

Date	Prepared by	Approved by	Document nos	Revision
9 Nov 2023	Ray Ling	Pavel	MS-42-60-IM-001	6

INSTRUCTION MANUAL MS-4.2DB60

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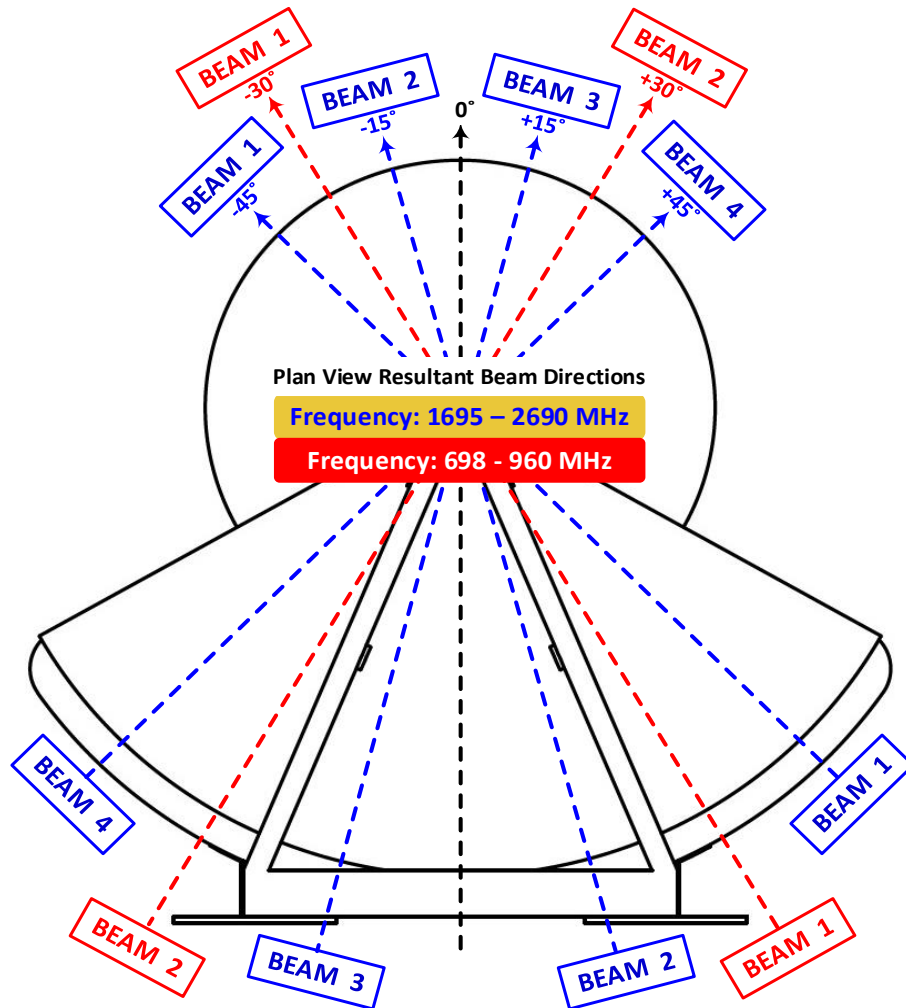
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Revision History:

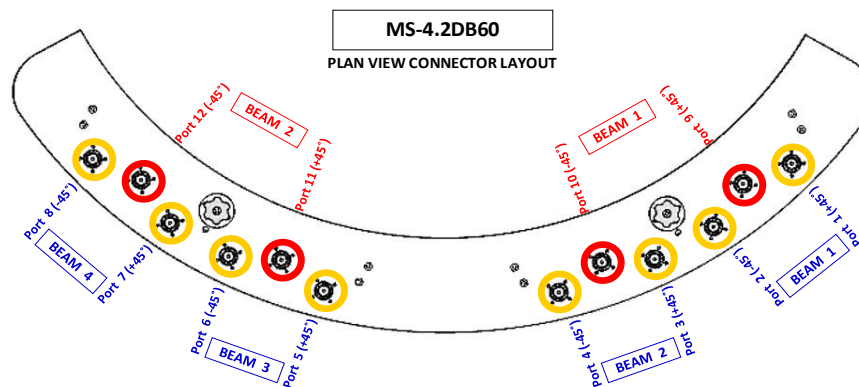
Date	Description	Revised by	Rev no
19-May-20	General Update to Include Model T	Ray Ling	1
17-Sep-21	Revised Bolt & Nut Types for Mounting Bracket	Ray Ling	2
19-May-23	Separate T Band & L Band Manual & General Update	Ray Ling	3
20-Jul-23	Include RET Controller Display	Ray Ling	4
01-Aug-23	Revised RET Controller Display	Ray Ling	5
09-Nov-23	Add RET AISG Cable Installation Caution Point	Ray Ling	6

1.00 BEAMS & CONNECTORS:

1.10 Plan View Resultant Beam Direction



1.20 Plan View Connector Layout

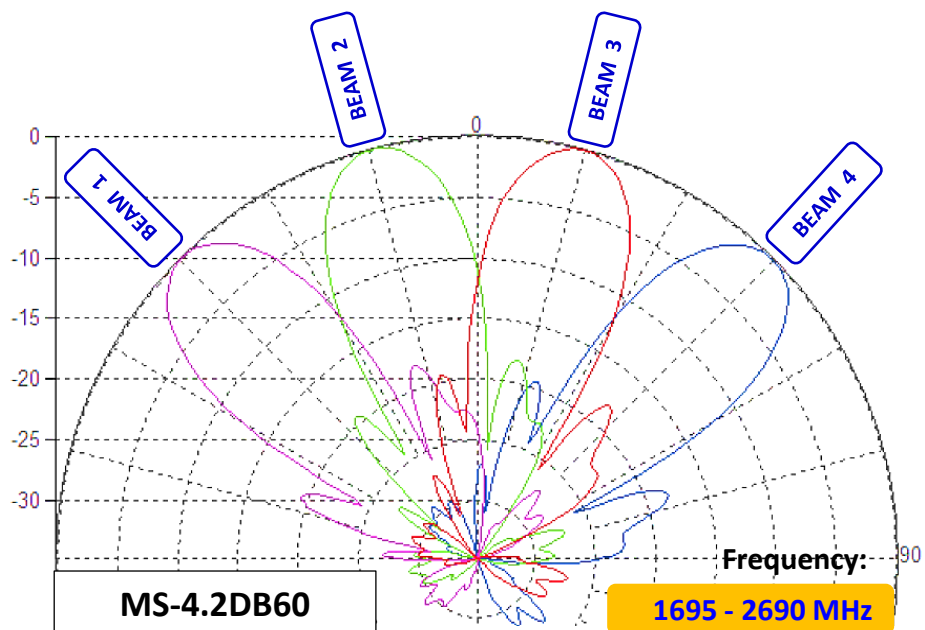


1.30 Ports Table

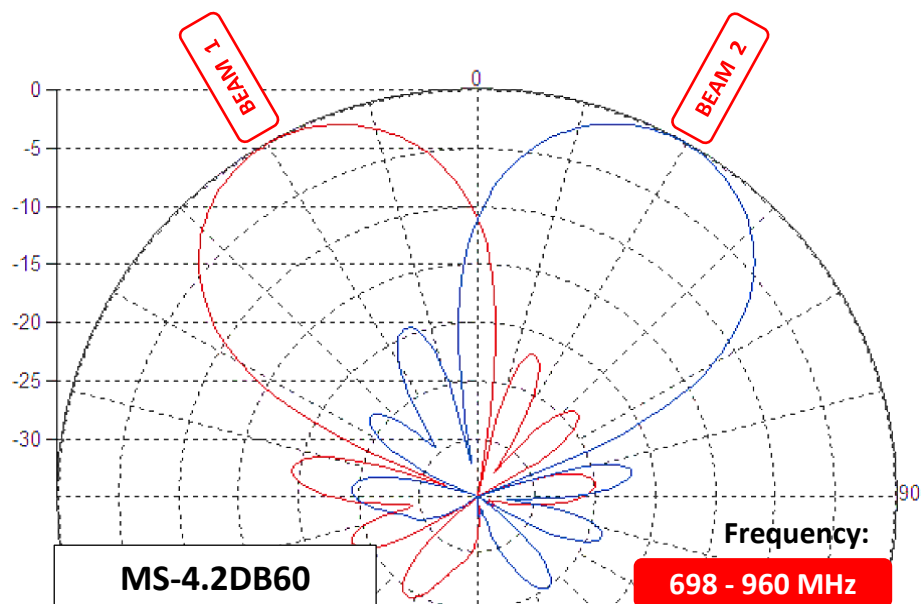
BEAM 2				BEAM 1			
PORT 12 (-45°)		PORT 11 (+45°)		PORT 10 (-45°)		PORT 9 (+45°)	
BEAM 4		BEAM 3		BEAM 2		BEAM 1	
PORT 8 (-45°)	PORT 7 (+45°)	PORT 6 (-45°)	PORT 5 (+45°)	PORT 4 (-45°)	PORT 3 (+45°)	PORT 2 (-45°)	PORT 1 (+45°)

2.00 PATTERN DIAGRAM

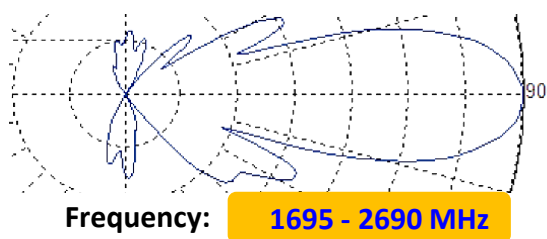
2.10 High-Band Horizontal Beam Pattern



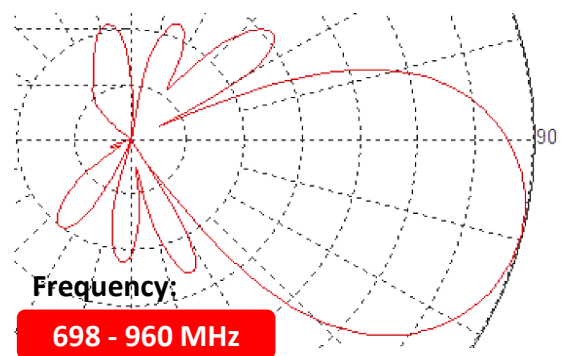
2.20 L-Band Horizontal Beam Pattern



2.30 High-Band Vertical Beam Pattern



2.40 L-Band Vertical Beam Pattern



3.00 MANUAL TILT ADJUSTMENT

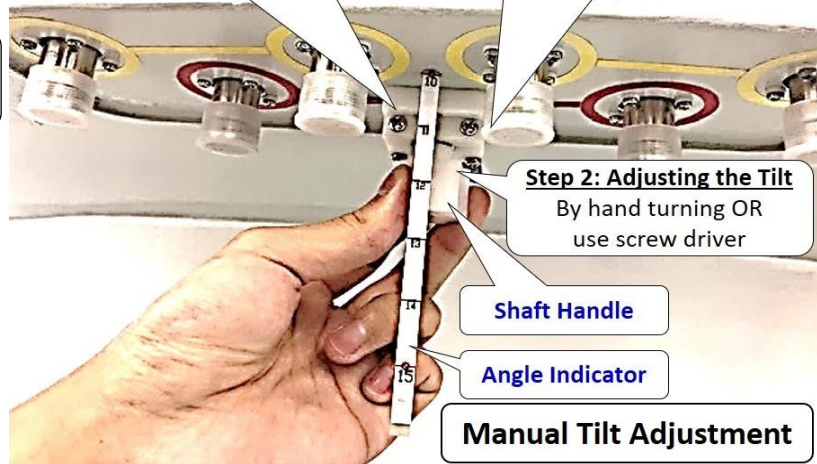
Step 1:
Tilt Stopper Loosening

Step 2:
Adjusting the Tilt

Step 3:
Tilt Stopper Tightening

Step 1: Tilt Stopper Loosening
Use + Screw driver to loosen the 2 x M3 screws

Step 3: Tilt Stopper Tightening
Use + Screw driver to tighten the 2 x M3 screws after adjust



Step 2: Adjusting the Tilt
By hand turning OR use screw driver

Shaft Handle

Angle Indicator

Manual Tilt Adjustment

4.00 "S" RET ACTUATOR INSTALLATIONS/REPLACEMENT PROCESS (Optional)

4.10 "S" RET Actuator Materials & Tools

RET Attachment Interface Kits



Silicon Gasket

RET Cover

Use M3 Hex Key

Hex Screw
(M4 x 10mm)

RET Attachment
Interface

RET Attachment Interface (Sub-Assy)



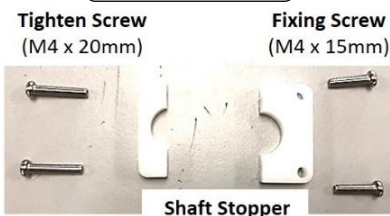
Hex Adaptor



Hex Adaptor
L=22.5mm Internal 8mm

Metal Screw
(M3 x 12mm)

Shaft Stopper

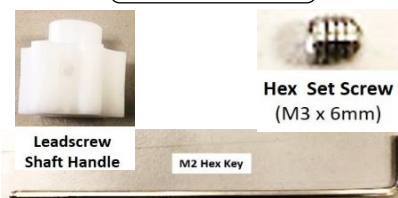


Tighten Screw
(M4 x 20mm)

Fixing Screw
(M4 x 15mm)

Shaft Stopper

Shaft Handle



Leadscrew
Shaft Handle

Hex Set Screw
(M3 x 6mm)

M2 Hex Key

RET Actuator

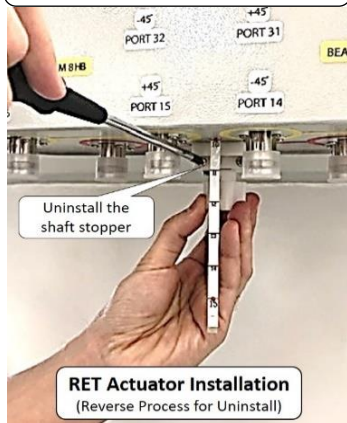


RET AISG Cable



4.20 Installation / Replacement Process (Reverse Process for Uninstallation)

Step 1: Uninstall the shaft stopper



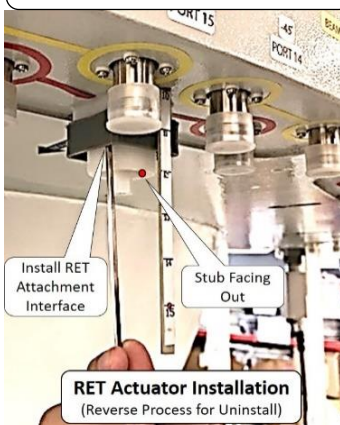
Step 2: Uninstall the shaft Handle



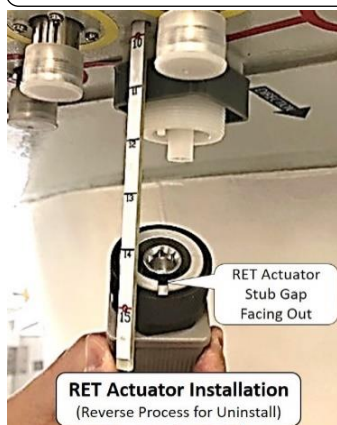
Step 3: Install the Hex adaptor and screw it on



Step 4: Install the RET attachment interface



Step 5: RET Actuator stub gap facing out



Step 6: RET Tighten to attachment interface



Step 7: Screw and tighten RET cable



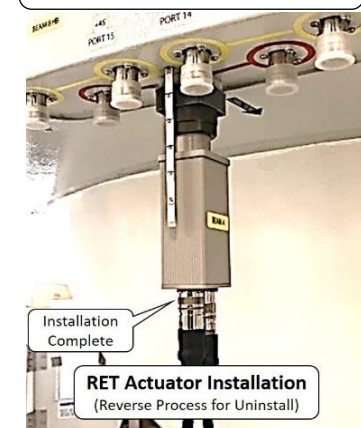
ADVICE:
**** Replace the AISG cable if is faulty.**
**** Same caution apply**



Step 7 CAUTION

1. Do not apply any rotation force to the cable
2. Carefully align same direction to the keyway before insertion.
3. Insert direct (not angular) until well fully seated before turning.
4. Once both thread is fit can start slowly turning.
5. Tighten the AISG connector by hand only.
6. If use torque wrench do not exceed 1.1 Nm (0.8 ft if) torque.

Step 8: RET Actuator installation complete.



Repeat the same process for other actuator installation.

5.00 RET Controller Display

5.10 RET Discover and Active

ALD List

NO	HDLC	Vendor	Serial Number	Product Number	H/W Version	S/W Version	3GPP	Device	AISG	Connect	Link
1	1	MS	42DB60T-0000073B1	ACS-RU370	1.00	5.12	6	Single RET	2	Connect	Link
2	2	MS	42DB60T-0000073B2	ACS-RU370	1.00	5.12	6	Single RET	2	Connect	Link

Display 4.2DB60T (for T-Band) or **4.2DB60** (for L-Band)

5.20 Beam 1-2 Operations Display

RET Tilt Window

RET ID : MS42DB60T-0000073B1

Display 4.2DB60T (for T-Band) or **4.2DB60** (for L-Band)

RET Status and Control

Antenna Information List

NO	Sector ID	Ant Model	Ant Serial	Current Tilt	Status
1/1	Beam 1	MS-4.2DB60	MS4.2DB60T00073	10.0	Normal

RET Tilt Window

RET ID : MS42DB60T-0000073B2

Display 4.2DB60T (for T-Band) or **4.2DB60** (for L-Band)

RET Status and Control

Antenna Information List

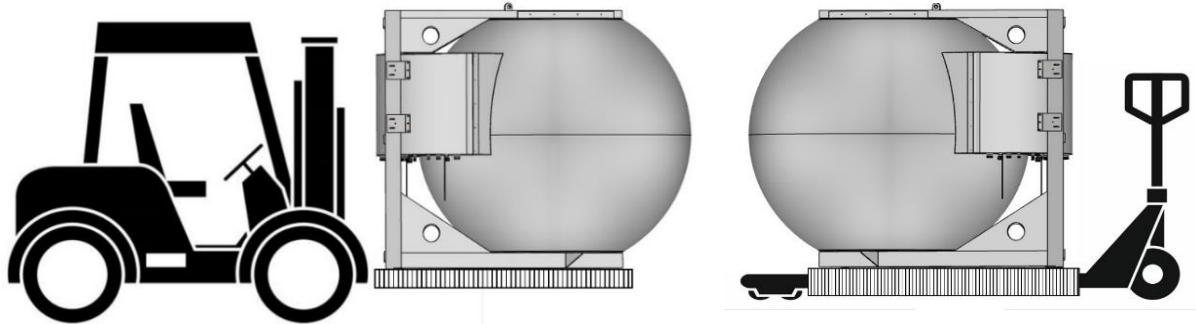
NO	Sector ID	Ant Model	Ant Serial	Current Tilt	Status
1/1	Beam 2	MS-4.2DB60	MS4.2DB60T00073	10.0	Normal

6.00 TRANSPORTATION / INSTALLATION

6.10 Transportation (From Point to Point)

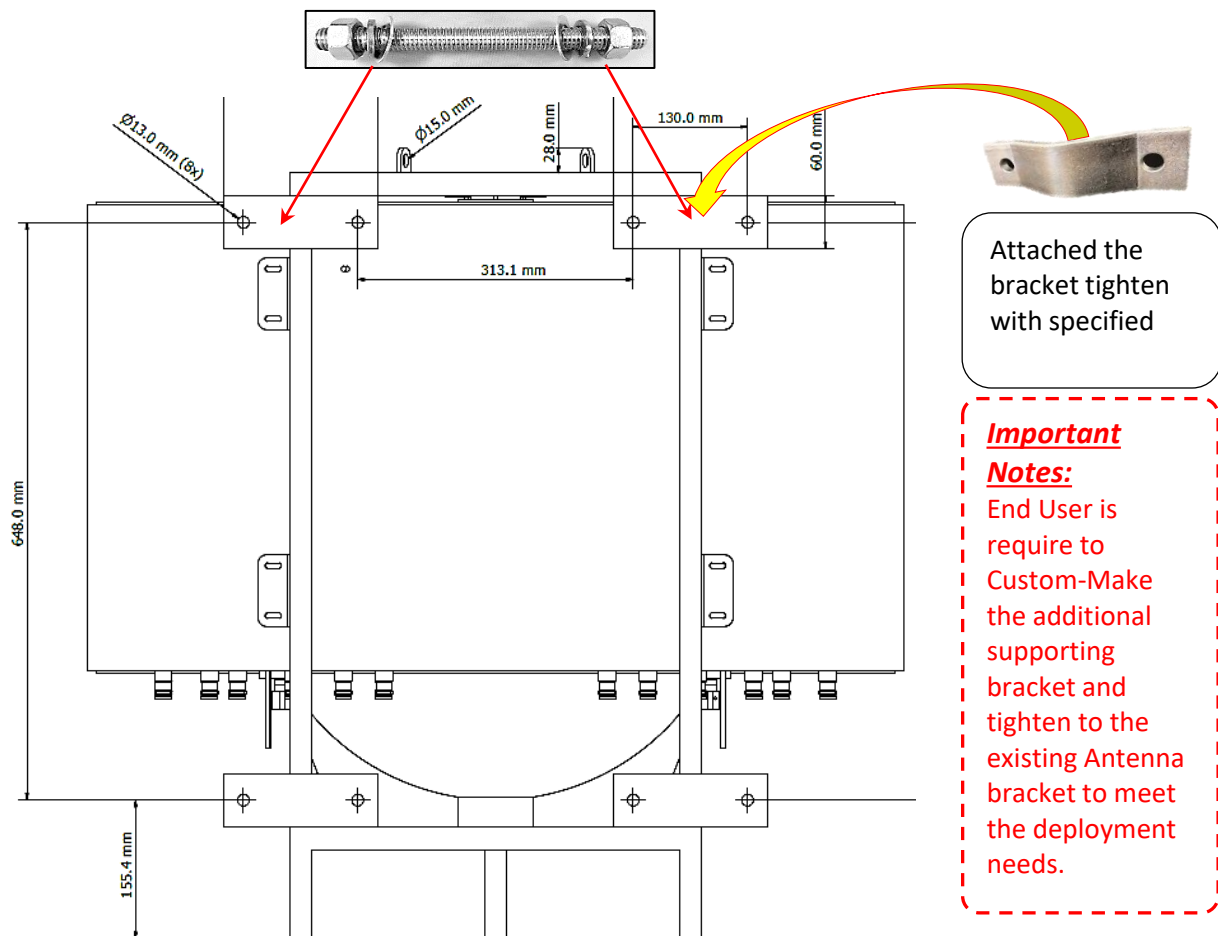
Strictly comply to the Local authority and regulatory on Workplace Safety and Health Control and Measure when moving and transportation of large or heavy equipment, appropriate material handling machine should be use.

(Risk Assessment apply for Forklift or Pallet Truck Lifting)



6.20 Bracket Mounting

Item	Lens Size	Holes Size	Bracket Qty	Bolt & Nuts Sets
1	30cm to 120cm	Ø13mm x 12	4	M12 x 20cm = 8 Sets



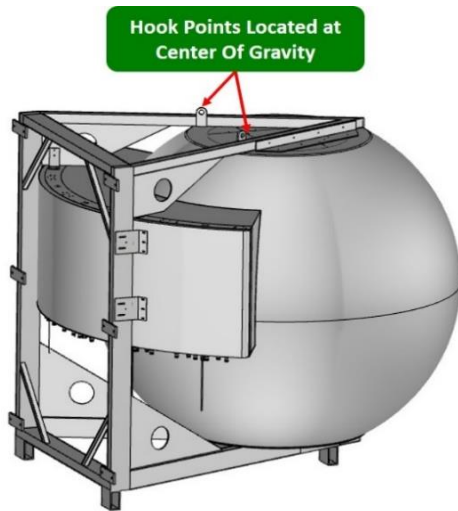
6.30 Installation using a crane

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.)

6.31 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.

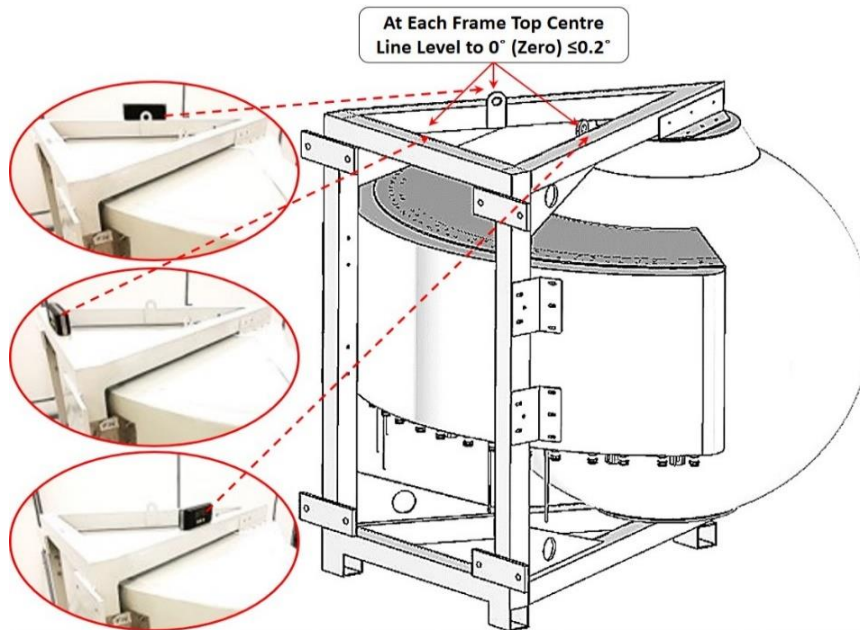


6.40 Antenna Installation

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.

6.41 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)



ANTENNA LEVELING ADJUSTMENT (AFTER INSTALLATION)

6.42 Digital Level Gauge Calibration



6.43 Adjustment Requirement



ANTENNA LEVELING ACCEPTED



REQUIRE ADJUSTMENT