

RF Exposure Evaluation Report

Product Name : STREAMING SOUNDBAR

Model No. : AU-SNDBR-2.0-BLK

FCC ID : 2AJAAAUSNDBR20BLK

Applicant : DONGGUAN MEILOON ACOUSTIC EQUIPMENTS CO., LTD.

Address : 77, Yuanlin Road, Fenghuanggang Ind. Estate, Tangxia Town,
Guangdong Province, Dongguan City, 523727, China

Date of Receipt : Aug. 30, 2018

Date of Declaration : Dec. 24, 2018

Report No. : 1880389R-SAUSP03V00

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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Applicant	DONGGUAN MEILOON ACOUSTIC EQUIPMENTS CO., LTD.
Address	77, Yuanlin Road, Fenghuanggang Ind. Estate, Tangxia Town, Guangdong Province, Dongguan City, 523727, China
Manufacturer	Wirepath Home Systems, LLC - doing business as SnapAV
Model No.	AU-SNDBR-2.0-BLK
FCC ID.	2AJAAAUSNDBR20BLK
Trade Name	AUTONOMIC
Applicable Standard	FCC 47 CFR 1.1310
Test Result	Complied

Documented By :

April Chen

(Senior Adm. Specialist / April Chen)

Tested By :

wen Lee

(Senior Engineer / Wen Lee)

Approved By :

Vincent Lin

(Director / Vincent Lin)

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	STREAMING SOUNDBAR
Trade Name	AUTONOMIC
Model No.	AU-SNDBR-2.0-BLK
FCC ID.	2AJAAAUSNDBR20BLK
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW 802.11a/n-20MHz: 5180-5320MHz, 5500-5700MHz, 5745-5825MHz 802.11n-40MHz: 5190-5310, 5510-5670MHz, 5755-5795MHz 802.11ac-20MHz: 5720, 802.11ac-40MHz: 5710 802.11ac-80MHz: 5210-5290MHz, 5530-5690MHz, 5775MHz BT : 2402 – 2480MHz, 5.8G Wireless: 5730~5845MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7 802.11a/n-20MHz: 24; 802.11n-40MHz: 11 802.11ac-20MHz: 1, 802.11ac-40MHz: 1, 802.11ac-80MHz: 6 BT : 79, 5.8G Wireless: 16
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 150Mbps 802.11a: 6 - 54Mbps, 802.11n: up to 150Mbps, 802.11ac-80MHz: up to 433.3MHz BT : 3Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11a/n/ac: OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM FHSS: GFSK(1Mbps) / π /4DQPSK(2Mbps) / 8DPSK(3Mbps) 5.8G Wireless: GFSK
Antenna Type	PIFA Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”

1.2. Antenna List :

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Taiwan Anjie (WLAN)	AJDP1J-B0019	PIFA	3.6 dBi for 2.4 GHz 5.1dBi For 5.15~5.25GHz 5.1dBi For 5.25~5.35GHz 4.7dBi For 5.47~5.725GHz 4.9dBi For 5.725~5.825GHz
2	MAG.LAYERS (BT)	EDA-8709-2G4C1-C17	Monopole	2.31dBi for 2.4GHz
3	MEILOON (5.8G)	CSM5_V3.2	Printed on PCB	1.6 dBi for 5.725~5.85 GHz

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 : STREAMING SOUNDBAR
 Test Item : RF Exposure Evaluation

WLAN 2.4G Peak Gain: 3.6dBi

Band	Frequency	Conducted Peak Power (dBm)	Duty Cycle (%)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
802.11b	2462	18.39	98.83	69.8	0.032	1	Pass
802.11g	2462	21.33	94.00	144.5	0.066	1	Pass
802.11n20	2462	20.51	94.93	118.5	0.054	1	Pass
802.11n40	2452	19.45	83.11	106.0	0.048	1	Pass

Note: The conducted output power is refer to report No.: 1880389R-RFUSP72V00-B from the DEKRA.

WLAN 5G Peak Gain: 5.1dBi

Band	Frequency	Conducted Peak Power (dBm)	Duty Cycle (%)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
802.11a	5180	13.25	43.95	48.1	0.031	1	Pass
802.11n20	5300	10.30	42.90	25.0	0.016	1	Pass
802.11n40	5190	10.55	29.39	38.6	0.025	1	Pass
802.11ac80	5210	6.360	43.95	9.8	0.006	1	Pass

Note: The conducted output power is refer to report No.: 1880389R-RFUSP72V00-D from the DEKRA.

5.8G Wireless

Band	Frequency	Maximum H-Field power		Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
		(dBuV/3m)	(mW)			
5.8G	5785	83.741	0.07	0.00001	1	Pass

Note: The conducted output power is refer to report No.: 1880389R-RFUSP67V00 from the DEKRA.

BT Peak Gain: 2.31dBi

Band	Frequency	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	2402	7.79	6.01	0.0020	1	Pass
3Mbps	2402	6.76	4.7	0.0016	1	Pass

Note: The conducted output power is refer to report No.: 1880389R-RFUSP01V00 from the DEKRA.

2.3. Calculations for Multi-Transmitter

Mode	Exposure Calculations	result	Limit	Pass/Fail
WLAN	0.066	0.068	1	Pass
5.8G Wireless	0.00001			
BT	0.002			