

ELECTROMAGNETIC EMISSIONS COMPLIANCE CLASS II IV PERMISSIVE CHANGE REPORT



Applicant:	Acer Incorporated 8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181, Taiwan (R.O.C)
Product Name:	Notebook Computer
Brand Name:	acer
FCC Model No.:	N20Q10
IC Model No.:	R722T
Model Difference:	N/A
Report Number:	E2/2021/A0060
FCC ID	HLZ-QCNFA324
IC:	1754F-QCNFA324
Issue Date:	Nov.17,2021
Date of Test:	Oct.12,2021~Oct.20,2021
Date of EUT Received:	Oct.08,2021

Approved By ALMO HSIEL Arno Hsieh

Arno Hsie

We hereby certify that:

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 comply with FCC rule part §15.247, ISED RSS-247.

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

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Revision History					
Report Number	Revision	Description	Issue Date	Revised By	Remark
E2/2021/A0060	Rev.00	Original.	Nov.17,2021	Viola Su	-

Note:

- 1 . The remark "*" indicates modification of the report upon requests from certification body.
- 2 · Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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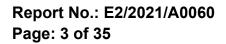




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GENERAL INFORMATION 1

1.1 Product description

Product Name of Host:	Notebook Computer
Brand Name of Host:	acer
Model No. of FCC Host:	N20Q10
Model No. of IC Host:	R722T
Hardware Version:	N/A
Software Version:	4.0.00172.0
Model No. of BT/WLAN Module:	QCNFA324
Scope:	QCNFA324 INSTALLED IN Notebook Computer
Class II & Class IV Permissive change:	The test report covers the radiated emissions requirements of the stand- ards referenced in the report to allow system level approval of the module in this specific host.
EUT Series No.:	N8AZCWW0011362465B7600
Power Supply:	11.55Vdc from Rechargeable Lithium Ion Battery Pack 5 / 9 / 12 / 15 / 20Vdc from AC/DC Adapter

1.2 RF Specification

	CCK, DQPSK, DBPSK for DSSS
Modulation type:	256 QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Deta Deta:	802.11 b: 1/2/5.5/11 Mbps
	802.11 g: 6/9/12/18/24/36/48/54 Mbps
	802.11 n_20MHz:6.5 - 144.4Mbps
Data Rate:	802.11 n_40MHz:13.5 – 300.0Mbps
	802.11 ac_20MHz:6.5 – 173.3Mbps
	802.11 ac_40MHz:13.5 – 400.0Mbps

1.3 Module Report

Test Lab	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan
	Branch Hsin Chu Laboratory.
Report Number	RF140808E04

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1.4 Antenna Designation

Antenna Type	Supplier	Antenna Part No.	Mode	Main/Aux	Freq. (MHz)	Peak An- tenna Gain (dBi)	
			Open Mode	Main	2412~2472	2.04	
DIEA		Pico (ZDGB) C		Aux	2412~2472	1.08	
PIFA	Wistron NeWeb Corp.	Wistron Neweb Corp.	Build	Tablet Mode	Main	2412~2472	1.13
				Aux	2412~2472	-0.66	

Note:

- 1. Pre-scanned was done on the above antennas, measurements were demonstrated by using the antenna with the open mode is highest gain as the worst case scenarios.
- 2. Antenna information is provided by the applicant.

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1.5 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247 FCC KDB 558074 D01 DTS Meas. Guidance v05r02 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 RSS-247 issue 2 Feb. 2017 RSS-Gen Issue 5, Amendment 2, February 2021 ANSI C63.10:2013

1.6 Test Facility

SAC 1 SAC 3 Conduction 1 Conducted 1 Conducted 2 Conducted 3 Conducted 4 Conducted 5 Conducted 6 Conduction C	TW0027	
Conducted 1 Conducted 2 Conducted 3 Conducted 3 Conducted 4 Conducted 5 Conducted 6 Conduction C	TW0027	
Conducted 1 Conducted 2 Conducted 3 Conducted 4 Conducted 5 Conducted 6 Conduction C	TW0027	
Conducted 2 Conducted 3 Conducted 4 Conducted 5 Conducted 6 Conduction C	TW0027	
Conducted 3 Conducted 4 Conducted 5 Conducted 6 Conduction C	TW0027	
Conducted 4 Conducted 5 Conducted 6 Conduction C		
Conducted 5 Conducted 6 Conduction C		
Conducted 6 Conduction C	-	
Conduction C		
~ ~ ~ ~		TW3702
SAC C		1005/02
SAC D		
SAC G	TW0028	
Conducted A		
Conducted B		
Conducted C		
Conducted D		
Conducted E		
Conducted F		
Conducted G		
	Conducted B Conducted C Conducted D Conducted E Conducted F	Conducted BTW0028Conducted CConducted DConducted EConducted F

1.7 Special Accessories

There are no special accessories used while test was conducted.

1.8 Equipment Modifications

There was no modification incorporated into the EUT.

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2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

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

2.2 EUT Exercise

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

2.3 Test Procedure

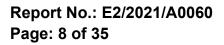
2.3.1 Radiated Emissions

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

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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*6m*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.

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2.5 Configuration of Tested System

Fig. 2-2 Radiated Setup

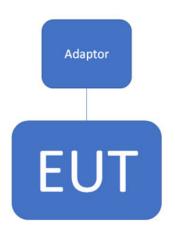


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Version
1.	QRCT	N/A	N/A	N/A	4.0.00161.0
2.	Adapter	Delta	ADP-45HG	N/A	N/A

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SUMMARY OF TEST RESULTS 3

FCC Rules	IC Rules	Description Of Test	Result
§15.247(d) §15.209	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10 RSS-Gen §6.13	Radiated Band Edge & Radiated Spurious Emission	Compliant

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DESCRIPTION OF TEST MODES 4

4.1 Operated in 2400 ~ 2483.5MHz Band

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

CHANNEL	FREQUENCY (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

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

9 channels are provided for 802.11n/ac 40M

4.2 The Worst Test Modes and Channel Details

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

The gevin UE is pre-scanned among below modes.

Modulation	Tr	ansmiss	ion Chai	Multiple Transmission Spatial	
🛛 802.11 b	⊠ Ch0	🛛 Ch1	□ Ch2	\Box Ch3	🛛 2TX
⊠ 802.11 g	🛛 Ch0	\boxtimes Ch1	□ Ch2	🗆 Ch3	⊠ 2TX
⊠ 802.11 ac	🛛 Ch0	⊠ Ch1	□ Ch2	\Box Ch3	⊠ MIMO
□ 802.11 ax	□ Ch0	\Box Ch1	\Box Ch2	\Box Ch3	

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

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4.3 Radiated Emission Test:

RADIATED EMISSION TEST (ABOVE 1 GHz)							
MODE	DATA RATE (Mbps)	ANTENNA PORT					
802.11b	1 to 11	6	DSSS	1	2TX		
802.11g	1 to 11	1,11	OFDM	6	2TX		
802.11ac (VHT20)	1 to 11	1,11	OFDM	MCS0	MIMO		
802.11ac (VHT40)	3 to 9	3,9	OFDM	MCS0	MIMO		

MEASUREMENT UNCERTAINTY 5

Test Items	Ur	ncertain	ty
Peak Output Power	+/-	1	dB
Temperature	+/-	0.4	°C
Humidity	+/-	3.5	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty						
Polarization: Vertical	+/-	2.64	dB	9kHz~30MHz		
	+/-	4.93	dB	30MHz - 1000MHz		
	+/-	4.81	dB	1GHz - 18GHz		
	+/-	4.52	dB	18GHz - 40GHz		
	+/-	2.64	dB	9kHz~30MHz		
Delevientiene Henienntel	+/-	4.45	dB	30MHz - 1000MHz		
Polarization: Horizontal	+/-	4.81	dB	1GHz - 18GHz		
	+/-	4.52	dB	18GHz - 40GHz		

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.

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RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT 6

6.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 and RSS-Gen §8.9 Table 5 and 6 limit as below.

And according to §15.33(a) (1) & RSS-Gen §6.13.2.a for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

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

Note:

1. The lower limit shall apply at the transition frequencies.

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6.2 Measurement Equipment Used:

Radiated Emission Test Site: SAC D								
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.			
Horn Antenna	Schwarzbeck	BBHA9170	184	12/11/2020	12/10/2021			
Horn Antenna	Schwarzbeck	BBHA9120D	1341	06/04/2021	06/03/2022			
3m Site NSA	SGS	966 chamber D	N/A	07/12/2021	07/11/2022			
Test Software	audix	e3	E3 20923 SGS Ver.9(C)	N.C.R	N.C.R			
Spectrum Analyzer	KEYSIGHT	N9010A	MY57120200	03/22/2021	03/21/2022			
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2020	10/26/2021			
Pre-Amplifier	EMC Instruments	EMC9135	980234	11/19/2020	11/18/2021			
Pre-Amplifier	EMC Instruments	EMC12630SE	980273	11/19/2020	11/18/2021			
Coaxial Cable	Huber+Suhner	RG 214/U	W21.01	11/19/2020	11/18/2021			
Coaxial Cable	Huber Suhner	EMC106-SM-SM- 7200	150703	11/19/2020	11/18/2021			
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17413/4	11/19/2020	11/18/2021			
Attenuator	Marvelous	WATT-218FS-10	RF17	11/19/2020	11/18/2021			
Lowpass Filter	Woken	EWT-56-0019	RF173	11/19/2020	11/18/2021			
High Pass Filter	R&S	F13 HPF 3GHz	RF175	11/19/2020	11/18/2021			
Band Rejection Filter	Micro-Tronics	BRM50701-01	RF201	11/19/2020	11/18/2021			

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

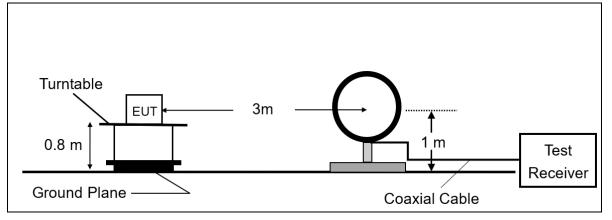
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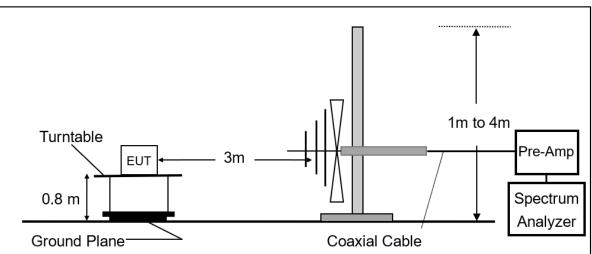


6.3 Test SET-UP

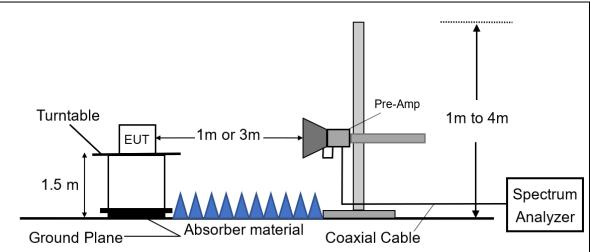
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



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



(C) Radiated Emission Test Set-Up, Frequency Above 1GHz.



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6.4 Measurement Procedure

- 1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
- 3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 5. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 6. Set the spectrum analyzer as RBW=100 kHz and VBW=300 kHz for Peak Detector (PK) at frequency between 30MHz and 1 GHz.
- 7. Use receiver mode as RBW=120 kHz for Quasi-peak (QP) at frequency between 30MHz and 1 GHz.
- 8. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- 9. 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.
- 10. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- 11. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 12. 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.
- 13. Repeat above procedures until all default test channel measured were complete.

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6.5 Field Strength Calculation

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

FS = RA + AF + CL - AG

Where FS = Field Strength

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

AF = Antenna Factor

RA = Reading Amplitude

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

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

6.6 Test Results of Radiated Spurious Emissions from 9 kHz to 30 MHz

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

6.7 Measurement Result

Note:

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

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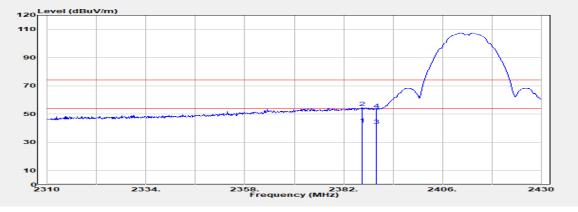
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Report No.: E2/2021/A0060 Page: 18 of 35



6.7.1 Radiated Band Edge Measurement Result

Report Number	:E2/2021/A0060	Test Site	:SAC D
Operation Mode	:802.11b	Test Date	:2021-10-20
Test Frequency	:2412 MHz	Temp./Humi.	:21.3/67
Test Mode	:BE CH LOW	Antenna Pol.	:Vertical
EUT Pol	:NB Plane	Engineer	:Jack Tseng



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2386.440	Average	50.56	-7.78	42.77	54.00	-11.23
2386.440	Peak	62.35	-7.78	54.57	74.00	-19.43
2390.000	Average	49.81	-7.89	41.92	54.00	-12.08
2390.000	Peak	61.14	-7.89	53.25	74.00	-20.75

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Report Number Operation Mode	:E2/2021/A :802.11b			Test Site Test Date	:SAC D :2021-10-20	
Test Frequency	:2412 MHz			Temp./Humi.	:21.3/67	
Test Mode	:BE CH LC	W		Antenna Pol.	:Horizontal	
EUT Pol	:NB Plane			Engineer	:Jack Tseng	
120 Level (dBuV 110 90 70 50 30 10 2310	/m)	2358. Frequen	2382 CCY (MHZ)	2406	5. 2430	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2382.240	Average	47.40	-7.65	39.75	54.00	-14.25
2382.240	Peak	62.20	-7.65	54.55	74.00	-19.45
2390.000	Average	47.96	-7.89	40.07	54.00	-13.93
2390.000	Peak	61.18	-7.89	53.29	74.00	-20.71

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·F2/2021/A0060

Report Number

Operation Mode Test Frequency Test Mode EUT Pol	:802.11b :2462MHz :BE CH HI :NB Plane	GH	ר ק	Γest Date Γemp./Humi. Antenna Pol. Engineer	:2021-10-20 :21.3/67 :Vertical :Jack Tseng	
120 Level (dBuV 110 90 70 50	//m)	24				
30 10 2450	2470.	2490. Frequen	2510. Icy (MHz)	2530	. 2550	
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500	Average	51.24	-8.15	43.09	54.00	-10.91
2483.500	Peak	60.37	-8.15	52.22	74.00	-21.78
2485.100	Average	47.48	-8.16	39.32	54.00	-14.68
2485.100	Peak	59.76	-8.16	51.60	74.00	-22.40

Test Site



·E2/2021/A0060

Report Number

-	Operation Mode Test Frequency Test Mode EUT Pol	:E2/2021// :802.11b :2462MHz :BE CH HI :NB Plane	IGH	-	Test Date Temp./Humi. Antenna Pol. Engineer	:2021-10-20 :21.3/67 :Horizontal :Jack Tseng	
	120 Level (dBu) 110 90 70	v/m)					
	50 30 10 2450	2470.	2490. Frequen	2510. Tocy (MHz)	2530	A	
	Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
_	MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
	2483.500	Average	46.14	-8.15	37.98	54.00	-16.02
	2483.500	Peak	60.66	-8.15	52.51	74.00	-21.49
	2486.700	Average	49.71	-8.16	41.55	54.00	-12.45
	2486.700	Peak	61.62	-8.16	53.46	74.00	-20.54

Test Site



Report Number Operation Mode	:E2/2021/A :802.11g	0060		est Site est Date	:SAC D :2021-10-20	
Test Frequency	:2412 MHz			emp./Humi.	:21.3/67	
•				-		
Test Mode	:BE CH LO	vv		ntenna Pol.	:Vertical	
EUT Pol	:NB Plane		E	ngineer	:Jack Tseng	
120 Level (dBu 110 90 70 50 30 10 2310	V/m)	2358. Frequer	2 2 2 2 2 2 2 2 2 3 8 2 3 8 2. 1	2400	. 2430	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
		Reading Level		FS	@3m	3 1
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2384.280	Average	49.79	-7.72	42.08	54.00	-11.92
2384.280	Peak	62.80	-7.72	55.08	74.00	-18.92
2390.000	Average	51.53	-7.89	43.64	54.00	-10.36
2390.000	Peak	62.70	-7.89	54.82	74.00	-19.18

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Report Number	:E2/2021/A0	0060		Test Site	:SAC D	
Operation Mode	:802.11g			Test Date	:2021-10-20	
Test Frequency	:2412 MHz			Temp./Humi.	:21.3/67	
Test Mode	:BE CH LOV	V		Antenna Pol.	:Horizontal	
EUT Pol	:NB Plane			Engineer	:Jack Tseng	
120 Level (dBuV 110 90 70 50 30 10 0 2310	2334.	2358. Frequen	2382 Cy (MHz)	2400		
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode F	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2388.360	Average	50.36	-7.84	42.52	54.00	-11.48
2388.360	Peak	63.82	-7.84	55.98	74.00	-18.02
2390.000	Average	51.28	-7.89	43.40	54.00	-10.60
2390.000	Peak	65.40	-7.89	57.51	74.00	-16.49



·E2/2021/A0060

Report Number

Operation Mode Test Frequency Test Mode EUT Pol	:E2/2021// :802.11g :2462 MHz :BE CH HI :NB Plane	z GH	Ti A	est Date emp./Humi. ntenna Pol.	:2021-10-20 :21.3/67 :Vertical :Jack Tseng	
120 Level (dBuV 110 90 70 50 30 10 0 2450	//m)	2490. Frequen	2510. cy (MHz)	2530	. 2550	
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500 2483.500	Average Peak	48.99 63.60	-8.15 -8.15	40.83 55.44	54.00 74.00	-13.17 -18.56
2484.000 2484.000	Average Peak	48.74 62.79	-8.15 -8.15	40.59 54.64	54.00 74.00	-13.41 -19.36
				• · · • ·		

Test Site



Report Number Operation Mode		40060		est Site est Date	:SAC D :2021-10-20	
Test Frequency	:2462 MHz	2	Te	emp./Humi.	:21.3/67	
Test Mode	:BE CH HI	GH	A	ntenna Pol.	:Horizontal	
EUT Pol	:NB Plane		E	ngineer	:Jack Tseng	
120 Level (dBu 110 90 70 50 30 10 2450	2470.	2490. Frequer	2510. ICY (MHZ)	2530). 2550	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500	Average	49.33	-8.15	41.18	54.00	-12.82
2483.500	Peak	62.53	-8.15	54.38	74.00	-19.62
2484.000	Average	49.03	-8.15	40.88	54.00	-13.12
2484.000	Peak	62.42	-8.15	54.27	74.00	-19.73



Report Number	:E2/2021/A			Test Site	:SAC D	
Operation Mode	:802.11ac2	0		Test Date	:2021-10-20	
Test Frequency	:2412 MHz			Temp./Humi.	:21.3/67	
Test Mode	:BE CH LO	W		Antenna Pol.	:Vertical	
EUT Pol	:NB Plane			Engineer	:Jack Tseng	
120 Level (dBu 110 90 70 50 30 10 2310	2334.	2358. Frequen	2382. acy (MHz)	23	3. 2430	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2388.360	Average	49.57	-7.84	41.73	54.00	-12.27
2388.360	Peak	65.25	-7.84	57.42	74.00	-16.58
2390.000	Average	50.88	-7.89	42.99	54.00	-11.01
2390.000	Peak	64.82	-7.89	56.93	74.00	-17.07

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Report Number Operation Mode	:E2/2021/A :802.11ac2			Test Site Test Date	:SAC D :2021-10-20	
Test Frequency	:2412 MHz			Temp./Humi.	:21.3/67	
				-		
Test Mode	:BE CH LO	VV		Antenna Pol.	:Horizontal	
EUT Pol	:NB Plane			Engineer	:Jack Tseng	
120 Level (dBu) 110 90 70 50 30 10 0 2310	//m)	2358. Frequent	2382. ICY (MH2)	2406	5. 2430	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
'		Reading Level		FS	@3m	0
MHz	PK/QP/AV	dBµV	dB	dBµV/m	•	dB
2389.200	Average	41.57	-7.86	33.71	54.00	-20.29
2389.200	Peak	64.76	-7.86	56.89	74.00	-17.11
2390.000	Average	41.46	-7.89	33.58	54.00	-20.42
2390.000	Peak	64.49	-7.89	56.60	74.00	-17.40



Report Number Operation Mode Test Frequency Test Mode	e :802.11ac	20 z		Test Site Test Date Temp./Humi. Antenna Pol.	:SAC D :2021-10-20 :21.3/67 :Vertical	
EUT Pol	:NB Plane			Engineer	:Jack Tseng	
120 Level (dBu 110 90 70 50 30 10 02450	V/m)	2490. Frequer	2510. CCY (MHZ)	2530	. 2550	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500	Average	50.09	-8.15	41.94	54.00	-12.06
2483.500	Peak	62.71	-8.15	54.56	74.00	-19.44
2484.500	Average	49.48	-8.15	41.32	54.00	-12.68
2484.500	Peak	64.06	-8.15	55.91	74.00	-18.09

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



·E2/2021/A0060

Report Number

Operation Mode Test Frequency Test Mode EUT Pol	:E2/2021// :802.11ac/ :2462 MH; :BE CH HI :NB Plane	20 z IGH	- - /	Test Date Temp./Humi. Antenna Pol. Engineer	:2021-10-20 :21.3/67 :Horizontal :Jack Tseng	
120 Level (dBuV 110 90 70 50 30 10 92450	2470.	2490. Frequen	2510. cy (MHz)	2530	. 2550	
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500 2483.500	Average Peak	50.43 63.98	-8.15 -8.15	42.27 55.83	54.00 74.00	-11.73 -18.17
2484.100 2484.100	Average Peak	49.97 64.87	-8.15 -8.15	41.81 56.71	54.00 74.00	-12.19 -17.29
				· -		

Test Site



:E2/2021/A0060

Report Number

	.EZ/2021//	-0000				
Operation Mode	:802.11ac4	40		Test Date	:2021-10-20	
Test Frequency	:2422 MHz	Z		Temp./Humi.	:21.3/67	
Test Mode	:BE CH LO	W		Antenna Pol.	:Vertical	
EUT Pol	:NB Plane			Engineer	:Jack Tseng	
120 Level (dBuV	//m)			1 1	_	
110						
90						
70	an sa wala significante	and the second second	-	The state of the second s		
50				13		
30						
10						
0 2310	2334.	2358. Frequer	2382. icy (MHz)	2406	5. 2430	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2388.000	Average	52.41	-7.83	44.58	54.00	-9.42
2388.000	Peak	76.81	-7.83	68.98	74.00	-5.02
2390.000	Average	52.92	-7.89	45.03	54.00	-8.97
2390.000	Peak	75.83	-7.89	67.94	74.00	-6.06

Test Site



:E2/2021/A0060

Report Number

1	. L Z / Z U Z 1 / /				-	
Operation Mode	:802.11ac4	40		Test Date	:2021-10-20	
Test Frequency	:2422 MH:	Z		Temp./Humi.	:21.3/67	
Test Mode	:BE CH LO	WC		Antenna Pol.	:Horizontal	
EUT Pol	:NB Plane	!		Engineer	:Jack Tseng	
120 Level (dBu)	V/m)					
110						
90						
70		alinen ante said and the state and the said	-	and the second second		
50				13		
30						
10						
2310	2334.	2358. Frequer	2382. icy (MHZ)	2406	5. 2430	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2388.240	Average	51.37	-7.83	43.54	54.00	-10.46
2388.240	Peak	75.75	-7.83	67.92	74.00	-6.08
2390.000	Average	51.79	-7.89	43.90	54.00	-10.10
2390.000	Peak	74.41	-7.89	66.52	74.00	-7.48

Test Site



Report Number Operation Mode	:E2/2021// :802.11ac4			est Site est Date	:SAC D :2021-10-20	
Test Frequency	:2452 MH			emp./Humi.	:21.3/67	
Test Mode	:BE CH H			ntenna Pol.	:Vertical	
EUT Pol	:NB Plane	•	E	ingineer	:Jack Tseng	
120 Level (dBuV 110 90 70 50 30 10 0 2450	2470.	2490. Frequen	2510. cy (MHz)	2530	. 2550	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	-
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500	Average	47.03	-8.15	38.87	54.00	-15.13
2483.500	Peak	66.33	-8.15	58.17	74.00	-15.83
2485.400	Average	46.92	-8.16	38.76	54.00	-15.24
2485.400	Peak	71.06	-8.16	62.90	74.00	-11.10

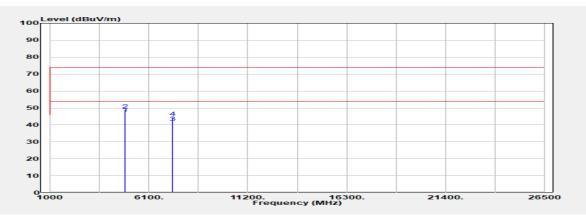


Report Number		:E2/2021/A0060			:SAC D	
Operation Mode					:2021-10-20	
Test Frequency	:2452 MH	Z	Te	emp./Humi.	:21.3/67	
Test Mode	:BE CH H	IGH	A	ntenna Pol.	:Horizontal	
EUT Pol	:NB Plane		E	ngineer	:Jack Tseng	
120 Level (dBu 110 90 70 50 30 10 2450	V/m)	2490. Frequen	2510. ccy (MHz)	2530.	Apt+4p+/ #+4+/4p+/4p+/4p+	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500	Average	47.45	-8.15	39.29	54.00	-14.71
2483.500	Peak	67.58	-8.15	59.42	74.00	-14.58
2485.000	Average	47.41	-8.16	39.26	54.00	-14.74
2485.000	Peak	70.76	-8.16	62.61	74.00	-11.39



6.7.2 Above 1GHz Emission:

Report Number	:E2/2021/A0060	Test Site	:SAC D
Operation Mode	:802.11b	Test Date	:2021-10-20
Test Frequency	:2437 MHz	Temp./Humi.	:21.3/67
Test Mode	:TX CH MID	Antenna Pol.	:Vertical
EUT Pol	:NB Plane	Engineer	:Jack Tseng



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.000	Average	49.87	-3.05	46.82	54.00	-7.18
4874.000	Peak	51.83	-3.05	48.78	74.00	-25.22
7311.000	Average	37.55	3.91	41.46	54.00	-12.54
7311.000	Peak	40.67	3.91	44.58	74.00	-29.42

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.

Chiefs Softerwise stated the results shown in this test report reter only to the 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,同時此樣品僅保留明天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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



:E2/2021/A0060

Report Number

	.EZ/2021/A	000	-			
Operation Mode	:802.11b			lest Date	:2021-10-20	
Test Frequency	:2437 MHz		Т	ſemp./Humi.	:21.3/67	
Test Mode	:TX CH MIC)	A	Antenna Pol.	:Horizontal	
EUT Pol	:NB Plane		E	Engineer	:Jack Tseng	
100 Level (dBuV	/m)		1			
90						
70						
60						
50	7 4					
40						
30 20						
10						
0	6100.	11200. Frequen	16300. cy (MHz)	2140	0. 2650	D
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
Fieq.			Facili			Margin
		Reading Level		FS	@3m	
MHz I	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	ı dB
4874.000	Average	50.87	-3.05	47.82	54.00	-6.18
4874.000	Peak	52.09	-3.05	49.03	74.00	-24.97
7311.000	Average	38.66	3.91	42.57	54.00	-11.43
7311.000	Peak	40.23	3.91	44.14	74.00	-29.86

Test Site

~ End of Report ~