



Designation: F3070 – 14 (Reapproved 2022)

Standard Guide for Evaluating Area Search Dog Crews or Teams¹

This standard is issued under the fixed designation F3070; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide defines the knowledge, skills, and abilities required for a dog crew or team to perform an area search.

1.2 Area search dog crews or teams perform searches on the surface of the land, including open urban or wilderness areas, as well as mountainous terrain and alpine environments.

1.2.1 Additional training shall be required for area search dog crews or teams that search in mountainous terrain, alpine environments, or underground.

1.3 This guide does not include the knowledge, skills, and abilities required to search in partially or fully collapsed structures, confined spaces, or on bodies of water, inland or oceanic.

1.4 Area search dog crews or teams trained to meet the requirements of this guide may operate in urban and disaster areas that may be isolated or have lost their infrastructure.

1.5 Area search dog crews or teams must work under qualified supervision deemed appropriate by the AHJ.

1.6 This guide does not provide a theoretical basis for how an area search dog crew or team functions.

1.7 Search dog crews or teams are eligible to be members of Type I and II SAR crews or teams of the following Kinds, as defined in Classification **F1993**:

- 1.7.1 Kind A (Wilderness),
- 1.7.2 Kind B (Urban),
- 1.7.3 Kind C (Mountainous),
- 1.7.4 Kind G (Cave),
- 1.7.5 Kind H (Mine),
- 1.7.6 Kind I (Avalanche),
- 1.7.7 Kind K (Aircraft), and
- 1.7.8 Kind L (Unclassified).

1.8 Further training may be required before an area search dog crew or team can fully participate on a particular Type and Kind of team or crew, based on specific local needs, regulations, or policies.

1.9 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.10 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

F1633 Guide for Techniques in Land Search (Withdrawn 2017)³

F1847 Guide for Minimum Training of Search Dog Crews or Teams

F1848 Classification System for Canine Search Resources

F1879 Guide for Demonstrating Obedience and Agility in Search and Rescue Dogs

F1993 Classification System of Human Land Search and Rescue Resources

F2209 Guide for Training of Land Search Team Member

F2685 Guide for Training of a Land Search Team Leader (STL)

F3068 Guide for Contents and Use of a Position Task Book (PTB)

F3072 Guide for Intermediate Wilderness GPS/GNSS Use (GPS/GNSS-IIW) Endorsement

2.2 Other References:

SWGDOG SC1 Terminology

Work Capacity Testing for Wildland Firefighters, The United States Department of Agriculture (March 2002)

3. Terminology

3.1 Definitions:

¹ This guide is under the jurisdiction of ASTM Committee F32 on Search and Rescue and is the direct responsibility of Subcommittee F32.02 on Management and Operations.

Current edition approved July 1, 2022. Published July 2022. Originally approved in 2014. Last previous edition approved in 2014 as F3070 – 14. DOI: 10.1520/F3070-14R22.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

3.1.1 *air scent dog*, *n*—a search dog trained to detect human scent by air scenting.

3.1.2 *air scenting*, *v*—a search dog action whereby a dog attempts to detect the presence of human scent in air currents and, if found, follow that airborne scent to its source.

3.1.3 *area search*, *v*—the act of using a dog to search a designated area for a target odor.

3.1.4 *decoy*, *n*—a person in the search area who does not match the target odor.

3.1.5 *scent*, *v*—the act of providing the odor or smell of the search subject to a scent-discriminating search dog.

3.1.6 *search dog team (search dog crew)*, *n*—a single dog and handler (and support personnel if used) that operate in the field as a single resource.

3.1.7 *trail*, *n*—a manmade footpath used for hiking, walking, biking, etc. that traverses a non-urban area of land.

3.1.8 *training log*, *n*—a search dog handler’s written record which documents all personal and canine training, including exercises and missions.

3.2 Terminology not defined in this classification, but included in this guide, may be found in Guide **F1847** and Reference SWGDOG SC1.

4. Significance and Use

4.1 An area search dog crew or team is required to have, at a minimum, the knowledge, skills, and abilities outlined within this document.

4.1.1 An area search dog crew or team which meets the requirements in this guide is a Canine Search Resource of the category Area Search Dog as defined in Classification **F1848** for Canine Search Resources.

4.1.2 Additional differentiation of the specific Canine Search Resource is defined in Classification **F1848** for Canine Search Resources.

4.2 This guide only establishes the minimum knowledge, skills, and abilities required for an area search dog crew or team to perform area searches. No other skills are included or implied.

4.3 This guide is an outline of the topics required for training or evaluating an area search dog team or crew, and may be used to assist in the development of a training document or program.

4.4 This guide can be used to evaluate a document to determine if its content includes the topics necessary for training area search dog crews or teams. Likewise, this guide can be used to evaluate an existing training program to see if it meets the requirements in this guide.

4.5 The knowledge, skills, and abilities presented in this guide are not in any particular order and do not represent a training sequence.

4.6 Though this guide establishes minimum training requirements, it does not imply that an area search dog team or crew is a “trainee,” “probationary,” or other similarly termed part of an organization.

4.6.1 The AHJ is responsible for determining the requirements and qualifications for its member ratings.

4.7 An area search dog crew or team shall document training by completion of a position task book, compliant with Guide **F3068**, or by field demonstration under qualified supervision. Where proficiency in a skill or ability must be demonstrated, unless stated otherwise it shall be demonstrated for initial qualification, and then as often as required by the AHJ.

5. General Knowledge

5.1 The handler and the canine members of a search dog crew or team shall meet the requirements of Guide **F1847** for Minimum Training of Search Dog Crews or Teams.

5.2 The canine member of a search dog crew or team shall meet the requirements of Guide **F1879** for Demonstrating Obedience and Agility in Search and Rescue Dogs.

5.3 The canine handler shall have a Guide **F3072** for Intermediate Wilderness GPS/GNSS Use (GPS/GNSS-IIW) Endorsement.

6. Handler-Specific Area Search Skills and Abilities

6.1 The handler shall be competent in the application of common effectors of air scent dynamics to area search, including but not limited to:

6.1.1 Weather,

6.1.2 Topography,

6.1.3 Time of day,

6.1.4 Season, and

6.1.5 Scent source duration, that is, the amount of time the subject has been in place.

6.2 The handler shall be competent in the recognition and prediction of air scent movement through topography and the local flora for the operational area that the dog team typically works.

6.3 The handler shall be able to develop an effective strategy to search the area based on topography, environment, and the overall mission goals.

6.4 The AHJ shall determine the physical performance requirements for dog teams’ members and develop appropriate performance measurements.

6.4.1 The recommended minimum physical performance requirements for canine handlers fielding as a member of an Area Search Dog Crew or Team is the “Moderate” level as defined in “Work Capacity Testing for Wildland Firefighters” (**Appendix X2**), or meet the fitness requirements specified by the AHJ.

6.5 The handler shall be competent in debriefing relative to the Area Search Dog Crew’s or Team’s performance during their operational period.

7. Specific Skills and Abilities for Area Search Dog Crews or Teams

7.1 Area search dog crew or team shall demonstrate the ability to operate safely, effectively, and efficiently for the

minimum operational period based on the Type of the dog crew or team as set forth in Classification **F1848** for Canine Search Resources.

7.2 Area search dog crews or teams shall demonstrate competency at a frequency identified by the AHJ.

7.3 Area search dog crews or teams shall be able to operate in all seasons in the normal area of operations.

7.4 Area search dog crews or teams shall demonstrate the ability to quickly and efficiently locate one or more subjects using air scenting during area search during the day.

7.4.1 Scent-specific Area Search Dog Teams or Crews shall demonstrate the ability to locate a single target subject with a minimum of two (2) decoy subjects in the search area and where the dog does not alert on the decoys.

7.4.2 Non Area Search Dog Teams or Crews shall demonstrate the ability to locate at minimum two subjects in the search area.

7.4.3 The search area shall be approximately 160 acres (~65 hectares), adjusted in accordance with the National Search Dog Alliance (NSDA) Daytime Acreage Adjustment Chart, December 19, 2008 (**Annex A1**) to account for variations in temperature, vegetation, terrain, wind, cloud cover, time of day, and number of people in the area.

7.4.4 The subject(s) must be located in 3 h or less.

7.4.5 The terrain in the test area shall be representative of that in the area search dog crew or team's normal area of operation.

7.5 Area search dog crews or teams shall demonstrate the ability to quickly and efficiently locate one or more subjects using air scenting during area search at night.

7.5.1 Scent-specific Area Dog Teams shall demonstrate the ability to locate a single target subject in the search area.

7.5.2 Non Scent-specific Area Dog Teams shall demonstrate the ability to locate a single subject in the search area.

7.5.3 The search area shall be approximately 40 acres (~16 hectares), adjusted in accordance with the NSDA Nighttime Acreage Adjustment Chart, December 19, 2008 (**Annex A2**) to account for variations in temperature, vegetation, terrain, and wind.

7.5.4 The subject must be located in 2 h or less.

7.5.5 The terrain in the test area shall be representative of that in the area search dog crew's or team's normal area of operations.

7.5.6 When testing scent-specific dog teams or crews, there shall be at least one decoy in the test area and the dog shall not alert on the decoy(s).

7.6 Area search dog crews or teams shall demonstrate the ability to quickly and efficiently locate a subject near an established trail using air scenting.

7.6.1 The subject must be located in 2 h or less.

7.6.2 The test area shall be a trail approximately 1 mile (~1.6 km) long in moderate terrain representative of that in the area search dog crew's or team's normal area of operations, where the air flow is limited by vegetation.

7.6.3 The search subject shall be hidden within 30 to 50 ft (9 to 15 m) of the trail.

7.6.4 The dog team shall be limited to one pass down the trail and back, that is, from start point to end point, and back to the start point.

7.6.5 The handler shall remain within approximately 100 ft (30 m) of the established trail.

7.6.6 The subject must be located in 1 h or less.

7.7 Area search dog crews or teams shall demonstrate the following in the field:

7.7.1 The handler and canine operate effectively as a team.

7.7.1.1 The canine consistently reacts to target scent during the search.

7.7.1.2 The handler observes and correctly interprets the canine's signals and behavior.

7.7.1.3 The canine and handler remain on task over prolonged periods in a search area that contains few or no positive scent sources.

7.7.2 The handler recognizes areas where the target scent is not present.

8. Record Keeping

8.1 The handler shall maintain complete and accurate training and deployment logs for each canine team.

8.2 These logs must be made available for inspection and review upon the request of the AHJ.

8.3 The AHJ shall determine the requirements for the team's training and mission logs. It is recommended that each training and mission log contain, at minimum, the following information:

8.3.1 Date, time, and duration of all training exercises,

8.3.2 General weather conditions,

8.3.3 General environmental conditions,

8.3.4 General location,

8.3.5 General training scenario and results, and

8.3.6 Issues identified and planned corrective actions.

9. Keywords

9.1 air scent; area search; canine; dog; training log

ANNEXES

(Mandatory Information)

A1. NSDA DAYTIME ACREAGE ADJUSTMENT CHART

A1.1 See **Table A1.1** for the NSDA Daytime Acreage Adjustment Chart.

A1.2 No tests should be given when conditions reach the Danger, Extreme Danger, or Frostbite zones (see **Fig. A1.1**). At the discretion of the Evaluator, tests may also be cancelled in other extreme wind or weather conditions.

TABLE A1.1 National Search Dog Alliance: Daytime Acreage Adjustment Chart

Check *ONE* box in each row using your best estimate for the average conditions that will exist during the test.

All ratings to be made at the start of the test based on average predicted conditions: *do not alter acreage if conditions change during the course of the test.*

CONDITIONS	A EXCELLENT	B GOOD	C FAIR	D POOR
Heat Stress/Wind Chill Indexes	<input type="checkbox"/> 10 to 70 °F	<input type="checkbox"/> 71 to 82 °F	<input type="checkbox"/> 83 to 89 °F <input type="checkbox"/> 0 to 10°F	<input type="checkbox"/> over 90 °F ^A <input type="checkbox"/> below 0 °F ^A
Ground Cover	<input type="checkbox"/> 81 % or more open (i.e., almost all of the area is open fields or woodland. Grid searches are readily possible given the type and density of ground cover.)	<input type="checkbox"/> 65–80 % open (i.e., a significant portion of the area is easily passable but there are areas of dense cover. Most portions of the area can be gridded.)	<input type="checkbox"/> 25–64 % easily passable (i.e., a significant portion of the area is covered in dense brush, heavy snow or other obstructions but there are open portions. Many sections cannot be gridded.)	<input type="checkbox"/> Less than 25 % open (i.e., nearly all of the area is covered in dense brush, heavy snow, or other obstructions. Most areas cannot be gridded.)
Elevation Change (high point versus low point or cumulative per 160 acres)	<input type="checkbox"/> Level (less than 100 ft change)	<input type="checkbox"/> Mild climbs (100–299 ft)	<input type="checkbox"/> Moderate climbs (300–500 ft)	<input type="checkbox"/> Significant climbs (over 500 ft)
Passersby (number of hikers, joggers, etc. in area)	<input type="checkbox"/> None	<input type="checkbox"/> 1/day to 3/hour	<input type="checkbox"/> More than 4/hour	
Wind	<input type="checkbox"/> Strong breeze (7 or more mph, but not a gale ^A)	<input type="checkbox"/> Moderate breeze (6–7 mph)	<input type="checkbox"/> Light breeze (4–5 mph)	<input type="checkbox"/> No or little wind (0–3 mph)
Cloud Cover	<input type="checkbox"/> More than 70 % low clouds	<input type="checkbox"/> 70–50 % clouds	<input type="checkbox"/> 49–30 % clouds	<input type="checkbox"/> Less than 30 % clouds
6-ft Shadow (daytime only)	<input type="checkbox"/> More than 8 ft	<input type="checkbox"/> 6–8 ft	<input type="checkbox"/> 3–5 ft	<input type="checkbox"/> Less than 3 ft
TOTALS: add columns and multiply	A ___ × 0 acres =	B ___ × 4 acres =	C ___ × 8 acres =	D ___ × 18 acres =
Maximum Acreage under excellent conditions	= 160 acres			
Total Acreage adjustment: Sum of A + B + C + D	= ___			
Subtract adjusted acreage from 160 – (A + B + C + D)	= ___ Total adjusted acres (minimum of 40)			

The Evaluator may make acreage adjustments for poor conditions not specified on the adjustment chart (snow, high winds, intense cold, steep drainages, slippery footing, etc.) but only as necessary and never below the 40-acre minimum. The amount and rationale for any adjustment not listed on the chart must be specified on the test form.

^A No tests should be given when the combination of air temperature and relative humidity is at or above the danger zone or the combination of temperature and wind speed (wind chill) is in the frostbite zone. At the discretion of the Evaluator, tests may be cancelled in extreme wind or other unsafe conditions.

Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

■ Caution
 ■ Extreme Caution
 ■ Danger
 ■ Extreme Danger

Source: <http://www.weather.gov/om/heat/index.shtml>

New Wind Chill Chart

Wind (mph)

	Calm	5	10	15	20	25	30	35	40	45	50	55	60
40	36	34	32	30	29	28	28	27	26	26	25	25	25
35	31	27	25	24	23	22	21	20	19	19	18	17	17
30	25	21	19	17	16	15	14	13	12	12	11	10	10
25	19	15	13	11	9	8	7	6	5	4	4	3	3
20	13	9	6	4	3	1	0	-1	-2	-3	-3	-4	-4
15	7	3	0	-2	-4	-5	-7	-8	-9	-10	-11	-11	-11
10	1	-4	-7	-9	-11	-12	-14	-15	-16	-17	-18	-19	-19
5	-5	-10	-13	-15	-17	-19	-21	-22	-23	-24	-25	-26	-26
0	-11	-16	-19	-22	-24	-26	-27	-29	-30	-31	-32	-33	-33
-5	-16	-22	-26	-29	-31	-33	-34	-36	-37	-38	-39	-40	-40
-10	-22	-28	-32	-35	-37	-39	-41	-43	-44	-45	-46	-48	-48
-15	-28	-35	-39	-42	-44	-46	-48	-50	-51	-52	-54	-55	-55
-20	-34	-41	-45	-48	-51	-53	-55	-57	-58	-60	-61	-62	-62
-25	-40	-47	-51	-55	-58	-60	-62	-64	-65	-67	-68	-69	-69
-30	-46	-53	-58	-61	-64	-67	-69	-71	-72	-74	-75	-76	-76
-35	-52	-59	-64	-68	-71	-73	-76	-78	-79	-81	-82	-84	-84
-40	-57	-66	-71	-74	-78	-80	-82	-84	-86	-88	-89	-91	-91
-45	-63	-72	-77	-81	-84	-87	-89	-91	-93	-95	-97	-98	-98

Frostbite occurs in 15 minutes or less

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T = Air Temperature (°F)
V = Wind Speed (mph)

Source: <http://www.erh.noaa.gov/er/iln/tables.htm#wind%20chill>

No tests should be given when conditions reach the Danger, Extreme Danger or Frostbite zones. At the discretion of the Evaluator tests may also be cancelled in other extreme wind or weather conditions.

FIG. A1.1 Heat and Wind Chill Chart