

Rev 04  
11-2-003  
52

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SCHEDULE "A"

~~SECRET~~ INFORMATION

To:

Contract No. IG-894

25X1

Consignee: For purpose of warehousing and partial payments only:

Property and Supply Officer

25X1

The Contractor shall furnish the following equipment, supplies, and services, (except that specifically described as Government furnished) delivered and installed in optimum system operating condition in the vicinity of Washington, D. C., the exact locations of installations to be specified by the Government in later arrangements. This contract contemplates a complete microwave system.

<u>Item</u>	<u>Item</u>	<u>Part of Division 1, 2, 3 and 4</u>	25X1 25X1
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1. MW 2054-1 Tower and antenna:

The Government has a suitable tower available at this location to be utilized for this purpose. The following material and services are to be supplied by the Contractor at this location:

- (a) Install one each Government furnished four foot by six foot reflector at the one hundred foot level on the tower, any additional material required, to be furnished by the Contractor.
- (b) Install two each Government furnished eight foot by twelve foot reflectors at the two hundred foot level on the tower, any additional material required, to be furnished by the Contractor.

No charge

2. MW 2054-2 R. F. Equipment:

- (a) Two each remote type repeater equipments complete with parabolic antennas and full standby equipment together with the necessary cabling.
- (b) Four each solo voltage regulating transformers, 2 KVA.

\$24,576.00

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Item	Item	Part of Division 1, 2, 3 and 4 (cont'd)	25X1 #25X1b
3.	NW 2054-3	<p>Subcarrier Multiplex Equipment consisting of:</p> <ul style="list-style-type: none"> <li>(a) Three each twelve channel basic multiplex assemblies made up of six cabinets, twelve subcarrier frames, three power supply, six meter panel and three cable kits.</li> <li>(b) Twenty-four each subcarrier receivers.</li> <li>(c) Twenty-four each subcarrier transmitters.</li> <li>(d) Twenty-four each voice terminations.</li> </ul>	\$ 9,186.00
4.	NW 2054-4	<p>Subcarrier and Teletype Patching Facilities Consisting of:</p> <ul style="list-style-type: none"> <li>(a) Necessary terminal blocks, cabling, patch cards and associated equipment to provide subcarrier patching facilities for forty-six subcarrier channels and 15 wire circuits. Teletype patching facilities will provide for sixty-one two-way teletype circuits, twenty receive wire circuits and twenty transmit wire circuits.</li> </ul>	\$ 6,707.28
5.	NW 2054-5	<p>Teletype Multiplexing Equipment Consisting of:</p> <ul style="list-style-type: none"> <li>(a) Thirty each AFC dual channel transmitters.</li> <li>(b) Twenty-seven each AFC dual channel receivers.</li> <li>(c) Twenty-two each AFC power supplies.</li> <li>(d) Twelve each fixed rack cabinets.</li> <li>(e) Necessary cabling and terminal boards.</li> <li>(f) One each DC break-in unit.</li> </ul>	\$ 32,076.50
<b>Note:</b>		<p>This equipment will be supplied adapted to utilize the NE 255-A relay, but not equipped with these relays.</p>	
		<u>Part of Division 1</u>	25X1
6.	NW 2054-6	<p>Tower and antenna:</p> <p>One each H-type, dual gaped microwave tower one hundred fifty feet in height, delivered and erected, complete with two six foot by eight foot passive reflectors, top mounted and including A-2 lighting.</p>	\$ 4,995.70

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<u>Item</u>	<u>Item</u>	<u>Part of Division 1 (cont'd)</u>	
7.	NW 2054-7	R. P. Equipment:	
		(a) One each micropackage type repeater equipment complete with standby electronic equipment and antennas.	\$ 9,225.00
		(b) One each solo voltage regulating transformer 3 KVA.	\$ 325.00
		(c) One each Armo steelox shelter for all equipment, complete with foundation and wired ready for use, nine foot four inches by eighteen feet.	\$ 2,484.00
8.	NW 2054-8	Subcarrier Multiplex Equipment Consisting of:	
		(a) One each twelve channel basic multiplex assembly.	
		(b) Twelve each subcarrier receivers.	
		(c) Twelve each subcarrier transmitters.	
		(d) Twelve each voice terminations.	
		(e) Necessary associated cabling and blank panels.	\$ 3,782.00
9.	NW 2054-9	Subcarrier Patching Facilities consisting of:	
		Necessary terminal blocks, cabling, patch cords and associated equipment required to provide patching facilities for twelve subcarrier channels, and also to be used in conjunction with the teletype multiplexing equipment to provide teletype patching.	\$ 874.68
10.	NW 2054-10	Teletype Multiplexing Equipment consisting of:	
		(a) Twelve each AFC dual channel transmitters.	
		(b) Twelve each AFC dual channel receivers.	
		(c) Eight each AFC power supplies.	
		(d) Four each fixed rack cabinets.	
		(e) Necessary cabling and terminal boards.	
		(f) One each DC break-in unit.	\$10,493.00

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25X1

25X1

11. MW 2054-11

Tower and antenna:

The Government has a suitable tower available at this location to be utilized for this purpose. The Contractor shall furnish one each six foot by eight foot reflector and any necessary additional material required for the installation of and install same at the one hundred fifty foot level on the tower.

\$ 850.00

12. MW 2054-12

R. F. Equipment consisting of:

(a) One each remote type terminal station complete with parabolic antennas and full standby equipment and necessary cabling.

Note:

This equipment is listed as a terminal for purposes of allocating it properly by division. Location C will actually be supplied one remote type repeater station assembled to operate as two terminal stations.

(b) Two each solo voltage regulating transformers, 2 EVA.

\$ 6,144.00

13. MW 2054-13

Subcarrier Multiplexing and Patching:

(a) One each twelve channel basic multiplex assembly.

(b) Twelve each subcarrier receivers.

(c) Twelve each subcarrier transmitters.

(d) Twelve each voice terminations.

(e) Necessary cabling and blank panels.

\$ 5,051.40

14. MW 2054-14

Teletype Multiplexing:

(a) Twelve each AFC dual channel transmitters.

(b) Twelve each AFC dual channel receivers.

(c) Eight each AFC power supplies.

(d) Five each fixed rack cabinets.

(e) Necessary cabling and terminal boards.

(f) One each DC break-in unit.

\$10,698.00

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<u>Item</u>	<u>Item</u>	<u>Division 2</u>	25X1 <u>Amn</u> 25X1
15.	NS 2054-15	Tower and antennas:	
		One each E-type, dual guyed microwave tower, one hundred fifty feet in height, delivered and erected complete with two six feet by eight feet reflectors, top mounted and including A-C lighting.	\$ 4,995.70
16.	NS 2054-16	Building:	
		One each nine foot four inch by twelve foot "Armco" Steel building to house [redacted] "Micropackage" type microwave equipment which is item NS 2054-17 listed below.	25X1 \$ 2,187.50
17.	NS 2054-17	R. F. Equipment:	
		(a) One each [redacted] "Micropackage" type repeater equipment complete with standby electronic equipment and antennas.	25X1
		(b) One each sole voltage regulating transformer, 2 KVA.	\$ 9,240.00
18.	NS 2054-19	Necessary portable order wire termination, and alarm transmitter for three quantities, with capacity for two additional spare quantities.	\$ 766.00
		[redacted] Division 2	25X1
19.	NS 2054-20	Tower and antennas:	
		Tower and reflector are not required. One each vertical mount antenna kit (A frame) shall be supplied.	No charge
20.	NS 2054-21	R. F. Equipment:	
		(a) Equipment now at [redacted] to be removed and installed at this [redacted] any additional material required to be supplied by the Contractor.	25X1 25X1
		(b) One each sole 2 KVA VR transformer.	\$ 245.00
21.	NS 2054-22	Multiplexing and Patching:	
		(a) Equipment now at [redacted] to be removed and reinstalled at this [redacted] any additional material required to be supplied by the Contractor.	25X1 25X1
		(b) Necessary patching facilities.	\$ 1,042.92

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25X1  
Amount 25X1

Item [ ]  
Item [ ]

[ ] Division 2 (Cont'd)

22. MW 2054-23

**Teletyping multiplexing:**

Five each dual channels RA-7705-B, AF Carrier Transmitters and five each dual channels RA-7705-A AF Carrier Receivers (Ten channels each transmit and receive) and one each DC Break-in unit to provide one teletype loop circuit.

\$ 4,699.00

[ ] Division 3

25X1

23. MW 2054-24

**Tower and antennas:**

One each H-type dual gazed microwave tower two hundred feet in height, delivered and erected, complete with two each eight foot by twelve foot reflectors, top mounted, and including A-3 lighting.

\$ 7,079.65

24. MW 2054-25

**Building:**

One each nine foot four inch by twelve foot "Armed" steel building to house [ ] "Micropackage" type microwave equipment which is item MW 2054-26 listed below.

\$ 2,187.50

25X1

25. MW 2054-26

**R. F. Equipment:**

(a) One each [ ] "Micropackage" type repeater equipment complete with standby electronic equipment and antennas.

25X1

(b) One each main voltage regulating transformer, 2 KVA.

\$ 9,240.00

26. MW 2054-27

**Multiplexing:**

Necessary portable carrier wire termination and alarm transmitter for three quantities with capacity for two additional spare quantities.

\$ 766.00

[ ] Division 3

25X1

MW 2054-28

**Antenna and tower:**

One each H-type, dual gazed microwave tower, one hundred feet in height, delivered and erected, complete with one six foot by eight foot reflector, top mounted and including A-2 lighting.

\$ 3,498.70

**Building:**

One each nine foot four inch by twelve foot "Armed" steel building to house Motorola "Micropackage" type microwave equipment which is item MW 2054-29 listed below.

\$ 2,187.50

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25X1

<u>Item</u>	<u>Item</u>	<u>Division 3 (cont'd)</u>	<u>Amount</u>
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29. MW 2054-30

**R. F. Equipment:**

(a) One each [redacted] "Micropackage" type terminal equipment complete with standby electronic equipment and one antenna.

25X1

(b) One each solo voltage regulating transformer, 2 KVA.

\$ 6,020.00

30. MW 2054-31

**Multiplexing:**

Subcarrier transmitting and receiving equipment consisting of:

(a) One each twelve channel basic assembly, comprising cabinet, subcarrier frames, power supply meter panel and one cable kit.

(b) Six each subcarrier receivers.

(c) Six each subcarrier transmitters.

(d) Six each voice terminations.

\$ 4,444.92

31. MW 2054-32

**Teletype Multiplexing:**

Seven each dual channels, [redacted] PA-7705-D, Audio Frequency Converter transmitter and Seven dual channels [redacted] PA-7705-A AFC receivers (14 channels transmit and receive total) for providing 14 teletype channels on subcarrier channels. Also one each DC break-in unit.

25X1

25X1

\$ 5,689.00

Division 4

25X1

32. MW 2054-33

**Antenna and tower requirements:**

One each H-type, dual guyed microwave tower two hundred feet in height delivered and erected, complete with two eight foot by twelve foot reflectors, top mounted, and including A-3 lighting.

\$ 7,354.65

33. MW 2054-34

**R. F. Equipment consisting of:**

(a) One each remote type repeater equipment complete with standby electronic equipment and antennas.

(b) Two each solo voltage regulating transformers, 2 KVA.

\$12,444.00

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Item Item  
34. MW 2054-35

                     Division 4 (cont'd)

**Subcarrier Multiplexing and Patching equipment:**

- (a) Two each twelve channel multiplexing assemblies made up of a total of four cabinets, eight subcarrier frames, two power supplies, four meter panels and two cable kits.
- (b) Twelve each subcarrier receivers.
- (c) Twelve each subcarrier transmitters.
- (d) Twelve each voice terminations.

\$ 7,814.22

35. MW 2054-36

**Teletype Multiplexing Equipment:**

- (a) Seven each AFC dual channel receivers.
- (b) Twelve each AFC dual channel transmitters.
- (c) Ten each AFC power supplies.
- (d) Six each fixed rack cabinets.
- (e) Necessary cabling and terminal boards.
- (f) One each DC break-in unit.

\$ 9,315.00

                     Division 4

25X1

36. MW 2054-37

**Tower and antenna:**

One each H-type dual guyed microwave tower two hundred feet in height, delivered and erected, complete with one eight foot by twelve foot reflector, top mounted and including A-3 lighting.

\$ 6,874.75

37. MW 2054-38

**R. F. Equipment:**

- (a)                      "Present"                      equipment to be removed from                      for reinstallation at this                      (No increase in length of control cable).
- (b) One each coil voltage regulating transformer, 2 KVA.

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25X1  
25X1

No charge

\$ 245.00

38. MW 2054-39

**Multiplex Equipment:**

Subcarrier transmitting, receiving, voice terminal and necessary mounting equipment, ten channels to be removed from                      and relocated at this                     

25X1  
25X1

\$ 4,234.00

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Item [ ]  
Item [ ]  
39. NY 2054-40

[ ] Division 4 (cont'd)

25X1

Teletype and Telegraph Multiplexing:

- (a) One each AFC dual channel transmitter.
- (b) Nine each AFC dual channel receivers.
- (c) Four each AFC power supplies.
- (d) Three each fixed rack cabinets.
- (e) Necessary cabling and terminal boards.

\$ 5,269.00

[ ] Division 5

25X1

40. NY 2054-41

Tower and antenna:

810  
180  
630

The Government has a suitable tower at this location to be utilized for this purpose. The Contractor shall furnish one each six foot by eight foot reflector and any necessary additional material required for the installation of and install same at the one hundred fifty foot level on the tower.

\$ 830.00

41. NY 2054-42

R. F. Equipment Consisting of:

- (a) One each remote type terminal station complete with parabolic antenna and full standby equipment and necessary cabling.

Note: This equipment is listed as a terminal for purposes of allocating it properly by division. [ ] will actually be supplied one Remote type repeater station assembled to operate as two terminal stations.

25X1

- (b) Two each mole voltage regulating transformers, 2 KVA.

\$ 6,141.00

42. NY 2054-43

Subcarrier Multiplexing and Patching:

- (a) One each twelve channel basic multiplex assembly.
- (b) Ten each subcarrier receivers.
- (c) Ten each subcarrier transmitters.
- (d) Ten each voice terminations.
- (e) Necessary cabling and blank panels.

5061.00  
\$ 4,669.40

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Item

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Division 5 (cont'd)

43. NW 2054-44

## Teletype Multiplexing:

- (a) Six each AFC dual channel transmitters.
- (b) Six each AFC dual channel receivers.
- (c) Four each AFC power supplies.
- (d) Two each fixed rack cabinets.
- (e) Necessary cabling and terminal boards.
- (f) One each DC break-in unit.

\$ 5,376.00

25X1

Division 5

44. NW 2054-45

## Antennas:

No tower or reflector will be utilized at this location.

45. NW 2054-46

## B. F. Equipment:

- (a) One each remote type terminal equipment complete with parabolic antenna suitable for vertical mounting, vertical mounting kit and full standby equipment necessary cabling (150 feet).
- (b) One each auto voltage regulating transformer, 2 KVA.

\$ 7,199.00

46. NW 2054-47

## Subcarrier Multiplex and Patching:

- (a) One each twelve channel basic Multiplex assembly.
- (b) Ten each subcarrier transmitters.
- (c) Ten each subcarrier receivers.
- (d) Ten each voice terminations.
- (e) Associated cabling and blank panels.

\$ 4,464.92

47. NW 2054-48

## Teletype Multiplex:

- (a) Six each AFC dual channel transmitters.
- (b) Six each AFC dual channel receivers.
- (c) Four each AFC power supplies.
- (d) Two each fixed rack cabinets.
- (e) Necessary cabling and terminal boards.

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<u>Item</u>	<u>Item</u>	<u>Division 5</u>	<u>Amount</u>
	(f) One each DC break-in unit.		\$ 5,374.00
48.	ME 2054-49	Spare parts for entire system consisting of:	
	3 each P-8719 I.F. strips		
	1 each Kit 100% spare tubes for eleven stations		
	100 each 1B23A Crystals		
	2 each P-8812 Sensing amplifiers ✓		
	1 each P-8759J Video amplifier ✓		
	1 each P-8759K Video amplifier ✓		
	1 each P-8759KT Video amplifier ✓		
	1 Misc. spare parts kit		13,512.44
49.	Test Equipment:		
	Portable panoramic analyzer Motorola #PA-8926	4 ea.	\$ 750.00 3,000.00
50.	Modulation meter, Motorola #P-8808.	1 ea.	2,500.00 2,500.00
51.	Engineering Services:		
51.	Engineering services associated with [redacted]		6,269.00 25X1
52.	Engineering services associated with [redacted]		6,004.50 25X1
53.	Engineering services associated with [redacted]		40,940.50 25X1
	<b>Total, subject to the provision of Article 30</b>		<b>\$952,216.13</b>

Foundations: Necessary foundations for "Remote" type equipment at the following locations are not included in the contract prices stipulated herein, and are to be provided by the Government:

<u>Location</u>	<u>Number of Foundations</u>
[redacted]	3
[redacted]	2
[redacted]	1
[redacted]	1

25X1

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**Taxes:** Applicable taxes are not included in the contract prices stipulated herein. Any applicable taxes from which the Government is not exempted from by law shall be itemized and billed, by the Contractor, as separate items.

**Delivery:** The Contractor shall complete delivery of the foregoing in accordance with the following schedule:

All materials, supplies and equipment for Division 1 and 5 shall be delivered to the consignee within 60 days from receipt of contract.

All materials, supplies and equipment for Division 2 shall be delivered to the consignee within 90 days from receipt of contract.

All materials, supplies and equipment for Divisions 3 and 4 shall be delivered to the consignee within 120 days from receipt of contract.

Complete delivery and installation under this contract shall be accomplished as soon as possible in any event not later than 1 February 1953.

An applicable GIP Rating shall be assigned to this contract by the Government.

**F.O.B.** All items are F.O.B. [redacted] with the exception of reflectors for mounting on existing tower which are F.O.B. [redacted]. The Contractor shall ship all items prepaid, transportation charges to be billed as a separate item by the Contractor and supported by a copy of the applicable, receipted, prepaid bill.

25X1  
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**Packing:** All packing shall be domestic.

**Guaranty:** The provisions of Section 21, Guaranty, of the General Provisions, Standard Form 32, shall not apply to tubes and crystal diodes, which are guaranteed for 1,000 hours of operation. Fuses are not guaranteed.

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## SYSTEM TECHNICAL PROVISIONS

General

All subcarrier audio circuits will provide two or four wire termination. Each channel will be wired to a patch panel so that both two and four wire connection is available.

All subcarrier circuits will provide duplex operation with the exception of the portable order wire circuits, used between [redacted] 25X1 which will be push-to-talk operation.

Signalling on all duplex circuits will be of the dry line, 30 cycle ringdown type. Talking battery is to be furnished by switchboard, telephone, or other terminating device.

Multiplex equipment will, in general, provide for expansion to 12 channels except where otherwise noted in detailed descriptions.

Audio Frequency Carrier equipment will provide a maximum of 14 circuits on any subcarrier channels. Cabinets will be wired to accommodate 14 circuits. The transmitters and receivers will be housed in separate cabinets. The receiver cabinet will have mounting facilities for U.S. 255A telegraph relays; however no relays will be supplied. The teletype circuits will be of the duplex variety with no provision for home copy.

Equipment will be supplied to provide series loop teletype party line circuits connecting all stations except Rymaster [redacted] Since the type of 25X1 operation places a large number of relays in cascade, the quality of service may not be adequate unless suitable precautions are taken in replacement of relays and proper transposition of contact connections is made in order to cancel or reduce pulse distortion.

A signal-to-noise ratio of 35 db weighted, as measured with a 600 ohm resistive termination at the output of the subcarrier voice terminal, will be maintained on all circuits.

The frequency stability of the microwave transmitter will be .05% of center frequency. Microwave fading of 25db will still provide a usable communications circuit.

Patching facilities will be furnished at each [redacted] and R 25X1 all subcarrier audio circuits and an equivalent number of incoming lines. The number of circuits will be consistent with a full expansion to 12 channels on each microwave path. The subcarrier circuits will, by internal connection, be normally connected to incoming voice lines on a 2-wire basis or Audio Carrier equipment for teletype on a 4-wire basis. Patch cords will only be inserted for abnormal patching. It will be necessary to operate the 2-4 wire switch on the voice terminal to accomplish the desired patching arrangement.

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Patching all individual teletype circuits at the D. C. level will be provided at [redacted]. Similar patching for six individual circuits will be provided at [redacted] for circuits going to [redacted]. At all [redacted] teletype circuits, incoming lines, and subcarrier lines will be brought to termination block. Each individual 14 circuit teletype cabinet will have a termination block.

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Allotment No. 9095-09  
Reqn: copy to. [redacted]

25X1

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