CLAIMS

1. A multiple-feed antenna system for communicating signals in a plurality of radio frequency (RF) frequency ranges, the multiple-feed antenna system comprising:

a primary reflector configured for directing signals along a primary RF signal path;

a subreflector assembly comprising a first subreflector element that includes a first reflective surface and a second subreflector element that includes a second reflective surface, wherein the subreflector assembly is movable between a first position and a second position, and is configured such that:

when the subreflector assembly is in the first position, the first reflective surface of the first subreflector element intersects the primary RF signal path and redirects signals traveling from the primary reflector along the primary RF signal path to a first RF signal path, and the second subreflector element does not intersect the primary RF signal path or the first RF signal path, and

when the subreflector assembly is in the second position, the second reflective surface of the second subreflector element intersects the primary RF signal path and redirects signals traveling from the primary reflector along the primary RF signal path to a second RF signal path, and the first subreflector element does not intersect the primary RF signal path or the second RF signal path;

a first feed that intersects the first RF signal path, wherein the first feed is configured to communicate signals within a first frequency range of the plurality of frequency ranges;

a second feed that intersects the second RF signal path, wherein the second feed is configured to communicate signals within a second frequency range of the plurality of frequency ranges; and

an actuator for moving the subreflector assembly to the first position and to the second position,

wherein the second frequency range is different from the first frequency range.

2. The multiple-feed antenna system of claim 1, wherein the first feed and the second feed are horizontally disposed relative to the primary reflector.

3. The multiple-feed antenna system of claim 1, wherein the first feed and the second feed are vertically disposed relative to the primary reflector.

4. The multiple-feed antenna system of any of claims 1-3, further comprising a stabilized antenna support that is coupled to the primary reflector, wherein:

the stabilized antenna support includes a drive assembly for moving the primary reflector about at least one of an azimuth axis, a cross-level axis, or an elevation axis; and

the stabilized antenna support maintains alignment of the primary reflector with a satellite.

5. The multiple-feed antenna system of claim 4, wherein at least one of the first subreflector element or the second subreflector element includes a convex subreflector surface.

6. The multiple-feed antenna system of any of claims 1-5, wherein:

when the subreflector assembly is in the first position, the second subreflector element does not intersect the first RF signal path and the second subreflector element does not intersect the second RF signal path; and

when the subreflector assembly is in the second position, the first subreflector element does not intersect the first RF signal path and the first subreflector element does not intersect the second RF signal path.

7. The multiple-feed antenna system of any of claims 1-6, wherein the actuator rotates the subreflector assembly about at least one of:

a first axis;

a second axis that is orthogonal to the first axis; or

a third axis that is orthogonal to the first axis and the second axis.

8. The multiple-feed antenna system of claim 7, wherein the actuator rotates the subreflector assembly about the first axis by approximately 180 degrees.

9. The multiple-feed antenna system of any of claims 1-8, wherein the subreflector assembly includes a positioning unit that includes the actuator that moves the subreflector assembly to the first position and to the second position.

10. The multiple-feed antenna system of any of claim 9, wherein:

a first subreflector element is coupled to a first side of the positioning unit, and

a second subreflector element is coupled to a second side of the positioning unit that is opposite from the first side of the positioning unit.

11. An antenna system for communicating signals in a plurality of radio frequency (RF) frequency ranges, the antenna system comprising:

means for directing signals along a primary RF signal path;

means for moving a subreflector assembly between a first position and a second position, wherein:

the subreflector assembly comprises a first subreflector element and a second subreflector element,

when the subreflector assembly is in the first position, a first reflective surface of the first subreflector element intersects the primary RF signal path and redirects signals traveling from the primary reflector along the primary RF signal path to a first RF signal path, and the second subreflector element does not intersect the primary RF signal path or the first RF signal path, and

when the subreflector assembly is in the second position, a second reflective surface of the second subreflector element intersects the primary RF signal path and redirects signals traveling from the primary reflector along the primary RF signal path to a second RF signal path, and the first subreflector element does not intersect the primary RF signal path or the second RF signal path;

means, that intersect the first RF signal path, for communicating signals within a first frequency range of the plurality of frequency ranges; and

means, that intersect the second RF signal path, for communicating signals within a second frequency range of the plurality of frequency ranges, wherein the second frequency range is different from the first frequency range.

12. A method for communicating signals in a plurality of radio frequency (RF) frequency ranges, the method comprising:

moving, by a drive assembly of a stabilized antenna support, a primary reflector to align the primary reflector with a satellite, wherein when the primary reflector is aligned with the satellite, the primary reflector directs signals along a primary RF signal path; and

moving, by an actuator, a subreflector assembly from a first position to a second position, wherein:

the subreflector assembly comprises a first subreflector element that includes a first reflective surface and a second subreflector element that includes a second reflective surface,

when the subreflector assembly is in the first position, the first reflective surface of the first subreflector element intersects the primary RF signal path and redirects signals traveling from the primary reflector along the primary RF signal path to a first RF signal path, and the second subreflector element does not intersect the primary RF signal path or the first RF signal path, and

when the subreflector assembly is in the second position, the second reflective surface of the second subreflector element intersects the primary RF signal path and redirects signals traveling from the primary reflector along the primary RF signal path to a second RF signal path, and the first subreflector element does not intersect the primary RF signal path or the second RF signal path;

a first feed intersects the first RF signal path, wherein the first feed is configured to communicate signals within a first frequency range of the plurality of frequency ranges; and

a second feed intersects the second RF signal path, wherein the second feed is configured to communicate signals within a second frequency range of the plurality of frequency ranges, wherein the second frequency range is different from the first frequency range.

13. The method of claim 1212, wherein moving the subreflector assembly from the first position to the second position includes pivoting the subreflector assembly along at least one axis.

14. The method of claim 1212, wherein moving the subreflector assembly from the first position to the second position includes translating the subreflector assembly along at least one axis.