



# HAM TIPS



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## HAM-BAND CHARTS

### Covering FCC Allocations From 1.8 to 450 Megacycles

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The Federal Communications Commission requires hams to be familiar with all frequency assignments for amateur operation. If you have been searching for a way to keep informed on the various types of emissions authorized on the 10 amateur bands from 1.8 to 450 megacycles, try posting the accompanying charts near your rig.

For sake of brevity, these charts cover only the bands up to 450 Mc, which represent the areas of operation for most hams. Amateur bands above this frequency include the ranges from 1215-1300 Mc, 2300-2450 Mc, 3300-3500 Mc, 5650-5925 Mc, 10,000-10,500 Mc, 21,000-22,000 Mc, and all frequencies from 40,000 Mc upwards. Hams interested in any of the latter frequency assignments should consult the FCC Rules and Regulations, Part 12, Amateur Radio Service, for available operating privileges.

Chart 1 will take a lot of the guesswork out of your low-frequency operation and can be used for quick selection of crystals or VFO frequencies for harmonic functions. Amateur bands from 160 to 10 meters are shown, as well as their harmonic relationships and authorized amateur emissions. Each line contains the symbols for the types of emissions authorized between the two frequencies shown.

The following examples illustrate the use of Chart 1:

(a) As indicated, your favorite 7.140-Mc "rock" can be a mighty useful item if you decide to invade 20-, 15-, or 10-meter 'phone.

With suitable multiplier stages, you can be on 14.280, 21.420, or 28.560 Mc.

(b) This example concerns the use of a 3.55-Mc crystal on the higher frequency 'phone bands. Because it is right on the edge for 20-meter 'phone, it is not suitable there, but operates nicely 50 kilocycles "in" on 15 meters. If you can stand the QRM from the kilowatt signals, there is nothing else to worry about.

Chart 1 also can be used to determine the ranges to be covered by intermediate buffer and frequency multiplier stages.

It should be pointed out that the chart shows amateur bands in their relative harmonic sizes. Actually, the 10-meter band is nearly four times the size of the 80-meter band in assigned kilocycles.

Chart 2 shows assignments in the four lowest VHF bands. These bands are not directly harmonically related. At a glance, it can be seen that 50.10 Mc is the lowest frequency at which either tone-modulated keying (except for voice-interrupted code practice) or facsimile modulation is permitted. Likewise, 51.00 Mc is the lowest frequency at which an unmodulated carrier can be transmitted for other than short periods of testing.

At 52.50 Mc, the FCC begins to remove limitations. Above this frequency, amateurs may use most of the authorized wide-band frequency modulated emissions. Above 220 Mc, there are no sub-allocations. Any type of emission, including telegraphy and telephony,

authorized to be used in either the 1.4- or 0.7-meter band, may be employed throughout each band. It is worthy of note that A5 modulation appears to be growing in popularity, with a number of determined amateurs operating between 420 and 450 Mc—the lowest-frequency amateur band in which television is permitted.

INDEX TO SYMBOLS USED IN CHARTS 1 AND 2

Showing All Emissions Authorized for Use  
By Amateurs Through 450 Mc

Type of Modulation Or Emission	Type of Transmission	Symbol
Amplitude Modulated	Absence of Any Modulation	A $\phi$
	Telegraphy (On-Off Keying)	A1
	Telegraphy (Tone Modulated)	A2
	Telephony	A3
	Facsimile	A4
Frequency (Or Phase) Modulated	Absence of Any Modulation	F $\phi$
	Telegraphy (Frequency Shift Keying)	F1
	Telegraphy (Audio Frequency Shift Keying)	F2
	Telephony	F3
	Facsimile	F4
	Television	F5

FOOTNOTE: The use of narrow-band frequency or phase modulation is subject to the condition that the bandwidth of the modulated carrier shall not exceed that of any amplitude-modulated carrier of the same audio characteristics.

FOOTNOTES TO CHARTS 1 AND 2:

(Chart 1)—Restrictions regarding the 160-meter band vary. Consult FCC Rules and Regulations, Part 12, or the nearest FCC district office for regulations governing your particular area.

(Charts 1 and 2)—Novice-Class licensees may use A1 emission between 3.70 and 3.75 Mc; 7.15 and 7.20 Mc; and 21.10 and 21.25 Mc. Novice operators also may use the same types of emissions authorized to others between 145 and 147 Mc.

The charts have been compiled from FCC Rules and Regulations, Part 12, as of August 1, 1963. The information is subject to change.

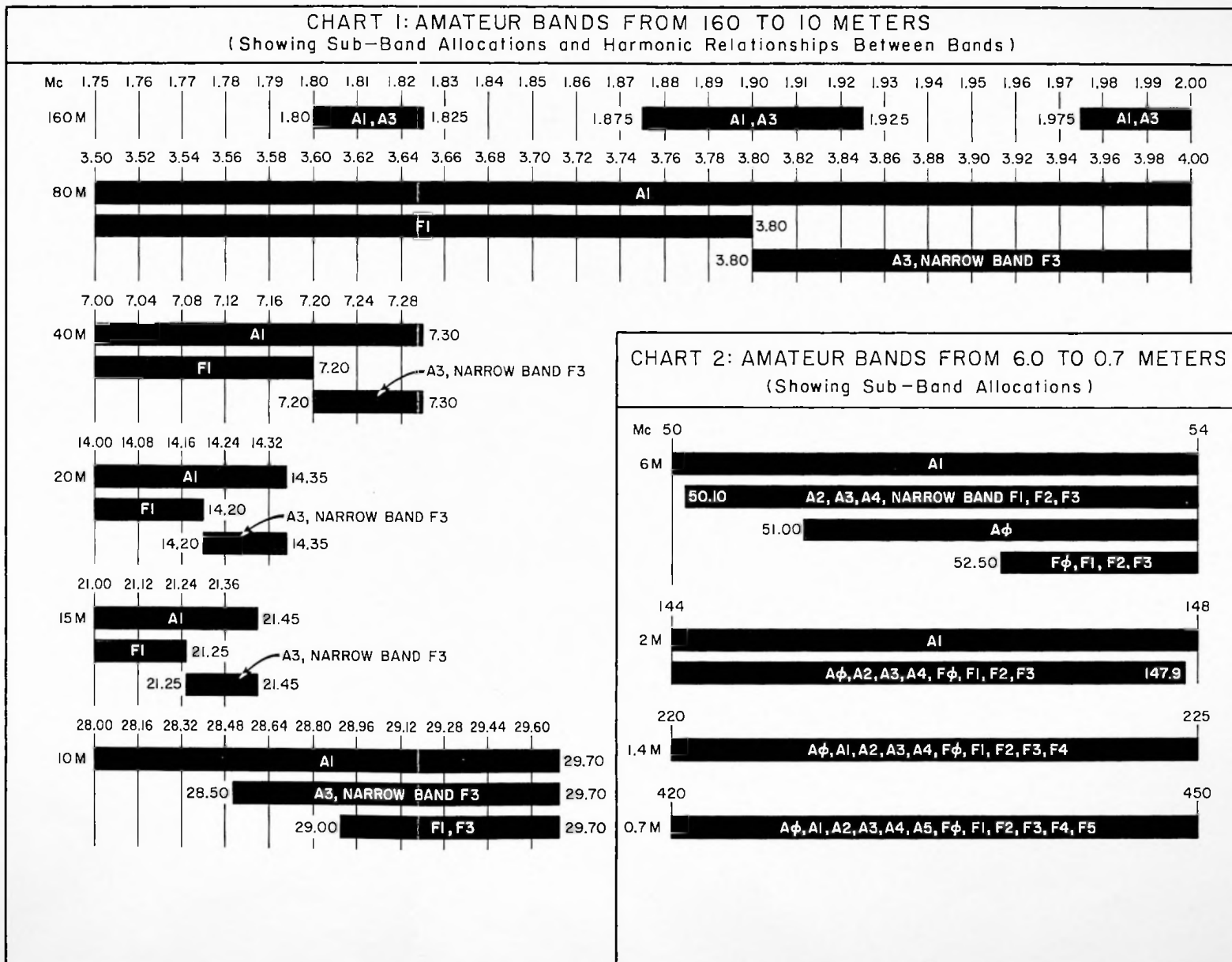
(Chart 2)—Technician-Class licensees may use all emissions authorized between 50 and 54 Mc; 145 and 147 Mc; and all amateur frequencies and emissions authorized above 220 Mc.

The "Index to Symbols Used in Charts 1 and 2" lists all emissions authorized for use by amateurs through 450 Mc. Wide-band modulation is implied in all listings for the "Frequency (or Phase) Modulated" section. However, only in the 10-meter band (between 29.00 and 29.70 Mc) may wide-band F3

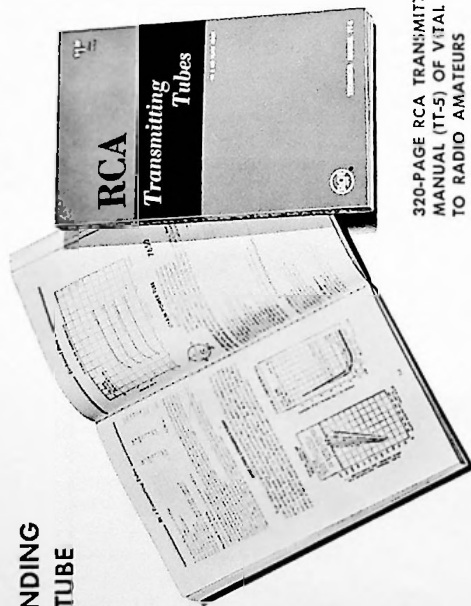
emission be used on the frequencies shown in Chart 1. All other "Frequency (or Phase) Modulated" assignments in Chart 1 are specifically narrow-band (6 kilocycles maximum).

Charts 1 and 2 apply only to amateur operators in the 50 states. Operation on 220 to

225 Mc in some parts of Texas and New Mexico is restricted between the hours of 0500 and 1800, Monday through Friday of each week, except when authorized in an organized Civil Defense program. If you live in this area, check with the district FCC Engineer-in-Charge at Dallas, Texas.



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