

ESP32 收发包测试

1. 概述

主要测试在正常模式、WIFI 切信道、modem sleep 唤醒后、light sleep 唤醒后,WIFI 收发包是否正常。

2. 测试方法

2.1 测试条件

- (1) 路由器固定信道 10。
- (2) DUT 模块固定信道 10, 每次发 100 个包。
- (3) 可变衰减器 Gain 按 1dB 逐渐变化。
- (4) 测试 date rate: 1m、11m、mcs0、mcs7、54m、6m。
- (5) 灵敏度测试:调节衰减器将 DUT 的接收功率设置在灵敏度附近,测试收到路由器回的 ACK, 丢包<10%时的接收灵敏度

2.2 测试结果

不同模式灵敏度测试数据和曲线见下图表:

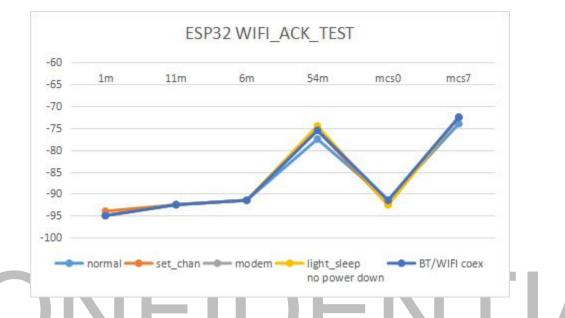
test_mode	rx_chan	tx_rate	ack_rate	atten	cal_sens
normal	10	1m	1m	54	-95
	10	11m	11m	52	-92.5
	10	6m	6m	49	-91.5
	10	54m	24m	33	-77.5
	10	mcs0	6m	49	-91.5
	10	mcs7	24m	30	-74
set_chan	10	1m	1m	53	-94

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10 6m 6m 49 -91. 10 54m 24m 33 -75. 10 mcs0 6m 50 -92. 10 mcs7 24m 30 -72. 10 11m 11m 52 -92. 10 mcs0 6m 49 -91. 10 mcs0 6m 50 -92. 10 mcs7 24m 30 -72. 10 mcs0 6m 50 -92. 10 mcs7 24m 30 -72. 10 mcs7 24m 32 -74. 10 mcs7 24m 30 -72. 10 10							
10 54m 24m 33 -75. 10 mcs0 6m 50 -92. 10 1m 1m 54 -9. 10 1lm 1lm 52 -92. 10 mcs0 6m 49 -91. 10 mcs0 6m 49 -91. 10 mcs0 6m 49 -91. 10 1lm 1lm 52 -92. 10 mcs0 6m 49 -91. 10 1lm 1lm 52 -92. 10 1lm 1lm 54 -9. 10 mcs0 6m 49 -91. 10 mcs0 6m 50 -92. 10 mcs7 24m 30 -72. 10 mcs7 24m 30 -73. 10 mcs7			10	11m	11m	52	-92.5
10			10	6m	6m	49	-91.5
10			10	54m	24m	33	-75.5
10			10	mcs0	6m	50	-92.5
10			10	mcs7	24m	30	-72.5
10 6m 6m 49 -91. 10 54m 24m 33 -75. 10 mcs0 6m 49 -91. 10 mcs7 24m 30 -72. 10 11m 11m 52 -92. 10 mcs7 24m 32 -74. 10 mcs7 24m 32 -74. 10 mcs7 24m 30 -72. 10 mcs7		modem	10	1 m	1 m	54	-95
10 54m 24m 33 -75. 10 mcs0 6m 49 -91. 10 mcs7 24m 30 -72. 10 11m 11m 54 -9. 10 11m 11m 52 -92. 10 mcs0 6m 49 -91. 10 mcs0 6m 50 -92. 10 mcs7 24m 30 -72. 10 11m 11m 54 -9. 10 11m 11m 52 -92. 10 6m 6m 49 -91. BT/WIFI coex 10 54m 24m 33 -75. 10 mcs0 6m 49 -91.			10	11m	11m	52	-92.5
10 54m 24m 33 -75. 10 mcs0 6m 49 -91. 10 1m 1m 54 -9. 10 11m 11m 52 -92. 10 mcs0 6m 30 -72. 10 mcs0 6m 49 -91. 10 mcs0 6m 50 -92. 10 mcs7 24m 30 -72. 10 mcs7 24m 30 -72. 10 mcs7 24m 30 -72. 10 11m 11m 54 -9. 10 11m 11m 52 -92. 10 6m 6m 49 -91. 10 54m 24m 33 -75. 10 mcs0 6m 49 -91.			10	6m	6m	49	-91.5
10	r		10	54m	24m	33	-75.5
10			10	mcs0	6m	49	-91.5
10			10	mcs7	24m	30	-72.5
10 6m 6m 49 -91.2			10	1m	1m	54	-95
10 54m 24m 32 -74.: 10 mcs0 6m 50 -92.: 10 mcs7 24m 30 -72.: light_sleep			10	11m	11m	52	-92.5
10 mcs0 6m 50 -92.5 10 mcs7 24m 30 -72.5 light_sleep power down		light_sleep	10	6m	6m	49	-91.5
10 mcs7 24m 30 -72.: light_sleep		no power down	10	54m	24m	32	-74.5
Iight_sleep			10	mcs0	6m	50	-92.5
Table Tab			10	mcs7	24m	30	-72.5
BT/WIFI coex 10							丢包严重
BT/WIFI coex 10 6m 6m 49 -91.: 10 54m 24m 33 -75.: 10 mcs0 6m 49 -91.:	BT/WIFI c	BT/WIFI coex	10	1m	1m	54	-95
BT/WIFI coex 10 54m 24m 33 -75 10 mcs0 6m 49 -91			10	11m	11m	52	-92.5
10 54m 24m 33 -75.3 10 mcs0 6m 49 -91.3			10	6m	6m	49	-91.5
			10	54m	24m	33	-75.5
10 mcs7 24m 30 -72.			10	mcs0	6m	49	-91.5
			10	mcs7	24m	30	-72.5





从测试结果来看,

2.3 总结与分析

WIFI 切信道、modem sleep 模式唤醒后、light sleep no power down 模式唤醒后、BT 共存模式,与正常模式下的收发包特性一致,功能正常。

light sleep power down 模式唤醒后,丢包严重,需要研发协助 Debug。