Nemko Korea Co., Ltd.

165-51, Yurim-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, 17042, Korea, Republic of
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FCC PART 18 Class II Permissive Change

Applicant :

SAMSUNG ELECTRONICS Co., Ltd.
129, Samsung-ro, Yeongtong-gu Suwon-si,
Gyeonggi-do, 443-742, Korea, Republic of
Attn : Ms. Jiyea Hong

Dates of Issue : June 05, 2024
Test Report No. : REP042551
Test Site : Nemko Korea Co., Ltd.
EMC site, Korea

FCC ID	***A3LMW8000J***
Trade Mark	SAMSUNG
Contact Person	**SAMSUNG ELECTRONICS Co., Ltd.** **129, Samsung-ro, Yeongtong-gu Suwon-si,** **Gyeonggi-do, 16677, Korea, Republic of** **Ms. Jiyea Hong** **Telephone No. : + 82 31 8062 9326**

Applied Standard :	FCC Part 18 & Part 2
Classification :	Part 18 Consumer ISM equipment
EUT Type :	Microwave Oven

The device bearing the Trade Mark and FCC ID specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in MP-5:1986.
I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

June 05, 2024
Tested By : Seunghyuk Yoo
Engineer

June 05, 2024
Reviewed By : Taegyun Kim
Technical Manager

TABLE OF CONTENTS

SCOPE

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC part 18.

Responsible Party :	SAMSUNG ELECTRONICS Co., Ltd.
Contact Person :	Ms. Jiyea Hong Tel No.: + 82 31 8062 9326
Manufacturer :	SAMSUNG ELECTRONICS Co., Ltd. 129, Samsung-ro, Yeongtong-gu Suwon-si, Gyeonggi-do, 16677, Korea, Republic of

- FCC ID: A3LMW8000J
- Model: MC12DB8700CK
- Variant Model: MC12D*8700**

Model Name	Technical Deviations From Reference Model
MC12D*8700**	First * : 0 to 9 or from A to Z (Aesthetic type) Second & Third * : 0 to 9 or from A to Z (Cosmetic color)

- EUT Type: Microwave Oven
- Trade Mark: SAMSUNG
- Serial Number: N/A
- Electric Rating: AC 120 V, 60 Hz, 1 650 W (Microwave Oven : 1 600 W)
- Tested Voltage: AC 120 V, 60 Hz
- I/O Port: AC IN
- Clock(s): 10 MHz
- Applied Standard: FCC Part 18 & Part 2
- Test Procedure(s): MP-5:1986
- Dates of Test: May 21, 2024 to May 31, 2024
- Place of Tests: Nemko Korea Co., Ltd. EMC Site
- Test Report No.: REP042551

INTRODUCTION

The measurement procedure described in MP5:1986 for Methods of Measurement of radiated, powerline conducted radio noise, frequency and power output was used in determining emissions emanating from **Samsung Electronics Co., Ltd.**
FCC ID : **A3LMW8000J, Microwave Oven.**

These measurement tests were conducted at ***Nemko Korea Co., Ltd. EMC Laboratory***.
The site address is 165-51, Yurim-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, 17042, Korea, Republic of.
The area of Nemko Korea Corporation Ltd. EMC Test Site is located in a mountain area at 80 kilometers (48 miles) southeast and Incheon International Airport (Incheon Airport), 30 kilometers (18 miles) south-southeast from central Seoul.

The Nemko Korea Co., Ltd. has been accredited as a Conformity Assessment Body (CAB).

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Fig. 1. The map above shows the Seoul in Korea vicinity area.
The map also shows Nemko Korea Corporation Ltd. EMC Lab and Incheon Airport.

ACCREDITATION AND LISTING

Accreditation type		Accreditation number
	CAB Accreditation for DOC	Designation No. KR0026
	KOLAS Accredited Lab. (Korea Laboratory Accreditation Scheme)	Registration No. KT155
Industry Canada	Canada IC Registered site	Company No. 29506
	VCCI registration site(RE/CE/Telecom CE)	Member No. 2118
	EMC CBTL	TL124
	KCC(RRL)Designated Lab.	Registration No. KR0026

EUT INFORMATION

EUT Information

Intended use	Household
Type of appliance	Counter top convection MWO
Model	MC12DB8700CK
Rated voltage & frequency	AC 120 V, 60 Hz Single Phase
Rated power output	900 W
Rated power consumption	1 600 W
Magnetron	OM-75P by Samsung
Clock Frequency	10 MHz

Component List

Item	Model	Manufacturer	Serial Number
MAGNETRON	OM-75P	Samsung	N/A
H.V TRANS	SHV-UT1136B(F)	DPC	N/A
H.V CAPACITOR	CH85-21091	Bicai	N/A
FAN MOTOR	SMB-U365A	Samsung	N/A
Control	MWO_PF3_23	Samsung	N/A

Description of the Changes according to FCC part 2.1043

Report No.	Difference
-	-

Maximum Permissible Exposure

RF Exposure Limit

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the Environmental 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)	Averaging Time (Minutes)
(A) Limits for occupational / Contral Exposure				
30 - 300	61.4	0.163	1	6
300 - 1500	…	…	F/300	6
1500 - 100000	…	…	5	6
(B) Limits for General Population / Uncontrolled Exposure				
30 - 300	27.5	0.073	0.2	30
300 - 1500	…	…	F/1500	30
1500 - 100000	…	…	1	30

F = Frequency (MHz)

Friis formula

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

$r = \sqrt{((Pout * G) / 4 * \pi * Pd)}$

Where

Pd = Power density in ㎽/㎠

Pout = Output power to antenna in ㎽

G = Gain of antenna in linear scale

π= 3.1416

r = Distance between observation point center of the radiator in cm

Pd is the limit of MPE, 1 ㎽/㎠. If we know the Maximum Gain of the antenna and the total power input to the antenna, through the calculation, we will know the Maximum distance r where the MPE limit is reached and Power density at prediction frequency.

Maximum Permissible Exposure

Calculation Result of RF exposure (FCC)

Maximum tune-up tolerance (Worst Case)

Mode	Frequency [MHz]	Max Tune-up Power [dBm]	Ant Gain [dBi]	Power density at 20 cm [mW/cm²]	Limit [mW/cm²]
BLE 1 Mbps	2 402	7.5	0.50	0.001 26	1.00
BLE 2 Mbps	2 402	7.5	0.50	0.001 26	1.00
802.11b	2 462	18.5	0.50	0.015 80	1.00
802.11g	2 437	17	0.50	0.011 19	1.00
802.11n_HT20	2 437	17	0.50	0.011 19	1.00
802.11n_HT40	2 452	16	0.50	0.008 89	1.00

DESCRIPTION OF TESTS

Radiation Hazard

A 700 ㎖ water load was placed in the center of the oven.
The power setting was set to maximum power.
While the oven was operating, the Microwave Survey Meter probe was moved slowly around the door seams to check for leakage.

TEST DATA

Radiation Hazard

Probe Location	Maximum Leakage [mW/Cm2]	Limit [mW/Cm2]
A	0.10	1.00
B	0.10	1.00
C	0.10	1.00
D	0.10	1.00
E	0.10	1.00
F	0.10	1.00
G	0.10	1.00
H	0.10	1.00

Input Power Measurement

Operation mode	P rated (W)	P (W)	dP (%)	Required dP (%)
Power Input	1 600	1 610	0.62 %	+ 15 %

Output Power Measurement

Quantity of Water [ml]	Mass of the container [g]	Ambient temperature [℃]	Initial temperature [℃]	Final temperature [℃]	Heating time [s]	Power output [W]
1 000	433.5	20.5	10.0	19.7	47	860.1

Formula :

$$P = \frac{4.187 \times m_w \times (T_1 - T_0) + 0.55 \times m_c \times (T_1 - T_A)}{t}$$

NOTE :

P is the microwave power output (W)

m_w is the mass of the water (g)

m_c is the mass of the container (g)

T_A is the ambient temperature (℃)

T_0 is the initial temperature of the water (℃)

T_1 is the final temperature of the water (℃)

t is the heating time (s), excluding the magnetron filament heating-up time.

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