

Emission Designators

Do you use them?



Have you ever seen strange letters and numbers written in the Mode Column on some Amateur Radio Logbooks and wondered what they mean? Things like J3E or F3E or even 2K40J3E and 12K5F3E. Well wonder no more, it's not a secret agent sending hidden messages back to his handler, it is actually a very accurate method of logging your transmission mode so as to avoid discrepancy later. Allow me to explain,

The emission specifier is made up of several fields which are defined as follows.

First is a specifier of the for the necessary bandwidth for the radio signal, this will be a mixture of letters and numbers and will have either H(Hz), K(Kh), M(Mh) or G (Gh) in place of the decimal point, so as an example, 100H would denote a bandwidth of 100 Hz, 2K70 would specify 2.70Kh and 6M00 would specify a bandwidth of 6MHz. This is not the modulated bandwidth; this is the bandwidth of the signal on air. So, in the case of narrow band FM modulated with a 3 kHz signal would be 12K5 because it needs 12.5 kHz of bandwidth on the air.

This is followed by three characters which specify, in turn, the modulation type, the nature of the modulating signal, and the type of information carried.

Modulation type

- A = amplitude modulation, two sidebands, full carrier
- B = amplitude modulation, independent sidebands
- C = amplitude modulation, vestigial sideband
- D = amplitude and angle modulation of carrier
- F = angle-modulated, straight frequency modulation
- G = angle-modulated, phase modulation
- H = amplitude modulation, single sideband, full carrier
- J = amplitude modulation, single sideband, suppressed carrier
- K = pulse, amplitude modulation
- L = pulse, width modulation
- M = pulse, with phase or position modulation
- N = No modulation at all
- P = pulse, no modulation
- Q = pulse, with carrier angle-modulated during pulse
- R = amplitude modulation, single sideband, reduced or controlled carrier
- W = pulse, two or more modulation modes used
- X = all other cases

Nature of the modulating signal

- 0 = No modulating signal
- 1 = Digital modulating signal, on/off or quantified with no further modulation
- 2 = Digital modulating signal with modulation
- 3 = A single analogue channel
- 7 = Two or more digital channels
- 8 = Two or more analogue channels
- 9 = Composite modulating signal, one or more analogue channels plus one or more digital channels
- X = all other cases

Type of information carried by the modulating signal

- A = aural telegraphy, for people (generally Morse code)
- B = telegraphy for machine copying (generally RTTY or high-speed Morse code)
- C = analogue fax
- D = data, telemetry, telecommand
- E = telephony, voice or sound
- F = video or television
- N = no information carried
- W = a combination of the above
- X = all other cases

This can be followed by two more characters giving details, which normally are not used for amateur radio purposes.

Examples

J3E

- amplitude modulation, single sideband, suppressed carrier
- a single analogue channel
- telephony, voice or sound

Also known as single-sideband transmissions or SSB, generally in amateur applications with voice modulation. 2K40J3E is J3E with a 2.40 kHz radio signal bandwidth.

A3F

- amplitude modulation, two sidebands, full carrier
- a single analogue channel
- video or television

A1A

- amplitude modulation, two sidebands, full carrier
- digital modulating signal, on/off or quantified with no further modulation
- aural telegraphy, for people

Also known as Morse code and informally CW. Actual CW (pure carrier) is N0N.

F3E

- angle-modulated, straight frequency modulation
- a single analogue channel
- telephony, voice or sound

Also known as frequency modulation or FM, generally in amateur applications with voice modulation. 12K5F3E is F3E with a 12.5 kHz radio signal bandwidth.

Here at the M0IEO station I have been using this means of logging the mode of transmissions for some time and have encountered a number of contests where the adjudicators for the contest do not accept plain old SSB or FM in the mode section of the log for contacts made. It takes a while to get used to but once you do, it soon becomes second nature to your logging.

My thanks go to the good folk at Amateur Radio Stack Exchange for the basis of this article.

73 de Mark Sanderson, M0IEO