

ENGINEERING STATEMENT
OF
EDWARD P. DE LA HUNT
IN SUPPORT OF
REQUEST FOR REINSTATEMENT
AUTOMATIC PROGRAM TEST AUTHORITY
HAWAII PUBLIC RADIO, INC.
KKUA(FM) – WAIKUKU, HI
CHANNEL 214C – 56.0 kW ERP - 776 M HAAT
FACILITY ID NO. 26437

GENERAL

I am a Consulting Engineer, my education and experiences are a matter of record with the Federal Communications Commission. This engineering statement and associated exhibits have been prepared on behalf of Hawaii Public Radio, Inc., licensee of Radio Station KKUA(FM), Wailuku, Hawaii.

BACKGROUND

Hawaii Public Radio, Inc., is the licensee of Radio Station KKUA(FM). Hawaii Public Radio holds a construction permit to locate Radio Station KKUA(FM) to the multi-use transmitter site on the Ulupalakua Ranch, Island of Maui. The construction permit contained a special operating condition requiring radio frequency electromagnetic field strength measurements be conducted to demonstrate compliance with the FCC RFR guidelines before program test authority would be authorized.

Hawaii Public Radio, Inc., requests removal of the special operation condition and reinstatement of automatic program test authority. Attached herein is a revised study demonstrating compliance with the FCC-specified guidelines for human exposure to RF radiation.

TECHNICAL FACILITIES

The proposed antenna is a Shively Labs Model 6814-6-.9SS, six-bay, omni-directional, circularly-polarized antenna. The FM antenna system will be side-mounted on an existing tower such that the radiation centerline is 30 meters above ground level. **See Exhibit 1, Antenna Sketch.** KKUA(FM) will operate with an ERP of 56 kilowatts (H/V).

RADIOFREQUENCY RADIATION IMPACT

The authorized facilities of KKUA(FM) will not result in human exposure to radiofrequency (RF) radiation in excess of safety standards specified in Section 1.1307(b). Effective October 15, 1997, the FCC adopted revised guidelines and procedures for evaluating the environmental effects of RF emissions. These revised guidelines incorporate two tiers of exposure limits based on whether exposure occurs in a "controlled" (occupational) situation or an "uncontrolled" (general population) situation. Based on the methods published in OET Bulletin No. 65 (entitled "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields"), the predicted power density value produced by the proposed facility will be well below the established ANSI guideline limits for both "controlled" and "uncontrolled" situations.

The proposed KKUA(FM) facility will operate with a radiation centerline at 30.0 meters above ground level (AGL) and an ERP of 56.0 kW on Channel 214 operating with dual polarization. KKUA(FM) will utilize an Shively Labs, Model 6814-6-.9SS, 6 bay antenna. Verification of compliance with FCC-specified guidelines for human exposure to RF radiation was determined utilizing FMMODEL and the methods prescribed by the EPA in the Gailey and Tell report. The highest value of power density occurs at 18.5 meters from the base of the tower which is 0.04641 mW/cm², which is **4.64%** of the 1.0 mW/cm² (the FCC standard for controlled environments). **See Exhibit 2, FMMODEL.**

OET Bulletin No. 65, entitled *Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, (Edition 97-01) states in part that:

When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered...For purposed of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric and magnetic field strength) at accessible locations.

The KKUA(FM) operation will produce **less than 5%** of the applicable exposure limit for controlled environments. Thus, the facility is categorically excluded from the requirement of further study. Therefore, pursuant to Section 1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facility in the vicinity.

REMOTE SITE, ACCESS RESTRICTED

The transmitter site is very remote. Public access to the tower site is restricted by a locked gate approximately four miles from the transmitter site. Inside the locked gate, access by authorized personnel can only be achieved by 4 x 4 travel. The transmitter site is further restricted inside the locked gate by an electric fence with a minimum fence distance from the tower based of twenty feet. Warning signs are posted at the locked gate and at appropriate intervals throughout the site.

PRIOR MEASUREMENTS

Existing stations operating at the site have been measured, measurements conducted in February 2003. Actual measured RF levels were well within FCC guidelines. The average RF levels were less than 5 % of the MPE levels. No hot spots were identified. All locations on and near the Ulupalakua Ranch tower site were determined to be safe. When the measurements were

conducted in February 2003, stations KLHI(FM) and KKUA(FM) were not operating at the site. Even under a worst case analysis, the combined calculated contributions of KLHI(FM) and KKUA(FM), when added to the RFR measurement data, are well within the FCC RF exposure guidelines. **See Revised RF Study Statement, Donald E. Mussell Jr.**

OCCUPATIONAL SAFETY

The Hawaii Public Radio, Inc., will ensure protection to station personnel working in the vicinity of their antenna. Access to the antenna supporting tower base will be restricted to authorized personnel only. The Hawaii Public Radio, Inc., will reduce power or cease operation, when appropriate and deemed necessary, during times of service or maintenance of the transmitting system or when work is being performed on the tower to avoid potentially harmful exposure to station personnel or workers.

SUMMARY

It is submitted that the proposal will not constitute a potential hazard to the quality of the human environment. The KKUA(FM) proposal, as described herein, should be categorically excluded from RF environmental processing under Section 1.1307(b) of the Rules. Hawaii Public Radio, Inc., requests removal of the special operation condition and reinstatement of automatic program test authority.

This statement and attached exhibits were prepared by me or under my direct supervision and are believed to be true and correct.

DATED: November 2007



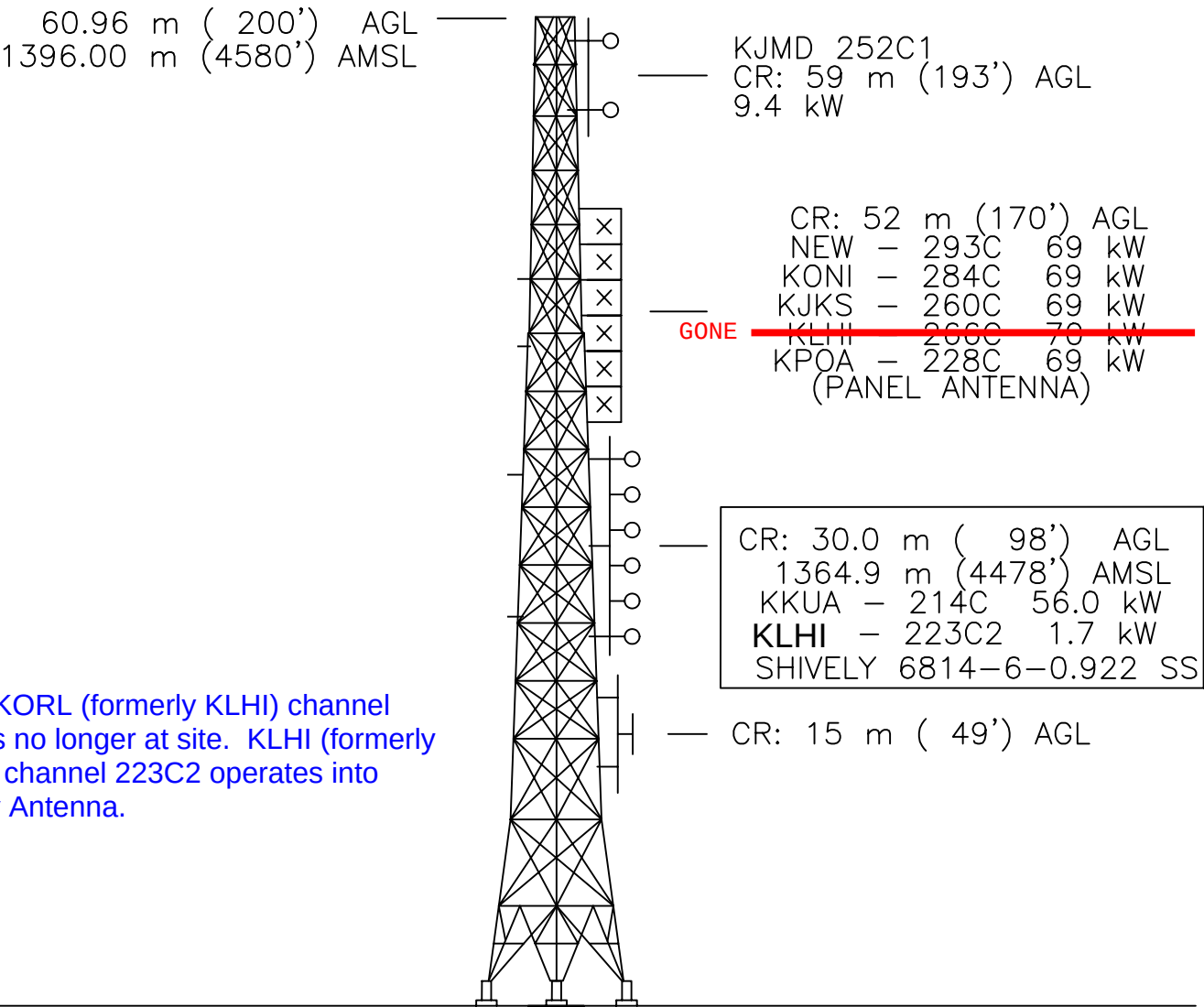
Edward P. De La Hunt

Tower Sketch of Antenna Site

N. LAT.: 20° 39' 36" NAD 1927
W. LON: 156° 21' 50"
N. LAT.: 20° 39' 24.5" NAD 1983
W. LON: 156° 21' 39.9"

NOT DRAWN TO
SCALE OR SHAPE

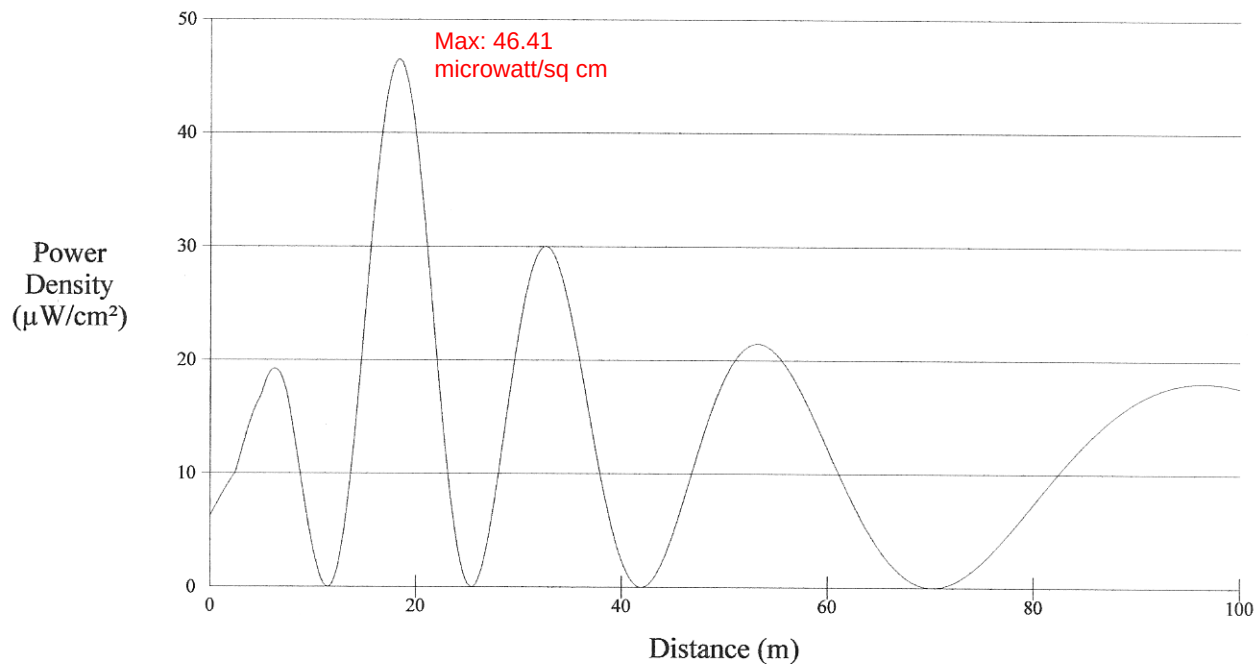
FAA/ASRN: NOT REQUIRED



Note: KORL (formerly KLHI) channel 266C is no longer at site. KLHI (formerly KORL) channel 223C2 operates into Shively Antenna.

Maximum Power Density is 46.41 microwatts per centimeter squared at 18.5 meters from base of tower.

Power Density vs Distance



FMMODEL: KLHI(FM) ERP 56 Kilowatts at 30 meter AGL. Antenna Shively 6814-6-0.9SS

Revised RF Study
KKUA Wailuku, Hawaii
BPED-20060126AJV

Since the issuance of a construction permit for KKUA, the situation at the site has changed. There is now an additional FM station in operation, KLHI (BLH-20070709ADP). Because of this, the applicant has re-examined the RFR situation at Ulupalakua Ranch.

The KKUA facility will operate with 56 kilowatts, from a Shively Model 6814-6-.9SS non-directional antenna system. The antenna is side-mounted on an existing tower, with the center of radiation at 30 meters above ground. This will contribute a calculated level of 46.408 microwatts per squared centimeter at 18.5 meters from the base of the tower.

The new KLHI facility operates with 1.7 KW erp from the same combined antenna system used by KKUA. The maximum calculated RFR level from this station is 1.51 microwatts per squared centimeter at 19.6 meters.

This is a multi-user tower. The existing stations operating from this structure have been measured, most recently in 2003. A copy of this report is attached. Actual measured RF levels never exceeded FCC OET Bulletin No. 65 levels. The actual measured average levels were less than 5 % of the MPE levels. No location on or near the Ulupalakua Ranch land tower site is a danger to workers or public exposure of humans to RF fields in excess of FCC guidelines, (OET Bulletin No. 65, Edition 97-01).

Measurements for hot spots and re-radiation from fence materials, equipment shelters, and other conductive materials were performed. No hot spots and re-radiation was found. Because the combined calculated and measured RFR level is less than 50% of the public maximum, this proposal is substantially in compliance with RFR limitations imposed by the FCC rules.

Submitted this 14th day of November, 2007.

A handwritten signature in black ink, appearing to read 'Donald E. Mussell Jr.', with a stylized, cursive script.

Donald E. Mussell Jr. NCE-CBT

**FIELD MEASUREMENTS
OF
RADIO FREQUENCY
ELECTROMAGNETIC FIELD
STRENGTH**

RADIO STATION KONI

**HOCHMAN HAWAII
PUBLISHING, INC.**

FEBRUARY 10, 2003

**COMPILED BY
BYRON McCANN
B. L MCCANN & Associates, Inc.
875 Waimanu St. Suite #605
Honolulu, Hawaii 96813**

**808-589-1994
Fax: 808-589-1995**

Scope of Project:

Hochman Hawaii Publishing, Inc. has been granted a Construction Permit for the re-location and operation of KONI-FM. One of the special conditions of the permit was to make proper measurements of radio frequency electromagnetic fields at the transmitter site.

This report address's the radio frequency electromagnetic field strength levels at the Hochman Hawaii Publishing, Inc. Site, Ulapalakua Ranch Land, Island of Maui. These measurements were preformed in compliance with OET Bulletin No. 65 guidelines.

Measurement Methodology:

The field measurements were preformed at the Hochman Hawaii Publishing, Inc. facilities after the KONI transmitter was re-located and added to the existing antenna system. and combiner modifications were completed. Measurements were preformed on the applicant's property perimeter as well as adjacent properties. Measurements were also preformed inside the transmitter and combiner shelters, as well as, tower base and parking area. Standard engineering practices were employed to take consistent measurements.

Measurements for "Hot Spots" and re-radiation from fence materials and other Conductive material was preformed.

Instrumentation:

All measurements were preformed with a Holaday Industries Broadband Isotropic Electric Field Probe Model # HI-4433-MSE . This Probe has a flat frequency response from 500 kHz - 5 Ghz. This Probe has a 3 Axis sensor probe, providing full X- Y – Z Axis measurements for its full spectrum.

The probe is attached to a handheld Holaday Model HI-4460 graphical data interface. The instrument was set up to acquire 4 samples per second for the duration of the measurements. The HI-4460 samples and stores the measurements in a spreadsheet format. The Spreadsheet data is then uploaded onto a Laptop Computer and converted to a Microsoft Excel spreadsheet file for data analysis. A copy of the Instrument Calibration report is attached with this report.

Measurements:

Field measurements were performed at the subject site after the KONI transmitter was re-located, new combining filters were installed and all other transmitters at the site were operating at normal power levels. The KONI transmitter was operated at 7.5 KW output power, which produces a 69 KW ERP level from the transmitting antenna.

RF Levels never exceeded the FCC OET Bulletin No. 65 levels. The average levels were less than 5 % of the MPE levels.

No location on or near the Ulupalakua Ranch Land Tower site is a danger to workers or public exposure of humans to RF fields in excess of the FCC Guidelines, (OET Bulletin No. 65, edition 97-01).

Measurements for "Hot Spots" and re-radiation from fence materials, equipment shelters, and other Conductive material was performed. None were found.

Recommendations:

The Site is within Ulupalakua Ranch Land; It is not accessible to the public. The applicant has installed a protective fence around the entire tower base property line restricting access to the public.

Conclusions:

The field measurements show that this new FM broadcast site is in compliance of the FCC OET Bulletin No. 65 Guidelines for the Human Exposure to Radiofrequency Electromagnetic Fields.

Certification:

The above stated measurements and attached data were performed under the direct supervision of, Byron L. McCann ; the attached exhibits were prepared by Mr. McCann . They show a true and accurate representation of the RF levels at the Ulupalakua Ranch Land site. These readings are true and accurate to the best of my ability.

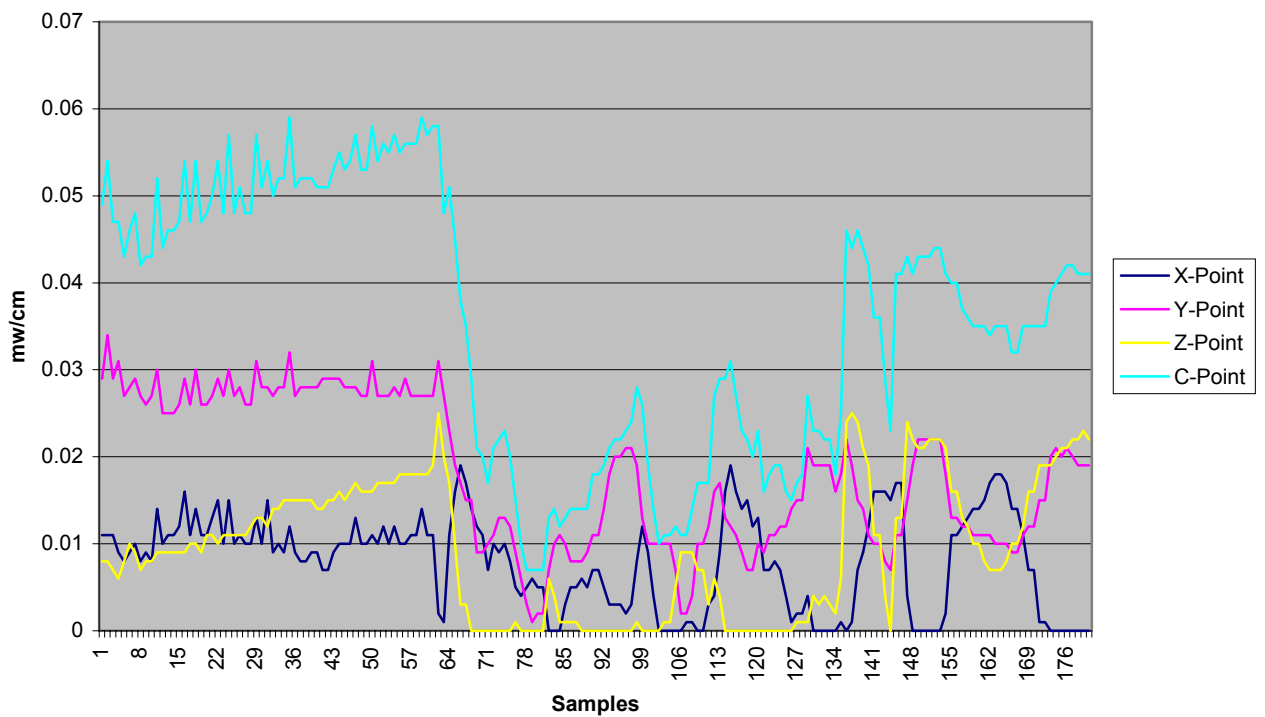
Respectfully Submitted,

February 10, 2003

Signed Byron L. McCann

Byron L. McCann
McCann & Associates, Inc.
Honolulu, Hawaii

Ulapalakua Ranch



Perimeter Fence 02 -06-03 KONI-FM 69 KW ERP

Date	Time	X-Point	Y-Point	Z-Point	C-Point	Units	Percent	Location
2/06/2003	11:04:12 AM	0.011	0.029	0.008	0.049	mW/cm ²	4.90%	1

2/06/2003	11:04:13 AM	0.011	0.034	0.008	0.054 mW/cm ²	5.40%	1
2/06/2003	11:04:13 AM	0.011	0.029	0.007	0.047 mW/cm ²	4.70%	1
2/06/2003	11:04:13 AM	0.009	0.031	0.006	0.047 mW/cm ²	4.70%	1
2/06/2003	11:04:14 AM	0.008	0.027	0.008	0.043 mW/cm ²	4.30%	1
2/06/2003	11:04:14 AM	0.009	0.028	0.01	0.046 mW/cm ²	4.60%	1
2/06/2003	11:04:15 AM	0.01	0.029	0.009	0.048 mW/cm ²	4.80%	1
2/06/2003	11:04:15 AM	0.008	0.027	0.007	0.042 mW/cm ²	4.20%	1
2/06/2003	11:04:16 AM	0.009	0.026	0.008	0.043 mW/cm ²	4.30%	1
2/06/2003	11:04:16 AM	0.008	0.027	0.008	0.043 mW/cm ²	4.30%	1
2/06/2003	11:04:17 AM	0.014	0.03	0.009	0.052 mW/cm ²	5.20%	1
2/06/2003	11:04:17 AM	0.01	0.025	0.009	0.044 mW/cm ²	4.40%	1
2/06/2003	11:04:18 AM	0.011	0.025	0.009	0.046 mW/cm ²	4.60%	1
2/06/2003	11:04:18 AM	0.011	0.025	0.009	0.046 mW/cm ²	4.60%	1
2/06/2003	11:04:19 AM	0.012	0.026	0.009	0.047 mW/cm ²	4.70%	1
2/06/2003	11:04:19 AM	0.016	0.029	0.009	0.054 mW/cm ²	5.40%	1
2/06/2003	11:04:20 AM	0.011	0.026	0.01	0.047 mW/cm ²	4.70%	1
2/06/2003	11:04:20 AM	0.014	0.03	0.01	0.054 mW/cm ²	5.40%	1
2/06/2003	11:04:21 AM	0.011	0.026	0.009	0.047 mW/cm ²	4.70%	1
2/06/2003	11:04:21 AM	0.011	0.026	0.011	0.048 mW/cm ²	4.80%	1
2/06/2003	11:04:22 AM	0.013	0.027	0.011	0.05 mW/cm ²	5.00%	1
2/06/2003	11:04:22 AM	0.015	0.029	0.01	0.054 mW/cm ²	5.40%	1
2/06/2003	11:04:23 AM	0.01	0.027	0.011	0.048 mW/cm ²	4.80%	1
2/06/2003	11:04:23 AM	0.015	0.03	0.011	0.057 mW/cm ²	5.70%	1
2/06/2003	11:04:24 AM	0.01	0.027	0.011	0.048 mW/cm ²	4.80%	1
2/06/2003	11:04:24 AM	0.011	0.028	0.011	0.051 mW/cm ²	5.10%	1
2/06/2003	11:04:25 AM	0.01	0.026	0.011	0.048 mW/cm ²	4.80%	1
2/06/2003	11:04:25 AM	0.01	0.026	0.012	0.048 mW/cm ²	4.80%	1
2/06/2003	11:04:26 AM	0.013	0.031	0.013	0.057 mW/cm ²	5.70%	1
2/06/2003	11:04:26 AM	0.01	0.028	0.013	0.051 mW/cm ²	5.10%	1
2/06/2003	11:04:27 AM	0.015	0.028	0.012	0.054 mW/cm ²	5.40%	1
2/06/2003	11:04:27 AM	0.009	0.027	0.014	0.05 mW/cm ²	5.00%	1
2/06/2003	11:04:28 AM	0.01	0.028	0.014	0.052 mW/cm ²	5.20%	1
2/06/2003	11:04:28 AM	0.009	0.028	0.015	0.052 mW/cm ²	5.20%	1
2/06/2003	11:04:29 AM	0.012	0.032	0.015	0.059 mW/cm ²	5.90%	1
2/06/2003	11:04:29 AM	0.009	0.027	0.015	0.051 mW/cm ²	5.10%	1
2/06/2003	11:04:30 AM	0.008	0.028	0.015	0.052 mW/cm ²	5.20%	1
2/06/2003	11:04:30 AM	0.008	0.028	0.015	0.052 mW/cm ²	5.20%	1
2/06/2003	11:04:31 AM	0.009	0.028	0.015	0.052 mW/cm ²	5.20%	1
2/06/2003	11:04:31 AM	0.009	0.028	0.014	0.051 mW/cm ²	5.10%	1
2/06/2003	11:04:32 AM	0.007	0.029	0.014	0.051 mW/cm ²	5.10%	1
2/06/2003	11:04:33 AM	0.007	0.029	0.015	0.051 mW/cm ²	5.10%	1
2/06/2003	11:04:33 AM	0.009	0.029	0.015	0.053 mW/cm ²	5.30%	1
2/06/2003	11:04:34 AM	0.01	0.029	0.016	0.055 mW/cm ²	5.50%	1
2/06/2003	11:04:34 AM	0.01	0.028	0.015	0.053 mW/cm ²	5.30%	1
2/06/2003	11:04:34 AM	0.01	0.028	0.016	0.054 mW/cm ²	5.40%	1
2/06/2003	11:04:34 AM	0.013	0.028	0.017	0.057 mW/cm ²	5.70%	1
2/06/2003	11:04:35 AM	0.01	0.027	0.016	0.053 mW/cm ²	5.30%	1

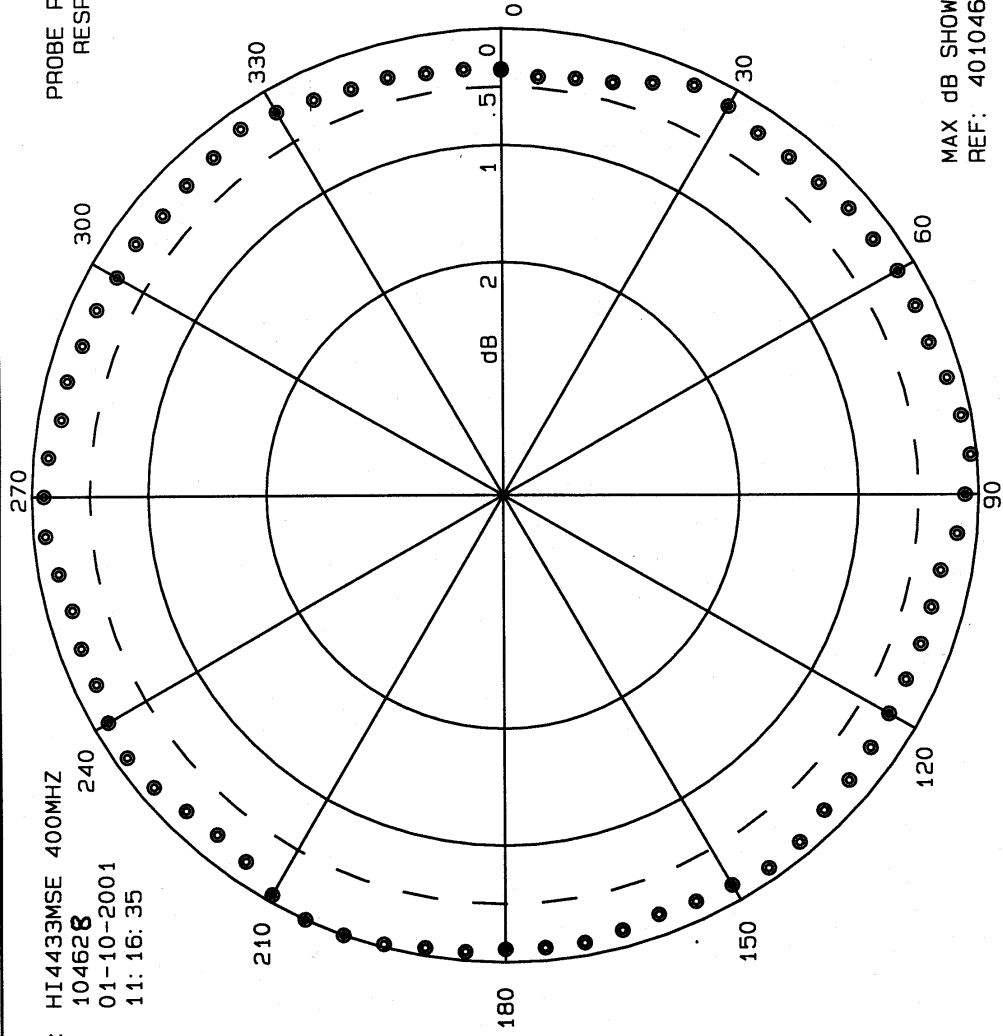
2/06/2003	11:04:35 AM	0.01	0.027	0.016	0.053 mW/cm ²	5.30%	1
2/06/2003	11:04:36 AM	0.011	0.031	0.016	0.058 mW/cm ²	5.80%	1
2/06/2003	11:04:36 AM	0.01	0.027	0.017	0.054 mW/cm ²	5.40%	1
2/06/2003	11:04:37 AM	0.012	0.027	0.017	0.056 mW/cm ²	5.60%	1
2/06/2003	11:04:37 AM	0.01	0.027	0.017	0.055 mW/cm ²	5.50%	1
2/06/2003	11:04:38 AM	0.012	0.028	0.017	0.057 mW/cm ²	5.70%	1
2/06/2003	11:04:38 AM	0.01	0.027	0.018	0.055 mW/cm ²	5.50%	1
2/06/2003	11:04:39 AM	0.01	0.029	0.018	0.056 mW/cm ²	5.60%	1
2/06/2003	11:04:39 AM	0.011	0.027	0.018	0.056 mW/cm ²	5.60%	1
2/06/2003	11:04:40 AM	0.011	0.027	0.018	0.056 mW/cm ²	5.60%	1
2/06/2003	11:04:40 AM	0.014	0.027	0.018	0.059 mW/cm ²	5.90%	1
2/06/2003	11:04:41 AM	0.011	0.027	0.018	0.057 mW/cm ²	5.70%	1
2/06/2003	11:04:41 AM	0.011	0.027	0.019	0.058 mW/cm ²	5.80%	1
2/06/2003	11:04:42 AM	0.002	0.031	0.025	0.058 mW/cm ²	5.80%	1
2/06/2003	11:04:42 AM	0.001	0.027	0.02	0.048 mW/cm ²	4.80%	1
2/06/2003	11:04:43 AM	0.011	0.023	0.017	0.051 mW/cm ²	5.10%	1
2/06/2003	11:04:43 AM	0.016	0.019	0.01	0.045 mW/cm ²	4.50%	1
2/06/2003	11:04:44 AM	0.019	0.017	0.003	0.038 mW/cm ²	3.80%	1
2/06/2003	11:04:44 AM	0.017	0.015	0.003	0.035 mW/cm ²	3.50%	1
2/06/2003	11:04:45 AM	0.014	0.015	0	0.029 mW/cm ²	2.90%	1
2/06/2003	11:04:45 AM	0.012	0.009	0	0.021 mW/cm ²	2.10%	1
2/06/2003	11:04:46 AM	0.011	0.009	0	0.02 mW/cm ²	2.00%	1
2/06/2003	11:04:46 AM	0.007	0.01	0	0.017 mW/cm ²	1.70%	1
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2/06/2003	11:04:48 AM	0.008	0.012	0	0.02 mW/cm ²	2.00%	1
2/06/2003	11:04:49 AM	0.005	0.009	0.001	0.015 mW/cm ²	1.50%	1
2/06/2003	11:04:49 AM	0.004	0.006	0	0.01 mW/cm ²	1.00%	1
2/06/2003	11:04:50 AM	0.005	0.003	0	0.007 mW/cm ²	0.70%	1
2/06/2003	11:04:50 AM	0.006	0.001	0	0.007 mW/cm ²	0.70%	1
2/06/2003	11:04:51 AM	0.005	0.002	0	0.007 mW/cm ²	0.70%	1
2/06/2003	11:04:51 AM	0.005	0.002	0	0.007 mW/cm ²	0.70%	1
2/06/2003	11:04:52 AM	0	0.007	0.006	0.013 mW/cm ²	1.30%	1
2/06/2003	11:04:52 AM	0	0.01	0.004	0.014 mW/cm ²	1.40%	1
2/06/2003	11:04:53 AM	0	0.011	0.001	0.012 mW/cm ²	1.20%	1
2/06/2003	11:04:53 AM	0.003	0.01	0.001	0.013 mW/cm ²	1.30%	1
2/06/2003	11:04:54 AM	0.005	0.008	0.001	0.014 mW/cm ²	1.40%	1
2/06/2003	11:04:54 AM	0.005	0.008	0.001	0.014 mW/cm ²	1.40%	1
2/06/2003	11:04:55 AM	0.006	0.008	0	0.014 mW/cm ²	1.40%	1
2/06/2003	11:04:55 AM	0.005	0.009	0	0.014 mW/cm ²	1.40%	1
2/06/2003	11:04:56 AM	0.007	0.011	0	0.018 mW/cm ²	1.80%	1
2/06/2003	11:04:56 AM	0.007	0.011	0	0.018 mW/cm ²	1.80%	1
2/06/2003	11:04:57 AM	0.005	0.014	0	0.019 mW/cm ²	1.90%	1
2/06/2003	11:04:58 AM	0.003	0.018	0	0.021 mW/cm ²	2.10%	1
2/06/2003	11:04:58 AM	0.003	0.02	0	0.022 mW/cm ²	2.20%	1
2/06/2003	11:04:58 AM	0.003	0.02	0	0.022 mW/cm ²	2.20%	1

2/06/2003	11:04:59 AM	0.002	0.021	0	0.023 mW/cm ²	2.30%	1
2/06/2003	11:04:59 AM	0.003	0.021	0	0.024 mW/cm ²	2.40%	1
2/06/2003	11:05:00 AM	0.008	0.019	0.001	0.028 mW/cm ²	2.80%	1
2/06/2003	11:05:00 AM	0.012	0.013	0	0.026 mW/cm ²	2.60%	1
2/06/2003	11:05:00 AM	0.009	0.01	0	0.019 mW/cm ²	1.90%	1
2/06/2003	11:05:01 AM	0.004	0.01	0	0.014 mW/cm ²	1.40%	1
2/06/2003	11:05:01 AM	0	0.01	0	0.01 mW/cm ²	1.00%	1
2/06/2003	11:05:02 AM	0	0.01	0.001	0.011 mW/cm ²	1.10%	1
2/06/2003	11:05:02 AM	0	0.01	0.001	0.011 mW/cm ²	1.10%	1
2/06/2003	11:05:03 AM	0	0.007	0.005	0.012 mW/cm ²	1.20%	1
2/06/2003	11:05:03 AM	0	0.002	0.009	0.011 mW/cm ²	1.10%	1
2/06/2003	11:05:04 AM	0.001	0.002	0.009	0.011 mW/cm ²	1.10%	1
2/06/2003	11:05:04 AM	0.001	0.004	0.009	0.014 mW/cm ²	1.40%	1
2/06/2003	11:05:05 AM	0	0.01	0.007	0.017 mW/cm ²	1.70%	1
2/06/2003	11:05:05 AM	0	0.01	0.007	0.017 mW/cm ²	1.70%	1
2/06/2003	11:05:06 AM	0.003	0.012	0.003	0.017 mW/cm ²	1.70%	1
2/06/2003	11:05:06 AM	0.004	0.016	0.006	0.027 mW/cm ²	2.70%	1
2/06/2003	11:05:07 AM	0.009	0.017	0.004	0.029 mW/cm ²	2.90%	1
2/06/2003	11:05:07 AM	0.016	0.013	0	0.029 mW/cm ²	2.90%	1
2/06/2003	11:05:08 AM	0.019	0.012	0	0.031 mW/cm ²	3.10%	1
2/06/2003	11:05:08 AM	0.016	0.011	0	0.027 mW/cm ²	2.70%	1
2/06/2003	11:05:09 AM	0.014	0.009	0	0.023 mW/cm ²	2.30%	1
2/06/2003	11:05:09 AM	0.015	0.007	0	0.022 mW/cm ²	2.20%	1
2/06/2003	11:05:10 AM	0.012	0.007	0	0.02 mW/cm ²	2.00%	1
2/06/2003	11:05:10 AM	0.013	0.01	0	0.023 mW/cm ²	2.30%	1
2/06/2003	11:05:11 AM	0.007	0.009	0	0.016 mW/cm ²	1.60%	1
2/06/2003	11:05:11 AM	0.007	0.011	0	0.018 mW/cm ²	1.80%	1
2/06/2003	11:05:12 AM	0.008	0.011	0	0.019 mW/cm ²	1.90%	1
2/06/2003	11:05:12 AM	0.007	0.012	0	0.019 mW/cm ²	1.90%	1
2/06/2003	11:05:13 AM	0.004	0.012	0	0.016 mW/cm ²	1.60%	1
2/06/2003	11:05:13 AM	0.001	0.014	0	0.015 mW/cm ²	1.50%	1
2/06/2003	11:05:14 AM	0.002	0.015	0.001	0.017 mW/cm ²	1.70%	1
2/06/2003	11:05:14 AM	0.002	0.015	0.001	0.018 mW/cm ²	1.80%	1
2/06/2003	11:05:15 AM	0.004	0.021	0.001	0.027 mW/cm ²	2.70%	1
2/06/2003	11:05:15 AM	0	0.019	0.004	0.023 mW/cm ²	2.30%	1
2/06/2003	11:05:16 AM	0	0.019	0.003	0.023 mW/cm ²	2.30%	1
2/06/2003	11:05:16 AM	0	0.019	0.004	0.022 mW/cm ²	2.20%	1
2/06/2003	11:05:17 AM	0	0.019	0.003	0.022 mW/cm ²	2.20%	1
2/06/2003	11:05:17 AM	0	0.016	0.002	0.018 mW/cm ²	1.80%	1
2/06/2003	11:05:18 AM	0.001	0.018	0.006	0.025 mW/cm ²	2.50%	1
2/06/2003	11:05:18 AM	0	0.022	0.024	0.046 mW/cm ²	4.60%	1
2/06/2003	11:05:19 AM	0.001	0.019	0.025	0.044 mW/cm ²	4.40%	1
2/06/2003	11:05:19 AM	0.007	0.015	0.024	0.046 mW/cm ²	4.60%	1
2/06/2003	11:05:20 AM	0.009	0.014	0.021	0.044 mW/cm ²	4.40%	1
2/06/2003	11:05:21 AM	0.012	0.011	0.019	0.042 mW/cm ²	4.20%	1
2/06/2003	11:05:21 AM	0.016	0.01	0.011	0.036 mW/cm ²	3.60%	1
2/06/2003	11:05:21 AM	0.016	0.01	0.011	0.036 mW/cm ²	3.60%	1

2/06/2003	11:05:22 AM	0.016	0.008	0.004	0.029 mW/cm ²	2.90%	1
2/06/2003	11:05:22 AM	0.015	0.007	0	0.023 mW/cm ²	2.30%	1
2/06/2003	11:05:23 AM	0.017	0.011	0.013	0.041 mW/cm ²	4.10%	1
2/06/2003	11:05:24 AM	0.017	0.011	0.013	0.041 mW/cm ²	4.10%	1
2/06/2003	11:05:23 AM	0.004	0.015	0.024	0.043 mW/cm ²	4.30%	1
2/06/2003	11:05:24 AM	0	0.019	0.022	0.041 mW/cm ²	4.10%	1
2/06/2003	11:05:25 AM	0	0.022	0.021	0.043 mW/cm ²	4.30%	1
2/06/2003	11:05:25 AM	0	0.022	0.021	0.043 mW/cm ²	4.30%	1
2/06/2003	11:05:25 AM	0	0.022	0.022	0.043 mW/cm ²	4.30%	1
2/06/2003	11:05:26 AM	0	0.022	0.022	0.044 mW/cm ²	4.40%	1
2/06/2003	11:05:26 AM	0	0.022	0.022	0.044 mW/cm ²	4.40%	1
2/06/2003	11:05:27 AM	0.002	0.018	0.021	0.041 mW/cm ²	4.10%	1
2/06/2003	11:05:27 AM	0.011	0.013	0.016	0.04 mW/cm ²	4.00%	1
2/06/2003	11:05:28 AM	0.011	0.013	0.016	0.04 mW/cm ²	4.00%	1
2/06/2003	11:05:28 AM	0.012	0.012	0.013	0.037 mW/cm ²	3.70%	1
2/06/2003	11:05:29 AM	0.013	0.012	0.012	0.036 mW/cm ²	3.60%	1
2/06/2003	11:05:29 AM	0.014	0.011	0.01	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:30 AM	0.014	0.011	0.01	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:30 AM	0.015	0.011	0.008	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:31 AM	0.017	0.011	0.007	0.034 mW/cm ²	3.40%	1
2/06/2003	11:05:31 AM	0.018	0.01	0.007	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:32 AM	0.018	0.01	0.007	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:32 AM	0.017	0.01	0.008	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:33 AM	0.014	0.009	0.01	0.032 mW/cm ²	3.20%	1
2/06/2003	11:05:33 AM	0.014	0.009	0.01	0.032 mW/cm ²	3.20%	1
2/06/2003	11:05:34 AM	0.011	0.011	0.012	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:34 AM	0.007	0.012	0.016	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:35 AM	0.007	0.012	0.016	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:35 AM	0.001	0.015	0.019	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:36 AM	0.001	0.015	0.019	0.035 mW/cm ²	3.50%	1
2/06/2003	11:05:36 AM	0	0.02	0.019	0.039 mW/cm ²	3.90%	1
2/06/2003	11:05:37 AM	0	0.021	0.02	0.04 mW/cm ²	4.00%	1
2/06/2003	11:05:37 AM	0	0.02	0.021	0.041 mW/cm ²	4.10%	1
2/06/2003	11:05:38 AM	0	0.021	0.021	0.042 mW/cm ²	4.20%	1
2/06/2003	11:05:38 AM	0	0.02	0.022	0.042 mW/cm ²	4.20%	1
2/06/2003	11:05:39 AM	0	0.019	0.022	0.041 mW/cm ²	4.10%	1
2/06/2003	11:05:39 AM	0	0.019	0.023	0.041 mW/cm ²	4.10%	1
2/06/2003	11:05:40 AM	0	0.019	0.022	0.041 mW/cm ²	4.10%	1

PROBE ROTATIONAL
RESPONSE

Model: HI4433MSE 400MHZ
S/N: 104628
Date: 01-10-2001
Time: 11:16:35



MAX dB SHOWN -> -.41
REF: 40104628