LightPRO System Setup Procedure

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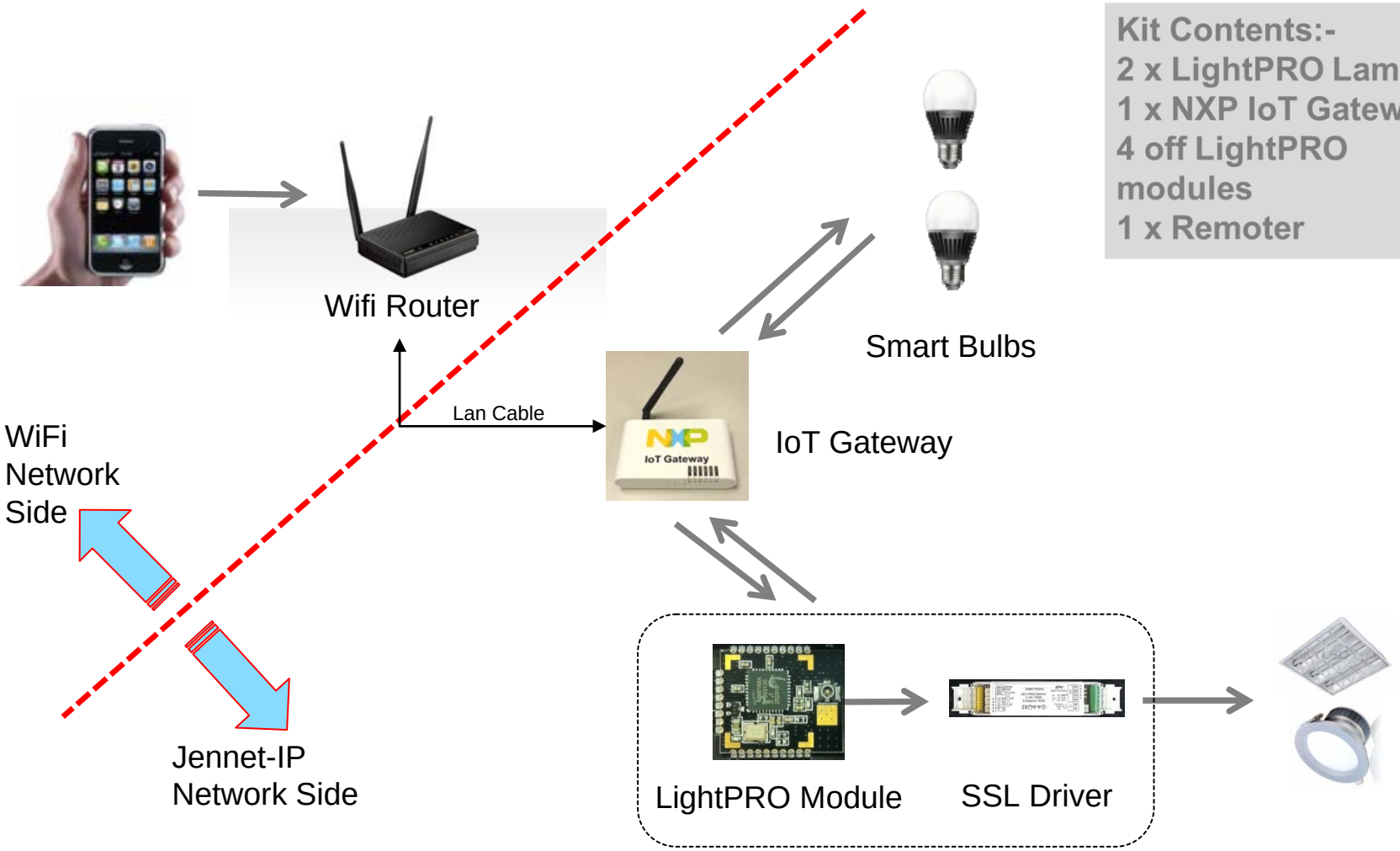
Setting up the LightPRO Network

LightPRO dev kit Overview



Setting up the LightPRO network (1)

- *IP network side setup*

Step 1 Connect IoT Gateway to IPv4 network

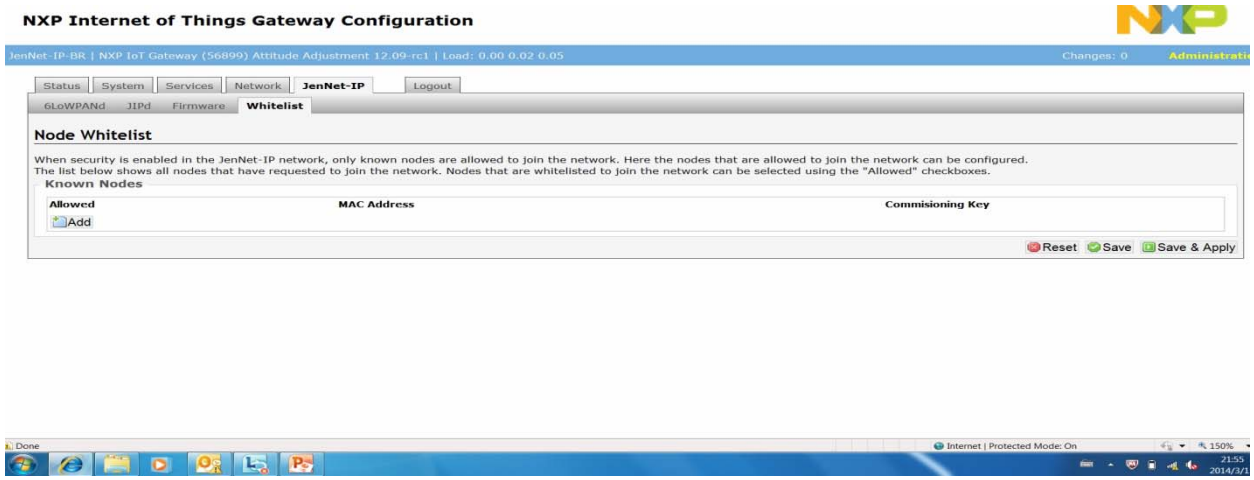
- Connect the IoT gateway with a LAN Router. Then find the IP address of IoT gateway in the client list of DHCP Server.
- This will allow PC web to access to the IoT Gateway and Jennet-IP network using the IP address.

Setting up the LightPRO network (2)

- *Jennet-IP network formation*

Step 2 Enter Jennet-IP Network formation

- Open Browser: http://192.168.0.xx.(IP address is dynamically assigned by the DHCP server)
- Go to “Gateway Configuration Interface”, type the password “snap”
- Go to “Jennet-IP”-> “Whitelist” tab, wait for the lamps/remote to join the Jennet-IP network

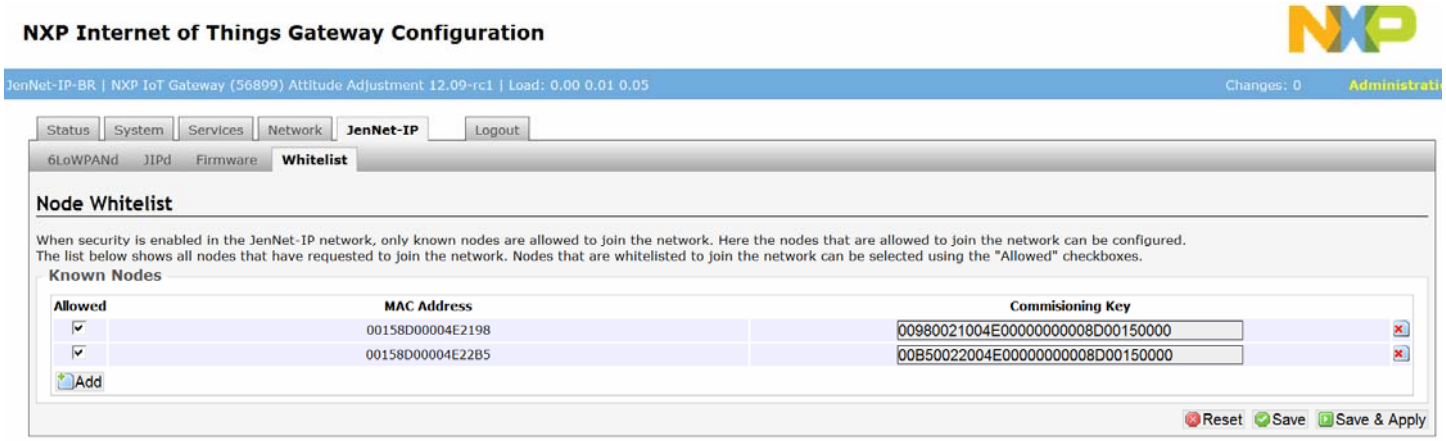


Setting up the LightPRO network (2)

- *Jennet-IP network formation*

Step 3 Add lamp to Jennet-IP network

- Power up the lamp, which enters a breath mode to indicate a joining state.
- Refresh the page of “Jennet-IP”-> “Whitelist” tab until the lamp shows up
- Tick to check box of the lamp and click “Save&Apply”
- Repeat Step3 to add more lamps

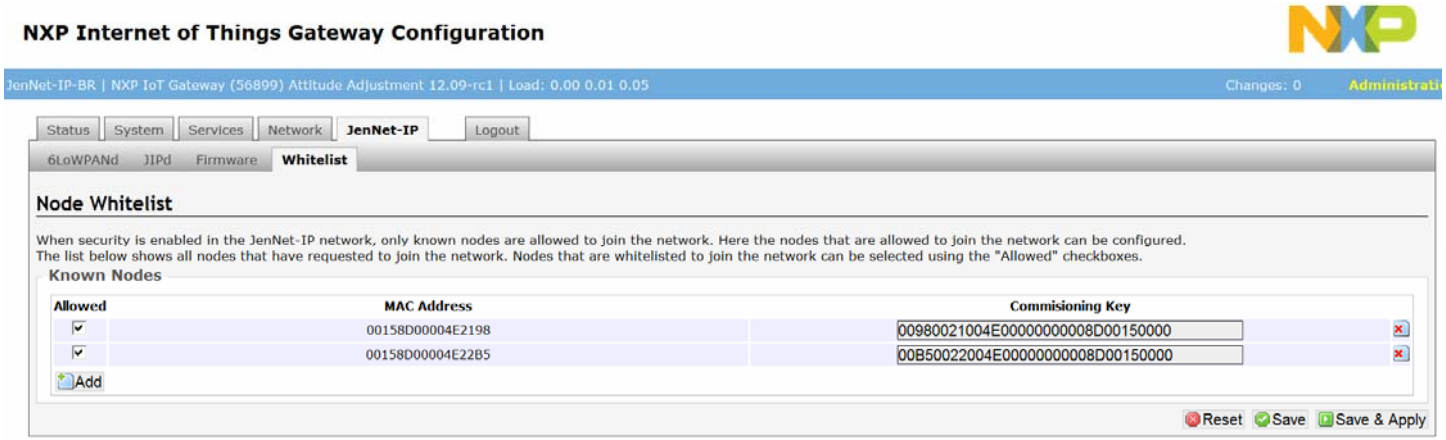


Setting up the LightPRO network (2)

- *Jennet-IP network formation*

Step 4 Add Remote to Jennet-IP network

- Initiate the active mode of the remote by pressing “PRG button-> Up button-> Down button-> Up button”.
- Refresh the page of “Jennet-IP”-> “Whitelist” tab until the remote shows up
- Tick to check box of the remote and click “Save&Apply”
- Repeat Step4 to add more remotes

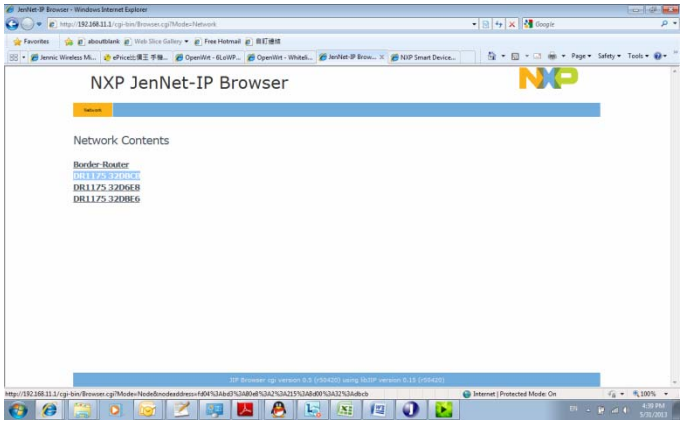


Setting up the LightPRO network (3)

- *Group Configuration*

Step 5 Enter Group Configuration

- Open Browser: http://192.168.0.xx.(IP address is dynamically assigned by the DHCP server)
- Go to “JIP Browser -> ..-> Network Contents”, all joined lamps will show out;
- Select target lamp and then Choose “Groups” MIB for group configuration

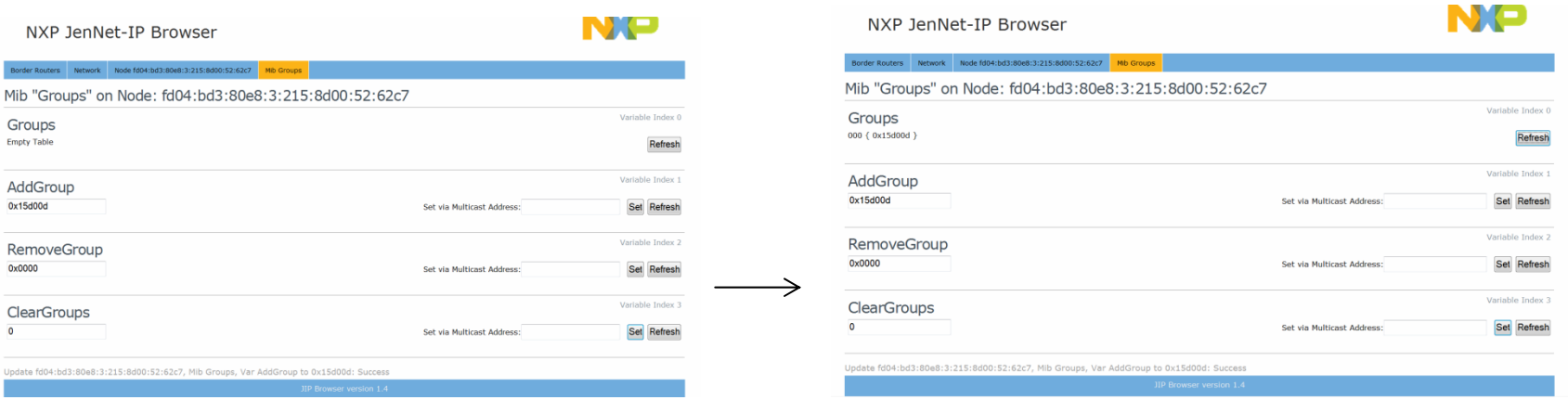


Setting up the LightPRO network (3)

- *Group Configuration*

Step 6 Create a Group Entry to a lamp

- Fill in“AddGroup” box with supported GroupID and then “Set”;
- When the bottom line shows “Success”, Refresh the “Groups” table.



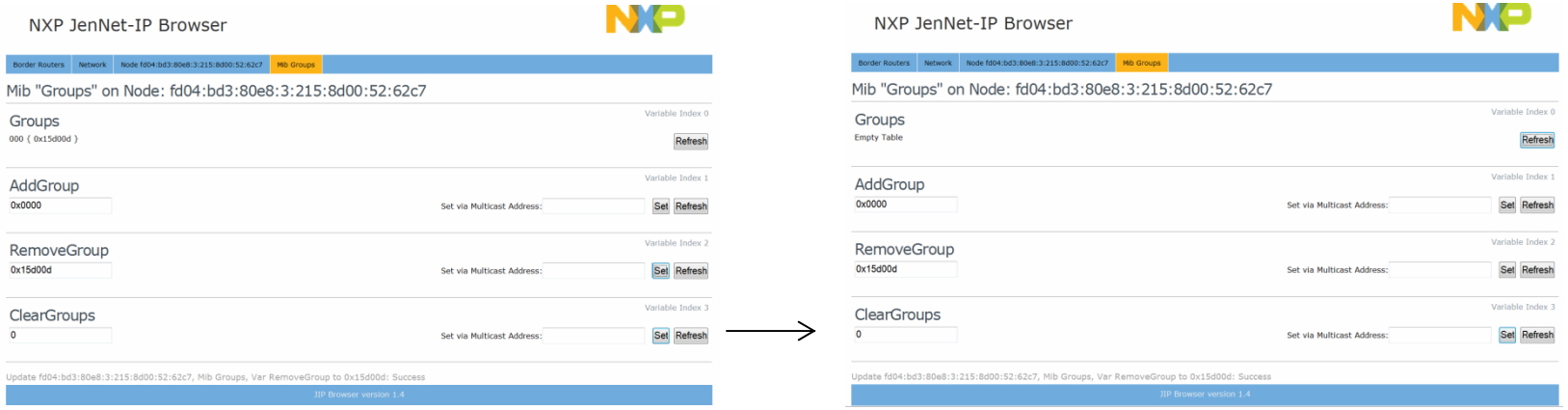
- Notes1: The Group IDs supported by the Android Smart Lighting App are “0x15a00a”, “0x15b00b”, “0x15c00c”, “0x15d00d” and “0x15f00f”. The Group IDs supported by the PC web are “0x15c00c”, “0x15d00d” and “0x15f00f”.

Setting up the LightPRO network (3)

- *Group Configuration*

Step 7 Delete a Group Entry from a lamp

- Fill in“RemoveGroup” box with a GroupID that is already in the Group table,and then “Set”;
- When the bottom line shows “Success”, Refresh the “Groups” table.



Setting up the LightPRO network (4)

- *Scene Configuration*

Step 8 Adjust Group Status for Scenes

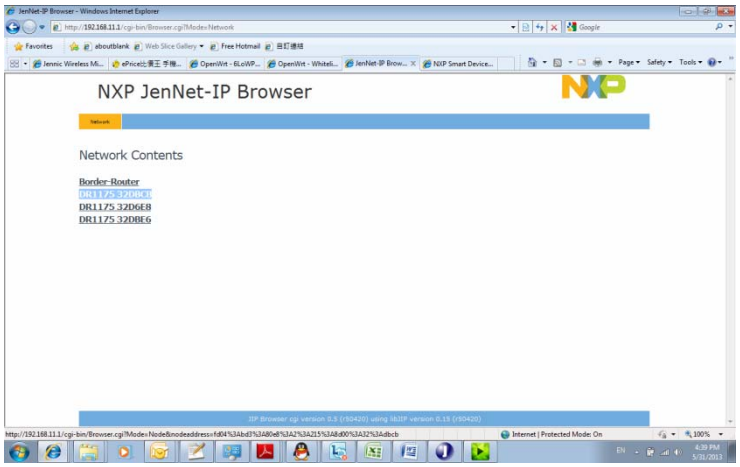
- Based on group control, adjust the status of lamps to the expected scene value.

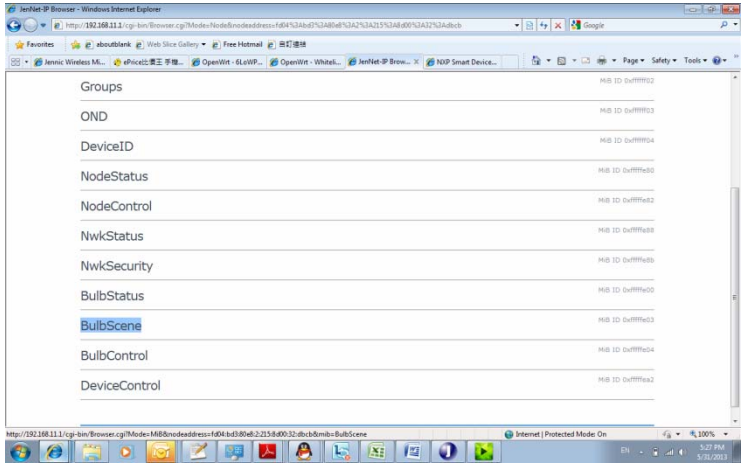
Setting up the LightPRO network (4)

- *Scene Configuration*

Step 9 Enter Scene Configuration

- Go to “JIP Browser -> ..-> Network Contents”, all joined lamps will show out;
- Select target lamp then choose “BulbScene” MIB for scene configuration.



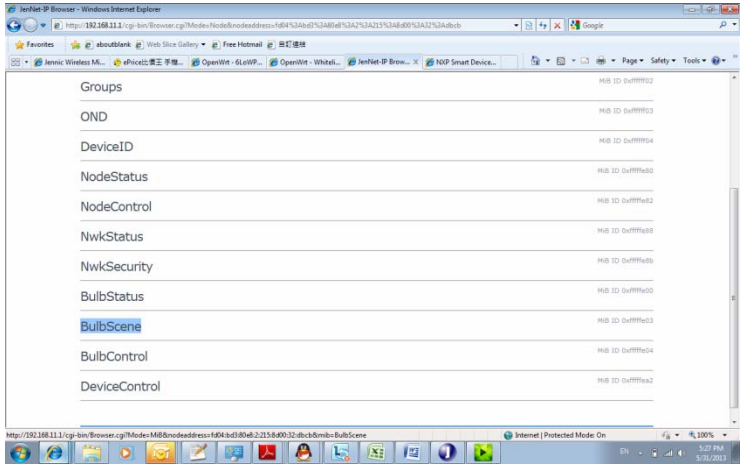


Setting up the LightPRO network (4)

- *Scene Configuration*

Step 10 Save Scene Configuration

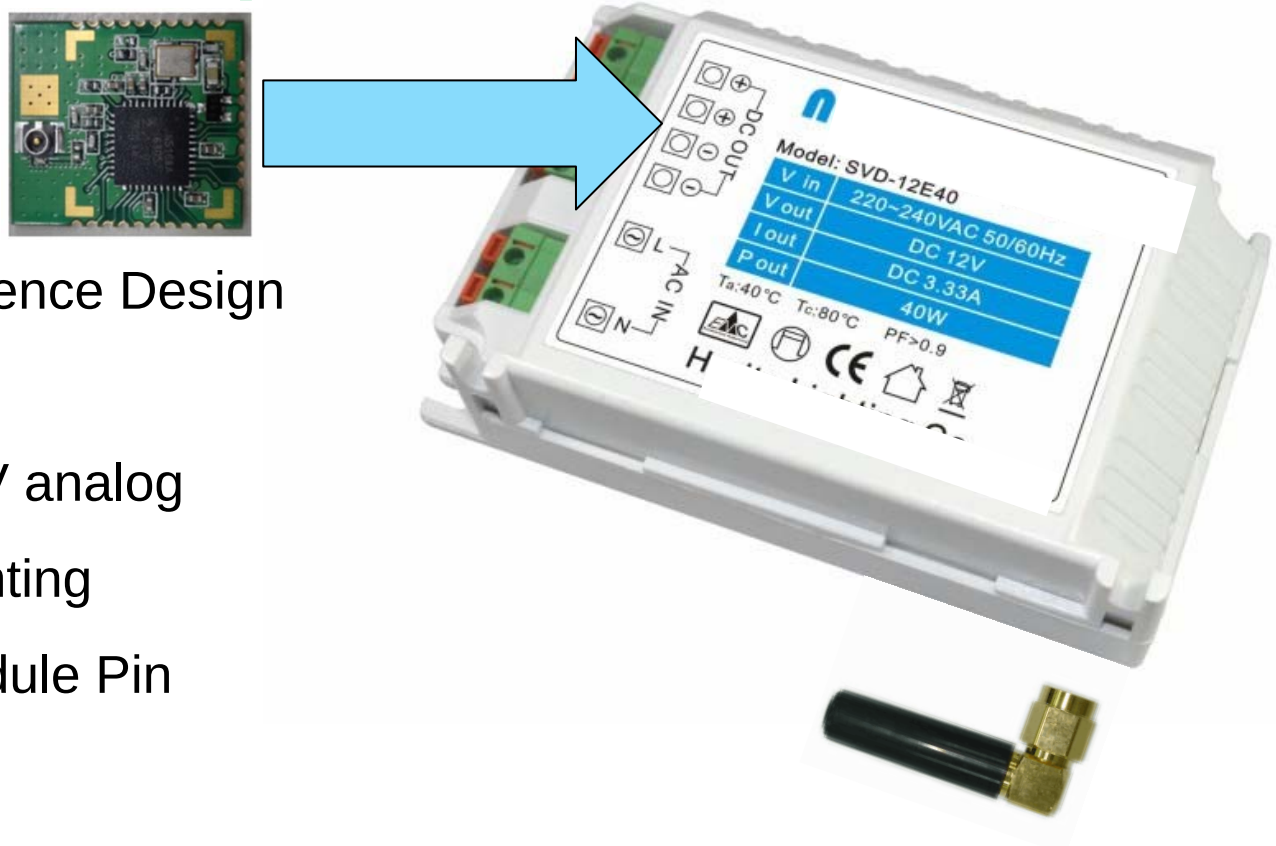
- Save the status of the bulb into a scene by editing one of supported sceneID into “AddSceneID” and then “Set”;
- Go back to the step 9, save the status for the scene one by one until all bulb in the scene has been addressed.



- Notes: The valid scene IDs are 0xA00A (Home), 0xB00B (Away), 0xC00C (Movie), 0xD00D (Reading).

Hardware – how to make a LightPRO SSL Driver

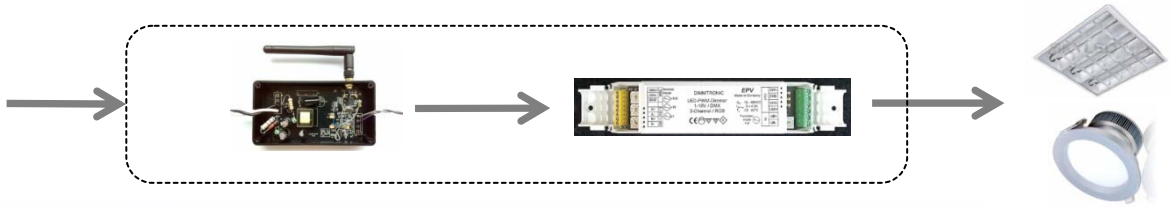
How to connect a LightPRO module (to an SSL driver box)



- IoT Box Reference Design
- Power Supply
- PWM or 0-10V analog
- Antenna mounting
- LightPRO Module Pin Connections
- Testing
- Q&A

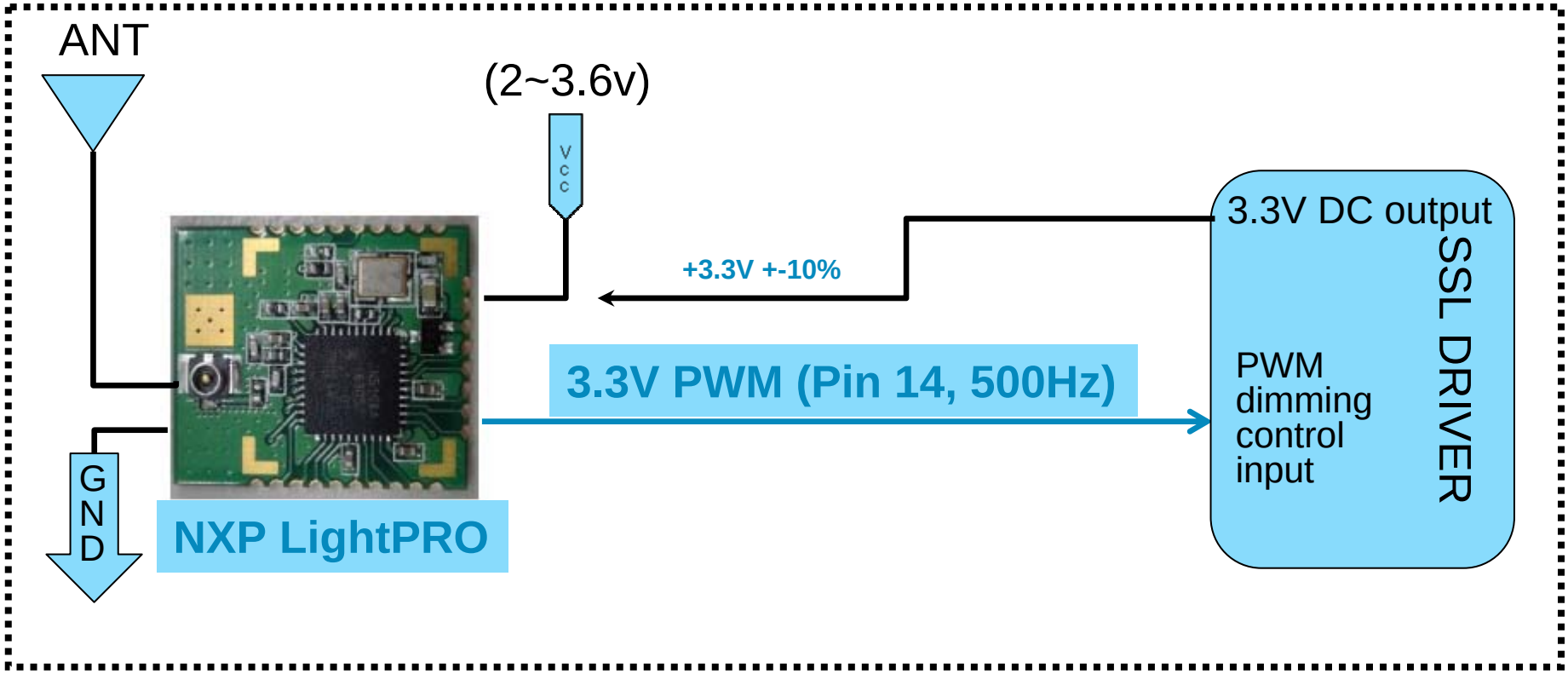
LightPRO - reference design

90-275VAC
Universal AC



How to connect LightPRO (1)

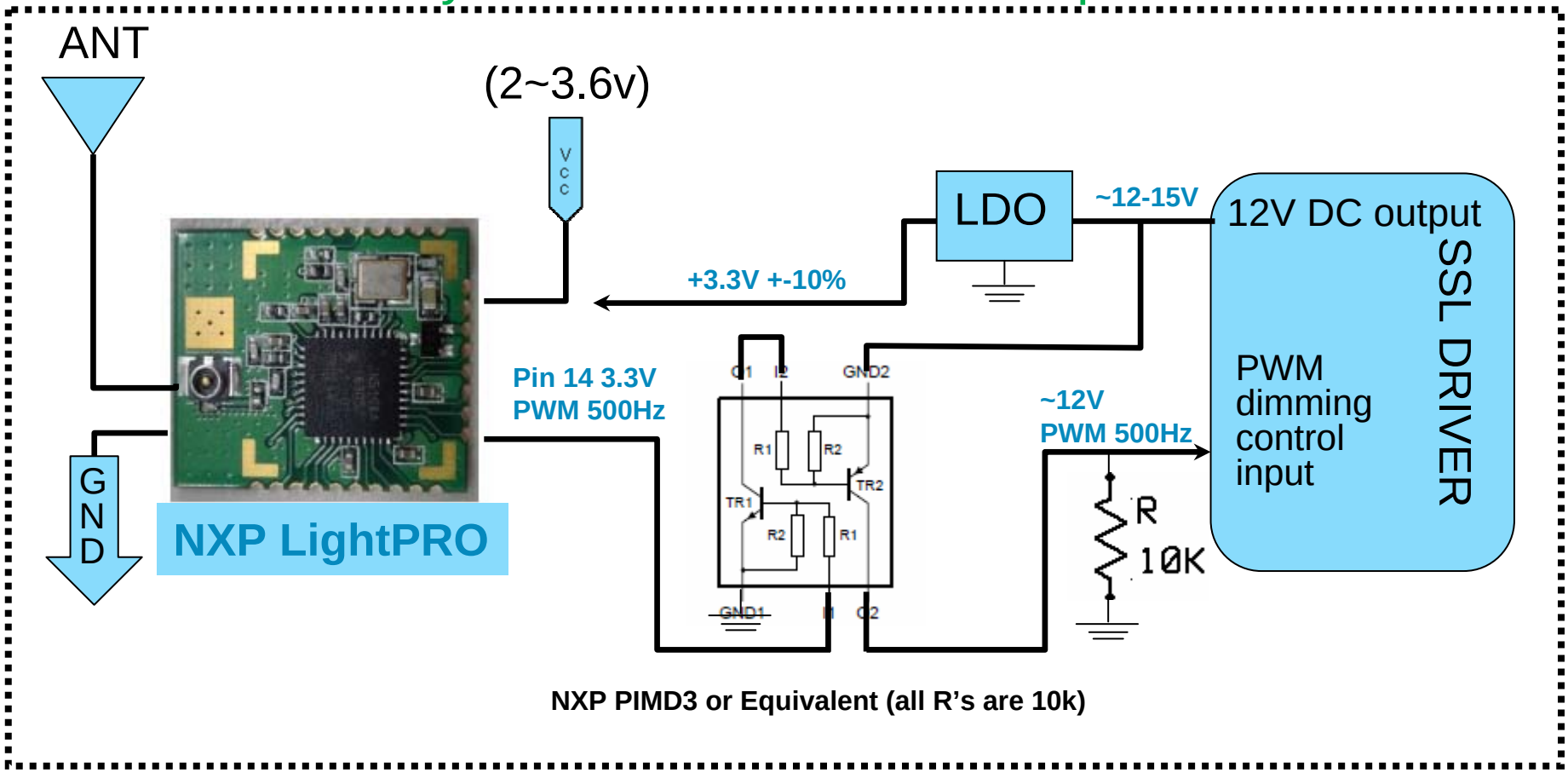
- Inside your IOT SSL Driver – simple 3.3V PWM case



In this example, we show how to interface to a SSL Driver that accepts 0 to 3.3V PWM signal

How to connect LightPRO (2)

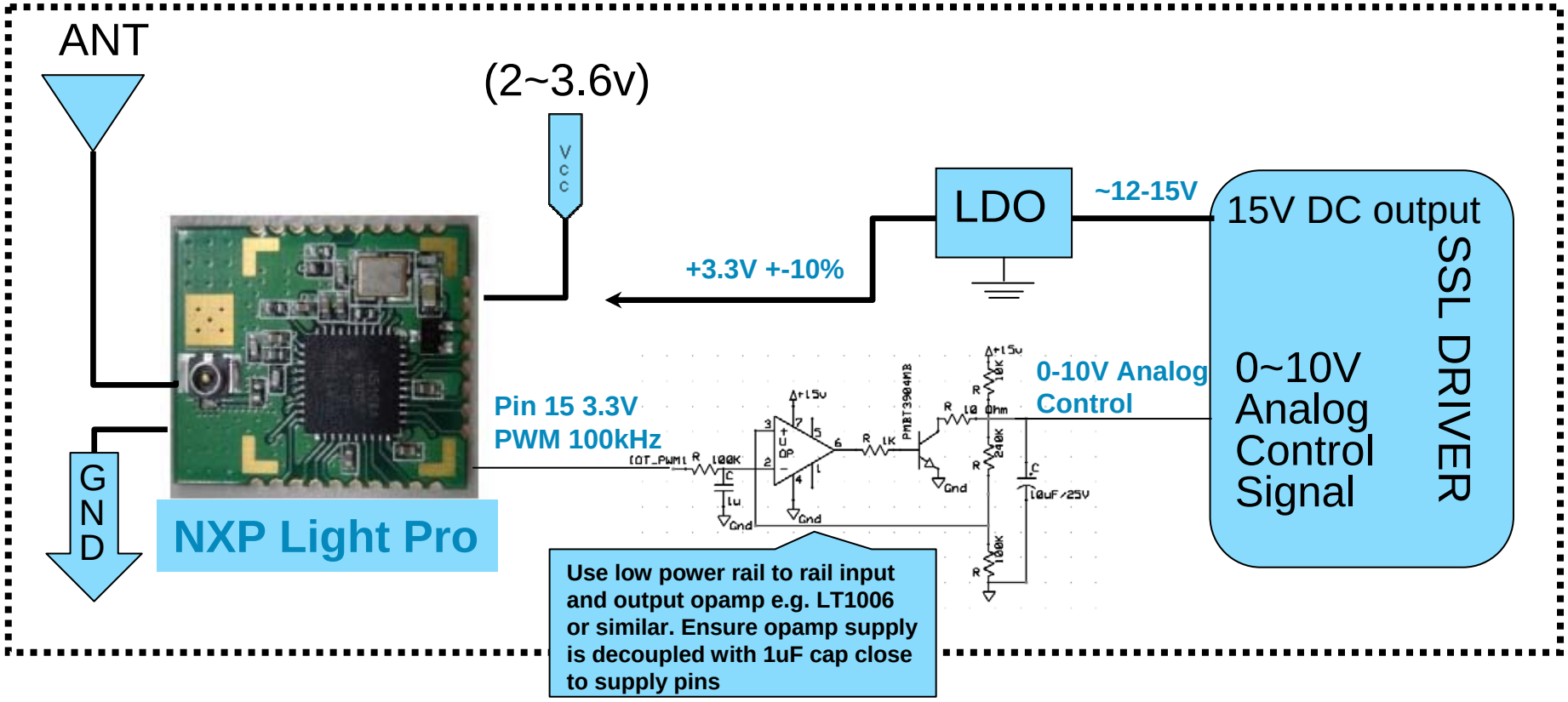
- Inside your IOT SSL Driver – simple 12V PWM case



In this example, we show how to interface to a SSL Driver that accepts 0 to ~12V PWM signal

How to connect LightPRO (3)

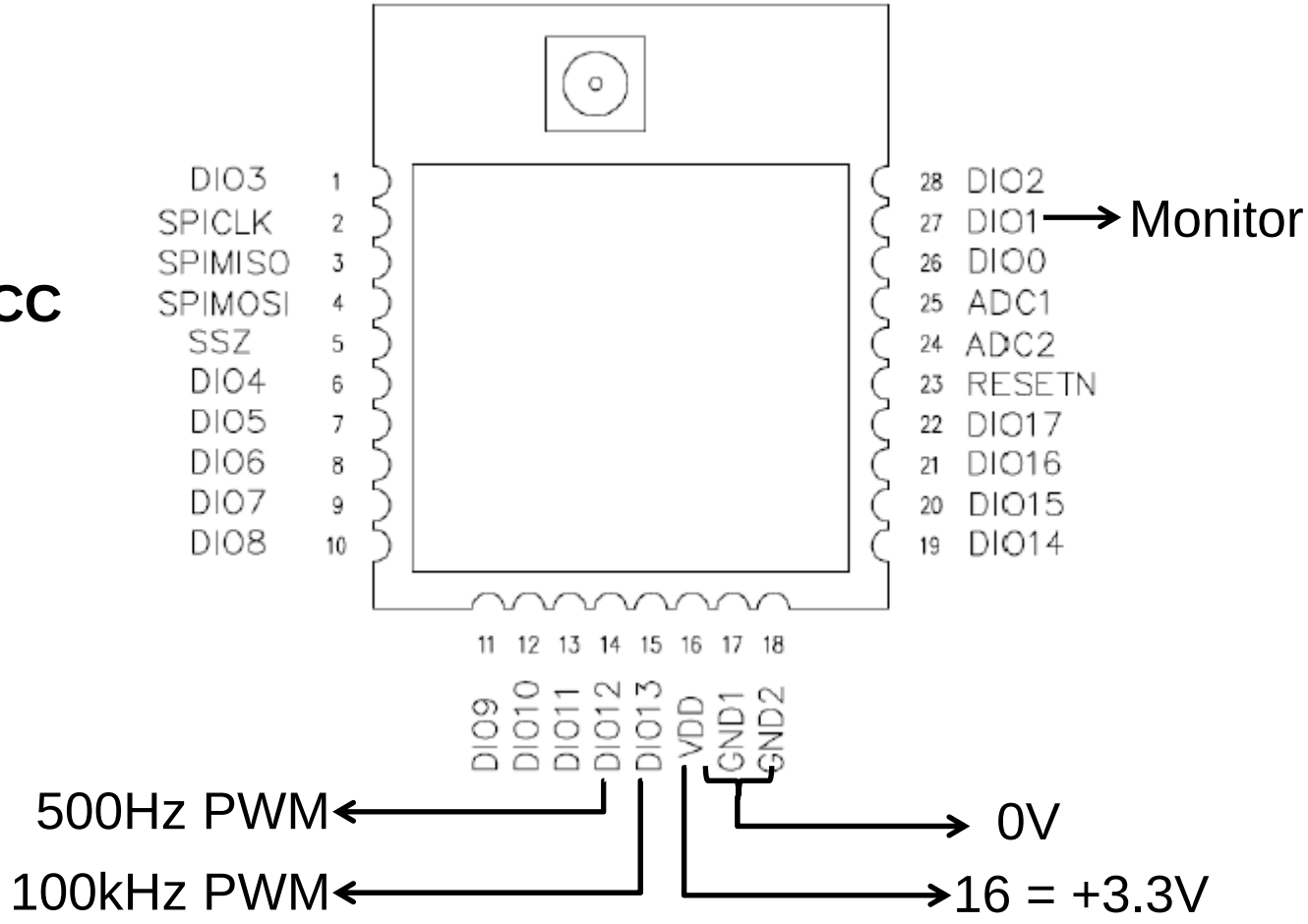
- Inside your IOT SSL Driver: 0-10V analog control case



In this example, we show how to interface to a SSL Driver that accepts 0 to 10V analog control signal

LightPRO module Pins – Top View

LightPRO module is FCC Approved



LightPRO Module Electrical Connections		
Function	**Pin Number**	**Comments**
0V	17	Both pins 17 and 18 must be connected to 0V
0V	18	
+3.3V	16	+- 10% at 25mA
100 kHz PWM	15	0 to +3.3V PWM used to develop 0-10V analog diming signal
500 Hz PWM	14	0 to +3.3V low frequency PWM signal
Monitor	27	Monitor signal - interface to LED via transistor buffer

- Note that the PWM output signals are 0 to +3.3V. If your SSL driver requires higher PWM voltages, you will need to buffer and amplify these signals
- The 'monitor' output provides a separate indication of the LED output status (ON/OFF and dim level) and can be used to drive an external monitor LED through a transistor buffer. This is useful for testing SSL drivers on the ground before installation. You do not have to use this feature for correct operation.
- Typical current consumption: Rx = 17.5mA Tx = 15mA and operating temperature range is -40 dec C to +85 deg C
- See the link to the reference circuits for circuit details and ideas to interface the module to your SSL Driver

LightPRO module – General Guidelines

- Ensure the power supply entering the module is clean and stable. If there are long traces between the +3.3V supply and the module, decouple the power supply close to the LightPRO Module
- Ensure there is no physical contact between the module and any other components in your SSL Driver
- Do not attempt to operate the module without an antenna, or with just a piece of wire – the module performance and network performance will be severely degraded
- Do not pour potting compound over the LightPRO module – this may affect the RF performance adversely
- Ensure that the antenna socket mounted externally on your SSL driver module is secure and does not rotate – if it does, this can result in a broken connection inside your SSL driver module during installation

Testing your SSL driver with LightPRO module

- Use the small reference network provided in the LightPRO Developers Kit (2 lamps, 1 x gateway and 1 x remoter) plus an Android Smart Phone or an Android Tablet
- Get your module to join the network – this verifies that the RF section of the system is operational
- Check that the module functions all operate – this verifies that hardware interface and application software layer is operating correctly

Where to buy LightPRO module and the other parts?

- LightPRO Module: From distributors SAC, Zenitron, EDOM, Future, Arrow, WPI, ZLG
- Gateway: Liseng
- Remote Control: NXP (more suppliers in Q2)
- Sensors: Coming in Q2 (light and occupancy)

FCC Statement:

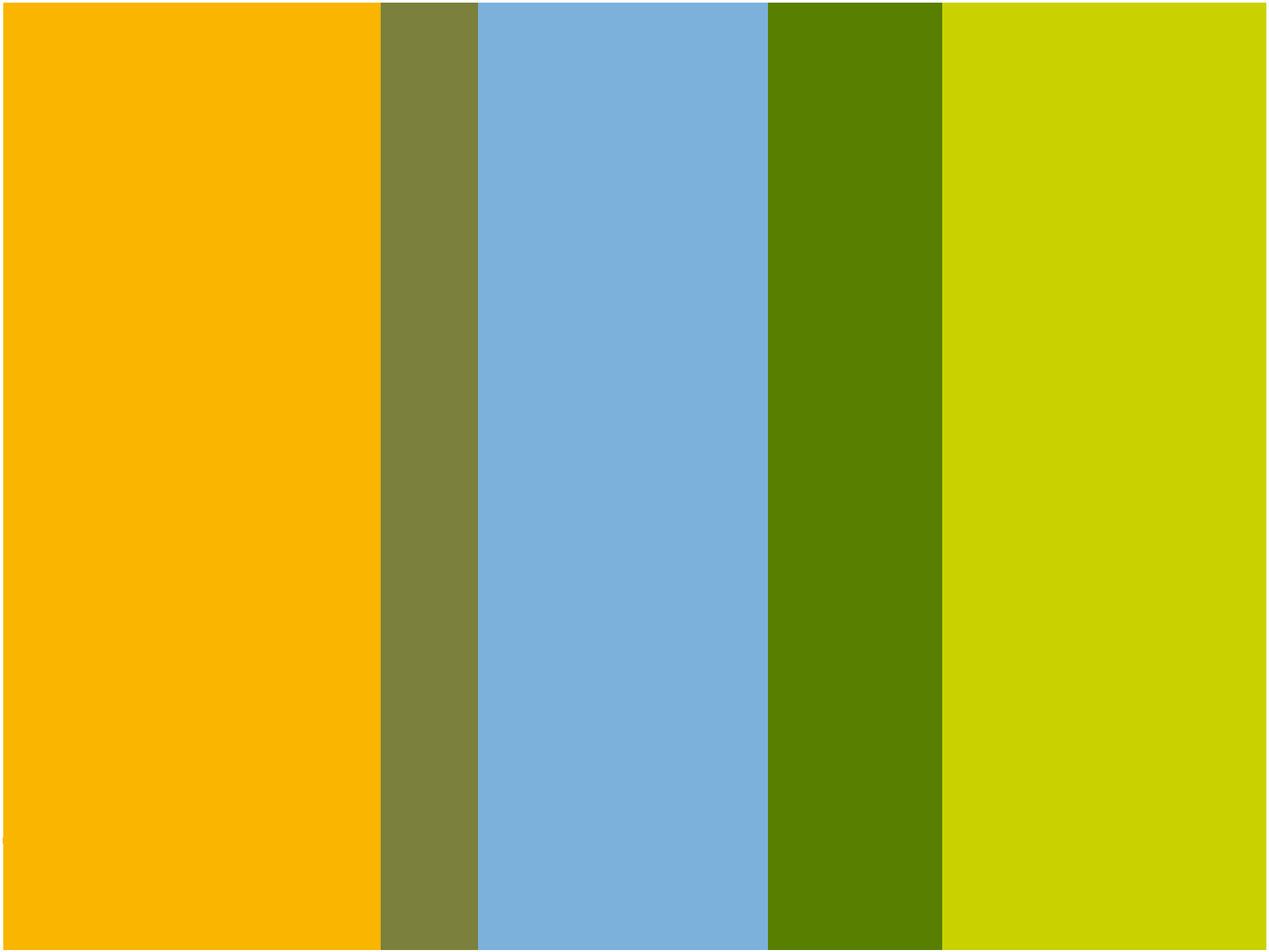
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.