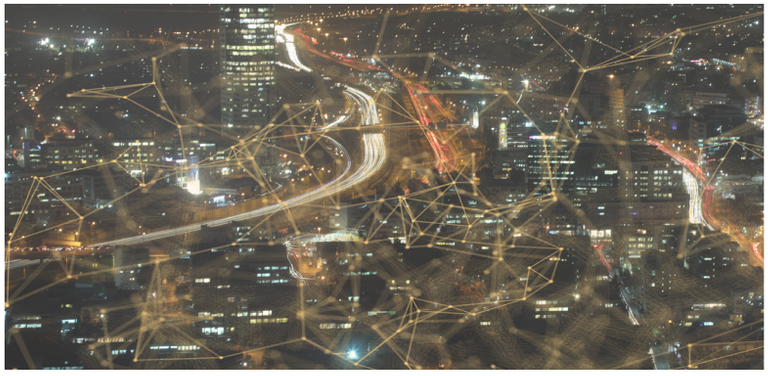
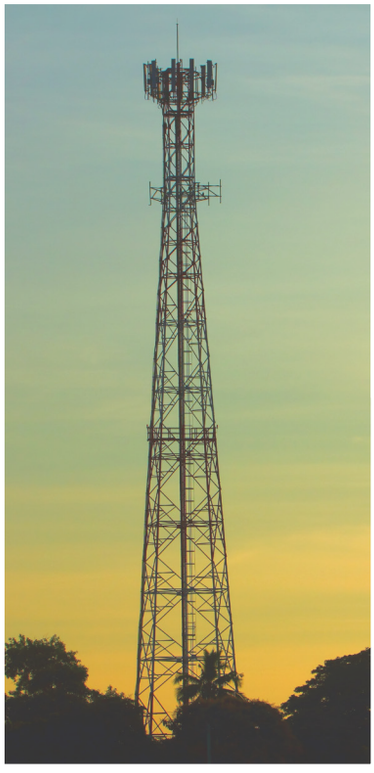
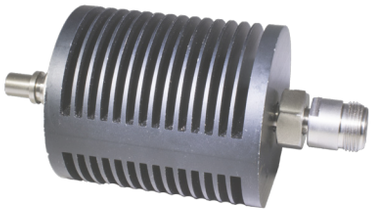
XMA POWERED BY Omni Spectra®

Adapters, Attenuators, Couplers,
Cryogenic Products, DC Blocks,
Equalizers, Power Dividers, Terminations

RF, Microwave & Millimeter Wave Passive Solutions







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About XMA

XMA Corporation-Omni Spectra® (XMA) is an industry leader in the design and manufacture of RF, microwave and millimeter wave passive solutions. Headquartered in Manchester, NH, XMA supplies products of the highest quality and performance to the military, aerospace, test, measurement, medical and commercial markets globally.

XMA was founded in 2003 through the acquisition of the Omni-Spectra® product line from M/A-Com, Inc. Since our inception, XMA has been committed to continual improvement while producing the highest quality products. XMA is an industry leader in custom product offerings through our New Product Introduction, Development and Transition to Manufacturing (NPID) strategy combined with an aggressive AS9100 Quality Management System. This strategy allows us the flexibility to manufacture custom products at both low and high volumes.

XMA's Mission Statement

Enhance the global communication experience by providing quality RF solutions.

XMA's Vision Statement

To be the strategic partner advancing future technologies through disruptive RF design, manufacturing and support initiatives, one connection at a time.

Capabilities

- DFARS and RoHS compliant products
- Cryogenic capabilities
- Military standard products
- Integrated product teams
- In-house thin film manufacturing
- Thermal shock -65°C to 180°C
- Burn in chambers
- SolidWorks (3D) and CST Modeling Software
- Fast time to market process
- Manufacturing representatives and distributors located globally
- ITAR Registered
- AS9100 Registered
- ISO Registered
- Full in-house design capabilities
- AutoCAD

Solutions Come Standard

ITAR Compliant International Traffic In Arms Regulations

RoHS

GOVERNMENT-INDUSTRY DATA EXCHANGE PROGRAM GIDEP

REACH COMPLIANT

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XMA
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Adapters

XMA offers various in-series and between series adapters spanning the frequency range from DC to 67GHz. It is often necessary to adapt from one type of transmission line connector to another while maintaining low loss and good VSWR characteristics. Our adapters meet this criteria and are utilized in various applications throughout the industry.

1.85mm f-f

Part Number	Frequency (GHz)	VSWR*
6780-0000-00	DC-67	1.35:1

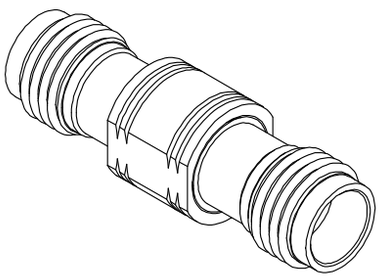
1.85mm m-m

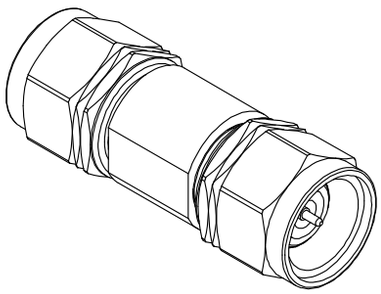
Part Number	Frequency (GHz)	VSWR*
6781-0000-00	DC-67	1.35:1

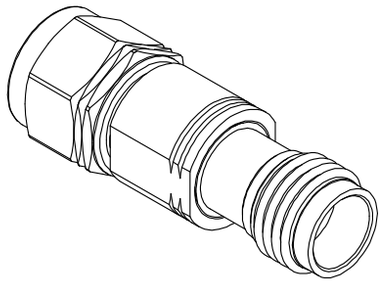
1.85mm m-f

Part Number	Frequency (GHz)	VSWR*
6782-0000-00	DC-67	1.35:1

* VSWR stated is a max. Please contact factory for detailed step specification.







Attenuators

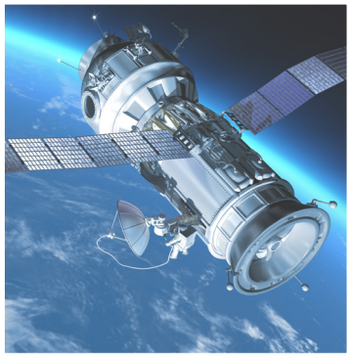
XMA attenuators are linear, passive transmission line components designed to reduce the input power in a matched system by a predetermined amount. The most commonly found applications for coaxial attenuators in microwave systems are in transmitters and receivers. In these, and similar applications, the characteristics that are usually of principal concern are:

- Range of attenuation
- Flatness over frequency
- Superior VSWR performance
- Average and peak power-handling capability
- Temperature characteristics
- Size and weight

Our high-quality line of attenuators operate in various frequency bands from DC to 65GHz, with attenuation values from 0 to 50dB. Our average power rating begins at 0.5W and extend to >300W.

A variety of fixed attenuators for many applications are shown in this catalog. Although these attenuators cover most requirements for frequency range and flatness, the practical rule, where cost is a factor, is to specify only the range and tolerances that are required. All XMA attenuators are manufactured using our internal thin-film deposition processing center.

Our catalog attenuators are available in a variety of package sizes and connector configurations as shown on the following pages. The attenuator elements are designed to provide broadband operation with low frequency sensitivity and extremely stable operation at temperature extremes.



Attenuators

1.85mm m-f

Part Number	Frequency (GHz)	Average Power (W)*	Attenuation (dB)**	VSWR***
6782-6165-dB	DC-65	1	1-10, 20, 30	1.65:1

2.4mm m-f

Part Number	Frequency (GHz)	Average Power (W)*	Attenuation (dB)**	VSWR***
8582-6050-dB	DC-50	0.5	1-10, 20, 30	1.65:1
8582-6150-dB	DC-50	1	1-10, 20, 30	1.65:1

2.92mm m-f

Part Number	Frequency (GHz)	Average Power (W)*	Attenuation (dB)**	VSWR***
4882-6040-dB	DC-40	0.5	0-6, 8, 10, 15, 20, 30	1.40:1
4882-6140-dB	DC-40	1	0-6, 8, 10, 15, 20, 30	1.40:1
4882-6240-dB	DC-40	2	0-6, 8, 10, 15, 20, 30	1.40:1

SMA m-f

Part Number	Frequency (GHz)	Average Power (W)*	Peak (W)	Attenuation (dB)**	VSWR***
2082-601X-dB	DC-6	2	500	0-12, 15, 20, 30	1.15:1
2082-6346-dB	DC-6	2	200	1-12, 15, 20, 30	1.35:1
2082-6406-dB	DC-6	2	500	0-12, 15, 20, 30, 40	1.25:1
2082-6446-dB	DC-6	2	200	1-12, 15, 20, 30	1.35:1
2082-6526-dB	DC-6	5	500	1-12, 15, 20, 30	1.25:1
2082-6506-dB	DC-6	10	500	1-12, 15, 20, 30	1.25: 1
2082-6525-06-dB	DC-6	25	500	3, 6, 10 , 20, 30, 40	1.20:1
2082-7550-06-dB	DC-6	50	500	3, 6, 10 , 20, 30, 40	1.25:1
2082-7600-06	DC-6	100	1000	3, 6, 10 , 20, 30, 40, 50, 60	1.40:1
2082-604X-dB	DC-18	2	500	0-12, 15, 20, 30	1.35:1
2082-6191-dB	DC-18	2	500	0-12, 15, 20, 30, 40, 50, 60	1.35:1
2082-624X-dB	DC-18	2	500	0-12, 15, 20, 30	1.35:1
2082-6340-dB	DC-18	2	500	0-12, 15, 20, 30	1.35:1
2082-6525-18-dB	DC-18	25	500	3, 6, 10, 20, 30, 40	1.50:1
2082-7550-18-dB	DC-18	50	500	3, 6, 10, 20, 30, 40	1.45:1
2682-6460-dB	DC-26.5	2	500	0-12, 15, 20, 30	1.50:1

Attenuators

SMP m-f

Part Number	Frequency (GHz)	Average Power (W)*	Peak (W)	Attenuation (dB)**	VSWR***
2982-6140-dB	DC-18	1	50	3, 6, 10, 20	1.30:1

SMPM m-m

Part Number	Frequency (GHz)	Average Power (W)*	Peak (W)	Attenuation (dB)**	VSWR***
2881-6140-dB	DC-18	2	50	20	1.25:1

N m-f

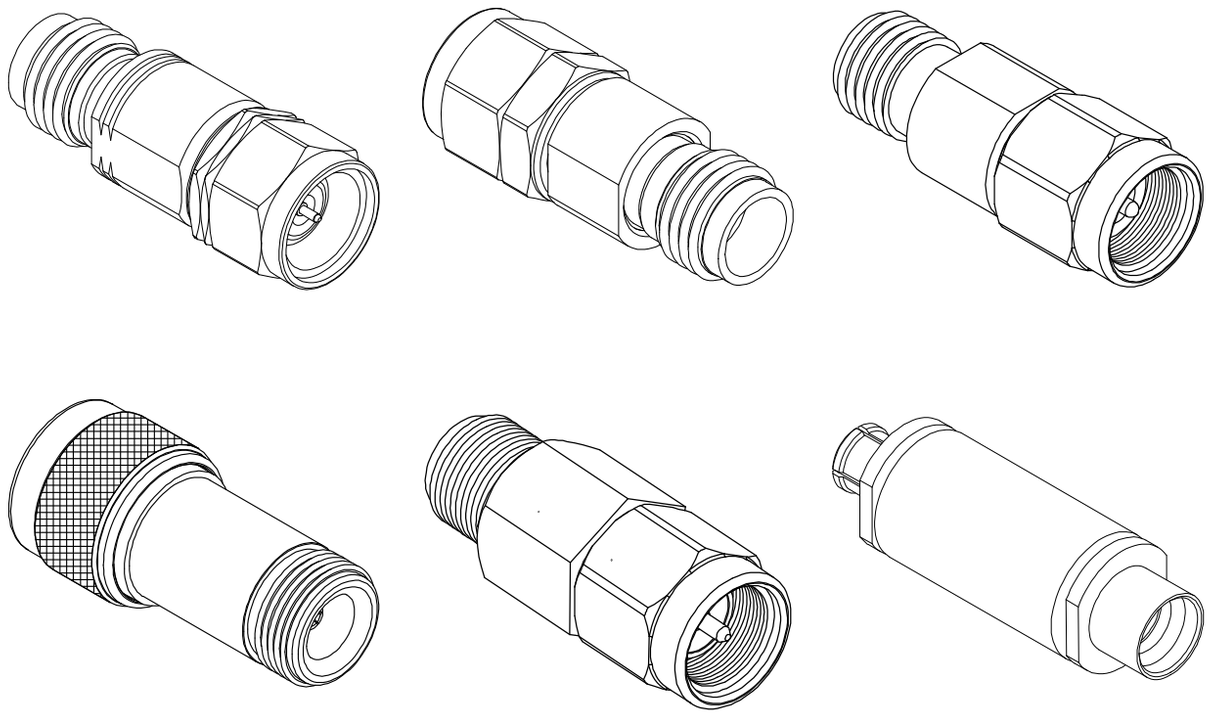
Part Number	Frequency (GHz)	Average Power (W)*	Peak (W)	Attenuation (dB)**	VSWR***
3082-7650-04-dB	DC-4	150	2500	3, 6, 10, 20, 30, 40, 50, 60	1.30:1
3082-6156-dB	DC-6	2	500	1-12, 30	1.25:1
3082-7003-dB	DC-6	2	500	1-12, 30, 40	1.25:1
3082-6510-dB	DC-6	5	500	1-12, 15, 20, 30	1.25:1
3082-6504-dB	DC-6	10	500	1-12, 15, 20, 30, 40	1.25:1
3082-6525-06-dB	DC-6	25	500	3, 6, 10, 20, 30, 40, 50	1.20:1
3082-7550-06-dB	DC-6	50	500	3, 6, 10, 20, 30, 40, 50	1.25:1
3082-7600-06-dB	DC-6	100	1000	3, 6, 10, 20, 30, 40, 50, 60	1.40:1
3082-7650-06-dB	DC-6	150	2500	3, 6, 10, 20, 30, 40, 50, 60	1.40:1
3082-7600-08-dB	DC-8	100	1000	3, 6, 10, 20, 30, 40, 50	1.45:1
3082-7650-08-dB	DC-8	150	2500	3, 6, 10, 20, 30, 40, 50, 60	1.50:1
3082-7550-18-dB	DC-18	50	500	3, 6, 10, 20, 30, 40, 50	1.45:1
3082-7001-dB	DC-18	2	500	1-20, 30, 40	1.35:1
3082-6524-dB	DC-18	5	500	1-12, 15, 20, 30	1.35:1
3082-6502-dB	DC-18	10	500	1-12, 15, 20, 30, 40	1.40:1
3082-6525-18-dB	DC-18	25	500	3, 6, 10, 20, 30, 40, 50	1.40:1
3082-7550-18-dB	DC-18	50	500	3, 6, 10, 20, 30, 40, 50	1.45:1
3082-7550-12.4-dB	DC-12.4	50	500	3, 6, 10, 20, 30, 40, 50	1.35:1

Attenuators

TNC m-f

Part Number	Frequency (GHz)	Average Power (W)*	Peak (W)	Attenuation (dB)**	VSWR***
3782-6003-dB	DC-6	2	500	1-13, 15, 20, 30	1.25:1
3782-7525-06-dB	DC-6	25	500	3, 6, 10, 20, 30, 40, 50	1.20:1
3782-6002-dB	DC-12.4	2	500	1-13, 15, 20, 30	1.25:1
3782-6001-dB	DC-18	2	500	1-13, 15, 20, 30	1.35:1
3782-7525-18-dB	DC-18	25	500	3, 6, 10, 20, 30, 40	1.50:1

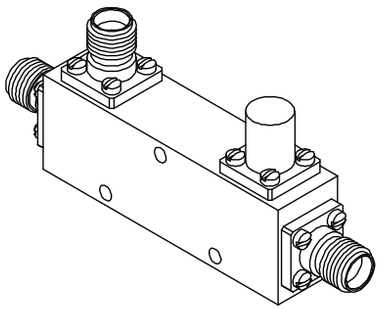
* Derated linearly to 10% of the maximum operating temperature.
** For attenuation accuracy please contact factory for a detailed outline drawing.
*** VSWR stated is a max. Please contact factory for detailed stepped specification.

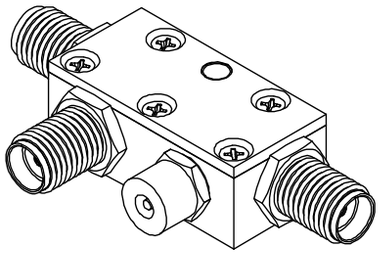


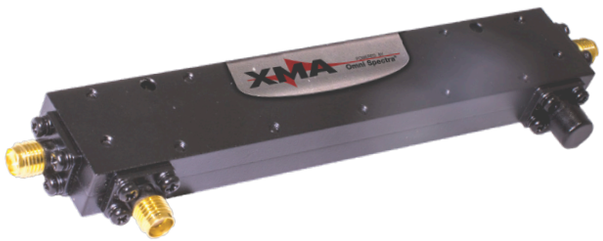
Couplers

XMA's directional couplers are passive RF devices used to couple a specific proportion of the power travelling in one transmission line out through another connection or port. Directional couplers find many applications in RF design, ranging from through line power sensors to automatic level controls for transmitter applications. As such, they are particularly useful by enabling power levels to be sensed without making a direct connection to the transmission line carrying the power.

RF directional couplers can be designed using a variety of techniques including stripline, microstrip and lumped or discrete elements. They can be designed within a variety of packages from blocks with RF connectors or solder pins. They may also be contained on a substrate carrier or constructed as part of a larger unit performing other functions. Couplers normally act as a 4-port device, in which two transmission lines pass close enough to each other such that energy will propagate from the main line to the coupled line. All four ports are matched to the characteristic impedance (usually 50 ohms).







Couplers

SMA-f

Part Number	Coupling (dB)	Frequency (GHz)	Frequency Sensitivity (dB)	IL (dB)*	Directivity (dB)	VSWR (max)	Power (Input) Avg. Watts	Peak Power (Input) kW
OS2020-6604-06	6 ± 1	1-2	± 0.60	0.20	25	1.15:1	50	4
OS2020-6605-10	10 ± 1	1-2	± 0.75	0.20	25	1.15:1	50	4
OS2020-6606-20	20 ± 1	1-2	± 0.75	0.20	25	1.15:1	50	4
OS2020-6608-06	6 ± 1	2-4	± 0.60	0.20	22	1.15:1	50	4
OS2020-6609-10	10 ± 1	2-4	± 0.75	0.20	22	1.15:1	50	4
OS2020-6610-20	20 ± 1	2-4	± 0.75	0.20	22	1.15:1	50	4
OS2020-6616-06	6 ± 0.75	4-8	± 0.50	0.65	20	1.25:1	50	4
OS2020-6617-10	10 ± 0.75	4-8	± 0.50	0.25	20	1.25:1	50	4
OS2020-6618-20	20 ± 0.75	4-8	± 0.50	0.25	20	1.25:1	50	4
2026-7218-16	16 ± 1	2-18	± 0.55	0.90	25	1.40:1	50	3

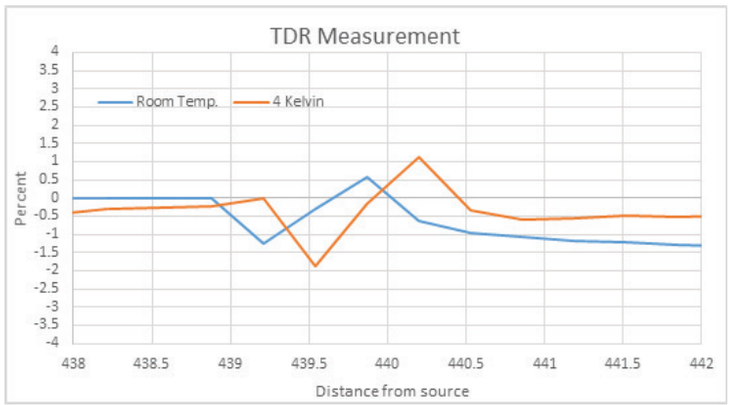
* Above nominal coupling loss.

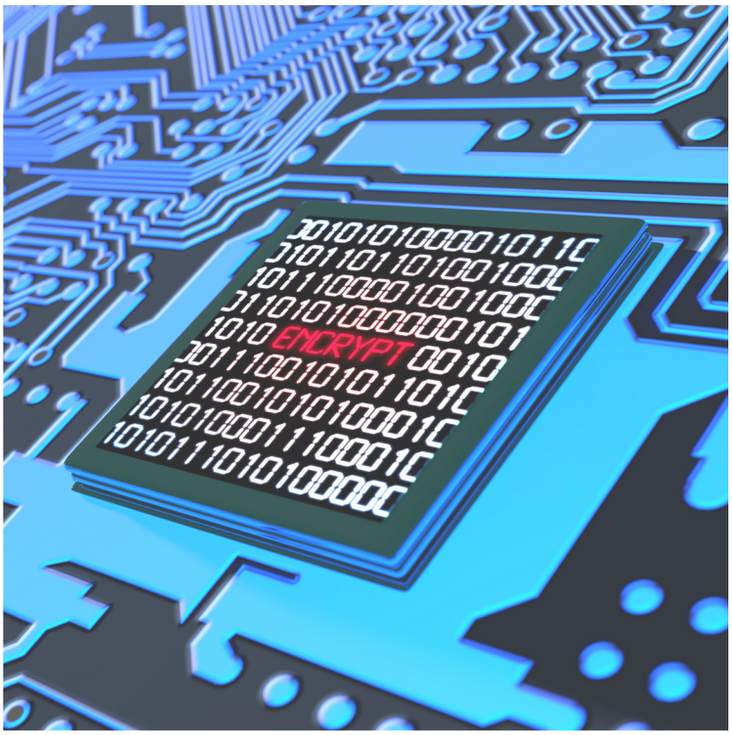
Cryogenic Passive Products

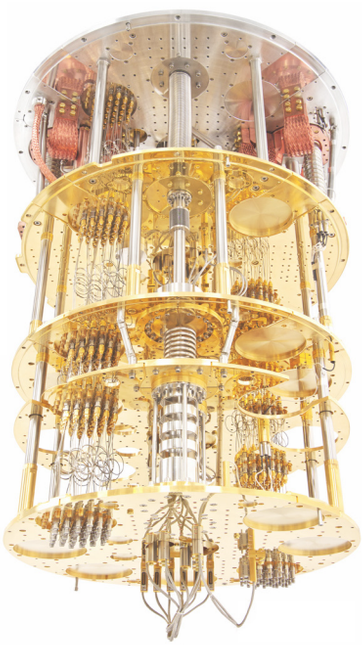
XMA is committed to manufacturing and developing high quality products and high-tech solutions. XMA offers attenuators and terminations capable of performing at extremely low temperatures. These products have the ability to operate at 4 Kelvin, or -269.1 Celsius, with great stability. The proprietary thin film resistor deviates less than 2% from 50 Ohms. The components do not super-conduct under extremely cold conditions.

Features and Benefits:

- Perform successfully at extremely low temperatures
- Proven successful performance at Harvard, MIT, and Yale for research
- Little to no drift in attenuation, extremely stable throughout temperature changes
- Minimal change in resistance values at cryogenic temperatures
- Nichrome offers DC-50 GHz attenuators and terminations in cryogenic version
- Interconnects provide outstanding electrical contact without creating noise
- Temperature Coefficient of Resistance (TCR's) < 15 ppm/C







Attenuators

SMA m-f

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	Attenuation (dB)	VSWR*
2082-5026-00-CRYO	DC-18	2	500	0	1.35:1
2082-6418-dB-CRYO	DC-18	2	500	0-20, 25	1.35:1
2082-604X-dB-CRYO	DC-18	2	500	0-20, 25, 30, 40	1.35:1
2682-6460-dB-CRYO	DC-26	2	500	1, 3, 5, 6, 10, 12, 15, 20, 30	1.50:1

2.92mm m-f

Part Number	Frequency (GHz)	Average Power (W)	Attenuation (dB)	VSWR*
4882-5008-00-CRYO	DC-40	2	0	1.40:1
4882-6140-dB-CRYO	DC-40	1	1-10, 15, 20, 30	1.40:1

2.4mm m-f

Part Number	Frequency (GHz)	Average Power (W)	Attenuation (dB)	VSWR*
8582-6150-dB-CRYO	DC-50	1	1-10, 20, 30	1.65:1

Terminations

SMA m

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
2001-6112-02-CRYO	DC-18	1	500	1.20:1
2003-6111-00-CRYO	DC-18	1	500	1.10:1
2001-7010-02-CRYO	DC-18	2	500	1.20:1

SMA f

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
2002-6112-02-CRYO	DC-18	1	500	1.20:1

2.92 mm m

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
4801-7002-02-CRYO	DC-40	2	50	1.25:1

2.92 mm f

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
4802-7002-02-CRYO	DC-40	2	50	1.25:1

* VSWR stated is a max. Please contact factory for detailed stepped specification.

DC Blocks

XMA DC Blocks are components that prevent the flow of DC signals in to a system, while allowing the higher frequency RF signals to pass through. DC Blocks are placed within a system to stop any signal with a frequency of 0Hz from interfering with sensitive RF components. DC blocks are similar to high-pass filters allowing only the RF frequencies to pass through and are usually designed by placing capacitors in series with a transmission line. There are three types of DC Blocks:

Inner DC Blocks: Inner DC Blocks have a capacitor placed in series with the center conductor. They prevent the flow of DC and minimize the flow of low-frequency audio currents while providing minimum impedance to RF signals.

Outer DC Blocks: Outer DC Blocks have a capacitor placed in series with the outer conductor. They prevent the flow of direct current and low-frequency current surges along the outer conductors of transmission lines.

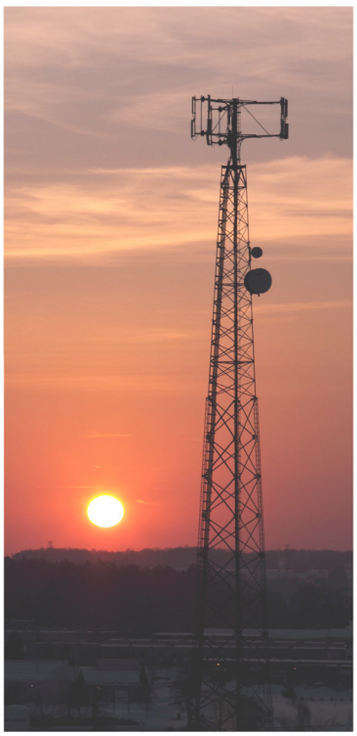
Inner/Outer DC Blocks: Inner/Outer DC Blocks have a capacitor placed in series with both the outer conductor and inner conductor to prevent DC from passing along both conductors, typically in a coaxial connection.

Key parameters when looking for DC Blocks:

Frequency: Usually optimized for a frequency range, i.e. they block all DC signals and allow RF signals in a specific frequency range.

Voltage Rating: Also known as breakdown voltage (or max voltage), this is the maximum voltage that a DC Block can handle before it breaks down. The higher the voltage rating, the better.

Insertion Loss: This is a measure of the loss of RF Signal that passes through the DC Block. In an ideal case this would be zero.



DC Blocks

SMA-m-f

Part Number	Type	Frequency Range (GHz)	Voltage	Insertion Loss (Max dB)	VSWR*
2044-6010-00	Inner/Outer	1-18	300	1.0	1.55:1
2044-7002-18	Inner/Outer	.01-18	200	0.75	1.35:1
2046-6050-18	Inner	.01-18	200	0.75	1.35:1
2046-6050-23	Inner	7 KHz-23	100	0.75	1.35:1
2746-6050-26	Inner	7 KHz-26.5	100	0.75	1.35:1

Type N m-f

Part Number	Type	Frequency Range (GHz)	Voltage	Insertion Loss (Max dB)	VSWR*
3044-7001-18	Inner/Outer	.01-18	200	0.75	1.35:1
3046-6010-18	Inner	.01-18	200	0.8	1.35:1

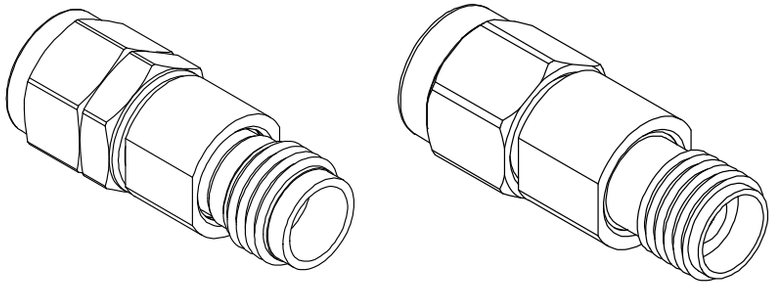
2.92mm m-f

Part Number	Type	Frequency Range (GHz)	Voltage	Insertion Loss (Max dB)	VSWR*
4845-6010-40	Outer	.01-40	100	1.0	1.45:1
4846-6010-40	Inner	.01-10	200	0.75	1.45:1

2.4mm m-f

Part Number	Type	Frequency Range (GHz)	Voltage	Insertion Loss (Max dB)	VSWR*
8546-6010-50	Inner	.01-50	100	1.25	1.65:1

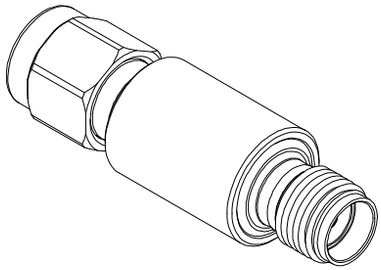
* VSWR stated is a max. Please contact factory for detailed stepped specification.

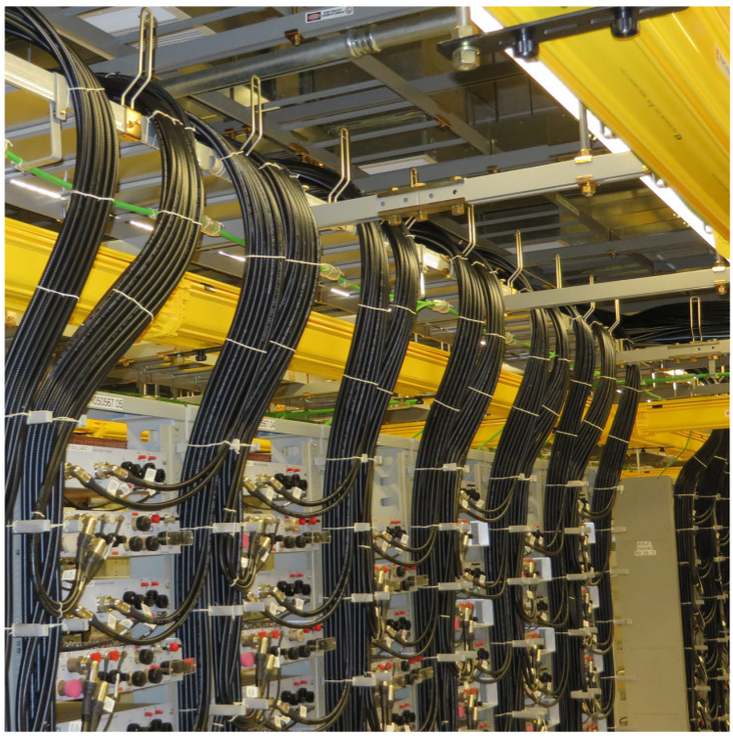


Equalizers

XMA's equalizers are commonly known as special attenuators that have a frequency response footprint that is intentionally not flat. The RF industry provides many reasons for an equalizer, the most common is to fix wide-band problems in microwave systems. In certain instances, RF signals have negative gain slope, (i.e. less gain as frequency increases). This includes not only amplifiers, but passive components such as coaxial cables and microstrip transmission lines. The antidote to negative gain slope is adding a linear gain equalizer that has a positive gain slope to your lineup.

XMA offers customized equalizer solutions for multiple RF applications. Please contact us to discuss your specific requirements.





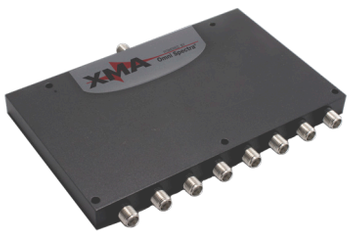
Power Dividers

XMA Power Dividers/Combiners are passive components that split an input signal into two or more identical output signals, or combine multiple signals into one output signal. The number of output ports available in standard models is 2, 3, 4, and 8 outputs, but combinations of these power divisions are available in special models.

The basic measure of quality of a power divider is in terms of its ability to provide identical outputs. However, achievement of equal outputs is also a function of the impedance match between the divider and the external system and of the intrinsic isolation of the divider. Most of XMA Power Dividers are isolated devices, which provide a high isolation between output ports. The advantage of this characteristic is that the output at one port is not severely affected by an impedance mismatch at another output port.

XMA high performance isolated power dividers offer significant advantages when used in phased array antennas, test instrumentation, reflectometer or leveling setups, L.O. feed networks, network analyzers, phase bridges, and any other wideband power splitting applications.

XMA also offers a resistive power divider where the isolation is equal to the insertion loss and operates down to DC.



Power Dividers

1.85mm f

Part Number	Divisions	Frequency (GHz)	Power (W)	IL (dB)*	Isolation (dB)**	Phase Balance°	Amp. Balance (dB)	VSWR Input/ Output
OS6790-6065-02	2	10-65	10	3dB Typ	15	12	1.5 dB Max	2.0:1

2.4mm f

Part Number	Divisions	Frequency (GHz)	Power (W)	IL (dB)*	Isolation (dB)**	Phase Balance°	Amp. Balance (dB)	VSWR Input/ Output
OS8590-6050-02	2	10-50	10	1.8dB Typ, 2.0 Max	15	10	1.0 dB Max	1.60:1 Typ, 2.0:1 Max / 1.70:1 Typ, 2.0:1 Max

2.92mm f

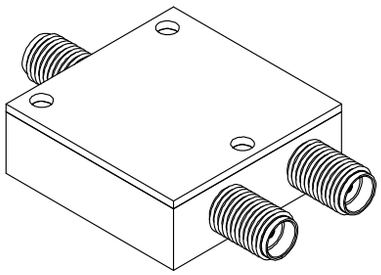
Part Number	Divisions	Frequency (GHz)	Power (W)	IL (dB)*	Isolation (dB)	Phase Balance°	Amp. Balance (dB)	VSWR Input/ Output
OS4890-6040-02	2	10-40	10	1.5 dB Typ, 2.0 dB Max	15	6	0.6 dB Max	1.60:1 Typ, 2.0:1 Max / 1.70:1 Typ, 1.80:1 Max

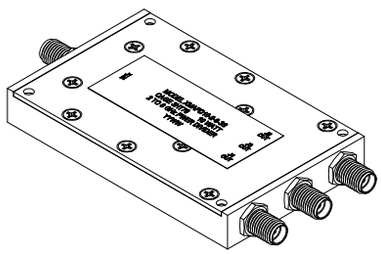
* Above theoretical split.
** Minimum.

SMA-f Resistive

Part Number	Divisions	Frequency (GHz)	Power (W)	IL (dB)**	Isolation (dB)	Phase Balance°	Amp. Balance (dB)	VSWR Input/ Output
20RP-6006-XXX*	2	DC-6	2	6	N/A	± 1	0.3	1.3:1 / 1.45:1

* Available in multiple connector styles.
** Nominal.



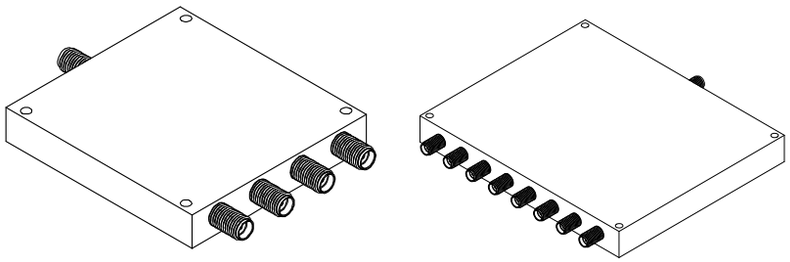


Power Dividers

SMA f

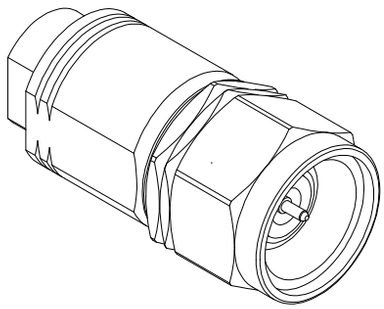
Part Number	Divisions	Frequency (GHz)	Power (W) (Max)	IL (dB)*	Isolation (dB+)**	Phase Balance°	Amp. Balance (dB)	VSWR Input/ Output
2089-7218-02	2	2-18	30	1.0	17	5	0.3	1.50:1
XMAPD10-1-4-2S	2	1-4	10 Fwd/2 Rev	0.5	20	3	0.2	1.25:1
XMAPD10-1-4-4S	4	1-4	10 Fwd/2 Rev	1.0	20	3	0.2	1.35:1
XMAPD10-1-4-8S	8	1-4	10 Fwd/2 Rev	2.5	18	9	0.9	1.60:1
XMAPD10-2-8-2S	2	2-8	20 Fwd/1 Rev	0.6	20	±3	0.3	1.30:1
XMAPD10-2-8-3S	3	2-8	10 Fwd/2 Rev	1.0	18	7	0.5	1.35:1
XMAPD10-2-8-4S	4	2-8	10 Fwd/2 Rev	1.4	18	5	0.5	1.50:1
XMAPD10-2-8-6S	6	2-8	10 Fwd/2 Rev	1.6	18	±7	0.6	1.50:1
XMAPD10-2-8-8S	8	2-8	10 Fwd/2 Rev	2.0	18	8	0.8	1.50:1

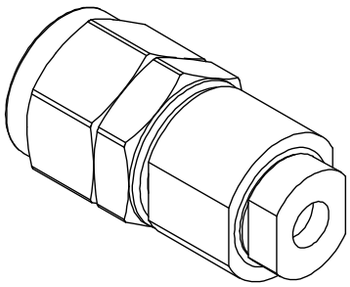
* Above theoretical split.
** Minimum.

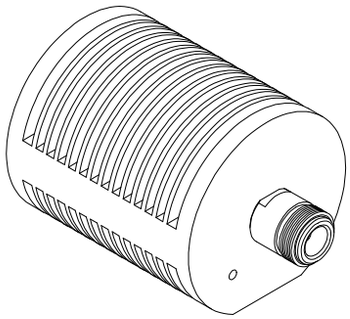


Terminations

XMA RF terminations are power absorbing loads properly matched to the characteristic impedance of a transmission line. In theory, an RF termination is the practice of ending a transmission line with a device that matches the characteristic impedance of the line. This is intended to prevent signals from reflecting off the end of the transmission line. Reflections at the ends of unterminated transmission lines cause distortion which can produce ambiguous digital signal levels and mis-operation of digital systems. Reflections in analog signal systems cause effects such as video ghosting or power loss in radio transmitter transmission lines. XMA provides a complete line of miniature fixed coaxial terminations designed for laboratory, testing, and system use.







Terminations

1.85 mm

Part Number	Frequency (GHz)	Average Power (W)	VSWR*
6701-7101-02	DC-65	1	1.60:1

2.4 mm m

Part Number	Frequency (GHz)	Average Power (W)	VSWR*
8501-7000-02	DC-50	0.5	1.10 + .01 (f)
8501-7001-02	DC-50	1	1.10 + .01 (f)
8501-7100-02	DC-50	0.5	1.45:1
8501-7101-02	DC-50	1	1.45:1
8501-7102-02	DC-50	2	1.45:1

* VSWR stated is a max. Please contact factory for detailed stepped specification.

2.4 mm f

Part Number	Frequency (GHz)	Average Power (W)	VSWR*
8502-7000-02	DC-50	0.5	1.10 + .01 (f)
8502-7001-02	DC-50	1	1.10 + .01 (f)
8502-7100-02	DC-50	0.5	1.45:1
8502-7101-02	DC-50	1	1.45:1
8502-7102-02	DC-50	2	1.45:1

* VSWR stated is a max. Please contact factory for detailed stepped specification.

2.92 mm m

Part Number	Frequency (GHz)	Average Power (W)	VSWR*
4801-7000-02	DC-40	0.5	1.25:1
4801-7001-02	DC-40	1	1.25:1
4801-7002-02	DC-40	2	1.25:1

2.92 mm f

Part Number	Frequency (GHz)	Average Power (W)	VSWR*
4802-7000-02	DC-40	0.5	1.25:1
4802-7001-02	DC-40	1	1.25:1
4802-7002-02	DC-40	2	1.25:1

Terminations

SMA m

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
2001-7019-80	DC-6	10	500	1.15:1
2001-7525-06	DC-6	25	500	1.20:1
2001-7550-06	DC-6	50	500	1.25:1
2001-7600-06	DC-6	100	1000	1.40:1
2001-6116-00	DC-12.4	1	500	1.10:1
2001-6116-02	DC-12.4	1	500	1.10:1
2001-7550-12	DC-12.4	50	500	1.35:1
2003-6116-00	DC-12.4	1	500	1.05:1
2003-6116-02	DC-12.4	1	500	1.05:1
2001-7004-80	DC-18	5	500	1.25:1
2001-6100-00	DC-18	1	500	1.15:1
2001-6100-02	DC-18	1	500	1.15:1
2001-6101-00	DC-18	1	500	1.20:1
2001-6101-02	DC-18	1	500	1.20:1
2001-6101-02	DC-18	1	500	1.20:1
2001-6105-00	DC-18	1	500	1.15:1
2001-6105-02	DC-18	1	500	1.15:1
2001-6111-00	DC-18	1	500	1.10:1
2001-6111-02	DC-18	1	500	1.10:1
2001-6112-00	DC-18	1	500	1.20:1
2001-6112-01	DC-18	1	500	1.20:1
2001-6112-02	DC-18	1	500	1.20:1
2001-6113-00	DC-18	1	500	1.30:1
2001-6113-02	DC-18	1	500	1.30:1
2001-6115-00	DC-18	1	500	1.30:1
2001-6115-02	DC-18	1	500	1.30:1
2001-6117-00	DC-18	1	500	1.10:1
2001-6117-02	DC-18	1	500	1.10:1
2001-6143-00	DC-18	1	500	1.05 + .01 (f)
2001-6143-02	DC-18	1	500	1.05 + .01 (f)
2001-6144-00	DC-18	1	500	1.25:1
2001-6144-02	DC-18	1	500	1.25:1

Terminations

SMA m (continued)

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
2001-7017-80	DC-18	10	500	1.35:1
2001-7525-18	DC-18	25	500	1.40:1
2001-7550-18	DC-18	50	500	1.45:1
2003-6111-00	DC-18	1	500	1.10:1
2003-6111-02	DC-18	1	500	1.10:1
2001-6110-00	DC-26.5	1	500	1.30:1
2001-6110-02	DC-26.5	1	500	1.30:1
2003-6110-00	DC-26.5	1	500	1.30:1
2003-6110-02	DC-26.5	1	500	1.30:1

SMA-f

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
2002-6116-00	DC-12.4	1	500	1.05:1
2002-6116-02	DC-12.4	1	500	1.05:1
2002-6100-00	DC-18	1	500	1.15:1
2002-6100-02	DC-18	1	500	1.15:1
2002-6101-00	DC-18	1	500	1.20:1
2002-6101-02	DC-18	1	500	1.20:1
2002-6105-00	DC-18	1	500	1.15:1
2002-6105-02	DC-18	1	500	1.15:1
2002-6111-00	DC-18	1	500	1.10:1
2002-6111-02	DC-18	1	500	1.10:1
2002-6112-00	DC-18	1	500	1.20:1
2002-6112-01	DC-18	1	500	1.20:1
2002-6112-02	DC-18	1	500	1.20:1
2002-6113-00	DC-18	1	500	1.30:1
2002-6113-02	DC-18	1	500	1.30:1
2002-6117-00	DC-18	1	500	1.10:1
2002-6117-02	DC-18	1	500	1.10:1
2002-6144-00	DC-18	1	500	1.25:1
2002-6144-02	DC-18	1	500	1.25:1
2002-6110-00	DC-26.5	1	500	1.30:1
2002-6110-02	DC-26.5	1	500	1.30:1

Terminations

SMP f

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
2902-5000-00	DC-18	1	100	1.20:1

N m

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
3001-6152-10	DC-2.5	2	500	1.10:1
3001-6151-02	DC-4	2	500	1.10:1
3001-6116-00	DC-6	5	500	1.05+.015(f):1
3001-6130-80	DC-6	10	500	1.05+.015(f):1
3001-6156-10	DC-6	2	500	1.20:1
3001-6525-06	DC-6	25	500	1.20:1
3001-7550-06	DC-6	50	500	1.25:1
3001-7600-06	DC-6	100	1000	1.40:1
3001-7650-08	DC-8	150	2500	1.40:1
3001-6113-00	DC-12.4	2	500	1.15:1
3001-6118-00	DC-18	5	500	1.05+.015(f):1
3001-6132-80	DC-18	10	500	1.05+.015(f):1
3001-6525-18	DC-18	25	500	1.40:1
3001-7010-02	DC-18	2	500	1.25:1
3001-7550-18	DC-18	50	500	1.45:1

* VSWR stated is a max. Please contact factory for detailed stepped specification.

Terminations

TNC m

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
3101-6151-02	DC-4	2	500	1.10:1
3701-6116-80	DC-6	5	500	1.15:1
3701-6130-80	DC-6	10	500	1.28:1
3701-7525-06-80	DC-6	25	500	1.20:1
3701-7550-06-80	DC-6	50	500	1.25:1
3701-7600-06-80	DC-6	100	1000	1.35:1
3101-6125-02	DC-12.4	2	500	1.20:1
3701-6117-80	DC-12.4	5	500	1.25:1
3701-6131-80	DC-12.4	10	500	1.28:1
3701-7525-12-80	DC-12.4	25	500	1.30:1
3701-7550-12-80	DC-12.4	50	500	1.35:1
3101-6100-00	DC-18	2	500	1.25:1
3101-6124-02	DC-18	2	500	1.25:1
3701-6118-80	DC-18	5	500	1.05+.015(f):1
3701-6132-80	DC-18	10	500	1.35:1
3701-7525-18-80	DC-18	25	500	1.40:1
3701-7550-18-80	DC-18	50	500	1.45:1

Thread In

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
9501-5003-10	DC-26.5	2	500	1.50:1

OSMM

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*
1101-6113-02	DC-18 GHz	1	500	1.15+.0111(f):1

* VSWR stated is a max. Please contact factory for detailed stepped specification.

Terminations

SMA-Flange, Bifurcated Slot, 1/2 inch

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*	Pin Height
2068-7002-21	DC-18	10	100	1.40:1	0.053
2768-5123-21	DC-26.5	1	100	1.45:1	0.053
2768-5124-21	DC-26.5	1	100	1.45:1	0.025

SMA-Flange, Bifurcated Slot, 3/8 inch

Part Number	Frequency (GHz)	Average Power (W)	Peak (W)	VSWR*	Pin Height
2768-5223-21	DC-26.5	1	100	1.45:1	0.025

* VSWR stated is a max. Please contact factory for detailed stepped specification.

Notes

Notes

Notes

Technical Summary—RF Data

dBm	Watts	dBm	Watts	dBm	Watts
0	1.0 mW	16	40 mW	32	1.6 W
1	1.3 mW	17	50 mW	33	2.0 W
2	1.6 mW	18	63 mW	34	2.5 W
3	2.0 mW	19	79 mW	35	3 W
4	2.5 mW	20	100 mW	36	4 W
5	3.2 mW	21	126 mW	37	5 W
6	4 mW	22	158 mW	38	6 W
7	5 mW	23	200 mW	39	8 W
8	6 mW	24	250 mW	40	10 W
9	8 mW	25	316 mW	41	13 W
10	10 mW	26	398 mW	42	16 W
11	13 mW	27	500 mW	43	20 W
12	16 mW	28	630 mW	44	25 W
13	20 mW	29	800 mW	45	32 W
14	25 mW	30	1.0 W	46	40 W
15	32 mW	31	1.3 W	47	50 W

Power Measurement Units:

dBm - decibels relative to one milliwatt

dBW - decibels relative to one Watt

Gain Measurement Units:

dBi - decibels relative to an isotrope

dBd - decibels relative to a dipole

Return Loss to VSWR Conversion Table

Return Loss (dB)	VSWR	Reflection Coefficient	Mismatch Loss (dB)	Reflected Power (%)	Through Power (%)
1	17.39	0.891	6.868	79.43	20.57
2	8.72	0.794	4.329	63.10	36.90
3	5.85	0.708	3.021	50.12	49.88
4	4.42	0.631	2.205	39.81	60.19
5	3.57	0.562	1.651	31.62	68.38
6	3.01	0.501	1.256	25.12	74.88
7	2.61	0.447	0.967	19.95	80.05
8	2.32	0.398	0.749	15.85	84.15
9	2.10	0.355	0.584	12.59	87.41
10	1.92	0.316	0.458	10.00	90.00
11	1.78	0.282	0.359	7.94	92.06
12	1.67	0.251	0.283	6.31	93.69
13	1.58	0.224	0.223	5.01	94.99
14	1.50	0.200	0.176	3.98	96.02
15	1.43	0.178	0.140	3.16	96.84
16	1.38	0.158	0.110	2.51	97.49
17	1.33	0.141	0.088	2.00	98.00
18	1.29	0.126	0.069	1.58	98.42
19	1.25	0.112	0.055	1.26	98.74
20	1.22	0.100	0.044	1.00	99.00
21	1.20	0.089	0.035	0.79	99.21
22	1.17	0.079	0.027	0.63	99.37
23	1.15	0.071	0.022	0.50	99.50
24	1.13	0.063	0.017	0.40	99.60
25	1.12	0.056	0.014	0.32	99.68
26	1.11	0.050	0.011	0.25	99.75
27	1.09	0.045	0.009	0.20	99.80
28	1.08	0.040	0.007	0.16	99.84
29	1.07	0.035	0.005	0.13	99.87
30	1.07	0.032	0.004	0.10	99.90
31	1.06	0.028	0.003	0.08	99.92
32	1.05	0.025	0.003	0.06	99.94
33	1.05	0.022	0.002	0.05	99.95
34	1.04	0.020	0.002	0.04	99.96
35	1.04	0.018	0.001	0.03	99.97
36	1.03	0.016	0.001	0.03	99.97
37	1.03	0.014	0.001	0.02	99.98
38	1.03	0.013	0.001	0.02	99.98
39	1.02	0.011	0.001	0.01	99.99
40	1.02	0.010	0.000	0.01	99.99

$\Gamma = 10^{(-\text{Return Loss}/20)}$

VSWR = $[1+10^{(-\text{Return loss}/20)}]/[1-10^{(-\text{Return loss}/20)}]$

VSWR = $(1+|\Gamma|)/(1-|\Gamma|)$

Mismatch Loss (dB) = $10 \log(1-\Gamma^2)$

Reflected Power (%) = $100 * \Gamma^2$

Return Loss (dB) = $-20 \log |\Gamma|$

Return Loss (dB) = $-20 \log [(\text{VSWR}-1)/(\text{VSWR}+1)]$

$\Gamma = (\text{VSWR}-1)/(\text{VSWR}+1)$

Through Power (%) = $100 (1-\Gamma^2)$

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