FCC RADIO TEST REPORT

FCC ID	:	**HLZRXMG1**
Equipment	:	**Notebook Computer**
Brand Name	:	**ACER**
Model Name	:	**N20C7**
Applicant	:	**Acer Incorporated** **8F,. No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181, Taiwan (R.O.C)**
Manufacturer	:	**Acer Incorporated** **8F,. No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181, Taiwan (R.O.C)**
Standard	:	**FCC 47 CFR Part 2, 24(E), 27**

The product was received on Jul. 03, 2020 and testing was started from Jul. 25, 2020 and completed on Jul. 30, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FG070206C	01	Initial issue of report	Sep. 30, 2020

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	§2.1046	Conducted Output Power	-	See Note
	§22.913 (a)(2)	Effective Radiated Power (n5)	-	
	§27.50 (c)(10)	Effective Radiated Power (n71)	-	
	§24.232 (c) §27.50 (h)(2)	Equivalent Isotropic Radiated Power (n2) (n41)	-	
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (n66)		
-	§24.232 (d) §27.50 (d)(5)	Peak-to-Average Ratio	-	See Note
-	§2.1049	Occupied Bandwidth	-	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g) §27.53 (h)	Conducted Band Edge Measurement (n2) (n5) (n66) (n71)	-	See Note
	§2.1051 §27.53 (m)(4)	Conducted Band Edge Measurement (n41)		
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g) §27.53 (h)	Conducted Spurious Emission (n2) (n5) (n66) (n71)	-	See Note
	§2.1051 §27.53 (m)(4)	Conducted Spurious Emission (n41)		
-	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	-	See Note

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1053 §22.917 (a) §24.238 (a) §27.53 (g) §27.53 (h)	Radiated Spurious Emission (n2) (n5) (n66) (n71)	Pass	Under limit 13.09 dB at 7046.000 MHz
	§2.1051 §27.53 (m)(4)	Radiated Spurious Emission (n41)		

Note: The module (Model: RXM-G1) makes no difference after verifying output power, this report reuses test data from the module report.

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Lucy Wu

1 General Description

1.1 Product Feature of Equipment Under Test

WCDMA/LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac, and GNSS.

Product Specification subjective to this standard	
Antenna Type	WWAN <Ant. 0>: PIFA Antenna <Ant. 2>: PIFA Antenna WLAN <Main>: PIFA Antenna <Aux.>: PIFA Antenna Bluetooth: PIFA Antenna GPS / Glonass / BDS / Galileo : Copule Antenna

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH12-HY
Test Engineer	Jack Cheng, Lance Chiang and Chuan Chu
Temperature	22.8~26.2℃
Relative Humidity	56.5~68.6%

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW0007

1.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26-2015
- ANSI / TIA-603-E
- FCC 47 CFR Part 2, 24(E), 27
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

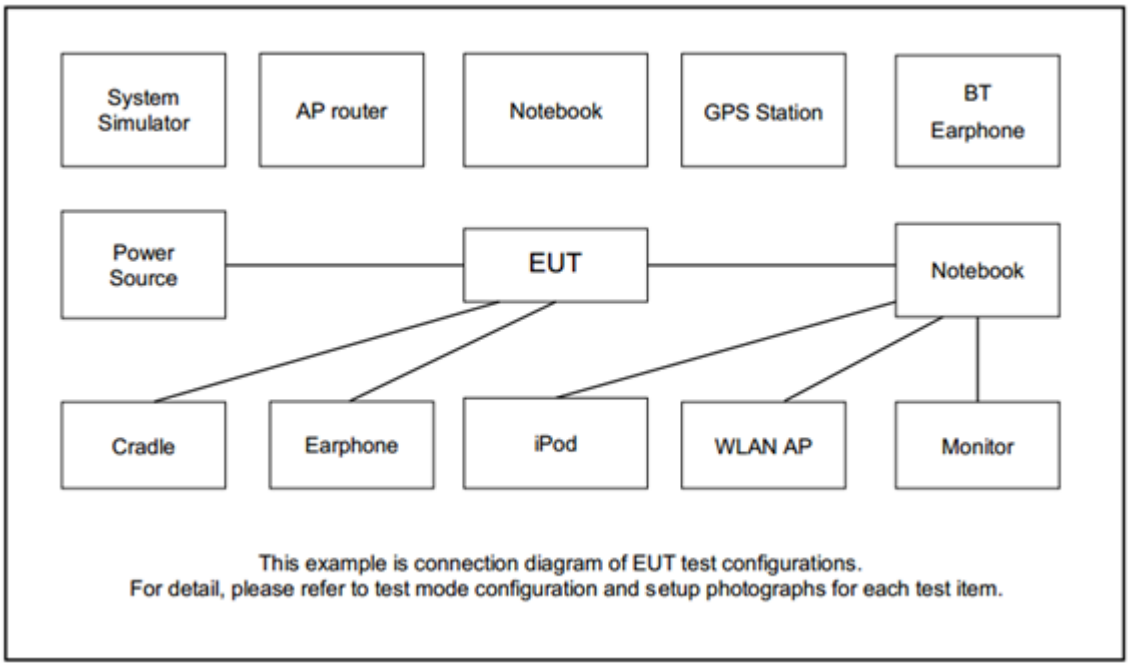
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in Tablet type (three orthogonal panels, X, Y, Z) and Notebook Mode. The worst cases (Y plane for 5G NR n2 ; Notebook Mode for 5G NR n41, n66) were recorded in this report.

Test Items	NR Band	Bandwidth (MHz)						Modulation					RB #			Test Channel		
		5	10	15	20	40	50	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Radiated Spurious Emission	n2				v	-	-	v					v			v		
	n66				v	-	-	v					v					v
Remark	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 1GHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. Test combination is EN-DC 5A-n2A, EN-DC 48A-n66A. 5. For radiated measurement, pre-scanned in two modes, DFT-s OFDM and CP OFDM. The worst cases (DFT-s OFDM) were recorded in this report.																	

Test Items	NR Band	Bandwidth (MHz)									Modulation					RB #			Test Channel		
		10	15	20	40	50	60	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Radiated Spurious Emission	n41									v			v			v					v
Remark	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 1GHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. Test combination is EN-DC 26A-n41. 5. For radiated measurement, pre-scanned in two modes, DFT-s OFDM and CP OFDM. The worst cases (CP-OFDM) were recorded in this report.																				

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0m	N/A
2.	5G Wireless Test Platform	Keysight	UXM 5G	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

5G NR Band n2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	372000	-	-
	Frequency	1860	-	-

5G NR Band n41 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
100	Channel	-	-	528000
	Frequency	-	-	2640

5G NR Band n66 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	-	-	354000
	Frequency	-	-	1770

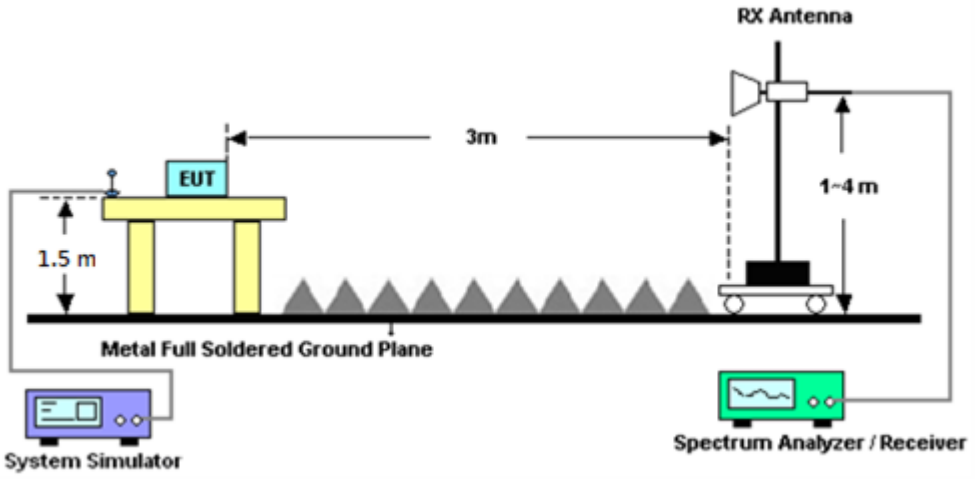
3 Radiated Test Items

3.1 Measuring Instruments

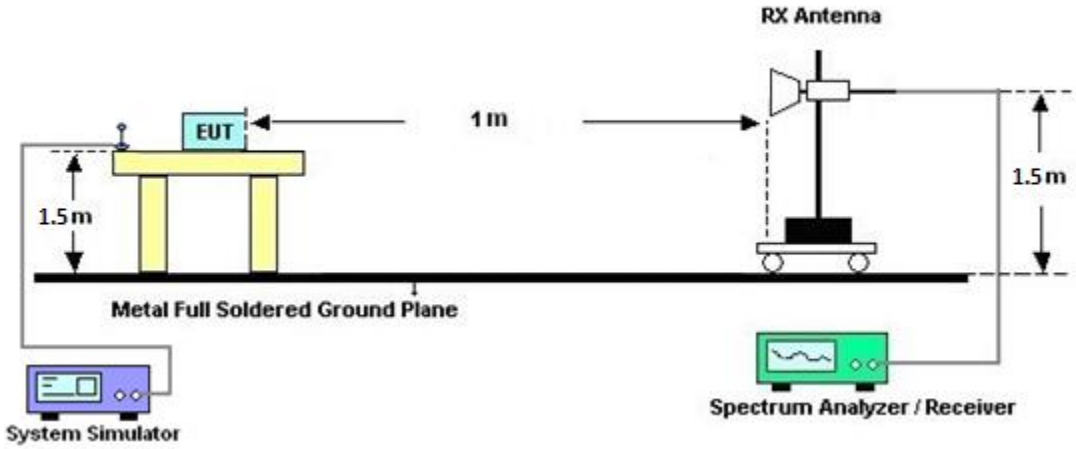
See list of measuring instruments of this test report.

3.1.1 Test Setup

For radiated test from 1GHz to 18GHz



For radiated emissions above 18GHz



3.1.2 Test Result of Radiated Test

Please refer to Appendix A.

3.2 Radiated Spurious Emission Measurement

3.2.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For 5G NR n41

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

    For 5G NR n41

    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

    EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain

    ERP (dBm) = EIRP - 2.15

4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1328	1GHz~18GHz	Nov. 14, 2019	Jul. 25, 2020~ Jul. 30, 2020	Nov. 13, 2020	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz~40GHz	Dec. 10, 2019	Jul. 25, 2020~ Jul. 30, 2020	Dec. 09, 2020	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5GHz	Mar. 26, 2020	Jul. 25, 2020~ Jul. 30, 2020	Mar. 25, 2021	Radiation (03CH12-HY)
Preamplifier	Jet-Power	JPA0118-55-303K	1710001800054002	1GHz~18GHz	Aug. 06, 2019	Jul. 25, 2020~ Jul. 30, 2020	Aug. 05, 2020	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 13, 2019	Jul. 25, 2020~ Jul. 30, 2020	Dec. 12, 2020	Radiation (03CH12-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV3044	101048	10Hz~44GHz	Apr. 29, 2020	Jul. 25, 2020~ Jul. 30, 2020	Apr. 28, 2021	Radiation (03CH12-HY)
Signal Generator	Rohde & Schwarz	SMB100A	101107	100kHz~40GHz	Aug. 27, 2019	Jul. 25, 2020~ Jul. 30, 2020	Aug. 26, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 12, 2019	Jul. 25, 2020~ Jul. 30, 2020	Dec. 11, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 25, 2020	Jul. 25, 2020~ Jul. 30, 2020	Feb. 24, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 25, 2020	Jul. 25, 2020~ Jul. 30, 2020	Feb. 24, 2021	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jul. 25, 2020~ Jul. 30, 2020	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jul. 25, 2020~ Jul. 30, 2020	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jul. 25, 2020~ Jul. 30, 2020	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jul. 25, 2020~ Jul. 30, 2020	N/A	Radiation (03CH12-HY)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.21**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.80**

Appendix A. Test Results of Radiated Test

EN-DC 5A-n2A

EN-DC 5A-n2A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3700	-51.13	-13	-38.13	-69.09	-62.34	1.41	12.62	H
	5553	-40.89	-13	-27.89	-63.79	-52.45	1.74	13.30	H
	7403	-42.54	-13	-29.54	-69.62	-51.86	1.94	11.26	H
									H
									H
									H
									H
	3700	-51.64	-13	-38.64	-69.76	-62.85	1.41	12.62	V
	5553	-39.81	-13	-26.81	-62.24	-51.37	1.74	13.30	V
	7403	-43.08	-13	-30.08	-70	-52.40	1.94	11.26	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC 48A-n66A

EN-DC 48A-n66A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Highest	3525	-37.13	-13	-24.13	-74.18	-48.28	1.37	12.52	H
	5282	-31.39	-13	-18.39	-73.37	-42.70	1.68	12.99	H
	7046	-26.09	-13	-13.09	-72.71	-36.17	1.74	11.83	H
									H
									H
									H
									H
	3525	-36.93	-13	-23.93	-74.26	-48.08	1.37	12.52	V
	5282	-31.81	-13	-18.81	-73.53	-43.12	1.68	12.99	V
	7046	-26.65	-13	-13.65	-72.82	-36.73	1.74	11.83	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC 26A-n41A

EN-DC 26A-n41A / 100MHz / 16QAM									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Highest	5190	-49.84	-25	-24.84	-71.4	-61.05	1.66	12.87	H
	7785	-46.38	-25	-21.38	-72.46	-55.51	2.03	11.16	H
	10381	-42.37	-25	-17.37	-72.51	-50.97	2.39	11.00	H
									H
									H
									H
									H
	5190	-50.36	-25	-25.36	-71.74	-61.57	1.66	12.87	V
	7785	-47.08	-25	-22.08	-72.88	-56.21	2.03	11.16	V
	10381	-42.50	-25	-17.50	-72.61	-51.10	2.39	11.00	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.