Home Security Embedded System Test Specification

1 Overview

The Test Specification document covers few critical tests from the below modules;

- Communicator Validations
- Zone Validations
- Partition Validations
- Output Validations
- Smoke Wire Validations
- Keypads Validations
- Key Fobs Validations

*Please do note that this document does not cover all the test scenarios mentioned in the test plan mind map due to the time limitations.

2 Test Specification

2.1 Module_01: Communicator Validations

Test Case ID	**SEC_CM_T01**	
Test Case Name	**Verify the functionality of the Dual path communicator during a power outage**	
Requirement/Module	Communicator Validations	
Description	The test verifies the consistent alarm signal transmission of dual path communicator during a power outage. When the internet connection is dropped, still the dual path communicator will transmit the alarm signal via LTE network.	
Preconditions	• Environment is set up satisfying all the requirements • Dual path communicator (iGSMV4G) is connected to a router • The system is in the armed state • The alarm monitoring company is informed	
Step	**Action**	**Expected outcome**
1	Fault a sensor in an alarmed zone	The configured output device will be triggered
		The faulted zone is displayed in the keypad screen
2	Verify the alarm is received from the AlarmNet's control center	User will be receiving an alert message from the

		monitoring center regarding the alarm
3	Power off the Router	Internet connection will be lost
4	Fault a sensor in an alarmed zone	The configured output device will be triggered
		The faulted zone is displayed in the keypad screen
5	Verify the alarm is received from the AlarmNet's control center	User will be receiving an alert message from the monitoring center regarding the alarm

2.2 Module_02: Zone Validations

Test Case ID	**SEC_ZN_T01**	
Test Case Name	**Verify the functionality when multiple zones (hardwired & wireless) are faulted at the same time**	
Requirement/Module	Zone Validations	
Description	The test verifies the stability, accuracy, and the responsiveness of the system when multiple events occurred in both wireless and hard-wired zones concurrently	
Preconditions	• Environment is set up satisfying all the requirements • Wireless expansion model is integrated to the control panel which expand the zone coverage • The system is in the armed state	
Step	**Action**	**Expected outcome**
1	Fault multiple sensors in both hard-wired (on-board) and wireless zones (Expansion zones) that are in alarmed state	The configured output devices will be triggered all without missing any
		The faulted zones are displayed in the keypad screen
2	Verify all the events are recorded in the Keypad event logger	All events must be shown in the event logger with accurate time and date

Test Case ID	SEC_ZN_T02	
Test Case Name	**Verify the functionality of the chime by zone**	
Requirement/Module	Zone Validations	
Description	The test verifies the functionality of the chime. Chime functions with only zone types 1, 2 & 3 and only when it is toggled on	
Preconditions	• Environment is set up satisfying all the requirements • Multiple zones are configured from multiple zone types including 1, 2 & 3 • The system is in the armed state • The chime is toggled on	
Step	**Action**	**Expected outcome**
1	Fault a sensor in a zone type which does not belong to 1, 2 or 3	Chime will not get triggered
2	Fault a sensor in the zone type 1, 2 or 3	Chime will start beeping while it shows a chime message on the screen
3	Reset the Chime	Screen will be cleared, and beeping will be stopped. Chime will be on toggle off state
4	Fault a sensor in the zone type 1, 2 or 3	Chime will not get triggered

2.3 Partition Validations

Test Case ID	SEC_PT_T01	
Test Case Name	**Verify the functionality of the common partition**	
Requirement/Module	Partition Validations	
Description	The test verifies the functionality of the common partition, when one partition is armed and the other is in disarmed state.	
Preconditions	• Environment is set up satisfying all the requirements • Dual partitions are configured, along with a common partition • One partition is in armed state, while the other is in disarmed state	
Step	**Action**	**Expected outcome**
1	Fault a sensor in the disarmed partition zone	No response from the system
2	Fault a sensor in the common partition	No response from the zone
3	Fault a sensor in the armed partition zone	The configured output device will be triggered

		The faulted zone is displayed in the keypad screen

Test Case ID	**SEC_PT_T02**	
Test Case Name	**Verify the functionality of the global arming**	
Requirement/Module	Partition Validations	
Description	The test verifies the global arming functionality with any system keypad	
Preconditions	• Environment is set up satisfying all the requirements • Dual partitions are configured, along with a common partition • User is given required authority to perform global arming action • All partitions are in disarmed state • Alpha numeric keypad is installed (global arming can perform only in these keypads)	
Step	**Action**	**Expected outcome**
1	Enter the relevant user codes in any keypad to perform global arming (Arm away - user code + 0 + 2 Arm stay - user code + 0 + 3)	The system will be put to armed state including all the partitions
		Keypad will display the system armed message

2.4 Output Validations

Test Case ID	**SEC_OT_T01**	
Test Case Name	**Verify the functionality of the output relays**	
Requirement/Module	Output Validations	
Description	The test verifies the functionality of output relays, indicating the system state	
Preconditions	• Environment is set up satisfying all the requirements • LED light is connected to an output relay & has configured it to denote the system state • System is in armed state	
Step	**Action**	**Expected outcome**
1	Disarm the system	LED light will turn on
		Keypad will display the system disarmed message
2	Arm the system	LED light will turn off
		Keypad will display the system armed message

3	Fault a sensor in an armed zone	LED light will flash
		Keypad will display the alarm message

2.5 Smoke Wires Validation

Test Case ID	**SEC_SM_T01**	
Test Case Name	**Verify the functionality of the Smoke wires/detectors**	
Requirement/Module	Smoke Wires Validations	
Description	The test verifies the functionality and the responsiveness of smoke wires	
Preconditions	• Environment is set up satisfying all the requirements • Both 4-wire and 2-wire smoke detectors are installed in a configured zone • System is in armed state • Have a canned smoke	
Step	**Action**	**Expected outcome**
1	Direct canned smoke into the vents of smoke detectors	Trigger an alarm in the system
		Keypad will display the system alarm message
2	Reset the alarm	Alarm will go off
		Keypad will clear the alarm message

2.6 Keypads Validation

Test Case ID	**SEC_KP_T01**	
Test Case Name	**Verify the functionality of the Exit Count**	
Requirement/Module	Keypads Validations	
Description	The test verifies the configurations, functionality, and the responsiveness of the exit counter	
Preconditions	• Environment is set up satisfying all the requirements • System is in disarmed state • User is given required authority to configure exit count	
Step	**Action**	**Expected outcome**
1	Enter star (*)34 to advance to the Exit Delay programming field	Keypad will open the exit delay programming field
2	Enter the amount of time for the delay – 98	Keypad will display an error since 97 is the max value that can be assigned as the exit delay

3	Enter the amount of time for the delay – 97 (2 minutes)	Timer will be set successfully
4	Arm the system	Keypad will display the system armed message
5	Stay on the premises for more than 2 minutes	System will trigger an alarm
		Keypad will display the system alarm message

Test Case ID	**SEC_KP_T02**	
Test Case Name	**Verify User Scheduling auto arming/disarming**	
Requirement/Module	Keypads Validations	
Description	The test verifies the configurations and the auto arming/disarming functionality in user scheduling	
Preconditions	• Environment is set up satisfying all the requirements • System is in disarmed state • A valid user is added to the system • Ensure the system clock is set to 10 minutes prior (Assuming the tester can configure the system following the below steps within 10 minutes)	
Step	**Action**	**Expected outcome**
1	Schedule a user to be auto armed by following the user guide → User_Guide	The user is successfully configured with scheduling
2	Stay for 10 minutes and check the system keypad	System will be auto armed for the configured user
3	Disarm the system	Keypad will display the system disarmed message
4	Set the clock to 5 minutes prior	Clock will be set to 5 minutes
5	Schedule a user to be auto disarmed by following the user guide → User_Guide	The user is successfully configured with scheduling
6	Arm the system	Keypad will display the system armed message
7	Stay for 5 minutes and check the system keypad	System will be auto disarmed for the configured user

2.7 Key Fobs Validation

Test Case ID	**SEC_KF_T01**	
Test Case Name	**Verify the arming/disarming using Key fobs**	
Requirement/Module	Key Fobs Validations	
Description	The test verifies the functionality of arming and disarming using key fobs	
Preconditions	• Environment is set up satisfying all the requirements • Key fob is available • System is in disarmed state • Has a valid user	
Step	**Action**	**Expected outcome**
1	Configure the key fob without a zone to arm/disarm the system following the user guide → key_fob_guide	Keyfob will be successfully programmed
2	Arm the system using key fob, staying within 50ft range	The system will be armed
3	Disarm the system using the key fob	The system will be disarmed