

SOFIA DIGITAL TV APPLICATION TESTING SERVICES

Test your in-house or any HbbTV and smart TV application in Sofia Digital's laboratory.

Sofia Digital is an internationally acclaimed expert in HbbTV and Smart TV application deliveries and a long standing and active member of the HbbTV Association. Sofia Digital has delivered many sophisticated HbbTV applications to Mediacorp in Singapore, RTM and Mediaprima in Malaysia, MTV, Nelonen and Digita in Finland, Levira in Estonia, TRT in Turkey, Cellnex in Spain and many more around the globe. Sofia Digital develops and delivers Smart TV applications, like mtv for Samsung, LG and Panasonic, C More for Samsung and LG, YLE Areena for Panasonic, Ruutu for Samsung and LG, tonton for Samsung, LG and Panasonic mtv uutiset for LG among others. All applications have been tested extensively in Sofia Digital's receiver laboratory, which includes various receiver models from every major manufacturer. This ever-expanding collection includes older models since the year 2012 and all major Smart TV models from 2015 onwards as well as the latest models still to be introduced to the market.

Working with Sofia Digital means that the customer does not need to build their own receiver zoo. Sofia Digital provides dedicated testing personnel familiar with and experienced in HbbTV and Smart TV related testing. For testing automation, Sofia Digital utilizes, for example, Suitest tool (see more at <http://suite.st>), that can be used to rigorously test the application code and provide detailed reports concerning testing results.

Testing services are directed by Mr. Juha Joki, who has overseen Sofia Digital's testing services for over 10 years (since 2007), from the time that Sofia Digital became a Cable Ready and NorDig logo regime testing partner for receiver manufacturers. Recently the testing services have been extended to cover 3rd party HbbTV and Smart TV application testing as well. This enables testing a broadcaster's or an operator's hybrid and smart TV applications.

The service follows the PDCA-model. Initially, the test procedure is planned both for manual and Suitest testing. After this the test tasks are implemented in Suitest and run both manually and automatically. Checking the results includes identifying software level deviations from expected behavior. During the Action phase, the results are used to modify the testing plans and the cycle begins anew. Halfway results are reported to the customer, who can then apply bug fixes before the next round of tests. Sofia Digital is the ideal testing partner as our team of experts has run into many typical problems already in advance during the years of HbbTV and smart TV development work for different clients. This means, that Sofia Digital's testing and technology team can quickly suggest fixes and remedies to almost every identified



Figure 1. The receiver laboratory is Sofia Digital's core testing asset with over 50 different television models from all major TV manufacturers.



Figure 2. Plan-Do-Check-Act model

Testing of one application with HbbTV 1.5 and 2.0 receivers or a specific brands' smart TVs takes from five to 10 days depending on the complexity of the application. In case an application needs to connect to Internet servers from a specific country, Sofia Digital has a VPN access tools to allow applications and receivers to run in each GEO-IP location separately.

Testing includes both manual UX and automated feature testing phases. The customer will receive thorough reporting on how the application has passed the testing with different receivers and what issues have been identified. Suitest test reports are included in the delivery alongside analysis on the application's unique features and how well and fast the code runs in the televisions. The report also includes suggestions and examples on how to remedy the identified issues within the application.

Reports:

- Official approval report once the application has passed the testing (for HbbTV applications only)
- Pre-test report for Smart TV applications (smart TV manufacturers have their internal review processes before publishing)
- Subjective UX testing report
- Suitest feature testing report (including code efficiency report)
- Remedy summary including suggestions and examples regarding the identified issues

Testing can also be done during the development process of the application if the developers need to get feedback for their work. The testing during the development process can be billed on an hourly basis, reports during development process may vary.

Figure 3. Suitest example test reports