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ENGINEERING REPORT:
MEASUREMENT OF HUMAN EXPOSURE
TO ELECTROMAGNETIC FIELDS
AT THE IDS BUILDING ROOF TOP
MINNEAPOLIS, MINNESOTA

June 2000

INTRODUCTION

These measurements are subsequent to measurements made at the IDS rooftop on 20 February 1999. An additional station has been added to the IDS master antenna. Electric field equivalent plane wave power density measurements were made on the roof top of the IDS Building Minneapolis, Minnesota between 9:30 and 10:00 on 12 June 2000. The measurements were made with all nine stations operating into the combined Shively Lindenblad master antenna. All FM facilities were operating with licensed power while measurements were being made. The operating parameters of other low power broadcast and land mobile facilities located on the roof of the IDS building was not known. However, the power levels of the other facilities is inconsequential compared FM stations.

The stations operating were as follows:

Call	Frequency	Power (ERP)
KQRS	92.5 MHz	36.6 kW
KXXR	93.7 MHz	37.4 kW
KTCZ	97.1 MHz	40.0 kW
KTIS	98.5 MHz	37.7 kW
KSJN	99.5 MHz	40.0 kW
WLOL	100.3 MHz	31.0 kW
KDWB	101.3 MHz	40.0 kW
KEEY	102.1 MHz	40.0 kW
WXPT	104.1 MHz	34.0 kW

INSTRUMENTATION AND MEASUREMENT PROCEDURE

A NARDA Model 8718B Electromagnetic Radiation Survey Meter with a NARDA Model 8742N Isotropic Shaped Electric Field Probe was used to make the measurements. The meter and probe

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were calibrated May 2000 by the manufacturer. The NARDA 8742 probe provides an output proportional to IEEE C95.1-1991/ANSI C95.1-1992 (Controlled Environment) maximum permissible exposure (MPE) over a frequency range from 300 kHz to 2.7 GHz. The isotropic response of the NARDA 8742 probe is +/-0.75dB.

Measurement procedures outlined in *OET BULLETIN 65, (EDITION 97-01), "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields"*, *ANSI/IEEE Std C95.3-1991, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields--RF and Microwave*, and *NCRP Report No. 119, "A Practical Guide to the Determination of Human Exposure to Radiofrequency Fields"* were used for the measurements taken at the IDS Building.

The spatial averages were performed as recommended by the three documents described above. Spatial averages were used to determine compliance with the Commission's exposure guidelines "Because the MPEs for exposure are given in terms of spatial averages, ..." (page 49, OET 65).

The site was scanned with the measurement probe to find the location of the highest fields. Spatially averaged measurements were made at the points where the highest fields were found.

RESULTS

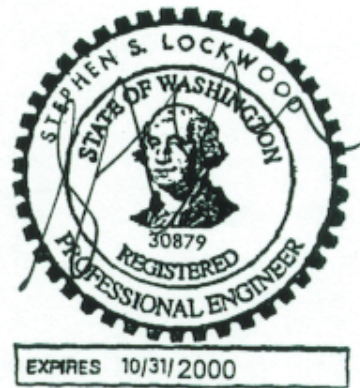
The measured human RF exposures are expressed as a percentage of the FCC "Rules & Regulations" *CFR 47 §1.1310 Radiofrequency Radiation Exposure Limits*. There are no areas on the roof that exceed the Controlled Environment MPE. The maximum was found on the north side of the antenna support structure (labeled FM2 on enclosed drawing). This field when spatially averaged is 63.9% of the Controlled MPE. This is the average of 5 measurements taken from different angles to minimize body interaction with measurements. All other measured exposures at the site were below the Controlled Environment guidance levels shown in *CFR 47 §1.1310*.

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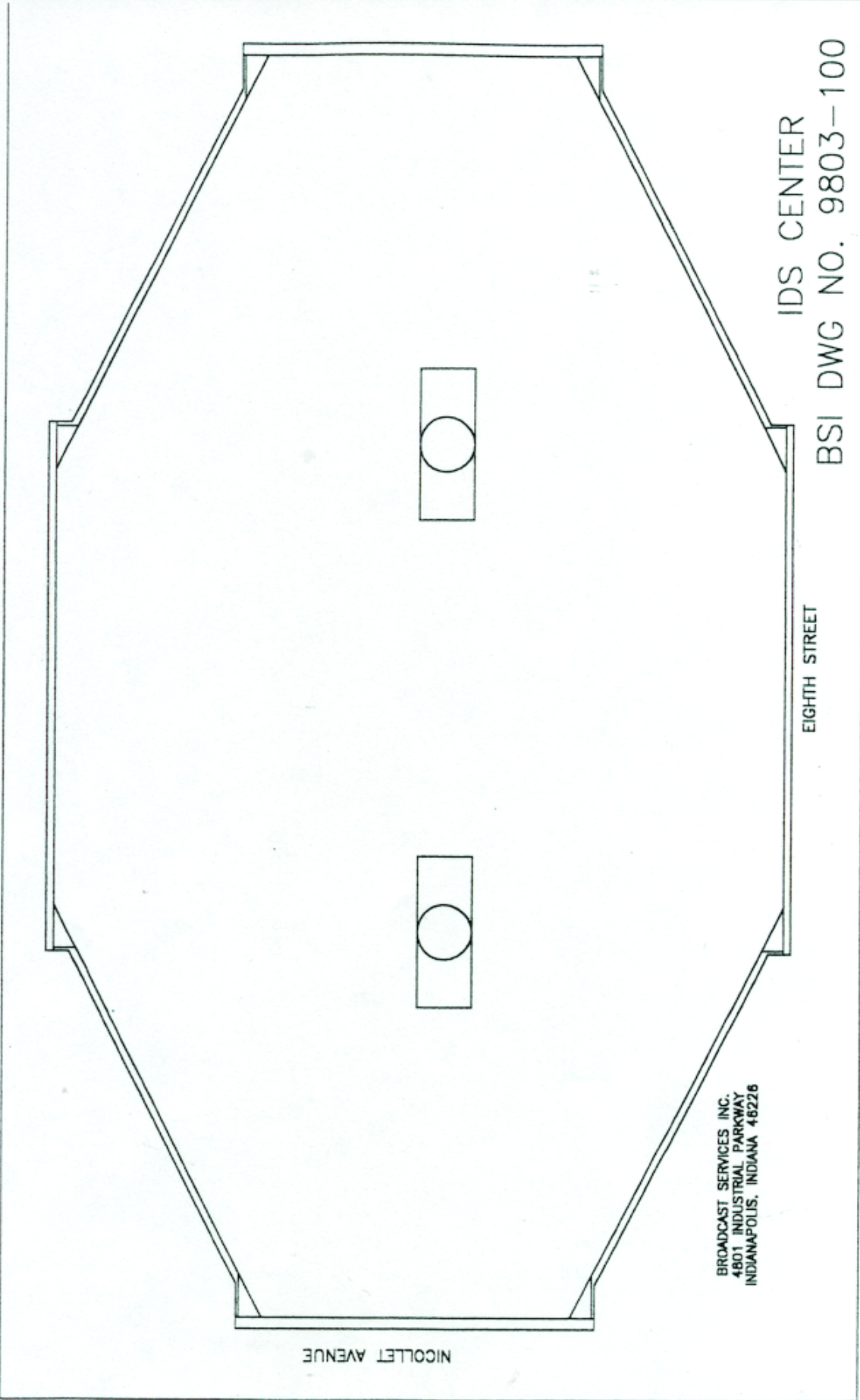
No measurements were made on top of the mechanical penthouse or on any of the support structures for antennas. These areas are off limits as is the area under the feed system to the FM antenna, when transmitting from the master FM antenna.

13 June 2000

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IDS CENTER

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