

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

OF

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C AND RSS 247 REQUIREMENT

Product Name:	Mobile Computer
Brand Name:	Honeywell
Model No.:	EDA50-011
Model Difference:	N/A
FCC ID:	HD5-EDA50011
IC:	1693B-EDA50011
Report No.:	ER/2016/A0146
Issue Date:	Jan. 10, 2017
FCC Rule Part:	§15.247, Cat: DSS
IC Rule:	RSS-247 issue 2 Feb 2017
Prepared for:	Honeywell International Inc Honeywell Sensing & Productivity Solutions 9680 OLD BAILES RD FORT MILL SC 29707 UNITED STATES
Prepared by:	SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Indus- trial Park, Wuku District, New Taipei City, Taiwan 24803
MUNITA (TAE)	<b>Note:</b> This report shall not be reproduced except in



full, without the written approval of SGS Taiwan Ltd. This document may be altered or revised by SGS Taiwan Ltd. personnel only, and shall be noted in the revision section of the document.

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained to so days only. 除非另有說明,此報告結果僅對測试之樣品負責,同時此樣品僅保留的天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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



# VERIFICATION OF COMPLIANCE

Applicant: Product Name:	Honeywell International Inc Honeywell Sensing & Productivity Solutions 9680 OLD BAILES RD FORT MILL SC 29707 UNITED STATES Mobile Computer
Brand Name:	Honeywell
Model No.:	EDA50-011
Model Difference:	N/A
FCC ID:	HD5-EDA50011
IC :	1693B-EDA50011
Report Number:	ER/2016/A0146
Date of test:	Mar. 16, 2016 (Conducted), Mar. 22, 2016 (Conduction) Nov. 02, 2016 (Radiated & Conducted Bandedge)
Date of EUT Received:	· · · · · · · · · · · · · · · · · · ·

# We hereby certify that:

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

Test By:	Curry Chen	Date:	Jan. 10, 2017
	Curry Chen / Engineer		
Prepared By:	Allen Isai	Date:	Jan. 10, 2017
 Approved By: 	Allen Tsai / Engineer Jim Chang	Date:	Jan. 10, 2017

Jim Chang / 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。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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.



# **Revision History**

Report Number	Revision	Description	Issue Date
ER/2016/A0146	Rev.00	Initial creation of document	Jan. 10, 2017

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted in the fullest extent of the law SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustria



# **Table of Contents**

1	GENERAL INFORMATION	. 5
2	SYSTEM TEST CONFIGURATION	. 7
3	UMMARY OF TEST RESULTS	. 9
4	DESCRIPTION OF TEST MODES	10
5	MEASUREMENT UNCERTAINTY	12
6	CONDUCTED EMISSION TEST	13
7	PEAK OUTPUT POWER MEASUREMENT	17
8	20dB & 99% BANDWIDTH MEASUREMENT	20
9	CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT	26
10	RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT	38
11	FREQUENCY SEPARATION	71
12	NUMBER OF HOPPING FREQUENCY	73
13	TIME OF OCCUPANCY (DWELL TIME)	76
14	ANTENNA REQUIREMENT	84

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



#### **GENERAL INFORMATION** 1

# **1.1 Product description**

General:

Product Name:	Mobile Computer		
Brand Name:	Honeywell		
Model No.:	EDA50-011		
Model Difference:	N/A		
Product SW/HW version:	N/A / N/A		
Radio SW/HW version:	N/A / N/A		
Test SW Version:	N/A		
RF power setting in TEST SW:	N/A		
Data Cable (USB):	Model No.:CBL-500-120-S00-03; Supplier: PRiMAX		
Cradle (Optional):	Model No.:EDA50-HB; Supplier: N/A		
	3.8Vdc from Rechargeable Li-ion Battery or 5Vdc from AC/DC Adapter		
Power Supply:	Battery: Model No.: BAT-DEA50US; Supplier: SCUD		
	Adapter: Model No.: ADS-12B-06 05010E; Supplier: HOHOR		

### Bluetooth BR+EDR:

Bluetooth Version:	Bluetooth V4.0 Dual Mode
Channel number:	79 channels
Modulation type:	GFSK + π/4DQPSK + 8DPSK
Transmit Power:	3.89 dBm
Frequency Range:	2.402GHz – 2.480GHz
Dwell Time:	<= 0.4s
Antenna Designation:	PIFA Antenna, Antenna Gain: 2.55dBi

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



# 1.2 Test Methodology of Applied Standards

Canada RSS-247 issue 2 Feb 2017

RSS-Gen issue 4 Nov. 2014

FCC Part 15, Subpart C §15.247

FCC Public Notice DA 00-705 Measurement Guidelines

ANSI C63.10:2013

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

# **1.3 Test Facility**

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803 (TAF code 0513)

FCC Registration Numbers are: 509634

Canada Registration Number: 4620A-5

# **1.4 Special Accessories**

There is no special accessory used while test was conducted.

# **1.5 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.

WeifS of all weights and the results structure results and structure results and structure and str 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



#### SYSTEM TEST CONFIGURATION 2

# 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 as turn table which is 0.8 m above ground plan. 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 according to §15.207. The two LISNs provide 50 ohm/ 50uH 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 **Radiated Emissions**

The EUT is a placed on as turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plan. 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.

# 2.4 Measurement Results Explanation Example

# 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. Note:

# The spectrum analyzer offset is derived from RF cable loss 1.1dB

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

Report No.: ER/2016/A0146 Page 8 of 84



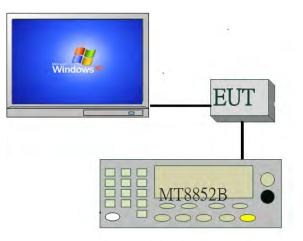
# 2.5 Configuration of Tested System Fig. 2-1 Radiated Emission Configuration



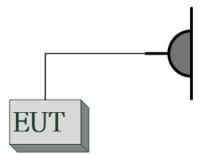
# **Remote Side**



# Fig.2-2 Conducted (Antenna Port) Configuration



# Fig 2-3 Conducted (AC power line) Configuration



# Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	Bluetooth Test Software	N/A	N/A	N/A	N/A	N/A
2	Notebook	Lenovo	L412	LR-957X7	Shielded	Un-shielded
3.	Bluetooth Test Set	Anritsu	MT8852B	6k00006107	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。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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 whiln 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



#### UMMARY 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)(1)	RSS-247 §5.4 (2)	Peak Output Power	Compliant
§15.247(a)(1)	RSS-247 §5.1 (1) RSS-Gen §6.6	20dB & 99% Bandwidth	Compliant
§15.247(d)	RSS-247 §5.5	Conducted Band Edge and Spurious Emission	Compliant
§15.247(d)	RSS-247 §5.5	Radiated Band Edge and Spurious Emission	Compliant
§15.247(a)(1)	RSS-247 §5.1 (2)	Frequency Separation	Compliant
§15.247(a)(1)(iii)	RSS-247 §5.1 (4)	Number of hopping frequency	Compliant
§15.247(a)(1)(iii)	RSS-247 §5.1 (4)	Time of Occupancy	Compliant
§15.203 §15.247(b)	RSS- Gen §8.3	Antenna Requirement	Compliant

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



#### **DESCRIPTION OF TEST MODES** 4

# 4.1 Operated in 2400 ~ 2483.5MHz Band

79 channels are provided for Bluetooth

CH	FREQUENCY	CH	FREQUENCY	CH	FREQUENCY	СН	FREQUENCY
0	2402 MHz	20	2422 MHz	40	2442 MHz	70	2462 MHz
1	2403 MHz	21	2423 MHz	41	2443 MHz	71	2463 MHz
2	2404 MHz	22	2424 MHz	42	2444 MHz	72	2464 MHz
3	2405 MHz	23	2425 MHz	43	2445 MHz	73	2465 MHz
4	2406 MHz	24	2426 MHz	44	2446 MHz	74	2466 MHz
5	2407 MHz	25	2427 MHz	45	2447 MHz	75	2467 MHz
6	2408 MHz	26	2428 MHz	46	2448 MHz	76	2468 MHz
7	2409 MHz	27	2429 MHz	47	2449 MHz	77	2469 MHz
8	2410 MHz	28	2430 MHz	48	2450 MHz	78	2470 MHz
9	2411 MHz	29	2431 MHz	49	2451 MHz	79	2471 MHz
10	2412 MHz	30	2432 MHz	50	2452 MHz	70	2472 MHz
11	2413 MHz	31	2433 MHz	51	2453 MHz	71	2473 MHz
12	2414 MHz	32	2434 MHz	52	2454 MHz	72	2474 MHz
13	2415 MHz	33	2435 MHz	53	2455 MHz	73	2475 MHz
14	2416 MHz	34	2436 MHz	54	2456 MHz	74	2476 MHz
15	2417 MHz	35	2437 MHz	55	2457 MHz	75	2477 MHz
16	2418 MHz	36	2438 MHz	56	2458 MHz	76	2478 MHz
17	2419 MHz	37	2439 MHz	57	2459 MHz	77	2479 MHz
18	2420 MHz	38	2440 MHz	58	2460 MHz	78	2480 MHz
19	2421 MHz	39	2441 MHz	59	2461 MHz		

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



# 4.2 The Worst Test Modes and Channel Details

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

# **RADIATED EMISSION TEST:**

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	PACKET TYPE		
Bluetooth	0 to 78	0,39,78	GFSK	DH5		
RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	PACKET TYPE		
Bluetooth	0 to 78	0,39,78	GFSK	DH5		

### Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for Bluetooth BR+EDR Transmitter for channel Low, Mid and High, the worst case E1 position was reported.

# ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST							
	Peak Output Power, 20dB Band Width						
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	PACKET TYPE			
	0 to 78	0,39,78	GFSK	DH5			
Bluetooth	0 to 78	0,39,78	π/4-DQPSK	DH5			
	0 to 78	0,39,78	8-DQPK	DH5			
		Bai	nd Edge				
Bluetooth	0 to 78	0,78	GFSK	DH5			
		Frequen	cy Separation				
Bluetooth	0 to 78	0,1,2	GFSK	DH5			
		Number of h	opping frequency				
Bluetooth	0 to 78	0 to 78	GFSK	DH5			
Time of Occupancy (Dwell time)							
Bluetooth	0 to 78	0,39,78	GFSK	DH1/DH3/DH5			
Bluetooth	0 to 78	39	π/4-DQPSK	DH1/DH3/DH5			
Bluetooth	0 to 78	39	8-DPSK	DH1/DH3/DH5			

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.

WeifS of all weights and the results structure results and structure results and structure and str Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

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

www.tw.sgs.com



#### 5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
Peak Output Power	+/- 0.84 dB
20dB Bandwidth	+/- 51.33 Hz
100 KHz Bandwidth Of Frequency Band Edges	+/- 0.84 dB
Frequency Separation	+/- 51.33 Hz
Number of hopping frequency	+/- 51.33 Hz
Time of Occupancy	+/- 51.33 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission:

	9kHz – 30MHz: +/- 2.87 dB			
	30MHz - 180MHz: +/- 3.37dB			
Measurement uncertainty	180MHz -417MHz: +/- 3.19dB			
(Polarization : <b>Vertical</b> )	0.417GHz-1GHz: +/- 3.19dB			
	1GHz - 18GHz: +/- 4.04dB			
	18GHz - 40GHz: +/- 4.04dB			

	9kHz – 30MHz: +/- 2.87 dB
	30MHz - 167MHz: +/- 4.22dB
Measurement uncertainty	167MHz -500MHz: +/- 3.44dB
(Polarization : Horizontal)	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the

95% confidence level using a coverage factor of k=2.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



#### CONDUCTED EMISSION TEST 6

# 6.1 Standard Applicable

Frequency within 150 kHz 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	MFR MODEL		SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
<b>EMI Test Receiver</b>	R&S	ESCI7	100760	05/04/2015	05/03/2016				
LISN	SCHWARZBECK	NSLK 8127	8127-649	05/15/2015	05/14/2016				
LISN	FCC	FCC-LISN-50/250-25 -2-01	4034	03/12/2016	03/11/2017				
Coaxial Cables	N/A	WK CE Cable	N/A	11/26/2015	11/25/2016				

# 6.3 EUT Setup

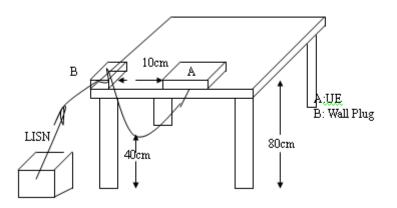
- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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

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



# 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 plan.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete.

### **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。

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



# AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode: Operation mode Temperature: 20

Test By: Tin

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized.

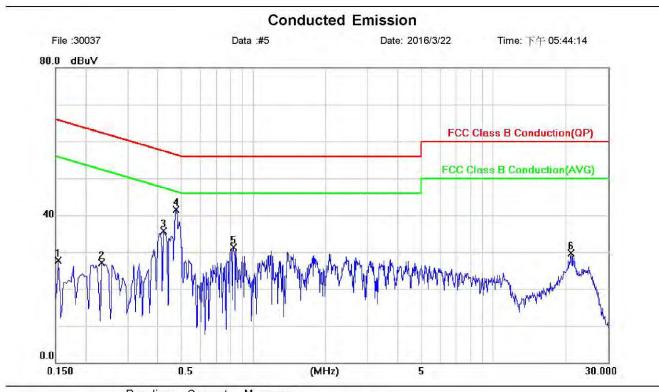
pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



Site Conduction Room Limit: FCC Class B Conduction(QP) Mode: Operation Note: Adapter: ADS-12B-06

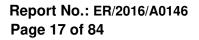
Phase: N AC 120V/60Hz Power:

Temperature: 20 °C Humidity: 58 %



No. Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.1540	27.54	0.07	27.61	65.78	-38.17	peak	T	
2	0.2340	27.07	0.08	27.15	62.31	-35.16	peak		
3	0.4220	35.67	0.10	35.77	57.41	-21.64	peak		
4 *	0.4780	41.47	0.10	41.57	56.37	-14.80	peak		
5	0.8300	31.10	0.11	31.21	56.00	-24.79	peak		
6	20.9860	29.23	0.46	29.69	60.00	-30.31	peak	k - 4	
6	20.9860	29.23	0.46	29.69	60.00	-30.31	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 <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law





#### PEAK OUTPUT POWER MEASUREMENT 7

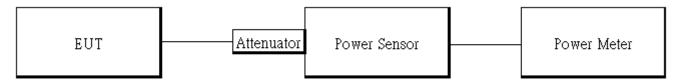
# 7.1 Standard Applicable

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, The Limit: 1Watt. For all other frequency hopping systems in the 2400 -2483.5MHz band: The Limit: 0.125 Watts. The power limit for 1Mbps is 1watt, and 2Mbps, 3Mbps and AFH mode are 0.125 watts and the e.i.r.p. shall not exceed 0.5 W if the hopset uses less than 75 hopping channels.

# 7.2 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.			
Power Meter	Anritsu	ML2495A	1005007	12/09/2015	12/08/2016			
Power Sensor	Anritsu	MA2411B	917032	12/09/2015	12/08/2016			
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017			
Coaxial Cable	HUBER+SUHNER	SUCOFLEX 102	23670/2	01/02/2016	01/01/2017			
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017			
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017			
Bluetooth Test Set	Anritsu	MT8852B	6k00006107	N.C.R	N.C.R			

# 7.3 Test Set-up:



# 7.4 Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Max Hold, Detector = Peak, RBW >= 20dB bandwidth)
- 4. Record the max. reading.
- 5. Repeat above procedures until all default test channel is completed.

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



### 7.5 Measurement Result

### 1M BR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)	С
0	2402	3.12	2.051	125	(
39	2441	1.84	1.528	125	З
78	2480	3.46	2.218	125	7

### 1M BR mode (Average):

nit N)	СН	Freq. (MHz)	Max. Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
25	0	2402	1.72	1.486	125
25	39	2441	0.33	1.079	125
25	78	2480	2.06	1.607	125

#### 2M EDR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
0	2402	3.09	2.037	125
39	2441	1.64	1.459	125
78	2480	3.52	2.249	125

#### 2M EDR mode (Average):

iit V)	СН	Freq. (MHz)	Max. Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
5	0	2402	-0.64	0.863	125
5	39	2441	-1.83	0.656	125
5	78	2480	0.04	1.009	125

#### 3M EDB mode (Peak):

3M EDR mode (Peak):				3M EDR mode (Average):					
СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)	СН	Freq. (MHz)	Max. Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
0	2402	3.54	2.259	125	0	2402	-0.64	0.863	125
39	2441	2.12	1.629	125	39	2441	-1.63	0.687	125
78	2480	3.89	2.449	125	78	2480	-0.12	0.973	125

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

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



### 1M BR mode EIRP

Channel	Frequency (MHz)	Max. Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
0	2402	1.72	2.55	2.673	500
39	2441	0.33	2.55	1.941	500
78	2480	2.06	2.55	2.891	500

### 2M EDR mode EIRP

Channel	Frequency (MHz)	Max. Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
0	2402	-0.64	2.55	1.552	500
39	2441	-1.83	2.55	1.180	500
78	2480	0.04	2.55	1.816	500

### 3M EDR mode EIRP

Channel	Frequency (MHz)	Max. Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
0	2402	-0.64	2.55	1.552	500
39	2441	-1.63	2.55	1.236	500
78	2480	-0.12	2.55	1.750	500

\* Note: EIRP = Average Power + Gain

NOTE: cable loss as 1.1dB that offse

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



# 8 20DB & 99% BANDWIDTH MEASUREMENT

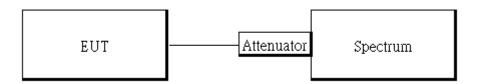
# 8.1 Standard Applicable

For frequency hopping systems operating in the 2400MHz-2483.5 MHz no limit for 20dB bandwidth.

# 8.2 Measurement Equipment Used

Conducted Emission Test Site										
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.					
Spectrum Analyzer	Agilent	N9010A	MY50420195	12/21/2015	12/20/2016					
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017					
Coaxial Cable	HUBER+SUHNE R	SUCOFLEX 102	23670/2	01/02/2016	01/01/2017					
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017					
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017					
Bluetooth Test Set	Anritsu	MT8852B	6k00006107	N.C.R	N.C.R					

# 8.3 Test Set-up



# 8.4 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- Set the spectrum analyzer as RBW=10 kHz (1 % of 20 dB Bandwidth.), VBW = 30 kHz, Span= 3MHz, Sweep=auto, Detector = Peak, and Max hold for 20dB Bandwidth test.
- 5. Mark the peak frequency and –20dB (upper and lower) frequency
- 6. Turn on the 99% bandwidth function, max reading.
- 7. Repeat above procedures until all test default channel is completed

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>www.sqs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sqs.com/terms e-document.htm</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.



### 8.5 Measurement Result

GFSK	K π/4-DQPSK				8-DPS	K		
СН	20 dB BW	2/3 BW	СН	20 dB BW	2/3 BW	СН	20 dB BW	2/3 BW
	(MHz)	(MHz)		(MHz)	(MHz)		(MHz)	(MHz)
Low	0.9578	0.64	Low	1.304	0.87	Low	1.290	0.86
Mid	0.9323	0.62	Mid	1.279	0.85	Mid	1.262	0.84
High	0.9421	0.63	High	1.286	0.86	High	1.261	0.84

GF	SK
----	----

 $\pi/4$ -DQPSK

8-DPSK

				• = : • : :	
СН	99% Bandwidth (MHz)	СН	99% Bandwidth (MHz)	СН	99% Bandwidth (MHz)
Low	0.90335	Low	1.1867	Low	1.1809
Mid	0.88653	Mid	1.1807	Mid	1.1790
High	0.88317	High	1.1821	High	1.1702

# CH-Low (GFSK mode)



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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

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



# CH-Mid (GFSK mode)



# **CH-High (GFSK mode)**

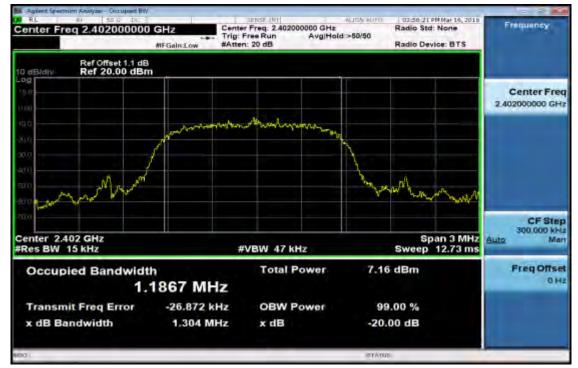


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

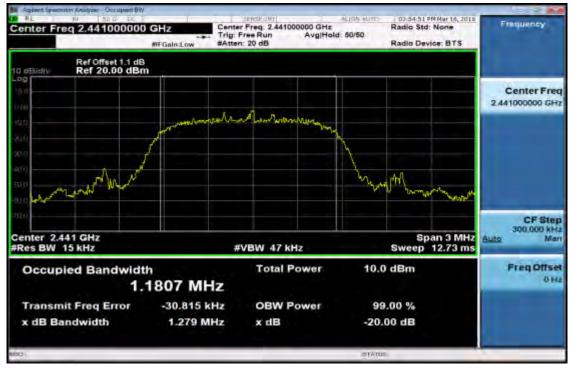
Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available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



# CH-Low (π/4-DQPSK mode)



CH-Mid ( $\pi$ /4-DQPSK mode)



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.

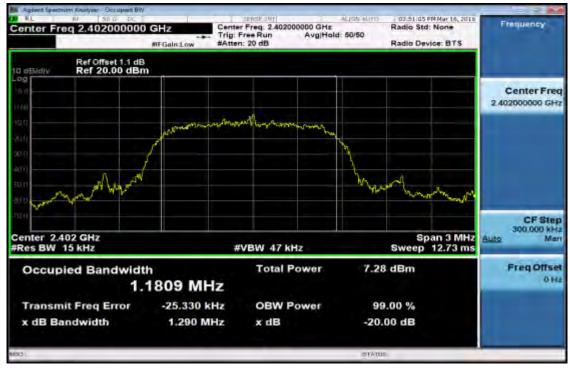
Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available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



# CH-High ( $\pi$ /4-DQPSK mode)



# CH-Low (8-DPSK mode)

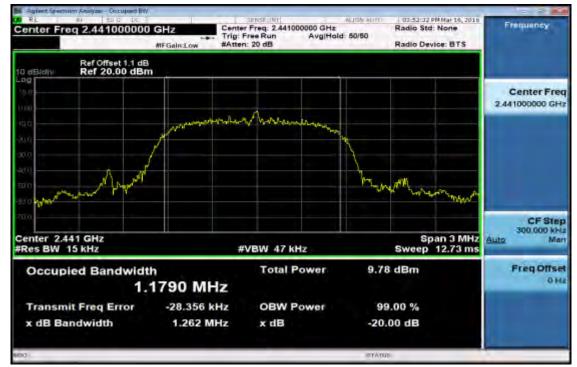


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

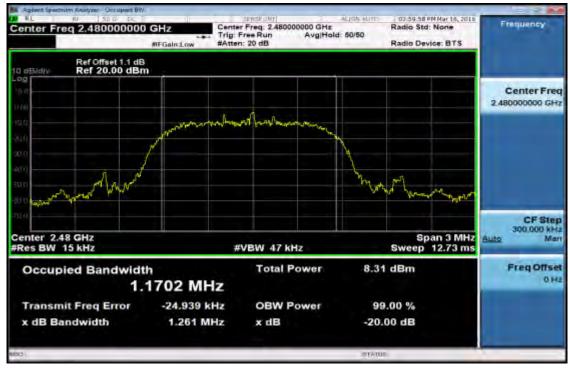
Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available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



# CH-Mid (8-DPSK mode)



# CH-High (8-DPSK mode)



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.

Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 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>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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



# 9 CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT

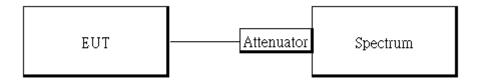
# 9.1 Standard Applicable

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), must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.9 limit.

### 9.2 Measurement Equipment Used

	Conducted Emission Test Site										
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.						
Spectrum Analyzer	Agilent	N9010A	MY50420195	12/21/2015	12/20/2016						
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017						
Coaxial Cable	HUBER+SUHNER	SUCOFLEX 102	23670/2	01/02/2016	01/01/2017						
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017						
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017						
Bluetooth Test Set	Anritsu	MT8852B	6k00006107	N.C.R	N.C.R						

# 9.3 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 <u>www.sqs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sqs.com/terms e-document.htm</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.



# 9.4 Measurement Procedure

# Conducted Band Edge:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
- 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 center frequency of spectrum analyzer = operating frequency.
- 5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Sweep = auto
- 6. Mark Peak, 2.3999GHz and 2.4836GHz and record the max. level.
- 7. Repeat above procedures until all frequency measured were complete.

# **Conducted Spurious Emission:**

- 1. To connect Antenna Port of EUT to Spectrum.
- 2. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
- 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.

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)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

# 9.5 Measurement Result

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

- 1. Cable loss as 0.2dB that offsets in the spectrum
- 2. The occurrence of the spike on the conducted emission is the signal of the fundamental emission.

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>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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. WuKungRoad.New TaiweIndustrialPark. WukuDistrict.NewTaiweIcity Taiwan24803/新 t. 市 5 Bis S t. at 334 st



# Band Edges Test Data CH-Low (Worst case of Hopping mode) (BR Mode)

Agilant Spectrelm Analyzer - Sirept SA				2.2
Center Freq 2.36500000	PNO: Fast Trig: Free Run FGain:Low #Atten: 20 dB	Avg Type: Log-Pwr	04:09:32 PM Mar 16, 2016 TMAGE 1 2 3 4 5 TVPE PM Mar 16, 2016	Frequency
Ref Offset 1.1 dB	in Gent.Com written at our	Mkr	1 2.407 13 GHz 3.94 dBm	Auto Tuni
1 1a 1 330 1 6 50				Center Free 2.365000000 GH
2919 利 0 16 0				Start Fre 2.310000000 GH
	a Lanna Araa Mahara (Philip Shingara Parant		\$ <sup>2</sup>	Stop Fre 2 42000000 GH
start 2.31000 GHz Res BW 100 kHz	#VBW 300 kHz	Sweep 1	Stop 2.42000 GHz .000 ms (1001 pts)	CF Ste 11.000000 MH
2 N 1 T 2	407 13 GHz 3.94 dBm 399 90 GHz -65.97 dBm 390 00 GHz -70.45 dBm	FUNCTION FUNCTION WIETH	FUNCTION VALUE	Freq Offse 0 H
6 7 8 9 10				
sal	-	STÁTUS	11	

Band Edges Test Data CH-High (BR Mode)



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.

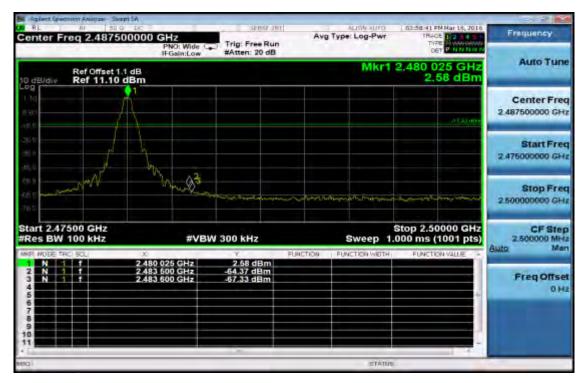
Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available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



# Band Edges Test Data CH-Low (Worst case of Non-Hopping mode) (BR Mode)

-	M Mar 16, 2016	101-47-51 8	ALTON AUTO	iner!	SPR92		Strapt SA	CHAN Analyzer	Agent Spe
Frequency		TMAD TVP	Type: Log-Pwr	in		GHz PNO: Fest G	5000000		enter F
Auto Tun	07 GHz 08 dBm	1 2.402	Mkr			T DEMILION	et 1.1 dB 10 dBm	Ref Offse Ref 11.	dB/div
Center Fre 2.365000000 GH	-17.02.051								10 10 10
Start Fre 2.310000000 GH		4							55 80 40
Stop Fre 2 42000000 GH	and the second	A2 home	0.	eren andre	that an an an the state	ange gelege by a valange over	nine eglennise	والمعالية والمعالية	8.9 1.0 5.0
CF Ste 11.000000 MH Auto Mo		Stop 2.42 000 ms (*		FUNCTIO	300 kHz	#VBV		1000 GHz 100 kHz	
Freq Offs 0 F	-				2.08 dBm -62.63 dBm -70.85 dBm	02 07 GHz 99 90 GHz 90 00 GHz	2.39	f f f	
		-	STATUS						al.

Band Edges Test Data CH-High (BR Mode)



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.

Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 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>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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



# Band Edges Test Data CH-Low (Worst case of Hopping mode) (EDR Mode)

Agient Spectrism Analyzer-Sine					20
enter Freq 2,36500	PNO: Fast C	Trig: Free Run #Atten: 20 dB	Avg Type: Log-Pwr	D4:10:27 PM Mar 14, 2016 TRADE 1 2 3 4 5 TVPE PARAMETER DET P NO NUMBER	Frequency
Ref Offset 1.	IFGain:Low 1 dB dBm	#Atten: 20 0B	Mkr	1 2.410 21 GHz 2.43 dBm	Auto Tuni
				1.1.100 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	Center Free 2.365000000 GH
36 9 90 0 16 0					Start Fre 2.310000000 GH
69 9 50 9 78 9	5-1 Marana (1999	ngaraan madaa ahaa ka saada ahaa ahaa	Ŷ	<u><u></u></u>	Stop Fre 2.420000000 GH
Res BW 100 GHz	#VB	W 300 kHz	Sweep 1	Stop 2.42000 GHz 000 ms (1001 pts)	CF Ste 11,000000 MH Auto Ma
1 N 1 f 2 N 1 f 3 N 1 f 4	2.410 21 GHz 2.399 90 GHz 2.390 00 GHz	2.43 dBm -61.51 dBm -68.60 dBm			Freq Offse 0 H
53			STATUS		

Band Edges Test Data CH-High (EDR Mode)

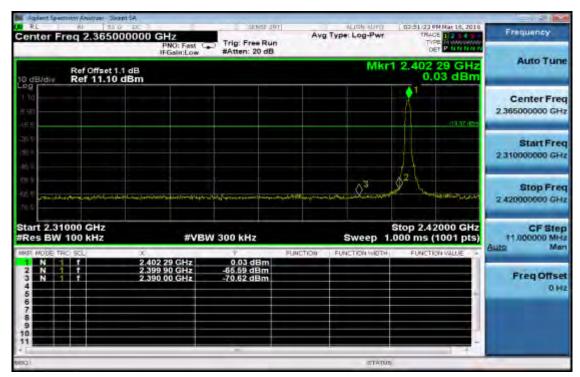


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

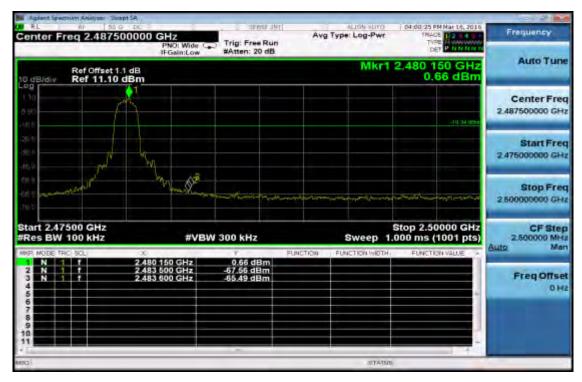
Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available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



Band Edges Test Data CH-Low (Worst case of Non-Hopping mode) (EDR Mode)



Band Edges Test Data CH-High (EDR Mode)



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

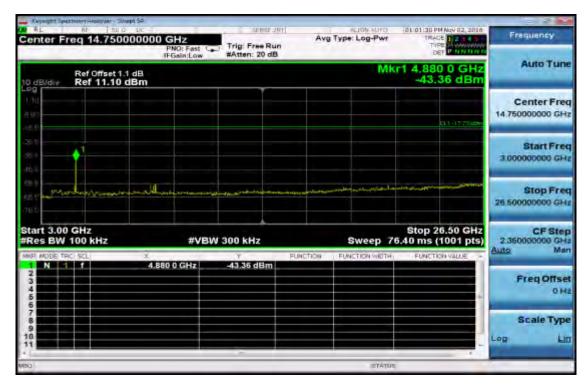
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relatined to so days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf,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



# **Conducted Spurious Emission Measurement Result** Ch Low 30MHz – 3GHz (BR Mode)

DC DC 00000 GHz PNO: Fast IFGain:Low	Trig: Free Run #Atten: 20 dB	Avg Type: Log-Pwr	61:01:11 PM Nov 02, 2016 TRACE 1 2 14 1 TYPE PL NORMANN DET PLN NTLAN	Frequency Auto Tune
Ref Offset 1.1 dB Mkr1 2.403 0 GHz dB/div Ref 11.10 dBm 2.27 dBm				
			AT	Center Free 1.515000000 GH
				Start Free 30,000000 MH
والمسترور والمسترور المستعولين المرا			denter and the second	Stop Fre 3.00000000 GH
#VB)		the set is a set of the state of the set of		CF Step 297.000000 MH Auto Me
2.403 0 GHz	2.27 dBm		-	Freq Offse 0 H
				Scale Type
	DOODO GHz PNO: Fast IFGain:Low I dB dBm #VBV	Trig: Free Run PNO: Fest IFGain:Low Trig: Free Run #Atten: 20 dB I dB	Avg Type: Log-Pwr PNO: Fast Trig: Free Run #Atten: 20 dB I d I d	Avg Type: Log-Pwr PNO: Fast

# Ch Low 3GHz – 26.5GHz (BR Mode)



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.

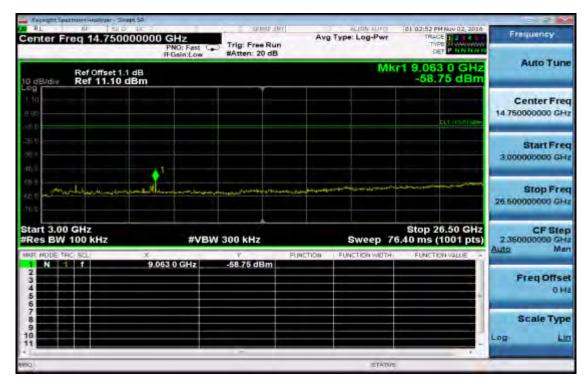
Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available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



# Ch Mid 30MHz – 3GHz (BR Mode)

RL N/ Sh G DC	SURGE SURGE	OTULA HOLAN	01-02:31 PM Nev 02, 2016	
enter Freq 1.51500000		Avg Type: Log-Pwr Run		Frequency
Ref Offset 1.1 dB	Auto Tun			
Pg 1 10 5 50			ter andrezen	Center Fra 1.515000000 GP
5 5 6 0				Start Fr 30,000000 Mi
E E Long Statute - to - report a state	مهيم والمعرفين وروي مالي والمراجع	ىلىيە ۋە بەلەمەن قالىيىنى بەردە مەرەپەر مەرەپىرىيىنى مەرەپىرىيى		Stop Fr 3.00000000 G
tart 0.030 GHz	#VBW 300 kHz	Sweep 9	Stop 3.000 GHz .667 ms (1001 pts)	CF St
				297,000000 M Auto M
R MODE TRC SOL X		FUNCTION   FUNCTION WIDTH	FUNCTION VALUE	297,000000 M Auto M
	Ŷ	FUNCTION   FUNCTION WIDTH		Auto M Freq Offs
N MODE TRC SCL X	Ŷ	FUNCTION   FUNCTION WIDTH		297.000000 MM Autz M Freq Offs 01 Scale Typ Log L

# Ch Mid 3GHz – 26.5GHz (BR Mode)



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.

Chiefwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s). The state of the sample(s) tested and such sample(s) tested an pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

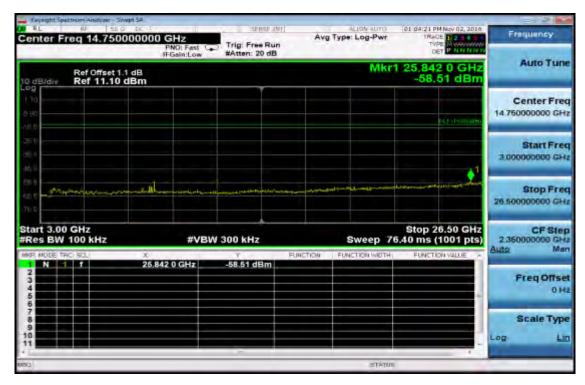
SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



# Ch High 30MHz – 3GHz (BR Mode)

Keynight Spectrum Analyzer - Skrept SA					- 20 E
enter Freq 1.515000000	GHz PNO: Fast	Trig: Free Run #Atten: 20 dB	Avg Type: Log-Pwr	01:03:55 PM Nov 02, 2016 TRACE 1 2 3 4 5 TYPE PLAN NOV 02, 2016	Frequency
Ref Offset 1.1 dB	Prosin(Low	Broner: 20 CD	Mk	r1 2,480 3 GHz 3,17 dBm	Auto Tuni
60 680				(LT-Hurseith)	Center Fre 1.515000000 GH
6.9 0.0					Start Fre 30.000000 MH
B B		م و میں میں اور میں مادور میں م		J	Stop Fre 3.000000000 GH
tart 0.030 GHz Res BW 100 kHz	#VBW	300 kHz	Sweep 9.	Stop 3.000 GHz 667 ms (1001 pts)	CF Ste 297.000000 MH Auto Ma
2 3 4 5	480 3 GHz	7 FU 3.17 dBm	NETION : FUNCTION WIGTH;	FUNCTION VALUE	Freq Offse 0 H
6 7 8 9 0					Scale Typ
a			STÁTUS		

# Ch High 3GHz – 26.5GHz (BR Mode)



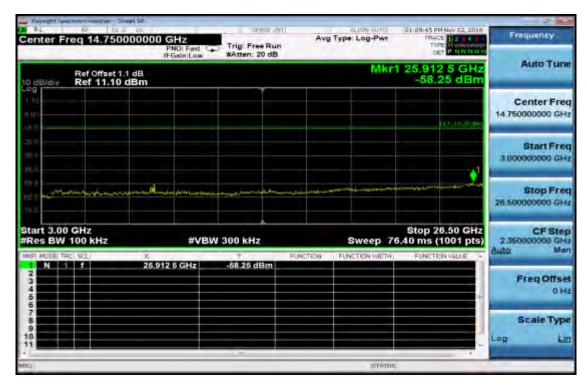
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



# Ch Low 30MHz – 3GHz (EDR Mode)

Keynight Spectrum Analyzer - Skrept Sk			and the second		10.2 P	
enter Freq 1.5150000	PNO: Fast	Trig: Free Run #Atten: 20 dB	Avg Type: Log-Pwr	01:09:26 PM Nov 02, 2016 TRACE 1 2 3 4 3 TVPE PM N NOV	Frequency	
	Ref Offset 1.1 dB Mkr1 2,403 0 GHz					
99 10 90				)1 (1) 46.8 (89)	Center Fre 1.515000000 GH	
6 0					Start Fre 30,00000 MH	
9 19 10 10 10	المتدمد ويردد مناجعا معالي	والمستعلم والمستع		Ukuman mining	Stop Fre 3.00000000 GH	
art 0.030 GHz Res BW 100 kHz	#VBV	V 300 kHz		Stop 3.000 GHz 667 ms (1001 pts)	CF Ste 297,000000 MH Auto Ma	
KR MODE TRC SCL	× 2.403 0 GHz	Y F. 1.74 dBm	NETION FUNCTION WIDTH	FUNCTION VALUE ×	Freq Offse	
4 5 6 7					0 H Scale Typ	
8						

# Ch Low 3GHz – 26.5GHz (EDR Mode)



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.

Chiefwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s). The state of the sample(s) tested and such sample(s) tested an pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

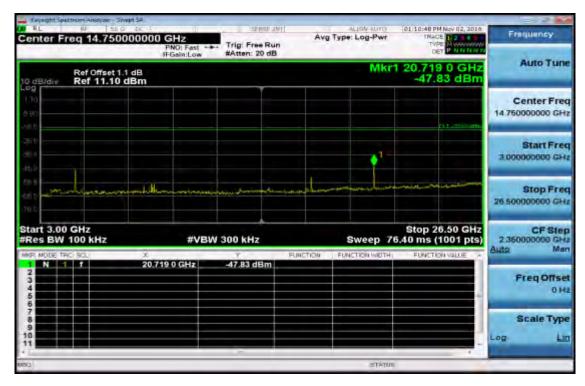
SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



# Ch Mid 30MHz – 3GHz (EDR Mode)

Key eight Spectreen Analyzer - Skrept SA					
Center Freq 1.515000000	PNO: Fast	Trig: Free Run #Atten: 20 dB	Avg Type: Log-Pwr		Frequency
Ref Offset 1.1 dB	Ref Offset 1.1 dB Mkr1 2.441 6 GHz				
690 690					Center Fre 1.515000000 GH
15 5 10 0 15 0					Start Fre 30,000000 MH
18 9 . 20 9 . 20 9	u-lo-lo-adata parata ta		a an a case of the second s		Stop Fre 3,00000000 GF
Res BW 100 kHz	#VBW	300 kHz	Sweep	Stop 3.000 GHz 9.667 ms (1001 pts)	CF Ste 297.000000 Mit Auto Mit
1 N 1 f 2 3 4 5	441 6 GHz	-0.63 dBm			Freq Offse 01
6 7 8 9 10					Scale Typ
0		1. F.	≡TÁD	r	-

# Ch Mid 3GHz – 26.5GHz (EDR Mode)



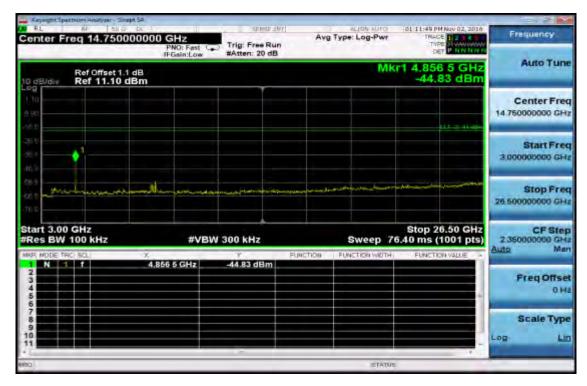
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



## Ch High 30MHz – 3GHz (EDR Mode)

Keynight Spectrum Analyzer - Skript SA			and the second second	and the second	S. 20
RL N 151000000	GHz PNO: Fast	Trig: Free Run #Atten: 20 dB	Avg Type: Log-Pwr	d1:11:30 PM Nov 02, 2016 TRACE 1 2 14 1 TYPE Providential OFT P N.N.N.M.	Frequency
Ref Offset 1.1 dB	IFG8IR;LOW	HOUSE LY UD	Mk	r1 2.480 3 GHz -1.44 dBm	Auto Tuni
2g 10 20					Center Fre 1.515000000 GH
					Start Fre 30.000000 MH
9 C. Mantland January and Man	amping and a second second	فيستجدام وهري والرائع	- Andrew - A	W	Stop Fre 3.00000000 GH
art 0.030 GHz les BW 100 kHz	#VBW	/ 300 kHz		Stop 3.000 GHz .667 ms (1001 pts)	CF Ste 297.000000 Mit Auto Mit
R MODE TRC: SCL X. N 1 f 2.	480 3 GHz	Υ FL -1.44 dBm	RETION : FUNCTION WIGTH	FUNCTION VALUE	Freq Offse 0 H
					Scale Typ
3)			STATUS		100

#### Ch High 3GHz – 26.5GHz (EDR Mode)



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.

Chiefwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s). The state of the sample(s) tested and such sample(s) tested an pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



## **10 RADIATED BANDEDGE 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, must also comply with the §15.209 & RSS-Gen §8.10 Table 6 limit.

And according to §15.33(a) (1) & RSS-Gen §8.9 Table 4 & 5, 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  $(dB\mu V/m) = 20 \log Emission level (dB\mu V/m)$

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>www.sqs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sqs.com/terms e-document.htm</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.



#### **10.2 Measurement Equipment Used**

	966 Chamber											
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.							
TYPE		NUMBER	NUMBER	CAL.								
EMI Test Receiver	R&S	ESCI7	100760	05/10/2016	05/09/2017							
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2016	01/28/2017							
Loop Antenna	ETS-Lindgren	6502	148045	09/20/2016	09/19/2017							
Bilog Antenna	SCHWAZBECK	VULB9168	378	12/20/2015	12/19/2016							
Horn Antenna	Schwarzbeck	BBHA9120D	1441	08/01/2016	07/31/2017							
Pre-Amplifier	Agilent	8447D	2944A07676	01/06/2016	01/05/2017							
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/06/2016	01/05/2017							
Turn Table	HD	DT420	N/A	N.C.R	N.C.R							
Antenna Tower	ChamPro	AM-BS-4500-B	060776-ABS	N.C.R	N.C.R							
Controller	ChamPro	EM1000	60776	N.C.R	N.C.R							
Low Loss Cable	Huber Suhner	966_RX	9	01/06/2016	01/05/2017							
3m Site NSA	SGS	966 chamber	N/A	07/01/2016	06/30/2017							
Low Loss Cable	Huber Suhner	966 TX	1	01/06/2016	01/05/2017							
Horn Antenna	Schwarzbeck	BBHA9170	184	12/13/2015	12/12/2016							
Pre-Amplifier	EMC Instruments Corp.	EMC184045	980135	01/06/2016	01/05/2017							

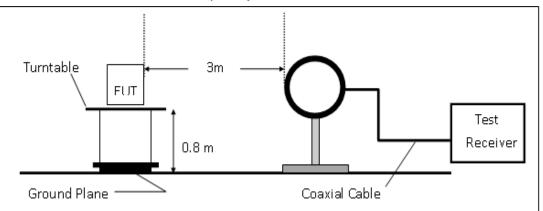
NOTE: N.C.R refers to Not Calibrated Required.

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 <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

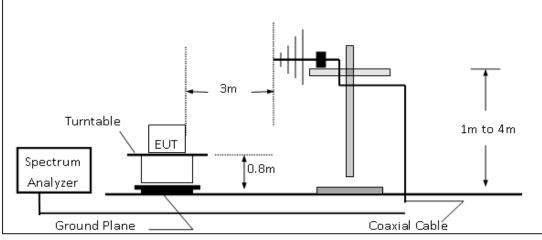


#### 10.3 Test SET-UP

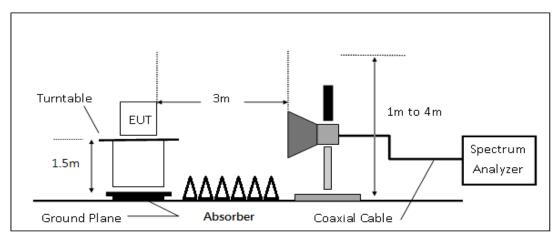
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(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.

Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 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>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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



## **10.4 Measurement Procedure**

#### **Radiated Emission**

- 1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
- 2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 0.8m for frequency> 1GHz above ground plan.
- 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. Use the follow spectrum analyzer setting:
  - (1) Span = wide enough to fully capture the emission being measured
  - (2) RBW = 1 MHz for  $f \ge 1$  GHz, 100 kHz for f < 1 GHz, VBW  $\ge$  RBW, Sweep = auto, Detector function = peak, Trace = max hold
  - (3) For average measurement: use duty cycle correction factor method per 15.35(c) Duty Cycle = On time/100 milliseconds

On time = N1\*L1=N2\*L2+...+N(n-1)\*LN(n-1)+N(n)\*L(n)

Where N1 is number of type 1 pulses, L1 is length of type 1 pulses, etc.

Average Emission Level = Peak Emission Level + 20\*log (duty Cycle)

- 6. 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.
- 7. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 8. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 9. Repeat above procedures until all frequency of the interest measured were complete.

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

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



### **10.5 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)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

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(dBµV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

#### Note :

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

### 10.6 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) was not reported.

#### 10.7 Measurement Result

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

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>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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.

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



2310

2320

#### Radiated Band Edge Measurement Result: (Hopping Mode)

0	iulateu Dallu	Luye mea	surement result. (i	hopping wode)	
	Operation Mod	de :	BDR Hopping	Test Date :	11/02/2016
	Fundamental	Frequency :	2402 MHz	Temp. / Humi. :	22 deg_C / 63 RH
	Operation Band :		Bandedge CH LOW	Test Engineer :	Tin
	EUT Pol.:		E1 Plane	Measurement Antenna	Pol. : VERTICAL
	117				
	1				
	100				(* ***
	100 -				
	-				
	1				
	5 80 -				and and a store of
	Level [dBuV]				FCC RSE-PK 3M
	Leve				
	60 -				
					FCC PSE-AV 3M
	-				
	m	mensdamm	mountermon	munementer	2 Martin
	40 -				
			and the second se	and the second sec	

2360 Frequency [MHz] 2380

2400

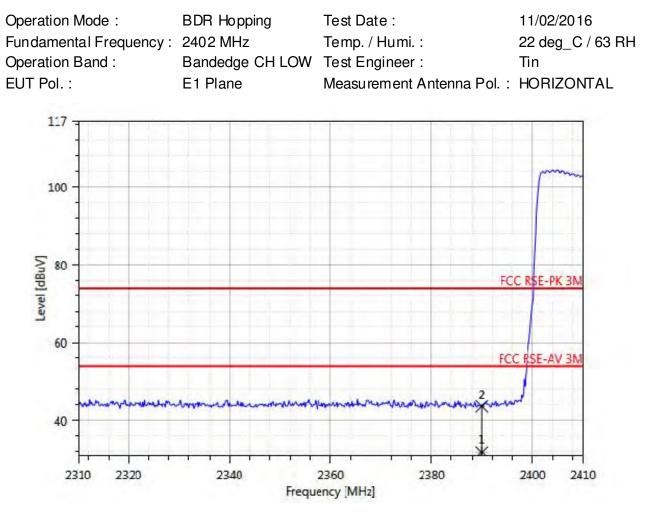
2410

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2390.00	E	Average	31.72	33.46	-1.74	54.00	-22.28
2390.00	Е	Peak	44.44	46.18	-1.74	74.00	-29.56

2340

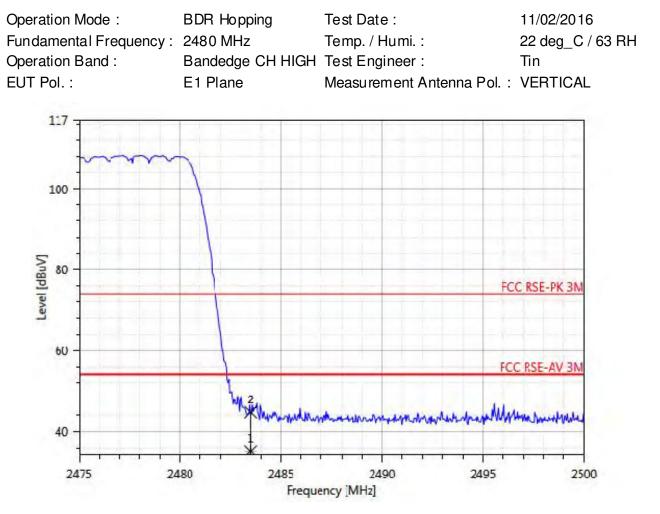
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law





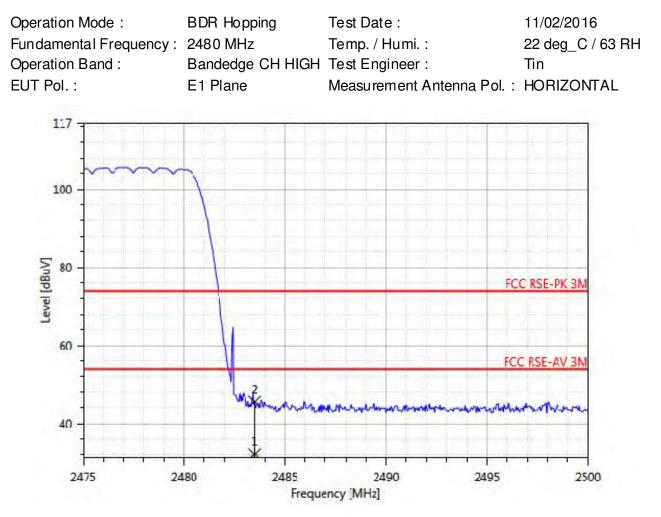
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin	
		Mode	Reading Level	FS		@3m		
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB	
2390.00	Е	Average	31.82	33.56	-1.74	54.00	-22.18	
2390.00	Е	Peak	43.57	45.31	-1.74	74.00	-30.43	





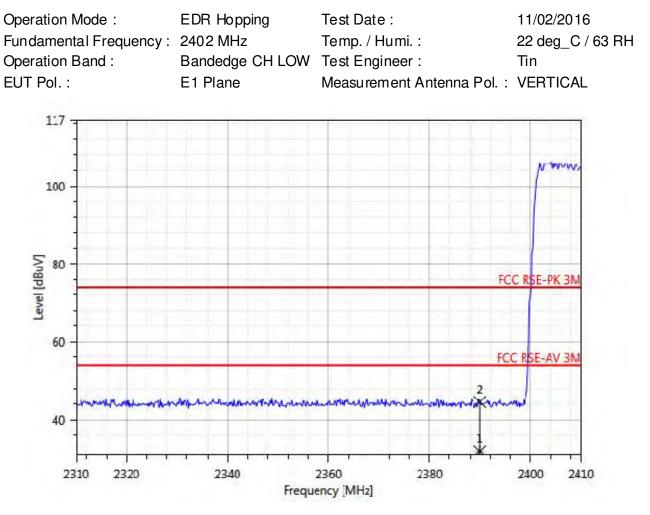
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2483.50	Е	Average	35.13	36.75	-1.62	54.00	-18.87
2483.50	Е	Peak	44.78	46.39	-1.62	74.00	-29.22





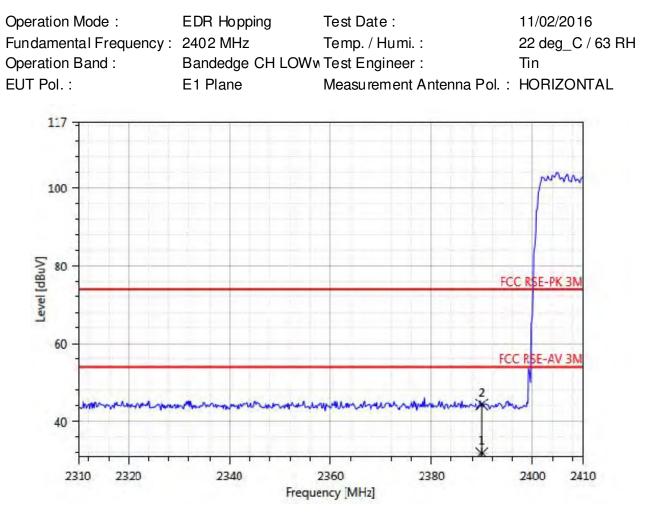
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2483.50	Е	Average	32.16	33.78	-1.62	54.00	-21.84
2483.50	Е	Peak	45.66	47.28	-1.62	74.00	-28.34



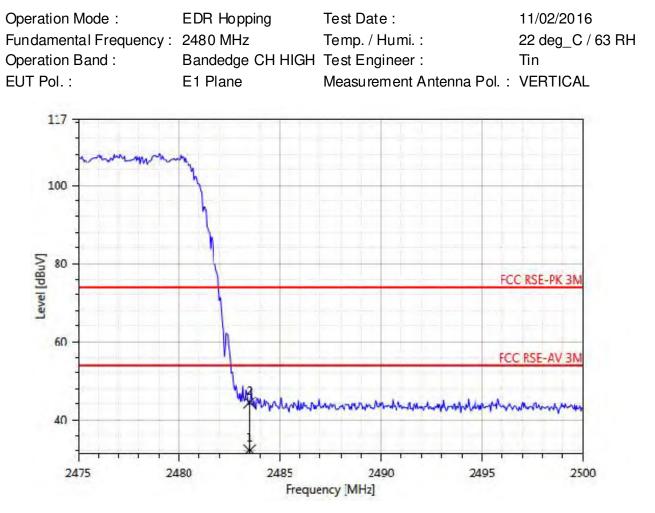


Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin	
		Mode	Reading Level	FS		@3m		
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB	
2390.00	Е	Average	31.87	33.61	-1.74	54.00	-22.13	
2390.00	Е	Peak	44.51	46.25	-1.74	74.00	-29.49	



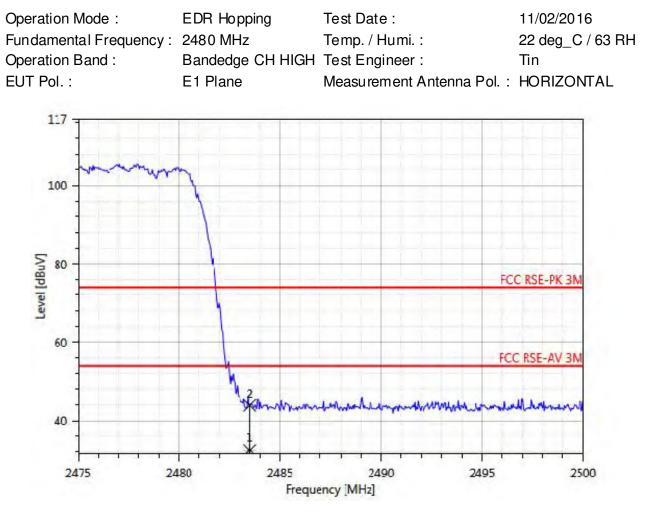


Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2390.00	Е	Average	31.78	33.52	-1.74	54.00	-22.22
2390.00	Е	Peak	44.31	46.05	-1.74	74.00	-29.69



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2483.50	Е	Average	32.26	33.88	-1.62	54.00	-21.74
2483.50	Е	Peak	44.43	46.04	-1.62	74.00	-29.57

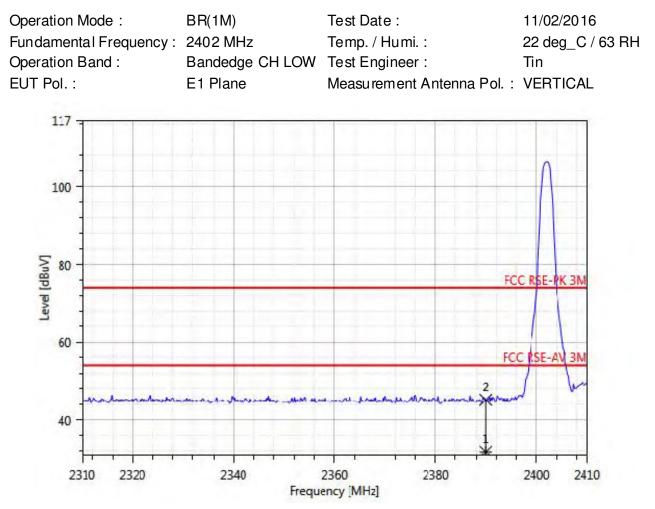




Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2483.50	Е	Average	32.42	34.04	-1.62	54.00	-21.58
2483.50	Е	Peak	43.84	45.46	-1.62	74.00	-30.16



#### Radiated Emission – Band Edge (Non-Hopping Mode):

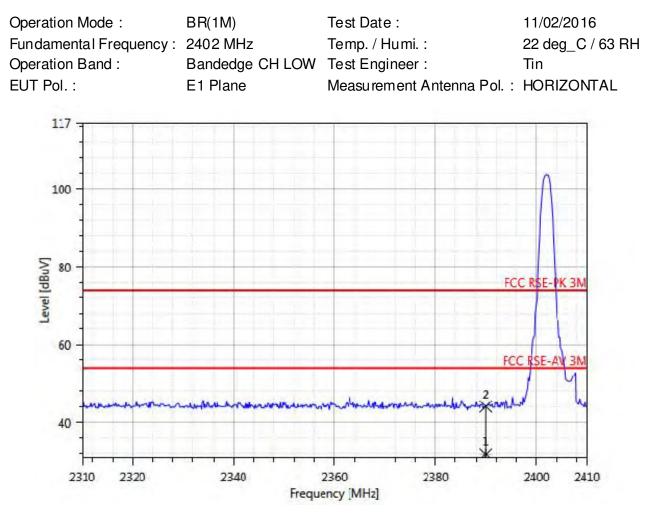


Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2390.00	E	Average	31.76	33.50	-1.74	54.00	-22.24
2390.00	Е	Peak	45.12	46.86	-1.74	74.00	-28.88

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.

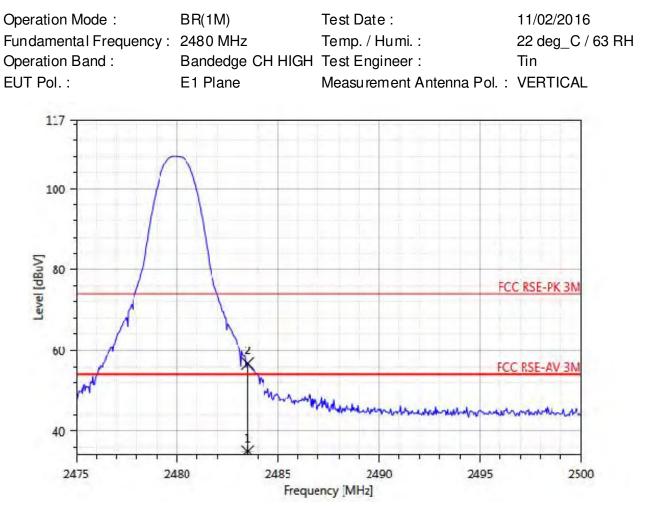
Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available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





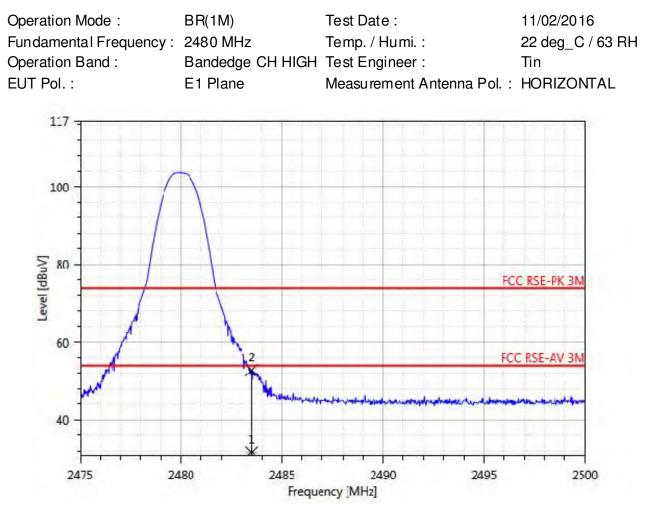
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2390.00	Е	Average	31.82	33.56	-1.74	54.00	-22.18
2390.00	Е	Peak	44.07	45.82	-1.74	74.00	-29.93





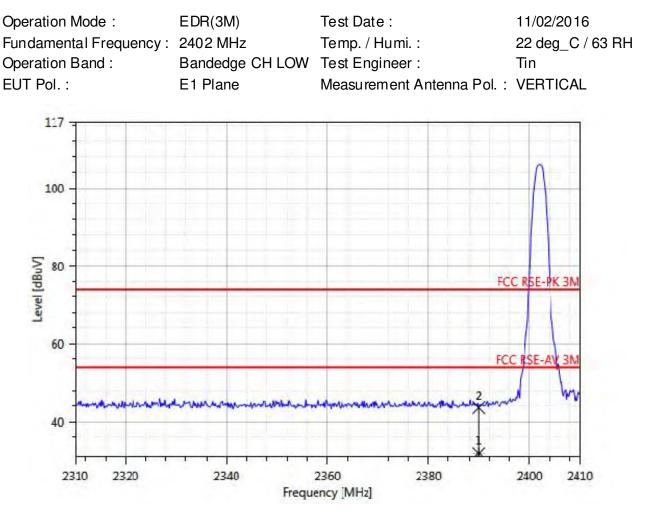
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2483.50	Е	Average	35.08	36.70	-1.62	54.00	-18.92
2483.50	Е	Peak	56.80	58.42	-1.62	74.00	-17.20





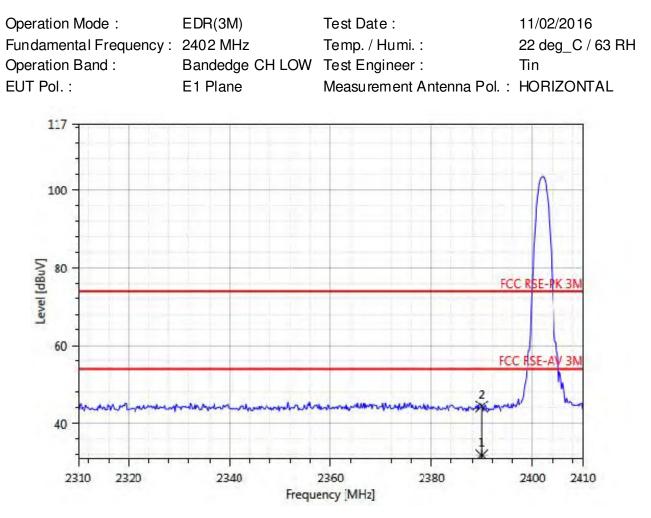
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2483.50	Е	Average	31.69	33.31	-1.62	54.00	-22.31
2483.50	Е	Peak	52.83	54.45	-1.62	74.00	-21.17





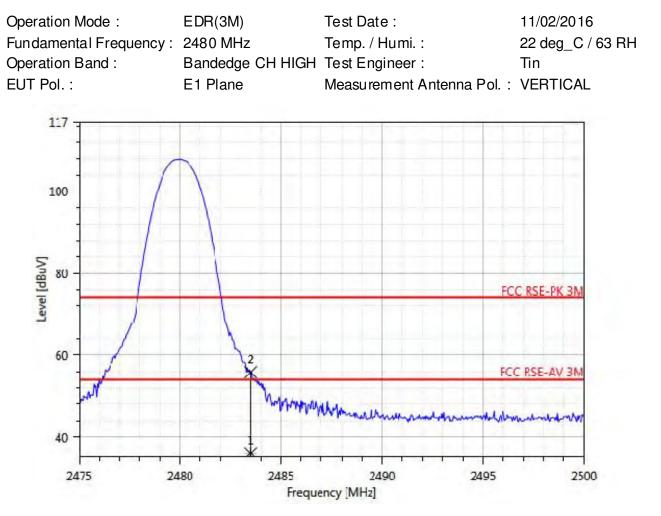
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2390.00	Е	Average	31.88	33.62	-1.74	54.00	-22.12
2390.00	Е	Peak	43.53	45.28	-1.74	74.00	-30.47





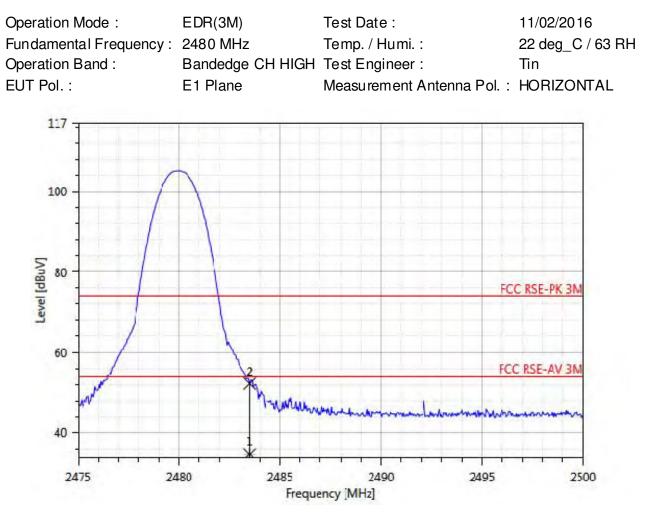
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin	
		Mode	Reading Level	FS		@3m		
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB	_
2390.00	Е	Average	31.79	33.53	-1.74	54.00	-22.21	
2390.00	Е	Peak	44.31	46.06	-1.74	74.00	-29.69	





Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2483.50	Е	Average	36.04	37.66	-1.62	54.00	-17.96
2483.50	Е	Peak	55.84	57.46	-1.62	74.00	-18.16





Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
2483.50	Е	Average	34.70	36.32	-1.62	54.00	-19.30
2483.50	Е	Peak	52.22	53.84	-1.62	74.00	-21.78



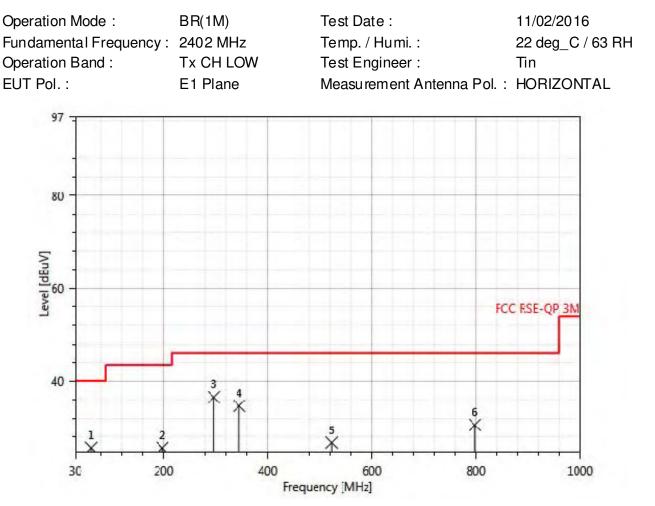
## **Radiated Spurious Emission Measurement Result:** For Frequency form 30MHz to 1000MHz

Operation Mode	e :	BR(1M)		Test Da	te:		11/02/2016
	damental Frequency :		2402 MHz		Humi. :		22 deg_C / 63 RH
Operation Band			W	Test En	gineer :		Tin
EUT Pol. :		E1 Plane		Measure	ement Anten	na Pol. :	VERTICAL
97							
-							
80 -							
Level (dBuV.							
- Leve						FC.C	RSF-QP 3M
40							
	2	× ×		5 X		б Ж	
30	200		400 Frequ	60 ency [MHz]	00	800	1000

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
59.10	S	Peak	34.42	42.44	-8.03	40.00	-5.58
128.94	S	Peak	23.03	32.60	-9.57	43.50	-20.47
294.81	S	Peak	28.58	34.60	-6.02	46.00	-17.42
345.25	S	Peak	28.40	33.49	-5.09	46.00	-17.60
544.10	S	Peak	26.72	28.31	-1.60	46.00	-19.28
798.24	S	Peak	30.56	27.45	3.11	46.00	-15.44

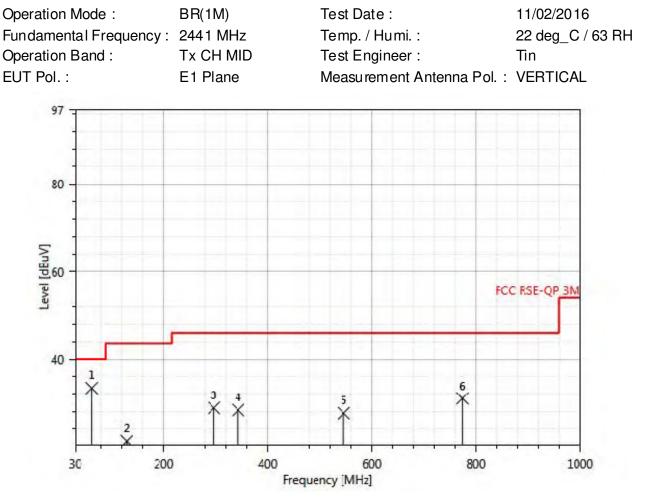
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law





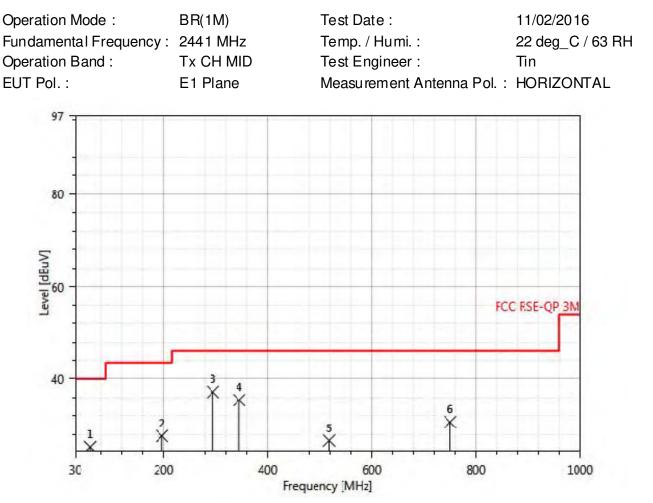
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
61.04	S	Peak	25.66	33.91	-8.25	40.00	-14.34
197.81	S	Peak	25.63	35.21	-9.58	43.50	-17.87
296.75	S	Peak	36.56	42.54	-5.98	46.00	-9.44
345.25	S	Peak	34.68	39.76	-5.09	46.00	-11.32
522.76	S	Peak	26.78	28.44	-1.66	46.00	-19.22
798.24	S	Peak	30.58	27.47	3.11	46.00	-15.42





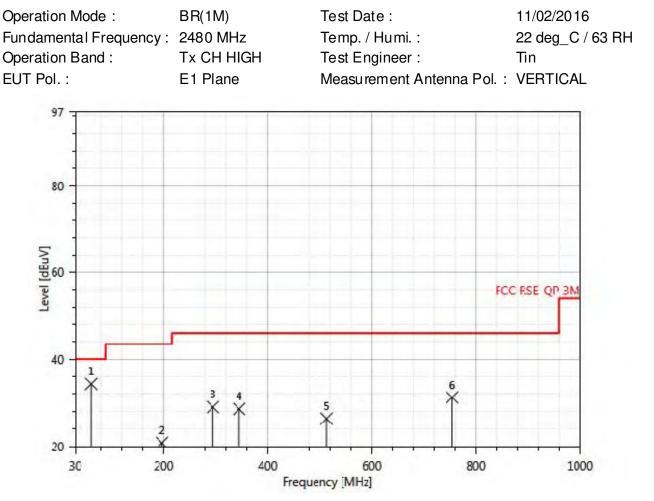
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
62.01	S	Peak	33.36	41.83	-8.47	40.00	-6.64
128.94	S	Peak	21.30	30.87	-9.57	43.50	-22.20
296.75	S	Peak	28.86	34.84	-5.98	46.00	-17.14
343.31	S	Peak	28.39	33.51	-5.12	46.00	-17.61
546.04	S	Peak	27.67	29.22	-1.55	46.00	-18.33
773.99	S	Peak	31.02	28.25	2.77	46.00	-14.98





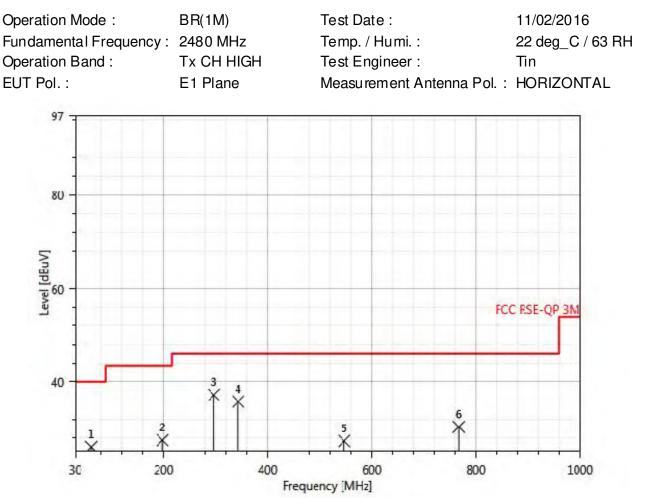
Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
			0	_		-	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
59.10	S	Peak	25.31	33.33	-8.03	40.00	-14.69
196.84	S	Peak	27.67	37.23	-9.56	43.50	-15.83
294.81	S	Peak	37.21	43.23	-6.02	46.00	-8.79
345.25	S	Peak	35.44	40.52	-5.09	46.00	-10.56
517.91	S	Peak	26.69	28.52	-1.83	46.00	-19.31
750.71	S	Peak	30.66	27.91	2.76	46.00	-15.34





Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
61.04	S	Peak	34.30	42.55	-8.25	40.00	-5.70
196.84	S	Peak	20.73	30.29	-9.56	43.50	-22.77
294.81	S	Peak	28.98	35.00	-6.02	46.00	-17.02
345.25	S	Peak	28.54	33.63	-5.09	46.00	-17.46
513.06	S	Peak	26.33	28.23	-1.90	46.00	-19.67
754.59	S	Peak	31.22	28.52	2.70	46.00	-14.78





Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
61.04	S	Peak	26.11	34.36	-8.25	40.00	-13.89
197.81	S	Peak	27.56	37.14	-9.58	43.50	-15.94
296.75	S	Peak	37.26	43.24	-5.98	46.00	-8.74
343.31	S	Peak	35.82	40.94	-5.12	46.00	-10.18
547.01	S	Peak	27.39	29.06	-1.67	46.00	-18.61
767.20	S	Peak	30.40	27.26	3.14	46.00	-15.60

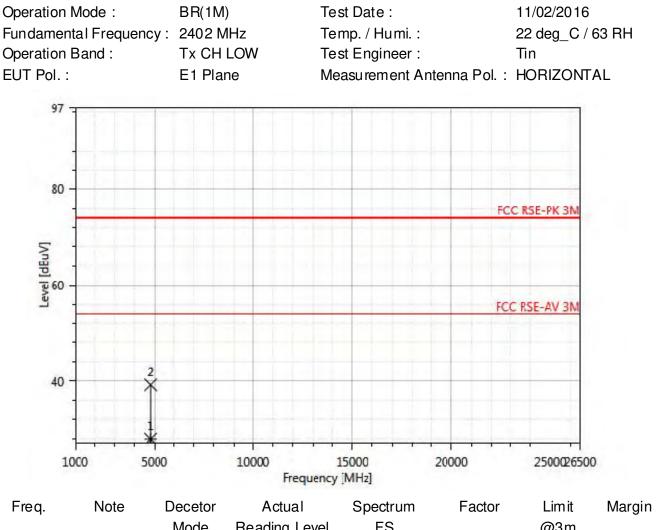


## **Radiated Spurious Emission Measurement Result:** For Frequency above 1 GHz

Operation I Fundament Operation I EUT Pol. :	tal Frequenc	BR(1M) cy : 2402 M Tx CH I E1 Plar	Hz _OW	Test Date : Temp. / Humi. : Test Engineer : Measurement Ar		11/02/2016 22 deg_C / 63 Tin VERTICAL	3 RH
97 -							
80 -					FCC	CRSE-PK 3M	
Level [dBuV]					FCC	RSE-AV 3M	
40 -		2					
		↓ ↓		15000			
10	000 50	000	10000 Freque	15000 ncy [MHz]	20000	2500026500	
Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode QP/AV/PK	Reading Leve dBµV/m	el FS dBµV/m	dB	@3m dBuV/m	dB
4804.00	Η	Average	27.94	23.02	4.92	54.00	-26.06
4804.00	Н	Peak	40.89	35.96	4.92	74.00	-33.11

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 <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

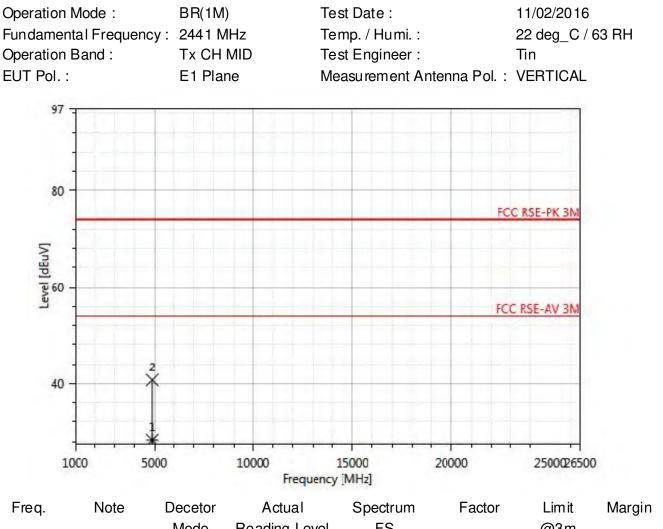




		Mode	Reading Level	FS		@3m		
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB	_
4804.00	Н	Average	27.95	23.03	4.92	54.00	-26.05	-
4804.00	Н	Peak	39.27	34.35	4.92	74.00	-34.73	

Chiefwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s). The state of the sample(s) tested and such sample(s) tested an pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

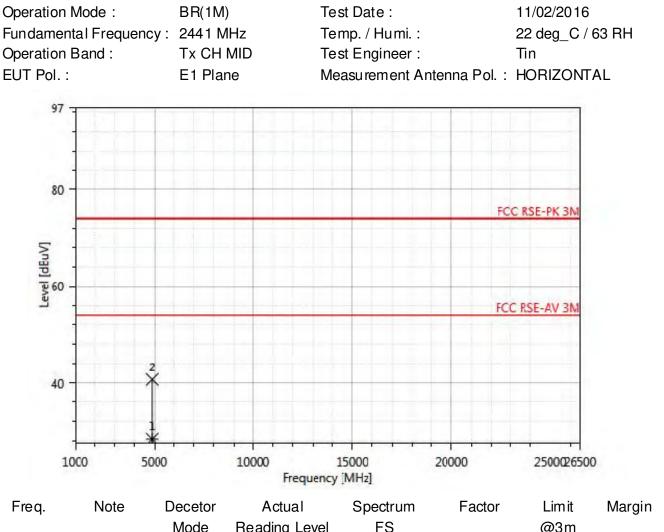




		Mode	Reading Level	FS		@3m		
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB	
4882.00	Н	Average	28.29	23.11	5.18	54.00	-25.71	
4882.00	Н	Peak	40.74	35.56	5.18	74.00	-33.26	

Chiefwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s). The state of the sample(s) tested and such sample(s) tested an pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

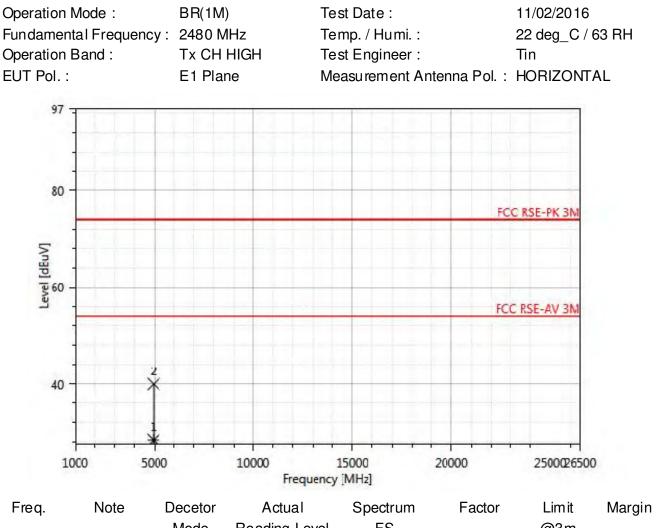




		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
4882.00	Н	Average	28.37	23.19	5.18	54.00	-25.63
4882.00	Н	Peak	40.71	35.53	5.18	74.00	-33.29

Chiefwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s). The state of the sample(s) tested and such sample(s) tested an pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

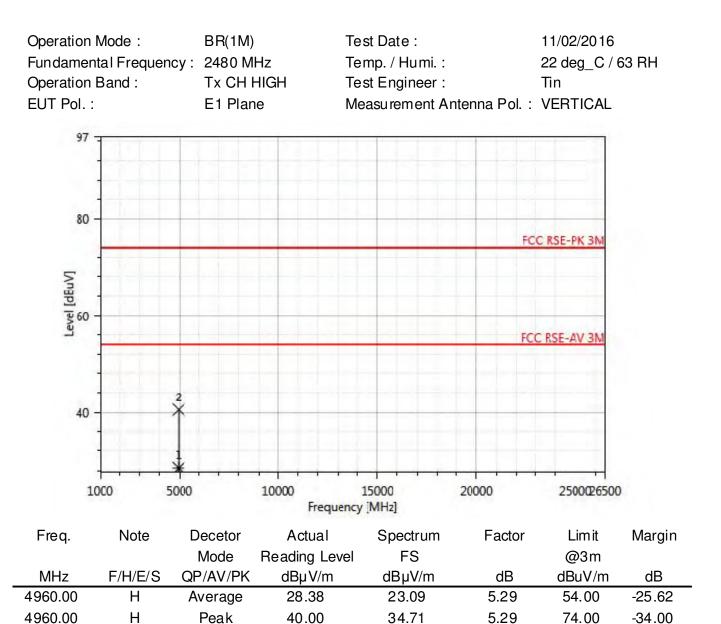




		Mode	Reading Level	FS		@3m	
MHz	F/H/E/S	QP/AV/PK	dBµV/m	dBµV/m	dB	dBuV/m	dB
4960.00	Н	Average	28.50	23.21	5.29	54.00	-25.50
4960.00	Н	Peak	40.58	35.29	5.29	74.00	-33.42

Chiefwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s). The state of the sample(s) tested and such sample(s) tested an pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law





Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 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>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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



## **11 FREQUENCY SEPARATION**

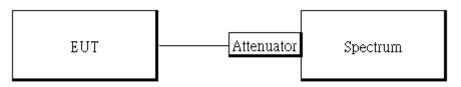
#### 11.1 Standard Applicable

Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25 kHz or the 2/3\*20dB bandwidth of the hopping channel, whichever is greater.

#### 11.2 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT TYPE	MFR MODEL SERIAL NUMBER NUMBER		LAST CAL.	CAL DUE.				
Spectrum Analyzer	Agilent	N9010A	MY50420195	12/21/2015	12/20/2016			
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017			
Coaxial Cable	HUBER+SUHNE R	SUCOFLEX 102	23670/2	01/02/2016	01/01/2017			
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017			
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017			
Bluetooth Test Set	Anritsu	MT8852B	6k00006107	N.C.R	N.C.R			

#### 11.3 Test Set-up



#### 11.4 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
- 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 center frequency of spectrum analyzer = middle of hopping channel.
- 5. Set the spectrum analyzer as RBW, VBW=100 kHz, Adjust Span to 5MHz, Sweep = auto.
- 6. Max hold. Mark 3 Peaks of hopping channel and record the 3 peaks frequency.

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>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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, WuKungRoad, NewTaipeilndustrialPark, WukuDistrict, NewTaipeiCity, Taiwan24803/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.



#### **11.5 Measurement Result**

Channel separation (MHz)	Limit	Result
1	>=25 kHz or 2/3 times 20dB bandwidth	PASS

# **Frequency Separation Test Data**



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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_edocument.htm</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 ap-parcement is underwised to the document to the particulate attent of the horized. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



## 12 NUMBER OF HOPPING FREQUENCY

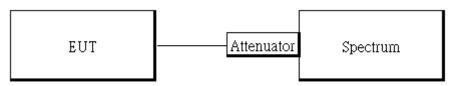
#### 12.1 **Standard Applicable**

Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 15 hopping frequencies.

#### **Measurement Equipment Used** 12.2

Conducted Emission Test Site								
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.			
Spectrum Analyzer	Agilent	N9010A	MY50420195	12/21/2015	12/20/2016			
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017			
Coaxial Cable	Coaxial Cable R		23670/2	01/02/2016	01/01/2017			
Attenuator	Attenuator Mini-Circuit		2	01/02/2016	01/01/2017			
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017			
Bluetooth Test Set	Anritsu	MT8852B	6k00006107	N.C.R	N.C.R			

#### 12.3 Test Set-up



#### **Measurement Procedure** 12.4

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
- 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 spectrum analyzer Start=2400MHz, Stop = 2483.5MHz, Sweep = auto.
- 5. Set the spectrum analyzer as RBW=430 kHz, VBW=1.5MHz., Detector = Peak
- 6. Max hold, view and count how many channel in the band.

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



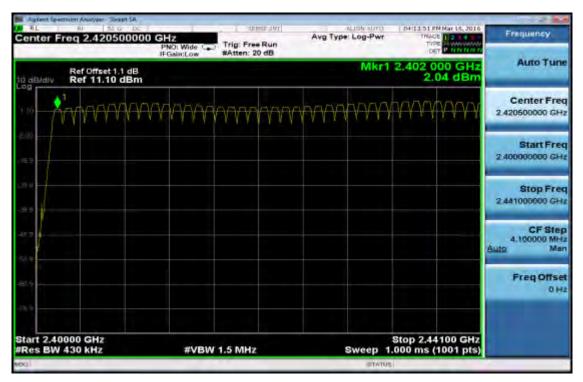
### **12.5 Measurement Result**

### **Tabular Data of Total Channel Number**

	Channel Number	Limit
2.4 GHz – 2.441GHz	40	
2.441 GHz – 2.4835GHz	39	>15
2.4GHz ~2.4835GHz	(40+39) = 79	

### **Channel Number**

### 2.402GHz - 2.441GHz



2.441GHz - 2.4835GHz

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.

Contention is stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are relative of 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>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



Frequency	16,2016	TYPE		Log-Pwr	Avg Type		Trig: Free	Z VO: Wide C	0000 GH	50 G 2.46225	1 1	RL
Auto Tun		000 0	.480	Mkr1 2		dB	#Atten: 2	Sain:Low	dB	Offset 1.1 11.10 d	Re Re	10 dB
Center Fre 2.462250000 GH		v	777	VVVV	<b>FYVY</b>	VYYY	VVVY	WW	nynyn	NAM	YYY	1 10
Start Fre 2.441000000 GH												8,00 (8.9
Stop Fre 2.483500000 GH												30.9
CF Ste 4.250000 MH Auto Ma	1											46.9
Freq Offse 0 H												et e
	0 GHz	.4835	Stop 2								2.44100	
	01 pts)	s (10		Sweep 1.			1.5 MHz	#VBW		kHz	3W 430	Res

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. 除非另有说明,此報告结果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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 form 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 ap-pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Scs Taiwan Ltd. No.134, WukungRoad, NewTaipei/Idurt, NewTaipei/City, Taiwan24803/新北市五股區新北產業園區五工路 134 號



### TIME OF OCCUPANCY (DWELL TIME) 13

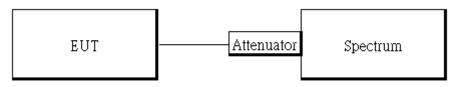
#### 13.1 **Standard Applicable**

Frequency hopping systems operating in the 2400MHz-2483.5MHz. The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 seconds multiplied by the number of hopping channel employed.

#### 13.2 **Measurement Equipment Used**

Conducted Emission Test Site									
EQUIPMENT TYPE			SERIAL NUMBER	LAST CAL.	CAL DUE.				
Spectrum Analyzer	Agilent	N9010A	MY50420195	12/21/2015	12/20/2016				
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017				
Coaxial Cable	Coaxial Cable R		23670/2	01/02/2016	01/01/2017				
Attenuator	Attenuator Mini-Circuit		2	01/02/2016	01/01/2017				
Splitter	Splitter Agilent		N/A	01/02/2016	01/01/2017				
Bluetooth Test Set	Anritsu	MT8852B	6k00006107	N.C.R	N.C.R				

#### 13.3 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 <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



### **13.4 Measurement Procedure**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
- 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 center frequency of spectrum analyzer = operating frequency.
- 5. Set the spectrum analyzer as RBW, VBW=1MHz, 3MHz, Span = 0Hz , Detector = Peak, Adjust Sweep = 2~8ms.

6. Repeat above procedures until all frequency of the interest measured were complete.

Formula Deduced: time occupancy of one time slot X Hopping rate / total slot in one channel / total channel that hops X period of working channels.

Where, standard hopping rate is 1600 hops/s, slot in one channel for DH1, DH3, and DH5 is 2, 4, and 6, respectively.

DH1 consists of single time slot of the uplink, and one slot of the downlink Total Slot: 2 DH3 consists of three time slot of the uplink, and one slot of the downlink. Total Slot: 4 DH5 consists of five time slot of the uplink, and one slot of the downlink. Total Slot: 6

In AFH mode, hopping rate is 800 hop/s with 6 slots in 20 hopping channels with channel hopping rate (800 / 6 / 20) in Occupancy Time Limit (0.4 \* 20 ) (S), Hop Over Occupancy Time comes to (800 / 6 / 20 )\*(0.4 \*20 ) =53.33

Note: the result of the complete test default channel at 1Mbps is recorded on the test report, 2Mbps, and 3Mbps only records the measurement result at middle channel that reveals no much deviation.

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>www.sqs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sqs.com/terms e-document.htm</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.



#### 13.5 **Tabular Result of the Measurement**

### GFSK (1Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)
	DH1	121.60	400ms
0	DH3	262.72	400ms
	DH5	308.59	400ms
	DH1	123.20	400ms
39	DH3	262.72	400ms
	DH5	308.16	400ms
78	DH1	121.60	400ms
	DH3	260.64	400ms
	DH5	308.59	400ms

### π/4 DQPSK (2Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)
	DH1	123.20	400ms
39	DH3	262.72	400ms
	DH5	308.16	400ms

### 8-DPSK (3Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)
	DH1	123.20	400ms
39	DH3	262.72	400ms
	DH5	308.16	400ms

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted in the fullest extent of the law SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustria

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



### A period time = 0.4 (s) \* 79 = 31.6 (s)

<b>GFSK</b> (	(1Mbi	os):
		50).

CH Low	DH1 time slot =	0.380 *	(1600/2/79) *	31.6 =	121.60 (ms)			
	DH3 time slot =	1.642 *	(1600/4/79) *	31.6 =	262.72 (ms)			
	DH5 time slot =	2.893 *	(1600/6/79) *	31.6 =	308.59 (ms)			
CH Mid	DH1 time slot =	0.385 *	(1600/2/79) *	31.6 =	123.20 (ms)			
	DH3 time slot =	1.642 *	(1600/4/79) *	31.6 =	262.72 (ms)			
	DH5 time slot =	2.889 *	(1600/6/79) *	31.6 =	308.16 (ms)			
CH High	DH1 time slot =	0.380 *	(1600/2/79) *	31.6 =	121.60 (ms)			
	DH3 time slot =	1.629 *	(1600/4/79) *	31.6 =	260.64 (ms)			
	DH5 time slot =	2.893 *	(1600/6/79) *	31.6 =	308.59 (ms)			
π/4 -DQPSK (2Mbps):								
CH Mid	2DH1 time slot=	0.385 *	(1600/2/79) *	31.6 =	123.20 (ms)			
	2DH3 time slot=	1.642 *	(1600/4/79) *	31.6 =	262.72 (ms)			
	2DH5 time slot=	2.889 *	(1600/6/79) *	31.6 =	308.16 (ms)			

### 8-DPSK (3Mbps):

CH Mid	3DH1 time slot=	0.385 *	(1600/2/79) *	31.6 =	123.20 (ms)
	3DH3 time slot=	1.642 *	(1600/4/79) *	31.6 =	262.72 (ms)
	3DH5 time slot=	2.889 *	(1600/6/79) *	31.6 =	308.16 (ms)

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>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted in the fullest extent of the law SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustria



GFSK (1Mbps) for AFH Mode						
Hopping Channel Number	PACKET TYPE	Measurement Result (ms)	Limit (ms)			
20	DH5	154.29	400ms			
π/4 DQPSK (2Mbps) for Mode						
Hopping Channel Number	PACKET TYPE	Measurement Result (ms)	Limit (ms)			
20	DH5	154.08	400ms			
8-DPSK (3Mbps) for AFH Mode						
Hopping Channel Number	PACKET TYPE	Measurement Result (ms)	Limit (ms)			
20	DH5	154.08	400ms			

### GFSK (1Mbps):

DH5 time sl =	2.893	(ms)	*	(800/6/20)*8 =	154.29	(ms)
$\pi/4$ -DQPSK (2Mbps						
2DH5 time :=	2.889	(ms)	*	(800/6/20)*8 =	154.08	(ms)
8-DPSK (3Mbps):						
3DH5 time :=	2.889	(ms)	*	(800/6/20)*8 =	154.08	(ms)

#### 13.6 **Measurement Result**

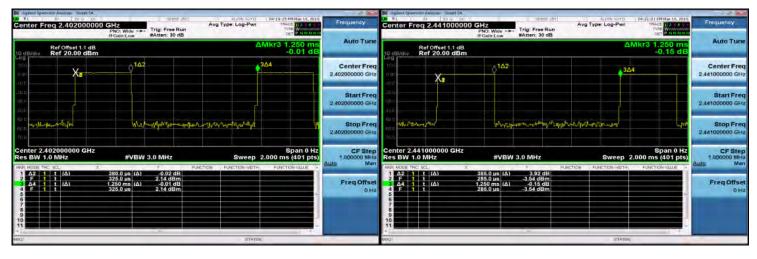
Note: Refer to next page for plots.

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 <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. Attention is drawn to the limitation of libbility, 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 is audvide and differed merging and participation to the fulle attent of the law. pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



**CH-Low DH1** 

## CH-Mid DH1



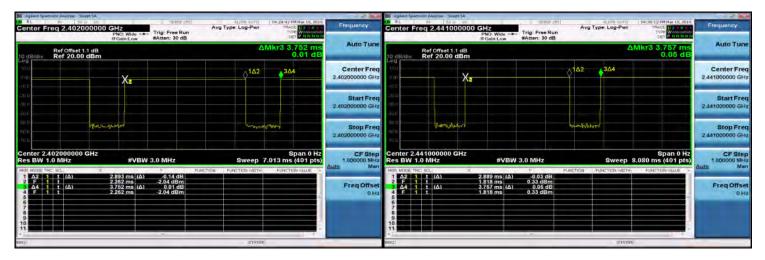
# **CH-Low DH3**

# CH-Mid DH3

Siglant Spectritm Analyzer - Sirept SA				and the second second second	10 P 10	Siglant Spectrum Analyzer - Swept SA			a los de la companya	0.2
Center Freq 2.402000000	DWY Mide and	Trig: Free Run #Atten: 30 dB	Avg Type: Log-	DIG 104:20:20 FM Mar 14, 2010 Pwr TRACE 12:34 4 TYPE WOMMONY OET P N M MUT	Frequency	Center Freq 2.441000000 GHz PNO: IFGain	Wide Trig: Free Run	Avg Type: Log-Pwr	DH-20197 PM Mar 14, 2016 TRACE 12 3 4 3 TIPE Woodewood DET P NO TABLES	Frequency
Ref Offset 1.1 dB         ΔMkr3 2.507 ms           10 dB/div         Ref 20.00 dBm         0.06 dB					Auto Tune	Ref Offset 1.1 dB	Mkr3 2.507 ms 0.08 dB	Auto Tune		
	Xa		142	304	Center Freq 2.402000000 GHz	1001 5 97 Xa	î∆2	3∆4		Center Freq 2.441000000 GHz
200					Start Freq 2.402000000 GHz	200 50 m 400				Start Fred 2.441000000 GHz
50.0 60.0 76.0			mainternative		Stop Freq 2.402000000 GHz	60.0 60.0 70.0	Bernander		ليتريقو	Stop Fred 2.441005000 GH
Center 2.402000000 GHz Res BW 1.0 MHz	#VBW 3	3.0 MHz		Span 0 Hz ep 5.013 ms (401 pts)			#VBW 3.0 MHz		Span 0 Hz 5.013 ms (401 pts) Function value	CF Step 1.000000 MH
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1.642 ms (Δ) 1.379 ms 2.607 ms (Δ) 1.379 ms	-0.10 dB -2.06 dBm 0.06 dB -2.06 dBm			Freq Offset 0 Hz	2 F 1 t 551.5	ms (A) 0.08 dB		-	Freq Offset 0 Hz
						8 9 10 11 11				
(SC)				riatus		(Detwo		STATUS		

**CH-Low DH5** 

# CH-Mid DH5



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>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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 is unlawful and offenders may be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

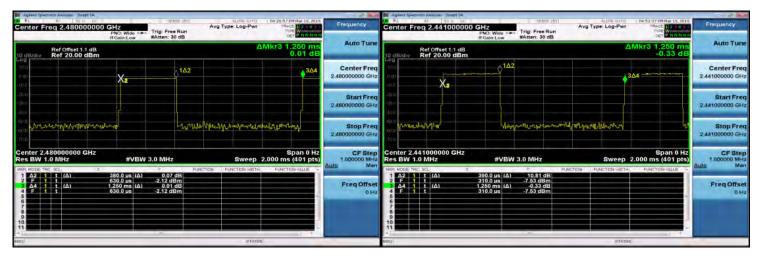
. SGS Taiwan Ltd. │No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

t (886-2) 2299-3279 台灣檢驗科技股份有限公司 f (886-2) 2298-0488 www.tw.sgs.com



CH-High DH1

## CH-Mid 2DH1



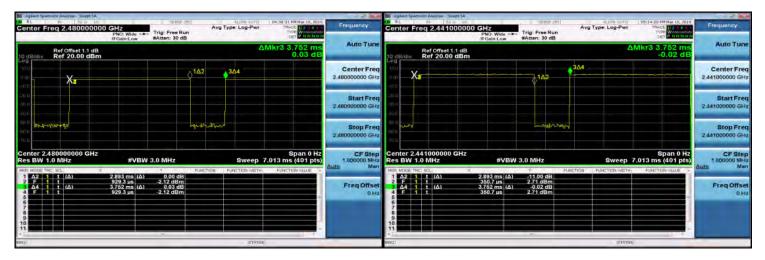
# CH-High DH3

# CH-Mid 2DH3

Siglant Specifikm Analyzer - Suspt SA				2 P 1	📕 Siglant Spectrum Analyzer - Swapt SA			M
Center Freq 2.48000000		Avg T	MLOVING DH-29:10 FM Nar 14, 2016 ype: Log-Pwr TRADE TYPE TYPE DO TRADE TYPE DET P NO HOT	Frequency	Center Freq 2.441000000 GHz PNO: Wide	Arrest Strict Avg Type: Log Trig: Free Run #Atten: 30 dB		Frequency
Ref Offset 1.1 dB Ref 20.00 dBm			ΔMkr3 2.494 ms -0.06 dB	Auto Tune	Ref Offset 1.1 dB		ΔMkr3 2.507 ms 0.06 dB	Auto Tune
	0142	304		Center Freq 2.480000000 GHz		142	∆4	Center Freq 2.441000000 GHz
260 300				Start Freq 2.480000000 GHz	200			Start Freq 2.441000000 GHz
000 000 700	appellipson barper	nd .	granderster	Stop Freq 2.480000000 GHz	605	ะกูลปนุระชาวระชาวิจายสารมูล		Stop Freq 2.441000000 GHz
Center 2.480000000 GHz Res BW 1.0 MHz MRR MODE TRC SCL X		FLANCTION	Span 0 Hz Sweep 5.013 ms (401 pts) FUNCTION WETH: FUNCTION VALUE	CF Step 1.000000 MHz Auto Man	MKR MODE TRC SOL X	FUNCTION   FUNCTION	Span 0 Hz eep 5.013 ms (401 pts) weth; Function value	CF Step 1.000000 MHz Auto Man
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1 629 ms (Δ) 0.01 -2.07 ( 2.494 ms (Δ) -0.04 50.13 μs -2.07 (	6 dB		Freq Offset 0 H2	1 Δ2 1 t (Δ) 1.642 ms (Δ) 2 F 1 t 1.116 ms 3 Δ4 1 t (Δ) 2.607 ms (Δ) 4 F 1 t Δ) 2.607 ms (Δ) 5 6 7 7 5 6 9	0.41 dB 2.52 dBm 0.06 dB 2.52 dBm		Freq Offset 0 Hz
10 11 +	-		erátus		10 11 +		erátus	

# CH-High DH5

# CH-Mid 2DH5



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>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</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 is unlawful and offenders may be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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

t (886-2) 2299-3279 台灣檢驗科技股份有限公司 f (886-2) 2298-0488 www.tw.sgs.com



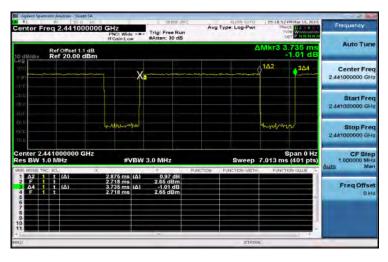
## CH-Mid 3DH1

PL NI SIG DE enter Freq 2.441000000 GHz PNO: W IFGsimiL	de ow #Atten: 30 dB	Avg Type: Log-Pwr	TO:10.57 FM Mar 14, 2010 TRACE 12 3 4 3 TYPE Weakeweake OET P Mits Mits 4	Frequency
Ref Offset 1.1 dB		Δ!	0.02 dB	Auto Tuni
xa	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	364		Center Free 2.441000000 GH
				Start Free 2.441000000 GH
00 00 00 00	m-Minereroranter martin	viir v-las	an a	Stop Fre 2.441000000 GH
enter 2.441000000 GHz es BW 1.0 MHz #	VBW 3.0 MHz		Span 0 Hz .013 ms (401 pts)	CF Ster 1.000000 MH Auto Ma
1 Δ2 1 t (Δ) 3917 μ 2 F 1 t (770 5μ 4 4 1 t (Δ) 1251 m 5 F 1 t 670.5μ 7 670.5μ	s 2.69 dBm s (Δ) 0.02 dB		-	Freq Offse 0 H
	-	STATUS		

## CH-Mid 3DH3

10.2			_				HAN Amalyzer-3	Agient Spec
Frequency	10518-00 FM Mar 16, 2016 TNACE 1 2 4 4 5 TVPE Wooderstood	Type: Log-Pwr	Avg	Trig: Free Run #Atten: 30 dB	PNO: Wide -++	000000		
Auto Tun	Mkr3 2.494 ms -3.08 dB	۵		#Atten: 30 0B	FGain:Low		Ref Offset	dB/div
Center Fre 2.441000000 GH		34	142			X		
Start Fre 2.441000000 GH								
Stop Fre 2.441000000 GH		yaylıyı	durin			riven	-popel-vac	
CF Ste 1.000000 Mi Auto Ma	Span 0 Hz 5.013 ms (401 pts) Function value	Sweep \$	FUNCTION	3.0 MHz	#VBW :	0 GHz		nter 2.4 s BW 1
Freq Offse 0 H	-			0.67 dB 2.69 dBm -3.08 dB 2.59 dBm	542 ms (Δ) 178 ms 494 ms (Δ) 178 ms		t (Δ) t (Δ) t	Δ2 1 F 1 Δ4 1 F 1
		STATUS						ai.

## CH-Mid 3DH5



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>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</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 Com-pany'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 is unlawful and offenders may be prosecuted to the fullest extent of the law. SCS Taiwan 1 the TM 134 WulfungBoad NaviEnginghildergrame Multipacific Taiwan24902/86 th ま T #ELE 56 th 3. #ELE 57 # 124 \*\*

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

台灣檢驗科技股份有限公司		f (886-2) 2298-0488	www.tw.sgs.com
	1		Member of SGS Group



## **14 ANTENNA REQUIREMENT**

#### 14.1 **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.

#### 14.2 **Antenna Connected Construction**

An embedded-in antenna design is used.

The antenna is designed as permanently attached and has no consideration of replacement. Please see EUT photo and antenna spec. 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.

WeifS of all weights and the results structure results and structure results and structure and str 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