Test Report

Curtis-Straus LLC, *a wholly owned subsidiary of BV CPS*

Report No	EK0244-1
Client	Keurig Inc.
Address	55 Walkers Brook Drive Reading, MA 01867
Phone	781-205-7221
Items tested	B81
FCC ID	YMSK5E3U8R7I4G481
FRN	0019667195
Equipment Type	Part 15.247 Digital Transmission Systems
Equipment Code	DTS
FCC/IC Rule Parts	47 CFR 15.247
Test Dates	May 17, 2010 & July 16 and 21, 2010
Results	As detailed within this report
Prepared by	Matthew Burman – Test Engineer
Authorized by	Mairaj Hussain – EMC Supervisor
Issue Date	August 5, 2010
Conditions of Issue	This Test Report is issued subject to the conditions stated in the '*Conditions of Testing*' section on page 28 of this report.

Contents

Form Final Report REV 7-20-07 (DW)

Summary

This test report supports an application for certification of a transmitter operating pursuant to 47 CFR 15.247. The product is the B81.

We found that the product met the above requirements with modification (see *Modifications Required for Compliance* section on page 6). Ranganarayan Narasimhan from Keurig Inc. was present during the testing. The test sample was received in good condition.

Test Methodology

Radiated emission and AC Line conducted testing was performed according to the procedures specified in ANSI C63.10 (2009) and C63.4 (2009). Radiated Emissions were maximized by rotating the device around its axes as well as varying the test antenna's height and polarity. The device antenna cannot be maximized separately.

Radiated emissions about the digital circuitry within the coffee brewer were not tested due to exemption. Section 15.103(d), a digital device utilized exclusively as an appliance.

Conducted emission at the antenna port was performed, as required by rule section.

The EUT receives backscattered RFID information at the same time that it transmits the data, it does not contain a dedicated receive mode.

The EUT operating voltage is 120Vac 60Hz.
Low operating channel frequency = 910MHz
Mid operating channel frequency = 915MHz
High operating channel frequency = 922MHz

The following bandwidths were used during radiated spurious and line conducted emissions.

Frequency	RBW	VBW
0.15-30MHz	9kHz	30kHz
30-1000MHz	120kHz	1MHz
1-25GHz	1MHz	3MHz

Release Control Record

Issue No.	Reason for change	Date Issued
1	Original Release	August 5, 2010

Product Tested - Configuration Documentation

EUT Configuration

Work Order: K0244
Company: Keurig Inc.
Company Address: 55 Walkers Brook Drive
Reading, MA 01867
Contact: Alexander Rojas
Person Present: Alexander Rojas

	MN	PN	SN
EUT:	B81	---	Sample 1

EUT Description: Coffee Brewer
EUT Tx Frequency: 902-928MHz

Support Equipment:	MN	SN
none	---	---

EUT Ports:

Port Label	Port Type	No. of ports	No. Populated	Cable Type	Shielded	Ferrites	Length	Max Length	In/Out NEBS Type	Unpopulated Reason
AC mains	AC	1	1	3-wire AC	no	none	1.5m	1.5m	indoor	

Software / Operating Mode Description:

EUT cotinues to transmit data at 902-928MHz.

Statement of Conformity

The B81 has been found to conform to the following parts of 47 CFR and as detailed below:

Part 15	Comments
15.15(b)	There are no controls accessible to the user that varies the output power.
15.19	The label is shown in the label exhibit.
15.21	Information to the user is shown in the instruction manual exhibit.
15.27	Modification was required for compliance, see modifications required for compliance section.
15.31	The EUT was tested in accordance with the measurement standards in this section.
15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
15.35	The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.
15.203	The antenna for this device is hardwired to the PCB.
15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209.
15.207	EUT meets the AC Line conducted emissions requirements of 15.207.
15.247	The unit complies with the requirements of 15.247

Modifications Required for Compliance

To pass spurious emissions, the length of the coaxial cable was shortened and soldered it to the component side of board rather than the underside. Prior to this modification the product was failing.

Spurious Emissions Table

Date: 16-Jul-10 **Company:** Keurig **Work Order:** K0244
Engineer: Matthew Burman **EUT Desc:** B81 **EUT Operating Voltage/Frequency:** 120Vac 60Hz
Temp: 24.7°C **Humidity:** 48% **Pressure:** 1014mBar
Frequency Range: 1-6GHz **Measurement Distance:** 3 m
Notes: Spurious Emissions - Harmonics of the Fundamental Duty Cycle Correction Factor of 20dB
With new components

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Filter Factor (dB)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC Class B High Frequency - Peak Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	FCC Class B High Frequency - Average Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
v	2718.28	65.15	45.2	22.1	29.1	0.3	3.3	75.8	55.8	74.0	1.8	Fail	54.0	1.8	Fail
cable	2718.28	66.0	46.0	22.1	29.1	0.3	3.3	76.6	56.6	74.0	2.6	Fail	54.0	2.6	Fail
d fundamental fre	2736.7	67.0	47.0	22.1	29.1	0.3	3.3	77.6	57.6	74.0	3.6	Fail	54.0	3.6	Fail
added to front of	2736.7	66.44	46.4	22.1	29.1	0.3	3.3	77.0	57.0	74.0	3.0	Fail	54.0	3.0	Fail
emoved foil shiel	2736.7	66.27	46.3	22.1	29.1	0.3	3.3	76.9	56.9	74.0	2.9	Fail	54.0	2.9	Fail
th strip of copper	2736.7	68.0	48.0	22.1	29.1	0.3	3.3	78.6	58.6	74.0	4.6	Fail	54.0	4.6	Fail
foil in middle	2736.7	66.0	46.0	22.1	29.1	0.3	3.3	76.6	56.6	74.0	2.6	Fail	54.0	2.6	Fail
foil on top portion	2736.7	65.5	45.5	22.1	29.1	0.3	3.3	76.1	56.1	74.0	2.1	Fail	54.0	2.1	Fail
	2736.7	64.4	44.4	22.1	29.1	0.3	3.3	75.0	55.0	74.0	1.0	Fail	54.0	1.0	Fail
	2736.7	63.5	43.5	22.1	29.1	0.3	3.3	74.1	54.1	74.0	0.1	Fail	54.0	0.1	Fail
cable araingemen	2736.7	66.4	46.4	22.1	29.1	0.3	3.3	77.0	57.0	74.0	3.0	Fail	54.0	3.0	Fail
removed kcup	2736.7	65.11	45.1	22.1	29.1	0.3	3.3	75.7	55.7	74.0	1.7	Fail	54.0	1.7	Fail
v	3652.75	51.0	31.0	20.9	31.6	0.3	4.0	66.0	46.0	74.0	-8.0	Pass	54.0	-8.0	Pass
v	4529.85	49.3	29.3	20.1	32.4	0.4	4.5	66.5	46.5	74.0	-7.5	Pass	54.0	-7.5	Pass
v	5441.45	41.0	21.0	19.6	34.2	0.4	5.0	61.0	41.0	74.0	-13.0	Pass	54.0	-13.0	Pass

Table Result: Pass by -4.6 dB ***Worst Freq:*** 2718.28 MHz

Test Site: 1DCC-OATS-3M-I **Cable 1:** EMIR-HIGH-22 **High Pass Filter:** Asset #1310 **Cable 3:** ---
Analyzer: Brown **Preamp:** Asset #1517 **Antenna:** Yellow Horn **Preselector:** ---

Test Results

Bandwidth

LIMIT

The minimum 6 dB bandwidth shall be at least 500 kHz. [15.247(a) (2)]

MEASUREMENTS / RESULTS

Measured 6dB bandwidth =

Data Table

Bandwidth

Date: 08-Jul-10 **Company:** Keurig **Work Order:** K0244
Engineer: Matthew Burman **EUT Desc:** B81 **EUT Operating Voltage/Frequency:** 120Vac 60Hz
Temp: 26°C **Humidity:** 25% **Pressure:** 1013mBar
Frequency Range: 902-928MHz **Measurement Distance:** Conductive
Notes: 6dB bandwidth
RBW = 100kHz, VBW = 300kHz

Antenna Polarization (H / V)	Frequency (MHz)	6dB Bandwidth (MHz)					--- Limit (dBµV/m)	--- Margin (dB)	--- Result (Pass/Fail)	FCC 15.247 (a)(2) Limit (MHz)	FCC 15.247 (a)(2) Margin (MHz)	FCC 15.247 (a)(2) Result (Pass/Fail)
low channel	910.0	5.8120								0.5	5.3	Pass
mid channel	915.0	4.5900								0.5	4.1	Pass
high channel	920.0	6.1450								0.5	5.6	Pass

Table Result: Pass

Test Site: EMC4 **Cable 1:** EMIR-HIGH-21
Analyzer: Asset #1491 **Filter:** PE7019-20

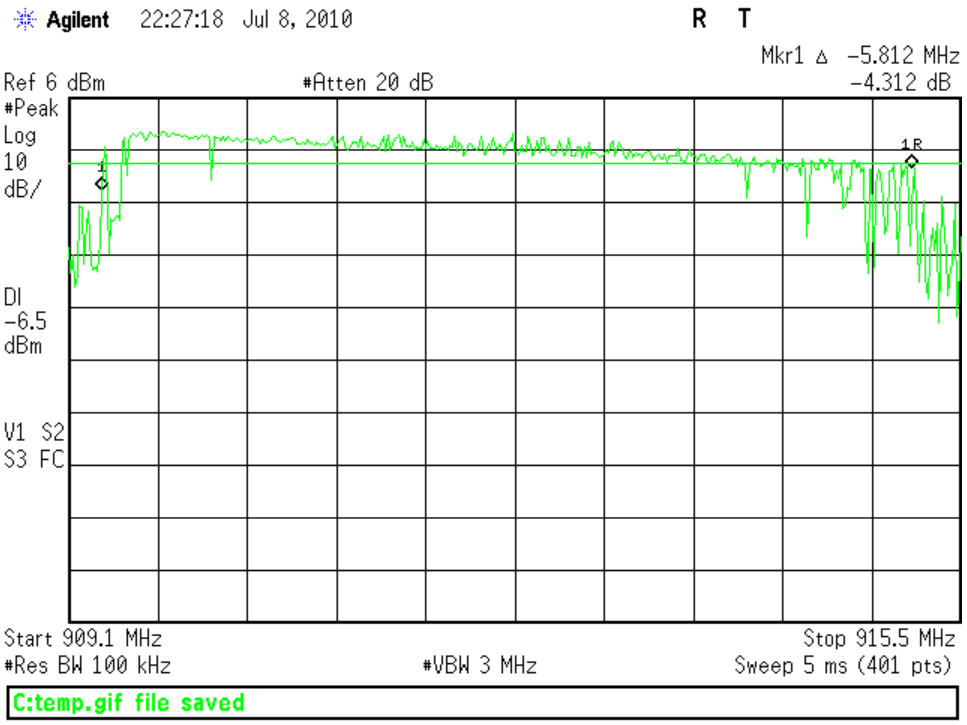
Rev: 7-Jul-2010

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Rental SA #5	9kHz-26.5 GHz	E4407B	Agilent	MY44220066	1491	I	11-Feb-2011

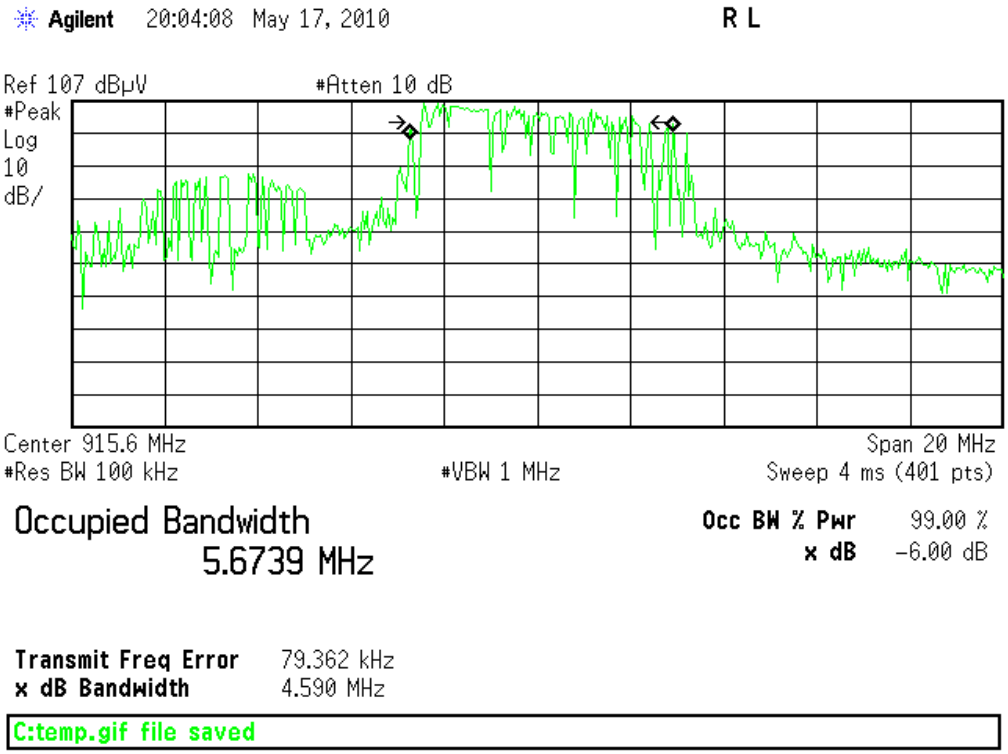
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	8-May-2011

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

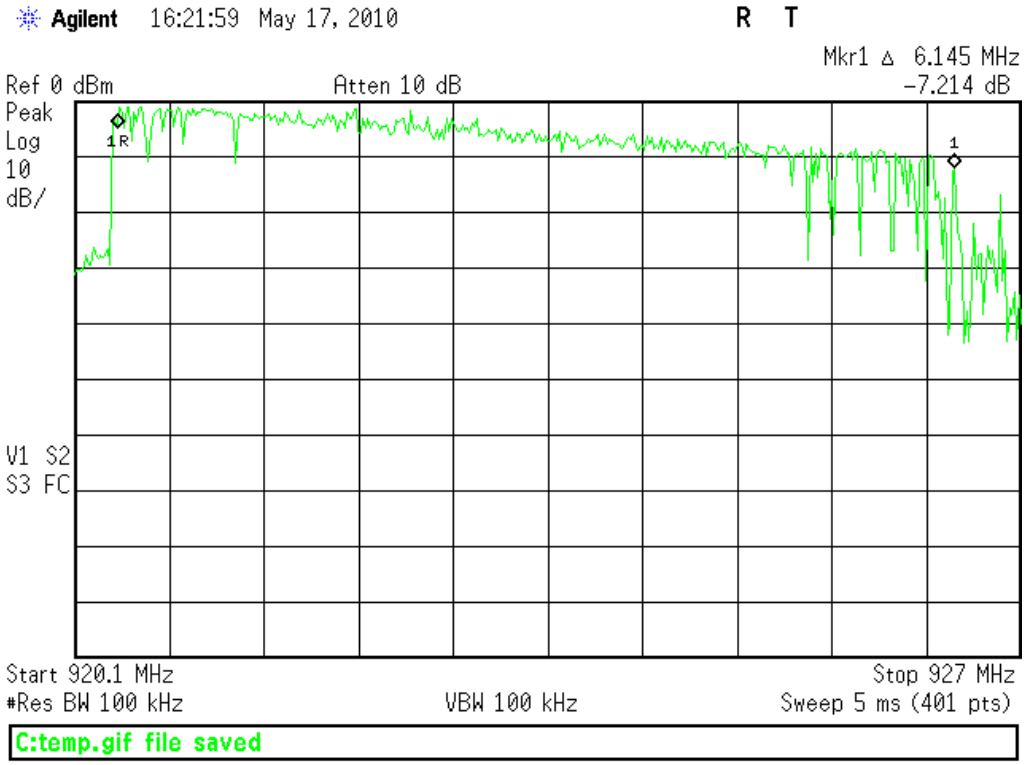
PLOT
Low Channel



Mid Channel



High Channel



Peak Power

LIMIT

Conducted Output Power
1 Watt
[15.247(b) (3)]

MEASUREMENTS / RESULTS

DATA TABLE

Peak Output Power

Date: 08-Jul-10 **Company:** Keurig **Work Order:** K0244
Engineer: Matthew Burman, TT **EUT Desc:** B81 **EUT Operating Voltage/Frequency:** 120Vac 60Hz
Temp: 24.8°C **Humidity:** 44% **Pressure:** 1014mBar
Frequency Range: 902-928MHz **Measurement Distance:** Conductive
Notes: POP Option 2, Method #3
RBW = 1MHz, VBW = 3MHz
1 Watt = 30dBm

Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBm)	Filter Factor (dB)		Cable Factor (dB)	Adjusted Reading (dBm)	--- Limit (dBµV/m)	--- Margin (dB)	--- Result (Pass/Fail)	FCC 15.247 (b)(3) Limit (dBm)	FCC 15.247 (b)(3) Margin (dB)	FCC 15.247 (b)(3) Result (Pass/Fail)
low channel	910.01	7.7	19.4		1.1	28.2				30.0	-1.8	Pass
mid channel	913.2	3.1	19.4	---	1.1	23.6	---	---	---	30.0	-6.4	Pass
high channel	922.3	4.3	19.4	---	1.1	24.8	---	---	---	30.0	-5.2	Pass

Table Result: Pass by -1.8 dB ***Worst Freq:*** 910.01 MHz

Test Site: EMC4 **Cable 1:** EMIR-HIGH-21
Analyzer: Asset #1491 **Attenuator:** PE7019-20

Rev: 7-Jul-2010

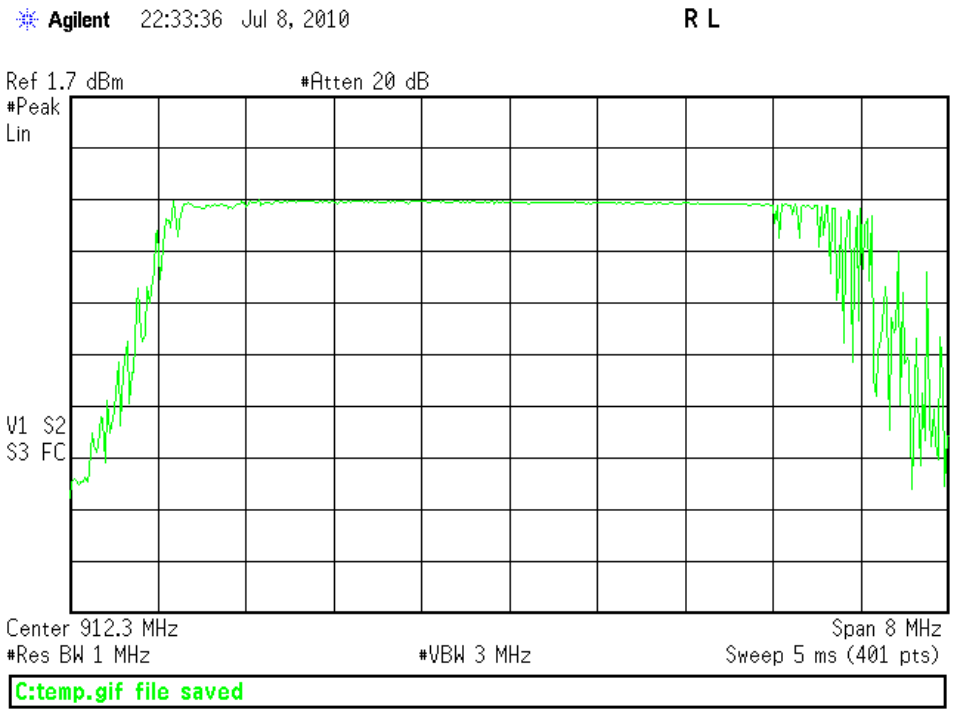
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Rental SA #5	9kHz-26.5 GHz	E4407B	Agilent	MY44220066	1491	I	11-Feb-2011

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	8-May-2011

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOTS

Sample Plot



Band Edge Measurements

LIMITS

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that...the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval,…the attenuation required under this paragraph shall be 30dB..
[15.247(d)]

MEASUREMENTS / RESULTS

Rev: 7-Jul-2010

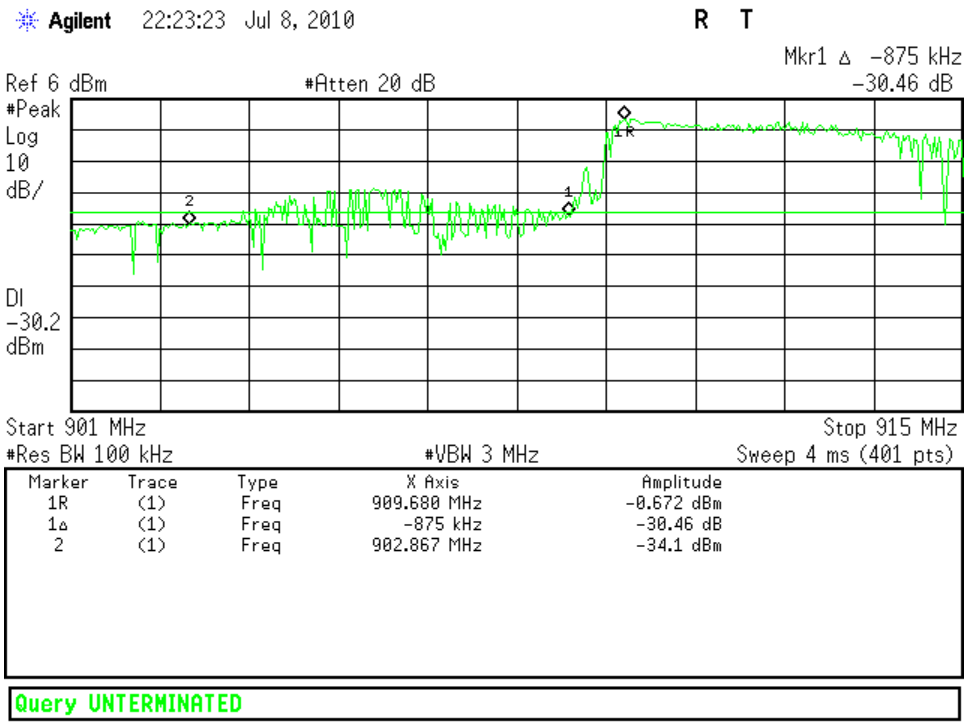
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Rental SA #5	9kHz-26.5 GHz	E4407B	Agilent	MY44220066	1491	I	11-Feb-2011

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	8-May-2011

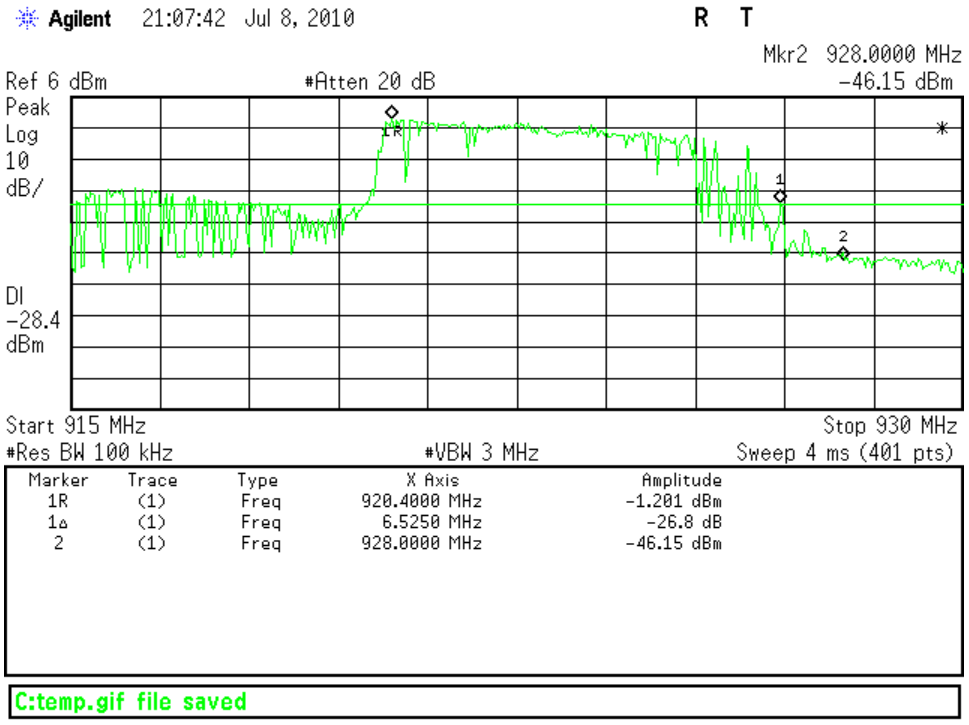
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOTS

Low Channel



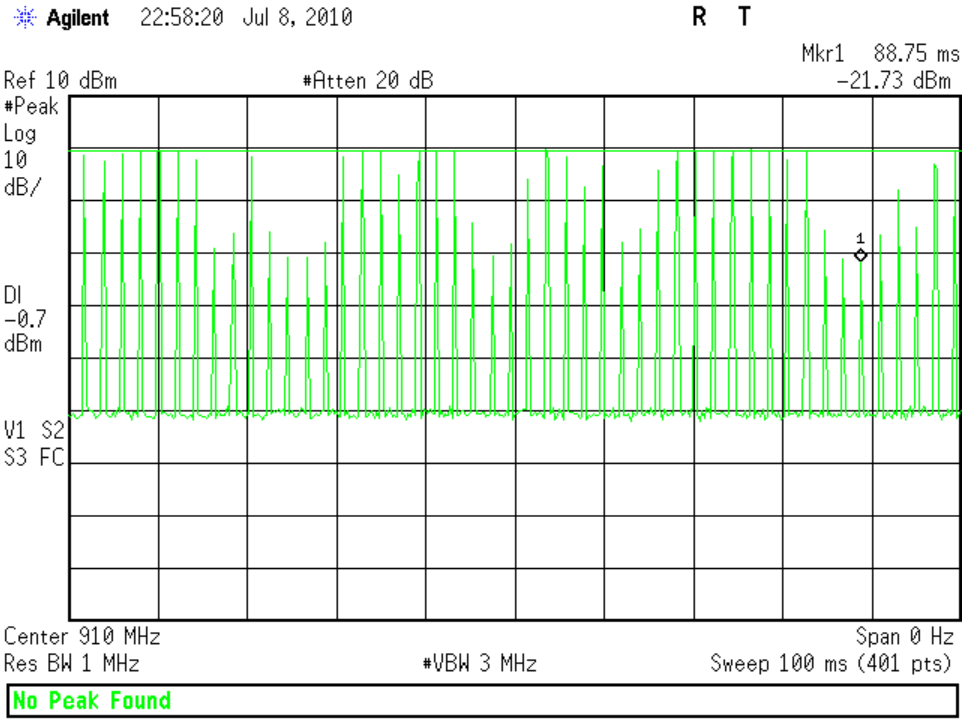
High Channel



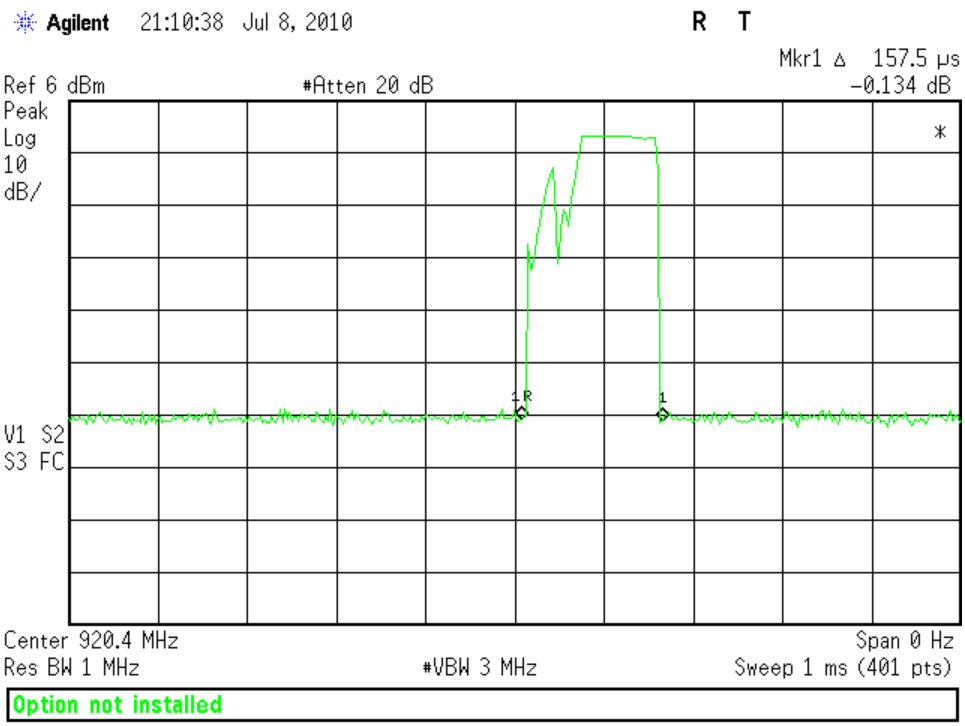
Duty Cycle Correction Calculation

MEASUREMENTS / CALCULATIONS

PLOTS



100ms window



Duration of a single transmitting pulse

Each transmission lasts for 157.5µs, which is 0.1575ms

In 100ms, 47 transmissions occur.

0.1575 x 47 = 7.4205ms

DCCF = 20 x log (7.4205/100)

DCCF = -22.61dB

A maximum duty cycle correction factor of 20dB was applied to average readings.

Rev: 7-Jul-2010

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Rental SA #5	9kHz-26.5 GHz	E4407B	Agilent	MY44220066	1491	I	11-Feb-2011
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	8-May-2011

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Spurious Emissions

LIMITS

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
[15.247(d)]

MEASUREMENTS / RESULTS

Spurious Emissions

Date: 17-May-10 **Company:** Keurig **Work Order:** K0244
Engineer: Arik Zwirner **EUT Desc:** B81 **EUT Operating Voltage/Frequency:** 120V/60Hz
Temp: 26°C **Humidity:** 21% **Pressure:** 1012mBar
Frequency Range: 30-1000MHz **Measurement Distance:** 3 m
Notes: 902-928MHz exempted as transmitter band quasi peak readings
RBW = 120kHz VBW = 300kHz

Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	CISPR Class B Limit (dBµV/m)	CISPR Class B Margin (dB)	CISPR Class B Result (Pass/Fail)	FCC Class B Limit (dBµV/m)	FCC Class B Margin (dB)	FCC Class B Result (Pass/Fail)
V	80.2	40.9	22.6	8.2	0.5	27.0	40.5	-13.5	Pass	40.0	-13.0	Pass
V	90.4	46.3	22.6	8.0	0.6	32.3	40.5	-8.2	Pass	43.5	-11.2	Pass
V	94.2	38.1	22.6	8.6	0.6	24.7	40.5	-15.8	Pass	43.5	-18.8	Pass
V	155.0	37.8	22.6	12.8	0.7	28.7	40.5	-11.8	Pass	43.5	-14.8	Pass
V	189.8	29.6	22.6	11.8	0.7	19.5	40.5	-21.0	Pass	43.5	-24.0	Pass
V	206.0	29.1	22.6	11.7	0.8	19.0	40.5	-21.5	Pass	43.5	-24.5	Pass
V	930.0	28.5	22.0	23.1	1.9	31.5	47.5	-16.0	Pass	46.0	-14.5	Pass

Table Result: Pass by -8.2 dB ***Worst Freq:*** 90.4 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #1508 **Cable 2:** Asset #1506 **Cable 3:** ---
Analyzer: Asset #1327 **Preamp:** Blue **Antenna:** Red-Black **Preselector:** ---

Rev: 17-May-2010

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
SA EMI Chamber (1327)	9kHz-13.2 GHz	E4405B	Agilent	MY45103416	1327	I	11-Mar-2011
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**			**Cat**	**Calibration Due**
EMI Chamber 2	719150	2762A-7	R-3033, G-107			I	15-Feb-2011
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
Blue	0.009-2000MHz	ZFL-1000-LN	CS	N/A	759	II	6-Apr-2011
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
Red-Black Bilog	30-2000MHz	JB1	Sunol	A091604-2	1106	I	28-Oct-2010
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
Temp./Humidity/Atm. Pressure Gauge		7400 Perception II	Davis	N/A	965	I	6-Apr-2011
CHAMBER2 Thermohygrometer		35519-044	Control Company	72457639	1347	II	18-Aug-2011

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table

Date: 21-Jul-10 **Company:** Keurig **Work Order:** K0244
Engineer: Nate Sanford **EUT Desc:** B81 **EUT Operating Voltage/Frequency:** 120VAC/60Hz
Temp: 25.9°C **Humidity:** 37%
Frequency Range: 1-10GHz **Measurement Distance:** 3 m
Notes: Radio cable length shortened to proper length and soldered to opposite side of board **EUT Max Freq:** 914MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC Class B High Frequency - Peak Limit (dBµV/m)	Peak Margin (dB)	Peak Result (Pass/Fail)	FCC Class B High Frequency - Average Limit (dBµV/m)	Average Margin (dB)	Average Result (Pass/Fail)
H	2742.0	61.2	41.2	22.3	29.2	3.2	71.3	51.3	74.0	-2.7	Pass	54.0	-2.7	Pass
V	2748.0	57.7	37.7	22.2	29.2	3.2	67.9	47.9	74.0	-6.1	Pass	54.0	-6.1	Pass
H	3658.0	55.6	35.6	21.5	32.1	3.6	69.8	49.8	74.0	-4.2	Pass	54.0	-4.2	Pass
V	3671.0	50.9	30.9	21.5	32.2	3.7	65.3	45.3	74.0	-8.7	Pass	54.0	-8.7	Pass
H	4572.0	50.0	30.0	20.8	32.8	4.4	66.4	46.4	74.0	-7.6	Pass	54.0	-7.6	Pass
V	4565.0	48.9	28.9	20.8	32.8	4.4	65.3	45.3	74.0	-8.7	Pass	54.0	-8.7	Pass
H	7312.0	41.8	21.8	20.2	36.9	5.6	64.1	44.1	74.0	-9.9	Pass	54.0	-9.9	Pass
V	7306.0	38.9	18.9	20.2	36.9	5.6	61.2	41.2	74.0	-12.8	Pass	54.0	-12.8	Pass

Table Result: Pass by -2.7 dB ***Worst Freq:*** 2742.0 MHz

Test Site: EMI Chamber 1 **Cable 1:** Asset #1505 **Cable 2:** Asset #1507 **Cable 3:** ---
Analyzer: Asset #1327 **Preamp:** Brown **Antenna:** Black Horn **Preselector:** ---

Rev: 27-Jul-2010

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
SA EMI Chamber (1327)	9kHz-13.2 GHz	E4405B	Agilent	MY45103416	1327	I	11-Mar-2011
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**			**Cat**	**Calibration Due**
EMI Chamber 1	719150	2762A-6	R-3032, G-106			I	15-Feb-2011
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
Brown	1-18GHz	CS	CS	N/A	1523	II	17-Jul-2010
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
Black Horn	1-18GHz	3115	EMCO	9703-5148	56	I	6-Jul-2011
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
Temp./Humidity/Atm. Pressure Gauge		7400 Perception II	Davis	N/A	965	I	6-Apr-2011
CHAMBER1 Thermohygrometer		35519-044	Control Company	72457642	1345	II	18-Aug-2011

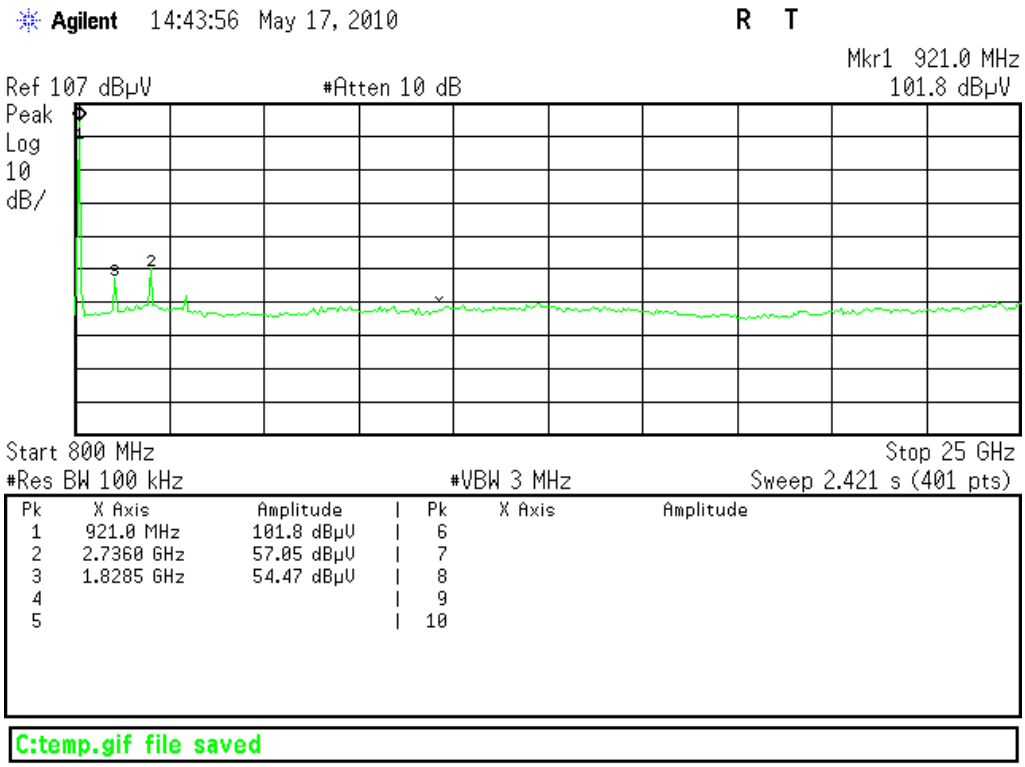
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

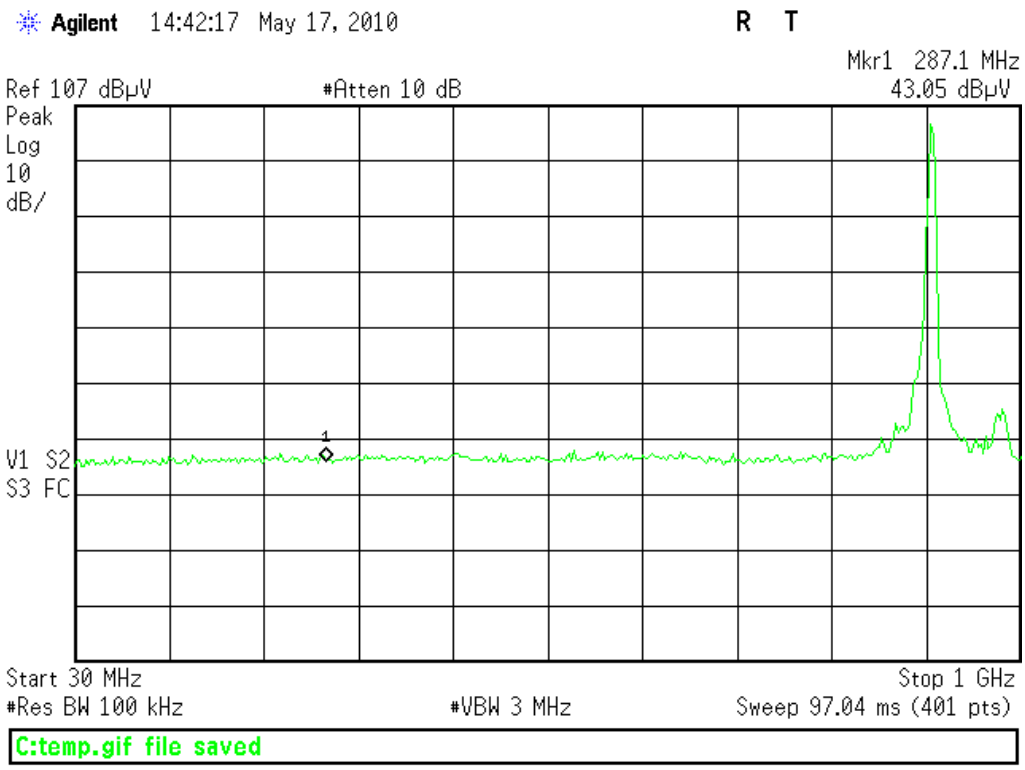
Conducted Spurious Emissions

LIMITS

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth that contains the highest level of desired power…
[15.247(d)]

MEASUREMENTS / RESULTS





Rev: 17-May-2010

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Rental SA #1 (Brown)	9kHz-26.5GHz	E4407B	Agilent	SG44210511	1510	I	25-Mar-2011
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**			**Cat**	**Calibration Due**
1DCC-OATS-3M-I	719150	2762A-8	R-3109			II	7-Jul-2011
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	8-May-2011

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Power Spectral Density

LIMIT

…the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission. [15.247(e)]

MEASUREMENTS / RESULTS

Data Tables

Power Spectral Density

Date: 08-Jul-10 **Company:** Keurig **Work Order:** K0244
Engineer: Matthew Burman, TT **EUT Desc:** B81 **EUT Operating Voltage/Frequency:** 120Vac 60Hz
Temp: 24.8°C **Humidity:** 46% **Pressure:** 1014mBar
Frequency Range: 902-928MHz **Measurement Distance:** Conductive
Notes: PSD Option 2

Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBm)	Filter Factor (dB)		Cable Factor (dB)	Adjusted Reading (dBm)	--- Limit (dBµV/m)	--- Margin (dB)	--- Result (Pass/Fail)	FCC 15.247 (e) Limit (dBm)	FCC 15.247 (e) Margin (dB)	FCC 15.247 (e) Result (Pass/Fail)
low channel	910.0	-32.8	19.4	---	1.1	-12.3				8.0	-20.3	Pass
mid channel	913.4	-12.7	19.4	---	1.1	7.8	---	---	---	8.0	-0.2	Pass
high channel	920.62275	-13.5	19.4	---	1.1	7.0	---	---	---	8.0	-1.0	Pass

Table Result: Pass by -0.2 dB ***Worst Freq:*** 913.4 MHz

Test Site: EMC4 **Cable 1:** EMIR-HIGH-21
Analyzer: Asset #1492 **Attenuator:** PE7019-20

Rev: 7-Jul-2010

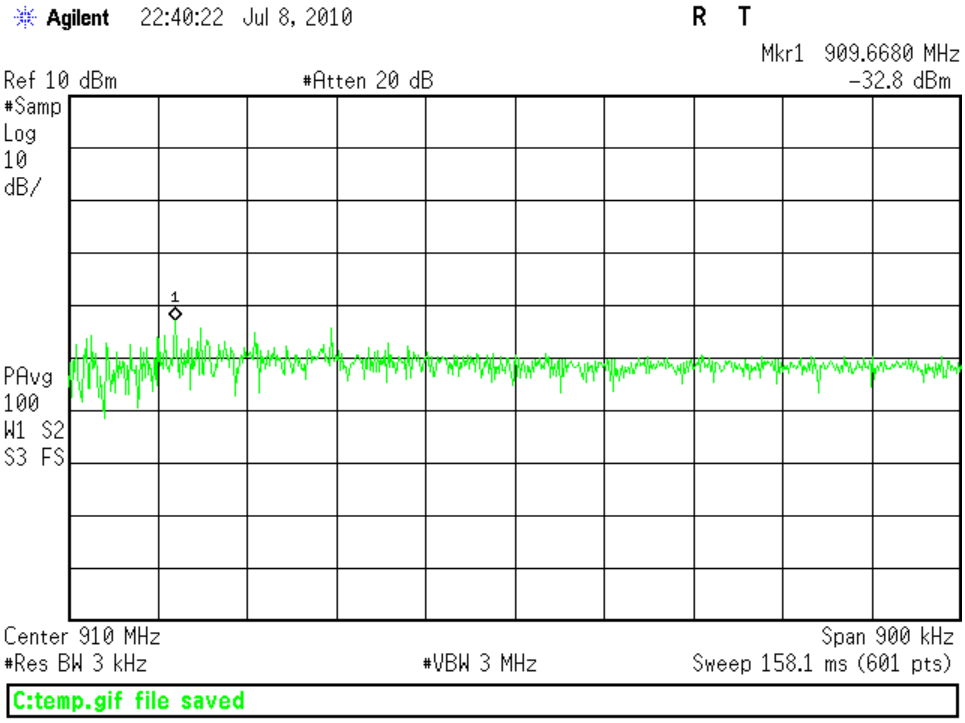
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Rental SA #5	9kHz-26.5 GHz	E4407B	Agilent	MY44220066	1491	I	11-Feb-2011

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	8-May-2011

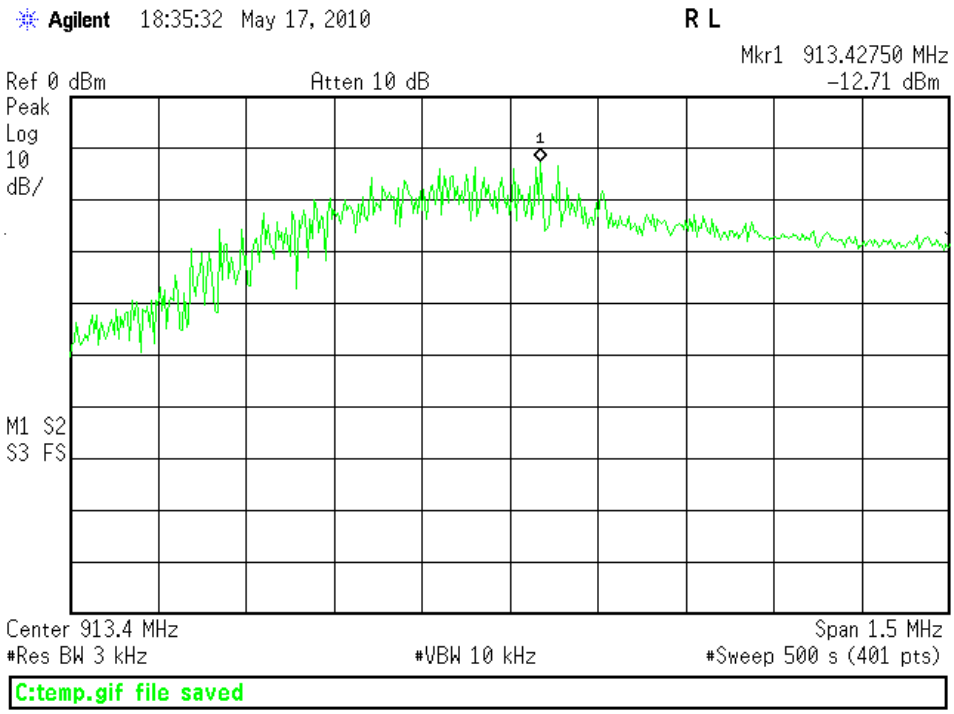
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOTS

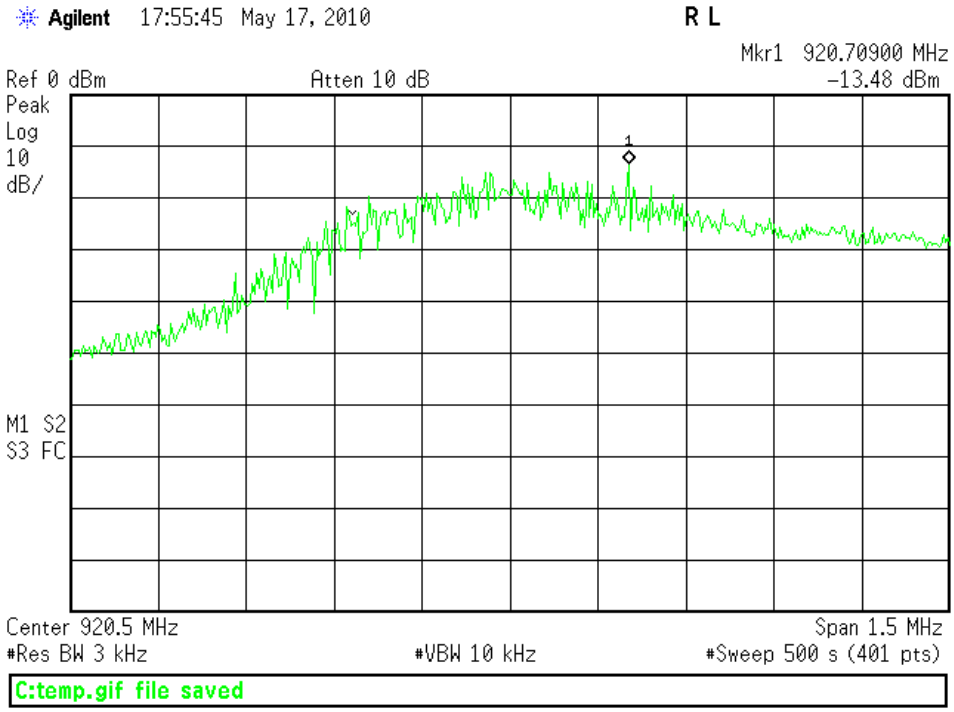
Low Channel



Mid Channel



High Channel



AC Line Conducted Emissions

LIMITS

Frequency of emission (MHz)	Quasi-peak limit (dBµV)	Average limit (dBµV)
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.

[47 CFR 15.207(a)]

MEASUREMENTS / RESULTS

AC Mains Conducted Emissions

Date: 18-May-10 **Company:** Keurig Inc. **Work Order:** K0244
Engineer: Matthew Burman **EUT Desc:** B81 **Test Site:** CEMI02
Temp: 22.3°C **Humidity:** 23% **Pressure:** 1001mBar
Notes: Noise Floor
Measurement Device: Asset #1494 LISN **EUT Operating Voltage/Frequency:** 120Vac 60Hz

Range: 0.15-30MHz **Spectrum Analyzer:** Blue

	Q.P. Readings		Ave. Readings		Impedance Factor	FCC/CISPR B		FCC/CISPR B		Overall
Frequency	QP1	QP2	AV1	AV2		qp Limit	qp Margin	AVE Limit	AVE Margin	Result
(MHz)	(dBµV)	(dBµV)	(dBµV)	(dBµV)	(dB)	(dBµV)	dB	(dBµV)	dB	(Pass/Fail)
0.15	13.5	14.8	13.5	14.8	20.1	66.0	-31.1	56.0	-21.1	Pass
1.00	9.7	10.5	9.7	10.5	20.1	56.0	-25.4	46.0	-15.4	Pass
5.00	6.1	6.8	6.1	6.8	20.1	56.0	-29.1	46.0	-19.1	Pass
10.00	4.2	4.7	4.2	4.7	20.1	60.0	-35.3	50.0	-25.2	Pass
15.00	3.6	2.3	3.6	2.3	20.2	60.0	-36.3	50.0	-26.2	Pass
20.00	2.7	5.1	2.7	5.1	20.3	60.0	-34.6	50.0	-24.6	Pass

Table Result: Pass by -15.40 dB ***Worst Freq:*** 1.00 MHz

Rev: 18-May-2010

LISNs/Measurement Probes	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
230VAC LISN Asset 1494	10kHz-50MHz	9252-50-R-24-BNC	Solar	84715	1494	I	13-Apr-2011

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Blue	9kHz-1.8GHz	8591E	Agilent	3223A00227	70	I	13-Jun-2010

Conducted Test Sites (Mains / Telco)	FCC Code	VCCI Code	Cat	Calibration Due
CEMI 2	719150	C-3361, T-1576	III	NA

Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due
Temp./Humidity/Atm. Pressure Gauge	7400 Perception II	Davis	N/A	965	I	6-Apr-2011
CEMI2 Thermohygrometer	35519-044	Control Company	72436083	1336	II	18-Aug-2011

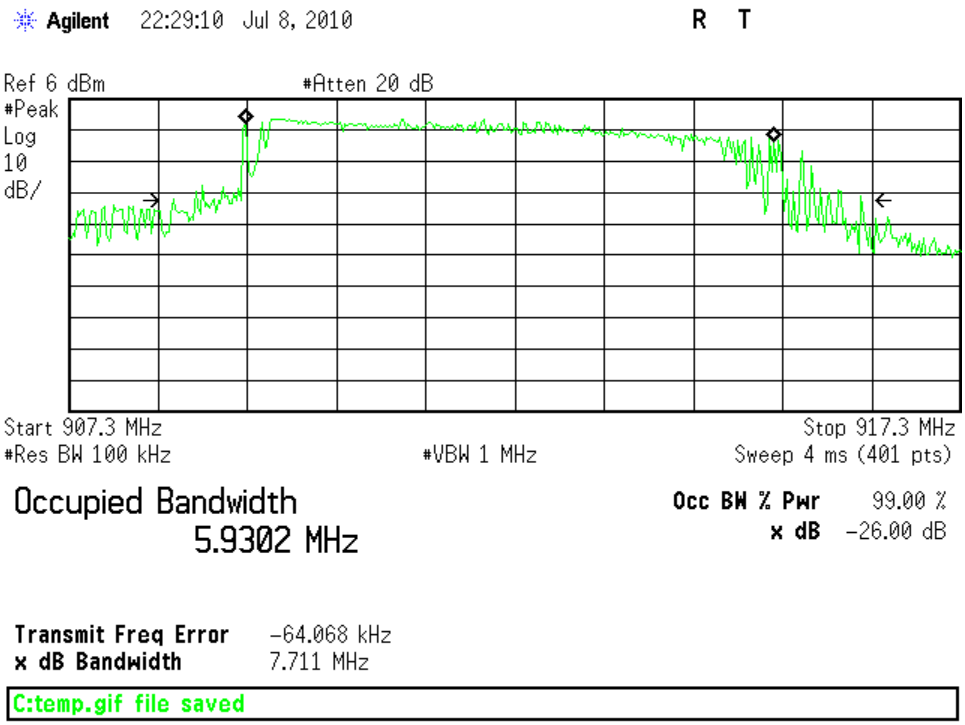
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Occupied Bandwidth

REQUIREMENT

When an occupied bandwidth is no specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured. [RSS-GEN 4.6.1]

Low Channel

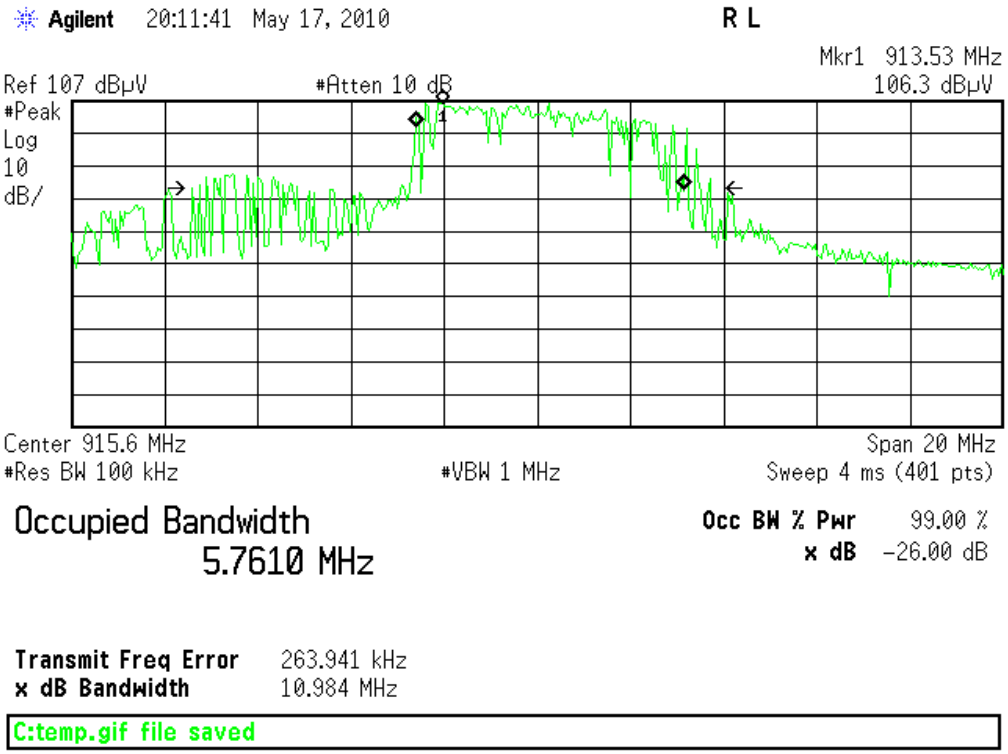


Rev: 7-Jul-2010

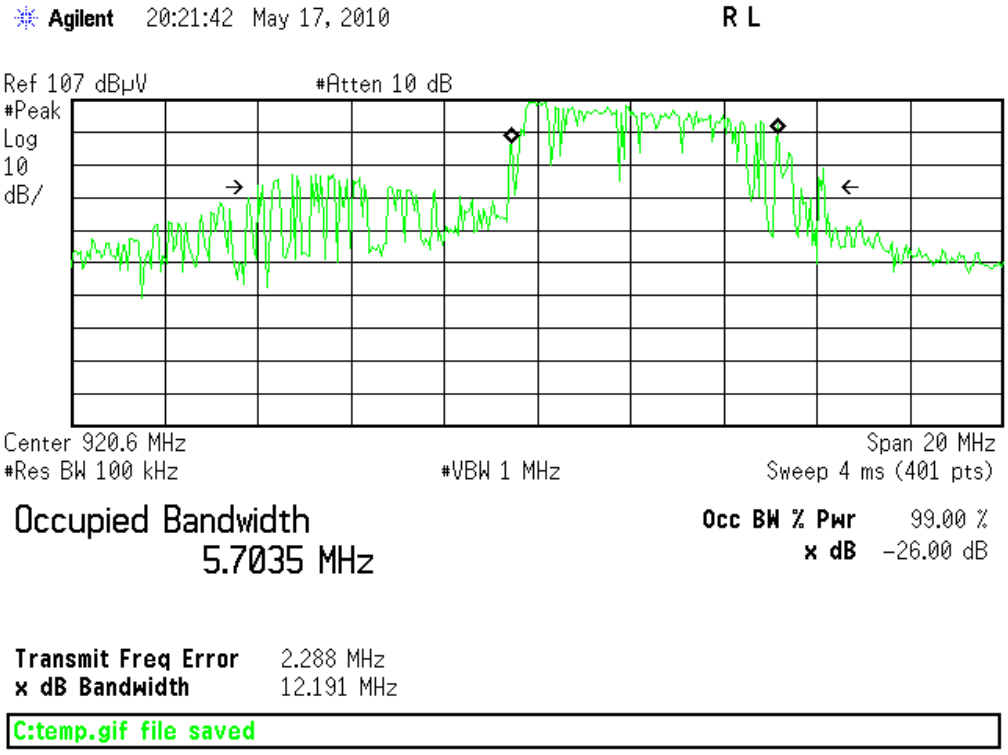
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Rental SA #5	9kHz-26.5 GHz	E4407B	Agilent	MY44220066	1491	I	11-Feb-2011
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	8-May-2011

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Mid Channel



High Channel



Measurement Uncertainty

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz) NIST CISPR	 5.6dB 4.6dB	 N/A 5.2dB (Ucispr)
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions NIST CISPR	 3.9dB 3.6dB	 N/A 3.6dB (Ucispr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	3.23×10^{-8}	1×10^{-7}
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation: • Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	 3.4% 0.3dB	 5% 3dB
Adjacent channel power	1.9dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°C	1.0°C
Time	4.1%	10%
RF Power Density, Conducted	0.4dB	3dB
DC and low frequency voltages	1.3%	3%
Voltage (AC, <10kHz)	1.3%	2%
Voltage (DC)	0.62%	1%
The above reflects a 95% confidence level		

Product Documentation

The following documentation has been provided by the client for inclusion in this report.

Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("**Client**"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "**Conditions**"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("**Test Report**") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "**BUREAU VERITAS**," "**BUREAU VERITAS CONSUMER PRODUCTS SERVICES**," "**BVCPS**", "**MTL**", "**ACTS**", "**MTL-ACTS**" and **CURTIS-STRAUS** (collectively, the "**Marks**") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only were such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.

13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.

14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.

15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B)NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

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