

Date	Prepared by	Approved by	Document nos	Revision
19 May 2023	Ray Ling	Pavel	MS-24F60-IM-001	0

**INSTRUCTION MANUAL MS-24F60**

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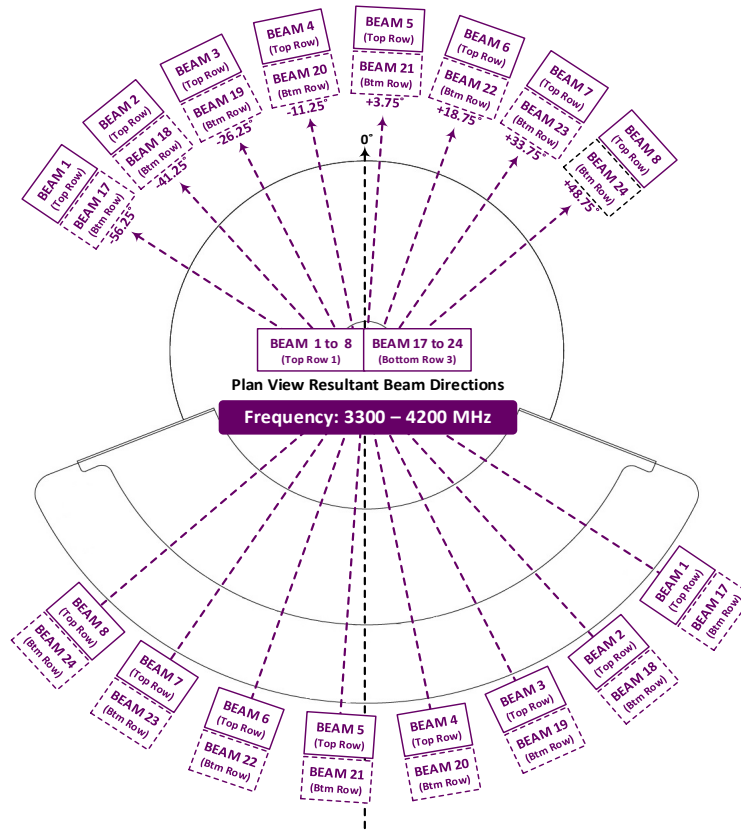
**Revision History:**

Date	Description	Revised by	Rev nos

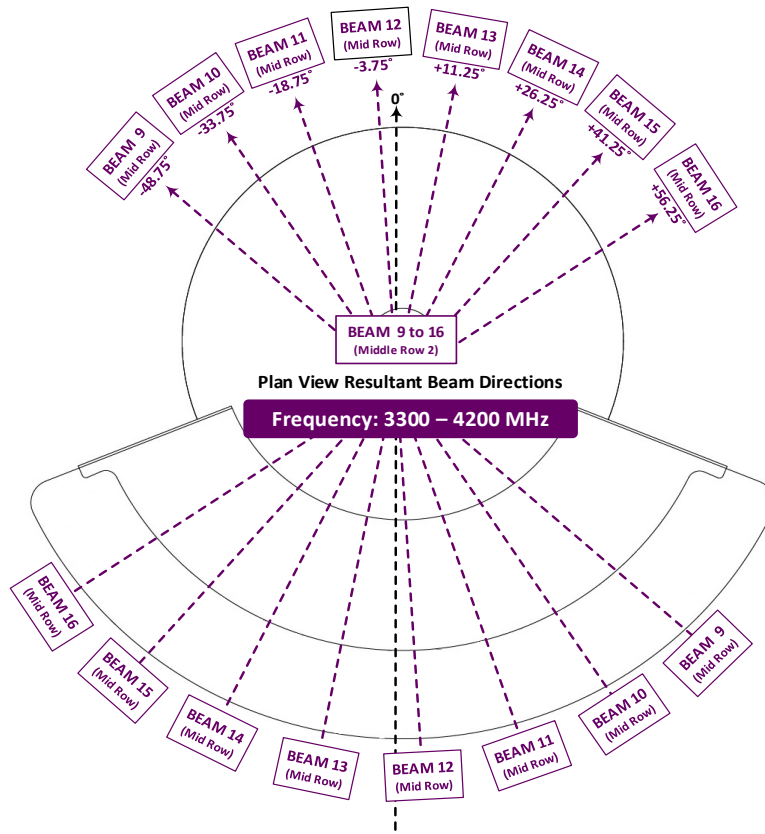
# 1.00 BEAMS & CONNECTORS:

## 1.10 Plan View Resultant Beam Direction

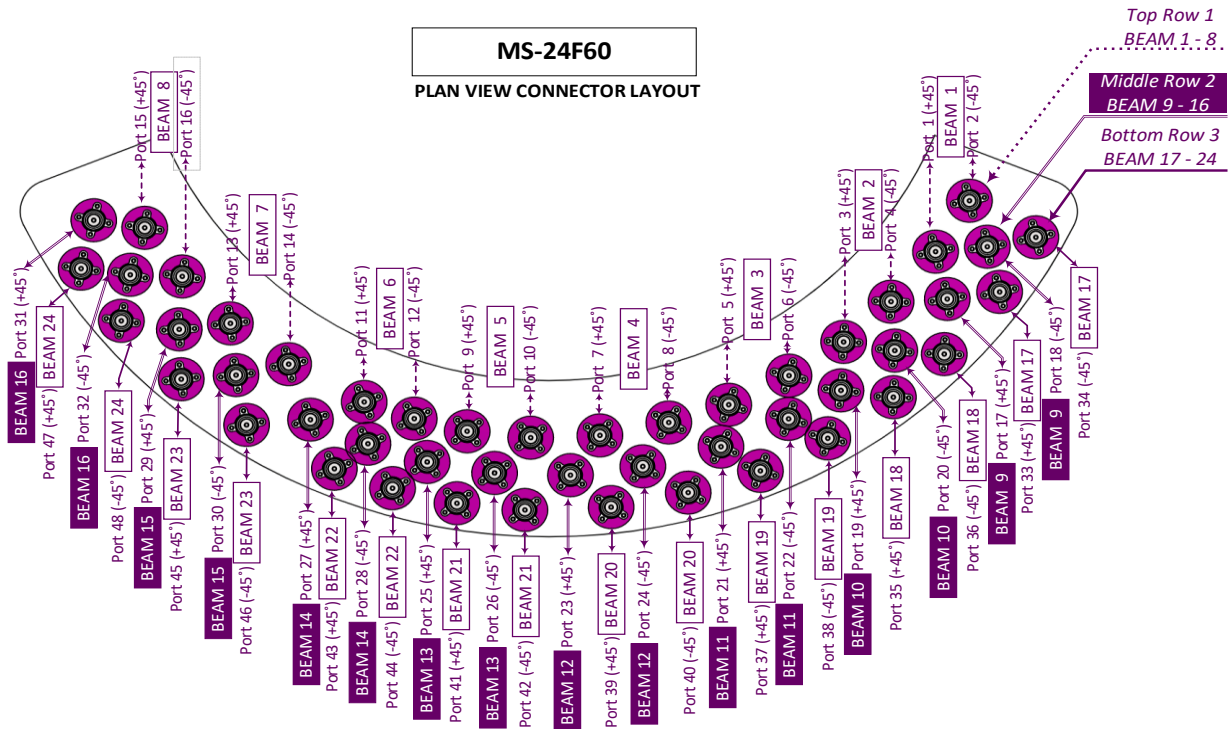
### 1.11 Beam 1-8 (Top Row 1), Beam 17-24 (Bottom Row 3)



### 1.12 Beam 9-16 (Middle Row 2)



## 1.20 Connector Layout



## 1.30 Connector Port Table

### 1.31 Beam 1-8 (Top Row 1)

BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM
8	7	6	5	4	3	2	1
PORT 15 (+45°)	PORT 16 (-45°)	PORT 13 (+45°)	PORT 14 (-45°)	PORT 11 (+45°)	PORT 12 (-45°)	PORT 9 (+45°)	PORT 10 (-45°)
PORT 7 (+45°)	PORT 8 (-45°)	PORT 5 (+45°)	PORT 6 (-45°)	PORT 3 (+45°)	PORT 4 (-45°)	PORT 1 (+45°)	PORT 2 (-45°)

### 1.32 Beam 9-16 (Middle Row 2)

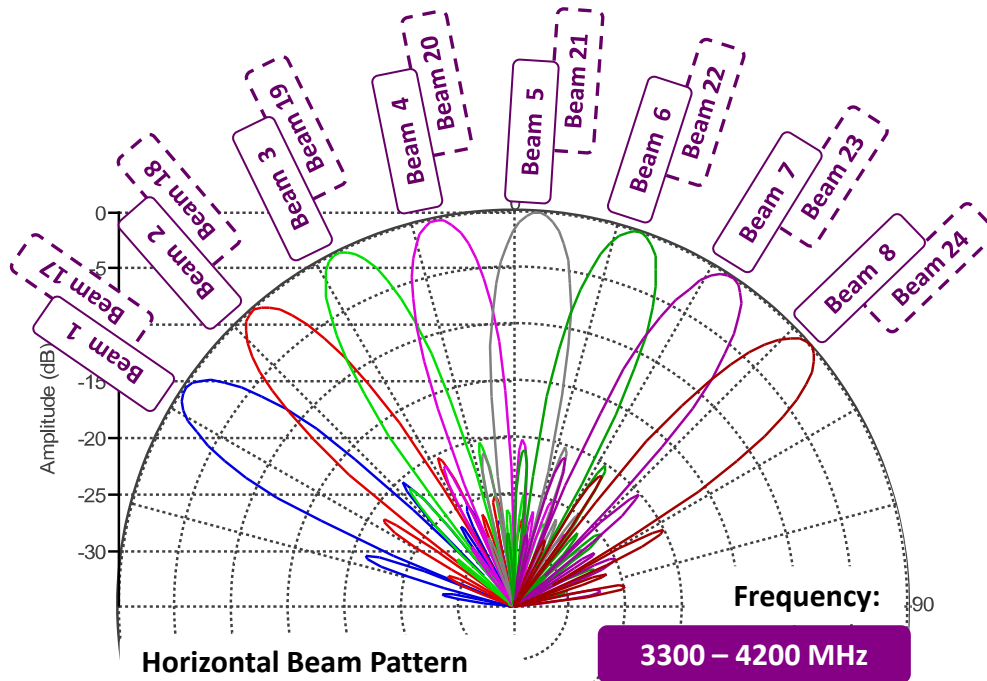
BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM
16	15	14	13	12	11	10	9
PORT 31 (+45°)	PORT 32 (-45°)	PORT 29 (+45°)	PORT 30 (-45°)	PORT 27 (+45°)	PORT 28 (-45°)	PORT 25 (+45°)	PORT 26 (-45°)
PORT 23 (+45°)	PORT 24 (-45°)	PORT 21 (+45°)	PORT 22 (-45°)	PORT 19 (+45°)	PORT 20 (-45°)	PORT 17 (+45°)	PORT 18 (-45°)

### 1.33 Beam 17-24 (Bottom Row 3)

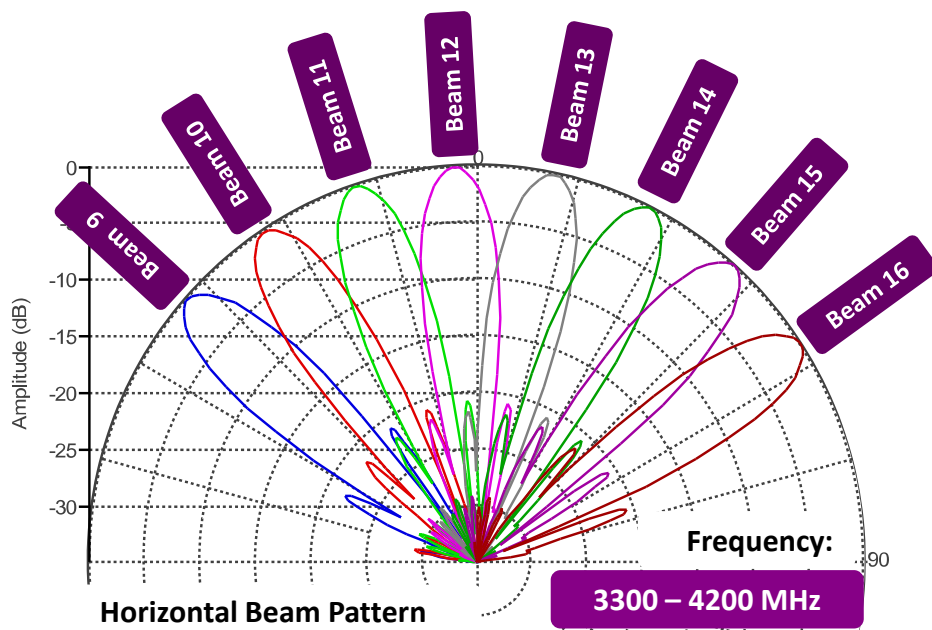
BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM	BEAM
24	23	22	21	20	19	18	17
PORT 47 (+45°)	PORT 48 (-45°)	PORT 45 (+45°)	PORT 46 (-45°)	PORT 43 (+45°)	PORT 44 (-45°)	PORT 41 (+45°)	PORT 42 (-45°)
PORT 39 (+45°)	PORT 40 (-45°)	PORT 37 (+45°)	PORT 38 (-45°)	PORT 35 (+45°)	PORT 36 (-45°)	PORT 33 (+45°)	PORT 34 (-45°)

## 2.00 BEAM PATTERN

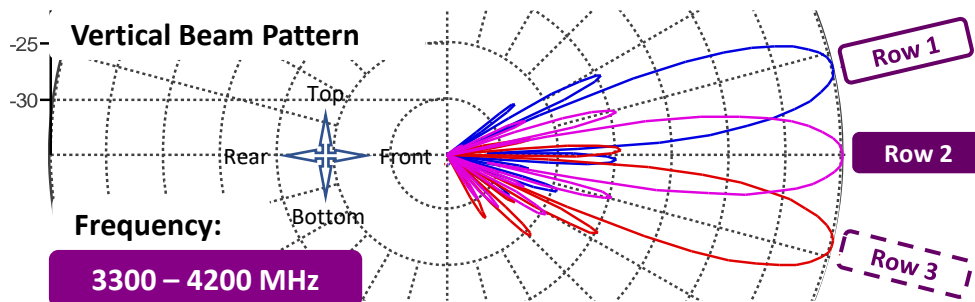
### 2.10 Horizontal Beam Pattern (Row 1 & 3)



### 2.20 Horizontal Beam Pattern (Row 2)



### 2.30 Vertical Beam Pattern

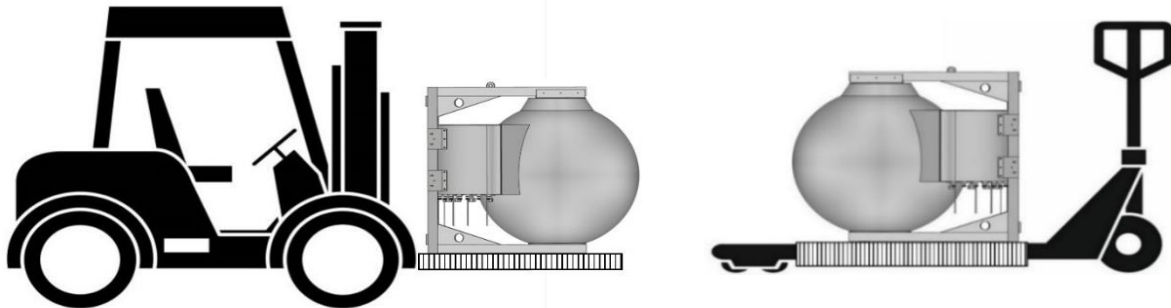


### 3.00 TRANSPORTATION / INSTALLATION

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

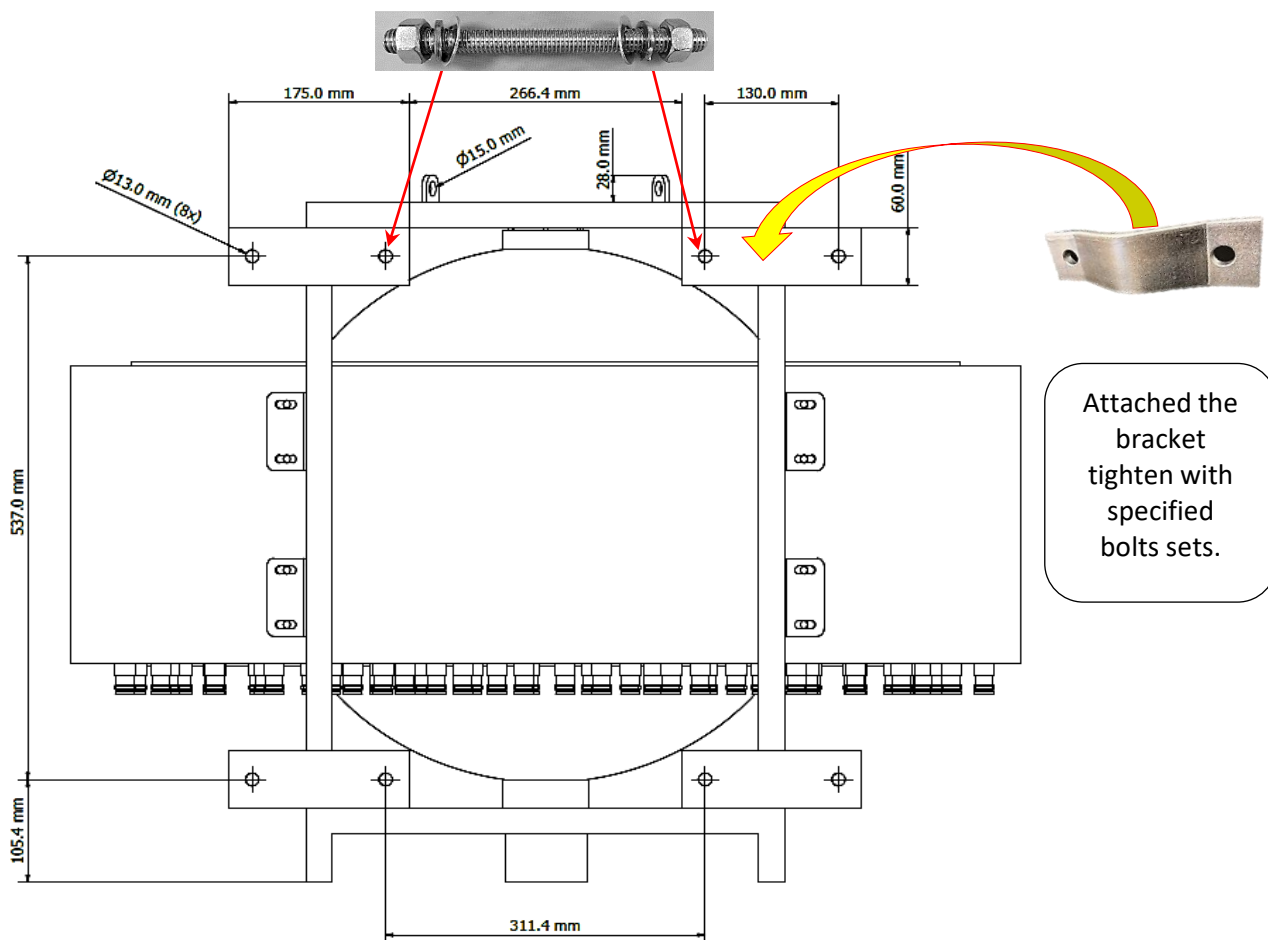
Strictly comply to the Local authority and regulatory on Workplace Safety and Health Control and Measure when moving and transportation of large or heavy equipment, appropriate material handling machine should be use.

**(Risk Assessment apply for Forklift or Pallet Truck Lifting)**



#### 3.20 Bracket Mounting

Item	Lens/Types	Holes Size	Bracket Qty	<u>OPEN</u> end bolt & nuts sets
1	30cm to 120cm	Ø13mm x 8	4	M12 x 15cm=8sets



#### **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.



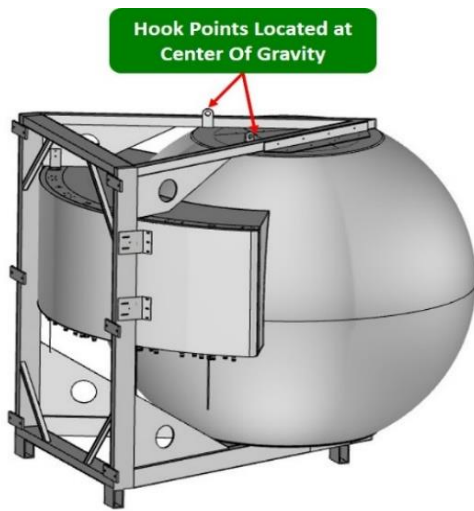
### 3.30 Installation using a crane

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 used and only certified personnel should perform the task.

**(Risk Assessment requirement applies 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 as pictured below.

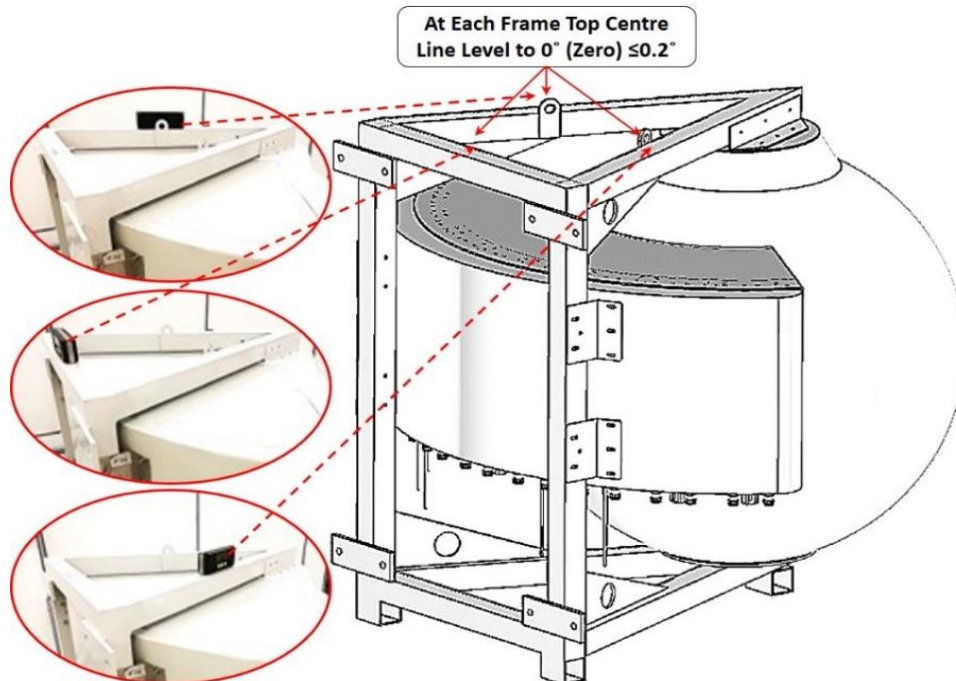


### 3.40 Antenna Installation

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 Leveling

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)



### ANTENNA LEVELING ADJUSTMENT (AFTER INSTALLATION)

### 3.42 Digital Level Gauge Calibration



### 3.43 Adjustment Requirement



### ANTENNA LEVELING ACCEPTED



### REQUIRE ADJUSTMENT