

## DFS Test Report

**Report No.:** RJBCWK-WTW-P22070543-2

**Test Model:** TUF-AX6000

**Received Date:** Jul. 19, 2022

**Test Date:** Dec. 08 ~ Dec. 15, 2022

**Issued Date:** Dec. 27, 2022

**Applicant:** ASUSTeK COMPUTER INC.

**Address:** 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City  
33383, TAIWAN



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### Release Control Record

Issue No.	Description	Date Issued
RJBCWK-WTW-P22070543-2	Original release	Dec. 27, 2022

## 1 Certificate of Conformity

**Product:** TUF Gaming AX6000 Dual Band WiFi 6 Router

**Brand:** ASUS

**Test Model:** TUF-AX6000

**Sample Status:** Engineering sample

**Applicant:** ASUSTeK COMPUTER INC.

**Test Date:** Dec. 08 ~ Dec. 15, 2022

**Standards:** Certification Ordinance Article 2-1-19-3

Measurement was conducted by the temporary test method which TELEC submitted to the Minister for Internal Affairs and Communications based on the Ordinance Concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment in Annex 1, the Ministry of Internal Affairs and Communication notification in Article 88, Paragraph 2

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

**Prepared by :** Polly Chien , **Date:** Dec. 27, 2022  
Polly Chien / Specialist

**Approved by :** Jeremy Lin , **Date:** Dec. 27, 2022  
Jeremy Lin / Project Engineer

## 2 Dynamic Frequency Selection

The manufacturer shall state whether the UUT is capable of operating as a Master and/or a Slave. If the UUT is capable of operating in more than one operating mode then each operating mode shall be tested separately. See tables A and B for the applicability of DFS requirements prior to use a channel (Channel Availability Check) and during normal operation (In-Service Monitoring) for each of the operational modes.

Table A: Applicability of DFS requirements prior to use a channel

Requirement	Operational Mode
	Master
Interference Detection Threshold	✓
Channel Availability Check Time	✓
Non-Occupancy Period	✓

Table B: Applicability of DFS requirements during normal operation

Requirement	Operational Mode
	Master
Interference Detection Threshold	✓
Channel Closing Transmission Time	✓
Channel Move Time	✓
Non-Occupancy Period	✓

## 2.1 Test Limits and Radar Signal Parameters

### Interference Threshold Values

Master Device

Maximum Transmit Power	Power Value
$\geq 200\text{mW}$ ( $\geq 23\text{dBm}$ )	-64dBm
$< 200\text{mW}$ ( $< 23\text{dBm}$ )	-62dBm
This level is only for 0dBi EUT antenna gain	

### DFS Requirement Time Values

Parameter	Value
Channel Availability Check Time	60 s
Non-occupancy Period	30 minutes
Channel Move Time	10 s
Channel Closing Transmission Time	260 ms

### Parameters of DFS Test Signals

#### W53

Radar Test Signal	Pulse Repetition Frequency (PRF)	Pulse Width (us)	Number of Pulses per Burst	Radar Detection Probability
DFS-J1-1	200-1000	0.5-5	10	60% or more
DFS-J1-2	200-1600	0.5-15	15	60% or more
DFS-J1-3	200-1000	0.5-5	22-30	60% or more
DFS-J1-4	200-1600	0.5-15	22-30	60% or more
DFS-J1-5	1114-1118	0.5-1.5	30	60% or more
DFS-J1-6	928-932	0.5-1.5	25	60% or more
DFS-J1-7	886-890	0.5-1.5	24	60% or more
DFS-J1-8	738-742	0.5-1.5	20	60% or more

\*1. The Channel Loading is 30% of Minimum Transmission Data Rate.

\*2. The receiving threshold level is the following. (This is the average power while receiving radar with an absolute gain 0 dBi antenna.)  
 The case of  $P_o \geq 200\text{mW}$ ;  $\geq -64\text{dBm}(\text{avg.})$  / The case of  $P_o < 200\text{mW}$ ;  $\geq -62\text{dBm}(\text{avg.})$   
 ( $P_o$ ; Max. Transmit Power (EIRP) of EUT)



**W56**

Radar Type	Pulse Repetition Frequency (PRF)	Pulse Width (μsec)	Number of Pulses	Radar Detection Probability
DFS-J2-1	720	0.5	18	60% or more
DFS-J2-2	250	2	18	60% or more
DFS-US-1	700	1	18	60% or more
DFS-US-2	4347 – 6667	1-5	23-29	60% or more
DFS-US-3	2000 – 5000	6-10	16-18	60% or more
DFS-US-4	2000 – 5000	11-20	12-16	60% or more
Aggregate (Radar Types 1-6)				80% or more

\*1. The Channel Loading is 17% of Maximum Transmission Data Rate.  
 \*2. The aggregate is the average of the percentage of successful detections of 6 Radar Types.  
 \*3. The receiving threshold level is the following. (This is the average power while receiving radar with an absolute gain 0 dBi antenna.)  
 The case of  $P_o \geq 200\text{mW}$ ;  $\geq -64\text{dBm}(\text{avg.})$  / The case of  $P_o < 200\text{mW}$ ;  $\geq -62\text{dBm}(\text{avg.})$   
 ( $P_o$ ; Max. Transmit Power (EIRP) of EUT)

Radar Type	Pulse Repetition Frequency (pps)	Pulse Width (μsec)	Number of Pulses per Burst	Radar Detection Probability
DFS-US-5	500-1000	50 - 100	1-3	80% or more

\*1. The Channel Loading is 17% of Maximum Transferred Data Rate.  
 \*2. The transmission period for Long Pulse Radar test signal is 12 seconds.  
 \*3. Each pulse has a liner frequency modulated chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a Burst will have the same chirp width. Pulse in different Bursts may have different chirp widths.  
 \*4. There are a total of 8 to 20 Bursts in the 12 second period. The interval of Burst is the time when divided 12 seconds by the number of the bursts.  
 \*5. In the case of being lots pulse in the Burst, each pulse is same as them.  
 \*6. In the case of being lots pulse in the Burst, each Burst within the 12 second sequence must have a different number of pulses.  
 \*7. The receiving threshold level is the following. (This is the average power while receiving radar with an absolute gain 0 dBi antenna.)  
 The case of  $P_o \geq 200\text{mW}$ ;  $\geq -64\text{dBm}(\text{avg.})$  / The case of  $P_o < 200\text{mW}$ ;  $\geq -62\text{dBm}(\text{avg.})$   
 ( $P_o$ ; Max. Transmit Power (EIRP) of EUT)

Radar Type	Pulse Repetition Frequency (pps)	Pulse Width (μsec)	Pulses per Hop	Radar Detection Probability
DFS-US-6	3000	1	9	70% or more

\*1. The Channel Loading is 17% of Maximum Transferred Data Rate.  
 \*2. The frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250MHz to 5724MHz.  
 \*3. The Switching Interval of Hopping Sequence is 3 millisecond, and the Hopping Sequence Length is 300 millisecond.  
 \*4. The Burst Interval is 3 millisecond.  
 \*5. The receiving threshold level is the following. (This is the average power while receiving radar with an absolute gain 0 dBi antenna.)  
 The case of  $P_o \geq 200\text{mW}$ ;  $\geq -64\text{dBm}(\text{avg.})$  / The case of  $P_o < 200\text{mW}$ ;  $\geq -62\text{dBm}(\text{avg.})$   
 ( $P_o$ ; Max. Transmit Power (EIRP) of EUT)



## 2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due	Calibration Authority	Calibration Method
Spectrum Analyzer / Rohde & Schwarz	ESR	101451	Mar. 24, 2022	Mar. 23, 2023	ETC	Refer to Note 2
Signal generator / KEYSIGHT	N5182B	MY53052282	Dec. 21, 2021	Dec. 20, 2022	ETC	Refer to Note 2
RF coaxial cable / HUBER SUHNER	SUCOFLEX 104	CABLE-DFS-0 1-254644	NA	NA	BV CPS E&E	Refer to Note 2

Note:

- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency. (1) Electronics Testing Center, Taiwan. (2) Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

## 2.3 EUT Information

### EUT Software and Firmware Version

No.	Product	Test Model No.	Software/Firmware Version
1	TUF Gaming AX6000 Dual Band WiFi 6 Router	TUF-AX6000	3.0.0.4.388_31113-gf151416-test

### Description of Available Antennas to the EUT

Brand	Model	Type	Connector	Frequency Range	Gain (dBi)
RFlink	U00T01S039N01806	Dipole	ipex(MHF)	5250-5725	2
RFlink	U00T01S039N01807	Dipole	ipex(MHF)	5250-5725	2
RFlink	U00T01S039N01809	Dipole	ipex(MHF)	5250-5725	2
RFlink	U00T01S039N01810	Dipole	ipex(MHF)	5250-5725	2

\* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

## 2.4 Description of Support Units

### Support Unit information

No.	Product	Brand	Model No.	Software/Firmware Version
1	Wireless module	Intel	AX200	22.60.0.6

Note: This device was functioned as a ☐ Master ☒ Slave device during the DFS test.

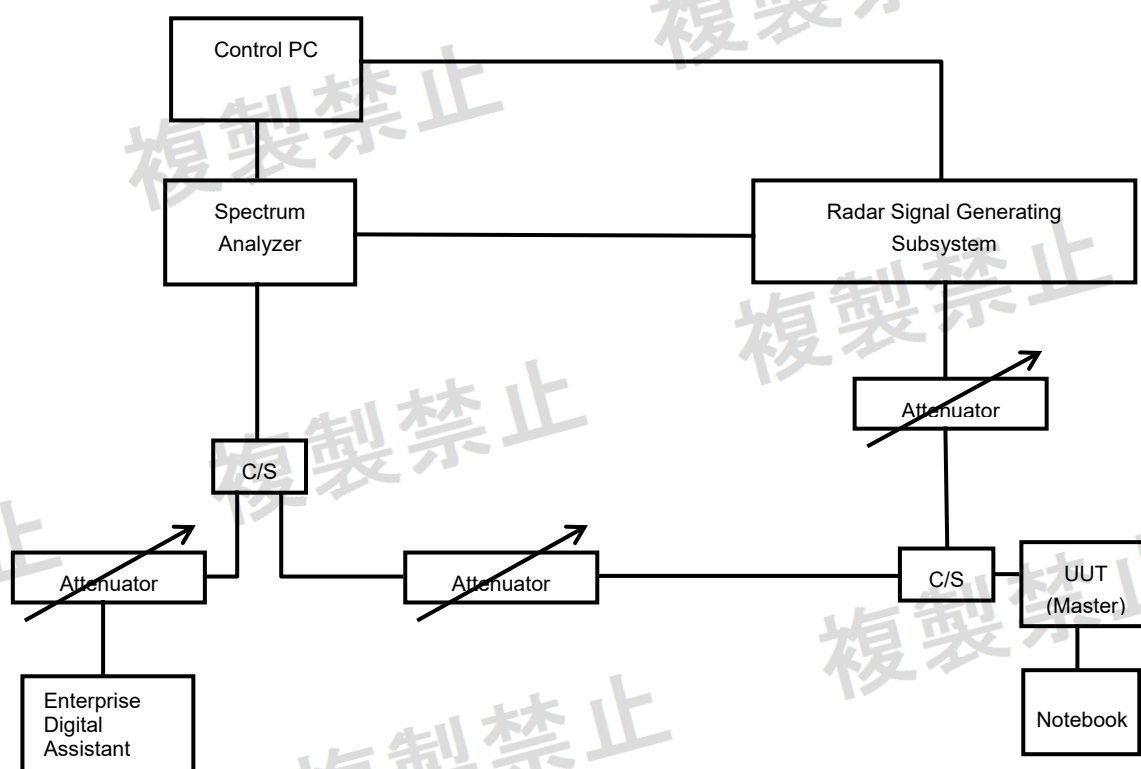
## 2.5 Test Procedure

The measured channels are in the W53 and W56 bands. The radar signal was the same as transmitted channels, and injected into the antenna port of AP (master) with  $-62\text{dBm}$  power level for W53 band and  $-62\text{dBm}$  power level for W56 band, measured the Channel Availability Check time and channel closing transmission time and channel move time and Non-Occupancy Period. When test W53 Band, The Channel Loading is 30% of Maximum Transmission Data Rate. When test W56 Band, The Channel Loading is 17% of Maximum Transmission Data Rate.

## 2.6 Deviation from Test Standard

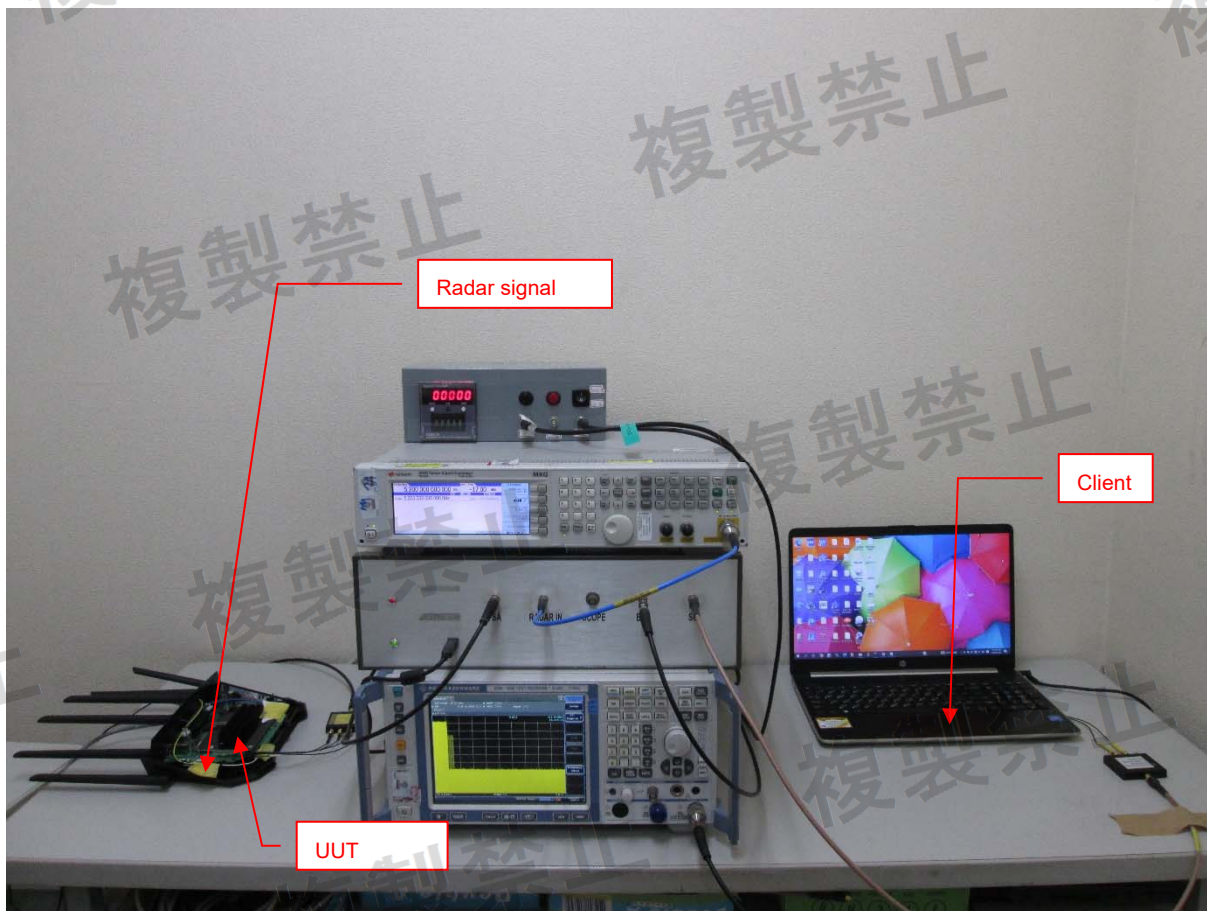
No deviation.

## 2.7 Conducted Test Setup Configuration



The UUT is capable of operating as a Master mode. The radar test signals are injected into the Master Device.

## 2.8 Photographs of the Test Configuration



### 2.8.1 List of Measurements

Quotation	Test Parameter	Remarks	Pass/Fail
OR: Article 49-20 Note: No.103 of 2019 OC: Annex 2. 3-12	Interference Detection Threshold	Applicable	Pass
OR: Article 49-20 Note: No.103 of 2019 OC: Annex 2. 3-12	Channel Availability Check Time	Applicable	Pass
OR: Article 49-20 Note: No.103 of 2019 OC: Annex 2. 3-12	Channel Closing Transmission Time	Applicable	Pass
OR: Article 49-20 Note: No.103 of 2019 OC: Annex 2. 3-12	Channel Move Time	Applicable	Pass
OR: Article 49-20 Note: No.103 of 2019 OC: Annex 2. 3-12	Non-Occupancy Period	Applicable	Pass

Note:

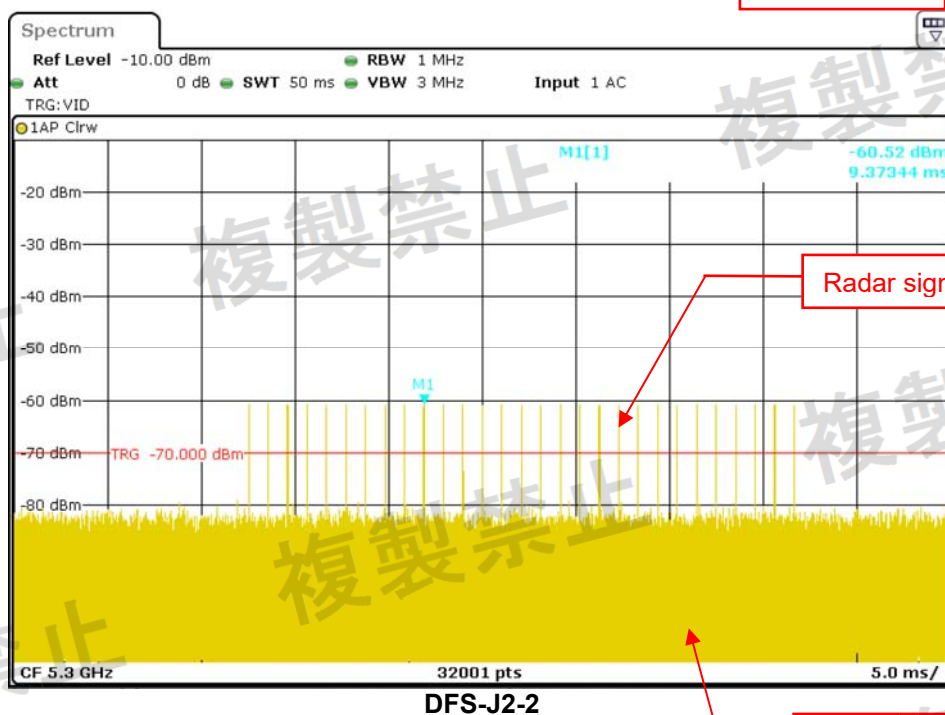
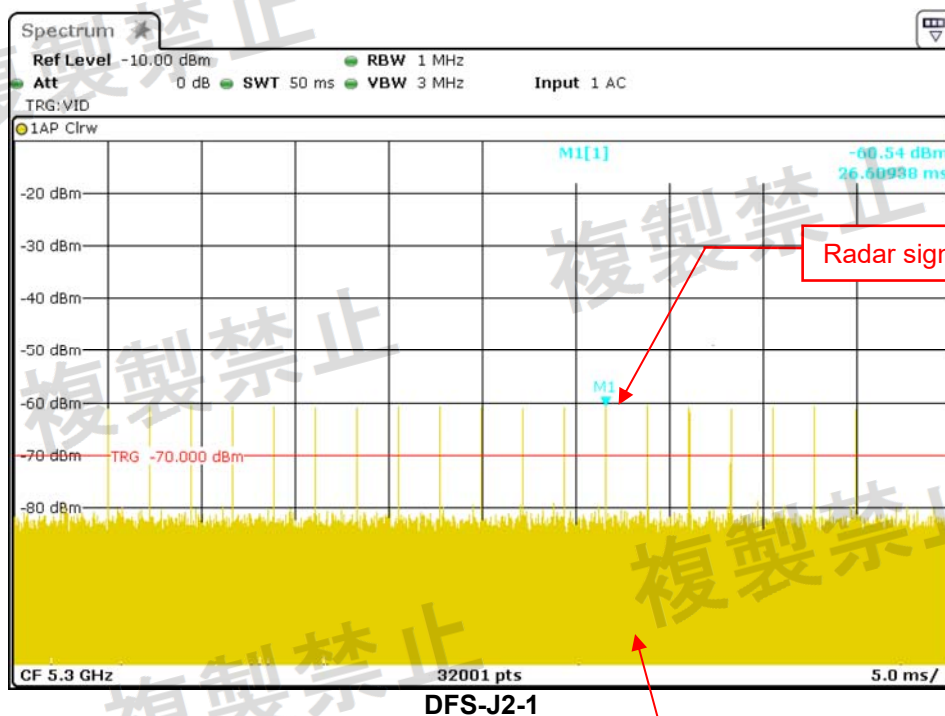
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. This UUT is capable of operating as a master (with radar detection).

## 2.8.2 Test Result

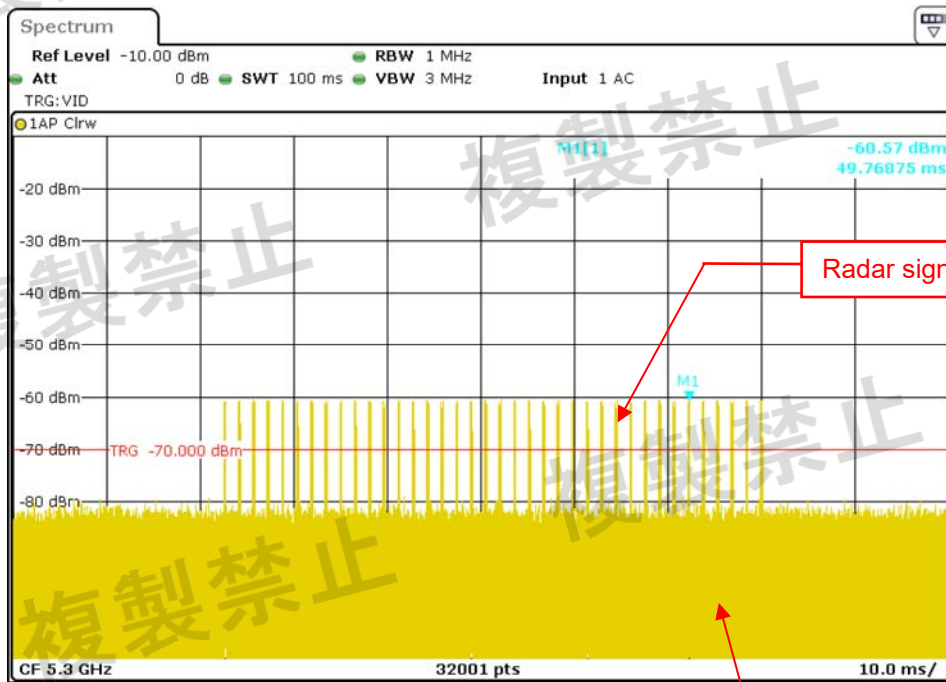
### INTERFERENCE THRESHOLD VALUES INJECTED INTO AP

#### W53

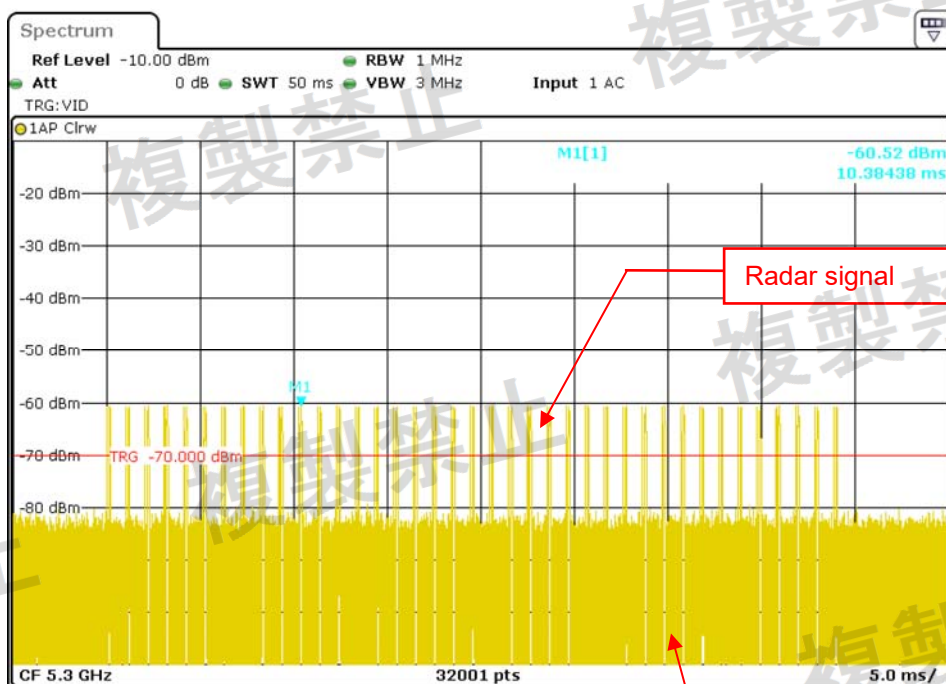
For an interference threshold level of  $-62$  dBm and the AP antenna gain is 2 dBi. Then the radar Burst signal level to the AP connector is  $-60$  dBm





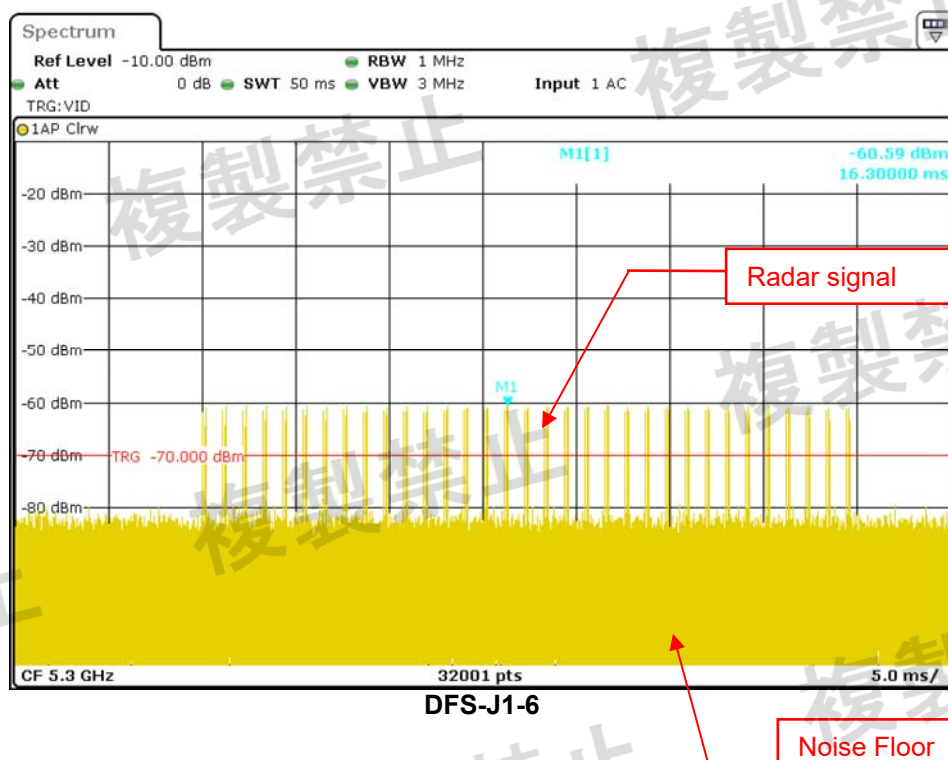
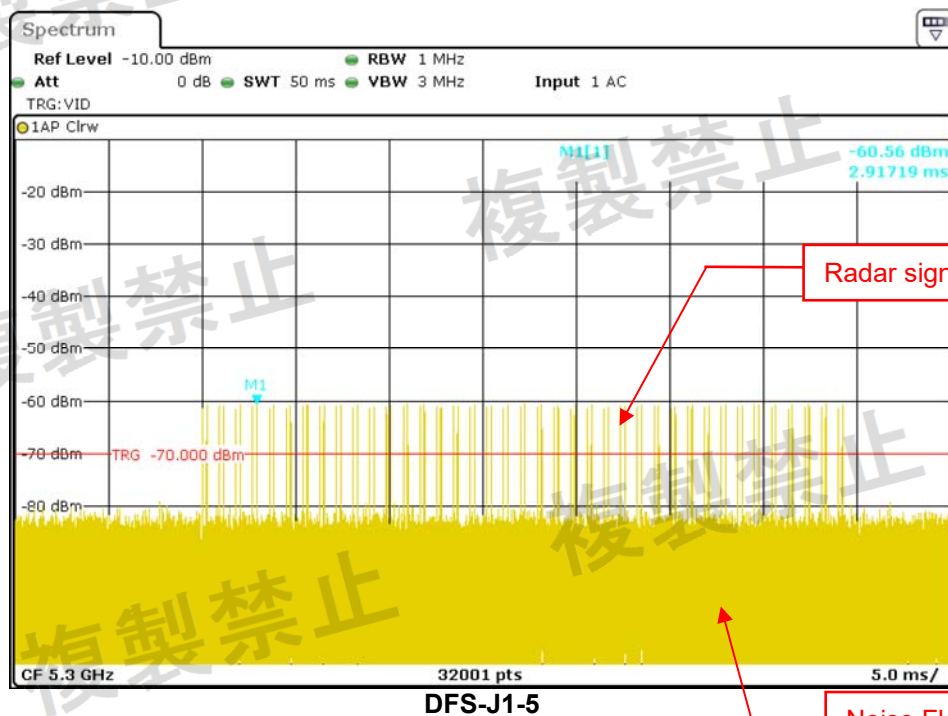


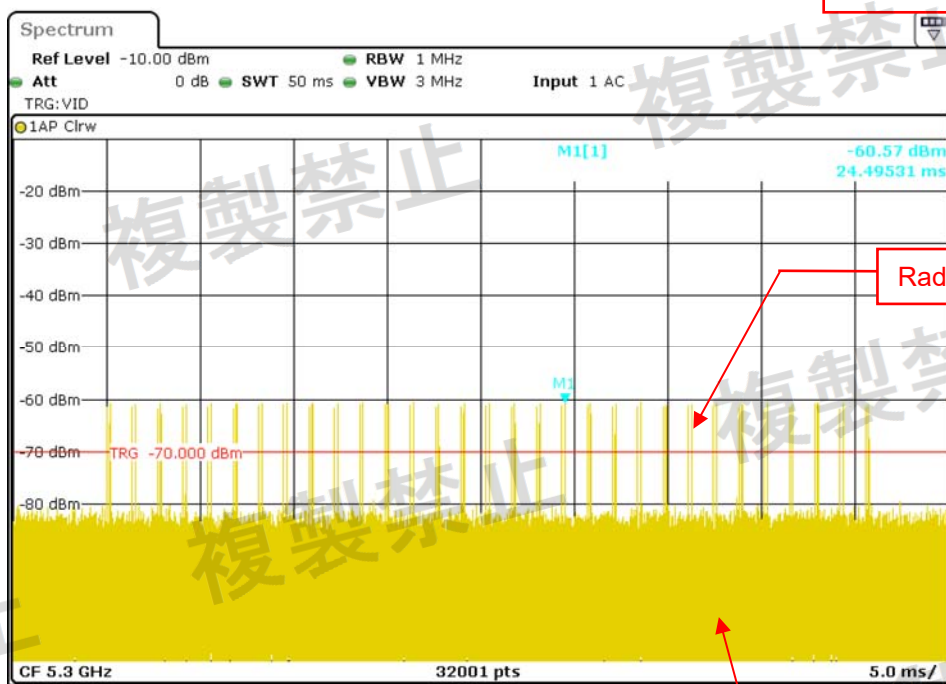
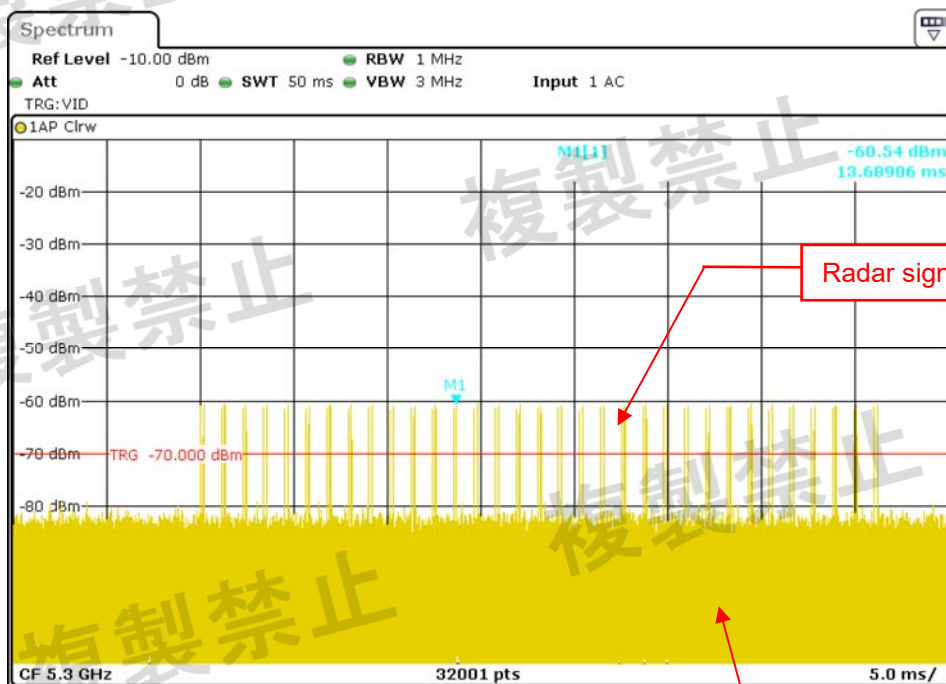
DFS-J1-3



DFS-J1-4

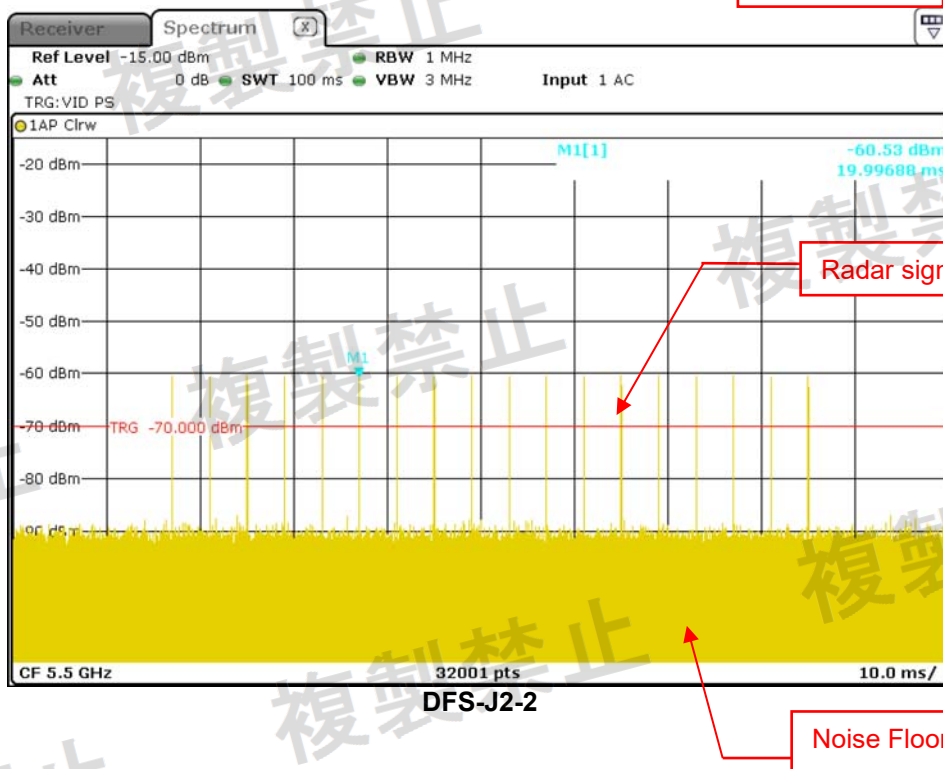
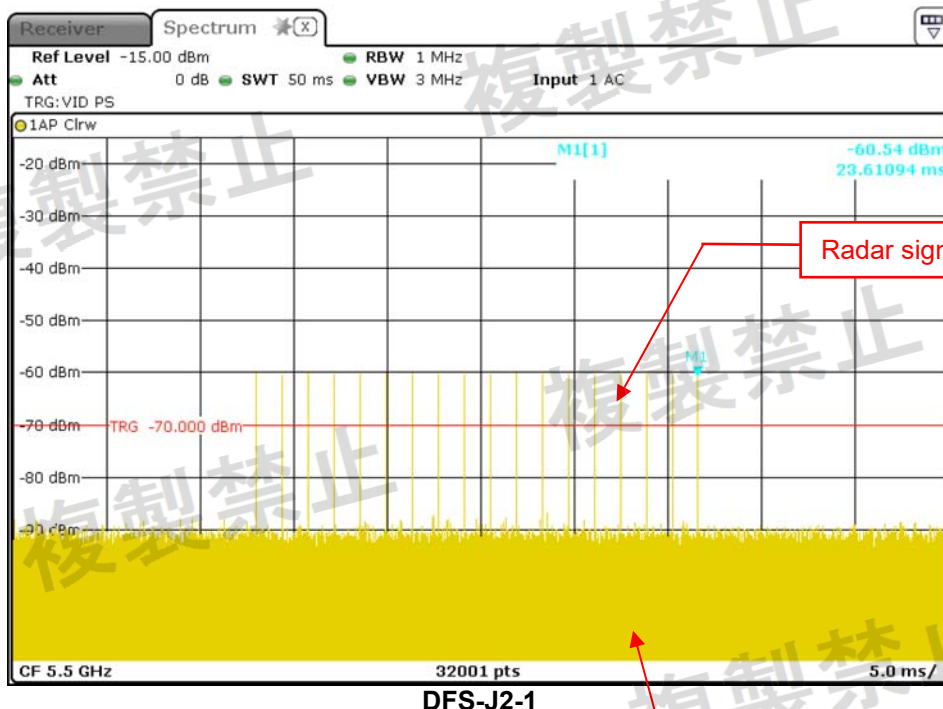


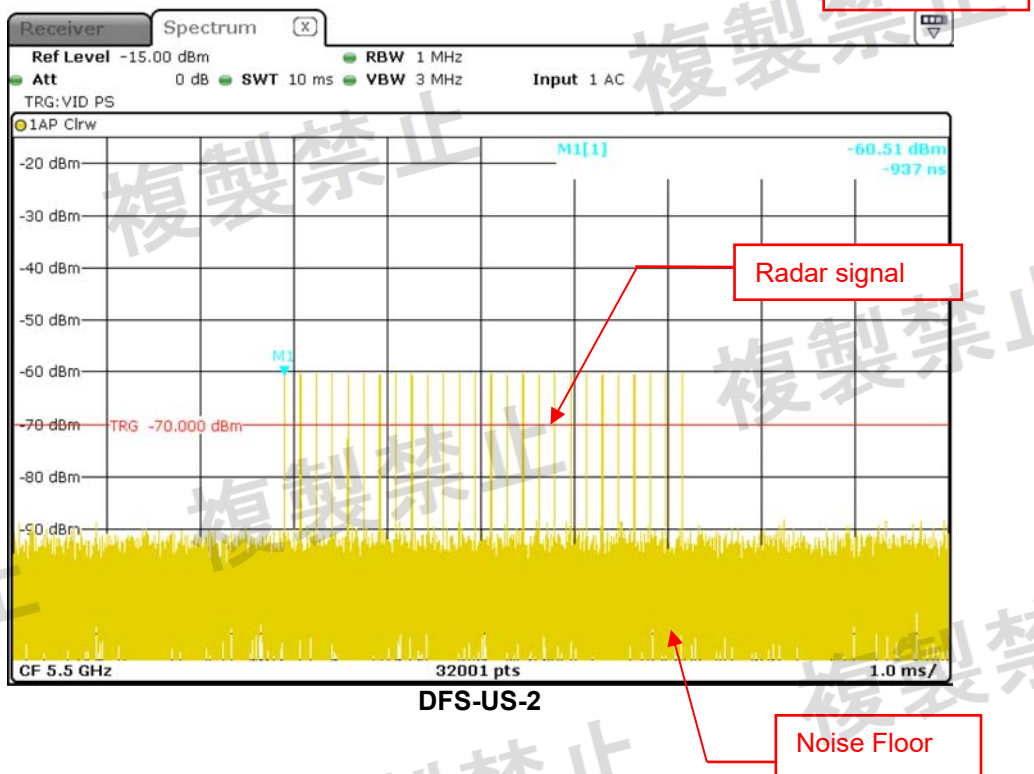
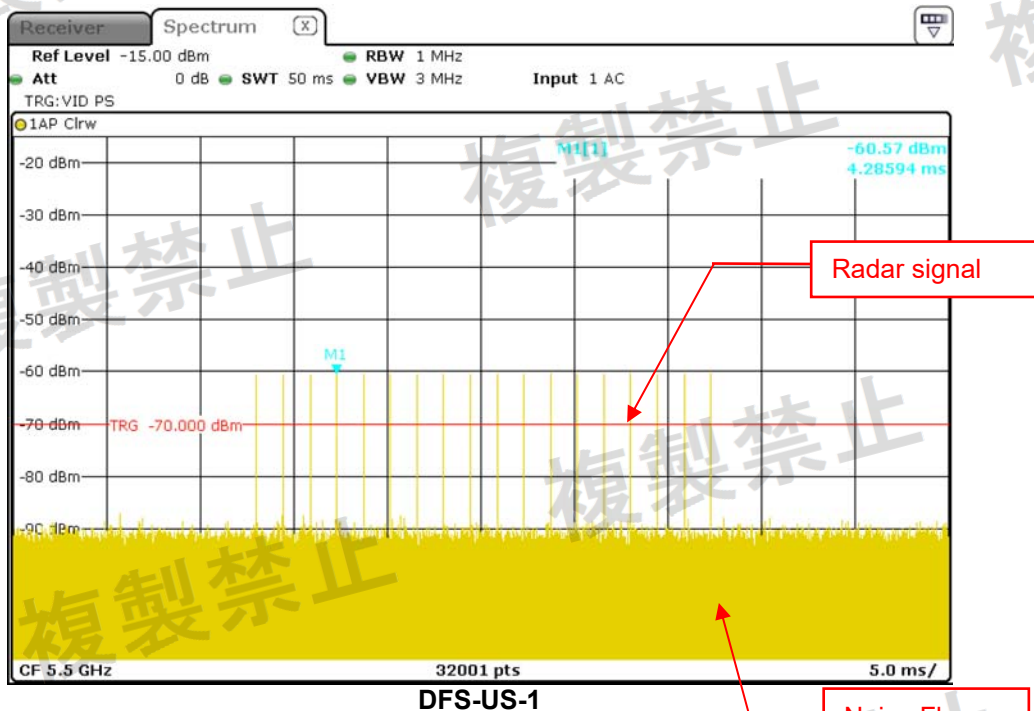




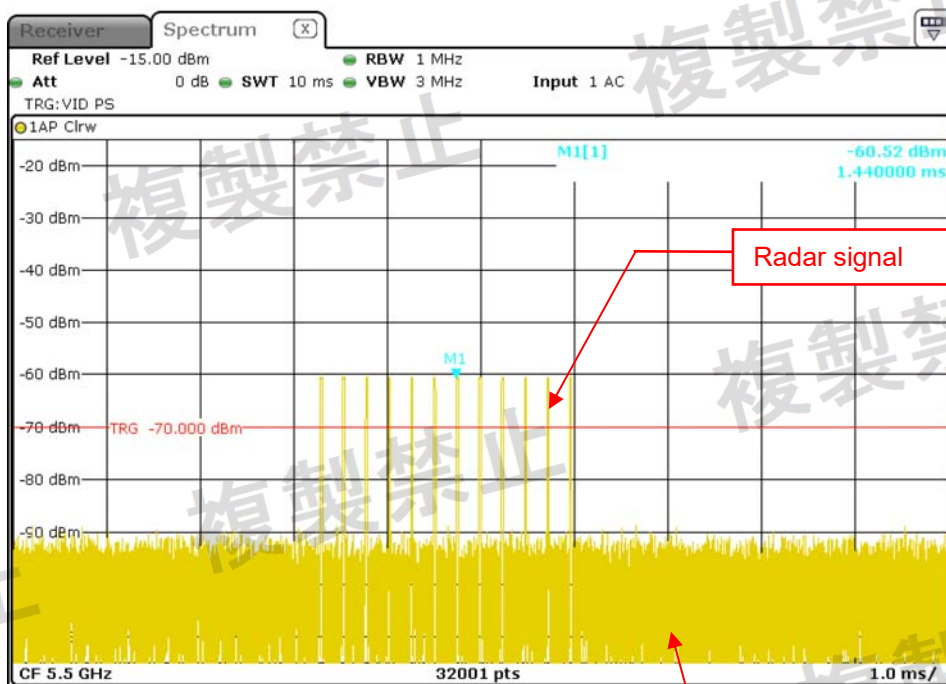
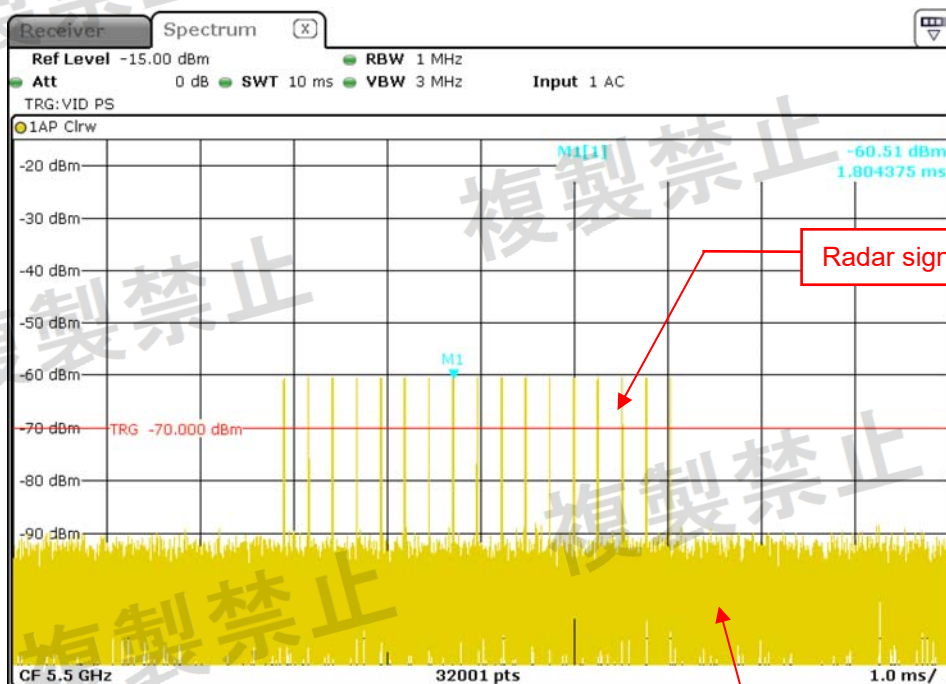
# W56

For an interference threshold level of  $-62$  dBm and the AP antenna gain is 2 dBi. Then the radar Burst signal level to the AP connector is  $-60$  dBm

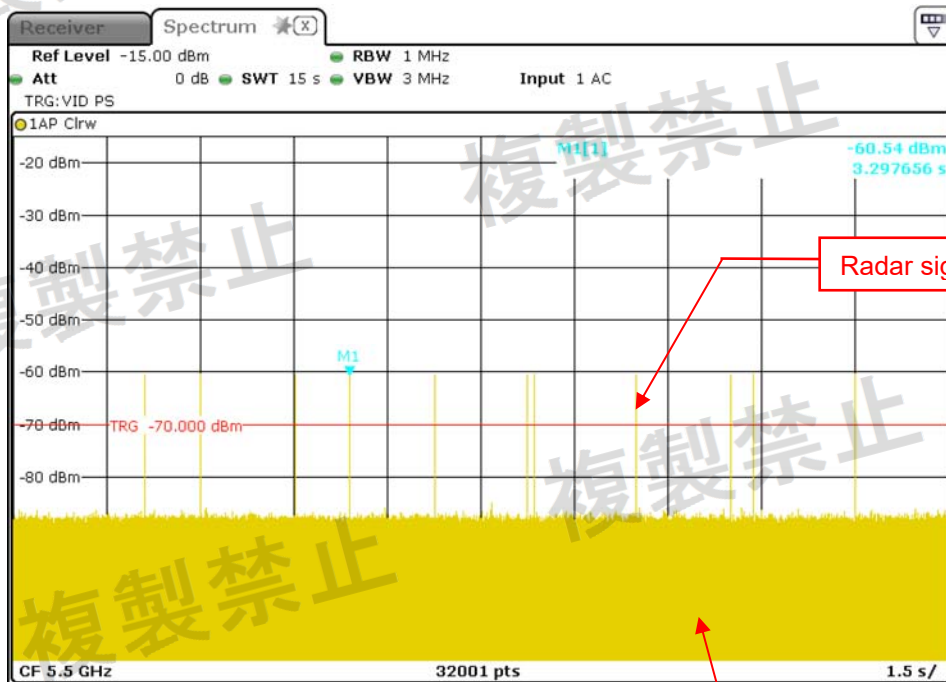




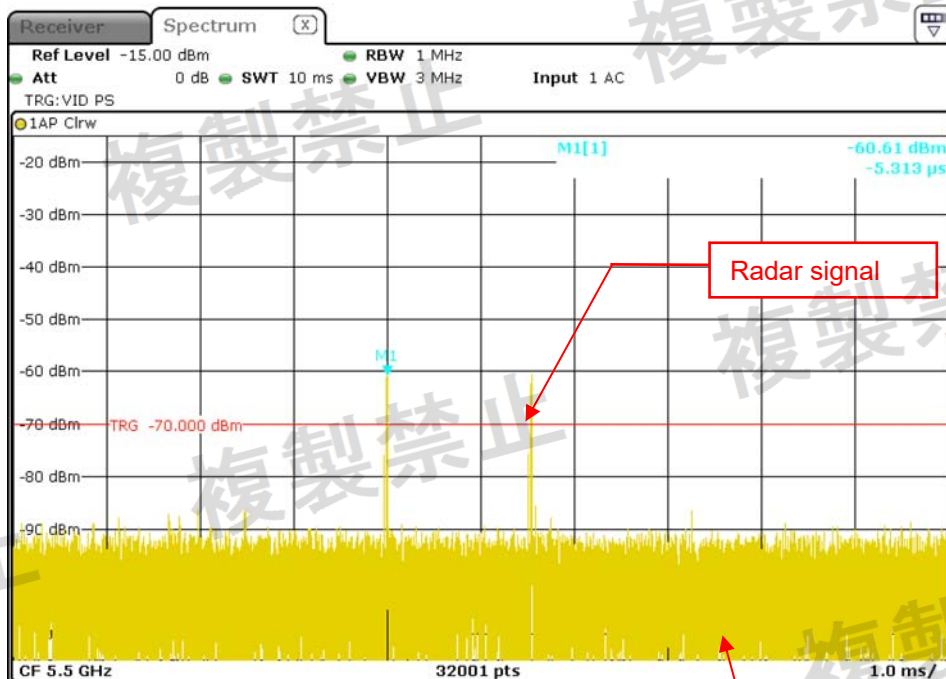




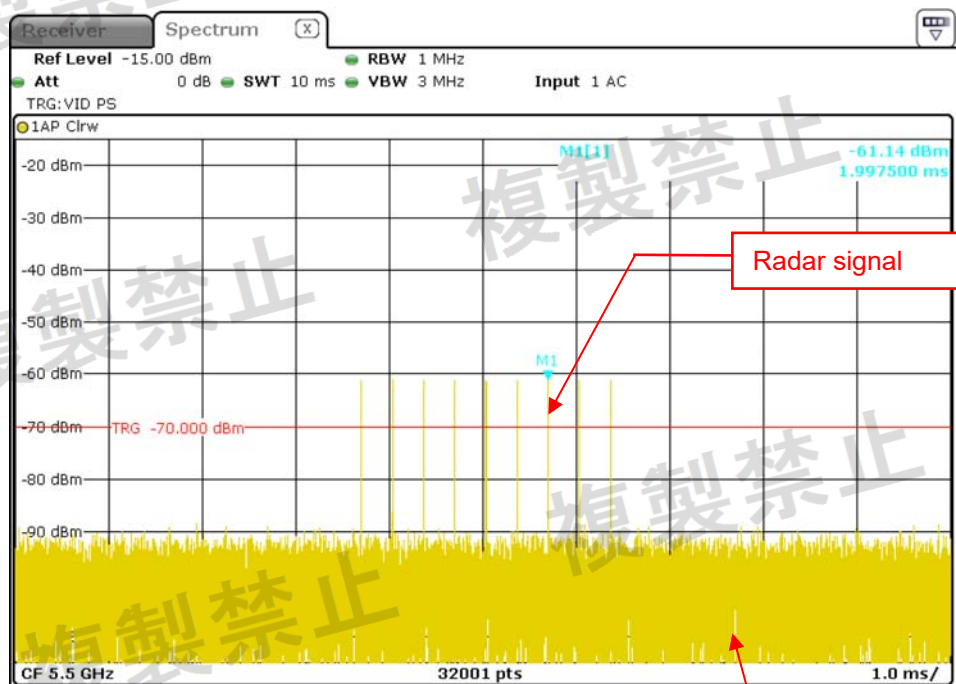




Long Pulse Radar



Long Pulse Radar Signal



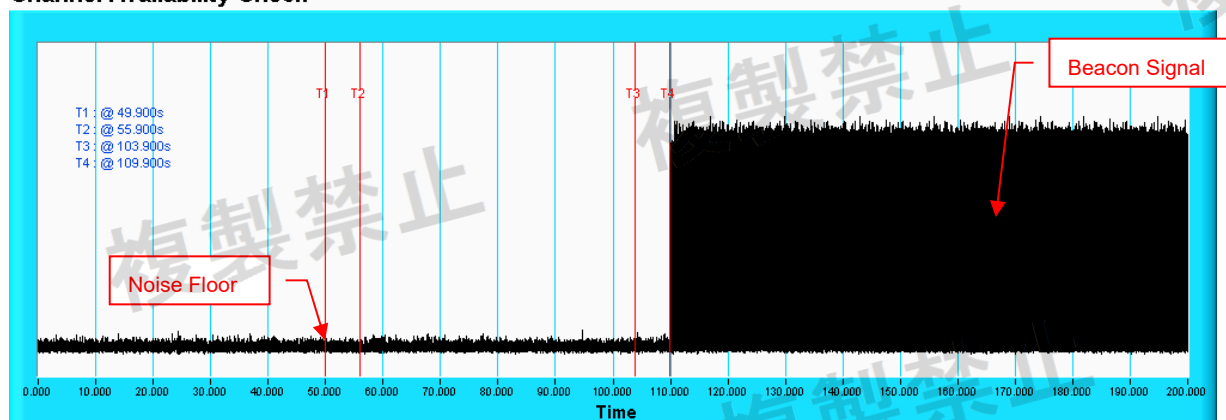
### 2.8.2.1 Channel Availability Check Time

If the UUT successfully detected the radar burst, it should be observed as the UUT has no transmissions occurred until the UUT starts transmitting on another channel.

Timing of Radar Signal	Observation	
	UUT	Spectrum Analyzer
Within 1 to 6 second	Detected	No transmissions
Within 54 to 60 second	Detected	No transmissions

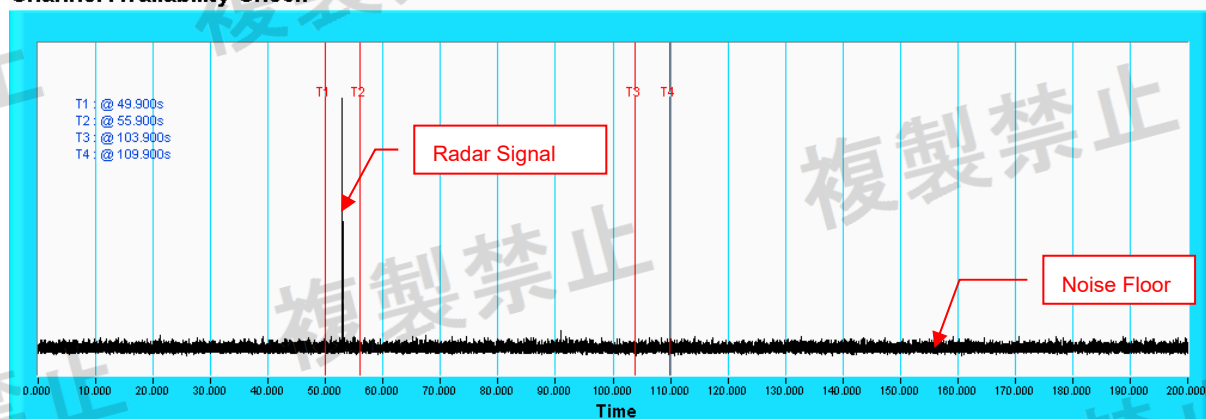
Note: Worst case channel for final "Channel Availability Check" test.

## Initial Channel Availability Check Time W53 Channel Availability Check



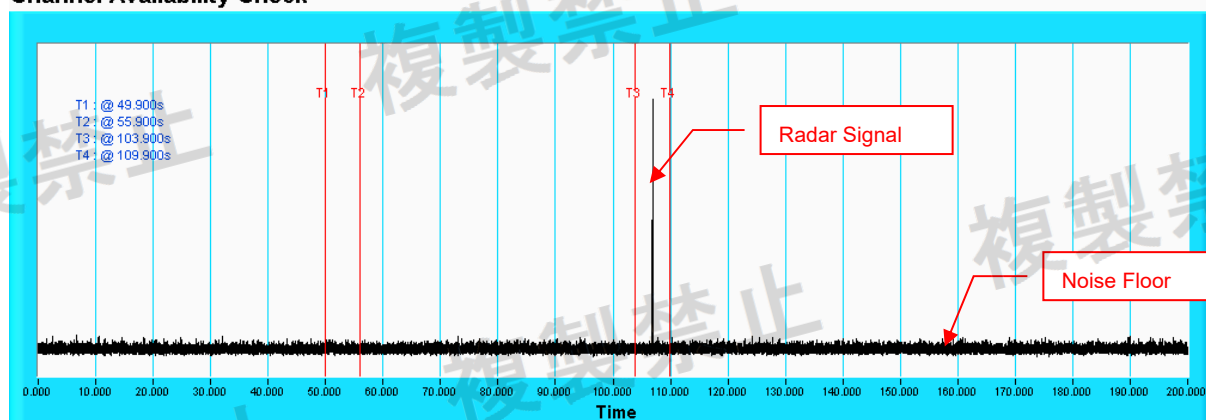
Note: T1 denotes the end of power-up time period is 49.9<sup>th</sup> second. T4 denotes the end of Channel Availability Check time is 109.9<sup>th</sup> second. Channel Availability Check time is equal to ( T4 – T1) 60 seconds.

## Radar Burst at the Beginning of the Channel Availability Check Time Channel Availability Check



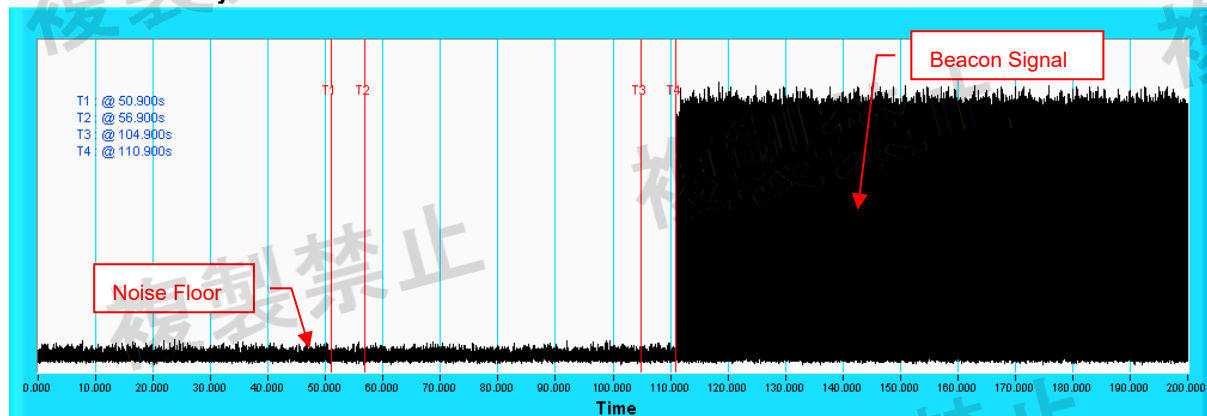
Note: T1 denotes the end of power up time period is 49.9<sup>th</sup> second. the radar burst was commenced within a 6 second window starting from the end of power-up sequence. T4 denotes the 109.9<sup>th</sup> second.

## Radar Burst at the End of the Channel Availability Check Time Channel Availability Check



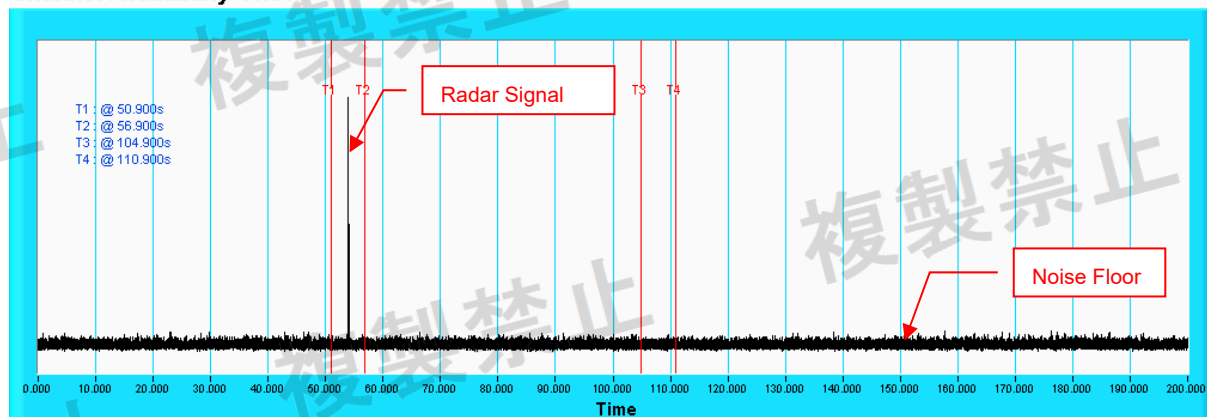
Note: T1 denotes the end of power up time period is 49.9<sup>th</sup> second. T3 denotes 103.9<sup>th</sup> second and T4 denotes the 109.9<sup>th</sup> second. The radar burst was commenced within 54<sup>th</sup> second to 60<sup>th</sup> second window starting from the end of power-up sequence.

## W56 Channel Availability Check



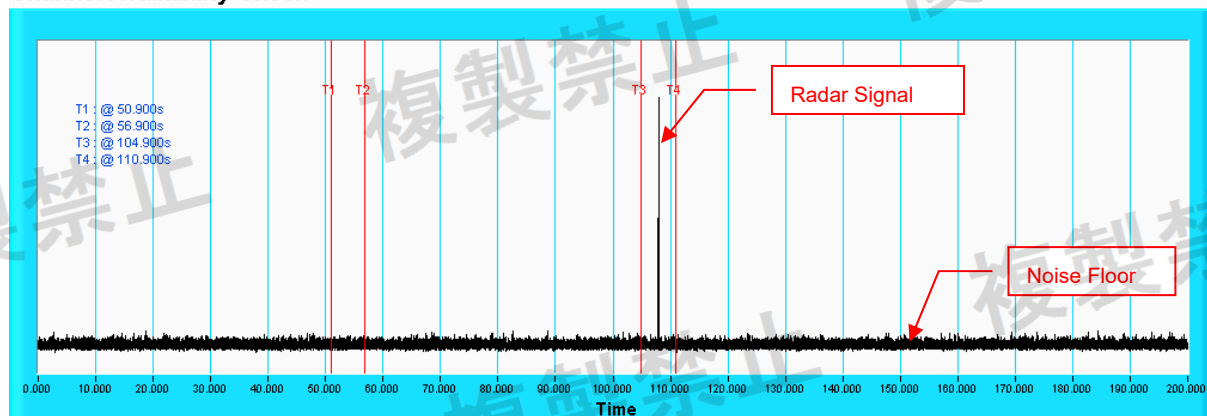
Note: T1 denotes the end of power-up time period is 50.9<sup>th</sup> second. T4 denotes the end of Channel Availability Check time is 110.9<sup>th</sup> second. Channel Availability Check time is equal to ( T4 – T1 ) 60 seconds.

## Radar Burst at the Beginning of the Channel Availability Check Time Channel Availability Check



Note: T1 denotes the end of power up time period is 50.9<sup>th</sup> second. the radar burst was commenced within a 6 second window starting from the end of power-up sequence. T4 denotes the 110.9<sup>th</sup> second.

## Radar Burst at the End of the Channel Availability Check Time Channel Availability Check



Note: T1 denotes the end of power up time period is 50.9<sup>th</sup> second. T3 denotes 104.9<sup>th</sup> second and T4 denotes the 110.9<sup>th</sup> second. The radar burst was commenced within 54<sup>th</sup> second to 60<sup>th</sup> second window starting from the end of power-up sequence.



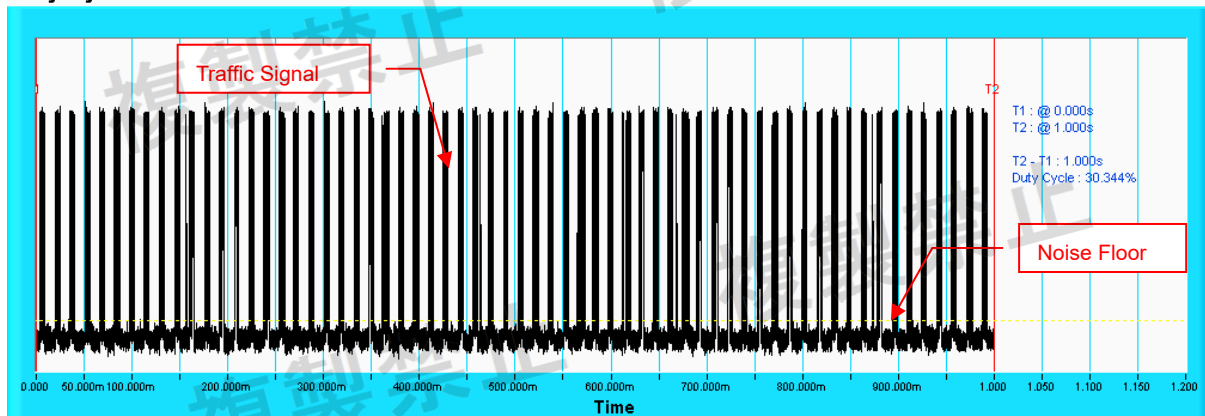
## CHANNEL CLOSING TRANSMISSION TIME AND CHANNEL MOVE TIME

The channel closing time is aggregated duration of all transmissions from the UUT during the channel move time. The Aggregate duration of all transmission of the UUT does not include quiet periods in between transmissions of the UUT.

### W53 WLAN TRAFFIC

#### 802.11a

#### Duty Cycle

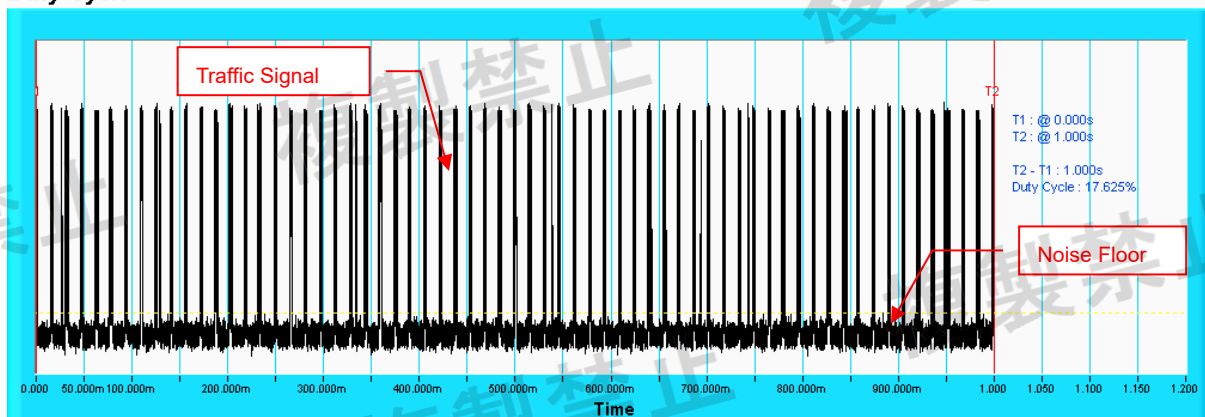


Note: T1 denotes the start of duty cycle period is 0<sup>th</sup> second. T2 denotes the end of duty cycle period is 1<sup>th</sup> second. T2 – T1= 1<sup>th</sup> seconds. Duty Cycle = 30.344%

### W56 WLAN TRAFFIC

#### 802.11a

#### Duty Cycle



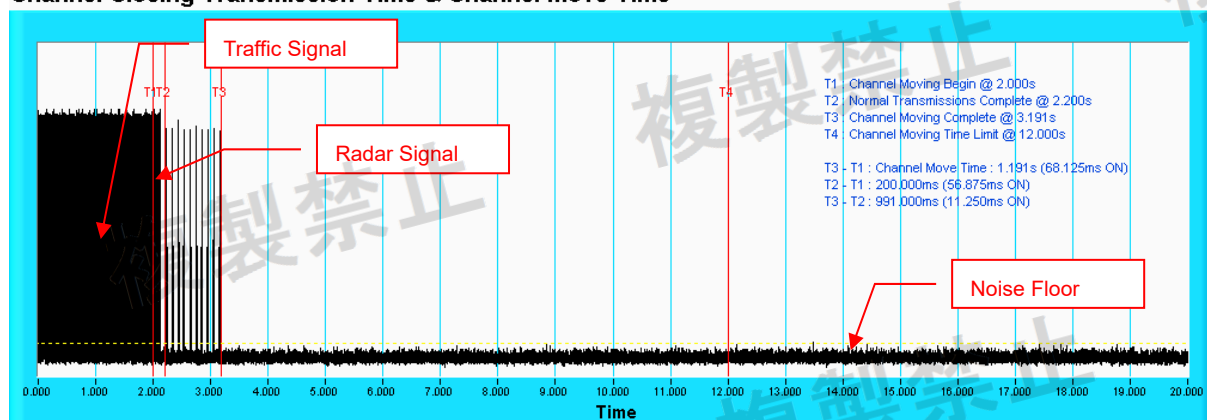
Note: T1 denotes the start of duty cycle period is 0<sup>th</sup> second. T2 denotes the end of duty cycle period is 1<sup>th</sup> second. T2 – T1= 1<sup>th</sup> seconds. Duty Cycle = 17.625%

**W53 802.11a**

Radar Type	Pulse Repetition Frequency (pps)	Pulse Width (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Percentage of Successful Detection (%)
DFS-J1-1	200-1000	0.5-5	10	60%	100%
DFS-J1-2	200-1600	0.5-15	15	60%	100%
DFS-J1-3	200-1000	0.5-5	22-30	60%	95%
DFS-J1-4	200-1600	0.5-15	22-30	60%	100%
DFS-J1-5	1114-1118	0.5-1.5	30	60%	100%
DFS-J1-6	928-932	0.5-1.5	25	60%	100%
DFS-J1-7	886-890	0.5-1.5	24	60%	95%
DFS-J1-8	738-742	0.5-1.5	20	60%	95%

### W53 DFS-J1-1

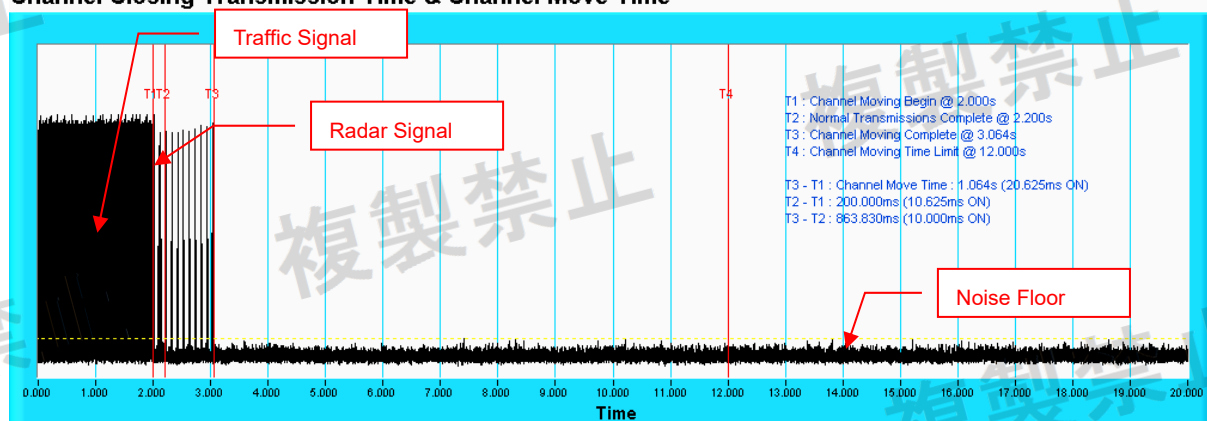
#### Channel Closing Transmission Time & Channel Move Time



NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

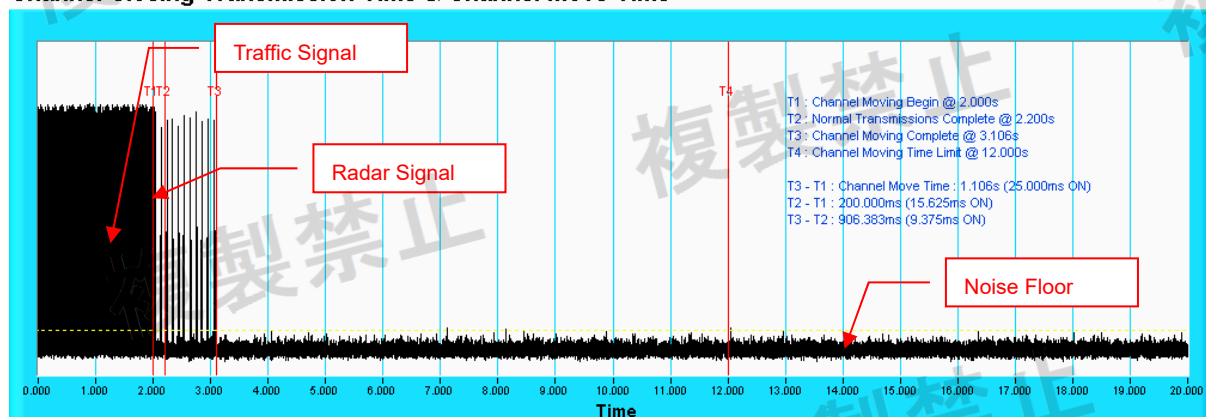
### DFS-J1-2

#### Channel Closing Transmission Time & Channel Move Time



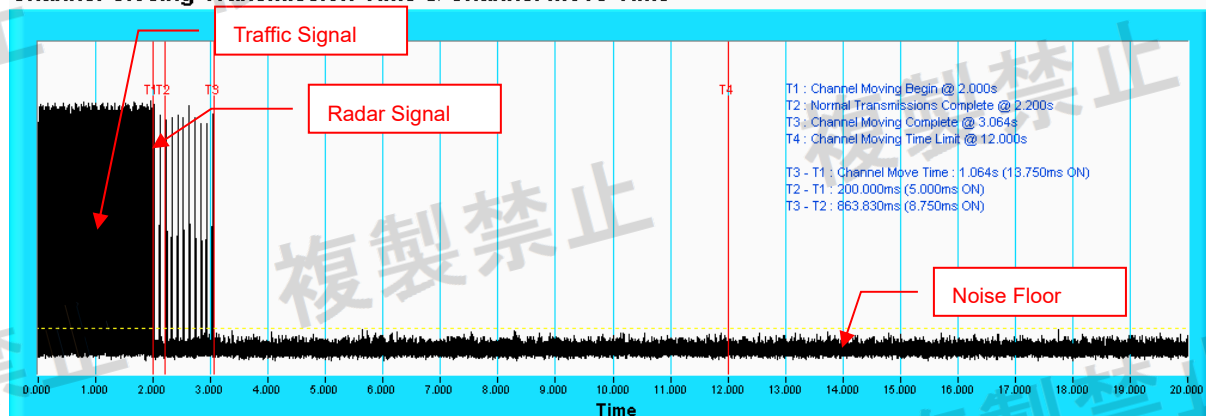
NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

### DFS-J1-3 Channel Closing Transmission Time & Channel Move Time



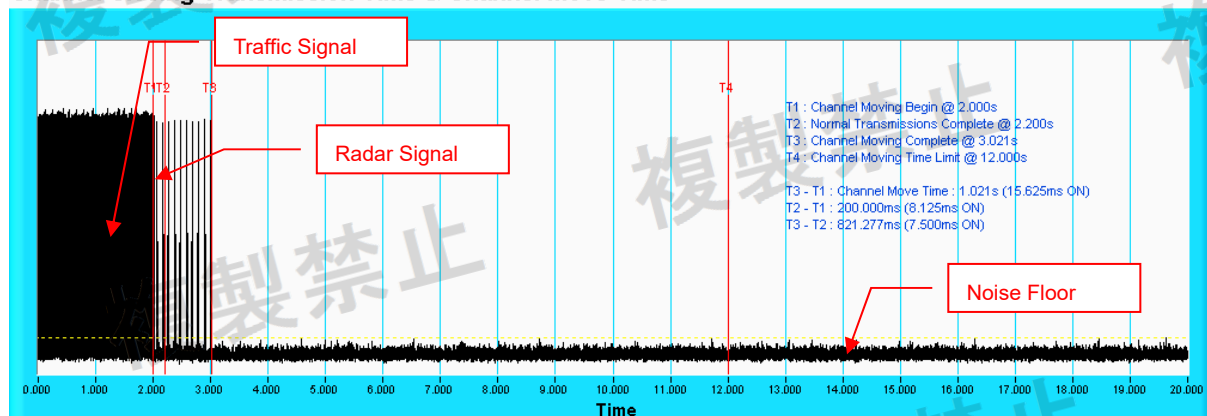
NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

### W53 DFS-J1-4 Channel Closing Transmission Time & Channel Move Time



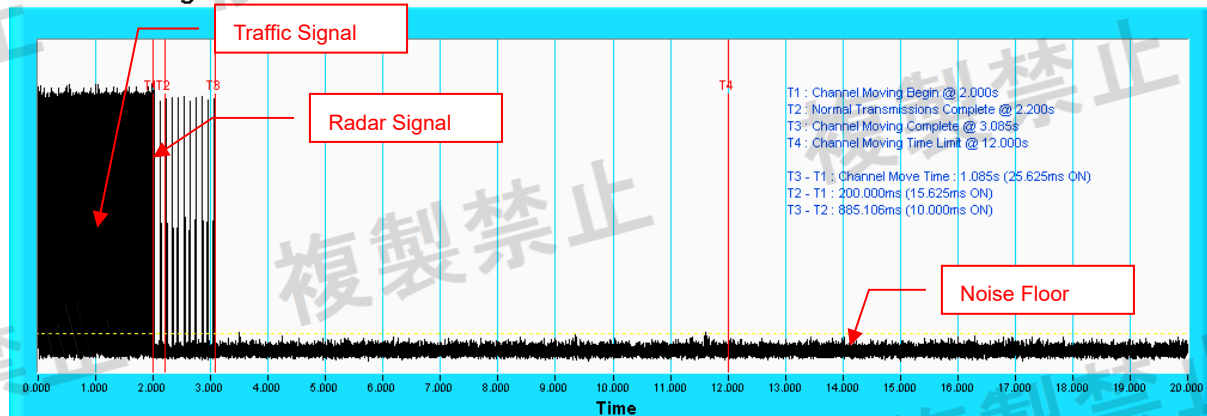
NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

# **DFS-J1-5** **Channel Closing Transmission Time & Channel Move Time**



**NOTE:** T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

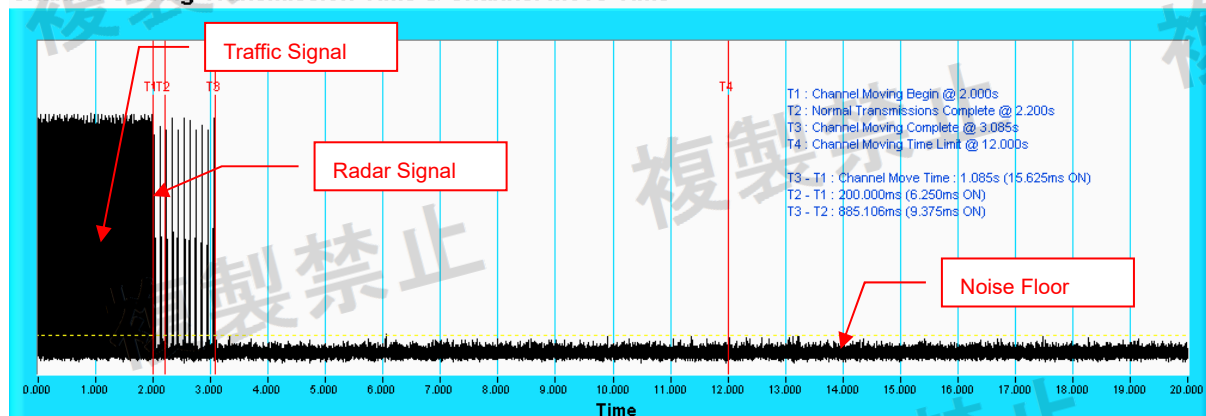
## **W53** **DFS-J1-6** **Channel Closing Transmission Time & Channel Move Time**



**NOTE:** T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

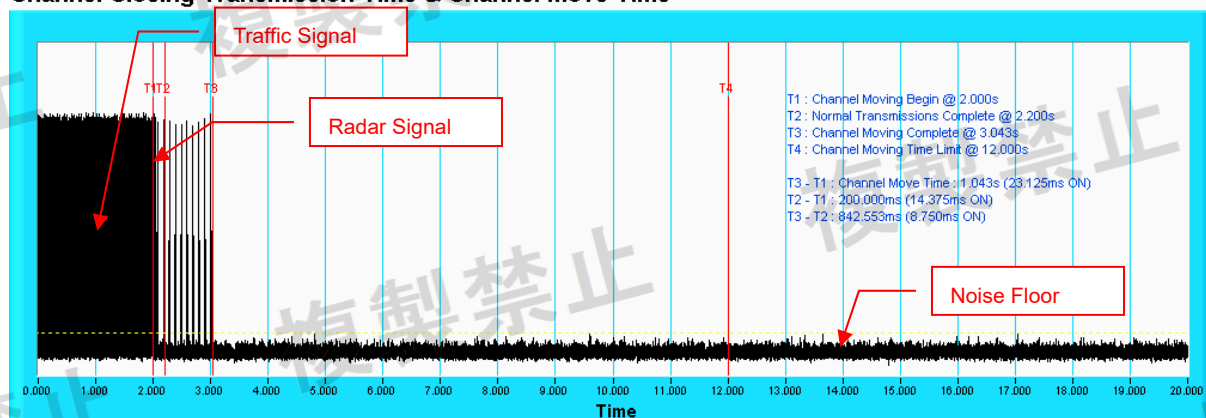


### DFS-J1-7 Channel Closing Transmission Time & Channel Move Time



**NOTE:** T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

### DFS-J1-8 Channel Closing Transmission Time & Channel Move Time



**NOTE:** T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

**W53 802.11a**

DFS-J1-1 Radar Statistical Performances		
Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5320	Yes
2	5300	Yes
3	5260	Yes
4	5300	Yes
5	5260	Yes
6	5320	Yes
7	5300	Yes
8	5280	Yes
9	5320	Yes
10	5280	Yes
11	5320	Yes
12	5280	Yes
13	5300	Yes
14	5260	Yes
15	5300	Yes
16	5320	Yes
17	5320	Yes
18	5320	Yes
19	5320	Yes
20	5260	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-J1-2 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5280	Yes
2	5260	Yes
3	5260	Yes
4	5320	Yes
5	5300	Yes
6	5320	Yes
7	5280	Yes
8	5320	Yes
9	5320	Yes
10	5280	Yes
11	5280	Yes
12	5320	Yes
13	5300	Yes
14	5320	Yes
15	5300	Yes
16	5320	Yes
17	5320	Yes
18	5300	Yes
19	5320	Yes
20	5300	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-J1-3 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5300	Yes
2	5320	Yes
3	5320	Yes
4	5260	Yes
5	5280	Yes
6	5300	Yes
7	5260	Yes
8	5260	Yes
9	5260	Yes
10	5260	Yes
11	5320	Yes
12	5320	Yes
13	5300	Yes
14	5320	Yes
15	5320	Yes
16	5320	Yes
17	5260	No
18	5320	Yes
19	5300	Yes
20	5320	Yes
Detection Rate		<b>95%</b>
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-J1-4 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5300	Yes
2	5260	Yes
3	5300	Yes
4	5280	Yes
5	5260	Yes
6	5320	Yes
7	5260	Yes
8	5260	Yes
9	5280	Yes
10	5320	Yes
11	5300	Yes
12	5320	Yes
13	5300	Yes
14	5280	Yes
15	5320	Yes
16	5320	Yes
17	5260	Yes
18	5280	Yes
19	5260	Yes
20	5300	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass



### DFS-J1-5 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5280	Yes
2	5260	Yes
3	5280	Yes
4	5320	Yes
5	5320	Yes
6	5280	Yes
7	5260	Yes
8	5320	Yes
9	5320	Yes
10	5320	Yes
11	5320	Yes
12	5320	Yes
13	5320	Yes
14	5260	Yes
15	5320	Yes
16	5300	Yes
17	5300	Yes
18	5260	Yes
19	5260	Yes
20	5320	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-J1-6 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5300	Yes
2	5320	Yes
3	5300	Yes
4	5260	Yes
5	5260	Yes
6	5260	Yes
7	5280	Yes
8	5280	Yes
9	5320	Yes
10	5300	Yes
11	5320	Yes
12	5320	Yes
13	5320	Yes
14	5300	Yes
15	5320	Yes
16	5320	Yes
17	5320	Yes
18	5320	Yes
19	5280	Yes
20	5260	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-J1-7 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5300	Yes
2	5320	Yes
3	5320	Yes
4	5320	Yes
5	5320	Yes
6	5260	Yes
7	5320	Yes
8	5260	Yes
9	5320	Yes
10	5260	Yes
11	5260	Yes
12	5280	Yes
13	5280	Yes
14	5280	Yes
15	5260	Yes
16	5300	No
17	5280	Yes
18	5320	Yes
19	5280	Yes
20	5300	Yes
Detection Rate		95%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-J1-7 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5300	Yes
2	5320	Yes
3	5320	Yes
4	5320	Yes
5	5320	Yes
6	5260	Yes
7	5320	Yes
8	5260	Yes
9	5320	Yes
10	5260	Yes
11	5260	Yes
12	5280	Yes
13	5280	Yes
14	5280	Yes
15	5260	Yes
16	5300	No
17	5280	Yes
18	5320	Yes
19	5280	Yes
20	5300	Yes
Detection Rate		95%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-J1-8 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5260	Yes
2	5300	Yes
3	5260	Yes
4	5320	Yes
5	5260	Yes
6	5320	Yes
7	5300	Yes
8	5280	Yes
9	5320	Yes
10	5320	Yes
11	5320	No
12	5280	Yes
13	5300	Yes
14	5320	Yes
15	5320	Yes
16	5320	Yes
17	5260	Yes
18	5300	Yes
19	5320	Yes
20	5320	Yes
Detection Rate		95%
Minimum Percentage of Successful Detection		60 %
Result		Pass



**W56 802.11a**

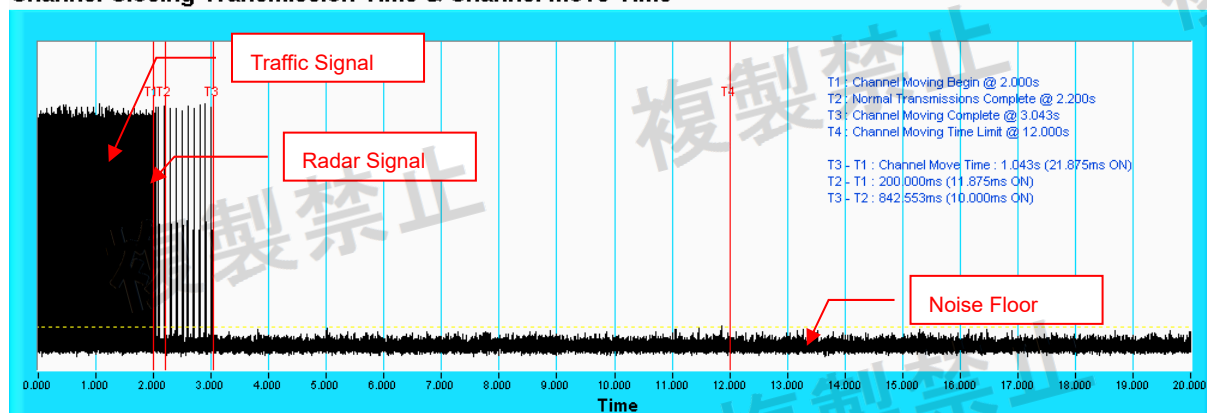
Radar Type	Pulse Repetition Frequency (pps)	Pulse Width (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Percentage of Successful Detection (%)
DFS-J2-1	720	0.5	18	60%	100%
DFS-J2-2	250	2	18	60%	100%
DFS-US-1	700	1	18	60%	100%
DFS-US-2	4347 – 6667	1-5	23-29	60%	100%
DFS-US-3	2000 – 5000	6-10	16-18	60%	100%
DFS-US-4	2000 - 5000	11-20	12-16	60%	85%
Aggregate (Radar Types 1-6)				80%	97.50%

Radar Type	Pulse Repetition Frequency (pps)	Pulse Width (μsec)	Number of Pulses per Burst	Minimum Percentage of Successful Detection	Percentage of Successful Detection (%)
DFS-US-5	500-1000	50 - 100	1-3	80%	100%

Radar Type	Pulse Repetition Frequency (pps)	Pulse Width (μsec)	Pulses per Hop	Minimum Percentage of Successful Detection	Percentage of Successful Detection (%)
DFS-US-6	3000	1	9	70%	95%

## W56 DFS-J2-1

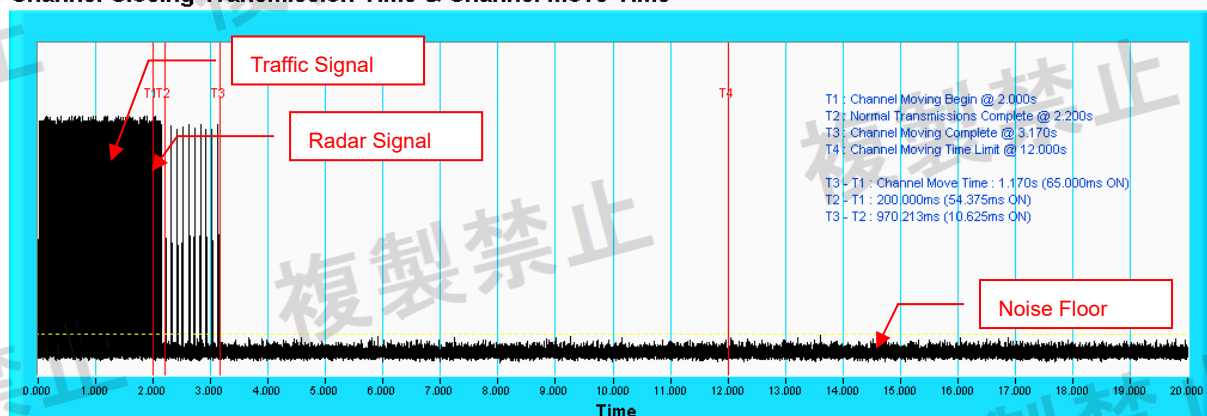
### Channel Closing Transmission Time & Channel Move Time



Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

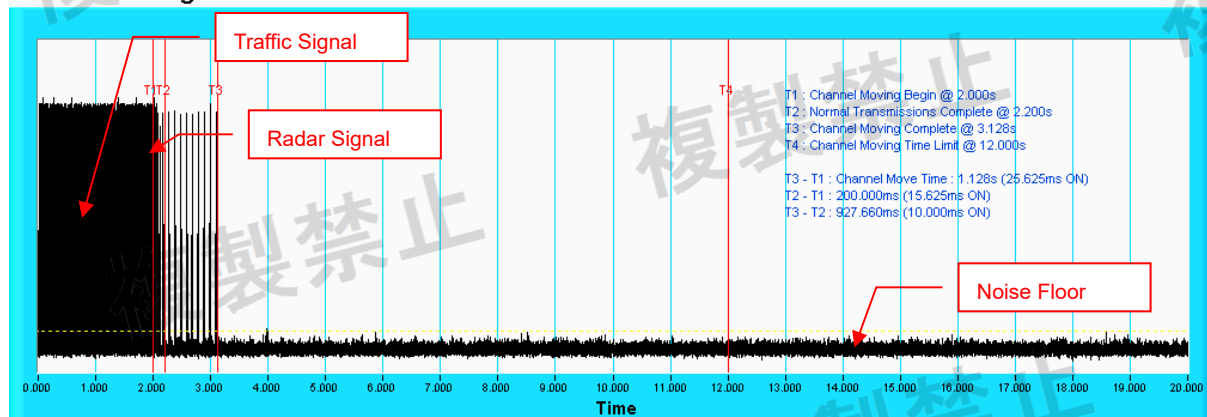
## DFS-J2-2

### Channel Closing Transmission Time & Channel Move Time



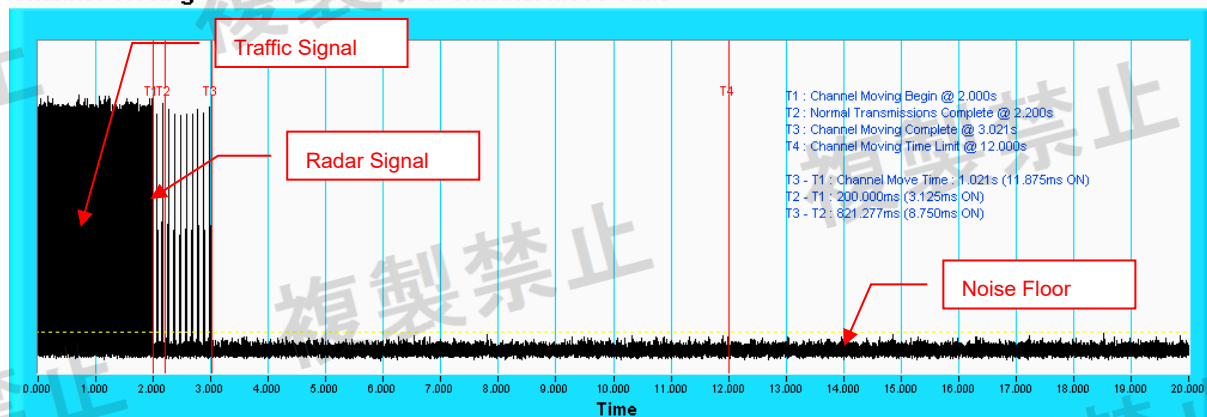
Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

### DFS-US-1 Channel Closing Transmission Time & Channel Move Time



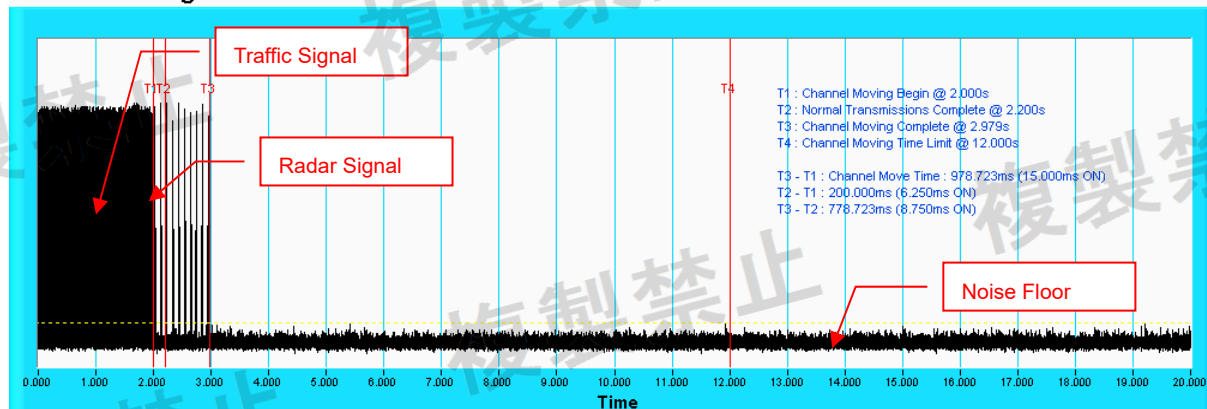
Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

### DFS-US-2 Channel Closing Transmission Time & Channel Move Time



Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

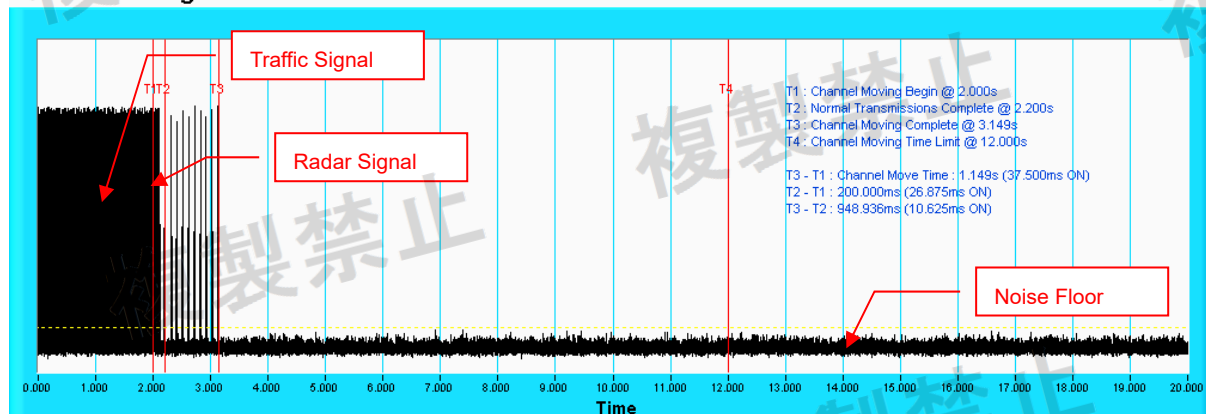
### DFS-US-3 Channel Closing Transmission Time & Channel Move Time



Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

## DFS-US-4

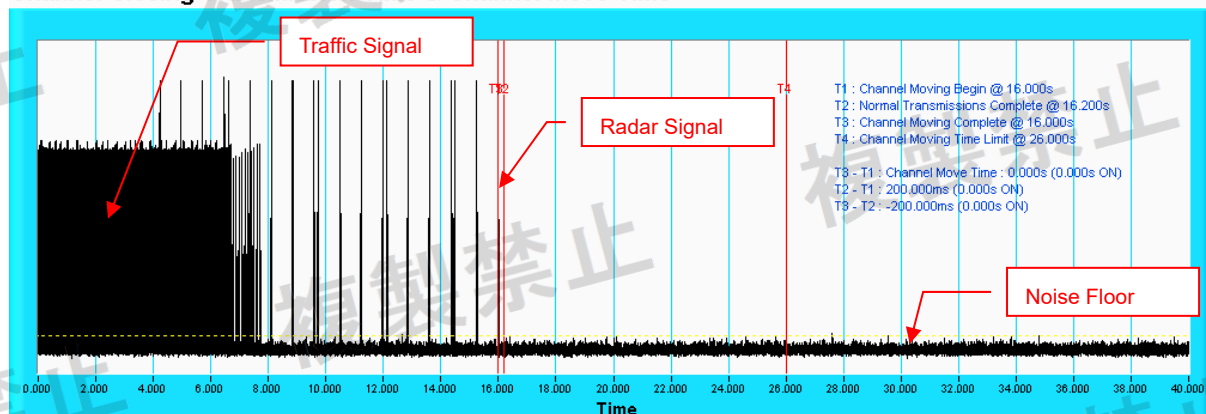
### Channel Closing Transmission Time & Channel Move Time



Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

## Long pulse radar signal

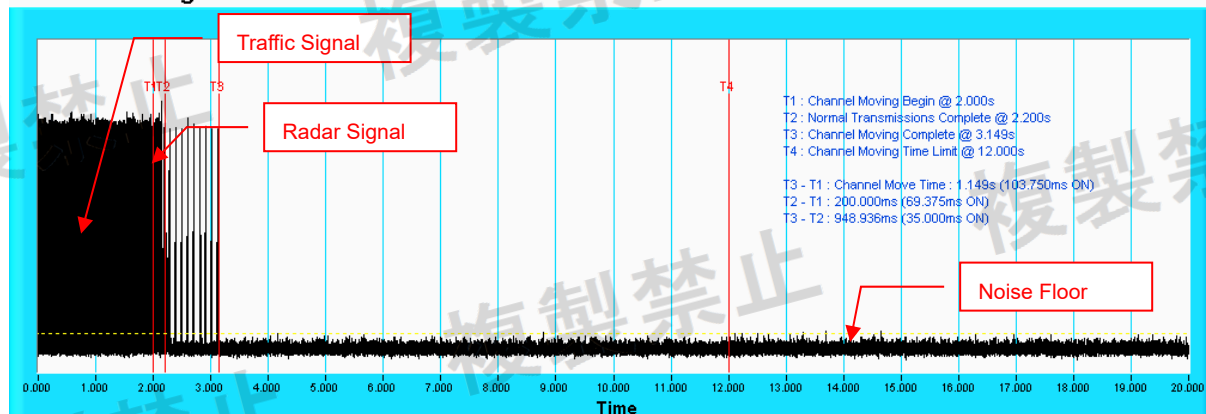
### Channel Closing Transmission Time & Channel Move Time



Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

## Frequency hopping radar signal

### Channel Closing Transmission Time & Channel Move Time



Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

**W56 802.11a**

DFS-J2-1 Radar Statistical Performances		
Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5580	Yes
2	5680	Yes
3	5660	Yes
4	5640	Yes
5	5720	Yes
6	5600	Yes
7	5660	Yes
8	5600	Yes
9	5640	Yes
10	5660	Yes
11	5700	Yes
12	5720	Yes
13	5620	Yes
14	5700	Yes
15	5500	Yes
16	5680	Yes
17	5660	Yes
18	5500	Yes
19	5620	Yes
20	5640	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass



### DFS-J2-2 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5560	Yes
2	5660	Yes
3	5700	Yes
4	5700	Yes
5	5620	Yes
6	5680	Yes
7	5700	Yes
8	5700	Yes
9	5680	Yes
10	5620	Yes
11	5600	Yes
12	5700	Yes
13	5720	Yes
14	5580	Yes
15	5680	Yes
16	5520	Yes
17	5620	Yes
18	5520	Yes
19	5680	Yes
20	5640	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-US-1 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5680	Yes
2	5620	Yes
3	5620	Yes
4	5600	Yes
5	5720	Yes
6	5580	Yes
7	5620	Yes
8	5580	Yes
9	5680	Yes
10	5660	Yes
11	5540	Yes
12	5700	Yes
13	5660	Yes
14	5660	Yes
15	5520	Yes
16	5640	Yes
17	5720	Yes
18	5560	Yes
19	5520	Yes
20	5500	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-US-2 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5720	Yes
2	5640	Yes
3	5540	Yes
4	5680	Yes
5	5560	Yes
6	5580	Yes
7	5500	Yes
8	5720	Yes
9	5540	Yes
10	5620	Yes
11	5500	Yes
12	5500	Yes
13	5520	Yes
14	5700	Yes
15	5600	Yes
16	5500	Yes
17	5640	Yes
18	5680	Yes
19	5600	Yes
20	5560	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-US-3 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5700	Yes
2	5540	Yes
3	5640	Yes
4	5600	Yes
5	5720	Yes
6	5700	Yes
7	5620	Yes
8	5520	Yes
9	5680	Yes
10	5620	Yes
11	5500	Yes
12	5560	Yes
13	5660	Yes
14	5560	Yes
15	5620	Yes
16	5520	Yes
17	5580	Yes
18	5720	Yes
19	5500	Yes
20	5680	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		60 %
Result		Pass

### DFS-US-4 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5520	Yes
2	5640	Yes
3	5520	Yes
4	5560	Yes
5	5500	Yes
6	5500	Yes
7	5560	Yes
8	5500	Yes
9	5700	No
10	5680	Yes
11	5720	No
12	5680	Yes
13	5520	Yes
14	5600	Yes
15	5700	Yes
16	5640	Yes
17	5540	No
18	5580	Yes
19	5540	Yes
20	5720	Yes
Detection Rate		85%
Minimum Percentage of Successful Detection		60 %
Result		Pass



### DFS-US-5 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5700	Yes
2	5600	Yes
3	5520	Yes
4	5600	Yes
5	5500	Yes
6	5620	Yes
7	5580	Yes
8	5540	Yes
9	5580	Yes
10	5640	Yes
11	5720	Yes
12	5580	Yes
13	5540	Yes
14	5540	Yes
15	5500	Yes
16	5640	Yes
17	5640	Yes
18	5660	Yes
19	5500	Yes
20	5680	Yes
Detection Rate		100%
Minimum Percentage of Successful Detection		80 %
Result		Pass

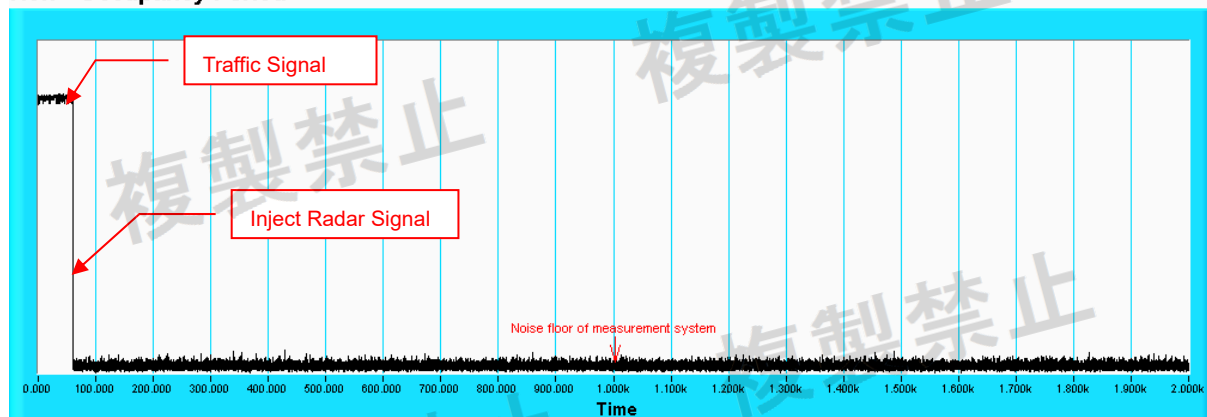
### DFS-US-6 Radar Statistical Performances

Trial #	Channel (MHz)	Channel Closing Transmission Time & Channel move Time
1	5500	Yes
2	5520	Yes
3	5600	Yes
4	5620	Yes
5	5500	Yes
6	5540	Yes
7	5700	Yes
8	5560	No
9	5500	Yes
10	5720	Yes
11	5500	Yes
12	5640	Yes
13	5660	Yes
14	5720	Yes
15	5540	Yes
16	5580	Yes
17	5660	Yes
18	5500	Yes
19	5500	Yes
20	5520	Yes
Detection Rate		95%
Minimum Percentage of Successful Detection		70 %
Result		Pass

### NON-OCCUPANCY PERIOD

During the 30 minutes observation time, UUT did not make any transmissions on a channel after a radar signal was detected on that channel by either the Channel Availability Check or the In-Service Monitoring.

#### **Non - Occupancy Period**



### UNIFORM SPREADING

The intention of the uniform spreading is to provide, on aggregate, a uniform loading of the spectrum. The UUT using the bands 5150 to 5725MHz shall select an operating channel out of the 20 channels, so that the probability of selecting a given channel shall be the same for all channels.

The UUT will select channel by random mode and remember this channel when detect radar signal, so that will select unused channel by random mode.

## Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

The address and road map of all our labs can be found in our web site also.

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