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April 2, 1999

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Mr. James Burtles, Acting Chief
Experimental Licensing Branch
Federal Communications Commission
2000 M Street, N.W. (Mail Stop 1300E1)
Washington, D.C. 20554

Re: Motorola, Inc.
Amendment to Application for Experimental License
File Nos. 5677-EX-PL-97 and 5728-EX-PL-97

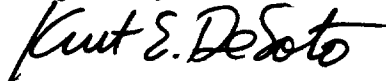
On behalf of Motorola, Inc., electronically transmitted herewith is an amendment to the above-referenced applications. This amendment also responds to an FCC inquiry regarding this matter. See Letter from Anthony N. Serafini, Engineer, Office of Engineering and Technology, FCC, to Kurt E. DeSoto, Wiley, Rein & Fielding (March 3, 1999).

Specifically, attached is a revised FCC Form 442 and attachment to an application filed March 7, 1997, and amended April 28, 1997. See File No. 5677-EX-PL-97. These materials are intended to supersede and replace the Form and attachment currently on file at the FCC.

By this amendment, Motorola seeks to: (1) consolidate the above-referenced applications currently pending at the FCC; (2) update the list of frequencies requested to accommodate additional experimental efforts; (3) withdraw its request for confidentiality; and (4) clarify the scope of the proposed experimentation.

Should you have any questions regarding this amendment or the underlying applications, please call me at (202) 719-7235. In my absence, please call David E. Hilliard or Thomas Dombrowsky at (202) 719-7000.

Respectfully submitted,



Kurt E. DeSoto
Counsel for Motorola, Inc.

cc: Anthony Serafini, FCC

You will be presented with the FCC FORM 159, Fee Remittance Advice after submitting your application and obtaining a confirmation number. This Fee Remittance Advice, FCC Form 159, must currently be submitted in paper form along with payment to the address indicated in the FCC Fee Filing Guide. Electronic submission of FCC Form 159 is not currently available.

FCC FORM 442 - FEDERAL COMMUNICATIONS COMMISSION APPLICATION FOR NEW OR MODIFIED RADIO STATION UNDER PART 5 OF FCC RULES - EXPERIMENTAL RADIO SERVICE (OTHER THAN BROADCAST)		Approved by OM 3060 - Expires 09/30/99
1. * Applicant's Name (company) MOTOROLA, INC.		File No.
2. * Mailing Address: Attention:* RONALD C. JOHNSON, SENIOR RESOURCE MANAGER, FT. WORTH R&D CENTER Street Address:* 5555 BEACH STREET P.O. Box: _____ City: FT. WORTH State: TX Zip Code: 76137 E-Mail Address: _____		
3(a). * Application is for: NEW STATION		3(b). For Modification indicate below: File No: Callsign:
4. * Is this authorization to be used for fulfilling the requirement of a government contract with an agency of the United States Government? If "YES", include as an exhibit a narrative statement describing the government project, agency and contract number.		☐ Yes ☒
5. * Is this authorization to be used for the exclusive purpose of developing radio equipment for export to be employed by stations under the jurisdiction of a foreign government? If "YES", include the contract number and the name of the foreign government concerned as an exhibit.		☐ Yes ☒
6. * Is this authorization to be used for providing communications essential to a research project? (The radio communication is not the objective of the research project)? If "YES", include as an exhibit the following information: a. A description of the nature of the research project being conducted. b. A showing that the communications facilities requested are necessary for the research project involved. c. A showing that existing communications facilities are inadequate.		☐ Yes ☒
7. If all the answers to Items 5, 6, 7 are "NO", include as an exhibit a narrative statement describing in detail the following items: a. The complete program of research and experimentation proposed including description of equipment and their operation. b. The specific objectives sought to be accomplished. c. How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion or utilization of the radio art, or is along line not already investigated.		
8. * Give an estimate of the length of time that will be required to complete the program of experimentation proposed in this application: 2 in Years		
9. * Would a commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact? If "YES", include as an exhibit an Environmental Assessment as required by Section 1.1311.		☐ Yes ☒

11. List below transmitting equipment to be installed (if experimental, so state):

MANUFACTURER	MODEL NUMBER	NO. OF UNITS	EXPERIMENT
SEE ATTACHMENT			☒ Yes ☐ N
			☐ Yes ☐ N
			☐ Yes ☐ N
			☐ Yes ☐ N
			☐ Yes ☐ N

11. * Is the equipment listed in Item 10 capable of station identification pursuant to Section 5.152?☐ Yes ☒**12. * Applicant is:**☐ INDIVIDUAL ☐ ASSOCIATION ☐ PARTNERSHIP ☒ CORPORATION ☐ OTHER

If "OTHER" is selected, include as an exhibit a narrative statement describing the type of applicant.

13. * Is applicant a foreign government or a representative of a foreign government?☐ Yes ☒**14. ***

Has applicant or any party to this application had any FCC station license or permit revoked or any application for permit, license or renewal denied by this Commission?

If "YES", include as an exhibit a statement giving call sign of license or permit revoked and relate circumstances.

☐ Yes ☒**15. * Will applicant be owner and operator of the station?**☒ Yes ☐**16. Give the following information of person who can best handle inquiries pertaining to this application:***** Last Name:**

DESOTO

*** First Name:**

KURT

*** Title:**

COUNSEL FOR MOTOROLA, INC., WILEY REIN & FIELDING

*** Phone Number (include area code):**

(202) 719-7235

E-Mail Address:

KDESOTO@WRF.COM

17. * APPLICANT ANTI-DRUG ABUSE CERTIFICATION:

By checking "YES", the individual applicant certifies that he or she is eligible for this license. This requires that he or she is not subject to a denial of federal benefits, including FCC benefits, as a result of a drug offense conviction pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862. A non-individual applicant, e.g., corporation, partnership or other unincorporated association, certifies that no party to the application is subject to a denial of federal benefits, pursuant to that section. For definition of a "party" for these purposes, see 47CFR 1.2002(b).

☒ Yes ☐

18. CERTIFICATION:**THE APPLICANT CERTIFIES THAT:**

- a. Copies of the FCC Rule Parts 2 and 5 are on hand; and
- b. Adequate financial appropriations have been made to carry on the program of experimentation which will be conducted by qualified personnel; and
- c. All operations will be on an experimental basis in accordance with Part 5 and other applicable rules, and will be conducted in such a manner and at such a time as to preclude harmful interference to any authorized station; a
- d. Grant of the authorization requested herein will not be construed as a finding on the part of the Commission:
 - 1. that the frequencies and other technical parameters specified in the authorization are the best suited for the proposed program of experimentation, and
 - 2. that the applicant will be authorized to operate on any basis other than experimental, and
 - 3. that the Commission is obligated by the results of the experimental program to make provision in its rules including its table of frequency allocations for applicant's type of operation on a regularly licensed basis.

THE APPLICANT FURTHER CERTIFIES THAT:

- e. All the statements in the application and attached exhibits are true, complete and correct to the best of the applicant's knowledge; and
- f. The applicant is willing to finance and conduct the experimental program with full knowledge and understanding of the above limitations; and
- g. The applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the USA.

Name of Applicant:

* Signature (Authorized person filing form):

RONALD C. JOHNSON

Signature Date

(Authorized person form):

04/02/1999

* Title of Person Signing Application:

SENIOR RESOURCE MANAGER

* Check appropriate classification:

- ☐ Individual Applicant ☐ Member of applicant partnership
☒ Authorized employee ☐ Office of applicant corporation or association

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(A)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

NOTIFICATION TO INDIVIDUALS UNDER PRIVACY ACT OF 1974 AND THE PAPERWORK REDUCTION ACT OF 1980

Information requested through this form is authorized by the Communications Act of 1934, as amended, and specified by Section 308 therein. The information will be used by Federal Communications Commission staff to determine eligibility for issuing authorizations in the use of the frequency spectrum and to effect the provisions of regulatory responsibilities rendered by the Commission by the Act. Information requested by this form will be available to the public unless otherwise requested pursuant to 47 CFR 0.459 of the FCC Rules and Regulations. Your response is required to obtain this authorization.

Public reporting burden for this collection of information is estimated to average four (4) hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0065), Washington DC 20554. **DO NOT send completed applications to this address.** Individuals are not required to respond to this collection unless it displays a currently valid OMB control number.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.


Federal Communications Commission
**FEDERAL COMMUNICATIONS COMMISSION
ANTENNA REGISTRATION FORM FOR FILE NUMBER: 0110-EX-PL-1999**
1. * The purpose of this application is to:

- ☒ Add this antenna to the application/license
☐ Modify data pertaining to this antenna
☐ Delete this antenna from the application/license

2a. * Proposed location of transmitter and transmitting antenna:

- ☐ FIXED/BASE ☐ MOBILE ☒ BASE AND MOBILE

2b. If permanently located at a FIXED location, give below:

State: County: City or Town:

Number and street (or other indication of location):

NATIONWIDE

2c. If mobile, describe the exact area of operation:

NATIONWIDE

2d. *If fixed, enter the geographical coordinates exact to the nearest second. If mobile or base and mobile, enter either the area of operation or the fixed/center coordinates and the radius of operation.

North Latitude(DD-MM-SS): ° ' "
 West Longitude(DDD-MM-SS): ° ' "
 Radius of Operation: Km

3. * Datum:

- ☐ NAD 27 ☒ NAD 83

4. *Is a directional antenna (other than radar) used? If "YES", give the following information:

☐ Yes ☒ No

- (a) Width of beam in degrees at the half-power point:
 (b) Orientation in horizontal plane:
 (c) Orientation in vertical plane:

5. * Will the antenna extend more than 6 meters above the ground, or if mounted on an existing building, will it extend more than 6 meters above the building, or will the proposed antenna be mounted on an existing structure other than a building? If "YES", give the following:

☐ Yes ☒ No

- (a) Overall height above ground to tip of antenna is meters.
 (b) Elevation of ground at antenna site above mean sea level is meters.
 (c) Distance to nearest aircraft landing area is kilometers.
 (d) List any natural formations of existing man-made structures (hills, trees, water tanks, towers, etc.) which, in the opinion of the applicant, would tend to shield the antenna from aircraft and thereby minimize the aeronautical hazard of the antenna.

- (e) Submit as an exhibit a vertical profile sketch of total structure including supporting building, if any, giving heights in meters above ground for all significant features. Clearly indicate existing portion, noting particulars of aviation obstruction lighting already available. Submit this sketch under the "Antenna Drawing" exhibit type.

Submit Frequency Data

Clear Screen

FEDERAL COMMUNICATIONS COMMISSION ANTEN
ANTENNA LOCATION: Fi
COORDINATES : N latitud

Particulars of Operation									
Row	Click For Emissions	Action		Lower/Upper Frequency				Powe	
	☐	Add	▼				▼		
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FCC - Federal Communications Commission - FCC_Frequency_Registration_Form

I. INTRODUCTION AND BACKGROUND

Motorola, Inc., is a leading manufacturer of radio-frequency devices sold in the United States and overseas. It maintains its position in the industry by continually developing new products in response to evolving technologies and consumer demand.

Motorola is designing several new generations of transmitters and transceivers that will operate in the bands allocated to, among others, the cellular, personal communications, microwave, SMR, MDS/ITFS/MMDS, and LMDS services. Such devices are generally subject to the FCC's equipment authorization procedures before they may be marketed (*i.e.*, the certification requirements set forth in Section 2.1033 of the agency's rules, 47 C.F.R. § 2.1033 *et seq.*). They are also subject to and the FCC's licensing requirements before they may be operated (e.g., Parts 22, 90 and 101 of the FCC's rules). Moreover, prototypes of these devices generally cannot be tested or operated without a regular or experimental license. *See* 47 C.F.R. § 2.803.

Accordingly, Motorola has in the past obtained either an experimental license or special temporary authority to conduct compliance, performance, functionality, and acceptance testing of its prototype products as well as to demonstrate its prototype products. It currently has over 200 authorizations referenced in the FCC's experimental licensing database that are related to such operations. Most of these authorizations were granted for each experiment or type of equipment or to allow operation at a particular site.

Motorola believes, however, that its practice of obtaining a regular experimental or special temporary authority for each product or experiment before conducting research and development does not provide it the needed flexibility to adapt quickly to changes in research plans and requirements. Consequently, by this application Motorola seeks a blanket experimental license—subject to the noninterference and other conditions described below—to test, demonstrate and operate prototype products on a variety of bands and at temporary locations throughout the United States, as described below. As such, this request is fully consistent with the FCC's recent rule changes regarding blanket licenses in ET Docket No. 96-256. *See* Amendment of Part 5 of the Commission's Rules to Revise the Experimental Radio Service Regulations, ET Docket No. 96-256, Report and Order, FCC 98-283, released Oct. 27, 1998 ("ERS Streamlining Order")

Motorola submits that the public interest, necessity and convenience will be served by the grant of the subject application. As noted at paragraph 12 of the FCC's ERS Streamlining Order, such a grant would enhance the company's ability to obtain information needed to ensure that the products it is designing will accommodate and promote new technologies and services. It will also allow Motorola to consolidate various experimental authorizations, thereby reducing the administrative burdens imposed upon the company and the Commission associated with the processing of specific initial applications and requests or their renewals.

II. RESPONSES TO INDIVIDUAL QUESTIONS ON FCC FORM 442

Item 4(A): Frequencies

By this application, Motorola seeks experimental authority to operate in the bands 806-928 MHz, 929-932 MHz, 940-941 MHz, 1850-2700 MHz, 5.15-5.35 GHz, 5.725-5.825 GHz, 27.350-28.350 GHz, 29.1-29.25 GHz and 31.0-31.3 GHz. Operation in these bands will be coordinated with licensees in accordance with FCC requirements and as described further below.

Item 4(B) and (C): Transmitter Power

<u>Band</u>	<u>Power watts (ERP)</u>
806-849	500
824-851	500
851-894	500
896-902	500
902-928	200
929-932	3.5K
940-941	3.5K
1850-1910 FX	1K
1850-1910 MO	1.22
1910-1930	*
1930-1990 FX	1K
1930-1990 MO	1.22
1990-2200	2K
2200-2500	2K
2500-2700	2K
5.15-5.25 GHz	10
5.25-5.35 GHz	10
5.725-5.825 GHz	10
27.350-28.350 GHz	2K
29.100-29.250 GHz	2K
31.00-31.30 GHz	2K

*Operation in the 1910-1930 MHz band will comply with the power requirements under Part 15 governing low power, unlicensed PCS devices. See Public Notice, "Experimental Licenses in the 1910-1930 MHz Band," Mimeo No. 61800, released March 1, 1996 (allowing experimental testing in this band only for low-power, unlicensed PCS devices) ("Public Notice").

Item 4(D): "Mean" or "Peak."

All power limits set forth in Items 4(B) and 4(C) are "Peak." Operation in the 1910-1930 MHz band shall comply with the requirements under Part 15 governing low-power, unlicensed PCS devices. See Public Notice.

Item 4(E): Emission

Motorola seeks to employ various modes of modulation, bandwidth and data rates. Nevertheless, none of these modes of operation would extend beyond the band limits set forth under Item 4(A) above nor exceed the maximum emissions envelope established in the existing authorization.

Item 4(F) and (G): Modulating Signal and Necessary Bandwidth

See Item 4(E) above

Item 5(b): Location of Proposed Operation

Motorola proposes to conduct its experimental operations primarily within 80 kilometers of its research and development sites at Ft. Worth, Texas, and Arlington Heights, Illinois, but it also seeks authority to conduct experimental operations at other locations within the United States. As it cannot at this time determine the specific locations of such tests, it seeks blanket authority to operate nationwide (within the United States and its territories). Specifically, Motorola seeks authority to test, demonstrate, and operate products (1) at its own premises; (2) at the premises of entities working under Motorola's authorization in the design and development of the devices and related products; (3) at trade shows or non-residential exhibitions; and (4) at non-residential business, commercial, industrial, scientific or medical locations during the design, development and pre-production stages. Indeed, these operations would be consistent with the requirements set forth in Section 2.803 of the Commission's marketing rules. See Revision of Part 2 of the Commission's Rules Relating to the Marketing and Authorization of Radio Frequency Devices, ET Docket No. 94-45, Report and Order, released Feb. 12, 1997, at 11-13, 19-20 ("Marketing Rule Revisions").

In addition, Motorola seeks authority to operate mobile devices at certain end user locations, including residential locations. It submits that grant of such authority is in the public interest and convenience. The nature of the services and devices associated with wireless services—for example cellular and PCS services—typically involve such usage and therefore should be tested at user locations. Motorola would not operate any base stations at residential locations or environments, however. Nor does it propose to market, sell, or lease any prototype equipment to end users. After the experimentation ceases, Motorola would recall and recover all devices that are not in compliance with FCC regulations. If any different treatment becomes necessary during the course of its experimentation, Motorola will seek separate and additional authority from the agency.

Moreover, upon request and consistent with the ERS Streamlining Order, Motorola will notify the FCC of the specific details of each individual experiment, including location, number of base and mobile units, power, emissions designators, and any other pertinent technical information not specified by the blanket license.

Items 6, 15: Antenna Information

Motorola will employ a number of antennas with varied direction, beamwidth and polarization depending on the type and frequency of the operation under test. The antennas will be located either at ground level or mounted on existing buildings or antenna structures. With respect to any tower structure, Motorola certifies that it will not increase the height of the structure. In sum, Motorola certifies that it will restrict construction under its experimental authorization to ensure compliance with FCC and Federal Aviation Administration ("FAA") antenna requirements.

Item 10: Narrative Statement

See discussion under "Introduction and Background" above.

Item 13: Equipment to Be Installed

The section above entitled "Introduction and Background" describes the equipment to be installed under the authority requested in this application. Motorola seeks authority to operate a sufficient number of units to conduct compliance, performance, functionality, and acceptance testing of its products as well as to demonstrate its products.

Many of the consumer products Motorola manufactures are typically sold in quantities of hundreds of thousands. For example, the potential market for its products includes over sixty million consumers that currently subscribe to cellular and cellular-like services in the United States. To obtain accurate data regarding real-world operations, Motorola must employ a sufficient number of units during its studies to simulate actual usage. It expects that it will be able to conduct such studies with a maximum of 50 base stations and 750 mobiles. These numbers are intended to reflect the maximum number of unapproved or unlicensed units that will be in operation at any given time under this authorization. As required, Motorola would seek separate and specific authority if more units are needed to conduct a particular experiment.

Item 19: Owner and Operator of Equipment

Motorola understands that the FCC permits (1) companies to enter into agreements and contracts to manufacturer new products and (2) manufacturers to sell—but not deliver—products on a conditional basis to wholesalers and retailers. Motorola also understands that the FCC permits the operation of unintentional radiators for, among other things, compliance testing, demonstration at trade shows and other exhibitions with appropriate notices displayed, and evaluation of product performance and customer acceptability at the manufacturer's facilities or at certain non-residential sites during the developmental, design and pre-production stages. See Marketing Rule Revisions, § 2.803; Part 15 Revisions, 6 FCC Rcd 1683, 1685 (1991).

Notwithstanding these general rules, the FCC requires parties to seek authorization to use devices that normally require a license to operate. Such authority may be granted under the FCC's experimental rules set forth in Part 5 of the Code of Federal Regulations, 47 C.F.R. Part 5 (1998). Accordingly, Motorola seeks an experimental license to conduct experimental operations permitted under Part 5 of the Commission's rules. Those rules permit such operation provided that: (1) participants are advised that the service or device is granted under experimental authority and is strictly temporary; and (2) the devices are owned by the licensee.

Motorola also recognizes that the operation of any unapproved or unlicensed devices under experimentation must not cause harmful interference to authorized facilities. Should interference occur, Motorola will immediately take reasonable steps to resolve the interference, including if necessary discontinuing operation. To that end, Motorola would advise entities using the equipment that permission to operate the equipment has been granted under experimental authority issued to Motorola, is strictly temporary, and may be canceled at any time. It will also advise entities that operation is subject to the condition that the equipment may not cause harmful interference. Specifically, Motorola proposes to label the equipment conspicuously as follows:

FCC STATEMENT

Permission to operate this device has been granted under experimental authority issued by the Federal Communications Commission to Motorola, Inc., is strictly temporary, and may be canceled at any time. Operation is subject to the following two conditions (1) this device may not cause harmful interference and (2) this device must accept any interference received including interference that may cause undesired operation.

This device has not been authorized as required by the rules of the Federal Communications Commission. This device is not, and may not be, offered for sale or sold until the approval of the FCC has been obtained. Thus, the user does not hold a property right in the device and may be required to return the device.

In any event, Motorola submits that its experimental operations are unlikely to cause interference. First, Motorola plans to coordinate its operations with existing licensees in the areas of proposed operation. Indeed, it expects that many of its experiments will be conducted on behalf of and with the cooperation of existing licensees. Second, Motorola intends to monitor use of the relevant frequencies before commencing transmissions, and it will not operate if the frequencies are in use.

Item 20: Contacts for Inquiries

Technical Contacts:		Legal Contacts:
In Fort Worth: Ronald C. Johnson Senior Resource Manager Ft. Worth Research & Development Center 5555 North Beach Street Ft. Worth, Texas 76137 Phone: (817) 245-6231 Fax: (817) 245-6906	In Arlington Heights: John Toone Principal Staff Engineer 1501 West Shure Drive Arlington Heights, IL 60004 Phone: (847) 435-6028 Fax: (847) 632-6999	David E. Hilliard, Esq. (dhilliard@wrf.com) Kurt E. DeSoto, Esq. (kdesoto@wrf.com) Thomas D. Dombrowsky (tdombrow@wrf.com) Wiley, Rein & Fielding 1776 K Street, N.W. Washington, D.C. 20006 Phone: (202) 719-7000 Fax: (202) 719-7049

III. CONCLUSION

Motorola submits that grant of this application would serve the public interest, convenience and necessity, as it would allow Motorola to enhance its ability to develop innovative products to support the information needs of the public.

**Federal Communications Commission**

Status	File Size (bytes)	File Description	Exhibit Type	File Format
	13313	COVER LETTER	Text Documents	Microsoft Word
	29185	ATTACHMENT	Text Documents	Microsoft Word

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