

**COMPLIANCE WORLDWIDE INC.
TEST REPORT 106-24RF**

**In Accordance with the Requirements of
Federal Communications Commission CFR Title 47 Part 2.1093
Radio Frequency Exposure Evaluation**

**Issued to
Napco Security Technologies, Inc.
333 Bayview Avenue
Amityville, NY 11701**

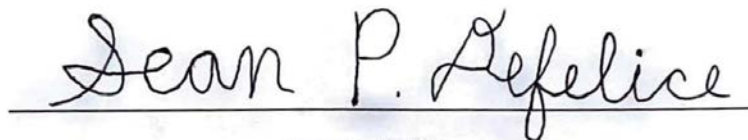
for the

**SUPERVISED DIGITAL WIRELESS SMOKE / CARBON MONOXIDE DETECTOR
Models: GEM-SMK-CO-E, FL-SMK-CO
And
SUPERVISED DIGITAL WIRELESS SMOKE DETECTOR
GEM-SMK-E, FL-SMK-E
319.5 MHz**

FCC ID: AD8SMK319

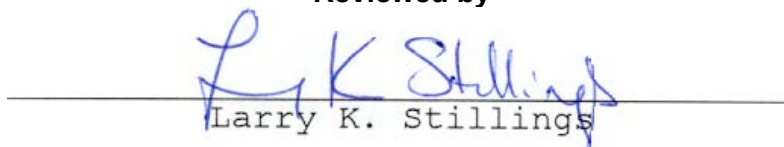
Report Issued on January 31, 2024

Tested by



Sean P. Defelice

Reviewed by



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1. Scope

This test report certifies that the Napco Security Technologies Supervised Digital Wireless Smoke and CO Detectors 319.5 MHz Transmitter, as tested, meets the FCC Part 2.1093 requirements exempting the device from a SAR Evaluation.

The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

2. Product Details

- 2.1. Manufacturer:** Napco Security Technologies
- 2.2. Model Number:** GEM-SMK-CO-E, GEM-SMK-E, FL-SMK-CO-E, FL-SMK-E
- 2.3 Serial Number:** 000049
- 2.4 Description of EUT:** The GEM-SMK-E Photoelectric Smoke Detector is effective for detecting smoke in your premises. The GEM-SMK-CO-E is a high-quality combination photoelectric smoke detector (conforms to UL 268) and carbon monoxide detector (conforms to UL 2075) and is equipped with a supervised digitally coded radio transmitter.
- 2.5 Power Source:** 3V lithium Duracell D123A or Panasonic CR123A
- 2.6 Hardware Revision:** Ver 2.0
- 2.7 Software/Firmware Revision:** N/A
- 2.8. Modulation Type:** Pulsed
- 2.9. Operating Frequency:** 319.5 MHz
- 2.10. EMC Modifications:** None

3. Product Configuration

3.1. Operational Characteristics & Software

The EUT was configured to continuously transmit when the battery is installed.

3.2. EUT Hardware

Manufacturer	Model/Part # / Options	Serial Number	Volts	Freq (Hz)	Description/Function
Napco Security	GEM-SMK-E	000049	3	DC	Smoke Detector

3.3. Support Equipment

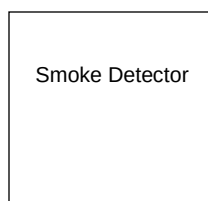
Manufacturer	Model/Part # / Options	Serial Number	Input Voltage	Freq (Hz)	Description/Function
None					

3. Product Configuration (continued)

3.4. Equipment Cables

Cable Type	Length	Shield	From	To
None				

3.5. Block Diagram



4. Measurements Parameters

4.1. Measurement Equipment and Software Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due	Interval
EMI Test Receiver, 9kHz - 7GHz ¹	Rohde & Schwarz	ESR7	101156	10/26/2024	3 Years
EMI Test Receiver, 10 Hz - 7GHz ¹	Rohde & Schwarz	ESR7	101770	7/23/2024	3 Years
Spectrum Analyzer, 2 Hz to 26.5 GHz ²	Rohde & Schwarz	FSW26	102057	6/24/2024	3 Years
Spectrum Analyzer, 9 kHz to 40 GHz ³	Rohde & Schwarz	FSV40	100899	8/12/2024	4 Years
Spectrum Analyzer 10 Hz – 40 GHz ⁴	Rohde & Schwarz	FSVR40	100909	9/18/2024	4 Years
Biconilog Antenna, 30 MHz - 2 GHz	Sunol Sciences	JB1	A050913	7/1/2024	3 Years
Digital Barometer	Control Company	4195	ID236	1/27/2025	3 Years

¹ ESR7 Firmware revision: V3.48 SP3, Date installed: 09/30/2020

Previous V3.48 SP2, installed 07/23/2020.

² FSW26 Firmware revision: V4.71 SP1, Date installed: 11/16/2020

Previous V4.61, installed 08/11/2020.

³ FSV40 Firmware revision: V2.30 SP4, Date installed: 05/04/2016

Previous V2.30 SP1, installed 10/22/2014.

⁴ FSVR40 Firmware revision: V2.23 SP1, Date installed: 08/19/2016

Previous V2.23, installed 10/22/2014.

4. Measurements Parameters (continued)

4.2. Software Used to Perform Test

Manufacturer	Software Description	Title or Model #	Rev.	Report Sections
Compliance Worldwide	Test Report Generation Software	Test Report Generator	1.0	Used to process conducted emissions data

4.3 Measurement & Equipment Setup

Test Dates:	1/16/2024, 1/26/2024, 1/29/2024
Test Engineer:	Sean Defelice
Site Temperature (°C):	21.5
Relative Humidity (%RH):	29
Frequency Range:	30 kHz to 5 GHz
Measurement Distance:	3 Meters and 1 Meter
EMI Receiver IF Bandwidth:	200 Hz (30 kHz – 150 kHz) 9 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1 GHz) 1 MHz (>1 GHz)
EMI Receiver Avg Bandwidth:	$\geq 3 * \text{RBW or IF(BW)}$
Detector Functions:	Peak, Quasi-Peak and Average

4.4 Test Procedure

Test measurements were made in accordance FCC Part 15.231: Periodic operation within the bands 40.66 – 40.70 MHz and above 70 MHz using ANSI C63.10: 2013, American National Standard for Methods for Unlicensed Wireless Devices.

In addition, FCC KDB 447498 D01 General RF Exposure Guidance v06, October 23, 2015 are referenced for the testing and requirements detailed in this report.

5. Choice of Equipment for Test Suits

5.1. Choice of Model

This test report is based on the test samples supplied by the manufacturer and are reported by the manufacturer to be equivalent to the production units.

5.2. Presentation

The test sample was tested complete with all required ancillary equipment. Refer to Section 3 of this report for the product equipment configuration.

5.3. Choice of Operating Frequencies

The transmitter in the unit under test utilizes a single operating frequency at approximately 319.5 MHz

6. Measurement Data (continued)

6.1. Radiated Field Strength of Fundamental (15.231, Section (b))

Requirement: The 3-meter field strength of the fundamental emissions from intentional radiators operating within the 260-470 MHz frequency bands shall comply with the limits specified in FCC Part 15.231, Section (b). The limit is based on a linear interpolation of the following field strength:

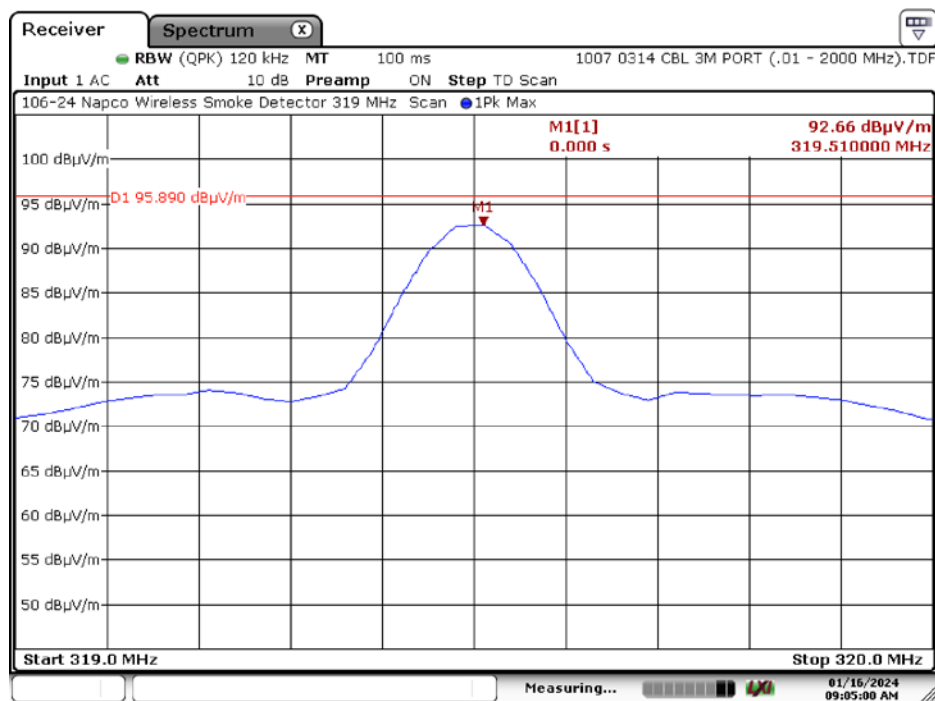
Fundamental Frequency (MHz)	Field Strength of Fundamental ($\mu\text{V/m}$)
260–470	3,750 to 12,500 $\mu\text{V/m}$

Fundamental Limit at 319.5 MHz = $6,229.17 \mu\text{V/m} = 75.89 \text{ dB}\mu\text{V/m}$

Conclusion: Compliant - The radiated field strength of the device under test complies with the requirements detailed in FCC Part 15.231, Section (b).

6.1.1. Worst Case Radiated Field Strength of Fundamental

Frequency (MHz)	Amplitude ¹ (dB $\mu\text{V/m}$)		Duty Cycle Correction	Amplitude (dB $\mu\text{V/m}$)	Limit (dB $\mu\text{V/m}$)		Margin (dB)		Ant Polarity	Ant Height	Turntable Azimuth	Result
	Peak	QP			Peak	Average	Peak	Ave				
319.5	92.66	--,--	-21.60	71.06	95.89	75.89	-3.23	-4.83	H	100	230	Compliant



Date: 16.JAN.2024 09:05:00

6. Measurement Data (continued)

6.2. Public Exposure to Radio Frequency Energy Levels (FCC Part 2.1093)

6.2.1. 2.1093 Requirements

Requirement: Portable devices are subject to radio frequency radiation exposure requirements. For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

For a 1-g SAR, the test exclusion result must be ≤ 3.0 .

Test Notes: The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by the following formula:

$$\text{SAR Test Exclusion} = \frac{P_{\text{MAX}}}{d_{\text{MIN}}} \times \sqrt{f_{(\text{GHz})}} \quad (1)$$

P_{MAX}	mW	Maximum power of channel, including tune-up tolerance
d_{MIN}	mm	Minimum test separation distance, mm (≤ 50 mm)
$f_{(\text{GHz})}$	GHz	$f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz (>100 MHz and <6 GHz)

The following equation is used to determine the peak output (P_{MAX}) power from the measured field strength:

$$P = \frac{(E \times d)^2}{(30 \times G)}$$

P = the power in Watts.	0.00055350
E = the measured maximum field in V/m	0.04295364
G = the numeric gain of the transmitting antenna over an isotropic radiator.	1.00
d = the distance in meters of the field strength measurement.	3.00

Input:	P_{MAX}^1 (mW)	0.554
	d_{MIN} (mm)	5.000
	$f_{(\text{GHz})}$	0.3195
Test Exclusion:		0.0626
Limit Exemption:		3.0000

Conclusion: Compliant - The device under test meets the exclusion requirement detailed in FCC OET 447498, dated October 23, 2015 Clause 4.3.1 (a).