

FCC Trial Exam / Learning Software

4 June 2019

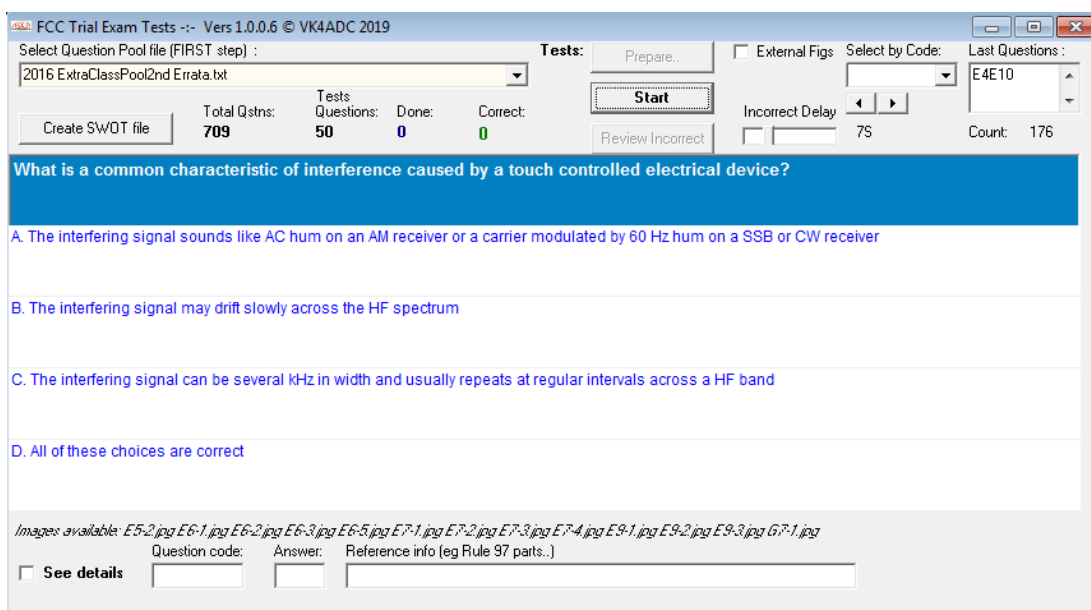
- Last updated 27 August 2020 to 2020 Extra Class support.

V1.1.0.2 supports 2020 Extra Class, 2019 General Class and 2018 Technician Class.

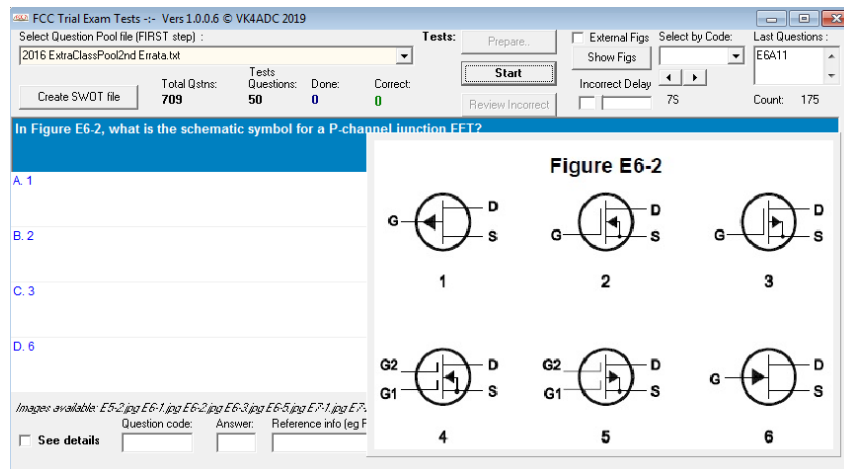
(also known as Element 2 (Tech), 3 (General) and 4 (Extra) ham / amateur exams)

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but you might want to read it later so bookmark this page...



Main FCCTests program display view, purely textual Q & A.



With a Q&A where a graphic figure is required.

Why is a VK amateur producing FCC (/ USA) Ham Licence Exam training / study / practice/ learning / testing software ??
 Do I NEED to do the FCC Ham exams ? No. I have the highest amateur radio licence qualification available in Australia,
 CEPT acceptance included !

How successful has it been for me ? Well the Tech, General and Extra tests were all done in one morning session in late June 2019 and I achieved a 100% mark result in each exam and now hold the Extra call KX4SX. It just takes practice. Plenty of practice.

So what do I know about Ham Radio in the USA ? More than I did before I started studying using the Question Pool documents, a bit of web research about licensing under the FCC Part 97 Rules, operating frequencies (/ bandplans), power levels, callsign structures etc.. The good thing is that I have recalled quite a bit of my earlier-learned radio theory plus reinforced the more recent concepts used in the amateur radio environment. Things like FT8, WSPR, WSJT suite, EME, propagation, antenna theory,.. are all extras to the basic electronic, electrical and safety theory and practice of years past. All that is added to my extensive early learning and readings of the ARRL Handbook, ARRL Antenna book, magazines of the likes of QST and 73, plus many other books authored and published in the "good ole US of A".

How will this software help when I can do all this on-line ? Simply use it when you don't have internet access (ie off-line / offline) - or create the text Extract files to read on your tablet or tablet and use them to re-learn/SWOT from. A type of self-study. At NO cost - this is a true freebie (unless you want to make a donation !). And it is quick.. whether you are just scrolling through the question pool or answering the individual questions, there is no internet "lag" while the 'other end' sends more info via the web. It also provides you with a Review option so that you can subsequently concentrate on the questions you answered incorrectly. It creates a continuous quiz that you can quit from anytime you like, from just one question to all of those in the VE Question Pool file, all selected randomly - and that applies regardless of whether you select the Technician, General or Extra Class pool file to test your knowledge with.

*** Please note that new features or bug fixes are being updated into the code so it will pay to check back here again from time to time to confirm that you have the latest version..

Note V1.1.0.1 of 11 August 2019 (and all later versions) support internal explanations for all Q&As in the three Pool Files documents. This makes the application more of a 'learning tool' for all grades.

Maybe you just want to practice with the exam questions from the VEC Pool - at any of the three levels available now - and see how well you (1) remember the theory and regs; (2) think you might go during a formal test. Either way, this software will help you assess your knowledge.

Why do I need to do exams to become a ham ? Read the info at the following link : <https://www.fcc.gov/wireless/bureau-divisions/mobility-division/amateur-radio-service/examinations> (<https://www.fcc.gov/wireless/bureau-divisions/mobility-division/amateur-radio-service/examinations>)

The typical long story about this project can be shortened to the availability of the FCC Exams in Australia these days (courtesy www.vea.org.au (<http://www.vea.org.au>)) and in preparing to do the three exams (Technician, General and Extra Class) in one morning session, I downloaded all of the question pool documents (from <http://ncvec.org> (<http://ncvec.org/>)).

These documents give the question, 4 possible answers (A through D) and the correct answer. I have held my Australian amateur licence for over 50 years and I didn't really want to go back and study the likes of the ARRL Handbook so started just a "SWOT" of these reference documents. It wasn't long before I was getting confused because ¾ of the answers in that extract that I was reading were wrong ! Brain scramble happening.

I am aware that SWOT today usually refers to " Strengths, Weaknesses, Opportunities and Threats" but back in my early years, we used to 'swot' for exams, a sort of a brief revision process covering the topics, possible question areas and any anticipated answers - particularly where previous exam questions were available. To me, the SWOT term mainly refers to this latter form of study / learning / practice.

{ I recently found a web page (<https://www.uq.edu.au/student-services/learning/multiple-choice-exams>) that was referring to multiple choice questions and knowledge : "Many students believe that multiple choice exams require them only to recognise true statements; however, multiple choice exams require many more skills than just recognition. They require students to distinguish between right and wrong and also to use a variety of higher order thinking skills, such as the ability to analyse content, synthesise material, and apply knowledge, in order to determine those distinctions." }

Most of us realise that well-formed multiple choice exam question/answers have two relatively absurd answers provided (and easily recognisable as that by those with the requisite knowledge) plus another two answers of which one is 'actually correct' and the other 'almost correct'. Selecting the correct answer is the aim of course but only knowledge - or luck - will determine whether you succeed with that step. Theoretically, a straight guess has about 25% chance of being correct, with a little knowledge that rises to 50% if you can determine which two answers are absurd and to be avoided. The aspect that complicates this is whether the person actually reads and interprets (1.) the question and (2.) the answers accurately and determines the sense of the question (positive or negative, and it is amazing how many turn out to be negative sense when interpreted), plus the sense of the answers - let alone the content in all of them.

Back on the track of the project again : There had to be a better way than reading the question and ALL of the answers to brush up on the required information to pass. That led me to write some code to extract a “SWOT” file – the basics of the Q & A only – for each level. Now **I know well that nothing beats outright study of the references**, the FCC Part 97 and the ARRL study books, but there simply wasn’t enough time between when I found out about the most-local exam and the date it was to be held. My approach was thus defined as to SWOT the published Q & As. For those who want to reinforce their memory about radio theory - without a massive study effort - this software might help - and that is whether you intend to actually do the FCC exams or not. **Using it just to learn the correct answers - without knowing why that answer is correct - is not the aim here.** I still refer to the ARRL Handbook for explanations and theory - and have done so for (too) many years.

I opened the original Pool files with Microsoft Word and saved them as Plain Text format documents, these being easier to work with. It took only a short while to see how the source document was formatted, the header information and that of the Q & A lines. Of course there were some “all of the above” style questions that necessitated providing all of the answers – they were all correct !

My earliest version software produced the extracts as a plain text file from the source .TXT files, all manually selected and with pre-defined filenames. That certainly was a better way of SWOT-ting for the upcoming tests. After a bit of web searching, I tried some of the online ham radio tests and got reasonable results but I don’t always have internet access so it was time to extend the previous software code to allow for on-screen / off-line tests as a way to interactively (1) learn and (2) validate the knowledge gained.

That resulted in FCCTests V1.0.0.1 and this was a far better application than the earliest one. This one searched for the pool documents in TXT format in the same folder as the FCCTests.exe file, still allowed the generation of SWOT files but also made simple knowledge testing available from any of the source files.

The first step after executing the executable is to select a pool question file – only txt file extensions are listed in the drop-down box. The names reflect the level of the data to work with. Only after that, two buttons become active : the Create SWOT file and the (Tests:) Prepare..

Pressing the Create SWOT button makes the processed contents of the pool file to scroll down the screen until the end of data is detected. At the bottom of the listing there will be a message something like..

“Generated SWOT file is SWOT Extract ^ 2016 ExtraClassPool2nd Errata.txt and located in the current program folder (C:\ FCC Tests)”

The “SWOT Extract ^” text is added to the beginning of the name of all processed files to indicate that it is an extract rather than an original pool file.

Use Windows Explorer to locate the folder and file and copy it to where you want to store it or open it with almost any text editor, MS Word, Wordpad, etc.. but I actually prefer using Notepad++ as it handles large plain text files easily and has lots of useful features. You can also re-save the extracted SWOT file in DOC format in MS Word or print to a PDF – whatever is best for you to study from.

The other option is the Prepare.. button. It re-processes the original source file but retains all of the relevant data in the file and saves the result in Qstns.txt – this file is human readable but is actually a concise format of the Q&A for the software to use. The only thing you see on screen is that the Start button becomes available.

The Start button puts up the first set of multiple choice question and answers, sets the ‘Done’ value to 0 and the ‘Correct’ to 0. Selecting the correct answer adds 1 to the Correct tally, another to the Done tally and then prompts with the next Q&A set. An incorrect answer causes the Review Incorrect button to be enabled, incrementing the Done tally and then prompts with the next Q&A set. There are two choices here : review immediately or wait until you have answered as many questions as you want before reviewing. Waiting until the end reveals ALL of the incorrect Q&A results, doing it immediately after an incorrect answer erases any earlier ones.

Here is a tip : if you do press “Review” then you can press the “Start” button after that to continue answering the Q&As without resetting the totals.

At the bottom of the program display, a “See Details” tick box is available for when you want to use the software in a direct learning mode – as against perusing the SWOT text files. Placing a tick in the box reveals the question code in that question pool document, the correct answer and also any provided reference information eg The Rule 97 part. Removing the tick removes this information from view. By default, the “See Details” box is un-ticked.

There is no grading against the 74% pass mark nor is there any limit on the number of Q&As you can try. For any particular pool question document, this software shows how many questions are in the format test but is not implemented as an internal limit. The questions are selected randomly from the entire question pool in the source document but any that obviously relate to a graphic (eg What is component 6 in Figure 3) are avoided (*changed from V2 which has internal figures display included*) Some Q&As may be repeated in the on-screen tests, just as a result of the random selection process, just

answer again and move on. You can also just skip through Q&As by repetitively pushing the Start button. V2 also introduced highlighting of correct and incorrect answer when an incorrect answer is selected for any given question. The delay slider near the top RHS allows you to adjust how long it is displayed (each step=1second). When a question requiring a diagram is selected, the graphic is automatically displayed overlaying. Clicking on the graphic makes it disappear (eg to read the full question) and it can be redisplayed by pressing the Show Figs button at top RH corner.

Your Correct tally versus those Done, plus the displayed % correct, will give you an indication of whether you are ready to do the “real test”. Of course there is nothing to stop you from then doing on-line testing to further evaluate your knowledge.

Selections always return to their preset defaults on software startup. Tickbox and delay slider settings need to be reset for each session.

While there haven't been any faulty questions noted as yet – where faulty is defined by something not correctly extracted / interpreted from the Pool documents – but they may exist. Faulty Q&A sets may have an incomplete question or answer component and is due solely to the textual formatting of the original Pool document.

The good news is that unless the VE Pool documents in the future (from <http://ncvec.org> (<http://ncvec.org/>)) have altered internal formatting rules, this software can be used for quite a few years. It is only a case of downloading the available Pool DOC or DOCX files, opening and re-saving as a Plain Text file, ensuring that it is only Plain Text and has a .txt file extension. Copy it into the same folder as the FCCTests executable and you should be able to select it and create a SWOT file from it.

Other options and changes may be written into this software and the most recent version detail is available in the title bar. This web page will reveal what and when the releases are made available.

And guess what – it is free !! However NO warranties or guarantees are given.

Have a play .. and see what your true knowledge level is !!!

I am well aware that there is also an application available from the ARRL (eg <http://www.arrl.org/ve-exam-maker-software> (<http://www.arrl.org/ve-exam-maker-software>)) but “The VE Exam Maker Software can only be downloaded by VEs that are accredited and registered with ARRL VEC.” That is probably not either of us at this point in time. There are probably a number of other packages out there, some free, some not. This one won't cost you anything to try.

If you find bugs or have suggestions, email back through the Contact page from the menu on the LHS of this web page.

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This software is FREE but if you feel the urge to donate because it has been worthwhile to you :
(uses my other email address : doug something hunter kid dotty com)



Current version :

Check back occasionally and compare version numbers (top LHS of the program frame) against the current release details below.

Version 1.1.0.2

Download link : [FCCTests.zip \(/~vk4adc/web/images/UserFiles/File/FCCExams/FCCTests.zip\)](http://~vk4adc/web/images/UserFiles/File/FCCExams/FCCTests.zip)

Approximate size : about 1500KB ZIP, about 3.5MB for executable, data files plus JPG graphics for T, G and E pool files..

V1.1.0.2 supports 2020 Extra Class, 2019 General Class and 2018 Technician Class.

Installation :

Extract the FCCTests.EXE, the graphic figures files plus any Pool text files into a new / blank folder. (or overwrite any previous version files in an existing folder)

(The first time..) Create a shortcut to the EXE file by right-click, Send to the (Windows) Desktop

That is all that is required. No fancy install software.

Be aware that it will create text files in the same folder as the executable, and these files are human-readable. Of particular interest will be any files that whose names start with SWOT Extract or FCCxxxx ^ where the xxxx is Extra, General or Tech. It also creates a Windows Registry section under HKCU/Software/VK4ADC that contains the last settings used for the tickboxes and the Incorrect Delay adjustment plus the last program position on screen.

To remove, simply delete the shortcut from the Windows Desktop and delete the folder containing the EXE and any data files. The Windows Registry entries are minor and can be left in place.

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V1.0.0.1 4 June 2019 Initial release.

V1.0.0.2 10June2019 Upgraded release with internal Figure support, some correct & incorrect answers highlighted & delayed, controls hints added, slightly revised SWOT file format (the A,B,C,D have been removed as some online tests randomise the order so learning the answer is preferable to remembering the correct letter.)

V1.0.0.3 15June19 Added external images option tickbox (External Figs, default is ticked) to allow easier viewing of complex images / figures. Added option to select any question by code detail (select by Code), selectable with up/down, and to show list of previous questions (Last Questions). Review filenames altered to include start year and category. Resets the internal 'done' question list when almost all pool questions have been accessed for a category file.

V1.0.0.4 16June19 External Figs tickbox now off by default at software startup. Solved Up/Down range limit found in V3. Adjusted a few of the hints text details.

V1.0.0.5 17June19 Added registry support to save and re-load tickbox states and the Incorrect Delay setting value as well as the last program position on screen. Fixed a Review coding error introduced in V4.

V1.0.0.6 20June19 Fixed improper answer layout due to (hidden) tab characters in Pool files.

V1.0.0.7 21June19 Graphic images now variable in size and anchored to the bottom RHS corner. If resolution not sufficient to view easily (as happens on some of the larger images eg complex schematics), clicking on the External Figs tickbox now opens the current image file in whichever software is registered in Windows to handle JPG files.

V1.1.0.1 11August2019 Major internal code change with support now including explanations so making it more towards a 'learning package'. Trial exams are still the focal point so candidates can evaluate their skills. The 'See Details' tickbox reveals answers and documentation. FCC Rule 97 text is included so can be scrolled through without any external references. SWOT files are now created differently and have slightly different layout details. New data files contain the explanations as well as question pool information.

Note that explanations cannot be copied from - any attempt to use other than the vertical slider makes the details disappear, and they can only be made to re-appear only by clicking the See Details box again. Explanatory answer texts are encrypted in the supplied data files as its generation took over a month of research and typing.

V1.1.0.2 27August 2020 : Extra Class materials for 2016-2019 replaced with 2020-2024 version - including graphics, minor coding changes to the FCCtests.exe software.