

Application For

Part 2, Subpart J, Paragraph 2.907 Equipment Authorization of Certification for an Intentional Radiator per Part 15, Subpart C, paragraphs 15.207, 15.209 and 15.247

And

Innovation, Science, and Economic Development Canada Certification Per IC RSS-Gen General Requirements for Radio Apparatus And RSS-247Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSS) and License-Exempt Local Area Network (LE-LAN) Devices

For the

Hill's Pet Nutrition, Inc

Model Number: AGL3

FCC ID: 2AV2S-CMAS1 IC: 26165-CMAS1

UST Project: 20-0128 Issue Date: June 19, 2020

Total Pages: 114

3505 Francis Circle Alpharetta, GA 30004 PH: 770-740-0717 Fax: 770-740-1508 www.ustech-lab.com

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I certify that I am authorized to sign for the Test Agency and that all of the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

US TECH (Agent Responsible For Test):

By: Alan Ghasiani Name: Man Marca

Title: Compliance Engineer – President

Date: June 19, 2020

TESTING NVLAP LAB CODE 200162-0

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#### MEASUREMENT TECHNICAL REPORT

COMPANY NAME: MODEL: FCC ID: IC: DATE: Hill's Pet Nutrition, Inc AGL3 2AV2S-CMAS1 26165-CMAS1 June 19, 2020

This report concerns (check one): SOriginal grant Class II change

Equipment type: 2.4 GHz WiFi transmitter Device

Technical: IEEE Std. 802.11 b,g,n (HT20) 2412 MHz - 2462 MHz (Channels 1-11) Data Rate: 802.11b= 1-11 Mbps, 802.11g= 6-54 Mbps, 802.11n= MCS0-7 Antenna Gain: -6.16 dBi (Trace Antenna) Maximum Output Power: +23.76 dBm

Report prepared by: US Tech 3505 Francis Circle Alpharetta, GA30004

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#### 1 General Information

#### **1.1** Purpose of this Report

This report is prepared as a means of conveying test results and information concerning the suitability of this exact product for public distribution according to IC RSS-247 and FCC Rules and Regulations Part 15, Section 247.

#### 1.2 Characterization of Test Sample

The sample used for testing was received by US Tech on April 15, 2020 in good operating condition.

#### **1.3 Product Description**

The Equipment under Test (EUT) is the Hill's Pet Nutrition, Inc Model AGL3. The AGL3 sensor is a component of the AGL VetraxTM medical analytics solution. The AGL3 is a wearable sensor for animals that collects multi-dimensional sensor data – 9 axis data. The AGL Vetrax analytics system derives quantifying animal behaviors such as running, walking, resting, scratching, shaking, etc. from the sensor data. From this data, AGL Vetrax Veterinarians can better track the effectiveness of their medical care programs. Conditions such as geriatric care, obesity, surgical rehabilitation and dermatology issues can all be observed through tracking and monitoring animal behavior.

The EUT incorporates both Bluetooth LE technology and WiFi technology. This report is for the WiFi radio module.

The WiFi radio details include:

Antenna Gain: -6.16 dBi (Trace Antenna) Bandwidth: 20 MHz bandwidth modulation Maximum Output Power: +23.76 dBm US Tech Test Report: FCC Part 15/IC RSS Certification FCC ID: 2AV2S-CMAS1 IC: 26165-CMAS1 Test Report Number: 20-0128 Issue Date: June 19, 2020 Customer: Hill's Pet Nutrition, Inc Model: AGL3

#### 1.4 Configuration of Tested System

The Test Sample was tested per ANSI C63.10:2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices for the intentional radiator aspect of the device and ANSI C63.4:2014, Methods of Measurement of Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (2014) for the unintentional radiator aspect of the device as well as FCC subpart B and C of Part 15 and per FCC KDB Publication number 558074 v03r05 for Digital Transmission Systems Operating Under section 15.247.

Digital RF conducted and radiated emissions data below 1 GHz were taken with the measuring receiver (or spectrum analyzer's) resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements performed above 1.0 GHz were made with a RBW of 1 MHz. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was set to 3 times the RBW or as required per the standard throughout the evaluation process.

A list of EUT and Peripherals is found in Table 1. A block diagram of the tested system is shown in Figure 1. Test configuration photographs for spurious and fundamental emissions are provided in separate Appendices.

#### 1.5 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA 30004. This site has been fully described and registered with the FCC. Its designation number is US5301. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number 9900A-1.

#### 1.6 Related Submittal(s)/Grant(s)

The EUT is subject to the following FCC Equipment Authorizations:

a) Certification of the transmitter incorporated within the EUT, see test data presented herein.

### Table 1. EUT and Peripherals

PERIPHERAL MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC/IC ID	CABLES P/D
EUT/ Hill's Pet Nutrition, Inc	AGL3	Engineering Sample	FCC ID: 2AV2S-CMAS1 (pending) IC: 26165-CMAS1 (pending)	N/A
Antenna See antenna details				

S= Shielded, U= Unshielded, P= Power, D= Data

#### 2 Tests and Measurements

#### 2.1 Test Equipment

The table below lists test equipment used to evaluate this product. Model numbers, serial numbers and their calibration status are included herein.

TEST INSTRUMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	CALIBRATION DUE DATE
SPECTRUM ANALYZER	E4407B	AGILENT	US41442935	8/17/2020
SPECTRUM ANALYZER	DSA815	RIGOL	DSA8A18030 0138	12/10/2021 2 yr
RF PREAMP 100 kHz to 1.3 GHz	8447D	HEWLETT- PACKARD	1937A02980	5/07/2020
PREAMP 1.0 GHz to 26.0 GHz	8449B	HEWLETT- PACKARD	3008A00480	7/08/2020 Extended
LOOP ANTENNA	6502	ETS Lindgren	9810-3246	4/06/2022 2 yr.
BICONICAL ANTENNA	3110B	EMCO	9306-1708	5/27/2021 2 yr
LOG PERIODIC ANTENNA	3146	EMCO	9305-3600	2/01/2021 2 yr
HORN ANTENNA	3115	EMCO	9107-3723	11/28/2020 2 yr
HIGH PASS FILTER	H3R020G2	MICROWAVE CHIRCUITS	001DC9528	7/02/2020 Extended
LISN x 2	9247-50- TS-50-N	SOLAR ELECTRONICS	955824 and 955825	7/03/2020 Extended

#### Table 2. Test Instruments

Note 1: The calibration interval of the above test instruments are 12 months unless stated otherwise and all calibrations are traceable to NIST/USA.

Note 2: All testing conducted before May 07, 2020.

#### 2.2 Modifications to EUT Hardware

No modifications were made by US Tech to bring the EUT into compliance with FCC Part 15.247 or IC RSS-210 requirements.

# 2.3 Number of Measurements for Intentional Radiators (15.31(m), RSS-Gen6.8)

Measurements of intentional radiators or receivers shall be performed and reported for each band in which the device can be operated, with the device operating at the number of frequencies in each band specified in Table 3.

Frequency Range over which the device operates	Number of Frequencies	Location in the Range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near the top 1 near the bottom
Greater than 10 MHz	3	1 near top 1 near middle 1 near bottom

 Table 3. Number of Test Frequencies for Intentional Radiators

Because the EUT operates over 2.4 GHz to 2.4835 GHz, 3 test frequencies will be used.

### 2.4 Frequency Range of Radiated Measurements (Part 15.33, RSS-Gen 6.13)

#### 2.4.1 Intentional Radiator

The spectrum shall be investigated for the intentional radiator from the lowest RF signal generated in the EUT, without going below 9 kHz to the 10<sup>th</sup> harmonic of the highest fundamental frequency generated or 40 GHz, whichever is the lowest.

#### 2.4.2 Unintentional Radiator

For the digital device, an unintentional radiator, the frequency range shall be 30 MHz to 1000 MHz, or to the range specified in 2.4.1 above, whichever is the higher range of investigation.

# 2.5 Measurement Detector Function and Bandwidth (CFR 15.35, RSS-Gen 6.9, 6.13)

The radiated and conducted emissions limits shown herein are based on the following:

#### 2.5.1 Detector Function and Associated Bandwidth

On frequencies below 1000 MHz, the limits herein are based upon measurement equipment employing a CISPR Quasi-peak detector function and related measurement bandwidths (i.e. 9 kHz from 150 kHz to 30 MHz and 120 kHz from 30 MHz to 1000 MHz). Alternatively, measurements may be made with equipment employing a peak detector function as long as the same bandwidths specified for the Quasi-peak device are used.

#### 2.5.2 Corresponding Peak and Average Requirements

Above 1000 MHz, radiated limits are based on measuring instrumentation employing an average detector function. When average radiated emissions are specified there is also a corresponding Peak requirement, as measured using a peak detector, of 20 dB greater than the average limit. For all measurements above 1000 MHz the Resolution Bandwidth shall be at least 1 MHz.

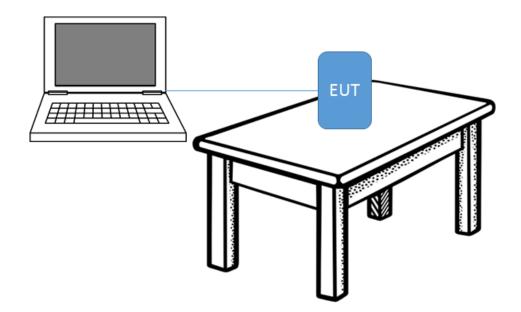
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## 2.6 EUT Antenna Requirements (CFR 15.203, RSS-Gen 6.7)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. Only the antenna(s) listed in Table 4 will be used with this module.

Table 4. Allowed Antenna(s)

REPORT REFERENCE	MANUFACTURER	TYPE OF ANTENNA	MODEL	GAIN dB <sub>i</sub>	TYPE OF CONNECTOR
Antenna	Hill's Pet Nutrition, Inc	PCB Trace	Inverted F type	-6.16	PCB Trace



**Figure 1. Block Diagram of Test Configuration** Note: PC used to program EUT for intentional spurious emissions

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#### 2.7 Restricted Bands of Operation (Part 15.205, RSS-Gen 8.10)

Only spurious emissions can fall in the frequency bands of CFR 15.205. The field strength of these spurious cannot exceed the limits of 15.209. Radiated harmonics and other Spurious are examined for this requirement see paragraph 2.10.

#### 2.8 Transmitter Duty Cycle (Part15.35 (c), RSS-Gen 6.10)

The EUT employs pulse transmission however for testing purpose the EUT was programmed to transmit at a rate >98%. The pulse transmission requirements of this subpart were acknowledge and considered during testing.

When the radiated emissions limit is expressed as an average value, and the transmitter is pulsed, the measured field strength shall be determined by applying a Duty Cycle Correction Factor based upon dividing the total ON time during the first 100 ms period by 100 ms (or by the period if less than 100 ms). The duty cycle may also be expressed logarithmically in dB.

# 2.9 Antenna Conducted Intentional and Spurious Emissions (CFR 15.209, 15.247(d)) (IC RSS 247, 5.5))

The EUT was put into a continuous-transmit mode of operation and tested per ANSI C63.10-2013 for conducted out of band emissions emanating from the antenna port over the frequency range of 30 MHz to ten times the highest clock frequency generate or used in this case, 25 GHz. A conducted scan was performed on the EUT to identify and record spurious signals that were related to the transmitter. Antenna Conducted Emissions of a significant magnitude that fell within restricted bands were then measured as radiated emissions in the EMC Chamber. The conducted emissions graphs are found in the figures below. The limit for antenna conducted power is 1 Watt (30 dBm) per 15.247 (b)(3).

For Conducted RF antenna tests, the RBW was set to 100 kHz, video bandwidth (VBW)> RBW, scan up through the 10<sup>th</sup> harmonic of the fundamental frequency. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

🔆 Agil	lent (	14:09:2	6 Apr	27,202	20					L	Peak Search
Ref 18	dRm		# <u>0++</u> _n	20 dB	Ev+ D6	:_8 dB		Mkr		.9 MHz 2 dBm	
Peak									-40.2		Meas Tools∙
Log 10											
dB/											Next Peak
											Next Pk Right
DI -5.3											HEAL FK RIGHT
dBm											
											Next Pk Left
V1 S2				10.0000			······				
S3 FC		****									Min Search
AA											
	Mark	er 9250	00 1	411-							Pk-Pk Search
		9296 22 d	1	172							
Start 3			DIII						Stop	1 GHz	More
#Res B				VB	W 300 I	кНz	Sweep	100.5			1 of 2

Figure 2. 802.11b, Channel 1, 30-1000 MHz

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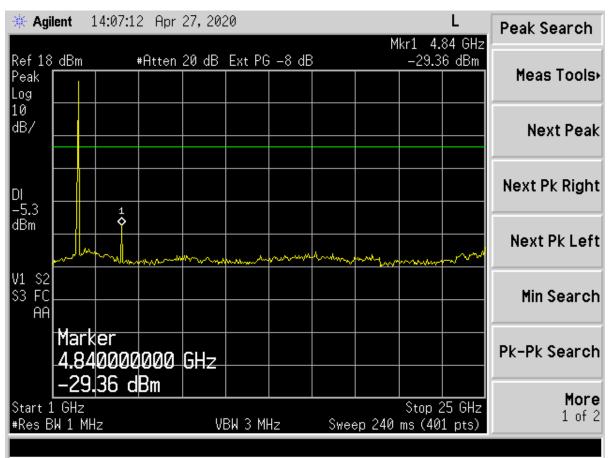


Figure 3. 802.11b, Channel 1, 1 – 25 GHz

(Note: Intentional Emission seen for radio operating at 2412 MHz)

🔆 Agil	lent (	14:12:0	8 Apr	r 27,20	20					L	Peak Search
Ref 18	dBm		#0++~r	n 20 dB	Eve DC			Mkı		).5 MHz 3 dBm	
Peak									-40.0		Meas Tools∙
Log					ļ						
10 dB/											Next Peak
											HOATTOUR
DI											Next Pk Right
-6.4 dBm											
											Next Pk Left
V1 S2											
\$3 FC	mm				man	an the second	mont				Min Search
AA											
	Mark	1									Pk-Pk Search
		4750		MHz							FK-FK Sedi Cil
	-46.	.63 d	Bm								More
Start 3					11 200 1		e	100 E		1 GHz	1 of 2
#Res B	W IUU	кнг		VE	W 300 I	KHZ	Sweep	100.5	ms (40	i pts)	

Figure 4. 802.11b, Channel 7, 30-1000 MHz

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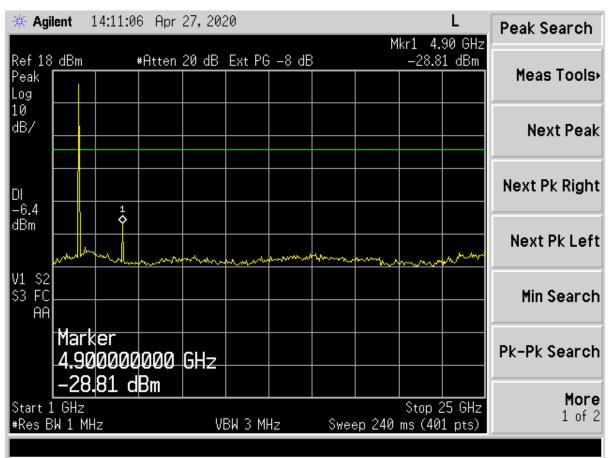


Figure 5. 802.11b, Channel 7, 1 – 25 GHz

(Note: Intentional Emission seen for radio operating at 2442 MHz)

🔆 Agil	lent 1	L4:15:0	7 Apr	27,202	20					L	Peak Search
D. C 10	-ID			an JD		N O JD		Mki		2.7 MHz	
Ref 18 Peak	abm		#Htten	20 ab	EXt PC	} – 8 dB			-46.	4 dBm	Meas Tools•
Log											
10 dB/											Next Peak
ч <i>с</i> ,											Nextreak
DI											Next Pk Right
-6.4 dBm											
uDiii											Next Pk Left
									1		
V1 S2 S3 FC	Anom	marra a	and a second	ur min	~	mar and	han an a	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	×	, and the second se	Min Search
Ϋ́ ΑΑ											nin sear on
	Mark	er									
			100 M	Hz							Pk-Pk Search
	-46	5.4 d	Bm								
Center									Span 97		<b>More</b> 1 of 2
#Res B	W 100	kHz		٧B	W 300 I	кНz	Sweep	100.5	ms (40	1 pts)	1 01 2

Figure 6. 802.11b, Channel 11, 30-1000 MHz

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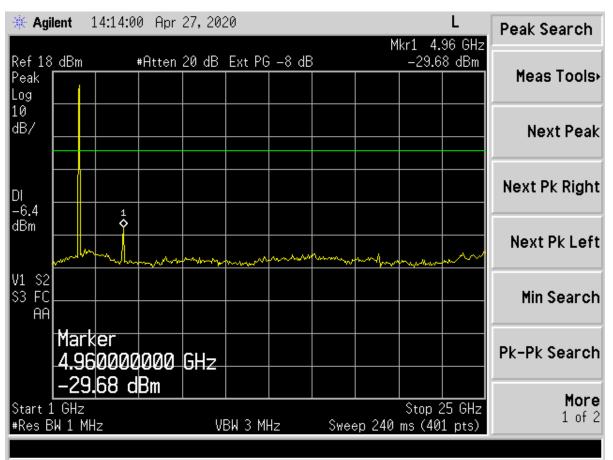


Figure 7. 802.11b, Channel 11, 1 - 25 GHz

(Note: Intentional Emission seen for radio operating at 2462 MHz)

🔆 Agi	<b>lent</b> 14:18:17 A	Apr 27, 2020			L 1. E49.0 MU-	Peak Search
Ref 18 Peak Log	dBm #Att	ten 20 dB E	xt PG -8 dB		lkr1 549.0 MHz _46.38 dBm	Meas Tools⊦
10 dB/						Next Peak
DI 8.4						Next Pk Right
dBm			1			Next Pk Left
V1 S2 S3 FC AA			·····	www.weinigener.weinigener.weinigener.weinigener.weinigener.weinigener.weinigener.weinigener.weinigener.weinigen	Marran and Marra	Min Search
	Marker 548.950000 -46.38 dBm					Pk-Pk Search
	515 MHz W 100 kHz		300 kHz	Sweep 100.5	Span 970 MHz 5 ms (401 pts)	More 1 of 2

Figure 8. 802.11g, Channel 1, 30-1000 MHz

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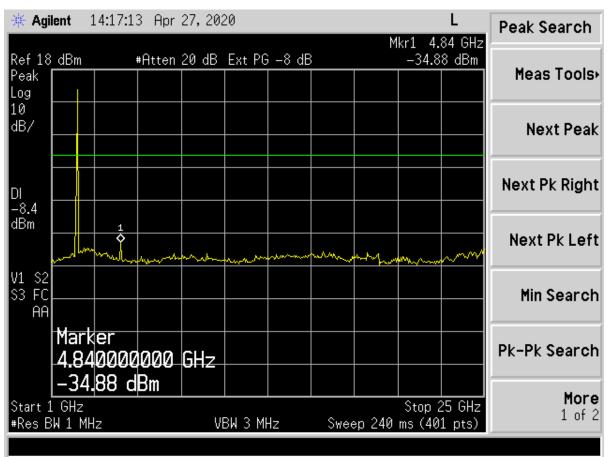


Figure 9. 802.11g, Channel 1, 1 – 25 GHz

(Note: Intentional Emission seen for radio operating at 2412 MHz)

₩ Agilent 1	4:20:31 Apr	27,2020		h	L 1kr1 842.4	Peak Search
Ref 18 dBm Peak Log	#Atten	20 dB Ext	t PG –8 dB		-45.77 c	
10 dB/						Next Peak
DI						Next Pk Right
dBm						Next Pk Left
V1 S2 S3 FC AA		^^^^^	n		and the second	Min Search
	er 375000   77 dBm	¶Hz				Pk-Pk Search
Start 30 MHz #Res BW 100		VBW 3	00 kHz	Sweep 100.	Stop 1 5 ms (401 p	

Figure 10. 802.11g, Channel 7, 30-1000 MHz

FCC Part 15/IC RSS Certification 2AV2S-CMAS1 26165-CMAS1 20-0128 June 19, 2020 Hill's Pet Nutrition, Inc AGL3

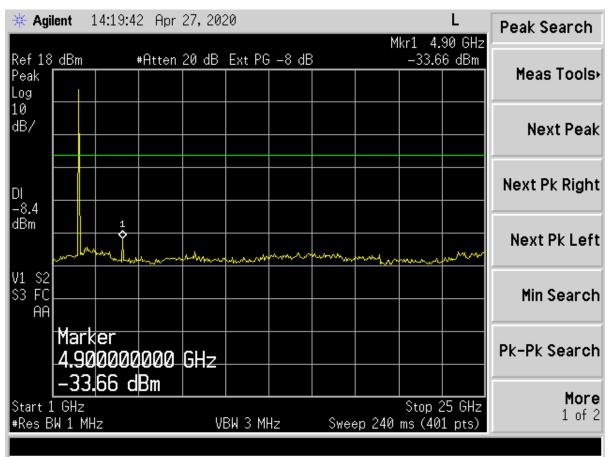
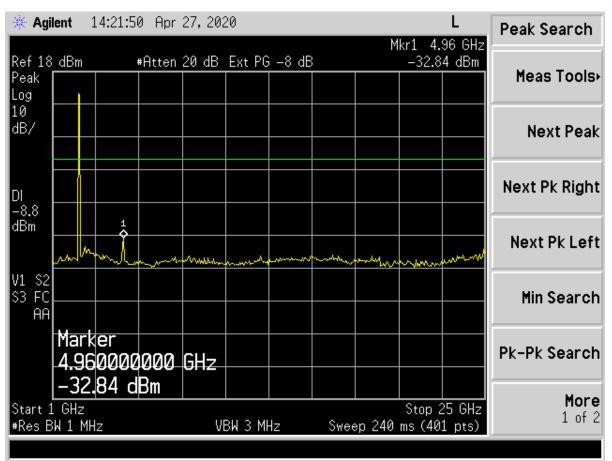


Figure 11. 802.11g, Channel 7, 1 - 25 GHz

(Note: Intentional Emission seen for radio operating at 2442 MHz)

Log 10 dB/ DI -8.8 dBm V1 S2 S3 FC	🔆 Agil	l <b>ent</b> 14	1:22:36	Apr 27, 2	020			ML	.4 0.02	L	Peak Search
dB/     Image: Constraint of the second	Peak Log	dBm	#At	ten 20 di	3 Ext P(	9 –8 dB		MK			Meas Tools•
V1 S2 S3 FC											Next Peak
V1 S2 S3 FC Min Searc	-8.8										Next Pk Right
S3 FC Min Searc											Next Pk Left
	S3 FC. AA	humm			manna		uh-tupu		har na shekara ka	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Min Search
Marker 893.300000 MHz -45.88 dBm		893.3	30000								Pk-Pk Search
Center 515 MUZ Mor		515 MH:	z		I IBW 300	kHz	Sweep				<b>More</b> 1 of 2

Figure 12. 802.11g, Channel 11, 30-1000 MHz



**Figure 13. 802.11g, Channel 11, 1 – 25 GHz** (Note: Intentional Emission seen for radio operating at 2462 MHz)

🔆 Agil	lent 1	L4:26:0	0 Apr	27,202	20					L	Peak Search
Ref 18	dRm		#Ĥ++≏n	20 dB	Ev+ P6	; -8 dB		Mk		).6 MHz 6 dBm	
Peak									-43.7		Meas Tools⊦
Log 10											
dB/											Next Peak
DI											Next Pk Right
-10.3											
dBm											Next Pk Left
V1 S2 S3 FC	mon		mo			mon	m	un kon sen sen sen sen sen sen sen sen sen se	an fa dala an	yyerriter	Min Search
ÂĂ											
	Mark										Pk-Pk Search
		5750	1	Hz							FK-FK Sedi Cli
		76 d	Bm								More
Start 3 #Res B		kHz		٧B	W 300 I	кНz	Sween	100.5		1 GHz 1 pts)	1 of 2

Figure 14. 802.11n, Channel 1, 30-1000 MHz

FCC Part 15/IC RSS Certification 2AV2S-CMAS1 26165-CMAS1 20-0128 June 19, 2020 Hill's Pet Nutrition, Inc AGL3

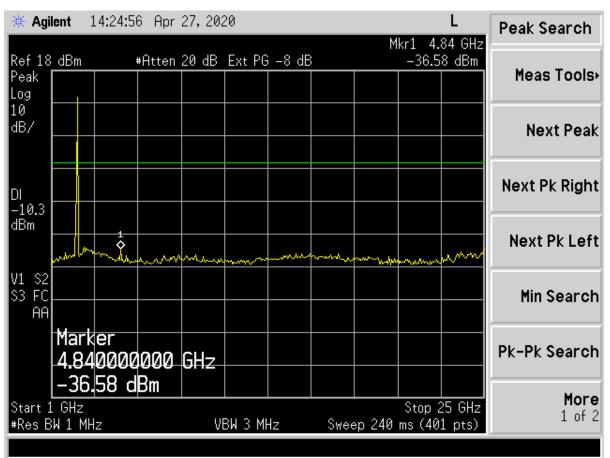


Figure 15. 802.11n, Channel 1, 1- 25 GHz

(Note: Intentional Emission seen for radio operating at 2412 MHz)

🔆 Agil	lent (	14:28:3	2 Apr	27, 202	20					L	Peak Search
D.f 10	dD		# <u>0</u> ++ ~ ~	ar vo		o ۱۵		Mk		.4 MHz	
Ref 18 Peak	abm		#Htten	20 dB	EXT PO	, -o ab			-45.9	3 dBm	Meas Tools•
Log											
10 dB/											Neut Deele
uD/											Next Peak
DI											Next Pk Right
-10.9											
dBm											Next Pk Left
											Nextra Leit
V1 S2				Landa			-	\$	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-	
S3 FC											Min Search
AA											
	Mark										Pk-Pk Search
		3750		¶Hz							
	-45.		Bm								More
Start 3					11 200 1		<u></u>	100 5		1 GHz	1 of 2
#Res B	M TOO	KHZ		٧B	W 300 I	KHZ	зжеер	100.5	ms (40	i pts)	

Figure 16. 802.11n, Channel 7, 30-1000 MHz

FCC Part 15/IC RSS Certification 2AV2S-CMAS1 26165-CMAS1 20-0128 June 19, 2020 Hill's Pet Nutrition, Inc AGL3

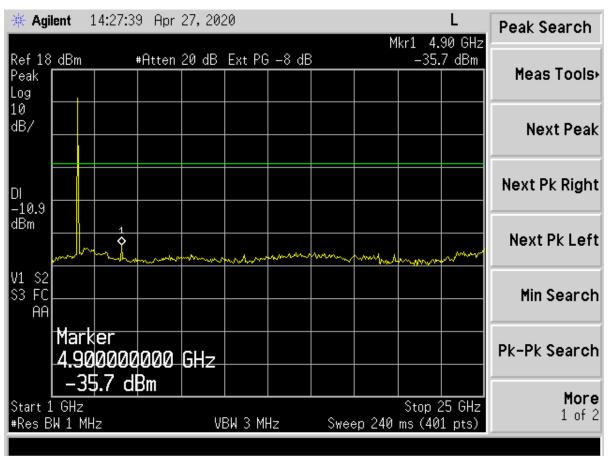


Figure 17. 802.11n, Channel 7, 1 – 25 GHz

(Note: Intentional Emission seen for radio operating at 2442 MHz)

🔆 Agil	lent 1	L <b>4:</b> 31:2	7 Apr	27,202	20					L	Peak Search
Ref 18 Peak	dBm	1	#Atten	20 dB	Ext PG	6 – 8 dB	;	Mkr		.1 MHz 7 dBm	Meas Tools•
Log											ficus roois,
10 dB/											Next Peak
DI -11.1											Next Pk Right
dBm											Next Pk Left
V1 S2 S3 FC AA	han			<b>.</b>			1 \$	,	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	Min Search
	Mark 641.	er 1000 57 d	1	Hz							Pk-Pk Search
Start 3 #Res B	30 MHz			VB	W 300 I	kHz	Sweep	100.5		1 GHz 1 pts)	More 1 of 2

Figure 18. 802.11n, Channel 11, 30-1000 MHz

FCC Part 15/IC RSS Certification 2AV2S-CMAS1 20-0128 June 19, 2020 Hill's Pet Nutrition, Inc AGL3

₩ Agilent 14:30:41 Apr 27, 2020 L						Peak Search					
Mkr1 2.80 GHz Ref 18 dBm #Atten 20 dB Ext PG —8 dB — 35.67 dBm											
Peak											Meas Tools∙
Log 10											
dB/											Next Peak
DI											Next Pk Right
-11.1											
dBm	1 \$										Next Pk Left
	mandle	marken	mandard	-	month	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Mar Well	~~~~	man	
V1 S2 S3 FC											Min Search
Ϋ́ΑΑ											nin Sear Ch
	Mark	er									
			1000	GHz							Pk-Pk Search
		67 d	Bm								More
Start 1 GHz Stop 25 GHz #Res BW 1 MHz VBW 3 MHz Sweep 240 ms (401 pts)						1 of 2					

Figure 19. 802.11n, Channel 11, 1 – 25 GHz

(Note: Intentional Emission seen for radio operating at 2462 MHz)

# 2.10 Intentional Radiator, Radiated Emissions (CFR 15.209, 15.247(d), RSS-247, 5.5)

On the test site, the EUT was placed on top of a non-conductive table, 80 cm above the floor for measurements below 1 GHz and 150 cm above the floor for measurements > 1 GHz. The EUT was also evaluated in three orthogonal positions to determine the worst case position. The front of the EUT faced the measurement antenna located 3 meters away. Each signal measured was maximized by raising and lowering the receive antenna between 1 and 4 meters in height while monitoring the ever changing spectrum analyzer display (with channel A in the Clear-Write mode and channel B in the Max-Hold mode) for the largest signal visible. That exact antenna height where the signal was maximized was recorded for reproducibility purposes. Also, the EUT was rotated about its Y-axis while monitoring the Spectrum Analyzer display for maximum. The EUT azimuth was recorded for reproducibility purposes. The EUT was measured when both maxima were simultaneously satisfied.

For radiated measurements, the EUT was set into a continuous transmission mode. Below 1 GHz, the RBW of the measuring instrument was set equal to 120 kHz. Peak measurements above 1 GHz were measured using a RBW = 1 MHz, with a VBW  $\geq$  RBW. The results of peak radiated spurious emissions falling within restricted bands are given in Table 6below.

For Average measurements above 1 GHz, the emissions were measured using RBW = 1 MHz and VBW = 10 Hz or the duty cycle correction factor was applied to the Peak recorded value.

#### Table 5. 802.11b-Peak Radiated Fundamental & Harmonic Emissions

Tested By:	Test	: FCC Part 1	5,247(d)	Client: Hill's Pet Nutrition, Inc					
AF		Project: 20-0	)128	Model: AGL3					
Frequency (MHz)	Test Data	Additional Factor	AF+CL-PA (dB/m)	Corrected Results	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector	
(11112)	(dBuV)	Tactor	(ub/iii)	(dBuV/m)		FUIdHZation	(ub)		
Low Channel - PEAK									
2412.00	78.76	0.00	31.17	109.93		3.0m./HORZ		PK	
*4824.00	50.45	0.00	4.93	55.38	74.0	3.0m./HORZ	18.6	PK	
*7236.00	50.96	-9.50	9.30	50.76	74.0	1.0m./HORZ	23.2	PK	
Mid Channel – PEAK									
2442.00	77.73	0.00	31.33	109.06		3.0m./HORZ		PK	
*4884.00	50.28	0.00	5.02	55.30	74.0	3.0m./HORZ	18.7	PK	
*7326.00	50.57	-9.50	8.77	49.84	74.0	1.0m./HORZ	24.2	PK	
High Channel– PEAK									
2462.00	76.44	0.00	31.35	107.79		3.0m./HORZ		PK	
*4924.00	50.80	0.00	4.61	55.41	74.0	3.0m./HORZ	18.6	PK	
*7386.00	50.82	-9.50	8.64	49.96	74.0	1.0m./HORZ	24.0	PK	

1. (\*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209& 15.247. 2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10<sup>th</sup> harmonic

3. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

4. Measurement at 1 meters corrected using inverse extrapolation factor of -9.5 dB to correct the value for 3 meter.

Sample Calculation at 2412.00 MHz:		
Magnitude of Measured Frequency	78.76	dBuV
+Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	31.17	dB/m
Corrected Result	109.93	dBuV/m

Test Date: April 20, 2020

Name: <u>Afzal Fazal</u>

Tested By:	Test: FCC Part 15,247(d)				Client: Hill's Pet Nutrition, Inc			
AF		Project:	20-0128			Model: /	AGL3	
Frequency (MHz)	Test Data (dBuV)	Additional Factor	AF+CL- PA (dB/m)	Corrected Results (dBuV/m)	(dBuV/m)	Distance / Polarization	Margin (dB)	Detector
			Low	Channel - A	Average			
2412.00	67.01	0.00	31.17	98.18		3.0m./HORZ		AVG
*4824.00	31.91	0.00	4.93	36.84	54.0	3.0m./HORZ	17.2	AVG
*7236.00	28.92	-9.50	9.30	28.72	54.0	1.0m./HORZ	25.3	AVG
			Mid	Channel-A	verage			
2442.00	67.55	0.00	31.33	98.88		3.0m./HORZ		AVG
*4884.00	28.96	0.00	5.02	33.98	54.0	3.0m./HORZ	20.0	AVG
*7326.00	28.23	-9.50	8.77	27.50	54.0	1.0m./HORZ	26.5	AVG
			High	Channel-/	Average			
2462.00	65.19	0.00	31.35	96.54		3.0m./HORZ		AVG
*4924.00	29.88	0.00	4.61	34.49	54.0	3.0m./HORZ	19.5	AVG
*7386.00	28.33	-9.50	8.64	27.47	54.0	1.0m./HORZ	26.5	AVG

### Table 6. 802.11b-Average Radiated Fundamental & Harmonic Emissions

(\*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209 CFR 15.35.
 No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10<sup>th</sup> harmonic

3. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

4. Measurement at 1 meters corrected using inverse extrapolation factor of -9.5 dB to correct the value for 3 meter.

Sample Calculation at 2412.00MHz:

Magnitude of Measured Frequency	67.01	dBuV
+Additional Factor (filter + duty cycle)	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain – Duty Cycle	31.17	dB/m
Corrected Result	98.18	dBuV/m

Test Date: April 20, 2020

Tested By Signature: <u>Appl Forgel</u>

Tested By:	Test: FCC Part 15,247(d)				Client: Hill's Pet Nutrition, Inc				
AF		Project: 20-0	0128		М	odel: AGL3			
Frequency (MHz)	Test Data (dBuV)	Additional Factor	AF+CL-PA (dB/m)	Corrected Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector	
			Low	Channel - P	EAK				
2412.00	76.26	0.00	31.17	107.43		3.0m./HORZ		PK	
*4824.00	50.16	0.00	4.93	55.09	74.0	3.0m./HORZ	18.9	PK	
*7236.00	50.37	-9.50	9.30	50.17	74.0	1.0m./HORZ	23.8	PK	
			Mid	Channel – P	EAK				
2442.00	77.06	0.00	31.33	108.39		3.0m./HORZ		PK	
*4884.00	50.02	0.00	5.02	55.04	74.0	3.0m./HORZ	19.0	PK	
*7326.00	50.65	-9.50	8.77	49.92	74.0	1.0m./HORZ	24.1	PK	
			High	Channel- P	EAK				
2462.00	75.67	0.00	31.35	107.02		3.0m./HORZ		PK	
*4924.00	49.90	0.00	4.61	54.51	74.0	3.0m./HORZ	19.5	PK	
*7386.00	50.23	-9.50	8.64	49.37	74.0	1.0m./HORZ	24.6	PK	

### Table 7. 802.11g-Peak Radiated Fundamental & Harmonic Emissions

(\*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209& 15.247.
 No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10<sup>th</sup> harmonic

3. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

4. Measurement at 1 meters corrected using inverse extrapolation factor of -9.5 dB to correct the value for 3 meter.

Sample Calculation at 2412.00 MHz:

Magnitude of Measured Frequency76.26					
+Additional Factor	0.00	dB			
+Antenna Factor + Cable Loss+ Amplifier Gain	31.17	dB/m			
Corrected Result	107.43	dBuV/m			

Test Date: April 20, 2020

#### Test: FCC Part 15,247(d) Client: Hill's Pet Nutrition, Inc Tested By: AF Model: AGL3 Project: 20-0128 Frequency Test Additional AF+CL-PA Corrected Limits Distance / Margin Detector (MHz) Data Factor (dB/m) Results (dBuV/m) Polarization (dB) (dBuV) (dBuV/m) Low Channel–Average 2412.00 56.93 0.00 31.17 88.10 3.0m./HORZ AVG -----3.0m./HORZ 20.7 AVG \*4824.00 28.32 0.00 4.93 33.25 54.0 \*7236.00 28.18 -9.50 9.30 27.98 54.0 1.0m./HORZ 26.0 AVG Mid Channel – Average 2442.00 58.10 31.33 89.43 3.0m./HORZ AVG 0.00 -----AVG \*4884.00 28.21 0.00 5.02 33.23 54.0 3.0m./HORZ 20.8 \*7326.00 28.22 27.49 1.0m./HORZ AVG -9.50 8.77 54.0 26.5 High Channel–Average 57.06 AVG 2462.00 0.00 31.35 88.41 3.0m./HORZ --AVG \*4924.00 39.54 0.00 7.64 47.18 54.0 3.0m./HORZ 6.8 27.47 1.0m./HORZ AVG \*7386.00 28.33 -9.50 8.64 54.0 26.5

# Table 8. 802.11g-Average Radiated Fundamental & Harmonic Emissions

1. (\*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209 CFR 15.35.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10<sup>th</sup> harmonic

3. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

4. Measurement at 1 meters corrected using inverse extrapolation factor of -9.5 dB to correct the value for 3 meter.

Sample Calculation at 2412.00 MHz:		
Magnitude of Measured Frequency	56.93	dBuV
+Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	31.17	dB/m
Corrected Result	88.10 0	dBuV/m

Test Date: April 20, 2020

### Table 9. 802.11n-Peak Radiated Fundamental & Harmonic Emissions

Tested By: Test: FCC Part 15,247(d)				Client: Hill's Pet Nutrition, Inc				
AF	Project: 20-0128				Мс	del: AGL3		
Frequency (MHz)	Test Data (dBuV)	Additional Factor	AF+CL-PA (dB/m)	Corrected Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector
	Low Channel - PEAK							
2412.00	74.18	0.00	31.17	105.35		3.0m./HORZ		PK
*4824.00	50.31	0.00	4.93	55.24	74.0	3.0m./HORZ	18.8	PK
*7236.00	50.15	-9.50	9.30	49.95	74.0	1.0m./HORZ	24.1	PK
			Mid C	hannel – PE	AK			
2442.00	74.53	0.00	31.33	105.86		3.0m./HORZ		PK
*4884.00	50.26	0.00	5.02	55.28	74.0	3.0m./HORZ	18.7	PK
*7326.00	50.20	-9.50	8.77	49.47	74.0	1.0m./HORZ	24.5	PK
	High Channel– PEAK							
2462.00	73.87	0.00	31.35	105.22		3.0m./HORZ		PK
*4924.00	50.15	0.00	4.61	54.76	74.0	3.0m./HORZ	19.2	PK
*7386.00	50.30	-9.50	8.64	49.44	74.0	1.0m./HORZ	24.6	PK

1. (\*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209& 15.247. 2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10<sup>th</sup>

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10<sup>th</sup> harmonic

3. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

4. Measurement at 1 meters corrected using inverse extrapolation factor of -9.5 dB to correct the value for 3 meter.

Sample Calculation at 2412.00 MHz:		
Magnitude of Measured Frequency	74.18	dBuV
+Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	31.17	dB/m
Corrected Result	105.35	dBuV/m

Test Date: April 20, 2020

Name: <u>Afzal Fazal</u>

# Table 10. 802.11n-Average Radiated Fundamental & Harmonic Emissions

Tested By:	Test	: FCC Part 1	15,247(d)		Client: Hill's Pet Nutrition, Inc			
AF		Project: 20-0	0128		Μ	odel: AGL3		
Frequency (MHz)	Test Data (dBuV)	Additional Factor	AF+CL-PA (dB/m)	Corrected Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	•	Detector
			Low C	hannel - Av	erage			
2412.00	54.31	0.00	31.17	85.48		3.0m./HORZ		AVG
*4824.00	28.81	0.00	4.93	33.74	54.0	3.0m./HORZ	20.3	AVG
*7236.00	28.19	-9.50	9.30	27.99	54.0	1.0m./HORZ	26.0	AVG
			Mid C	hannel – Av	erage			
2442.00	55.74	0.00	31.33	87.07		3.0m./HORZ		AVG
*4884.00	28.22	0.00	5.02	33.24	54.0	3.0m./HORZ	20.8	AVG
*7326.00	28.17	-9.50	8.77	27.44	54.0	1.0m./HORZ	26.6	AVG
			High (	Channel–Av	erage			
2462.00	54.94	0.00	31.35	86.29		3.0m./HORZ		AVG
*4924.00	28.42	0.00	4.61	33.03	54.0	3.0m./HORZ	21.0	AVG
*7386.00	28.27	-9.50	8.64	27.41	54.0	1.0m./HORZ	26.6	AVG

1. (\*) Falls within the restricted bands of CFR 15.205. Limits based on CFR15.209 CFR 15.35. 2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10<sup>th</sup> harmonic

3. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

4. Measurement at 1 meters corrected using inverse extrapolation factor of -9.5 dB to correct the value for 3 meter.

Sample Calculation at 2412.00 MHz:		
Magnitude of Measured Frequency	54.31	dBuV
+Additional Factor	0.00	dB
+Antenna Factor + Cable Loss+ Amplifier Gain	31.17	dB/m
Corrected Result	85.48	dBuV/m

Test Date: April 20, 2020

Name: <u>Afzal Fazal</u>

# 2.11 Band Edge Measurements (CFR 15.247(d), RSS-247, 5.5)

Band Edge measurements are made following the guidelines in ANSI C63.10-2013 Clause 6.10 with the EUT initially operating on the Lowest Channel and then operating on the Highest Channel within its band of operation. Restricted band and band edge test is performed as radiated measurements. The test instrument used for testing has both Peak and Average detection. In consideration of Clause 5.8 of ANSI C63.10-2013, the EUT antenna is connected to its antenna port during testing. The EUT was set to its highest rated output power level during testing. The results are collected and presented below.

FCC Part 15/IC RSS Certification 2AV2S-CMAS1 26165-CMAS1 20-0128 June 19, 2020 Hill's Pet Nutrition, Inc AGL3

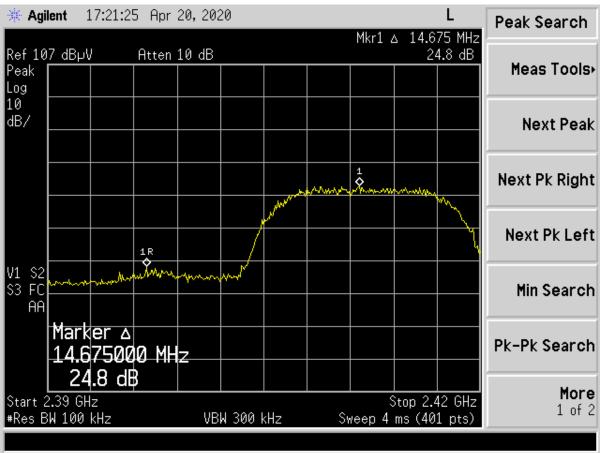


Figure 20. Band Edge Compliance – B mode Low Channel Delta - Peak

Lower band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	24.80	dB
Band Edge Limit	20.00	dB
Band Edge Margin	4.80	dB

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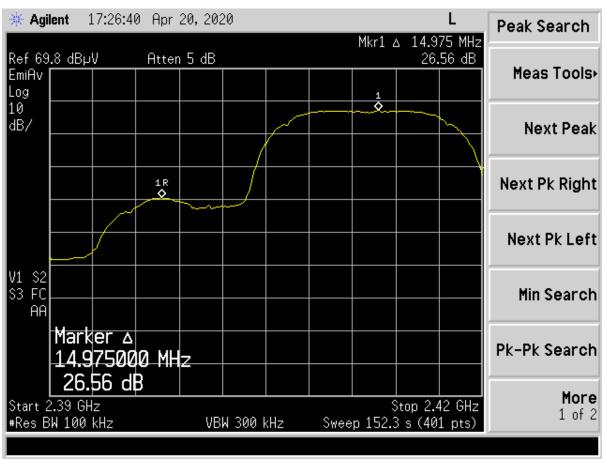


Figure 21. Band Edge Compliance – B mode Low Channel Delta – Average

Lower band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	26.56	dB
Band Edge Limit	20.00	dB
Band Edge Margin	6.56	dB

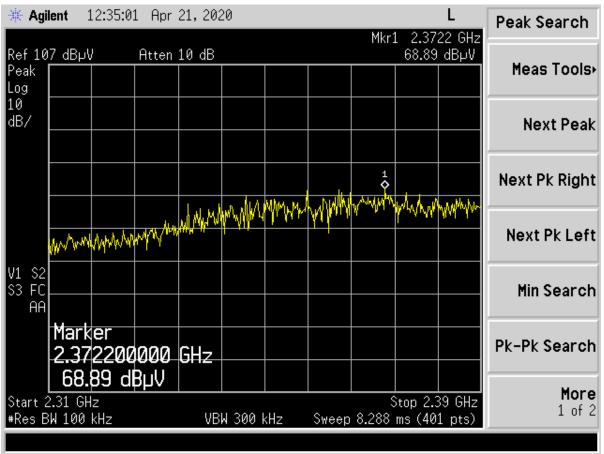


Figure 22. B mode Low Channel Restricted Band - Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2372.20	68.89	-5.21	63.68	74.0	3.0m./HORZ	10.3	PK

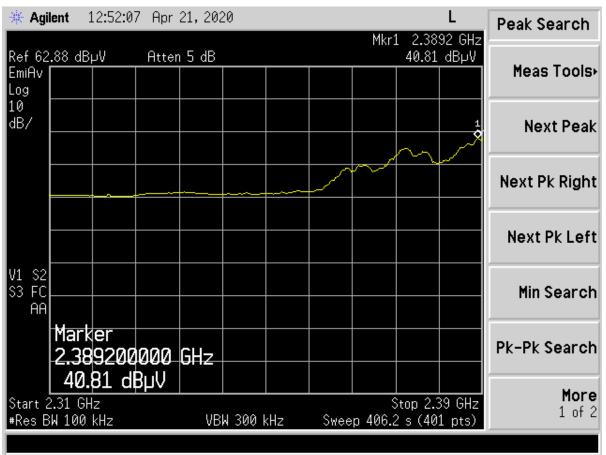


Figure 23. B mode Low Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2389.20	40.81	-4.80	36.01	54.0	3.0m./HORZ	18.0	AVG

FCC Part 15/IC RSS Certification 2AV2S-CMAS1 26165-CMAS1 20-0128 June 19, 2020 Hill's Pet Nutrition, Inc AGL3

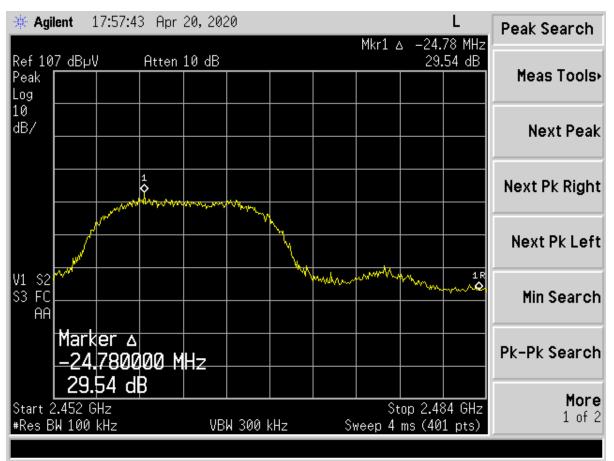


Figure 24. Band Edge Compliance – B mode High Channel Delta - Peak

Higher band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	29.54	dB
Band Edge Limit	20.00	dB
Band Edge Margin	9.54	dB

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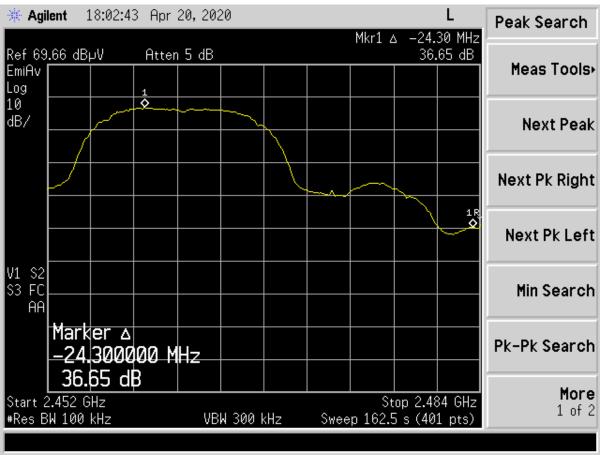


Figure 25. Band Edge Compliance – B mode High Channel Delta - Average

Higher band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	36.65	dB
Band Edge Limit	20.00	dB
Band Edge Margin	16.65	dB

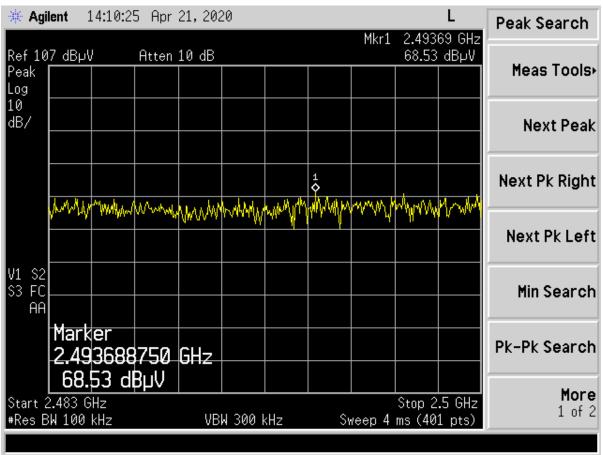


Figure 26. B mode High Channel Restricted Band – Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2493.69	68.53	-3.12	65.41	74.0	3.0m./HORZ	8.6	PK

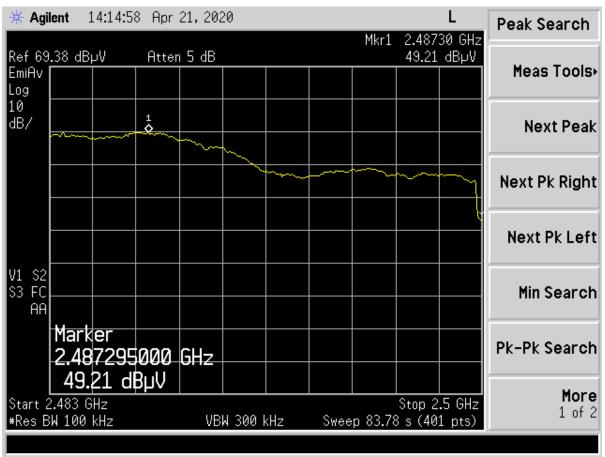


Figure 27. B mode High Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2487.30	49.21	-3.12	46.09	54.0	3.0m./HORZ	7.9	AVG

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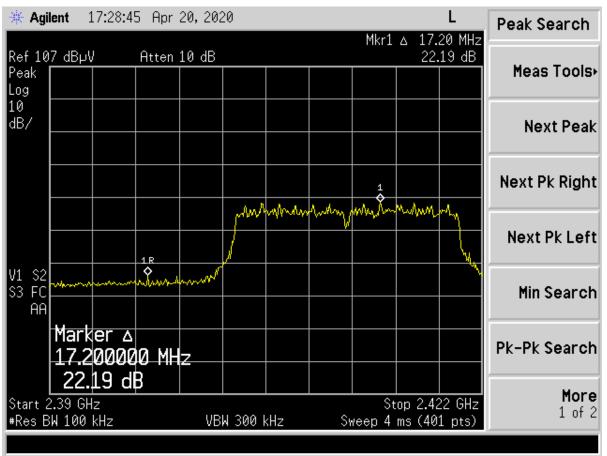


Figure 28. Band Edge Compliance – G mode Low Channel Delta – Peak

Lower band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	22.19	dB
Band Edge Limit	20.00	dB
Band Edge Margin	2.19	dB

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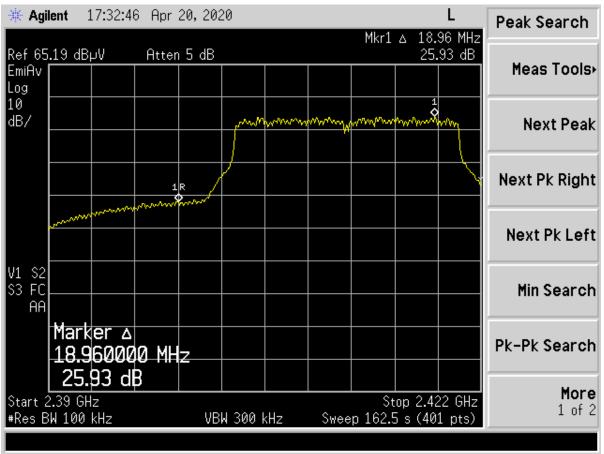


Figure 29. Band Edge Compliance – G mode Low Channel Delta – Average

Lower band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	25.93	dB
Band Edge Limit	20.00	dB
Band Edge Margin	5.93	dB

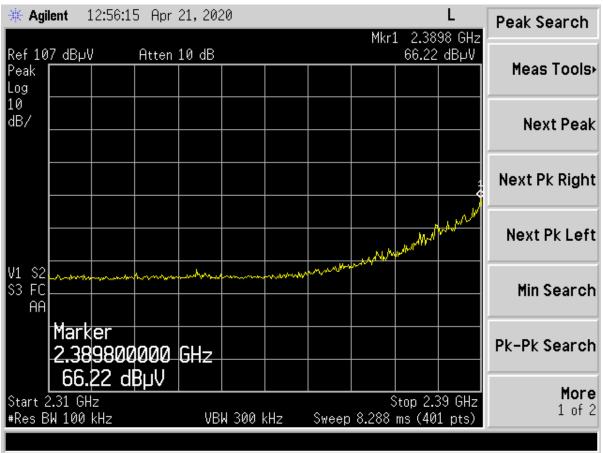


Figure 30. G mode Low Channel Restricted Band – Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2389.80	66.22	-4.80	61.42	74.0	3.0m./HORZ	12.6	PK

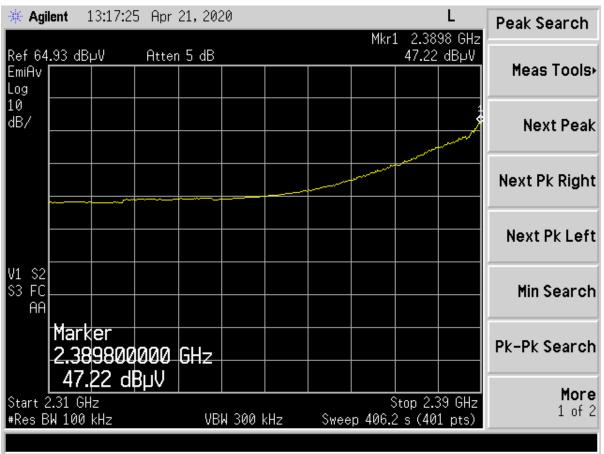


Figure 31. G mode Low Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2389.80	47.22	-4.80	42.42	54.0	3.0m./HORZ	11.6	AVG

FCC Part 15/IC RSS Certification 2AV2S-CMAS1 26165-CMAS1 20-0128 June 19, 2020 Hill's Pet Nutrition, Inc AGL3

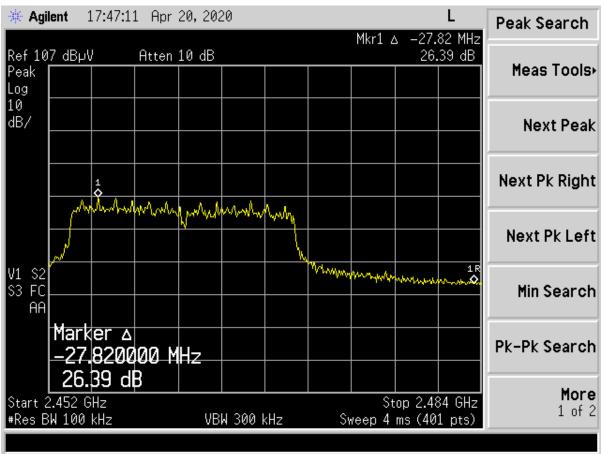


Figure 32. Band Edge Compliance – G mode High Channel Delta – Peak

Higher band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	26.39	dB
Band Edge Limit	20.00	dB
Band Edge Margin	6.39	dB

FCC Part 15/IC RSS Certification 2AV2S-CMAS1 26165-CMAS1 20-0128 June 19, 2020 Hill's Pet Nutrition, Inc AGL3

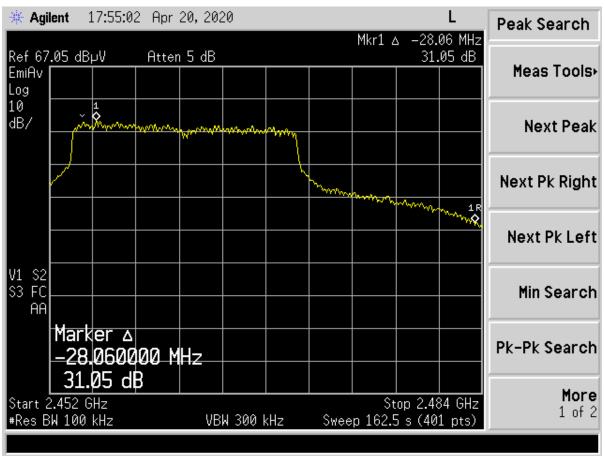


Figure 33. Band Edge Compliance – G mode High Channel Delta – Average

Higher band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	31.05	dB
Band Edge Limit	20.00	dB
Band Edge Margin	11.05	dB

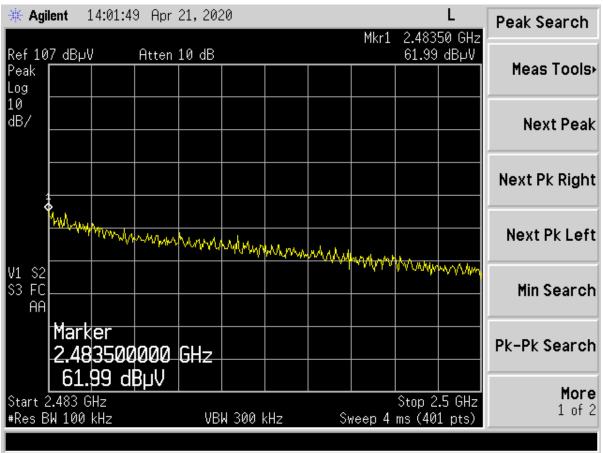


Figure 34. G mode High Channel Restricted Band – Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2483.50	61.99	-3.12	58.87	74.0	3.0m./HORZ	15.1	PK

🔆 Agi	lent :	14:04:3	0 Apr	21,202	20					L	Peak Search
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EmiAv											Meas Tools∙
Log 10	1.										
dB/	m	·····									Next Peak
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											Next Pk Left
V1 S2											
\$3 FC											Min Search
AA											
	Mark	1	500	cu-							Pk-Pk Search
		9302 84 d	T — — —								
Start 2 #Res B		;Hz			W 300 I	 /H	Swaa	p 83.78		.5 GHz	<b>More</b> 1 of 2
	M 100	MIZ		00	A-000 I	M12	01100	p 05.70	5 (40	1 p(3)	

Figure 35. G mode High Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2483.50	44.84	-3.12	41.72	74.0	3.0m./HORZ	12.3	AVG

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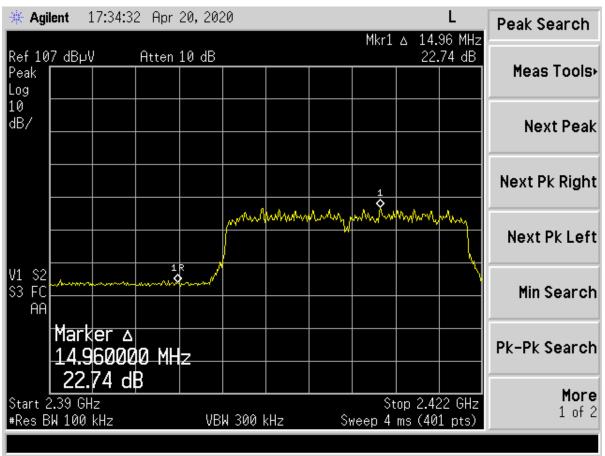


Figure 36. Band Edge Compliance – N mode Low Channel Delta – Peak

Lower band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	22.74	dB
Band Edge Limit	20.00	dB
Band Edge Margin	2.74	dB

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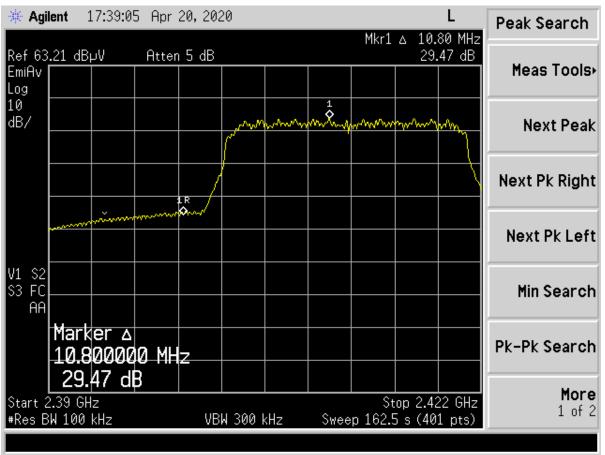


Figure 37. Band Edge Compliance – N mode Low Channel Delta – Average

Lower band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	29.47	dB
Band Edge Limit	20.00	dB
Band Edge Margin	9.47	dB

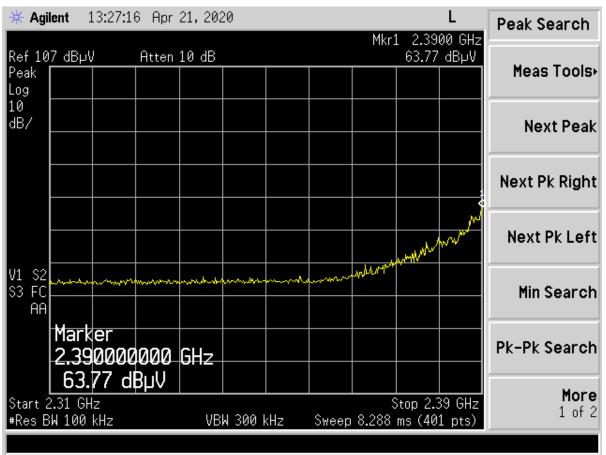


Figure 38. N mode Low Channel Restricted Band – Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2390.00	63.77	-4.80	58.97	74.0	3.0m./HORZ	15.0	AVG

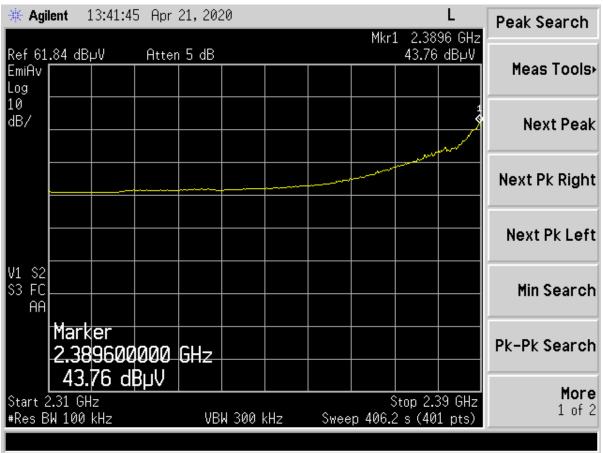


Figure 39. N mode Low Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2389.60	43.76	-4.80	38.96	54.0	3.0m./HORZ	15.0	AVG

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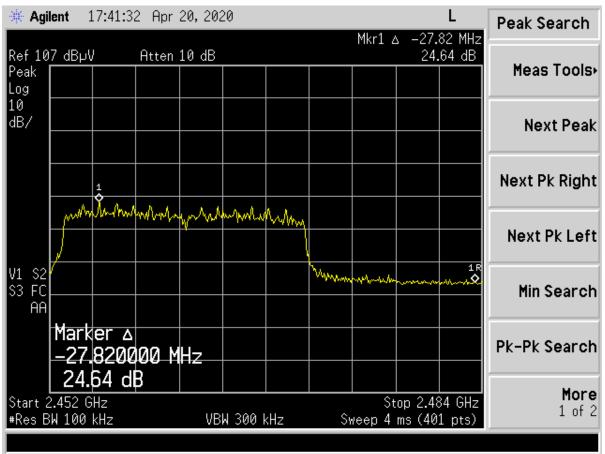


Figure 40. Band Edge Compliance – N mode High Channel Delta – Peak

Higher band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	24.64	dB
Band Edge Limit	20.00	dB
Band Edge Margin	4.64	dB

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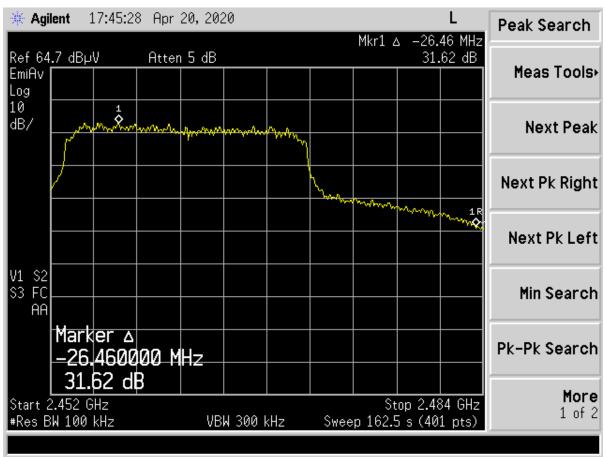


Figure 41. Band Edge Compliance – N mode High Channel Delta - Average

Higher band edge must be 20 dB below the fundamental. This requirement is met.

Measured Result	31.62	dB
Band Edge Limit	20.00	dB
Band Edge Margin	11.62	dB

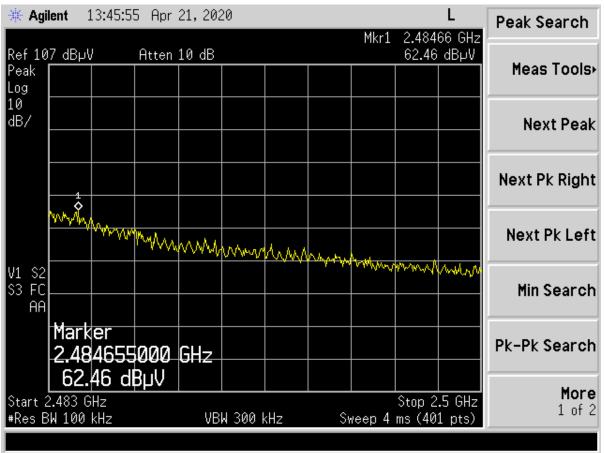


Figure 42. N mode High Channel Restricted Band – Peak

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2484.66	62.46	-3.12	59.34	74.0	3.0m./HORZ	14.7	PK

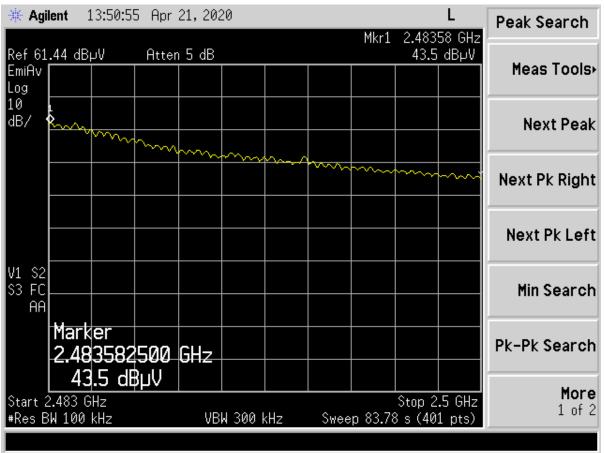


Figure 43. N mode High Channel Restricted Band – Average

Frequency	Test Data	AF+CA-AMP+DC	Results	Limits	Distance /	Margin	Detector
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	Polarization	(dB)	PK/QP/AVG
2483.58	43.50	-3.12	40.38	54.0	3.0m./HORZ	13.6	AVG

US Tech Test Report:	FCC Part 15/IC RSS Certification
FCC ID:	2AV2S-CMAS1
IC:	26165-CMAS1
Test Report Number:	20-0128
Issue Date:	June 19, 2020
Customer:	Hill's Pet Nutrition, Inc
Model:	AGL3

# 2.12 Six (6) dB Bandwidth (CFR 15.247(a)(2), RSS-247, 5.2(a))

The EUT antenna port was connected to a spectrum analyzer having a 50  $\Omega$  input impedance. Measurements were performed per ANSI C63.10-2013, clause 11.8. The RBW was set to 100 kHz and the VBW  $\geq$  RBW. The results of this test are given in the table below and figures below.

Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum FCC Bandwidth (MHz)	Mode (IEEE 802.11)
2412	12.10	0.5	b
2437	11.75	0.5	b
2462	12.20	0.5	b
2412	16.45	0.5	g
2437	16.45	0.5	g
2462	16.40	0.5	g
2412	17.65	0.5	n
2437	17.65	0.5	n
2462	17.55	0.5	n

# Table 11. Six (6) dB Bandwidth

Test Date: June 19, 2020

Tested By Signature: <u>Appl Jugal</u>

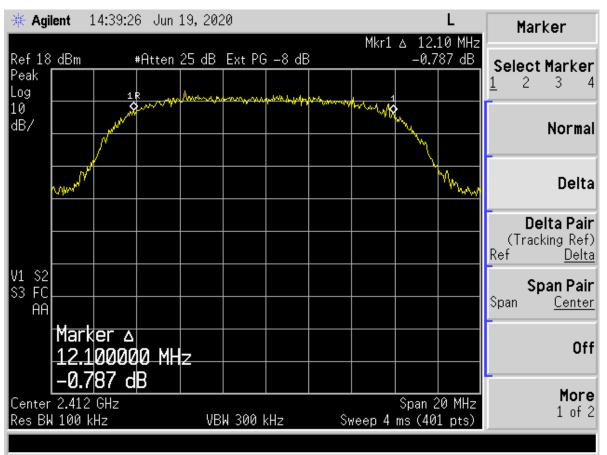


Figure 44. 6 dB Bandwidth b mode Low Channel

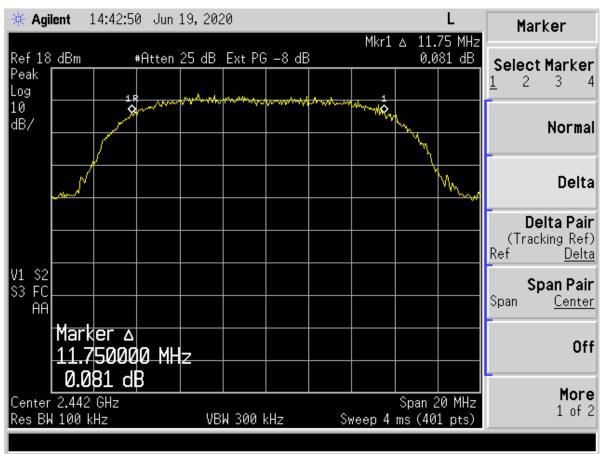


Figure 45. 6 dB Bandwidth b mode Mid Channel

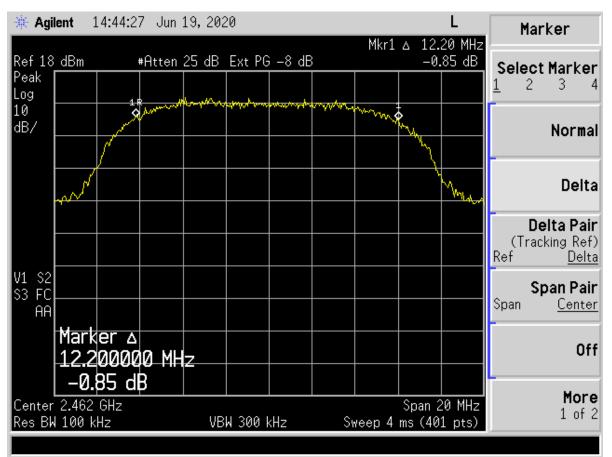


Figure 46. 6 dB Bandwidth b mode High Channel

V1 S2 S3 FC AA Marker △ 0.278 dB	🔆 Agil	lent 1	4:49:0	7 Jun	19,202	20					L	Marker
Peak Log 10 dB/       Select Harker 1       Select Harker 1 <th< td=""><td>Ref 18</td><td>dBm</td><td></td><td>#Atten</td><td>25 dB</td><td>Ext PG</td><td>i – 8 dB</td><td>ł</td><td>Mkr1</td><td></td><td></td><td></td></th<>	Ref 18	dBm		#Atten	25 dB	Ext PG	i – 8 dB	ł	Mkr1			
dB/ dB/ v1 s2 s3 FC AA Marker △ 16.450000 MHz Center 2.412 GHz V1 S2 Span 20 MHz Center 2.412 GHz Span 20 MHz Span 20 MHz	Peak Log											
V1 S2 S3 FC AA Marker A 16.450000 MHz Center 2.412 GHz Center 2.412 GHz Span 20 MHz Center Span 20 MHz		1 R (*	nin	shawa	hm.	while	mMu	www	www	٨٠٨٨	1 •	Normal
V1 S2 S3 FC AA Marker A 16.450000 MHz Center 2.412 GHz Center 2.412 GHz Span 20 MHz Center Span 20 MHz		Å										
V1 S2 S3 FC AA Marker Δ 16.450000 MHz Center 2.412 GHz Center 2.412 GHz Ce		1 <sup>M</sup>									No No	Delta
V1 S2 S3 FC AA Marker Δ 16.450000 MHz Center 2.412 GHz Center 2.412 GHz AB Center 2.412 GHz AB Center 2.412 GHz AB Center 2 Span 20 MHz Center 1 of 2												Delta Pair
S3 FC AA Marker △ 16.450000 MHz 0.278 dB Center 2.412 GHz Span Center Span Center More 1 of 2												(Tracking Ref) Ref <u>Delta</u>
AA         Span         Center           Marker Δ         0.278 dB         0ff           Center 2.412 GHz         Span 20 MHz         1 of 2												Span Pair
16.450000 MHz         Off           0.278 dB	AA											Span <u>Lenter</u>
0.278 dB         More           Center 2.412 GHz         Span 20 MHz				ю м <u>н</u>								Off
Center 2.412 GHz Span 20 MHz 1 of 2					Z							
	Center			P						Span	20 MHz	More
					VB	W 300 I	кНz	S۲	reep 4			1 Of 2

Figure 47. 6 dB Bandwidth g mode Low Channel

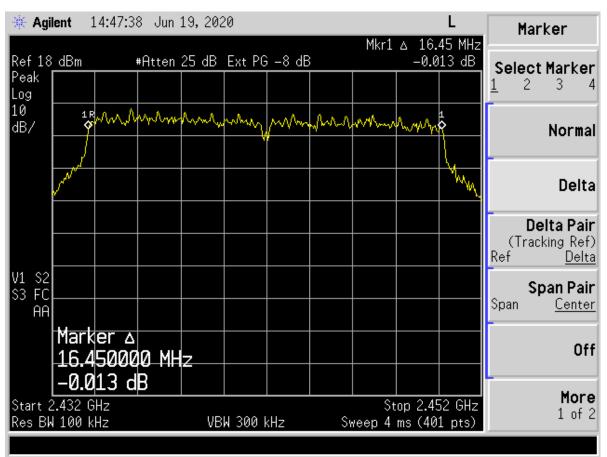


Figure 48.6 dB Bandwidth g mode Mid Channel

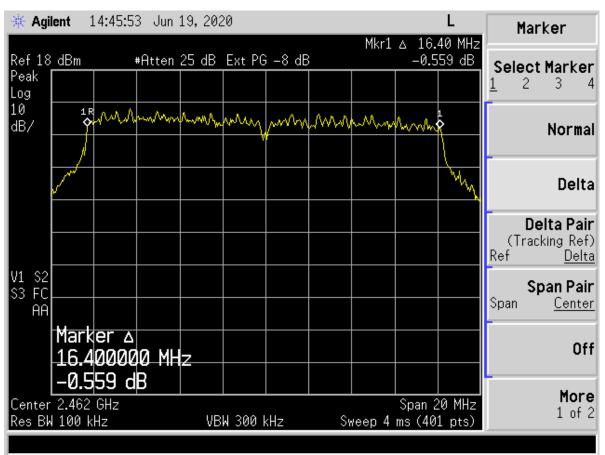


Figure 49. 6 dB Bandwidth g mode High Channel

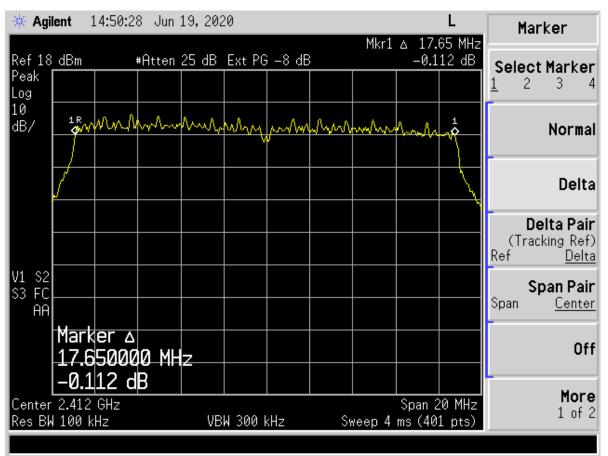


Figure 50. 6 dB Bandwidth n mode Low Channel

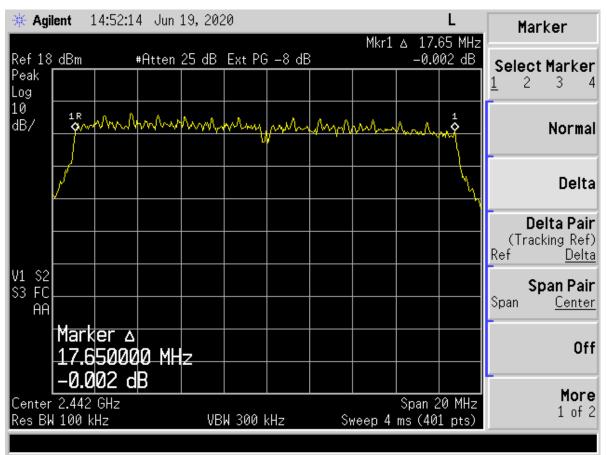


Figure 51. 6 dB Bandwidth n mode Mid Channel

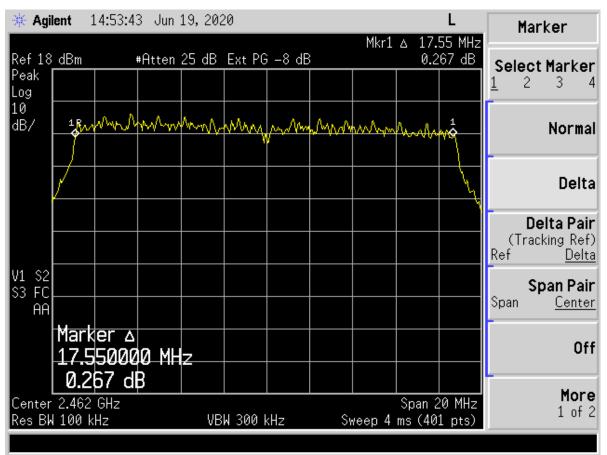


Figure 52. 6 dB Bandwidth n mode High Channel

US Tech Test Report:	FCC Part 15/IC RSS Certification
FCC ID:	2AV2S-CMAS1
IC:	26165-CMAS1
Test Report Number:	20-0128
Issue Date:	June 19, 2020
Customer:	Hill's Pet Nutrition, Inc
Model:	AGL3

#### 2.13 Occupied Bandwidth, (99% bandwidth)(RSS-GEN (6.6))

The EUT antenna port was connected to a spectrum analyzer having a 50 $\Omega$  input impedance. Measurements were performed similar to the method of FCC, KDB Publication No. 558074 v03r05 for a bandwidth of 20 dB. The RBW was set to approximately 1/100 of the manufacturers claimed RBW and with the VBW  $\geq$  RBW. The results of this test are given in Table 17 and presented in the figures in section 2.12 above.

Frequency (MHz)	99% Occupied Bandwidth (MHz)	Mode
2412	15.289	b
2437	14.401	b
2462	14.946	b
2412	17.187	g
2437	17.271	g
2462	17.209	g
2412	17.847	n
2437	17.873	n
2462	17.883	n

# Table 12. 99% Occupied Bandwidth

Test Date: April 23, 2020

Tested By Signature: <u>Appl Jugal</u>

★ Agilent 12:16:49 Apr 23, 2020	Meas Setup
Ch Freq     2.412 GHz     Trig     Free       Occupied Bandwidth     Image: Charge State Stat	Avg Number 10 On Off
RBW 300.000000 kHz	Avg Mode Exp Repeat
Ref 20 dBm #Atten 30 dB #Peak Log 10 dB/	On Max Hold
dB/	<b>Occ BW % Pwr</b> 99.00 %
Center 2.412 GHz Span 30 MHz #Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	0BW Span 30.0000000 MHz
Occupied Bandwidth         Осс ВИ % Риг         99.00 %           15.2893 MHz         × dB         -6.00 dB	<b>x dB</b> -6.00 dB
Transmit Freq Error -347.547 kHz × dB Bandwidth 12.258 MHz	Optimize RefLevel

Figure 53. 99% Occupied Bandwidth b mode Low Channel

★ Agilent 12:22:08 Apr 23, 2020	Meas Setup
Ch Freq 2.442 GHz Trig Free Occupied Bandwidth	Avg Number 10 On Off
Center 2.442000000 GHz	Avg Mode Exp Repeat
Ref 20 dBm #Atten 30 dB #Peak Log 10 10 10 10 10 10 10 10 10 10 10 10 10	0n Max Hold
dB/	<b>Occ BW % Pwr</b> 99.00 %
Center 2.442 GHz Span 30 MHz #Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	<b>OBW Span</b> 30.0000000 MHz
Оссирied Bandwidth Осс ВИ Х Рыг 99.00 Х 14.4008 MHz × dB -6.00 dB	<b>x dB</b> -6.00 dB
Transmit Freq Error -88.061 kHz × dB Bandwidth 12.231 MHz	Optimize Ref Level

Figure 54. 99% Occupied Bandwidth b mode Mid Channel

★ Agilent 12:26:16 Apr 23, 2020	Meas Setup
Ch Freq 2.462 GHz Trig Free Occupied Bandwidth	Avg Number 10 On Off
Center 2.462000000 GHz	Avg Mode Exp Repeat
Ref 20 dBm #Atten 30 dB #Peak Log 10	0n Max Hold
dB/	<b>Occ BW % Pwr</b> 99.00 %
Center 2.462 GHz Span 30 MHz #Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	<b>OBW Span</b> 30.0000000 MHz
Оссирied Bandwidth Осс ВИ Х Рыг 99.00 Х 14.9462 MHz × dB -6.00 dB	<b>x dB</b> -6.00 dB
Transmit Freq Error -190.648 kHz × dB Bandwidth 12.047 MHz	Optimize Ref Level

Figure 55. 99% Occupied Bandwidth b mode High Channel

★ Agilent 12:30:36 Apr 23, 2020	Meas Setup
Ch Freq     2.412 GHz     Trig     Free       Occupied Bandwidth     Image: Character Structure     Image: Character Structure     Image: Character Structure	Avg Number 10 On Off
<b>Center 2.412000000 GHz</b> Ref 20 dBm #Atten 30 dB	Avg Mode Exp Repeat
#Peak Log 10>∞	0n Max Hold
dB/	Occ BW % Pwr 99.00 %
Center 2.412 GHz Span 30 MHz #Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	0BW Span 30.0000000 MHz
Occupied Bandwidth         Осс ВМ % Рыг         99.00 %           17.1872 MHz         × dB         -6.00 dB	<b>x dB</b> -6.00 dB
Transmit Freq Error -168.036 kHz × dB Bandwidth 16.537 MHz	Optimize RefLevel

Figure 56. 99% Occupied Bandwidth g mode Low Channel

★ Agilent 12:33:00 Apr 23, 2020	Meas Setup
Ch Freq     2.442 GHz     Trig     Free       Occupied Bandwidth     Image: Character Street St	Avg Number 10 On Off
<b>Span 30.0000000 MHz</b>	Avg Mode
Ref 20 dBm #Atten 30 dB	Exp Repeat
#Peak Log 10 →★	On Max Hold
dB/	<b>Occ BW % Pwr</b> 99.00 %
Center 2.442 GHz Span 30 MHz	0BW Span
#Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	30.000000 MHz
Оссирied Bandwidth Осс ВИ % Рыг 99.00 %	<b>x dB</b>
17.2711 MHz × dB -6.00 dB	-6.00 dB
Transmit Freq Error -131.634 kHz	Optimize
× dB Bandwidth 16.503 MHz	Ref Level

Figure 57. 99% Occupied Bandwidth g mode Mid Channel

★ Agilent 12:35:19 Apr 23, 2020	Meas Setup
Ch Freq     2.462 GHz     Trig       Occupied Bandwidth     Image: Character Street	Avg Number 10 On Off
<b>Center 2.462000000 GHz</b>	Avg Mode
Ref 20 dBm #Atten 30 dB	Exp Repeat
#Peak Log 10	0n Max Hold
dB/	<b>Occ BW % Pwr</b> 99.00 %
Center 2.462 GHz Span 30 MHz	<b>OBW Span</b>
#Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	30.0000000 MHz
Оссирied Bandwidth Осс ВИ Х Риг 99.00 Х	<b>x dB</b>
17.2085 MHz × dB -6.00 dB	-6.00 dB
Transmit Freq Error -184.343 kHz	Optimize
× dB Bandwidth 16.563 MHz	Ref Level

Figure 58. 99% Occupied Bandwidth g mode High Channel

★ Agilent 12:38:22 Apr 23, 2020	Meas Setup
Ch Freq     2.412 GHz     Trig     Free       Occupied Bandwidth     Image: Charge State Stat	Avg Number 10 On Off
Center 2.412000000 GHz	Avg Mode Exp Repeat
Ref 20 dBm #Atten 30 dB #Peak Log 10	Max Hold On Off
dB/	<b>Occ BW % Pwr</b> 99.00 %
Center 2.412 GHz Span 30 MHz #Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	<b>OBW Span</b> 30.0000000 MHz
Оссирied Bandwidth Осс ВМ % Рыг 99.00 % 17.8471 MHz × dB -6.00 dB	<b>x dB</b> -6.00 dB
Transmit Freq Error -79.284 kHz × dB Bandwidth 17.649 MHz	Optimize RefLevel

Figure 59. 99% Occupied Bandwidth n mode Low Channel

★ Agilent 12:40:44 Apr 23, 2020	Meas Setup
Ch Freq 2.442 GHz Trig Free Occupied Bandwidth	Avg Number 10 On Off
Center 2.442000000 GHz	Avg Mode Exp Repeat
Ref 20 dBm #Atten 30 dB	<u>Max Hold</u>
#Peak	On Off
dB/	<b>Occ BW % Pwr</b> 99.00 %
Center 2.442 GHz Span 30 MHz	<b>OBW Span</b>
#Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	30.0000000 MHz
Оссирied Bandwidth Осс ВИ Х Рыг 99.00 Х	<b>x dB</b>
17.8734 MHz × dB -6.00 dB	-6.00 dB
Transmit Freq Error -84.769 kHz	Optimize
× dB Bandwidth 17.530 MHz	Ref Level

Figure 60. 99% Occupied Bandwidth n mode Mid Channel

★ Agilent 12:42:36 Apr 23, 2020	Meas Setup
Ch Freq 2.462 GHz Trig Free Occupied Bandwidth	Avg Number 10 On Off
<b>Center 2.462000000 GHz</b>	Avg Mode
Ref 20 dBm #Atten 30 dB	Exp Repeat
#Peak Log 10	0n Max Hold
dB/	<b>Occ BW % Pwr</b> 99.00 %
Center 2.462 GHz Span 30 MHz	<b>0BW Span</b>
#Res BW 300 kHz VBW 1 MHz Sweep 4 ms (401 pts)	30.0000000 MHz
Оссирied Bandwidth Осс ВИ Х Рыг 99.00 Х	<b>x dB</b>
17.8826 MHz × dB -6.00 dB	-6.00 dB
Transmit Freq Error -144.449 kHz	Optimize
× dB Bandwidth 17.605 MHz	Ref Level

Figure 61. 99% Occupied Bandwidth n mode High Channel

US Tech Test Report:	FCC Part 15/IC RSS Certification
FCC ID:	2AV2S-CMAS1
IC:	26165-CMAS1
Test Report Number:	20-0128
Issue Date:	June 19, 2020
Customer:	Hill's Pet Nutrition, Inc
Model:	AGL3

#### 2.14 Maximum Peak Conducted Output Power (CFR 15.247 (b) (3))

The transmitter was programmed to operate at a maximum output power across the bandwidth. For this test the output power of the radio was set to the maximum data rate, with 11Mbps for mode b, 54 Mbps for made g, and MSC-7 for mode n, in order to meet all test requirements.

Peak power within the band 2400 MHz to 2483.5 MHz was measured per ANSI C63.10-2013 as an Antenna Conducted test with a spectrum analyzer by connecting the spectrum analyzer directly, via a short RF cable, and attenuators to the antenna output terminals on the EUT. The spectrum analyzer was set to a RBW of1 MHz, and the VBW  $\geq$  RBW. The integration method was used. Peak antenna conducted output power is tabulated in the table below.

Frequency of Fundamental (MHz)	Raw Test Data dBm	Converted Data (mW)	FCC Limit (mW Maximum)	Mode
2412	23.76	237.68	1000	b
2442	23.64	231.21	1000	b
2462	23.38	217.77	1000	b
2412	21.19	131.52	1000	g
2442	20.96	124.74	1000	g
2462	20.56	113.76	1000	g
2412	19.19	82.99	1000	n
2442	19.09	81.10	1000	n
2462	18.93	78.16	1000	n

# Table 13. Peak Antenna Conducted Output Power per Part 15.247 (b)(3)

Test Date: June 19, 2020

<b>¥ Agilent</b> 15:24:44 Jun 19, 2020 L	Peak Search
Ch Freq 2.412 GHz Trig Free Channel Power	Meas Tools•
Marker 2.409245000 GHz	
Mkr1 2.4092450 GHz Ref 25 dBm #Atten 30 dB Ext PG -8 dB 16.79 dBm	Next Peak
#Peak Log 10	Next Pk Right
dB/	Next Pk Left
Center 2.412 GHz Span 19 MHz	Min Search
#Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	
Channel Power Power Spectral Density	Pk-Pk Search
23.76 dBm /12.1000 MHz -47.07 dBm/Hz	<b>More</b> 1 of 2

Figure 62. Peak Antenna Conducted Output Power, b mode Low Channel

<b>¥ Agilent</b> 15:23:03 Jun 19, 2020 L	Peak Search
Ch Freq 2.442 GHz Trig Free Channel Power	Meas Tools•
Marker 2.441905000 GHz Mkr1 2.4419050 GHz	Next Peak
Ref 25 dBm #Atten 30 dB Ext PG -8 dB 16.38 dBm #Peak Log 10	Next Pk Right
dB/	Next Pk Left
Center 2.442 GHz Span 19 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	Min Search
Channel Power Power Spectral Density	Pk-Pk Search
23.64 dBm /11.7500 MHz -47.06 dBm/Hz	<b>More</b> 1 of 2

Figure 63. Peak Antenna Conducted Output Power, b mode Mid Channel

₩ Agilent 15:20:45 Jun 19, 2020 L	Peak Search
Ch Freq 2.462 GHz Trig Free Channel Power	Meas Tools•
Marker 2.458865000 GHz Mkr1 2.4588650 GHz	Next Peak
Ref 25 dBm #Atten 30 dB Ext PG -8 dB 16.4 dBm #Peak Log 10	Next Pk Right
dB/	Next Pk Left
Center 2.462 GHz Span 19 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	Min Search
Channel Power Power Spectral Density	Pk-Pk Search
23.38 dBm /12.2000 MHz -47.49 dBm/Hz	<b>More</b> 1 of 2

Figure 64. Peak Antenna Conducted Output Power, b mode High Channel

<b>¥ Agilent</b> 15:11:44 Jun 19, 2020 L	Peak Search
Ch Freq 2.412 GHz Trig Free Channel Power	Meas Tools•
Marker 2.409840000 GHz Mkr1 2.4098400 GHz	Next Peak
Ref 18 dBm         #Atten 25 dB         Ext PG - 8 dB         14.94 dBm           #Peak         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 </th <th>Next Pk Right</th>	Next Pk Right
	Next Pk Left
Center 2.412 GHz Span 27 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	Min Search
Channel Power Spectral Density	Pk-Pk Search
21.19 dBm /16.4500 MHz -50.98 dBm/Hz	<b>More</b> 1 of 2

Figure 65. Peak Antenna Conducted Output Power, g mode Low Channel

<b>¥ Agilent</b> 15:13:28 Jun 19, 2020 L	Peak Search
Ch Freq 2.442 GHz Trig Free Channel Power	Meas Tools⊦
Marker 2.438017500 GHz	
Mkr1 2.4380175 GHz Ref 18 dBm #Atten 25 dgB Ext PG -8 dB 15.06 dBm	Next Peak
*Peak Log 10	Next Pk Right
dB/	Next Pk Left
Center 2.442 GHz Span 27 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	Min Search
Channel Power Spectral Density	Pk-Pk Search
20.96 dBm /16.4500 MHz -51.21 dBm/Hz	More 1 of 2

Figure 66. Peak Antenna Conducted Output Power, g mode Mid Channel

★ Agilent 15:15:43 Jun 19, 2020	Peak Search
Ch Freq 2.462 GHz Trig Free Channel Power	Meas Tools⊦
Marker 2.458085000 GHz	
Mkr1 2.4580850 GHz Ref 18 dBm #Atten 25 dgB Ext PG — 8 dB 14.82 dBm	Next Peak
*Peak Log 10 million for the second s	Next Pk Right
dB/	Next Pk Left
Center 2.462 GHz Span 27 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	Min Search
Channel Power Power Spectral Density	Pk-Pk Search
20.56 dBm /16.4000 MHz -51.59 dBm/Hz	<b>More</b> 1 of 2

Figure 67. Peak Antenna Conducted Output Power, g mode High Channel

★ Agilent 15:09:32	Jun 19, 2020	L	Peak Search
<b>Ch Freq</b> Channel Power	2.412 GHz	Trig Free	Meas Tools•
Marker 2.41044	47500 GHz		Next Peak
	Atten 25 dB Ext PG −8 dB		
Log 10	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Next Pk Right
dB/			Next Pk Left
Center 2.412 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 27 MHz Sweep 4 ms (401 pts)	Min Search
Channel Power		ower Spectral Density	Pk-Pk Search
19.19 dBm /1	17.6500 MHz	–53.28 dBm/Hz	More 1 of 2

Figure 68. Peak Antenna Conducted Output Power, n mode Low Channel

₩ Agilent 15:08:05 Jun 19, 2020 L	Peak Search
Ch Freq 2.442 GHz Trig Free Channel Power	Meas Tools•
Marker 2.435115000 GHz Mkr1 2.4351150 GHz	Next Peak
Ref 18 dBm         #Atten 25 dB         Ext PG -8 dB         12.88 dBm           #Peak         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 <td>Next Pk Right</td>	Next Pk Right
dB/	Next Pk Left
Center 2.442 GHz Span 27 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	Min Search
Channel Power Power Spectral Density	Pk-Pk Search
19.09 dBm /17.6500 MHz -53.38 dBm/Hz	More 1 of 2

Figure 69. Peak Antenna Conducted Output Power, n mode Mid Channel

₩ Agilent 15:05:55 Jun 19, 2020 L	Peak Search
Ch Freq 2.462 GHz Trig Free Channel Power	Meas Tools•
Marker 2.455182500 GHz Mkr1 2.4551825 GHz	Next Peak
Ref 18 dBm #Atten 25 dB Ext PG -8 dB 12.67 dBm #Peak Log 10 mm/m	Next Pk Right
	Next Pk Left
Center 2.462 GHz Span 27 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	Min Search
Channel Power Power Spectral Density	Pk-Pk Search
18.93 dBm /17.5500 MHz -53.52 dBm/Hz	More 1 of 2

Figure 70. Peak Antenna Conducted Output Power, n mode High Channel

US Tech Test Report:	FCC Part 15/IC RSS Certification
FCC ID:	2AV2S-CMAS1
IC:	26165-CMAS1
Test Report Number:	20-0128
Issue Date:	June 19, 2020
Customer:	Hill's Pet Nutrition, Inc
Model:	AGL3

#### 2.15 Power Spectral Density (CFR 15.247(e), RSS-247, 5.2(b))

The transmitter was placed into a continuous mode of operation at all applicable frequencies. The measurements were performed per the procedures of ANSI C63.10-2013. The RBW was set to 3 kHz and the Video Bandwidth was set to ≥ RBW. The trace capture time was set to (Span/3 kHz).

In accordance with 15.247 (e), the power spectral density shall be no greater than +8 dBm per any 3 kHz band.

Results are shown in the table below and figures below. All are less than +8 dBm per 3 kHz band. See figures below.

Frequency (MHz)	Measured Result (dBm/30kHz)	Corrected Results (dBm/3kHz)	FCC Limit (dBm/3 kHz)	Mode
2412	5.59	-4.41	+8.0	b
2442	5.18	-4.82	+8.0	b
2462	5.55	-4.45	+8.0	b
2412	0.00	-10.11	+8.0	g
2442	0.84	-10.00	+8.0	g
2462	-0.11	-9.16	+8.0	g
2412	-1.70	-11.70	+8.0	n
2442	-2.14	-12.14	+8.0	n
2462	-1.62	-11.63	+8.0	n

#### Table 14. Power Spectral Density for Low, Mid and High Bands

Note: dBm/Hz correct to dBm/kHz using the following formula, 10 log RBW ref/RBW measured.

Test Date: May 6, 2020

Tested By

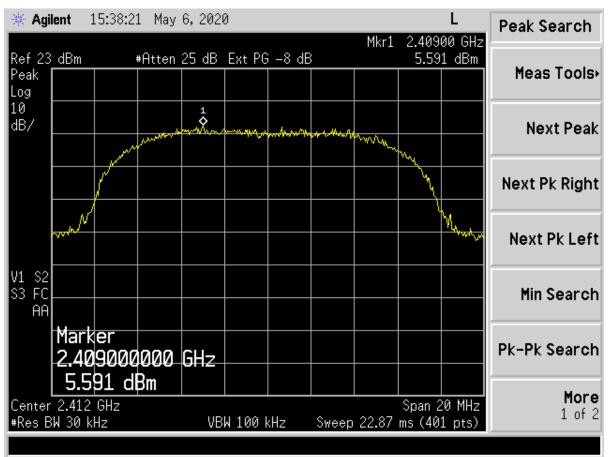


Figure 71. Power Spectral Density, b mode Low Channel

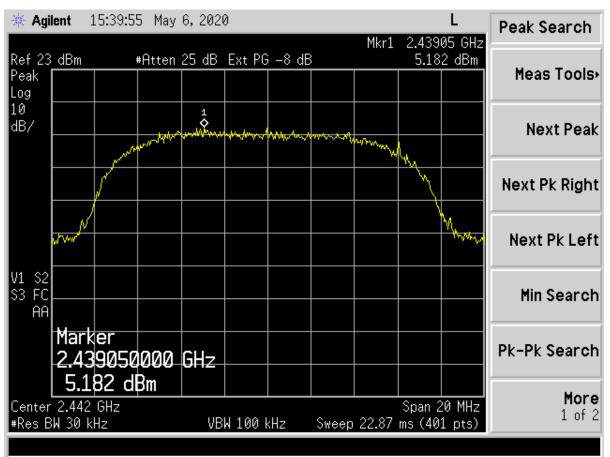


Figure 72. Power Spectral Density, b mode Mid Channel

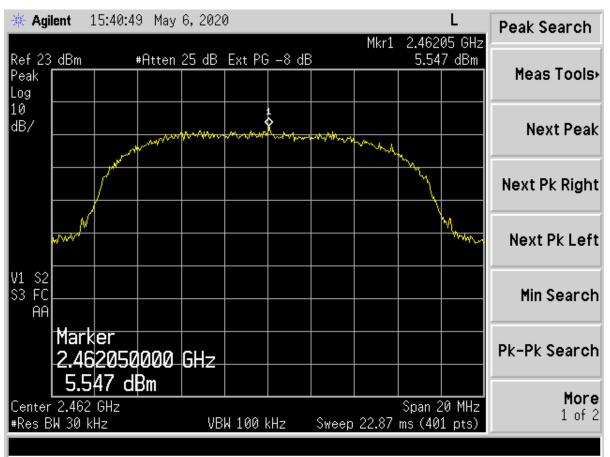


Figure 73. Power Spectral Density, b mode High Channel

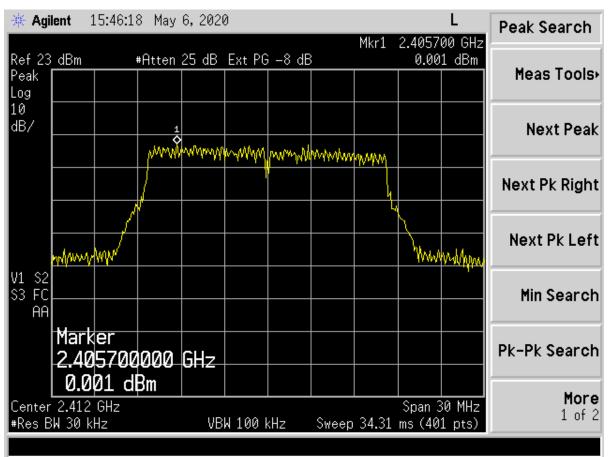


Figure 74. Power Spectral Density, g mode Low Channel

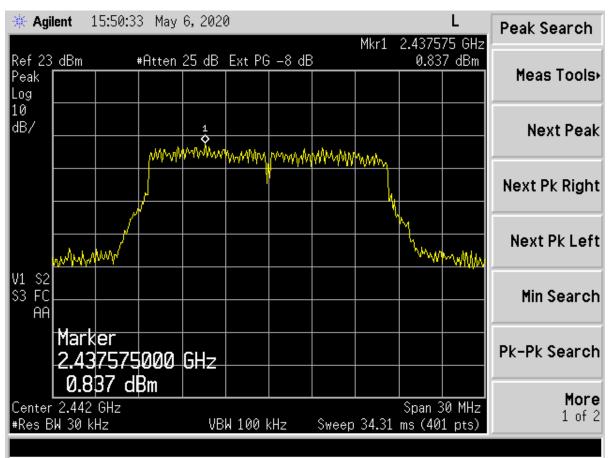


Figure 75. Power Spectral Density, g mode Mid Channel

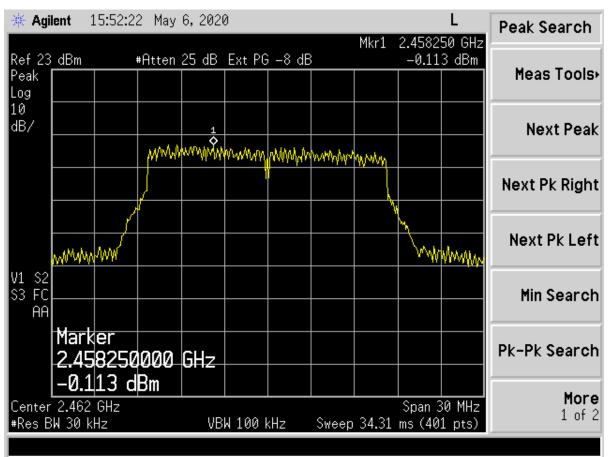


Figure 76. Power Spectral Density, g mode High Channel

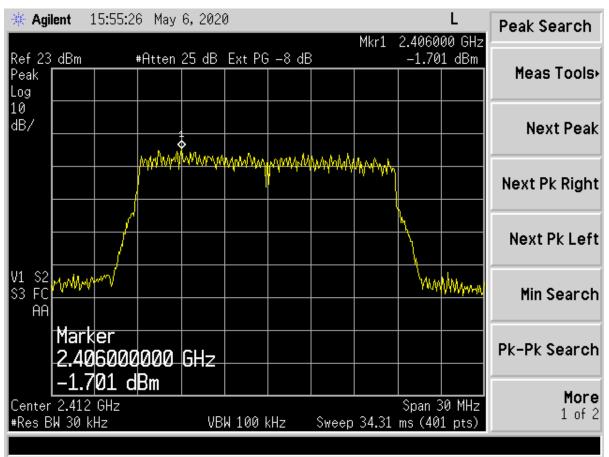


Figure 77. Power Spectral Density, n mode Low Channel

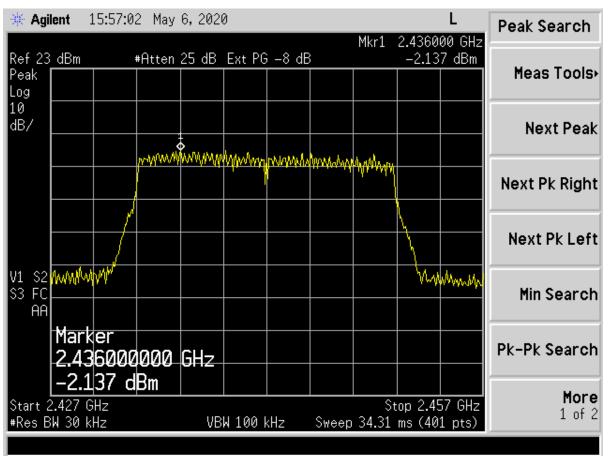


Figure 78. Power Spectral Density, n mode Mid Channel

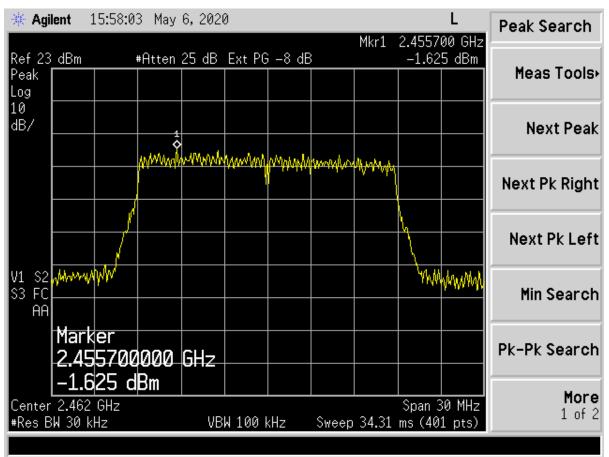


Figure 79. Power Spectral Density, n mode High Channel

# 2.16 Intentional Radiator Power Lines Conducted Emissions (CFR 15.207, RSS-Gen 8.8)

The power line conducted voltage emission measurements have been carried out in accordance with CFR 15.207, per ANSI C63.10:2013, Clause 6.2, with a spectrum analyzer connected to an LISN and the EUT placed into a continuous mode of transmission.

The worst-case results for conducted emissions were determined to be produced when the EUT was operating under continuous transmission. The worst-case measurement was 6.0 dB from the applicable limit. All other emissions were at least 6.2 dB from the limit. Those results are given in the table following.

٦

	CO	NDUCTED E	EMISSIONS	150 kHz t	o 30 MHz		
Tested By: AF	Specification Requirement: FCC Part 15.207		Project No.: 20-0128	Manufacturer: Hill's Pet Nutrition, Inc Model: AGL3			
Frequency (MHz)	Test Data LISN+CL (dBuV) (dB)		Corrected Results (dBuV)	AVG Limits (dBuV)		Detector	
		Pha	ase @ 120 Va	c / 60Hz			
0.3221	40.79	2.67	43.46	49.7	6.2	PK	
0.6208	38.64	0.23	38.87	46.0	7.1	PK	
1.9730	45.33	0.30	45.63	56.0	10.4	QP	
1.9730	34.42	0.30	34.72	46.0	11.3	AVG	
6.1160	31.65	0.21	31.86	50.0	18.1	PK	
16.3670	29.23	0.83	30.06	50.0	19.9	PK	
24.2000	29.08	1.19	30.27	50.0	19.7	PK	
		Neu	ıtral @ 120 Va	ac / 60Hz			
0.3122	43.92	0.04	43.96	49.9	6.0	PK	
0.7358	39.47	0.51	39.98	46.0	6.0	РК	
2.1330	45.84	0.24	46.08	56.0	9.9	QP	
2.1330	35.02	0.24	35.26	46.0	10.7	AVG	
5.3500	31.85	0.31	32.16	50.0	17.8	PK	
14.0000	29.33	1.12	30.45	50.0	19.6	PK	
22.9160	28.77	1.51	30.28	50.0	19.7	РК	

# Table 15. Power Line Conducted Emissions

US Tech Test Report:	FCC Part 15/IC RSS Certification
FCC ID:	2AV2S-CMAS1
IC:	26165-CMAS1
Test Report Number:	20-0128
Issue Date:	June 19, 2020
Customer:	Hill's Pet Nutrition, Inc
Model:	AGL3

#### 2.17 Intentional Radiator, Radiated Emissions (CFR 15.209, RSS-Gen, 8.9)

The test data provided herein is to support the verification requirement for radiated emissions coming for the EUT in a <u>transmitting</u> state per 15.209 and were investigated from 9kHz or the lowest operating clock frequency to 25 GHz and tested as detailed in ANSI C63.10:2013, Clause 6.4-6.6.

Radiated emissions within the band of 9 kHz to 30 MHz were investigated using a calibrated Loop Antenna and per the requirements of ANSI C63.10:2013.

Measurements were made with the analyzer's resolution bandwidth set to 120 kHz for measurements made below 1 GHz and 1 MHz for measurements made above 1 GHz. The video bandwidth was set to three times the resolution bandwidth; 1 MHz RBW and 3 MHz VBW. The test data were maximized for magnitude by rotating the turn-table through 360 degrees and raising and lowering the receiving antenna between 1 to 4 meters in height as a part of the measurement procedure.

The worst-case radiated emission was greater than 20.0 dB below the specification limit. The results are shown in the table following. These results are meant to show that this EUT has met the intentional transmitter requirements of CFR Part 15.209.

# Table 16. Spurious Radiated Emissions (150 kHz-30MHz)

Teet Dur	Test: FCC Part 15.209			Client: Hill's Pet Nutrition, Inc			
Test By: AF	Project: 20-0128 Class B			Model: AGL3			
Frequency (MHz)	Test Data (dBuV)	AF+CL-PA (dB)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	DETECTOR PK /
(11112)	(abav)	()	. ,	· · · ·			QP/AVG

AF = antenna factor. CL = cable loss. PA = preamplifier gain.

SAMPLE CALCULATION: N/A

# Table 17. Spurious Radiated Emissions (30 MHz – 1 GHz)

Test By: AF	Test: FCC Part 15.209			Client: Hill's Pet Nutrition, Inc				
	Project: 20-0128 Class B			Model: AGL3				
Frequency (MHz)	Test Data (dBuV)	AF+CL-PA (dB)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	DETECTOR PK / QP/AVG	
All emissions were more than 20 dB below the applicable limit.								

AF is antenna factor. CL is cable loss. PA is preamplifier gain.

SAMPLE CALCULATION: N/A

# Table 18. Spurious Radiated Emissions (1 GHz – 25 GHz)

Test By: AF	Test: FCC Part 15.209			Client: Hill's Pet Nutrition, Inc			
	Project: 20-0128 Class B			Model: AGL3			
Frequency (MHz)	Test Data (dBuV)	AF+CL-PA (dB)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	DETECTOR PK / QP/AVG
All emissions were more than 20 dB below the applicable limit.							

AF is antenna factor. CL is cable loss. PA is preamplifier gain.

SAMPLE CALCULATION: N/A

#### 2.18 Measurement Uncertainty

The measurement uncertainties given were calculated using the method detailed in CISPR 16-4-2:2011. A coverage factor of k=2 was used to give a level of confidence of approximately 95%.

# 2.18.1 Conducted Emissions Measurement Uncertainty

Measurement Uncertainty (within a 95% confidence level) for this test is  $\pm 2.85$  dB.

# 2.18.2 Radiated Emissions Measurement Uncertainty

For a measurement distance of 3 m the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is  $\pm 5.2$  dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is  $\pm$ 5.2 dB.

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is  $\pm 5.2$  dB.

# 3 Conclusions

The EUT is deemed to have met the requirements of the standards cited within the test report when tested as detailed in the present test report.