

Radio Baltimore

WCAO

5000 WATTS • 600 KILOCYCLES

January 16, 1960

Mr Kermit Geary
R D 2 Box 298
Walnutport
Pennsylvania

Dear Mr Geary:

Thank you for your most interesting and complete report on reception of WCAO-fm, Saturday January 9 and Sunday January 10, 1960.

A check of our program log for the dates mentioned shows complete agreement with the data you submitted.

WCAO-fm is the oldest full-time FM station in the Baltimore, Md., area. We went on the air, with low power, in December 1947 and later, in June 1948 we went full power. We use a Westinghouse FM3/FM10 transmitter with a power of 20,000 watts (effective radiated power), i.e. we feed 5.4 kw into a Western Electric 54A fm antenna which has a "gain" of 4 which gives us the 20kw figure.

Our FM transmitter is programmed simultaneously with our AM operation from 5 AM to 12 midnight weekdays and from 8 AM to 12 midnight Sunday. We have our transmitting facilities located at Pikesville, Maryland which is about eleven miles northwest of downtown Baltimore. Our geographical location is 39 degrees 23 minutes 09 seconds north latitude and 76 degrees fortythree minutes and nine seconds west longitude according to our FCC license data.

WCAO AM is the oldest station in Maryland having started in 1922. In 1941 we moved to our present location and installed a four element directional antenna system, (4 300 self supported steel towers). In 1947 we removed one of the towers and installed a new one capable of supporting the FM radiator (Western Electric 54-A). Radio frequency from the FM is fed through some 600 feet of 3-1/8" coaxial line to the FM radiator so there is considerable loss. As you know, in the case of many new FM installations the antenna is located closely adjacent to the transmitter building so there is a minimum of coaxial line. Unfortunately this is not the case with us. It is particularly gratifying to get a report like yours because we know, despite our handicaps we are "getting out".

When the FM idea became effective in Baltimore quite a few stations put in transmitters. WFBR, WCBM, WMAR-tv and WCAO. One by one the others dropped out and sold or dismantled their transmitters. Our management decided to keep FM so for a while WCAO and WITH-fm were the only ones in the business here.

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Mr. Geary-2

One by one the local stations are getting back on the FM bandwagon. WCBM, WBAL/
WBAL-tv have ordered transmitters and there are plans afoot for several new
FM stations since there seems to be increasing interest in this type of trans-
mission.

Regarding our equipment- we feed our programs from the downtown control room
over specially equalized telephone lines which have a flat audio response
from 20 cycles to 15,000 cycles. The equipment at the transmitter, R.C.A. BA-25A
audio amplifiers are likewise able to give us this response. The transmitter, of
course, is designed for this frequency range. Overall hum level is kept to
55 db below 100% modulation level.

We have been heard in Northern New Jersey and also favorably reported in the
Shenandoah Valley, Virginia. We seem to cover the Baltimore-Washington, D.C.
metropolitan area very well. As you have noted, in connection with WNEW-fm,
the stronger signal "locks in" and masks the weaker signal on the same
frequency and does not, as a general rule, like an AM signal tend to hetero-
dyne with the other signal. This of course makes real DX with FM difficult,
plus the fact that the FM frequencies tend to follow the line-of-sight
characteristic as all high frequency signals seem to do.


Our antenna height is 855' above sea level. The actual height above ground
(to the top of the FM antenna) is 325'.

I believe there would have been a great deal more listener-interest in FM
had not television come along almost simultaneously with FM in the middle
1940's. This set FM back greatly as you doubtless know.

Regarding DX reception I do not think FM will ever beat our AM in this
regard. Last Spring I received two requests for confirmation from two men
in New Zealand! They heard WCAO-AM down there for quite a period. This was
of course a freak caused no doubt by our skywave just happening to bounce
at the right angle. (One DX fan there reported having a 1000' antenna!

I am surprised at your reception with the antenna you have. I have a Zenith
myself and can hear most of the FM stations in the Washington DC-Baltimore-
Southern New Jersey area but ^{no} real DX. (I am a former ship radio officer and
do a lot of listening on high frequency (20 mc) code signals. That is where
the real DX is, I hear Bombay, New Zealand, mainland China and Australia very
consistently, plus hundreds of ships all over the world). Thanks for your
very interesting report.

Sincerely,


Charles A. Seibold, Jr.
Engineering Supervisor