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The Maintenances of Earth Station Antenna from Antesky

We summarize many years experience of production and maintenance of Earth Station Antenna and combined with the feedback of many customers from all over the world to creat the daily inspection manual. It contain "Surface Maitenance","Antenna Fasteners","Ground","Cable and connector", "Shutdown Maintenance","Maintenance Record".

The simple maintenance for earth station antenna can reduce the antenna failure probability and extend the antenna life, so a regular and complete antenna maintenance planning will be helpful for the antenna normal operation.

Appropriate maintenance planning is a kind of commercial insurance. Check the completion of the whole structure and ensure the normal operational capability by the simple and low-cost surface maintenance; Check the electrical performance, and comply with the maintenance regulation in the manufacture's operational maintenance manual so as to reduce the occurrence of antenna failure.

Antesky Science Technology Inc. summarizes many years experience of production and maintenance of ante-sky Earth Station Antenna and combined with the feedback of many customers from all over the world to creat the daily inspection manual. We hope this manual can help the antenna's users.

1. Surface Maintenance

Check the complete paint surface and electroplating surface, as well as fixed structure. First rub the rust spot on the electroplating surface by metal wire brush or abrasive paper, and then coat a layer of zinc-rich coating or a layer of rust inhibitor which won't require the complete clearance of the rust.

The user should repair it even if only a little of the finish peeling, spalling or color fading, or it will become more and more serious. And the user must accord with the antenna manufacturer's regulation for the paint surface and coating specification,

because the wrong coating method will affect the signals accept. For example, the dark-colored antenna reflector surfaces can absorb easily, and so it can give rise to high temperature, which can cause the signal distortion. Too much lead paint can make the signals loss by attenuation or scattering.

2. Antenna Fasteners

The nuts, bolts, rivets and other fasteners in the installation will be affected by atmospheric effect or internal corrosion. Regardless of any corrosive components and the error installation will be found in the routine maintenance. At this time the users should tighten the loosen nuts and replace the lost, rust and corrosive components.

With the ASTM (American Society for Testing and Materials Institute) A325 or other occasions of friction components, the user must replace the loosen or corrosive components, because in the process of re-tightening it will make the fasteners get the reuse term. Also the corrosive A325 metal parts should be replaced not be tightened.

Often there're pins inserting in the pivots of the adjustable antenna bracket. Check if the activities of these jointing are flexible, and lubricate the oil by a grease-gun with oil jet. If the antenna rotates not flexibly, the user should replace the pin.

Check the metal fasteners on the antenna reflector and back structure. Except ASTM A325 must be replace, the user can tighten the loosen parts. The lost, rust and corrosive fasteners should be replaced. These check processes are also suitable for the operational platform when assembling the antenna, as well as assisting the reflector and reflector support.

3. Ground

No matter how high the buildings, the antenna and bracket should be grounded to prevent the lightning strikes. Inspect if the mechanical of grounding system and non-mechanical connection are connected.

Analyze if the grounding connection is connected by the earth loop impedance instrument. According to the test results the user can decide the cost of the excavating work. Check if the mechanical grounding parts are rust, corrosive or loosen. Replace the rust and corrosive fasteners so as to limit the inductance value.

Unload the grounding sharp dogleg head on the antenna or bracket. Contrast to the Biddle megohmmeter, test the target value which is made after site grounding resistance to check the grounding system. According to the test results determine whether adopt auxiliary grounding measures.

On the place which can use the step auto-tracking device, check whether the pedal is level by a longitude and latitude stadia. If the pedal is not level, it can affect the antenna position calculation. Adjust the level nut under the base plate to make the antenna keep level.

If the anchor bolts prevent to adjust the pedal level, adjust it while fixing the antenna. After adjusting, check if the cement sealing of the antenna foundation and anchor bolts spall, crush and shift. If it is damaged, even a little, also should be repaired. After adjusting, the controller should be programmed again.

If some devices are mounted in the antenna box which is on the back of the reflector, check if there's accumulated water or a large number of termite or rodent infested in the box. Repair or seal the crack, even if it is little. If the user don't care about it, ants, mice and other animals will cause incredible losses.

4. Cable and connector

Intermediate facility link cable transmits the signal between the antenna and computer room. Check if these cables are damaged. If there's something wrong with VSWR or insertion loss, the user should test and check whether the cables need to be replaced or be repaired.

When repairing the cables, the user can splice them in the new position, but it can cause some signals attenuation. With s Time Domain Reflector (TDR) check the position of the broken line. With a voltage meter check all the cables and connectors of the electrical properties and connectivity.

The coaxial cable with a bend head in excess of the minimum bend radius should be tested. After testing if it doesn't comply with the cable specification, it should be replaced.

Ensure the IFL cable and other cable support and routing (positioning and bending

radius) accord with the manufacturer's technical requirements. Replace the lost, rust and corrosive backup supports. When supporting IFL cables, it is better to use stainless steel cable link or cable clamp than the plastic rope. Stainless steel link should be used to fix the elliptical waveguide. Inspect the cable manufacturer's recommendations.

If the stainless steel link or clip is not useful, and the cable manufacturer haven't specified any stainless steel link or clip, in this case the user can only use black nylon rope, the white or bright-colored rope is easy to be fragile in the sun. The user should always check the cable rope, because the nylon rope is easy to be loosen than stainless steel clip.

Check the IFL connectors and connection parts. Replace the connectors which appear fracture line, line antihypertensive or other problems. If IFL cables come from the catheter, the user should check the catheter and other connectors. Check if the catheter input is strict, if there's accumulated water in the catheter, the water will freeze, which will squeeze the cable broken.

Check the feed combiner flexible elliptic waveguide line, if it is damaged, replaces it. If the system inflation pressure is not enough, corrosion can change the signal-to-noise ratio to affect the signal or cause the antenna stop working.

5. Shutdown Maintenance

Some maintenance work should be done when the antenna don't stop working, but most of the maintenance work need to be done after the antenna stop working. For example, when moving the antenna or cut down IFL line, the user must shutdown the antenna. First check the antenna azimuth and elevation bracket. Look if there's some fracture and hardening phenomenon for the protection cover of the support bracket, if need, replace it.

For the motorized antenna or the antenna which points to a Satellite for a long time, sometimes those antennas also need to be moved. This step can be considered as part work of daily check in each year, except Antesky Science Technology Inc(Antenna Manufacturer: www.antesky.com). Have another regulation. When doing the

maintenance, according to the maintenance period table of Antesky Science Technology Inc (Antenna Manufacturer: www.antesky.com) clear the support screw, and lubricate the oil.

If the user finds the support bar moved on one position and was wear, it should be adjusted. When rotating the antenna, ensure that mechanical limit switch can stop after antenna motor finishes the planed journey. The limit switch malfunction can make the antenna rotate continuously until it will be damaged or hit with other objects.

Check the operational maintenance of Antesky Science Technology Inc (Antenna Manufacturer: www.antesky.com), note that the special requirements and suggest when to lubricate the oil or when to inject the oil for the azimuth, elevation, polarization and other motors. Antenna motor wire box should be dust-free and moisture-proof and all the connection should be fixed. If due to improper maintenance of the equipment, Antesky will not be responsible for warranty.

6. Maintenance Record

Keep a maintenance record. At the beginning of installing the antenna, leave a record with date and photos. Then maintain once, keep a record once, so as to keep a complete antenna system record.

In the antenna valid life keep a record of antenna pattern so as to find the phenomenon of the system signal dropping.

If it is required to shut down the antenna and do the maintenance, you'd better arrange the maintenance work when the antenna doesn't work or within one hour at off-peak period. If the antenna can't stop work, transfer this antenna's work to another temporary earth station antenna.

7. About Antesky

Antesky Science Technology Inc.(www.antesky.com) is a global supplier of communications systems equipment and services. Major markets are earth station antennas, which includes Satellite communication antennas, TVRO antennas, SNG antennas and flyaway antennas.