K2BSA

RADIO SCOUTING

K2BSA Amateur Radio Operations

2017 National Jamboree

Version 7, July 2017

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Overview

This section provides the overall vision for the K2BSA Amateur Radio Operation at the Summit in West Virginia for the 2017 Jamboree. The rest of this document goes into more detailed action planning. This is Version 5, with continued updates expected.

History

Amateur radio has been a part of the Jamboree experience since at least 1953 when K6BSA was in operation from Irvine Ranch in California. This was followed in 1957 and 1964 by K3BSA at Valley Forge, KØBSA in 1960 from Colorado Springs, K7WSJ at the 1967 World Scout Jamboree in Idaho, KF7BSA in 1969 from Idaho, and in 1973 by KJ3BSA in Moraine State Park and KJ7BSA in Idaho.

K2BSA has been in operation at the Jamboree since 1977. Over that time it has provided amateur radio demonstrations to thousands of Scouts, provided training that helped Scouts earn hundreds of Radio Merit Badges, and along the way introduced the fun, technology, and magic of amaK2BSA Jteur radio.

The 2017 Jamboree operation at the Summit Bechtel Scout Reserve in West Virginia will take advantage of lessons learned during the 2013 Jamboree, the three VHF/UHF repeaters installed by Icom America, as well as other existing infrastructure from 2013.

Statement of Purpose

- Introduce the science, technology, fun, and magic of amateur radio operation to Scouts and Scout leaders.
- Facilitate earning the Radio Merit Badge.
- Introduce ARDF-Foxhunting.
- Serve as the amateur radio voice of the Jamboree via two-way radio contacts within the Summit and worldwide.

Jamboree Goals

- Operate a demonstration station with a goal of introducing ten percent of Jamboree participants to amateur radio ~ 3,000.
- Teach the Radio Merit Badge with a goal of 300 to 400 Scouts earning the badge during the Jamboree.
- Provide an ARDF-Foxhunting course with expectations of over 100 teams completing the course.
- Provide high visibility events for participants, such as a two-way contact with an astronaut on the International Space Station.
- Operate a special event station to make contacts worldwide with amateur radio and Scouting enthusiasts to allow them to participate in the Jamboree.

K2BSA will also operate social media and website channels to engage a broad audience both within and outside Scouting.

Activities Overview

Now that we've established the purpose and goals, our next step is to establish key activities to support the achievement of the purpose and the fulfillment of the goals. Here's the broad range of activities that will be in operation during the Jamboree.

Demonstration Station

Provide amateur radio demonstrations that energize Scouts in communicating with others throughout the country and around the world. Use communication modes that resonate with Scouts such as PSK digital modes that mimic their favorite mode of communication — texting.

- Provide simple, intuitive amateur radio transceivers that Scouts can directly operate with minimal guidance — setups where they will say "I can do this at home!"
- Standardize the demonstrations to present concepts and demonstrate operation in a tightly organized timeframe to maximize throughput.
- Optimize operational flexibility by standardizing around the same set up for every station.
- Provide two fully capable stations with directional antenna to be used in offering Jamboree amateur radio contacts to stations around the world to satisfy that demand and to set-up/stage other stations to communicate with the demonstration stations.

Radio Merit Badge

Facilitate earning the Radio Merit Badge via onsite training and testing, providing Scouts with a visible goal to achieve that not only introduces amateur radio but provides them a merit badge. Do this within a relatively low-impact time commitment of no more than four hours.

- Highly interactive and engaging classroom presentations sandwiched around on-the-air activities at the nearby demonstration station. Example, time in class to focus on requirements that directly support radio operation, followed by time in the station applying those skills, ending with the remaining time in class working to complete all the merit badge requirements.
- Training sessions that start every hour on the hour to minimize delay for the Scouts that walk up with a general interest in amateur radio and can commit to spending the next four hours earning the Radio Merit Badge.

ARDF – Foxhunting

ARDF stands for Amateur Radio Direction Finding. Foxhunting refers to using ARDF to find hidden transmitters. This activity is ideal for the high adventure focus of the Summit. It gets Scouts on a trail using amateur radio and direction finding techniques, expanding their orienteering skills, and involving them in yet another aspect of amateur radio and technology.

- Provide introductory training on the use of standard, simple, ARDF equipment and antennas to find hidden transmitters.
- Operate an ARDF course with successive levels of challenges that provide early success yet encourage the development of skills on more challenging tasks.

- Offer walk-up availability to the training and use of the course.
- Route Scouts who are further interested to the Jamboree Land Navigation area for 80 meter Fox-O-Ring course that is far more challenging.

Special Events

Schedule special events that will be of keen interest to the Scouts as well as local and national media. These should include:

- Contact with an astronaut on the International Space Station.
- Around the World balloon launch by Bill Brown, WB8ELK, the father of high altitude ballooning with tracking via amateur radio as it makes progress.
- Contacts via low-Earth-orbit amateur radio satellites offered as orbital paths/timing allows.

VHF-UHF Repeaters

VHF/UHF FM repeater operation fully covers the Jamboree area via hand-held transceivers. This facilitates networking as well as emergency communication.

Demonstration Station

The 2017 Jamboree K2BSA demonstration station has a primary focus on introducing the fundamentals of amateur radio to the highest number of Scouts possible consistent with the goal of providing a quality experience within the overall operation of the Jamboree.

Our goals are ambitious – introduce amateur radio to 10% of the Scouts at the National Scout Jamboree. That is expected to be 3,000+ youth over the course of roughly eight days.

Our thought is that the magic of amateur radio is reaching out and communicating over both short and long distances via radio. Further, that communication is optimally via voice and digital modes, with the latter in harmony with how so many of our Scouts communicate with each other, via text messaging.

Given this premise, along with the focus on hands-on demonstrations to 3,000 or more, our plan is to deliver a consistent, high-quality, demonstration with those two modes at the core of the experience.

Approach for Youth/Jamboree participants

> *Make ham radio fun, using a number of methods of demonstration and learning, and provide it in a context that is relevant to the youth, while maintaining the heritage and history that made ham radio what it is today.*

Station Overview

The Demonstration Station will be composed of multiple operating positions offering a variety of modes to the participants. These include:

- Five demonstration stations with low-cost 100-watt HF transceivers, computer logging software, and large screen computer displays. (4 IC-7300 and 1 IC-7600)
- One VHF-UHF station for demonstrations and repeater monitoring. (IC-5100)

- One satellite communication system for low orbit satellite communication in addition to HF operations. (IC-9100)
- One 200-watt HF station for maximizing worldwide coverage of the Jamboree. (IC-7700)
- Networked computer logging and control. Frequent update of Logbook of the World and Club Log to confirm contact with other stations.
- Two HF directional antennas, 3 HF broadband dipoles, and 3 HF vertical antennas.

Each station will have the ability to host several participants at a time, plus one control operator (K2BSA staff member / aka Guide). The goal is to give each participant about 8-10 minutes of operating time.

Operation Hours

The demonstration station will maintain operations from 8 AM to 6 PM daily (Jamboree visitors have access 10 AM to 5 PM). During those times, all the stations will be active providing demonstrations. We will also provide a nightly VHF/UHF net for all participants at the Jamboree and those checking in via Echolink from around the world.

Demonstration Flow

The general flow of the station will be fairly standardized, and a script provided to each guide outlining points to cover while the participants are visiting the station. The outline is:

- Registrars will hand out pre-printed stickers to everyone who enters. This will generate the count of demonstrations each day.
- Greet all those who arrive, and break them into small groups of up to four each.
- Take them through the entry area, providing a brief history of amateur radio, and how it has changed and stayed current over the years. Visuals will be available.
- Provide them a short introduction to Morse code, and allow them to try it on a set of code practice oscillators with Morse sheets. Ask them to send each other's names. Outline that Morse Code (CW) is still an active part of amateur radio, but not a requirement for licensing as it was in the past.
- Stop briefly at each exhibit in the entry area, and give a brief explanation of what they see.

After passing the entry area, the participants will enter the demonstration area. Each station can accommodate four participants.

Operators while at the radio controls of each station will operate under the same basic guidelines:

- Give a brief description of the radio and modes available.
- Describe the correct procedures and topics for talking on the air.

- Allow each participant to use either voice or digital modes (with a preference to show both).
- Allow the participants to ask questions as they progress.
- Keep the time per participant to 8-10 minutes unless the participant queue is light (no one waiting).
- Log all QSOs, including participant, station, control operator, time, date, mode, station ID
- As much as possible, use JOTA/Scouting recommended frequencies.
- Use all possible modes available. These can include phone, PSK, RTTY, SSTV, Morse, etc.
- The venue will likely be noisy. Use headphones or keep the station AF gain (volume) down as much as possible. Keep voice levels to normal talking volume.
- Adjust the microphone gain and ALC with each new participant and limit the use of compression.

Station Operation Specifics

For each specific station type, there will be variations to operating:

HF

- Keep the station on the assigned band unless a change is required to limit interference to the other stations. Confirm changes with shift supervisor.
- There will likely be pileups. Allow the participants rag-chew QSOs as much as possible. During demonstrations, talk time is to be emphasized over giving out QSOs.
- Discuss the general station conditions if asked (antennas, etc.).

VHF/UHF/D-STAR/Echolink

- This station is mostly for repeater operation. Most QSOs will be with other staff or Jamboree participants, or via Echolink or D-STAR outside the Jamboree.
- These stations will be utilized during the nightly nets and during other times as needed by K2BSA staff if requested by Jamboree management. Adjust the demonstrations according to the shift supervisor.
- We've also established an Echolink conference node *JAMBO* node 832996 for use during the Jamboree and other Scouting events.

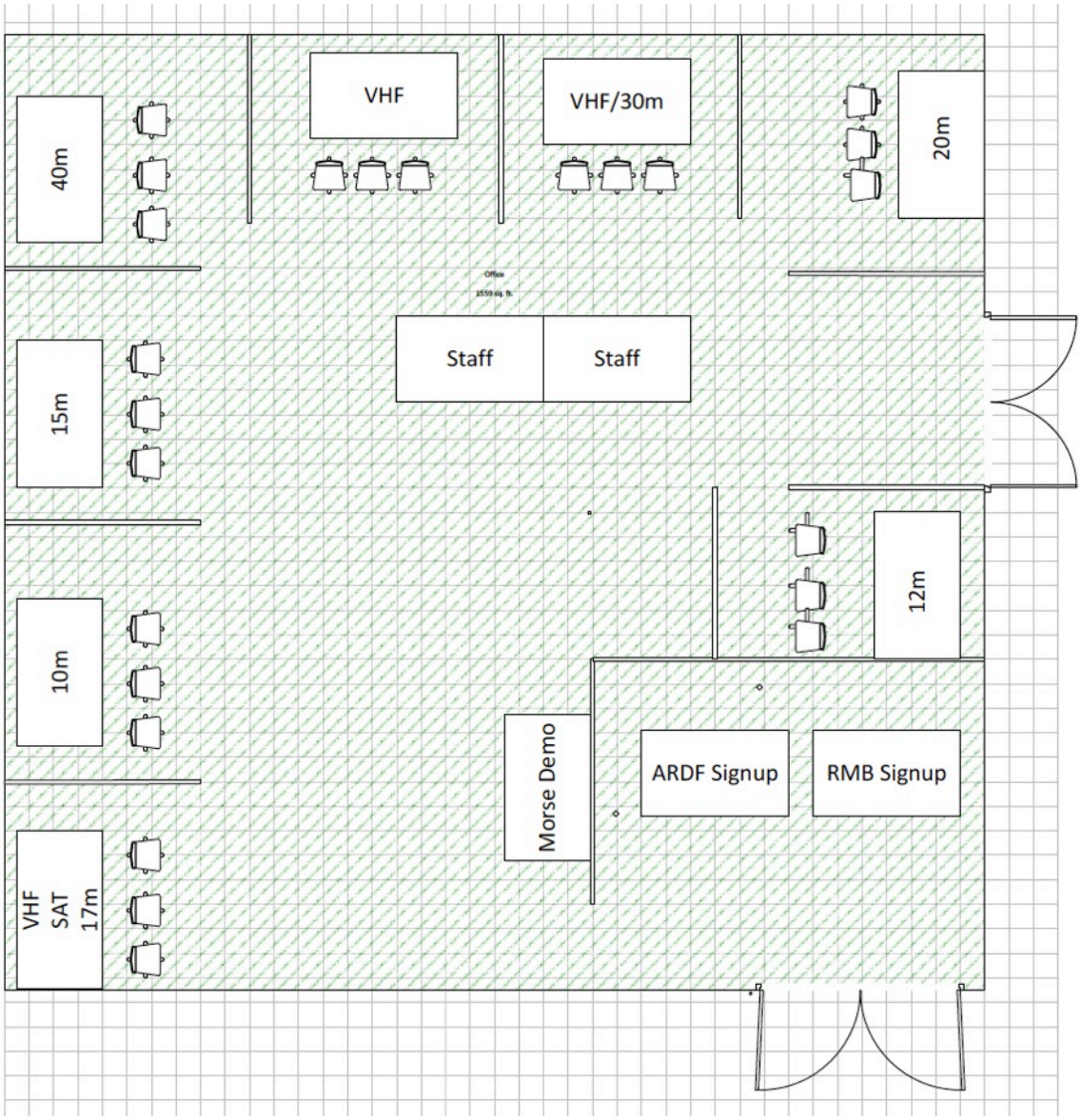
Satellite Operation

- When ISS or other satellite windows present themselves, the VHF/UHF capable stations will be requested to cease normal HF demonstrations so they can accommodate these passes.
- These times are well known and will be posted. If there are questions, see the shift supervisor.

- The ISS Contact will be a scheduled event with public address audio provided so the maximum number of people can hear.
- A form of selection process (drawing, etc., to be determined) will be used for those Scouts who will be able to participate in these contacts.
- A discussion prior to and after the window will be offered to explain how these contacts work and how they are different then the ones conducted inside the venue (doppler-effect, apogee/perigee, pass prediction, why the antenna moves the entire time of the contact, etc.).

Demonstration Station Layout

The Demonstration Station will be housed in a 40' x 40' tent. An overall layout of the full K2BSA site can be seen in the appendices.



Radio Merit Badge Program

The Radio Merit Badge program is designed to handle 400 Scout candidates during the Jamboree, providing classroom and radio time sufficient to earn the merit badge over four hours.

Radio Merit Badge Requirements

New Radio Merit Badge requirements were formally announced in January 2017. This will entail revising existing training materials, which is underway. The training segments will also be updated at that time.

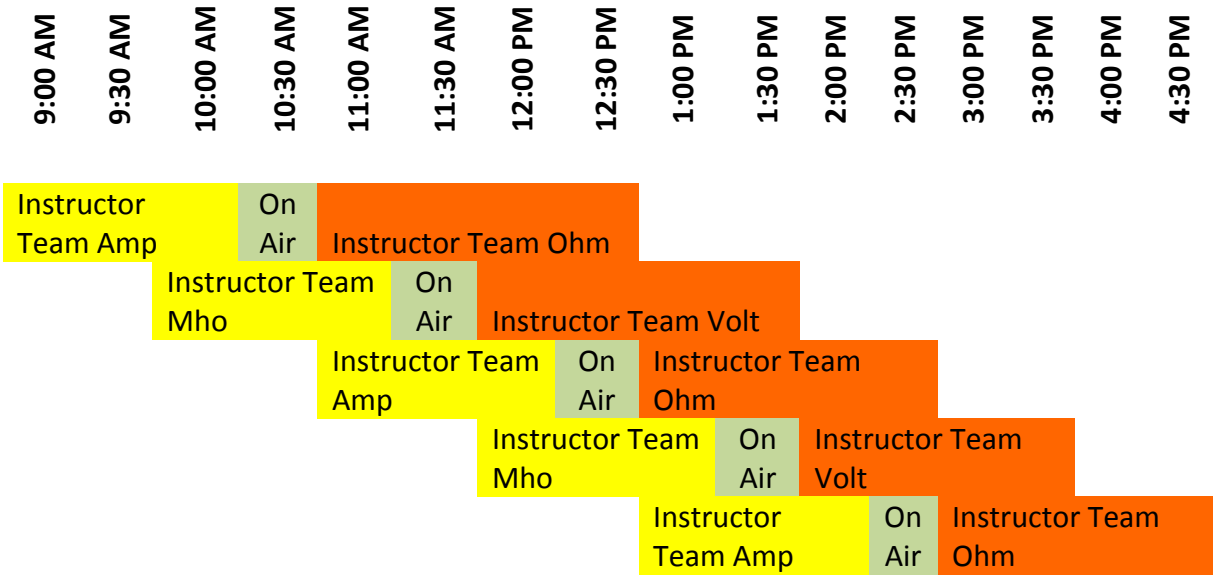
Teaching Segments

The K2BSA program comprises three teaching segments as follows:

- Segment 1 – This segment includes the requirements that provide a minimum technical foundation for the individual to understand and appreciate the radio operating experience.
- Segment 2 – This segment includes participation in a radio contact under the supervision of a control operator to fulfill that requirement.
- Segment 3 – This segment includes all remaining requirements.

Program Planning Assumptions and Requirements

The K2BSA daily operating schedule is illustrated on the chart below.



ARDF --- Foxhunting

The goal of the hidden transmitter hunt will be to offer the Scouts an introduction to Amateur Radio Direction Finding. It will be conducted like a practice or training session and will be very informal following the spirit of IARU ARDF competitions and rules.

Draft Rules

As in IARU rules five transmitters will be used. They will be positioned no closer than 400 meters apart, none nearer the start than about 750 meters. Teams will be encouraged to find at least 2 transmitters (controls). Finding more will be at their option and available time. The team name, time out, and time returning will be recorded. Time on the course will be limited to 60 minutes per team.

Teams will consist of at least two Scouts and not more than a patrol (8). This is a BSA buddy system rule not an IARU guideline. Teams can be made up of Leaders, Boy Scouts, Venturing youth or all three.

Teams will start the course at no less than 5-minute intervals. This prevents a "follow the leader" problem. No more than 5 teams will be on the course at any given time. This is a resource limitation (receivers, antennas).

Foxes may be found in any order. We may consider starting each group toward a specific control also to prevent the "follow the leader" problem. Teams will punch their control card at each transmitter to authenticate the find.

A prominent orange and white prism (orienteering flag) is located close to each transmitter for visual identification. This is where the registration device (control punch) is located. A homing fox at the finish line transmits continuously on a separate frequency to aid competitors who might get lost.

Transmitters will transmit once every 5 minutes automatically transmitting one after another (never at the same time) on the same frequency for exactly one minute each.

Equipment

The course will be a 2-meter VHF ARDF course. It will use transmitters and Foxhunt Sniffers (see http://www.foxhunt.com.au/2m_sniffer/manual.htm for more info) as provided by Brian Coleman, KB0MAP, who is running the Jamboree Land Navigation (Orienteering) Program. Brian will also be providing orienteering quality maps of the Summit Center for our use. We will also have stand by Byonics transmitters if needed.

General Thoughts

Fox hunting is a map and compass exercise as well as a test of direction-finding skill. Successful hunters pay careful attention to their own location and the bearings to all foxes at all times. They know that if they miss a fox bearing, they must wait four minutes to hear that fox again. They also eye their watches, since exceeding the time limit (60 minutes) means disqualification. In other words, it is better to return under the limit with only one fox found than to find all five but take one minute over the limit. At the end of each day the teams will be listed in order of time taken and number of transmitters found.

Training before heading out to the course will be to teach the use of the radio including how to change the memory channel. This is so they can change to the home beacon if necessary.

Morse Code Interpreter Strip

The International Exhibit will be certifying language interpreter strip skill levels across several different languages throughout the Jamboree. K2BSA will be providing testing and skill certification for the Morse Code Interpreter Strip. We will designate several staff members to support this effort and have the registrar handle the necessary paperwork along with assistance to the applicant as they arrive.

International Space Station

Our application for an ARISS contact was approved. But a direct radio contact is not possible during the Jamboree due to orbits not lining up with operating hours. Instead a telebridge contact will be arranged with another station handling the radio link and using a telephone circuit to connect K2BSA.

Ten Scouts will be selected at the Jamboree for the contact. They will be drawn randomly from the list of all Scouts that completed the Radio Merit Badge during the first few days of the Jamboree. They will use a list of preselected questions with the astronaut.

WV8BSA VHF-UHF Repeaters

Prior to the 2013 National Scout Jamboree, Icom America installed three repeater systems that remain in place to support Summit operations year-round as well as supporting the local community. The repeaters are co-located with the commercial two-way system and a cell phone system at the Rock Borrow site on The Summit property.

The repeaters have an Internet connection for control purposes and to facilitate EchoLink and D-Star communication around the world. This will allow Scouts and amateur radio operators anywhere in the world to log on to the repeater via the Internet and communicate with Scouts at the Jamboree. It will also allow amateur radio operators at the Jamboree to communicate via the repeater to their home repeaters.

To further facilitate on-going operation of the repeater systems after the Jamboree, the Summit Repeater Association has been formed by local amateur radio operators. This association has further secured the club call sign of WV8BSA for the repeaters. This is a very nice touch for this permanent installation on the Summit.

The repeaters will also be used to facilitate emergency communication where and when needed.

The frequencies and access tones are shown in the nearby table.

Repeater	Input Frequency	Output Frequency	Tone
2 m Analog	146.100 MHz	146.700 MHz	123.0 Hz
70 cm Analog	449.025 MHz	444.025 MHz	123.0 Hz
70 cm D-Star	446.8125 MHz	441.8125 MHz	Not applicable

Maintenance work on the repeaters is expected to be completed in April 2017 with upgrades to the D-Star software and other needed adjustments.

Media Staff

Bill Stearns, NE4RD, is the designated staff member to publicize the K2BSA Operation on social media channels, news media, websites, and other available outlets. He will take photos and videos to record the activities and to be used in publicity. Media outreach will include Jamboree media as well as amateur radio, local, and national media.

We hope to have the Jamboree Photography Team cover the antenna construction, particularly the installation of the directional beams. They also plan to cover the International Space Station contact.

Facilities

To accomplish the goals and activities listed above, the K2BSA location will require one 40' x 20' and three 20' x 20' tents along with substantial traffic-free areas for antennas. In addition, a nearby, dedicated, ARDF–Foxhunting course will be required. At the 2013 Jamboree the nearby Summit Center was used.

The tents will require walls, stable flooring (ideally plywood secured on planking or some other method to get the floors above ground level), waterproof wiring, Internet connections, grounding systems (electrical and RF), and computer networking.

A diagram of the site layout is shown in the appendices. The large tent will be used for the demonstration station. Two of the smaller tents will be used for Radio Merit Badge training. The other small tent will be used for Foxhunt staging and training, technical support and as a staff meeting and rest area.

The antenna area will need to be next to the large demonstration station tent to facilitate running coaxial cables and rotor control cables. This area will also need to be traffic-free as several vertical antennas will be carrying live radio frequency energy and have radial wires laying on the ground.

K2BSA will also require a nearby ARDF–Foxhunting course that would allow multiple groups to be on the course at the same time locating several foxhunt beacons.

Demonstration Station facility requirements ---

- Five demonstration stations with low-cost 100-watt HF transceivers, computer logging software, and large screen computer displays. (4 IC-7300 and 1 IC-7600)
- One VHF-UHF station for demonstrations and repeater monitoring. (IC-5100)
- One satellite communication system for low orbit satellite communication in addition to HF operations. (IC-9100)
- One 200-watt HF station for maximizing worldwide coverage of the Jamboree. (IC-7700)
- Networked computer logging and control. Frequent update of Logbook of the World and Club Log to confirm contact with other stations.
- Two HF directional antennas, 3 HF broadband dipoles, and 3 HF vertical antennas.

Radio Merit Badge facility requirements ---

- Two tents separated into four classrooms that each have a large display television screen (LED) and laptop for presentation of slides, videos, etc. in lecture format. Whiteboard and flipcharts.
- Seating in classroom format with tables for 10-12 students in each classroom.

Staff

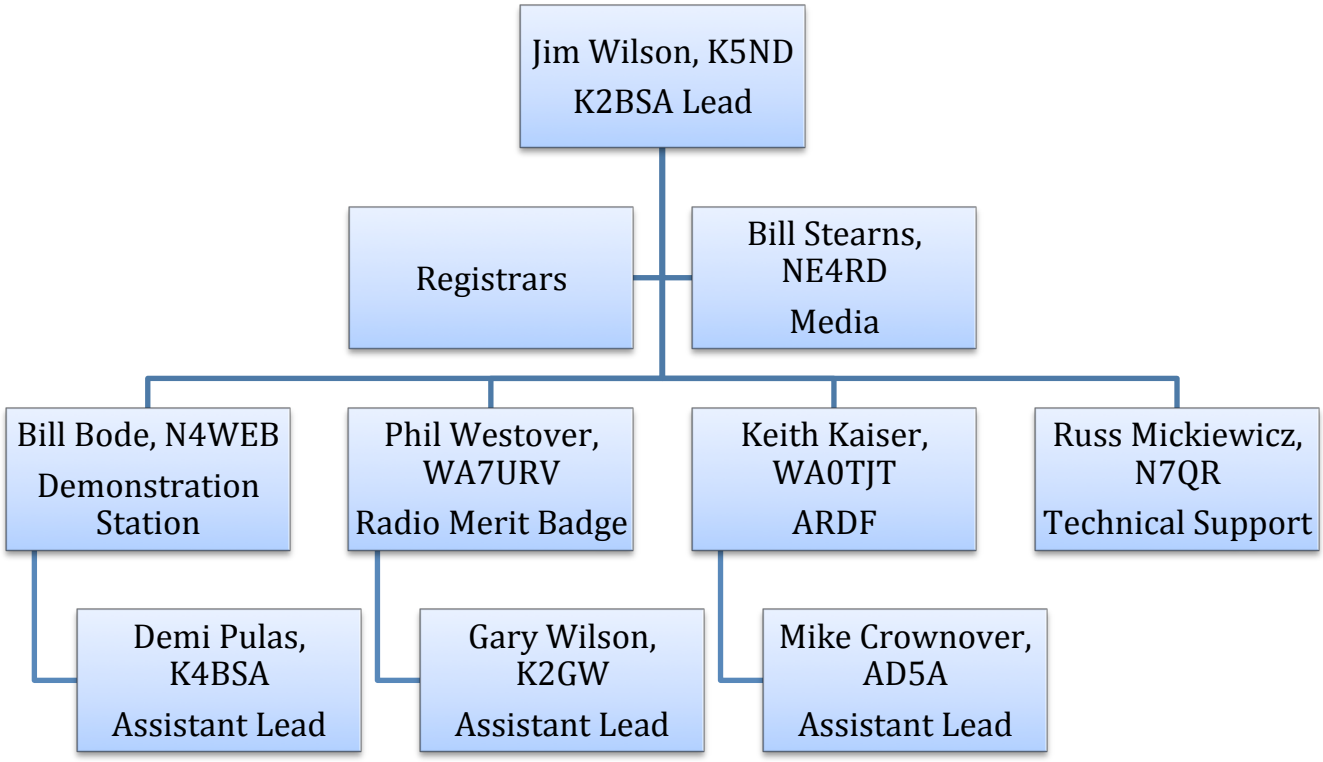
Staffing is limited to 40 full-time positions. All will be licensed radio amateurs with substantial involvement in Scouting and, in particular, experience with Radio Scouting activities such as Jamboree on the Air. A key selection criterion will be the ability to work with youth.

Staff members will be needed to build and set up the station as well as take down the station at the end of the Jamboree.

Here is our current estimate for staff members and their locations with a total 40 staff positions. Note that some of those full time staff positions will be filled by two individuals – one person filling the position for the first half of the Jamboree and one person for the second half of the Jamboree.

Staff Position	Number
Demonstration Station Team Lead and Staff	19
Radio Merit Badge Team Lead and Instructors	10
Technical Support Team Lead and Staff	4 shared with Demo Team
ARDF – Foxhunting Team Lead and Staff	4
Registrars (two half-time positions)	1
Media Staff	1
K2BSA Lead	1

We currently have three staff members will serving as registrars at the front desk, for all K2BSA activities. We expect to recruit additional staff members for this area leading up to the Jamboree. They will not necessarily have ham radio licenses, which will allow us more flexibility to recruit staff members and free up licensed hams for other assignments.



Staff members are expected to arrive on July 15 or 16 to begin set up and depart on July 28 or 29 depending on their specific assignment. Those signed up for the first half will arrive July 15 and depart July 22. Second half will arrive on July 22 and depart July 28 or 29

All staff members ideally will arrive at the Jamboree with their Amateur Extra Class license in order to maximize flexibility in operating frequency and mode as well as to set a minimum level of expertise.

Staff will be ordering their own nameplates via the official Jamboree Staff webpage using the three line name plate with the first line their name, second line their call sign, and third line K2BSA Ham Radio.

Summit Center Jamboree shirts and hats or the BSA Field uniform will be required wear. See Appendix G for links for ordering as well as a list of all staff requirements.

Sponsors & Supporters

Amateur radio equipment is needed for all K2BSA operations cited in this plan, from radio transceivers to antennas and support equipment, including networked computers.

Icom America is the exclusive amateur radio transceiver and repeater sponsor for the 2017 Jamboree. They have provided three repeaters in a permanent installation at the Summit. They will also be loaning transceivers and other gear for use in the demonstration station.

DX Engineering is also a sponsor providing hex beam antennas, vertical antennas, cables, connectors, triplexers, and bandpass filters for use in the demonstration station.

MFJ Enterprises in providing dipole antennas, headphones, and rotator.

Boy Scouts of America is providing tents, tables, telephone poles, and many other supporting items.

ARRL is expected to provide supporting materials for the operation.

See detailed equipment listings in the appendix.

Summary

This plan is in tune with the overall focus of the Bechtel Summit Reserve, a world-class high adventure venue for the Boy Scouts of America. This plan does that with an exclusive focus on Radio Scouting — amateur radio and Scouting.

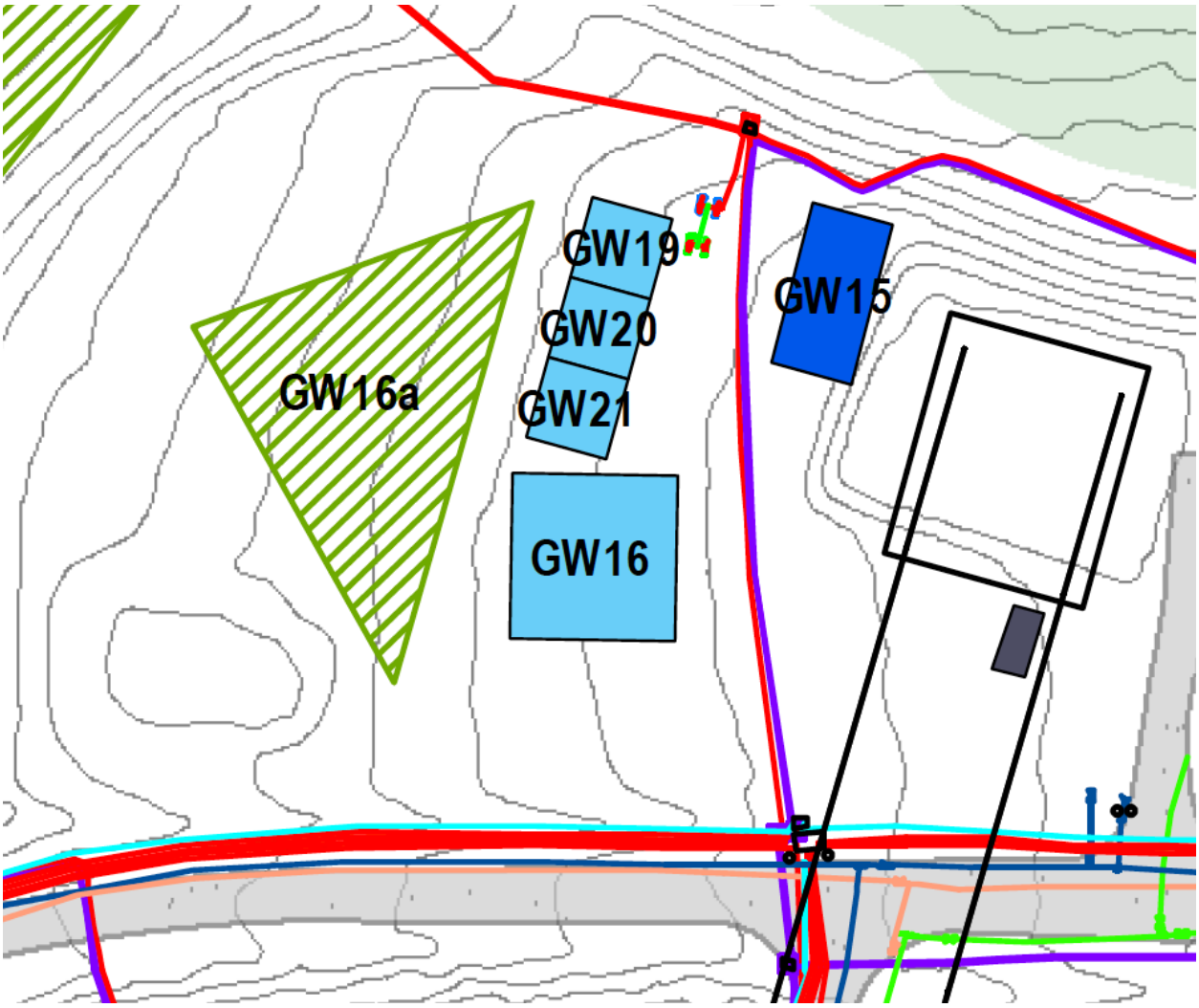
It builds a first-class experience for Scouts and Scouters as they examine amateur radio, perhaps for the first time. It's a fun, engaging, and active introduction to technology and communication around the world.

It further looks to collaborate with manufacturers in elevating the experience from previous Jamborees and putting things in place for the long term that can benefit all future Jamborees as well as other events that occur at the Summit.

Appendix A – Facilities Diagram

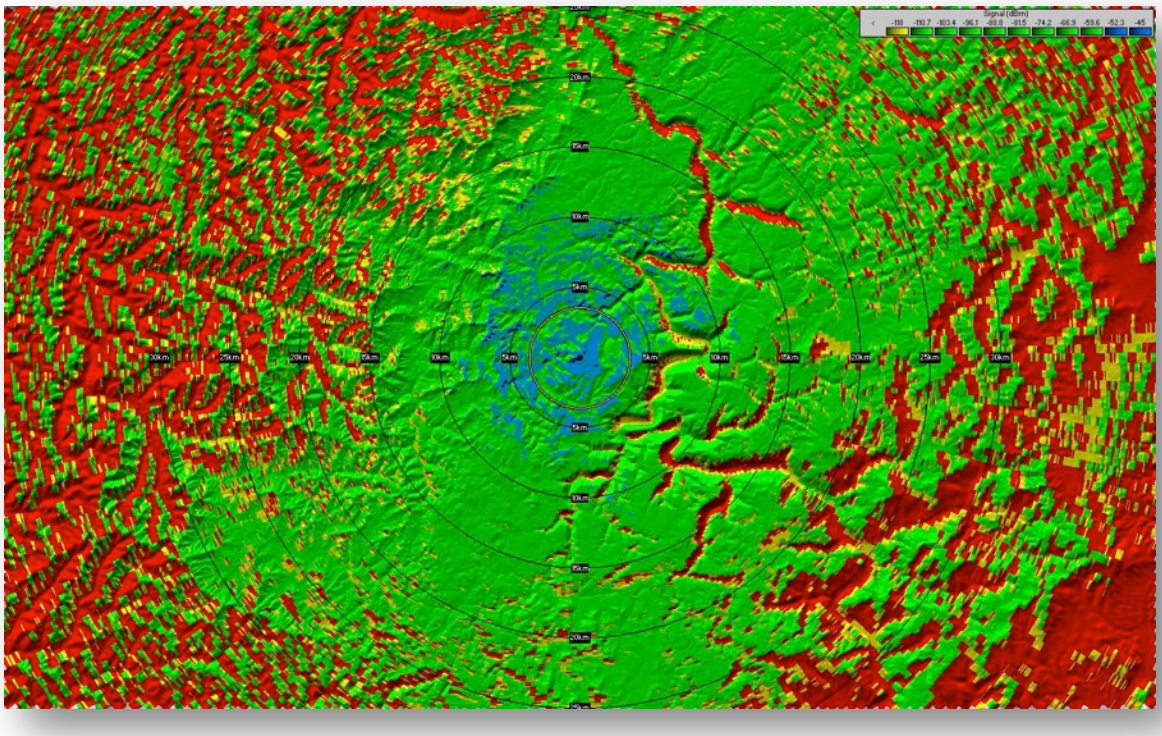
Location 37 degrees 55’ 0” North, 81 degrees 7’ 28” West Summit Center Gateway

One 40x40 tent, three 20x20 tents. Green area is for antennas with 30 foot telephone poles on each of the three corners.



Appendix B – WV8BSA Repeater Location and Coverage

Location 37 degrees 54’ 9.2” North, 81 degree 7’ 48” West, ground elevation 2,421 feet, tower height for amateur repeater antennas 48 feet. Rock Borrow location.



UHF talk-In prediction, maximum distance shown 30 km.

Repeater	Input Frequency	Output Frequency	Tone
2 m Analog	146.100 MHz	146.700 MHz	123.0 Hz
70 cm Analog	449.025 MHz	444.025 MHz	123.0 Hz
70 cm D-Star	446.8125 MHz	441.8125 MHz	Not applicable

Appendix C – Top Level Position Descriptions

K2BSA Chairman

Overall manager for the K2BSA amateur radio operation, reporting to the Jamboree Media Center Chairman.

Duties Prior to Jamboree:

- Recruit key staff for each of the areas.
- Pursue sponsorships and donations.
- Working with staff leadership, build a comprehensive plan for Jamboree operations.
- Contact radio and other vendors for use of equipment.
- Prepare staff guides and other support materials.
- Drive communication to staff members.
- Build needs list for both equipment that will be donated and/or loaned and materials that will need to be purchased.
- Meet with communication/emergency associates and coordinate efforts.

Duties at the Jamboree:

- Interface with the Boy Scout organization.
- Supervise overall operation.
- Hold short staff meetings daily.
- Be a floating alternate to fill in where needed.
- Work with the emergency/communications personnel to provide backup communications.

Duties after the Jamboree:

- See that all the borrowed equipment is returned and all sponsorship agreements are fulfilled.
- Prepare an after action report.
- Write thank-you notes to all staff and vendors.
- Prepare QSL cards for mailing
- Be available to the International Division for radio related questions.
- Staff evaluations

Position Profile

- Licensed and active ham, registered Scouter
- Experienced at executive management level in organizing and achieving high level performance from staff members in a technical environment

K2BSA Station Team Leader

Key leader for the K2BSA amateur radio demonstration station. Driven to introduce amateur radio to Scouts in a fun and highly interactive manner.

Duties prior to Jamboree

- Working with the Support Team Leader, develop station layouts and detailed bill of materials
- Working with the demonstration station team, build the operations plan including bands, times, antennas, etc.
- Develop an operations manual for use by the demonstration staff
- Provide training for all staff members both prior to Jamboree and at the Jamboree site
- Build staffing plans with assignments for operators to shifts as well as days off. Take into account those that are only on staff for the first half and those only on staff for the second half.
- Determine message handling requirements and establish process/staffing
- Determine throughput of demonstrations and develop goals. Assure goals are established, measured, and met.

Duties at the Jamboree

- Conduct installation of K2BSA operation
- Train staff members
- Develop staff into shifts
- Active problem solving
- Ensure QSL cards completed for each QSO
- Tear down of Jamboree facilities, packing of equipment and shipment to next location or storage

Position Profile

- Licensed and active ham, often in leadership roles
- Registered and active Scouter
- Jamboree experience helpful but not necessary
- Driven to introduce amateur radio to Scouts through demonstrating the excitement of on-air communication and encouraging their active participation
- Supports new approaches
- Well developed leadership skills
- Dedicated team builder and team player

K2BSA Radio Merit Badge Team Leader

Key leader for the Radio Merit Badge team. Passionate about teaching and providing great experiences for Scouts in learning about amateur radio and helping them advance their knowledge.

Duties prior to Jamboree

- Working with the Station Team Leader and Support Team Leader, develop detailed bill of materials that include the Radio Merit Badge team requirements.
- Develop floor plan layouts for the merit badge instruction tent
- Working with the Merit Badge Team, build the training plans for merit badge instruction
- Prepare staffing plans that include shift assignments and off times for staff. Take into account those that are present only for the first half or the second half of the Jamboree
- Evaluate, select, and implement training aids and computer based training tools
- Train the Merit Badge Team members to fulfill their roles.
- Determine throughput of training/testing and develop goals. Assure goals are established, measured, and met.

Duties at the Jamboree

- Conduct installation of merit badge tents
- Train staff members
- Develop staff into shifts
- Active problem solving
- Tear down of Jamboree facilities, packing of equipment and shipment to next location or storage

Position Profile

- Licensed and active ham, often in leadership roles
- Registered and active Scouter
- Jamboree experience helpful but not necessary
- Driven to introduce amateur radio concepts to Scouts and help them earn the Radio Merit Badge as part of an overall exciting experience at the K2BSA Jamboree operation.
- Supports new approaches
- Well developed leadership skills
- Dedicated team builder and team player

K2BSA Tech Team Leader

Key technical leader for the entire K2BSA operation. Works across all areas to determine requirements, installs and implements selected technology, and actively troubleshoots issues that occur.

Duties prior to Jamboree

- Prepare station design, site plan, requirements list, antenna requirements
- Working with Station Team Leader and Radio Merit Badge Team Leader, build detailed bill of materials for all K2BSA equipment and facilities needs
- Working with Station Team Leader develop operating procedures and help prepare operations guide for use by all operators
- Working with the Station Team Leader and the Radio Merit Badge Team Leader, prepare installation plans for the entire operation.
- Develop an emergency system that involves all K2BSA staff members and other amateur radio operators on the Jamboree property

Duties at the Jamboree

- Working with fellow team leaders, install all equipment and ensure its operation throughout the Jamboree
- Monitor repeater operation and ensure trouble free operation
- Establish computer networks for logging software
- Supervise and control on site computers and software
- Upload logs in real time or at a minimum daily to Club Log and Logbook of the World
- Capture photos/videos of Jamboree operations
- Keep world-wide audiences informed of K2BSA operations via social media and website
- Operate the emergency communications network in times of emergency, conduct tests to ensure it is ready for operation
- Tear down of Jamboree facilities, packing of equipment and shipment to next location or storage

Position Profile

- Licensed and active ham, often in leadership roles
- Registered and active Scouter
- Jamboree experience helpful but not necessary
- High level of technical expertise and skills as well as the ability to work collaboratively with others to meet their technical requirements.
- Supports new approaches
- Well developed leadership skills
- Dedicated team builder and team player

K2BSA Media Lead

Key interface with various media outlets including Scouting media, amateur radio media, as well as national news media. Responsible for telling the K2BSA Jamboree story in words, photos, videos, etc. to all interested audiences meeting their need for insight into the K2BSA operation.

Duties prior to Jamboree

- Ensure that all K2BSA social media outlets are ready to handle posting of news and images.
- Ensure that the K2BSA website is prepared to handle posting of news, images, videos, etc.
- Connect with BSA Jamboree and National Office website staff to ensure they have needed content for their operations before, during, and after the Jamboree.
- Establish story contacts with Scouting, amateur radio, and national media outlets.
- Connect with Jamboree Today and Leaders Update staff to facilitate timely posting of K2BSA stories during the Jamboree.

Duties at the Jamboree

- Working with fellow team leaders, install all equipment and ensure its operation throughout the Jamboree.
- Actively engage Jamboree, Scouting, amateur radio, and national news media in sharing the story of K2BSA operations.
- Capture photos/videos of Jamboree operations.
- Record the full K2BSA effort and prepare an online summary.
- Keep world-wide audiences informed of K2BSA operations via social media and website
- Tear down of Jamboree facilities, packing of equipment and shipment to next location or storage

Position Profile

- Licensed and active ham, often in leadership roles.
- Registered and active Scouter.
- Jamboree experience helpful but not necessary.
- High level of communication expertise and the ability to work with all media outlets to ensure that the K2BSA story is told to a wide variety of audiences.
- Ability to operate social media channels and websites (WordPress).
- Ability to operate audio recorders as well as still and motion cameras.
- Proven ability to interface with media and with Scouts and Scouters to get the story.
- Supports new approaches.
- Well developed leadership skills.
- Dedicated team builder and team player.

Appendix D – Demonstration Team Planning

To Do Items:

For each station:

- Azmuthial map from Summit to the world
- Band plan (JOTA frequencies) by band/Mode
- World prefix chart (wall style)
- World map with entity prefixs)
- Ideal bands by time to various continents/states
- CEPT countries list
- Third-Party rules
- 10 minute QSO guideline/outline for MB participants
- Short QSO outline
- Run outline
- Q code charts
- D-Star info guide (with linking) include useful node #s
- Echolink info guide (with linking) include useful node #s
- Pad/paper
- garbage cans
- QSL cards
- Operator QSO sheets
- File box per station for various paperwork/forms/etc.
- headsets/foot switch/headset amps, headphones
- Radio quick-books
- Cheat-sheet radio operators guide
- Signage (band, etc)

Special station activities:

- Nightly Net
  - Need Net Script
  - How do we do it on both repeaters simultaneously?
- Satellite passes (Mike S/Ron?)
  - Masterlist of all passes during Jamboree
  - ISS pass (Mike S/Ron?)
- High QSO count station. How to logistically do this and not interfere with demo station?
- After hours activity ?
- CW training ?
- K2BSA license upgrade training/testing ?

- Balloon launch ... tracking? Keith?

For Website/Operations plan:

- Technical details of station (pictorial)/physical
- Equipment in use by band/station (for the techies)
- After hours schedule/reach the world station
- Modes to use and planned times of their use:
    - Phone
    - CW
    - RTTY
    - PSK-31
    - SSTV
    - JT65
    - Hellschriber?
- Updated station layout
- LoTW uploads
- eQSL uploads
- Bands in use. Need a copy of the log to do some qso/band/time analysis to plan better band usage in 2017..

Entry area:

- Posters
- videos
- Station event schedule (balloon launch, event contacts, satellite passes, etc. .. Chalk board? Someone to keep it up to date

Station area:

- Flags from ceiling
- ARRL maps/charts on partition walls
- various handbooks out for review
- Any kind of handouts/etc?
- All K2BSA personnel bring a copy of your license for posting ... Maybe a photo of your shack/tower/operating, etc.

Technical:

- Close spacing interference mitigation (filters, tuned stubs, etc)
- Station grounding/antenna disconnect .. Quick .. automated or dedicated person. quick connect UHF fittings?
- Networking? WiFi or wired?
- Centralized computer logging, or distributed N1MM logging, where each computer keeps a copy?

- Wifi printing?
- Computers .. Same as last time or something new? Did laptops work well, or should we go with desktops and a monitor (plus UPS)?

Schedule structure (did 2013 plan work well)?

Misc:

- Logging ... How ? HRD, N1MM, etc
- Clublog, etc for QSO tracking
- QSL'ing/QSL manager
- QSL card layout
- Entry Area visuals, etc.
- Do we do live CW training? Interpreter strip testing?
- Use Jamboree logo on all printed materials, etc.
- Daily staff briefing ..
    - At the end of the day.
        - What went well
        - What we need to change
        - What do we have coming for tomorrow
    - At the begining of the day
        - Events
        - Schedule discussion
        - Band analysis for the day
        - Other?

Personnel:

- Go-getter recognition
- Interesting factoids
- Bios ... personal, ham, professional, other
- training/integration of staff, especially 2nd half staff.
- Patches, challenge coins, t-shirts, polo shirts/Columbia style shirts, etc
- Everyone bring an H-T. We'll have a staff frequency

Unscheduled events:

- Weather ...
- Emergency action plan ... Scenerios need to be defined and how do we respond
    - Medical
    - Weather ... lightning, wind, tornado, severe weather
    - Electrical
    - RF
    - Mechanical equipment failure (aka, antenna/etc).

    - Other
- Contact list for emergency relay if needed. How?
- Camp event handling for an event that generates high on-air interest amongst encampment participants
- Frequency list if we need to support an event w/o being on the repeaters.

Station build schedule after arrival

- unpack trailer
- gather camp provided equipment
- build partition walls
- setup stations physically
- build antennas
- setup computer networking
- decorate station with signage
- store supplies/etc
- Milk crates (for storing personal gear during the day). One per person. Labeled
- Inventory all equipment we unpack.
    - Separate by K2BSA owned
    - Donated and by whom
    - Where we put it
- photograph station after build

Station takedown

- verify inventory on pack
- photograph all packing
- pack, label, and prepare for shipping
- hand trucks/utility wagons for moving gear
- Identify order to take station down
- stage equipment in areas of tent for pack
- tape, zip ties, labels (zip tie type), packing labels, etc.

Cricket Holler:

- Photograph all equipment unpack
- Photograph all equipment setup
- station build
- equipment setup
- equipment training
- station activity trials/adjustments
- try out our various program scripts
- finalize band plans

- buy what we need at Dayton
- Inventory everything we pack and from whom if donated
- pack gear
- pack take down supplies (tape, labels, magic markers, shipping labels, etc).
- create a list of tools/supplies we might need.
- Photograph how to take it down and pack it back
- etc?

Appendix E – Radio Merit Badge Requirements

Req. No.	2017 Slide Deck	Requirement Description	Time Allotted Min.	1 Min.	2 Min.	3 Min.
1	1	Explain what radio is. Then discuss the following:	3	3		
1.a.	2	The difference between broadcast radio and hobby radio.	1	1		
1.a.	3		2	2		
1.b.	4	The difference between broadcasting and two-way communication.	1	1		
1.c.	5	Radio station call signs and how they are used in broadcast radio and amateur radio.	2	2		
1.c.	6		2	2		
1.c.	7		2	2		
1.d.	8	The phonetic alphabet and how it is used to communicate clearly.	3	3		
1	9	**Optional:** Radio Merit Badge emblem	2	2		
2		Do the following:				
2.a.	1	Sketch a diagram showing how radio waves travel locally and around the world. (They build their diagram during presentation)	2	2		
2.a.	2		2	2		
2.a.	3		1	1		
2.a.	4		4	4		
2.a.	5		4	4		
2.a.	6		1	1		

2.a.		Time allotted for sketching (beyond what they did in slides 1-6	**7**	**7**		
2.b.	**7**	Explain how the broadcast radio stations WWV and WWVH can be used to help determine what you will hear when you listen to a shortwave radio.	**3**	**3**		
2.b.	**8**	WWV Audio	**2**	**2**		
2.c.	**9**	Explain the difference between a DX and a local station.	**2**	**2**		
2.d.	**10**	Discuss what the Federal Communications Commission (FCC) does and how it is different from the International Telecommunication Union.	**4**	**4**		
		Quick discussion regarding station visit.				**4**
3	**1**	Frequency	**3**			**3**
3	**2**	Wavelength	**3**			**3**
3		Do the following:				
3.a.	**3**	Draw a chart of the electromagnetic spectrum covering 300 kilohertz (kHz) to 3 gigahertz (GHz). (They draw as the presentation is given)	**4**			**4**
3.b.	**4**	Label the MF, HF, VHF, UHF and microwave portions of the spectrum on your diagram.	**2**			**2**
3.c.	**5**	Locate on your chart at least eight radio services, such as AM and FM commercial broadcast, citizens band (CB), television, amateur radio (at least four amateur radio bands), and public service	**2**			**2**

		(police and fire).				
3.c.	6		2			2
3.c.	7		2			2
3.c.	8		2			2
3.c.	9		1			1
3.c.	10		1			1
3.c.		Time Allocated for drawing electromagnetic spectrum (They don't start here; they finish what they were building during slides 1-10)	7			7
4	1	Explain how radio waves carry information. Include in your explanation: transceiver, transmitter, receiver, amplifier, and antenna.	2			2
4	2		5			5
5		Do the following:				
5.a.	1	Explain the difference between a block diagram and a schematic diagram.	3	3		
5.a.	2		2	2		
5.b.		Time allocated for drawing a block diagram for a radio station that includes a transceiver, amplifier, microphone, antenna, and feed line.	8	8		
5.c.	5	Discuss how information is sent when using Amplitude Modulation (AM), Frequency Modulation (FM), Continuous Wave (CW) Morse Code Transmission, Single	5			5

		Sideband (SSB) Transmission, and Digital Transmissions.				
5.c.	4		3			3
5.c.	5		1			1
5.c.	6		1			1
5.c.	7		2			2
5.c.	8		2			2
5.c.	9		2			2
5.d.	10	Explain how NOAA Weather Radio (NWR) can alert you to danger when camping	2			2
5.e.	11	Explain how Cellular Telephones work, their limitations in an emergency, and how to best use them.	3			3
5.e.	12		3			3
5.e.	13		2			2
6	1	Explain the safety precautions for working with radio gear, including the concept of grounding for direct current circuits, power outlets, and antenna systems.	2	2		
6	2		2	2		
6	3		3	3		
6	4		3	3		
6	5		1	1		
6	6		2	2		
6	7		3	3		
6	8		3	3		
6	9		2	2		

7	No Power point	Visit a radio installation (an amateur radio station, broadcast station, or public service communications center, for example) approved in advance by your counselor. Discuss what types of equipment you saw in use, how it was used, what types of licenses are required to operate and maintain the equipment, and the purpose of the station.	**7**			**7**
8	1	Find out about three career opportunities in radio. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.	**4**			**4**
8	2		**2**			**2**
8	3		**2**			**2**
8	4		**2**			**2**
9		Do One of the following (a OR b OR c OR d):				
9.a.		**AMATEUR RADIO**				
9.a.(1)	1	Tell why the FCC has an amateur radio service. Describe some of the activities that amateur radio operators can do on the air, once they have earned an amateur radio license.	**5**	**5**		
9.a.(2)	2	Explain some of the differences between the Technician, General, and Extra Class license requirements and privileges. Explain who administers amateur radio exams.	**5**			**5**

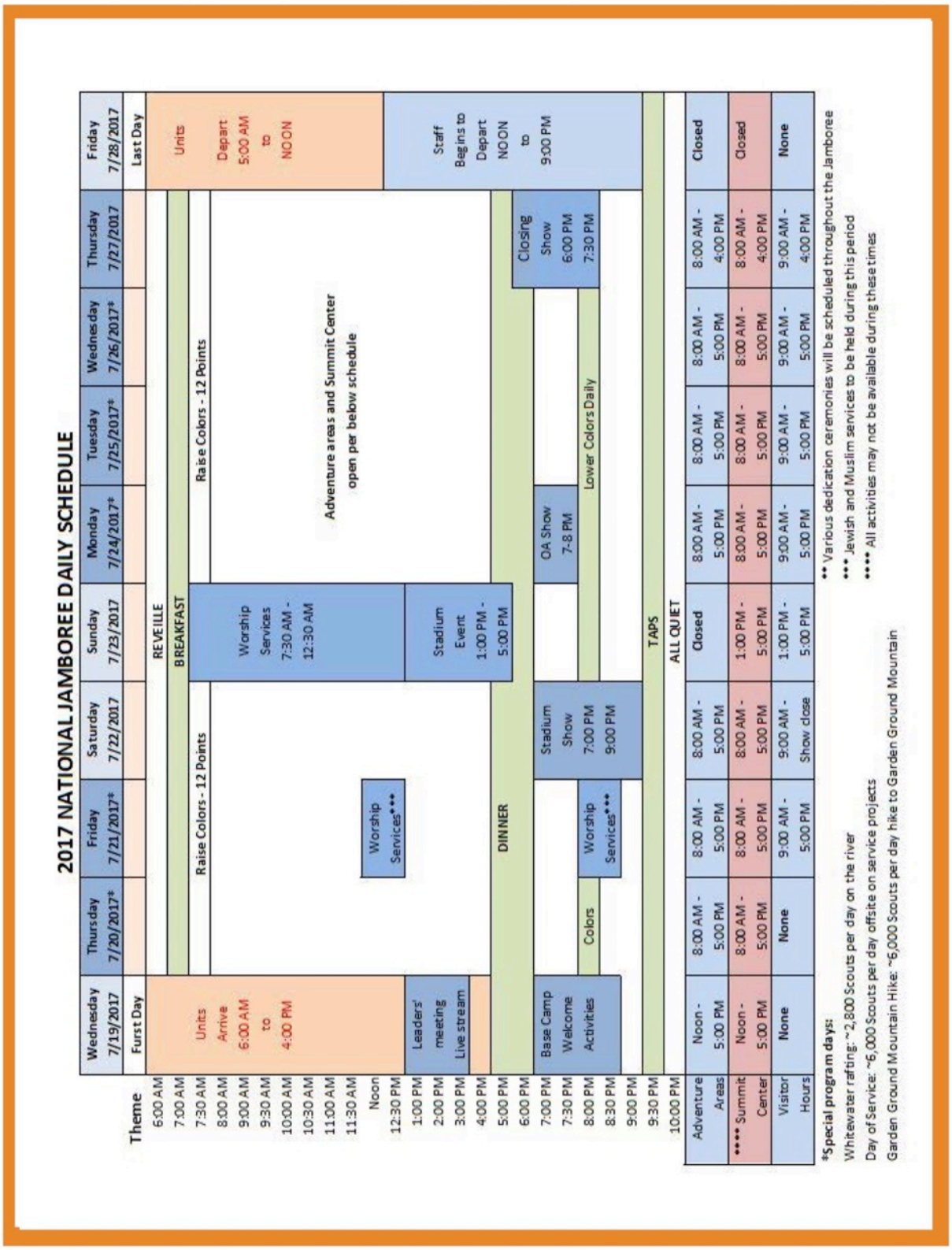
9.a.(3)	3	Explain at least five Q signals or amateur radio terms.	4			4
9.a.(4)	4	Explain how you would make an emergency call on voice or Morse code.	2			2
9.a.(5)	5	Explain the difference between handheld transceivers and home "base" transceivers. Explain the uses of mobile amateur radio transceivers and amateur repeaters.	3	3		
9.a.(6)	6	(Prep for Station)	3	3		
9.a.(6)		Using proper call signs, Q signals, and abbreviations, carry on a 10-minute real or simulated amateur radio contact using voice, Morse code, or digital mode. (Licensed amateur radio operators may substitute five QSL cards as evidence of contacts with amateur radio operators from at least three different call districts.) Properly log the real or simulated ham radio contact and record the signal report. **(Timing includes moving to and from stations)**	30		30	
		FLEX TIME	25			
		TOTAL TIME	240	95	30	94

Appendix F – Staff Preparation Requirements

Here's the list of key items in preparation for the Jamboree.

- Read the **Jamboree Staff Manual** at http://www.summitbsa.org/wp-content/uploads/2016/03/2017-Staff-Guide.pdf
- Read the **K2BSA Operations Manual** http://www.k2bsa.net/2017-jamboree-ops-plan/
- **Summit Center Updates** are posted at http://www.scottsummitcenter.org
- Register your **arrival plans** http://events.tms.com/events/2017-jamboree-staff-registration/event-summary-478c932722c24cd8aa9604f8369bfd27.aspx
    - This is required to reserve shuttle bus service from the airport.
    - It is also required if you are driving to the Summit so they can plan for your arrival with the appropriate level of check-in staff and buses.
- Purchase **airport shuttle pass** http://events.tms.com/events/2017-airport-jamboree-staff-volunteer-transportation/event-summary-d768985248ed4788b5f627c098110eb1.aspx
- Complete **Medical Forms** and Submit http://www.summitbsa.org/events/jamboree/overview/jamboree-medical-process/
- Order **Staff Nameplate** – first line = name, second line = call sign, third line = K2BSA Ham Radio at http://www.summitbsa.org/wp-content/uploads/2016/05/6767-103518-2017-Jamboree-Nameplate-Order-FormsR7E.pdf
- Take care of any open **Jamboree Payments**. All payments are due on January 31, 2017.
- Monitor the **Summit Center Google Group** for up-to-date information and resources. https://groups.google.com/forum/ - !forum/scottsummitcenter_all
- Order **Staff Shirts**. Only BSA Uniform and Summit Center Staff Shirts are allowed when working at your Jamboree Assignment. Select "Summit Center." Program Area is "K2BSA Ham Radio." If you choose to have your name added, include your call sign. http://www.jamboree2017.sgtradingpost.online/shop/category/Summit-Center?c=1731042&ctype=0
- Complete **Tent Assignment Request**. Select two staff members for a three-person tent. https://reservations.scouting.org/profile/form/index.cfm?PKformID=0x81283bcb1
- Complete **Youth Protection Training** so that it extends beyond the end of the Jamboree. You'll either Scouting or Venturing YPT.
- Actively Participate in Staff Assignment **Team Phone Conferences**.
- Study your **assignment procedures** and in the case of Radio Merit Badge, the curriculum that will be used during the Jamboree
- Pass **Extra Class License** exam before arrival.
- Bring **copy of amateur radio license**. Bring HT if you have one.
- Jamboree Grocery Store info http://jamboreefoodteam.org/grocery-store-info-for-units/
- Jamboree Laundry info https://media.wix.com/ugd/e9d72e_ac31f09a88814647aab93fa7df8af2eb.pdf
- Summit Center Staff Resources https://www.scottsummitcenter.org/services

Appendix G – Jamboree Schedule



Appendix H – Staff Members

First Name	Last Name	Call Sign	Assignment Primary	Assignment Secondary
Ilene	Arends		Registrar	
Steven	Back	WB2OGY	Radio MB	
Robert	Bereit	K3RMB	Demo Station	
Bill	Bode	N4WEB	Demo Station	Radio MB
Mike	Crownover	AD5A	ARDF	
Ron	Doyle	N8VAR	Demo Station	
Joseph	Durnal	NE3R	Radio MB	
John	Eggum	K4EGG	Demo Station	Radio MB
Jesse	Franklin	KK4ZNT	Demo Station	
Mary	Fuglaar	KA5LGJ	Registrar	
Hal	Fuglaar	N5BXP	Demo Station	
Anthony	Gaito	KC0CSG	Demo Station	
Grant	Graessle	N4PGG	Demo Station	
Chuck	Hale	KF5UXP	ARDF	
Vernetta	Head		Registrar	
David	Hedengren	KI4FPO	Demo Station	Radio MB
Scott	Hooper	KT0P and HB9EAR	Radio MB	
Keith	Kaiser	WA0TJT	ARDF	
Brian	Klimes	W3BEK	Demo Station	
Russ	Mickiewicz	N7QR	Tech Team	Demo Station
Jason	Mueller	AE3JM	Tech Team	Demo Station
Andrew	Parker	WV1B	ARDF	
Mark	Pedersen	KC2UES	Demo Station	
Jack	Person	W2JWP	Demo Station	
Demi	Pulas, Jr.	K4BSA	Demo Station	Radio MB
Joe	Riggs	AD4UM	Registrar	
James	Rossow	KF6GRI	ARDF	
Larry	Sack	N8QNM	Radio MB	
Kelsey	Seymour	K3LSY	Demo Station	
Paul	Skyllingstad	KE7CET	Radio MB	
Rick	Smith	N6GSE	Radio MB	
Michael	Sprenger	W4UOO	Demo Station	Satellite
Jacob	Sprenger	KK4HMC	Demo Station	
William	Stearns	NE4RD	Media	
Paul	Trotter	AA4ZZ	Demo Station	Satellite
Dave	Verlinde	WB8AXP	Radio MB	
Kevin	Walsh	KK6FRK	Demo Station	
Brent	Weibel	KD9KMA	Registrar	

Phil	Westover	WA7URV	Radio MB	
Gary	Wilson	K2GW	Radio MB	
Jim	Wilson	K5ND	Leadership	Media
Nathan	Wood	KG7CTO	Radio MB	
Michael	Yammine	KB8CMS	ARDF	

Secondary designations are primarily shown for back up purposes.

Appendix I – Equipment Listing

Icom America

Model	Quantity	Notes
IC-7300 Council Loan Stations	4	One is already with staff member for development (ONLY SHIP 3)
IC-9100	1	Satellite contacts as well as HF
IC-7600	1	HF operations
IC-7700	1	Lots of QSOs for hams that only want to contact K2BSA
IC-5100	1	Monitoring repeaters
SM-30 Microphone	7	The IC-7300 Kits should already have one (ONLY SHIP 3)
PS-126 Power Supply	7	The IC-7300 Kits should already have one (ONLY SHIP 3)
SP-5 Speakers	8	The IC-7300 Kits should already have one (ONLY SHIP 4)
RS-BA1 Software	2	Remote control to Staff Camp for evening operations on 80/40.
RC-28 remote encoder	1	For remote control laptop

WV8BSA Repeaters installed at Rock Borrow

DX Engineering

Item	Order Number	Quantity
DX Engineering HEXX Beam	DXE-HEXX-5TAP-2	2
DX Engineering Control Cable	DXE-CW8	300
LBS HF Multiplexer	PB-TP500	1
Coaxial Cable RG-8X	DXE-8X	1000
Coaxial Cable Connectors PL-259 (24/pkg)	DXE-PL259CS8X-24	2
DX Engineering 4BTV Vertical System	DXE-HSR-4BTV-P1	2
17 Meter Add-On Kit	DXE-AOK-17M	2
Low Band Systems Band Pass Filter	PB-F200-21	1
Low Band Systems Band Pass Filter	PB-F200-18	1
Low Band Systems Band Pass Filter	PB-F200-14	1
Low Band Systems Band Pass Filter	PB-F200-10	1
Low Band Systems Band Pass Filter	PB-F200-7	1
Low Band Systems Band Pass Filter	PB-F500-3-5	1

MFJ Enterprises

Item	Order Number	Quantity
Hy-Gain HAM IV Rotator	HyGain HAM-IV	1
Dipole antennas	MFJ-17754	3
Headphones for Demos	MFJ-392B	30

Boy Scouts of America via Bill of Material Requests

Request submitted to BSA for materials and equipment.

SKU #	Item Description	Quantity
999101094	LASER / ALL-IN-ONE Printer - including fax	1
999101099	server - 500 Gig	1
999101101	COMPUTER, LAPTOP	10
999101175	CHAIR, FOLDING	36
999101408	TENT, RENTAL, 40' X 40', WHITE	1
999101411	ASTROTURF/FLOOR - MATCH TENT SIZE	1
999101512	Headphone splitter units	7
999100849	#6 Wire	200
999100847	Ground Rod Clamps	4
999100850	Copper Braid Wire	100
999000090	DUST PAN	1
999000080	TAPE, INSUL., BLACK ELECTRIC	4
999100411	KNIFE, BOX CUTTER	2
999100410	TIES, CABLE, ASSORTED, BAG 700PC	1
999100629	26" Flat Screen Monitor	6
999100848	Ground Rod	4
999000097	LADDER, STEP, 8 FT	1
999100051	HAMMER, SLEDGE, 8# USE 999100233	1
999000099	LAMP, DESK, SM.	10
999119000	POWER STRIP/SURGE PROTECTOR (6 ft Cord)	12
999135000	TAPE, DUCT, GREY	8
999000048	BROOM, SWEEP, STRAW	1
999162000	Easel (6')	1
999100904	ROPE, 1/4" MANILLA 100 FT	6
999000064	EXTENSION CORD, 50', 16 GA	1
999000065	EXTENSION CORD, 100'	1
999000092	LINER, TRASH CAN 50 GAL	1
999100707	Office Kit	1
999000003	Cart, Garden	1
999118000	BARREL, TRASH 40 GAL	1

999100265	Partition 6'2" x 8'	16
999101615	Telephone Pole	3
999101344	TABLE, 6 FT., FOLDING	12
999101251	36" HDTV Outdoor	4
999101399	DVD Player	2

Demonstration Tent

Foxhunting and Support Tent

SKU #	Item Description	Quantity	
RENTAL - TENT	Tent, Rental, 20' x 20', White	1	1
999100265	Partition Wood 6'2"x 8'	3	3
999118000	Can Trash 45gal Wheeled	1	1
999000048	Broom Sweep Straw	1	1
999000090	Pan Dust	1	1
999000092	Liner Trash 50gal	1	1
RENTAL - FOLDING CHAIRS	CHAIR, FOLDING	20	20
999119000	Strip Power	6	6
999101344	Table Folding 6'	6	6
999000003	Cart Garden	1	1
999135000	Tape Duct Gray	8	8
999000080	Tape Insulated Electrical Blk	4	4
999100411	Knife Utility 5 Blade	2	2
999000097	Ladder Step Alum 8'	1	1
999000065	Cord Extension Outdoor 100' 16 gauge	1	1
999000064	Cord Extension Outdoor 50' 16 gauge	4	4
IDG - WORKSTATION	Computer for firmware uploads, software support, foxhunt training	3	3
999000003	Cart Garden	1	1
RENTAL - T TANK HYDROGEN	Tank of Hydrogen for Balloon (T Tank)	3	0
999101486	Balloon Hi Alt Weather 600g	4	0
999101487	Punches Control 10pk	2	10
999101488	Marker Control	1	1
999100656	Compass BSA Silva Polaris	10	10
999101251	TV 42" Flat Screen	2	2
999103905	Kit Office	1	1
RENTAL	Direction Finding Receivers 80 meters	20	0
RENTAL	Tank of Helium -- 80 cubic foot tank of Industrial Grade Helium	1	1

Radio Merit Badge Tent #1

SKU #	Item Description	Quantity
999101403	TENT, RENTAL, 20' X 20', WHITE	1
999101175	CHAIR, FOLDING	28
999101101	COMPUTER, LAPTOP	2
999000090	DUST PAN	1
999000048	BROOM, SWEEP, STRAW	1
999157000	DRY ERASE BOARDS (24" x 36")	1
999159000	EASEL PAD	10
999162000	Easel (6')	4
999000092	LINER, TRASH CAN 50 GAL	1
999100707	Office Kit	1
999118000	BARREL, TRASH 40 GAL	1
999100265	Partition 6'2" x 8'	3
	Partition Stand	6
999101251	36" HDTV Outdoor	2
999101344	TABLE, 6 FT., FOLDING	8

Radio Merit Badge Tent #2

SKU #	Item Description	Quantity
999101101	COMPUTER, LAPTOP	2
999101175	CHAIR, FOLDING	28
999101403	TENT, RENTAL, 20' X 20', WHITE	1
999000090	DUST PAN	1
999000048	BROOM, SWEEP, STRAW	1
999157000	DRY ERASE BOARDS (24" x 36")	1
999159000	EASEL PAD	10
999162000	Easel (6')	4
999000092	LINER, TRASH CAN 50 GAL	1
999100707	Office Kit	1
999118000	BARREL, TRASH 40 GAL	1
999100265	Partition 6'2" x 8'	3
	Partition Stands	6
999101251	36" HDTV Outdoor	2
999101344	TABLE, 6 FT., FOLDING	8

Inventory K2BSA Materials Stored in Charlotte

Rotator Cable

	Connector 1	Connector 2	Length
			Feet
#1	Odd	Bare	110
#2	Round (F)	RECT (M)	102
#3	Bare	Bare	67
#4	Bare	Bare	64
#5	Bare	Bare	70
#6	RECT (F)	RECT (M)	202
#7	RECT (F)	RECT (M)	143
#8	RECT (F)	RECT (M)	67

Coax Cable			
TYPE	Connector 1	Connector 2	Length
213	PL-259 (M)	N (M)	40
8237	PL-259 (M)	PL-259 (M)	180
8237	PL-259 (M)	PL-259 (M)	20
8237	PL-259 (M)	PL-259 (M)	40
9913	PL-259 (M)	PL-259 (M)	30
8237	PL-259 (M)	PL-259 (M)	113
8237	PL-259 (M)	PL-259 (M)	200
9913	PL-259 (M)	PL-259 (M)	50
9913	PL-259 (M)	PL-259 (M)	38
213	PL-259 (M)	PL-259 (M)	200
9913	PL-259 (M)	PL-259 (M)	100
8237	PL-259 (M)	PL-259 (M)	100
8237	PL-259 (M)	PL-259 (M)	30
9913	PL-259 (M)	PL-259 (M)	50
9913	PL-259 (M)	PL-259 (M)	12
213	PL-259 (M)	PL-259 (M)	6
9913	PL-259 (M)	PL-259 (M)	20
9913	PL-259 (M)	PL-259 (M)	15
9913	PL-259 (M)	PL-259 (M)	140
9913	PL-259 (M)	PL-259 (M)	48
PATCH panel SO-239 (8) BNC (1)			

3 white boards approx 2' x 3'
1 cork board approx 2' x3'
1 white board 18" x30"
2 message boards 2' x3' for stick in letters (no letters)
4 desk lamps
14 plastic tarps suitable for covering radiops

1 roll 10' x 100 ' 4 mil contractor plastic (almost a full roll
4 steel masts varying lengths 3-4 feet
5 Home made mounts w/bolts for wooden utility poles
1 box of assorted ropes
1 3 gallon Igloo water cooler
1 5 gallon Igloo water cooler

Appendix J – Balloon Tracking, APRS, and DTMF

Early draft thoughts from Keith Kaiser, WA0TJT, on balloon tracking, the use of APRS, and DTMF.

I wanted to pass something over all of you regarding the balloon tracking and APRS program at the Jamboree next summer. As you know the balloon is being designed to be what we in the ARHAB community call a "floater". This means it will rise to an altitude of about 48,000 feet and then following the wind currents, hopefully around the world a few times. The GPS/computer aboard will be responsible for shifting the APRS frequencies based on its location around the globe. The APRS frequencies in the U.S. are 144.390MHz but change several times as the ballon travels. Doing this assures the location, altitude, speed and more should be visible to us on http://aprs.fi/k2bsa-11 for most of its voyage, save its ocean crossings.

All of this is going to be available for us to show the Scouts on a large monitor or TV that I hope we can arrange for. In my minds eye I see it in the entry area, so that if the Scouts want to stop by and see the balloons current location it would just take them a minute to do so. We could also set up an alternating video of its launch. I'll set up a Raspberry Pi to be the brains of this part of the operation. We don't want to waist an entire PC for this simple project. But the Pi will have other responsibilities too. On of these will be an APRS network for the camp.

Over the past few years I've been working with a program called Dire Wolf, it is a software based TNC. We have used it for almost three years now as an integral part of our annual October SET exercise. With the help of the author we have developed a system of using APRStt that I think will be a fun thing to work and play with at the Jamboree. For the staff and for those Scouts who bring their own HTs.

APRStt stands for APRS via touch tone. If you own a Kenwood D7, D72, D74 or one of the Yaesu VX-8R radios then putting yourself on the map with APRS is a very simple thing to do. But if you are like so many others where your primary HT is a Baofeng UV-5R that becomes very difficult. Enter APRStt.

APRStt was created by Bob Bruninga (WB4ABR) some years ago. The problem was it required that your HT have the ability to store a DTMF tone sequence in a memory location. High end HT's can do this, the Baofeng's and similar radios can not. The Baofeng's have a workable DTMF keypad but not the ability to store the long sequences needed to make Bob's (original) vision of APRStt practicable.

This is where Dire Wolf comes in. The author and I were able to design a simple short cut for making APRStt possible without need of a special DTMF memory in your HT. To do this in my ARES community, which covers two counties here in the Kansas City area I started by assigning each Amateur a two digit "tt" number (my name), for example my tt number is 13. The Dire Wolf system has the ability to store 100* location short cuts. So by assigning each member a number and the same number to represent one of these short cuts, a location

can be plotted with three DTMF tones. I'll get into why three in a minute. In our case our entire staff of 55-60 will each be assigned a tt number (I've already done this in fact), in addition I will assign 40 locations around the Jamboree area as short cuts. Now by using only 5 DTMF tones we have the ability for any person to be located at any of the the 100 locations. If for example I found myself at the North Parking Lot, I could plot myself automatically on the APRS.fi maps or YAAC maps by simply pressing 1389#. The 13 is me remember, the 89 in this case is the tt number assignment I gave for the North Parking Lot and the pound sign (#) tells Dire Wolf you are done making your entry. Think of it as a period. Dire Wolf also takes care of i-Gating the data to the APRS-IS, so it instantly becomes available for anyone, anyplace who can access APRS.fi. The "three" tones 13# will place my callsign in my default location whatever we decide that to be, the K2BSA station I suspect. Each of us will have our own tt number and default location, most at K2BSA HQ, some back at staff camp.

OK so the third thing I want to talk about briefly (too late) is a new Net-Control program we developed here in the KC area. It works hand in hand with the APRStt idea I presented above. This program starts with a database of primary calls, in this case all the staff calls. On check-in to our nets using either the full callsign, a tactical callsign, or the first name of the person checking in, a hint is displayed that can be clicked or ignored to allow fast check-in to the net. It's one of those things you have to see… just wait.

I've configured this net control program for our use at the Jamboree. It takes about 1 minute to learn how to use and it is a full featured program, with editable fields, sortable columns, reports, maps and all kinds of other goodies. It also keeps a log of all nets its used for including times on, times off.. etc. This is an internet based program, however I've loaded it on to a Raspberry Pi, in fact the same one that is used for both of the other activities I've been going on and on about.

In short one Raspberry Pi (think S.T.E.M.) will control all of the above… and best of all I'll provide it and its programming for this use. To see how the Net-Control program works I've set it up for all of you to look at, play with, create some test nets, try to break, evaluate. If you think something is needed, let me know I'll get it done.

The link is https://99.198.175.66/sbr/index.php, check out the "help" in the upper right corner. Then try it out.

Setting up the APRS network at the 2013 Jamboree came down to using hardware (KPC-3s) TNC's supplied by Bob Bruninga. It really never took off because it was just a bit too complicated. My proposed method is very simple. But It will require that I put out multiple Raspberry Pi's to monitor various locations around the Jamboree. One at Staff Camp, One at the K2BSA tent, one at the far end of the lake, one at or near the bridge… not sure where they will all go at this point. I have 5 or 6 or ?? places in mind. And yes I have other hurtles to overcome, while the Pi only needs 5 volts, it still does need 5 volts. So I'll have to either find available AC power or find a way to supply solar power. Solar seems the most likely, keep the power supply charged and all that.

We have used the APRStt quite extensively here in KC and it works great, we now use the Net-Control program for all our nets, people seem to like it a lot. The balloon will be launched on the second day of the event, and we have a backup should something go wrong with the first. I've been running all the above on one Raspberry Pi for 15 months now, with not so much as one failure… but i'll have a backup with anyway.

Appendix K – ARISS Contact

The K2BSA 2017 Jamboree ARISS (Amateur Radio on the International Space Station) Contact Proposal and the K2BSA ARA Letter of Commitment is available at the K2BSA 2017 Jamboree Dropbox Folder.
https://www.dropbox.com/sh/4pomc1apsjem89e/AACMjY7b3oMM2Nx-fPsm7-hGa?dl=0

The ARISS Equipment Plan is at
https://www.dropbox.com/sh/v5aox2xfama5imt/AABwPFtx_5HmaqDLrt5AcxFIa?dl=0

Appendix L – K2BSA Operation Hazard Analyses

The hazard analyses were completed at the request of the Jamboree Safety Service including Sven Rundman, Kenneth King, and Mark Dama. They are available at the K2BSA 2017 Jamboree Dropbox Folder.
https://www.dropbox.com/sh/568j4wr53e2rzf4/AACkX1ierLEPcpuDcz-YjExla?dl=0

Appendix M – Remote Control Operation

Icom America has supplied RS-BA1 remote control software that can be used to control the IC-7300, IC-9100, and IC-7600.

Here's a video on how to set up the IC-7300 for remote control operation.

https://youtu.be/TOpiSDzW3-g

Appendix N – Electrical and Internet Requirements

Demonstration Station — GW16

Electrical Requirements ---

[Six 20 amp outlet boxes (four plugs each) have been designated]

Adding up all the equipment across 10 stations looks like 80 amperes at 120 VAC

Internet Requirements ---

Internet connections required for 10 stations for spotting networks, logging, and instruction/demonstration.

Radio Merit Badge Tent 1 — GW21

Electrical Requirements ---

[Two 20 amp outlet boxes have been designated]

Adding up all the equipment looks like 20 amperes at 120 VAC

Internet Requirements ---

Internet connections required for 2 stations for spotting networks, logging, and instruction/demonstration.

Radio Merit Badge Tent 1 — GW20

Electrical Requirements ---

[Two 20 amp outlet boxes have been designated]

Adding up all the equipment above looks like 20 amperes at 120 VAC

Internet Requirements ---

Internet connections required for 2 stations for spotting networks, logging, and instruction/demonstration.

Foxhunting and Support Tent — GW19

Electrical Requirements ---

[Two 20 amp outlet boxes have been designated]

Adding up all the equipment looks like 20 amperes at 120 VAC

Internet Requirements ---

Internet connections required for 2 stations for spotting networks, logging, and instruction/demonstration.

Appendix O – Scout Suggested Operating Frequencies

HF SSB Voice

Band	WOSM Calling Frequencies	Suggested Band Segment for US Stations	Notes
80 m	3.940 & 3.690(1)	3.920 – 3.940 3.670 – 3.690 (1)	(1) Extra segment
40 m	7.190 & 7.090 (2)	7.180 – 7.200 7.270 – 7.290	(2) 7.090 not available in Region 2
20 m	14.290	14.270 – 14.290 14.320 – 14.340	
17 m	18.140	18.140 – 18.150	
15 m	21.360	21.360 – 21.400	
12 m	24.960	24.960 – 24.980	
10 m	28.390 (3)	28.350 – 28.400 (3)	(3) Includes Novices & Techs
6 m	50.160	50.160 – 50.200	

HF CW

Band	WOSM Calling Frequencies	Suggested Band Segment for US Stations	Notes
80 m	3.570 (3)	3.560 – 3.570 (3)	(3) Includes Novices & Techs
40 m	7.030 (3)	7.030 – 7.040 (3)	(3) Includes Novices & Techs
20 m	14.060	14.050 – 14.060	
17 m	18.080	18.070 – 18.080	
15 m	21.140 (3)	21.130 – 21.140 (3)	(3) Includes Novices & Techs
12 m	24.910	24.900 – 24.910	
10 m	28.180 (3)	28.170 – 28.180 (3)	(3) Includes Novices & Techs

6 m	50.160	50.150 – 50.160

HF PSK-31

http://bpsk31.com

Call CQ JOTA. The chart below shows the commonly used frequencies for PSK-31.

Band	Frequency	Notes
80 m	3.580	
40 m	7.080 (4)	(4) Region 2 (USA). 7.040 to 7.060 for Regions 1 & 3
30 m	10.142	
20 m	14.070 (5)	(5) Most activity for JOTA will be on 20 m
17 m	18.100	
15 m	21.080 (6)	(6) Most activity can be found at 21.070
12 m	24.920	
10 m	28.120	

2 Meter FM Simplex

147.450, 147.480, 147.510, 147.540* * Use 147.540 as Calling Channel. Always listen first to avoid interfering with another QSO or auxiliary or control link. Avoid 146.520, the National FM Simplex Calling Frequency, as well as 146.550, which is commonly used by mobiles and RVers.

70 CM FM Simplex

446.000*, 445.950, 446.050, 446.100, 446.150 * Use 446.000 as Calling Channel. Always listen first to avoid interfering with another QSO or auxiliary or control link.

D-STAR

http://www.dstarinfo.com

REF033A has been allocated as a full-time JOTA/Radio Scouting D-STAR Reflector. After contact is established, stations should disconnect from REF033A and connect to one or other repeater or migrate to an unused Reflector.

SIMPLEX Channels: 145.670*, 145.640, 145.610, 438.010. * 145.670 and 438.010 are commonly used as the National D-STAR Simplex Channels and should be used only as Calling Channels for JOTA. Always listen first to avoid interfering with another QSO.

DMR

http://www.dmr-marc.net

All wide area talkgroups are permitted for use for JOTA for establishing contacts. After contact is established, stations should utilize as few resources as possible. For international, national, and regional QSO's, stations should move their transmissions to one of the DMR-MARC UA talkgroups or to the DCI TAC-310 talkgroup.

For intrastate contacts, stations may use their area's statewide talkgroup (if applicable). The use of your repeater's local talkgroup (if applicable) is always permitted. A full list of repeaters and their available talkgroups can be found at http://www.dmr-marc.net/repeaters.html .

SIMPLEX Channels: 441.0000*, 446.5000, 446.0750, 433.4500, 145.7900*, 145.5100. All simplex frequencies operate on time-slot 1 and use color code 1. (*are commonly used as the National DMR Simplex Channels and should be used only as Calling Channels for JOTA. Always listen first to avoid interfering with another QSO.)

DMR-BRANDMEISTER

The 907 Talk Group has been established so youth can talk worldwide with each other under the correct supervision as outlined in each country's amateur radio rules for Digital Networks and letting non Amateurs use your equipment on air. (Each Country does differ so do read your rules). The Talk Group is for Scouting, Girl Guides, Youth Groups, Schools and related youth activities.

BrandMeister DMR has set up a World Wide Talk group called 907 JOTA. TG 907 & Reflector 4907 (Open 365 days a year) 907 is only one talk group. Under your Amateur License you can use all Talk groups on BrandMeister. You might wish to talk to regions/countries away from 907.

What you will need to access TG 907 on Brandmeister-DMR: You will need a DMR radio. 907 added to you radio as a channel 907 or assess via reflector 4907. You will also need a Repeater or DV device linked to the Brandmeister network

Ham radio rules apply for making iniDal contact. It's a good idea to establish contact and move your QSO off to another Talk Group. If TG 907 isn't busy, it's OK to stay there.

The two links below cover all Talk Groups & Reflectors world wide.

Talk Groups https://brandmeister.network/?page=talkgroups

Reflectors http://registry.dstar.su/dmr/reflector.db

Facebook Group — BrandMeister
907 https://www.facebook.com/groups/1644270179235342/

* Please note that currently three unique DMR systems exist world-wide: DMR+, DMR-MARC and Brandmeister.

IRLP

http://irlp.net

http://www.irlptopics.net

Use Topic Channel Node 9091 as a Common Meeting Place or Calling Channel. After contact, disconnect from 9091 and one station should connect to another's local node.

EchoLink

http://www.echolink.org

Software or apps available for Windows, Mac, iPhone/iPad, and Android. Dedicated Conference Node *JOTA-365* (node 480809). When contact is made on a Conference Node, it is recommended the two parties establish direct contact with each other to free up the Conference Node.

APRS

144.39

http://aprs.org

http://aprs.org/cqsrvr.html

http://www.aprs-is.net/CQSrvr.aspx

CQSRVR: CQ JOTA

CQSRVR: CQ SCOUTS (other times of the year)