Testing and Evaluation Protocol for Mobile and Transportable Radiation Monitors Used for Homeland Security

T&E Protocol N42.43, 2010

Version 1.02

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Testing and Evaluation Protocol for Mobile and Transportable Radiation Monitors Used for Homeland Security

1. Scope

This document establishes the protocol for testing alarming personal radiation detectors based on the performance requirements established in ANSI N42.43, "American National Standard for Evaluation and Performance of Mobile and Transportable Radiation Monitors Used for Homeland Security."

2. References

This protocol shall be used in conjunction with the following documents:

[R1] ANSI N42.43, "American National Standard for Evaluation and Performance of Mobile and Transportable Radiation Monitors Used for Homeland Security."

[R2] ANSI/IEEE N42.42, "Data Format Standard for Radiation Detectors Used for Homeland Security."

[R3] NIST Handbook 150:2006, NVLAP Procedures and General Requirements

[R4] NIST Handbook 150-23:2007 (DRAFT) NVLAP Radiation Detection Instruments

3. Compliance Level Information

Instrument under test might meet all the requirements listed in the ANSI/IEEE N42.43 standard. Therefore, different agencies developed documents describing the compliance levels required for particular applications of the instruments under test. Examples of such compliance level requirements are those required by the Graduated Rad/Nuc Detector Evaluation and Reporting (GRaDERSM) program. For this program, information can be found in the "Compliance Level for GRaDER Instrument Performance" document located at http://www.dhs.gov/GRaDER.

4. Test and evaluation steps

It is recommended that testing laboratories perform the tests listed in this protocol in the following order:

- Check all items listed in the general requirements
- Perform the radiological tests
- Perform the temperature and humidity tests
- Perform the entire electrical and electromagnetic test except the Electrostatic Discharge (ESD) test
- Perform the impact and the vibration tests
- Perform the moisture and dust test
- Perform the ESD test

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Perform the drop test, as required

Excel template sheets are provided by NIST to the testing laboratory to guarantee that all data required is being provided in the test report.

5. Recording test results

This Test and Evaluation protocol contains data sheets that shall be used to record and report all test results. Each data sheet is associated with a specific section(s) of the referenced ANSI standard, N42.43. An electronic version of the data sheets is provided in the form of spreadsheets that may be used to record and report the results of the tests. These spreadsheets were verified and validated (V&V) using Microsoft Excel 2007 (compatibility mode).

Instrument status shall be recorded on the "Test Summary" sheet as testing is performed. The comment section in each data sheet shall be used to record changes to the test requirements and methods listed in the ANSI standard. The comment section shall also include the rational of the changes.

6. Test report

A test report summarizing the results of the test shall include the following sections:

- a. Laboratory equipment information:
 - 1. Identify all participating laboratory facilities. Include points of contact names, mailing address, telephone number, and electronic mail addresses.
 - 2. Identify the tests performed in the different facilities.
 - 3. List all supporting equipment name, model number and last day of calibration used for each test.
- b. Test equipment information :
 - 1. Include manufacturer name, instrument model, instrument serial number, software and firmware version identification, and last day of calibration.
 - 2. List the operating modes and parameter setting of the instrument and accessory kit(s) used in each test.
- c. Data sheets:
 - 1. The data sheets listed in this document shall be completed and provided as part of the report.
 - 2. Include changes to the ANSI standard test requirements or methods and rational to the changes.

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7. Guidance for testing ANSI N42.42 data format requirements

The standard associated with this Test and Evaluation Protocol requires verification that an output data file is created that complies with ANSI/IEEE N42.42 standard requirements. The range of complexity of the N42.42 compliant instrument output file is extremely broad. Data output files from these instruments are simple files that can be checked manually using a text editor such as Notepad or WordPad. These files can also be verified using additional tools. In principle, all data output files that meet ANSI N42.42 can be verified manually using a text editor as these files are XML files. File reading software, such as Altova XMLSpy® 2009 Standard Edition can also be used for manual viewing and validating of structure and content.

N42.42 schemas can be used to validate the file format as specified in the ANSI/IEEE N42.42 standard. These schemas are available at the NIST web site http://physics.nist.gov/Divisions/Div846/Gp4/ANSIN4242/xml.html.

There are several XML validators that can be used to verify the XML structure of the N42.42 compliant instrument output file. Examples of these validators can be found at <u>http://www.xmlvalidation.com/</u> or http://validator.w3.org/.

8. Test modifications from ANSI/IEEE N42.43-2006 requirements

Some issues were observed and new considerations were taken about the enrichment of some of the sources listed in the ANSI/IEEE N42.43 standard. The testing laboratories should note that the source enrichment to be used for all the tests described in the ANSI/IEEE N42.43 standard is the following: HEU has an enrichment that is $\geq 90\%^{235}$ U, DU at 0.2% 235 U, and U_{nat} at 0.7% 235 U, RGPu containing $\geq 10\%^{240}$ Pu, and WGPu $\leq 6\%^{240}$ Pu.

9. Considerations

The standard establishes exposure rates for test in Roentgen per hour (R/h). When testing instruments that read in rem per hour, the test field shall be in rem/h instead of R/h. Refer to the "Units and Uncertainties" section in the standard for additional information.



)L	TEP NO. N42.43	PREPARED BY: DIV682			
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			Summary Sh			
			ANSI N42.43			
Manufacturer:						
Model:						
inouci.						
	Serial#		Serial#		Serial#	
est Number	Date	Status	Date	Status	Date	Status
5.1						
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9			+		+	
5.10					+	
5.11						
6.7			+		+	
6.8 6.9			-			
6.10						
6.11					-	
6.12						
6.13						
6.14.1						
6.14.2.2						
6.14.2.3						
6.14.3						
6.14.4						
6.14.5						
6.14.6						
6.15						
6.16						
7.1						
7.2			+		+	
7.3			+		+	
8.1					+	
8.2						
8.3 8.4			+		+	
8.4 8.5			+		+	
8.6			+		+	
8.7			+		+	
9.1			1		1	
9.2			1		1	
9.3					1	
10.0			1			
Comments:						



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	Pre	e-Test				
	Data Shee	et and Re	port			
Manufacturer:						
Model:			Seria	l Number:		
Date Performed:			Test	Location:		
Requirement:	Verify that the manufact			on and mair	ntenance ma	nual
	containing the informat	on listed below	<i>'</i> .			
	Deview the information					6
lest Protocol:	Review the information	•			•	
	has been provided. A understandable. The	•			•	
	incomplete sections.	Jocumentation	i shoulu i			
	incomplete sections.					
Note	Comments are require	d when the requ	uirement	is not verifie	d.	
	Tes	t Results				
	Requirement			Yes		No
	noquirement					
Operating instructions and r	restrictions					
Electrical connection schen						
Spare parts list				Ū		Ū
Troubleshooting guide.						
Description and protocol for	communication metho	ds of transmitt	ting and	1		1
receiving data						
Contact information for the r	-	name, address	S,	1		1
telephone #, fax #, email ad	dress, etc.					
Power supply requirements				L		
Recommended operational	parameters such as: d	etector respon	se and	1		1
false alarm probability						
Complete description of sys						
Enclosure specification clas						
Inclusion of any hazardous	material that may requ	ire additional				
regulation	o officiario and realization	lide identificati	0.0	-		
Description of data analysis	soltware and radionuc	nue identificati	on	L		
procedure Description of operation and	I performance of the av	stem or unit				
	periormance of the Sy			L		
Comments:		L [
commenta.						
Completed by:				Date:		
Reviewed by:				Date:		



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	Sec	tion	5.1 Genera	l chara	octeristi	cs			
	Data	Sh	eet and Rep	ort					
Manufacturer: Model:				Soria	I Number:				
Date Performed:					Location:				
Requirement:	Following the manufacturer-provided information, it shall be possible to set up the monitor for use. The manufacturer shall provide the designation type for testing purposes (pedestrian, vehicle, rail, and/or package). The evaluation shall be performed without the benefit of any radiation shielding against the natural background, except for that shielding which is a permanent feature of the monitor. NOTE - If the monitor has multiple uses, it should be tested for each usage designation.								
Note :	Comments are require	d whe	n the requirement is	s not verifie	d.				
		Т	est Results	,					
			Dedestrian		Containeriz	rod Corgo			
Classification:	(choose one)		Pedestrian		Containenz	zeu Cargo			
		Ц	Vehicle	L	Rail				
		L	Area		Backpack				
		H	Crane						
Setup performed by:	(choose one)	L	Manufacturer	L.	Test Orgar	nization			
Were all steps for setur	clearly defined?	Ц	Yes	L	No				
Was it necessary to se assistance from the ma		L	Yes	- L	No				
Did the technical manual necessary for setup?	al provide all steps	L	Yes	- LJ	No				
Was all information nec (diagrams, schematics, technical manual?		IJ	Yes	L	No				
Comments:									
Comments:									
Completed by:			II		Date:				
					24.01				
Reviewed by:					Date:				



	Se	ection t	5.2 Phy	sical C	Conf	iqura	ation			
			ta She			-				
		Da		etanu	neh	υπ				
Manufacturer:										
Manuacturer. Model:				Fo	rial Nu	mber:	1			
Date Performed:						ation:				
Date Fentimet.						auon.				
					_					
Requirement:	Enclosure(s) provided for	or outdoor a	ssemblies	s, inclu	ding tho	se worn as	backp	acks, sh	ould be
	designed to									
	a vehicle or	other platfor	rm that can b	be transpo	rted, th	e enclo	sure shall i	neet th	e require	ements of
	the IP55 des	signation (no	o damage b	yjetted wa	iter). Ve	nt holes	s should be	e avoide	ed if at al	l possible.
	External mo	unting hard	ware should	d be made	from m	aterial	that is resis	stant to	corrosio	n (i.e., road
	salt).									
	The detectio						•			
	subjected to									
	ensure safe	transit and	to reduce th	ie transmi	ssion o	fshock	and vibration	on to th	e monito	ring
	system.									
	Mounting teo	chniques us	ed for detec	tion asso	mhlipe	attacho	d to nower	ad or to	wed vehi	cles shall
	be designed									
	components									
	requirement		-				-		-	
	components								-	
	requirement	-								
	Controls and	•				alarm s	ettings sha	ll be de	esigned s	so that
	access to th	em is limite	ed to authoriz	zed people	e.					
	1									
	Provisions s		de to permit	testing of	visual c	orsound	d warning ii	ndicato	rs withou	it the use o
	radiation so	urces.								
	Provisions s	hall be may	de to nermit	testing of	visual	rsour	warning i	ndicato	rs withou	it the use of
	radiation so									
	(>10000 lux	•	ays shall be			ignitev		unj anu	i ngi ngi	1110 1013
	(* 10000 lux)									
Note:	Comments	are required	d when the r	equireme	nt is no	verified	1.			

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50	curity								
								Yes	No
Doe	es the ma	nufacturer s	state that th	ne enclo	osure	is classifie	d as IP54	?	
Doe	es the ma	nufacturer s	state that th	ne enclo	osure	is classifie	d as IP55	?	
	<u> </u>							-	
	Are	the contro	Is and adjus	stments	s des	igned to lim	nit access?	?	
	Con the	monitor b	e tested wit	hout th	0.1100	of radiatio	n couroocí		
	Cantile			nout in	e use		II SOUICES	·	
			Δre	mount	ina te	echniques o	lescribed?		
				mount	ing to				
Are the monitor and the mounting component designed to meet the MIL-STD-810F									
standard?									
		Are dis	plays reada	ble in l	ow lig	ght levels (<	: 150 lux)?		
		Are display	ys readable	in high	light	levels (> 1	0000 lux)?		
Comments:									
completed by:						Date:			
ompieted by.						Date.			
Reviewed by:						Date:			



				tion 5.3							
			Da	ta Shee	et an	nd R	eport				
Manufacturer:											
Model:						Seria	I Number:				
Date Performed:							Location:				
Requirement:	The f	ollowing	g list details	monitor info	ormatio	on for (data storage	e:			
	if the moni b) Ea 1) Tir 2) Oc 3) Mo 4) Mo 5) Mo 6) Ala 7) Ba 8) Ra 9) Ra	monitor tor shal ch occu ne and cupanc nitor ide nitor loo nitor loo nitor sp arm type ckgrou dionucl dionucl	r uses occu I have the a upancy data date in GMT sy time (if ap entification cation (GPS beed (when e (gamma-ra nd (gamma lide identific lide spectra	for mobile s	ors. Fo e at lea ntain c local c system utron) count (when cable)	r mon st 3 h collecti offset (s) and le trate n appl	itors that do of continuor on results in vel (if applic icable)	o not use oco us measure nformation i	cupanc <u>y</u> ement d	ysenso ata.	
	c) Mo radia the al throu	nitors s tion leve bility to t gh man	hall be able els and gam transfer use uual interface	or individual to store me ma-ray and r-selected p e or remotel	easure neutro ortions yas re	ment on cou s of tha quirec	data listed in nt rate time at data to a I by the use	-history data periphery de r and provid	a locally evice or	, and sh location	all have either
	detect object Fixed collect	tion zor t station measu cted. If r	ne or with the nary and the urement time neasureme	e ability to p e object mov monitor mo es shall be u nts were pe used shall b	ving the oving. user-se rforme	rough electa d usir	the detectio	n zone eithe data shall b	er on its e obse	own, or rvable w	with the
Note:	Com	ments a	are required	when the re	quirer	nentis	s not verified	3.			

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							Yes	No
Does the monitor h	ave the abili	ty to internal	•		-			
				continuou	s measure	ment data?		
oes the occupanc	y data set ha							
		Tim	ie and data i					
			(y time (if a			
					Monitor ide			
		N	Ionitor locat					
			Mo	onitor spee	ed (when a			
						ma alarm?		
			Gar	mma alarn	n level (if a			
						ron alarm?		
					n level (if a			
					ckground c			
					ckground c			
			ide identifica					
			nma-ray col					
	N	leutron count	rate for indi	ividual det	ectors (if a	oplicable)?		
	Does the m	nonitor have t	the ability to	locally st	ore time-hi	story data?		
Does the monitor h	ave the abili	ty to transfer	user-select	table portion	ons of the t	ime-history		
da	ta to a peripl	hery device e	either throug	h manual	interface o	r remotely?		
Doe	s the monit	or provide co	ntrolled acc	ess to rea	I-time resp	onse data?		
oes the monitor ha	ave the abilit	v to perform	measureme	ents with th	he object s	tationary in	- T	
		y to perioriti	medealerie			ction zone?		
						20110.		
Doos the mon	itor have the	ability to po	rform model	uromonte				
		ability to pe	nonn meast		with the ob	oct movina	1	
						ect moving		
						ect moving tion zone?		
	have the ch			throug	h the deter	tion zone?		
Does the monitor				throug ments with	h the deter	tion zone?		
Does the monitor		ility to perfor onitor moving		throug ments with	h the deter	tion zone?		
Does the monitor		onitor moving	g pass the o	throug ments with bject withi	h the deter n the objec n the deter	t stationary t stationary ction zone?		
Does the monitor	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
Does the monitor	and mo	onitor moving	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
Does the monitor	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
Does the monitor	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
Does the monitor	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
Comments:	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the detection in the objection in the detection imes user-s	t stationary t stationary ction zone? selectable?		
Comments: Completed by:	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the deter n the objec n the deter imes user- d measure	t stationary t stationary ction zone? selectable?		
Comments:	and mo	onitor moving Are	pass the o the measu	throug ments with bject withi irements t	h the deter n the objec n the deter imes user- d measure	t stationary t stationary ction zone? selectable?		



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				Data Sh	eet a	and	Report				
Manufacturer:											
Model:						Seria	I Number:				
Date Performed:				_		Test	Location:			_	
Requirement:	be ca selec All ala The u Vehic For ve the us	pable of the vis nrm ind ser sha le-base chicle-b ser inte	of transmit sibility of the icators sh all have the ed mobile based mobile orface. GPS	ting these si ne status ind all be autom e ability to se systems sha bile systems	gnals to ication. atically elect the all have , the op ta shall	or ma e visibil the at erator be rec	note station. nually reset a ity of the sta vility to incorp shall be able corded at eac	The user as defined tus indica porate GP e to view t	shall ha d by the tion. S for trac he real-t	ive the a user cking pu time GPS	rposes.
Note:	Comr	nents a	are require	ed when the	require	menti	s not verified				

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		Yes	No
Does the monitor indicate its operational statu	is condition?		
Does the monitor indicate an alar	m condition?		
			-
monitor capable of transmitting the operational status condition			
	station?		
In the mention couching of the promiting the element to a real			
Is the monitor capable of transmitting the alarms to a ren	note station?		
Can the uper polect the visibility of the statu	n indiantion?		-
Can the user select the visibility of the statu	s indication?		
Can the user select to manual or automatic reset the alarr	n indication?		
cle-based mobile systems, does the system incorporate GPS	information?		
le-based mobile systems, can the user view the real-time GPS	data on the		
le-based mobile systems, can the user view the real-time GPS us	data on the er interface?		
-			
-	er interface?		
US	er interface?		
US	er interface? data-logging		
US	er interface? data-logging		
US	er interface? data-logging		
icle-based mobile systems, is GPS tracking recorded at each	er interface? data-logging		
US	er interface? data-logging		
icle-based mobile systems, is GPS tracking recorded at each	er interface? data-logging		
icle-based mobile systems, is GPS tracking recorded at each	er interface? data-logging		
icle-based mobile systems, is GPS tracking recorded at each	er interface? data-logging		
icle-based mobile systems, is GPS tracking recorded at each	er interface? data-logging interval?		
icle-based mobile systems, is GPS tracking recorded at each	er interface? data-logging interval?		
icle-based mobile systems, is GPS tracking recorded at each	er interface? data-logging interval?		



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Section 5.5 Occupancy and Speed Sensors for Vehicle Monitors **Data Sheet and Report**

Manufacturer:											
Model:						Seria	I Number:				
Date Performed:						Test	Location:				
Requirement:	The fo	ollowing	g list details	s occupai	ncy and s	peed s	ensors for v	ehicle n	nonitors:		
	ability b) Tra ability passe c) If us 1)	to sup to mea to mea es the c sed, oc	port occupa able monite as ure spee object cupancy ar oe able to c	ancysens ors used of the it nd speed detect pre	sors primarily em as it p sensors: sence an	for vehi basses d to es	icle monitor icle monitor through the timate vehic single vehic	ing appl e detecti	ications sl on zone or d, indicate	nould hav as the m	e the onito
	2) trucks	, trains	l be capabl , etc)	·	•		traffic (cars		·		s, car
	d) Wh	en sys		sed to m	onitor rail	vehicle	es, they sho				kimat
			possible to vare for tes			ancy se	ensor circuit	using a	n external	signal or	
Note:											

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	Yes	No	N/A
Does the monitor have the ability to support occupancy sensors?			
Does the monitor have the ability to measure speed of the item as passes through			
the detection zone or as the monitor passes the object?			
If occupancy and speed sensors are used:			
Do they detect the presence of an object?			
Do they estimate speed?			
Do they indicate is an objects or vehicle stops within the detection zone?			
Do they count a single object or vehicle in the detection zone more than once?			
Do Rail monitors have the ability to approximate location of an alarm when			
monitoring multi-car trains?			
It is possible to trigger the occupancy sensor using an external signal or through			
software for testing purposes?			

Comments:	
Completed by:	Date:
Reviewed by:	Date:



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	Section 5.6 Markings										
	Data Sheet and Report										
Manufacturer:											
Manuacturer. Model:	_					Corio	l Number:				
Date Performed:							Location:				
Date Performed.						rest	Location.				
Requirement:	indivi	nternal controls shall be identified through markings on electrical circuit boards and/or ndividual components, and identification in technical manuals. Markings shall be easily readable and permanently fixed under normal conditions of use.									
	Exterior markings shall be limited to the manufacturer's unique serial number, voltage and current requirements if equipped with an outlet plug, and meet minimum code requirements.										
Note:	Com	ments a	are required	when the re	equirer	mentis	s not verified				
		-									
											1
				A		- 4 1 -	i da setifica da se		Yes	No	
	_			Are Interr	nai co	ntrois	identified as	s requirea?			
			A						1	1	
			Are man	kings easily	/ reada	able a	nd permane	ently fixed?			
				Are exterio	or mar	kinge	identified as	required?	[
						i ingo					
Comments:											
Completed by:		-			-		Date:				
Reviewed by:							Date:				



	Section 5.7 Power Supply										
	Data Sheet and Report										
Manufacturer:											
Manuacturer: Model:						Soria	l Number:				
Date Performed:				_			Location:				
Date Periorineu.				_		rest	Location.				
									_		
Requirement:	The f	ollowing	n list detaile	s nower sun	nlies.						
	 For If op instrumeet 	DC, the perated ument, a U.S. el	using cons and be field ectrical sta	nall be able t sumable batt I replaceable	eries, t e (e.g.,	he bai AA, 9 \	tteries shall /) with no sp	be widely becial tools	available, s. Battery c	hargers s	hall
			-	from the crai			•		., buttory)		
Note:	Com	ments a	are required	d when the r	oquiror	nonti			-	-	1

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									Volts	Hertz
What are the power requirements of the monitor										
									Yes	No
				pility to ope	rate fro	om mu	ultiple powe	er sources?		
Describe the power s	ources	s use:								
									-	
For AC operated mo	nitor, c									
		A	C supply vo	oltage of 10	0 V to	240 \	/ and 47 Hz	to 63 Hz?		
									l	
For DC operated mo	onitors	, does	s the monit	or have the	ability	to op				
								to 14.5 V)?		
For monitors operated with consumable batteries, are the batteries widely available, no								ailable, not		
unique to the instrument and field replaceable with no special tools								ecial tools?		
For crane mounted	I monit	tors, a	are the mor	nitors self-p	owere	d (i.e.	Battery) or	capable of		
			operating	using pow	er fron	n the o	crane (i.e. 4	480 V AC)?		
For re	echarg	eable	batteries,	do changer	s mee	t U.S.	electrical	standards?		
						_				
Comments:										
Completed by:				1			Date:			
Reviewed by:							Date:			



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Section 5.8 Protection of Switches Data Sheet and Report Manufacturer: Model: Serial Number: **Date Performed:** Test Location: Requirement: Switches and other controls should be designed to ensure that the monitor could be operated properly while minimizing accidental switch operation. Note: Comments are required when the requirement is not verified. Yes No Are monitor switches and controls designed to minimize accidental operation? Comments: Completed by: Date: **Reviewed by:** Date:



Section 5.9 Effective Range of Measurement Data Sheet and Report

Manufacturer:											
Model:					5		I Number:				
Date Performed:						Test	Location:				
Requirement:	The fo	ollowing	g list details	effective rar	nges of	meas	surement:				
		The effective gamma-ray energy response range shall be stated by the manufacturer, and should be at least 50 keV to 3000 keV.								and	
		The manufacturer shall state the range for gamma-ray count rate measurement and for neutron count rate indication.							r		
Note:	Comr	nents a	are required	when the re	quirem	entis	not verified				
V	Vhat is	s the st	ated gamm	na energy ra	ange?						
Wha	t is th	e state	d gamma c	ount rate ra	ange?						
Wha	t is th	e state	d neutron c	ount rate ra	ange?						
Comments:											
Completed by:		1			, r		Date:		1	1	
Reviewed by:							Date:				



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Data Sheet and Report Mode: Serial Number; hato Performed; Tost Location; Prequirement; 5.10. Communications protocol and data format The transfer shall be based on a commonly-available technology such as Ethernet, USB, RS: 22.2.wireless (d., 802.11), NRS-485. Consideration should be given to data security when using wireless data transfer techniques. When used, wireless techniques shall have the ability to be encrypted. The transfer protocol and format shall be fully described in the technical manual and be freed distributable. Data format shall be as defined in ANSI N42.42. 5.10.2.1 Warning/status indicators The following indications shall be provided at the user interface when applicable, as a minimum. •Background changes that can affect the overall sensitivity of the monitor • High-low delector court are conditions, if docization of background condition) •Energy stabilization invalid or not acceptable • Occurpancy sensor failur, docuzancy sensors are used •Changes in operational status (i.e., occupied, aiarm, monitoring) background, fault, blocked, etc) • Loss of line power •Status • Status and audible, with alarm type (gamma or neutron) and level • Status and audible, with alarm type (gamma or neutron) and level • Status and audible, with alarm type (gamma or neutron) • Access to and contol of aperation parameters (alarm c		Section 5.10	Software a	nd Data Ana	alysis	
Model: Serial Number: Requirement: Test Location: The Part of the conting of the second of the se		Data	Sheet an	d Report		
Model: Serial Number: Requirement: Test Location: The Part of the conting of the second of the se	N					
Bate Performed: Test Location: Requirement: 51.01 Communications protocol and data format The mainter shall have the abased on a commonly available technology such as Ethernet, USB, RS-232, wireless (i.e., 802, 11), or RS-483. Consideration should be given to data security when using wireless data transfer technology such as Ethernet, USB, RS-232, wireless (i.e., 802, 11), or RS-483. Consideration should be given to data security when using wireless data transfer technology. When used, wireless techniques shall have the ability to be encrypted. The transfer protocol and format shall be fully described in the technical manual and be freely distributable. Data format shall be as defined in ANSI N42.42. 5.10.2.1 Warningstatus indicators The following indications shall be provided at the user interface when applicable, as a minimum. • Background changes that can affect the overall sensitivity of the monitor • High-low detector count rate conditions (indication of background condition) • Energy stabilization invalid or not asceptable • Occupancy sensor failure, if occupancy sensors are used • Changes in operational status (i.e., occupied, alarm, monitoring background, fault, blocked, etc). • Low power • Loss of line power • Battery status • Excessive speed (when applicable for vehicle portal monitoring) • Overerical indication <				Sorial Number:		
Requirement: 5.10.1 Communications protocol and data format The monitor shall have the ability to transfer data to an external device, such as a computer. The transfer shall be based on a commonly available technology such as Ethernet, USB, RS 232, wireless (i.e., 802, 11), or RS-485. Consideration should be given to data security when using wireless data transfer techniques. When used, wireless techniques shall have the ability to be encrypted. The transfer protocol and format shall be fully described in the technical manual and be freely distributable. Data format shall be as defined in ANSI N42.42. 5.10.2.1 Warning/status indicators The following indications shall be provided at the user interface when applicable, as a minimum. • Background changes that can affect the overall sensitivity of the monitor • High-how detector count rate conditions (indication of background condition) • Energy stabilization invalid or not acceptable • Occupancy sensor failure, if occupancy sensors are used • Changes in operational status (i.e., occupied, alarm, monitoring background, fault, blocked, etc) • Low power • Lows of line power • Battery status • Excessive speed (when applicable for vehicle portal monitoring) • Awrm indication • Awrm indication • Awarm land audible, with alarm type (gamma or neutron) and level 5.10.2.2 Basic indications and functions The following information and control shall be provided for the trained user: • Vew operational status • Vew alarm indication. • Access to and control of data logging intervals • Access to and control of data logging intervals • Access to control of basic indication function • Access to control of basic indication function • Access to and control of data logging intervals • Access to and control of data logging intervals • Access to control of basic indication fu						
The monitor shall have the ability to transfer data to an external device, such as a computer. The transfer shall be based on a commonly available technology such as Etternet, USB, RS. 232,wireless (i.e., 802.11), or RS-485. Consideration should be given to data security when using wireless data transfer techniques. When used, wireless techniques shall have the ability to be encrypted. The transfer protocol and format shall be fully described in the technical manual and be free! distributable. Data format shall be as defined in ANSI N42.42. S10.2.1 Warning/status indicators The following indications shall be provided at the user interface when applicable, as a minimum. Background changes that can affect the overall sensitivity of the monitor High of the detoctor count rate confiltons (indication of background condition) Energy stabilization invalid or not acceptable Occurpancy sensor failure, if occurpancy sensors are used • Changes in operational status (i.e., occupied, alarm, monitoring background, fault, blocked, etc) • Low power • Low power • Battery status • Status • Status • Vew alarn indication • Ararn indication • Ararn indication. • Ararn indication. • Ararn indicatio	Date i enomieu.			rest Location.		
The transfer shall be based on a commonly available technology such as Ethernet, USB, RS. 232.wireless (i.e., 802.11), or RS-486. Consideration should be given to data security when using wireless data transfer techniques. When used, wireless techniques shall have the ability to be encrypted. The transfer protocol and format shall be fully described in the technical manual and be freely distributable. Data format shall be as defined in ANSI N42.42. 5.10.2.1 Warning/status indicators The following indications shall be provided at the user interface when applicable, as a minimum. - Background changes that can affect the overall sensitivity of the monitor - High-low detector count rate conditions (indication of background condition) - Energy stabilization invalid or not acceptable - Occupancy sensor failure, if occupancy sensors are used - Changes in operational status (i.e., occupied, alarm, monitoring background, fault, blocked, etc) - Low gower - Loss of line power - Battery status - Excessive speed (when applicable for vehicle portal monitoring) - Overload indication - Visual and audible, with alarm type (gamma or neutron) and level 5.10.2.2 Basic indications and functions The following information and control shall be provided for the trained user: - View operational status - View queration and control shall be provided for the supervisory user through the use of access control of operating parameters (alarm control) - Access to and control of data logging intervals - Access to and control of operating parameters (alarm control) - Access to and control of data logging intervals - Access to and control of data logging intervals - Access to alarm history - Access to alarm history - Access to alarm to of data logging intervals - Access to alarm selection criteria 5.10.3 Radiation response indication - Access to background rediation function - Access to background rediation function - Access to background rediation function - Access to background rediation inform ation - Access to background rediation infor	Requirement:	5.10.1 Communications	protocol and dat	a format	ĮĮ	
 Access to and control of data logging intervals Access to alarm history Access to control of basic indication function Access to occupancy data set (if occupancy sensors are used) Access to vehicle photo (if available) Access to radiation profiles (count rate time history data) Access to background radiation information Access to alarm selection criteria 5.10.3 Radiation response indication The following information and control shall be provided at the user display: Strip-chart display of gamma and neutron counts Spectral display from gamma detectors, if applicable Real-time access to data stored as listed in item b) of 5.3 	Date Performed:	 5.10.1 Communications The monitor shall have th The transfer shall be bas 232,wireless (i.e., 802.11 using wireless data trans When used, wireless tech The transfer protocol and distributable. Data format shall be as d 5.10.2.1 Warning/status The following indications minimum. Background changes th High-low detector count Energy stabilization inva Occupancy sensor failur Changes in operational etc) Low power Loss of line power Battery status Excessive speed (when Overload indication Alarm indication Visual and audible, with 5.10.2.3 Advanced indicat The following information 	e ability to transfe ed on a common), or RS-485. Cor fer techniques. Inniques shall hav format shall be f efined in ANSI N- indicators shall be provided at can affect the of rate conditions (i lid or not accepta re, if occupancy s status (i.e., occu applicable for ve alarm type (gam s and functions and control shal	Test Location: a format a format a format a format a format a format a format a format a format a format b a second we the ability to be en- ully described in the 42.42. a at the user interfact werall sensitivity of the ndication of background ble ensors are used ble ble portal monitoring thicle portal monitoring ma or neutron) and ble be provided for the be provided for the be provided for the	ngy such as Ethernet, e given to data secur icrypted. technical manual an e when applicable, a ne monitor rund condition) ing background, faul ng) level trained user:	USB, RS- ity when d be freely s a
 Access to and control of operating parameters (alarm control) Access to and control of data logging intervals Access to alarm history Access to control of basic indication function Access to occupancy data set (if occupancy sensors are used) Access to vehicle photo (if available) Access to radiation profiles (count rate time history data) Access to background radiation information Access to alarm selection criteria 5.10.3 Radiation response indication The following information and control shall be provided at the user display: Strip-chart display of gamma and neutron counts Spectral display from gamma detectors, if applicable Real-time access to data stored as listed in item b) of 5.3 		e e		•	supervisory user thro	ugn me
 Access to and control of data logging intervals Access to alarm history Access to control of basic indication function Access to occupancy data set (if occupancy sensors are used) Access to vehicle photo (if available) Access to radiation profiles (count rate time history data) Access to background radiation information Access to alarm selection criteria 5.10.3 Radiation response indication The following information and control shall be provided at the user display: Strip-chart display of gamma and neutron counts Spectral display from gamma detectors, if applicable Real-time access to data stored as listed in item b) of 5.3)	
 Access to alarm history Access to control of basic indication function Access to occupancy data set (if occupancy sensors are used) Access to vehicle photo (if available) Access to radiation profiles (count rate time history data) Access to background radiation information Access to alarm selection criteria 5.10.3 Radiation response indication The following information and control shall be provided at the user display: Strip-chart display of gamma and neutron counts Spectral display from gamma detectors, if applicable Real-time access to data stored as listed in item b) of 5.3 				•	1	
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 Access to vehicle photo (if available) Access to radiation profiles (count rate time history data) Access to background radiation information Access to alarm selection criteria 5.10.3 Radiation response indication The following information and control shall be provided at the user display: Strip-chart display of gamma and neutron counts Spectral display from gamma detectors, if applicable Real-time access to data stored as listed in item b) of 5.3 						
 Access to radiation profiles (count rate time history data) Access to background radiation information Access to alarm selection criteria 5.10.3 Radiation response indication The following information and control shall be provided at the user display: Strip-chart display of gamma and neutron counts Spectral display from gamma detectors, if applicable Real-time access to data stored as listed in item b) of 5.3 				cysensors are used	d)	
 Access to background radiation information Access to alarm selection criteria 5.10.3 Radiation response indication The following information and control shall be provided at the user display: Strip-chart display of gamma and neutron counts Spectral display from gamma detectors, if applicable Real-time access to data stored as listed in item b) of 5.3 				ne history data)		
 Access to alarm selection criteria 5.10.3 Radiation response indication The following information and control shall be provided at the user display: Strip-chart display of gamma and neutron counts Spectral display from gamma detectors, if applicable Real-time access to data stored as listed in item b) of 5.3 			•			
The following information and control shall be provided at the user display: • Strip-chart display of gamma and neutron counts • Spectral display from gamma detectors, if applicable • Real-time access to data stored as listed in item b) of 5.3		°,				
		The following information • Strip-chart display of gar • Spectral display from gar • Real-time access to dat	and control shal mma and neutror mma detectors, a stored as listed	r counts f applicable l in item b) of 5.3		
Note: Comments are required when the requirement is not verified.	Note	Comments are required v	when the require	nent is not verified		

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		Yes	No	NA
	Does the monitor have the ability to transfer data to an external device?	103	110	11/
Describe the techr	nology used to transfer data:			
If wireless technic	ques are used, does it have the ability to encrypt the data being transmitted?			
	Is the transfer protocol and format described in the technical manual?			
	Is the transfer protocol and format described freely distributable?			
	Is the data format as defined in the ANSI N42.42 standard?			
When applicable, a	are the following indications provided at the user interface:			
	Background changes that can affect the overall sensitivity?			
	High-low detector count rate conditions?			
	Energy stabilization invalid or not acceptable?			
	(If occupancy sensors are used) Occupancy sensor failure?			
	Changes in operational status?			
	Low power?			
	Loss of line power?			
	Battery status?			
	Excessive speed?			
	Overload indication?			
	Alarm indication?			
	Visual and audible, with alarm type and level?			
Are the following in	formation and controls provided to the trained users:			
	View of operational status?			
	View alarm indication?			
-	Ability to reset alarms? formation and controls provided for the supervisory user through the use of act	cess c	ontrols	or
-	Ability to reset alarms?	cess c	ontrols	or
-	Ability to reset alarms? formation and controls provided for the supervisory user through the use of act Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of data logging intervals? Access to alarm history?	cess c	ontrols	or
-	Ability to reset alarms? formation and controls provided for the supervisory user through the use of act Access to and control of operating parameters? Access to and control of data logging intervals?	cess c	ontrols	or
-	Ability to reset alarms? formation and controls provided for the supervisory user through the use of act Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of data logging intervals? Access to alarm history?	cess c	ontrols	or
-	Ability to reset alarms? formation and controls provided for the supervisory user through the use of act Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo?	cess c	ontrols	or
-	Ability to reset alarms? formation and controls provided for the supervisory user through the use of act Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to radiation profiles?	cess c	ontrols	or
-	Ability to reset alarms? formation and controls provided for the supervisory user through the use of act Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo?	cess c	ontrols	or
-	Ability to reset alarms? formation and controls provided for the supervisory user through the use of act Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to radiation profiles?	cess c	ontrols	or
special commands	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to radiation profiles? Access to background radiation information? Access to alarm selection criteria?		ontrols	Or
special commands	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts: Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to alarm selection criteria?		ontrols	or
special commands	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts: Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts?		ontrols	or
special commands	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts: Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts?		ontrols	or
Are the following i	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors?		ontrols	or
Are the following i	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements?		ontrols	or
Are the following i	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors?		ontrols	
Are the following i Real-time access	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of basic indication functions? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements?		ontrols	
Are the following i Real-time access	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts: Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements?		ontrols	
Are the following i Real-time access	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts: Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements?		ontrols	
Are the following i Real-time access	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts: Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements?		ontrols	
Are the following i Real-time access	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts: Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements?		ontrols	
Are the following i Real-time access	Ability to reset alarms? formation and controls provided for the supervisory user through the use of acts: Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to occupancy data set? Access to vehicle photo? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements?		ontrols	
Are the following i Real-time access	Ability to reset alarms? formation and controls provided for the supervisory user through the use of access Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to control of basic indication functions? Access to cocupancy data set? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements? For mobile systems, real-time mapping with GPS data and alarm locations?		ontrols	
Are the following i Real-time access	Ability to reset alarms? formation and controls provided for the supervisory user through the use of access Access to and control of operating parameters? Access to and control of data logging intervals? Access to alarm history? Access to control of basic indication functions? Access to control of basic indication functions? Access to cocupancy data set? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Strip-chart display of gamma counts? (If applicable) Spectral display from gamma detectors? of data store as listed in the item b) of 5.3 in the performance requirements? For mobile systems, real-time mapping with GPS data and alarm locations?		ontrols	
Are the following i Real-time access	Ability to reset alarms? Information and controls provided for the supervisory user through the use of access Access to and control of operating parameters? Access to and control of data logging intervals? Access to and control of data logging intervals? Access to control of basic indication functions? Access to control of basic indication functions? Access to company data set? Access to vehicle photo? Access to vehicle photo? Access to vehicle photo? Access to background radiation information? Access to background radiation information? Access to alarm selection criteria? Information and controls provided at the user display: Information and controls provided at the user display of gamma counts? It ip-chart display of neutron counts? It ip-chart display form gamma detectors? It ip-chart display form gamma detecto		ontrols	



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	Se		5.11.1 Ope ata Sheet a	-		ters		
Manufacturer:								
Model:					Seria	l Number:		
Date Performed:						Location:		
Requirement:			ll provide the lis oltage, gain). Th		-	÷ ·		
Note:	Comments	are require	d when the requ	irement is n	ot verified.			
			Test R	esults				
							Yes	No
	Did manufa	cturer provi	de a list of reco	mmended o	operating pa	arameters?	Ļ	
List the paramete	ers provide	ed by the r	<u>manufacturer:</u>					
Comments:								
Comments:								
Comments:								
Comments:								
Comments:								
Comments: Completed by:						Date:		
						Date:		
						Date:		



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				on 6.7 F ta Shee		-					
			Da		anu	Nepu	1 L				
Manufacturer:											
Model:							I Number:				
Date Performed:		1	î			Test	Location:				
Requirement	equipment interrelate of When teste false alarm the time red The manufa requiremen objects. The gamm environmen ray exposur	malfuncti overall se d in an ai rate sha quired to acturer sh nts, and s a-ray bac ntal radiat re rate. If t	ion. Gross-c nsitivity and rea with a st Il be less tha completely r hall provide a tate the min kground inte tion measur the monitor i	count rate ca false alarm cable backgr an 1 per 100 nonitor 1000 an estimate imum time r ensity shall b ement device	pabilities a rates. ound (only 0 occupar 0 objects fo of the back required back pe measur that is ca with neutr	are gene natural f cices or 1 or monito (ground etween o ed using alibrated on detec	rally adjuste luctuations) alarm over rs that do n level at whic ccupancies a pressuriz with respec tors, the neu	at the level: a period of ot use occu th the monit to differenti zed ion char t to NIST sta	rm thres s stated time tha pancy se or will no ate mult nber or s andards	holds that in Table 1, the t is equivalen ensors. o longer meet iple vehicles o	e t to : the or mm
Note	Commonte		irod whon th								
	Equipment:			ne requireme	ent is not v	erified.					
	Equipment:			Humidity:		w		Pressure:		In. Hg.	
Test E	Equipment:	° C er of cies or	Number o		Numb	% er of		Pressure: ber of cations		In. Hg.	
Test E	Equipment: Numbo Occupan	° C er of cies or me	Number o ala	Humidity: of gamma rms	Numb	% er of	identifi	per of		In. Hg.	
Test E Temperature: Gamm	quipment: Numbo Occupan test ti	° C er of cies or me kground	Number o ala I Reading:	Humidity: of gamma rms	Numb	% er of alarms	identifi	per of		In. Hg.	
Test E Temperature: Gamm	Quipment: Numbo Occupan test ti na-ray Bac	° C er of cies or me kground	Number o ala I Reading:	Humidity: of gamma rms	Numb	% er of alarms (add un	identifi	per of		In. Hg.	
Test E Temperature: Gamm	Quipment: Numbo Occupan test ti	° C er of cies or me kground	Number o ala I Reading:	Humidity: of gamma rms	Numb	% er of alarms (add un	identifi	ber of cations		In. Hg. In. Hg	



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Section 6.8 Detector Response to Gamma Radiation Test Data and Report

	Date Performed: Test Location: Requirement: An alarm shall be triggered when the measured count rate is greater than the alarm setti This requirement shall be verified using ²⁴¹ Am, ²³² Th, ¹³⁷ Cs, ¹³³ Ba, ⁶⁰ Co and ⁵⁷ Co. Source activities for this test are given in Table 4.	Manufacturer:								
Requirement: An alarm shall be triggered when the measured count rate is greater than the alarm settin This requirement shall be verified using ²⁴¹ Am, ²³² Th, ¹³⁷ Cs, ¹³³ Ba, ⁶⁰ Co and ⁵⁷ Co. Source	Requirement: An alarm shall be triggered when the measured count rate is greater than the alarm setti This requirement shall be verified using ²⁴¹ Am, ²³² Th, ¹³⁷ Cs, ¹³³ Ba, ⁶⁰ Co and ⁵⁷ Co. Source activities for this test are given in Table 4.	Model:		Se	rial Number:					
This requirement shall be verified using ²⁴¹ Am, ²³² Th, ¹³⁷ Cs, ¹³³ Ba, ⁶⁰ Co and ⁵⁷ Co. Source	This requirement shall be verified using ²⁴¹ Am, ²³² Th, ¹³⁷ Cs, ¹³³ Ba, ⁶⁰ Co and ⁵⁷ Co. Source activities for this test are given in Table 4.	Date Performed:		1	est Location:					
The instrument response is acceptable when a minimum of 59 alarms occur in 60 occupations		Requirement:	This requiremen activities for this	nt shall be v test are giv	erified using ²⁴¹ / en in Table 4.	Am, ²³² Th, ¹³⁷	Cs, ¹³³ Ba, ⁶	³⁰ Co and ⁵¹	⁷ Co. Sour	ce
Note: Comments are required when the requirement is not verified.		Note:	Comments are	required wh	en the requirem	nent is not ve	erified.			

Background Reading:			(add	units)		Т	⊺est E	quipr	nent:				
Temperature:	°C	Humi	idity:		%	Pres	sure:		In. H	g.			

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					Test Res	ults						
						Sou						
	241	Am	137	Cs	60	Co	228	Th	133	Ва	57	Co
Source Data:												
Source Activity:												
	Number of	Number of	Number of	Num ber of	Num ber of	Number of	Number of	Number of	Number of	Num ber of	Number of	Number of
	Trials	Alarms	Trials	Alarms	Trials	Alarms	Trials	Alarms	Trials	Alarms	Trials	Alarms
Bottom												
Mid-Point Bottom/Middle												
Middle												
Mid-Point Middle/Top												
Тор												
Comments:												
Completed by:		, ,				Date:						
Deviewed hu						Data						
Reviewed by:						Date:						

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Section 6.9 Detector Response to Neutron Radiation Test Data and Report

Manufacturer:								
Model:		Seria	al Number:					
Date Performed:		Tes	t Location:					
					050			
Requirement:	An alarm shall	be triggered w	hen the moni	tor is expose	d to a ²⁵² Cf	neutron e	emissior	n rate
	20,000 n/s for	a duration spec	ified by the m	anufacture o	or at the pas	sage sp	eed as a	approp
	for the monitor	type being test	ed.					
	for the monitor	type being test	ed.					
		type being test It response is a		ien a minimu	ım of 59 ala	arms occ	ur in 60 d	occup
				ien a minimu	ım of 59 ala	arms occ	ur in 60 d	occup
				ien a minimu	ım of 59 ala	arms occ	ur in 60 d	occup
				ien a minimu	ım of 59 ala	arms occ	ur in 60 d	occup
				ien a minimu	ım of 59 ala	arms occ	ur in 60 d	occup
				ien a minimu	ım of 59 ala	arms occ	cur in 60 d	occup

Background Reading:			(odd	units)			Test Equip	manti			
Background Reading.			(auu	units)				nent.		_	
Temperature:	°C	Hum	idity:		%	Pres	sure:	In. Hg.			
				Та	of Da	sults					
				16	SURE		ırce				
							² Cf			 	
		So	urce	Data:			01				
		Sourc									
				,		ber of	Number of			-	
					Т	rials	Alarms				
	F	lorizo	ntal P	Plane							
			Bo	ottom							
	Mid-Poin	t Botto									
				iddle							
	Mid-P	oint N	liddle	-							
		_		Тор		1				 	
										 _	
Comments:										 	
Completed by:						1			Date:	 	
Reviewed by:									Date:		



Maximum exposure rate stated by manufacturer:

			Sec	ction	6.10 O	verle	oad T	est							
				Test	Data a	nd R	epor	t							
Manufacturer:															
Model:				Serial	Number:										
Date Performed:				Test	t Location	:									
	backgroun alarm is re being redu	nd" or "hi eset/ack	igh coun nowledg ⁄isual inc	its" shall ged by the dication s	easurement be activated e user. If the shall be pro	d and sl e alarm	hall remains reset/	ain activa acknowl	ited until edged by	the radi	ation fi er witho	eld is out the	reduc radia	ed or t	he
	monitor is The time r be greater	required	to return		alarm condi	tion afte	er the exp	oosure ra	ite is reti	urned to	backgi	round	levels	shall	not
	The time robe greater	required r than 1 r	to return min.	to non-a	alarm condi			oosure ra	te is retu	urned to	backgi	round	levels	shall	not
Note:	The time robe greater	required r than 1 r	to return min.	to non-a				bosure ra	te is retr	urned to	backgi	round	levels	shall	not
	The time robe greater	required r than 1 r	to return min.	n to non-a					te is retu	urned to	backg	round		shall	not
Note:	The time n be greater Comment	required r than 1 r	to return min.	n to non-a					te is retu		Pres			shall	
Note: Background Reading:	The time n be greater Comment	required r than 1 r ts are rec	to return min.	n to non-a	requiremen	t is not			te is retu						

(add units)

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			Cou	nt Rate		arm	Cour	nt Rate		The	time to		
			Beg	inning	Y	Ν	E	nd			eris ≤1min		
										Yes	No		
		1											
		2											
		3											
								Yes	No				
	Did the n	nonitor p	provid	le an ove	erload	indica	ation?						
Describe:													
				Did th	e moi	nitor a	larm?			1			
				Bid th			iann.		ļ				
For DC operated monitor	s does the m	onitor h	nave t	he ahilit	v to o	nerate	a from					_	
T OF DC Operated monitor	s, uoes the h		avei				.5 V)?						
				12 0		10 14	.5 v):		I			 _	
												 _	
Did the alarm remain	until the radi	ation file	ed wa	as reduc	ed to								
							level?					 _	
									-			 	
Did the monitor re	turn to the pre	e-test co	ount I										
				remov	al of t	the so	urce?						
	·												
Comments:												 	
		_										 _	
Completed by:				ļ			L				Date:		
completed by.											Dale.		
Reviewed by:											Date:		
											Date.		



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Section 6.11 Neutron Indication in the Presence of Photons Test Data and Report

Manufacturer:					0						
Model:					Ser	ial Numb					
Date Performed:						Test Lo	ocation:				
Requirement:	Comm	o rodioti		ouro rote		10 m D/h /	100.000	(b) (at the face	of the contex of	the detection	tion occomb
Requirement:									tect an increas		
			osed to g			n, ule mo	11101 511a		lect an increas	emneum	
	write c	eing exp	useu io g	ammana							
No.4	Comm	anta ara	roguirod	where the	requirem	antia nati	warified				
Note:	Comm	ents are	requirea	wnen the	requirem	ent is not	verified.				
			-		1						
_											
Temperature:		°C			H	umidity:		%	Pre	ssure:	In. Hg.
Gamma Source Data:											
					_						
Neutron Source Data:											
					<u>Test</u>	<u>Data</u>					
				Gan	nma +	Gam	ma +				
		Gamm	na Only	unmo	derated	mode	rated				
				neu	itrons	neut	rons				
		Neutro	n Alarm	Neutro	n Alarm	Neutror	Alarm				
			ΠΑΙάΠΠ	Neutro							
		Y	Ν	Y	Ν	Y	Ν				
	1										
	2										
	3										
Comments:											
Completed by:								· · · · · · · · · · · · · · · · · · ·	Date	:	
Reviewed by:									Date		
1.0.1.0.0.00 by:	-	1	1						2410		

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						d Effe			J	/	
			Т	est Da	ta an	d Rep	oort				
Manufacturer:											
Model:				Serial N	lumber	:					
Date Performed:				Test Lo	ocation	:					
Requirement:	The monif substantia shall be u	al chan	ge in alaı	m probab	ility. The	indicatio	on shall b	e visual	and/or a		
Note:	Comment	ts are r	equired v	/hen the r	equirem	ent is no	t verified.				
					equirem	ent is no	t verified.				
Gamma-ray	/ Backgro	ound R	leading:		equirem	ent is no	t verified.				
Gamma-ray		ound R	leading:		equirem	ent is no	t verified.				
Gamma-ray Neutror	/ Backgro	ound R	leading:			ent is no	t verified.				

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	Source	Data:								
					Test	Data				
		137	⁷ Cs					²⁵² Cf		
	Backgro			Indica	tion	Bac	kground (Change I	ndication	
		Yes		No		Ye		S	No	
Trial 1					_					
Trial 2 Trial 3					_					•
					Tost	Results				
					103(1	ve sunts		Yes	No	
	ls f	the visua	al indic	ation d	lifferent	from the	monitoring			
	Describe:						alarm?			
	Describe.								-	
	ls th	e audibl	le indic	ation d	lifferent	from the	monitoring alarm?		-	
	Describe:						aidiiii			
		_	_							
Comments:										
Comments:										
Comments:										
Comments:										
Comments: Completed by:									Date:	
									Date:	

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	Section	6.13 B	ackgr	ound	Effect	s (N	lobile)		
		Test	Data	and F	Report					
					-					
Manufacturer:										
Model:										
Date Performed:		Te	st Locati	on:						
Requirement:									d situations that	
	may be encountered during normal use. The monitor shall provide a warning indication when									
	a change in b									
	such as what									
building materials. The indication shall be visual and/or audible (the type of alarm shall be user selectable) and shall be different than monitoring alarms.										
	user selectab	ie) and sha	an de diffe	rentman	monitoring	j alarm	15.			
Note:	Comments a	re required	when the	requirem	nentis not	verified	J.			
Note:	Comments a	re required	when the	requiren	ientis not	verified	J			
Note:	Comments ar	re required	when the	requirem	nentis not	verified	1.			
Note:	Comments a	re required	when the	requiren	ientis not	verified	1.			
Note: Gamma-ray Bac			when the	requiren		verifiec d units				
Gamma-ray Bac	kground Rea	ading:	when the	requiren	(ad	d units	6)			
	kground Rea	ading:	when the	requirem	(ad		6)			
Gamma-ray Bac	kground Rea	ading:	when the	requirem	(ad	d units	6)			
Gamma-ray Bac Neutron Bac	kground Rea	ading:	when the	requirem	(ad	d units	6)			
Gamma-ray Bac Neutron Bac	kground Rea	ading:	when the	requirem	(ad	d units	6)			
Gamma-ray Bac Neutron Bac Test E	kground Rea kground Rea quipment:	ading:			(ad	d units	5)			
Gamma-ray Bac Neutron Bac	kground Rea kground Rea quipment:	ading:	nidity:	requiren	(ad	d units	6)		in Hg	
Gamma-ray Bac Neutron Bac Test E Temperature:	kground Rea kground Rea quipment: ° C	ading:			(ad	d units	5)	2	in Hg	
Gamma-ray Bac Neutron Bac Test E Temperature:	kground Rea kground Rea quipment:	ading:			(ad	d units	5)	2: 	in Hg	

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		Tes	st Data			
Monitor allowed to u greater than the norm			itioned in an area	where the ba	ackground is a factor o	of 5
Without initiating a n	neasurement	cycle (if applica	able)			
		Withou	ut sources	· · · · · · · · · · · · · · · · · · ·		
	Gar	nma	Nei	itron		
		nd Change		nd Change		
	-	ation		ation		
	Yes	No	Yes	No		
Trial 1					(alarms are recorded)	
Trial 2						
Trial 3				1	•	
Trial 4				1		
Trial 5						
Trial 6						
Trial 7						
Trial 8						
Trial 9						
Trial 10						
Without initiating a n	neasurement	cycle (if applica	able)			
J						
			. 197 -			
		With addition	nal ¹³⁷ Cs source			
	Gar	nma	Nei	ıtron		
		nd Change		nd Change		
	-	ation		ation		
	Yes	No	Yes	No		
Trial 1					(alarms are recorded)	
Trial 2				1		
Trial 3					```	
Trial 4						
Trial 5				1		
Trial 6				1		
Trial 7				1		
Trial 8				1		
Trial 9				1		
Trial 10				1		

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Monitor allowed to u	odate backgrou	nd while positi	oned in the normal l	backgrou	nd area	
Without initiating a m	leasurement cy	cle (if applicab	le)			
		Without	sources			
	Gamn		Neutron			
	Background Indicat		Background C Indicatio			
	Yes	No	Yes	No		
Trial 1	Tes		Tes	NO	(alarms are recorded)	
Trial 1						
Trial 3					•	
Trial 4						
Trial 5						
Trial 6						
Trial 7						
Trial 8						
Trial 9						
Trial 10						
Without initiating a m	easurement cy	cle (if applicab	le)			
_						
	· · · ·	With additiona	1 137 0			
		with additiona	I CS Source			
	Gamn	na	Neutror	1		
	Background	Change	Background C	hange		
	Indicat		Indicatio			
	Yes	No	Yes	No		
Trial 1					(alarms are recorded)	
Trial 2						
Trial 3					`	
Trial 4						
Trial 5						
Trial 6						
Trial 7						
Trial 8						
Trial 9						
Trial 10				ļ,		

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	Test Results Yes No									
							es	No		
	IS	the visua	il indicat							
				monito	oring al	arm?				
	Describe:									
	ls th	ne audible	e indicat							
				monito	oring al	arm?				
	Describe:									
Comments:										
Completed by:								Date:		
Reviewed by:										



TEST AND EVALUATION PROTOCOL

Section 6.14.1 Radionuclide Categorization Data Sheet and Report

					-			
Manufacturer:								
Model:				Seria	I Number:			
Date Performed:				Test	Location:			
Requirement	categorie shall con - Special - Medical (123I, 125 - Naturall and daug	s. The catego tain as a min Nuclear Mate radionuclides 5I, 131I), 1535 y occurring ra	ories selecte imum, the ra erials: Uraniu s: 18F, 67G Sm, 201Tl, 1 adioactive ma	ed should be adionuclides um (used to a, 51Cr, 755 33Xe. aterials (NO	e based on t s listed (Tab indicate 233 Se, 89Sr, 99f RM): 40K, 23	he list show le 4): 3U, 235U), 2 Mo, 99mTc, 26Ra, 232T	vn in 6.14.1. ⁻ 237Np, Pu. 103Pd, 111I h and daugh	Γhe list n, lodine ters, 238Ι
Note:	Commen	its are require	ed when the	requiremen	t is not verifi	ed.		
			<u>Test</u>	<u>Results</u>				
							Yes	No
The manufacturer	states th	e radionuclic	les that the	monitor ca	n identify b	v category		
The monitor can i						, ,		

					103			
The manufacturer	The manufacturer states the radionuclides that the monitor can identify by category.							
The monitor can i	radionuclides requirement.	Г	Γ					
Does the list	Does the list provided by the manufacturer contain all the radionuclides listed in Table 4 of the standard?							
Comments:								
comments.								
Completed by:				Date:				
Reviewed by:				Date:				



Section 6.14.2.2 Single Radionuclide Identification - Unshielded Data Sheet and Report

	Dutu	oncolun				_
Manufacturer:						
Model:			S	erial Number:		
Date Performed:			1	Test Location:		
Requirement:	The manufactu The list should				monitor car	ı identify.
	HEU, WGPu, ²³⁷ If the manufactu	̈́Νp. urer claims the Plutonium (RG	ability to detect Pu), or Weapon	lr, ²⁰¹ TI, ²²⁶ Ra, ²³²⁻ Highly Enriched Is Grade Plutoni It required.	Uranium (H	IEU),
Note:	Comments are	required when	the requireme	nt is not verified.		
	Sin	gle Radionuo	clide Identific	ation Test Dat	a	
ransitory measure	ments					
			⁴⁰ K			
Date Performed:			l			
		Bottom	Middle	Тор		
	1					
	•				1	

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				⁵⁷ Co	
Date	Performed:				
			Bottom	Middle	Тор
		1			
		2			
		4			
		5			
		6			
		7			
		8			
		9 10			
		Corr			
		Ē		⁶⁰ Co	
Date	Performed:	_		_	
			Bottom	Middle	Тор
		1			
		2			
		3			
		5			
		6			
		7			
		8			
		9			
		10 Corr			
		Con			<u> </u>
		Г		⁶⁷ Ga	<u> </u>
Date	Performed:	 		Ga	
	·······································				
			Bottom	Middle	Тор
		1			
		2 3			
		4 5			∦
		6			
		7			
		8			
		9			
		10			
		Corr			<u> </u>

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				99mTc	
Date	Performed:				
			Bottom	Middle	Тор
		1			
		2			
		3			
		4			
		6			
		7			
		8			
		9			
		10			
		Corr			
		<u>[</u>			
				¹³¹	
Date	Performed:				
					_
			Bottom	Middle	Тор
		1 2			
		3			
		4			
		5			
		6			
		7			
		8			
		9			
		10			
		Corr			
		F		133—	
Dett	Daufauru	 _		¹³³ Ba	1
Date	Performed:				
			Bottom	Middle	Тор
		1	Bottom		
		2			1
		3			
		4			
		5			
		6			
		7			
		8			
		9			┨─────┤
		10 Corr			∦
		Corr			<u> </u>
					<u> </u>

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		ſ		¹³⁷ Cs		
Date	Performed:					
			Bottom	Middle	Тор	
		1				
		2				
		3				
		4				
		5				
		6 7				
		8				
		8 9				
		10				
		Corr				
		F		¹⁹² lr	1	
Data	Dorformedi	 -		ır		
Date	Performed:					
			Bottom	Middle	Ton	
		1	Bottom	Ivildale	Тор	
		2				
		3				
		4				
		5				
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		8				
		9				
		10				
		Corr				
		ſ		²⁰¹ TI	~	
Date	Performed:	╞				
			Bottom	Middle	Тор	
		1				
		2				
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682	
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682	
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682	
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682	
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682	
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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		Source Infe	ormation			
	Date	Radionuclide	Activity	Exposure rate	(add units)	
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		⁵⁷ Co				
		⁶⁰ Co				
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Completed by:					Date:	
Reviewed by:					Date:	



TEST AND EVALUATION PROTOCOL

Radiation Monitors Used for Homeland

TITLE: Mobile and Transportable

Security

Section 6.14.2.3 Single Radionuclide - Unshielded SNM Data Sheet and Report

Man	ufacturer:				
	Model:	-	Se	rial Number:	
Date P	erformed:		Т	est Location:	
-	•		4400		

Requirement: Repeat the test described in 6.14.2.2 using HEU, RGPu, and/or WGPu.

Note: Comments are required when the requirement is not verified.

Single Radionuclide Identification Test Data

Transitory measurements

Transitory measurements				
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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	mpleted by:		Radionuclide HEU WGPu			Date:	
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TEST AND EVALUATION PROTOCOL

Section 6.14.3 Identification of Shielded Radionuclides Data Sheet and Report

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Ма							
				S	erial Number:		
Date	Performed:				Test Location:		
Data Sneet and Report Manufacturer: Serial Number: Model: Test Location: Date Performed: Requirement: 6.14.3.1 Requirements based on shielding related to shipping containers The manufacturer shall provide a list of shielded radionuclides that the monitor car identify. For this standard, the source is surrounded by 3 cm of steel on all sides. T list shall contain the following radionuclides, as a minimum: 133Ba, 137Cs, and 60Co NOTE—3 cm steel is based on possible shipping container configurations and attenuation of gamma-ray emissions from each radionuclide. 6.14.3.2 Requirements based on medical treatments The manufacturer shall provide a list of radionuclides that the monitor can identify when monitoring people with medical treatments. For this standard, the source is surrounded by 7.62 cm of polymethyl methacrylate (PMMA). The list shall contain th following radionuclides, as a minimum: 67Ga, 99mTc, 131I, and 201TI ®Co Date Performed: Bottom Bottom Middle Top 1 Comments are required when the requirement is not verified. Single Radionuclide Identification Test Data Top 1 <td colsp<="" th=""><th></th></td>	<th></th>						
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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Section 6.14.4 Simultaneous Radionuclide Identification **Data Sheet and Report**

Manufacturer:							
Model:					erial Number:		
Date Performed:				Т	est Location:		
Requirement:	The monitor	shall have the abilit	ty to identify m	ore than one r	adionuclide sim	ultaneously.	,
		s identification abil		st of radionucl	ides from separ	ate categories	(e.g.,
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	radionuclides	shall have the abilit	ty to identify a f	autonucitue o	i interest when t	combined with	outer
	radionucilues	·-					
Note:	Comments a	re required when t	he requirement	it is not verifie	d.		
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	TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPAR DIV682	ED BY:
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	Date	⁴⁰ K + ²²⁶ Ra + ²³² Th + RGPu ⁴⁰ K + ²²⁶ Ra +	⁴⁰ K ²²⁶ Ra ²³² Th RGPu ⁴⁰ K ²²⁶ Ra			
	Date	⁴⁰ K + ²²⁶ Ra + ²³² Th + RGPu	 ⁴⁰K ²²⁶Ra ²³²Th RGPu ⁴⁰K ²²⁶Ra ²³²Th 			
	Date	⁴⁰ K + ²²⁶ Ra + ²³² Th + RGPu ⁴⁰ K + ²²⁶ Ra + ²³² Th + DU	 ⁴⁰K ²²⁶Ra ²³²Th RGPu ⁴⁰K ²²⁶Ra ²³²Th DU 			
	Date	⁴⁰ K + ²²⁶ Ra + ²³² Th + RGPu ⁴⁰ K + ²²⁶ Ra +	⁴⁰ К ²²⁶ Ra ²³² Th RGPu ⁴⁰ К ²²⁶ Ra ²³² Th DU ^{99m} Tc			
		⁴⁰ K + ²²⁶ Ra + ²³² Th + RGPu ⁴⁰ K + ²²⁶ Ra + ²³² Th + DU ^{99m} Tc + DU	4 ⁰ K 226Ra 232Th RGPu 4 ⁰ K 226Ra 232Th DU 99πTc DU 99πT			
		⁴⁰ K + ²²⁶ Ra + ²³² Th + RGPu ⁴⁰ K + ²²⁶ Ra + ²³² Th + DU	4 ⁰ K 226Ra 232Th RGPu 4 ⁰ K 226Ra 232Th DU 99πTc DU 99πT			

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tionary Tests								
	Measurement time:	min						
	Simulta	aneous Radionuclide Id	entification Test Data					
Date Performed:		⁴⁰ K + ²²⁶ Ra + ²³² Th + RGPu						
	Bottom	Middle	Тор					
	1 2							
	3							
	4							
	5							
	6							
	7							
	9							
	10							
	Corr							
		40		_				
Date Performed:		⁴⁰ K + ²²⁶ Ra + ²³² T	h + DU					
	Bottom	Middle	Тор					
	1							
	2							
	3							
	5							
	6							
	7							
	8							
	9 10							
	Corr							
	<u>-</u>							
Date Performed:		^{99m} Tc+ DU	 					
	———							
	Bottom	Middle	Тор					
	1							
	2 3							
	3							
	5							
	6							
	7							
	8							
	9 10							
	Corr							

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Date Performed:				¹³¹ I + RGPu			
		Bottom		Middle		Тор	
	1	Dottom		inidate	-	lop	
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	10				-		
	Corr						
	0011	L					
		So	urce Informat	ion	÷		
	Date	Mix	Radionuclide	Activity	Exposure rate	(add units)	
		40	⁴⁰ K				
		⁴⁰ K + ²²⁶ Ra +	²²⁶ Ra				
		²³² Th + RGPu	²³² Th				
			RGPu				
		404 . 2260	⁴⁰ K				
		⁴⁰ K + ²²⁶ Ra +	²²⁶ Ra				
		²³² Th + DU	²³² Th				
			DU ^{99m} Tc				
		^{99m} Tc + DU	DU				
			99m 				
		^{99m} Tc + RGPu	RGPu				
			Roru				
Comments:							
Completed by:					Date:		
					Date:		
Reviewed by:							

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		Test [Data and	Report				
				•				
Manufacturer	:							_
Model	:			Seria	I Number:			
Date Performed	:			Tes	t Location:			
Requirement	The manufa 137Cs for ic	icturer sha lentificatior	ll state the maxi า.	mum gamn	na-ray expos	ure rate (µR/h) relative to	C
								_
Note	: Comments	are require	ed when the req	uirement is	not verified.			_
Maxi			totod by mon			(add upita)		
Waxii	num expos	ure rate s	tated by man	ulacturer:		(add units)		_
Backgroun	d Reading:				(add units)			
Temperature	:	°C	Humidity:		%	Pressure:		in Hg
Source Data	:							
nsitory measuren	nents							_
Tes	t Data	1				Test Report		
Ider	ntified							
1	1	(Yes/No e	entry)	The mo	nitor correct	ly identified	Yes	N
2						of 10 trials		
	3							
4	4							
Ę	5							
6	6							
7	7							
8	3							
Ę.	9							
1()							
Correc	t 0%							

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	Measurer	nent time:		min					
	Test						Test Report		
	ldent	ified							
	1		(Yes/No e	ntry)	The mo	nitor correct	lv identified	Yes	I
	2					⁰ Co in 8 out			
	3						0 10 11813		
	4								
	5								
	6								
	7								
	8								
	9								
	10								
	Correct	0%	<u></u>						
C	omments:								
	ommerita.								<u> </u>
Com	pleted by:					Date:			
Rev	iewed by:					Date:			

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			Section	า 6.14.6	Pile-Up	Effects				
			Те	st Data a	and Rep	oort				
Mar	nufacturer:									
	Model:					-	al Number:			
Date F	Performed:					Tes	t Location:			
Rec	quirement:	The monitor	shall correct	tly identify rac by treatments	dionuclides	that are asso	ciated with p	eople who ha	ave recently	
		receiveu rac		by treatments	(1311).					
	Note:	Comments	are required	when the re	quirement is	not verified.				
E	Background	d Reading:				(add units)				
Ter	nperature:		°C		Humidity:		%	Pressure:		In. Hg.
So	urce Data:									
Transitory	measurem	ents								
			1							1
	Test						Test Repor	t		
	Ident	lified) (a a	N I -	
	1		(Yes/No er	itry)	The monito	or correctly id	dentified 131	Yes	No	
	2				in 8 out of					
	3					1	1			
	4									
	5									
	6									
	7									
	8									
	9									
	10	00/								
	Correct	0%								

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onary measurements						
Measurement time): 	min				
Test Data			Test	Report		
Identified						
1	(Yes/No entry)	The monitor	r correctly identi	fied 131	Yes	No
2			in 8 out of 1	0 trials	\square	L
3						
4						
6						
7						
8						
9						
10						
Correct 0%						
Comments:						
Completed by:				Date:		
Reviewed by:		· · · · ·		Date:		

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			5 Determinati		····				_
			Data Shee	et					
Mar	nufacturer:								
	Model:					Serial Number:			
Date F	Performed:					Test Location:			_
Requirement:	(356 keV at 62. 99.857% and 99	05%, T1/2 = 10.5	full-energy-peak efficie y), 137Cs (662 keV al ely, T1/2 = 5.27 y).	ncy for 57Co (12 : 85.1%, T1/2 = 3	2 keV at 85.51 30 y), and 60Co	%, T1/2 = 272 d), (1173 and 1332 l	133Ba keV at		
			lear Structure Data Fil ssariat á l'énergie aton			de Métrologie-La	boratoire		
Note s:	National Henri E	Becquerel/Commis		nique (BNM-LNH		de Métrologie-La	boratoire		
Note s:	National Henri E	Becquerel/Commis	ssariat á l'énergie aton	nique (BNM-LNH		de Métrologie-La			
	National Henri E	Becquerel/Commis	ssariat á l'énergie aton	nique (BNM-LNH ified.		de Métrologie-La		in Hg	
Ter	National Henri E	required when the <u>Test</u> ° C	ssariat á l'énergie aton requirement is not ver Results (Peak Efficie	nique (BNM-LNH ified.	B/CEA)			in Hg	
Ter	National Henri E	required when the ° C Jsed:	ssariat á l'énergie aton requirement is not ver Results (Peak Efficie	ified.	B/CEA)	Pressure:			

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etector 1										
				Efficie	ency Results					
			Sourc	;e	Measured Efficiency	Manufacturer Stated Efficiency				
			Co-5	7	#VALUE!					
			⁶⁰ Co, P	°k1	#VALUE!					
			⁶⁰ Co, P	²k2	#VALUE!					
			Ba-13	33	#VALUE!					
			Cs-13	37	#VALUE!					
			Test Meas	surem	ents (Peak Effic	iency)				
			1	_	ak dps comput	ations				
	Source	ID	Decaye activity to (uCi)	o date	Decayed Activity (Bq)	Abundance (Abd)	Peak (gammas/s)			
	⁵⁷ Co				#VALUE!	0.8551	#VALUE!			
	⁶⁰ Co, Pk1				#VALUE!	0.99857	#VALUE!			
	60Co, Pk2				#VALUE!	0.99983	#VALUE!			
	¹³³ Ba				#VALUE!	0.6205	#VALUE!			
	¹³⁷ Cs				#VALUE!	0.851	#VALUE!			
			Table 2	2. Net I	Peak cps comp	utations				
	Source	Gross Peak Area	Peak E	Bkg	Net Peak Area	Acquisition time seconds	Net Peak Count Rate	Measured efficiency		
	⁵⁷ Co				#VALUE!		#VALUE!	#VALUE!		
	⁶⁰ Co, Pk1				#VALUE!		#VALUE!	#VALUE!		
	⁶⁰ Co, Pk2				#VALUE!		#VALUE!	#VALUE!		
	¹³³ Ba				#VALUE!		#VALUE!	#VALUE!		
	¹³⁷ Cs				#VALUE!		#VALUE!	#VALUE!		

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Detector 2										
Detector Z			Effici	ency Results						
			Source	Measured Efficiency	Manufacturer Stated Efficiency					
			Co-57	#VALUE!						
			⁶⁰ Co, Pk1	#VALUE!						
			⁶⁰ Co, Pk2	#VALUE!						
			Ba-133	#VALUE!						
			Cs-137	#VALUE!						
			To at Magazira	onto (Book Effic	ianov)					
			Test Measurem	ents (Peak Effic	liency)					
			Table 1. Pe	eak dps comput	ations					
	Source	ID	Decayed activity to date (uCi)	Decayod	Abundance (Abd)	Peak (gammas/s)				
	⁵⁷ Co			#VALUE!	0.8551	#VALUE!				
	60Co, Pk1			#VALUE!	0.99857	#VALUE!				
	60Co, Pk2			#VALUE!	0.99983	#VALUE!				
	¹³³ Ba			#VALUE!	0.6205	#VALUE!				
	¹³⁷ Cs			#VALUE!	0.851	#VALUE!				
		_	Table 2. Net	Peak cps comp	utations			-		
	Source	Gross Peak Area	Peak Bkg	Net Peak Area	Acquisition time seconds	Net Peak Count Rate	Measured efficiency			
	⁵⁷ Co			#VALUE!		#VALUE!	#VALUE!			
	60Co, Pk1			#VALUE!		#VALUE!	#VALUE!			
	60Co, Pk2			#VALUE!		#VALUE!	#VALUE!			
	¹³³ Ba			#VALUE!		#VALUE!	#VALUE!	1		
	¹³⁷ Cs			#VALUE!		#VALUE!	#VALUE!	1		
				-						
Comments:										
									-	
Completed by:						Date:				
						Date:				

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Section 6.16 Determination of Full Width Half Maximum (FWHM) Data Sheet and Report

Manufacturer:									
Model:				Seria	l Number:				
Date Performed:				Test	Location:				
Requirement:	The manuf	acturer sha	II state the F	WHM as de	efined in the	e IEEE sta	ndard appro	priate to	
			137Cs (662 l						
	0 1			<u> </u>					
Notes:	Comments	are require	ed when the	requirement	is not veri	ied.			
Ten	nperature:		°C	Humidity:		%	Pressure:		in Hg
Т	est Equipm	entUsed:							
So	urce Data:								
So	urce Data:								
So Note: if the mo			letectors the	e informatio	on below r	needs to be	e recorded	for each d	etector

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	Manufactu	rer's Stated	Measured value	_	
	FWHM C	s-137 (keV)	FWHM Cs-137 (keV)		
	Acceptar	nce Range			
	-	ed on			
	0.00	0.00			
	- 20 %	+ 20 %			
Detector 2	Full Width Ha	lf Maximum Mea	surements		
	Manufacturer's Stated		Measured value		
	FWHM C	s-137 (keV)	FWHM Cs-137 (keV)		
	Accorto	nce Range			
		ed on			
	0.00	0.00			
	- 20 %	+ 20 %			
Comments:					
ompleted by:			Date:		
Reviewed by:			Date:		
			Listo.		

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				Ambient		-				
			Test	Data and	Report					
Manufacturer:										
Model:				Ser	ial Number:					-
Date Performed:					st Location:	-			-	
Requirement:	The monitor s	hall be able	o operate ov	er an ambient t	temperature	range from -30	°C to +55°C.			
					-	-				
	The manufact	urer shall sta	ite the tempe	rature range fo	or displays or	user interface	components in	tended for u	ise in	
	weather prote	cted location	s.							
						1				
Nata	Commonto or		on the requir	amont is not y	mified				-	
Note:	Comments an	e required wi	ien the requi	rement is not v	ennea.					
	tracaria	tomo	í	1			1		1	+
Data — non-spec	uroscopic sys	tems								
0 -	na Dachuur	nd Da!!				(odd usite)				
Gami	na Backgrou	nd Reading				(add units)				
No	on Backgrou	nd Doodine				(add units)				
Neutr	on Backgrou	na Reading								
				Humidity:		%	Pressure:		in Hg	
Commo	Source Data:			numuny.		/0	Flessule.		III Ng	
Gamma	Source Data.								-	
Neutron	Course Date:									
Neutron	Source Data:								-	
				Test	Data					
				1030				Acc	eptance Ra	ngo
									nma Backgr	-
	Pre-Tes	st 22°C	1	Pre-Tes	st 22°C			#DIV/0!	to	#DIV/0!
	Ambient	Gamma		Ambient	Neutron					"Bitio.
	Gamma	Gamma		Neutron	Response			-15%		+15%
	Background			Background						
1			(add units)			(add units)		Accepta	nce Range	- Gamma
2			,			,				
3						1		#DIV/0!	to	#DIV/0!
4								-15%		+15%
5										
6										
7									eptance Ra	-
8					ļ				tron Backgr	
9								#DIV/0!	to	#DIV/0!
10								-15%		+15%
Mean		#DIV/0!		#DIV/0!	#DIV/0!				<u> </u>	
STD		#DIV/0!	_	#DIV/0!	#DIV/0!			Accepta	nce Range	- Neutron
COV	#DIV/0!	#DIV/0!	<u> </u>	#DIV/0!	#DIV/0!			#DIV//01	4-	#DIV/01
								#DIV/0! -15%	to	#DIV/0! +15%
							1	-15%		

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With Sources								
				-3	0°C			
		Begi	inning	8	hrs	16	hrs	
		Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	
		Response	Response	Response	Response	Response	Response	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
					ngs after 4 hour			
		-2	0°C	(0°C	+4(
		Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	
		Response	Response	Response	Response	Response	Response	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
				+	55°C			
		Beai	inning		hrs	16	hrs	
		Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	
		Response	Response	Response	Response	Response	Response	
	1				-			
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
		#DIV//01	#D/\//QI	#D/\//01	#D/\//QI	#D/\//QI	#DIV//01	
	Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

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		Deet To	at 22°C			Post-Te	at 22°C			
		Post-Te Ambient Gamma	Gamma Response			Ambient Neutron	Neutron Response			
		Background		(add upita)		Background		(add unite)		
	1			(add units)				(add units)		
	2									
	3									
	4									
	5									
	6									
	7									
	9									
	10									
	Mean	#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!			
				Did t	he occupa	incy sensor trig	ger?	1	1	
			Beg	inning		8hrs	161	nrs		
			Yes	No	Yes	No	Yes	No		
		-30°C		┨────┤					4	
		+55°C	l			1			1	
			Did	the occupan	cy sensor	rigger?				
			Beg	inning		4hrs				
			Yes	No	Yes	No				
		-20°C		II]			
		0°C								
ta —spectrosc	onic systems	0°C +40°C								
ta —spectrosc Gamı		0°C +40°C				(add units)				
Gamı	na Backgrou	0°C +40°C				(add units)				
Gamı	na Backgrou	0°C +40°C 3 Ind Reading:				(add units)				
Gamı	na Backgrou	0°C +40°C 3 Ind Reading:		Humidity:			Pressure:		in Hg	
Gamı	na Backgrou on Backgrou	0°C +40°C a nd Reading: nd Reading:		Humidity:		(add units)	Pressure:		in Hg	
Gamı	na Backgrou on Backgrou	0°C +40°C 3 Ind Reading:		Humidity:		(add units)	Pressure:		in Hg	
Gamı	na Backgrou on Backgrou Gamma	0°C +40°C a nd Reading: nd Reading:		Humidity:		(add units)	Pressure:		in Hg	
Gamı	na Backgrou on Backgrou Gamma	0°C +40°C and Reading: a Source Data:		Humidity:		(add units)	Pressure:		in Hg	
Gamı	na Backgrou on Backgrou Gamma Neutroi	0°C +40°C s and Reading: a Source Data: n Source Data: Pre-test 22°C		Humidity:		(add units)	Pressure:		in Hg	
Gamı	na Backgrou on Backgrou Gamma	0°C +40°C s Ind Reading: a Source Data: 1 Source Data: Pre-test 22°C Neutron		Humidity:	lso	(add units) %	Pressure:			- Gamma
Gamı	na Backgrou on Backgrou Gamma Neutroi	0°C +40°C s and Reading: a Source Data: n Source Data: Pre-test 22°C	Isotopes	Humidity:		(add units) %	Pressure:		in Hg	- Gamma
Gamı	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Iso A- B-	(add units) % tope Key	Pressure:	Acceptar		
Gamı Neutr	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Α-	(add units) %	Pressure:		nce Range	- Gamma #DIV/0! +15%
Gamı Neutr 1 2 3	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15%	nce Range to	#DIV/0! +15%
Gamı Neutr 1 2 3 4	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15%	nce Range	#DIV/0! +15%
Gamı Neutr 1 2 3 4 5	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15% Acceptar	nce Range to	#DIV/0! +15%
Gami Neutr 1 2 3 4 5 6	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15% Acceptar #DIV/0!	nce Range to	#DIV/0! +15% - Neutron #DIV/0!
Gami Neutr 1 2 3 4 5 6 6 7	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15% Acceptar	nce Range to	#DIV/0! +15%
Gami Neutr 1 2 3 4 5 6 7 7 8	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15% Acceptar #DIV/0! -15%	to to to	#DIV/0! +15% - Neutron #DIV/0! +15%
Gami Neutr 1 2 3 4 5 6 6 7	na Backgrou on Backgrou Gamma Reutrou Gamma Response	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15% Acceptar #DIV/0! -15%	to to to	#DIV/0! +15% - Neutron #DIV/0!
Gami Neutr Neutr 1 2 3 4 4 5 6 6 7 7 8 9 9 10 Mean	na Backgrou on Backgrou Gamma Response (add units)	0°C +40°C and Reading: a Source Data: a Source Data: Pre-test 22°C Neutron Response (add units) add units) add units) add units) add units) add units) add units) add units)	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15% Acceptar #DIV/0! -15%	nce Range to to to on Accepta	#DIV/0! +15% - Neutron #DIV/0! +15%
Gami Neutr 1 2 3 4 5 6 7 7 8 9 9	ma Backgrou on Backgrou Gamma Response (add units)	0°C +40°C a Source Data: a Source Data: n Source Data: Pre-test 22°C Neutron Response (add units)	Isotopes	Humidity:	Α-	(add units) % tope Key	Pressure:	Acceptar #DIV/0! -15% Acceptar #DIV/0! -15%	nce Range to to to on Accepta	#DIV/0! +15% - Neutron #DIV/0! +15%

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					- 30°C				
		Beginning			- 30°C 8hrs			16 hrs	
	Gamma	Neutron	Isotopes	Gamma	Neutron	Isotopes	Gamma	Neutron	Isotopes
	Response	Response	Identified	Response	Response	Identified	Response	Response	Identified
1									
3									
4									
5									
7									
8									
9									
10 Mean	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	
STD		#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	
CV		#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	
		-20°C			0°C			40°C	
	Gamma	Neutron	Isotopes	Gamma	Neutron	Isotopes	Gamma	Neutron	Isotopes
	Response	Response	Identified	Response	Response	Identified	Response	Response	Identified
1									
3									
4									
5									
6									
8									
9									
10	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	
Mean STD		#DIV/0! #DIV/0!		#DIV/0! #DIV/0!	#DIV/0! #DIV/0!		#DIV/0! #DIV/0!	#DIV/0! #DIV/0!	
cv	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	1
					55°C		<u> </u>		<u> </u>
		Beginning			8hrs			16 hrs	
	Gamma	Neutron	Isotopes	Gamma	Neutron	Isotopes	Gamma	Neutron	Isotopes
1	Response	Response	Identified	Response	Response	Identified	Response	Response	Identified
2									
3									
4									
6									
7									
8									
9 10									
Mean		#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	
STD		#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	
				#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	4

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		Post-test 22°C									
	Gamma	Neutron	Isotopes								
	Response	Response	Identified								
	(add units)	(add units)									
1											
 2											
 3 4											
 - 5											
6											
 7											
8											
9											
10											
Mean	#DIV/0!	#DIV/0!									
STD	#DIV/0!	#DIV/0!									
CV	#DIV/0!	#DIV/0!									
				<u>Test</u>	Report						
		V	erify if moni	tor response:	s are within	the acceptar	nce ranges				
				Response		Response	4 - 1		fication		
			Yes	No	Yes	No	4	Yes	No		
 		55°C					4				
 		40°C	H				4 -				
 		0°C	_ <u> - </u>	┝┥	┝┥		4				
		-20°C -30°C			┝┥		4 -				
 		-30 %									
 					Pre-Test 22°	c			Acc	eptance Ra	nae
				Ambient	Gamma	Neutron					J.
											#DIV/0!
				Background	Response	Response			#DIV/0!	to	#DIV/0!
			1		Response				#DIV/0!	to	#D10/01
			1		Response					to	
			•		Response				-15%		+15%
			2		Response				-15%	to	+15%
			2		Response				-15%		+15% - Gamma
			2 3 4		Response				-15% Acceptar	nce Range	+15% - Gamma
			2 3 4 5		Response				-15% Acceptar #DIV/0!	nce Range	+15% - Gamma #DIV/0!
			2 3 4 5 6		Response				-15% Acceptar #DIV/0! -15%	nce Range	+15% - Gamma #DIV/0! +15%
			2 3 4 5 6 7		Response				-15% Acceptar #DIV/0! -15%	nce Range - to	+15% - Gamma #DIV/0! +15%
			2 3 4 5 6 7 8		Response				-15% Acceptar #DIV/0! -15%	nce Range - to	+15% - Gamma #DIV/0! +15% - Neutron
			2 3 4 5 6 7 8 9		Response				-15% Acceptar #DIV/0! -15% Acceptar	to to	+15% - Gamma #DIV/0! +15% - Neutron
			2 3 4 5 6 7 8 9 9	Background	#DIV/0!	Response #DIV/0!			-15% Acceptar #DIV/0! -15% Acceptar #DIV/0!	to to	+15% - Gamma #DIV/0! +15% - Neutron #DIV/0!
			2 3 4 5 6 7 8 9 10 10 Mean STD	Background		Response			-15% Acceptar #DIV/0! -15% Acceptar #DIV/0!	to to	+15% - Gamma #DIV/0! +15% - Neutron #DIV/0!
		Did Occupar	2 3 4 5 6 7 8 9 10 10 Mean STD COV	Background	#DIV/0! #DIV/0!	Response #DIV/0! #DIV/0!			-15% Acceptar #DIV/0! -15% Acceptar #DIV/0!	to to	+15% - Gamma #DIV/0! +15% - Neutron #DIV/0!
		Did Occupar	2 3 4 5 6 7 7 8 9 10 Mean STD COV covsensor	Background	#DIV/0! #DIV/0!	Response #DIV/0! #DIV/0!	Enter Yes/No		-15% Acceptar #DIV/0! -15% Acceptar #DIV/0!	to to	+15% - Gamma #DIV/0! +15% - Neutron #DIV/0!

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				0°C			
	Begir		8h		16		
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	
	Response	Response	Response	Response	Response	Response	
 1							
 2							
 3							
 4							
 5							
 7							
8							
9							
10							
Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
 Did							Enter
 Occupancy							Yes/No
	-20	°C	0°	С	+4()°C	
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	
	Response	Response	Response	Response	Response	Response	
 1							
 2							
 3							
 4							
 5							
 6							
 7							
 o 9							
 9 10							
 Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
 Did	#010/0	#010/0:	#010/0:	#010/0:	#010/0:	#010/0:	Enter
 Occupancy							Yes/No
 Suparioy						ļ	
	Begir	nina	8h	rs	16	hrs	
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	
	Response	Response	Response	Response	Response	Response	
1							
2							
3							
4							
 5]	
 6]	
7							
8]	
 9							
 		1					
10						// D. 1/ 0.1	
10 Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Enter Yes/No

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			Post-Test 22°	С		
		Ambient Back-	Gamma Response	Neutron Response		
	1					
	2					
	4					
	5					
	6					
	7					
	8					
	9 10					
	Mean	#DIV/0!	#DIV/0!	#DIV/0!		
	Did Occupancy Sensor Trigger?				Enter Yes/No	
Comments:						
Completed by:					Date:	
Reviewed by:					Date:	

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				2 Relat						_			
			Test D	ata and	Repo	rt				_			
Manufacturer:													
Manufacturer: Model:				Soria	I Number:								
Date Performed:				-	Location								
Date i chonnea.				1030	Location								
	to 93% RH	The monitor shall be able to operate during and after exposure to relative humidity (RH) levels of up to 93% RH at an ambient temperature of +40°C.											
	There shal	ll not be any	observab	le effects fro	m the expo	osure.							
	Note:	Comments	are requir	ed when the	e requireme	ent is not ve	rified.						
	Gamma S	ource Data:											
	Neutron S	ource Data:											
		Test Data											
									Acceptance Range				
				-					ma Backg				
		Pre-Tes			Pre-Test 22°C			#DIV/0!	to	#DIV/0			
		Ambient Gamma	Gamma		Ambient Neutron	Response		-15%		+15%			
	1	Backgrou		(add units)	Backgrou		(add units)	Accontan	co Pana	e - Gamma			
	2			(auu units)			(auu units)	Acceptal	ce nange	s - Gamma			
	3							#DIV/0!	to	#DIV/0			
	4							-15%		+15%			
	5												
	6												
	7								ptance F	•			
	8								on Backg	•			
	9							#DIV/0!	to	#DIV/0 +15%			
	Mean		#DIV/0!		#DIV/0!	#DIV/0!		-1370		. 13/0			
	STD		#DIV/0!		#DIV/0!	#DIV/0!		Accentar	co Range	e - Neutror			
	COV	-	#DIV/0!		#DIV/0!	#DIV/0!		Acceptai	co nanye	s - Neuri Ol			
				-									
								#DIV/0!	to	#DIV/0			

	TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682		
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		With Sou	rces								
					0.201	Polotico !!	una i dite 4	40%0			
		Но	ur 1	Но	93% ur 2	Relative H	umidity at ur 3		ur 4	Hou	ur 5
		Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
	1	Gainina	Neuron	Gainina	Neutron	Gainina	Neutron	Gainina	Neuron	Gainina	neution
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9 10										
		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Did the occupancy	Yes										
sensor trigger?	No										
					93%	Relative H	umiditv at	40°C			
		Но	ur 6	Но	ur 7		ur 8		ur 9	Hou	ır 10
		Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
	1										
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	10										
	Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Did the occupancy	Yes					1		[
sensor trigger?	No										
					000/			4000			
		Ног	ır 11	Цол	93% ur 12	Relative H	umidity at		ır 14	Нои	ır 15
		Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
	1	Gainina	Neuron	Gainina	Neutron	Gainina	Neutron	Gainina	Neutron	Gainina	Neuron
	2										
	3										
	4										
	5										
	6										
	7										
	9										
	10										
	Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Did the occupancy	Yes										
sensor trigger?	No										
sensor trigger?	No										L

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		020/ 5-	lativa -			059/ 5				059/ 5	
		93% Re					elative				elative
		Humidity				Humidit	y at 40°C			Humidit	y at 22°C
		Hou				-				-	
		Gamma	Neutron			Gamma	Neutron			Gamma	Neutro
	1				1				1		
	2				2				2		
	3				3				3		
	4				4				4		
	5				5				5		
	6				6				6		
	7				7				7		
	8				8				8		
	9				9				9		
	10				10				10		
	Mean	#DIV/0!	#DIV/0!		Mean	#DIV/0!	#DIV/0!		Mean	#DIV/0!	#DIV/0
Did the occupancy	Yes										
sensor trigger?	No										
				Yes	No						
Where there observ	able effec	ts from the	exposure?								
Describe:			•								
Co	mments:										
											-
	Com	pleted by:						Date:			
							[
	Rev	iewed by:						Date:			
	110 4							Duite.			



		ection		- 1 !	Der -	4			
			l est D	ata and	Repor	t			
Manufacturer:									
Manuacturer: Model:				Soria	I Number:				
Date Performed:					Location:				_
				1000	Looution				
Requirement:	requirement ingress of of shall not po- safety, and If the monified enclosure a holes shout to salt mist Mounting h shall be de	nts stated for dust and sp enetrate in d water spla tor is moun shall meet ild be avoid t. nardware or esigned to r	or IP code 5 blashing wat a quantity to ashed agains ted to the ex- the requirem ed if at all po- other simila educe or pre-	s designed for 4 (see IEC 60 er. For IP54, 5 interfere wit st the enclose exterior of a venents of the II possible. Moni- ar component event corrosic rs or compor	0529). The the ingress th satisfact ure from ar chicle or oth P55 design itors design itors design sthat coul on.	instrument s of dust is ory operati ny direction ner platform lation (no d ned for use d be expos	shall be pro not totally p on of the ins shall have r h that can be lamage by je at port facili	otected fro prevented, trument of no harmful e transport etted water ities will be alt mist en	m the but dust r to impai effects. red, the r). Vent e expose
			aritime opera						
Tom	those designed by those designed by the second seco	gned for ma	aritime opera	ations.		is not verif			in Ha
Tem	those desig	gned for ma	aritime opera	ations.			ied. Pressure:		in Hg.
	those designed by those designed by the second seco	gned for ma	aritime opera	ations.		is not verif			in Hg.
	Note:	gned for ma	aritime opera	ations.	equirement	is not verif			in Hg.
	Note:	gned for ma	aritime opera	d when the re Humidity: est Data - D	equirement	is not verif %			in Hg.
	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D	equirement	is not verif %			in Hg.
	Note:	gned for ma	aritime opera	d when the re Humidity: est Data - D	equirement	is not verif %			in Hg.
Sou	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Accepta	equirement ust nce Range	is not verif % - Gamma			in Hg.
Sou 1	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0!	equirement ust nce Range	is not verif % - Gamma #DIV/0!			in Hg.
Soi 1 2	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0!	equirement ust nce Range	is not verif % - Gamma #DIV/0!			in Hg.
Sou 1 2 3	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0! -15%	equirement ust nce Range	is not verif % - Gamma #DIV/0! +15%			in Hg.
Sou 1 2 3 4	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0! -15%	equirement ust nce Range to	is not verif % - Gamma #DIV/0! +15%			in Hg.
Sou 1 2 3 4 5	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0! -15%	equirement ust nce Range to	is not verif % - Gamma #DIV/0! +15%			in Hg.
Sou 1 2 3 4 5 6	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0! -15%	equirement ust nce Range to	is not verif % - Gamma #DIV/0! +15%			in Hg.
Sou 1 2 3 4 5 6 7	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0! -15%	equirement ust nce Range to	is not verif % - Gamma #DIV/0! +15%			in Hg.
Sou 1 2 3 4 5 6 7 8	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0! -15%	equirement ust nce Range to	is not verif % - Gamma #DIV/0! +15%			in Hg.
Sou 1 2 3 4 5 6 7 8 9	Note: Note: urce Data: Pre-Test	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0! -15%	equirement ust nce Range to	is not verif % - Gamma #DIV/0! +15%			in Hg.
Sou 1 2 3 4 5 6 7 8 9 9 10	Note: nperature: urce Data: Pre-Test ¹³⁷ Cs	gned for ma	aritime opera	d when the re Humidity: est Data - D Acceptar #DIV/0! -15%	equirement ust nce Range to	is not verif % - Gamma #DIV/0! +15%			in Hg.

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			103	t Data - Mois	<u>AUI U</u>			
	Pre-Test	Post-Test		Acceptan	ce Range	- Gamma		
	¹³⁷ Cs	¹³⁷ Cs			-			
1				#DIV/0!	to	#DIV/0!		
2				-15%		+15%		
3								
4								
5				Inpectio	n Results	5		
6								
7								
8								
9								
10								
Mean	#DIV/0!	#DIV/0!						
STD		#DIV/0!						
COV	#DIV/0!	#DIV/0!						
				0.00				
				UCCU	pancy se	ensor trigge	13	
							Yes	No
			Did oc	cupancy ser	nsor trigg	er (Dust)?		<u> </u>
			Did occup	ancy sensor	trigger (Moisture)?		
						, ,		

Date:

Date:

Comments:

Completed by:

Reviewed by:

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			dio Freque at Data and					
		163	d Data anu	Report				
Manufacturer:								
Model:				Se	rial Number:			
ate Performed:			;	т	est Location:			
	Requirement [.]	The monitor st	hould not be affect	ted by RF fields o	ver the frequer	ncy range of	80 MHz to	
			an intensity of 10					
			ed to the higher in					
		performance re	equirement for RF	is 50 V/m.				
	Note:	Comments are	e required when th	ne requirement is	not verified.			
	Temperature:		°C	Humidity:		%	Pressure:	 in Hg.
	remperature.			numary.		70	Treasure.	
	Test Equ	ipment Used:						
		Frequenc	cy Scan Observa	tions Without S	ources			
			1					

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		With Cs-137 and C	f-252 Sour	ces		
	Nominal					
	No RF	Source Data:				
	Gamma					
1						
2						
3		Acceptance	e Range (Gamma)		
4		#DIV/0!	to	#DIV/0!		
5		low (-15%)		high (+15%)		
6						
7		Acceptance	e Range (l	Neutron)		
8		#DIV/0!	to	#DIV/0!		
9		low (-15%)		high (+15%)		
10						
Mean	#DIV/0!					
STD	#DIV/0!					
COV	#DIV/0!					
		Frequ	ency Scar	n Observations w	ith Sources	
	Nominal					
	No RF					
	Neutron					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Mean	#DIV/0!					
STD	#DIV/0!					
COV	#DIV/0!					
	Comments:					
Con	npleted by:			Date:		
Ro	viewed by:			Date:		
116				Date.		



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	Sec	tion 8.2	Radiat	ed Emi	ssions				
		Test D	Data an	d Repo	rt				
Ma mufa atuma m									
Manufacturer: Model:				Soria	I Number:				
Date Performed:					Location:				
Date Performed.				1651	Location.				
Requirement:	The emission lim what is shown be		asured at th	nree meters	from the mo	nitoring sys	tem shall t	be less than	
		En	nission Fre	quency Ran	ge				
		(MHz)		Field S					
				(micro vo	lts/meter)				
		30 – 88		1(00				
		88 – 216		15	50				
		216 – 960		20	00				
		>960		50	00				
Note:	Comments are re	equired whe	n the requi	rement is n	ot verified.				
Occupancy operation	ns								
			-	Test Repor	t				
				reschepor	L				
					Yes	No			
			sions were		103	NO			
		aco	ceptable lin	nits	L	Ц			
lon-occupancy oper	ations								
				Test Repor	+		1		
						NI-			
		Emiss	sions were	within	Yes	No			
		aco	ceptable lin	nits	Ц				
Comments:									
	Completed by:					Date:			
	<u> </u>					- · ·			
	Reviewed by:					Date:			



Section 8.3 AC Line Voltage Operation Test Data and Report

Manufacturer:								
Model:					Number:			
Date Performed:				Test	Location:			
Requirement:			apable of operative of operative of operative operation of the second seco					
			within ±3 % fre			111111 ± 12 70	or the	
Note:	Comments	are requir	red when the re	equiremer	nt is not ve	rified.		
Temperature:		°C	Humidity:		%	Pressure:		in Hg.
Gamma So	ource Data:							
Neutron So	ource Data:							
			<u>Test Da</u>	ta				
		Nomina	l Voltage					
		Gamma	Neutron		Acceptar	nce Range	- Gamma	
	Readings		Reducin		#DIV/0!	to	#DIV/0!	(add units
	1				-15%		+15%	
	2							
	3							
	4					_		
	5				Acceptar	nce Range	- Neutron	
	6 7		-		#DIV/0!	to	#DIV/0!	(add units
	8				-15%	ιο	+15%	(auu units
	9		-		-1070		1070	
	10							
	Mean	#DIV/0!	#DIV/0!					
	STD		#DIV/0!					
	cov	#DIV/0!	#DIV/0!					

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		je +12%		je -12%	58Hz		62Hz	
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutror
Readings								
1								
2								
4								
5								
6								
7								
8 9								
9 10								
Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
Wican	#BIV/0:	#DIV/0:	#DIV/0:	#01070:	#BIV/0:	#DIV/0:	#DIV/0:	#BIV/C
		Δre	e Results V	/ithin Ran	de?			
				Yes	no			
		Vol	tage +12%					
		-						
		Vo	Itage -12%					
			58 Hz					
					_			
			62 Hz					
-								
Comments:								
								_
Completed by					Date:			
Completed by:					Date:			_
Reviewed by:					Date:			



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Section 8.4 Battery Lifetime Data Sheet and Report

Test Data and Report

Manufacturer:								
Model:				Seria	I Number:			
Date Performed:				Test	Location:			
Requirement:	Monitors o	ther than th	nose desigr	ed for use of	on cranes s	hall be able	to operate	including
	storing me	asurement	data for up	to 8 h if the	ere is a loss	of external	power.	
Note:	Comments	are require	d when the	requirement	t is not verifi	ed.		
			Test F	Results				
							Yes	No
The mo	onitor perfor	med as req	uired for 8	hours follow	/ing remova	l of power?		
	•		•		for each o			
					during the			
			, 		J			
Comments:								
	-							
Completed by:						Date:		

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Section 8.5. Electrostatic Disch	argo (ESD)			

				+	Donort	and	act Dat	т		
				1	Report	a anu i	est Dat	I		
										Manufacturer:
					l Number	Soria				Manuacturer. Model:
				_	Location					Date Performed:
				n	Location	Test				Date Performed.
	+	discharges at	o electrostatio	(00611	ted by eve	ot he affect	nent shall n	The instru	auiromont	
		uischarges ar	ge technique.							Γ.t
			ge technique.	uisc		v using the				
			ot verified	nent i	requireme	d when the	are require	Comments	Noto:	
			ot vernica.		requirering			Commente	Note.	
					0/			10		-
		in Hg.	sure:	Pr	%		Humidity:	°C		Temperature:
				_					Equipment:	Test
									Source Data:	Gamma
									Source Data:	Neutron
	ptance Ra									
ound	na Backgro	Gamn								
#DIV/	to	#DIV/0!			Test	Pre-		est	Pre-T	
+159		-15%		n	Neutron	Ambient		Gamma	Ambient	
						Neutron			Gamma	
- Gamm	ce Range ·	Acceptan	inits)	(ad			(add units)			1
										2
#DIV/	to	#DIV/0!								3
+15		-15%								4
										5
										6
nge	ptance Ra	Acce								7
	on Backgro									8
#DIV/	to	#DIV/0!								9
+15		-15%								10
					#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	Mean
- Neutro	ce Range	Acceptan			#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	STD
				!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	COV
	to	#DIV/0!								
#DIV/ +15	10	-15%		_						

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			Occupan	cy Mode w	ithout Sou	urces (Che	ck if alarm	s) - 2kV	_	
	Poir			nt 2		int 3		nt 4		nt 5
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
						Check if ou				
	Poir			nt 2		nt 3		nt 4		nt 5
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
						Sources (Cl				
	Poir			nt 2		int 3		nt 4		nt 5
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1		ļ								
2		ļ								
3		ļ								
4										
5										
6										
7										
8										
9										
10										

TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682	
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	l	Non	Occupanc	y Mode wi	ill Source	S (Check h				
	Poir			nt 2		nt 3		nt 4		nt 5
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutro
1	ļ									
2	ļ									
3										
4	ļ									
5	<u> </u>									
6										
7										
8										
9										
10										
Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
			2kV - Tes	t Report						
	ļ				Yes	No				
		ccupancy								
	n occupanc	y mode, re	adings wit	thin range						
	<u> </u>					1				
		ccupancy								
	n-occupanc	y mode, re	adings wi	inin range						
	1		Occurren	ov Mode w	uithout Cou	urees (Che	ok if olormo			
	Poir	+ 1				urces (Che			Poi	nt E
	Poir Yes	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		nt 5 No
	Poir Yes	nt 1 No							Poi Yes	nt 5 No
1	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		
2	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		
2	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		
2 3 4	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		
2 3 4 5	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		
2 3 4 5 6	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		
2 3 4 5	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		
2 3 4 5 6	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		
2 3 4 5 6 7	-	-	Poi	nt 2	Poi	nt 3	Poi	nt 4		

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							ut of tolera			
	Poin	nt 1	Poi	nt 2	Poi	nt 3	Poi	nt 4	Poi	nt 5
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
		Ν	on-Occupa	ancy Mode	without S	ources (Ch	neck if alaı	ms) - 4kV		
	Poin	nt 1	Poi	nt 2	Poi	nt 3	Poi	nt 4	Poi	nt 5
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1										
2										
3										
4										
-										
5										
6										
7										
8										
9										
10										
		Non	Occupanc	y Mode wi	th Source	s (Check if	out of tole	erance) - 4	kV	
	Poin			nt 2		nt 3	Poi			nt 5
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
1										
2										
3										
5										
7										
4				1	1					
4										
6										
6										
6 7										
6 7 8										

TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682	
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			4kV - Tes	t Report						
					Yes	No				
		ccupancy								
	n occupanc	y mode, re	adings wi	thin range						
	-		-		1	1				
		ccupancy								
	n-occupanc	y mode, re	adings wi	thin range						
			Occupan	cy Mode w	uithout Sou	urcos (Cho	ek if alarm	c) 6kV		
	Poir	at 1		int 2		nt 3		nt 4	Poi	nt 5
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1	103		163		100	140	100	140	100	- 110
2										
3										
4										
5										
6										
7										
8										
g										ļ
10										
				Mode with						
	Poir		-	int 2		nt 3	-	nt 4	-	nt 5
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutro
1										
2										l
3				L						
4										
5										
6										
7										
8										
9										
	1									
10										

TEST AND EVALUATION PROTOCOL	TEP NO. N42.43	PREPARED BY: DIV682	
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	l			ancy Mode						
	Poir		-	nt 2	-	nt 3	Poi			nt 5
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1										
2										
3										
4										
5										
6										
7										
8										
9										
10		1								
		Non	-Occupano			ith Sources (Check if				
	Poir	nt 1	Point 2		Point 3	Point 4		Poi	nt 5	
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	Gamma	Neutro
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
Mean		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
			"BINO.	#B100		<u>B</u> 11/0.	"DINO.	<i></i>		
			6kV - Tes	t Report						
					Yes	No				
		occupancy	mode, sys	tem alarm	Yes	No				
	In o n occupanc		mode, sys	tem alarm	Yes	No				
	n occupanc	y mode, re	mode, sys adings wi	tem alarm thin range		No				
	n occupanc	y mode, re occupancy	mode, sys adings wi mode, sys	tem alarm thin range tem alarm		No				

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Comments:				-
comments.	 			-
				-
		Deter		_
Completed by:	 	Date:	 1	-
Reviewed by:		Date:		-
				-

		Section	n 8.6 Cond	ucted Distu	irbances				
		Induced	by Bursts a	and Radio F	requenci	ies			
		Tes	st Data and	Report					
Manufacturer									
Model: Date Performed:					rial Number: est Location:				
Date Performed.					est Location.				
	Requirement:		all not be affecte ernal conducting	d by RF fields that	t can be cond	ucted onto th	ne monitor		
		uniougn an exi	ernal conducting						
	Note:	Comments are	e required when th	ne requirement is	not verified.				
									-
	Temperature:		°C	Humidity:		%	Pressure:	 in Hg.	
Occupancy Mode									
	Test Equ	ipment Used:							
		Frequenc	cy Scan Observa	ations Without Se	ources				
			•						

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			With Cs-137 and	Cf-252 Sources				
Ī	Nominal		Gam	ma Source Data:				
	No RF							
	Gamma		Neut	ron Source Data:				
1		(add units)						-
2		()						
3			Accepta	nce Range (Gar	nma)			
4			#DIV/0!	to	#DIV/0!			
5		1	low (-15%)		high (+15%)			
6		1						
7		1	Accenta	nce Range (Neu	utron)			
8		1	#DIV/0!	to	#DIV/0!		1	
9		4	low (-15%)		high (+15%)			
10		-	1011 (1070)					
Mean	#DIV/0!	4						
STD	#DIV/0!	-						
COV	#DIV/0!	4						
000	#DIV/0!	_	E		41	141- 0		-
			Fre	quency Scan O	oservations w	Ith Sources	5	-
		-						
	Nominal							
	No RF							
	Neutron							
1		(add units)						
2								
3								
4								
5								
6								
7								
7								
7 8 9								
7								
7 8 9	#DIV/0!							
7 8 9 10	#DIV/0! #DIV/0!							
7 8 9 10 Mean								
7 8 9 10 Mean STD	#DIV/0!							
7 8 9 10 Mean STD	#DIV/0!							

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Non-Occupancy Mod	e							
	Test Equ	uipment Used						
		Frequen	cy Scan Observa	tions Without Se	ources			
			W/H 0- 107	06 050 0				
			With Cs-137 and	CT-252 Sources				
	Nominal	1	<u> </u>	ima Source Data:				
	Nominal No RF		Gam	ima Source Data:				
			Net					
1	Gamma	(add upita)	Neu	ron Source Data:				
2		(add units)						
3		-	A					
4			#DIV/0!	nce Range (Gau to	#DIV/0!			
5		-	low (-15%)		high (+15%)			
6		-	IOW (-15%)		nign (+ 15%)			
7		-	Accorto	nce Range (Neu	itron)			
8			#DIV/0!	to	#DIV/0!			
9		4	low (-15%)		high (+15%)			
10		4	1000 (-1378)		nign (+ 1376)			
	#DIV/0!							
Mean STD	#DIV/0!	-						
COV	#DIV/0!	-						
001	#01070:		Ero	quency Scan O	boonvations w	ith Sourcos		
			116	quency Scan O		Tur Sources	,	
	Nominal	1						1
	No RF							
	Neutron							1
1	Neation	(add units)						
2								
3								
4								
5								
6								1
7								1
8								
9								1
10					1			
Mean	#DIV/0!							
STD	#DIV/0!							
COV	#DIV/0!							
000	#010/0:	4						
					<u> </u>			ļ

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Comments:				
Completed by:		Date:		
Reviewed by:		Date:		

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			Test	Data and	Report				
			1031		Report				
Manufacturer:									
Model:				Se	erial Number:				
ate Performed:					est Location:				
					waves of up to 2	kV that are classified	as ring waves or		
	combination way	ves at 1.2/50 µ	is and 8/20 µ	S.					
Note:	Comments are	required whei	n the require	ment is not veri	fied.				
Temperature:		°C	Humidity:		%	Pressure:	in Hg.		
remperature.		0	nunnunty.		/0	11033010.			
Т	est Equipment:								
Gami	ma Source Data:								
Neutr	on Source Data:								
								otance Rai	
			-				Gamm	a Backgro	und
	Pre-T				Test		#DIV/0!	to	#DIV/0!
	Ambient	Gamma		Ambient	Neutron				
	Gamma Background			Neutron Background	Response		-15%		+15%
	васкугочно		(Баскугоини		(add		_	2
1			(add units)			(add units)	Acceptanc	e Range -	Gamma
3							#DIV/0!	to	#DIV/0!
4							-15%		+15%
5									
6									
7							Accer	otance Rai	nge
8								on Backgro	
9							#DIV/0!	to	#DIV/0!
10							-15%		+15%
Mean	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!				
STD	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		Acceptanc	e Range -	Neutron
COV	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!				
							#DIV/0!	to	#DIV/0!
							-15%		+15%

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			<u> Occ</u>	upancy Mode						
				Cs-137 \$	Source		Cf-252 S	Source		
	Mode withou (Check if			With Sources of tole			With Sources of toler			
	Combination	D , 147		Combination	_		Combination	_ , ,,,,		
	Wave	Ring Wave		Wave	Ring Wave		Wave	Ring Wave		
1						(add units)			(add units)	
2										
3										
4										
5										
6										
7										
8										
9										
10										
			Mean	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
			STD		#DIV/0!		#DIV/0!	#DIV/0!		
			COV	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
			Non-O	ccupancy Mode						
				Cs-137 S	Source		Cf-252 S	Source		
	Mode withou (Check if			With Sources of tole			With Sources of toler			
	Combination			Combination			Combination			
	Wave	Ring Wave		Wave	Ring Wave		Wave	Ring Wave		
1						(add units)			(add units)	
2										
3						1				
4										
5										
6										
7										
8										
9	1									
					1					
10										
10			Mean	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
10			STD	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
10										
10			STD	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		

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					Yes	No		
				, system alarm				
	In occupancy mode, readings within range							
						T		 _
				, system alarm				
	In non-occ	upancy mod	e, reading	s within range				
Comments:								
comments.								 _
								_
								_
								_
Completed by:						Date:	:	 _
Development hour						Data	-	
Reviewed by:						Date:		

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			Test	Data and	d Repor	t				
					•					
	Manufacturer:									
	Model:				Seria	al Number:				
Da	te Performed:				Tes	t Location:				
										_
	Requirement:									
				arp contacts at 1.4 m/s o					uivalent to a	
		mass of 1	kg moving	gat 1.4 m/s d	over a distan		(IEC 60068-	-2-75).		
	Note:	Comments	are requi	red when the	e requirement	t is not verifi	ed.			-
										-
										-
Те	st Equipment:									
Gamm	a Background	Reading:		(add units)		Neutron B	ackground	Reading:		(add un
	Temperature:		°C	Humidity:		%	Pressure:		in Hg.	
•										
Gamn	na Source Data:									
Noutr	on Source Data:									
neutre										
	Pretest				Pretest	1				
	Response				Response			Accepta	nce Range	- Gamm
	Gamma				Neutron			#DIV/0!	to	#DIV/
1		(add units)		1		(add units))	low		high
2				2						
3				3						
4				4						
5				5					nce Range	
6				6				#DIV/0!	to	#DIV/(
7				7				low		high
8 9				8		1				
9 10				9		-				
-	#DIV/0!			-	#DIV/0!	-				
Mean STD	#DIV/0! #DIV/0!			Mean STD	#DIV/0! #DIV/0!	-				
COV	#DIV/0! #DIV/0!			COV	#DIV/0! #DIV/0!	-				
	#DIV/0!				#DIV/U!	1				

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		<u>Test Dat</u>	a - Occup	ancy Mode	<u>)</u>	
		\A/;+L	nout Sourc			
		<u>vviu</u>	iout Sourc	<u>es</u>		
Impact						
Number	Side	No. 1		No. 2		No. 3
				arm during	~	
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
1						
2						
ہ No. of alarms						
NO. OF alarms						
Impact						
Number	Side	No. 4	Side	No. 5	Side	No. 6
	0.00			arm during		
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
1						
2						
3						
No. of alarms						
		Wi	ith Sources	5		
		<u></u>		<u>-</u>		
Impact						
Number	Side	No. 1	Side	No. 2	Side	No. 3
		Response	After Eacl			
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
1						
2						
3						
No. of alarms						
Immont					1	
Impact Number	Sido	No. 4	Side	No. 5	Sida	No. 6
Number	Side		After Eacl		Side	NO. 0
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron
1	Junna	nouton	Jannia	Nouton	Gainna	ACCU OI
2						
3						
No. of alarms						

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Non-Occupa	ncy Mode									
Те	st Equipment:									
	st Equipment.									
Gamn	na Background	Reading:		(add units)		Neutron B	ackground	Reading:		(add units)
	Temperature:		°C	Humidity:		%	Pressure:		in Hg.	
Gamr	na Source Data:									
Neutr	on Source Data:									
	Pretest				Pretest					
	Response				Response				nce Range	- Gamma
	Gamma				Neutron			#DIV/0!	to	#DIV/0!
1		(add units)		1		(add units))	low		high
2				2						
3				3						
5				4				Acconta	nce Range	Noutron
6				6		-		#DIV/0!	to	#DIV/0!
7				7				low		high
8				8		•				5
9				9						
10				10						
Mean	#DIV/0!			Mean	#DIV/0!					
STD	#DIV/0!			STD	#DIV/0!					
COV	#DIV/0!			COV	#DIV/0!					
		<u>Te</u>	est Data -	Non-Occ	upancy Mo	ode_				
			<u>Wit</u>	nout Sourc	<u>es</u>					
	Impost									
	Impact Number	Gida	No. 1	eida	No. 2	Sida	No. 3			
	Number	Siue			arm during					
		Gamma	Neutron	Gamma	Neutron	Gamma	~			
	1	Canna		Janna	noadon	Juina	10000			
	2									
	3									
	No. of alarms									
	Impact									
	Number	Side	No. 4		No. 5		No. 6			
					arm during					
		Gamma	Neutron	Gamma	Neutron	Gamma	Neutron			
	1									
	2 3									
	ہ No. of alarms									
						1				

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		<u>W</u> i	ith Sources	3			
 Impact							
Number	Side	No. 1	After Each	No. 2	Side	No. 3	
	Gamma	Neutron		Neutron	Gamma	Neutron	
1	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	
2							
3							
No. of alarms							
Impact							
Number	Side	No. 4	Side	No. 5	Side	No. 6	
	0.00		After Each				
	Gamma	Neutron	Gamma	Neutron	Gamma	Neutron	
1							
2							
3							
No. of alarms							
		Test R	eport				
				Yes	No		
		mode, syst					
 In occupancy	mode, re	adings wit	thin range				
			(
			tem alarm				
ion-occupancy	mode, re	adings wit	inin range				
 0							
 Comments:							
Completed by:					1	Date:	

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		Se	ction 9	.2 Vibrat	ion					
		Те	est Data	and Rep	oort					
Manufacturer:										
Manuacturer:				S	erial Number:					
Date Performed:				-	Fest Location:					
Bato Fonomiour										
Requi	rement:	Fixed opera	tions:							
		associated w wheeled vehic The physical joints shall he Mobile oper	ith truck tra cles. The lin condition of old, nuts and ations, incl should funct	the monitor s the monitor s d bolts shall r uding back	function norma ver U.S. highwa ssed in MIL-ST should not be a not come loose backs: during exposure	nys for two-v D-810F, Ca ffected by e).	vheeled trailer tegory 4. See xposure (e.g.	rs and Table 6. , solder		
	Note:	Comments a	re required v	vhen the requ	irement is not	verified.				
Mixed Operations:			Mobile	Operations:			(select one r	node of ope	ration)	
Temperature:		°C	Humidity:		%	Pressure:		in Hg.		
Telliberature.		0	nunnunty.		/0	Flessure.		in ng.		_
Gamma Sour	ce Data:									
Gamma Sour Neutron Sour	ce Data:			(add units)		Neutron	Background	Reading:		(add units

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		Gar			-			
		Gai	nmas					
		After	After	After				
	Pretest	Position A	Position B	Position C				
1					(add units)			
2								
3								
4								
					•			
					ł – 1	Accortono	o Donno	Commo
						Acceptanc	e Range	- Gamma
							4 -	#DIV//01
			#DI: (/2)		4		το	#DIV/0!
Mean						-15%		+15%
COV%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				
	Pretest	Position A	Position B	Position C				
1					(add units)			
2								
3								
4								
5								
					ł	Accontance	Pango	Noutrone
						Acceptance	e nange -	Neutions
						#DIV//01	4	#DIV/0!
		#IDIN (/01			4		to	
		#DIV/0!	#DIV/0!			-15%		+15%
COV%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!]			
		Alarms - No s	sources prese	ent				
	Pretest	Position A	Position B	Position C				
1					(yes/no ent	ry)		
2								
3								
4								
5		İ			1			
6								
		1						
		+			ł			
8					-			
y		1			1			
-								
10 r of alarms								
	2 3 4 5 6 7 8 9 10 Mean STD COV% 1 2 3 4 4 5 6 7 8 9 10 Mean STD COV%	1 2 3 4 5 6 7 8 9 10 Mean #DIV/0! STD #DIV/0! COV% #DIV/0! 2 3 4 5 6 7 8 9 10 Mean #DIV/0! STD #DIV/0! STD #DIV/0! COV% #DIV/0! COV% #DIV/0! COV% #DIV/0! COV% #DIV/0! COV% #DIV/0! COV% #DIV/0! 2 3 4 5 6 7 8 9 10 10 <t< td=""><td>1 </td><td>1 </td><td>1 </td><td>1 </td><td>1 </td><td>1 </td></t<>	1	1	1	1	1	1

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 		Test Report			
No	Yes				
		m during the test?	he system ala	Did th	
		ngs within range?	post-test read	Where the	
		al damage and/or		Where there a	
				Comments:	C
Date:				formed by:	Peri
Date:				/iewed by:	Rev

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				anical Sh					
		Test	Jata and	d Report					
Manufa atuman									
Manufacturer:									
Model:					erial Number:				
Date Performed:					Test Location:				
	Requirement:	The radiation r mechanical sh should not be shall not come 9.3.2 Require The monitor sh in the vertical of The physical c solder joints sh 9.3.3 Require The monitor sh peak accelerat orthogonal axe these shocks 9.3.4 Require	nonitoring s locks in the affected by a loose). ment—mol nould functic direction. condition of t hall hold, nu ment—mol nould functic tion, each a ss. The phys (e.g., solder ment—cra	ystem shall fur vertical direction exposure (e.g. bile operation on normally dur the monitor sho its and bolts sho bile operation polied for a nor sical condition joints shall ho ne-mounted s	nction normally i on. The physica : solder joints sl ns, not includir ring exposure to build not be affect nall not come lo ns, backpacks ring exposure to minal 18 ms in e of instruments s of instruments s bd; ruts and bol	I condition of hall hold, nuts ag backpack 30 g mechai ted by expos ose). ten shock pi each of three shall not be a ts shall not c	the monitor s and bolts s nical shocks ture (e.g., ulses of 50 g mutually ffected by ome loose).	Image: Constraint of the sector of	Image: Section of the sectio
	Note:	Comments are	required w	hen the require	ment is not veri	fied.			
ixed Operations: Crane-mounted:				• •	o backpacks): s (backpacks):			(select one mo	ode of operation
Temperature:		°C	Humidity:		%	Pressure:		in Hg.	
Gam	ma Source Data:								
Noute	on Source Data:								
Neuti	on Source Data.								
Ga	amma Backgrou	und Reading:		(add units)		Neutro	n Background	Reading:	(add unit

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				mmas					
			After	After	After				
		Pretest	Position A	Position B	Position C				
	1					(add units)			
	2								
	3								
	4								
	5								
	6								
	7								
	8						Acceptanc	e Range -	Gamma
	9						-		
	10						#DIV/0!	to	#DIV/0!
	Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1 1	-15%		+15%
	STD	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				
	COV%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				
			Ne	utrons	1				
			After	After	After				
		Pretest	Position A	Position B	Position C				
	1					(add units)			
	2					(
	3					-			
	4								
	5								
	6					-			
	7								
	8						A	Denne	Neutrone
	° 9						Acceptance	e Range -	Neutrons
	-						//DI) //OI		((D)) ((A)
	10						#DIV/0!	to	#DIV/0!
	Mean	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		-15%		+15%
	STD	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				
	COV%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				
					4				
				sources preser					
		Drotoot	After	After	After				
		Pretest	Position A	Position B	Position C	() a a / x =	0		
	1					(yes/no entry	0		
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
N	lumber of alarms		1						
	-					1		1	

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Ins	pection Results:						
			Τος	t Report			
			103		Yes	No	
)id the syst	em alarm	during the test?	100		
				s within range?			
				ge and/or loose			
	where there a	iny mechan	iicai uaiiia	components?			
				componenta:			
	Comments:						
	comments.		-				
	Performed by:					Date:	
	renonneu by.		_			Date.	

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	Toot Data	and Papart				
	Test Data	and Report				
Manufacturer:						
Model:	ļ		Serial Number:			
Date Performed:			Test Location:			
Require	ments: 10.1 Type test report					
· · · · ·	The manufacturer shall make ava	ilable, at the request of the	purchaser, the report on	the type tests perfo	ormed to the	е
	requirements of this standard.					
	10.2 Certification					
	The manufacturer shall provide a	certificate and evaluation re	port containing at least the	his information:		
	 Contact information for the mar 	nufacturer including name, a	address, telephone #, fax	#, email address, e	etc	
	 Type of instrument, detector ar 	nd types of radiation the ins	trument is designed to me	easure		
	 Evaluated portal width and mou 					
		inting parameter				
	 Evaluated portal width and motion Sensitivity switch settings, determined to the setting of the sett	01	discriminator setting), and	d all significant calil	bration para	meters
	· ·	ector bias level (lower level	0,	U	•	
	 Sensitivity switch settings, det 	ector bias level (lower level	0,	U	•	
	 Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements 	ector bias level (lower level ray pulse height in scintilla	0,	U	•	
	 Sensitivity switch settings, det such as 137Cs 662 keV gamma counters 	ector bias level (lower level ray pulse height in scintilla	0,	U	•	
	 Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements 	ector bias level (lower level ray pulse height in scintilla nental conditions	0,	U	•	
	Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector	tion detectors or neutron	pulse height in 3He	•	
	 Sensitivity switch settings, det such as 137Cs 662 keV gamma counters Power supply requirements Results of tests under environn Results of electrical and mecha 	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector	tion detectors or neutron	pulse height in 3He	•	
	Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector i aluated monitor	tion detectors or neutron	pulse height in 3He	•	
	 Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par Complete description of the evaluation 	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector aluated monitor nce manual	tion detectors or neutron	pulse height in 3He probability	•	
	Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par Complete description of the eva 10.3 Operation and maintenar	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector aluated monitor nce manual	tion detectors or neutron	pulse height in 3He probability	•	
	Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par Complete description of the eve 10.3 Operation and maintenar The manufacturer shall supply ar	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector i aluated monitor nce manual n operational and maintenar	tion detectors or neutron	pulse height in 3He probability	•	
	Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par Complete description of the event 10.3 Operation and maintenar The manufacturer shall supply ar information to the user:	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector i aluated monitor ice manual in operational and maintenar rictions	tion detectors or neutron response and false alarm ace manual containing the	pulse height in 3He probability	•	
	 Sensitivity switch settings, det such as 137Cs 662 keV gamma-counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par Complete description of the eva 10.3 Operation and maintenar The manufacturer shall supply ar information to the user: Operating instructions and rest Schematic electrical diagrams Troubleshooting guide 	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector aluated monitor nce manual n operational and maintenar rictions plus spare parts list and sp	tion detectors or neutron response and false alarm ace manual containing the pecifications	pulse height in 3He probability	•	
	Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par Complete description of the event 10.3 Operation and maintenar The manufacturer shall supply ar information to the user: Operating instructions and rest Schematic electrical diagrams Troubleshooting guide A detailed training manual or in	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector aluated monitor nce manual n operational and maintenar rictions plus spare parts list and sp istructions for operators and	tion detectors or neutron response and false alarm nee manual containing the pecifications d users	pulse height in 3He probability e following	•	
	 Sensitivity switch settings, det such as 137Cs 662 keV gamma-counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par Complete description of the eva 10.3 Operation and maintenar The manufacturer shall supply ar information to the user: Operating instructions and rest Schematic electrical diagrams Troubleshooting guide 	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector aluated monitor nce manual n operational and maintenar rictions plus spare parts list and sp istructions for operators and	tion detectors or neutron response and false alarm nee manual containing the pecifications d users	pulse height in 3He probability e following	•	
	Sensitivity switch settings, det such as 137Cs 662 keV gamma- counters Power supply requirements Results of tests under environn Results of electrical and mecha Recommended operational par Complete description of the event 10.3 Operation and maintenar The manufacturer shall supply ar information to the user: Operating instructions and rest Schematic electrical diagrams Troubleshooting guide A detailed training manual or in	ector bias level (lower level ray pulse height in scintilla nental conditions anical tests ameters such as: detector aluated monitor nce manual n operational and maintenar rictions plus spare parts list and sp istructions for operators and mmunication methods of tra	tion detectors or neutron response and false alarm nee manual containing the pecifications d users ansmitting and receiving d	pulse height in 3He probability e following lata	•	

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						Yes	No
	Г	id the manufactu	irer provide a re	port on the type to	ests performed?		
				port on the type to	ests periorned?		
	Was contact information provided in the manual?						
				· · · · · · · · · · ·			
	Did the menu	al dagariba tha t	upo of instrumo	nt detectors and			
	Did the manu		ype of instrume	nt, detectors and	measured?		
					measureu		
	W	as the mounting	parameters an	d evaluated portal	width provided?		
			•	•			
	Information a	oout sensitivity s	witch settings.	detector bias leve	l and calibration		
		·····, ·	J		s was provided?		
			Were the pov	ver supply require	ments provided?		
		Results of test	ts under enviror	mental conditions	were provided?		
	Results of electrical test were provided?						
			Results	of mechanical test	were provided?		
	Decommended exercting perometers were provided?						
	Recommended operating parameters were provided?						
	A complete description of the evaluated monitor was provided?						
	W	Vere manuals with operating instructions and restrictions provided?					
		Were manuals with module connection schematics provided?					
	Were manuals with electrical connection schematics provided?						
	Were manuals with spare parts list provided				ts list provided?		
		Were manuals with troubleshooting guides provided?					
		were manuals with troubleshooting guides provided :					
	Did the manu	Did the manual provide a description and protocols for communication methods					
	Did the manua			of transmitting and receiving data?			
	- · · · · · · · · · · · · · · · · · · ·						
Comments:							
					D =4		
Co	mpleted by:				Date:		
P	eviewed by:				Date:		
ĸ	eviewed by:				Date:		