APPENDIX J

: RF EXPOSURE EVALUATION

1. Microwave magnetron

1.1 Radiation Hazard Measurement

1.1.1 Limit

A maximum of 1.0 mW/cm^2 is allowed in accordance with the applicable FCC standards. Hence, microwave leakage in the as-received condition with the oven door closed was below the maximum allowed.

1.1.2 Radiation Hazard (Health) Requirement

For ISM equipment operating on higher frequencies (above 900 MHz), in particulars microwave ovens and medical diathermy equipment, radiation leakage should be measured in accordance with the current Bureau of Radiological Health standard, employing an electromagnetic radiation monitor. This test is made primarily to assure that personnel will not be exposed to radiation hazard in testing the equipment. Equipment submitted to the FCC which have radiation leakage apparently in excess of BRH limit will be reported to BRH for their evaluation. See FCC Bulletin OST 56, "Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Radiation".

1.1.3 Measurement Procedure

The EUT was set-up according to the FCC MP-5 and FCC Part 18 for Radiation Hazard Measurement. The measurement was using a microwave leakage meter to measure the Radiation leakage in the as-received condition with the oven door closed. A 1000ml water load in a beaker was located in the center of the oven and the Microwave Oven was set to maximum power. While the oven operating, the microwave meter will check the leakage and then record the maximum leakage.

1.1.4 Limit

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)
(ii) Limits for General Population/Uncontrolled Exposure				
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 – 1,500	/	/	f/1500	<30
1,500 – 100,000	**/**	**/**	**1.0**	**<30**

f = frequency in MHz. * = Plane-wave equivalent power density.

Test data for Radiation Hazard Measurement

-. Test date: Mar. 18, 2024

Maximum measure level (mW/cm$^{2)}$	Limit (mW/cm^2)	Test Result
0.15	1.0	Pass

2. Output power into antenna & RF exposure evaluation distance

BT LE

Operating Frequency (MHz)	Prediction distance (cm)	Antenna Gain (dBi)	Power Density At 20 cm(mW/cm^2)	Limits (mW/cm^2)
2 402 ~ 2 480	20	1.50	0.0016	1.0

WiFi(2.4 GHz)

Operating Frequency (MHz)	Prediction distance (cm)	Antenna Gain (dBi)	Power Density At 20 cm(mW/cm^2)	Limits (mW/cm^2)
2 412 ~ 2 462	20	1.50	0.0281	1.0

Note:

- The power density Pd (5th column) at a distance of 20 cm calculated from the friis transmission formula is far below the limit of 1 mW/cm^2
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be installed and operated with minimum 20 cm between the radiator and your body.
- The antenna gain of this transmitter is less than 6 dBi and must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.

Conclusion: No SAR is required.

3. Simultaneous transmission of RF Exposure test exclusion for worst case configuration.

RF Function	Power Density At 20 cm(mW/cm^2)	Limits (mW/cm^2)
Magnetron	0.15	1.0
BT LE	0.0016	1.0
WiFi(2.4 GHz)	0.0281	1.0

Confirm the sum result of individual MPEs ratio is ≤ 1.0;
Magnetron + BT LE + WiFi(2.4 GHz): (0.15 / 1.0) + (0.0016 / 1.0) + (0.0281 / 1.0) = 0.1797 ≤ 1.0

So, this device meets the KDB447498 D01 v06 section 7.2 requirement of “Simultaneous transmission MPE test exclusion”.