

Date	Prepared by	Approved by	Document nos	Revision
20 Sep 2021	Ray Ling	Pavel	MS-12.6-IM-001	3

Applicable Model: MS-12.6DB180, MS-12.6DB180-T

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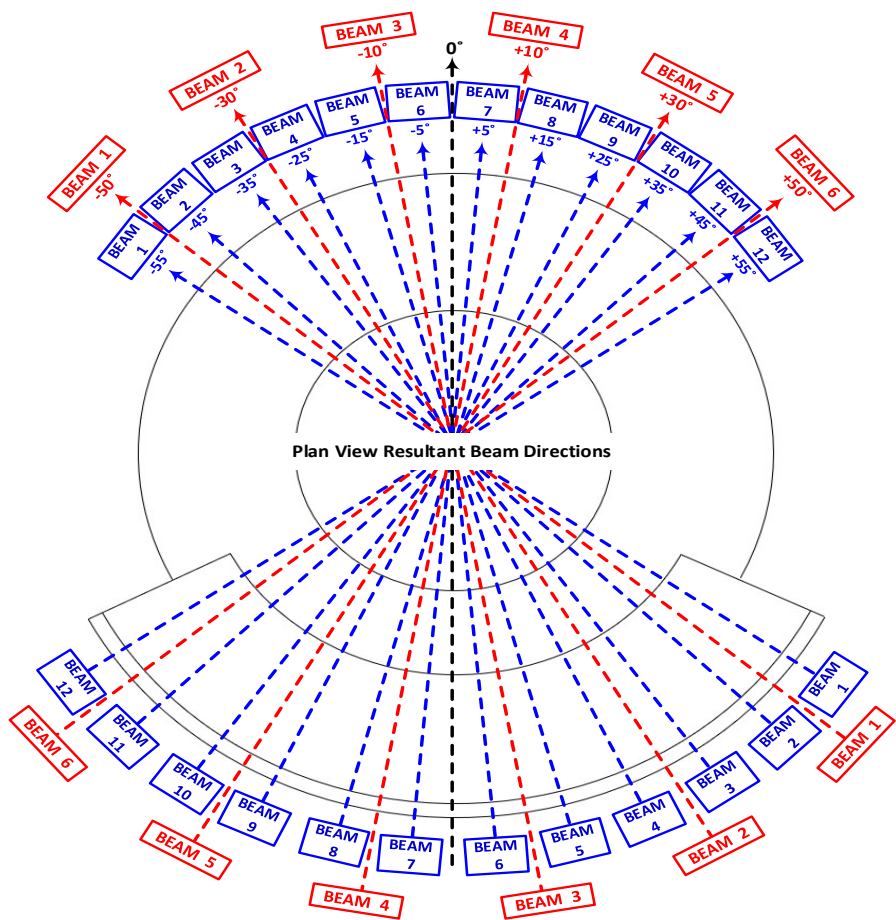
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Revision History:

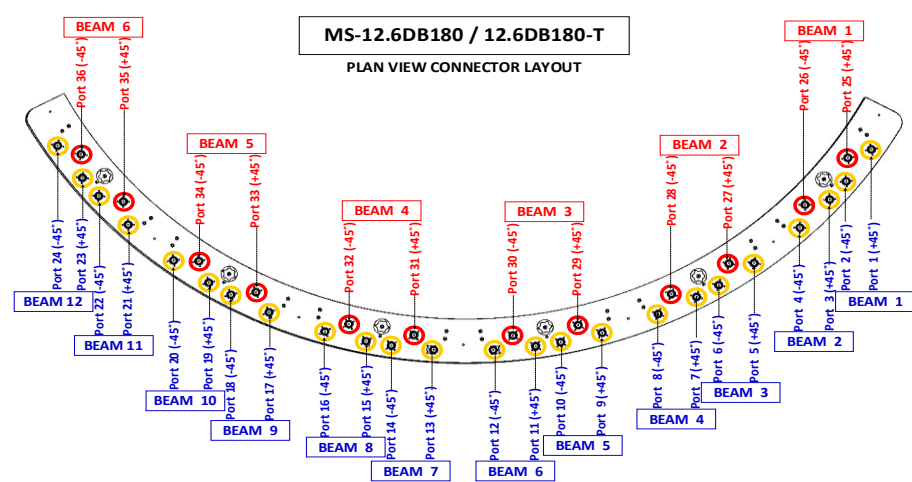
Date	Description	Revised by	Revision nos.
20-May-20	To include MS-12.6DB180-T and update all to newest requirement.	Ray Ling	1
30-Jun-21	To include additional OPEN END bolt and nut sets for bracket mounting.	Ray Ling	2
20-Sep-21	General update	Ray Ling	3

1.00 BEAMS & CONNECTORS:

1.10 Plan View Resultant Beam Direction



1.20 Plan View Connector Layout



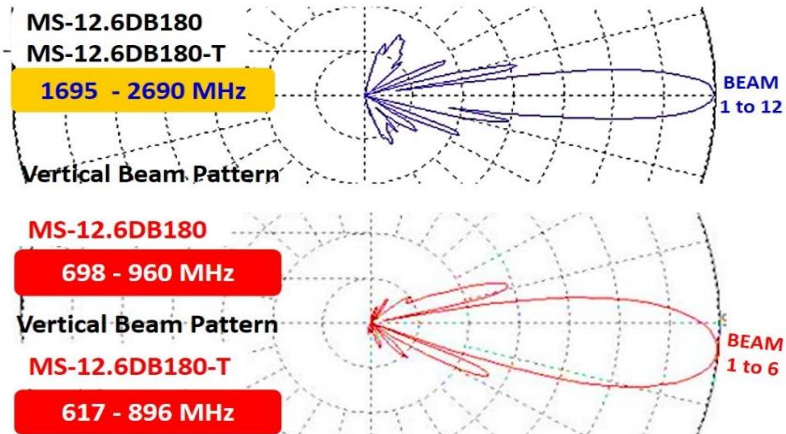
1.30 Connector

Ports Table

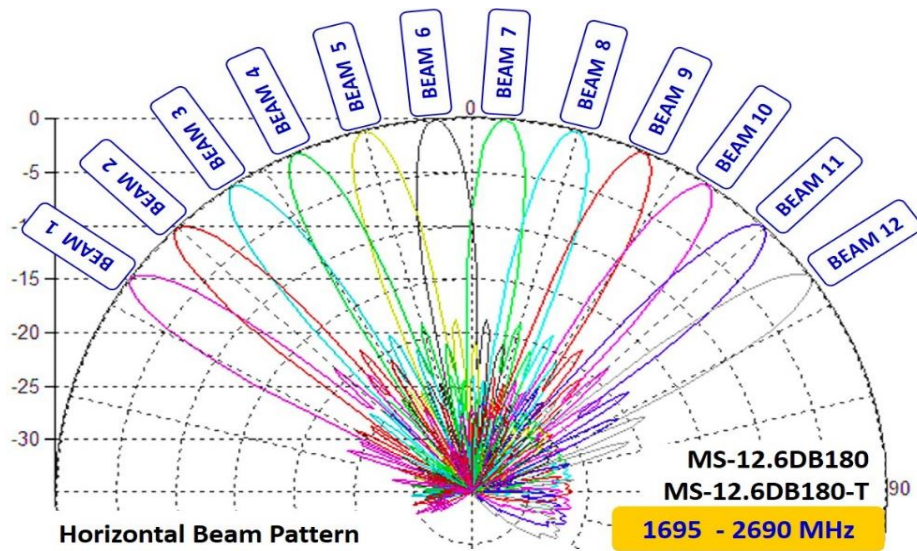
BEAM 6		BEAM 5		BEAM 4		BEAM 3		BEAM 2		BEAM 1	
PORT 36	PORT 35	PORT 34	PORT 33	PORT 32	PORT 31	PORT 30	PORT 29	PORT 28	PORT 27	PORT 26	PORT 25
(-45°)	(+45°)	(-45°)	(+45°)	(-45°)	(+45°)	(-45°)	(+45°)	(-45°)	(+45°)	(-45°)	(+45°)
BEAM 12	BEAM 11	BEAM 10	BEAM 9	BEAM 8	BEAM 7	BEAM 6	BEAM 5	BEAM 4	BEAM 3	BEAM 2	BEAM 1
PORT	PORT	PORT	PORT	PORT	PORT	PORT	PORT	PORT	PORT	PORT	PORT
24	23	22	21	20	19	18	17	16	15	14	13
(+45°)	(+45°)	(-45°)	(+45°)	(-45°)	(+45°)	(-45°)	(+45°)	(-45°)	(+45°)	(-45°)	(+45°)
2	3	4	5	6	7	8	9	10	11	12	13
1	2	3	4	5	6	7	8	9	10	11	12

2.00 PATTERN DIAGRAM

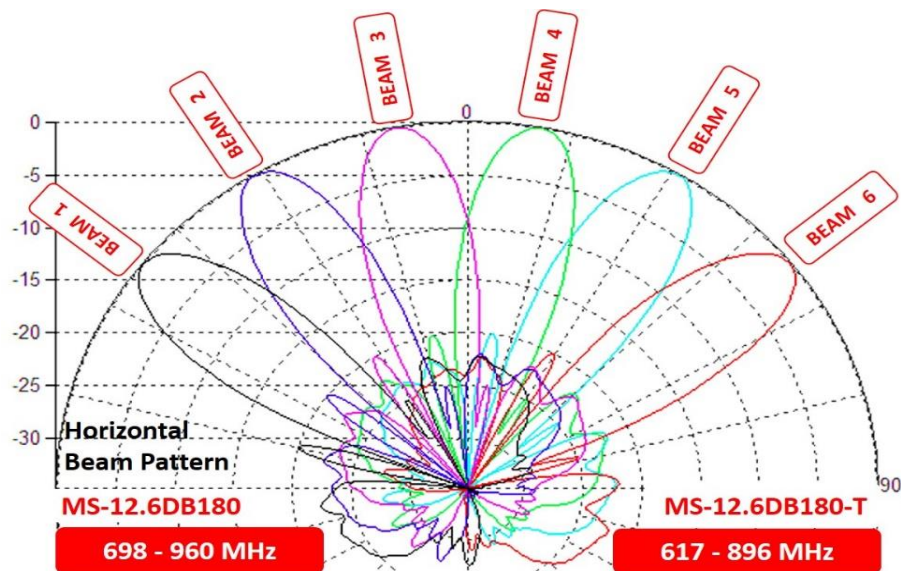
2.10 Vertical Beam Pattern



2.20 Horizontal Beam Pattern HB Frequency=1695 - 2690MHz



2.30 Horizontal Beam Pattern LB Frequency=698 - 960MHz, TB=617-896MHz

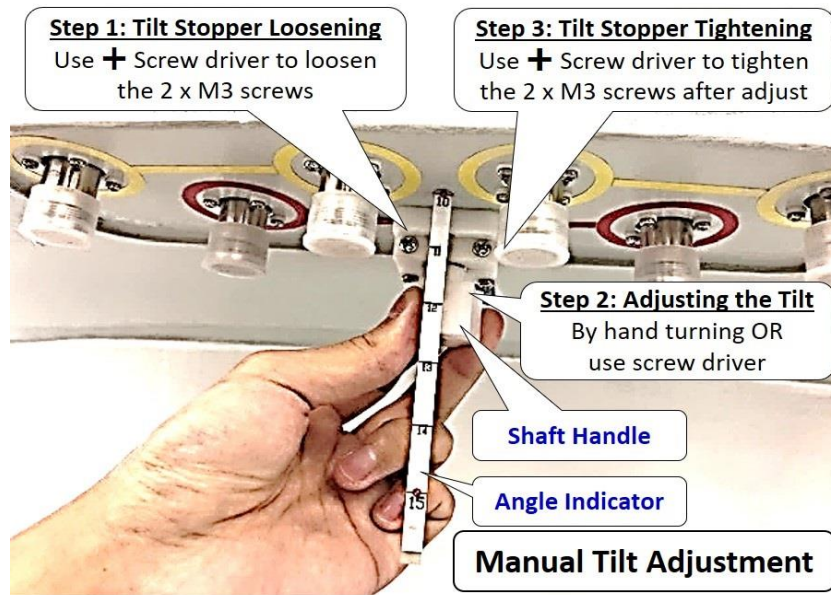


3.00 MANUAL TILT ADJUSTMENT

Step 1: Tilt Stopper Loosening.

Step 2: Adjusting the Tilt.

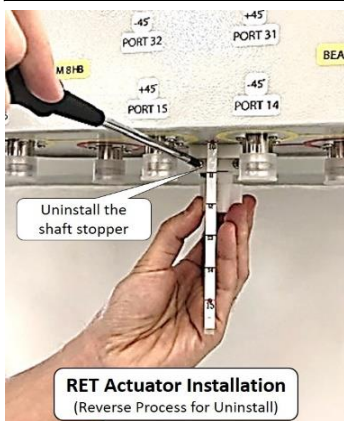
Step 3: Tilt Stopper Tightening.



4.00 RET ACTUATOR INSTALLATIONS (Optional)

4.10 Installation Process (Reverse Process for Uninstallation)

Step 1: Uninstall the Shaft stopper



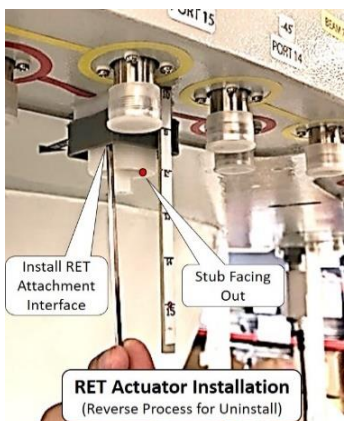
Step 2: Uninstall the Shaft Handle



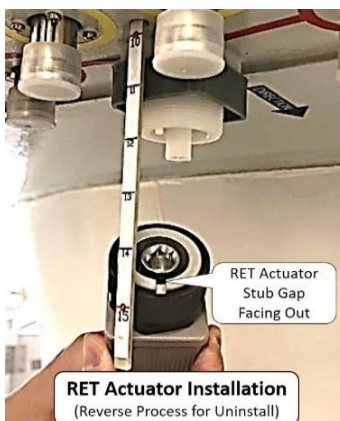
Step 3: Install the Hex adaptor and screw it on



Step 4: Install the RET attachment interface



Step 5: RET Actuator stub gap facing out



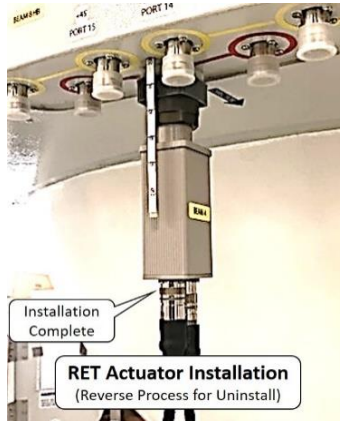
Step 6: RET Actuator Tighten to RET attachment interface



Step 7: Screw and tighten RET cable



Step 8: RET Actuator installation complete.



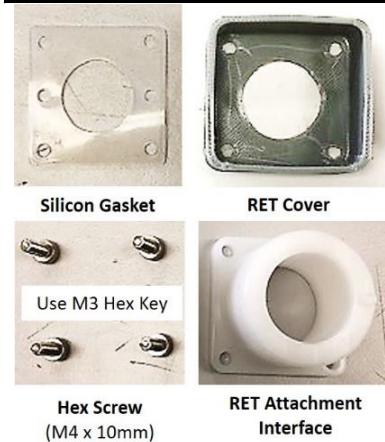
4.20 RET Actuator kit and tools

RET Attachment Interface (Sub-Assy)

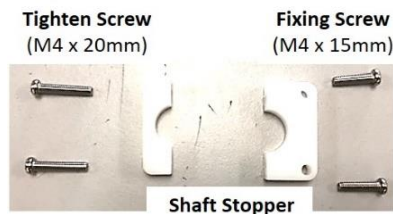


RET Attachment Interface (Sub-Assy)

RET Attachment Interface Kits



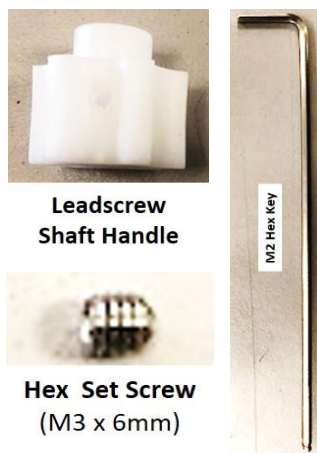
Shaft Stopper



Hex Adaptor



Shaft Handle



RET Actuator



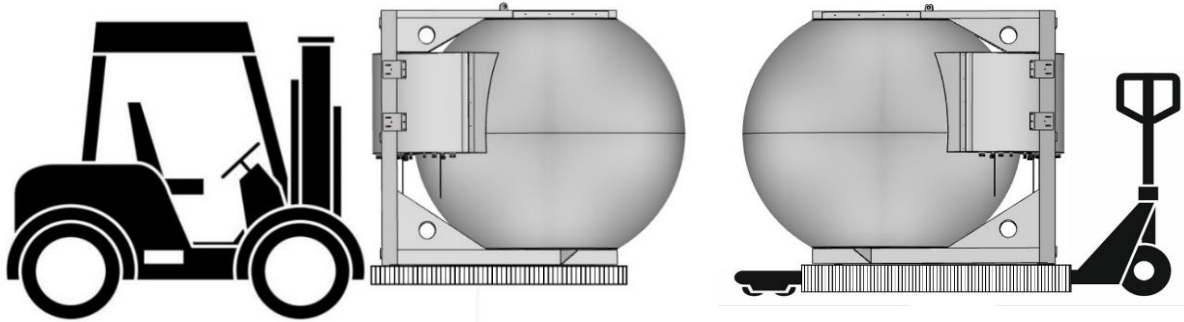
RET cable



5.00 TRANSPORTATION / INSTALLATION

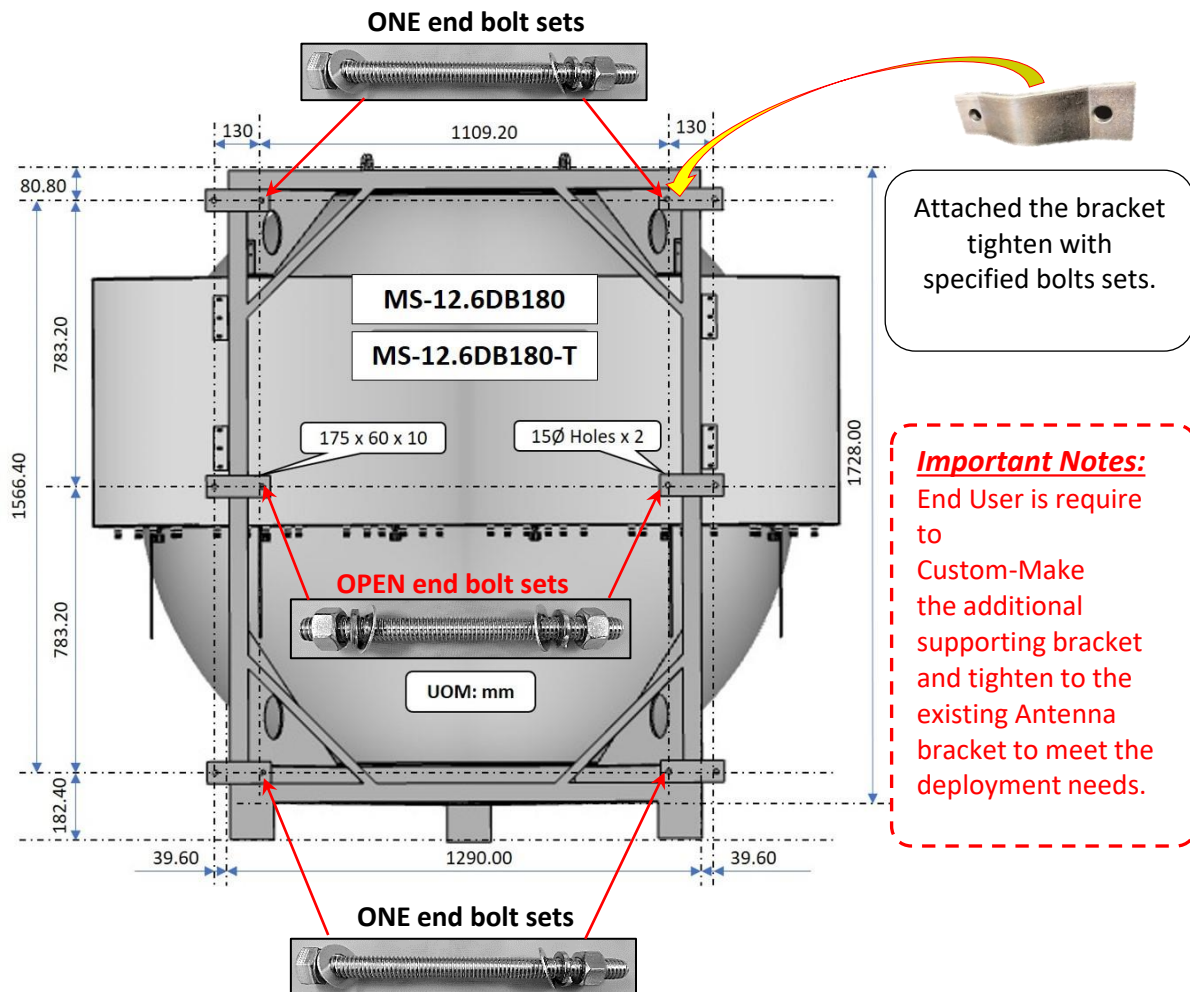
5.10 Transportation (From Point to Point)

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)**



5.20 Bracket Mounting

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



5.30 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.)**

5.31 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.

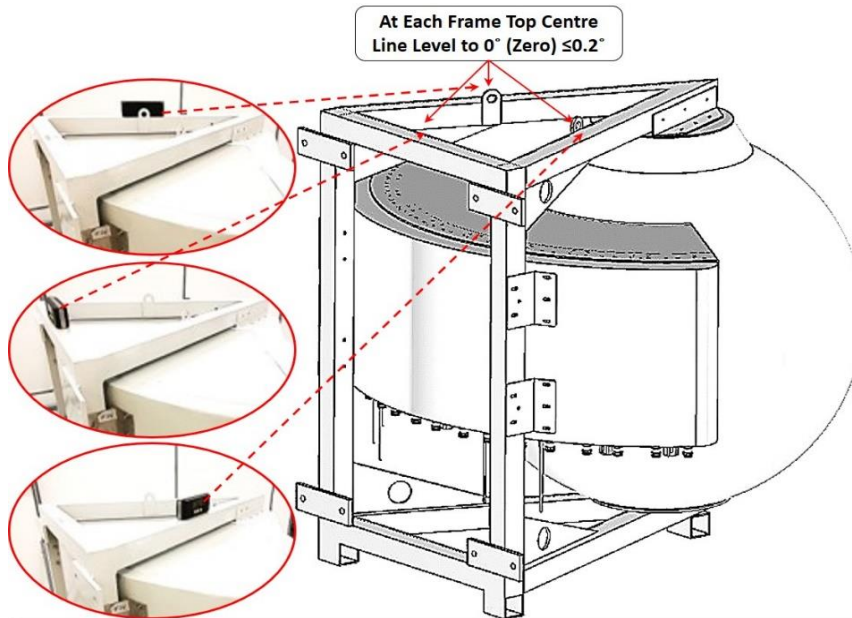


5.40 Antenna Installation

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.

5.41 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)

5.42 Digital Level Gauge Calibration



5.43 Adjustment Requirement

