Test Writer: Le Van Vu An

Test case name		System timing test			**Test ID:**	Sys_Timing_01
Description		Test timing response of the system			**Type:**	Black box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	Sys 1.0			**Time:**	
	Setup:	Install the device in test room, power up device to test functions and record results in personal computer.				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	People come in the room	All lights turn on within 10s as in setting				
2	Last people leave the room	After at least 10s, all devices must be turned off.				
3	Change the time required to turn on/off through software	The status is updated immediately (LED is red at first, but turns green after the time setting)				
4	One person continuously comes in and out of the room	All lights turn on/off on the setting time				
Overall Test Result						

Test Writer: Le Tu Chanh Tri						
Test case name		Temperature adaptability test			**Test ID:**	Temp_01
Description		Test system's functionality under various temperature			**Type:**	Black box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	1.0			**Time:**	
	Setup:	Certain environment must be prepared beforehand, make sure to power up system.				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	Expose system's device to temperature under -10 degree Celsius	Device functions properly as it is supposed to				
2	Increase temperature by 5 degree Celsius until the temp reaches 40 degree	The system operates smoothly without any error				
3	Continue to increase temperature by 5 degree Celsius until the temp reaches 50 degree Celsius	Device functions properly as in normal condition				
Overall Test result						

Test Writer: Ngo Thanh Quang						
Test case name		Power consumption test			**Test ID:**	Pwr_01
Description		Test system's power consumption under various working rate			**Type:**	Black box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	1.0			**Time:**	
	Setup:	Connect the device with power-measuring-tools.				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	Have the system run in 1 hour and measure power dissipated	Power dissipates less than 20 Watt. Hour				
2	Leave the system inactive in 1 hour and measure power dissipated	Power dissipates less than 10 Watt. Hour				
3	Operate system in 4 to 5 times, 5-10 minutes per time in 1 hour and measure power dissipated	Power dissipates less than 15 Watt. Hour				
Overall Test result						

Test Writer: Le Van Vu An						
Test case name		Environmental & safe test			**Test ID:**	Safe_01
Description		Test system's ability to resist the environmental impacts			**Type:**	Black box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	1.0			**Time:**	
	Setup:	Finalize the device (install all internal components, screw the cover)				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	Using external force press on the device	The device works normal under the force of 300N				
2	Let the device in direct sunlight in 1 hour	The device operates correctly thanks to the heat-resistant cover				
3	Let an overload-current go through the device	A fuse integrated to device's circuit board disrupts the current, keep other electronic devices safe.				
Overall Test result						

Test Writer: Tran Phuoc Tu Tam						
Test case name		MCU test			**Test ID:**	MCU_01
Description		Test the functionality of MCU.			**Type:**	White box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	1.0			**Time:**	
	Setup:	Download all software functions to MCU. Connect it with a personal computer. Use simulation programs to generate signals.				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	Generate “human presence signal” and “light intensity signal” to MCU. Measure DC output generated by MCU.	DC output should be 0V/5V according to the signals.				
2	Generate user configuration to MCU.	MCU must display correct settings and values through software on computer.				
3	Generate room status information to MCU.	MCU must display the correct information of the room status.				
Overall Test result						

Test Writer: Tran Phuoc Tu Tam						
Test case name		Wifi module			**Test ID:**	Wifi_01
Description		Test the functionality of Wifi module.			**Type:**	White box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	1.0			**Time:**	
	Setup:	Set up the Wifi module to create a wireless network. Connect a personal computer and a tablet/smartphone to this network (these devices must be set up beforehand for compatibility).				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	Use PC to send a piece of information (user configuration for example) via wireless network.	The display device should display the configuration's content precisely.				
2	Use tablet to send different information (room status for example) back to PC via wireless network.	PC should display the correct information derived from tablet through Wifi module.				
Overall Test result						

Test Writer: Ngo Thanh Quang						
Test case name		Cover of the device			**Test ID:**	Cover_01
Description		Test the ability of the device's cover to protect the circuit inside from exterior impacts			**Type:**	White box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	1.0			**Time:**	
	Setup:	Test the cover only with no components inside.				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	Using external force press on the cover	The cover stands the maximum force of 300N				
2	Burn the cover, increase the temperature gradually	The cover doesn't melt until 300 Celsius degree				
3	Let the cover fall from 5 meters	The cover is undamaged				
4	Pour the water on the cover	The cover prevents the water from seeping inside it				
5	Test the cover under salt and acid environment	The cover should resist salt and acid well				
6	Test the weight of the cover	Quite light, about 100gr, cannot injure people or damage anything when falling from the ceiling				
Overall Test result						

Test Writer: Tran Phuoc Tu Tam						
Test case name		Power supply module			**Test ID:**	PS_01
Description		Connect the power supply to 220V AC. It should transfer to 5V DC for using for other module			**Type:**	White box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	1.0			**Time:**	
	Setup:	Connect the module to 220V AC. Set up the measuring tools.				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	Measure the input voltage at the power supply	Approximate 220V AC				
2	Measure the voltage at the wifi module	Approximate 5V DC, which satisfy the requirement				
3	Measure the voltage at the light sensor	Approximate 5V DC, which satisfy the requirement				
4	Measure the voltage at the IR sensor	Approximate 5V DC, which satisfy the requirement				
5	Measure the voltage at the MCU	Approximate 5V DC, which satisfy the requirement				
Overall Test result						

Test Writer: Le Van Vu An						
Test case name		IR and light sensors			**Test ID:**	Sensor_01
Description		Light sensor: check if the sensor functions properly. IR sensor: Check if there is any improvement in sensoring area.			**Type:**	White box
Test Information						
	Name of Tester				**Date:**	
	Hardware Version:	1.0			**Time:**	
	Setup:	Connect IR sensor and light sensor with an alarm (a test tool) respectively. The alarm will ring corresponding to sensors' detection.				
Step	Action	Expected result	Pass	Fail	N/A	Comments
1	Expose the light sensor to day light (very bright), people come in.	Alarm should remain silent, indicating there is no need to turn on the lights.				
2	Put the light sensor in a room in which light 's intensity is very low (cloudy environment)	Alarm should rings immediately indicating it is necessary to turn on the room's lights.				
3	Test sensoring area of IR sensor after modification.	The area should be 20 square meters.				
Overall Test result						