Document #25

Entry Level License Committee
July 2017 – ARRL Board

The Entry Level License Committee reported on the groundwork done during the last quarter of 2016 in its January 2017 report.

http://www.arrl.org/files/file/About%20ARRL/Committee%20Reports/2017/January/1701-ELL.pdf

Work since then has been focused on an ARRL member survey and analysis about entry level licenses issues, and further exploration of possible recommendations to the Board.

Report Summary

- Growth of Amateur Radio
- Age of Licensed Amateurs
- General Goals
- Results of Member Surveys
- Recommendations for Moving Forward
- Fundamental Related Issues

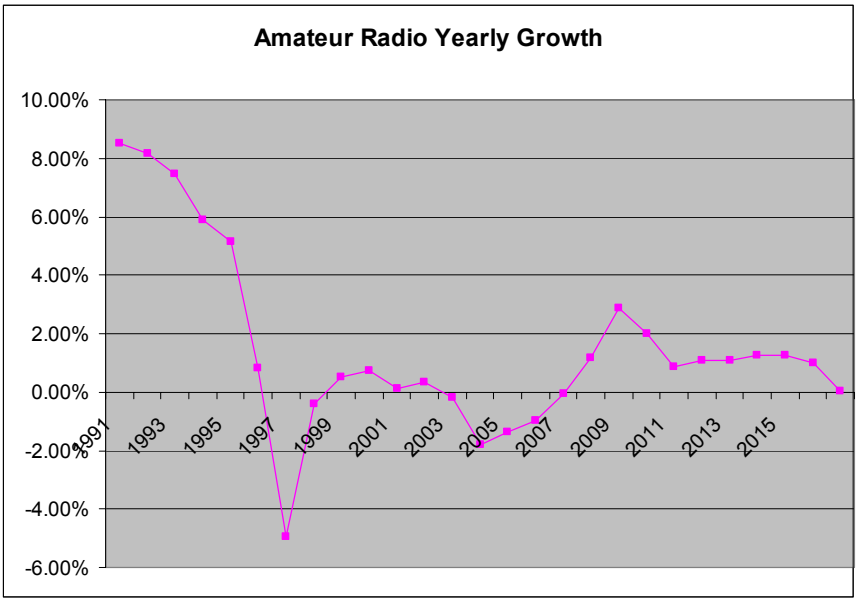
Recommendations Summary

- Ask FCC to add some HF digital and phone access to the current Technician class privileges.
- Request a "new Novice" license class with basic privileges on HF and VHF+ bands.
- Focus on improving the Question Pools, outreach to potential hams, mentoring, training, and getting people on the air after becoming licensed.

Growth of Amateur Radio

As a reminder of why we are looking at the entry level license, Amateur Radio growth has been modest at best for many years. Even though we're at 743k licensees today, the growth over the past six years has been just 1% per year, after a year of 3% and then 2% growth (total of about 22k new hams) following the discontinuation of Morse Code as a requirement. In the ten years before the removal of Morse Code, the number of hams dropped by 3%.

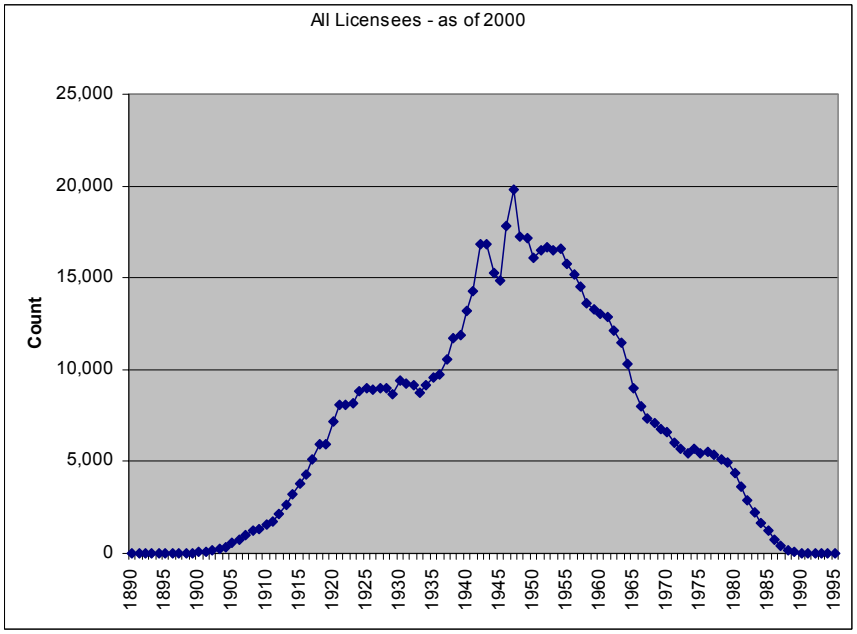
This graph shows yearly growth since 1990:



Age of Licensed Amateurs

The FCC stopped collecting birth date information in 2000, and since then we have not been able to easily understand the trends influencing the aging of various population segments, nor the age for new people who have become licensed since then.

The graph below shows the last age data from the FCC from 2000. This data is also available by license class.



It is possible to get updated age information from commercial data services by providing name and address information. The cost runs about $20-35 per thousand names, depending upon volume. It would be very useful to have this information on a monthly basis to be able to track how we are doing in getting various age groups licensed.

The large number of baby-boomers (roughly born 1945-65) will soon be aging off the licensee rolls and it seems likely that we'll see a significant decline in the number of hams unless we take steps to reverse it.

General Goals

As in any hobby, vocation, or product to be purchased or sold, it has to appeal enough to the "buyer" in order for them to "kick the tires", take a "test drive", and eventually "purchase" and enjoy it.

For Amateur Radio, that means having an entry level license that appeals to the marketplace, however it is defined. The potential "customer" needs to see enough value in it to take a closer look, ask questions, and decide whether to bother or not. The prospective ham really will have little idea what actually being a ham is like, how much work it will be to get licensed or get on the air. That's all part of the effort any of us who want to see Amateur Radio prosper have to get across to a newcomer.

The entry level license itself should be attainable for someone curious about technology, building things, or getting involved in social groups of like-minded people. It can convey a subset of privileges but should offer the new licensee an opportunity to try out various facets of ham radio.

A lot of survey respondents (see below) fondly recalled their original introduction into Amateur Radio through the Novice license. The original Novice license, established in 1951 met those criteria. After a run of 50 years, was phased out and no new Novice licenses were issued after 2000, leaving the Technician license as the entry level license.

Originally the Novice license was one-year, non-renewable, had a distinctive call sign, required 5wpm Morse Code, a 20 question multiple-choice exam and 28 simple question topics in the 30 page ARRL study manual. The Technician came about at the same time, and offered 220 MHz and up (in 1978 changed to 50 MHz and up), 5 wpm Morse Code with a General Class written exam.

The original Novice exam could be given by one volunteer who was a General Class licensee and 21 years old (in 1971 it was changed to 18 years old). In 1983 the volunteer exam program was established and by 1993 all Novice exams had to be given through the formal VEC process.

By 1966 the Novice study materials had 34 question subjects, then 50 in 1967, and a two-year duration. By 1984 the FCC published a question pool of 200 questions covering 67 subject areas, which grew to 469 questions in 1997. Novice privileges had grown somewhat during the time period, from 75w to 200w, and crystal controlled to VFOs. The license term was five years and renewable in 1978.

Through the 1970s and 80s, the number of teenagers entering ham radio started to decline and training sessions in local clubs started to dwindle. By 1993, K1ZZ wrote an editorial in July QST titled, "Where are the Novices?" (see Appendix A), where he offered some sobering facts that Novices generally were not active on the air, not members of local radio clubs and did not usually upgrade. That was when there were around 100,000 Novices, today the total is down to 9,500.

It should be clear from the information above that the entry level license can not be too complex or offer too many privileges, because the test will become too much of an obstacle and people will never get on the air to find out what it's all about. Additionally, to be successful, the process of finding potential hams, getting them interested enough to learn the basic material, then take the exam, and work with a mentor to get on the air, all have to be in place in order for the Amateur Radio community to successfully generate new active hams. Just making changes to the entry level license will not on its own, make a significant difference in increasing the number of new hams.

Results of ARRL Member Surveys

General

In January the Committee circulated a draft survey about the entry level license to the Board and indicated that we felt it important to start a discussion and gather input on some of the changes we had been discussing internally.

With help from Newington staff, a web story and survey was posted on the ARRL web site on February 8th and also included in that week's ARRL Letter that went to more than 100k members.

We generally expected to receive 500-1000 responses. Within the first day that total was exceeded. Within a few days we had more than 4,000 responses. The final total from the open survey showed 7,891 responses.

Note that this was not a scientific survey, in that those responding were self selected and not controlled by geography, age or license class. This can tend to skew the results towards less central responses, meaning that the more strongly someone feels positive or negative about the topic, the more likely they are to respond.

As a result, we decided to do a second survey (using the same questions) of 1000 members to be able to compare results with the original one. Those sent the second survey were randomly chosen from all USA members we had email address for. This second survey resulted in an additional 375 responses (37%), which we summarized separately.

Looking at the results for both surveys, they are quite similar, so it appears there was not significant skewing of the results from the self-selected group.

The survey itself focused on the possible areas where either a new entry level license or revised Technician license might change in order to be more relevant or likely to encourage people to become licensed and get on the air. This was consistent with previous ARRL requests of the FCC but did leave some people who responded to the survey feeling that we should have simply offered a "no change" option.

In addition to the comment section at the end of the survey, a few dozen direct responses, often with lengthy comments, were received by HQ and the Committee.

All in all, the number of responses (8,241) far exceeded what we had anticipated, indicating a high level of interest in the entry level license issue within the amateur community.

The detailed results of each survey showing questions and response counts/percentages are attached as appendices B and C.

Survey response summary

- The percentage of Extra Class licensees responding to the survey was almost twice as high as members with other license classes (6.7 vs 3.6%), so the results are biased towards members with Extra Class licenses.

- When asked which HF bands an entry level licensee should have access to, a clear majority said 10m (which Technicians already have for CW, digital, phone), followed by 40m, 15m, 80m next (where Techs now only have CW access), then 20m, followed by 17 +12m.

- A clear majority favored a revision to the Technician rather than a new entry level license.

- About a quarter of those responding favored the current 35 question exam, but more than 50% preferred an exam with fewer questions for the entry level license, and only 20% preferred more.

- There is strong support for digital and phone access for entry level licensees on the HF bands.

- A majority felt that newcomers should have distinct call signs

- There is a preference for a limited duration entry level license.

- There is strong support for an entry level license that does not include some of the more technical challenging aspects, such as high power on UHF+ bands, repeater control or satellite control operation (not use of them but control).

- Just over 40% of the surveys included additional comments

Reading through the 3000+ comments was a lengthy process. They ranged from very positive about change to very negative, and many described their own experiences getting licensed as well as suggestions for us to consider.

A sample of 1000 responses was analyzed for broad general categories with the following results:

Generally Supportive

- 3% - OK with the idea of a new ELL; go for it

- 20% - More access to useful privileges; better HF experience; more active bands
- 3% - ELL should have fewer privileges than Tech; low power; a couple of bands
- 22% - Exam should be less technical for entry-level; make it more like the Novice in style and scope; need a more attractive license package; minors-only license; online testing
- 10% - Provide digital privileges on any band accessible to the ELL; digital-only privileges
- 7% - License should not be renewable (1 to 5 years, mostly)
- 15% - Not needed; the Tech already is the ELL; new ELL is not the answer

Not Supportive

- 17% - Comments worried about "dumbing down" the hobby; wanting to bring back CW; making it tougher to get licensed, or just no change.

Related needs

- 18% - Need better mentoring; create activities for newer hams; need outreach to students and communities like the Makers
- 10% - Various yearnings and rambling or unrelated comments

About 1/5 didn't want any change or thought the whole idea was bad. The other 4/5 rest were open to the idea of changing the Technician or creating a separate Entry Level License.

There is a general consensus among the 80% that "something needs to happen", so there is general goodwill toward the idea of attracting newcomers. Combining some categories makes a good case for a better-targeted exam with a broader, more useful set of privileges and modes. Lots of responses supporting better outreach/mentoring efforts, recognizing that the ELL is not an answer in and of itself.

Recommendations for Moving Forward

In order to make recommendations for change in the entry level license, the Committee has looked at quite a number of scenarios. None of them are the obvious "right" answer, but all of them are worthy of consideration.

The general goal here is to have an entry level license that offers a way for a newcomer to experience multiple facets of Amateur Radio, encouraging them to get on the air, meet other licensees, and engage in a lifetime of learning while using Amateur Radio.

Here are a couple of basic ways to proceed:

1. **Add some HF digital and phone access to the current Technician class privileges**. Few, if any, changes would need to be made to the current exam. The problem is that the current exam covers much more material than needs to be on an entry level exam

because it also allows for specialized operations a beginner is unlikely to attempt – 1500w on UHF+, repeater control operator, etc.

This choice requires the simplest revision to FCC rules. The Technician exam already covers HF, as well as digital and phone modes. The current license offers only CW privileges on 80-40-15m, and CW is no longer required for any license class.

Currently, Technicians can operate CW only on 3525-3600, 7025-7125, and 21025-21200 kHz. A more appropriate access would include digital access to 3525-3600, 7025-7125, and 21025-21200 kHz (same as General), and phone access on 3900-4000, 7225-7300, and 21350-21450 kHz (less than the General allows).

There are only about 9500 Novice licenses left, so we propose no changes be made and encourage them to upgrade to Technician. The FCC has previously indicated they will not simply merge the Novice into the Technician license.

2. **Request a "new Novice" license class with basic privileges** on HF and VHF+ bands, limited power, no mode restrictions, with some access to common public service band-modes. The exam would have limited depth on basic rules, safety, and require limited technical knowledge. This could be non-renewable, so would carry a strong incentive for upgrading.

Though the Committee is very supportive of this change, the FCC has previously indicated that adding a new license class is not something they are likely to do, so this option may not be viable at all.

We looked long and hard at the Foundation license implemented in Australia and the United Kingdom a decade or more ago. Basically, they allow for all band access but are limited to low power (10w) and have had modest success with it.

One way to implement this new license class would be to allow for 100-200w access using frequency segments allowed for General Class licensees, on 80m-40-20-15-10-6-2m-70cm. A complication is that the current Technician should also be modified to offer the same HF privileges.

3. **The last option is no FCC change**, and since the FCC takes years to evaluate and maybe approve significant changes, this is what we will have in the near term. We can focus instead on improving the Question Pools, outreach to potential hams, mentoring, training, and getting people on the air after becoming licensed. In reality, this focus is needed whether there are changes to the entry level license or not.

After review of previous FCC actions regarding licensing, it will be a tough sell to convince them to add an additional license class. Even so, the changes in #1 above offered for the current Technician license seem minimal, and could easily be implemented by the FCC. In the longer term, a new license class, as suggested in #2 would be the best option for creating a more reasonable entry level license than the current Technician.

Fundamental Related Issues

No change in the entry level license will be very successful in generating new hams unless the other processes that lead up to and follow taking the exam are well supported. In particular, focus in each of these areas related to the school-age population will have the most impact long term. The present exam and training materials are not a good match for most students below high school level.

That means having a well-designed set of programs focused on each of those steps:

Outreach and recruitment

- Hire or contract with a marketing professional who understands market development.
- Contact and ascertain who the target markets are and develop programs and products for them. Examples are builders and users of wireless technologies like robotics and Maker groups.
- Use social media and videos to show the value and fun of ham radio

Engaging those who show interest

- Web site and social media presence specifically targeted to those who have interest
- Improve club ability to work with newcomers and help them with training

Training

- Rework the Education Dept to cover both scholastic education and licensee training.
- Develop publications (meaning any package of information) compatible with the target audience preferences and customs.
- Work on ways to improve training materials, including readability, use of on-line resources

Testing

- Work with the NCVEC to reduce the number of exam questions to a legal minimum plus some spares
- Work with the NCVEC and our own publications to make the question pool and training materials match a targeted reading level.
- Seriously examine how to implement on-line electronic testing.

Licensing

- Work with the FCC towards changes in the Technician license and a simple entry level license.

Getting on the air

- Provide outreach to new hams and local clubs to improve upon the number of new licensees who successfully get on the air.
- Continue to develop on the air activities to encourage new hams to try different aspects of Amateur Radio

Mentoring

- Work with existing clubs and hams to develop and provide tools for mentoring and outreach. Local clubs are an important resource and need encouragement to further the goal of getting more people licensed and on the air.

Thanks to all of the members of the Entry Level License Committee for their excellent ideas, good discussions and hard thinking about the topics we have studied.

Committee members

Tom Frenaye, K1KI, chairman
Bonnie Altus, AB7ZQ
Tom Delaney, W8WTD
Maria Somma, AB1FM
Bruce Blain, K1BG
Andrea Wayward, KG4IUM
Paul Veal, N0AH
Ward Silver, N0AX

Appendix A – K1ZZ Editorial, July 1993 QST
Appendix B – Results from survey of 7891 members
Appendix C – Results from random survey of 1000 members

"It Seems to Us..."

Where are the Novices?

FCC records show Novice licensing is at an all-time high. There are more than 100,000 Novice licensees, or one in every six radio amateurs. Despite the recent preference for the Technician license as the gateway into Amateur Radio, several hundred newcomers continue to choose the Novice route each month. Since 1987, in addition to their traditional HF CW bands, Novices have enjoyed phone and data privileges on 10 meters as well as some interesting opportunities on VHF and UHF.

From this, you might well conclude that the Novice license is as healthy as can be.

Look again.

The survey research firm we commissioned last fall to survey a representative sample of US amateurs found that more than 15% of licensees were unreachable by mail. Either their addresses were no longer valid, or they were deceased. Among Novices things were much worse: 44% were unreachable, representing almost half of the total number of unreachable licensees. The researchers could only locate a sample representing 55,000 Novice licensees; the rest, for all practical purposes, have disappeared and must be presumed to be inactive, since they haven't even met the minimal requirement to keep the FCC informed of their current mailing address. Many appear on the licensing rolls only because of the transition from a five-year to a 10-year license term; no licenses have expired since 1989. In the following discussion we'll extrapolate the survey sample to represent the entire population of "reachable" Novices.

Of these 55,000 Novices, 39,000 say they are not currently active. Of the 16,000 who say they are active, including just listening, nearly 10,000 devote an hour or less per week to Amateur Radio activities. On average, active Novices spend just 2.7 hours per week on Amateur Radio, compared to 5.5 hours for the total population of active amateurs.

Not surprisingly, the most popular band for Novices is 10 meters. But even there, only 50% of the active Novices, or about 8000, said they used the band. Listening on 2 meters actually outpolled the other bands on which Novices can transmit, with 33%! Forty meters was the next most popular band, with 33% (combined transmitting and listening); 80/75 meters, with 24%; 20 meters (all listeners, presumably), with 22%; 15 meters, with 18%; and 222 MHz, with 14%.

Just 5000 Novices, or 32% of the active total, said they used CW. About 9000 said they used SSB and 6000, FM. These figures include listeners, and of course, many said they used more than one mode.

Novices are much less likely than other amateurs to belong to a local radio club. The percentage who have never been club members is 65%, versus 29% for the amateur population as a whole. Perhaps even more disturbing, those who say they were members of a local club at one time, but not now, outnumber those who say they are still members—and overwhelmingly, even the Novices who are club members say they are not actively involved in club projects and activities.

Incidentally, the average age of Novices is 39, versus 50 for the total amateur population and 45 for Technicians. More than half of the 32,000 amateurs who are age 24 and under are Novices. Interestingly, according to the survey 32% of Novices are female, a much higher percentage than for the amateur population as a whole (13%) or for Technicians (17%).

So, the survey paints a pretty dismal picture of Novice activity. Instead of 100,000 Novices, we have something more like 16,000 who are active—and the majority of those are only marginally involved. If you've gone looking for Novices on the air lately—a favorite sport of many old-timers—and have come away disappointed, you now know why.

The Novice Roundup results in last month's *QST* provided some corroborating evidence. Just 42 of the entries this year came from Novice stations. To be sure, contests aren't everyone's cup of tea. But 10 years ago, when Novices were limited to CW only, the comparable figure was 251! In last December's 10-Meter Contest, reported in this issue, only 18 Novices competed in the special category for Novice and Technician stations.

Even Novice upgrading is down—this is one reason, and not a healthy one, why the number of Novice licensees is up. In the first seven months of the 1991 federal fiscal year (October 1990 through April 1991), 9148 Novices upgraded to a license with broader privileges. In the equivalent period two years later, the number had dropped to 3505. In contrast, upgrading from Technician, General, and Advanced was virtually the same for both periods.

Overall, League members strongly support the concept of the Novice license. Reflecting that, and responding to concerns that the additional $5.60 expense could have a chilling effect on Amateur Radio programs in schools, the ARRL Executive Committee on May 8 determined that the ARRL/VEC should waive the examination fee for elements 1A (5-WPM code) and 2 (Novice written) once Novice exams are brought into the VEC system, on July 1.

In spite of that step, extrapolating what we know today a few years into the future it is difficult to see the Novice license as much more than a shrinking, inactive data base. Yet, it's been so much more than that; a majority of today's amateur licensees got their start as Novices.

What, if anything, can be done to reverse the trend?—*David Sumner, K1ZZ*

Appendix B

From the first entry level license survey responses

Survey released in ARRL web story on 2/8/17
Follow-up article in ARRL Letter on 4/6/17
Survey ended 4/7/17
7,891 responses received as of 4/8/17

Questions

- What year were you first licensed?

2010 or later	1848	23.4%
2000-2009	1025	13.0
1990-1999	1167	14.8
1980-1989	787	10.0
1970-1979	1225	15.5
before 1970	1791	22.7
Blank	38	0.5

- How old were you when you were first licensed?

<10 yo	34	0.4%
11-15	1533	19.4
16-20	1149	14.6
21-25	811	10.3
26-35	1302	16.5
36-45	1191	15.1
46-55	900	11.4
56-65	685	8.7
66 +	242	3.1
Blank	34	0.4

- If you upgraded from a Novice license to your present license class, how long did it take you to upgrade?

Never Novice	3798	48.1%
<1yr	1178	14.9
<2yr	549	7.0
<5yr	499	6.3
<10yr	342	4.3
>10yr	1265	16.0
Blank	250	2.9

- What is your present license class?

Novice	21	0.3%
Technician	815	10.3
General	1777	22.5
Advanced	383	4.9
Extra	4848	61.4
blank	37	0.5

- What additional HF bands beyond those currently allowed for Technicians should be available to the entry-level license? Check all that apply.
    - (first 1,472 responses did not have "none" as a choice)

160m	213	14.5%
60m	144	9.8
30m	388	26.4
20m	679	46.1
17m	487	33.1
12m	597	40.1
blank	212	14.4

    - (responses 1,473 - 4,040 had "none" as a choice)

160m	286	11.1%
60m	143	5.6
30m	479	18.7
20m	775	30.2
17m	603	23.5
12m	643	25.0
none	1020	39.7
blank	187	7.3

The question above was be replaced with the next one…

- What HF bands should be available to the entry-level license? (check all that apply)
    - (responses 4,041 – 7,891)

160m	447	11.6%
80m	1249	32.5
60m	177	4.6
40m	1541	40.1
30m	581	15.1
20m	1283	33.4
17m	723	18.8
15m	1290	33.5
12m	837	21.8
10m	2358	61.4
none	609	15.9

blank	190	4.9

- Would you prefer to see Technician licensee privileges change to be simpler instead of creating a new entry level license?

Yes	4082	51.7%
No	3485	44.2
blanks	314	4.0

- How many questions would be on your ideal entry-level license exam?

10	191	2.4%
15	89	1.1
20	706	8.9
25	1739	22.0
30	1425	18.1
35	1985	25.2
40	544	6.9
45	1011	12.8
Blank	190	2.4

- Which of the following power limits would you suggest for an entry level license on HF?

5w	518	6.6%
10w	573	7.3
25w	951	12.1
50w	1442	18.3
100w	3545	44.9
200w	369	4.7
500w	85	1.1
1500w	178	2.6
Blank	220	2.8

- Do you think the entry-level license should allow for some use of digital and voice on the HF bands?

Yes, both digital and voice	4977	63.1%
Yes, but only digital	977	12.4
Yes, but only voice	556	7.0
No, neither one	1229	15.6
Blank	142	1.8

- Should the entry level license have a call sign that will identify them as a beginner?

Yes	5303	67.2%
No	2411	30.6
Blank	167	2.1

- To encourage upgrading, should the entry level license be limited in duration, then expire?

Yes	4495	57.0%
No	3220	40.8
Blank	166	2.1

- To reduce the complexity and number of questions on the exam, some people have suggested that the entry level license does not need to allow repeater control, beacons, automatic control, or space station control. Do you agree?

Yes	5683	72.0%
No	2054	26.0
Blank	144	1.8

- Comments?

Comments added	3418	43.3%
No comments	4463	56.6

Appendix C

From the second/random entry level license survey responses

1004 surveys sent out 3/14/17, reminder sent 4/3/17
374 responses received as of 4/8/17
37.3% response rate

Questions

- Callsign (optional)

Callsign provided	232	62%
No callsign	142	38%

- What year were you first licensed?

2010 or later	73	19.5%
2000-2009	44	11.7
1990-1999	57	15.2
1980-1989	39	10.4
1970-1979	47	12.6
before 1970	111	29.7
Blank	3	0.8

- How old were you when you were first licensed?

<10 yo	3	0.8%
11-15	68	18.2
16-20	56	15.0
21-25	27	7.2
26-35	58	15.5
36-45	47	12.6
46-55	45	12.0
56-65	44	11.8
66 +	22	5.9
Blank	4	1.1

- If you upgraded from a Novice license to your present license class, how long did it take you to upgrade?

Never Novice	170	45.5%
<1yr	58	15.5
<2yr	28	7.5
<5yr	22	5.9
<10yr	19	5.1
>10yr	68	18.2

Blank	9	2.4

- What is your present license class?

Novice	0	0.0%
Technician	27	7.2
General	77	20.9
Advanced	27	7.2
Extra	240	64.2
Blank	3	0.8

- What HF bands should be available to the entry-level license? (check all that apply)

160m	37	9.9%
80m	155	41.4
60m	28	7.4
40m	179	47.9
30m	45	12.0
20m	116	31.0
17m	73	19.5
15m	164	43.9
12m	86	20.3
10m	269	71.9
none	35	9.4
blank	14	3.7

- Would you prefer to see Technician licensee privileges change to be simpler instead of creating a new entry level license?

Yes	205	54.8%
No	151	40.4
blanks	18	4.8

- How many questions would be on your ideal entry-level license exam?

10	1	0.3%
15	1	0.3
20	27	7.2
25	78	20.9
30	79	21.1
35	91	24.3
40	38	10.2
45	49	13.1
Blank	10	2.7

- Which of the following power limits would you suggest for an entry level license on HF?

5w	13	3.5%
10w	14	3.7
25w	40	10.7
50w	78	20.9
100w	185	49.5
200w	27	7.2
500w	1	0.3
1500w	4	1.1
Blank	9	2.4

- Do you think the entry-level license should allow for some use of digital and voice on the HF bands?

Yes, both digital and voice	261	69.8%
Yes, but only digital	41	11.0
Yes, but only voice	23	6.1
No, neither one	44	11.8
Blank	5	1.3

- Should the entry level license have a call sign that will identify them as a beginner?

Yes	247	66.0%
No	121	32.4
Blank	6	1.6

- To encourage upgrading, should the entry level license be limited in duration, then expire?

Yes	199	53.2%
No	169	45.2
Blank	6	1.6

- To reduce the complexity and number of questions on the exam, some people have suggested that the entry level license does not need to allow repeater control, beacons, automatic control, or space station control. Do you agree?

Yes	275	73.5%
No	96	25.7
Blank	3	0.8

- Added comments

Yes	138	36.9%
No	236	63.1