Users Manual

LG-ZB110

LG Electronics, Inc.

1. Introduction

LG-ZB110 is USB connected type ZigBee Adaptor manufactured by LG Electronics Inc. for Smart Grid test bed. It is compatible with ZigBee Alliance Smart Energy Profile 1.1 or under. LG-ZB110 is ZigBee coordinator in home area network. LG-ZB110 is driven by LG NAS(Network Attached Storage) and LG Home Energy Management System software. It is also inter-operated with LG home appliances and Smart TV. You can monitor and control home appliances' electricity usage by Smart TV application.

2. Specification

(1) RF Specification

Characteristics		Specifications	Note
Frequency Range		2400~2483.5MHz	0 ~ 15 CH
Frequency Tolerance		±50ppm	
Output power		Max +20dBm	@EM357_Pout-setting=0dBm
Occupied bandwidth		Max 5.0MHz	
Out of band Emission	LOW	Max −60dBm	
	HI	Max −60dBm	
Spurious Emission	Full Bandwidth	Max −60dBm	30MHz ~ 12.75GHz
harmonic	2nd	Max −60dBm	RBW,VBW : 100KHz
	3rd	Max −60dBm	RBW,VBW : 100KHz
Adjacent channel rejection	+5MHz	36dBc	Compared to CW output (RBW: 100KHz
	−5MHz	36dBc	

	+10MHz	48dBc	
	−10MHz	48dBc	
Leakage Power	Max −60dBm		@Rx Mode
Rx sensitivity	Min −90dBm		PER Test
Device Type	FFD		Full Function Device

(2) Software Specification

   i. ZigBee Smart Energy Profile v1.1

   ii.Ember ZigBeePro Stack

3. Operation

The wireless ZigBee adapter (compatible with ZigBee Alliance SEP1.1 standards) can be directly connected to the USB port on the side of your LG NAS(Network Attached Storage) and will allow the NAS to communicate with LG smart home appliances(Figure 1).

Figure 1. System connection LG-ZB110 with LG NAS

Once the adapter has been connected to the NAS, you can monitor and control smart home appliances through ZigBee.

If you want to monitor and control LG's smart home appliances in home, you should buy LG NAS that is shipped with LG Home Energy Management System software. Once you connect ZB110 to the LG NAS, the NAS will start LG Home Energy Management System. LG Home Energy Management System provides easy user interface with users graphically. LG Home Energy Management System has web- based user interface. So You need an additional display device like TV. LG Smart TV is the most suitable display device. The LG Smart TV supports convenient application market including LG Home Energy Management System application. LG Home Energy Management System has multi-functional home network protocol middleware. You can manage your home electricity energy usage by demand response technology. You can also save your energy cost. Demand response signal can be generated by LG Home Energy Management itself, or received from electricity utility company by using Advanced Metering Infrastructure(AMI) system. AMI is a central device in the field of Smart Grid. If you buy additional LG ZigBee adaptor(LG-ZB110R), you can receive utility company's demand response information. You can also use smart plug(compatible with ZigBee Alliance SEP1.x standards) for control and monitor home's electricity usage(Figure 2).

Figure 2. LG Home Energy Management System can control smart plug using by ZigBee protocol

Smart Plug can be registered by easy User Interface of LG Home Energy Management System(Figure 3). You can input your plug's installation code into the registration form easily and turn on or off your electricity device like light, hair dryer by TV's remote controller.
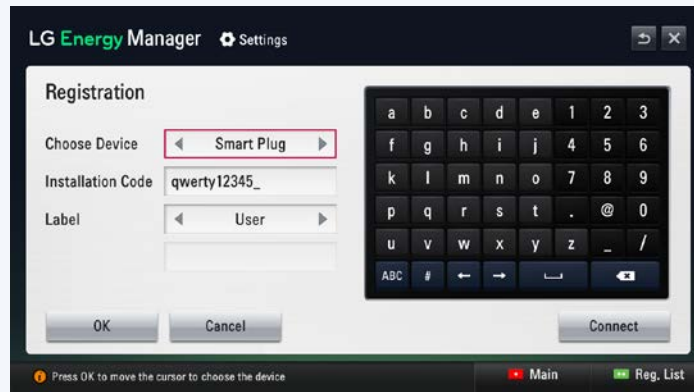
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Figure 3. Smart Plug registration screen in LG Home Energy Management System

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

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