

รายการอ้างอิง

ภาษาไทย

- จารุณี เหลืองเพชรงาม. การศึกษาระบบการควบคุมคุณภาพสำหรับอุตสาหกรรมคอนกรีตผสมเสร็จ แบบหลายโรงผสม. วิทยานิพนธ์ปริญญาามหาบัณฑิต จุฬาลงกรณ์มหาวิทยาลัย, 2536.
- ณรงค์ ขอนตะวัน, เสวก ผาสุข, สุภาพ สุขเกื้อ และ พานิชผล มงคลเจริญ. คู่มือซ่อมเครื่องใช้ไฟฟ้า. (ม.ป.ท., ม.ป.ป.)
- พิชิต สุขเจริญพงษ์. การควบคุมคุณภาพเชิงวิศวกรรม. กรุงเทพมหานคร: บริษัทซีเอ็ดยูเคชั่น จำกัด. (ม.ป.ป.)
- สันติ วิลาสศักดิ์านนท์. การควบคุมคุณภาพเพื่อลดต้นทุนการผลิตในอุตสาหกรรมผลิตเสื้อผ้าสำเร็จรูป. วิทยานิพนธ์ปริญญาามหาบัณฑิต จุฬาลงกรณ์มหาวิทยาลัย, 2528.
- สมชาย วิศวะวิรัตน์. การพัฒนาระบบควบคุมคุณภาพของอุตสาหกรรมเครื่องใช้ประจำโต๊ะอาหาร. วิทยานิพนธ์ปริญญาามหาบัณฑิต จุฬาลงกรณ์มหาวิทยาลัย, 2533.
- เสรี ฐนิพันธ์, จรูญ มหิตธาฟองกุล, และ ดำรงค์ ทวีแสงสกุลไทย. เทคนิคการควบคุมคุณภาพ. กรุงเทพมหานคร: ภาควิชาวิศวกรรมอุตสาหกรรม คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย, 2528.

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ตารางที่ ก.2 ข้อมูลของผลิตภัณฑ์ที่ตรวจสอบ

MOC-2429 VG-SP (S-1.3) BROWN		Date.
Model	Serial No.	
ตรวจอินเทอร์ล็อก Interlock check	ผ่าน	Accept
ตรวจสายดิน Continuity check	ผ่าน	Accept
ตรวจความแข็งแรงของฉนวน Dielectric strength test	ผ่าน	Accept
ตรวจจานหมุน Turn Table Check	ผ่าน	Accept
ตรวจสอบการรั่วคลื่นมาก Max. RF Leakage check	mW/cm ²	mW/cm ²
ตรวจสอบอีกครั้ง Revised check	mW/cm ²	mW/cm ²
ตรวจการปิด - เปิดประตู Door open/close check		
GRILL + M.W.O FUNCTION		
Power consumption	W	Input current
M		
W		
O		
ตรวจสถานะ Labels check	ผ่าน	Accept
Repair (Fill in details)	ผู้ทำ	
1. ข้อเสีย	การแก้ไข	
2.		

ไม่ผ่าน Reject

ผ่าน Accept

ไม่ผ่าน Reject

ไม่ผ่าน Reject

ไม่ผ่าน Reject

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Specifications of Product Inspection

Microwave Ovens

1. Applicable range

These specifications shall be applied to the microwave ovens model # which are manufactured by IMARFLEX MFG. CO., LTD. and sold by

2. Relation to standard of product

The common matters of the inspections and tests will be performed on the basis of the standard, specifications and character of products.

3. Enactment and abolishment

The enactment and abolishment will be executed by IMARFLEX MFG. CO., LTD. or by IMARFLEX MFG. CO., LTD. after negotiations according to the proposal of Co. Ltd.

4. Lot classification and sampling method

The lots will basically be divided by production date and the complete products packed will be picked up for inspection at random.

5. Judgement

The lots shall be judged according to AQL.

6. Standard of inspection and sampling table

The standard of inspection II AQL-1.0 of MIL-STD-105D will be applied.

(Special matters may not be applied)

(Used the arrow direction)

Representative figure of AQL

Sampling Table of moderate inspection

LOT SIZE	Sample Letter	Sample Size	Representative figure of AQL					
			0.00		1.0		4.0	
			Ac	Re	Ac	Re	Ac	Re
2 ~ 8	A	2						
9 ~ 15	B	3					0	1
16 ~ 25	C	5						
26 ~ 50	D	8						
51 ~ 90	E	13			0	1	1	2
91 ~ 150	F	20					2	3
151 ~ 280	G	32					3	4
281 ~ 500	H	50			1	2	5	6
501 ~ 1200	J	80			2	3	7	8
1201 ~ 3200	K	125	0	1	3	4	10	11

Lot Size	II		(Used toward the arrow) Representative figure of AQL)					
	Sample Letter	Sample Size	0.00		1.0		4.0	
			Ac	Re	Ac	Re	Ac	Re
2 ~ 8	A	2						
9 ~ 15	B	2					0	1
16 ~ 25	C	2						
26 ~ 50	D	3						
51 ~ 90	E	5			0	1	0	2
91 ~ 150	F	8					1	3
151 ~ 280	G	13					1	4
281 ~ 500	H	20			0	2	2	5
501 ~ 1200	J	32			1	3	3	6
1201 ~ 3200	K	50	0	1	1	4	5	8

Sampling table of severe inspection

Lot Size	II		(Used toward the arrow) Representative figure of AQL)					
	Sample Letter	Sample Size	0.00		1.0		4.0	
			Ac	Re	Ac	Re	Ac	Re
2 ~ 8	A	2						
9 ~ 15	B	3					0	1
16 ~ 25	C	5						
26 ~ 50	D	8						
51 ~ 90	E	13						
91 ~ 150	F	20			0	1	1	2
151 ~ 280	G	32					2	3
281 ~ 500	H	50					3	4
501 ~ 1200	J	80			1	2	5	6
1201 ~ 3200	K	125	0	1	2	3	8	9

7. Adjustment of inspection severity

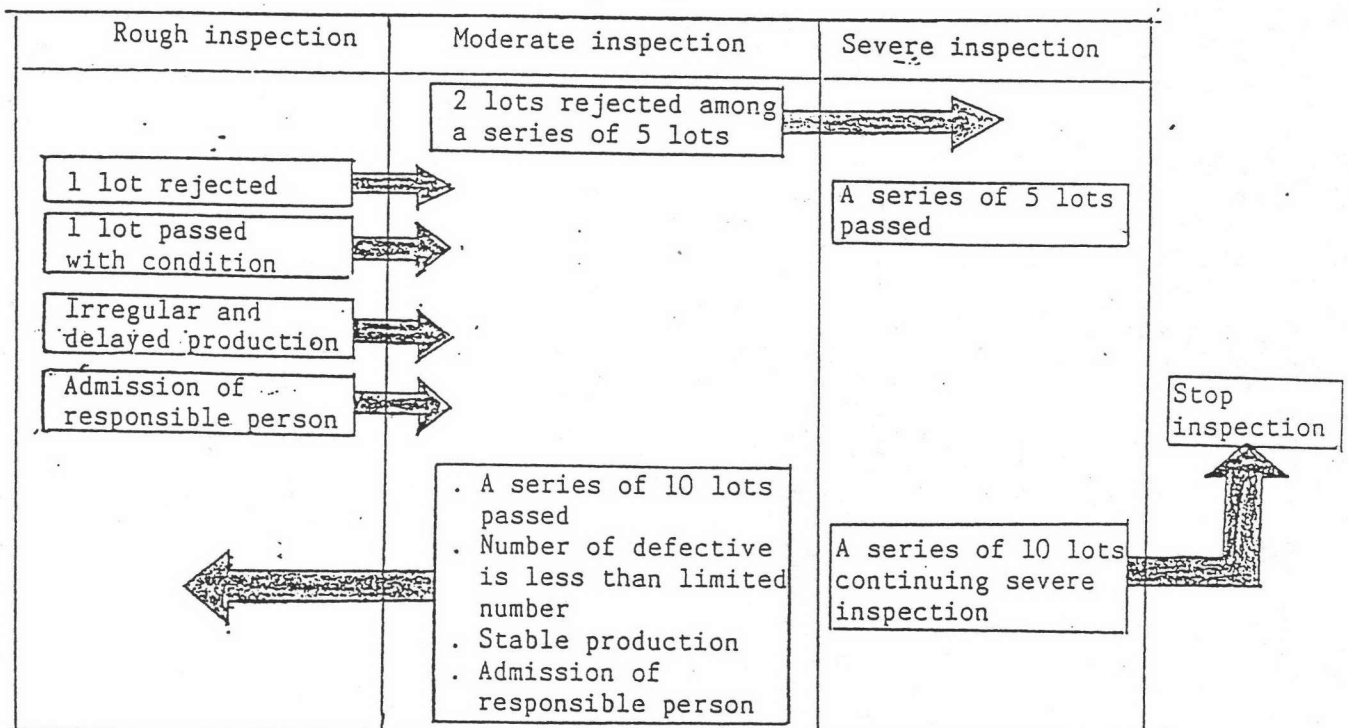
The initial lot will be performed by moderate inspection and then severity will be adjusted in accordance with the following order.

- (1) From moderate inspection to severe inspection
If 2 lots among a series of 5 lots are rejected in performing moderate inspection, the next inspection will be performed by severe inspection.
- (2) From severe inspection to moderate inspection
If series of 5 lots is passed in performing severe inspection, the next inspection will be performed by moderate inspection.
- (3) From moderate inspection to rough inspection
If the following conditions are satisfied by moderate inspection, the next inspection will be performed by rough inspection.
 - a) passed a series of 10 lots
 - b) the total quantity of defective among the above 10 lots become less than limited quantity shown in the table IV.
 - c) production is stable
 - d) the responsible person of IMARFLEX MFG. CO., LTD. has acknowledged that the rough inspection is appropriate.
- (4) From rough inspection to moderate inspection
Even if one of the following conditions is happened in performing, the next inspection will be performed by moderate inspection.
 - a) rejected even one lot
 - b) passed even one lot with the condition. * means the quantity between more than numbers passed and less than ones rejected using sampling table of rough inspection.
 - c) production is irregular or delayed.
 - d) when thought that changing from rough inspection to moderate inspection is needed.
- (5) Stop of inspection
If 10 lots are performed by severe inspection, which is not returned to moderate inspection, the inspection under this standard will be stopped until the procedure of quality improvement is taken.
Please refer to the table of page 4.

Number of sampling unit from late 10 lots	Approved quality level		
	0.00(Critical)	1.0(Major)	AQL 4.0(Minor)
20 - 29	*	*	*
30 - 49	*	*	*
50 - 79	*	*	0
80 - 129	*	*	0
130 - 199	*	*	2
200 - 319	*	0	4
320 - 499	*	0	8
500 - 799	*	2	14
800 - 1249	*	4	24
1250 - 1999	*	7	40
2000 - 3149	*	14	68
10000 or over	0	68	181

Note) Inspection adjustment should be less than the quantity described in the table.

Table of adjustment of inspection severity



8. Procedure of lots rejected

Lots rejected shall be immediately reported to the relative department and the appropriate procedure shall be taken in accordance with the following order.

Order

- (1) Classification procedure of lots rejected
- (2) Issuing re-inspection to production department and report to the QC department of IMARFLEX, MFG. CO., LTD.
- (3) Re-inspection and confirming instructions of re-inspection reported
- (4) Re-inspection of lots rejected for delivery.
- (5) Instructions of re-inspection and the result of re-inspection are to be submitted to the QC dept. of IMARFLEX MFG. CO., LTD. after re-inspection of lots rejected for delivery.

9. Number of sampling inspection for special matters

As to * marked matters, the same quantity as the sampling one will be inspected when the sampling quantity is less than 5 units, and 5 units will be inspected when the sampling quantity is more than 5 units.

10. Report of data

The production factory is to make and keep the following data, and if requested data will be immediately submitted to IMARFLEX MFG. CO., LTD.

- (a) Results of outgoing inspection per lot.
- (b) One time per month - details of process defects, process capacity and control chart
- (c) One time per 6 months - control test results
- (d) Others - process change, design change, etc. as needed

11. Division of defects

Defects	Description	Examples
Critical AQL 0.00%	(1) Giving damage to human body, house, things, etc. due to defective products. (2) Against the relative law..	Insulation resistance, dielectric strength, etc. Insulation distance, power consumption, etc. Forgotten to attach provided label to be indicated.
Major AQL 1.0%	(1) Possibility to change to critical in the future. (2) Not satisfying the important performance as microwave ovens in daily use at present (3) Not worth as goods in respect of appearance and feeling	Torque tightening main parts Insulation distance
Minor AQL 4.0%	(1) Possibility to change to major in the future. (2) Having minor defective as microwave ovens in daily use at present (3) No so good as commercial value as to appearance and function.	Appearance, etc. No application of screwlock and grease

12. Record, storage, report

- (1) Record

The record of the inspection must indicate the following items.

- (a) Product name, construction and performance
 - (b) Date and place of inspection
 - (c) Name of inspector
 - (d) Quantity of products inspected
 - (e) Method of inspection
 - (f) Results of inspection
 - (g) Serial No. of product inspected
 - (h) Serial No. of objective lot
- (2) Storage
- The record of inspection must be kept for 3 years after the inspection date.
- (3) Report
- The results of inspections must be reported to the responsible person of the section. When defective products are found by the sampling inspection, the report regarding measures against abnormality will be issued to the department in charge of measures. The department will report to the QC department of IMARFLEX -MFG. CO., LTD. with details of measures.
- (4) Items to be recorded and stored by the production department
- (a) Date of production, number of units assembled, and model No.
 - (b) All serial Nos.
 - (c) Measured figures of input and output wattages
 - (d) Measured figures of RF leakage.
 - (e) All magnetron tube Nos.
 - (f) Destination and date for delivery
 - (g) Record of insulation resistance and withstand voltage tests
 - (h) Record of all interlock function tests
 - (i) Signature of responsible person
- (5) Calibration record of RF leakage tester to be stored at the factory.
- (a) Daily calibration test record
 - (b) Record of monthly calibration test
 - (c) Monthly record of microwave survey meter checked by calibration comparison system.
 - (e) Record of 2 db limit for checking monthly calibration test

P - Process inspection

C - Control test



Item	Inspection item	Criteria	Method	Defect	Division
Appearance	1. Uneven color, running, pinholes, etc. with outside painting as specified.	Within limit	Visual	Minor	M . P
	2. Rusting of plated parts like exterior	No rust	Visual	Major	M . P
	3. Scratches, bruises, etc. on exterior, doors.	Within limit	Visual	Minor	M . P
	4. Uneven molding, scratches, burr, crack, choking of plastic parts	No defect	Visual	Major	M . P
	5. Defective print, scratches, bruises, loosening of indication panel, etc.	Within limit	Visual	Minor	M . P
	6. Color of each part of resin molding, and color tone	Within sample color tone made by material maker	Visual	Minor	M . P
	7. Color tone of painted parts	Within limit	Visual	Minor	M
	8. Color difference regarding destination of plastic parts and painted color	No difference	Visual	Major	M . P
Packing	1. Carton band or stapling	Packing as specified	Visual	Minor	M . P
	2. Confirming Model No. on carton	Name plate must match the product	Visual	Major	M . P
	3. Appropriate packing included parts, protective plastics, etc.	Packing as specified	Visual	Major	M . P

P - Process inspection

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division
Packing	4. Owner's manual, guarantee card, cooking book, registration card, etc.	They must match the model packed	Visual	Major	M . P
	5. Carton design and model name	They must match the model as per drawing	Visual Manual	Major	M . P
	6. Accessories such as tray	Correct accessories must be packed w/oven as per spec.	Visual	Major	M . P
	7. Special protection packing	Insert plastic film between door and main body. After cleaning, cover main body by poly-bag.	Visual	Major	M . P
	8. Stain and fingerprint	No stain or fingerprint on the case and product	Visual	Minor	M . P
	9. Damage given to the box during handling	No damage of holes or edges or defect due to moisture	Visual	Major	M . P
	10. Loose metal or dust	No loose metal or dust in the box	Visual	Minor	M . P
Construction	1. Each assembly and fitting clearance (1) Body and cavity	Less than 1mm	Thick- ness gauge	Minor	M . P

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division
Construction	(2) Door and cavity (Choke surface)	Less than 0.5 mm	Thick- ness gauge	Major	M . P
	(3) Off-set of timer knob	Knob clearance	Visual	Minor	M . P
	(4) Off-set of defront timer knob	Clearance of switch panel must be flat	Visual	Minor	M . P
	(5) Door and panel	Clearance exceeding 1mm must be equal	Manual	Minor	M . P
	2. Door opening/closing	Door must open pulling by 3 kg max. and must be smooth in operation	Tension balance	Minor	M . P
	3. Door hinge	Door hinge must be fitted firmly	Manual Visual	Major	M . P
	4. Timer knob and scale position	Switch must turn off with 0 indicated	Manual	Major	M . P
	5. Deflection of printed indication on switch panel	Within the range of play for timer	Manual Visual	Minor	M . P

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division
Construction	6. Lead wire arrangement				
	(1) Fear of touching movable parts	There must be no fear	Visual	Major	M . P
	(2) Fear that primary lead wire may touch high voltage lead wire and high voltage parts	There must be no fear	Visual	Major	M . P
	7. Flatness of main body				
	* Clearance between surface plate and leg	Max. is less than 0.5 mm	Manual Thickness gauge	Minor	M . P
	8. Application of grease to moving parts	Properly applied	Visual	Minor	M . P
	(1) Open mechanical parts				
	(2) Door hinges upper & lower				
	(3) Start button				
	(4) Door hook support				
	10. Screw-lock application to screw & nut	Properly applied	Visual	Minor	M . P
	(1) Door hinge upper & lower				
	(2) Magnetron setscrews W/O SUFFIX B (OS FAMILY)				
	(3) Stirrer shaft lock nut (only oven w/stirrer)				
	11. Torque tightening parts	No loosening of screws	Manual Visual	Major	M . P
(1) Fan motor setscrew	10 kg-cm or over	Torque driver	Major	M . P	
(2) Transformer fitting	30 kg-cm or over	Torque driver	Major	M . P	
(3) Capacitor holder setscrew	10 kg-cm or over	Torque driver	Major	M . P	

P - Process inspection

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division
Construction	(4) Cavity and bottom plate setscrew	10 kg-cm or over	Torque driver	Major	M . P
	(5) Body setscrew	10 kg-cm or over	Torque driver	Major	M . P
	(6) Door hinge upper & lower setscrews	30 kg-cm or over	Torque driver	Major	M . P
	(7) Magnetron setscrews	20 kg-cm or over		Critical	M . P
	(8) Stirrer lock nut (only nus w/stirrer)	7 kg-cm or over	Torque driver	Major	M . P
	(9)-1 Panel setscrews	8 kg-cm or over	Torque driver	Major	M . P
	(9)-2 Panel bottom setscrews	8 kg-cm or over	Torque driver	Major	M . P
	(10) Magnetron and thermostat setscrews	5 kg-cm or over	Torque driver	Major	M . P
	(11) Switch bracket and cavity setscrews	20 kg-cm or over	Torque driver	Major	M . P
	12. Indication label must be attached on the position specified	It must be in the specified position and easy to read	Visual	Major	M . P
	(1) Rating label	Back of main body		Critical	
	(2) FCC label . MO-08.09 series	bottom of front of cavity		Critical	
	. MO-05.100 series	Side of panel			
	(3) Lamp label	Side of cavity top lamp		Major	
(4) Schematic diagram label	Inside of body		Major		

r - process inspection

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division		
Construction	(5) Fuse label	Right side of cavity near fuse		Critical			
	(6) Warning label	Right side of cavity		Major			
	(7) Switch label	Right side of cavity		Major			
	(8) Missing of label						
	. Labels regulated	No missing		Critical			
	. Other labels	No missing		Major			
	13. Production date label and serial No. label						
	(1) Production date label	No mis-spelling and easy to read		Critical			
	Ex. <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 60px; height: 20px;"></td> <td style="width: 60px; height: 20px;"></td> </tr> </table>						
	JANUARY	1985					
	DECEMBER						
	(2) Serial label	Easy to read as specified		Critical			
	14. Sharp edges that might come in touch with the hand						
	(1) Sharp edges	No fear of cutting the hand	Touching	Major	M . P		
(2) Burr	"	"	Major	M . P			
(3) Weld spatter, etc.	"	"	Major	M . P			
15. Inclination and tipover of main body							
(1) Angle at which main body does not topple with door opened or closed.	It must not topple less than 15 degree (JIS less than 10 degree)	Manual Visual	Major	M . P			

r - process inspection

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division
Construction	16. Insulation distance				
	(1) Primary side (complete product)				
	. Between live parts different in polarity	3 mm or over	Visual	Critical	M . P
	. Between live part and non-live metal part	2.5 mm or over	Scale		
	(2) Primary side wiring				
	. Between live parts different in polarity	4 mm or over	Visual	Critical	M . P
	. Between live part and non-live metal part	4 mm or over	Scale		
	(3) Secondary side (complete product)				
	. Between live parts different in polarity	13 mm or over	Visual	Critical	M . P
	. Between live part and non-live metal part	13 mm or over			
Function	17. Connecting terminal fastening strength				
	(1) Strength of #187 series inserted into wiring section	No loosening when pulled with 2 kg or over	Tension balance	Major	M . P
	(2) Strength of #250 series inserted into wiring section	No loosening when pulled with 3 kg or over			
	(3) Strength of lead wire fastened to each terminal	No loosening when pulled with 4 kg over			
	1. With door closed, it must push each interlock switch	It must push the switch	Manual Visual Power on	Critical	M . P

Access inspection

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division																			
Function	2. Power off with door opened and RF leakage from door section just before stop	It must immediately turn off. Leakage less than 0.5mWcm ²	Manual Visual Tester	Critical	M . P																			
	3. Secondary switch must not work even pushing start button at ON.OFF location of timer with door opened.	It should not work	Manual	Critical	M . P																			
	4. At working condition when door is opened, primary switch, secondary switch, and monitor switch should turn off in order.	Switches must turn off in order	Tester, etc.	Critical	M . P																			
	5. The following table shows each working of interlock switch under each operation	As shown in the table	Tester	Critical	M . P																			
	<table border="1"> <thead> <tr> <th>Ope.</th> <th>Confirmation</th> <th>M.SW</th> <th>P.SW</th> <th>S.SW</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Door opened</td> <td>○</td> <td>X</td> <td>X</td> </tr> <tr> <td>2</td> <td>Door closed</td> <td>X</td> <td>○</td> <td>X</td> </tr> <tr> <td>3</td> <td>Opening door</td> <td>○</td> <td>X</td> <td>X</td> </tr> </tbody> </table>	Ope.	Confirmation	M.SW	P.SW	S.SW	1	Door opened	○	X	X	2	Door closed	X	○	X	3	Opening door	○	X	X			
Ope.	Confirmation	M.SW	P.SW	S.SW																				
1	Door opened	○	X	X																				
2	Door closed	X	○	X																				
3	Opening door	○	X	X																				
	(Remarks) M.SW Monitor switch P.SW Primary switch S.SW Secondary switch ○ Circuit closed X Circuit opened Ope. Operation																							

P - Process inspection

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division
Function	6. Revolution of turntable	5½-6½RPM in rated voltage for 1 minute	Visual Stop watch	Major	M . P
	7. No-load arcing . Arcing during power on with only with glass tray	No arcing in the initial 2 minutes	Visual	Major	M . P
Performance	1. Dielectric strength	No abnormality with 1200Vper minute	Product standard	Critical	M . P
	2. Insulation resistance	1M OHM or over	Product standard	Critical	M . P
	3. Power consumption and line current	Rating $\pm 15\%$	Measurement	Major	M
	4. High frequency output	Rating $+15\%$ -10%	Product standard	Major	M
	5. Strength of RF leakage (load: 275 \pm 15ml)	0.5 mW/cm ² or less	Product standard	Critical	M . P
	1.Front(Door, Panel)	Less than 0.5mW/cm ²	Product standard	Critical	M . P
	2.Air vent(right, left, bottom, rear)	Less than 0.05mW/cm ²	Product standard	Critical	M . P
3.Inside(Around magnetron welded parts)	Less than 0.1mW/cm ²	Product standard	Critical	M . P	
6. Heating characteristics	Temperature distribution Deviation: less than 50%	Product standard	Major	P	
7. Voltage fluctuation Abnormality with $\pm 10\%$ of rated voltage	Not abnormal.	Product standard	Major	P	

I - Process inspection

C - Control test

Item	Inspection item	Criteria	Method	Defect	Division
Performance	8. Door opening/closing test (based on UL standard)			Critical	M . C
	. RF leakage after 2000 times of continuous opening and closing in testing 1 unit per 300 units	3 mW/cm ² or less	UL standard	Critical	M . C
	. RF leakage after 100,000 times of continuous opening and closing in testing 1 unit per 3 months	3 mW/cm ² or less	UL standard	Critical	M . C
	9. Grounding circuit	Conductivity between metal parts such as cavity and body bottom plate	Tester	Major	M . C

Item	Test item	Standard	Method
Control tests	<p>1. Package test</p> <p>(a) Drop test It should be based on the IMARFLEX's standard.</p> <p>(b) Vibration test</p> <p>(1) Input measurement</p> <p>(2) RF leakage</p> <p>(3) Insulation resistance</p> <p>(4) Dielectric strength</p> <p>(5) Inside check</p> <p>(6) Appearance</p> <p>(c) Hexagonal drum test</p> <p>(1) Input measurement</p> <p>(2) RF leakage</p> <p>(3) Insulation resistance</p> <p>(4) Dielectric strength</p> <p>(5) Inside check</p> <p>(6) Appearance</p> <p>2. High frequency output test (Based on JIS-C9250 5.3 8.2.4)</p> <p>3. Voltage fluctuation characteristic test (Based on JIS-C9250 5.1 8.2.2)</p>	<p>The appearance, structure and basic performance shall be free of abnormality.</p> <p>No change or abnormality compared with those before test regarding items (1) - (6).</p> <p>No change or abnormality compared with those before test regarding items (1) - (6).</p> <p>It should be 90%-115% of rated high frequency output</p> <p>No abnormality should be found in $\pm 10\%$ fluctuation of rating.</p>	<p>Tester Matsudaira Mode UBC-5A forward and backward right and left up and down each 30 min. 1G</p> <p>Tester Type 10 rotary hexagonal drum</p> <p>Based on JIS-C9250 5.3 8.2.6</p> <p>Based on JIS-C9250 5.1 8.2.2</p>

Item	Test item	Standard	Method
	4. Withstand voltage test (Based on JIS-C9250 5.5 8.2.6) (a) Transformer 5. Normal temperature test (Based on JIS-C9250 5.8 8.2.9)	No abnormality after test Each temperature should be within JIS standard.	JIS-C9250 5.5 8.2.6 JIS-C9250 5.8 8.2.9
	Measuring positions	Temp. limit	
	(1) Ambient temperature	30°C	
	(2) Fan motor coil	115°C	
	(3) Diode surface	135°C	
	(4) Branch point	90°C	
	(5) Stirrer top (cavity)	100°C	
	(6) Switch knob	75°C	
	(7) Timer knob	75°C	
	(8) Door knob	70°C	
	(9) Switch button	75°C	
	(10) Outer surface (Transformer)	85°C	
	(11) Wooden base surface center	75°C	
	(12) Wooden base and leg contact	75°C	

Item	Test item	Standard	Method
	6. Abnormal temperature test (Based on JIS-C9250 5.9 8.2.10) 7. High frequency heating characteristic test (Based on JIS-C9250 5.14) 8. Shorting and opening tests of electronic parts (Based on JIS-C9250 5.15 8.2.16)	Wooden base should not burn and insulation resistance should be more than 0.1 M OHM It should conform with JIS. Each part should work in normal conditions without burning	JIS-C9250 5.9 8.2.10 JIS-C9250 JIS-C9250 5.15 8.2.16
	(1) Diode (2) Magnetron (3) Transformer		

		Tests based on UL	
Item	Frequency	Test method	
Grounding circuit	100%	Check conductivity between earth pin of plug and main body (cavity and bottom plate, etc.) by tester.	
Withstand voltage test	100%	Test with each switch turned on. Apply the voltage between live and non-live parts as follows: 1000V for 1 min. or 1200V for 1 sec.	
RF leakage	100%	Measure at a speed of 1 inch/sec. with water load of 275 cc. \pm 15 ml litre The measuring standard should be as follows: (1) RF leakage during normal operation should be less than 1 mW. (2) When door is opened by door release button during normal operation, the maximum leakage until stop of power supply should be less than 1 mW. (3) After the operation of (2), power should not turn on even with door closed. (4) With door opened, the start button should not work when pressed.	
Interlock mechanism check	100%	Check the circuit operation of each microswitch by test * Make an exclusive machine with lamps, etc.	
Door opening/closing test	1 unit per 300 units	RF leakage after 2000 times of door opening and closing should be less than 3mW/cm ² .	
	1 unit per 3 months	RF leakage after 100,000 times of door opening and closing should be less than 3mW/cm ² .	
		*The test method is specified in the separate sheet.	



High frequency output measurement standard																			
1. Applicable range	This standard shall be applied to the measurement of high frequency output in the sampling inspection of microwave oven.																		
2. Test conditions	<p>1) Test equipments</p> <table border="0"> <tr> <td>(1) AC voltmeter</td> <td>0 - 150V</td> </tr> <tr> <td>(2) AC ammeter</td> <td>0 - 20A</td> </tr> <tr> <td>(3) AC wattmeter</td> <td>0 - 2000W</td> </tr> <tr> <td>(4) Variable transformer</td> <td>120V 20A</td> </tr> <tr> <td>(5) 1/10°C thermometer digital thermometer capable of measuring 1/10°C</td> <td>0 - 100°C</td> </tr> <tr> <td>(6) 1000 mm litre Pyrex beaker</td> <td></td> </tr> <tr> <td>(7) 1000 mm litre measuring cylinder</td> <td></td> </tr> <tr> <td>(8) Tap water 18°C±1°C</td> <td></td> </tr> <tr> <td>(9) Stop watch</td> <td></td> </tr> </table> <p>2) Conditions</p> <p>(1) Measurement shall be started in cold conditions everytime.</p> <p>(2) Product shall be set in maximum output.</p>	(1) AC voltmeter	0 - 150V	(2) AC ammeter	0 - 20A	(3) AC wattmeter	0 - 2000W	(4) Variable transformer	120V 20A	(5) 1/10°C thermometer digital thermometer capable of measuring 1/10°C	0 - 100°C	(6) 1000 mm litre Pyrex beaker		(7) 1000 mm litre measuring cylinder		(8) Tap water 18°C±1°C		(9) Stop watch	
(1) AC voltmeter	0 - 150V																		
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(8) Tap water 18°C±1°C																			
(9) Stop watch																			
3. Test method	<p>1) Take 1000 mm litre water at 18°C±1°C into the Pyrex beaker, stir it with a paddler and again check the temperature stays in 18°C±1°C.</p> <p>2) Place the beaker of 3-1) at the center of glass tray and put it in the product.</p> <p>3) Supply power for 2 minutes at the rated voltage.</p> <p>4) After power on, quickly take 3-1) out together with the glass tray and stir it, then measure the water temperature.</p> <p>5) After the measurement, calculate the output value from the formula below. (Temp. after heating - initial water temp.) x 35 = Output figure(W)</p>																		

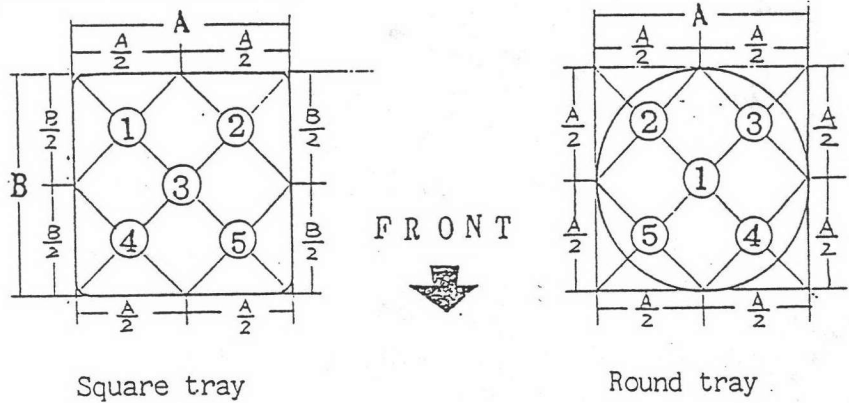
<p>3. Test method</p> <p>4. Items to be recorded</p>	<p>6) Perform the tests of 2-2), 3-1) - 3-5) at least 3 times to obtain the output figures and the average. The average should be regarded as the high frequency output figure of the equipment.</p> <p>The following items should be checked and recorded during the tests.</p> <p>1) The figures of electric current, power and voltage immediately after the test.</p> <p>2) Room temperature and humidity.</p>	

Heating characteristic measurement standard	
1. Applicable range	This standard shall be applied to the measurement of heating characteristics in the sampling inspection of microwave ovens MO-083 & 084 series.
2. Test conditions	<p>1) Test equipments</p> <p>(1) AC voltmeter 0 - 150V</p> <p>(2) AC ammeter 0 - 20A</p> <p>(3) AC wattmeter 0 - 200W</p> <p>(4) Variable transformer 120V 20A</p> <p>(5) 1/10°C thermometer</p> <p>(6) 100 mm litre TOP #501 5 pcs</p> <p>(7) Measuring cylinder (capable to measure 100mm litre accuracy)</p> <p>(8) Stop watch</p> <p>(9) Tap water 20°C±5°C</p> <p>2) Conditions</p> <p>(1) Measurement should be started in cold conditions everytime.</p> <p>(2) Product should be set in maximum output.</p>
3. Test method	<p>1) Measure 100 mm litre water and put it into 100mm litre beaker. Prepare 5 beakers each of which contains 100mm litre water.</p> <p>2) Place the beaker on the glass tray in the specified position (see Fig. 3-1). Stir the water and record the initial water temperature in each beaker.</p> <p>3) Set 3-2) at the center of the product and operate it for 60 sec.</p> <p>4) With power on, read and record the line current and output within 15 sec.</p> <p>5)-1 After 60sec. power on, stir the water in each beaker, and record the final water temperature in each beaker.</p>

Heating Characteristic measurement standard

3. Test-method

5)-2 For the temperature measurement of each beaker, first measure in numerical order of 1-2-3-4-5 as in Fig. 3-1 and then reversely measure. Calculate the average after temperature rise of each beaker. It should be regarded as the figure after temperature rise of each beaker.



6) -1 Calculate the data based on the following formula.

Formula

$$\text{Dev}(\%) = \frac{\Delta T_{\text{max}} - \Delta T_{\text{min}}}{\Delta T_{\text{ave}}} \times 100$$

- Dev : Deviation factor of temp. distribution
- ΔT : Average water temp. after heating minus initial water temp.
- ΔT_{max} : Highest ΔT figure among 5 beakers
- ΔT_{min} : Lowest ΔT figure among 5 beakers
- ΔT_{ave} : Average of 5 ΔT figures

6)-2 Record the data calculated by the formula below together with data

I line = A

P line = W

$$\text{Eff}(\%) = \frac{\text{Power}}{\text{P line}} \times 100$$

POWER: Value calculated by RF output measuring method

I line: Line current of initial figure

P line: Input of initial figure

Eff : Oven efficiency

符号記事	△	△	△	△	△	作成	決裁
年・月・日		
訂正者							



ประวัติผู้เขียน

นาย สมควร เทศศิริ เกิดเมื่อวันที่ 02 พฤษภาคม พ.ศ. 2505 ที่ อำเภอ คลองสาน จังหวัด ธนบุรี จบการศึกษาชั้นมัธยมปลาย สายวิทยาศาสตร์ จากโรงเรียน สอนกุลหาวิทยาลัย ในปี พ.ศ.2525 และได้เข้าศึกษาต่อที่ คณะวิทยาศาสตร์ สาขาฟิสิกส์ประยุกต์ สถาบันเทคโนโลยีพระจอมเกล้า ธนบุรี ในปีนั้น จนสำเร็จการศึกษาได้ ปริญญาวิทยาศาสตรบัณฑิต สาขา ฟิสิกส์ประยุกต์ ในเดือนเมษายน พ.ศ. 2529 หลังจากสำเร็จการศึกษา ได้เริ่มต้นเข้าทำงานที่ บริษัท ซีเกท เทคโนโลยี (ประเทศไทย) จำกัด ในตำแหน่ง Senior QA Supervisors จนถึง เดือนกุมภาพันธ์ พ.ศ. 2532 จึงได้เปลี่ยนงานไปทำที่ บริษัท เควลล์ ประเทศไทย จำกัด ในตำแหน่ง PRODUCT MANGER / HARDWARE AND ELECTRONICS จนถึงเดือน สิงหาคม พ.ศ. 2538 ได้เปลี่ยนงานอีกครั้ง ไปทำงานที่ GENERAL MOTOR (THAILAND) LIMITED ในตำแหน่ง SUPPLIER DEVELOPMENT ENGINEER จนถึงปัจจุบัน.