

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant: Product Name:	Quanta Computer Inc. No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) VR Controller
Brand Name:	MP, HP Inc.
Marketing Name:	HP Reverb G2 Controllers
Model No.:	TPC-Q077-C2
Model Difference:	N/A
Report Number:	E2/2020/60057
FCC ID:	HFS-A85KL
FCC Rule Part:	§15.247, Cat: DSS
Issue Date:	Aug. 04, 2020
Date of Test:	Jul. 06, 2020 ~ Jul. 24, 2020
Date of EUT Re- ceived: We hereby certify tha	Jul. 06, 2020 .t:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab 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.

GZZ



Approved By:

Jazz Huang / Asst. Supervisor

Unless otherwise stated 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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format document is subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format document is subject to Signature and this document and this doc



Revision History					
Report Number	Revision	Description	Issue Date	Remark	
E2/2020/60057	Rev.00	Original.	Aug. 04, 2020	Revised By: Yuri Tsai	

Note:

1 · Multiple Model numbers or Trademarks

The variant trademarks are assessed as identical in hardware and software to each other, hence all variants are fully covered by the test results in this test report without further verification test.

2 · Disclaimer

Antenna information and Variant information among trademarks are provided by the applicant, the test results of this report are applicable to the sample EUT received.

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

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



Table of Contents

1	GENERAL INFORMATION	4
2	SYSTEM TEST CONFIGURATION	6
3	SUMMARY 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 BANDWIDTH MEASUREMENT	. 17
9	CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT	. 21
10	RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT	. 27
11	FREQUENCY SEPARATION	. 56
12	NUMBER OF HOPPING FREQUENCY	. 58
13	TIME OF OCCUPANCY (DWELL TIME)	. 60
14	ANTENNA REQUIREMENT	. 70

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

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.



GENERAL INFORMATION 1

1.1 Product description

Product Name:	VR Controller			
Brand Name:	MP, HP Inc.			
Marketing Name:	HP Reverb G2 Controllers			
Model No.:	TPC-Q077-C2			
Model Difference:	N/A			
Hardware Version:	N/A			
Software Version:	N/A			
Power Supply:	3Vdc from AA Battery*2			

Radio Technology:	Bluetooth BR+EDR			
Channel number:	79 channels			
Modulation type:	GFSK + π/4DQPSK + 8DPSK			
Transmit Power:	4.39 dBm			
Frequency Range:	2.402GHz – 2.480GHz			
Dwell Time:	\leq 0.4s			

1.2 Antenna Designation

Antenna Type	Supplier	Antenna Model No.	Freq. (MHz)	Peak An- tenna Gain (dBi)
Monopole	Quanta	DAA85BT14	2402~2480	-0.9

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

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.

Report No.: E2/2020/60057 Page 5 of 70



1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247 FCC KDB 558074 D01 15.247 Meas. Guidance v05r02 ANSI C63.10:2013

1.4 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702) No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333

愀 CC Designation number: TW0028

1.5 Special Accessories

There is no special accessory used while test was conducted.

1.6 Equipment Modifications

There was no modification incorporated into the EUT.

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

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



2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

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

2.2 EUT Exercise

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

2.3 Test Procedure

2.3.1Conducted Emissions

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

2.3.2Conducted Test (RF)

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

2.3.3Radiated Emissions

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

Unless otherwise stated 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。



2.4 Measurement Results Explanation Example

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

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

2.4.2 For all conducted test items:

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

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

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



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



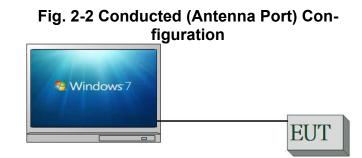


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	Bluetooth Test Software	N/A	N/A	N/A	N/A	N/A
2	Notebook	Lenovo	L440	P0000367	N/A	N/A

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.

で解す方式明明、此報告結果僅對測试之様品負責・同時此様品僅保留別天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



SUMMARY OF TEST RESULTS 3

FCC Rules	Description Of Test	Result
§15.207(a)	AC Power Line Conducted Emission	N/A
§15.247(b)(1)	Peak Output Power	Compliant
§15.247(a)(1)	20dB Bandwidth	Compliant
§15.205 §15.209 §15.247(d)	Conducted & Radiated Band Edge and Spurious Emission	Compliant
§15.247(a)(1)	Frequency Separation	Compliant
§15.247(a)(1)(iii)	Number of hopping frequency Time of Occupancy	Compliant
§15.203	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.

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.



DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz Band 4.1

79 channels are provided for Bluetooth

ITEM	FREQUENCY	ITEM	FREQUENCY	ITEM	FREQUENCY	ITEM	FREQUENCY
1	2402 MHz	21	2422 MHz	41	2442 MHz	71	2462 MHz
2	2403 MHz	22	2423 MHz	42	2443 MHz	72	2463 MHz
3	2404 MHz	23	2424 MHz	43	2444 MHz	73	2464 MHz
4	2405 MHz	24	2425 MHz	44	2445 MHz	74	2465 MHz
5	2406 MHz	25	2426 MHz	45	2446 MHz	75	2466 MHz
6	2407 MHz	26	2427 MHz	46	2447 MHz	76	2467 MHz
7	2408 MHz	27	2428 MHz	47	2448 MHz	77	2468 MHz
8	2409 MHz	28	2429 MHz	48	2449 MHz	78	2469 MHz
9	2410 MHz	29	2430 MHz	49	2450 MHz	79	2470 MHz
10	2411 MHz	30	2431 MHz	50	2451 MHz	70	2471 MHz
11	2412 MHz	31	2432 MHz	51	2452 MHz	71	2472 MHz
12	2413 MHz	32	2433 MHz	52	2453 MHz	72	2473 MHz
13	2414 MHz	33	2434 MHz	53	2454 MHz	73	2474 MHz
14	2415 MHz	34	2435 MHz	54	2455 MHz	74	2475 MHz
15	2416 MHz	35	2436 MHz	55	2456 MHz	75	2476 MHz
16	2417 MHz	36	2437 MHz	56	2457 MHz	76	2477 MHz
17	2418 MHz	37	2438 MHz	57	2458 MHz	77	2478 MHz
18	2419 MHz	38	2439 MHz	58	2459 MHz	78	2479 MHz
19	2420 MHz	39	2440 MHz	59	2460 MHz	79	2480 MHz
20	2421 MHz	40	2441 MHz	60	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.

で解す方式明明、此報告結果僅對測试之様品負責・同時此様品僅保留別天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues In socument is issued by the Company subject to its General Conditions on Service printed overlear, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

iwan Ltd.

www.sgs.com.tw



4.2 The Worst Test Modes and Channel Details

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	PACKET TYPE			
	RADIATED EMISSION TEST (BELOW 1 GHz)						
Bluetooth	0 to 78	39	GFSK	DH5			
	RADIATED EMISSION TEST (ABOVE 1 GHz)						
Bluetooth	Bluetooth 0 to 78 0,39,78 GFSK DH5						
Note: The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for Bluetooth BR+EDR Transmitter for channel Low, Mid and							

High, the worst case H position was reported.

	ANTENNA PORT CONDUCTED TEST					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	PACKET TYPE		
	Peak Output Power, 20dB Band Width					
Bluetooth	0 to 78	0,39,78	GFSK, π/4-DQPSK, 8-DPSK	DH5/2DH5/3DH5		
	Band Edge					
Bluetooth	0 to 78	0,78	GFSK, 8-DPSK	DH5/3DH5		
		Frequency	Separation			
Bluetooth	0 to 78	0,1,2	GFSK	DH5		
	Number of hopping frequency					
Bluetooth	0 to 78	0 to 78	GFSK	DH5		
Time of Occupancy (Dwell time)						
Bluetooth	0 to 78	0,39,78	GFSK, π/4-DQPSK, 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.

で解す方式明明、此報告結果僅對測试之様品負責・同時此様品僅保留別天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sqs.com.tw/Terms-and-Conditions</u> and bit electronic Documents at <u>http://www.sqs.com.tw/Terms-and-Conditions</u> at the time of its intervention 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.



MEASUREMENT UNCERTAINTY

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

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

Note:

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

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



6 CONDUCTED EMISSION TEST

6.1 Standard Applicable

Frequency 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			

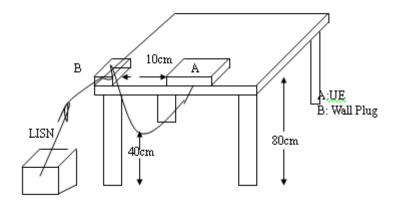
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

6.2 Measurement Equipment Used

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.

6.4 Test SET-UP (Block Diagram of Configuration)



Unless otherwise stated 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。



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; Powered from AA battery.

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



7 PEAK OUTPUT POWER MEASUREMENT

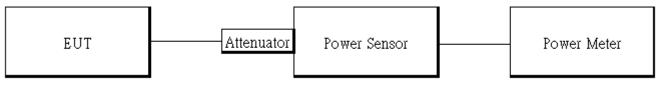
7.1 Standard Applicable

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.

7.2 Measurement Equipment Used

	Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
Power Meter	Anritsu	ML2496A	1804002	04/06/2020	04/05/2021	
Power Sensor	Anritsu	MA2411B	1726105	04/06/2020	04/05/2021	
Power Sensor	Anritsu	MA2411B	1726106	04/06/2020	04/05/2021	
Bluetooth Test Set	R&S	CBT	101140	05/04/2020	05/03/2021	
Attenuator	Marvelous	WATT-218FS-10	RF268	11/20/2019	11/19/2020	
Coaxial Cables	Woken	00100A1F1A185C	RF219	11/20/2019	11/19/2020	
Splitter	Marvelous	MVE8576	RF37	11/20/2019	11/19/2020	

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 ANSI C63.10 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.

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

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

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



7.5 Peak & Average Power Measurement Result

1M BR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	4.32	2.704	125
Mid	2441	4.39	2.748	125
High	2480	3.66	2.323	125

1M BR mode (Average):

СН	Freq. (MHz)	Max. Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	4.04	2.537	125
Mid	2441	4.22	2.645	125
High	2480	3.61	2.298	125

2M EDR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	3.91	2.460	125
Mid	2441	3.99	2.506	125
High	2480	3.11	2.046	125

3M EDR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	3.73	2.360	125
Mid	2441	3.77	2.382	125
High	2480	2.92	1.959	125

NOTE: cable loss as 13.2dB that offsets in the spectrum

2M EDR mode (Average):

		Max. Avg.Output		
	Erog	include	Output	Limit
CH	Freq. (MHz)	tune up	Power	(mW)
		tolerance	(mW)	(11100)
		Power (dBm)		
Low	2402	1.27	1.339	125
Mid	2441	1.29	1.345	125
High	2480	0.39	1.093	125

3M EDR mode (Average):

		Max. Avg.Output		
	include	Output	Limit	
СН	CH Freq. (MHz)	tune up	Power	
		tolerance	(mW)	(mW)
		Power (dBm)		
Low	2402	0.73	1.184	125
Mid	2441	0.87	1.223	125
High	2480	0.11	1.027	125

*Note: Max. Output include tune up tolerance Power measured by using average detector.

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

Chief S a full 明, 此報告結果僅對測試之様品負責,同時此様品僅保留的にないな研究での主要にないです。本報告未經本公司書面許可, 不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemofication and jurisdiction issues documents, subject to Terms and Conditions for Electronic Documents at http://www.sqs.com.tw/Terms-and-Conditions. 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 document. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Taiwan Ltd.

f (886-2) 2298-0488



8 20dB BANDWIDTH MEASUREMENT

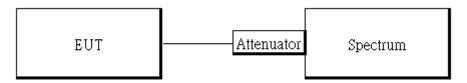
8.1 Standard Applicable

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

8.2 Measurement Equipment Used

	Conducted Emission Test Site						
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.		
Spectrum Analyzer	KEYSIGHT	N9010A	MY53400256	11/21/2019	11/20/2020		
Bluetooth Test Set	R&S	CBT	101140	05/04/2020	05/03/2021		
DC Block	PASTERNACK	PE8210	RF256	11/20/2019	11/19/2020		
Attenuator	Marvelous	WATT-218FS-10	RF268	11/20/2019	11/19/2020		
Coaxial Cables	Woken	00100A1F1A185C	RF219	11/20/2019	11/19/2020		
Splitter	Marvelous	MVE8576	RF37	11/20/2019	11/19/2020		

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 ANSI C63.10:2013.
- 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= 1 % to 5% of OBW , VBW = 3 X RBW, Span= 2 to 5 times of the OBW, Sweep=auto, Detector = Peak, and Max hold for 20dB Bandwidth test.
- 5. Mark the peak frequency and -20dB (upper and lower) frequency
- 6. Repeat above procedures until all test default channel is completed

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。



8.5 20dB Bandwidth

GFSK

СН	20 dB BW (MHz)	2/3 BW (MHz)		
Low	0.9229	0.62		
Mid	0.9228	0.62		
High	0.9242	0.62		

π/4-DQPSK

СН	20 dB BW	2/3 BW
СП	(MHz)	(MHz)
Low	1.336	0.89
Mid	1.338	0.89
High	1.334	0.89

8-DPSK

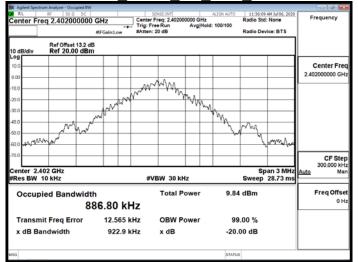
СН	20 dB BW	2/3 BW
Сп	(MHz)	(MHz)
Low	1.341	0.89
Mid	1.343	0.90
High	1.341	0.89

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.

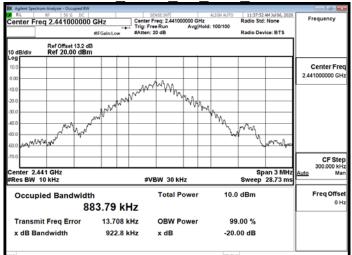
Unless otherwise stated the results shown in this test report reter only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,可時此樣品僅保留的天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf,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



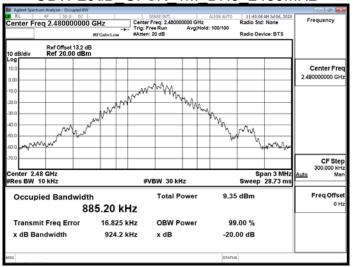
OBW 20dB GFSK 1M DH5 2402MHz



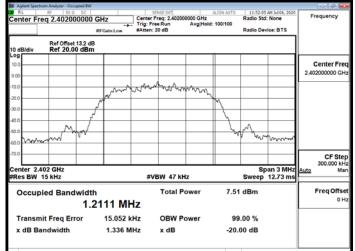
OBW 20dB GFSK 1M DH5 2441MHz



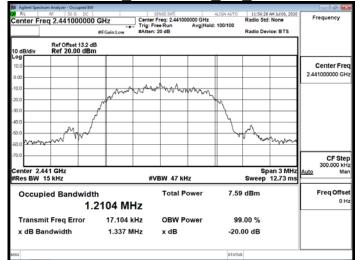
OBW 20dB GFSK 1M DH5 2480MHz



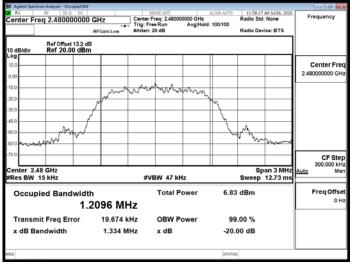
OBW 20dB π/4DQPSK 2M 2402MHz



OBW 20dB π/4DQPSK 2M 2441MHz



OBW 20dB π/4DQPSK 2M 2480MHz



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

t (886-2) 2299-3279

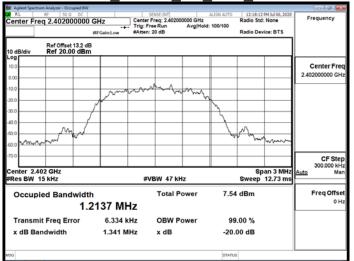
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sqs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sqs.com.tw/Terms-and-Conditions</u> and bit electronic Documents at <u>http://www.sqs.com.tw/Terms-and-Conditions</u>. Attention 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 document. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

iwan I td

f (886-2) 2298-0488



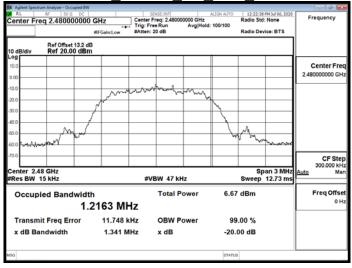
OBW 20dB 8DPSK 3M DH5 2402MHz



OBW 20dB_8DPSK_3M_DH5_2441MHz



OBW 20dB_8DPSK_3M_DH5_2480MHz



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

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

t (886-2) 2299-3279

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents in structions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents in structions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents in structions in structions in structions in structions of service parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. No.134, Wu Kung Road, New Taipei



9 CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT

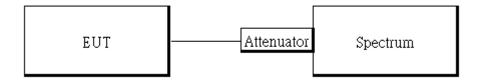
9.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

9.2 Measurement Equipment Used

	Conducted Emission Test Site												
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.								
TYPE		NUMBER	NUMBER	CAL.									
Spectrum Analyzer	KEYSIGHT	N9010A	MY53400256	11/21/2019	11/20/2020								
Bluetooth Test Set	R&S	CBT	101140	05/04/2020	05/03/2021								
DC Block	PASTERNACK	PE8210	RF256	11/20/2019	11/19/2020								
Attenuator	Marvelous	WATT-218FS- 10	RF268	11/20/2019	11/19/2020								
Coaxial Cables	Woken	00100A1F1A 185C	RF219	11/20/2019	11/19/2020								
Splitter	Marvelous	MVE8576	RF37	11/20/2019	11/19/2020								

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。



9.4 Measurement Procedure

9.4.1Conducted Band Edge:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows ANSI C63.10:2013.
- 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.

9.4.2Conducted Spurious Emission:

- 1. To connect Antenna Port of EUT to Spectrum.
- 2. The testing follows ANSI C63.10:2013.
- 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.

9.5 Measurement Result

See next page for test plots.

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

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



Band Edge GFSK 1M DH5 2402MHz

Band Edge 8DPSK 3M DH5 2402MHz

Agilent Spectrum Analyzer - Swept				🔚 📕 Agilent Spectrum Analyzer - Swept SA
Center Freq 2.36500	0000 GHz	Avg Type: Log-Pwr TRACE 1 2	456 Frequency	Image: Name Set Set Set Set NT All Get Autro 12:16:59 PM Jul 06, 2020 Frequency Center Freq 2.365000000 GHz Set Set Set NT All Get Autro 12:16:59 PM Jul 06, 2020 Frequency Trig: Free Run
Ref Offset 13. 10 dB/div Ref 20.00 d	IFGain:Low #Atten: 20 dB	Mkr3 2.390 00 0 -59.10 d	Hz Auto Tune	e Ref Offset 13.2 dB Det P NNNN Auto Tune 10 dB/div Ref 20.00 dBm -59.19 dBm
10.0 0.00			Center Freq 2.365000000 GHz	
20.0			2:001 Start Freq 2.310000000 GHz	
50.0 50.0			Stop Freq 2.42000000 GHz	
Center 2.36500 GHz #Res BW 100 kHz	#VBW 300 kHz	Span 110.0 Sweep 1.000 ms (1001 FUNCTION FUNCTION WOTH	pts) 11.000000 MHz	Image: Second
1 N 1 f 2 N 1 f 3 N 1 f 4 5	2.402 29 GHz 3.78 dBm 2.399 90 GHz -56.12 dBm 2.390 00 GHz -59.10 dBm		Freq Offset 0 Hz	
7 8 9 10 11				
80		STATUS	T.	MSG STATUS
Band	Edge GESK	1M DH5 2480M	H ₇	Band Edge 8DPSK 3M DH5 2480MHz

	Band	Edge	_GFSK	_1M_	DH5_2	2480IV	1H2	Ζ		В	and	Edg	e_8	DPSK	<u>_</u> 3M_	_DH5	_2480M	HZ
CO RL	req 2.48750	DC 00000 GHz	ast Trig: Free		ALIGN AUTO	11:38:53 AM Jul TRACE 1 2 TYPE MW	2456	Frequency	UN RL		Analyzer - Swep 50 Ω 2.48750		Z	SENSE:	Ava	ALIGN AUTO Type: Log-Pwr	12:21:23 PM Jul 06, 20 TRACE 1 2 3 4 5 TYPE M WWWW	6 Frequency
10 dB/div	Ref Offset 13 Ref 20.00 (IFGain:			Mkr3	2.483 600 -58.62 c	GHz	Auto Tune	10 dB/c		of Offset 13. ef 20.00 c	IFG 2 dB	0: Fast ain:Low	#Atten: 20 dE	3	Mkr3	2.483 600 GH -58.66 dBr	z Auto Tune
10.0								Center Freq 2.487500000 GHz	10.0 10.00		(Center Freq 2.487500000 GHz
-20.0							6.85 dBm	Start Freq 2.475000000 GHz	-20.0 -30.0 -40.0								-20.44 di	Start Freq 2.475000000 GHz
-50.0 -60.0	warden de	- James	♦ ³	water Martineton				Stop Freq 2.50000000 GHz	-50.0 -60.0	4-10-000	w.k	h	3					Stop Freq 2.500000000 GHz
#Res BW			#VBW 300 kHz			Span 25.00 .000 ms (1001	1 pts)	CF Step 2.500000 MHz Auto Man	#Res	BW 100) kHz		#VBW	/ 300 kHz			Span 25.00 MH 1.000 ms (1001 pt	
1 N 2 N 3 N 4 5	1 1 1 1	2,480 200 GF 2,483 500 GF 2,483 600 GF	iz -59.17 dB	m m	FUNCTION WIDTH	FUNCTION VAL	-	Freq Offset 0 Hz	1 N 2 N 3 N 4	1 1		2.480 200 2.483 500 2.483 600	GHz GHz GHz	-0,44 dBm -58,06 dBm -58,66 dBm	FUNCTION	FUNCTION WOTH	FUNCTION VALUE	Freq Offset 0 Hz
6 7 8 9 10 11							=		6 7 8 9 10 11									
MSG					STATUS		•		MSG					8		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.

Since Statement is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues In socument is issued by the Company subject to its General Conditions on Service printed overlear, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions at the time of its instruction 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.



ter 2.48750 GHz

#VBW 300 kHz

2.52 dB -59.64 dB -57.87 dB

2.476 075 2.483 500 2.483 600

Res BW 100 kHz

Span 25.00 MHz Sweep 1.000 ms (1001 pts

CF Step

Freq Offset

0 Hz

2,50000 Ma

Hopping Band Edge GFSK 1M DH5 2402MHz

Hopping Band Edge 8DPSK 3M DH5 2402MHz

Agilent Spectrum Analyzer - Swept SA				- 0 👪	🚺 Agilent Spectrum Analyzer - Swept SA
Center Freq 2.3650000	C SENS		7:23 AM Jul 06, 2020 TRACE 1 2 3 4 5 6	Frequency	0 RL RF 50 0 DC SENSE:INT ALIGN AUTO 12:24:36 FM Jul 06, 2020 Center Freq 2 365000000 GHz Avg Type: Log-Pwr TRACE 12:3:4:5.6 Frequency
Ref Offset 13.2 d 10 dB/div Ref 20.00 dBr	PNO: Fast Trig: Free F IFGain:Low #Atten: 20	dB Mkr3 2.39	00 00 GHz 5.75 dBm	Auto Tune	PR0: Fast Trig: Free Run Trig: Run Auto Tu Trig: Run Auto Tu Trig: Run Auto Tu Trig: Run Auto Tu Trig: Run Run
10.0 0.00 -10.0			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Center Freq 2.36500000 GHz	
-20.0			1001001	Start Freq 2.310000000 GHz	-200
-50.0 -60.0	ha laka dinda duginana kansa d			Stop Freq 2.420000000 GHz	
Center 2.36500 GHz #Res BW 100 kHz M33 M303 M36 234	#VBW 300 kHz	Sweep 1.000 m		CF Step 11.000000 MHz Auto Man	#Res BW 100 kHz #VBW 300 kHz Sweep 1.000 ms (1001 pts) More words find scale x y Function Function worth Function worth
4 5 7 7 9 9	2419 12 GHz 349 dBr 2399 90 GHz 59.10 dBr 2390 00 GHz 55.75 dBr			Freq Offset 0 Hz	
11 MSG		STATUS	,*		
		FSK_1M_DH5	_2480	MHZ	Hopping Band Edge_8DPSK_3M_DH5_2480MH
Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω Di Center Freq 2.4875000	C SENS	Avg Type: Log-Pwr Run	8:34 AM Jul 06, 2020 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N	Frequency	III Aginet Spectrum Addyter - Swept SA College III Aginet Spectrum Addyter - Swept SA SetNSE-INT ALION AUTO 12:25:48.9% Jul 06, 2020 Center Freq 2.487500000 GHz Frequency Trig: Freq Run Trig: Freq Run Trig: Freq Run PNO: Fast → Trig: Freq Run Trig: Freq Run Trig: Freq Run
Ref Offset 13.2 d 10 dB/div Ref 20.00 dBr		Mkr3 2.483 -5	3 600 GHz 7.87 dBm	Auto Tune	Ref Offset 13.2 dB Auto TL 10 dB/div Ref 20.00 dBm -59.62 dBm
				Center Freq 2.487500000 GHz	100 Center Fi
-20.0	η		-17.40 dilm	Start Freq 2.475000000 GHz	-2.0
-50.0	1 Amaria	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Anna	Stop Freq	

CF Ster

Ma

0 H

2,500000 M

Freq Offse

er 2.48750 GHz

Res BW 100 kHz

NNN

#VBW 300 kHz

2.479 050 GHz 2.483 500 GHz 2.483 600 GHz

-1.45 dB -58.66 dB -59.62 dB

Span 25.00 MH

Sweep 1.000 ms (1001 pts)

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

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

Spurious Emission_GFSK_1M_DH5_2402MHz

	ctrum Analyzer - Si								- 6 -
Center F	RF 50	5000000 GHz		VSE:INT	Avg Type: I	IGN AUTO	TRAC	AM Jul 06, 2020 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset	IFGain:L	ow #Atten: 2			Mk	r4 1.441	9 GHz	Auto Tune
10.0 0.00	-01								Center Free 13.015000000 GHz
-10.0	4							-16.73 dBn	Start Free 30.000000 MH;
-50.0 -60.0 -70.0	-	° ² °3							Stop Free 26.00000000 GH
	3.02 GHz 100 kHz	#	≠VBW 300 kHz		Sw	eep 86.	Span 2 .00 ms (3	5.97 GHz 0001 pts)	CF Step 2.597000000 GH Auto Mar
1 N 2 N 3 N 4 N 5 6 7 7 8 9	RG SOL 1 f 1 f 1 f 1 f 	2.402 8 GH 4.804 0 GH 7.206 0 GH 1.441 9 GH	z -56.18 dE z -57.96 dE	3m 3m	ON FUNC	TION WOTH	FUNCTR	DN VALUE	Freq Offse 0 H
10 11 <						STATUS			

Spurious Emission_GFSK_1M_DH5_2441MHz

	am Analyzer - Swept SA					
Center Fre	RF 50 Ω DC pq 13.0150000	00 GHz	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	11:38:28 AM Jul 06, 2020 TRACE 1 2 3 4 5 6	Frequency
	Ref Offset 13.2 dB Ref 20.00 dBm	PNO: Fast H IFGain:Low	≓ Trig: Free Run #Atten: 20 dB	Mk	r4 1.465 3 GHz -48.25 dBm	Auto Tun
10.0 0.00	1					Center Fre 13.015000000 GH
-10.0 -20.0 -30.0 -40.0					-16.77 d0n	Start Fre 30.000000 MH
50.0 60.0 70.0	2					Stop Fre 26.00000000 GH
Center 13.0 Res BW 1	00 kHz	#VBV	V 300 kHz	Sweep 86	Span 25.97 GHz .00 ms (30001 pts)	CF Ste 2.597000000 GH Auto Ma
1 N 1 2 N 1 3 N 1 4 N 1 5 6 7	f f t	2.441 7 GHz 4.882 0 GHz 7.323 0 GHz 1.465 3 GHz	3.22 dBm -54.28 dBm -58.38 dBm -48.25 dBm		=	Freq Offse 0 ⊢
7 8 9 10 11 						
ISG				STATUS	1	

Spurious Emission GFSK 1M DH5 2480MHz

📕 Agilent Spectrum Analyzer - Swept S	SA					- 0 e 🛃
Center Freq 13.01500	00000 GHz	SENSE:INT	ALI Avg Type: L	AD-DWC TRAC	AM Jul 06, 2020 E 1 2 3 4 5 6	Frequency
Ref Offset 13.2 10 dB/div Ref 20.00 dB		#Atten: 20 dB		Mkr4 1.48	B 6 GHz 34 dBm	Auto Tune
10.0 1 0.00 1 .10.0						Center Freq 13.015000000 GHz
-200					-17.40 dDn	Start Free 30.000000 MHz
-50.0 -80.0 -70.0	3					Stop Free 26.00000000 GH
Center 13.02 GHz #Res BW 100 kHz	#VB\	W 300 kHz		eep 86.00 ms (3		CF Step 2.597000000 GH: Auto Mar
MODE MODE HEAR Scale 1 N 1 f 2 N 1 f 3 N 1 f 4 N 1 f 6 - - - 7 - - - 8 - - - 9 - - - 10 - - -	X 2,480 7 GHz 4,990 0 GHz 7,440 0 GHz 1,488 6 GHz	V 2.52 dBm -57.03 dBm -58.10 dBm -47.34 dBm	FUNCTION	ON WOTH FUNCTIN		Freq Offse 0 H:
MSG				STATUS	•	

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

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

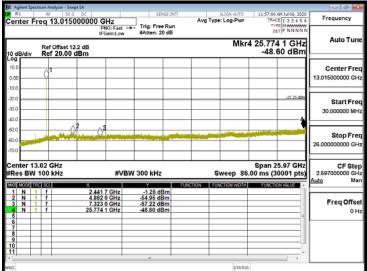
t (886-2) 2299-3279

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

Spurious Emission π/4DQPSK 2M 2402MHz

📕 Agilent Spec	trum Analyzer - S	wept SA					_	_		
Center Fr		5000000 GH	łz	SENSE	Av	ALIGN Type: Log		TRAC	AM Jul 06, 2020 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset Ref 20.00	IFGa 13.2 dB	D: Fast 🚥 ain:Low	HAtten: 20 d			Mkr4	25.668	3 4 GHz 80 dBm	Auto Tur
10.0 0.00	01									Center Fr 13.015000000 G
20.0									-21.02 dBm	Start Fr 30.000000 M
50.0 50.0 70.0	-	° ² °3					-			Stop Fr 26.00000000 G
Center 13 Res BW	100 kHz	×		V 300 kHz		Swee			5.97 GHz 0001 pts)	CF St 2.597000000 G Auto M
1 N 1 2 N 1 3 N 1 4 N 1 5	1	2.402 8 4.804 0 7.206 0 25.668 4	GHz GHz	-1.02 dBm -57.23 dBm -56.49 dBm -48.80 dBm					<u> </u>	Freq Offs 0
7 8 9 10 11									=	
ea l							STATUS		•	

Spurious Emission π/4DQPSK 2M 2441MHz



Spurious Emission π/4DQPSK 2M 2480MHz

📕 Agilent Spe	ctrum Analyzer - Swept SA	4					
Center F	RF 50 0 0	0000 GHz	SENSE:IM	Avg Typ	ALIGN AUTO e: Log-Pwr	11:58:54 AM Jul 06, 2020 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
10 dB/div	Ref Offset 13.2 o Ref 20.00 dB		#Atten: 20 dB		Mkr	4 25.898 7 GHz -48.50 dBm	Auto Tune
10.0 0.00	01						Center Free 13.015000000 GH
20.0 30.0 -40.0						-2200 400	Start Fre 30.000000 MH
-50.0 -60.0 -70.0							Stop Fre 26.000000000 GH
	100 kHz	#VE	3W 300 kHz			Span 25.97 GHz .00 ms (30001 pts)	CF Ste 2.597000000 GH Auto Ma
2 N 3 N 4 N 5 6 7 8 9 10	f f f	x 4.960 0 GHz 7.440 0 GHz 25.898 7 GHz	- <u>3.05 dBm</u> -54.91 dBm -67,46 dBm -48,50 dBm	FUNCTION FU	NCTION WOTH	FUNCTION VALUE	Freq Offse 0 H
11 (STATUS	, ,	

wan Ltd.

f (886-2) 2298-0488

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



Spurious Emission 8DPSK 3M DH5 2402MHz

📕 Agilent Spr	ectrum Analyzer -	Swept SA							
Contor F		5000000 GH	-	SENSE:INT		ALIGN AUTO	TRAC	PM Jul 06, 2020	Frequency
10 dB/div	Ref Offset Ref 20.0	PNO: IFGai	East Trig: I	Free Run h: 20 dB		-	4 24.47	65 dBm	Auto Tune
10.0 0.00	01								Center Free 13.015000000 GH
-20.0 -30.0 -40.0								.21.52.dBn	Start Fre 30.000000 MH
-50.0 -60.0 +70.0		2^2	the survey of the survey						Stop Fre 26.00000000 GH
	3.02 GHz / 100 kHz	×	#VBW 300 k		S		.00 ms (3	5.97 GHz 0001 pts)	CF Ste 2.597000000 GH Auto Ma
1 N 2 N 3 N 4 N 5 6	1 f 1 f 1 f 1 f	2,401 9 0 4,804 0 0 7,206 0 0 24,476 4 0	GHz -57.25 GHz -55.29	dBm					Freq Offse 0 H
7 8 9 10 11									
MSG						STATUS		,	

Spurious Emission 8DPSK 3M DH5 2441MHz

	trum Analyzer - Sv						
Center F		6000000 GHz	SENSE:IN	Avg Type	ALIGN AUTO	12:20:07 PM Jul 06, 2020 TRACE 1 2 3 4 5 6 TYPE M	Frequency
10 dB/div	Ref Offset 1 Ref 20.00				Mkr4	23.885 2 GHz -49.12 dBm	Auto Tune
10.0 0.00	0 1						Center Free 13.015000000 GH;
-20.0						-19.75 dbn	Start Free 30.000000 MH
-50.0 -60.0 -70.0	-						Stop Fre 26.000000000 GH
Center 13 #Res BW	100 kHz		BW 300 kHz			Span 25.97 GHz 00 ms (30001 pts)	
Image: Notest and Not	f f f	x 2.441 7 GHz 4.882 0 GHz 7.323 0 GHz 23.885 2 GHz	0.25 dBm -54.85 dBm -57.01 dBm -49.12 dBm	FUNCTION FUN		FUNCTION VALUE	Freq Offse 0 H:
* Isg			-		STATUS	,	

Spurious Emission 8DPSK 3M DH5 2480MHz

	am Analyzer - Swept	t SA						
Center Fre	RF 50 G	00000 GHz			LIGN AUTO	TRAC	PM Jul 06, 2020 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 13. Ref 20.00 d				 Mkr4	4 25.83	9 GHz 80 dBm	Auto Tune
10.0 0.00	01							Center Fred 13.015000000 GH;
-20.0 -30.0 -40.0							21.68.dBm	Start Free 30.000000 MH
-50.0 -60.0 -70.0	- mai	2 3						Stop Free 26.00000000 GH
Center 13.0 #Res BW 1	00 kHz	#V	BW 300 kHz	FUNCTION	/eep 86.	.00 ms (3	5.97 GHz 0001 pts)	CF Ster 2.597000000 GH Auto Mar
1 N 1 2 N 1 3 N 1 4 N 1 5 6	f f f f	2.480 7 GHz 4.960 0 GHz 7.440 0 GHz 25.839 9 GHz	-1.69 dB -57.89 dB -56.69 dB -48.80 dB	m m			=	Freq Offse 0 H
7 8 9 10 11								
MSG					STATUS			

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

t (886-2) 2299-3279

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.

iwan Ltd.



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 and limit as below.

And according to §15.33(a) (1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

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

Note:

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

Unless otherwise stated 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。



10.2 Measurement Equipment Used

966 Chamber									
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
Broadband Antenna	TESEQ	CBL 6112D	35240	09/09/2019	09/08/2020				
Horn Antenna	Schwarzbeck	BBHA9170	184	12/25/2019	12/24/2020				
Horn Antenna	Schwarzbeck	BBHA9120D	1187	01/10/2020	01/09/2021				
Loop Antenna	ETS.LINDGREN	6502	143303	04/28/2020	04/27/2021				
EMI Test Receiver	R&S	ESU 40	100363	04/29/2020	04/28/2021				
Bluetooth Test Set	R&S	СВТ	101140	04/22/2019	04/21/2020				
Pre-Amplifier	EMC Instruments	EMC330	980096	11/20/2019	11/19/2020				
Pre-Amplifier	EMC Instruments	EMC0011830	980199	11/20/2019	11/19/2020				
Pre-Amplifier	EMC Instruments	EMC184045B	980135	11/20/2019	11/19/2020				
Attenuator	Woken	WATT-218FS-10	RF25	11/20/2019	11/19/2020				
Highpass Filter	Micro Tronics	BRM50701-01	G008	11/20/2019	11/19/2020				
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	11/20/2019	11/19/2020				
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	11/20/2019	11/19/2020				

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

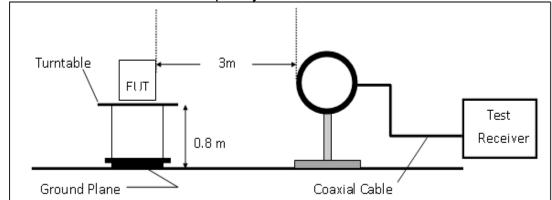
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.

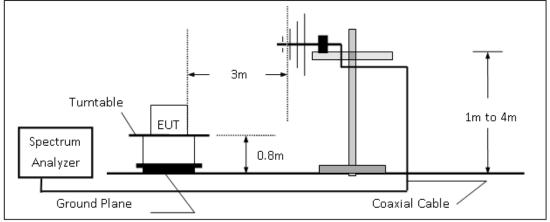


10.3 Test SET-UP

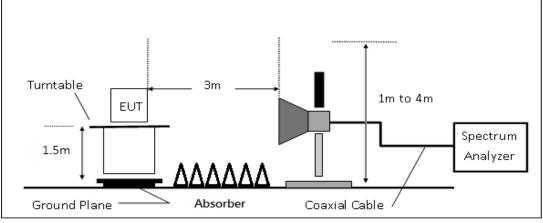




(B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



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



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

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



10.4 Measurement Procedure

10.4.1 Radiated Emission

- 1. The testing follows the Measurement Procedure of ANSI C63.10:2013.
- 2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m 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. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
- 6. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- 7. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- 8. 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.
- 9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. On spectrum, change spectrum mode in linear display mode, and reduce VBW = 10Hz if average reading is measured.
- 11. Repeat above procedures until all default test channel measured were complete.

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

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



10.5 Field Strength Calculation

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

FS = RA + AF + CL - AG

Where FS = Field Strength RA = Reading Amplitude AF = Antenna Factor CL = Cable Attenuation Factor (Cable Loss) AG = Amplifier Gain

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

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

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.

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

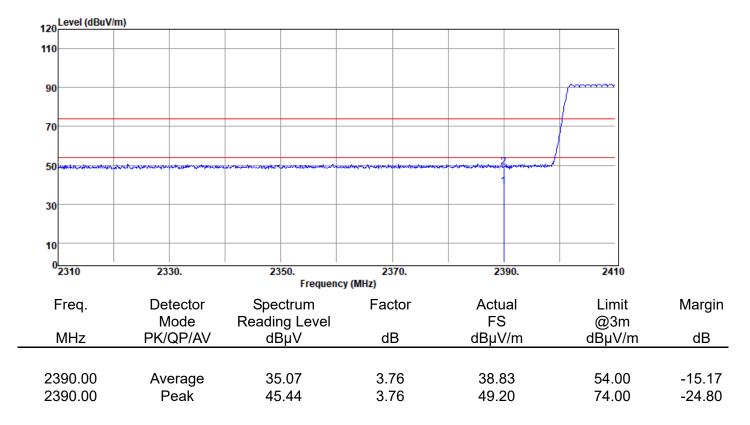
除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



10.7 Measurement Result:

10.7.1 Radiated Bandedge Result (Hopping Mode)

Report Number	:E2/2020/60057	Test Site	:966 Chamber C
Operation Mode	:BT BR Hopping	Test Date	:2020-07-22
Test Frequency	:2402 MHz	Temp./Humi.	:23.2/55
Test Mode	:BE CH LOW	Antenna Pol.	:VERTICAL
EUT Pol	:H Plan	Engineer	:Enzo



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

iwan I td

www.sgs.com.tw

:966 Chamber C

-15.11

-24.45

54.00

74.00



:E2/2020/60057

Report Number

2390.00

2390.00

Average

Peak

Operation Mode Test Frequency Test Mode EUT Pol	:BT BR Hop :2402 MHz :BE CH LO :H Plan			Test Date Temp./Humi. Antenna Pol. Engineer	:2020-07-22 :23.2/55 :HORIZONTA :Enzo	۸L
120 Level (dBuV/m)						
110						
90						
70						
50	an a	and the second		van ander de la ser and an and an	4	
30						
10						
0 <mark></mark> 2310	2330.	2350. Frequei	2370. ncy (MHz)	2390.	2410	
Freq.	Detector	Spectrum	Factor	Actual	Lim	0
MHz	Mode PK/QP/AV	Reading Leve dBµV	el dB	FS dBµV/m	@3 dBµ\	

3.76

3.76

38.89

49.55

Test Site

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

35.13

45.79

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.

:966 Chamber C



:E2/2020/60057

Report Number

•		:248	BR Hop 30 MHz CH HIG Plan				Te An	st Date mp./Hum itenna Po igineer	i. :23	20-07-22 .2/55 :RTICAL zo		
120	Level (dBuV/m)											
110												
90												
70			\rightarrow									
50					und my which an and all the	an and the state of the state o	anna a tha a tha she are	19 martin Bartonia	- and a start of the	and the mean states		
				1					3			
30												
10												
0	2475	2480).	2	485.		90.	2	495.	250	D	
						cy (MHz)						
F	req.	Dete			ctrum	Fac	tor	Actu		Lim		Margin
r	MHz	Mo PK/Q			ng Level 3µV	d	2	Fs dBµ\		@3r dBµV		dB
		FIVQ	1 //AV	u	νμν	u	ر ا	uDμ	//111	υDμν	/111	UD
24	83.50	Aver	aue	21	5.93	4.4	12	40.3	35	54.0	0	-13.65
	83.50		aye ak		5.02	4.4				74.0		-23.56
	97.10	Aver			5.20	4.5		39.		54.0		-14.27
24	97.10		ak	4	7.66	4.5	53	52.	19	74.0	0	-21.81

Test Site

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

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.

iwan Ltd.

www.sgs.com.tw

:966 Chamber C



:E2/2020/60057

Report Number

Report Rambel		0001			:2020-07-22		
Operation Mode	:BT BR Hop	pping		Test Date			
Test Frequency :2480 MI Test Mode :BE CH I				Temp./Humi.	:23.2/55 :HORIZONTAL		
		ЗН		Antenna Pol.			
EUT Pol	:H Plan			Engineer	:Enzo		
120 Level (dBuV/m)							
110							
90							
70							
70							
50			ahow here we share a	antice for a second and a second s	-		
50							
30							
30							
10							
⁰ 2475	2480.	2485. Frequency (M	2490. Hz)	2495.	2500		
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin	
1104.	Mode	Reading Level	1 00101	FS	@3m	margin	
MHz	PK/QP/AV	dBµV	dB	dBµV/m		dB	
2483.50	Average	36.70	4.42	41.12	54.00	-12.88	
2483.50	Peak	47.29	4.42	51.71	74.00	-22.29	

Test Site

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

iwan Ltd.

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.



Opera		:E2/2020/6 :BT EDR H :2402 MHz :BE CH LC :H Plan	lopping		Test Site Test Date Temp./Humi. Antenna Pol. Engineer	:966 Chamber (:2020-07-22 :23.2/55 :VERTICAL :Enzo	C
120	Level (dBuV/m)						
110							
90							
70							
50		ana ang ang ang ang ang ang ang ang ang	ขาวหรังสุดภาพ (มหางหางและกับ การกับท่างสุดภาพ (มหางหาง) 	er an	and the control of th		
30							
10							
0	2310	2330.	2350. Frequen	2370. cy (MHz)	2390.	2410	
F	Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
	MHz	PK/QP/AV	dBµV	dB	dBµV/m		n dB
	390.00 390.00	Average Peak	35.05 46.27	3.76 3.76	38.81 50.03	54.00 74.00	-15.19 -23.97

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

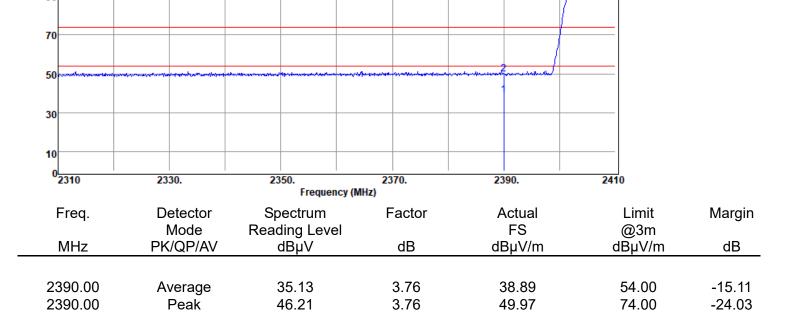
Taiwan Ltd.

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



90

Report Number	:E2/2020/60057	Test Site	:966 Chamber C
Operation Mode	:BT EDR Hopping	Test Date	:2020-07-22
Test Frequency	:2402 MHz	Temp./Humi.	:23.2/55
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:H Plan	Engineer	:Enzo
120 Level (dBuV/m)		 	
110			



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

wan Ltd.

-22.00

74.00

:966 Chamber C



:E2/2020/60057

Report Number

2487.48

		,_0_0,0					
Opera	ation Mode	:BT EDR H	lopping		Test Date	:2020-07-22	
Test F	requency	:2480 MHz	2		Temp./Humi.	:23.2/55	
Test N	Node	:BE CH HI	GH		Antenna Pol.	. :VERTICAL	
EUTI	Pol	:H Plan			Engineer	:Enzo	
120	Level (dBuV/m)						
110							
90)						
70							
		\	2	4			
50			- Window for a start of the sta	an and a second se	, indiana terrativities and a set of	punkterunturtisekkensfordetikterinterioriseet	
30							
50	/						
10)						
C	2475	2480.	2485.	2490.	249	95. 250	0
	2410	2400.		equency (MHz)	243	95. Z50	,
	Freq.	Detector	Spectrum				0
		Mode	Reading Le		FS	0.	
	MHz	PK/QP/AV	dBµV	dB	dBµV	/m dBµ∨	//m dB
2/	483.50	Average	35.49	4.42	39.9	1 54.0	
	483.50	Peak	45.87	4.42	50.2		
	487.48	Average	35.18	4.46	39.6		
-		~	·				

Test Site

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

47.54

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

4.46

52.00

Peak

www.sgs.com.tw

:966 Chamber C

Margin



:E2/2020/60057

Report Number

⁰ 2475	2480.	2485. Frequency (N	2490. /Hz)	2495.	2500
10					
30					
50	`		(mandaran dari dari dari dari dari dari dari dari	an the and the second	with the construction of the first section of the f
70					
90					
110					
120 Level (dBuV/m)					
T Pol	:H Plan		E	Engineer	:Enzo
t Mode	:BE CH HIC	GH	1	Antenna Pol.	:HORIZONTAL
t Frequency	:2480 MHz		1	Temp./Humi.	:23.2/55
eration Mode	:BT EDR H	opping		Test Date	:2020-07-22

Test Site

MHz	Mode PK/QP/AV	Reading Level dBµV	dB	FS dBµV/m	@3m dBµV/m	dB
2483.50	Average	36.23	4.42	40.65	54.00	-13.35
2483.50	Peak	47.03	4.42	51.45	74.00	-22.55

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained tor 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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.



10.7.2 Radiated Bandedge Result (Non-Hopping Mode)

Report Number	:E2/2020/60057			Test	t Site	:966	Chamber	. С
Operation Mode	:BT BR			Test	t Date	:202	20-07-22	
Test Frequency	:2402 MHz			Terr	np./Humi	. :23.	2/55	
Test Mode	:BE CH LOW			Ante	enna Pol	. :VE	RTICAL	
EUT Pol	:H Plan			Eng	ineer	:Enz	zo	
120 Level (dBuV/m)	1							
110								
90							Λ	
70								
50	an and the second s	and provident for the second	ntentreterrentetreter	nandaraan kakaman na	arten talako artetta fi		-	
30								
10								

0<mark>2310</mark> 2370. 2390. 2330. 2410 2350. Frequency (MHz) Freq. Detector Spectrum Factor Actual Limit Margin **Reading Level** Mode FS @3m PK/QP/AV dBµV/m MHz dBµV dB dBµV/m dB 2390.00 Average 35.04 3.76 38.80 54.00 -15.20 2390.00 Peak 45.35 3.76 49.11 74.00 -24.89

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.

2410

Limit

@3m

dBµV/m

54.00

74.00

Margin

dB

-15.12

-23.87

2390.

Actual

FS

dBµV/m

38.88

50.13



90

70

50

30

10

0 2310

Freq.

MHz

2390.00

2390.00

2330.

Detector

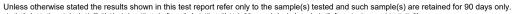
Mode

PK/QP/AV

Average

Peak

Report Number	:E2/2020/60057	Test Site	:966 Chamber C
Operation Mode	:BT BR	Test Date	:2020-07-22
Test Frequency	:2402 MHz	Temp./Humi.	:23.2/55
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:H Plan	Engineer	:Enzo
120 Level (dBuV/m)			
110			



2350.

Spectrum

Reading Level

dBµV

35.12

46.37

Frequency (MHz)

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

2370.

Factor

dB

3.76

3.76

:966 Chamber C



:E2/2020/60057

Report Number

•		. –	_/_0_0/0								-	
Opera	ation Mod	le :B	T BR				Tes	st Date	:20	20-07-22		
Test F	requency	y :24	480 MHz	2			Ter	np./Humi	. :23	.2/55		
Test N	/lode	·B	E CH HI	GH			Ant	tenna Po	I ·VF	RTICAL		
				011								
EUT F	-01	:H	Plan				Eng	gineer	:Er	IZO		
420	Level (dBuV/	m)										
110												
90												
90												
70												
10												
50	Sugar and for the name			2 martinet	and an and the second second second	waren datum ayadar	-handleytherative	an a	and the second sectors	and the second		
30												
10												
	2475	24	80.	2	485. Frequen	249 cy (MHz)	90.	24	195.	2500)	
F	Freq.	De	tector	Spe	ectrum	Fac	tor	Actu	ıal	Limi	it	Margin
-	4.		lode		ng Level			FS		@3r		
	MHz	PK/	QP/AV		Βμ̈́V	dE	3	dBµ∖	//m	dBµV		dB
24	83.50	Av	erage	3	5.06	4.4	2	39.4	18	54.0	0	-14.52
24	83.50	F	Peak	4	7.30	4.4	2	51.7	72	74.0	0	-22.28

Test Site

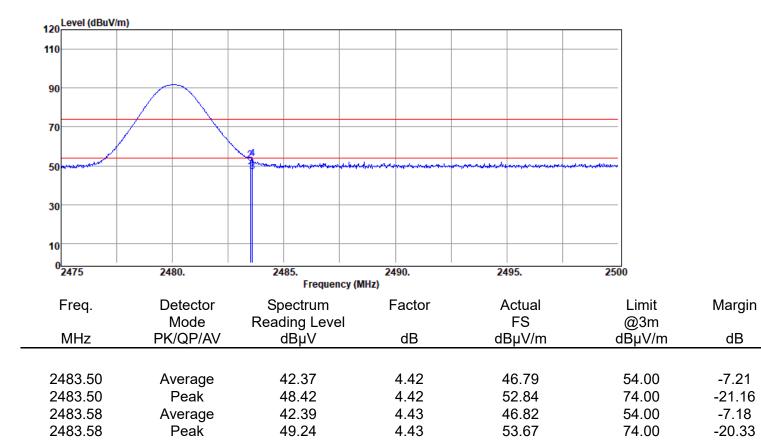
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

iwan Ltd.

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.



Report Number	:E2/2020/60057	Test Site	:966 Chamber C
Operation Mode	:BT BR	Test Date	:2020-07-22
Test Frequency	:2480 MHz	Temp./Humi.	:23.2/55
Test Mode	:BE CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:H Plan	Engineer	:Enzo



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

wan I td

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 f (886-2) 2298-0488

www.sgs.com.tw

:966 Chamber C



:E2/2020/60057

Report Number

Repert Hamber		0001				
Operation Mode	:BT EDR			Test Date	:2020-07-22	
Test Frequency	:2402 MHz			Temp./Humi.	:23.2/55	
Test Mode	:BE CH LC	W		Antenna Pol.	:VERTICAL	
EUT Pol	:H Plan			Engineer	:Enzo	
120 Level (dBuV/m)						
110						
90						
70						
50 matcantel and a second	anticatere of a second corporation participation of the		and helder and the second second second second	and the second		
30						
10						
⁰ 2310	2330.	2350. Frequen	2370. cv (MHz)	2390.	2410	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2200.00	A	25.00	0.70	20.00	F4.00	
2390.00 2390.00	Average Peak	35.06 46.64	3.76 3.76	38.82 50.40	54.00 74.00	-15.18 -23.60

Test Site

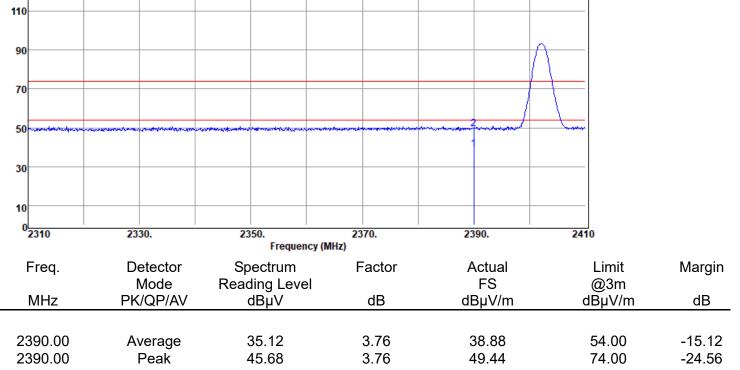
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

iwan Ltd.

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



Report Number	:E2/2020/60057	Test Site	:966 Chamber C
Operation Mode	:BT EDR	Test Date	:2020-07-22
Test Frequency	:2402 MHz	Temp./Humi.	:23.2/55
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:H Plan	Engineer	:Enzo
120 Level (dBuV/m)			
120			



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

t (886-2) 2299-3279

除非另有說明,此報告結果僅對测試之樣品負責,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>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format In socument is issued by the Company subject to its General Conditions on Service printed overlear, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

iwan Ltd.

www.sgs.com.tw

:966 Chamber C



:E2/2020/60057

Report Number

2493.95

•		y :2 :E	3T EDR 2480 MHz 3E CH Hli H Plan					Ten Ant	t Date np./Hu enna l gineer	ımi. Pol.	:23	20-07-22 .2/55 ERTICAL izo		
420	Level (dBuV	/m)												
110														
90														
70														
50	and the second			-2	and a second second	an se stand and a stand of the st	anger and side	dia mandra dan	4	tin and the second		المسيدة الدراط سور مراد الواقلة مردا		
				1					3					
30														
10														
											_			
	2475	2	480.		2485. Frequer	24 ICY (MHz)	190 .			249	5.	250	0	
F	Freq.	D	etector	Sp	ectrum	Fac	ctor		А	ctua	al	Lim	it	Margin
			Mode		ling Level					FS		@3		5
	MHz	PK	(/QP/AV		dΒμV	d	В		dB	βµV/	m	dBµ∖		dB
24	83.50	A	verage	3	37.84	4.4	42		4	2.26	3	54.0	00	-11.74
	83.50		Peak		16.20	4.4				0.62		74.0		-23.38
24	93.95	A	verage	3	35.18	4.	52		3	9.70)	54.0	00	-14.30

Test Site

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

47.68

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained tor 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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

4.52

52.20

74.00

-21.80

iwan Ltd.

Peak

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 f (886-2) 2298-0488

www.sgs.com.tw

2500

Limit

@3m

dBµV/m

54.00

74.00

Margin

dB

-8.90

-21.37



30

10

0 2475

Freq.

MHz

2483.50

2483.50

2480.

Detector

Mode

PK/QP/AV

Average

Peak

Report Number	:E2/2020/60057		Test Site	:966 Chamber C
Operation Mode	:BT EDR		Test Date	:2020-07-22
Test Frequency	:2480 MHz		Temp./Humi.	:23.2/55
Test Mode	:BE CH HIGH		Antenna Pol.	:HORIZONTAL
EUT Pol	:H Plan		Engineer	:Enzo
120 Level (dBuV/m)				
110				
90				
70				
50		and the second state of th	and an and the second sectors and and the second sectors and the	electrometer alleft an anticipation
50				

2490.

Factor

dB

4.42

4.42

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

2485.

Spectrum

Reading Level

dBµV

40.68

48.21

Frequency (MHz)

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

2495.

Actual

FS

dBµV/m

45.10

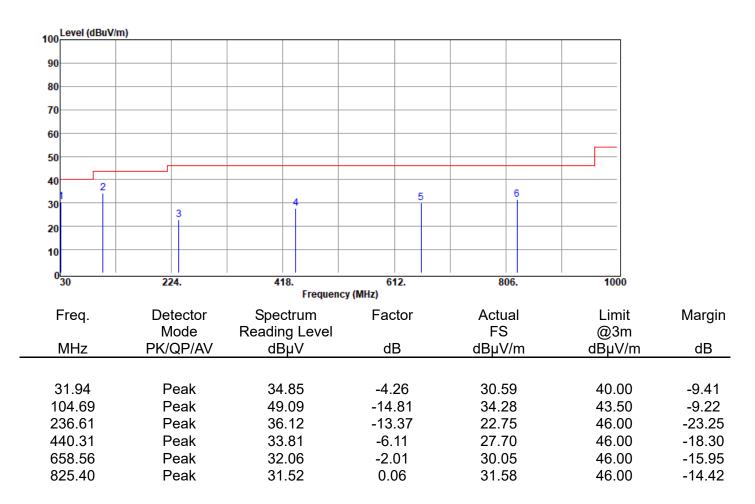
52.63



10.7.3 Radiated Spurious Emission form 30MHz to 1000MHz:

Report Number	:E2/2020/60057
Operation Mode	:BT BR
Test Frequency	:2441 MHz
Test Mode	:TX CH MID
EUT Pol	:H Plan

Test Site	:966 Chamber C
Test Date	:2020-07-22
Temp./Humi.	:23.2/55
Antenna Pol.	:VERTICAL
Engineer	:Enzo



Unless otherwise stated 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

wan I td

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sqs.com.tw/Terms-and-Conditions</u> and bit electronic Documents at <u>http://www.sqs.com.tw/Terms-and-Conditions</u> at the time of its intervention 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 document. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Margin

dB

-6.91

-9.82

-14.96

-17.12

-14.66

-20.87

43.50

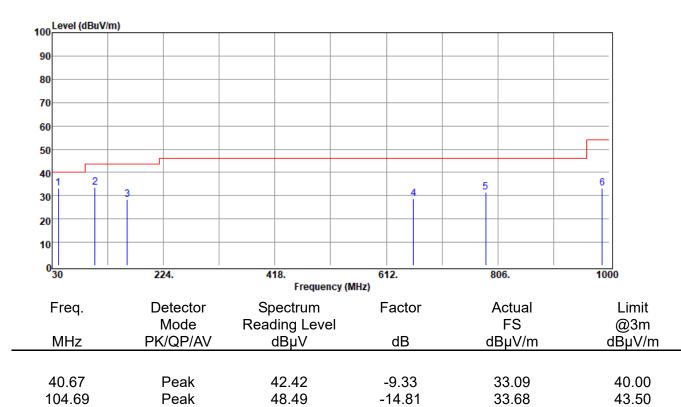
46.00

46.00

54.00



Report Number	:E2/2020/60057	Test Site	:966 Chamber C
Operation Mode	:BT BR	Test Date	:2020-07-22
Test Frequency	:2441 MHz	Temp./Humi.	:23.2/55
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:H Plan	Engineer	:Enzo



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

43.30

30.87

31.13

31.37

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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. 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.

-14.76

-1.99

0.21

1.76

28.54

28.88

31.34

33.13

wan I td

160.95

659.53

784.66

987.39

Peak

Peak

Peak

Peak

Margin

dB

-22.01 -29.51



10.7.4 Radiated Spurious Emission above 1 GHz:

Report Number	:E2/2020/6	0057		Test Site	:966 Chamber C
Operation Mode	:BT BR			Test Date	:2020-07-22
Test Frequency	:2402 MHz			Temp./Humi.	:23.2/55
Test Mode	:TX CH LO	W		Antenna Pol.	:VERTICAL
EUT Pol	:H Plan			Engineer	:Enzo
100 Level (dBuV/m)					
90					
80					
70					
60					
50	2				
40					
30	1				
20					
10					
0 <mark>1000</mark>	6100.	11200. Frequen	16300. icy (MHz)	21400	. 26500
Freq.	Detector	Spectrum	Factor	Actual	Limit
1109.	Mode	Reading Level		FS	@3m
MHz	PK/QP/AV	dBµV	dB	dBµV/n	
4804.00	Average	17.92	14.07	31.99	54.00
4804.00	Peak	30.42	14.07	44.49	74.00

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

iwan Ltd.

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.

:966 Chamber C



:E2/2020/60057

Report Number

Operation Mode	:BT BR	Test Date	e	:2020-07-22	
Test Frequency	:2402 MHz	Temp./H	umi.	:23.2/55	
Test Mode	:TX CH LOW	Antenna	Pol.	:HORIZONTA	L
EUT Pol	:H Plan	Engineer	r	:Enzo	
100 Level (dBuV/m)					
90					
80					
70					
60					
50	2				
40					
30					
20					
10					

Test Site

0						
1000	6100.	11200.	16300.	21400.	26500	
		Frequency (I	MHz)			
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4804.00 4804.00	Average Peak	17.85 30.76	14.07 14.07	31.92 44.83	54.00 74.00	-22.08 -29.17

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

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.

Margin

ЧР

:966 Chamber C



:E2/2020/60057

Report Number

Operation	Mode	:BT BR			Test Date	:2020-07-22	
Test Freq	uency	:2441 MHz			Temp./Humi.	:23.2/55	
Test Mode	Э	:TX CH MI	C		Antenna Pol.	:VERTICAL	
EUT Pol		:H Plan			Engineer	:Enzo	
100	(dBuV/m)						
90							
80							
70							
60							
50							
40		2					
30	· ·						
20							
10							
0 <mark></mark>		6100.	11200.	16300.	2140	00. 26500	
1000		0100.		cy (MHz)	2140	20500	
Frec	.	Detector	Spectrum	Factor	Actua		
MH	Z	Mode PK/QP/AV	Reading Level dBµV	dB	FS /dBµV	@3m /m dBµV	

Test Site

INIHZ	PK/QP/AV	αθμν	üВ	αθμν/m	abhr/w	aв
4882.00 4882.00	Average Peak	17.91 29.94	14.21 14.21	32.12 44.15	54.00 74.00	-21.88 -29.85

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained tor 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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be reproduced to the full-extent of the law. prosecuted to the fullest extent of the law.

26500

Limit

@3m

dBµV/m

54.00

74.00

Margin

dB

-21.23

-29.90



10

0^L 1000

Freq.

MHz

4882.00

4882.00

6100.

Detector

Mode

PK/QP/AV

Average

Peak

Report Number	:E2/2020/60057		Test Site	:966 Cha	mber C	
Operation Mode	:BT BR		Test Date	:2020-07	-22	
Test Frequency	:2441 MHz		Temp./Hur	mi. :23.2/55		
Test Mode	:TX CH MID		Antenna P	ol. :HORIZC	NTAL	
EUT Pol	:H Plan		Engineer	:Enzo		
100 Level (dBuV/m)	Level (dBuV/m)					
]	
90						
80						
70						
60						
50						
50 2						
40						
30						
20						

16300.

Factor

dB

14.21

14.21

21400.

Actual

FS

dBµV/m

32.77

44.10

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

11200.

Spectrum

Reading Level

dBµV

18.56

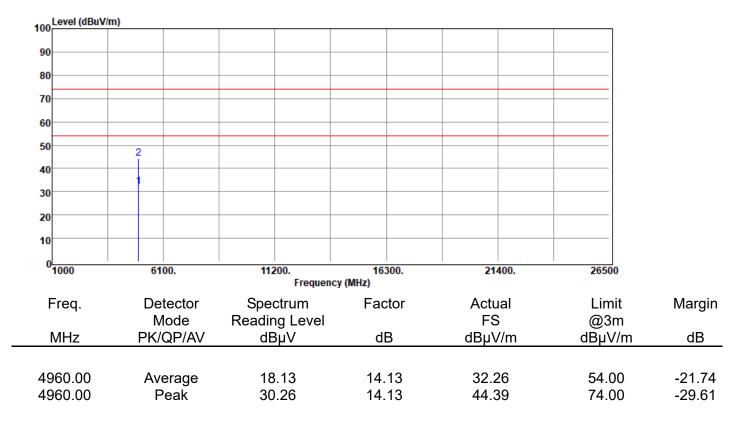
29.89

Frequency (MHz)



Report Number	:E2/2020/60057	Test Site
Operation Mode	:BT BR	Test Date
Test Frequency	:2480 MHz	Temp./Hu
Test Mode	:TX CH HIGH	Antenna
EUT Pol	:H Plan	Engineer

Test Site	:966 Chamber C
Test Date	:2020-07-22
Temp./Humi.	:23.2/55
Antenna Pol.	:VERTICAL
Engineer	:Enzo

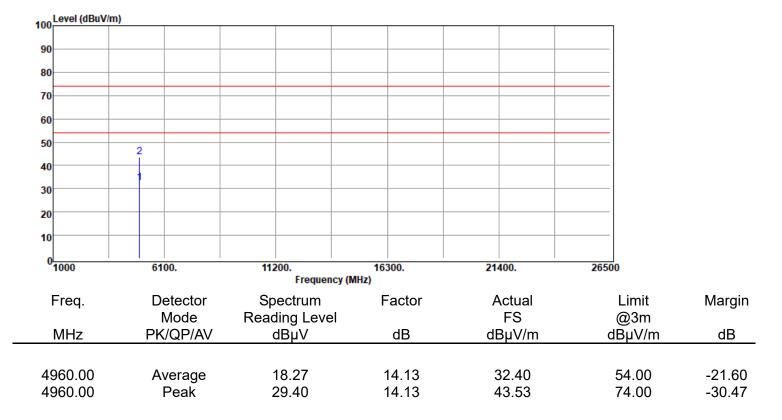


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

iwan Ltd.



Report Number	:E2/2020/60057	Test Site	:966 Chamber C
Operation Mode	:BT BR	Test Date	:2020-07-22
Test Frequency	:2480 MHz	Temp./Humi.	:23.2/55
Test Mode	:TX CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:H Plan	Engineer	:Enzo



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

wan Ltd.



11 FREQUENCY SEPARATION

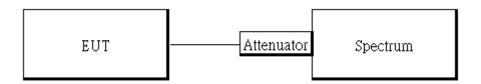
11.1 Standard Applicable

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	MY53400256	11/21/2019	11/20/2020					
Bluetooth Test Set	R&S	CBT	101140	05/04/2020	05/03/2021					
DC Block PASTERNA		PE8210	RF256	11/20/2019	11/19/2020					
Attenuator Marvelous		WATT-218FS-10	RF268	11/20/2019	11/19/2020					
Coaxial Cables	Woken	00100A1F1A18 5C	RF219	11/20/2019	11/19/2020					
Splitter Marvelous		MVE8576	RF37	11/20/2019	11/19/2020					

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 ANSI C63.10:2013.
- 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.

11.5 Measurement Result

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

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

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

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



11.6 Frequency Separation Test Plots

Ref Offset 13.2 dB ΔΜΚR3 1.000 MHZ 10 dB/div Ref 20.00 dBm 0.37 dB 100 1Δ2 3Δ4 100 1Δ2 3Δ4 100 100 1Δ2 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 <th></th>	
Center Freq 2.40300000 GHz Avg Type: Log-Pwr TRACE 1 2.3 4 5 6 Frequent PNO: Wide Trig: Free Run Avg Type: Log-Pwr TRACE 1 2.3 4 5 6 Frequent Note the second	-
PNO: Wide Trig: Free Run IFGain:Low Trig: Free Run #Atten: 20 dB Trig: Pree MWWWWW DET P NNNNN DET	Tune
Ref Offset 13.2 dB ΔMkr3 1.000 MHz Auto 10 dB/div Ref 20.00 dBm 1Δ2 3Δ4 Center 10.0 1Δ2 3Δ4 Center 2.4030000 10.0 10.0 10.0 Star 2.4030000 10.0 10.0 10.0 Star 2.4030000 10.0 10.0 10.0 Star 2.40050000	Tune
Ref Offset 13.2 dB ΔΜΚR3 1.000 MHZ 10 dB/div Ref 20.00 dBm 0.37 dB 100 1Δ2 3Δ4 100 1Δ2 3Δ4 100 100 1Δ2 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 <td>, runc</td>	, runc
100 1Δ2 3Δ4 Center 000 </td <td></td>	
0.00 0.00 <td< td=""><td>r Eroa</td></td<>	r Eroa
10.0	
200 7 4 7 <th7< th=""> 7 <th7< th=""> <th7< th=""></th7<></th7<></th7<>	JU GH2
30.0 1 Star 40.0 2.40050000 2.40050000 50.0 1 1 1 60.0 1 1 1 1 60.0 2.40550000 2.40550000 1	
40.0 2.40050000 50.0 50.0 50.0 50.0 50.0 50.0 50.0 50.0	tFreq
-50.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00 GHz
-60.0 Stop 2.40550000	
-80.0 2.40550000	_
-70.0	JO GHZ
	Step
#Res BW 100 kHz #VBW 100 kHz Sweep 1.000 ms (1001 pts)	00 kHz Man
MKR MODE TRC SCL X Y FUNCTION WIDTH FUNCTION VALUE A	
1 Δ2 1 f (Δ) -1.35 dB 2 F 1 f 2.402 000 GHz 2.86 dBm	
3 Δ4 1 f (Δ) 1.000 MHz (Δ) 0.37 dB Freq C	Offset
4 F 1 f 2.403 000 GHz 1.51 dBm 5 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	0 Hz
8	
9 10	
MSG STATUS	

GFSK 1M DH5 CH0CH1CH2

8DPSK_3M_DH5_ CH0CH1CH2

		pectru		nalyzer -		SA																		- F	×
Cen		Fre	RF eq 2	2.403	50 Ω 300	DC 000					Tri	SE	NSE:I		Avç		ALIGN AU		TI	RACE	1 Jul 06, 1 2 3 4 M WWW	156	F	requency	
10 d	3/div			Offse			1		: Wid in:Lo			tten: 2						ΔN	lkr3 1	.00	PNN	Hz		Auto Tu	Jne
Log 10.0 0.00 -10.0								*	2 ₁∕∿	ᠬᡢ	n	ለሳሳ	12 4/		mm	VLV	3∆4 mm	·››ጉ	www	w.	may	~~~		Center F 03000000 (- 1
-20.0 -30.0 -40.0				_/	ſN																		2.40	Start F 00500000 0	
-50.0 -60.0 -70.0	~~	~ ^t ~	won																				2.40	Stop F 05500000 (
#Re	s Bì	N 1	00		Hz				#\	/BW	/ 100	kHz	_						Span 000 ms	s (1	001 p		Auto	CF S1 500.000	
2		TRC 1 1 1	f f	(Δ) (Δ)			1.0 102 0	00	MHz		-0	-0.52 1.61 d -3.64 .13 d	Bm dB	FUNC	CTION		ICTION WI	DTH	FUNG	CTION	VALUE			Freq Off 0	f set) Hz
10 11 • MSG																	ST	ATUS				•			

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

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 Taiwan Ltd.

www.sgs.com.tw



12 NUMBER OF HOPPING FREQUENCY

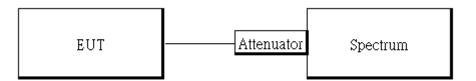
12.1 Standard Applicable

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	MY53400256	11/21/2019	11/20/2020				
Bluetooth Test Set	R&S	CBT	101140	05/04/2020	05/03/2021				
DC Block	PASTERNACK	PE8210	RF256	11/20/2019	11/19/2020				
Attenuator	Marvelous	WATT-218FS- 10	RF268	11/20/2019	11/19/2020				
Coaxial Cables	Woken	00100A1F1A 185C	RF219	11/20/2019	11/19/2020				
Splitter	Marvelous	MVE8576	RF37	11/20/2019	11/19/2020				

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 ANSI C63.10:2013.
- 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=430kHz, VBW=1.5MHz., Detector = Peak
- 6. Max hold, view and count how many channel in the band.

12.5 Measurement Result

Tabular Data of Total Channel Number

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

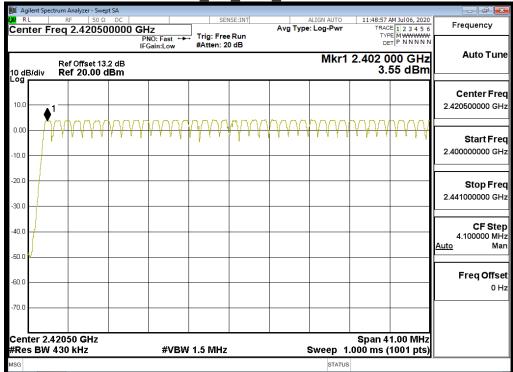
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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

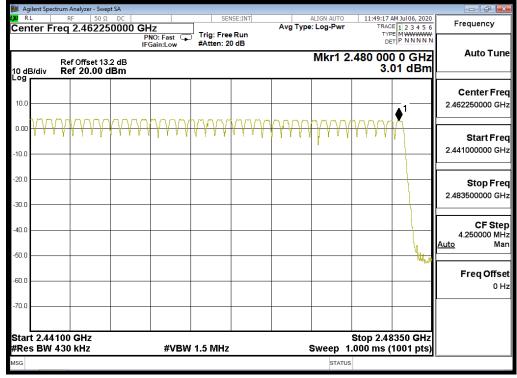


12.6 Channel Number Test Plots



GFSK 1M DH5 2400-2441

GFSK 1M DH5 2441-2480



Unless otherwise stated 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。

iwan I td

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sqs.com.tw/Terms-and-Conditions. 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 document. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



13 TIME OF OCCUPANCY (DWELL TIME)

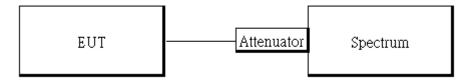
13.1 Standard Applicable

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	MY53400256	11/21/2019	11/20/2020				
Bluetooth Test Set	R&S	CBT	101140	05/04/2020	05/03/2021				
DC Block	PASTERNACK	PE8210	RF256	11/20/2019	11/19/2020				
Attenuator	Marvelous	WATT-218FS- 10	RF268	11/20/2019	11/19/2020				
Coaxial Cables	Woken	00100A1F1A 185C	RF219	11/20/2019	11/19/2020				
Splitter	Marvelous	MVE8576	RF37	11/20/2019	11/19/2020				

13.3 Test Set-up



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

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

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



13.4 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows ANSI C6310:2015.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. Set center frequency of spectrum analyzer = operating frequency.

5. Set the spectrum analyzer as RBW, VBW=1MHz, 3MHz, Span = 0Hz , Detector = Peak,

Adjust Sweep = 2~8ms.

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

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

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

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

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

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

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

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

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



13.5 Tabular Result of the Measurement

GFSK (1Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)	1/T (kHz)	VBW setting (kHz)
	DH1	123.20	400ms	2.597	3.00
Low	DH3	262.40	400ms	0.610	1.00
	DH5	308.80	400ms	0.345	1.00
	DH1	123.20	400ms	2.597	3.00
Mid	DH3	262.40	400ms	0.610	1.00
	DH5	308.80	400ms	0.345	1.00
	DH1	121.60	400ms	2.632	3.00
High	DH3	262.40	400ms	0.610	1.00
	DH5	308.80	400ms	0.003	1.00

$\pi/4$ DQPSK (2Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)	1/T (kHz)	VBW setting (kHz)
	2DH1	124.80	400ms	2.564	3.00
Mid	2DH3	262.40	400ms	0.610	1.00
	2DH5	307.20	400ms	0.347	1.00

8-DPSK (3Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)	1/T (kHz)	VBW setting (kHz)
	3DH1	124.80	400ms	2.564	3.00
Mid	3DH3	262.40	400ms	0.610	1.00
	3DH5	308.80	400ms	0.345	1.00

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

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.



GFSK (1Mbps):

CH Low	DH1 time slot = DH3 time slot = DH5 time slot =	1.640 *	(1600/2/79) * (1600/4/79) * (1600/6/79) *	31.6 = 31.6 = 31.6 =	()
CH Mid	DH1 time slot = DH3 time slot = DH5 time slot =	0.385 * 1.640 *	(1600/2/79) *	31.6 = 31.6 =	123.20 (ms) 262.40 (ms) 308.80 (ms)
CH High	DH1 time slot = DH3 time slot = DH5 time slot =	1.640 *	(1600/2/79) * (1600/4/79) * (1600/6/79) *	31.6 = 31.6 = 31.6 =	· · /

$\pi/4$ -DQPSK (2Mbps):

CH Mid	2DH1 time slot=	0.390 *	(1600/2/79) *	31.6 =	124.80 (ms)
	2DH3 time slot=	1.640 *	(1600/4/79) *	31.6 =	262.40 (ms)
	2DH5 time slot=	2.880 *	(1600/6/79) *	31.6 =	307.20 (ms)

8-DPSK (3Mbps):

CH Mid	3DH1 time slot=	0.390 *	(1600/2/79) *	31.6 =	124.80 (ms)
	3DH3 time slot=	1.640 *	(1600/4/79) *	31.6 =	262.40 (ms)
	3DH5 time slo1=	2.895 *	(1600/6/79) *	31.6 =	308.80 (ms)

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

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

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



GFSK (1Mbps) for AFH Mode									
Hopping Channel	PACKET TYPE	Measurement Result	Limit						
Number	PACKETTIPE	(ms)	(ms)						
20	154.40	400ms							
π/4 DQPSK (2Mbps) for AFH Mode									
Hopping Channel	PACKET TYPE	Measurement Result	Limit						
Number	PACKETTIPE	(ms)	(ms)						
20	2DH5	153.60	400ms						
	8-DPSK (3Mbps	s) for AFH Mode							
Hopping Channel	PACKET TYPE	Measurement Result	Limit						
Number	FACREITIPE	(ms)	(ms)						
20	3DH5	154.40	400ms						

13.6 Measurement Result

Note: Refer to next page for plots.

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

Unless otherwise stated the results shown in this test report reter 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,可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 http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecrited to the full-extent of the law. prosecuted to the fullest extent of the law.



Dwell Time_GFSK_1M_DH1_2402MHz

🚺 Agilent Spectru									
Center Fre	RF 50 3	00000 GHz		SENSE:	Avg1	ALIGN AUTO Type: Log-Pwr	TRAC	M Jul 06, 2020	Frequency
10 dB/div	Ref Offset 1 Ref 20.00	PNO: IFGai	:Fast n:Low	Trig: Free Ru ≇Atten: 20 dE		Δ	Mkr3 1.	250 ms 0.04 dB	Auto Tune
10.0 0.00 -10.0	% z	1∆2	€3	iΔ4					Center Fred 2.402000000 GH
-20.0 -30.0 -40.0									Start Fre 2.402000000 GH
-50.0 -60.0 -70.0	164-1760	Hyphurgandur	and try th	449918	hipperation	-ny	4)inpali418	- An	Stop Fre 2.402000000 GH
Center 2.40 Res BW 1.0	MHz	×	#VBW 3	Y	FUNCTION	Sweep 5.			CF Ste 1.000000 MH Auto Ma
1 Δ2 1 2 F 1 3 Δ4 1 4 F 1 5	t (Δ) t t (Δ) t	720.0	ms (Δ)	-0,43 dB 3.89 dBm 0.04 dB 3.89 dBm					Freq Offse 0 H
7 8 9 10 11								=	
viso						STATUS			L

Dwell Time_GFSK_1M_DH1_2441MHz

	trum Analyzer - Swe									
Center F	req 2.44100				ISE:INT		ALIGN AUTO COG-Pwr	TRAC	AM 3ul 06, 2020	Frequency
10 dB/div	Ref Offset 13 Ref 20.00	IF 3.2 dB	NO: Fast == Gain:Low	#Atten: 20			Δ	Mkr3 2.	.500 ms 0.03 dB	Auto Tun
10.0 0.00	142				3∆4]	[Center Fre 2.441000000 GH
-20.0					-		,			Start Fre 2.441000000 GH
-50.0 -60.0 -70.0	-ti-talitari	ind the Arch	an a	vilianitalita	1940	lilwr,fruitr,f	404Kephend	Mr	umphutu	Stop Fre 2.441000000 GH
Res BW 1		GHz	#VB	N 3.0 MHz			Sweep 5	.000 ms (CF Ste 1.000000 MH Auto Ma
1 Δ2 1 2 F 1 3 Δ4 1 4 F 1 5 6 7	t (Δ) t t (Δ)	15	35.0 μs (Δ 95.0 μs 500 ms (Δ 95.0 μs	4.06 dE	dB 3m dB	FU	NCTION WDTH	FUNCTO	DN VALUE	Freq Offse 0 H
7 8 9 10 11										

Dwell Time_GFSK_1M_DH1_2480MHz

🔰 Agilent Spectrum Analyzer -					
Center Freg 2.480	0000000 GHz	SENSE:IN	ALIGN AUTO Avg Type: Log-Pwr	11:29:47 AM Jul 06, 2020 TRACE 1 2 3 4 5 6	Frequency
Ref Offse	PNO: Fast IFGain:Lov t 13.2 dB			Mkr3 1.250 ms 0.03 dB	Auto Tune
10.0 and a contract of the con		€ ^{3∆4}			Center Freq 2.48000000 GHz
-20.0					Start Free 2.480000000 GH
-50.0 0,4477/1916/94	stralie upret	NN#HNMMM	nuntermenererert	Boundary (Varia officially vari	Stop Free 2.480000000 GH
Center 2.48000000 Res BW 1.0 MHz		/BW 3.0 MHz	Sweep 5	Span 0 Hz 000 ms (1001 pts)	CF Step 1.000000 MH Auto Ma
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	380.0 µs 1.140 ms 1.250 ms 1.140 ms	3.32 dBm			Freq Offse 0 H
7 8 9 10 11					
MSG			STATU	8	

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

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

t (886-2) 2299-3279

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues In socument is issued by the Company subject to its General Conditions on Service printed overlear, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

Dwell Time_GFSK_1M_DH3_2402MHz

	m Analyzer - Swej						- 6
Center Fre	RF 50 Ω		17	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	11:30:36 AM Jul 06, 2020 TRACE 1 2 3 4 5 6	Frequency
	Ref Offset 13	PI IFC	NO: Fest	Trig: Free Run #Atten: 20 dB	Δ	Mkr3 2.500 ms 0.01 dB	Auto Tune
10.0 0.00		∆2 ∳ ^{3∆}	<u>4</u>				Center Free 2.402000000 GH
-20.0							Start Fre 2.402000000 GH
-50.0	- u	BCADALA		rennere	radifiere we	hanalana	Stop Fre 2.402000000 GH
Center 2.40 Res BW 1.0	MHz	Hz	#VBW	3.0 MHz	Sweep 1	Span 0 Hz 0.00 ms (1001 pts)	CF Ste 1.000000 Mi Auto Mi
1 Δ2 1 2 F 1 3 Δ4 1 4 F 1 5 6 7	t (Δ) t t (Δ) t	13	i40 ms (Δ) 30.0 μs i00 ms (Δ) 30.0 μs	-0.06 dB 3.88 dBm 0.01 dB 3.88 dBm			Freq Offs
8 9 10 11					STATUS	,•	

Dwell Time_GFSK_1M_DH3_2441MHz

Agilent Spectrum Analyz					
Center Freq 2.4	41000000 GHz	SENSE:INT		TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 2	PNO: Fest IFGain:Low set 13.2 dB 0.00 dBm	#Atten: 20 dB	ΔMkr3	2.500 ms -0.03 dB	Auto Tune
10.0 0.00	^{1∆2} ◆ ^{3∆4}				Center Fred 2.441000000 GH:
-20.0					Start Free 2.441000000 GH
-50.0 1977, 4 -60.0 -70.0	Newsidelika	Yama Annalasi	4	erte	Stop Free 2.441000000 GH
Center 2.441000 Res BW 1.0 MHz		3.0 MHz	Sweep 10.00 m		CF Stej 1.000000 MH Auto Ma
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	480.0 µs	-0.07 dB 3.98 dBm -0.03 dB 3.98 dBm			Freq Offse 0 H
7 8 9 10					

Dwell Time_GFSK_1M_DH3_2480MHz

.480000000 GH P IF	NO: East	SENSE:IN Trig: Free Run #Atten: 20 dB	Aug Type: Lo	g-Pwr TRAC	AM 3ul 06, 2020 26 1 2 3 4 5 6 PE WWWWWW	Frequency
IF				TH	PE WWWWW	
				ΔMkr3 2	.500 ms	Auto Tune
	Ŷ	1Δ2 03Δ4				Center Fre 2.48000000 GH
						Start Fre 2.48000000 GH
the second		of Canal		↓ 	por port	Stop Fre 2.48000000 GH
00000 GHz 1z	#VBW 3	.0 MHz		eep 10.00 ms (1001 pts)	CF Ste 1.000000 MH Auto Ma
2.4 (Δ) 2.5	180 ms 500 ms (Δ)	-0.03 dB 3.20 dBm 0.01 dB 3.20 dBm				Freq Offs 0 ⊦
	0000 GHz Iz	0000 GHz 15 #VBW 3 1.540 mp (Δ) 2.480 mp	0000 GHz z #VBW 3.0 MHz 1.640 ms (Δ) - 0.03 dB Δ) 2.480 ms (Δ) - 0.03 dB Δ) 2.480 ms (Δ) - 0.03 dB Δ) 2.480 ms (Δ) - 0.01 dB	ψμησομ μμησομ μμησομ <thμμησομ< th=""> <thμμησομ< th=""> <thμμησομ< t<="" td=""><td>φ_m φ_m φ_m <t< td=""><td>00000 GHz z #VBW 3.0 MHz Sweep 10.00 ms (1001 pts) 2 480 ms (a) - 0.03 dB a) - 2.480 ms (a) - 0.01 dB a) - 0.</td></t<></td></thμμησομ<></thμμησομ<></thμμησομ<>	φ _m <t< td=""><td>00000 GHz z #VBW 3.0 MHz Sweep 10.00 ms (1001 pts) 2 480 ms (a) - 0.03 dB a) - 2.480 ms (a) - 0.01 dB a) - 0.</td></t<>	00000 GHz z #VBW 3.0 MHz Sweep 10.00 ms (1001 pts) 2 480 ms (a) - 0.03 dB a) - 2.480 ms (a) - 0.01 dB a) - 0.

台灣檢驗科技股份有限公司

iwan Ltd.

f (886-2) 2298-0488



Dwell Time_GFSK_1M_DH5_2402MHz

🗴 Agilent Spectrum Ani						
RL RF	.402000000 GHz		SENSE:INT	ALIGN AU Avg Type: Log-P	NT TRACE 1 2 3 4 5 6	Frequency
	PNC	Fast - Trig: F in:Low #Atten:	ree Run : 20 dB		ΔMkr3 3.750 ms	Auto Tun
10.0 0.00	20.00 dBm	142	304		-0.22 dB	Center Fre 2.402000000 GH
20.0 30.0 40.0						Start Fre 2.402000000 GH
50.0		unere a		Visterate		Stop Fre 2.402000000 Gi
enter 2.40200 es BW 1.0 Mi	łz	#VBW 3.0 MH			Span 0 Hz 15.00 ms (1001 pts)	CF Sto 1.000000 M Auto M
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3,46	5 ms -0.34 0 ms (Δ) -0.2	2 dB	TION FUNCTION WI		Freq Offs 01
7 8 9 10 11		_				
50				87	TUS	

Dwell Time_GFSK_1M_DH5_2441MHz

	ım Analyzer - Swept SA					
Center Fre	RF 50 Ω DC eq 2.441000000	GHz		CLog-Pwr TRAC	PM Jul 03, 2020	Frequency
10 dB/div	Ref Offset 13.2 dB Ref 20.00 dBm		e: 20 dB	ΔMkr3 3.	PNNNNN	Auto Tun
10.0 0.00		1∆2€32	.4			Center Fre 2.441000000 GH
20.0 30.0 40.0						Start Fre 2.441000000 GH
-50.0 -60.0 -70.0	uporta				srika	Stop Fre 2.441000000 GF
Center 2.44 Res BW 1.0		#VBW 3.0 M	Hz :	Sweep 15.00 ms (CF Ste 1.000000 Mi Auto Mi
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	t (Δ) t t (Δ) t	2.835 ms 3.74 3.750 ms (Δ) 0.	07 dB I dBm 00 dB I dBm		=	Freq Offs 0 F
7 8 9 10 11					<u>.</u>	
*				STATUS		

Dwell Time_GFSK_1M_DH5_2480MHz

🚺 Agilent Spectrum Analyzer - Swe					
Center Freg 2.4800		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	11:39:17 AM Jul 06, 2020 TRACE 1 2 3 4 5 6	Frequency
Ref Offset 13	PNO: Fest IFGain:Low	#Atten: 20 dB	Δ	DET P NNNNN Mkr3 3.750 ms	Auto Tune
10 dB/div Ref 20.00				-0.01 dB	Center Fre 2.480000000 GH
-10.0					Start Fre 2.480000000 GH
	uşutş	6.06370	5-92-05	(second	Stop Fre 2.480000000 GH
Center 2.480000000 G Res BW 1.0 MHz		3W 3.0 MHz	Sweep 15	Span 0 Hz 5.00 ms (1001 pts)	CF Ste 1.000000 MH Auto Ma
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2.895 ms (/ 3.420 ms 3.750 ms (/ 3.420 ms	A) -0.25 dB 3.25 dBm			Freq Offse 0 H
7 8 9 10 11 <					
MSG			STATUS		

iwan Ltd.

台灣檢驗科技股份有限公司

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

Dwell Time_π/4DQPSK_2M_2402MHz

🚺 Agilent Spectrum A	inalyzer - Swept SA								
Center Freq	50 Q DC	GHz		VSE:INT		ALIGN AUTO CLOG-Pwr	TRAC	AM Jul 06, 2020	Frequency
10 dB/div Re	f Offset 13.2 dB f 20.00 dBm	PNO: Fast IFGain:Low	#Atten: 2			Δ	Mkr3 1	250 ms 0.01 dB	Auto Tune
10.0 0.00		€ ^{3∆4} -	7						Center Fred 2.402000000 GHz
-20.0									Start Free 2.402000000 GH
-50.0 -60.0 -70.0	"renninger"	1	hide and a state of the state o	ipente	40 Healey	intelliturite		ishinyara	Stop Free 2.402000000 GH
Center 2.4020 Res BW 1.0 M	1Hz	#VE	BW 3.0 MHz	FUN		Sweep 5.	000 ms (pan 0 Hz 1001 pts)	CF Step 1.000000 MH Auto Mar
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(Δ) (Δ)	390.0 µs (265.0 µs 1.250 ms (265.0 µs	0.54 dt	3m dB					Freq Offse 0 H:
8 9 10 11			-			STATUS		•	

Dwell Time_π/4DQPSK_2M_2441MHz

🗱 Agilent Spe	ctrum Analyzer - Swept	SA					
Center F	req 2.44100	0000 GHz	Trig: Free F	Avg Type	Log-Pwr TRA	CE 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 13. Ref 20.00 d					.250 ms 0.02 dB	Auto Tune
10.0 0.00	>	ري الم	€ ^{3∆4}	~			Center Freq 2.441000000 GHz
-20.0 -30.0 -40.0							Start Free 2.441000000 GH:
-50.0 -60.0 -70.0		11/10/101	Netheres West	Lifflanna-1345/124933	49%Lodil#4	wat/#	Stop Free 2.441000000 GH:
Center 2. Res BW			BW 3.0 MHz	EUNCTION FUNCTION	Sweep 5.000 ms		CF Step 1.000000 MH Auto Mar
1 <u>Δ2</u>	t (Δ) t t (Δ) t	390.0 µs 1.025 ms 1.250 ms 1.025 ms	0.51 dBr	n B			Freq Offse 0 H
7 8 9 10 11						≣!	
< C				, ,		-	

Dwell Time π/4DQPSK 2M 2480MHz

		Analyzer - Swept									- 6 🛋
e RL Cent		50 Ω 2.48000	0000 GH	z		e Run	Avg Typ	ALIGN AUTO pe: Log-Pwr	TRAC	AM 3ul 06, 2020 E 1 2 3 4 5 6 PE WWWWWW	Frequency
10 dF		of Offset 13.: ef 20.00 d	1FC 2 dB	iO: Fast ↔ Sain:Low	#Atten: 2			۵	Mkr3 1.	T P NNNNN	Auto Tun
0.00 10.0 0.00				•	304						Center Fre 2.480000000 GH
20.0											Start Fre 2.480000000 GH
50.0 50.0 70.0	(1991).trefpenjeli	ingen.	With Mitter	ntekallurayi	40	akutiya yyana	1465.04	YMYMA	****	-	Stop Fre 2.48000000 GF
es	ter 2.480 BW 1.0 M		Hz	#VBW	/ 3.0 MHz			Sweep 5	.000 ms (pan 0 Hz 1001 pts)	CF Ste 1.000000 MH Auto Mi
1 2 3	Δ2 1 t F 1 t	(Δ) (Δ)	70	0.0 μs (Δ) 0.0 μs 50 ms (Δ) 0.0 μs	0.48 -0.36 d 0.01 -0.36 d	dB Bm dB				_	Freq Offs
7 8 9 10 11											
10								STATU			

t (886-2) 2299-3279

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 f (886-2) 2298-0488



Dwell Time_π/4DQPSK_2M_2402MHz

Ref Offset 13.2 dB AMKR3 2.500 ms 0 dBdd/w Ref 20.00 dBm 0.02 dB 0 dBd/w Ref 20.00 dBm 0.02 dB 0 dB/dW Ref 20.00 dBm 0.02 dBm 0 dB/dW Ref 20.00 dBm 0.03 dBm 0 dB/dW Ref 20.00 dBm 0.03 dBm 0 dB/dW 1.69 dBm 0.03 dBm 0 dB/dW 1.00 dBm 0.03 dBm 1 dD/dW 1.00 dBm 0.02 dBm 1 dD/dW 1.00 dBm 0.02 dBm 1 dD/dW 1.00 dBm	🚺 Agilent Spec	ctrum Ana	alyzer - Swept SA									
PHO: Fast Trig: Free Run Extent: 20 dB Directive Wavewave cert P NNNNN Auto Tun No dBiddy Ref 20.00 dBm 0.02 dB 0.04 dB 0.02 dB 0.04 dB <t< td=""><td></td><td></td><td></td><td></td><td></td><td>SEN</td><td>SE:INT</td><td>Avg Typ</td><td></td><td>11:43:08 TRAC</td><td>AM 3ul 06, 2020</td><td>Frequency</td></t<>						SEN	SE:INT	Avg Typ		11:43:08 TRAC	AM 3ul 06, 2020	Frequency
Construction Construction<		Ref	Offset 13.2 dB	PNO: Fas						Mkr3 2.	500 ms	Auto Tun
200 200 <td>10.0</td> <td>-</td> <td></td> <td>0</td> <td><u>∆2</u></td> <td></td> <td>.</td> <td></td> <td>1</td> <td></td> <td></td> <td>Center Free 2.402000000 GH</td>	10.0	-		0	<u>∆2</u>		.		1			Center Free 2.402000000 GH
001 003 <td>-20.0</td> <td></td> <td>Start Free 2.402000000 GH</td>	-20.0											Start Free 2.402000000 GH
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.00 ms (1001 pts) 1.00000 MH Value Value Value Value Following 1.00000 MH 1 A2 1 1 1.19 dB Following Following Following Ma 2 P t 1.640 ms (A) 1.19 dB Following Following Following Ma 2 P t 1.640 ms (A) 0.02 dB Following Following Following Following Ma Ma 3 4 t 1.680 ms 0.43 dBm Image: Following Following Following OH 9 Image: Following Image: Following Image: Following Image: Following Following OH 10 Image: Following Image: Following Image: Following Image: Following Following Image: Following Image: Following Following Following Following Image: Following Following Image: Following Following Following Following Followi	-50.0	- PA	yteent		- Mag			kaantika		Aperty.	¶*	Stop Free 2.402000000 GH
1 A2 1 t (A) 1.640 ms/(A) 1.19 dB 2 F 1 t 1.650 ms 0.43 dBm F 3 A4 1 t (A) 0.62 dB OF 4 F 1 1.650 ms 0.43 dBm OF OF 5 1 t 1.650 ms 0.43 dBm OF OF 5 1 t 1.650 ms 0.43 dBm OF OF 6 - - - - OF OF OF 7 - - - - - OF OF 8 - - - - - - - 10 - - - - - - - -	Res BW 1	1.0 MH		#\	/BW :	3.0 MHz			<u> </u>	0.00 ms (1001 pts)	CF Step 1.000000 MH Auto Mar
2	1 Δ2 1 2 F 1 3 Δ4 1 4 F 1 5	t t		1.660 ms 2.500 ms	_	0.43 dB 0.02 c	IB m IB			Powern		Freq Offse 0 H
	7 8 9 10										=	
		• •						,			- · `	

Dwell Time_π/4DQPSK_2M_2441MHz

Agilent Spectr	um Analyzer - Swept SA					
Center Fre	eq 2.4410000	00 GHz	SENSE:INT	ALIGN AU Avg Type: Log-P		Frequency
10 dB/div	Ref Offset 13.2 d Ref 20.00 dBr		#Atten: 20 dB		ΔMkr3 2.500 ms 0.01 dB	Auto Tur
10.0 0.00		\ ^{1Δ}	² ♦ ^{3∆4}			Center Fre 2.441000000 Gi
20.0 30.0 40.0						Start Fr 2.441000000 G
50.0 60.0 70.0	polen in pole	may	*nve	สารครุสรุ	hamiltika	Stop Fr 2.441000000 G
enter 2.4 tes BW 1.			V 3.0 MHz	Sweep	Span 0 Hz 10.00 ms (1001 pts)	CF St 1.000000 M Auto N
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	t (Δ) t t (Δ) t	1.640 ms (Δ) 1.920 ms 2.500 ms (Δ) 1.920 ms	1.09 dB 0.53 dBm 0.01 dB 0.53 dBm			Freq Offs 0
7 8 9 10 11						
<				ST	ATUS	

Dwell Time_π/4DQPSK_2M_2480MHz

	trum Analyzer - Swept SA								
Center Fr	req 2.480000000			VSE:INT	Avg Typ	e: Log-Pwr	TRAC	AM 3ul 06, 2020	Frequency
		PNO: Fast IFGain:Low	#Atten: 20				Mkr3 2.	PNNNNN	Auto Tun
10 dB/div	Ref Offset 13.2 dB Ref 20.00 dBm					4		0.01 dB	
10.0		<u>1∆2</u>	3∆4						Center Fre
10.0	<u> %</u>		-				1		2.48000000 GH
20.0									Start Fre
0.0			-						2.480000000 G
40.0 50.0	244000	-	and line	1.6	Arres		www.		
90.0							her het s		2.48000000 G
70.0									
enter 2.4 es BW 1	80000000 GHz .0 MHz	#VE	BW 3.0 MHz			Sweep 1		pan 0 Hz 1001 pts)	CF Ste 1.000000 M Auto M
	c scu x t (Δ)	1,640 ms (Δ) 1.10	dB	TION FU	NCTION WIDTH	FUNCTION	N VALUE	AUTO M
2 F 1 3 Δ4 1 4 F 1	t t (Δ)	1.540 ms 2.500 ms (dB					Freq Offs
4 F 1 5		1.540 ms	-0.40 dE	sm	-				0
7 8 9									
10		_		-				<u> </u>	
6						STATUS	L .		

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

Chief S a full 明, 此報告結果僅對測試之様品負責,同時此様品僅保留的にないないない。本報告未經本公司書面許可, 不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemofication and jurisdiction issues In socument is issued by the Company subject to its General Conditions on Service printed overlear, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Dwell Time_π/4DQPSK_2M_2402MHz

		pectr		nalyze																								2
Cen		Fre	RF eq		50 s 020			Gŀ	łz		_	1		ENSE:		A	vg Ty		LIGN			TF	ACE	12	6, 202 3 4 5	6	Frequen	¢y
10.0	B/div			r Offs				P IF	NO: F Gain:	ast	, -		ig: Fre tten: 1							Δ	M		3.7	50	ms		Auto	Tune
10.0 0.00							*	2					142	3/	4			٦		<i></i>				7			Center 2.40200000	
-10.0 -20.0 -30.0 -40.0																									_		Start 2.40200000	Freq 0 GHz
-50.0 -60.0 -70.0						4 97-	N				_		-Apr	•				k					+	4	ninger of the		Stop 2.40200000	Freq 0 GHz
Cen Res		1.	0 1	Hz	00	GHz	*			#V	вw		MH:	z		KTION		_	_	ep 1	5.0			01	<u> </u>	Ш	CF 1.00000 Auto	Step 0 MHz Man
1	Δ2	1 1 1	t	(Δ) (Δ)				3.6	95 n 90 n 50 n 90 n	ns ns				4 dB												l	Freq	Offset 0 Hz
7 8 9 10 11																								_	=			
< msg				-	-				-			-		-						STATUS			-		•	1		

Dwell Time_π/4DQPSK_2M_2441MHz

🗱 Agilent Spec	trum Analyzer - Swe	pt SA							
Center Fr	req 2.44100	00000 GH		SENSE	Avg Ty	ALIGN AUTO	TYPE	23456	Frequency
10 dB/div	Ref Offset 13 Ref 20.00	IF	NO: Fast 🔸	#Atten: 20 d			Mkr3 3.7	P NNNN N	Auto Tune
10.0 0.00		×		142 304				~~~	Center Freq 2.441000000 GHz
-20.0									Start Fred 2.441000000 GH2
-50.0 -60.0 -70.0		~		un series			- N	Napa	Stop Free 2.441000000 GH:
Center 2.4 Res BW 1		SHz	#VBW	3.0 MHz	FUNCTION F		5.00 ms (10		CF Step 1.000000 MH Auto Mar
1 <u>Δ2</u> 1 2 F 1 3 <u>Δ4</u> 1 4 F 1 5 6 7	t (Δ)	2.8 3.2 3.7	80 ms (Δ) 55 ms 50 ms (Δ) 55 ms	1.27 dE 0.27 dBm 0.02 dE 0.27 dBm					Freq Offsel 0 Hz
7 8 9 10 11								<u>.</u> .	

Dwell Time_π/4DQPSK_2M_2480MHz

Agilent Spectrum Analyzer - Swept SJ	A				6
	DC	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	11:57:27 AM Jul 06, 2020 TRACE 1 2 3 4 5 6	Frequency
Center Freq 2.480000	PNO: Fast -+-	Trig: Free Run	Avg Type: Log-Pwr	TYPE WWWWWW	
	IFGain:Low	#Atten: 20 dB			Auto Tune
Ref Offset 13.2	dB		ΔΜ	kr3 3.750 ms	Auto Tune
10 dB/div Ref 20.00 dB	m			0.05 dB	
10.0		<u>1∆2∎ 3∆4</u>			Center Fre
0.00	Xa				2.48000000 GH
-10.0	/ % 2				2.40000000000
-20.0					
-30.0					Start Fre
					2.480000000 GH
-40.0					
-50.0	49	384449	Ward	-#\4e	Stop Fre
-60.0					2.480000000 GH
-70.0					
Center 2.480000000 GH	7			Span 0 Hz	CF Ster
Res BW 1.0 MHz		3.0 MHz	Sweep 15.0	0 ms (1001 pts)	1.000000 MH
MKR MODE TRC SCL	×	Y FU	NCTION FUNCTION WIDTH	FUNCTION VALUE	Auto Ma
1 Δ2 1 t (Δ) 2 F 1 t	2.895 ms (Δ)	0.64 dB			
3 Δ4 1 t (Δ)	3.570 ms 3.750 ms (Δ)	-0.37 dBm 0.05 dB			Freq Offse
4 F 1 t	3.570 ms	-0.37 dBm			0 H
6				1	
8					
9					
11				-	
				,	
MSG			STATUS		

台灣檢驗科技股份有限公司 t (886-2) 2299-3279

iwan Ltd.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 f (886-2) 2298-0488



Dwell Time_8DPSK_3M_DH1_2402MHz

		inalyzer - Swep										- 4 🛋
RL	Ri		DC			SENSE:IN	r		ALIGN AUTO		AM Jul 06, 2020	
Center	req	2.40200		PNO: Fast		Free Run		Avg type	. Log-Pwr	T	PE WWWWWW	
				FGain:Low	r #Atte	n: 20 dB						Auto Tum
	Re	f Offset 13	2 dB								.250 ms	
10 dB/div		f 20.00 c									-0.06 dB	
10.0				1Δ2								
			V.	()								Center Fre
0.00	<u> </u>		Xam	7		- 1000	۳_			7	- m	2.402000000 GH
-10.0	+ +			+		++	+-			+		
-20.0			\square		_	++	+					Start Fre
-30.0				_	_		1					2.402000000 GH
40.0												2.40200000 31
-50.0											I II	
	United	5.lb.siltering	щų	401714	***	d l	44	the estimates	Will	941.74	trin-4hau	Stop Fre
-60.0			-	-								2.402000000 GH
-70.0				-						-		
Contor	4020	00000 G					_				Span 0 Hz	05.01
Res BW			-nz	#V	BW 3.0 M	H7			Sween		(1001 pts)	CF Ste 1.000000 MH
				~.	BIT OF				OTION MOT		ION VALUE	Auto Ma
MRR MODE 1 Δ2		(Δ)	×	85.0 µs	(Δ) 1	74 dB	FUNC	TION	ICTION WIDT	H FUNCI	ION VALUE	
2 F	1 t		1	150 ms	0.5	5 dBm						Freq Offse
3 Δ4	1 1	(Δ)		250 ms		06 dB 5 dBm					_	OH
5	· · ·				0.0						1	04
6	+	-										
8												
9												
11												
•											-	
15G									STAT	US		

Dwell Time_8DPSK_3M_DH1_2441MHz

		pectr	um A	inalyzer - Swep																- 6 -
Cen		Fre	RI eq	50 Q 2.44100					_	1	SENSE:		A	rg Type		9-Pwr	TRA	3 PM Jul 06, 2020	5	Frequency
	B/div	,		f Offset 13				0: Fas ain:Lo		#Atten:						Δ	Mkr3 1	.250 ms -0.01 dB		Auto Tune
10.0 0.00	يە ب	~			X	×.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	_ 1∆:	2		3∆4 _~~	-					4			Center Free 2.441000000 GH:
-20.0 -30.0 -40.0																				Start Free 2.441000000 GH
-50.0 -60.0 -70.0		ł	-Mile Million	irtelonersolitiste	they?			Wyw	hinter a	iirething A		-PI	www.	in the second	h /1		(apoty-rive)	.Hinsterier		Stop Free 2.441000000 GH
Res		11.	0 N		Hz	×		#\	/BW	/ 3.0 MH	Iz	FUN	KTION	_	_	ep 5.	000 ms	Span 0 Hz (1001 pts)		CF Step 1.000000 MH to Ma
2	Δ2 F Δ4 F	1 1 1	t	(Δ) (Δ)			1.17	0 µs 0 ms 0 ms 0 ms		0.58	3 dB dBm 1 dB dBm									Freq Offse 0 H
8 9 10 11																STATUS	I			

Dwell Time_8DPSK_3M_DH1_2480MHz

	n Analyzer - Swept						
Center Free		D000 GH7	SENS		ALIGN AUTO	12:00:58 PM Jul 06, 20 TRACE 1 2 3 4	
10 dB/div F	Ref Offset 13.2 Ref 20.00 dl	PNO: Fast IFGain:Low	#Atten: 20		Δ	Mkr3 1.250 m -0.02 d	Auto Tune
10.0 0.00 -10.0	142	¢ ^{3∆4}	1 200				Center Free 2.480000000 GH
-20.0							Start Fre 2.480000000 GH
-50.0 +60.0 -70.0	nin v	fairse years for	Angle Angle	internet	wpuptionstaw	endi birya ^{na}	Stop Fre 2.480000000 GH
Center 2.48 Res BW 1.0	MHz		SW 3.0 MHz	EUNCTION	Sweep 5	Span 0 H 5.000 ms (1001 pt FUNCTION VALUE	
1 Δ2 1 2 F 1	t (Δ) t t (Δ) t	390.0 µs (/ 390.0 µs 1.250 ms (/ 390.0 µs	-0.28 dBr	B n B			Freq Offse
7 8 9 10 11							
*					STATU	s ,	

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

t (886-2) 2299-3279

Chief S a full 明, 此報告結果僅對測試之様品負責,同時此様品僅保留的にないないない。本報告未經本公司書面許可, 不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemofication and jurisdiction issues In socument is issued by the Company subject to its General Conditions on Service printed overlear, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Dwell Time_8DPSK_3M_DH3_2402MHz

Agilent Spect	trum Analyzer - Swept SA					- 6 👪
Center Fr	reg 2.402000000 GH	IZ	SENSE:INT	ALIGN AUT Avg Type: Log-Pv	r TRACE 1 2 3 4 5	6 Frequency
10 dB/div	P	NO: Fast — Trig: F Gain:Low #Atten:	ree Run 20 dB		ΔMkr3 2.500 ms 0.02 dE	Auto Tune
10.0 0.00			304	nyaka jakan		Center Fred 2.402000000 GHz
-20.0 -30.0 -40.0						Start Free 2.402000000 GH:
-50.0 -60.0 -70.0	red to all a	rapport		natrative	NN WENT	Stop Free 2.402000000 GH
Center 2.4 Res BW 1		#VBW 3.0 MH	Z		Span 0 Hz 10.00 ms (1001 pts	
1 Δ2 1 2 F 1 3 Δ4 1 4 F 1 5 6 7	t (Δ) 1.6 t 2.1 t (Δ) 2.5	80 ms 0.48	2 dB			Freq Offset 0 Hz
8 9 10 11						

Dwell Time_8DPSK_3M_DH3_2441MHz

Agilent Spectr	um Analyzer - Swep	rt SA										
Center Fre	RF 50 Ω eq 2.44100	0000 GH	z		SENS	E:INT		ALIGN AUTO	TF	16 PM Jul 0 RACE 1 2 TYPE WW	3456	Frequency
10 dB/div	Ref Offset 13 Ref 20.00 (2 dB	10:Fast * Sain:Low		ig: Free itten: 20			Ĺ	Mkr3	DET P N	ms	Auto Tune
10.0 0.00	 }	(142	€ ^{3∆4}	6.95.0-0.05.00	••					Center Fre 2.441000000 GH
20.0												Start Fre 2.441000000 GH
50.0 50.0 70.0	****		•,	a Jonja fa	1		when		- h	ntersky		Stop Fre 2.441000000 GH
enter 2.4 es BW 1.		Hz	#VB	W 3.0	MHz	5.00		Sweep 1		Span 5 (1001	pts)	CF Ste 1.000000 MH Auto Ma
$1 \Delta 2 1$ 2 F 1 $3 \Delta 4 1$ 4 F 1 5 6	t (Δ) t t (Δ) t	1.6- 1.9 2.5	40 ms (4 80 ms 00 ms (4 80 ms) ()	0.97 d 0.46 dB 0.01 d 0.46 dB	B m B						Freq Offs 01
0 7 8 9 10											=	
()												

Dwell Time 8DPSK 3M DH3 2480MHz

	um Analyzer - Swept SA					
Center Fre	RF 50 Q DC q 2.480000000 C	PNO: Fast Trig:	SENSE:INT	Aug Type: Log-F		Frequency
	Ref Offset 13.2 dB	IFGain:Low #Atte	n: 20 dB		ΔMkr3 2.500 ms 0.04 dE	Auto Tun
10.00	Ref 20.00 dBm	102	♦ ³ ∆4			Center Fre 2.480000000 GH
20.0						Start Fre 2.480000000 GH
50.0 60.0 70.0	Kentersta	P40/~>	7	Magningele	A STAN	Stop Fre 2.48000000 Gł
enter 2.48 tes BW 1.0		#VBW 3.0 M		Swee	Span 0 Hz p 10.00 ms (1001 pts)	
1 Δ2 1 2 F 1 3 Δ4 1 4 F 1 5 6	t (Δ) t t (Δ)	2.340 ms -0.4 2.500 ms (Δ) 0	.00 dB 1 dBm .04 dB 1 dBm			Freq Offs 01
7 8 9 10 11		1				
sa				s	TATUS	

台灣檢驗科技股份有限公司

iwan Ltd.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 f (886-2) 2298-0488



Dwell Time_8DPSK_3M_DH5_2402MHz

											nalyzer - Sw		nt Spectr	
Frequency	3456	E 1 2	12:17:21 TRAC	LIGN AUTO	Avg Type	SE:INT	1	_	GHz	Ω DC 100000	2.4020	RF eq 2	er Fre	nte
Auto Tur	NNNN	.750	Mkr3 3	Δ			#Atten: 2		PNO: Fast IFGain:Loo		Offset 1		div	dB/
Center Fre 2.402000000 GF	,						^{1∆2} €3∆			X	*****			
Start Fre 2.402000000 Gi														0
Stop Fre 2.402000000 Gi	-	uruhen			يەزەھېر		lyhok.			at	(Jage	+		0
CF Sto 1.000000 M Auto M		1001		weep 1			3.0 MHz	/BW	#\	GHz		0 M	er 2.4 W 1.	s B
Freq Offs 01				SACKED DIA		dB 3m dB	1.18 0.52 d 0.06 0.52 d	_	2.895 ms 3.030 ms 3.750 ms 3.030 ms		(Δ) (Δ)	t t	2 1 4 1	
													+	
	,			STATUS										

Dwell Time_8DPSK_3M_DH5_2441MHz

		nalyzer - Swe									
Center F	req		00000 GH		1	ISE:INT	Avg Typ	ALIGN AUTO e: Log-Pwr	TRAC	PM Jul 03, 2020 E 1 2 3 4 5 6 E WWWWWW	Frequency
10 dB/div		f Offset 13	IF	NO: Fast 🔸 Gain:Low	#Atten: 20			Δ	Mkr3 3.	750 ms 0.00 dB	Auto Tune
10.0 0.00	••••	***	****	142	304			****		, pa,	Center Fred 2.441000000 GHz
20.0 30.0 40.0											Start Free 2.441000000 GH
50.0 60.0 -70.0		When		H-SM(P)			parsetury		- WARNER		Stop Free 2.441000000 GH
enter 2. tes BW	1.0 N	IHz	SHz	#VBW	7 3.0 MHz	FUM	TION	Sweep 1	5.00 ms (pan 0 Hz 1001 pts)	CF Ste 1.000000 MH <u>Auto</u> Ma
1 Δ2 2 F 3 Δ4	1		2.2	95 ms (Δ) 50 ms 50 ms (Δ) 50 ms	1.17 0.29 dE 0.00 0.29 dE	dB Sm dB					Freq Offse 0 H
7 8 9 10 11											
*								STATUS		•	

Dwell Time_8DPSK_3M_DH5_2480MHz

🚺 Agilent Spectrum /	Analyzer - Swept SA								
	50 Q DC	GH7	SEN	ISE:INT	A Vg Type:	LIGN AUTO	TRAC	M Jul 06, 2020	Frequency
Re	f Offset 13.2 dB	PNO: Fast	#Atten: 2			Δ	Mkr3 3.	765 ms	Auto Tune
10 dB/div Re 10.0 0.00	ef 20.00 dBm		1 <u>42</u> 30	4				/.06 dB	Center Freq 2.48000000 GHz
-20.0 -30.0 -40.0	Xa								Start Freq 2.480000000 GHz
-50.0 -60.0 -70.0	- GANA		ka n ya/		anatae			wit-u	Stop Freq 2.480000000 GHz
Center 2.480 Res BW 1.0 M	AHz	#VBV	V 3.0 MHz	FUNCTION		weep 1	S 5.00 ms (1 FUNCTIO	. /	CF Step 1.000000 MHz Auto Man
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(Δ) (Δ)	2.895 ms (Δ) 3.105 ms 3.765 ms (Δ) 3.105 ms	18.25 -17.38 dE 17.06 -17.38 dE	dB 3m dB					Freq Offset 0 Hz
9 10 11 *					+	STATUS		,	

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

t (886-2) 2299-3279

で解す方式明明、此報告結果僅對測试之様品負責・同時此様品僅保留別天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues In socument is issued by the Company subject to its General Conditions on Service printed overlear, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

iwan Ltd.



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

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

~ End of Report ~

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

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

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