

S2W-Network-Connectivity

USER MANUAL

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1. Introduction	3
1.1 About	4
2. Network specifications	6
2.1 S2W Wi-Fi radio characteristics	7
2.2 Topic Network specifications	8
3. Existing network infrastructure	9
3.1 Connecting equipment to Existing network infrastructure	10
3.2 Building Wi-Fi coverage	12
4. References	13
4.1 References	14

Introduction

1 Introduction

1.1 About

1. About this guide

This document provides the implementation of a single, reliable and secure building wireless (**Wi-Fi**) network, for the Installation, Configuration and Configuration of the **Wireless Wi-Fi** network with the possibility of capacity according to the recorders that will be placed in the area.

The following paragraphs give detailed descriptions of requirements and specifications of the implementation, for the correct operation.

2. Revision of document

For revision history of this document, please refer to the **last page**.

3. Documentation change notification

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Network specifications

2 Network specifications

2.1 S2W Wi-Fi radio characteristics

Parameter	Condition	Min	Typ	Max	Unit
Operating frequency range ¹	-	2412	-	2484	MHz
Output impedance ²	-	-	<i>note 2</i>	-	Ohm
TX power ³	11n, MCS7	12	13	14	dBm
	11b mode	17.5	18.5	20	dBm
Sensitivity	11b, 1 Mbps	-	-98	-	dBm
	11b, 11 Mbps	-	-89	-	dBm
	11g, 6 Mbps	-	-92	-	dBm
	11g, 54 Mbps	-	-74	-	dBm
	11n, HT20, MCS0	-	-91	-	dBm
	11n, HT20, MCS7	-	-71	-	dBm
	11n, HT40, MCS0	-	-89	-	dBm
	11n, HT40, MCS7	-	-69	-	dBm
Adjacent channel rejection	11g, 6 Mbps	-	31	-	dB
	11g, 54 Mbps	-	14	-	dB
	11n, HT20, MCS0	-	31	-	dB
	11n, HT20, MCS7	-	13	-	dB

1. Device should operate in the frequency range allocated by regional regulatory authorities. Target operating frequency range is configurable by software.

2. For the modules that use IPEX antennas, the output impedance is 50 Ohm. For other modules without IPEX antennas, users do not need to concern about the output impedance.

3. Target TX power is configurable based on device or certification requirements.

2.2 Topic Network specifications

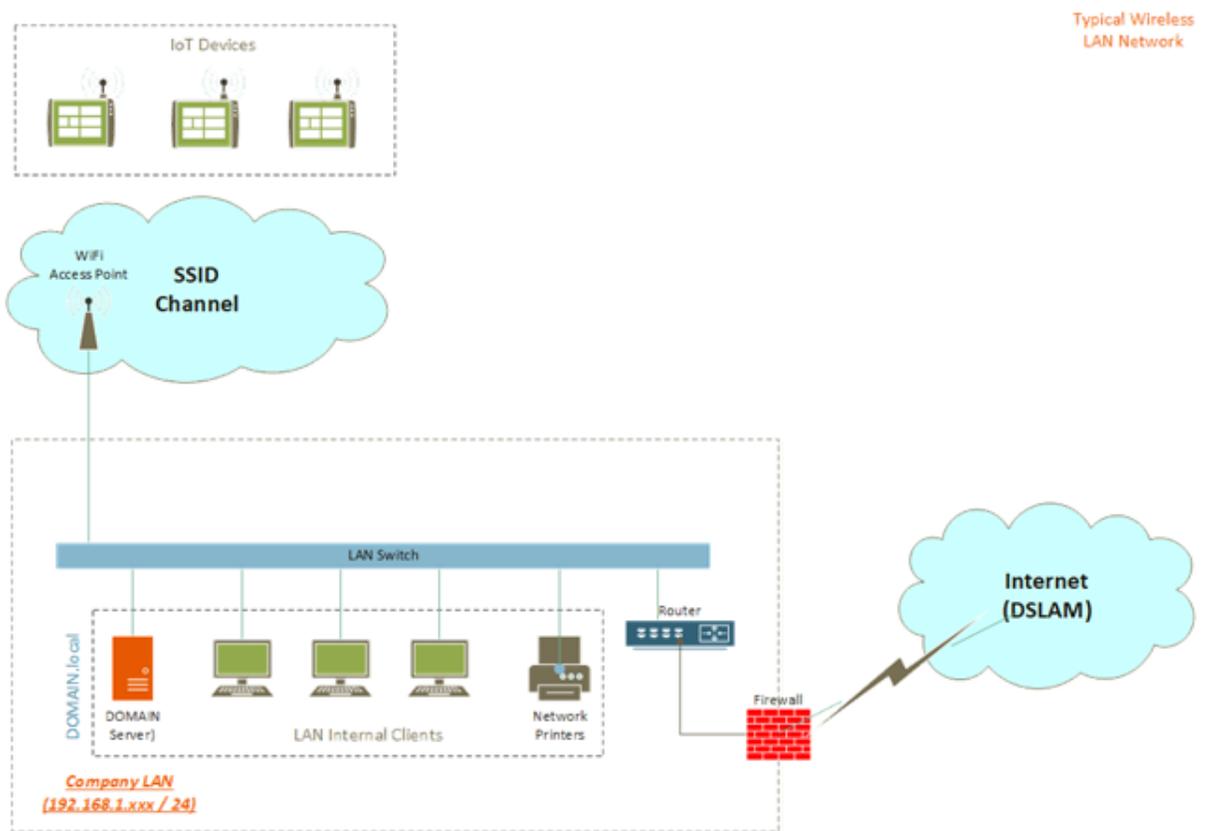
Parameter	Value	
Network Mode:	Bridge	WiFi-to-LAN in Bridge Mode
Wireless Mode:	Access Point	
SSID:	S2W	Connection SSID Name
Security:	WPA2-AES	Connection Encryption
Channel/Frequency:	1 / 2412 MHz	Preferred Standard Channels and Frequencies, based on Appendix_1
Channel Width:	20 MHz	Preferred Channel Width up to 20MHz for compatibility issues

Existing network infrastructure

3 Existing network infrastructure

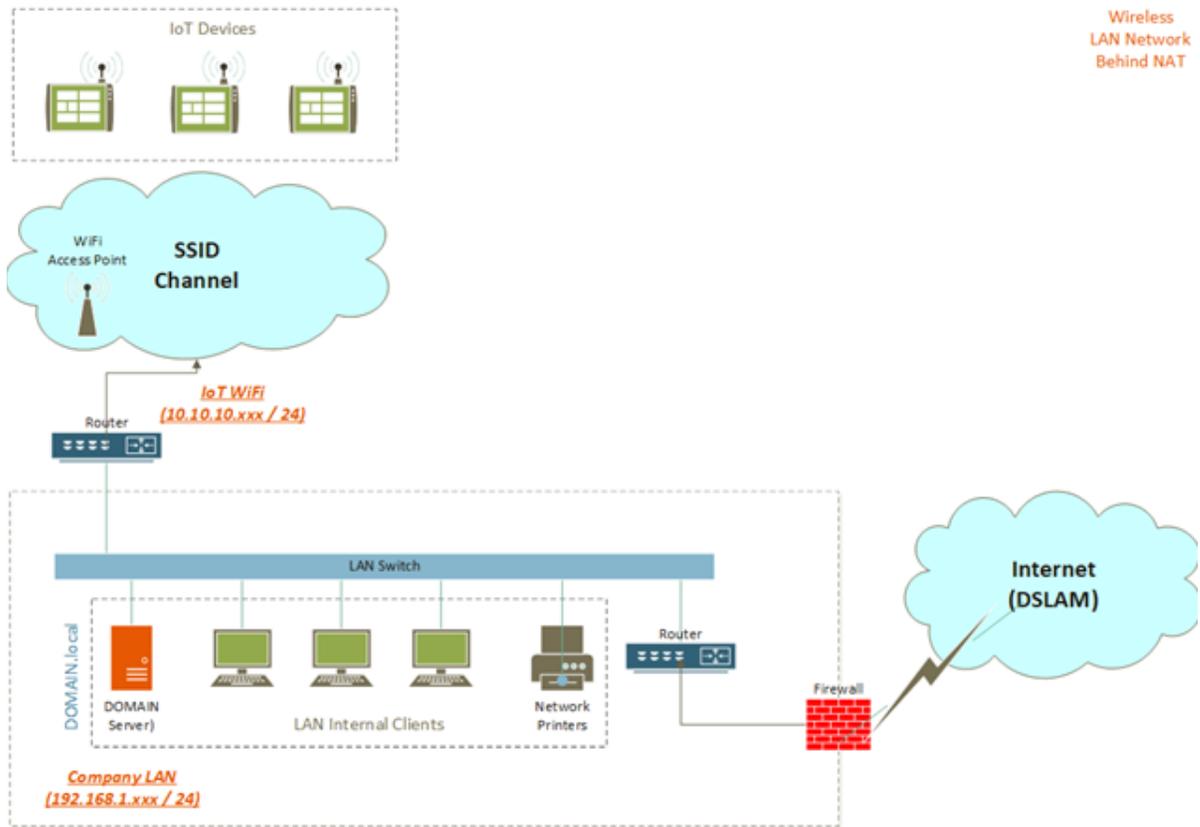
3.1 Connecting equipment to Existing network infrastructure

a)



Using the implementation above, IoT devices connect directly to a Wireless Access Point, which is in Bridge Mode with the Main Network

b)



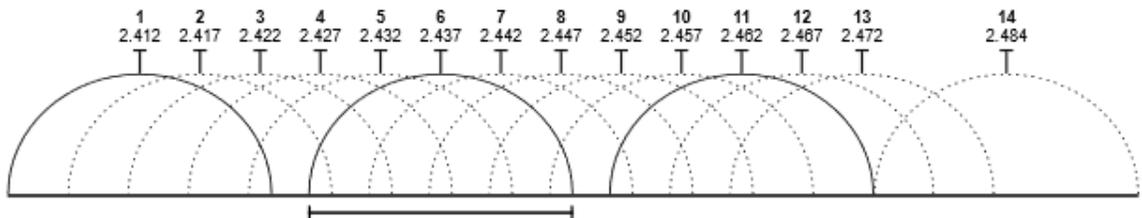
Using the implementation above, IoT devices connect directly to a Wireless Access Point, which is in Bridge Mode with a secondary Router, which is in NAT Mode to the Main Network

3.2 Building Wi-Fi coverage

Appendix_1

Channel	F ₀ (MHz)	Frequency range (MHz)	North America [3]	Japan [3]	India [4]	Most of world [3][5][6][7] [8][9][10][11]
1	2412	2401–2423	Yes	Yes	Yes	Yes
2	2417	2406–2428	Yes	Yes	Yes	Yes
3	2422	2411–2433	Yes	Yes	Yes	Yes
4	2427	2416–2438	Yes	Yes	Yes	Yes
5	2432	2421–2443	Yes	Yes	Yes	Yes
6	2437	2426–2448	Yes	Yes	Yes	Yes
7	2442	2431–2453	Yes	Yes	Yes	Yes
8	2447	2436–2458	Yes	Yes	Yes	Yes
9	2452	2441–2463	Yes	Yes	Yes	Yes
10	2457	2446–2468	Yes	Yes	Yes	Yes
11	2462	2451–2473	Yes	Yes	Yes	Yes
12	2467	2456–2478	No	Yes	Yes	Yes
13	2472	2461–2483	No	Yes	Yes	Yes
14	2484	2473–2495	No	11b only	No	No

Appendix_2



References

4 References

4.1 References

The links below include further details about the Wi-Fi module guidelines.

- Esp32-WROOM-32 Datasheet: https://www.espressif.com/sites/default/files/documentation/esp32-wroom-32_datasheet_en.pdf
- ELBIS official site: www.elbis.gr