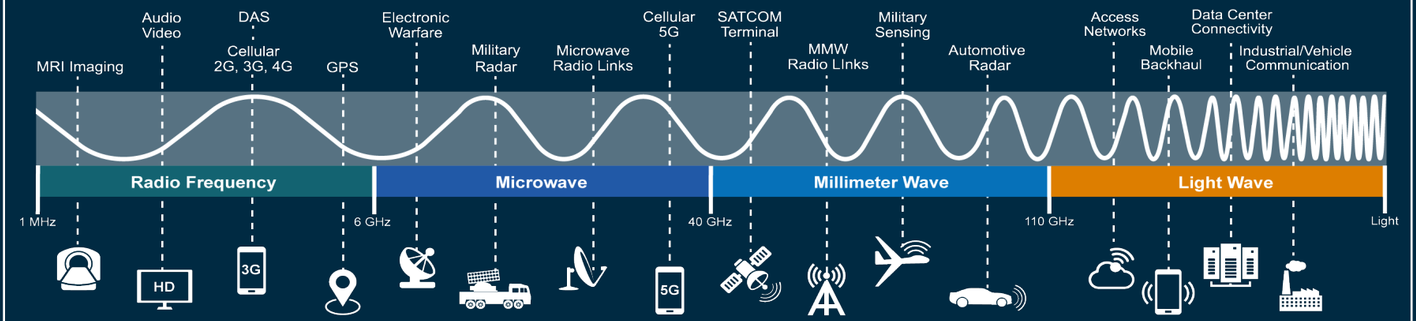
PASTERNACK®
an INFINITE company

Everything You Need for Reliable RF Test & Measurement

Frequency Spectrum / Services by Band

3 kHz – 30 kHz	30 kHz – 300 kHz	300 kHz – 3 MHz	3 MHz – 30 MHz	30 MHz – 300 MHz	300 MHz – 3 GHz	3 GHz – 300 GHz
VLF	**LF**	**MF**	**HF**	**VHF**	**UHF**	**Microwaves**
(Very Low Frequency) Submarine communication	(Low Frequency) Navigation beacons, some radio broadcasting	(Medium Frequency) AM radio broadcasting	(High Frequency) Shortwave radio, aviation, long-distance communication	(High Frequency) shortwave radio, aviation, long-distance communication	(Ultra High Frequency includes SHF, EHF) Mobile phones (4G/5G), Wi-Fi, GPS, satellite TV, walkie-talkies. (radar, satellite, 5G, Wi-Fi (2.4/5 GHz)	

Pasternack Products from DC to Light



Maximum Frequency by RF Connector Size

- 63 connector series available
- Multiple configurations and interfaces
- Commercial to specialized design

Test Equipment Cheat Sheet

Category Description	Primary Purpose	Where Used	Recommended SKUs	Why Pasternack?
Vector Network Analyzers (VNAs) Calibration Kits	Provide precise calibration standards for VNAs to ensure accurate S-parameter measurements and minimize system uncertainty.	RF and microwave test benches, production test environments, and research labs performing VNA measurements from DC to 26.5 GHz.	PE5CK1001 PE5CK1000	Ships from stock with calibration data and certificate of conformance. Backed by Pasternack's 24-hour technical support and full line of precision adapters and cables.
RF Test Cables	Deliver low-loss, phase-stable signal transmission between instruments and devices under test (DUTs) across broad frequency ranges.	RF and microwave test setups, automated test systems (ATE), production validation, calibration benches, and lab environments.	PE3VNA1804 PE3TC1220 PE3TC0600	Custom lengths and labelling available with same day shipping
Gain Horn Antennas	Used to generate or receive known electromagnetic fields for calibration, system verification, and antenna gain measurement.	Anechoic chambers, EMC test benches, radar cross-section measurement setups, and research labs.	PEWAN1172 PE9887-11 PE9856B/SF-10	Full gain and frequency data available online; compatible mounts and waveguide adapters in inventory.
Amplifiers	Provide signal gain for RF/microwave test setups, enabling accurate measurement of low-level signals or system linearity testing.	Vector network analyzers (VNA), spectrum analyzers, signal generators, and automated test equipment (ATE) systems.	PE15A63015 PE15A3595 PE15A3021	Custom biasing or connector configurations available on request.
Adapters	Used in bench set-ups as a connector saver; or allows the bridging, converting, or extending of RF cables/connectors in test, field, and production environments.	Labs, test benches, telecom infrastructure, aerospace/defense RF links, and general RF system interconnects.	1.0mm: PE910019 SMA: PE91135 N: PE9007 7/16: PE91039 BNC: PE9084	Broad catalog. Precision adapter portfolio for high-frequency T&M, covering 1.85mm, 2.4mm, and 2.92mm series and up to 65Ghz.
Electromechanical Switches	Route or switch RF signals between multiple paths to simplify test setup configurations and automated measurement routines.	RF test benches, ATE systems, signal routing matrices, radar and communication test platforms.	PE71S6391 PE71S6419 PE71S6363	Mating connectors and control cables available. Supported by technical documentation and application guidance for seamless system integration.

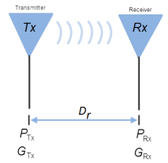
Learn more at Pasternack.com

Key Equations and Conversions

Friis Transmission Equation

$$1]\quad P_{rx} = P_{tx} G_{tx} G_{rx} \left(\frac{c}{4\pi D_r f_0}\right)^2$$

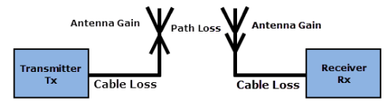
$$2]\quad P_{rx}(dB) = P_{tx} + G_{tx} + G_{rx} + 20\log_{10}\left(\frac{\lambda}{4\pi D_r}\right)$$



Return Loss ↔ VSWR Conversion

$$R_c = \frac{VSWR-1}{VSWR+1};\quad VSWR = \frac{1+R_c}{1-R_c}$$

$$L_r = -20\log_{10}(R_c);\quad L_m = -10\log_{10}(1-R_c^2)$$

Path Loss Formula

$$FSPL = 20\log_{10}(d) + 20\log_{10}(f) + 20\log_{10}\left(\frac{4\pi}{c}\right) - G_t - G_r$$