Sealed Air Corporation
100 Westford Road
Ayer, Massachusetts 01432

Report of FCC and ISED Canada
Intentional Radiator Testing

Prepared For	***Kristian Swanson***
Company	***Sealed Air Corporation***
Applicable Models	***Inflatable Cushioning System***
Test Laboratory	***Core Compliance Testing Services, LLC*** ***79 River Road*** ***Hudson, NH 03051***
Test Dates	**November 17 – 27, 2019**
Tested & Reviewed By	***Ken MacGrath, Manager*** ***George Correia, Test Engineer***
Signature, Manager	
Signature, Test Engineer	

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1.0 GENERAL INFORMATION

1.1 Product Description

Equipment Under Test (EUT): Inflatable Cushioning System

Manufacturer:	Sealed Air Corporation
Applicable Models:	Inflatable Cushioning System
Serial Number:	B004
Power Supply:	120V, 60Hz

EUT Technical Specifications:

A) Channels, Operating Frequency and Modulation

Tested Channel	Operating Frequency (MHz)	Modulation Type
1	13.560	RFID

B) Antenna Designation: PCB trace, non-user replaceable (fixed).

C) This report documents the results for the Sealed Air Corporation Inflatable Cushioning System which is an RFID module operating at 13.560MHz.

D) FCC ID: IN9-ICS-01-RFID
IC ID: 25875-ICS01RFID

E) Maximum Permissible Exposure (MPE): The EUT MPE is addressed in attachment APFWL (KDB 447498 SAR Exemption).pdf, which was provided by Sealed Air Corporation.

1.2 Applicable Documents and Standards

This test report is based on the following standards.

- FCC CFR47, Part 15, Subpart C, Section 15.212, Modular Transmitters
- FCC CFR47, Part 15, Subpart C, Section 15.225,
- FCC CFR47, Part 15, Subpart C, Section 15.209
- Industry Canada RSS-210, Issue 10, December 2019 Spectrum Management and Telecommunications, Radio Standards Specification, License-Exempt Radio Apparatus: Category I Equipment, Annex B.6
- RSS-GEN, Issue 5, March 2019, Amendment 1, Spectrum Management and Telecommunications, Radio Standards Specification, General Requirements for Compliance of Radio Apparatus
- ANSI C63.10: 2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
- ANSI C63.4: 2014
- FCC KDB 174176, D01, Q5 in regard to conducted emissions

  Maximum Permissible Exposure
- FCC Part 2.1091, Radiofrequency radiation exposure evaluation: mobile devices
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 865664 D02 RF Exposure Reporting v01r02
- RSS-102, Issue 5, March 2015, Spectrum Management and Telecommunications, Radio Standards Specification, Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

1.3 Test Dates

November 17 – 27, 2019

1.4 Test Methodology

Testing was done according to the standards listed in section 1.2. Radiated testing was performed at an antenna-to-EUT distance of both 10-meters and 3-meters depending on the test frequency range.

1.5 Test Facility

The Alternative Open Area Test Site (OATS) and ferrite lined shielded chamber used to collect the radiated emissions data is located at Core Compliance Testing Services, 79 River Road, Hudson, NH. Radiated prescans are done in the ferrite lined shielded chamber and all final radiated emissions testing is done in the OATS which conforms to the site attenuation characteristics defined by ANSI C63.4-2014, MP5 and OST-55. The test facility is A2LA accredited to ISO 17025 (certificate # 2778.01) and is an ISED Canada registered wireless test site (site # 11794A-1).

1.6 Test Equipment List

All equipment used in the testing process has up to date calibrations traceable to the National Institute of Standards and Technology (NIST). Refer to the Table 1 below for a complete list of equipment used during the test.

Table 1: Test Equipment

Description	Asset #	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Preamplifier, 30MHz-1GHz 8447F OPT H64	3	Agilent/HP	8447F-H64	3113A07400	12/27/19	12/27/21
EMI Receiver/RF Filter System	6	HP	8546A	3942A00506/ 3704A00463	12/30/19	12/30/20
Antenna, Bilog (Green)	17	Schaffner-Chase	CBL6112B	2602	01/17/19	01/17/21
Attenuator, 4db Pad	17A	Huber-Suhner	6804.17.A	1001701788		
Antenna, Bilog (Yellow)	18	Chase	CBL6140	1041	N/A	N/A
Cable, 8 Meters	20	Andrew	ETS1-50T-S01	00a1108339	12/13/17	12/13/19
Cable, 25 meters with 2 Wurth Ferrites @ each end of the cable	21	A.H. Systems	SC-18G-25	1306	1/02/18	1/02/20
Signal Generator 2024 9 KHz – 2.4 GHz	29	Marconi Instruments	2024	112282/264	12/27/19	12/27/21
Semi-Anechoic Chamber 16 x 24 x 10	30	Keene Ray Proof	N/A	8298	07/09/19	07/09/20
Spectrum Analyzer	84	Agilent	E4407B	US41192608	12/28/19	12/28/21
AC Power Supply	90	Kikusui	PCR4000L	15100320	N/A	N/A
Loop Antenna	103	Com-Power	AL-130	121056	05/01/18	05/01/20
Alternative Open Area Test Site	109	Strongwell	10 meter	None	10/26/18	10/26/20
Humidity Alert II	114	Control Company	4040	122171578	08/20/19	08/20/20
Multimeter 73-2	119	Fluke	73-2	59271035	12/27/19	12/27/21
Spectrum Analyzer	123	HP	E4405B	4539440317	12/28/19	12/28/21
EMI Test Receiver	144	Rohde & Schwarz	ESMI	848926/003-849182/001	04/17/19	04/17/20
SMA Cable 0.3 meters	148	Thermax	DCA 5573-12	N/A	08/16/19	08/16/20
N-Type Cable, 8m (Green)	153	Utiflex	Micro-coax	N/A	12/03/18	12/03/20
Temperature Chamber	159	Espec	ESX-4CA	017968	08/29/20	08/29/21

All equipment used for testing has been calibrated according to methods and procedures defined by the National Institute of Standards and Technology (NIST).

1.7 Measurement Uncertainty

Radiated Emissions up to 1GHz, Expanded Uncertainty	4.19
Radiated Emissions 1-18GHz, Expanded Uncertainty	4.14
Conducted Emissions up to 30MHz, Expanded Uncertainty	1.83
Telco Conducted Emissions up to 30MHz, Expanded Uncertainty	1.85

The measurement uncertainty of radiated emissions data is based on the test equipment used and the OATS site attenuation data. The measurement uncertainty of conducted emissions and Telco conducted emissions data is based on the test equipment used.

1.8 Equipment Modifications

The RFID module was removed from the EUT housing as required for modular approval.

A ferrite, made by Fair Rite, part number 0475167281, was added to the EUT in order to meet the conducted emissions limits. The ferrite was snapped around the 3-conductors of the AC line cord at the power supply terminal block. A photo of the ferrite in place is shown in the *Intpho* document.

2.0 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing was based on the requirements as given in the applicable standards and was operated in a manner which intends to maximize its emissions characteristics in a continuous transmit application as detailed in section 2.2.

2.2 EUT Exercise

The EUT has been tested under normal operating conditions. It was in continuous transmitting mode (100% duty cycle) at 13.560MHz. A passive RFID tag was located within 3 inches of the RFID module and the module was tested under normal operating conditions.

3.0 SUMMARY OF TEST RESULTS

Table 2: Test Summary

Rules	Description Of Test	Test Report Section	Result
FCC 15.225 RSS-210, B.6	Field strength limits 13.110-14.010 MHz	4.0	*Pass*
FCC 15.225 RSS-210, B.6	Voltage Variation Frequency Stability	5.0	*Pass*
FCC 15.225 RSS-210, B.6	Temperature Variation Frequency Stability	6.0	*Pass*
FCC 15.209 (a) - (f) RSS-GEN, 8.9	Unintentional/Spurious Radiated Emissions	7.0	*Pass*
FCC 15.203 RSS-GEN, 6.8	Antenna Requirement	8.0	*Pass*
FCC 15.207 (a) RSS-GEN, 8.8	Conducted Emissions	9.0	*Pass*
RSS-GEN, 6.7	Occupied Bandwidth, 99% emission bandwidth	10.0	*Info only*

4.0 Field Strength in the 13.110 – 14.010 MHz range

4.1 Applicable Standards

FCC 15.225, RSS-210, B.6.

4.2 Measurement Procedure

Place the EUT on a 0.8m high polystyrene table and set it into transmitting mode. Measurements were made with typical modulation applied by putting an RFID tag 3" away from the RFID module. Several tags were checked to see if any produced higher emissions levels. No change in maximum emissions levels was observed when the tag was near or several feet away from the RFID module.

Utilizing the radiated emissions method, the EUT was set up on a 10-meter OATS. The field strength was maximized by rotating the turntable. The antenna height was fixed at 1 meter. The antenna was vertical and in the same plane as the EUT loop antenna.

The peak 13.560MHz field strength was recorded.

4.3 Measurement Results Summary

FCC 15.225 and ISED RSS-210, B.6
10-Meter Magnetic Loop Radiated Emissions Results

Date: 11/26/2019
Test Engineer: GC
Customer: Sealed Air Corporation
Product: Inflatable Cushioning System
Configuration: RFID card powered on and tag within 3" of card
EUT Voltage: 120V, 60Hz
Temperature (°C): 16
Relative Humidity (%): 47
Test Distance: **10 meters**
Frequency Range: **9kHz-30MHz**
Antenna Asset #: **103**
Detector used: **PEAK**

Antenna Polarity: **V=plane of loop perpendicular to EUT face;**
H=plane of loop parallel to EUT face

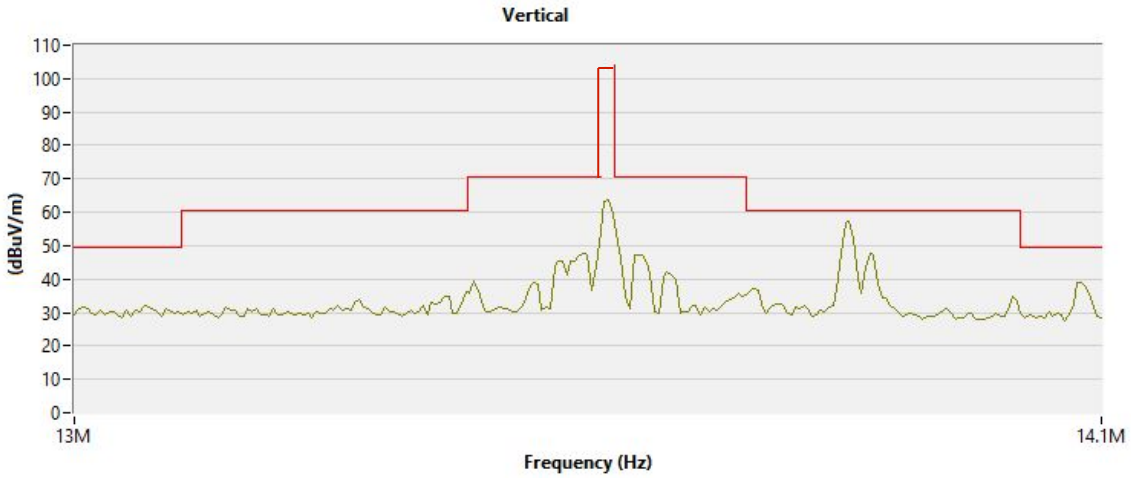
Frequency (MHz)	Detector (Peak)	Reading (dBµV)	Azimuth (deg)	Ant. Ht. (m)	Ant. Polarity	Mag Loop E Factor (dB)	25m Cable Factor (dB)	10m Net (dBµV/m)	30m Net (dBµV/m)	ISED RSS-210, B.6 30m Limit (dBµV/m)	ISED RSS-210, B.6 Margin (dBµV/m)	FCC 15.225 30m Limit (dBµV/m)	FCC 15.225 Margin (dBµV/m)
13.182	PEAK	10.7	0.0	1.0	V	14.4	0.4	25.5	6.4	40.5	-34.1	40.5	-34.1
13.300	PEAK	12.9	0.0	1.0	V	14.4	0.4	27.7	8.6	40.5	-31.9	40.5	-31.9
13.404	PEAK	17.4	0.0	1.0	V	14.4	0.4	32.1	13.1	40.5	-27.4	40.5	-27.5
13.420	PEAK	17.5	0.0	1.0	V	14.4	0.4	32.3	13.2	50.5	-37.3	50.5	-37.3
13.475	PEAK	13.6	0.0	1.0	V	14.4	0.4	28.4	9.3	50.5	-41.2	50.5	-41.2
13.552	PEAK	34.9	0.0	1.0	V	14.3	0.4	49.6	30.5	50.5	-20.0	50.5	-19.9
13.553	PEAK	36.6	0.0	1.0	V	14.3	0.4	51.4	32.3	50.5	-18.2	50.5	-18.2
13.561	PEAK	48.0	0.0	1.0	V	14.3	0.4	62.8	43.7	84.0	-40.3	84.0	-40.3
13.567	PEAK	39.3	0.0	1.0	V	14.3	0.4	54.0	34.9	84.0	-49.1	84.0	-49.1
13.568	PEAK	37.2	0.0	1.0	V	14.3	0.4	52.0	32.9	50.5	-17.6	50.5	-17.6
13.617	PEAK	27.2	0.0	1.0	V	14.3	0.4	42.0	22.9	50.5	-27.6	50.5	-27.6
13.709	PEAK	15.8	0.0	1.0	V	14.3	0.4	30.5	11.4	50.5	-39.1	50.5	-39.0
13.715	PEAK	13.5	0.0	1.0	V	14.3	0.4	28.3	9.2	40.5	-31.3	40.5	-31.3

NOTES:
RBW=200Hz from 9kHz to 150kHz
RBW=9kHz from 150kHz to 30MHz
FCC Part 15.225 is for RFID operating at 13.56MHz.
30m NET column is reduced by 40dB per decade factor. 40*log(30m/10m) = -19.085dB. (Ref: ANSI C63.10, 7.7.2 equation 16)

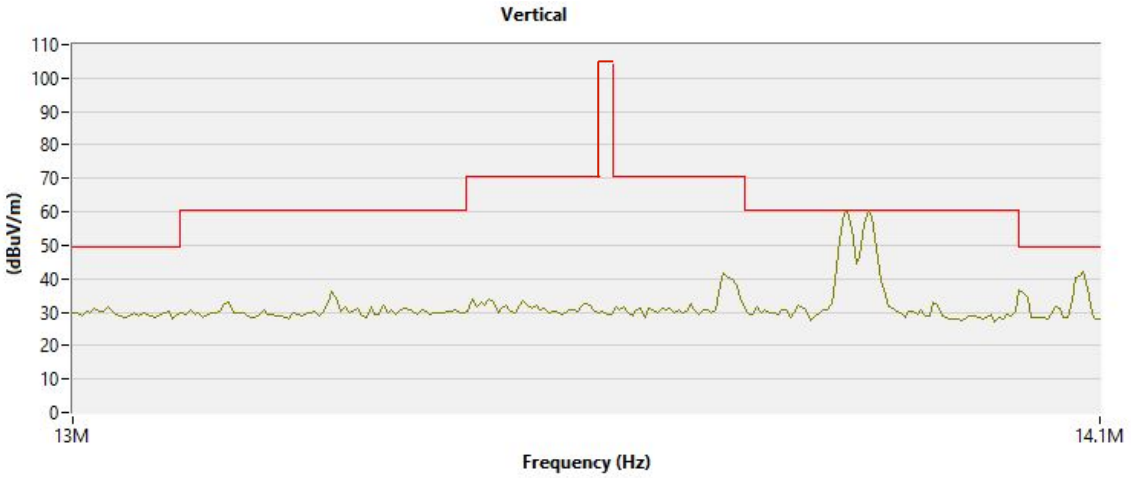
4.4 10-Meter, 13.110 – 14.010 MHz Field Strength Test Results

The 13.56MHz field strength plots are shown on the following pages.

4.4 10-Meter, 13.110 – 14.010 MHz Field Strength Test Results (continued)

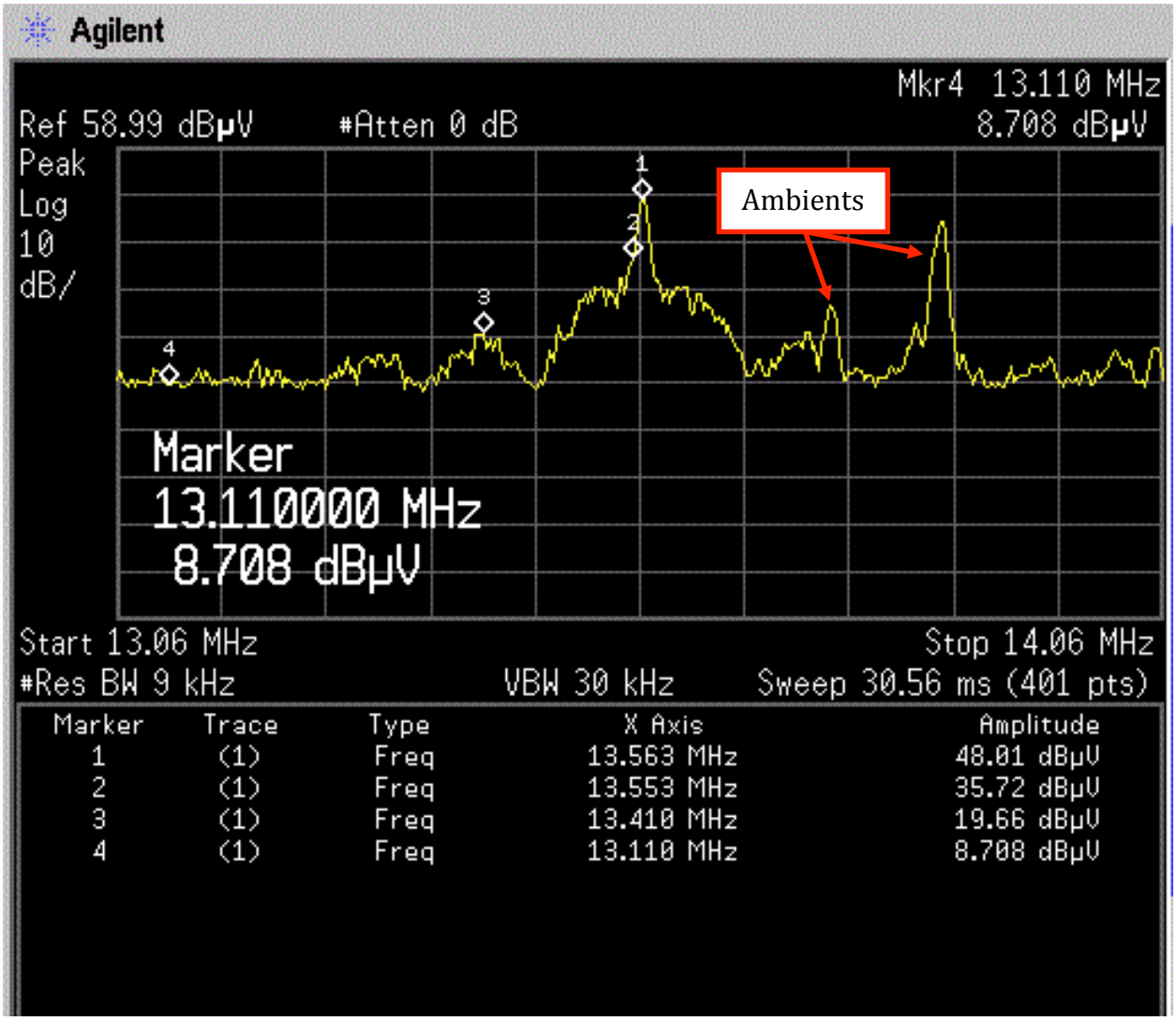


EUT ON

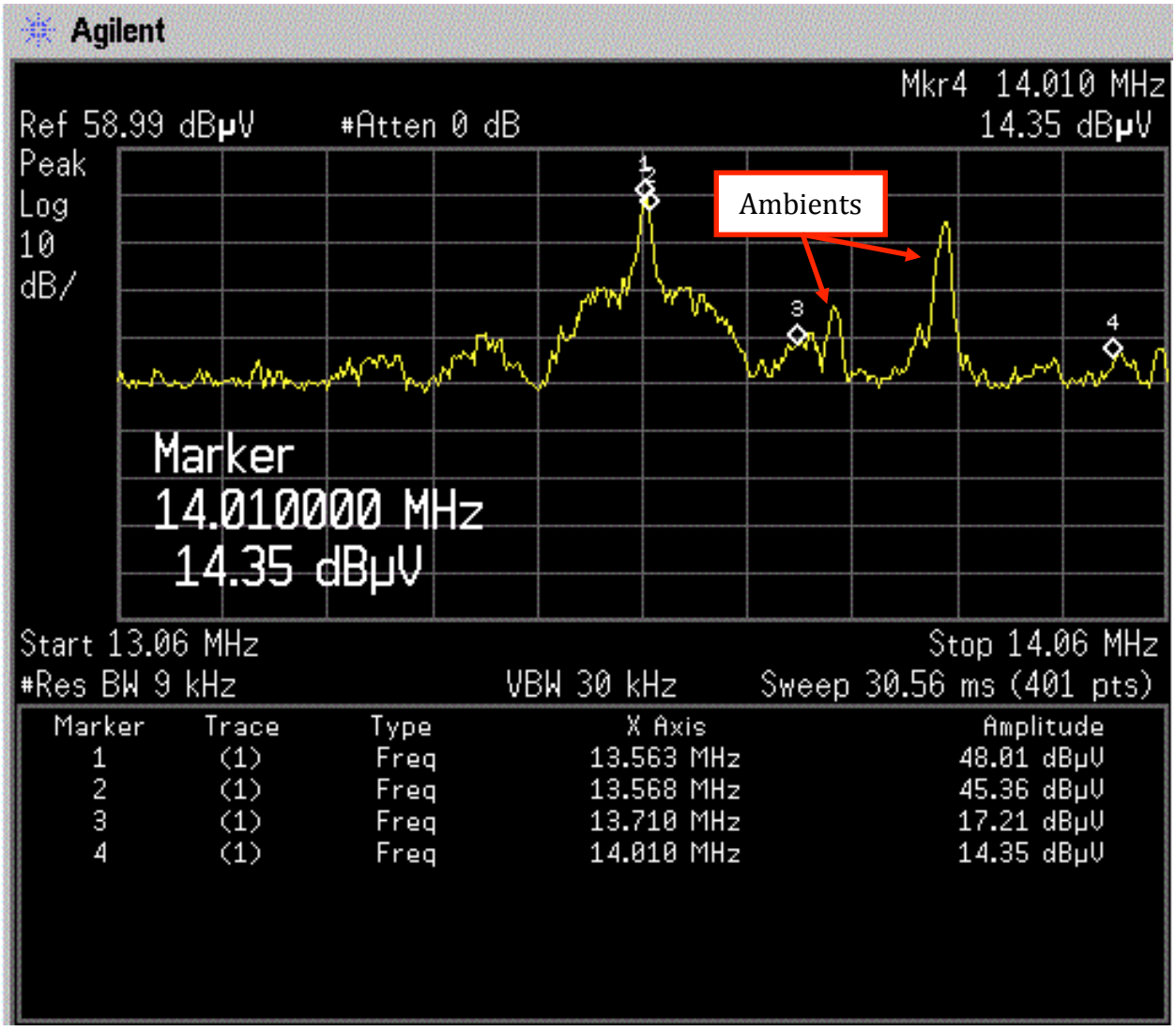


EUT OFF, Ambients only

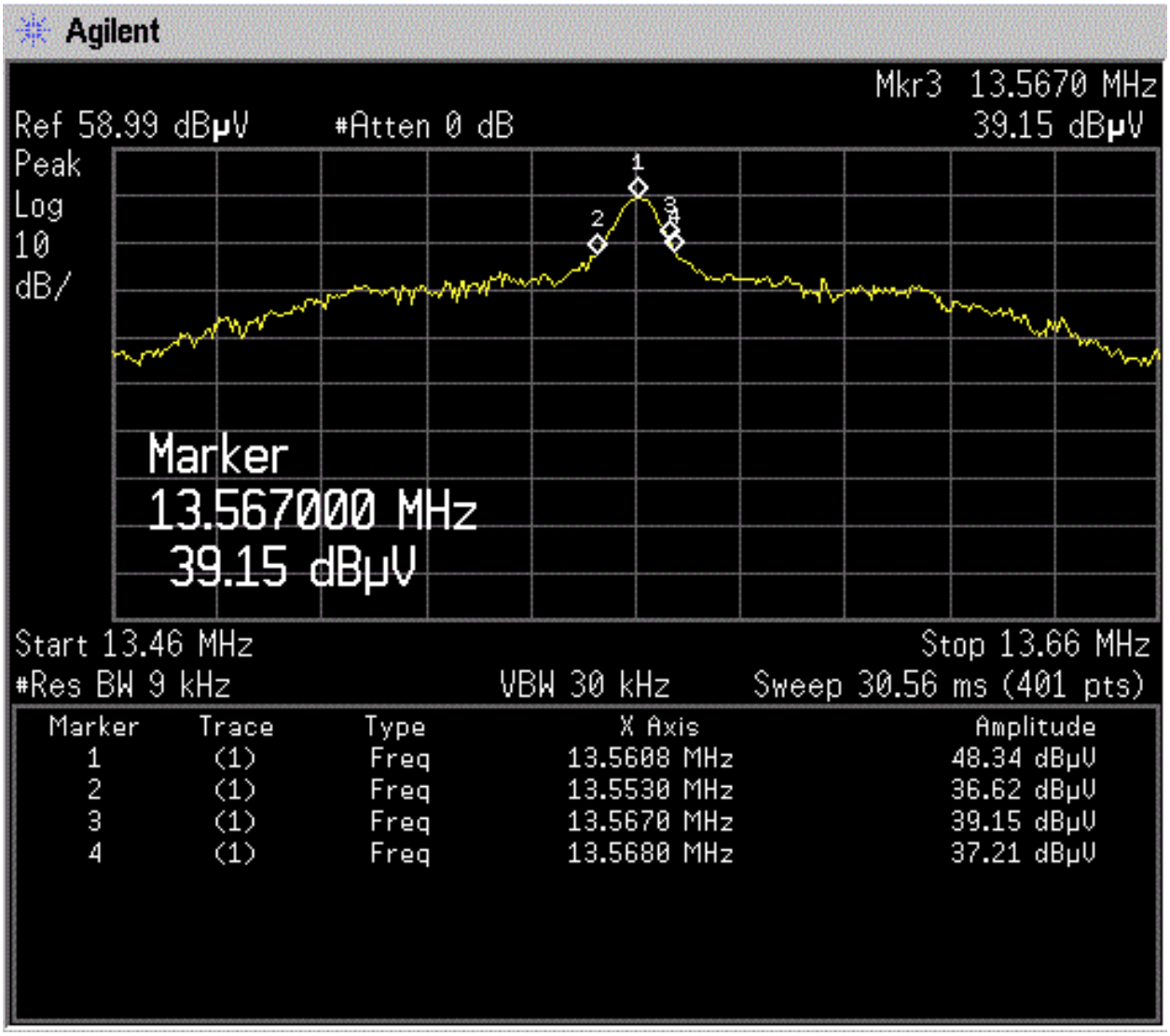
4.4 10-Meter, 13.110 – 14.010 MHz Field Strength Test Results (continued)



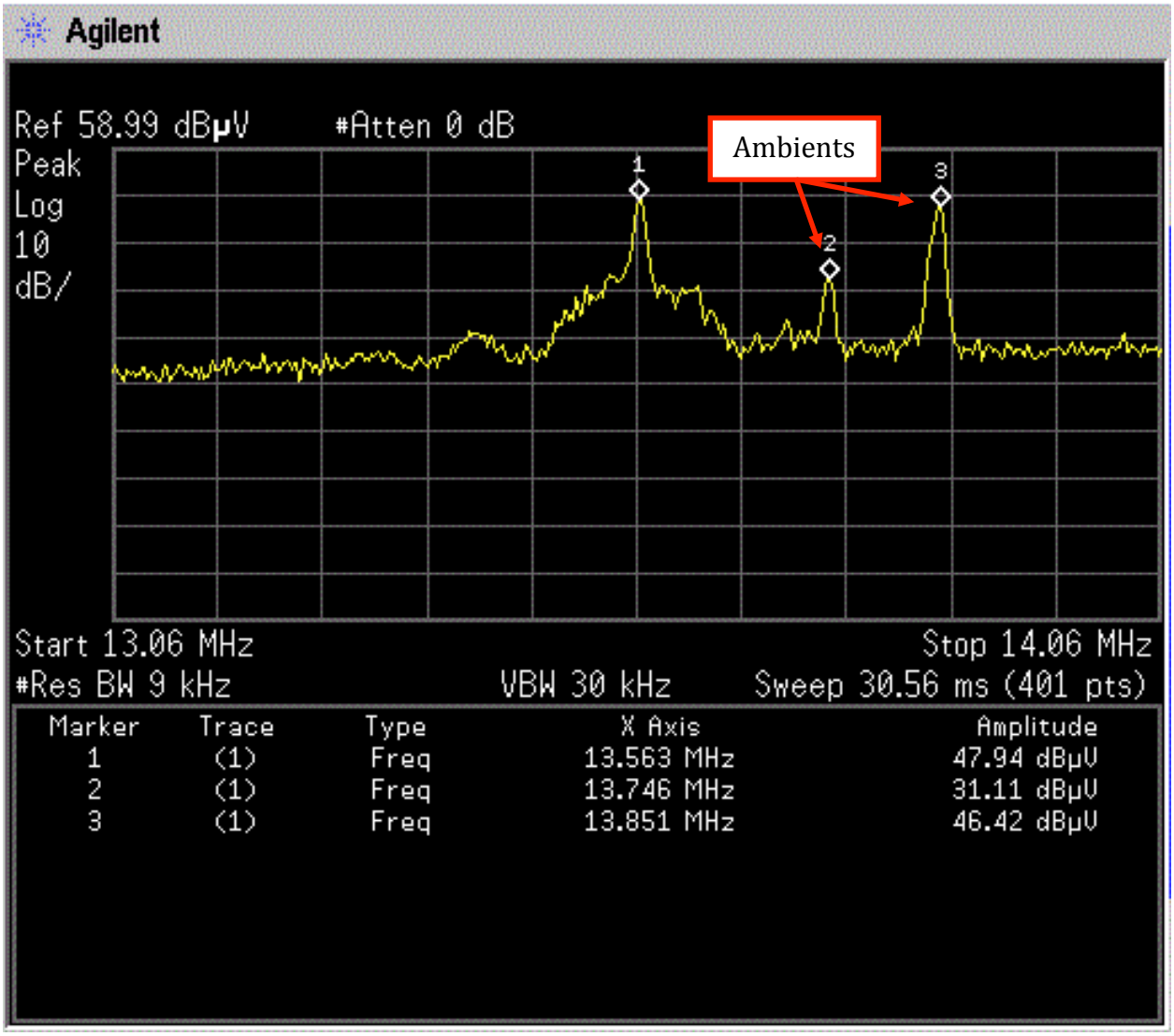
4.4 10-Meter, 13.110 – 14.010 MHz Field Strength Test Results (continued)



4.4 10-Meter, 13.110 – 14.010 MHz Field Strength Test Results (continued)



4.4 10-Meter, 13.110 – 14.010 MHz Field Strength Test Results (continued)



Note: Peaks 2 and 3 are ambient signals; i.e., not from the EUT. These signals were present with the EUT powered off.

4.5 10-Meter, 13.110 – 14.010 MHz Field Strength Test Conclusion

The EUT meets the field strength limits in the 13.110 – 14.010 MHz range per FCC 15.225 and RSS-210, B.6.

5.0 Voltage Variation Frequency Stability

5.1 Applicable Standards

FCC 15.225, RSS-210, B.6

5.2 Measurement Procedure

Vary the primary supply voltage supplied to the EUT from 85% to 115% of the EUT rated supply voltage at an ambient temperature of 20°C. The frequency tolerance of the carrier signal must stay within ±0.01%.

The rated supply voltage of the EUT is 100-240VAC, 50/60Hz. The test range is 85VAC to 276VAC. The AC power line frequency was 60Hz.

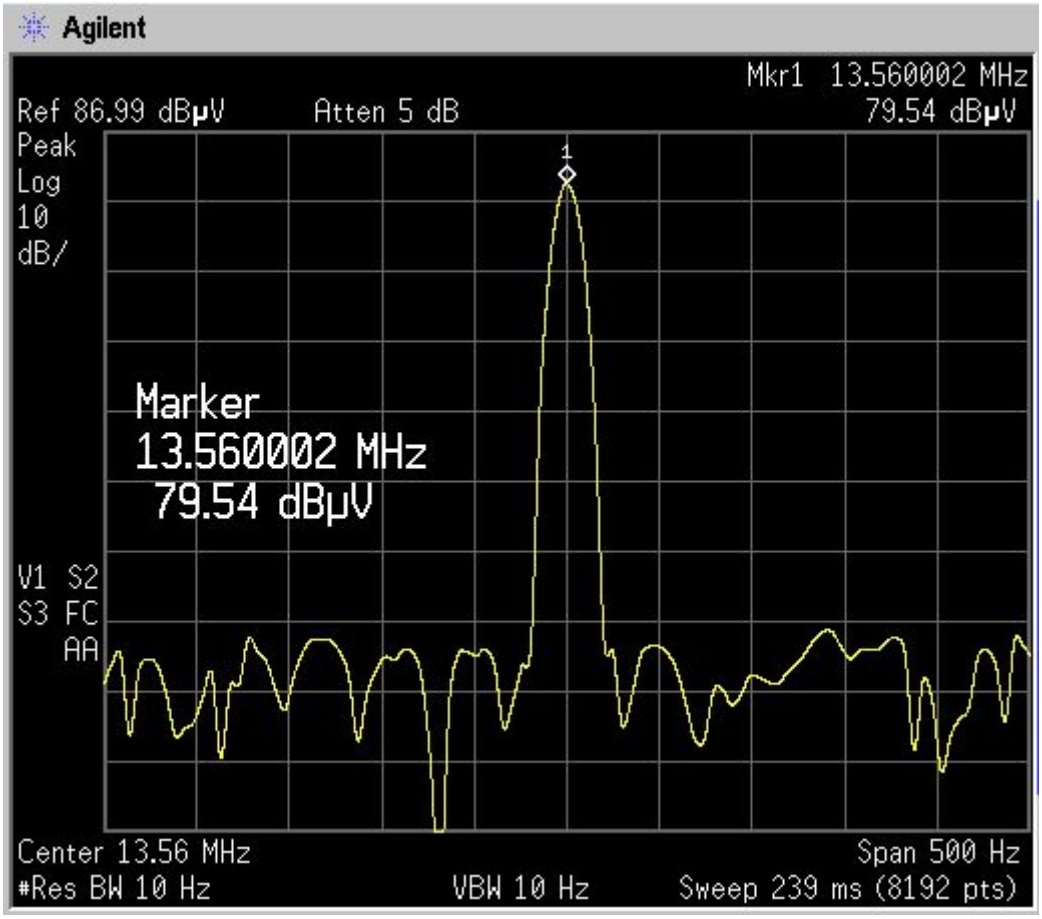
5.3 Measurement Results Summary

Voltage	Carrier Frequency (Hz)	Limit in Hz	Test Result
85	13,560,001.0	± 1,356	Pass
120	13,560,002.0	± 1,356	Pass
276	13,560,001.0	± 1,356	Pass

5.4 Voltage Variation Frequency Stability Test Results

The 13.56MHz worst case frequency plot is shown on the following page.

5.4 Voltage Variation Frequency Stability Test Results (continued)



5.5 Voltage Variation Frequency Stability Test Conclusion

The EUT meets the voltage variation frequency stability test requirements of FCC 15.225 and RSS-210, B.6.

6.0 Temperature Variation Frequency Stability

6.1 Applicable Standards

FCC 15.225, RSS-210, B.6

6.2 Measurement Procedure

Vary the temperature of the EUT environment from -20°C to +50°C with the EUT operating at a normal supply voltage (120V, 60Hz). The frequency tolerance of the carrier signal must stay within ±0.01%.

6.3 Measurement Results Summary

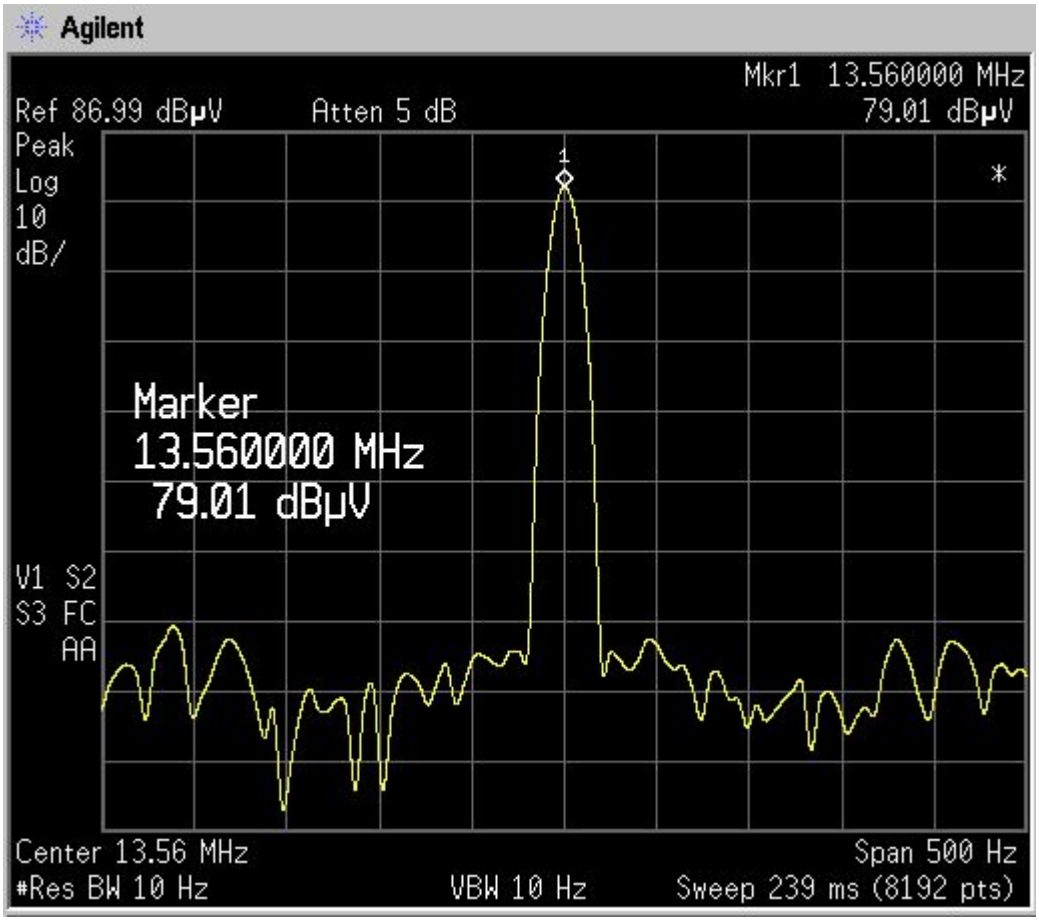
Temperature (°C)	Carrier Frequency (Hz)	Limit in Hz	Test Result
20	13,560,000.0	± 1,356	Pass
-20	13,560,001.0	± 1,356	Pass
+50	13,559,950.0	± 1,356	Pass

6.4 Temperature Variation Frequency Stability Test Results

The Temperature Variation Frequency Stability plots are shown on the following pages.

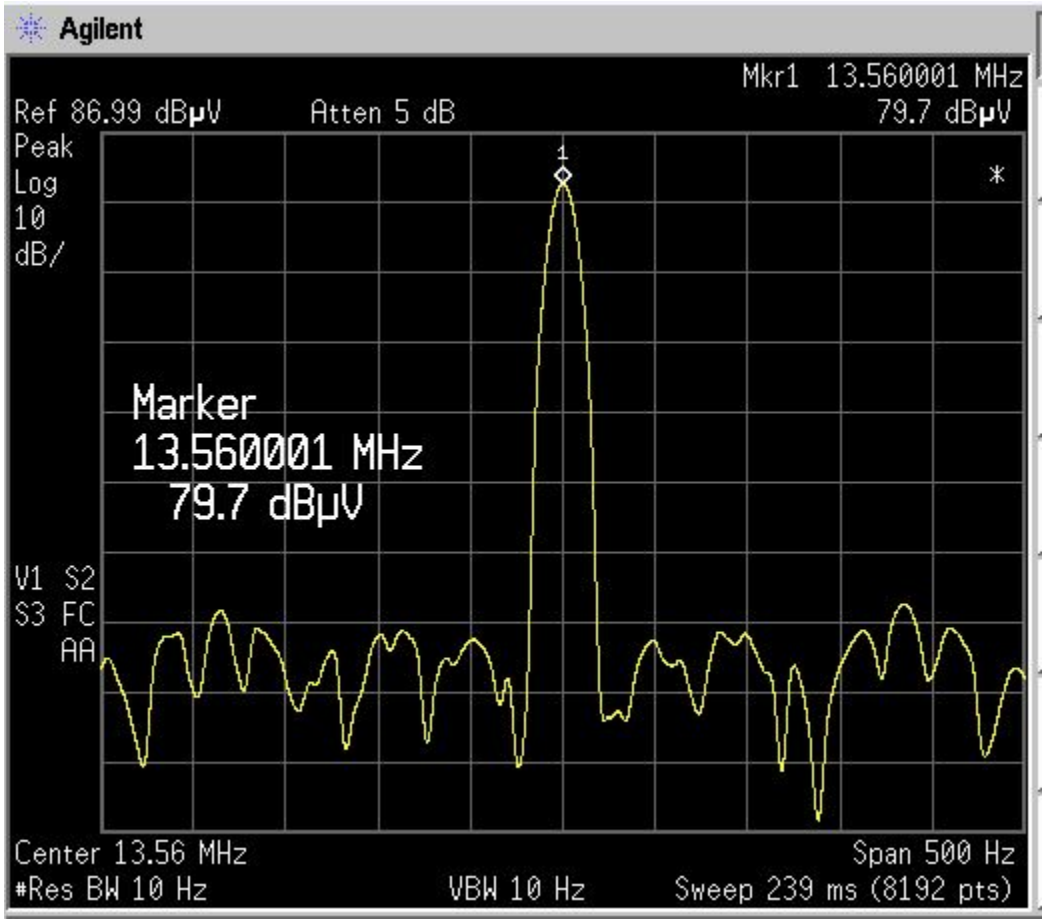
6.4 Temperature Variation Frequency Stability Test Results (continued)

Temperature = +20°C



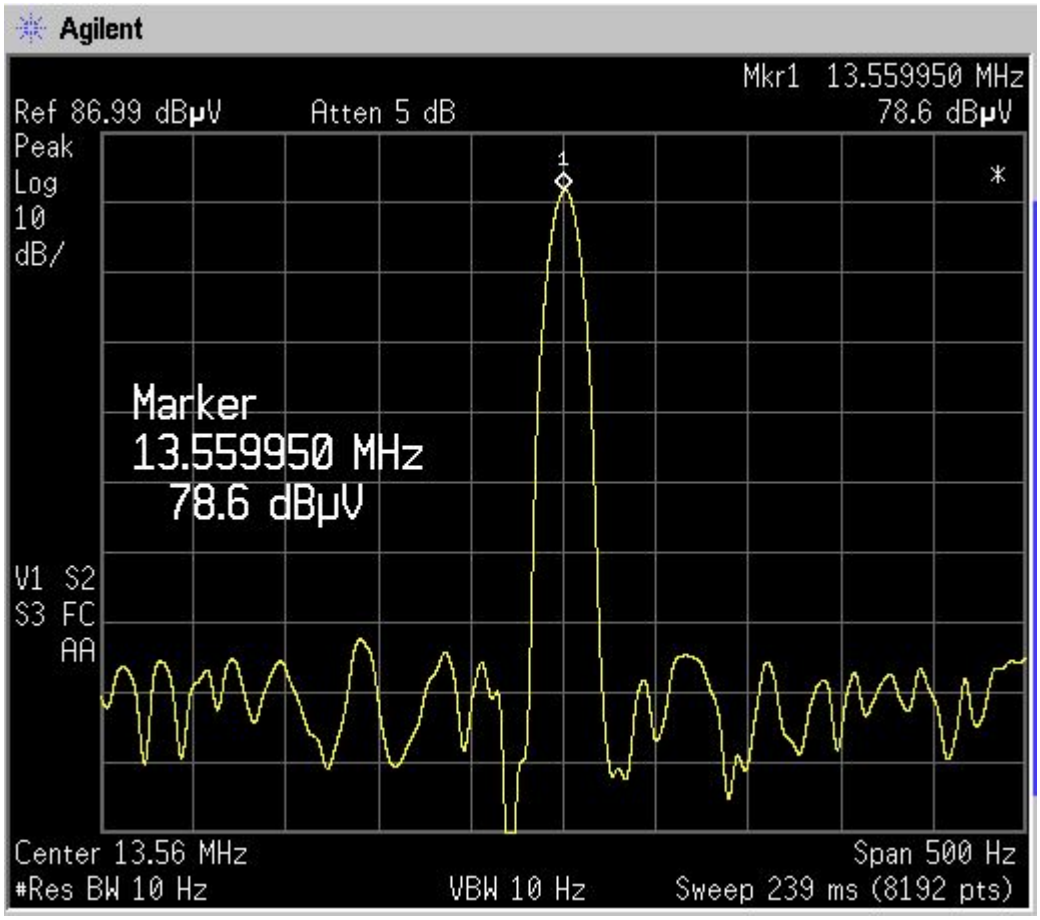
6.4 Temperature Variation Frequency Stability Test Results (continued)

Temperature = -20°C



6.4 Temperature Variation Frequency Stability Test Results (continued)

Temperature = +50°C



6.5 Temperature Variation Frequency Stability Test Conclusion

The EUT meets the temperature variation frequency stability test requirements of FCC 15.225 and RSS-210, B.6.

7.0 UNINTENTIONAL/SPURIOUS RADIATED EMISSION TEST

7.1 Radiated Emissions

Preliminary testing was done in a ferrite lined shielded enclosure for frequency identification from the EUT. These scans are exploratory emission tests only that are voluntarily submitted. All final measurements were done on the OATS.

For the OATS testing, the EUT was placed on an 80cm high polystyrene table which was on a turntable. The testing was done per ANSI C63.10, sections 6.4 and 7.7. The turntable was rotated 360 degrees to determine the position of maximum emission level. In order to find the maximum emissions, the relative positions of the transmitter (EUT) was rotated through three orthogonal axes according to the requirements in ANSI C63.10, section 5.10. The worst case orientation of the EUT was determined and all testing was then done in that orientation. Refer to the test photos in the Tsup document. The receiving antenna was set 10m away from the EUT. The receiving antenna was set at a 1m height. The maximum emissions was found when the receiving antenna magnetic loop was in the same plane as the EUT antenna loop.

7.2 Prescan Radiated Emissions

The radiated emissions prescan testing was performed in the 3 meter ferrite lined shielded chamber.

The EUT was placed on a 0.8m high polystyrene table for all measurements.

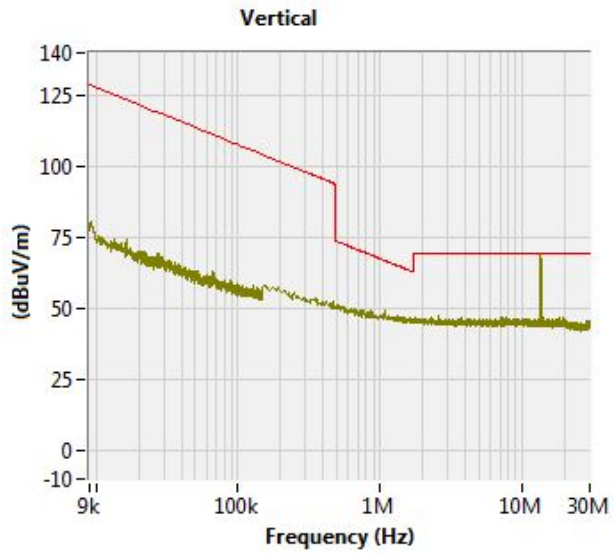
7.3 Prescan Measurement Procedure

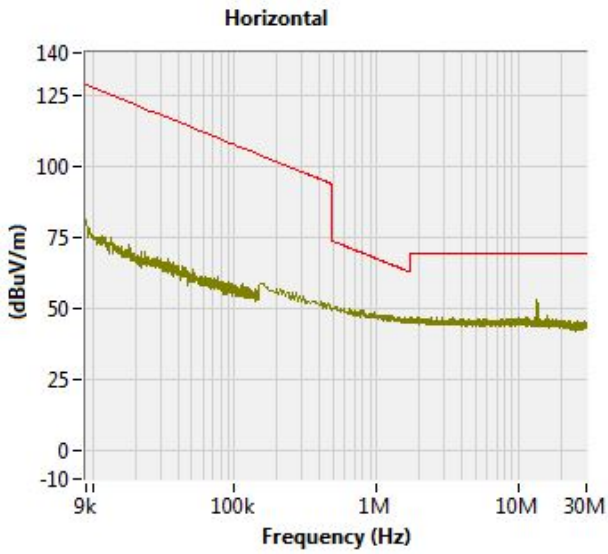
- Prescans from 9kHz to 1000MHz were done in the ferrite-lined shielded chamber for EUT frequency identification. These scans are exploratory emission tests only that are voluntarily submitted.

7.4 Prescan Measurement Results

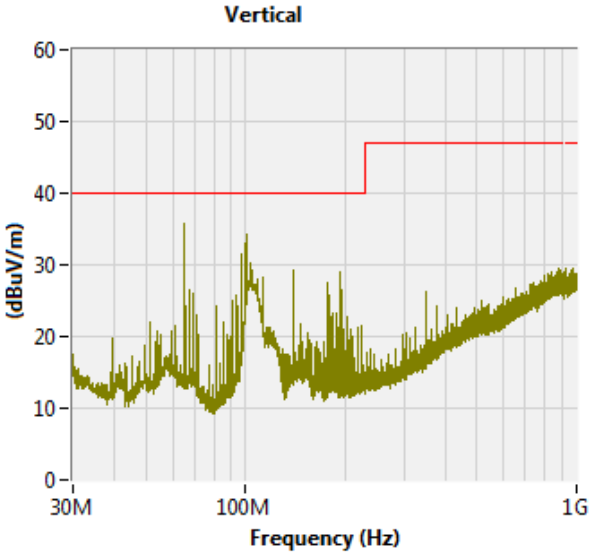
The following plots show a summary of the prescan data that was collected.

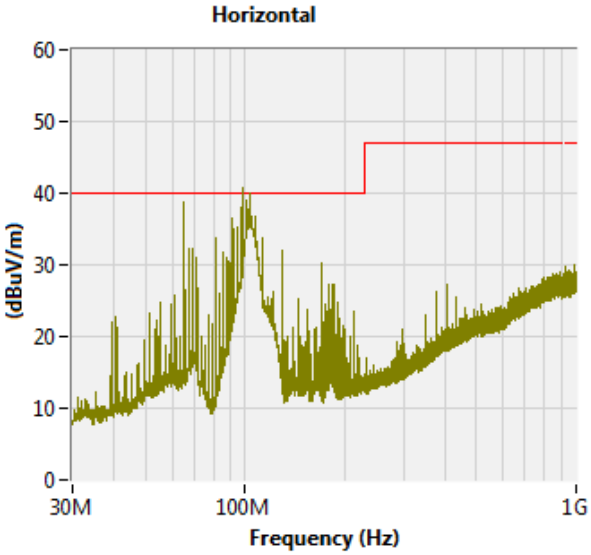
7.4 Prescan Measurement Results (continued)





9kHz – 30MHz, Antenna: Magnetic Loop at 3m





30 - 1000MHz, Antenna: BiLog at 3m

7.5 Radiated Emissions Applicable Standards

FCC 15.209 (a) – (f), RSS-GEN, 8.9. Emissions outside the authorized bands shall not exceed the radiated emission limits specified in FCC 15.209(a) – (f) and RSS-GEN, 8.9, and according to FCC 15.33(a)(1) and ANSI C63.10, section 5.5, for an intentional radiator operating below 10GHz, the frequency range of measurements shall encompass from the lowest frequency generated in the device or at least 30MHz to the tenth harmonic of the highest fundamental frequency or 40GHz, whichever is lower.

7.6 Radiated Emissions EUT Setup

The radiated emission tests were performed on the 3-meter open area test site.

The EUT was placed on an 80cm polystyrene table for measurements up to and including 1GHz.

7.7 Radiated Emissions Measurement Procedure

- The 80cm polystyrene table was placed on a turntable which is flush with the ground plane.
- The turntable was rotated 360 degrees to determine the position of maximum emission level.
- The EUT was 3m away from the receiving antenna which was varied from 1m to 4m to obtain the maximum emissions level.
- The data was recorded for at least the six highest emissions to ensure EUT compliance.
- The EUT was tested in continuous transmitting mode (100% duty cycle) at 13.560MHz. A passive RFID tag was located within 3 inches of the RFID module and the module was tested under normal operating conditions.

7.8 Radiated Emissions Test Setup Photos

Refer to photos in the Tsup document.

7.9 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain (if applicable) and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation is as follows:

$$FS = RA + AF + CL - AG$$

Where:
FS = Field Strength
RA = Reading Amplitude
AF = Antenna Factor
CL = Cable Attenuation Factor (Cable Loss)
AG = Amplifier Gain (if applicable)

7.10 Limit Extrapolation Method for Frequencies Below 30MHz

For radiated emissions results below 30MHz, the limit was adjusted based on a 40dB/decade extrapolation factor for distance (Reference: FCC Part 15.31 f 2). The field strength limit is calculated and converted to dBµV/m and then the 3m Limit Adjustment was added to this to get the 3 meter limit shown in the 9kHz - 30MHz results tables.

Frequency (MHz)	**Field strength limit (microvolts/meter)**	**Measurement distance (meters)**	**3m Limit Adjustment (dB)**	**3m Limit (dBµV/m)**
0.009-0.490	2400/F(kHz)	300	80	128.5 - 93.8
0.490-1.705	24000/F(kHz)	30	40	73.8 – 62.9
1.705-30.0	30	30	40	69.5 – 69.5
30.0	100	3	N/A	40.0

For example: At 32 kHz, the field strength limit is 2400/32 = 75 µV/m. This converts to 37.5 dBµV/m. To this is added the 3m Limit Adjustment of 80dB. Therefore, the 3m limit at 32 kHz is 117.5 dBµV/m.

7.11 Measurement Result – Radiated Emissions Data Tables

The data tables on the following pages show the Radiated Emissions test results.

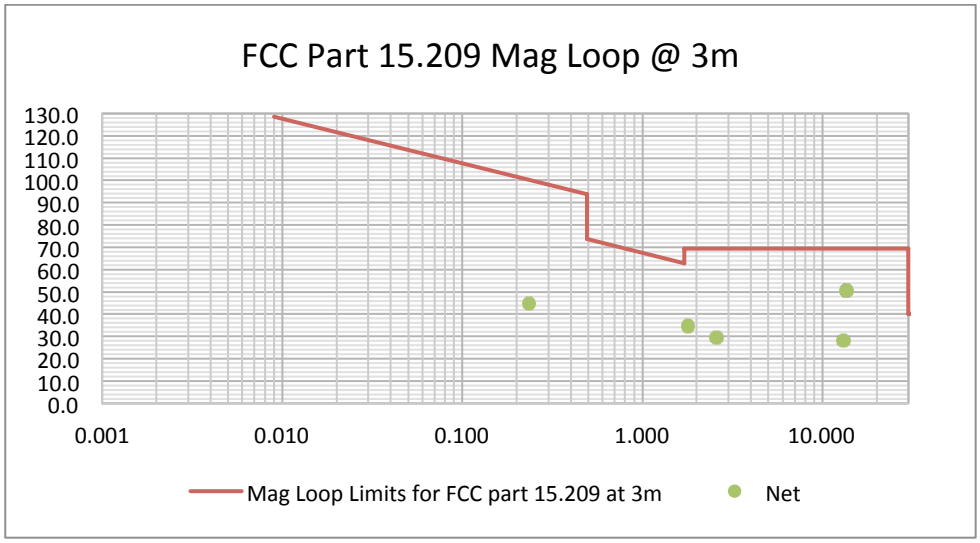
7.11 Measurement Result – Radiated Emissions Data Tables (continued)

3-Meter Magnetic Loop Radiated Emissions Results

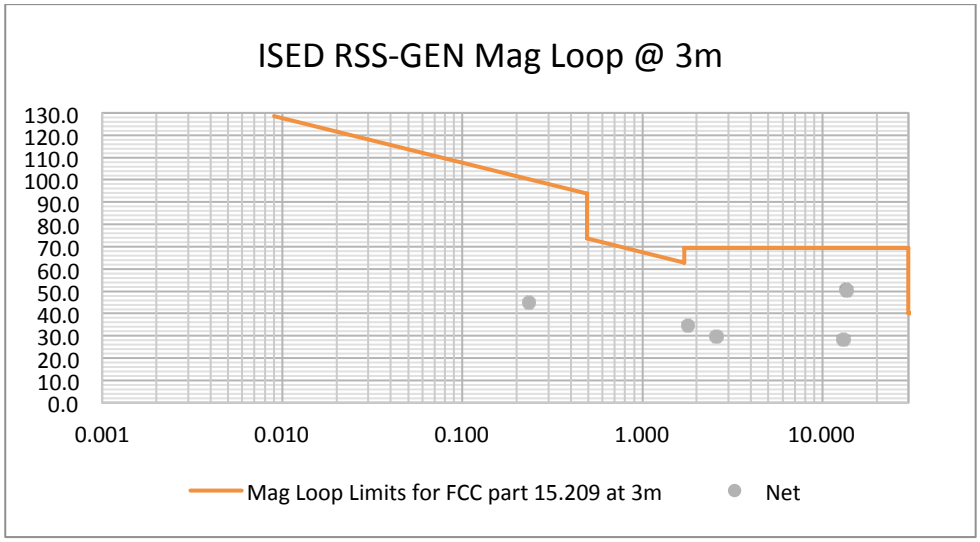
Date: 11/26/2019
Test Engineer: GC
Customer: Sealed Air Corporation
Product: Inflatable Cushioning System
Configuration: RFID card powered on and tag within 3" of card
EUT Voltage: 120V, 60Hz
Temperature (°C): 17
Relative Humidity (%): 51
Test Distance: **3 meters**
Frequency Range: **9kHz-30MHz**
Antenna Asset #: **103**
Detector used: **Quasi-peak (QP) for all except as follows: Average (AVG) 9-90kHz and 110-490kHz**
Antenna Polarity: **V=plane of loop perpendicular to EUT face; H=plane of loop parallel to EUT face**

Frequency (MHz)	Detector (QP or AV)	Reading (dBµV)	Azimuth (deg)	Ant. Ht. (m)	Ant. Polarity	Mag Loop E Factor (dB)	25m Cable Factor (dB)	Net (dBµV/m)	FCC 15.209 Limit (dBµV/m)	FCC 15.209 Margin (dBµV/m)	ISED RSS-GEN Limit (dBµV/m)	ISED RSS-GEN Margin (dBµV/m)
0.234	AV	31.0	0.0	1.0	V	13.8	0.1	44.8	100.2	-55.4	100.2	-55.4
1.792	QP	20.2	0.0	1.0	V	14.3	0.2	34.7	69.5	-34.9	69.5	-34.9
2.560	QP	15.2	0.0	1.0	V	14.2	0.2	29.6	69.5	-39.9	69.5	-39.9
13.088	QP	13.6	0.0	1.0	V	14.4	0.4	28.4	69.5	-41.2	69.5	-41.2
13.533	QP	36.1	0.0	1.0	V	14.3	0.4	50.9	69.5	-18.7	69.5	-18.7
13.590	QP	35.6	0.0	1.0	V	14.3	0.4	50.3	69.5	-19.2	69.5	-19.2

NOTES:
Use the detector shown based on the frequency.
EN55032 has no limits below 30MHz.
RBW=200Hz from 9kHz to 150kHz
RBW=9kHz from 150kHz to 30MHz



7.11 Measurement Result – Radiated Emissions Data Tables (continued)



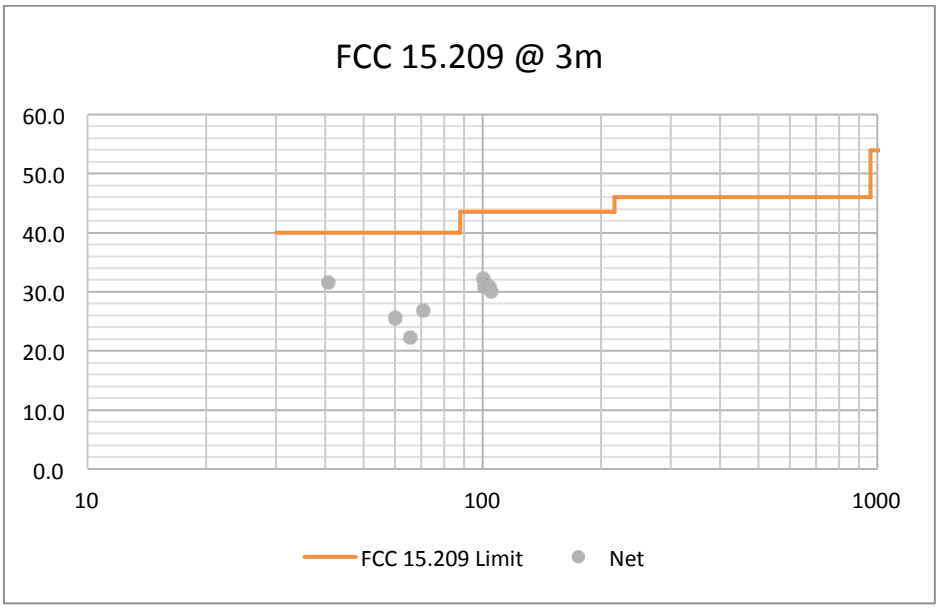
7.11 Measurement Result – Radiated Emissions Data Tables (continued)

3-Meter Radiated Emissions Results

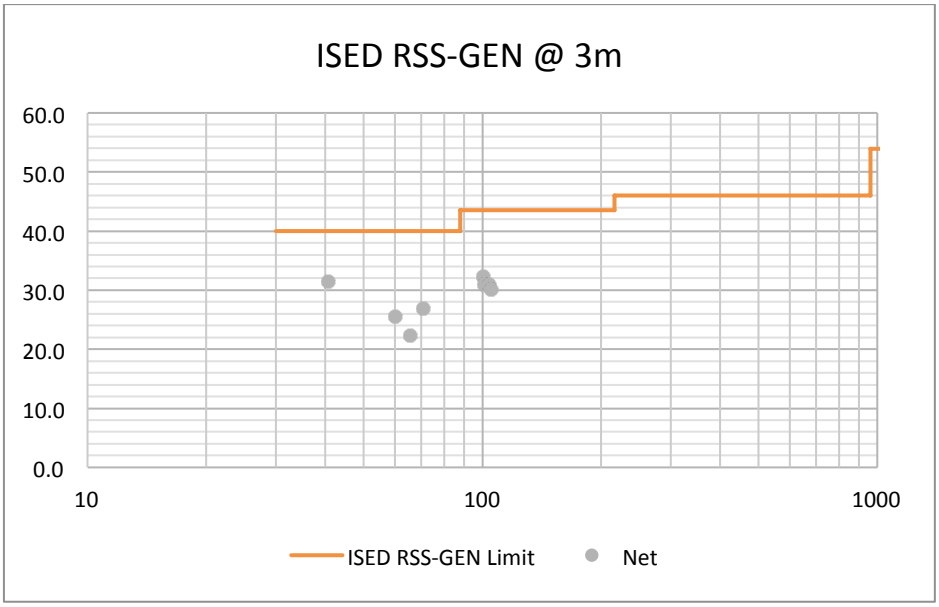
Date: 11/26/2019
Test Engineer: GC
Customer: Sealed Air Corporation
Product: Inflatable Cushioning System
Configuration: RFID card powered on and tag within 3" of card
EUT Voltage: 120VAC, 60Hz
Temperature (°C): 21.9
Relative Humidity (%): 45
Test Distance: **3 meters**
Frequency Range: **30-1000MHz**
Antenna Asset #: **17**

Frequency (MHz)	QP Reading (dBµV)	Azimuth (deg)	Ant. Ht. (m)	Ant. Polarity	3m Antenna Factor (dB)	25m Cable Factor (dB)	Net (dBµV/m)	FCC Part 15.209 QP Limit (dBµV/m)	FCC Part 15.209 QP Margin (dBµV/m)	ISED RSS-GEN QP Limit (dBµV/m)	ISED RSS-GEN QP Margin (dBµV/m)
40.7	13.3	0.0	1.0	V	17.5	0.7	31.5	40.0	-8.5	40.0	-8.5
60.4	14.4	180.0	3.4	H	10.3	0.9	25.6	40.0	-14.4	40.0	-14.4
65.6	11.2	315.0	3.3	H	10.1	1.0	22.3	40.0	-17.7	40.0	-17.7
70.8	15.4	315.0	3.3	H	10.5	1.0	26.9	40.0	-13.1	40.0	-13.1
100.4	16.0	315.0	3.6	H	15.1	1.2	32.3	43.5	-11.2	43.5	-11.2
101.4	14.5	315.0	3.0	H	15.2	1.2	30.9	43.5	-12.6	43.5	-12.6
103.8	14.1	315.0	1.4	H	15.6	1.2	30.9	43.5	-12.6	43.5	-12.6
105.4	13.0	315.0	1.7	H	15.8	1.2	30.1	43.5	-13.4	43.5	-13.4

NOTES:
RBW=120kHz
Scanned 30-1000 MHz



7.11 Measurement Result – Radiated Emissions Data Tables (continued)



7.12 Unintentional/Spurious Radiated Emissions Measurement Conclusion

The EUT meets the unintentional/spurious radiated emissions requirements of FCC 15.209 (a) through (f) and RSS-GEN, 8.9. The worst case unintentional/spurious radiated emission measured was 31.5 dBµV/m (QP) at 40.7MHz. The FCC/RSS-GEN limit at that frequency is 40.0 dBµV/m (100.0 microvolts/meter).

8.0 ANTENNA REQUIREMENT

8.1 Applicable Standards

FCC 15.203 and RSS-GEN, 6.8. An intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

8.2 Antenna Connected Construction

The loop antenna is permanently mounted to the EUT (PCB trace) with no consideration of replacement.

8.3 Antenna Requirement Conclusion

The EUT antenna meets the requirements of FCC 15.203 and RSS-GEN, 6.8.

9.0 CONDUCTED EMISSIONS

9.1 Applicable Standard

Conducted emissions is done according to FCC 15.207(a) and RSS-GEN section 8.8.

9.2 Measurement Procedure

Testing is performed over a ground reference plane with the EUT placed on an 80cm high wooden table that is positioned 40 cm from a 2-Meter by 2-Meter vertical coupling plane. Each individual current-carrying power lead is individually connected through a 50Ω/50µH Line Impedance Stabilization Network (LISN). The EUT is set into operation such that all parts of the system are exercised, while the RF voltages across the 50Ω measuring port of the LISN are recorded. The test is repeated for each current-carrying power line of the EUT.

9.3 Measurement Results

The data tables on the following page show the Conducted Emissions test results.

9.3 Measurement Results (continued)

Test Results with a dummy load resistor in place of the antenna on the RFID module and a ferrite installed on the AC line at the power supply terminal block (refer to Section 1.8 for further details regarding the ferrite).
Reference FCC KDB 174176, D01, Q5

FCC Part 15 / EN55011 AC Power / EN55032 Class B Conducted Emissions Results

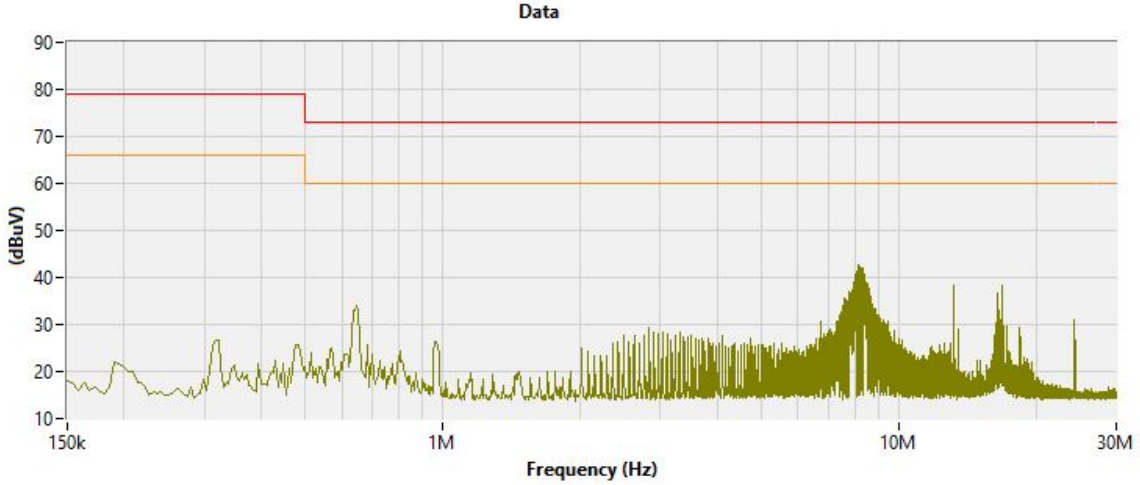
Date: 11/22/2019
Test Engineer: KM
Customer: Sealed Air Corporation
Product: Inflatable Cushioning System
Configuration: RFID dummy load
EUT Voltage: *See below.*
LISN USED: Teseq (Asset #135)
Temperature (°C): 21.3
Relative Humidity (%): 41.7

Mains Voltage:	120Vac
Frequency:	60Hz
Line Under Test:	L1

Freq. (MHz)	Peak (dBuV)	Quasi-Peak (dBuV)	Average (dBuV)	LISN Factors	Cable Factors	QP Net (dBuV)	AV Net (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.329	18.0	16.2	13.5	9.83	0.01	26.04	23.34	59.5	-33.4	49.5	-26.1
0.652	23.9	21.8	12.1	9.84	0.02	31.66	21.96	56.0	-24.3	46.0	-24.0
2.356	17.7	14.9	10.9	9.93	0.03	24.86	20.86	56.0	-31.1	46.0	-25.1
2.559	18.1	14.7	8.5	9.94	0.03	24.68	18.48	56.0	-31.3	46.0	-27.5
2.627	18.6	15.7	9.9	9.95	0.03	25.68	19.88	56.0	-30.3	46.0	-26.1
2.759	21.0	18.9	14.6	9.96	0.03	28.89	24.59	56.0	-27.1	46.0	-21.4
2.894	21.0	18.7	14.5	9.96	0.03	28.70	24.50	56.0	-27.3	46.0	-21.5
8.009	28.3	23.0	5.6	10.25	0.04	33.29	15.89	60.0	-26.7	50.0	-34.1
13.560	19.3	17.9	17.5	10.48	0.07	28.45	28.05	60.0	-31.6	50.0	-22.0

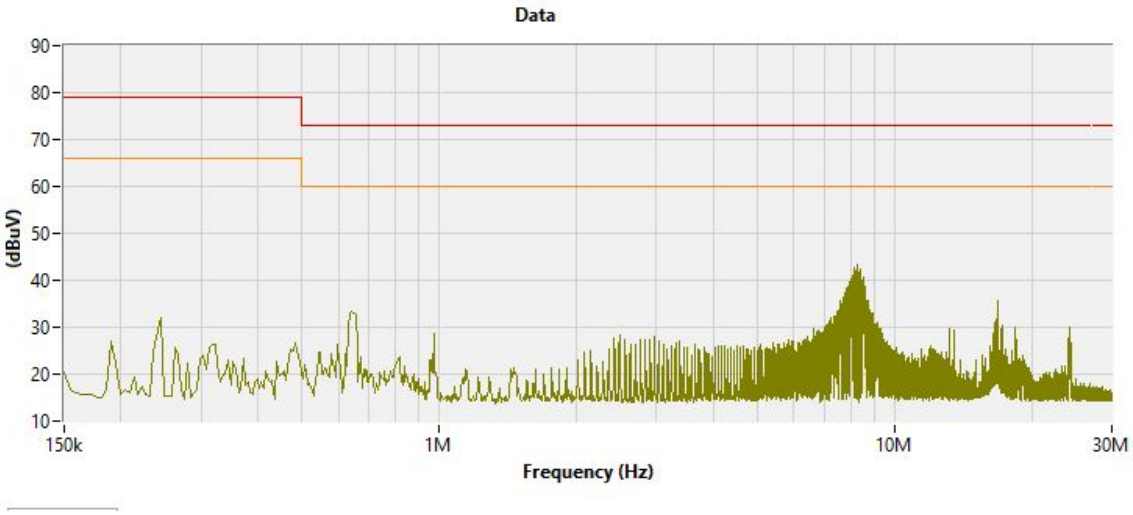
Mains Voltage:	120Vac
Frequency:	60Hz
Line Under Test:	N (L0)

Freq. (MHz)	Peak (dBuV)	Quasi-Peak (dBuV)	Average (dBuV)	LISN Factors	Cable Factors	QP Net (dBuV)	AV Net (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.329	18.6	16.2	11.4	9.83	0.01	26.04	21.24	59.5	-33.4	49.5	-28.2
0.652	23.7	21.9	15.6	9.84	0.02	31.76	25.46	56.0	-24.2	46.0	-20.5
2.559	17.6	15.2	11.8	9.94	0.03	25.18	21.78	56.0	-30.8	46.0	-24.2
2.627	18.5	16.1	12.2	9.95	0.03	26.08	22.18	56.0	-29.9	46.0	-23.8
2.759	21.7	19.8	16.8	9.96	0.03	29.79	26.79	56.0	-26.2	46.0	-19.2
2.894	21.6	19.7	16.2	9.96	0.03	29.70	26.20	56.0	-26.3	46.0	-19.8
3.030	21.6	19.4	15.6	9.97	0.04	29.41	25.61	56.0	-26.6	46.0	-20.4
8.009	29.0	23.8	8.1	10.25	0.04	34.09	18.39	60.0	-25.9	50.0	-31.6
13.560	19.4	18.3	18.0	10.48	0.07	28.85	28.55	60.0	-31.2	50.0	-21.5



120V, 60Hz, Phase

9.3 Measurement Results (continued)



120V, 60Hz, Neutral

9.3 Measurement Results (continued)

Test Results with the antenna in place on the RFID module. There was no ferrite, as described in Section 1.8, installed on the AC power cord at the power supply terminal block for these tests.
Reference FCC KDB 174176, D01, Q5

FCC Part 15 / EN55011 AC Power / EN55032 Class B Conducted Emissions Results

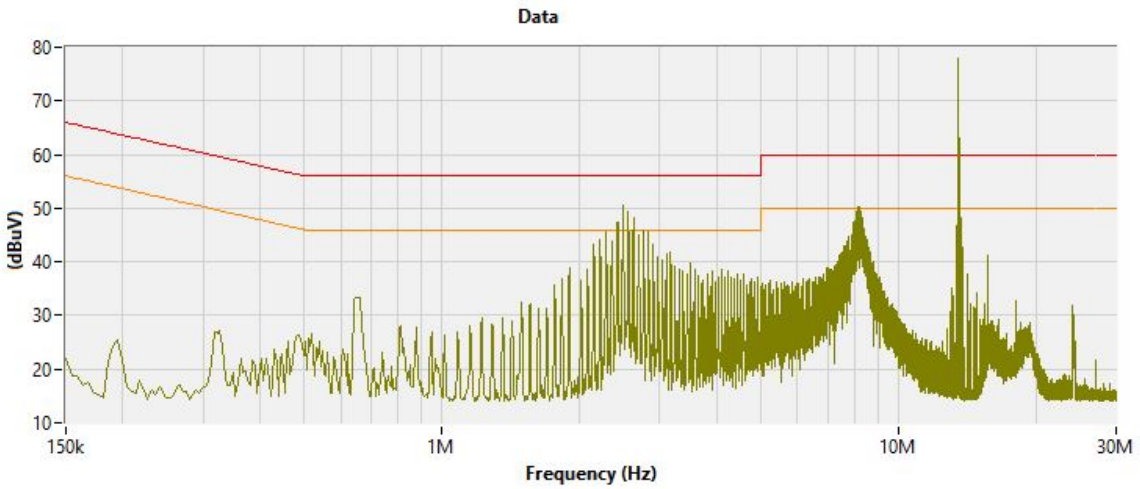
Date: 11/17/2019
Test Engineer: KM
Customer: Sealed Air Corporation
Product: Inflatable Cushioning System
Configuration: RFID ON
EUT Voltage: *See below.*
LISN USED: Teseq (Asset #135)
Temperature (°C): 22.1
Relative Humidity (%): 22.3

Mains Voltage:	120Vac
Frequency:	60Hz
Line Under Test:	L1

Freq. (MHz)	Peak (dBuV)	Quasi-Peak (dBuV)	Average (dBuV)	LISN Factors	Cable Factors	QP Net (dBuV)	AV Net (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.329	19.4	16.0	10.5	9.83	0.01	25.84	20.34	59.5	-33.6	49.5	-29.1
0.652	23.4	22.2	17.2	9.84	0.02	32.06	27.06	56.0	-23.9	46.0	-18.9
2.356	36.3	34.4	29.1	9.93	0.03	44.36	39.06	56.0	-11.6	46.0	-6.9
2.559	39.1	37.2	28.1	9.94	0.03	47.18	38.08	56.0	-8.8	46.0	-7.9
2.627	41.8	40.0	33.3	9.95	0.03	49.98	43.28	56.0	-6.0	46.0	-2.7
2.759	42.4	41.0	35.1	9.96	0.03	50.99	45.09	56.0	-5.0	46.0	-0.9
2.894	38.5	36.2	27.4	9.96	0.03	46.20	37.40	56.0	-9.8	46.0	-8.6
8.009	39.0	35.0	15.2	10.25	0.04	45.29	25.49	60.0	-14.7	50.0	-24.5
13.560	51.1	51.0	51.0	10.48	0.07	61.55	61.55	60.0	**1.5**	50.0	**11.5**

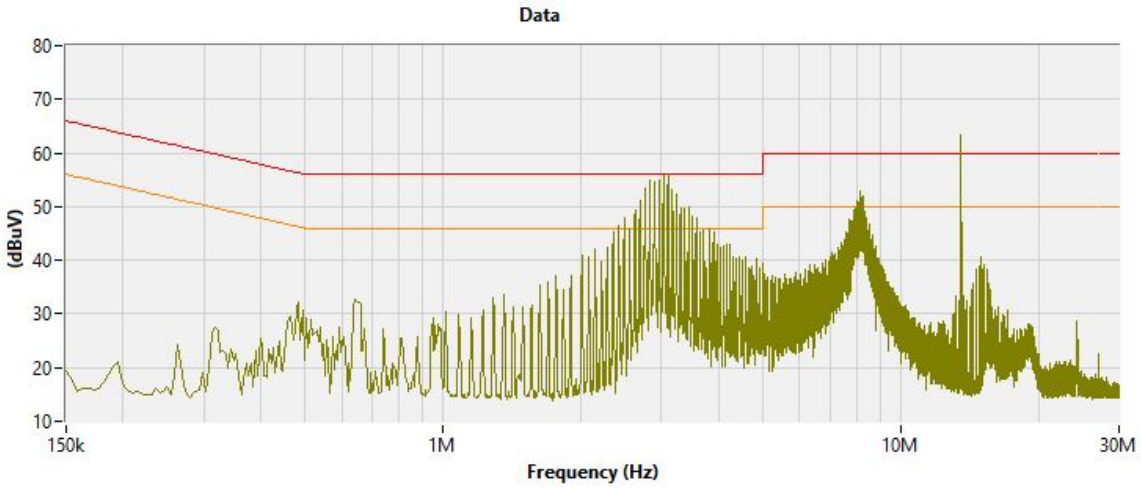
Mains Voltage:	120Vac
Frequency:	60Hz
Line Under Test:	N (L0)

Freq. (MHz)	Peak (dBuV)	Quasi-Peak (dBuV)	Average (dBuV)	LISN Factors	Cable Factors	QP Net (dBuV)	AV Net (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.329	18.4	16.1	14.0	9.83	0.01	25.94	23.84	59.5	-33.5	49.5	-25.6
0.652	24.5	21.7	14.3	9.84	0.02	31.56	24.16	56.0	-24.4	46.0	-21.8
2.559	37.6	36.1	28.2	9.94	0.03	46.08	38.18	56.0	-9.9	46.0	-7.8
2.627	41.7	40.0	33.4	9.95	0.03	49.98	43.38	56.0	-6.0	46.0	-2.6
2.759	44.8	43.6	38.0	9.96	0.03	53.59	47.99	56.0	-2.4	46.0	**2.0**
2.894	42.2	40.3	32.5	9.96	0.03	50.30	42.50	56.0	-5.7	46.0	-3.5
3.030	47.2	45.7	38.9	9.97	0.04	55.71	48.91	56.0	-0.3	46.0	**2.9**
8.009	40.3	36.0	15.7	10.25	0.04	46.29	25.99	60.0	-13.7	50.0	-24.0
13.560	54.7	54.6	54.6	10.48	0.07	65.15	65.15	60.0	**5.1**	50.0	**15.1**



120V, 60Hz, Phase

9.3 Measurement Results (continued)



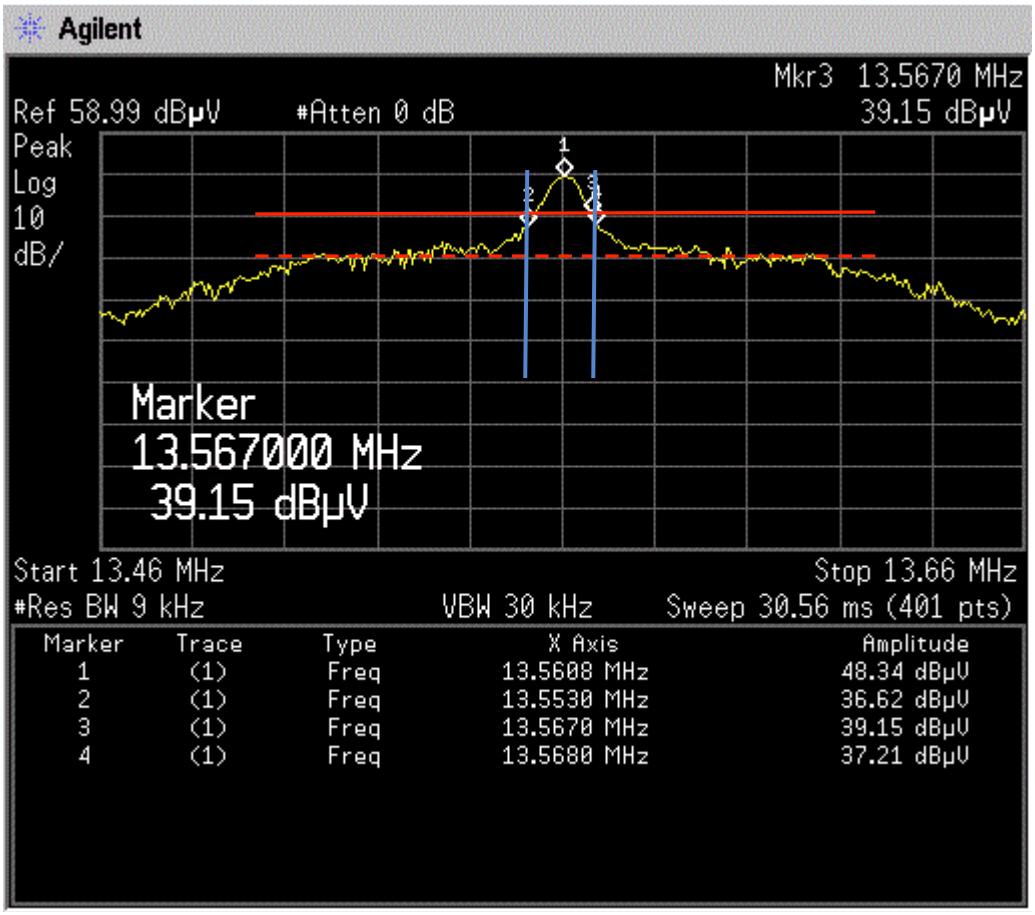
120V, 60Hz, Neutral

10.0 OCCUPIED BANDWIDTH

10.1 Applicable Standards

RSS-GEN, 6.7. The occupied bandwidth or 99% emission bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

10.2 Occupied Bandwidth based on 99% power



Point 1 amplitude = 48.3 dBµV
Red dotted line amplitude = 29.0 dBµV
Solid red line amplitude = 39.2 dBµV

Frequency X-axis: 20 kHz / div
Start Frequency: 13.46 MHz

Stop Frequency: 13.66 MHz
Occupied BW (99%) = delta frequency between the blue vertical lines = 13.568 – 13.553 = 15 kHz

Occupied BW (99%) = 15kHz

11.0 PHOTOGRAPHS

Sealed Air Corporation

Inflatable Cushioning System

Additional Photographs can be found in separate documents:

Inflatable Cushioning System Tsup.pdf
Inflatable Cushioning System Intpho.pdf
Inflatable Cushioning System Extpho.pdf.

END OF TEST REPORT