



**FCC PART 15  
TEST REPORT  
No. I19N02247-DFS**

**For**

**Doro AB**

**LTE phone**

**Model Name: DSB-0230**

**With**

**Hardware Version: 1031**

**Software Version:**

**MAGIC01A-S10A\_DSB0230\_123\_USERDEBUG\_190925**

**FCC ID: WS5DSB0230**

**Issued Date: 2019-11-19**

**Designation Number: CN1210**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

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## **REPORT HISTORY**

| <b>Report Number</b> | <b>Revision</b> | <b>Description</b> | <b>Issue Date</b> |
|----------------------|-----------------|--------------------|-------------------|
| I19N02247-DFS        | Rev.0           | 1st edition        | 2019-11-19        |

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## **1. TEST LATORATORY**

### **1.1. Testing Location**

Location: Shenzhen Academy of Information and Communications Technology  
Address: Building G, Shenzhen International Innovation Center, No.1006  
Shennan Road, Futian District, Shenzhen, Guangdong Province, China  
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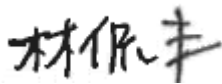
### **1.2. Testing Environment**

Normal Temperature: 15-35℃  
Relative Humidity: 20-75%

### **1.3. Project data**

Testing Start Date: 2019-10-08  
Testing End Date: 2019-10-25

### **1.4. Signature**



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Lin Kanfeng  
(Prepared this test report)



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Tang Weisheng  
(Reviewed this test report)



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Zhang Bojun  
(Approved this test report)

## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

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### **2.2. Manufacturer Information**

Company Name: CK TELECOM LTD.  
Address: Technology Road. High-Tech Development Zone. Heyuan,  
Guangdong, P.R.China  
Contact: mourong xie  
Email: mourong.xie@ck-telecom.com  
Telephone: 0755-26739100 ext.8514  
Fax: 0755-26739600

### **3. Equipment Under Test (EUT) and Ancillary Equipment(AE)**

#### **3.1. About EUT**

|                                                                      |                                                           |
|----------------------------------------------------------------------|-----------------------------------------------------------|
| Description                                                          | LTE phone                                                 |
| Model Name                                                           | DSB-0230                                                  |
| Brand Name                                                           | Doro                                                      |
| FCC ID                                                               | WS5DSB0230                                                |
| RLAN Frequency Range                                                 | ISM Bands: 5250MHz~5350MHz<br>5470MHz~5725MHz             |
| RLAN Protocol                                                        | IEEE 802.11a, 802.11n-HT20/40                             |
| Type of Modulation                                                   | OFDM                                                      |
| Antenna                                                              | Integrated                                                |
| Antenna Gain                                                         | -0.5dBi                                                   |
| Power Supply                                                         | 3.85V DC by Battery                                       |
| Device Type (DFS)                                                    | Client without radar detection (only support client mode) |
| Condition of EUT as received                                         | No abnormality in appearance                              |
| Note: Components list, please refer to documents of the manufacturer |                                                           |

#### **3.2. Internal Identification of EUT**

| EUT ID* | IMEI            | HW Version | SW Version                                     | Receive Date |
|---------|-----------------|------------|------------------------------------------------|--------------|
| EUT1    | 358707100008323 | 1031       | MAGIC01A-S10A_DSB0230_1<br>23_USERDEBUG_190925 | 2019-10-08   |

\*EUT ID: is used to identify the test sample in the lab internally.

#### **3.3. Internal Identification of AE**

| AE ID* | Description | Mode              | Manufacturer                             |
|--------|-------------|-------------------|------------------------------------------|
| AE1    | Battery     | DBV 3000A         | Dongguang HongDe Battery Co.,Ltd         |
| AE2    | Charger     | UT-133E-5100BY    | Shenzhen BaiJunDa Electronic Co., LTD    |
| AE3    | Charger     | A806A-050100U-UK1 | Dongguan Aohai Power Technology Co., LTD |

\*AE ID: is used to identify the test sample in the lab internally.

#### **3.4. General Description**

The Equipment under Test (EUT) is a model of LTE phone with integrated antenna and battery. It consists of normal options: travel charger, USB cable and Phone. Manual and specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client.

## **4. REFERENCE DOCUMENTS**

### **4.1. Documents supplied by applicant**

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

### **4.2. Reference Documents for testing**

The following documents listed in this section are referred for testing.

| <b>Reference</b> | <b>Title</b>                                                                                                                                          | <b>Version</b> |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| FCC Part15       | Title 47 of the Code of Federal Regulations; Chapter I<br>Part 15 - Radio frequency devices<br>Subpart E – UNII Devices                               | 2018           |
| FCC 06-96        | Revision of Parts 2 and 15 of the Commission's Rules to<br>Permit Unlicensed National Information Infrastructure<br>(U-NII) devices in the 5 GHz band | 2006           |

Note: This report is only for DFS.

### **4.3. Laboratory Environment**

#### **Shielded room**

|                          |                                                           |
|--------------------------|-----------------------------------------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C                                |
| Relative humidity        | Min. = 20 %, Max. = 75 %                                  |
| Shielding effectiveness  | 0.014 MHz - 1 MHz, > 60 dB;<br>1 MHz - 1000 MHz, > 90 dB. |
| Electrical insulation    | > 2 MΩ                                                    |
| Ground system resistance | < 4 Ω                                                     |

## 5. SUMMARY OF TEST RESULTS

### 5.1. Summary of Test Results

| No | Test cases                                              | Sub-clause of Part15E | Verdict  |
|----|---------------------------------------------------------|-----------------------|----------|
| 1  | Channel move time and channel closing transmission time | 15.407 (h)(2)(iii)    | <b>P</b> |
| 2  | Non-Occupancy Period                                    | 15.407 (h)(2)(iv)     | <b>P</b> |

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

|    |                                                                               |
|----|-------------------------------------------------------------------------------|
| P  | Pass, The EUT complies with the essential requirements in the standard        |
| NM | Not measured, The test was not measured by SAICT                              |
| NA | Not Applicable, The test was not applicable                                   |
| F  | Fail, The EUT does not comply with the essential requirements in the standard |

### 5.2. Statements

SAICT has evaluated the test cases requested by the applicant/manufacture as listed in section 5.1 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2.

This report only deal with the UNII DFS functions among the features described in section 3, and The EUT met all requirements of the reference documents.

The end user is not available to get and modify the parameters of the detected Radar Waveforms in this product.

### 5.3. Terms used in the result table

Test Conditions

|       |                    |
|-------|--------------------|
| T nom | Normal Temperature |
| T min | Low Temperature    |
| T max | High Temperature   |
| V nom | Normal Voltage     |
| V min | Low Voltage        |
| V max | High Voltage       |
| H nom | Norm Humidity      |
| A nom | Norm Air Pressure  |

For this report, all the test case listed above is tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:

|              |       |                   |
|--------------|-------|-------------------|
| Temperature  | T nom | 25℃               |
| Voltage      | V nom | 3.85V(By battery) |
| Humidity     | H nom | 60%               |
| Air Pressure | A nom | 1010hPa           |

## 6. TEST EQUIPMENTS UTILIZED

### Conducted test system

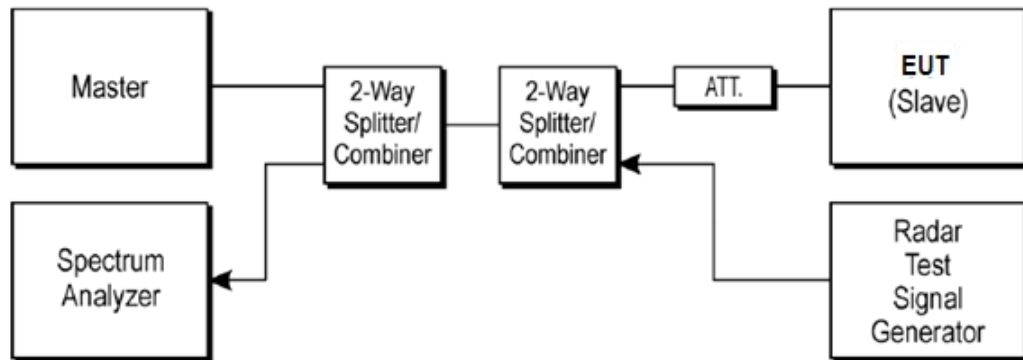
| No. | Equipment              | Model     | Serial Number    | Manufacturer    | Calibration Due date | Calibration Period |
|-----|------------------------|-----------|------------------|-----------------|----------------------|--------------------|
| 1   | Vector Signal Analyzer | FSV40     | 100903           | Rohde & Schwarz | 2020-01-02           | 1 year             |
| 2   | Vector Signal General  | SMU200A   | 104096           | Rohde & Schwarz | 2020-01-02           | 1 year             |
| 3   | Shielding Room         | S81       | /                | ETS-Lindgren    | 2019-11-13           | 3 year             |
| No. | Equipment              | Model     | FCC ID           | Manufacturer    | Calibration Due date | Calibration Period |
| 4   | Master AP              | BCM94709R | QDS-BR<br>CM1091 | BROADCOM        | /                    | /                  |

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1. Measurement Method**

#### **A.1.1. Conducted Measurements**

The below figure shows the DFS setup, where the EUT is a WLAN device operating in slave mode, without Radar Interference Detection function. This setup also contains a device operating in master mode. The radar test signals are injected into the master device. The EUT (slave device) is associated with the master device. WLAN traffic is generated by streaming the mpeg file from the master to the slave in full monitor video mode using the media player.



#### **A.1.2. Parameters of DFS test signal**

1). Interference threshold values, master or client incorporation in service monitoring. For device Power less than 23dBm (E.I.R.P.), the threshold level is -62 dBm at the antenna port after Correction for antenna gain and procedural adjustments.

Because of conducted measurement performed, the calibration power from radar signal generator to antenna port of DFS test equipment is -62 dBm.

| Maximum Transmit Power | Value   |
|------------------------|---------|
| > 200 mW               | -64 dBm |
| < 200 mW               | -62 dBm |

2). DFS requirement values

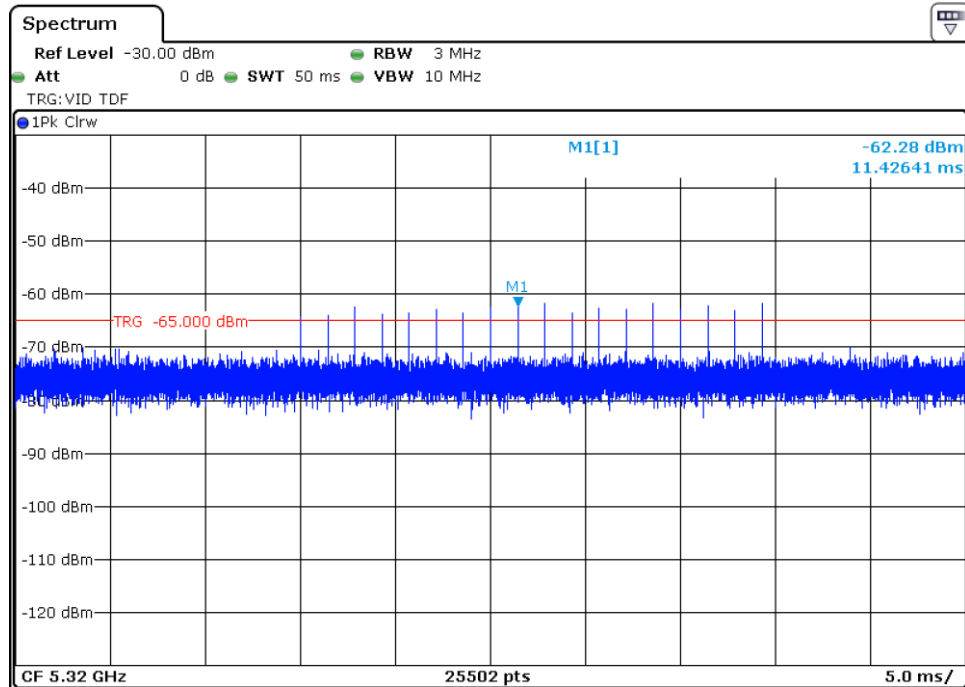
The required values are as the following table.

| Parameter                         | Value                                               |
|-----------------------------------|-----------------------------------------------------|
| Non-occupancy                     | > 1800 s                                            |
| Channel Availability Check Time   | 60 s                                                |
| Channel Move Time                 | 10 s                                                |
| Channel Closing Transmission Time | 200 ms + 60 ms                                      |
| U-NII Detection Bandwidth         | Minimum 80% of the 99% transmission power bandwidth |

As the EUT is IP based system, the MPEG video file from NTIA website is used to steam to EUT via the Master device.

3). Parameters of the reference DFS test signal

| Pulse width W ( $\mu$ s) | Pulse repetition frequency PRF (PPS) | Pulses per burst (PPB) |
|--------------------------|--------------------------------------|------------------------|
| 1                        | 700                                  | 18                     |



**Radar Signal (Type 0)**

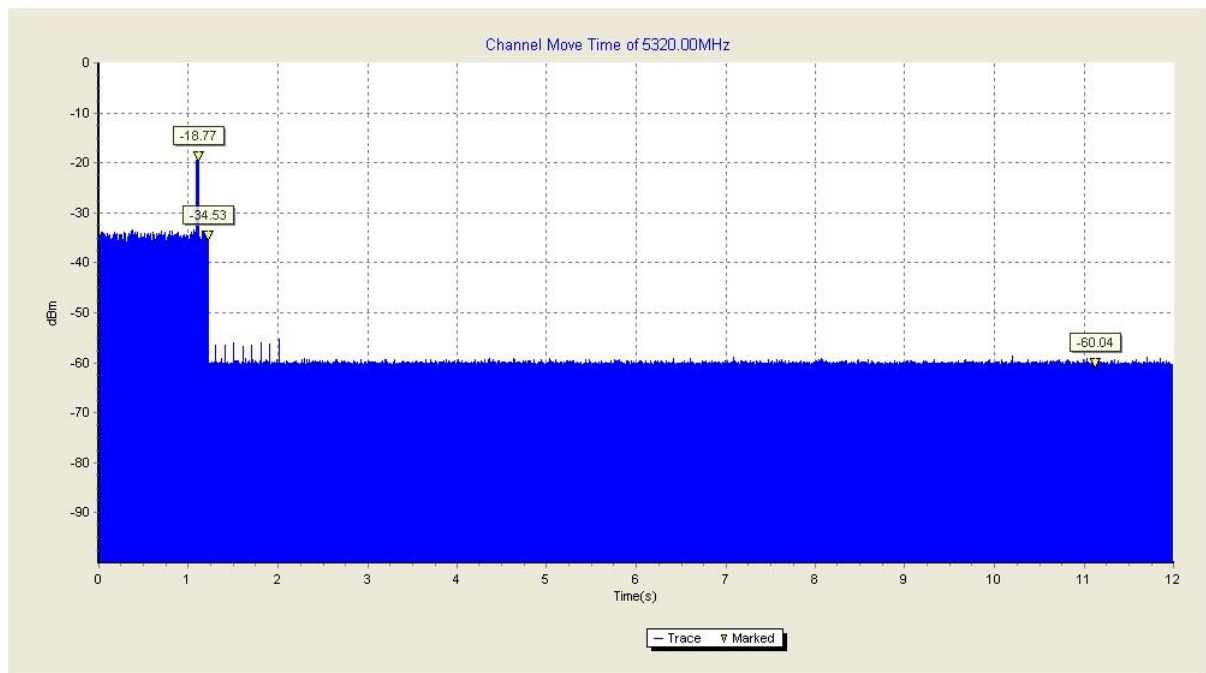
## A.2. Channel move time and channel closing transmission time

### Measurement Limit:

| Test Items                        | Limit            |
|-----------------------------------|------------------|
| channel closing transmission time | < 200 ms + 60 ms |
| Channel move time                 | < 10 s           |

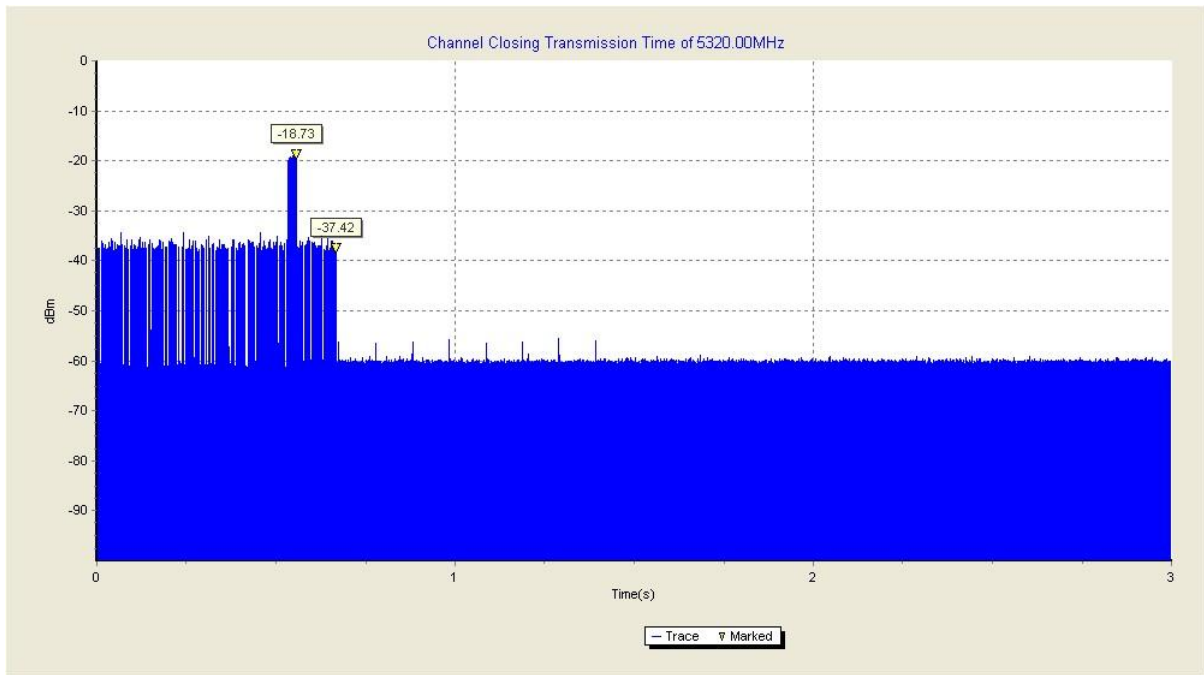
### Measurement Results:

#### HT20 Frequency Band: 5250MHz ~ 5350MHz



**Fig.1 channel move time (HT20 Frequency Band: 5250MHz ~ 5350MHz)**

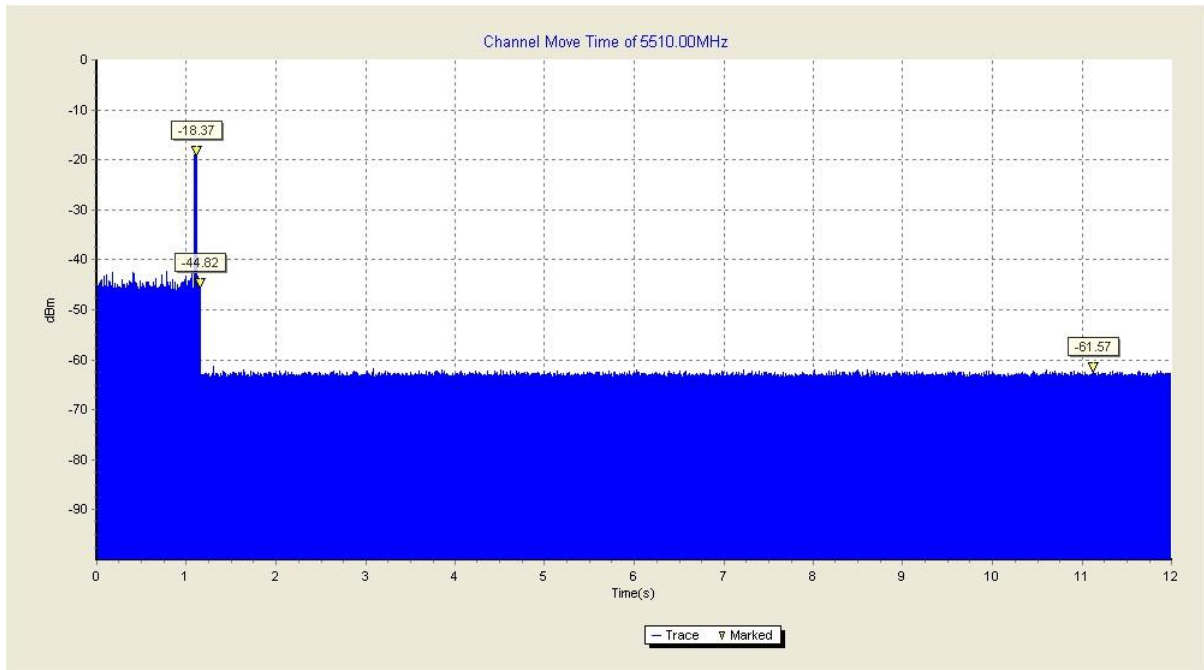
The channel move time is as the figure. It shows the time of the radar and the client pulses. The figure shows that the client stops transmission within 10 seconds, and no transmissions occur after 10 seconds later of the radar burst signal.



**Fig.2 channel closing transmission time (HT20 Frequency Band: 5250MHz ~ 5350MHz)**

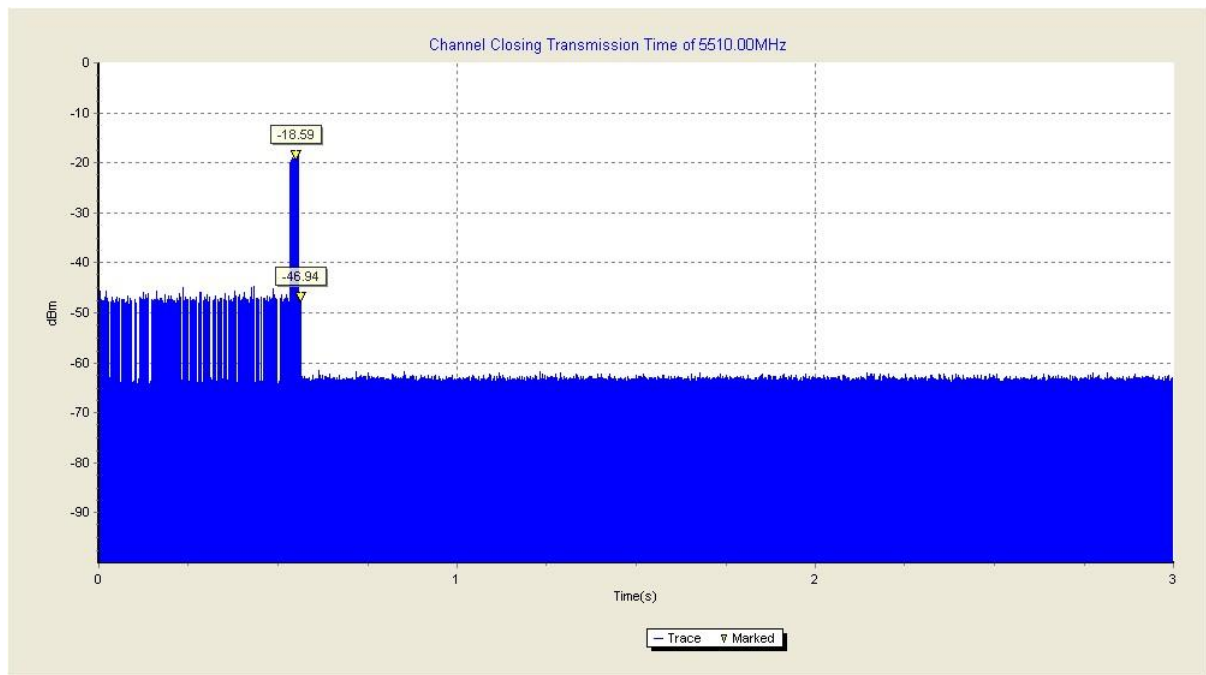
The closing transmission time is as the figure, and the result is 111ms.

#### HT40 Frequency Band: 5470MHz ~ 5725MHz



**Fig.3 channel move time (HT40 Frequency Band: 5470MHz ~ 5725MHz)**

The channel move time is as the figure. It shows the time of the radar and the client pulses. The figure shows that the client stops transmission within 10 seconds, and no transmissions occur after 10 seconds later of the radar burst signal.



**Fig.4** channel closing transmission time (HT40 Frequency Band: 5470MHz ~ 5725MHz)

The closing transmission time is as the figure, and the result is 15ms.

**Conclusion: PASS**

### A.3. Non-Occupancy Period

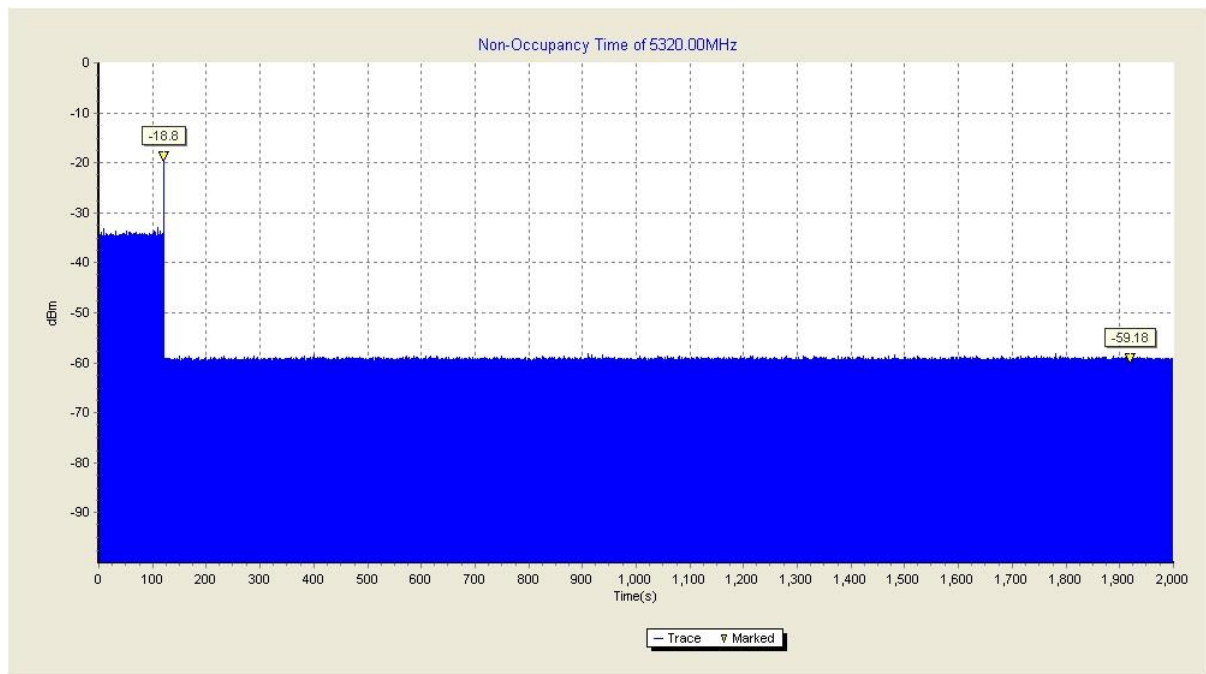
#### Measurement Limit:

| Test Items           | Limit    |
|----------------------|----------|
| Non-Occupancy Period | > 1800 s |

#### Associated test

Associate the master and client, transmit specified stream between the master and client; monitor the analyzer on the operating frequency to make sure no beacons have been transmitted for 1800 seconds.

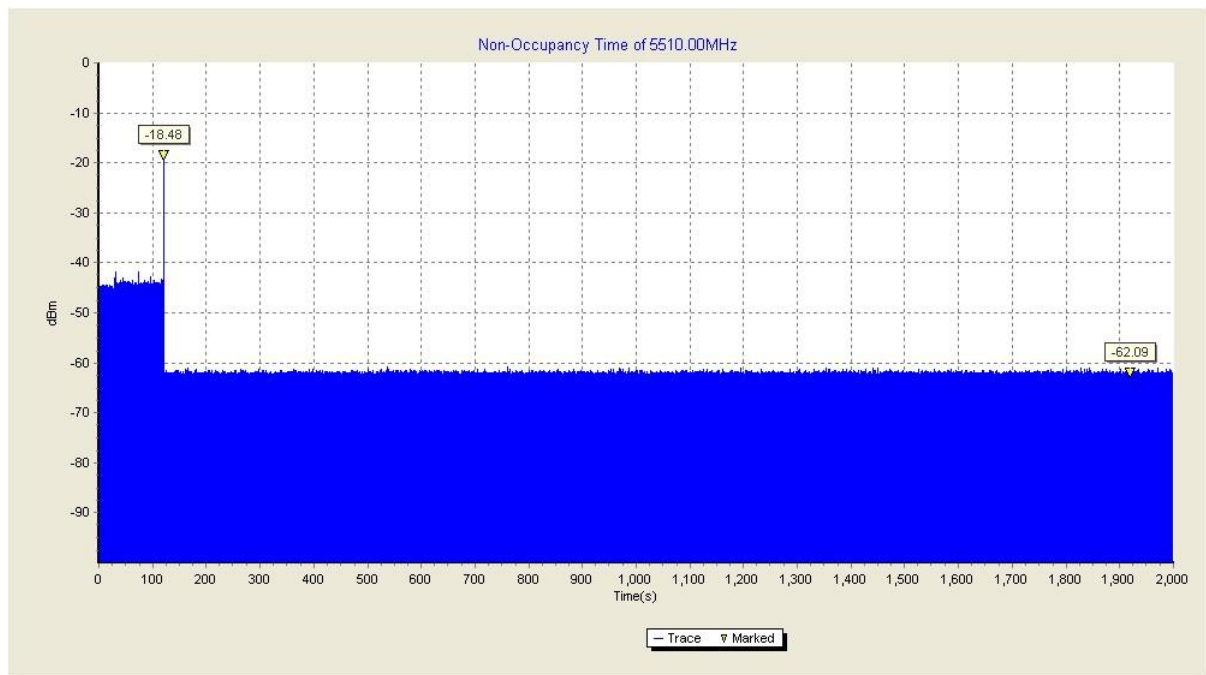
#### HT20 Frequency Band: 5250MHz ~ 5350MHz



**Fig.5 Non-Occupancy Period (HT20 Frequency Band: 5250MHz ~ 5350MHz)**

The figure above shows that the client does not transmit any emission within 1800 seconds after getting the order of “stop transmits” from the DFS master (access point).

#### HT40 Frequency Band: 5470MHz ~ 5725MHz



**Fig.6 Non-Occupancy Period (HT40 Frequency Band: 5470MHz ~ 5725MHz)**

The figure above shows that the client does not transmit any emission within 1800 seconds after getting the order of “stop transmits” from the DFS master (access point).

**Conclusion: PASS**

## ANNEX B: PHOTOGRAPHS OF THE TEST SET-UP

### Layout of Conducted Test



\*\*\* END OF REPORT BODY \*\*\*