FCC MPE REPORT

Certification

Applicant Name:
Universal Electronics Inc

Address:
201 East Sandpointe Ave 8th Floor
Santa Ana, CA 92707, U.S.A.

Date of Issue:
May 22, 2019
Test Site/Location:
EMCE Engineering
1726 Ringwood Avenue San Jose, California USA

Report No.: EMCE-R-1905-F004-1

FCC ID:	**MG3-I05020**
IC:	**2575A-I05020**
APPLICANT:	**Universal Electronics Inc**

Model:	I05020
Additional Model:	N/A
EUT Type:	Smart Home Hub

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

EMCE Engineering, Inc. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Steve.In
Test Engineer
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Version

TEST REPORT NO.	DATE	DESCRIPTION
EMCE-R-1905-F004	May 22, 2019	- First Approval Report
EMCE-R-1905-F004-1	June 17, 2019	- Revised antenna gain

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RF Exposure Statement

1. LIMITS

According to §1.1310 and §2.1091 RF exposure is calculated.

(B) Limits 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)
0.3 - 1.34	614	1.63	*(100)	30
1.34 - 30	824/f	2.19/f	*(180/ f^2)	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	.....	.....	f/1500	30
1500 - 100.000	.....	.....	1.0	30

F = frequency in MHz
* = Plane-wave equivalent power density

2. MAXIMUM PERMISSIBLE EXPOSURE Prediction

Prediction of MPE limit at a given distance

$S = PG/4\pi R^2$

S = Power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

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3. RESULTS

3-1. Bluetooth

Average output Power at antenna input terminal	8.77	dBm
Average output Power at antenna input terminal	7.534	mW
Prediction distance	20.000	cm
Prediction frequency	2402 ~ 2480	MHz
Antenna Gain(typical)	5.96	dBi
Antenna Gain(numeric)	3.945	-
Power density at prediction frequency(S)	0.005912	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

3-2. Zigbee

Average output Power at antenna input terminal	8.72	dBm
Average output Power at antenna input terminal	7.447	mW
Prediction distance	20.000	cm
Prediction frequency	2402 ~ 2480	MHz
Antenna Gain(typical)	5.96	dBi
Antenna Gain(numeric)	3.945	-
Power density at prediction frequency(S)	0.005844	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

3-3. DTS

Average output Power at antenna input terminal	13.55	dBm
Average output Power at antenna input terminal	22.646	mW
Prediction distance	20.000	cm
Prediction frequency	2 412 ~ 2 472	MHz
Antenna Gain(typical)	5.96	dBi
Antenna Gain(numeric)	3.945	-
Power density at prediction frequency(S)	0.017772	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

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-> Worst Case: Simultaneous MPE 20cm is

Simultaneous MPE 20cm is WLAN(2.4 GHz) (0.017772/1.0) + Bluetooth (0.005912/1.0) = 0.023684 < 1

Simultaneous MPE 20cm is WLAN(2.4 GHz) (0.017772/1.0) + Zigbee (0.005844/1.0) = 0.023616 < 1

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