

RF Exposure Evaluation Report

Product Name : UNIT ASSY DA

Model No. : AH2001

FCC ID : ACJ932AH2001

Applicant : Panasonic Corporation

Address : 4261 Ikonobe-cho, Tsuzuki-ku, Yokohama-shi,
Kanagawa-ken, 224-8520, Japan

Date of Receipt : Oct. 26, 2018

Date of Declaration : Jun. 05, 2019

Report No. : 18A0361R-SAUSP03V00

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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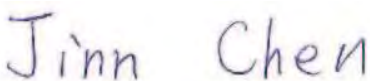
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Applicant	Panasonic Corporation
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Manufacturer	Panasonic Corporation
Model No.	AH2001
FCC ID.	ACJ932AH2001
Trade Name	Panasonic Corporation
Applicable Standard	FCC 47 CFR 1.1310
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Jinn Chen)

Tested By :



(Senior Engineer / Wen Lee)

Approved By :



(Director / Vincent Lin)

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	UNIT ASSY DA
Trade Name	Panasonic Corporation
Model No.	AH2001
FCC ID.	ACJ932AH2001
Frequency Range	2412-2462MHz for 802.11b/g/n-20MHz, 2422-2452MHz for 802.11n-40MHz 802.11a/n-20MHz: 5500-5700MHz, 5745-5825MHz 802.11n-40MHz: 5510-5670MHz, 5755-5795MHz 802.11ac-80MHz: 5530-5610MHz, 5775MHz Bluetooth: 2402 – 2480MHz
Channel Number	802.11b/g/n-20MHz: 11, n-40MHz: 7 802.11a/n-20MHz: 16; 802.11n-40MHz: 7, 802.11ac-80MHz: 3 Bluetooth: 79CH
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11a/g/n/ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) FHSS: GFSK(1Mbps) / π / 4DQPSK(2Mbps) / 8DPSK(3Mbps)
Antenna Type	PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Panasonic	Antenna1	PIFA Antenna	-1.5dBi for 2.4GHz
	Panasonic	Antenna0	PIFA Antenna	-1.3dBi for 2.4GHz(BT)
	Panasonic	Antenna0 Antenna1	PIFA Antenna	-0.7dBi for 5.47~5.725GHz -1.2dBi for 5.725~5.825GHz

2. RF Exposure Evaluation

2.1. 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: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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

2.2. Test Result of RF Exposure Evaluation

Product : UNIT ASSY DA
Test Item : RF Exposure Evaluation

WLAN 2.4G Peak Gain: -1.5dBi; WLAN 5G Peak Gain: -0.7dBi

Band	Frequency	Maximum Conducted Power (dBm)	Worst Case Duty Cycle (%)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
2.4G	2437	18.86	96.26	79.901	0.0113	1	Pass
5G	5785	13.24	88.93	23.711	0.0040	1	Pass

Note: The conducted output power is refer to report No.: 18A0361R-RFUSP26V00, 18A0361R-RFUSP42V00 from the DEKRA.

BT Peak Gain: -1.3dBi

Band	Frequency	Maximum Conducted Peak Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
1Mbps	2480	1.99	1.581	0.0002	1	Pass
3Mbps	2480	1.48	1.406	0.0002	1	Pass

Note: The conducted output power is refer to report No.: 18A0361R-RFUSP01V00 from the DEKRA.

2.3. Calculations for Multi-Transmitter

Mode	Exposure Calculations	result	Limit	Pass/Fail
WLAN 2.4G	0.0113	0.0155	1	Pass
WLAN 5G	0.0040			
BT	0.0002			