TRANSMITTER SPURIOUS EMISSIONS (CONDUCTED)
POWER: LOW

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	LEVEL, µW
162.030	324.140	-30.0	-72.7	1
162.030	486.523	-29.7	-72.3	1
162.030	648.292	-29.7	-72.3	1
162.030	809.757	-30.5	-73.2	1
162.030	972.400	-29.7	-72.3	1
162.030	1134.330	-30.5	-73.1	1
162.030	1295.832	-30.6	-73.3	1
162.030	1458.725	-30.2	-72.9	1
162.030	1620.297	-30.4	-73.0	1
162.030	1782.150	-28.3	-71.0	1
162.030	1944.090	-29.3	-72.0	1
162.030	2106.223	-29.4	-72.1	1
162.030	2268.632	-29.6	-72.2	1
162.030	2430.287	-28.7	-71.4	1

TRANSMITTER SPURIOUS EMISSIONS (CONDUCTED)
POWER: HIGH

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	LEVEL, µW
162.030	324.052	-27.7	-77.8	2
162.030	486.097	-20.7	-70.8	9
162.030	648.027	-29.5	-79.7	1
162.030	810.027	-28.8	-79.0	1
162.030	972.647	-29.3	-79.5	1
162.030	1134.645	-28.6	-78.8	1
162.030	1296.503	-29.3	-79.4	1
162.030	1458.180	-29.1	-79.2	1
162.030	1619.898	-28.9	-79.0	1
162.030	1782.638	-28.3	-78.5	1
162.030	1944.343	-29.3	-79.5	1
162.030	2105.918	-28.9	-79.1	1
162.030	2268.457	-29.1	-79.2	1
162.030	2429.975	-28.8	-79.0	1

WASHINGTON, D.C. 20554

GRANT OF EQUIPMENT AUTHORIZATION

Type Acceptance

Date of Grant: April 14, 1997

File No.: 31010/FQU 17.9

Application dated: February 4, 1997

Midland Consumer Radio
1670 North Topping Street
Kansas City, MO 64120

Attention: David Kingsolver, Engineering Manager

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER [redacted]

Name of Grantee

Equipment Class : Non-broadcast Transmitter

Note(s)	Rule Part(s)	Frequency Range (MHz)	Output Watts	Frequency Tolerance	Emission
CS	80	156-163	5	.001	16K0G3E
CS	80	156-163	1	.001	16K0G3E

This unit may not be manufactured or imported after July 30, 1997.

CS: Transmitter meets technical requirements only for use at ship stations.

Mail to:
Rowland E. Johnson
Hyak Laboratories Inc.
7011 Calamo St., Suite 107
Springfield, VA 22150

COPY

FCCID: MMA78-211 File: 31010/EQU 17.9 Application Type: T Acc

Grantee : Midland Consumer Radio
: 1670 North Topping Street
: Kansas City, MO 64120

Attention : David Kingsolver, Engineering Manager

Mail to : Rowland S. Johnson
: Hyak Laboratories Inc.
: 7011 Calamo St., Suite 107
: Springfield, VA
: 22150

Fee Serial # : 021097 8315480 006

Equipment Class : (TNF) Non-Broadcast Transmitter

Note(s)	Rule Part(s)	Freq Range MHz	RF Power	Freq Tol	Emiss Desig
CS	80	156-163	5	.001	16KØG3
CS	80	156-163	1	.001	16KØG3

Application Date : 020497
App Receipt Date : 021097

Grant Date : BLANK
Org Grant Date : BLANK
Expiration Date : BLANK

Sample Status : BLANK
Confidentiality Code : N
Related App ID : BLANK

Stat/Way Code and Stat/Way Date:
LI/PP TR/JD
021497 021497

RT/JD (fax) 3/13 RT/JD 4/11

Internal remarks: BLANK

Remarks: BLANK This unit may not be manufactured or imported after July 30, 19

Notes: BLANK

pp

Status 70562

E. FIELD STRENGTH MEASUREMENTS...(Continued)

The measurement system was capable of detecting signals 100 dB or more below the reference level. Measurements were made from the lowest frequency generated within the unit, or 12 MHz, to 10 times operating frequency, 1.6 GHz. Data after application of antenna factors and line loss corrections are shown in Table 2.

TABLE 2

TRANSMITTER RADIATED SPURIOUS
156.80 MHz; 5.2 watts; 12.0 Vdc

Spurious Frequency, MHz	dB Below Carrier Reference
313.600	52V
470.400	78V*
627.200	54V
784.000	64V
940.800	56V
1097.600	73V*
1254.400	62V
1411.200	64V
1568.000	68V

Required: 43+10Log(5.2) = 50

1. Worst-case polarization, H-horizontal, V-vertical.

2. Includes transmission line losses. Horn antenna factors from FCC Project 3235-18.

All other spurious from 12 - 1600 MHz were 20 dB or more below FCC limit.

FCCID: ALHTK-230-1 File: 31010/EQU 17,9 Application Type: T Acc

Grantee : Kenwood USA Corporation
: 2201 East Dominguez Street
: PO Box 22745
: Long Beach, CA 90801-5745

Attention : T. Yoshida

Mail to : Morton Flom
: M. Flom Associates, Inc.
: 3356 N. San Marcos Pl., #107
: Chandler, AZ
: 85224

Fee Serial # : 062789 8314032 801, 021993 8315298 002

Equipment Class : (TNB) Non-Broadcast Transmitter

Note(s)	Rule Part(s)	Freq Range MHz	RF Power	Freq Tol	Emiss Desig
BD, CP	22,74,90	150-174	5	.0005	16K0F3E

Application Date : 021693
App Receipt Date : 021993

Grant Date : 080289
Org Grant Date : 080289
Expiration Date : BLANK

Sample Status : BLANK
Confidentiality Code : BLANK
Related App ID : BLANK

Stat/Way Code and Stat/Way Date:

LI/JG	TR/FC	RG/FC	GI/JG	LI/PP	LM/PP	TR/FC
071089	071289	080189	080289	022693	022693	022693

IM/FC
3/12/93

Internal remarks: BLANK

Remarks: BLANK

Notes:
BD: The output power is continuously variable from the value listed in this entry to 10%-15% of the value listed.
CP

PP

Called w/.
Subpart T

NAME OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

PARAGRAPH: 47 CFR 2.991

GUIDE: EIA STANDARD RS 152B, Paragraph 17

TEST CONDITIONS: S. T. & H.

TEST EQUIPMENT: AS PER ATTACHED PAGE

MEASUREMENT PROCEDURE

1. The emissions were measured for the worst case as follows:

   (a): within a band of frequencies defined by the carrier frequency plus and minus one channel.

   (b): from the lowest frequency generated in the E.U.T. and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.

2. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

3. MEASUREMENT RESULTS: ATTACHED

MEASUREMENT RESULTS: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

FREQUENCY OF CARRIER, MHz	= 156.800
SPECTRUM SEARCHED, GHz	= 0 to 2
MAXIMUM RESPONSE, Hz	= 2240
ALL OTHER EMISSIONS	= ≥ 20 dB BELOW LIMIT
LIMIT, dBc: $-(43 + 10 \text{ LOG } P_0)$	= -43 (1 Watt) = -50 (5 Watts)

EMISSION, MHz/HARMONIC	SPURIOUS LEVEL BELOW CARRIER, dBc Lo	Hi

PLEASE SEE COMPUTER PRINTOUT

ATTACHED PAGE(S)

SUPERVISED BY: CHUCK KRAFT, E. Eng.

PAGE 19. ADDENDUM 2.
TRANSMITTER SPURIOUS EMISSIONS (CONDUCTED)
KENWOOD, TK-230-1
9 FEB 1993, 13:03

POWER: HIGH

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MICRO-WATTS
156.800	313.69	-35.8	-73.0	.3
156.800	470.47	-35.1	-72.3	.3
156.800	627.20	-45.4	-82.6	0.0
156.800	632.06	-38.7	-75.9	.1
156.800	784.00	-41.5	-78.7	.1
156.800	786.52	-37.9	-75.1	.2
156.800	936.73	-37.9	-75.1	.2
156.800	940.80	-44.8	-82.0	0.0
156.800	1097.60	-43.4	-80.6	.1
156.800	1099.46	-36.6	-73.8	.2
156.800	1254.40	-43.3	-80.5	.1
156.800	1258.84	-35.3	-72.5	.3
156.800	1411.20	-41.2	-78.4	.1
156.800	1412.74	-35.2	-72.4	.3
156.800	1568.00	-42.4	-79.6	.1
156.800	1569.09	-35.4	-72.6	.3
156.800	1724.29	-34.9	-72.1	.3
156.800	1881.60	-39.7	-76.9	.1
156.800	1885.85	-34.2	-71.4	.4
156.800	2038.03	-34.1	-71.3	.4
156.800	2195.20	-37.8	-75.0	.2
156.800	2198.59	-33.1	-70.3	.5
156.800	2350.90	-33.7	-70.9	.4
156.800	2352.00	-37.9	-75.1	.2

Technical Certification

I, William B. Garner, Chief Scientist of American Mobile Satellite Corporation (AMSC"), certify under penalty of perjury that:

I am the technically qualified person with overall responsibility for preparation of the technical information contained in Comments of AMSC on the NTIA proposal for new out-of-band emission limits for Mobile-Satellite Service terminals operating in the 1610-1660 MHz band. The information contained in these Comments is true and correct to the best of my belief.

William B. Garner

William B. Garner

December 8, 1997

CERTIFICATE OF SERVICE

I, Sea Raven, a secretary in the law firm of Fisher Wayland Cooper Leader & Zaragoza L.L.P., do hereby certify that true copies of the foregoing "**COMMENTS OF AMSC SUBSIDIARY CORPORATION**" were sent this 8th day of December, 1997, by first class United States mail, postage prepaid, to the following:

Richard D. Parlow
Associate Administrator
Office of Spectrum Management
NTIA
Department of Commerce
14th & Pennsylvania Ave., N.W.
4th Floor - Room 4099-A
Washington, D.C. 20230

Sea Raven