

# **ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

Applicant:	Zorachka LTD ALPHA TOWER, Floor 1, Flat 11, Pavlou Nirvana & Aipeias, 3021 Limassol, Cyprus
Product Name:	Homam
Brand Name:	Zorachka
Model No.:	C1132
Model Difference:	N/A
Report Number:	ER/2020/20060
FCC ID	2AWBH-C1132
IC: FCC Rule Part: IC RSS:	25832-C1132 §15.247, Cat: DTS RSS-247 issue 2 Feb 2017
Issue Date: Date of Test: Date of EUT Received:	Jul. 02, 2020 Mar. 19, 2020 ~ Apr. 22, 2020 Feb. 19, 2020

#### We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. 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.

Blen

Approved By:

Blue Yang / Asst. Manager



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

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

|No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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.sgs.com.tw



Revision History							
Report Number Revision Description Issue Date Remark							
ER/2020/20060	Rev.00	Original.	Jul. 02, 2020	Revised By: Karen Huang			

#### Note:

#### 1. Disclaimer

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> 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. 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

```
www.sgs.com.tw
```



# **Table of Contents**

1	GENERAL INFORMATION	4
2	SYSTEM TEST CONFIGURATION	7
3	SUMMARY OF TEST RESULTS	. 10
4	DESCRIPTION OF TEST MODES	. 11
5	MEASUREMENT UNCERTAINTY	.13
6	CONDUCTED EMISSION TEST	.14
7	DUTY CYCLE OF TEST SIGNAL	. 18
8	PEAK OUTPUT POWER MEASUREMENT	. 20
9	6dB & 99% BANDWIDTH MEASUREMENT	. 25
10	CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT	. 36
11	RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT	.45
12	POWER SPECTRAL DENSITY	10
13	ANTENNA REQUIREMENT	117

t (886-2) 2299-3279

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.



#### **GENERAL INFORMATION** 1

#### **1.1 Product description**

Product Name:	Homam			
Brand Name:	Zorachka			
Model No.:	C1132			
Model Difference:	N/A			
Hardware Version:	1.3.1			
Software Version:	1.x.x			
USB Cable	Model No.: N/A, Supplier: Zorachka			
	5Vdc from Adapter			
Power Supply:	Adapter: Model No.: PS-10U5 Supplier: Zorachka			

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (dBm)	Modulation Technology
b			11.71 (2TX)	DSSS,
g	2412-2462	11	26.17 (2TX)	
n_HT20			24.85 (MIMO)	OFDM
n_HT40	n_HT40 2422-2452		24.26 (MIMO)	
Modulation	type:	· ·	PSK, DBPSK for DSSS 16QAM, QPSK, BPSK for OFDM	
Transistion Rate		802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 144.4Mbps 802.11 n 40MHz: 13.5 – 300.0Mbps		

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

n I td

f (886-2) 2298-0488



#### **1.2 Antenna Designation**

Antenna Type	Supplier	Antenna Part No.	Freq.	Peak Antenna Gain (dBi)	Worst Antenna Gain	
Flex	moloy	2042810100	2.4GHz	2.0	-	
FIEX	molex	2042810100 2.4GHz		2.0	-	

Note: Pre-scanned was done on the above 2 antennas, the MIMO mode results higher emission at 2.4GHz. Therefore, the completed set of measurement was done on the antenna to be presented on this test 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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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 superimeter is advised to 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

Report No.: ER/2020/20060 Page 6 of 117



### 1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247 FCC KDB 558074 D01 15.247 Meas Guidance v05r02 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 RSS-247 issue 2 Feb. 2017 RSS-Gen. issue 5, Amendment 1, March 2019 ANSI C63.10:2013

### 1.4 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702) No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

FCC Designation number: TW0027

ISED CAB identifier: TW3702

#### 1.5 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

t (886-2) 2299-3279

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



# **2 SYSTEM TEST CONFIGURATION**

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

# 2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

### 2.3 Test Procedure

### 2.3.1 Conducted Emissions

The EUT is a placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

#### 2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

#### 2.3.3 Radiated Emissions

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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

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

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

n I td

f (886-2) 2298-0488

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.



## 2.4 Measurement Results Explanation Example

#### 2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m\*9m\*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site. There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

#### 2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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

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

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

SGS Taiv 台灣檢驗科技股份有限公司

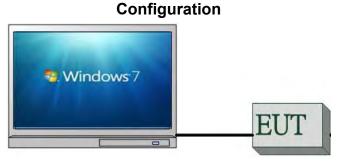
an I td

f (886-2) 2298-0488



Report No.: ER/2020/20060 Page 9 of 117

# 2.5 Configuration of Tested System Fig. 2-1 Conducted (Antenna Port)



# Fig 2-2 Radiated Emission



Fig 2-3 Conduction (AC Power Line)
Radiated Emission
EUT

ltem	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1. WLAN Test Software		N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L480	PF-1S9Q32	N/A	N/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。

t (886-2) 2299-3279

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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 superimeter is advised to 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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.sgs.com.tw
```



#### SUMMARY OF TEST RESULTS 3

FCC Rules	IC Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §5.4 d	Peak Output Power	Compliant
§15.247(a)(2)	RSS-247 §5.1 a RSS-Gen §6.7	6dB & 99% Emission Bandwidth	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §5.5 RSS-Gen §8.10	Conducted Band Edge and Spurious Emission	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10 RSS-Gen §6.13	Radiated Band Edge and Spurious Emission	Compliant
§15.247(e)	RSS-247 §5.2 b	Power Spectral Density	Compliant
§15.203 §15.247(b)	RSS- Gen §6.8	Antenna Requirement	Compliant

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

n I td

f (886-2) 2298-0488



# DESCRIPTION OF TEST MODES

# 4.1 Operated in 2400 ~ 2483.5MHz Band

11 channels are provided for 802.11b/g/n 20M.

FREQUENCY		
(MHz)		
2412		
2417		
2422		
2427		
2432		
2437		
2442		
2447		
2452		
2457		
2462		

7	channe	ls are	provided	for	802.1 <sup>°</sup>	1n 40M

CHANNEL	FREQUENCY (MHz)
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452

### 4.2 The Worst Test Modes and Channel Details

- 1. The EUT has been tested under operating condition.
- 2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
- 3. Investigation has been done on all the possible configurations for searching the worst case. The gevin UE is pre-scanned among below modes.

Modulation	Transmission Chain	Single Transmission Spatial	Multiple Transmission Spatial
🛛 802.11 b	🖾 Ch0 🖾 Ch1 🗆 Ch2 🗆 Ch3	⊠ 1TX	🖾 2TX
🛛 802.11 g	🖾 Ch0 🖾 Ch1 🗆 Ch2 🗆 Ch3	🖂 1TX	🖾 2TX
🛛 802.11 n	🖾 Ch0 🖾 Ch1 🗆 Ch2 🗆 Ch3	⊠ SISO	🛛 MIMO
□ 802.11 ax	□ Ch0 □ Ch1 □ Ch2 □ Ch3		

4. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

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

n I td.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

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



#### 4.3 Radiated Emission Test:

MODE			MODE AVAILABLE TESTED MODULATION		DATA RATE (Mbps)	ANTENNA PORT	
RADIATED EMISSION TEST (BELOW 1 GHz)							
802.11g	1 to 11	6	OFDM	6	2TX		
802.11n 40M	3 to 9	6	OFDM	MCS 8	MIMO		
	RADIAT	ED EMISSIC	N TEST (ABOVE	E 1 GHz)			
802.11b	1 to 11	1, 6, 11	DSSS	1	2TX		
802.11g	1 to 11	1, 6, 11	OFDM	6	2TX		
802.11n 20M	1 to 11	1, 6, 11	OFDM	MCS 8	MIMO		
802.11n 40M	3 to 9	3,4,5,6,7,8,9	OFDM	MCS 8	MIMO		

#### Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11b/g/n WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

#### 4.4 Antenna Port Conducted Mesurement:

CONDUCTED TEST								
MODEAVAILABLE CHANNELTESTED CHANNELMODULATIONDATA RATE (Mbps)ANTE POL								
802.11b	1 to 11	1, 6, 11	DSSS	1	2TX			
802.11g	1 to 11	1, 6, 11	OFDM	6	2TX			
802.11n 20M	1 to 11	1, 6, 11	OFDM	MCS 8	MIMO			
802.11n 40M	3 to 9	3,4,5,6,7,8,9	OFDM	MCS 8	MIMO			

Note: EUT serial number is WFB0054.

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



# 5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
Peak Output Power	+/- 0.84 dB
6dB Bandwidth	+/- 51.33 Hz
100 KHz Bandwidth Of Frequency Band Edges	+/- 0.84 dB
Peak Power Density	+/- 1.3 dB
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission Measurement Uncertainty					
	9kHz~30MHz: +-2.3dB				
	30MHz - 180MHz: +/- 3.37dB				
	180MHz -417MHz: +/- 3.19dB				
Polarization: Vertical	0.417GHz-1GHz: +/- 3.19dB				
	1GHz - 18GHz: +/- 4.04dB				
	18GHz - 40GHz: +/- 4.04dB				
	9kHz~30MHz: +-2.3dB				
	30MHz - 167MHz: +/- 4.22dB				
Delevienti e un lleviente l	167MHz -500MHz: +/- 3.44dB				
Polarization: Horizontal	0.5GHz-1GHz: +/- 3.39dB				
	1GHz - 18GHz: +/- 4.08dB				
	18GHz - 40GHz: +/- 4.08dB				

#### Note:

- 1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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

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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.



# **6 CONDUCTED EMISSION TEST**

### 6.1 Standard Applicable

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range	Limits dB(uV)					
MHz	Quasi-peak	Average				
0.15 to 0.50	66 to 56	56 to 46				
0.50 to 5	56	46				
5 to 30	60	50				
Note						
1. The lower limit shall apply at the transition frequencies						
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50						
MHz.						

#### 6.2 Measurement Equipment Used

Conducted Emission Test Site									
EQUIPMENT	LAST	CAL DUE.							
TYPE		NUMBER	NUMBER	CAL.					
EMI Test Receiver	R&S	ESCI 7	1166.5950.07	07/04/2019	07/03/2020				
LISN	SCHWARZBECK	NSLK 8127	8127-649	04/02/2019	04/01/2020				
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R	N.C.R				
Coaxial Cables	N/A	WK CE Cable	N/A	01/02/2020	01/01/2021				

Note: N.C.R refers to Not Calibrated Required.

### 6.3 EUT Setup

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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.

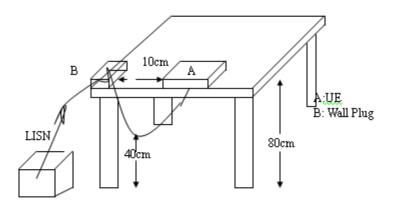
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

t (886-2) 2299-3279

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



# 6.4 Test SET-UP (Block Diagram of Configuration)



#### 6.5 Measurement Procedure

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all phases of power being supplied by given UE are completed

#### 6.6 Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The \* reveals the worst-case results that closet to the limit.

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

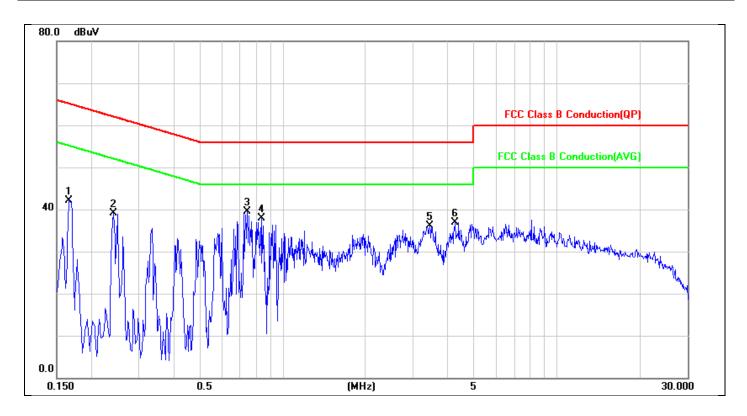
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions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

↓ No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



# AC POWER LINE CONDUCTED EMISSION TEST DATA

Description:	Operation	Date:	2020/03/28
Line:	L1	Temp.(℃)/Hum.(%):	<b>23(℃)/70%</b>
Test Voltage:	AC 120V/60Hz	Test By:	Nick
Report Number:	ER-2020-20060		



		Freq.	Reading	Factor	Measure-	Limit	Over		
No.	Mk.				ment			Detector	Comment
		(MHz)	(dBuV)	( dB )	(dBuV)	(dBuV)	( dB )		
1		0.1660	42.19	0.00	42.19	65.16	-22.97	peak	
2		0.2420	39.00	0.01	39.01	62.03	-23.02	peak	
3	*	0.7460	39.44	0.02	39.46	56.00	-16.54	peak	
4		0.8380	37.88	0.02	37.90	56.00	-18.10	peak	
5		3.4380	35.95	0.11	36.06	56.00	-19.94	peak	
6		4.2500	36.76	0.15	36.91	56.00	-19.09	peak	

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

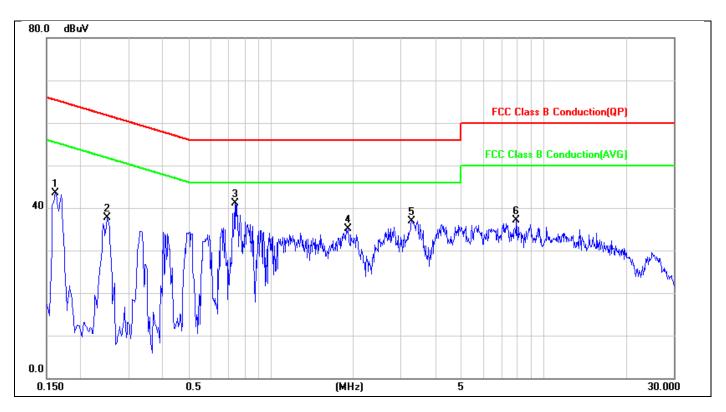
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

f (886-2) 2298-0488



Description:	Operation	Date:	2020/03/28
Line:	Ν	Temp.(℃)/Hum.(%):	23(℃)/70%
Test Voltage:	AC 120V/60Hz	Test By:	Nick
Report Number:	ER-2020-20060		



No	MI	Freq.	Reading	Factor	Measure-	Limit	Over	Detector	Commont
No.	Mk.	(MHz)	(dBuV)	(dB)	( dBuV )	(dBuV)	(dB)	Detector	Comment
1		0.1620	43.52	0.03	43.55	65.36	-21.81	peak	
2		0.2500	37.59	0.03	37.62	61.76	-24.14	peak	
3	*	0.7380	41.15	0.04	41.19	56.00	-14.81	peak	
4		1.9220	35.02	0.06	35.08	56.00	-20.92	peak	
5		3.2780	36.88	0.11	36.99	56.00	-19.01	peak	
6		7.9380	36.81	0.25	37.06	60.00	-22.94	peak	

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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 supervised accessible at the supervised accessible accessib 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

f (886-2) 2298-0488



# 7 DUTY CYCLE OF TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

#### 7.1 Measurement Procedure:

- 1. Set span = Zero
- 2. RBW = 8MHz
- 3. VBW = 8MHz,
- 4. Detector = Peak

# 7.2 Duty Cycle:

	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log ( 1/Duty Cycle )	1/T (kHz)	VBW setting (kHz)
802.11b	99.47	0.02	0.45	0.01
802.11g	97.10	0.13	2.72	3.00
802.11n_20	93.88	0.27	5.43	6.00
802.11n_40	90.32	0.44	8.93	9.00

Duty Cycle Factor: 10 \* log(1/0.9947) = 0.02 Duty Cycle Factor: 10 \* log(1/0.971) = 0.13 Duty Cycle Factor: 10 \* log(1/0.9388) = 0.27 Duty Cycle Factor: 10 \* log(1/0.9032) = 0.44

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

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

| No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

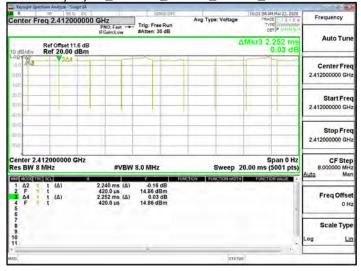
n I td

f (886-2) 2298-0488

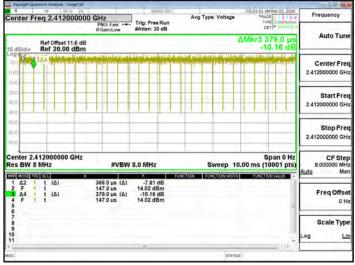


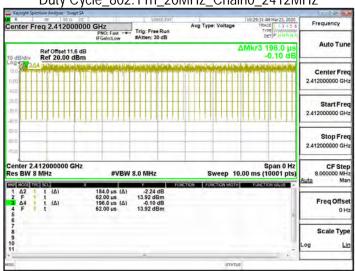
# 7.3 Duty Cycle test plots

Duty Cycle\_802.11b\_20MHz\_Chain0\_2412MHz

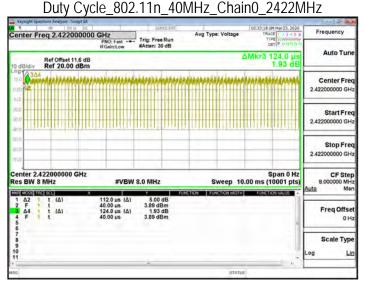


#### Duty Cycle\_802.11g\_20MHz\_Chain0\_2412MHz





#### Duty Cycle\_802.11n\_20MHz\_Chain0\_2412MHz



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

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

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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



# 8 PEAK OUTPUT POWER MEASUREMENT

# 8.1 Standard Applicable

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

# Note:

As per FCC KDB 662911 D01

Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, ..., GN dBi. (i) If transmit signals are correlated, then Directional gain

=10 log[(10<sup>G1/20</sup> + 10<sup>G2/20</sup> + ... + 10<sup>GN/20</sup>)<sup>2</sup>/N<sub>ANT</sub>] dBi

[Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

The antenna gain is not grater than 6 dBi. Therefore, reduction of power is not required.

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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 client subject is to see the standard to be expected 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

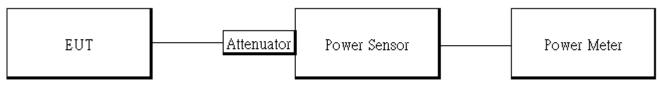


#### 8.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1804001	02/20/2020	02/19/2021
Power Sensor	Anritsu	MA2411B	1726104	02/20/2020	02/19/2021
Power Sensor	Anritsu	MA2411B	1726107	02/20/2020	02/19/2021
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021

### 8.3 Test Set-up

Power Meter:



#### 8.4 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

#### **Power Meter:**

It is used as the auxiliary test equipment to conduct the output power measurement.

4. Record the max. Reading as observed from Spectrum or Power Meter.

# \* Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.

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

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

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.



#### 8.5 Measurement Result

802.11b_2TX							
СН	Freq. (MHz)	Data Rate	Power		Total Peak Output Power	Limit (dBm)	RESULT
	(11112)	Nate	CH 0	CH 1	(dBm)	(abii)	
1	2412	1	6.89	6.94	9.93	30.00	PASS
6	2437	1	7.75	7.76	10.77	30.00	PASS
11	2462	1	8.68	8.72	11.71	30.00	PASS
802.1	1b_2TX						
			Avg. C	Dutput	Max. Avg. Output		
СН	Freq.	Data	Po	wer	include tune up	Limit	RESULT
	(MHz)	Rate	(dE	Bm)	tolerance Power	(dBm)	NL30L1
			CH 0	CH 1	(dBm)		
1	2412	1	4.26	4.53	7.43	30.00	PASS
6	2437	1	5.17	5.38	8.31	30.00	PASS
11	2462	1	6.07	6.28	9.21	30.00	PASS

802.1	1g_2TX						
СН	Freq. (MHz)	Data Rate		Dutput wer	Total Peak Output Power	Limit (dBm)	RESULT
	(11112)	Nutc	CH 0	CH 1	(dBm)	(dBh)	
1	2412	6	18.29	18.34	21.33	30.00	PASS
6	2437	6	18.25	18.14	21.21	30.00	PASS
11	2462	6	23.30	23.01	26.17	30.00	PASS
802.1	1g_2TX				•		
			Avg. C	Dutput	Max. Avg. Output		
СН	Freq.	Data	Po	wer	include tune up	Limit	RESULT
	(MHz)	Rate	(dE	Bm)	tolerance Power	(dBm)	REJUET
			CH 0	CH 1	(dBm)		
1	2412	6	7.95	8.16	11.19	30.00	PASS
6	2437	6	7.89	8.11	11.14	30.00	PASS
11	2462	6	12.65	12.83	15.88	30.00	PASS

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

SGS Taiv 台灣檢驗科技股份有限公司



802.1	1n_HT20	M MIMO					
	Freq.	Data	Peak (	Dutput	Total Peak	Limit	
СН	CH (MHz)		Power		Output Power	(dBm)	RESULT
		Rate	CH 0	CH 1	(dBm)	(ubiii)	
1	2412	MCS8	18.11	17.57	20.86	30.00	PASS
6	2437	MCS8	17.12	16.91	20.03	30.00	PASS
11	2462	MCS8	22.04	21.64	24.85	30.00	PASS
802.1	1n_HT20	M MIMO		-	·		
			Avg. C	Dutput	Max. Avg. Output		
СН	Freq.	Data	Po	wer	include tune up	Limit	RESULT
	(MHz)	Rate	•	Bm)	tolerance Power	(dBm)	
			CH 0	CH 1	(dBm)		
1	2412	MCS8	8.01	8.16	11.37	30.00	PASS
6	2437	MCS8	6.97	7.14	10.34	30.00	PASS
11	2462	MCS8	11.70	11.91	15.09	30.00	PASS
802.1	1n_HT40						-
	Freq.	Data		Dutput	Total Peak	Limit	
СН	(MHz)	Rate		wer	Output Power	(dBm)	RESULT
	(11112)		CH 0	CH 1	(dBm)		
3	2422	MCS8	17.36	17.07	20.23	30.00	PASS
4	2427	MCS8	17.30	17.85	20.59	30.00	PASS
5	2432	MCS8	17.23	17.71	20.49	30.00	PASS
6	2437	MCS8	17.11	16.73	19.93	30.00	PASS
7	2442	MCS8	19.29	19.33	22.32	30.00	PASS
8	2447	MCS8	21.20	21.29	24.26	30.00	PASS
9	2452	MCS8	21.30	20.58	23.97	30.00	PASS
802.1	1n_HT40	M MIMO					
			Avg. C	Dutput	Max. Avg. Output		
СН	Freq.	Data	Po	wer	include tune up	Limit	RESULT
	(MHz)	Rate	(dE	Bm)	tolerance Power	(dBm)	REJUET
			CH 0	CH 1	(dBm)		
3	2422	MCS8	6.82	7.07	10.40	30.00	PASS
4	2427	MCS8	6.76	7.38	10.53	30.00	PASS
5	2432	MCS8	6.74	7.37	10.52	30.00	PASS
6	2437	MCS8	6.79	7.04	10.37	30.00	PASS
7	2442	MCS8	8.66	9.27	12.43	30.00	PASS
8	2447	MCS8	10.56	11.16	14.32	30.00	PASS
9	2452	MCS8	10.56	10.75	14.11	30.00	PASS

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

n I td SGS Taiv

台灣檢驗科技股份有限公司 t (886-2) 2299-3279

f (886-2) 2298-0488

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



802.1	1b_2TX								
СН	Freq. (MHz)	Data Rate	_	Output wer CH 1	Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	1	4.26	4.53	7.43	5.01	12.44	36	PASS
6	2437	1	5.17	5.38	8.31	5.01	13.32	36	PASS
11	2462	1	6.07	6.28	9.21	5.01	14.22	36	PASS
802.1	1g_2TX								
СН	Freq. (MHz)	Data Rate	Ŭ	Output wer CH 1	Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	6	7.95	8.16	11.19	5.01	16.20	36	PASS
6	2437	6	7.89	8.11	11.14	5.01	16.15	36	PASS
11	2462	6	12.65	12.83	15.88	5.01	20.89	36	PASS
802.1	1n_HT20N	и мімо						1	
СН	Freq. (MHz)	Data Rate	Ŭ	Output wer CH 1	Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	MCS8	18.11	17.57	11.37	5.01	16.38	36	PASS
6	2437	MCS8	17.12	16.91	10.34	5.01	15.35	36	PASS
11	2462	MCS8	22.04	21.64	15.09	5.01	20.10	36	PASS
802.1	1n_HT40N	/ MIMO							
CH	Freq. (MHz)	Data Rate	Ŭ	Output wer CH 1	Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
3	2422	MCS8	6.82	7.07	10.40	5.01	15.41	36	PASS
4	2427	MCS8	6.76	7.38	10.53	5.01	15.54	36	PASS
5	2432	MCS8	6.74	7.37	10.52	5.01	15.53	36	PASS
6	2437	MCS8	6.79	7.04	10.37	5.01	15.38	36	PASS
7	2442	MCS8	8.66	9.27	12.43	5.01	17.44	36	PASS
8	2447	MCS8	10.56	11.16	14.32	5.01	19.33	36	PASS
9	2452	MCS8	10.56	10.75	14.11	5.01	19.12	36	PASS

#### Note

Cable Loss *12.35* dB

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

SGS Tai

n I td

f (886-2) 2298-0488



# 9 6DB & 99% BANDWIDTH MEASUREMENT

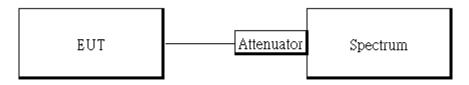
#### 9.1 Standard Applicable

The minimum 6 dB bandwidth shall be at least 500 kHz.

#### 9.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	02/20/2020	02/19/2021
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021

#### 9.3 Test Set-up



#### 9.4 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. For 6dB Bandwidth:

Set the spectrum analyzer as RBW = 100 kHz, VBW = 3\*RBW, Span = large enough to capture all products of the modulation process, Detector=peak, Sweep=auto.

- 5. Mark the peak frequency and –6dB (upper and lower) frequency.
- 6. For 99% Bandwidth:

Set the spectrum analyzer as RBW=1%, VBW = 3\*RBW, Span = large enough to capture all products of the modulation process, Detector=Sample, Sweep=auto.

- 7. Turn on the 99% bandwidth function, max reading.
- 8. Repeat above procedures until all frequency of interest measured was complete.

Unless otherwise stated the results shown in this test report refer only to the sample(s) ested 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

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

n I td



#### Report No.: ER/2020/20060 Page 26 of 117

#### 9.5 6dB Bandwidth

#### 802.11b Ch0

002.110			
Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	10110.00	> 500	PASS
2437	10110.00	> 500	PASS
2462	10110.00	> 500	PASS
802.11b	Ch1		
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2412	10110.00	> 500	PASS
2437	10120.00	> 500	PASS
2462	10120.00	> 500	PASS
802.11g	Ch0		
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2412	16410.00	> 500	PASS
2437	16390.00	> 500	PASS
2462	16400.00	> 500	PASS
802.11g	Ch1		
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	NESUI
2412	16420.00	> 500	PASS
2437	16410.00	> 500	PASS
2462	16400.00	> 500	PASS

#### 802.11 n HT20 Ch0

	-		
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	
2412	17580.00	> 500	PASS
2437	17590.00	> 500	PASS
2462	17590.00	> 500	PASS
802.11_r	_HT20 Ch1		
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2412	17590.00	> 500	PASS
2437	17590.00	> 500	PASS
2462	17590.00	> 500	PASS
802.11_r	_HT40 Ch0		
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2422	35790.00	> 500	PASS
2437	35920.00	> 500	PASS
2452	35940.00	> 500	PASS
802.11_r	_HT40 Ch1		
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2422	35740.00	> 500	PASS
2437	35940.00	> 500	PASS

> 500

PASS

\*Refer to next page for plots

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

2452

35790.00

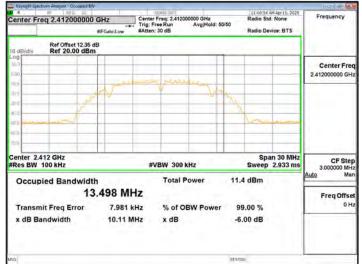
台灣檢驗科技股份有限公司

n I td

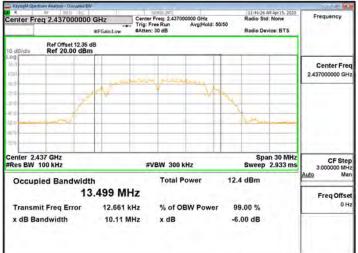
f (886-2) 2298-0488



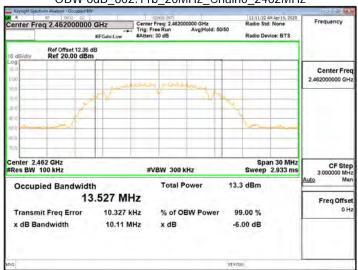
#### OBW 6dB\_802.11b\_20MHz\_Chain0\_2412MHz

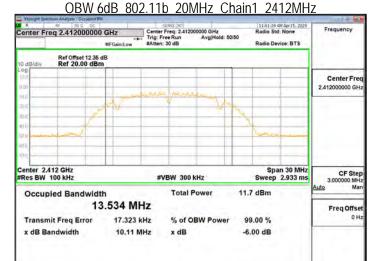


#### OBW 6dB\_802.11b\_20MHz\_Chain0\_2437MHz

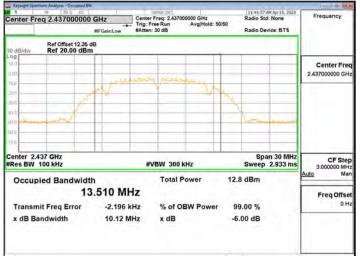


#### OBW 6dB\_802.11b\_20MHz\_Chain0\_2462MHz





#### OBW 6dB\_802.11b\_20MHz\_Chain1\_2437MHz



#### OBW 6dB\_802.11b\_20MHz\_Chain1\_2462MHz



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

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

| No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

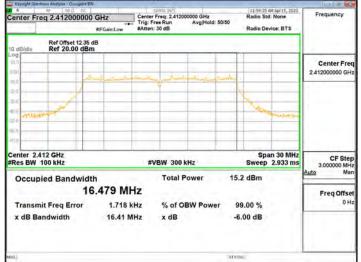
an I td

SGS Taiv

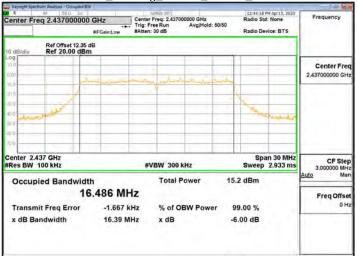
```
www.sgs.com.tw
```



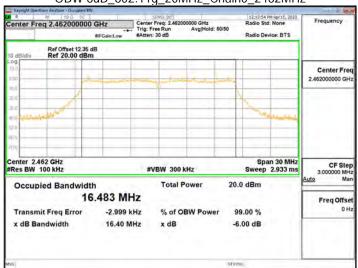
#### OBW 6dB 802.11g 20MHz Chain0 2412MHz

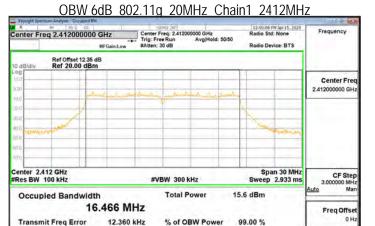


#### OBW 6dB\_802.11g\_20MHz\_Chain0\_2437MHz



#### OBW 6dB\_802.11q\_20MHz\_Chain0\_2462MHz





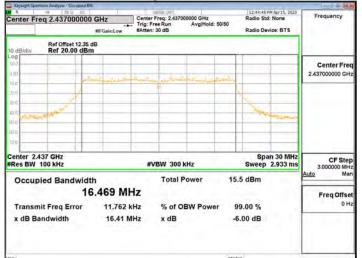
#### OBW 6dB\_802.11g\_20MHz\_Chain1\_2437MHz

x dB

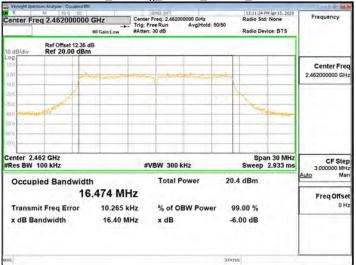
-6.00 dB

16.42 MHz

x dB Bandwidth



#### OBW 6dB\_802.11q\_20MHz\_Chain1\_2462MHz



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents and subject 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 subject 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 subject 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 subject is advised that information contained hereon reflects the company's findings at the time of its intervention o

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 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

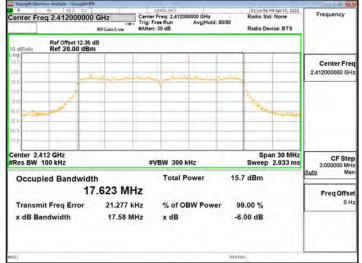
SGS Taiv an I td

台灣檢驗科技股份有限公司

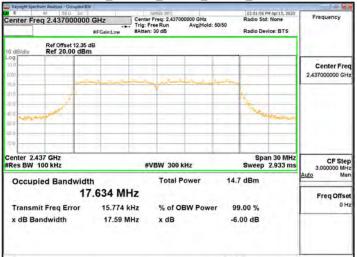
f (886-2) 2298-0488



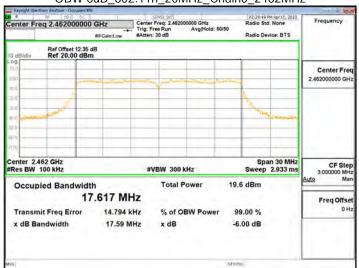
#### OBW 6dB 802.11n 20MHz Chain0 2412MHz



#### OBW 6dB\_802.11n\_20MHz\_Chain0\_2437MHz



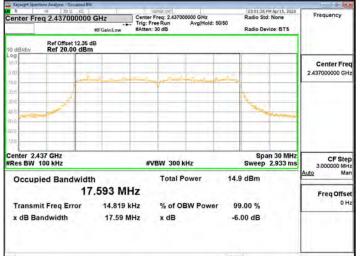
#### OBW 6dB\_802.11n\_20MHz\_Chain0\_2462MHz



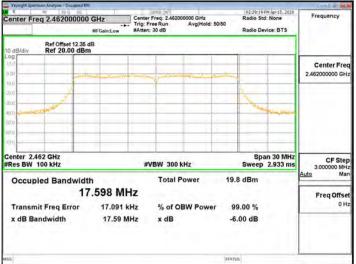


#### enter 2.412 GHz Res BW 100 kHz CF Step 3.000000 MH Sweep #VBW 300 kHz M Total Power 15.9 dBm **Occupied Bandwidth** 17.597 MHz Freq Offse OH: 17.445 kHz Transmit Freq Error % of OBW Power 99.00 % x dB Bandwidth 17.59 MHz x dB -6.00 dB

#### OBW 6dB\_802.11n\_20MHz\_Chain1\_2437MHz



#### OBW 6dB\_802.11n\_20MHz\_Chain1\_2462MHz



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

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

| No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

an I td

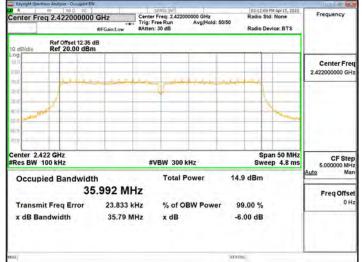
SGS Taiv

f (886-2) 2298-0488

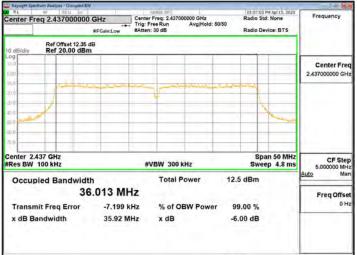
www.sgs.com.tw



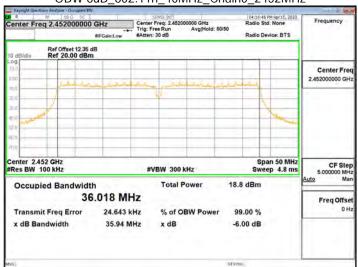
#### OBW 6dB 802.11n 40MHz Chain0 2422MHz

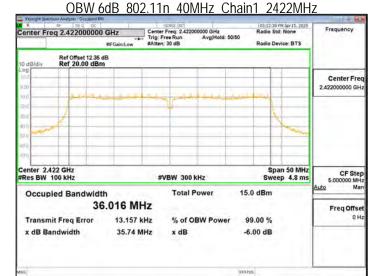


#### OBW 6dB\_802.11n\_40MHz\_Chain0\_2437MHz

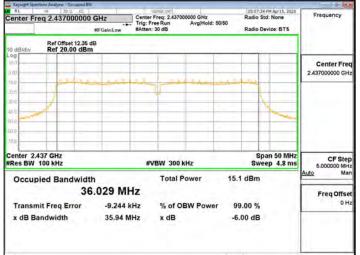


#### OBW 6dB\_802.11n\_40MHz\_Chain0\_2452MHz

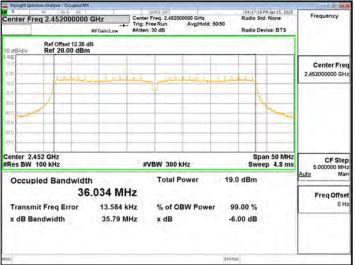




#### OBW 6dB 802.11n 40MHz Chain1 2437MHz



#### OBW 6dB 802.11n 40MHz Chain1 2452MHz



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents and subject 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 subject 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 subject 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 subject is advised that information contained hereon reflects the company's findings at the time of its intervention o 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 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

SGS Taiv 台灣檢驗科技股份有限公司

an I td

f (886-2) 2298-0488

www.sas.com.tw



#### 9.6 99% Bandwidth

802.11b Ch0				
Freq.	99% BW			
(MHz)	(MHz)			
2412	13.61			
2437	13.586			
2462	13.594			
802.11b Ch1				
Freq.	99% BW			
(MHz)	(MHz)			
<b>(MHz)</b> 2412	(MHz) 13.644			
. ,				
2412	13.644			
2412 2437	<b>13.644</b> 13.552			
2412 2437	<b>13.644</b> 13.552 13.567			
2412 2437 2462	<b>13.644</b> 13.552 13.567			
2412 2437 2462 802.11g Ch0	<b>13.644</b> 13.552 13.567			

2462	16.9
802.11g Ch1	
Freq.	99% BW
(MHz)	(MHz)

16.906

16.747

16.741

16.743

2437

- - - -

2412

2437

2462

Report No.: ER/2020/20060
Page 31 of 117

802.11n_HT20M Ch0				
Freq.	99% BW			
(MHz)	(MHz)			
2412	17.779			
2437	17.782			
2462	17.783			

802.11n_HT20M Ch1				
Freq.	99% BW			
(MHz)	(MHz)			
2412	17.711			
2437	17.697			
2462	17.72			

802.11n_HT40M Ch0				
99% BW				
(MHz)				
36.201				
36.186				
36.188				
802.11n_HT40M Ch1				
99% BW				
(MHz)				
36.176				
36.144				
00.111				

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

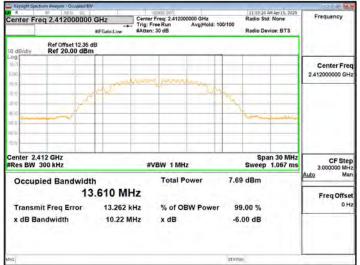
台灣檢驗科技股份有限公司

SGS Ta

n I td

f (886-2) 2298-0488

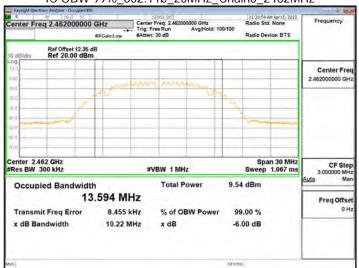
#### IC OBW 99%\_802.11b\_20MHz\_Chain0\_2412MHz



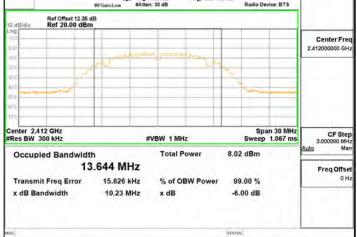
#### IC OBW 99%\_802.11b\_20MHz\_Chain0\_2437MHz



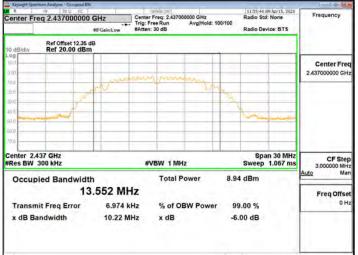
#### IC OBW 99%\_802.11b\_20MHz\_Chain0\_2462MHz



# IC OBW 99% 802.11b 20MHz Chain1 2412MHz



#### IC OBW 99%\_802.11b\_20MHz\_Chain1\_2437MHz



#### IC OBW 99%\_802.11b\_20MHz\_Chain1\_2462MHz



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

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

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

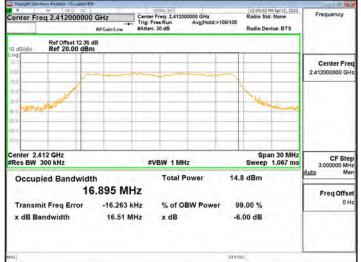
an I td

SGS Tai

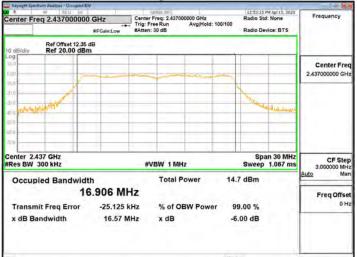
f (886-2) 2298-0488



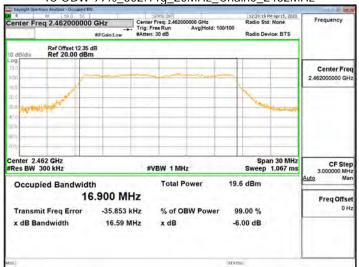
#### IC OBW 99% 802.11g 20MHz Chain0 2412MHz



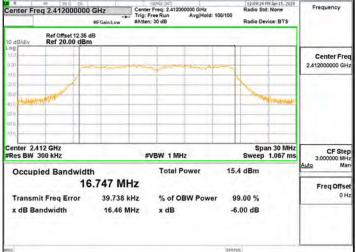
#### IC OBW 99%\_802.11g\_20MHz\_Chain0\_2437MHz



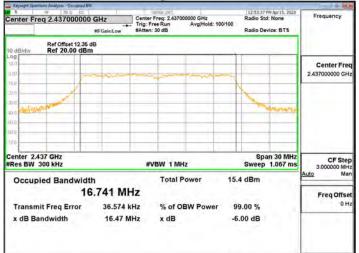
#### IC OBW 99%\_802.11g\_20MHz\_Chain0\_2462MHz



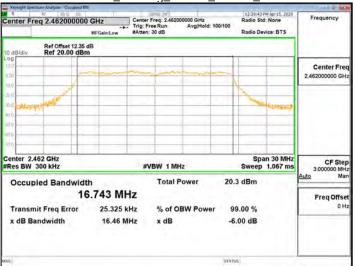




#### IC OBW 99%\_802.11g\_20MHz\_Chain1\_2437MHz



#### IC OBW 99%\_802.11q\_20MHz\_Chain1\_2462MHz



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents and subject 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 subject 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 subject 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 subject is advised that information contained hereon reflects the company's findings at the time of its intervention o 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 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

an I td

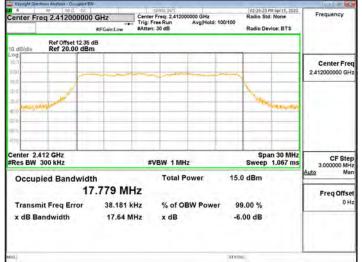
SGS Tai

f (886-2) 2298-0488

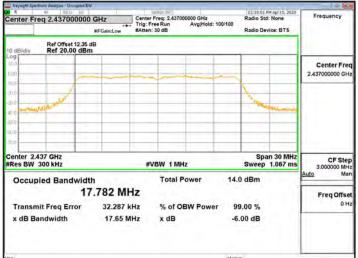
www.sas.com.tw



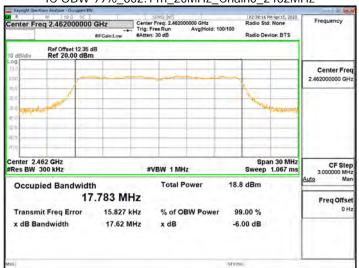
#### IC OBW 99% 802.11n 20MHz Chain0 2412MHz



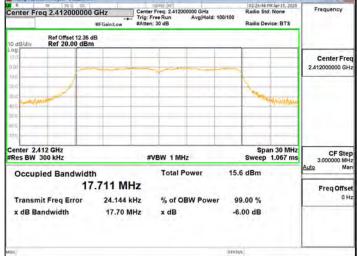
#### IC OBW 99%\_802.11n\_20MHz\_Chain0\_2437MHz



#### IC OBW 99%\_802.11n\_20MHz\_Chain0\_2462MHz



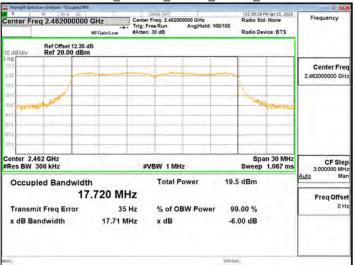
# IC OBW 99% 802.11n 20MHz Chain1 2412MHz



#### IC OBW 99%\_802.11n\_20MHz\_Chain1\_2437MHz



#### IC OBW 99%\_802.11n\_20MHz\_Chain1\_2462MHz



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents and subject 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 subject 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 subject 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 subject is advised that information contained hereon reflects the company's findings at the time of its intervention o 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 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

SGS Tai 台灣檢驗科技股份有限公司

n I td

f (886-2) 2298-0488

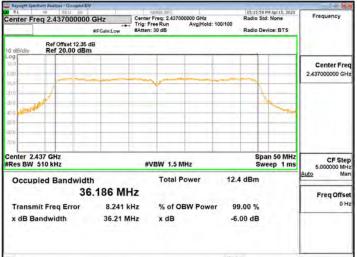
www.sas.com.tw



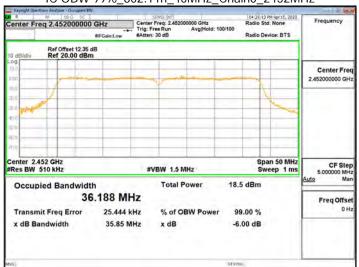
#### IC OBW 99% 802.11n 40MHz Chain0 2422MHz



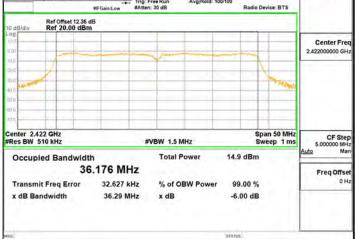
#### IC OBW 99%\_802.11n\_40MHz\_Chain0\_2437MHz



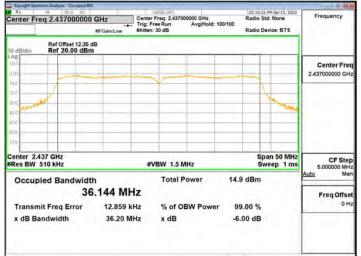
#### IC OBW 99%\_802.11n\_40MHz\_Chain0\_2452MHz



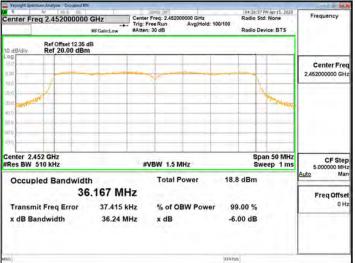
#### IC OBW 99% 802.11n 40MHz Chain1 2422MHz 103:21:49 PM Apr 15, 2020 Radio Std: None Center Freq 2.422000000 GHz WFGainLow #Freq 2.422000000 GHz Center Steve Augustation AvgHold: 100/100 Frequency Radio Device: BTS



#### IC OBW 99%\_802.11n\_40MHz\_Chain1\_2437MHz



#### IC OBW 99% 802.11n 40MHz Chain1 2452MHz



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents and subject 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 subject 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 subject 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 subject is advised that information contained hereon reflects the company's findings at the time of its intervention o 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 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

an I td

SGS Tai

f (886-2) 2298-0488

www.sas.com.tw



# **10 CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT**

# **10.1 Standard Applicable**

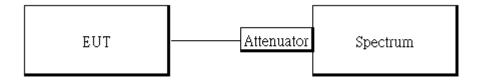
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) & RSS-Gen §8.10, must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.9.

#### 10.2 Measurement Equipment Used

Conducted Emission Test Site							
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	02/20/2020	02/19/2021		
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021		
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021		

#### 10.3 Test SET-UP



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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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 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, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488



### **10.4 Measurement Procedure**

### **Reference Level of Emission Limit:**

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- 3. Set the span to 1.5 times the DTS channel bandwidth.
- 4. Set the RBW = 100kHz & VBW = 300 kHz.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10.802.11n MIMO mode: offset is set following "measure and add 10 Log (N)" on spectrum to measure the PSD for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna. N=2 for this given application.

### Note:

For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported on this report after the comparison between Main Antenna at single transmitting mode and Aux that yields the higher value. The MIMO transmitting mode produces higher value of outcome.

### Conducted Band Edge:

- 1. To connect Antenna Port of EUT to Spectrum.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. Set start to edge frequency, and stop frequency of spectrum analyzer so as to encompass the spectrum to be examined.
- 5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Detector = Peak, Sweep = auto
- 6. Mark the highest reading of the emission as the reference level measurement.
- 7. Set DL as the limit = reading on marker 1 20 dBm
- 8. Marker on frequency, 2.3999GHz and 2.4836GHz, and examine shall 100 kHz immediately outside the authorized (2400~2483.5) be attenuated by 20dB at least relative to the maximum emission of power.
- 9. Repeat above procedures until all default test channel (low, middle, and high) was complete.

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。

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

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



### **Conducted Spurious Emission:**

- 1. To connect Antenna Port of EUT to Spectrum
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- 3. Set RBW = 100 kHz & VBW= 300 kHz, Detector =Peak, Sweep = Auto.
- 4. Allow trace to fully stabilize.
- 5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- 6. Repeat above procedures until all default test channel measured were complete.

### **10.5 Measurement Result**

Reference Level of Limit 802.11b mode				
Freq.				
(MHz)	(dBm)	(dBm)		
2412	-1.76	-21.76		
2437	-0.76	-20.76		
2462	0.10	-19.90		

Reference Level of Limit 802.11g mode				
Freq.				
(MHz)	(dBm)	(dBm)		
2412	0.81	-19.19		
2437	0.80	-19.20		
2462	5.67	-14.33		

#### Reference Level of Limit 802.11n20 mode Freq. PSD Reference Level of Limit (MHz) (dBm) (dBm) 0.81 -19.19 2412 2437 -20.17 -0.17 2462 4.64 -15.36

Reference Level of Limit 802.11n40 MODE		
Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)
2422	-2.84	-22.84
2437	-2.77	-22.77
2452	1.13	-18.87

#### Note

Cable Loss 12.35 dB

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.

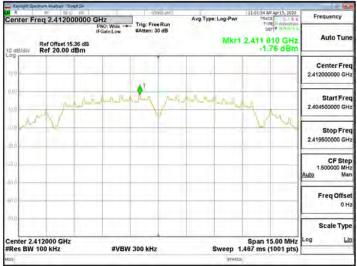
SGS Taiwan Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司 t

t (886-2) 2299-3279



#### Reference Level\_802.11b\_20MHz\_Chain1\_2412MHz



#### Reference Level\_802.11b\_20MHz\_Chain1\_2437MHz



#### Reference Level\_802.11b\_20MHz\_Chain1\_2462MHz



#### Reference Level 802.11g 20MHz Chain1 2412MHz



#### Reference Level\_802.11q\_20MHz\_Chain1\_2437MHz



#### Reference Level\_802.11g\_20MHz\_Chain1\_2462MHz



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

SGS Taiwan Ltd. No 台灣檢驗科技股份有限公司

f (886-2) 2298-0488



#### Reference Level 802.11n 20MHz Chain1 2412MHz



#### Reference Level\_802.11n\_20MHz\_Chain1\_2437MHz



#### Reference Level\_802.11n\_20MHz\_Chain1\_2462MHz



#### Reference Level 802.11n 40MHz Chain1 2422MHz



#### Reference Level\_802.11n\_40MHz\_Chain1\_2437MHz



#### Reference Level\_802.11n\_40MHz\_Chain1\_2452MHz



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

<mark>SGS Taiwan Ltd. No.(134,)Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號</mark>

台灣檢驗科技股份有限公司

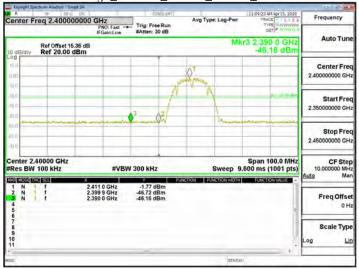
f (886-2) 2298-0488

www.sgs.com.tw

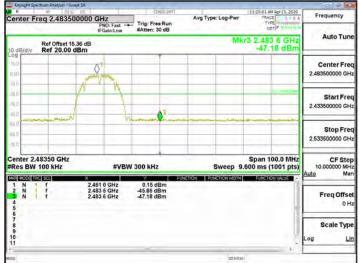
Member of SGS Group



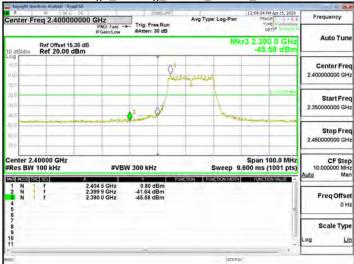
#### Band Edge\_802.11b\_20MHz\_Chain1\_2412MHz



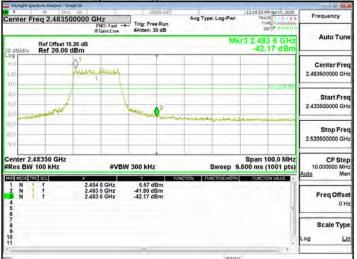
#### Band Edge\_802.11b\_20MHz\_Chain1\_2462MHz



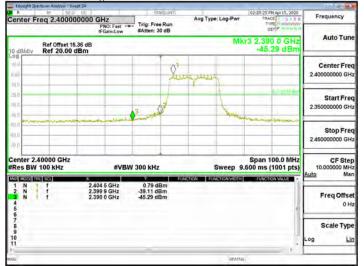
#### Band Edge\_802.11g\_20MHz\_Chain1\_2412MHz



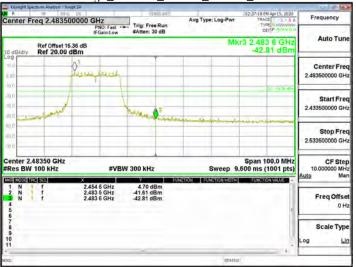
#### Band Edge 802.11g 20MHz Chain1 2462MHz



#### Band Edge\_802.11n\_20MHz\_Chain1\_2412MHz



#### Band Edge\_802.11n\_20MHz\_Chain1\_2462MHz



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

<mark>SGS Taiwan Ltd. No.(134,)Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號</mark>

台灣檢驗科技股份有限公司

f (886-2) 2298-0488



### Band Edge 802.11n 40MHz Chain1 2422MHz



Band Edge 802.11n 40MHz Chain1 2452MHz



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.

WithS data the results shown in this test report refer only to the sample(s) tested and such sample(s) are related to so 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 <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

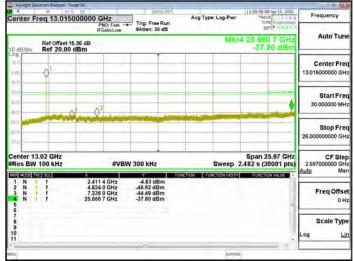
台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488



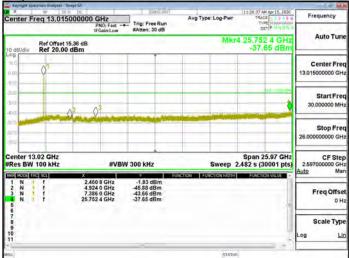
### Spurious Emission\_802.11b\_20MHz\_Chain1\_2412MHz



### Spurious Emission\_802.11b\_20MHz\_Chain1\_2437MHz

	11:54:58 AM Apr 15, 2020 TRACE 1 3 + 5 e TVPE 14 Merce 10 - 1 - 5 e	Avg Type: Log-Pwr	Trig: Free Run #Atten: 30 dB	000000 GHz		6 R.
Auto Tune	25.828 6 GHz -36.93 dBm	Mkr4	#Atten: 30 dB		Ref Offse Ref 20.0	10 dBJdiv
Center Free 13.015000000 GH					01	0 00
Start Free 30,000000 MH	1			<sup>2</sup> ∧ <sup>2</sup>		100 200 300
Stop Fre 26.00000000 GH						
	Span 25.97 GHz 482 s (30001 pts)	Sweep 2	300 kHz	#VBV	0.02 GHz 100 kHz	enter 13 Res BW
Auto Mar Freq Offse 0 H	FUNCTION VALUE	N FUNCTION WIDTH	-2.72 dBm -45.51 dBm -44.86 dBm -36.93 dBm	2.434 8 GHz 4.874 0 GHz 7.311 0 GHz 25.828 6 GHz		1 N 2 N 3 N 5
Scale Type						5 6 7 8 9 10
		STATUS				sal-

### Spurious Emission\_802.11b\_20MHz\_Chain1\_2462MHz



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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

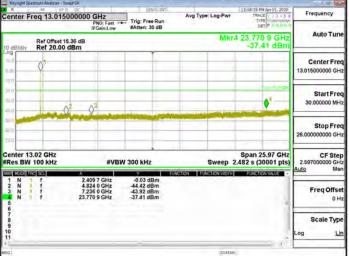
台灣檢驗科技股份有限公司 t (886-2) 2299-3279

f (886-2) 2298-0488

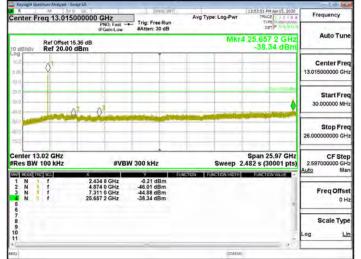
www.sqs.com.tw

Member of SGS Group

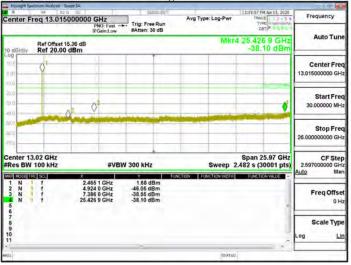
### Spurious Emission\_802.11g\_20MHz\_Chain1\_2412MHz



### Spurious Emission\_802.11g\_20MHz\_Chain1\_2437MHz

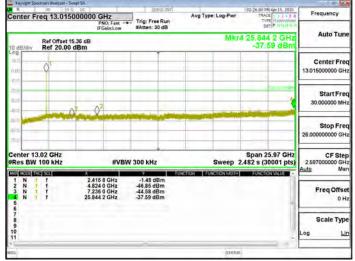


#### Spurious Emission\_802.11g\_20MHz\_Chain1\_2462MHz





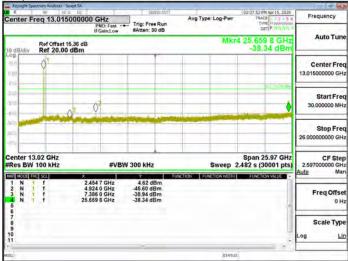
### Spurious Emission\_802.11n\_20MHz\_Chain1\_2412MHz



### Spurious Emission\_802.11n\_20MHz\_Chain1\_2437MHz



### Spurious Emission\_802.11n\_20MHz\_Chain1\_2462MHz



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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

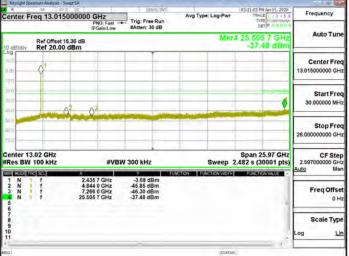
台灣檢驗科技股份有限公司 t (886-2) 2299-3279

f (886-2) 2298-0488

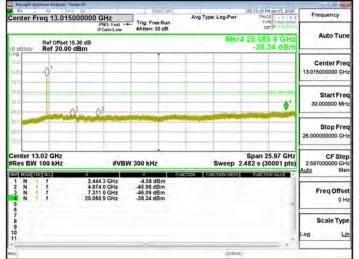
,Taiwaill和此中五度回利比座来自 www.sgs.com.tw

Member of SGS Group

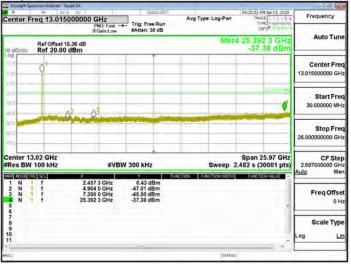
#### Spurious Emission\_802.11n\_40MHz\_Chain1\_2422MHz



#### Spurious Emission\_802.11n\_40MHz\_Chain1\_2437MHz



#### Spurious Emission\_802.11n\_40MHz\_Chain1\_2452MHz





# 11 RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

### 11.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 and RSS-Gen §8.9 Table 5 and 6 limit as below. And according to §15.33(a) (1) & RSS-Gen §6.13.2.a, for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

### Note:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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 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.

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



### 11.2 Measurement Equipment Used:

	966 Chamber				
EQUIPMENT TYPE			SERIAL NUMBER	LAST CAL.	CAL DUE.
Horn Antenna	Schwarzbeck	BBHA9170	184	12/25/2019	12/24/2020
Horn Antenna	Schwarzbeck	BBHA9120D	D803	12/20/2019	12/19/2020
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT- N0555	01/13/2020	01/12/2021
Loop Antenna	ETS.LINDGREN	6502	148045	10/15/2019	10/14/2020
Spectrum Analyzer	Agilent	E4446A	MY51100003	10/23/2019	10/22/2020
EMI Test Receiver	R&S	ESCI 7	1166.5950.07	07/04/2019	07/03/2020
Pre-Amplifier	EMC Instruments	EMC184045B	980135	01/02/2020	01/01/2021
Pre-Amplifier	EMC Instruments	EMC051825	980152	01/02/2020	01/01/2021
Pre-Amplifier	HP	8447D	2944A09469	01/02/2020	01/01/2021
Attenuator	Mini-Circuit	BW-S10W2+	4	01/02/2020	01/01/2021
Filter 2400-2483.5 MHz	EWT	EWT-14-0166	M1	01/02/2020	01/01/2021
High Pass Filter	WI	WHKX4.0/18G- 10SS	22	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	succoflex 102	MY2622/2	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	succoflex 104A	800086/4a	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	EMC 104-SM- SM-2000	160123	01/02/2020	01/01/2021

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

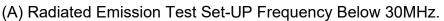
prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

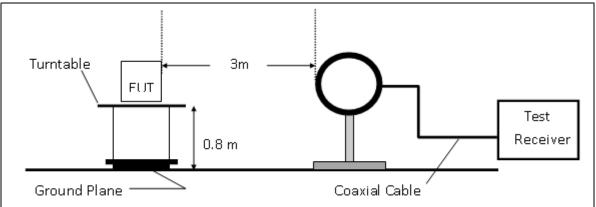
台灣檢驗科技股份有限公司 t (886-2) 2299-3279

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

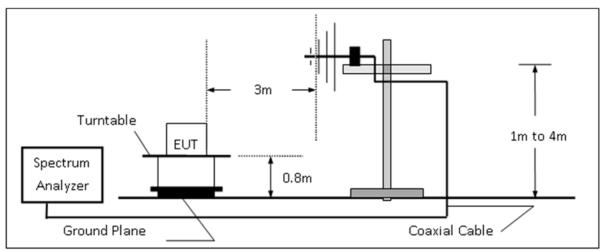


## 11.3 Test SET-UP

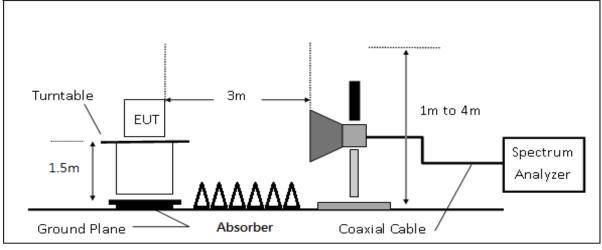




### (B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



### (C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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.

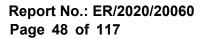
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

n Ltd. No.fl 34,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

SGS Taiv





### **11.4 Measurement Procedure**

- 1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- 2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
- 3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 5. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasipeak (QP) at frequency below 1 GHz.
- 7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- 8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- 9. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- 10. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 11. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. On spectrum, change spectrum mode in linear display mode, and reduce VBW = 10Hz if average reading is measured.
- 12. Repeat above procedures until all default test channel measured were complete.

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.



### **11.5 Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

# FS = RA + AF + CL - AG

*Where* FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss) AG = Amplifier Gain

AF = Antenna Factor

RA = Reading Amplitude

The limit of the emission level is expressed in dBuV/m, which converts 20\*log(uV/m)

Actual FS( $dB\mu V/m$ ) = SPA. Reading level( $dB\mu V$ ) + Factor(dB) Factor(dB) = Antenna Factor( $dB\mu V/m$ ) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

### 11.6 Test Results of Radiated Spurious Emissions form 9 kHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) & RSS-GEN §6.13.2 was not reported.

### **11.7 Measurement Result**

### Note:

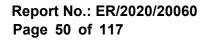
- 1. Refer to next page spectrum analyzer data chart and tabular data sheets.
- 2. Measurements are completed at peak and average level, the mark of average is the highest emission in restricted bands

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.

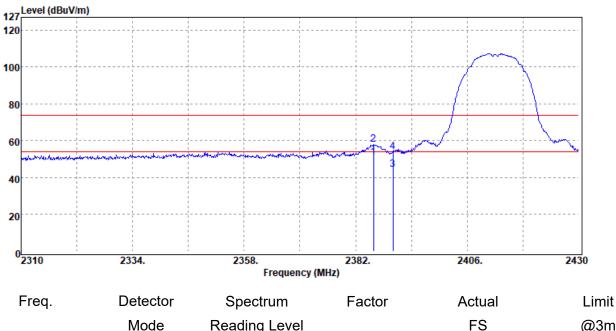
f (886-2) 2298-0488





#### 11.7.1 Radiated Band Edge Measurement Result

Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11b	Temp./Humi.	:23.9/69
Test Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2385.84	Average	43.41	7.47	50.88	54.00	-3.12
2385.84	Peak	50.45	7.47	57.92	74.00	-16.08
2390.00	Average	36.71	7.46	44.17	54.00	-9.83
2390.00	Peak	46.39	7.46	53.85	74.00	-20.15

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 <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents is subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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 responduced 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.

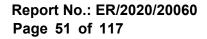
n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

SGS Taiv

t (886-2) 2299-3279

f (886-2) 2298-0488



2430



40

20

0 2310

2334.

Report Number Operation Mode Test Frequency	:ER/2020/20060 :802.11b :2412 MHz	Test Date Temp./Humi. Antenna Pol.	:2020-03-31 :23.9/69 :HORIZONTAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		
127 <mark>Level (dBuV/m)</mark> 120			
100		~	
80			
60	2 4		~~~

Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2385.84	Average	33.91	7.47	41.38	54.00	-12.62
2385.84	Peak	45.23	7.47	52.70	74.00	-21.30
2390.00	Average	30.76	7.46	38.22	54.00	-15.78
2390.00	Peak	42.61	7.46	50.07	74.00	-23.93

2382.

Frequency (MHz)

2406.

2358.

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488

dB

-12.02

-21.04

-19.12

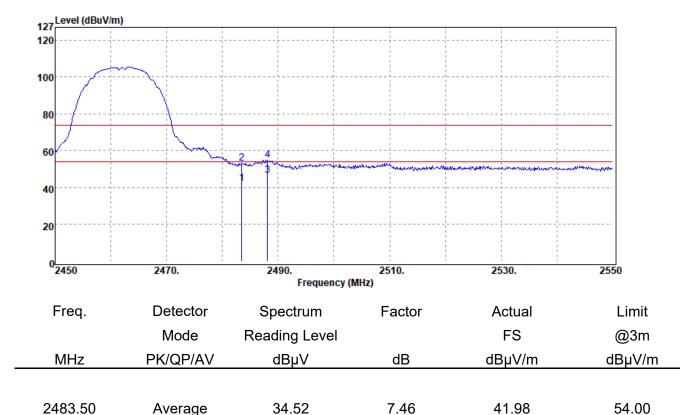
74.00

54.00

74.00



Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11b	Temp./Humi.	:23.9/69
Test Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		



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.

45.50

39.02

47.42

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

Peak

Average

Peak

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

7.46

7.46

7.46

52.96

46.48

54.88

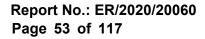
n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

f (886-2) 2298-0488

2483.50

2488.10

2488.10





60

40

20

Report Number Operation Mode Test Frequency Test Mode EUT Pol	:ER/2020/20060 :802.11b :2462 MHz :Bandedge CH High :H Plane	Test Date Temp./Humi. Antenna Pol. Engineer	:2020-03-31 :23.9/69 :HORIZONTAL :Neo
120			
100			
100	\[		
80	X		

0 <mark></mark> 2450	2470.	2490. Frequency (N	2510. IHz)	2530.	2550	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	30.69	7.46	38.15	54.00	-15.85
2483.50	Peak	42.36	7.46	49.82	74.00	-24.18
2488.40	Average	32.44	7.46	39.90	54.00	-14.10
2488.40	Peak	44.32	7.46	51.78	74.00	-22.22

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

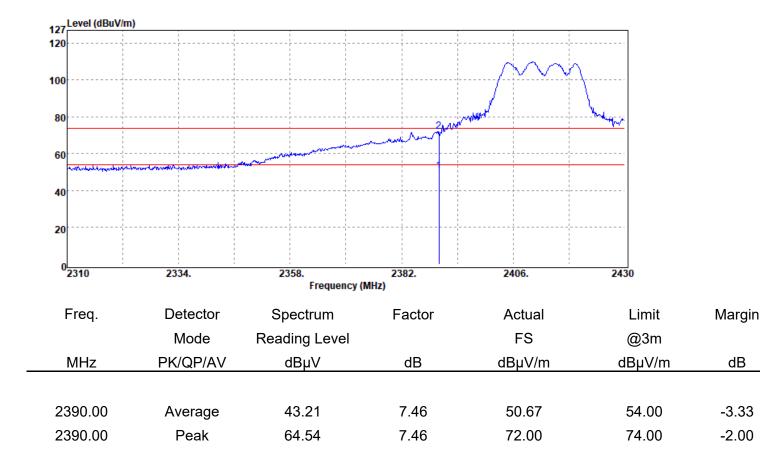
SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279



Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11g	Temp./Humi.	:23.9/69
Test Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



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。

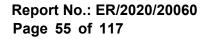
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

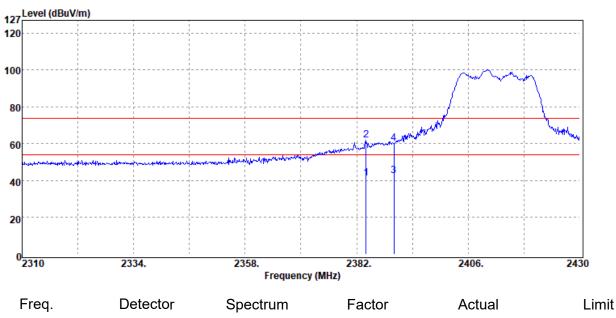
SGS Tai

t (886-2) 2299-3279





Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11g	Temp./Humi.	:23.9/69
Test Frequency	:2412 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2384.04	Average	33.71	7.49	41.20	54.00	-12.80
2384.04	Peak	54.52	7.49	62.01	74.00	-11.99
2390.00	Average	35.09	7.46	42.55	54.00	-11.45
2390.00	Peak	52.72	7.46	60.18	74.00	-13.82

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 <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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 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 unawful and offenders may be prosecuted to the fullest extent of the law.

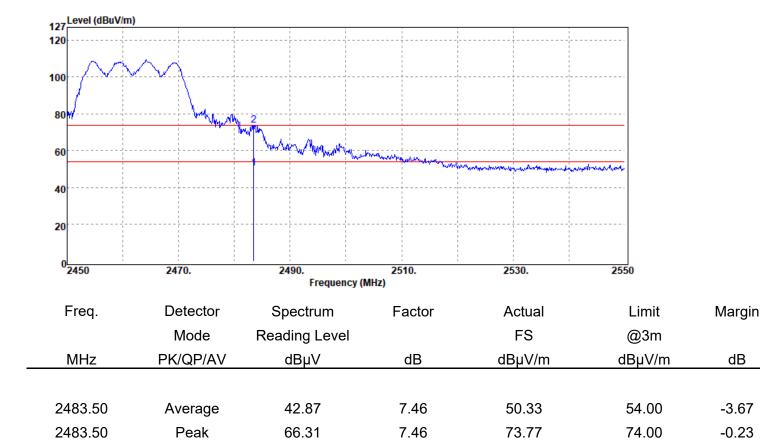
an Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

SGS Taiv

t (886-2) 2299-3279



Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11g	Temp./Humi.	:23.9/69
Test Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		



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。

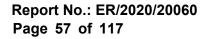
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

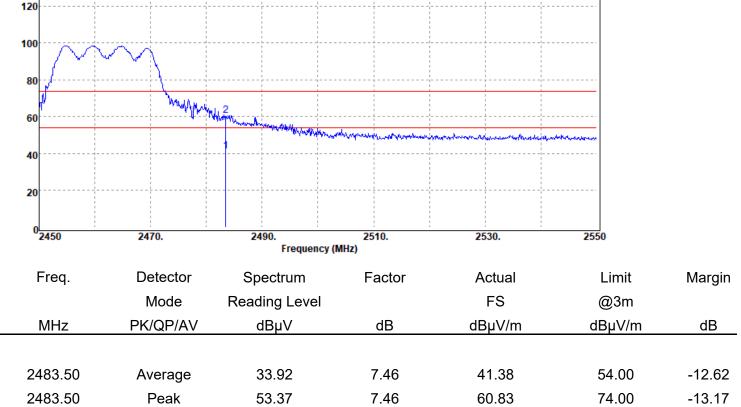
SGS Tai

t (886-2) 2299-3279





Report Number	:ER/2020/20060			Test Date	:2020-03-31
Operation Mode	:802.11g			Temp./Humi.	:23.9/69
Test Frequency	:2462 MHz			Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH High			Engineer	:Neo
EUT Pol	:H Plane				
127 Level (dBuV/m)					
100			1		



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。

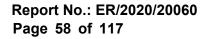
t (886-2) 2299-3279

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

SGS Tai

```
www.sgs.com.tw
```



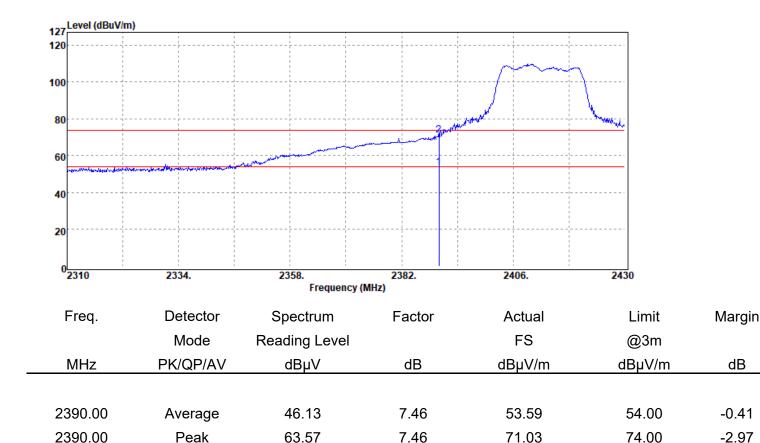
dB

-0.41

-2.97



Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11n20	Temp./Humi.	:23.9/69
Test Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



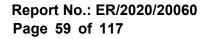
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.

n I td. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

t (886-2) 2299-3279



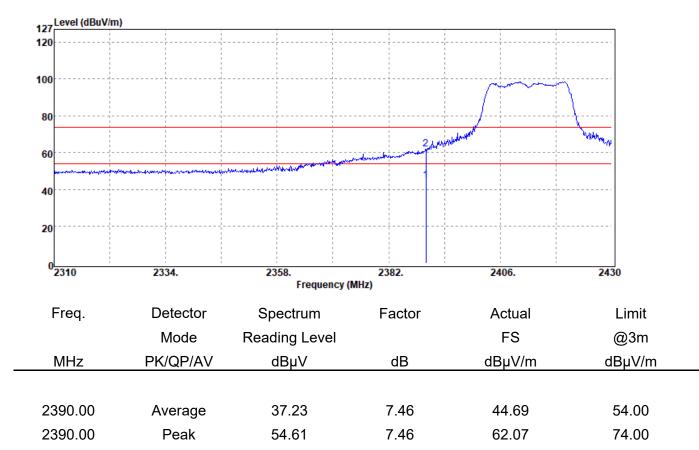
dB

-9.31

-11.93



Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11n20	Temp./Humi.	:23.9/69
Test Frequency	:2412 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



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

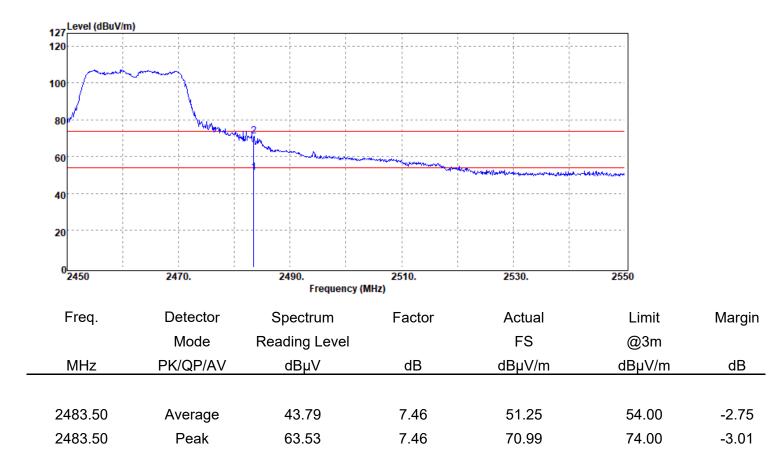
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

```
www.sgs.com.tw
```



Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11n20	Temp./Humi.	:23.9/69
Test Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		



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。

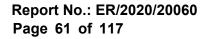
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

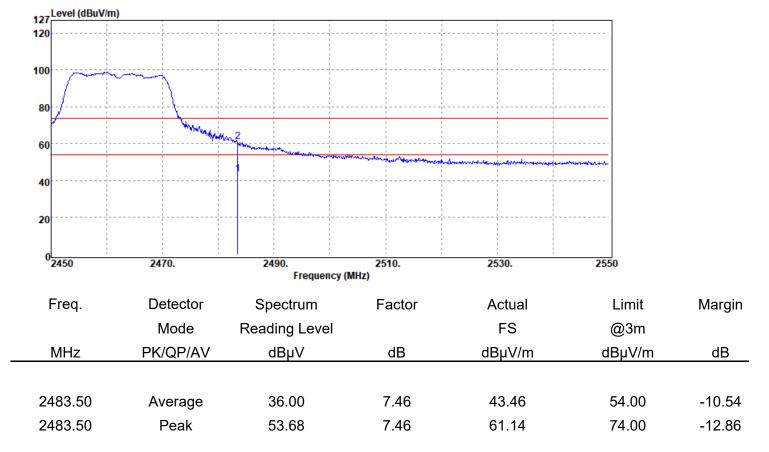
SGS Tai

t (886-2) 2299-3279





Report Number	:ER/2020/20060	Test Date	:2020-03-31
Operation Mode	:802.11n20	Temp./Humi.	:23.9/69
Test Frequency	:2462 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		



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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> 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.

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

SGS Tai

t (886-2) 2299-3279

f (886-2) 2298-0488

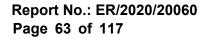


Report Number	:ER/2020/20060	Test Date	:2020-04-01
Operation Mode	:802.11n40	Temp./Humi.	:22.8/66
Test Frequency	:2422 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		

		Frequence	cy (MHz)		
2310	2334.	2358.	2382.	2406.	243
					1
		· · · · · · · · · · · · · · · · · · ·	·		
					-    - 
					1
mar war and a sector of	And and a second distance of the second s	ud particular to the second	l l		1
			white when a		
			when have been and		
			24	- Martin Martin	1
			1		   
		· · · · · · · · · · · · · · · · · · ·			
		· · · · · · · · · · · · · · · · · · ·			
Level (dBuV/					1

Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2389.20	Average	46.14	7.45	53.59	54.00	-0.41
2389.20	Peak	63.66	7.45	71.11	74.00	-2.89
2390.00	Average	46.23	7.46	53.69	54.00	-0.31
2390.00	Peak	63.32	7.46	70.78	74.00	-3.22

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

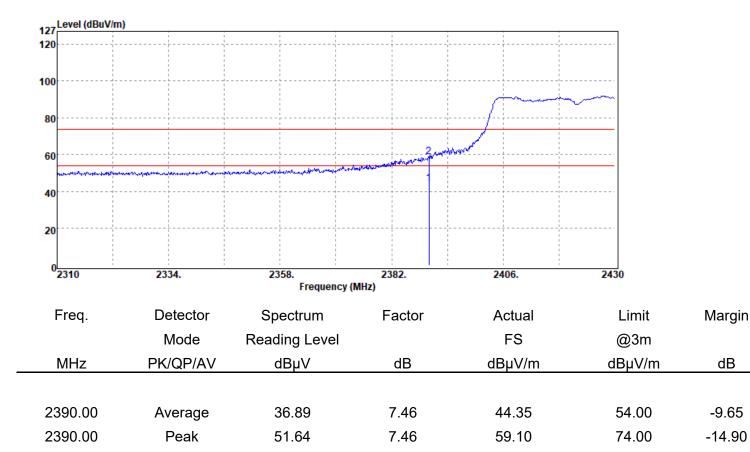


dB

-9.65



Report Number	:ER/2020/20060	Test Date	:2020-04-01
Operation Mode	:802.11n40	Temp./Humi.	:22.8/66
Test Frequency	:2422 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.

n I td. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488

dB

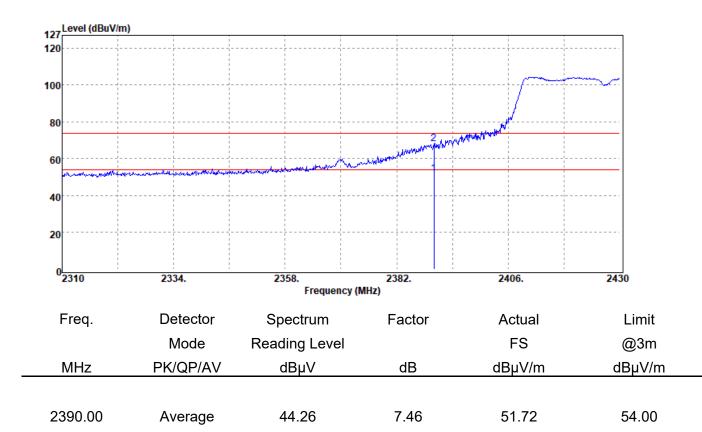
-2.28

-6.06

74.00



Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2427 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



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.

60.48

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。

Peak

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

7.46

67.94

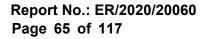
n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

2390.00

t (886-2) 2299-3279

f (886-2) 2298-0488



2430

Limit

Margin



60

40

20

0 2310

Freq.

2334.

Detector

Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2427 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		
127Level (dBuV/m)			
120			
100			
00			
80			

	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	41.13	7.46	48.59	54.00	-5.41
2390.00	Peak	53.85	7.46	61.31	74.00	-12.69

2382.

Factor

Frequency (MHz)

2

2406.

Actual

2358.

Spectrum

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

an Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

SGS Taiw

t (886-2) 2299-3279

f (886-2) 2298-0488

dB

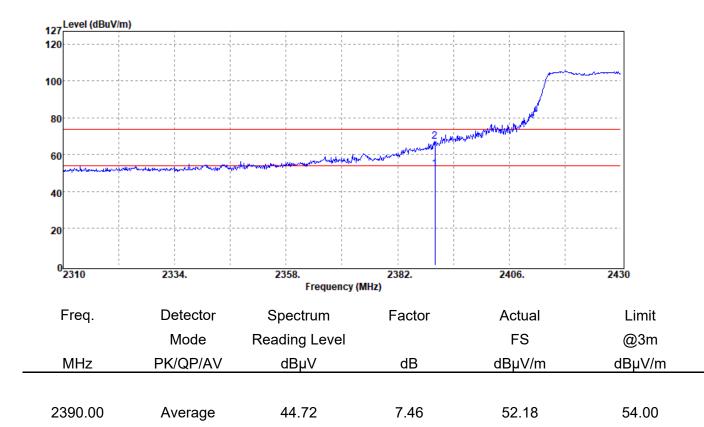
-1.82

-6.92

74.00



Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2432 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



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.

59.62

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。

Peak

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

7.46

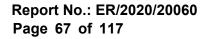
67.08

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

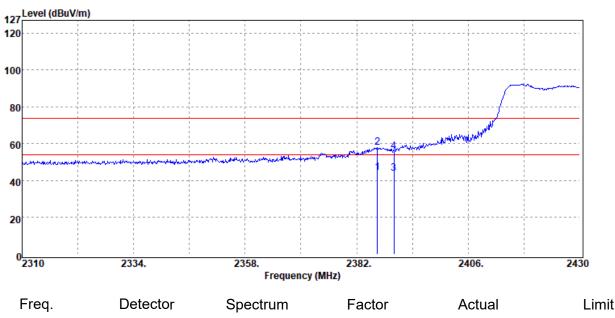
2390.00

t (886-2) 2299-3279





Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2432 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH Low	Engineer	:Neo
EUT Pol	:H Plane		



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2386.44	Average	37.12	7.47	44.59	54.00	-9.41
2386.44	Peak	50.54	7.47	58.01	74.00	-15.99
2390.00	Average	36.61	7.46	44.07	54.00	-9.93
2390.00	Peak	48.41	7.46	55.87	74.00	-18.13

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

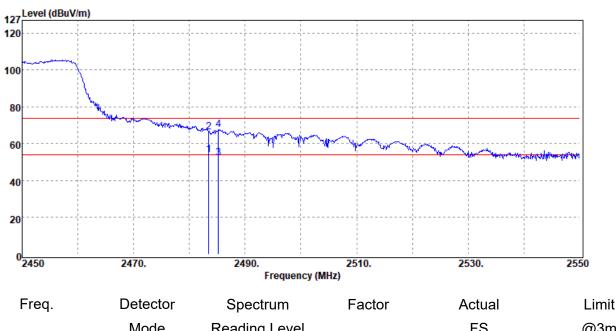
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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 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 unawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

f (886-2) 2298-0488



Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2442 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		



rieq.	Delector	Spectrum	T actor	Actual	LIIIII	warym	
	Mode	Reading Level		FS	@3m		
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
2483.50	Average	46.37	7.46	53.83	54.00	-0.17	
2483.50	Peak	58.85	7.46	66.31	74.00	-7.69	
2485.20	Average	44.97	7.46	52.43	54.00	-1.57	
2485.20	Peak	60.34	7.46	67.80	74.00	-6.20	

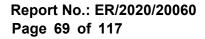
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 IS 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 reproduced to the full-extend of the law. prosecuted to the fullest extent of the law.

an Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

SGS Taiw

t (886-2) 2299-3279



dB

-10.00

-19.92

-11.41

-17.37

54.00

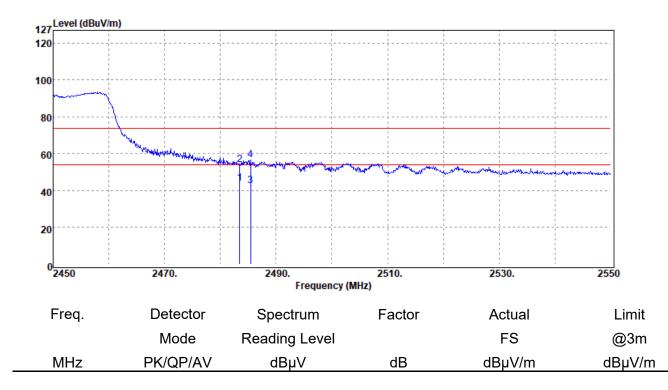
74.00

54.00

74.00



Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2442 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		



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.

36.54

46.62

35.13

49.17

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。

Average

Peak

Average

Peak

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

7.46

7.46

7.46

7.46

44.00

54.08

42.59

56.63

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

2483.50

2483.50

2485.40

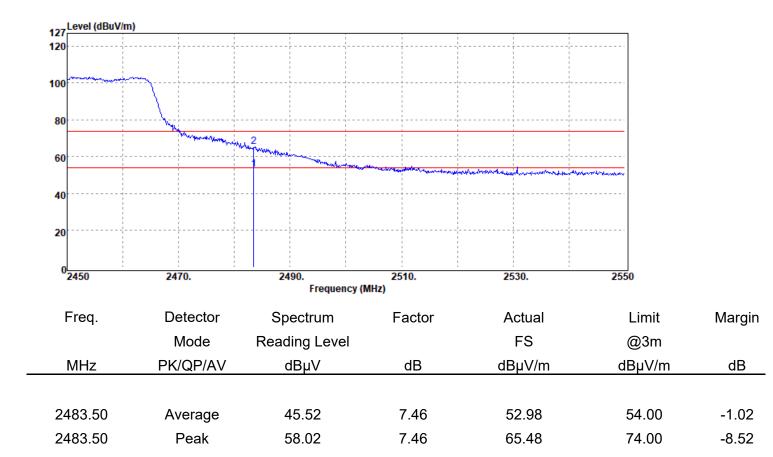
2485.40

t (886-2) 2299-3279

f (886-2) 2298-0488



Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2447 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		



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。

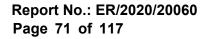
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

SGS Tai

t (886-2) 2299-3279





60

40

20

Report Number Operation Mode	:ER/2020/20060 :802.11n40	Test Date Temp./Humi.	:2020-04-06 :21.3/63
Test Frequency	:2447 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		
127 Level (dBuV/m)			
120			
80			
80			

<sup>0</sup> 2450	2470.	2490. Frequency (M	2510. IHz)	2530.	2550	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	-
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	36.04	7.46	43.50	54.00	-10.50
2483.50	Peak	46.71	7.46	54.17	74.00	-19.83
2486.40	Average	37.11	7.46	44.57	54.00	-9.43
2486.40	Peak	47.96	7.46	55.42	74.00	-18.58

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488

dB

-1.31

-5.84

-0.38

-6.18

74.00

54.00

74.00



2483.50

2487.50

2487.50

Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2452 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		

27 Level (dBuV/m)	)				
20					
00	many			i 	
	( )				
30					
	and the stand of t	million of manual			
50		3 manute manufacture		1	· · · · · · · · · · · · · · · · · · ·
10					
20					
.0					
0					
2450	2470.	2490. Frequency (N	2510. IHz)	2530.	2550
Freq.	Detector	Spectrum	Factor	Actual	Limit
	Mode	Reading Level		FS	@3m
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m
2483.50	Average	45.23	7.46	52.69	54.00

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。

60.70

46.16

60.36

Peak

Average

Peak

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

7.46

7.46

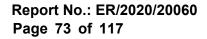
7.46

68.16

53.62

67.82

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



Margin

dB

-11.10

-16.93

-10.89

-16.12

54.00

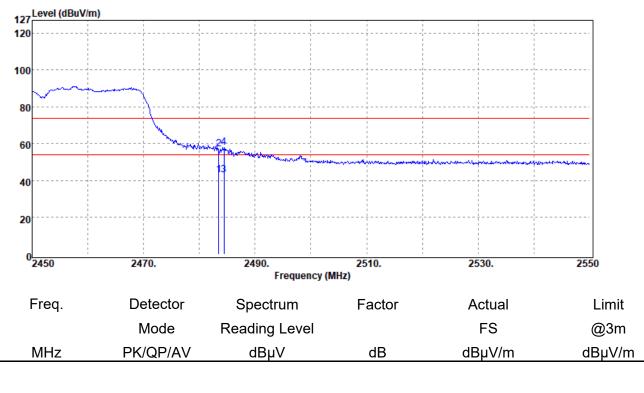
74.00

54.00

74.00



Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11n40	Temp./Humi.	:21.3/63
Test Frequency	:2452 MHz	Antenna Pol.	:HORIZONTAL
Test Mode	:Bandedge CH High	Engineer	:Neo
EUT Pol	:H Plane		



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.

35.44

49.61

35.65

50.42

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。

Average

Peak

Average

Peak

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

7.46

7.46

7.46

7.46

42.90

57.07

43.11

57.88

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

2483.50

2483.50

2484.40

2484.40

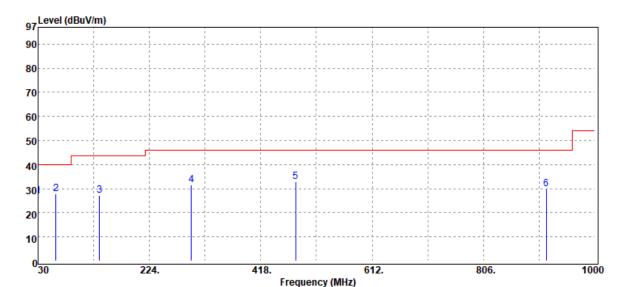
t (886-2) 2299-3279

f (886-2) 2298-0488



## 11.7.2 Below 1GHz Worst-Case Emission:

Report Number	:ER/2020/20060	Test Date	:2020-04-09
Operation Mode	:802.11g	Temp./Humi.	:21.6/64
Test Frequency	:2437 MHz	Antenna Pol.	:VERTICAL
Test Mode	:TX CH Mid	Engineer	:Neo
EUT Pol	:H Plane		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
30.00	Peak	31.43	-4.56	26.87	40.00	-13.13
61.04	Peak	45.08	-17.16	27.92	40.00	-12.08
136.70	Peak	38.78	-11.48	27.30	43.50	-16.20
296.75	Peak	40.12	-8.57	31.55	46.00	-14.45
479.11	Peak	38.30	-5.37	32.93	46.00	-13.07
915.61	Peak	29.20	0.74	29.94	46.00	-16.06

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 <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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 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 unawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488



Report Number Operation Mode Test Frequency Test Mode EUT Pol	:ER/2020/20 :802.11g :2437 MHz :TX CH Mid :H Plane	0060		Test Date Temp./Humi. Antenna Pol. Engineer	:2020-04-09 :21.6/64 :HORIZONTAI :Neo	-
97 Level (dBuV/m)						
90	· · · · · · · · · · · · · · · · · · ·					
80						
70	· · · · · · · · · · · · · · · · · · ·					
60	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			
50						
40	4	55				
30 1 2			1 1 1 1 1 1 1 1	6		
20	·····		·			
10			·			
0 <mark>30</mark>	224.	418.	612.	806.	1000	
		Frequency (M	IHz)			
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
61.04	Peak	46.00	-17.16	28.84	40.00	-11.16
138.64	Peak	41.28	-11.58	29.70	43.50	-13.80
240.49	Peak	37.89	-10.12	27.77	46.00	-18.23
311.30	Peak	43.36	-8.15	35.21	46.00	-10.79
479.11	Peak	42.43	-5.37	37.06	46.00	-8.94
903.00	Peak	30.02	1.02	31.04	46.00	-14.96

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488



Report Number	:ER/2020/2	0060		Test Date	:2020-04-09	
Operation Mode	:802.11n40			Temp./Humi.	:21.6/64	
Test Frequency	:2437 MHz			Antenna Pol.	:VERTICAL	
Test Mode	:TX CH Mid			Engineer	:Neo	
EUT Pol	:H Plane					
97 						
90						
80						
70						
60						
50	·					
40	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·				
30 1 2		5		6		
20	3					
10						
030						
30	224.	418. Frequency	612. (MHz)	806.	1000	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
61.04	Peak	45.91	-17.16	28.75	40.00	-11.25
138.64	Peak	37.69	-11.58	26.11	43.50	-17.39
217.21	Peak	33.48	-12.00	21.48	46.00	-24.52
301.60	Peak	39.44	-8.50	30.94	46.00	-15.06
479.11	Peak	37.84	-5.37	32.47	46.00	-13.53
912.70	Peak	29.13	0.81	29.94	46.00	-16.06

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488

·2020-04-09

Test Date



·ED/2020/20060

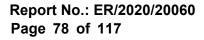
Report Number

Report Number	:ER/2020/2	0060		Test Date	:2020-04-09	
Operation Mode	:802.11n40			Temp./Humi.	:21.6/64	
Test Frequency	:2437 MHz			Antenna Pol.	:HORIZONTA	L
Test Mode	:TX CH Mid			Engineer	:Neo	
EUT Pol	:H Plane					
97Level (dBuV/m)						
90						
80						
70						
60						
50						
40		5				
30 1 2	3			6		
20						
10						
030					1000	
30	224.	418. Frequency (N	612. IHz)	806.	1000	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
61.04	Peak	48.30	-17.16	31.14	40.00	-8.86
138.64	Peak	41.10	-11.58	29.52	43.50	-13.98
217.21	Peak	39.41	-12.00	27.41	46.00	-18.59
303.54	Peak	41.40	-8.43	32.97	46.00	-13.03
479.11	Peak	42.05	-5.37	36.68	46.00	-9.32
924.34	Peak	30.01	0.66	30.67	46.00	-15.33

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

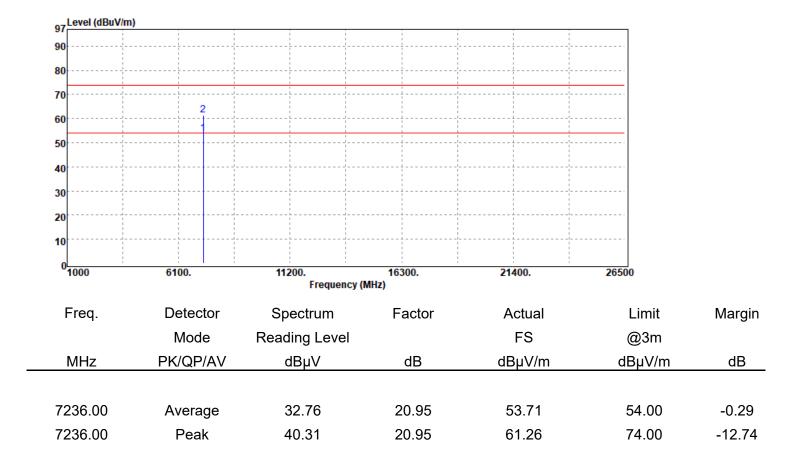
t (886-2) 2299-3279





### 11.7.3 Above 1GHz Emission:

Report Number	:ER/2020/20060	Test Date	:2020-04-06
Operation Mode	:802.11b	Temp./Humi.	:21.3/63
Test Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Tx CH Low	Engineer	:Neo
EUT Pol	:H Plane		



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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.

n Ltd. No.f134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



Repor	t Number	:ER/2020/2	0060		Test Date	:2020-04-06	
Opera	ation Mode	:802.11b			Temp./Humi.	:21.3/63	
Test F	requency	:2412 MHz			Antenna Pol.	:HORIZONTA	L
Test N	lode	:Tx CH Low	V		Engineer	:Neo	
EUT F	Pol	:H Plane					
	Lovel (dBuV/m)						
	Level (dBuV/m)						
90							
80							
70	·						
60	J	2		·			
50				·			
40							
30	· · · · · · · · · · · · · · · · · · ·						
20	·						
10	· · · · · · · · · · · · · · · · · · ·			·			
0	1000		44200	40200	24.400	20500	
	1000	6100.	11200. Frequency (I	16300. MHz)	21400.	26500	
I	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
71	236.00	Average	27.45	20.95	48.40	54.00	-5.60
		C C					
	236.00	Peak	37.41	20.95	58.36	74.00	-15.64

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

74.00

-13.40

Test Date



:ER/2020/20060

**Report Number** 

7311.00

-		:802.11b :2437 MHz :Tx CH Mid :H Plane			Temp./Humi. Antenna Pol. Engineer	:21.3/63 :VERTICAL :Neo	
97 90 80 70 60 50 40 30 20	Level (dBuV/m)	2					
0	1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
I	<sup>=</sup> req.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
73	311.00	Average	31.21	22.31	53.52	54.00	-0.48

22.31

60.60

38.29

Peak

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.1134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

f (886-2) 2298-0488



Opera		:ER/2020/2 :802.11b :2437 MHz :Tx CH Mid :H Plane			Test Date Temp./Humi. Antenna Pol. Engineer	:2020-04-06 :21.3/63 :HORIZONTA :Neo	L
07	Level (dBuV/m)						
90							
80		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		
70					1 1 1 1 1 1 1 1 1 1 1 1		
60		2					
50							
40							
30							
20							
10							
0	1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
I	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
73	311.00	Average	27.85	22.31	50.16	54.00	-3.84
73	311.00	Peak	37.31	22.31	59.62	74.00	-14.38

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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



0 <sup></sup>	6100.	11200.	16300.	21400.	26500
10					
20					
30					
•••					
50					
60	2				
70					
80		· · · · · · · · · · · · · · · · · · ·			
90		· · · · · · · · · · · · · · · · · · ·			
97 Level (dBuV/m)	iii		; ;	; ; ;	
T Pol	:H Plane				
t Mode	:Tx CH Higł	า		Engineer	:Neo
t Frequency	:2462 MHz			Antenna Pol	. :VERTICAL
eration Mode	:802.11b			Temp./Humi.	:21.3/63
oort Number	:ER/2020/2	0060		Test Date	:2020-04-0

Frequency (MHz)

Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7386.00	Average	32.05	21.24	53.29	54.00	-0.71
7386.00	Peak	39.35	21.24	60.59	74.00	-13.41

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.1134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

Test Date



:ER/2020/20060

**Report Number** 

(oport runnoor	.ER/2020/2	.ER/2020/20000			2020 01 00	
Operation Mode	:802.11b			Temp./Humi.	:21.3/63	
Test Frequency	:2462 MHz			Antenna Pol.	:HORIZONTA	L
Test Mode	:Tx CH Higl	h		Engineer	:Neo	
EUT Pol	:H Plane					
97 Level (dBuV/m)						
97						
80						
70						
60	2		         			
50			 			
40						
30						
20			· · · · · · · · · · · · · · · · · · ·			
10						
0 <mark></mark> 1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
	_					
7386.00	Average	23.25	21.24	44.49	54.00	-9.51
7386.00	Peak	36.07	21.24	57.31	74.00	-16.69

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

54.00

74.00

-0.21

-5.68

Test Date

53.79

68.32



:ER/2020/20060

**Report Number** 

7236.00

7236.00

Average

Peak

Operation Mode		:802.11g			Temp./Humi. Antenna Pol.	:21.3/63 :VERTICAL	
	requency	:2412 MHz					
Test N		:Tx CH Low	V		Engineer	:Neo	
EUT	Pol	:H Plane					
07	Level (dBuV/m)						
90							
80							
		2					
70							
60							
50							
40							
30							
20							
10							
· ·	1000	6100.	11200. Frequency	16300. / (MHz)	21400.	26500	
		Detector			A stual	1 : :4	Manain
	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB

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。

32.84

47.37

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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 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 unawful and offenders may be prosecuted to the fullest extent of the law.

20.95

20.95

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

```
www.sgs.com.tw
```

Test Date



·FR/2020/20060

**Report Number** 

Operation Mode Test Frequency Test Mode EUT Pol 97 <sup>Level (dBuV/m)</sup>	:ER/2020/2 :802.11g :2412 MHz :Tx CH Low :H Plane			Temp./Humi. Antenna Pol. Engineer	:2020-04-00 :21.3/63 :HORIZONTA :Neo	۱L
97						
80						
70	2					
60						
50						
40						
30						
20						
10						
0 <mark></mark>	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7236.00	Average	26.87	20.95	47.82	54.00	-6.18
7236.00	Peak	41.25	20.95	62.20	74.00	-11.80

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

Test Date



:ER/2020/20060

**Report Number** 

waration Mada	.002.11~	0000			.01.0/60	
peration Mode	:802.11g			Temp./Humi.	:21.3/63	
est Frequency	:2437 MHz			Antenna Pol.		
est Mode	:Tx CH Mid			Engineer	:Neo	
UT Pol	:H Plane					
97 Level (dBuV/m)						
90						
80						
70	2	· · · · · · · · · · · · · · · · · · ·				
60						
50						
40						
30						
20						
10						
0 <mark></mark>	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7044.00	<b>A</b>	04.40	00.04	F0 40	E4.00	0 57
7311.00	Average	31.12	22.31	53.43	54.00	-0.57
7311.00	Peak	45.36	22.31	67.67	74.00	-6.33

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.1134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



Opera		:ER/2020/2 :802.11g :2437 MHz :Tx CH Mid :H Plane			Test Date Temp./Humi. Antenna Pol. Engineer	:2020-04-06 :21.3/63 :HORIZONTA :Neo	L
07	Level (dBuV/m)						
90							
80							
70							
60		2					
50							
40							
30							
20							
10							
0	1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
l	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
73	311.00	Average	25.53	22.31	47.84	54.00	-6.16
73	311.00	Peak	40.22	22.31	62.53	74.00	-11.47

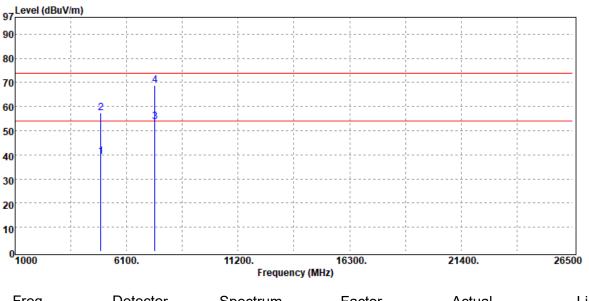
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

• •



:ER/2020/20060	Test Date	:2020-04-07
:802.11g	Temp./Humi.	:21.3/64
:2462 MHz	Antenna Pol.	:VERTICAL
:Tx CH High	Engineer	:Neo
:H Plane		
	:802.11g :2462 MHz :Tx CH High	:EnvironmentTemp./Humi.:802.11gTemp./Humi.:2462 MHzAntenna Pol.:Tx CH HighEngineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	24.33	14.87	39.20	54.00	-14.80
4924.00	Peak	42.55	14.87	57.42	74.00	-16.58
7386.00	Average	32.56	21.24	53.80	54.00	-0.20
7386.00	Peak	47.56	21.24	68.80	74.00	-5.20

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

Test Date



:ER/2020/20060

**Report Number** 

	.ER/2020/2	0060		Teet Bate	.2020 04 01	
Operation Mode	:802.11g			Temp./Humi.	:21.3/64	
Test Frequency	:2462 MHz			Antenna Pol.	:HORIZONTA	L
Test Mode	:Tx CH Hig	h		Engineer	:Neo	
EUT Pol	:H Plane					
97 <mark>Level (dBuV/m)</mark>						
90						
80						
70	2					
60						
50						
40						
30						
20						
10						
01000	6100.	11200. Frequency (I	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7386.00	Average	27.94	21.24	49.18	54.00	-4.82
7386.00	Peak	43.49	21.24	64.73	74.00	-4.02
1000.00	I Car	40.43	Z1.24	04.75	74.00	-3.21

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

```
www.sgs.com.tw
```

74.00

-8.49

Test Date



:ER/2020/20060

**Report Number** 

7236.00

Opera	ation Mode	:802.11n20			Temp./Humi.	:21.3/64	
-	Test Frequency :2412 MHz			Antenn		:VERTICAL	
Test N		:Tx CH Low	I		Engineer	:Neo	
EUT F		:H Plane			5		
97	Level (dBuV/m)						
90							
80							
70		2	 				
60					· · · · · · · · · · · · · · · · · · ·		
50							
40		······································					
30							
20							
10							
	1000	6100.	11200. Frequency (I	16300. MHz)	21400.	26500	
l	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
72	236.00	Average	32.64	20.95	53.59	54.00	-0.41

44.56

Peak

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

20.95

65.51

SGS Taiwan Ltd. No.1134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

Test Date



·FR/2020/20060

**Report Number** 

Operation Mode	:ER/2020/2 :802.11n20			Temp./Humi.	:21.3/64	
Test Frequency	:2412 MHz			Antenna Pol.	:HORIZONTA	L
Test Mode	:Tx CH Low			Engineer	:Neo	
EUT Pol	:H Plane			Ū		
97 Level (dBuV/m)						
97						
80						
70						
60	2					
50			·			
40						
30						
20			·			
10						
0 <mark></mark>	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7236.00	Average	27.76	20.95	48.71	54.00	-5.29
7236.00	Peak	40.55	20.95	61.50	74.00	-12.50

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

74.00

-8.27

Test Date



:ER/2020/20060

**Report Number** 

7311.00

-		:802.11n20 :2437 MHz :Tx CH Mid :H Plane			Temp./Humi. Antenna Pol. Engineer	:21.3/64 :VERTICAL :Neo	
	Level (dBuV/m)						
97 90							
80	)						
70	)	2					
60							
50							
40							
30		· · · · · · · · · · · · · · · · · · ·					
20	)						
10							
(	1000		44200	40200	24 400		
	1000	6100.	11200. Frequency	16300. (MHz)	21400.	26500	
	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	•	Mode	Reading Level		FS	@3m	U
	N 41 I		-	٩D		_	٩D
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7	311.00	Average	31.04	22.31	53.35	54.00	-0.65

43.42

Peak

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

22.31

65.73

SGS Taiwan Ltd. No.1134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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



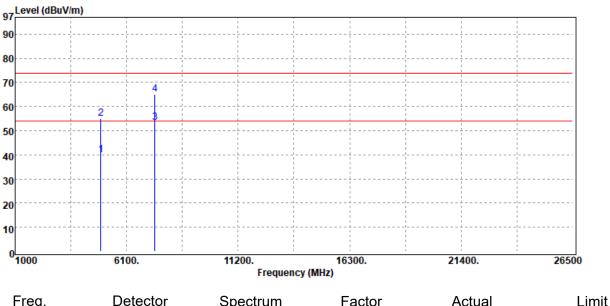
Report Number	:ER/2020/2	0060		Test Date	:2020-04-07	
Operation Mode	:802.11n20			Temp./Humi.	:21.3/64	
Test Frequency	:2437 MHz			Antenna Pol.	:HORIZONTA	L
Test Mode	:Tx CH Mid	l		Engineer	:Neo	
EUT Pol	:H Plane					
97 Level (dBuV/m)						
90						
80						
70		L				
60	2					
50						
40						
30						
20						
10						
0 <sup>1</sup> 1000	6100.	11200. Frequency (I	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7311.00	Average	26.06	22.31	48.37	54.00	-5.63
	Average					
7311.00	Peak	39.11	22.31	61.42	74.00	-12.58

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



Report Number	:ER/2020/20060	Test Date	:2020-04-07
Operation Mode	:802.11n20	Temp./Humi.	:21.3/64
Test Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Test Mode	:Tx CH High	Engineer	:Neo
EUT Pol	:H Plane		



Detector	Spectrum	Factor	Actual	Limit	Margin
Mode	Reading Level		FS	@3m	
PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
Average	24.97	14.87	39.84	54.00	-14.16
Peak	40.12	14.87	54.99	74.00	-19.01
Average	32.19	21.24	53.43	54.00	-0.57
Peak	43.92	21.24	65.16	74.00	-8.84
	Mode PK/QP/AV Average Peak Average	ModeReading LevelPK/QP/AVdBµVAverage24.97Peak40.12Average32.19	ModeReading LevelPK/QP/AVdBµVdBAverage24.9714.87Peak40.1214.87Average32.1921.24	Mode Reading Level FS   PK/QP/AV dBμV dB dBμV/m   Average 24.97 14.87 39.84   Peak 40.12 14.87 54.99   Average 32.19 21.24 53.43	Mode Reading Level FS @3m   PK/QP/AV dBμV dB dBμV/m dBμV/m   Average 24.97 14.87 39.84 54.00   Peak 40.12 14.87 54.99 74.00   Average 32.19 21.24 53.43 54.00

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號



Report Number	:ER/2020/2	0060		Test Date	:2020-04-07	
Operation Mode	:802.11n20			Temp./Humi.	:21.3/64	
Test Frequency	:2462 MHz			Antenna Pol.	:HORIZONTA	L
Test Mode	:Tx CH Hig	h		Engineer	:Neo	
EUT Pol	:H Plane					
97 Level (dBuV/m)						
90						
80						
70				·		
60	2					
50				· · · · · · · · · · · · · · · · · · ·		
40	·			· · · · · · · · · · · · · · · · · · ·		
30	·			· · · · · · · · · · · · · · · · · · ·		
20						
10						
01000	6100.	11200. Frequency (I	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7000.00	•	07.00	04.04	40.00	54.00	5.00
7386.00	Average	27.38	21.24	48.62	54.00	-5.38
7386.00	Peak	39.66	21.24	60.90	74.00	-13.10

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

Test Date



·FR/2020/20060

**Report Number** 

	:ER/2020/2	0060			.2020 04 07	
peration Mode	:802.11n40			Temp./Humi.	:21.3/64	
est Frequency	:2422 MHz			Antenna Pol.	:VERTICAL	
est Mode	:Tx CH Low	1		Engineer	:Neo	
UT Pol	:H Plane					
Loval (dPu\//m)						
97 Level (dBuV/m) 90						
80						
70	2					
60						
50						
40		JJ I I I I I I I I				
30						
20						
10						
0 <mark></mark> 1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margir
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7266.00	Average	31.53	21.43	52.96	54.00	-1.04
7266.00	Peak	41.15	21.43	62.58	74.00	-11.42

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. be reproduced except in thin, window provide and a second second

台灣檢驗科技股份有限公司

t (886-2) 2299-3279

·2020-04-07

Test Date



·ED/2020/20060

Report Number

Report Number:ER/2020Operation Mode:802.11nTest Frequency:2422 MITest Mode:Tx CH LEUT Pol:H Plane	h40 Hz ₋ow		Test Date Temp./Humi. Antenna Pol. Engineer	:2020-04-07 :21.3/64 :HORIZONTA :Neo	L
97 					
90					
80					
70					
60					
50					
40					
30					
20					
10					
0L6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq. Detector	Spectrum	Factor	Actual	Limit	Margin
Mode	Reading Level		FS	@3m	
MHz PK/QP/A	∕ dBµV	dB	dBµV/m	dBµV/m	dB
7266.00 Average	23.43	21.43	44.86	54.00	-9.14

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

54.00

74.00

-0.85

-11.24

Test Date

53.15

62.76



:ER/2020/20060

**Report Number** 

7281.00

7281.00

-		:802.11n40 :2427 MHz :TX CH Lov :H Plane			Temp./Humi. Antenna Pol. Engineer	:21.0/46 :VERTICAL :Neo	
07	Level (dBuV/m)						
90		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			
80							
70							
60		2					
50							
40							
30	·						
20							
10							
0	: 1000	6100.	11200.	16300.	21400.	26500	
			Frequency	(MHz)			
F	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB

31.25

40.86

Average

Peak

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

21.90

21.90

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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



Repor	t Number	:ER/2020/2	0060		Test Date	:2020-04-14	
Opera	tion Mode	:802.11n40			Temp./Humi.	:21.0/46	
Test F	requency	:2427 MHz			Antenna Pol.	:HORIZONTA	L
Test M	lode	:TX CH Lov	V		Engineer	:Neo	
EUT F	Pol	:H Plane					
07	Level (dBuV/m)						
90	,						
80	· · · · · · · · · · · · · · · · · · ·			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
70							
60		2		· · · · · · · · · · · · · · · · · · ·			
50	·			1 1 1 1 1 1 1	· · · · · · · · · · · · · · · · · · ·		
40	·			· · · · · · · · · · · · · · · · · · ·			
30							
20				           			
10				             			
	1000			10000			
	1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
I	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
72	281.00	Average	23.11	21.90	45.01	54.00	-8.99
72	281.00	Peak	34.07	21.90	55.97	74.00	-18.03

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

t (886-2) 2299-3279

54.00

74.00

-1.26

-11.59

Test Date

52.74

62.41



:ER/2020/20060

**Report Number** 

7296.00

7296.00

Average

Peak

Operation Mode Test Frequency Test Mode EUT Pol	:802.11n40 :2432 MHz :TX CH Lov :H Plane			Temp./Humi Antenna Pol Engineer		
97 						
90						
80						
70						
60	2					
50						
40						
30						
20						
10						
0 <sup>L</sup> 1000	6100.	11200. Frequenc	16300. :y (MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

22.35

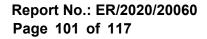
22.35

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

30.39

40.06

```
f (886-2) 2298-0488
```



Test Date



:ER/2020/20060

**Report Number** 

•	( Number	ER/2020/20060			icsi Dale	.2020-04-14	
Opera	tion Mode	:802.11n40			Temp./Humi.	:21.0/46	
Test F	requency	:2432 MHz			Antenna Pol.	:HORIZONTA	L
Test M	lode	:TX CH Lov	v		Engineer	:Neo	
EUT F	Pol	:H Plane					
07	Level (dBuV/m)						
97 90							
80							
70							
60							
50		2					
40							
30							
20							
10							
0	1000	<mark>6100.</mark>	11200. Frequency	16300. (MHz)	21400.	26500	
	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
ſ	Teq.		-	Factor			wargin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
72	296.00	Average	21.03	22.35	43.38	54.00	-10.62
72	296.00	Peak	32.26	22.35	54.61	74.00	-19.39

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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



Repor	rt Number	:ER/2020/2	0060		Test Date	:2020-04-07	
Opera	ation Mode	:802.11n40			Temp./Humi.	:21.3/64	
Test F	requency	:2437 MHz			Antenna Pol.	:VERTICAL	
Test N	/lode	:Tx CH Mid			Engineer	:Neo	
EUT F	Pol	:H Plane					
07	Level (dBuV/m)						
97							
80		· · · · · · · · · · · · · · · · · · ·					
70		· · · · · · · · · · · · · · · · · · ·					
60		2					
50							
40	· · · · · · · · · · · · · · · · · · ·	······					
30							
20				1 1 1 1			
10							
	1000		11222	40000	24400	20500	
	1000	6100.	11200. Frequency (I	16300. MHz)	21400.	26500	
	Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
	311.00	Average	31.02	22.31	53.33	54.00	-0.67
73	311.00	Peak	40.49	22.31	62.80	74.00	-11.20

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

be reproduced except in Tail, Ministry pro-prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488

Test Date



:ER/2020/20060

**Report Number** 

	ER/2020/2			Test Date	.2020-04-07	
Operation Mode	:802.11n40			Temp./Humi.	:21.3/64	
est Frequency	:2437 MHz			Antenna Pol.	:HORIZONTA	L
Test Mode	:Tx CH Mid			Engineer	:Neo	
EUT Pol	:H Plane					
97 						
90						
80						
70						
60	2					
50						
40						
30			······			
20						
10						
0 <mark></mark> 1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7311.00	Average	24.49	22.31	46.80	54.00	-7.20
7311.00	Peak	36.44	22.31	58.75	74.00	-15.25

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

74.00

-11.30

Test Date



:ER/2020/20060

**Report Number** 

7326.00

Operation Mode Test Frequency Test Mode				Temp./Humi. Antenna Pol. Engineer	:21.0/46 :VERTICAL :Neo	
EUT Pol	:H Plane	jii		Lightee	.1100	
97Level (dBuV/n						
90						
70						
60	2					
50						
40						
30						
20						
10						
0 <mark>:</mark> 1000	6100.	11200. Frequency (I	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7326.00	Average	31.44	22.09	53.53	54.00	-0.47

40.61

Peak

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

22.09

62.70

SGS Taiwan Ltd. No.1134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

Test Date



:ER/2020/20060

**Report Number** 

	ER/2020/2	0060		TOST DUIC	.2020-04-14	
Operation Mode	:802.11n40			Temp./Humi.	:21.0/46	
Test Frequency	:2442 MHz			Antenna Pol.	:HORIZONTA	L
lest Mode	:TX CH Hig	h		Engineer	:Neo	
EUT Pol	:H Plane					
97 Level (dBuV/m)						
90						
80						
70						
60	2					
50						
40						
30						
20						
10						
0 <mark></mark> 1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7326.00	Average	23.53	22.09	45.62	54.00	-8.38
7326.00	Peak	34.42	22.09	56.51	74.00	-17.49

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488

Test Date



:ER/2020/20060

**Report Number** 

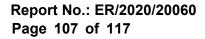
beration Mode est Frequency est Mode JT Pol	:802.11n40 :2447 MHz :TX CH Hig :H Plane			Temp./Humi. Antenna Pol. Engineer	:21.0/46 :VERTICAL :Neo	
97 97						
90	· · · · · · · · · · · · · · · · · · ·					
80						
70	2					
60						
50						
40						
30	·····					
20						
10						
0	6100.	11200. Frequency (	16300. (MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	

	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7341.00	Average	31.39	21.86	53.25	54.00	-0.75
7341.00	Peak	42.87	21.86	64.73	74.00	-9.27

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

```
www.sgs.com.tw
```





Repor	t Number	:ER/2020/2	0060		Test Date	:2020-04-14	
Opera	tion Mode	:802.11n40			Temp./Humi.	:21.0/46	
Test F	requency	:2447 MHz			Antenna Pol.	:HORIZONTA	L
Test M	lode	:TX CH Hig	h		Engineer	:Neo	
EUT F	Pol	:H Plane					
07	Level (dBuV/m)						
97 90							
80							
70				 			
60		2					
50							
40							
30							
				· · · · · · · · · · · · · · · · · · ·			
20							
10							
U	1000	6100.	11200. Frequency (I	16300. MHz)	21400.	26500	
F	<sup>-</sup> req.	Detector	Spectrum	Factor	Actual	Limit	Margin
	I	Mode	Reading Level		FS	@3m	
	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
	341.00	Average	24.01	21.86	45.87	54.00	-8.13
73	341.00	Peak	34.03	21.86	55.89	74.00	-18.11

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law. prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

```
f (886-2) 2298-0488
```

26500

·2020-04-07

Test Date

21400.



·ED/2020/20060

Report Number

20 10

0<mark>\_\_\_\_\_</mark>

6100.

eration Mode :802.11n40			
		Temp./Humi.	:21.3
t Frequency :2452 MHz		Antenna Pol.	:VEI
t Mode :Tx CH High		Engineer	:Nec
T Pol :H Plane			
Louol (dDu)(m)			
97 Level (dBuV/m)	ii	iii	
90			
80			
70 2			
60		· · · · · · · · · · · · · · · · · · ·	
	I I 		
50			
50			
50 40			

		Frequency (M	IHz)			
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7356.00	Average	32.19	21.65	53.84	54.00	-0.16
7356.00	Peak	41.92	21.65	63.57	74.00	-10.43

16300.

11200.

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 <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

```
f (886-2) 2298-0488
```

Test Date



:ER/2020/20060

**Report Number** 

	.LIV/2020/2					
Operation Mode	:802.11n40			Temp./Humi.	:21.3/64	
Test Frequency	:2452 MHz			Antenna Pol.	:HORIZONTA	L
Test Mode	:Tx CH Hig	h		Engineer	:Neo	
EUT Pol	:H Plane					
97 Level (dBuV/m)						
90						
80						
70						
60	2					
50						
40						
30						
20						
10						
0 <mark></mark> 1000	6100.	11200. Frequency (	16300. MHz)	21400.	26500	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
7356.00	Average	25.58	21.65	47.23	54.00	-6.77
7356.00	Peak	37.91	21.65	59.56	74.00	-14.44

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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



# **12 POWER SPECTRAL DENSITY**

## 12.1 Standard Applicable

Per Part 15.247 (e)

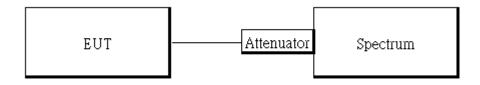
The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### **12.2 Measurement Equipment Used**

Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	02/20/2020	02/19/2021				
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021				
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021				

## 12.3 Test Set-up



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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.1/34,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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(8

t (886-2) 2299-3279

```
f (886-2) 2298-0488
```



## **12.4 Measurement Procedure**

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- 3. Set the span to 1.5 times the DTS channel bandwidth.
- 4. Set the RBW = 3 kHz & VBW = 10 kHz.
- For defining Restricted Band Edge Limit: Set the RBW = 100kHz & VBW = 300 kHz
- 6. Detector = peak.
- 7. Sweep time = auto couple.
- 8. Trace mode = max hold.
- 9. Allow trace to fully stabilize.
- 10. Use the peak marker function to determine the maximum amplitude level.
- 11.802.11n MIMO mode: offset is set following "measure and add 10 Log (N)" on spectrum to measure the PSD for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna. N=2 for this given application.

## Note:

For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported on this report after the comparison between Main Antenna at single transmitting mode and Aux that yields the higher value. The MIMO transmitting mode produces higher value of outcome.

## 12.5 As per FCC KDB 662911 D01

Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, ..., GN dBi.

(i) If transmit signals are correlated, then Directional gain

=  $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N_{ANT}] dBi$ 

[Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.].

The antenna gain is not grater than 6 dBi. Therefore, reduction of power is not required.

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.



### 12.6 Power spectral density

	POWER DENSITY 802.11b						
Freq.	Ch1	Ch2	PSD	Offset	Limit	Result	
(MHz)	PSD	PSD	(dBm/3kHz)	UISEL	(dBm/3kHz)	Nosuli	
2412	-16.16	-17.17	-13.63	15.36	8.00	PASS	
2437	-13.14	-18.06	-11.93	15.36	8.00	PASS	
2462	-13.78	-13.27	-10.51	15.36	8.00	PASS	

	POWER DENSITY 802.11g							
Freq.	Ch1	Ch2	PSD	Offset	Limit	Result		
(MHz)	PSD	PSD	(dBm/3kHz)	UISEL	(dBm/3kHz)	Nesuit		
2412	-17.03	-17.5	-14.25	15.36	8.00	PASS		
2437	-17.38	-16.95	-14.15	15.36	8.00	PASS		
2462	-11.38	-12.85	-9.04	15.36	8.00	PASS		

	POWER DENSITY 802.11n HT20							
Freq.	Ch1	Ch2	PSD	Offset	Limit	Result		
(MHz)	PSD	PSD	(dBm/3kHz)	UISEL	(dBm/3kHz)	Nesuit		
2412	-17.63	-17.15	-14.37	15.36	8.00	PASS		
2437	-18.16	-17.79	-14.96	15.36	8.00	PASS		
2462	-13.45	-13.17	-10.30	15.36	8.00	PASS		

	POWER DENSITY 802.11n HT40							
Freq.	Ch1	Ch2	PSD	Offset	Limit	Result		
(MHz)	PSD	PSD	(dBm/3kHz)	Oliset	(dBm/3kHz)	Result		
2422	-20.76	-17.08	-15.53	15.36	8.00	PASS		
2437	-22.96	-17.64	-16.52	15.36	8.00	PASS		
2452	-16.36	-14.23	-12.16	15.36	8.00	PASS		

### Note

Cable Loss 12.35 dВ

\*Refer to next page for plots

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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format 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 reproduced to the full-extent of the law.

prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488



## Power Density\_802.11b\_20MHz\_Chain0\_2412MHz



### Power Density\_802.11b\_20MHz\_Chain0\_2437MHz



### Power Density\_802.11b\_20MHz\_Chain0\_2462MHz



#### 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 <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.fl 34,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

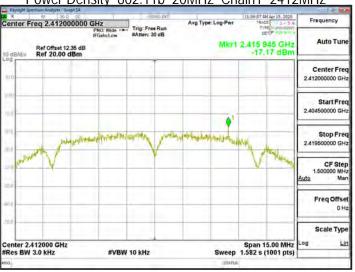
台灣檢驗科技股份有限公司 t (886-2) 2299-3279

f (886-2) 2298-0488

www.sgs.com.tw

Member of SGS Group

### Power Density 802.11b 20MHz Chain1 2412MHz



### Power Density\_802.11b\_20MHz\_Chain1\_2437MHz

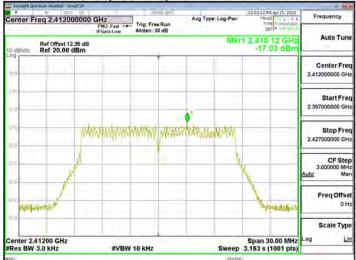


### Power Density\_802.11b\_20MHz\_Chain1\_2462MHz





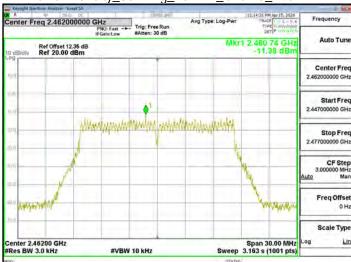
### Power Density 802.11g 20MHz Chain0 2412MHz



### Power Density\_802.11g\_20MHz\_Chain0\_2437MHz



## Power Density\_802.11g\_20MHz\_Chain0\_2462MHz



#### 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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.1/134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488

www.sgs.com.tw

Power Density 802.11g 20MHz Chain1 2412MHz



## Power Density\_802.11g\_20MHz\_Chain1\_2437MHz



### Power Density\_802.11g\_20MHz\_Chain1\_2462MHz





### Power Density 802.11n 20MHz Chain0 2412MHz



### Power Density\_802.11n\_20MHz\_Chain0\_2437MHz



### Power Density\_802.11n\_20MHz\_Chain0\_2462MHz



#### 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="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</a> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com.tw/Terms-and-Conditions">http://www.sgs.com.tw/Terms-and-Conditions</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.fl 34,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

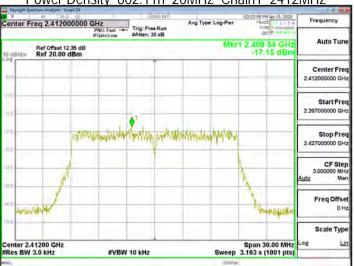
台灣檢驗科技股份有限公司 t (886-2) 2299-3279

f (886-2) 2298-0488

www.sgs.com.tw

Member of SGS Group

### Power Density 802.11n 20MHz Chain1 2412MHz



## Power Density\_802.11n\_20MHz\_Chain1\_2437MHz



### Power Density\_802.11n\_20MHz\_Chain1\_2462MHz





### Power Density 802.11n 40MHz Chain0 2422MHz



### Power Density\_802.11n\_40MHz\_Chain0\_2437MHz



## Power Density\_802.11n\_40MHz\_Chain0\_2452MHz



#### 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 <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. 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.fl 34,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/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

f (886-2) 2298-0488

www.sqs.com.tw

Member of SGS Group

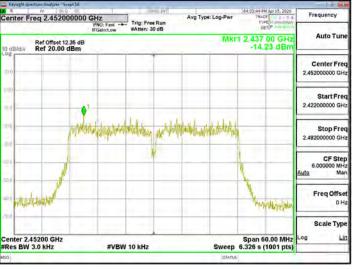
Power Density 802.11n 40MHz Chain1 2422MHz



## Power Density\_802.11n\_40MHz\_Chain1\_2437MHz



### Power Density\_802.11n\_40MHz\_Chain1\_2452MHz





# **13 ANTENNA REQUIREMENT**

## 13.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

If the transmitting antenna is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

## **13.2 Antenna Connected Construction**

The antenna is designed with unique RF connector and no consideration of replacement. Please see EUT photo for details.

~ 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

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

be reproduced except in tail, ministry pro-prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號