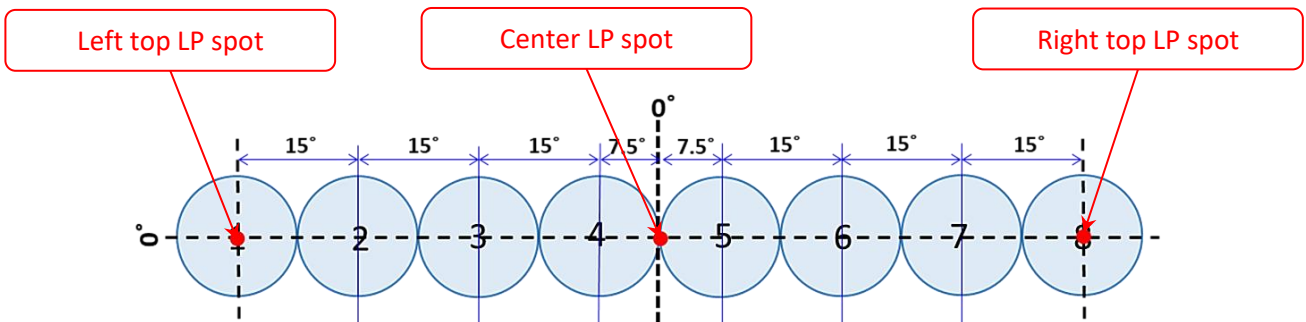
6.41 3 laser pointer SLP configure table (Example of MS-8H120)

Setting	Model	Frame Width (mm/Inch)	Main Base Plate ID	Left & Right Base Plate ID	Base plate setting	Adjustable base plate setting	Left Top Angle	Right Top Angle	Nos of Rows	Tilt Up	Row nos.	Tilt Down	Row nos.
D0	MS-8H120	720.00 (28.35")	Ball 120cm Max	TILT	D	0	52.5	52.5	1				

6.42 MS-8H120 Assembled with "Ball 120cm Max" base plate and "D0" setting

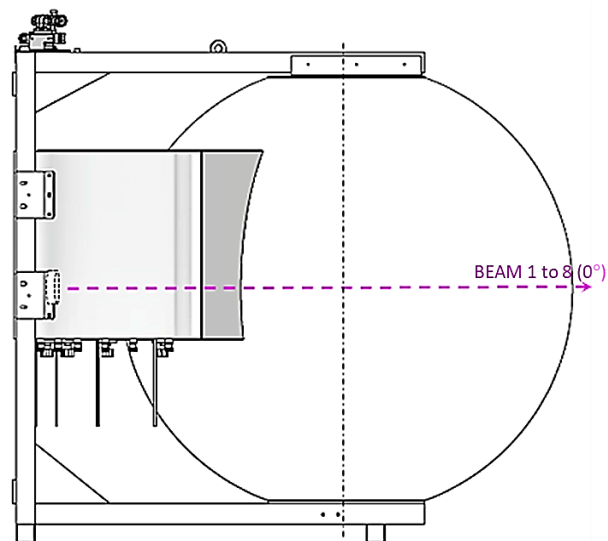
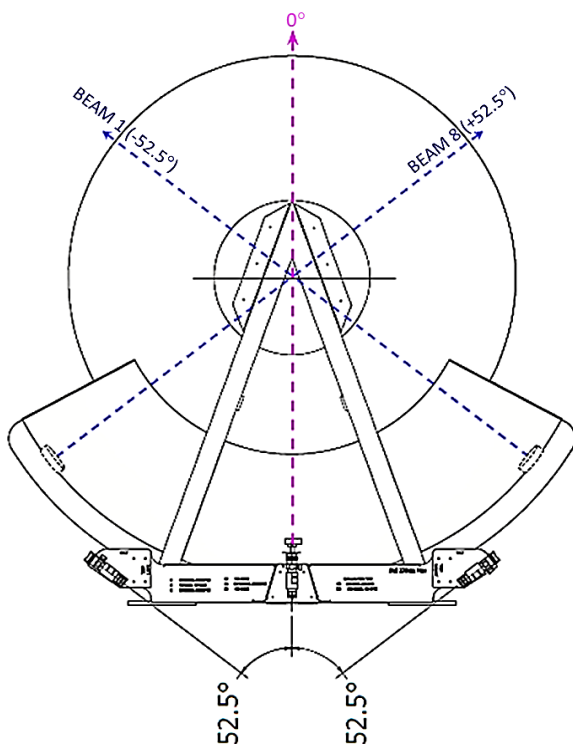


6.43 Horizontal rear view beam direction

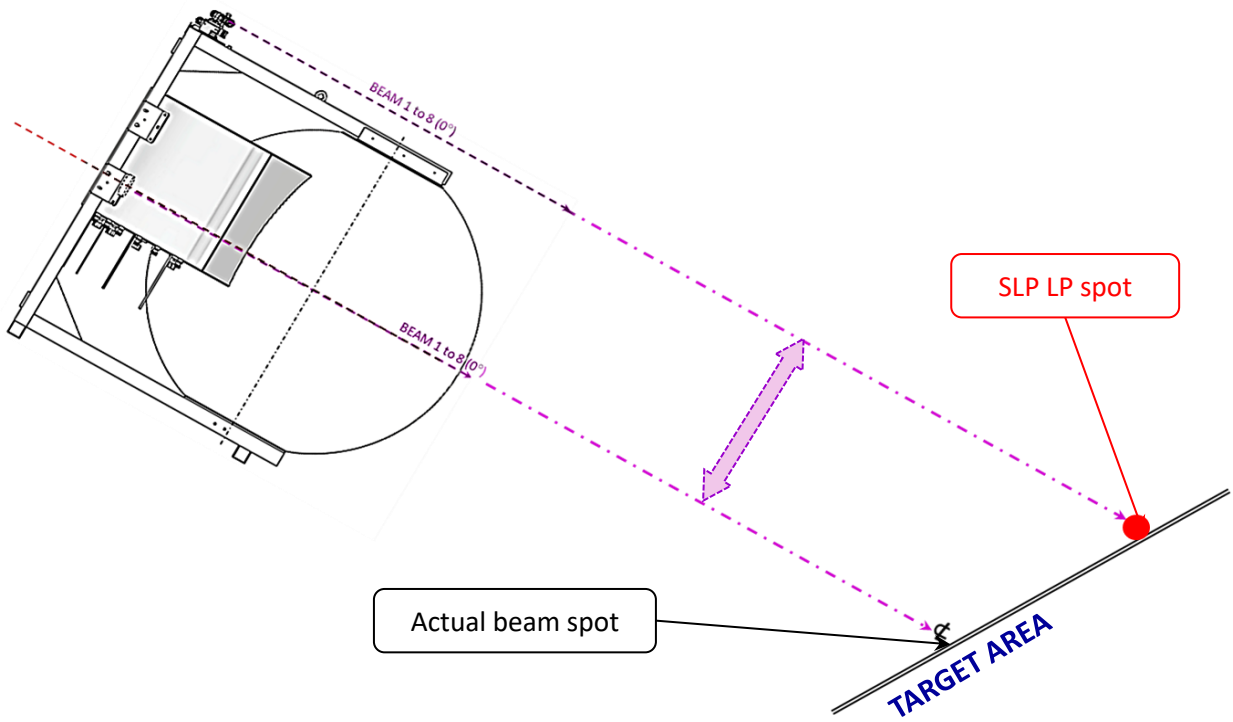


6.44 Plan view beam direction

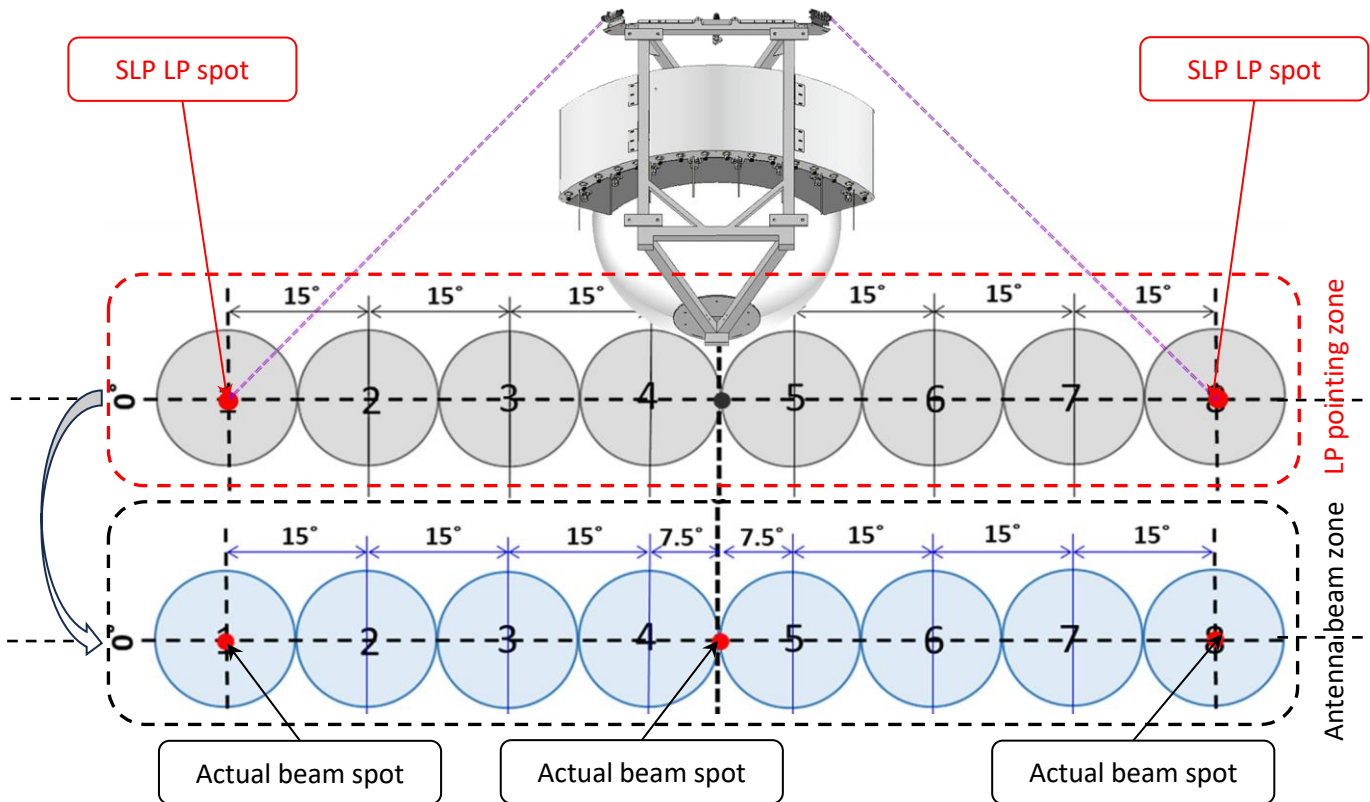
6.45 Side view beam direction



6.46 On-site positioning guide from side view  
 (Picture for illustration purpose)

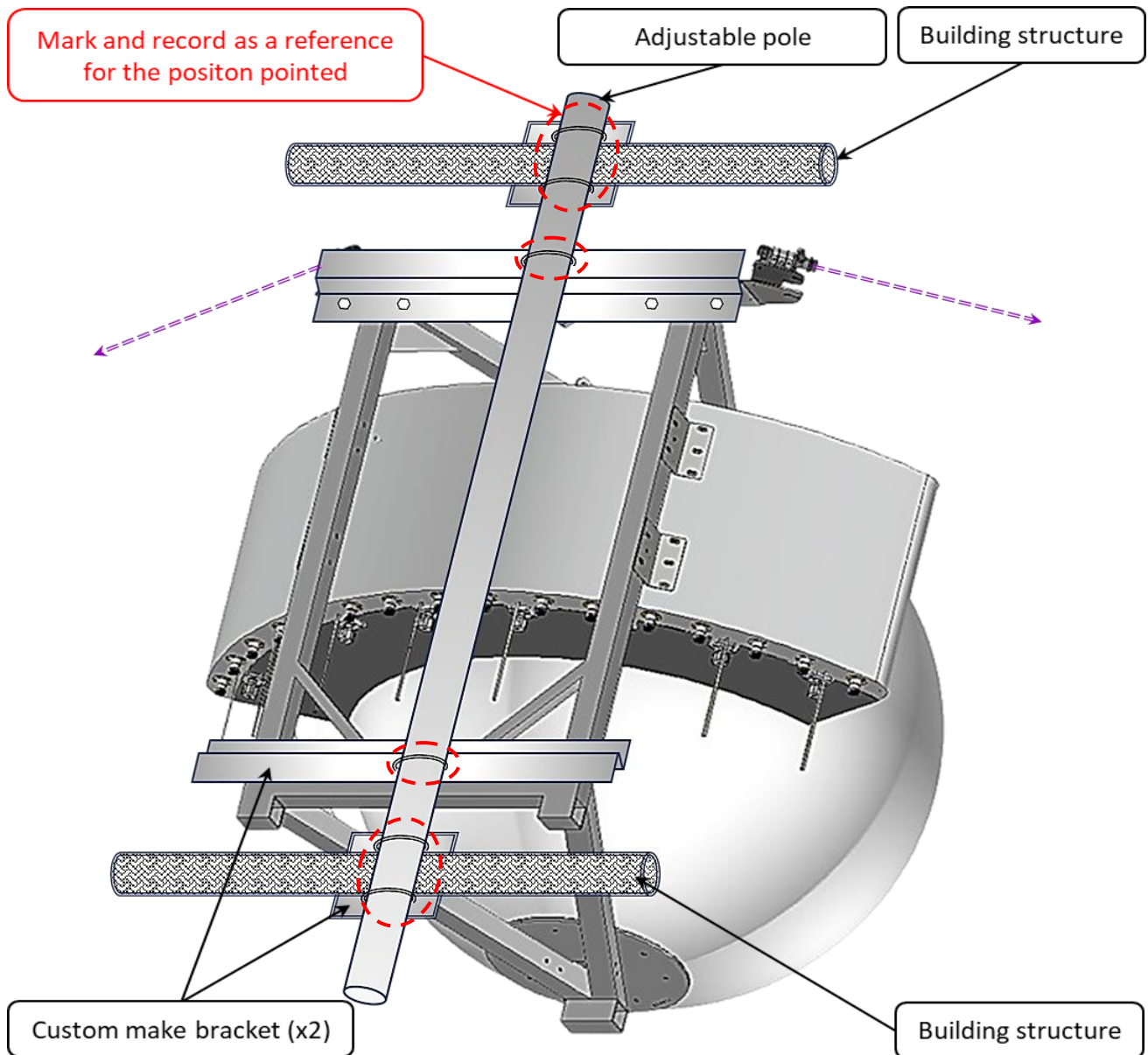


6.47 On-site positioning guide from rear view  
 (Picture for illustration purpose)





6.48 Antenna position confirmed and secure with marking  
(Picture for illustration purpose)



**Note:**

1. This laser positioning is a mechanical tilt process  
(Difference from the antenna RET [Remote Electrical Tilting] or manual tilt.)
2. Repeat the same process for another antenna positioning.