# **FCC RF Test Report**

APPLICANT : Realtek Semiconductor Corp.

No. 2,Innovation Road II, Hsinchu Science Park,

Report No.: FR3N0713E

Hsinchu 300, Taiwan

**MANUFACTURER**: Realtek Semiconductor Corp.

No. 2,Innovation Road II, Hsinchu Science Park,

Hsinchu 300, Taiwan

**EQUIPMENT**: 11ax RTL8852CE Combo module

BRAND NAME : REALTEK
MODEL NAME : RTL8852CE

FCC ID : TX2-RTL8852CE

STANDARD : FCC Part 15 Subpart E §15.407

CLASSIFICATION: 15E 6 GHz Low Power Dual Client (6CD)

TEST DATE(S) : Dec. 13, 2023

The product was inside of Lenovo Notebook Computer: (Brand Name: Lenovo, Model name: Yoga Pro 7 14AHP9, Yoga Pro 7 14AHP9\*\*\*\*\*\*\*(The"\*"in model name can be 0 to 9,A to Z,a to z,"-", blank,or any symbol, for marketing use only, with no impact on RF compliance of the product)) during the test, only RSE test items are verified in this report, all the other test results are leveraged from module RF report.

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

JasonJia

ilac-MRA



Approved by: Jason Jia

Sporton International Inc. (Kunshan)

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

Sporton International Inc. (Kunshan)

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# History of this test report

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Report No.	Version	Description	Issued Date
FR3N0713E	01	Initial issue of report	Dec. 27, 2023

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 : Dec. 27, 2023

Report Template No.: BU5-FR15EWL AC MA Version 2.0

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### **Summary of Test Result**

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.403(i)	26dB Emission Bandwidth	Reporting only	1
-	15.407(a)(10)	99% Occupied Bandwidth	Pass	1
-	15.407(a)(8)	Maximum Conducted Output Power	Reporting only	1
-	- 15.407(a)(8) Fundamental Maximum EIRP		Pass	1
-	15.407(a)(8)	(a)(8) Fundamental Power Spectral Density		1
-	15.407(b)(6)	In-Band Emissions (Channel Mask)	Pass	1
-	15.407(d)(6)	Contention Based Protocol	Pass	1
3.1	15.407(b)	Unwanted Emissions	Pass	Under limit 2.53 dB at 7125.01 MHz
-	15.207	5.207 AC Conducted Emission		1
3.2	15.203 15.407(a)	Antenna Requirement	Pass	-

Remark 1: The test items were leveraged from module RF report which can refer to Report No. FR1N0223-01

#### **Conformity Assessment Condition:**

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or
  in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of
  non-compliance that may potentially occur if measurement uncertainty is taken into account.
- 2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

#### Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

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# 1 General Description

### 1.1 Product Feature of Equipment Under Test

Product Feature					
Equipment 11ax RTL8852CE Combo module					
Brand Name	REALTEK				
Model Name	RTL8852CE				
FCC ID	TX2-RTL8852CE				
S/N Code	Radiation: YX07TYMK				
EUT Stage	Identical Prototype				

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

### 1.2 Product Specification of Equipment Under Test

Standards-re	Standards-related Product Specification					
	U-NII-5: 5925 MHz ~ 6425 MHz					
Ty/Py Fraguency Pange	U-NII-6: 6425 MHz ~ 6525 MHz					
Tx/Rx Frequency Range	U-NII-7: 6525 MHz ~ 6875 MHz					
	U-NII-8: 6875 MHz ~ 7125 MHz					
	Sample 1:					
	<ant. 1="">:</ant.>					
	5925 MHz ~ 6425 MHz: PIFA Antenna / 3.79 dBi					
	6425 MHz ~ 6525 MHz: PIFA Antenna / 3.26 dBi					
	6525 MHz ~ 6875 MHz: PIFA Antenna / 3.87 dBi					
	6875 MHz ~ 7125 MHz: PIFA Antenna / 3.62 dBi					
	<ant. 2="">:</ant.>					
	5925 MHz ~ 6425 MHz: PIFA Antenna / 3.43 dBi					
	6425 MHz ~ 6525 MHz: PIFA Antenna / 3.62 dBi					
	6525 MHz ~ 6875 MHz: PIFA Antenna / 3.23 dBi					
Antenna Type / Gain	6875 MHz ~ 7125 MHz: PIFA Antenna / 3.79 dBi					
Antenna Type / Gam	Sample 2:					
	<ant. 1="">:</ant.>					
	5925 MHz ~ 6425 MHz: PIFA Antenna / 3.51 dBi					
	6425 MHz ~ 6525 MHz: PIFA Antenna / 2.63 dBi					
	6525 MHz ~ 6875 MHz: PIFA Antenna / 3.18 dBi					
	6875 MHz ~ 7125 MHz: PIFA Antenna / 2.98 dBi					
	<ant. 2="">:</ant.>					
	5925 MHz ~ 6425 MHz: PIFA Antenna / 3.34 dBi					
	6425 MHz ~ 6525 MHz: PIFA Antenna / 3.45 dBi					
	6525 MHz ~ 6875 MHz: PIFA Antenna / 3.69 dBi					
	6875 MHz ~ 7125 MHz: PIFA Antenna / 3.20 dBi					
Type of Modulation	802.11ax : OFDM (BPSK / QPSK / 16QAM / 64QAM /					
1 ype of infodulation	256QAM / 1024QAM)					

**Remark:** There are two samples under test, sample 1 with AWAN antenna and sample 2 with INPAQ antenna.

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#### 1.3 Modification of EUT

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

### 1.4 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)						
	No. 1098, Pengxi North Road, Kunshan Economic Development Zone						
Test Site Location	Jiangsu Province 215300 People's Republic of China						
	TEL: +86-512-57900158						
	Sporton Site No.	FCC Designation No.	FCC Test Firm				
Test Site No.	Sporton Site No.	rcc besignation No.	Registration No.				
	03CH06-KS	CN1257	314309				

#### 1.5 Test Software

	Item	Site	Manufacture	Name	Version
I	1.	03CH06-KS	AUDIX	E3	6.2009-8-24al

### 1.6 Applicable Standards

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

- FCC Part 15 Subpart E
- FCC KDB 987594 D02 U-NII 6 GHz EMC Measurement v02r01
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

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# 2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

### 2.1 Carrier Frequency and Channel

<U-NII-5, 6, 7, 8>

	Channal	1	5	9	13	17	21	25	29	
BW 20M	Channel	1						25		
	Freq. (MHz)	5955	5975	5995	6015	6035	6055	6075	6095	
DW 40M	Channel	3 11			1	19		2	27	
BW 40M	Freq. (MHz)	59	65	60	05	60	45	60	85	
BW 80M	Channel		-	7			2	3		
DAA OOIAI	Freq. (MHz)		59	85			60	65		
BW 160M	Channel				1	5				
BW 160IVI	Freq. (MHz)				60	25				
DW 0014	Channel	33	37	41	45	49	53	57	61	
BW 20M	Freq. (MHz)	6115	6135	6155	6175	6195	6215	6235	6255	
DIAL AOM	Channel	3	5	43		51		59		
BW 40M	Freq. (MHz)	61	25	6165		6205		6245		
BW 80M	Channel	39				55				
DAA OOIAI	Freq. (MHz)		61	45		6225				
BW 160M	Channel	47								
DAA LOOIAI	Freq. (MHz)	6185								
	Channel	65	69	73	77	81	85	89	93	
BW 20M	Freq. (MHz)	6275	6295	6315	6335	6355	6375	6395	6415	
	Channel	6	7	75		83		91		
BW 40M	Freq. (MHz)	62	85	63	25	6365		6405		
DW 0084	Channel		7	1			8	7		
BW 80M	Freq. (MHz)		63	05			63	85		
DW 460M	Channel				7	9				
BW 160M	Freq. (MHz)				63	45				

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BW 20M	Channel	97	101	105	109	113	117	121	125		
DVV ZUIVI	Freq. (MHz)	6435	6455	6475	6495	6515	6535	6555	6575		
BW 40M	Channel	99		107		115		123			
DVV 40IVI	Freq. (MHz)	64	45	64	85	65	25	65	65		
BW 80M	Channel		10	)3			11	19			
DVV OOIVI	Freq. (MHz)		64	65		65	45				
BW 160M	Channel				11	11					
BW 100III	Freq. (MHz)				65	05					
BW 20M	Channel	129	133	137	141	145	149	153	157		
DVV ZUIVI	Freq. (MHz)	6595	6615	6635	6655	6675	6695	6715	6735		
BW 40M	Channel	13	31	13	39	14	7	15	55		
DVV 40IVI	Freq. (MHz)	66	05	66	45	668	35	67	25		
BW 80M	Channel		13	35			15	51			
DAA OOIAI	Freq. (MHz) 6625				67	05					
BW 160M	Channel		143								
DVV 100W	Freq. (MHz)				66	65					
D14/ 0014	Channel	161	165	169	173	177	181	185	189		
BW 20M	Freq. (MHz)	6755	6775	6795	6815	6835	6855	6875	6895		
DW 40M	Channel	163		171		179		187			
BW 40M	Freq. (MHz)	67	65	6805		6845		68	85		
BW 80M	Channel	167					18	183			
DAA OOIAI	Freq. (MHz)	6785						65			
BW 160M	Channel		175								
DAA LOOM	Freq. (MHz)				68	25					
	Channel	193	197	201	205	209	213	217	221		
BW 20M	Freq. (MHz)	6915	6935	6955	6975	6995	7015	7035	7055		
BW 40M	Channel	1	95	203		211		219			
DVV 4UIVI	Freq. (MHz)	69	925	69	165	70	05	70	45		
BW 80M	Channel		1	99		215					
DAA OOIAI	Freq. (MHz)		69	945			70	25			
BW 160M	Channel				20	07					
DAA LOOM	Freq. (MHz)				69	85					
	Channel		225		22	29		233			
BW 20M	Freq. (MHz)		7075		70	95		7115			
BW 40M	Channel			227							

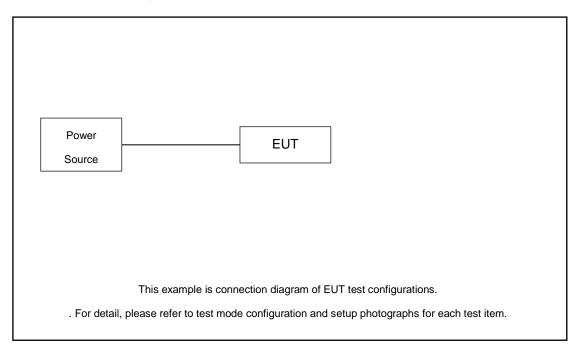
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### 2.2 Connection Diagram of Test System



### 2.3 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit.

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#### 3 Test Result

#### 3.1 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

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#### 3.1.1 Limit of Unwanted Emissions

(1) For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz.

EIRP (dBm)	Field Strength at 3m (dBµV/m)
- 27 (RMS)	68.2
- 7 (Peak)	88.2

Unwanted emissions outside of restricted bands are measured with a RMS detector. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit

(2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table:

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

**Note:** The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3}$$
 µV/m, where P is the eirp (Watts)

#### 3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

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#### 3.1.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.

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- (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
  - RBW = 120 kHz
  - VBW = 300 kHz
  - Detector = Peak
  - Trace mode = max hold
- (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
  - RBW = 1 MHz
  - VBW ≥ 3 MHz
  - Detector = Peak
  - Sweep time = auto
  - Trace mode = max hold
- (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
  - RBW = 1 MHz
  - VBW = 10 Hz, when duty cycle is no less than 98 percent.
  - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
- 2. 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.
- 3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- 4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
- 7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

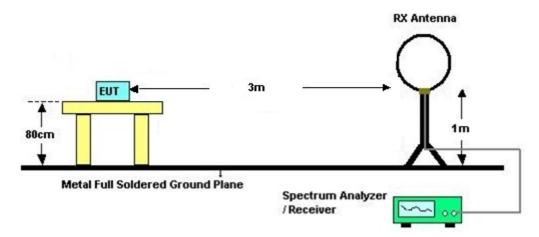
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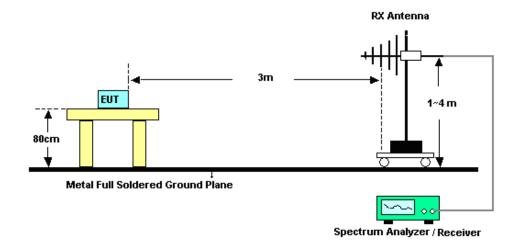
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### 3.1.4 Test Setup

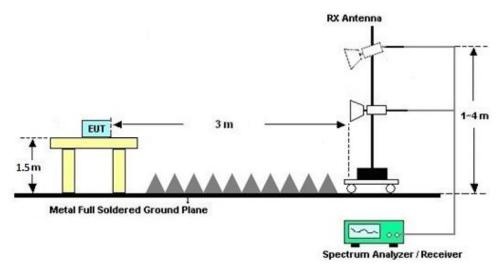
#### For radiated emissions below 30MHz



#### For radiated emissions from 30MHz to 1GHz



#### For radiated emissions above 1GHz



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#### 3.1.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 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 line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

#### 3.1.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A

#### 3.1.7 Duty Cycle

Please refer to Appendix B.

#### 3.1.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix A.

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### 3.2 Antenna Requirements

#### 3.2.1 Standard Applicable

§15.203: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

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#### 3.2.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used. The EUT complies with the requirement of 15.203.

#### 3.2.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

For power, the directional gain GANT is set equal to the antenna having the highest gain, i.e.,

Directional gain =  $G_{ANT\,MAX}(Ant.1\ Gain, Ant.2\ Gain,...)$  + Array Gain, as following table for Power, where Array Gain = 0 dB (i.e., no array gain) for NANT  $\leq 4$ ;

For PSD, the directional gain calculation is following,

Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{Gn/20})^2 / N_{ANT}]$  dBi, as following table for PSD.

 $N_{ANT}$  = number of transmit antennas

 $N_{SS}$  = number of spatial streams. (The worst case directional gain will occur when NSS = 1)

For completely uncorrelated transmissions, directional gain is calculated as,

Directional gain = GANT MAX(Ant.1 Gain, Ant.2 Gain,...), as following table

#### Sample 1

<cdd mod<="" th=""><th>es&gt;</th><th></th><th></th><th></th></cdd>	es>			
			DG	DG
			for	for
	Ant. 1	Ant. 2	Power	PSD
	(dBi)	(dBi)	(dBi)	(dBi)
UNII-5	3.79	3.43	3.79	6.62
UNII-6	3.26	3.62	3.62	6.45
UNII-7	3.87	3.23	3.87	6.57
UNII-8	3.62	3.79	3.79	6.72

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#### Sample 2

<cdd modes=""></cdd>									
			DG	DG					
			for	for					
	Ant. 1	Ant. 2	Power	PSD					
	(dBi)	(dBi)	(dBi)	(dBi)					
UNII-5	3.51	3.34	3.51	6.44					
UNII-6	2.63	3.45	3.45	6.06					
UNII-7	3.18	3.69	3.69	6.45					
UNII-8	2.98	3.20	3.20	6.10					

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# 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A	MY564000 04	3Hz~8.5GHz;M ax 30dBm	Oct. 10, 2023	Dec. 13, 2023	Oct. 09, 2024	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY602421 26	10Hz-44GHz	Oct. 10, 2023	Dec. 13, 2023	Oct. 09, 2024	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Dec. 13, 2023	Oct. 09, 2024	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	49921	30MHz-1GHz	Apr. 09, 2023	Dec. 13, 2023	Apr. 08, 2024	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 06, 2023	Dec. 13, 2023	Apr. 05, 2024	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 08, 2023	Dec. 13, 2023	Jan. 07, 2024	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	380827	9KHz ~1GHZ	Jul. 06, 2023	Dec. 13, 2023	Jul. 05, 2024	Radiation (03CH06-KS)
Amplifier	MITEQ	EM18G40GG A	060728	18~40GHz	Jan. 05, 2023	Dec. 13, 2023	Jan. 04, 2024	Radiation (03CH06-KS)
high gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	2082395	1Ghz-18Ghz	Jan. 05, 2023	Dec. 13, 2023	Jan. 04, 2024	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY532703 19	500MHz~26.5G Hz	Oct. 10, 2023	Dec. 13, 2023	Oct. 09, 2024	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F1040900 04	N/A	NCR	Dec. 13, 2023	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Dec. 13, 2023	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Dec. 13, 2023	NCR	Radiation (03CH06-KS)

NCR: No Calibration Required

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# 5 Measurement Uncertainty

#### <u>Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)</u>

Measuring Uncertainty for a Level of Confidence	3.32 dB
of 95% (U = 2Uc(y))	3.32 UB

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#### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	6.26 dB
of 95% (U = 2Uc(y))	0.20 UB

#### <u>Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)</u>

Measuring Uncertainty for a Level of Confidence	5.02 dB
of 95% (U = 2Uc(y))	3.02 UB

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

Measuring Uncertainty for a Level of Confidence	5.00 ID
of 95% (U = 2Uc(y))	5.26 dB

----- THE END -----

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 Issued Date
 : Dec. 27, 2023

FCC ID: TX2-RTL8852CE Report Version : 01





Appendix A. Radiated Spurious Emission Test Data

Test Engineer :	liankana liana	Relative Humidity :	41 ~ 42 %
	Jiankang Jiang	Temperature :	22 ~ 23 ℃

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### **Radiated Spurious Emission Test Modes**

Mode	Band	Band (GHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark	Sample
Mode 1	U-NII-5	5.925-6.425	1+2	802.11ax HE20	1	5955	MCS0	Full	-	1
Mada 2	U-NII-8	6.875-7.125	1	802.11ax HE20	233	7115	MCS0	Full	-	1
Mode 2	U-NII-8	6.875-7.125	1	802.11ax HE20	233	7115	MCS0	_	LF	1

### Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	802.11ax HE20	1	5897.41	43.63	68.20	-24.57	Н	AVERAGE	Pass	Band Edge
'	802.11ax HE20	1	11910.00	47.68	74.00	-26.32	V	PEAK	Pass	Harmonic
	802.11ax HE20	233	7125.01	85.67	88.20	-2.53	V	PEAK	Pass	Band Edge
2	802.11ax HE20	233	14230.00	48.65	88.20	-39.55	V	PEAK	Pass	Harmonic
	802.11ax HE20	233	39.70	32.44	40.00	-7.56	V	PEAK	Pass	LF

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Mode **Band Edge** U-NII-5\_5.925-6.425\_802.11ax HE20\_CH1\_Full\_5955MHz **ANT** 1+2 Pol. Horizontal **Fundamental** 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 97.5 97.5 81.3 65.0 65.0 48.8 Peak 32.5 325 16.3 16.3 5851. 5903. 5929. 2800. 6400. Frequency (MHz) Frequency (MHz) Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB 1 5885.32 55.81 88.20 -32.39 42.32 34.97 10.48 31.96 0.00 1 5955.00 99.72 ----- 85.97 35.22 10.55 32.02 0.00 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 81.3 81.3 65.0 48.8 Avg 32.5 32.5 16.3 16.3 5877. Frequency (MHz) 5851. 10000 5903. 5955 6400. Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor MHz dBuV/m dBuV/m dB dBuV dB/m dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB dB 1 5897.41 43.63 68.20 -24.57 30.12 34.99 10.49 31.97 0.00 114 248 AVERAGE 1 5955.00 89.32 ----- 75.59 35.20 10.54 32.01 0.00 114 248 AVERAGE

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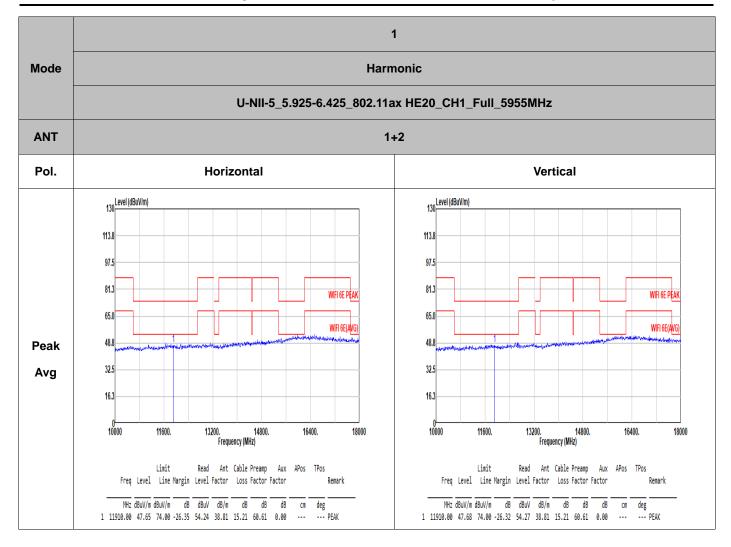
Mode **Band Edge** U-NII-5\_5.925-6.425\_802.11ax HE20\_CH1\_Full\_5955MHz **ANT** 1+2 Pol. Vertical **Fundamental** 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 97.5 97.5 WIFI 6E REA 81.3 65.0 65.0 48.8 48.8 Peak 32.5 32.5 16.3 16.3 5851. 5903. 5929. 2800. 6400. 8200. Frequency (MHz) Frequency (MHz) Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB 1 5842.81 55.85 88.20 -32.35 42.47 34.87 10.44 31.93 0.00 1 5955.00 93.62 ----- 79.87 35.22 10.55 32.02 0.00 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 81.3 81.3 65.0 48.8 Avg 32.5 32.5 16.3 16.3 5877. Frequency (MHz) 5851. 5955 10000 5903. 6400. Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor MHz dBuV/m dBuV/m dB dBuV dB/m dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB dB 1 5904.04 43.59 68.20 -24.61 30.05 35.02 10.50 31.98 0.00 300 291 AVERAGE 1 5955.00 84.69 ----- 70.96 35.20 10.54 32.01 0.00 300 291 AVERAGE

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2 **Band Edge** Mode U-NII-8\_6.875-7.125\_802.11ax HE20\_CH233\_Full\_7115MHz **ANT** 1 Pol. Horizontal **Fundamental** 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 97.5 WIFI 6E PEAK 65.0 65.0 48.8 48.8 Peak 32.5 32.5 16.3 16.3 2800. 6400. 8200. 7193. Frequency (MHz) Frequency (MHz) Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB 1 7125.01 80.27 88.20 -7.93 65.77 35.70 11.59 32.79 0.00 1 7115.00 98.19 ----- 83.69 35.70 11.58 32.78 0.00 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 97.5 81.3 81.3 48.8 32.5 Avg 16.3 16.3 7115 7141. 7219. 7245 Frequency (MHz) 10000 6400. Frequency (MHz) Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor MHz dBuV/m dBuV/m dB dBuV dB/m dB 1 7125.01 50.83 68.20 -17.37 36.33 35.70 11.59 32.79 0.00 54 Average 300 2 7126.05 46.44 68.20 -21.76 31.94 35.70 11.59 32.79 0.00 300 54 Average MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB

54 Average

3 7126.96 45.22 68.20 -22.98 30.72 35.70 11.59 32.79 0.00

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1 7115.00 88.99 ----- 74.49 35.70 11.58 32.78 0.00 300 54 AVERAGE

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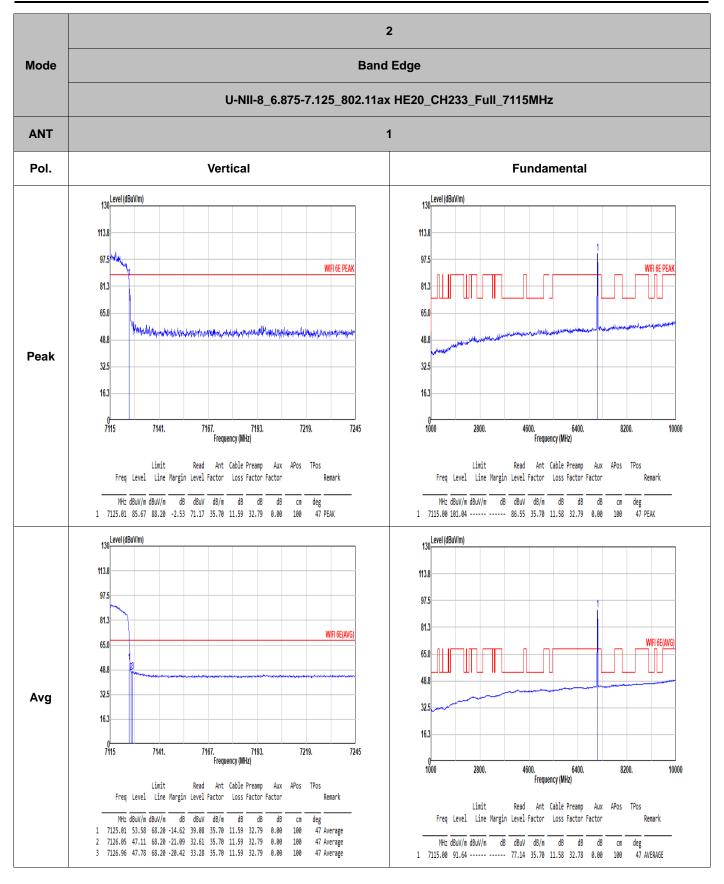
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2 Mode Harmonic U-NII-8\_6.875-7.125\_802.11ax HE20\_CH233\_Full\_7115MHz 1 **ANT** Pol. Horizontal Vertical 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 97.5 81.3 65.0 65.0 WIFI 6E(AV WIFI 6E(AVG 48.8 48.8 Peak 32.5 32.5 Avg 16.3 16.3 10000 10000 11600. 13200. 14800. 16400. 11600. 14800. 18000 Frequency (MHz) Frequency (MHz) Read Ant Cable Preamp Aux APos TPos Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB 1 14230.00 48.21 88.20 -39.99 51.83 39.13 16.68 59.43 0.00 1 14230.00 48.65 88.20 -39.55 52.27 39.13 16.68 59.43 0.00 120 Level (dBuV/m) 120 Level (dBuV/m) 105.0 105.0 90.0 90.0 75.0 75.0 Peak Avg 30.0 30.0 15.0 15.0 18000 26800. 31200. Frequency (MHz) 18000 00. 31200. Frequency (MHz) 22400. 35600. 40000 22400. 35600. 40000

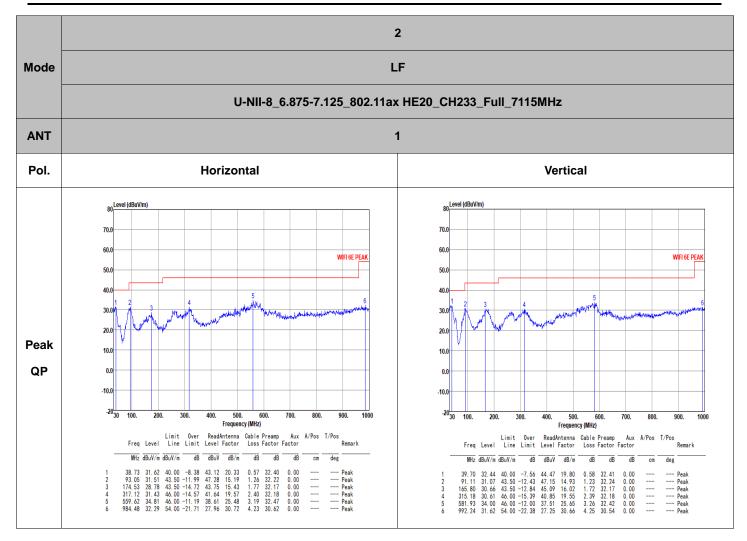
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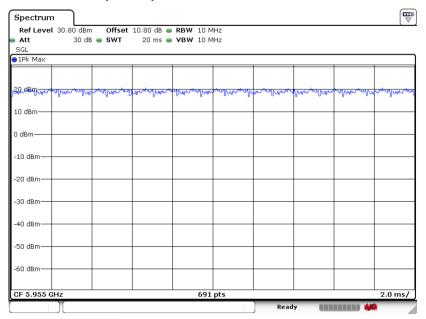
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# Appendix B. Duty Cycle Plots

Antenna	Band	Band Duty Cycle(%) T(ms)		1/T(kHz)	VBW Setting
1+2	U-NII-5 802.11ax HE20	100	-	-	10Hz
1	U-NII-8 802.11ax HE20	100	-	-	10Hz

#### 802.11ax HE20 (U-NII-5)



### 802.11ax HE20 (U-NII-8)

