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AM FIELD INTENSITY MEASUREMENTS, MAPS AND DATA SHEETS
73.186 FCC RULES AND REGULATIONS

PLEASE READ THESE INSTRUCTIONS CAREFULLY:

The maps you are using and your data sheets will be part of a legal document that will be on file with the FCC and may be used in a court of law. For this reason, it is of vital importance that you accurately record the measurement points on the maps and data sheets, and any subsequent data pertinent to these measurements, in such a manner that the measurement points can be found again at a later date and your results verified. Use permanent and easily recognized land marks to identify measurement points.

TAKING FIELD MEASUREMENTS:

1. **Measurement Points -** The distance at which field intensity readings are taken are only suggestions and do not have to be rigorously adhered to. If better measuring locations (i.e. on roads and/or away from power lines and other perturbing objects) can be found at odd or irregular intervals, these locations are preferable to those at regular intervals. The important thing is to get enough measurements (i.e. 20 to 30 measurements per radial).

   At least seven of the points need to be within the first 3 km. When parts of a radial are unaccessible, take more measurements along those portions of the radial that are accessible so that there are at least 20 to 30 total measurements. If the towers are visible, it is best to start at three kilometers, at a known reference point on the map, and walk back

towards the towers. It is easier to stay on the radial if one is headed towards a visible marker like the towers.

For distance beyond three kilometers make measurements at intervals of approximately 1 km.

The general rule for measurements beyond three km is to take as many measurements as possible out to a distance of 30km. In practice this means measurements wherever roads cross the radial. We want at least 20 measurements per radial in the DA mode.

A non directional measurement must be made at each location where a directional measurement was made.

2. **Point Descriptions -** Provide a complete description of each measurement point so that the exact spot may be found at a later date by someone else. Use permanent land marks such as addresses, intersections of roads, utility facilities (poles, manhole cover, hydrants, etc.)to describe the location of each point. Use compass directions (north, east, south and west) not left and right descriptions. If you are using a GPS, it can be useful to provide the geographical coordinates but a complete description is required. If more than one person is making measurements, it is helpful to mark points with surveyor's tape or spray paint.

3. **Data Recording -** For each day that field strength measurements are made, check and record a complete set of reading from the antenna monitor, common point current or antenna current for Non DA, and transmitter power to assure you are operating at the correct power level and antenna mode.

All data sheets must have the name of the person taking measurements, the time, the date, the distance from the antenna, the reading, a description of the measurement point, the antenna operating mode (i.e. DA or non-DA), the station call letters, power for the operating mode used, radial being measured, and point number that is the same as that placed on the

map for that point. Record field strength meter make, model, serial number and last calibration date. Data sheet are available from www.hatdaw.com/forms/amdata.pdf.

All field intensities should be recorded on the data sheets in units of millivolts per meter. For full scale values shown on the meter in "volts per meter", multiply by 1000. For readings taken with the meter range switch at "100 microvolts per meter" full scale, divide the reading by 1000.

Keep the maps clean and smudge free; do not fold them if you receive them unfolded. It may be useful to transfer radials to current street maps. Use extreme caution when doing this. Street maps are not always accurate. Calibrate maps with landmarks from USGS maps. The USGS maps are the best.

Write on the maps in pencil only (use a soft leads pencil, that allows for easy erasure, not a hard lead or colored pencil), placing an "X" at the exact point where the measurement was taken.

Number the points on the map with a pencil corresponding to the data sheets. It is best to use the number that is the distance from the transmitter site in kilometers (not sequential numbering - this makes it easier to add points).

The same number must be used for both Directional Antenna (DA) and non-DA measurements.

4. **Measurement Technique -** Do NOT take readings under power lines or near wire fences. Readings should be taken on the side of the power lines closest to the transmitter site. If this means walking out into a field (75 - 100 feet) or other clear area, do so. Measure between two hours after sunrise and two hours before sunset. If more than one meter is used, periodically compare the measurements made with each meter to assure the calibration.

There is usually a pattern null on those radials where a Monitor Point is specified in the Construction Permit. When taking measurements on a radial where there is a null, the meter MUST be pointed in the direction of the towers even when higher fields are measured in some other direction.

Reading should start at a distance from the tower, or center of the array, of about five times the tower height. For close measurements (under three kilometers) reading should be taken at about 0.2 kilometer (km) intervals. A calibrated piece of rope can assist in this effort.

When making measurements in high fields close to the towers, it is very difficult to calibrate the Potomac FIM series meters. Since the accuracy of the meter can be decreased by attempts to calibrate at the stations operating frequency one of two procedures should be followed: (1) do not attempt to calibrate the meter in high fields; (2) detune the meter 10 kHz before calibrating (see instructions inside of meter lid).