Presentation summary:

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1. Overview

For many IoT product development, testing and certification takes up a large proportion of the overall developmental resources. Therefore, it is crucial to give a thorough consideration on pre-test planning to minimise the time and cost consumed during the course of development. Contrarily, failing the certification test can lead to longer production time and higher production cost due to design modification, alternative component sourcing, product and safety retesting, etc. During the presentation, Mr Yuen provided an example to show that the additional progress can add up almost 20% of total cost and 2 extra months of production lead-time.

2. Ways to avoid unexpected cost

2.1 Plan

First and foremost, it is important for manufacturers to be clear about the latest testing and certification requirements in order to aim at the right target and pass the test. Understanding test modes for proactive planning before the testing phase is as important. Before anything is fixed, introduce test plan and conduct pre-test during the 3 stages of prototyping in order to allow flexibility in case modification is required.

2.2 Pre-test

Manufacturers should define potential issues in the prototyping stage to keep corrective action and cost under control. Here are some of the specific services and facilities for pre-testing:

2.2.1 Regulatory services

Different regulatory compliances are required for different IoT products. For example, electromagnetic compatibility (EMC) and radio frequency (RF) requires spurious emission evaluation and bandwidth checking. Automotive related products, such as infotainment system or non-safety related system requires EN50498 (E-Mark replacement – 12VDC), ISO 7637, etc.

2.2.2 Developmental services

Apart from regulatory services, developing IoT products also requires pre-testing on sensor durability, mechanical strength, and sound quality. The test fixture can be setup by HKPC.

2.2.3 Schedule

A proper project schedule during the prototype development is also crucial. For the first prototype in a design phase, preliminary check and design check (eg test modes, RF settings, or spurious emission) are required, while major changes with modification can be arranged in the second prototype; and minor updates and certification submission can be processed in the third prototype.

2.2.4 Facility

The EMC Centre at the Hong Kong Productivity Council provides testing facility, eg 10-metre anechoic chamber, tension test, X-Ray, bending test, audio spectrum, vibration system, thermal imaging, etc. to support a comprehensive check.

3. Effectiveness

3.1 Time and cost

In the case Mr Yuen suggested, since a proper planning and pre-test take place, manufacturers can save time from design update and retest, hence better control the project timeline. Also it shows a lower developmental, testing, and overall production cost.

3.2 Cash Rebate Scheme

Under the government-backed scheme, developers can save more with a 40% rebate of R&D budget along with a total solution including technical consultancy, testing and certification service, developmental support, etc. provided by Hong Kong Government or local universities. Application guide can be viewed here.

The end

To learn more, please watch the presentation video at here.