FCC PART 15
TEST REPORT
No. 2013WLN0822

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS Triband / GSM quadband mobile phone

mobile phone

Model name: HERO

Marketing Name: ONE TOUCH 8020A

With

FCC ID: RAD398

Hardware Version: PIO

Software Version: vBAM

Issued Date: 2014-01-14

Test Laboratory:
TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology
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CONTENTS

1. TEST LATORATORY

1.1. Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
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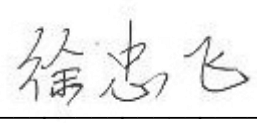
Postal Code:	100191
Telephone:	008610623046332561
Fax:	008610623046332504

1.2. Project data

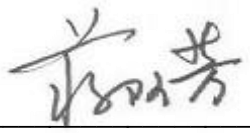
Testing Start Date:	2013-12-17
Testing End Date:	2014-01-14

1.3. Signature



Xu Zhongfei

(Prepared this test report)



Jiang Afang

(Reviewed this test report)

Xiao Li

Deputy Director of the laboratory

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name:	TCT Mobile Limited
Address /Post:	5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203
Contact	Gong Zhizhou
Email	zhizhou.gong@jrdcom.com
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2.2. Manufacturer Information

Company Name:	TCT Mobile Limited
Address /Post:	5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203
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Email	zhizhou.gong@jrdcom.com
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3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT(AE)

3.1. About EUT

Description	HSUPA/HSDPA/UMTS Triband / GSM quadband mobile phone
Model neme	HERO
Marketing name	ONE TOUCH 8020A
FCC ID	RAD398
WLAN Frequency Range	ISM Band: -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
GSM Frequency Band	GSM 850/900/1800/1900
Antenna	Integral Antenna
MAX E.I.R.P.	11.90 dBm(OFDM)
MIN E.I.R.P.	8.08 dBm(OFDM)
Temperature	25°C
Normal Voltage	3.8VDC
Device Type (DFS)	Client without radar detection(only support client mode)
TPC mechanism	Not support

Note1: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.
Note2: The E.I.R.P. measurement is performed with 15.407, which report number is 2013WLN0763 and applied with this report together

3.2. Internal Identification of EUT used during the test

EUT ID*	S/N	IMEI	HW Version	SW Version
EUT1	/	013802001000144	PIO	vBAM

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

3.3. General Description

Equipment Under Test (EUT) is a model of HSUPA/HSDPA/UMTS Triband / GSM quadband mobile phone with integrated antenna. It consists of normal options: Battery and Charger.
It has functions of Camera/MP3/Bluetooth and GPS.
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.

FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices Subpart E – UNII Devices	Oct, 2012
FCC 06-96	Revision of Parts 2 and 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) devices in the 5 GHz band	2006

5. LABORATORY ENVIRONMENT

Measurement is performed in shielding room.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Verdict
Channel move time and channel closing transmission time	15.407 (h)(2)(iii)	**P**
Non-Occupancy Period	15.407 (h)(2) (iv)	**P**

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 TMC
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

6.2. Statements

TMC has evaluated the test cases requested by the client/manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

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.

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	26℃
Voltage	V nom	3.8V(By battery)
Humidity	H nom	44%
Air Pressure	A nom	1010hPa

7. TEST EQUIPMENTS UTILIZED

Conducted test system

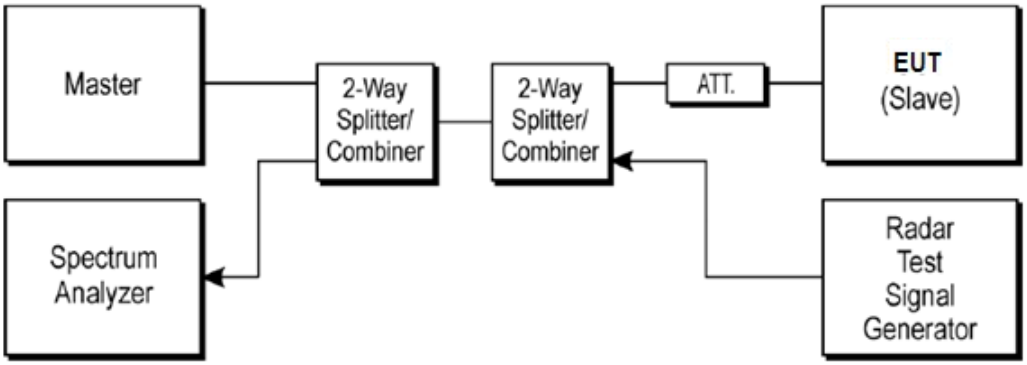
No.	Equipment	Model	Serial Number	Manufacturer	Calibration Date	Calibration Due Date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2013-07-08	2014-07-07
2	Vector Signal General	SMU200A	103752	Rohde & Schwarz	2013-07-08	2014-07-07
3	Shielding Room	S81	/	ETS-Lindgren	/	/

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 RLAN 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.



Note:

1) All Measurements are performed with the EUT's narrowest channel bandwidth.
2) The master device information is as follows
   Vendor: Cisco
   Model: AIR-AP1252AG-A-K9
   FCC ID: LDK102061, 1DK102062
3) The software of radar signal generator (R&S SMU200A) is completely designed based on FCC-06-96A1/NTIA requirement.

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.

A.1.3. Measurement Uncertainty

Item	Measurement Uncertainty
Time	0.70 ms
Power	0.75 dBm

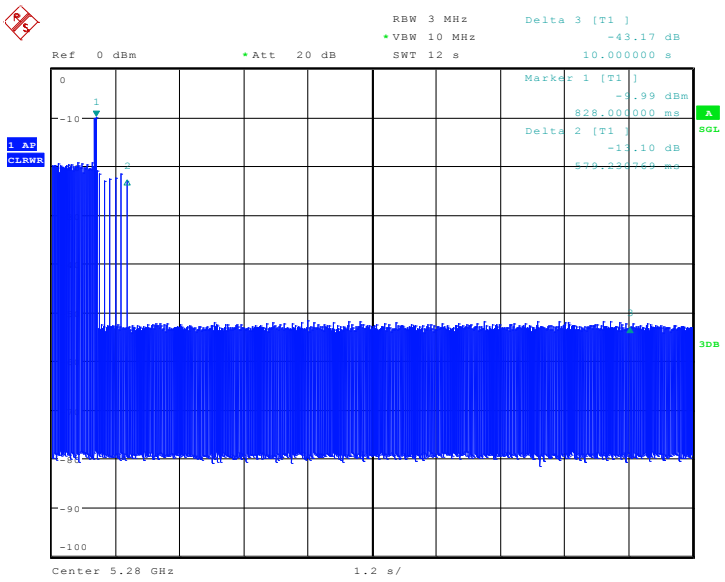
A.2. Channel move time and channel closing transmission time

Measurement Limit:

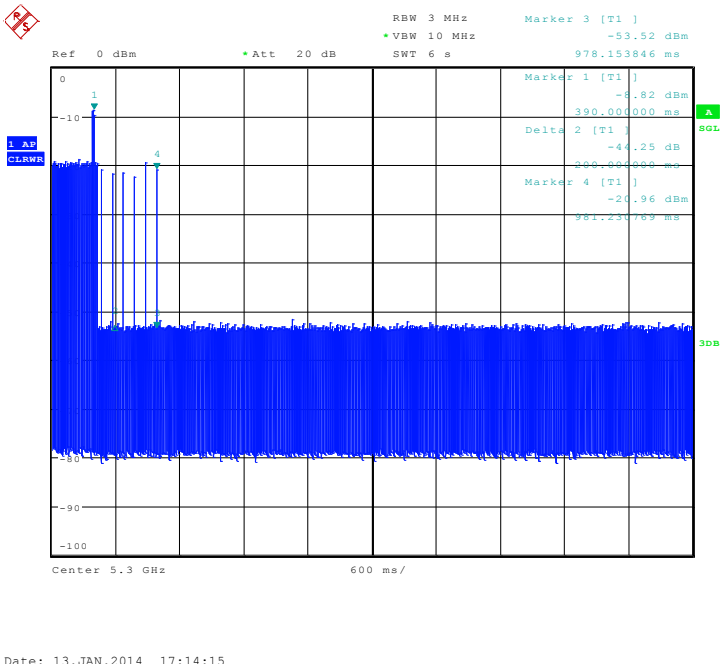
Test Items	Limit
channel closing transmission time	< 200 ms + 60 ms
Channel move time	< 10 s

Measurement Results:

HT20 Frequency Band: 5250MHz ~ 5350MHz



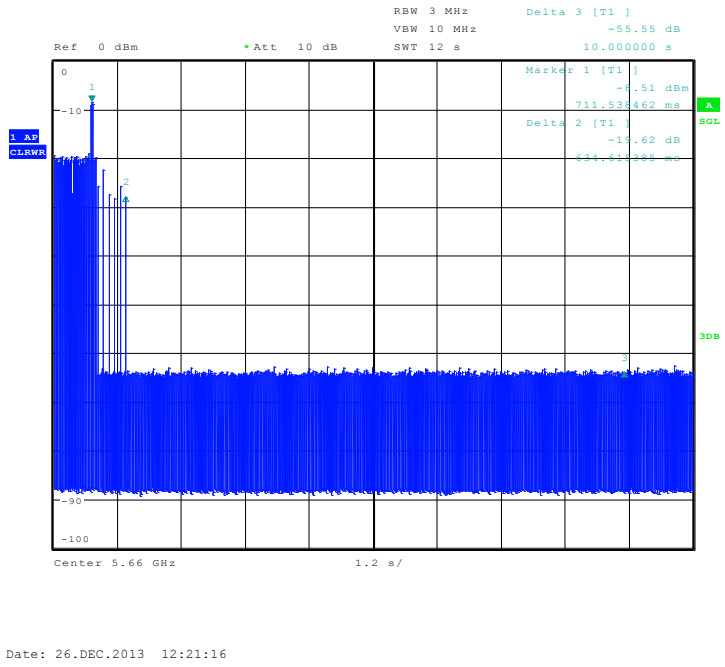
The channel move time is as the figure. It shows the time of the radar and the client pulses. The figure shows that the client stops transmission within 10 seconds, and no transmissions occur after 10 seconds later of the radar burst signal.



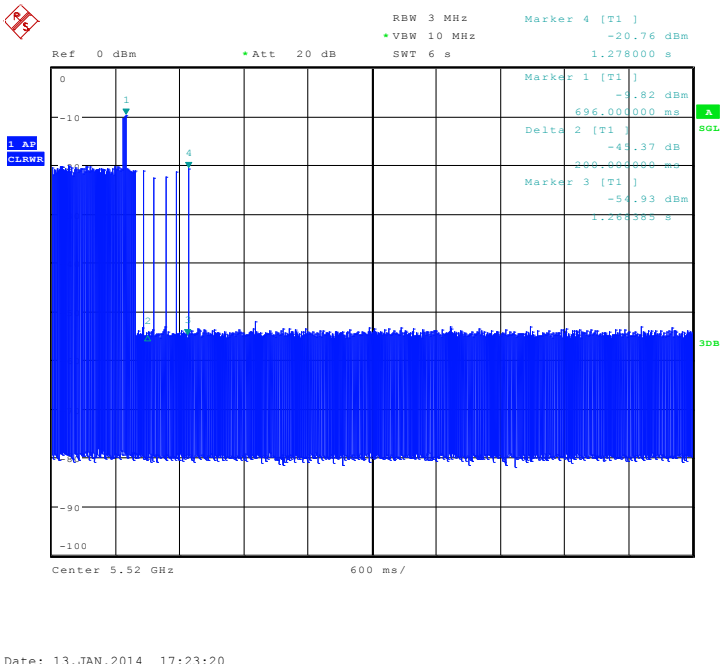
The closing transmission time is as the figure, and the result is calculated from the markers. (981.231-978.154) x 4=12.31ms

Conclusion: PASS

HT 20 Frequency Band 5470MHz ~ 5725MHz

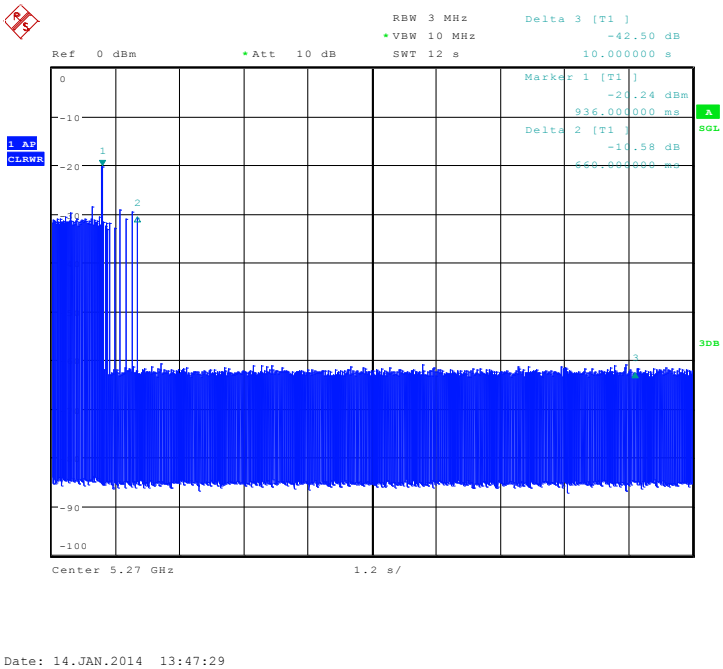


The channel move time is as the figure. It shows the time of the radar and the client pulses. The figure shows that the client stops transmission within 10 seconds, and no transmissions occur after 10 seconds later of the radar burst signal.

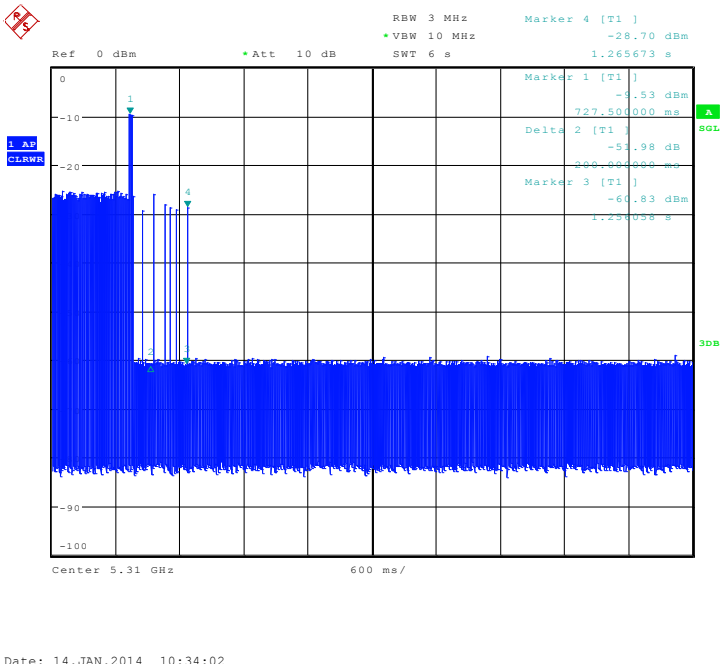


The closing transmission time is as the figure, and the result is calculated from the markers.
(1278.000-1268.385) x 4 s = 38.46ms

HT 40 Frequency Band: 5250MHz ~ 5350MHz



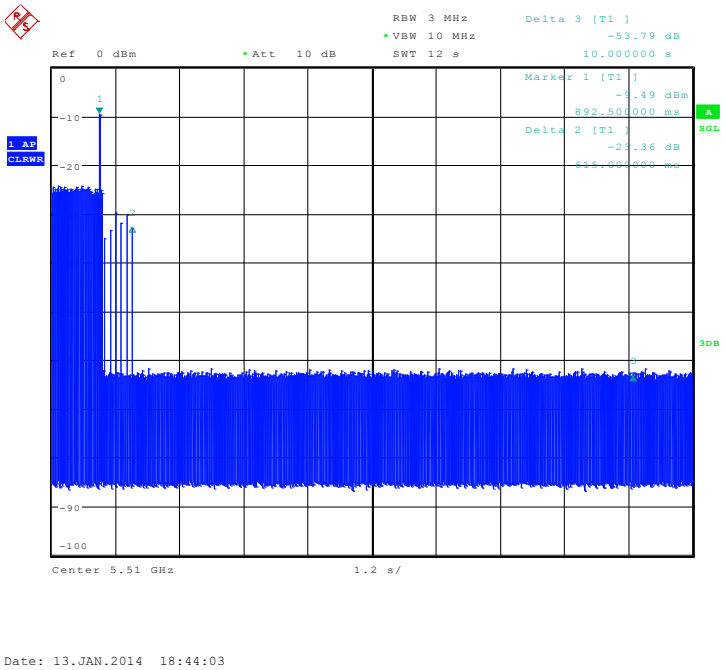
The channel move time is as the figure. It shows the time of the radar and the client pulses. The figure shows that the client stops transmission within 10 seconds, and no transmissions occur after 10 seconds later of the radar burst signal.



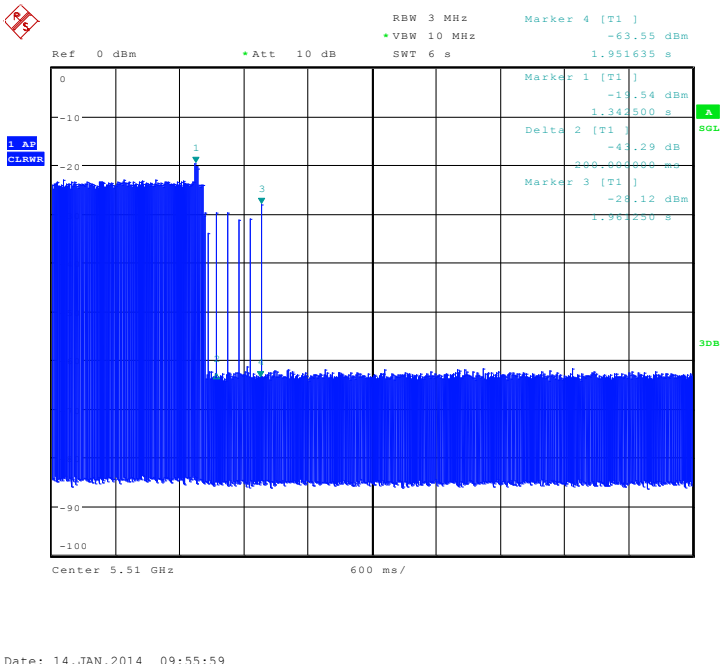
The closing transmission time is as the figure, and the result is calculated from the markers.
(1265.673-1256.058) x 5=48.08ms

Conclusion: PASS

HT 40 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.



The closing transmission time is as the figure, and the result is calculated from the markers.
(1961.250-1951.635) x 5 s = 48.08ms

Conclusion: PASS

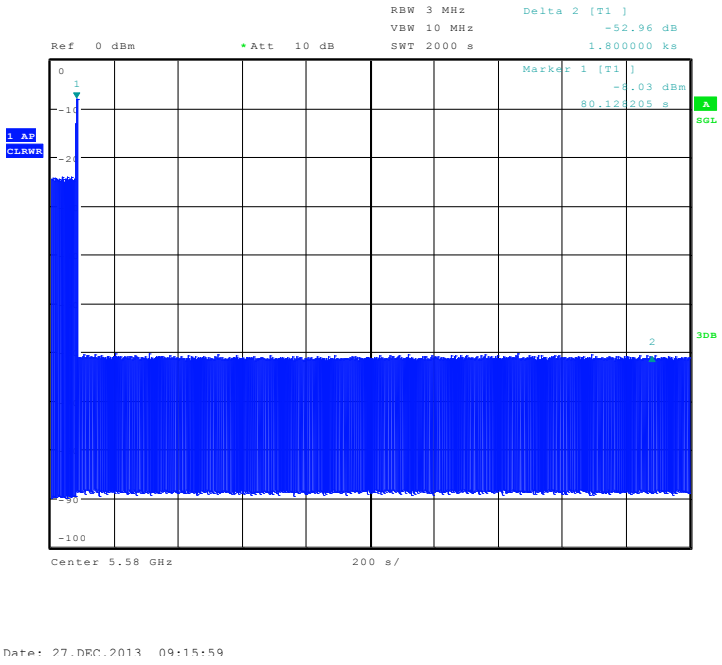
A.3. Non-Occupancy Period

Measurement Limit:

Test Items	Limit
Non-Occupancy Period	> 1800 s

A3.1 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.

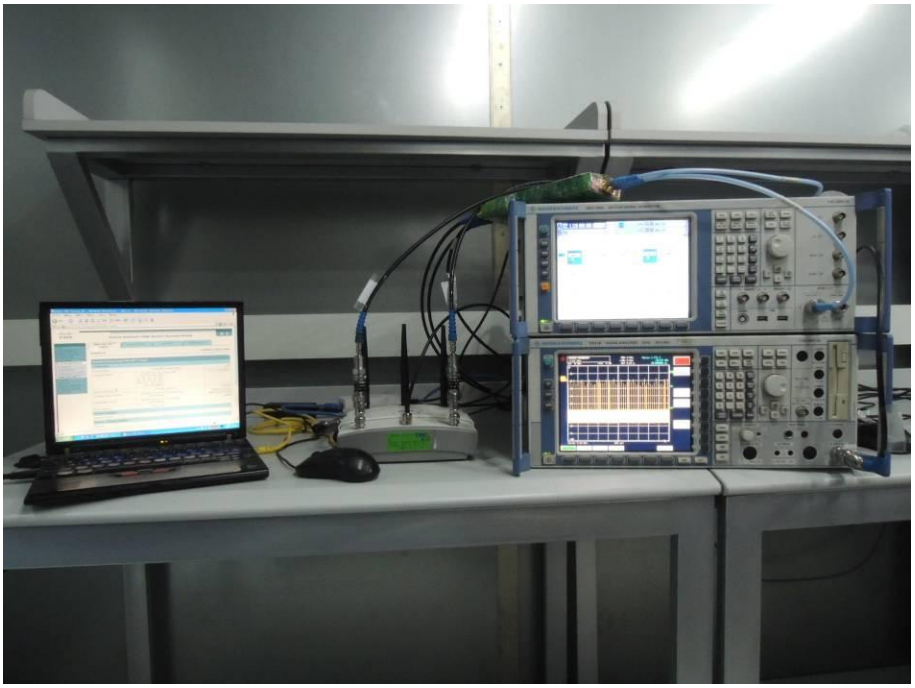


The figure above shows that the client does not transmit any emission within 1800 seconds after getting the order of “stop transmits” from the DFS master (access point).

Conclusion: PASS

ANNEX B: PHOTOGRAPHS OF THE TEST SET-UP

Layout of Conducted Test



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