1 Cover Page

RF Exposure Evaluation Report

Application No.:	KSCR2201000035AT
FCC ID:	2ADTD-DS-D5B86
IC:	20199-DSD5B86
Applicant:	Hagzhou Hikvision Digital Technology Co., Ltd.
Address of Applicant:	No.5n55 Qianmo Road,Binjiang District Hangzhou 310052,China
Manufacturer:	Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Manufacturer:	No.555 Qianmo Road,Binjiang District Hangzhou 310052,China
Factory:	1.Hangzhou Hikvision Technology Co., Ltd. 2.Hangzhou Hikvision Electronics Co., Ltd. 3.Hangzhou Hikvision Digital Technology Co., Ltd. 4.Chongqing Hikvision technology Co.,LTD
Address of Factory:	1.No.700,Dongliu Road, Binjiang District, Hangzhou Ctiy, Zhejiang, 310052, China; 2.No.299,Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou,Zhejiang,310052,China 3.No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China 4.NO.118.Haikang Road,Area C,Jianqiao Industrial Park,Dadukou District,Chongqing,401325,China.
Equipment Under Test (EUT):	
EUT Name:	Interactive Tablets
Model No.:	DS-D5B86RB/A
Add Model No.:	Refer to Page 2~3
Trade mark:	HIKVISION
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06 RSS-102 Issue 5 Amendment 1 (February 2, 2021)
Date of Receipt:	2022-01-05
Date of Test:	2022-02-23 to 2022-03-08
Date of Issue:	2022-03-09

Test Result:	**Pass***

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

Eric Lin
EMC Lab Manager

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Model No.:

DS-D5B86RB/A；DS-D5B86RB/B；DS-D5B86RB/C；DS-D5B86RD/A；DS-D5B86RD/B；DS-D5B86RD/C；DS-D5B86RO/A；DS-D5B86RO/B；DS-D5B86RO/C；DS-D5B86RG/A；DS-D5B86RG/B；DS-D5B86RG/C；DS-D5B86RM/A；DS-D5B86RM/B；DS-D5B86RM/C；DS-D5B86JRX；DS-D5B86JRY；DS-D5B86JRZ；DS-D5B86NYX；DS-D5B86NYY；DS-D5B86NYZ；DS-D5B86ZFX；DS-D5B86ZFY；DS-D5B86ZFZ；DS-D5B86GAX；DS-D5B86GAY；DS-D5B86GAZ；DS-D5B86DCX；DS-D5B86DCY；DS-D5B86DCZ；DS-D5B86RB/ZC;DS-D5B86RD/ZC;DS-D5B86XX/ZC;DS-D5B86RD/AO；DS-D5B86RD/AP；DS-D5B86RB/AO；DS-D5B86RB/AP；DS-D5B86RD/BO；DS-D5B86RD/BP；DS-D5B86RB/BO；DS-D5B86RB/BP；DS-D5B86MD/AO；DS-D5B86MD/AP；DS-D5B86MB/AO；DS-D5B86MB/AP；DS-D5B86MD/BO；DS-D5B86MD/BP；DS-D5B86MB/BO；DS-D5B86MB/BP；DS-D5B86CD/AO；DS-D5B86CD/AP；DS-D5B86CB/AO；DS-D5B86CB/AP；DS-D5B86CD/BO；DS-D5B86CD/BP；DS-D5B86CB/BO；DS-D5B86CB/BP；DS-D5B86FD/AO；DS-D5B86FD/AP；DS-D5B86FB/AO；DS-D5B86FB/AP；DS-D5B86FD/A；DS-D5B86FB/A；DS-D5B86FD/BO；DS-D5B86FD/BP；DS-D5B86FB/BO；DS-D5B86FB/BP；DS-D5B86FD/B；DS-D5B86FB/B；DS-D5C86RB/A；DS-D5C86RB/B；DS-D5C86RB/C；DS-D5C86RD/A；DS-D5C86RD/B；DS-D5C86RD/C；DS-D5C86RO/A；DS-D5C86RO/B；DS-D5C86RO/C；DS-D5C86RG/A；DS-D5C86RG/B；DS-D5C86RG/C；DS-D5C86RM/A；DS-D5C86RM/B；DS-D5C86RM/C；DS-D5C86JRX；DS-D5C86JRY；DS-D5C86JRZ；DS-D5C86NYX；DS-D5C86NYY；DS-D5C86NYZ；DS-D5C86ZFX；DS-D5C86ZFY；DS-D5C86ZFZ；DS-D5C86GAX；DS-D5C86GAY；DS-D5C86GAZ；DS-D5C86DCX；DS-D5C86DCY；DS-D5C86DCZ；DS-D5C86RB/ZC;DS-D5C86RD/ZC;DS-D5C86XX/ZC;DS-D5C86RD/AO；DS-D5C86RD/AP；DS-D5C86RB/AO；DS-D5C86RB/AP；DS-D5C86RD/BO；DS-D5C86RD/BP；DS-D5C86RB/BO；DS-D5C86RB/BP；DS-D5C86MD/AO；DS-D5C86MD/AP；DS-D5C86MB/AO；DS-D5C86MB/AP；DS-D5C86MD/BO；DS-D5C86MD/BP；DS-D5C86MB/BO；DS-D5C86MB/BP；DS-D5C86CD/AO；DS-D5C86CD/AP；DS-D5C86CB/AO；DS-D5C86CB/AP；DS-D5C86CD/BO；DS-D5C86CD/BP；DS-D5C86CB/BO；DS-D5C86CB/BP；DS-D5C86FD/AO；DS-D5C86FD/AP；DS-D5C86FB/AO；DS-D5C86FB/AP；DS-D5C86FD/A；DS-D5C86FB/A；DS-D5C86FD/BO；DS-D5C86FD/BP；DS-D5C86FB/BO；DS-D5C86FB/BP；DS-D5C86FD/B；DS-D5C86FB/B；DS-D5D86RB/A；DS-D5D86RB/B；DS-D5D86RB/C；DS-D5D86RD/A；DS-D5D86RD/B；DS-D5D86RD/C；DS-D5D86RO/A；DS-D5D86RO/B；DS-D5D86RO/C；DS-D5D86RG/A；DS-D5D86RG/B；DS-D5D86RG/C；DS-D5D86RM/A；DS-D5D86RM/B；DS-D5D86RM/C；DS-D5D86JRX；DS-D5D86JRY；DS-D5D86JRZ；DS-D5D86NYX；DS-D5D86NYY；DS-D5D86NYZ；DS-D5D86ZFX；DS-D5D86ZFY；DS-D5D86ZFZ；DS-D5D86GAX；DS-D5D86GAY；DS-D5D86GAZ；DS-D5D86DCX；DS-D5D86DCY；DS-D5D86DCZ；DS-D5D86RB/ZC;DS-D5D86RD/ZC;DS-D5D86XX/ZC;DS-D5D86RD/AO；DS-D5D86RD/AP；DS-D5D86RB/AO；DS-D5D86RB/AP；DS-D5D86RD/BO；DS-D5D86RD/BP；DS-D5D86RB/BO；DS-D5D86RB/BP；DS-D5D86MD/AO；DS-D5D86MD/AP；DS-D5D86MB/AO；DS-

D5D86MB/AP；DS-D5D86MD/BO；DS-D5D86MD/BP；DS-D5D86MB/BO；DS-D5D86MB/BP；DS-D5D86CD/AO；DS-D5D86CD/AP；DS-D5D86CB/AO；DS-D5D86CB/AP；DS-D5D86CD/BO；DS-D5D86CD/BP；DS-D5D86CB/BO；DS-D5D86CB/BP；DS-D5D86FD/AO；DS-D5D86FD/AP；DS-D5D86FB/AO；DS-D5D86FB/AP；DS-D5D86FD/A；DS-D5D86FB/A；DS-D5D86FD/BO；DS-D5D86FD/BP；DS-D5D86FB/BO；DS-D5D86FB/BP；DS-D5D86FD/B；DS-D5D86FB/B；DS-D5F86RB/A；DS-D5F86RB/B；DS-D5F86RB/C；DS-D5F86RD/A；DS-D5F86RD/B；DS-D5F86RD/C；DS-D5F86RO/A；DS-D5F86RO/B；DS-D5F86RO/C；DS-D5F86RG/A；DS-D5F86RG/B；DS-D5F86RG/C；DS-D5F86RM/A；DS-D5F86RM/B；DS-D5F86RM/C；DS-D5F86JRX；DS-D5F86JRY；DS-D5F86JRZ；DS-D5F86NYX；DS-D5F86NYY；DS-D5F86NYZ；DS-D5F86ZFX；DS-D5F86ZFY；DS-D5F86ZFZ；DS-D5F86GAX；DS-D5F86GAY；DS-D5F86GAZ；DS-D5F86DCX；DS-D5F86DCY；DS-D5F86DCZ；DS-D5F86RB/ZC;DS-D5F86RD/ZC;DS-D5F86XX/ZC;DS-D5F86RD/AO；DS-D5F86RD/AP；DS-D5F86RB/AO；DS-D5F86RB/AP；DS-D5F86RD/BO；DS-D5F86RD/BP；DS-D5F86RB/BO；DS-D5F86RB/BP；DS-D5F86MD/AO；DS-D5F86MD/AP；DS-D5F86MB/AO；DS-D5F86MB/AP；DS-D5F86MD/BO；DS-D5F86MD/BP；DS-D5F86MB/BO；DS-D5F86MB/BP；DS-D5F86CD/AO；DS-D5F86CD/AP；DS-D5F86CB/AO；DS-D5F86CB/AP；DS-D5F86CD/BO；DS-D5F86CD/BP；DS-D5F86CB/BO；DS-D5F86CB/BP；DS-D5F86FD/AO；DS-D5F86FD/AP；DS-D5F86FB/AO；DS-D5F86FB/AP；DS-D5F86FD/A；DS-D5F86FB/A；DS-D5F86FD/BO；DS-D5F86FD/BP；DS-D5F86FB/BO；DS-D5F86FB/BP；DS-D5F86FD/B；DS-D5F86FB/B；DS-D5A86RB/A；DS-D5A86RB/B；DS-D5A86RB/C；DS-D5A86RD/A；DS-D5A86RD/B；DS-D5A86RD/C；DS-D5A86RO/A；DS-D5A86RO/B；DS-D5A86RO/C；DS-D5A86RG/A；DS-D5A86RG/B；DS-D5A86RG/C；DS-D5A86RM/A；DS-D5A86RM/B；DS-D5A86RM/C；DS-D5A86JRX；DS-D5A86JRY；DS-D5A86JRZ；DS-D5A86NYX；DS-D5A86NYY；DS-D5A86NYZ；DS-D5A86ZFX；DS-D5A86ZFY；DS-D5A86ZFZ；DS-D5A86GAX；DS-D5A86GAY；DS-D5A86GAZ；DS-D5A86DCX；DS-D5A86DCY；DS-D5A86DCZ；DS-D5A86RB/ZC;DS-D5A86RD/ZC;DS-D5A86XX/ZC;DS-D5A86RD/AO；DS-D5A86RD/AP；DS-D5A86RB/AO；DS-D5A86RB/AP；DS-D5A86RD/BO；DS-D5A86RD/BP；DS-D5A86RB/BO；DS-D5A86RB/BP；DS-D5A86MD/AO；DS-D5A86MD/AP；DS-D5A86MB/AO；DS-D5A86MB/AP；DS-D5A86MD/BO；DS-D5A86MD/BP；DS-D5A86MB/BO；DS-D5A86MB/BP；DS-D5A86CD/AO；DS-D5A86CD/AP；DS-D5A86CB/AO；DS-D5A86CB/AP；DS-D5A86CD/BO；DS-D5A86CD/BP；DS-D5A86CB/BO；DS-D5A86CB/BP；DS-D5A86FD/AO；DS-D5A86FD/AP；DS-D5A86FB/AO；DS-D5A86FB/AP；DS-D5A86FD/A；DS-D5A86FB/A；DS-D5A86FD/BO；DS-D5A86FD/BP；DS-D5A86FB/BO；DS-D5A86FB/BP；DS-D5A86FD/B；DS-D5A86FB/B；DS-D5X86XX/X；DS-D5X86XX/XX；DS-D5XXXXX/XXX；DS-D5XXXXX/XXXX(“X” stands for A-Z, 0-9 or blank)

For IC Model No.:

DS-D5B86RB/A；DS-D5B86RB/B

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Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2022-03-09	/

Authorized for issue by:				
		Damon zhou **Damon Zhou / Project Engineer**		
		Eric Lin **Eric Lin / Reviewer**		

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2 Contents

Page

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3 General Information

3.1 General Description of E.U.T.

Power supply:	AC100-240V 50/60Hz
Serial Number:	G20517594
Firmware Version:	V2.1.0 build210528

3.2 Technical Specifications

BT

Antenna Gain:	5.19dBi (Provided by the manufacturer)
Antenna Type:	PCB Antenna
Bluetooth Version:	V5.0 Dual mode
Channel Spacing:	1MHz
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channels:	79
Operation Frequency:	2402MHz to 2480MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)

BLE

Antenna Gain:	5.19dBi (Provided by the manufacturer)
Antenna Type:	PCB Antenna
Bluetooth Version:	V5.0 Dual mode
Channel Spacing:	2MHz
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz

2.4G

Antenna Gain:	For Module MT7668 Ant1: -3.82dBi; (Provided by the manufacturer) Ant2: 0.97dBi (Provided by the manufacturer) Directional gain: 1.91dBi For Module RTL8812cu Ant1: 3.82dBi (Provided by the manufacturer) Ant2: -5.95dBi (Provided by the manufacturer) Directional Gain: 3.25dBi
Antenna Type:	PCB Antenna
Channel Spacing:	5MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11 802.11n(HT40):7
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz

5G

Operation Frequency:	Band	Mode	Frequency Range(MHz)	Number of channels
	UNII Band I	802.11a/n(HT20)/ac(VHT20)	5180-5240	4
		802.11n(HT40)/ac(VHT40)	5190-5230	2
		802.11ac(VHT80)	5210	1
	UNII Band III	802.11a/n(HT20)/ac(VHT20)	5745-5825	5
		802.11n(HT40)/ac(VHT40)	5755-5795	2
		802.11ac(VHT80)	5775	1
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)			
Date Rate:	802.11a:6/9/12/18/24/36/48/54Mbps 802.11n:MCS0-MCS7 802.11ac:VHT MCS0-MCS7			
Channel Spacing:	802.11a/n(HT20)/ac(VHT20): 20MHz 802.11n(HT40)/ac(VHT40): 40MHz 802.11ac(VHT80): 80MHz			
Antenna Gain:	For Module MT7668 Ant1: 2.30dBi (Provided by the manufacturer) Ant2: 0.78dBi (Provided by the manufacturer) Directional gain:4.62dBi For Module RTL8812cu Ant1: 3.06dBi (Provided by the manufacturer) Ant2: 3.60dBi (Provided by the manufacturer) Directional gain:6.35dBi			
Antenna Type:	PCB Antenna			

3.3 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L4354)

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 2541.01)

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC (Designation Number: CN1172)

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED (CAB identifier: CN0072)

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.
CAB Identifier: CN0072.

• VCCI (Member No.: 1938)

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600,C-11707, T-11499, G-10216 respectively.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to§1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

4.2 IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

• at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;

• at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);

• at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2}\ f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

• at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

For 2.4G device, the limit of worse case is 2.68 W

For 5G device,the limit of worse case is 4.53W

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report KSCR220100003501-BT

MT7668

Test Mode	Test Frequency (MHz)	Output Power (dBm)	Reading Power (mW)
GFSK	2402	3.68	2.33
	2441	4.01	2.52
	2480	3.73	2.36
π/4DQPSK	2402	6.21	4.18
	2441	6.48	4.45
	2480	6.17	4.14
8DPSK	2402	6.50	4.47
	2441	6.84	**4.83**
	2480	6.51	4.48

The Power Data is based on the RF Test Report KSCR220100003502-BLE

MT7668

Test Mode	Test Frequency (MHz)	Output Power (dBm)	Output Power (mW)
1M	2402	3.58	2.28
	2442	3.93	**2.47**
	2480	3.66	2.32

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The Power Data is based on the RF Test Report KSCR220100003503-2.4GHz

MT7668

Test Mode	Channel	Antenna 1 Power[dBm]	Antenna 2 Power[dBm]	MIMO Power[dBm]	Antenna 1 Power[mW]	Antenna 2 Power[mW]	MIMO Power[mW]
11B	2412	13.39	13.33	NA	**21.83**	**21.53**	N/A
11B	2437	12.84	12.94	NA	19.23	19.68	N/A
11B	2462	12.67	12.84	NA	18.49	19.23	N/A
11G	2412	11.36	10.12	NA	13.68	10.28	N/A
11G	2437	11.59	10.53	NA	14.42	11.30	N/A
11G	2462	11.46	10.35	NA	14.00	10.84	N/A
HT20	2412	12.13	10.18	14.27	16.33	10.42	26.73
HT20	2437	11.75	10.51	14.18	14.96	11.25	26.18
HT20	2462	10.61	9.28	13.01	11.51	8.47	20.00
HT40	2422	11.97	10.07	14.13	15.74	10.16	25.88
HT40	2437	12.26	10.68	14.55	16.83	11.69	**28.51**
HT40	2452	10.65	9.48	13.11	11.61	8.87	20.46

RTL8812cu

Test Mode	Channel	Antenna 1 Power[dBm]	Antenna 2 Power[dBm]	MIMO Power[dBm]	Antenna 1 Power[mW]	Antenna 2 Power[mW]	MIMO Power[mW]
11B	2412	12.89	12.23	NA	19.45	**16.71**	N/A
11B	2437	12.88	11.95	NA	19.41	15.67	N/A
11B	2462	12.99	12.05	NA	**19.91**	16.03	N/A
11G	2412	10.68	9.65	NA	11.69	9.23	N/A
11G	2437	10.64	9.56	NA	11.59	9.04	N/A
11G	2462	10.85	9.68	NA	12.16	9.29	N/A
HT20	2412	9.31	8.34	11.86	8.53	6.82	**15.35**
HT20	2437	9.11	8.10	11.64	8.15	6.46	14.59
HT20	2462	9.33	8.17	11.80	8.57	6.56	15.14
HT40	2422	8.58	8.01	11.31	7.21	6.32	13.52
HT40	2437	8.59	7.98	11.31	7.23	6.28	13.52
HT40	2452	8.85	7.99	11.45	7.67	6.30	13.96

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The Power Data is based on the RF Test Report KSCR220100003504-5GHz

MT7668

Test Mode	Test Channel	Antenna 1 Power[dBm]	Antenna 2 Power[dBm]	MIMO Power[dBm]	Antenna 1 Power[mW]	Antenna 2 Power[mW]	MIMO Power[mW]
11A	5180	8.93	8.46	/	7.82	7.01	/
	5200	9.04	8.30	/	8.02	6.76	/
	5240	9.26	7.92	/	8.43	6.19	/
	5745	8.33	8.91	/	6.81	**7.78**	/
	5785	7.79	8.45	/	6.01	7.00	/
	5825	7.63	8.07	/	5.79	6.41	/
HT20	5180	7.93	7.22	10.60	6.21	5.27	11.48
	5200	7.88	7.23	10.58	6.14	5.28	11.43
	5240	8.13	6.77	10.51	6.50	4.75	11.25
	5745	7.19	7.68	10.45	5.24	5.86	11.09
	5785	6.55	7.01	9.80	4.52	5.02	9.55
	5825	6.60	6.90	9.76	4.57	4.90	9.46
HT40	5190	9.05	7.15	11.21	8.04	5.19	13.21
	5230	9.15	6.96	11.20	8.22	4.97	13.18
	5755	7.46	8.18	10.85	5.57	6.58	12.16
	5795	7.51	7.53	10.53	5.64	5.66	11.30
VHT20	5180	8.43	7.31	10.92	6.97	5.38	12.36
	5200	8.38	7.28	10.88	6.89	5.35	12.25
	5240	8.57	6.89	10.82	7.19	4.89	12.08
	5745	7.58	7.76	10.68	5.73	5.97	11.69
	5785	6.91	7.21	10.07	4.91	5.26	10.16
	5825	6.63	6.97	9.81	4.60	4.98	9.57
VHT40	5190	9.66	7.60	11.76	9.25	5.75	15.00
	5230	9.80	7.16	11.69	9.55	5.20	14.76
	5755	7.96	8.32	11.15	6.25	6.79	13.03
	5795	7.32	7.72	10.53	5.40	5.92	11.30
VHT80	5210	9.83	7.38	11.79	**9.62**	5.47	**15.10**
	5775	7.65	8.12	10.90	5.82	6.49	12.30

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RTL8812cu

Test Mode	Test Channel	Antenna 1 Power[dBm]	Antenna 2 Power[dBm]	MIMO Power[dBm]	Antenna 1 Power[mW]	Antenna 2 Power[mW]	MIMO Power[mW]
11A	5180	9.17	9.90	/	8.26	9.77	/
	5200	9.48	9.69	/	8.87	9.31	/
	5240	10.65	10.31	/	11.61	10.74	/
	5745	11.42	11.33	/	13.87	13.58	/
	5785	10.95	11.68	/	12.45	14.72	/
	5825	11.95	11.15	/	15.67	13.03	/
HT20	5180	8.88	9.61	12.27	7.73	9.14	16.87
	5200	9.26	9.42	12.35	8.43	8.75	17.18
	5240	10.45	9.99	13.24	11.09	9.98	21.09
	5745	11.40	11.06	14.24	13.80	12.76	26.55
	5785	11.22	11.42	14.33	13.24	13.87	27.10
	5825	12.00	10.88	14.49	**15.85**	12.25	28.12
HT40	5190	8.44	8.68	11.57	6.98	7.38	14.35
	5230	10.29	9.98	13.15	10.69	9.95	20.65
	5755	11.78	11.81	14.81	15.07	15.17	**30.27**
	5795	11.38	11.35	14.38	13.74	13.65	27.42
VHT20	5180	7.55	10.22	12.10	5.69	10.52	16.22
	5200	7.85	10.02	12.08	6.10	10.05	16.14
	5240	9.46	10.49	13.02	8.83	11.19	20.04
	5745	10.60	11.66	14.17	11.48	14.66	26.12
	5785	11.18	11.85	14.54	13.12	**15.31**	28.44
	5825	11.47	11.32	14.41	14.03	13.55	27.61
VHT40	5190	8.50	8.73	11.63	7.08	7.46	14.55
	5230	10.38	10.24	13.32	10.91	10.57	21.48
	5755	11.79	11.77	14.79	15.10	15.03	30.13
	5795	11.50	11.38	14.45	14.13	13.74	27.86
VHT80	5210	7.24	8.29	10.81	5.30	6.75	12.05
	5775	11.43	11.81	14.63	13.90	15.17	29.04

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5.2 MPE Calculation

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

1) P (mW)

2) R = distance to the center of radiation of antenna (in meter) = 20cm

3) MPE limit = 1mW/cm²

For FCC

MT7668
For 2.4G WiFi - Antenna1:

The max. antenna gain is		-3.82	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
21.83	0.415	20	0.00180	1	Pass

For 2.4G WiFi - Antenna2:

The max. antenna gain is		0.97	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
21.53	1.250	20	0.00536	1	Pass

In MIMO mode:

Two antennas can transmit simultaneously and they are correlated.

The max. antenna gain is		1.91	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
28.51	1.552	20	0.00880	1	Pass

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For BT :

The max. antenna gain is		5.19	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
4.83	3.304	20	0.00317	1	Pass

For BLE :

The max. antenna gain is		5.19	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
2.47	3.304	20	0.00162	1	Pass

For 5G WiFi - Antenna1:

The max. antenna gain is		2.3	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
9.62	1.698	20	0.00325	1	Pass

For 5G WiFi - Antenna2:

The max. antenna gain is		0.78	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
7.78	1.197	20	0.00185	1	Pass

In MIMO mode:

Two antennas can transmit simultaneously and they are correlated.

The max. antenna gain is		4.62	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
15.1	2.897	20	0.00870	1	Pass

RTL8812cu

For 2.4G WiFi - Antenna1:

The max. antenna gain is		3.82	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
19.91	2.410	20	0.00955	1	Pass

For 2.4G WiFi - Antenna2:

The max. antenna gain is		-5.95	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
16.71	0.254	20	0.00084	1	Pass

In MIMO mode:

Two antennas can transmit simultaneously and they are correlated.

The max. antenna gain is		3.25	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
15.35	2.113	20	0.00645	1	Pass

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For 5G WiFi - Antenna1:

The max. antenna gain is		3.06	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
15.85	2.023	20	0.00638	1	Pass

For 5G WiFi - Antenna2:

The max. antenna gain is		3.6	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
15.31	2.291	20	0.00698	1	Pass

In MIMO mode:

Two antennas can transmit simultaneously and they are correlated.

The max. antenna gain is		6.35	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
30.27	4.315	20	0.02599	1	Pass

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The 2.4GHz WiFi,5GHz WiFi,BT of MT7668 and 2.4GHz WiFi,5GHz WiFi of RTL8812CU can transmit simultaneously, but the maximum rate of MPE is

0.0088/1+0.0087/1+0.0032/1+0.0096/1+0.026/1=0.0563≤1.

According to the KDB447498 section 7.2 determine the device is exclusion from SAR test

For IC:

For MT7668

For 2.4GHz WiFi SISO mode:

Antenna 1:E.I.R.P.= P*G= 0.02183<2.68W

Antenna 2:E.I.R.P.= P*G= 0.02153×1.250=0.027W<2.68W

For 2.4GHz WiFi MIMO mode: E.I.R.P.= P*G= 0.02851×1.552=0.044W<2.68W

For BT mode: E.I.R.P.= P*G= 0.00483×3.304=0.016W<2.68W

For BLE mode: E.I.R.P.= P*G= 0.00247×3.304=0.0082W<2.68W

For 5GHz WiFi SISO mode:

Antenna 1:E.I.R.P.= P*G= 0.00962×1.698=0.016W<4.53W

Antenna 2:E.I.R.P.= P*G= 0.00778×1.197=0.0093W<4.53W

For 5GHz WiFi MIMO mode: E.I.R.P.= P*G= 0.01510×2.897=0.044W<4.53W

For RTL8812CU

For 2.4GHz WiFi SISO mode:

Antenna 1:E.I.R.P.= P*G= 0.01991×2.41=0.048W<2.68W

Antenna 2:E.I.R.P.= P*G= 0.01671<2.68W

For 2.4GHz WiFi MIMO mode: E.I.R.P.= P*G= 0.01535×2.113=0.032W<2.68W

For 5GHz WiFi SISO mode:

Antenna 1:E.I.R.P.= P*G= 0.01585×2.023=0.032W<4.53W

Antenna 2:E.I.R.P.= P*G= 0.01531×2.291=0.035W<4.53W

For 5GHz WiFi MIMO mode: E.I.R.P.= P*G= 0.03027×4.315=0.06W<4.53W

The 2.4GHz WiFi,5GHz WiFi,BT of MT7668 and 2.4GHz WiFi,5GHz WiFi of RTL8812CU can transmit simultaneously, but the maximum rate of MPE is

0.044/2.68+0.044/4.53+0.016/2.68+0.048/2.68+0.06/4.53=0.063≤1.

So the device is exclusion from SAR test.

--End of the Report--

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