

PROJECT MAC COMMUNICATION CABLE STATUS REPORT
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PURPOSE

The purpose of this report is to bring everyone concerned with the MAC Cable Project up to date on the progress which has been made on the project; it is a "snapshot" report, since new developments are occurring almost daily.

BACKGROUND

The MAC Cable Project grew out of several communication facility needs, primarily associated with H6180 Multics and other facilities in Building 39:

- 1) A cable was needed to connect the ARPA Network IMP on the ninth floor of 545 Tech Square with the Asynchronous Bit Serial Interface on the 6180 IOM in Building 39.
- 2) Some sort of wideband (approx. 250Kb/s - 1Mb/s) facility will be needed for the Project MAC Display Terminal System.
- 3) A need for "Miscellaneous Data Services" at Tech Square in the near future is foreseen. This would include data transmission facilities for such devices as remote printers, etc.
- 4) A future need for video and/or wideband data services.
- 5) A wideband facility (50 - 250Kb/s) for a privately owned data link to interconnect the Tech Square IMP with the IMP to be installed in Building 39.

SPECIFIC PLANS AND PROGRESS**1) Telephone Cable**

Two 2070-foot lengths of twelve-pair, 19-gauge aerial and duct telephone cable have been procured for services 1) and 2) above. These cables have arrived, and are in storage at Tech Square. Standard telephone-type connecting blocks, terminal boxes, etc. have been ordered for terminating these cables in accordance with usual telephone practice, which is deemed suitable for our data communication needs.

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In Building 39, the cables will terminate on adjacent terminal boxes, to be located in the third floor telephone closet. At Tech Square, the cable to be used for service 1) (IMP-ABSI interconnection) will terminate adjacent to the IMP on the ninth floor. The cable for service 2) (miscellaneous data services) will terminate in the ninth floor telephone closet. Service 5) (50Kb/s IMP-IMP data link) will also use this second cable.

2) IMP and ABSI Local Cables

250' of eleven-pair Beldfoil individually shielded, 22-gauge twisted pair cable has been obtained, and is on-site. This cable will be divided into several lengths:

- a) One segment, approximately ten feet in length, will run from the telephone cable terminal box adjacent to the Tech Square IMP, to the Host Port 0 Distant Interface connector on the IMP. The IMP end of this cable is to be fitted with Amphenol connector 48-16R18-31P, which we have already obtained.
- b) A second segment of this cable (approximately 100 feet in length) will run from the first telephone cable terminal box mentioned above on the third floor of Building 39 to the ABSI located in the 6180 IOM. The ABSI end of this cable will be fitted with slip-on connectors for the Honeywell MQX backplane pins (these connectors are expected to arrive shortly).
- c) The remainder of the cable will be available for connecting the ABSI with the future Building 39 IMP. A second Amphenol 48-16R18-31P connector must be obtained for this purpose.

3) CATV Cable

Two 2000 foot lengths of .500" diameter "poly-foam" dielectric CATV cable have been obtained, and are in storage at Tech Square. These two cables will terminate in the ninth floor telephone closet at Tech Square and in the third floor telephone closet in Building 39. No immediate use is planned for these cables; they will be available to meet future needs for video and/or wideband data service between the main campus and Tech Square.

4) Using the Miscellaneous Data Services Cable for the IMP-IMP 50Kb/s Data Link

Until recently, we were not certain what sort of cable facility would be required for the IMP-IMP 50Kb/s data link. A study ("Suitability of Telco-Type Twisted-Pair Cable for a MAC/IPC 50-Kilobit Link", J. A. Bosco, MIT Electronic Systems Laboratory, April 3, 1973) has shown that telephone cable, such as that procured for services 1) and 2), is adequate. In fact, if the only signals permitted in the cable are

differential data signals, such as those produced by the ESL Data Set, crosstalk interference between services should be negligible. On the basis of this study, we have decided that:

- a) Telephone cable can be used for the 50Kb/s IMP-IMP data link
- b) The 50Kb/s IMP-IMP data link will use pairs of the Miscellaneous Data Services cable.

INSTALLATION PLANS

Installation of the cables will be performed by an outside contractor, coordinated through William Forti of the MIT Electric Shop. Two bids have been received for the work, at approximately \$4300 and \$4500. It is because of the high cost of having the cables installed that all the cables are to be installed at the same time, even though not all of the cable facilities to be installed will be utilized immediately.

Gary Walker has obtained government approval of the subcontract for the installation work, and submitted a requisition for the work to Bill Forti. We estimate that the installation work will be done approximately one week after the contractor (Balcom Electric) receives the order from the Electric Shop.

We anticipate that, barring further hitches, the cable installation should take place about the 20th of April.