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EMISSION DESIGNATORS – EXPLAINED

The emission designator in an STL license is a shorthand method of describing the bandwidth, modulation, nature of the signal and type of information contained in the STL transmission.

The designator consists of four parts:

- **B**andwidth –the first four characters of the designator
- **M**odulation – the fifth character of the designator
- **N**ature of signal – the sixth character of the designator
- **I**nformation Type – the seventh and final character of the designator

The emission designator is assembled into a string of seven characters as **BBBBMNI**

Bandwidth - The bandwidth of the signal is contained in the first four characters (**BBBB**) of the designator and always consists of three numbers and a letter. STL systems have bandwidths that range between 180 kHz (for a mono system) to 500 kHz (for some digital or FM composite stereo systems). A 180 kHz bandwidth system would have **180K** as the first four characters of the designator while a 500 kHz system would have **500K** in that location.

Modulation – The most common types of modulation employed in STL systems are Frequency, or Amplitude and Phase (like QAM). Frequency modulation is designated by an **F** in the (**M**) character of the designator. Combined Amplitude and Phase modulation is indicated by a **D**.

Nature of Signal – This character (**N**) describes whether the information in the signal consists of one or more channels and whether the information is analog or digital. For a mono analog STL with no subcarriers the **N** would be **3**. A multi-channel digital STL has a **7** or a **9** for the (**N**). The designator is a **7** if the system carries only digital information. If both digital and analog information is carried then the appropriate (**N**) is a **9**.

Information Type – STL systems carry either just audio, or audio and data (remote control signals, RBDS information). If only audio is being transmitted, the (**I**) is an **E**. When data is also transmitted with the audio, the (**I**) becomes a **W**.

There are many more characters for that can be substituted for the M,N and W in the designator, but they are rarely seen in STL systems. If your STL license contains a character not listed above and you're not sure why – look at the tables on the following pages.

F.C.C. EMISSION DESIGNATORS

Bandwidth - Four characters, the letter replaces the decimal point

- H - Hertz
- K - Kilohertz
- M - Megahertz
- G - Gigahertz

The first character of the Bandwidth is never a K, M or G.

M-Modulation

- N - None
- A - Amplitude modulation – double sideband, full carrier
- H - Amplitude modulation – single sideband, full carrier
- R - Amplitude modulation – single sideband, reduced or controlled carrier
- J - Amplitude modulation – single sideband, full carrier
- B - Amplitude modulation – independent sidebands
- C - Amplitude modulation – vestigial sideband
- F - Frequency modulation
- G - Phase modulation
- D - Amplitude and Phase modulation
- P - Pulse – no modulation
- K - Pulse – amplitude modulation
- L - Pulse – width modulation
- M - Pulse – phase modulation
- Q - Pulse – phase modulation during pulse
- W - Pulse – Two or more of above modes used together
- X - Not covered by any of the above

As we said on Page 1, it is unlikely you will see anything other than F or D on an STL system license.

N-Nature of Modulating Signal

- 0 - None
- 1 - Digital, on-off or quantized, no modulation
- 2 - Digital with modulation
- 3 - Single analog channel
- 7 - Two or more digital channels
- 8 - Two or more analog channels
- 9 - Composite – One or more analog and one or more digital channel
- X - Not covered by any of the above

I-Information Type

- N - None
- A - Aural telegraphy (Morse Code)
- B - Machine telegraphy (RTTY)
- C - Analog FAX
- D - Data, telemetry
- E - Telephony, voice, sound broadcasting
- F - Video
- W - Combinations of the above
- X - Not covered by any of the above