

FCC CFR47 PART 15 SUBPART C ISED CANADA RSS-210 ISSUE 10

**TEST REPORT** 

FOR

**SMOKE DETECTOR** 

MODEL NUMBER: 5800SMOKEV

FCC ID: CFS8DL-5800SMOKEV IC: 573F-5800SMOKEV

REPORT NUMBER: R13672557-E1

ISSUE DATE: 2021-03-31

Prepared for ADEMCO INC. 2 CORPORATE CENTER DR MELVILLE NY, 11747, USA

Prepared by UL LLC 12 LABORATORY DR. RESEARCH TRIANGLE PARK, NC 27709 USA TEL: (919) 549-1400



### **Revision History**

Rev.	lssue Date	Revisions	Revised By
V1	2021-03-31	Initial Issue	M. Antola

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## **1. ATTESTATION OF TEST RESULTS**

COMPANY NAME:	ADEMCO INC. 2 CORPORATE CENTER DR MELVILLE, NY, 11747, USA	
EUT DESCRIPTION:	SMOKE DETECTOR	
MODEL:	5800SMOKEV	
SERIAL NUMBER:	A048-6760, A008-3805, A055-5015, A	4055-5011
SAMPLE RECEIVE DATE:	2021-02-01, 2021-03-23	
DATE TESTED:	2021-02-01 to 2021-03-24	
	APPLICABLE STANDARDS	
ST	ANDARD	TEST RESULTS
FCC PAR	T 15 SUBPART C	Complies
ISED CANADA RS	SS-210 Issue 10, Annex A	Complies
ISED CANADA	RSS-GEN Issue 5 + A1	Complies

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. government.

Approved & Released For UL LLC By:

Prepared By:

Bob DeLisi Principal Engineer Consumer Technology Division UL LLC

Michal Conto

Mike Antola Staff Engineer Consumer Technology Division UL LLC

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# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 5 + A1, and RSS-210 Issue 10.

# 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Drive, Research Triangle Park, North Carolina, USA and 2800 Suite Perimeter Park Dr., Suite B, Morrisville, North Carolina, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

12 Laboratory Dr.	2800 Perimeter Park Dr.
Chamber A (ISED:2180C-1)	Chamber North (ISED:2180C-3)
Chamber C (ISED:2180C-2)	Chamber South (ISED:2180C-4)

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. CAB ID: US0067

# 4. DECISION RULES AND MEASUREMENT UNCERTAINTY

### 4.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

## 4.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

## 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U <sub>Lab</sub>
Worst Case Radiated Disturbance, 9 kHz to 30 MHz	2.84 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Occupied Bandwidth	2.75%

Uncertainty figures are valid to a confidence level of 95%.

## 4.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

#### MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss. 36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

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# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

The EUT is a 344.94MHz periodic operated transmitter intended for operation in a wireless smoke detector unit. The device is powered from two (2) CR123A-type batteries.

## 5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an PCB trace antenna, with a maximum gain of -7 dBi.

## 5.3. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Rev. 0 (UL file S35618 Vol 2).

## 5.4. WORST-CASE CONFIGURATION AND MODE

The EUT operates only at a single channel. As such, all testing performed at this channel while operating at its highest intended power setting.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

## 5.5. MODIFICATIONS

No modifications were made during testing.

## 5.6. DESCRIPTION OF TEST SETUP

#### SUPPORT EQUIPMENT

None

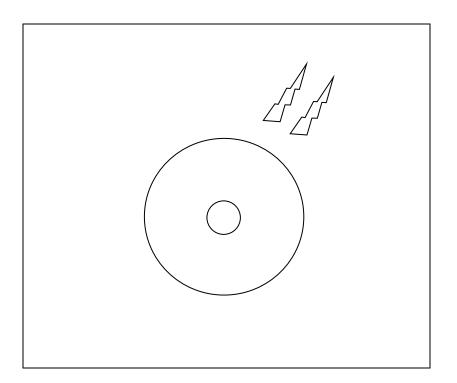
#### I/O CABLES

None

#### TEST SETUP

The EUT is stand-alone, battery-operated device. Test code exercised the radio module.

#### SETUP DIAGRAM FOR TESTS



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# 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Radiated Disturbance Emissions	Test Equipment (Morrisville - South Chamber)	

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	•			Last Cal.	Next Cal.
	0.009-30MHz				
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2020-08-20	2021-08-20
	30-1000 MHz				
AT0075	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2020-10-27	2021-10-27
	1-18 GHz				
AT0067	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2020-04-28	2021-04-28
	Gain-Loss Chains				
S-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2020-07-10	2021-07-10
S-SAC02	Gain-loss string: 25- 1000MHz	Various	Various	2020-07-10	2021-07-10
S-SAC03	Gain-loss string: 1- 18GHz	Various	Various	2020-07-06	2021-07-06
	Receiver & Software				
SA0025	Spectrum Analyzer	Agilent	N9030A	2020-03-17	2021-03-17*
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2021-03-10	2022-03-10
SOFTEMI	EMI Software	UL	Version	9.5 (2020-08-1	8)
	Additional Equipment used				
s/n 200037635	Environmental Meter	Fisher Scientific	06-662-4	2020-01-22	2022-01-22
ATA176	10dB, DC-18GHz, 5W	Mini-Circuits	BW-N10W5	2020-08-29	2021-08-29
HPF012	1GHz high-pass filter, 2W, F <sub>high</sub> =18GHz	Micro-Tronics	HPM18129	2021-02-15	2022-02-15

\*-Test data presented in the report was captured while measuring equipment was within calibration.

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# 7. ANTENNA PORT TEST RESULTS

### 7.1. 20 dB AND 99% BW

#### <u>LIMITS</u>

FCC §15.231 (c)

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

### IC A1.3

For the purpose of Section A1.1, the 99% Bandwidth shall be no wider than 0.25% of the center frequency for devices operating between 70-900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency.

#### TEST PROCEDURE

ANSI C63.10

UL LLC

The transmitter output is connected to the spectrum analyzer.

99% & 20dB Bandwidth: The RBW is set to 1% to 5% of the 99 % / 20dB bandwidth. The VBW is set toapproximately 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth and n dB down functions are utilized.

Note: Because the measured signal is CW or CW-like adjusting the RBW per C63.10 would not be practical since the measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

#### **RESULTS**

No non-compliance noted:

#### 20dB Bandwidth

Frequency	20dB Bandwidth	Limit	Margin
(MHz)	(kHz)	(kHz)	(kHz)
344.94	1.2984	862.35	-861.05164

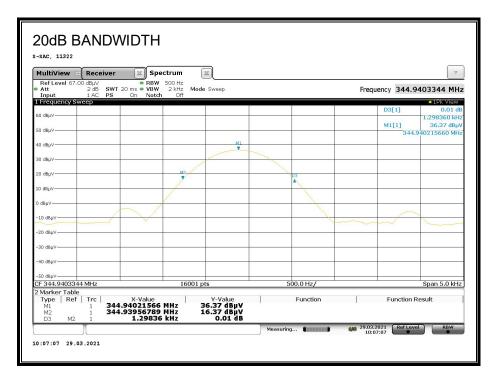
99% Bandwidth

Frequency	99% Bandwidth	Limit	Margin
(MHz)	(kHz)	(kHz)	(kHz)
344.94	1.0964	862.35	-861.253605

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### 20dB BANDWIDTH

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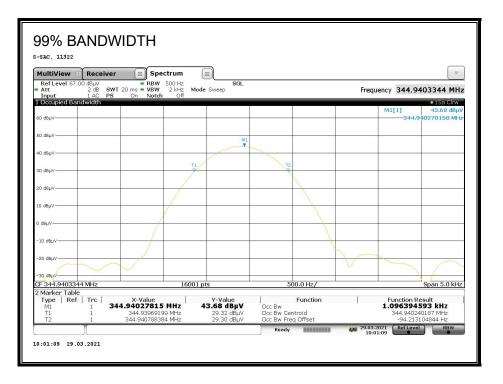


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#### 99% BANDWIDTH



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# 7.2. DUTY CYCLE

#### <u>LIMITS</u>

FCC §15.35 (c)

The measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to notification or verification.

#### TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer or radiated field strength. The RBW is set to 300 kHz and the VBW is set to 1 MHz. The sweep time is coupled and the span is set to 0 Hz. The number of pulses is measured and calculated in a 100 ms scan.

### CALCULATION

Average Reading = Peak Reading (dBuV/m) + 20log (Duty Cycle), Where Duty Cycle is (# of long pulses \* long pulse width) + (# of short pulses \* short pulse width) / 100 or T

### <u>RESULTS</u>

No non-compliance noted:

One	Long Pulse	# of	Short	# of	Duty	20*Log
Period	Width	Long	Width	Short	Cycle	Duty Cycle
(ms)	(ms)	Pulses	(ms)	Pulses		(dB)
100	0.26	11	0.13	42	0.083	-21.60

### TRANSMISSION IN A 100MS WINDOW

s-sac, 11993 MultiView ==	Receiver	Spectrum	X					<b>₹</b>
Ref Level 107.0 Att Input TRG:VID	DO dBuV	RBW 300 kHz T 100 ms • VBW 1 MHz On Notch Of				Frequ	ency 345.00	30000 MHz
1 Zero Span								IPk Clrw
100 dBµV								
90 dBµV								
80 dBµV								
70 dBµV								
is app.								
60 dBuY	—TRG 62.000 de	uv						
50 dBµV								
40 dBµV								
		and a second	and a start of			a hard at		ن باباس
30 dBµV	k daadii	11 barrenter proprietation	lalahan Malandahan da kara da k	All Andrew Arderson	and many many many	Mahalahaa - aaka	ellannen heilal	lalad med have be
oo aap.								
20 dBµV								
· · ·								
10 dBµV								
TRG								
CF 345.003 MHz	V			Dipts				10.0 ms/
		Spectrum: Waiting for Trig	lger	Measurin	g <b>(</b>	400 24.03.2 11:20	6:33 Ref Level	RBW
1:26:34 24.03	3.2021							

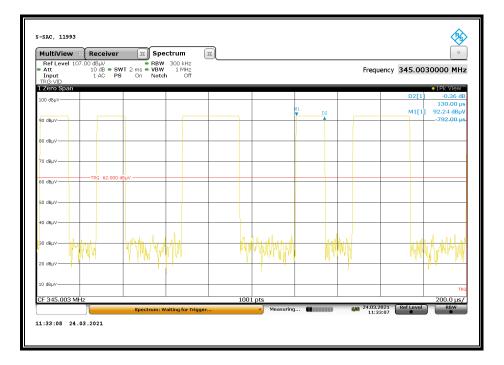
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### LONG PULSE WIDTH



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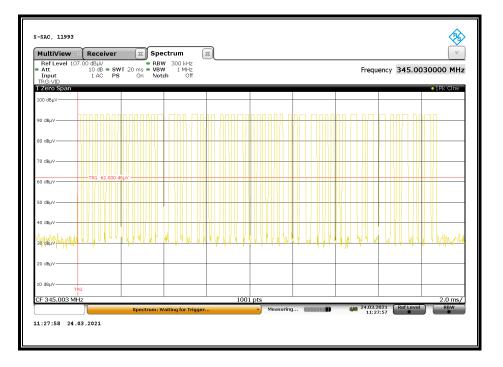
### SHORT PULSE WIDTH



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#### NUMBER OF SHORT/LONG PULSES



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### 7.3. TRANSMISSION TIME

<u>LIMITS</u>

FCC §15.231 (a) (2)

RSS-210 A1.1 (b)

A transmitter activated automatically shall cease transmission within 5 seconds after activation.

#### TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer or radiated field strength. The RBW is set to 300 kHz and the VBW is set to 1 MHz. The sweep time is set to 10 seconds and the span is set to 0 Hz.

#### **RESULTS**

Note: Test performed twice – once while the tamper button is pressed and held and again when the tamper button is released. It is the intended operation of the EUT that separate transmissions occur during each event.

No non-compliance noted:

sac, 11993 AultiView = Re	ceiver 🕅	Spectrum	X					
Ref Level 107.00 dB Att 10	μV dB • SWT 10 s •	RBW 300 kHz VBW 1 MHz	SGL			Freque	ncy 345.003	30000 MH
Input 1. RG:VID Zero Span	AC PS On	Notch Off						• 1Pk Clrw
00 dBuV							D2[1]	-49.46 dE
ла авни								1.44000
							M1[1]	85.91 dBµ\
qdBpv								10.00 m
0 dBµV	_							
0 dBµV								
o dop t								
TRO	62.000 dBµV							
о авил								
0 dBµV								
0 dBµV								
mand mulder was	- Marginanter	Annale and the second sec	a manuscription of	under marked woon	lalmal mound	Marphan Mary	approximitane	www.
0 dBµV								
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TRG								
F 345.003 MHz			100	1 pts		· ·		1.0 s/
The second se				Ready	ECHOICECECECE	24.03.20 11:42:		RBW

MultiView	Receiver	Spe	ectrum	X					
Ref Level 107.0			300 kHz	SGL					Ľ
Att Input	10 dB • SW 1 AC PS	T10s = VBW On Note	1 MHz				Frequ	ency 345.00	30000 MH
TRG:VID 1 Zero Span									• 1Pk Clrw
								D2[1]	
100 dBµV									1.85000
N1								M1[1	
90 dBµV									10.00 m
80 dBµV									
70 10 11									
70 dBµV									
60 dBµV	-TRG 62.000 de	μν			_				
60 авµv									
50 10 11									
50 dBµV									
40 dBµV									
an every franken	Manuan	anumadur	with the with the with the second	opportunite	and the second s	I mouth mark	alter of methode and	manonempulse	withour working
30 dBuV-									
20 dBµV									
10 dBµV									
TRG									
CF 345.003 MHz				100	1 pts				1.0 s

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## 7.4. SUPERVISION TRANSMISSIONS

#### <u>LIMITS</u>

FCC §15.231 (a) (3)

Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour

### <u>Results</u>

Tester:	11322
Date:	2021-03-30

- 1. According to manufacturer manual, the interval of supervisory signal transmission is once every 60 minutes.
- 2. Total transmission time:

Short Pulse Width (ms)	Number of Short Pulse	Long Pulse Width (ms)	Number of Long Pulse	One Pulse Stream (ms)	Total Pulse Streams per hour	Total Transmission Time per hour (ms)
0.13	42	0.26	11	8.320	1.00	8.32

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## 8. RADIATED EMISSION TEST RESULTS

### 8.1. TX RADIATED SPURIOUS EMISSION

#### LIMITS

FCC §15.231 (b)

RSS-210 A.1.2

In addition to the provisions of § 15.205, the field strength of emissions from Intentional radiators operated under this section shall not exceed the following:

Fundamental	Field Strength of	Field Strength of
Frequency	Fundamental Frequency	Spurious Emissions
(MHz)	(microvolts/meter)	(microvolts/meter)
40.66 - 40.70	2,250	225
70 - 130	1,250	125
130 - 174	1,250 to 3,750 <sup>1</sup>	125 to 375 <sup>1</sup>
174 - 260	3,750	375
260 - 470	3,750 to 12,500 <sup>1</sup>	375 to 1,250 <sup>1</sup>
Above 470	12,500	1,250

<sup>1</sup> Linear interpolation

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	(2)
13.36 – 13.41	322 - 335.4		

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§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
30 88	100 **	3
88 216	150 **	3
216 960	200 **	3
Above 960	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 72 MHz, 76 88 MHz, 174 216 MHz or 470 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

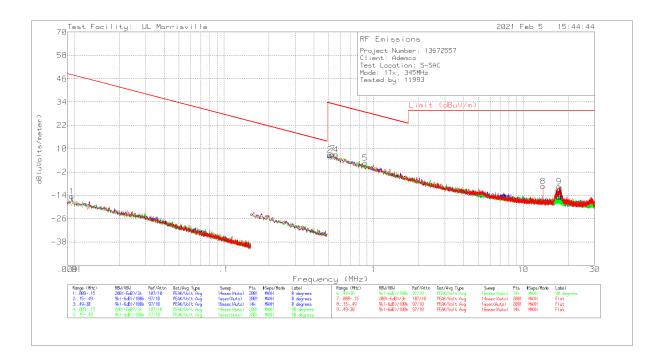
Note: For below 30MHz scans, all measurements were made at a test distance of 3-meters. The measured data was extrapolated from the test didstance to the specification distance (300-meter from 9-490kHz, 30-meter from 490kHz-30MHz) to clearly show the relative levels fo fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40 \* log (test distance / specification distance).

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#### RESULTS

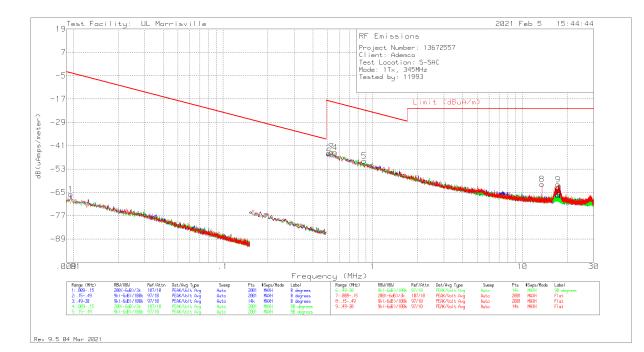
#### TX SPURIOUS EMISSION (9 kHz - 30 MHz)



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 Qp/Av Limit (dBuV/m)	FCC 15.209 Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Orientation
1	.00964	47.07	Pk	18.3	.1	-80	-14.53	47.92	67.92	-62.45	0-360	On
2	.51003	35.82	Pk	10.8	.1	-40	6.72	33.45	-	-26.73	0-360	On
3	17.6955	14.95	Pk	10.1	.8	-40	-14.15	29.54	-	-43.69	0-360	On
4	.56273	36.06	Pk	10.8	.1	-40	6.96	32.6	-	-25.64	0-360	Off
5	.87682	31.53	Pk	10.9	.2	-40	2.63	28.75	-	-26.12	0-360	Off
6	17.44043	14.24	Pk	10.2	.8	-40	-14.76	29.54	-	-44.3	0-360	Off
7	.53427	36.45	Pk	10.8	.1	-40	7.35	33.05	-	-25.7	0-360	Flat
8	13.56171	19.61	Pk	10.4	.7	-40	-9.29	29.54	-	-38.83	0-360	Flat
9	17.33924	19.48	Pk	10.2	.8	-40	-9.52	29.54	-	-39.06	0-360	Flat

Pk - Peak detector

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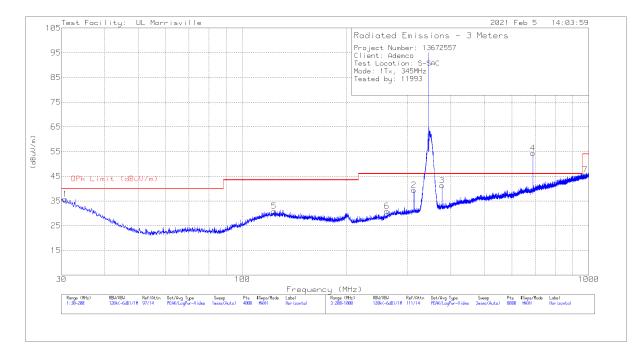


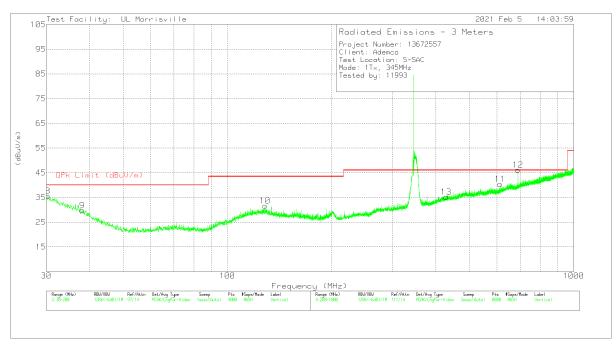
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor	Corrected Reading dB(uAmps/meter)	RSS-GEN Qp/Av Limit	RSS-GEN Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Orientation
		(ubuv)				(dB)	ub(uAmps/meter)	(dBuA/m)	(0507/11)			
1	.00964	47.07	Pk	-33.2	.1	-80	-66.03	-3.58	16.42	-62.45	0-360	On
2	.51003	35.82	Pk	-40.7	.1	-40	-44.78	-18.05	-	-26.73	0-360	On
7	.53427	36.45	Pk	-40.7	.1	-40	-44.15	-18.45	-	-25.7	0-360	On
4	.56273	36.06	Pk	-40.7	.1	-40	-44.54	-18.9	-	-25.64	0-360	Off
5	.87682	31.53	Pk	-40.6	.2	-40	-48.87	-22.75	-	-26.12	0-360	Off
8	13.56171	19.61	Pk	-41.1	.7	-40	-60.79	-21.96	-	-38.83	0-360	Off
9	17.33924	19.48	Pk	-41.3	.8	-40	-61.02	-21.96	-	-39.06	0-360	Flat
6	17.44043	14.24	Pk	-41.3	.8	-40	-66.26	-21.96	-	-44.3	0-360	Flat
3	17.6955	14.95	Pk	-41.4	.8	-40	-65.65	-21.96	-	-43.69	0-360	Flat

Pk - Peak detector

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#### FUNDAMENTAL, HARMONICS AND TX SPURIOUS EMISSION (30 - 1000 MHz)





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#### REPORT NO: R13672557-E1 FCC ID: CFS8DL-5800SMOKEV

Project Number: 13672557 Client: Ademco Test Location: S-SAC Mode: 1Tx Tested by: 11993 Date: 2021-03-24

Frequency (MHz)	Meter Reading (dBuV)	Det	AT0075 AF (dB/m)	Amp/Cbl (dB)	Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
344.9394	82.15	Pk	20.3	-28.2	10.1	0	84.35	-	-	97.26	-12.91	253	312	V
344.9394	82.15	Pk	20.3	-28.2	10.1	-21.6	62.75	77.26	-14.51	-	-	253	312	V
344.95	92.83	Pk	20.3	-28.2	10.1	0	95.03	-	-	97.26	-2.23	174	101	Н
344.95	92.83	Pk	20.3	-28.2	10.1	-21.6	73.43	77.26	-3.83	-	-	174	101	Н

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading	Det	AT0075 AF (dB/m)	Amp/Cbl (dB)	Pad (dB)	Corrected Reading	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	(141112)	(dBuV)		(ub/iii)	(ub)	(05)	(dBuV/m)	(abav/iii)	(05)	(Degs)	(em)	
5	* 123.3542	30.93	Pk	20.1	-30.1	10	30.93	43.52	-12.59	0-360	399	Н
9	* 38.1196	30.01	Pk	21.2	-31.4	10	29.81	40	-10.19	0-360	101	V
10	* 128.3705	31.58	Pk	20.1	-30	10	31.68	43.52	-11.84	0-360	101	V
6	* 261.508	31.49	Pk	18.2	-28.9	10.1	30.89	46.02	-15.13	0-360	101	Н
7	* 976.6009	30.41	Pk	29.1	-24.2	10.3	45.61	53.97	-8.36	0-360	300	Н
11	* 612.8171	24.76	Qp	25	-27.1	10.2	32.86	46.02	-13.16	112	309	V
8	30.3389	25.44	Qp	26.8	-31.5	9.9	30.64	57.26	-26.52	270	149	V
1	30.8768	25.42	Qp	26.5	-31.5	9.9	30.32	57.26	-25.94	285	136	н
2	312.955	36.9	Qp	20	-28.5	10.1	38.5	57.26	-17.76	42	107	Н
3	376.9417	37.58	Qp	21.1	-28	10.1	40.78	57.26	-16.48	221	102	Н
13	428.0128	24.69	Qp	22.5	-27.6	10.1	29.69	57.26	-27.57	147	245	V
4	689.8805	46.28	Qp	26.1	-27	10.2	55.58	57.26	-1.68	265	120	Н
12	689.8829	36.08	Qp	26.1	-27	10.2	45.38	57.26	-11.88	178	243	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

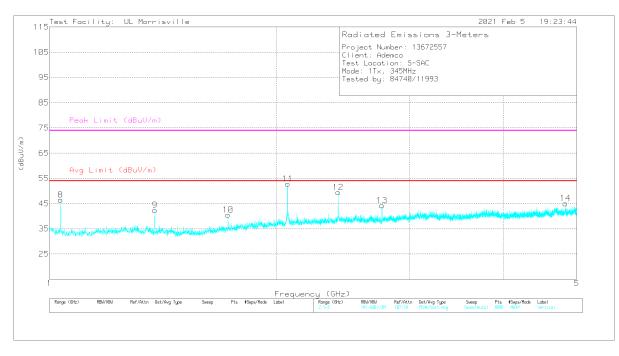
Qp - Quasi-Peak detector

NOTE: Av = Pk + DC Corr (Duty Cycle Correction Factor)

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#### HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHz





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#### REPORT NO: R13672557-E1 FCC ID: CFS8DL-5800SMOKEV

Markers	Frequency	Meter	Det	AT0067	Amp/Cbl/Fltr/	Filter	DC	Corrected	Avg Limit	Margin	Peak	PK	Azimuth	Height	Polarity
	(GHz)	Reading		(dB/m)	Pad (dB)	(dB)	Corr	Reading	(dBuV/m)	(dB)	Limit	Margin	(Degs)	(cm)	
		(dBuV)					(dB)	(dBuV/m)			(dBuV/m)	(dB)			
1	* 1.03476	58	Pk	27.7	-35.6	1.6	0	51.7	-	-	74	-22.3	241	137	н
	* 1.03476	58	Pk	27.7	-35.6	1.6	-21.6	30.1	54	-23.9	-	-	241	137	Н
2	* 1.37977	56.66	Pk	28.7	-35.2	.9	0	51.06	-	-	74	-22.94	72	197	н
	* 1.37977	56.66	Pk	28.7	-35.2	.9	-21.6	29.46	54	-24.54	-	-	72	197	Н
6	* 2.75954	51.34	Pk	32.4	-33.9	.5	0	50.34	-	-	74	-23.66	318	101	н
	* 2.75954	51.34	Pk	32.4	-33.9	.5	-21.6	28.74	54	-25.26	-	-	318	101	н
7	* 4.139	45.98	Pk	33.4	-32.4	.4	0	47.38	-	-	74	-26.62	273	116	Н
	* 4.139	45.98	Pk	33.4	-32.4	.4	-21.6	25.78	54	-28.22	-	-	273	116	Н
8	* 1.03486	54.84	Pk	27.7	-35.6	1.6	0	48.54	-	-	74	-25.46	187	349	V
	* 1.03486	54.84	Pk	27.7	-35.6	1.6	-21.6	26.94	54	-27.06	-	-	187	349	V
9	* 1.37992	50.05	Pk	28.7	-35.2	.9	0	44.45	-	-	74	-29.55	34	384	V
	* 1.37992	50.05	Pk	28.7	-35.2	.9	-21.6	22.85	54	-31.15	-	-	34	384	V
13	* 2.75948	48	Pk	32.4	-33.9	.5	0	47	-	-	74	-27	206	121	V
	* 2.75948	48	Pk	32.4	-33.9	.5	-21.6	25.4	54	-28.6	-	-	206	121	V
14	* 4.82923	45.63	Pk	34	-31.4	.3	0	48.53	-	-	74	-25.47	250	103	V
	* 4.82923	45.63	Pk	34	-31.4	.3	-21.6	26.93	54	-27.07	-	-	250	103	V
3	1.72458	49.53	Pk	29.6	-34.8	.4	0	44.73	-	-	77.26	-32.53	252	166	Н
	1.72458	49.53	Pk	29.6	-34.8	.4	-21.6	23.13	57.26	-34.13	-	-	252	166	Н
10	1.7247	48.33	Pk	29.6	-34.8	.4	0	43.53	-	-	77.26	-33.73	219	337	V
	1.7247	48.33	Pk	29.6	-34.8	.4	-21.6	21.93	57.26	-35.33	-	-	219	337	V
4	2.06958	56.97	Pk	31.8	-34.6	.4	0	54.57	-	-	77.26	-22.69	216	115	V
	2.06958	56.97	Pk	31.8	-34.6	.4	-21.6	32.97	57.26	-24.29	-	-	216	115	V
11	2.06962	59.84	Pk	31.8	-34.6	.4	0	57.44	-	-	77.26	-19.82	234	183	Н
	2.06962	59.84	Pk	31.8	-34.6	.4	-21.6	35.84	57.26	-21.42	-	-	234	183	Н
5	2.41456	54.42	Pk	32.2	-34.3	.4	0	52.72	-	-	77.26	-24.54	4	112	н
	2.41456	54.42	Pk	32.2	-34.3	.4	-21.6	31.12	57.26	-26.14	-	-	4	112	н
12	2.41463	52.82	Pk	32.2	-34.3	.4	0	51.12	-	-	77.26	-26.14	68	103	V
	2.41463	52.82	Pk	32.2	-34.3	.4	-21.6	29.52	57.26	-27.74	-	-	68	103	V

 $^{\star}$  - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band Pk - Peak detector

NOTE: Av = Pk + DC Corr (Duty Cycle Correction Factor)

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# **END OF TEST REPORT**

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