

**FREQUENCY COORDINATION  
PROCEDURES  
&  
DATABASE MAINTENANCE  
RESPONSIBILITIES MANUAL**

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## 1.0 INTRODUCTION

### 1.1 General

Microwave radio systems have to be designed in such a manner as not to cause, or suffer, objectionable interference with other systems operating in the same or adjacent frequency bands. The term microwave frequency coordination, or simply "frequency coordination", is used to identify the procedures followed by companies operating microwave radio systems in order to minimize and control potential interference between microwave radio systems. This coordination is facilitated by sharing coordination data among users, so that accurate and up-to-date information is available with which estimates of potential interference can be made during the system design stage. Radio frequency interference studies and frequency coordination are necessary not only when designing a new radio system, but also when a network planner studies the potential interference effects of other users' radio construction proposals on existing and planned systems. Thus coordination is involved when one party initiates construction plans as well as when reacting to other parties' plans.

The frequency coordination process followed by Canadian microwave radio system operators involves the exchange of technical data, studies for potential interference effects, correspondence between users regarding new proposals and, as necessary, re-design of proposed systems to avoid potential interference problems brought to light during the coordination notification-and-response process. The same basic procedures are followed by operators in the United States which, in some cases, share the same microwave radio frequencies.

Microwave frequency coordination procedures in Canada are governed by regulations issued by Innovation, Science and Economic Development Canada (ISED), in particular Radio Standard Procedures (RSP) 101 entitled "Licence Application Submission Procedure for Planned Radio Stations Operating on Frequencies below 960 MHz", RSP 113 entitled "Application Procedures for Planned Radio Stations Above 960 MHz in the Fixed Service", and Client Procedures Circulars (CPC) 2-6-01 issue 5 entitled "Procedures for the Submission of Applications to License Fixed Earth Stations and Approve the Use of Foreign Fixed Satellite Service (FSS) Satellites in Canada". Users unfamiliar with these regulations are referred to these documents, which can be obtained from Innovation, Science and Economic Development Canada's web site [www.strategis.ic.gc.ca/spectrum](http://www.strategis.ic.gc.ca/spectrum)

In its stewardship role of radio spectrum management, Innovation, Science and Economic Development Canada established the requirement for microwave radio operators to coordinate frequencies in advance of filing for their microwave radio licence applications. (Because coordination occurs prior to filing applications, it is often referred to as "prior frequency coordination".) Since this requirement was established, prior frequency coordination has proven to be very effective in permitting the resolution of potential interference problems before applications have been filed or construction has begun. The benefit of prior coordination is clear: it avoids the significant expense involved in correcting interference problems after construction has been completed. Although it doesn't carry the guarantee of "insurance", it does represent a cost-effective

form of “assurance”.

Effective and efficient frequency coordination is based on the premise that the following key ingredients exist:

- (a) The establishment and maintenance of a set of mutually acceptable criteria for microwave radio system interference;
- (b) The exchange of data to maintain and make accessible to the users information about other users' microwave radio systems; and
- (c) The creation and maintenance of a set of mutually acceptable engineering rules and calculation methods, which would allow the users to determine whether the microwave radio system interference criteria are met.
- (d) Cooperation between the various parties who own and operate microwave radio systems.

The FCSA Microwave Information and Coordination System (MICS), is a computerized system which consolidates these four ingredients:

- The members of FCSA, through their technical forum, the MICS Technical Group (MTG) establish the mutually acceptable microwave radio system interference criteria, which are translated into carrier-to-interference tables (CTX's). These criteria are also discussed by FCSA representatives with US coordinators in a public forum called the National Spectrum Managers Association (NSMA) thereby ensuring that they comply with North American industry standards.
- A microwave radio system database, accessible to all members, is maintained in a central computer;
- A set of computer programs, which reflect the mutually agreed upon engineering rules and methods to calculate potential interference between microwave radio systems, is also maintained in the FCSA's central computer.
- A mutual understanding among the FCSA members to adhere to industry standards, to share data on their respective microwave radio systems and to share in the costs of the operation of FCSA.

The MICS system is accessible to all members of FCSA through the Internet.

Coordination studies may involve terrestrial vs. terrestrial stations (TS-TS), or terrestrial vs. earth stations (TS-ES), or terrestrial vs. space stations. MICS is capable of performing a complete microwave radio system interference study for the first two cases. For the third case, MICS can analyze the possibility of intersecting the geosynchronous satellite orbit (TSORB), and based on the results of this analysis the users are able to determine compliance with international regulations. Among Innovation, Science and Economic Development Canada's responsibilities are the promotion of efficient spectrum utilization and the authorization of the use of frequencies to Canadian microwave radio system operators in such a manner as to

provide communications services on an “interference-free” basis. Toward these ends, Innovation, Science and Economic Development Canada in cooperation with the Radio Advisory Board of Canada (RABC) have established technical standards for each of the radio services and prior coordination requirements for selected services.

The technical standards established by Innovation, Science and Economic Development Canada to promote efficient spectrum utilization include rules specifying frequency allocations, maximum channel bandwidths, maximum transmit power, frequency tolerances and minimum antenna standards. These rules, which are set out in Standard Radio System Plans (SRSP) are of interest to frequency coordinators because radio construction proposals must generally conform to these technical standards and because these standards sometimes form the basis of interference protection.

## **1.2 Coordination Between Canadian Companies**

Two cases, of interest to FCSA members, are possible:

- Coordination between two companies which are both members of FCSA, and
- Coordination between a company which is a member of FCSA and a company which is not a member of FCSA.

These two cases are discussed in sub-sections 2.2 and 2.3 respectively.

## **1.3 Transborder Coordination**

Official coordination of Canadian and USA microwave radio stations operating within the Canada/USA coordination zone is a joint responsibility of ISED and the FCC. In practical terms, however, microwave radio system operators need to know if operation of planned facilities, within the Canada/USA coordination zone, would be technically feasible before presenting a formal application to their licensing bodies (i.e. ISED in Canada and FCC in the USA). In the USA the FCC has solved this problem by establishing a procedure called "prior coordination", which in fact means that the microwave radio system operators coordinate their systems prior to filing related applications with the FCC. Since this procedure has proven very effective in the USA, FCSA has voluntarily subscribed to it, i.e. Canadian and USA microwave stations within the Canada/USA coordination zone, are "prior coordinated" by the operating companies involved.

Prior coordination gives the FCSA members an opportunity to identify potential problems and negotiate their resolution with affected parties in Canada and the U.S.A. before an official licence application has been submitted to the authorizing body (Innovation, Science and Economic Development Canada in Canada or the FCC in the U.S.A.)

While Innovation, Science and Economic Development Canada does not use the term “prior coordination”, it has established requirements for frequency coordination as part

of its spectrum management and telecommunications policy and procedures that address the prerequisite steps that are to be followed by an applicant when filing for a microwave radio licence. These steps are set out in RSP-113 and CPC-2-6-01.

Canadian microwave radio system operators who have carried out “prior coordination” with U.S. counterparts should mention this in their licence application to Innovation, Science and Economic Development Canada. This information should be included in the covering letter. When filing online, this information should be placed in the “Any other information supporting this application” field. An example of such an entry could be the following. “Successful prior coordination with U.S. Licensees; U.S. Licensee Name 1, U.S. Licensee Name 2, U.S. Licensee Name 3.” The applicant would of course have to keep in his possession documented proof of his statement to be made available to Innovation, Science and Economic Development Canada if requested.

Transborder coordination is discussed in further detail in sub-section 2.4

#### **1.4 Microwave Database Maintenance Responsibilities**

Innovation, Science and Economic Development Canada maintains a single national public database that contains data on all licensed microwave radio systems in Canada. Information in this database can be viewed on-line via Innovation, Science and Economic Development Canada’s Spectrum Direct web site at <http://sms-sqs.ic.gc.ca> (it should be noted that Innovation, Science and Economic Development Canada does not disclose frequencies assigned to public security forces and the DND). The FCC maintains a similar public database of US licensed microwave radio systems operating in the U.S.A.. Also in the U.S.A. there are several private databases containing information of coordinating agencies who maintain private databases with information of the microwave radio systems operated by their clients. In Canada FCSA maintains the only private database of licensed microwave radio system data.

FCSA’s MICS microwave database, called MDB, is subdivided into the main and subsidiary database tables. The main tables contain data pertaining to microwave radio stations operated by FCSA member companies, Canadian non-FCSA companies and USA companies (USA microwave radio stations within the coordination zone). FCSA’s MDB is also divided into two segments, one “public” and the other “private”. The “public” segment contains data that can be viewed by all FCSA’s member companies. On the other hand, the “private” segment contains data of FCSA member organizations that can only be viewed by the respective FCSA member organizations who have input that data. The subsidiary tables contain the codes used in the microwave radio station data, along with any pertinent information (e.g. antenna and equipment types and characteristics, carrier-to-interference tables, etc.).

The integrity and timely update of the FCSA's MDB is crucial to the efficient coordination process used by its members, and its maintenance is a joint responsibility of the member companies and FCSA central staff. The member companies and FCSA's responsibilities, along with the rules and procedures concerning the MDB maintenance, are discussed in section 3.

## 2.0 FREQUENCY COORDINATION PROCEDURES

### 2.1 Frequency Coordination Modes

Besides satisfying an Innovation, Science and Economic Development Canada requirement, frequency coordination with other microwave radio users is conducted basically for two reasons: The first reason is to determine if a proposed system is technically feasible and acceptable to other users from an interference standpoint. This is commonly referred to by the industry as the “planning mode”. The second reason is to provide interference protection for the proposed system until a microwave radio licence application is filed with Innovation, Science and Economic Development Canada. This aspect is known as the “protect mode”. Innovation, Science and Economic Development Canada’s procedures state that coordination involves two key elements: notification and response. (The process is of course more complicated than this single description implies, but Innovation, Science and Economic Development Canada highlights these two elements in the basic process to emphasize the bilateral nature of frequency coordination).

When filing with Innovation, Science and Economic Development Canada for a microwave radio licence or a change to an existing microwave radio licence, all applicants must indicate whether or not they have coordinated their proposed microwave radio frequency usage with existing microwave radio operators operating in that band and in the same geographical area, whose facilities could affect or be affected by the new proposal in terms of frequency interference or restricting another system’s ultimate capacity. Prior to initiating a request for frequency coordination the applicant must first conduct appropriate studies and analyses in order to select sites, transmitters, receivers, antennae, and frequencies that will avoid harmful interference to other microwave radio operators. All applicants and licensees must cooperate fully and make reasonable efforts to resolve technical problems in order not to inhibit efficient use of the radio frequency spectrum. It should be noted that Innovation, Science and Economic Development Canada obliges all licensees, on an ongoing basis, to respond to legitimate frequency coordination requests within 30 days after having received all necessary technical information.

FCSA’s MICS software module and database allows the users to perform coordination studies in two different modes: PLAN and PROTECT.

A MICS user planning to establish a new, or to modify an existing microwave radio facility, should use the PLAN mode. This will let the user know the potential interference effects produced by the new or modified microwave radio facility into the existing environment, and the effects of the existing environment into the new or modified microwave radio facility.

A MICS user trying to assess the effects that a planned new or modified microwave radio facility of another user may have on his radio system, should use the PROTECT mode. This will report to the user the potential interference caused by the planned microwave radio facility into the MICS user's microwave radio facilities, and the effects of the MICS user's facilities into the planned microwave radio facility.

### **2.1.1 PLAN Mode Procedure**

This procedure applies to cases where an FCCSA member company (Company A) plans to establish a new, or to modify an existing microwave radio facility. In summary, this procedure involves:

- a) Development of a proposal by Company A;
- b) Preparation of a new, or modification to an existing, data file of the proposal, using the MICS standard Terrestrial Station Data File (TSDF) or Earth Station Data File (ESDF) format. The MICS TSDF/ESDF Functions should be used as necessary and convenient); [Reference 1 in section 2.5]
- c) Validation of the TSDF/ESDF using the TSDF/ESDF function "Validate" (this program checks the input TSDF/ESDF for errors and adds to it any relevant information from the MDB); [Reference 2 in section 2.5]
- d) Execution of the MICS interference calculation program (TSIP) in the PLAN mode for the user's TSDF/ESDF [Reference 3 in section 2.5]. If the TSDF/ESDF is a terrestrial file (TS), the user should test it against the terrestrial MDB and for intersection of the geostationary satellite orbit and, depending on the frequency band employed, against the earth stations (ES) MDB. Also, the user should test the TSDF against itself (INTRA study) and other current TSDF/ESDF's that may exist in Company A's private MDB tables that have not already been posted to the MDB main data tables. If the TSDF/ESDF is an ES file, the user should test it against the terrestrial MDB and against other TS files that may exist in the user's private MDB tables.

To execute TSIP in the PLAN mode, the user will select "All", or "All EXCEPT SELF" if he/she has already analyzed the file against his/her own database, under the "Select Environment Sites" prompt (TSIP Parameters file screen).

### **2.1.2 PROTECT Mode Procedure**

This procedure applies to cases where an FCCSA member company (Company B) wishes to assess the potential interference effects of a proposed or modified microwave radio installation, belonging to another company (Company A), into Company B's microwave radio facilities, and the effects of Company B's microwave radio facilities into Company A's microwave radio proposed facilities.

Company B may need to protect the following (against Company A's proposal):

- Its own microwave radio stations listed in the terrestrial MDB;
- Its own microwave radio stations listed in the earth station MDB;
- Its proposed microwave radio stations that are in its own private tables.

In general, Company B's PROTECT mode analysis should be as follows:

- a) Review of Company A's (if Company A is also an FCSA member) interference analysis results (optional);
- b) Creation of a TSDF/ESDF of Company A's proposal (if Company A is an FCSA member this TSDF/ESDF should be available from Company A's coordination notification);
- c) Validation of the TSDF/ESDF, by processing Company A's TSDF/ESDF through FCSA's MICS VALIDATE program;
- d) Execution of an interference analysis in the PROTECT mode, to test Company A's TSDF/ESDF against the Company B's microwave radio stations listed in the MDB (terrestrial and/or earth station) and any files in Company B's private MDB tables.

In the PROTECT mode, Company B can also select up to fifty operator codes, which would be considered as its "own" stations during the analysis. The TSIP program will select from the database environment indicated by the user (terrestrial MDB for example), all these stations which are considered user's own, and will analyze them against all those stations in the TSDF/ESDF.

## **2.2 Coordination Between FCSA Member Companies**

An FCSA company (Company A) planning to install new microwave radio facilities, or to modify existing microwave radio facilities, should carry out the PLAN mode procedure outlined in paragraph 2.1.1. After the microwave radio interference analysis (step d) has been completed, Company A should check the microwave radio interference analysis report provided by MICS for any unacceptable microwave radio interference cases. If there are any, the proposed design should be modified and the procedure repeated; otherwise, Company A could start the coordination procedure.

To execute TSIP in the PROTECT mode, Company B will select "OPERATOR CODE" mode under the "Select Environment Sites" prompt, and enter its own operator code in the "OPERATOR CODE" window.

The microwave radio system coordination procedure between FCSA member companies involves basically the following steps:

- a) Company A makes the necessary initial submission to Innovation, Science and Economic Development Canada, in accordance with RSP 113, CPC 2-6-01, as appropriate;
- b) Company A executes the PCN Coordination function in MICS for the TSDF/ESDF of Company A's proposed system. Current accepted coordination distances are 200 Km for terrestrial and 300 Km for earth stations. NOTE: Company A can choose to update the database before sending the PCN notice.

See g) first paragraph below.;

- c) Company A selects all FCSA operators from MICS. Select "Generate PCN" and the system will send an electronic message automatically to all selected operators. (See Reference 4 in section 2.5);
- d) Other FCSA member companies, in receipt of a microwave radio system PCN coordination request from Company A which includes Company A's file, should satisfy themselves that Company A's proposal would not produce harmful interference into their existing or planned microwave radio stations (to this effect they should execute IMPORT, VALIDATE and then TSIP in the PROTECT mode, as per paragraph 2.1.2).
- e) The companies in receipt of Company A's microwave radio system PCN coordination request, should reply directly to Company A within 30 days from the date of the PCN. If there is a difference of view between Company A and another FCSA member company, the parties should engage in direct bilateral discussion to resolve the difference. If differences cannot be resolved refer to RSP 101, RSP 113 and CPC 2-6-01 as appropriate.
- f) After the coordination period has expired, and if no objections to Company A's proposal have been presented, Company A should execute webmics function Database Update, which will transfer the TSDF/ESDF to FCSA and send an email to the FCSA Database Administrator (fmda), requesting FCSA to update the MDB. The appropriate status codes for the facilities should be used (generally code 3 is used at this stage)

Note: FCSA status codes for the microwave radio facilities are:

- 0 Unknown/Default
- 1 Future system/No licence or coordination issued
- 2 Programmed system/No licence issued/Coordination may be issued
- 3 Licence application issued/Coordination issued or received
- 4 Licence application approved/System under construction
- 5 Operational system
- 6 System to be removed from service
- 7 Temporary system
- 8 Experimental system
- 9 Illegal input

- g) If Company A sends the file subjected to coordination to FCSA for updating the MDB before sending the PCN, then Company A must edit the original TSDF/ESDF file, changing the MDB Operation Command to "N" on every record and use this file for PCN Coordination, in order that the other Member Companies can validate the file.

If Company A sent the TSDF/ESDF file before requesting the MDB update from FCSA and the MDB update request has been made before the 30 day coordination period, then Company A must send the edited file to all Member Companies that received the original TSDF/ESDF.

If a Member Company presented an objection to Company's A proposal within the 30 day coordination period, it would be the responsibility of Company A to resolve the problem directly with the other Member Company and after they have reached an agreement, to make all necessary changes to the MICS MDB concerning this proposal.

## **2.3 Coordination Between FCSA and Non-FCSA (Canadian) Companies**

### **2.3.1 Coordination Request Generated by FCSA Member Company**

An FCSA member company (Company A) that is planning to install a new microwave radio facility, or to modify an existing microwave radio facility, should carry out the procedure of subsection 2.2 above.

If after completing step c of the procedure, Company A finds out that non-FCSA companies operate within the coordination area affected by their proposal, and in the same or adjacent bands, then Company A would:

- Send coordination requests to the affected non-FCSA companies before filing a licence application with ISED.

The documentation to be included with the coordination letter should basically consist of the following:

- Identity of the company making the coordination request;
- Brief description of the proposed radio system for which the request is being made (just enough to identify it and convey an idea of what is involved);
- An alphabetic listing of the TSDF/ESDF containing data on the pertinent technical parameters of this proposal [Reference 5 in section 2.5]. (See [Appendix "A"](#) and [Appendix "B"](#)). The notification must also include a copy of the reports containing the results of and methods used in conducting the interference analysis of the proposed new microwave radio system.

If necessary, include an annex explaining the meaning of any internal FCSA codes appearing in the report;

- If growth beyond the current proposal is foreseen, the frequency and polarization plans should be described in the enclosed documentation, along with the maximum/minimum powers, traffic and equipment types to be assumed;
- Date by which a reply is requested;
- Name and telephone number of the frequency coordinator (contact to whom questions can be addressed);

- After the coordination period has expired, and if no objections to Company A's proposal have been presented, Company A should execute the webmics Database Update function which will transfer the TSDF/ESDF to FCSA and send an email to the FCSA Database Administrator (fmda), requesting FCSA to update the MDB. The appropriate status codes for the facilities should be used (generally 3 at this stage. See subsection 2.2, paragraph g, for table of status codes)

### 2.3.2 Coordination Request Generated by a Non-FCSA Company

A non-FCSA company that is planning to install a new microwave radio facility, or to modify an existing microwave radio facility, must first conduct appropriate studies and analyses in order to select sites, transmitters, receivers, antennae, and frequencies that will avoid harmful interference to other microwave operators. Once preliminary design of a new microwave radio system and the interference analysis have been completed by the initiating party, the latter then must notify all parties that could be affected by his proposed new or modified microwave radio system. This notification must include as a minimum the following data:

- Transmitter stations name & address & coordinates
- Frequencies and polarization to be used.
- Transmitting equipment manufacturer, type, model, output power, stability, modulation technique and emission designator.
- Transmitting antenna manufacturer, type, model, maximum gain and typical pattern.
- Receiving station name, address and coordinates.
- Receiving antenna manufacturer, type, model, maximum gain and typical pattern.
- Path azimuth and distance.

A complete list of the required data is outlined in [Appendix "A"](#) and [Appendix "B"](#) which is similar to the information listed in Innovation, Science and Economic Development Canada's official documents RSP113 and CPC-2-6-01. The notification must also include a copy of the reports containing the results of and methods used in conducting the interference analysis of the proposed new microwave radio system.

If the initiating party (Company A) does not have the necessary technical resources to perform a proper interference analysis study complete with meaningful industry standard results, then an FCSA member company (Company B) should refuse Company A's coordination request until Company A produces such results. In such a situation, an FCSA member company should inform Company A that such a frequency interference analysis service is available for a fee from FCSA's head office at 613-241-3080 or E-mail: [fcsa.services@sympatico.ca](mailto:fcsa.services@sympatico.ca)

An FCSA member company (Company B) in receipt of a coordination request from a non-FCSA Canadian company (Company A) should:

- a) Send a message to the other members of FCSA, giving the source of the

coordination request and a brief description of Company A's proposal, sufficient to identify it. The reason for this is to see if any other FCSA member company has also received this request so as to avoid duplication of effort.

- b) If Company B is the first FCSA member company to be in receipt of this particular request, Company B will then create a TSDF/ESDF describing Company A's proposal. Company B should obtain from Company A any required information to prepare the TSDF/ESDF, as well as obtain permission from Company A to put their data into MICS. Also, Company B should obtain from the FCSA database administrator any new subsidiary codes required;
- c) Company B should execute the webmics PCN Coordination function to send the file to affected FCSA members.
- d) Company B should execute the interference calculation program in the Protect Mode :
  - Against Company B's stations listed in the MDB, and
  - Against any current TSDF/ESDF's listed in Company B's private MDB tables.
- e) Company B should reply to Company A, indicating concurrence if interference is not expected, or non-concurrence otherwise;
- f) Other FCSA companies affected by the proposal should, proceed as in d) and e) above;
- g) After 30 days Company B should consult with all affected FCSA members that were sent the PCN to ensure that they have no objections to this proposal. In case of concurrence Company B should run the Database Update function in webmics which will transfer the file to FCSA for update of the MDB.
- h) Other affected FCSA companies that do not concur with the proposal should notify Company A of their non-concurrence within the 30 day coordination period, and discuss the problem directly with Company A or via ISED;
- i) The FCSA DBA will post the file to the MDB no later than 48 hours after Company B has transferred the file for update. Company B's operator code will be added to the pointer fields.
- j) Company B is responsible for the maintenance of Company A's data in FCSA's database until such time as Company A's systems is licensed by Innovation, Science and Economic Development Canada.

If a microwave radio licence has not been filed by the initiating coordinator within six (6) months after the date the coordination was completed, other parties may assume, unless notified otherwise, that the proposed frequency used is no longer desired by the initiating coordinator. Once a microwave radio licence application is filed by the initiating coordinator, it is given interference protection permanently as long as the system remains licenced and in operation.

If a microwave radio licence application has not been filed within six (6) months of coordination, the initiating coordinator may send a notice to all other affected parties indicating his continuing interest in the proposed system. This notification “renews” the coordination and extends the interference protection for an additional six (6) months.

## **2.4 Transborder Coordination**

### **2.4.1 General**

New or modified microwave radio stations located within the Canada/USA coordination zone, and operating in frequency bands which overlap or are adjacent to frequency bands used in the USA, should be coordinated with the USA operators which may be affected by the new installations or changes.

To make the transborder coordination procedures practical, FCSA has voluntarily joined the National Spectrum Managers Association (NSMA).

NSMA is a voluntary U.S. association of microwave radio and satellite frequency coordinators. Through its working groups NSMA develops technical and procedural recommendations which serve as industry guidelines for North American microwave radio coordination. NSMA recommendations represent non-mandatory guidelines, rather than requirements per se. The FCC, however, has demonstrated in the past that generally accepted industry practice is an important factor in resolving coordination disputes.

Within the NSMA forum, FCSA has participated in the discussion and formulation of recommendations concerning:

- Prior coordination proceedings.
- Electronic exchange of Prior Coordination Notices (PCN).

### **2.4.2 Prior Coordination Procedures**

- If an FCSA Member Organization receives a coordination request from a US organization, this Member Organization would proceed as in Paragraph 2.3.2 above and send the PCN to all other affected Member Organizations
- Every FCSA' Member Organization will be responsible for assessing the effects of the PCN onto the user's own company system. The users will also be responsible to reply to the USA company or agency within the time limits indicated in the PCN;
- The FCSA DBA will post the (PCN) TSDF/ESDF to the MDB. In case of ambiguity, erroneous or missing data in the USA PCN, all affected users will

decide on appropriate changes and will advise the DBA.

- If after the coordination period of 30 days there are no objections to the US Organization proposal, the FCSA Member Organization that originated the PCN would run the webmics Database Update function, to request FCSA to update the MICS database concerning this proposal. FCSA will add the FCSA member's operator code to the pointer fields.

## **2.5 References**

Ref. 1: PCN Functions programs. See MICS User Guide.

Ref. 2: VALIDATE program. See MICS User Guide.

Ref. 3: TSIP program; Plan and Protect analysis. See TSIP Reference Manual, sections 2 and 3.

Ref. 4: PCN Coordination function.

Ref. 5: Alphabetical List of Stations. See MICS User Guide.

## **3.0 MISEDROWAVE DATABASE MAINTENANCE RESPONSIBILITIES**

### **3.1 General**

Maintenance of FCSA's MICS database is a joint responsibility of the MICS users and FCSA central staff.

The MICS users are responsible for creating the data files, transferring them to FCSA on time, and for the integrity and accuracy of the information contained in the data files.

FCSA central staff is responsible for the following: implementing the database updates in a timely fashion (i.e. executing program UPDATE), reporting any format or syntax problems to the originator of the file, and keeping the users informed of any database update transactions.

### **3.2 Main Database Tables**

#### **3.2.1 FCSA Member Companies' Data**

Every MICS user is responsible for reporting to FCSA central staff any database additions, deletions or modifications to the microwave radio station data of his or her company. To this effect the user will:

- Create the adequate TSDF/ESDF [Reference 1 in section 3.5];
- Follow any applicable coordination procedures as per section 2.0;
- After all coordination procedures are completed, execute the webmics Database Update function to transfer the file to FCSA to update the MICS database;
- FCSA central staff will update the MICS database and report the transaction to the user.

The integrity and accuracy of the data contained in the TSDF/ESDF, as well as the timeliness of the request for updating the database, are the responsibility of the MICS users.

FCSA central staff is responsible for updating the database within 48 hours of the user's request, or reporting to the originator of the file of any syntax or format problems with the TSDF/ESDF (e.g. missing fields; fields which do not conform to the field format) within 72 hours of the user's request. The webmics Reports function contains a list of month-to-date database updates.

### **3.2.2 Non-FCSA Canadian Companies' Data**

#### **Terrestrial Station Data**

Maintenance of the non-FCSA Canadian terrestrial site data is a responsibility of FCSA staff and the MICS users.

The non-FCSA Canadian data is updated by processing the coordination requests received by the FCSA member companies and periodic updates by FCSA staff using Innovation, Science and Economic Development Canada's TAFL files.

- a) If an FCSA member company (Company A) receives a request for coordination from a non-FCSA Canadian company, the coordinator of this company will proceed as follows:
  - Create a TSDF/ESDF of the proposal received and follow any applicable coordination procedures as per section 2.0;
  - Transfer the TSDF/ESDF to the company's coordination directory and advise all other FCSA companies which may be affected by the proposal (within its own and adjacent provinces or territories). These companies should follow any applicable coordination procedures as per section 2.0;
  - After all coordination procedures are completed, Company A will transfer the TSDF/ESDF to its coordination directory and request FCSA central staff to update the MICS database;
  - FCSA central staff will proceed as in paragraph 3.2.1 above.

## **Earth Station Data**

Maintenance of the non-FCSA Canadian earth station data is the responsibility of FCSA staff and MICS users.

Any FCSA company in receipt of a non-FCSA Canadian earth station coordination request should continue as in 3.2.2 a) above.

### **3.2.3 USA Companies' Data**

Maintenance of the USA terrestrial and earth station data is a responsibility of FCSA staff and FCSA's Member Organizations.

## **3.3 Subsidiary Database Tables**

### **3.3.1 General**

FCSA's MICS microwave database currently contains 16 subsidiary data tables. These subsidiary data tables consist of descriptive information and numerical data used in interference calculations and record keeping. The subsidiary data tables are the following:

sd_antd, sd_ante, sd_anty	- Antenna information, discrimination, and description
sd_band	- Frequency bands and band adjacency information.
sd_eqpt	- Equipment description.
sd_ctx, sd_ctxd	- Interference objectives tables.
sd_note	- Notes table.
sd_oper	- Information on operating and coordinating companies.
sd_plan, sd_plnd	- Frequency plans.
sd_rout	- Information on routes.
sd_town	- Tower notes table.
sd_towr	- Description of tower types.
sd_traf	- Traffic types and cross references.

### **3.3.2 Maintenance of the Subsidiary Tables**

The responsibility for maintaining the MDB subsidiary tables is shared by the MICS users and FCSA central staff. The MICS users are responsible for generating, processing and approving changes or additions to the tables; FCSA central staff (Database Administrator) is responsible for the administration and actual updating (i.e. operation of the programs to update the tables) of the tables.

Modifying, adding or deleting information from a table may involve action by two parties: Originator and FCSA central staff.

The originator can be any member company, e.g. a company using a new type of antenna or equipment should initiate action towards including pertinent data into the subsidiary tables.

Within the FCSA central staff group, the subsidiary tables are under the responsibility of the Database Administrator supported, when required, by Assistant Database Administrator and the Radio Systems Engineer.

### **3.3.3 Procedures to Update the Subsidiary Data Tables**

FCSA currently has established a set of standard procedures and input format, to modify, add or delete information from each one of the subsidiary data tables. The originator is responsible for presenting the data in standard format.

In summary, the procedure consists of the following:

- The originator advises the FCSA DBA of the proposed update. The DBA verifies that no other FCSA member has made the same request;
- The originator presents the new data to FCSA central staff, and requests the update of the pertinent subsidiary data table or tables;
- FCSA central staff analyze the data in concert with the originator. Once the changes to the tables have been approved by the originator, the FCSA Database Administrator can implement the update.
- The Database Administrator, within 72 hours, proceeds with the update. The MICS users can use the webmics reports function that contains a list of the recent subsidiary updates.

## **3.4 References**

Reference 1: Creation of a TSDF/ESDF. See MICS Users Guide

## Appendix “A”

### Earth Station Minimum Coordination Data

*Provide the following information for each earth station antenna:*

Operating Company Name  
Company Contact Name  
Company Address  
Phone Number  
Fax Number  
E-mail address  
Site Call sign  
Site name  
Site Latitude  
Site Longitude  
Site Altitude  
Rain zone  
Radio zone  
Satellite Name  
Satellite operator  
Satellite minimum longitude  
Satellite maximum longitude  
Transmit Antenna model  
Transmit Antenna manufacturer  
Transmit Antenna Data  
Transmit Antenna centre-line height  
Transmit antenna-feed-system loss  
Receive Antenna Model  
Receive Antenna Manufacturer  
Receive Antenna Data  
Receive Antenna Center-line height  
Receive Antenna G/T  
Receive antenna-feed-system loss  
Transmit frequency band lower limit  
Transmit frequency band higher limit  
Receive frequency band lower limit  
Receive frequency band higher limit  
Transmit frequencies  
Radio frequency channel bandwidth  
Transmit Polarization  
Transmit power  
Energy dispersal factor  
Transmit loading/modulation type

Transmit equipment model  
Transmit equipment manufacturer  
Transmit equipment data  
Receive frequencies  
Receive polarization  
Receive signal level  
Receiver noise temperature  
Receive loading/modulation type  
Receive equipment model  
Receive equipment manufacturer  
Receive equipment data  
Long-term interference requirement  
Short-term percentage of time  
Short-term interference requirement  
Horizon profile (azimuth, elevation angle and distance to horizon of all profile points)

## Appendix “B”

### Terrestrial Link Minimum Coordination Data

*Provide the following information for each end of the microwave link:*

Operating Company Name  
Company Contact Name  
Company Address  
Phone Number  
Fax Number  
E-mail address  
Site Call Sign  
Remote Site Call Sign  
Site Name  
Remote Site Name  
Province  
Site Latitude  
Site Longitude  
Site Altitude  
Transmit antenna model  
Transmit antenna manufacturer  
Transmit antenna data  
Transmit antenna polarization type  
Transmit antenna height  
Transmit antenna minimum frequency in MHz  
Transmit antenna maximum frequency in MHz  
Receive antenna model  
Receive antenna manufacturer  
Receive antenna data  
Receive antenna polarization type  
Receive antenna height  
Receive antenna minimum frequency in MHz  
Receive antenna maximum frequency in MHz  
Diversity #1 antenna model  
Diversity #1 antenna manufacturer  
Diversity #1 antenna height  
Diversity #2 antenna model  
Diversity #2 antenna manufacturer  
Diversity #2 antenna height  
Transmit frequency in MHz  
Transmit frequency polarization  
Transmit frequency plan  
Transmit power

Transmit antenna feeder system loss for Tx frequency  
Transmit equipment model  
Transmit equipment manufacturer  
Transmit equipment spectrum data  
Transmit equipment traffic or modulation type  
Transmit equipment bandwidth in MHz  
Transmit equipment frequency stability  
Transmission equipment emission designator  
Transmit equipment type  
Transmit equipment # of voice Freq. channels (for analog only)  
Transmit equipment minimum baseband freq. (for analog only)  
Transmit equipment maximum baseband freq. (for analog only)  
Receive equipment model  
Receive equipment manufacturer  
Receive equipment bandwidth in MHz  
Receive equipment frequency stability  
Receive equipment performance specification  
Receive equipment noise figure  
Receive equipment IF filter centre frequency in MHz  
Receive equipment specific attenuation factor at IF freq.  
Receive equipment image rejection factor  
Receive equipment RF filter attenuation at IF  
Receive equipment RF filter attenuation at image freq.  
Receive antenna feeder system loss for Rx frequency  
Diversity antenna #1 feeder system loss for Rx frequency  
Diversity antenna #2 feeder system loss for Rx frequency  
Receive selectivity equipment data  
Receive equipment traffic or modulation