



# FCC CERTIFICATION REPORT

## Canada ISED ICES-003 TEST REPORT

Test Report No. : MH/2018/40078

Applicant : Quanta Computer Inc.

Address : No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C.)

Manufacturer : Quanta Computer Inc.

Address : No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C.)

### Equipment Under Test (EUT) :

Product Name : QTAX53

Brand Name : N/A

Model No. : QTAX53

Added Model(s) : N/A

Standards : FCC Part 15:2017, Subpart B, Class B  
Canada ICES-003 Issue 6(June 2016), Class B

Date of Receipt : Apr. 16, 2018

Date of Test : Apr. 16 ~ 18, 2018

Date of Issue : Apr. 27, 2018

Test Result :	PASS
---------------	------

In the configuration tested, the EUT complied with the standards specified above.

### Remarks :

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report shall not be reproduced except in full, without the written approval of the laboratory. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Tested By:

*Thomas Liu*

Date:

Apr. 27, 2018

Thomas Liu (Engineer)

Approved By:

*Bill Cheng*

Date:

Apr. 27, 2018

Bill Cheng (Section Manager)



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

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

SGS Taiwan Ltd.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

[www.tw.sgs.com](http://www.tw.sgs.com)

Member of SGS Group



## Revision History

Report Number	Revision	Description	Issue Date
MH/2018/40078	Rev.00	Initial creation of document	Apr. 27, 2018

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

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



# Contents

<b>1. GENERAL INFORMATION.....</b>	<b>4</b>
1.1 APPLICANT & MANUFACTURER INFORMATION .....	4
1.2 GENERAL DESCRIPTION OF EUT .....	4
1.3 DETAILS OF EUT .....	5
1.4 THE WORST CASE OF THE EUT .....	5
1.5 DESCRIPTION OF SUPPORT UNITS .....	6
1.6 OPERATION PROCEDURE .....	6
1.7 MODIFICATION LIST .....	6
1.8 TEST SET-UP CONFIGURATION.....	7
1.9 ACCESSORIES CABLE LIST .....	7
1.10 MEASUREMENT PROCEDURE .....	8
1.11 STANDARDS APPLICABLE FOR TESTING.....	8
1.12 SUMMARY OF RESULTS .....	8
<b>2. EMISSION .....</b>	<b>9</b>
2.1 TEST RESULTS .....	9
2.2 FREQUENCY RANGE.....	9
2.3 LIMITS OF CONDUCTED AND RADIATED EMISSION .....	9
2.3.1 LIMITS OF CONDUCTED EMISSION .....	9
2.3.2 LIMITS OF RADIATED EMISSIONS .....	10
2.4. TEST OF CONDUCTED EMISSION.....	11
2.4.1 TEST EQUIPMENTS .....	11
2.4.2 OPERATING ENVIRONMENT .....	11
2.4.3 MEASUREMENT LEVEL CALCULATION.....	11
2.4.4 MEASUREMENT DATA:.....	12
2.5 TEST OF RADIATED EMISSION.....	14
2.5.1 TEST EQUIPMENTS .....	14
2.5.2 OPERATING ENVIRONMENT .....	15
2.5.3 MEASUREMENT LEVEL CALCULATION.....	15
2.5.4 MEASUREMENT DATA.....	16

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

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



# 1. General Information

## 1.1 Applicant & Manufacturer Information

Applicant : Quanta Computer Inc.  
Address : No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377,  
Taiwan (R.O.C.)  
Manufacturer : Quanta Computer Inc.  
Address : No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377,  
Taiwan (R.O.C.)

## 1.2 General Description of EUT

Product Name : QTAX53  
Brand Name : N/A  
Model No. : QTAX53  
Added Model(s) : N/A  
Model Difference : N/A

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

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



### 1.3 Details of EUT

Power Supply	AC100~240V	
Highest operate description	1.094GHz	
Adapter	PIE	AD2083320
Adapter Power Rating	I/P: 100-240VAC, 50-60Hz, 0.2A O/P: 5VDC, 1.2A	
DC Power Cable Type	Unshielded, 0.8m (Detachable) at Power Adapter	
Memory	4GB	
eMMC	6GB	
CPU	QCT	MSM8909W (1.094GHz)
LCD Panel	ADT	H130BLK01.3
Battery	EVE	B672426GP01
USB Cradle	PIC	P82131A-17
WLAN+BT	QCT	WCN3620
GPS	QCT	WTR2965

#### Pre-test Mode

Mode 1: PC Link+USB Dock+Video Play

Mode 2: Adapter+USB Dock+Video Play

Mode 3: Watch Only+Video Play

### 1.4 The worst case of the EUT

EUT will be carried out in the worst case as followings:

Worst Case	
CE	<b>Mode 2</b>
RE	<b>Mode 1</b>

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

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



## 1.5 Description of Support Units

Mode 1, 2:

PRODUCT	MANUFACTURER	MODEL NO.	SERIAL NO.
Mouse	Logitech	M-U0026	1738HS05FGU8
Notebook	DELL	Latitude E6440	3VGS162
Printer	HP	VCVRA-1004	CN33K19J3F

## Support Equipment Used in Tested Cable

Mode 1, 2:

Cable Type	Core	Length	Shielding/Non-shielding
Mouse USB cable(2)	N/A	1.8m	Non-shielding
Printer USB cable(3)	N/A	1.8m	Non-shielding

## 1.6 Operation Procedure

Mode 1:

1. Notebook Installation ADB Driver EUT link PC.
2. Notebook executes customer-supplied test program.
3. Set continuous play video.
4. Start testing.

Mode 2:

1. Set continuous play video.
2. Charger USB cable connected to adapter charging
3. Start testing.

## 1.7 Modification List

No modification was made by SGS Taiwan Electronics & Communication Laboratory.

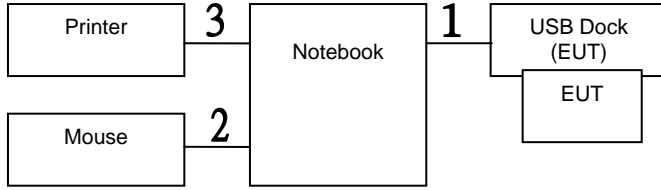
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.  
 除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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

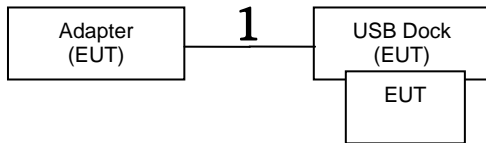


### 1.8 Test Set-Up Configuration

#### Mode 1 (RE, HRE)



#### Mode 2 (CE)



### 1.9 Accessories Cable List

See clause 1.3 of this 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 [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



### 1.10 Measurement Procedure

Conducted Emission Testing was performed according to ANSI C63.4:2014 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall.

Radiated Emission Testing was performed according to ANSI C63.4:2014 at the 3/10m semi-anechoic chamber. The EUT was placed on a 0.8m high table along with the peripherals. The turn table was placed 10m distance from the antenna. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for production of maximum emission.

The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Maximum emission levels are then reported.

### 1.11 Standards Applicable for Testing

Tests to be carried out under FCC Part 15, Subpart B/CISPR 22

Test Standards	Status
FCC Part 15, Subpart B	Applicable
Deviation from Standard	No deviation

### 1.12 Summary of Results

Standard	Test Type	Highest Emission			
		Result	Phase/Pol.	Frequency(MHz)	Margin(dB)
FCC Part 15 Subpart B Class B	Conducted Emission	PASS	Line	0.3500	-18.42 (AVG)
			Neutral	0.1540	-17.96 (QP)
Canada ICES-003 Issue 6 (June 2016),Class B	Radiated Emission	PASS	Ver.	88.0660	-8.25 (QP)

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

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





## 2. EMISSION

### 2.1 Test Results

	Results
Conducted Emission	<b>Pass</b>
Radiated Emission	<b>Pass</b>

### 2.2 Frequency Range

#### FCC Part 15, Subpart B:

Conducted Emission : 150 kHz - 30 MHz

Radiated Emission : See below table

Highest frequency generated or Upper frequency of measurement  
used in the device or on which the range (MHz)  
device operates or tunes (MHz)

Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

### 2.3 Limits of Conducted and Radiated Emission

#### 2.3.1 Limits of Conducted Emission

##### FCC Part 15, Subpart B/CISPR 22:

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi - peak	Average	Quasi - peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	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 to 0.50 MHz.

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected there to, shall not exceed the level of field strengths specified above.

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

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



**2.3.2 Limits of Radiated Emissions**

**FCC Part 15, Subpart B Limit:**

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30~88	39	40
88~216	43.5	43.5
216~960	46.44	46
Above 960	49.54	54

- Detector Function : Peak , Average

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Peak	Average	Peak	Average
Above 1000-18000	79.3	59.3	73.9	53.9

**CISPR 22 Limit:**

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30-230	40	30
230-1000	47	37

NOTE 1 The lower limit shall apply at the transition frequency.

NOTE 2 Additional provisions may be required for cases where interference occurs.

FREQUENCY (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Average	Peak	Average	Peak
1~3	56	76	50	70
3~6	60	80	54	74

NOTE The lower limit applies at the transition frequency.

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

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

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



## 2.4. Test of Conducted Emission

### 2.4.1 Test Equipments

SGS Conducted_Emission HWAYA Conducted Room No.A EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI 3	101311	2017/6/23	2018/6/22
Coaxial Cables	EMC Instruments Corp	EMCRG58-BM-BM-3000	160812	2017/8/12	2018/8/11
LISN	SCHWARZBECK	NSLK 8127	8127-648	2017/6/18	2018/6/17
Pulse Limiter	Narda S.T.S.	PMM PL01	1110X30602	2017/8/12	2018/8/11
LISN	Schwarzbeck	NSLK 8128	NSLK8128-300	2017/9/4	2018/9/3
ISN	TESEQ	ISN T800	34384	2018/4/9	2019/4/8
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory  
 No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)  
 Measurement Uncertainty of Conducted Emission  
 Expanded uncertainty U<sub>lab</sub>(K=2) of conducted emission is 2.25 dB  
 Expanded uncertainty U<sub>lab</sub>(K=2) of ISN conducted emission is 2.57 dB  
 Theory values uncertainty U<sub>cispr 16-4-2 :2011+A1\_2014</sub> (K=2) of AC mains conducted Emission is 3.44dB  
 Theory values uncertainty U<sub>cispr 16-4-2 :2011+A1\_2014</sub> (K=2) of ISN conducted Emission is 4.59dB

### 2.4.2 Operating Environment

Temperature : 21 degree C                      Humidity : 55%RH  
 Atmospheric Pressure : 992 mBar

### 2.4.3 Measurement Level Calculation

Factor = LISN insertion loss + Cable loss+ Pulse Limiter Insertion Loss

Measurement Level = Reading Level + Factor

Over (Margin) = Measurement Level – Limit

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

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



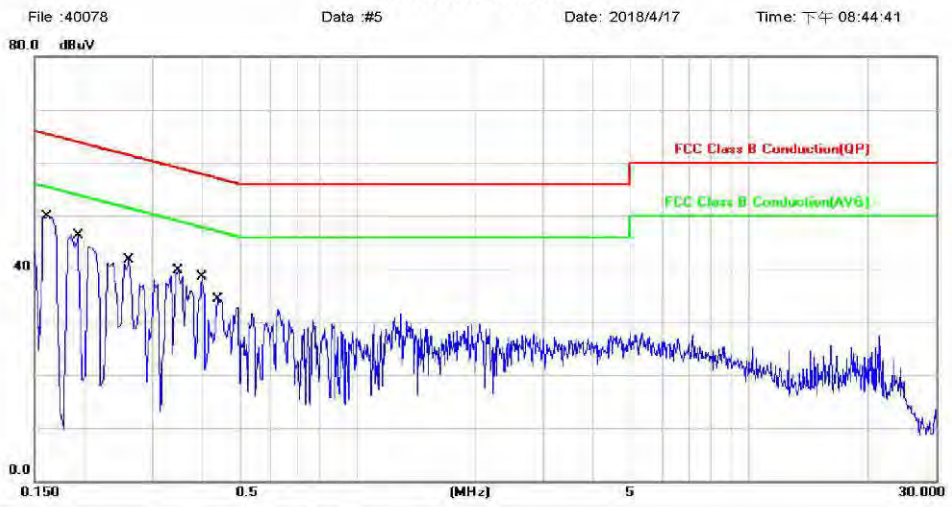
2.4.4 Measurement Data:

Model No.: QTAX53

Mode\_2\_L

Site : Conduction Room	Phase: L1	Temperature: 21 °C
Limit: FCC Class B Conduction(QP)	Power: AC 120V/60Hz	Humidity: 55 %
Mode: Mode 2		
Note:		

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1620	45.40	0.04	45.44	65.36	-19.92	QP	
2		0.1620	31.00	0.04	31.04	55.36	-24.32	AVG	
3		0.1940	41.10	0.03	41.13	63.86	-22.73	QP	
4		0.1940	26.00	0.03	26.03	53.86	-27.83	AVG	
5		0.2620	36.30	0.03	36.33	61.37	-25.04	QP	
6		0.2620	24.60	0.03	24.63	51.37	-26.74	AVG	
7		0.3500	37.80	0.04	37.84	58.96	-21.12	QP	
8 *		0.3500	30.50	0.04	30.54	48.96	-18.42	AVG	
9		0.4020	30.10	0.04	30.14	57.81	-27.67	QP	
10		0.4020	20.60	0.04	20.64	47.81	-27.17	AVG	
11		0.4420	30.40	0.04	30.44	57.02	-26.58	QP	
12		0.4420	21.40	0.04	21.44	47.02	-25.58	AVG	

\*:Maximum data x:Over limit !:over margin

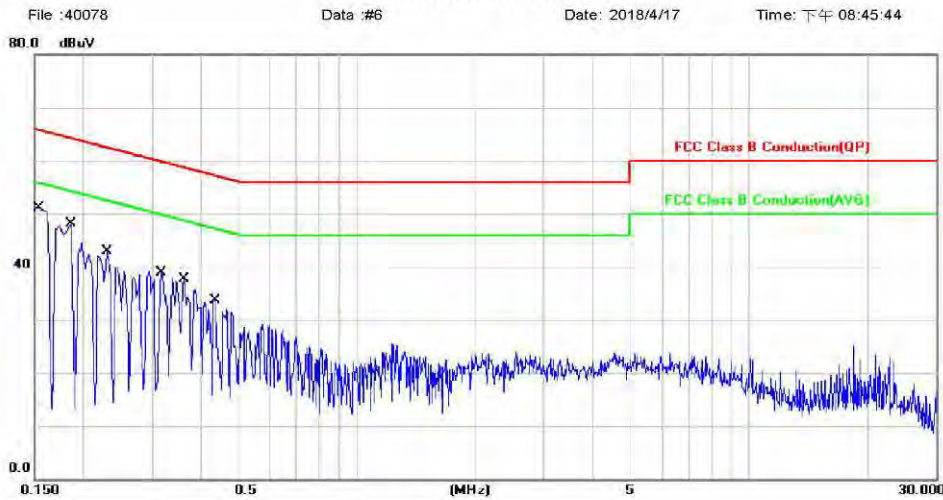
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.  
 除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。  
 This document is issued by the Company subject to its General Conditions of Service printed overleaf,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



### Mode\_2\_N

Site : Conduction Room      Phase: **N**      Temperature: 21 °C  
 Limit: FCC Class B Conduction(QP)      Power: AC 120V/60Hz      Humidity: 55 %  
 Mode: Mode 2  
 Note:

#### Conducted Emission



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	dBuV	dB	ment	dBuV	dB	Detector	Comment
1	*	0.1540	47.70	0.12	47.82	65.78	-17.96	QP	
2		0.1540	31.50	0.12	31.62	55.78	-24.16	AVG	
3		0.1860	42.70	0.11	42.81	64.21	-21.40	QP	
4		0.1860	26.80	0.11	26.91	54.21	-27.30	AVG	
5		0.2300	38.20	0.11	38.31	62.45	-24.14	QP	
6		0.2300	22.50	0.11	22.61	52.45	-29.84	AVG	
7		0.3180	33.60	0.12	33.72	59.76	-26.04	QP	
8		0.3180	19.60	0.12	19.72	49.76	-30.04	AVG	
9		0.3620	34.40	0.12	34.52	58.68	-24.16	QP	
10		0.3620	24.20	0.12	24.32	48.68	-24.36	AVG	
11		0.4340	30.40	0.12	30.52	57.18	-26.66	QP	
12		0.4340	17.40	0.12	17.52	47.18	-29.66	AVG	

\*:Maximum data    x:Over limit    !:over margin

File :40078\Data :#6

Page: 1

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

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

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



## 2.5 Test of Radiated Emission

### 2.5.1 Test Equipments

#### Below 1GHz

SGS Radiated_Below_1GHz HWAYA 10m_EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI 7	100950	2017/12/12	2018/12/11
EMI Test Receiver	R&S	ESCI 3	101343	2018/1/31	2019/1/30
Broadband Antenna	SCHWAZBECK	VULB9168	9168-628	2017/9/8	2018/9/7
Broadband Antenna	SCHWAZBECK	VULB9168	9168-629	2017/9/12	2018/9/11
Pre Amplifier	EMC Instruments Corp.	EMC330	980178	2018/3/31	2019/3/30
Pre Amplifier	EMC Instruments Corp.	EMC330	980179	2018/3/31	2019/3/30
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150917	2017/9/18	2018/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150919	2017/9/18	2018/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150820	2017/9/18	2018/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150918	2017/9/18	2018/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150821	2017/9/18	2018/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150822	2017/9/18	2018/9/17
Radio Communication Analyzer	Anritsu	MT8820C	6201465315	2017/12/10	2018/12/9
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Site NSA	Chance Most	10M Chamber	10M SAC	2017/12/31	2018/12/30
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory  
 No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)  
 Measurement Uncertainty of Radiated Emission  
 Expanded uncertainty Ulab (K=2) of radiated emission is 4.09 dB. (30MHz ~ 1000MHz)  
 Theory values uncertainty Ucispr 16-4-2:2011+A1:2014  
 (K=2) of radiated emission is 5.22 dB. (30MHz ~ 1000MHz)

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

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



## Above 1GHz

SGS Radiated_Above_1GHz HWAYA 966A EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	R&S	FSV 40	100979	2017/12/21	2018/12/20
EMI Test Receiver	R&S	ESR 7	101459	2018/2/21	2019/2/20
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA9120D673	2017/10/16	2018/10/15
Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170-184	2017/12/12	2018/12/11
Pre Amplifier	EMC Instruments Corp.	EMC012645B	980216	2017/4/25	2018/4/24
Pre Amplifier	EMC Instruments Corp.	EMC184045B	980135	2017/10/27	2018/10/26
Coaxial Cable	JUNFLOW	MWX221-NMSNMS	J0778929	2017/4/23	2018/4/22
Coaxial Cable	Huber+Suhner	SUCOFLEX 104PEA	30255/4PEA	2017/4/23	2018/4/22
Coaxial Cable	EMC Instruments	EMC104-SM-SM	140927	2017/4/23	2018/4/22
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	MY 2152/2	2017/6/5	2018/6/4
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	MY 2153/2	2017/6/5	2018/6/4
Controller	MF	MF-7802	N.C.R.	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Site VSWR	SGS	966 Chamber A	SAC-A	2018/1/12	2019/1/11
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory  
No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

## Measurement Uncertainty of Radiated Emission

Expanded uncertainty (k=2) of radiated emission measurement is 5.05 dB. (1-6GHz)

Expanded uncertainty (k=2) of radiated emission measurement is 5.07 dB. (6-18GHz)

Expanded uncertainty Ulab (k=2) of radiated emission measurement is 5.19 dB. (18-26GHz)

Expanded uncertainty Ulab (k=2) of radiated emission measurement is 5.14 dB. (26-40GHz)

Theory values uncertainty Ucispr 16-4-2:2011+A1:2014 (K=2) of radiated emission measurement is 5.18 dB.(1-6GHz)

Theory values uncertainty Ucispr 16-4-2:2011+A1:2014 (K=2) of radiated emission measurement is 5.48 dB.(6-18GHz)

Theory values uncertainty Ucispr 16-4-2:2011+A1:2014 (K=2) of radiated emission measurement is ---- dB.(18-26GHz)

Theory values uncertainty Ucispr 16-4-2:2011+A1:2014 (K=2) of radiated emission measurement is ---- dB.(26-40GHz)

## 2.5.2 Operating Environment

Temperature : 20 degree C

Humidity : 52 %RH

Atmospheric Pressure : 996 mBar

## 2.5.3 Measurement Level Calculation

Correction Factor = Antenna Factor + Cable loss- Amplifier Gain

Measurement Level = Reading Level + Correction Factor

Over (Margin) = Measurement Level – Limit

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

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

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

SGS Taiwan Ltd.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

Member of SGS Group



### 2.5.4 Measurement Data

Below 1GHz

Model No.: QTAX53

Mode\_1\_H

Site: SGS 10m Chamber	Polarization: <b>Horizontal</b>	Temperature: 20 °C
Limit: CISPR22 Class B 10M Radiation	Power: From System	Humidity: 52 %
Mode: Mode_1	Distance: 10m	
Note: PC Link+USB Dock+Video Play		

#### Radiated Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		63.9500	25.99	-12.71	13.28	30.00	-16.72	QP	
2	*	88.0700	37.18	-17.33	19.85	30.00	-10.15	QP	
3		146.4000	24.22	-11.42	12.80	30.00	-17.20	QP	
4		256.9800	28.87	-12.13	16.74	37.00	-20.26	QP	
5		924.3400	23.60	1.38	24.98	37.00	-12.02	QP	
6		980.6000	23.81	1.69	25.50	37.00	-11.50	QP	

\*:Maximum data x:Over limit !:over margin

File :MH-2018-40078\Data :#8

Page: 1

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

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





### Mode\_1\_V

Site: SGS 10m Chamber      Polarization: **Vertical**      Temperature: 20 °C  
 Limit: CISPR22 Class B 10M Radiation      Power: From System      Humidity: 52 %  
 Mode: Mode\_1      Distance: 10m  
 Note: PC Link+USB Dock+Video Play

### Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1		38.9280	30.06	-11.61	18.45	30.00	-11.55	QP	
2		51.1900	31.02	-10.79	20.23	30.00	-9.77	QP	
3	*	88.0660	38.68	-16.93	21.75	30.00	-8.25	QP	
4		153.1900	23.94	-10.73	13.21	30.00	-16.79	QP	
5		946.6500	22.78	1.48	24.26	37.00	-12.74	QP	
6		992.2400	23.07	1.66	24.73	37.00	-12.27	QP	

\*:Maximum data    x:Over limit    !:over margin

File :MH-2018-40078\Data #7

Page: 1

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

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

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



Above 1GHz

Model No.: QTAX53

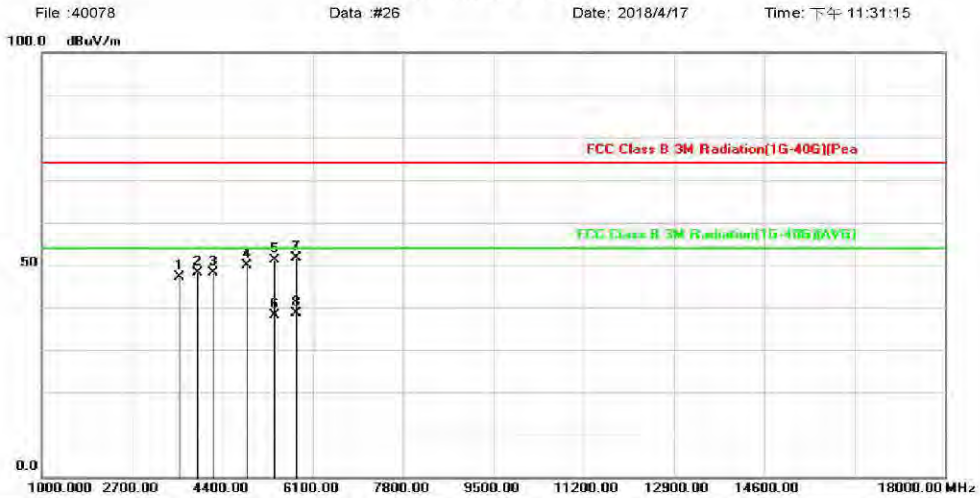
Mode\_1\_H

Site: SGS 966 Chamber A  
 Limit: FCC Class B 3M Radiation(1G-40G)(Pea)  
 Mode: Mode 1  
 Note:

Polarization: **Horizontal**  
 Power: From NB  
 Distance:

Temperature: 21 °C  
 Humidity: 65 %

**Radiated Emission**



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		3584.000	58.44	-11.25	47.19	74.00	-26.81	peak	
2		3941.000	57.94	-9.75	48.19	74.00	-25.81	peak	
3		4230.000	57.59	-9.44	48.15	74.00	-25.85	peak	
4		4859.000	57.82	-7.83	49.99	74.00	-24.01	peak	
5		5386.000	58.00	-6.89	51.11	74.00	-22.89	peak	
6		5386.000	45.00	-6.89	38.11	54.00	-15.89	AVG	
7		5794.000	57.62	-6.09	51.53	74.00	-22.47	peak	
8 *		5794.000	44.77	-6.09	38.68	54.00	-15.32	AVG	

\*:Maximum data    x:Over limit    |:over margin

File :40078\Data :#26

Page: 1

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

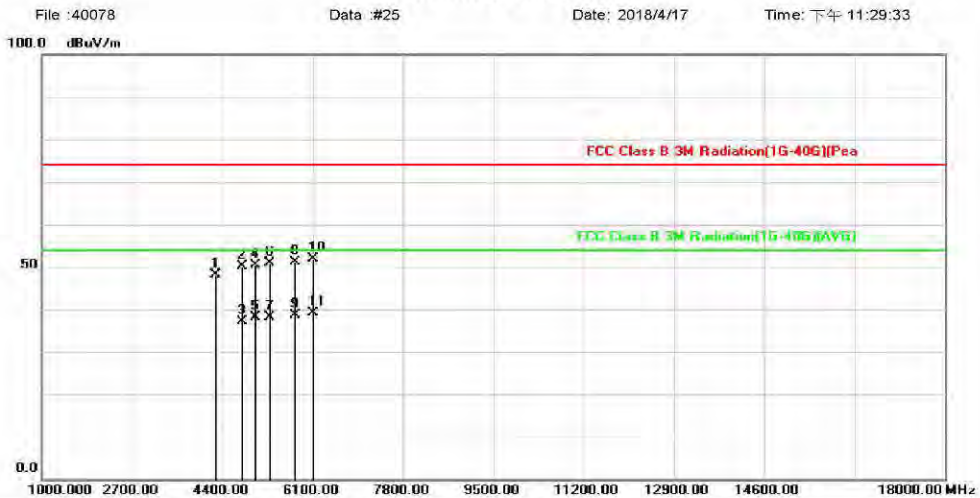
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and for electronic format documents, subject to Terms and Conditions for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



Mode\_1\_V

Site: SGS 966 Chamber A      Polarization: **Vertical**      Temperature: 21 °C  
 Limit: FCC Class B 3M Radiation(1G-40G)(Pea)      Power: From NB      Humidity: 65 %  
 Mode: Mode 1      Distance:

Radiated Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4264.000	57.64	-9.45	48.19	74.00	-25.81	peak	
2		4774.000	58.27	-8.21	50.06	74.00	-23.94	peak	
3		4774.000	45.34	-8.21	37.13	54.00	-16.87	AVG	
4		5029.000	57.63	-7.18	50.45	74.00	-23.55	peak	
5		5029.000	45.23	-7.18	38.05	54.00	-15.95	AVG	
6		5301.000	57.93	-6.96	50.97	74.00	-23.03	peak	
7		5301.000	45.10	-6.96	38.14	54.00	-15.86	AVG	
8		5777.000	57.35	-6.14	51.21	74.00	-22.79	peak	
9		5777.000	44.69	-6.14	38.55	54.00	-15.45	AVG	
10		6100.000	56.87	-4.92	51.95	74.00	-22.05	peak	
11 *		6100.000	43.94	-4.92	39.02	54.00	-14.98	AVG	

\*:Maximum data    x:Over limit    l:over margin

File :40078\Data :#25

Page: 1

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