

Chapter 5.0 Antennas

Section 5.3 SWR & Impedance Matching

G4A06 (C) p.163

What type of device is often used to match transmitter output impedance to an impedance not equal to 50 ohms?

- A. Balanced modulator
- B. SWR Bridge
- C. Antenna coupler or antenna tuner
- D. Q Multiplier

G4B10 (A) p.159

Which of the following can be determined with a directional wattmeter?

- A. Standing wave ratio
- B. Antenna front-to-back ratio
- C. RF interference
- D. Radio wave propagation

G4B11 (C) p.159

Which of the following must be connected to an antenna analyzer when it is being used for SWR measurements?

- A. Receiver
- B. Transmitter
- C. Antenna and feed line
- D. All of these choices are correct

G4B12 (B) p.159

What problem can occur when making measurements on an antenna system with an antenna analyzer?

- A. Permanent damage to the analyzer may occur if it is operated into a high SWR
- B. Strong signals from nearby transmitters can affect the accuracy of measurements
- C. The analyzer can be damaged if measurements outside the ham bands are attempted
- D. Connecting the analyzer to an antenna can cause it to absorb harmonics

G4B13 (C) p.159

What is a use for an antenna analyzer other than measuring the SWR of an antenna system?

- A. Measuring the front to back ratio of an antenna
- B. Measuring the turns ratio of a power transformer
- C. Determining the impedance of an unknown or unmarked coaxial cable
- D. Determining the gain of a directional antenna

G6B13 (C) p.165

Which of these connector types is commonly used for RF connections at frequencies up to 150 MHz?

- A. Octal
- B. RJ-11
- C. PL-259
- D. DB-25

G6B16 (A) p.165

Which of the following describes a type N connector?

- A. A moisture-resistant RF connector useful to 10 GHz
- B. A small bayonet connector used for data circuits
- C. A threaded connector used for hydraulic systems
- D. An audio connector used in surround-sound installations

G6B18 (B) p.165

What is a type SMA connector?

- A. A large bayonet connector usable at power levels in excess of 1 KW
- B. A small threaded connector suitable for signals up to several GHz
- C. A connector designed for serial multiple access signals
- D. A type of push-on connector intended for high voltage applications

G7C06 (B) p.165

What should be the impedance of a low-pass filter as compared to the impedance of the transmission line into which it is inserted?

- A. Substantially higher
- B. About the same
- C. Substantially lower
- D. Twice the transmission line impedance

G9A01 (A) p.162

Which of the following factors determine the characteristic impedance of a parallel conductor antenna feed line?

- A. The distance between the centers of the conductors and the radius of the conductors
- B. The distance between the centers of the conductors and the length of the line
- C. The radius of the conductors and the frequency of the signal
- D. The frequency of the signal and the length of the line

G9A02 (B) p.160

What are the typical characteristic impedances of coaxial cables used for antenna feed lines at amateur stations?

- A. 25 and 30 ohms
- B. 50 and 75 ohms
- C. 80 and 100 ohms
- D. 500 and 750 ohms

G9A03 (D) p.162

What is the characteristic impedance of flat ribbon TV type twinlead?

- A. 50 ohms
- B. 75 ohms
- C. 100 ohms
- D. 300 ohms

G9A04 (C) p.157

What might cause reflected power at the point where a feed line connects to an antenna?

- A. Operating an antenna at its resonant frequency
- B. Using more transmitter power than the antenna can handle
- C. A difference between feed line impedance and antenna feed point impedance
- D. Feeding the antenna with unbalanced feed line

G9A05 (B) p.161

How does the attenuation of coaxial cable change as the frequency of the signal it is carrying increases?

- A. Attenuation is independent of frequency
- B. Attenuation increases
- C. Attenuation decreases
- D. Attenuation reaches a maximum at approximately 18 MHz

G9A06 (D) p.161

In what units is RF feed line loss usually expressed?

- A. Ohms per 1000 feet
- B. Decibels per 1000 feet
- C. Ohms per 100 feet
- D. Decibels per 100 feet

G9A07 (D) p.160

What must be done to prevent standing waves on an antenna feed line?

- A. The antenna feed point must be at DC ground potential
- B. The feed line must be cut to a length equal to an odd number of electrical quarter wavelengths
- C. The feed line must be cut to a length equal to an even number of physical half wavelengths
- D. The antenna feed point impedance must be matched to the characteristic impedance of the feed line

G9A08 (B) p.163

If the SWR on an antenna feed line is 5 to 1, and a matching network at the transmitter end of the feed line is adjusted to 1 to 1 SWR, what is the resulting SWR on the feed line?

- A. 1 to 1
- B. 5 to 1
- C. Between 1 to 1 and 5 to 1 depending on the characteristic impedance of the line
- D. Between 1 to 1 and 5 to 1 depending on the reflected power at the transmitter

G9A09 (A) p.160

What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 200 ohm impedance?

- A. 4:1
- B. 1:4
- C. 2:1
- D. 1:2

G9A10 (D) p.160

What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 10 ohm impedance?

- A. 2:1
- B. 50:1
- C. 1:5
- D. 5:1

G9A11 (B) p.159

What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 50 ohm impedance?

- A. 2:1
- B. 1:1
- C. 50:50
- D. 0:0

G9A12 (A) p.160

What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 25 ohm impedance?

- A. 2:1
- B. 2.5:1
- C. 1.25:1
- D. You cannot determine SWR from impedance values

G9A13 (C) p.160

What standing wave ratio will result when connecting a 50 ohm feed line to an antenna that has a purely resistive 300 ohm feed point impedance?

- A. 1.5:1
- B. 3:1
- C. 6:1
- D. You cannot determine SWR from impedance values

G9A14 (B) p.161

What is the interaction between high standing wave ratio (SWR) and transmission line loss?

- A. There is no interaction between transmission line loss and SWR
- B. If a transmission line is lossy, high SWR will increase the loss
- C. High SWR makes it difficult to measure transmission line loss
- D. High SWR reduces the relative effect of transmission line loss

G9A15 (A) p.161

What is the effect of transmission line loss on SWR measured at the input to the line?

- A. The higher the transmission line loss, the more the SWR will read artificially low
- B. The higher the transmission line loss, the more the SWR will read artificially high
- C. The higher the transmission line loss, the more accurate the SWR measurement will be
- D. Transmission line loss does not affect the SWR measurement