WV8BSA

Amateur Radio Summit Repeaters

2019 Edition

Repeater Coverage Map

UHF Amateur Radio Talk-In Coverage with low-power mobile unit
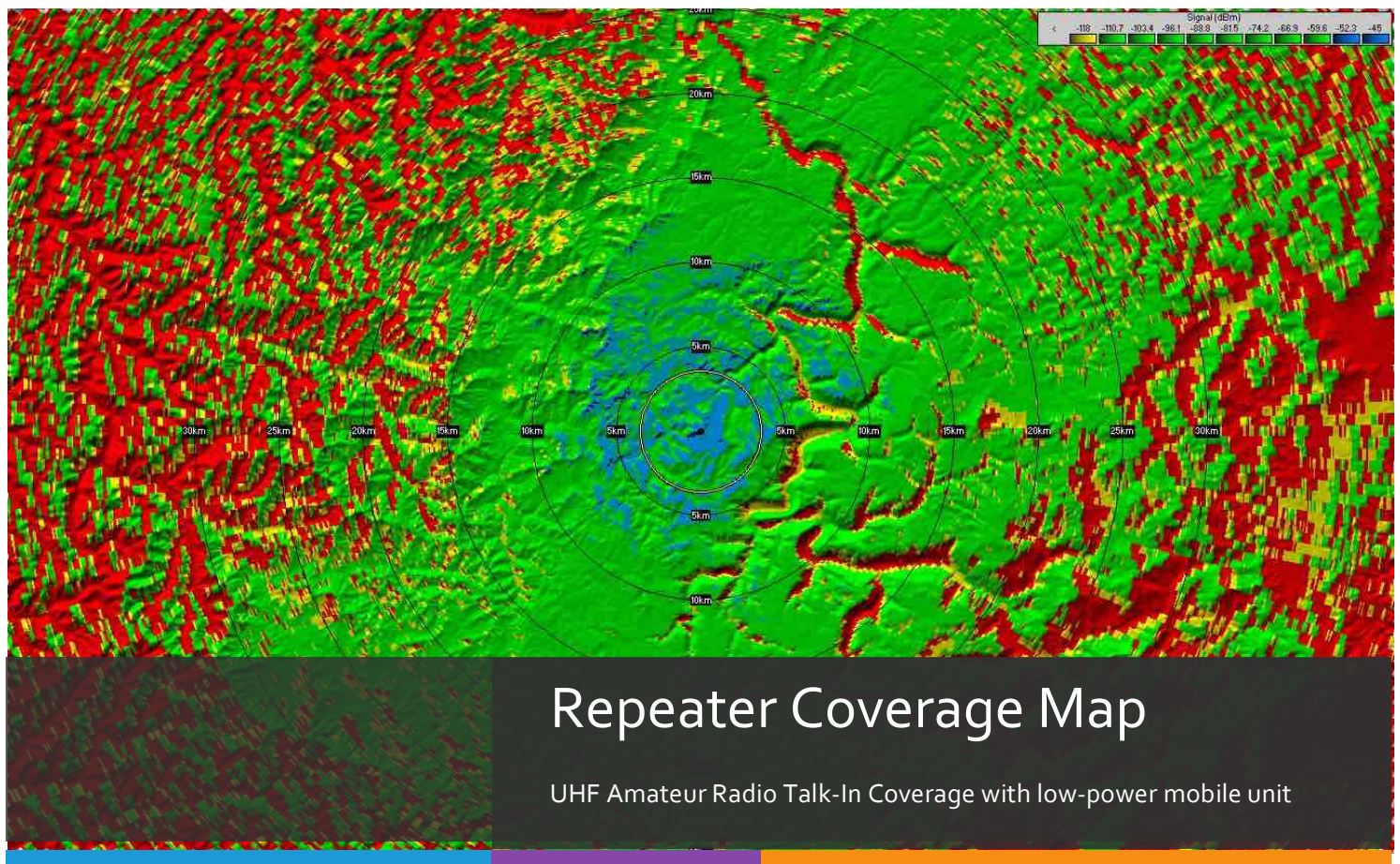
Icom America installed three amateur radio repeaters in June 2013 at the Summit Bechtel Scout Reserve to support all Scouting activities through at least 2023.

The purpose of this document is to record all the details concerning the three amateur radio repeaters that were installed at the Summit Bechtel Scout Reserve in June 2013. This, in turn, will serve to guide the operation of the repeaters over the duration of the sponsorship agreement between the Boy Scouts of America and Icom America as well as serve as the foundation for sponsorship renewal options currently extending to 2023.

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WV8BSA Repeater Equipment Rack

Three commercial grade repeater systems are installed at the Rock Borrow location at the Summit Bechtel Scout Reserve.

Any licensed amateur radio operator with suitable equipment can access the repeaters extending their communication reach throughout the property and into the local communities. This supports day-to-day and emergency communications.

Icom America sponsorship of BSA Radio Scouting initiatives began in May 2012 with a formal press announcement at the world's largest amateur radio convention, Hamvention, in Dayton, Ohio

Icom Agreement Overview

The term of the Icom America sponsorship agreement is from May 2012 and with renewals currently extending to 2023. The agreement covers ten complete amateur radio stations for loan to Scout councils in support of special events, Radio merit badge workshops, Jamboree on the Air, and longer term development loans expected to support STEM initiatives and provide time for councils to raise funds to purchase permanent systems. The value of these ten loan stations exceeds $30,000.

The sponsorship agreement also covered all transceivers and associated equipment in support of the K2BSA Amateur Radio Operations at the 2013, 2017, and 2021 National Scout Jamborees as well as the 2019 World Scout Jamboree hosted by North America. The value of these Jamboree systems exceeds $40,000.

The focus of this document is the installation and ongoing operation of three amateur radio repeaters at the Summit in West Virginia. These systems consist of one VHF FM repeater, one UHF FM repeater, and one UHF D-Star repeater. The value of these three repeater systems, including their installation and on-going support, exceeds $60,000.

In total, the value to the Boy Scouts of America of the Icom sponsorship easily exceeds $130,000.

The WV8BSA repeaters support all Scouting activities at the Summit and the local community. This includes not only day-to-day communication in support of Scouting events but also emergency communication.

Repeater System Details

This section provides a summary of the key details around the repeater systems to insure that all aspects are recorded in one place to support continued operation, necessary troubleshooting, and to support upgrades in the future. Its further benefit is to extend the life of the systems and the BSA—Icom relationship beyond the tenure of the current individuals involved in managing the relationship and supporting the repeater systems.

Extensive details are provided in the appendices.

Equipment Listing

A detailed document in the appendices provides a complete equipment listing with a summary table provided nearby with the key elements.

This installation has been completed to exacting commercial grade standards. This includes high-grade radio frequency systems including transmitters, receivers, low-loss coaxial cables, and antennas. It further includes extensive control systems, including remote control connections allowing qualified technicians and engineers to make adjustments at a distance ensuring flawless operations during Summit events.

The control systems also include extensive methods of communicating via the Internet with the D-Star and Echolink networks. These networks are operated by the amateur radio community and require an amateur radio license before access is granted. They offer communication across the country and around the world via hand-held walkie-talkies from Scouts at The Summit via access to the WV8BSA Repeater systems.

For example, I personally communicated on the first day of the 2013 Jamboree with a station at Gilwell Park in England via a hand-held walkie-talkie that had radio frequency contact with the repeater and then in turn communicated via the Internet to the station in England. Thus, communication between Scouting's newest facility and one of its oldest!

This is a superb method of engaging Scouts and others across the country and around the world with Scouting activities at The Summit. It further makes use of some of the most advanced technology in communication, better preparing Scouting youth for the future as well as meeting them where they reside — with advanced technology every moment of their day.

Installation Summary

Icom America specified the system in 2012 and in early 2013 built and tested the entire system at their facilities. This included connecting the Echolink and D-Star nodes with the Internet.

After extensive coordination with the team installing the commercial two-way communication system, Scott Bigger from Icom America installed all the equipment at

Repeater Equipment
IAS 100DV 136-174 MHz Base Station Repeater
IAS 100DU 400-470 MHz Base Station Repeater
ID RP-4000V-26 D-Star 70cm Repeater
ID RP-2C-06P D-Star Repeater Controller
TPL PA6 75 to 125 Watt Amplifier
TEL TPRD 1556 Notch Duplexer 6 Cavity
IAS DVN 4522L UHF Duplexer 4 Cavity (Qty 2)
Dell Inspiron 15R Lap Top Computer (Qty 3)
Equipment Power Supplies
Equipment Racks
System Network Controllers, etc.
Antennas and Coaxial Cable

The WV8BSA repeaters provide local communication but also have Internet linked systems (D-Star and Echolink) that allow communication from across the country and around the world to Summit participants.

the Rock Borrow site at The Summit. This involved transporting the equipment from the distribution center, installing it in the building, and working with a local crew to get the antennas installed on the tower and the coaxial cable pulled from the building up the tower to the antennas. A full tower diagram showing antenna placement is included in the appendices.

Scott also worked with BSA Information Delivery Group staff members to configure the network settings shown below and in more detail in the appendices.

BSA Network System layout 5-22-2013
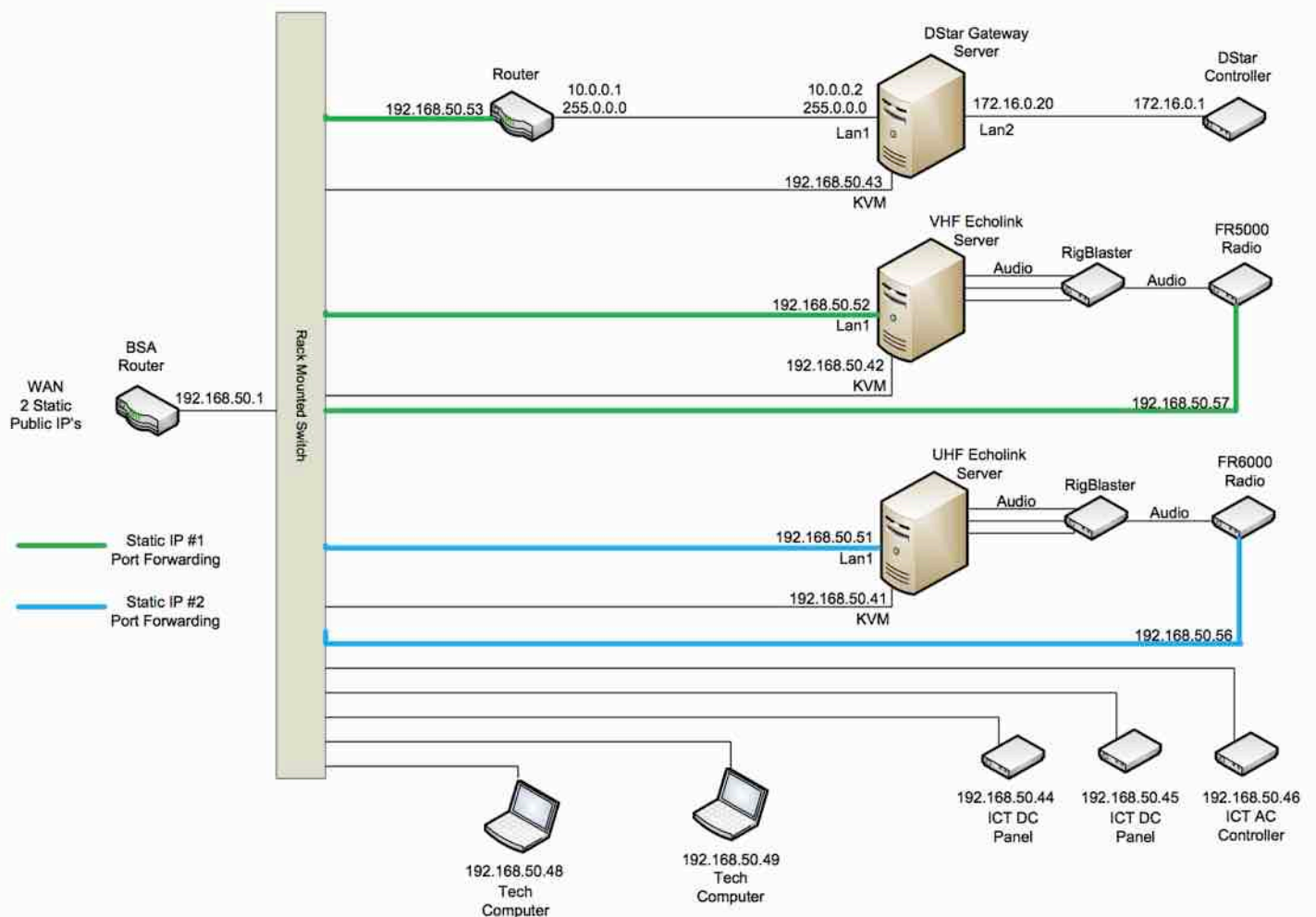
Frequency Authorization

The FCC Amateur Radio Service is generally self-policing within the bands authorized for use. However, amateur radio repeater installations are on fixed frequencies and due to their 24/7 operation their input and output frequencies need to be carefully coordinated to ensure that the risk of interference between nearby repeaters is avoided. To accomplish this task, the amateur radio community has established repeater coordination organizations. The state of West Virginia is covered by the Southeastern Repeater Association.

In late 2011, the K2BSA Amateur Radio Association submitted applications for the three repeaters sought for The Summit. Fortunately, one VHF frequency pair was made available as all others were already in service. At the same time, two UHF frequency pairs were assigned to The Summit.

Repeater	Output Frequency	Offset	Tone
2 m VHF FM	146.700 MHz	-600 kHz	123.0 Hz
70 cm UHF FM	444.025 MHz	+5 MHz	123.0 Hz
70 cm UHF D-Star	441.8125 MHz	+5 MHz	N/A

You can see the listing of the assigned frequency pairs in the nearby table. The offset column indicates the frequency offset from the specified output frequency to the input frequency.

Summit Repeater Association

While there are systems in place for remote control operation, you really need a local group to monitor and conduct required maintenance on the repeater systems.

For this reason the Summit Repeater Association was formed in March 2013. An attorney on the staff of the

K2BSA and WV8BSA amateur radio operations had a significant impact on the 2013 Jamboree at the Summit. Thanks Icom America and all our sponsors, volunteers, and everyone who helped.

K2BSA Jamboree Operation, Rick Clem, W0IS, drafted the articles and by-laws. Charles Hardy, WV8CH (SK), and Jane Hardy, WV8JH, stepped forward to lead the association. The list of charter members is shown in the attached appendices. Also provided is the association articles and by-laws.

On May 7, 2013, the FCC issued the call sign WV8BSA to the Summit Repeater Association. In 2016 more members were added and I was elected president. Chris Hatcher, KC8AFH, is now the trustee.

Concluding Thoughts

A great deal has been accomplished not only in setting up the WV8BSA repeater systems but also in providing a superb amateur radio Jamboree operation. Icom America has also put in place a high-impact year-round amateur radio loan station program that started more than a year ahead of the Jamboree and continues to this day. This relationship has been a clear winner for amateur radio within the Boy Scouts of America.

Our sincere hope is that with this document outlining the history and key aspects of the WV8BSA repeater operation along with the local Summit Repeater Association that has been established to continue to support the repeater systems, that the repeater systems will be in good hands for future support to Scouting events and the local community.

We also note the continued support of the K2BSA Amateur Radio Association and its members and dedicated Jamboree staff over many years. They stand ready to provide support and resources as necessary.

Given all this support, it is our sincere hope that amateur radio will continue to grow at The Summit and across the nation.

Jim Wilson, K5ND
President K2BSA Amateur Radio Association
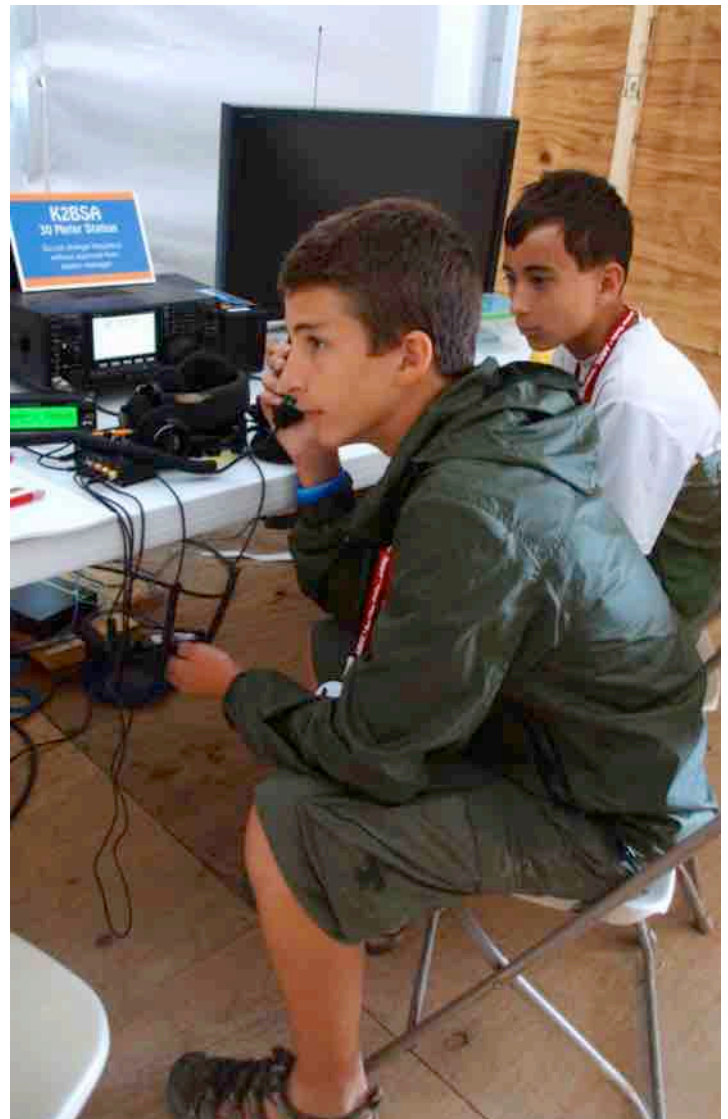
Amateur Radio and Scouting

Radio Scouting, the combination of amateur radio and Scouting, leading the way since the 1918 introduction of the Wireless/Radio Merit Badge in providing the science, technology, fun, and magic of amateur radio to Scouts.

The Summit and the WV8BSA Repeater Systems are a fabulous way to continue this effort.

Appendices

Detailed Repeater Equipment Listing

Antenna mounts and 8-day installation trip not shown.

ITEM #	DESCRIPTION	Qty	PRICE	EXT. PRICE
UHF DSTAR System				
ID RP-2C-06P	D-Star Repeater Controller	1	$ 1,692.00	$ 1,692.00
ID RP-4000V-26	D-Star 70 cm Repeater	1	$ 1,799.00	$ 1,799.00
TPL PA6 1FE RXRF-IA	15-25 W In- 75- 125 Out-100% Duty Cycle-440-512 Mhz-Auto Bypass- 12 Volt Operation	1	$ 1,829.00	$ 1,829.00
IAS DVN 4522L	UHF Pass Reject 3.0 Mhz Min Split Duplexer 4 Cavities 400-512 Mhz	1	$ 1,730.00	$ 1,730.00
ICT 180-12IRC	DC Dist. Pnl., Rmote Power Control For 12V/24V	1	$ 1,486.00	$ 1,486.00
FIP PR 45-4C	UHF 4 Cavity RX PreSlctr	1	$ 640.00	$ 640.00
ICT 22012 35N	1 Module Power Supply-Rack Mountable	1	$ 1,152.00	$ 1,152.00
PP IS-50NX-C2	General Coverage Flange Mount Polyphaser	1	$ 108.16	$ 108.16
SBW5201	RECEIVER AMPLIFIER 50-1980MHz	1	$ 640.00	$ 640.00
IAS Data Buss Cable	Data Buss Cable, with RJ-45 Connectors- Made to Length	2	$ 22.00	$ 44.00
IAS RF Jumper	Custom Cut Jumper- LMR-200 or 400 N Connectors	4	$ 83.00	$ 332.00
HMDDNRR63HDW	Welded Rack Mount 19" Wide 63" High	1	$ 561.00	$ 561.00
IAS RACK PACK	Crating for Racks (up to 72")	1	$ 287.00	$ 287.00
RSRP2 G2P	IDRP2 Gateway Software	1	$ 394.00	$ 394.00
IASPRASTST	Assembly & Testing	6	$ 192.00	$ 1,152.00
VG4065	406 - 450 5 dBi Voyager Antenna	1	$ 152.26	$ 152.26
LDF4-50A	1/2" Foam Heliax Cable	100	$ 5.00	$ 500.00
L4TNM-PSA	1/2" Air N Male Positive Stop AL4RPV and LDF4	3	$ 43.00	$ 129.00
L4TNF-PSA	1/2" N Female Positive Stop AL4RPV and LDF4	1	$ 43.00	$ 43.00
SG12-12B2U	Grounding Kit 1/2"	1	$ 157.00	$ 157.00
Dell Inspiron 14R	Lap Top	1	$ 1,905.00	$ 1,905.00
UHF/VHF System				
IAS 100DV	136-174Mhz Base Station Repeater	1	$ 5,050.00	$ 5,050.00
UCFR5000 01	IDAS Trunking- Networking Card	1	$ 500.00	$ 500.00
CFFR5000 02	IP Repeater Link Card	1	$ 65.00	$ 65.00
TEL TPRD 1556	400 Kc Min Sep Pass- Notch Duplexer 6 Cavity	1	$ 3,850.00	$ 3,850.00
FIP-PR-15-4H	VHF Four Cavity RX Pre-Selector- FR 3000-5000 and Voter Series 150-174 Mhz	1	$ 653.00	$ 653.00
ASAP FR 6000 Universal Plate	Internal Universal Assessory Mounting Plate	1	$ 26.00	$ 26.00
IAS 100DU 01	100W 400-470 Base Station Repeater	1	$ 5,050.00	$ 5,050.00
UCFR5000 01	IDAS Trunking- Networking Card	1	$ 500.00	$ 500.00
CFFR5000 02	IP Repeater Link Card	1	$ 65.00	$ 65.00
IAS DVN 4522L	UHF Pass Reject 3.0 Mhz Min Split Duplexer 4 Cavities 400-512 Mhz	1	$ 1,730.00	$ 1,730.00
FIP PR 45-4C	UHF 4 Cavity RX PreSlctr	1	$ 640.00	$ 640.00
ASAP FR 6000 Universal Plate	Internal Universal Assessory Mounting Plate	1	$ 26.00	$ 26.00
SBW5201	RECEIVER AMPLIFIER 50-1980MHz	1	$ 640.00	$ 640.00
ICT 180-12IRC	DC Dist. Pnl., Rmote Power Control For 12V/24V	1	$ 1,486.00	$ 1,486.00
SBW5201	RECEIVER AMPLIFIER 50-1980MHz	1	$ 640.00	$ 640.00
IAS Interface Cable	Multi-Application Interface Cable -	2	$ 64.00	$ 128.00
IAS RF Jumper	Custom Cut Jumper- LMR-200 or 400 N Connectors	4	$ 83.00	$ 332.00
TX-RX 80-05-06	25-175 MHz, 406-960 MHZ, Crossband Coupler	1	$ 778.00	$ 778.00
PP IS-50NX-C2	General Coverage Flange Mount Polyphaser	1	$ 108.16	$ 108.16
HMDDNRR63HDW	Welded Rack Mount 19" Wide 63" High	1	$ 561.00	$ 561.00
IAS RACK PACK	Crating for Racks (up to 72")	1	$ 287.00	$ 287.00
IASPRASTST	Assembly & Testing	12	$ 192.00	$ 2,304.00
GP-3	Dual Band 144/440MH, fiberglass Antenna	1	$ 229.00	$ 229.00
LDF4-50A	1/2" Foam Heliax Cable	100	$ 5.00	$ 500.00
L4TNM-PSA	1/2" Air N Male Positive Stop AL4RPV and LDF4	3	$ 43.00	$ 129.00
RFU-502-H1	UHF Male For LDF4-50A	1	$ 83.00	$ 83.00
SG12-12B2U	Grounding Kit 1/2"	1	$ 157.00	$ 157.00
Rigblaster Pro	Echolink Interface	2	$ 762.00	$ 1,524.00
Dell Inspiron 14R	Laptop	2	$ 1,905.00	$ 3,810.00

Summit Repeater Network Configuration

192.168.50.1	Router	Default Gateway		Subnet 255.255.255.0
192.168.50.40	Router	Inactive	Not connected	Reserved
192.168.50.41	KVM UHF	KVM1		Management
192.168.50.42	KVM VHF	KVM1		Management
192.168.50.43	KVM Dstar	KVM1		Management
192.168.50.44	DC Dist Panel (ICT)	DTSAR Rack		Management
192.168.50.45	DC Dist Panel (ICT)	Analog Rack		Management
192.168.50.46	AC Controller (ICT)	DTSAR Rack		Management
192.168.50.47	Open	Open		Open
192.168.50.48	Tech Computer			Management
192.168.50.49	Tech Computer			Management
192.168.50.50	Backup network	VPN	Not connected	Reserved
192.168.50.51	UHF Server	LAN1		
192.168.50.52	VHF Server	LAN1		
192.168.50.53	DSTAR Server	LAN1		possibly connected to a router for 10.0.0.1
192.168.50.54	DSTAR Server	LAN2	Link to controller	Will be changed to 172.16.0.20
192.168.50.55	DSTAR Controller		Link to server	Will be changed to 172.16.0.1
192.168.50.56	UHF FR6000			
192.168.50.57	VHF FR5000			
192.168.50.58	UHF Server	LAN2	Not connected	Reserved
192.168.50.59	VHF Server	LAN2	Not connected	Reserved

Summit Repeater Network Configuration, continued

Ports				
40000	UDP	DTAR Voice	192.168.50.53	Static Public #1
40001	TCP	DSTAR Data	192.168.50.53	Static Public #1
20001	UDP/TCP	DPLUS	192.168.50.53	Static Public #1
20002	UDP/TCP	DPLUS	192.168.50.53	Static Public #1
20003	UDP/TCP	DPLUS	192.168.50.53	Static Public #1
20004	UDP/TCP	DPLUS	192.168.50.53	Static Public #1
20005	UDP/TCP	IP Server Sync	192.168.50.53	Static Public #1
433	TCP	HTTPS	192.168.50.53	Static Public #1
2222	TCP (To Port 22)	SSH Access	192.168.50.53	Static Public #1
5198	UDP	Echolink VHF	192.168.50.52	Static Public #1
5199	UDP	Echolink VHF	192.168.50.52	Static Public #1
5200	TCP	Echolink VHF	192.168.50.52	Static Public #1
5198	UDP	Echolink UHF	192.168.50.51	Static Public #2
5199	UDP	Echolink UHF	192.168.50.51	Static Public #2
5200	TCP	Echolink UHF	192.168.50.51	Static Public #2
80	TCP	HTTP		
41020	TCP	ICOM VHF	192.168.50.56	Static Public #1
41040	TCP	ICOM VHF	192.168.50.56	Static Public #1
41300	UDP	ICOM VHF	192.168.50.56	Static Public #1
41310	UDP	ICOM VHF	192.168.50.56	Static Public #1
41000	TCP	ICOM VHF	192.168.50.56	Static Public #1
41200	TCP	ICOM VHF	192.168.50.56	Static Public #1
41220	UDP	ICOM VHF	192.168.50.56	Static Public #1
41020	TCP	ICOM UHF	192.168.50.57	Static Public #2
41040	TCP	ICOM UHF	192.168.50.57	Static Public #2
41300	UDP	ICOM UHF	192.168.50.57	Static Public #2
41310	UDP	ICOM UHF	192.168.50.57	Static Public #2
41000	TCP	ICOM UHF	192.168.50.57	Static Public #2
41200	TCP	ICOM UHF	192.168.50.57	Static Public #2
41220	UDP	ICOM UHF	192.168.50.57	Static Public #2
9393	UDP	ICT	VPN	Management
5120	TCP	KVM	VPN	Management
5123	TCP	KVM	VPN	Management
7578	TCP	KVM	VPN	Management
623	UDP/TCP	KVM	VPN	Management
161	UDP	KVM	VPN	Management

Summit Rock Borrow Tower Diagram and Antenna Placement
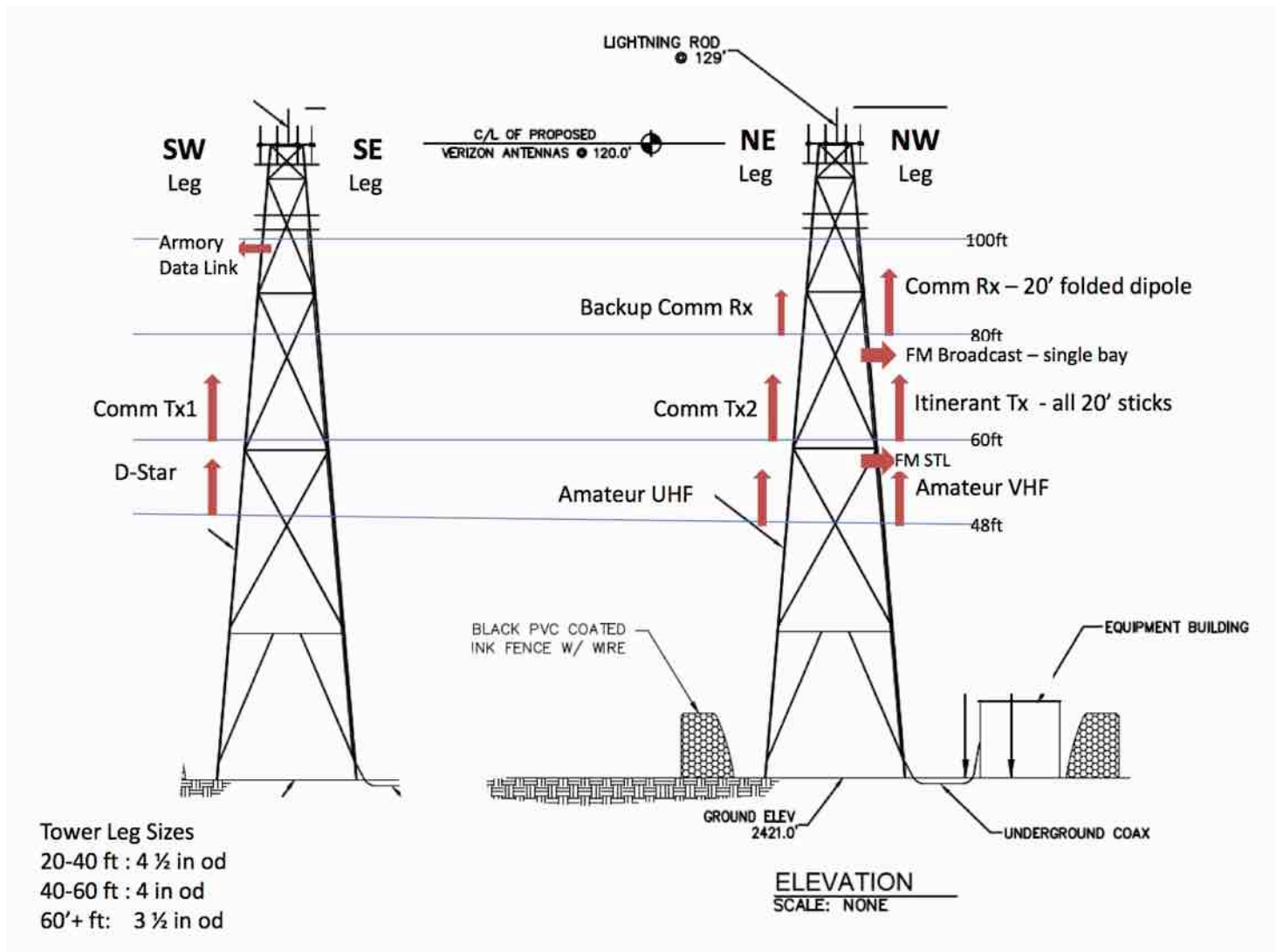
Summit Repeater Association Articles and Bylaws

Preamble:
We, the undersigned, wishing to secure for ourselves the pleasures and benefits of the association of persons commonly interested in amateur radio, do hereby constitute ourselves the Summit Repeater Association and enact these Articles of Association as our governing law. It shall be our purpose to provide for our membership and for those attending events at The Summit Bechtel Scout Reserve reliable VHF-UHF repeater communications.

Article 1 – Name and Organization
Section 1 – The association is an amateur radio club. The name of the association shall be the Summit Repeater Association, referred to herein as SRA. The association shall be an unincorporated nonprofit association.

Article 2 – Objective
Section 1 – The purpose or purposes for which the SRA is formed is to facilitate the exchange of information and general cooperation among members; promote radio knowledge, fraternalism and individual operating efficiency; further the exchange of information and cooperation between law enforcement and emergency preparedness personnel, lessening the burdens of government in providing much needed communications in times of emergency and or disaster; provide amateur radio communications for the Summit Bechtel Scout Reserve in support of their events and programs; as well as to be of service to the community at large, and to conduct club programs and activities so as to advance the general interest and welfare of amateur radio.

Article 3 – Membership
Section 1 – All persons sincerely interested in amateur radio VHF-UHF repeaters solely with a personal aim and without pecuniary interest shall be eligible for membership.

Article 4 – Officers
Section 1 - The officers of this association shall be President, Vice President, Secretary, Treasurer, and License Trustee. An individual can hold more than one office at a time, except for the offices of President and Vice President.
Section 2 - The officers of this association shall be elected for a term of two years by ballot of the members. The tenure of office for newly elected officers shall begin at the start of the calendar year.
Section 3 - Vacancies occurring between elections must be filled by special ballot at the next scheduled meeting following the announcement of the withdrawal or resignation.
Section 4 - Officers may be removed from office on motion by a three-fourths vote of the total membership.

Article 5 – Executive Committee
Section 1 - The Executive Committee shall consist of the following members: President, Vice President, Secretary, Treasurer, License Trustee, and the immediate Past President.
Section 2 - The Executive Committee shall be an advisory body and, in general, a planning body responsible for the coordination and administration of the association. It shall meet at least twice annually at the direction of the President to consider the business of the association, but its decisions shall be subject to the will of the association by a simple majority vote. Meetings of the Executive Committee can be held in person or via teleconference at the direction of the President.
Section 3 - The Executive Committee shall be empowered to pay normal monthly bills.

Article 6 – Duties of Officers
Section 1 - The president shall preside at all meetings of this Association, and conduct same according to the rules adopted. They shall enforce due observances of these Articles of Association and By-Laws; decide all questions of order; sign all official documents that are adopted by the association, and none other, and perform all customary duties pertaining to the office of President, and have power to appoint and dismiss committees.
Section 2 - The Vice President shall assume all the duties of the President in the absence of the latter.
Section 3 - The Secretary shall keep a record of the proceedings of all the meetings, keep a roll of members, submit applications for membership, carry on all correspondence, read all communications at each meeting, except when excused by action under the By-Laws. They shall at the expiration of their term of office turn over everything in their possession belonging to the association to their successor.
Section 4 - The Treasurer shall receive and receipt for all monies paid to the Association; they shall pay no bills without proper

authorization by the Association or its Executive committee. Semi-annually they shall submit an itemized statement of disbursements and receipts. They shall at the expiration of their term of office after audit by two Association members, turn over everything in their possession belonging to the Association to their successor.

Section 5 – The License Trustee shall hold the license for the association and ensure all FCC registrations are kept up-to-date. The License Trustee can also hold other offices within the association at the same time as serving at License Trustee.

Article 7 – Meetings

Section 1 - The By-Laws shall provide for regular and special meetings. At the meetings, 25% of the membership shall constitute a quorum for the transaction of business except where a percentage vote of the total membership is required as noted elsewhere in these Articles of Association and By-Laws. Meetings can be conducted in person or via teleconference at the option of the President.

Article 8 – Dues

Section 1 - The Summit Repeater Association shall be empowered to levy upon the general membership dues as provided in the By-Laws for the business of the organization within its object as set forth in the preamble thereof.

Section 2 - Non-payment of such dues after written notice thereof subject to thirty days grace shall be cause for expulsion, unless such expulsion be excepted by a majority of membership present.

Article 9 – Membership Assistance

Section 1 - The association through designated members or committees will provide technical assistance to members concerning equipment design and operation, to assist in frequency observance, clean signals, uniform practice and absence of spurious radiations from Association Repeater and member stations. The Association shall also maintain a program to foster and guide public relations in those channels favorable to amateur work.

Article 10 – Amendments

Section 1 – These Articles of Association or the By-Laws may be amended by a two-thirds majority of the Association members at a meeting, provided all members have been notified by e-mail of the intent to amend the Articles of Association and/or By-Laws at a specified meeting. Proposals for amendments shall be submitted in writing at a regular meeting and may not be voted on until the next regular meeting.

Article 11 – Rules

Section 1 - Robert's Rules of Order shall govern proceedings.

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Summit Repeater Association
By-Laws

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Section 1 - Secretary: It shall be the duty of the Secretary to keep the Articles of Association and By-Laws of the Summit Repeater Association and have same with them at every regular meeting. They shall cause all amendments, changes and additions to be noted thereon and shall permit same to be consulted by members upon request. They shall provide each new member with a copy of the Articles of Association and By-Laws.

Section 2 - Membership: Applications for membership shall be submitted via e-mail and each application must express the willingness of the applicant to abide by the Articles of Association and By-Laws and such rules as shall from time to time be promulgated by the Association. Applications shall be submitted with a sponsoring signature of a member in good standing to the secretary for processing and presentation to the membership for voting at the next regularly scheduled meeting. Two-thirds of the members shall provide the applicant's approval before they shall be considered elected to membership. Expulsion for reasons other than delinquency in dues may be accomplished by the direct recommendation of the Executive Committee and a two-thirds vote of the total membership.

Section 3 - Meetings: Regular meetings shall be held semi-annually as the President shall order. Special meetings may be called by the President. Notices shall be sent to all members informing them of the special meetings and the business to be transacted. Such notices shall be sent via e-mail so that they shall arrive at least twenty-four hours before the time therein set for the meeting. Only such business as is designated in the said notice shall be transacted at such special meetings.

Section 4 - Dues: The annual expenses of the Summit Repeater Association shall be equally divided for payment by its members,

payable as expenses are incurred, in accordance with the provisions of Article 8 of the Articles of Association. The Treasurer shall forward written e-mail notice to all members delinquent as of thirty days.

Section 5 - Committees: The President shall appoint the following committees: 1 - Interference; 2 - Publicity; 3 - Technical Assistance; 4 - Special Committee as required.

Section 6 - Nominations: At the second annual meeting of the year preceding officer term expiration, the President shall open nominations for the succeeding two-year term of office in the following order; President, Vice President, Secretary and Treasurer. Offices will be acted upon separately and closed before proceeding to the next. Nominations shall then be closed and vote taken in order of each office.

On this _____ Day of the Month of _____ in the year _____, the Charter members have here unto set their hands and seal.

Member _____

Member _____

Member _____

Member _____

The Summit Repeater Association Articles and By-Laws were signed on March 24, 2013 by:

Charles Hardy, WV8CH, (SK) President
Jane Hardy, WV8JH, Trustee
Buddy Coles, KD8QEA
Robert Kelly, WV8KFA
James Wilson, K5ND

The original FCC Club License was granted on April 3, 2013 with call sign KD8ULT.

The FCC Vanity Call Sign Club License was granted on May 7, 2013 as WV8BSA.

Current WV8BSA Repeater Association Members:

Ed Evans, WV8ED - Vice President
Chris Hatcher, KC8AFH - License Trustee
Robert Hinkle, KE8BRO
Robert Kelly, WV8KFA
Jim Wilson, K5ND - President

Summit Repeater Association FCC License

Major Updates to Repeater System

2017 —   Added APRS i-Gate

2019 —   Software Updates: Windows 10, latest D-Star G3 Software
                Replaced UHF Analog Repeater Power Amp
                Replaced Analog Repeater Antenna
                Replaced UHF D-Star Antenna
                Internet access via AT&T

WV8BSA Amateur Radio Summit Repeaters

Prepared by Jim Wilson, K5ND
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August 2019