F-1 INTELSAT Type Approved 4.6-Meter C-Band Earth Station Antenna General Description and Specifications

Features

- Fully Type Approved for F-1, D-1, G, and Z INTELSAT operating standards
- Eliminates costly field testing of transmit patterns and G/T measurements
- Gregorian optics for high gain and pattern control
- Motorizable mount allows upgrade to motorization
- Optional steptrack controls
- Large enclosure with security doors
- Wide-band two-port feed system 3.625-4.2 GHz Rx and 5.850-6.425 GHz Tx
- 125 mph survival in any position of operation
- Polarization Field Switchable Circular/Linear

Introduction

Andrew Corporation announces final INTELSAT F-1 Type Approval of it's 4.6-meter C-band earth station products. This F-1 Type Approval by INTELSAT followed extensive factory testing witnessed by COMSAT, INTELSAT's U.S. Signatory.

By specifying an Andrew INTELSAT Type Approved F-1 4.6-meter product, savings as high as $10,000 per antenna in field testing are realized and the system turn-on is expedited without the need of on-site engineers to conduct testing. This may require coordination with each of the INTELSAT signatories depending on the region.

Andrew also offers a complete line of C-band - B, F-1, F-2, F-3; Ku-band - E-1, E-2, E-3; and C-/Ku-band - G and Z standard INTELSAT antennas and can provide on-site or in-factory testing of these products whether they be fixed or transportable.

Contact your Andrew sales representative for further details on how to implement these new F-1 Type Approved antennas into your next project.

Attached are typical patterns measured during the witnessing of the Type Approval Phase II Testing.

The entire test report is filed with either INTELSAT, COMSAT, EUTELSAT or ASIASAT. Other signatories can request copies thru ESA Product Line.

Description

Twelve different 4.6-meter eight-piece reflector models are available. Types ES46MP and ES46MPJ Series incorporate a motorizable mount while Type ES46P Series incorporates a manual mount.

Type ES46-CCP2 includes a large hub enclosure (24" deep), manual pedestal mount, azimuth and elevation strut kit, subreflector subassembly, subreflector strut kit, azimuth and elevation hand crank kit, 2-port combiner network, wide-band feed horn assembly, circular waveguide assembly, 4.6-meter eight-piece reflector assembly and various hardware kits for assembly. This antenna model can be deployed in the field with minimal testing of G/T as a fully-certified INTELSAT Standard F-1 under INTELSAT registration number **IA015A00**.

Type ES46-CCP2-24 includes all of the above mentioned components and an LNA kit that is guaranteed to have a G/T of 24.8 dB/K at 4.0 GHz and at a 10° elevation. This antenna system can be deployed in the field as a fully-certified INTELSAT Standard F-1 under INTELSAT registration number **IA015AA0**.

Type ES46MP-CCP2 is the same as Type ES46-CCP2 but is mounted on a motorizable mount, with El and Az manual pipe struts that can be replaced with jackscrews for upgraded motorized operation. The INTELSAT registration number is **IA015A00**.

Type ES46MP-CCP2-24 is the same as Type ES46-CCP2-24 but is mounted on a motorizable mount, with El and Az manual pipe struts that can be replaced with jackscrews for upgraded motorized operation. The INTELSAT registration number is **IA015AA0**.

Type ES46MPJ-CCP2 is the same as Type ES46-CCP2 but is mounted on a motorizable mount, with El and Az jackscrews for upgraded motorized operation. The INTELSAT registration number is **IA015A00**.

Type ES46MP-CCP2-24 is the same as Type ES46-CCP2-24 but is mounted on a motorizable mount, with El and Az jackscrews for upgraded motorized operation. The INTELSAT registration number is **IA015AA0**.

Type ES46-CCP4 includes a large hub enclosure (24" deep), manual pedestal mount, azimuth and elevation strut kit, subreflector subassembly, subreflector strut kit, azimuth and elevation hand crank kit, 4-port combiner network, wide-band feed horn assembly, circular waveguide assembly, 4.6-meter eight-piece reflector assembly and various hardware kits for assembly. This antenna model can be deployed in the field with minimal testing of G/T as a fully-certified INTELSAT standard F-1 under INTELSAT registration number **IA015BOO**.

Type ES46-CCP4-24 includes all of the above mentioned components and an LNA/reject filter kit that is guaranteed to have a G/T of 24.3 dB/K at 4.0 GHz and at a 10° elevation. This antenna system can be deployed in the field as a fully-certified INTELSAT standard F-1 under INTELSAT registration number **IA015BAO**.

Type ES46MP-CCP4 is the same as Type ES46-CCP4 but is mounted on a motorizable mount, with El and Az jackscrews for upgraded motorized operation. The INTELSAT registration number is **IA015BOO**.

Type ES46MP-CCP4-24 is the same as Type ES46CCP4-24 but is mounted on a motorizable mount, with El and Az jackscrews for upgraded motorized operation. The INTELSAT registration number is **IA015BAO**.

Type ES46MPJ-CCP4 is the same as Type ES46-CCP4 but is mounted on a motorizable mount, with El and Az jackscrews for upgraded motorized operation. The INTELSAT registration number is **IA015BOO**.

Type ES46MP-CCP4-24 is the same as Type ES46CCP4-24 but is mounted on a motorizable mount, with El and Az jackscrews for upgraded motorized operation. The INTELSAT registration number is **IA015BAO**.

Note

All applicable Type Approval Certificates are available thru the Andrew Fax-On-Demand System.

1-800-861-1700 (North America)

1-708-873-3614 (All Other Regions)

ELECTRICAL SPECIFICATIONS

Antenna Type	ES46-CCP2, ES46MP-CCP2, ES46MPJ-CCP2	ES46-CCP2-24, ES46MP-CCP2-24, ES46MPJ-CCP2-24	ES46-CCP4, ES46MP-CCP4, ES46MPJ-CCP4	ES46-CCP4-24, ES46MP-CCP4-24, ES46MPJ-CCP4-24
INTELSAT Registration Number	IA015A00	IA015AA0	IA015B00	IA015BA0
Receive Frequency, GHz Transmit Frequency, GHz	3.625-4.2 5.850-6.425	3.625-4.2 5.850-6.425	3.625-4.2 5.850-6.425	3.625-4.2 5.850-6.425
Gain in dB @ 3.625 GHz	43.2	43.2	43.1	43.1
@ 4.000 GHz	44.4	44.4	44.3	44.3
@ 4.200 GHz	44.8	44.8	44.7	44.7
@ 5.850 GHz	47.9	47.9	47.8	47.8
@ 6.175 GHz	48.4	48.4	48.3	48.3
@ 6.425 GHz	48.7	48.7	48.6	48.6
Polarization	Circular, Switchable to Linear in the Field		Circular	Circular
Voltage Axial Ratio, Rx (Tx)	1.20 (1.09)	1.20 (1.09)	1.06 (1.06)	1.06 (1.06)
Beamwidth, Mid-band 3 dB Receive (Transmit)	.92° (.63°)	.92° (.63°)	.92° (.63°)	.92° (.63°)
Antenna Noise Temperature, including combiner				
Elevation	Kelvin	Kelvin	Kelvin	Kelvin
10°	41	41	48	48
20°	37	37	46	46
30°	35	35	42	42
G/T with 50°LNA @ 10° El Angle @ 4.0 GHz	24.8 dB/K	24.8 dB/K	24.3 dB/K	24.3 dB/K

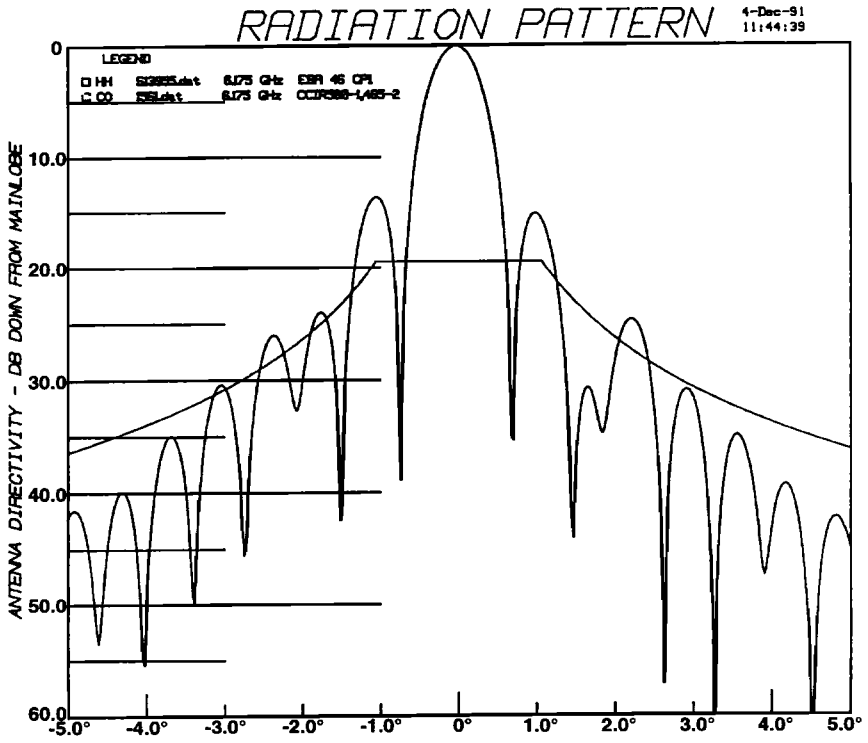
Types ES46-CCP2-24, ES46MP-CCP2-24, ES46MPJ-CCP2-24, ES46-CCP4, ES46MP-CCP4-24 and ES46MPJ-CCP4-24 include an INTELSAT approved LNA kit.

If preferred, however, this LNA can be separately purchased directly from the following Andrew specified vendor for use with other Andrew Type Approved earth station antennas such as 4.6m antenna **Types ES46-CCP2, ES46MP-CCP2, ES46MPJ-CCP2, ES46-CCP4, ES46MP-CCP4 and ES46MPJ-CCP4**.

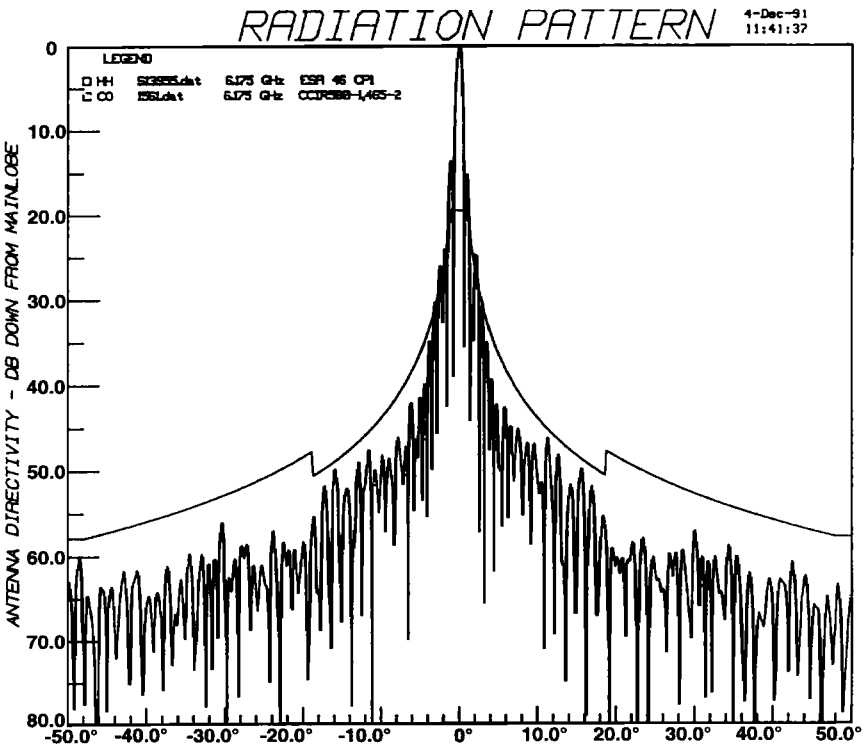
Below is a listing of the Type Approved LNA and respective vendor.

For Use With Antenna Type	Andrew LNA Kit P/N	Andrew LNA P/N	Kelvin	Vendor	Vendor LNA P/N
ES46-CCP2 ES46MP-CCP2 ES46MPJ-CCP2 ES46-CCP4 ES46MP-CCP4 ES46MPJ-CCP4	AE01K-D0402-002	ELNAC-15050	50°	MSE Division of EF Data 4221 E. Raymond Street Phoenix, AZ	CLNA-50-50-N

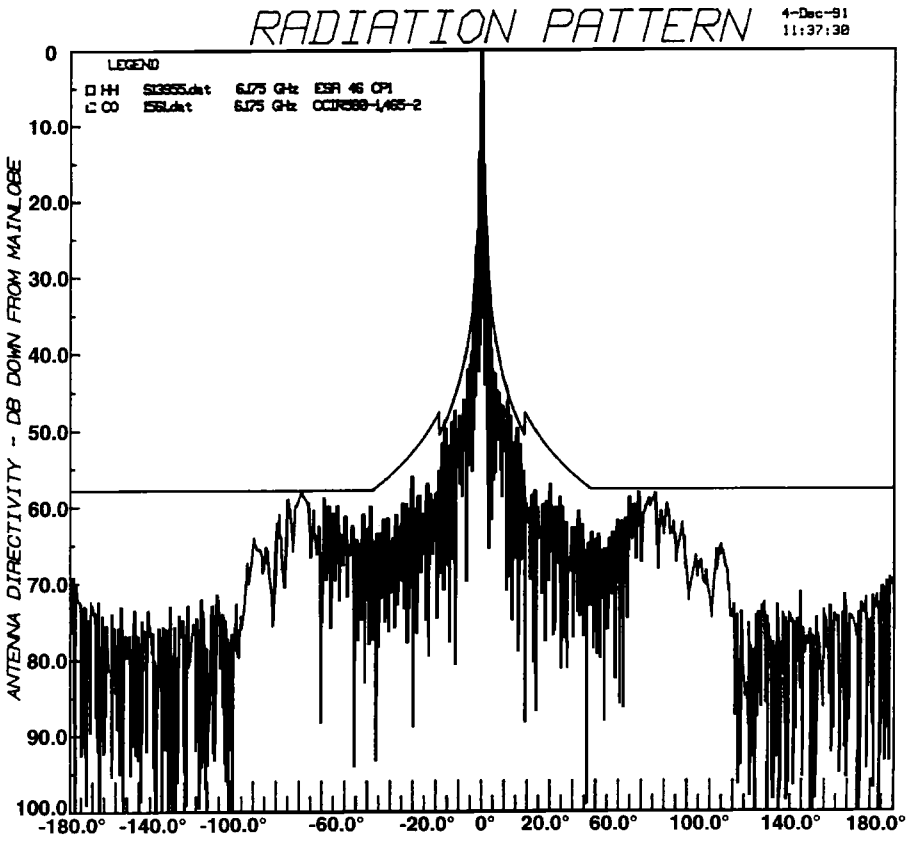
Other LNA's, that meet or exceed the Type Approved noise temperature specifications, may be utilized, but will require full specification submittal to COMSAT for evaluation and final approval.



ES46-CCP2, 6.175 GHz, LHCP, ±5° Azimuth



ES46-CCP2, 6.175 GHz, LHCP, ±50° Azimuth



ES46-CCP2, 6.175 GHz, LHCP, ±180° Azimuth