



DFS Test Report

Report No.: RJ190523C16-2

Test Model: DBA-2820P

Received Date: May 23, 2019

Test Date: Jun. 15 ~ Jun. 21, 2019

Issued Date: Jun. 24, 2019

Applicant: D-Link Corporation

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

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Release Control Record

| Issue No. | Description | Date Issued |
|---------------|------------------|---------------|
| RJ190523C16-2 | Original release | Jun. 24, 2019 |



1 Certificate of Conformity

Product: Nuclias Cloud-Managed AC2600 Wave 2 Access Point

Brand: D-Link

Test Model: DBA-2820P

Sample Status: Engineering sample

Applicant: D-Link Corporation

Test Date: Jun. 15 ~ Jun. 21, 2019

Standards: ARIB STD-T71, MIC notice 88 Appendix 45

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 : Celine Chou , **Date:** Jun. 24, 2019
Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Jun. 24, 2019
Bruce Chen / 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 | Burst Period (sec) | Radar Detection Probability |
|-------------------|----------------------------------|------------------|----------------------------|--------------------|-----------------------------|
| DFS-J1-1 | 700 | 1 | 18 | 15 | 60% or more |
| DFS-J1-2 | 260 | 2.5 | 18 | 15 | 60% or more |

*1. The Channel Loading is 50% of Maximum 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 (μ sec) | 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 $P_o \geq 200mW$; $\geq -64dBm(avg.)$ / The case of $P_o < 200mW$; $\geq -62dBm(avg.)$
(P_o ; Max. Transmit Power (EIRP) of EUT)



2.2 Test Instruments

| Description & Manufacturer | Model No. | Brand | Date of Calibration | Due Date of Calibration | Calibration Authority | Calibration Method |
|----------------------------|--------------|--------------|---------------------|-------------------------|-----------------------|--------------------|
| Spectrum analyzer | ESR | R&S | Mar 06, 2019 | Mar 05, 2020 | ETC | Refer to Note 2 |
| Signal generator | MXG | KEYSIGHT | Dec 24, 2018 | Dec 23, 2019 | ETC | Refer to Note 2 |
| Horn antenna | BBHA 9120 D | Schwarzbeck | Nov 25, 2018 | Nov. 24, 2019 | BV CPS E&E | Refer to Note 2 |
| RF coaxial cable | SUCOFLEX 104 | HUBER SUHNER | Aug. 23, 2018 | Aug. 22, 2019 | 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 | Nuclias Cloud-Managed AC2600 Wave 2 Access Point | DBA-2820P | 2.00.000 |

Description of Available Antennas to the EUT

| Ant. | Antenna Type | Connector | Frequency range (MHz to MHz) | Gain (dBi) |
|------|--------------|-----------|------------------------------|------------|
| 1 | PIFA | IPEX | 5250-5725 | 4 |
| 2 | PIFA | IPEX | 5250-5725 | 4 |
| 3 | PIFA | IPEX | 5250-5725 | 4 |
| 4 | PIFA | IPEX | 5250-5725 | 4 |

2.4 Description of Support Units

Support Unit information

| No. | Product | Brand | Model No. | Software/Firmware Version |
|-----|------------------|---------|-----------|---------------------------|
| 1 | WiFi USB Adapter | NETGEAR | A6210 | 5.1.22.0 |

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

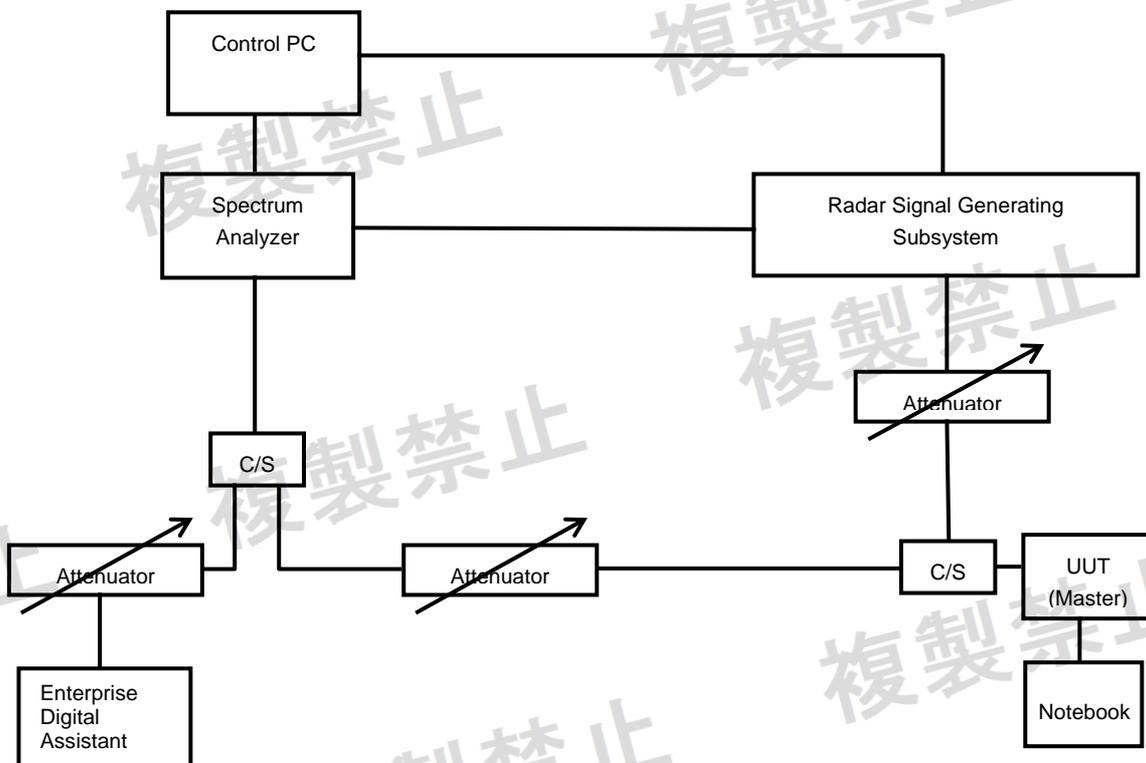
2.5 Test Procedure

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 -64dBm power level for W53 band and -64dBm power level for W56 band, measured the Channel Availability Check time and channel closing transmission time and channel move time and Non-Occupancy Period. The master transmitted the test data to slave, the half of Maximum Loading factor is $13.309\text{Mbps}/26.618\text{Mbps}=50\%$ @ 54Mbps data rate, channel loading shall over 50%.

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

| Clause | Test Parameter | Remarks | Pass/Fail |
|---------|-----------------------------------|------------|-----------|
| 6.3.5.6 | Interference Detection Threshold | Applicable | Pass |
| 6.3.5.6 | Channel Availability Check Time | Applicable | Pass |
| 6.3.5.6 | Channel Closing Transmission Time | Applicable | Pass |
| 6.3.5.6 | Channel Move Time | Applicable | Pass |
| 6.3.5.6 | Non-Occupancy Period | Applicable | Pass |

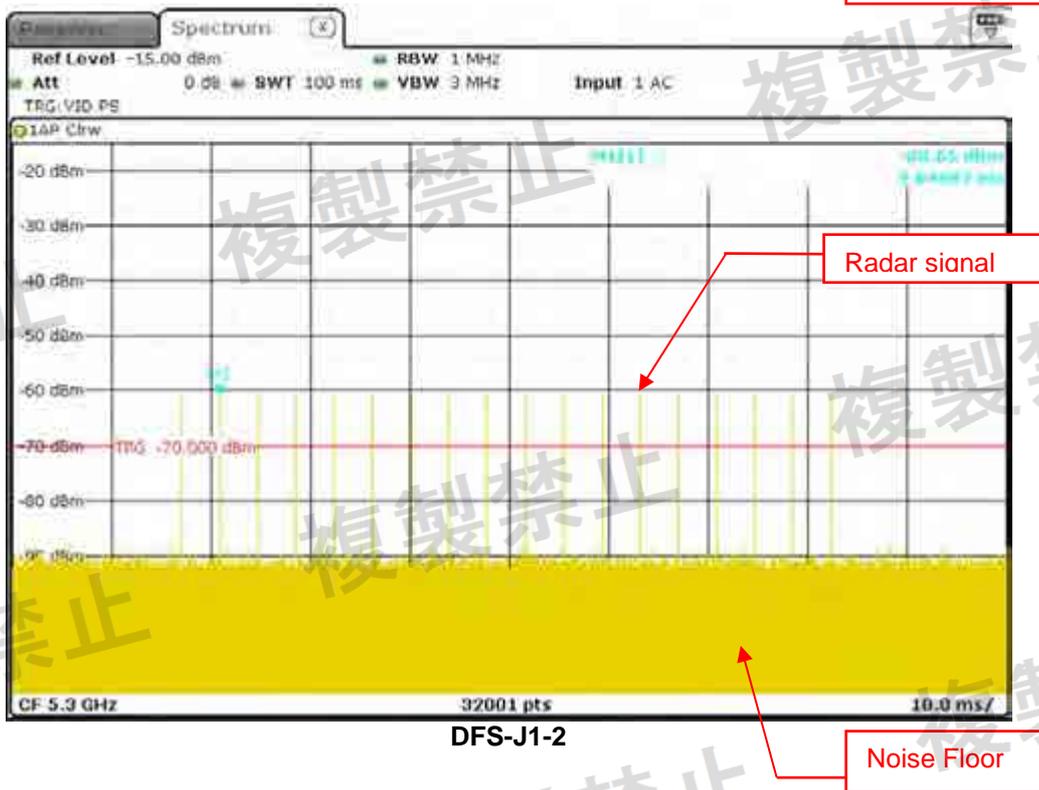
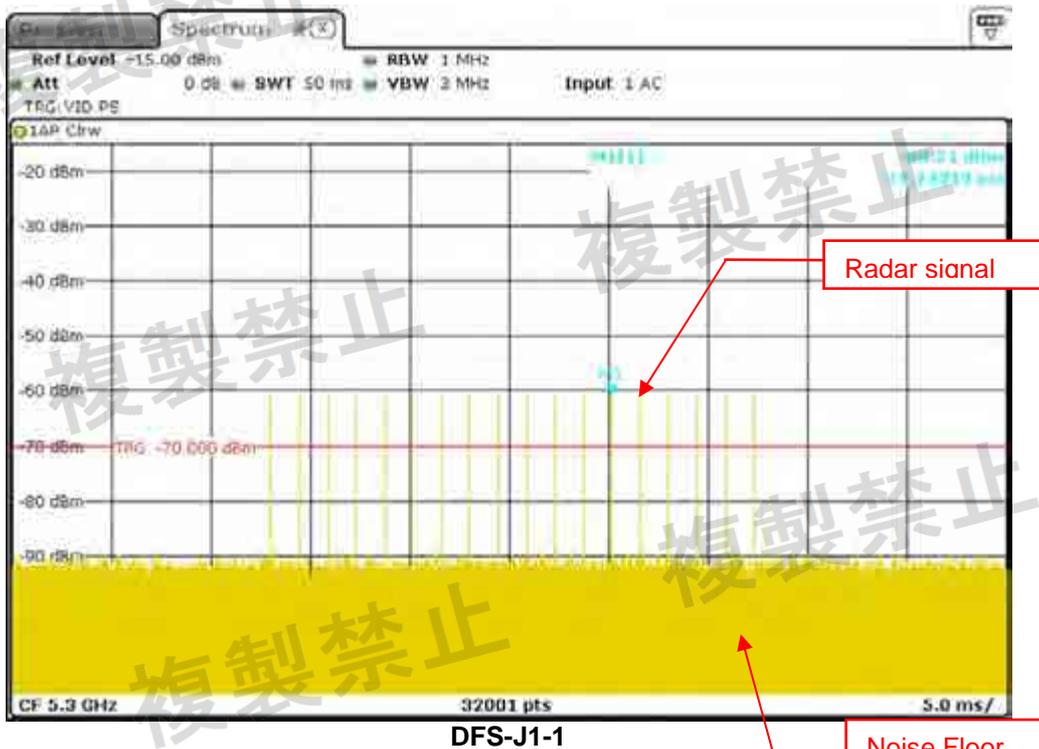
Note: This UUT is capable of operating as a master (with radar detection).

2.8.2 Test Result

INTERFERENCE THRESHOLD VALUES INJECTED INTO AP

W53

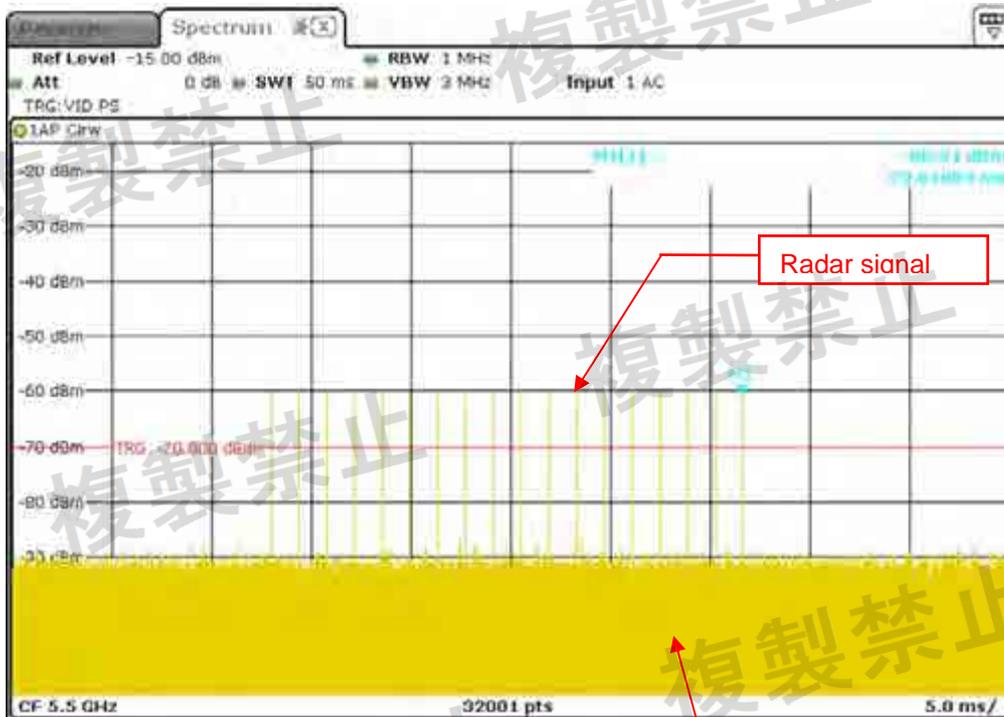
For an interference threshold level of -64dBm and the AP antenna gain is 4dBi . Then the radar Burst signal level to the AP connector is -60dBm .





W56

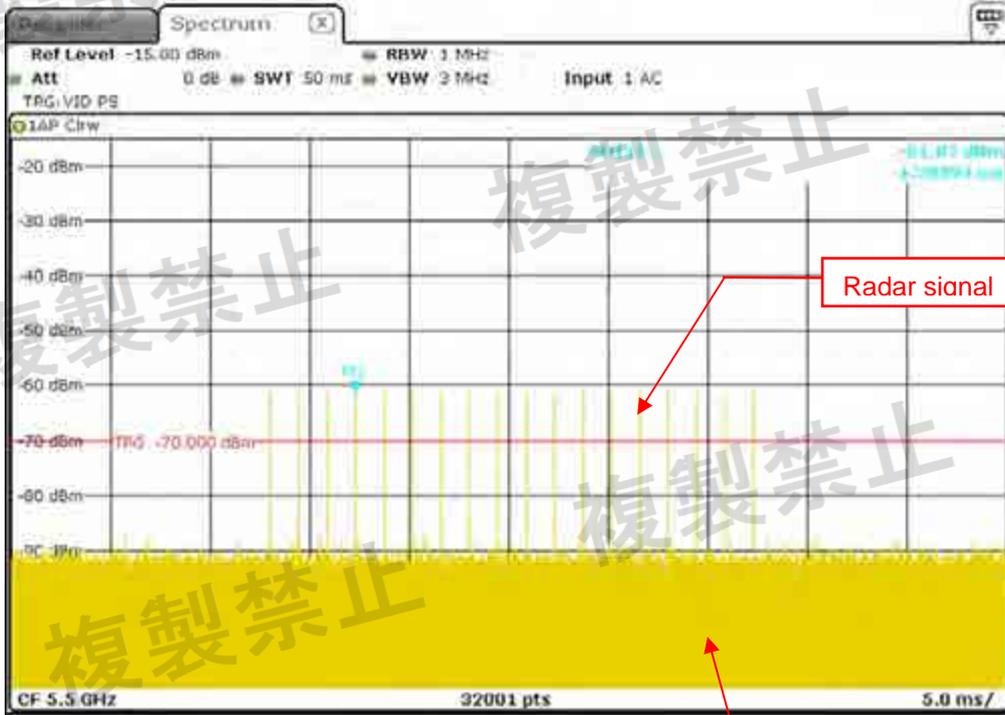
For an interference threshold level of -64 dBm and the AP antenna gain is 4 dBi . Then the radar Burst signal level to the AP connector is -60 dBm



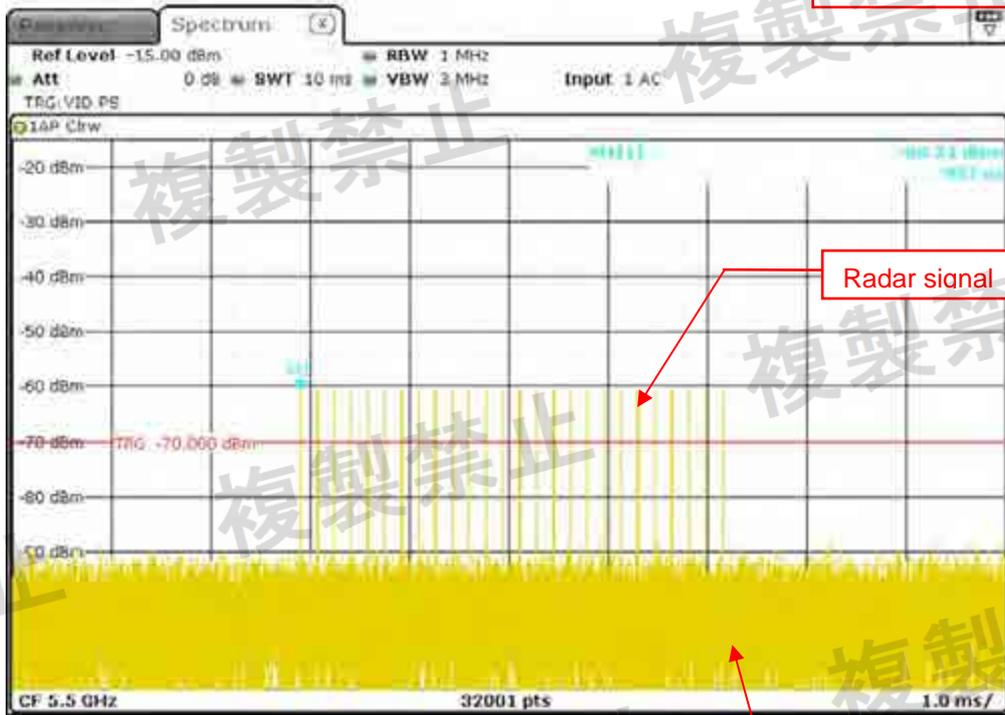
DFS-J2-1



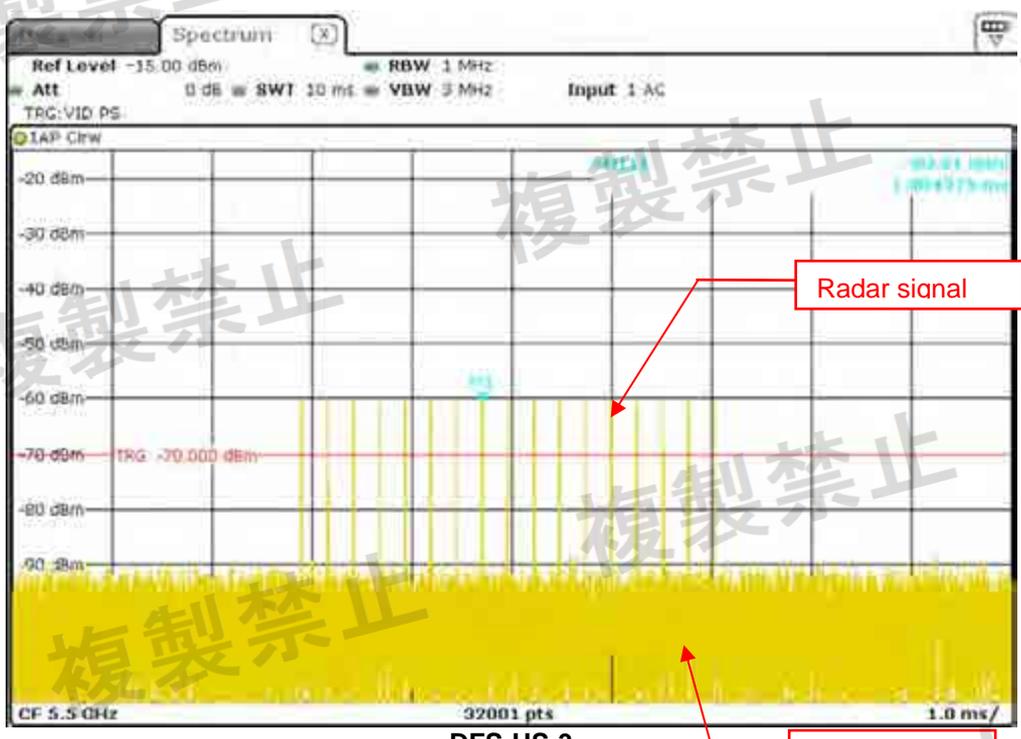
DFS-J2-2



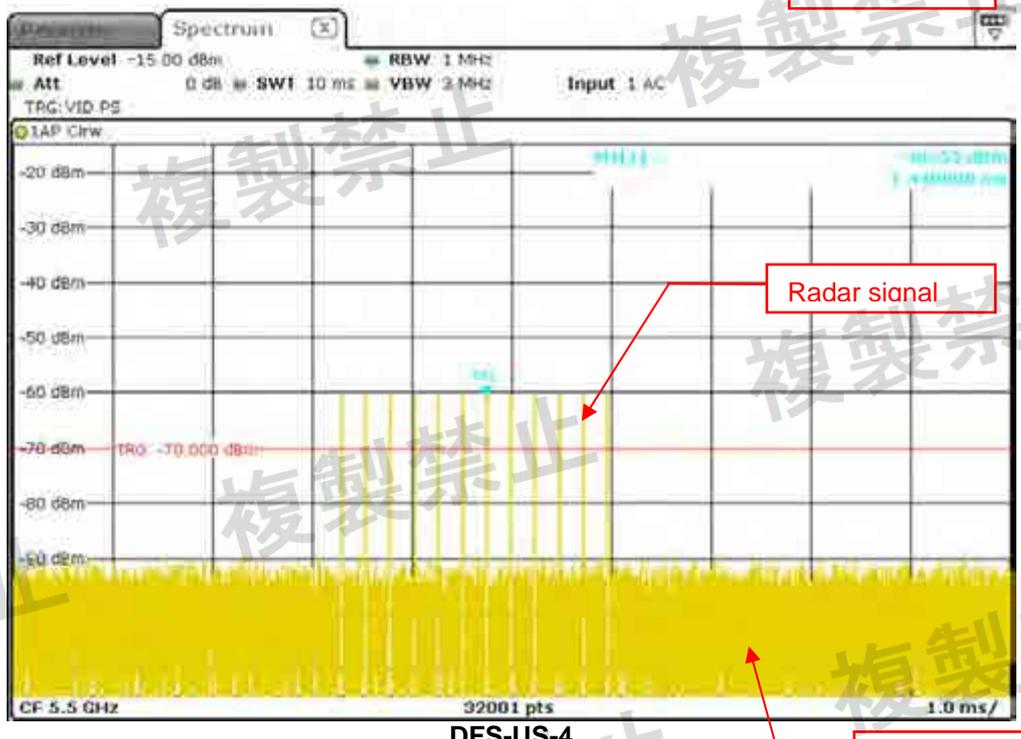
DFS-US-1



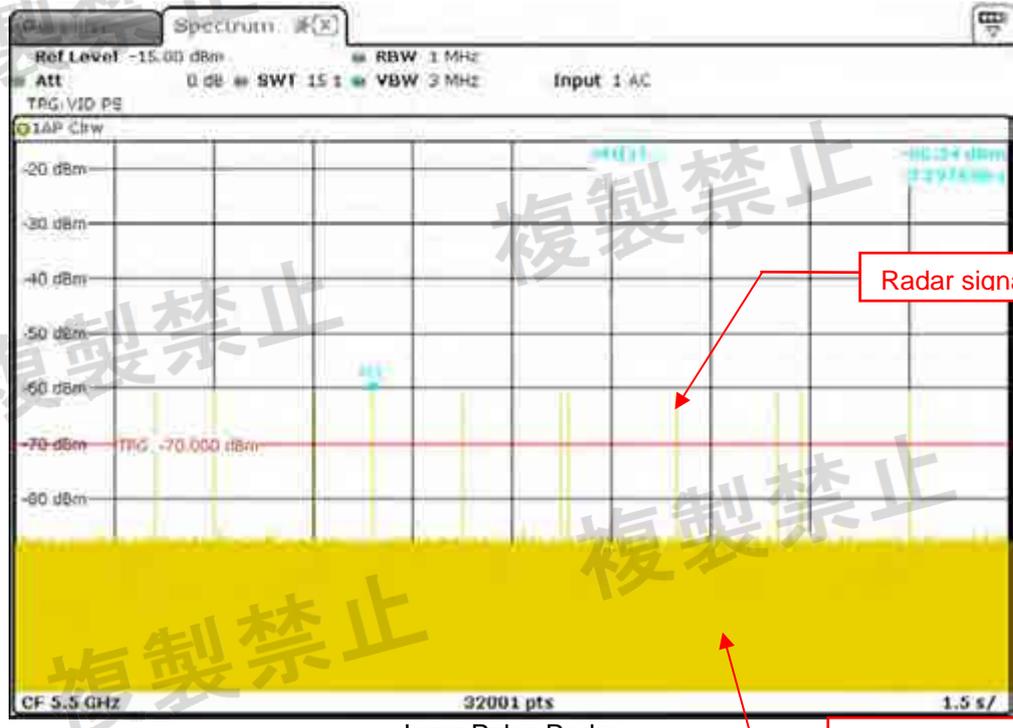
DFS-US-2



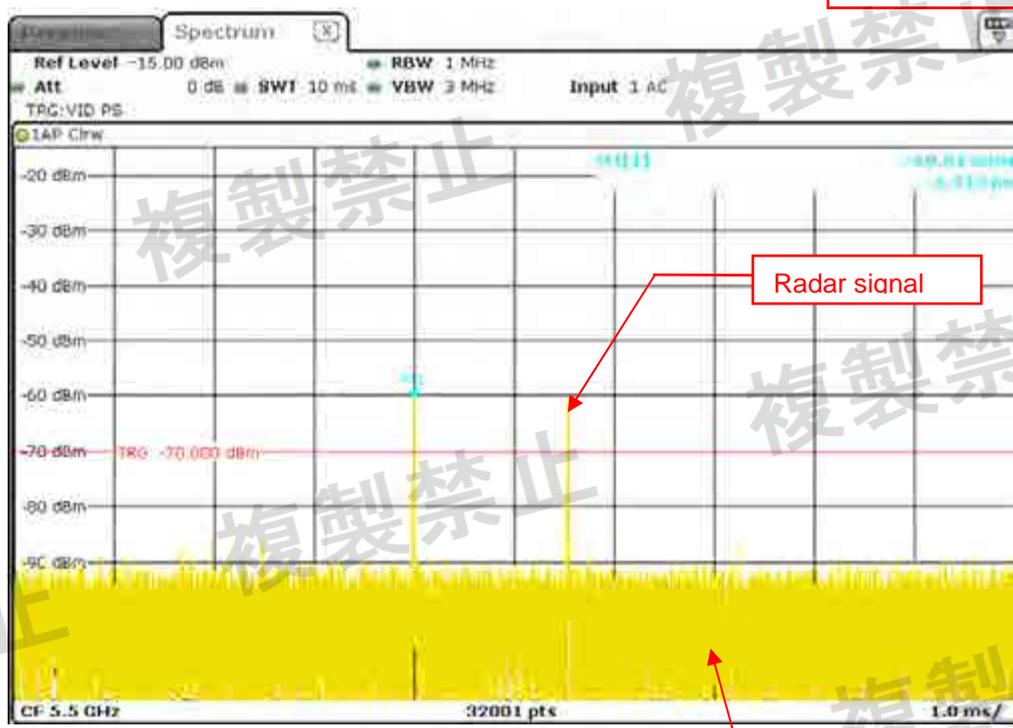
DFS-US-3



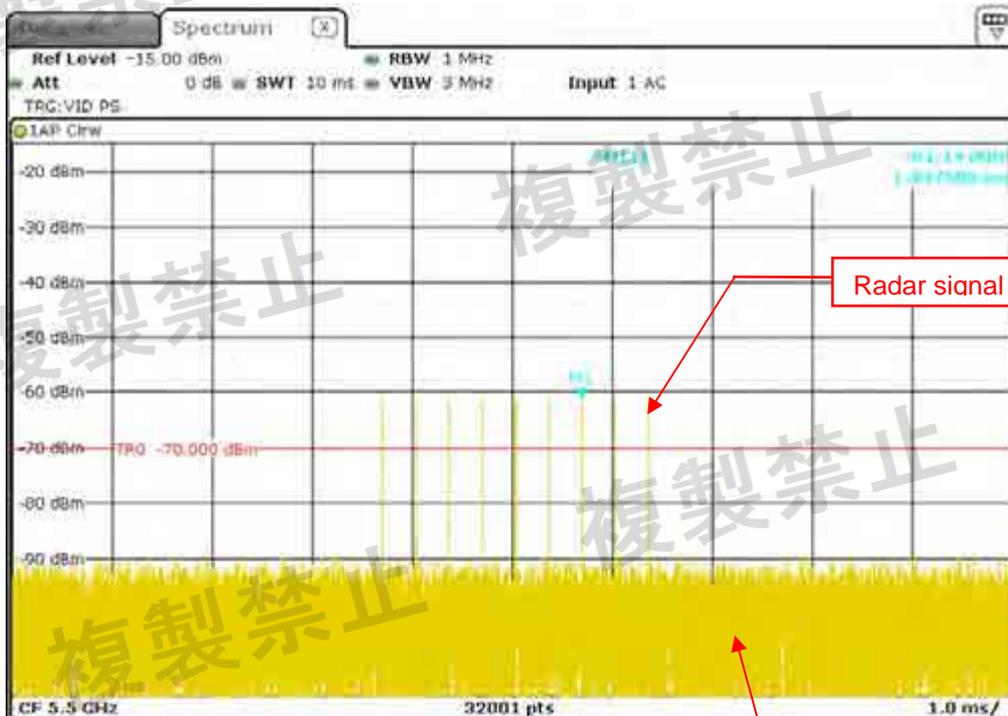
DFS-US-4



Long Pulse Radar



Long Pulse Radar Signal



Frequency Hopping Radar Signal



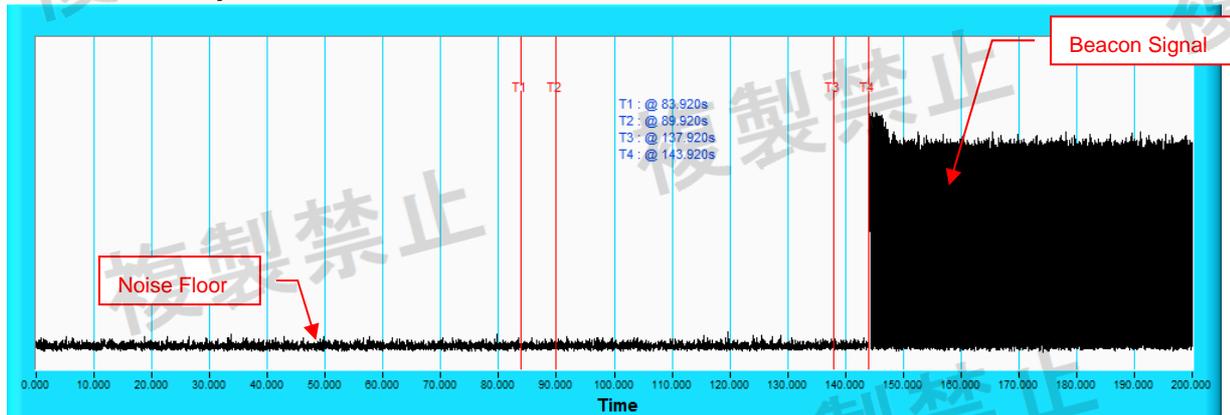
2.8.2.1 Channel Availability Check Time

For W53

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.

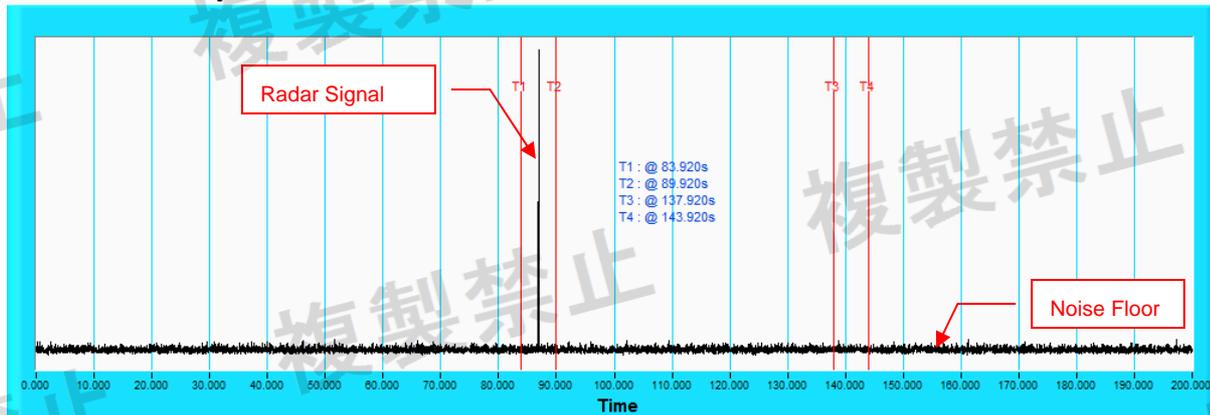
| Timing of Radar Signal | Observation | |
|------------------------|-------------|-------------------|
| | UUT | Spectrum Analyzer |
| Within 1 to 6 second | Detected | No transmissions |
| Within 54 to 60 second | Detected | No transmissions |

Initial Channel Availability Check Time Channel Availability Check



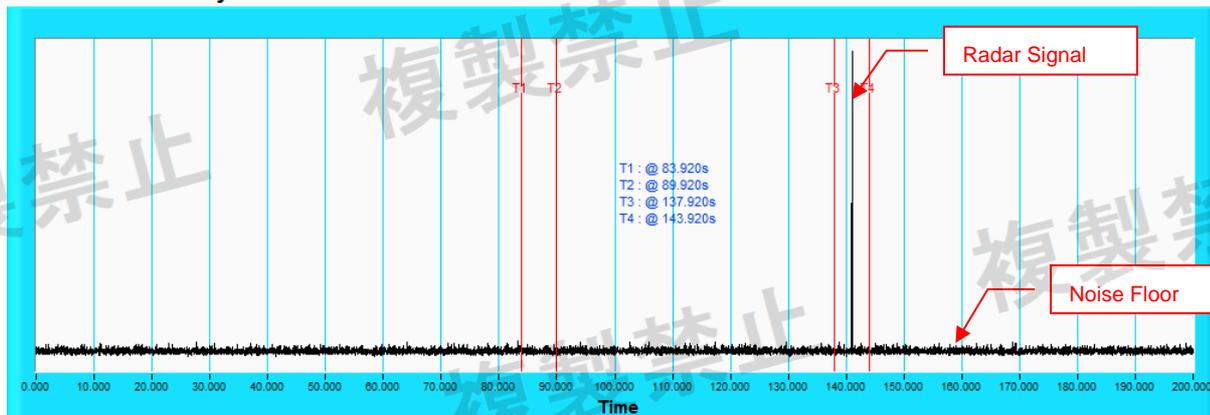
Note: T1 denotes the end of power-up time period is 83.92th second. T4 denotes the end of Channel Availability Check time is 143.92th second. Channel Availability Check time is equal to (T4 – T1) 60 seconds.

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 83.92th second. the radar burst was commenced within a 6 second window starting from the end of power-up sequence. T4 denotes the 143.92th 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 83.92th second. T3 denotes 137.92th second and T4 denotes the 143.92th second. The radar burst was commenced within 54th second to 60th second window starting from the end of power-up sequence.

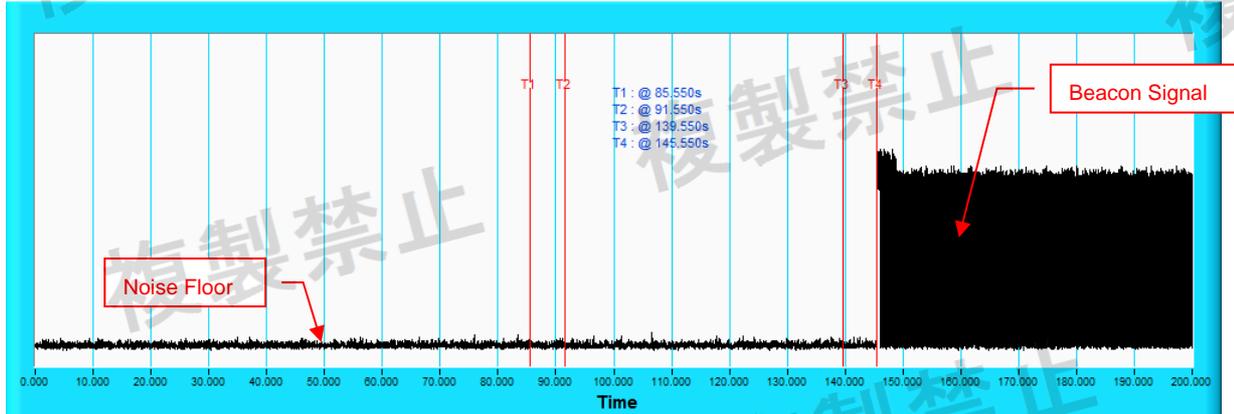


For W56

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.

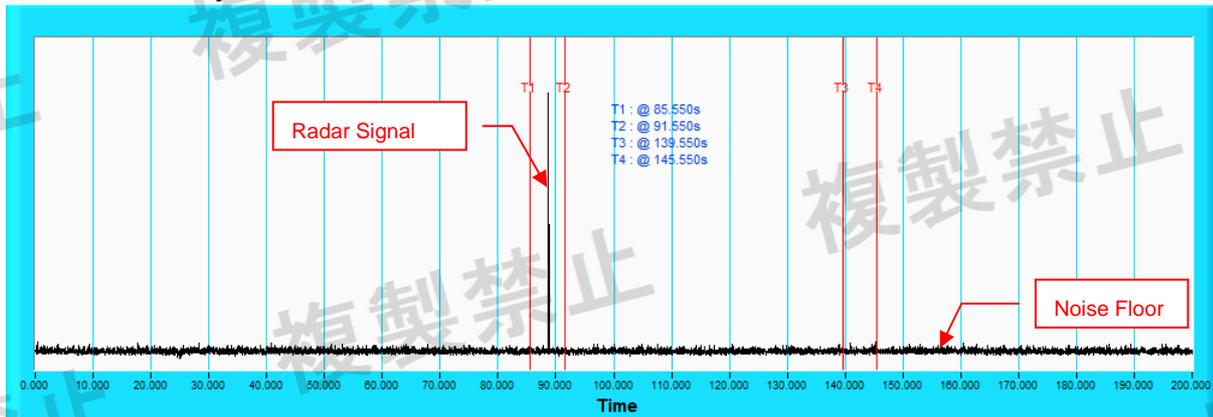
| Timing of Radar Signal | Observation | |
|------------------------|-------------|-------------------|
| | UUT | Spectrum Analyzer |
| Within 1 to 6 second | Detected | No transmissions |
| Within 54 to 60 second | Detected | No transmissions |

Initial Channel Availability Check Time Channel Availability Check



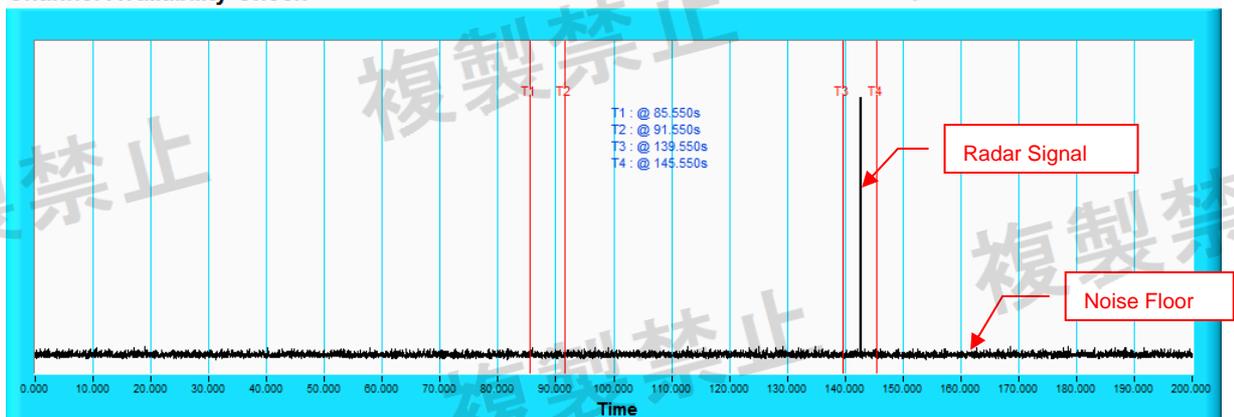
Note: T1 denotes the end of power-up time period is 85.55th second. T4 denotes the end of Channel Availability Check time is 145.55th second. Channel Availability Check time is equal to (T4 – T1) 60 seconds.

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 85.55th second. the radar burst was commenced within a 6 second window starting from the end of power-up sequence. T4 denotes the 145.55th 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 85.55th second. T3 denotes 139.55th second and T4 denotes the 145.55th second. The radar burst was commenced within 54th second to 60th second window starting from the end of power-up sequence.

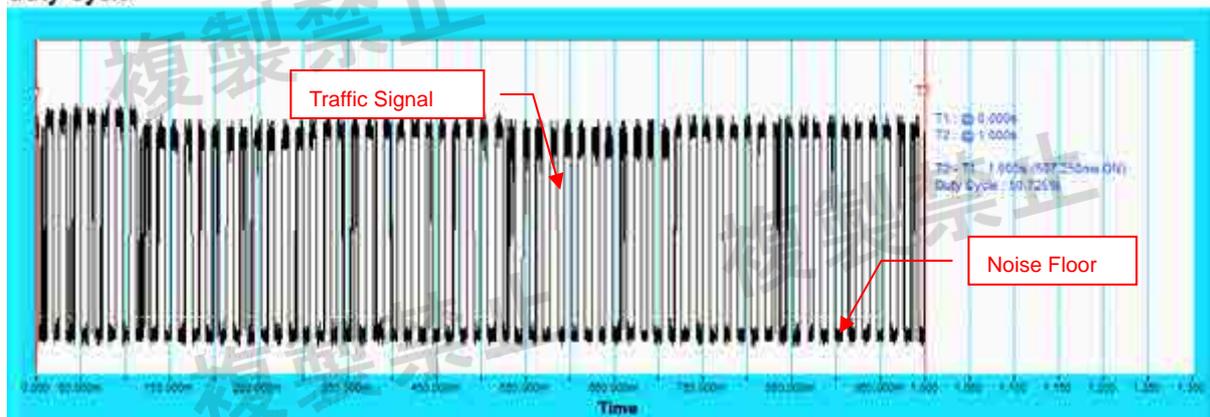
CHANNEL CLOSING TRANSMISSION TIME AND CHANNEL MOVE TIME

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



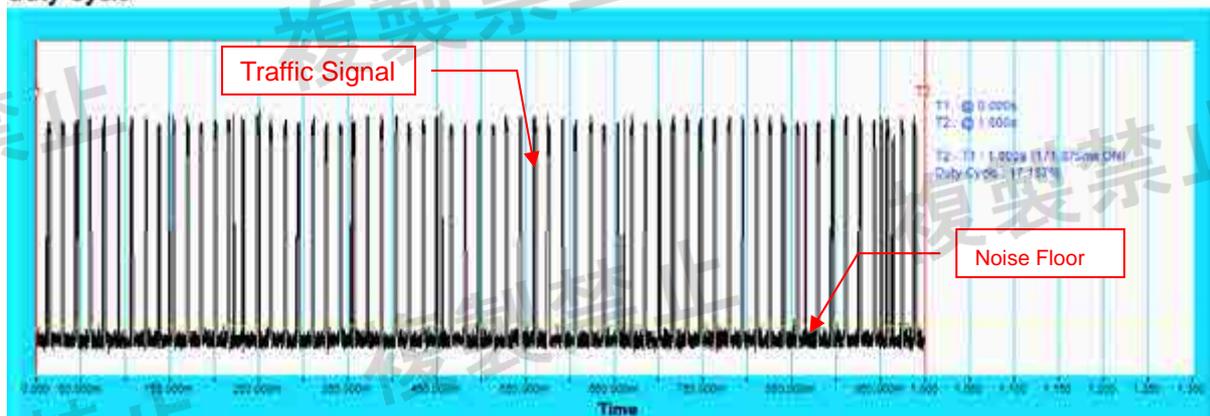
Note:

1. Traffic signal from master transmit to slave and average channel loading is 13.309Mbps.
2. T1 denotes the start of duty cycle period is 0th second. T2 denotes the end of duty cycle period is 1th second. $T2 - T1 = 1^{\text{th}}$ seconds. Duty Cycle = 50.725%

W56 WLAN TRAFFIC

802.11a

Duty Cycle



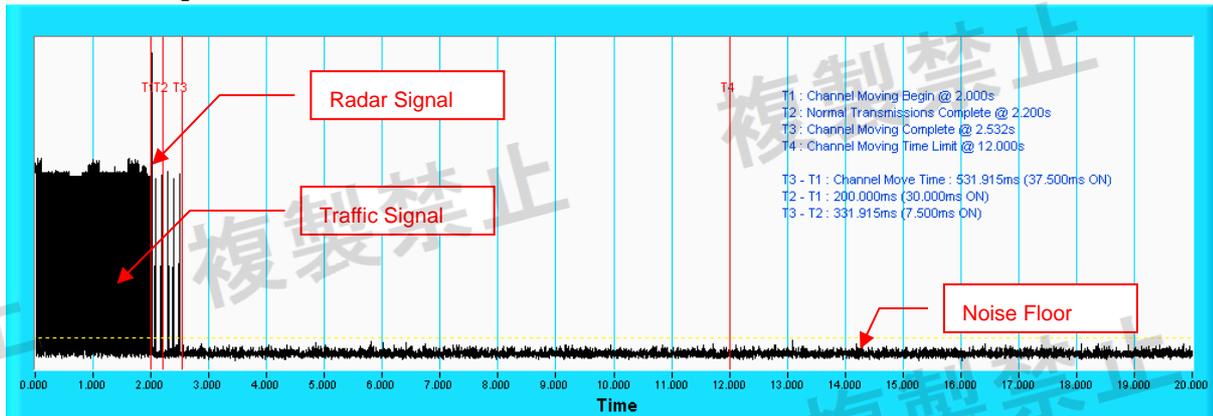
Note: T1 denotes the start of duty cycle period is 0th second. T2 denotes the end of duty cycle period is 1th second. $T2 - T1 = 1^{\text{th}}$ seconds. Duty Cycle = 17.187%

W53 802.11a

| Radar Test Signal | Pulse Repetition Frequency (pps) | Pulse Width (us) | Number of Pulses per Burst | Burst Period (sec) | Minimum Percentage of Successful Detection | Percentage of Successful Detection (%) |
|-------------------|----------------------------------|------------------|----------------------------|--------------------|--|--|
| DFS-J1-1 | 700 | 1 | 18 | 15 | 60% | 75% |
| DFS-J1-2 | 260 | 2.5 | 18 | 15 | 60% | 75% |

DFS-J1-1

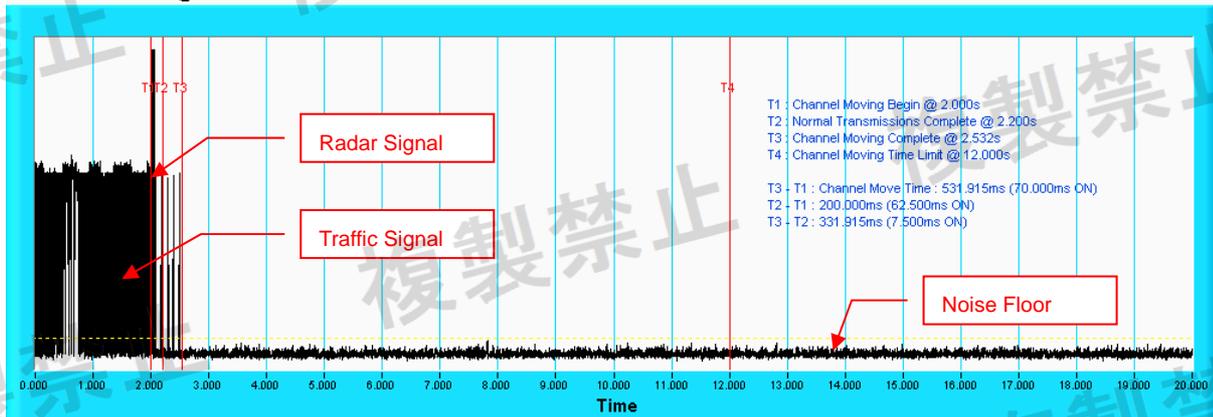
Channel Closing Transmission Time & Channel Move Time



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.



W53 802.11a

DFS-J1-1 Radar Statistical Performances

| Trial # | Channel (MHz) | Channel Closing Transmission Time & Channel move Time |
|--|---------------|---|
| 1 | 5300 | Yes |
| 2 | 5320 | Yes |
| 3 | 5300 | Yes |
| 4 | 5300 | Yes |
| 5 | 5300 | Yes |
| 6 | 5280 | Yes |
| 7 | 5320 | Yes |
| 8 | 5280 | Yes |
| 9 | 5320 | No |
| 10 | 5320 | Yes |
| 11 | 5320 | No |
| 12 | 5300 | Yes |
| 13 | 5280 | Yes |
| 14 | 5320 | No |
| 15 | 5320 | No |
| 16 | 5280 | Yes |
| 17 | 5300 | Yes |
| 18 | 5280 | No |
| 19 | 5280 | Yes |
| 20 | 5320 | Yes |
| Detection Rate | | 75% |
| Minimum Percentage of Successful Detection | | 60 % |
| Result | | Pass |



W53 802.11a

DFS-J1-2 Radar Statistical Performances

| Trial # | Channel (MHz) | Channel Closing Transmission Time & Channel move Time |
|--|---------------|---|
| 1 | 5280 | No |
| 2 | 5260 | Yes |
| 3 | 5320 | Yes |
| 4 | 5320 | Yes |
| 5 | 5260 | Yes |
| 6 | 5280 | Yes |
| 7 | 5320 | Yes |
| 8 | 5280 | Yes |
| 9 | 5280 | Yes |
| 10 | 5300 | Yes |
| 11 | 5320 | Yes |
| 12 | 5260 | Yes |
| 13 | 5320 | No |
| 14 | 5300 | No |
| 15 | 5300 | Yes |
| 16 | 5320 | Yes |
| 17 | 5320 | No |
| 18 | 5300 | Yes |
| 19 | 5320 | Yes |
| 20 | 5320 | No |
| Detection Rate | | 75% |
| Minimum Percentage of Successful Detection | | 60% |
| Result | | Pass |

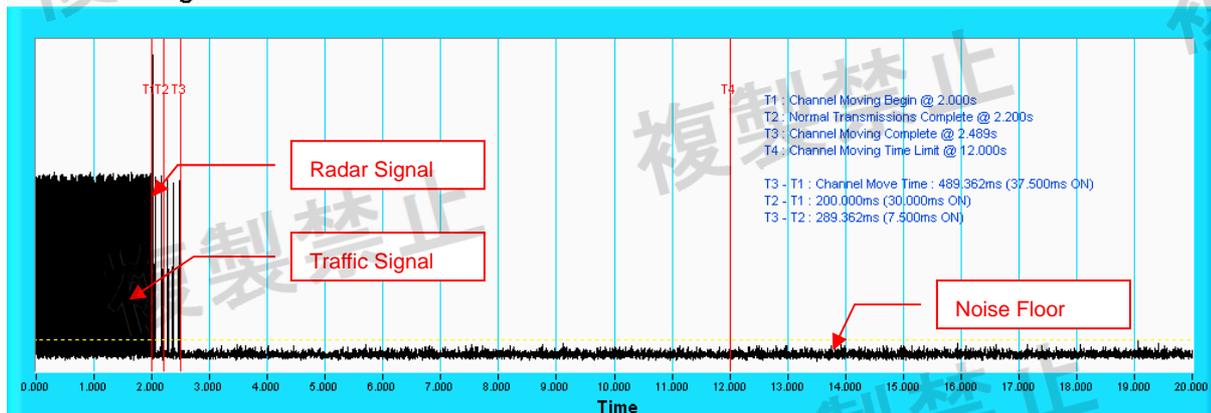
**W56 802.11a**

| Radar Type | Pulse Repetition Frequency (pps) | Pulse Width (μ sec) | 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% | 95% |
| DFS-US-2 | 4347 – 6667 | 1-5 | 23-29 | 60% | 80% |
| DFS-US-3 | 2000 – 5000 | 6-10 | 16-18 | 60% | 80% |
| DFS-US-4 | 2000 - 5000 | 11-20 | 12-16 | 60% | 70% |
| Aggregate (Radar Types 1-6) | | | | 80% | 87.5% |

| Radar Type | Pulse Repetition Frequency (pps) | Pulse Width (μ sec) | 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% |

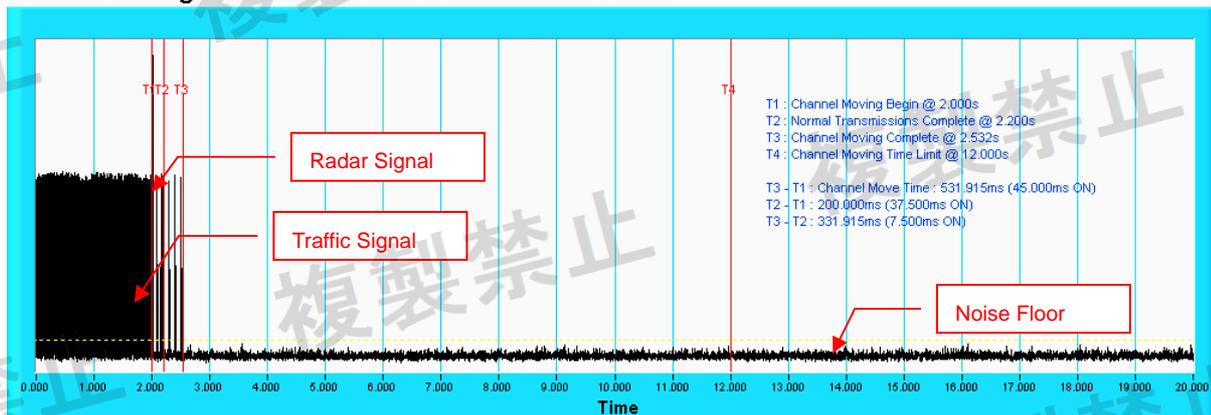
| Radar Type | Pulse Repetition Frequency (pps) | Pulse Width (μ sec) | Pulses per Hop | Minimum Percentage of Successful Detection | Percentage of Successful Detection (%) |
|------------|----------------------------------|--------------------------|----------------|--|--|
| DFS-US-6 | 3000 | 1 | 9 | 70% | 90% |

DFS-J2-1 Channel Closing Transmission Time & Channel Move Time



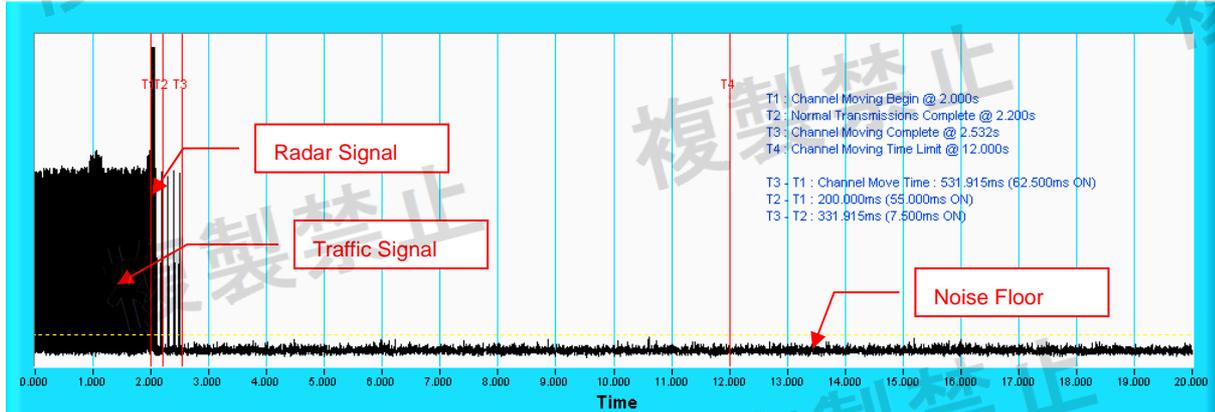
Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

DFS-J2-2 Channel Closing Transmission Time & Channel Move Time



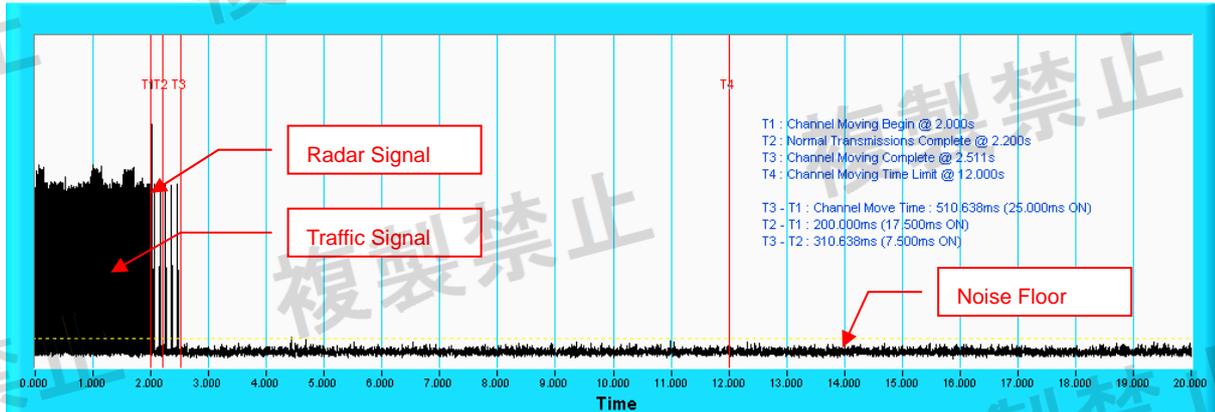
Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

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.

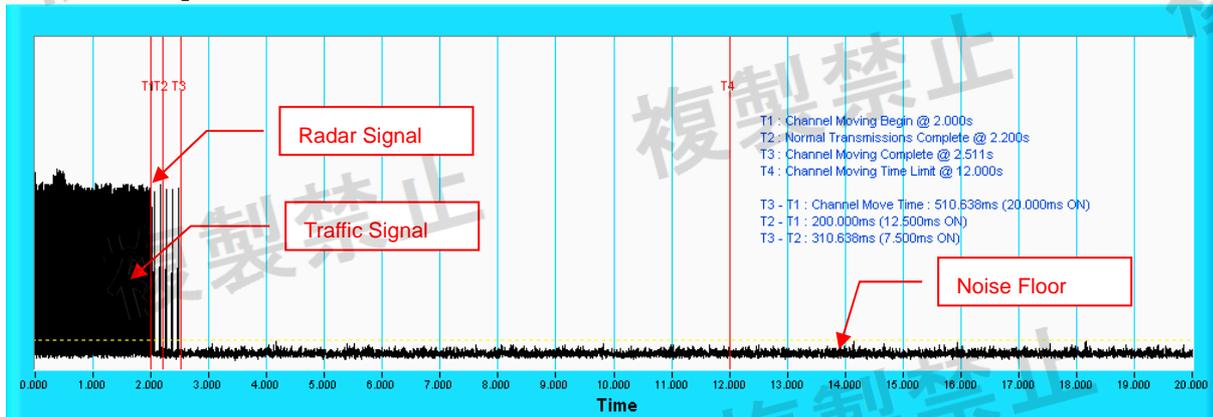
DFS-US-2 Channel Closing Transmission Time & Channel Move Time



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

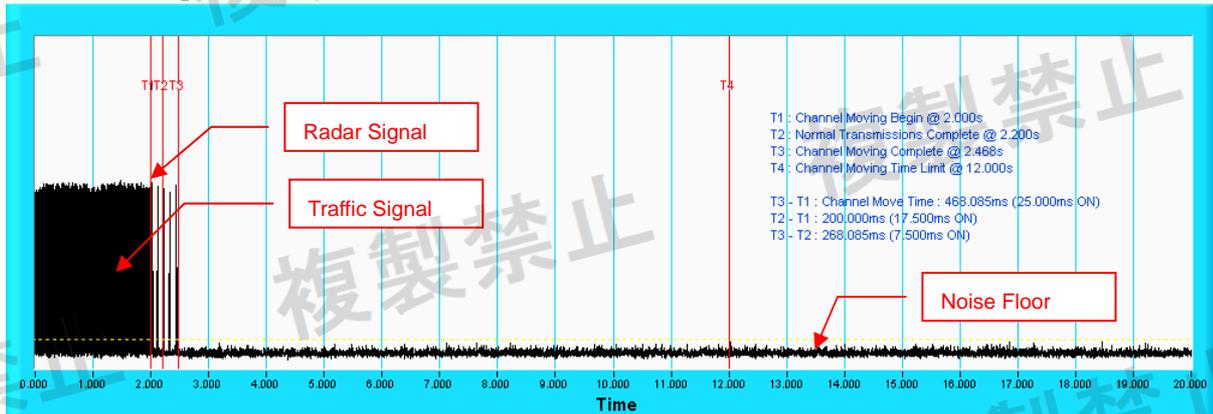
Channel Closing Transmission Time & Channel Move Time



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

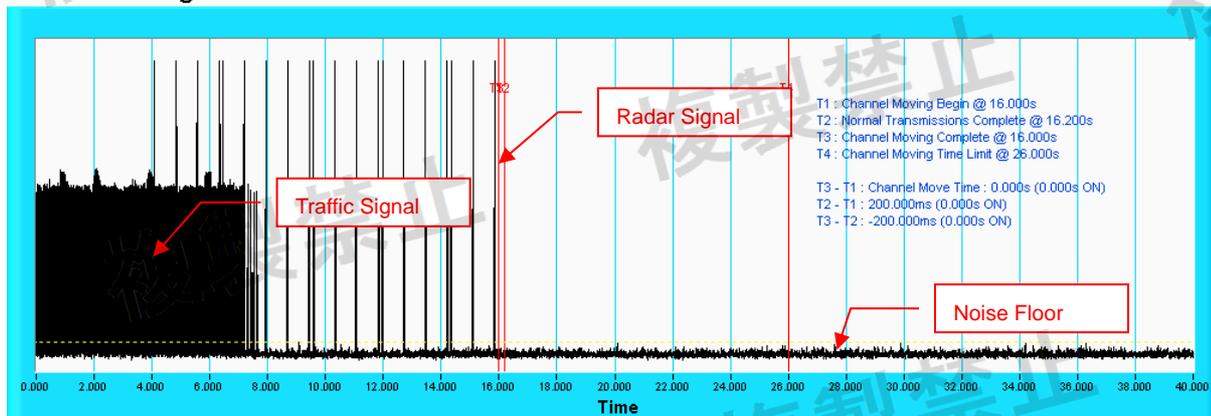


Note: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.



Long pulse radar signal

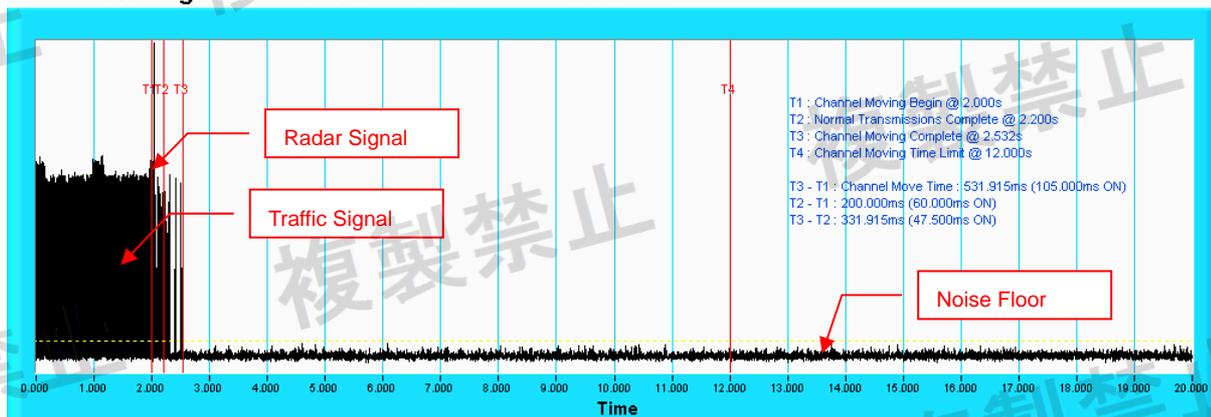
Channel Closing Transmission Time & Channel Move Time



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.



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DFS-J2-1 Radar Statistical Performances

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



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DFS-J2-2 Radar Statistical Performances

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



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DFS-US-1 Radar Statistical Performances

| Trial # | Channel (MHz) | Channel Closing Transmission Time & Channel move Time |
|--|---------------|---|
| 1 | 5660 | Yes |
| 2 | 5680 | Yes |
| 3 | 5640 | Yes |
| 4 | 5500 | Yes |
| 5 | 5520 | Yes |
| 6 | 5540 | Yes |
| 7 | 5680 | Yes |
| 8 | 5520 | Yes |
| 9 | 5660 | Yes |
| 10 | 5600 | Yes |
| 11 | 5620 | Yes |
| 12 | 5540 | Yes |
| 13 | 5700 | Yes |
| 14 | 5700 | Yes |
| 15 | 5640 | Yes |
| 16 | 5500 | Yes |
| 17 | 5700 | Yes |
| 18 | 5640 | No |
| 19 | 5500 | Yes |
| 20 | 5640 | Yes |
| Detection Rate | | 95% |
| Minimum Percentage of Successful Detection | | 60% |
| Result | | Pass |

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DFS-US-2 Radar Statistical Performances

| Trial # | Channel (MHz) | Channel Closing Transmission Time & Channel move Time |
|--|---------------|---|
| 1 | 5560 | Yes |
| 2 | 5540 | Yes |
| 3 | 5700 | Yes |
| 4 | 5540 | Yes |
| 5 | 5680 | Yes |
| 6 | 5620 | Yes |
| 7 | 5580 | Yes |
| 8 | 5680 | Yes |
| 9 | 5660 | Yes |
| 10 | 5520 | Yes |
| 11 | 5620 | Yes |
| 12 | 5660 | Yes |
| 13 | 5580 | No |
| 14 | 5640 | Yes |
| 15 | 5660 | No |
| 16 | 5620 | No |
| 17 | 5500 | Yes |
| 18 | 5560 | Yes |
| 19 | 5660 | Yes |
| 20 | 5660 | No |
| Detection Rate | | 80% |
| Minimum Percentage of Successful Detection | | 60% |
| Result | | Pass |

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DFS-US-3 Radar Statistical Performances

| Trial # | Channel (MHz) | Channel Closing Transmission Time & Channel move Time |
|--|---------------|---|
| 1 | 5560 | Yes |
| 2 | 5680 | Yes |
| 3 | 5620 | Yes |
| 4 | 5660 | Yes |
| 5 | 5660 | No |
| 6 | 5560 | Yes |
| 7 | 5540 | Yes |
| 8 | 5620 | Yes |
| 9 | 5660 | Yes |
| 10 | 5500 | Yes |
| 11 | 5580 | Yes |
| 12 | 5620 | No |
| 13 | 5540 | Yes |
| 14 | 5640 | No |
| 15 | 5620 | Yes |
| 16 | 5520 | Yes |
| 17 | 5680 | Yes |
| 18 | 5680 | No |
| 19 | 5700 | Yes |
| 20 | 5600 | Yes |
| Detection Rate | | 80% |
| Minimum Percentage of Successful Detection | | 60% |
| Result | | Pass |



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DFS-US-4 Radar Statistical Performances

| Trial # | Channel (MHz) | Channel Closing Transmission Time & Channel move Time |
|--|---------------|---|
| 1 | 5680 | Yes |
| 2 | 5560 | No |
| 3 | 5700 | Yes |
| 4 | 5660 | Yes |
| 5 | 5500 | Yes |
| 6 | 5540 | Yes |
| 7 | 5520 | Yes |
| 8 | 5580 | No |
| 9 | 5680 | Yes |
| 10 | 5700 | No |
| 11 | 5560 | Yes |
| 12 | 5660 | Yes |
| 13 | 5660 | No |
| 14 | 5520 | Yes |
| 15 | 5660 | Yes |
| 16 | 5680 | Yes |
| 17 | 5520 | Yes |
| 18 | 5580 | No |
| 19 | 5560 | No |
| 20 | 5680 | Yes |
| Detection Rate | | 70% |
| Minimum Percentage of Successful Detection | | 60% |
| Result | | Pass |



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DFS-US-5 Radar Statistical Performances

| Trial # | Channel (MHz) | Channel Closing Transmission Time & Channel move Time |
|--|---------------|---|
| 1 | 5660 | Yes |
| 2 | 5520 | Yes |
| 3 | 5640 | Yes |
| 4 | 5600 | Yes |
| 5 | 5560 | Yes |
| 6 | 5640 | Yes |
| 7 | 5520 | Yes |
| 8 | 5660 | Yes |
| 9 | 5640 | Yes |
| 10 | 5580 | Yes |
| 11 | 5580 | Yes |
| 12 | 5680 | Yes |
| 13 | 5560 | Yes |
| 14 | 5520 | Yes |
| 15 | 5580 | Yes |
| 16 | 5680 | Yes |
| 17 | 5500 | Yes |
| 18 | 5620 | Yes |
| 19 | 5600 | Yes |
| 20 | 5700 | Yes |
| Detection Rate | | 100% |
| Minimum Percentage of Successful Detection | | 80% |
| Result | | Pass |



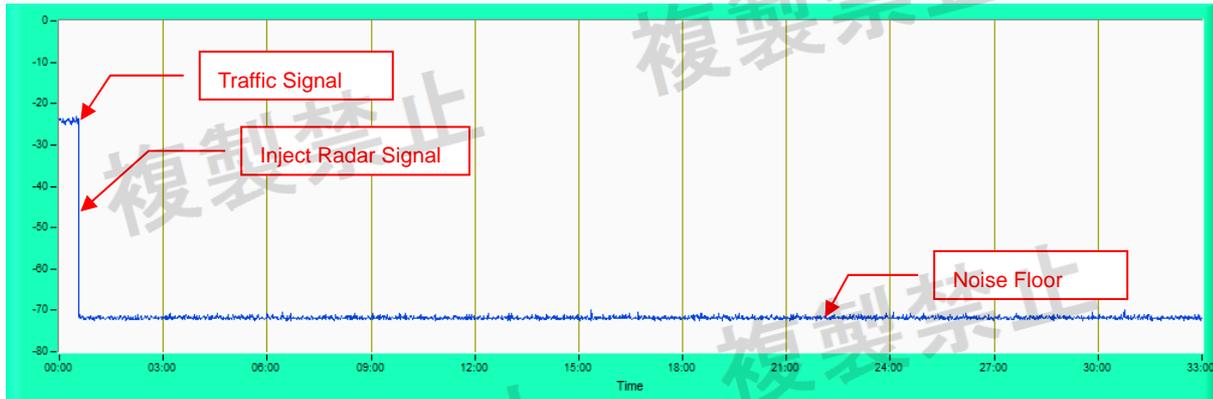
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DFS-US-6 Radar Statistical Performances

| Trial # | Channel (MHz) | Channel Closing Transmission Time & Channel move Time |
|--|---------------|---|
| 1 | 5500 | Yes |
| 2 | 5520 | Yes |
| 3 | 5620 | Yes |
| 4 | 5700 | Yes |
| 5 | 5580 | No |
| 6 | 5580 | Yes |
| 7 | 5560 | Yes |
| 8 | 5620 | Yes |
| 9 | 5560 | Yes |
| 10 | 5580 | No |
| 11 | 5620 | Yes |
| 12 | 5700 | Yes |
| 13 | 5680 | Yes |
| 14 | 5680 | Yes |
| 15 | 5640 | Yes |
| 16 | 5560 | Yes |
| 17 | 5540 | Yes |
| 18 | 5520 | Yes |
| 19 | 5700 | Yes |
| 20 | 5580 | Yes |
| Detection Rate | | 90% |
| 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.



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 19 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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Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: 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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