M. Flom Associates, Inc. - Global Compliance Center
3356 North San Marcos Place, Suite 107, Chandler, Arizona 85224-1571
www.goodnet.com/~mflom, (602) 926-3100, FAX: 926-3598

Date: March 17, 1999
Additional: June 17, 1999 via Electronic Filing

Federal Communications Commission
EQUIPMENT APPROVAL SERVICES
P.O. Box 358315
Pittsburgh, PA 15251-5315

Attention: Authorization & Evaluation Division

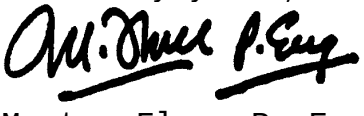
Applicant: Kenwood Communications Corporation
Equipment: TK-981
FCC ID: ALH24572110
FCC Rules: 90 and 47 CFR 1.1307, Environmental Assessment
Confirmation: EA93740
Reference: Correspondence 8263

Gentlemen:

On behalf of the Applicant, enclosed please find the Supplemental Test Data Report, the whole for Environmental Assessment (MPE) for the referenced equipment as shown.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,



Morton Flom, P. Eng.

enclosure(s)
cc: Applicant
MF/cvr

MFA M. Flom Associates, Inc. - Global Compliance Center
3356 North San Marcos Place, Suite 107, Chandler, Arizona 85224-1571
www.goodnet.com/~mflom, (602) 926-3100, FAX: 926-3598

Sub-part
1.1307:

SUPPLEMENTAL REPORT

ENVIRONMENTAL ASSESSMENT

General Population / Uncontrolled Exposure,
Maximum Permissible Exposure
and Specific Absorption Rate

EQUIPMENT IDENTIFICATION

Kenwood Communications Corporation
FCC ID: ALH24572110

DATE OF REPORT

March 17, 1999

SUPERVISED BY: Morton Flom, P. Eng.

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) TEST REPORT (SUPPLEMENTAL)

b) Laboratory: M. Flom Associates, Inc.
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107
(Canada: IC 2044) Chandler, AZ 85224

c) Report Number: d9930068

d) Client: Kenwood Communications Corporation
P.O. Box 22745
Long Beach, CA 90801-5745

e) Identification: TK-981
FCC ID: ALH24572110
Description: UHF FM Mobile Transceiver

f) EUT Condition: Not required unless specified in individual tests.

g) Report Date: March 17, 1999
EUT Received: March 10, 1999

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with MFA internal quality manual.

m) Supervised by:

Morton Flom, P. Eng.

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

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IDENTIFICATION OF THE EQUIPMENT UNDER TEST (EUT)

NAME AND ADDRESS OF APPLICANT:

Kenwood Communications Corporation
2201 E. Dominguez St
P.O. Box 22745
Long Beach, CA 90801-5745

MANUFACTURER:

Kenwood Electronics Technologies Pte. Ltd
1 Ang Mo Kio Street 63
Singapore 569110

FCC ID:	ALH24572110
MODEL NO:	TK-981
DESCRIPTION:	UHF FM Mobile Transceiver
TYPE OF EMISSION:	11K0F3E, 6K25F3E
FREQUENCY RANGE, MHz:	896 to 901 935 to 940
POWER RATING, Watts:	1 to 15

___ Switchable x Variable ___ N/A

MODULATION:

____ AMPS
____ TDMA
____ CDMA
_x_ OTHER

ANTENNA:

____ HELICAL
____ MONOPOLE
_x_ OTHER

STANDARD TEST CONDITIONS and ENGINEERING PRACTICES

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.

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Name of test:	Environmental Assessment
Specification:	FCC: 47 CFR 1.1310
Measurement Guide:	ANSI/IEEE C95.1 1992
Test Equipment:	Maximum Permissible Exposure (MPE) measurement system, consisting of: Narda 8717-1174R, Radiation meter Narda 8761D, E-field probe (300 kHz – 3 GHz) (Calibrated Nov-98)
Measurement Procedure:	1. The following measurements were performed with a Narda probe using ANSI/IEEE C95.1 as a guide. 2. Prior to making any measurements, the measurements system was calibrated in accordance with the manufacturer's procedures. 3. The EUT's radiating element (antenna) was placed on a 1 m tall table for ease of testing. For equipment normally operated on a metal surface, a ground plane was used. 4. The remaining equipment necessary to operate the EUT was maintained at a distance from the measurement arrangement suitable to minimize interference with the measurements. 5. The minimum safe distance was calculated from the formula Power Density = EIRP / $4\pi R^2$ (Peak Watts/m^2). The calculation is shown with the measurement data. 6. With the EUT operating at maximum power, a search was initiated for worst case emissions with the probe raised and lowered over a range of 0.2 to 2 meters in height and over a horizontal plane of 0^o to 360^o. 7. Average values were calculated for the whole body (0.2-2.0m), lower body (0.2-0.8m) and upper body (1.0-2.0m).
Results:	Attached.

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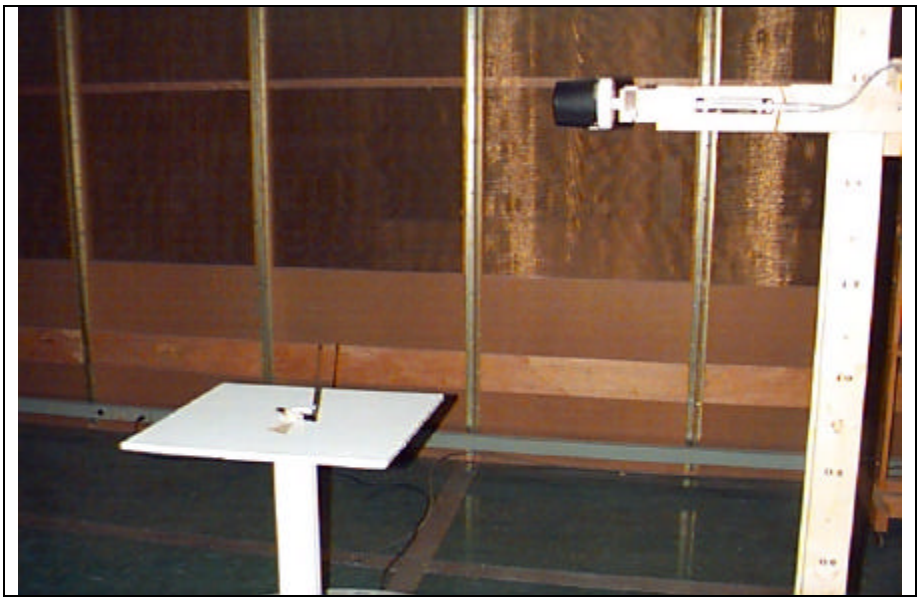
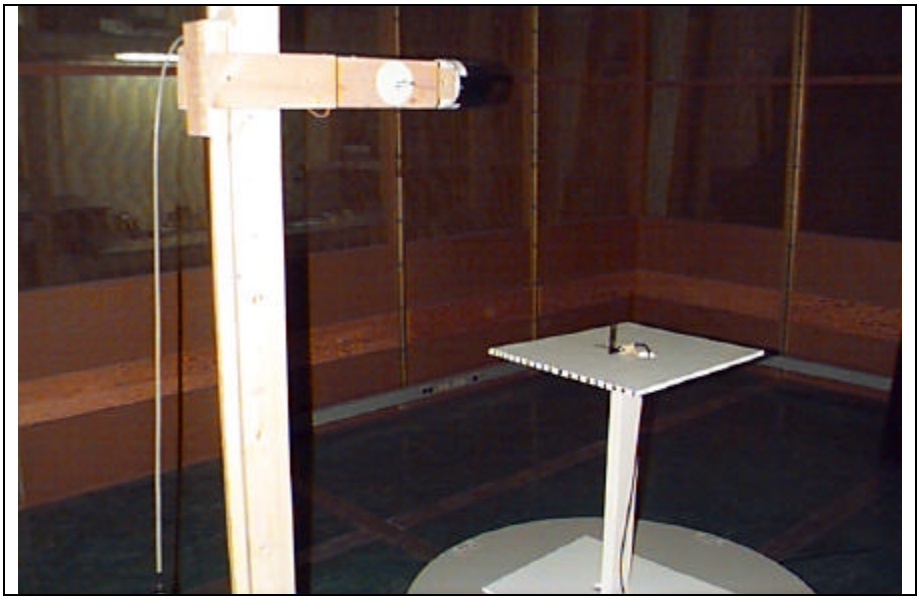
TEST SETUP: Maximum Permissible Exposure (MPE)
g9930015: 1999-Mar-15 Mon 10:37:42
STATE: 0:General



TEST SETUP: Maximum Permissible Exposure (MPE)
g9930016: 1999-Mar-15 Mon 10:37:42
STATE: 0:General



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Name of test: Environmental Assessment

With Antenna

Rated Probe Power Density: Narda 8761D Probe = 10 μW/cm^2 to 20 mW/cm^2

Error Margin: Narda 8717 Meter = 1%

EUT Description: See Page 2.
Power$_{[W\ ERP]}$ = 24.6
Test Frequency, MHz = 899.025
Ant. Gain$_{[dBi]}$ 2.15 dBi
Power$_{[W\ EIRP]}$ $P_{[W\ ERP]}$ x $10^{(2.15/10)}$, Watts EIRP = 24.6

MPE Limit (at test frequency) f/1500

Theoretical safe distance:
$R_{[m]} = [(P[W\ EIRP]) / (4\pi \times Limit_{[W/m^2]})]^{1/2}$
$R_{[m]} = [4.9 / (4\pi \times 5.72)]^{1/2} = 0.572$
$R_{[inches]} = 22.5$

Results: at theoretical safe distance

Probe Height, m	Power Density, mW/cm^2
2.0	0.22
1.8	0.19
1.6	0.46
1.4	0.51
1.2	0.58
1.0	0.52
0.8	0.57
0.6	0.28
0.4	0.34
0.2	0.30

Calculations: The measured power density readings were summed and the results divided by the number of readings to calculate the average.
For whole body: Average of 0.2 to 2.0 m, mW/cm^2 = 0.397
For lower body: Average of 0.2 to 0.8 m, mW/cm^2 = 0.373
For upper body: Average of 1.0 to 2.0 m, mW/cm^2 = 0.413

SUPERVISED BY: Morton Flom, P. Eng.

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Name of test: Environmental Assessment

Terminated Radio

Rated Probe Power Density: Narda 8761D Probe = 10 $\mu W/cm^2$ to 20 mW/cm^2

Error Margin: Narda 8717 Meter = 1%

EUT Description: See Page 2.

Power[W ERP] = 24.6

Test Frequency, MHz = 899.025

Ant. Gain[dBi] 2.15 dBi

Power[W EIRP] $P_{[W\ ERP]} \times 10^{(2.15/10)}$, Watts EIRP = 24.6

MPE Limit (at test frequency) f/1500

Theoretical safe distance:

$R_{[m]} = [(P[W\ EIRP]) / (4\pi \times Limit_{[W/m^2]})]^{1/2}$

$R_{[m]} = [4.9 / (4\pi \times 5.72)]^{1/2} = 0.572$

$R_{[inches]} = 22.5$

Results: at theoretical safe distance

Probe Height, m	Power Density, mW/cm^2
2.0	0.081
1.8	0.081
1.6	0.081
1.4	0.083
1.2	0.084
1.0	0.091
0.8	0.091
0.6	0.091
0.4	0.092
0.2	0.091

Calculations: The measured power density readings were summed and the results divided by the number of readings to calculate the average.

For whole body: Average of 0.2 to 2.0 m, mW/cm^2 = 0.087

For lower body: Average of 0.2 to 0.8 m, mW/cm^2 = 0.091

For upper body: Average of 1.0 to 2.0 m, mW/cm^2 = 0.084

SUPERVISED BY: Morton Flom, P. Eng.

Addendum:

(THE FOLLOWING WILL BE PLACED AT THE FRONT OF THE INSTRUCTION MANUAL)

INSTRUCTIONS TO INSTALLERS & USERS

WARNING

Minimum Safe Distance	57.2 cm 22.5 inches
Antenna Mounting	Antenna as supplied by manufacturer must not be mounted at a location such that any person or persons can come closer than above distance which is the minimum safe distance, to comply with FCC RF exposure requirements.
Antenna Substitution	Do not substitute any antenna for the one supplied by manufacturer. You may be exposing person(s) to harmful radiation. Contact supplier or manufacturer for further instructions.
Antenna Supplied Gain Approx:	Monopole 2.15 dbi

TESTIMONIAL AND STATEMENT OF CERTIFICATION

THIS IS TO CERTIFY THAT:

1. THAT the application was prepared either by, or under the direct supervision of, the undersigned.

2. THAT the technical data supplied with the application was taken under my direction and supervision.

3. THAT the data was obtained on representative units, randomly selected.

4. THAT, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

CERTIFYING ENGINEER: Morton Flom, P. Eng.