

TROUBLE REPORTING

There are three basic categories of trouble:

1. A complete loss of signal.
2. Signal is there but is either unfit for broadcast (UFB) or is obviously bad (dropouts, heavy distortion, heavy low or high frequency loss).
3. Signal is fair, but you feel it could be improved.

In all three instances, the first move should be to check your own equipment and make certain there are no problems there. A great number of "long lines" problems or "Mutual" programs, particularly distortion, are actually being created in the affiliate's equipment.

If your equipment is O.K., then call your local AT&T test room. Be certain to be very specific about the nature of the complaint and any special characteristics, such as, "the problem occurs at the half-hour only, or only in the evenings." Call as soon as possible, preferably while you are getting a bad feed. Be certain to make a note of who you talked to and the time. If the test room does not call back with a preliminary report in 15 minutes, then call again and request one. Ask for their "ticket number". Once a ticket is made up, the trouble must be checked out. Again, note the time and who you spoke with. Complete and mail a Mutual Trouble Report (MRN Form 2010, copies following later in this section) within 24 hours.

The test room should be localizing your problem. It may be in the loop from your station to your local telephone company; it may be in the loop from the telephone company to AT&T; it may be in a particular section of the country; or it may be a problem affecting the entire national network.

In some instances, it may be necessary to do extensive work on the lines, and AT&T may have to wait until close of business, or when the network shuts down for the night. If the signal you are receiving is unfit for broadcast (UFB), then request a feed on another facility until they can repair your regular facility. In other cases, they can patch around the problem. Or they may coordinate with you and Mutual to work on the problem between programming.

Whenever possible, support your complaint with actual test results such as; "The Mutual tone has 20% measured distortion on it," or "The Mutual frequency response test shows us down 20 db at 500 cycles".

If you have not received satisfaction from your local test room, then please call Mutual Engineering (703) 685-2100 and notify us of the difficulty. However you MUST have logged a complaint with your local AT&T office first, in each instance. We will need to know the times, dates and names involved with the complaints.

Network levels may arrive at your station at anywhere from +8 dbm to -27. However, it should not vary once installed. Confusion on different levels still exists between the broadcasters and telephone companies. Customer or broadcast level is +8 dbm and is what a broadcaster normally feeds a transmit loop with. It would hardly seem necessary to mention it, but the output meter on a piece of equipment does not necessarily reflect the actual output level. When the telephone company calls something "0" db or a "milliwatt" they are usually right. "0" dbm is standard telephone company level, as opposed to +8 dbm broadcast level. Telephone companies also measure distortion in a special way and therefore get lower figures than a broadcaster. However, if your distortion analyzer is over 5%, then your signal is out of spec. And if you can hear the distortion you know it is definitely bad. The proper way to measure distortion is with a scope also tied across the line to insure that you are not measuring noise or RF, a frequent occurrence. The telephone company measures noise in dbrn rather than a ratio, as broadcasters use. A dbrn/SNR Conversion Chart created by National Public Radio is attached for your convenience in dealing with Telco.

From time to time we hear that stations are told by their telephone companies that a certain problem is originating in the Mutual studios. The network product as it leaves Mutual is very carefully prepared and controlled and Mutual monitors continuously "off the copper" as the signal hits the AT&T lines. Occasionally, a program will be received at Mutual from another source that is not up to Mutual's quality. It may have had long lines problems itself, or may have suffered at the hands of another network. In this case we specially process the material to attempt to restore it to its original state.

There are two other important long lines problems to watch out for. The first is "carrier sing". This is a 4,000 hz tone which may appear continuously in or under network feeds. If you can hear this at all, even under critical listening conditions, then the feed is not meeting specifications. Carrier sing is considered to be a form of cross-talk and the rule for either is that it must not be discernable. Other forms of cross-talk may be dialing pulses, teletype, voices, clicks, tones, etc.

The Mutual Radio Network always insists that every inch of the Network is in first rate condition. We can only accomplish this through your help. Please complain immediately to your local AT&T test room and COMPLAIN AGAIN each time you get a program that is bad. AT&T assumes that customer silence indicates that there are no problems or that any problem has been corrected. If you do not get satisfaction from them, call Mutual Engineering. We must know all the details of the complaint as filed with AT&T.

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DO NOT HESITATE TO ASK FOR AN AT&T SUPERVISOR IF YOU ARE NOT GETTING THE NECESSARY RESULTS. If a problem takes a while to fix, AT&T should be giving your progress reports, and after the problem is cleared, they should report back to you and insure that the problem they found, was indeed your problem. We would also suggest that written copies of continuing complaints be sent to your local AT&T test room, along with copies to Mutual Engineering.

Our engineers and supervisors will be happy to help you at any time to solve network problems. Our master control number is (703) 685-2100.

Comments on the general level of engineering and production on the Mutual Network will be welcomed, and should be addressed to: Director of Engineering, Mutual Radio Networks, 1755 South Jefferson Davis Highway, Arlington, Virginia, 22202.

dbrn/SNR CONVERSION CHART

1	-97	46	-52
2	-96	47	-51
3	-95	48	-50
4	-94	49	-49
5	-93	50	-48
6	-92	51	-47
7	-91	52	-46
8	-90	53	-45
9	-89	54	-44
10	-88	55	-43
11	-87	56	-42
12	-86	57	-41
13	-85	58	-40
14	-84	59	-39
15	-83	60	-38
16	-82	61	-37
17	-81	62	-36
18	-80	63	-35
19	-79	64	-34
20	-78	65	-33
21	-77	66	-32
22	-76	67	-31
23	-75	68	-30
24	-74	69	-29
25	-73	70	-28
26	-72	71	-27
27	-71	72	-26
28	-70	73	-25
29	-69	74	-24
30	-68	75	-23
31	-67	76	-22
32	-66	77	-21
33	-65	78	-20
34	-64	79	-19
35	-63	80	-18
36	-62	81	-17
37	-61	82	-16
38	-60	83	-15
39	-59	84	-14
40	-58	85	-13
41	-57	86	-12
42	-56	87	-11
43	-55	88	-10
44	-54	89	-9
45	-53	90	-8

TROUBLE REPORTING
ATTACHMENT

OPERATIONS MANUAL
ENGINEERING

TESTING PROGRAMS

Mutual feeds a 32 frequency, low distortion frequency response test each day, Monday through Friday, at 2:15:10 PM NYT. This test consists of a 1000 hz tone fed at -"8" VU to establish a reference for 15 seconds, followed by 32 stepped frequencies lasting 5 seconds each, also fed at -8 VU. From 100 to 1000 cycles the frequencies progress in 100 cycle steps, from 1000 cycles to 6000 cycles in 250 cycle steps, and from 6000 to 7000 cycles in 500 cycle steps. This test is then repeated at -8 VU, beginning with a 15 second 1000 cycle tone for reference level.

Next are 45 second duration tones at 400, 1000 and 3000 cycles, for distortion measurements, fed once at "0" VU and then again at -8 VU. It is important to do these tests at both levels, because considerable differences are frequent.

Finally, a 1000 cycle reference tone is fed at "0" VU for 15 seconds, after which the network is terminated for 45 seconds for a signal to noise reading.

A regular (at least once a week) forwarding of copies of your station's MRN Frequency Response, Distortion and Noise Measurement Reports (MRN Form 2030, copies follow later in this section) to the Director of Engineering, Mutual Radio Networks, will help us to insure that you are getting the services that are being paid for and also to evaluate improvements in network facilities.

If you encounter any particular difficulties, please notify us and send all reports to:

Director of Transmissions
Mutual Radio Networks
1755 South Jefferson Davis Hwy.
Arlington, VA 22202

2/8/78

MRN OPERATIONS MANUAL
ENGINEERING

AT&T LONG LINES PROGRAM SERVICES SPECIFICATIONS

SCHEDULES A AND B

± 3 db from 100-5,000 cps, referenced to 1000 cps.

OTHER SPECIFICATIONS

Signal to noise ratio: 44 db

Harmonic Distortion: 5% on standard distortion analyzer (not telco set)

Crosstalk: No discernable crosstalk or impulse noise from any source.

Gain Stability: ± 4 db at 1000 cycles per second over a 24 hour period.

MUTUAL RADIO NETWORKS TRANSMISSION TROUBLE REPORT

Complaint as told to carrier: _____
Station call letters _____ Name of person who reported trouble _____

Date of Trouble _____ (Describe trouble as fully as possible) _____

Duration of Trouble _____

Time Trouble Report filed _____

Results of complaint: _____

Telco Trouble Ticket No. _____

Name of person trouble reported to _____ Location of test room trouble reported to _____

MRN Form 2010

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MRN Form 2010

