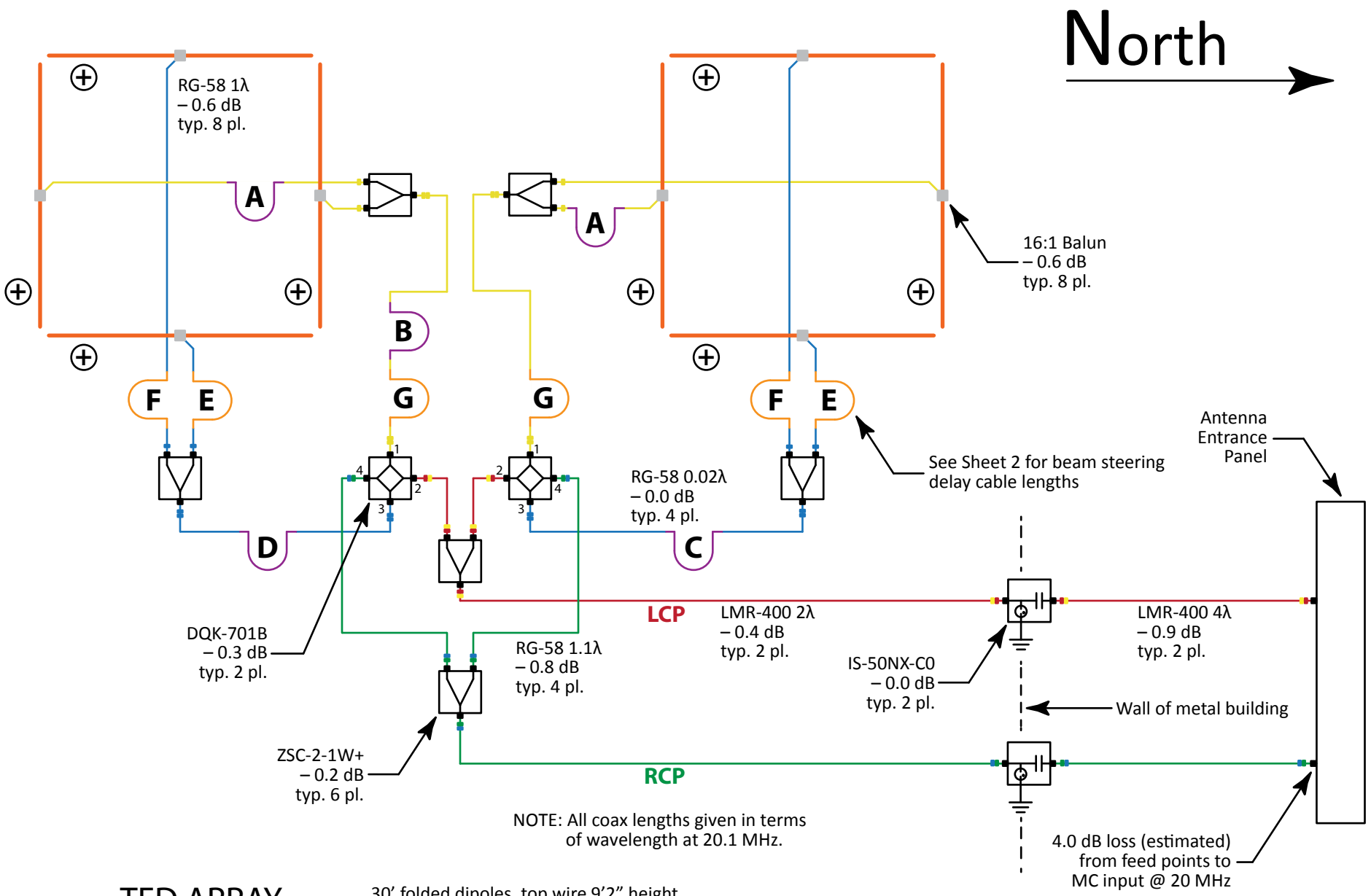


NOTE: All coax lengths given in terms of wavelength at 20.1 MHz.

TFD ARRAY CONFIGURATION B CP MODE

30' folded dipoles, top wire 9'2" height, 8" wire spacing, 32' element spacing, 800 Ω termination resistors, 16:1 baluns.

N-S BW ~20° E-W BW ~20° for < 3 dB response variance at 24 MHz

AJ4CO OBSERVATORY

AJ4CO Observatory Diagram

SIZE	DATE	PART NUMBER	REV
A	10 DEC 2013	N/A	
SCALE	NONE	DRAWN BY DAVE TYPINSKI	SHEET 1 OF 5

TFD Array Beam Steering Time Delay Cable Length Calulations

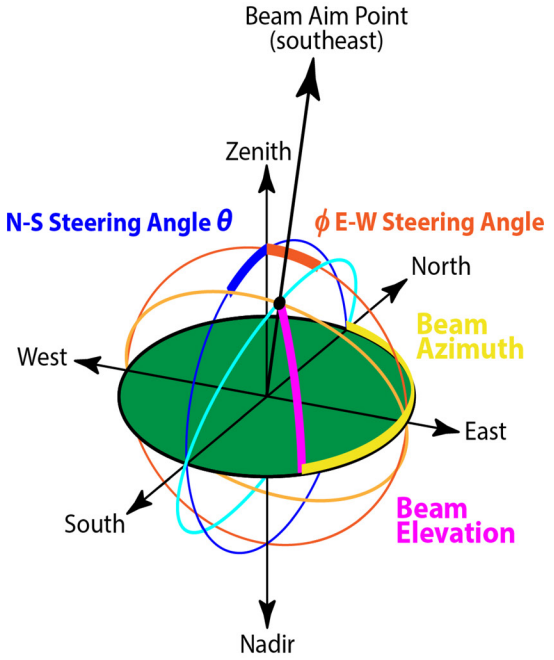
Delay Cable VoP **66%**

N-S delay cable length = $\Delta \times$ VoP = Baseline $\times \sin\theta \times$ VoP

Array elements N-S baseline spacing (feet) **32**

Desired beam N or S offset from zenith θ: **5°**

A Delay cable length (feet)	Δ	**1' 10"**
B Delay cable length (feet)	2Δ	**3' 8-1/4"**
C Delay cable length (feet)	0.5Δ	**11"**
D Delay cable length (feet)	2.5Δ	**4' 7-1/4"**



E-W delay cable length = $\Delta \times$ VoP = Baseline $\times \sin\phi \times$ VoP

Array elements E-W baseline spacing (feet) **32**

Desired beam E or W offset from zenith ϕ:	**0°**	**15°**	**30°**	**45°**	**60°**
Beam azimuth for eastward delay:	**180°**	**108°**	**99°**	**95°**	**93°**
Beam azimuth for westward delay:	**180°**	**252°**	**261°**	**265°**	**267°**
Beam elevation:	**85°**	**74°**	**60°**	**45°**	**30°**

E OR F Delay cable length (feet)	Δ	**0"**	**5' 5-1/2"**	**10' 6-3/4"**	**14' 11-1/4"**	**18' 3-1/2"**
G Delay cable length (feet)	0.5Δ	**0"**	**2' 8-3/4"**	**5' 3-1/4"**	**7' 5-1/2"**	**9' 1-3/4"**

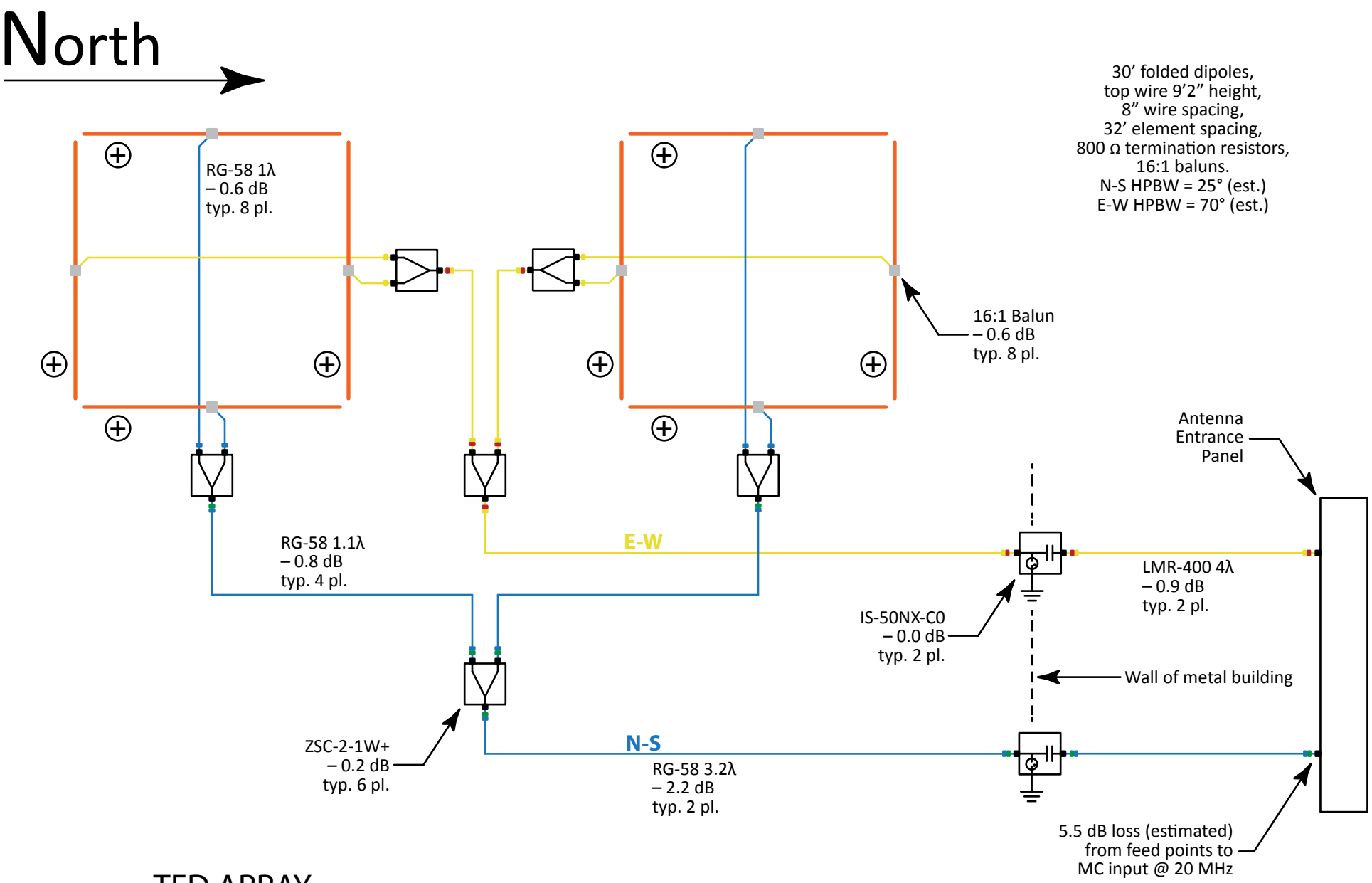
Use delay cables E for eastward beam steering
Use delay cables F for westward beam steering
Use delay cables G for either

AJ4CO OBSERVATORY

AJ4CO Observatory Diagram

SIZE	DATE	PART NUMBER	REV
A	10 DEC 2013	N/A	

SCALE	DRAWN BY	SHEET
NONE	DAVE TYPINSKI	2 OF 5



TFD ARRAY CONFIGURATION A X-Y MODE

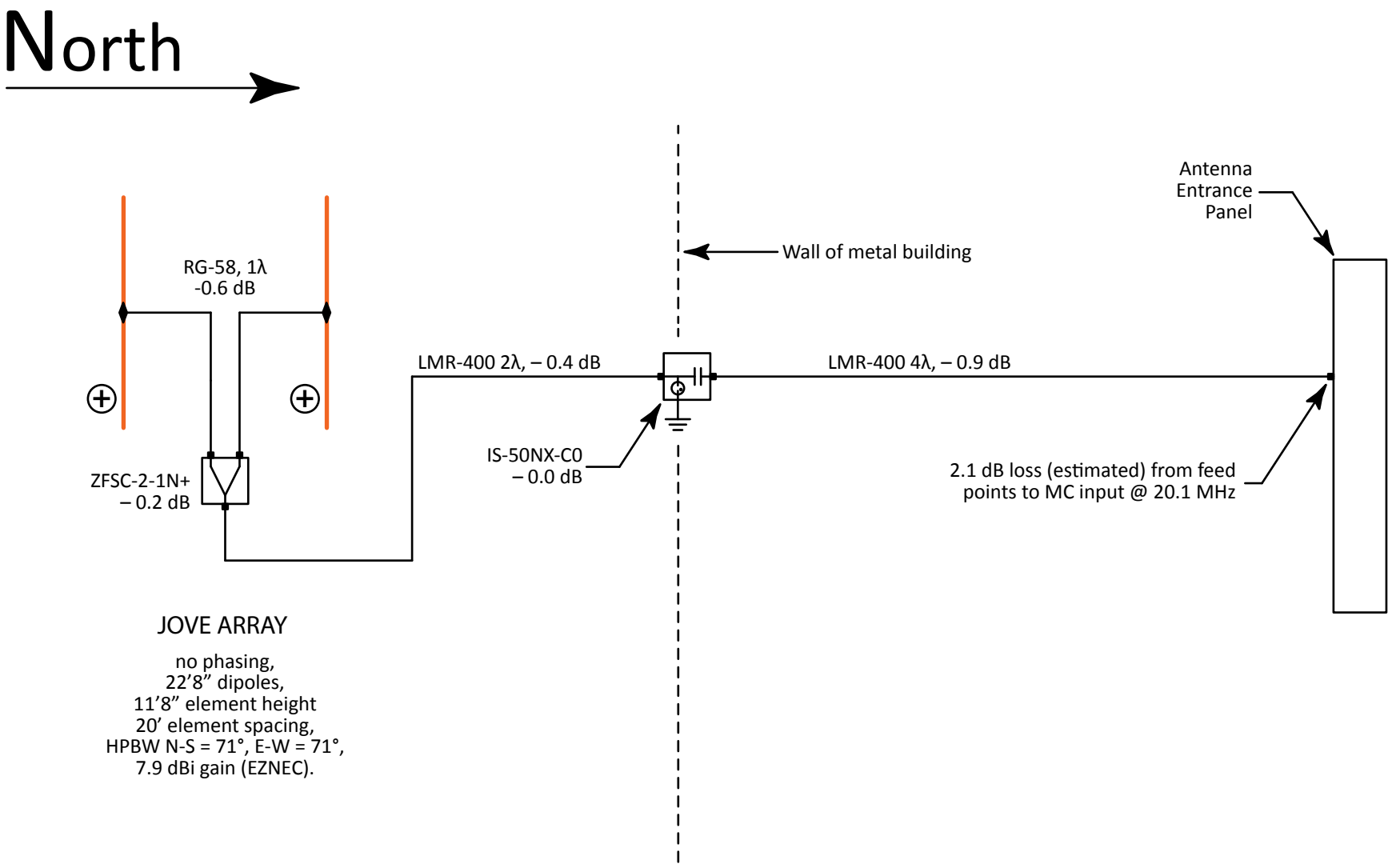
NOTE: All coax lengths given in terms of wavelength at 20.1 MHz.

AJ4CO OBSERVATORY

AJ4CO Observatory Diagram

SIZE	DATE	PART NUMBER	REV
A	10 DEC 2013	N/A	

SCALE	DRAWN BY	SHEET
NONE	DAVE TYPINSKI	3 OF 5



JOVE ARRAY

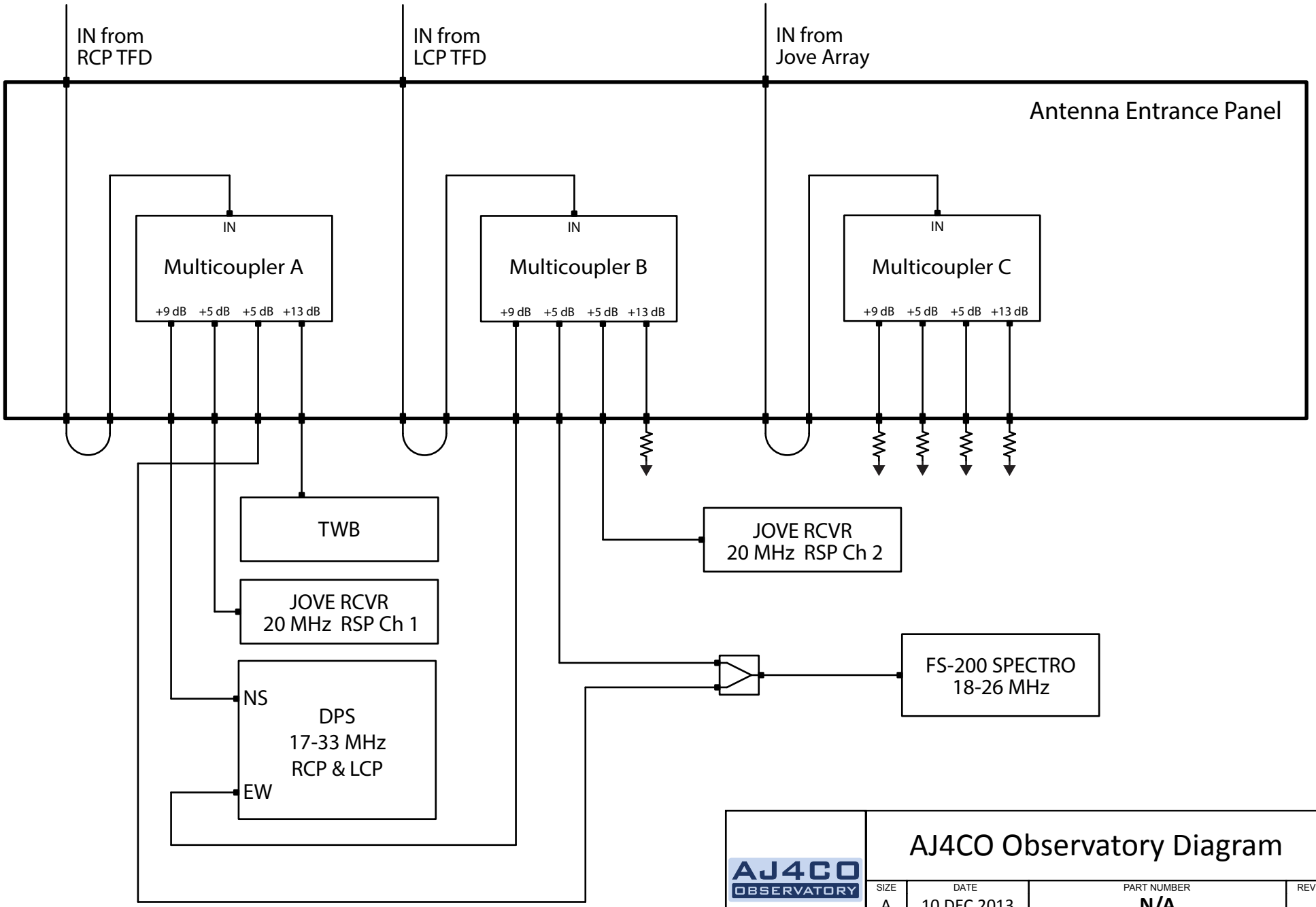
no phasing,
22’8” dipoles,
11’8” element height
20’ element spacing,
HPBW N-S = 71°, E-W = 71°,
7.9 dBi gain (EZNEC).

NOTE: All coax lengths given in terms of wavelength at 20.1 MHz.

AJ4CO Observatory Diagram

SIZE	DATE	PART NUMBER	REV
A	10 DEC 2013	N/A	

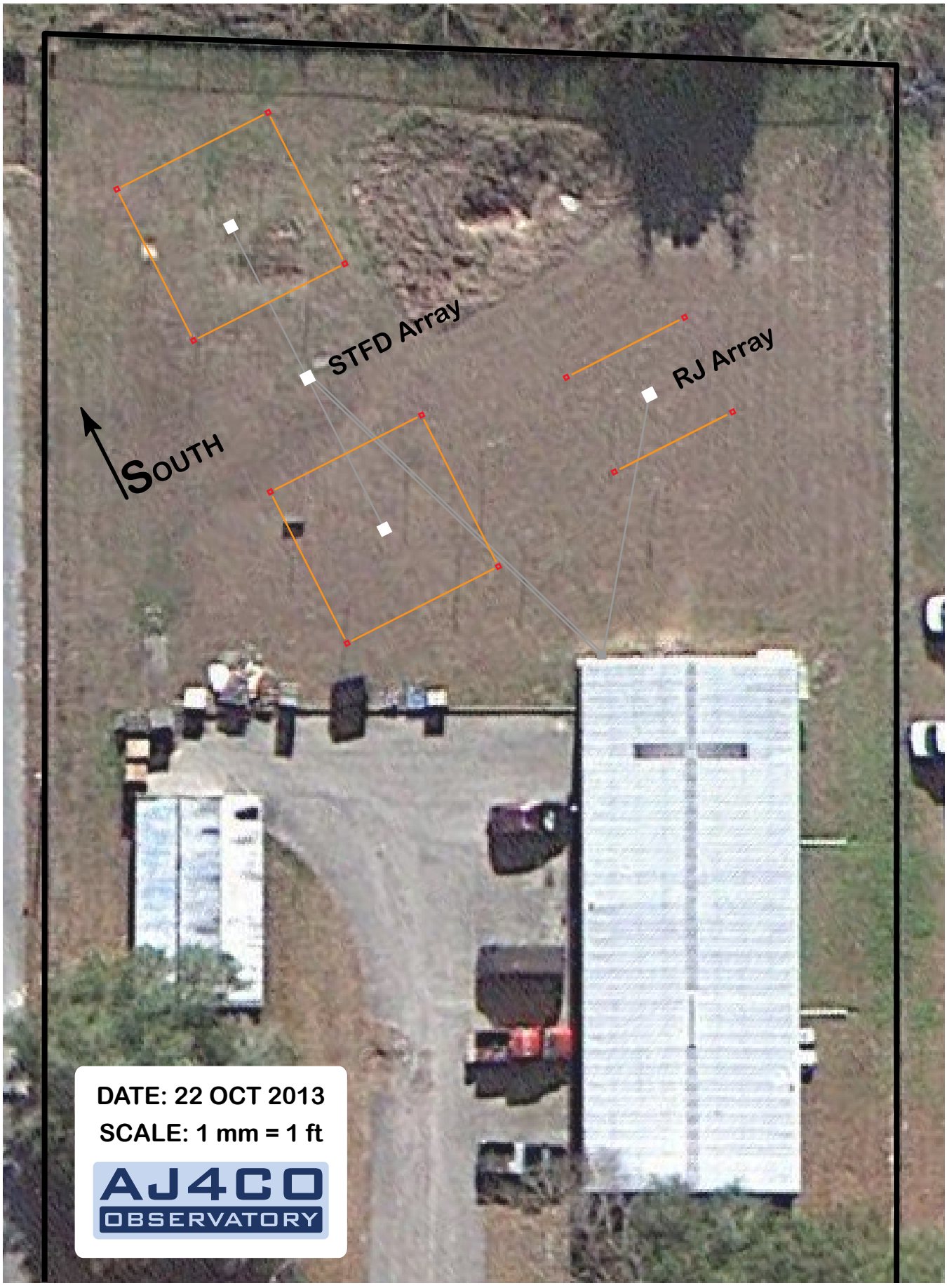
SCALE	DRAWN BY	SHEET
NONE	DAVE TYPINSKI	4 OF 5

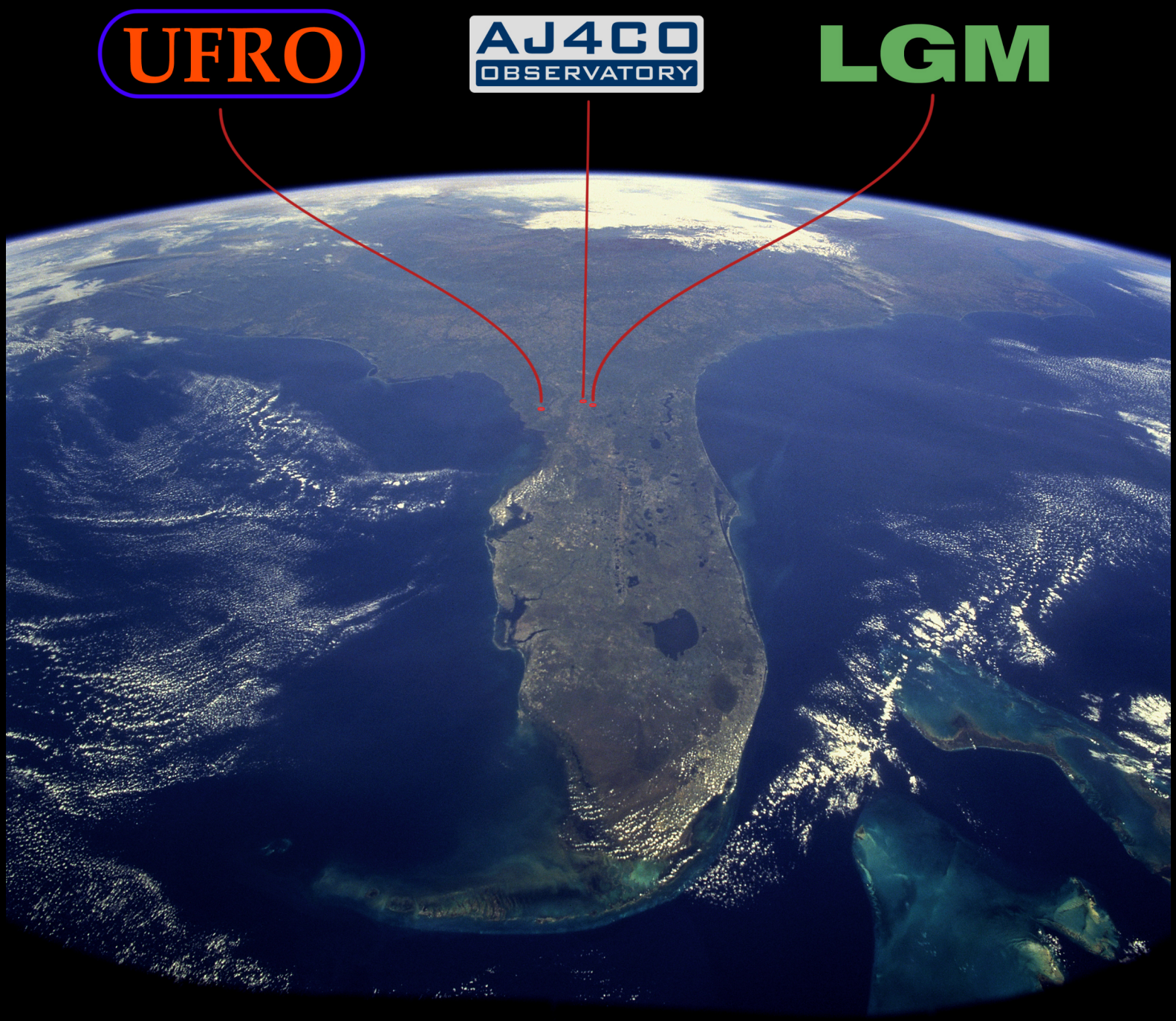


AJ4CO Observatory Diagram

SIZE	DATE	PART NUMBER	REV
A	10 DEC 2013	**N/A**	

SCALE	DRAWN BY	SHEET
NONE	DAVE TYPINSKI	5 OF 5


STFD Array
RJ Array
SOUTH
DATE: 22 OCT 2013
SCALE: 1 mm = 1 ft
AJ4CO
OBSERVATORY


UFRO
AJ4CO
OBSERVATORY
LGM