

Page 1 of 31

### **ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT DFS TEST REPORT

OF

Applicant: Huawei Technologies Co., Ltd.

> Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129,

P.R.C

**Product Name: Smart Phone** 

**Brand Name: HUAWEI** Model No.: BLA-A09

**Model Difference:** N/A

FCC ID: QISBLA-A09

ER/2017/B0216 **Report Number:** 

**FCC Rule Part:** §15.407

**Issue Date:** Dec. 08, 2017

**Date of Test:** Nov. 16, 2017~ Dec. 01, 2017

Date of EUT Received: Nov. 16, 2017

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Prepared By:

Allen Tsai / Engineer

Approved By:

Jim Chang / Asst. Manager





0513

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Unless otherwise stated the results shown in this test report refer only to the sample(s) lested and such sample(s) are retained to 50 days only. 

First Ap 表现,此根告结果僅對測試之樣品負責,同時此樣品僅保留的天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>.

Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of the subject to the company's findings at the time of its intervention only and within the limits of the subject to the company's findings at the time of its intervention only and the subject to the company's findings at the time of the subject to the subject to the subject to the company's findings at the time of its intervention only and the subject to th Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 www.tw.sgs.com

SGS Taiwan Ltd.



Page: 2 of 31

# **Revision History**

Report Number	Revision	Description	Issue Date
ER/2017/B0216	Rev.00	Initial creation of document	Dec. 08, 2017

t (886-2) 2299-3279

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產品配配的工作。
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Tai

台灣檢驗科技股份有限公司



Page: 3 of 31

# **Contents**

1.	GEN	NERAL INFORMATION	4
	1.1	Product Description	
	1.2	Product Feature of Equipment Under Test	7
	1.3	Test Methodology of Applied Standards	8
	1.4	Test Facility	8
	1.5	Special Accessories	8
	1.6	Equipment Modifications	8
2.	SUM	MMARY OF TEST RESULT	9
3.	MEA	ASUREMENT UNCERTAINTY	9
4.	TPC	and DFS MEASUREMENT	10
	4.1.	TPC: Standard Applicable	10
	4.2.	DFS: Standard Applicable	10

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產品配配的工作。
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Tai

t (886-2) 2299-3279

台灣檢驗科技股份有限公司



Page: 4 of 31

# **GENERAL INFORMATION**

# 1.1 Product Description

General:

Product Name:	Smart Phone	
Brand Name:	HUAWEI	
Model No.:	BLA-A09	
Model difference:	N/A	
Product SW/HW version:	N/A / N/A	
Radio SW/HW version:	N/A / N/A	
	3.82Vdc from Rechargeable Li-ion polymer Battery or 5Vdc from AC/DC Adapter	
Power Supply: Battery:		Model No.: HB436486ECW, Supplier: HUAWEI
	Adapter:	Model No.:HW-050450U00, Supplier: HUAWEI

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產品配配的工作。
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Tai

t (886-2) 2299-3279

台灣檢驗科技股份有限公司

f (886-2) 2298-0488

www.tw.sgs.com



Page: 5 of 31

#### WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Modulation Technology	
	5150~5250	4		
44.5	5250~5350	4	OFDM	
11a	5470~5725	12	OFDM	
	5725-5850	5		
	HT20 / VHT20 5150~5250	4	OFDM	
11n / ac_20M	HT20 / VHT20 5250~5350	4		
	HT20 / VHT20 5470~5725	11	GI BIVI	
	HT20 / VHT20 5725-5850	5		
	HT40 / VHT40 5150~5250	2		
11n / ac_40M	HT40 / VHT40 5250~5350	2	OFDM	
	HT40 / VHT40 5470~5725	5	0. 5	
	HT40 / VHT40 5725-5850	2		

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產品配配的工作。
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Tai



Page: 6 of 31

	PCB Antenna (Dipole Antenna) 1. Partl No.:, Supplier: 5GHz Gain: dBi (5150MHz-5250MHz) 5GHz Gain: dBi (5250MHz-5350MHz) 5GHz Gain: dBi (5470MHz-5725MHz) 5GHz Gain: dBi (5725MHz-5850MHz)
Antenna Designation	2. Part No.:, Supplier: 5GHz Gain: dBi (5150MHz-5250MHz) 5GHz Gain: dBi (5250MHz-5350MHz) 5GHz Gain: dBi (5470MHz-5725MHz) 5GHz Gain: dBi (5725MHz-5850MHz)
	3. Part No.:, Supplier: 5GHz Gain: dBi (5150MHz-5250MHz) 5GHz Gain: dBi (5250MHz-5350MHz) 5GHz Gain: dBi (5470MHz-5725MHz) 5GHz Gain: dBi (5725MHz-5850MHz)
Modulation type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only
Transition Rate:	802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 - 144.4Mbps 802.11 n_40MHz: 13.5 - 300Mbps 802.11 ac_20MHz: 6.5 -144.4Mbps 802.11 ac_40MHz: 13.5 -300Mbps

t (886-2) 2299-3279

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeilndustrialPark,WukungDistrict,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產業園區五工路 134 號
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Taiwan24803/新北市本股區新北產品配配的工作。
\*\*No.134.\*\*WuKungRoad,NewTaipeiCity,Tai



Page: 7 of 31

### 1.2 Product Feature of Equipment Under Test

The equipment under Test (Hereafter Called: EUT) is supporting below features.

Product Feature		
Wi-Fi Specification	802.11a/b/g/n/ac	

Note: The above EUT information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留卯天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and which the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or approval of this document is unquited and frequence may be preserved at the full extent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

台灣檢驗科技股份有限公司 t (886-2) 2299-3279



Page: 8 of 31

### 1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

FCC KDB 905462

All test items have been performed and record as per the above standards.

#### **Test Facility**

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan. (TAF code 0513) FCC Registration Numbers are: 509634 / TW0001

### Special Accessories

There are no special accessories used while test was conducted.

### 1.6 Equipment Modifications

There was no modification incorporated into the EUT.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

SGS Taiwan Ltd.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



Page: 9 of 31

### **SUMMARY OF TEST RESULT**

FCC Rules	Description Of Test	Result
§15.407(h)	TPC and DFS Measurement	Compliant

### **MEASUREMENT UNCERTAINTY**

Test Items	Uncertainty
TPC and DFS Measurement	+/- 123.36 Hz
Temperature	+/- 0.65 ℃
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC=+/- 0.2%

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or approval of the document is unquited and frequence may be presented to the full the full transaction of the company. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



Page: 10 of 31

#### 4. TPC and DFS MEASUREMENT

### 4.1. TPC: Standard Applicable

According to §15.407(h)(1), Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

**4.1.1. Result**: N/A, The output power is less than 500mW.

### 4.2. DFS: Standard Applicable

According to §15.407(h)(2) and FCC KDB 905462 D02, Radar Detection Function of Dynamic Frequency Selection (DFS).

Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems. Operators shall only use equipment with a DFS mechanism that is turned on when operating in these bands. The device must sense for radar signals at 100 percent of its emission bandwidth. The minimum DFS detection threshold for devices with a maximum e.i.r.p. of 200 mW to 1 W is –64 dBm. For devices that operate with less than 200 mW e.i.r.p. and a power spectral density of less than 10 dBm in a 1 MHz band, the minimum detection threshold is –62 dBm. The detection threshold is the received power averaged over 1 microsecond referenced to a 0 dBi antenna. For the initial channel setting, the manufacturers shall be permitted to provide for either random channel selection or manual channel selection.

- (i) Operational Modes. The DFS requirement applies to the following operational modes:
- (A) The requirement for channel availability check time applies in the master operational mode.
- (B) The requirement for channel move time applies in both the master and slave operational modes.
- (ii) Channel Availability Check Time. A U-NII device shall check if there is a radar system already operating on the channel before it can initiate a transmission on a channel and when it has to move to a new channel. The U-NII device may start using the channel if no radar

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



Page: 11 of 31

signal with a power level greater than the interference threshold values listed in paragraph (h)(2) of this section, is detected within 60 seconds.

- (iii) Channel Move Time. After a radar's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.
- (iv) Non-occupancy Period. A channel that has been flagged as containing a radar system, either by a channel availability check or in-service monitoring, is subject to a non-occupancy period of at least 30 minutes. The non-occupancy period starts at the time when the radar system is detected.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留卽天。本報告未總本公司書面許可,不可都份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law SGS Taiwan Ltd.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



Page: 12 of 31

#### 4.2.1. Limit

Table 1: Applicability of DFS requirements prior to use of a channel

	Operational Mode		
Requirement	Master	Client(without radar detection)	Client(with radar detection)
Non-occupancy Period	Yes	Yes	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

	Operational Mode		
Requirement	Master Device or Client with Radar Detection	Client Without Radar Detection	
DFS Detection Threshold	Yes	Not required	
Cannel Closing Transmission time	Yes	Yes	
Channel Move time	Yes	Yes	
U-NII Detection Bandwidth	Yes	Not required	

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and purisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

\*\*SGS Taiwan Ltd.\*\* No 134 WuKunoRoad New TaipeiindustrialPark WukuDistrict New Taip



Page: 13 of 31

Additional requirements for devices with multiple bandwidth mode	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Band- width and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required

Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留卯天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and which the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or approval of this document is unquited and frequence may be preserved at the full extent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



Page: 14 of 31

#### Table 3:

## Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value
	(See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and	-62 dBm
power spectral density < 10 dBm/MHz	
EIRP < 200 milliwatt that do not meet the power spectral	-64 dBm
density requirement	

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.

Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01

Devices	DFS Threshold
Devices with an e.i.r.p. < 200 mW AND a	-62 dBm
Power Spectral Density < 10 dBm/MHz	
Devices with	-64 dBm
$200 \text{ mW} \le \text{e.i.r.p.} \le 1 \text{ W}$	

Note: The detection threshold power is the received power, averaged over a 1-microsecond reference to a 0 dBi antenna.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or approval of the document is unquited and frequence may be presented to the full the full transaction of the company. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

台灣檢驗科技股份有限公司 t (886-2) 2299-3279



Page: 15 of 31

### Table 4: DFS Response requirement values

Parameter	Value		
Non-occupancy period	Minimum 30 minutes		
Channel Availability Check Time	60 seconds		
Channel Move Time	10 seconds		
	See Note 1.		
Channel Closing Transmission Time	200 milliseconds + an		
	aggregate of 60		
	milliseconds over		
	remaining 10 second		
	period.		
	See Notes 1 and 2.		
U-NII Detection Bandwidth	Minimum 100% of the U-		
	NII 99% transmission		
	power bandwidth. See		
	Note 3.		

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Unless otherwise stated the results snown in this test report refer only to the sample(s) lested and such sample(s) are retained for so days only. 除非另有說明,此概告结果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of the subject of the subj Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



Page: 16 of 31

**Table 5: Radar Test Waveforms** 

#### **Short Pulse Radar**

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials			
0	1	1428	18	See Note 1	See Note			
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A	Roundup $ \left\{ \left( \frac{1}{360} \right) \cdot \left( \frac{19 \cdot 10^6}{PRI_{\mu \text{sec}}} \right) \right\} $	60%	30			
2	1-5	150-230	23-29	60%	30			
3	6-10	200-500	16-18	60%	30			
4	11-20	200-500	12-16	60%	30			
	Aggregate (Radar Types 1-4) 80% 120							

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

### **Long Pulse Radar**

Γ	Radar	Pulse	Chirp	PRI	Number	Number	Minimum	Minimum
	Type	Width	Width	(µsec)	of Pulses	of Bursts	Percentage of	Number of
		(µsec)	(MHz)		per Burst		Successful	Trials
L							Detection	
Γ	5	50-100	5-20	1000-	1-3	8-20	80%	30
L				2000				

#### **Frequency Hopping Radar**

Rac Ty		VI/	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
<u> </u>							
6	1	333	9	0.333	300	70%	30

The applicant of this given application confirms that information regarding the parameters of the detected Radar Waveforms is not available to the end user.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留明天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issued selfned therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appropriate in languaged and the support is unlarged and the parties of the languaged and the support is unlarged and the support is unlarged. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

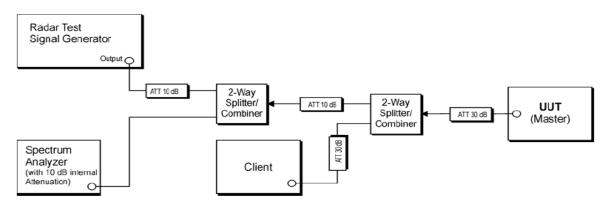
No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



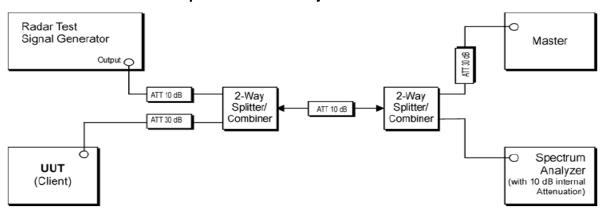
Page: 17 of 31

### 4.2.2. Test Setup

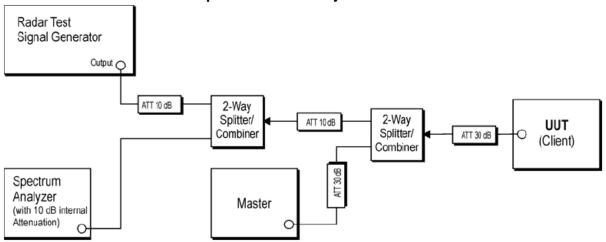
#### Setup for Master with injection at the Master



#### Setup for Client with injection at the Master



#### Setup for Client with injection at the Client



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

t (886-2) 2299-3279



Page: 18 of 31

### 4.2.3. Test Equipment Used:

	Conducted Emission Test Site					
EQUIPMENT MFR		MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
Signal Generator	Keysight	N5182B	MY56200007	08/09/2017	08/08/2018	
EXA Spectrum Ana- lyzer	Agilent	N9030A	MY53120760	03/21/2017	03/20/2018	
DC Block	Mini-Circuits	BLK-18-S+	1	01/05/2017	01/04/2018	
Attenuator	Mini-Circuit	BW-S10W2+	2	01/05/2017	01/04/2018	
Power Splitter	Mini-Circuits	ZN2PD-9G-S+	N/A	01/05/2017	01/04/2018	
Power Splitter	Mini-Circuits	ZN2PD-9G-S+	N/A	01/05/2017	01/04/2018	
Attenuator	Agilent	8495B	3308A22470	01/05/2017	01/04/2018	
Attenuator	HP	8494B	2812A170605	01/05/2017	01/04/2018	

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	FCC ID
Access Ponit	CISCO	AIRLAP1262N-A-K9	FTX1605E1G1	LDK102073

#### 4.2.4. Description of EUT:

EUT operates over the 5250-5350MHz and 5470-5725MHz ranges and EUT is a slave device (client equipment) w/o radar detection and DFS capability.

EUT has no TPC mechanism implemented with no adjustment of lowest, and highest power, but the level of power emission stays at fixed level.

The EUT utilizes the 802.11ac 80M architecture, with a nominal channel bandwidth of 80MHz WLAN traffic is generated by streaming the mpeg file from the master to slave in full monitor video mode using the media player.

The rated output power of the master unit is >23dBm(EIRP).therefore the required interference threshold level is -62dBm.after correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is -62dBm, and the master device as employed for the applicable DFS test is CISCO router whose FCC ID= LDK102061

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



Page: 19 of 31

While calibrate the path on antenna port of DFS test equipment (master), measurements equipments (spectrum) is ensured to be 50 Ohms, and therefore verification on antenna gain measurement can be ignored.

Conducted test was performed with appropriate adjustment, and calibration to ensure power from DFS simulator injects to antenna port of DFS test equipment (DFS) is -62dBm

### Message or files that is used for communication between Master and Client:

IP based system:

For the required channel loading, the full motion, 30 frames per second MPEG video file from http://ntiacsd.ntia.doc.gov/dfs/ was streamed from a network on a test bench (server of the storage to download the mandatory format of Video file), via the DFS Master device, to the UE (mobile phone).

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司 t (886-2) 2299-3279

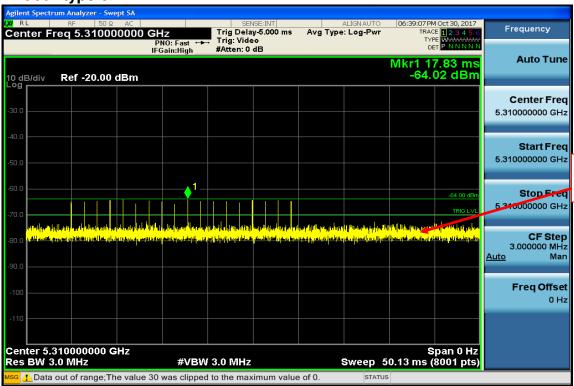


Noise Floor

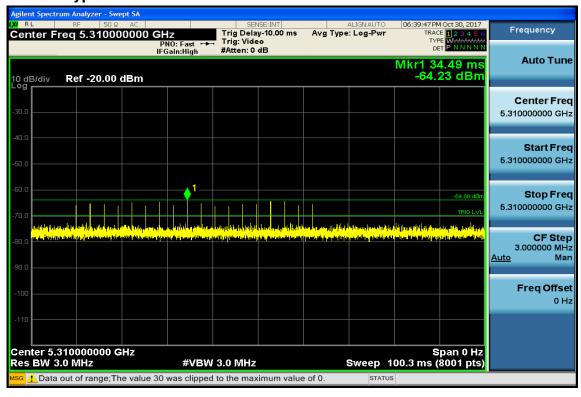
Page: 20 of 31

#### 4.2.5. Test results

Calibration plots for each of the required radar waveforms 5310MHz-Radar type 0



### 5310MHz-Radar type 1-A



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

家非方角就可。比較容易未僅對測試之樣必負責。问時此樣必須保持習到之。本教者不整本學本の自由部門。不可能的模製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

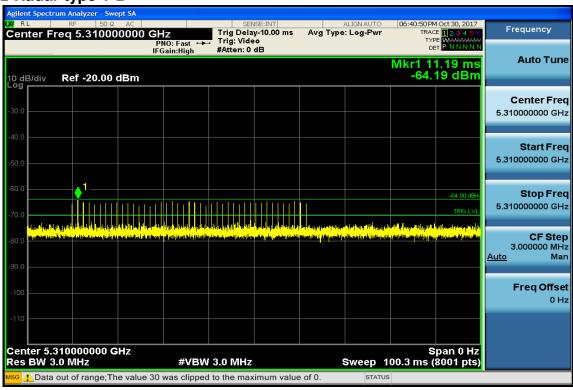
f (886-2) 2298-0488

www.tw.sgs.com

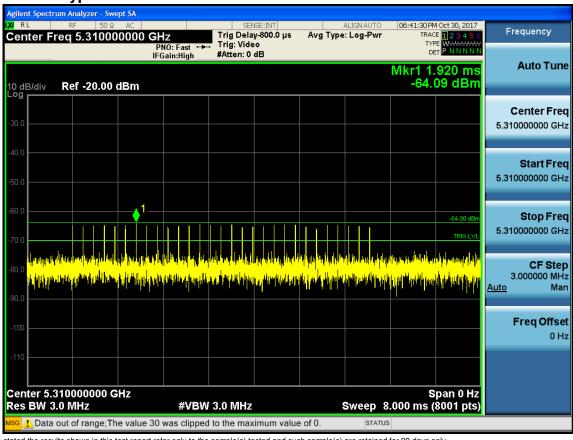


Page: 21 of 31

### 5310MHz-Radar type 1-B



### 5310MHz-Radar type 2



t (886-2) 2299-3279

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留卯天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or approval of this document is unavitable and except the full extent of the leave. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

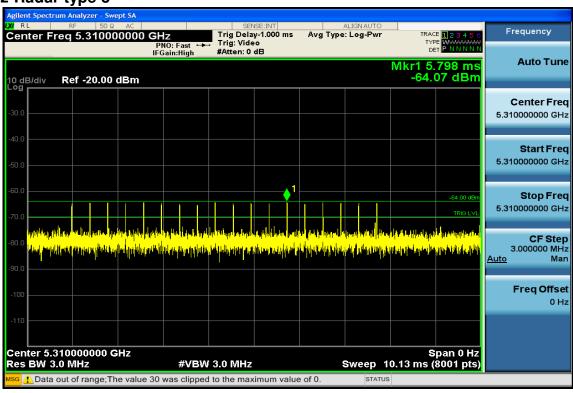
f (886-2) 2298-0488

www.tw.sgs.com

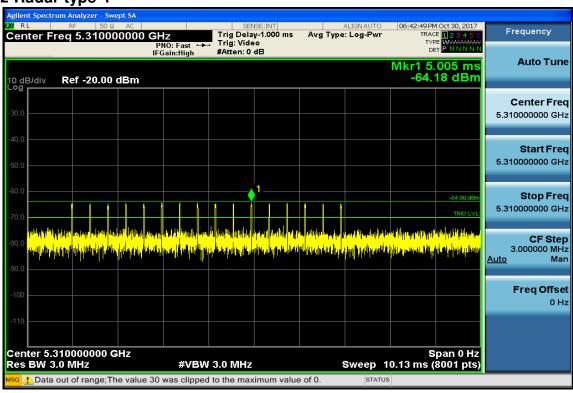


Page: 22 of 31

### 5310MHz-Radar type 3



#### 5310MHz-Radar type 4



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

t (886-2) 2299-3279

Offices otherwise stated the results shown in this less report relear only to the sample(s) tested and such sample(s) are retained for 90 days only. 

Pk 非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

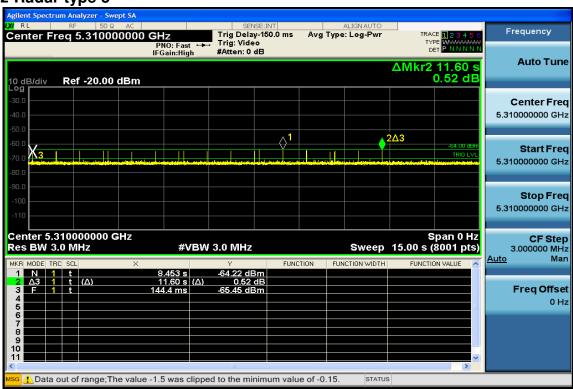
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions. htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prince is not the limit of the large of this decument is understanded and the produced except in full, without prior or the large. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

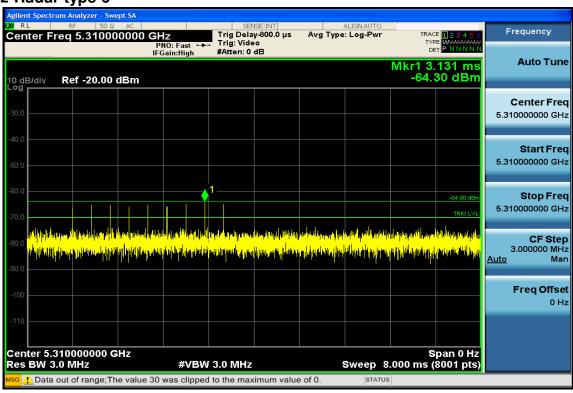


Page: 23 of 31

### 5310MHz-Radar type 5



### 5310MHz-Radar type 6



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Offices otherwise stated the results shown in this less report relear only to the sample(s) tested and such sample(s) are retained for 90 days only. 

Pk 非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions. htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prince is not the limit of the large of this decument is understanded and the produced except in full, without prior or the large. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

t (886-2) 2299-3279

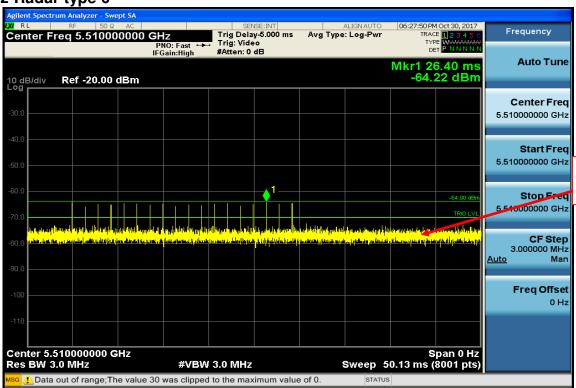
f (886-2) 2298-0488 www.tw.sgs.com



Noise Floor

Page: 24 of 31

### 5510MHz-Radar type 0



# 5510MHz -Radar type 1-A



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

t (886-2) 2299-3279

Offices otherwise stated the results shown in this less report relear only to the sample(s) tested and such sample(s) are retained for 90 days only. 

Pk 非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

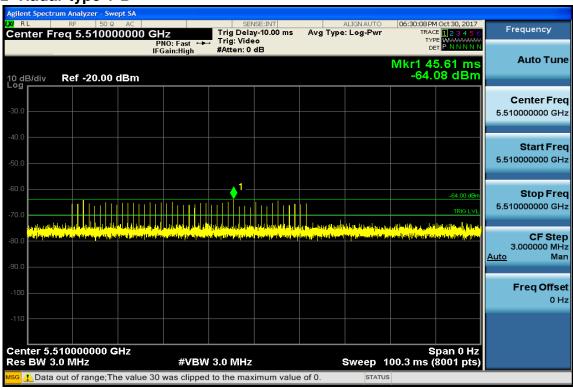
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions. htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prince is not the limit of the large of this decument is understanded and the produced except in full, without prior or the large. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

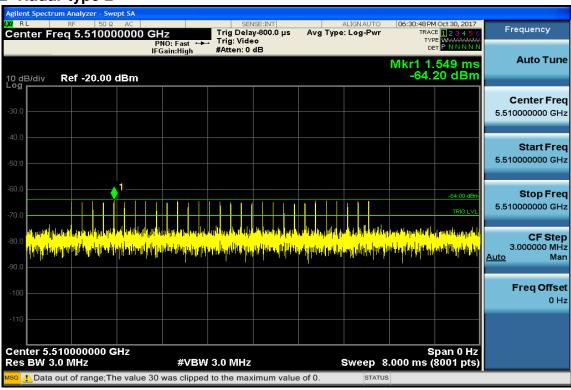


Page: 25 of 31

### 5510MHz -Radar type 1-B



### 5510MHz -Radar type 2



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or approval of the document is unquited and frequence may be presented to the full the full transaction of the company. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

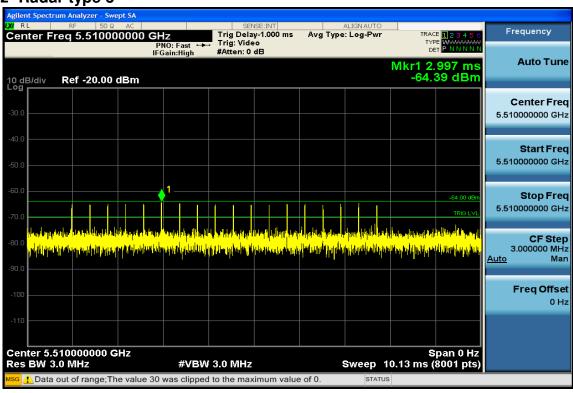
SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

t (886-2) 2299-3279

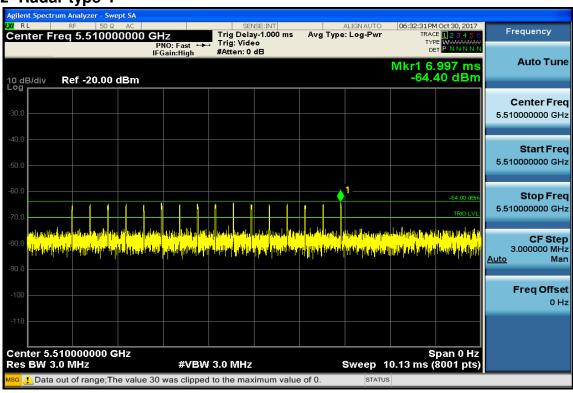


Page: 26 of 31

### 5510MHz -Radar type 3



# 5510MHz -Radar type 4



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or approval of the document is unquited and frequence may be presented to the full the full transaction of the company. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

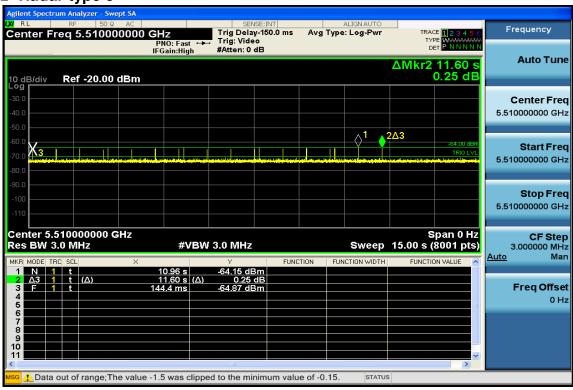
台灣檢驗科技股份有限公司

t (886-2) 2299-3279

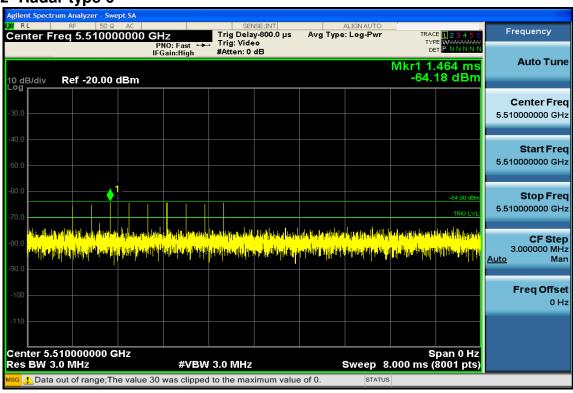


Page: 27 of 31

### 5510MHz -Radar type 5



### 5510MHz -Radar type 6



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Offices otherwise stated the results shown in this less report relear only to the sample(s) tested and such sample(s) are retained for 90 days only. 

Pk 非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions. htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prince is not the limit of the large of this decument is understanded and the produced except in full, without prior or the large. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

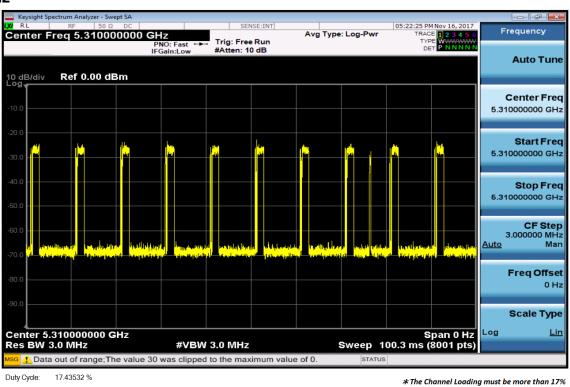
f (886-2) 2298-0488

www.tw.sgs.com



Page: 28 of 31

# **WLAN Payload** 5310 MHz



#### 5510 MHz



t (886-2) 2299-3279

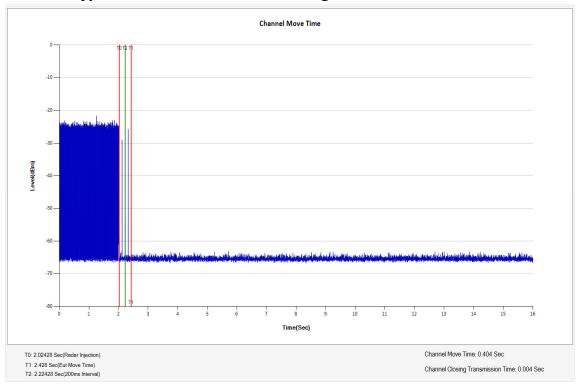
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without price within approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appropriate of this document is unquested and the processor of this document is unquested and the processor of this document is unquested and the processor of the content or appropriate of this document. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

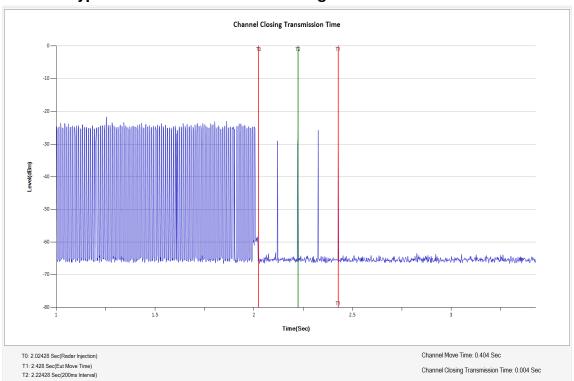


Page: 29 of 31

### 5310 MHz-Radar Type 0 Channel Move and Closing Transmission Time - 1



### 5310 MHz-Radar Type 0 Channel Move and Closing Transmission Time - 2



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

家非方角就明 \* 比較容易未僅對測減之樣必負負 \* 的呼起樣必僅体留別之 \* 本股金本學本の自由即計 \* 1 木可能价模 \* 8 中面 \* 1 大可能价模 \* 8 中面 \* 1 大可能价值 \* 1 可 pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488

台灣檢驗科技股份有限公司

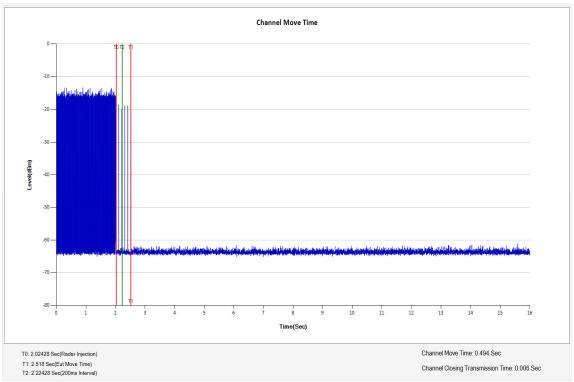
t (886-2) 2299-3279

www.tw.sgs.com

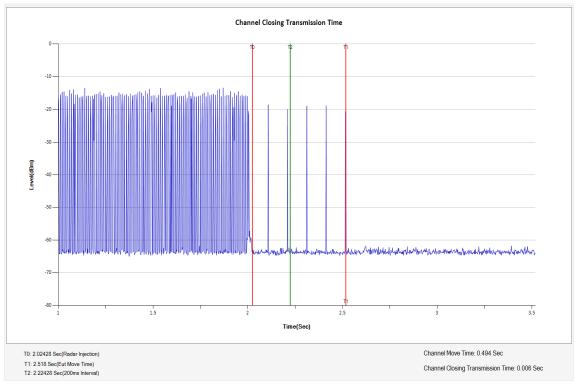


Page: 30 of 31

### 5510 MHz-Radar Type 0 Channel Move and Closing Transmission Time - 1



### 5510 MHz-Radar Type 0 Channel Move and Closing Transmission Time - 2



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

t (886-2) 2299-3279

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

家非方角就明 \* 比較容易未僅對測減之樣必負負 \* 的呼起樣必僅体留別之 \* 本股金本學本の自由即計 \* 1 木可能价模 \* 8 中面 \* 1 大可能价模 \* 8 中面 \* 1 大可能价值 \* 1 可 pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488

www.tw.sgs.com



Page: 31 of 31

**Verdict:** Note: narrowing the sweep time as the good engineering process for the verification of transmission closing in 200ms

### Non-occupancy Period (without radar detection)



#### **Verdict:**

To verify whether channel is unavailable to be operated in 30 minutes.

1.8ks = 1800s = 1800 s/min /60 = 30minute

~ End of Report ~

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

t (886-2) 2299-3279

家非方角就明 \* 比較容易未僅對測減之樣必負負 \* 的呼起樣必僅体留別之 \* 本股金本學本の自由即計 \* 1 木可能价模 \* 8 中面 \* 1 大可能价模 \* 8 中面 \* 1 大可能价值 \* 1 可 pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.