

TEST REPORT # EMCC-990159H, 2009-01-16

EQUIPMENT UNDER TEST:

Household Microwave / Convection Oven

Model: H4082 BM
M.-No.: 07322720
Serial No: 00/000000000000
Magnetron Type: TOSHIBA 2M248H (ML)
Equipment Category: Industrial, Scientific and Medical (ISM) equipment
Manufacturer: MIELE & CIE. KG
Address: Carl-Miele-Platz 1
59302 Oelde
Germany

Phone: +49-5245-91-4627
Fax: +49-5245-91-4600

RELEVANT STANDARD:

47 CFR Part 18

MEASUREMENT PROCEDURE USED:

ANSI C63.4-2003 FCC/OET MP-5 (1986) Other

TEST REPORT PREPARED BY:

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HEAD OF LABORATORY:



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FCC Registration # 878769

DAT-P-204/95

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1 GENERAL INFORMATION

1.1 Purpose

The purpose of this report is to show compliance to the FCC regulations for industrial scientific and medical equipment operating under section 18 of the Code of Federal Regulations title 47.

1.2 Limits and Reservations

The test results in this report apply only to the particular Equipment Under Test (EUT) as declared in this report. This test report shall not be reproduced except in full without the written permission of EMCCCons DR. RAŠEK.

1.3 Test Location

Company Name: EMCCCons DR. RAŠEK GmbH & Co. KG
Street: Moggast, Boelwiese 8
City: 91320 Ebermannstadt
Country: Germany
Laboratory: EMCCCons DR. RAŠEK GmbH & Co. KG
Test Laboratory IV located at
Stoernhofer Berg 15, 91364 Unterleinleiter, Germany.
This site has been fully described in a report submitted to the FCC, and accepted in the letter dated January 18, 2008 Registration Number 878769.

Phone: +49-9194-9016
Fax: +49-9194-8125
E-Mail: emc.cons@emcc.de
Web: www.emcc.de

1.4 Manufacturer

Company Name: MIELE & CIE. KG
Street: Carl-Miele-Platz 1
City: 59302 Oelde
Country: Germany

Name for contact purposes: Mr. Uwe Keller
Phone: +49-5245-91-4627
Fax: +49-5245-91-4600
E-mail: uwe.keller@miele.de

1.5 Dates

Date of receipt of EUT: CW 49/2008
Test date: CW 49/2008
Mr. Uwe Keller attended the tests and performed the modification as described in chapter 2.4.

2 PRODUCT DESCRIPTION

2.1 Equipment Under Test (EUT)

Description:	Household Microwave / Convection Oven
Model:	H4082 BM
M.-No.:	07322720
Serial Number:	00/000000000000
FCC-ID:	SSVMW6052
Equipment Category:	Industrial, Scientific and Medical (ISM) equipment
Power:	2N~220V 60Hz Single Phase AC 240/120V 60Hz Single Phase AC 208/120V 60Hz
Operating frequency:	2450 MHz
Internally used frequencies:	132 kHz (SPS), 4.91 MHz (Display PCB), 8 MHz (Power PCB), 16 MHz (Touch PCB), 24.57 MHz (Control PCB)
Magnetron Type:	TOSHIBA 2M248H (ML)
Rated Power Input:	1850W @ AC 240V/60Hz 1500W @ AC 208V/60Hz
Rated Microwave Power:	950W @ AC 240V/60Hz 850W @ AC 208V/60Hz

2.2 EUT Peripherals

none

2.3 Mode of Operation During Testing

The EUT was tested as an independent unit with pure water as load. All emission tests performed with the upper nominal supply voltage of 240 V/60 Hz applied. Operating frequency measurements performed with both nominal voltages varied according to the MP-5 requirements.

2.4 Modifications Required for Compliance

In order to improve the harmonics' emissions a door adjustment performed by the representant of the manufacturer.

3 TEST RESULTS SUMMARY

Summary of Test Results for the following EUT:

Manufacturer: MIELE & CIE. KG
Model: H4082 BM
Serial Number: 00/000000000000

Requirement	CFR Section	Report Section	Test Result
Radiation Hazard	OET MP-5, OET Bulletin 56		Pass
Power Output	OET MP-5		Pass
Operating frequencies	18.301, 18.303		Pass
Field Strength Limits (Spurious and Harmonics)	18.305		Pass
AC Line Conducted Emissions	18.307		Pass

The client has made the determination that EUT Condition, Characterization, and Mode of Operation are representative of production units, and meet the requirements of the specifications referenced herein.

Consistent with Industry practice, measurement and test equipment not directly involved in obtaining measurement results but having an impact on measurements (such as cable loss, antenna factors, etc.) are factored into the "Correction Factor" documented in certain test results. Instrumentation employed for testing meets tolerances consistent with known Industry Standards and Regulations.

The measurements contained in this report were made in accordance with the procedure FCC/OET MP-5 (1986) and all applicable Public Notices received prior to the date of testing. All emissions from the device were found to be within the limits outlined in this report.

The test results in this report apply only to the particular Equipment Under Test (EUT) as declared in this report.

Test Personnel: Wolfgang Döring
Issuance Date: 2009-01-16

4 RADIATION HAZARD

Test Requirement: OET Bulletin 56, OET Bulletin 65

Test Procedure: FCC/OET MP-5 (1986)

4.1 Regulation

OET Bulletin 56

Table 1: FCC Limits for Maximum Permissible Exposure (MPE)

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range [MHz]	Electric Field Strength (E) [V/m]	Magnetic Field Strength (H) [A/m]	Power Density (S) [mW/cm ²]	Averaging Time E ² , H ² or S [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
 The limit for an operating frequency of 2,450 MHz is 1 mW/cm².

4.2 Test Equipment

Type	Manufacturer/ Model No.	EMCC Ident. No.	Last Calibration	Next Calibration
Field Probe	Narda S.T.S./PMM / 8053A	2972	2007-05	2009-05
Electromagnetic Radiation Meter	Narda S.T.S./PMM / EP-183	2952	2008-09	2009-09

4.3 Test Procedure

EUT was supplied with 240V/60Hz and operated with 1000 ml of water load located in the center of the oven. Radiation leakage was measured directly on the surface on all sides around the EUT using the field probe.



Fig. 1a Initial Radiation leakage test



Fig. 1b Radiation leakage test after door adjustment

4.4 Test Result

Manufacturer: MIELE & CIE. KG
Model: H4082 BM
Serial Number: 00/000000000000

The maximum measured power density was 0.32 mW/cm² before door adjustment and decreased to 0.25 mW/cm² after door adjustment. Both values did not exceed the specified limit.
The EUT meets the requirements of this section.

Test Personnel: Wolfgang Döring
Test Date: 2008-12-01+05

5 POWER OUTPUT

Test Requirement: FCC 47 CFR, Section 18.305
 Test Procedure: FCC/OET MP-5 (1986)

5.1 Regulation

The field strength limit according to Section 18.305 depends on the RF power generated by the equipment. The measured value of power is used to determine the allowable out-of-band field strength under the terms specified in Section 18.305 of the Rules. The AC Input Power to the oven is also measured to determine if the EUT is operating in accordance with the manufacturer's specifications.

5.2 Test Equipment

Type	Manufacturer/ Model No.	EMCC Ident. No.	Last Calibration	Next Calibration
AC Power Source	CALIFORNIA INSTRUMENTS HGA with 3 pcs. 5001ih-400	34	-	-
Temperature sensor	Ahlborn / FPA405L	851	2007-07	2009-07
Datalogger	Ahlborn / ALMEMO 2890-9	1928	2007-08	2009-08
Scale	Bosch PE615	2700	2008-05	2010-05
Digital Multimeter	Agilent / U1241A	2917	2008-02	2010-02

5.3 Test Procedure

The input power is measured by the measuring capabilities of the AC source and compared with the nominal power as declared by the manufacturer. The power output is measured by the calorimetric method according to IEC/EN 60705 chapter 8, using a load of 1000ml of water in the beaker located in the center of the oven. The power output was computed from the measured temperature rise of the load over a period of time using the following equation:

$$P = [4.187 \cdot m_w \cdot (T_2 - T_1) + 0,55 \cdot m_c \cdot (T_2 - T_0)] / t$$

where

- P = Output power in W,
- m_w = Mass of water in g,
- m_c = Mass of beaker in g,
- T₀ = Ambient temperature in °C
- T₁ = Starting temperature in °C,
- T₂ = Final temperature in °C,
- t = Time in sec.

5.4 Test Results

5.4.1 Input Power

Input Power Measurement				
Mode	Input Voltage	Input Current	Power Consumption	Manufacturer Rating
1000ml load	L2: 120 V L3: 120 V	L2: 7.8 A L3: 7.2 A	L1: 936 W L2: 864 W L2+L3: 1800 W	1850 W

5.4.2 RF Output Power

RF Output Power Measurement						
Mass of water	Mass of beaker	Ambient temperature	Starting temperature	Final temperature	Elapsed time	Calculated RF power
1018g	416g	21.1 °C	13.6 °C	25.8 °C	60 sec	884.6 W

5.5 Result Summary

Manufacturer: MIELE & CIE. KG
 Model: H4082 BM
 Serial Number: 00/000000000000

The EUT power consumption matches with the manufacturer's rating.

The RF output power exceeds 500W. Therefore the field strength limit is calculated according to §18.305 (b) based on the measured power of 884.6 W.

The EUT meets the requirements of this section.

Test Personnel: Wolfgang Döring
 Test Date: 2008-12-01

6 OPERATING FREQUENCIES

Test Requirement: FCC 47 CFR, Sections 18.301 and 303
 Test Procedure: FCC/OET MP-5 (1986)

6.1 Regulation

Section 18.301 Operating frequencies

ISM equipment may be operated on any frequency above 9 kHz except as indicated in § 18.303. The following frequency bands, in accordance with §2.106 of the rules, are allocated for use by ISM equipment:

ISM frequency	Tolerance
...	...
2,450 MHz	+/- 50.0MHz
...	...

6.2 Test Procedure

According to OET MP-5 Section 4.5 Frequency measurements.

The frequency was measured using a EMI Receiver and a Horn Antenna placed at a distance of approx. 3 meters from the EUT.

The frequency was measured as a function of

- a) line voltage variation (from 80% to 125% of both nominal line voltages) and
- b) load variation (from 1000ml to 200ml).

6.3 Results

6.3.1 Frequency vs Line Voltage Variation Test

a) Nominal Voltage: 208V; Load: 1000ml

Line Voltage [V]	lower -20dBc frequency [MHz]	peak frequency [MHz]	upper -20dBc frequency [MHz]
208 (100%)	2,406.8	2,458.8	2,462
187.2 (90%)	2,405.6	2,457.2	2,460.8
166.4 (80%)	2,410	2,422	2,427.2
228 (110%)	2,405.2	2,458.8	2,462.8
260 (125%)	2,402.8	2,458.4	2,463.6

b) Nominal Voltage: 240V; Load: 1000ml

Line Voltage [V]	lower -20dBc frequency [MHz]	peak frequency [MHz]	upper -20dBc frequency [MHz]
240 (100%)	2,407.2	2,454	2,460
216 (90%)	2,416.8	2,457.6	2,460
192 (80%)	2,406.4	2,456	2,459.2
264 (110%)	2,411.6	2,456.8	2,461.6
300 (125%)	2,406.8	2,459.2	2,462.4

6.3.2 Frequency vs Load Variation Test

a) Voltage: 208V, Nominal Load: 1000ml

Load [ml]	lower -20dBc frequency [MHz]	peak frequency [MHz]	upper -20dBc frequency [MHz]
1000 (100%)	2,406.8	2,458.8	2,462
800 (80%)	2,412.8	2,459.6	2,461.2
600 (60%)	2,426	2,455.6	2,457.6
400 (40%)	2,432.8	2,456	2,458.4
200 (20%)	2,430	2,451.6	2,458.4

b) Voltage: 240V, Nominal Load: 1000ml

Load [ml]	lower -20dBc frequency [MHz]	peak frequency [MHz]	upper -20dBc frequency [MHz]
1000 (100%)	2,407.2	2,454	2,460
800 (80%)	2,412	2,453.6	2,592
600 (60%)	2,424.4	2,452.8	2,457.2
400 (40%)	2,428.8	2,454.4	2,456.8
200 (20%)	2,440.8	2,450.4	2,456.4

6.4 Result Summary

Manufacturer: MIELE & CIE. KG
Model: H4082 BM
Serial Number: 00/000000000000

Minimum operating frequency: 2,402.8 MHz

Maximum operating frequency: 2,463.6 MHz

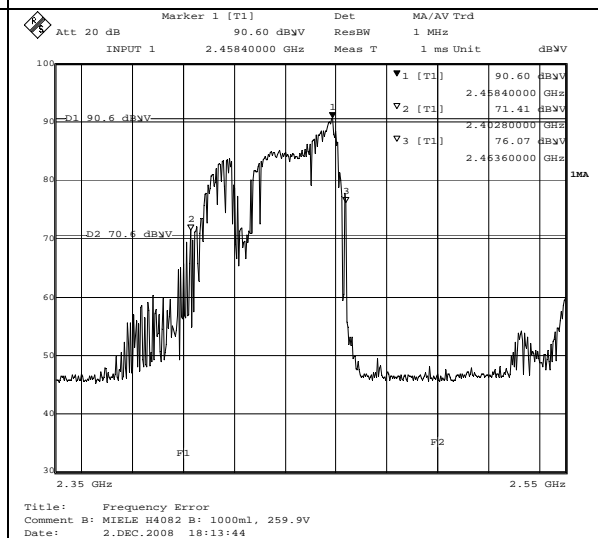
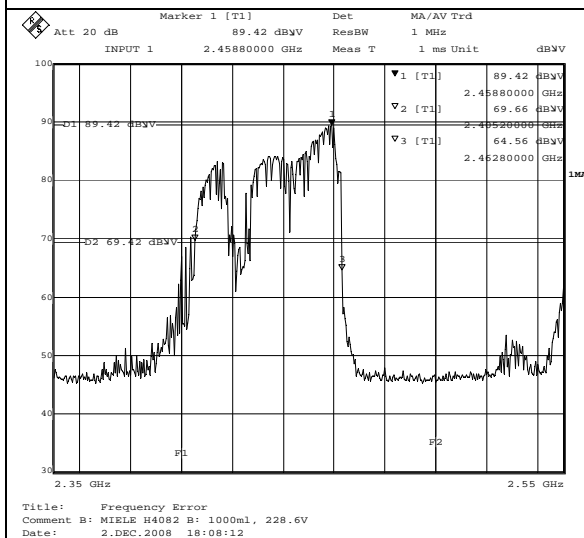
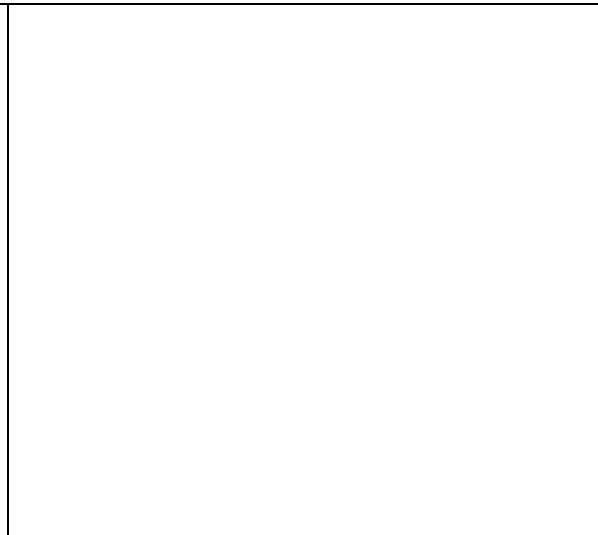
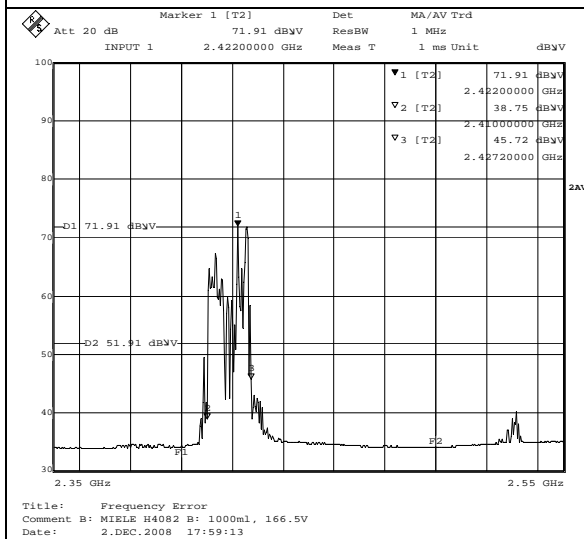
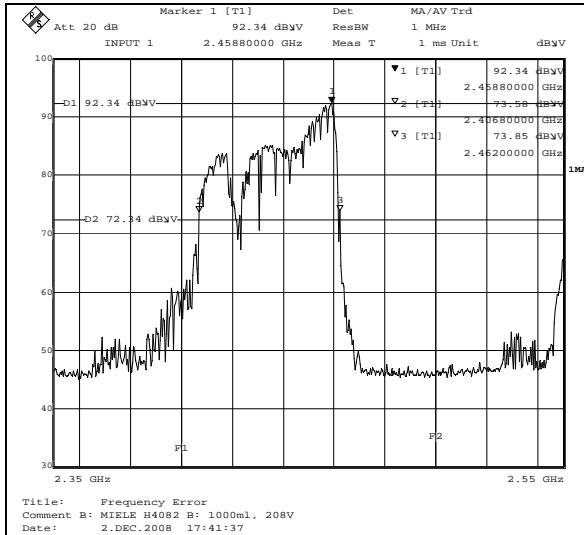
The EUT meets the requirements of this section.

Test Personnel: Wolfgang Döring

Test Date: 2008-12-02

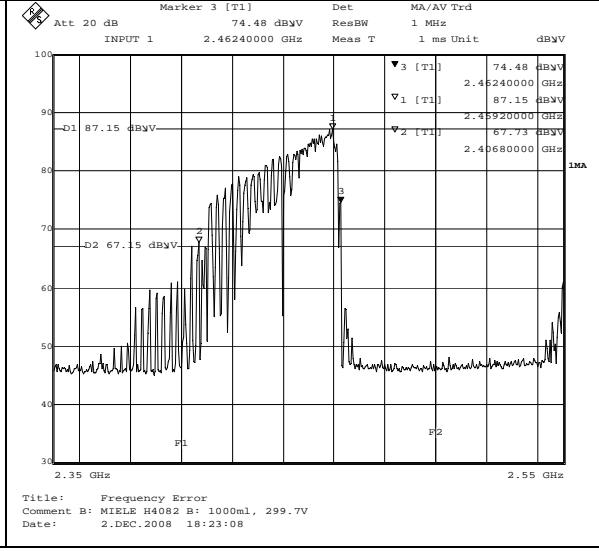
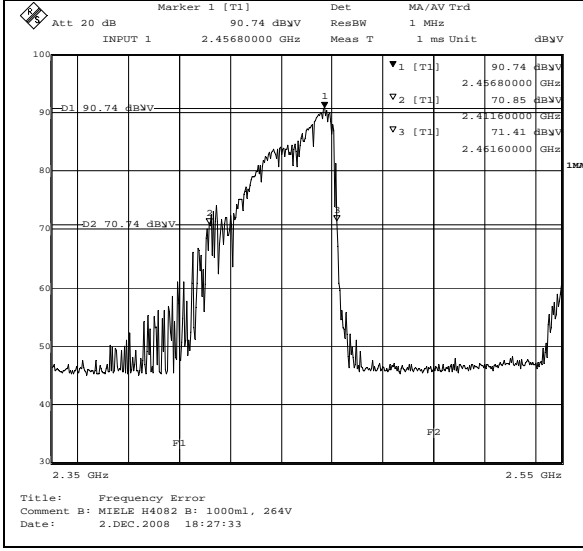
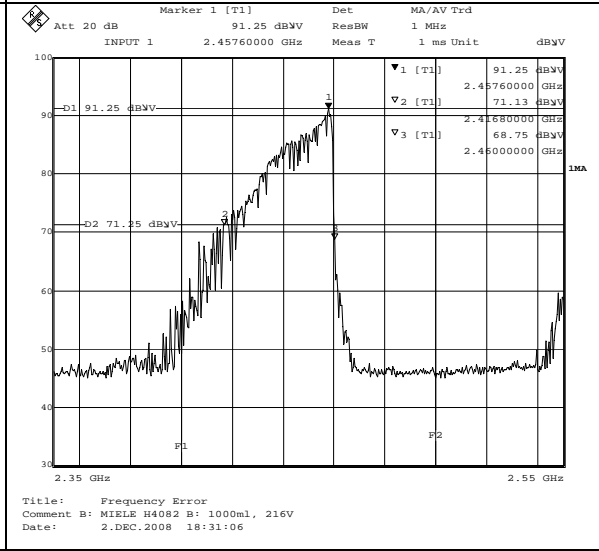
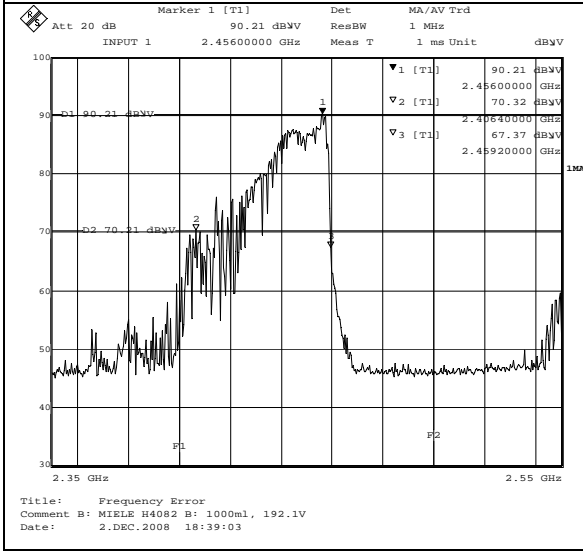
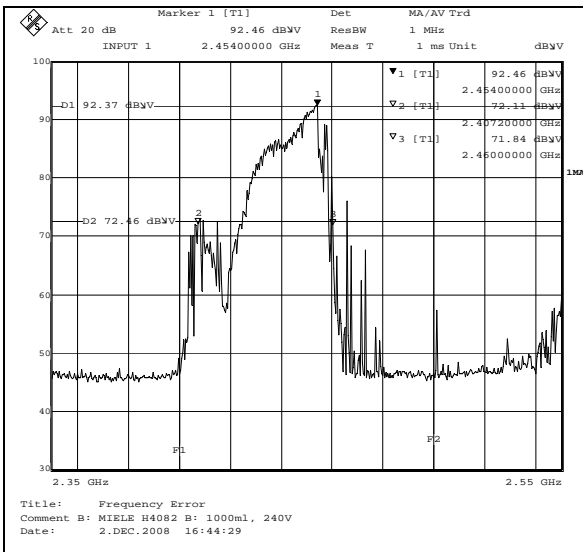
6.5 Measurement Plots

6.5.1 Frequency vs Line Voltage Variation Test (Nominal Voltage = 208 V)



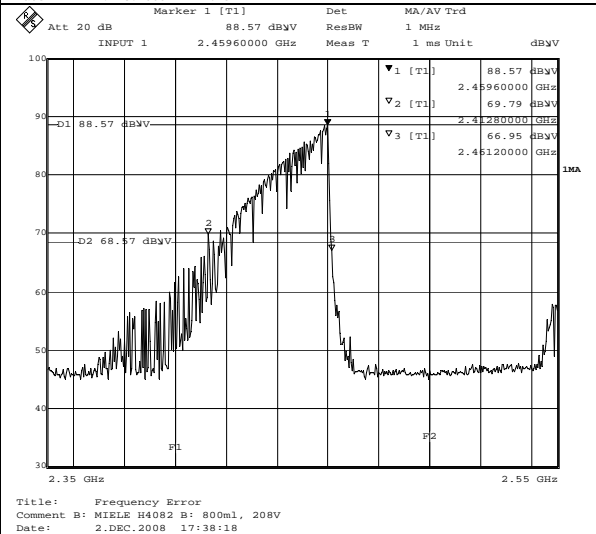
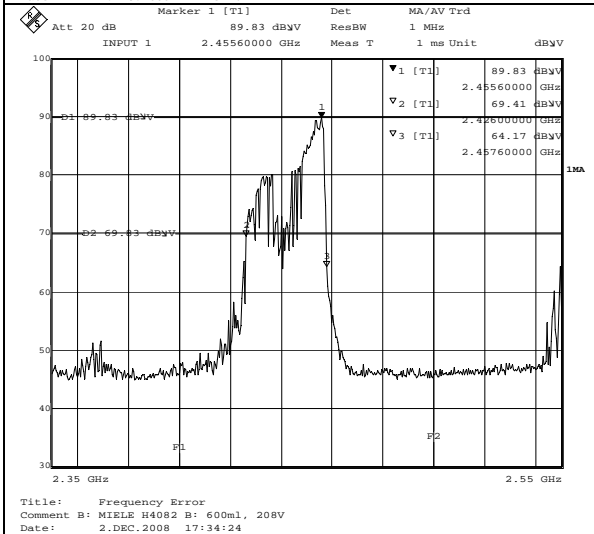
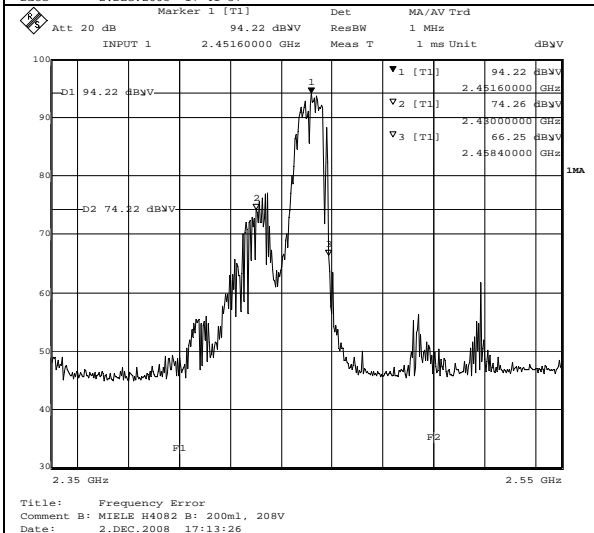
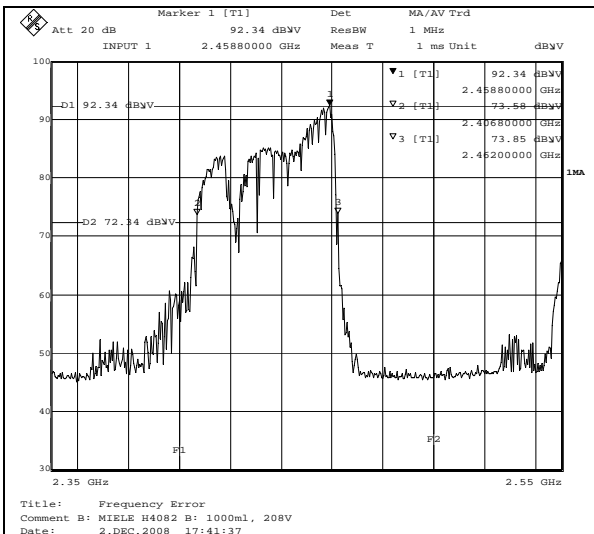
TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

6.5.2 Frequency vs Line Voltage Variation Test (Nominal Voltage = 240 V)



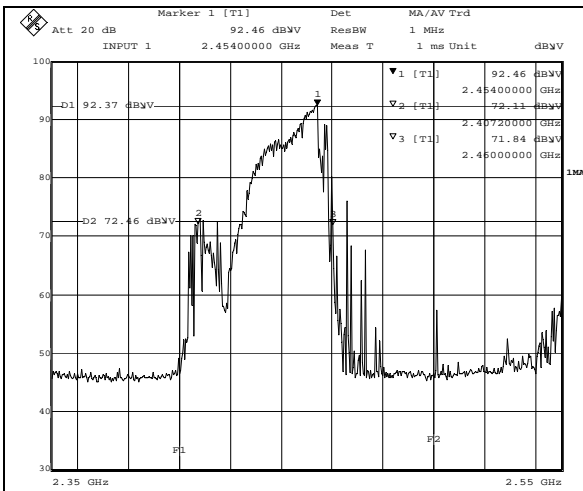
TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

6.5.3 Frequency vs Load Variation Test (Nominal Voltage = 208 V)

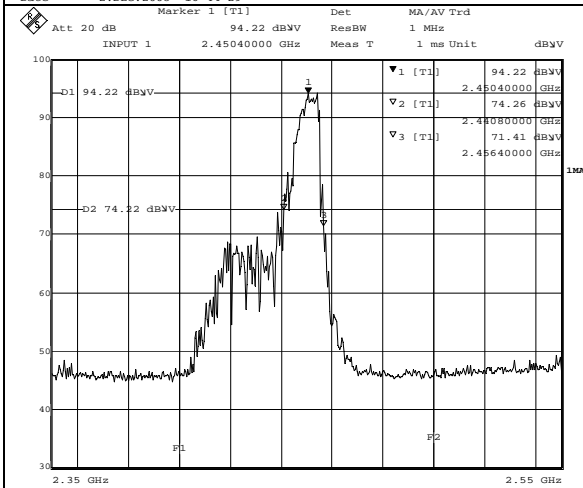


TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

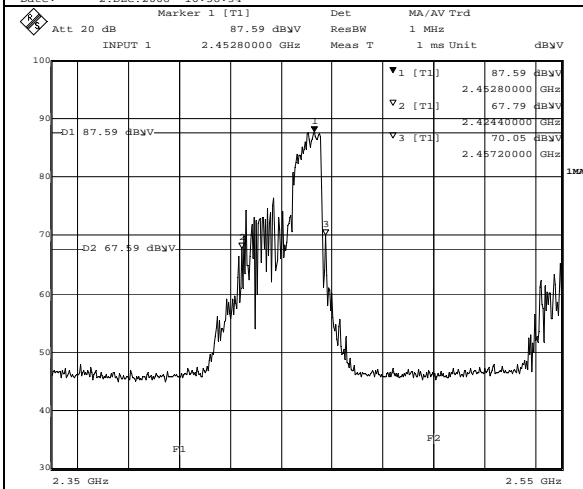
6.5.4 Frequency vs Load Variation Test (Nominal Voltage = 240 V)



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 Date: 2.DEC.2008 16:44:29



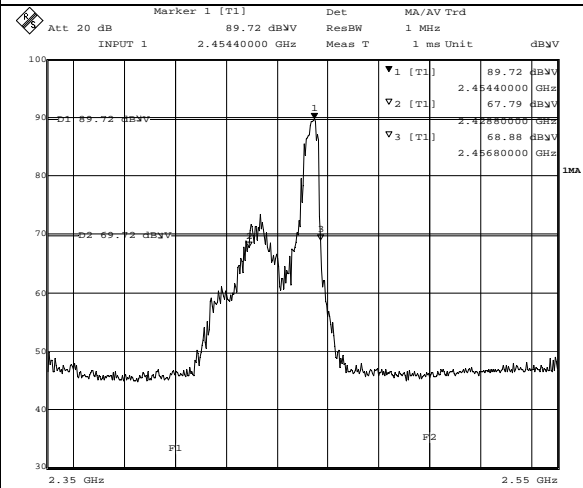
Title: Frequency Error
 Comment B: MIELE H4082 B: 200ml, 240V
 Date: 2.DEC.2008 16:58:34



Title: Frequency Error
 Comment B: MIELE H4082 B: 600ml, 240V
 Date: 2.DEC.2008 16:52:03



Title: Frequency Error
 Comment B: MIELE H4082 B: 400ml, 240V
 Date: 2.DEC.2008 16:55:21



Title: Frequency Error
 Comment B: MIELE H4082 B: 800ml, 240V
 Date: 2.DEC.2008 16:48:18

7 RADIATED EMISSIONS

Test Requirement: FCC 47 CFR, Part 18

Test Procedure: FCC/OET MP-5 (1986)

7.1 Regulation

FCC 47 CFR

Section 18.305 Field strength limits

(a) ISM equipment operating on a frequency specified in § 18.301 is permitted unlimited radiated energy in the band specified for that frequency.

(b) The field strength levels of emissions which lie outside the bands specified in § 18.301, unless otherwise indicated, shall not exceed the following:

Equipment	Operating frequency	RF Power generated by equipment [watts]	Field strength limit [$\mu\text{V}/\text{m}$]	Distance [meters]
Any type unless otherwise specified (miscellaneous).	Any ISM frequency	Below 500	25	300
		500 or more	$25 \times \text{SQRT}(\text{power}/500)$	300 ⁽¹⁾
	Any non-ISM frequency	Below 500	15	300
		500 or more	$15 \times \text{SQRT}(\text{power}/500)$	300 ⁽¹⁾
Industrial heaters and RF stabilized arc welders.	On or below 5,725 MHz	Any	10	1,600
	Above 5,725 MHz	Any	⁽²⁾	⁽²⁾
Medical diathermy	Any ISM frequency	Any	25	300
	Any non-ISM frequency	Any	15	300
Ultrasonic	Below 490 kHz	Below 500	$2,400/F(\text{kHz})$	300
		500 or more	$2,400/F(\text{kHz}) \times \text{SQRT}(\text{power}/500)$	300 ⁽³⁾
	490 to 1,600 kHz	Any	$24,000/F(\text{kHz})$	30
	Above 1,600 kHz	Any	15	30
Induction cooking ranges	Below 90 kHz	Any	1,500	30 ⁽⁴⁾
	On or above 90 kHz	Any	300	30 ⁽⁴⁾

¹ Field strength may not exceed 10 $\mu\text{V}/\text{m}$ at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

² Reduced to the greatest extent possible.

³ Field strength may not exceed 10 $\mu\text{V}/\text{m}$ at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.

⁴ Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

(c) The field strength limits of RF lighting devices shall be the following:

Equipment	Frequency (MHz)	Field strength limit at 30 meters ($\mu\text{V}/\text{m}$)
Non-consumer equipment	30-88	30
	88-216	50
	216-1000	70
Consumer equipment	30-88	10
	88-216	15
	216-1000	20

NOTES

1. The tighter limit shall apply at the boundary between two frequency ranges.

2. Testing for compliance with these limits may be made at closer distances, provided a sufficient number of measurements are taken to plot the radiation pattern, to determine the major lobes of radiation, and to determine

TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

the expected field strength level at 30, 300, or 1600 meters. Alternatively, if measurements are made at only one closer fixed distance, then the permissible field strength limits shall be adjusted using 1/d as an attenuation factor.

Section 18.311 Methods of measurement

The measurement techniques which will be used by the FCC to determine compliance with the technical requirements of this part are set out in FCC Measurement Procedure MP-5, "Methods of Measurements of Radio Noise Emissions from ISM equipment". Although the procedures in MP-5 are not mandated, manufacturers are encouraged to follow the same techniques which will be used by the FCC.

Section 18.309 Frequency range of radiated measurements:

(a) For field strength measurements:

Frequency band in which device operates (MHz)	Range of frequency measurements	
	Lowest frequency	Highest frequency
Below 1.705	Lowest frequency generated in the device but not lower than 9 kHz.	30 MHz.
1.705 - 30	Lowest frequency generated in the device but not lower than 9 kHz.	400 MHz.
30 - 500	Lowest frequency generated in the device or 25 MHz, whichever is lower.	Tenth harmonic or 1,000 MHz, whichever is higher.
500 - 1000	Lowest frequency generated in the device or 100 MHz, whichever is lower.	Tenth harmonic.
Above 1000	do	Tenth harmonic or highest detectable emission.

FCC/OET MP-5 (1986)

Section 2.2.2 Detector function selection and bandwidths.

For radio noise meters or spectrum analyzers which include weighting circuits, the detector function shall be linear. The detector function selector shall be set to average, unless otherwise specified for a given device. For RF lighting devices, the measuring instrument shall have the detector function set to the CISPR quasi-peak function. The 6 dB bandwidth of the measuring instrument shall not be less than:

- 200 Hz for measurements below 150 kHz
- 9 kHz for measurements from 150 kHz to 30 MHz
- 100 kHz for measurements from 30 MHz to 1000 MHz
- 1 MHz for measurements above 1000 MHz

Post detector video filters, if used, shall be wide enough not to affect the peak detector reading.

Alternatively, field strength meters and spectrum analyzers without weighting circuits may be employed, provided measurements are made on the peak basis and recorded as observed.

Section 2.2.6 Antenna-to-test unit distance

Measurements shall be made at the distance at which the limits are specified, to the extend possible. [...] The Commission as an alternative shall accept measurements at a closer fixed distance, provided 1/d is used as attenuation law factor (where d is the distance measured in appropriate units). [...]

7.2 Test Equipment

Type	Manufacturer/ Model No.	EMCC Ident. No.	Last Calibration	Next Calibration
EMI Receiver / Analyzer (30 MHz – 25 GHz)	Rohde & Schwarz ESIB 40	516	2007-12	2009-12
Antenna (30 MHz - 1 GHz)	EMCO Model 3143	898	2007-09	2009-09
Antenna (1 GHz – 18 GHz)	Schwarzbeck BBHA 9120 D	549	2007-08	2009-08
Standard Gain Horn Antenna (18 GHz – 25 GHz)	Mid Century MC 20/31B	1300	n.a.	n.a.
Octave Bandpass Filter (4.00...7.30 GHz)	Microphase / K0917	1038	n.a.	n.a.
Octave Bandpass Filter (7.10...11.00 GHz)	Microphase / K0919	1035	n.a.	n.a.

7.3 Test Procedures

A EUT which is normally operated on a table shall be placed on a nonconductive table having a height of 1 m above test site ground level. [...] Measurements made on a test table of 80 cm height as called for in some international measurement standards will be accepted for proof of compliance. Although the results will probably be only marginally different than with the 1 meter height, the risk for discrepancies lies with the manufacturer. FCC tests will be performed at a height of 1 meter. The EUT was tested on a 80 cm test table.

With the EUT operating in max. power mode with load as specified in FCC/OET MP-5, emissions from the unit are maximized by adjusting the polarization of the receive antenna and rotating the EUT. Manipulating the system cables also maximizes EUT emissions [*Remark: Not applicable*]. Worst case emissions are listed under chapter 7.6 Test Results.

The following loads were used:

- Second and third harmonics measured with two loads: one of 300 ml of water and the other of 700 ml of water. Each load was tested both with the beaker located in the center of the oven and with it in the right front corner
- All other measurements: 700 ml of water, with the beaker located in the center of the oven.

Radiated Emissions Test Characteristics	
Frequency range	30 MHz - 25 GHz
Test distance	10 m (30 MHz – 1000 MHz)* 3m (1 GHz – 25 GHz)*
Test instrumentation resolution bandwidth	120 kHz (30 MHz - 1000 MHz) 1 MHz (1 GHz - 25 GHz)
Receive antenna scan height	1 m - 4 m
Receive antenna polarization	Vertical/Horizontal

* According to FCC/OET MP-5 (1986) Section 2.2.6 Antenna-to-test unit distance:

[...] The Commission as an alternative shall accept measurements at a closer fixed distance, provided 1/d is used as attenuation law factor (where d is the distance measured in appropriate units). [...]

When performing measurements at a distance other than that specified, the results was extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements).

7.4 Calculation of Field Strength Limits

E.g. radiated spurious emissions field strength limits:

$$\mu\text{V/m at 300 meters} = 25 \times \text{SQRT}(\text{power}/500) = 25 \times \text{SQRT}(884.6/500) = 33.25$$

33.25 $\mu\text{V/m}$ corresponds with 30.4 $\text{dB}\mu\text{V/m}$.

7.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor. The basic equation with a sample calculation is as follows:

$$\text{FS} = \text{RA} + \text{AF} + \text{CF} + \text{FA}$$

where

FS = Field Strength in $\text{dB}\mu\text{V/m}$

RA = Receiver Amplitude in $\text{dB}\mu\text{V}$

AF = Antenna Factor in $\text{dB}(1/\text{m})$

CF = Cable Attenuation Factor in dB

FA = external Filter Attenuation in dB

Assume a receiver reading of 34.99 $\text{dB}\mu\text{V}$ is obtained. The Antenna Factor of 31.3 $\text{dB}(1/\text{m})$, a Cable Factor of 2.7 dB and a Filter Attenuation of 0.5 dB are added, giving a field strength of 69.49 $\text{dB}\mu\text{V/m}$. The 69.49 $\text{dB}\mu\text{V/m}$ value can be mathematically converted to its corresponding level in $\mu\text{V/m}$.

$$\text{FS} = 34.99 + 31.3 + 2.7 + 0.5 = 69.49 \text{ [dB}\mu\text{V/m]}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm}(69.49/20) = 2982$$

For test distance other than what is specified, the field strength is calculated by adding additionally an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements). The basic equation with a sample calculation is as follows:

$$\text{FS} = \text{FST} + \text{DF}$$

where

FS = Field Strength in $\text{dB}\mu\text{V/m}$

FST = Field Strength at test distance in $\text{dB}\mu\text{V/m}$

DF = Distance Extrapolation Factor in dB ,

where $\text{DF} = 20 \log(D_{\text{test}}/D_{\text{spec}})$ where D_{test} = Test Distance and D_{spec} = Specified Distance

Assume the tests performed at a reduced Test Distance of 3 m instead of the Specified Distance of 300 m giving a Distance Extrapolation Factor of $\text{DF} = 20 \log(3\text{m}/300\text{m}) = -40 \text{ dB}$.

Assuming a measured field strength level of 69.49 $\text{dB}\mu\text{V/m}$ is obtained. The Distance Factor of -40 dB is added, giving a field strength of 29.49 $\text{dB}\mu\text{V/m}$. The 29.49 $\text{dB}\mu\text{V/m}$ value can be mathematically converted to its corresponding level in $\mu\text{V/m}$.

$$\text{FS} = 34.99 + 31.3 + 2.7 + 0.5 - 40 = 29.49 \text{ [dB}\mu\text{V/m]}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm}(29.49/20) = 29.82$$

7.6 Test Results

PRODUCT SPURIOUS EMISSIONS DATA BELOW 1 GHz; Test Distance = 10 m											
No	Emission Frequency* [MHz]	Receiver Bandwidth and Mode [kHz]	Receiver Reading RA [dB(μV)]	Load / Load Location	Antenna Factor AF ** [dB]	Distance Extrapol. Factor DF [dB]	Result = Corrected Reading FS [dB(μV/m)]	Result [μV/m]	Spec Limit [μV/m] / [dB(μV/m)]	Polarization	Margin [dB]
1	120.7	120, AV	17.3	700ml / center	8	-29.54	-4.24	0.61	33.25 / 30.44	v	34.68
2	153.7		20.4		11.5		2.36	1.31		h	28.08
3	156.4		18.5		11.3		0.26	1.03		h	30.18
4	208.2		19		12.3		1.76	1.22		v	28.68
5	220.6		16.8		12.9		0.16	1.02		h	30.28
6	240.3		10.7		13.5		-5.34	0.54		v	35.78

Remark: * Six max. emissions above noise floor reported.
 ** Cable attenuation already included in antenna factor.

PRODUCT SPURIOUS EMISSIONS DATA ABOVE 1 GHz; Test Distance = 3 m													
No	Emission Frequency* [MHz]	Receiver Bandwidth and Mode [kHz]	Receiver Reading RA [dB(μV)]	Load/ Load Location* [dB]	Cable Attenuation CF [dB]	ext. Filter Att. FA [dB]	Antenna Factor AF [dB]	Distance Extrapol. Factor DF [dB]	Result = Corrected Reading FS [dB(μV/m)]	Result [μV/m]	Spec Limit [μV/m] / [dB(μV/m)]	Polarization	Margin [dB]
1	4892	1000, AV	34.99	300ml/ front	2.7	0.5	31.3	-40	29.49	29.82	33.25 / 30.44	v	0.95
2	4892		34.7	700ml/ center	2.7	0.5	31.3		29.2	28.84		v	1.24
3	4894.8		30.4	300ml/ center	2.7	0.5	31.3		24.9	17.58		v	5.54
4	7351.6		15.5	300ml/ center	3.9	0.5	36.1		16	6.31		v	14.44
5	7356		17.9	700ml/ front	3.9	0.5	36.1		18.4	8.32		v	12.04
6	7367		13.7	700ml/ center	3.9	0.5	36.2		14.3	5.19		v	16.14
7	8187.2		15.7	700ml/ center	3.9	0.5	36.5		16.6	6.76		v	13.84
8	9776.4		11.2	700ml/ center	3.9	0.9	38.3		14.3	5.19		v	16.14

Remark: * Tests performed for loads and load positions as per FCC/OET-MP5.
 Results for max. reading at particular frequencies reported, only.

7.7 Result Summary

Manufacturer: MIELE & CIE. KG
Model: H4082 BM
Serial Number: 00/000000000000

The EUT meets the requirements of this section.

Test Personnel: Wolfgang Döring

Test Date: 2008-12-02 ... 04

8 CONDUCTED EMISSIONS

Test Requirement: FCC 47 CFR, Part 18

Test Procedure: FCC/OET MP-5 (1986)

8.1 Regulation

Section 18.307 Conduction limits.

For the following equipment, when intended to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables.

Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal using a 50 μ H/50 ohms line impedance stabilization network (LISN). [...]

(b) All other part 18 consumer devices:

Frequency of Emission [MHz]	Conducted Limit [dBuV]	
	Quasi-peak (QP)	Average (AV)
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

(d) If testing with a quasi-peak detector demonstrates that the equipment complies with the average limits specified in the appropriate table in this section, additional testing to demonstrate compliance using an average detector is not required.

(e) this conduction limits shall apply only outside of the frequency bands specified in § 18.301.

[...]

(g) The tighter limit applies at the boundary between the frequency ranges.

8.2 Test Procedures

The EUT shall be placed 40 centimeters from an earth grounded conducting surface at least 2 meters square (e.g. the floor of the test chamber) and shall be kept at least 80 centimeters from any other earthed conducting surface. Floor standing equipment may of course be mounted on an earth grounded floor. If the measurement is made in a shielded enclosure, the walls of the enclosure may be substituted for the 2 meters square conducting surface.

If the EUT is supplied with a flexible power lead, the voltage shall be measured at the plug end of the power lead. The length of the power lead in excess 80 centimeters separating the EUT from the LISN shall be folded back and forth so as to form a bundle not exceeding 30 to 40 centimeters in length. [...] The EUT is connected to a dedicated LISN and all peripherals are connected to a second separate LISN circuit. The LISNs are bonded to the groundplane.

Conducted measurements are made on each current carrying conductor with respect to ground.

Test performed in a shielded enclosure. The EUT was placed on a non-conductive support 40 centimeters from the floor of the test chamber.

Tests performed at the AC input of the EUT on lines N, L2 and L3. The EUT was powered by both nominal voltages L2-L3 of 208 V 60 Hz and L2-L3 of 240 V 60 Hz, respectively.

Tests performed with a load of 700ml of water with the beaker placed in the center of the oven. The initial step in collecting conducted data is a peak and average scan of the measurement range with an EMI test receiver. The significant peaks are then measured with quasi-peak and average detector. Worst case conducted emissions are reported.

8.3 Test Equipment

Type	Manufacturer/ Model No.	EMCC Ident. No.	Last Calibration	Next Calibration
EMI Receiver	Rohde & Schwarz ESS	339	2008-11	2009-11
Protector Limiter 10 dB	Rohde & Schwarz ESH3-Z2 357.8810.52	560	2008-08	2009-08
V-LISN 50 ohms//(50 uH + 5 ohms)	Schwarzbeck NSLK8126	368	2008-01	2010-01
AC Power Source	CALIFORNIA INSTRUMENTS HGA with 3 pcs. 5001ih-400	34	-	-
Digital Multimeter	Agilent / U1241A	2917	2008-02	2010-02

8.4 Test Results

8.4.1 Line Voltage (L2-L3) 208 V

EMCCons DR.RASEK Conducted Emissions

01. Dec 08 14:43

EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating: 208V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: L2

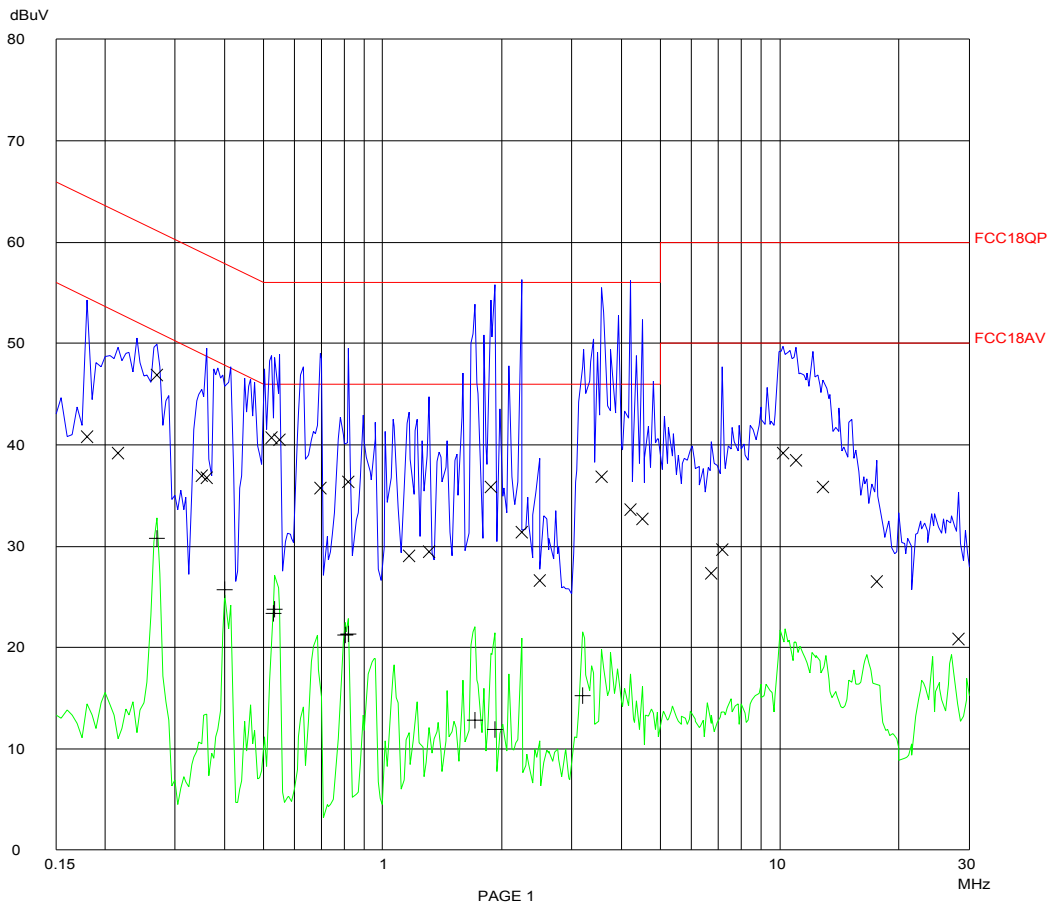
Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV

Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB

Transducer No.	Start	Stop	Name
1	10k	30M	Limiter



EMCCons DR.RASEK
 Conducted Emissions

01. Dec 08 14:43

EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 208V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: L2

Scan Settings (1 Range)

----- Frequencies -----||----- Receiver Settings -----|
 Start Stop Step IF BW Detector M-Time Atten Preamp OpRge
 150k 30M 5k 10k PK+AV 10ms AUTO LN OFF 60dB

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.18000	40.7	64.5
0.21500	39.2	63.0
0.27000	46.8	61.1
0.35000	36.9	59.0
0.36000	36.7	58.7
0.52500	40.6	56.0
0.55000	40.4	56.0
0.69500	35.7	56.0
0.82000	36.3	56.0
1.16500	29.0	56.0
1.30500	29.4	56.0
1.87000	35.8	56.0
2.23500	31.3	56.0
2.48000	26.6	56.0
3.56500	36.8	56.0
4.21000	33.5	56.0
4.51000	32.6	56.0
6.74500	27.2	60.0
7.15000	29.6	60.0
10.19500	39.2	60.0
10.97000	38.5	60.0
12.86000	35.8	60.0
17.54500	26.5	60.0
28.22500	20.8	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.27000	30.8	51.1
0.40000	25.6	47.8
0.53000	23.4	46.0
0.53500	23.8	46.0
0.80500	21.2	46.0
0.82000	21.3	46.0
1.70500	12.8	46.0
1.92000	11.9	46.0
3.19500	15.2	46.0

* limit exceeded

TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

EMCCons DR.RASEK
Conducted Emissions

01. Dec 08 14:28

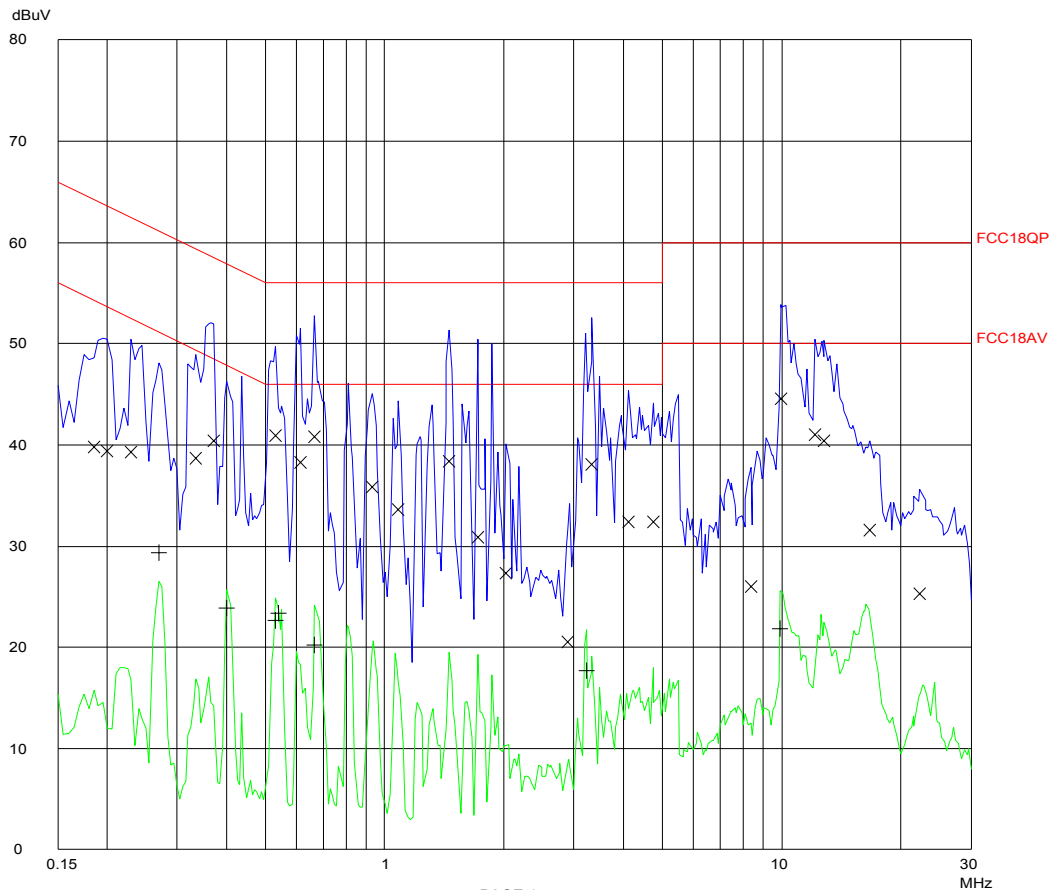
EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 208V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: L3

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB

Transducer No.	Start	Stop	Name
1	10k	30M	Limiter



EMCCons DR.RASEK
 Conducted Emissions

01. Dec 08 14:28

EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 208V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: L3

Scan Settings (1 Range)

----- Frequencies -----||----- Receiver Settings -----|
 Start Stop Step IF BW Detector M-Time Atten Preamp OpRge
 150k 30M 5k 10k PK+AV 10ms AUTO LN OFF 60dB

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.18500	39.7	64.3
0.20000	39.3	63.6
0.23000	39.2	62.4
0.33500	38.7	59.4
0.37000	40.3	58.5
0.53000	40.9	56.0
0.61500	38.3	56.0
0.66500	40.7	56.0
0.93000	35.8	56.0
1.08000	33.5	56.0
1.45500	38.3	56.0
1.71500	30.8	56.0
2.02000	27.3	56.0
2.89000	20.5	56.0
3.33000	38.0	56.0
4.11000	32.4	56.0
4.74500	32.3	56.0
8.38000	26.0	60.0
9.95500	44.5	60.0
12.12500	40.9	60.0
12.81500	40.3	60.0
16.71000	31.5	60.0
22.24500	25.2	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.27000	29.4	51.1
0.40000	23.8	47.8
0.53000	22.6	46.0
0.54000	23.3	46.0
0.66500	20.2	46.0
3.22000	17.7	46.0
9.92500	21.8	50.0

* limit exceeded

TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

EMCCons DR.RASEK
Conducted Emissions

01. Dec 08 14:58

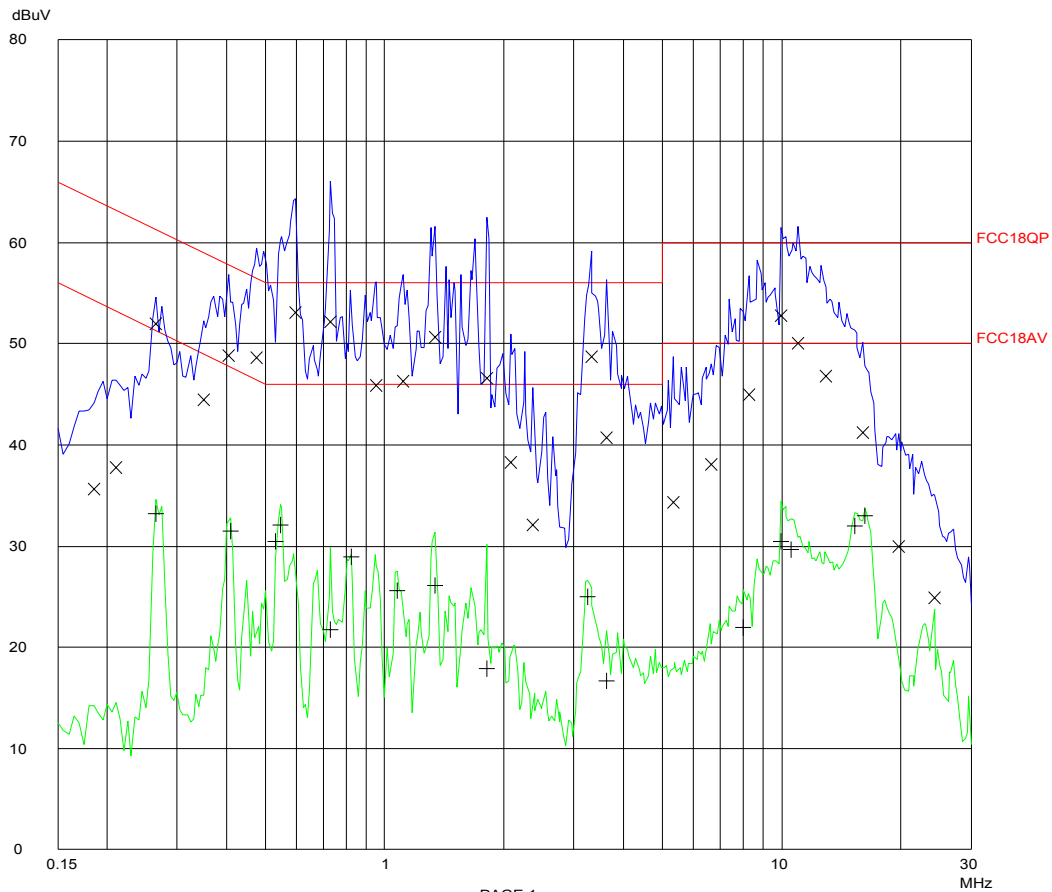
EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 208V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: N

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB

Transducer No.	Start	Stop	Name
1	10k	30M	Limiter



PAGE 1

TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

EMCCons DR.RASEK
 Conducted Emissions

01. Dec 08 14:58

EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 208V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: N

Scan Settings (1 Range)

----- Frequencies -----||----- Receiver Settings -----|
 Start Stop Step IF BW Detector M-Time Atten Preamp OpRge
 150k 30M 5k 10k PK+AV 10ms AUTO LN OFF 60dB

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.18500	35.6	64.3
0.21000	37.7	63.2
0.26500	51.9	61.3
0.35000	44.4	59.0
0.40500	48.8	57.8
0.47500	48.5	56.4
0.59500	53.0	56.0
0.73000	52.1	56.0
0.95000	45.9	56.0
1.11500	46.2	56.0
1.34000	50.6	56.0
1.80500	46.6	56.0
2.07500	38.2	56.0
2.36500	32.1	56.0
3.32000	48.6	56.0
3.62000	40.6	56.0
5.32500	34.3	60.0
6.65500	38.0	60.0
8.29500	44.9	60.0
9.95500	52.7	60.0
10.98500	50.0	60.0
12.95500	46.8	60.0
16.05000	41.2	60.0
19.68000	29.9	60.0
24.30500	24.9	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.26500	33.1	51.3
0.41000	31.5	47.7
0.53000	30.4	46.0
0.54500	32.1	46.0
0.73000	21.7	46.0
0.82500	28.9	46.0
1.07500	25.5	46.0
1.34000	26.0	46.0
1.80500	17.9	46.0
3.24500	24.9	46.0
3.62000	16.6	46.0
7.99000	22.0	50.0
9.97500	30.5	50.0
10.57000	29.6	50.0
15.31000	32.0	50.0
16.17500	32.9	50.0

* limit exceeded

PAGE 2

8.4.2 Line Voltage (L2-L3) 240 V

EMCCons DR.RASEK Conducted Emissions

01. Dec 08 13:49

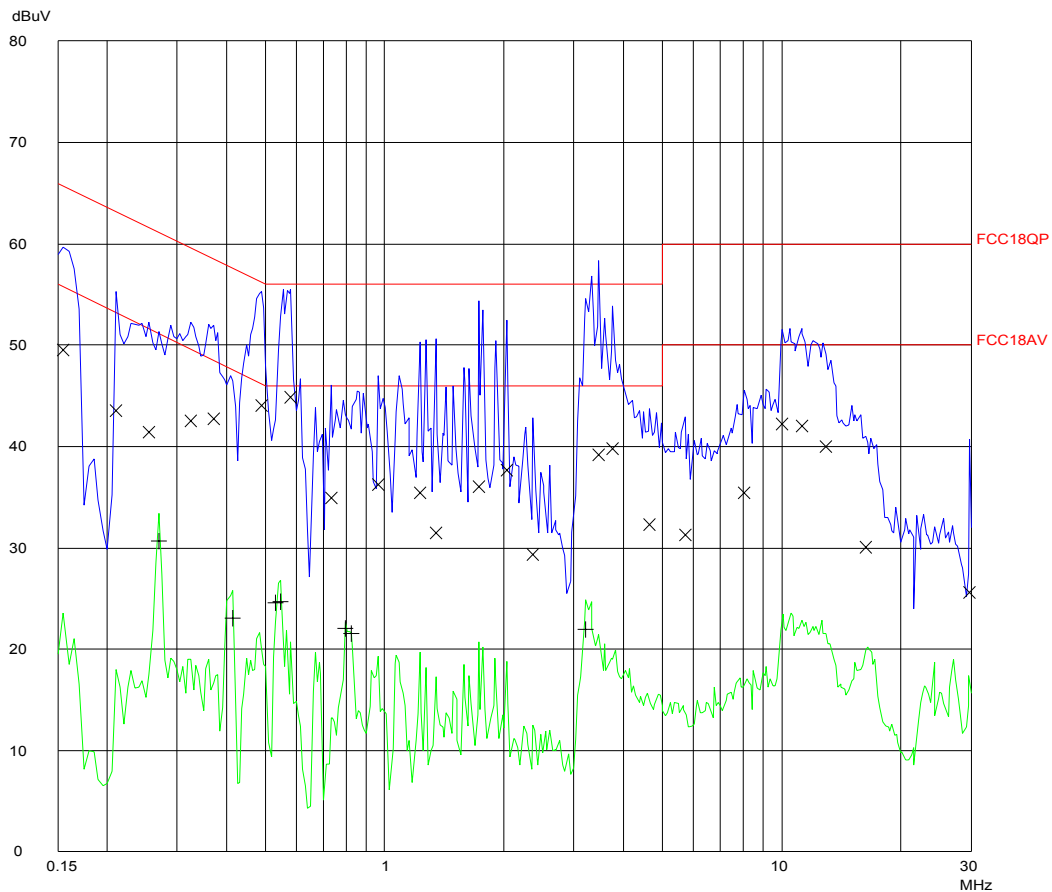
EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 240V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: L2

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB

Transducer No.	Start	Stop	Name
1	10k	30M	Limiter





TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

EMCCons DR.RASEK
 Conducted Emissions

01. Dec 08 13:49

EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 240V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: L2

Scan Settings (1 Range)

----- Frequencies -----||----- Receiver Settings -----|
 Start Stop Step IF BW Detector M-Time Atten Preamp OpRge
 150k 30M 5k 10k PK+AV 10ms AUTO LN OFF 60dB

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15500	49.5	65.7
0.21000	43.5	63.2
0.25500	41.4	61.6
0.32500	42.5	59.6
0.37000	42.7	58.5
0.49000	44.0	56.2
0.58000	44.8	56.0
0.73500	34.9	56.0
0.96500	36.2	56.0
1.23000	35.4	56.0
1.35000	31.5	56.0
1.73000	36.0	56.0
2.03000	37.6	56.0
2.36000	29.3	56.0
3.46500	39.2	56.0
3.75500	39.8	56.0
4.64500	32.3	56.0
5.72500	31.3	60.0
8.05500	35.4	60.0
10.05000	42.2	60.0
11.23000	42.0	60.0
12.91500	40.0	60.0
16.31000	30.0	60.0
29.79000	25.6	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.27000	30.7	51.1
0.41500	23.0	47.6
0.53000	24.5	46.0
0.54500	24.6	46.0
0.79500	22.0	46.0
0.82500	21.5	46.0
3.21000	21.9	46.0

* limit exceeded

TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

EMCCons DR.RASEK
Conducted Emissions

01. Dec 08 14:07

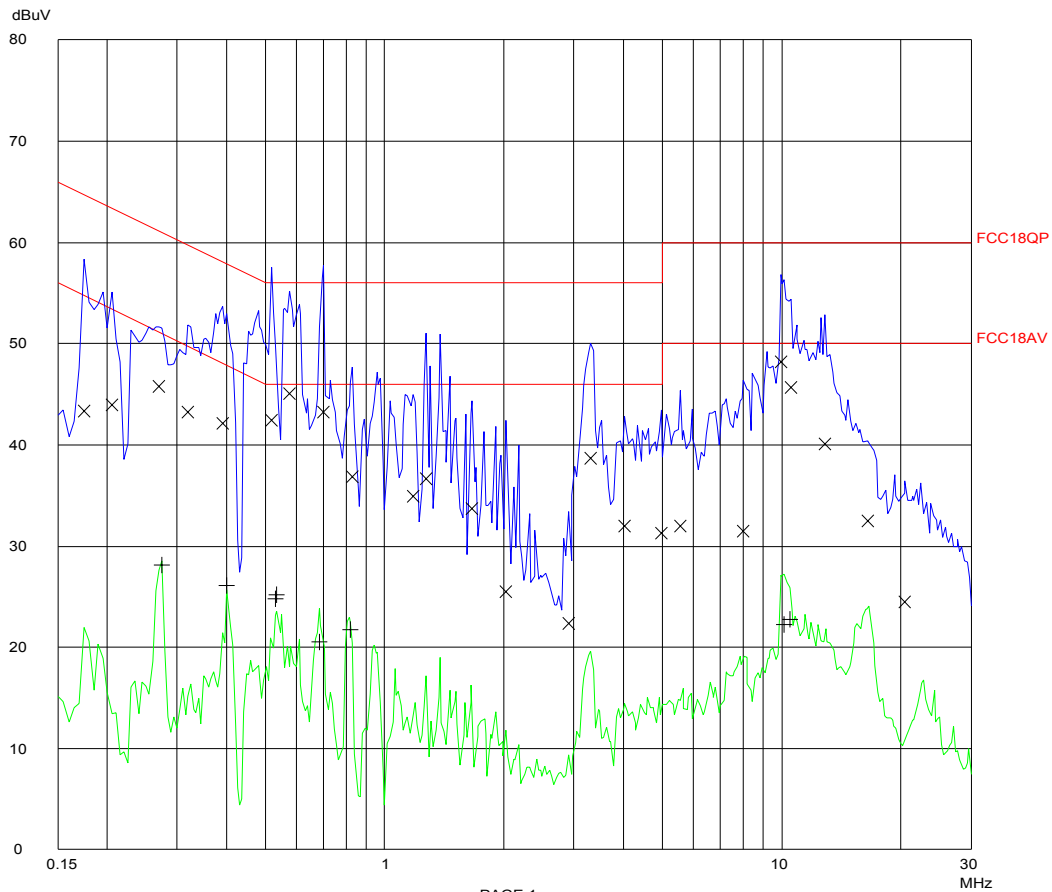
EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 240V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: L3

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB

Transducer No.	Start	Stop	Name
1	10k	30M	Limiter



PAGE 1

EMCCons DR.RASEK
 Conducted Emissions

01. Dec 08 14:07

EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 240V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: L3

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN	OFF 60dB

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.17500	43.3	64.7
0.20500	43.9	63.4
0.27000	45.8	61.1
0.32000	43.2	59.7
0.39000	42.1	58.0
0.52000	42.4	56.0
0.57500	45.0	56.0
0.70000	43.2	56.0
0.83000	36.8	56.0
1.18000	34.9	56.0
1.27500	36.6	56.0
1.65500	33.7	56.0
2.02000	25.5	56.0
2.90500	22.3	56.0
3.30500	38.7	56.0
4.01000	31.9	56.0
4.97500	31.2	56.0
5.56000	32.0	60.0
7.99000	31.4	60.0
9.99000	48.2	60.0
10.57500	45.7	60.0
12.82000	40.1	60.0
16.44000	32.5	60.0
20.47500	24.5	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.27500	28.1	51.0
0.40000	26.0	47.8
0.53000	24.8	46.0
0.53500	25.1	46.0
0.68500	20.5	46.0
0.82000	21.7	46.0
10.14000	22.3	50.0
10.53000	22.7	50.0

* limit exceeded

TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

EMCCons DR.RASEK
Conducted Emissions

01. Dec 08 13:28

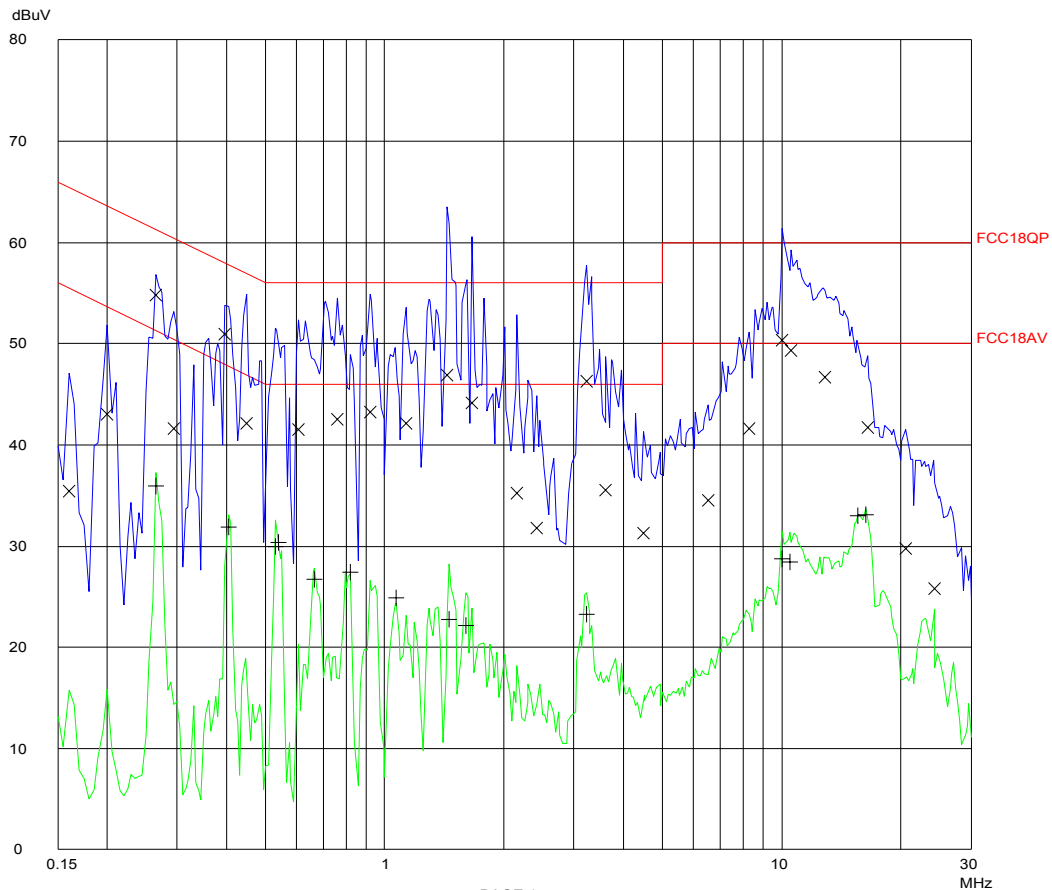
EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 240V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: N

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB

Transducer No.	Start	Stop	Name
1	10k	30M	Limiter



PAGE 1

TEST OF MIELE & CIE. KG HOUSEHOLD MICROWAVE / CONVECTION OVEN MODEL H4082 BM TO 47 CFR PART 18

EMCCons DR.RASEK
Conducted Emissions

01. Dec 08 13:28

EUT: H4082 BM, Magnetron 2M248H(ML)
 Manuf: MIELE
 Op Cond: Operating; 240V
 Operator: Doering
 Test Spec: FCC Part 18
 Comment: N

Scan Settings (1 Range)

----- Frequencies -----||----- Receiver Settings -----|
 Start Stop Step IF BW Detector M-Time Atten Preamp OpRge
 150k 30M 5k 10k PK+AV 10ms AUTO LN OFF 60dB

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.16000	35.4	65.5
0.20000	43.0	63.6
0.26500	54.8	61.3
0.29500	41.6	60.3
0.39500	50.9	57.9
0.45000	42.0	56.9
0.60500	41.4	56.0
0.76000	42.5	56.0
0.92000	43.2	56.0
1.13500	42.1	56.0
1.43500	46.8	56.0
1.66000	44.1	56.0
2.15500	35.2	56.0
2.42000	31.7	56.0
3.22000	46.2	56.0
3.61000	35.5	56.0
4.48000	31.3	56.0
6.53000	34.5	60.0
8.26500	41.5	60.0
10.02000	50.3	60.0
10.56500	49.3	60.0
12.85000	46.6	60.0
16.44000	41.7	60.0
20.49000	29.7	60.0
24.35500	25.8	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.26500	35.9	51.3
0.40500	31.8	47.8
0.53000	29.9	46.0
0.54000	30.3	46.0
0.66500	26.6	46.0
0.82000	27.4	46.0
1.07000	24.9	46.0
1.45500	22.8	46.0
1.60000	22.1	46.0
3.23000	23.2	46.0
10.02500	28.7	50.0
10.47500	28.4	50.0
15.59500	33.0	50.0
16.25500	33.1	50.0

* limit exceeded

8.5 Result Summary

Manufacturer: MIELE & CIE. KG
Model: H4082 BM
Serial Number: 00/000000000000

The EUT meets the requirements of this section.

Test Personnel: Wolfgang Döring

Test Date: 2008-12-01

9 MISCELLANEOUS COMMENTS AND NOTES

None.

10 LIST OF ANNEXES

The following annexes are separated parts to this test report.

Annex	Description	File name	Pages
Annex 0	Label and Label Placement Diagrams	990159H_Annex0.pdf	2
Annex 1	Photographs of test setups	990159H_Annex1.pdf	4
Annex 2	Photographs of equipment under test (EUT) external views	990159H_Annex2.pdf	5
Annex 3	Photographs of equipment under test (EUT) internal views	990159H_Annex3.pdf	5