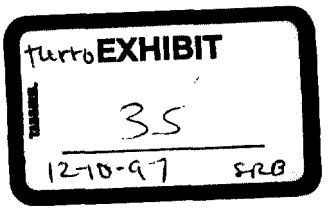
DOCKET FILE COPY ORIGINAL



Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In re	)	
	)	
GERARD A. TURRO	)	MM Docket No. 97-122
	)	
For Renewal of License	)	File Nos. BRFT-970129YC
For FM Translator Stations	)	BRFT-970129YD
W276AQ(FM), Fort Lee, NJ, and	)	
W232AL(FM), Pomona, NY	)	
	)	
MONTICELLO MOUNTAINTOP	)	
BROADCASTING, INC.	)	
	)	
Order to Show Cause Why the	)	
Construction Permit for FM Radio	)	
Station WJUX(FM), Monticello, NY	)	
Should Not Be Revoked	)	

To: Honorable Arthur I. Steinberg
Administrative Law Judge

SUPPLEMENTAL STATEMENT OF HERMAN E. HURST, JR.

Under penalty of perjury, I declare that the following is true and correct to the best of my knowledge, information and belief:

This statement is prepared for the purpose of clarifying technical matters addressed in my statement dated November 7, 1997, as well as information contained in my earlier statement attached thereto which was dated July 25, 1995.

In my statement of July 25, 1995 reporting upon my observations of July 6, 1995 during my visit to Fort Lee, New Jersey; Pomona, New York; and the Monticello-Liberty, New York area, I incorrectly stated on page 2 that the initial installation during the period October 25, 1994 to January

10, 1995, which was the period that the Fort Lee translator was receiving the WJUX(FM) signal directly off-air on a full-time basis, utilized a notch filtering system comprised of the EMR Corporation 3-cavity filter. I realize now that during that period, the Microwave Filter Company Phase Canceller was in use. The Phase Canceller was replaced in May 1995 with the 3-cavity EMR 40 dB notch filter. That 40 dB filter was in use on July 6 when Herbert D. Miller, Jr and I visited the Fort Lee site. Shortly after my visit the 3-cavity system was relocated to the Pomona site, and a 6-cavity system which has been described as a pair of 30 dB filters was installed at Fort Lee.

It should be noted that in the video attached to my statement dated November 7, 1997, I referred to the current system as a 30 dB filtering system. Actually as stated above there are two 3-cavity filters in series which, as shown by information received from EMR, Inc. on December 8, 1997, provide 78 dB of filtering for the first-adjacent channel signal from WBAI(FM).

With regard to my earlier reference to a "hot spot" on the roof of the Mediterrainian Tower building which is the location for pick up of WJUX directly off-air at Fort Lee, it should be noted that this location is exactly the same location at which I observed a "hot spot" or high field in July 1995. At this location, using the Sony XR-2500 receiver which has a digital display, one can receive WJUX clearly without filtering of the WBAI signal. The field strength estimated on the roof during Mr. Hidle and my visit October 16 and 17, is based on measurements at the Pomona receiving antenna location, not at the "hot spot" where the signal level was obviously higher, since we were unable to transport our measuring equipment to the roof.

With regard to signal variability, I agree with Jules Cohen's methodology of reducing the median predicted value of field strength to improve the confidence or reliability of the prediction; but when one has found a location of high field, its variability is relatively small. In the instance of the fields at the "hot spot," observations indicate a seasonal variation with "just perceptible" noise noted for brief periods several days during the year.

I understand that in his testimony Mr. Cohen raised the possibility that the extent to which a receiving antenna could discriminate against the signals of station WBAI might be adversely affected by reflections of the WBAI signal in the vicinity of the receiving antenna. My inspections of the surroundings of the Fort Lee translator site disclosed that there are no structures in the vicinity which could be expected to be the sources of reflections.

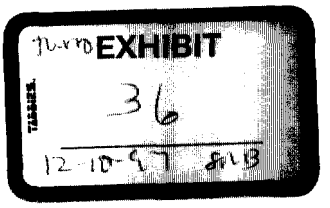
One final point needs to be reported regarding the trip Mr. Hidle and I made to Fort Lee and Pomona on October 16 and 17, 1997. While in the basement of the Mediterrainian Tower building observing the unusual (possibly phenomenal) received signal from Pomona as displayed on the inexpensive portable receiver shown in the video, we also attempted to interfere with the reception of Pomona with the receive antenna located on the roof of the building. This attempt was made from the basement utilizing a signal generator with a 5 watt output fed into a tuned antenna which was unable to be received on the roof. Since we were located at the location where an alternate antenna system for Pomona had been installed for a period of time, including the period on or about May 15, 1995, and we were unable with a 5 watt output to cause interference to the receipt of Pomona with

its antenna located on the roof, in my opinion someone located on or near the roof of the building would not be able to cause interference to the reception of Pomona with a 0.5 watt signal (which I understand Mr. Loginow testified he employed) when the receiving antenna was located in the basement.

Dated: December 10, 1997

Herman E. Hurst, Jr.

DOCKET FILE COPY ORIGINAL



Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In re	)	
	)	
GERARD A. TURRO	)	MM Docket No. 97-122
	)	
For Renewal of License	)	File Nos. BRFT-970129YC
For FM Translator Stations	)	BRFT-970129YD
W276AQ(FM), Fort Lee, NJ, and	)	
W232AL(FM), Pomona, NY	)	
	)	
MONTICELLO MOUNTAINTOP	)	
BROADCASTING, INC.	)	
	)	
Order to Show Cause Why the	)	
Construction Permit for FM Radio	)	
Station WJUX(FM), Monticello, NY	)	
Should Not Be Revoked	)	

To: Honorable Arthur I. Steinberg
Administrative Law Judge

SUPPLEMENTAL STATEMENT OF JOHN E. HIDLE, P.E.

Under penalty of perjury, I declare that the following is true and correct to the best of my knowledge, information and belief:

In regard to the testimony of Mr. Wilson La Follette and Mr. Jules Cohen in this matter, claiming the impossibility of receiving at the Fort Lee translator location a signal on 99.7 MHz from the WJUX(FM) site, I have investigated further the feasibility of using a Microwave Filter Co. Phase Canceller, Model 2903. I obtained the unit belonging to Mr. Turro which he says he used from October 1994 until some time in 1995 to enable him to receive the Monticello signal on 99.7 MHz at the Ft. Lee translator site. I configured the instrument according to instructions in the manufacturer's *Interference Phase Cancellation Handbook* and made measurements designed to closely resemble the scenarios put forth by both witnesses.

Mr. La Follette presented the results of field measurements he and others had made in February 1995 on a building adjacent to the Ft. Lee translator site. He reported that with their antenna pointed toward the Monticello station on 99.7 MHz they obtained a signal at the input terminals of their spectrum analyzer of -78 dBm at 99.7 MHz, and a signal from WBAI at 99.5 MHz at a level of -40 dBm. The lower first adjacent channel signal therefore measures 38 dB higher in level than the desired signal on 99.7 MHz. Mr. La Follette claims that it is therefore impossible to separate the desired signal from the undesired because 1) He knows of no filter which could remove the undesired signal without destroying the desired signal; and 2) Even if such a filter existed it would be ineffective because the WBAI sidebands, as shown on his Figure 3 spectrum analyzer plot, spill over into the WJUX frequency spectrum and accordingly cannot be separated out. Neither of his reasons for his claim survives close scrutiny.

First, Herman Hurst and I observed the operation of the Fort Lee Translator in October 1997, and we observed that with its present setup the translator received the signal from WJUX(FM) free from interference from WBAI. This disproves the claim that it is inherently impossible to filter out the WBAI signal.

Second, the Phase Canceller in use at the Fort Lee translator when Mr. La Follette made his measurements is, as Mr. Cohen testified, specifically designed to eliminate co-channel, as well as adjacent channel interference. Since undesired co-channel signals are found in the same frequency spectrum as the desired signals, the Phase Canceller can obviously deal with allegedly encroaching adjacent channel signals of the kind attributed by Mr. La Follette to WBAI.

Figure one herein is a spectrum analyzer plot with one trace showing an undesired signal at 99.5 MHz at a level of -40 dBm and a desired signal at 99.7 MHz at a level of -78 dBm, as in Mr. La

Follette's Figure 3. A second trace shows these same two signals after the Microwave Filter Co. Phase Canceller, Model 2903 was added to the circuit according to manufacturer's instructions. The resulting reduction in the undesired signal level as shown is in excess of 45 dB. Also the desired signal does not appear to be damaged in any material way.

Mr. La Follette's second reason vanishes when the measurement methods are examined. Mr. La Follette's Figure 3 was made using a resolution bandwidth of 10 kHz, as was my Figure one. In spectrum analyzer measurements resolution bandwidth is analogous to photographic resolution or television picture resolution in that the better the resolution the finer the detail which can be resolved. A spectrum analyzer is a tunable voltmeter which can measure the signal level of various frequency components of a complex signal, or group of signals. The bandwidth of the measuring device is very important when it is required to measure signals which are close in frequency. A wider resolution bandwidth tends to spread out the display of the signals being measured causing those signals to appear to possess wider bandwidths than they really do. This condition can cause signals which are close in frequency to appear to overlap when in fact they do not. Compare my figure two with figure one. The signals being measured are exactly the same in both figures. The only difference is that in figure two the resolution bandwidth of the spectrum analyzer has been changed to 1 kHz, thereby increasing the discernable detail by a factor of ten. Notice in figure two in the area between the signals that the full level undesired signal no longer appears to spill over into the desired signal. Figure three shows two traces measuring a single unmodulated signal at 99.7 MHz. The only difference is that the resolution bandwidth is 10 kHz in one trace and 1 kHz in the other. Therefore, in my opinion, the apparent signal encroachment from WBAI shown in Mr. La Follette's statement is a result of the coarseness of the resolution bandwidth used and is not real.

Mr. Cohen claims that ... "The calculated field strength from WBAI at the W276AQ location is 91.8 dBμ, 86.3 dB greater than the calculated, 90 percent of the time signal strength from WJUX at Fort Lee. A combination of sophisticated filtering and antenna discrimination could not eliminate completely interference from this first adjacent channel station." Under cross examination Mr. Cohen agreed that the expected antenna discrimination in this configuration might be on the order of 20 dB. He did not dispute the possibility that the SONY receiver characteristics could exhibit a greater than 33 dB rejection of the first adjacent channel, as our measurements have shown. He also admitted that if he had calculated a 50% median field that it would have been 25.9 dBμ, or 20.4 dB more than his calculated 90% field.

Assuming only for argument Mr. Cohen's 90% figures, if we subtract 20 dB for antenna discrimination and 33 dB for receiver first adjacent channel rejection that leaves ≅34 dB additional filtering required. Figure four is a spectrum analyzer plot showing two traces. The resolution bandwidth is 1 kHz. The undesired signal is measured to be 0 dBm at 99.5 MHz and the desired signal at 99.7 MHz is about -70 dBm. Such would be the situation if the antenna discrimination was only about 16 dB. The second trace shows the results of incorporating the Microwave Filter Co. Phase Canceller into the system. Note that after more than 45 dB attenuation by the Phase Canceller the undesired signal is less than 25 dB greater in level than the desired signal. For the SONY receiver this represents a first adjacent channel interference rejection margin of about 7 dB, even when using Mr. Cohen's numbers. Consequently, with the Phase Canceller in operation, the Fort Lee translator is capable of receiving station WJUX(FM) free from interference from WBAI.

When we examine the measurements we made at Ft. Lee the D/U ratio 99.7/99.5 MHz at the receiver terminals is about 47 dB. Since this measurement includes any discrimination provided by

the antenna it is necessary to provide 47 minus 33, or 14 dB additional filtering for the undesired signal. The measurements presented herein show that at least 45 dB is available using the Phase Canceller. The filter which is presently being used at Ft. Lee in the 99.7 MHz receiving system is manufactured by EMR Corporation of Phoenix, Arizona. The performance plot record of this filter is presented as figure five, as provided by the manufacturer. The insertion loss at 99.7 MHz is just under 2 dB while the notch loss at 99.5 MHz exceeds 75 dB. This means that the first adjacent channel rejection capability is more than 73 dB, which is substantially greater than the 45 dB provided by the Phase Canceller.

Dated: December 9, 1997

John E. Hidle, P.E.

FIGURE ONE

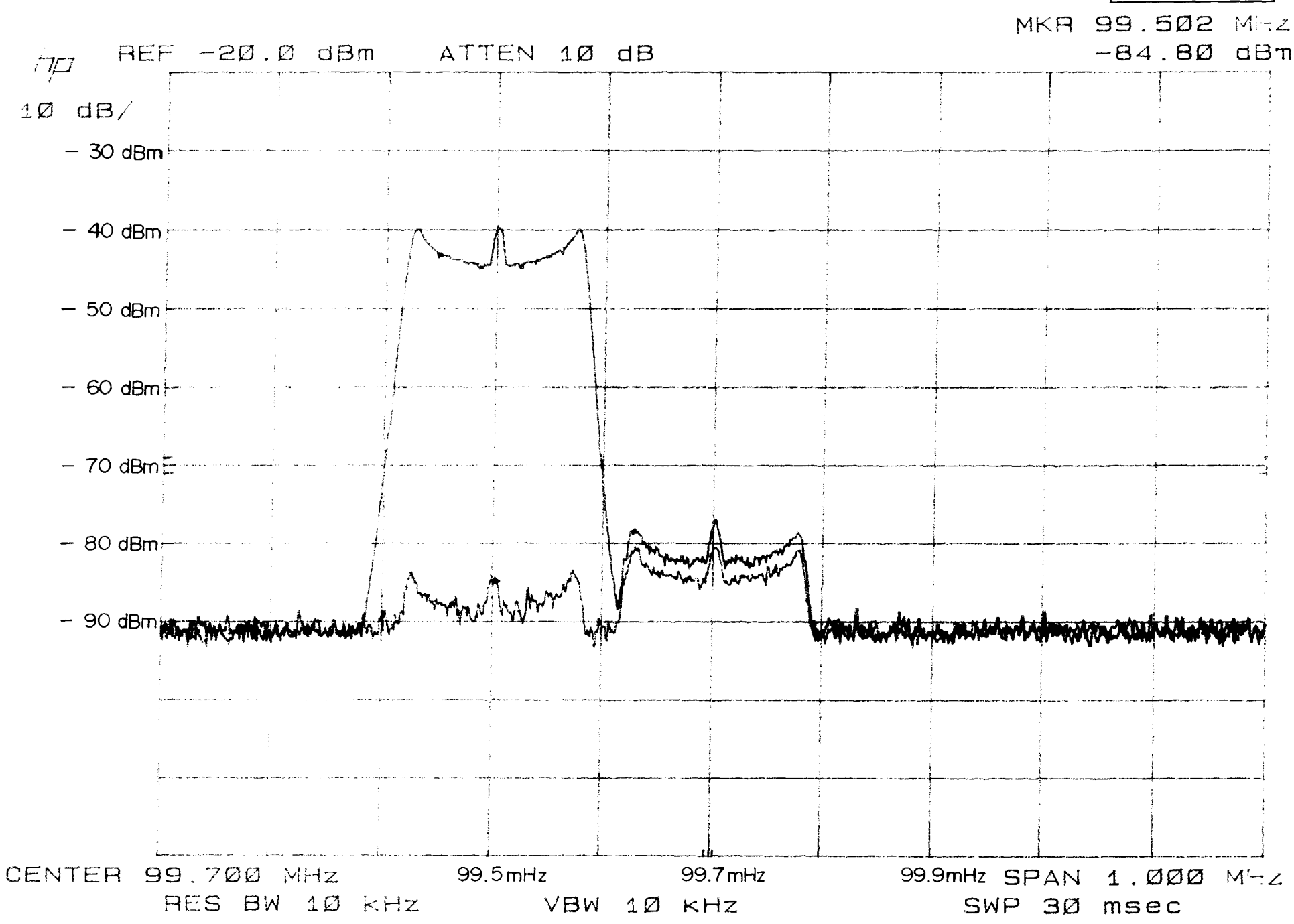

MKR 99.502 MHz
-84.80 dBm
REF -20.0 dBm
ATTEN 10 dB
10 dB/
- 30 dBm
- 40 dBm
- 50 dBm
- 60 dBm
- 70 dBm
- 80 dBm
- 90 dBm
CENTER 99.700 MHz
99.5mHz
99.7mHz
99.9mHz
SPAN 1.000 MHz
RES BW 10 kHz
VBW 10 kHz
SWP 30 msec

FIGURE TWO

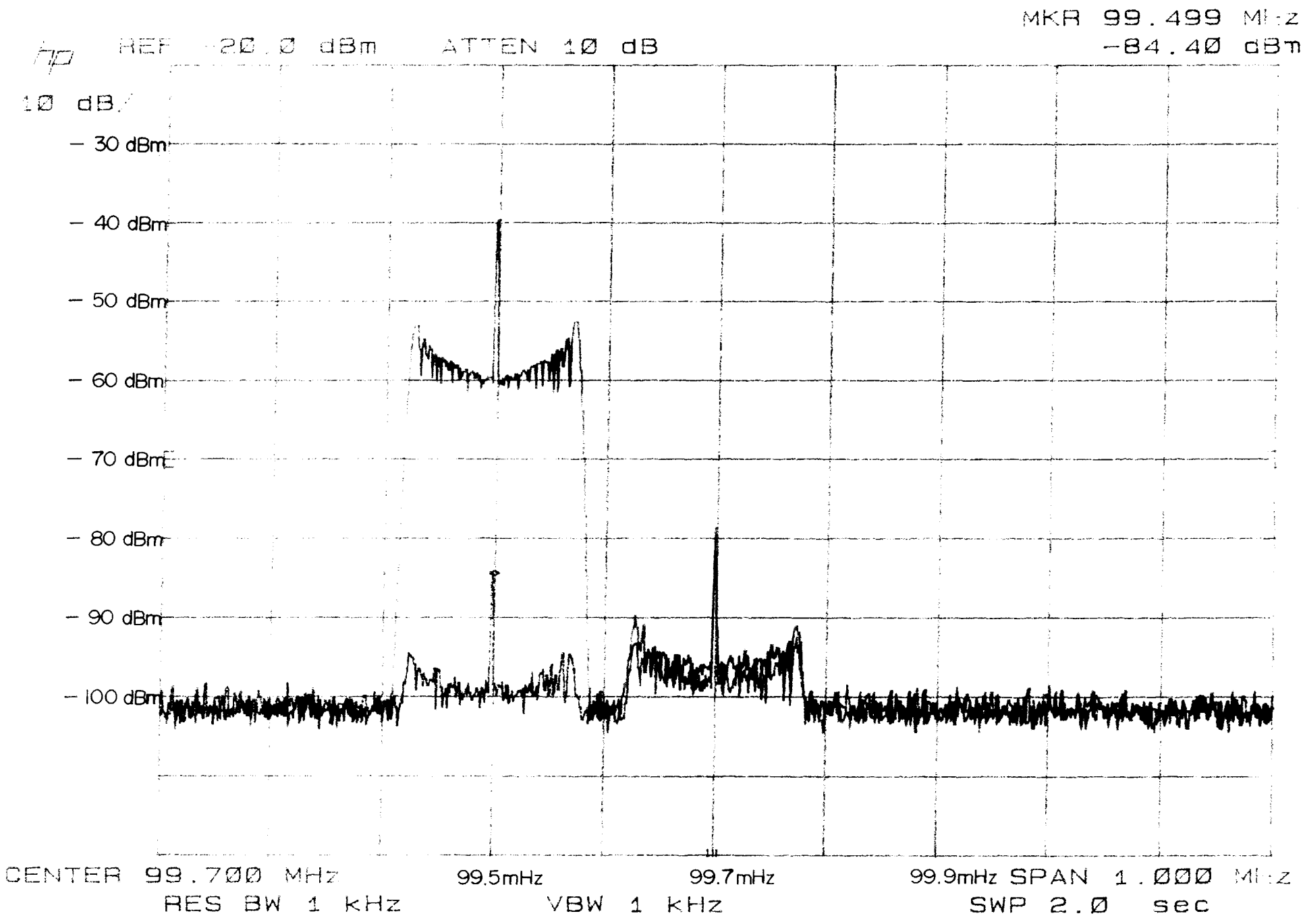

MKR 99.499 MHz
-84.40 dBm
REF -20.0 dBm ATTEN 10 dB
10 dB/
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
CENTER 99.700 MHz
99.5mHz
99.7mHz
99.9mHz SPAN 1.000 MHz
RES BW 1 kHz
VBW 1 kHz
SWP 2.0 sec

FIGURE THREE

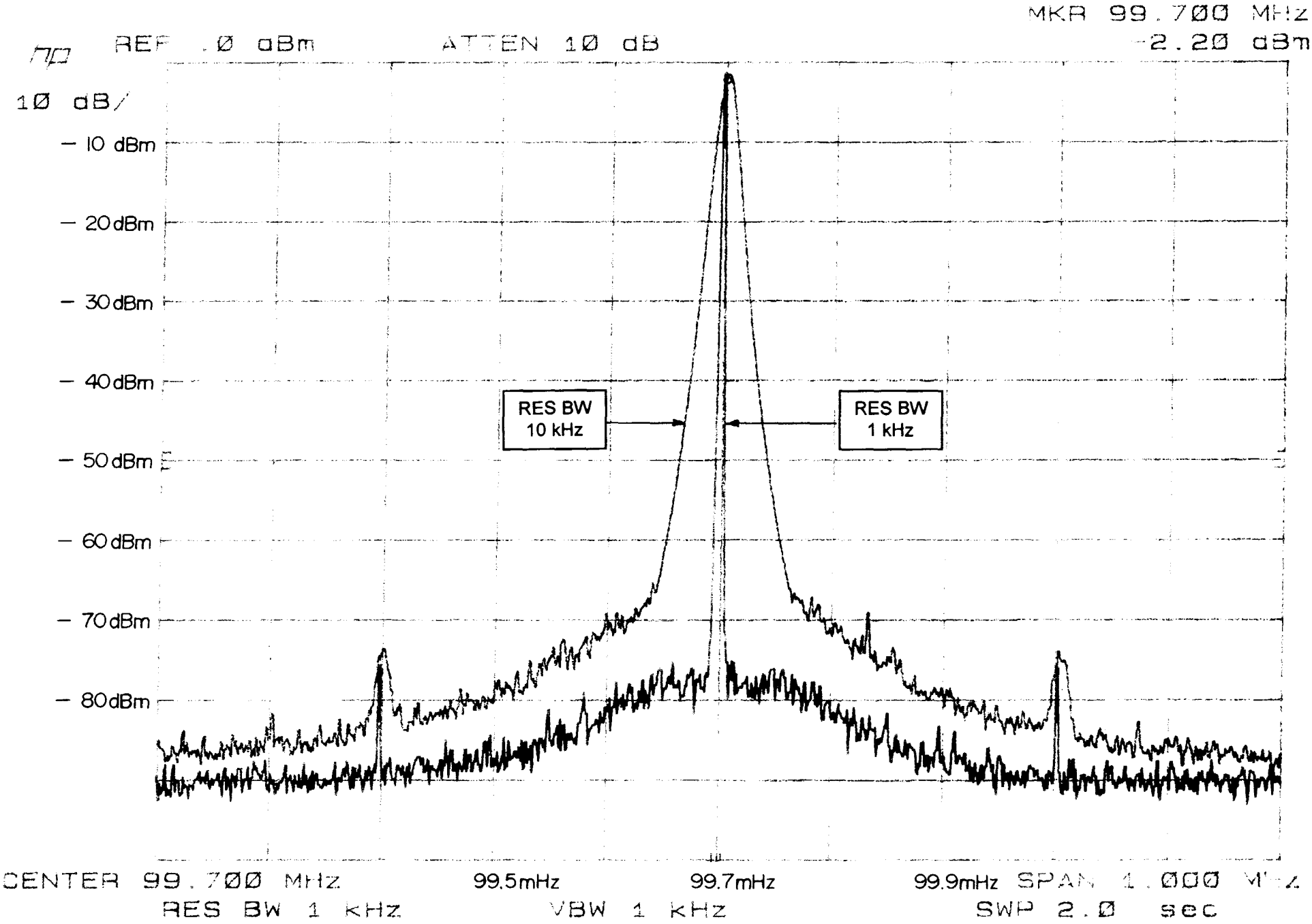
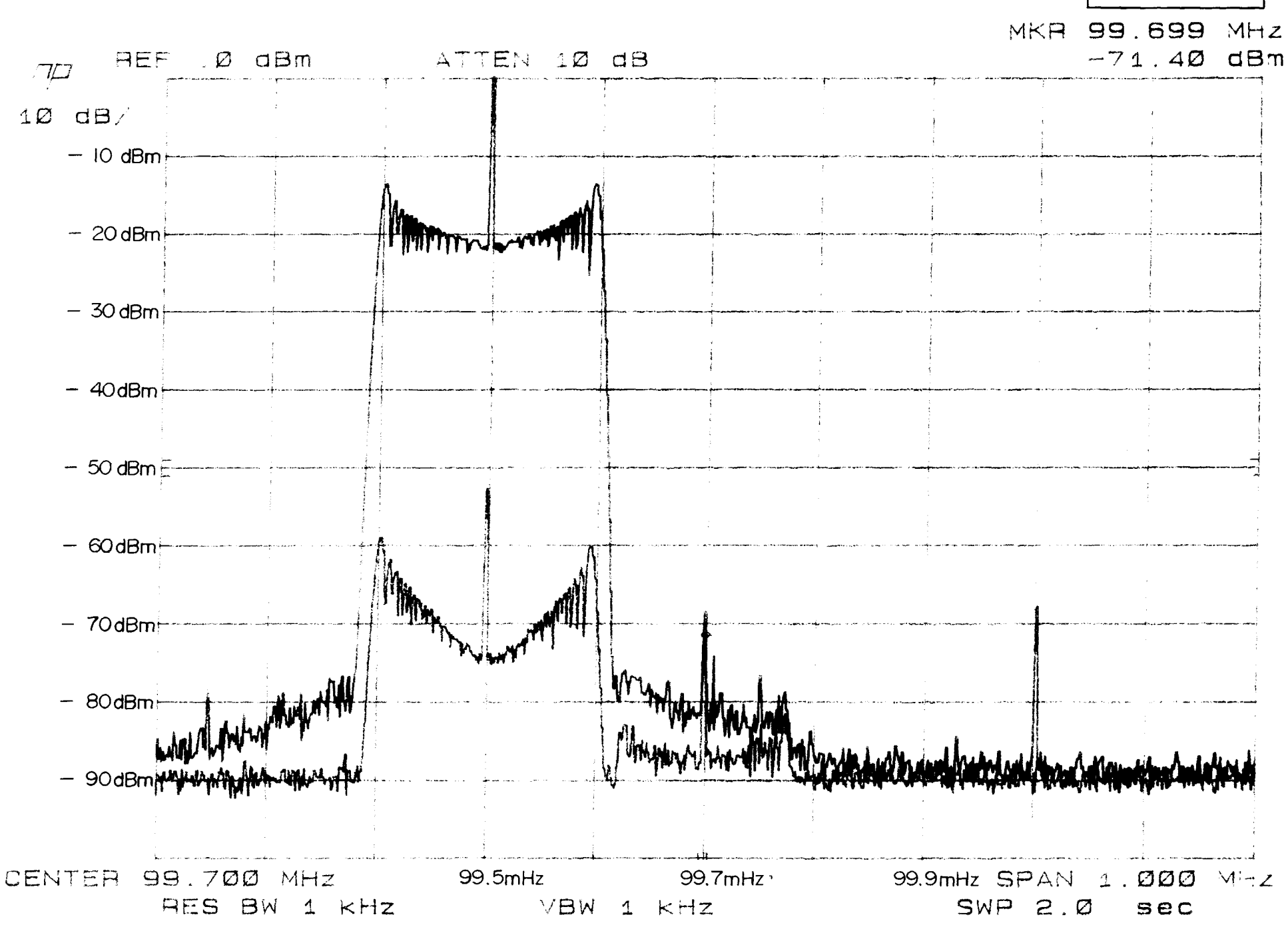


FIGURE FOUR


MKR 99.699 MHz
-71.40 dBm
REF .0 dBm
ATTEN 10 dB
10 dB/
- 10 dBm
- 20 dBm
- 30 dBm
- 40 dBm
- 50 dBm
- 60 dBm
- 70 dBm
- 80 dBm
- 90 dBm
CENTER 99.700 MHz
99.5mHz
99.7mHz
99.9mHz SPAN 1.000 MHz
RES BW 1 kHz
VBW 1 kHz
SWP 2.0 sec

EMR COPRPORATION PERFORMANCE PLOT RECORD

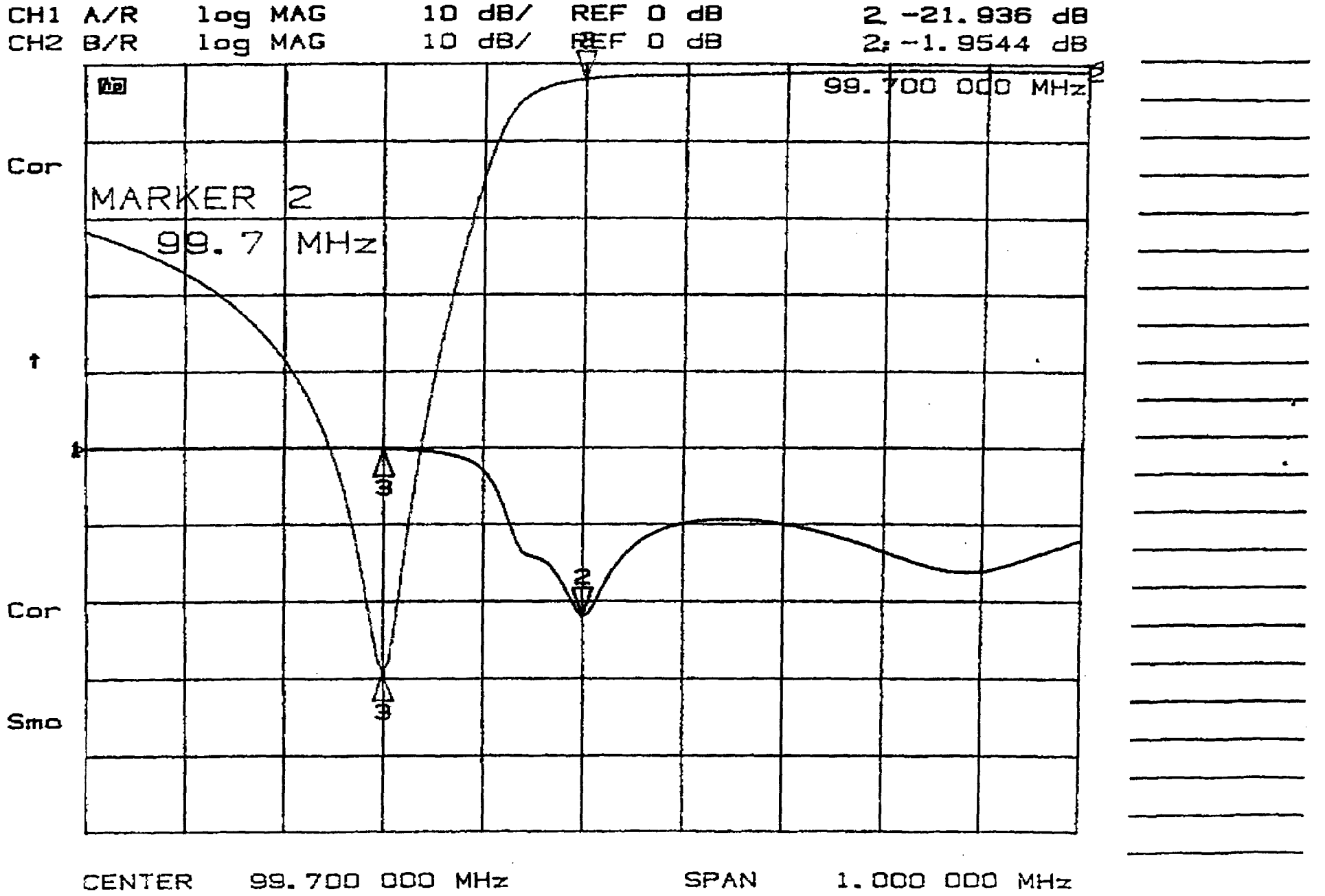
FIGURE FIVE

DATE 07-2095 JOB REFERENCE Juke Box Radio

TECHNICIAN Rod Deloor

PRODUCT MODEL 6354/SNC-3

SERIAL NUMBER 950719-019



EMR CORPORATION - 22402 N. 19TH AVENUE - PHOENIX, ARIZONA 85027 - TEL: 602-581-2875

PLTFRM 94-02-12