

TEST REPORT

Reference No...... : WTD25D11316005W005
Applicant..... : Shenzhen Sybran Technology Co.,Ltd.
Address..... : 804, Bldg 5A, Block C, Chuangzhiyuncheng Phase II, Xingke 1st Rd,
Xili St Nanshan, Shenzhen, China
Manufacturer..... : Shenzhen Sybran Technology Co.,Ltd.
Address..... : 804, Bldg 5A, Block C, Chuangzhiyuncheng Phase II, Xingke 1st Rd,
Xili St Nanshan, Shenzhen, China
Product..... : CODE27 Companion Hub
Model(s)..... : SyBran-01
Standards..... : Article 2 Paragraph 1 of Item 19-3
Date of Receipt Sample..... : 2025-11-28
Date of Test..... : 2025-12-02 to 2025-12-30
Date of Issue..... : 2026-01-27
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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3 Revision History

Test Report No.	Date of Receipt Sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD25D11316005W005	2025-11-28	2025-12-02 to 2025-12-30	2026-01-27	Original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:		CODE27 Companion Hub
Model(s):		SyBran-01
Model Description:		There are two hardware configurations for this model: configuration A and configuration B, the only difference being the cable specifications.
Hardware version:		YT-921 V_1.2
Software version:		rk3588s_yt921-userdebug 12 SQ3A.220705.003.A1 eng.dj 20260119.111702
Radio type:		Low Power Data Communication System in the 5GHz band
Device type		Client Without Radar Detection
WLAN	Technical:	5G-802.11a/n(HT20/40)/ac(VHT20/40/80)/ax(HE20/40/80)
	Modulation:	OFDM
	Subcarriers:	802.11 a/g/n/ac: 3.2 subcarriers/MHz (312.5 kHz spacing) 802.11 ax: 12.8 subcarriers/MHz (78.125 kHz spacing)
	Frequency range:	W52 802.11a/n(HT20)/ac(VHT20): 5180-5240MHz 802.11n(HT40)/ac(VHT40): 5190-5230MHz 802.11ac(VHT80): 5210MHz W53 802.11a/n(HT20)/ac(VHT20): 5260-5320MHz 802.11n(HT40)/ac(VHT40): 5270-5310MHz 802.11ac(VHT80): 5290MHz W56 802.11a/n(HT20)/ac(VHT20): 5500-5700MHz 802.11n(HT40)/ac(VHT40): 5510-5670MHz 802.11ac(VHT80): 5530-5610MHz
	Numbers of Ant.:	2
	Antenna installation:	FPC Antenna
	Antenna gain:	ANT 1: 5.56 dBi ANT 2: 5.56 dBi
	Note:	#: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, WALTEK lab has not verified the authenticity of its information.

4.2 Details of E.U.T.

Power Supply Technical: DC 20V

AC Adapter: Model: A869-200325C-JP1

INPUT: 100-240V~ 50/60Hz 1.7A

OUTPUT:

DC 5V 3A

DC 9V 3A

DC 12V 3A

DC 15V 3A

DC 20V 3.25A

Manufacturer: Dongguan Aohal Technology Co.,Ltd.

4.3 General condition

Ambient Condition: 23.1 °C 50 %RH

4.4 Environmental condition of test site

Voltage fluctuation

1. In the case of a characteristic test in the technical regulations conformity certification

The power supply supplies the voltage rating.

2. Other cases

The power supply supplies the voltage rating and the voltage rating $\pm 10\%$. However, when it can be confirmed that the change of the input voltage to the wireless part circuit of the testing machine is $\pm 1\%$ or less when the input voltage to the testing machine from the external source changes at $\pm 10\%$, examines it only by the voltage rating.

Have been confirmed the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than $\pm 1\%$ when the power supply to the product varies at $\pm 10\%$ by Manufacturer.

DC Input	RF_IC Input	Rate of fluctuation(%)
18V	3.3V	0.0
20V	3.3V	0.0
22V	3.3V	0.0

Note: The EUT has two hardware configurations, which do not affect the voltage input and parameters of the RF circuit.

4.5 Frequency list table

Type	Frequency Range(MHz)	Channel No.	Frequency(MHz)	Available(Y/N)
802.11a/n-HT20	5260-5320	52	5260	☐
		56	5280	☐
		60	5300	☐
		64	5320	☐
	5500-5700	100	5500	☐
		104	5520	☐
		108	5540	☐
		112	5560	☐
		116	5580	☐
		120	5600	☐
		124	5620	☐
		128	5640	☐
		132	5660	☐
		136	5680	☐
		140	5700	☐
802.11n/ac VHT40	5270-5310	54	5270	☐
		62	5310	☐
	5510-5670	102	5510	☐
		110	5550	☐
		118	5590	☐
		126	5630	☐
802.11ac-VHT80	5290	58	5290	☒
	5530-5690	106	5530	☒
		122	5610	☐
		138	5690	☐
802.11ac-VHT80+VHT80	5250	50	5250	☐
	5570	114	5570	☐

5 Test Summary

Article 2 Paragraph 1 of Item 19-3	Test Item	Result
1	Non-occupancy Period	N/A
2	Channel Availability Check Time	N/A
3	Channel Move Time	Compliance
4	Channel Closing Transmission Time	Compliance

Remark:

Note 1: N/A-Not Applicable

Note 2: DFS is not required for channels whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz.

RF: In this whole report RF means Radio Frequency.

A.M. Amplitude Modulation.

P.M. Pulse Modulation.

† D.M. – Differential Mode

U_T is the nominal supply voltage

6 Equipment Used during Test

6.1 Equipments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	Spectrum Analyzer	Agilent	N9020A	MY49100060	2025-07-04	2026-07-03
2.	EXG Analog Signal Generator	Malaysia Keysight	N5171B	MY53050845	2025-07-04	2026-07-03
3.	USB Wideband Power Sensor	Keysight	MW100-PSB	SG5440003	2025-04-19	2026-04-18
4.	ESG VECTOR SIGNAL GENERATOR	Malaysia Keysight	E4438C	MY45092536	2025-04-19	2026-04-18
5.	RF Path box	Yanchen	AT890-RFB	/	/	/

Remark:

(a) Calibration conducted by the National Institute of Information and Communications Technology (NICT) in Japan (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1) in JRL.

(b) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No. 51 of 1992).

(c) Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).

(d) Calibration, etc. conducted by using measuring instruments and other equipment listed in the right column of appended table No. 3, which shall have been given any type of calibration, etc. listed above from (a) to (c)

From JRL Article 24-2, paragraph 4, Item 2

1. All Equipments Calibration use the calibration method (c).

2. All Equipments Calibration in GUANG ZHOU GRG METROLOGY&TEST CO., LTD./ No.163.Pingyun Rd, West of HuangPu Ave. Guangzhou, Guangdong, China.

3. Regarding the measuring device, Article 24-2, Paragraph 4 of the Radio Law.

6.2. Description of Support Units

Equipment	Manufacturer	Model No.	FCC ID:	IC:
Router	LINKSYS	WRT32X	Q87-WRT3200ACM	3839A-WRT3200ACM

7 DFS technical requirements specifications

For DFS Function;

Parameter	Value
<i>Non-Occupancy Period (NOP)</i>	≥ 30 minutes
<i>Channel Availability Check Time (CAC)</i>	≥ 60 seconds
<i>Channel Move Time (CMT)</i>	≤ 10 seconds
<i>Channel Closing Transmission Time (CCTT)</i>	≤ 260 milliseconds

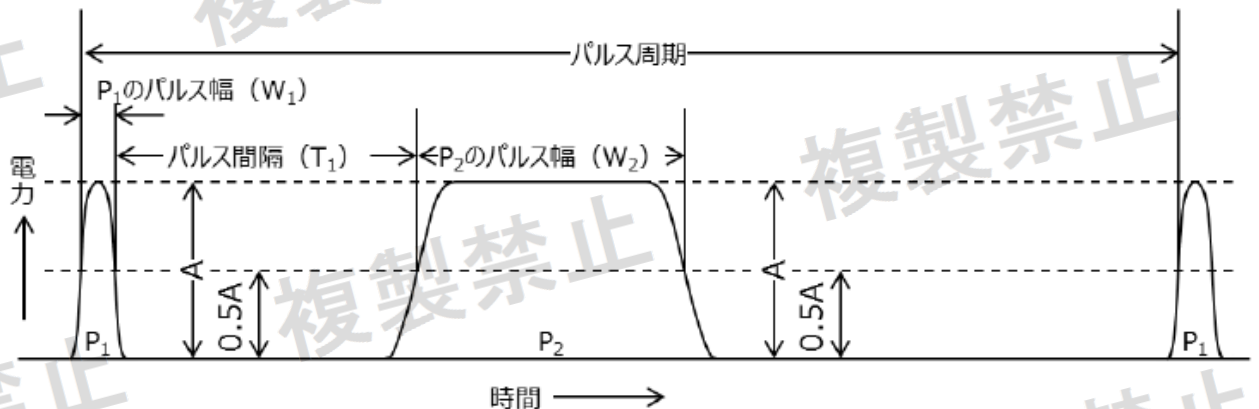
8 RADAR TEST WAVEFORMS

W53:

The radio wave which a radar transmits						Detection probability
Classification	Pulse width		Repetition frequency		Minimum number of consecutive pulses	
	minimum value	maximum value	minimum value	maximum value		
1	0.5 μ s	5 μ s	200 Hz	1000 Hz	10	60% or more
2	0.5 μ s	15 μ s	200 Hz	1600 Hz	15	60% or more
3	0.5 μ s	5 μ s	200 Hz	1000 Hz	"Repetition frequency x 0.026" (Round up to less than 1), or "22", whichever is larger, or "30", whichever is smaller	60% or more
4	0.5 μ s	15 μ s	200 Hz	1600 Hz	"Repetition frequency x 0.026" (Round up to less than 1), or "22", whichever is larger, or "30", whichever is smaller	60% or more
5	0.5 μ s	1.5 μ s	1114 Hz	1118 Hz	30	60% or more
6	0.5 μ s	1.5 μ s	928 Hz	932 Hz	25	60% or more
7	0.5 μ s	1.5 μ s	886 Hz	890 Hz	24	60% or more
8	0.5 μ s	1.5 μ s	738 Hz	742 Hz	20	60% or more

Note 1: The detection probability is the total transmission time in any 100ms from the master station radio equipment (connection method is limited to carrier sense multiple access type) to the slave station radio equipment. It refers to the case of performing transmission of 30ms or more.

Note 2: In this table, "pulse width" is the pulse width of P1 "W1" in the following figure, and "repetition frequency" is the reciprocal of the pulse cycle in the following figure. Also, the pulse width and frequency are any one value between the minimum value and the maximum value.



Note 3 In this figure, "A" indicates the maximum power of P1 and P2, and the shift width of frequency (hereinafter referred to as "chirp width") for performing linear frequency modulation during the pulse period, the pulse interval of P1 "T1". The difference between the pulse width of P2 "W2" and the pulse width of P1 "W1" and the pulse width of P2 "W2" and the pulse width of P1 "W1" multiplied by the repetition frequency (hereinafter referred to as "duty ratio") are as follows: about. In addition, each pulse interval and each pulse width are made into the rise time of each pulse which makes electric power 0.5A base point, and the fall time of each pulse.

(1) Classification 3 or 4

Chirp width	Range of $\pm 0.5\text{MHz}$ to 1.0MHz
Pulse interval of P_1 : T_1	70 μs or more
Pulse width of P_2 : W_2	20 μs or more, 110 μs or less
The difference between the pulse width of P_1 and the pulse width of P_2 by the following equation $ W_2 - W_1 $	15 μs or more
Duty ratio	Less than 10%

(2) Classification 5 ~ 8

Chirp width	Range of $\pm 0.5\text{MHz}$ to 1.0MHz
Pulse interval of P_1 : T_1	50 μs or more
Pulse width of P_2 : W_2	28.5 μs or more, 33.6 μs or less

W56:

The radio wave which a radar transmits *Un-modulated pulse				Detection probability
Classification	Pulse width	Repetition frequency	The number of continuous pulses	
1	0.5 μs	720 Hz	18	60% or more
2	1 μs	700 Hz	18	60% or more
3	2.0 μs	250 Hz	18	60% or more
4	1 $\mu\text{s} \leq X \leq 5 \mu\text{s}$ ("1 μs " or "width which added the integral multiple of 1 μs to 1 μs ")	4,347Hz $\leq X \leq$ 6,667Hz (arbitrary frequency of 1)	23 $\leq X \leq$ 29 (arbitrary integer of 1)	60% or more
5	6 $\mu\text{s} \leq X \leq 10 \mu\text{s}$ ("6 μs " or "width which added the integral multiple of 1 μs to 6 μs ")	2,000Hz $\leq X \leq$ 5,000Hz (arbitrary frequency of 1)	16 $\leq X \leq$ 18 (arbitrary integer of 1)	60% or more
6	11 $\mu\text{s} \leq X \leq 20 \mu\text{s}$ ("11 μs " or "width which added the integral multiple of 1 μs to 11 μs ")	2,000Hz $\leq X \leq$ 5,000Hz (arbitrary frequency of 1)	12 $\leq X \leq$ 16 (arbitrary integer of 1)	60% or more

*1 In the transmission of the 17% of maximum signal access speed (an error correction and a control signal are not included), when the masterstation is transmitting to the slave station.

*2 The average value of the "detection probability" for every classification of the radio wave which a radar transmits shall be "80% or more".

The radio wave which a radar transmits *Modulated pulse (Chirp radar)				Detection probability *
Classification	Pulse width	Repetition frequency	The number of continuous pulses	
1	50 $\mu\text{s} \leq X \leq 100 \mu\text{s}$ ("50 μs " or "width which added the integral multiple of 1 μs to 50 μs ")	500Hz $\leq X \leq$ 1,000Hz (arbitrary frequency of 1)	1 $\leq X \leq$ 3 (arbitrary integer of 1)	80% or more

*1 In the transmission of the 17% of maximum signal access speed (an error correction and a control signal are not included), when the masterstation is transmitting to the slave station.

*2 A mass of the number of continuous pulses (burst) shall be radiated for 12 seconds.

*3 Chirp width : $5\text{MHz} \leq X \leq 20\text{MHz}$ ("5MHz" or "frequency width which added the integral multiple of 1MHz to 5MHz") In this case, "chirpwidth" is arbitrary to each burst, "chirp width" in the same burst shall be an equal thing.

*4 Number of burst : $8 \leq X \leq 20$ (arbitrary integer), Burst interval : Time which divided 12 seconds by the number of burst.

*5 When there are two or more pulses within the burst of 1, the pulse width shall be an equal thing.

*6 When there are two or more pulses within the burst of 1, the "repetition frequency" must not have relevance between the "repetition frequency" of the pulse of 1, and the "repetition frequency" of the pulse of next

1.

The radio wave which a radar transmits *Modulated pulse (hopping radar)				Detection probability *
Classification	Pulse width	Repetition frequency	Number of pulses in a burst of 1	
1	1 μ s	3000 Hz	9	70% or more

*1 In the transmission of the 17% of maximum signal access speed (an error correction and a control signal are not included), when the masterstation is transmitting to the slave station.

*2 Burst : One mass of the number of continuous pulses

*3 Hopping frequency : $5,250\text{MHz} \leq X \leq 5724\text{MHz}$ ("5250MHz" or "the arbitrary frequency which added the integral multiple of 1MHz to 5250MHz")

*4 Switching interval of the hopping frequency: "3ms", Total switching interval of the all hopping frequency : "300ms"

*5 Burst interval : "3 ms"

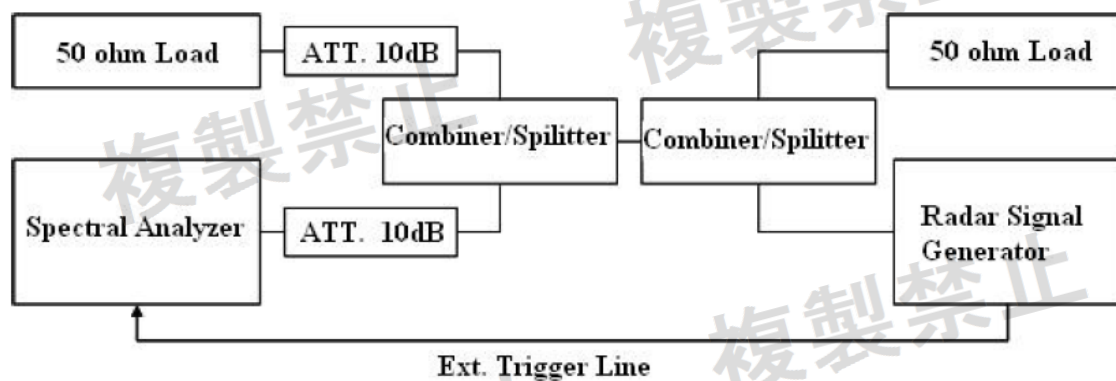
Received power of a master station

Maximum E. I. R. P.	Received power (average)
less than 0.2W	-62dBm
0.2W or more	-64dBm

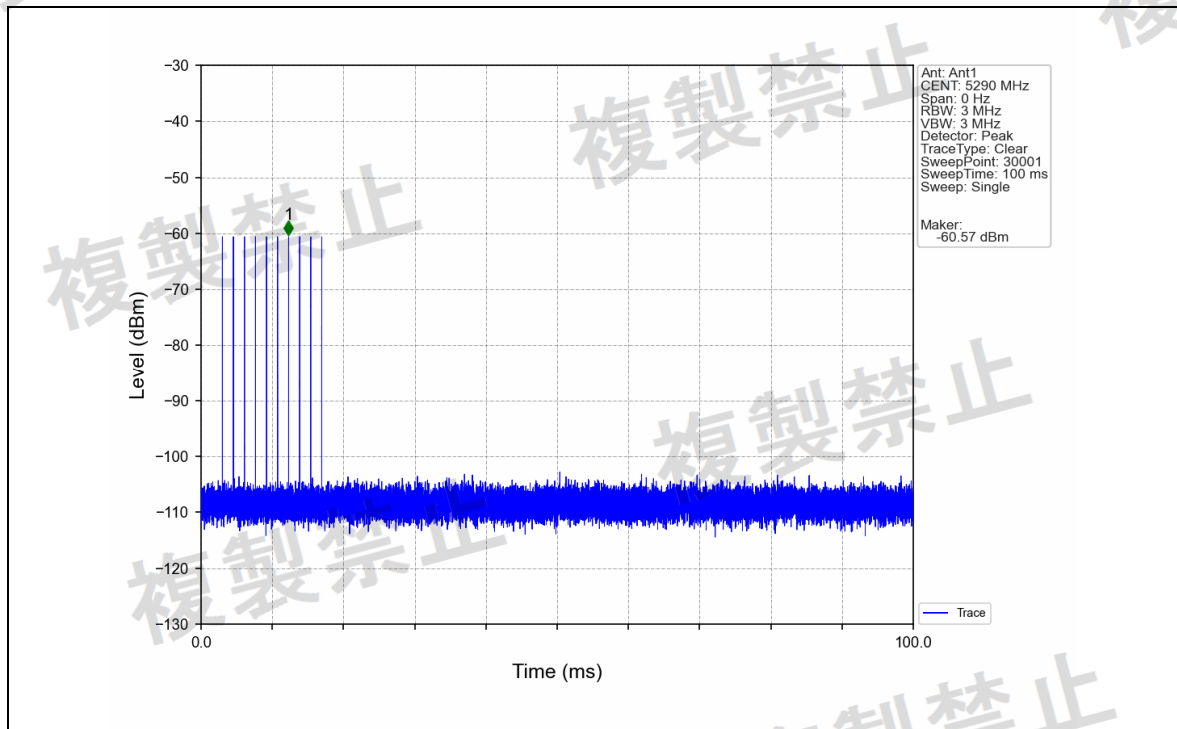
9 Radar Waveform Calibration

The following equipment setup was used to calibrate the conducted radar waveform. A spectrum analyzer was used to establish the test signal level for each radar type. During this process there were no transmissions by either the master or client device. The spectrum analyzer was switched to the zero spans (time domain) at the frequency of the radar waveform generator. Peak detection was utilized. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 1 MHz and 3 MHz. The signal generator amplitude was set so that the power level measured at the spectrum analyzer was -55dBm due to the interference threshold level is not required.

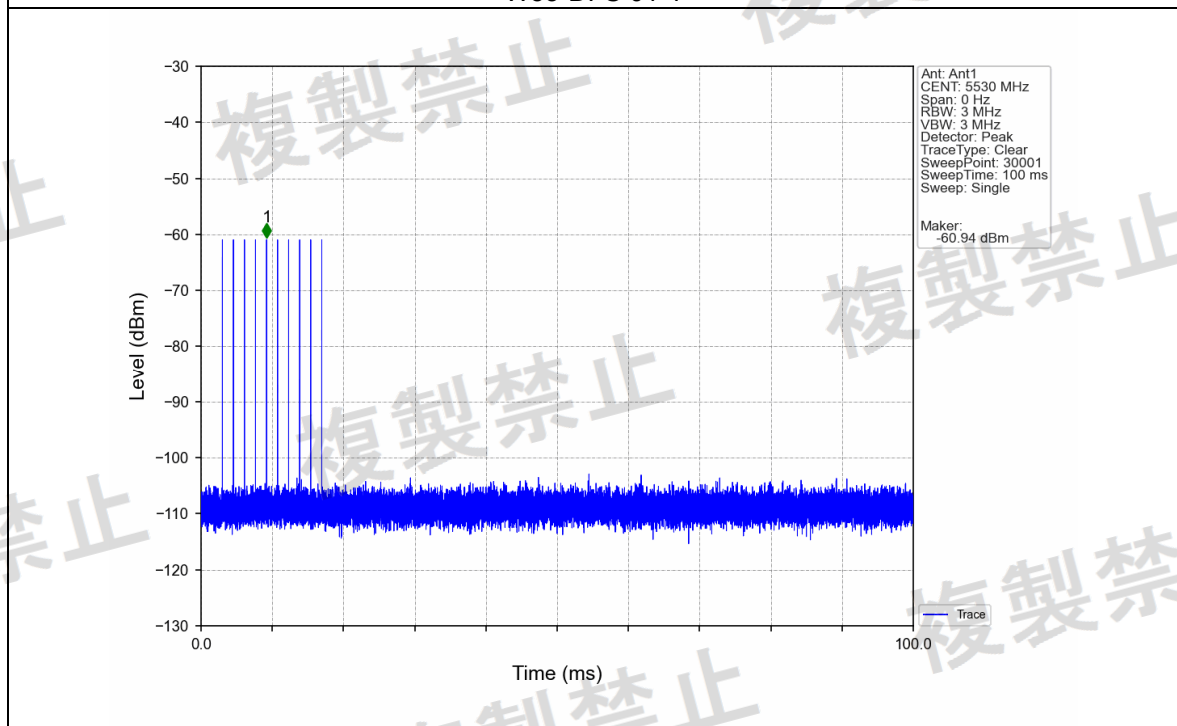
9.1 Conducted Calibration Setup



9.2 Calibration Test Plots As Below



W53-DFS-J1-1



W56-DFS-J2-1

10 Test Procedure

10.1 In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

These tests define how the following DFS parameters are verified during In-Service Monitoring;

- Channel Closing Transmission Time
- Channel Move Time
- Non-Occupancy Period

The steps below define the procedure to determine the above mentioned parameters when a radar Burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device (In- Service Monitoring).

- a) One frequency will be chosen from the Operating Channels of the UUT within the 5250-5350 MHz or 5470-5725 MHz bands. For 802.11 devices, the test frequency must contain control signals. This can be verified by disabling channel loading and monitoring the spectrum analyzer. If no control signals are detected, another frequency must be selected within the emission bandwidth where control signals are detected.
- b) In case the UUT is a U-NII device operating as a Client Device (with or without DFS), a U-NII device operating as a Master Device will be used to allow the UUT (Client device) to Associate with the Master Device. In case the UUT is a Master Device, a U-NII device operating as a Client Device will be used and it is assumed that the Client will Associate with the UUT (Master). In both cases for conducted tests, the Radar Waveform generator will be connected to the Master Device. For radiated tests, the emissions of the Radar Waveform generator will be directed towards the Master Device. If the Master Device has antenna gain, the main beam of the antenna will be directed toward the radar emitter. Vertical polarization is used for testing.
- c) Stream the channel loading test file from the Master Device to the Client Device on the test Channel for the entire period of the test.
- d) At time T0 the Radar Waveform generator sends a Burst of pulses for one of the Radar Type 0 in Table 5 at levels defined in Table 3, on the Operating Channel. An additional 1 dB is added to the radar test signal to ensure it is at or above the DFS Detection Threshold, accounting for equipment variations/errors.
- e) Observe the transmissions of the UUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). Measure and record the Channel Move Time and Channel Closing Transmission Time if radar detection occurs. Figure 17 illustrates Channel Closing Transmission Time.
- f) When operating as a Master Device, monitor the UUT for more than 30 minutes following instant T2 to verify that the UUT does not resume any transmissions on this Channel. Perform this test once and record the measurement result.

- g) In case the UUT is a U-NII device operating as a Client Device with In-Service Monitoring, perform steps a) to f).

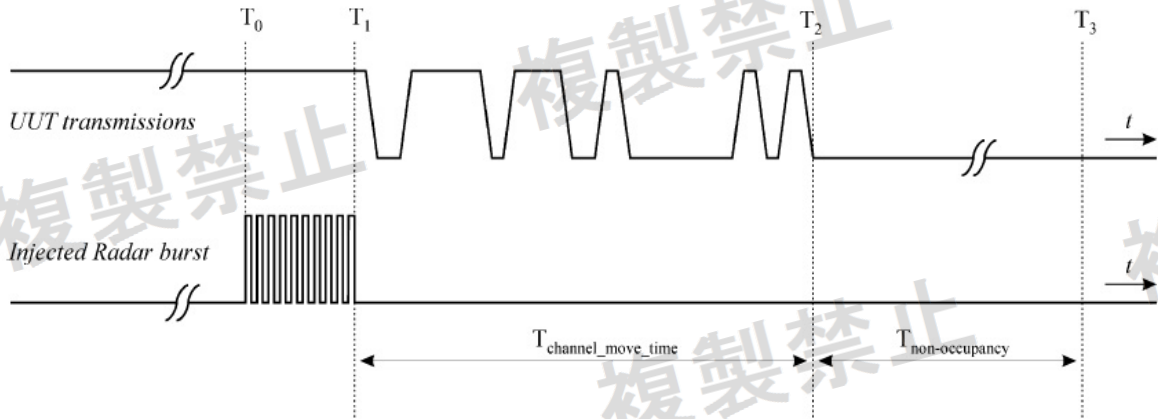
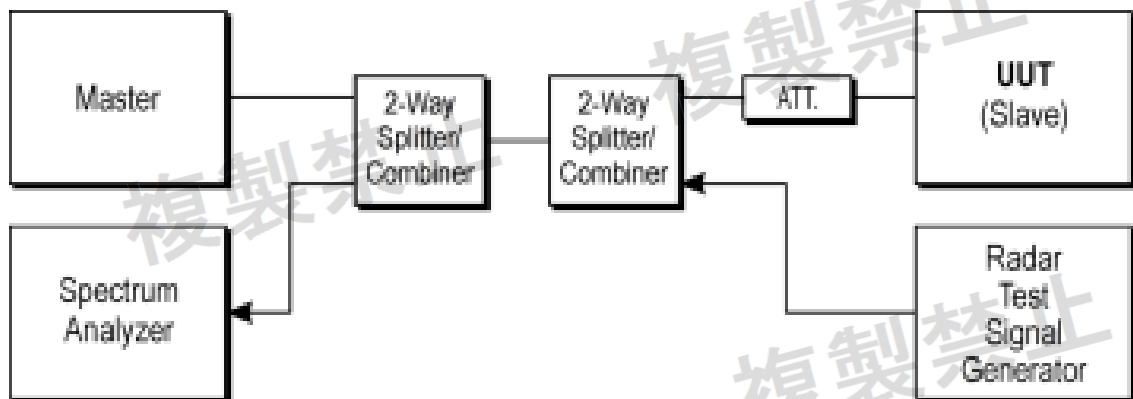


Figure 17: Example of Channel Closing Transmission Time & Channel Closing Time

10.2 DFS setup



11 Test Results

11.1 Channel Shutdown

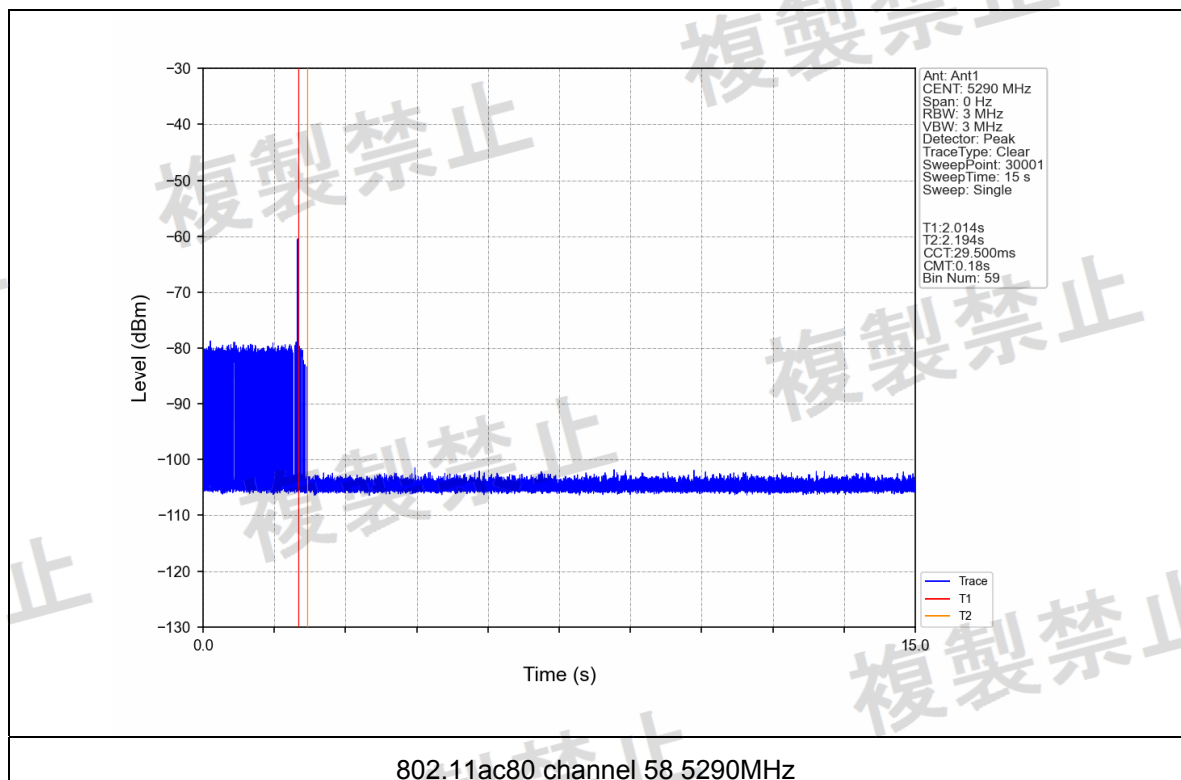
Remark: All Radar waves are tested, but the report only records the worst case.

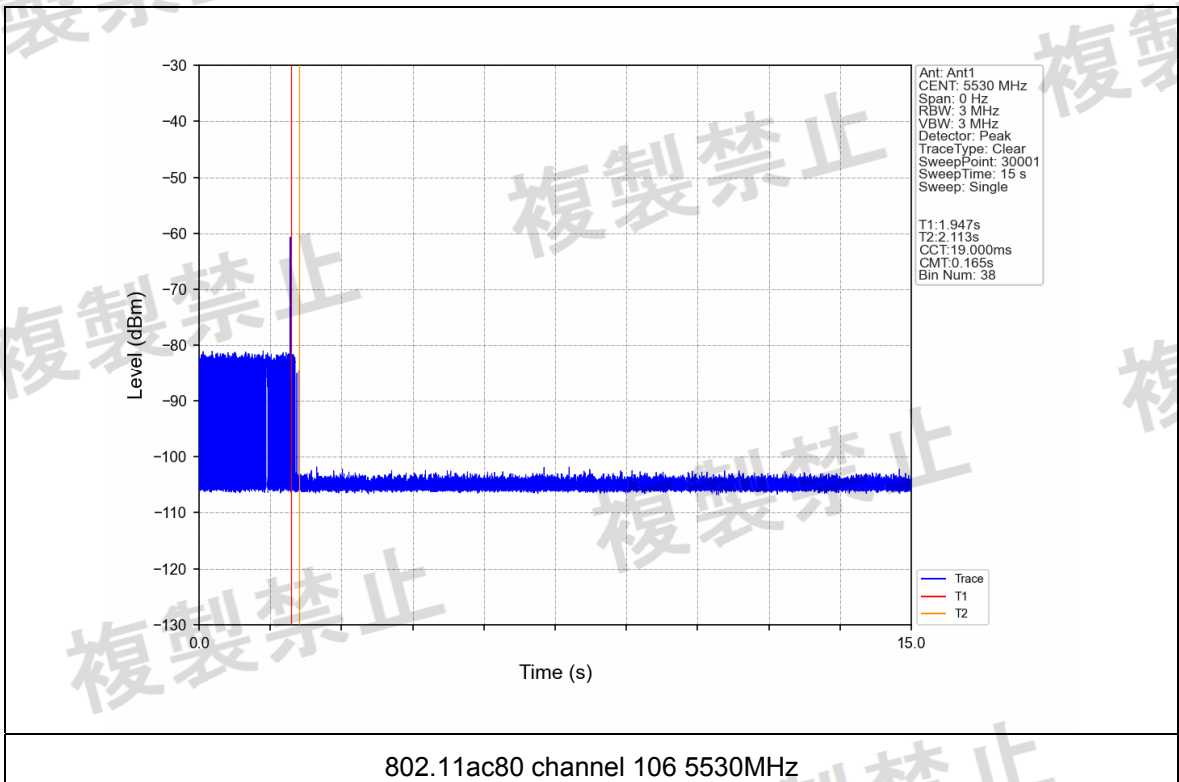
Mode	Channel number	Center frequency	Channel Move Time (s)	Limits(s)	Channel Closing Transmission Time(s)	Limits(s)	Results
802.11ac(VHT80)	58	5290	0.180	10	0.0295	0.26	Pass
802.11ac(VHT80)	106	5530	0.165		0.019		Pass

Note:

1. The aggregate duration of all transmissions of the WLAN device on this channel during the Channel Move Time shall be limited to the Channel Closing Transmission Time. The aggregate duration of all transmissions shall not include quiet periods in between transmissions.
2. A reference type radar waveform was introduced to the EUT when 1s after sweep, and the spectrum Analyzer sweep time was set to 12s for monitoring and capturing the plot. A software program was created to collect the trace data and capturing the plot, then automatic calculate the duration time.

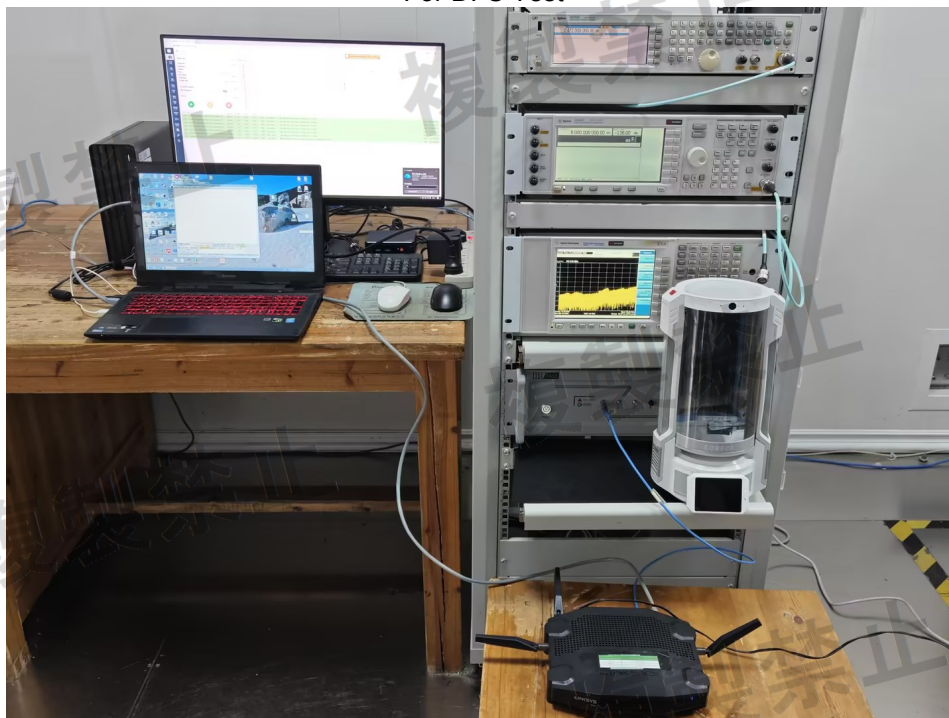
Test plots as below





12 Photographs —Test Setup

For DFS Test



=====End of Report=====