RF Exposure Evaluation Report

Product Name : Intel® Wi-Fi 6E AX211

Model No. : AX211D2WH

FCC ID : PD9AX211D2H

Applicant : Intel Corporation

Address : 100 Center Point Circle, Suite 200 Columbia, South Carolina 29210, USA

Date of Receipt : Apr. 06, 2022

Date of Declaration : Apr. 29, 2022

Report No. : 2240084R-RFUSMPEV02-A

Report Version : V1.0

Testing Laboratory
3023

Issued Date: Apr. 29, 2022
Report No.: 2240084R-RFUSMPEV02-A

Product Name	Intel® Wi-Fi 6E AX211	
Applicant	Intel Corporation	
Address	100 Center Point Circle, Suite 200 Columbia, South Carolina 29210, USA	
Manufacturer	Intel Corporation	
Model No.	AX211D2WH	
FCC ID.	PD9AX211D2H	
Trade Name	Intel	
Applicable Standard	KDB 447498 D01 v06	☒ Minimum test separation distance ≥ 20 cm ☐ For low power devices
Test Result	Complied	

Documented By : Jinn Chen

(Supervisor / Jinn Chen)

Tested By : Jack Hsu

(Senior Engineer / Jack Hsu)

Approved By : Tim Sung

(Manager / Tim Sung)

Revision History

Report No.	Version	Description	Issued Date
2240084R-RFUSMPEV02-A	V1.0	Initial issue of report.	Apr. 29, 2022

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Intel® Wi-Fi 6E AX211	
Trade Name	Intel	
Model No.	AX211D2WH	
FCC ID.	PD9AX211D2H	
Frequency Range	802.11b/g/n/ax	2.4GHz (2400.0-2483.5 MHz)
	802.11a/n/ac/ax	5.2GHz (5150.0-5350.0 MHz) 5.6GHz (5470.0-5725.0 MHz) 5.8GHz (5725.0-5895.0 MHz)
	802.11ax	6.0GHz (5925.0-7125.0 MHz)
	Bluetooth 5.2	2.4GHz (2400.0-2483.5 MHz)
Channel Control	Auto	
Antenna Type	PIFA Antenna	
Antenna Gain	Refer to the table “Antenna List”	

1.2. Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Intel WRF Lab	WRF-6dBi-PIFA-2.4G	PIFA Antenna	6.40 dBi for 2.4 GHz
		WRF-8dBi-PIFA-5G		8.39 dBi for 5 GHz
		WRF-8dBi-PIFA-6G		8.10 dBi for 6 GHz

1.3. Test Facility

USA	**:**	**FCC Registration Number: TW0031**
Canada	**:**	**CAB Identifier Number: TW3023 / Company Number: 26443**

Site Description	:	Accredited by TAF Accredited Number: 3023
Test Laboratory	:	DEKRA Testing and Certification Co., Ltd
Address	:	No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan
Performed Location	:	No. 6, Lane 75, Wenlin St., Linkou Dist., New Taipei City 24457, Taiwan, R.O.C.
Phone number	:	+886-2-2602-6888
Fax number	:	+886-2-2602-6881
Email address	:	info.tw@dekra.com
Website	:	http://www.dekra.com.tw

2. RF Exposure Evaluation

2.1. Standard Applicable

According to KDB 447498 D01 (7.1), A minimum test separation distance ≥ 20 cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits.

2.2. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0

2.3. Test Result of RF Exposure Evaluation

Product : Intel® Wi-Fi 6E AX211
Test Item : RF Exposure Evaluation

Bluetooth

Band	Frequency (MHz)	Conducted maximum Power (dBm)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)
BT	2480	10.62	6.40	0.0100	1

Note: The conducted output power is refer to report No.: 220117-04.TR05 and 220117-04.TR63 from the Intel.

WLAN 2.4GHz

Band	Frequency (MHz)	Conducted maximum Power (dBm)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)
2.4GHz	2442	23.07	6.40	0.1761	1

Note: The conducted output power is refer to report No.: 220117-04.TR04 from the Intel.

WLAN 5GHz

Band	Frequency (MHz)	Conducted maximum Power (dBm)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)
5GHz	5795	23.99	8.39	0.3441	1

Note: The conducted output power is refer to report No.: 220117-04.TR01, 220117-04.TR02 and 220117-04.TR03 from the Intel.

WLAN 6GHz

Band	Frequency (MHz)	Conducted maximum Power (dBm)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)
6GHz	6985	10.62	8.10	0.0148	1

Note: The conducted output power is refer to report No.: 220117-04.TR16 and 220117-04.TR17 from the Intel.

2.4. Calculations for Multi-Transsmitter

Mode	Ratios	result	Limit
BT	0.0100	0.3541	1
WLAN	0.3441		

Ratios = Power Density / Power Density Limit

Results	PASS