Radio Merit Badge

Module 3
Req. 9.a.(6): 10-Minute Real or Simulated Contact PREPARATION
• Use the K2BSA Operating Card
Req. 9.a.(6): 10-Minute Real or Simulated Contact PREPARATION

- Use the K2BSA Operating Card

<table>
<thead>
<tr>
<th>Date</th>
<th>Start</th>
<th>Finish</th>
<th>Frequency (MHz)</th>
<th>Mode</th>
<th>Station Called/Worked</th>
<th>Report</th>
<th>Rec’d</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/24/17</td>
<td>16:10</td>
<td>16:12</td>
<td>14.310</td>
<td>SSB</td>
<td>K2MHE</td>
<td>59</td>
<td>59</td>
<td>ARRL Headquarters Station! Albany, New York</td>
</tr>
</tbody>
</table>

- Joe Scout

- Harry Ham

- 2017 National Scout Jamboree
  July 19-28
Req. 9.a.(6): 10-Minute Real or Simulated Contact PREPARATION

- Use the K2BSA Operating Card

---

K2BSA
Radio Scouting

**Participant Name:** Joe Scout
**Operator Signature:** Harry Ham

---

**Jamboree Contact Log**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time UTC Start/Finish</th>
<th>Frequency (MHz)</th>
<th>Mode</th>
<th>Station Called/Worked</th>
<th>Sent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/24/17</td>
<td>15:50/16:00</td>
<td>14.275</td>
<td>SSB</td>
<td>W1AW</td>
<td>59</td>
</tr>
<tr>
<td>7/24/17</td>
<td>16:10/16:12</td>
<td>14.310</td>
<td>SSB</td>
<td>K2MHE</td>
<td>58</td>
</tr>
</tbody>
</table>

---

**Suggested Discussion Topics**

1. Where do you live?
2. What are your hobbies?
3. What ham radio activities do you engage in?
4. What are your favorite sport teams?
5. Were you or are you involved in Scouting in what capacity?
6. What is your favorite thing to do outside of ham radio?
7. What is your favorite meal?
8. What is your favorite food?
9. What do you like to do for entertainment?
10. What do you like to do for exercise?
11. What is your favorite vacation location?
12. Are you a member of a ham radio club?
13. Where is your home located?
14. Have you lived in other states/countries? Which ones?
15. What is your favorite movie?
16. What is your favorite TV show?
17. Do you have any pets? What kind(s)?
18. Do you like to do entertainment?
19. Do you like to do exercise?
20. What is your favorite type of vehicle (car/truck, etc.)?
- Use the K2BSA Operating Card
- Listen and call another ham radio station
• Use the K2BSA Operating Card
• Listen and call another ham radio station
• Talk with the other radio station operator
Req. 9.a.(6): 10-Minute Real or Simulated Contact **PREPARATION**

- Use the K2BSA Operating Card
- Listen and call another ham radio station
- Talk with the other radio station operator
  - Relax and have fun

Contact!
• Use the K2BSA Operating Card
• Listen and call another ham radio station
• Talk with the other radio station operator
  – Relax and have fun
  – Give FIRST name ONLY

Contact!
• Use the K2BSA Operating Card
• Listen and call another ham radio station
• Talk with the other radio station operator
  – Relax and have fun
  – Give FIRST name ONLY
  – Tell where you live
• Use the K2BSA Operating Card
• Listen and call another ham radio station
• Talk with the other radio station operator
  – Relax and have fun
  – Give FIRST name ONLY
  – Tell where you live
  – Describe your school
Req. 9.a.(6): 10-Minute Real or Simulated Contact

- Use the K2BSA Operating Card
- Listen and call another ham radio station
- Talk with the other radio station operator
  - Relax and have fun
  - Give **FIRST** name ONLY
  - Tell where you live
  - Describe your school
  - Talk about Scouting
• Use the K2BSA Operating Card
• Listen and call another ham radio station
• Talk with the other radio station operator
  – Relax and have fun
  – Give **FIRST** name ONLY
  – Tell where you live
  – Describe your school
  – Talk about Scouting
• Use Q-signals
• Use the K2BSA Operating Card
• Listen and call another ham radio station
• Talk with the other radio station operator
  – Relax and have fun
  – Give FIRST name ONLY
  – Tell where you live
  – Describe your school
  – Talk about Scouting
• Use Q-signals
• Log your contact on card
• Use the K2BSA Operating Card
• Listen and call another ham radio station
• Talk with the other radio station operator
  – Relax and have fun
  – Give **FIRST** name ONLY
  – Tell where you live
  – Describe your school
  – Talk about Scouting
• Use Q-signals
• Log your contact on card
• Be prepared to talk about it when you return!
Q-Signals

QRM
Q-Signals

QRN
Q-Signals

QRP
Q-Signals

QTH
Radio Station Visit:
What did you see?

- What is the purpose of the Radio Station?
- What equipment did you see?
- How was the equipment used?
- What types of licenses are required to use the and maintain the equipment?
Req. 9.a.(1): Amateur Radio Service
Req. 9.a.(1): Amateur Radio Service
Req. 9.a.(1): Amateur Radio Service

We Do That!
...with Amateur Radio
Req. 9.a.(1): Amateur Radio Service
Req. 9.a.(1): Amateur Radio Fun!

Basic Operating
Amateur Radio Direction Finding (ARDF)

“Foxhunting”

Directional antenna
AMSAT is Amateur Radio in Space

Amateur Radio on the International Space Station is a partnership with AMSAT, ARRL, and NASA. Astronauts on the ISS contact Earth stations using amateur radio.

You can get started with equipment you already own ... AMSAT can show you how ...

Enjoy continent-wide coverage using a portable station ...

...To find out more ... visit us at: www.amsat.org

AMSAT Fox-1 Cubesat FM Repeater
- 435.180 MHz up
- 145.980 MHz down
- Launch 4Q 2014

... or build a home satellite station
Req. 9.a.(1): Amateur Radio Fun!
Bicycle Mobile

Req. 9.a.(1): Amateur Radio Fun!
Req. 9.a.(1): Amateur Radio Fun!
Req. 9.a.(1): Amateur Radio Fun!

Digital
Req. 9.a.(1): Amateur Radio Fun!
Req. 9.a.(1): Amateur Radio Fun!
Slow Scan Television

Mir Space Stn
Dec 12, ’98
18:59 UTC

Rx W8ZCF Cinti. Oh
Moonbounce Earth-Moon-Earth (EME)
Req. 9.a.(1): Amateur Radio Fun!
Req. 9.a.(1): Amateur Radio Fun!
TYPES OF HAM RADIO EQUIPMENT
Req. 9.a.(5): Types of Equipment

Base Station Transceiver
Ham Shack (Base Station)
Req. 9.a.(5): Types of Equipment

MobileTransceiver
Req. 9.a.(5): Types of Equipment
Req. 9.a.(5): Repeaters

Repeaters
Req. 9.a.(4): Emergency Calls

Emergency Calls
“BREAK-BREAK”
“BREAK-BREAK”

“MAYDAY!”
“BREAK-BREAK”

“MAYDAY!”

“EMERGENCY!”
Req. 9.a.(4): Emergency Calls
120 volts AC

Safety!
Req. 6: Electrical Safety

120 Volts AC
0-1 mA
No sensation

120 Volts AC

Req. 6: Electrical Safety
120 Volts AC

Safe values
0-5 mA

No sensation
0-1 mA

Req. 6: Electrical Safety
120 Volts AC

15-20 mA
Painful shock – inability to let go

0-5 mA
Safe values

0-1 mA
No sensation

Req. 6: Electrical Safety
Heart convulsions usually fatal

Painful shock – inability to let go

Safe values

No sensation

0-1 mA

0-5 mA

15-20 mA

50 mA

Req. 6: Electrical Safety

SLIDE 10
Can electrocute 20 adults
Heart convulsions usually fatal
Painful shock – inability to let go
Safe values
No sensation

120 Volts AC

1000mA
50mA
15-20 mA
0-5 mA
0-1 mA

Req. 6: Electrical Safety
120 Volts AC

15,000 mA

1000 mA Can electrocute 20 adults

50 mA Heart convulsions usually fatal

15-20 mA Painful shock – inability to let go

0-5 mA Safe values

0-1 mA No sensation

Req. 6: Electrical Safety
Safety Rules!
Req. 6: Electrical Safety Rules
Req. 6: Electrical Safety Rules
Req. 6: Electrical Safety Rules
Req. 6: Electrical Safety Rules
Req. 6: Electrical Safety Rules
Req. 6: Electrical Grounding Safety
Req. 6: Electrical Grounding Safety

Earth Ground

120/240v
Req. 6: Electrical Grounding Safety

120/240v
Req. 6: Electrical Grounding Safety

Earth Ground

120/240v
Req. 6: Electrical Grounding Safety

120/240v

Earth Ground

Earth Ground
Req. 6: Electrical Grounding Safety

Earth Ground

120/240v

Earth Ground

Outlet
Req. 6: Electrical Grounding Safety

120/240v

Ham Shack

Earth Ground

Earth Ground
Req. 6: Electrical Grounding Safety

120/240v

Ham Shack

Earth Ground

Earth Ground

Earth Grounds
Req. 6: Electrical Grounding Safety

120/240v

Ham Shack

Earth Ground

Earth Ground

Earth Grounds
Req. 6: Electrical Grounding Safety

120/240v

Ham Shack

Earth Ground

Earth Ground

Earth Grounds
Req. 6: Electrical Grounding Safety

Ham Shack

120/240v

Earth Ground

Earth Ground

Earth Grounds
Safety in the Radio Shack
Req. 6: Safety in the Radio Shack
Req. 6: Safety in the Radio Shack
Req. 6: Safety in the Radio Shack
Req. 6: Safety in the Radio Shack
Req. 6: Safety in the Radio Shack
CIRCUIT TEST:
If power stops flowing when this button is pressed then the device is working properly.
Req. 6: Safety in the Radio Shack

**CIRCUIT RESET:**
Press this button to return the outlet to normal functioning if it has been tripped or after a test.

**CIRCUIT TEST:**
If power stops flowing when this button is pressed then the device is working properly.
Req. 6: Safety in the Radio Shack
Req. 6: Electrical Cord Safety
Lightning Protection
United States Precision Lightning Network™ (USPLN™)
10 Year Cloud-to-Ground Lightning Stroke Density 2005-2014

Lightning Stroke Density

- 30+
- 20
- 16
- 14
- 12
- 8
- 6
- 4
- 2
- 1
- 0.5
- 0.1
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
Req. 6: Safety Lightning Protection
## Direct Current Safety

<table>
<thead>
<tr>
<th>MANUFACTURER</th>
<th>DIE HARD PLATINUM</th>
<th>NORTHSTAR</th>
<th>ODYSSEY</th>
<th>OPTIMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranking Amps (CA)</td>
<td>1,050</td>
<td>1,050</td>
<td>1,050</td>
<td>870</td>
</tr>
</tbody>
</table>
Direct Current Safety
Direct Current Safety
Careers In Radio
Technical Opportunities
Req 8: Technical Radio Careers

Design Engineer
Design Technician

Req 8: Technical Radio Careers
Req 8: Technical Radio Careers

Electronics Technician
Careers In Radio Broadcasting
Announcers and Radio/TV Personalities
Req 8: Broadcasting Careers

Station Managers
Program Directors
Req 8: Broadcasting Careers

Program Writers
Careers In Radio Operating
Req 8: Radio Operator Careers
Req 8: Radio Operator Careers
Req 8: Radio Operator Careers
Req 8: Radio Operator Careers
Careers In Radio
Education and Experience
Req 8: Education for Radio Careers
Req 8: Education for Radio Careers
BOAT OPERATORS CERTIFICATION
Inland Navigator

Courses
America’s Boating Course®
Seamanship
Engine Maintenance
Marine Electronics

Seminars
How to Use a Chart*
Basic Weather & Forecasting**
Using GPS
VHF/DSC Marine Radio

Skills
Basic Powerboat Handling
Using Fire Extinguishers

FOR MORE INFORMATION VISIT OUR WEBSITE AT www.GSBPS.org/boc

The United States of America
Federal Communications Commission

GENERAL RADIOTELEPHONE OPERATOR LICENSE
(General Radiotelephone Certificate)

This certificate is issued to the individual named below for the class of license indicated. The authority granted is subject to the rules, regulations, and conditions of the Federal Communications Commission, the statutes of the United States, and the provisions of the Act under which the United States is a party to any treaty or convention which the United States is a party.

Name: Warren W. Jones Date of Birth: January 3, 1946

Signature of Licentiate: [Signature]

Place and Date of Issue: San Francisco, CA January 2, 1985

License Number: FG-12-25655

FOR MORE INFORMATION VISIT OUR WEBSITE AT www.GSBPS.org/boc
Req. 9.a.(2): Amateur Radio License Differences

Amateur Radio Licenses

1. Technician
2. General
3. Extra
Req. 9.a.(2): Amateur Radio License Differences

Amateur Radio Licenses

Technician

2

3
Req. 9.a.(2): Amateur Radio License Differences

Amateur Radio Licenses

3
General
Technician
Req. 9.a.(2): Amateur Radio License Differences

Amateur Radio Licenses

- Technician
- General
- Extra
Req. 9.a.(2): Amateur Radio License Differences

Extra

General

Technician

Amateur Radio Licenses
Radio Merit Badge