



Definitions & Conditions of Attenuator Related Parameters.....

Attenuation: A general term used to denote a decrease in magnitude in transmission from one point to another. NOTE: it may be expressed as a ratio, or by extension of the term, in decibels.

SWR: The ratio of voltage (or current) at a loop (maximum) on a transmission line to the value at a node (maximum). It is equal to the ratio of the characteristic impedance to the impedance of the load connected to the output end of the line.

Maximum Average Power: That maximum input power applied for a long time at the maximum operating temperature, with output terminated in the characteristic impedance, which will not permanently change the specifications of the attenuator after return to 20°C at 10 mW input. Rating, particularly for smaller attenuators, is influenced by structure(s) in thermal contact with unit. Heat sources and sinks can significantly alter the input power handling of an attenuator.

Power Coefficient of Insertion Loss: Variation in dB of insertion loss when input power is varied from 10 milliwatts to full rated power after steady state condition has been reached. To obtain dB, multiply power coefficient by dB and watts.

Maximum Peak Power: That peak power which when applied for a specified time at the maximum operating temperature at a pulse duration of 5 microseconds, while the output is terminated in the characteristic impedance, will not permanently change the specifications of the attenuator when returned to 20°C and 10 mW input.

Temperature Coefficient: Maximum change of insertion loss in dB/°C over maximum operating temperature range. To obtain, multiply temperature coefficient by dB and temperature change in °C.

Shock and Vibration: In the three major axes, case or body must be solidly supported when tested.

Frequency Sensitivity of Insertion Loss: Peak-to-peak variation in dB when swept through the frequency range at 20°C.

Operating Temperature Limit: Maximum temperature in °C at which attenuator will operate with full input power; derating function for maximum power vs temperature is specified if required.

Deviation of Insertion Loss from Nominal: At 20°C and an input power of 10 mW at a specified reference frequency.

Connector Life: Connected/disconnected cycles with complete axial engagement/disengagement without side thrust; all electric and mechanical specifications must be complied with after specified life cycle.

Intermodulation Distortion: Intermodulation distortion (IM) consists of the spurious signals which result from the mixing of nth order frequencies in the non-linear elements of a component. Third order intermodulation distortion is of particular interest because third order products typically represent the highest level distortion appearing close to the desired signal, and as such the highest level non-filterable distortion. Third order IM level (IM3) is tested by injecting two pure tones of equal magnitude (f1 and f2) into the component to be tested. The third order IM products will appear in the output spectrum at the frequencies 2f1-f2 and 2f2-f1. These products are characterized by defining their level (in dBc) relative to the fundamental output tones at either f1 or f2.