

# EXHIBIT I

## PARTICULARS OF OPERATION (continued)

### MODULATING

FREQUENCY		POWER		EMISSION	SIGNAL	BANDWIDTH
(A)	(B)	(C)		(E)	(F)	(G)
106.0	1w	3w	Mean	400HNON	0	0.4 kHz
108.0	1w	3w	Mean	400HNON	0	0.4 kHz
218-220	120	240	Mean	20K0F3E/NON	3 kHz	20 kHz
220-222	120	240	Mean	3K00J3E	3 kHz	3 kHz
222-225	120	240	Mean	20K0J3W/F3E/NON	3 kHz	20 kHz
300-322	1w	10w	Mean	400HNON	0 kHz	0.4 kHz
450-470	60w	120	Mean	20K0F3E/NON	3 kHz	20 kHz
470-510	125	125	Mean	20K0F3E/NON	3 kHz	20 kHz
806-815	35	75	Mean	20K0F3E/NON	3 kHz	20 kHz
869-894	75	75	Mean	20K0F3E/NON	3 kHz	20 kHz
896-901	75	75	Mean	20K0F3E/NON	3 kHz	20 kHz
935-940	75	75	Mean	20K0F3E/NON	3 kHz	20 kHz

## EXHIBIT II

### EQUIPMENT BEING USED

MANUFACTURER	TYPE	NO. OF UNITS
Kenwood (for Freq. range between 1.8 - 24.99 MHz and 28.0 - 29.7)	TS430	1
Cobra (26.965 - 27.405 MHz)	Plus 4	1
Motorola (30.56 - 49.6 MHz)	Syntor X-9000	1
Motorola (50.0 - 54.0 MHz)	Mitrek	1
Hewlett Packard w/Amplifier (88.0 - 108.0 MHz)	8660 (Signal Generator Amp Model 10W100	1
Drake w/RF Concepts Amp (144 - 148 MHz)	UV3, Amp Model RFC2-117	1
Motorola (150.8 - 17.575 MHz)	Syntor X-9000	1
Hewlett Packard w/IFI Amp (218 - 220 MHz)	8657B (Signal Generator)	1
Drake w/RF Concepts Amp (220 - 225 Mhz)	UV3, Amp Model RFC3-112	1
Hewlett Packard w/Amp Research Amp (300 - 322 MHz)	8660 (Signal Generator) Amp Model 10W1000	1
Drake w/RF Concepts Amp (420 - 450 MHz)	UV3, Amp Model RFC4-110	1
Pace (450 -470 MHz)	Landmaster III	1
Hewlett Packard w/Amp Research Amp (470 - 510 MHz)	8657 (Signal Generator) Amp Model 400 HB	1
Motorola (806 - 815 MHz)	Syntor X-9000	1
Hewlett Packard w/Amp (826 - 940 MHz)	8657 (Signal Generator) Amp 400 HB	1
ICOM (1240 -1285 MHz)	1201	1

NOTE: All frequency ranges from 1.8 - 940 MHz are also covered by the following:

Hewlett Packard 8657B Signal Generator with iether IFI Model 406 Amp or AR Model 400 HB Amp.



North American Operations  
Engineering Center

Patricia L. Wize  
FCC Licensing & Permits  
P.O. Box 5121  
Southfield, Michigan 48086-5121

January 19, 1994

Subject: Mobile Transmitter License Renewal

Dear Ms. Wize:

Experimental radio license KF2XHE used at our EMC Facility, Milford Proving Ground, is due to expire March 1, 1995. The license is for a mobile Radio Transmitter Test where we evaluate the compatibility of automotive electrical/electronic systems to the mobile radio environment. We would like to extend the license since the tests are performed on a continuous basis.

The following is the required information needed to renew our license.

- 1/2. The tests performed consists of transmitting in the mobile radio frequency bands using antennas installed on the vehicle. The power is fed to the antenna by either mobile radio transmitters which are installed in the vehicle or by a signal generator and amplifier located adjacent to the vehicle. Vehicle performance is evaluated by exercising the electrical/electronic systems and simultaneously transmitting in the mobile radio frequency bands. Vehicle performance is then evaluated to determine if hardening of any electrical/electronic system is required.
3. Testing is performed sequentially on all frequencies and totals approximately three hours/month per frequency.
4. Two documents have been generated as a result of this work. A General Motors Uniform Test Specification (GMUTS) and a "Mobile Radio Installation Guidelines" for customers. The GMUTS document is a General Motors confidential test document and is not published. The installation guidelines is a document created to instruct radio transmitter users on how to properly install their radios on vehicles to avoid any electromagnetic compatibility problems. The installation guidelines has been the subject of articles published in Communications Quarterly (CQ), QST, and Radio Amateur du Quebec.
5. No patents have been issued as a result of this experimental work.

In addition to our request for renewal, we would also like to request that some modifications be made to our current license. The modifications requested are shown on Table 1 in **Bold** type. The reasons for these modification are described below:

Frequencies in the 88.0 - 108.0 MHz Range

Specific frequencies (ones which will not interfere with the FM Broadcast frequencies) are required to allow us to conduct vehicle FM antenna pattern measurements.

218 - 220 MHz Range

This frequency band was added as a result of information that the FCC may be reassigning this band to Amateur Radio Service. If, and only if, this band is reassigned

it will be integrated into our current vehicle test procedures. If the FCC decides not to reassign this band this frequency band, we will not be transmitting in this frequency range.

Table 1 - FCC License KF2XHE Frequency/Power Information  
(Areas where changes are requested to Frequency and/or Power Level are in **Bold type**.)

Frequency (MHz)	Power Level	Emission Designator	Frequency (MHz)	Power Level	Emission Designator
1.8 - 2.0	100	3K00J3W /NON	164.5	200	20K0F3E /NON
3.5 - 4.0	800	3K00J3W /NON	165.0	200	20K0F3E /NON
7.0 - 7.3	800	3K00J3W /NON	165.5	200	20K0F3E /NON
10.1 - 10.15	800	3K00J3W /NON	166.0	200	20K0F3E /NON
14.0 - 14.35	800	3K00J3W /NON	166.5	200	20K0F3E /NON
18.068 - 18.168	800	3K00J3W /NON	167.1	200	20K0F3E /NON
21.0 - 21.45	800	3K00J3W /NON	169.425	250	20K0F3E /NON
24.89 - 24.99	800	3K00J3W /NON	169.525	250	20K0F3E /NON
26.965 - 27.405	100	3K00J3W /NON	170.255	250	20K0F3E /NON
28.0 - 29.7	800	3K00J3W /NON	170.325	250	20K0F3E /NON
30.56 - 32	200	20K0F3E /NON	170.425	250	20K0F3E /NON
33.0 - 34	200	20K0F3E /NON	170.575	250	20K0F3E /NON
35.0 - 36	200	20K0F3E /NON	218 - 220*	225	20K0F3E /NON
37.0 - 38	200	20K0F3E /NON	220 - 222	225	3K00J3E
39.0 - 40	200	20K0F3E /NON	222 - 225	225	20K0J3W /F3E /NON
42.46 - 46.6	200	20K0F3E /NON	300 - 322	10	400HN0N
47.0 - 49.6	200	20K0F3E /NON	420 - 450	225	20K0F3E /NON
50.0 - 54.0	800	20K0F3W /F3E /NON	450 - 470	125	20K0F3E /NON
88.000	3	400HN0N	470 - 510	125	20K0F3E /NON
90.000	3	400HN0N	806 - 815	75	20K0F3E /NON
92.000	3	400HN0N	826 - 849	70	20K0F3E /NON
94.000	3	400HN0N	869 - 894	75	20K0F3E /NON
96.000	3	400HN0N	896 - 901	75	20K0F3E /NON
98.000	3	400HN0N	902 - 928	100	20K0F3E /NON
100.000	3	400HN0N	935 - 940	75	20K0F3E /NON
102.000	3	400HN0N	1240	100	20K0F3E /NON
104.000	3	400HN0N	1245	100	20K0F3E /NON
106.000	3	400HN0N	1250	100	20K0F3E /NON
108.000	3	400HN0N	1255	100	20K0F3E /NON
144 - 148	2700	20K0F3W / F3E /NON	1265	100	20K0F3E /NON
150.8 - 157.03	200	20K0F3E /NON	1275	100	20K0F3E /NON
157.19 - 162.01	200	20K0F3E /NON	1280	100	20K0F3E /NON
164.0	200	20K0F3E /NON	1285	100	20K0F3E /NON
			* Only to be used if the 218 to 220 MHz band is reassigned to the Ham Radio Operators		

#### 220 - 225 MHz Range

The original approved frequency band from 220 - 225 MHz was divided into two different bands to reflect the FCC's reassignment of the 220 - 222 MHz band to Land Mobile Service. The emission designator for this band has been modified to reflect that we will be using Land Mobile equipment.

The 222 - 225 MHz portion of the band remains unchanged except for the addition of the single side band emission to the current emission capabilities which is FM modulation.

#### 300 - 322 MHz Range

We request that this band be added to our current license. This frequency range is required in order to conduct antenna pattern measurements on our Remote Keyless Entry systems (remote system for controlling vehicle door locks and trunk mechanisms). The work we will be performing in this band will be at very low power levels.

#### 450 - 815 MHz, 869 - 901 MHz, and 935 - 940 MHz Range

We request that the authorized transmit power for these frequency ranges be increased to the power level shown in Table 1. The requested increases are the result of a study we performed to determine the radio power levels commercially available to the end user. The power levels we have requested would allow us to test at a power level which are 2 dB above that of the commercially available equipment.

#### Emission Designators Updated

In almost all the bands we test with a unmodulated continuous wave (CW) transmitting signal in addition to the sideband or other emission types specified. Therefore we have updated the emission designators to identify the frequencies where we use unmodulated CW.

Enclosed is a listing of our current transmitting equipment. If you have any questions regarding our request for renewal or about the modifications we have requested, please call me at (810) 685-4136 or 8-341-4136.

Robert P. Nelson  
Senior Engineer  
EICC/EMC-Vehicle Test Group