

Contraction of the local distance of the loc

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

	OF			
Product Name:	VR controller			
Brand Name:	DELL			
Model No.:	VRC100-R			
Model Difference:	N/A			
FCC ID:	HFS-VRC100R			
IC:	1787B-VRC100R			
Report No.:	E2/2017/70103			
Issue Date:	Aug. 04, 2017			
FCC Rule Part:	§15.247, Cat: DSS			
IC Rule:	RSS-247 issue 2 Feb. 2017			
Prepared for:	Quanta Computer Inc.			
	No. 188, Wenhua 2nd Rd., Guishan Dist., Tao			
Prepared by:	Yuan City 33377, Taiwan SGS Taiwan Ltd.			
Fiepaleu by.	Electronics & Communication Laboratory			
	No.2, Keji 1st Rd., Guishan District, Taoyuan			
	City, Taiwan 333			
TAF	<i>Note:</i> This report shall not be reproduced except in full, without the written approval of SGS Taiwan Ltd.			
Iac-MRA	This document may be altered or revised by SGS			
Testing Laboratory 0513	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.



VERIFICATION OF COMPLIANCE

Applicant:	Quanta Computer Inc. No. 188, Wenhua 2nd Rd., Guishan Dist., Tao Yuan City 33377, Taiwan
Product Name:	VR controller
Brand Name:	DELL
Model No.:	VRC100-R
Model Difference:	N/A
FCC ID:	HFS-VRC100R
IC :	1787B-VRC100R
Report Number:	E2/2017/70103
Date of test:	Jun. 12, 2017~ Jul. 24, 2017
Date of EUT Received:	Jun. 12, 2017

We hereby certify that:

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

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

Jery Lu	Date:	Aug. 04, 2017
Jerry Lu / Sr.Engineer		
Stefanle Yu	Date:	Aug. 04, 2017
Stefanie Yu/ Clerk		
Jim Chang	Date:	Aug. 04, 2017
	Stefanle Yu	Jerry Lu / Sr.Engineer Gefanle Yu Date: Stefanie Yu/ Clerk

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.



Revision History

Report Number	Revision	Description	Issue Date
E2/2017/70103	Rev.00	Initial creation of document	Aug. 04, 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></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 excent a parties to a transaction from exercising all their rights and obligations under the transaction documents. This document be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or ap-parameters in updated and the prince of the folders. 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



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	15
8	20dB & 99% BANDWIDTH MEASUREMENT	18
9	CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT	25
10	RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT	37
11	FREQUENCY SEPARATION	70
12	NUMBER OF HOPPING FREQUENCY	72
13	TIME OF OCCUPANCY (DWELL TIME)	75
14		89

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></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 excent a parties to a transaction from exercising all their rights and obligations under the transaction documents. This document be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or ap-parameters in updated and the prince of the folders. 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:	VR controller
Brand Name:	DELL
Model No.:	VRC100-R
Model Difference:	N/A
Product SW/HW version:	DV 1.2/ DV
Power Supply:	3Vdc from AA battery*2

Bluetooth_BR+EDR:

Bluetooth Version:	Bluetooth V4.2
Channel number:	79 channels
Modulation type:	GFSK + π/4DQPSK + 8DPSK
Transmit Power:	4.75 dBm
Frequency Range:	2.402GHz – 2.480GHz
Dwell Time:	<= 0.4s
Antenna Designation:	PIFA Antenna, Antenna Gain:- 0.4dBi

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></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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is under use to attend the fuller output of the hore. 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



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:

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

1.3 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333 (TAF code 0513)

FCC Registration Numbers are: 735305

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.



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 hand-held transmitter (EUT) was rotated through one 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 14.3dB

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



2.5 Configuration of Tested System

Fig. 2-1 Radiated & Conducted Emission

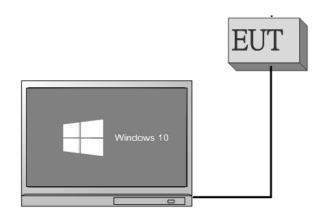


Fig. 2-2 Conducted (Antenna Port)

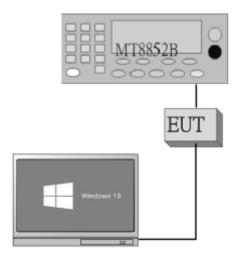


Table 2-1 Equipment Used in Tested System

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.	Bluetooth Tester	R&S	СВТ	101140	Shielded	Unshielded
3.	Notebook	Lenovo	T440P	N/A	N/A	N/A

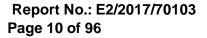
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



3 UMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b)(1)	RSS-247 §5.4 (d)	Peak Output Power	Compliant
§15.247(a)(1)	RSS-247 §5.1 (a) 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 (b)	Frequency Separation	Compliant
§15.247(a)(1)(iii)	RSS-247 §5.1 (d)	Number of hopping frequency	Compliant
§15.247(a)(1)(iii)	RSS-247 §5.1 (d)	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_e-document.htm</u></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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is under use to attend the fuller output of the hore. 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		FREQUENCY	СН	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.



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	TESTED	MODULATION	PACKET		
NODE	CHANNEL	CHANNEL	MODULATION	TYPE		
Bluetooth	0 to 78	0,39,78	8-DQPK	DH5		
	RADIATED EMISSION TEST (ABOVE 1 GHz)					
MODE	AVAILABLE	TESTED	MODULATION	PACKET		
MODE	CHANNEL	CHANNEL	MODULATION	TYPE		
Bluetooth	0 to 78	0,39,78	8-DQPK	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	TESTED	MODULATION	PACKET			
NODE	CHANNEL	CHANNEL	MODULATION	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.



MEASUREMENT UNCERTAINTY 5

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 : Vertical)	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.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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



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.			
EMI Test Receiver	R&S	ESCI 7	100950	12/12/2016	12/11/2017		
Coaxial Cables	N/A	N30N30-1042-150cm	N/A	08/30/2016	08/29/2017		
LISN	Schwarzbeck	NSLK 8127	8127-648	06/18/2017	06/17/2018		
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.		

6.3 EUT Setup

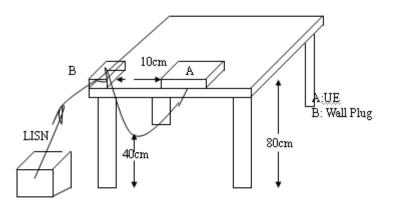
- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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,此報告結果僅對测試之樣品負責,同時比樣品僅保留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-Train documents issued by the company subject to is defined conductors of electronic Documents at <u>www.sgc.com/tems</u> and conductors and <u>conductors</u> and <u>conductors and <u>conductors</u> and <u>conductors</u> and <u>conductors and <u>conductors</u> and <u>conductors and <u>conductors</u> and <u>conductors and <u>conductors</u> and <u>conductors and <u>conductors and <u>conductors</u> and <u>conductors and <u>conductors</u> and <u>conductors and <u>conductors and <u>conductors</u> and <u>conductors and <u>conductors and <u>conductors and <u>conductors and <u>conductors</u> and <u>conductors and conductors</u> and <u>conductors and <u>conductors and <u>conductors and <u>conductors and conductors</u> and <u>conductors and <u>conductors and conductors</u> and <u>conductors and <u>conductors and conductors</u> and</u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u> pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



6.4 Test SET-UP (Block Diagram of Configuration)



6.5 Measurement Procedure

- 1. The EUT was placed on a table which is 0.8m above ground 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

N/A, The EUT power from AA batteries *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.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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.



7 PEAK OUTPUT POWER MEASUREMENT

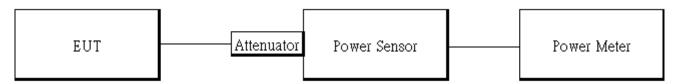
7.1 Standard Applicable

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.

<i>1.2</i> measurement Equipment Used								
Conducted Emission Test Site								
EQUIPMENT MFR MODEL SERIAL LAST CAL								
TYPE	TYPE NUMBER NUMBER CAL.							
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018			
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018			
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018			
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018			
Coaxial Cable 30cm	WOKEN	00100A1F1A19 5C	RF01	12/12/2016	12/11/2017			
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017			
Splitter	RF-LAMBAD	RFLT2W1G18 G	RF35	12/12/2016	12/11/2017			
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017			
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2017	05/01/2018			

7.2 Measurement Equipment Used

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. 除非另右投眼,此報先社學爆製測得之樣品負責,同時此樣品僅保留如乎。太報告本編太公司拿而牲可,不可部份過製。

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⑪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 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 of Electronic Documents at <u>www.sgs.com/terms_endocument.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 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.

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



7.5 Measurement Result

1M BR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
0	2402	4.71	2.958	125
39	2441	4.75	2.985	125
78	2480	3.92	2.466	125

1M BR mode (Average):

СН	Freq. (MHz)	Max. Output include tune up tolerance	Output Power (mW)	Limit (mW)
0	2402	<u> </u>	2.259	125
39	2441	3.50	2.239	125
78	2480	2.71	1.866	125

2M EDR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
0	2402	4.10	2.570	125
39	2441	4.07	2.553	125
78	2480	3.14	2.061	125

2M EDR mode (Average):

Max.		
Avg.Output include tune up	Output Power (mW)	Limit (mW)
0.38	1.091	125
0.31	1.074	125
-0.53	0.885	125
.)	include tune up tolerance 0.38 0.31	include tune up (mW) tolerance 0.38 1.091 0.31 1.074

3M EDR mode (Peak):

3M EDR mode (Average): Max. Peak Output Output Avg.Output Output Limit Freq. Limit Freq. CH Power CH Power include (MHz) (mW) (mW) Power (MHz) (mW) (mW) tune up (dBm) tolerance 0 2402 4.38 2.742 125 0 2402 0.23 1.054 125 2441 2.729 125 39 2441 125 39 4.36 0.29 1.069 3.41 125 2480 -0.53 125 78 2480 2.193 78 0.885

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元。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 elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification 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,NewTaipeiIndustria



1M BR mode EIRP

Channel	Frequency (MHz)	Max. Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
0	2402	3.54	-0.40	2.061	500
39	2441	3.50	-0.40	2.042	500
78	2480	2.71	-0.40	1.702	500

2M EDR mode EIRP

Channel	Frequency (MHz)	Max. Avg.Output include tune up tolerance	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
0	2402	0.38	-0.40	0.995	500
39	2441	0.31	-0.40	0.979	500
78	2480	-0.53	-0.40	0.807	500

3M EDR mode EIRP

Channel	Frequency (MHz)	Max. Avg.Output include tune up tolerance	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
0	2402	0.23	-0.40	0.962	500
39	2441	0.29	-0.40	0.975	500
78	2480	-0.53	-0.40	0.807	500

* Note: EIRP = Average Power + Gain

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></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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is under use to attend the fuller output of the hore. 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



8 20DB & 99% BANDWIDTH MEASUREMENT

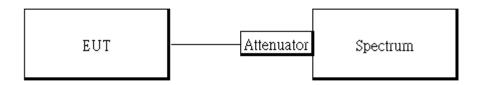
8.1 Standard Applicable

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

8.2 Measurement Equipment Used

	Conducte	d Emission Te	est Site		
EQUIPMENT	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018
Coaxial Cable 30cm	WOKEN	00100A1F1A19 5C	RF01	12/12/2016	12/11/2017
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017
Splitter	RF-LAMBAD	RFLT2W1G18 G	RF35	12/12/2016	12/11/2017
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2017	05/01/2018

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.
- 4. 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.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</u> 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 document 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	GFSK			π/4-DQPSK			SK	
	20 d B	2/3		20 d B	2/3		20 d B	2/3
СН	BW	BW	СН	BW	BW	СН	BW	BW
	(MHz)	(MHz)		(MHz)	(MHz)		(MHz)	(MHz)
Low	0.928	0.62	Low	1.340	0.89	Low	1.342	0.89
Mid	0.926	0.62	Mid	1.340	0.89	Mid	1.341	0.89
High	0.926	0.62	High	1.341	0.89	High	1.343	0.90

GFSK

π/4-DQPSK

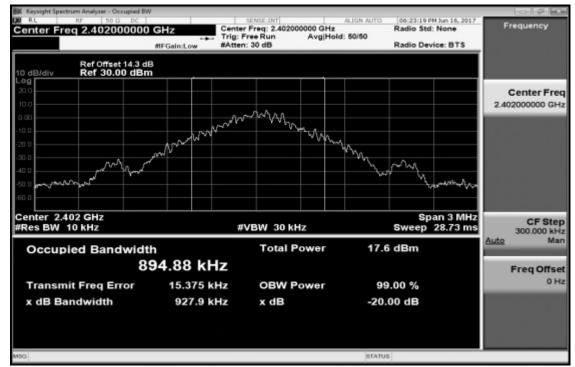
8-DPSK

СН	99% Bandwidth	СН	99% Bandwidth	СН	99% Bandwidth
	(MHz)		(MHz)		(MHz)
Low	0.89543	Low	1.2088	Low	1.2152
Mid	0.89682	Mid	1.2101	Mid	1.2147
High	0.8976	High	1.2094	High	1.2154

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></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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is under use to attend the fuller output of the hore. 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-Low (GFSK mode)



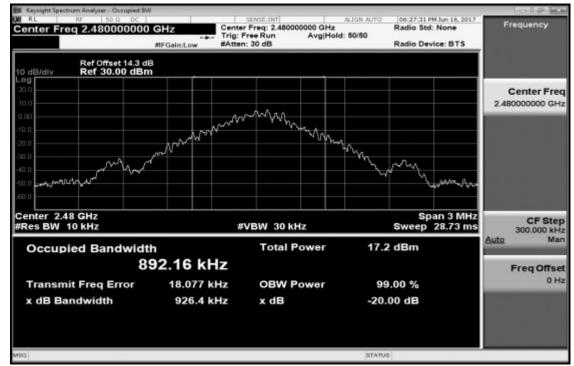
CH-Mid (GFSK mode)



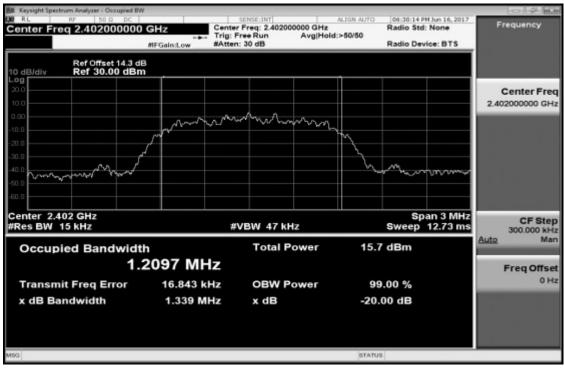
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



CH-High (GFSK mode)



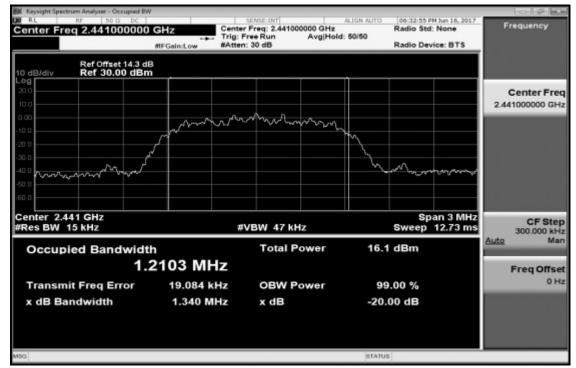
CH-Low (π/4-DQPSK mode)



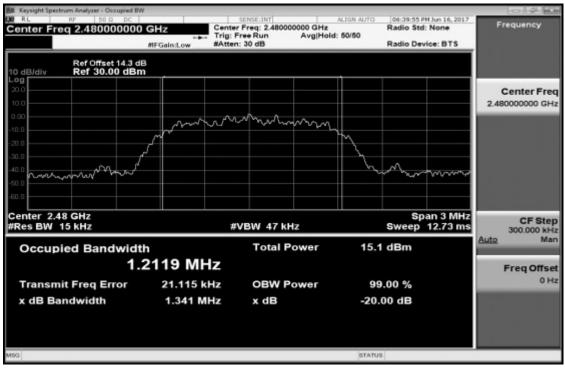
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



CH-Mid (π/4-DQPSK mode)



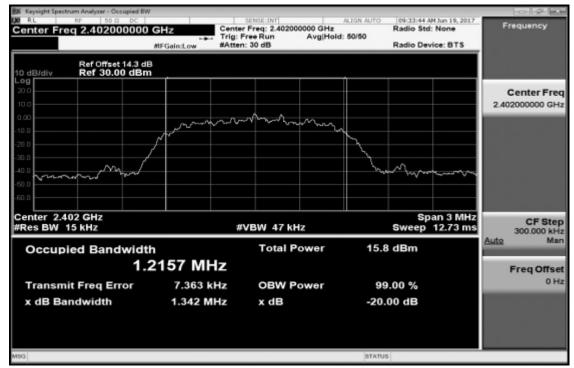
CH-High (π/4-DQPSK mode)



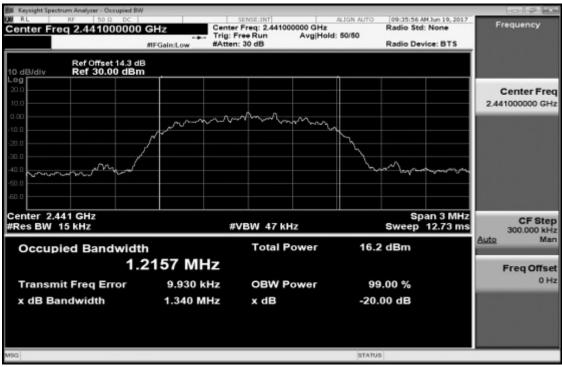
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



CH-Low (8-DPSK mode)



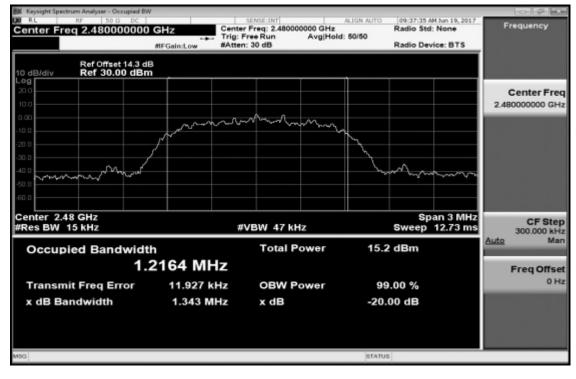
CH-Mid (8-DPSK mode)



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.



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.



CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT 9

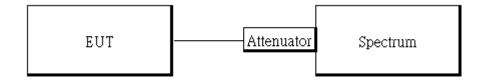
9.1 Standard Applicable

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.

	Conducted Emission Test Site											
EQUIPMENT	MFR	SERIAL	LAST	CAL DUE.								
TYPE		NUMBER	NUMBER	CAL.								
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018							
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018							
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018							
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018							
Coaxial Cable 30cm	WOKEN	00100A1F1A 195C	RF01	12/12/2016	12/11/2017							
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017							
Splitter	RF-LAMBAD	RFLT2W1G1 8G	RF35	12/12/2016	12/11/2017							
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017							
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2017	05/01/2018							

9.2 Measurement Equipment Used

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.sgs.com/terms_and_conditions.htm</u> 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.

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.



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 14.3dB that offsets in the spectrum
- 2. The occurrence of the spike on the conducted emission is the signal of the fundamental emission.

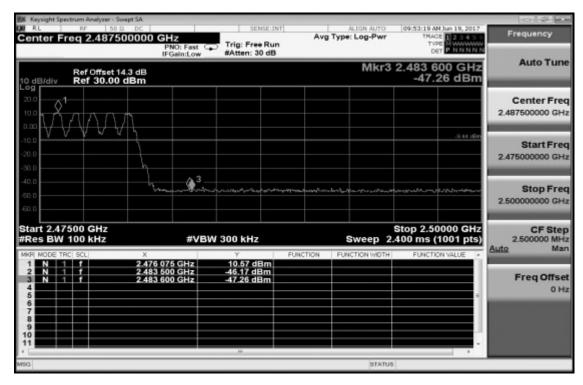
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf,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





	ectrum Analyzer - Sv						
Center F		2 DC 00000 GHz PN0: Fast IFGain:Low		Avg Type	LIGN ALITO	09:52:44 AM Jun 19, 2 TRACE 1 2 3 TYPE MWAA DET P N N	Frequency
10 dB/div	Ref Offset 1 Ref 30.00	4.3 dB	#AUTON: 30 0D		Mkr	3 2.390 00 G -47.46 dE	
20.0 10.0 0.00						Minimum	Center Fre 2.365000000 GH
-10.0							Start Fre 2.310000000 GH
40,0 -50,0 -60,0	na (dan yana yan	under under sicher die Seinen		in an	3-1119-11-11-11-11-11-11-11-11-11-11-11-1	A ²	Stop Fre 2.420000000 GH
	000 GHz 100 kHz	#V	BW 300 kHz	4	Sweep 1	Stop 2.42000 G 0.53 ms (1001 p	Hz CF Ste 11.000000 MH Auto Ma
MKR MODE TR 1 N 1 2 N 1 3 N 1 4 5 6 7 8		× 2.405 04 GHz 2.399 90 GHz 2.390 00 GHz	¥ 10.99 dBm -46.20 dBm -47.46 dBm	FUNCTION FUN	ICTION WIDTH	FUNCTION VALUE	Freq Offse
9 10 11 11					STATUS		

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.

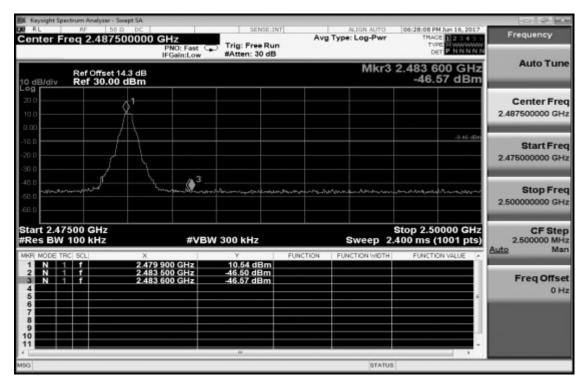
除非另有說明,此報告結果僅對調試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可都份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms_and_conditions.htm</u> and, for elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification 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)

Keysight Spec	trum Analyzer - Sw	Pept SA	SENSE:1N	ti I	ALIGN AUTO	06:23:53 PM Jun 16	2017
		PNO: Fast IFGain:Low		Avg	Type: Log-Pwr	TRACE 1 2 3 TYPE NWW DET P N 0	Frequency
10 dB/div	Ref Offset 14 Ref 30.00	4.3 dB	artisen. ov op		Mkr	3 2.390 00 G -47.06 d	
20.0 10.0						1	Center Fre 2.365000000 GH
10,0 20,0 30.0							Start Fre 2.31000000 GF
40.0 50.0	ارة رومواطير خاني	เสขายังที่จะได้การเกิดการเป็น		اور نی مارو رو اور در مار در مار در مار در مار در مار در مار در در مار در در د			2.420000000 GF
tart 2.310 Res BW 1	100 kHz	#VI	BW 300 kHz	FUNCTION	Sweep 1	Stop 2.42000 0.53 ms (1001	pts) 11.000000 Mi Auto M
1 N 1 2 N 1 3 N 1 4 5	1 1	2.402 18 GHz 2.399 90 GHz 2.390 00 GHz	11.15 dBm -45.79 dBm -47.06 dBm	1 GHCTIDH			Freq Offs
6 7 8 9 10							
90					STATU	5	

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.

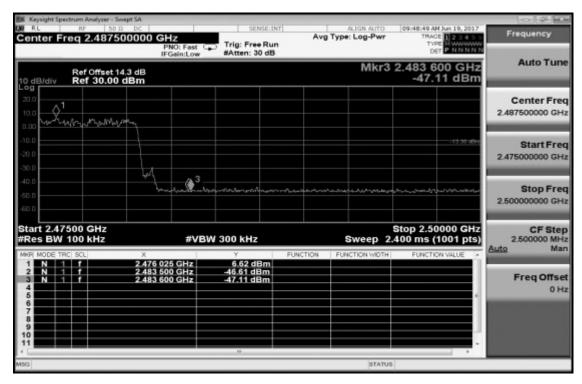
除非另有說明,此報告結果僅對調試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可都份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms_and_conditions.htm</u> and, for elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification 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.





	trum Analyzer - Sv							
Center Fro		00000 GHz PNO: Fast		Avg Typ	ALIGN AUTO	09:48:28 AM Jun TRACE 1 TYPE NO DET P	23455	Frequency
10 dB/div	Ref Offset 1 Ref 30.00		Atten: 30 0D		Mkr	3 2.390 00 -47.35		Auto Tun
20.0 10.0						jvingernam	∑ ¹ ∦₩₩₩₩	Center Fre 2.365000000 GH
10.0 20.0 30.0							11.87.05%	Start Fre 2.310000000 GF
40,0 50,0 60,0	ng for and set of	alter an Chan the state of the	holocol franciscollation and the second	alt Balance		\$ ¹²		Stop Fre 2.420000000 GP
tart 2.310 Res BW 1	100 kHz	#V	BW 300 kHz			Stop 2.4200 0.53 ms (100	1 pts)	CF Sto 11.000000 Mi Auto M
MKR MODE TRO 1 N 1 2 N 1 3 N 1 4 5 6 7 8 9	1	X 2.413 18 GHz 2.399 90 GHz 2.390 00 GHz	¥ 8.13 dBm 46.99 dBm 47.35 dBm	FUNCTION FU	NCTION WIDTH	FUNCTION VA	EUE A	Freq Offs 01
			19		STATU	5	, •	

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.

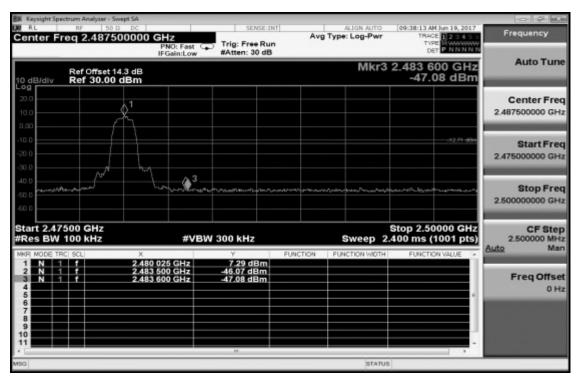
除非另有說明,此報告結果僅對調試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可都份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms_and_conditions.htm</u> and, for elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification 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)

UN RL	RF SD D DC		Trig: Free Ru #Atten: 30 dB	Avg	ALIGN AUTO	09:34:19 AM Jun 19, 201 TRACE 1 2 3 4 TYPE P NN NP OET P NN NP	Frequency
10 dB/div	Ref Offset 14.3 df Ref 30.00 dBm				Mkr	3 2.390 00 GH -46.46 dBr	
20.0 10.0						0 ¹	Center Fred 2.365000000 GHz
-10,0 -20,0 -30,0							Start Free 2.310000000 GH
-40.0 -60.0	in the fraction of the states	idadayu		and an produce of the second	handshare grand and a start and a	f ²	2.420000000 GH
Start 2.31 #Res BW	100 kHz	#VE	W 300 kHz Y	FUNCTION		Stop 2.42000 GH 0.53 ms (1001 pt FUNCTION VALUE	
1 N 1 2 N 1 3 N 1 5 6 7 8 9 10		2.402 18 GHz 2.399 90 GHz 2.390 00 GHz	8.18 dBm -45.45 dBm -45.46 dBm				Freq Offse 0 H
190					STATUS	3	

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.

除非另有說明,此報告結果僅對調試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可都份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms_and_conditions.htm</u> and, for elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification 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)

Center Freq 1.515000000 GHz Avg Type: Log-Pwr Trace 1.2 4 - Trace Frequency PN0: Fast Trig: Free Run Avg Type: Log-Pwr Trig: Free Run Avg Type: Log-Pwr Trig: Frequency Ref Offset 14.3 dB Mkr1 2.403 0 GHz 0.094 dBm 10.94 dBm Auto Tu 10 dEV/div Ref 30.00 dBm 0.004 dBm 0.005 dBm 0.000 dBm 0.000 dBm 20 0 0.00 0.00 0.000 dBm	Keysight Spectrum Analyzer -					
Ref Offset 14.3 dB Mikr1 2.403 0 GHz 10 dB/div 10.94 dBm 20 d 1 20 dV 20 dV	N6 N7 J	000000 GHz PNO: Fast		Avg Type: Log-Pwr	TYPE N WARMAN	Frequency
200 1 Center F 100	0 dB/div Ref 30.0			Mk	r1 2.403 0 GHz 10.94 dBm	Auto Tun
100 1	20.0				1	Center Fre 1.515000000 GH
King	20,0				-2.06 dBn	Start Fre 30.000000 MH
Res BW 100 kHz #VBW 300 kHz Sweep 283.9 ms (1001 pts) 297.000000 N KR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE Auto <	0.0	and and a state of the state of		ก _{ระส} ะส _{าสารสารสารการสารสารสารสาร}	a yana da da da ana ang mang mang mang mang mang mang	Stop Fre 3.00000000 GR
N 1 f 2.403 0 GHz 10.94 dBm Freq Off 2 1 1 10.94 dBm 10.94 dBm <td< td=""><td>Res BW 100 kHz</td><td></td><td></td><td></td><td>83.9 ms (1001 pts)</td><td></td></td<>	Res BW 100 kHz				83.9 ms (1001 pts)	
	1 N 1 f 2 3 4 5 6 7 8	2.403 0 GHz				Freq Offs 0 F
sc status			17		-	

Ch Low 3GHz - 26.5GHz (BR Mode)

							Inalyzer - Swept SA	t Spectrum	Keysig
Frequency	MJun 16, 2017 CE 1 2 3 4 5 5 PE NWWWWW FT P NNNNN	TRAC	Type: Log-Pwr	Avg	Trig: Free Ru	PNO: Fast	4.750000000	r Freq	Cento
Auto Tune	6 5 GHz 42 dBm	r1 7.20	Mk		#Atten: 30 dB	IFGain:Low	Offset 14.3 dB 30.00 dBm		10 dB/
Center Free 14.750000000 GH:									20.0 10.0
Start Free 3.000000000 GH:	-9.06 dBm						1		0.00 -10.0 -20.0
Stop Free 26.500000000 GH		and the second	134 ⁰⁰ 107-010-0002-010	ratur, and formation	maletinere	ماردوس المروليدري	allen and a start and a start and a start and a start a	huda	-30.0 -40.0 -50.0
CF Step 2.350000000 GH: Auto Mar	26.50 GHz (1001 pts)	2.246 s (300 kHz	#VBW	kHz	.00 GH 3W 100	#Res
Freq Offse 0 H	EN VALUE	FUNCT	FUNCTION WIDTH	FUNCTION	γ -32.42 dBm	06 5 GHz	× 7.2	E TRC SC	1 N 2 3 4 5 6 7 8 9 10
		5	STATUS						MSG

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.



Ch Mid 30MHz – 3GHz (BR Mode)

Keysight Spectrum Analyzer - Swept SA			
RL RF 50 G DC Center Freq 1.515000000	CHZ PNO: Fast IFGain:Low #Atten: 30 dB	ALIGN AUTO 06:28:15 PM Jun 16, 201 Avg Type: Log-Pwr TRACE 12.3.4 TYPE TP NN NN	Frequency
Ref Offset 14.3 dB 10 dB/div Ref 30.00 dBm	IFGain:Low #Atten: 30 GB	Mkr1 2.441 6 GH 11.25 dBn	
200 100		•1	Center Free 1.515000000 GH
-10.0		-0,75+00	Start Free 30.000000 MH
40.0 60.0 مىلى ئېرىكى ئېرى 60.0	an de la marca	ways, a spin fill the star and water and a spin a fill and the spin an	Stop Free 3.000000000 GH
Start 30 MHz #Res BW 100 kHz	#VBW 300 kHz	Stop 3.000 GH: Sweep 283.9 ms (1001 pts FUNCTION FUNCTION WIDTH FUNCTION VALUE	
	441 6 GHz 11.25 dBm		Freq Offse
7 8 9 10 11			
4	"	STATUS	

Ch Mid 3GHz - 26.5GHz (BR Mode)

	m Analyzer - Swept SA						
	14.75000000	PNO: Fast	Trig: Free Ru #Atten: 30 dE	Avg	Type: Log-Pwr	06:26:43 PM Jun 16, 201 TRACE 1 2 3 4 5 TYPE NUMBER OFT P NNNN	Frequency
10 dB/div R	ef Offset 14.3 dB tef 30.00 dBm	IFGain:Low	#Atten: 30 dt	3	M	r1 7.324 0 GH -31.62 dBn	Auto Tune
20.0 10.0							Center Freq 14.75000000 GHz
-10.0 -20.0 -30.0	•1					-8.75 i#	Start Freq 3.00000000 GHz
-40.0 -50.0 -60.0	and the start and the start of the	unala atra qui	a.n.inaaaahiinaaaaahii	un albergen formande	on or more an	and and a second s	Stop Freq 26.50000000 GHz
Start 3.00 GI #Res BW 10	0 kHz	#VE	3W 300 kHz	FUNCTION	Sweep	Stop 26.50 GH 2.246 s (1001 pts FUNCTION VALUE	
1 N 1 2 3 4 5 6 7		.324 0 GHz	-31.62 dBm	PORCHOR		POINT HON THESE	Freq Offset
8 9 10 11 11			11		STATU	5	

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.

Client's instructions, if any. The Company's object to its Clean and bis document does not exconerate parties to a transaction from exercising all their rights and obligations under the content or ap-transaction documents. This document is instruction by the content of the content of the content of the content or ap-parties and the content of the content or ap-ransaction documents. 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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is advised that information contained hereon reflects the Company. Any unauthorized alteration, forgery or falsification of the content or ap-ransaction documents. This document is advised to the fuller output of the low. 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)

Avg Type: Log-Pwr Trace Difference Frequency Ref Offset 14.3 dB dBdiv Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Trace Difference Auto Tur Ref Offset 14.3 dB dBdiv Mkr1 2.480 3 GHz 10.09 dBm Mkr1 2.480 3 GHz 10.09 dBm Center Fre 1.51500000 Git D0 D0 D0 D0 D0 D0 D0 D0 D0 <td< th=""><th>R I</th><th>em Analyzer - Swej</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	R I	em Analyzer - Swej							
Ref Offiset 14.3 dB Ref 30.00 dBm	11.6		PN0: Fast	Trig: Free Run	Avg		TRACE 1 2 TYPE 1 W	3455	Frequency
20 1	0 dB/div		3 dB			Mk			Auto Tun
Image: Start Fire Im	0.0						• ¹		Center Fre 1.515000000 GH
20	0,0 0,0 0,0							91 127	Start Fre 30.000000 MH
Res BW 100 kHz #VBW 300 kHz Sweep 283.9 ms (1001 pts) 297.000000 MI IP MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE MI 1 1 1 2.480 3 GHz 10.09 dBm FUNCTION WIDTH FUNCTION VALUE Freq Offs 3 1 1 2.480 3 GHz 10.09 dBm Freq Offs Freq Offs 4 1 1 1 1 1 Freq Offs 0 5 1 <		h-galakti (Son 20 mijor	ىرىنى بەرۋىسىلەر يەر يەر يارىنى بىرىكى بىرىكى <u>بىر</u>	อปู่เป็นของเห็งได้เอาเ ป็น เป็นไปไปไป	deresent state	مانهمافتار، مراجع العصوبهمار. مربو	with the state of		Stop Fre 3.000000000 GH
N 1 f 2.480 3 GHz 10.09 dBm Freq Offs 2 - - - - - - - 0 4 - - - - - - - 0 0 6 - - - - - - 0 - 0 0 8 - - - - - - - 0 - 0 - 0 - 0 - 0 - - 0 - 0 - 0 - 0 0 - 0 - 0 - 0 - 0 - 0 0 - 0 0 - 0<	Res BW 10	0 kHz		W 300 kHz	FUNCTION		83.9 ms (1001	pts)	CF Ste 297.000000 MH uto Ma
	1 N 1 2 3 4 5		2.480 3 GHz	10.09 dBm					Freq Offs 0 F
17 VI	6 7 8 9 0								
	0					-			

Ch High 3GHz – 26.5GHz (BR Mode)

	ctrum Analyzer - Swe	pt SA.					
Center Fr	eq 14.7500	00000 GHz PNO: Fas		Avg	Type: Log-Pwr	06:28:47 PM Jun 16, 2017 TRACE 1 2 3 4 5 TYPE N MANNIN	Frequency
10 dB/div	Ref Offset 14. Ref 30.00 d		w #Atten: J0 dB	,	M	r1 7.441 5 GHz -30.40 dBm	Auto Tune
20.0 10.0							Center Freq 14.75000000 GHz
-10,0 -20,0 -30.0	•	1				-0.91 tBm	Start Freq 3.00000000 GHz
-40.0 -50.0 -60.0	nility	าระหางการประวัตรมศักราช	ويترجع والانتصار المراجع والمعالم والمراجع	and the second	annen ann ann ann ann ann ann ann ann an	and the second s	Stop Freq 26.50000000 GHz
Start 3.00 #Res BW	100 kHz	#\ ×	VBW 300 kHz	FUNCTION	Sweep	Stop 26.50 GHz 2.246 s (1001 pts)	
	f	7.441 5 GHz	-30.40 dBm				Freq Offset 0 Hz
8 9 10 11			17		STATU		

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.



Ch Low 30MHz – 3GHz (EDR Mode)

	09:34:41 AM Jun 19, 2017	ALIGN AUTO		SENSE:1N		- Swept SA	ctrum Analyzer	sight Spect	Key
Frequency	TRACE 1 2 3 4 5 5 TYPE N WWWW DET P N N N N N	Type: Log-Pwr	Avg		GHz PNO: Fast G	5000000		er Fre	11.5
Auto Tune	l 2.403 0 GHz 8.16 dBm	Mkr					Ref Offse Ref 30.0		0 dE
Center Free 1.515000000 GH									og 20.0 10.0
Start Free 30.000000 MH	-11.94 dƏn								0.0 0.0 0.0
Stop Free 3.000000000 GH	الاهويو عدية اليوانية المحافظ المالية المراجعة الم	مى مەر يىلى ھەر يەر يەر يەر يەر يەر يەر يەر يەر يەر ي	Algo Anniel I. Sowie al Marie	gagy time and a republic	00~LUU-1.19.2000	at and a state	u in spinnetsteret	pq_16/58~	0.0 0.0 0.0
CF Step 297.000000 MH Auto Mar	Stop 3.000 GHz 3.9 ms (1001 pts)	Sweep 283		/ 300 kHz	#VBV		IHz 100 kHz	30 Mi BW 1	
Charles Inter	FUNCTION VALUE *	FUNCTION WIDTH	FUNCTION	Y 8.16 dBm	03 0 GHz	× 2.4	C SCL	N 1	(R N
Freq Offse 0 H									2345
									6 7 8 9
	•			11					1
		STATUS							8

Ch Low 3GHz – 26.5GHz (EDR Mode)

Keynight Sp	ectrum Analyzer - Swept	SA					
Center F	req 14.75000	PNO: Fast		Avg	Type: Log-Pwr	09:35:00 AM Jun 19, 2017 TRACE 1 2 3 4 5 TYPE HWWWWW DET P NNNNN	Frequency
10 dB/div	Ref Offset 14.3 Ref 30.00 dE		#Atten: 30 dE	3	Mkr	1 25.959 5 GHz -36.51 dBm	
20.0 10.0							Center Freq 14.75000000 GHz
-10.0 -20.0 -30.0						-11.84.05%	Start Freq 3.000000000 GHz
-40.0 -50.0 -60.0	, ha so	harayang may na ay Majalan	natro anno an	vethina in ang testata an		ekini kenenari na kanyotata Kat	Stop Freq 26.50000000 GHz
Start 3.00 #Res BW	100 kHz	#V	BW 300 kHz	FUNCTION	Sweep	Stop 26.50 GHz 2.246 s (1001 pts)	CF Step 2.35000000 GHz Auto Man
1 N 2 3 4 5	1 1	25.959 5 GHz	-36.51 dBm	PORCHOR		FORCE (0.11 TREDE)	Freq Offset 0 Hz
6 7 8 9 10							
1			11		-		
MSG					STATU	5	

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.



Ch Mid 30MHz – 3GHz (EDR Mode)

									małyzer - Sw	ectrum A	sight Sp
Frequency	M Jun 19, 2017 GE 1 2 3 4 5 6 PE N N N N N N	TRAC	Type: Log-Pwr		Free Run en: 30 dB		Hz PNO: Fast Gain:Low	00000 G	.51500	req	ter F
Auto Tune	1 6 GHz 15 dBm		Mk						Offset 14 30.00		3/div
Center Fre 1.515000000 GH		∳ ¹									
Start Fre 30.000000 MH	-11.05 dDrs										
Stop Fre 3.000000000 GH	ria Piperne de chemina de la comunicación de la comunicación de la comunicación de la comunicación de la comuni	allahan mendada karang	y	dara perdangan ter	mhann	A	1.41.1.1.1	and the line of	unikiaden		ari siyi)- a
CF Ster 297.000000 MH Auto Ma	3.000 GHz (1001 pts)	Stop 3 83.9 ms (Sweep 28		kHz	3W 300	#VE		kHz	MHz 100	t 30 5 BW
CINE III	ION VALUE *	FUNCT	FUNCTION WIDTH	FUNCTION	15 dBm	8	6 GHz	× 2.441		RC SCL	N N
Freq Offse 0 H											
											=
					_	_					
			STATUS								

Ch Mid 3GHz – 26.5GHz (EDR Mode)

Keysight Spectrum Analyzer - Swept SA				0 3 2
Center Freq 14.750000000	PNO: Fast C Trig: Free Run	Avg Type: Log-Pwr	09:36:50 AM Jun 19, 2017 TRACE 1 2 3 4 5 5 TYPE MUMANANA DET P NN NN N	Frequency
Ref Offset 14.3 dB 10 dB/div Ref 30.00 dBm	IFGain:Low #Atten: 30 dB	Mkr	1 25.795 0 GHz -36.63 dBm	Auto Tune
20.0 10.0				Center Freq 14.75000000 GHz
-10.0			.11.05.00%	Start Freq 3.00000000 GHz
-40 0 -60 0 -60 0	ray at have a part of a start of the start o	-PPInternal Constraints and the Constraints of the Constraint of the Constraints of the C	and the second	Stop Freq 26.50000000 GHz
Start 3.00 GHz #Res BW 100 kHz	#VBW 300 kHz	SW22P	Stop 26.50 GHz 2.246 s (1001 pts)	CF Step 2.35000000 GHz Auto Man
	'95 0 GHz -36.63 dBm	FORCTOR	FUNCTION VALUE	Freq Offset 0 Hz
10 11 11 11 11 11 11 11 11 11 11 11 11 1	19	STATU	,	

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.



Ch High 30MHz – 3GHz (EDR Mode)

							zer - Swept SA	ectrum An	ysight Sp
Frequency	M3un 19, 2017 DE 1 2 3 4 5 0 PE NMMMMM ET P NNNNN	TRA	Type: Log-Pwr	Avg	Trig: Free Run #Atten: 30 dB	GHz PNO: Fast C IFGain:Low	15000000	req 1.	-
Auto Tur	0 3 GHz 85 dBm		Mk				set 14.3 dB 0.00 dBm		B/div
Center Fre 1.515000000 GH		∳ ¹							
Start Fre 30.000000 MF	-14.15 dBm								
Stop Fre 3.000000000 GF		AN WARD	ander andere and a second s	na guyan ya guya ya gu		an a da saya a daga dike	a	lynghyn, fel	
CF Ste 297.000000 MH Auto Ma	000 GHz 1001 pts)	83.9 ms (Sweep 22	FUNCTION	300 kHz	#VB	z	100 k	t 30 s BW
Freq Offse 0 F					5.85 dBm	180 3 GHz	2.	ſ	
					17				
			STATUS						

Ch High 3GHz – 26.5GHz (EDR Mode)

😹 Keysight Spectrum Analyzer - Swept S				
Center Freq 14.750000	PNO: Fast C Trig: Free R	Avg Type: Log-Pwr	09:38:58 AM Jun 19, 2017 TRACE 1 2 3 4 5 5 TYPE H WWWWWW DET P NNNNN	Frequency
Ref Offset 14.3 o 10 dB/div Ref 30.00 dB		-	1 25.959 5 GHz -36.51 dBm	Auto Tune
20.0				Center Freq 14.75000000 GHz
-10.0			-1438 dBm	Start Freq 3.00000000 GHz
-40.0 -50.0 -60.0	and a second	4.444.494.494.494.494.494.494.494.494.4	jangangan panakan Kar	Stop Freq 26.50000000 GHz
Start 3.00 GHz #Res BW 100 kHz	#VBW 300 kHz	Sweep	Stop 26.50 GHz 2.246 s (1001 pts)	CF Step 2.35000000 GHz Auto Man
1 N 1 f 2 3 4 5	25.959 5 GHz -36.51 dBm		-	Freq Offset 0 Hz
6 7 8 9 10 11				
4 MSG		STATU	•	

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 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.
- Emission level (dBµV/m) = 20 log Emission level (dBµV/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.



10.2 Measurement Equipment Used

966 Chamber									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
EMI Test Receiver	R&S	ESU 40	100363	04/18/2017	04/17/2018				
Loop Antenna	ETS-Lindgren	6502	00143303	12/23/2016	12/22/2017				
Broadband Antenna	TESEQ	CBL 6112D	35240	11/03/2016	11/02/2017				
Horn Antenna	ETS-Lindgren	3117	00143272	12/15/2016	12/16/2017				
Horn Antenna	Schwarzbeck	BBHA9170	185	07/24/2016	07/23/2017				
Pre Amplifier	EMC Instruments	EMC330	980096	12/12/2016	12/11/2017				
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/12/2016	12/11/2017				
Pre Amplifier	R&S	SCU-18	10204	12/12/2016	12/11/2017				
Pre Amplifier	R&S	SCU-26	100780	12/12/2016	12/11/2017				
Coaxial Cable	Huber+Suhner	RG 214/U	966Rx 9K-30M	12/12/2016	12/11/2017				
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/12/2016	12/11/2017				
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/12/2016	12/11/2017				
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	COFLEX 966Rx 18G-40G		12/11/2017				
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/12/2016	12/11/2017				
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/12/2016	12/11/2017				
Attenuator	WOKEN	218FS-10	RF27	12/12/2016	12/11/2017				
Site NSA	SGS	966 Chamber C	SAC-C	03/02/2017	03/01/2018				
Site VSWR	SGS	966 Chamber C	SAC-C	03/02/2017	03/01/2018				
DC Power Supply	HOLA	DP-3003	D7070035	05/04/2017	05/03/2018				
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.				
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.				
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.				
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.				

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

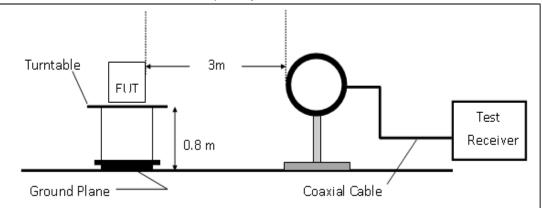
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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

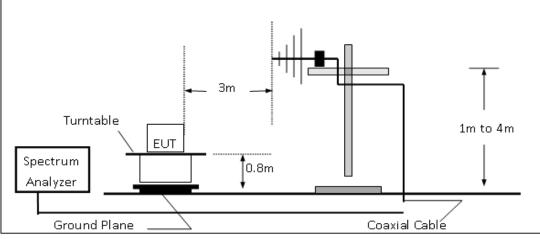


10.3 Test SET-UP

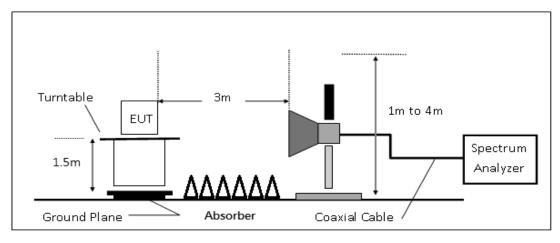
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(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.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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



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.

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	8	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 μ V/m) = SPA. Reading level(dB μ V) + Factor(dB)

Factor(dB) = Antenna Factor(dB μ V/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.

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.



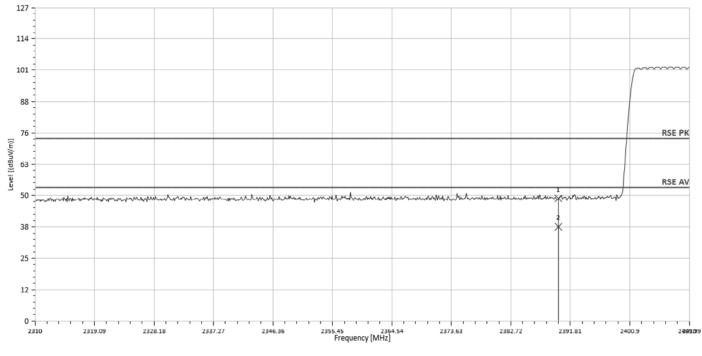
Radiated Band Edge Measurement Result: (Hopping Mode)

Operation Mode : Fundamental Frequen <i>c</i> y : Operation Band : EUT Pol. :		2402 MHz	BT BR HoppingTes2402 MHzTerBE CH LowTesE1Me		ntenna Pol. :	22.7 deo Aken			
127 -									
114 -									
101 -									
- 88									
76 -								RSE PK	
Level [(d8uV/m)] 29								RSE AV	
50 -	ala que de como	wanter man Markow	muhundunnen	NAMMANAN MANAN	whom have have the second	www.hennew	- Margen man	w	
38 -							*		
25 -									
12 -									
0 - 23	1 10 2319.09	2328.18	2337.27 234	6.36 2355.45 Frequency [I	2364.54 2373. MHz]	63 2382.72	2391.81	2400.9 2409109	
	Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin	
			Mode	Reading Leve		FS	@ 3m		
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
	2390.00	E	Peak	56.56	-6.84	49.71	74	-24.29	
	2390.00	Е	Average	44.62	-6.84	37.78	54	-16.22	

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留的天。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></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 excent a parties to a transaction from exercising all their rights and obligations under the transaction documents. This document be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or ap-parameters in updated and the parameter is unautifue and effective accent of the holder. 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



Operation Mode :	BT BR Hopping	Test Date:	2017/6/15
Fundamental Frequency :	2402 MHz	Temp. / Humi.:	22.7 deg_C/57RH
Operation Band :	BE CH Low	Test Engineer:	Aken
EUT Pol. :	E1	Measurement Antenna Pol.:	Horizontal

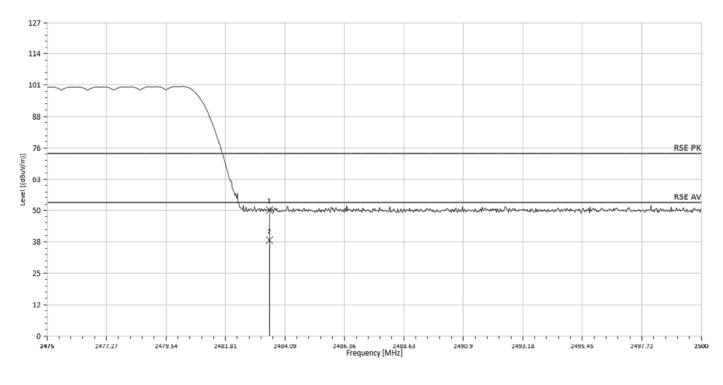


Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin	
		Mode	Reading Level		FS	@ 3m		
 MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
 2390.00	E	Peak	56.45	-6.84	49.61	74	-24.39	
2390.00	Е	Average	44.97	-6.84	38.13	54	-15.87	

Client's instructions, if any. The Company's object to its Clean and bis document does not exconerate parties to a transaction from exercising all their rights and obligations under the content or ap-transaction documents. This document is instruction by the content of the content of the content of the content or ap-parties and the content of the content or ap-ransaction documents. 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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is advised that information contained hereon reflects the Company. Any unauthorized alteration, forgery or falsification of the content or ap-ransaction documents. This document is advised to the fuller output of the low. 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



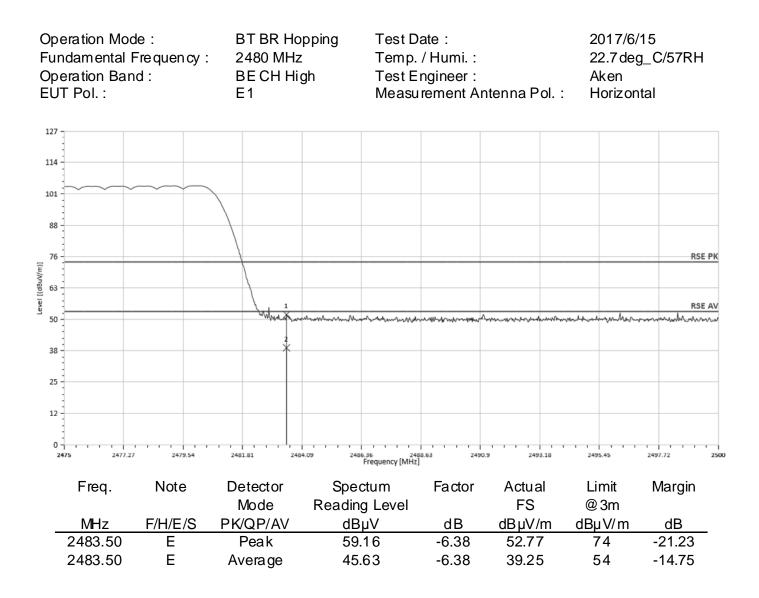
Operation Mode:	BT BR Hopping	Test Date:	2017/6/15
Fundamental Frequency:	2480 MHz	Temp. / Humi.:	22.7 deg_C/57RH
Operation Band :	BECH High	Test Engineer :	Aken
EUT Pol. :	E1	Measurement Antenna Pol. :	Vertical



	Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin	
			Mode	Reading Level		FS	@ 3m		
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
_	2483.50	E	Peak	57.40	-6.38	51.02	74	-22.98	
	2483.50	Е	Average	45.18	-6.38	38.80	54	-15.20	

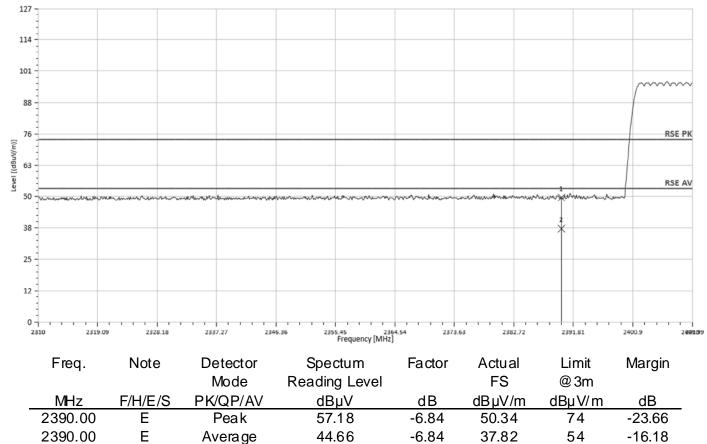
Client's instructions, if any. The Company's object to its Clean and bis document does not exconerate parties to a transaction from exercising all their rights and obligations under the content or ap-transaction documents. This document is instruction by the content of the content of the content of the content or ap-parties and the content of the content or ap-ransaction documents. 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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is advised that information contained hereon reflects the Company. Any unauthorized alteration, forgery or falsification of the content or ap-ransaction documents. This document is advised to the fuller output of the low. 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





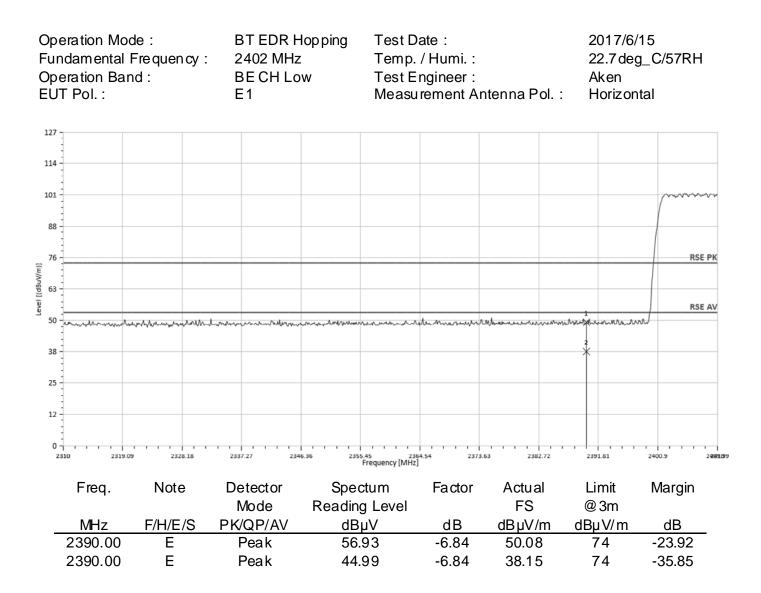


Operation Mode :	BT EDR Hopping	Test Date:	2017/6/15
Fundamental Frequency :	2402 MHz	Temp. / Humi.:	22.7 deg_C/57RH
Operation Band :	BE CH Low	Test Engineer:	Aken
EUT Pol. :	E1	Measurement Antenna Pol.:	Vertical

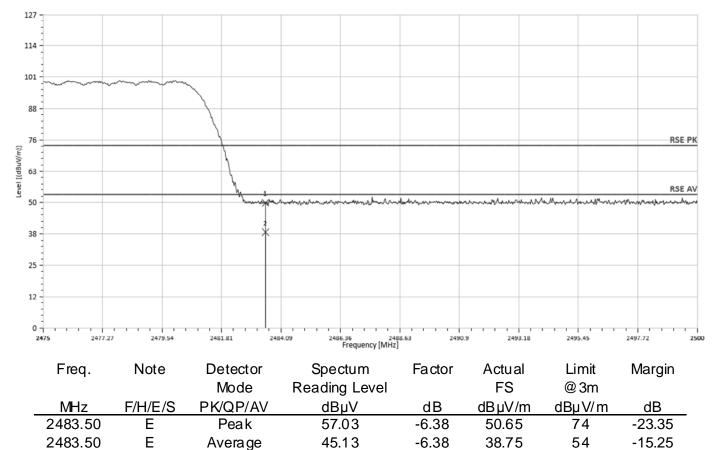


Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. | No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號



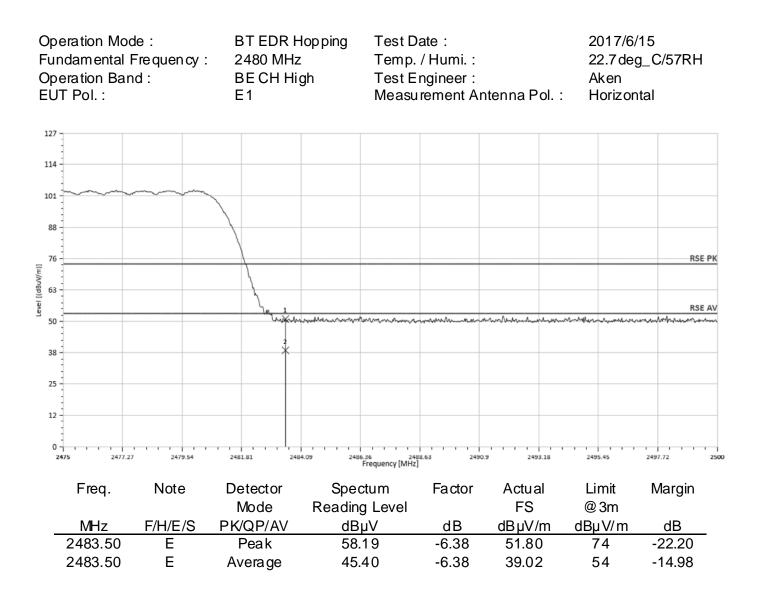






Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. | No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號







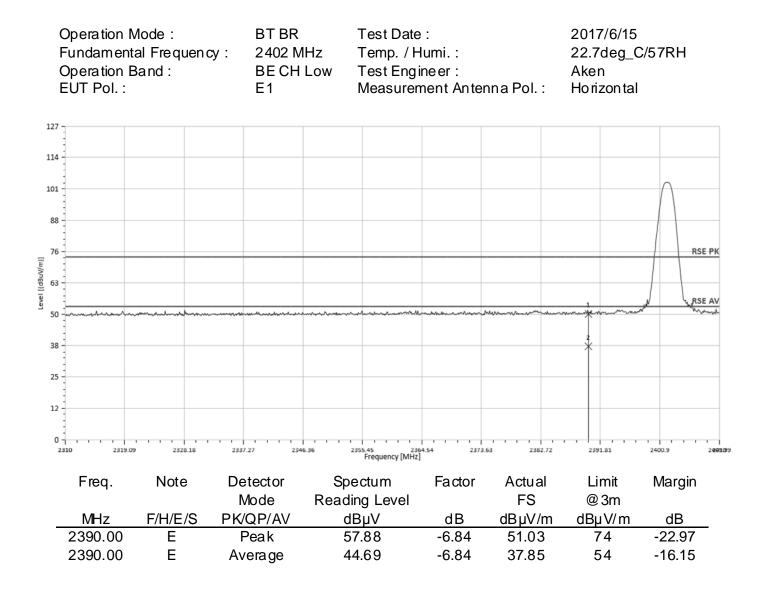
Radiated Emission – Band Edge (Non-Hopping Mode):

	Operation N Fundament Operation E EUT Pol. :	al Frequen	BT BR cy: 2402 M BE CH E1		Test Date Temp. / H Test Eng Measurer	lumi. :	nna Pol. :			57RH	
127]										
114											
101	-										
88										\bigwedge	
76 [RSE PK
Level [(d8uV/m)] 29	-									$\left \right $	
Fevel 50]	manthan marked and a start and a start	wanter	manutante		north management of the	who was a second	montrongle	mminent	<u> </u>	RSE AV
38	-							2			
	-							Î			
25											
12	1										
0 2	2310 2319.05	2328.18	2337.27 234	5.36	2355.45 23 Frequency [MHz	64.54 2373]	.63 2382.7	72 239	1.81	2400.9	2401.09
	Freq.	Note	Detector	-	ectum	Factor	Actual		mit	Marg	in
	MHz	F/H/E/S	Mode PK/QP/AV		ing Level BµV	dB	FS dBµV/n	-	3m ıV/m	dB	
-	2390.00	Е	Peak	5	8.54	-6.84	51.70	7	4	-22.3	
	2390.00	Е	Average	4	4.62	-6.84	37.78	5	54	-16.2	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_e-document.htm</u></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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is under use to attend the fuller extend of the hore. 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

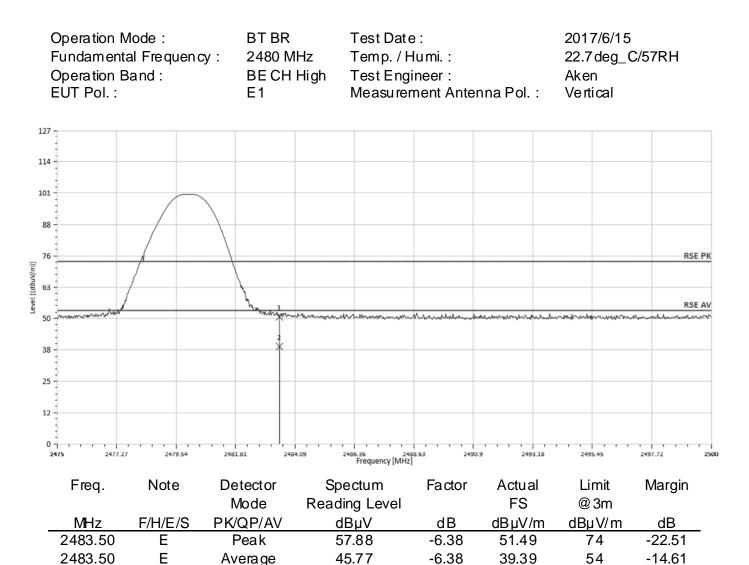


Report No.: E2/2017/70103 Page 51 of 96



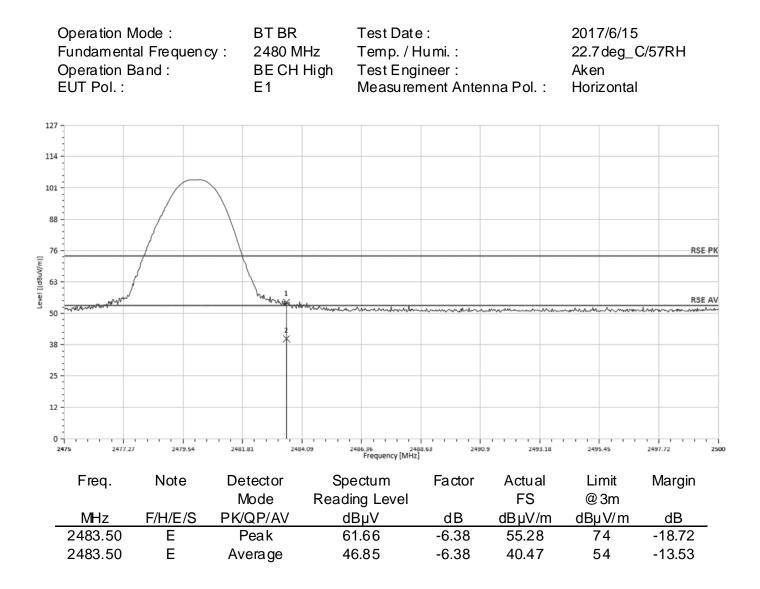
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.







Report No.: E2/2017/70103 Page 53 of 96



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

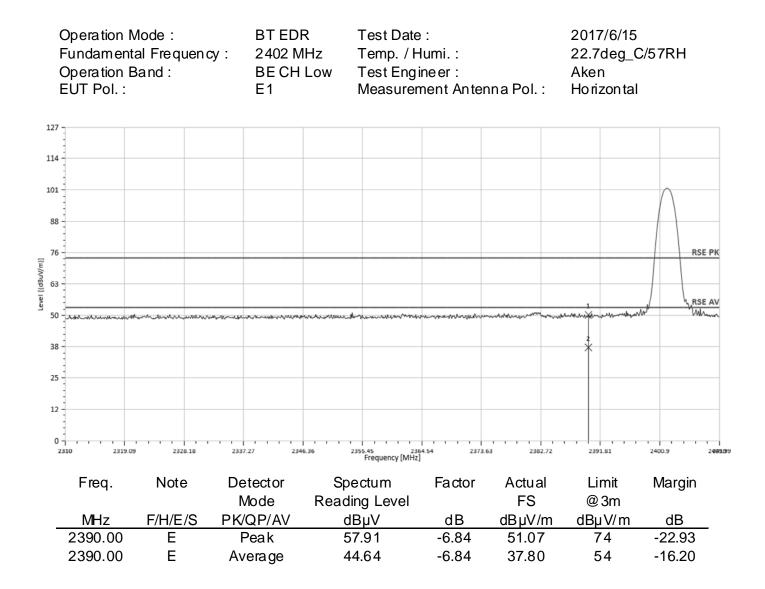


Operation Mode : Fundamental Frequency : Operation Band : EUT Pol. :		BT EDF cy : 2402 M BE CH E1	Hz Temp. Low Test E	ate : / Humi. : ngineer : rement Ante	nna Pol. :	2017/6/15 22.7deg_0 Aken Vertical	C/57RH	
127	3							
114								
101								
88	-							\wedge
76	·]							RSE PK
Level [(dBuV/m)] 20								RSEAV
<u>의</u> 50	- mean much	www.www.ukov	when when the work of the second s	to a manager and the second second	handerstand and the second seco	unntroduceducen	Mark Karpenner	w Munu
38							*	
25								
12	1							
	2310 2319.0	9 2328.18	2337.27 2344	5.36 2355.45 Frequency [2364.54 2373 MHz1	.63 2382.72	2391.81	2400.9 2409109
	Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
			Mode	Reading Leve	el	FS	@ 3m	J
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
	2390.00	Е	Peak	57.20	-6.84	50.36	74	-23.64
	2390.00	Е	Average	44.61	-6.84	37.77	54	-16.23

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></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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is under use to attend the fuller extend of the hore. 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

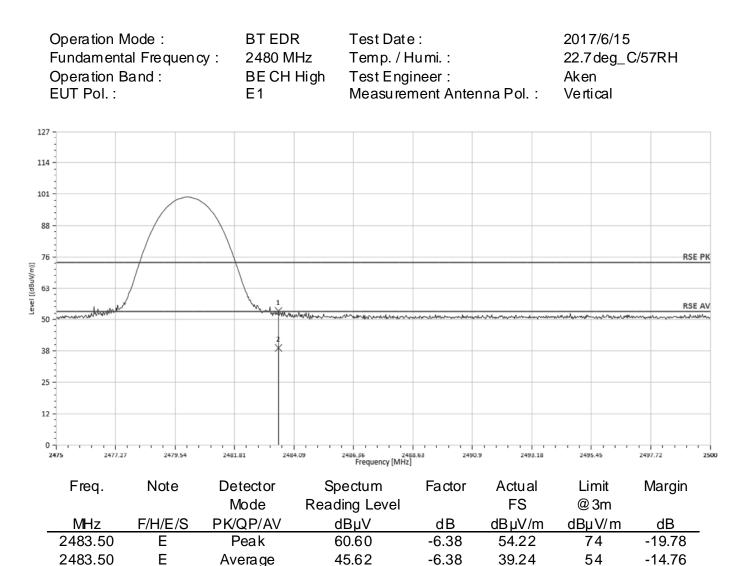


Report No.: E2/2017/70103 Page 55 of 96



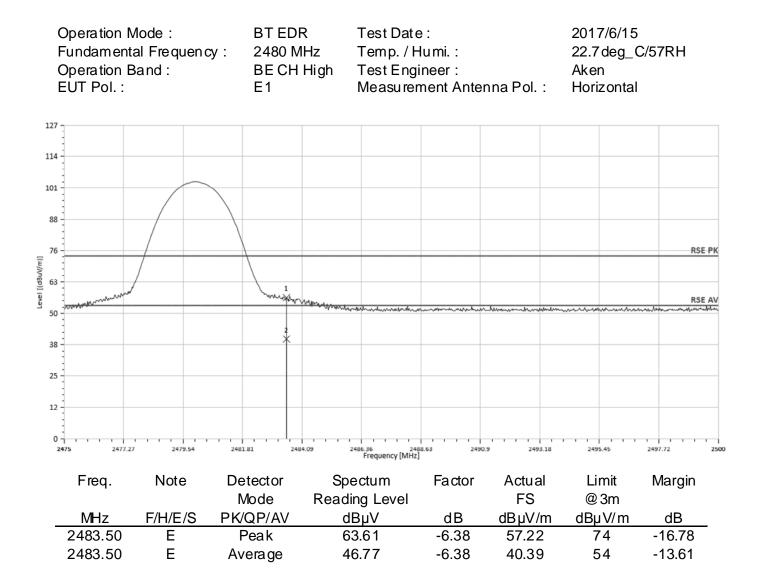
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.







Report No.: E2/2017/70103 Page 57 of 96



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



230.79

369.50

480.08

645.95

916.58

S

S

S

S

S

Radiated Spurious Emission Measurement Result:

For Frequency form 30MHz to 1000MHz

	Operation Fundamen Operation EUT Pol.	ntal Freque Band :	BT BF ncy : 2402 Tx CF H	MHz Te Low Te	est Date emp. / Hu est Engin easurem	ımi. : eer :	nna Pol. :	2017/6/15 22.7deg_0 Aken Vertical		
100										
90	-									_
80	-									
70										
60 [[iii	:								RSE	QP
Level [(dBuV/m)] 20	-									
مو 40	<u></u>									
30	-								-	
	-	1 2			₄ ★	5	k l		6	
20	-	$\hat{1}$	×							
10	-									-
0	30 118.1	18 206.36	294.54 38	32.72 470	0.9 559 Frequency [MHz]	.09 647	.27 735.45	823.63	911.81	1000
	Freq.	Note	Dete cto r	Spect	tum	Factor	Actual	Limit	Margin	
			Mode	Reading			FS	@3m		
	MHz	F/H/E/S	PK/QP/AV	dBµ		dB	dBµV/m	dBµV/m	dB	
	135.73	S	Peak	44.2	28	-23.72	20.56	43.5	-22.94	

44.07

36.58

39.79

35.86

35.38

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

Peak

Peak

Peak

Peak

Peak

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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

-23.88

-19.63

-17.03

-13.49

-10.03

20.19

16.95

22.76

22.37

25.35

-25.81

-29.05

-23.24

-23.63

-20.65

46

46

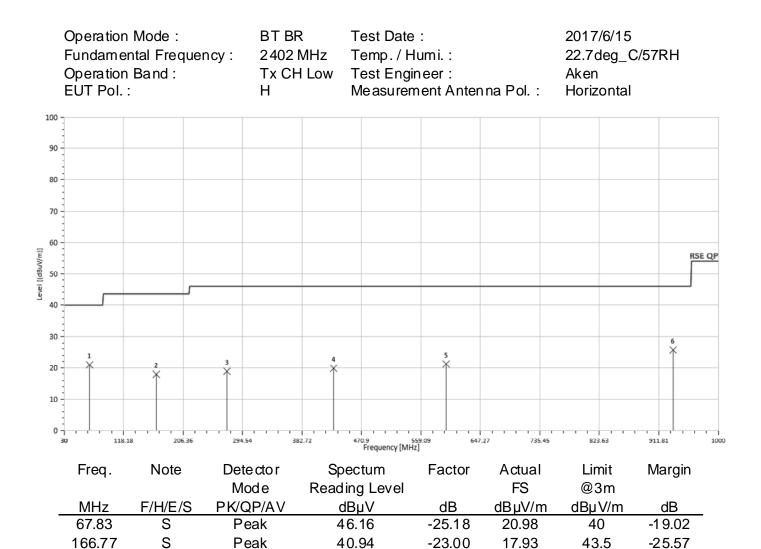
46

46

46



Report No.: E2/2017/70103 Page 59 of 96



41.35

38.43

36.02

35.37

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.

Peak

Peak

Peak

Peak

S

S

S

S

271.53

429.64

596.48

933.07

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 elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. | No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

-22.45

-18.57

-14.77

-9.66

18.90

19.86

21.25

25.71

46

46

46

46

-27.10

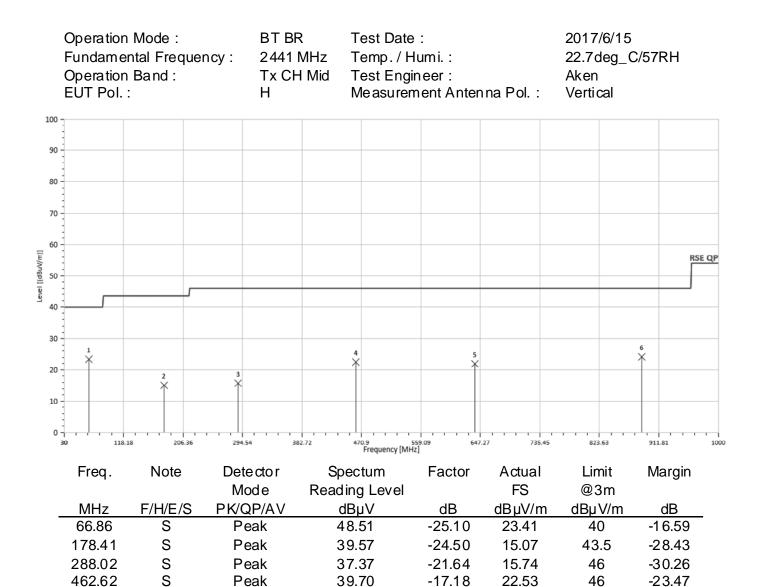
-26.14

-24.75

-20.29



Report No.: E2/2017/70103 Page 60 of 96



35.69

34.91

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.

Peak

Peak

S

S

639.16

886.51

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 elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. | No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

-13.72

-10.74

21.97

24.17

46

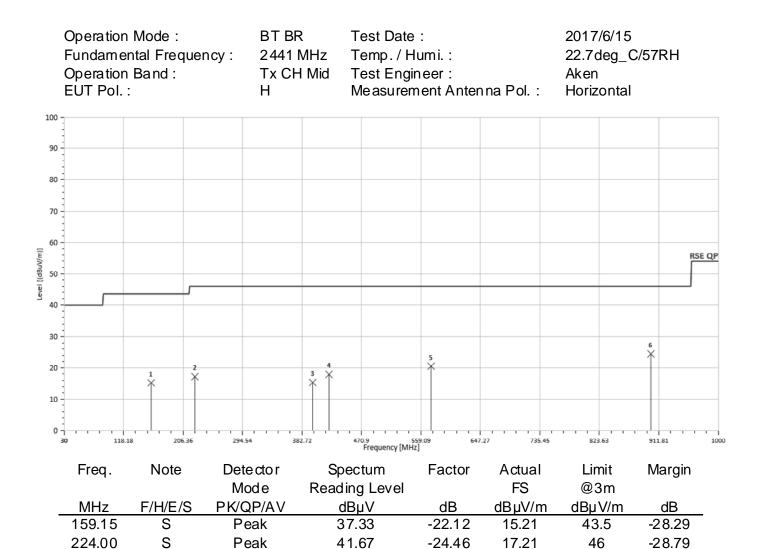
46

-24.03

-21.83



Report No.: E2/2017/70103 Page 61 of 96



34.11

36.13

35.62

34.49

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

Peak

Peak

Peak

Peak

S

S

S

S

398.60

422.85

574.17

900.09

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 elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. | No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

-18.77

-18.21

-15.07

-10.03

15.34

17.92

20.54

24.46

46

46

46

46

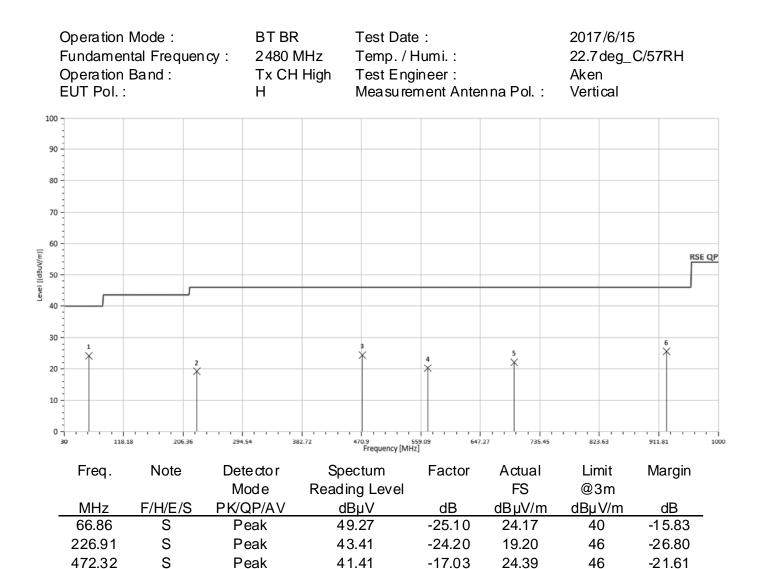
-30.66

-28.08

-25.46

-21.54





35.69

35.28

35.46

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.

Peak

Peak

Peak

S

S

S

569.32

697.36

923.37

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 elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. | No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

-15.46

-13.12

-9.89

20.23

22.15

25.57

46

46

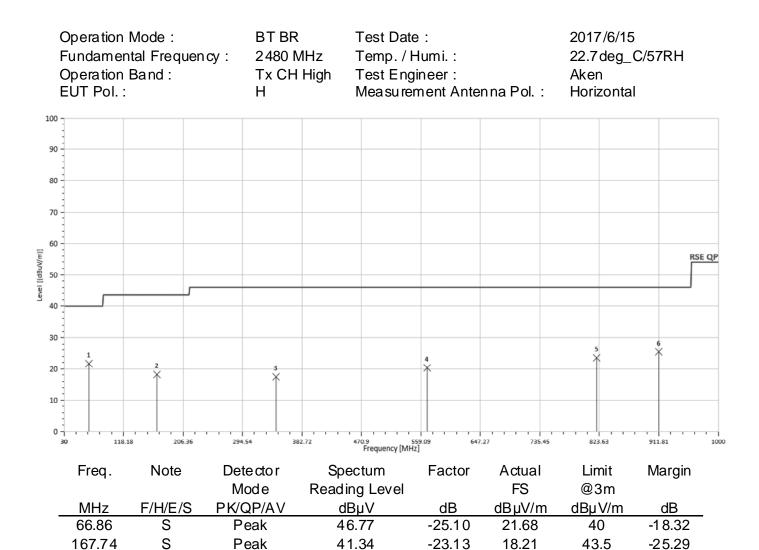
46

-25.77

-23.85

-20.43





37.81

35.86

35.01

35.54

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.

Peak

Peak

Peak

Peak

S

S

S

S

344.28

568.35

819.58

911.73

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 elecin social by the company subject to its General conductors of electronic Documents at <u>www.sgs.com/tems</u> = document/hm. Attention is drawn to the limitation of liability, indemification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. | No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

-20.33

-15.52

-11.46

-10.08

17.47

20.34

23.55

25.46

46

46

46

46

-28.53

-25.66

-22.45

-20.54



Radiated Spurious Emission Measurement Result:

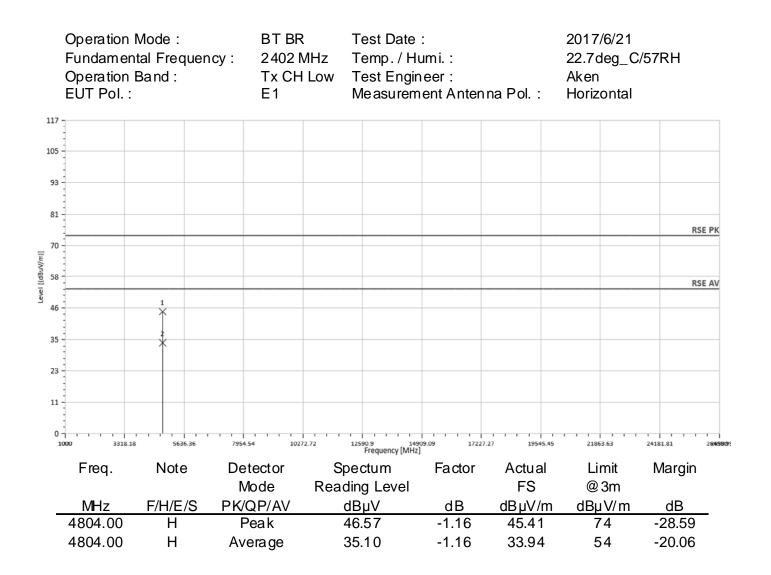
For Frequency above 1 GHz

	Operation Fundamen Operation EUT Pol. :	tal Freque	BT BF ency : 2402 Tx CH E1	MHz	Test Date Temp. / He Test Engir Measurem	umi. : neer :	ina Pol. :	2017/6 22.7de Aken Vertica	g_C/57RH	
117	, <u> </u>									7
105	;									_
93	-									
81									RSE PI	к
70)									
Level [(dBuV/m)] 60	-									
									RSE A	<u>v</u>
46	-	$\overset{1}{\times}$								
35	; <u>-</u>	2								-
23	<u>;</u>									_
11										
C	1000 3318.18	5636.36	7954.54 102	72.72	12590.9 149 Frequency [MHz]	09.09 1722	7.27 19545.45	21863.6	3 24181.81 264	659(3):
	Freq.	Note	Detector		ectum	Factor	Actual	Lim	it Margin	
			Mode	-	ing Level		FS	@ 3	-	
	MHz	F/H/E/S	PK/QP/AV		lBμV	dB	dBµV/m			
	4804.00	Н	Peak	4	1.66	-1.16	40.50	74		
	4804.00	Н	Average	3	2.18	-1.16	31.02	54	-22.98	

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></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 exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is under use to attend the fuller extend of the hore. 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



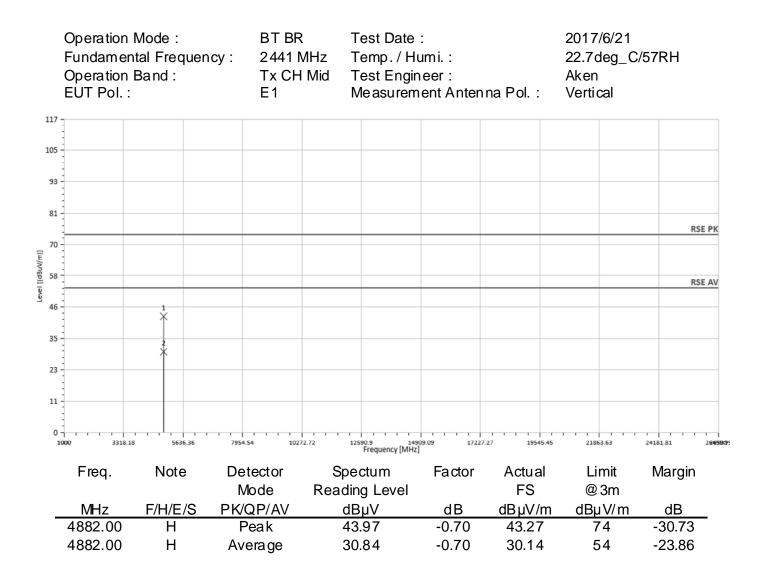
Report No.: E2/2017/70103 Page 65 of 96



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



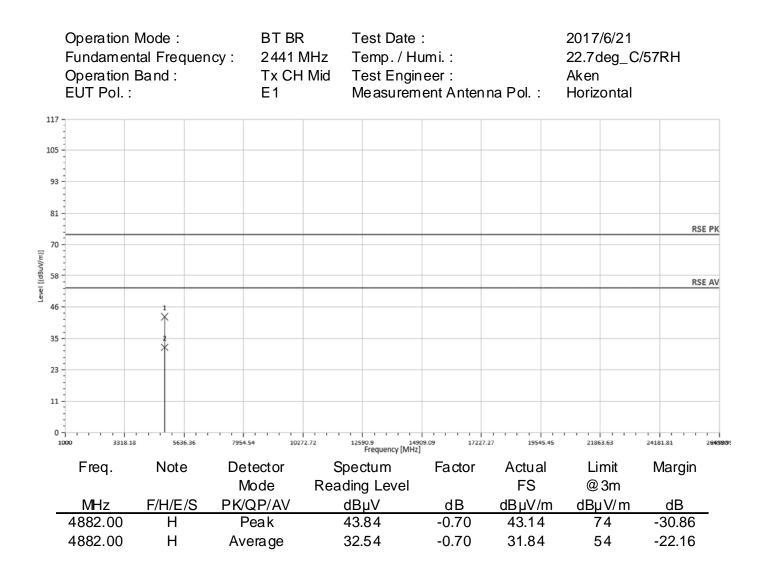
Report No.: E2/2017/70103 Page 66 of 96



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

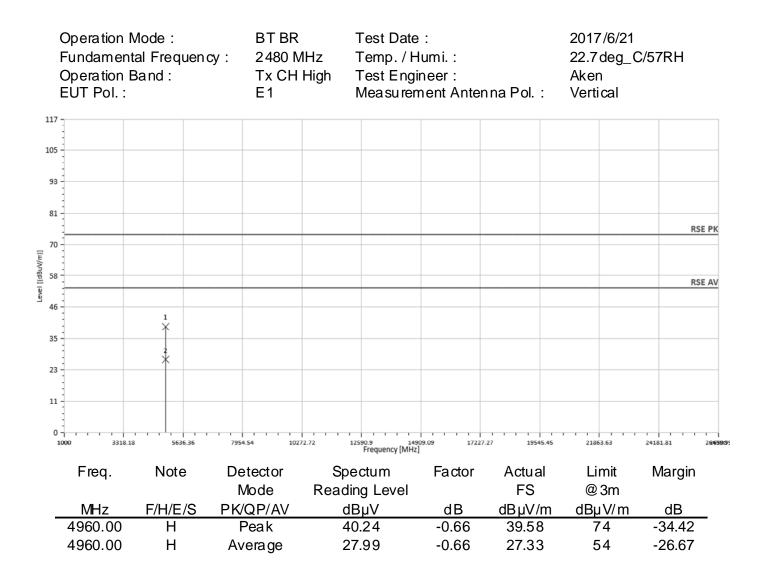


Report No.: E2/2017/70103 Page 67 of 96

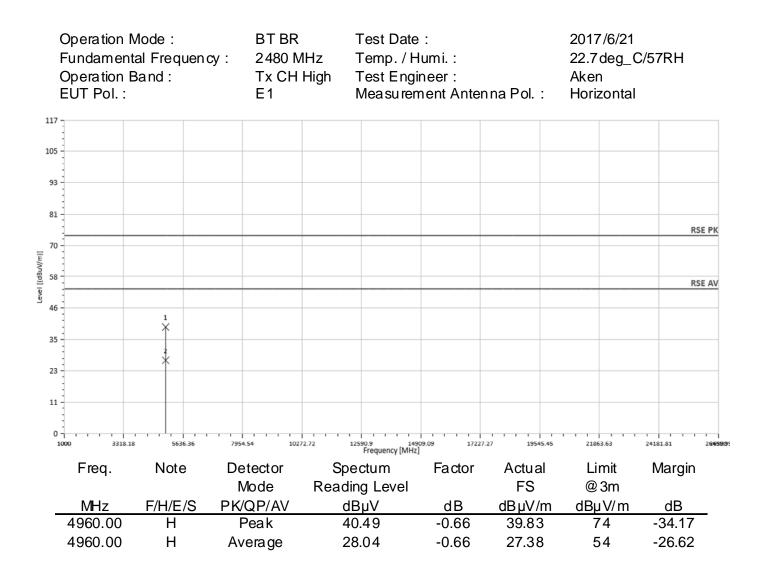


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.











11 FREQUENCY SEPARATION

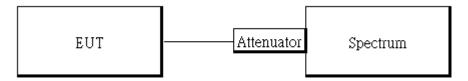
11.1 Standard Applicable

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	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018			
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018			
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018			
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018			
Coaxial Cable 30cm	WOKEN	00100A1F1A19 5C	RF01	12/12/2016	12/11/2017			
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017			
Splitter	RF-LAMBAD	RFLT2W1G18 G	RF35	12/12/2016	12/11/2017			
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017			

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.

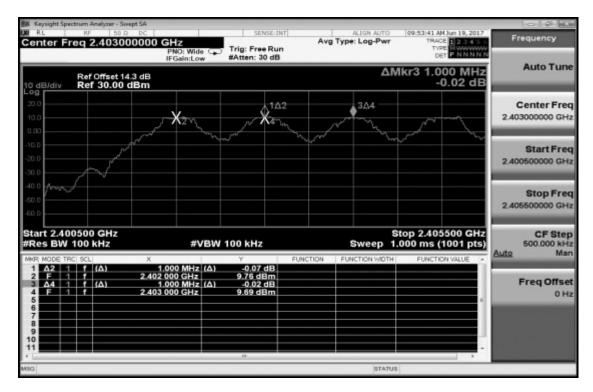
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf,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



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.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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



12 NUMBER OF HOPPING FREQUENCY

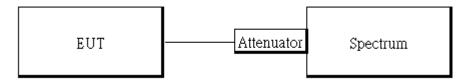
12.1 Standard Applicable

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

12.2 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018			
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018			
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018			
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018			
Coaxial Cable 30cm	WOKEN	00100A1F1A19 5C	RF01	12/12/2016	12/11/2017			
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017			
Splitter	RF-LAMBAD	RFLT2W1G18 G	RF35	12/12/2016	12/11/2017			
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017			

12.3 Test Set-up



12.4 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 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.

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.



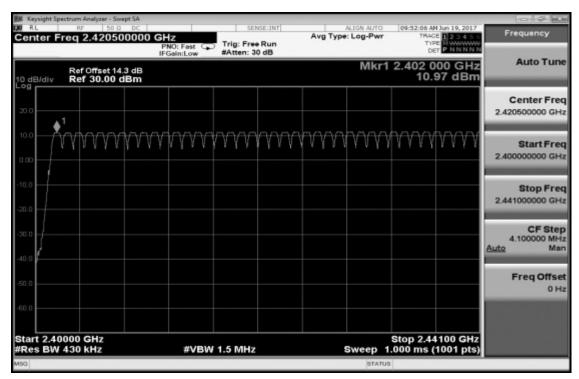
12.5 Measurement Result

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



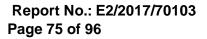
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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



Keysight Spectrum Analyzer - Swept SA				
Center Freq 2.462250000	GHZ PNO: Fast IFGain:Low #Atten: 30 dB	Avg Type: Log-Pwr	09:52:24 AM Jun 19, 2017 TRACE 1 2 3 4 5 5 TYPE NWWWWW DET P NN NN N	Frequency
Ref Offset 14.3 dB		Mkr1 2	2.480 000 0 GHz 10.59 dBm	Auto Tune
20.0			▲ ¹	Center Freq 2.462250000 GHz
0.00 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	NAMANAN	mmm		Start Freq 2.441000000 GHz
-10.0				Stop Freq 2.483500000 GHz
-40.0			here	CF Step 4.250000 MHz Auto Man
-50.0				Freq Offset 0 Hz
-60 0 Start 2.44100 GHz			Stop 2.48350 GHz	
#Res BW 430 kHz	#VBW 1.5 MHz	Sweep	1.000 ms (1001 pts) s	

2.441GHz - 2.4835GHz





TIME OF OCCUPANCY (DWELL TIME) 13

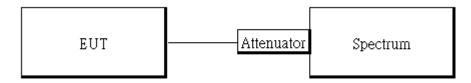
13.1 Standard Applicable

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	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018				
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018				
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018				
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018				
Coaxial Cable 30cm	WOKEN	00100A1F1A19 5C	RF01	12/12/2016	12/11/2017				
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017				
Splitter	RF-LAMBAD	RFLT2W1G18 G	RF35	12/12/2016	12/11/2017				
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017				

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.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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.



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,此報告結果僅對测試之樣品負責,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-Trans documents issued by the company subject to is defined conductors of electronic Documents at <u>www.sgs.com/tems</u> edocument.m. 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	Limit
Charmer		(ms)	(ms)
	DH1	117.12	400ms
0	DH3	257.12	400ms
	DH5	302.61	400ms
	DH1	118.40	400ms
39	DH3	255.68	400ms
	DH5	302.61	400ms
	DH1	116.80	400ms
78	DH3	256.32	400ms
	DH5	302.61	400ms

π/4 DQPSK (2Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)
	DH1	120.00	400ms
39	DH3	258.56	400ms
	DH5	302.61	400ms

8-DPSK (3Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)
	DH1	120.00	400ms
39	DH3	257.12	400ms
	DH5	304.00	400ms



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

GFSK (1Mbps):

CH Low	DH1 time slot =	0.366 *	(1600/2/79) *	31.6 =	117.12 (ms)
	DH3 time slot =	1.607 *	(1600/4/79) *	31.6 =	257.12 (ms)
	DH5 time slot =	2.837 *	(1600/6/79) *	31.6 =	302.61 (ms)
CH Mid	DH1 time slot =	0.370 *	(1600/2/79) *	31.6 =	118.40 (ms)
	DH3 time slot =	1.598 *	(1600/4/79) *	31.6 =	255.68 (ms)
	DH5 time slot =	2.837 *	(1600/6/79) *	31.6 =	302.61 (ms)
CH High	DH1 time slot =	0.365 *	(1600/2/79) *		116.80 (ms)
	DH3 time slot =	1.602 *	(1600/4/79) *	31.6 =	256.32 (ms)
	DH5 time slot =	2.837 *	(1600/6/79) *	31.6 =	302.61 (ms)
π/4 -DQPS	K (2Mbps):				
CH Mid	2DH1 time slo =	0.375 *	(1600/2/79) *	31.6 =	120.00 (ms)
	2DH3 time slo =	1.616 *	(1600/4/79) *	31.6 =	258.56 (ms)
	2DH5 time slo =	2.837 *	(1600/6/79) *	31.6 =	302.61 (ms)

8-DPSK (3Mbps):

CH Mid	3DH1 time slo =	0.375 *	(1600/2/79) *	31.6 =	120.00 (ms)
	3DH3 time slo =	1.607 *	(1600/4/79) *	31.6 =	257.12 (ms)
	3DH5 time slo =	2.850 *	(1600/6/79) *	31.6 =	304.00 (ms)



GFSK (1Mbps) for AFH Mode							
Hopping Channel Number	PACKET TYPE	Measurement Result (ms)	Limit (ms)				
20	DH5	151.31	400ms				
π/4 DQPSK (2Mbps) for Mode							
Hopping Channel Number	PACKET TYPE	Measurement Result (ms)	Limit (ms)				
20	DH5	151.31	400ms				
	8-DPSK (3Mbps	s) for AFH Mode					
Hopping Channel Number	PACKET TYPE	Measurement Result (ms)	Limit (ms)				
20	DH5	152.00	400ms				

GFSK (1Mbps):

DH5 time s =	2.837	(ms) *	(800/6/20)* 8 =	151.31	(ms)
π/4 -DQPSK (2Mbp					
2DH5 time =	2.837	(ms) *	(800/6/20)* 8 =	151.31	(ms)
8-DPSK (3Mbps):					
3DH5 time =	2.850	(ms) *	(800/6/20)* 8 =	152.00	(ms)

13.6 Measurement Result

Note: Refer to next page for plots.



CH-Low DH1

	ectrum Analyza			-						-o- 4. X
Center Fi	req 2.40	50 R DC	PNO: Fast +*	Trig: Free			Log-Pwr	TRAC	MJun 16, 2017 25 1 2 3 4 5 5 PC WWWWWWW T P N N N N N	Frequency
10 dB/div		et 14.3 dB .00 dBm	IFGain:Low	#Atten: 30	dB		1	Mkr1 3	l66.3 µs 0.06 dB	Auto Tune
20.0 10.0 X2	• ^{1∆}	2		1						Center Fred 2.402000000 GHz
-10,0										Start Freq 2.402000000 GHz
-40.0 #1 -50.0 -60.0	-	perter Mandalema	e pul	.4.1989-lipesya	nala yahana	nu.	n ¹ 80-un _{en} ation	ng milliong	wpra	Stop Freq 2.402000000 GHz
Center 2. Res BW 1	.0 MHz	00 GHz	#VBV	V 3.0 MHz	FUNCT		Sweep 4.	.467 ms (pan 0 Hz 1001 pts)	CF Step 1.000000 MHz Auto Mar
1 42 1	t (Δ)		366.3 μs (Δ) 138.5 μs	-0.06 d 11.28 dB	в	ION FO		FORCIP	E F	Freq Offsel 0 Hz
9 10 11 11				19			STATUS			

DH3

RL		0000000 G	HZ NO: Fast			Avg Typ	ALIGN AUTO e: Log-Pwr		49 PM Jun 16, 201 TRACE 1 2 3 4 TYPE WOMMAN DET P NNNN	Frequency
0 dB/div	Ref Offset Ref 30.0							∆Mkr1	1.607 m -0.09 d	
og 20.0 10.0 10.0		×	, ,2	1∆:	2					Center Fr 2.402000000 G
10.0 20.0 30.0										Start Fre 2.402000000 G
40.0 50.0 50.0		byg tirtud y			ą mu _n ry		/w/	Minnutyge		Stop Fr 2.402000000 G
enter 2./ es BW 1		0 GHz ×	#VBV	V 3.0 MHz	FUN	CTION FL	Sweep		Span 0 H is (1001 pts	CF St 1.000000 M <u>Auto</u> M
	t (Δ)		607 ms (Δ) 463 ms	-0.09 d 11.20 dB						Freq Offs
8									,	
10							STAT	15		



	trum Analyzer - Swept SA						
Center Fre	Bq 2.402000000	PN0: Fast ↔	Trig: Free Run #Atten: 30 dB	Ave	Type: Log-Pwr	06:23:34 PM Jun 16, 2017 TRACE 1 2 3 4 5 TYPE 000000000000000000000000000000000000	Frequency
10 dB/div	Ref Offset 14.3 dB Ref 30.00 dBm				Δ	Mkr1 2.837 ms -0.03 dB	
20.0 10.0	X2		1∆2				Center Freq 2.402000000 GHz
10,0 20,0 30.0							Start Freq 2.402000000 GHz
-40.0 -50.0 -60.0	would		e, sieligente		last the state of		Stop Freq 2.402000000 GHz
Center 2.4 Res BW 1.	02000000 GHz 0 MHz	#VBV	V 3.0 MHz		Sweep 1	Span 0 Hz 3.13 ms (1001 pts)	
MKR MODE TRO	scl X	2.837 ms (Δ)	∀ -0.03 dB	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	Charles Maint
2 F 1 3 4 5 6	t	2.811 ms	11.10 dBm				Freq Offset 0 Hz
7 8 9 10 11							
•			++				
ECRN					STATUS		

CH-Mid

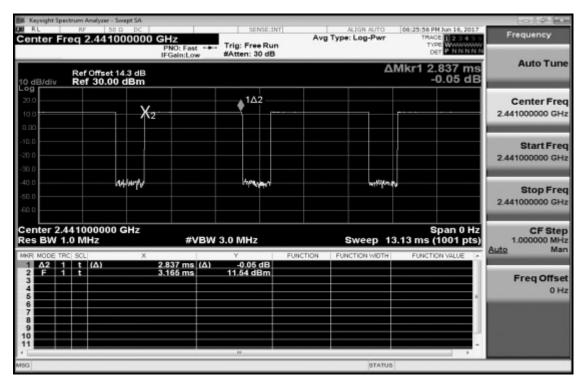
DH1

	ectrum Analyzer - S							-		×
Center F	req 2.4410	00000 GHz	East	SENSE:			Log-Pwr	TRAC	Jun 16, 2017	Frequency
10 dB/div	Ref Offset 1 Ref 30.00	IFGa 4.3 dB		#Atten: 30 d			1	AMkr1 3	69.6 µs 5.78 dB	Auto Tune
20.0 10.0	X2	1∆2	Г							Center Freq 2.441000000 GHz
-10.0 -20.0 -30.0										Start Freq 2.441000000 GHz
10.0	nheimeh	47°7164/1416464	lopisterseyHeapy	Υµ	arditerek	iyaraankaas		kelsk-theod	otopiyekey	Stop Freq 2.441000000 GHz
Center 2. Res BW		GHz	#VBW 3.	.0 MHz	FUNC		Sweep 4	Sj .400 ms (1		CF Step 1.000000 MHz Auto Man
1 A2 2 F 3 4 5 6	1 t (Δ) 1 t	369	6 μs (Δ) 4 μs	5.78 dB 5.85 dBm	1					Freq Offset 0 Hz
7 8 9 10 11										
MSG							STATUS	5		



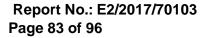
Keysight Spectrum Analyzer - Swept SA				X
Center Freq 2.441000000			06:18:11 PM Jun 16, 2017 TRACE 1 2 3 4 5 5 TYPE WWWWWWW DET P NNNNN	Frequency
Ref Offset 14.3 dB 10 dB/div Ref 30.00 dBm	IFGamLow Action.		∆Mkr1 1.598 ms -0.05 dB	Auto Tune
200 100 100 100	1Δ2			Center Freq 2.441000000 GHz
-10.0				Start Freq 2.441000000 GHz
40 0 4000 4000 4000 4000 4000 4000 400	Priph Marken Syn	angly ngly ng a	engraderigenes	Stop Freq 2.441000000 GHz
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MH		Span 0 Hz 8.733 ms (1001 pts)	CF Step 1.000000 MHz Auto Man
MRR MODE TRC SCL X 1 A2 1 t (A) 2 F 1 t 3 4 4 5 6 6 7 8 9 9 10 11 11 1	1.598 ms (Δ) -0.0 1.301 ms 11.60	FUNCTION FUNCTION WIDT	FUNCTION VALUE +	Freq Offset 0 Hz
450		STAT	15	

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.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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 DH1

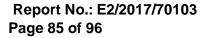
	trum Analyzer - Swept SA				
Center Fr	eq 2.480000000	GHz PNO: Fast	Avg Type: Log-Pwr	06:13:06 PM Jun 16, 2017 TRACE 1 2 3 4 5 5 TYPE	Frequency
10 dB/div	Ref Offset 14.3 dB Ref 30.00 dBm	IFGain:Low #Atten: 30 dt		ΔMkr1 365.2 μs -0.11 dB	Auto Tune
20.0 10.0	}	ζ ₂ 1Δ2			Center Freq 2.48000000 GHz
-10.0 -20.0 -30.0					Start Freq 2.480000000 GHz
-40.0 -50.0 -60.0	agrepateur.t-netyatanig-penifi	(entrepresentation) (entrepresentation)	w stantijndohustant	leis wordshiel	Stop Freq 2.480000000 GHz
Res BW 1.	C SOL X	#VBW 3.0 MHz	Sweep 4.	Span 0 Hz 400 ms (1001 pts)	CF Step 1.000000 MHz Auto Man
1 Δ2 1 2 F 1 3 4 5 6 7 8	t (Δ) t	365.2 μs (Δ) -0.11 dB 1.170 ms 10.91 dBm			Freq Offset 0 Hz
9 10 11 MSG			STATUS		

DH3

Keysight Spectrum Analyzer - Swe					
enter Freq 2.48000	0000 GHz	Free Run an: 30 dB	/g Type: Log-Pwr	06:18:38 PM Jun 16, 2017 TRACE 1 2 3 4 5 5 TYPE WWWWWWW DET P NNNNN	Frequency
Ref Offset 14. dB/div Ref 30.00 d	3 dB	1. 00 0.0	Δ	Mkr1 1.602 ms -0.17 dB	Auto Tune
а 10 10 10 10 10 10 10 10 10 10 10 10 10	1Δ2				Center Free 2.480000000 GH
0					Start Free 2.480000000 GH
- h_iudy'ye^hwizyu	hat distributed as	lowitin	m.la	41/hpphtalays	Stop Free 2.480000000 GH
nter 2.480000000 G BW 1.0 MHz	#VBW 3.0 N		Sweep 8.	Span 0 Hz 800 ms (1001 pts)	CF Step 1.000000 MH Auto Mar
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		FUNCTION 0,17 dB 78 dBm	FUNCTION WIDTH	FUNCTION VALUE	Freq Offse 0 H
	1				



-05-						ctrum Analyzer - Swept SA	Keysight Spe R L
Frequency	06:27:47 PM Jun 16, 2017 TRACE 1 2 3 4 5 TYPE WOODDOW DET P NNNNN	e: Log-Pwr	Avg T	Trig: Free Run #Atten: 30 dB	PNO: East when I	eq 2.48000000	
Auto Tu	4 wikr1 2.837 ms -0.07 dB	ΔN				Ref Offset 14.3 dB Ref 30.00 dBm	B/div
Center Fr 2.480000000 G					1Δ2	X2	
Start Fre 2.480000000 Gi							
Stop Fr 2.480000000 Gi			h _g mp)		writher	ang daya	
CF Ste 1.000000 Mi Auto M	Span 0 Hz .13 ms (1001 pts)	Sweep 13.		3.0 MHz	#VBW 3.	180000000 GHz .0 MHz	
CIMIN III	FUNCTION VALUE	NCTION WIDTH	UNCTION	∀ -0.07 dB	2.837 ms (Δ)		MODE TR
Freq Offs 01	÷.			10.72 dBm	1.589 ms		F 1
				17			_
		STATUS					





CH-Mid 2DH1

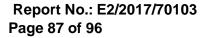
Keysight Spectrum Analyzer - Swept SA				-05 ¹ - X
Center Freq 2.44100000	PNO: Fast Trig: Free			Frequency
Ref Offset 14.3 df 10 dB/div Ref 30.00 dBm		dB	ΔMkr1 375.2 μs 1.12 dB	Auto Tune
200 10.0 10.0	····\$			Center Fred 2.441000000 GHz
-10.0				Start Free 2.441000000 GHz
-40.0 44420	16.192.197.197.197.198.1	_{เกมส} ามที่ปุ่นสาวรับได้ได้	expersion liberto-cognitive	Stop Fred 2.441000000 GHz
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep	Span 0 Hz 4.467 ms (1001 pts)	CF Step 1.000000 MH Auto Mar
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	375.2 μs (Δ) 1.12 d 888.9 μs 8.80 dB	IB	FORCHON VALUE	Freq Offse 0 H
8 9 9 9 10 11 11 11 11 11 11 11 11 11 11 11 11		STAT	-	

2DH3

RL		D00000 GH	Z O: Fast	Trig: Free R #Atten: 30 c	A	ALIGN AUTO	r TRA	PN Jun 16, 2017 CE 1 2 3 4 5 IPE WARNANN SET P. N.N.N.N.N.	Frequency
dB/div	Ref Offset 1 Ref 30.00						ΔMkr1 1	.616 ms 1.38 dB	Auto Tur
0.0 0.0 0.0		Xź		∳ ^{1∆2}			r		Center Fre 2.441000000 GF
0,0 0,0									Start Fre 2.441000000 Gi
0, D 0, D 0, D		Astro-West		urf#/n	where a		nde singeten		Stop Fr 2.441000000 G
enter 2./ es BW 1		GHz	#VBW	3.0 MHz	FUNCTION	Sweep	8.733 ms	Span 0 Hz (1001 pts)	CF St 1.000000 M Auto M
1 Δ2 1 2 F 1 3 4 5	t (Δ)	1.61	16 ms (Δ) 54 ms	1.38 dE 8.57 dBn	3				Freq Offs 0
6 7 8 9 0									
3						STAT	US		



	ectrum Analyzer							
Center F			NO: Fast ++	Trig: Free Run	Avg Typ	e: Log-Pwr	06:33:12 PM Jun 16, 201 TRACE 1 2 3 4 5 TYPE WARNING DET P NNNN	Frequency
10 dB/div	Ref Offse Ref 30.0	et 14.3 dB	Sain:Low	#Atten: 30 dB		Δ	Mkr1 2.837 ms 1.62 dE	Auto Tune
20.0 10.0				1Δ2				Center Fred 2.441000000 GHz
-10,0 -20,0 -30.0								Start Free 2.441000000 GH:
-40.0 -50.0 -60.0		Advision		werty		y proved	4d	Stop Free 2.441000000 GH:
Center 2. Res BW		00 GHz	#VBW	3.0 MHz		Sweep 1	Span 0 H 3.13 ms (1001 pts	CF Ster 1.000000 MH Auto Mar
1 42	t (Δ)	2.8	37 ms (Δ) 31 ms	1.62 dB 8.57 dBm			PORCIDENTIALOE	Freq Offse 0 H
9 10 11						STATUS	*	





CH-Mid 3DH1

Keynight Spect	rum Analyzer - Swept S							
11.5-	eq 2.4410000		Trig: Free Run #Atten: 30 dB	Avg Typ	e: Log-Pwr	TYPE	1 2 3 4 5 5 WWWWWW P NNNNN	Frequency
	Ref Offset 14.3 d Ref 30.00 dBr	1B			Δ	Mkr1 37 0.	5.2 µs .97 dB	Auto Tune
X ₂	1Δ2							Center Free 2.441000000 GHz
								Start Freq 2.441000000 GHz
- 	nghientrik	19987941961961	jodinija koleniji od se je od s	yest of	hilling the start	pertynet falle	μ	Stop Freq 2.441000000 GHz
	1000000 GHz MHz		V 3.0 MHz		Sweep 4.	Sp 467 ms (10	an 0 Hz 001 pts)	CF Step 1.000000 MHz
MODE TRC		× 375.2 μs (Δ)	∀ 0.97 dB	FUNCTION FU	NCTION WIDTH	FUNCTION	VALUE A	Auto Man
F 1		205.5 µs	8.56 dBm					Freq Offset 0 Hz
					STATUS			

3DH3

Keysight Spectrum Anal							X
nter Freq 2.4		PNO: Fast	Trig: Free Run #Atten: 30 dB	Ave	Type: Log-Pwr	09:32:03 AM Jun 19, 2017 TRACE 1 2 3 4 5 TYPE WARNING DET P NNNN	Frequency
dB/div Ref 3	fset 14.3 dB 0.00 dBm	PGantLow	Witten. ov up		Δ	Mkr1 1.607 ms 1.28 dB	
9 0 0	X2-		1Δ2	,,			Center Freq 2.441000000 GHz
							Start Freq 2.441000000 GHz
	weytynphase		Variation of States		er-lafteranging		Stop Freq 2.441000000 GHz
ter 2.441000 BW 1.0 MHz	000 GHz	#VBV	V 3.0 MHz			Span 0 Hz 733 ms (1001 pts)	CF Step 1.000000 MHz Auto Man
MODE TRC SCL A2 1 t (A F 1 t	×	1.607 ms (Δ) 2.087 ms	8.66 dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	Freq Offset 0 Hz
			11		STATUS		



	ectrum Analyzer - Swept SA				
Center F	req 2.44100000	D GHz PNO: East the Trig: Free		09:36:11 AM Jun 19, 2017 TRACE 1 2 3 4 5 TYPE WARMAN N N DET P N N N N N	Frequency
10 dB/div	Ref Offset 14.3 dB Ref 30.00 dBm	IFGain:Low #Atten: 30		Mkr1 2.850 ms 3.56 dB	Auto Tune
20.0 10.0	×2	142			Center Free 2.441000000 GHz
-10.0 -20.0 -30.0					Start Fred 2.441000000 GH:
-40.0 -50.0 -60.0	androg	Vednotin	lan-eusperl	alpringhts	Stop Free 2.441000000 GH
Res BW 1		#VBW 3.0 MHz		Span 0 Hz 3.13 ms (1001 pts)	CF Step 1.000000 MH Auto Mar
2 F 1 3 4 5 6 7 8 9	t (A)	(2.850 ms (Δ) 3.56 d 2.036 ms 6.35 dB		FUNCTION VALUE 6	Freq Offse 0 H
10 11 MSG			STATU	· ·	



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.

Unless the wee stated the solids from in this test report leading only to the statistic and solid sample(s) test and solid s 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.