

Date	Prepared by	Approved by	Document nos	Revision
21 Sep 2021	Ray Ling	Pavel	MS-24H180-IM-001	2

**INSTRUCTION MANUAL MS-24H180**

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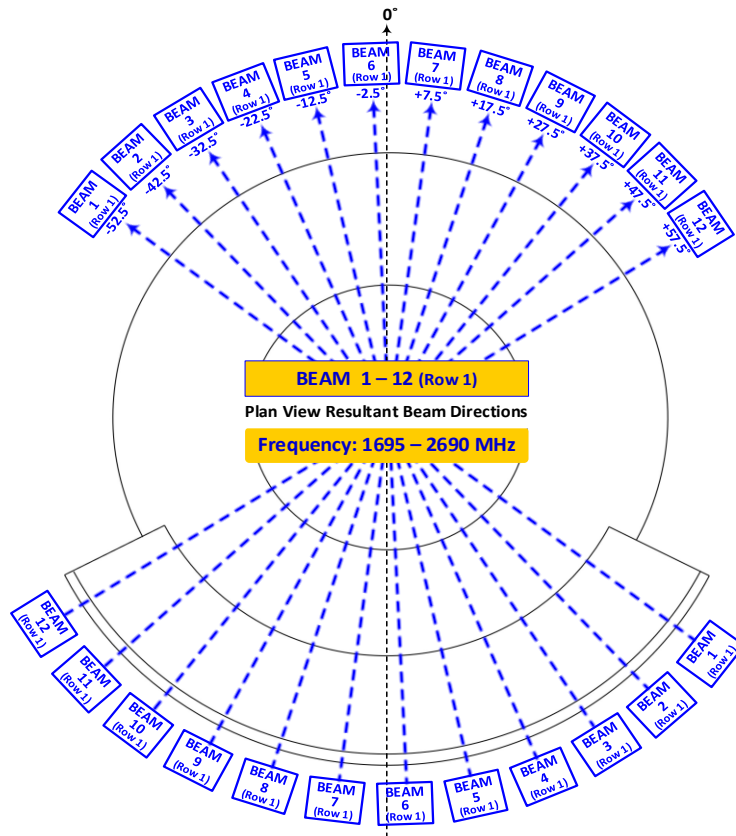
**Revision History:**

Date	Description	Revised by	Revision nos.
01-Jul-21	To include additional OPEN END bolt and nut sets for bracket mounting and Leveling of Antenna.	Ray Ling	1
21-Sep-21	General revision and update	Ray Ling	2

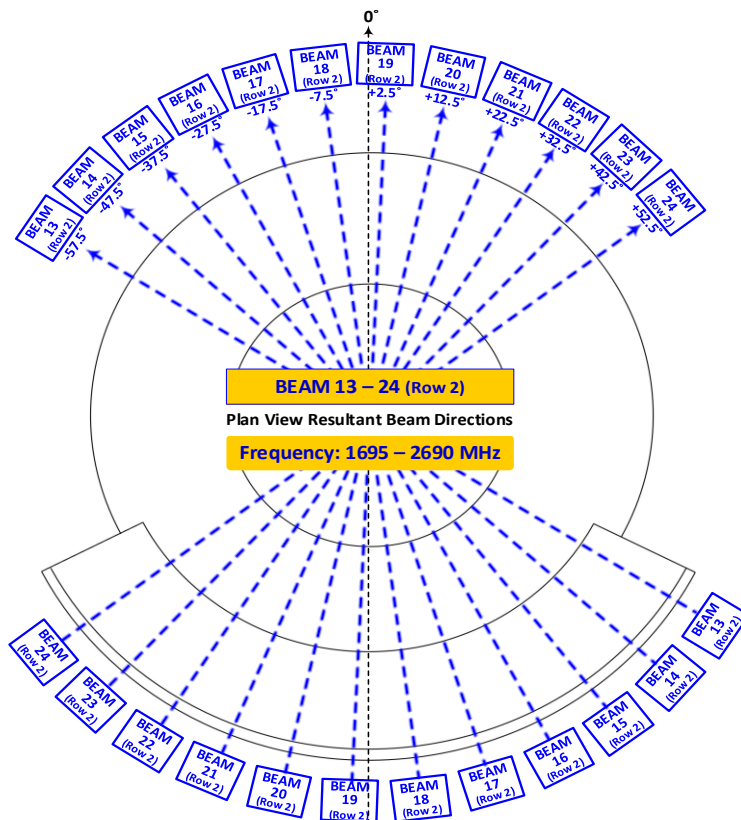
# 1.00 BEAMS & CONNECTORS:

## 1.10 Plan View Resultant Beam Direction

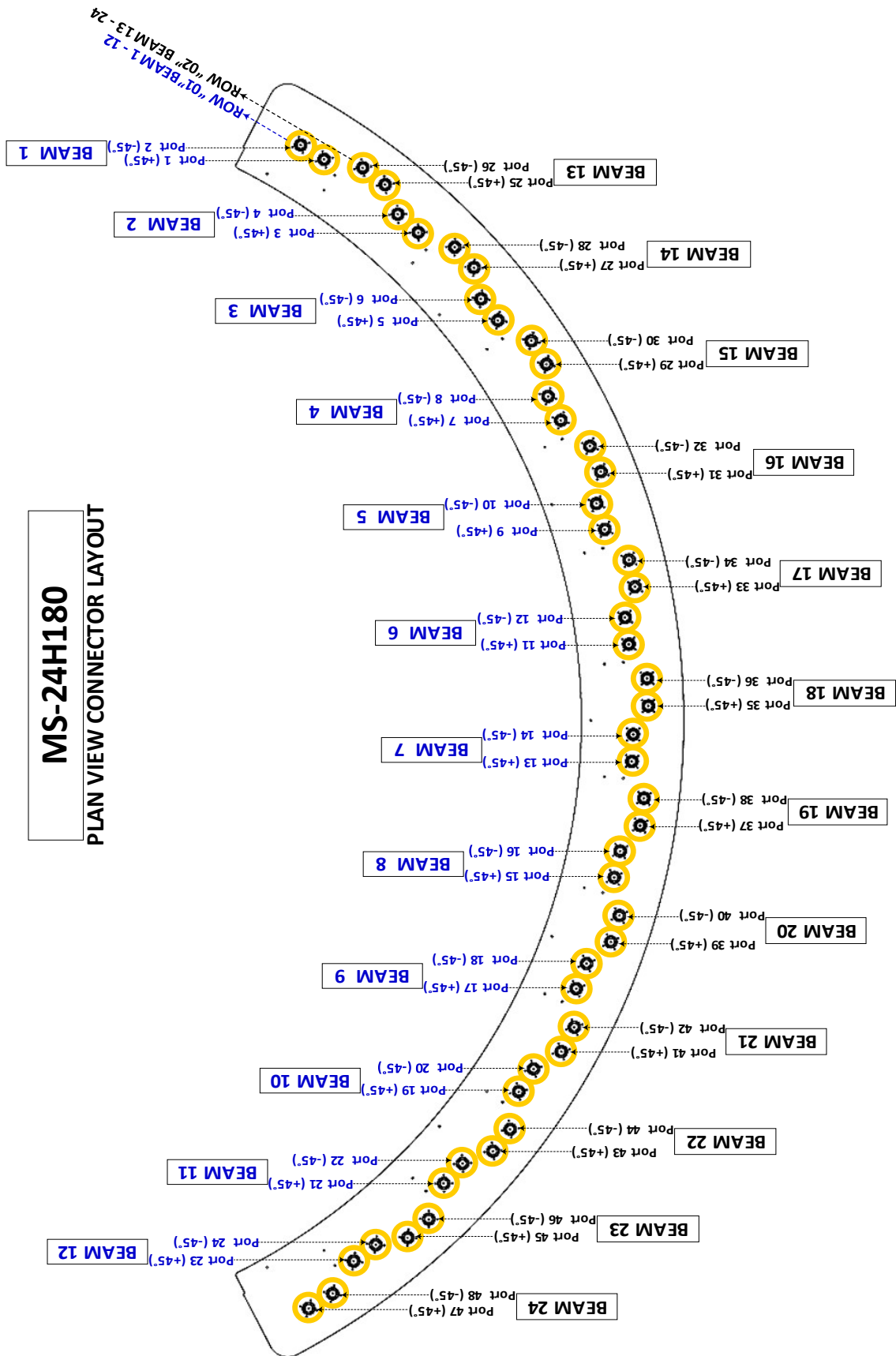
### 1.11 Beam 1-12 (Row 1)



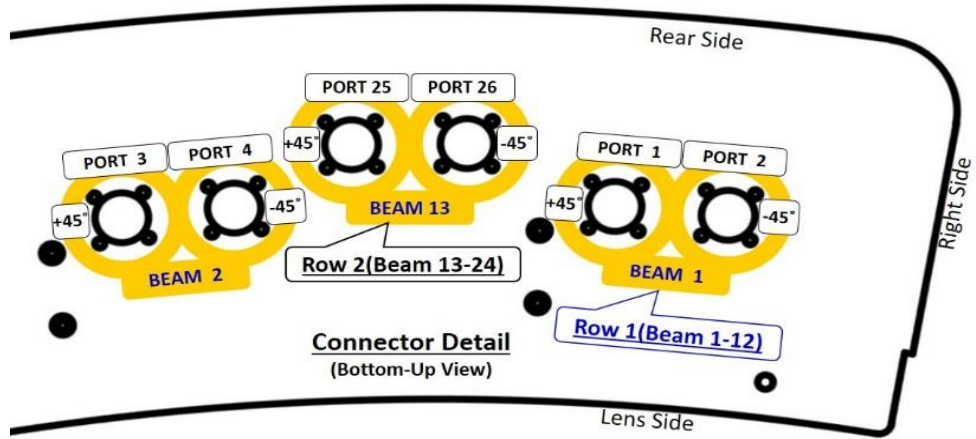
### 1.12 Beam 13-24 (Row 2)



# 1.20 Plan View Connector Layout



### 1.21 Connector Detail



### 1.30 Connector Port Table

#### 1.31 Row 1=Beam 1 to Beam 12

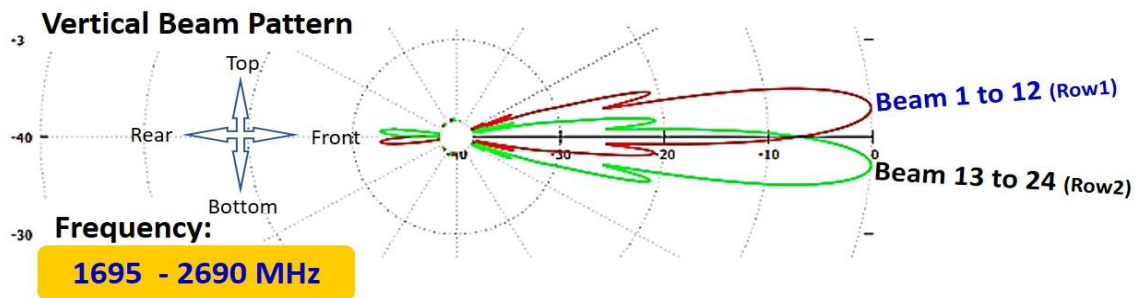
BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM
12	11	10	9	8	7	6	5	4	3	2	1	
PORT 23 (+45°)	PORT 21 (+45°)	PORT 19 (+45°)	PORT 17 (+45°)	PORT 15 (+45°)	PORT 13 (+45°)	PORT 11 (+45°)	PORT 9 (+45°)	PORT 7 (+45°)	PORT 5 (+45°)	PORT 3 (+45°)	PORT 1 (+45°)	
PORT 24 (-45°)	PORT 22 (-45°)	PORT 20 (-45°)	PORT 18 (-45°)	PORT 16 (-45°)	PORT 14 (-45°)	PORT 12 (-45°)	PORT 10 (-45°)	PORT 8 (-45°)	PORT 6 (-45°)	PORT 4 (-45°)	PORT 2 (-45°)	

#### 1.32 Row 2=Beam 13 to Beam 24

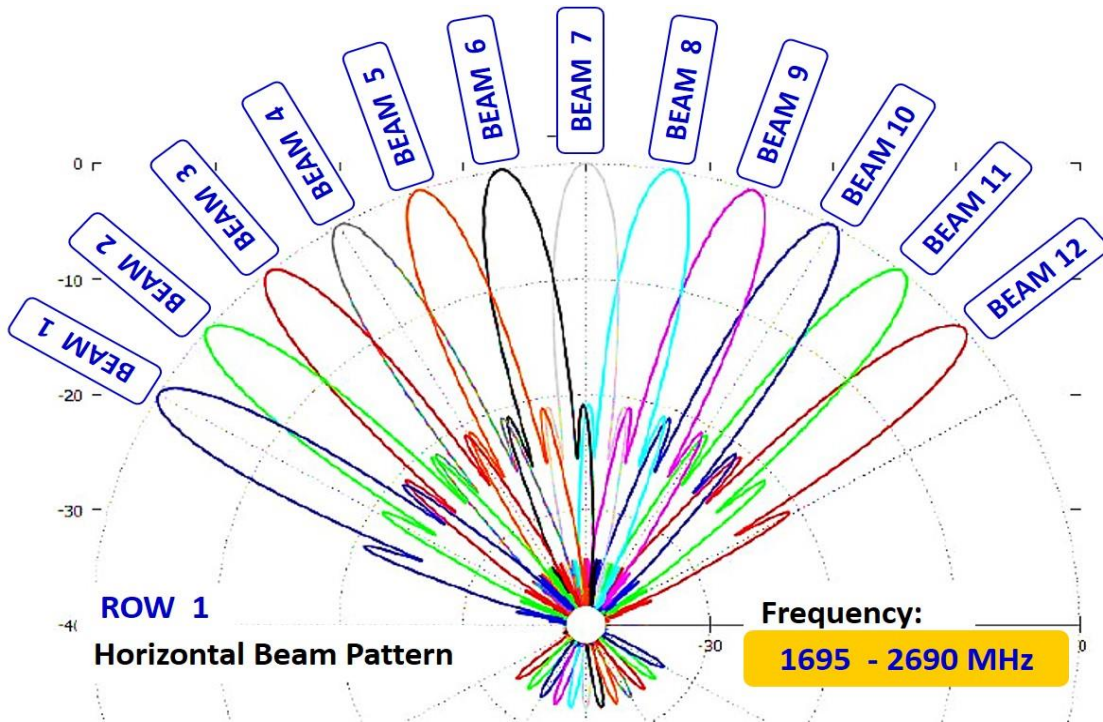
BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM
24	23	22	21	20	19	18	17	16	15	14	13	
PORT 47 (+45°)	PORT 45 (+45°)	PORT 43 (+45°)	PORT 41 (+45°)	PORT 39 (+45°)	PORT 37 (+45°)	PORT 35 (+45°)	PORT 33 (+45°)	PORT 31 (+45°)	PORT 29 (+45°)	PORT 27 (+45°)	PORT 25 (+45°)	
PORT 48 (-45°)	PORT 46 (-45°)	PORT 44 (-45°)	PORT 42 (-45°)	PORT 40 (-45°)	PORT 38 (-45°)	PORT 36 (-45°)	PORT 34 (-45°)	PORT 32 (-45°)	PORT 30 (-45°)	PORT 28 (-45°)	PORT 26 (-45°)	

## 2.00 BEAM PATTERN

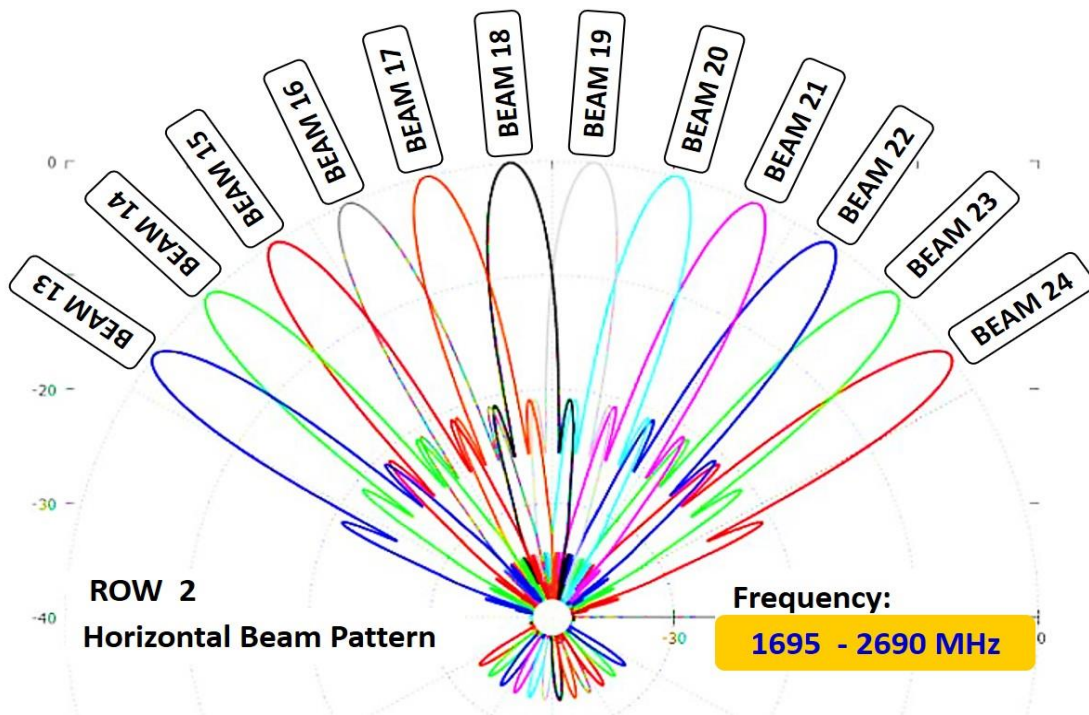
### 2.10 Vertical Beam Pattern (Row 1 & 2)



### 2.20 Horizontal Beam Pattern (Row 1)



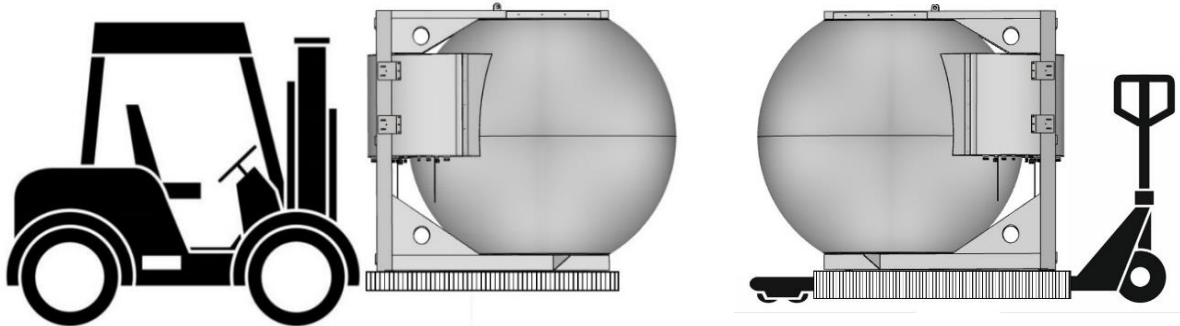
### 2.30 Horizontal Beam Pattern (Row 2)



### 3.00 TRANSPORTATION / INSTALLATION

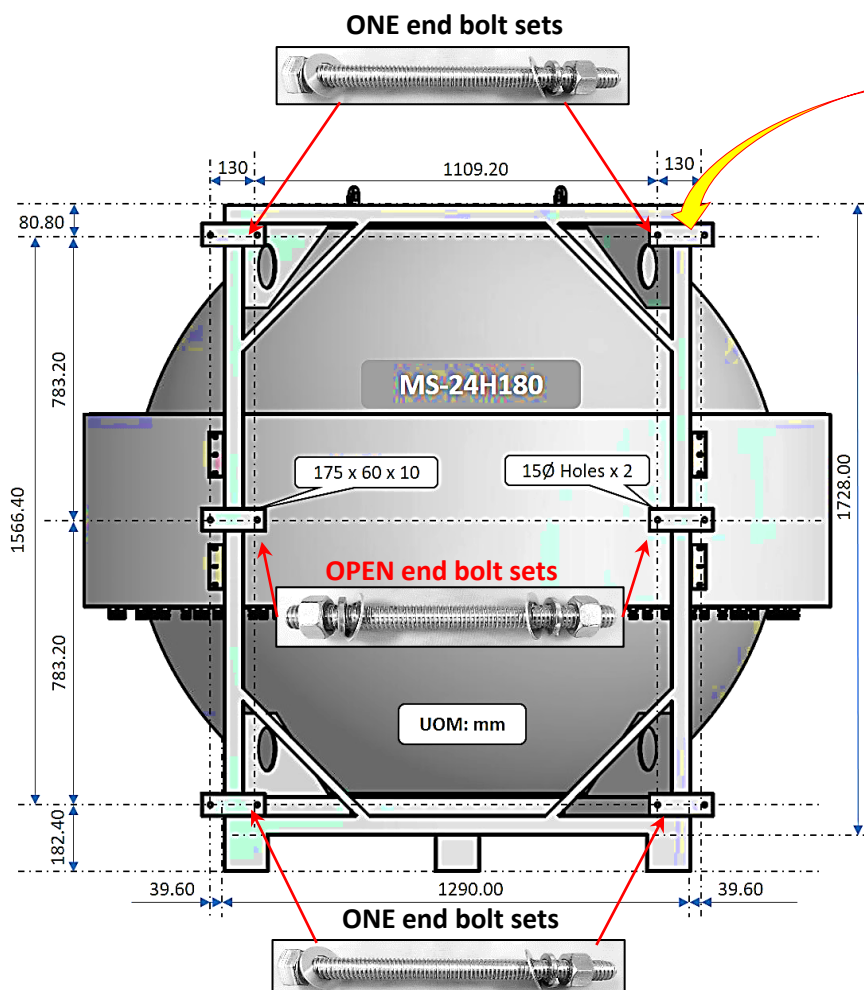
#### 3.10 Transportation (From Point to Point)

Strictly comply to the Local authority and regulatory on Workplace Safety and Health Control and Measure when moving and transportation of large or heavy equipment, appropriate material handling machine should be use. **(Risk Assessment apply for Forklift or Pallet Truck Lifting)**



#### 3.20 Bracket Mounting

Item	Lens/Types	Holes Size	Bracket Qty	For direct behine backshell	One end bolt & nuts sets
				<b>OPEN end bolt &amp; nuts sets</b>	<b>M14 x 15cm=12sets</b>
1	180cm	Ø15mm x 12	6	<b>M14 x 15cm=4sets</b>	<b>M14 x 15cm=12sets</b>



Attached the bracket tighten with specified bolts sets.

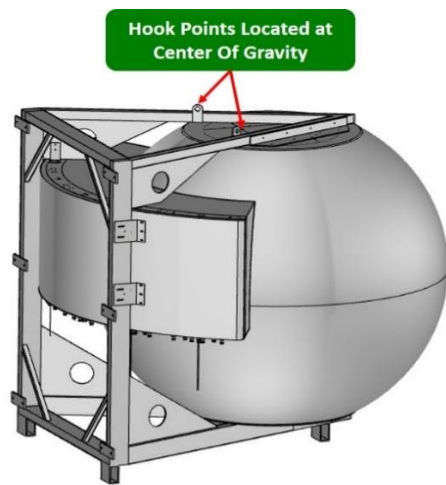
**Important Notes:**  
End User is require to Custom-Make the additional supporting bracket and tighten to the existing Antenna bracket to meet the deployment needs.

### 3.30 Installation using a crane

Strictly comply to the Local authority and regulatory on Workplace Safety and Health Control and Measure when performing lifting of large or heavy equipment, appropriate material handling machine should be use and only certified personal should perform the task. **(Risk Assessment require to apply for both Up-Lifting and Down-Lifting.)**

### 3.31 Lifting the Antenna

The antenna has 2 hook points installed on the top frame (located slightly behind the center of the sphere). These hooks are designed at the center of gravity point of the antenna. A cable, rope can be securely fastened to the hooks and the antenna can be lifted using a crane or forklift as pictured below.

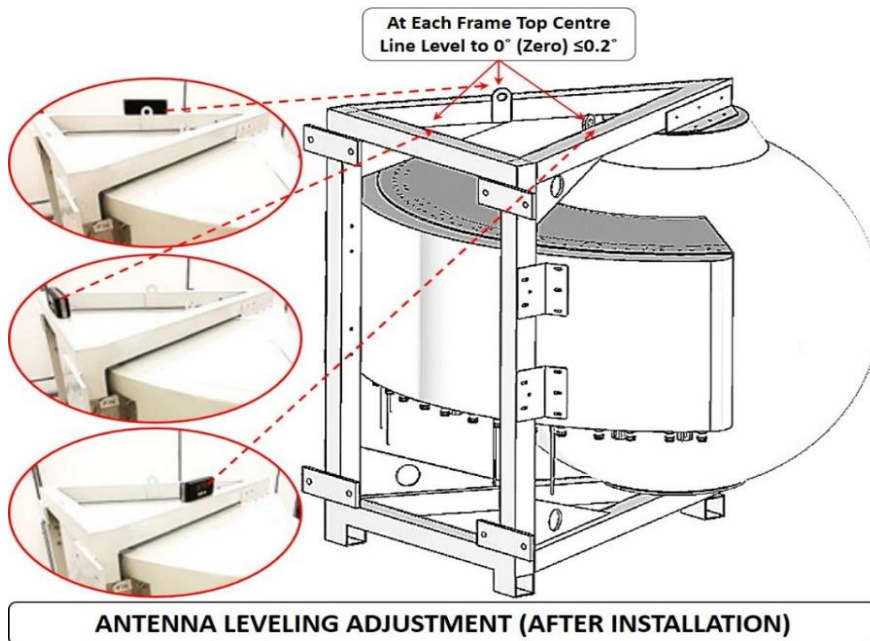


### 3.40 Antenna Installation

With reference to "**Bracket Mounting**" Procedure, End user is required to Custom-Make the additional supporting bracket and tighten it to the existing Antenna bracket to meet the deployment needs.

### 3.41 Antenna Levelling

After the Antenna is mounted to the bracket, it is required to be adjusted to 0° (Zero Degree) with  $\leq 0.2^\circ$  on 3 sides of the frame top level. (Rear, Right & Left=As shown in picture)



### 3.42 Digital Level Gauge Calibration



### 3.43 Adjustment Requirement

