



**General Certificate of Secondary Education
June 2012**

Electronics

44302

(Specification 4430)

**Unit 2: Practical Electronics System Synthesis
(controlled assessment)**

Report on the Examination

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Controlled Assessment

This year, the Controlled Assessment was submitted by most Centres on time and there was plenty of evidence that the new scheme was being followed both in spirit and with the correct application of the criteria. There was also evidence of advice having been passed on to candidates from the standardisation meetings resulting in more candidates gaining a more efficient return from the marking criteria.

The aim of the Controlled Assessment within this specification is for candidates to address the following points:

- i) Follow a problem solving exercise where the solution is based on electronics and set within a clear context.
- ii) Produce measurable numerical specifications for the proposed solution aided by a practical investigation.
- iii) Produce a block by block subsystem design primarily based on the material covered in the course.
- iv) Adopt a build and test regime as the subsystems are realised on breadboard together with a testing scheme for the complete system.
- v) Produce an evaluation of the results of the tests against the original specification quoted.
- vi) Suggest how improvements to the results might be achieved and consider alternative circuits that could be used in the design to achieve an equivalent solution.

The following general points were noted from the sample of scripts moderated this year.

- **Use of microcontrollers:** Some PIC work was again evident. It should be remembered that such software controlled devices are treated as being neutral when applying the marking criteria.
- **Complexity of circuits:** Candidates submitting more advanced and complex work were targeting the marking criteria more efficiently in their reports than in the past thus gaining scores that better reflected their ability and efforts.
- **Numerical specification:** A good set of measurable numerical specifications with **tolerances** lies at the heart of a good report and must come early on in the planning stage. It is assumed that the measurements are made using some form of meter. Candidates who ignored putting in realistic specifications found that specification marks, measurement and evaluation marks all became inaccessible.
- **Circuits from the internet / magazines:** Some candidates continue to tackle circuits taken directly from the internet or magazines. This rarely allowed them to show an understanding of design, subsystem function, investigation or specification as much of this was already provided by the circuit being copied. The build and test approach of each subsystem became lost to candidates following this approach as did the ability to draw a circuit diagram (A7) rather than just copy one. Centres are therefore asked to discourage this practice unless it is appreciated by both candidates and supervisors that some marks will not be accessible and others cannot be supported.
- **Annotation:** Prime marker annotation for the allocation of marks continues to improve. The annotation must be shown at the point where the evidence is to be found. A detailed statement should be given by the prime marker in the support of any award where candidate evidence does not exist.

- **References:** The references should relate to information that is used in a positive way. The references should be detailed and should be shown both at the point of use and in the Bibliography. A book name, author, publisher and page number would be expected as would a full web address.
- **Photographs:** Photographs were increasingly used as supporting evidence. This is to be encouraged, but should not be used as a replacement for circuit diagrams of the subsystem under discussion. The photograph of the full and final system should be in close-up.
- **Subsystems:** Some candidates continued to struggle with the concept of a subsystem. A subsystem should be seen as a single stage of the circuit from which a signal is generated or through which the signal passes whilst being processed. In some cases this may only consist of two components e.g. switch – resistor chain or an LED – and protective resistor.
- **Report writing:** Whilst some candidates offer a report that follows the marking criteria in the order set out in the specification, this tends not to lead to a clear explanation as to how the circuit was developed, built and tested. The best format remains that based on the subsystems taken in operational sequence.
- **CD's and Diaries:** Most of the work was submitted, as expected, as an A4 document. Centres are asked not to send video evidence on CD's, and project diaries should be kept secure with the circuit until after the results have been published.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.