



Certelcom Laboratories Inc.

Safety - EMI - Telecom - ISO Guide 25

ENGINEERING TEST REPORT

**ON:
THE SENIOR TECHNOLOGIES INC.
“WANDERGUARD E TESTER FOR DOOR UNITS”**

FCC ID: LA5WEDT003

**IN ACCORDANCE WITH:
FCC PART 15, SUBPART C
PARAGRAPH 15.209 FOR LOW FREQUENCY TRANSMITTERS**

PROJECT NO.: 7SE375-1C

TESTED FOR:

Tom Tawell

SENIOR TECHNOLOGIES INC.
PO BOX 80238
LINCOLN, NE
68501
USA

TESTED BY:

CERTELECOM LABORATORIES INC.
3325 RIVER ROAD, R.R. 5
OTTAWA, ONTARIO K1V 1H2

FEBRUARY 1998

This document contains 7 pages including this one.

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This report applies only to the items tested.

KTL - Certelcom Laboratories Inc.FCC PART 15, SUBPART C
PROJECT NO.: 7SE375-1C*EQUIPMENT: The Senior Technologies Inc. "Wander Guard E Tester for Door Units"*

FCC ID: LA5WEDT003

EQUIPMENT: Test Unit for Door Alarm Units

MODEL NO.: Wander Guard E

SERIAL NO.: None

GENERAL:

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15, Subpart C for low frequency, low power devices.

ABSTRACT:

NAME OF TEST	PARA. NO.	RESULTS
Radiated Emissions	15.209	Complies

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

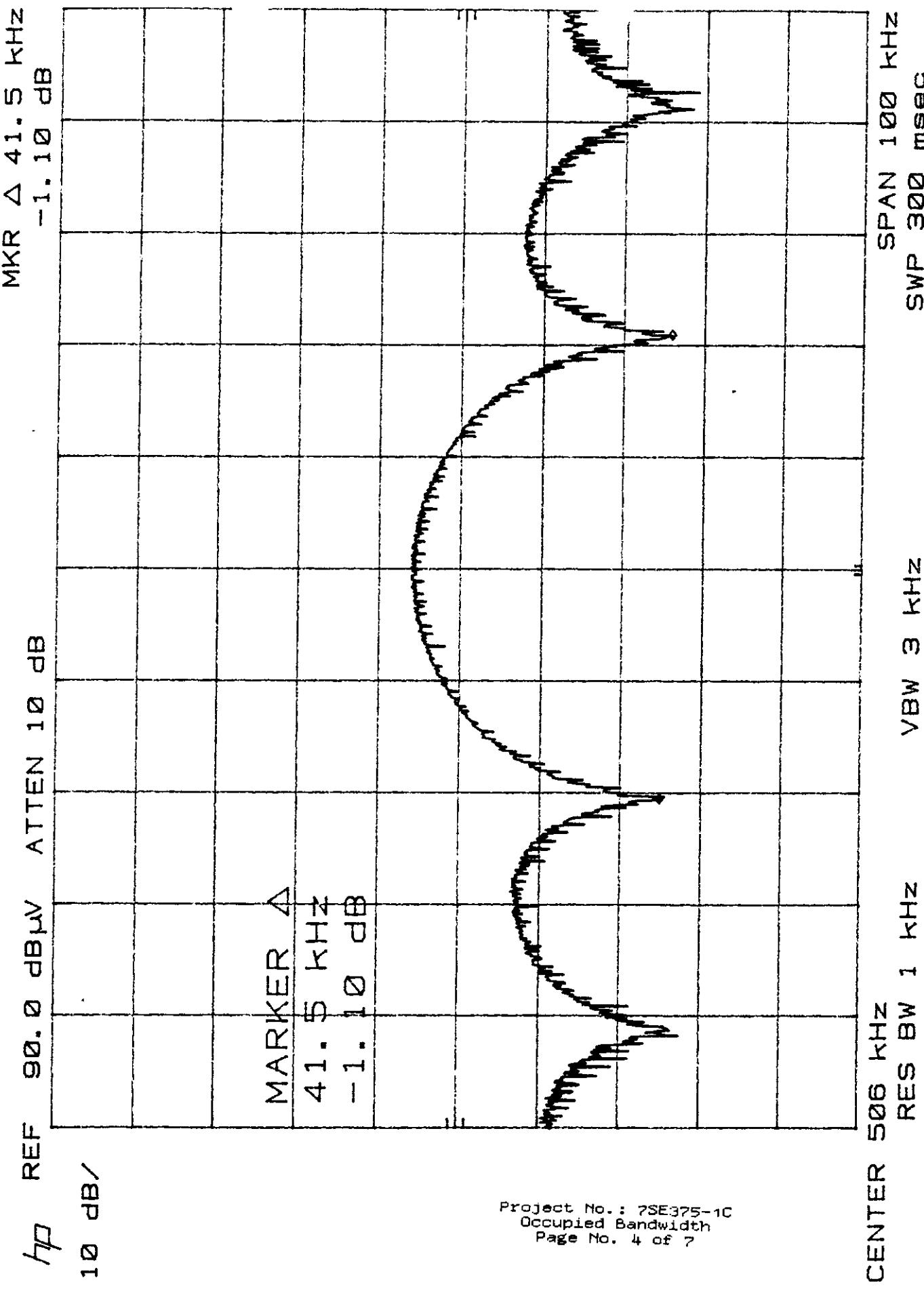
THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE. - None

TESTED BY: Wayne Clarke
Wayne Clarke, TechnologistDATE: Feb 27 98APPROVED BY: W. Waterhouse
W. Waterhouse, RF Engineering Lab ManagerDATE: 27 Feb 1998

EQUIPMENT: The Senior Technologies Inc. "Wander Guard E Tester for Door Units"

FCC ID: LA5WEDT003

GENERAL EQUIPMENT INFORMATIONTRANSMITTERFrequency Range: 506 kHzFrequency of Sample Tested: 506 kHzTunable Bands: OneNumber of Channels: OneChannel Spacing: N/AEmission Designator: 41K5P0NCrystal Frequencies: 4.048 MHzUser Frequency Adjustment: NonePower Source: 9Vdc



EQUIPMENT: The Senior Technologies Inc. "Wander Guard E Tester for Door Units"**FCC ID: LA5WEDT003**

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.209
TESTED BY: Wayne Clarke	DATE: February 11, 1998

TEST CONDITIONS: Outdoor Range
 Standard Test Voltage**MINIMUM STANDARD:** The field strength of emissions from the device shall not exceed the following limits:

Frequency (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m @ 3m)
0.009 - 0.490	2400/F(kHz) @ 300m	-----
0.490 - 1.705	24000/F(kHz) @ 30m	-----
1.705 - 30	30 @ 30m	-----
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

TEST RESULTS: Complies. The worst-case emission level is 45.7 dB μ V/m @ 3m at 0.506 MHz. This is 41.7 dB below the specification limit.**MEASUREMENT DATA:** See attached table.

The E.U.T. harmonics were investigated to the tenth. The noise floor was sufficient to measure 20 dB from limit line.

KTL - CertiTelecom Laboratories Inc.FCC PART 15, SUBPART C
PROJECT NO.: 7SE375-1C**EQUIPMENT:** *The Senior Technologies Inc. "Wander Guard E Tester for Door Units"*
FCC ID: LA5WEDT003

STANDARD: FCC Part 15, Subpart C				E.U.T. S/N: None				DETECTOR: Average		
TESTED BY: Wayne Clarke				TEST DISTANCE(metres): 3 m				ANTENNA: Active Loop		
DATE: February 11, 1998				TEST RECEIVER: ESH3 002				ANTENNA MODEL: HFH2-Z2		
E.U.T. MODEL NO.: Wander Guard E				RECEIVER BW: 10 kHz				ANTENNA S/N.: FA000631		

REQ.	POL.	ANTENNA HEIGHT (m)	TABLE AZIMUTH (Degrees)	RECEIVED SIGNAL (dBuV)	ANTENNA FACTOR (dB)*	DIST CORR (dB)**	DUTY CYCLE	FIELD STRENGTH (dBuV/m)	LIMIT	MARGIN
0.506	V			45.7		-40		5.7	47.4	41.7
+	V									
	H									
	V									
	H									
	V									
	H									
	V									
	H									
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NOTES:

B/C = Biconical, BL = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole

** Includes cable loss when amplifier is not used.

*** Includes cable loss.

() Denotes failing emission level.

+ Harmonics to 10th were investigated.

EQUIPMENT: The Senior Technologies Inc. "Wander Guard E Tester for Door Units"

FCC ID: LA5WEDT003

RADIO TEST EQUIPMENT LIST

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.	
1 Year	Spectrum Analyzer-2	Hewlett Packard	8566B	1950A00400	Oct. 3/97	April 3/98	
1 Year	Spectrum Analyzer Display-2	Hewlett Packard	85662A	1950A01177	Oct. 3/97	April 3/98	
1 Year	Quasi Peak Adaptor-2	Hewlett Packard	85650A	2251A00620	Oct. 3/98	April. 3/98	
1 Year	Receiver	Rohde & Schwarz	ESH3	892473/002	July 25/97	July 25/98	
1 Year	Active Loop Antenna	Rhode & Schwarz	HFH2-Z2	FA000631	Feb 6/98	Feb 6/99	

NA: Not Applicable

NCR: No Cal Required

CONFIDENTIALFEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

27 JAN 1993

IN REPLY REFER TO:
31030/EQU/6-3

Mr. Edwin N. Lavergne
Ginsburg, Feldman, and Bress
1250 Connecticut Avenue, N.W.
Washington, DC 20036

Dear Mr. Lavergne:

I am hereby granting your Petition for Waiver, filed on May 6, 1992, on behalf of Senior Technologies, Inc., d/b/a WanderGuard, subject to certain conditions specified below.

Your petition asks that the Commission grant WanderGuard a waiver of Section 15.37(a) of the Commission's rules, which prohibits the manufacture and importation of certain low power intentional radiators after June 23, 1994. You state that a waiver is needed so that WanderGuard may continue to manufacture wristband transmitters, operating at 506 kHz, that are worn by nursing home residents who may have a tendency to wander off the premises. You indicate that the extremely low field strength of the WanderGuard transmitter could not realistically interfere with other communications services. Additionally, you state that a waiver is justified because of the diminishing need to restrict emissions in the 490-510 kHz band. Lastly, you state that failure to grant a waiver would impose a substantial financial burden on WanderGuard and its customers without any public benefit.

The Commission has established frequency bands within which Part 15 transmitters, or intentional radiators, are prohibited from operating.¹ These restricted bands were established to protect against interference to services involving safety-of-life and services that use very low received signal levels.² These restricted bands include a band at 490-510 kHz, which is designated as a guardband for maritime distress communications on 500 kHz. However, the current maritime distress system is being replaced with the Global Maritime Distress and Safety System (GMDSS). On July 22, 1992 the Commission proposed to reduce the width of the existing restricted frequency band of 490-510 kHz to 495-505 kHz, effective February 1, 1993, when the GMDSS is fully implemented.³

1 See 47 CFR Section 15.205. Within the restricted frequency bands, Part 15 transmitters are permitted to radiate only spurious emissions.

2 See First Report and Order, GEN Docket No. 87-389, 4 FCC Rcd 3493 (1989), at para. 61-74. See, also, Memorandum, Opinion and Order, GEN Docket No. 87-389, 6 FCC Rcd 5405 (1991), at para. 14-17.

3 See Notice of Proposed Rule Making, ET Docket No. 92-165, released August 12, 1992, FCC 92-340.

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2.

The Commission adopted new Part 15 rules in 1989. Section 15.37(c) allows Part 15 devices, such as WanderGuard's, that comply with the regulations in effect prior to June 23, 1989, to be operated and marketed indefinitely. These devices may not, however, be manufactured or imported after June 23, 1994.

Tests conducted by the United States Coast Guard, the primary user of the 490-510 kHz band, apparently confirm that the WanderGuard device does not pose a serious threat to maritime distress communications.⁴ The Coast Guard expressed concern about the potential aggregate interference effects of these devices, but believed that such aggregate interference could be avoided with operational constraints. In addition, the WanderGuard device has been operating since 1985, without any reported instances of harmful interference.

Based on the information that you have provided, it appears that there is little risk of harmful interference from the WanderGuard device. Moreover, the Commission has already proposed to eliminate from the restricted band the frequency band in which your device operates, effective February 1, 1999. In addition, the emission limits and conditions under which your device must operate should be sufficient to preclude harmful interference prior to February 1, 1999. Therefore, under the authority contained in Sections 0.31 and 0.241 of the regulations, a waiver of the manufacture and importation prohibition specified in Section 15.37(a) is issued to Senior Technologies, Inc. for its WanderGuard device. This waiver is subject to the following conditions, which were proposed by the Coast Guard and which your petition indicates are acceptable:

1. The sale and operation of these devices must be restricted to the health care industry.
2. Operation of these devices must be restricted to areas at least one kilometer from coast stations maintaining a distress watch on 500 kHz.
3. Operation of these devices must be restricted from all ocean-going vessels.
4. A label, in addition to other Commission labeling requirements, must be included with each WanderGuard system warning the purchaser that "the wristband unit transmits in the protected guardband for a maritime distress channel. Harmful interference to communications on that channel is prohibited."

⁴ See letter from Joseph D. Hersey, Jr., Chief, Maritime radio and Spectrum Management Division, United States Coast Guard to Jay S. Newman, Esquire, dated April 30, 1992, submitted as Exhibit C to your petition.

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3.

It should also be noted that the WanderGuard equipment must comply with all other Commission regulations, including the non-interference requirements of Section 15.9 and the equipment authorization requirements of Subpart J.

If you have any questions concerning this waiver, please contact Mr. George Harenberg of our Technical Standards Branch at (202) 653-7314.

Sincerely,



Thomas P. Stanley
Chief Engineer

5 Effective June 23, 1994, the WanderGuard device will be required to obtain certification under the FCC's equipment authorization program. See the equipment certification requirements contained in Sections 2.1031 through 2.1065 of the Commission's rules.