

## ANTENNA SYSTEMS

### TABLE OF CONTENTS

	<u>Page</u>
1.0 DESCRIPTION .....	3
1.1 INSTALLATION .....	3
1.2 ANTENNA SYSTEM INSPECTION .....	3
2.0 ANTENNA TESTS .....	5
3.0 ANTENNA ASSEMBLY DRAWINGS .....	7
3.1 UHF/800 MHz ANTENNA SYSTEM (With Vendor Options) .....	7
3.2 VHF ANTENNA SYSTEM (136-174 MHz (With Vendor Options)) .....	8
3.3 800 MHz AUX RX w/TTA ANTENNA SYSTEM (With Vendor Options) .....	9
3.4 UHF/800 MHz AUXILIARY RECEIVER SITE (With Vendor Options and No Tower Top Amplifier) .....	10
3.5 VHF (136-174 MHz) AUXILIARY RECEIVER SITE (With Vendor Options) .....	11
3.6 900 MHz SITE (With Vendor Options) .....	12
3.7 VENDOR OPTION TABLE (Repeater & Auxiliary Receivers VHF/UHF/800 MHz) .....	13
3.8 VENDOR OPTION TABLE (Trunked Repeaters VHF/UHF/800 MHz) .....	14
3.9 VENDOR OPTION TABLE (Trunked Repeaters 900 MHz) .....	15
3.10 ANTENNA SYSTEM (With Vendor Options Test Unit) .....	16
3.11 ANTENNA SYSTEM (With Vendor Options Control Station) .....	17
3.12 ANTENNA SYSTEM (Alignment Receiver With Vendor Options) .....	18
3.13 ANTENNA SYSTEM (SCAT Site With Vendor Options) .....	19

---

---

### NOTE

Repairs to this equipment should be made only by an authorized service technician or facility designated by the supplier. Any repairs, alterations or substitution of recommended parts made by the user to this equipment not approved by the manufacturer could void the user's authority to operate the equipment in addition to the manufacturer's warranty.

This manual is published by **M/A-COM Private Radio Systems, Inc.** without any warranty. Improvements and changes to this manual necessitated by typographical errors, inaccuracies of current information, or improvements to programs and/or equipment, may be made by **M/A-COM Private Radio Systems, Inc.** at any time and without notice. Such changes will be incorporated into new editions of this manual. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose, without the express written permission of **M/A-COM Private Radio Systems, Inc.**

## **1.0 DESCRIPTION**

Antenna systems are generally installed by crews with specialized equipment and skills for installing antennas and working on antenna towers. This manual includes assembly drawings that provide information to assemble complete antenna systems (with vendor options) for radio station equipment operating in the VHF, UHF, 800 MHz, and 900 MHz frequency bands. System configurations addressed include both conventional and trunked radio systems as well as auxiliary receivers. Upon completing the installation, a physical inspection of the antenna system should be made to verify that all connections are made and secure.

### **1.1 INSTALLATION**

Coaxial cable and connectors are supplied separately in bulk and must be cut to length and terminated in the field. Select the appropriate antenna system configuration from the drawings included in this manual. Begin at the point where the antenna cable enters the equipment room and assemble the necessary cables from the entry point to the individual TX and RX. First measure to determine the correct length when the cable is routed from the repeater to the RF equipment via the cabinet top ducts then terminate with the proper connectors as shown on the antenna system assembly diagram. Refer also to the station transmitter manual for general information pertaining to the trunked repeater.

In order to cut the coaxial cable properly for easy connector attachment it is recommended that an Andrew "EASIAx" cutting tool be used when terminating the coaxial cable.

### **1.2 ANTENNA SYSTEM INSPECTION**

Each transmitter and receiver antenna system must be inspected per the following procedure.

This inspection is to verify proper installation of the antenna system components and may be accomplished using field glasses from various positions on the ground to view the antenna system. Complete one data sheet for each antenna at the site. A typical data sheet is shown in Figure 1.

1. Record the make of antenna.
2. Record the type of antenna: omni or directional.
3. Record the design gain of the antenna.
4. If the antenna is directional, record the bearing of the main lobe. If it is omni, write "Omni" in the data entry line.
5. Record the height of the antenna above ground.
6. Confirm that cable hoisting grips were installed as required to prevent damage to the coaxial cable. Hoisting grips should be installed at the antenna end of the cable plus one for each 200 ft of cable length.
7. Confirm the cable is secured to the tower at intervals which do not exceed 3 feet.
8. Confirm the cable is grounded at the top of the tower.

---

**DESCRIPTION**

---

9. Confirm the cable is grounded at the point where it leaves the tower.
10. Confirm the cable is grounded at the point where it enters the building.

## 2.0 ANTENNA TESTS

DATE	
TECHNICAN	
SITE	
ANTENNA NO.	

1. Make of antenna \_\_\_\_\_
2. Type of antenna \_\_\_\_\_
3. Design gain of antenna \_\_\_\_\_ dB
4. Bearing of antenna \_\_\_\_\_
5. Height of antenna above ground \_\_\_\_\_ Ft
6. Are hoisting grips installed as specified? \_\_\_\_\_
7. Is cable secured to tower at specified intervals? \_\_\_\_\_
8. Is cable grounded at top of tower? \_\_\_\_\_
9. Is cable grounded at bottom of tower? \_\_\_\_\_
10. Is the cable grounded at the point where the cable enters the building? \_\_\_\_\_
11. Transmission paths OK? \_\_\_\_\_
12. Is cable feed through properly installed? \_\_\_\_\_
13. Are coaxial connectors weather sealed? \_\_\_\_\_
14. Cable entrance weather sealed? \_\_\_\_\_

DATA SHEET 1  
SHEET 1 OF 1

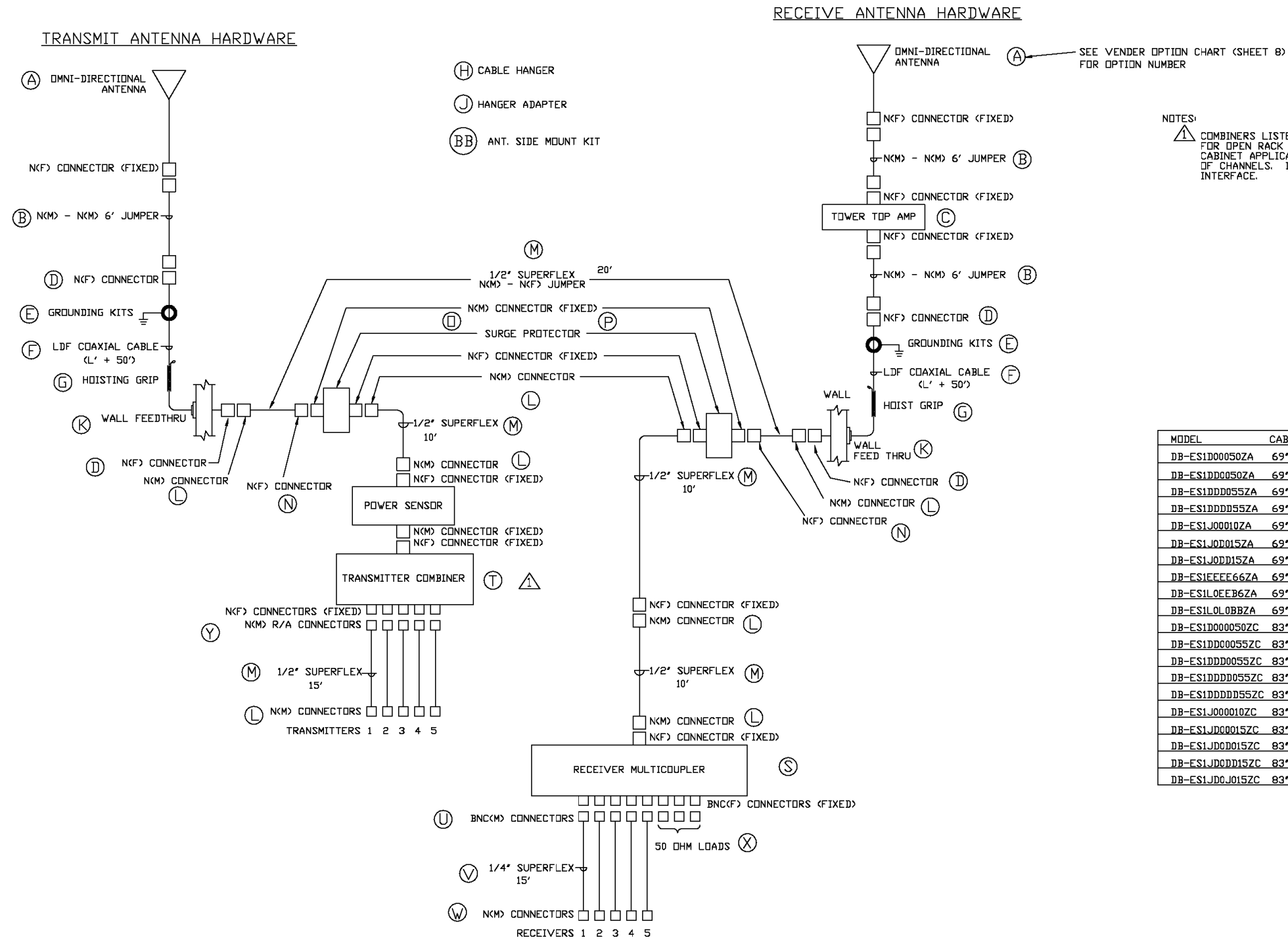
---

---

*(Intentionally Left Blank)*

3.0 ANTENNA ASSEMBLY DRAWINGS

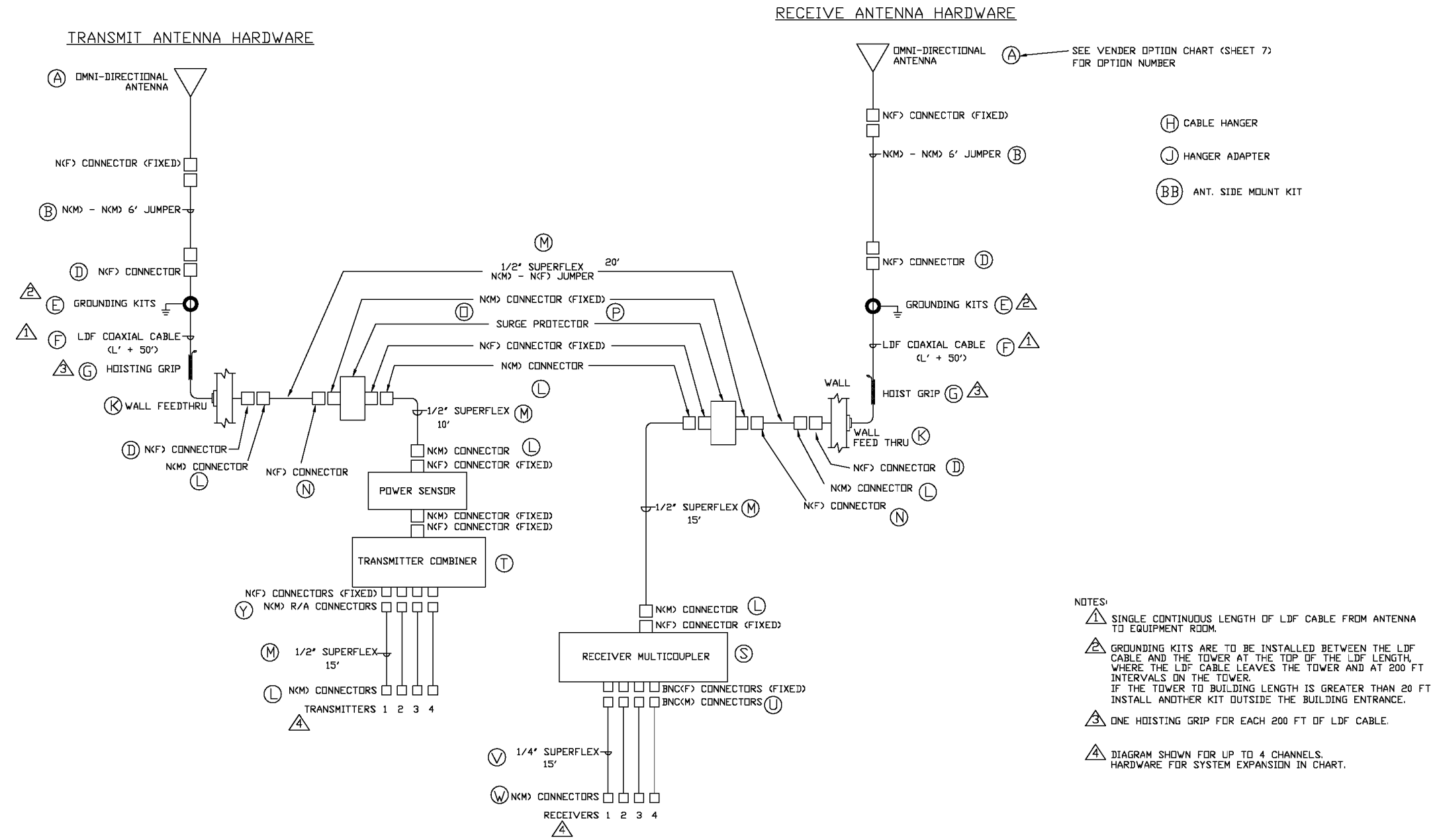
3.1 UHF/800 MHz ANTENNA SYSTEM (With Vendor Options)



NOTES:  
⚠ COMBINERS LISTED ON SHEET 8 FOR 800 MHZ ARE ONLY USED FOR OPEN RACK APPLICATIONS. MODELS LISTED BELOW ARE USED FOR CABINET APPLICATIONS. MODEL DEPENDS ON CABINET SIZE AND NUMBER OF CHANNELS. INCLUDED ARE CABINET(S), COMBINER(S), AND CONNECTOR INTERFACE.

MODEL	CAB	DESCRIPTION
DB-ES1D00050ZA	69"	5CH RF COMB CAB, 800 MHZ
DB-ES1DD0050ZA	69"	2X5CH RF COMB CAB, 800 MHZ
DB-ES1DD0055ZA	69"	2X5CH RF CAB + 5CH EXP CAB, 800 MHZ
DB-ES1DD0055ZA	69"	2X5CH RF CAB + 2X5CH EXP CAB, 800 MHZ
DB-ES1J00010ZA	69"	10CH RF COMB CAB, 800 MHZ
DB-ES1J00015ZA	69"	10CH RF CAB + 5CH EXP CAB, 800 MHZ
DB-ES1J00015ZA	69"	10CH RF CAB + 2X5CH EXP CAB, 800 MHZ
DB-ES1EEE666ZA	69"	2X6CH RF CAB + 2X6CH EXP CAB, 800 MHZ
DB-ES1LOEEB6ZA	69"	12CH RF CAB + 2X6CH EXP CAB, 800 MHZ
DB-ES1LOLOBBZA	69"	12CH RF CAB + 12CH EXP CAB, 800 MHZ
DB-ES1D000050ZC	83"	5CH RF COMB CAB, 800 MHZ
DB-ES1DD00055ZC	83"	2X5CH RF COMB CAB, 800 MHZ
DB-ES1DD00055ZC	83"	3X5CH RF COMB CAB, 800 MHZ
DB-ES1DD00055ZC	83"	3X5CH RF CAB + 5CH EXP CAB, 800 MHZ
DB-ES1DD00055ZC	83"	3X5CH RF CAB + 2X5CH EXP CAB, 800 MHZ
DB-ES1J000010ZC	83"	10CH RF COMB CAB, 800 MHZ
DB-ES1J000015ZC	83"	10CH + 5CH RF COMB CAB, 800 MHZ
DB-ES1J000015ZC	83"	10CH + 5CH RF COMB CAB+5CH EXP CAB, 800 MHZ
DB-ES1J000015ZC	83"	10CH + 5CH RF CAB+2X5CH EXP CAB, 800 MHZ
DB-ES1J000015ZC	83"	10CH + 5CH CAB + 10CH EXP CAB, 800 MHZ

3.2 VHF ANTENNA SYSTEM (136-174 MHz (With Vendor Options))

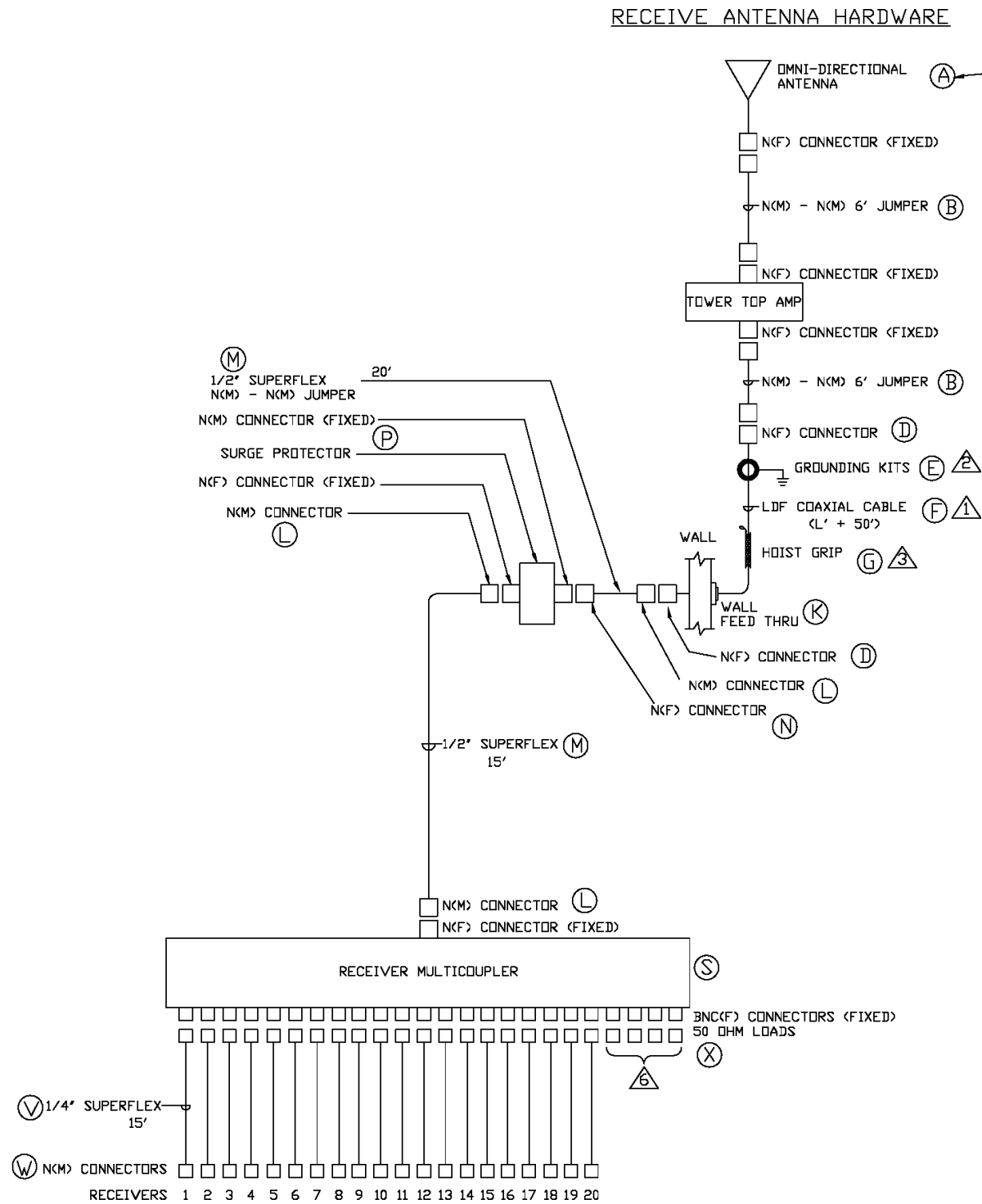
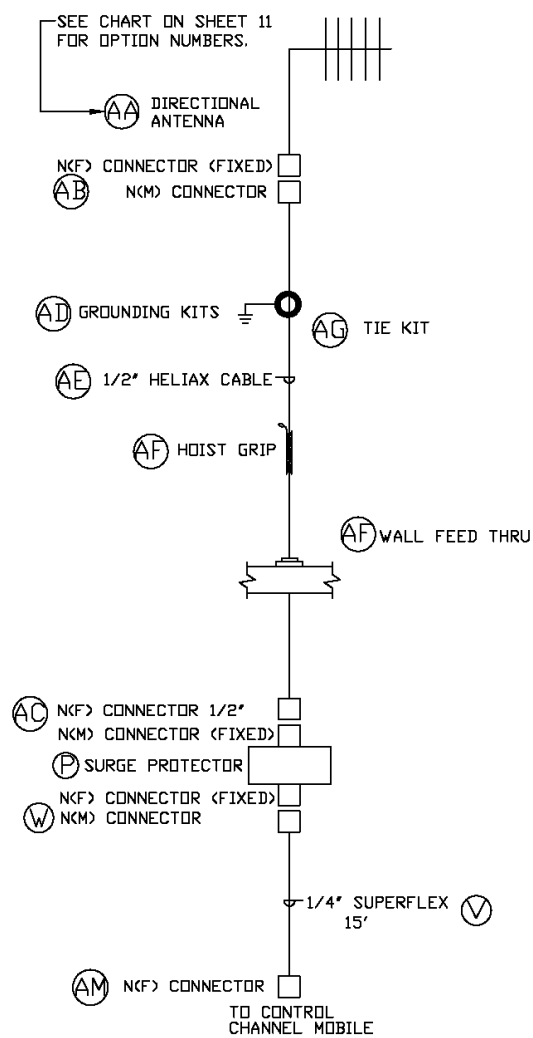


SYSTEM EXPANSION CHART

NO. CHAN	ANT QTY	TRANSMIT		ANT QTY	RECEIVE	
		RX MULTICOUPLER			RX MULTICOUPLER	
		4 CHAN	8 CHAN		4 CHAN	8 CHAN
4	1	1		1	1	
8	1		1	1		1
12	2	1	1	2	1	1
16	2		2	2		2
20	3	1	2	3	1	2

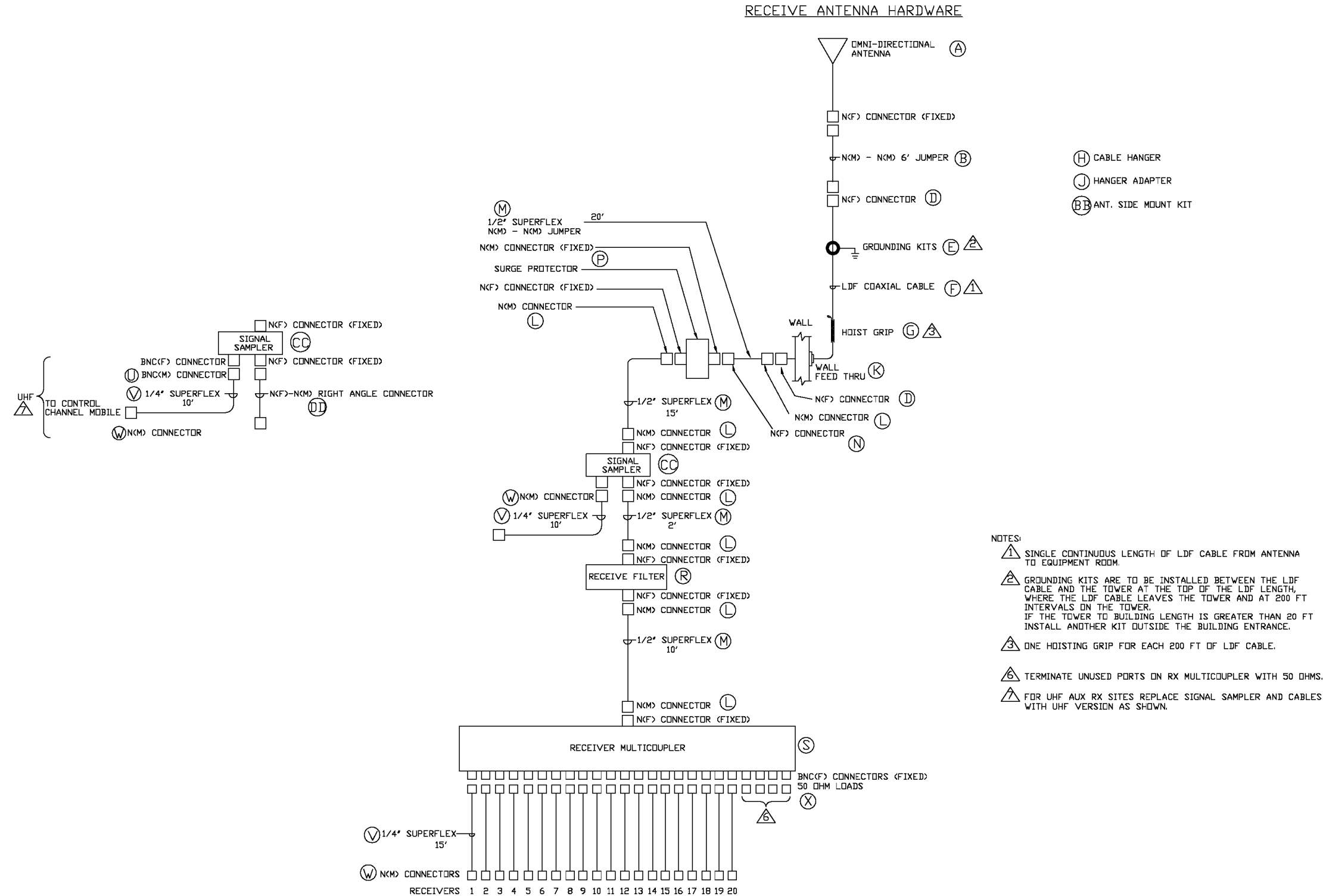


3.3 800 MHz AUX RX w/TTA ANTENNA SYSTEM (With Vendor Options)



- NOTES:
- 1 SINGLE CONTINUOUS LENGTH OF LDF CABLE FROM ANTENNA TO EQUIPMENT ROOM.
  - 2 GROUNDING KITS ARE TO BE INSTALLED BETWEEN THE LDF CABLE AND THE TOWER AT THE TOP OF THE LDF LENGTH, WHERE THE LDF CABLE LEAVES THE TOWER AND AT 200 FT INTERVALS ON THE TOWER. IF THE TOWER TO BUILDING LENGTH IS GREATER THAN 20 FT INSTALL ANOTHER KIT OUTSIDE THE BUILDING ENTRANCE.
  - 3 ONE HOISTING GRIP FOR EACH 200 FT OF LDF CABLE.
  - 6 TERMINATE UNUSED PORTS ON RX MULTICOUPLER WITH 50 OHMS.

3.4 UHF/800 MHz AUXILIARY RECEIVER SITE (With Vendor Options and No Tower Top Amplifier)

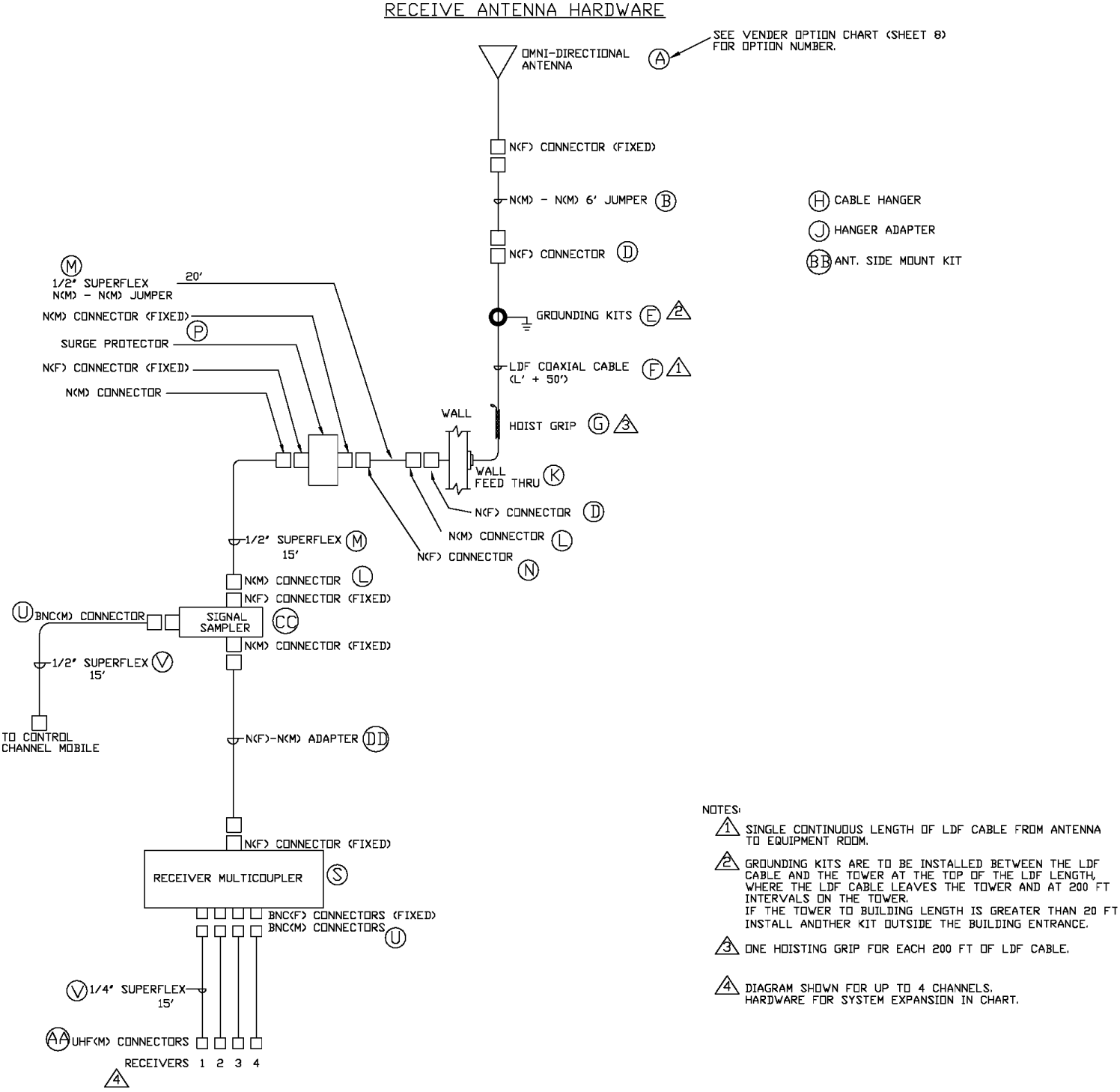


(19D904223 Sh. 4, Rev. 2)

3.5 VHF (136-174 MHz) AUXILIARY RECEIVER SITE (With Vendor Options)

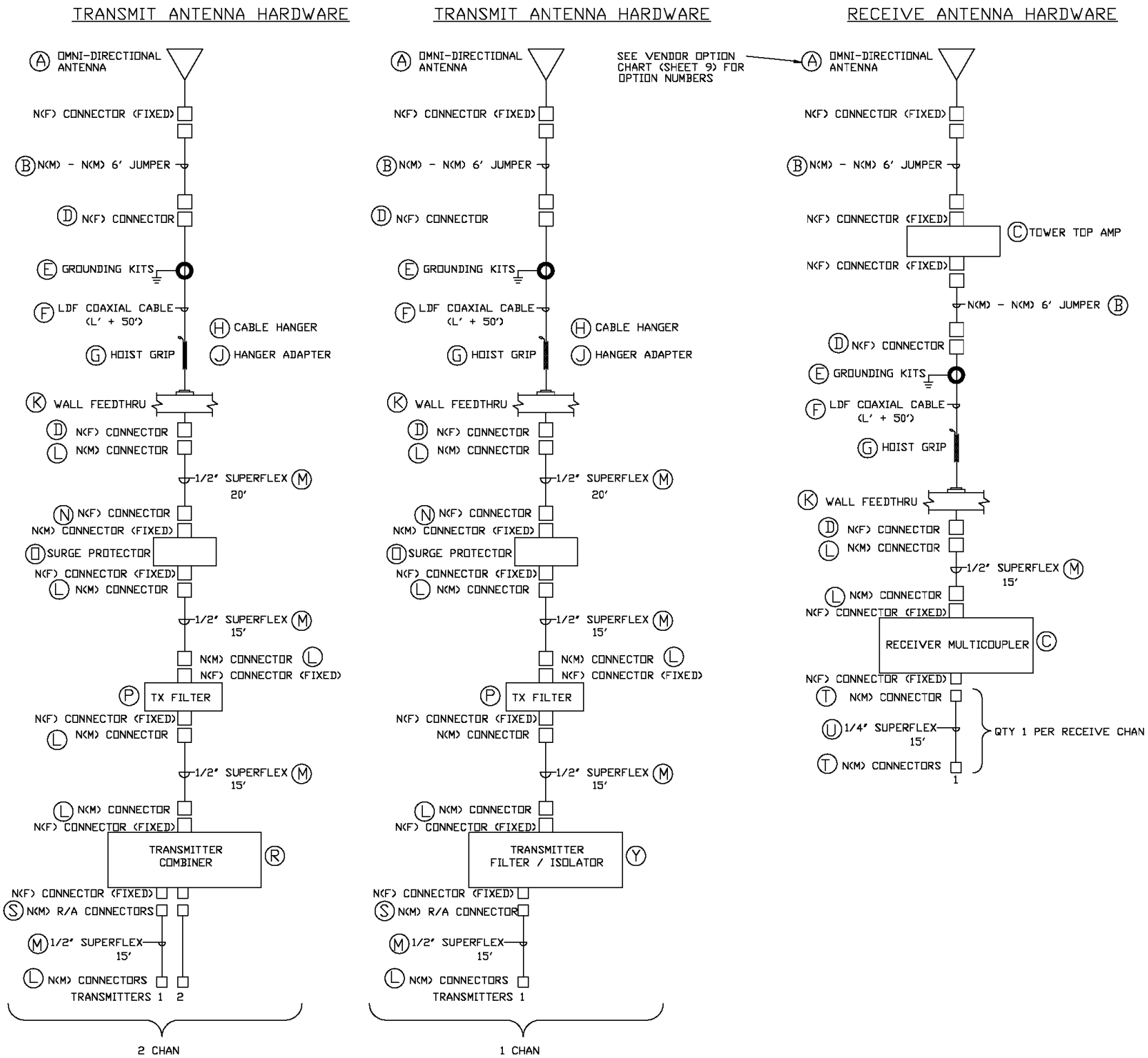
SYSTEM EXPANSION CHART

NO. CHAN	ANT QTY	RECEIVE	
		4 CHAN	8 CHAN
4	1	1	
8	1		1
12	2	1	1
16	2		2
20	3	1	2



(19D904223 Sh. 5, Rev. 2)

3.6 900 MHz SITE (With Vendor Options)

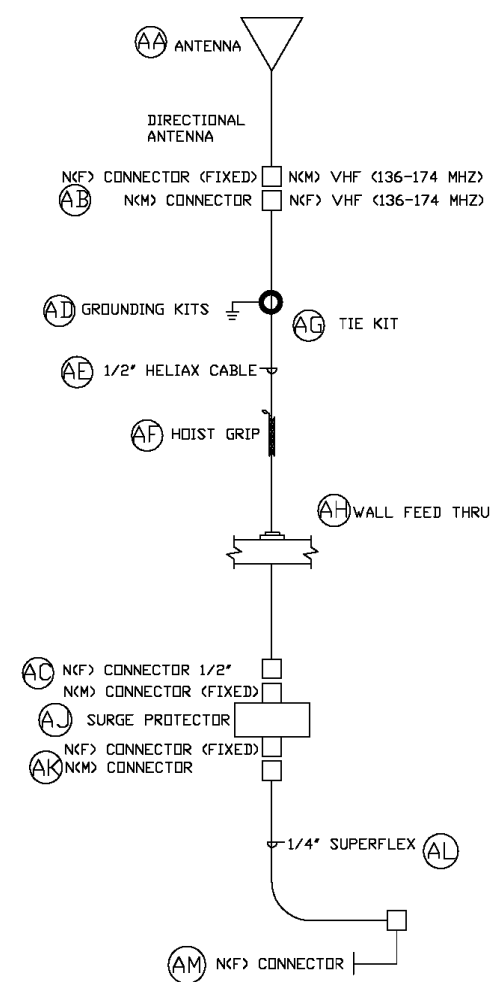


- BB ANT. SIDE MOUNT KIT
- C TOWER TOP AMPLIFIER AND RECEIVE MULTICOUPLER COMBINED, INCLUDES SURGE PROTECTOR
- SYSTEM EXPANSION
1. SEE CHART BELOW FOR EXPANSION OF THE TRANSMIT PORTION OF THE ANTENNA SYSTEM.
  2. A SINGLE RECEIVE ANTENNA SINGLE RX MULTICOUPLER IS REQUIRED FOR UP TO 20 CHANNELS.

NO. CHAN	TRANSMIT		
	NO. ANT	NO. 2 CHAN SYSTEM	NO. 1 CHAN SYSTEM
2	1	1	
3	2	1	1
4	2	2	
5	3	2	1
6	3	3	
7	4	3	1
8	4	4	
9	5	4	1
10	5	5	
11	6	5	1
12	6	6	
13	7	6	1
14	7	7	
15	8	7	1
16	8	8	
17	9	8	1
18	9	9	
19	10	9	1
20	10	10	

(19D904223 Sh. 6, Rev. 2)

3.7 VENDOR OPTION TABLE (Repeater & Auxiliary Receivers VHF/UHF/800 MHz)



	DESCRIPTION	140 MHZ	160 MHZ	400 MHZ	450 MHZ	800 MHZ
AA	DIRECTIONAL ANTENNA	7566	7567	DB636-X	DB636-X	DB810K-XT
AB	CONNECTOR NCM FOR 1/2" HELIAX OR NCF FOR 1/2" HELIAX	NA	NA	AWL4NM	AWL4NM	AWL4NM
AC	CONNECTOR NCF FOR 1/2" HELIAX	AWL4NF	AWL4NF	AWL4NF	AWL4NF	AWL4NF
AD	GROUND KIT 1/2" HELIAX	AW204989-1	AW204989-1	AW204989-1	AW204989-1	AW204989-1
AE	LDF HELIAX	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A
AF	HOIST GRIP	AW43094	AW43094	AW43094	AW43094	AW43094
AG	TIE KIT	AW40417	AW40417	AW40417	AW40417	AW40417
AH	WALL FEED THRU	7881	7881	7881	7881	7881
AJ	SURGE PROTECTOR	7242	7242	7242	7242	IS-CT50HN-MA
AK	CONNECTOR NCM 1/4" SF	7720	7720	7720	7720	7720
AL	COAX 1/4" SF	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A
AM	CONNECTOR NCF 1/4" SF	7920	7920	7920	7920	7920

(19D904223 Sh. 7, Rev. 2)

3.8 VENDOR OPTION TABLE (Trunked Repeaters VHF/UHF/800 MHz)

KEY	DESCRIPTIONS	7/8" COAXIAL CABLE						1 5/8" COAXIAL CABLE					KEY	
		140 MHZ	160 MHZ	400 MHZ	450 MHZ	800 MHZ*		140 MHZ	160 MHZ	400 MHZ	450 MHZ	800 MHZ W/O/TTA*		
						W/TTA	W/O/TTA							
A	TX AND RX ANTENNA	7566	7567	DB636-X	DB636-X	DB810K-XT(TX), DB812K-XT(RX)		7566	7567	DB636-X	DB636-X	DB810K-XT(TX), DB812K-XT(RX)	A	
B	COAXIAL CABLE JUMPER N(M)-N(M)	PART OF ANT.	PART OF ANT.	7736	7736	7736	7736	PART OF ANT.	PART OF ANT.	7736	7736	7736	B	
C	TOWER TOP AMP	NONE	NONE	NONE	NONE	DBB2702_ _ _	NONE	NONE	NONE	NONE	NONE	NONE	C	
D	CONN N(F) LDF CABLE	AWL5NF	AWL5NF	AWL5NF	AWL5NF	AWL5NF	AWL5NF	AWL7PNF	AWL7PNF	AWL7PNF	AWL7PNF	AWL7PNF	D	
E	COAX GROUNDING KIT	AW204989-2	AW204989-2	AW204989-2	AW204989-2	AW204989-2	AW204989-2	AW204989-4	AW204989-4	AW204989-4	AW204989-4	AW204989-4	E	
F	LDF COAXIAL CABLE	AWLDF5-50A	AWLDF5-50A	AWLDF5-50A	AWLDF5-50A	AWLDF5-50A	AWLDF5-50A	AWLDF7-50A	AWLDF7-50A	AWLDF7-50A	AWLDF7-50A	AWLDF7-50A	F	
G	HOISTING GRIP	AW19256B	AW19256B	AW19256B	AW19256B	AW19256B	AW19256B	7745	7745	7745	7745	7745	G	
H	COAXIAL CABLE HANGER												H	
	-SNAP IN	AW206706-2	AW206706-2	AW206706-2	AW206706-2	AW206706-2	AW206706-2	7905	7905	7905	7905	7905		
	-SCREW ON	AW42396A-5	AW42396A-5	AW42396A-5	AW42396A-5	AW42396A-5	AW42396A-5	AW42396A-2	AW42396A-2	AW42396A-2	AW42396A-2	AW42396A-2		
J	HANGER ADAPTER												J	
	-SCREW ON FOR ANGLE MEMBER	AW31768A	AW31768A	AW31768A	AW31768A	AW31768A	AW31768A	AW31768A	AW31768A	AW31768A	AW31768A	AW31768A		
	-SCREW ON FOR ROUND MEMBER	AW31670-1	FOR 2" DIA, 7907 FOR 3" DIA, OR AW31670-3 FOR 4" DIA - APPLIES TO EITHER 7/8" OR 1 5/8" CABLE											
	-3/8" HARDWARE KIT FOR FLAT SURFACE	AW31769-5	AW31769-5	AW31769-5	AW31769-5	AW31769-5	AW31769-5	AW31769-5	AW31769-5	AW31769-5	AW31769-5	AW31769-5		
K	WALL/ROOF FEED THRU												K	
	-SINGLE BOOT AND PLATE	7795	7795	7795	7795	7795	7795	7796	7796	7796	7796	7796		
	-4" BOOT FOR MULTIPLE PLATE	AW204679-2	AW204679-2	AW204679-2	AW204679-2	AW204679-2	AW204679-2	AW204679-4	AW204679-4	AW204679-4	AW204679-4	AW204679-4		
	-5" BOOT FOR MULTIPLE PLATE	7902	7902	7902	7902	7902	7902	7903	7903	7903	7903	7903		
L	CONN N(M) FOR 1/2" SF CABLE	AWF4NM	AWF4NM	AWF4NM	AWF4NM	AWF4NM	AWF4NM	AWF4NM	AWF4NM	AWF4NM	AWF4NM	AWF4NM	L	
M	1/2" SUPER FLEX COAXIAL CABLE	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	M	
N	CONN N(F) FOR 1/2" SF CABLE	AWF4NF	AWF4NF	AWF4NF	AWF4NF	AWF4NF	AWF4NF	AWF4NF	AWF4NF	AWF4NF	AWF4NF	AWF4NF	N	
O	TX SURGE PROTECTOR												O	
	-FLANGE MOUNT (STANDARD)	7242	7242	7242	7242	IS-CT50HN-MA	IS-CT50HN-MA	7242	7242	7242	7242	IS-CT50HN-MA		
	-BULKHEAD MOUNT (OPTIONAL)	NA	NA	NA	NA	7909	7909	NA	NA	NA	NA	7909		
P	RX SURGE PROTECTOR	7242	7242	7242	7242	PCIS-DC50LNZ-15-MA	IS-CT50HN-MA	7242	7242	7242	7242	IS-CT50HN-MA	P	
R	RX FILTER	NA	NA	7262	DB4176W-A/7292	NA	7248	NA	NA	7262	DB4176W-A/7292	7248	R	
S	RX MULTICOUPLER												S	
	-4 CHANNEL	DB7300-004	DB7300-004	NA	NA	NA	NA	DB7300-004	DB7300-004	NA	NA	NA		
	-8 CHANNEL	DB7300-008	DB7300-008	DB7300-008	DB7300-008	DBCNRX-8_ _ _	DBCNRX-8_ _ _	DB7300-008	DB7300-008	DB7300-008	DB7300-008	DBCNRX-8_ _ _		
	-16 CHANNEL	NA	NA	DB7300-016	DB7300-016	DBCNRX-16_ _ _	DBCNRX-16_ _ _	NA	NA	DB7300-016	DB7300-016	DBCNRX-16_ _ _		
	-24 CHANNEL	NA	NA	DB7300-024	DB7300-024	DBCNRX-24_ _ _	DBCNRX-24_ _ _	NA	NA	DB7300-024	DB7300-024	DBCNRX-24_ _ _		
T	TX COMBINER*												T	
	-4 CHANNEL	7913	7913	NA	NA	NA	NA	7913	7913	NA	NA	NA		
	-5 CHANNEL	NA	NA	7278	DB4365-5-B	7224	7224	NA	NA	7278	DB4365-5-B	7224		
	-8 CHANNEL	7914	7914	NA	NA	NA	NA	7914	7914	NA	NA	NA		
	-10 CHANNEL	NA	NA	DB4368-10	DB4368-10	7225	7225	NA	NA	DB4368-10	DB4368-10	7225		
U	CONN BNC (M)	AWF1PBM	AWF1PBM	AWF1PBM	AWF1PBM	AWF1PBM	AWF1PBM	AWF1PBM	AWF1PBM	AWF1PBM	AWF1PBM	AWF1PBM	U	
V	1/4" SF COAXIAL CABLE	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	V	
W	CONN N(M) FOR 1/4" SF CABLE	7720	7720	7720	7720	7720	7720	7720	7720	7720	7720	7720	W	
X	RX MULTICOUPLER LOAD RESISTOR	NA	NA	DB8922	DB8922	DB8922	DB8922	NA	NA	DB8922	DB8922	DB8922	X	
Y	CONN RA N (M) FOR 1/2" SF CABLE	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR	Y	
AA	CONN UHF (M) FOR 1/4" SF CABLE	7721	7721	7721	7721	NA	NA	7721	7721	7721	7721	NA	AA	
BB	ANTENNA SIDE MOUNT KIT	7699	7699	7699	7699	7699	7699	7699	7699	7699	7699	7699	BB	
CC	SAMPLER	SRCN3K	SRCN3K	SRCN3K	SRCN3K	SRCN3L	SRCN3L	SRCN3K	SRCN3K	SRCN3K	SRCN3K	SRCN3L	CC	

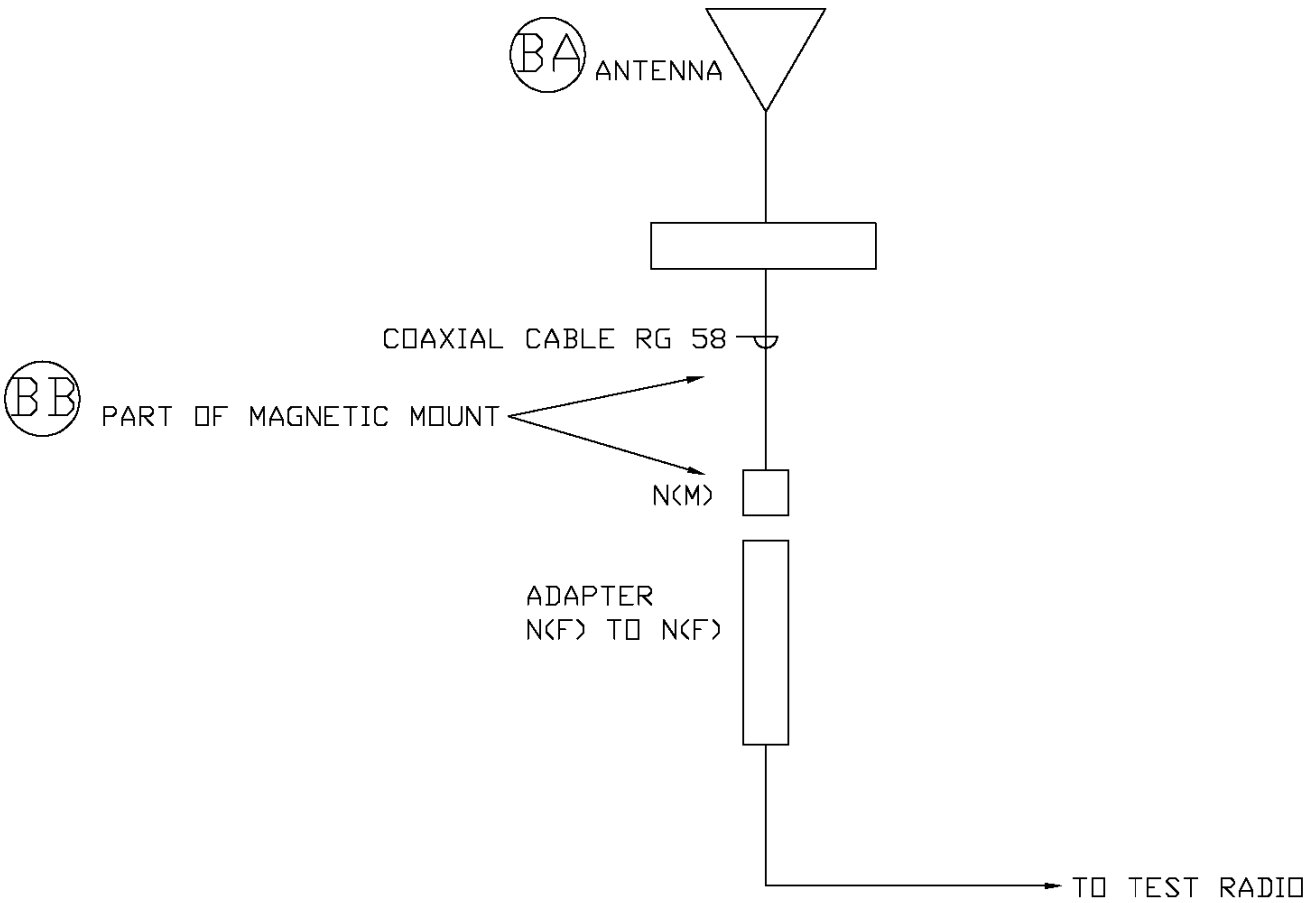
\* - See note on page 1

3.9 VENDOR OPTION TABLE (Trunked Repeaters 900 MHz)

KEY	DESCRIPTIONS	WITH TOWER TOP AMP		W/O TOWER TOP AMP	
		7/8'	1 5/8'	7/8'	1 5/8'
A	ANTENNA	DB810K-Y	DB810K-Y	DB810K-Y	DB810K-Y
B	6' JUMPER N(M)-N(M)	7736	7736	7736	7736
C	TOWER TOP AMP				
	4 CHANNEL	7866	7866	NONE	NONE
	8 CHANNEL	7867	7867	NONE	NONE
	12 CHANNEL	7868	7868	NONE	NONE
	16 CHANNEL	7869	7869	NONE	NONE
	20 CHANNEL	7870	7870	NONE	NONE
	24 CHANNEL	7871	7871	NONE	NONE
D	CONN N(F) LDF CABLE	AWL5NF	AWL7PNF	AWL5NF	AWL7PNF
E	COAX GND KIT	AW204989-2	AW204989-4	AW204989-2	AW204989-4
F	LDF COAXIAL CABLE	AWLDF5-50A	AWLDF7-50A	AWLDF5-50A	AWLDF7-50A
G	HOISTING GRIP	AW19256B	7745	AW19256B	7745
H	COAXIAL CABLE HANGER				
	-SNAP IN	AW206706-2	7905	AW206706-2	7905
	-SCREW ON	AW42396A-5	AW42396A-2	AW42396A-5	AW42396A-2
J	HANGER ADAPTER				
	-SCREW ON FOR ANGLE MEMBER	AW31768A	AW31768A	AW31768A	AW31768A
	-SCREW ON FOR ROUND MEMBER	AW31670-1 FOR 2" DIA, 7907 FOR 3" DIA, OR AW31670-3 FOR 4" DIA			
	-3/8" HARDWARE KIT FOR FLAT SURFACE	AW31769-5	AW31769-5	AW31769-5	AW31769-5
K	WALL/ROOF FEED THRU				
	-SINGLE BOOT AND PLATE	7795	7796	7795	7796
	-4" BOOT FOR MULTIPLE PLATE	AW204679-2	AW204679-4	AW204679-2	AW204679-4
	-5" BOOT FOR MULTIPLE PLATE	7902	7903	7902	7903
L	CONN N(M) FOR 1/2" SF CABLE	AWF4NM	AWF4NM	AWF4NM	AWF4NM
M	1/2" SUPER FLEX COAXIAL CABLE	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B
N	CONN N(F) FOR 1/2" SF CABLE	AWF4NF	AWF4NF	AWF4NF	AWF4NF
O	TX SURGE PROTECTOR				
	-FLANGE MOUNT (STANDARD)	7874	7874	7874	7874
	-BULKHEAD MOUNT (OPTIONAL)	7910	7910	7910	7910
P	TX BP FILTER	DB4203HE	DB4203HE	DB4203HE	DB4203HE
R	TX COMB 2 CHAN	DB4392-2-E	DB4392-2-E	DB4392-2-E	DB4392-2-E
S	RIGHT ANGLE N(M)	AWF4PNR	AWF4PNR	AWF4PNR	AWF4PNR
T	CONN N(M) 1/4" SF	7720	7720	7720	7720
U	COAX 1/4" SF	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A
V	RX MC TERM LOAD	7918	7918	7728	7728
W	RX SURGE PROTECTOR	NA	NA	7873	7873
X	RX MULTICOUPLER				
	2-8 CHANNEL	NA	NA	DB7400-008	DB7400-008
	9-16 CHANNEL	NA	NA	DB7400-016	DB7400-016
	17-24 CHANNEL	NA	NA	DB7400-024	DB7400-024
Y	TX IM SUP PANEL	7919	7919	7919	7919
	USE TX IM PANEL TO CONNECT A SINGLE XMTR TO ANT. (IF TWO CHANNEL USE TX COMBINER)				
BB	ANTENNA MOUNT KIT	7699	7699	7699	7699

(19D904223 Sh. 9, Rev. 2)

3.10 ANTENNA SYSTEM (With Vendor Options Test Unit)



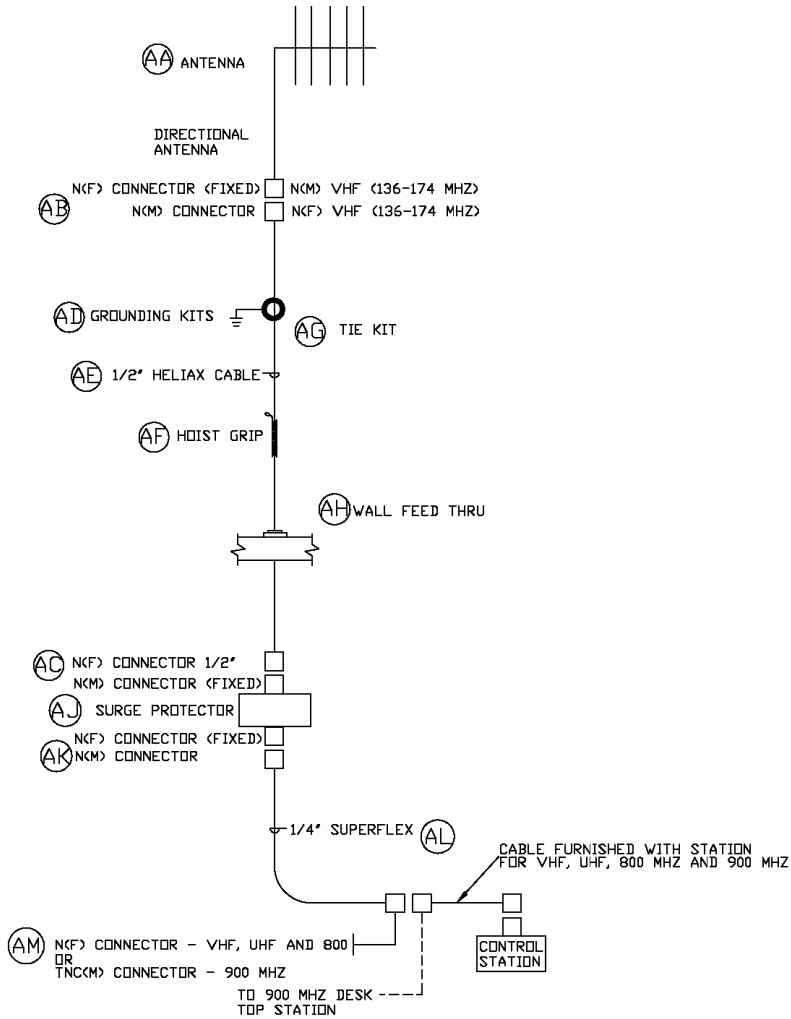
OPTION REFERENCE FOR TEST UNIT ELEMENTS

		136-174 MHZ	400 MHZ	450 MHZ	800 MHZ*	900 MHZ
BA	ANTENNA	7209	7209	7209		7143
BB	MAGNETIC MOUNT	K350N	K350N	K350N		K350N

\* USES RF COMBINER CABINET (TX/RX TRAY INTERFACE).  
FSJ1-50A COAX CABLE + 7720 N(M) CONNECTORS SUPPLIED.



3.11 ANTENNA SYSTEM (With Vendor Options Control Station)



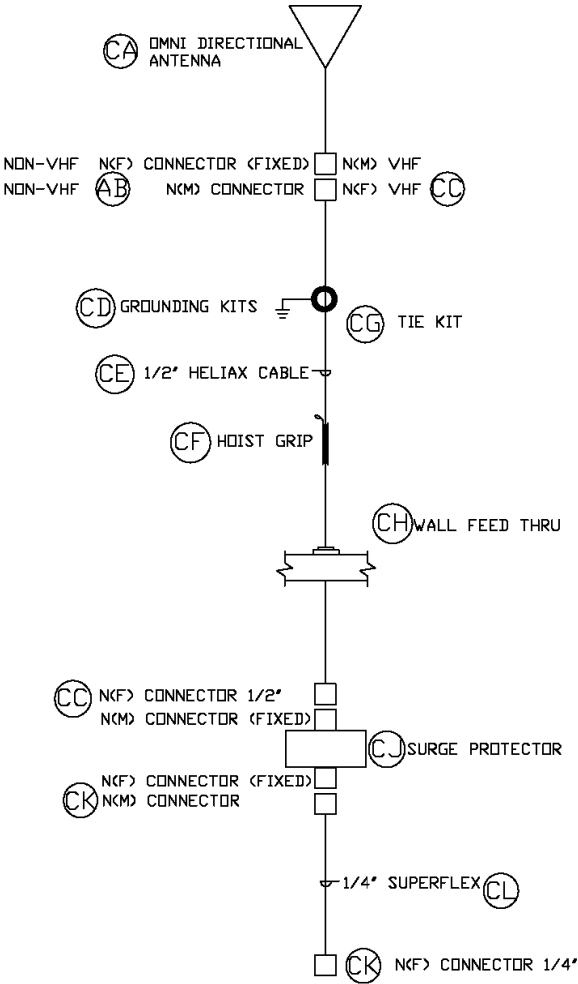
	DESCRIPTION	140 MHZ	160 MHZ	400 MHZ	450 MHZ	800 MHZ	900 MHZ
AA	DIRECTIONAL ANTENNA	DB230-X	DB230-X	DB436-X	DB436-X	DB493-A	DB493-K
AB	CONNECTOR N(M) FOR 1/2" HELIAX	NA	NA	AWL4NM	AWL4NM	AWL4NM	AWL4NM
AB	OR N(F) FOR 1/2" HELIAX	AWLANF	AWLANF	NA	NA	NA	NA
AC	CONNECTOR N(F) FOR 1/2" HELIAX	AWL4NF	AWL4NF	AWL4NF	AWL4NF	AWL4NF	AWL4NF
AD	GROUND KIT 1/2" HELIAX	AW204989-1	AW204989-1	AW204989-1	AW204989-1	AW204989-1	AW204989-1
AE	LDF HELIAX	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A
AF	HOIST GRIP	AW43094	AW43094	AW43094	AW43094	AW43094	AW43094
AG	TIE KIT	AW40417	AW40417	AW40417	AW40417	AW40417	AW40417
AH	WALL FEED THRU	7881	7881	7881	7881	7881	7881
AJ	SURGE PROTECTOR	7242	7242	7242	7242	IS-CT50HN-MA	7874
AK	CONNECTOR N(M) 1/4" SF	7720	7720	7720	7720	7720	7720
AL	COAX 1/4" SF	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A
AL	CONNECTOR N(F) 1/4" SF	7920	7920	7920	7920	7920	NA
AM	OR CONNECTOR TNC(M) 1/4" SF	NA	NA	NA	NA	NA	7921

NOTES  
1. FOR CONVENTIONAL CONTROL STATIONS,  
ANTENNAS ARE OMNI DIRECTIONAL PER THIS TABLE.

136-174 MHZ	DB224E-X
406-512 MHZ	DB636-X
800 MHZ	DB810K-XT

(19D904223 Sh. 11, Rev.2)

3.12 ANTENNA SYSTEM (Alignment Receiver With Vendor Options)

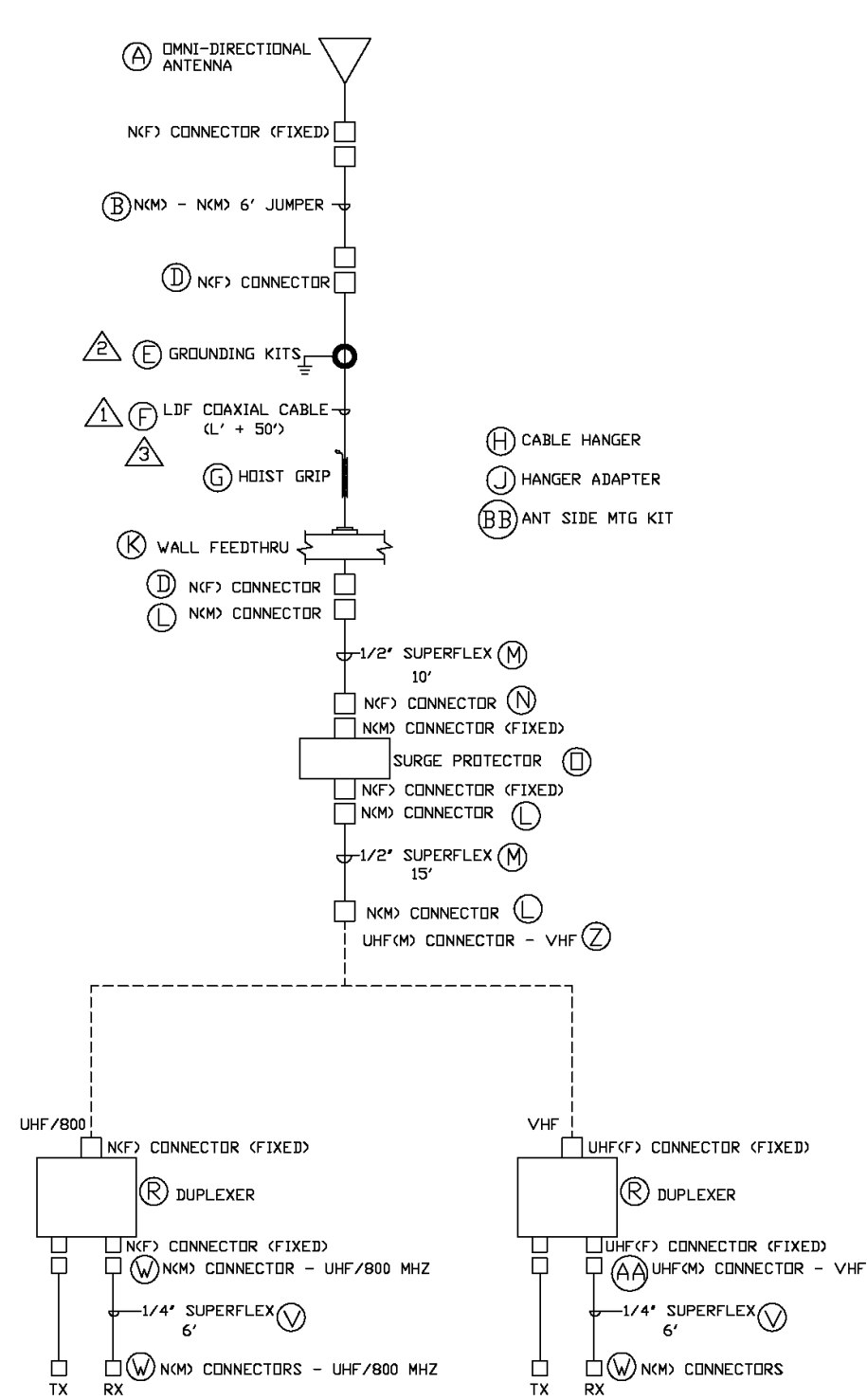


VENDER OPTION LISTING FOR SIMULCAST ALIGNMENT RECEIVER

	DESCRIPTION	140 MHZ	160 MHZ	400 MHZ	450 MHZ	800 MHZ	900 MHZ
CA	DMNI DIRECTIONAL ANTENNA	7566	7567	DB636-X	DB636-X	DB810K-XT	DB810K-Y
CB	CONNECTOR NCM FOR 1/2" HELIAX	NA	NA	AWL4NM	AWL4NM	AWL4NM	AWL4NM
CC	CONNECTOR NCF FOR 1/2" HELIAX	AWL4NF	AWL4NF	AWL4NF	AWL4NF	AWL4NF	AWL4NF
CD	GROUND KIT 1/2" HELIAX	AW204989-1	AW204989-1	AW204989-1	AW204989-1	AW204989-1	AW204989-1
CE	LDF 1/2" HELIAX	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A	AWLDF4-50A
CF	HOIST GRIP	AW43094	AW43094	AW43094	AW43094	AW43094	AW43094
CG	TIE KIT	AW40417	AW40417	AW40417	AW40417	AW40417	AW40417
CH	WALL FEED THRU	7881	7881	7881	7881	7881	7881
CJ	SURGE PROTECTOR	7242	7242	7242	7242	IS-CT50HN-MA	7874
CK	CONNECTOR NCM 1/4" SF	7720	7720	7720	7720	7720	7720
CL	COAX 1/4" SF	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A
CM	SIDE MOUNT KIT	7699	7699	7699	7699	7699	7699

(19D904223 Sh. 12, Rev. 2)

3.13 ANTENNA SYSTEM (SCAT™ Site With Vendor Options)



KEY	DESCRIPTIONS	7/8" COAXIAL CABLE				
		140 MHZ	160 MHZ	400 MHZ	450 MHZ	800 MHZ
A	TX AND RX ANTENNA	7566	7567	DB636-X	DB636-X	DB810K-XT
B	COAXIAL CABLE JUMPER (N(M)-N(M))	PART OF ANT.	PART OF ANT.	7736	7736	7736
D	CONN N(F) LDF CABLE	AWL5NF	AWL5NF	AWL5NF	AWL5NF	AWL5NF
E	COAX GROUNDING KIT	AW204989-2	AW204989-2	AW204989-2	AW204989-2	AW204989-2
F	LDF COAXIAL CABLE	AWLDF5-5DA	AWLDF5-5DA	AWLDF5-5DA	AWLDF5-5DA	AWLDF5-5DA
G	HOISTING GRIP	AW19256B	AW19256B	AW19256B	AW19256B	AW19256B
H	COAXIAL CABLE HANGER					
	-SNAP IN	AW206706-2	AW206706-2	AW206706-2	AW206706-2	AW206706-2
	-SCREW ON	AW42396A-5	AW42396A-5	AW42396A-5	AW42396A-5	AW42396A-5
J	HANGER ADAPTER					
	-SCREW ON FOR ANGLE MEMBER	AW31768A	AW31768A	AW31768A	AW31768A	AW31768A
	-SCREW ON FOR ROUND MEMBER	AW31670-1	FOR 2" DIA, 7907 FOR 3" DIA, AW31670-3 FOR 4" DIA			
	-3/8" HARDWARE KIT FOR FLAT SURFACE	AW31769-5	AW31769-5	AW31769-5	AW31769-5	AW31769-5
K	WALL/ROOF FEED THRU					
	-SINGLE BOOT AND PLATE	7795	7795	7795	7795	7795
L	CONN N(M) FOR 1/2" SF CABLE	AWF4NM	AWF4NM	AWF4NM	AWF4NM	AWF4NM
M	1/2" SUPER FLEX COAXIAL CABLE	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B	AWFSJ4-50B
N	CONN N(F) FOR 1/2" SF CABLE	AWF4NF	AWF4NF	AWF4NF	AWF4NF	AWF4NF
O	TX SURGE PROTECTOR					
	-FLANGE MOUNT (STANDARD)	7242	7242	7242	7242	IS-CT50HN-MA
	-BULKHEAD MOUNT (OPTIONAL)	NA	NA	NA	NA	7909
R	DUPLEXER					
	MINIMUM FREQ. SPACING TX TO RX MHZ	2 MHZ	2 MHZ	3 MHZ	3 MHZ	45 MHZ
V	1/4" SF COAXIAL CABLE	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A	AWFSJ1-50A
W	CONN N(M) FOR 1/4" SF CABLE	7720	7720	NA	NA	NA
Z	CONN UHF (M) FOR 1/2" SF CABLE	7725	7725	NA	NA	NA
AA	CONN UHF (M) FOR 1/4" SF CABLE	7721	7721	NA	NA	NA
BB	ANTENNA SIDE MOUNT	7699	7699	7699	7699	7699

- NOTES:
- 1. SINGLE CONTINUOUS LENGTH OF LDF CABLE FROM ANTENNA TO EQUIPMENT ROOM.
  - 2. GROUNDING KITS ARE TO BE INSTALLED BETWEEN THE LDF CABLE AND THE TOWER AT THE TOP OF THE LDF LENGTH, WHERE THE LDF CABLE LEAVES THE TOWER AND AT 200 FT INTERVALS ON THE TOWER. IF THE TOWER TO BUILDING LENGTH IS GREATER THAN 20 FT INSTALL ANOTHER KIT OUTSIDE THE BUILDING ENTRANCE.
  - 3. ONE HOISTING GRIP FOR EACH 200 FT OF LDF CABLE.

