Lucentum
Aerospace

2026 Catalog

RF Hardware

Lucentum Aerospace

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Lucentum Aerospace is your single point of contact to source space hardware globally for spacecraft, launch vehicles, and space ground segment applications.

We represent the Lucentum network, a qualified network of space hardware suppliers with decades of experience ready to support your next mission or program.

For More Information

For additional information, including data sheets or other Lucentum Aerospace catalogs, please visit lucentumaerospace.com or contact:

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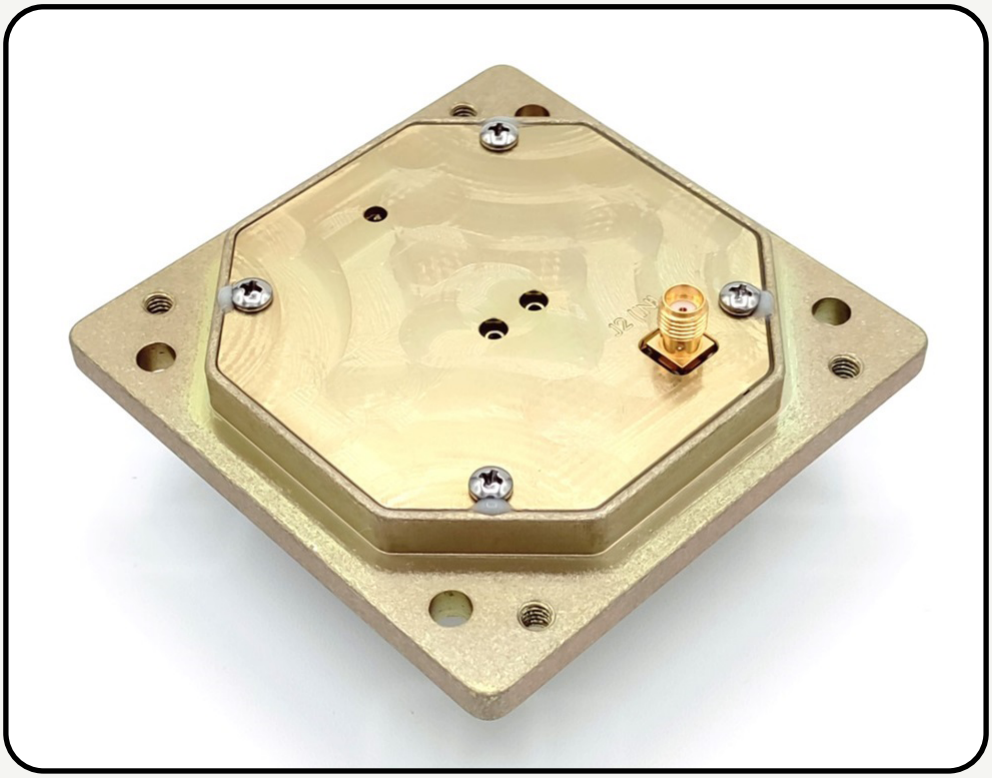
Lucentum also offers a catalog with an extensive line of **waveguide components** including sections, adapters, transitions, couplers, bends, RF gaskets, terminations, feed-throughs, and more. Contact us at the above email address or check out our website.

RF Hardware Capabilities Matrix

Product Name	Standard Product (COTS)	Modified From Existing Design	Fully Custom Design
Low Noise Amplifier	✓	✓	✓
RF Filter		✓	✓
Space Antennas	✓	✓	✓
Bias Tee	✓	✓	✓
Horn Antenna	✓	✓	✓
Directional Coupler	✓	✓	✓
Hybrid Coupler		✓	✓
Antenna Test Hat	✓		✓



Low noise amplifier solutions for spacecraft navigation, GNSS, S-band receive, and TT&C RF front-end applications.

Characteristics

Frequency Bands:	L-band GNSS/GPS and S-band TT&C
Radiation:	Radiation tolerant
RF Interfaces:	SMA Female Connector

Applications

- Spacecraft navigation systems
- GNSS/GPS receiver front ends
- S-band TT&C receive systems
- Interference-sensitive RF receive chains

Configuration Options

Standard Product (COTS)	Available
Modified From Existing Design	Available
Fully Custom Design	Available

Standard Products (COTS)

Data sheets available upon request or at lucentumaerospace.com

Reference Number	Type	Application	Operating Frequency (MHz)	Gain (dB)	Noise Figure (dB)	TID (krad)	TRL
LNA-L-001	GPS L1 LNA	GNSS Navigation/GPS L1	1563 to 1587	15	2.5	500	9
LNA-L-002	GNSS L1/E1 LNA	GNSS Navigation/GPS L1, Galileo E1	1559 to 1591	15	2.5	3000	9
LNA-S-001	S-Band LNA	TT&C Receive	2025 to 2120	28	2.2	250	9
LNA-S-002	S-Band TT&C LNA + Filter	TT&C Receive	2025 to 2120	30	2.5	500	9

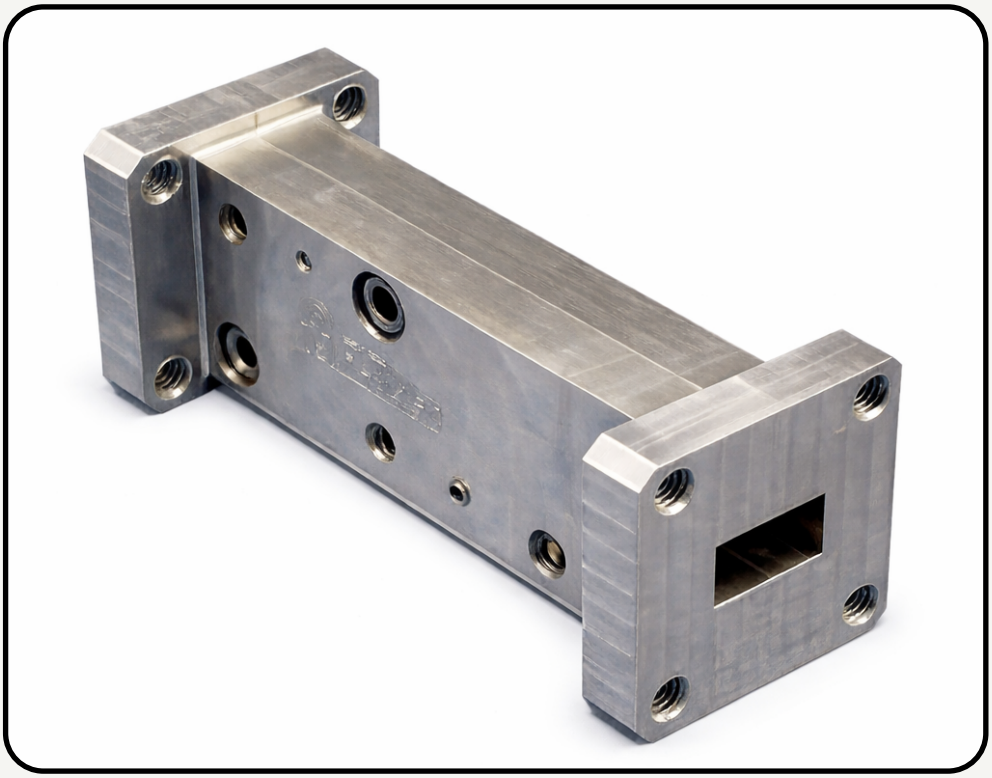
Note: All listed configurations use SMA female connectors.

Testing, Inspection & Quality

- Gain and noise figure verification
- S-parameter characterization
- Workmanship inspection
- Acceptance testing before shipment
- Certificate of Conformance (CofC) available upon request
- Hardware-in-the-loop testing support
- Irradiation testing support

Qualification & Environmental Testing

- Environmental qualification per NASA GEVS
- Random vibration testing to 14.1 GRMS
- Operating temperature range from -70˚C to +100˚C
- Radiation-tolerant design
- Radiation hardness from 500 krad to 3 Mrad TID, configuration dependent
- Destructive single event effects tested to 37 MeV-cm^2/mg



RF filter solutions for systems requiring controlled passband performance and out-of-band rejection.

Characteristics

Frequency Bands:	L, S, C, X, Ku, Ka
Filter Types:	Bandpass, low-pass, high-pass, notch
Insertion Loss:	Low-loss performance
Rejection:	High out-of-band attenuation
Interfaces:	Coaxial or waveguide

Applications

- Payload and communications signal conditioning
- Front-end and intermediate RF chain filtering
- Out-of-band interference suppression
- Spacecraft and ground segment RF systems

Configuration Options

Modified From Existing Design	Available
Fully Custom Design	Available

Delivered Configurations

Reference Number	Band	Passband [GHz]	Insertion Loss	Rejection Band [GHz]	Rejection	Heritage/ Maturity
BPF-KA-001	Ka	26.2 to 26.8	0.2 dB	28.5 to 30.0	> 20 dB	On-Orbit on PACE (NASA) Delivered for Roman Space Telescope (NASA)

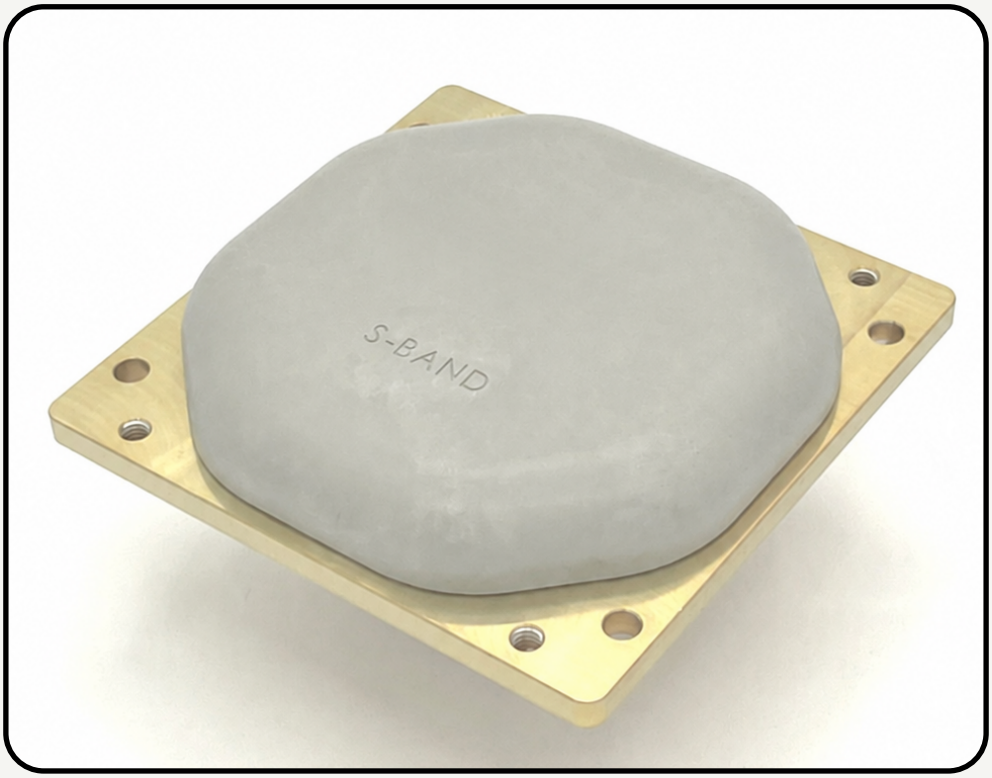
Note: Listed configuration uses WR-34 interface and has VSWR < 1.5:1.

Testing, Inspection & Quality

- S-parameter testing from 1 to 40 GHz
- Workmanship inspection
- Acceptance testing before shipment
- Certificate of Conformance (CofC) available upon request

Qualification & Environmental Testing

- Minimum resonant frequency verification
- Random vibration per NASA GEVS Table 2.4-3, 14.1 Grms overall
- Low-level sine sweep at 0.25 g before and after vibration testing
- Thermal cycling based on mission requirements typically -50˚C to -110˚C low end and +50˚C to +90˚C high end



COTS space antenna solutions for GNSS, TT&C, and spacecraft data links, with omni-directional, directional, active, dual-port, and dual-polarization configurations available.

Testing, Inspection & Quality

- Workmanship inspection
- Acceptance testing available
- Compatible test hats available for many configurations
- Certificate of Conformance (CofC) available upon request
- Consultation services available (link budget, architecture and system design)

Qualification & Environmental Testing

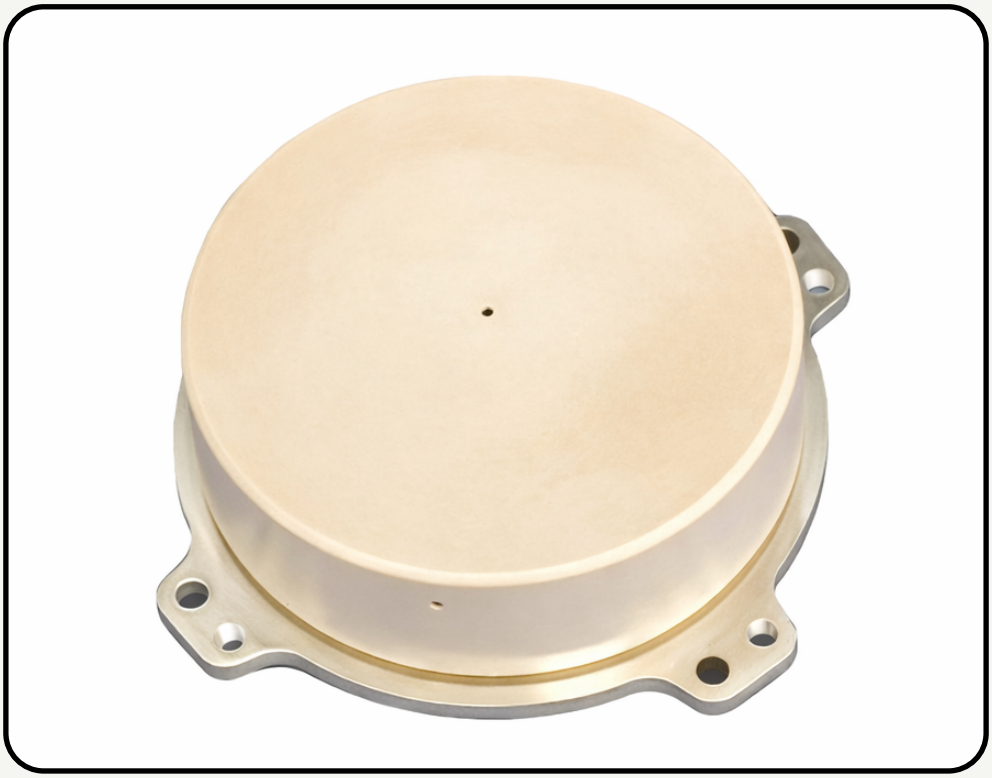
- Designed to NASA GEVS (GSFC-STD-7000)
- Qualified for space applications
- Random vibration tested to 14.1 GRMS
- Operating temperature range from -70˚C to +100˚C
- Radiation tolerant options available

Standard Products (COTS)

Data sheets available upon request or at lucentumaerospace.com

Matching COTS Antenna Test Hats available for all COTS Space Antennas!

Reference Number	Type	Application	Pattern	Polarization	Frequency Range (MHz)	Gain (dB)	TID (krad)	TRL
CSA-UHF-001-LIN	UHF Omni	TT&C	Omni	Linear	395-405	0.5	—	9
CSA-L-001-RH	GNSS Active	GNSS/GPS	Omni	RHCP	1164-1591	15	500	9
CSA-L-002-RH	GNSS Active	GNSS/GPS	Omni	RHCP	1164-1591	35	500	9
CSA-L-003-RH	GPS L1 Active	GNSS/GPS	Omni	RHCP	1563.42-1587.42	20	250	9
CSA-L-004-RH	GNSS L1/E1 Active	GNSS/GPS	Omni	RHCP	1559-1591	20	500	9
CSA-L-005-RH	L-Band Omni	Data	Omni	RHCP	1510-1675	5	—	9
CSA-S-001-RH	S-Band Active RX Omni	TT&C	Omni	RHCP	2025-2120	32.5	500	9
CSA-S-002-DC	S-Band Dual-CP RX Omni	TT&C	Omni	RHCP/ LHCP	2025-2120	4.5	—	9
CSA-S-003-RH	S-Band Active TX/RX	TT&C	Omni	RHCP	2025-2300	16	500	9
CSA-S-004-RH	S-Band Omni	TT&C	Omni	RHCP	2025-2300	5.5	—	9
CSA-S-005-RH	S-Band Dual-Port Omni	TT&C	Omni	RHCP	2025-2300	4	—	9
CSA-S-006-RH	S-Band Isoflux	TT&C	Isoflux	RHCP	2025-2300	1	—	8
CSA-S-007-DC	S-Band Dual-CP Omni	TT&C	Omni	RHCP/ LHCP	2025-2300	5.5	—	9
CSA-S-008-RH	S-Band 2×2 TX	TT&C	Directional	RHCP	2200-2300	11	—	9
CSA-S-009-DC	S-Band Dual-CP TX Omni	TT&C	Omni	RHCP/ LHCP	2200-2300	4.5	—	9
CSA-X-001-RH	X-Band 2×2 TX	TT&C	Directional	RHCP	8025-8400	10	—	9
CSA-X-002-RH	X-Band 2×2 TX	TT&C	Directional	RHCP	8025-8500	9	—	9
CSA-X-003-RH	X-Band Switched-Beam	TT&C	Directional /Switched	RHCP	8025-8500	9	—	9
CSA-X-004-RH	X-Band Isoflux	TT&C	Isoflux	RHCP	8025-8500	4.5	—	8



Low-gain antenna solutions for applications requiring wide-area coverage and reliable RF links.

Characteristics

Frequency Bands:	S, C, X (L, Ku, and Ka available)
Configuration Types:	Patch or helical
Gain:	Low-gain, wide-area coverage
Radiation Pattern:	Omnidirectional or hemispherical
Polarization:	Linear or circular (RHCP/LHCP)
Interfaces:	Coaxial (waveguide available)

Applications

- Telemetry, Tracking, and Command (TT&C)
- Launch and early orbit phase communications
- Safe-mode communications
- Near-Earth and deep space missions requiring wide coverage

Configuration Options

Modified From Existing Design	Available
Fully Custom Design	Available

Delivered Configurations

Reference Number	Band	Frequency Range [GHz]	Bandwidth [MHz]	Gain/ Field of View	Polarization	Heritage/ Maturity
LGA-S-001-RH	S	2.025 to 2.120	15	0 dBic over +/- 60 deg FOV	RHCP	Flown Successfully on Kestrel Eye IIM (U.S. Army Space Mission)
LGA-S-002-RH	S	2.200 to 2.300	15	0 dBic over +/- 60 deg FOV	RHCP	Flown Successfully on Kestrel Eye IIM (U.S. Army Space Mission)
LGA-C-001-RH	C	4.000 to 4.200	200	0 dBic over +/- 60 deg FOV	RHCP	Delivered for Confidential Commercial Spacecraft
LGA-C-002-RH	C	5.900 to 6.400	500	0 dBic over +/- 60 deg FOV	RHCP	Delivered for Confidential Commercial Spacecraft
LGA-X-001-LH	X	7.190 to 7.235; 8.450 to 8.500	10 MHz at each Rx/Tx	-3 dBic 65 to 105 deg Elevation	LHCP	Delivered for VIPER (NASA)

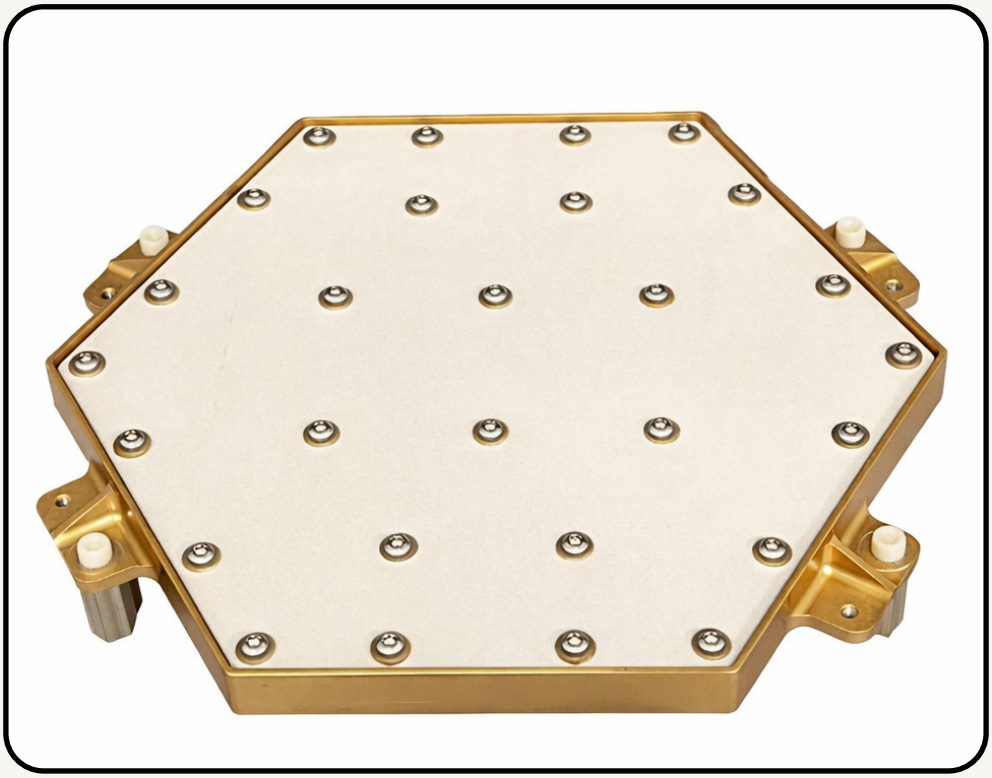
Note: All listed configurations use SMA female connectors and have VSWR < 1.5:1

Testing, Inspection & Quality

- Antenna radiation pattern testing from 1 to 40 GHz
- S-parameter testing from 1 to 40 GHz
- Workmanship inspection
- Acceptance testing before shipment
- Certificate of Conformance (CofC) available upon request

Qualification & Environmental Testing

- Minimum resonant frequency verification
- Random vibration per NASA GEVS Table 2.4-3, 14.1 Grms overall
- Low-level sine sweep at 0.25 g before and after vibration testing
- Thermal cycling based on mission requirements typically -50˚C to -110˚C low end and +50˚C to +90˚C high end



High-gain antenna solutions for applications requiring directional performance and reliable RF links across mission phases.

Characteristics

Frequency Bands:	L, S, C, X, Ku, Ka
Configuration Types:	Flat panel or parabolic reflector
Gain:	High-gain, directional performance
Radiation Pattern:	Narrow beam, high-directivity
Polarization:	Linear or circular (RHCP/LHCP)
Interfaces:	Coaxial or waveguide

Applications

- High-data-rate spacecraft communications
- Telemetry, Tracking, and Command (TT&C) links requiring directional performance
- Lunar and deep space mission communications
- Mission profiles requiring high-gain directional RF links

Configuration Options

Modified From Existing Design	Available
Fully Custom Design	Available

Delivered Configurations

Reference Number	Band	Frequency Range [GHz]	Bandwidth [MHz]	Peak Gain	Polarization	Heritage/ Maturity
HGA-C-001-RH	C	4.000 to 4.200	200	18 dBic	RHCP	Delivered for Confidential Commercial Spacecraft
HGA-X-001-LH	X	7.190 to 7.235; 8.450 to 8.500	10 MHz at each Rx/Tx	17 dBic Rx/ 27 dBic Tx	LHCP	Delivered for VIPER (NASA)

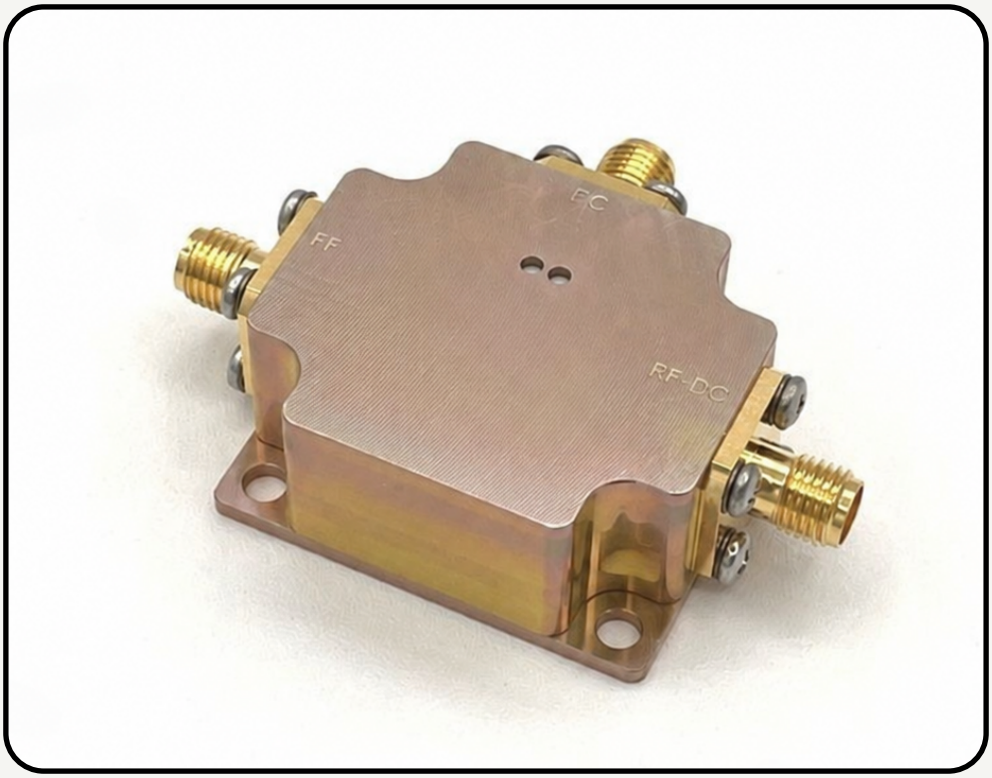
Note: All listed configurations use SMA female connectors and have VSWR < 1.5:1

Testing, Inspection & Quality

- Antenna radiation pattern testing from 1 to 40 GHz
- S-parameter testing from 1 to 40 GHz
- Workmanship inspection
- Acceptance testing before shipment
- Certificate of Conformance (CofC) available upon request

Qualification & Environmental Testing

- Minimum resonant frequency verification
- Random vibration per NASA GEVS Table 2.4-3, 14.1 Grms overall
- Low-level sine sweep at 0.25 g before and after vibration testing
- Thermal cycling based on mission requirements typically -50˚C to -110˚C low end and +50˚C to +90˚C high end



Bias tee solution for TT&C RF systems, GNSS/GPS RF front ends, spacecraft RF power injection, active antenna biasing, and low noise amplifier biasing.

Characteristics

Frequency Bands:	L-band and S-band
Function:	DC power injection onto RF signal path
Design Focus:	Low insertion loss and high DC-to-RF isolation
RF Interfaces:	SMA female connectors

Applications

- TT&C RF systems
- GNSS/GPS RF front ends
- Spacecraft RF power injection
- Active antenna biasing
- Low noise amplifier biasing
- LEO, MEO, and GEO mission architectures

Configuration Options

Standard Product (COTS)	Available
Modified From Existing Design	Available
Fully Custom Design	Available

Standard Products (COTS)

Data sheets available upon request or at lucentumaerospace.com

Reference Number	Type	Application	Operating Frequency (MHz)	Insertion Loss	Isolation	Current	TRL
BT-LS-001	L+S-Band Bias Tee	TT&C / GNSS / Power Injection	1000 to 4000	0.3 dB typical	30 dB	500 mA	8

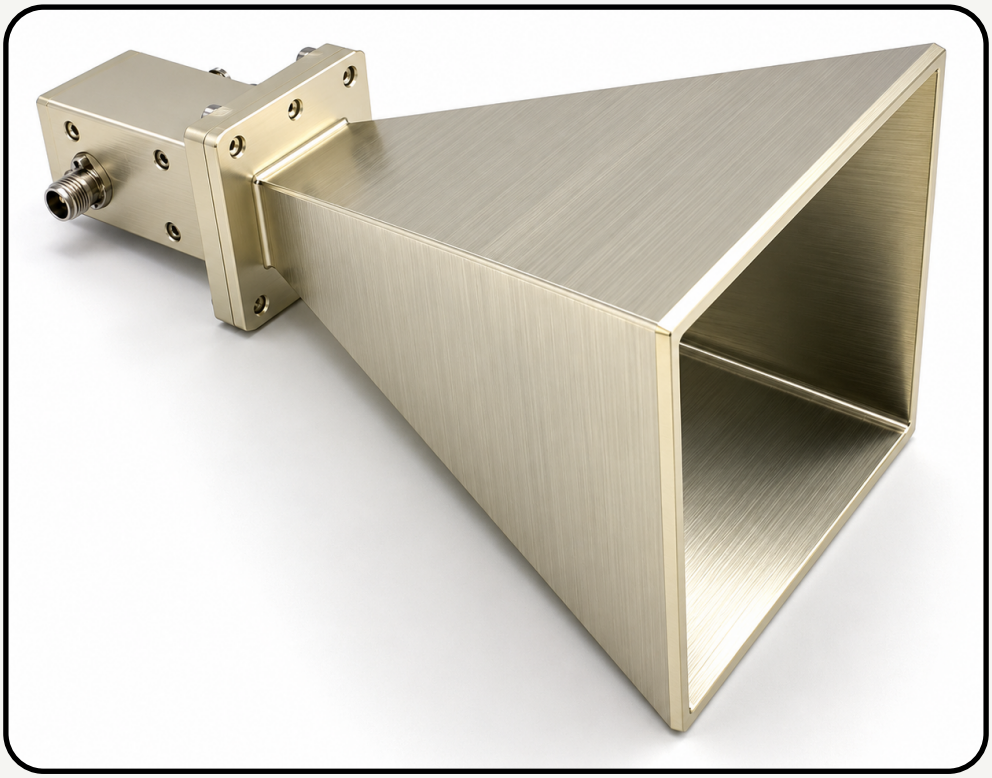
Note: Listed configuration uses female SMA connector.

Testing, Inspection & Quality

- S-parameter characterization
- Insertion loss characterization
- DC-to-RF isolation characterization
- Workmanship inspection
- Acceptance testing before shipment
- Certificate of Conformance (CofC) available upon request

Qualification & Environmental Testing

- Environmental qualification per NASA GEVS
- Random vibration testing to 14.1 GRMS
- Operating temperature range from -70˚C to +100˚C
- LEO mission life of 10 years
- Humidity testing per MIL-STD-810 Method 507.6
- Sealed configuration with venting mechanism



Horn antenna solutions for TT&C communications, spacecraft data links, K/Ka-band SATCOM, antenna range testing, and RF laboratory characterization.

Characteristics

Frequency Coverage:	10 GHz to 40 GHz
Configuration Types:	Dual-port horn antennas, ridged horn antennas, waveguide probe
Polarization Options:	RHCP/LHCP, linear, dual-linear
RF Interface:	2.92 mm female connector

Applications

- TT&C communications links
- Spacecraft data link systems
- K/Ka-band SATCOM applications
- Space and ground RF link setups
- Antenna range testing
- RF laboratory and characterization setups

Configuration Options

Standard Product (COTS)	Available
Modified From Existing Design	Available
Fully Custom Design	Available

Standard Products (COTS)

Data sheets available upon request or at lucentumaerospace.com

Reference Number	Type	Application	Operating Frequency (GHz)	Polarization	Gain	TRL
HA-KKA-001	K-Ka Dual-Port Horn Antenna, 15 dB	TT&C/ SATCOM/ RF Test	17 to 30	RHCP/ LHCP	15 to 18 dBic	8
HA-KKA-002	K-Ka Dual-Port Horn Antenna, 20 dB	TT&C/ SATCOM/ RF Test	17 to 30	RHCP/ LHCP	19 to 21 dBic	8
HA-KKA-003	K-Ka Dual-Port Waveguide Probe	TT&C/ SATCOM/ RF Test	17 to 30	RHCP/ LHCP	6 to 10 dBic	8
HA-BB-001	Quad-Ridged Horn Antenna	Broadband RF Test	10 to 40	Dual-Linear	3 to 11 dBi	8
HA-BB-002	Dual-Ridged Horn Antenna	Broadband RF Test	18 to 40	Linear	8 to 12 dBi	8

Note: All listed configurations use 2.92 mm female RF connectors.

Testing, Inspection & Quality

- Antenna radiation pattern characterization
- S-parameter characterization
- Gain characterization
- Axial ratio characterization, configuration dependent
- Cross-polarization characterization, configuration dependent
- Workmanship inspection
- Acceptance testing before shipment
- Certificate of Conformance (CofC) available upon request

Environmental & Mechanical

- Operating temperature range from -40˚C to +85˚C
- Power handling up to 10 W or 20 W, configuration dependent
- Mechanical outline available
- Mass and envelope defined by configuration

Directional coupler solutions for broadband microwave signal sampling, power monitoring, RF integration, and test and measurement applications.

Characteristics

Frequency Range:	8 to 40 GHz
Coupling Options:	10 dB, 20 dB, 30 dB
Insertion Loss:	Low insertion loss signal path
Directivity:	13 dB minimum
RF Interfaces:	2.92 mm female connectors
Isolation Port:	Plugged with 50Ω termination

Applications

- RF test and measurement systems
- Broadband microwave signal sampling
- Power monitoring and measurement setups
- RF integration and characterization
- Communications and radar laboratory test architectures

Configuration Options

Standard Product (COTS)	Available
Modified From Existing Design	Available
Fully Custom Design	Available

Standard Products (COTS)

Data sheets available upon request or at lucentumaerospace.com

Reference Number	Type	Operating Frequency (GHz)	Coupling	Insertion Loss	Directivity	TRL
DC-BB-001	10-dB Directional Coupler	8 to 40	10 dB	1 dB typical	13 dB minimum	7
DC-BB-002	20-dB Directional Coupler	8 to 40	20 dB	0.5 dB typical	13 dB minimum	7
DC-BB-003	30-dB Directional Coupler	8 to 40	30 dB	0.5 dB typical	13 dB minimum	7

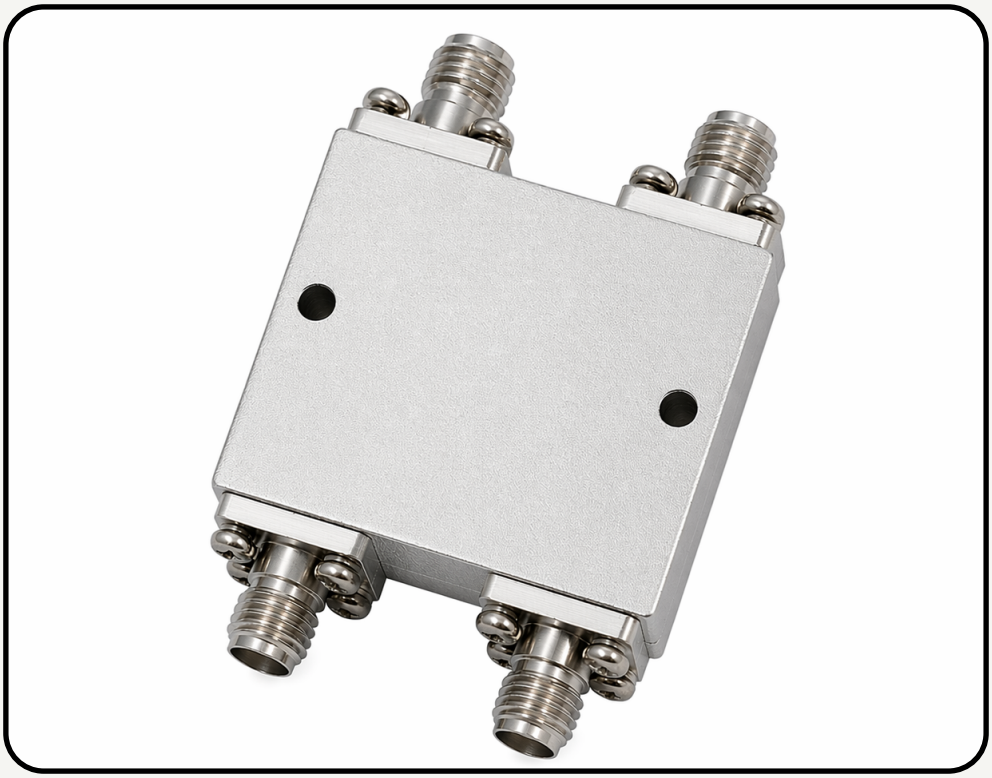
Note: All listed configurations use 2.92 mm female RF connectors.

Testing, Inspection & Quality

- Insertion loss characterization
- Return loss characterization
- Coupled power characterization
- Directivity characterization
- Workmanship inspection
- Acceptance testing before shipment
- Certificate of Conformance (CofC) available upon request

Environmental & Mechanical

- Operating temperature range from -40˚C to +85˚C
- Storage temperature range from -70˚C to +100˚C
- Compact 30 g maximum configuration



Hybrid coupler solutions for systems requiring controlled power splitting, combining, and phase performance.

Characteristics

Frequency Bands:	L, S, C, X, Ku, Ka
Configurations:	90˚ or 180˚ hybrid couplers
Coupling:	3 dB
Interfaces:	Coaxial or waveguide

Applications

- Power splitting and combining in RF chains
- Balanced amplifier and signal distribution architectures
- Beamforming and antenna feed networks
- Spacecraft and ground segment RF systems

Configuration Options

Modified From Existing Design	Available
Fully Custom Design	Available

Highlighted Configurations

Reference Number	Band	Frequency Range [GHz]	Insertion Loss	Isolation	Style	Heritage/ Maturity
HYB-KA-001	Ka	26.2 to 26.8	0.3 dB	> 20 dB	90 degree	Based on Design for SDO (NASA)

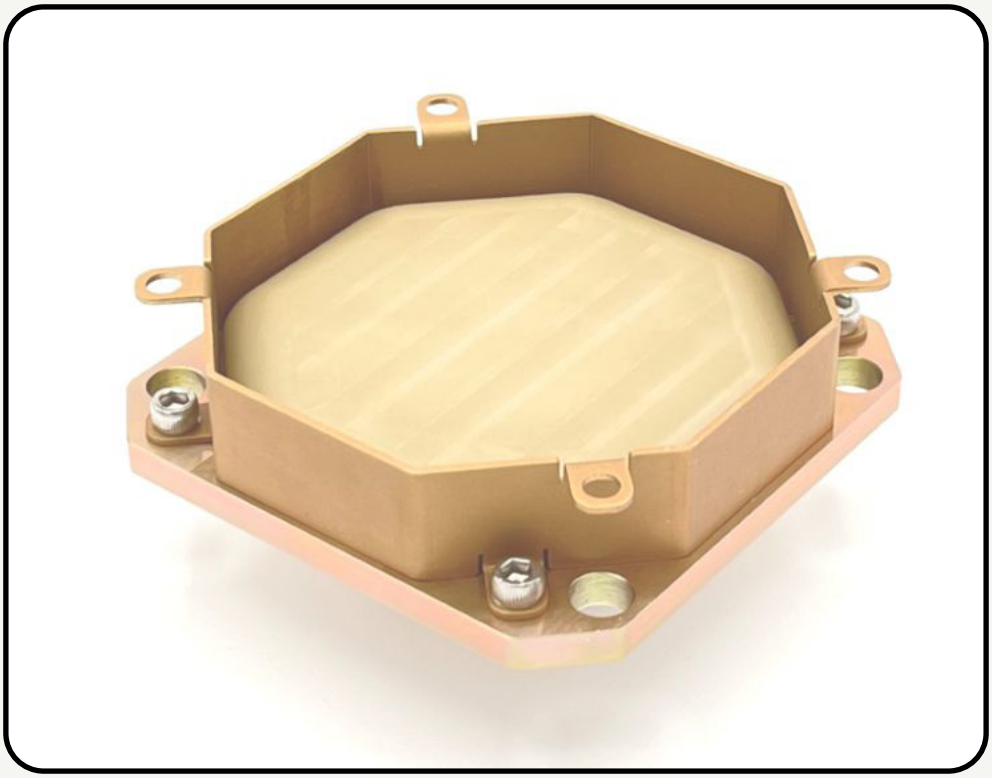
Note: Listed configuration uses WR-34 interface and has VSWR < 1.5:1.

Testing, Inspection & Quality

- S-parameter testing from 1 to 40 GHz
- Workmanship inspection
- Acceptance testing before shipment
- Certificate of Conformance (CofC) available upon request

Qualification & Environmental Testing

- Minimum resonant frequency verification
- Random vibration per NASA GEVS Table 2.4-3, 14.1 Grms overall
- Low-level sine sweep at 0.25 g before and after vibration testing
- Thermal cycling based on mission requirements typically -50˚C to -110˚C low end and +50˚C to +90˚C high end



Lucentum offers matching COTS antenna test hats for our COTS space antennas!

Lucentum can also support custom antenna test hats for new antennas, existing antennas, or customer-provided antenna designs. Test hats can be developed around the antenna geometry, RF interface, frequency band, polarization, and required test setup.

Contact us to find out more!

Applications

- Spacecraft antenna functional testing
- RF path verification
- Integration and checkout activities
- Production and acceptance test support
- Laboratory RF testing
- Test support where free-space testing is impractical