
VALMET Automation**Control Systems****Telecopy**

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TO: Bill Slocumb

CC:

FROM: Robert Couture

NUMBER OF PAGES: 5 including this page

DATE: November 19, 1993

SUBJECT: Tapio Technologies radiation forms

I have talked to Dennis Hughes about licensing at the lower activity and he agrees with me that we would prefer licensing at 200 millicurie.

The attached pages are what was received from TAPIO Technologies.



SÄTEILYTURVAKESKUS
(STUK) Strålsäkerhetscentralen
Finnish Centre for Radiation and
Nuclear Safety, Helsinki Finland

15th November 1993

105/322/90

Measurement of the Stray Radiation for the TAPIO Model BW-2h55 Basis Weight Sensor

The stray radiation of TAPIO basis weight sensor BW-2h55 manufactured by Tapio Technologies Oy was measured. The radiation source in the sensor was a ^{137}Cs source (Amersham product code PCH80952 and serial number BS 263) with nominal activity of 7.4 GBq (12th May 1989).

The detection instrument used for all measurements was a Smart ION ionization chamber survey meter manufactured by MINI INSTRUMENTS Ltd, England. The entrance window of the Smart ION has a nominal density thickness of 7 mg/cm^2 for measurement of superficial dose equivalent $H^*(0.07)$ and β dose rate. A sliding window shield (293 mg/cm^2) provides build-up to facilitate measurement of ambient dose equivalent quantity $H^*(10)$.

The measurements were performed according to the basis weight sensor radiation test report, see appendix. All measurements were performed with the source exposed through the largest of the three aperture diameters.

The highest stray radiation dose rate at the surface of the sensor measured with the thin window was 18.0 $\mu\text{Sv/h}$ at the right side of sensor and at distance of 5 cm 7.0 $\mu\text{Sv/h}$. The highest value measured with build-up cap was 0.2 $\mu\text{Sv/h}$. When the source was in its shielded position the measurement yielded nothing over background. The background radiation measured was 0.2 $\mu\text{Sv/h}$.

Equivalent
1.8 mSv/Hr
0.7 mSv/Hr

Chief inspector



[Signature]
Esko Vuorisalo

Appendixes

PI/POROK 268
SF-D/101 101.15NKK
FINLAND

PUH/TFI
(90) 708 21
+358 0 70821

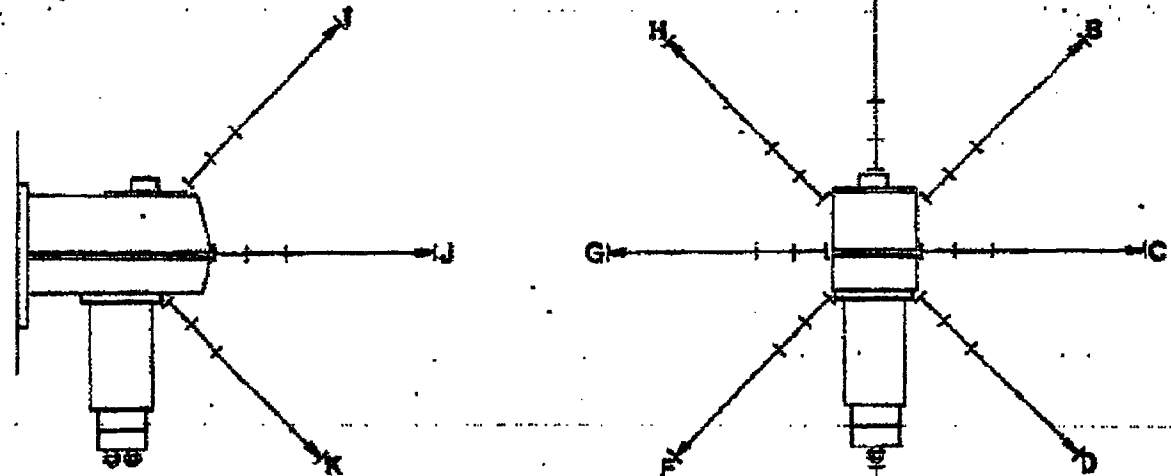
Telex
(90) 708 2210
+358 0 708 2210

Telex
172681 STUK SF
124956 STUKV SF

BASIC WEIGHT SENSOR RADIATION TEST REPORT

DIRECTION	A	B	C	D	E	F	G	H	I	J	K
0 CM	-	-	18.0	1.0	-	1.0	11.0	-	-	0.3	-
5 CM	-	0.3	4.0	-	-	-	6	-	-	-	-
10 CM	-	-	2.0	-	-	-	1	-	-	-	-
30 CM	-	-	-	-	-	-	-	-	-	-	-

Directions A - K are according radiation measurement charts.
Distances are measured from the surface of the sensor to the given direction.



7 mg/cm²

(→) background 0.2 μSv/h

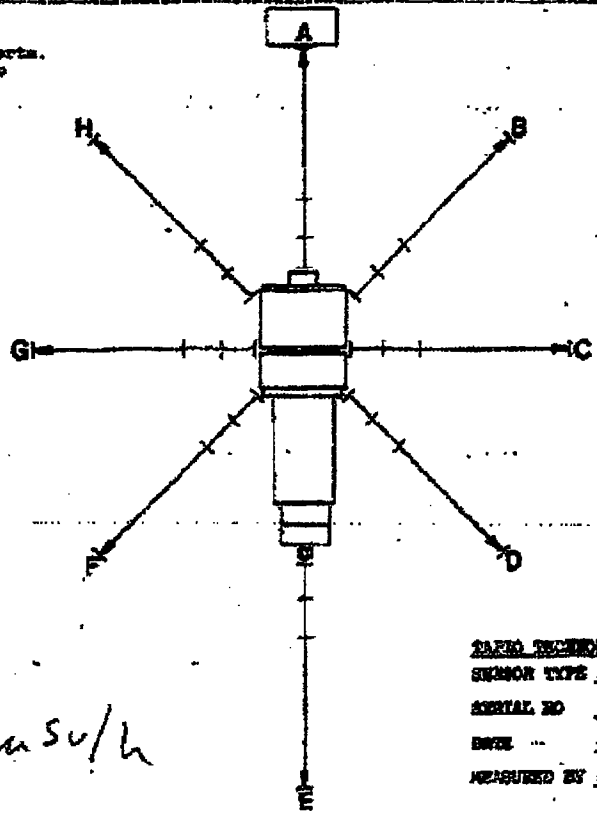
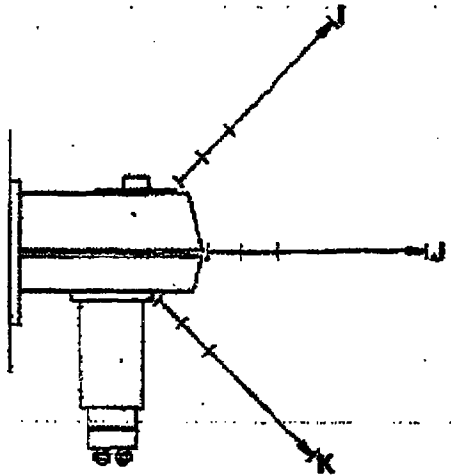
TEMPERATURE SENSOR
15.1 / 16.1 / 17.0
5V

TEST TECHNOLOGY OF
SENSOR TYPE : BW-2155
SERIAL NO :
DATE : 9.11.1993
MEASURED BY : *Seamus G...*

BASSE REMOTE SENSOR RADIATION TEST REPORT

DIRECTION	A	B	C	D	E	F	G	H	I	J	K
0 cm	---	---	0.2	---	---	---	0.2	---	---	---	---
5 cm	---	---	---	---	---	---	---	---	---	---	---
10 cm	---	---	---	---	---	---	---	---	---	---	---
20 cm	---	---	---	---	---	---	---	---	---	---	---

Directions A - K are according radiation measurement charts.
Distances are measured from the surface of the sensor to the given direction.



SÄTELYTUNNUSKUS
Säteilysäiliön suojus
Terveystieteiden osasto
105/1929/190
18.11.1993
Sv

300 mg/cm²
(-) background 0.2 μ Sv/h

TYPE TECHNOLOGIES OF
SENSOR TYPE : SW-2h 55
SERIAL NO :
DATE : 9.11.1993
MEASURED BY : Sanna [Signature]

Amer sham International plc
 Amersham Laboratories
 White Lion Road Amersham
 Buckinghamshire, England HP7 5LL
 telephone: 0494 441440
 cables: ActiAm Amersham Intern
 Mlex: 33141 ACTIAMS

Radioactive source test report

product code PHC80952	description PROTETIUM-147 DISC SOURCE	nominal activity 1 7.40 GIGABEC 200 MEGACURIE	customer SOMAR OY P O BOX 5 ESP00 02201 FINLAND					
AI item no. R99562	SEALED SOURCE							
BSI/ISO classification * 25322	special form certificate no. NONE	recommended working life 5 YEARS	customer's order no. 903 1 S-57039 D1 SOMAR					
serial number	measurement check	measurement check date	leakage test	date passed	leakage test	date passed	contamination test	date passed
85263 Photo					A 12 MAY 89		A 12 MAY 89	
							2.	
notes					signed <i>[Signature]</i>		26 MAY 89	
* this classification complies with BS.5288:1976, which is in agreement with ISO.2919 (see overleaf for definition and description of tests)								

SATELTYTURVAKESKUS
 Säätyturvallisuusosasto
 Turvallisuusosasto
 Turvapolku 105/172/90
 15.11.1989
 Turvastaaja SA



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