

GENERAL CLASS

Chapter 3 Rules and Regulations

Chapter 3 Rules and Regulations

3.1 Regulatory Bodies

3.2 Amateur Licensing Rules

3.3 Control Operator Privileges

3.4 Technical Rules and Standards

12 Sample questions

3.1 Regulatory Bodies

Page 3-2, 3-3

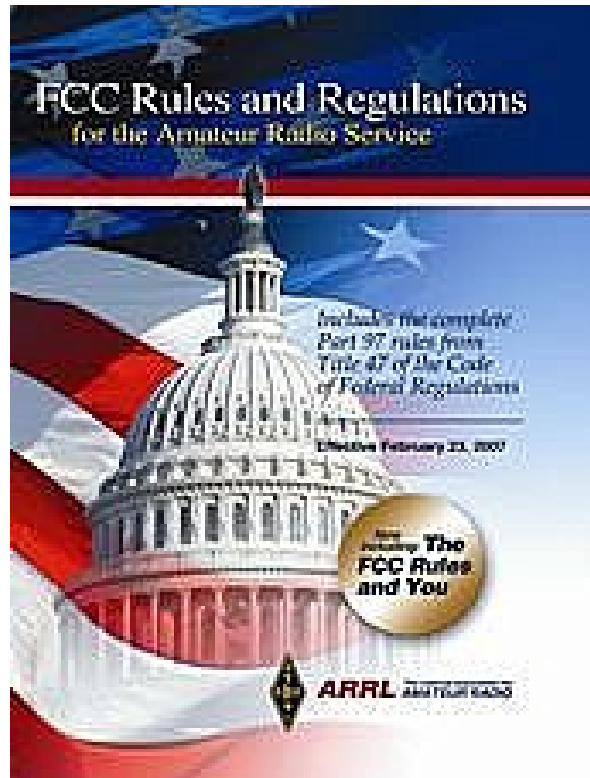
International Telecommunication Union (ITU)

- Divides up radio spectrum



Federal Communications Commission (FCC)

- Communications rules in the USA



Federal Aviation Administration (FAA)

- Aviation rules in the USA



3.1 Regulatory Bodies - ITU

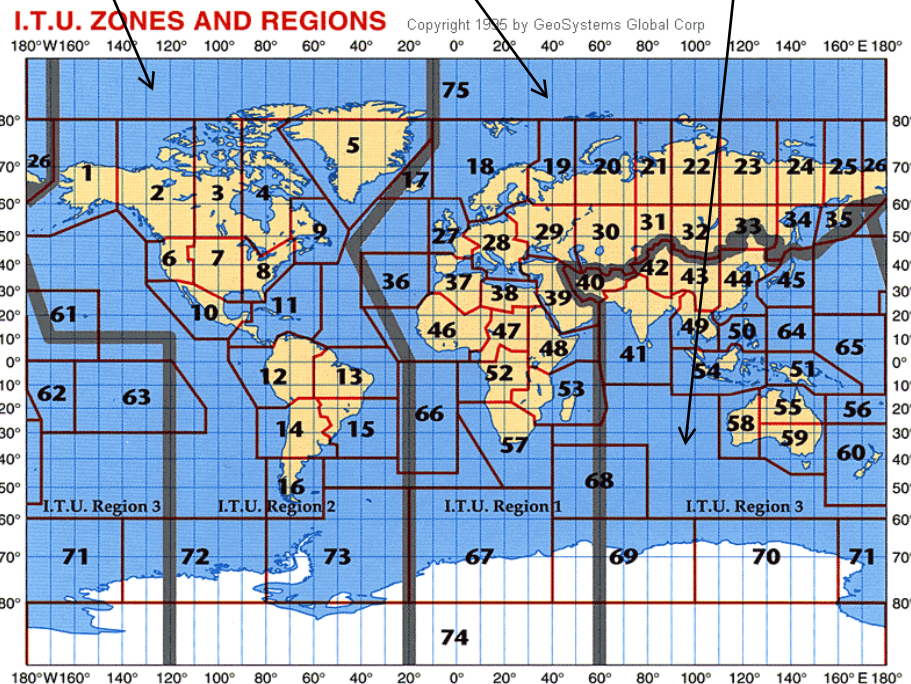
Page 3-2

International Telecommunication Union
(ITU) **G1E06, G1D05, G1D12**

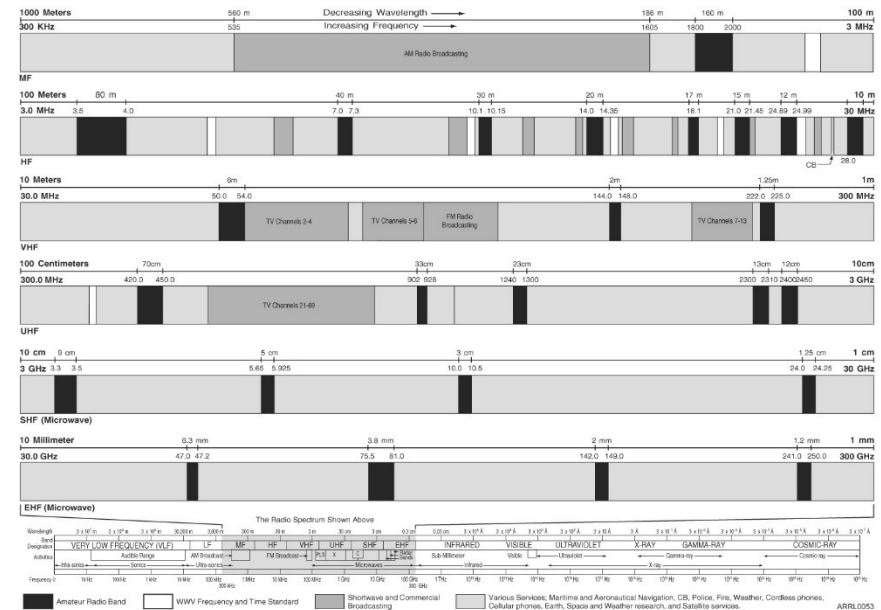
Region 2

Region 1

Region 3



- * Global Administration by “regions”
- * Country agreement by treaty to divide up Radio Spectrum

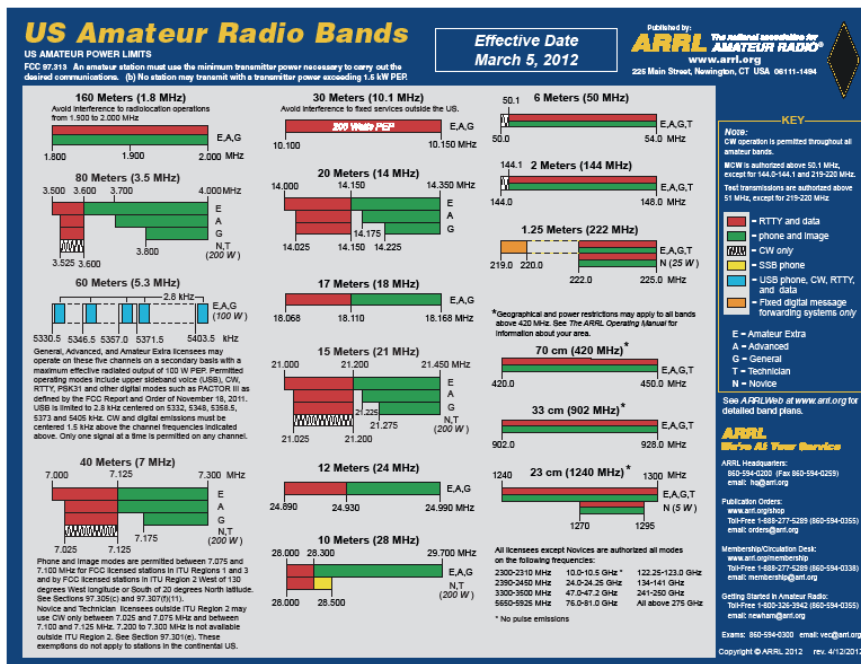


3.1 Regulatory Bodies - FCC

Page 3-3

Federal Communications Commission (FCC)

- * Part 97 Amateur Radio Rules
- * Freq sharing, IDing, etc.
- * **Amateur Auxiliary** formally enlisted to assist FCC in looking for rule violations and unlicensed intruders
- * **Official Observers** feedback on operating practices and signal quality



G1D01
G1D02
G1D03

3.1 Regulatory Bodies - FAA

Federal Aviation Administration (FAA)

➤ (Rules and regulations for aircraft/airports)

Local building codes and antennas and towers **G1Bo6**

G1Bo1 > 200 ft tall



= < 4 miles of airport/heliport



3.2 Amateur Licensing Rules (License Elements)

Element 4	Extra Class	50 Questions
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Multiple choice

Element 3	General Class	35 Questions
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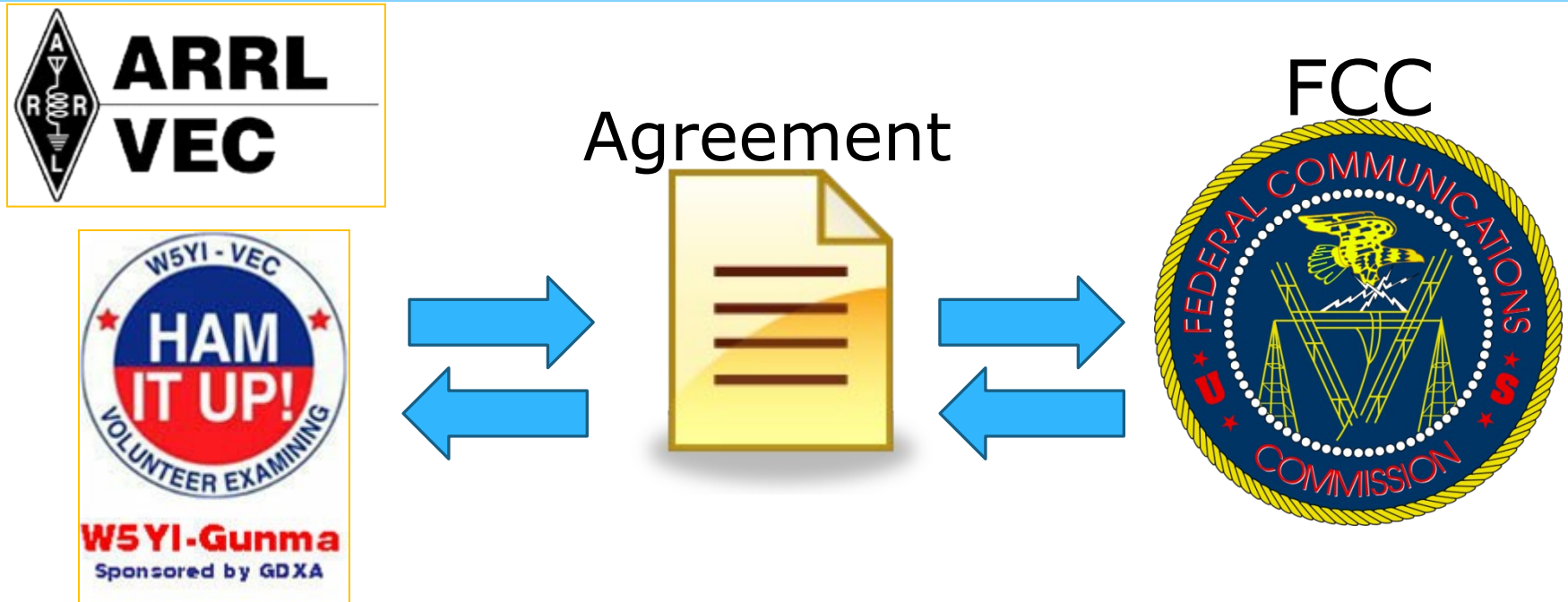
Element 2	Technician Class	35 Questions
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Element 1	5 wpm Morse Code	not required any more
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FYI Future tests may require "essay" style questions; 500 words max.

3.2 Amateur Licensing Rules (Volunteer Examiners)

Page 3-4



A Volunteer Examiner Coordinator (VEC) is an organization that has entered into an agreement with the FCC to coordinate amateur license examinations.

3.2 Amateur Licensing Rules (Examiner Rules)

Page 3-4



Accreditation Process

- Age: 18+
- Valid Ham License
- License never been revoked
- General or above license



VE Applicant

G1D07

G1D08

G1D10



A VEC has the responsibility to refuse to accredit a person as a VE if the VEC determines that the person's integrity or honesty could compromise amateur license exams.

3.2 Amateur Licensing Rules (Examination Rules)

FCC



Question
Pool



- Create test
- Make copies
- Give to VEs



page 3-5



forward



accuracy



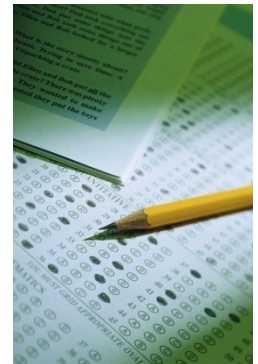
Administer test



Administer test



Administer test



Form 605 & test results

3.2 Amateur Licensing Rules (VE License Class and Allowed Exams)

page 3-5

35 Questions

VE LICENSE CLASS / Allowed Exams

General Class VE can give:

- Technician Class exam

Advanced Class VE can give:

- Technician Class exam
- General Class exam

Extra Class VE can give:

- Technician Class exam
- General Class exam
- Extra Class exam



Pass Certificate of Successful Completion of Examination

American Radio Relay League VEC
Certificate of Successful Completion of Examination

Test Site (City/State): Columbus Ohio Test Date: Feb 24 2007

CREDIT FOR ELEMENTS PASSED VALID FOR 365 DAYS
You have passed the biography and/or written element(s) indicated at right. You will be given credit for the appropriate examination element(s), for up to 365 days from the date shown at the top of this certificate.

LICENSE UPGRADE NOTICE
If you also hold a valid FCC-issued Amateur radio license grant, this Certificate validates temporary operation with the operating privileges of your new operator class (see Section 97.9(b) of the FCC's Rules) until you are granted the license for your new operator class, or for a period of 365 days from the test date stated above on this certificate, whichever comes first. Note: If you hold a current FCC-granted (codeless) Technician class operator license, and if this certificate indicates Element 1 credit, this certificate indefinitely permits you HF operating privileges as specified in Section 97.301(e) of the FCC rules. This document must be kept indefinitely with your Technician class operator license in order to use those privileges.

LICENSE STATUS INQUIRIES
You can find out if a new license or upgrade has been "granted" by the FCC. For on-line inquiries see the FCC Web at <http://www.fcc.gov/eas> ("Search Licenses" tab), or see the ARRL Web at <http://www.arrl.org/fcc/> ("License Status" tab), or by calling FCC toll free at 888-225-5322, or by calling the ARRL at 1-800-594-0300 during business hours. Allow 15 days from the test date before calling.

THIS CERTIFICATE IS NOT A LICENSE, PERMIT, OR ANY OTHER KIND OF OPERATING AUTHORITY IN AND OF ITSELF. THE ELEMENT CREDITS AND/OR OPERATING PRIVILEGES THAT MAY BE INDICATED IN THE LICENSE UPGRADE NOTICE ARE VALID FOR 365 DAYS FROM THE TEST DATE. THE HOLDER NAMED HEREON MUST ALSO HAVE BEEN GRANTED AN AMATEUR RADIO LICENSE ISSUED BY THE FCC TO OPERATE ON THE AIR.

Candidate's Signature: _____
Candidate's Name: Edward S. Raybould Call Sign: N801R
Address: 1094 Fountain Ln Apt B
City: Columbus State: OH ZIP: 43213

VS 1: _____
VS 2: _____
VS 3: _____

ARRL
1430 North Lincoln Street, Suite 100, Schaumburg, IL 60196-1143
TEL: 630-354-2200 FAX: 630-354-2201

G1D02, G1D04

**Use General Freq
Call sign/AG
ID in English**

3.3 Control Operator Privileges Frequency Privileges

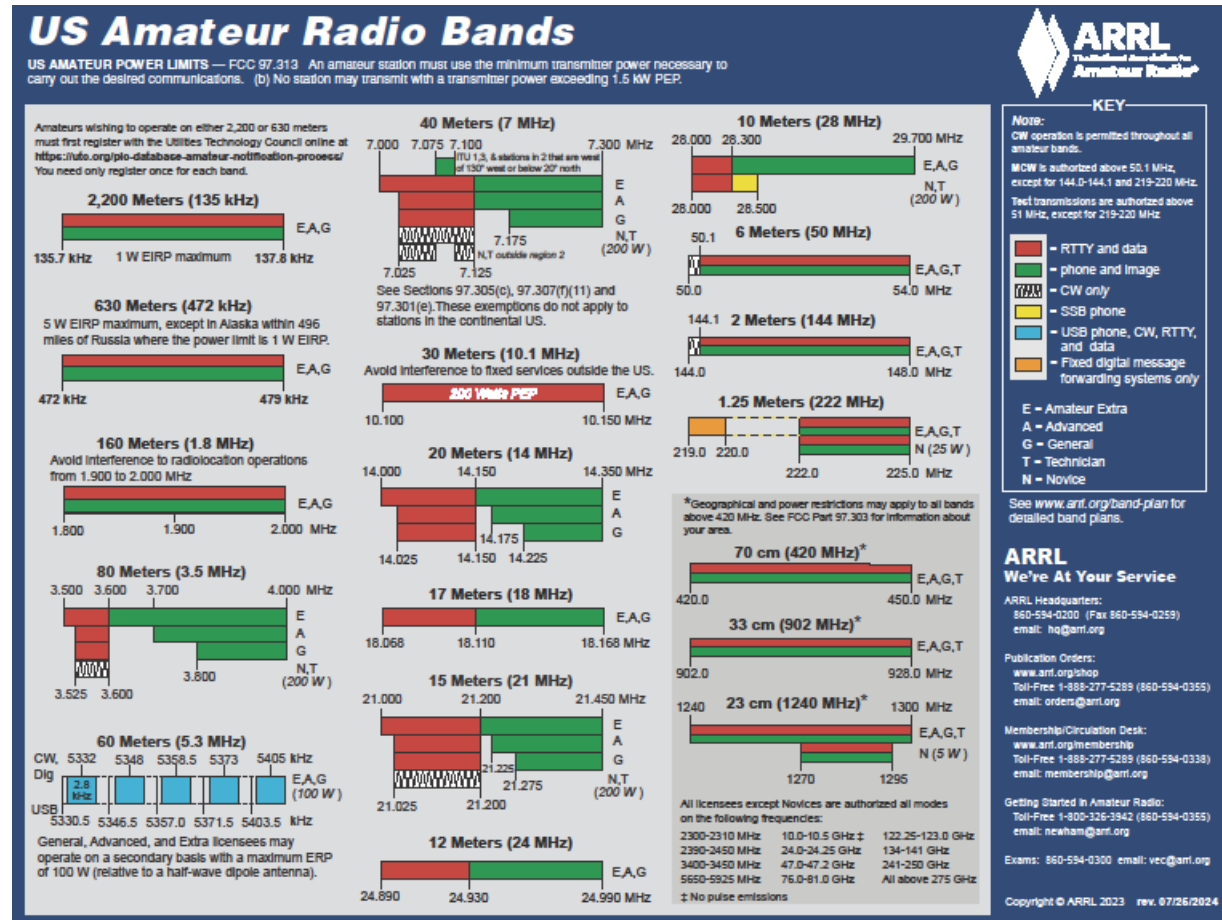
page 3-10

- * Band Plan
- * Keep at operating station
- * Verify you are within your sub-band.

G1A01

G1A02

G1A08



www.arrl.org/files/regulatory/hambands-color.pdf

3.3 Control Operator Privileges

Summary of Amateur HF Bands

* Table 3-2 Summary of Amateur HF Bands

Wavelength (meters)	Frequency (MHz)
160	1.800-2.000
80 and 75	3.500-3.750 and 3.750-4.000
60	5.332, 5.348, 5.358.5, 5.373, and 5.405 (center frequency)
40	7.000-7.300
30	10.100-10.150
20	14.000-14.350
17	18.068-18.168
15	21.000-21.450
12	24.890-24.990
10	28.000-29.700

3.3 Control Operator Privileges

Sub-band Allocation

Sub-band allocations by Gentleman's agreement

10 Meters (28-29.7 MHz):	
28.000-28.070	CW
28.070-28.150	RTTY
28.150-28.190	CW
28.200-28.300	Beacons
28.300-29.300	Phone
28.680	SSTV
29.000-29.200	AM
29.300-29.510	Satellite Downlinks
29.520-29.590	Repeater Inputs
29.600	FM Simplex

3.3 Control Operator Privileges

page 3-11

- * Beacons

- * Observation of propagation and reception **[G1B03]**
- * DX Beacons world wide
- * Create own beacon (97.203) **[G1B02, G1B10, G1B09]**

CW Beacons to spot band openings

www.ac6v.com www.dxzone.com

* 00:00:00	4U1UN	United Nations	* 00:02:00	4X6TU	Israel
* 00:00:10	VE8AT	Canada	* 00:02:10	OH2B	Finland
* 00:00:20	W6WX	USA	* 00:02:20	CS3B	Madeira
* 00:00:30	KH6WO	Hawaii	* 00:02:30	LU4AA	Argentina
* 00:00:40	ZL6B	New Zealand	* 00:02:40	OA4B	Peru
* 00:00:50	VK6RBP	Australia	* 00:02:50	YV5B	Venezuela
* 00:01:00	JA2IGY	Japan			
* 00:01:10	RR90	Russia			
* 00:01:20	VR2B	Hong Kong			
* 00:01:30	4S7B	Sri Lanka			
* 00:01:40	ZS6DN	S Africa			
* 00:01:50	5Z4B	Kenya			

14.100 MHz

18.110 MHz

21.150 MHz

24.930 MHz

28.200 MHz

CW 22 wpm 100w, 10w, 1w, 100mw

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[G1E10]

3.3 Control Operator Privileges

- * Repeater Coordination
 - * Regional Repeater Coordinators
 - * Minimize interference between repeaters
 - * Assign input/output repeater frequencies
 - * Non-coordinated responsible to resolve problems

3.3 Control Operator Privileges

Page 3-10

- * Primary vs Secondary
 - * Amateurs are secondary users on 60, 30, 70, and some microwave bands. **[G1A06, G1E07, G8C01]**
 - * Must not cause harmful interference to primary user
 - * Listen for primary user
 - * Change to clear frequency

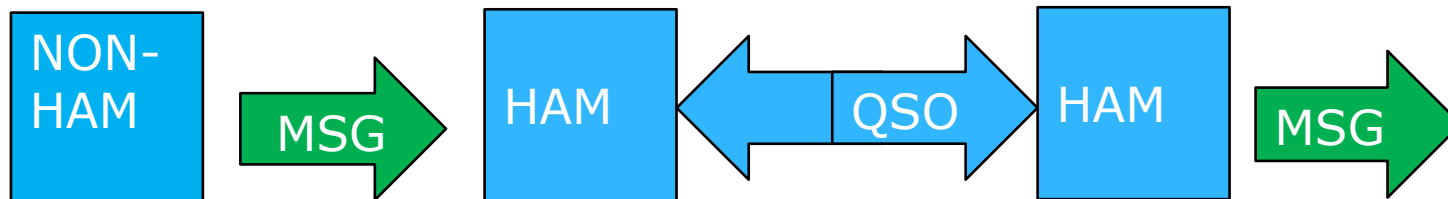
3.3 Control Operator Privileges

Third-Party Traffic

Pages 3-13

Third-Party Traffic

- * Third-party Traffic is prohibited unless we have third-party agreement (See table 3.3 pg 3-11) **[G1E01, G1E05, G1E12]**
- * Def: Messages from a non-amateur sent via amateurs.
- * Amateur-to-Amateur communication is **not** third-party traffic
- * Third-party need not be present at either station
- * Third-party traffic can be by; voice, data, images, or written
- * License suspended – no third-party communications allowed
- * Third-Party Traffic; noncommercial, unimportant personal nature
- * During an emergency, a temporary agreement with country involved may be implemented by State Dept.



3.3 Control Operator Privileges

Prohibited and Restricted Communication

Pages 3-14, 3-15

Prohibited and Restricted Communications

- * Transmitting false distress signals
- * Obscene or indecent speech
- * Transmitting music (ok if incidental part of a space shuttle or ISS)
- * Codes intended to obscure message meaning
- * Business communications
- * Selling of non-ham gear (house hold goods)

Allowed codes and/or communications

- * Q-signals (QTH location, QSO conversation, QRP low power)
- * Codes used to control Amateur satellites
- * Radio-controlled model aircraft
- * Swap-meet information of ham gear on a non-regular basis

[G1B05, G1B04, G1B07, G1B08, G1E02]

3.3 Control Operator Privileges

Written Records

Written Records

- * Answer FCC inquiries
- * Control operator of your station
- * Date and Time of contact
- * Band and Frequency
- * Callsign of station contacted
- * Signal Report given
- * For 60 meters only; other than a dipole, the antenna gain from the manufacture's data.



3.4 Technical Rules and Standards

Good Amateur Practices

Page 3-15, 3-16

Good Amateur Practices

- * FCC reserves the right to rule on what are “good engineering and good amateur practice”; you and your station follow FCC rules **G1B11**
- * Amateurs are expected to educate themselves using references such as the ARRL Handbook and the ARRL Antenna Book, etc.
- * Review FCC Part 97 Rules regarding permitted **frequencies and emissions**
- * Follow generally accepted **band plans** agreed to by the Amateur Radio community
- * Before transmitting, **listen** to avoid interfering with ongoing QSO

3.4 Technical Rules and Standards

Transmitters and Amplifier Power

Page 3-16

Transmitters and Amplifier Power

- * G, A, E, maximum tx power 1500 watts PEP [G1C02, G1C06, G1C11]
- * N, T, maximum tx power is 200 watts PEP [G1C01, G2D10]
- * Use minimum power necessary for QSO
- * 30-meter band, maximum tx power is 200 watts PEP
- * 60-meter band, maximum tx power is 100 watts PEP, and maximum signal bandwidth of 2.8 kHz [G1C03, G1C09]
- * Calc: antenna gain of 3 dB (factor of 2), tx power is 100 watts, so Effective Radiated Power (ERP) = $100 \times 2 = 200$ watts
- * Calc: On 60 meter band, output power s/b 50 watts ERP = $50 \times 2 = 100$ watts
- * Maximum output power on SS signals is 10 watts. [G1E08]

3.4 Technical Rules and Standards

Digital Transmissions

page 3-17

Digital Transmissions

- * Concern with bandwidth of TX signal [G1C07, G1C08, G1C10]
- * Protocol must be public [97.309(a)]
- * Bandwidth is closely tied to symbol rate
- * Higher symbol rate the wider the bandwidth

Table 3-4

Band	Symbol Rate (baud)	Bandwidth (kHz)
160 thru 12 m	300	1
10 m	1200	1
6 m, 2 m	19.6k	20
1.25 m, 70 cm	56k	100
33 cm and above	No limit	No limit (band edges)