

**1. Report of Measurement conducted by TOSHIBA  
( With TOSHIBA Magnetron of 2M248 )**

**▶ FCC ID : C5F7NF12MO1100 ◀**

# TOSHIBA

TOSHIBA HOKUTO ELECTRONICS CORPORATION

MAGNETRON ENGINEERING DEPARTMENT

1975, 23-CHOME, MINAMI 5-JODORI, ASAHIKAWA-SHI, HOKKAIDO, 078-8335,

JAPAN PHONE: (0166)31-4728 FACSIMILE: (0166)31-4739

Mr. Byeong-Jun Kim  
Research Manager  
Microwave Oven  
R & D Center  
DAEWOO ELECTRONICS Co., LTD.  
#412-2, Chongchon 2-Dong,  
Pupyong-Ku, Incheon,  
KOREA

April 30, 1999  
(Ref. No. : 99-074)

RE : Electromagnetic radiation from microwave oven KOR-122QP  
with Toshiba magnetron 2M248

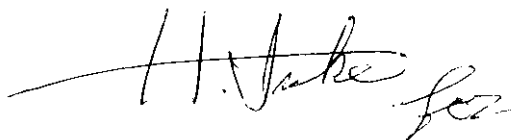
Dear Mr. Kim

We are enclosing herewith the above mentioned test results based on FCC measuring method in our measuring facility of FCC file number 430A.

We confirmed test results are satisfied with FCC limit.

Please feel free to contact us, if you have any question or request.

Sincerely yours,



Hiromasa Shoji  
Manager  
Magnetron Application Engineering  
Magnetron Engineering Department

SY/IS/us

cc : Mr. Murata TOSHIBA TOKYO  
Mr. Ikegami TOSHIBA HOKUTO TOKYO

## ELECTROMAGNETIC RADIATION TEST OF MICROWAVE OVEN

The following measurements were conducted in Toshiba Hokuto Electronics Corporation measurement facility of FCC file number 430A.

Date : 1999-4-20  
Oven : KOR-122QP  
Tube : 2M248  
Line : 120V/60Hz

### 1. Output power (Load : 1000ml water (center))

Input power : 1500W  
Output power : 1100W  
\* Permissible FIS =  $37.1 \mu\text{V/m}$  at 300m  
(FIS : Field Intensity Strength)

### 2. Power Leak (Load : 275ml water (center))

Po leak :  $0.15 \text{ mW/cm}^2$

### 3. FIS measurements

Measurement equipment (Refer Page-4)

Interference analyzer : EMC-60 MK-IV (Bandwidth : 5MHz)  
Antenna : CA-S, CA-M and CA-X

#### 3-1 Side band radiation (Load : 700ml water (center))

| Frequency (MHz) | FIS ( $\mu\text{V/m}$ ) at 300m |
|-----------------|---------------------------------|
| 2,398           | 10                              |
| 2,503           | 9.4                             |

#### 3-2 Harmonics radiation

| Harmonics | Load         | FIS( $\mu\text{V/m}$ )<br>at 300m | Frequency<br>(MHz) |
|-----------|--------------|-----------------------------------|--------------------|
| 2nd       | 700ml side   | 4.8                               | 4,435              |
| 3rd       | 300ml side   | 16.8                              | 6,910              |
| 4th       | 700ml center | 9.3                               | 10,245             |

Note : 2nd and 3rd Harmonics : The maximum value with the load condition such as 300ml or 700ml water in the center or side position

#### 4. Frequency measurements

Measurement equipment (Refer Page-4)

Interference analyzer : EMC-60 MK-IV (Bandwidth : 5MHz)

Antenna : CA-S, CA-M and CA-X

4-1 The variation of frequency for load variation ( Load : 1000ml water center)

| Volume of water (ml) | Frequency (MHz) |
|----------------------|-----------------|
| 1000                 | 2,453           |
| 800                  | 2,452           |
| 600                  | 2,449           |
| 400                  | 2,451           |
| 200                  | 2,450           |

4-2 The variation of frequency for line voltage variation ( Load : 1000ml water center)

| Line voltage (V) | Frequency (MHz) |
|------------------|-----------------|
| 96               | 2,450           |
| 108              | 2,451           |
| 120              | 2,449           |
| 132              | 2,451           |
| 150              | 2,451           |

#### 5. Frequency sweeping

Measurement equipment (Refer Page-4)

Spectrum analyzer : HP8562A

Antenna : CA-S, CA-M and CA-X

None of higher FIS value than those shown in the above table existed in the following frequency band.

| Frequency (MHz) | Load condition                                         |
|-----------------|--------------------------------------------------------|
| 2000 - 2400     | 700ml center                                           |
| 2500 - 4000     |                                                        |
| 4000 - 8000     | 300ml or 700ml water<br>in the center or side position |
| 8000 - 10000    | 700ml center                                           |

| No. | Equipment Name        | Model Name & Manufacturer                      | Specification    | Last Calibration Date | Calibration Frequency |
|-----|-----------------------|------------------------------------------------|------------------|-----------------------|-----------------------|
| 1   | Interference Analyzer | EMC-60 MK-IV<br>SER : 44116<br>ELECTRO-METRICS | 0.5 to 18 GHz    | March 1999            |                       |
| 2   | Antenna               | (1) CA-S<br>SER : 22-1<br>POLARAD              | 2.1 to 4.34 GHz  |                       |                       |
|     |                       | (2) CA-M<br>SER : 20-15<br>POLARAD             | 4.19 to 7.74 GHz |                       |                       |
|     |                       | (3) CA-X<br>SER : 20-10<br>POLARAD             | 7.36 to 10 GHz   |                       |                       |
| 3   | Signal Generator      | 8671B<br>SER : 2545A00106<br>HEWLETT PACKARD   | 2.0 to 18 GHz    | March 1999            |                       |
| 4   | Frequency Counter     | 85340A<br>SER : 134A01280<br>HEWLETT PACKARD   |                  | March 1999            | Annually              |
| 5   | Power Meter           | 435A<br>SER : 1312J00144<br>HEWLETT PACKARD    | 0 to 1 mW        | March 1999            | Annually              |
| 6   | Power Sensor          | 8481A<br>SER : 1234A871<br>HEWLETT PACKARD     |                  | March 1999            |                       |
| 7   | Spectrum Analyzer     | 8562A<br>SER : 2923A03932<br>HEWLETT PACKARD   | 1 kHz to 22 GHz  | March 1999            |                       |