

Definitions and Reference

p. 6–21, pp. 7–2 thru 7–5, p. 7–8, p. 7–27, p. 8–2, p. 8–5

Harmonic – a wave with a frequency that is an integer multiple of some fundamental frequency.

RMS – an acronym for Root Mean Square. It is literally the square root of the mean(average) of a sum of squared values. It is intended to be equivalent to a DC voltage that would cause the same amount of heating in a resistor.

PEP – an acronym for Peak Envelope Power

Questions

E8A01 – What type of wave is made up of a sine wave plus all of its odd harmonics?

A square wave

E8A02 – What type of wave has a rise time significantly faster than its fall time (or vice versa)?

A sawtooth wave

E8A03 – What type of wave is made up of a sine waves of a given fundamental frequency plus all its harmonics?

A sawtooth wave

E8A04 – What is the equivalent to the root–mean–square value of an AC voltage?

The DC voltage causing the same amount of heating in a resistor as the corresponding RMS AC voltage.

E8A05 –What would be the most accurate way of measuring the RMS voltage of a complex waveform?

By measuring the heating effect in a known resistor

E8A06 – What is the approximate ratio of PEP-to-average power in a typical voice modulated single-sideband phone signal?

2.5 to 1

E8A07 – What determines the PEP-to-average power ratio of a single-sideband phone signal?

The characteristics of the modulating signal

E8A08 – What is the period of a wave?

The time required to complete one cycle

E8A09 – What type of waveform is produced by human speech?

Irregular

E8A10 – Which of the following is a distinguishing characteristic of a pulse waveform?

Narrow bursts of energy separated by periods of no signal

E8A11 – What is one use for a pulse modulated signal?

Digital data transmission

E8A12 – What type of information can be conveyed using digital waveforms?

Human Speech

Video signals

Data

All of these answers are correct

E8A13 – What is an advantage of using digital signals instead of analog signals to convey the same information?

Digital signals can be regenerated multiple times without error

E8A14 – Which of these methods is commonly used to convert analog signals to digital signals?

Sequential sampling

E8A15 – What would the waveform of a digital data stream look like on a conventional oscilloscope?

A series of pulses with varying patterns