Product Specification

Mesh Extender

WE410443-ST

Revision 1.2

Revision History

Edition #	Reason for revision	Issue date	Written by
1.0	♦ Initial Release	21th Feb., 2020	Jericho Li
1.1	♦ Format fine tune and info update	18th Mar., 2020	Jerry Lee
1.2	♦ Update ID picture	22th May, 2020	Jerry Lee
	♦		
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Contents

1 PRODUCT OVERVIEW

***WE420242-ST*, Mesh Extender** is aiming to extend the existing wireles network coverage to reach greater distances throughout a home or office.

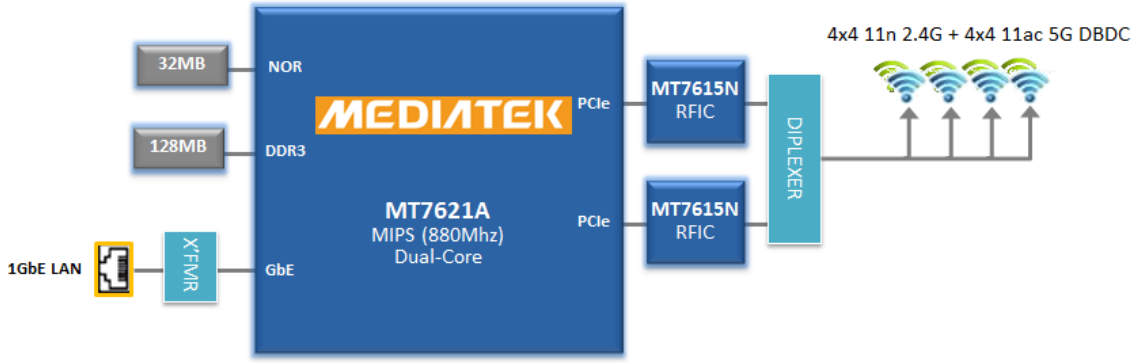
***WE420242-ST*,** also helps to keep mobile devices, media players and computers connected to WiFi with a reliable connection and expanded coverage in every corner of your home.

2 HARDWARE FEATURES

2.1 Port Functions

Port	Function and Standards
LAN	1 auto-sensing 10/100/1000Mbps ethernet LAN ports Compliant with 802.3
DC IN	One DC Jack
Power ON/OFF	One Switch
Reset Button	One push button Pushing the rest button between 1 and 5 sec will reboot device.
WPS Button	One push button
WiFi Antenna	4pcs 2.4G/5G dual band internal antenna

2.2 Hardware Block Diagram



2.3 Main Chip Information

Items	Contents
CPU	MTK7621A - 880Mhz Dual-Core
2.4G WiFi	MTK7615N 4x4 11n - iPA+eLNA
5G WiFi	MTK7615N 4x4 11ac - iPA+eLNA
NOR Flash	32MB
DDR3	128MB

2.4 LED Definitions

LED	Behavior	Scenario
STATUS	Off	Device powered off
	Purple	Booting up
	Red	Boot up complete, no connection to access point (Ethernet or Wi-Fi)
	Red	Error state.
	Red	Re-connecting to access point (2.4GHz or 5GHz) – after connection lost
	Flash Red 1s On, 1s Off	Under factory reset
	Flash Blue 0.5s On, 0.5s Off	Connecting to access point (2.4GHz or 5GHz)
	Flash Blue 1s On, 1s Off	Connected to access point (2.4GHz or 5GHz) / Connected to router using Ethernet connection – obtaining IP address

	See Table 3b	Connected to access point using Wi-Fi. Indications for different bands and signal strength combinations are covered in Table 3b
	Blue	Connected to router using Ethernet connection.
	Flash Blue In progress1s On, 1s Off Success 2s On, 2s Off Fail 0.5s On, 0.5s Off	WPS downlink mode in progress Walk time: 2 minutes. 1s On, 1s Off On successful connection within walk time indication ceases. If WPS connection attempt times out, indication ceases at end of Walk time WPS connect success, flash 20s, 2s On, 2s Off WPS connect timeout, flash 20s, 0.5s On, 0.5s Off
	Flash Orange In progress1s On, 1s Off Success 2s On, 2s Off Fail 0.5s On, 0.5s Off	WPS uplink mode in progress Walk time: 2 minutes. 1s On, 1s Off On successful connection within walk time indication ceases. If WPS connection attempt times out, indication ceases at end of Walk time WPS connect success, flash 20s, 2s On, 2s Off WPS connect timeout, flash 20s, 0.5s On, 0.5s Off
	Flash Purple 0.5s On, 0.5s Off	Firmware upgrade in progress
	Flash Purple for 10 seconds 0.5s On, 0.5s Off	Configuration synchronization complete This is used when a new repeater is added to an existing system and the configuration settings are synchronized successfully.

Table 3b – Access Point Connected – LED State Matrix						
Connection Status		**5GHz**				
		Connected to AP (Good)	Connected to AP (Excellent)	Connected to AP (Good)	Connected to AP (Poor)	Not connected
2.4GHz	Connected to AP (Good)	Solid Blue	Solid Blue	Solid Blue	Solid Blue	Solid Blue
	Connected to AP (Excellent)	Solid Blue	Solid Blue	Solid Blue	Solid Blue	Solid Blue
	Connected to AP (Good)	Solid Blue	Solid Blue	Solid Blue	Solid Blue	Solid Blue
	Connected to AP (Poor)	Solid Blue	Solid Blue	Solid Blue	Solid Orange	Solid Orange
	Not connected	Solid Blue	Solid Blue	Solid Blue	Solid Orange	Solid Red

**RSSI definition will be defined in later stage.*

■ **LED Dimming Function**

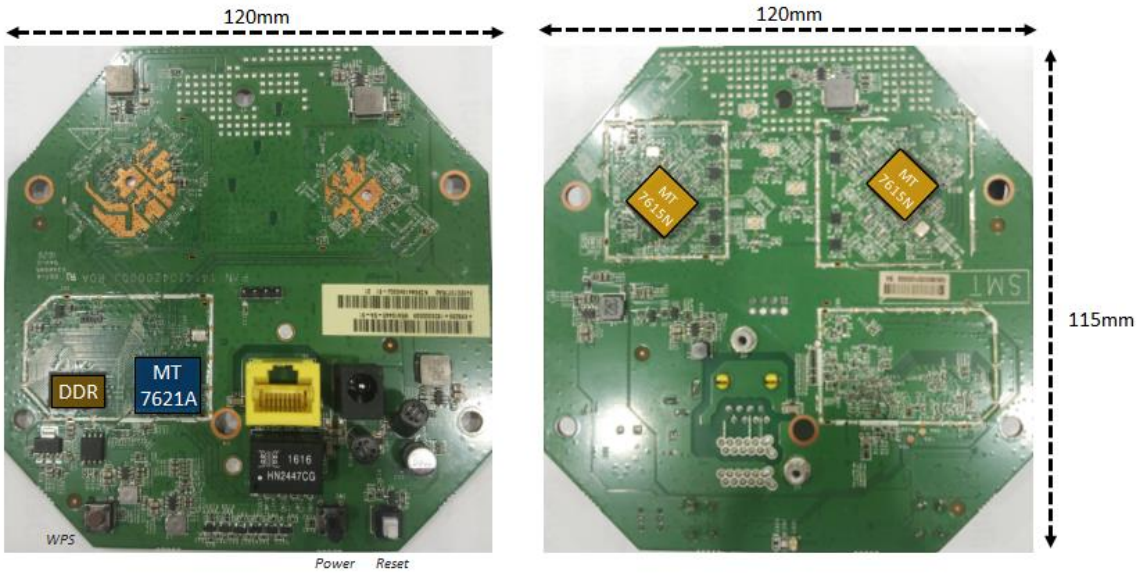
The repeater support dimming of the LEDs through a software controllable interface and present 3 different settings to the user: full brightness, dim and off. The control is available on the device Web GUI.

Table 3c – Dimming Conditions Matrix						
Dimming states		**LED Colour**				
		Red	**Orange**	**Blue**	**Purple**	**Flashing (All Colours)**
LED Brightness mode	**Off**	Dim	Off	Off	Full	Dim
	Dim	Dim	Dim	Dim	Full	Dim
	Full	Full	Full	Full	Full	Full

2.5 Power Adaptor

Items	**Specifications**
AC Input	100V~240V
DC Output	12V/1.5A UK plug

2.6 PCBA Placement



2.7 LED and I/O Sequence

3 WI-FI CHARACTERISTIC

3.1 General Specifications

Items	Specifications
Standards	802.11n/ac, backward compatible to 802.11a/b/g
Frequency Band	2.4G & 5G
MIMO	4Tx4R dual band concurrent
Data Rate	Up to 800Mbps(256QAM) for 11n; Up to 1700Mbps for 11ac -IEEE® 802.11g/n 2.4GHz–256QAM support -IEEE® 802.11a/n/ac 5GHz–256QAM support

4 SOFTWARE FEATURES

4.1 Wireless

Items	Detail Descriptions
SSID	SINGTEL-XXXX XXXX = random 4 bytes with upper case
Wireless QOS	WMM

4.2 Management

Items	Detail Descriptions
Remote Management	Through TR-069
Firmware Upgrade	Both TR-069 and device GUI

4.3 Arcadyan OWL™ Features

Items	Detail Descriptions
Seamless roaming	Clients (with 11k/v/r supported) are moving from AP to AP with better signal strength without user intervention.

Band Steering	Choose the best frequency for Wi-Fi client connection.
Backhaul Failover	When wired backhaul dropped, it will switch to Wi-Fi backhaul automatically.
Backhaul Prioritization	Wired backhaul (Ethernet) is higher priority than wireless.
Self-healing	If any of nodes in the network is corrupted, one of the nodes in the network will recover automatically to ensure the mesh network structure.
Network Topology	Showing the node network connected topology. Currently display up to 4 nodes.
Neighbor clients list	Display the connected client list and information in the network, including device name, MAC address, Wi-Fi Band, IP Address, RSSI.
Group Management	Use one command to control all nodes in the network, including LED brightness, and system reboot/reset.
Master Selection	Automatically select one of the node to be OWL Master and control all other nodes in the network.

4.4 Remarks

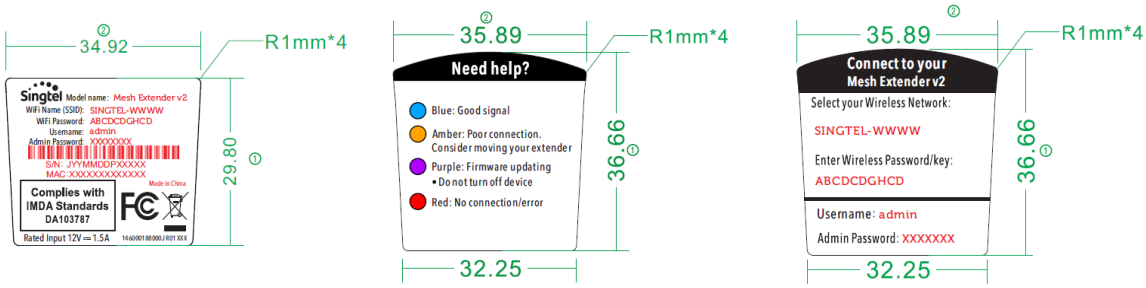
- Support Arcadyan OWL, a proprietary Mesh solution which can **NOT** migrate to OWL 2.0 or EasyMesh in future.
- Extender support both GW bundle and stand-alone mode.
- Extender will support TR-069
- Extender GUI will change to Singtel logo ONLY.
- Extender follow Singtel auto channel selection spec.
- EmbedUR agent integration.
- Extender default setting rule, label content, label format will be discussed with Singtel.
- Extender FW upgrade mechanism need to check with GW team, and see how to adopt for Singtel.
- Only support up to 4 nodes in one network to limited RD testing resource (GW+ RE*3)

5 MECHANICAL

5.1 ID Design

Dimension: 165*165*30mm (Round shape)

5.2 Device Label



6 ENVIRONMENTAL

Items	Requirements
Operating Temperature	0 °C to 40 °C
Operating Humidity	10 % to 95 % non-condensing

7 CERTIFICATIONS

Items	Standards
Regulation	Singapore IMDA Type Approvals
Option	Nokia HDM