



60952-1—  
2017

1

(IEC 60952-1:2013, IDT)



2017



1	.....	1
2	.....	1
3	.....	2
4	.....	3
4.1	.....	3
4.2	.....	3
4.3	.....	3
4.4	.....	4
5	.....	4
5.1	1/.....	4
5.2	.....	4
5.3	.....	6
5.4	.....	6
5.5	.....	6
5.6	.....	6
5.7	.....	7
5.6	.....	7
5.9	.....	8
5.10	.....	8
5.11	.....	9
5.12	.....	9
5.13	.....	10
5.14	.....	10
5.15	.....	10
5.16	.....	11
6	.....	11
6.1	.....	11
6.2	.....	12
6.3	.....	13
6.4	.....	13
6.5	.....	13
6.6	.....	14
6.7	( ..... ).....	14
6.8	.....	15
6.9	.....	15
6.10	.....	15
6.11	.....	16
6.12	(85 * ).....	16
6.13	.....	17
6.14	.....	18
6.15	.....	18
6.16	.....	19
6.17	( ..... ).....	21

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6.18	.	Q.....	21	
6.19		.....	22	
6.20		.....	22	
6.21		.....	22	
6.22		.....	22	
6.23		.....	22	
6.24	(	).....	22	
6.25		.....	23	
7		.....	23	
7.1		.....	23	
7.2		.....	23	
	(	)	.....	27
		.....	28	

60952 - -  
- -  
-  
60952 : -  
• 1 , -  
• 2 ; ( -  
) : -  
• 3 , , , , -  
1.

Aircraft batteries. Part 1. General test requirements and performance levels

—2018—10—01

1

),

12.8. —2 .

SAE .).

2

IEC 60051-1, Direct acting indicating analogue electrical measuring instruments and their accessories —  
 Part 1: Definitions and general requirements common to all parts ( )

IEC 60051-2, Direct acting indicating analogue electrical measuring instruments and their accessories —  
 Part 2: Special requirements for ammeters and voltmeters ( )

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- IEC 60485. Digital electronic d.c. voltmeters and d.c. electronic analogue-to-digital convertors ( )'
- IEC 60952-2:2013. Aircraft batteries — Part 2: Design and construction requirements ( )
- IEC 60952-3:2013. Aircraft batteries — Part 3: Product specification and declaration of design and performance (DDP) ( )
- ISO 2659 (all parts). Sampling procedures for inspection by attributes ( )
- ISO 7137. Aircraft — Environmental conditions and test procedures for airborne equipment ( )
- RTCA D0-160:2010. Environmental Conditions and Test Procedures for Airborne Equipment ( )
- U.S. Federal Test Method Standard No. 191 / Federal Test Method 5906:1978. Flammability (Horizontal Test) [ ( ) ]
- SAE AIR 1377A-S0. Aerospace Information Report — Fire Test Equipment for Flexible Hose and Tube Assemblies ( )
- SAE AS 10556:1978. Aerospace Standard — Fire Testing of Flexible Hose. Tube Assemblies. Coils, Fittings and Similar System Components ( )

3

- 3.1 (current value):
  - 100 - , 20 , /5 0,2 , .
  - 61434 /<sub>t</sub> = . • /1. .
- 3.2 1/<sub>t</sub> (/, rate): 1
- 3.3 , (rated capacity ,): 1/, ( .3.6).
- 3.4 /<sub>PR</sub> (constant voltage current /<sub>PR</sub>): 15 , ,
- 3.5 (charged battery): ,
- 3.6 /, (end point voltage EPV):
  - 1.00 - 1.67 - ^

3.7 (serviced battery): ,

3.6 (airworthiness): -

3.9 (product specification): -

4

4.1

> : 85 106 :  
- : (23 ± 2) °C ;  
• RH: 70 % ±5 %

28

4.2

4.2.1

4.2.2

0.5

60485. 60051-1 60051-2. 5000 / .

4.2.3

0.5

60485. 60051-1 60051-2. -

4.2.4

±1 \*

4.2.5

0.5 %

4.2.6

5 %.

4.2.7

0.5 %.

4.3



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4.4

- a) 60952\*3, :
- b) 60952-2:2013 ( 15.3):
- c) ;
- d) :
- e) :
- f) .
- g) :
- h) .

5

5.1

1/,

5.1.1

— 20 — 1 24 4.3. (23 ± 2) ° -  
 1/t U<sub>K</sub>.

5.1.2

100% , ( 1 ). -

1.0

5.1.3

1/ (23 ± 2) 60 -  
 1/t 18\* 4.3. ( 18 ± 2) \*  
 — 20 — 24 U<sub>r</sub>

5.1.4

1/ 30° 4.3. ( 3012) \*  
 — 20 — 24 U<sub>r</sub>

5.1.5

1/ 50® 4.3. (50± 2) \* -  
 — 20 — 24 U<sub>K</sub>.

5.2

5.2.1

50/.

5.2.2

5.2.2.1

5.2.2.2	—	20	24	0.3	15	23 <sup>®</sup>	4.3. (23 ± 2) *	-
							15	-
	—						/PR	
5.2.2.3	—	20	24	0.3	15	16 *	4.3. ( 16 ± 2) °	-
							15	-
	—							
5.2.2.4	—	20	24	0.3	15	30 *	4.3. ( 30 ± 2) *	-
							15	-
	—							
5.2.3					14			
5.2.3.1						14		-
							14	
5.2.3.2	—	20	24	0.1		23 *	4.3. (23 ± 2) <sup>®</sup>	-
14		60						
	—			0.3	5. 15			60
5.2.3.3	—	20	24	0.3	5. 15	16 *	4.3. ( 16 ± 2) °	
14		60						
	—			0.3	5. 15			60
5.2.3.4	—	20	24			30 *	4.3. ( 30 ± 2)	



10  $6/1$  5  
 $(28.5 \pm 0.1)$

10  $5$  ,  
 1  $1/1$

$(J_K$

75% „  $70^*$   $0.1/1$  ,  
 $1/1$

24 5.1.1.  $(23 \pm 2)^\circ$  20

5.7

! —

20 24  $4.3$   
 $(23 \pm 2)^*$  -

2.0 60

— 8 ( )

5.8

5.8.1

5.8.2  $23^\circ$  4.3. -  
 5.1.1 — 4.3. -  
 $1/1$  50 %  $(23 \pm 2)^\circ$  -  
 20 24  $(28.5 \pm 0.1)$

(6013)  $1/1$   $U_K$  ,

5.8.3 ( )

5.8.3.1

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5.8.3.2	—	18*	4.3.	-
			( 18 ± 2 )	-
20	24		1 /,	-
$U_t$	5			-
(28.5 ± 0.1) 8			(30 ± 3)	-
				1 /,
	$U_K$			-
5.8.3.3	—	40*	4.3.	-
			( 40 ± 2 ) ®	-
20	24		1/,	-
$U_t$	5			-
(28.5 ± 0.1) 6			(60 ± 3)	-
				-
		(23 ± 2) *	5	1/,
	$U_K$			-
5.9				-
5.9.1				-
5.9.2	—			250
				0.25
5.9.3	—	10		-
			20	24
1500	(50110)	(23 ± 2) *	(	-
		1		-
5.10	—			-
(23 ± 5) °				-
			4.3.	-
				-
)			20	-

				1,15-	-
			$I_{PR}$ ( . S.2.2.2)		.
	1.2	-	2,0	-	.
			$\pm 5\%$		;
b)			2		-
		20 ;			-
c)	(28.5 $\pm$ 0.1)	(	)	24 ;	-
				(60 $\pm$ 2)	.
			8/;		,
d)	(	) d)]	50	1	2 .
8					1/,
$U_t$				100	.
	—		:		
a)					) 13 (
		24 ;			-
		);			
b)			60* ;		
c)				0.2/;	
d)			1/,		
48	(80% ,);				
e)					,
					-
0					
250		0.25 ;			
					1/,
54	(90% ,);				
h)					;
i)					
5.11					
	—				.
			5.1.1.		4.3.
500 .		2000 .			
			(23 $\pm$ 5) *		-
	(28.5 $\pm$ 0.1)			2000	.
	—				
5.12					
	—				4.3.
			5.1.1.		-
					-
					400
					.
			(23 $\pm$ 5) *		

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(1,45 ± 0.005) / 400      (2.417 ± 0.01) /

400      20      24      (23 ± 2) °

1/,      U%,      0.1 %

0.2 %

5.13

24

(28.5 ± 0.1) 1 .      1 ,      10      2 ,

(28.5 ± 0.1) 1 .      1/,      48      2 .

1.58      0,9 8

5.14

(25 ± 5)\* .      4.3.

( 1).      1/, (      5.1.1).      ± 10 %.

336 (2      ),      1, (      4.3,      2).      90 %      1

336 (2      ).

1/,      5.1.1 (      2).

5.15

!

4.3

8/,      \*0.2

1.8\*<sup>0.2</sup>

1 .

- a) ;
  - b) ;
  - c) ;
- 5.16

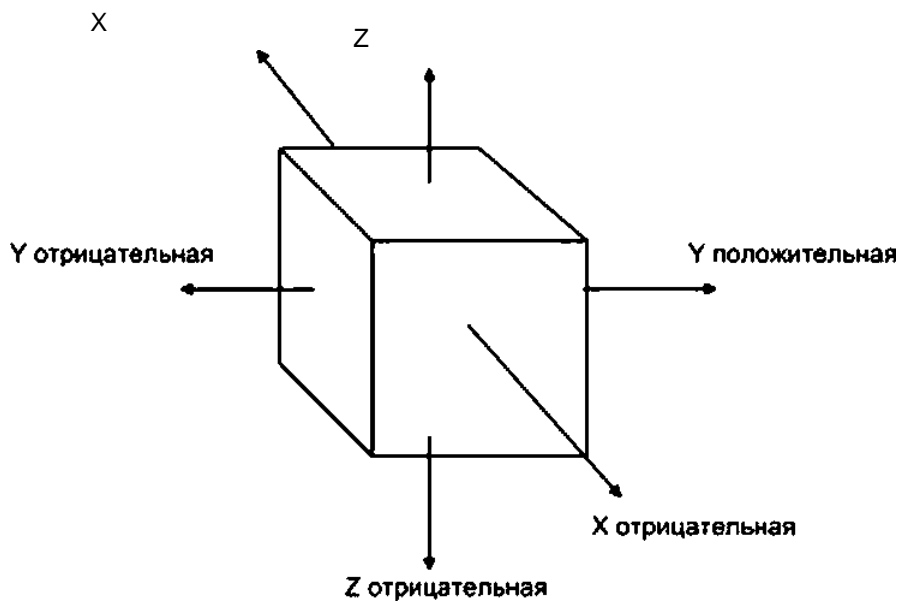
RTCA 00-160.

( ) .

- 6
- 6.1
- 6.1.1

RTCA DO-160.

6.1.2



1293/04



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6.1.3

6.1.4

a)

b)

2%;

c)

d)

10

0,25

e)

6.2

4,3,

1—

,g

»	«		
(X Y)	±2.0	±4.7	±9.0
Z( )	2.0	3.6	4.0
Z( )	4.5	9.0	4.5

0.1/,

100

a)

2%:

b)

c)

d)			10	0,25	-
					-
6.3					-
6.3.1	—		RTCA DO-160.	4.3.	-
		0.5/			-
6.3.2	—		no RTCA DO-160.	4.3.	-
					-
			23 *	5.3.1.	-
6.3.3				(	-
				)	-
6.4	!				-
	—			4.3.	-
	0.5/.			5	-
6.5					-
	!				/
					-
	4 %				-
		0.8%.		4.3	-
				4 ,	-
		(55 ± 2) *			-
	20 .				-



d) 0,25 10 -

6.8

6.8.1 -

6.8.2 -

no RTCA DO-160. F. -

6.9 4.3. RTCA DO-160. -

2 / -

23® ( .5.3.1). -

a) ; -

b) / - ;

c) : -

d) -

6.10

6.10.1 ( . 6.10.2) ( . 6.10.3) -

). ( , , -

7137. -

6.10.2 -

24 . -

( . 6.10.3). 7137, -

65 \* 160 -

2 . -

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6.10.3

— 24 .  
 24 , 7137.  
 65 \* 160 .  
 — 8 2 . 2 6.10.2 6.10.3

(23 ± 5)° .

6.11

— RTCA DO-160. 4.3,  
 (46 ± 1) . 4 /

23 \* 5.3.1.

- a) - :
- b) / - :
- c) :
- d) ,

6.12

(85® ) 4.3,  
 85 16 .  
 5.3.1.  
 ) — :

b) ;  
 c) - ;  
 d) ;  
 ) ,

f)

6.13

6.13.1

6.13.2

a)  
 No 191 (1976). 5906. 4.1—4.9.

843 \* ;

b)  
 11.5 32

c) 45 55 % 18 24 \* 24

d)

3 1,27

e) 0 3.8 ;

2.0

4.0

2.5

25

10 /

15

6.13.3

a) SAE

AIR 1377 ;

b)

(1093 ± 27) © 5

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) SAEAS 1055 (1978). 4 -

6.13.4

a) SAEAIR 1377 ;  
 b) (1093 1 27) 15 -

c) SAE AS 1055 (1978). 4 -

6.14

) ±0.1 %.  
 7 (65±2) ° (1.310.03) / 3 ( 20 \* )  
 32—36\* 2  
 2 %.

6.15

a)  
 b)

6.16

6.16.1

6.16.2

6.16.2.1

100

6.16.2.2

a)

b)

c)

d)

e)

0

)

10

95 %;

30 \*

70

70

0

14

$(350 \pm 15)$  <sup>3</sup>,

$(65 \pm 3)$  (

).

27 \*

);  
27 \*

49\*  
);

40 \*

40 \*

2

31°

);

40

40 \*

2

49°

);

60 \*

60 \*

2

31\*

);

60 \*

60 \*

2

49\*

).



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b)  
2.5 5%; 6.14.  
c)  
6.16.2.3 - - -

— 30 °

100 .

0 .

6.16.3  
6.16.3.1 -

— :

a) 138 -

15 : 70 5 . 8

b)

c) 1 ;

) (

500

1 .

— :

a) ;

b) ;

c) ;

d) , -

6.16.3.2 -

— :

a)  
(85 ± 2) \* 90° 5 . ;

6 .

b) (15,5 ± 2) . -

30 .

4.3;

c) 34 ° (2000 ± 20) \*  
/ . (0.10 ± 0.05) 2 . -

27 ° .

: (15.5 ± 2)

30 .

a) 1,4 85 ° ;  
b) 0,7 27 ° .

6.16.4  
6.16.4.1

6.16.4.2

— 4.3. —  
, ( . -  
1) 2 ( . -  
( $28.5 \pm 0.1$ ) ( . ) .  
, , -  
, . -  
60 -  
, -  
20 .  
5 .

6.16.4.3

— 4.3. —  
, ( . -  
1) 1 /5 . -  
2 (28,5 ± 0.1) ( . -  
) . -  
, , -  
, . -  
30 - ( )  
( . ) .

6.16.4.4

:  
a) 5.9; -  
b) : -  
c) ( . -  
) ;  
d) -

6.17

( ) -  
— ; -  
( $13.8 \pm 0.2$ ) .  
— 2 . 2 0.7 .

6.18

Q  
a) ; -  
b) 8 - 10 : ,

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) 10 1 100 10 /

6.19

1.5-

6.20

6.21

6.22

6.23.

6.23

6.24 ( ) 24

2.

2—

*	{ }
72 ±2	2.25
-18 12	1.50
-40 12	1.25

(1 ± 0.2)

2.5

6.25

7

7.1

9000.

7.2

7.2.1

7.2.2

3.

3—

		•	II	III	IV	V
	4.4	X	X	X	X	X
	5.5					X
	5.9	X	X	X	X	X
	5.1.1	X	X	X	X	X
	6.14		X			X
	5.1.1—5.1.5			X	X	
	5.8	X			X	X

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3

		I	II	III	IV	V
	5.11		X			
	5.2	X				
	5.4	X				
	5.13			X		
	5.12				X	
	5.3	X				
	6.6		X			
>	6.5	X				
	5.6			X		
	5.10				X	X
	6.7		X			
(65' )	6.12		X			
	6.1	X				
	6.2	2				
-	6.3	X				
	5.14		X			X
	6.11	X				
	5.16	1	1	1	1	1
	6.8	1	1	1	1	1
	6.10	1	1	1	1	1
	6.9	1	1	1	1	1
	6.13	1	1	1	1	1
	6.14	1	1	1	1	1
	6.15	1	1	1	1	1
	6.16	1	1	1	1	1
	6.17	1	1	1	1	1
	6.19	1	1	1	1	1
	5.15			X		
	5.7	X				
	6.4		X			

X—

1—

2—



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a)

b)

8

c)

7.2.6.2

7.2.6.3

7.2.6.4

7.2.6.5

a)

;

b)

;

c)

d)

;

e)





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- [1] ( 61434 Secondary cells and batteries containing alkaline or other non-acid electrolytes — Guide to designation of current in alkaline secondary cell and battery standards
- [2] (SO 266:1997 Acoustics — Preferred frequencies
- [3] (SO 9000:2005 Quality management systems — Fundamentals and vocabulary
- [4] RTCA DO-293 Minimum Operational Performance Standards for Nickel-Cadmium, Nickel Metal-Hydride, and Lead-Acid Batteries

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621.355.2:006.354.  
621.355.8:006.354

29.220.20.  
29.220.30.49.060

27.20.23.110:  
11.040.01

. : - , , , - -  
- , ,

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02.11.2017

29.11.2017.

60\*84 Vg.

4.19.

.79.

22

.2446

«

», 115419.

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« » 123001.

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