VertexRSI™
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VertexRSI – Antenna Products Division
FCC Application for Experimental License

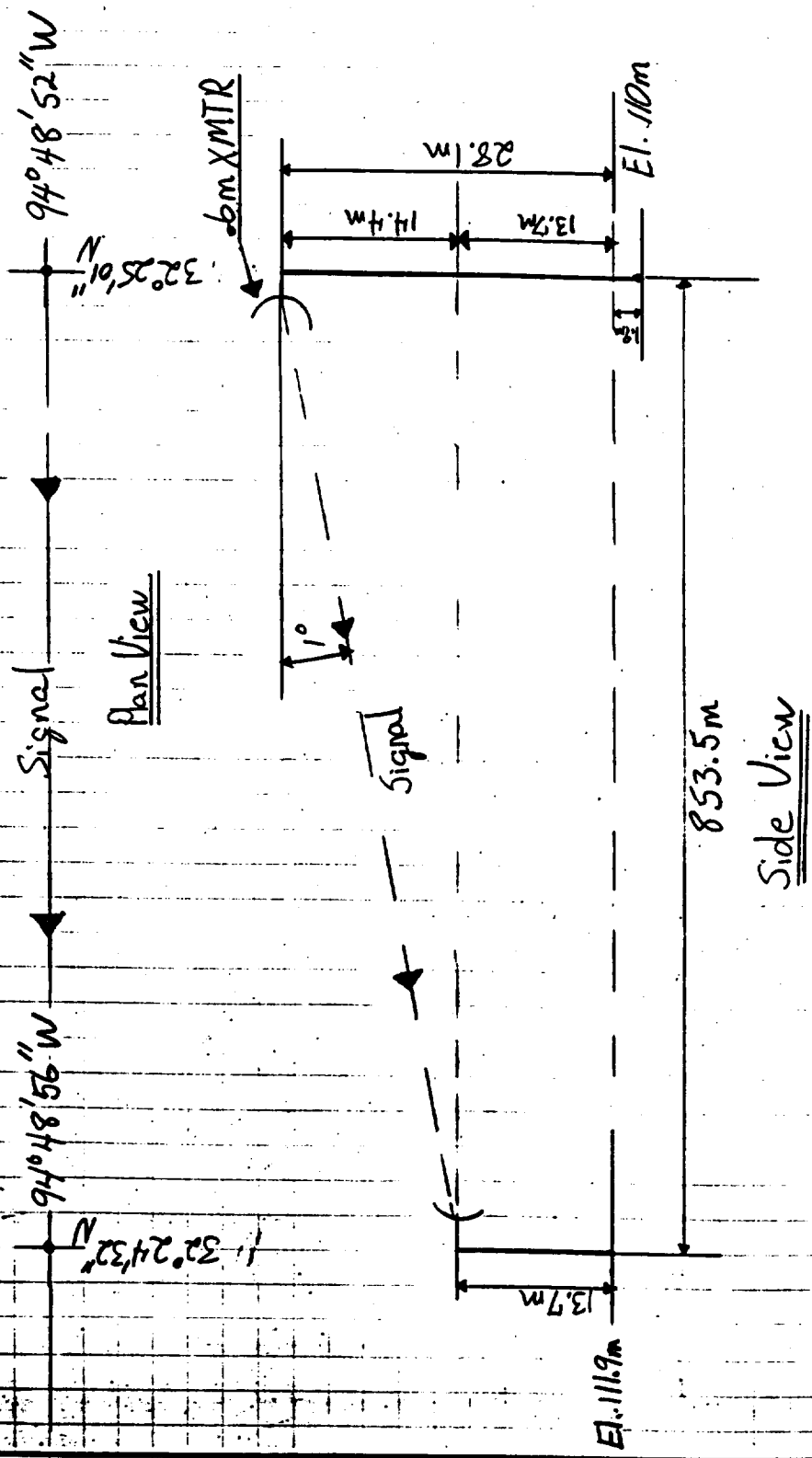Exhibit 1   (FCC Form 442-9,10)

Experimentation Program

VertexRSI is applying here for an Experimental License for a new test range on which satellite earth station antennas will be "mapped" for gain patterns at various frequencies. VertexRSI is now engaged in antenna and feed production which includes RF testing for the 1.450-1.7 GHz, 1.750-2.110 GHz, 2.2-2.69 GHz, 3.4-7.750 GHz, 7.25-8.4 GHz, 10.7-14.5 GHz and 17.3-21.2 GHz commercial frequency bands. In the near future, the 21.2-50 GHz band will become more and more prominent and VertexRSI will be developing feeds and antennas for that band as well.

In addition, for the support of Raytheon and other customers, VertexRSI is constantly in need of a test range for the military bands up to 45 GHz and higher. This range will be used for both commercial and government/military product development for at least five years. All VertexRSI commercial transmitting antennas must pass FCC regulations governing sidelobes, spillover, gain, etc. This range will allow VertexRSI to do qualification tests for these requirements. It will also allow VertexRSI to develop new feeds and specially shaped main and subreflectors with the specific objectives of achieving maximum efficiency, minimum RF loss, minimum cost and 100% compliance with FCC requirements.

This new VertexRSI Antenna Test Range for 17.3-21.2 GHz and 43.5-45.5 GHz will use a 2-foot diameter transmitting antenna located on the top of a 100 foot tower. This antenna then points the signal down range approximately 2800 feet to the antenna under test which is at azimuth bearing of 175° from true North and elevation -1° or 1° below horizontal from the top of the tower. The test signal can be either horizontally or vertically polarized. The signal may also be RHCP or LHCP polarized depending on the end use of the antenna under test. This is achieved by using appropriate feeds and polarizers.

Exhibit 1a

Plan View

Signal

94° 48' 52" W

94° 48' 56" W

N 32° 25' 01"

N 32° 24' 32"

Side View

Signal

Signal

6m XMTR

1°

28.1m

14.4m

13.7m

El. 110m

853.5m

13.7m

El. 1119m

Notes: 3dB Beamwidths

17.3 GHz = 2.02°
21.2 GHz = 1.65°
43.5 GHz = .800°
45.5 GHz = .77°

8   7   6

H

4m

This
Tower will
be all new
construction.

34 meters

G

F

E

D

C

B

A

2' XMTR

N

N

-301
(196.6')
(5M)

-302
(393.6')
(10M)

-303
(590.4')
(15 M)

-304
(787.2')
(20M)

-305
(984.0')
(25 M)

-306
(1160.8')
(30M)

(200.0'5Q)

① SEE VIEW H -301 ONLY
   E -302 THRU -3C ONLY

② -302 THRU -306 ON

SEE VIEW D -303 THRU -3C
   C -302 ONLY

③ -303 THRU -306 ONL

SEE VIEW D -304 THRU -3C
   C -303 ONLY

③ -304 ONLY
④ -305 AND -306 ON

SEE VIEW C -305 AND -3C
   C -304 ONLY

⑤ -305 AND -306 ONL

SEE VIEW P -306 ONLY
   F -305 ONLY

㉒ -306 ONLY

SEE VIEW F -306 ONLY