

Report of the UHF / Microwave Band Plan Committee
ARRL Board of Directors
July, 2012

The UHF / Microwave Band Plan Committee, having completed its assigned work to the point of Board review and approval, is pleased to submit this report to the Board.

Background

At its July, 2011 meeting, the Board authorized the formation of a committee to review and update the ARRL's published band plans for the 33 cm, 23 cm, 13 cm and 9 cm Amateur bands. In August, President Craigie appointed the members of the Committee with Mr. Roderick as Chair. Two primary considerations drove the formation of the Committee:

- 1) One of the existing band plans is more than twenty-five years old. Another is void of practically any detail. All are in need of updating for technical and regulatory developments that have occurred since they were last published.
- 2) Updated, comprehensive band plans are part of the defense strategies suggested during Board discussions of the National Broadband Plan threat and were subsequently identified as an urgent priority in Section 6.1.6 of the Ad Hoc National Broadband Plan Committee in its January 2012 report to the Board.

Committee Activities

During the fall of 2011, members of the Committee developed outreach materials for use in gathering input from the Amateur Radio community. In November, the Committee used ARRL Web site, other Internet discussion group postings, and targeted e-mail solicitations to ask the Amateur Radio community for input as to current, planned and projected uses of the Amateur bands between 902 MHz and 3.5 GHz. After receiving, compiling and reviewing hundreds of comments and suggestions, members of the Committee began drafting plans for each of the bands under review. During the drafting phase, the Committee conducted extensive internal discussions through e-mails and conference calls. Top priority was placed on the 9 cm band because of its high risk under the National Broadband Plan, the clear inadequacy of the existing published plan for that band and the inclusion of a revised plan as a key element of the Ad Hoc Broadband Plan Committee's recommended defensive actions. Draft plans for the remaining bands followed, with each being announced on the ARRL Web site.

The draft 9 cm band plan was exposed for comment in March, 2012 with a comment period of just over one month. After taking the comments received into consideration, the Committee finalized that plan and submitted it to the Executive Committee with a request that it be put to an e-mail vote of the full Board. That vote resulted in approval of the new 9 cm band plan.

Public exposure of draft plans for 13 cm, 33 cm and 23 cm followed, and each resulted in the receipt of additional comments. In the case of the 33 cm plan, regional variations in band conditions and current practice noted by responders were so great that the Committee decided to modify the draft plan to address those concerns and to more explicitly recognize and allow for differing regional needs. Consequently, we released a revised 33 cm draft plan for comment and received only two additional comments.

Current Status

The Committee has prepared final band plans for 33 cm, 23 cm and 13 cm. Each plan has three components: a table, a set of accompanying notes and a graphic representation to aid in visualizing the plan. These plans are included to this report as Attachments A, B and C, respectively, for your reference. Attachment D contains the current band plans for comparison. Please note that the final layouts and coloring may vary from what is presented here. The Committee will be pleased to answer any questions you may have and intends to submit a motion for Board approval of these band plans during the July meeting.

Actions Upon Board Approval

We will ask that the ARRL in-house graphics team produce the final versions of the plans for publication. Our Committee members will review the final products for accuracy and consistency before releasing them for publication.

Our release of each approved band plan will include a reminder that the purpose of these band plans is to share information about how our bands are being used and to suggest compatible frequency ranges for various types of application. We recognize that local conditions or needs may necessitate deviations from a national band plan, and our published plan will make clear that regional frequency coordinating bodies may recommend alternatives for use in their respective regions.

Respectfully submitted,

UHF / Microwave Band Plan Committee

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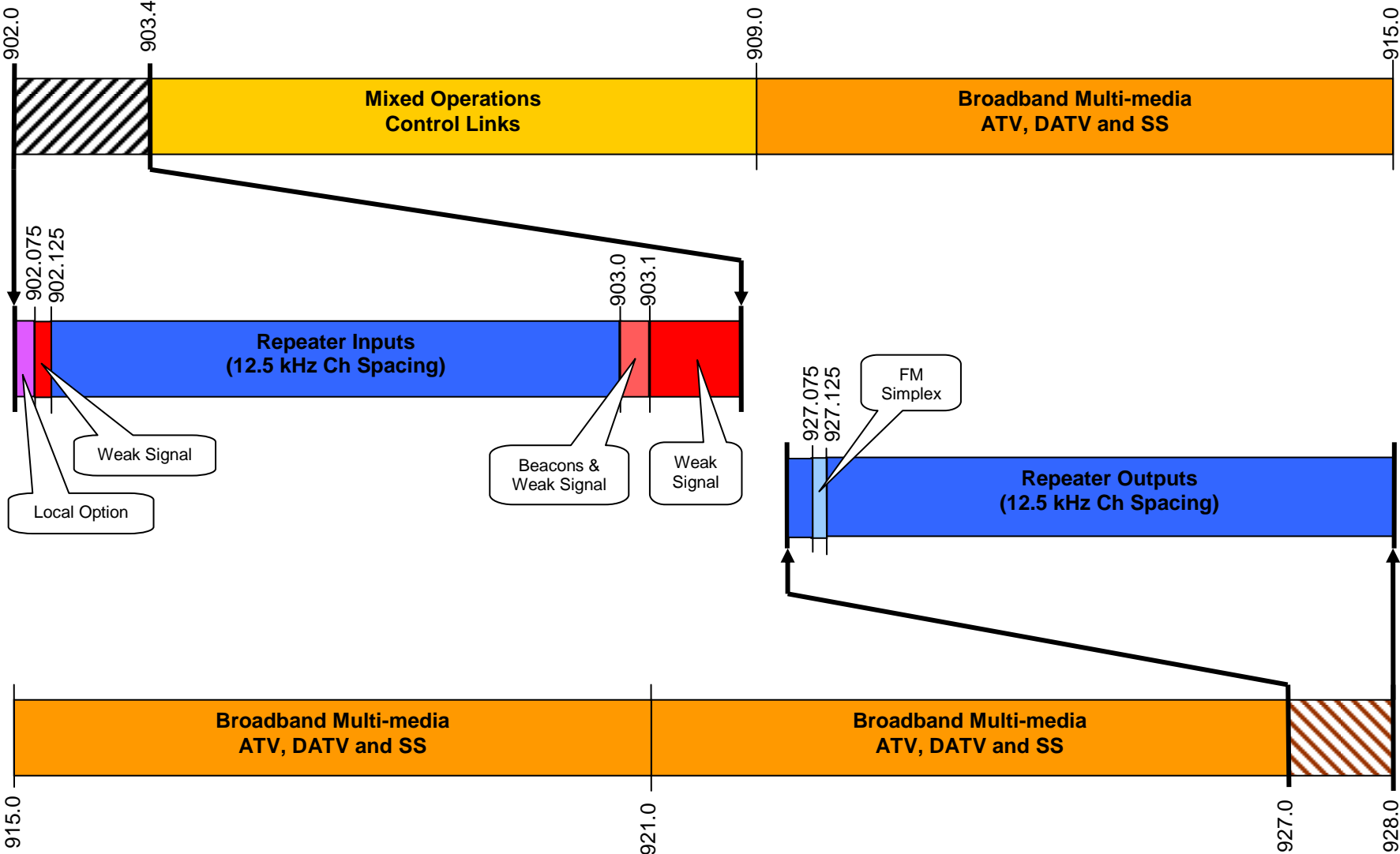
Proposed Band Plan for Amateur 33 cm Band (902 - 928 MHz)

Frequency Range		Mode	Functional Use	Comments
From	To			
902.000	902.075	FM / other including DV Or CW/SSB	Repeater inputs 25 MHz split paired with those in 927.000-927.075 or Weak signal	12.5 kHz channel spacing Note 2)
902.075	902.100	CW/SSB	Weak signal	
902.100		CW/SSB	Weak signal calling	Regional option
902.100	902.125	CW/SSB	Weak signal	
902.125	903.000	FM/other including DV	Repeater inputs 25 MHz split paired with those in 927.1250-928.0000	12.5 kHz channel spacing
903.000	903.100	CW/SSB	Beacons and weak signal	
903.100		CW/SSB	Weak signal calling	Regional option
903.100	903.400	CW/SSB	Weak signal	
903.400	909.000	Mixed modes	Mixed operations including control links	
909.000	915.000	Analog/ digital	Broadband multimedia including ATV, DATV and SS	Notes 3) 4)
915.000	921.000	Analog/ digital	Broadband multimedia including ATV, DATV and SS	Notes 3) 4)
921.000	927.000	Analog/ digital	Broadband multimedia including ATV, DATV and SS	Notes 3) 4)
927.000	927.075	FM / other including DV	Repeater outputs 25 MHz split paired with those in 902.0000-902.0750	12.5 kHz channel spacing
927.075	927.125	FM / other including DV	Simplex	
927.125	928.000	FM / other including DV	Repeater outputs 25 MHz split paired with those in 902.125-903.000	12.5 kHz channel spacing Notes 5) 6)

Notes to 33 cm Band Plan:

- 1) Significant regional variations in both current band utilization and the intensity and frequency distribution of noise sources preclude one plan that is suitable for all parts of the country. These variations will require many regional frequency coordinators to maintain band plans that differ in some respects from any national plan. As with all band plans, locally coordinated plans always take precedence over any general recommendations such as a national band plan.
- 2) May be used for either repeater inputs or weak-signal as regional needs dictate
- 3) Division into channels and/or separation of uses within these segments may be done regionally based on needs and usage, such as for 2 MHz-wide digital TV.
- 4) These segments may also be designated regionally to accommodate alternative repeater splits.
- 5) Simplex FM calling frequency 927.500 or regionally selected alternative.
- 6) Additional FM simplex frequencies may be designated regionally.

Proposed Band Plan for the Amateur 33 cm Band (902 – 928 MHz)

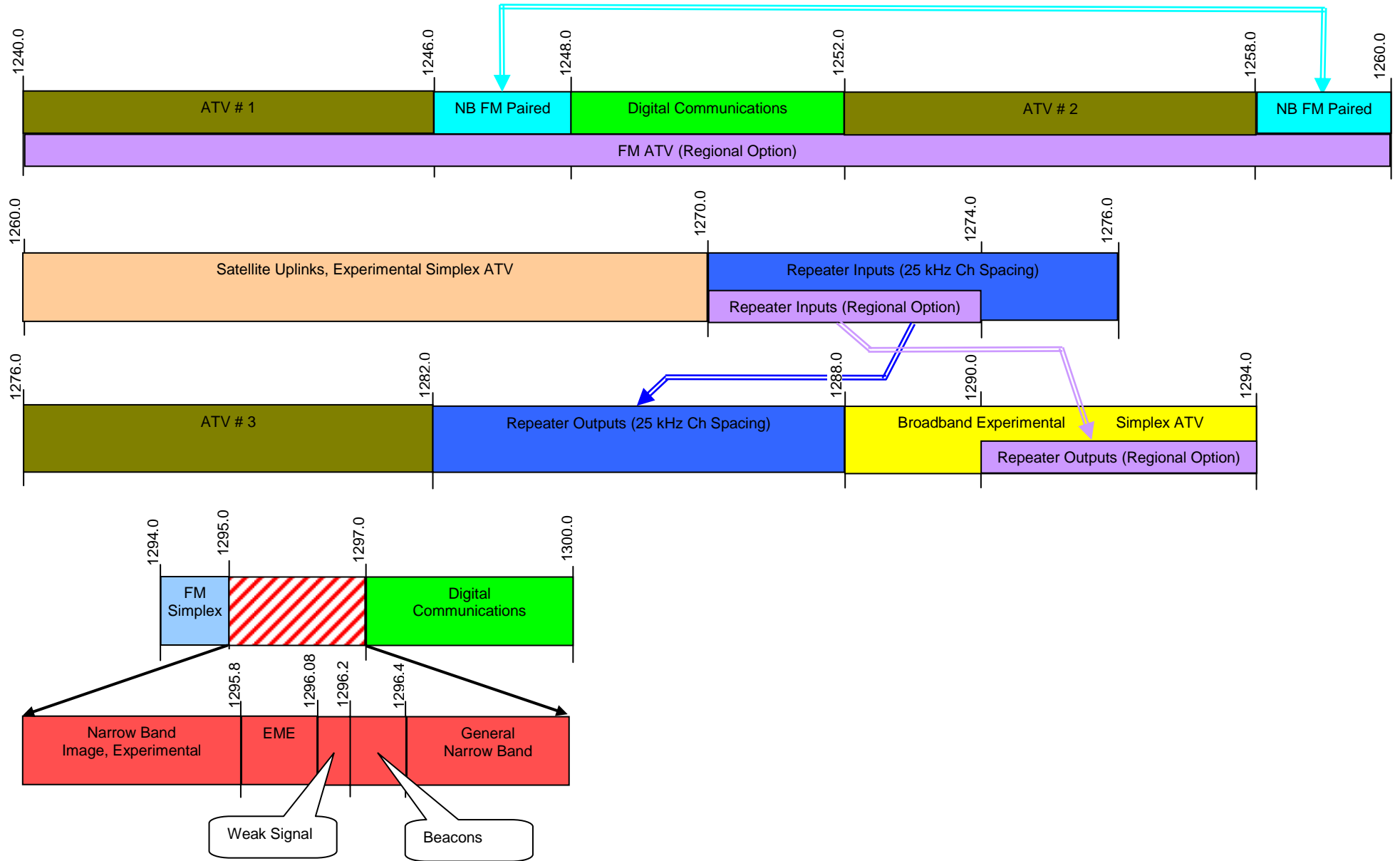


Proposed Band Plan for Amateur 23 cm Band (1240 - 1300 MHz)

Frequency Range		Suggested Emission Types	Functional Use
From	To		
1240.000	1246.000	ATV	ATV Channel #1
1246.000	1248.000	FM, digital	Point-to-point links paired with 1258.000-1260.000
1248.000	1252.000	Digital	
1252.000	1258.000	ATV	ATV Channel #2
1258.000	1260.000	FM, digital	Point-to-point links paired with 1246.000-1248.000
1240.000	1260.000	FM ATV	Regional option
1260.000	1270.000	Various	Satellite uplinks, Experimental, Simplex ATV
1270.000	1276.000	FM, digital	Repeater inputs, 25 kHz channel spacing, paired with 1282.000-1288.000
1270.000	1274.000	FM, digital	Repeater inputs, 25 kHz channel spacing, paired with 1290.000-1294.000 (Regional option)
1276.000	1282.000	ATV	ATV Channel #3
1282.000	1288.000	FM, digital	Repeater outputs, 25 kHz channel spacing, paired with 1270.000-1276.000
1288.000	1294.000	Various	Broadband Experimental, Simplex ATV
1290.000	1294.000	FM, digital	Repeater outputs, 25 kHz channel spacing, paired with 1270.000-1274.000 (Regional option)
1294.000	1295.000	FM	FM simplex
		FM	National FM simplex calling frequency 1294.500
1295.000	1297.000		Narrow Band Segment
1295.000	1295.800	Various	Narrow Band Image, Experimental
1295.800	1296.080	CW, SSB, digital	EME
1296.080	1296.200	CW, SSB	Weak Signal
		CW, SSB	CW, SSB calling frequency 1296.100
1296.200	1296.400	CW, digital	Beacons
1296.400	1297.000	Various	General Narrow Band
1297.000	1300.000	Digital	

Note: The need to avoid harmful interference to FAA radars may limit amateur use of certain frequencies in the vicinity of the radars.

Proposed Band Plan for the Amateur 23 cm Band (1240 – 1300 MHz)



Proposed Band Plan for Amateur 13 cm Band (2300 - 2310 & 2390 - 2450 MHz)

Frequency Range		Emission Bandwidth	Functional Use
From	To		
2300.000	2303.000	0.05 - 1.0 MHz	Analog & Digital, including full duplex; paired with 2390 - 2393
2303.000	2303.750	< 50 kHz	Analog & Digital; paired with 2393 - 2393.750
2303.750	2304.000		SSB, CW, digital weak-signal
2304.000	2304.100	3 kHz or less	Weak Signal EME Band
2304.100	2304.300	3 kHz or less	SSB, CW, digital weak-signal (Note 1)
2304.300	2304.400	3 kHz or less	Beacons
2304.400	2304.750	6 kHz or less	SSB, CW, digital weak-signal & NBFM
2304.750	2305.000	< 50 kHz	Analog & Digital; paired with 2394.750 - 2395
2305.000	2310.000	0.05 - 1.0 MHz	Analog & Digital, paired with 2395 - 2400 (Note 2)
2310.000	2390.000	NON-AMATEUR	
2390.000	2393.000	0.05 - 1.0 MHz	Analog & Digital, including full duplex; paired with 2300 - 2303
2393.000	2393.750	< 50 kHz	Analog & Digital; paired with 2303 - 2303.750
2393.750	2394.750		Experimental
2394.750	2395.000	< 50 kHz	Analog & Digital; paired with 2304.750 - 2305
2395.000	2400.000	0.05 - 1.0 MHz	Analog & Digital, including full duplex; paired with 2305 - 2310
2400.000	2410.000	6 kHz or less	Amateur Satellite Communications
2410.000	2450.000	22 MHz max.	Broadband Modes (Notes 3, 4)

Notes to 13 cm Band Plan:

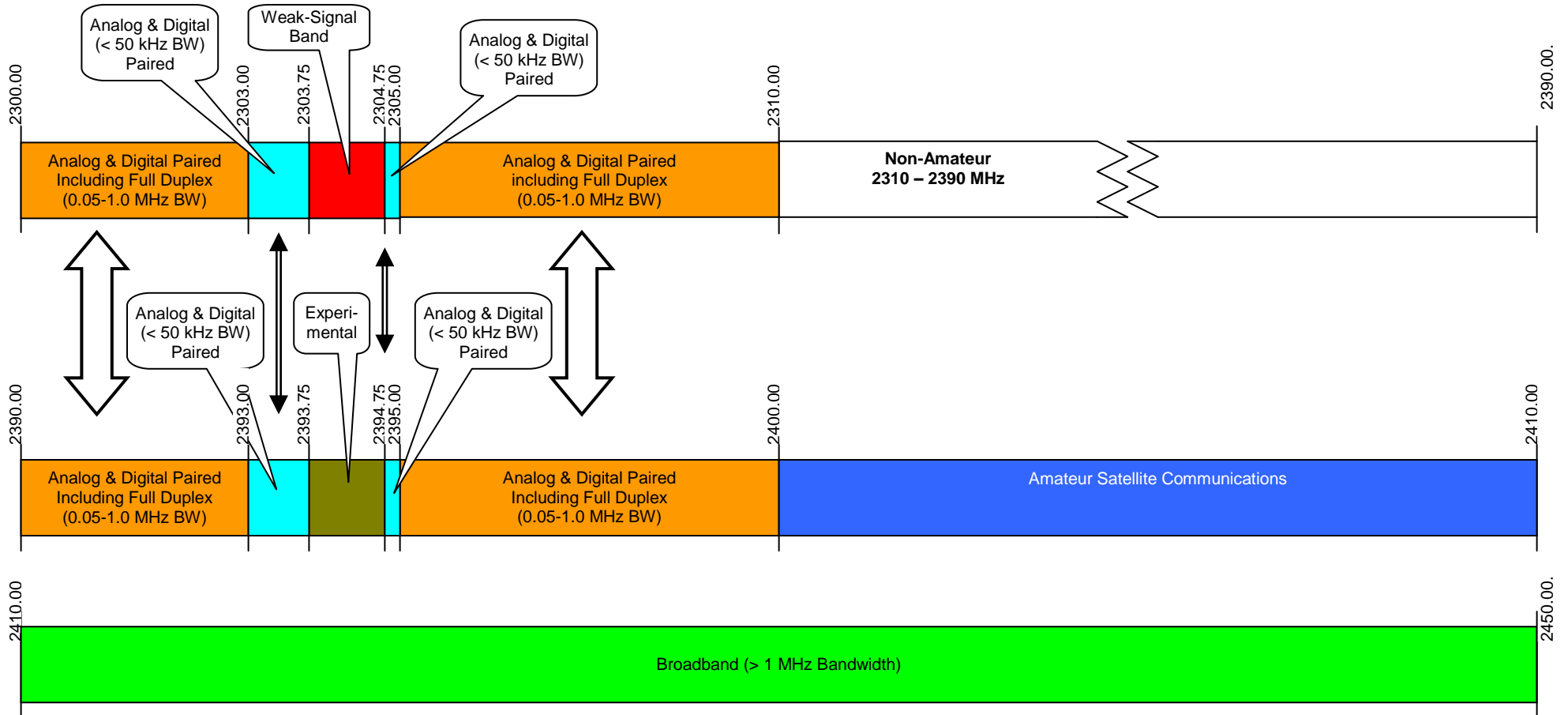
Note 1: 2304.100 is the National Weak-Signal Calling Frequency

Note 2: 2305 - 2310 is allocated on a primary basis to Wireless Communications Services (Part 27). Amateur operations in this segment, which are secondary, may not be possible in all areas.

Note 3: Broadband segment may be used for any combination of high-speed data (e.g., 802.11 protocols), Amateur Television and other high-bandwidth activities. Division into channels and/or separation of uses within this segment may be done regionally based on needs and usage.

Note 4: 2424.100 is the Japanese EME transmit frequency

Proposed Band Plan for the Amateur 13 cm Band (2300-2310 & 2390-2450 MHz)



ARRL Band Plan for 33 cm Band (902-928 MHz)

Adopted by the ARRL Board of Directors in JULY 1989

902.0 - 903.0	Narrow-bandwidth, weak-signal communications
902.0 - 902.8	SSTV, FAX, ACSSB, experimental
902.1	Weak-signal calling frequency
902.8 - 903.0	Reserved for EME, CW expansion
903.1	Alternate calling frequency
903.0 - 906.0	Digital communications
906 - 909	FM repeater inputs
909 - 915	ATV
915 - 918	Digital communications
918 - 921	FM repeater outputs
921 - 927	ATV
927 - 928	FM simplex and links

ARRL Band Plan for 23 cm Band (1240-1300 MHz)

Adopted by the ARRL Board of Directors in JANUARY 1985

1240 -1246	ATV #1
1246 -1248	Narrow-bandwidth FM point-to-point links and digital, duplex with 1258-1260.
1248 -1252	Digital Communications
1252 -1258	ATV #2
1258 -1260	Narrow-bandwidth FM point-to-point links digital, duplexed with 1246-1252
1260 -1270	Satellite uplinks, reference WARC '79
1260 -1270	Wide-bandwidth experimental, simplex ATV
1270 -1276	Repeater inputs, FM and linear, paired with 1282-1288, 239 pairs every 25 kHz, e.g. 1270.025, .050, etc.
1271 -1283	Non-coordinated test pair
1276 -1282	ATV #3
1282 -1288	Repeater outputs, paired with 1270-1276
1288 -1294	Wide-bandwidth experimental, simplex ATV
1294 -1295	Narrow-bandwidth FM simplex services, 25-kHz channels
1294.5	National FM simplex calling frequency
1295 -1297	Narrow bandwidth weak-signal communications (no FM)
1295.0 -1295.8	SSTV, FAX, ACSSB, experimental
1295.8 -1296.0	Reserved for EME, CW expansion
1296.00 -1296.05	EME-exclusive
1296.07 -1296.08	CW beacons
1296.1	CW, SSB Calling Frequency
1296.4 -1296.6	Crossband Linear Translator Input
1296.6 -1296.8	Crossband Linear Translator Output
1296.8 -1297.0	Experimental Beacons (exclusive)
1297 -1300	Digital Communications

ARRL Band Plan for 13 cm Band (2300-2310 and 2390-2450 MHz)

Adopted by the ARRL Board of Directors in JANUARY 1991

2300.0 - 2303.0	High-Rate Data
2303.0 - 2303.5	Packet
2303.5 - 2303.8	TTY Packet
2303.8 - 2303.9	Packet, TTY, CW, EME
2303.9 - 2304.1	CW, EME
2304.1	Calling Frequency
2304.1 - 2304.2	CW, EME, SSB
2304.2 - 2304.3	SSB, SSTV, FAX, Packet, AM, AMTOR
2304.30 - 2304.32	Propagation Beacon Network
2304.32 - 2304.40	General Propagation Beacons
2304.4 - 2304.5	SSB, SSTV, ACSSB, FAX, Packet AM, AMTOR Experimental
2304.5 - 2304.7	Crossband Linear Translator Input
2304.7 - 2304.9	Crossband Linear Translator Output
2304.9 - 2305.0	Experimental Beacons
2305.0 - 2305.2	FM Simplex (25 kHz Spacing)
2305.20	FM Simplex Calling Frequency
2305.2 - 2306.0	FM Simplex (25 kHz Spacing)
2306.0 - 2309.0	FM Repeaters (25 kHz) Input
2309.0 - 2310.0	Control and Auxiliary Links
2390.0 - 2396.0	Fast-Scan TV
2396.0 - 2399.0	High-Rate Data
2399.0 - 2399.5	Packet
2399.5 - 2400.0	Control and Auxiliary Links
2400.0 - 2403.0	Satellite
2403.0 - 2408.0	Satellite High-Rate Data
2408.0 - 2410.0	Satellite
2410.0 - 2413.0	FM Repeaters (25 kHz) Output
2413.0 - 2418.0	High-Rate Data
2418.0 - 2430.0	Fast-scan TV
2430.0 - 2433.0	Satellite
2433.0 - 2438.0	Satellite High-Rate Data
2438.0 - 2450.0	WB FM, FSTV, FMTV, SS Experimental