1. What is the main company business?	2. What are the devices that you develop and that need to be tested?	3. Biggest problems and challenges in testing in your company?	4. Do you have any systematic way of testing in your institution?	6. What are the parameters and metrics that you use in your testing procedures?	9. What kind of representation of the testing results do you find most suitable?	10. What is the average time spent for testing during the complete life cycle?	11. What is the approximate percentage of the cost for testing within your development cycle?
Manufacturer	no need for specific testing	Test automation	Yes	Reliability, Detecting particular faults , Detecting the quality of performance of SUT through product specific metrics	Report document after the testing has been done	<10%	<10%
Operator	DTV/STB	Test execution	No	Reliability, Coverage, Detecting particular faults	Visual test monitoring in real-time	0,2	0,1
SW development	Pure software development	Test definition, Test automation	Yes	Detecting particular faults	Report document after the testing has been done	0,3	0,3
SW development	Pure software development	Test environment design	No	Reliability	Report document after the testing has been done	Don't know	Don't know
SW development	Pure software development	Test environment design	No	Detecting particular faults	Visual test monitoring in real-time	<10%	<10%
SW development	Pure software development	Test automation, Test design	No	Reliability, Coverage	Report document after the testing has been done	0,1	0,1
SW development	Energy systems	Test execution	No	Detecting the quality of performance of SUT through product specific metrics	Report document after the testing has been done	0,1	0,1
SW development	Pure software development	Test automation	Yes	Coverage, Detecting particular faults , Detecting the quality of performance of SUT through product specific metrics	Combine a) and b) with the specifically designed data base	0,3	0,3

12. Do you have dedicated personnel for testing?	13. If yes, do they have special qualifications for it?	15. In what kind of testing are you most interested in?	16. What kind of testing approach is most suitable for your company?	17. What testing levels are you performing in your company (more can be selected)?	18. In which part of the development do you need the testing most?	19. What form of X-in-the-loop testing is used by your company (more answers can be selected)?	20. Please spec-ify embedded hardware / software archit-ectures your company is interested in - more answers possble.
Yes	No	Conformance testing	Combined / heterogeneous	Unit testing, Component integration testing, System testing, Acceptance testing	Final phase – ready for market	Hardware-in-the-loop	Nothing yet.
Yes	No	Functional testing (specification-based or black box testing)	Iterative	Unit testing, Component integration testing, Subsystem integration testing, System testing, Acceptance testing	Final phase – ready for market	Software-in-the-loop, Hardware-in-the-loop	m2m devices
No	No	Combined white and black box testing	Iterative	Component integration testing, System testing	Software development / reengineering / porting	Software-in-the-loop	.
No	No	Functional testing (specification-based or black box testing)	Combined / heterogeneous	System testing	Final phase – ready for market	Software-in-the-loop	Mobile phones
No	No	Combined white and black box testing	Iterative	System testing, Acceptance testing	Software development / reengineering / porting	Software-in-the-loop	/
No	No	Combined white and black box testing	Combined / heterogeneous	Unit testing, Subsystem integration testing, System testing, Acceptance testing	Software development / reengineering / porting	Software-in-the-loop	NA
No	No	Performance testing, e.g. load, throughput, stress	Combined / heterogeneous	Unit testing, Acceptance testing	Final phase – ready for market	Software-in-the-loop, Hardware-in-the-loop	Mikrokontroler + GSM/GPRS modem + solarni punjač + senzori
Yes	No	Combined white and black box testing	Combined / heterogeneous	Unit testing, Component integration testing, Subsystem integration testing, System testing, Acceptance testing	Software development / reengineering / porting	Software-in-the-loop	- ARM architecture

5. If answer in previous question was 'yes' please mention brifely what kind of way of testing, e.g. methodology or standard. If answer was 'no' please mention if you need any.	21. How would you benefit most of a research project aimed at embedded system testing enhancement?	7. If you are using detecting particular faults, please mention which:	8. If you are using detecting the quality of performance through product specific metrics please describe briefly which:	14. If yes, please specify which:	22. If it is 'ready - commercial - solution' please specify which:	24. Your position in the company
Testing of light equipment for automotive industry (headlights, rear lights, ...) according to ECE standards. Testing of photometric and colorimetric characteristics.	General methodology for enhanced testing methods (needs implementation)	- sealing ability - visual defect	- Photometric and colorimetric - yield strength			management
x	Ready – commercial – solution for specific architecture				m2m devices	Head of department for services and technologies planning and development
In compliance with IT Mark and CMMI	Open source framework for embedded systems testing (needs further customization)	Bugs in SW execution that are shown different behaviour in compare with initial requirements.				CEO
Don't know.	Survey of state-of-the-art and state-of-the-practice					sales manager
Unit testing	Open source framework for embedded systems testing (needs further customization)	Smoke testing newly created features				CTO
we are considering the possibilities	Survey of state-of-the-art and state-of-the-practice					Line Manager
Nemam	General methodology for enhanced testing methods (needs implementation)					Vlasnik
T Map model is followed for software testing process. The correspondent documentation can be created in accordance with JSTD-016-1995 or IEEE829 standards, depending on project/clients' requirements. If so required for testing and documentation purposes EXECOM can also apply to clients' standards. We comply with risk based and requirements based testing.	Open source framework for embedded systems testing (needs further customization)	Depends on a project.	Depends on a project.			Marketing & Communications Manager

Hungary-Serbia
IPA Cross-border Co-operation Programme

Cirene
Cross-Border IT Research Network

1. What is the main company business?	2. What are the devices that you develop and that need to be tested?	3. Biggest problems and challenges in testing in your company?	4. Do you have any systematic way of testing in your institution?	6. What are the parameters and metrics that you use in your testing procedures?	9. What kind of representation of the testing results do you find most suitable?	10. What is the average time spent for testing during the complete life cycle?	11. What is the approximate percentage of the cost for testing within your development cycle?
Manufacturer	Embedded systems in general	Test reliability assessment	Yes	Reliability, Detecting particular faults , Detecting the quality of performance of SUT through product specific metrics	Combine a) and b) with the specifically designed data base	0,3	0,3
SW development	Mobile devices	Test execution, Test reliability assessment	No	Reliability, Detecting particular faults	Report document after the testing has been done	0,1	0,1
Medical equipment	Blood separators and other transfusion equipment	Test environment design, Test definition, Test reliability assessment	Yes	Reliability, Detecting particular faults , Detecting the quality of performance of SUT through product specific metrics	Visual test monitoring in real-time	0,2	0,3
Manufacturer	EMS -electronic manufacturing service	Test reliability assessment	Yes	Reliability, Detecting particular faults	Combine a) and b) with the specifically designed data base	Don't know	0,2
Manufacturer	Mobile devices	Test environment design	Yes	Detecting the quality of performance of SUT through product specific metrics	Combine a) and b) with the specifically designed data base	0,2	0,3
Manufacturer	Energy systems	Test execution, Test automation, Test reliability assessment	No	Reliability, Detecting particular faults	Visual test monitoring in real-time	Don't know	0,2

12. Do you have dedicated personnel for testing?	13. If yes, do they have special qualifications for it?	15. In what kind of testing are you most interested in?	16. What kind of testing approach is most suitable for your company?	17. What testing levels are you performing in your company (more can be selected)?	18. In which part of the development do you need the testing most?	19. What form of X-in-the-loop testing is used by your company (more answers can be selected)?	20. Please spec-ify embedded hardware / software archit-ectures your company is interested in - more answers possble.
Yes	No	Functional testing (specification-based or black box testing)	V-model	Unit testing, Component integration testing, Subsystem integration testing, System testing, Acceptance testing	Software development / reengineering / porting	Model-in-the-loop, Software-in-the-loop, Hardware-in-the-loop	ARM, TI DSP, Linux, Android
No	No	Functional testing (specification-based or black box testing)	Combined / heterogeneous	Unit testing, System testing, Acceptance testing	Software development / reengineering / porting	Software-in-the-loop	Android on tablets for embedded systems
Yes	No	Combined white and black box testing	Combined / heterogeneous	Unit testing, Subsystem integration testing, Acceptance testing	HW/SW modules assembly	Software-in-the-loop, Hardware-in-the-loop	Single board computers, Industrial panel PC, Microcontroler RTOS platforms. Windows embedded, Windows CE, Android 3.0
Yes	Yes	Functional testing (specification-based or black box testing)	Combined / heterogeneous	Acceptance testing	Final phase – ready for market	Hardware-in-the-loop	ARM, FPGA
Yes	No	Functional testing (specification-based or black box testing)	Iterative	Unit testing	Final phase – ready for market	Hardware-in-the-loop	ARM, PIC, x86, FPGA
Yes	No	Combined white and black box testing	Combined / heterogeneous	System testing, Acceptance testing	Software development / reengineering / porting	Model-in-the-loop	CAM EDA

5. If answer in previous question was 'yes' please mention brifely what kind of way of testing, e.g. methodology or standard. If answer was 'no' please mention if you need any.	21. How would you benefit most of a research project aimed at embedded system testing enhancement?	7. If you are using detecting particular faults, please mention which:	8. If you are using detecting the quality of performance through product specific metrics please describe briefly which:	14. If yes, please specify which:	22. If it is 'ready - commercial - solution' please specify which:	24. Your position in the company
In-house developed test procedures, custom test jigs, automated test systems. During the development formal verification of the design is performed.	Survey of state-of-the-art and state-of-the-practice	Electronic assembly faults	measurement of physical parameters (frequency, bandwidth, noise level, etc.)			CTO
we need info what methodology/ies is/are the best for small teams (5-7 persons) to use for testing embedded systems based od Andorid platform	General methodology for enhanced testing methods (needs implementation)					Owner
methodology foreseen by ISO 13485 for devices class A and B	Open source framework for embedded systems testing (needs further customization)	Voltage levels, improper wiring and connection of electronics, unobstructed movement of all movable components, correct settings and calibrations, etc.	Device reaction time, durability of some parts under heavy load, data transfer speed and retransmitting count needed, adaptability to different surrounding working condition, etc.			Manager for Embedded software development and testing
- inline automatic optical inspection - functional test of asseblied boards based on national instruments PXI test plaltform programmed in labview	Open source framework for embedded systems testing (needs further customization)	- SMT faults - THT faults - solder faults - functional faults	electrical, mechanical and optical funcionality of DUT	labview trainnig HV test trainning		general manager & owner
We apply internal testing procedure, that specifies the test cases and preserves the traceability.	General methodology for enhanced testing methods (needs implementation)		Products must comply to their respective requirements.			COO
We need some kind of way of testing, methodology or standard	General methodology for enhanced testing methods (needs implementation)					manager

1. What is the main company business?	2. What are the devices that you develop and that need to be tested?	3. Biggest problems and challenges in testing in your company?	4. Do you have any systematic way of testing in your institution?	6. What are the parameters and metrics that you use in your testing procedures?	9. What kind of representation of the testing results do you find most suitable?	10. What is the average time spent for testing during the complete life cycle?	11. What is the approximate percentage of the cost for testing within your development cycle?
SW development	Pure software development	Test automation	No	Reliability, Coverage, Detecting particular faults , Detecting the quality of performance of SUT through product specific metrics	Report document after the testing has been done	0,3	0,3
SW development	DTV/STB	Test definition, Test automation, Test design, Test reliability assessment	Yes	Reliability, Coverage	Combine a) and b) with the specifically designed data base	0,1	0,1

12. Do you have dedicated personnel for testing?	13. If yes, do they have special qualifications for it?	15. In what kind of testing are you most interested in?	16. What kind of testing approach is most suitable for your company?	17. What testing levels are you performing in your company (more can be selected)?	18. In which part of the development do you need the testing most?	19. What form of X-in-the-loop testing is used by your company (more answers can be selected)?	20. Please spec-ify embedded hardware / software archit-ectures your company is interested in - more answers possble.
Yes	No	Functional testing (specification-based or black box testing)	Iterative	Acceptance testing	Final phase – ready for market	Software-in-the-loop	None.
Yes	No	Functional testing (specification-based or black box testing)	Combined / heterogeneous	Component integration testing, Subsystem integration testing, System testing	Software development / reengineering / porting	Hardware-in-the-loop	...

5. If answer in previous question was 'yes' please mention brifely what kind of way of testing, e.g. methodology or standard. If answer was 'no' please mention if you need any.	21. How would you benefit most of a research project aimed at embedded system testing enhancement?	7. If you are using detecting particular faults, please mention which:	8. If you are using detecting the quality of performance through product specific metrics please describe briefly which:	14. If yes, please specify which:	22. If it is 'ready - commercial - solution' please specify which:	24. Your position in the company
The main problem is variety of technologies in a company which need to be tested (.NET and ASP.Net applications, Android apps, Java applications for machine learning...). So, it's hard to explore and define so many various solutions for automate each of mentioned above.	Survey of state-of-the-art and state-of-the-practice	For each technologies there are some common vulnerability which are first under test. For example, for Android applications, the first in the testing list are: screen orientation, battery life, Dependence on external resources (WiFi, GPS, SMS, Bluetooth). Also common filed for testing any technology is inspecting application behaviour with threshold values.	Procedures described in product specification are the main guidelines for testing.			QA
Black-Box Testing	Survey of state-of-the-art and state-of-the-practice					Head of Test System Group