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## AUTHORITY

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AD 910312

MC REPORT 011
Volume 7

# ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW

**VOLUME 7**
**AREA 3A, SUMMER**
**PREDICTIONS FOR PASSIVE SONAR**

DDC
MAY 31 1973

**October 1972**

**LONG RANGE ACOUSTIC PROPAGATION PROJECT**

**OCEAN SCIENCE PROGRAM**
**MAURY CENTER FOR OCEAN SCIENCE**
**Department of the Navy**
**Washington, D.C.**

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[redacted]

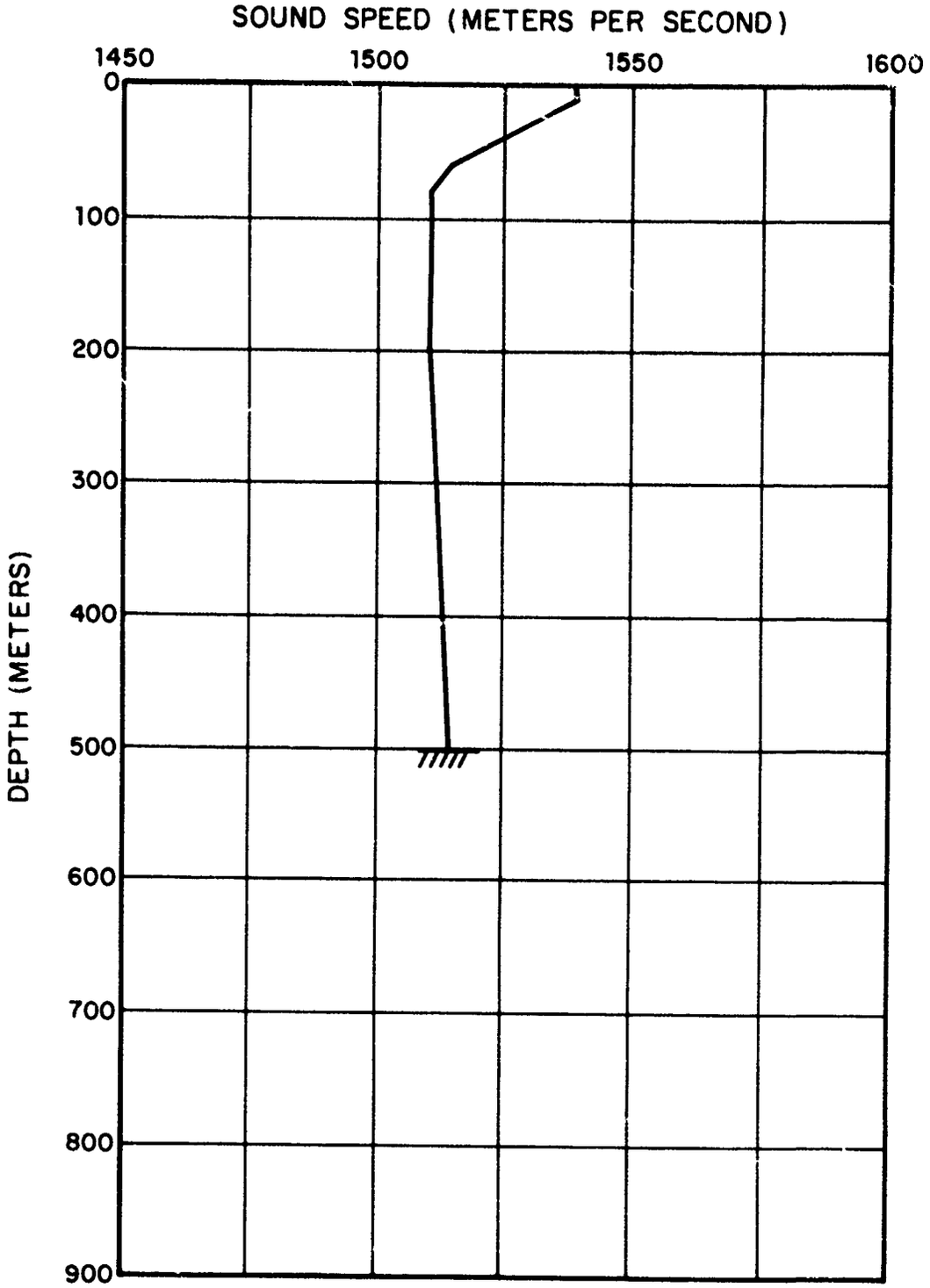
Director, Long Range Acoustic Propagation Project (ONR Code 102-OS).
Arlington, Va. 22217

# ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW

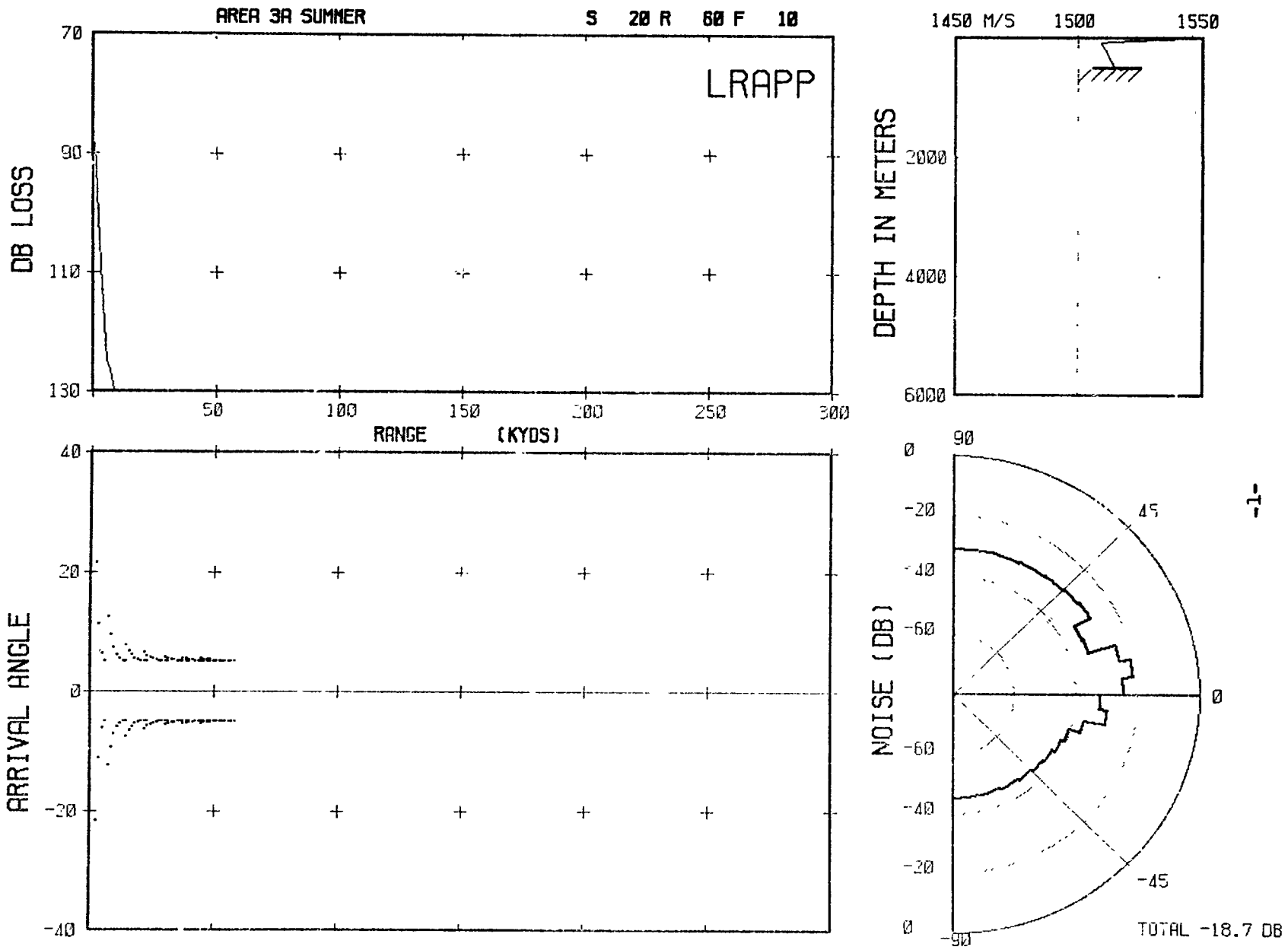
## Volume VII: AREA 3A SUMMER

## PREDICTIONS FOR PASSIVE SONAR

Refer to Volume I of this report for an explanation of the plot format and descriptions of models and ocean areas.




SOUND SPEED PROFILE
AREA 3A, SUMMER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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
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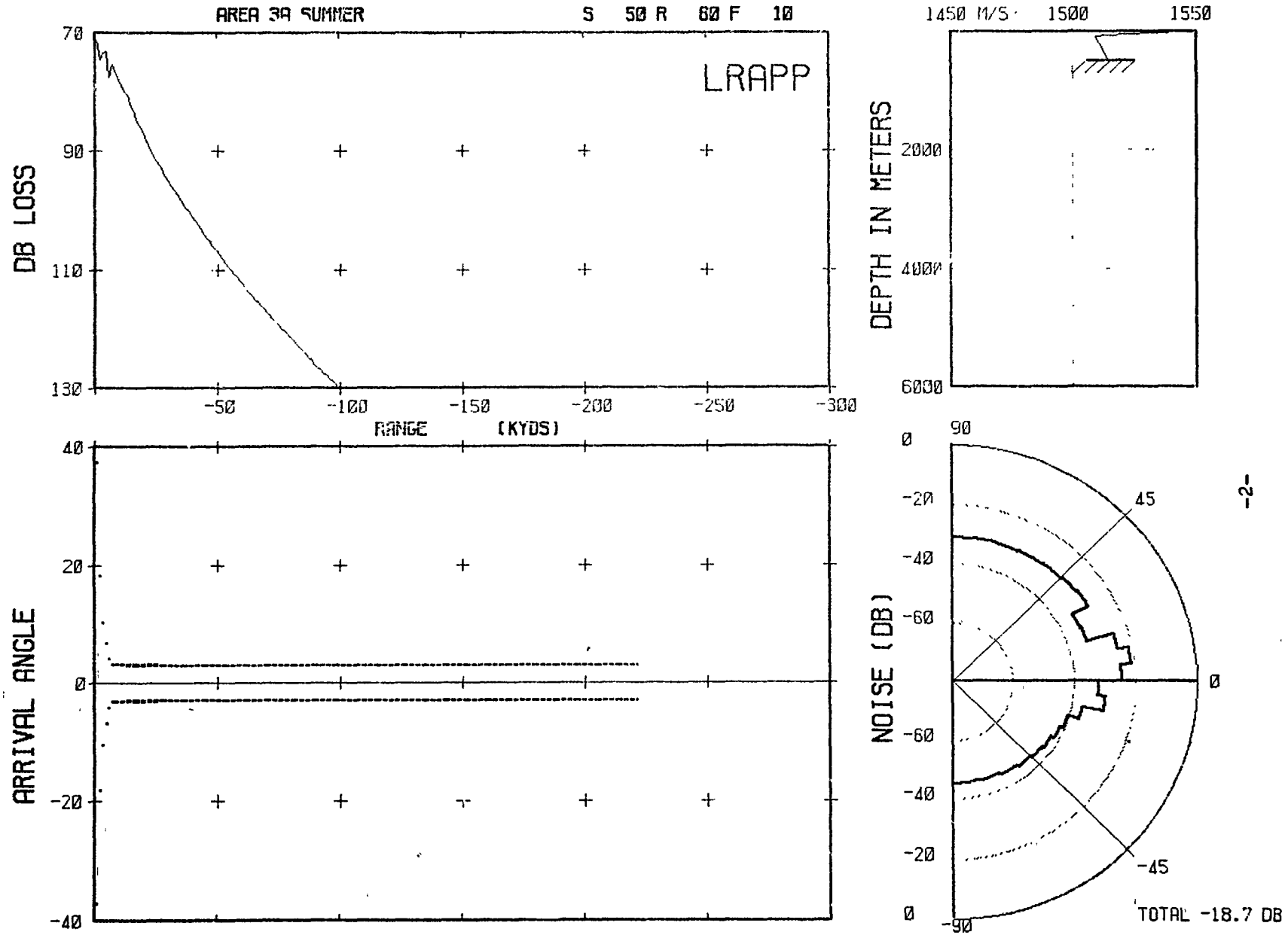
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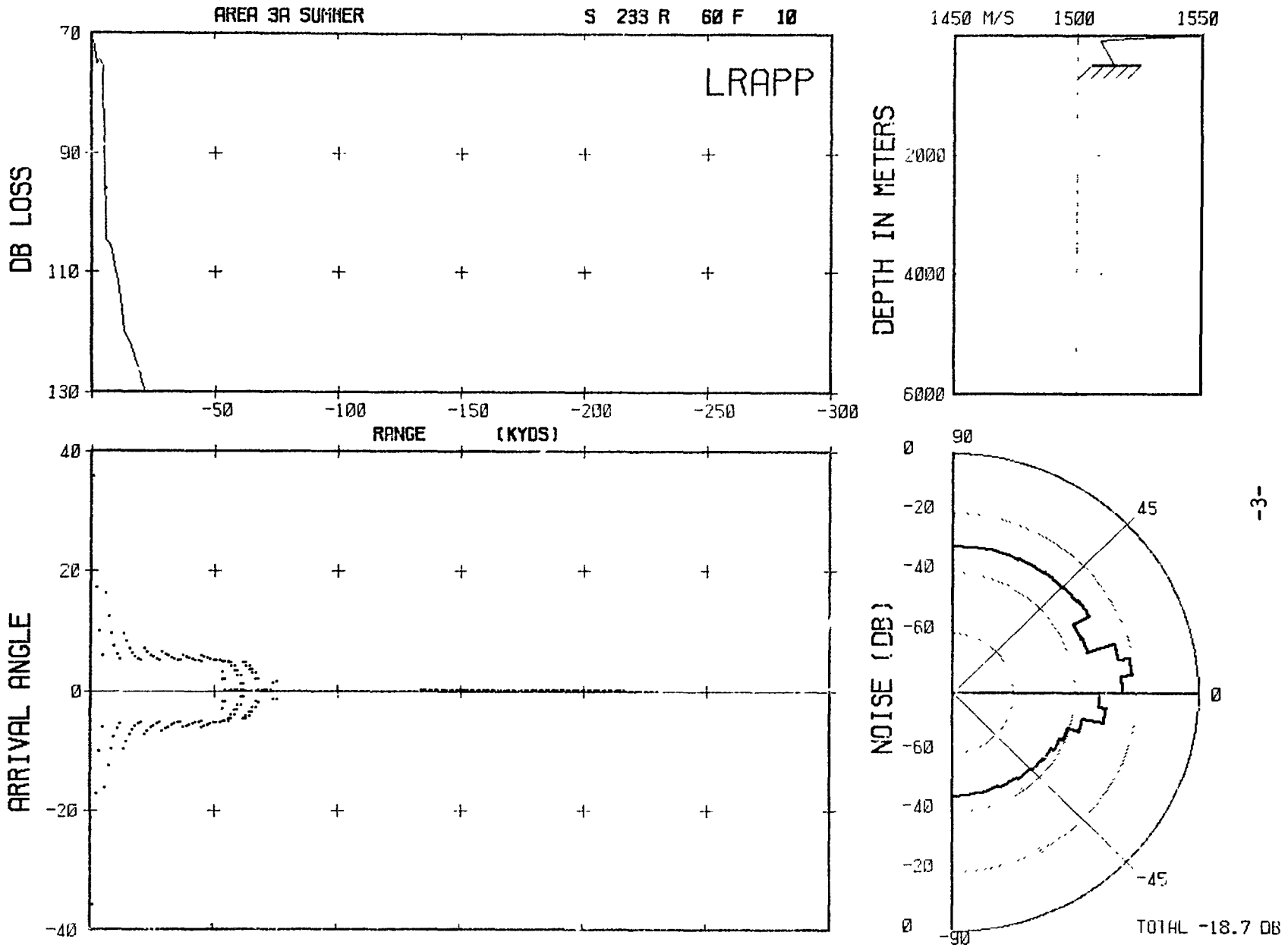
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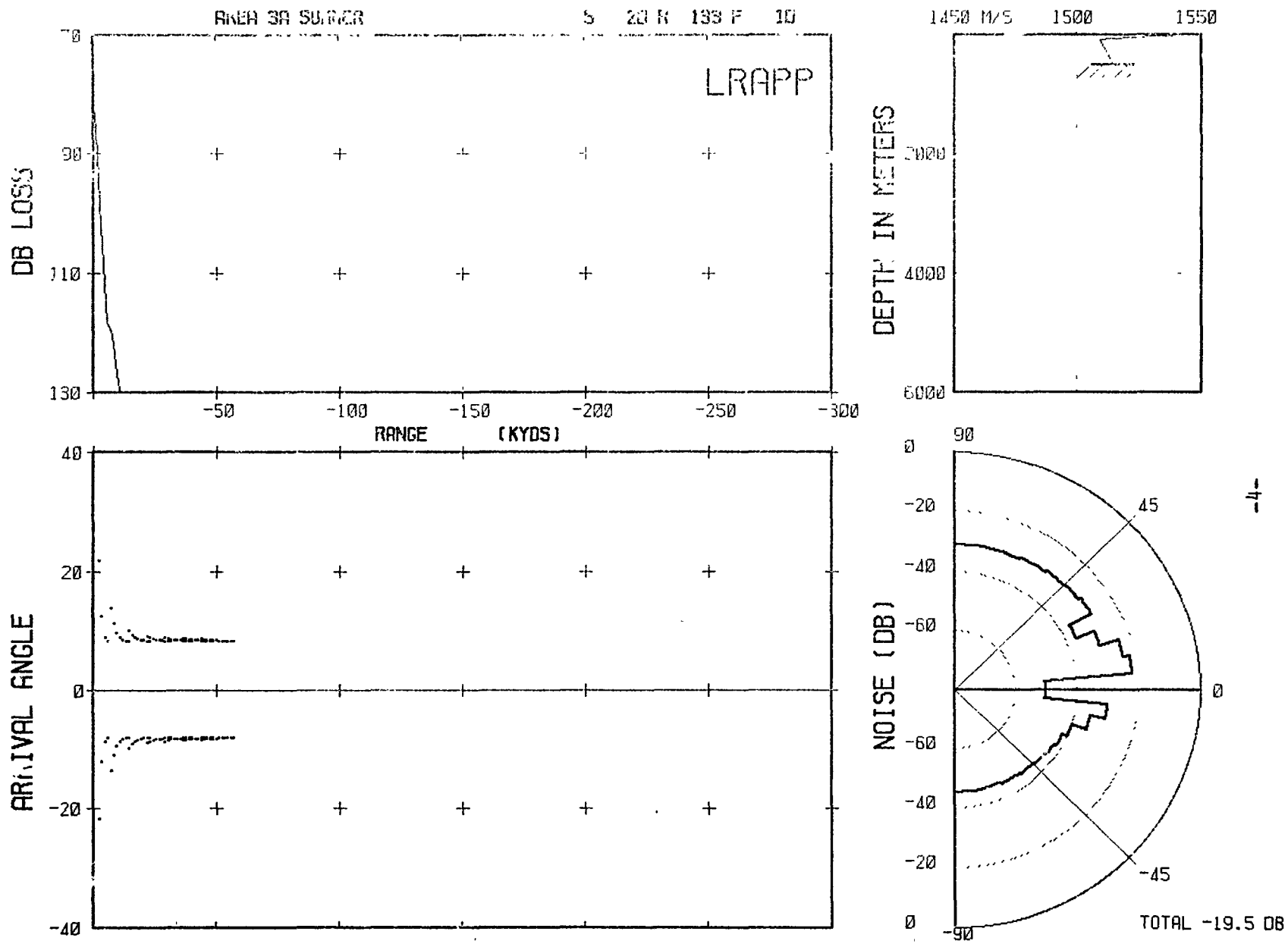
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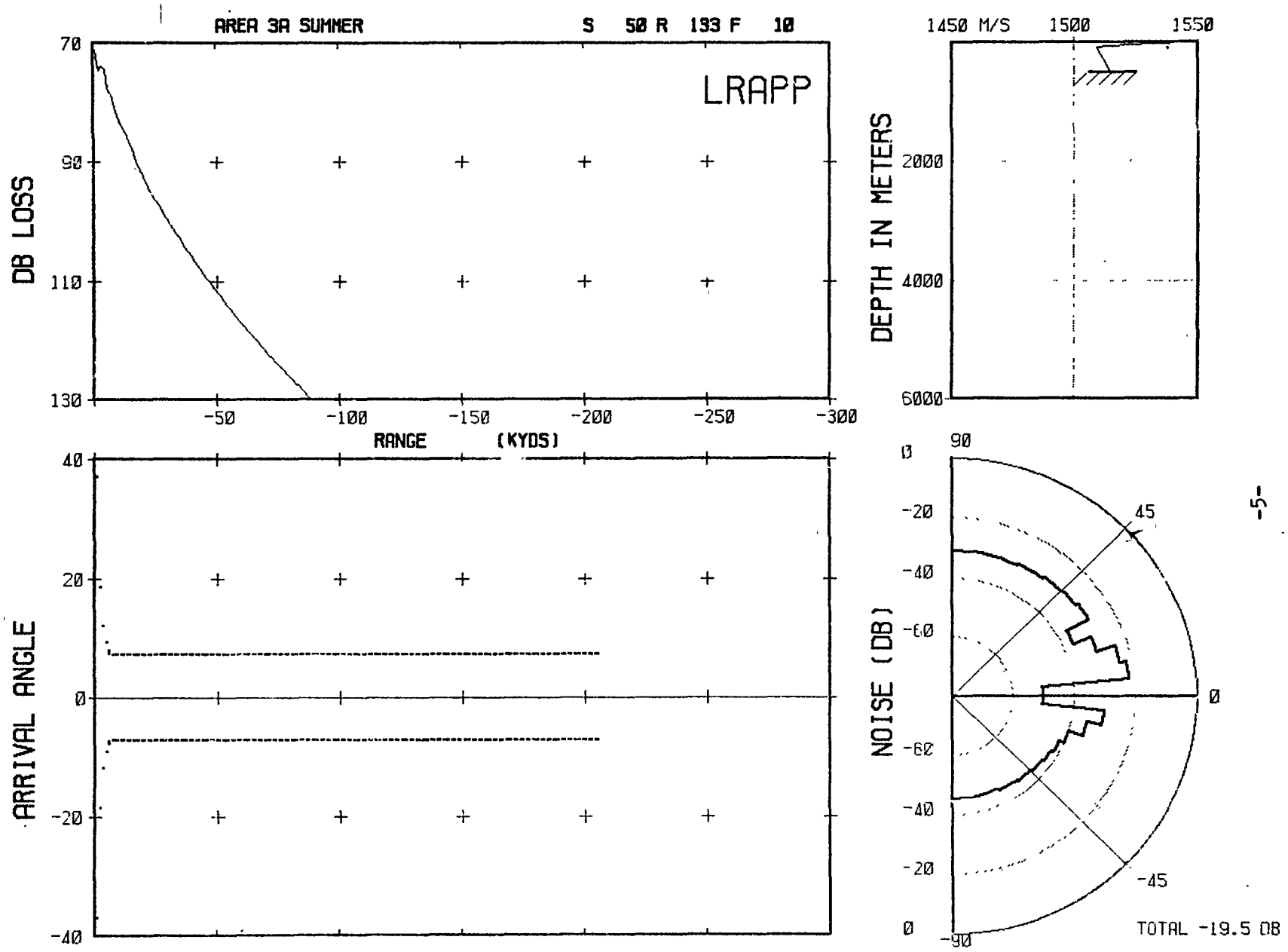
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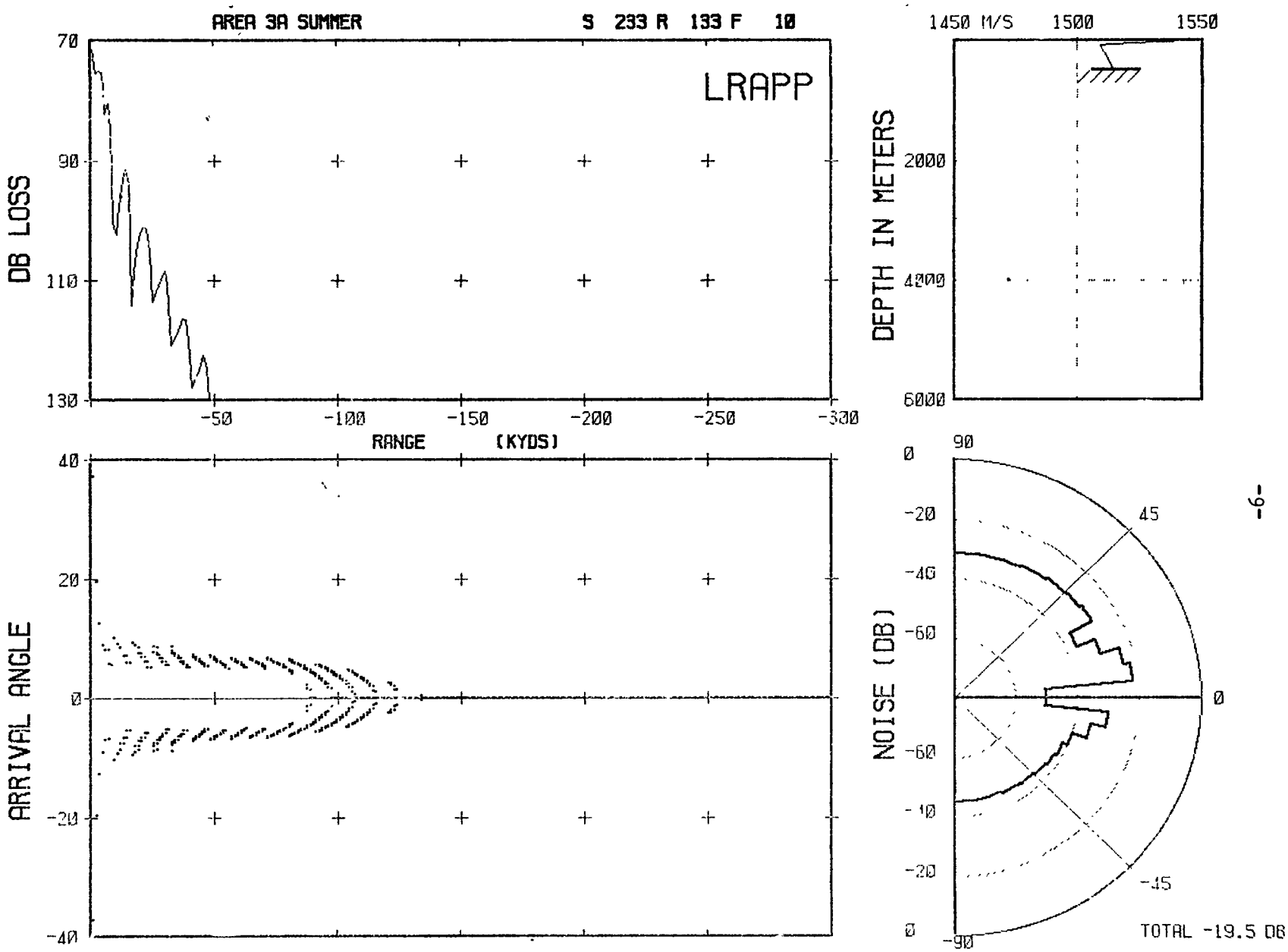
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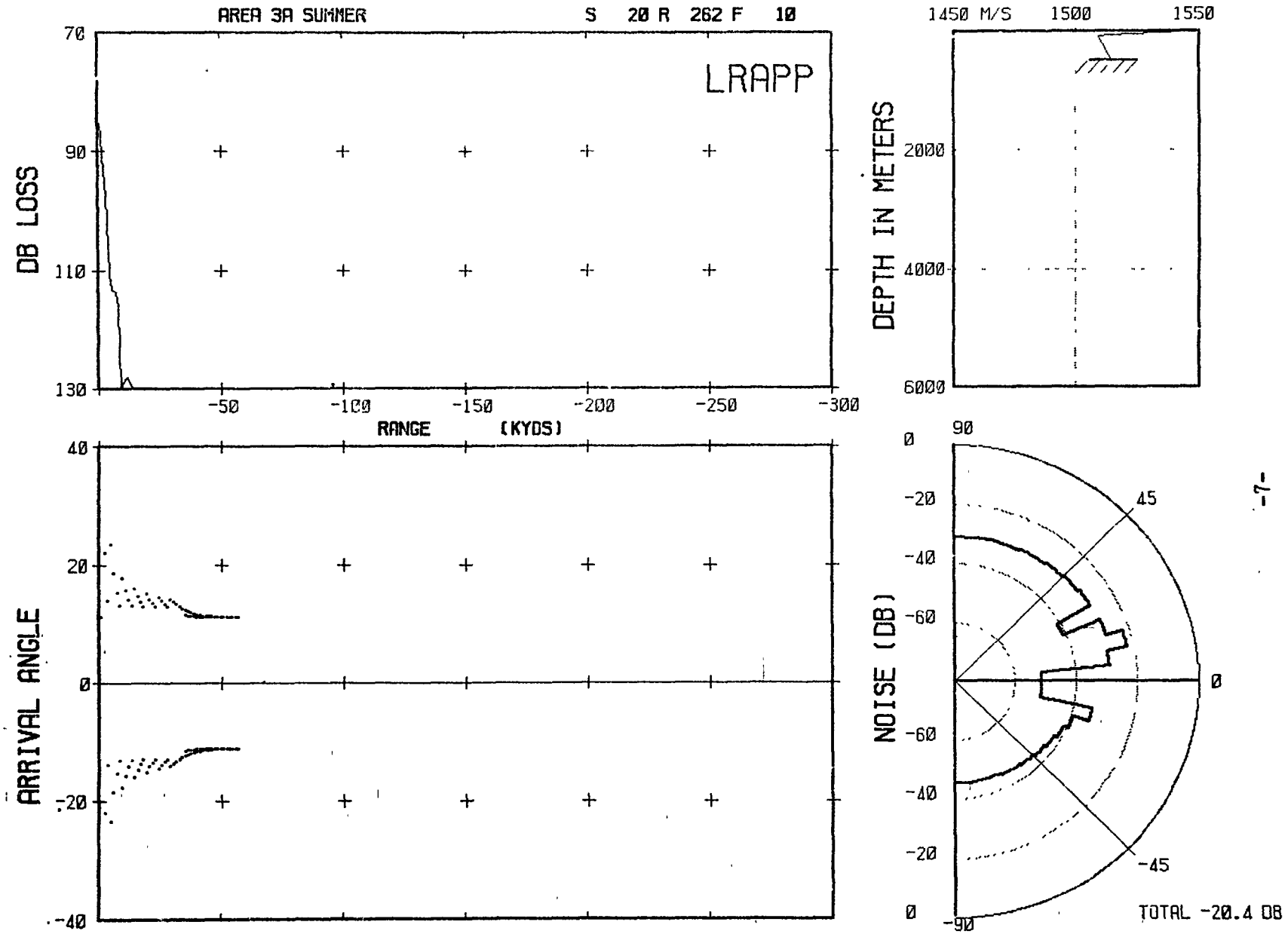
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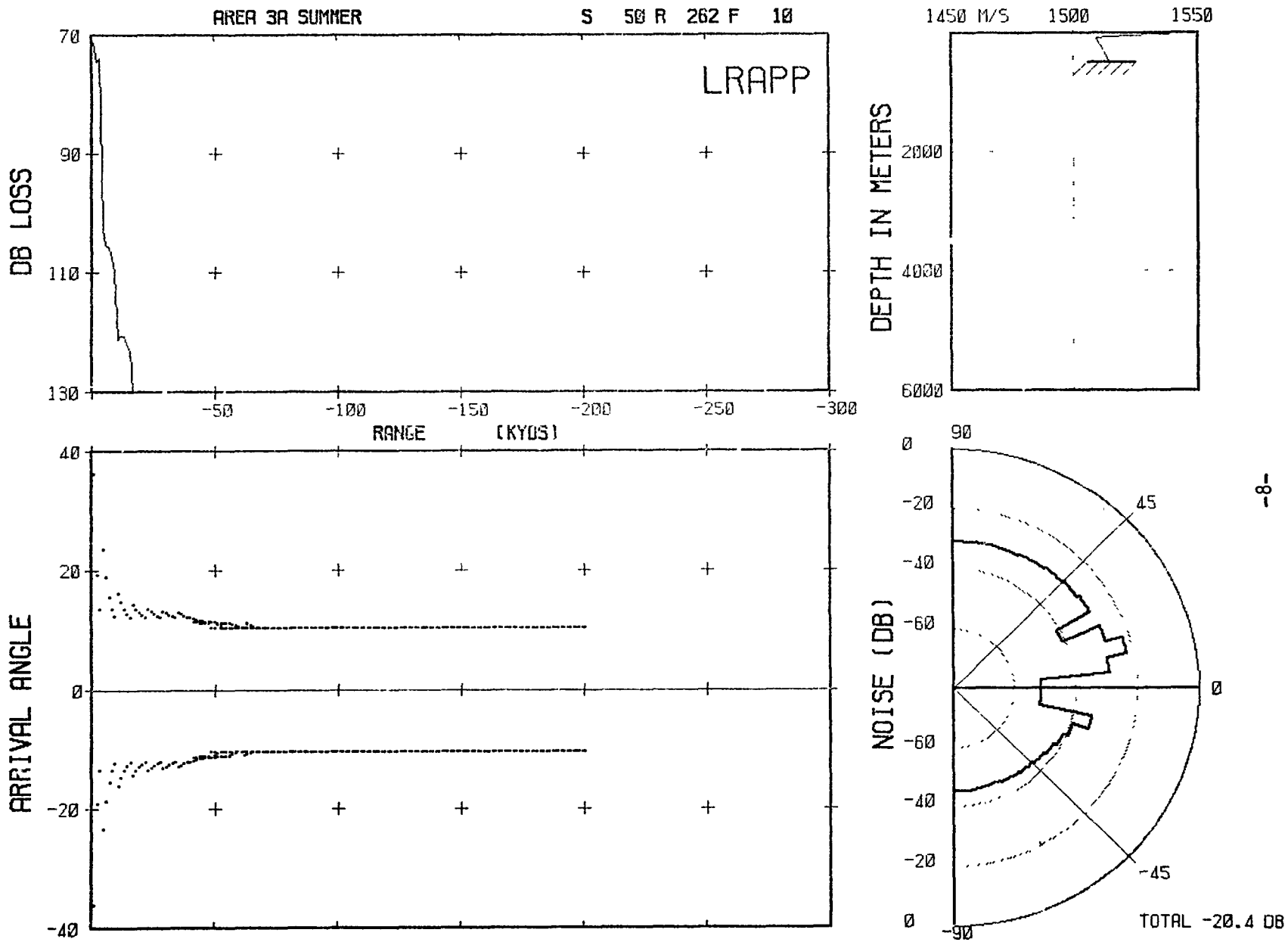
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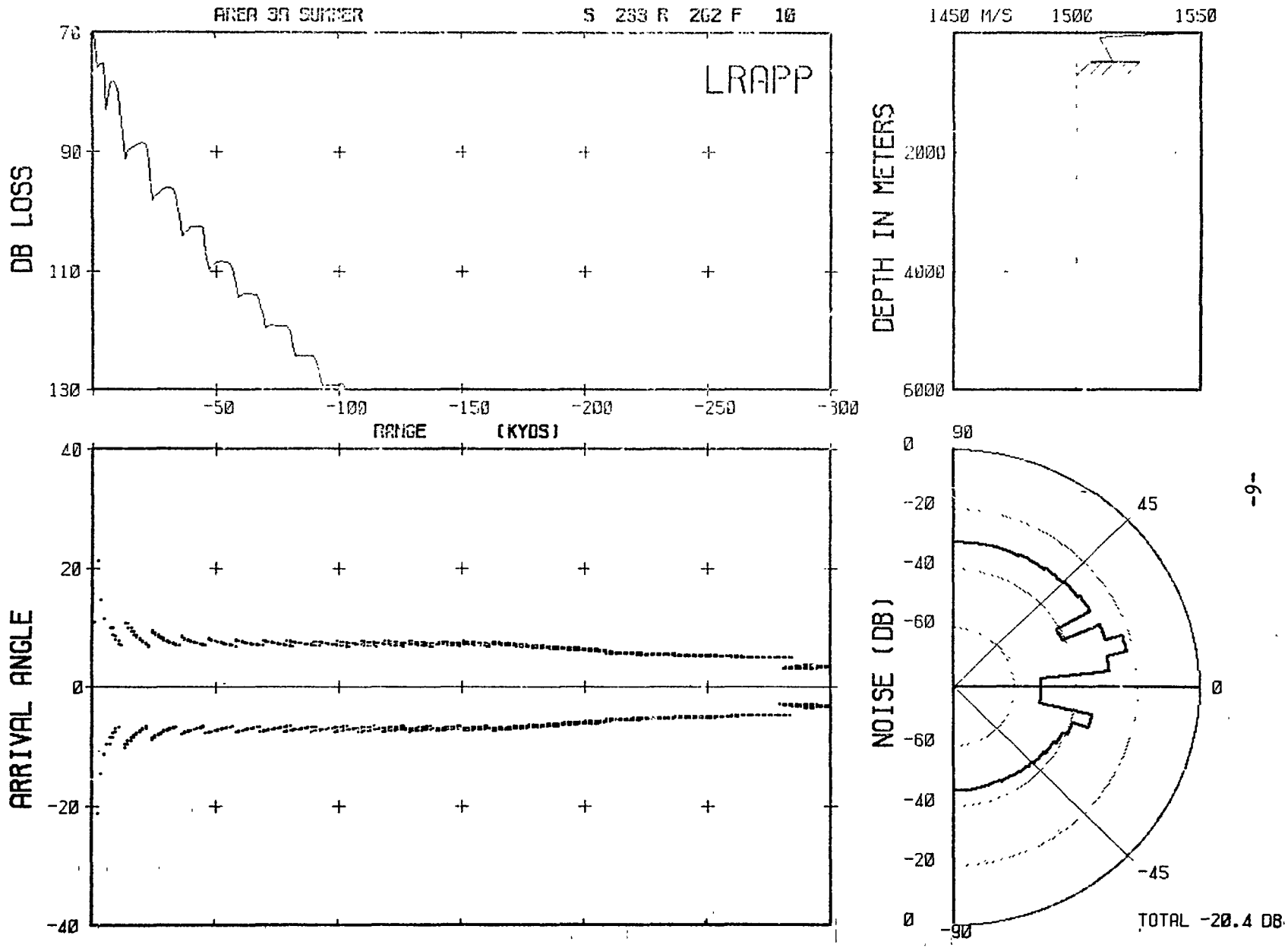
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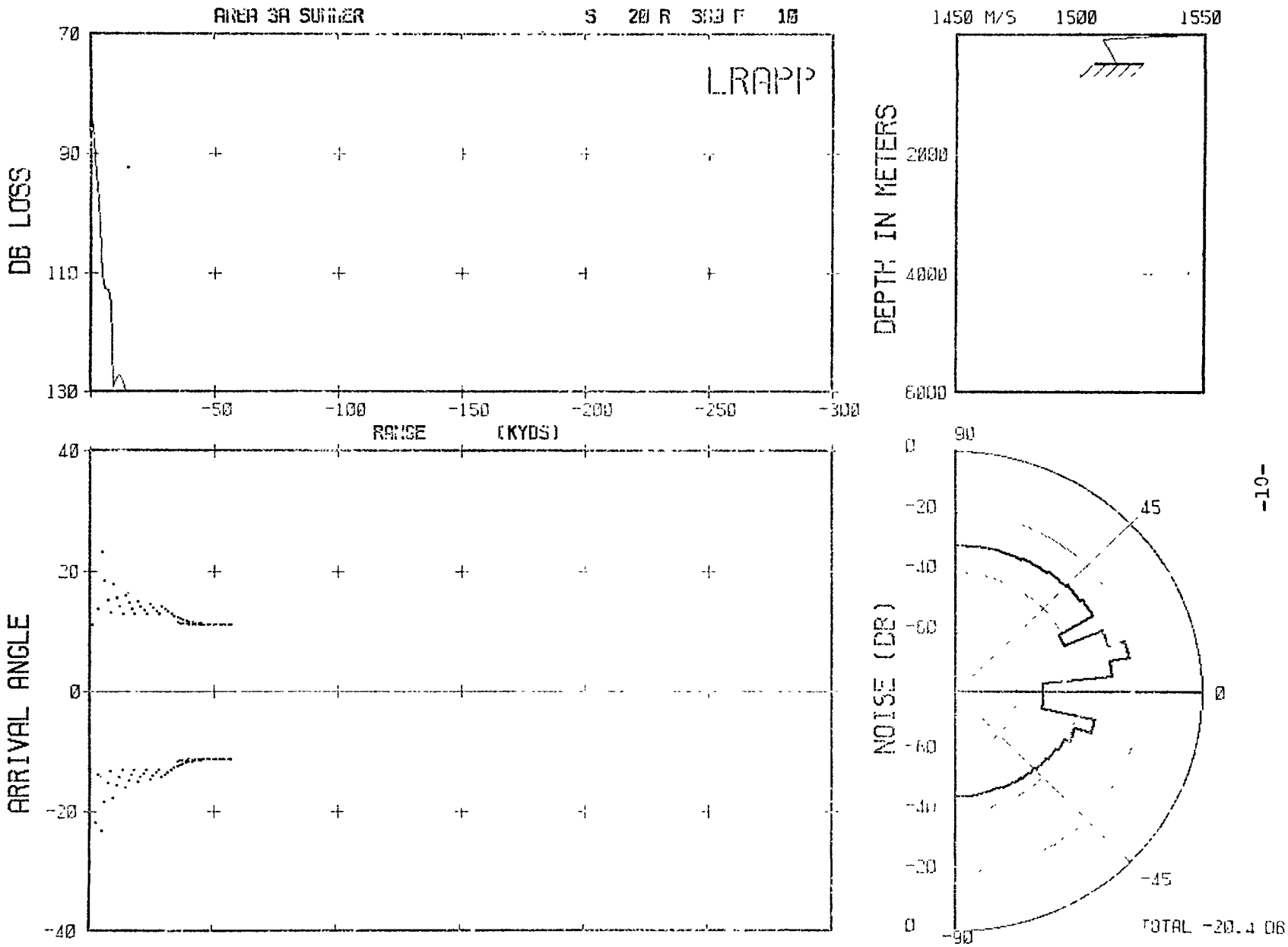
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DEPTH IN METERS
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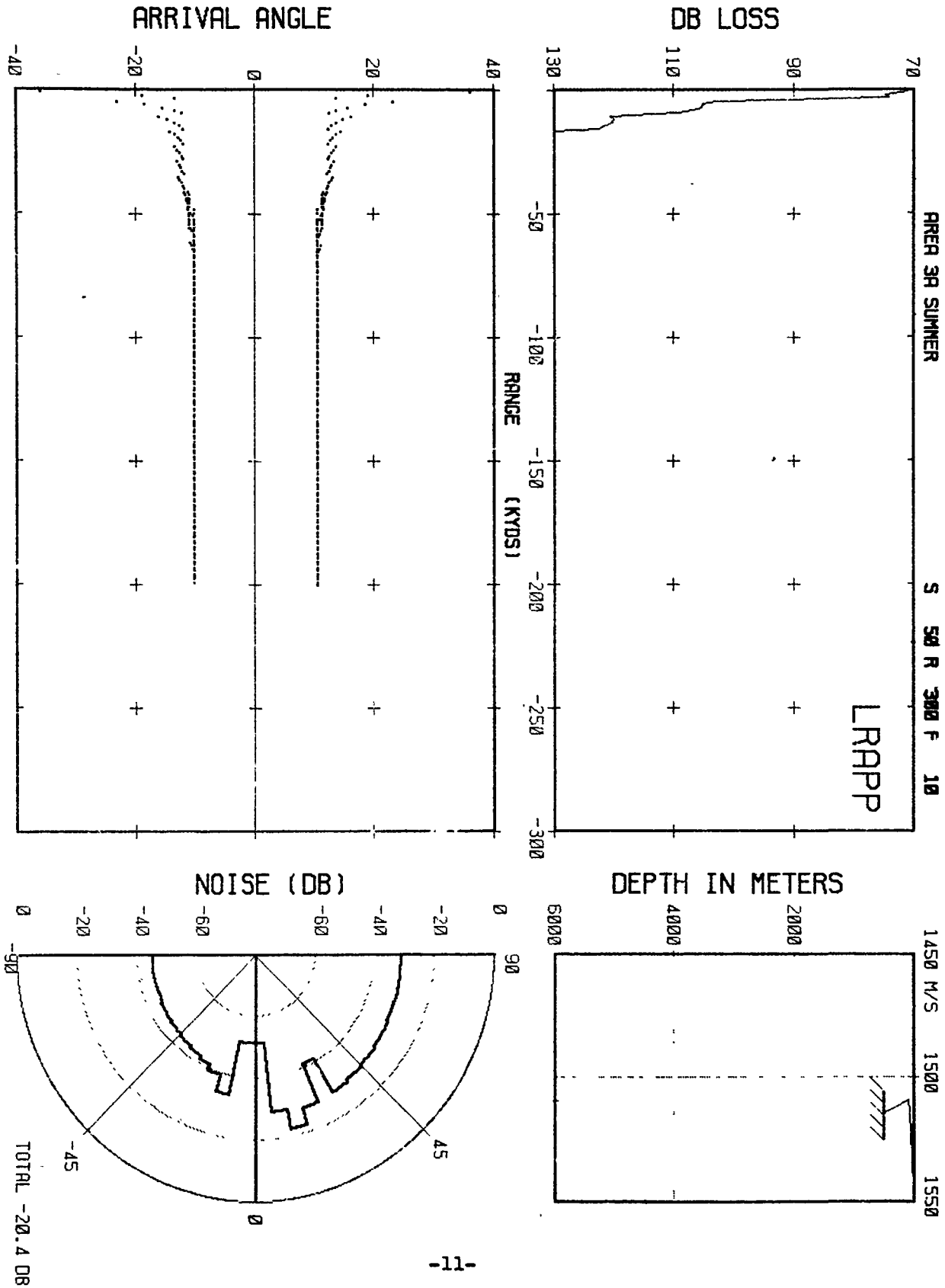
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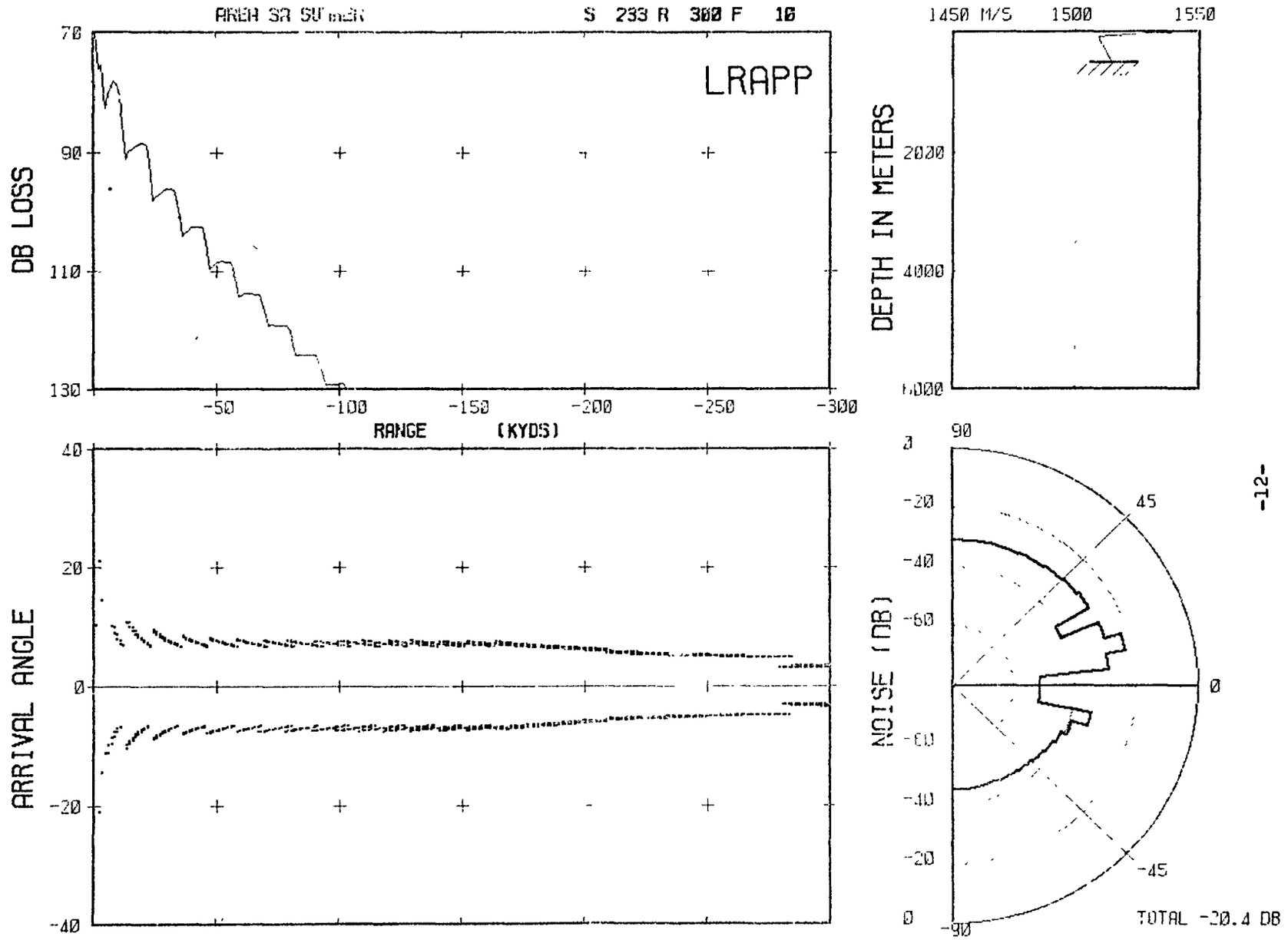
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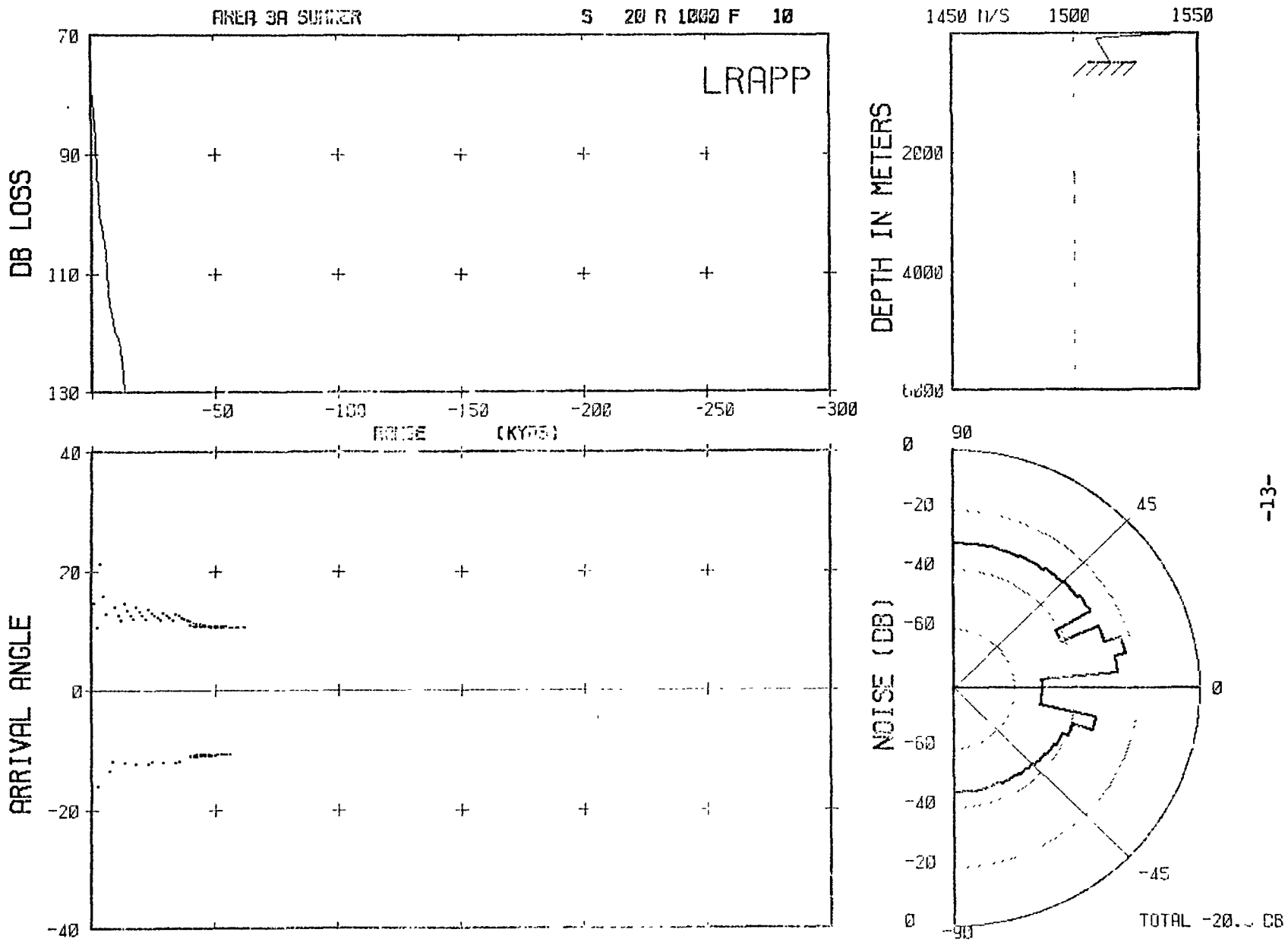
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DEPTH IN METERS
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ARRIVAL ANGLE
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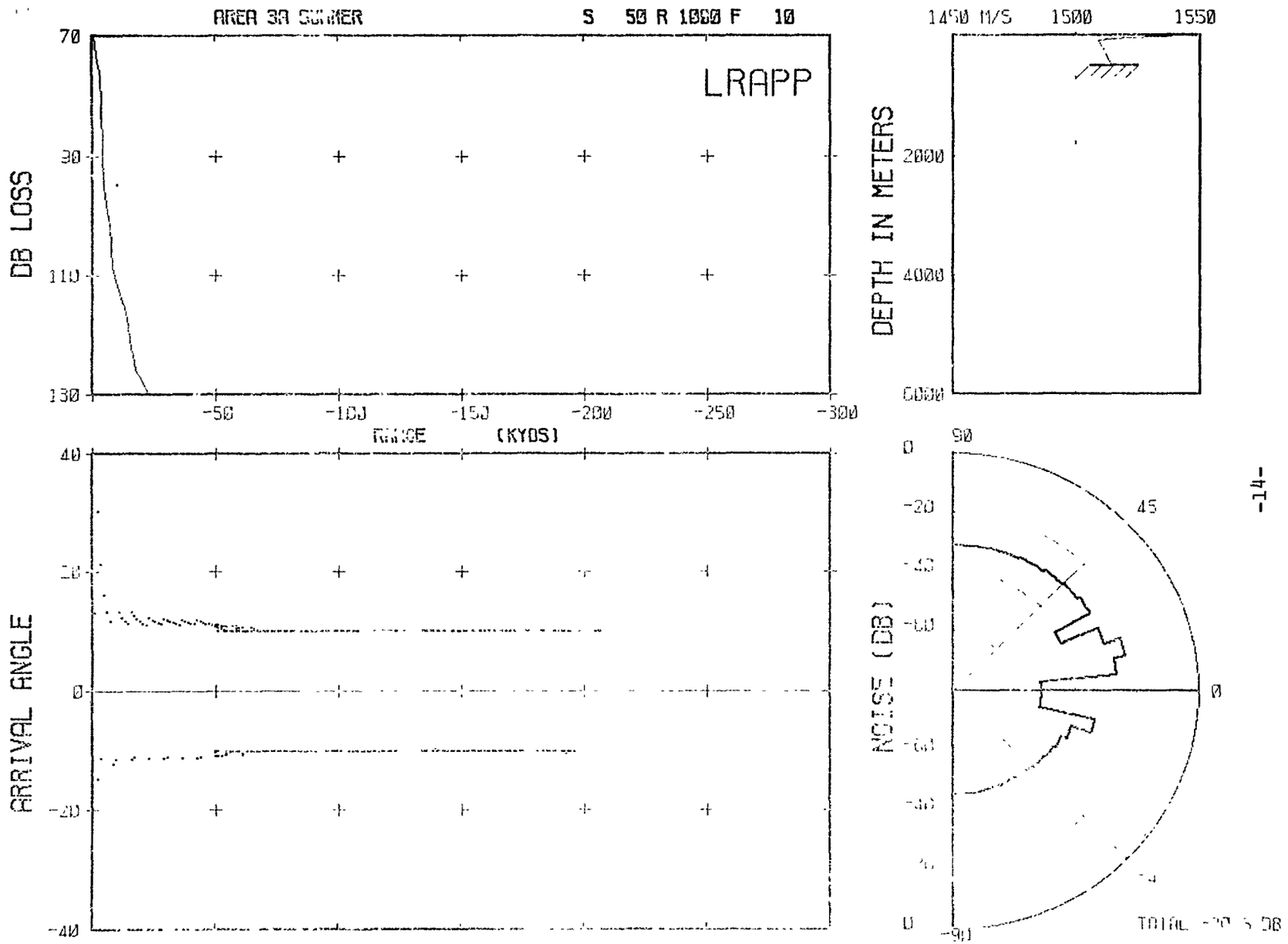
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1550
DEPTH IN METERS
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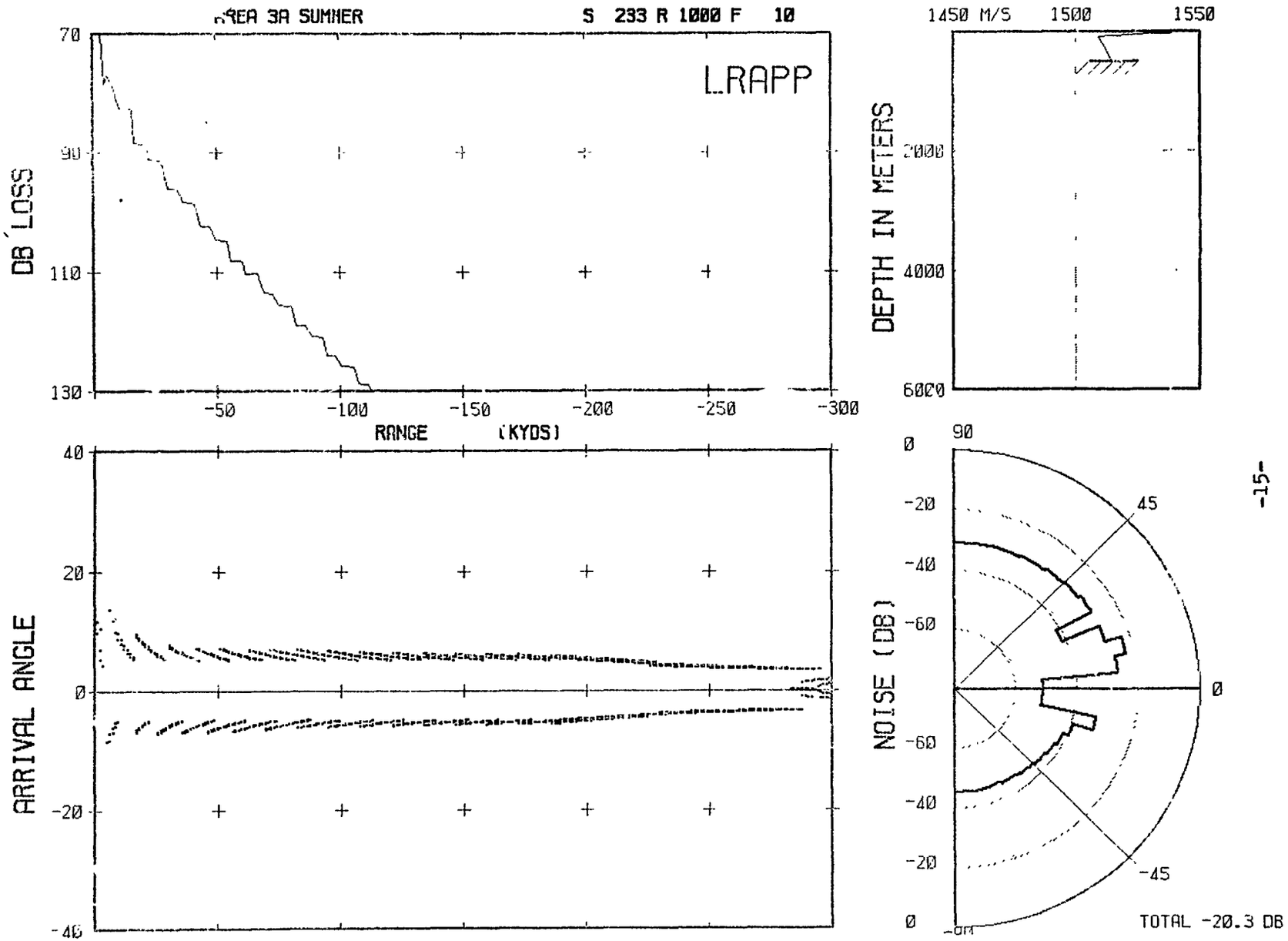
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1550
DEPTH IN METERS
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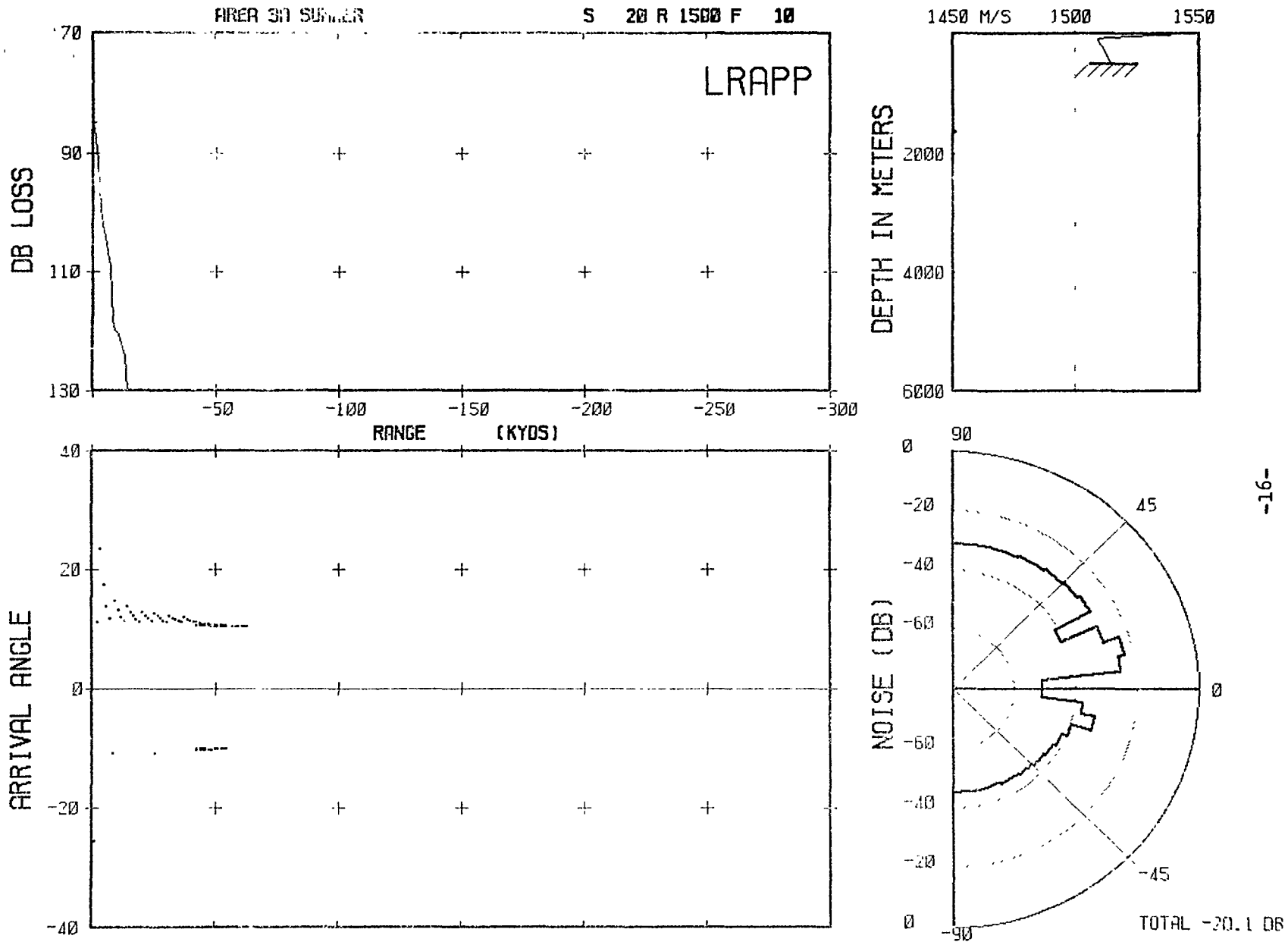
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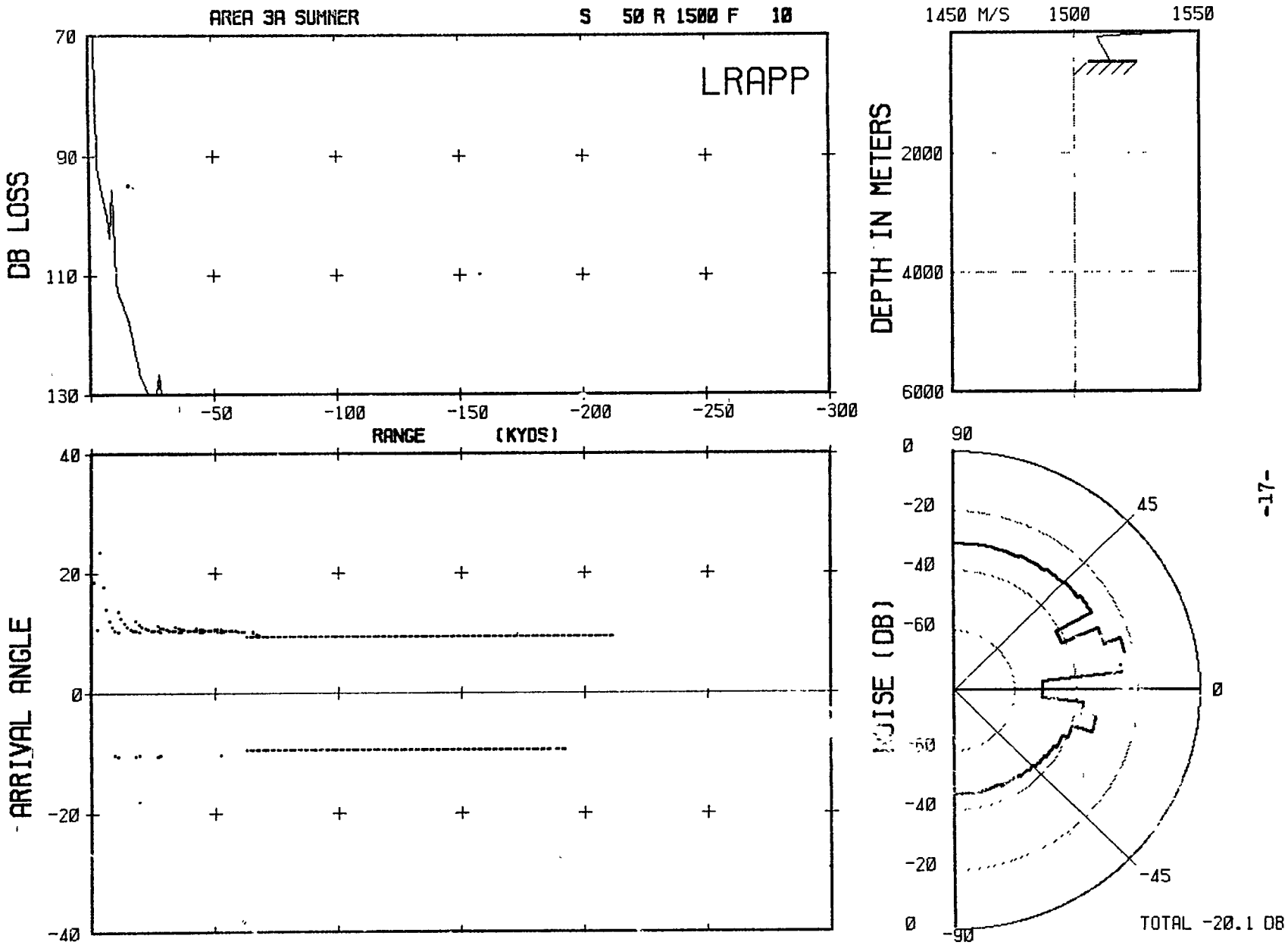
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RANGE (KYDS)
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1550
DEPTH IN METERS
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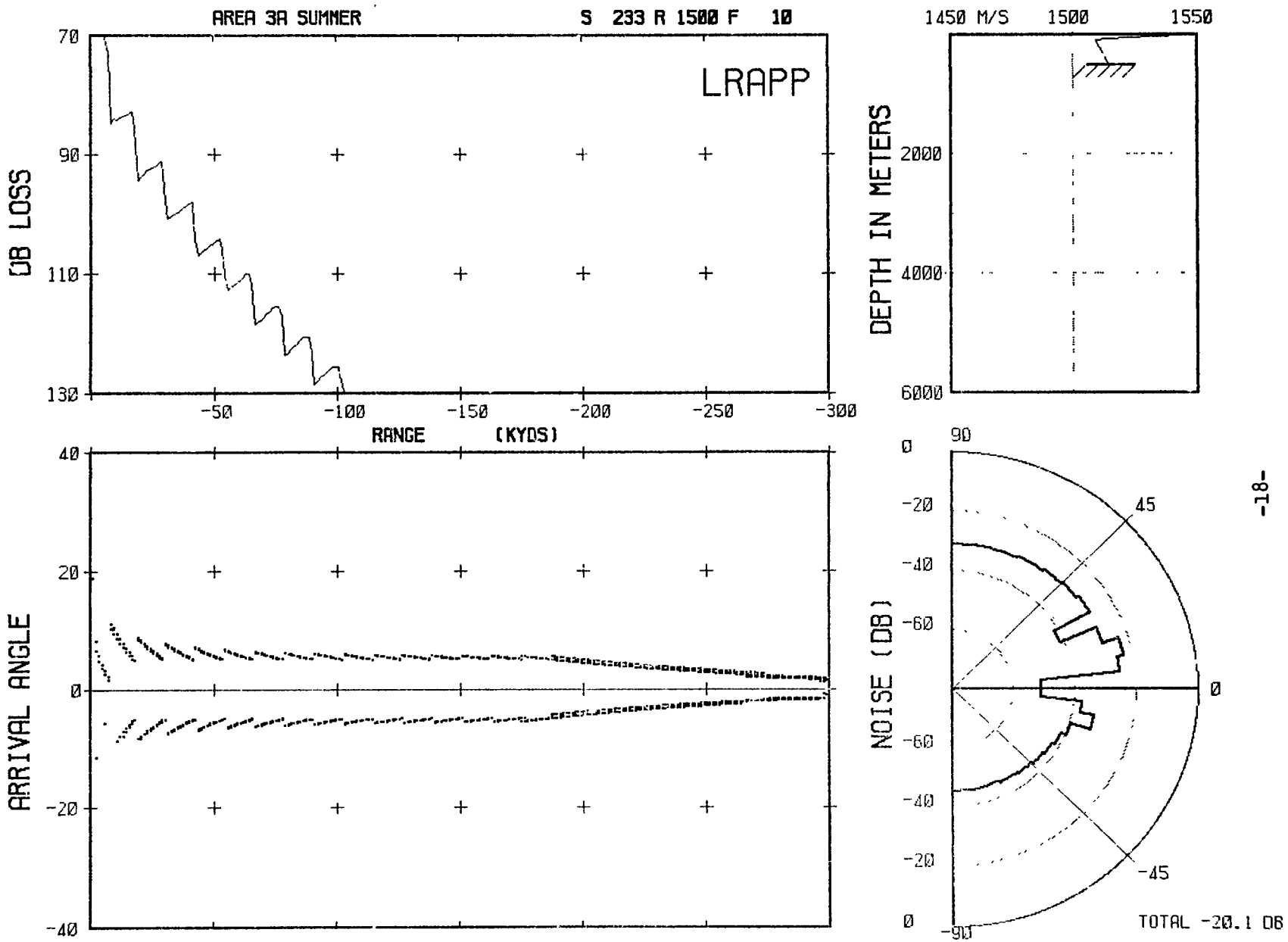
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DEPTH IN METERS
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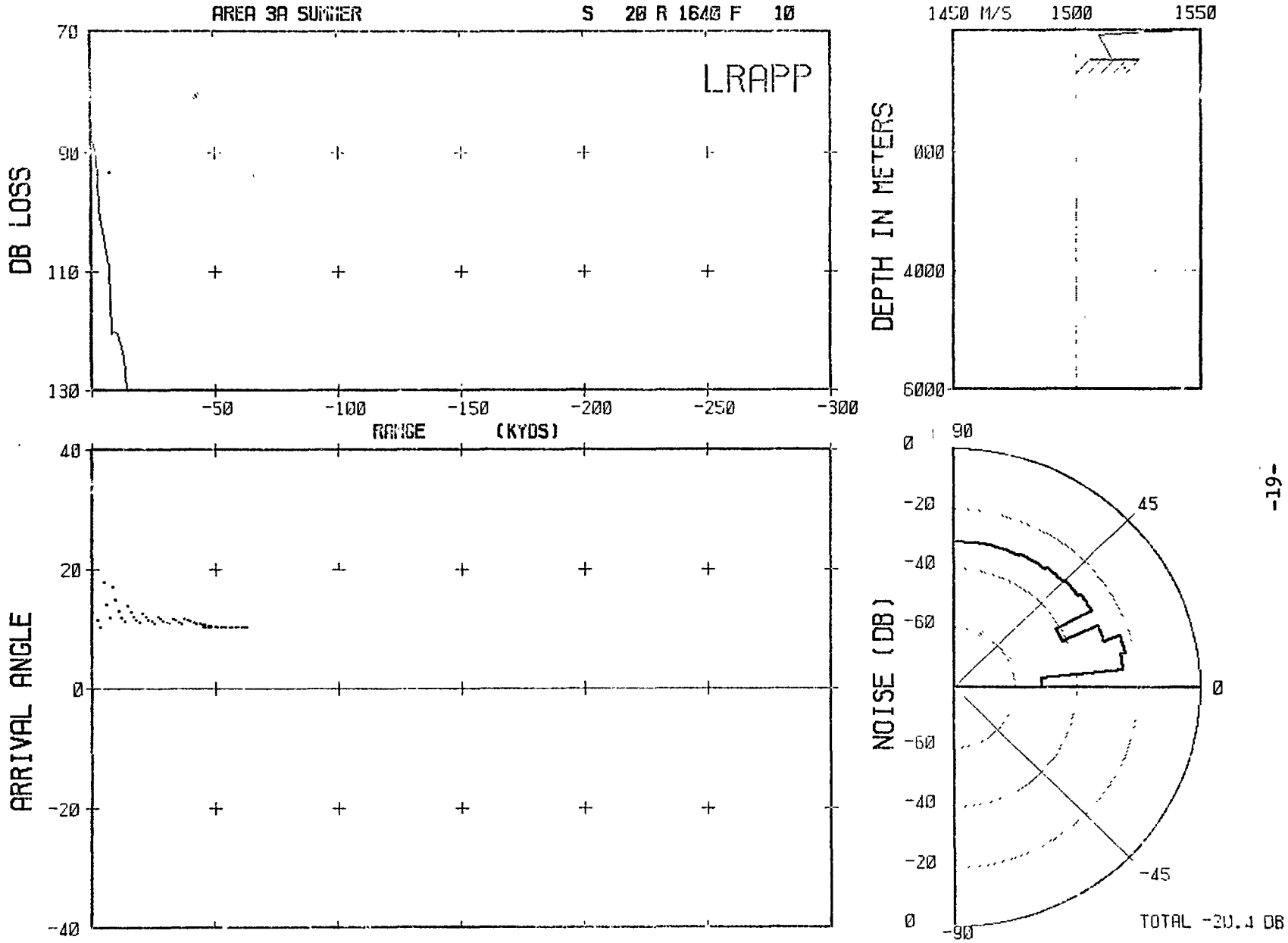
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DEPTH IN METERS
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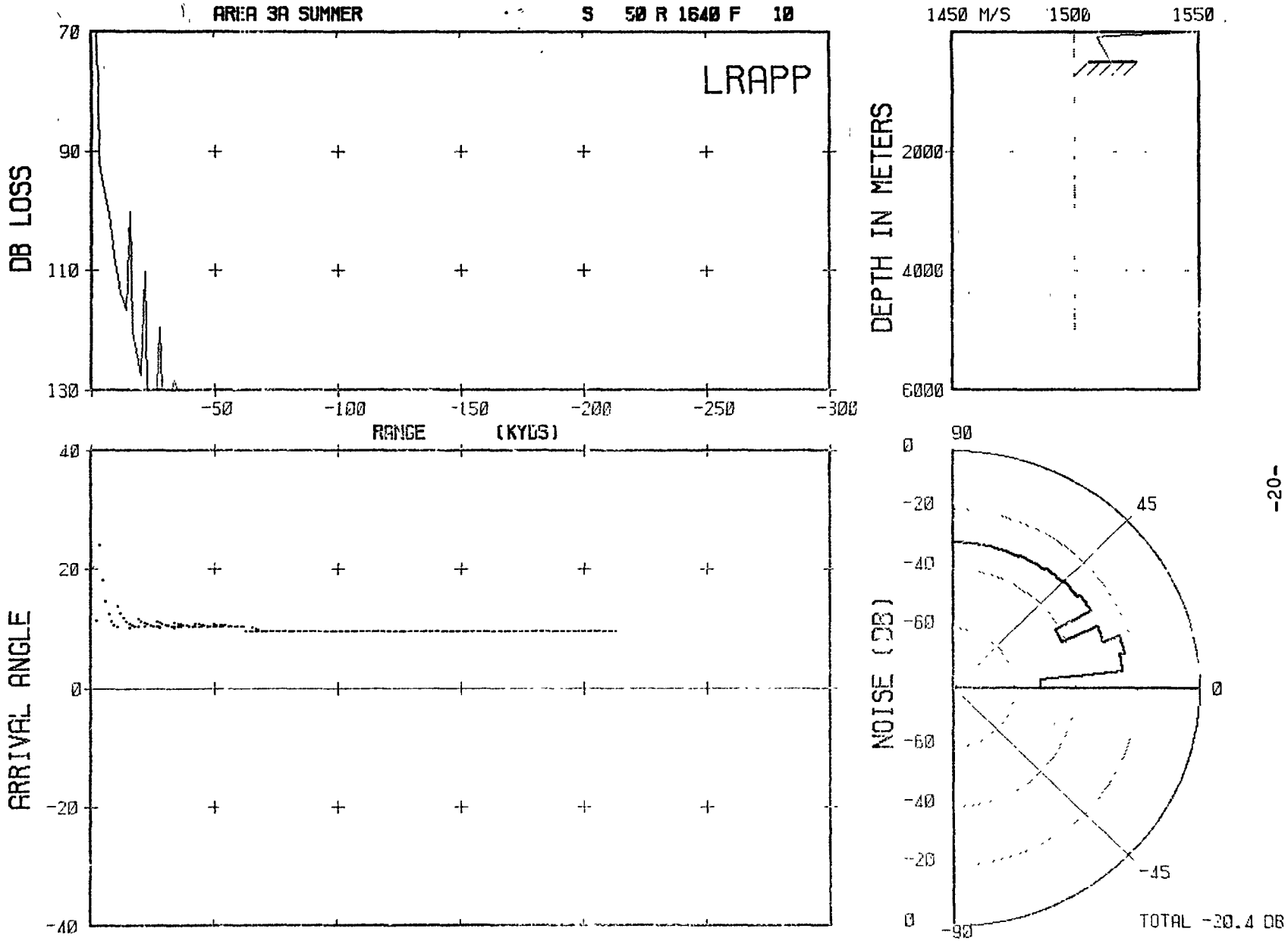
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DEPTH IN METERS
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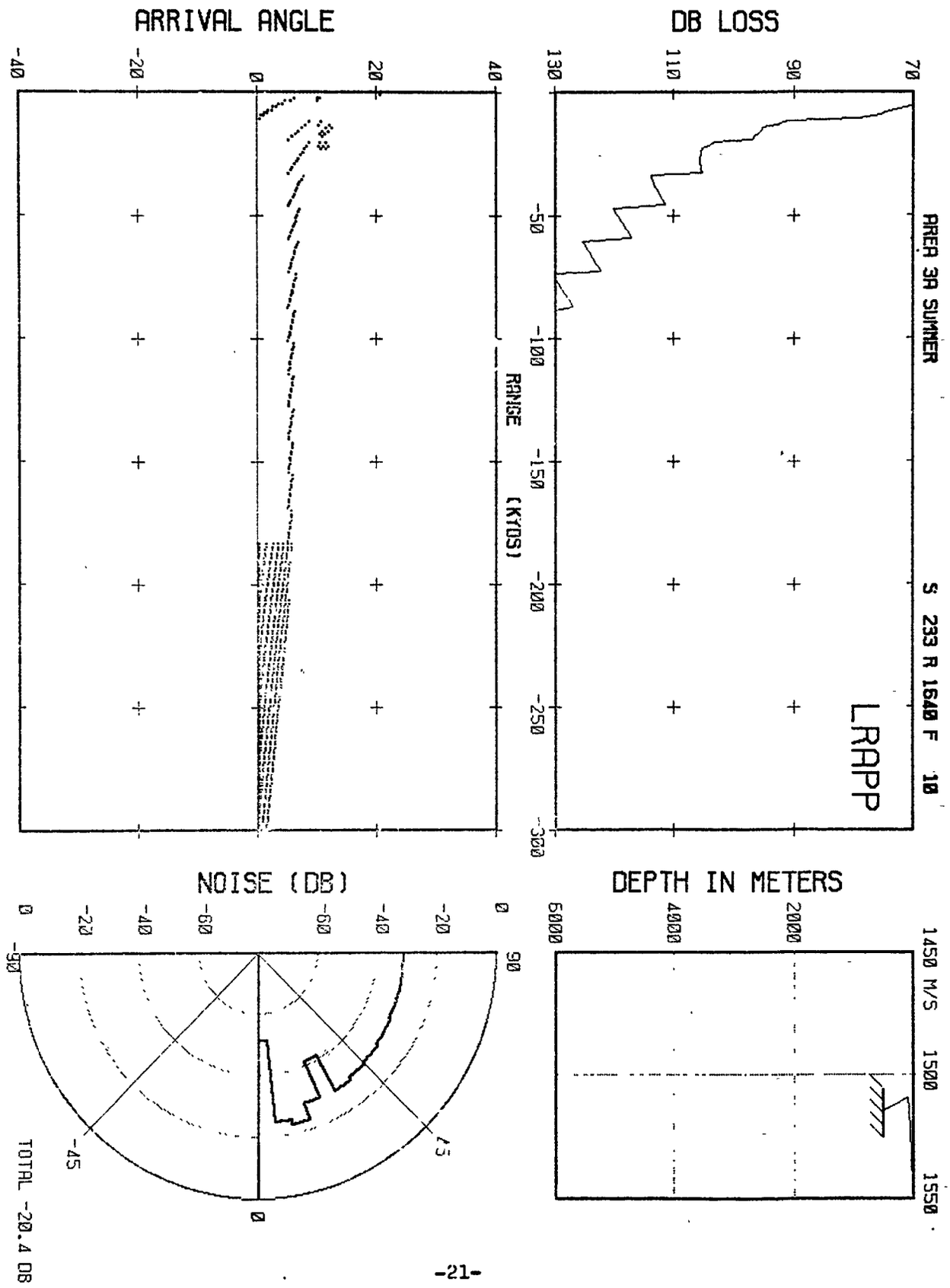
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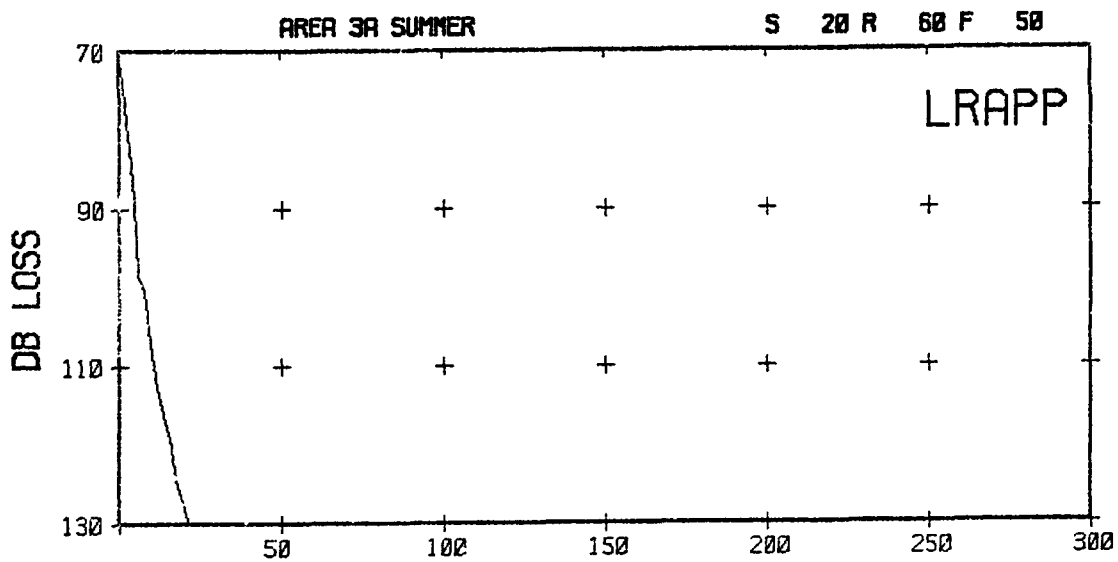
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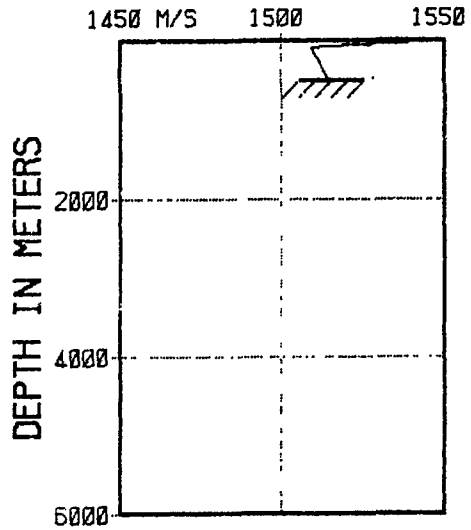
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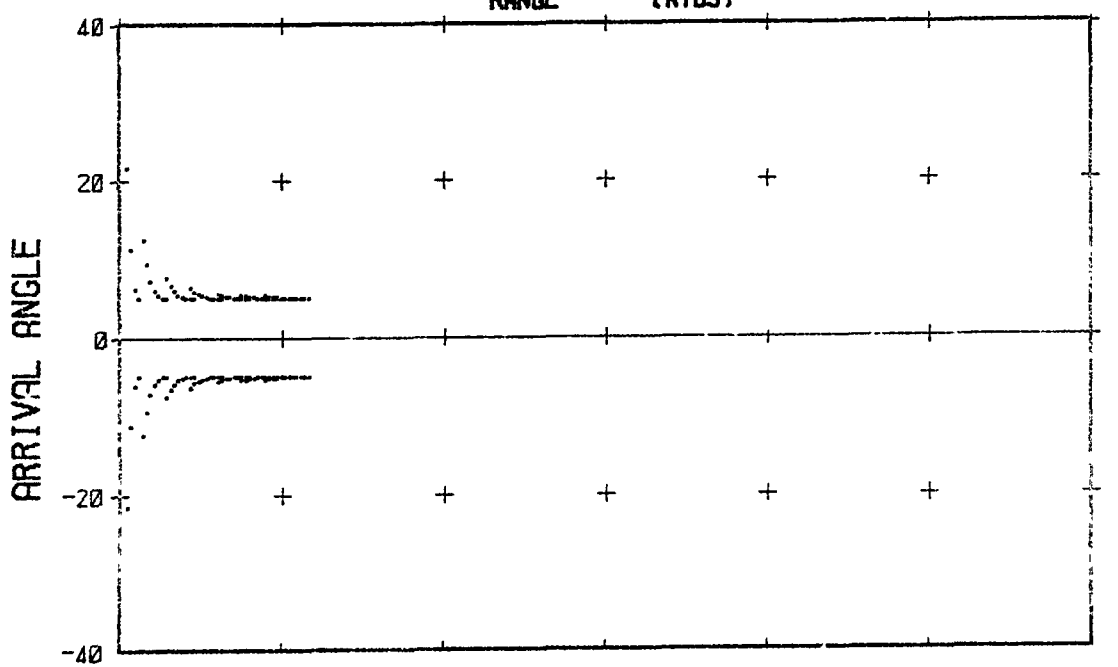
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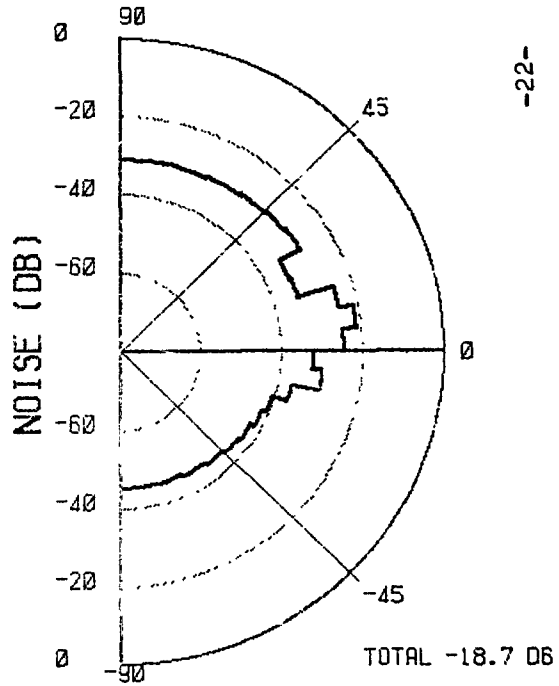
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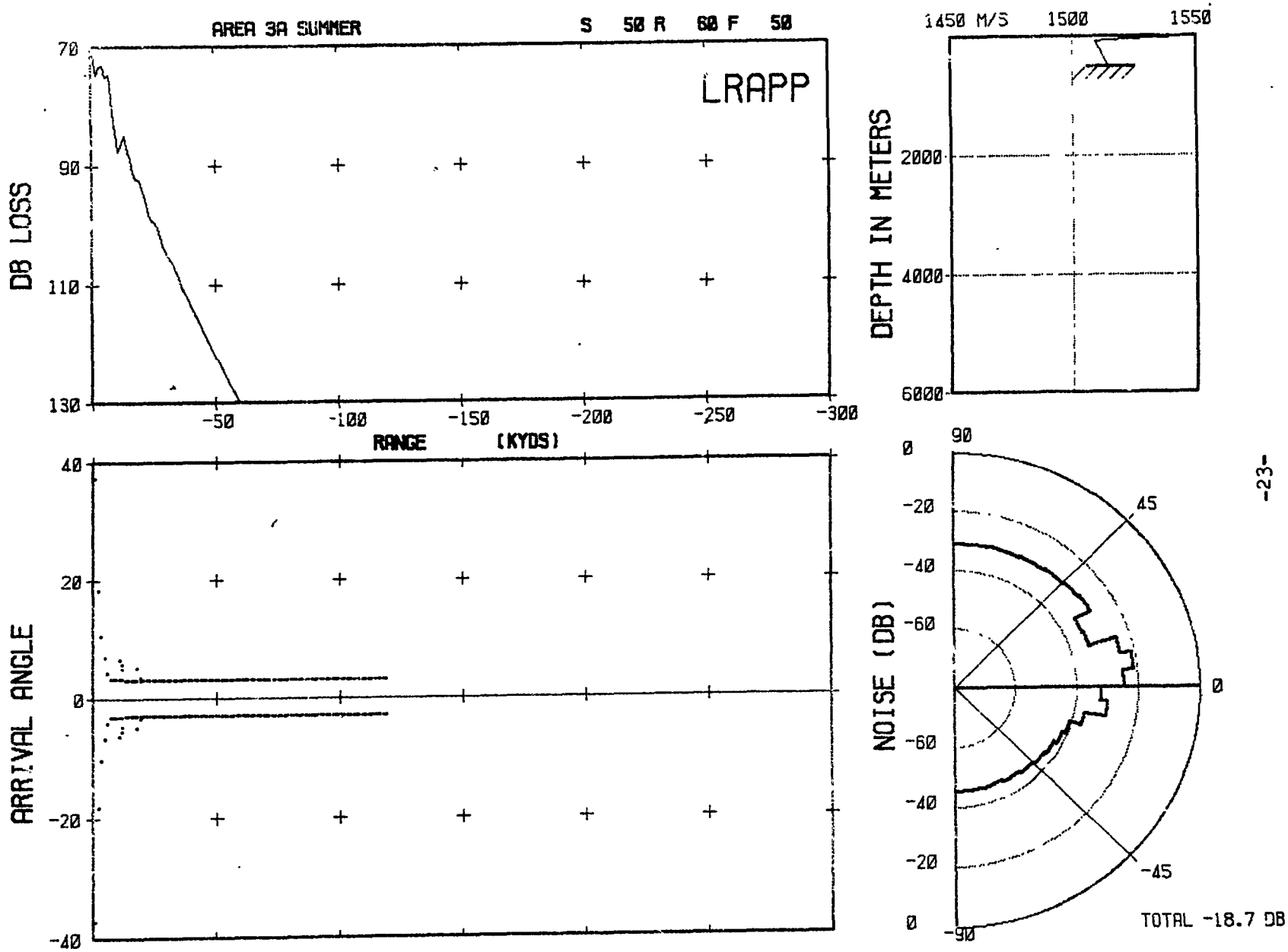
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DEPTH IN METERS
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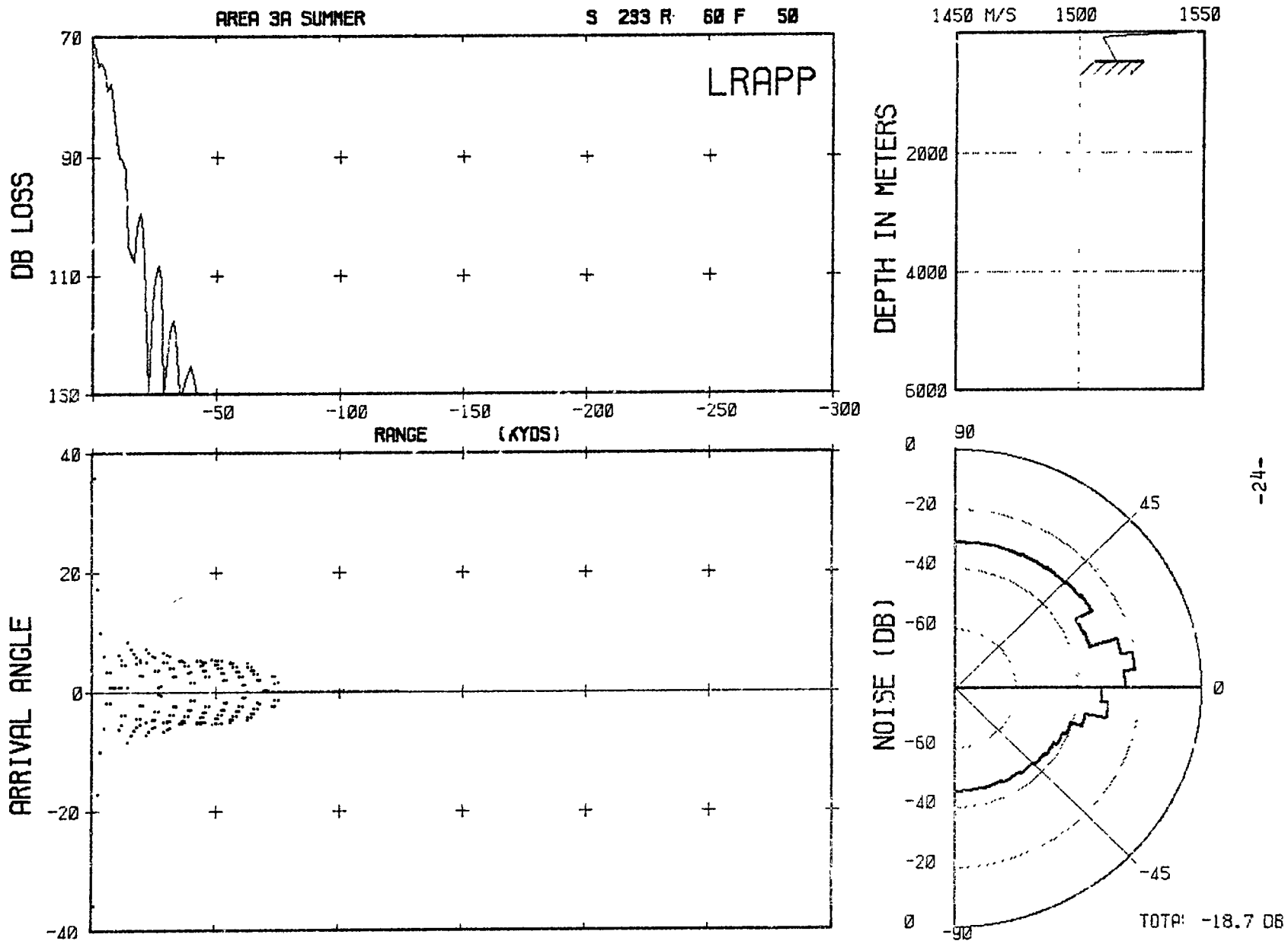
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DEPTH IN METERS
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NOISE (DB)
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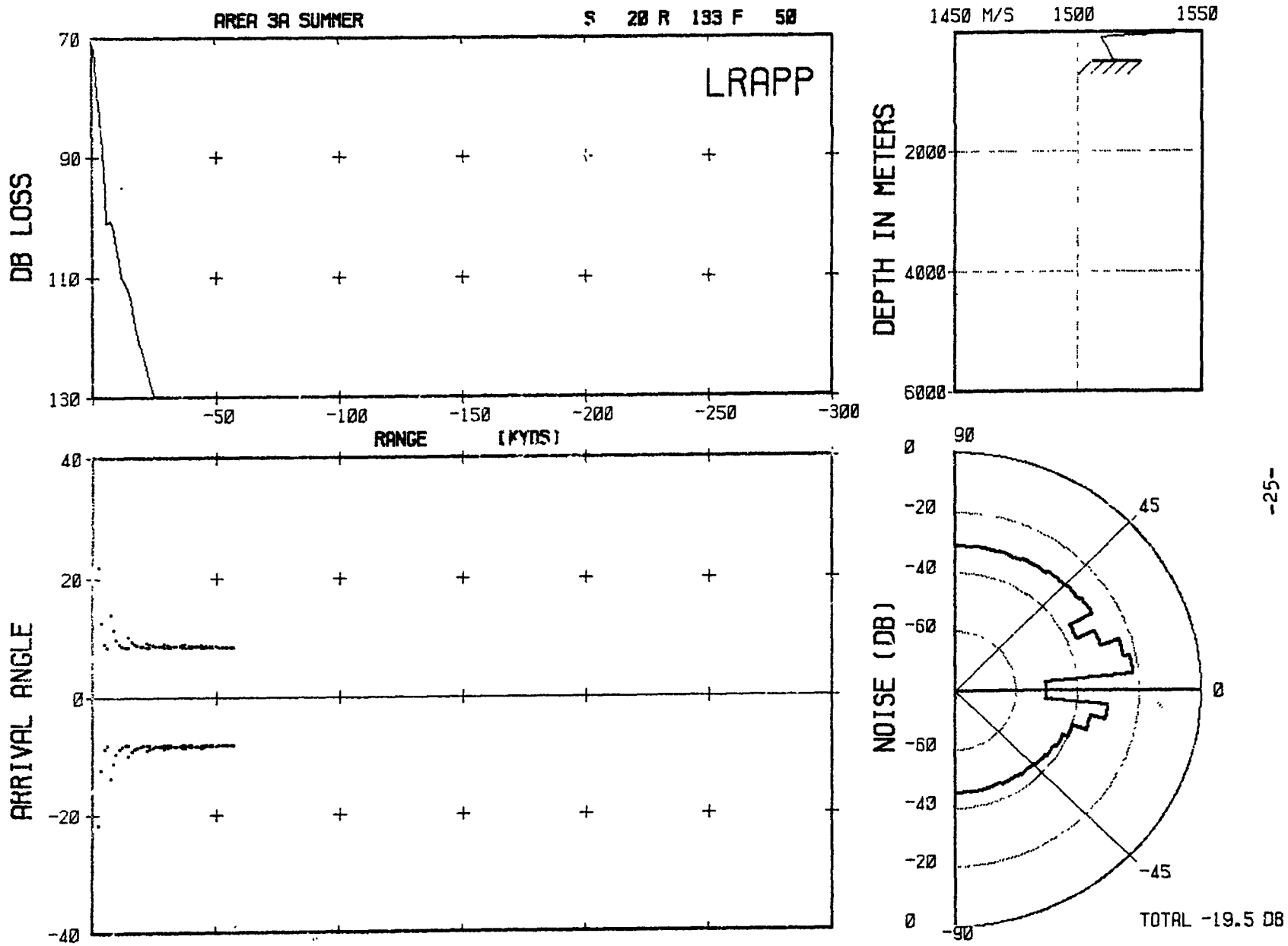
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1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
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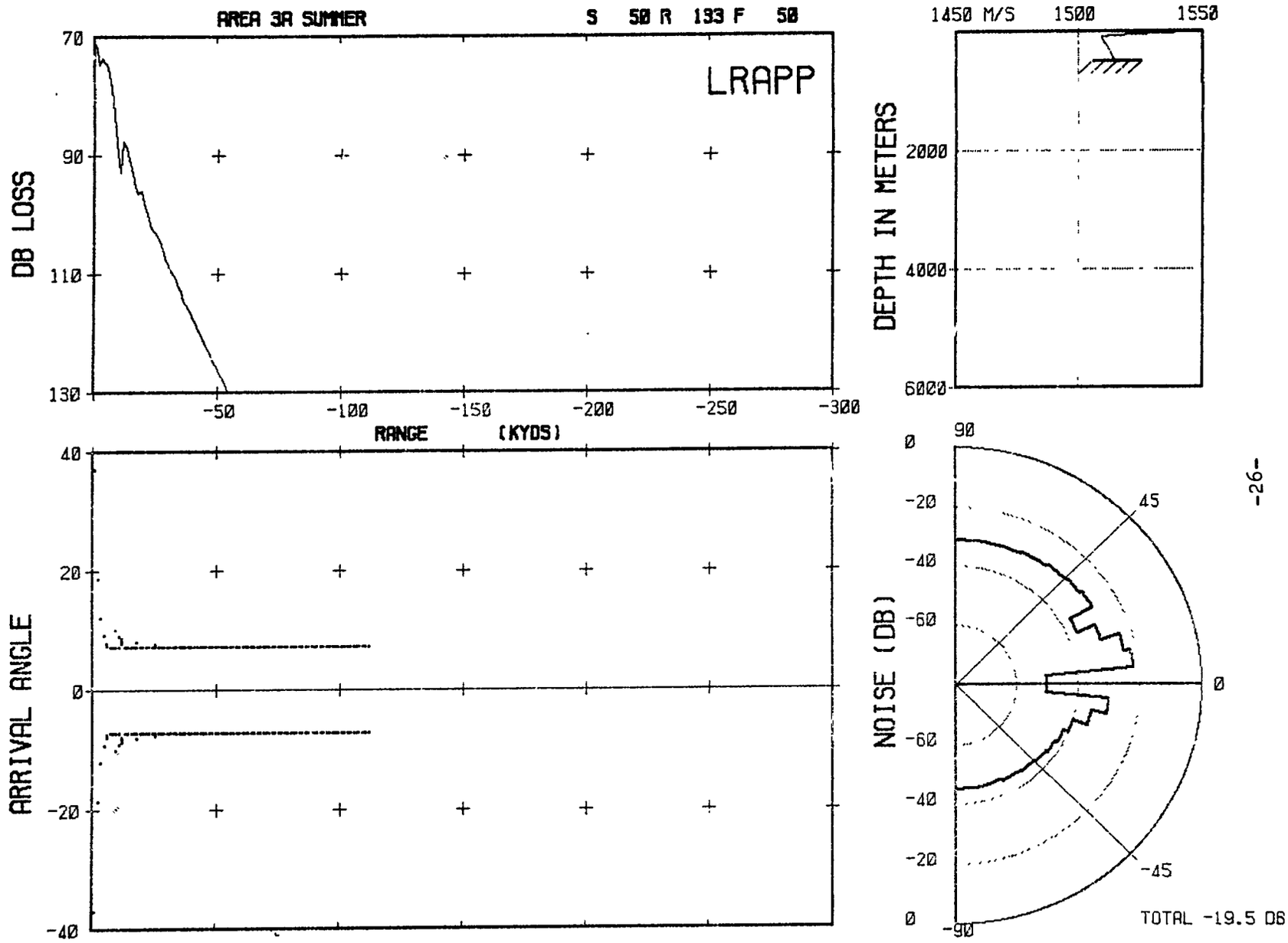
TOTAL -19.5 DB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S 50 R 133 F 50
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DB LOSS
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130
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-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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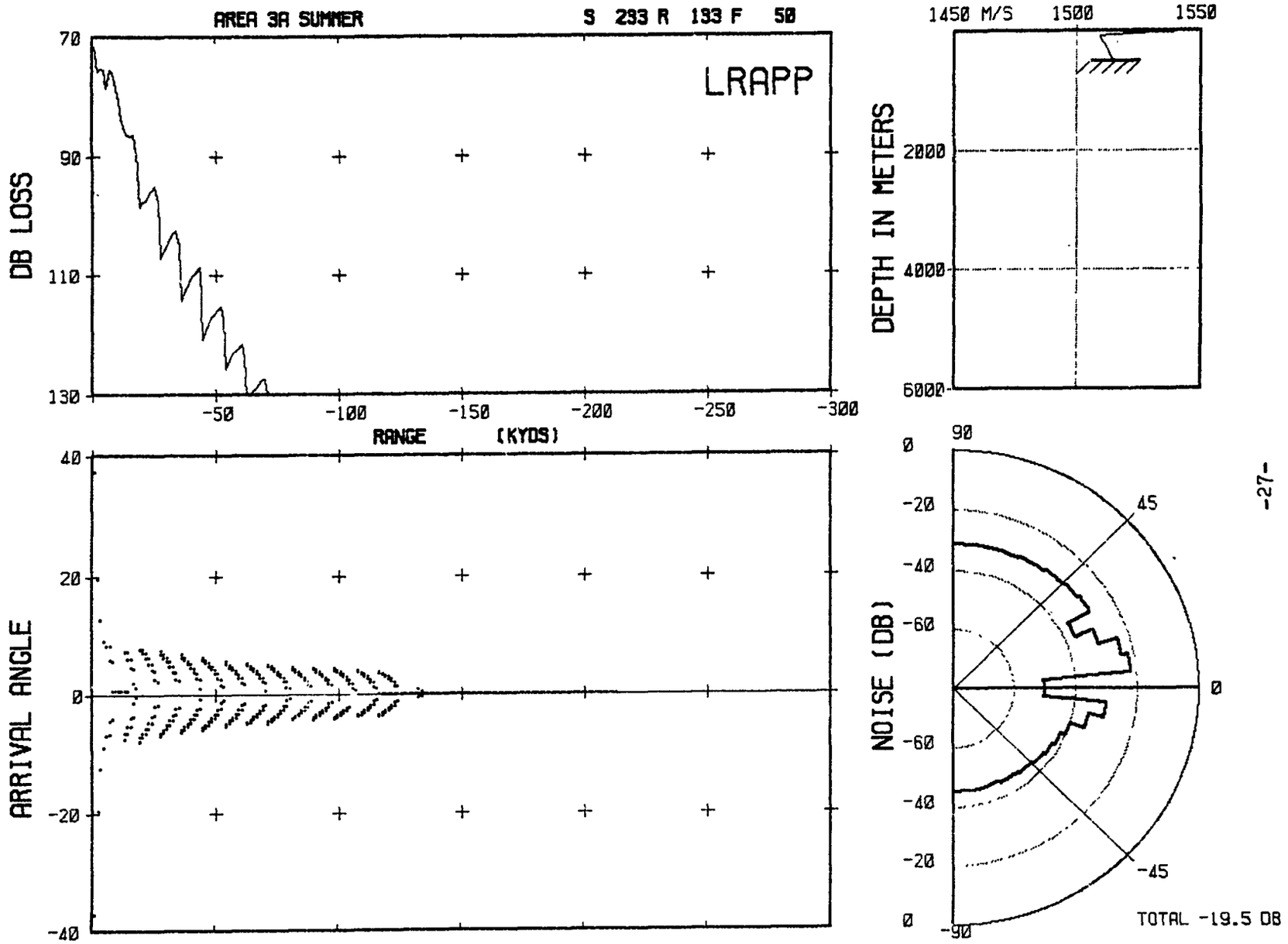
TOTAL -19.5 DB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LRAPP
DB LOSS
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RANGE (KYDS)
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1550
DEPTH IN METERS
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NOISE (DB)
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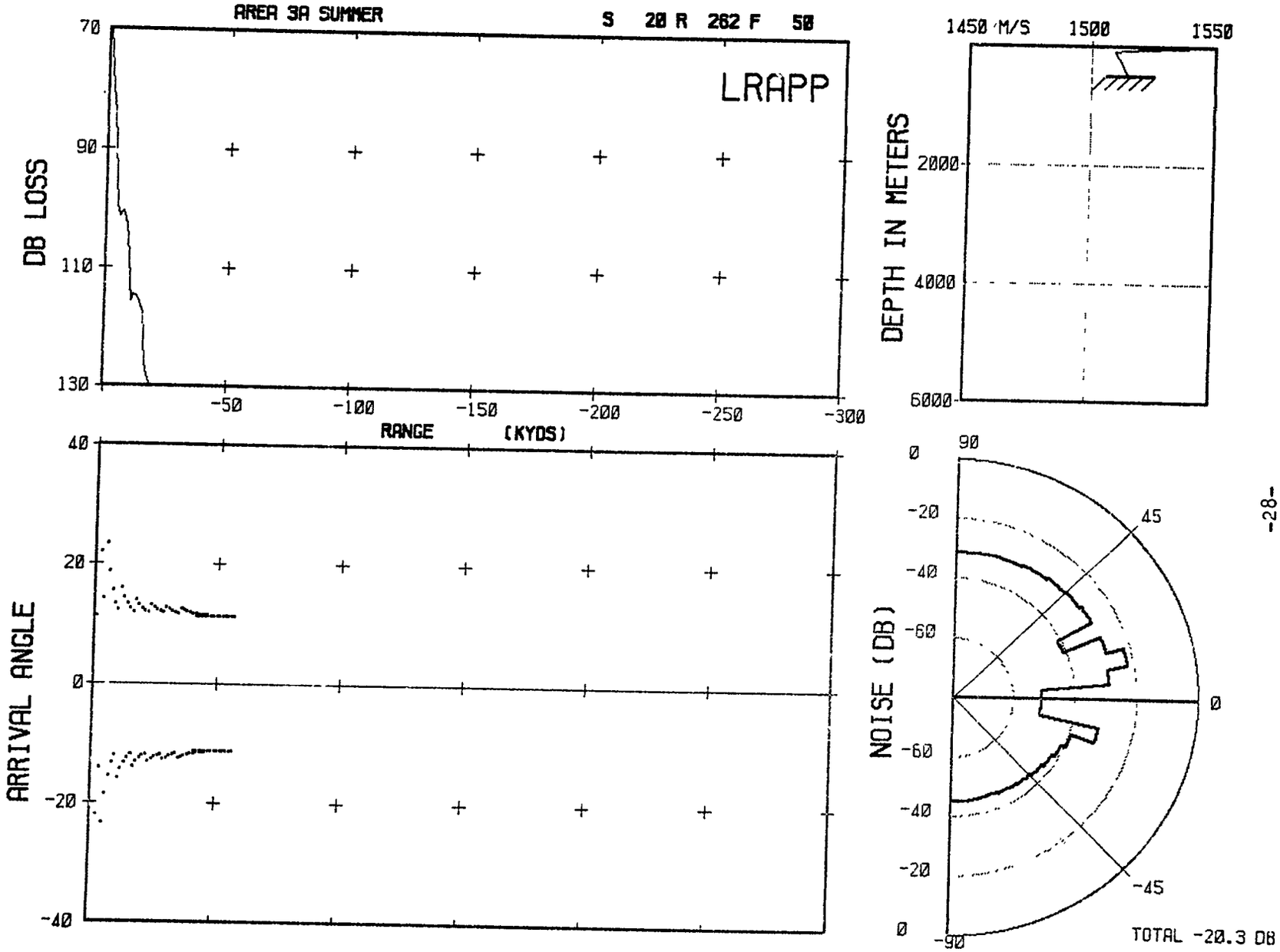
TOTAL -19.5 DB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S 20 R 262 F 50
LRAPP
DB LOSS
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-250
-300
RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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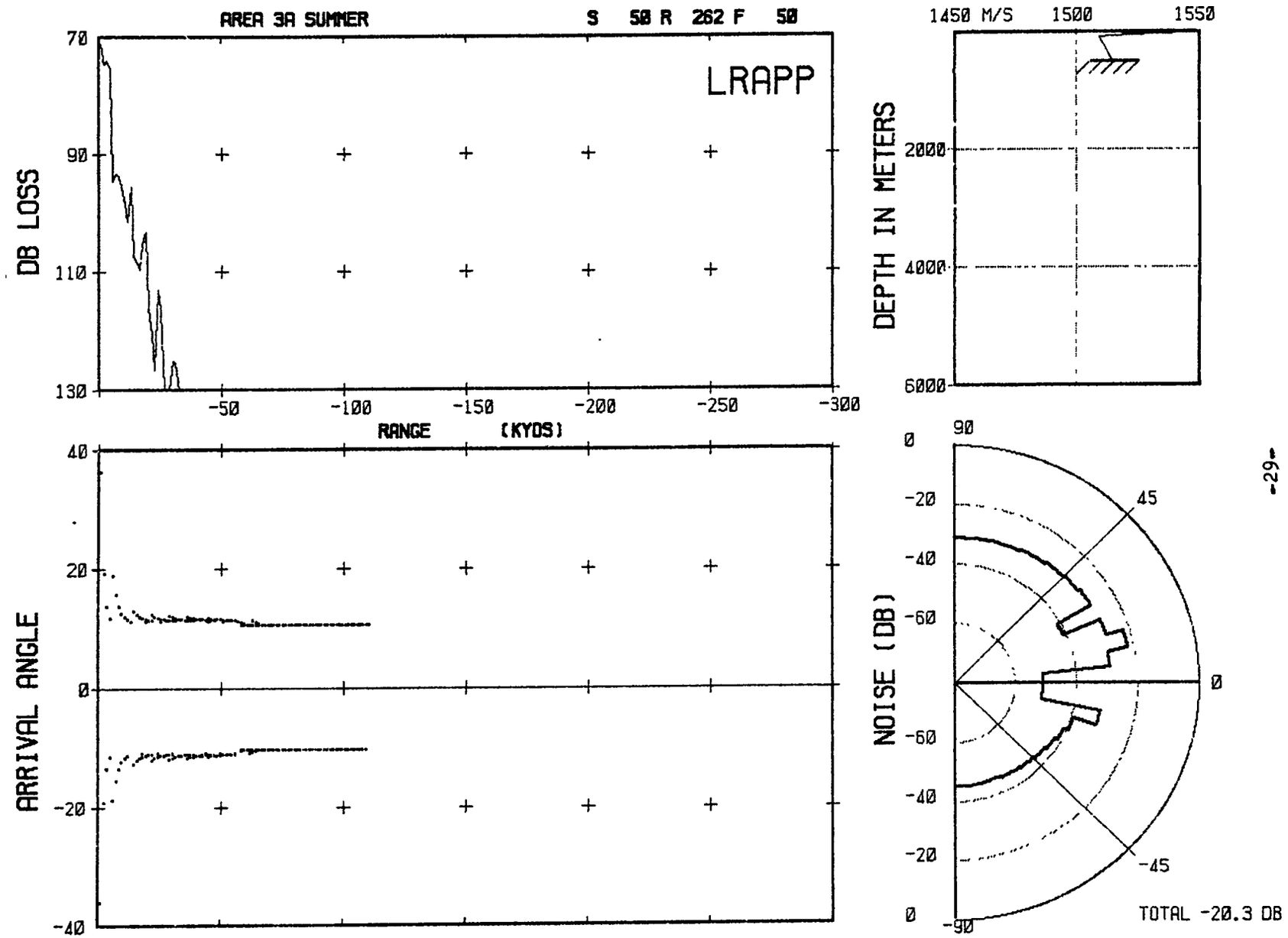
TOTAL -20.3 DB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LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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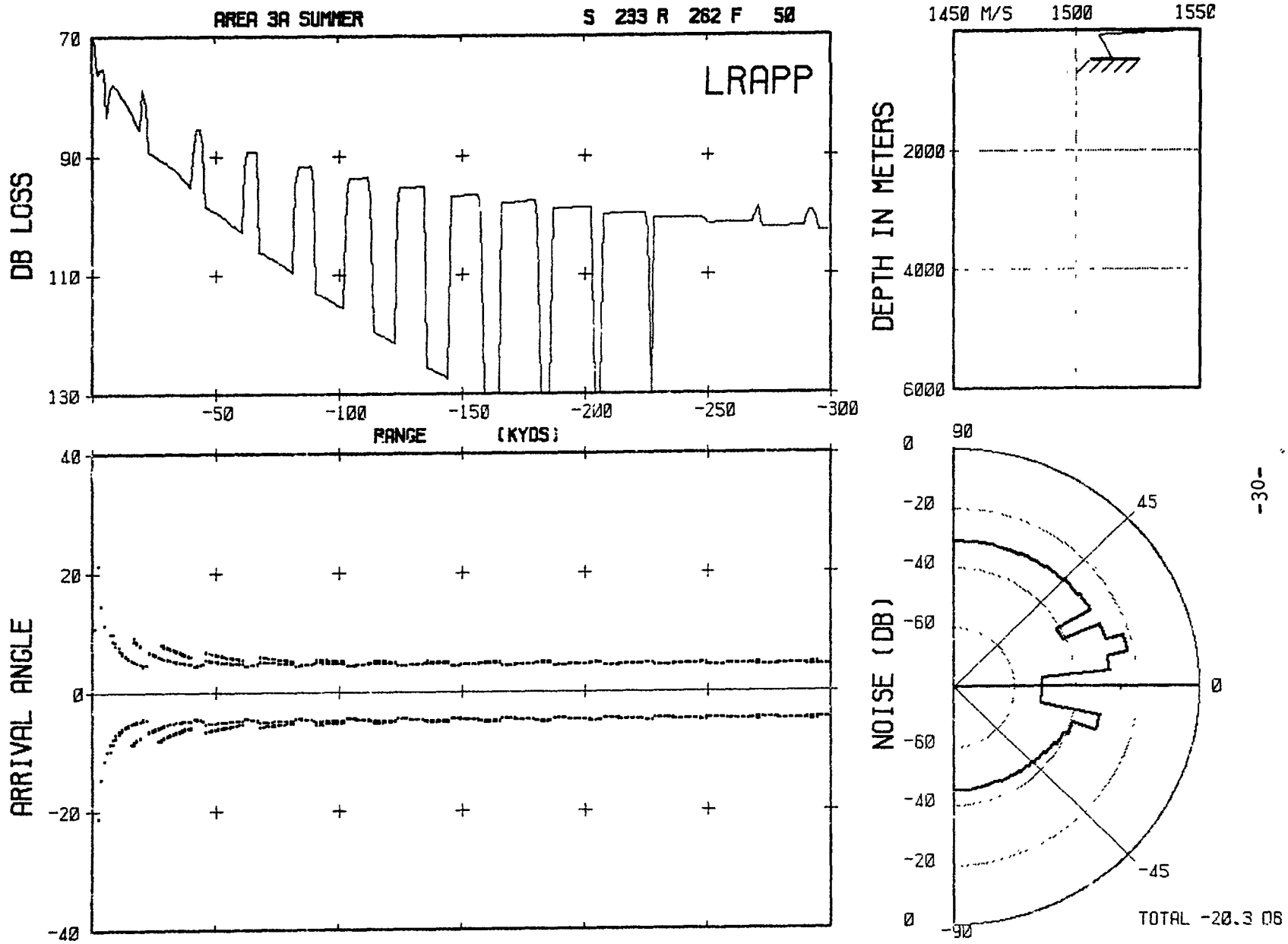
TOTAL -20.3 DB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DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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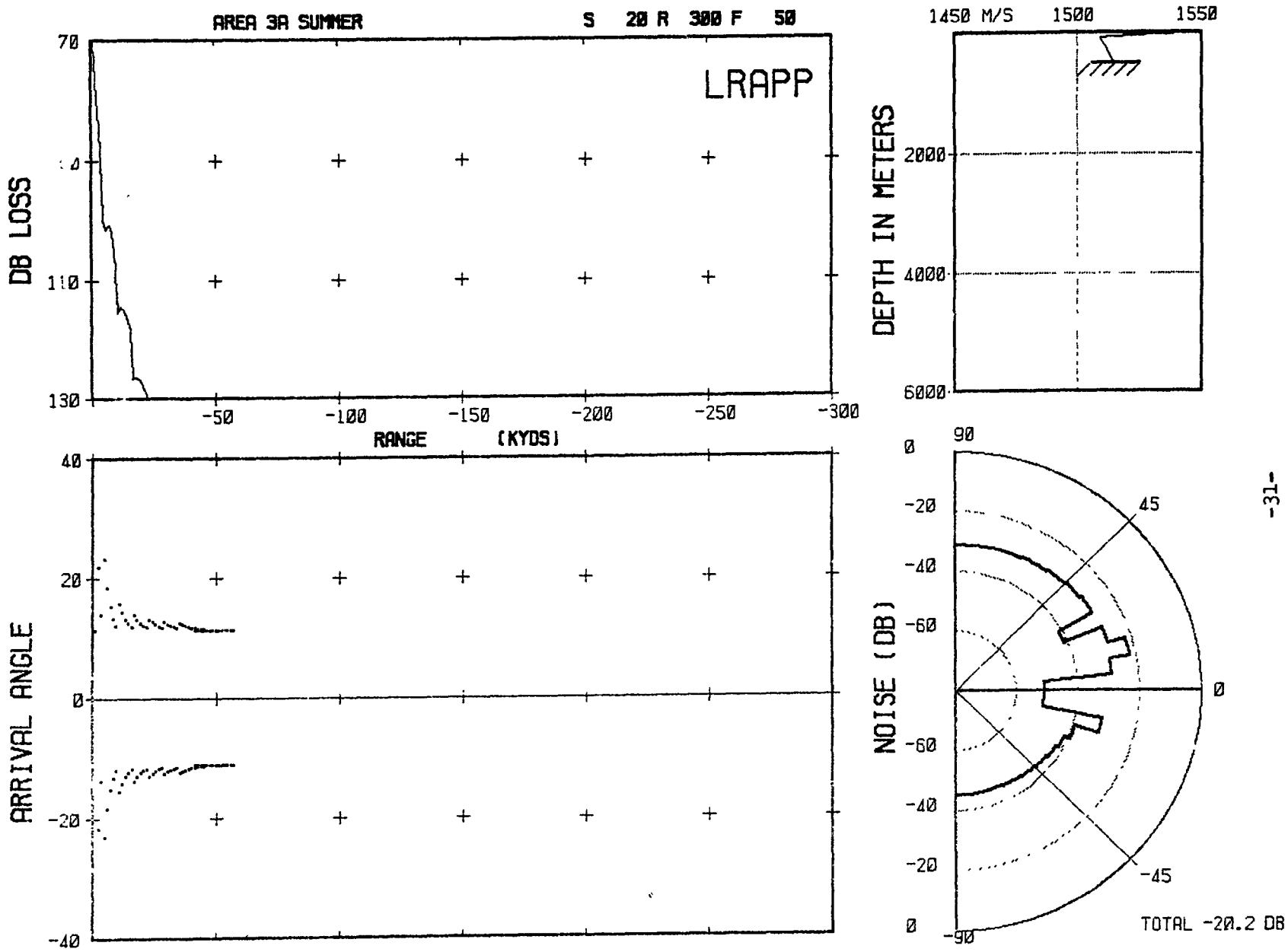
TOTAL -20.3 DB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DB LOSS
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
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-40
NOISE (DB)
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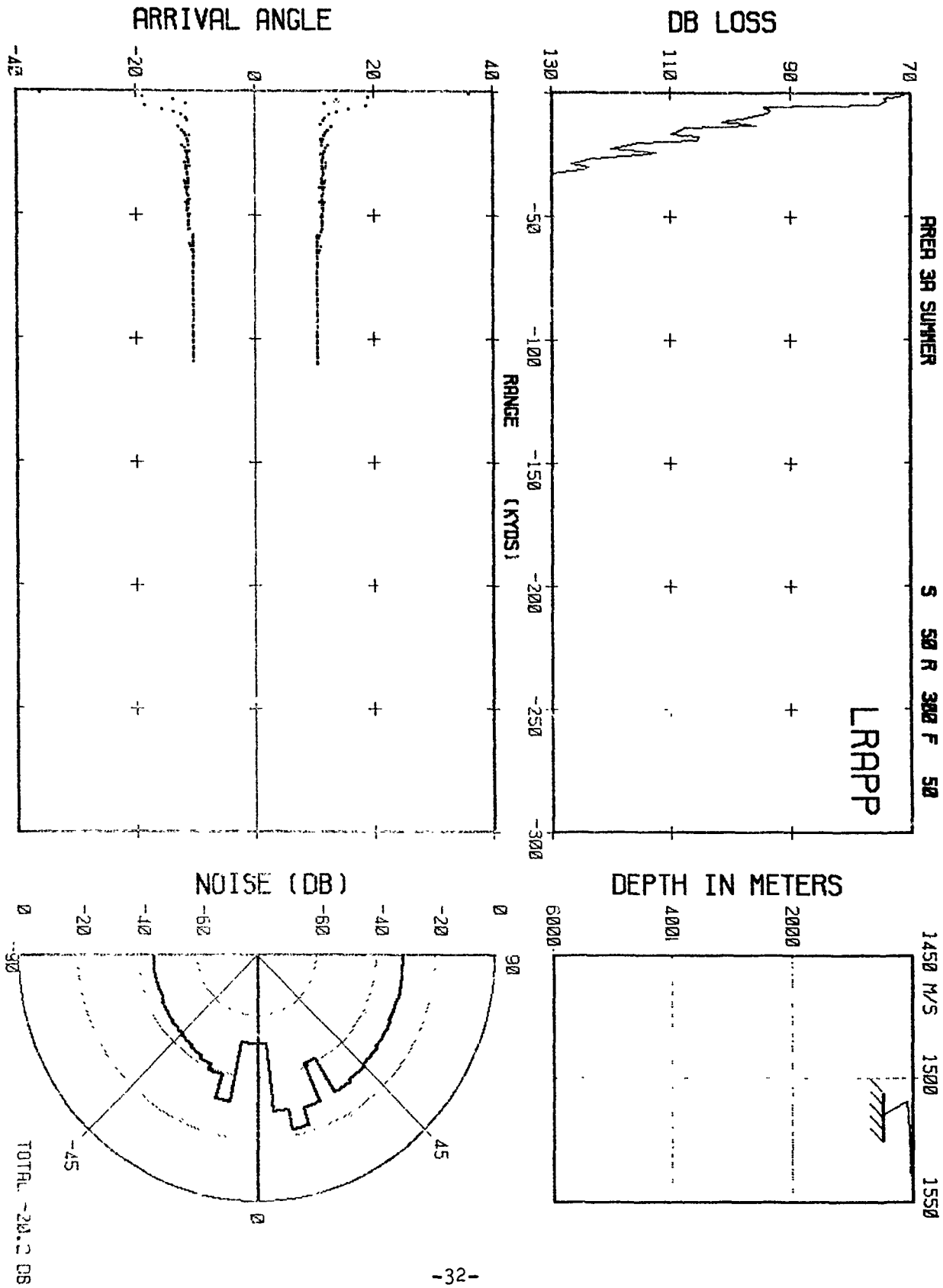
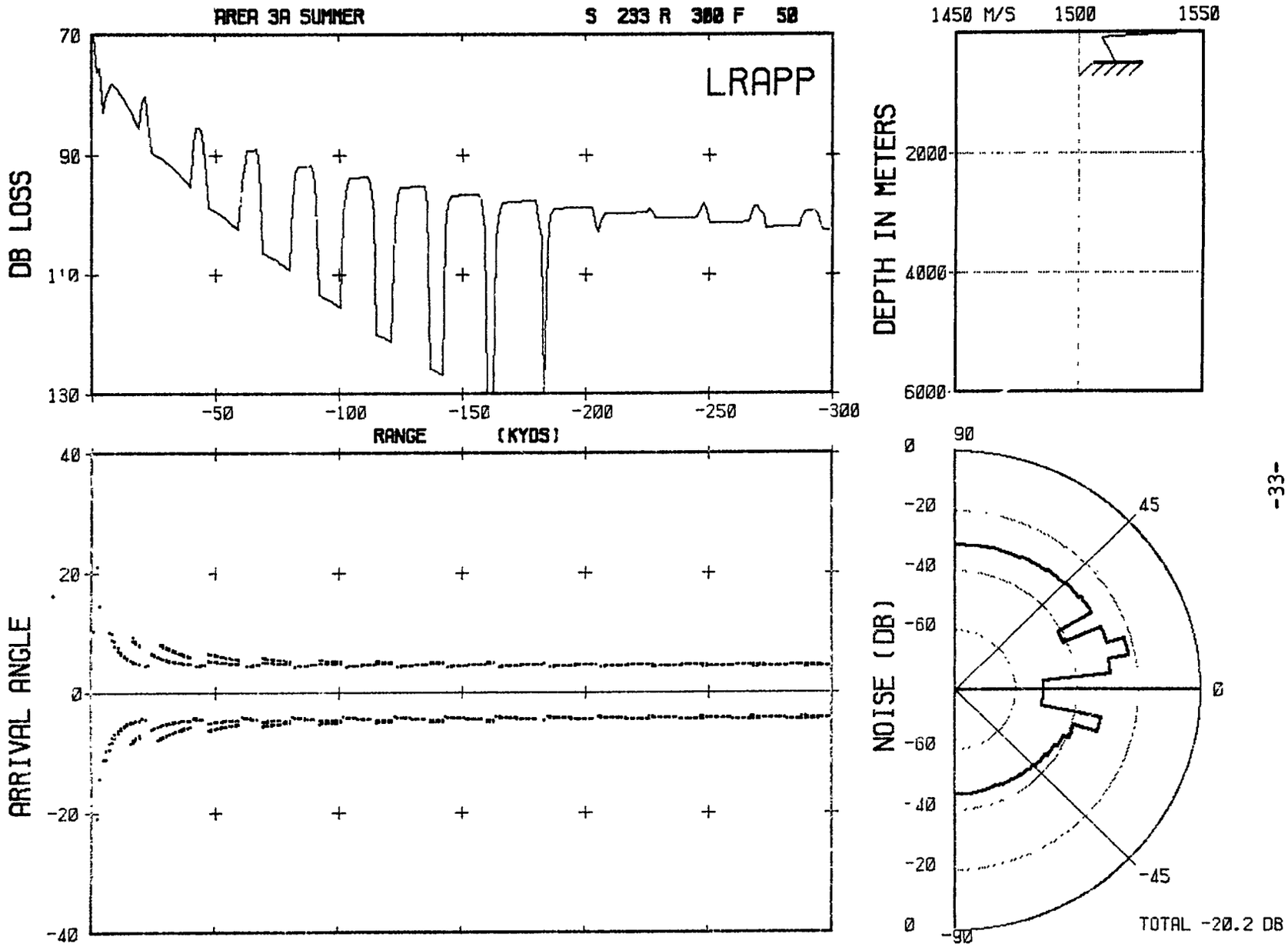
-45
TOTAL -20.2 DB


DB LOSS
AREA 3A SUMMER
S 50 R 300 F 50
LRAPP
RANGE (KYDS)
ARRIVAL ANGLE
DEPTH IN METERS
1450 M/S 1500 1550
NOISE (DB)
TOTAL -20.2 DB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LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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0
-20
-40
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-20
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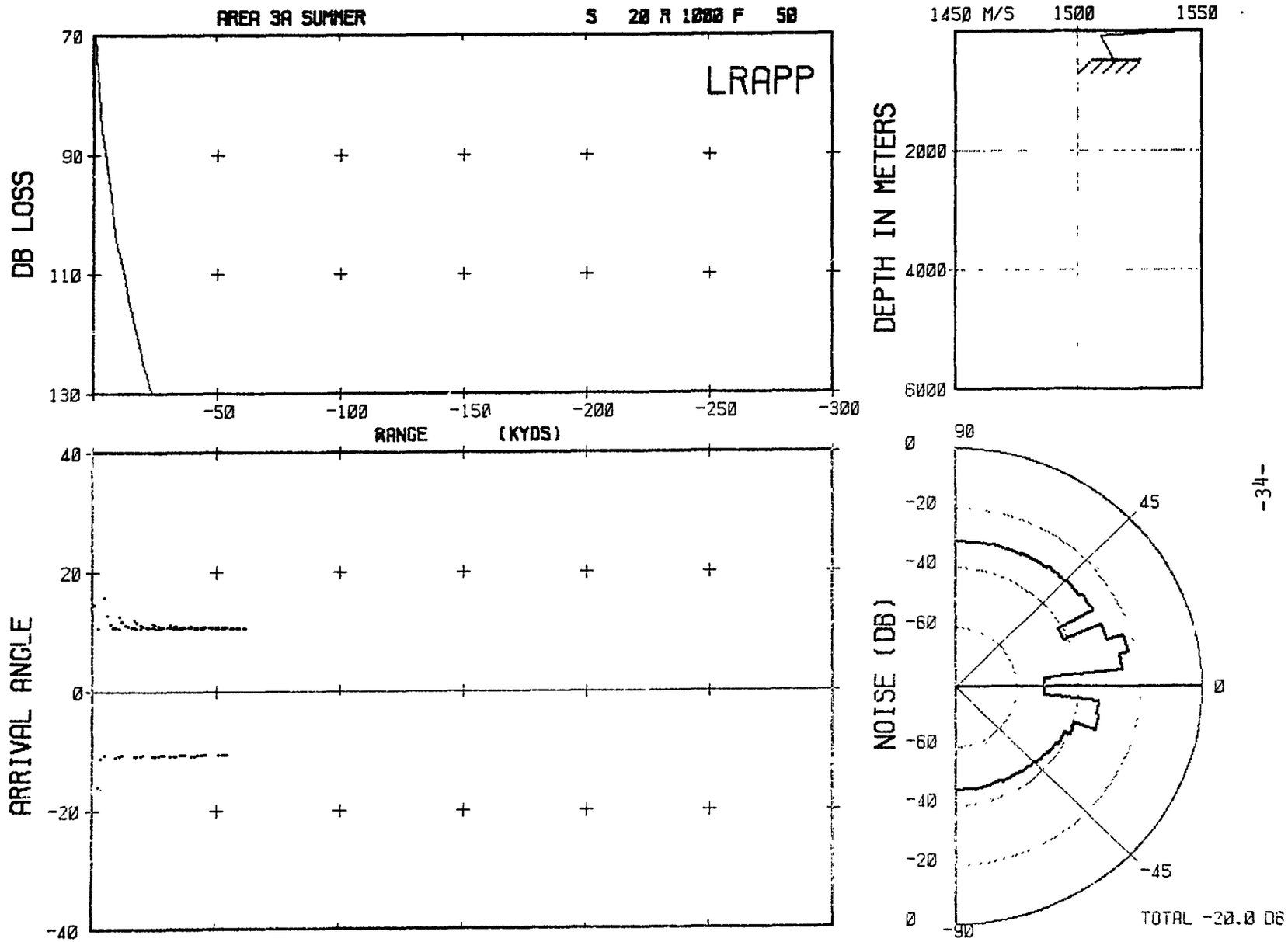
-45
TOTAL -20.2 DB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-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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-40
NOISE (DB)
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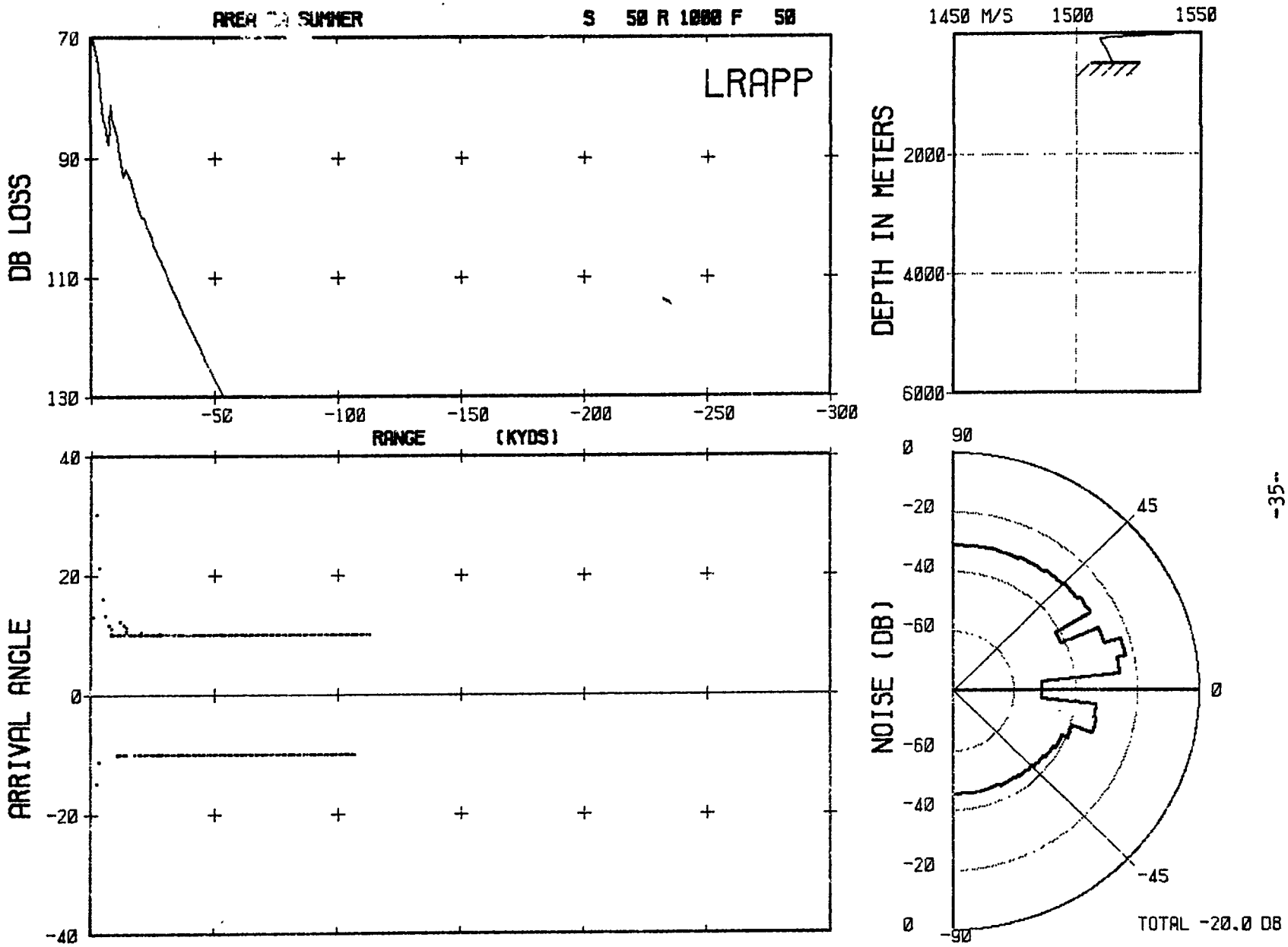
-45
-90
TOTAL -20.0 DB


AREA SUMMER
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-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
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DEPTH IN METERS
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NOISE (DB)
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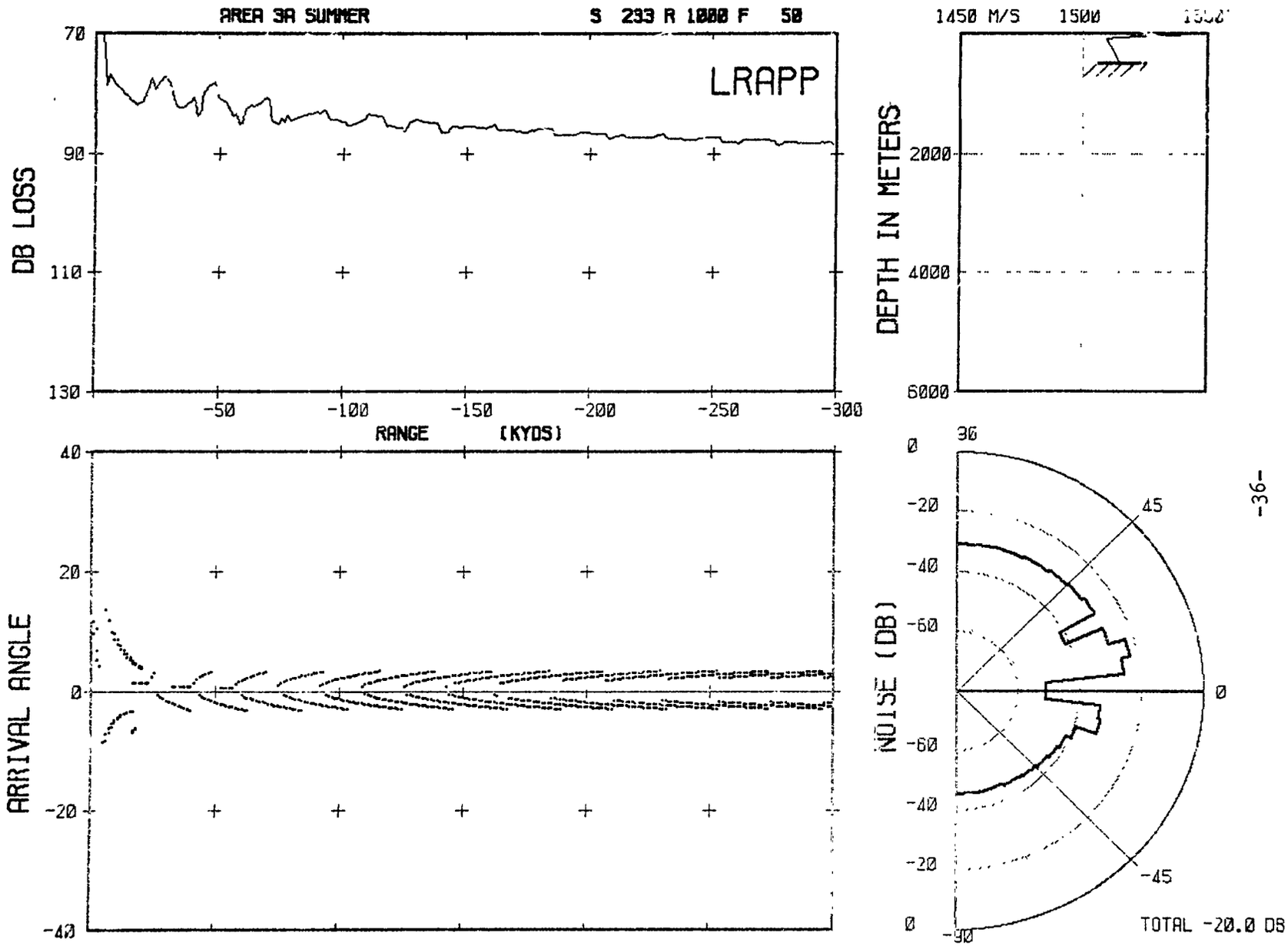
TOTAL -20.0 DB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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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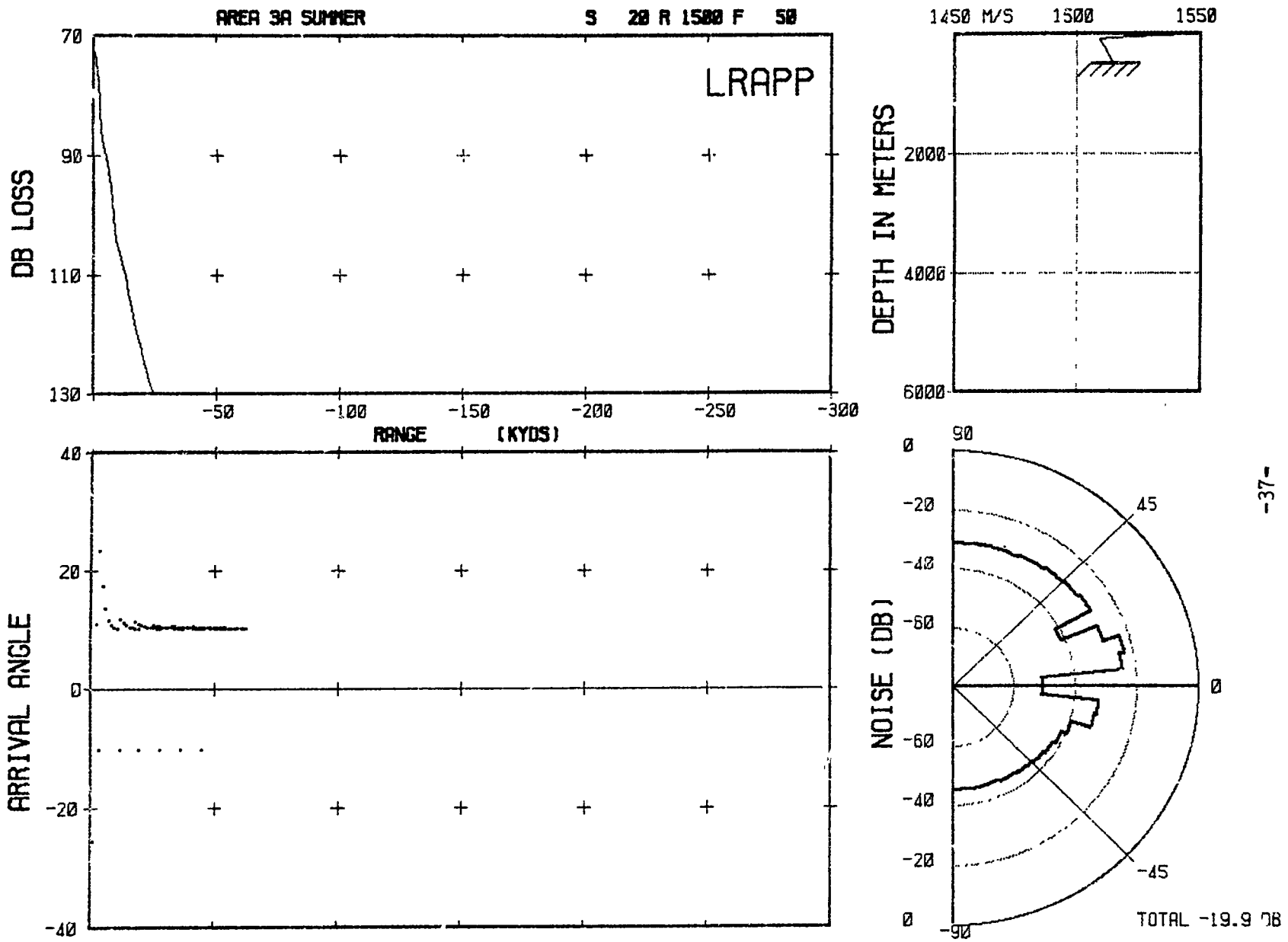
-90
TOTAL -20.0 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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6000
ARRIVAL ANGLE
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NOISE (DB)
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-40
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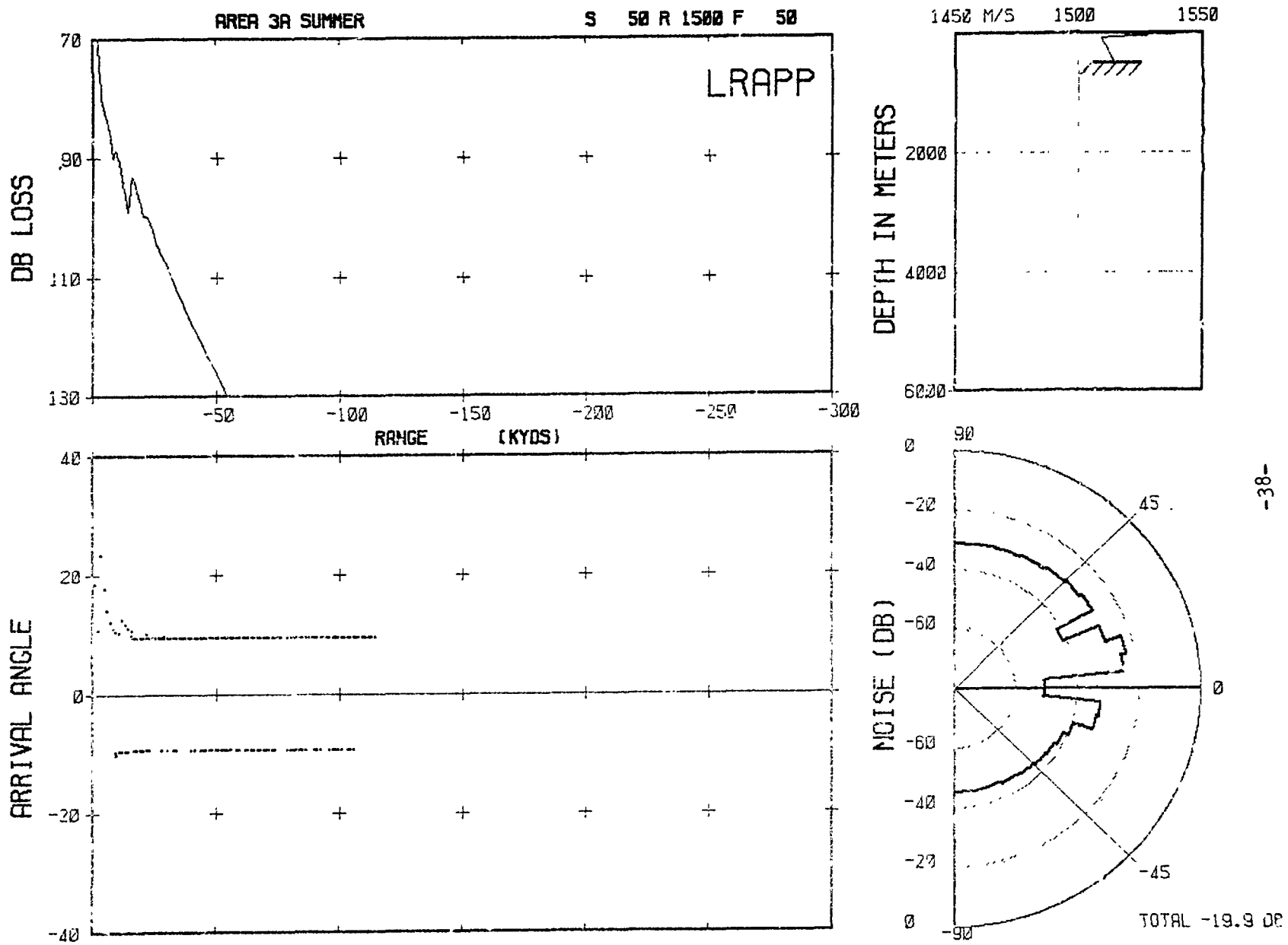
TOTAL -19.9 DB


AREA 3A SUMMER
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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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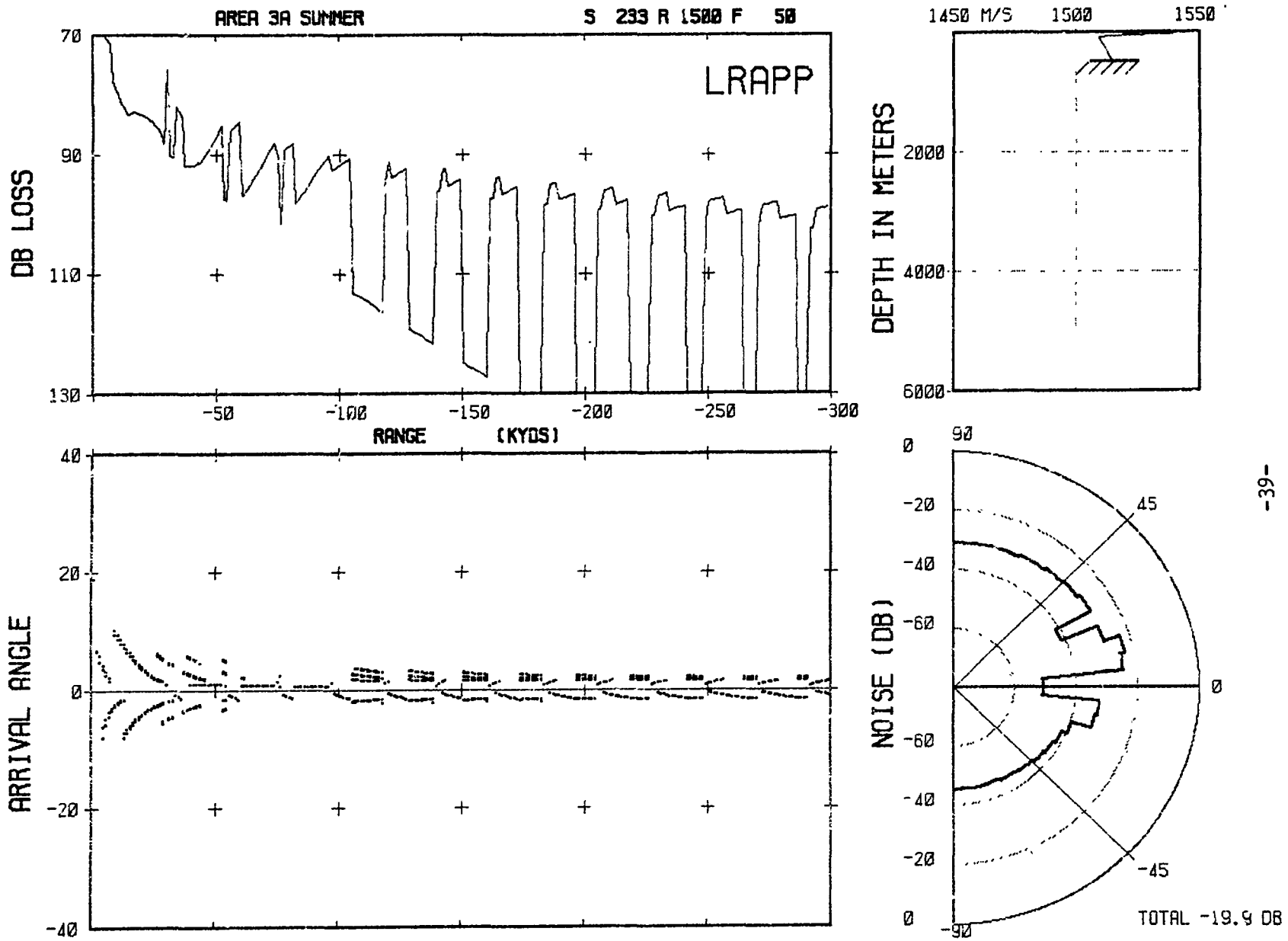
TOTAL -19.9 DB


AREA 3A SUMMER
S 233 R 1500 F 50
LRAPP
DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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ARRIVAL ANGLE
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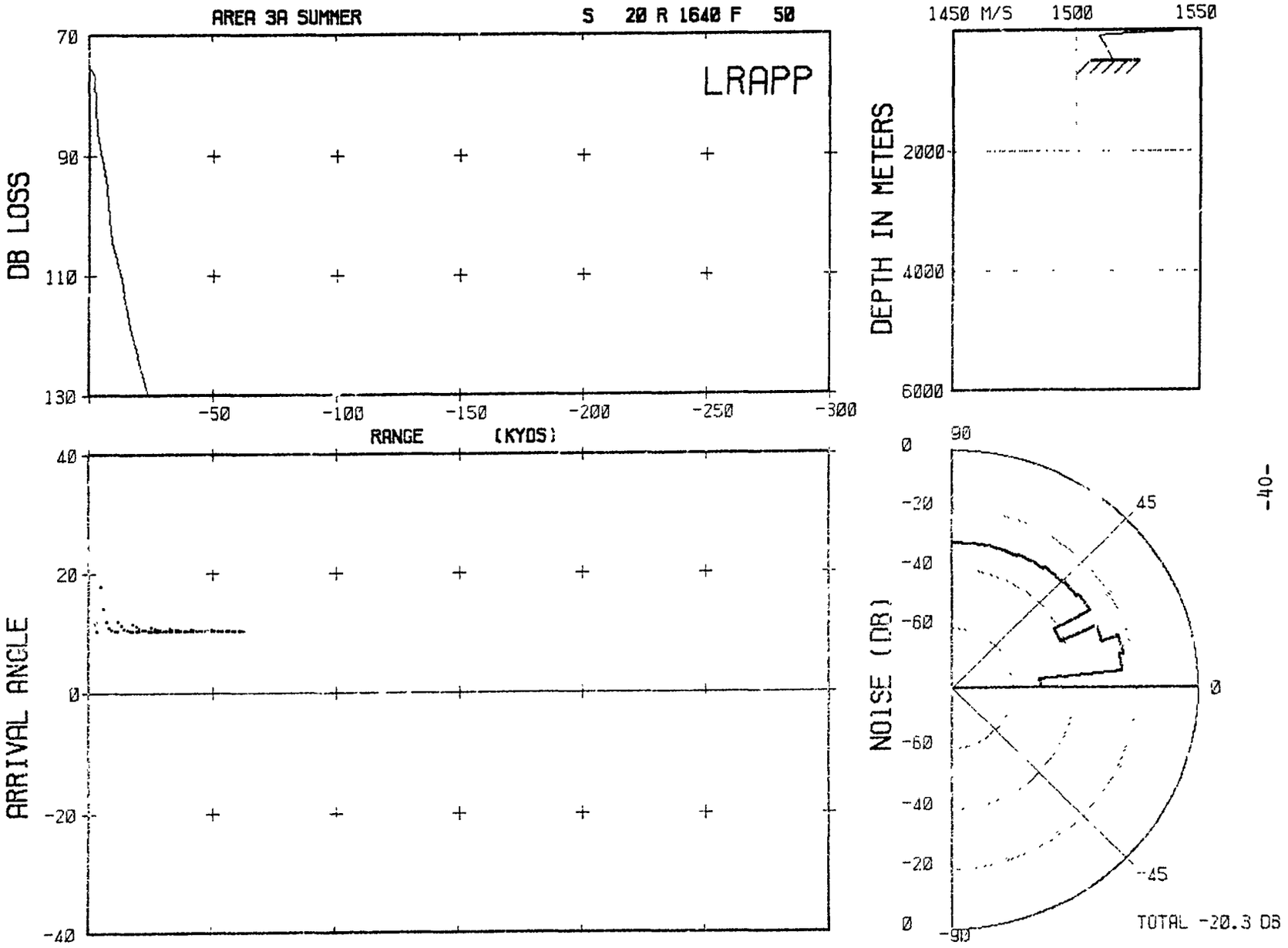
TOTAL -19.9 DB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LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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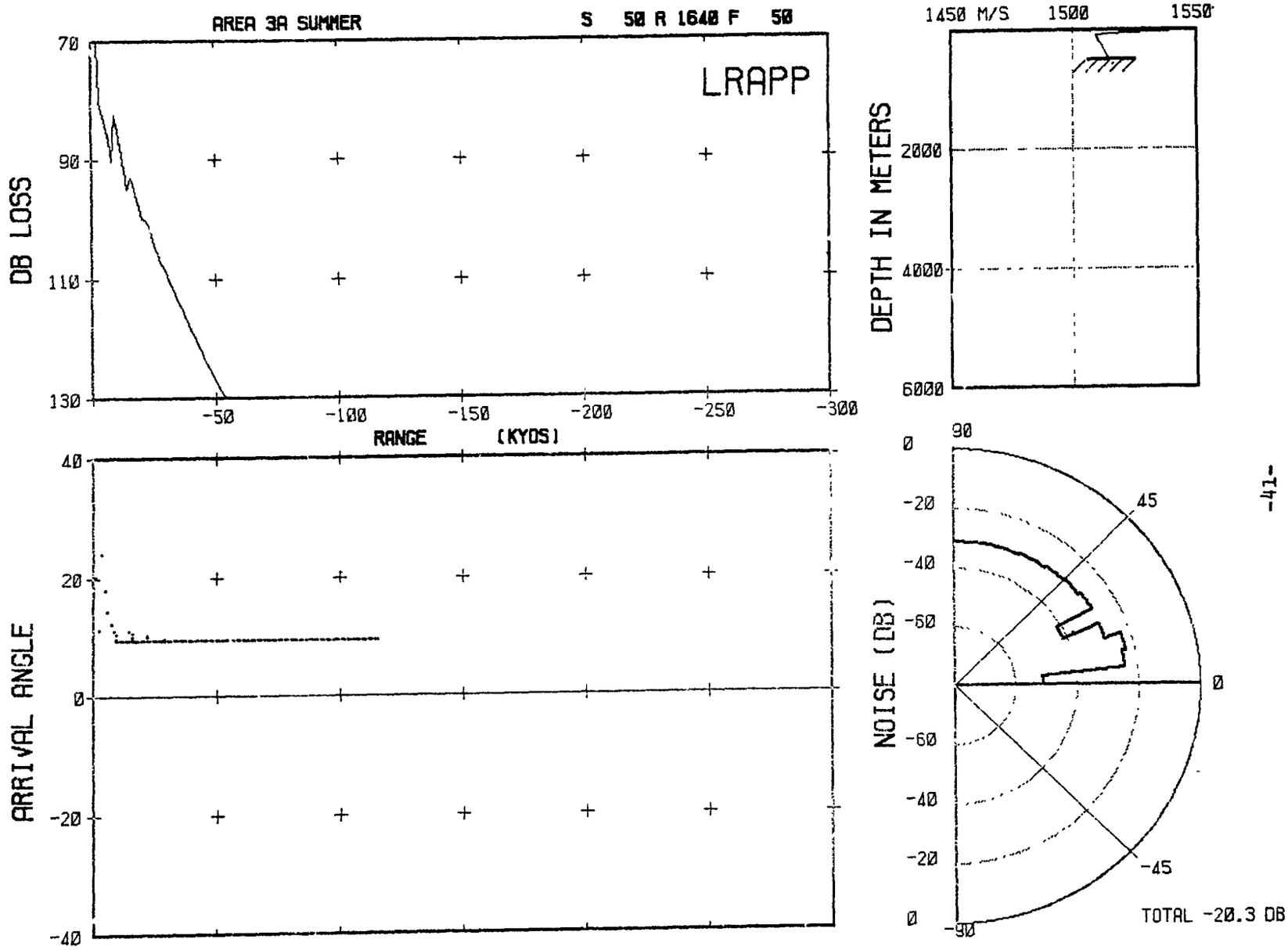
TOTAL -20.3 DB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LRAPP
DB LOSS
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RANGE (KYDS)
ARRIVAL ANGLE
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1550
DEPTH IN METERS
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NOISE (DB)
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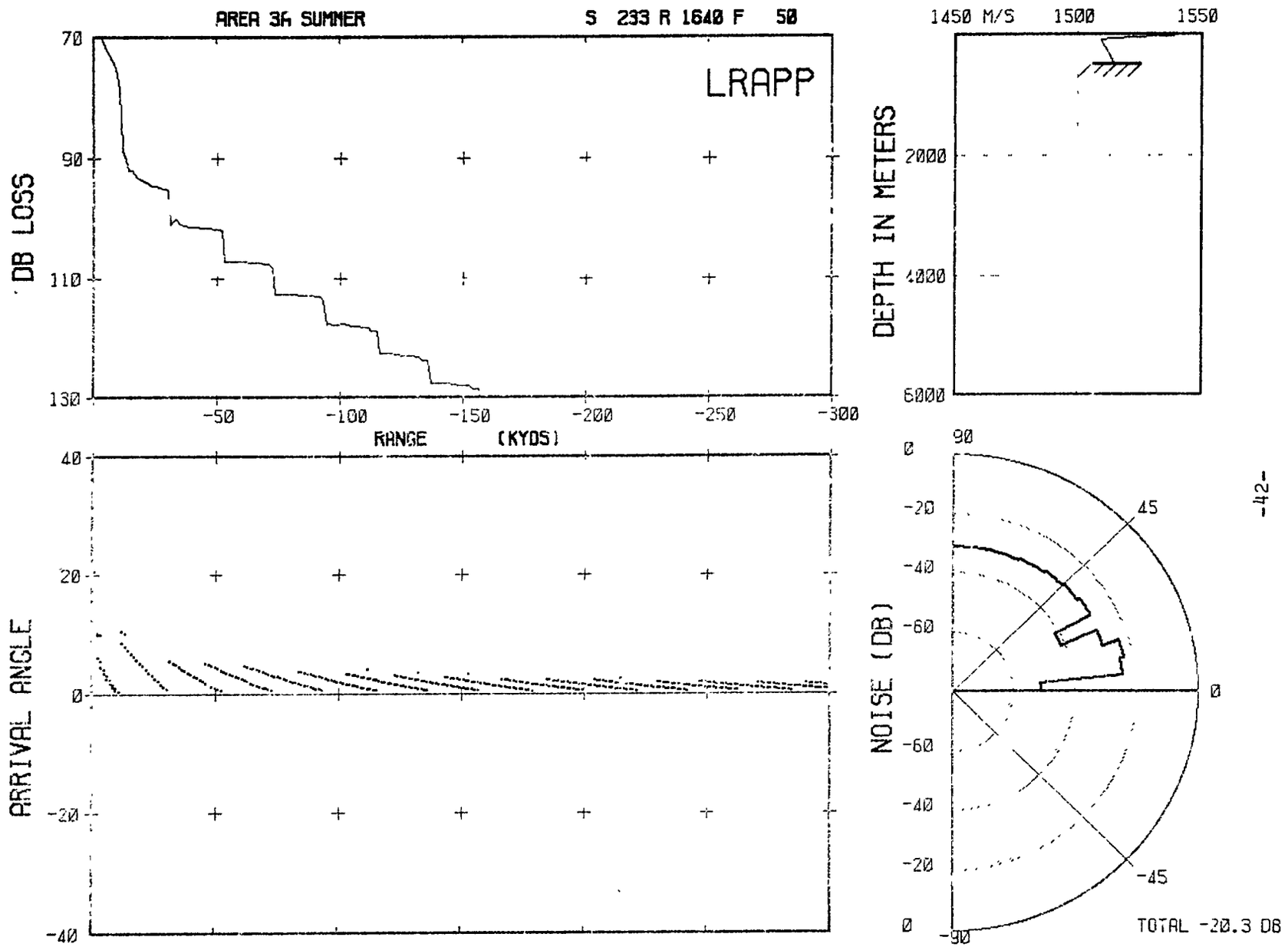
TOTAL -20.3 DB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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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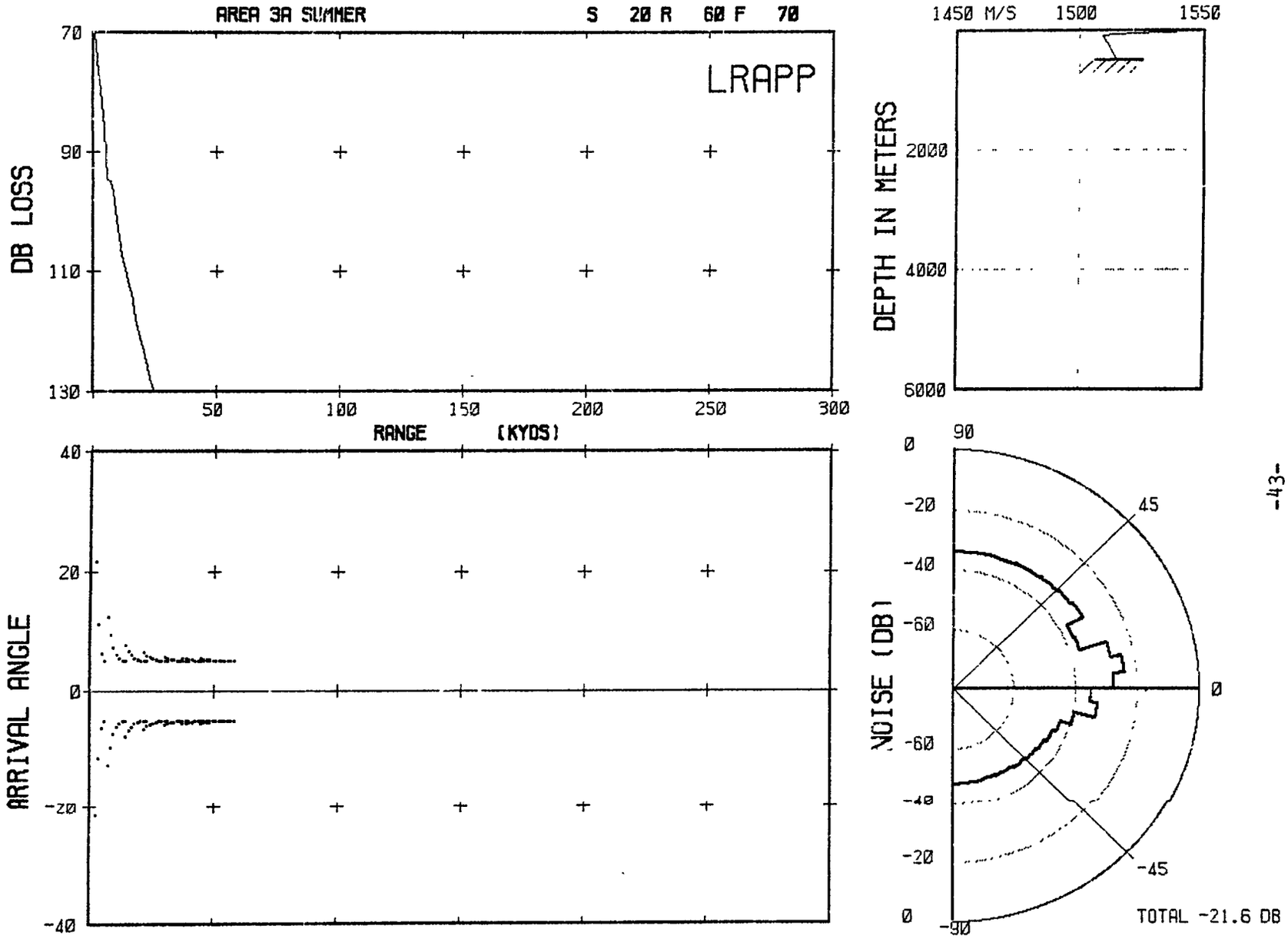
TOTAL -20.3 DB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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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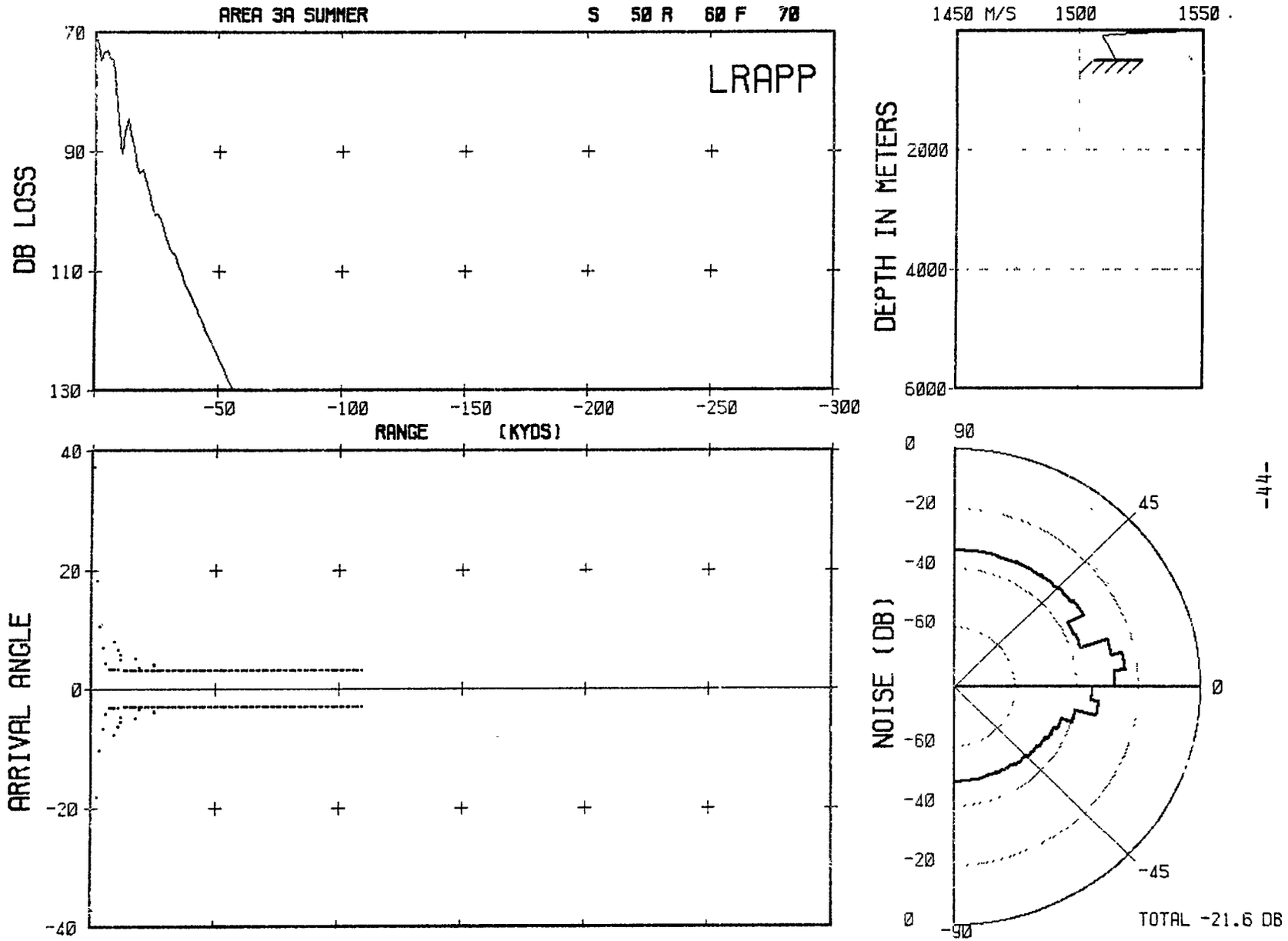
TOTAL -21.6 DB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RANGE (KYDS)
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DEPTH IN METERS
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ARRIVAL ANGLE
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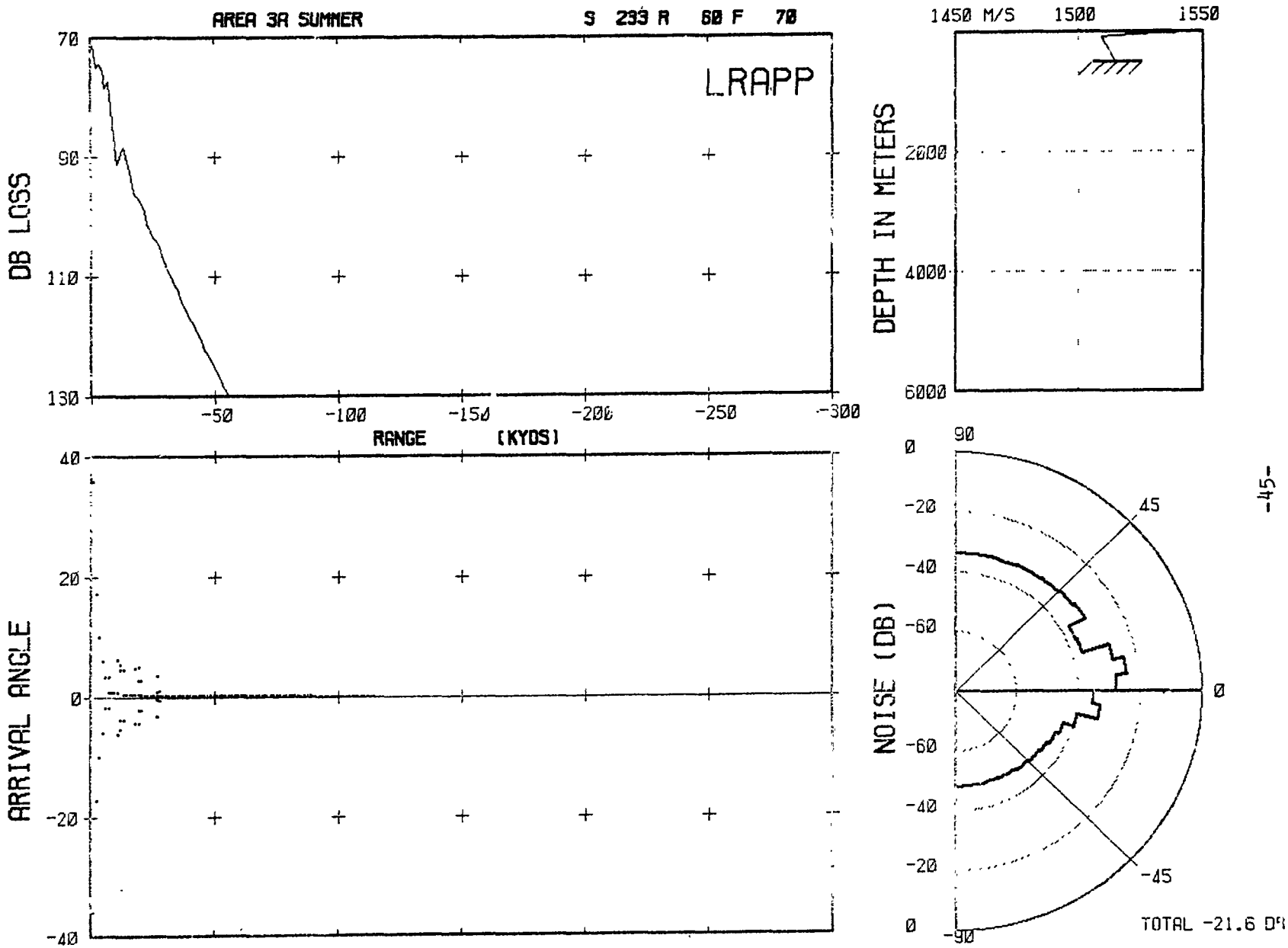
TOTAL -21.6 DB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RANGE (KYDS)
ARRIVAL ANGLE
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NOISE (DB)
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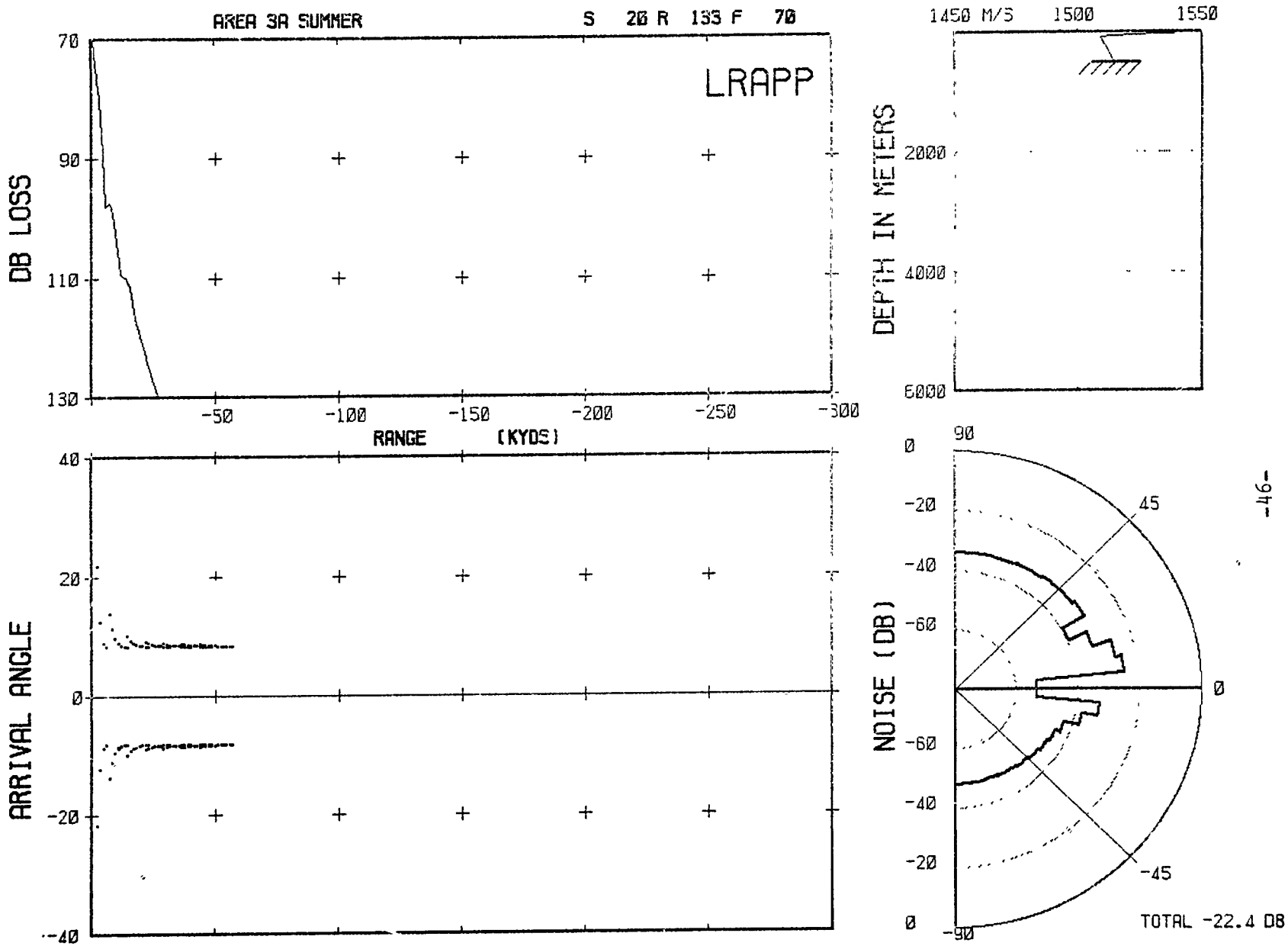
TOTAL -21.6 DB


AREA 3A SUMMER
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ARRIVAL ANGLE
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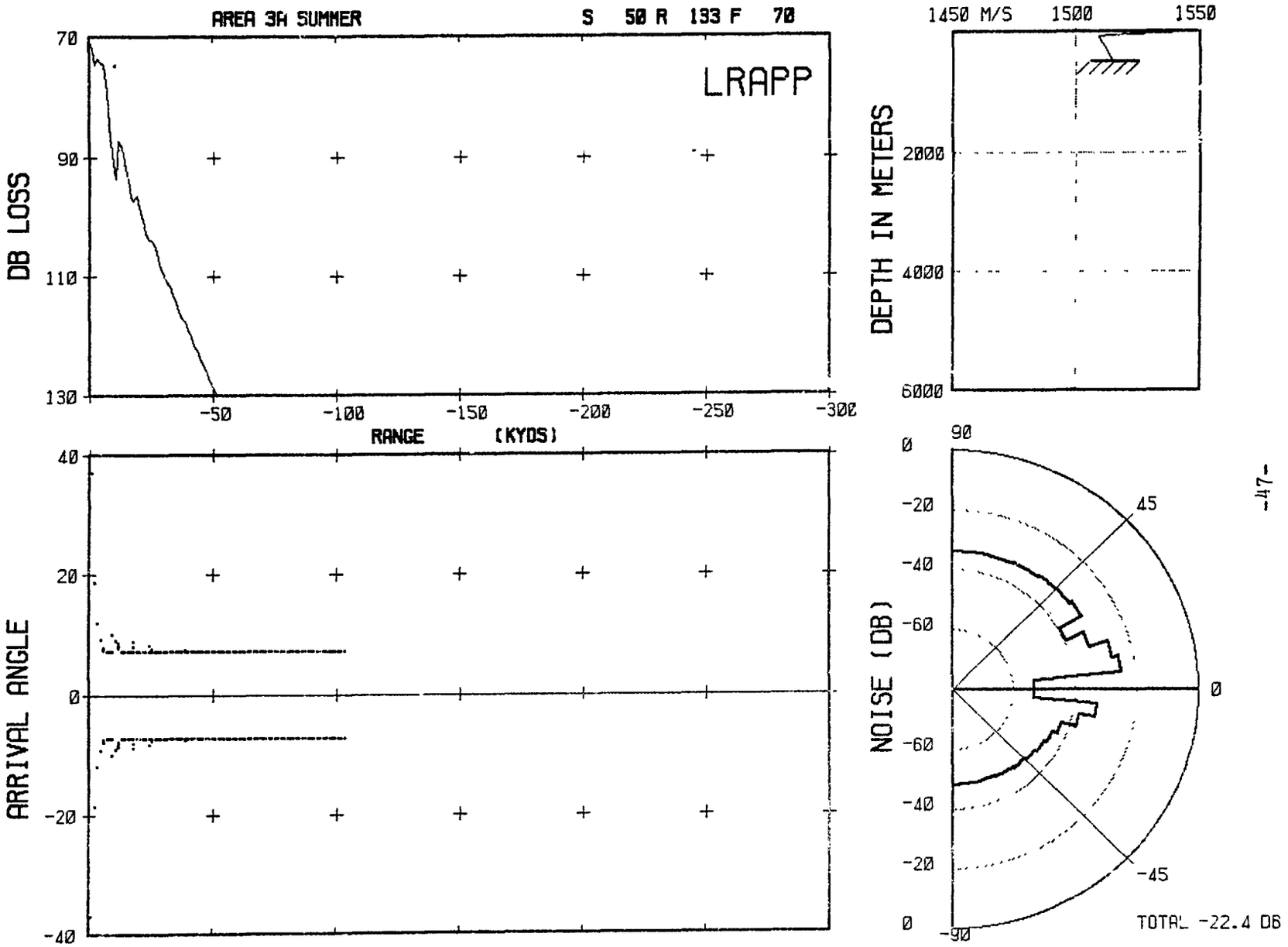
TOTAL -22.4 DB


AREA 3A SUMMER
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LRAPP
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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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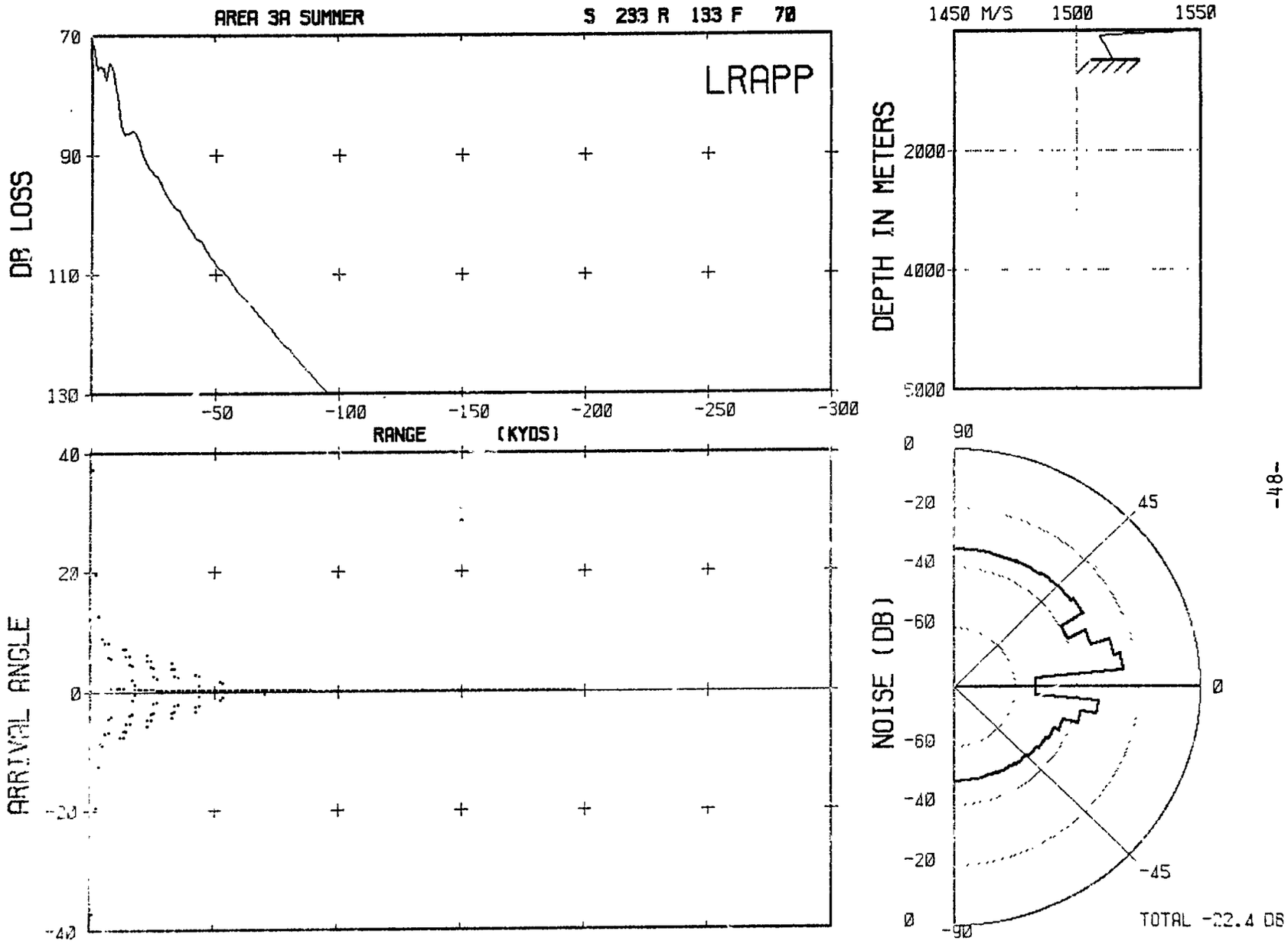
TOTAL -22.4 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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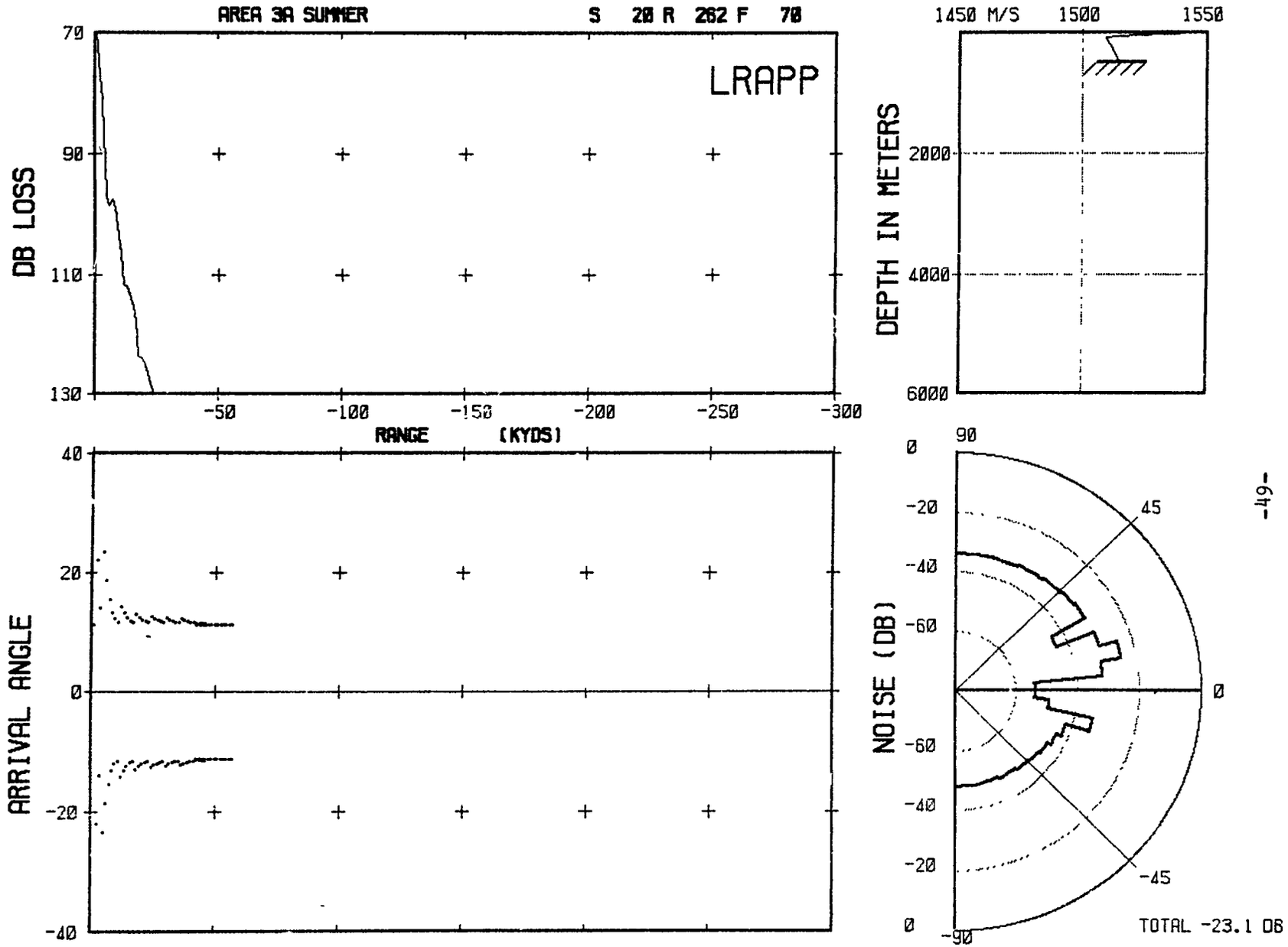
TOTAL -22.4 DB


AREA 3A SUMMER
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LRAPP
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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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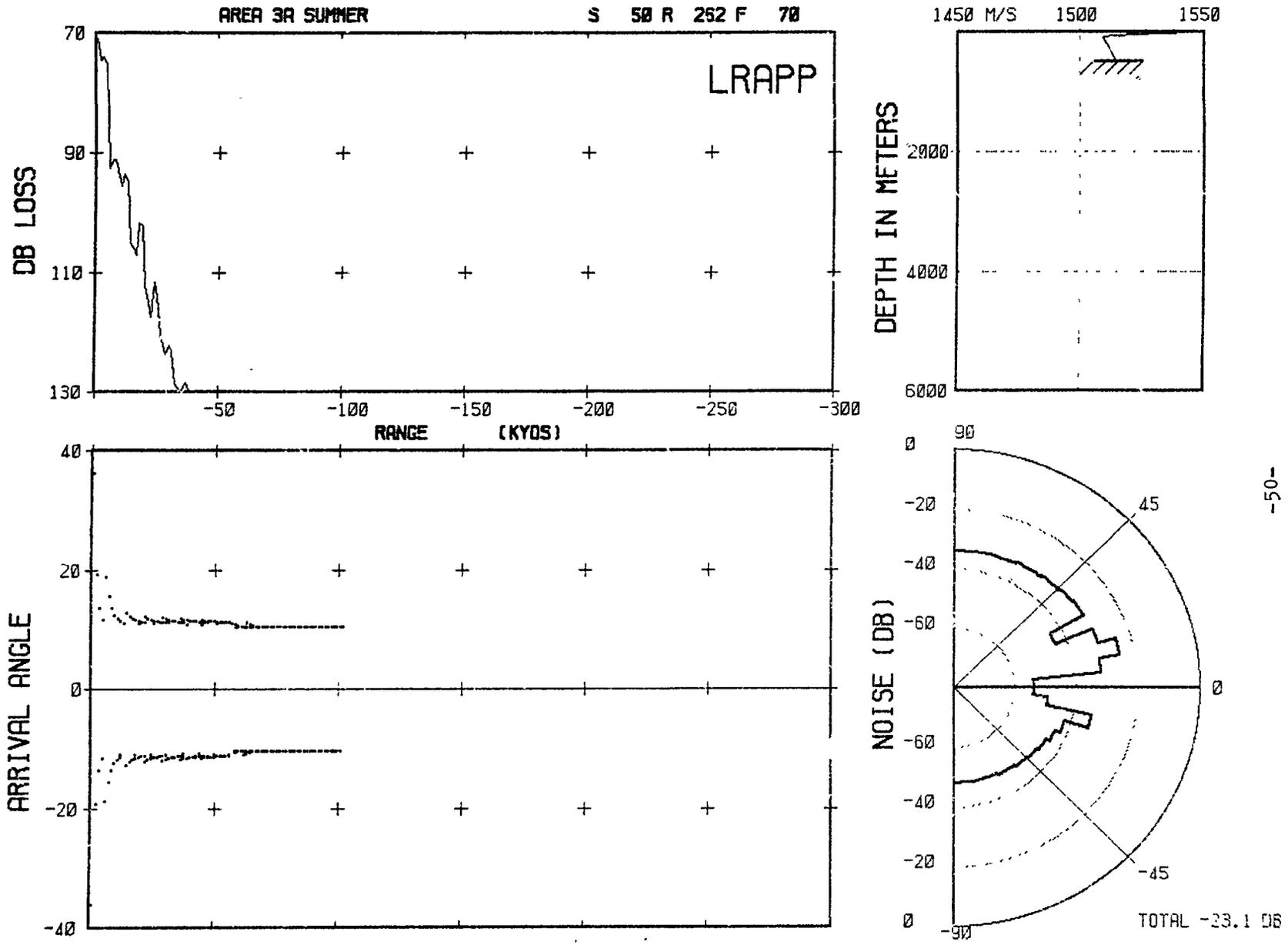
TOTAL -23.1 DB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LRAPP
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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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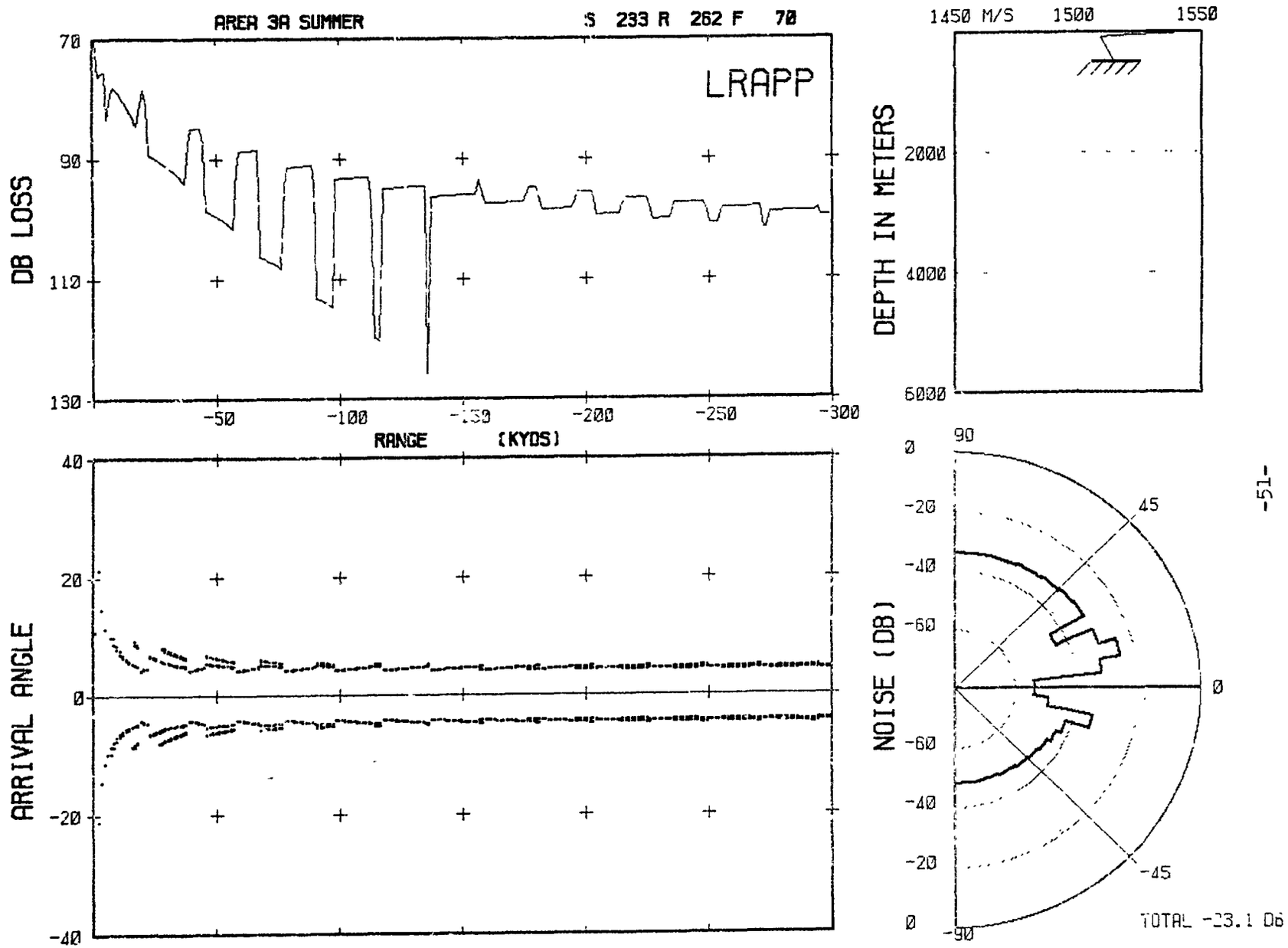
TOTAL -23.1 DB


AREA 3A SUMMER
S 233 R 262 F 70
LRAPP
DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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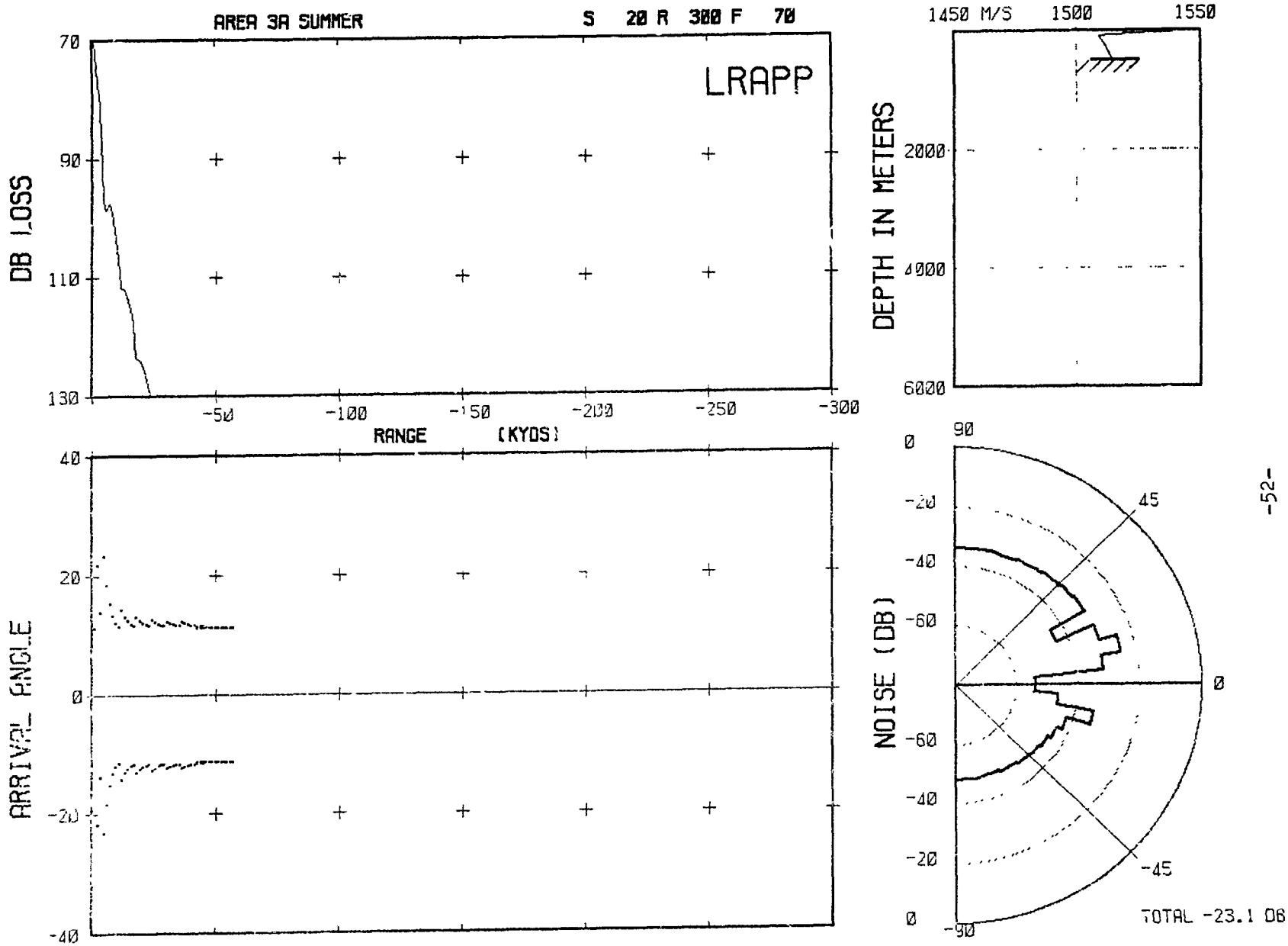
TOTAL -23.1 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
ARRIVAL ANGLE
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1450 M/S
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DEPTH IN METERS
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NOISE (DB)
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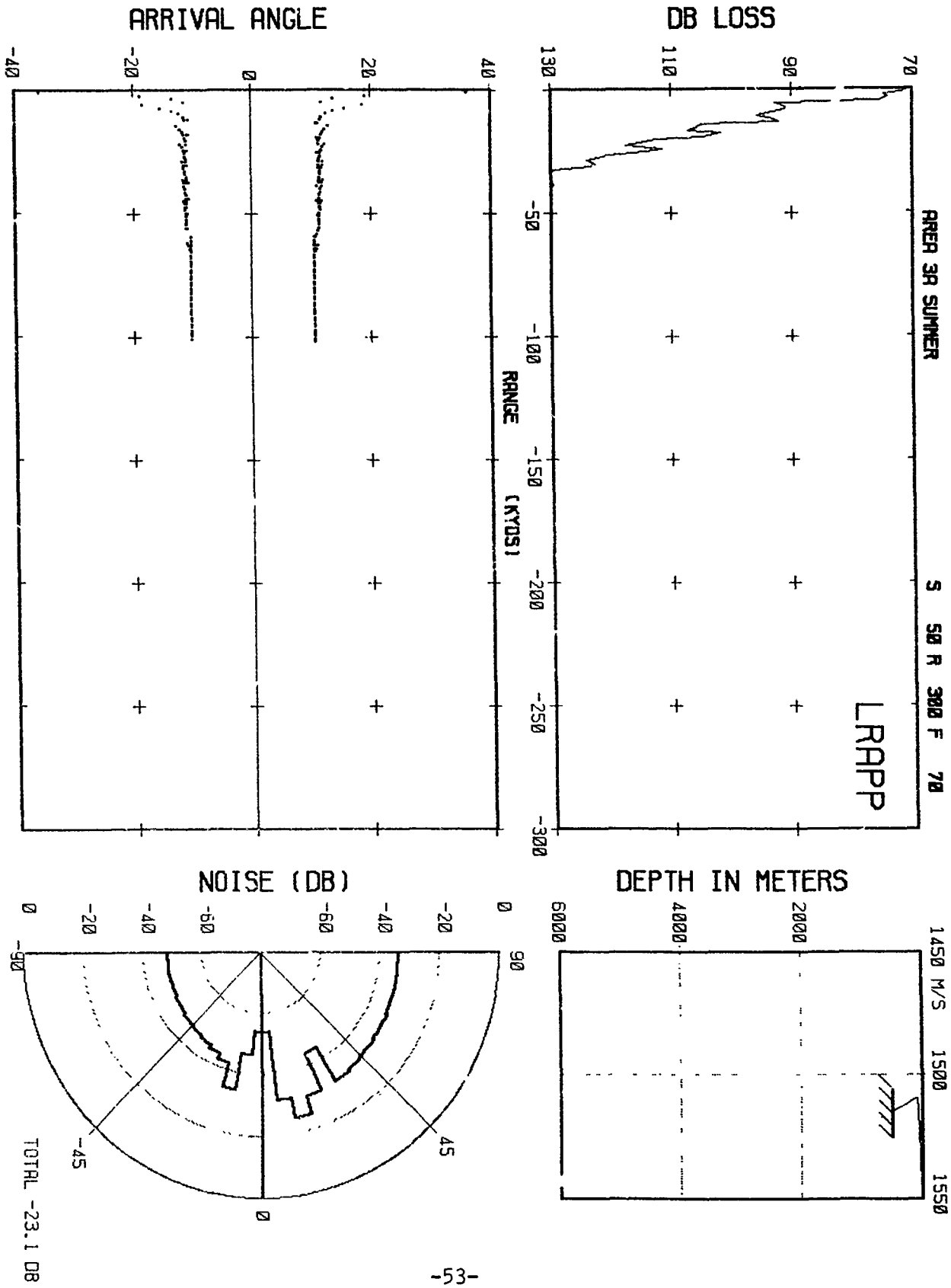
TOTAL -23.1 DB


DB LOSS
AREA 3A SUMMER
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LRAPP
RANGE (KYDS)
ARRIVAL ANGLE
DEPTH IN METERS
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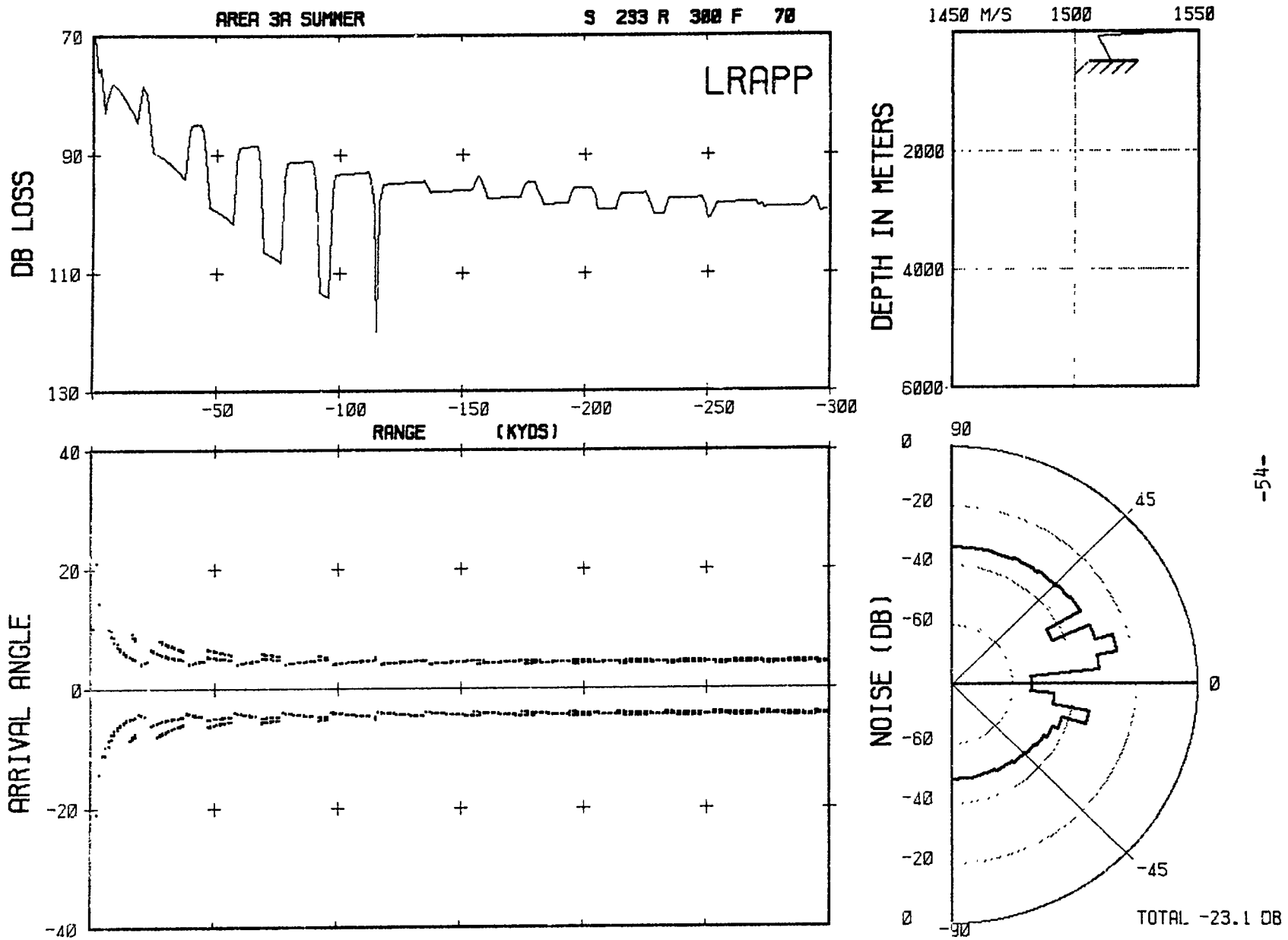
NOISE (DB)
TOTAL -23.1 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
70
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110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
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NOISE (DB)
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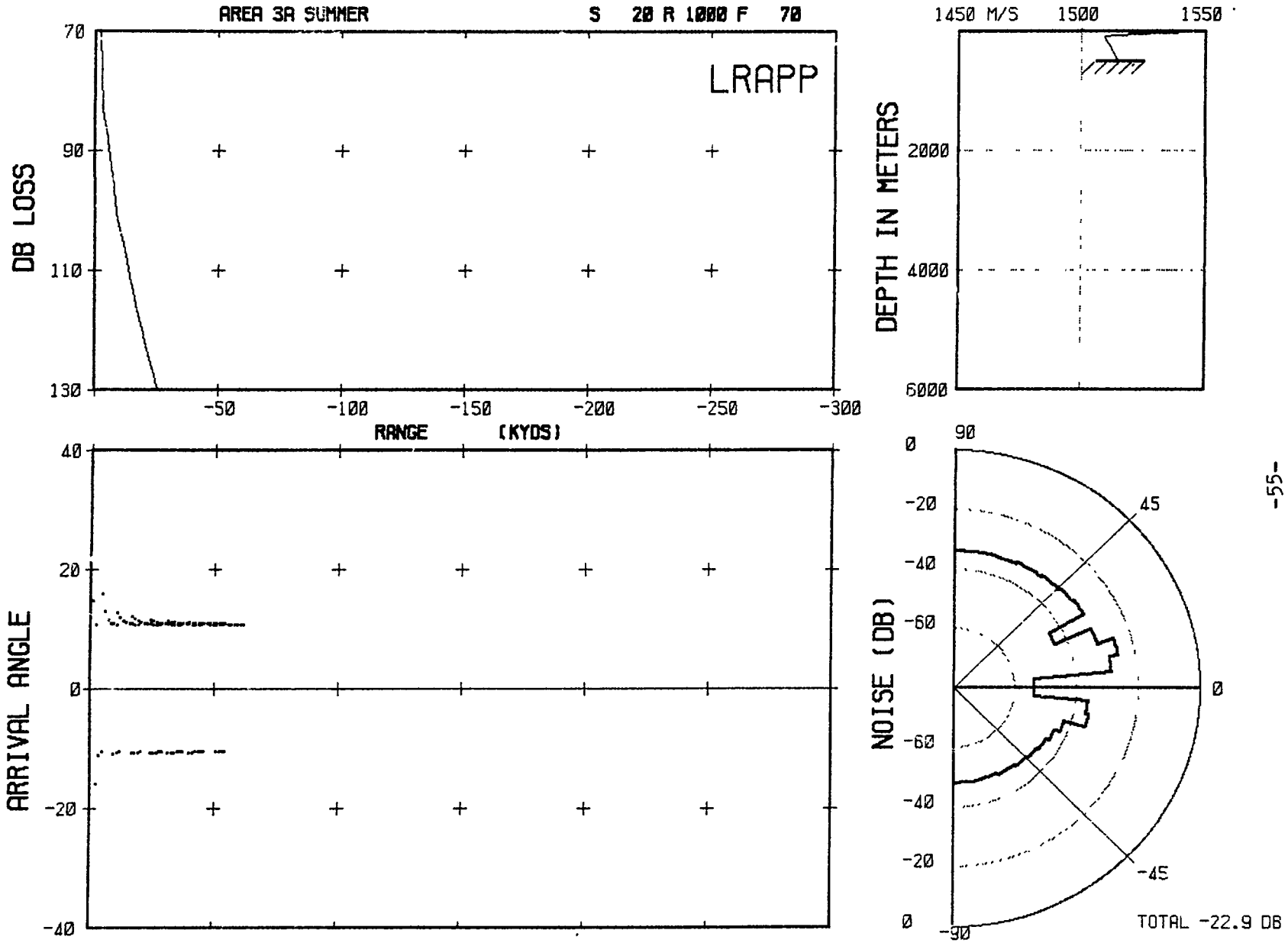
TOTAL -23.1 DB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DB LOSS
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-200
-250
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RANGE (KYDS)
1450 M/S 1500 1550
DEPTH IN METERS
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NOISE (DB)
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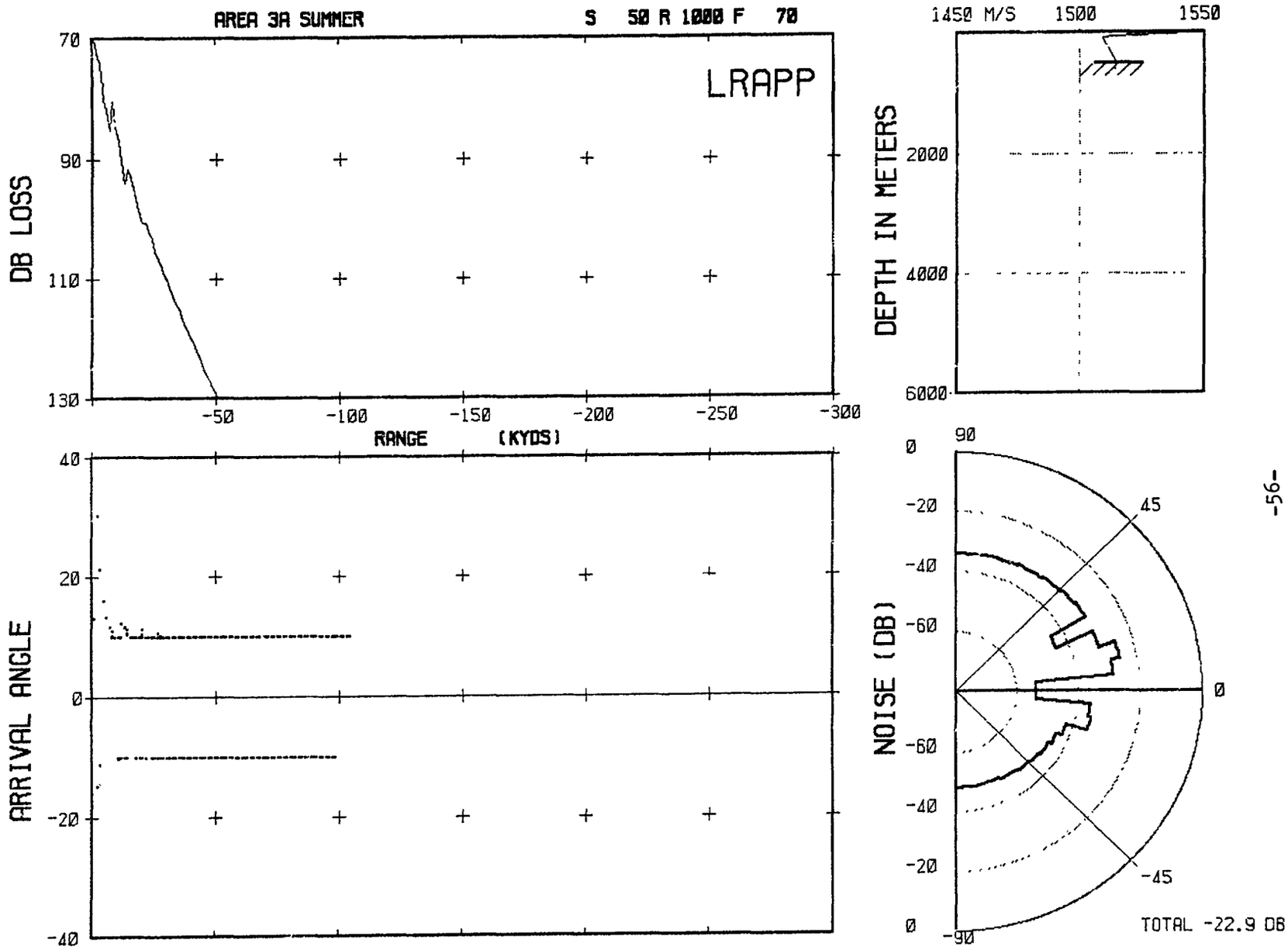
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DB LOSS
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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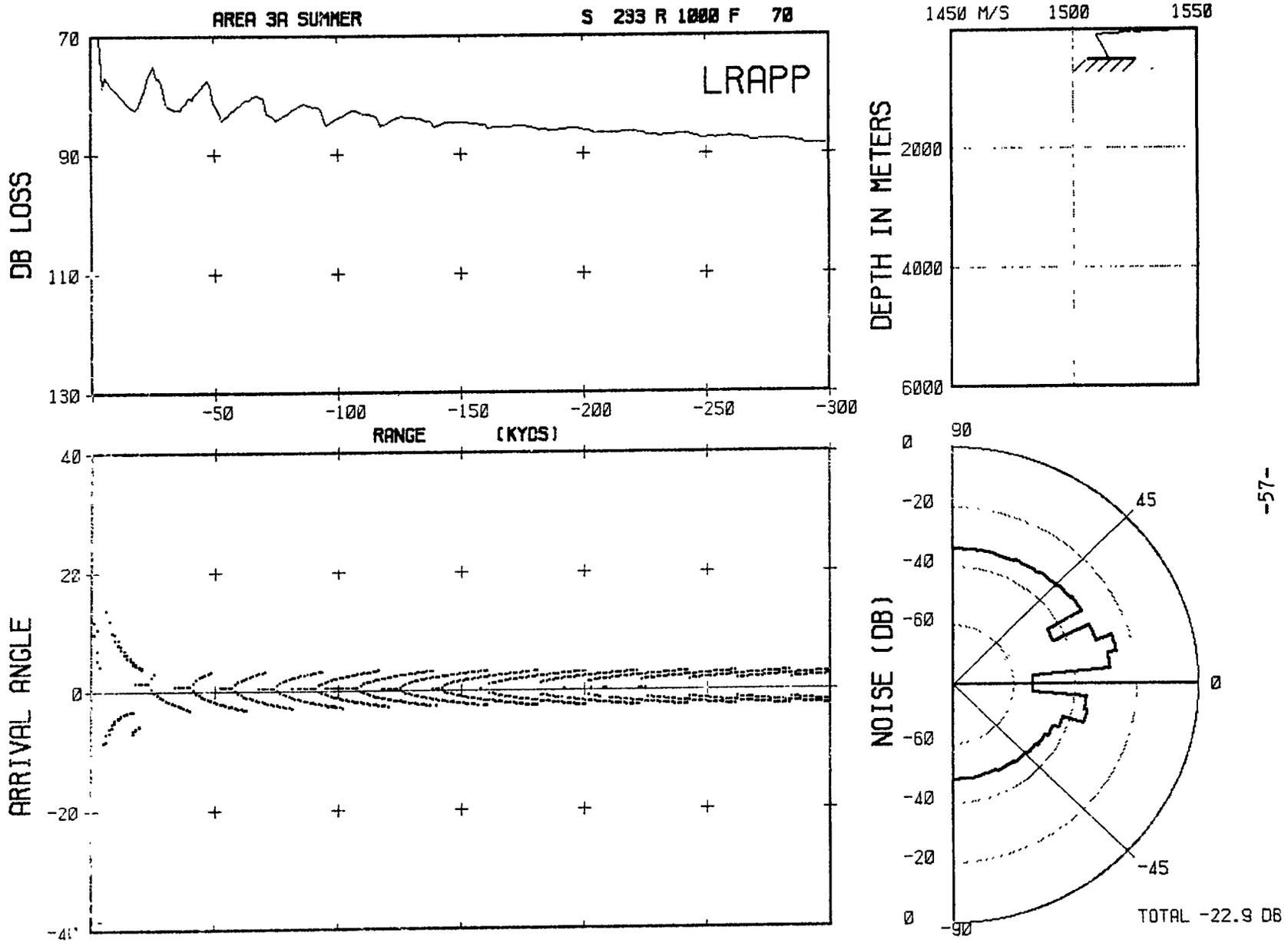
TOTAL -22.9 DB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S 233 R 1000 F 70
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DB LOSS
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-50
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-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
40
20
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-20
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DEPTH IN METERS
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4000
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NOISE (DB)
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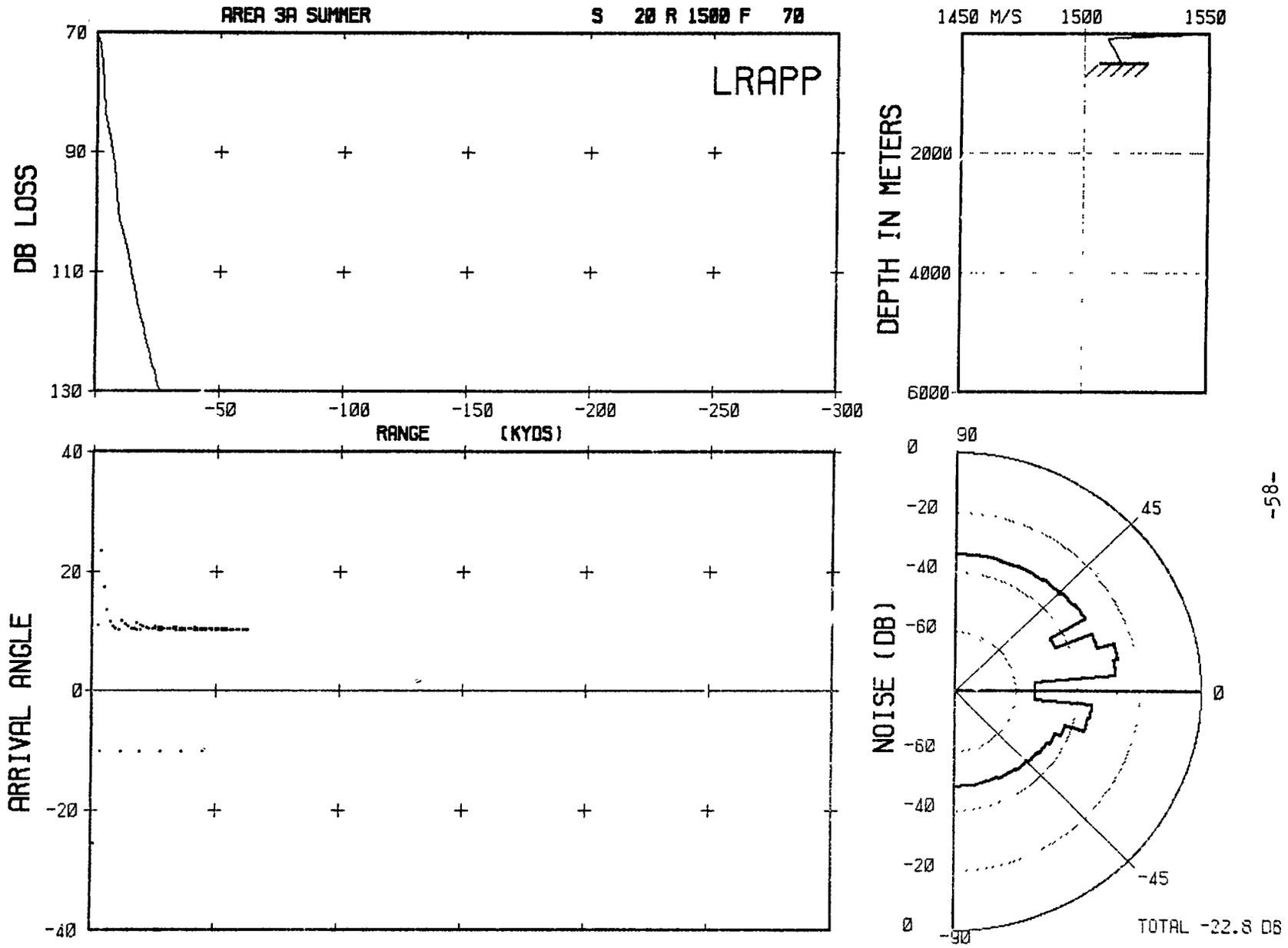
TOTAL -22.9 DB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RANGE (KYDS)
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1550
DEPTH IN METERS
2000
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NOISE (DB)
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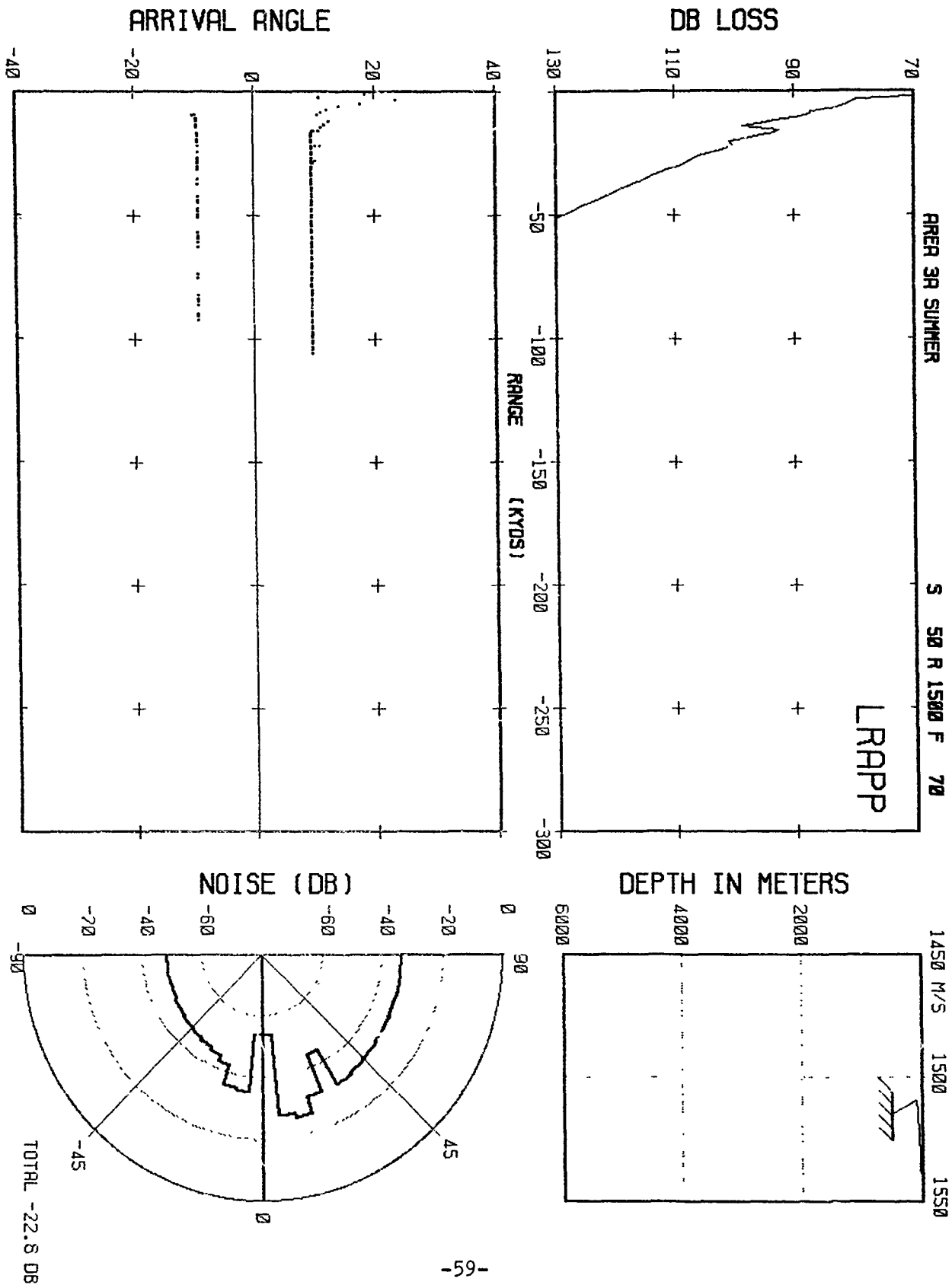
TOTAL -22.8 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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-300
RANGE (KYDS)
ARRIVAL ANGLE
40
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DEPTH IN METERS
2000
4000
6000
1450 M/S
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1550
NOISE (DB)
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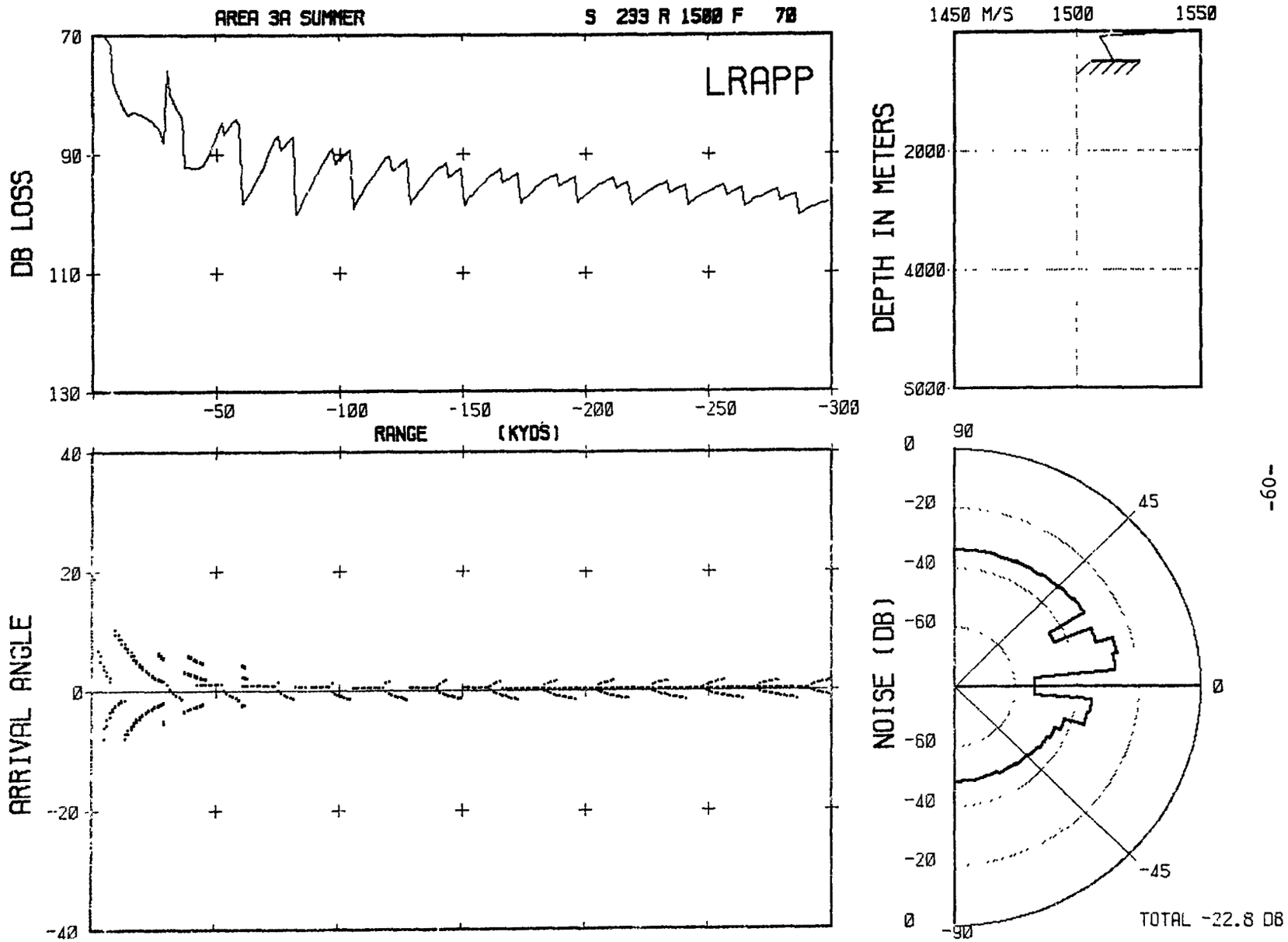
TOTAL -22.8 DB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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
5000
ARRIVAL ANGLE
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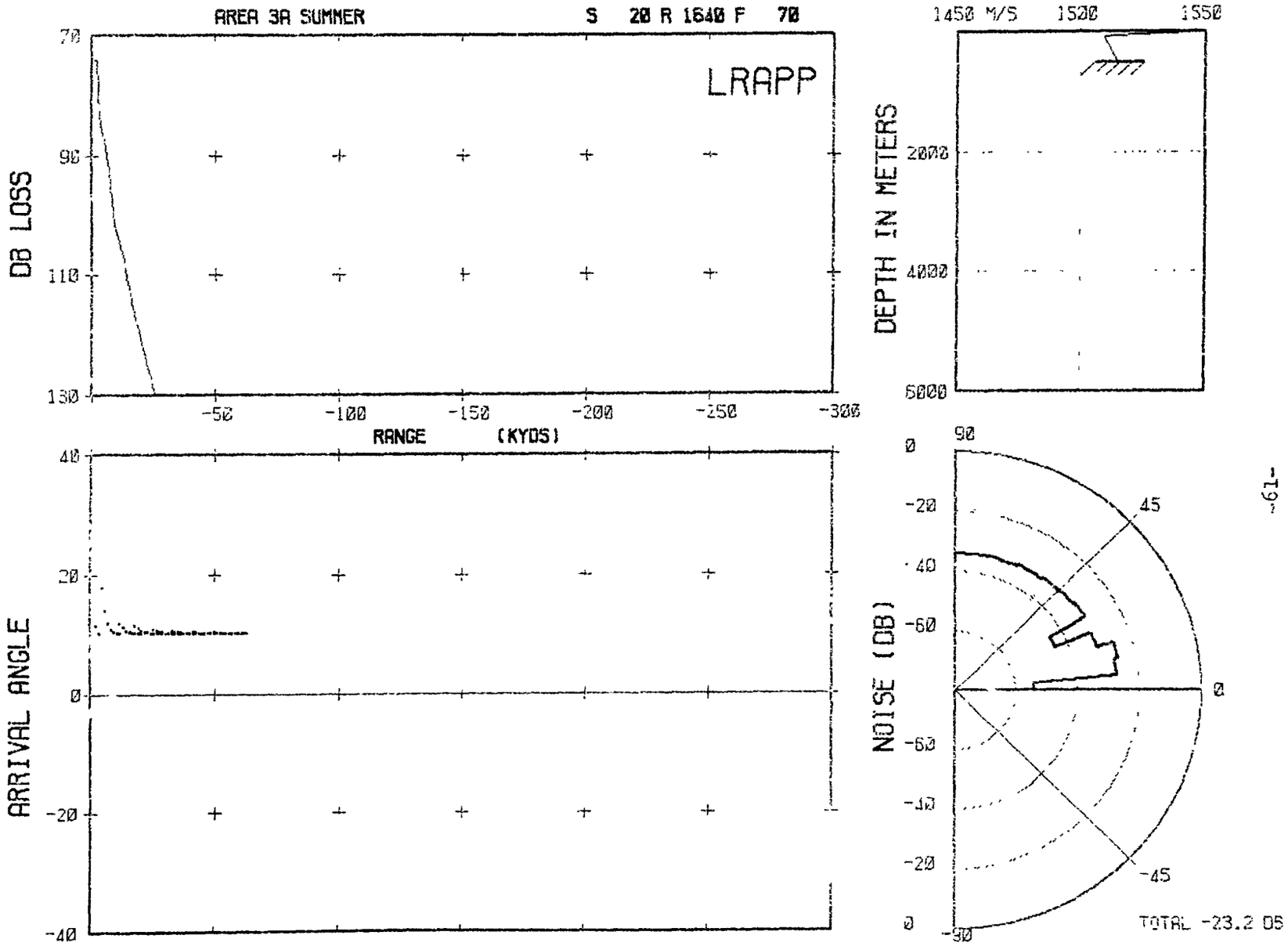
TOTAL -22.8 DB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LRAPP
DB LOSS
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RANGE (KYDS)
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1550
DEPTH IN METERS
2000
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NOISE (DB)
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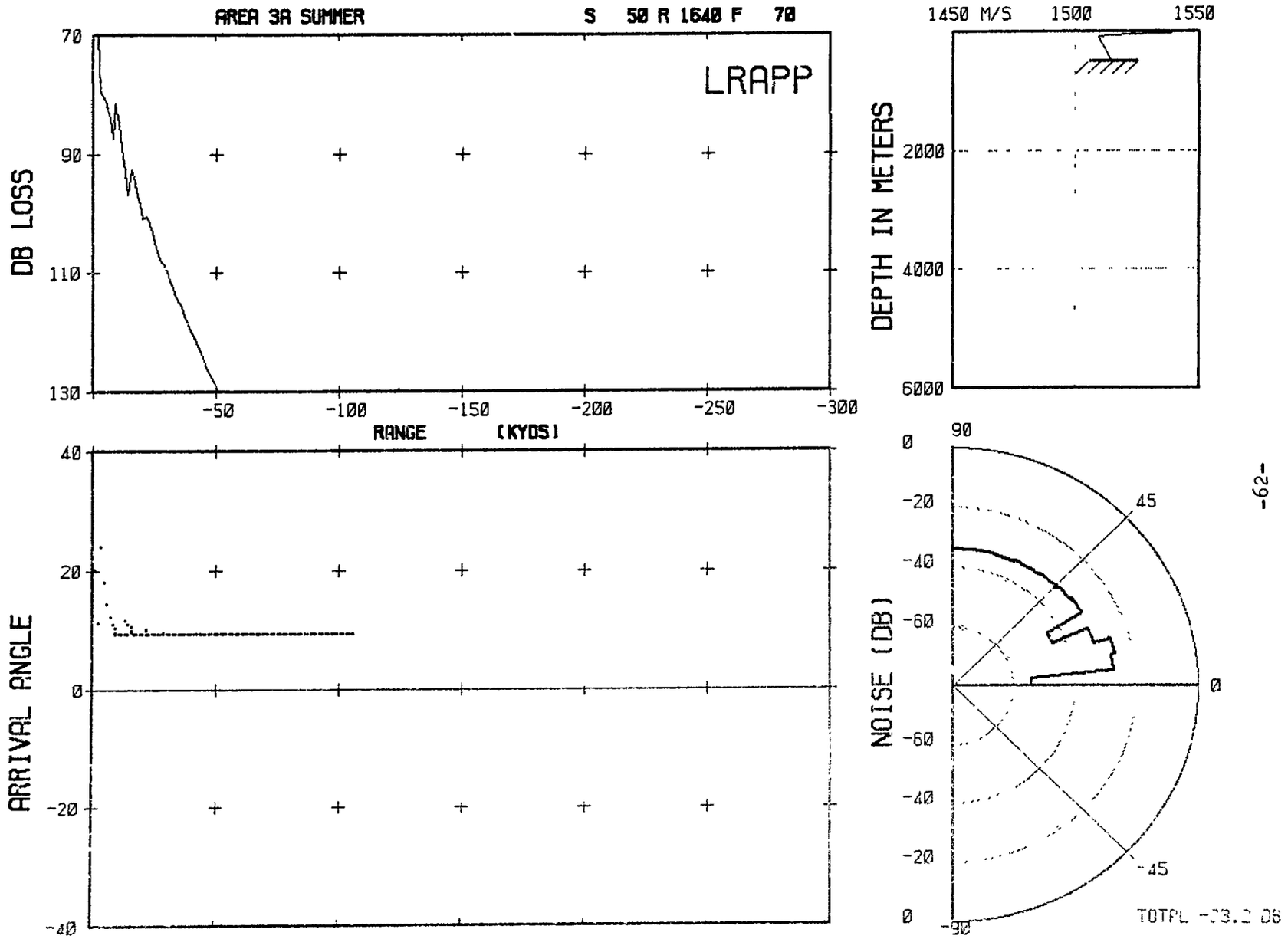
TOTAL -23.2 DB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LRAPP
DB LOSS
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-50
-100
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-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
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ARRIVAL ANGLE
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NOISE (DB)
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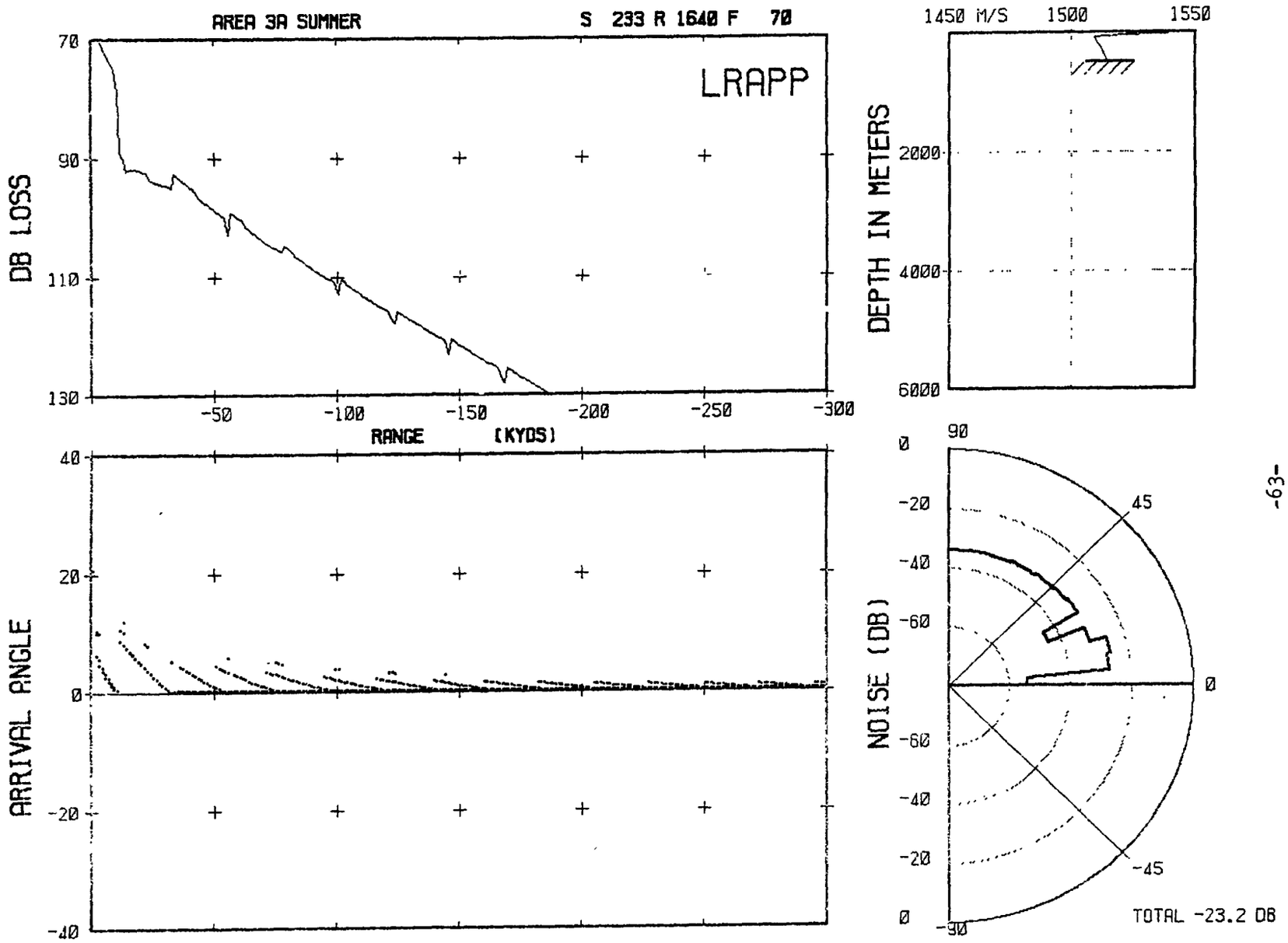
-45
-90
TOTPL -23.2 DB


AREA 3A SUMMER
S 233 R 1640 F 70
LRAPP
DB LOSS
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-50
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RANGE (KYDS)
ARRIVAL ANGLE
40
20
0
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-40
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DEPTH IN METERS
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4000
6000
NOISE (DB)
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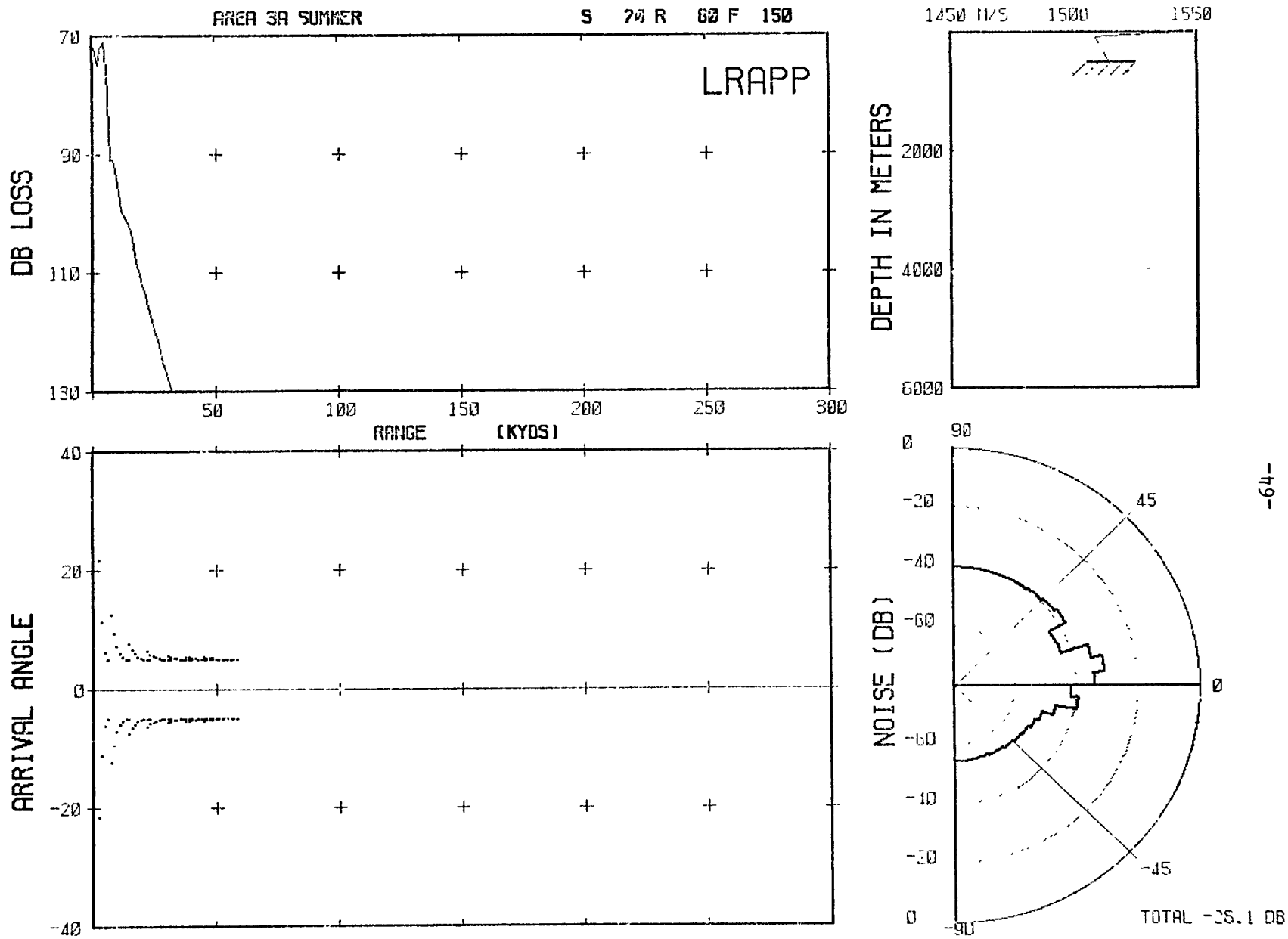
-90
TOTAL -23.2 DB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S 70 R 60 F 150
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DB LOSS
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200
250
300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
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-40
NOISE (DB)
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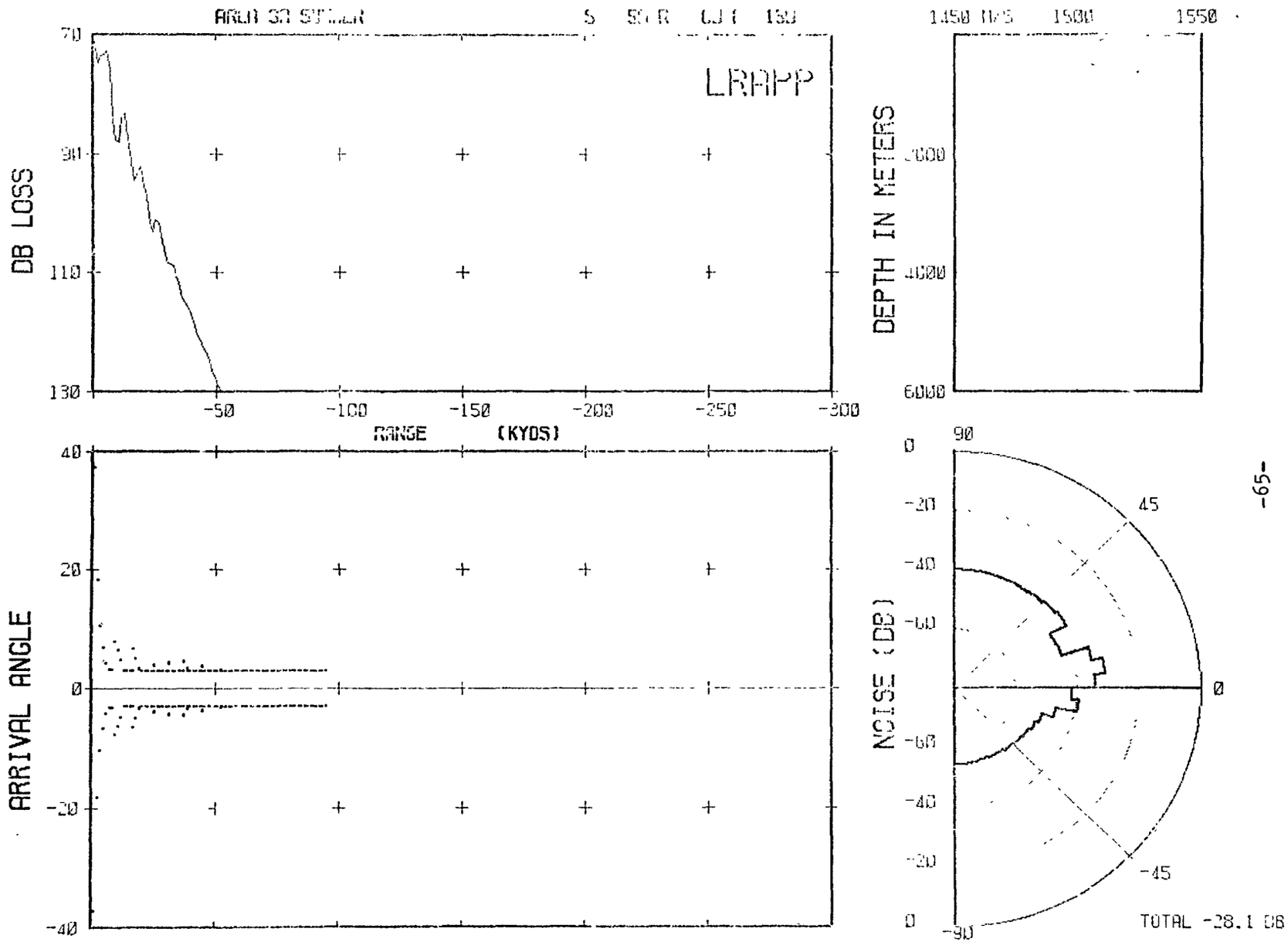
TOTAL -25.1 DB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DB LOSS
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90
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-250
-300
RANGE (KYDS)
DEPTH IN METERS
1450 M/S
1500
1550
2000
4000
6000
ARRIVAL ANGLE
40
20
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-20
-40
NOISE (DB)
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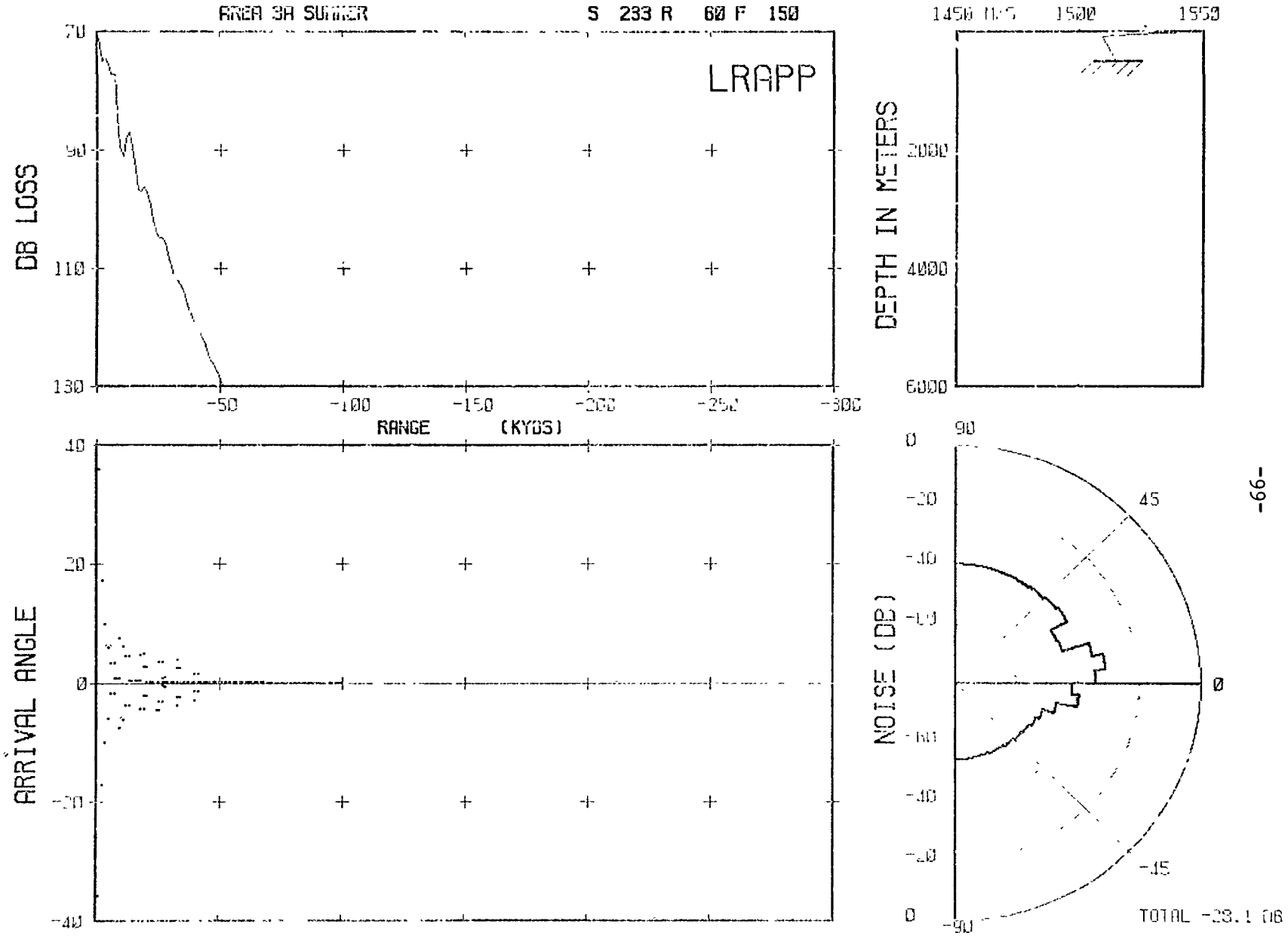
-45
-90
TOTAL -28.1 DB


AREA 3A SUMMER
S 233 R 60 F 150
LRAPP
DB LOSS
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-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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20
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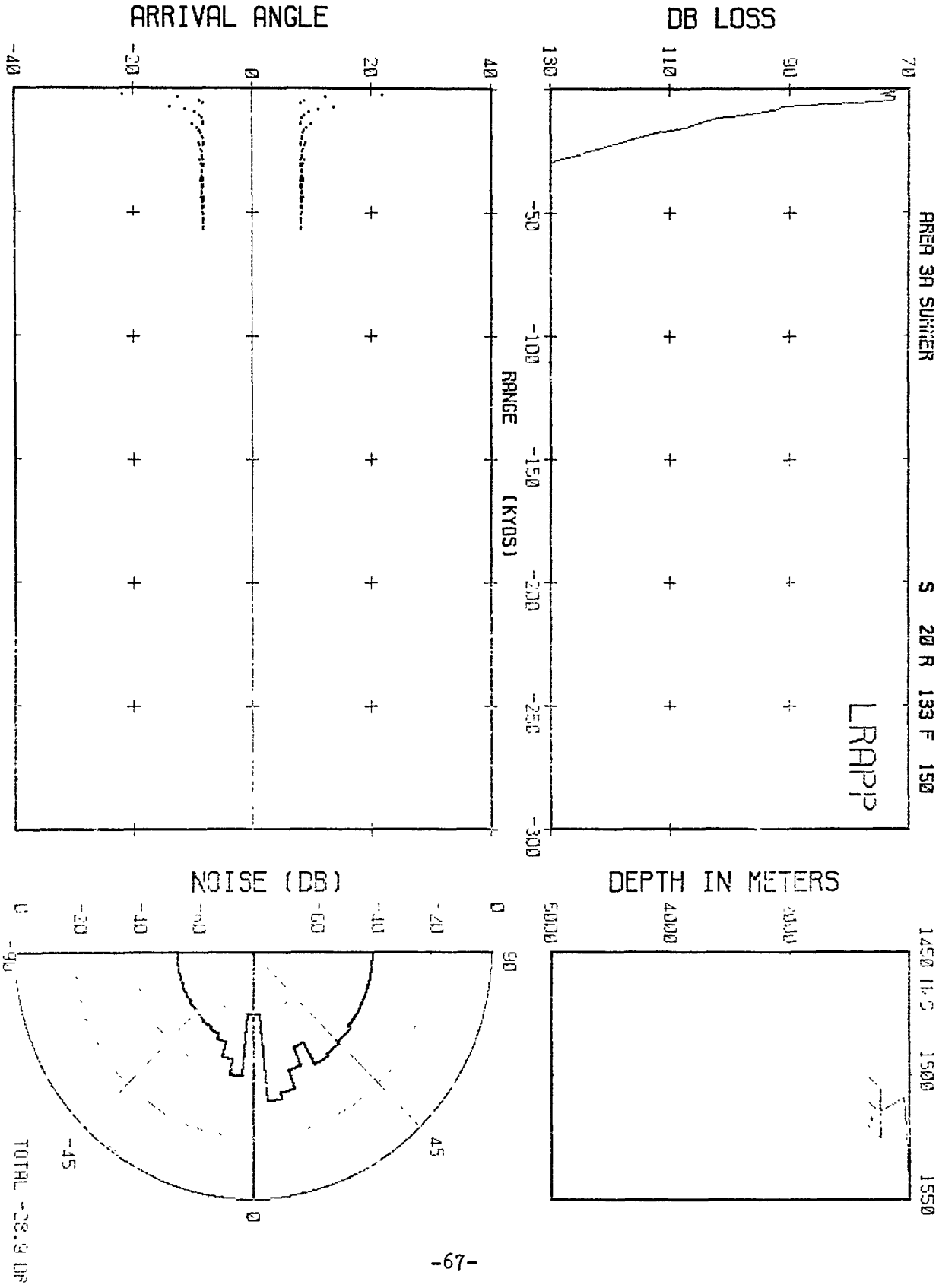
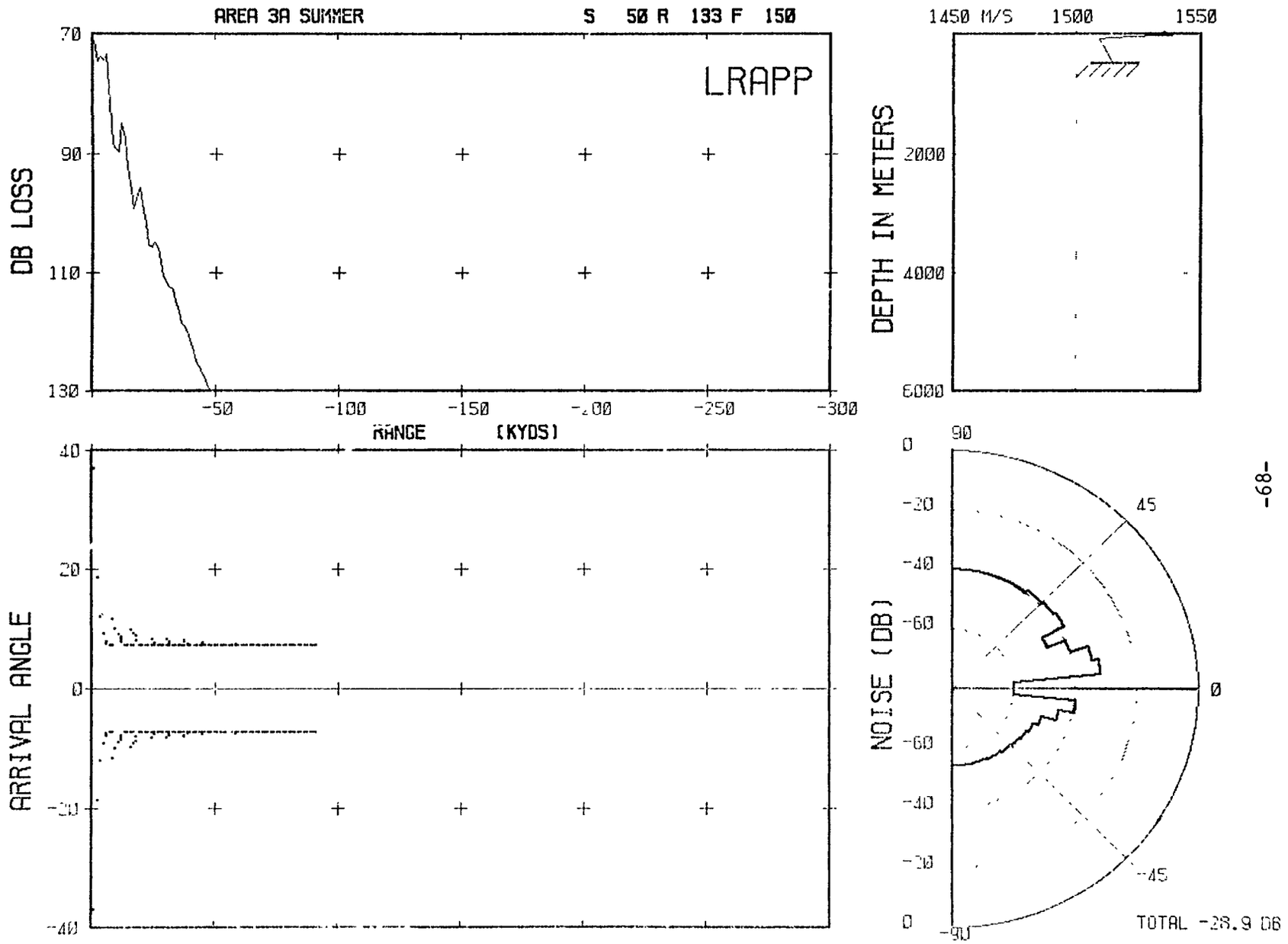
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -23.1 DB


ARRIVAL ANGLE
DB LOSS
AREA 3A SUMMER
S 20 R 133 F 150
LRAPP
RANGE (KYDS)
NOISE (DB)
DEPTH IN METERS
TOTAL -28.9 DB


AREA 3A SUMMER
S 50 R 133 F 150
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
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-40
NOISE (DB)
90
45
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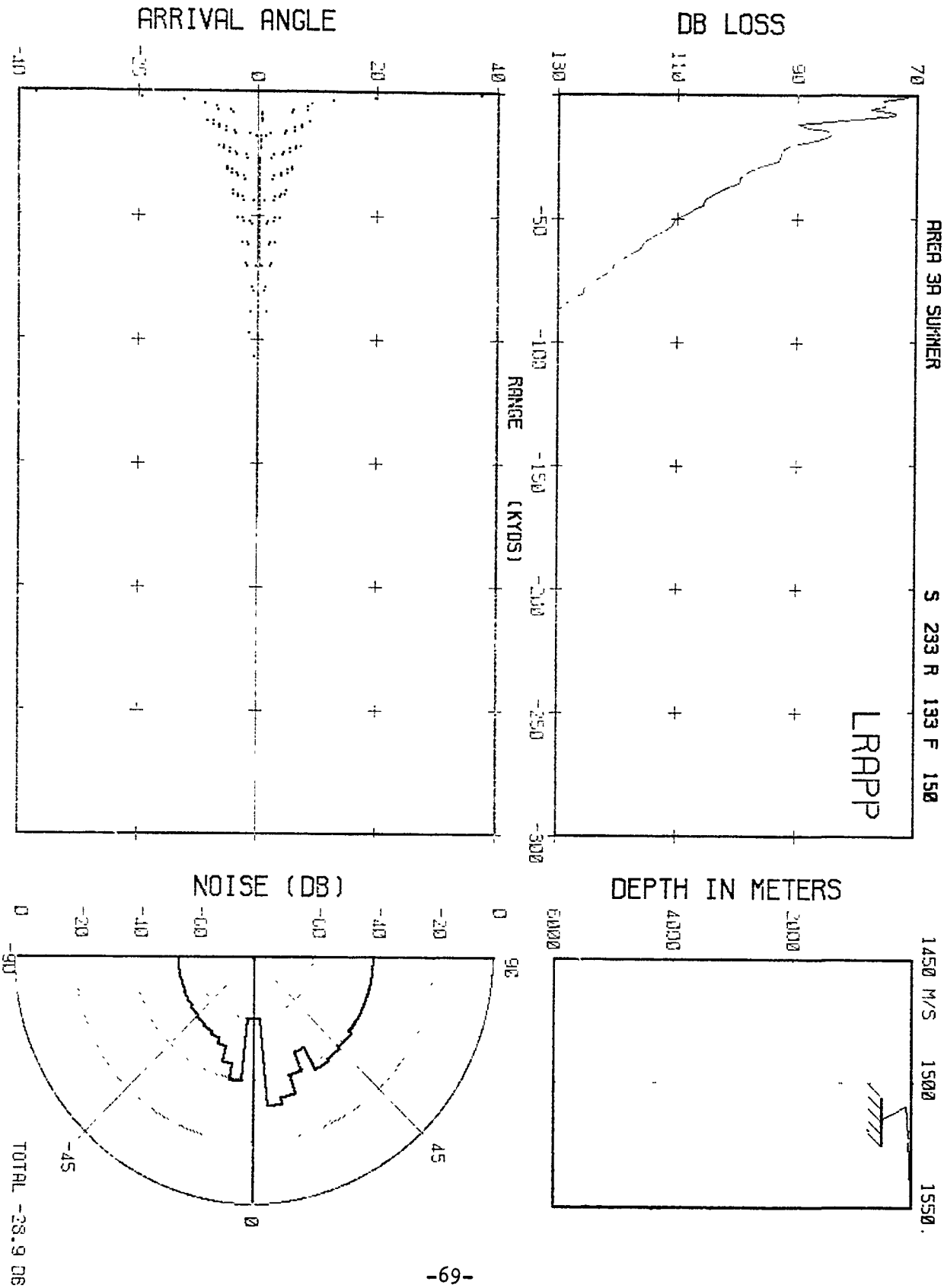
TOTAL -28.9 DB


AREA 3A SUMMER
S 233 R 133 F 150
LRAPP
DB LOSS
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110
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-50
-100
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-300
RANGE (KYDS)
ARRIVAL ANGLE
-40
-20
0
20
40
1450 M/S
1500
1550.
DEPTH IN METERS
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NOISE (DB)
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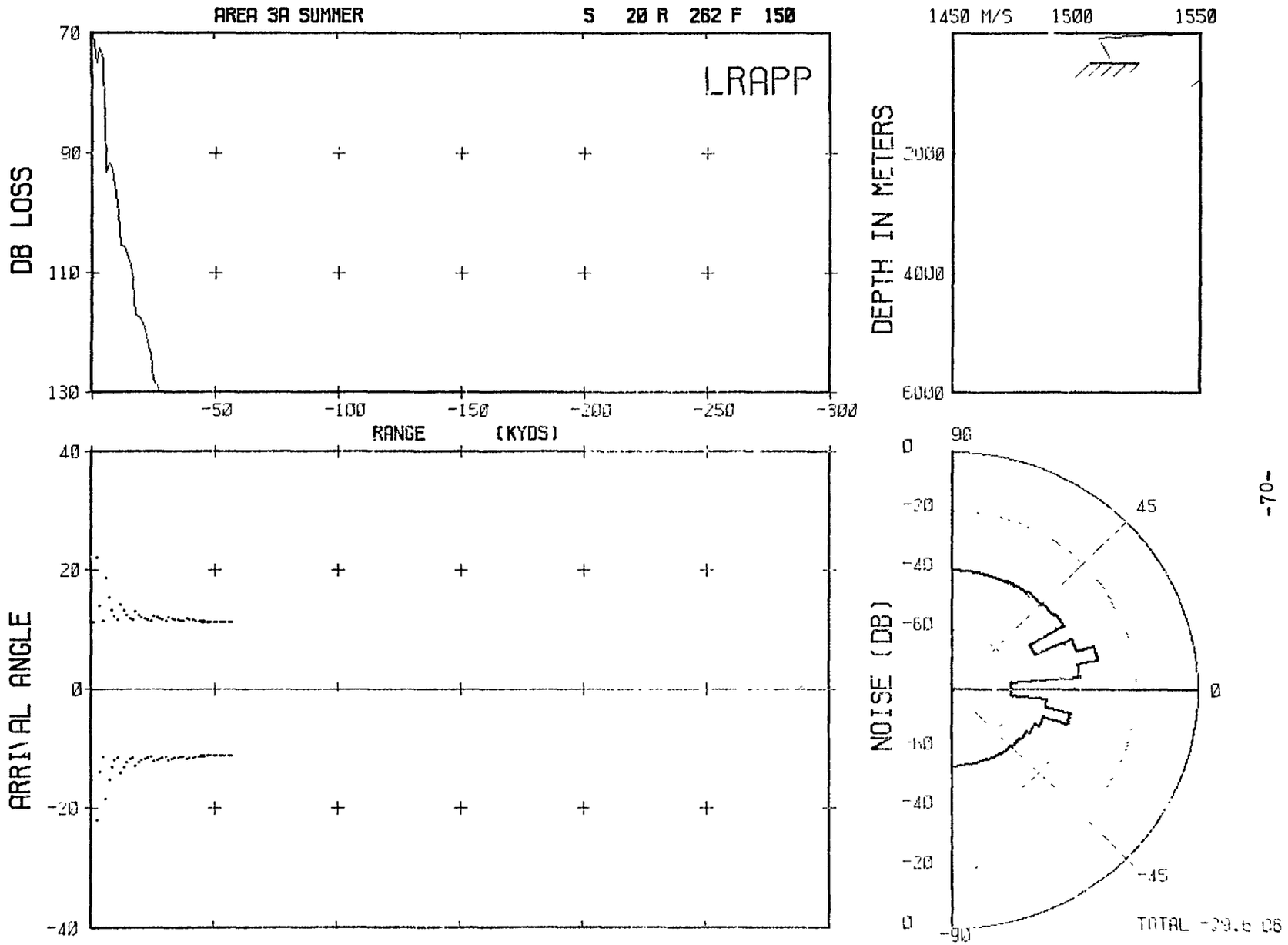
TOTAL -28.9 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
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6000
ARRIVAL ANGLE
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NOISE (DB)
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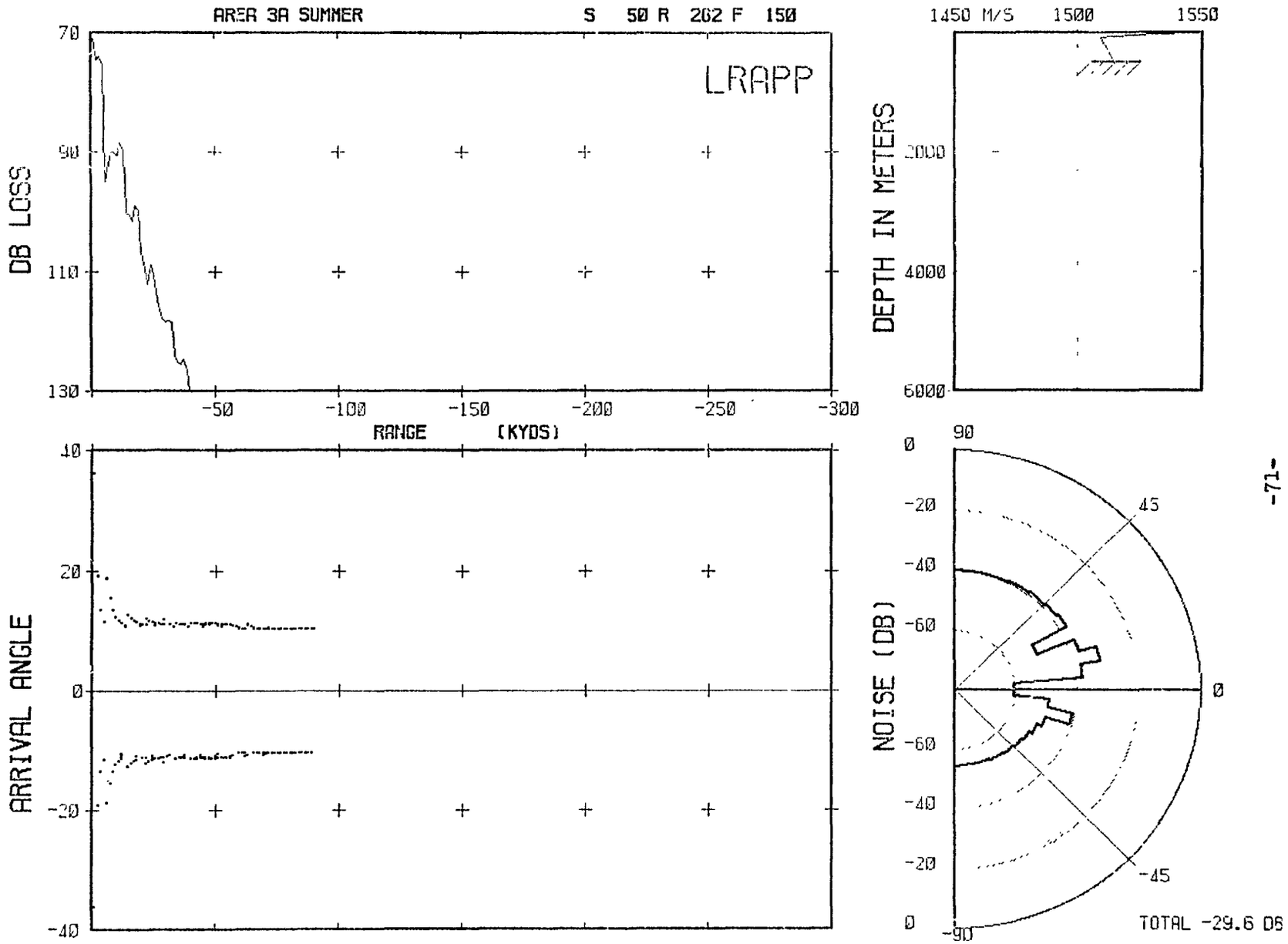
TOTAL -29.6 DB


AREA 3A SUMMER
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DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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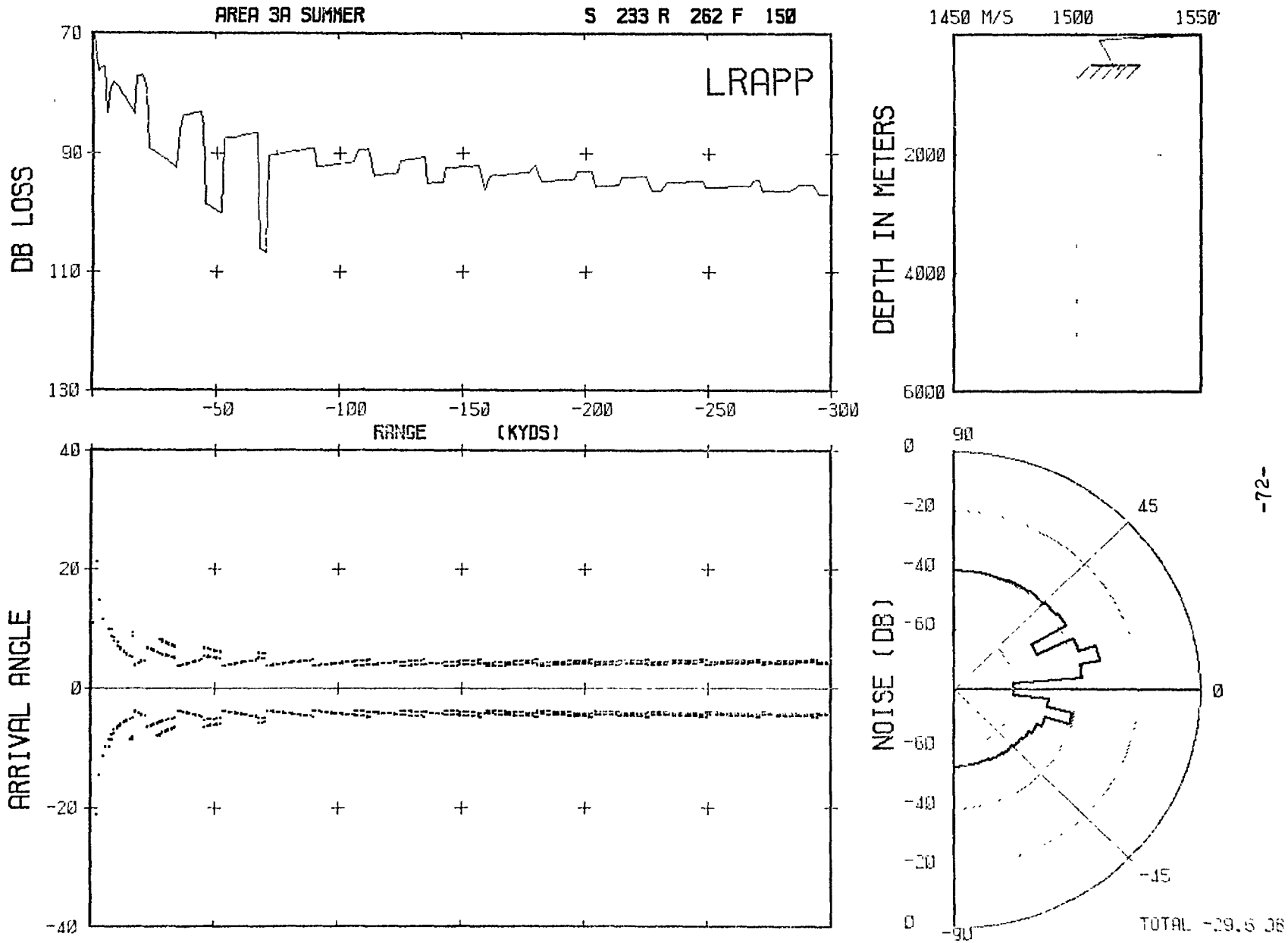
TOTAL -29.6 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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1550
DEPTH IN METERS
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NOISE (DB)
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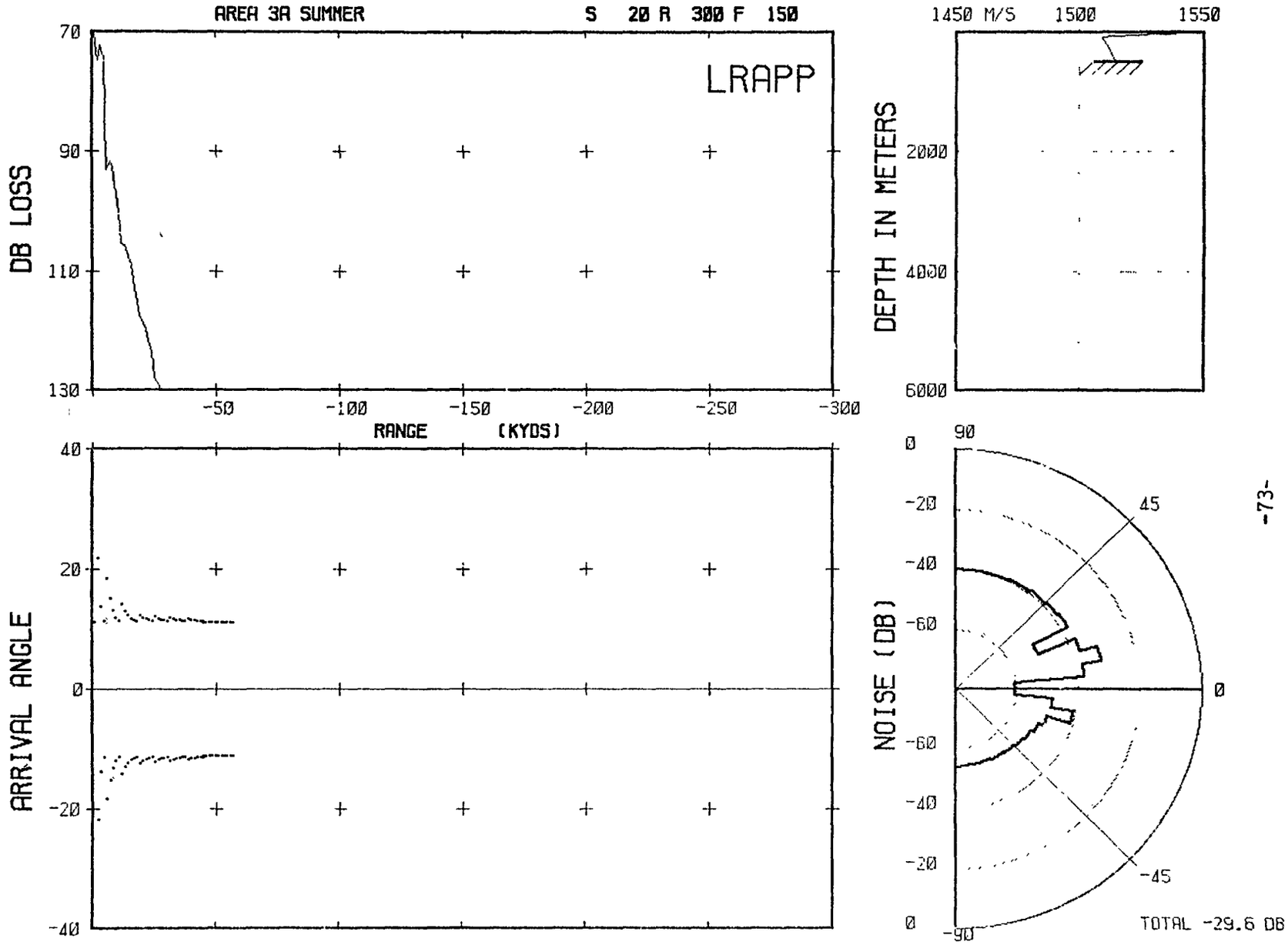
TOTAL -29.5 DB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LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
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-40
NOISE (DB)
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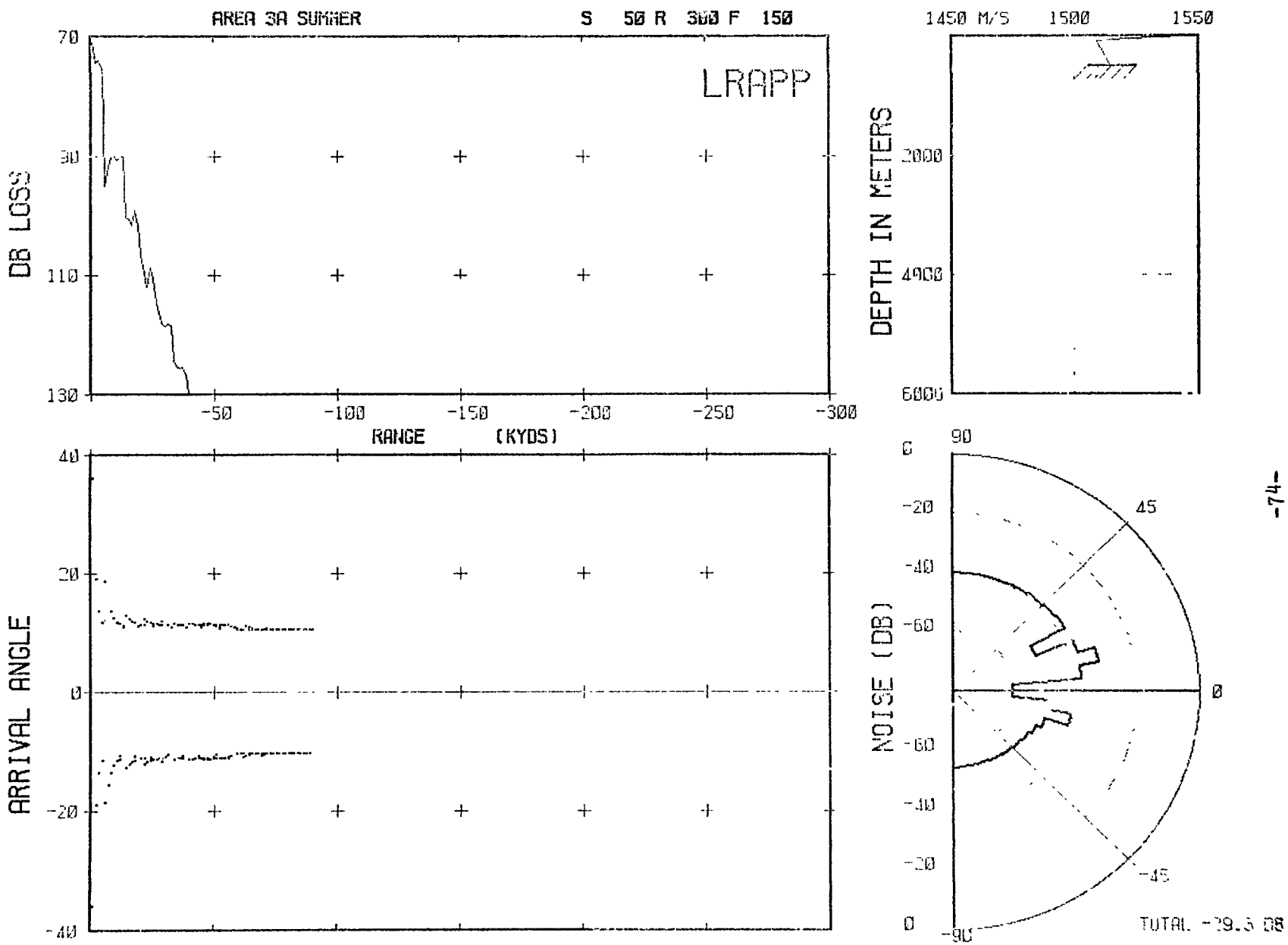
TOTAL -29.6 DB


AREA 3A SUMMER
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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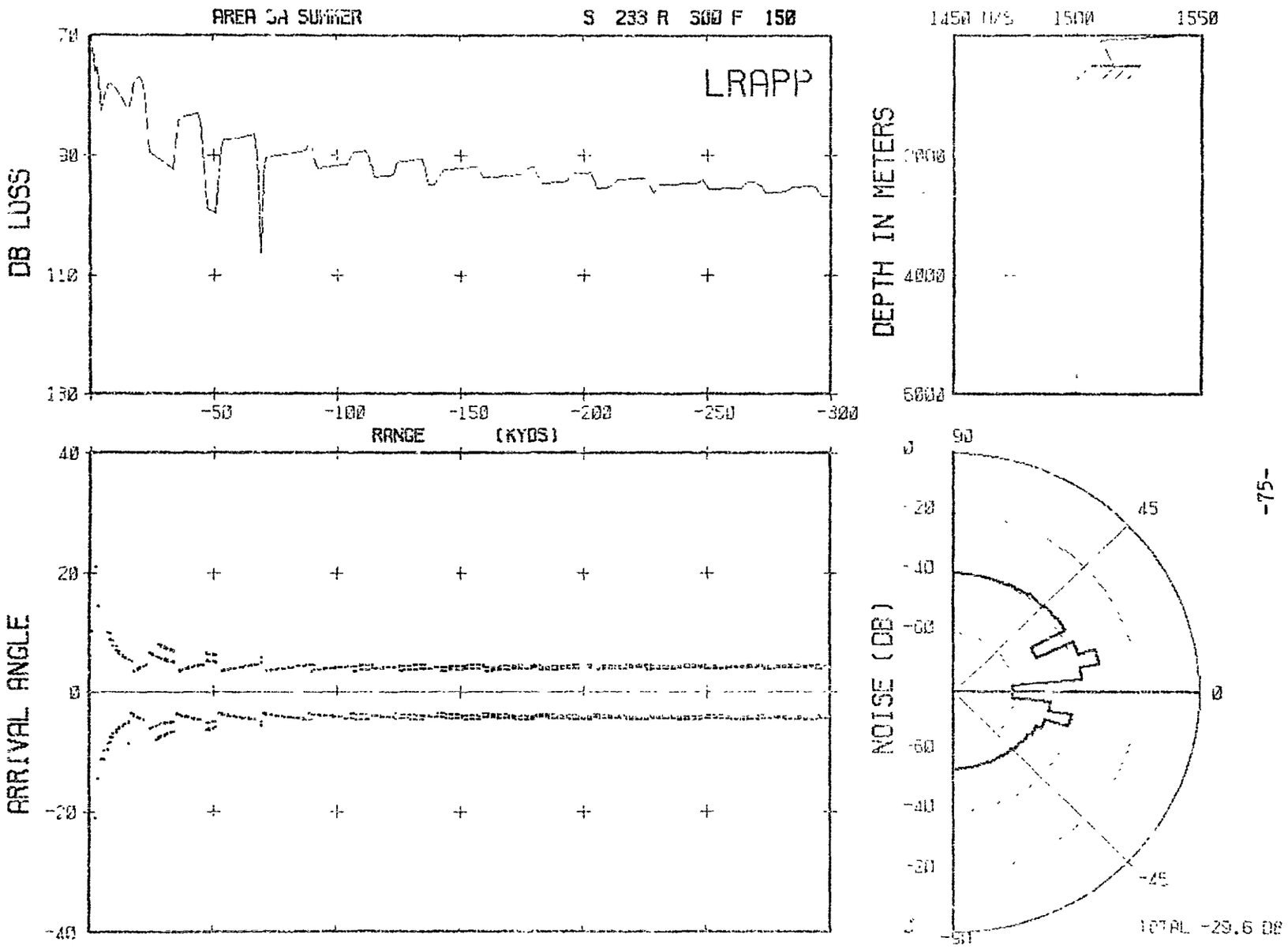
TOTAL -29.5 DB


AREA 5A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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1550
DEPTH IN METERS
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NOISE (DB)
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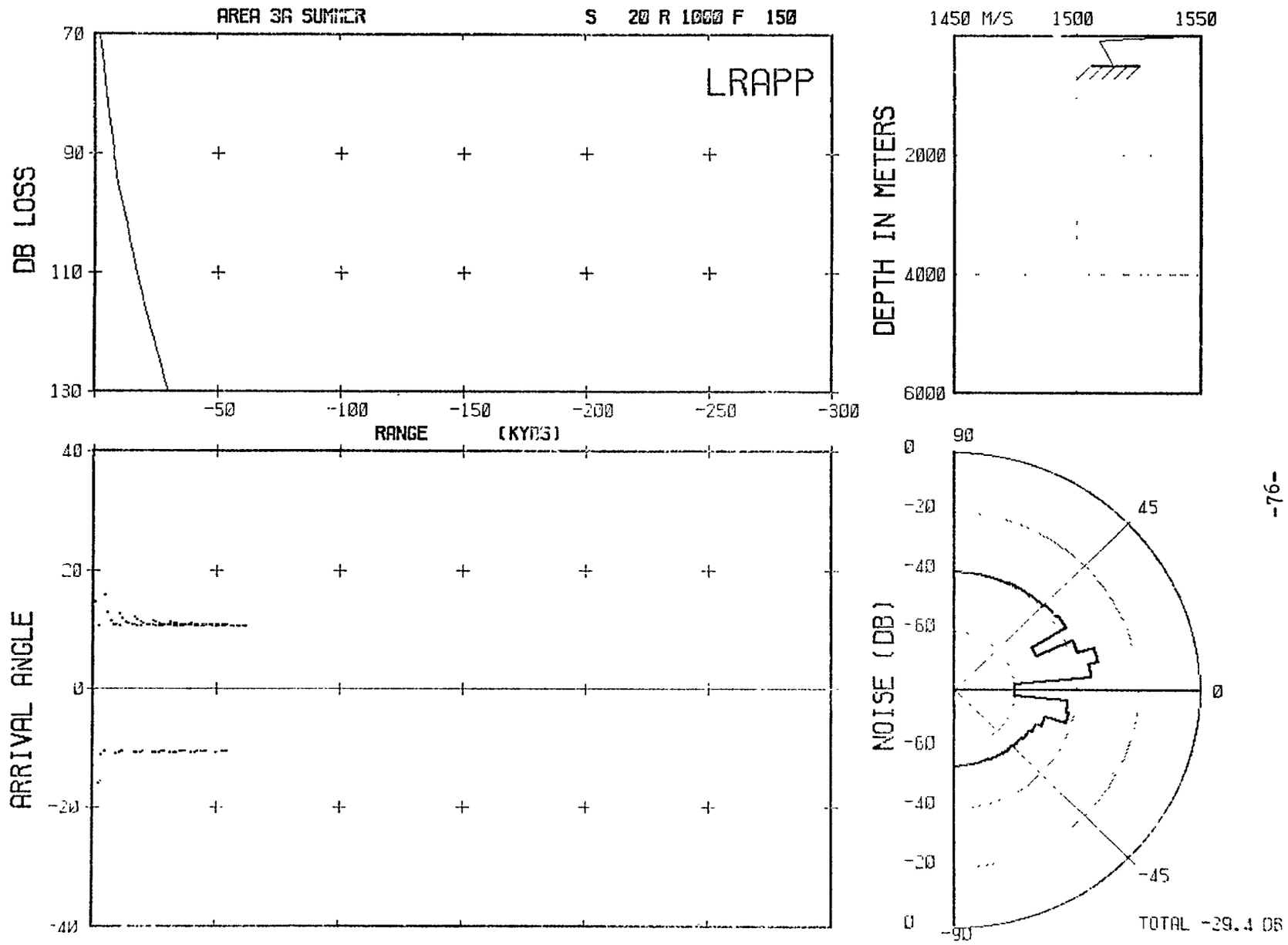
TOTAL -29.6 DB


AREA 3A SUMMER
S 20 R 1000 F 150
LRAPP
DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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NOISE (DB)
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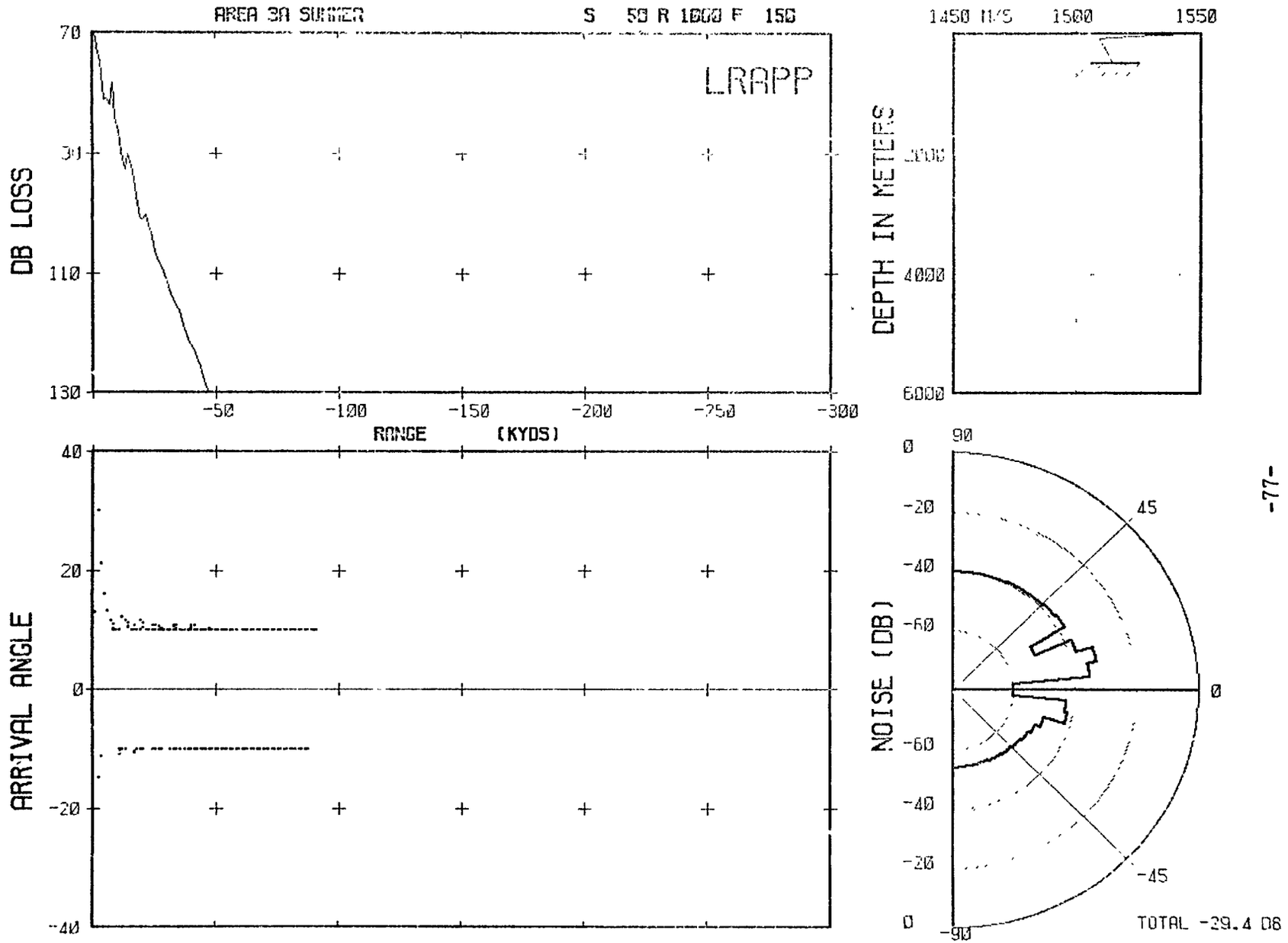
TOTAL -29.4 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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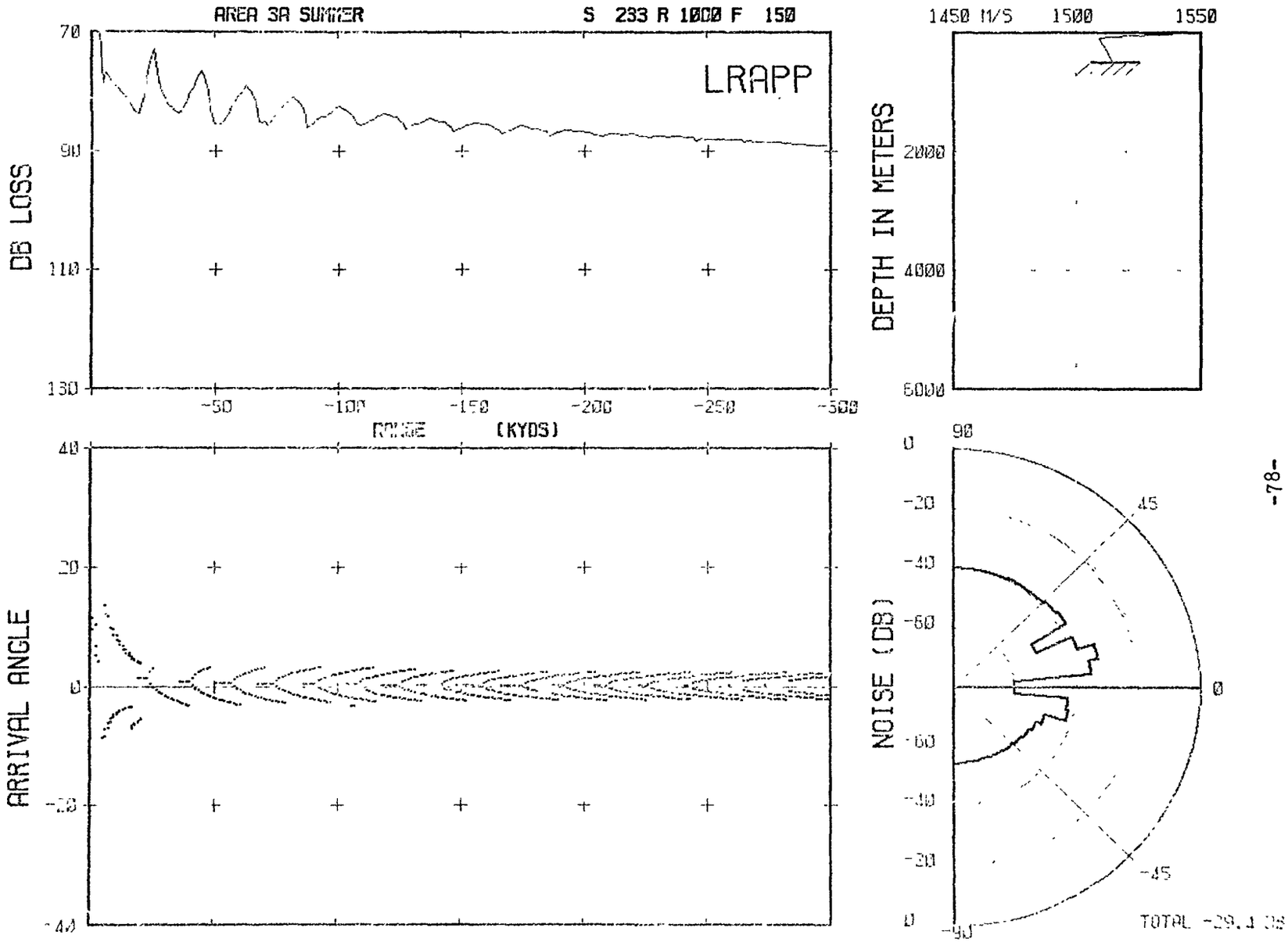
TOTAL -29.4 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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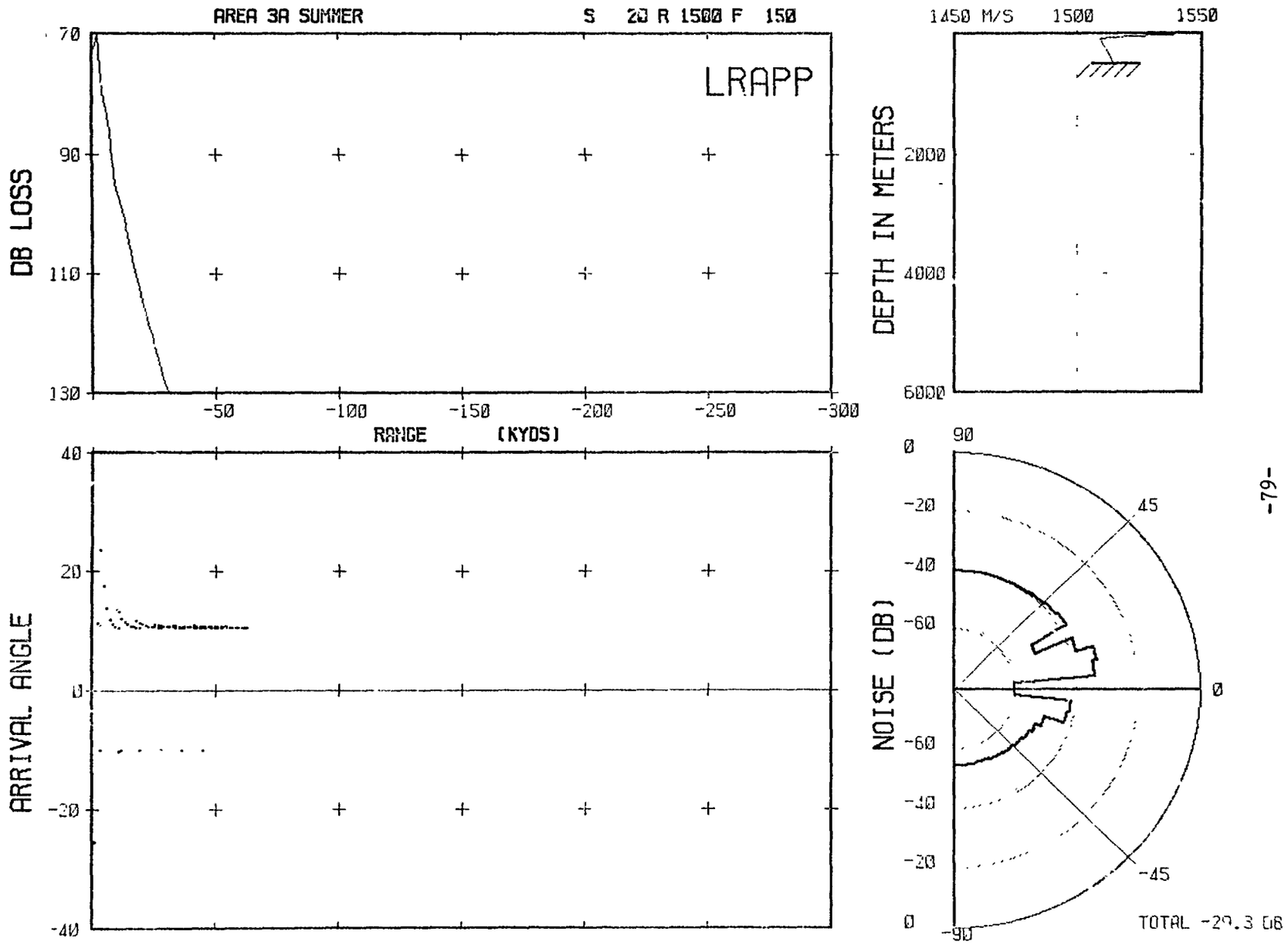
TOTAL -29.1 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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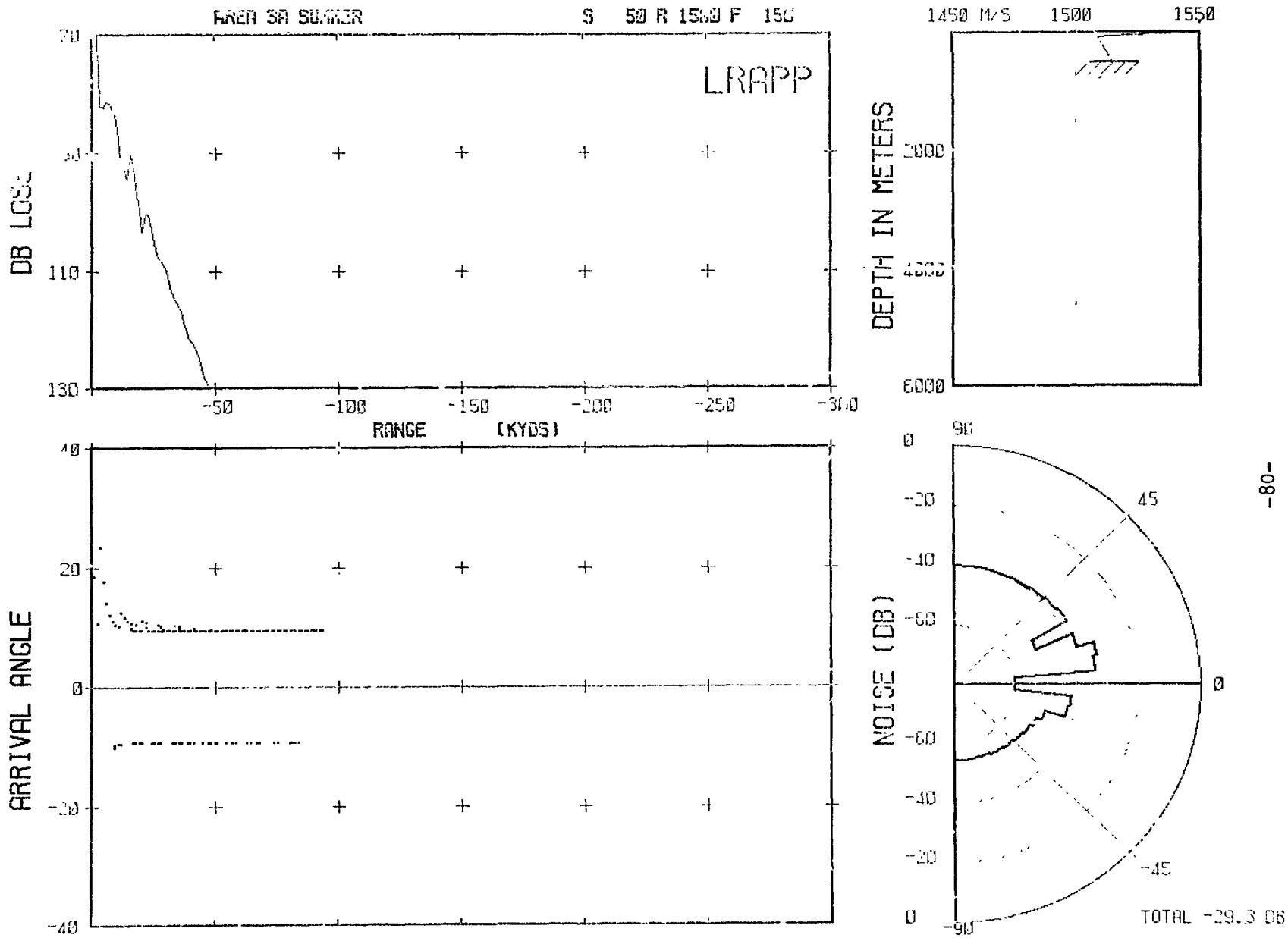
TOTAL -29.3 DB


AREA SA SUMMER
S 50 R 1500 F 150
LRAPP
DB LOSS
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RANGE (KYDS)
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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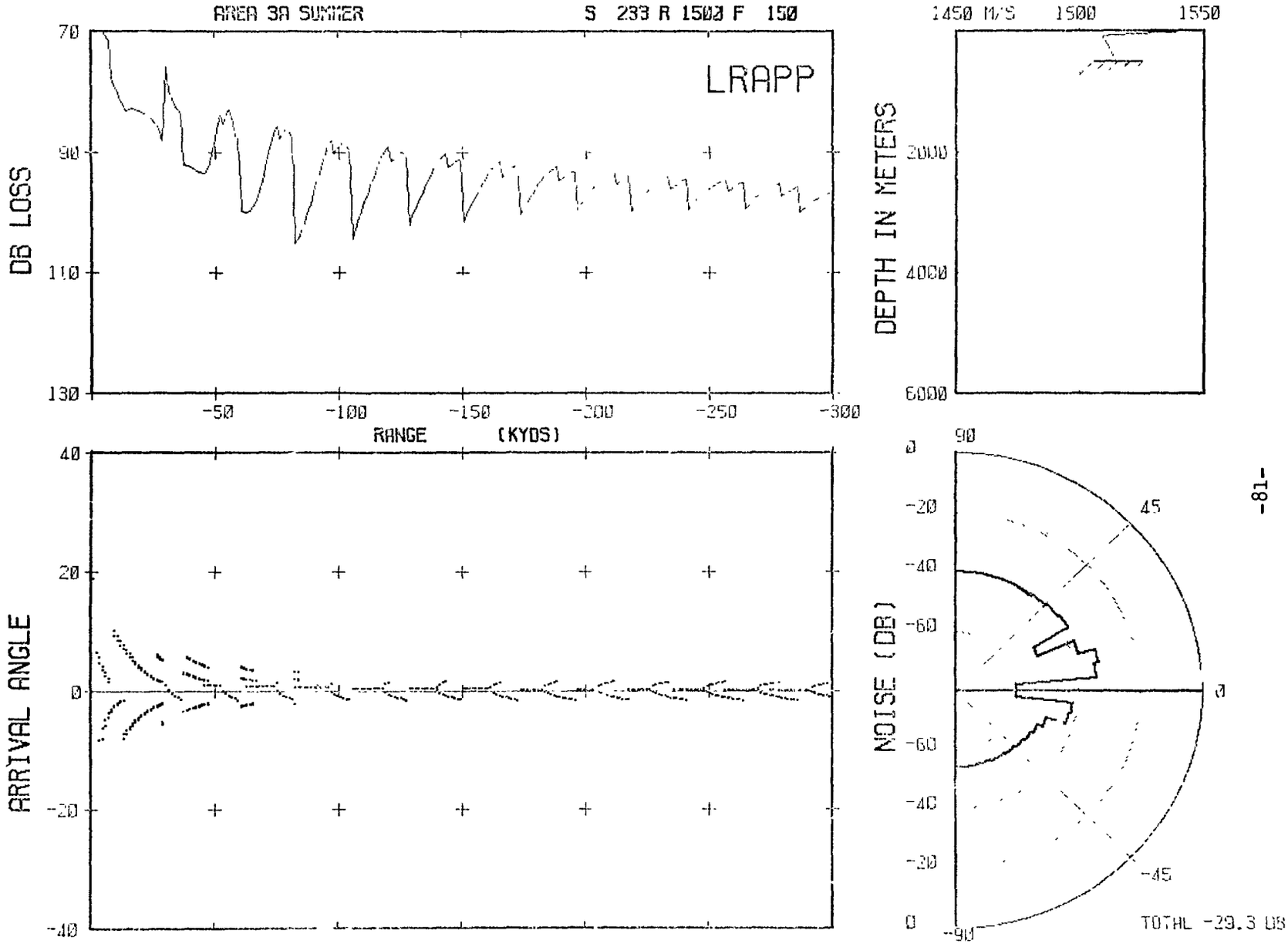
TOTAL -29.3 DB


AREA 3A SUMMER
S 233 R 1500 F 150
LRAPP
DB LOSS
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-200
-250
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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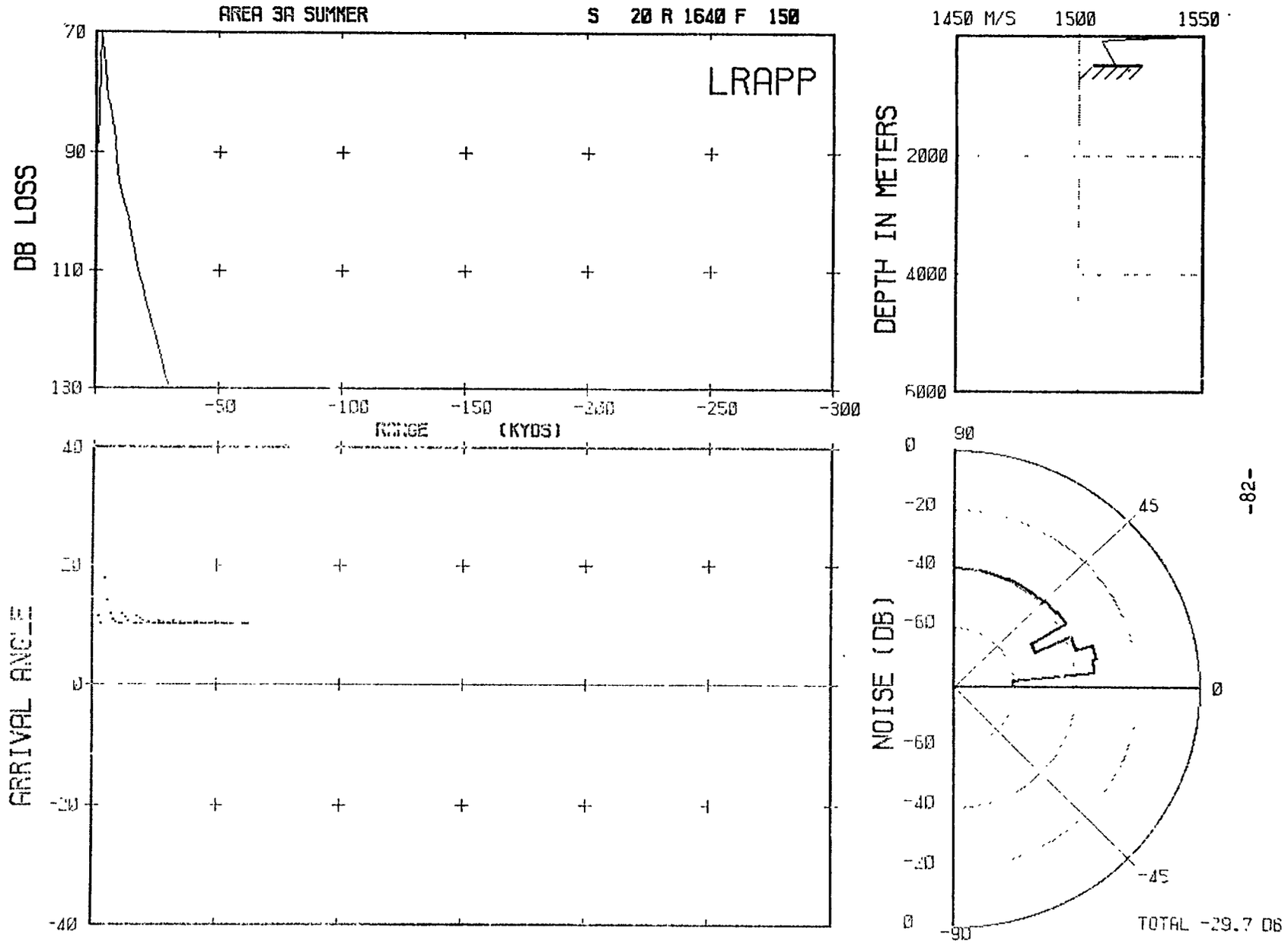
TOTAL -29.3 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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-20
-40
NOISE (DB)
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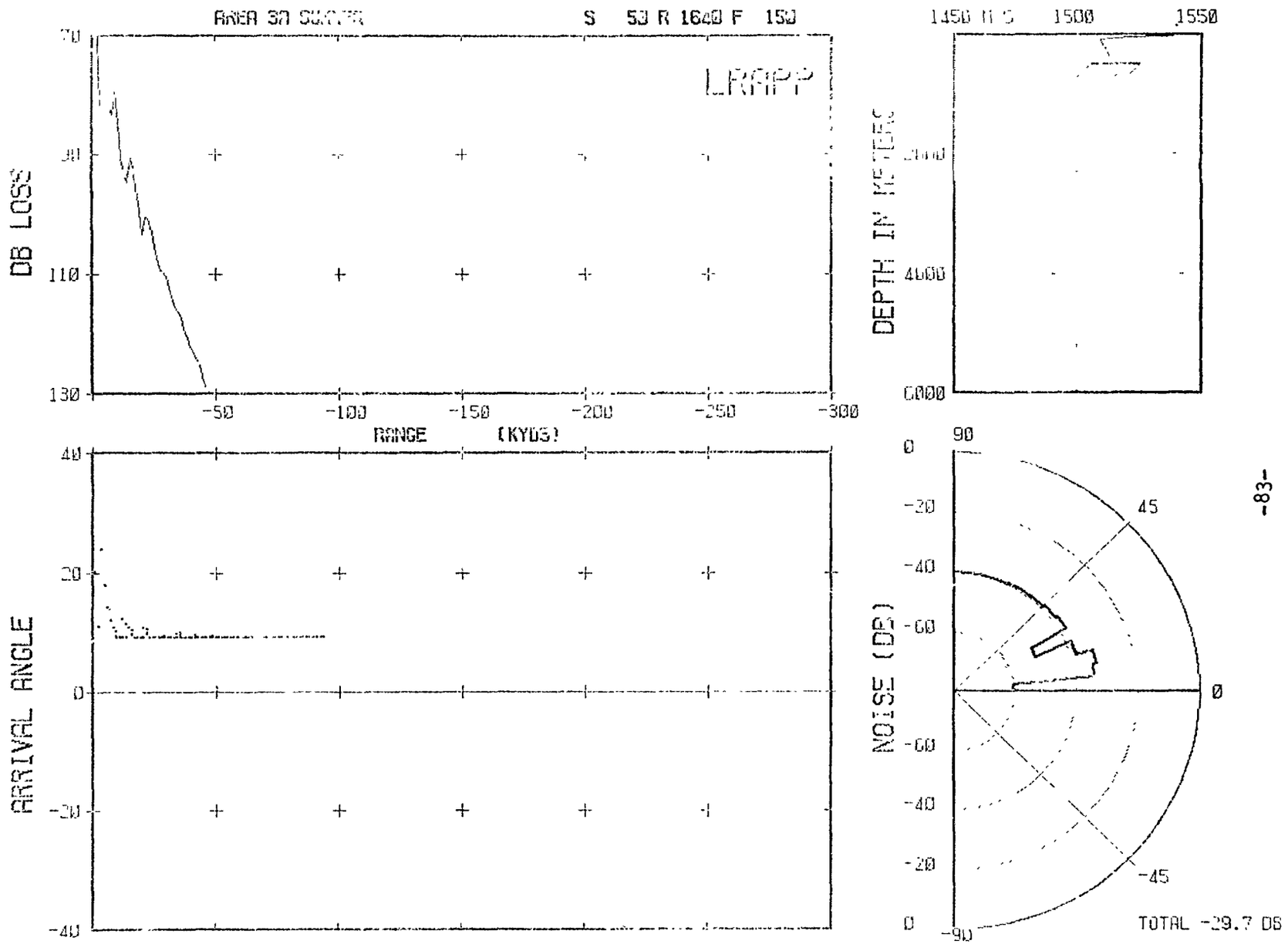
45
-45
-90
TOTAL -29.7 DB


AREA 37 SWITCH
S 53 R 1640 F 150
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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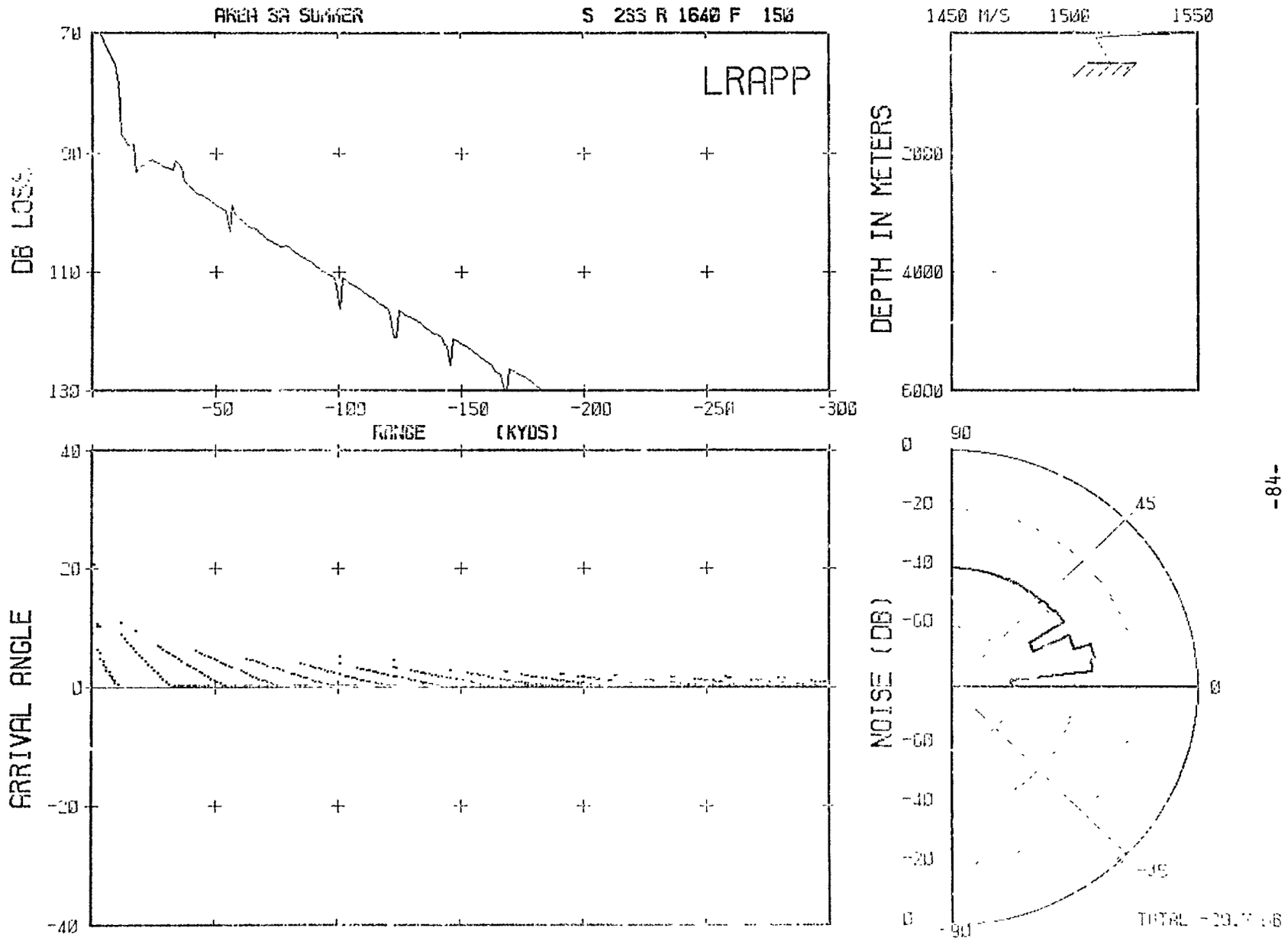
TOTAL -29.7 DB


AREA 3A SUMMER
S 233 R 1640 F 150
LRAPP
DB LOSS
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90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
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NOISE (DB)
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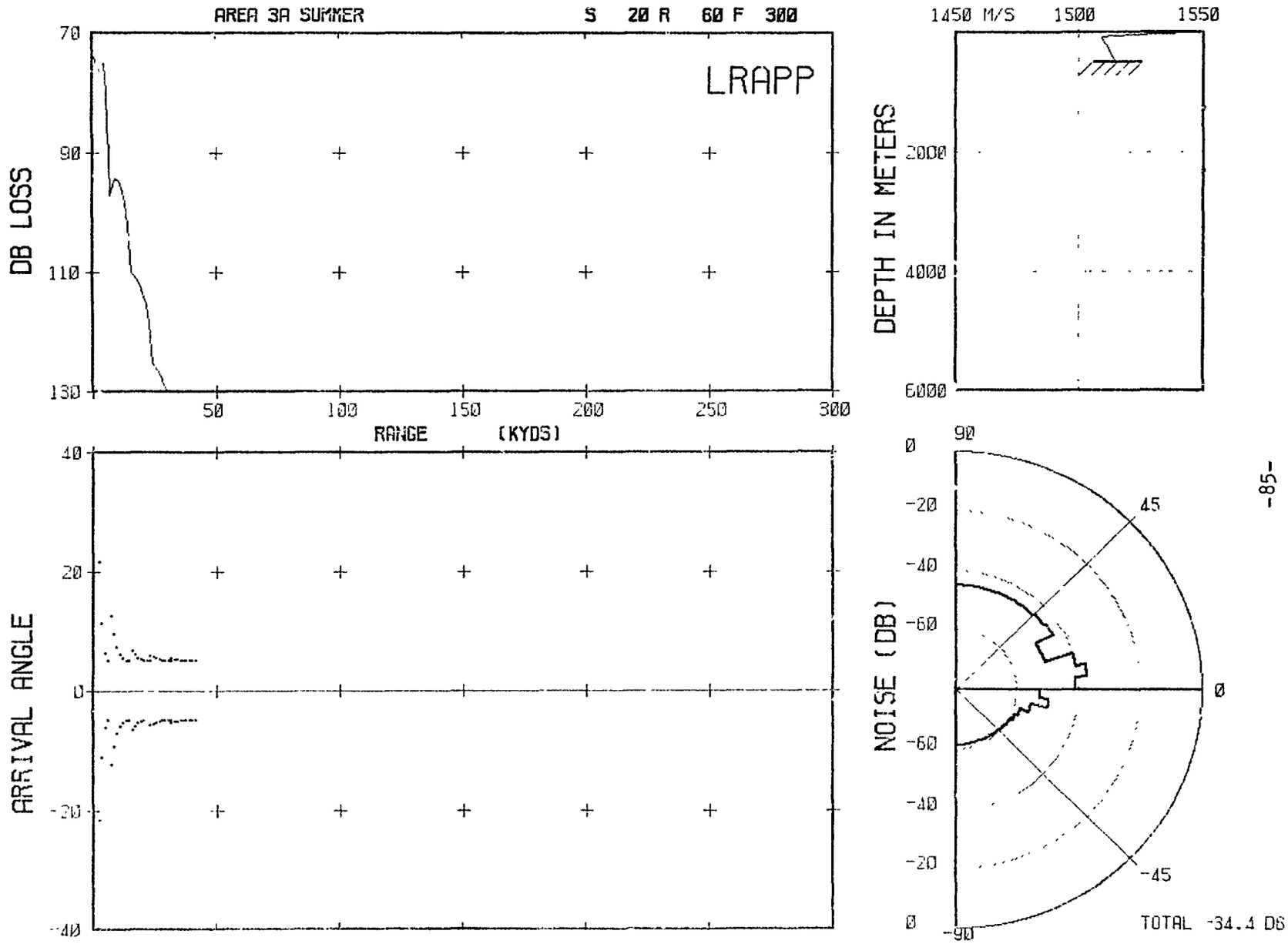
AREA 3A SUMMER
S 20 R 60 F 300
LRAPP
DB LOSS
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90
110
130
50
100
150
200
250
300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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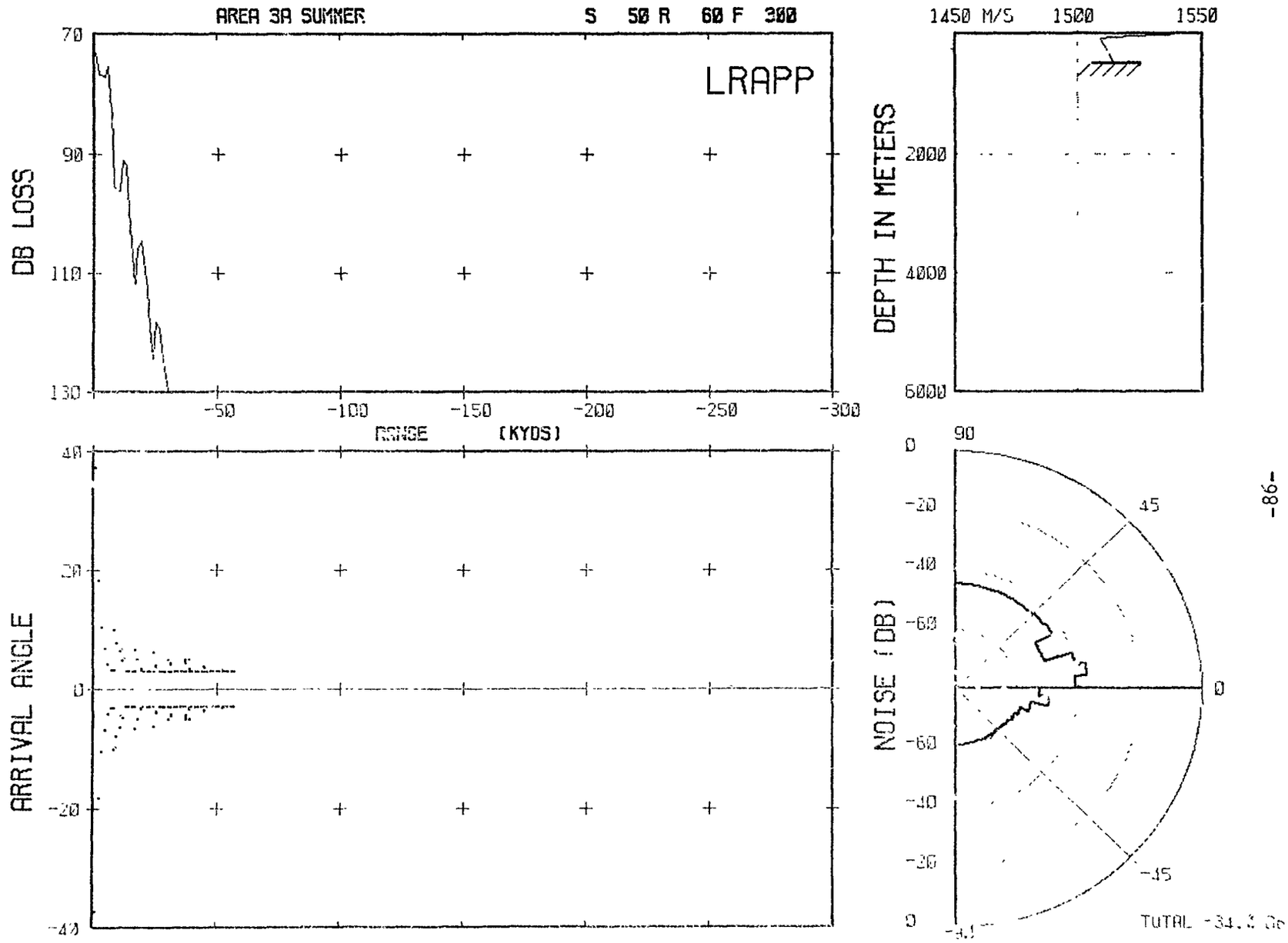
TOTAL -34.4 DB


AREA 3A SUMMER
S 50 R 60 F 300
LRAPP
DB LOSS
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-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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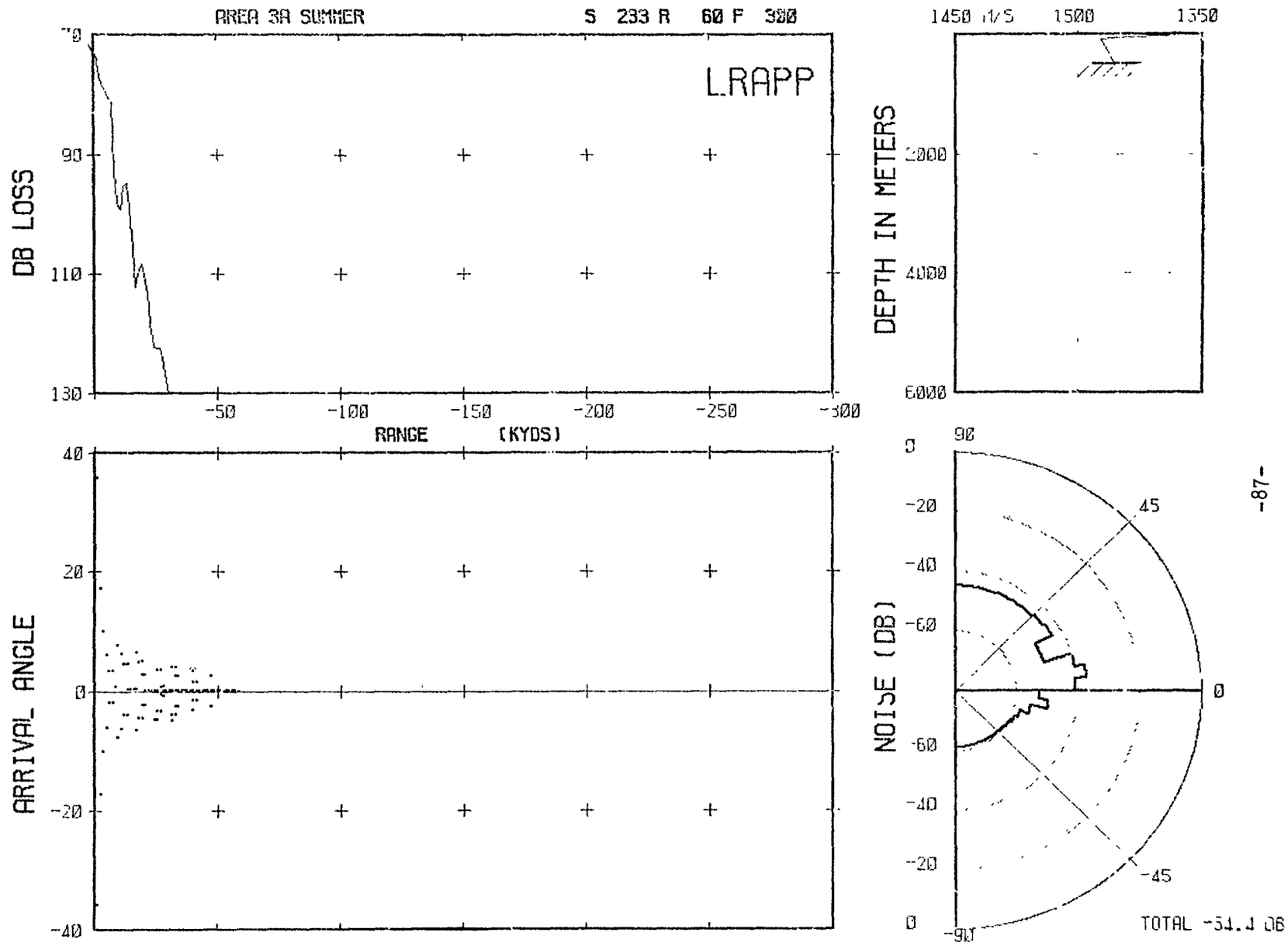
TOTAL -34.3 DB


AREA 3A SUMMER
S 233 R 60 F 300
LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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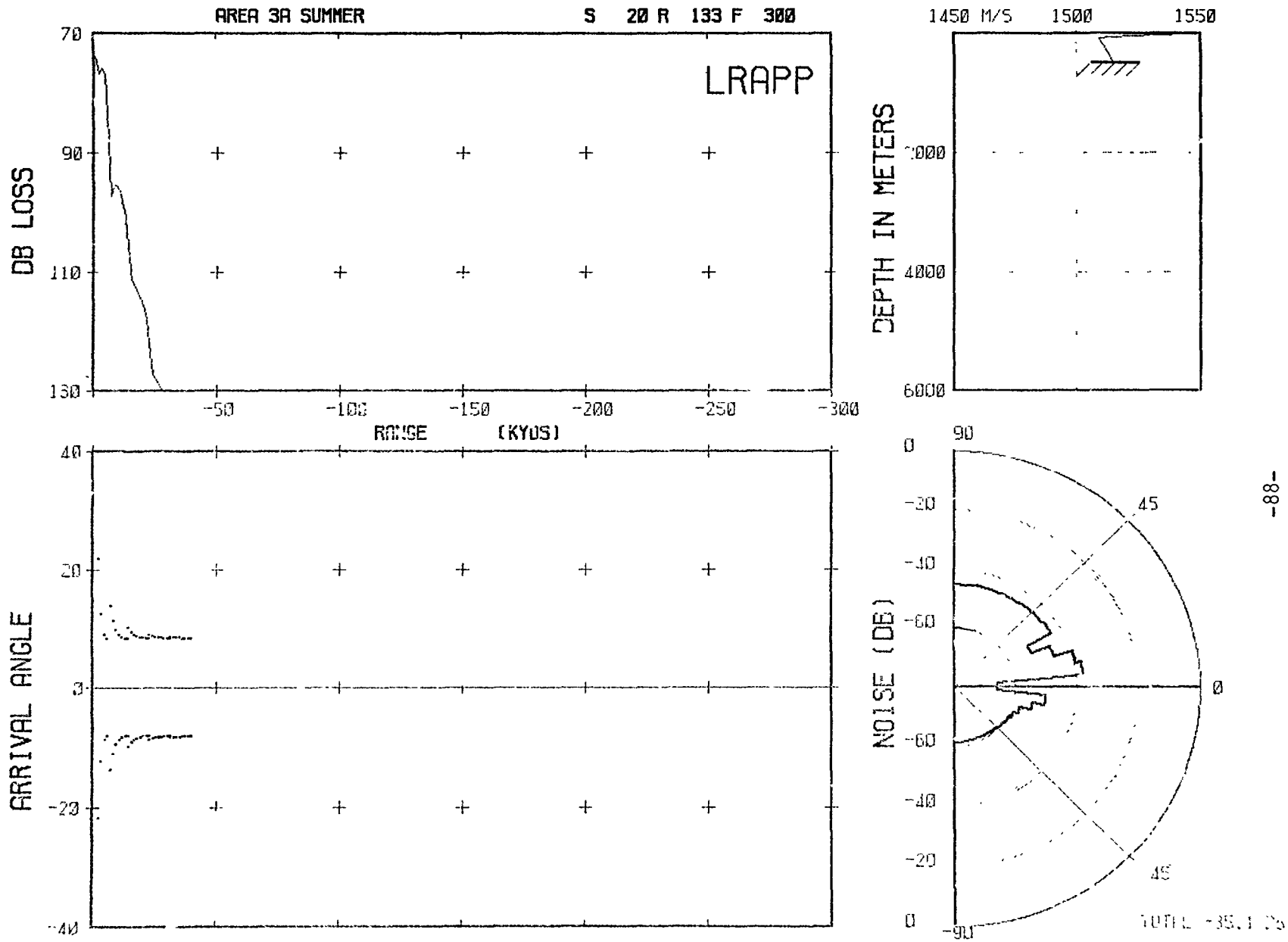
TOTAL -34.4 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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-250
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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6000
ARRIVAL ANGLE
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NOISE (DB)
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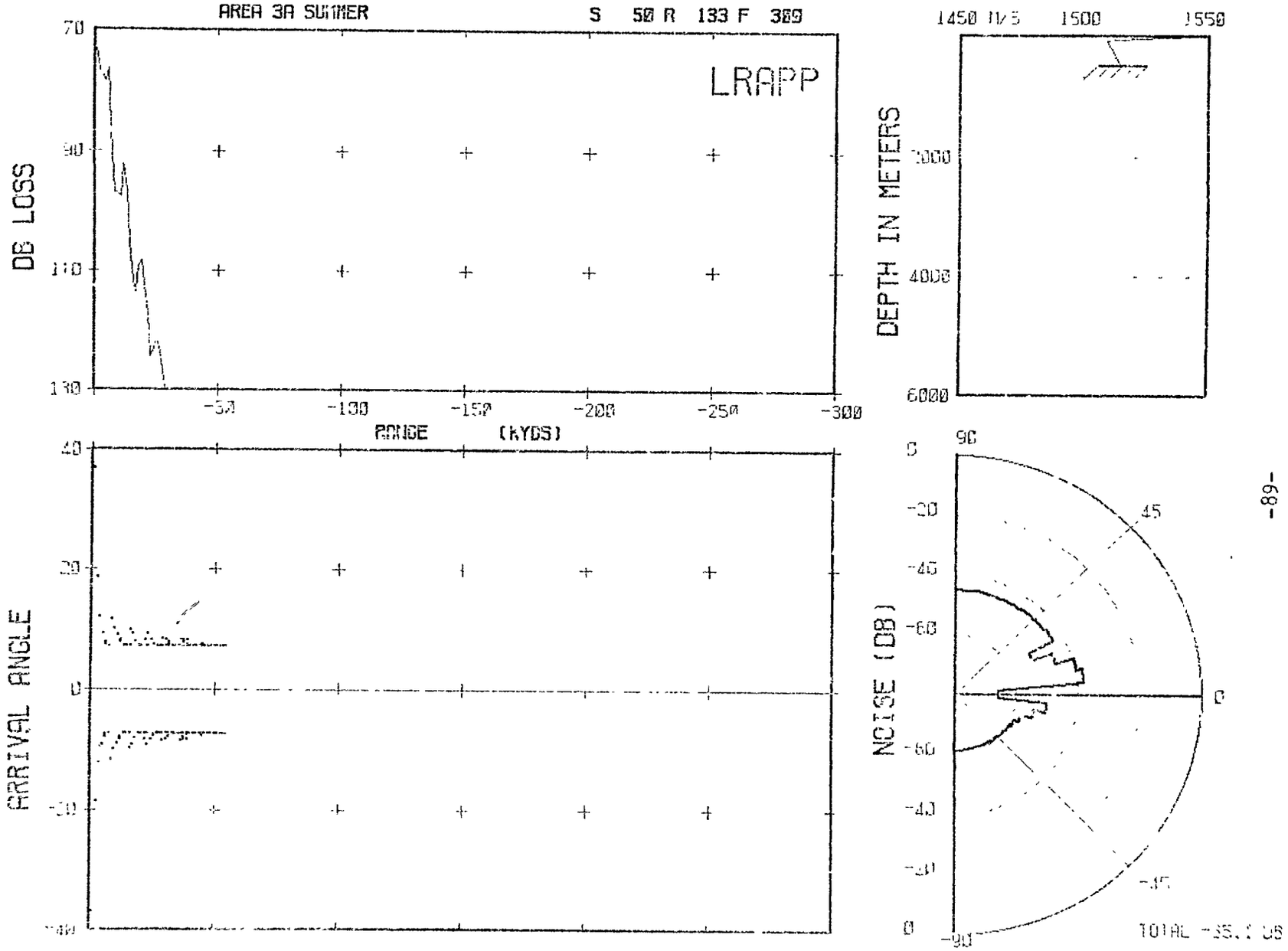
AREA 3A SUMMER
S 50 R 133 F 300
LRAPP
DB LOSS
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110
130
-50
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-150
-200
-250
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RANGE (kYDS)
DEPTH IN METERS
1450 M/S
1500
1550
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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45
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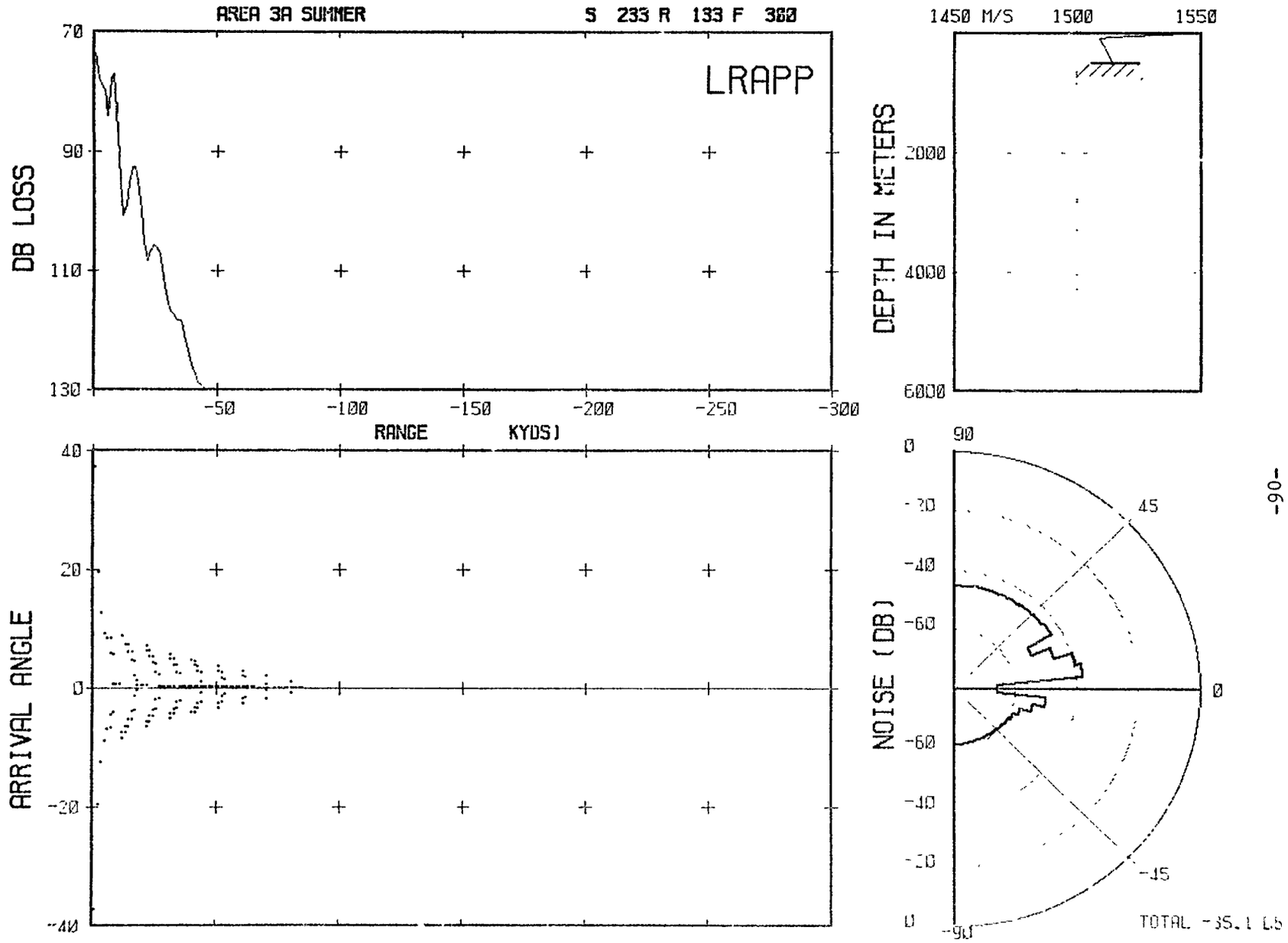
-90
-20
-40
-60
TOTAL -35.1 DB


AREA 3A SUMMER
S 233 R 133 F 360
LRAPP
DB LOSS
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90
110
130
-50
-100
-150
-200
-250
-300
RANGE KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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45
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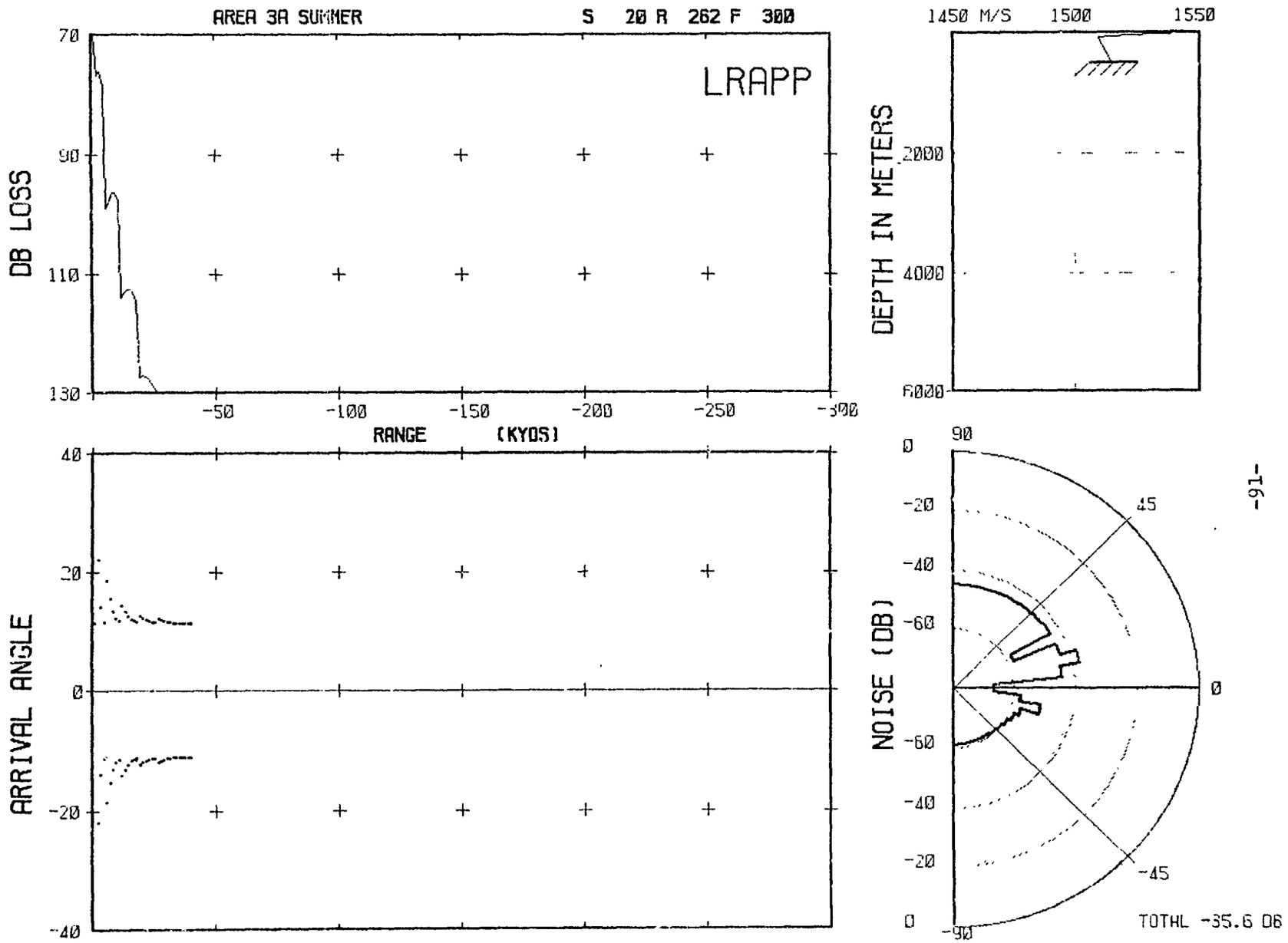
-90
TOTAL -35.1 DB


AREA 3A SUMMER
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LRAPP
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-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
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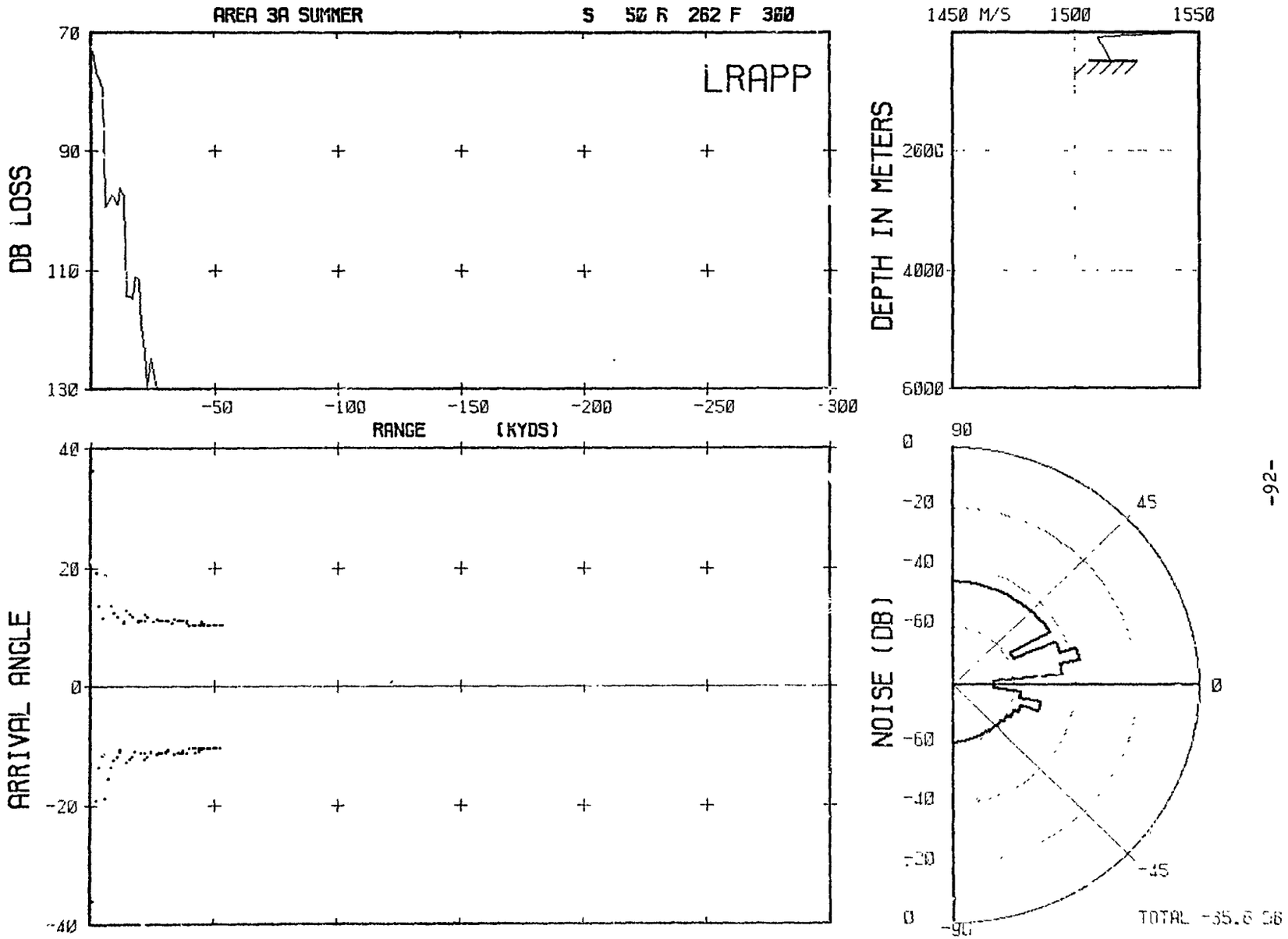
-20
-40
NOISE (DB)
90
45
-45
-90
TOTHL -35.6 DB


AREA 3A SUMMER
S 50 R 262 F 360
LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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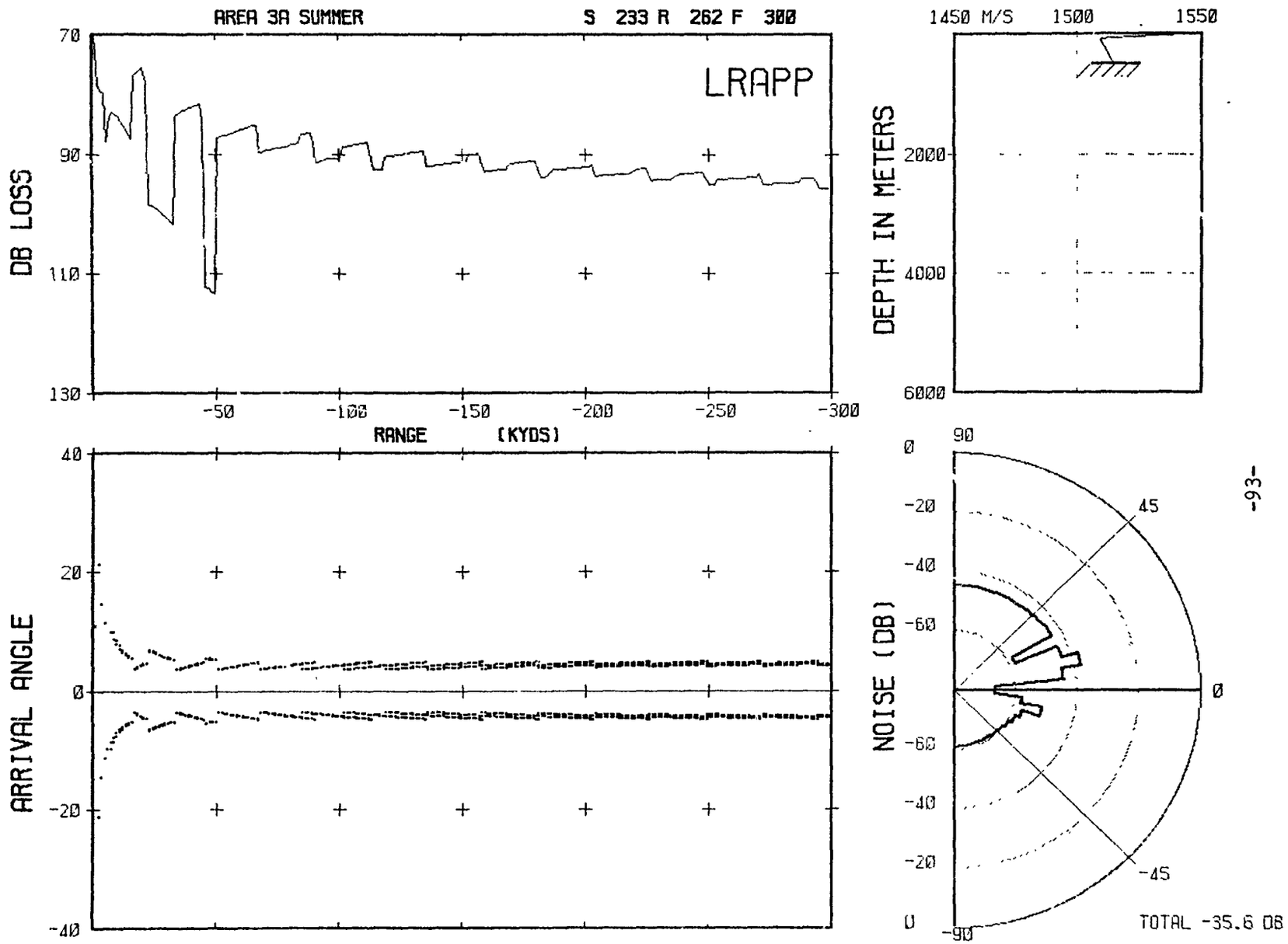
TOTAL -35.6 DB


AREA 3A SUMMER
S 233 R 262 F 300
LRAPP
DB LOSS
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-250
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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-40
-60
-60
-40
-20
0
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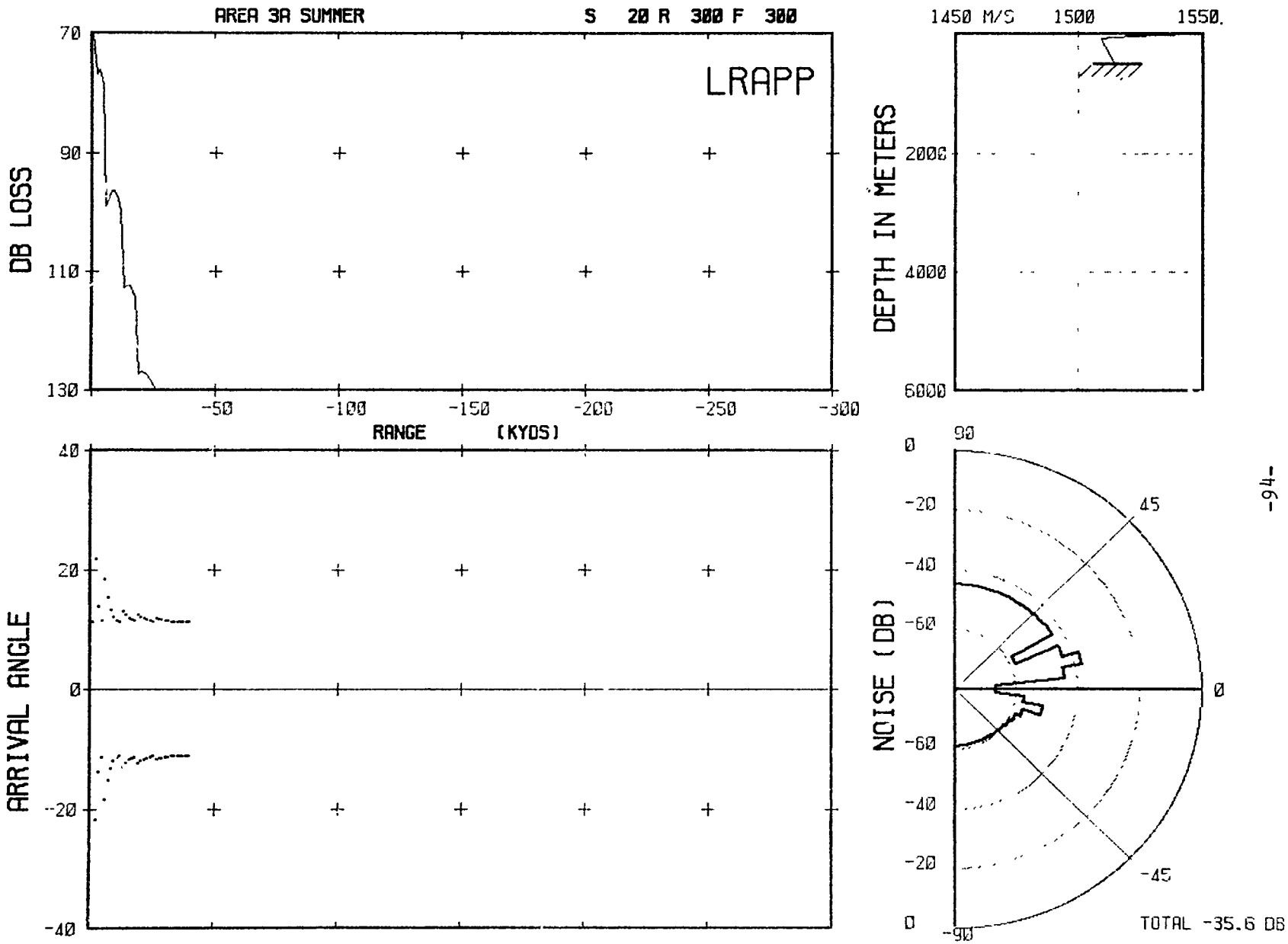
45
0
-45
-90
TOTAL -35.6 DB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LRAPP
DB LOSS
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130
-50
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-150
-200
-250
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RANGE (KYDS)
1450 M/S
1500
1550.
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
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0
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-40
NOISE (DB)
0
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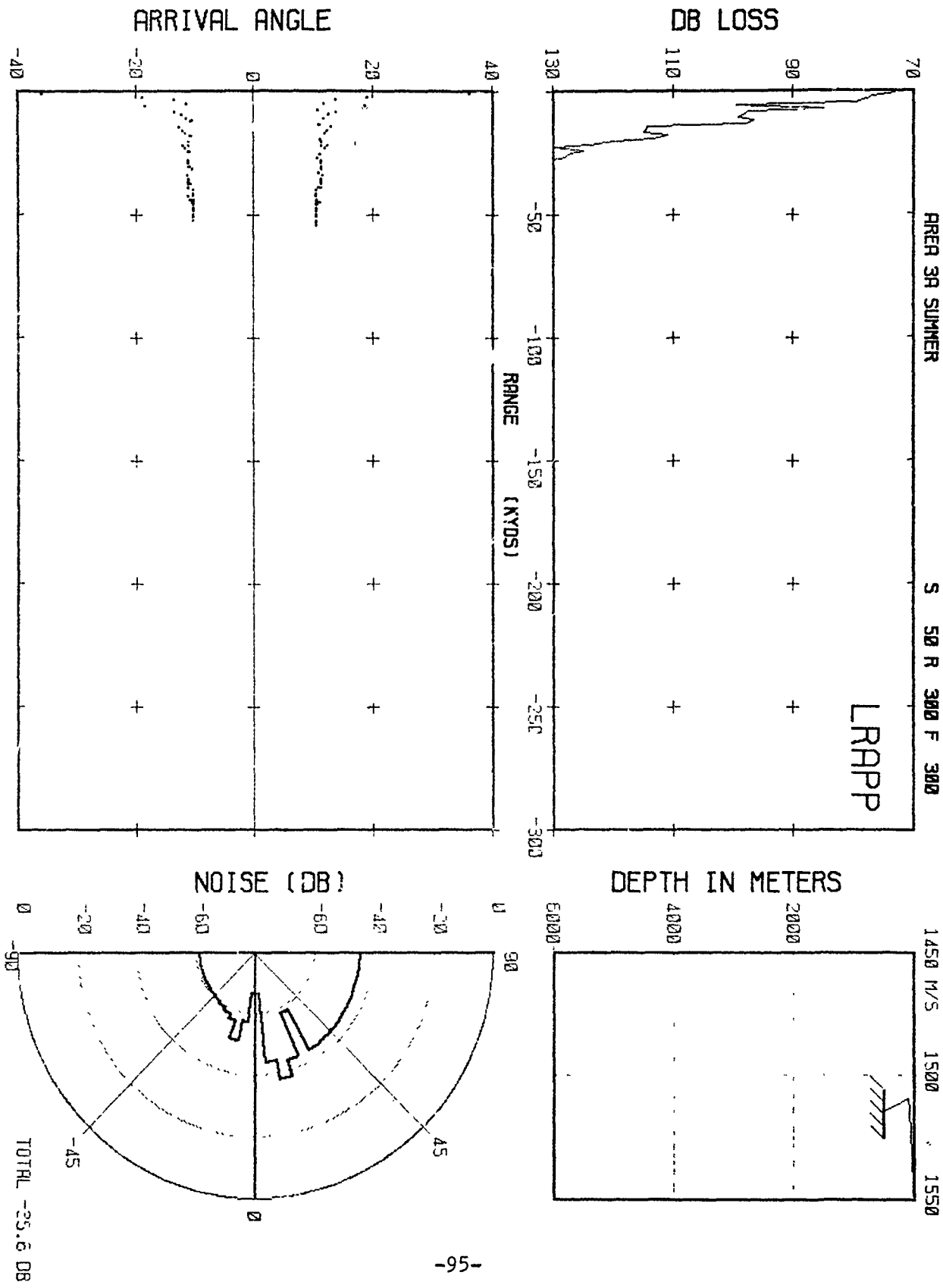
-40
-60
90
45
-45
-90
TOTAL -35.6 DB


AREA 3A SUMMER
S 50 R 300 F 300
LRAPP
DB LOSS
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-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
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40
DEPTH IN METERS
6000
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1550
NOISE (DB)
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-90
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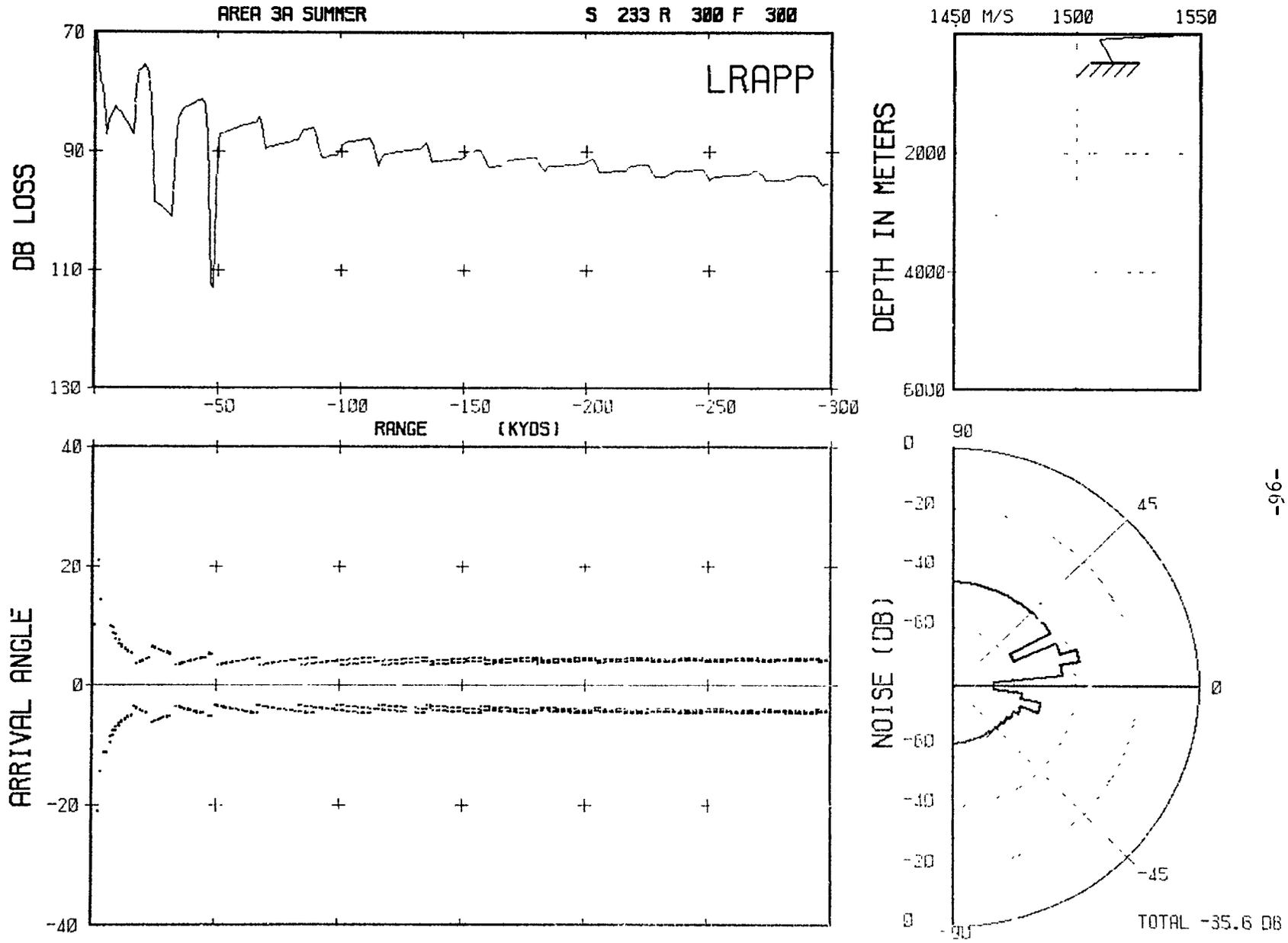
45
-45
TOTAL -25.6 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
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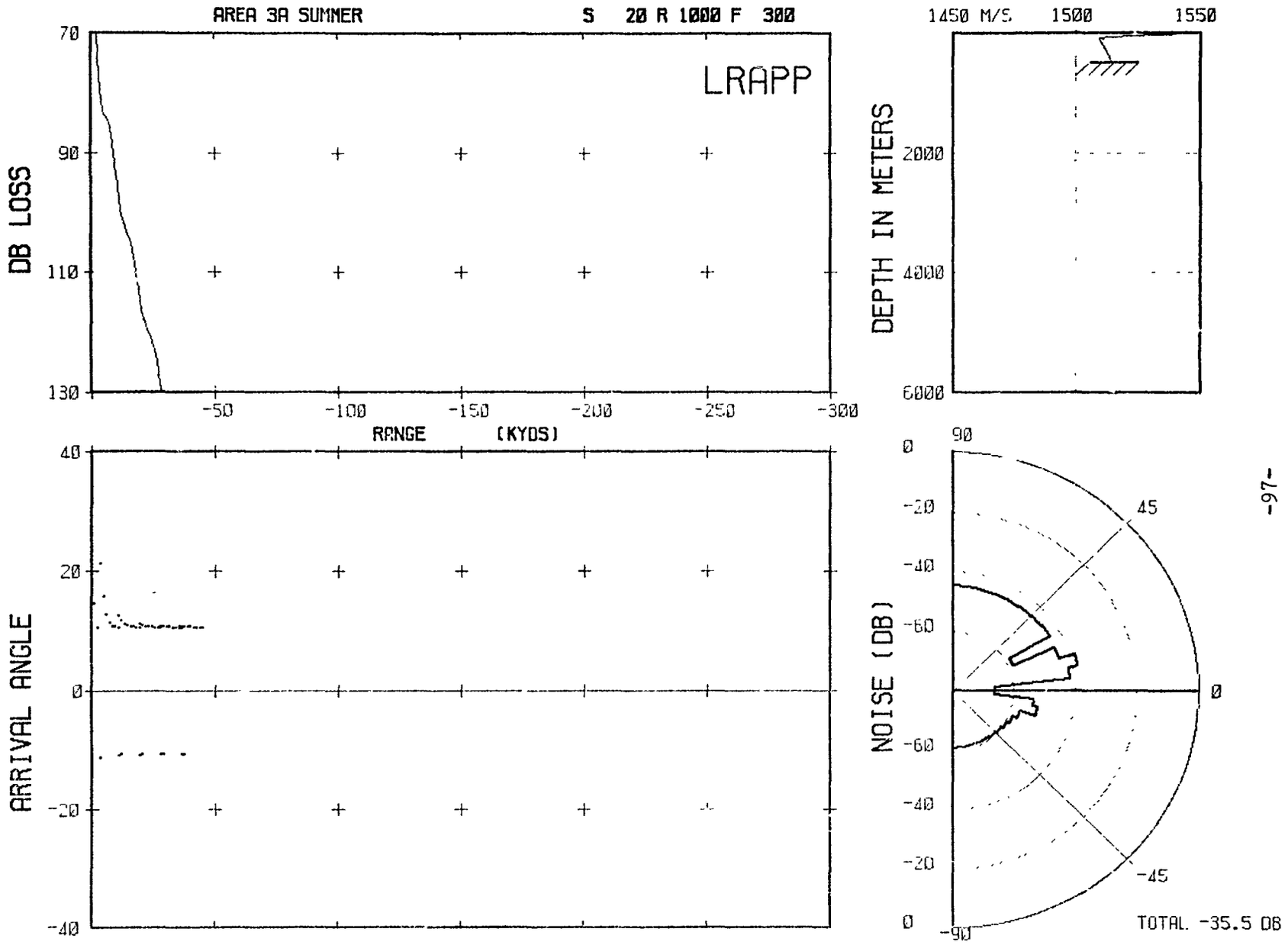
-40
NOISE (DB)
90
45
-45
-90
TOTAL -35.6 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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-50
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-150
-200
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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-40
NOISE (DB)
90
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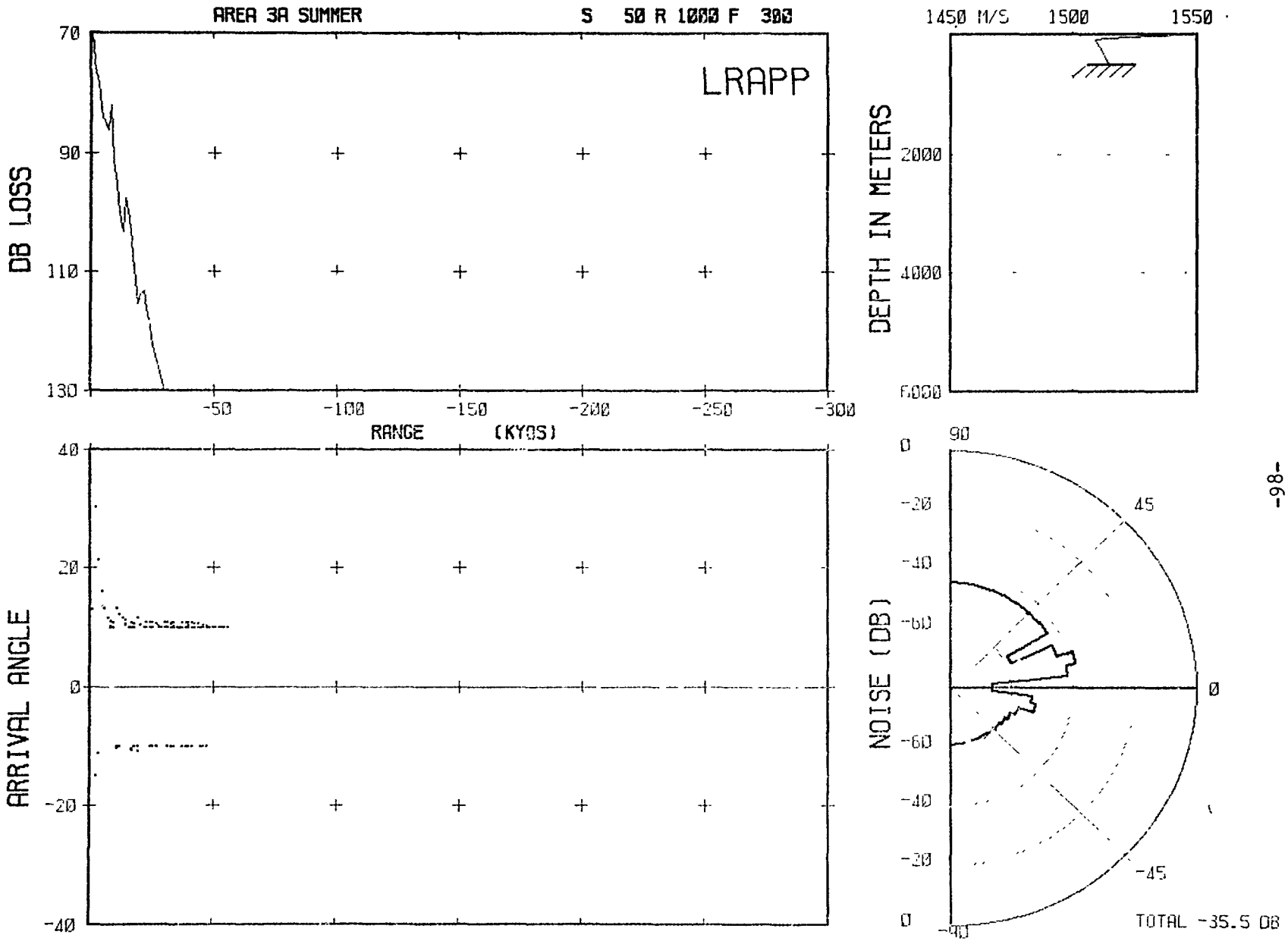
-90
TOTAL -35.5 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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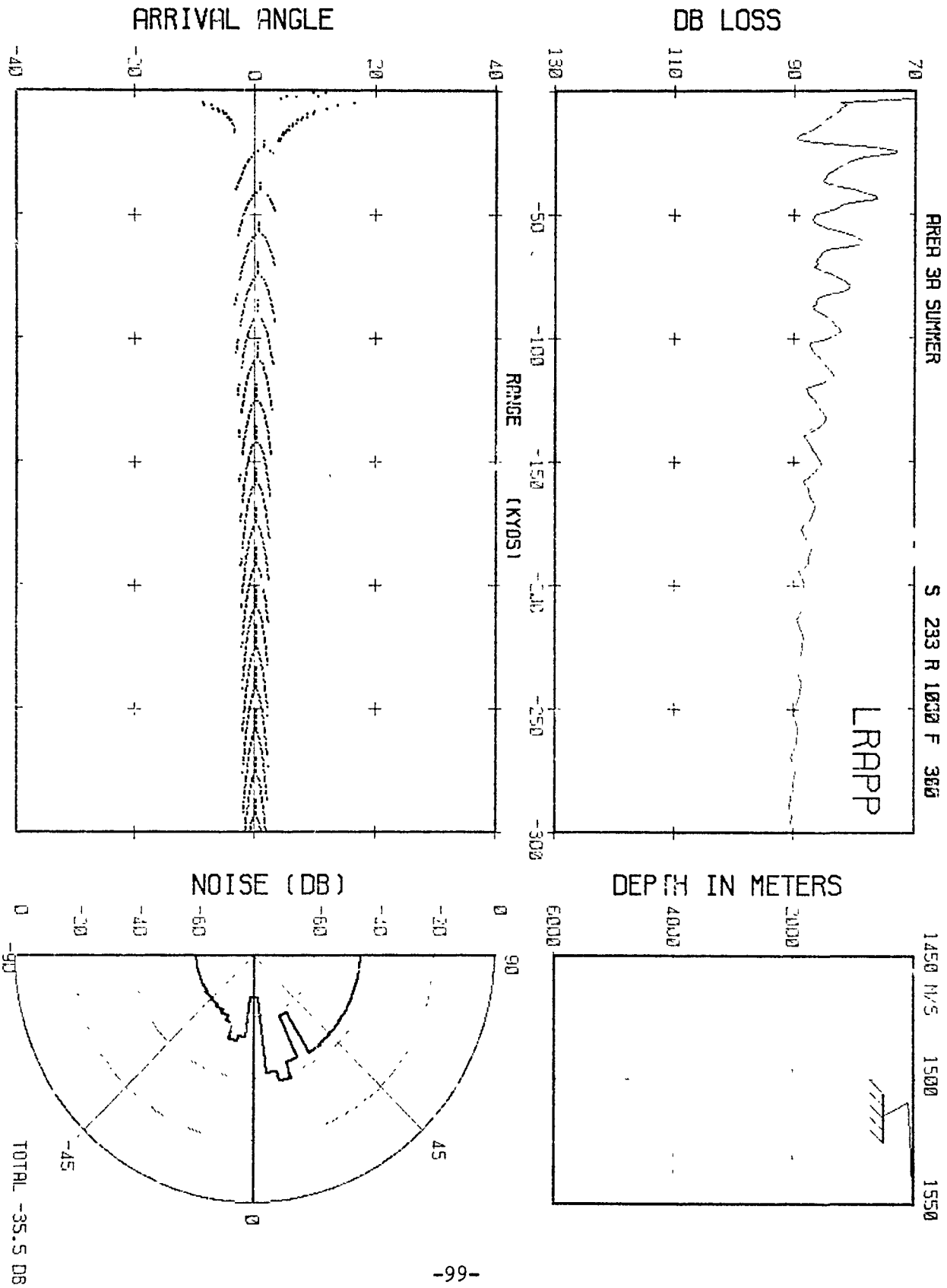
TOTAL -35.5 DB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LRAPP
DB LOSS
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130
-50
-100
-150
-200
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-300
RANGE (KYDS)
ARRIVAL ANGLE
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-20
0
20
40
DEPTH IN METERS
6000
4000
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1550
NOISE (DB)
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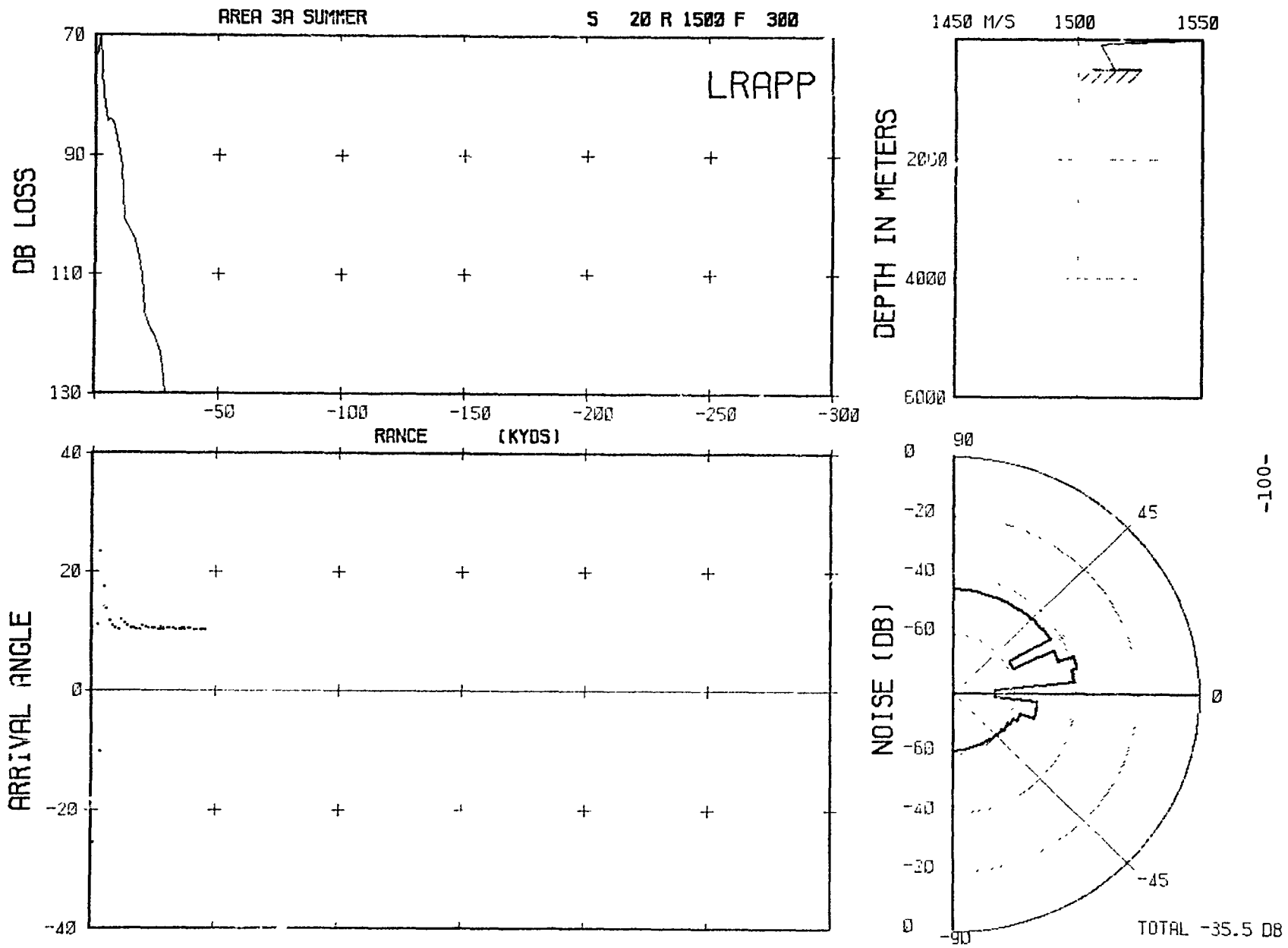
TOTAL -35.5 DB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LRAPP
DB LOSS
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-50
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-200
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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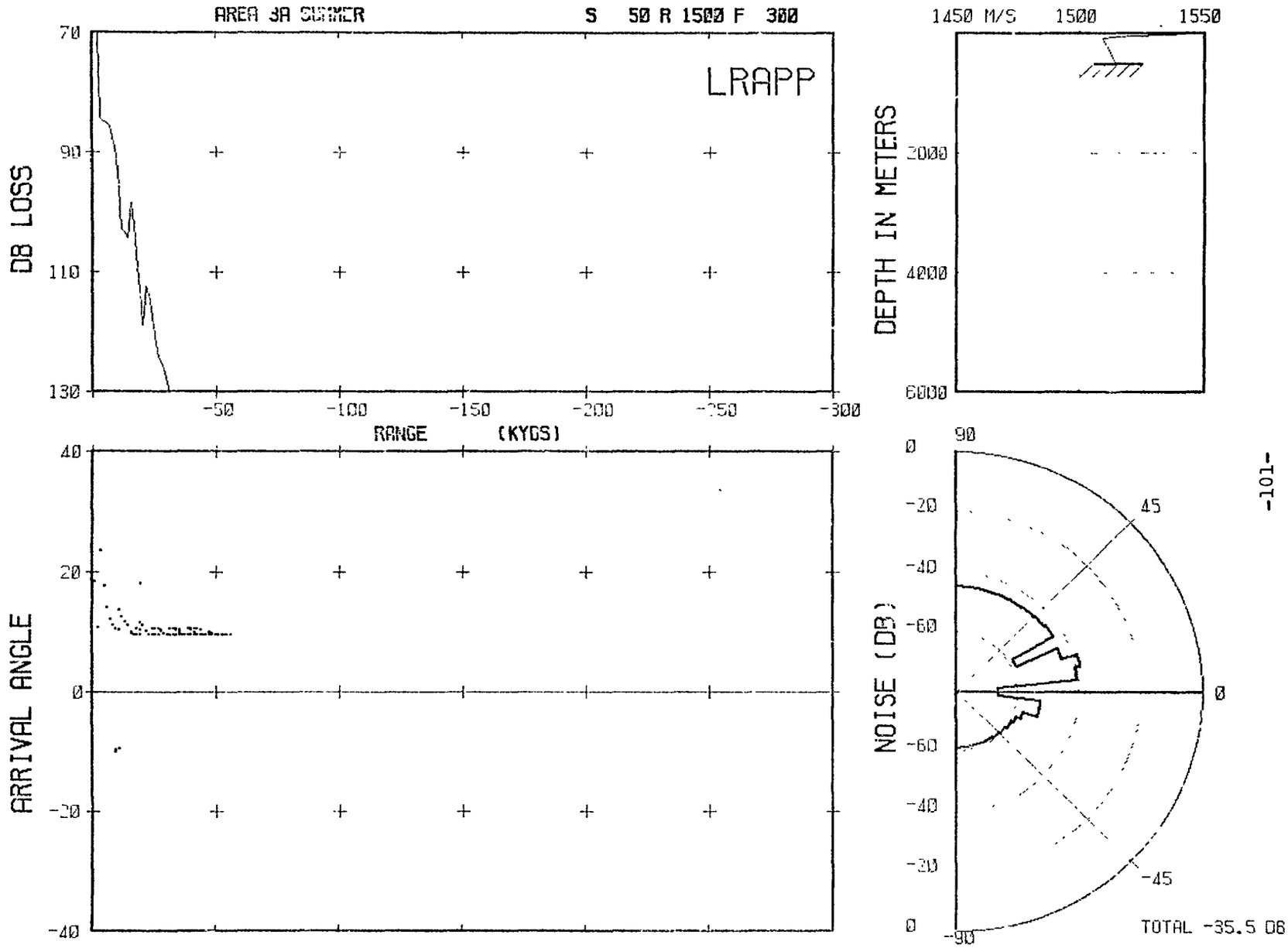
45
-45
-90
TOTAL -35.5 DB


AREA 3A SUMMER
S 50 R 1500 F 300
LRAPP
DB LOSS
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RANGE (KYDS)
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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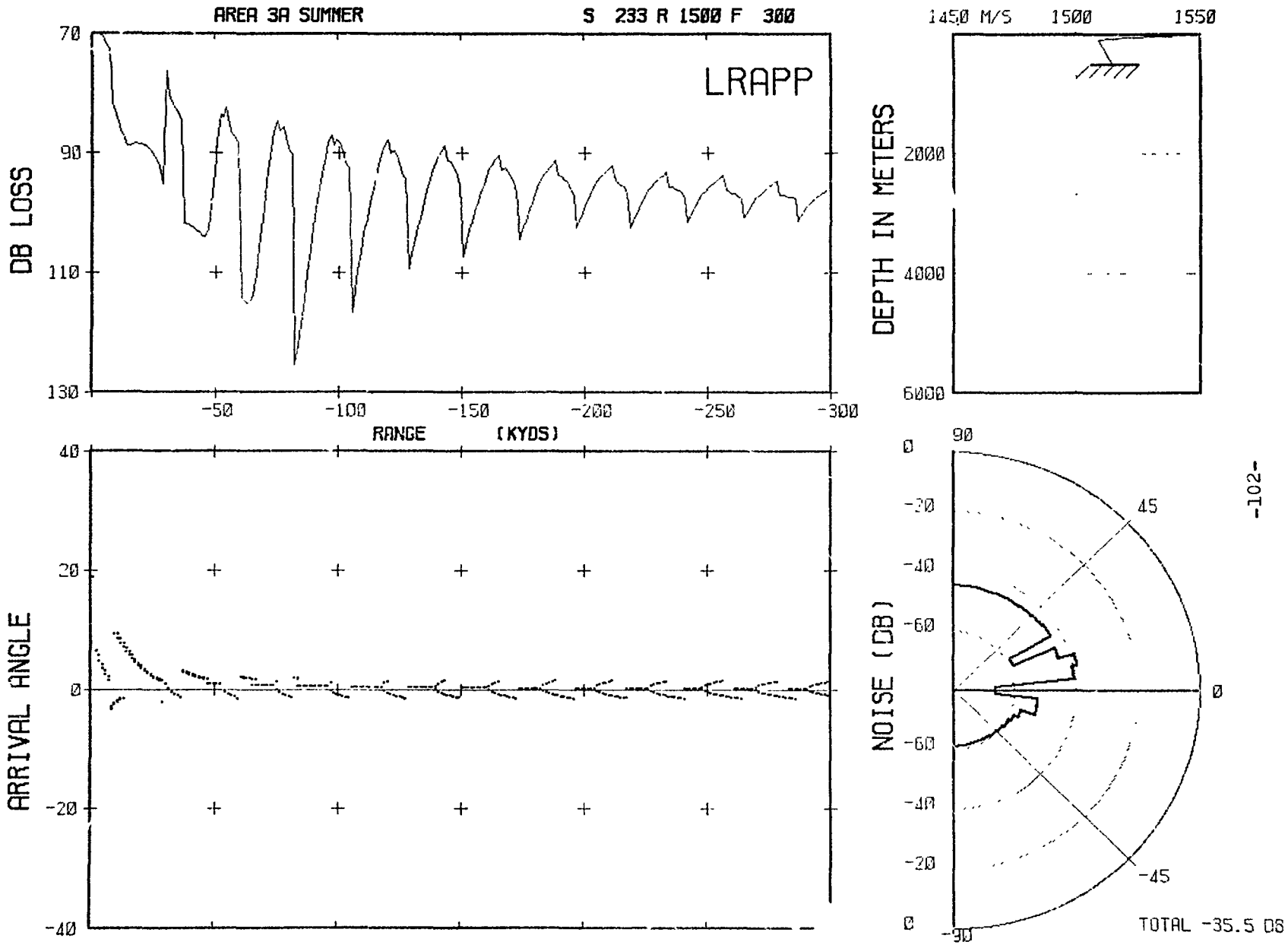
TOTAL -35.5 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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20
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NOISE (DB)
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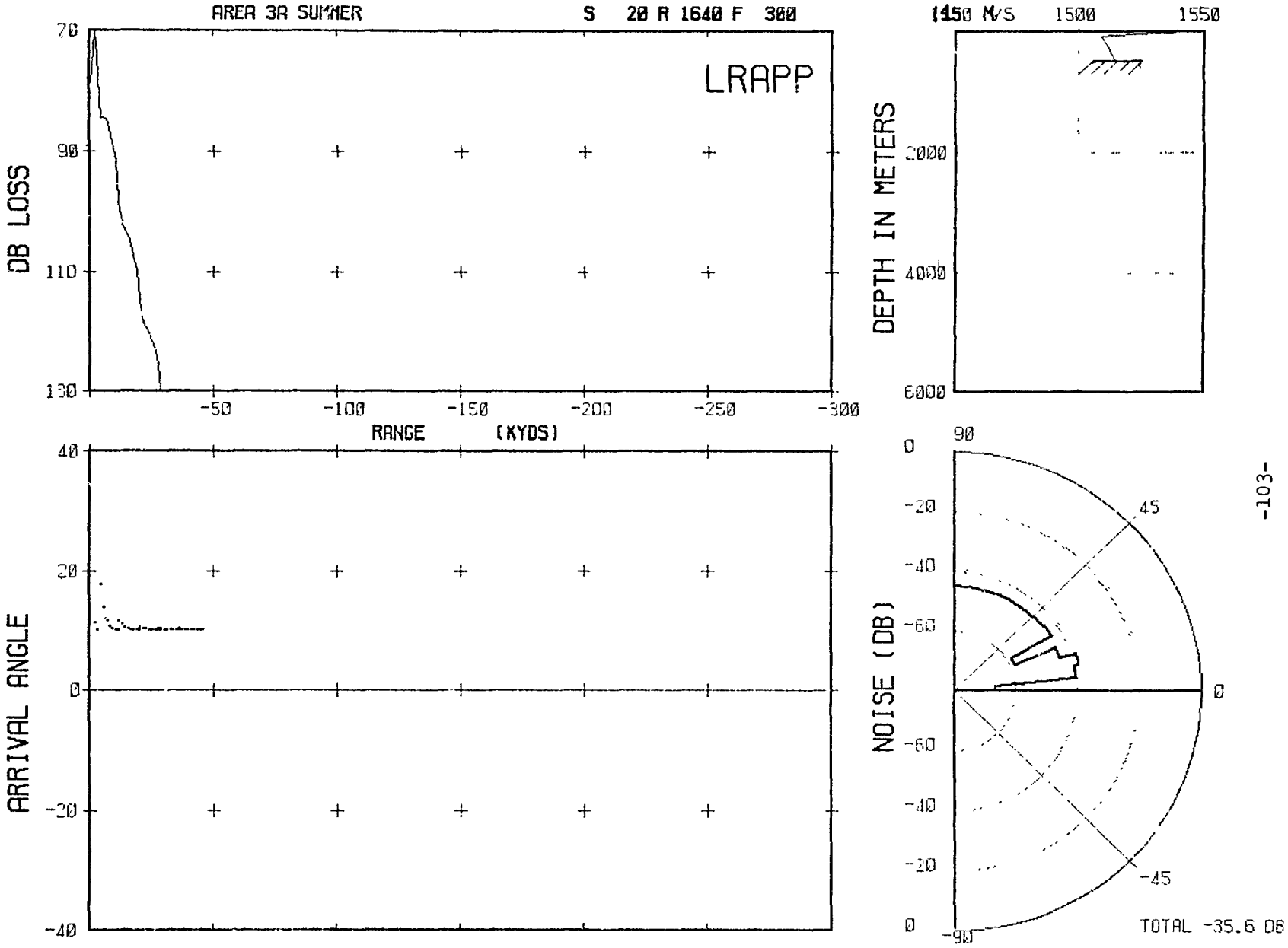
45
-45
-90
TOTAL -35.5 DB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DB LOSS
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RANGE (KYDS)
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1500
1550
DEPTH IN METERS
2000
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NOISE (DB)
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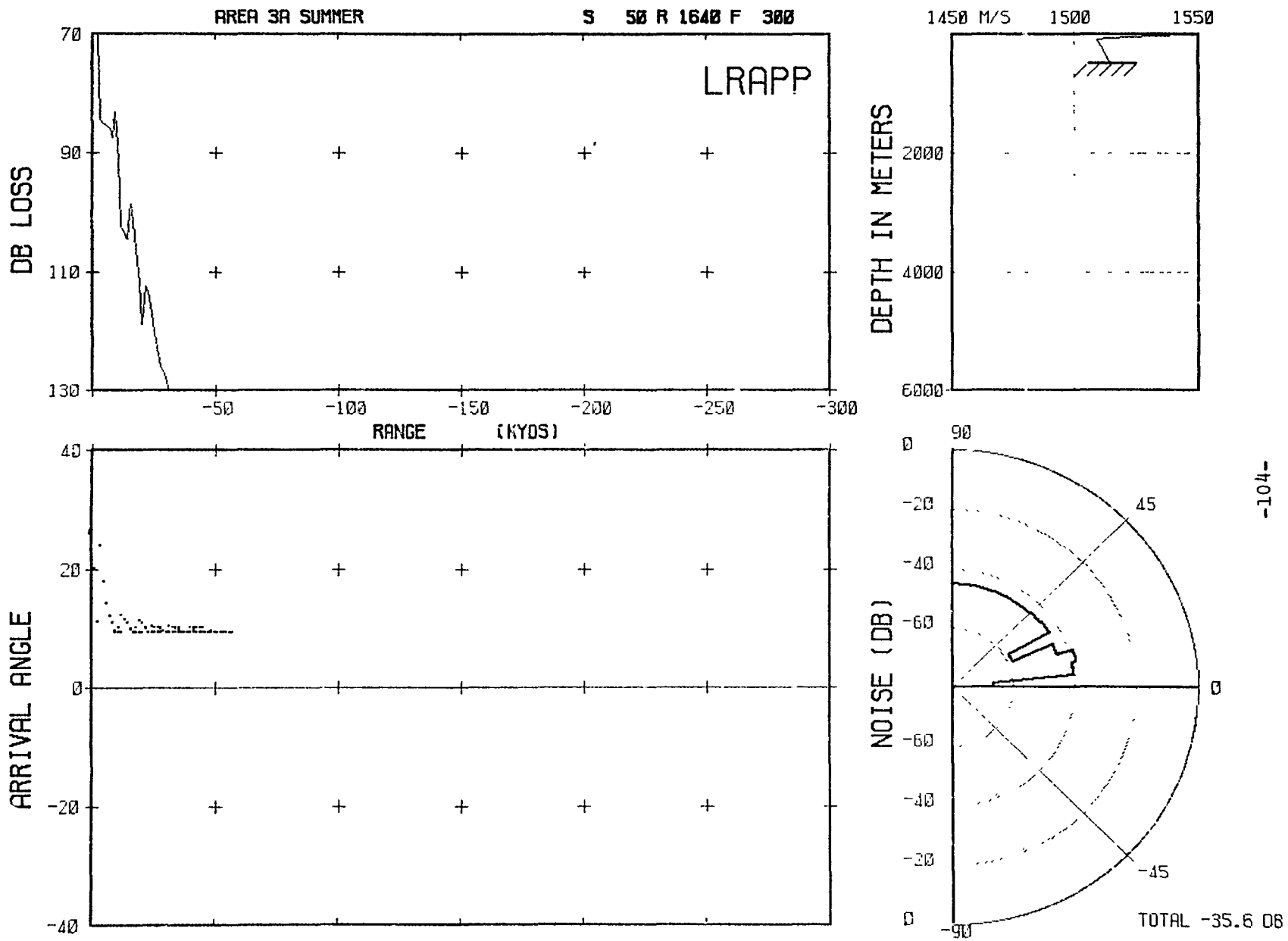
TOTAL -35.6 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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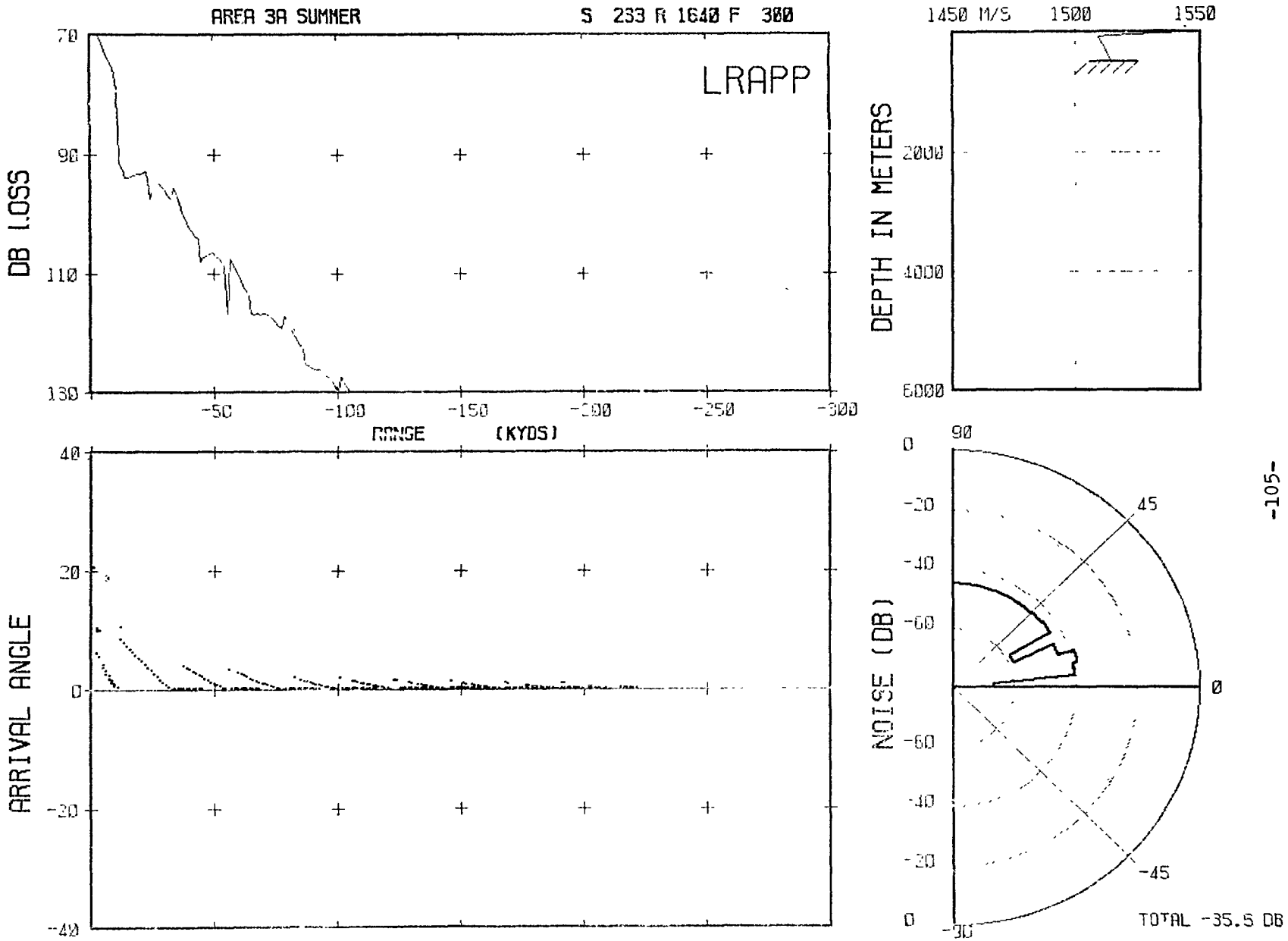
TOTAL -35.6 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
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ARRIVAL ANGLE
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-40
NOISE (DB)
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0
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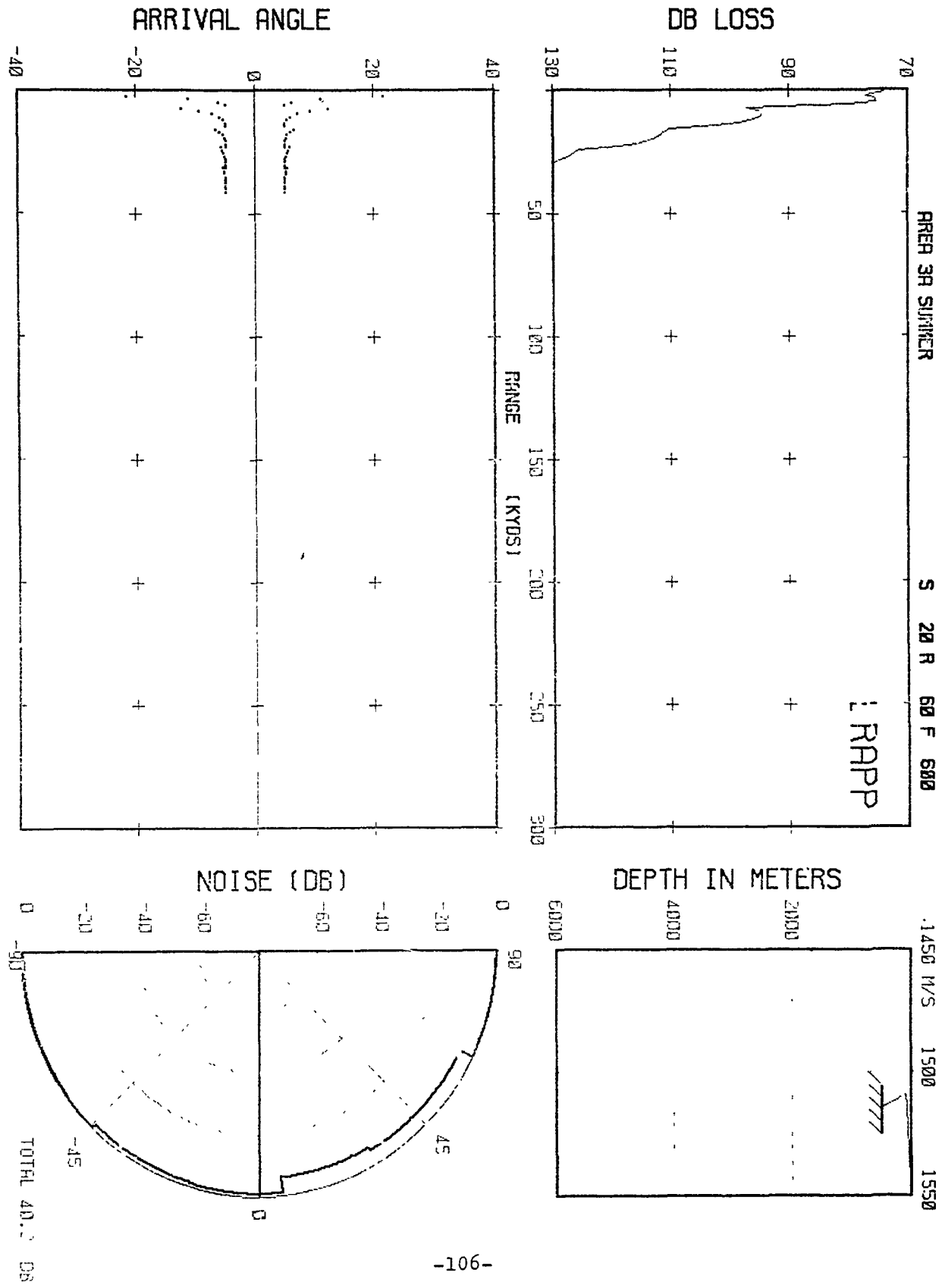
-90
TOTAL -35.5 DB


DB LOSS
AREA 3A SUMMER
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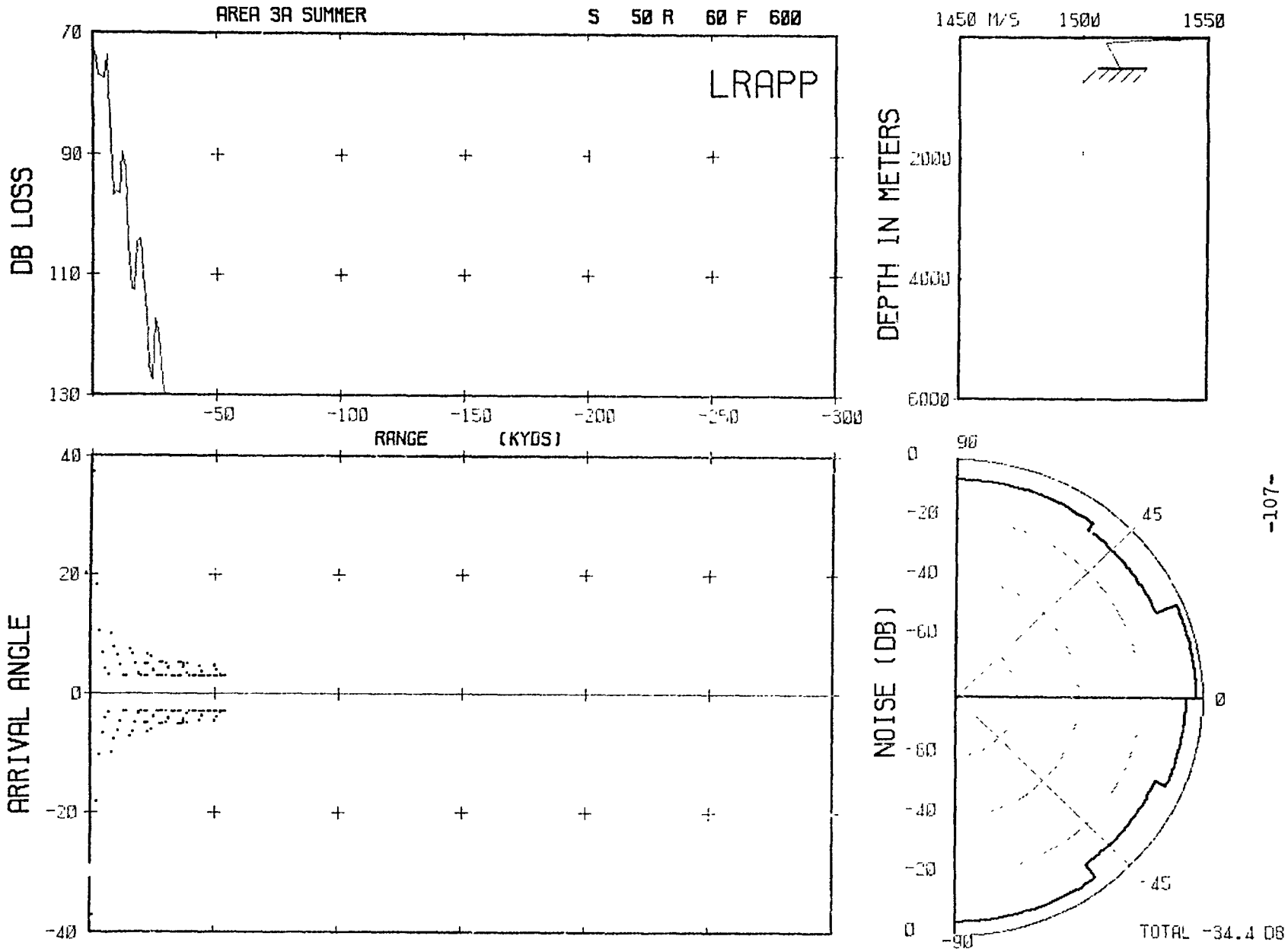
RAPP
RANGE (KYDS)
ARRIVAL ANGLE
DEPTH IN METERS
1450 M/S 1500 1550
NOISE (DB)
TOTAL 40.2 DB


AREA 3A SUMMER
S 50 R 60 F 600
LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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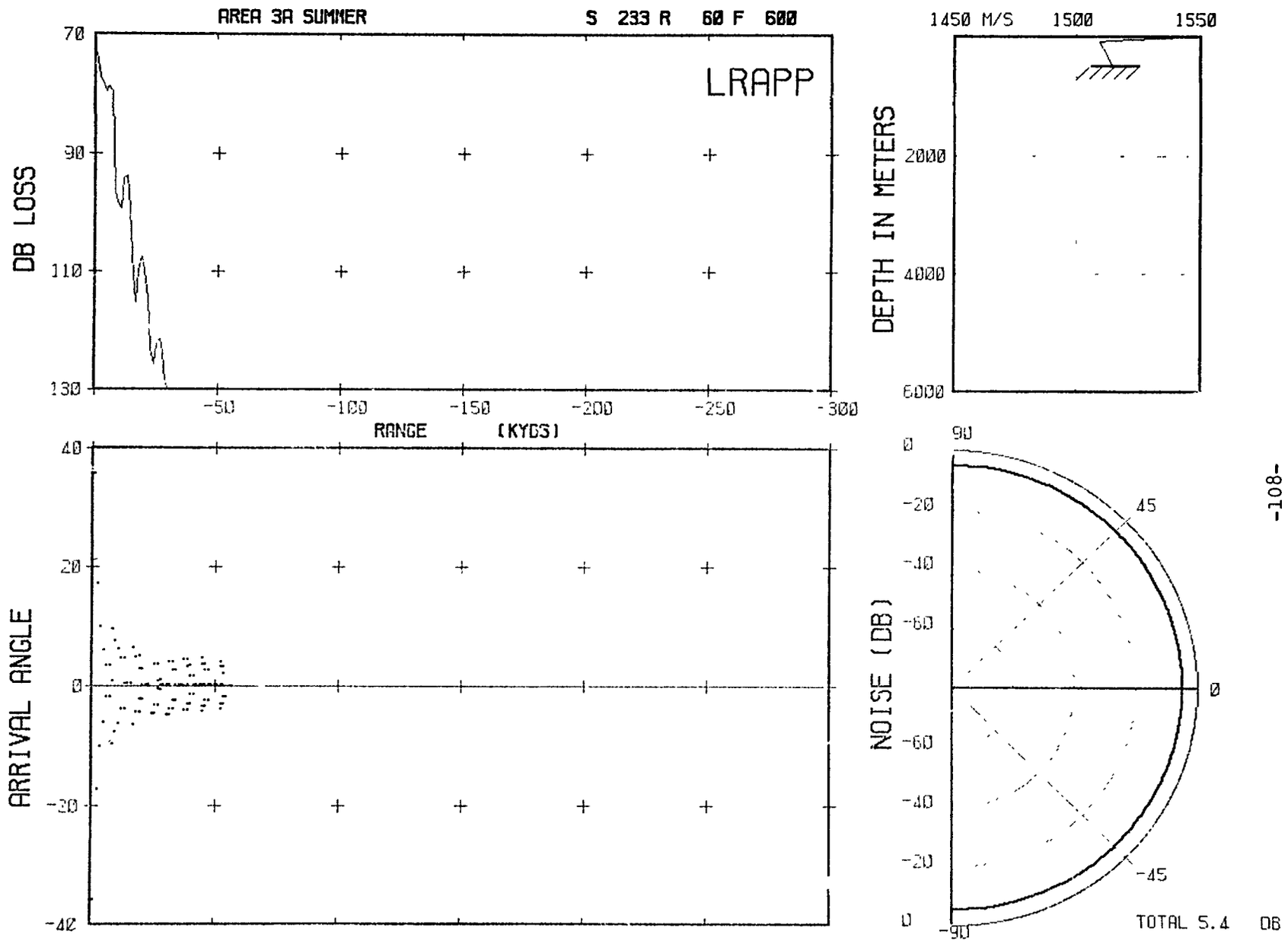
TOTAL -34.4 DB


AREA 3A SUMMER
S 233 R 60 F 600
LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
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-40
NOISE (DB)
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-45
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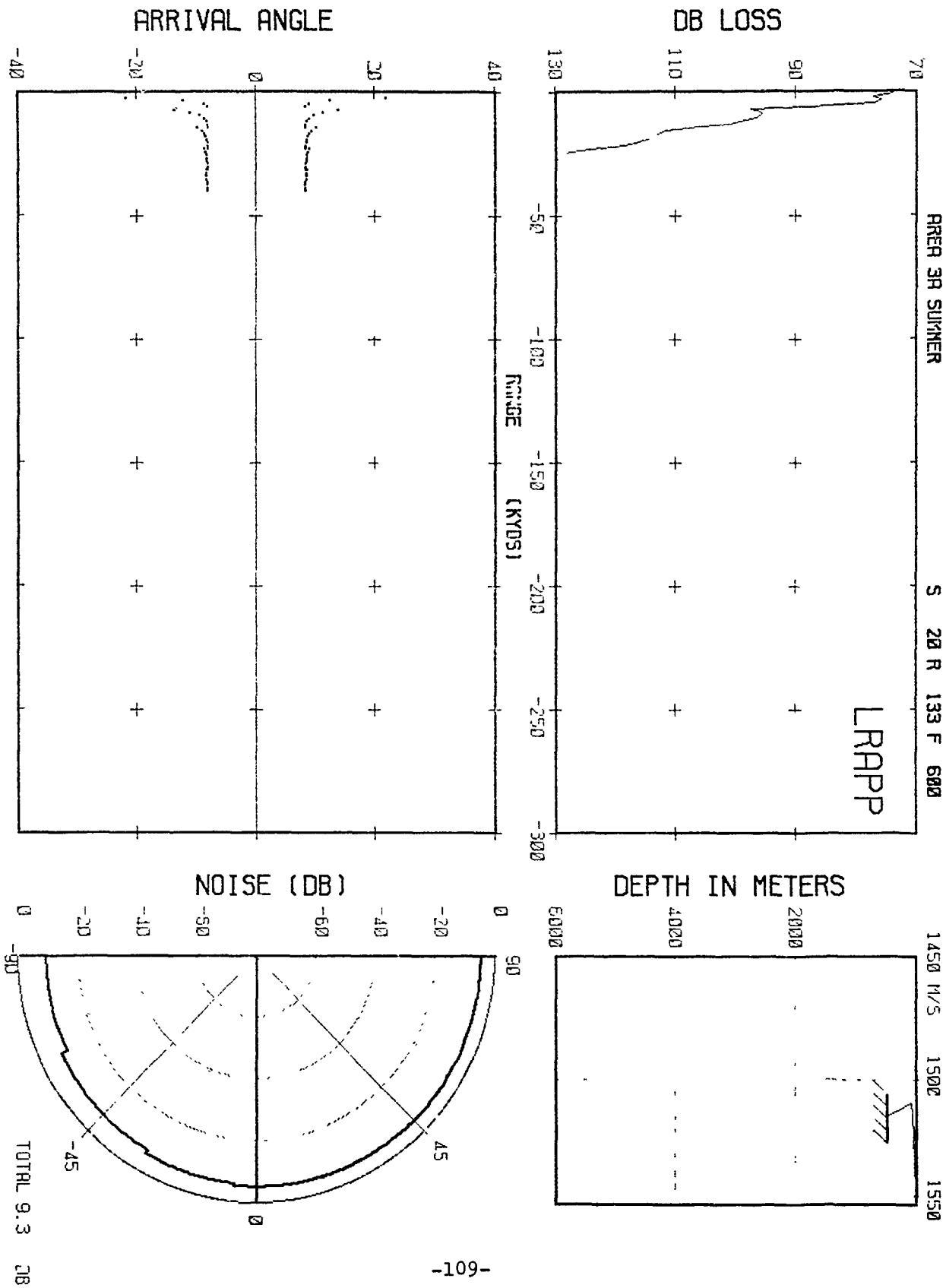
TOTAL 5.4 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
40
20
0
-20
-40
DEPTH IN METERS
6000
4000
2000
1450 M/S
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NOISE (DB)
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-90
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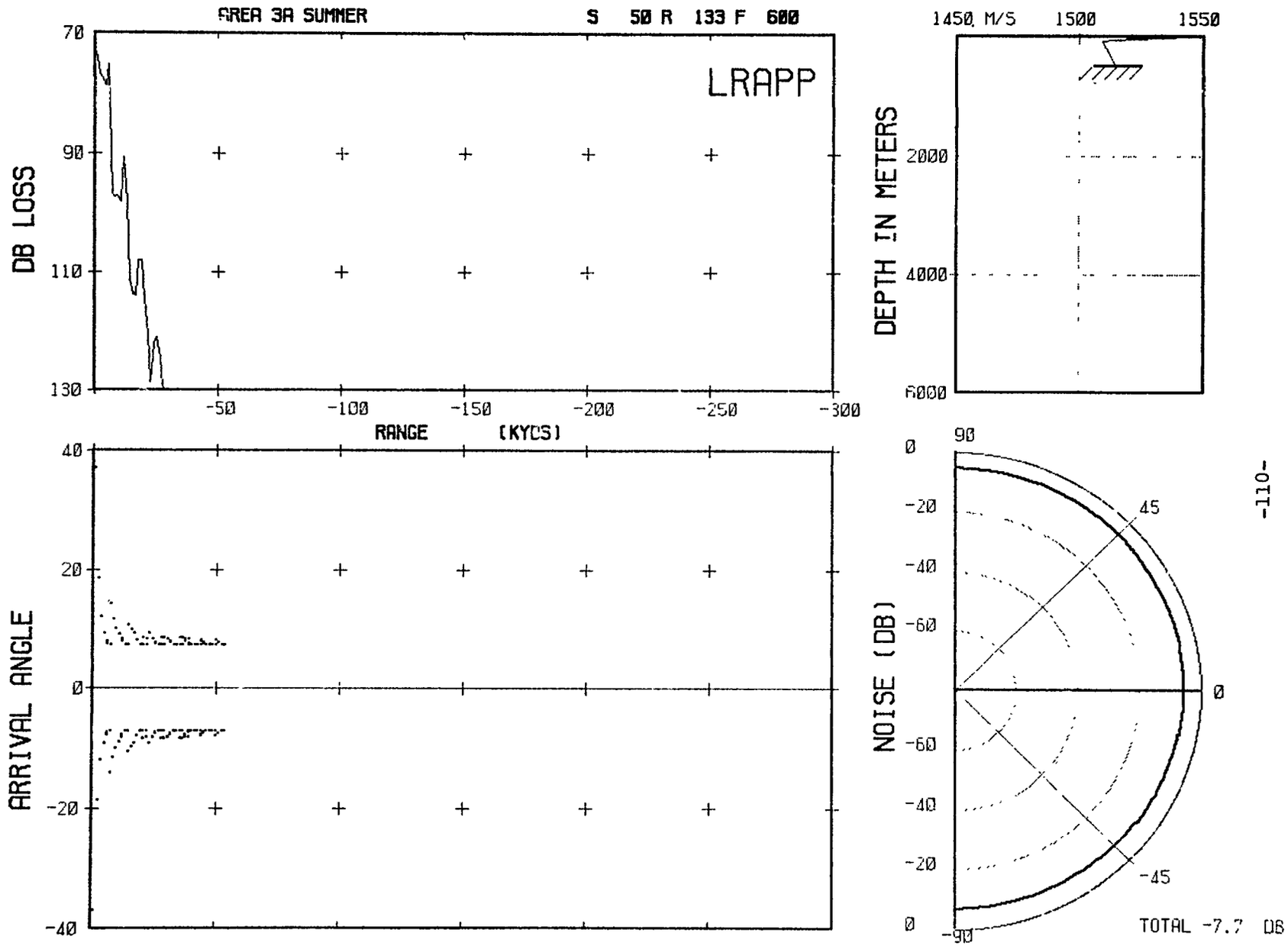
45
-45
TOTAL 9.3 DB


AREA 3A SUMMER
S 50 R 133 F 600
LRAPP
DB LOSS
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110
130
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-200
-250
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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6000
ARRIVAL ANGLE
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-20
-40
NOISE (DB)
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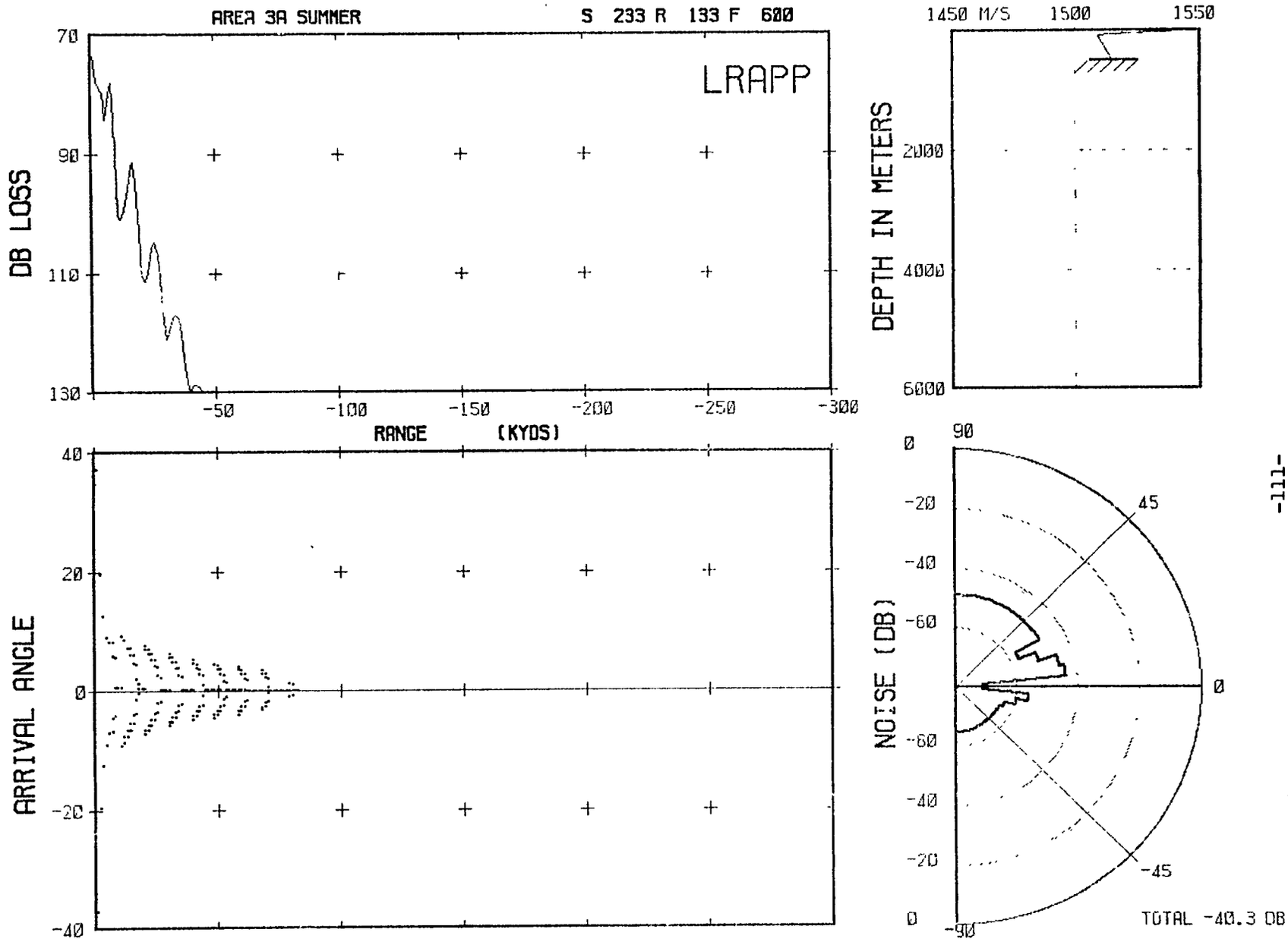
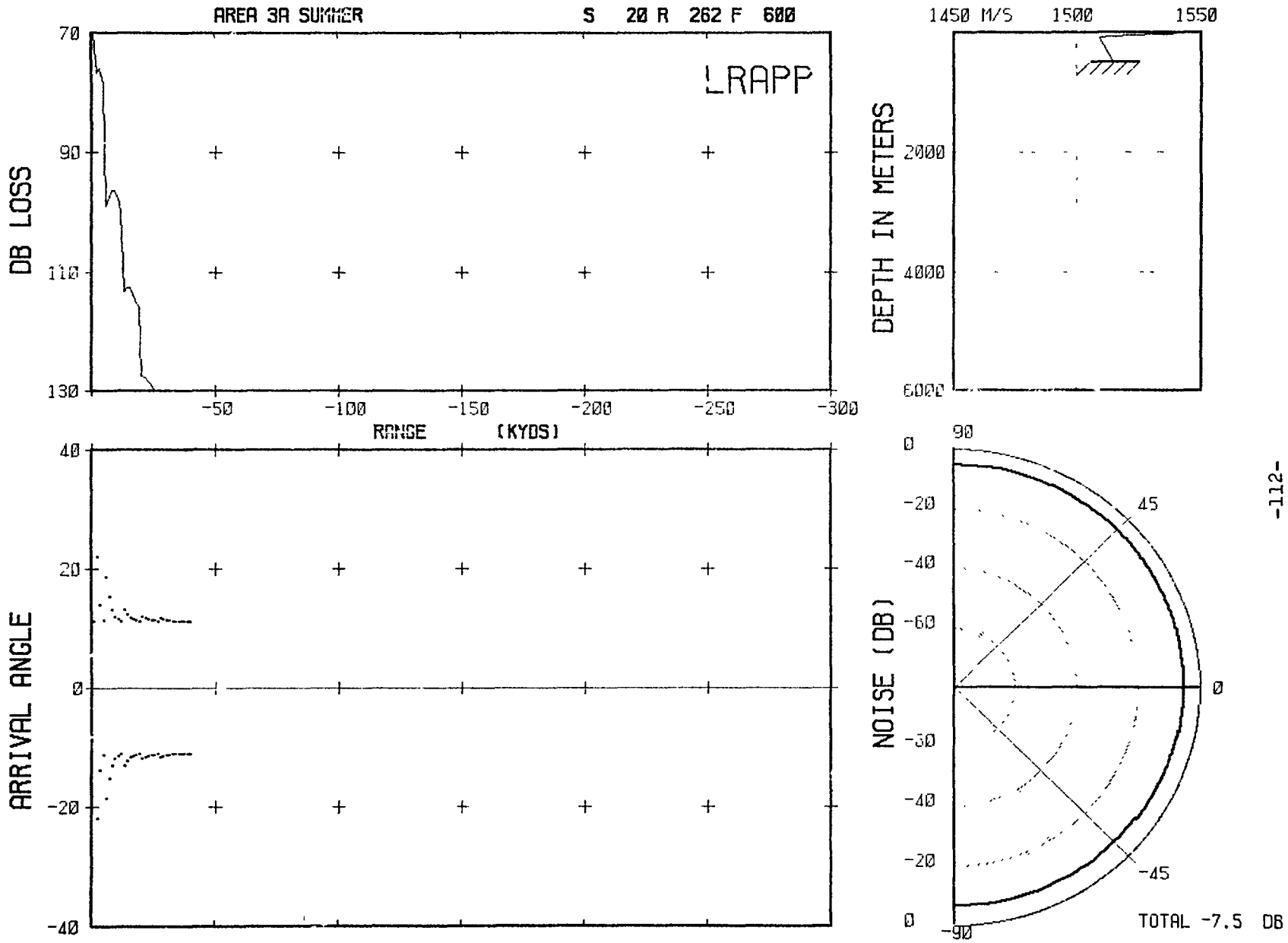
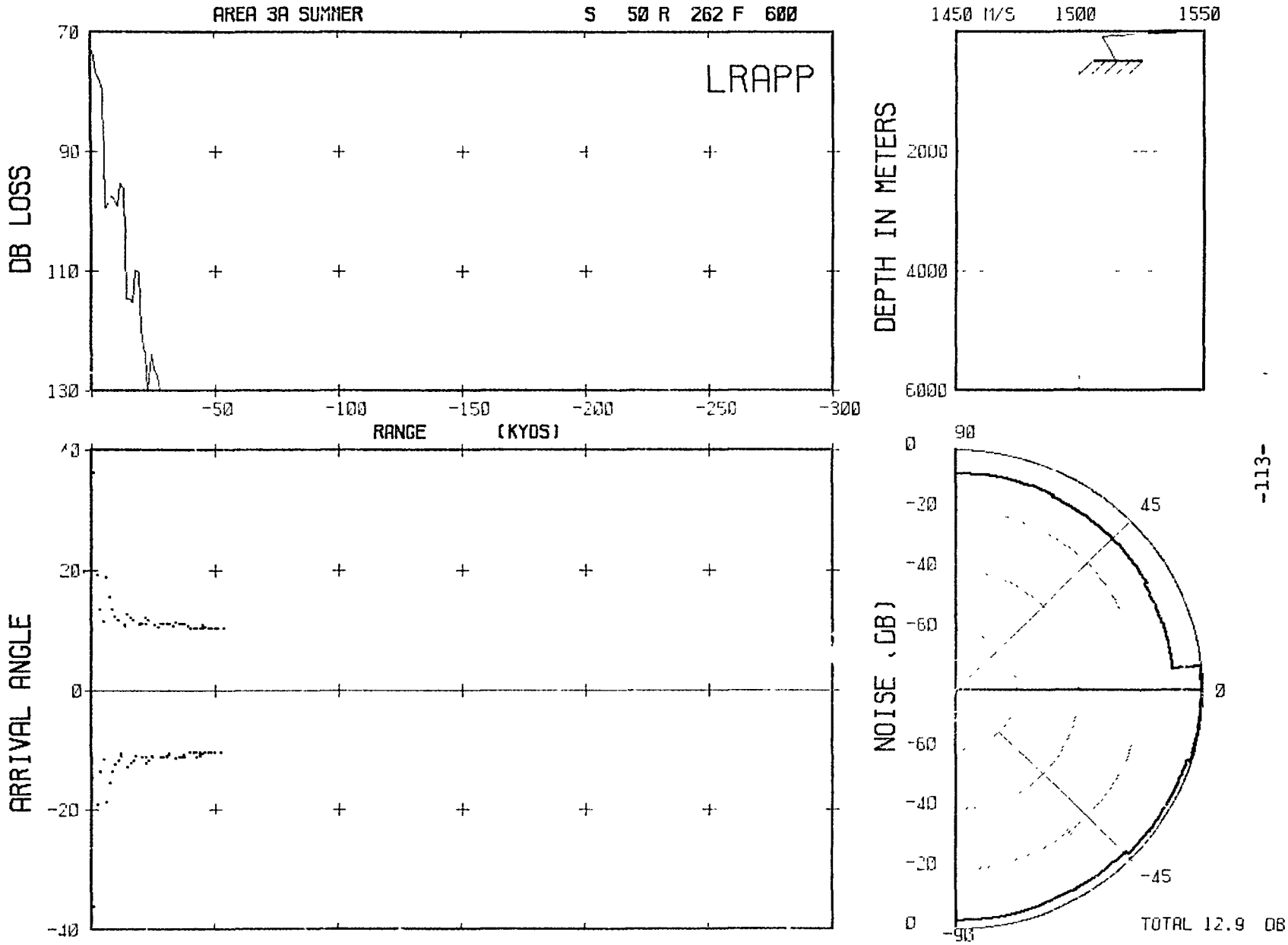
45
-45
-90
TOTAL -7.7 DB


AREA 3A SUMMER
S 233 R 133 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -40.3 DB


AREA 3A SUMMER
S 20 R 262 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -7.5 DB


AREA 3A SUMMER
S 50 R 262 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
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-40
NOISE (DB)
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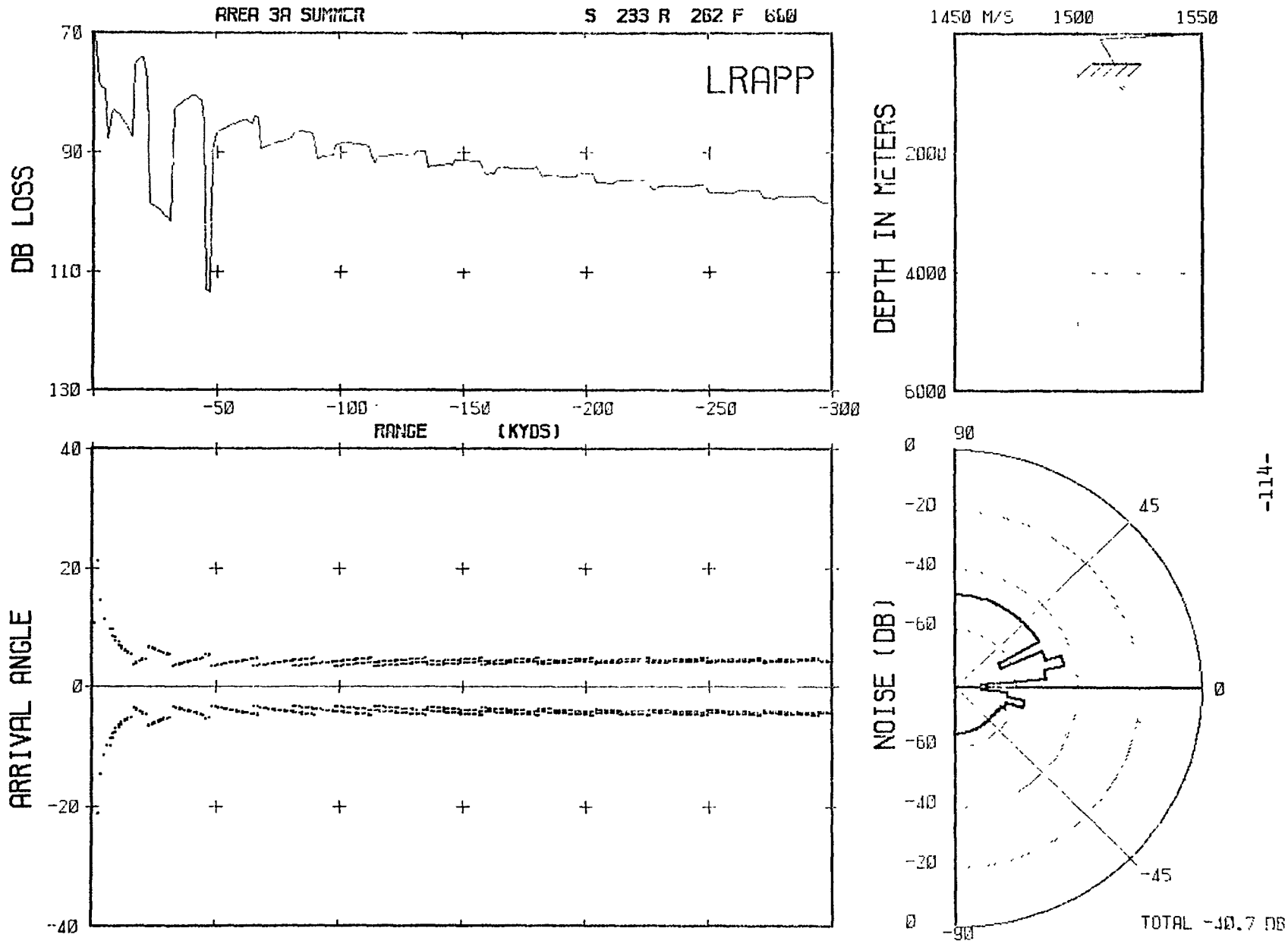
-40
-60
90
45
-45
-90
TOTAL 12.9 DB


AREA 3A SUMMER
S 233 R 262 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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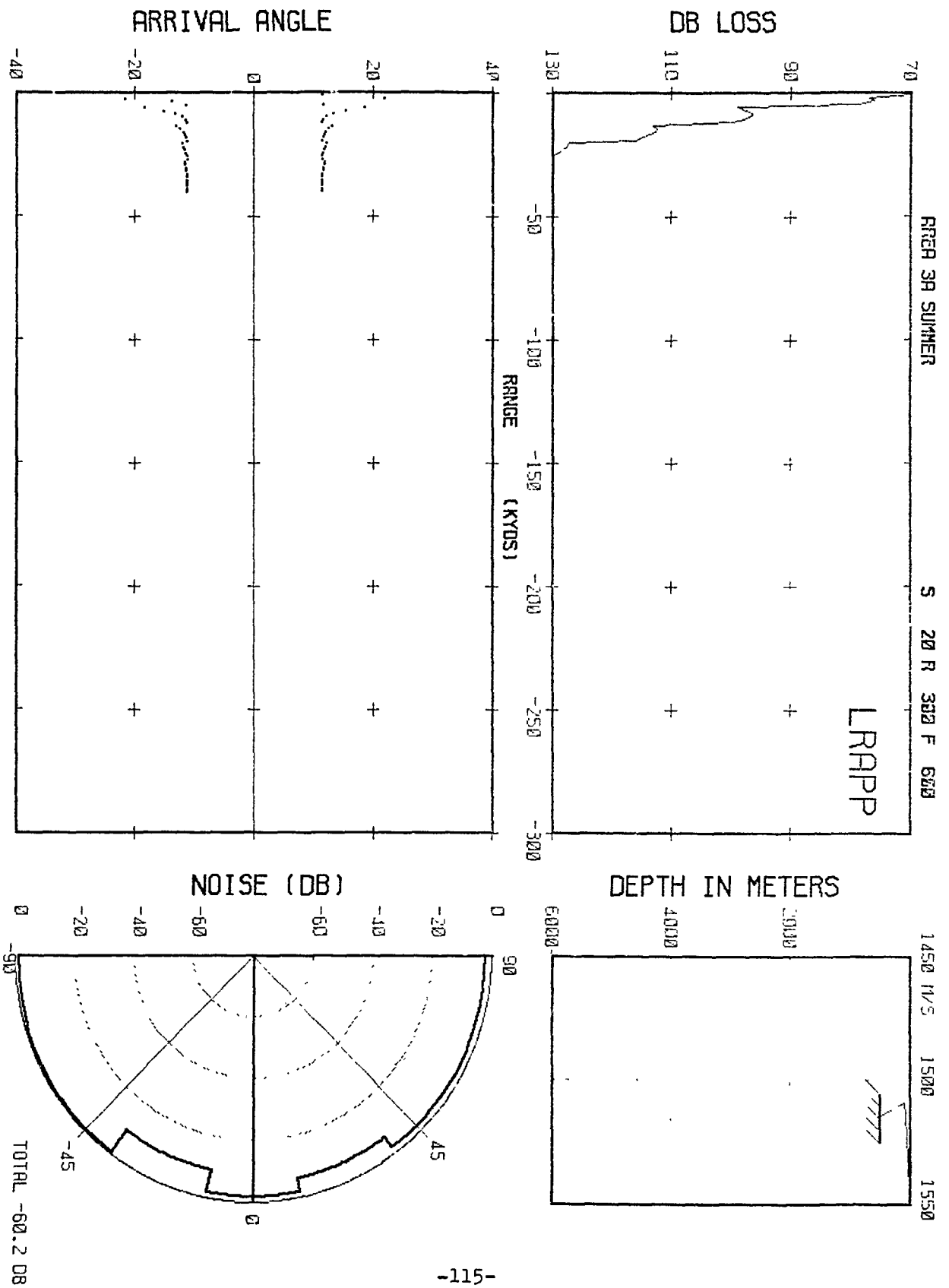
-20
-40
-60
-60
-40
-20
0
90
45
0
-45
-90
TOTAL -10.7 DB


AREA 3A SUMMER
S 20 R 300 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
40
20
0
-20
-40
DEPTH IN METERS
0000
4000
8000
1450 M/S
1500
1550
NOISE (DB)
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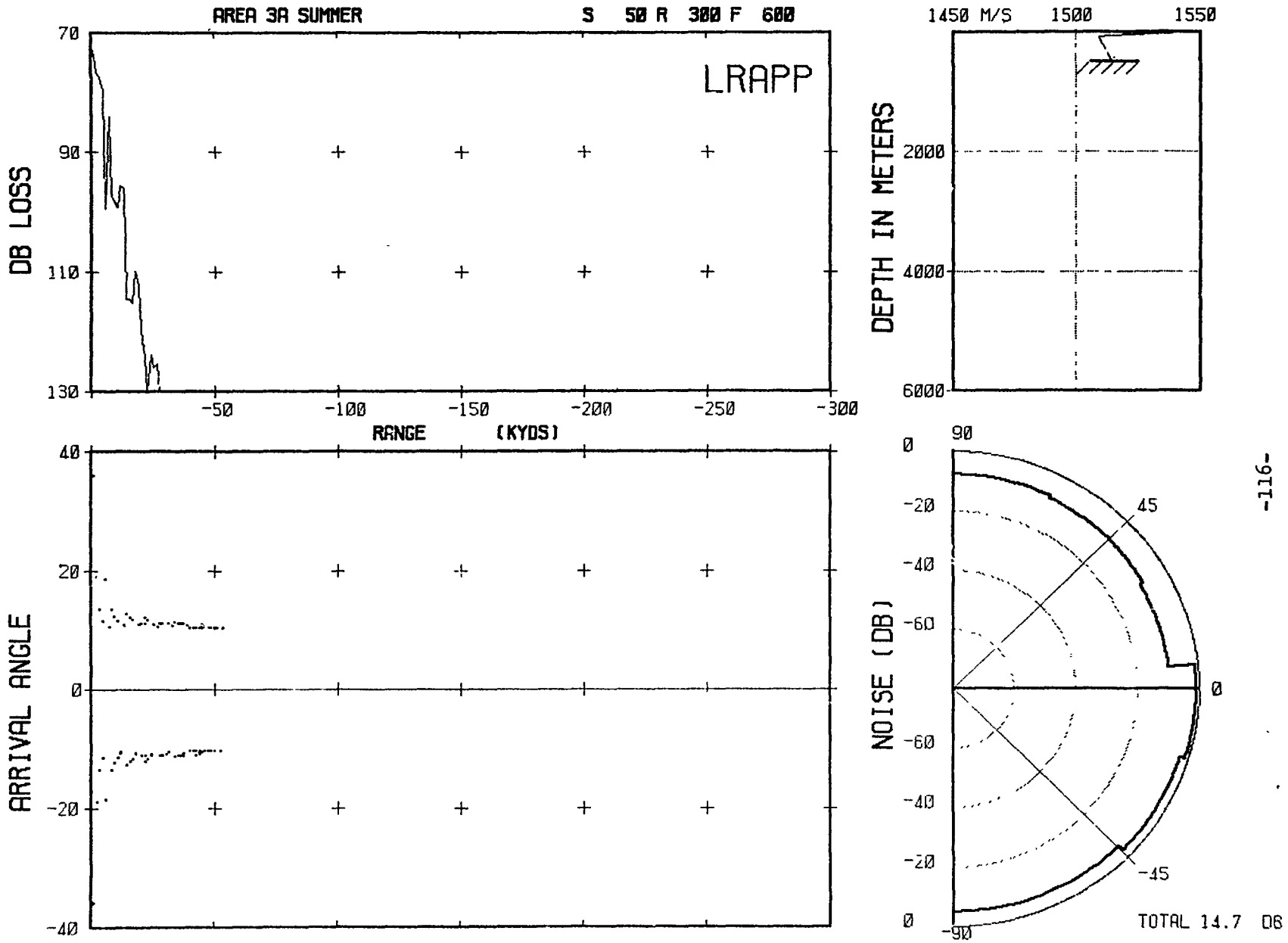
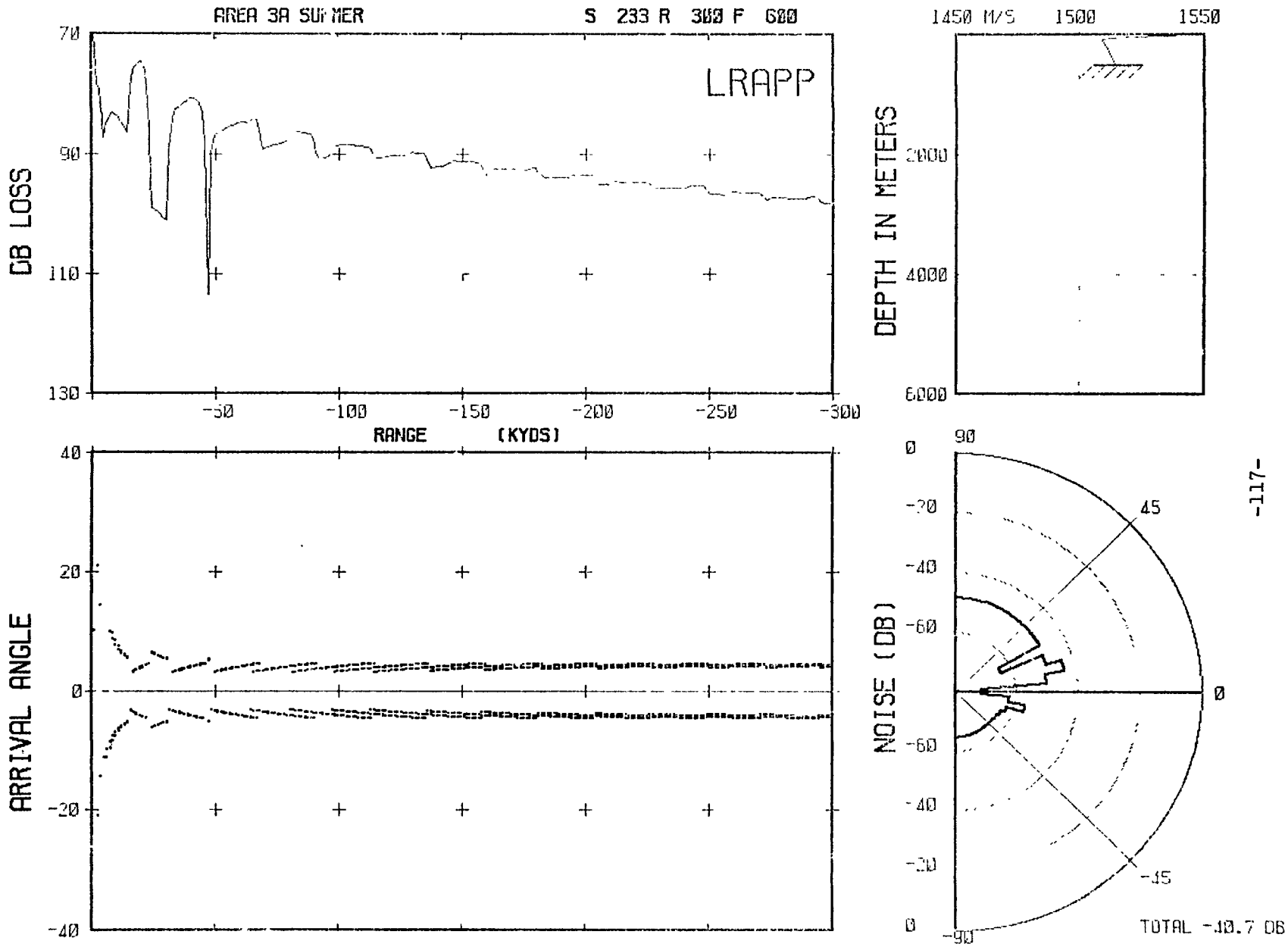
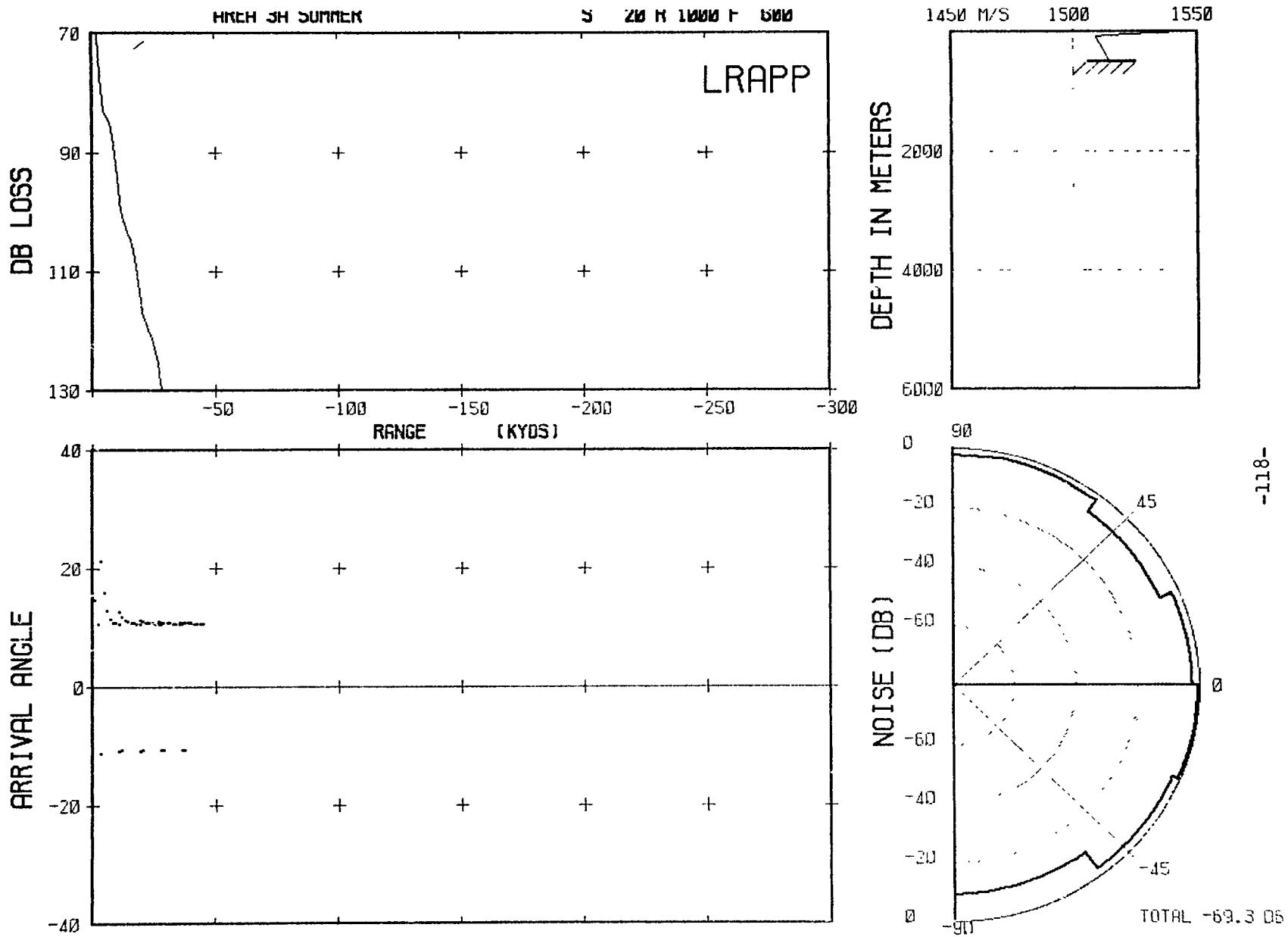
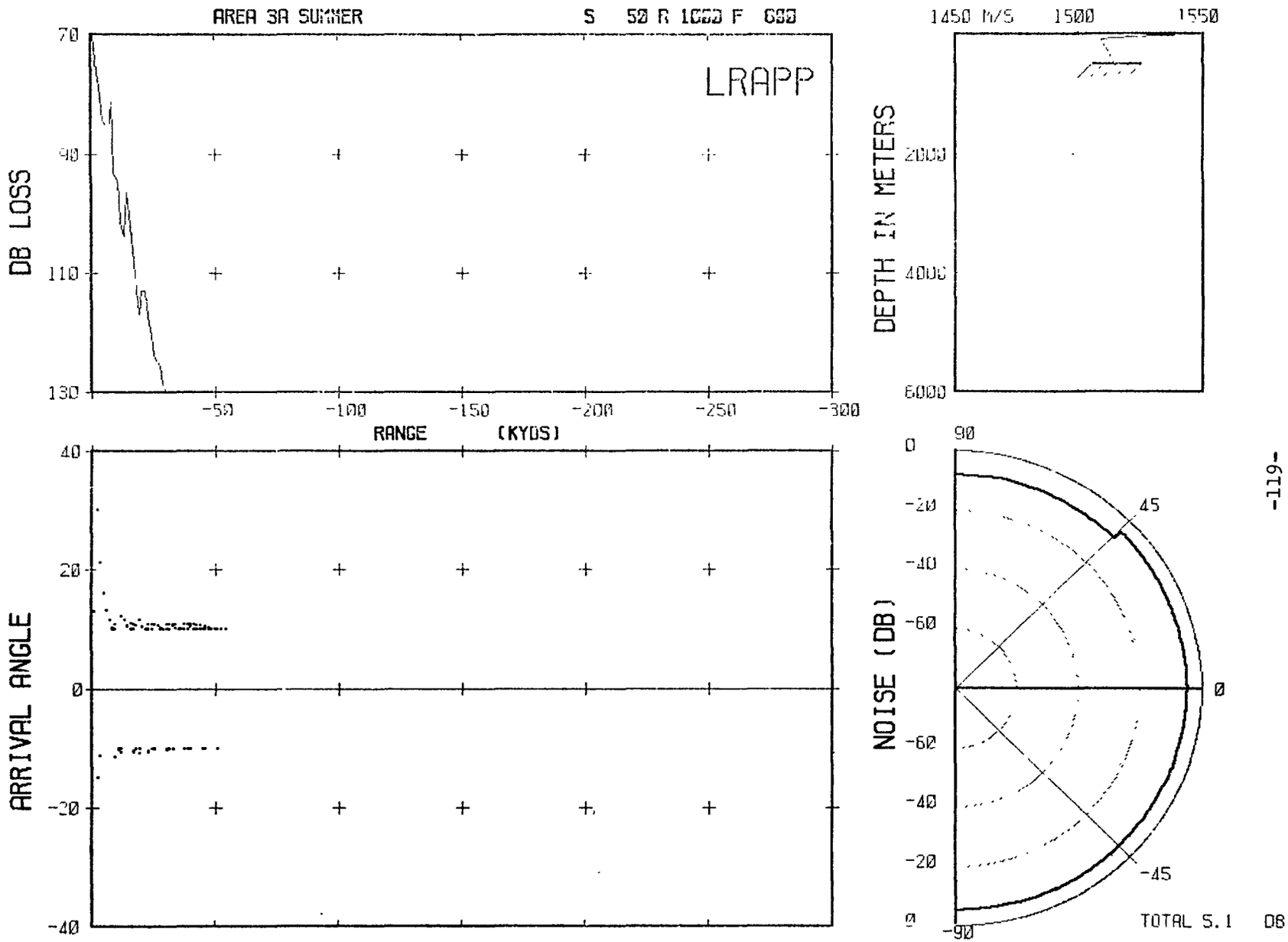
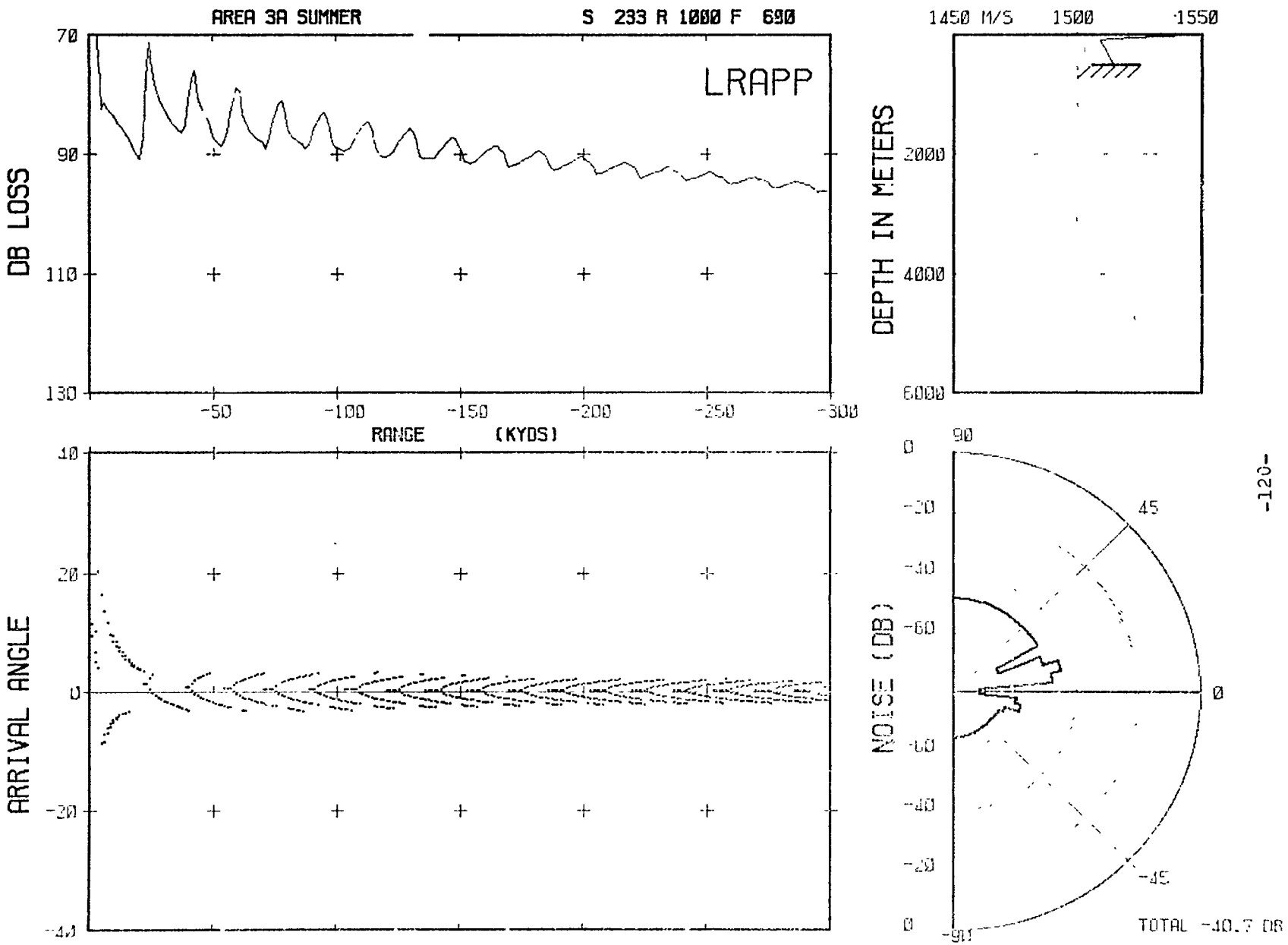
-40
-60
-60
-40
-20
0
90
45
0
-45
-90
TOTAL -60.2 DB

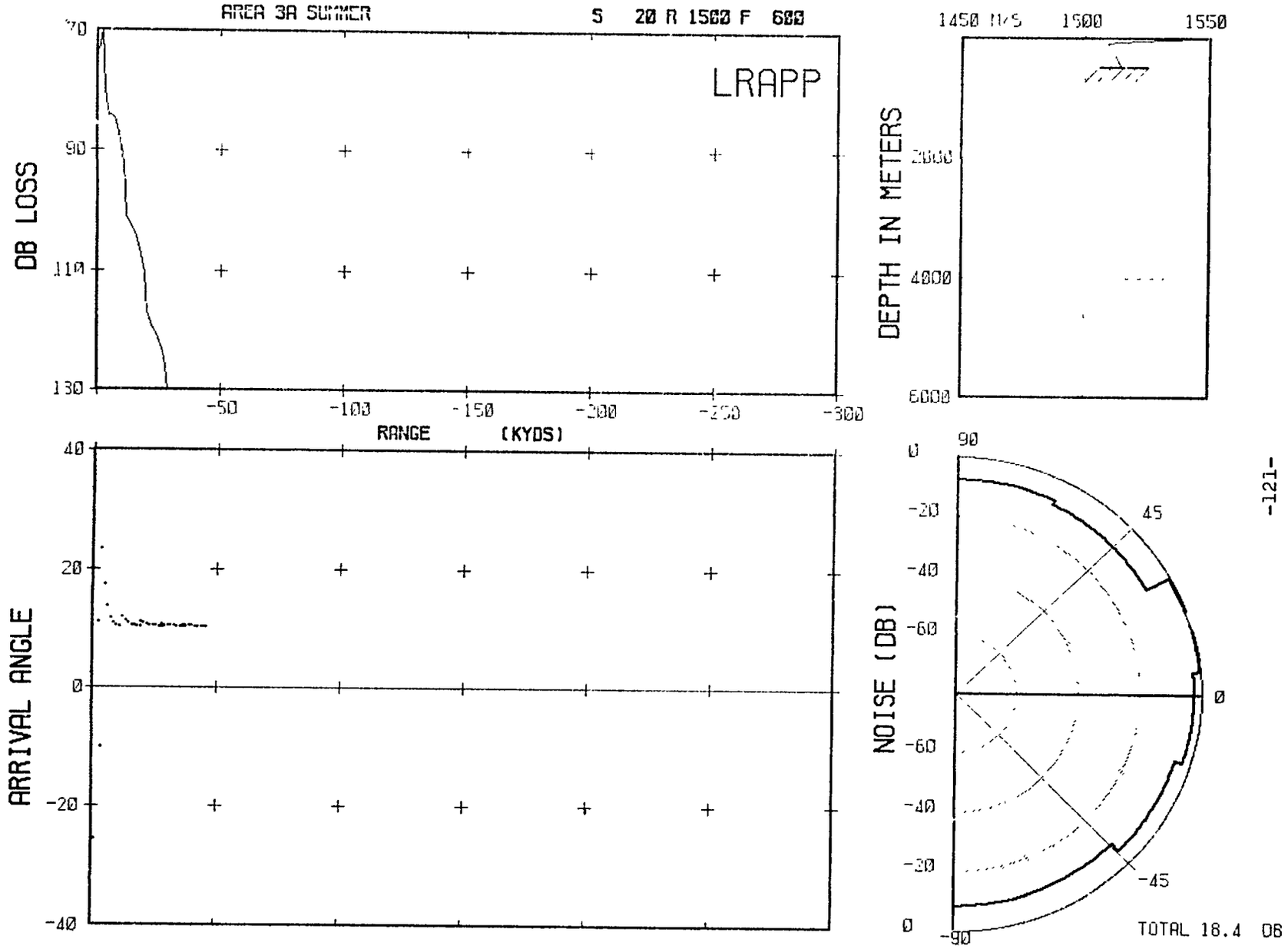

AREA 3A SUMMER
S 50 R 300 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
40
20
0
-20
-40
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
NOISE (DB)
90
0
-20
-40
-60
45
-45
-90
TOTAL 14.7 DB

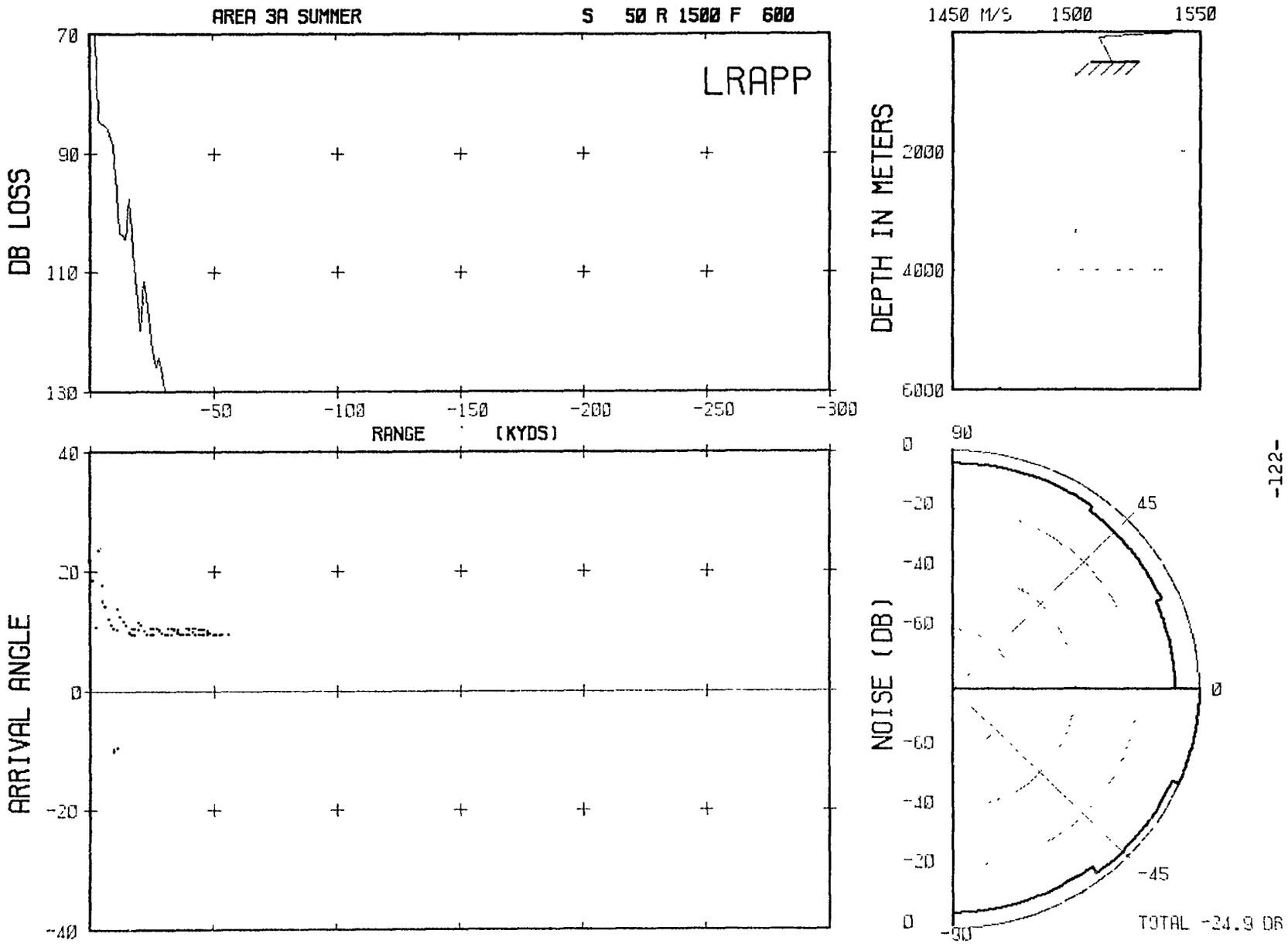

AREA 3A SUMMER
S 233 R 300 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -10.7 DB

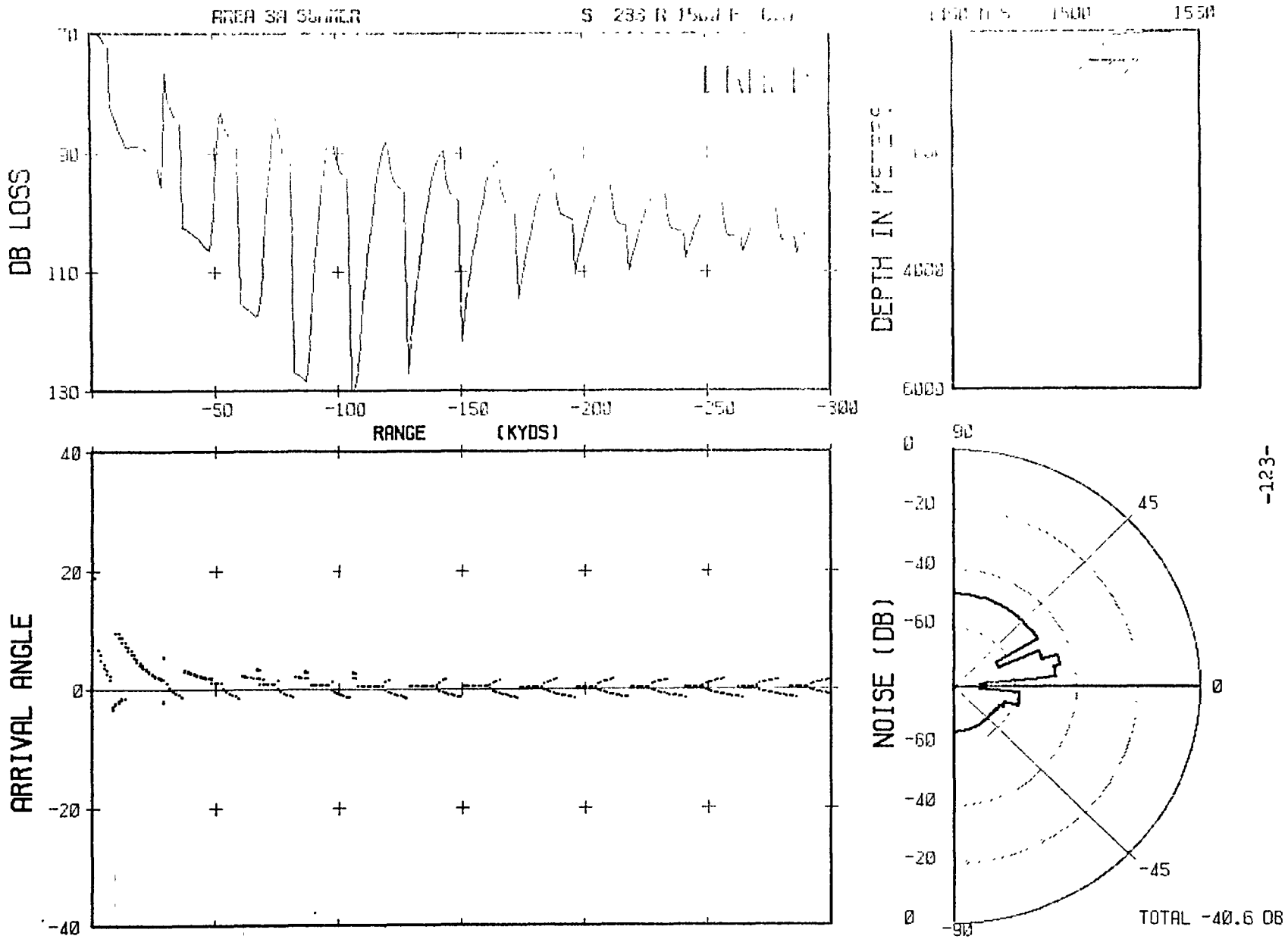

HRCH 3H SUMMER
S 20 K 1000 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
40
20
0
-20
-40
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
NOISE (DB)
90
45
0
-45
-90
TOTAL -69.3 DB

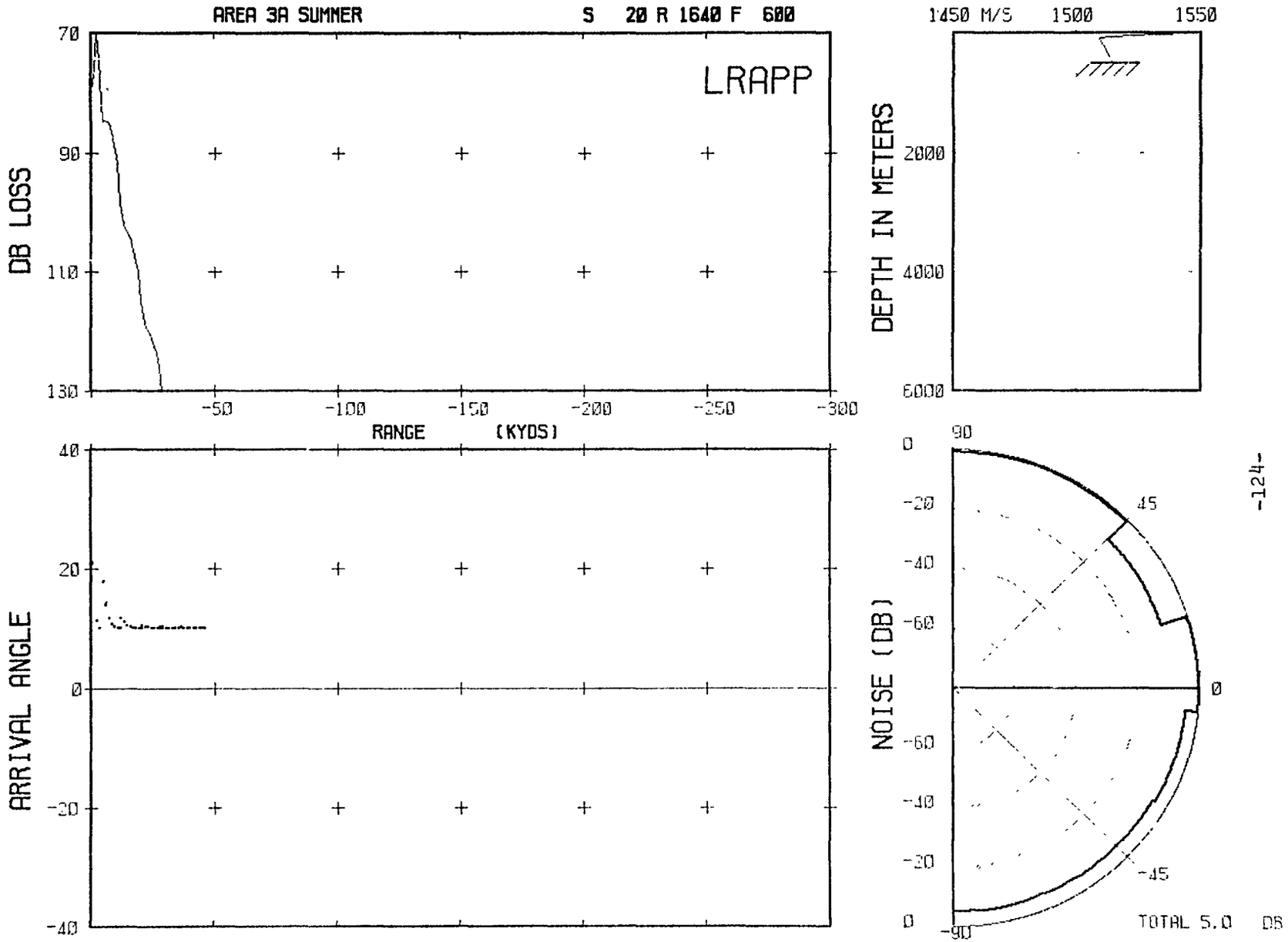

AREA 3A SUMMER
S 50 R 1000 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL 5.1 DB

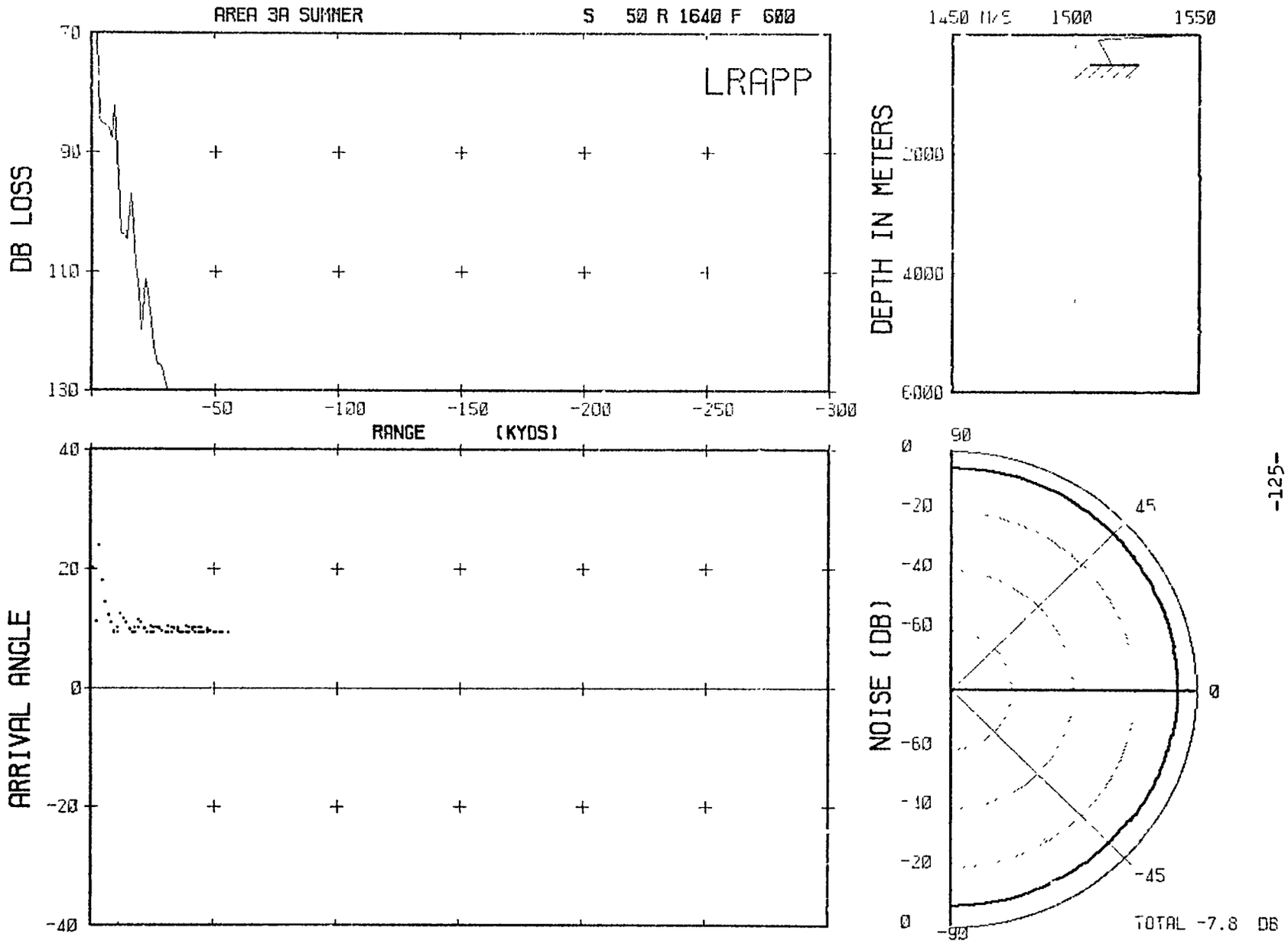

AREA 3A SUMMER
S 233 R 1000 F 690
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
-20
-40
-60
TOTAL -40.7 DB

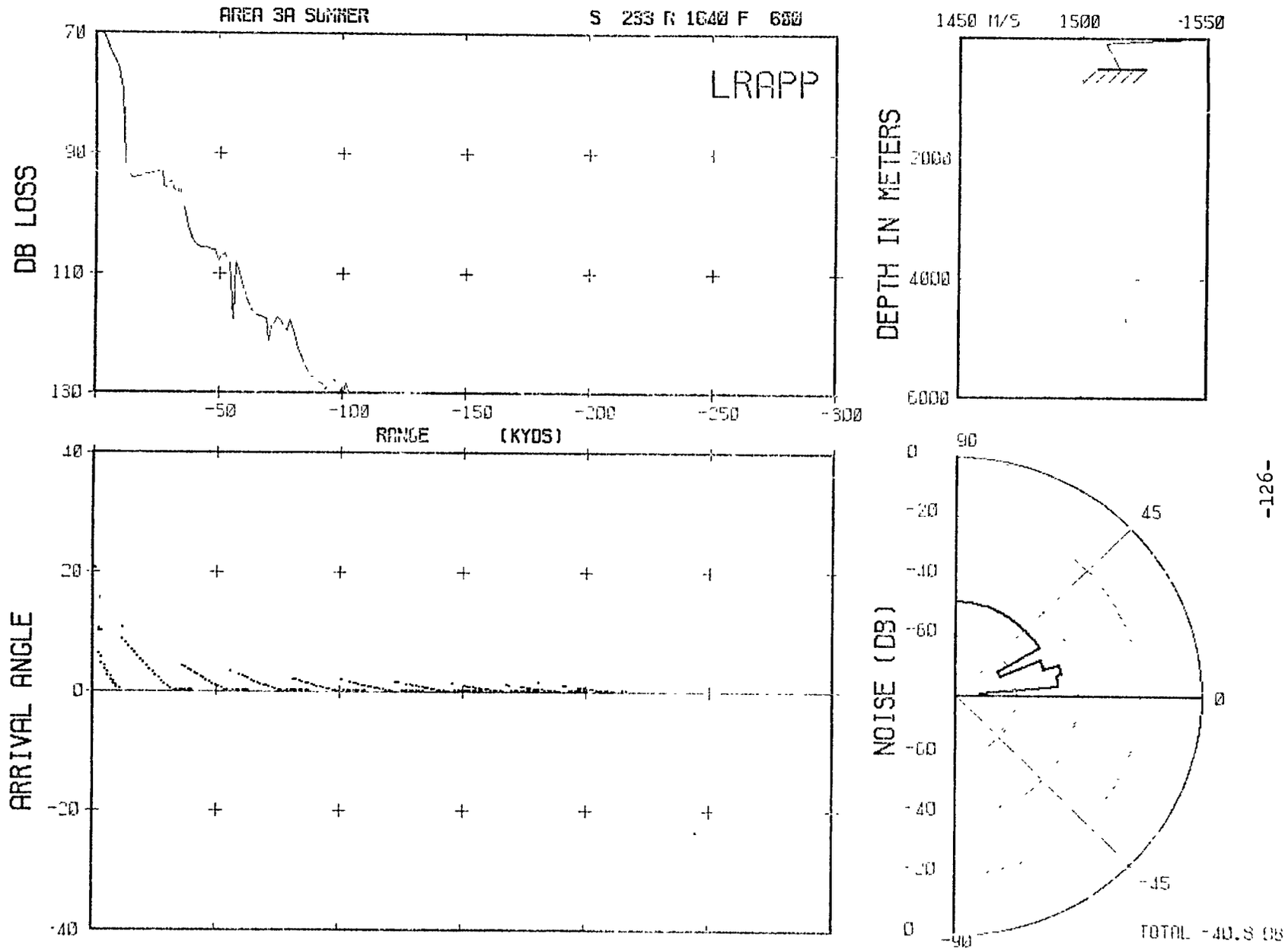

AREA 3A SUMMER
S 20 R 1500 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL 18.4 DB

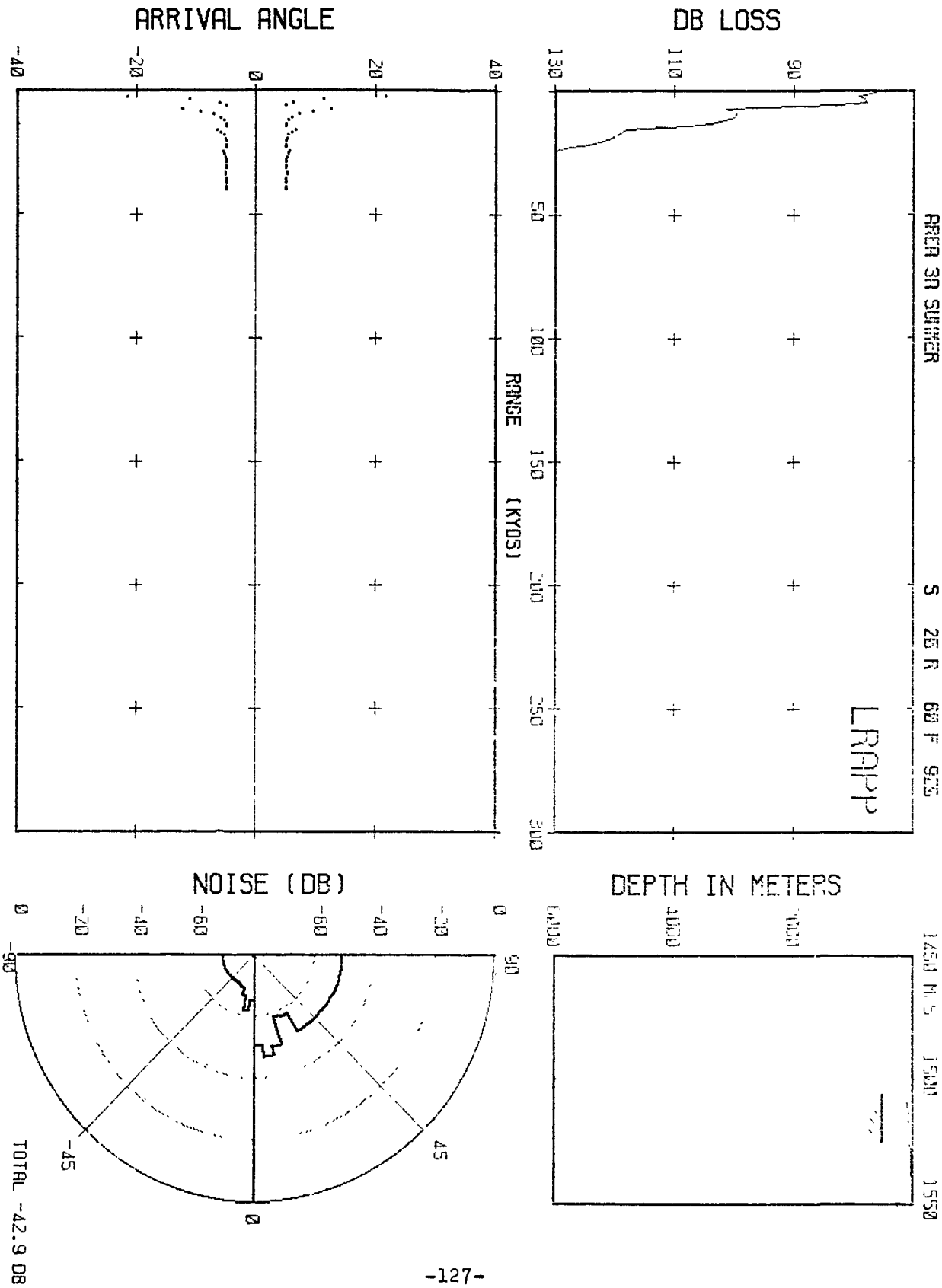

AREA 3A SUMMER
S 50 R 1500 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -24.9 DB

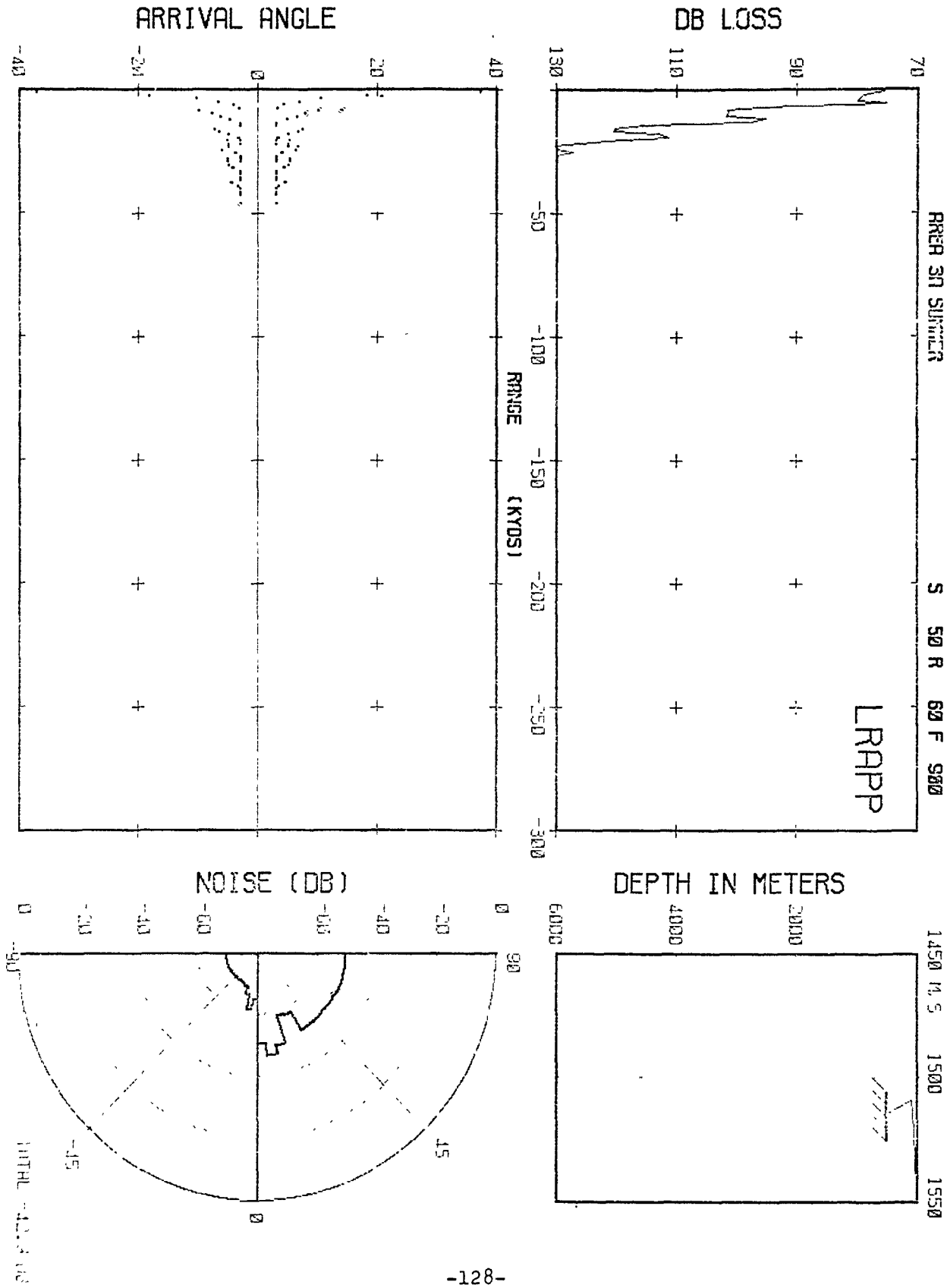

DB LOSS
RANGE (KYDS)
DEPTH IN METERS
ARRIVAL ANGLE
NOISE (DB)
TOTAL -40.6 DB

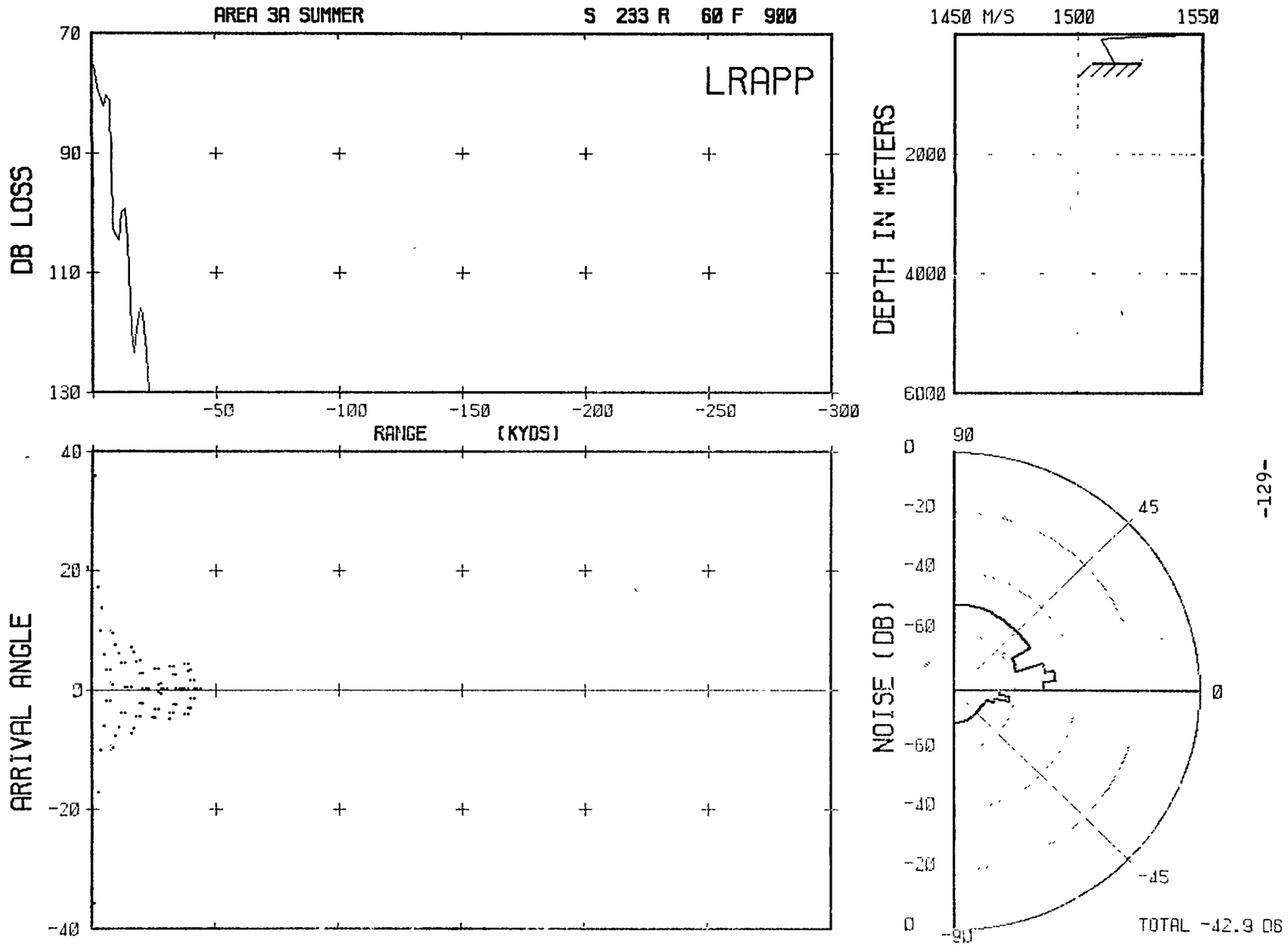

AREA 3A SUMMER
S 20 R 1640 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL 5.0 DB

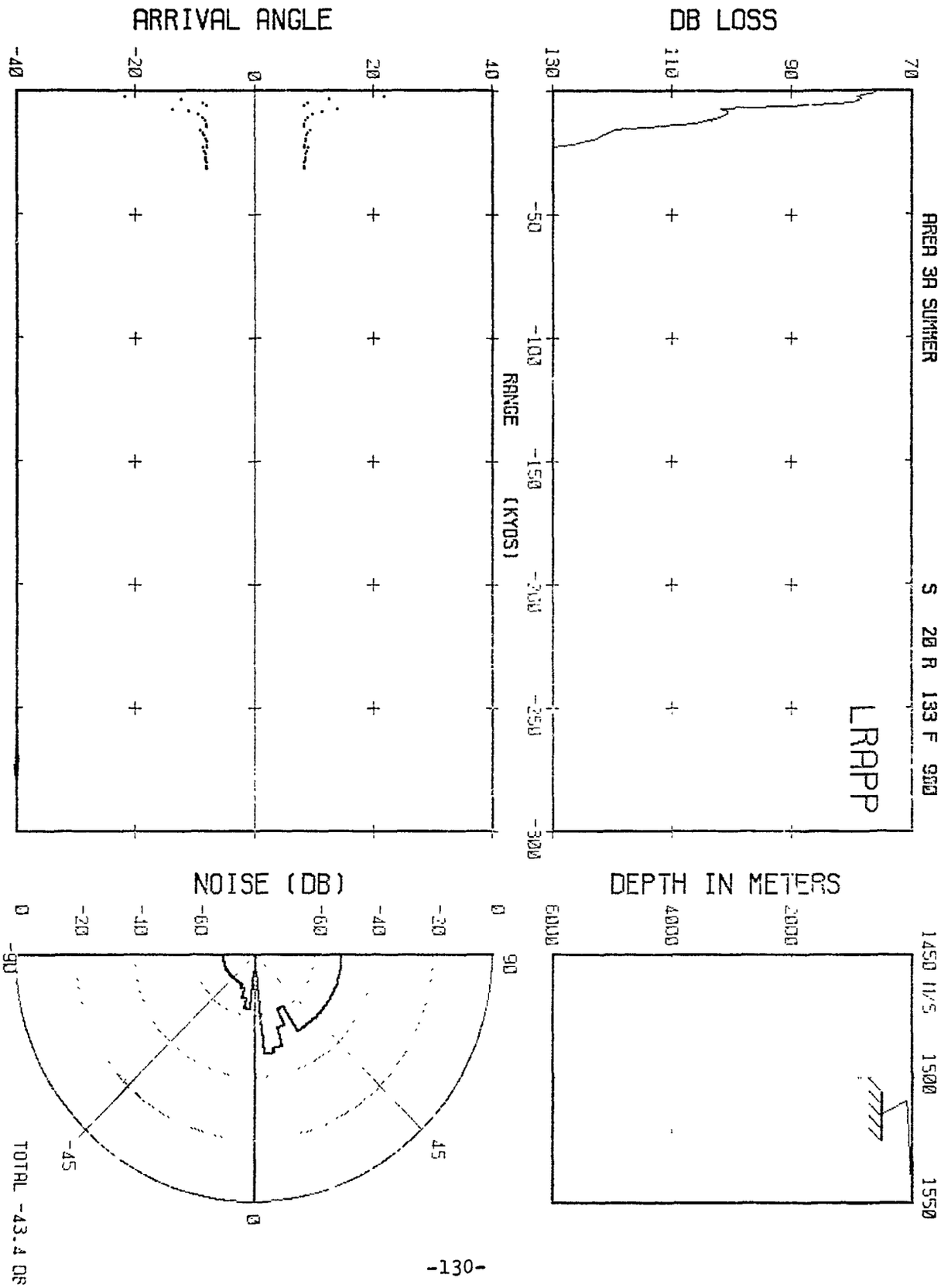

AREA 3A SUMMER
S 50 R 1640 F 600
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -7.8 DB

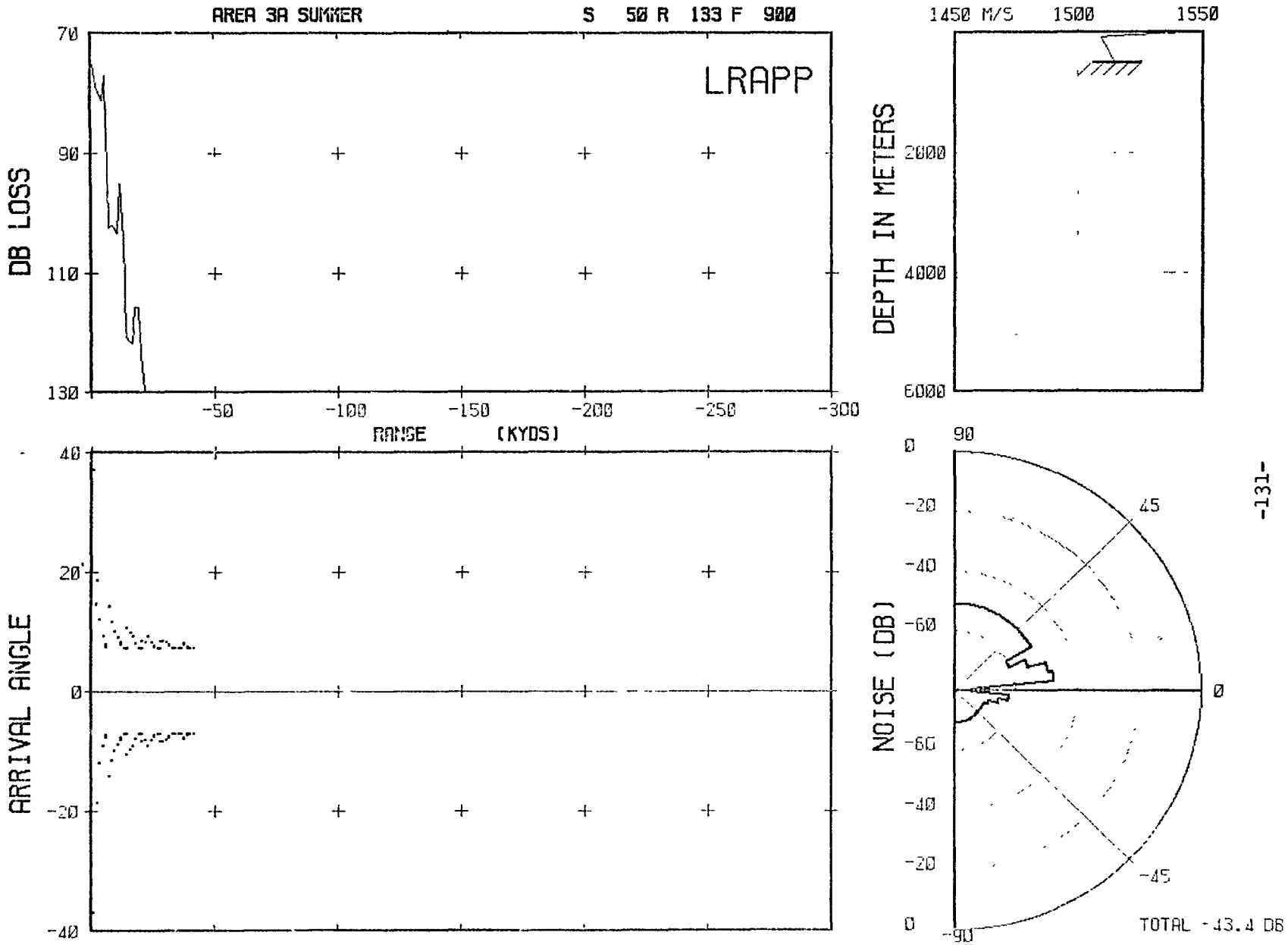

AREA 3A SUMMER
S 233 N 1040 F 680
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -40.8 DB

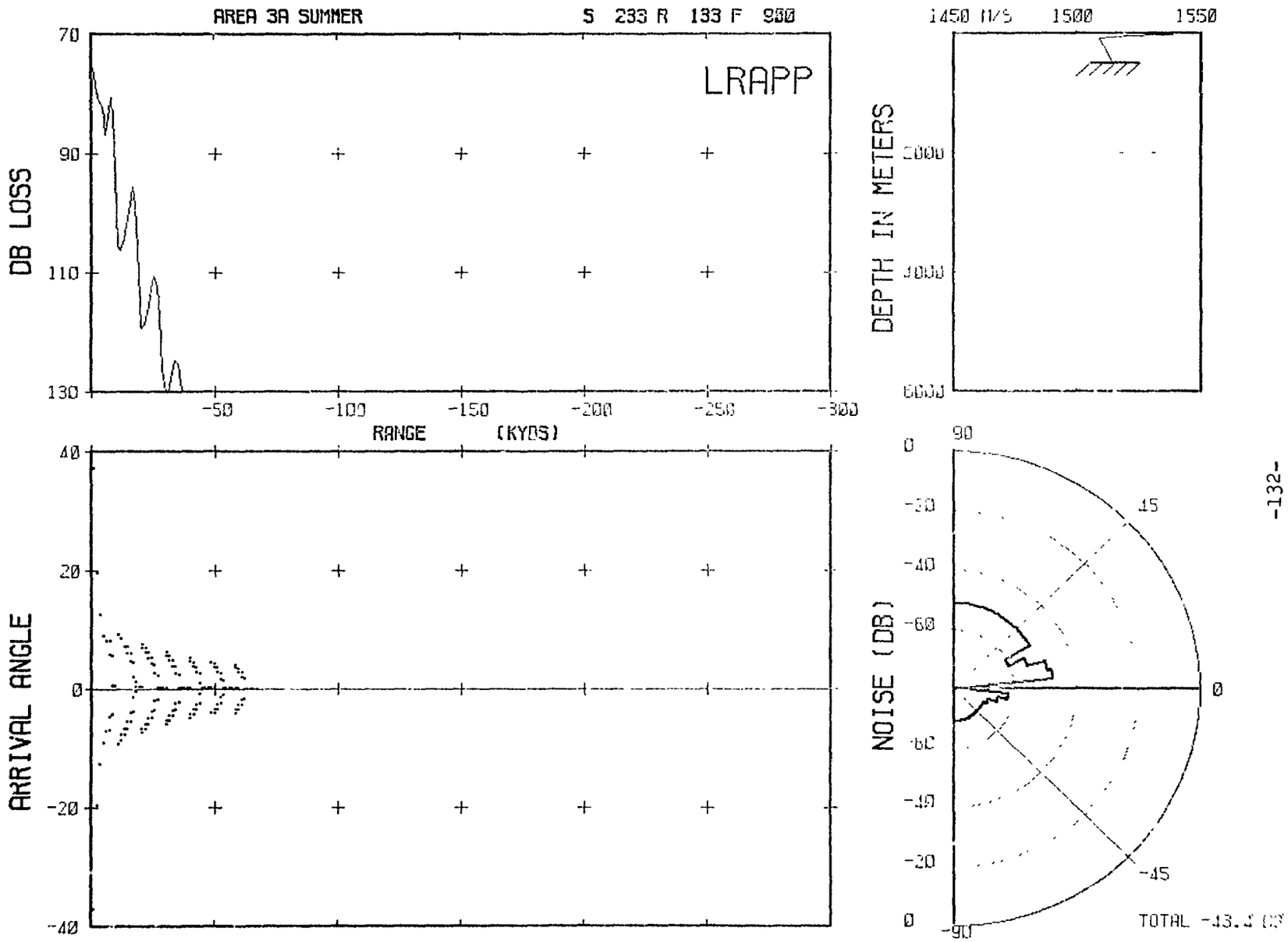

AREA 3A SUMMER
S 26 R 60 F 575
LRAPP
DB LOSS
130
110
90
50
100
150
200
250
300
RANGE (KYDS)
ARRIVAL ANGLE
-40
-20
0
20
40
DEPTH IN METERS
0000
1000
2000
1450 M S
1500
1550
NOISE (DB)
0
-20
-40
-60
-80
-90
90
45
0
-45
TOTAL -42.9 DB

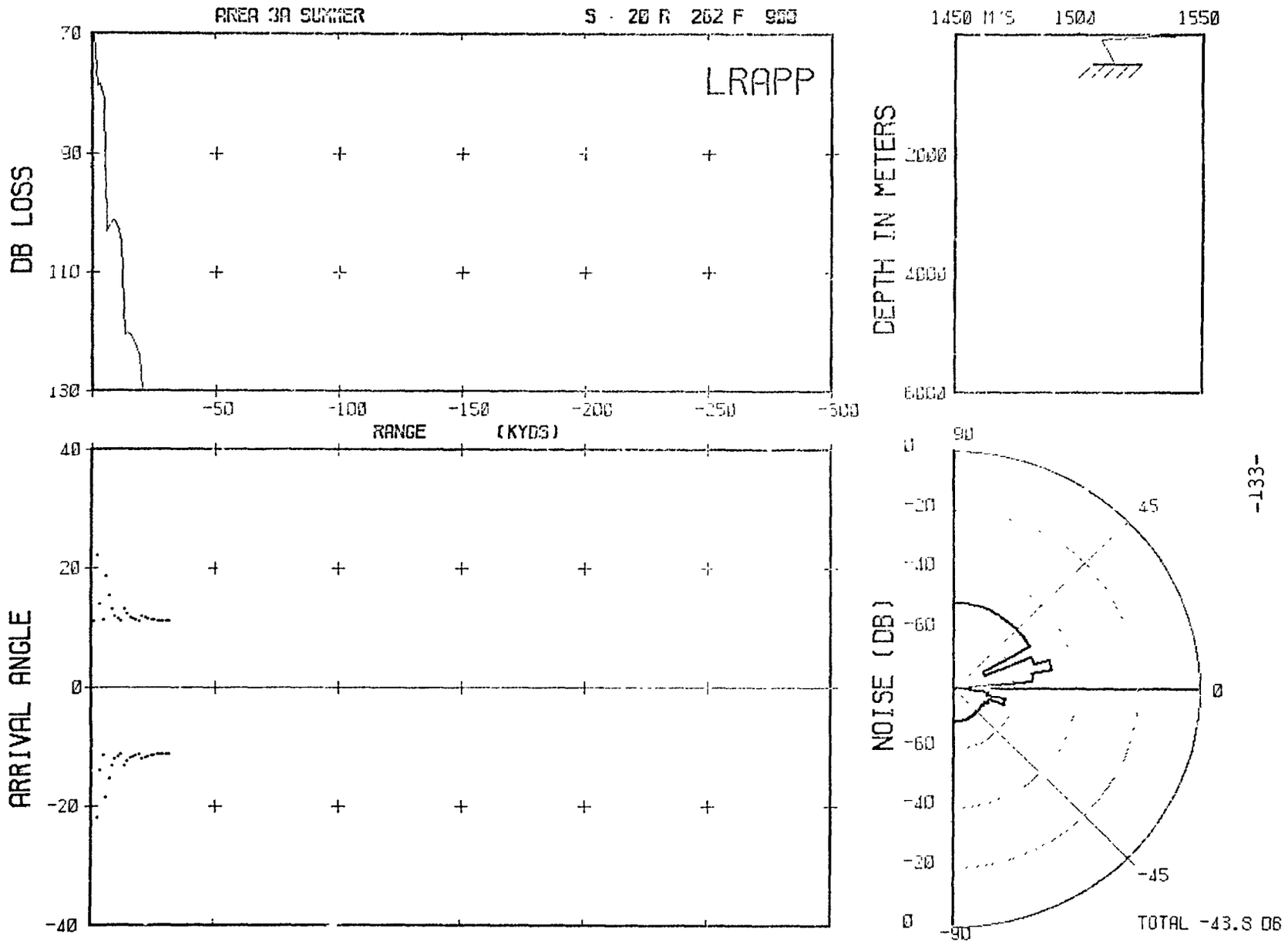

DB LOSS
ARRIVAL ANGLE
AREA 3A SUMMER
S 50 R 60 F 900
LRAPP
RANGE (KYDS)
DEPTH IN METERS
NOISE (DB)
1450 M/S
1500
1550
INITIAL

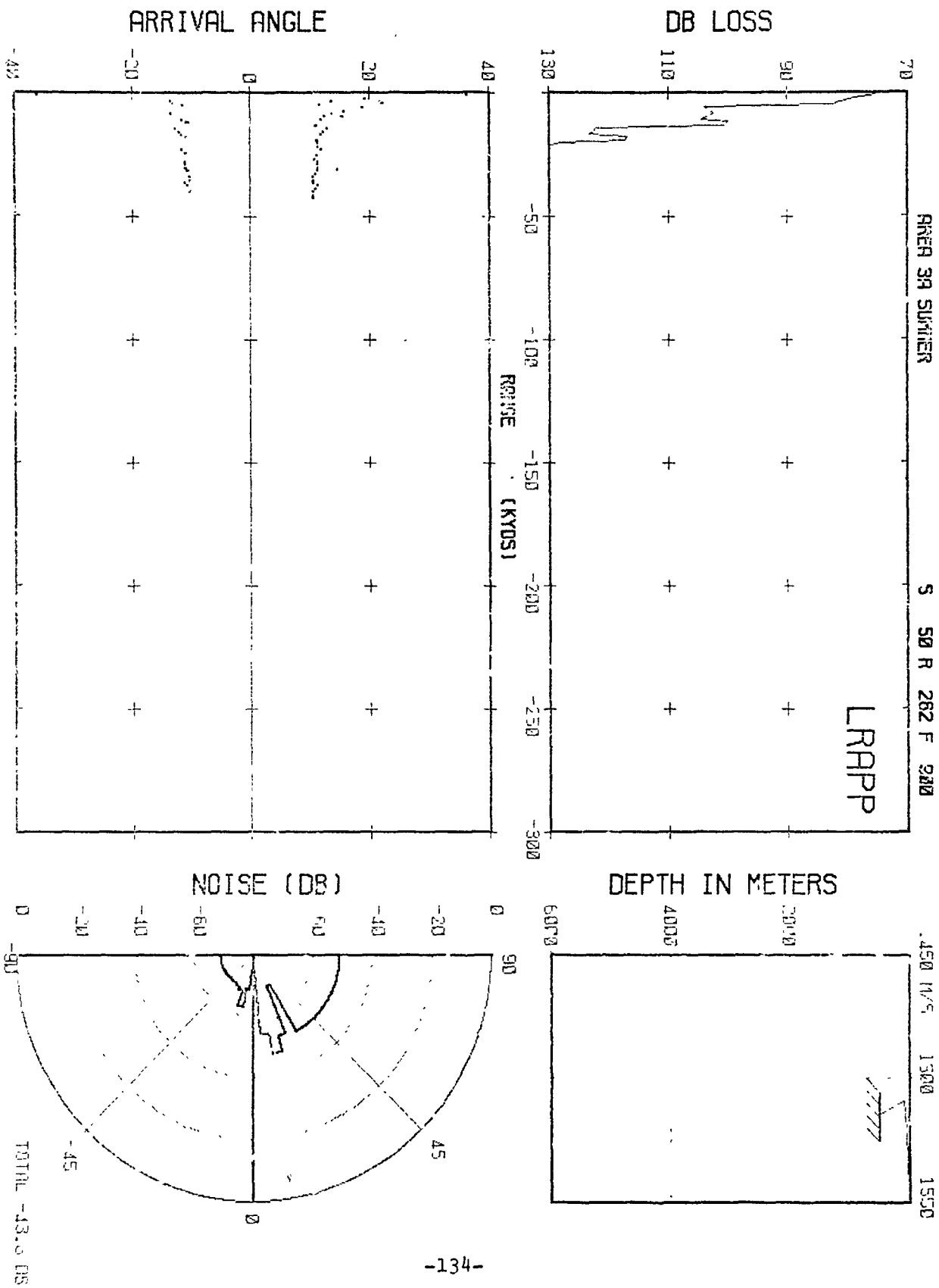

AREA 3A SUMMER
S 233 R 60 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -42.9 DB

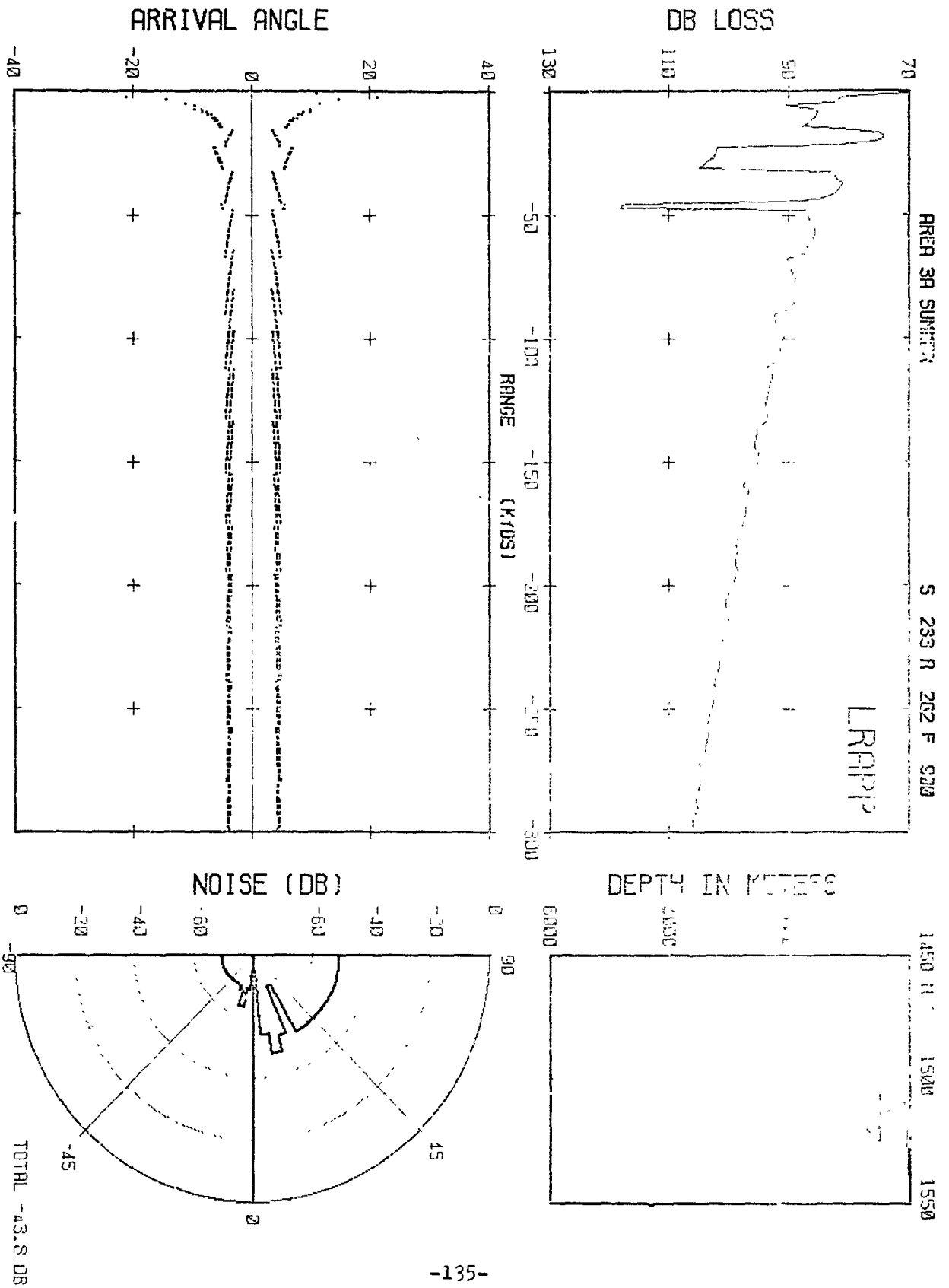

AREA 3A SUMMER
S 20 R 133 F 900
LRAPP
DB LOSS
130
110
90
70
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
-40
-20
0
20
40
DEPTH IN METERS
6000
4000
2000
0
1450 M/S
1500
1550
NOISE (DB)
-90
-45
0
45
90
-60
-40
-20
0
TOTAL -43.4 DB

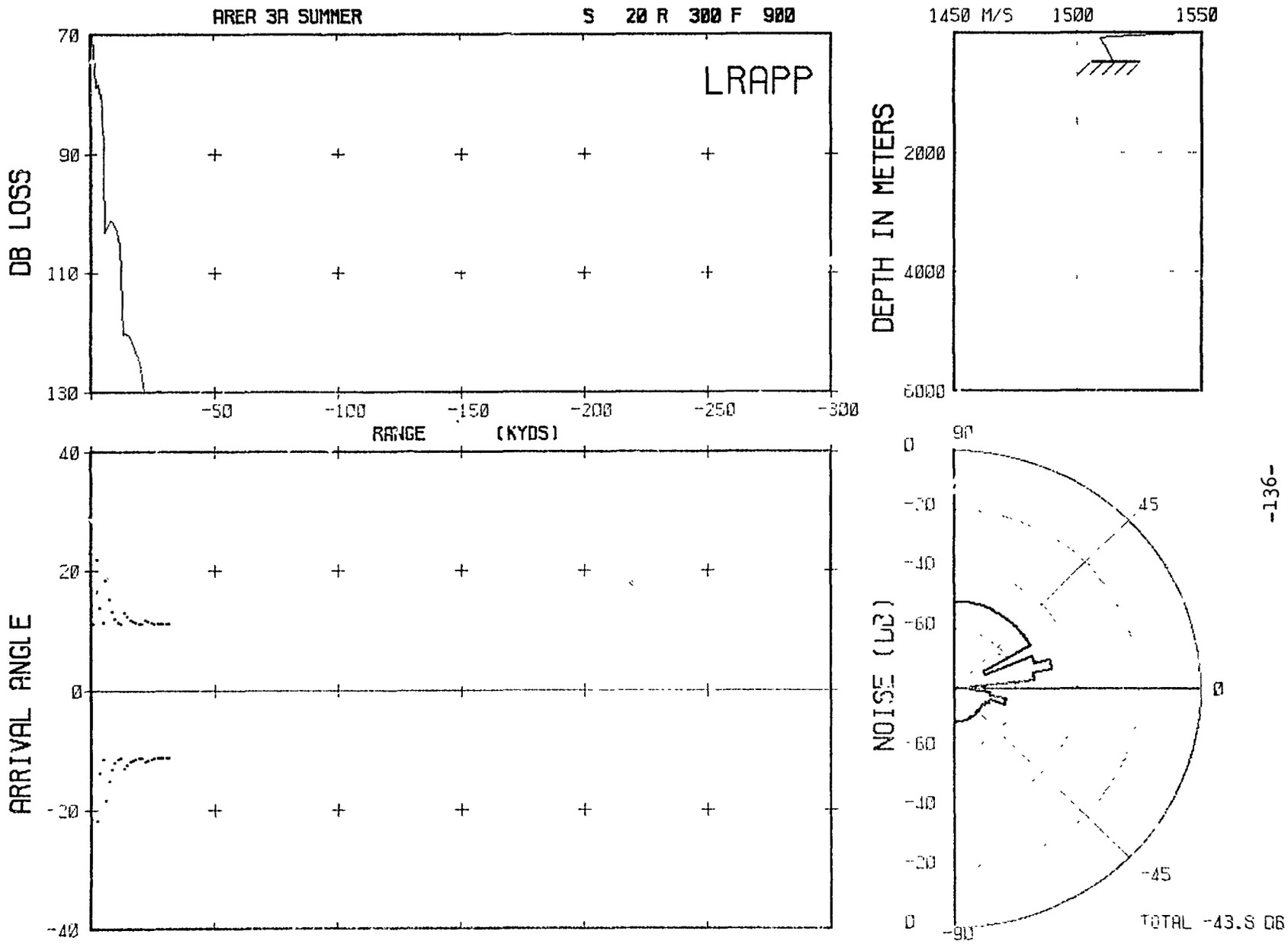

AREA 3A SUMMER
S 50 R 133 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -43.4 DB

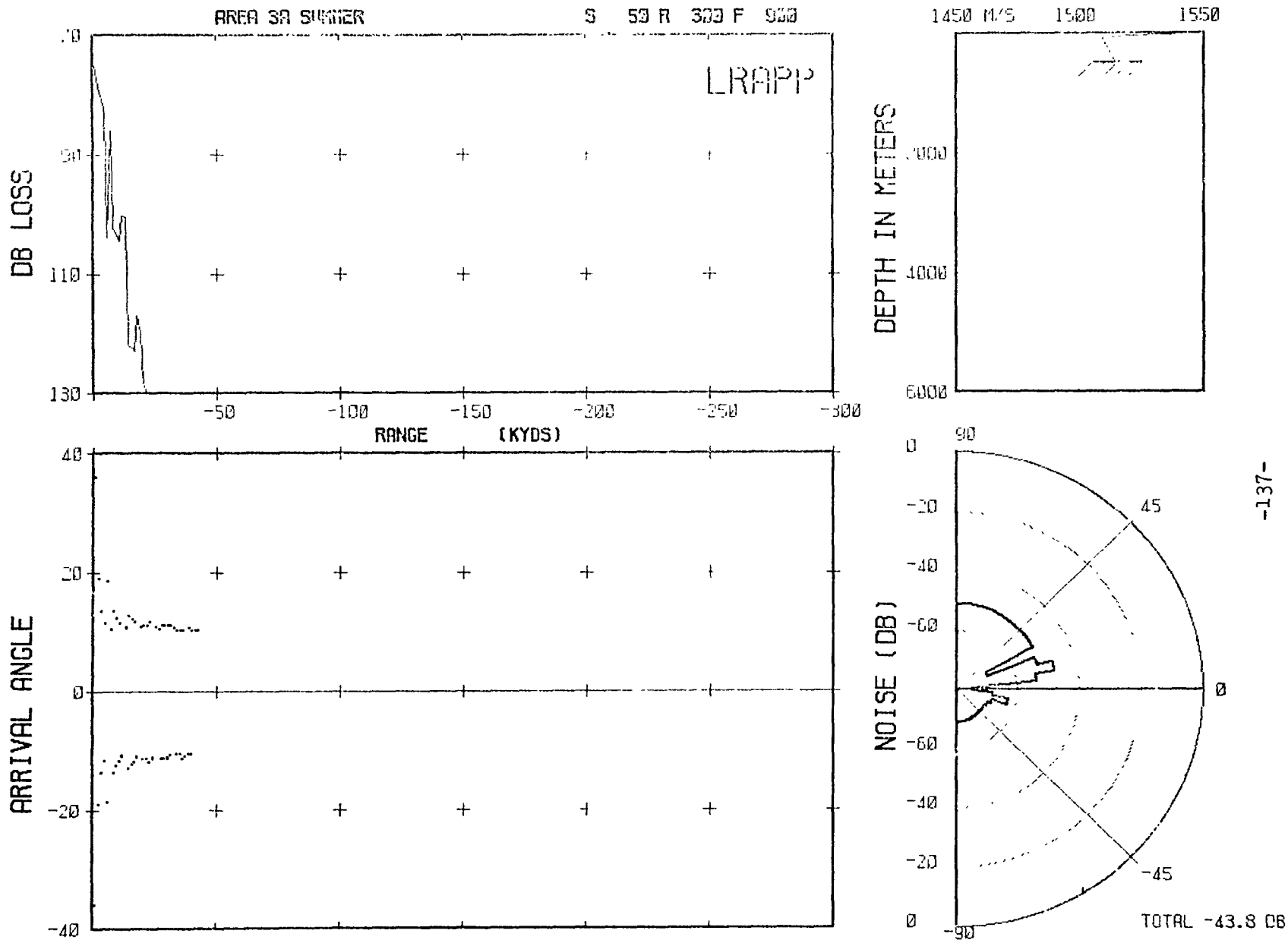

AREA 3A SUMMER
S 233 R 133 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
40
20
0
-20
-40
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
NOISE (DB)
90
45
0
-45
-90
-20
-40
-60
TOTAL -43.3 DB

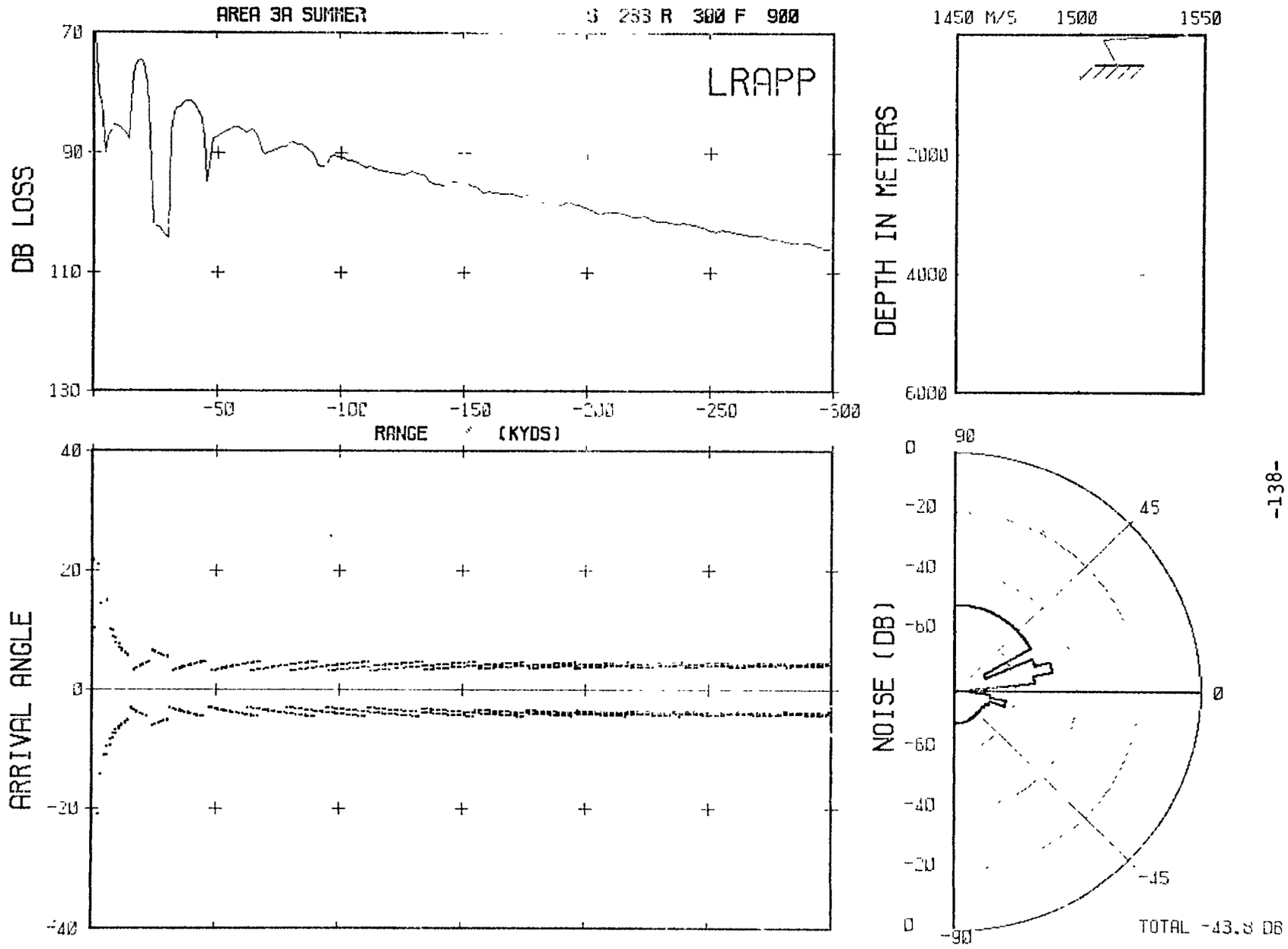

AREA 3A SUMMER
S - 20 R 262 F 950
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
0
-20
-40
-60
-60
-40
-20
0
90
45
0
-45
-90
TOTAL -43.8 DB

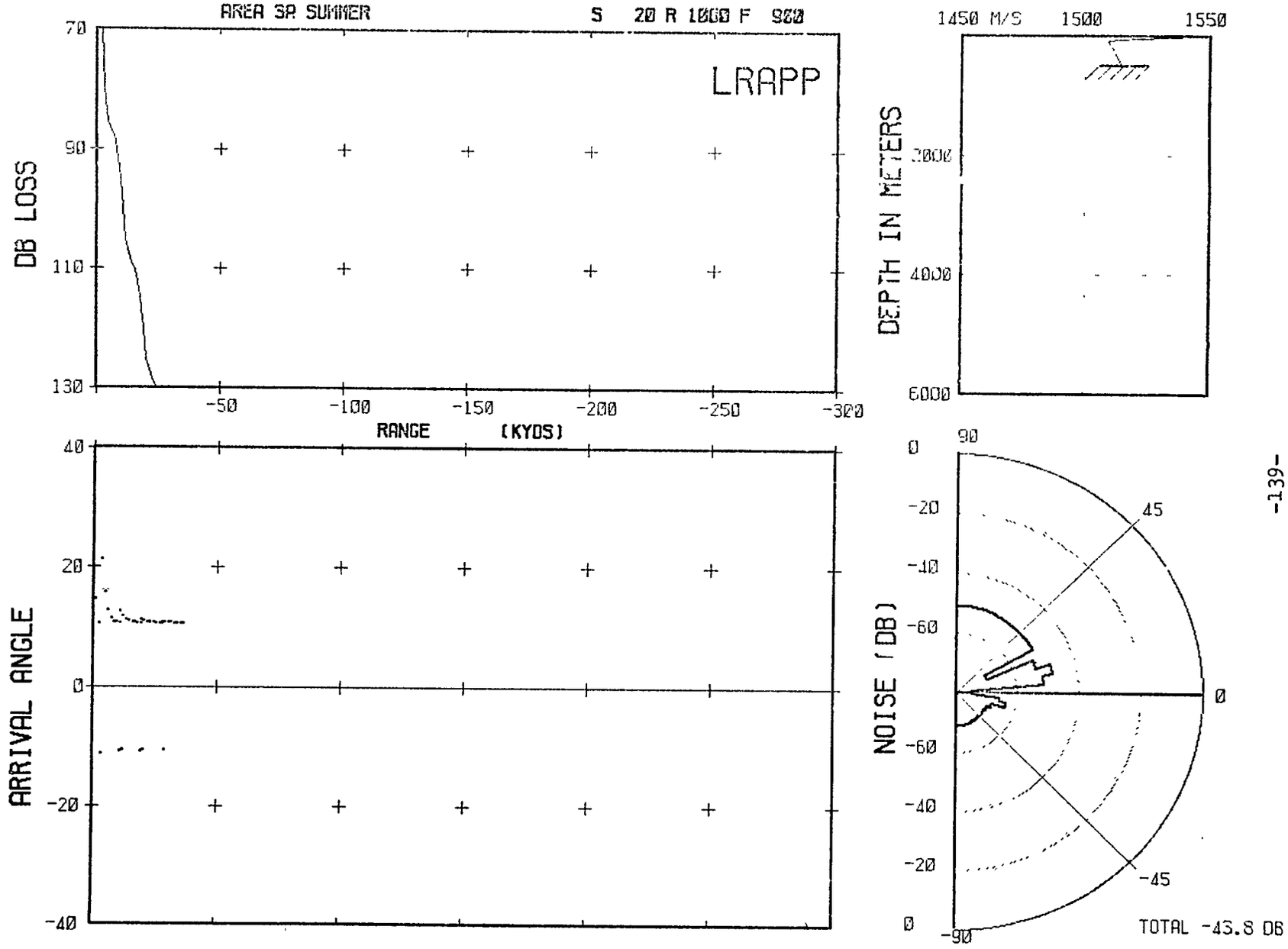

DB LOSS
ARRIVAL ANGLE
DEPTH IN METERS
NOISE (DB)
LRAPP
AREA 3A SUMMER
S 50 R 262 F 900
RANGE (KYDS)
TOTAL -43.0 DB

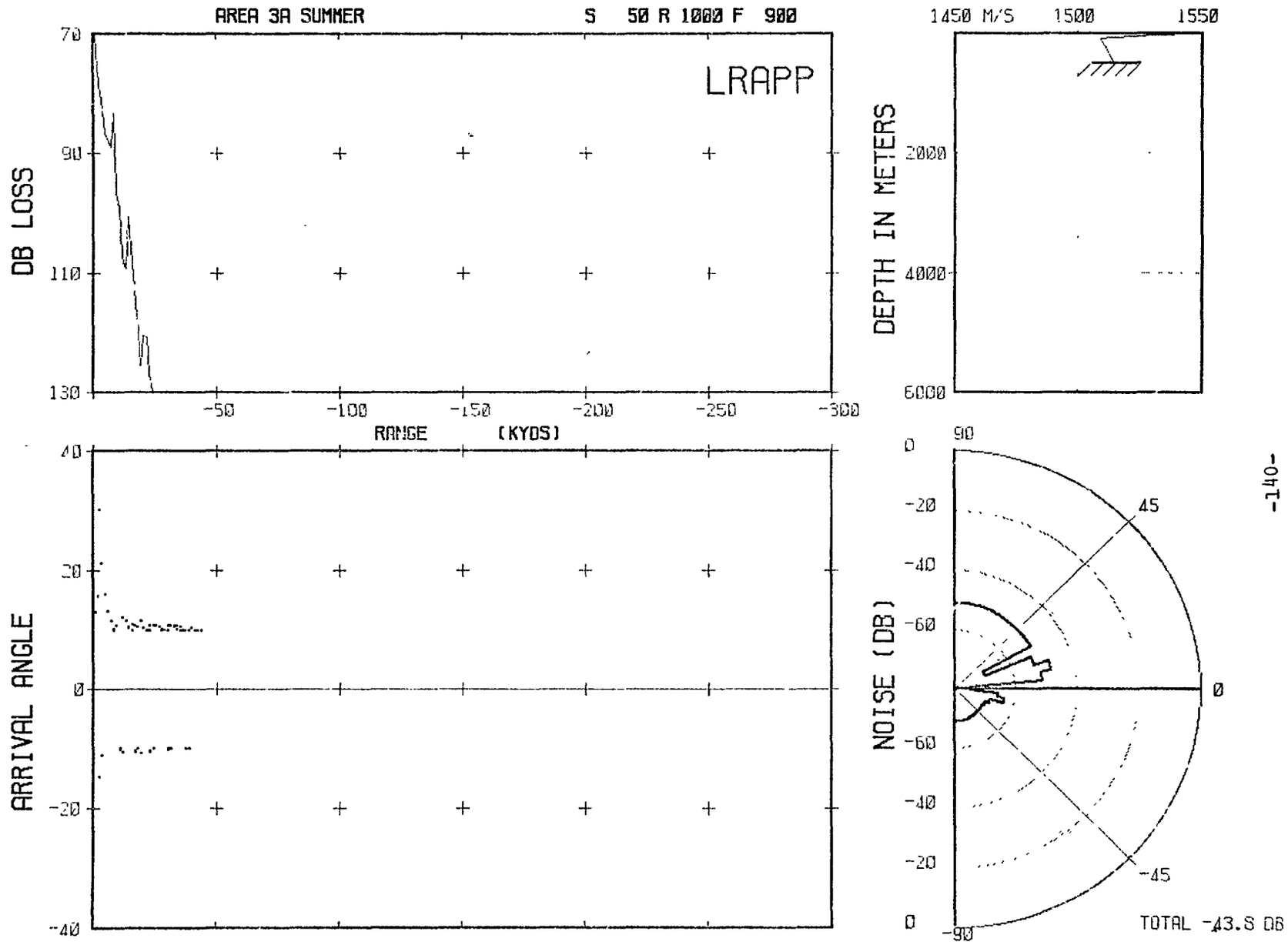

ARRIVAL ANGLE
DB LOSS
AREA 3A SUMMER
S 233 R 262 F 900
LRAPP
RANGE (KYDS)
NOISE (DB)
DEPTH IN METERS
TOTAL -43.8 DB


AREA 3A SUMMER
S 20 R 300 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -43.8 DB


AREA 3A SUMMER
S 59 R 303 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
0
-20
-40
-60
-60
-40
-20
0
90
45
0
-45
-90
TOTAL -43.8 DB


AREA 3A SUMMER
S 283 R 300 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -43.8 DB


AREA 3A SUMMER
S 20 R 1000 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
0
-20
-40
-60
90
45
-45
-90
TOTAL -43.8 DB


AREA 3A SUMMER
S 50 R 1000 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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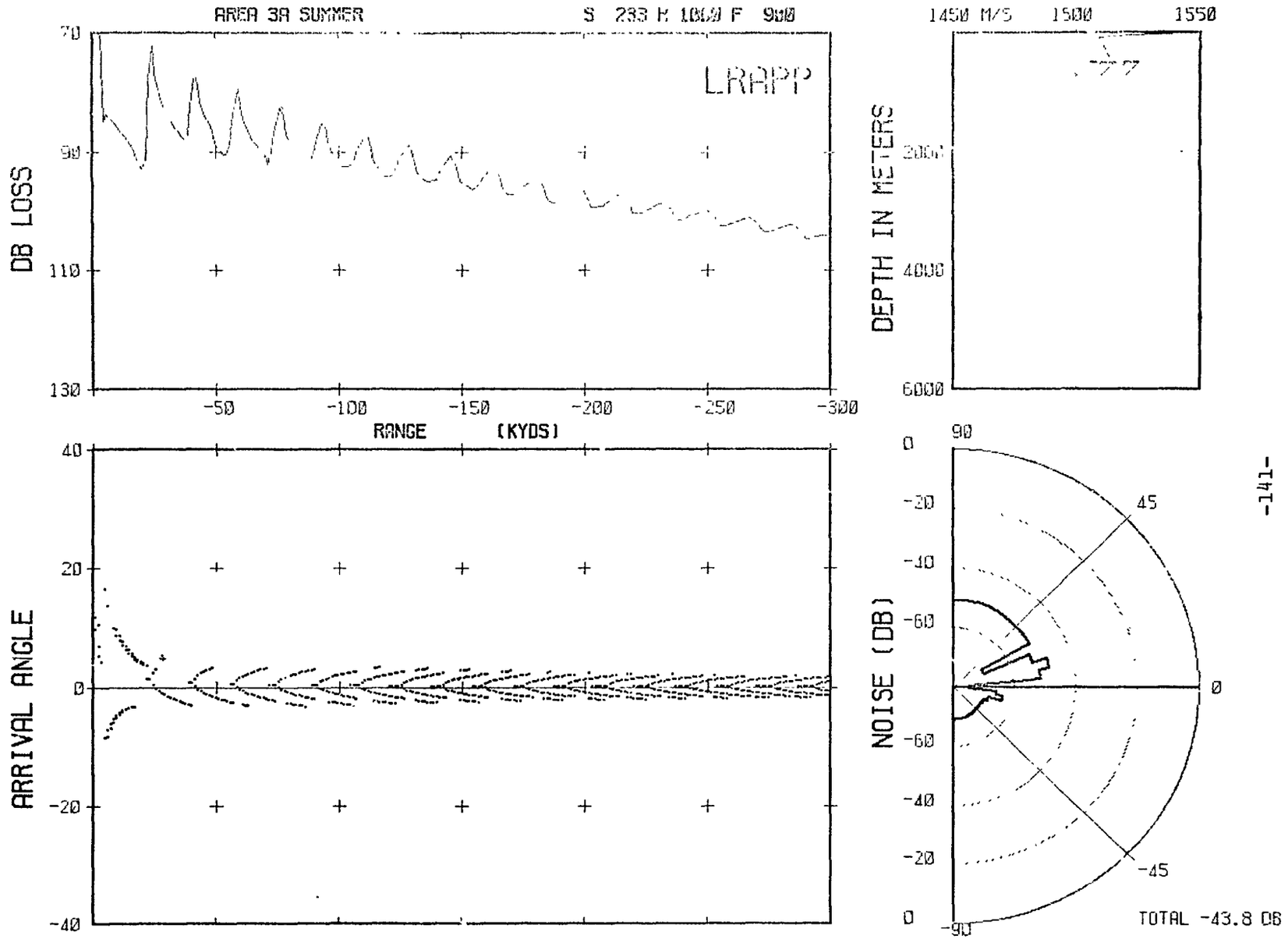
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -43.5 DB


AREA 3A SUMMER
S 233 M 1000 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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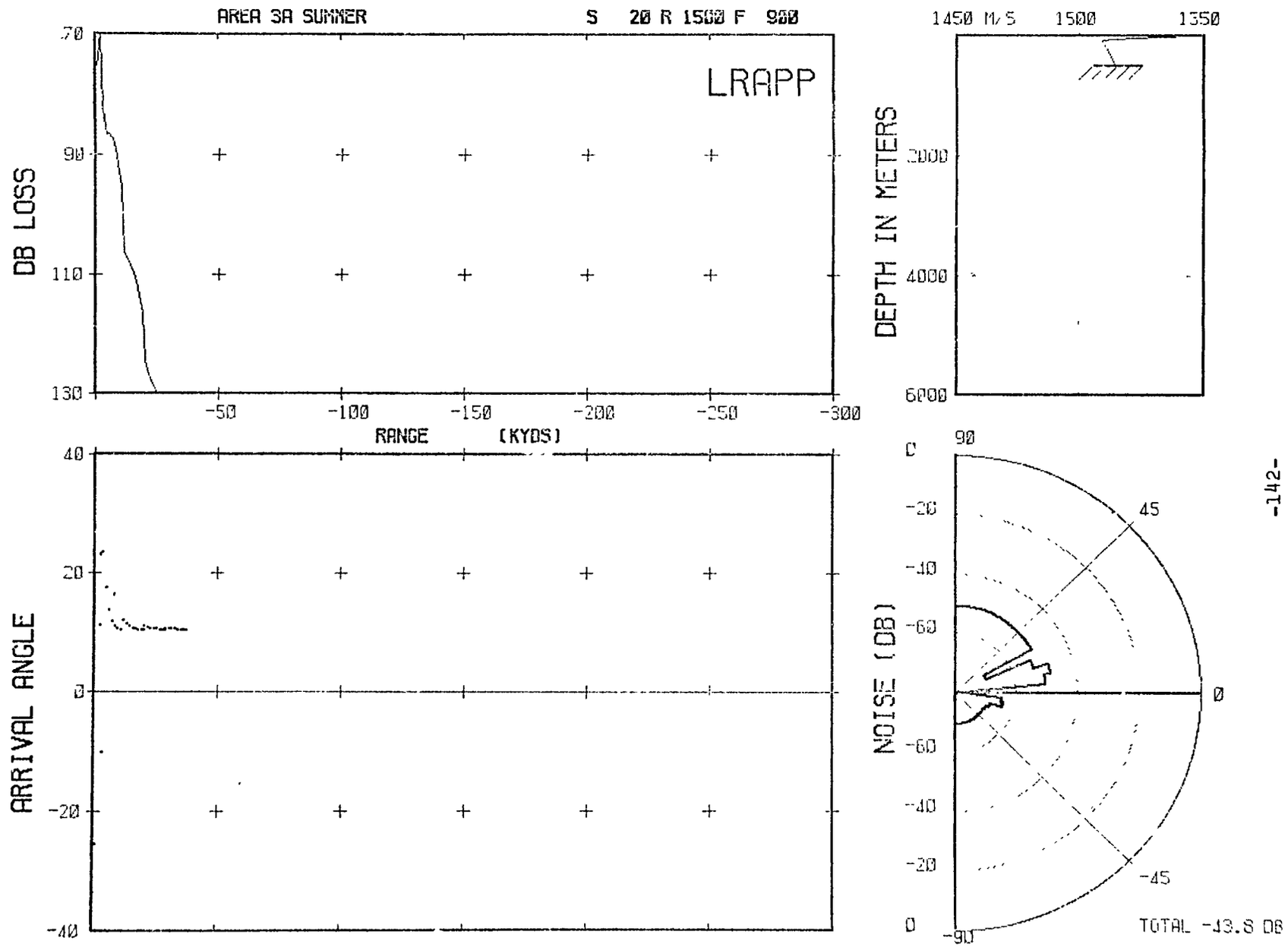
-40
-60
-60
-40
-20
0
90
45
0
-45
-90
TOTAL -43.8 DB


AREA 3A SUMMER
S 20 R 1500 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1350
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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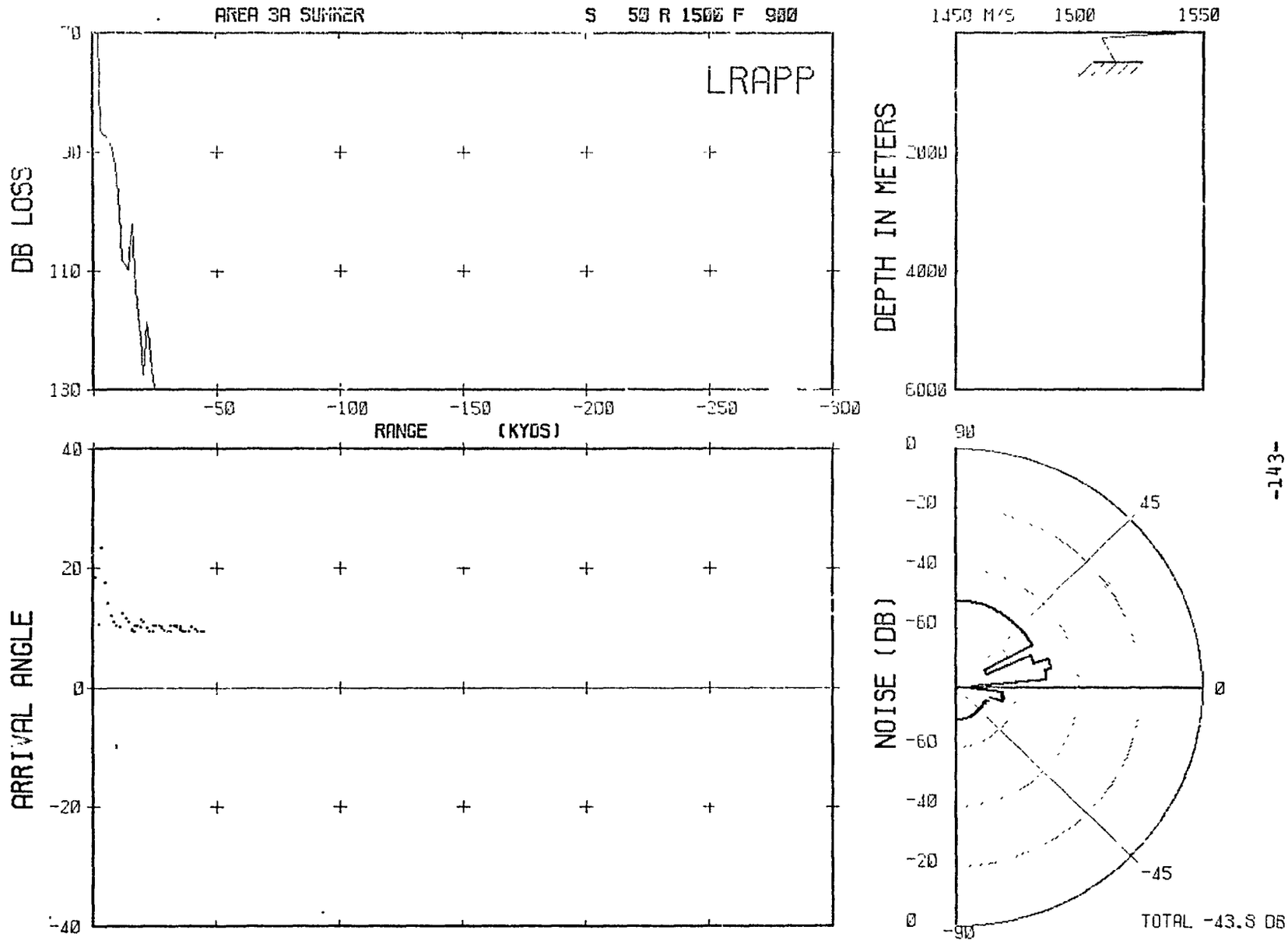
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -43.8 DB


AREA 3A SUMMER
S 50 R 1500 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
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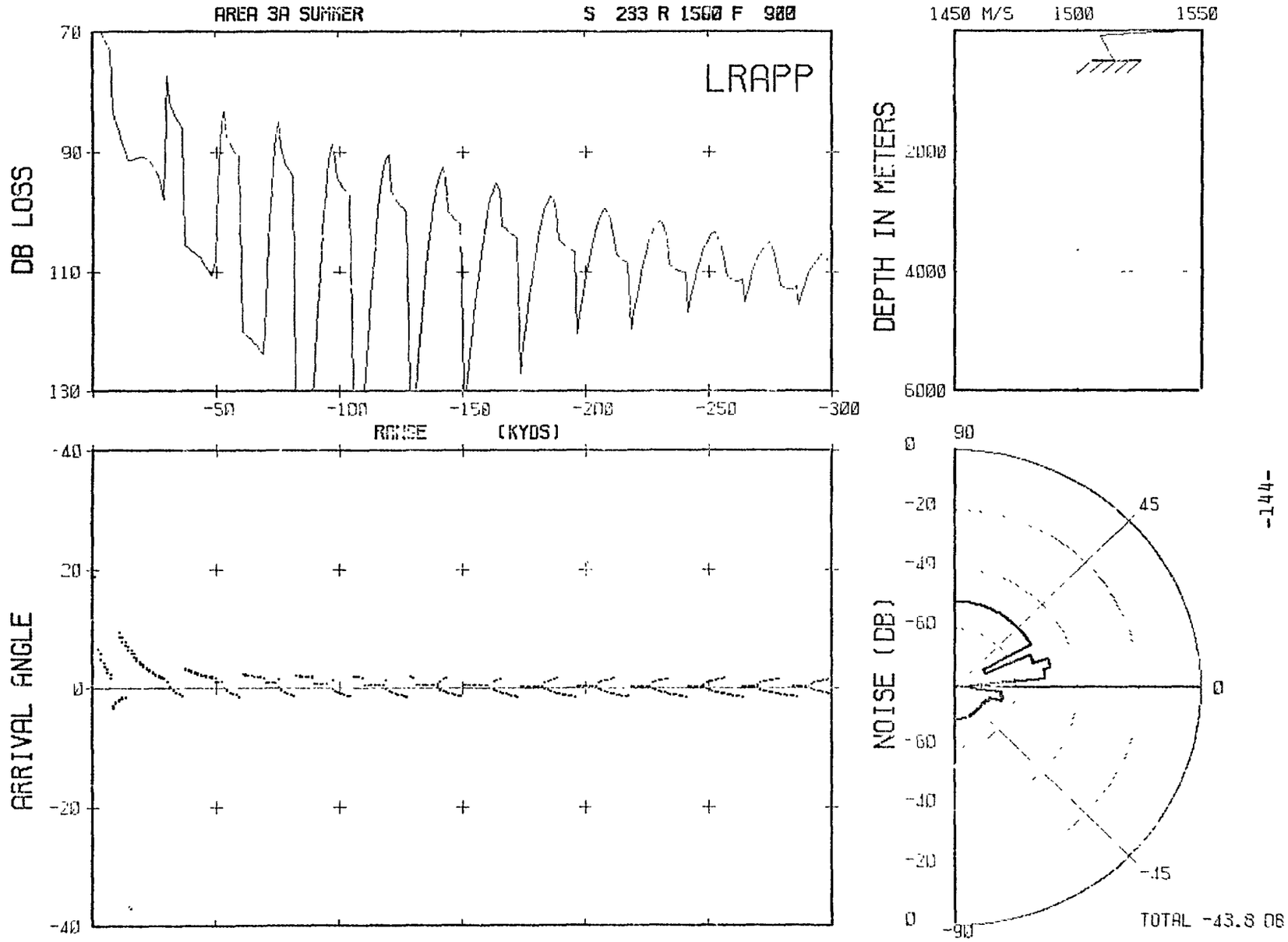
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -43.8 DB


AREA 3A SUMMER
S 233 R 1500 F 900
LRAPP
DB LOSS
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110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
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ARRIVAL ANGLE
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NOISE (DB)
90
45
0
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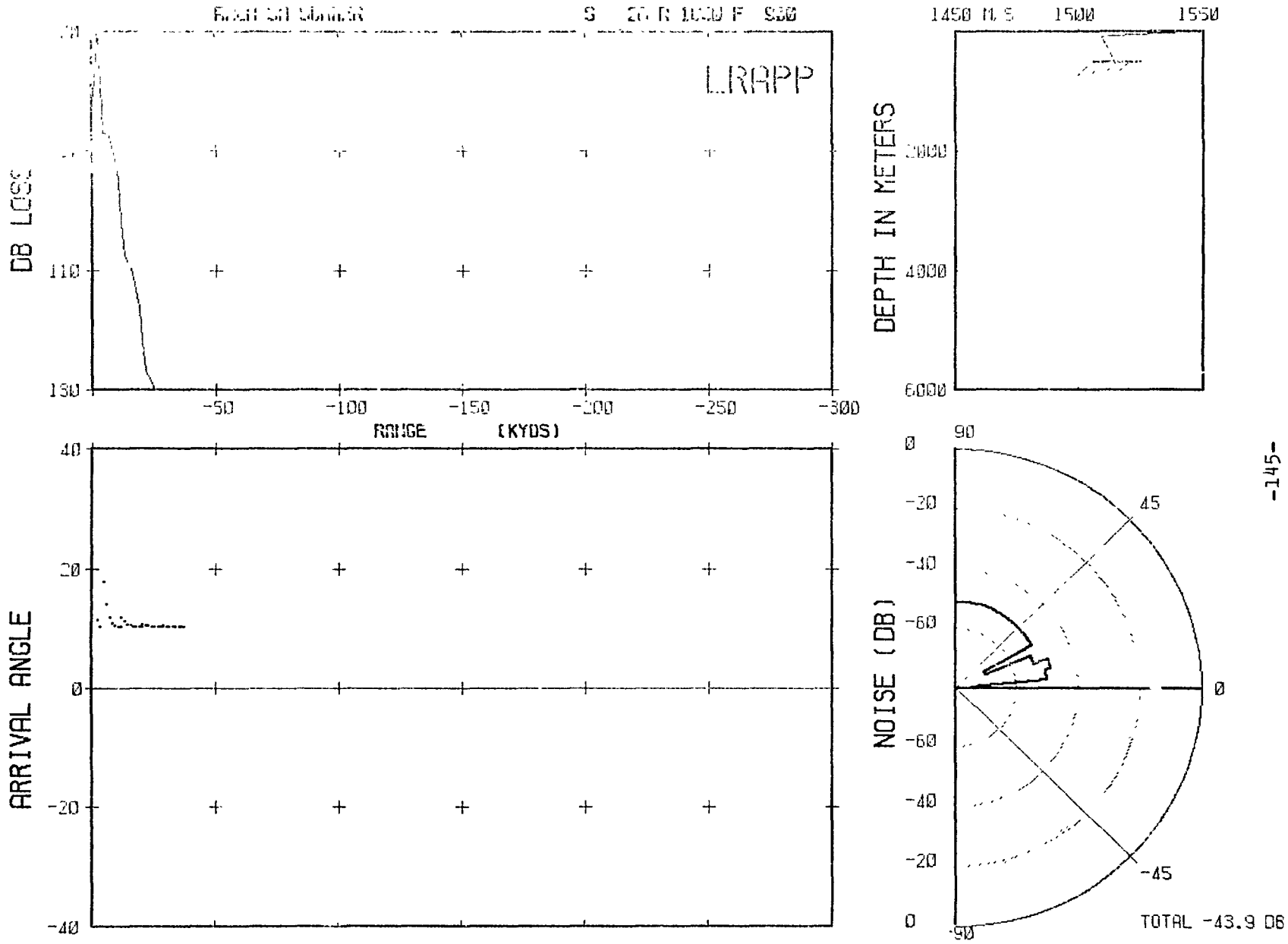
-90
TOTAL -43.8 DB


LRAPP
DB LOSS
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-50
-100
-150
-200
-250
-300
RANGE (KYDS)
DEPTH IN METERS
1450 M/S
1500
1550
2000
4000
6000
ARRIVAL ANGLE
40
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-20
-40
NOISE (DB)
90
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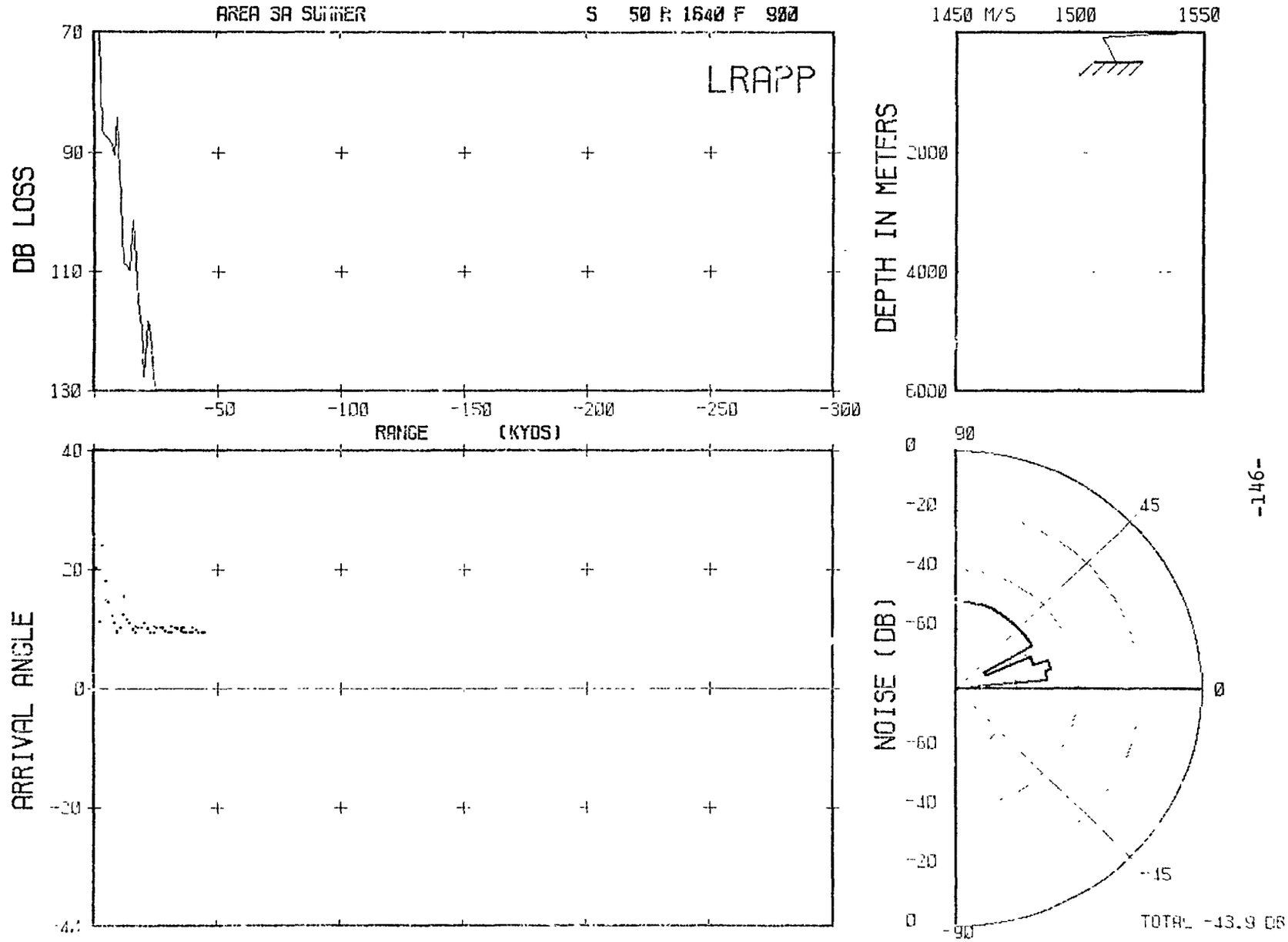
-45
-90
TOTAL -43.9 DB


AREA 3A SUMMER
S 50 R 1640 F 900
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
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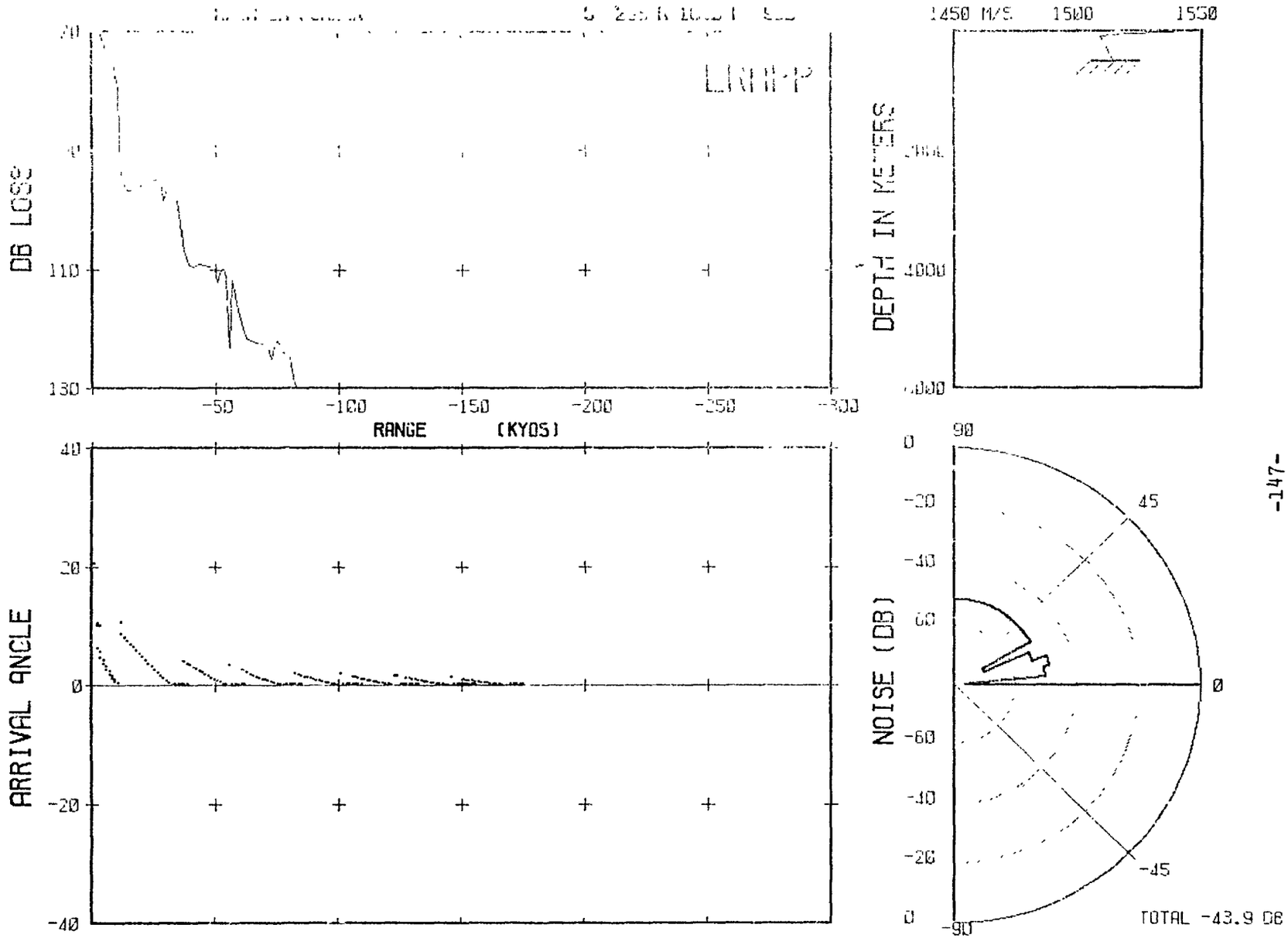
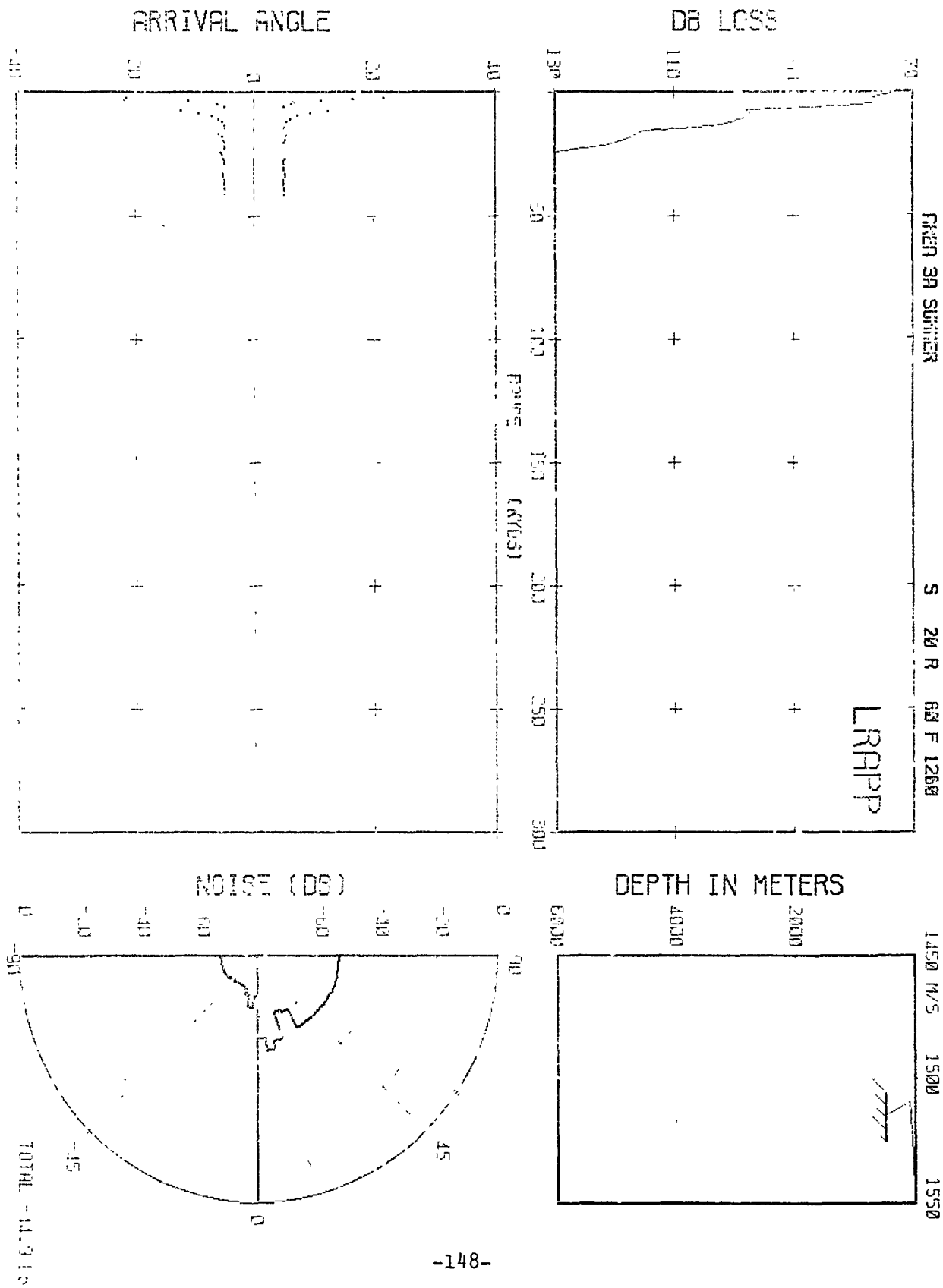
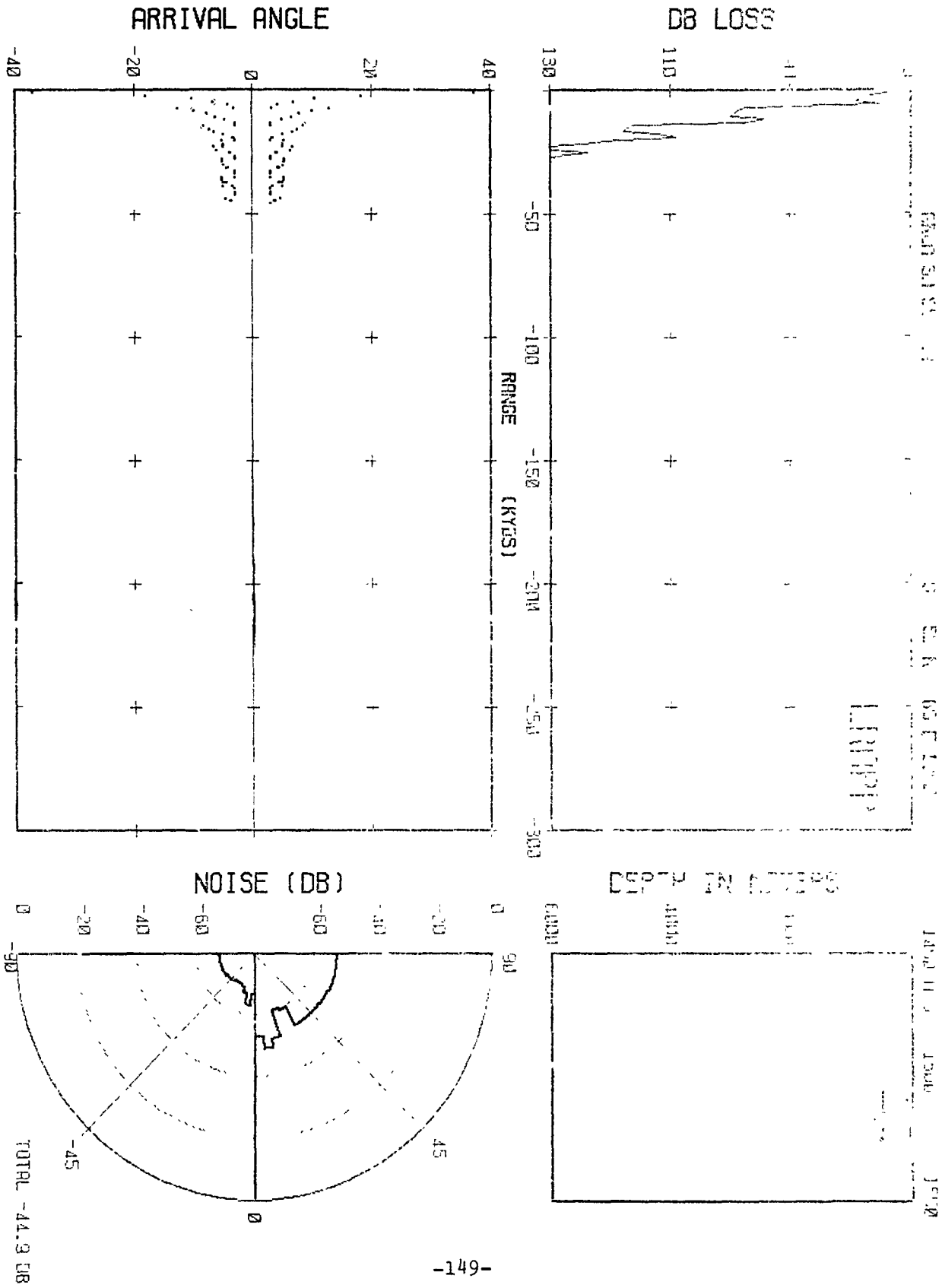
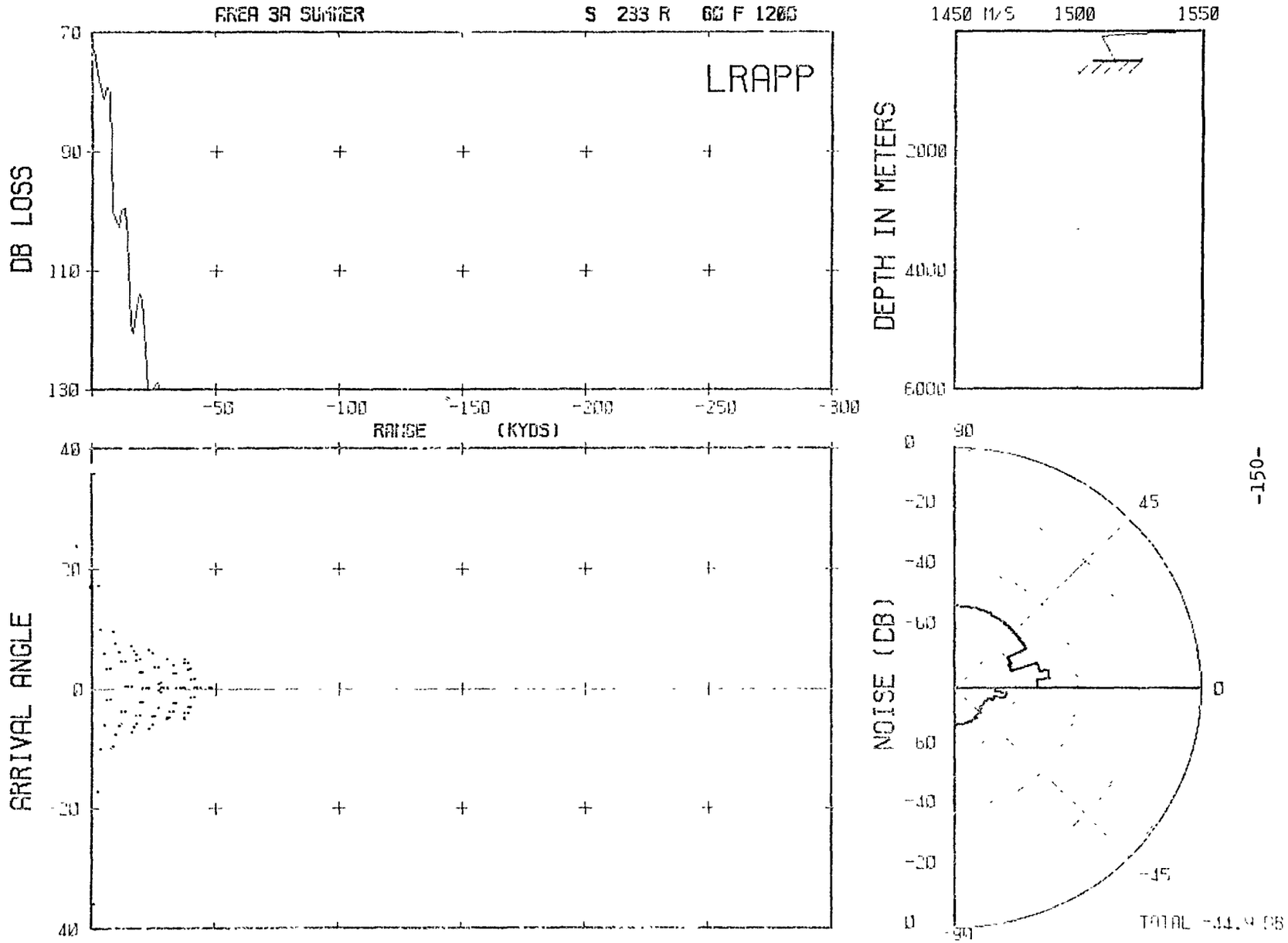
NOISE (DB)
90
45
0
-45
-90
TOTAL -13.9 DB


DB LOSS
110
130
-50
-100
-150
-200
-250
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
4000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -43.9 DB


ARRIVAL ANGLE
DB LOSS
AREA 3A SUMMER
S 20 R 60 F 1260
LRAPP
NOISE (DB)
DEPTH IN METERS
1450 M/S
1500
1550
TOTAL


DB LOSS
130
110
-50
-100
-150
-200
-250
-300
RANGE
(KYDS)
ARRIVAL ANGLE
-40
-20
0
20
40
DEPTH IN METERS
6000
4000
2000
0
NOISE (DB)
0
-20
-40
-60
-80
-90
90
45
-45
TOTAL -44.3 DB


AREA 3A SUMMER
S 233 R 60 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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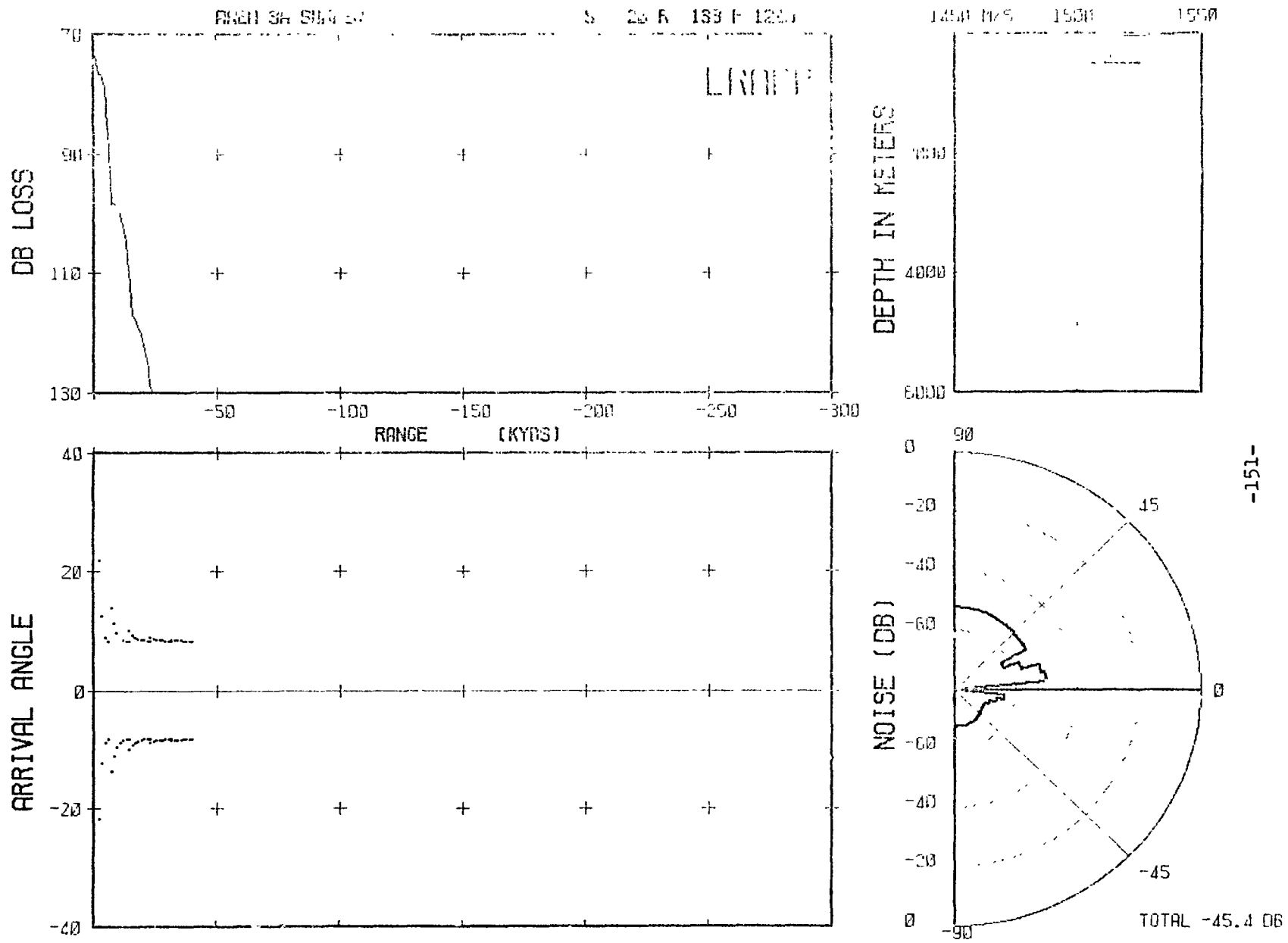
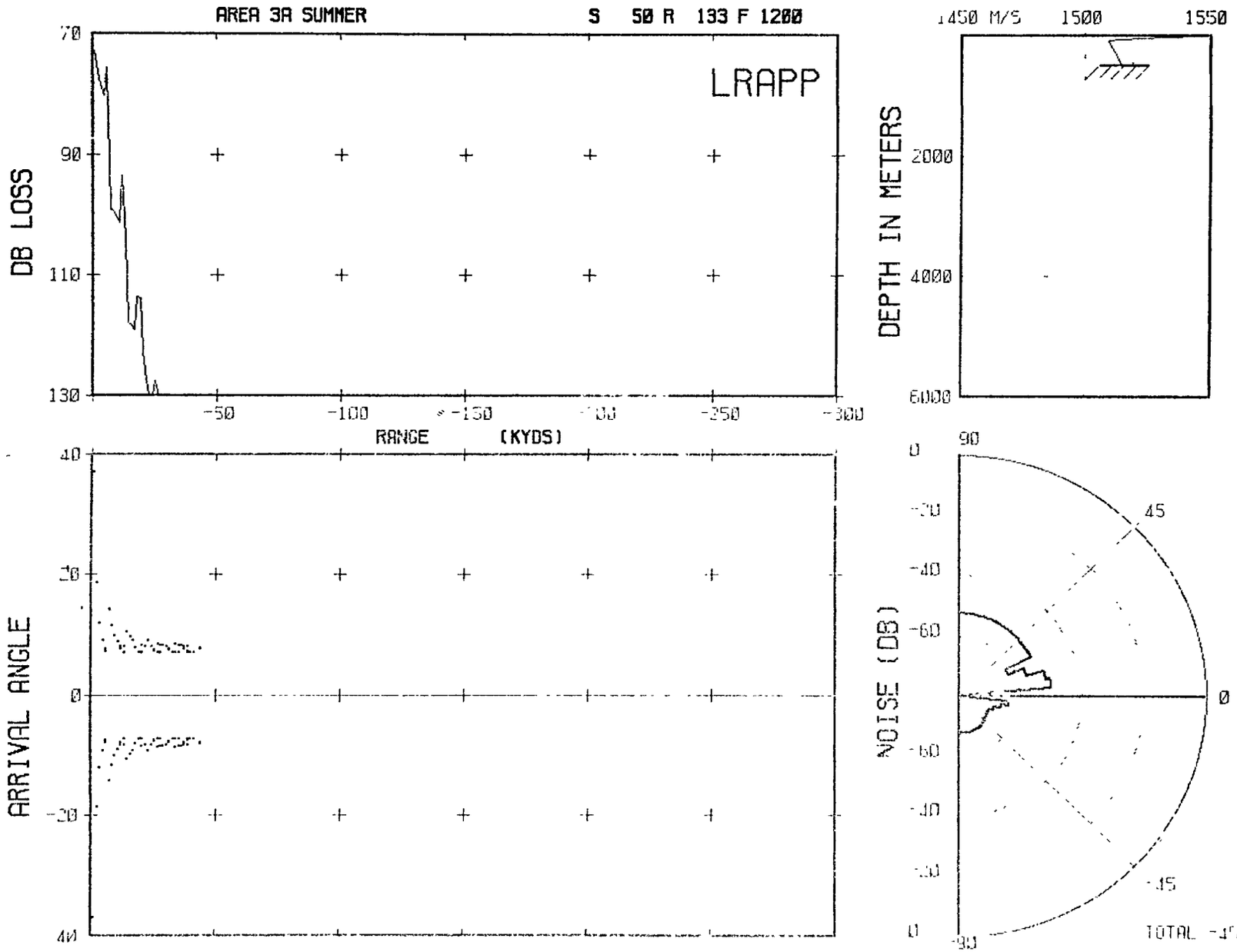
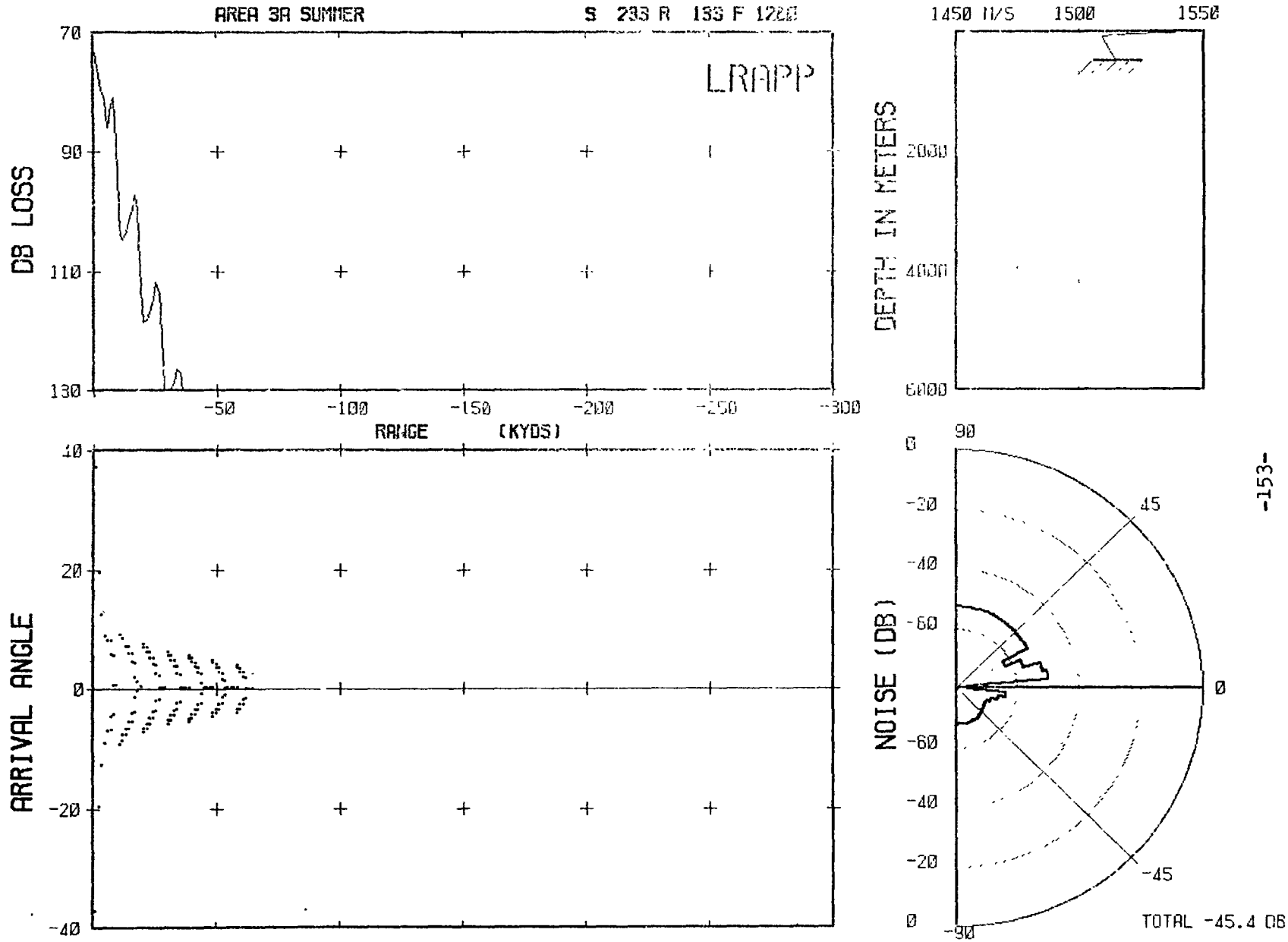
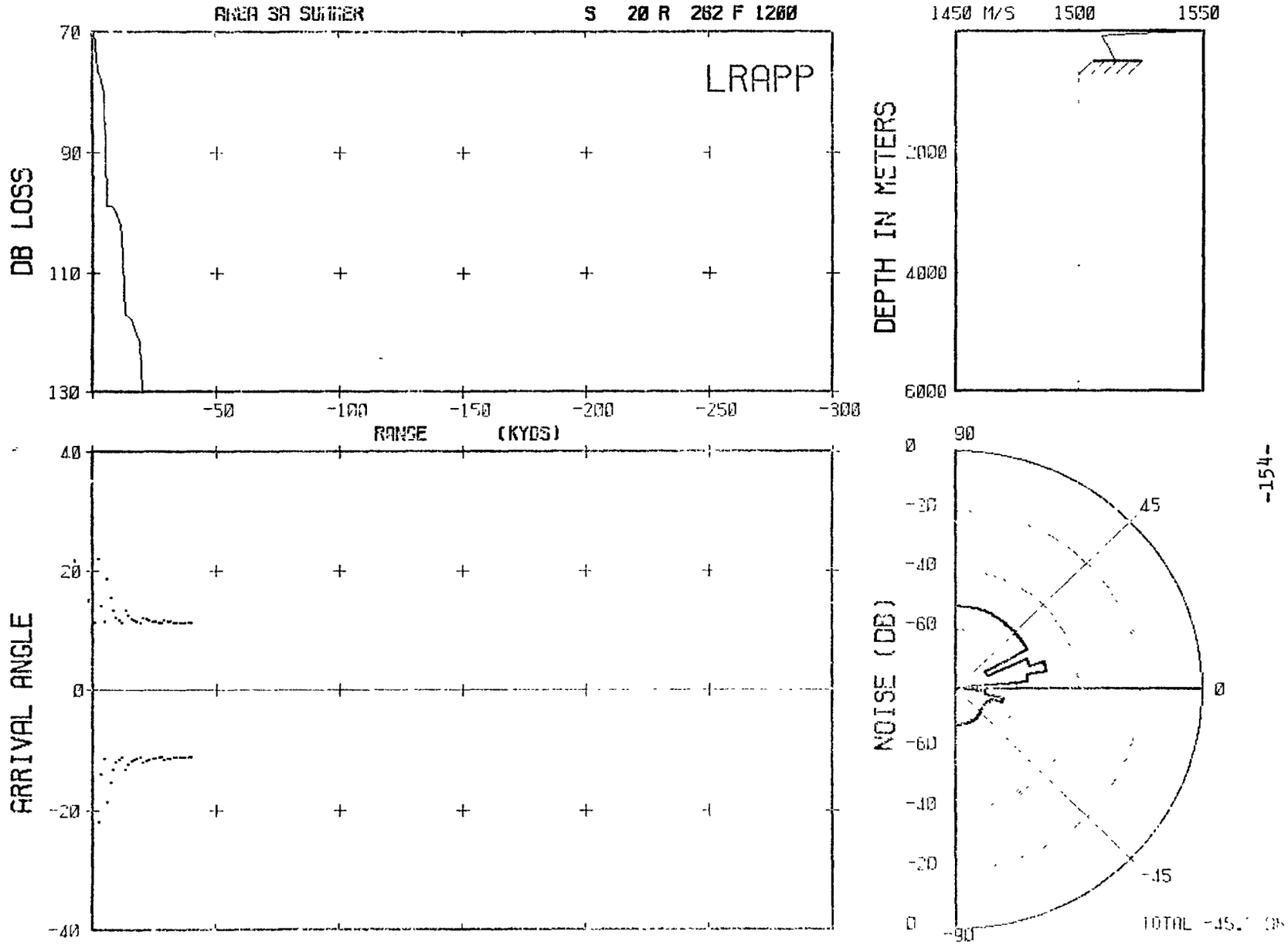
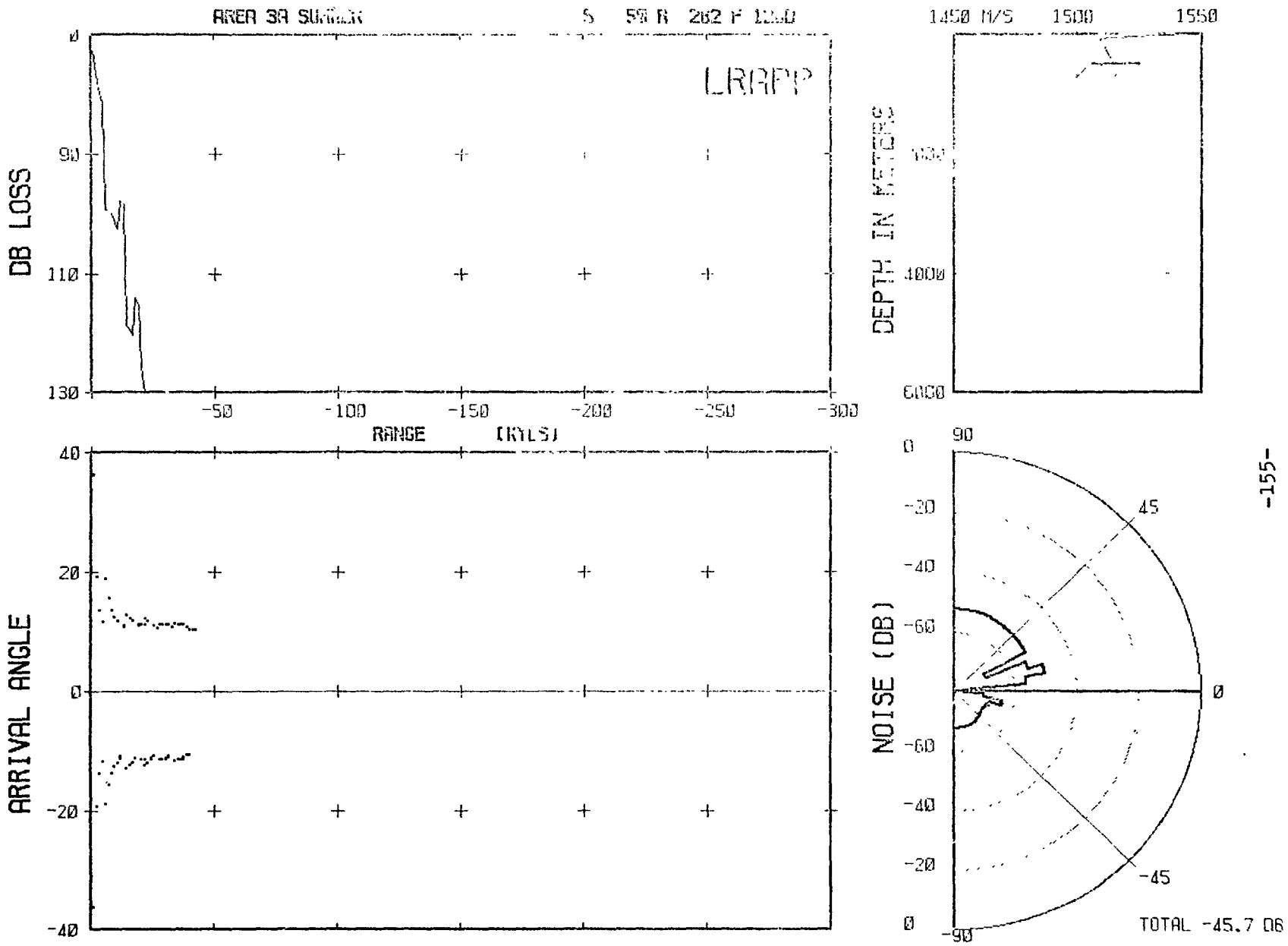
-40
-60
60
-40
-20
0
90
45
0
-45
-90
TOTAL -44.4 DB

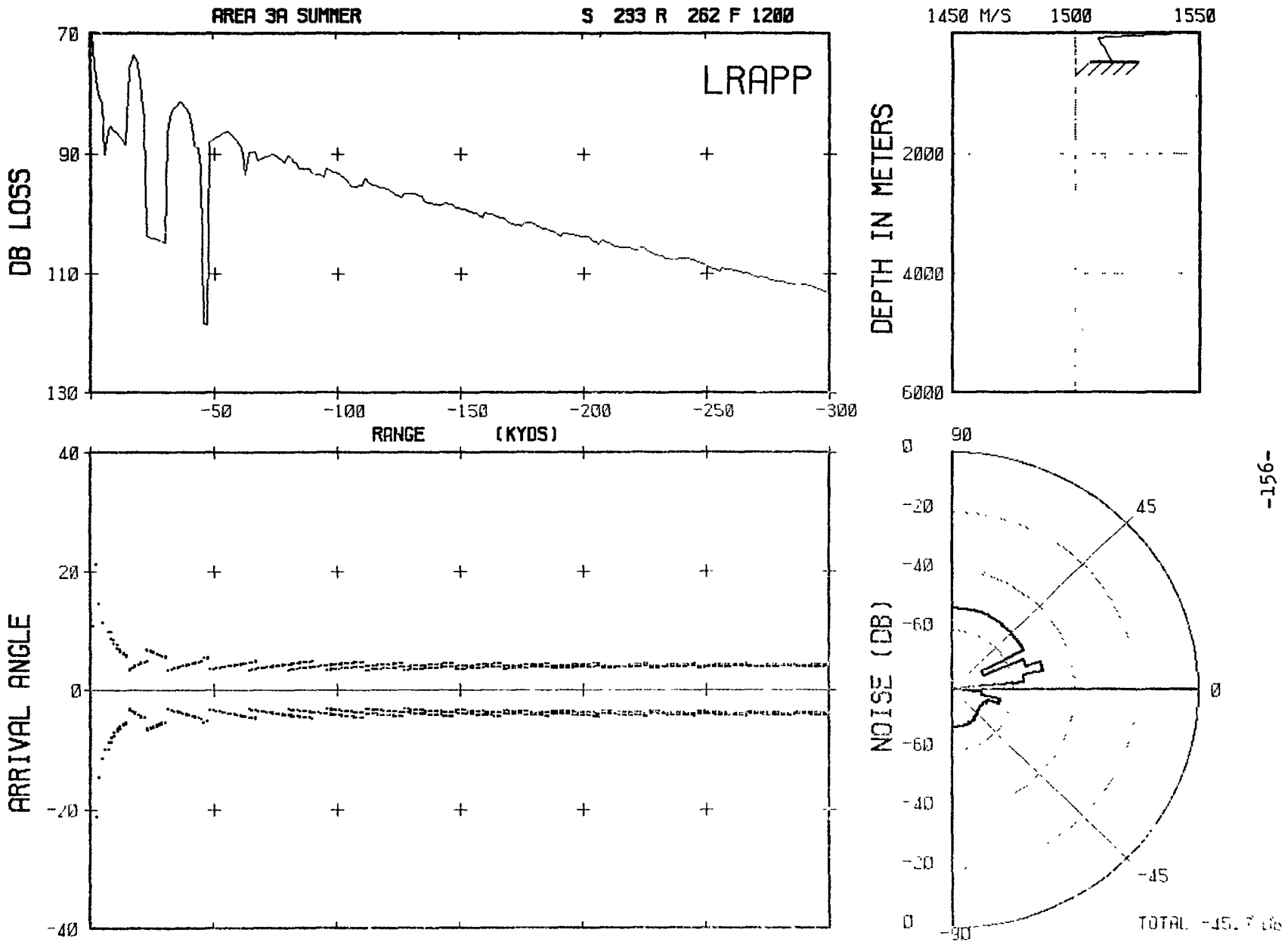

DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
DEPTH IN METERS
1450 M/S
1500
1550
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -45.4 DB

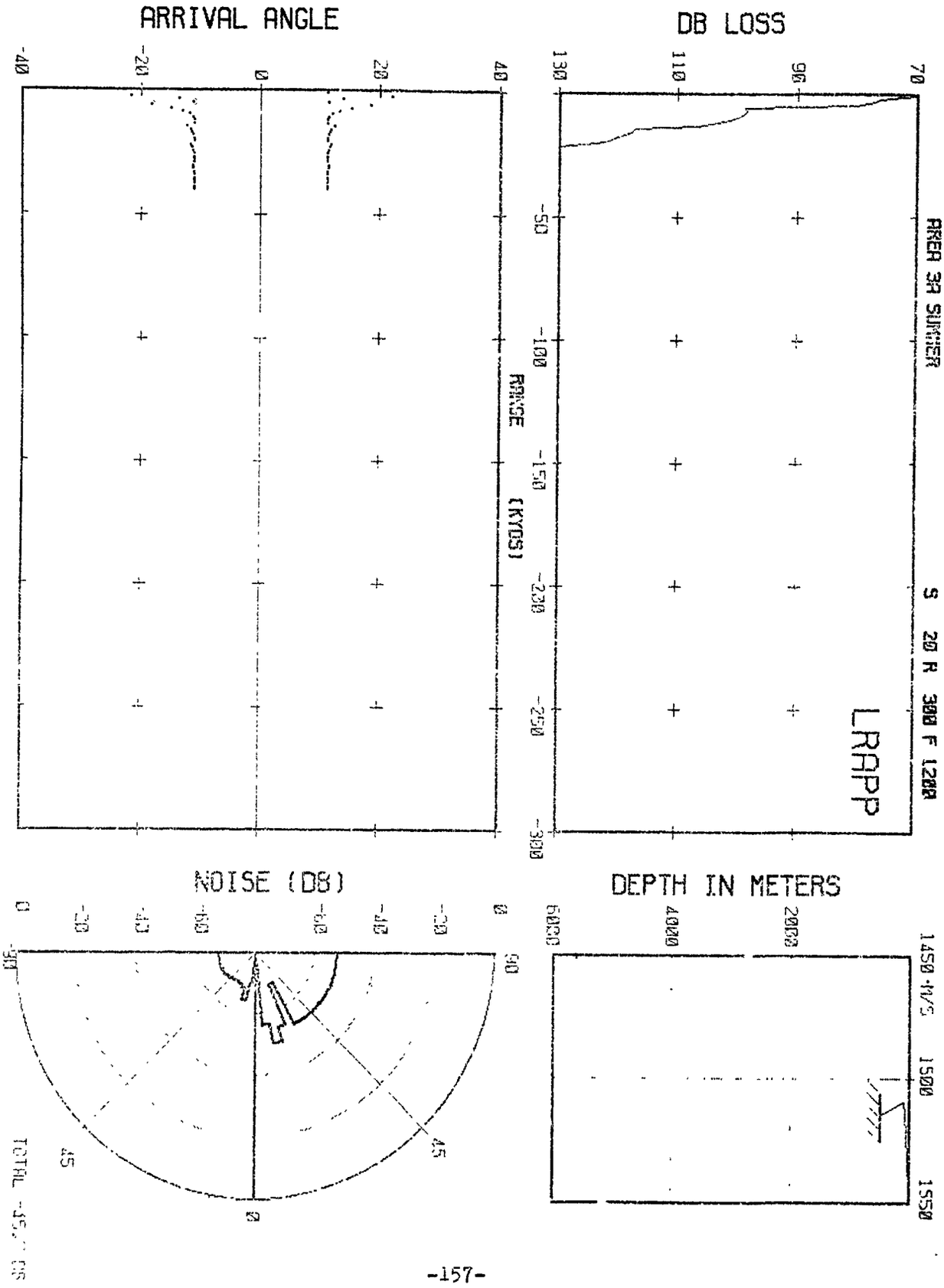

AREA 3A SUMMER
S 50 R 133 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
40
NOISE (DB)
90
45
0
-45
-90
TOTAL

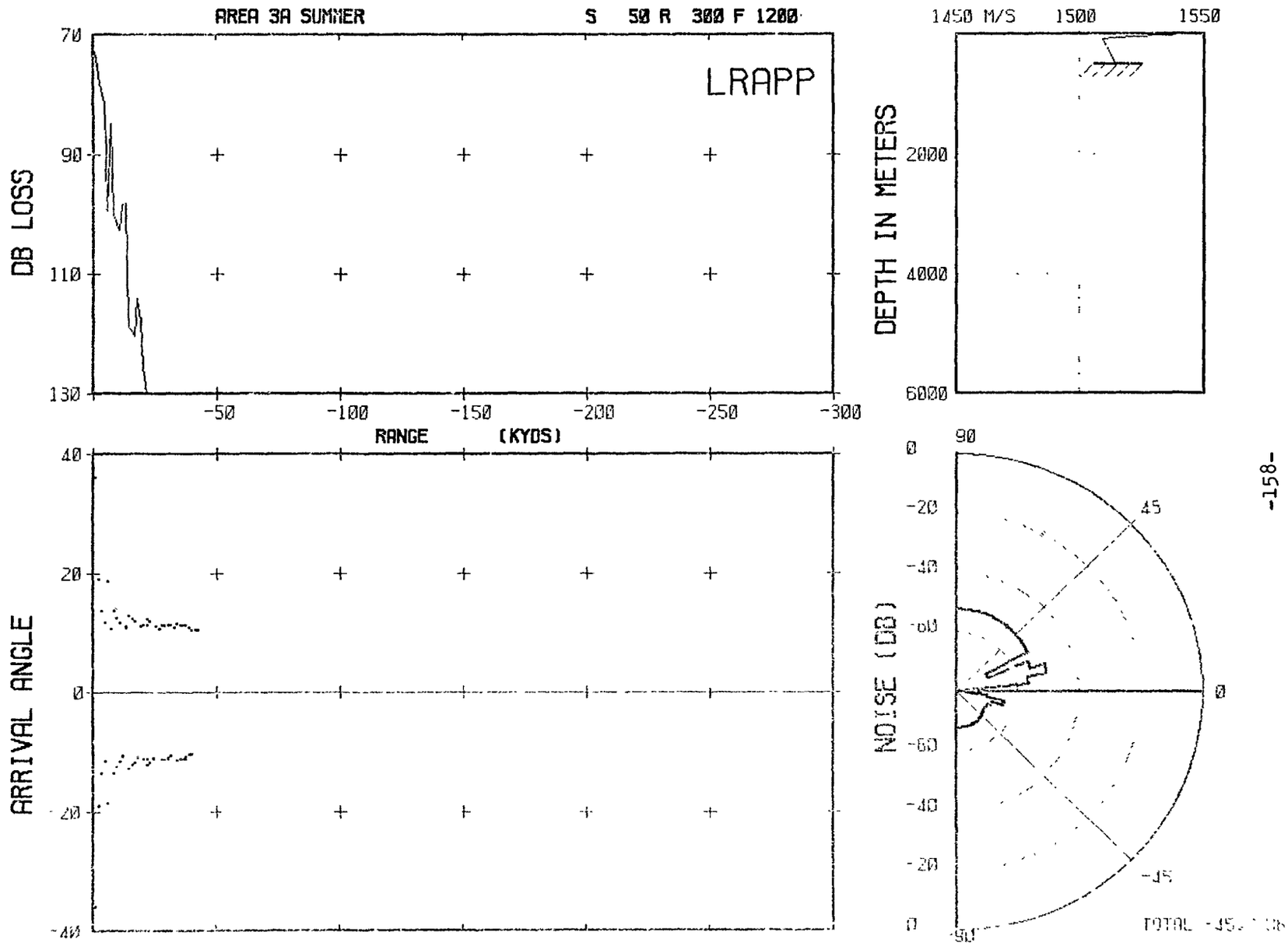

AREA 3A SUMMER
S 233 R 133 F 1220
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
0
-20
-40
-60
-60
-40
-20
0
90
45
0
-45
-90
TOTAL -45.4 DB


AREA 3A SUMMER
S 20 R 262 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL


AREA 3A SUMMER
LRAPP
DB LOSS
0
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYLS)
1450 M/S
1500
1550
DEPTH IN METERS
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -45.7 DB


AREA 3A SUMMER
S 233 R 262 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -45.7 db


DB LOSS
ARRIVAL ANGLE
AREA 3A SUMMER
S 20 R 300 F 1200
LRAPP
RANGE (KYDS)
DEPTH IN METERS
NOISE (DB)
1450 M/S
1500
1550
TOTAL -15.7 DB


AREA 3A SUMMER
S 50 R 300 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
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NOISE (DB)
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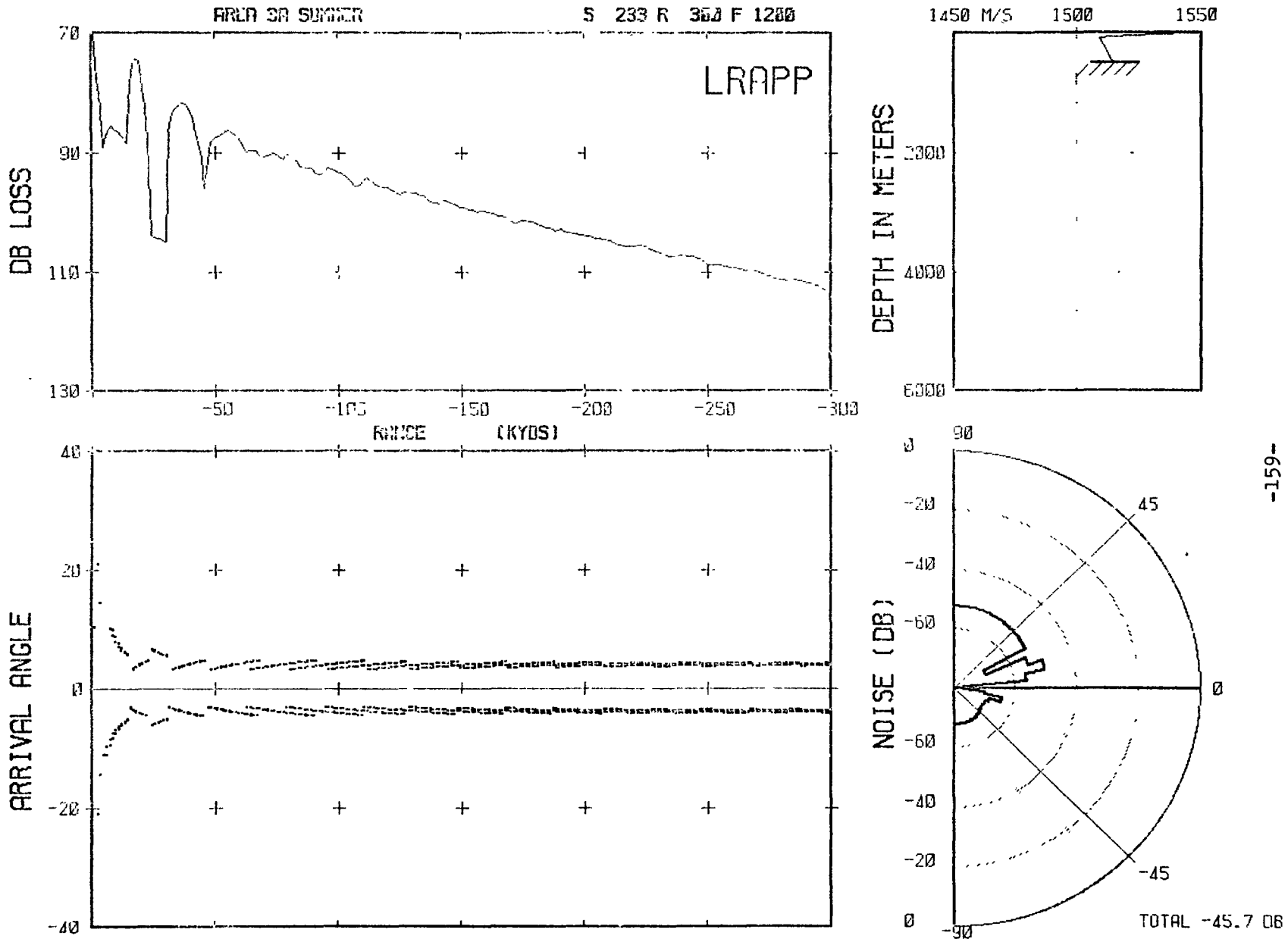
-90


AREA 3A SUMMER
S 233 R 360 F 1200
LRAPP
DB LOSS
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90
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130
-50
-100
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-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
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6000
ARRIVAL ANGLE
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-40
NOISE (DB)
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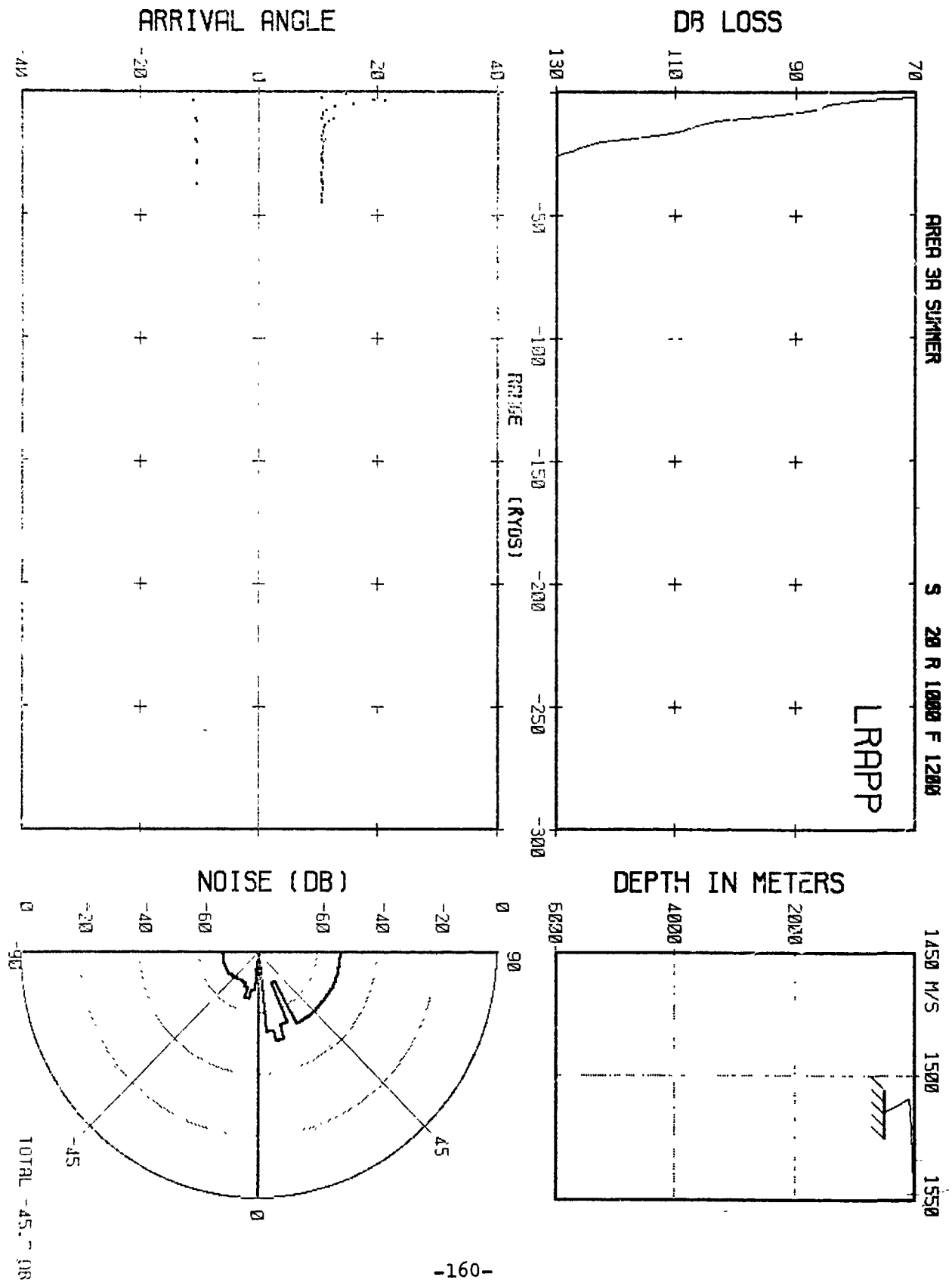
TOTAL -45.7 DB


AREA 3A SUMMER
S 20 R 1000 F 1200
LRAPP
DB LOSS
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90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
40
20
0
-20
-40
DEPTH IN METERS
0
2000
4000
6000
1450 M/S
1500
1550
NOISE (DB)
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-40
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0
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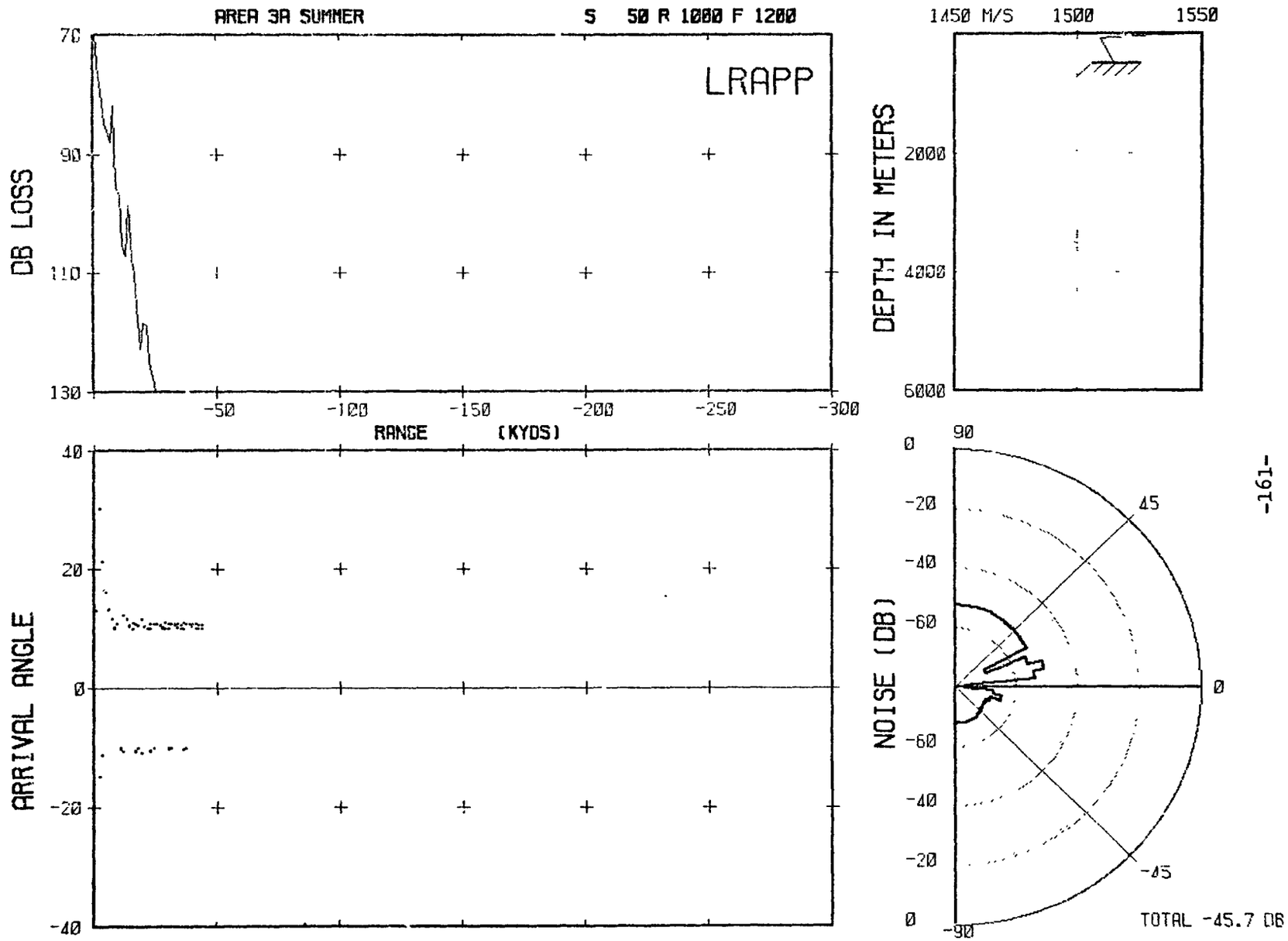
-90
TOTAL -45.7 DB


AREA 3A SUMMER
S 50 R 1000 F 1200
LRAPP
DB LOSS
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90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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-40
-60
-60
-40
-20
0
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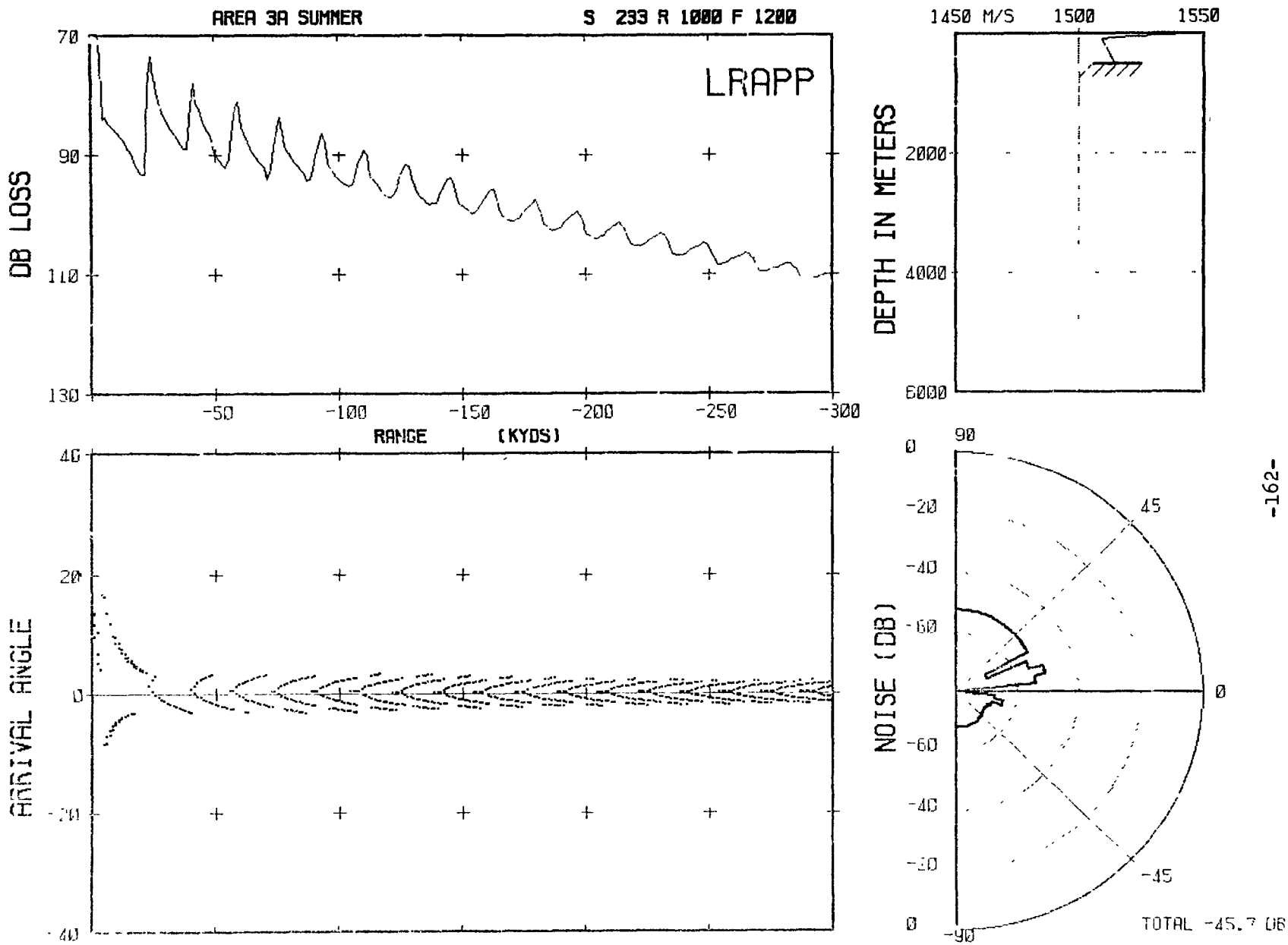
45
0
-45
-90
TOTAL -45.7 DB


AREA 3A SUMMER
S 233 R 1000 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
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ARRIVAL ANGLE
40
20
0
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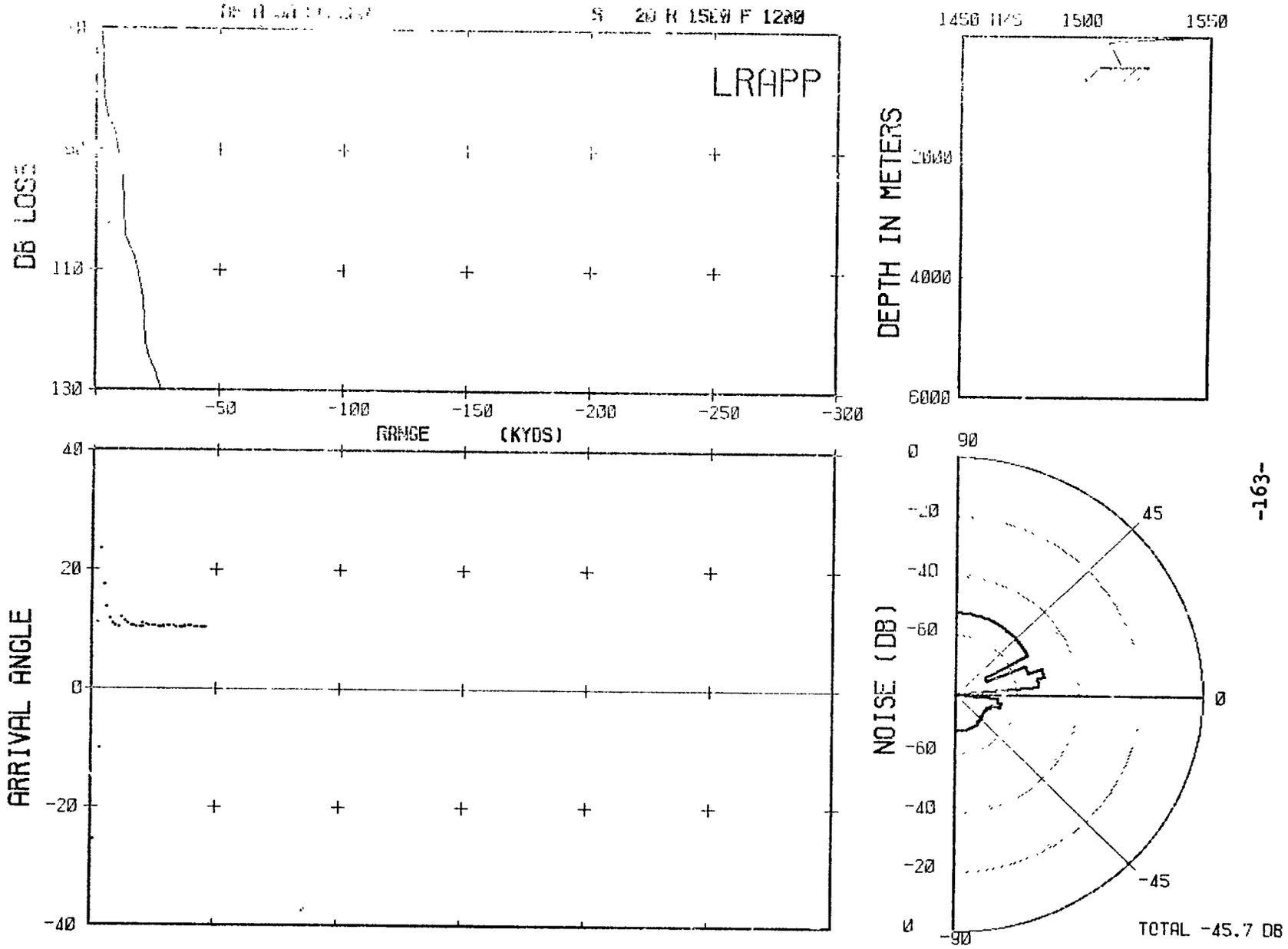
-40
NOISE (DB)
90
45
0
-45
-90
TOTAL -45.7 DB


S 20 R 1500 F 1200
LRAPP
DB LOSS
110
130
-50
-100
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-200
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-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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-45
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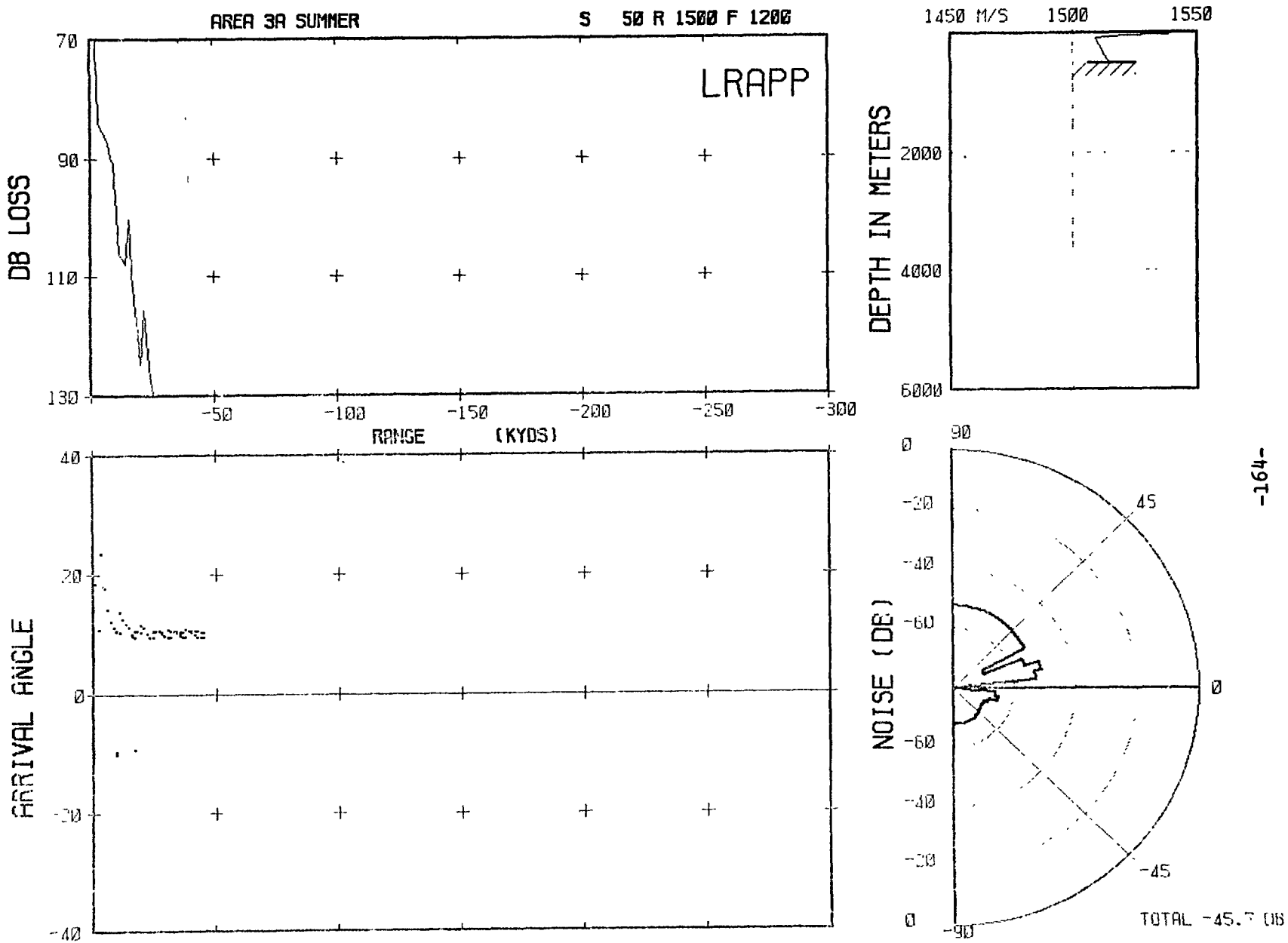
TOTAL -45.7 DB


AREA 3A SUMMER
S 50 R 1500 F 1200
LRAPP
DB LOSS
70
90
110
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-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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-40
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0
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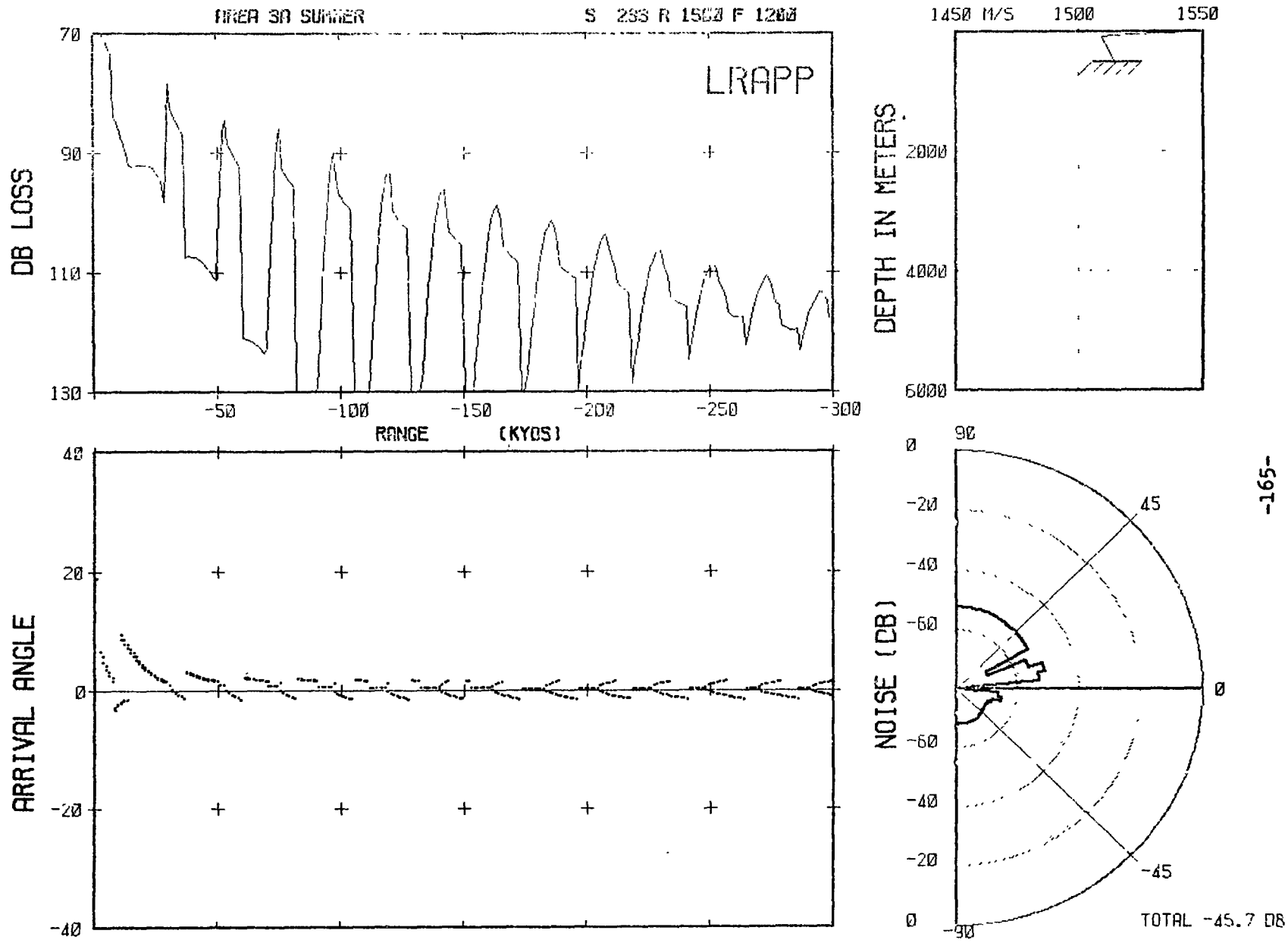
-90
TOTAL -45.7 DB


AREA 3A SUMMER
S 233 R 1500 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
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ARRIVAL ANGLE
40
20
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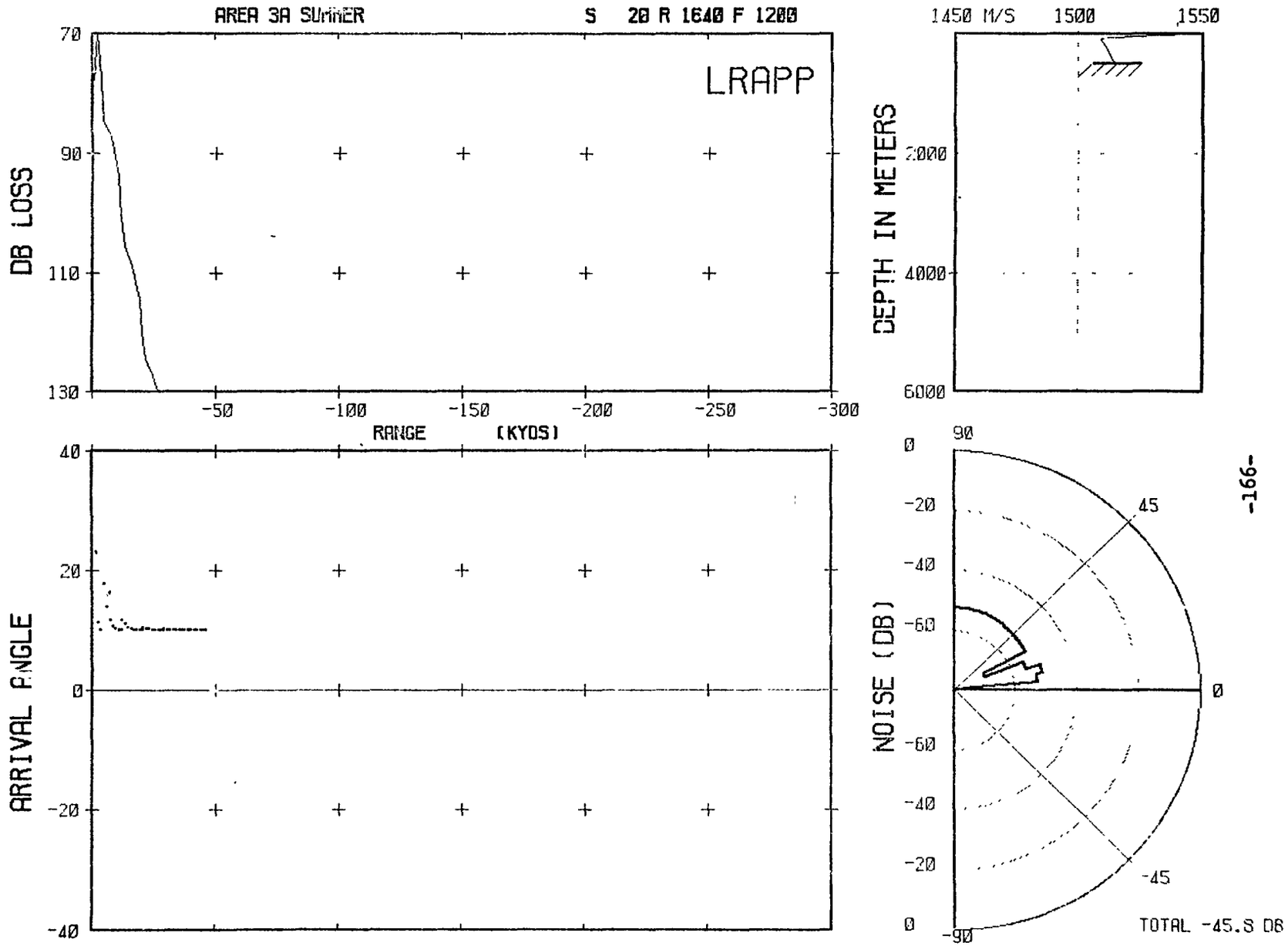
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -45.7 DB


AREA 3A SUMMER
S 20 R 1640 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
0
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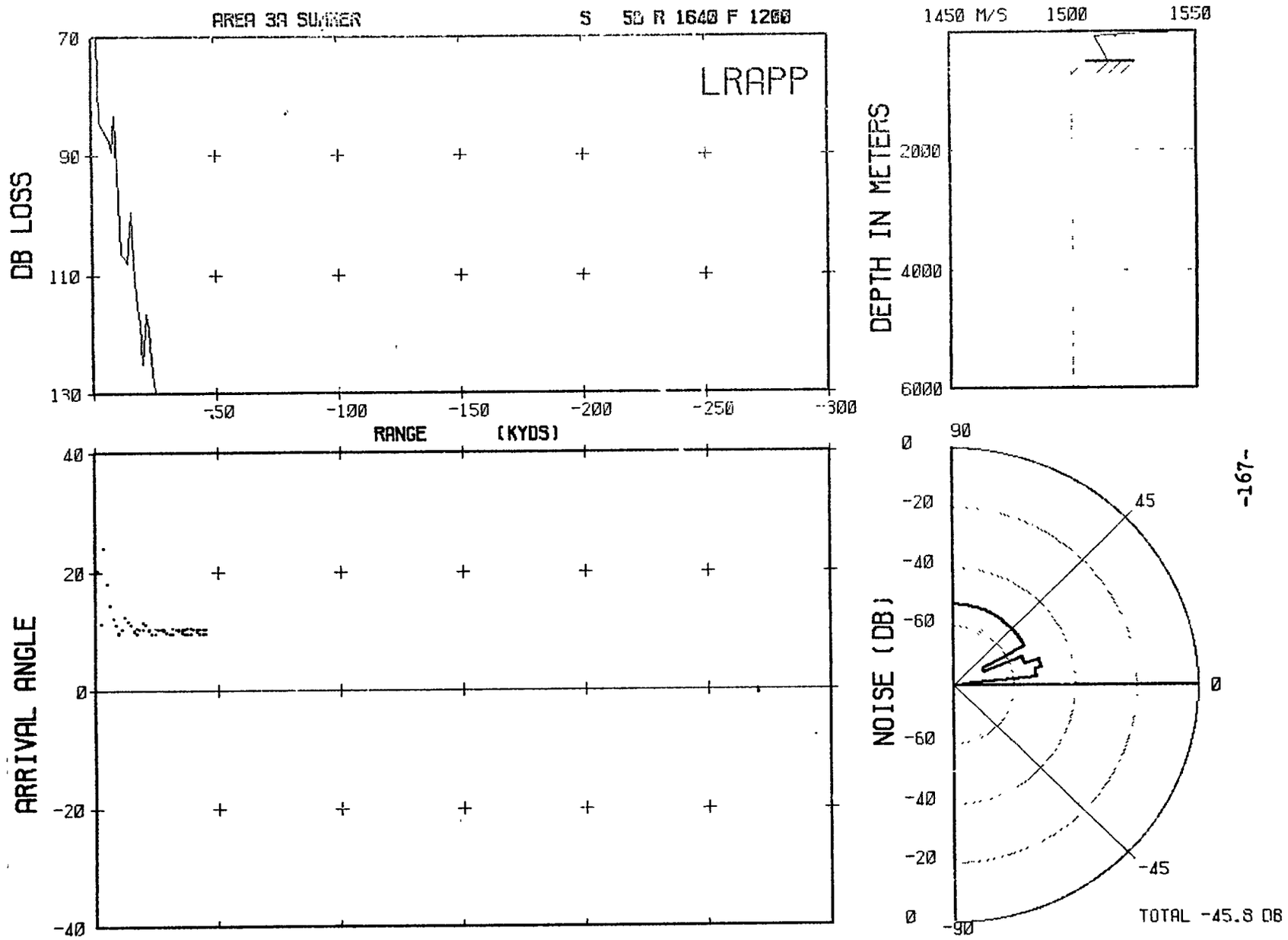
-90
TOTAL -45.8 DB


AREA 3A SUMMER
S 50 R 1640 F 1200
LRAPP
DB LOSS
70
90
110
130
-50
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-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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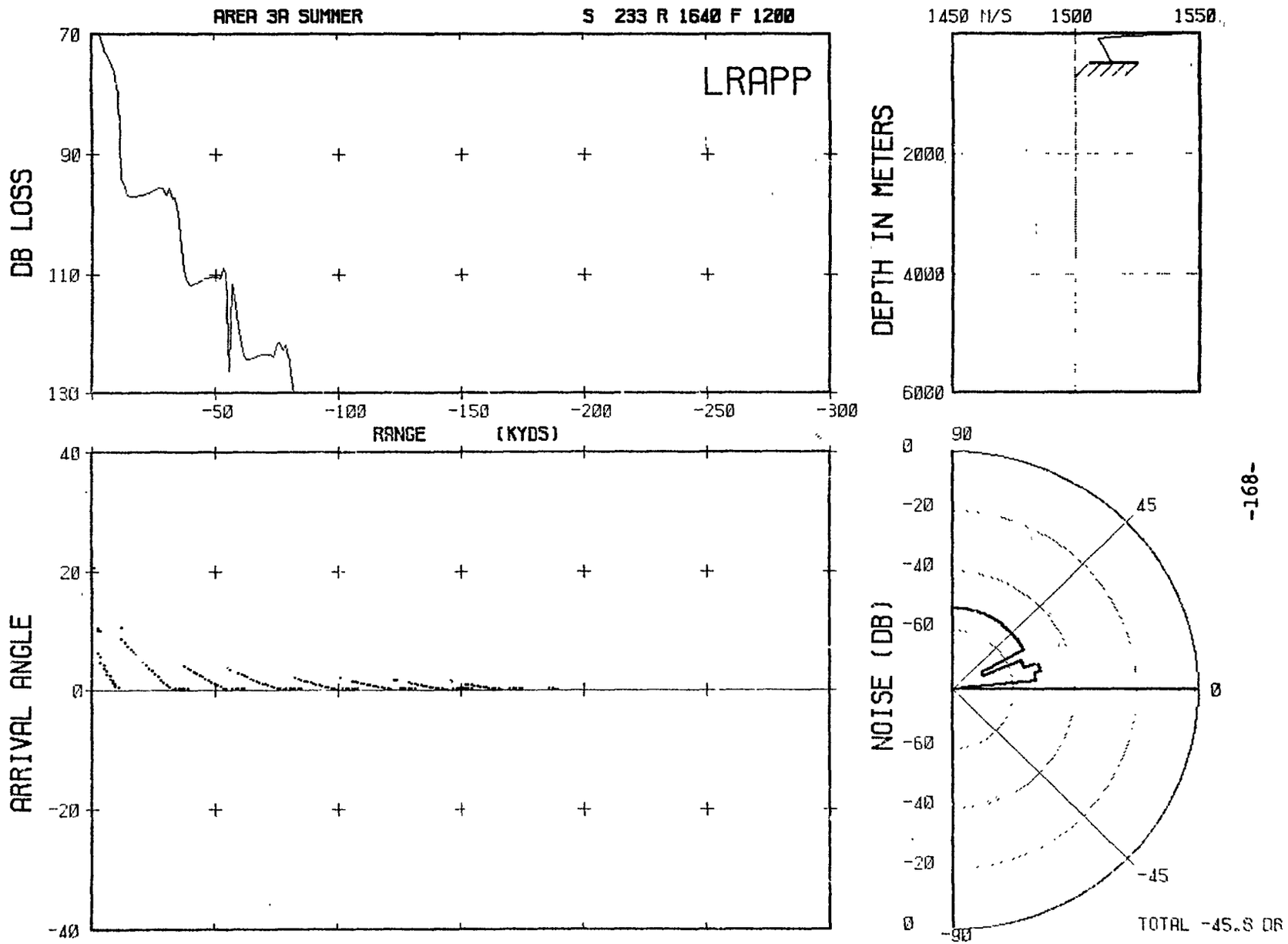
-40
-20
0
90
45
0
-45
-90
TOTAL -45.8 DB


AREA 3A SUMMER
S 233 R 1640 F 1200
LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
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6000
ARRIVAL ANGLE
40
20
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-40
NOISE (DB)
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-20
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45
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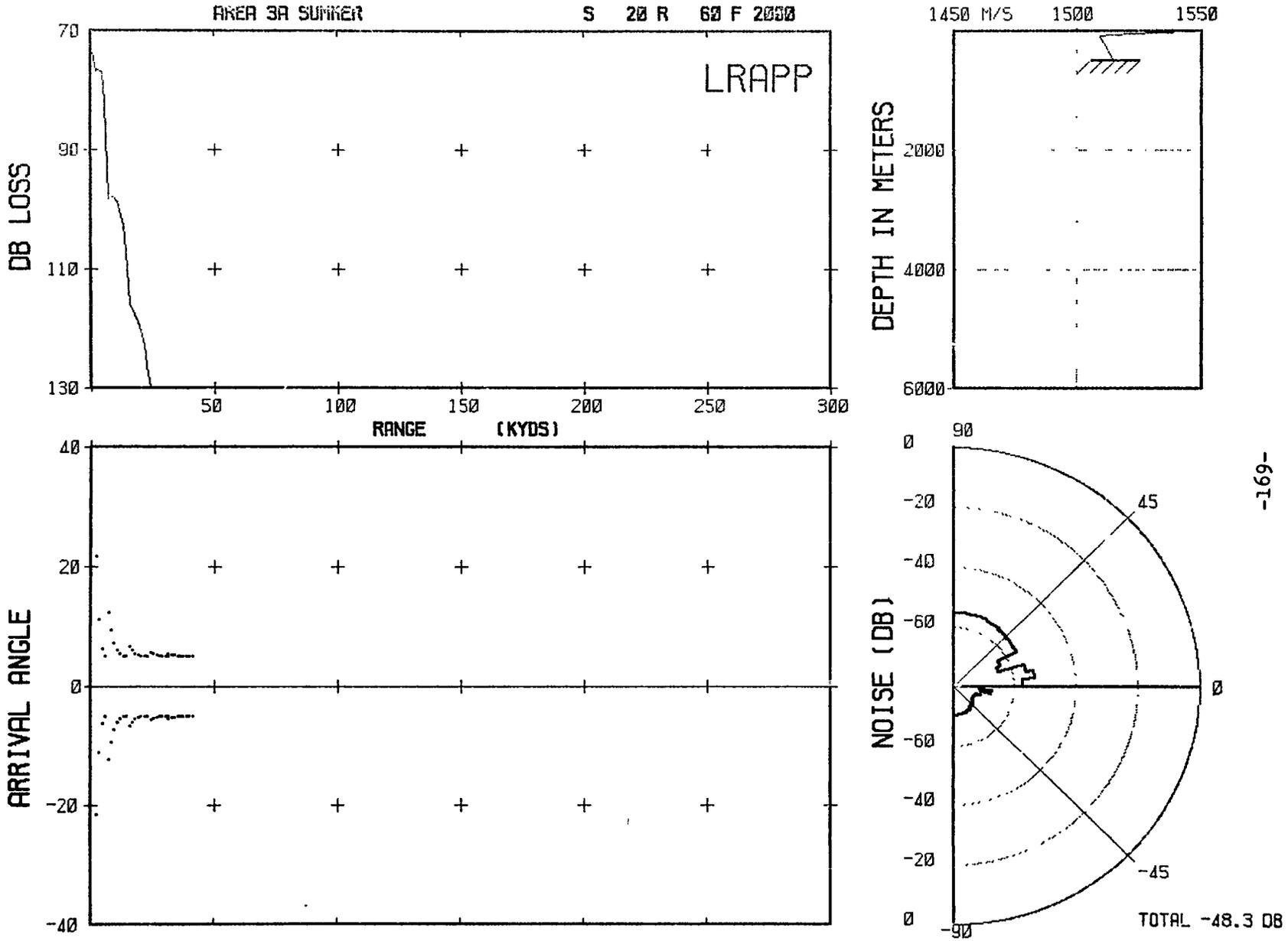
TOTAL -45.8 DB


AREA 3A SUMMER
S 20 R 60 F 2000
LRAPP
DB LOSS
70
90
110
130
50
100
150
200
250
300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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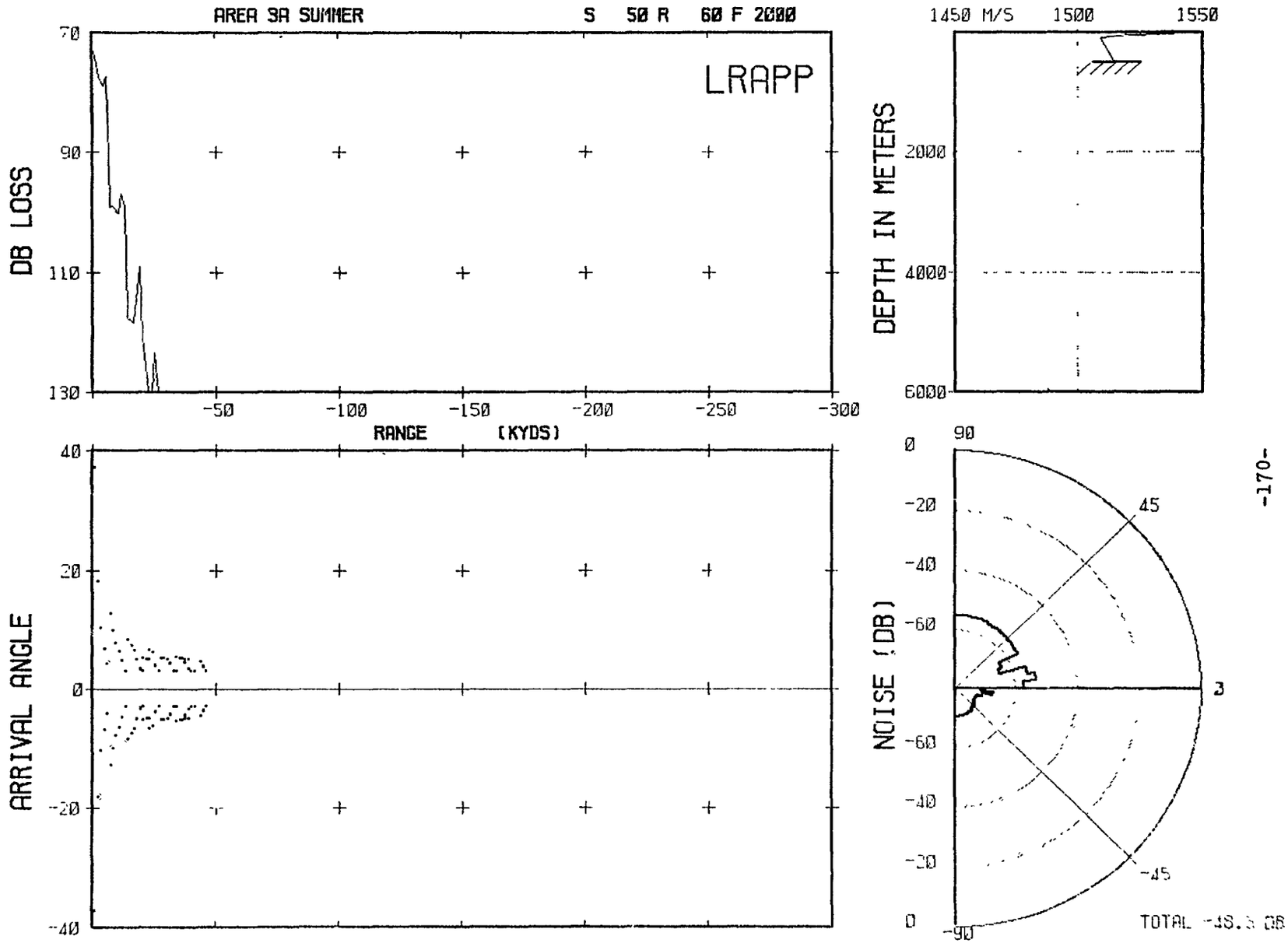
TOTAL -48.3 DB


AREA 3A SUMMER
S 50 R 60 F 2000
LRAPP
DB LOSS
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110
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-50
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
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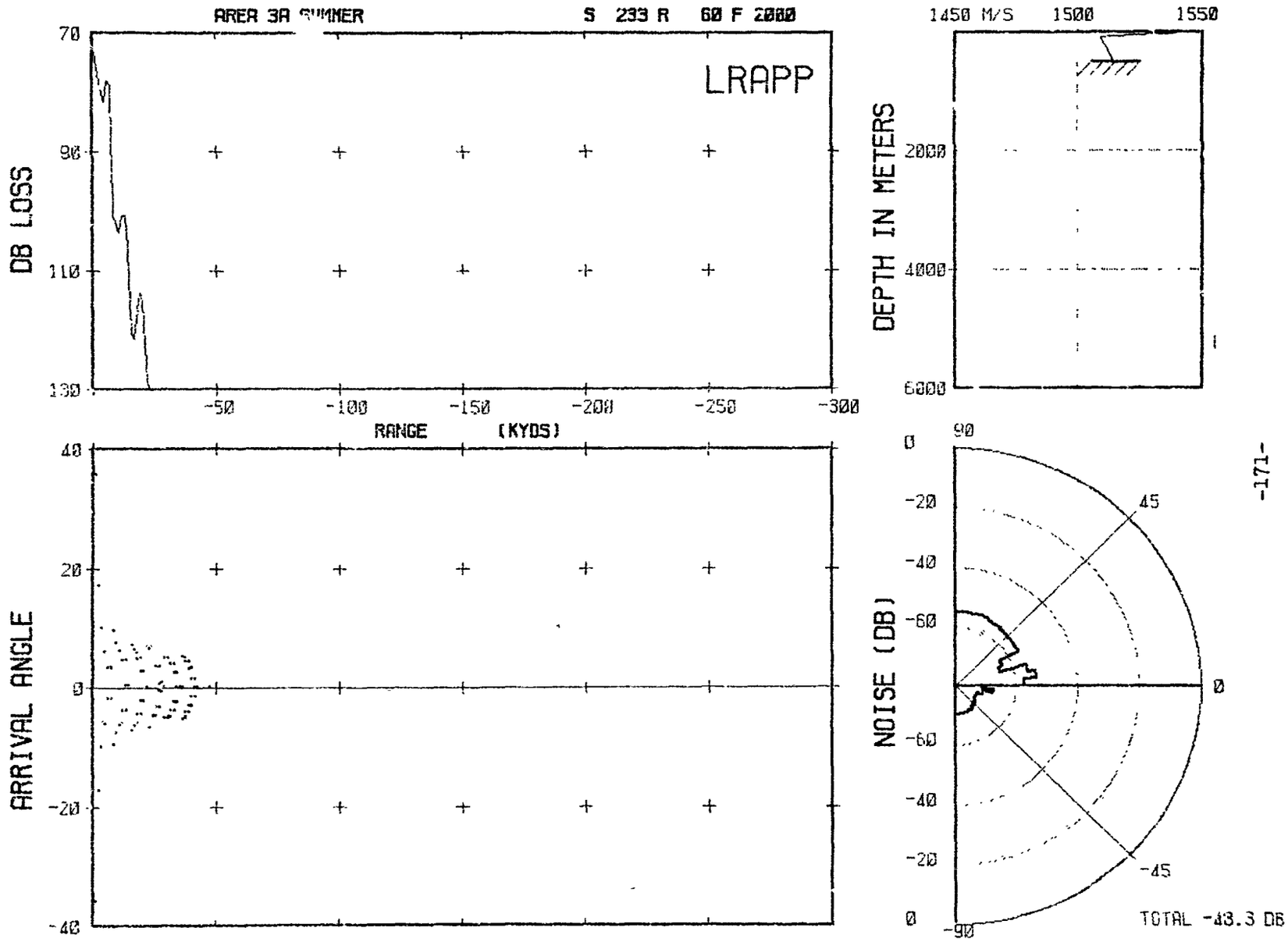
TOTAL -48.3 DB


AREA 3A SUMMER
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DB LOSS
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-250
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RANGE (KYDS)
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DEPTH IN METERS
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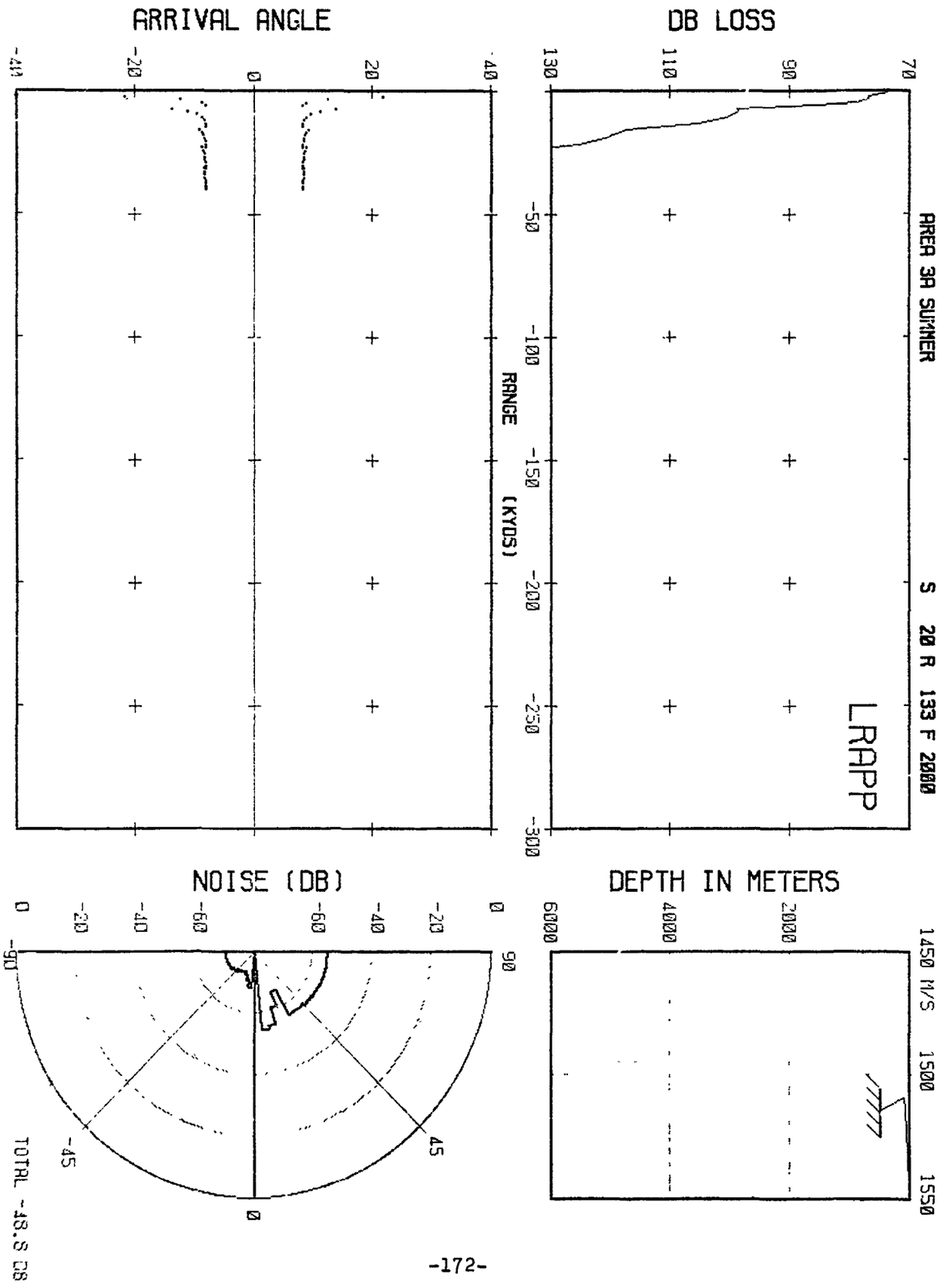
AREA 3A SUMMER
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LRAPP
DB LOSS
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-50
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-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
-40
-20
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20
40
DEPTH IN METERS
2000
4000
6000
1450 M/S
1500
1550
NOISE (DB)
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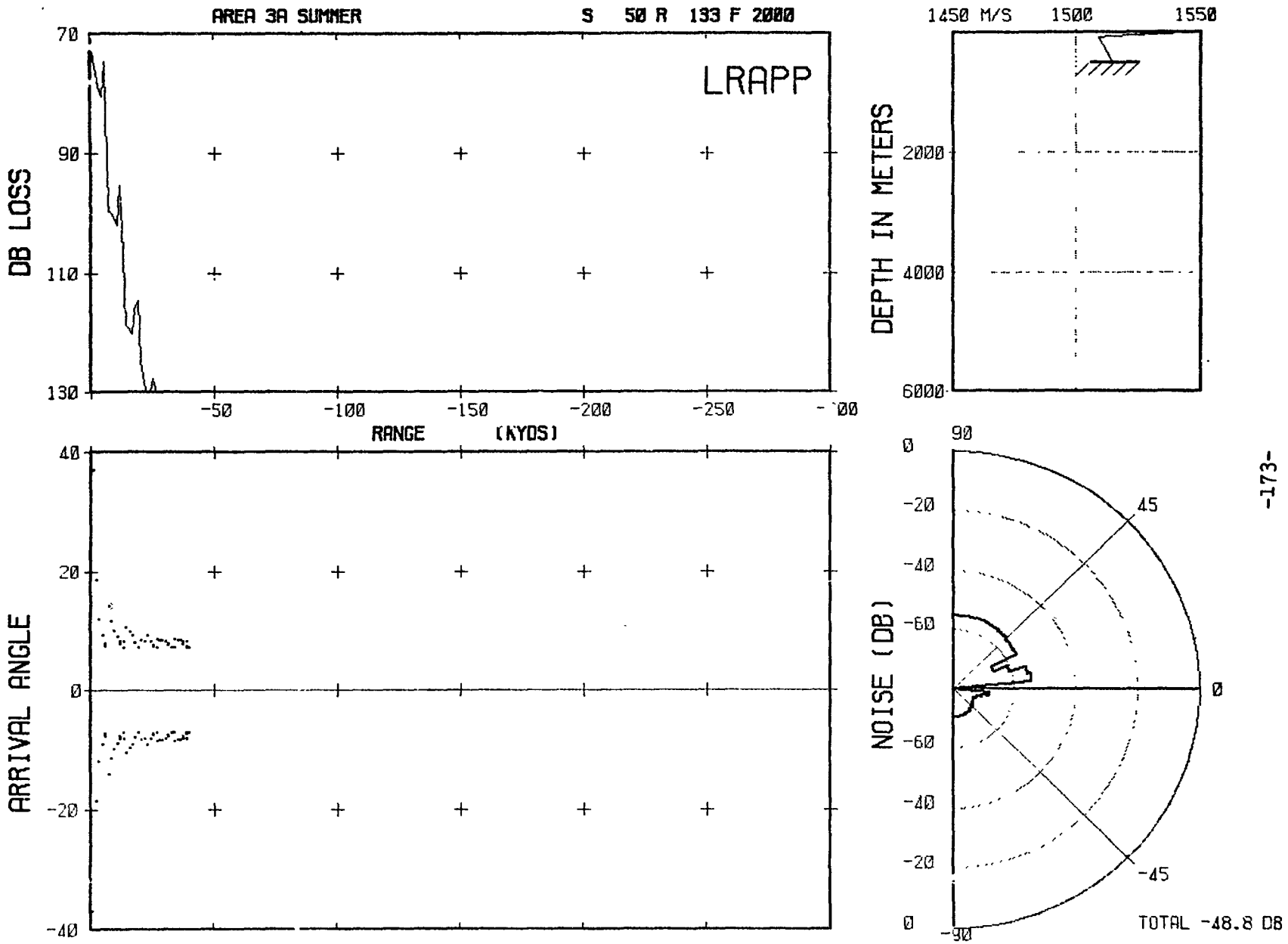
TOTAL -48.8 DB


AREA 3A SUMMER
S 50 R 133 F 2000
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DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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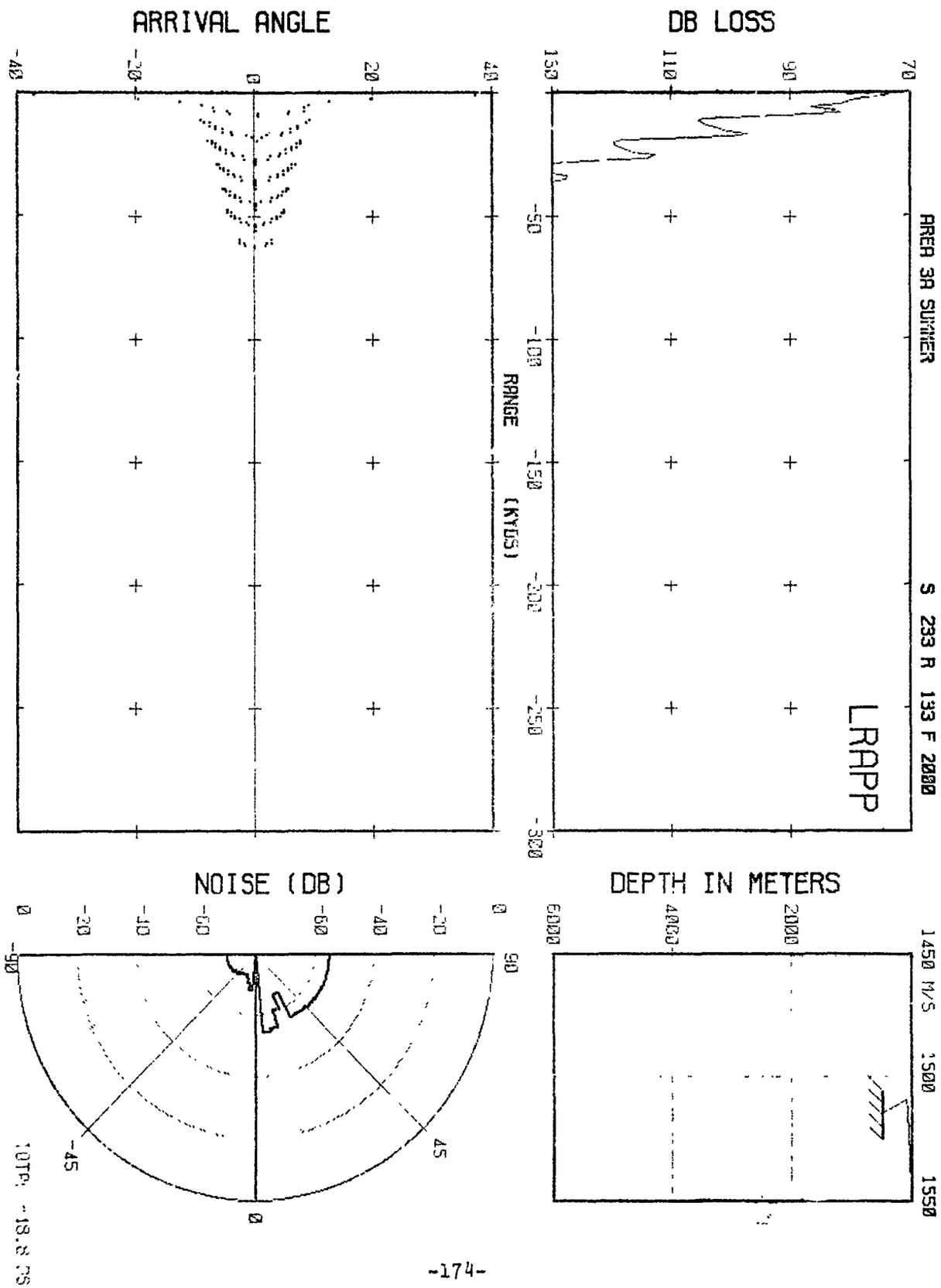
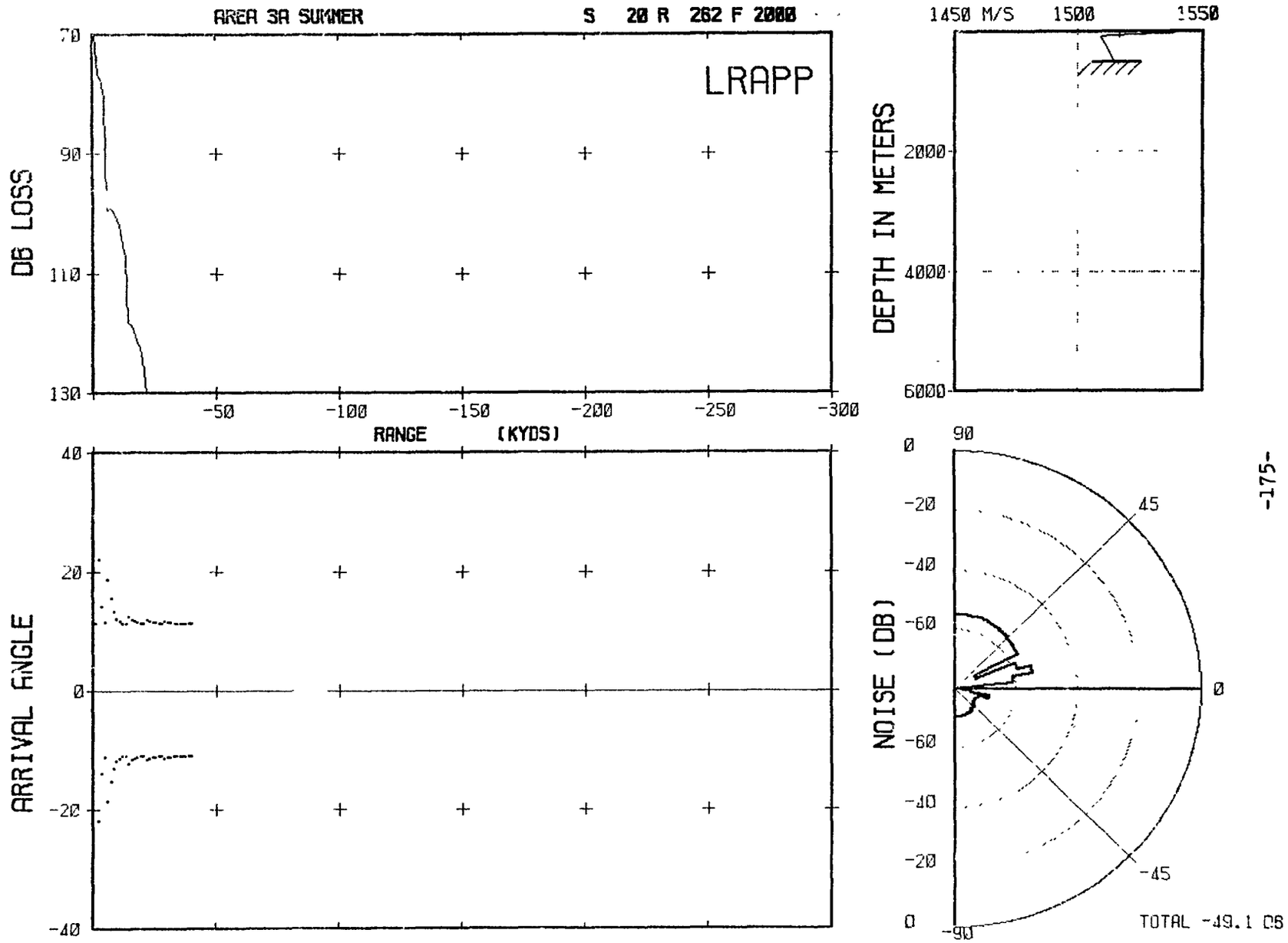
TOTAL -48.8 DB


ARRIVAL ANGLE
DB LOSS
AREA 3A SUMMER
S 233 R 133 F 2000
LRAPP
RANGE (KYDS)
NOISE (DB)
DEPTH IN METERS
1450 M/S
1500
1550


AREA 3A SUMMER
S 20 R 262 F 2000
LRAPP
DB LOSS
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130
-50
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-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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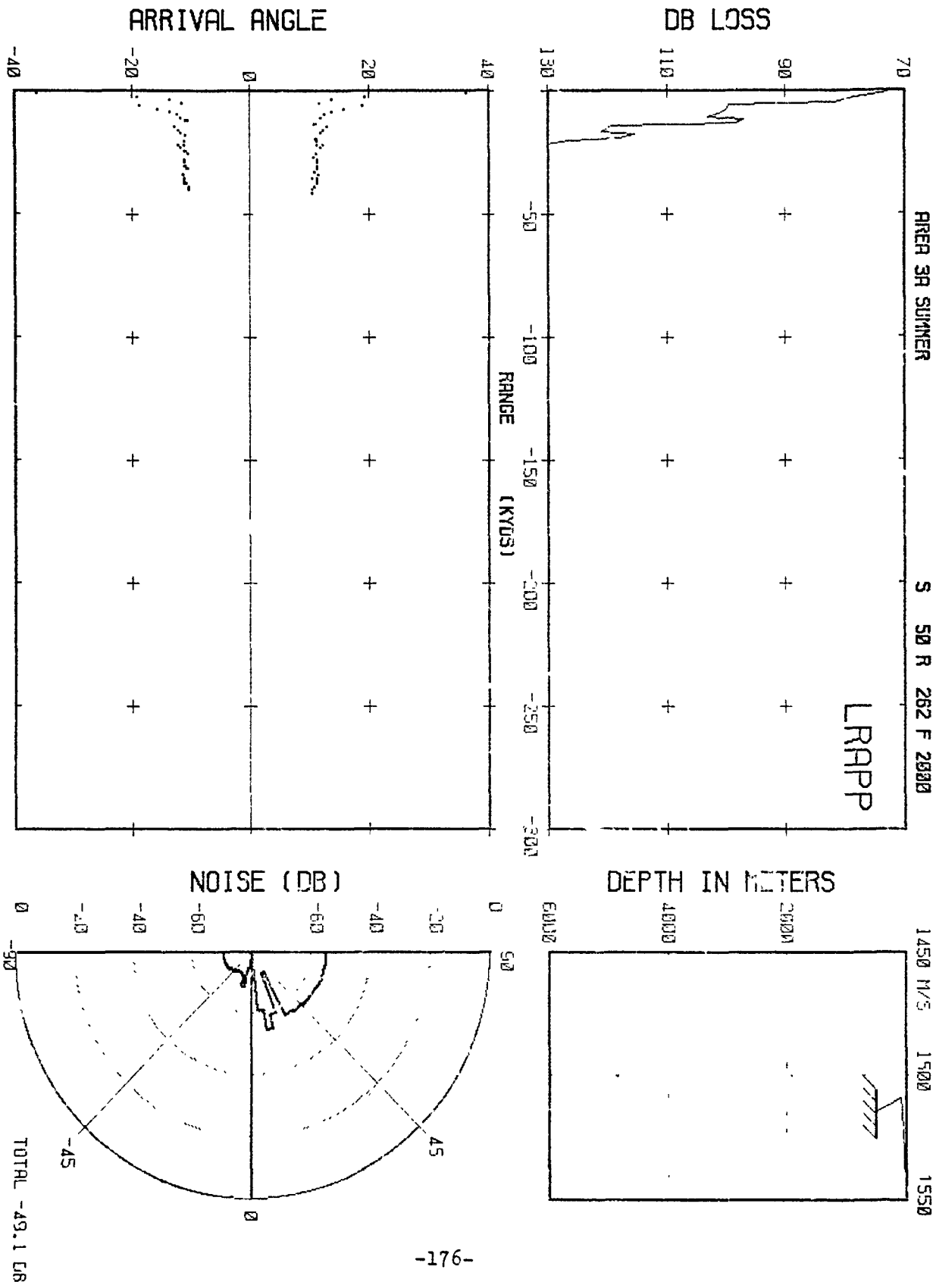
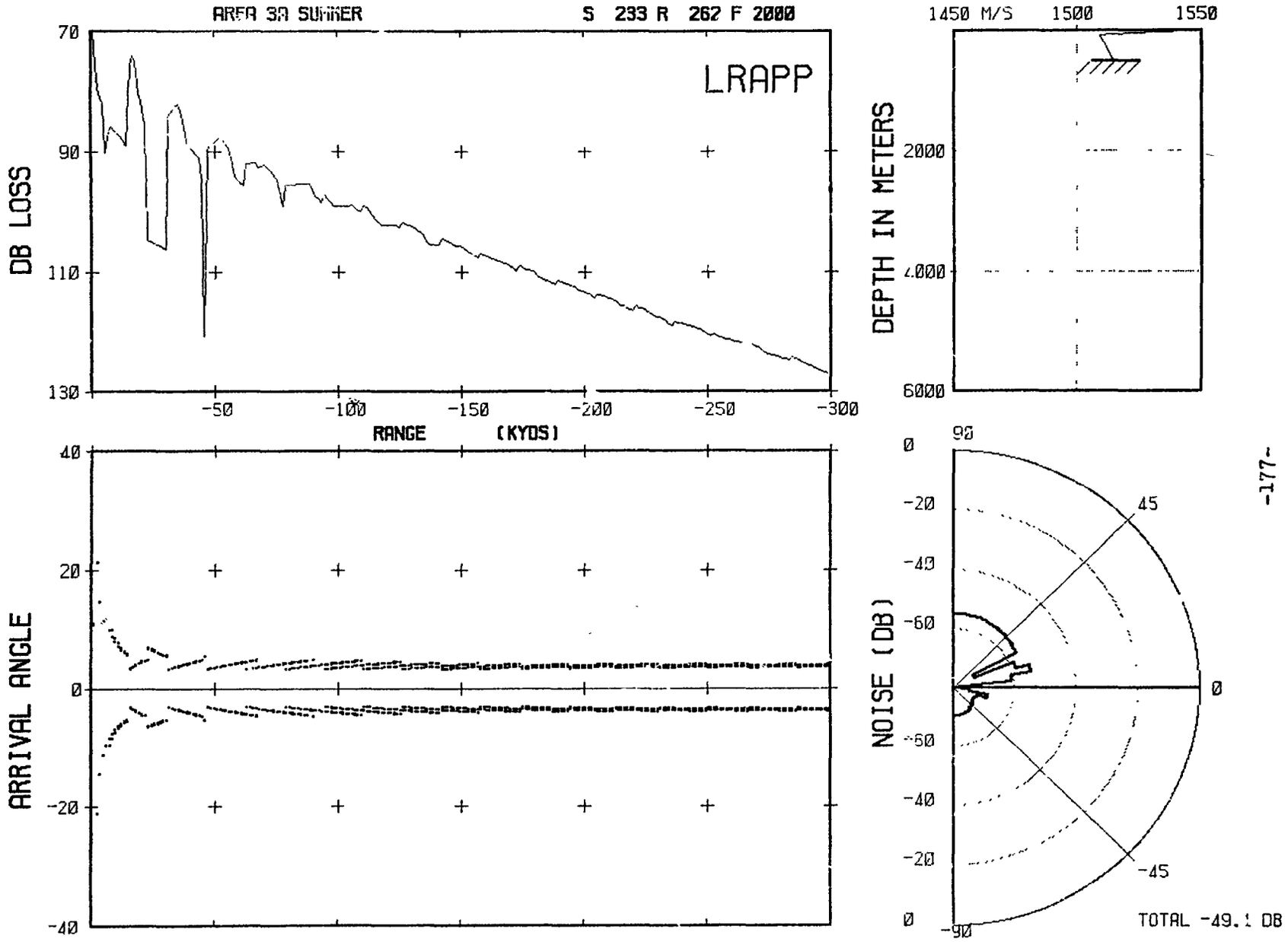
TOTAL -49.1 DB


DB LOSS
AREA 3A SUMMER
S 50 R 262 F 2000
LRAPP
RANGE (KYDS)
ARRIVAL ANGLE
DEPTH IN METERS
1450 M/S
NOISE (DB)
TOTAL -49.1 DB


AREA 3A SUMMER
S 233 R 262 F 2000
LRAPP
DB LOSS
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110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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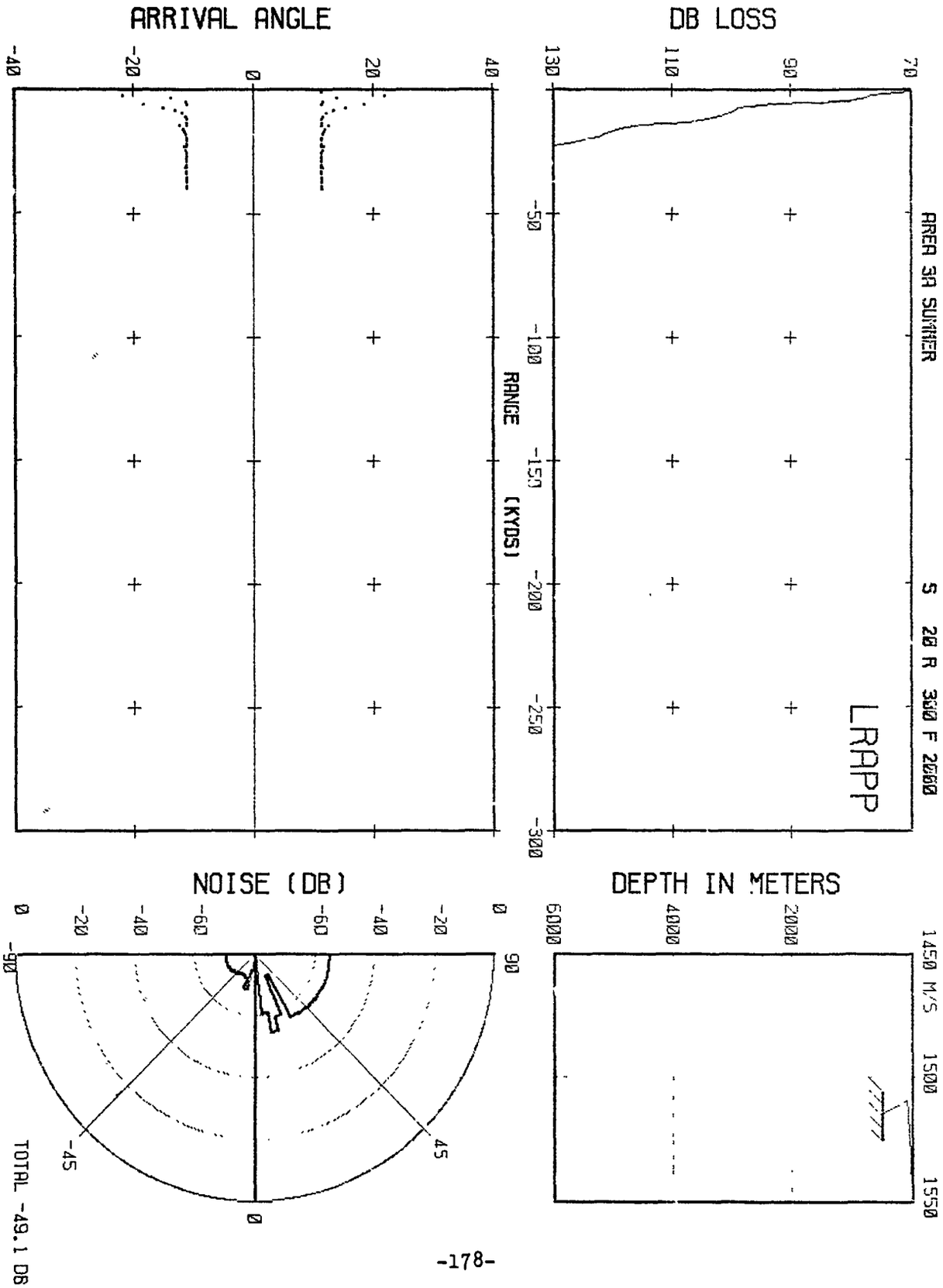
TOTAL -49.1 DB


AREA 3A SUMMER
S 20 R 300 F 2000
LRAPP
DB LOSS
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110
130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
ARRIVAL ANGLE
40
20
0
-20
-40
DEPTH IN METERS
6000
4000
2000
1450 M/S
1500
1550
NOISE (DB)
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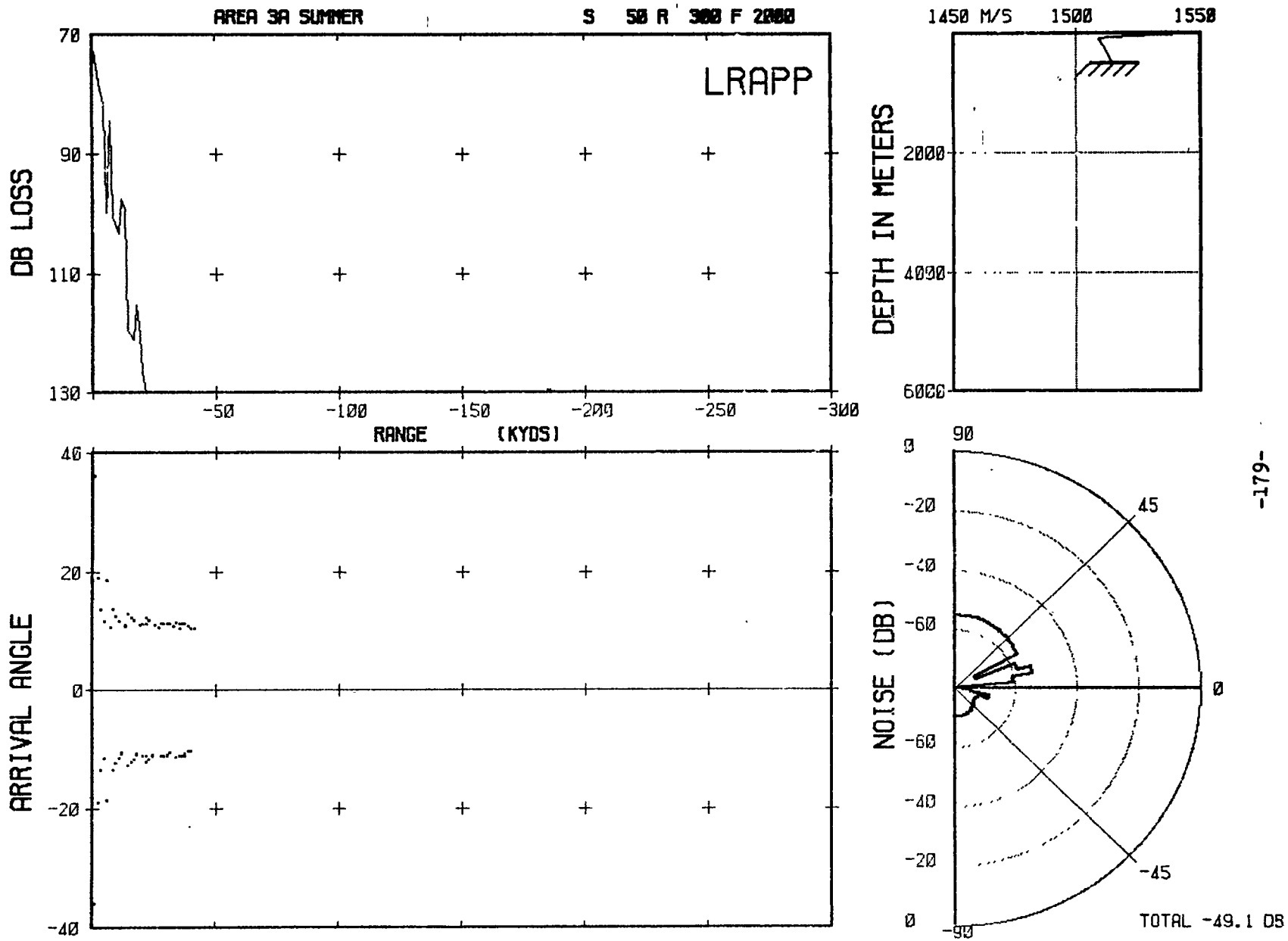
TOTAL -49.1 DB


AREA 3A SUMMER
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DB LOSS
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-250
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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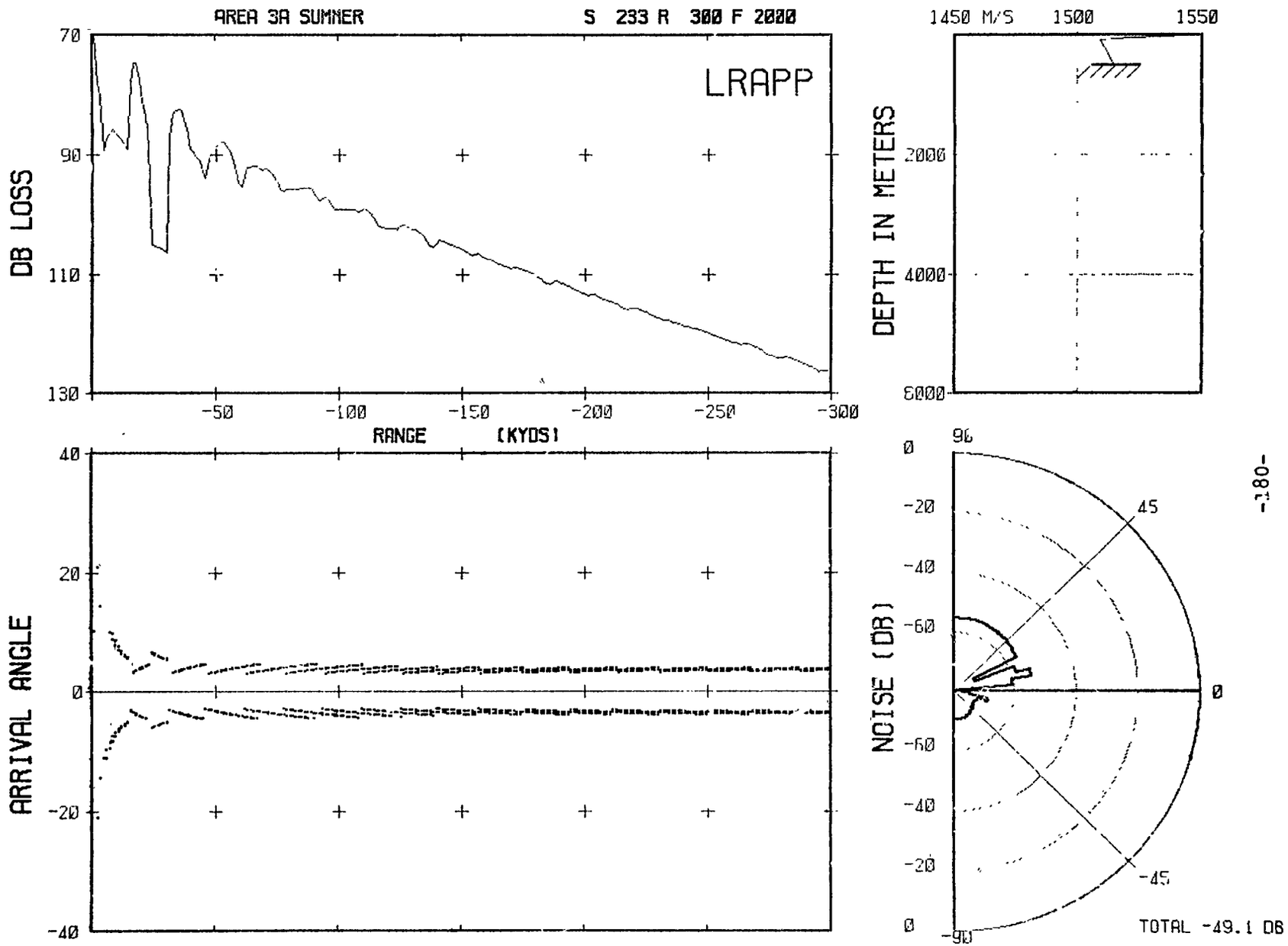
-45
-90
TOTAL -49.1 DB


AREA 3A SUMNER
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DB LOSS
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RANGE (KYDS)
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1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
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-40
NOISE (DB)
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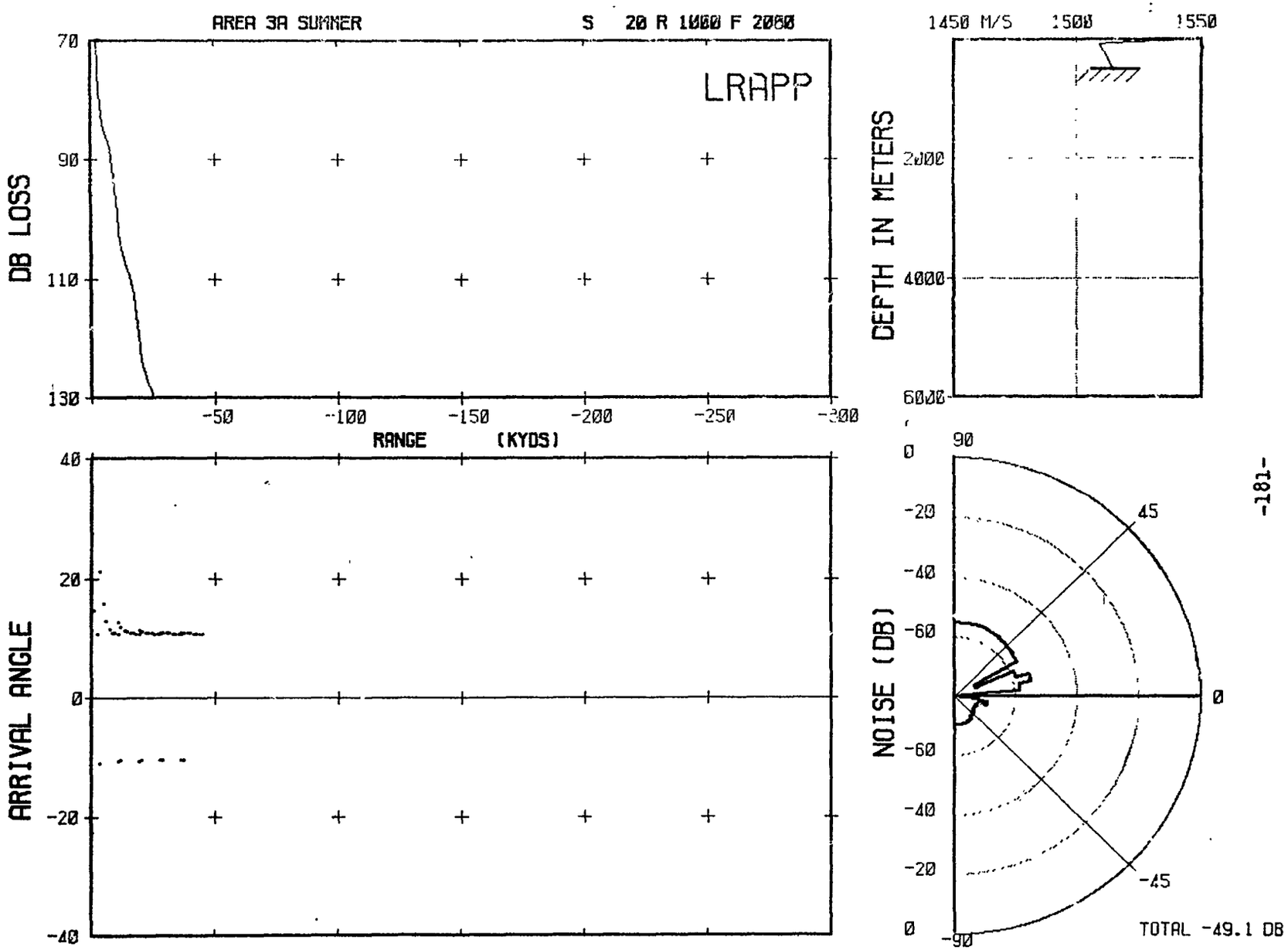
TOTAL -49.1 DB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DB LOSS
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RANGE (KYDS)
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1500
1550
DEPTH IN METERS
2000
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NOISE (DB)
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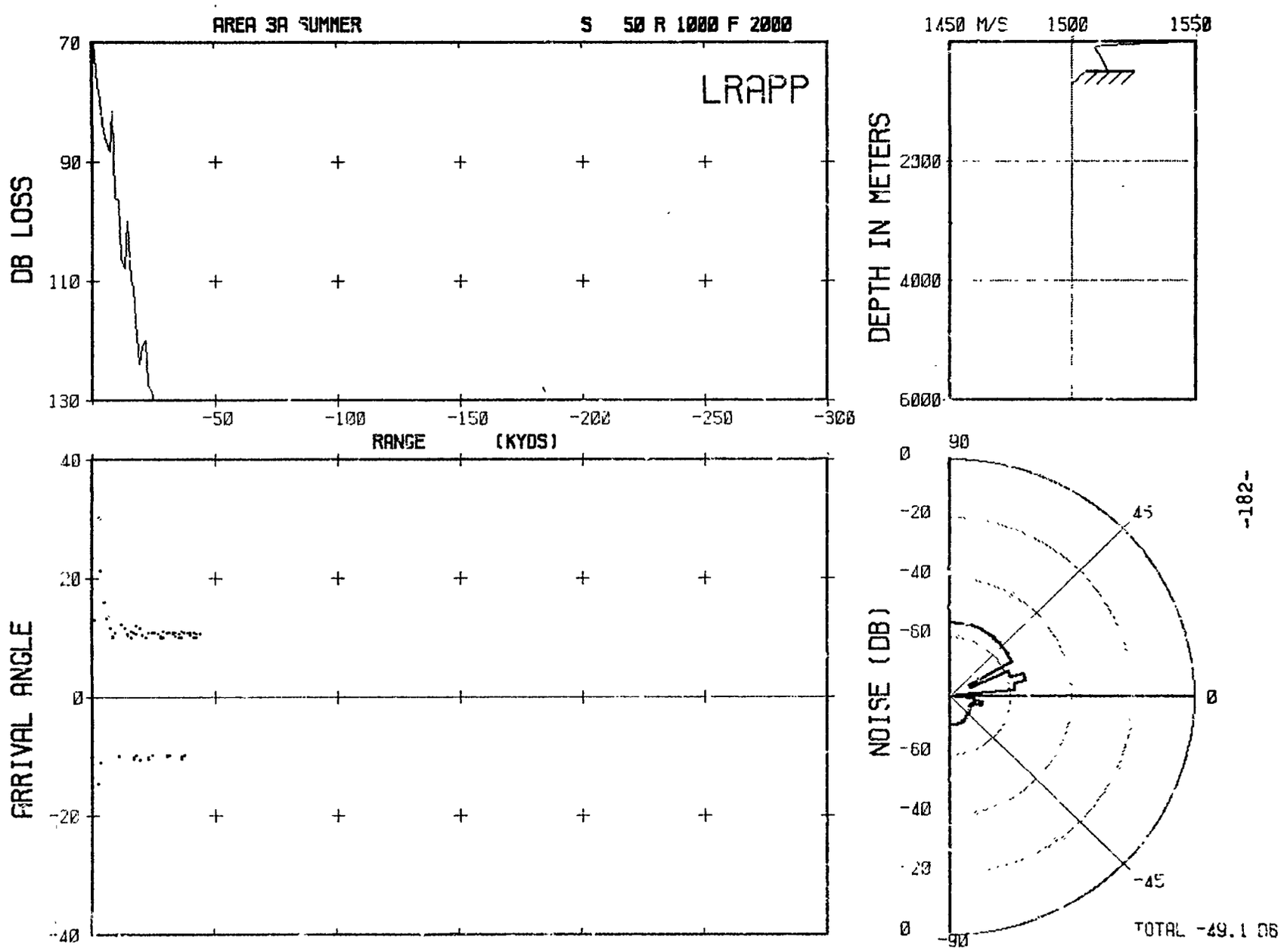
TOTAL -49.1 DB


AREA 3A SUMMER
S 50 R 1000 F 2000
LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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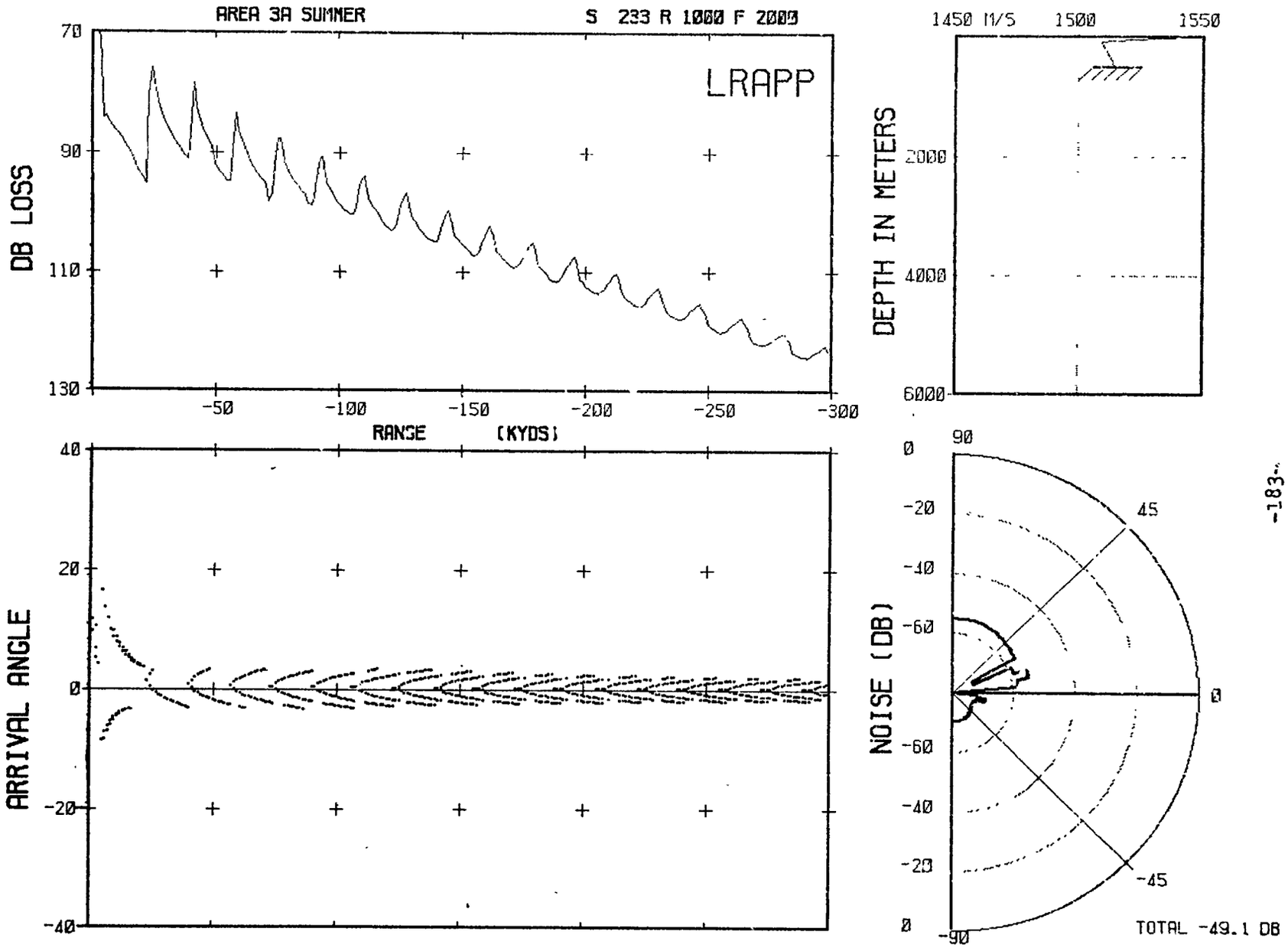
TOTAL -49.1 DB


AREA 3A SUMMER
S 233 R 1000 F 2000
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DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
2000
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ARRIVAL ANGLE
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NOISE (DB)
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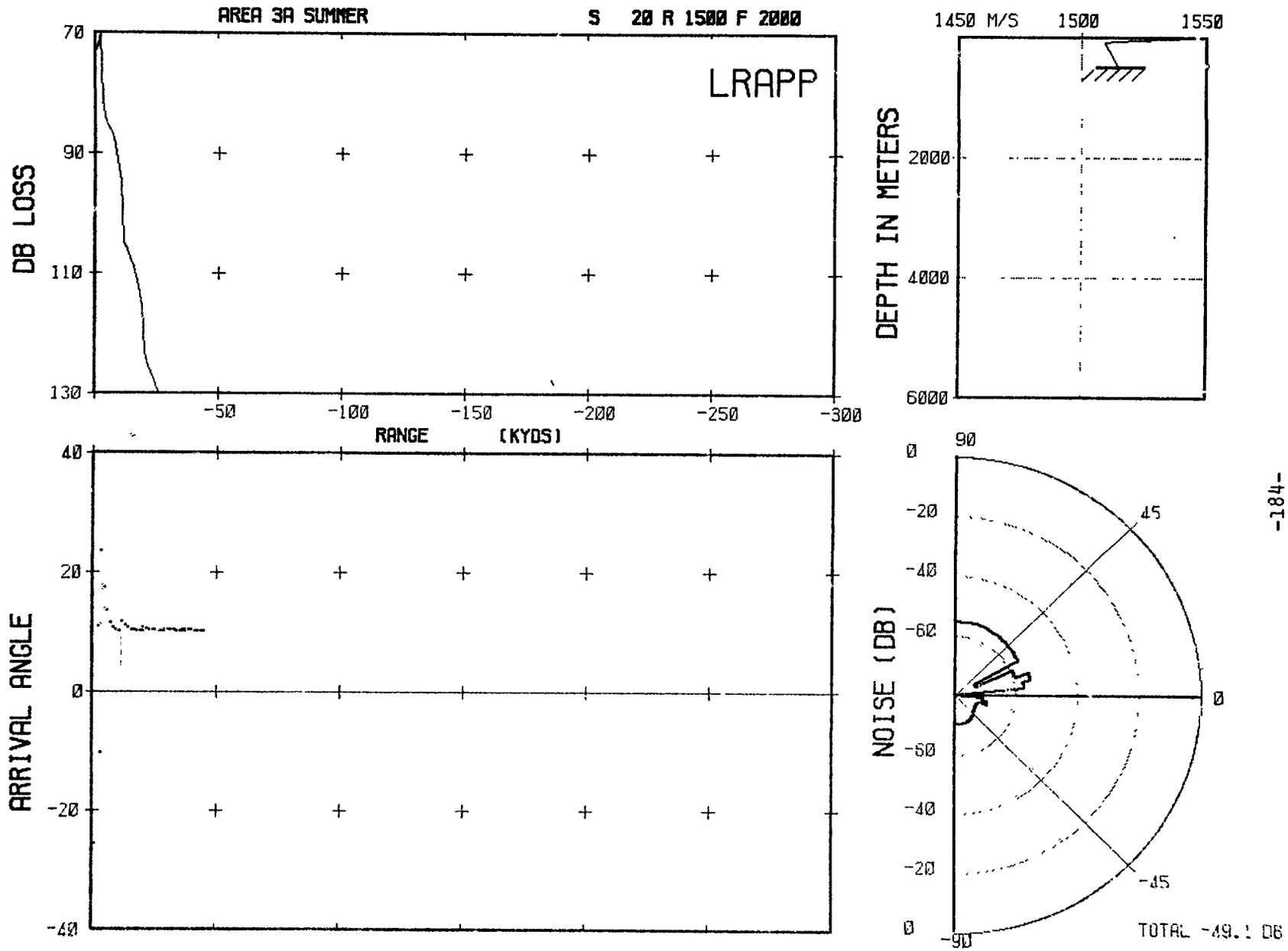
TOTAL -49.1 DB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RANGE (KYDS)
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1500
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DEPTH IN METERS
2000
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ARRIVAL ANGLE
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NOISE (DB)
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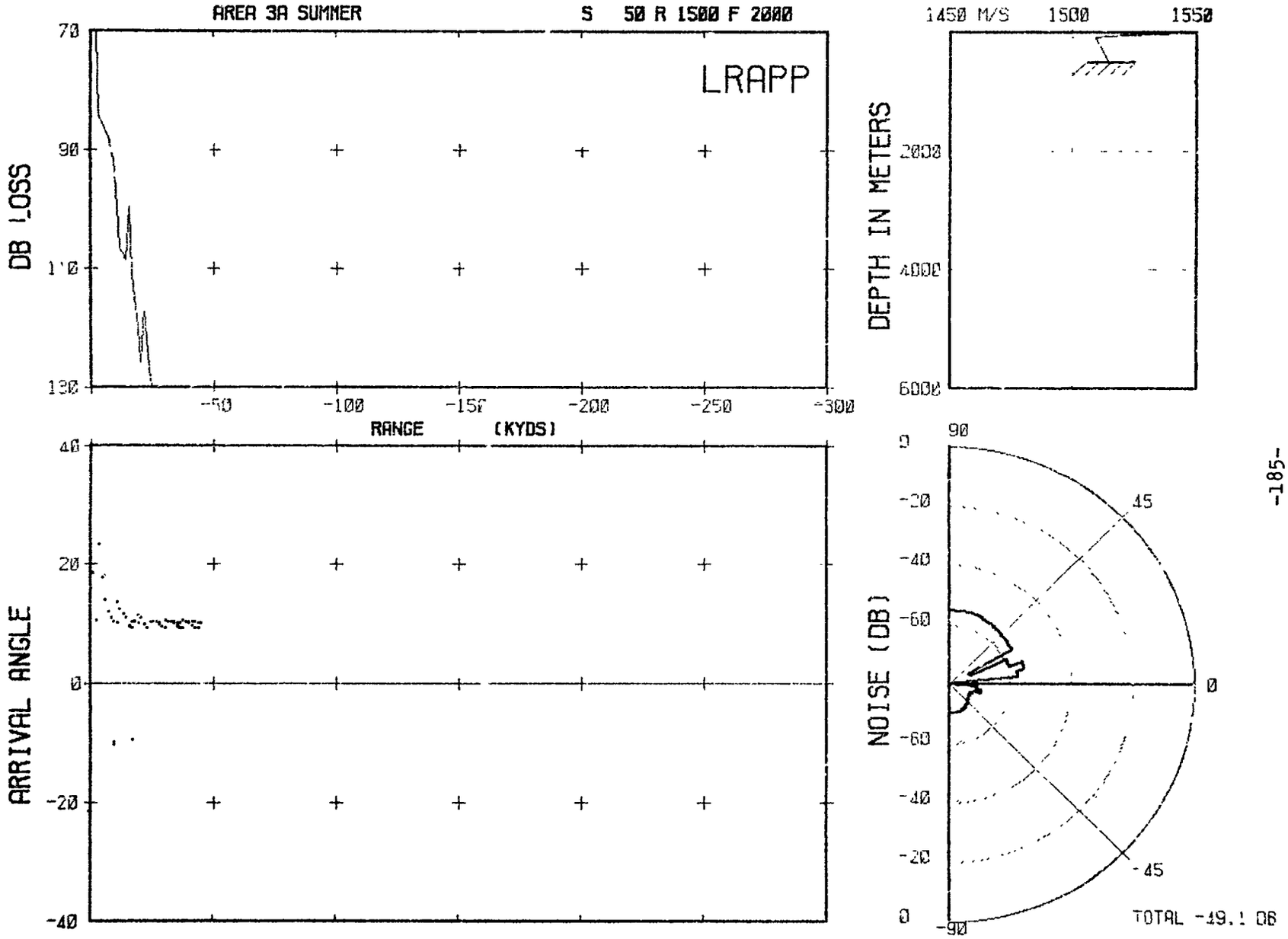
TOTAL -49.1 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
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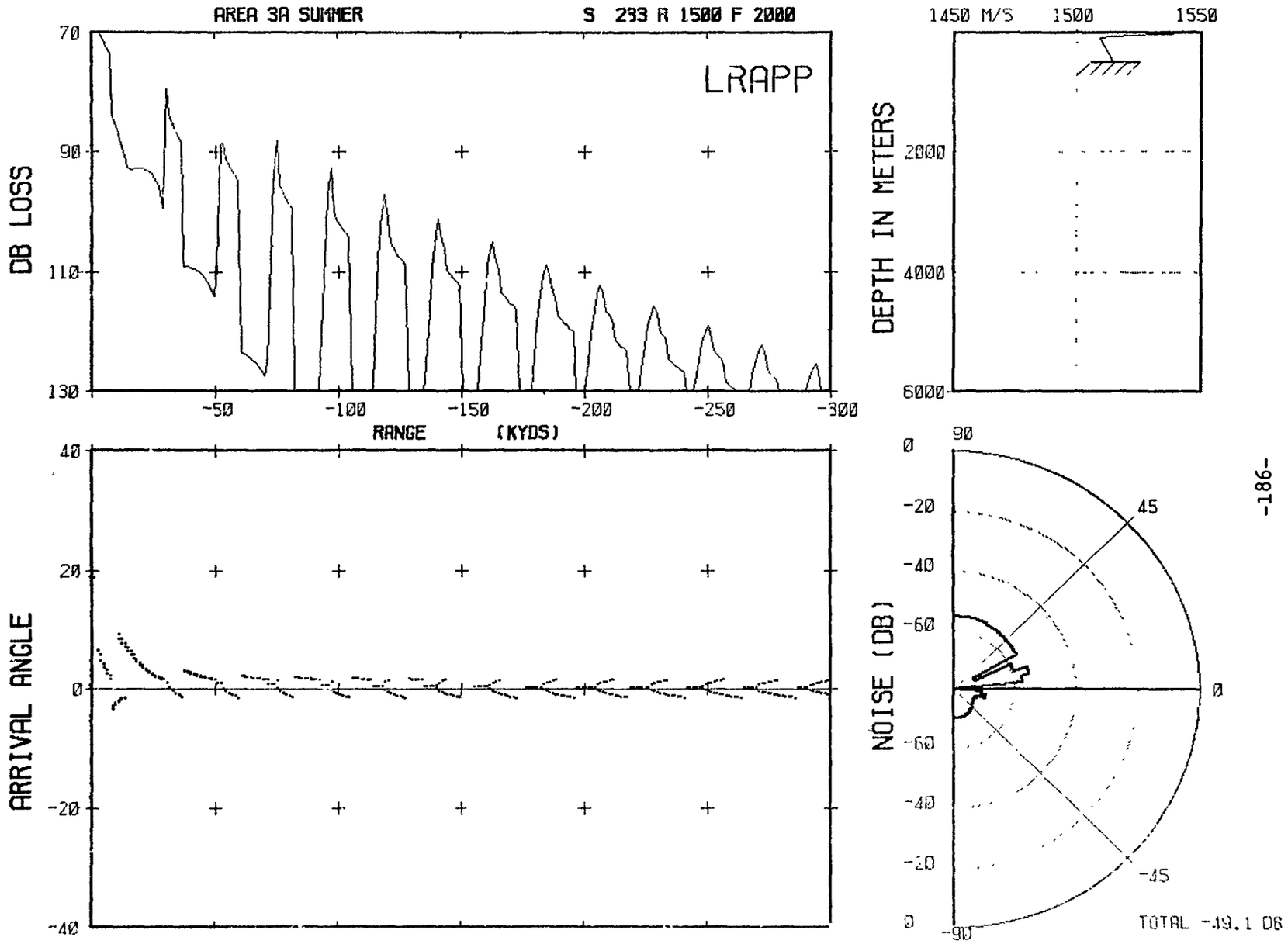
TOTAL -49.1 DB


AREA 3A SUMMER
S 233 R 1500 F 2000
LRAPP
DB LOSS
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90
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130
-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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-40
NOISE (DB)
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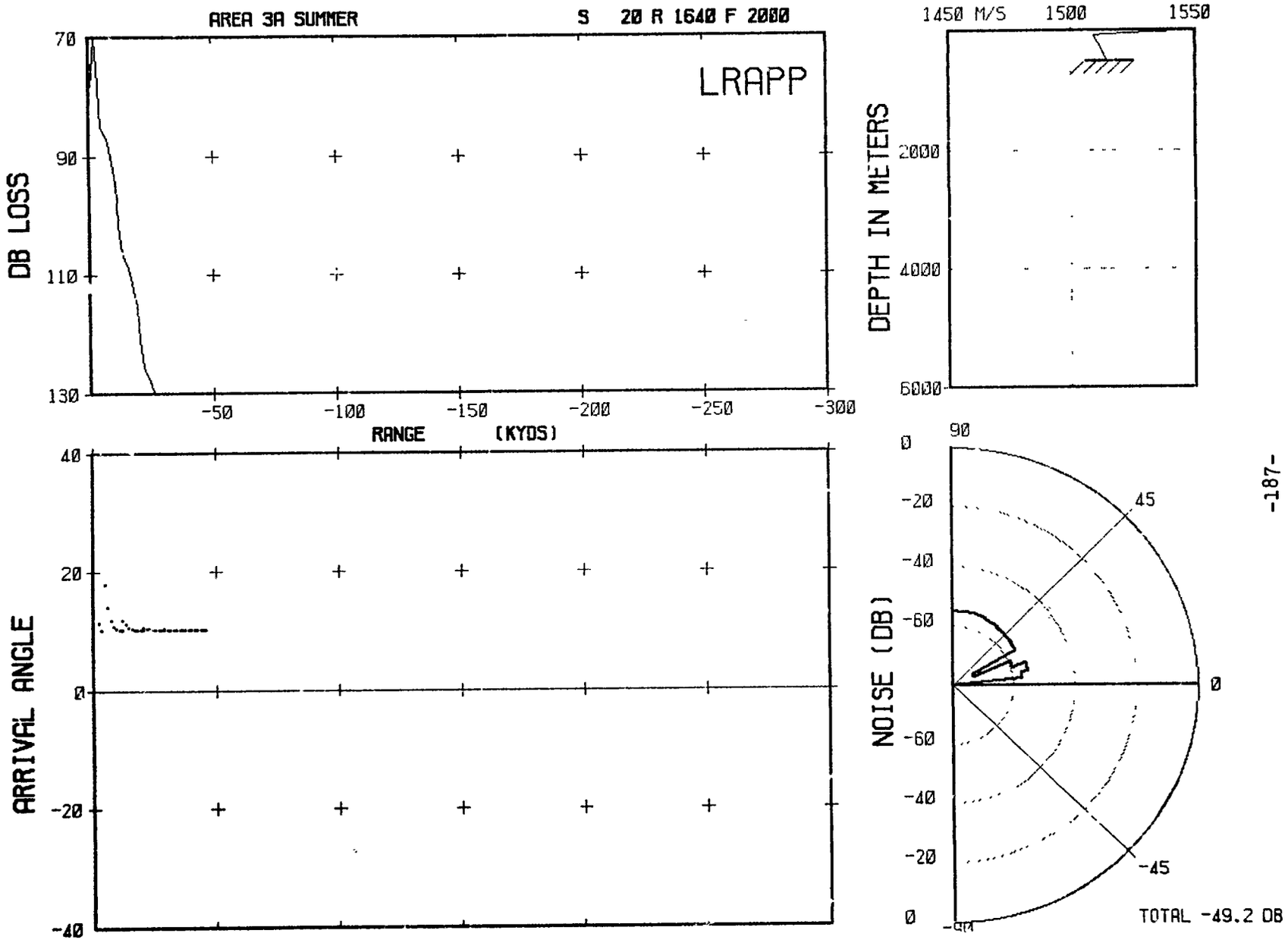
-45
-90
TOTAL -49.1 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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130
-50
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-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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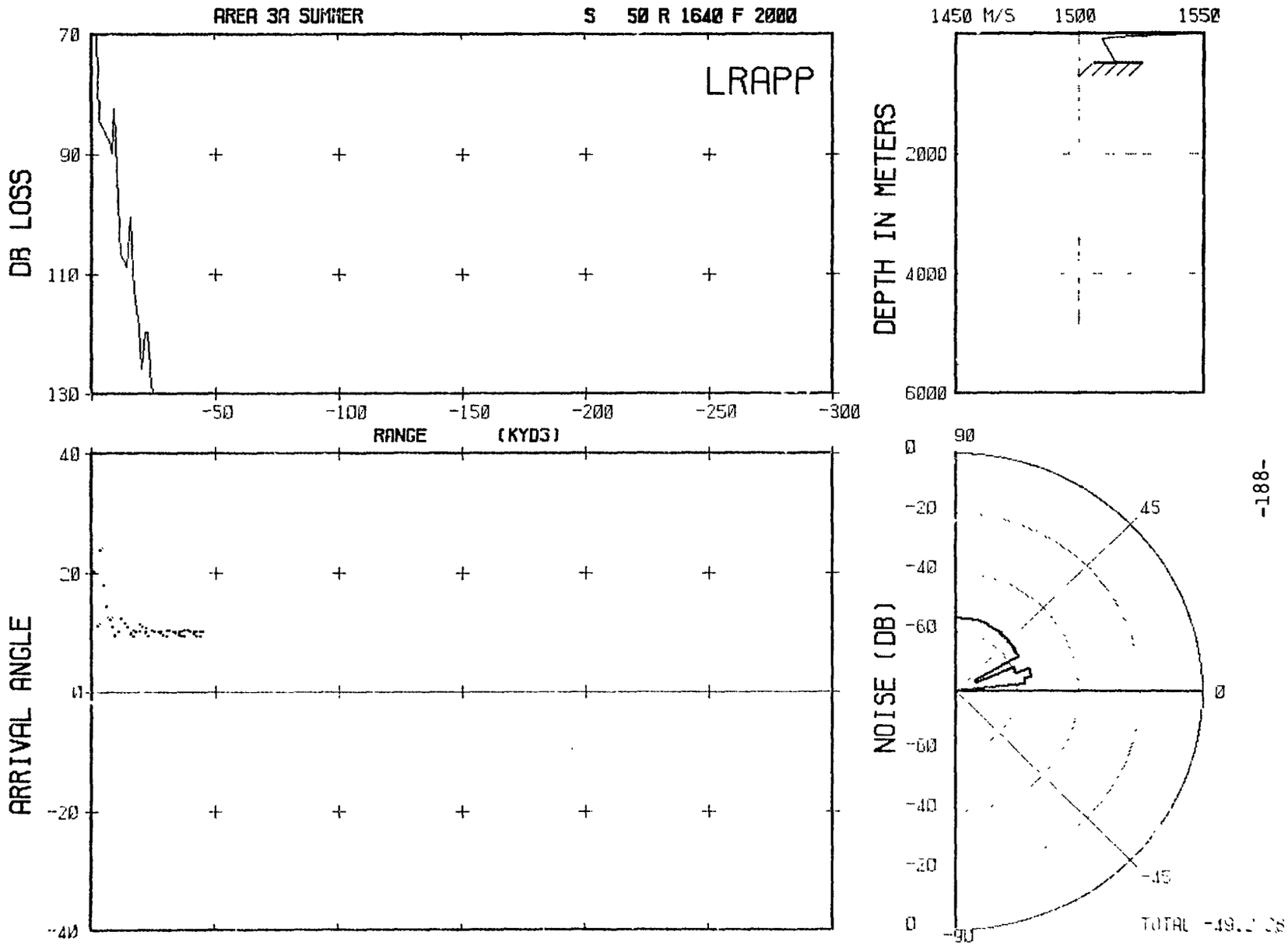
-45
TOTAL -49.2 DB


AREA 3A SUMMER
S 50 R 1640 F 2000
LRAPP
DB LOSS
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-50
-100
-150
-200
-250
-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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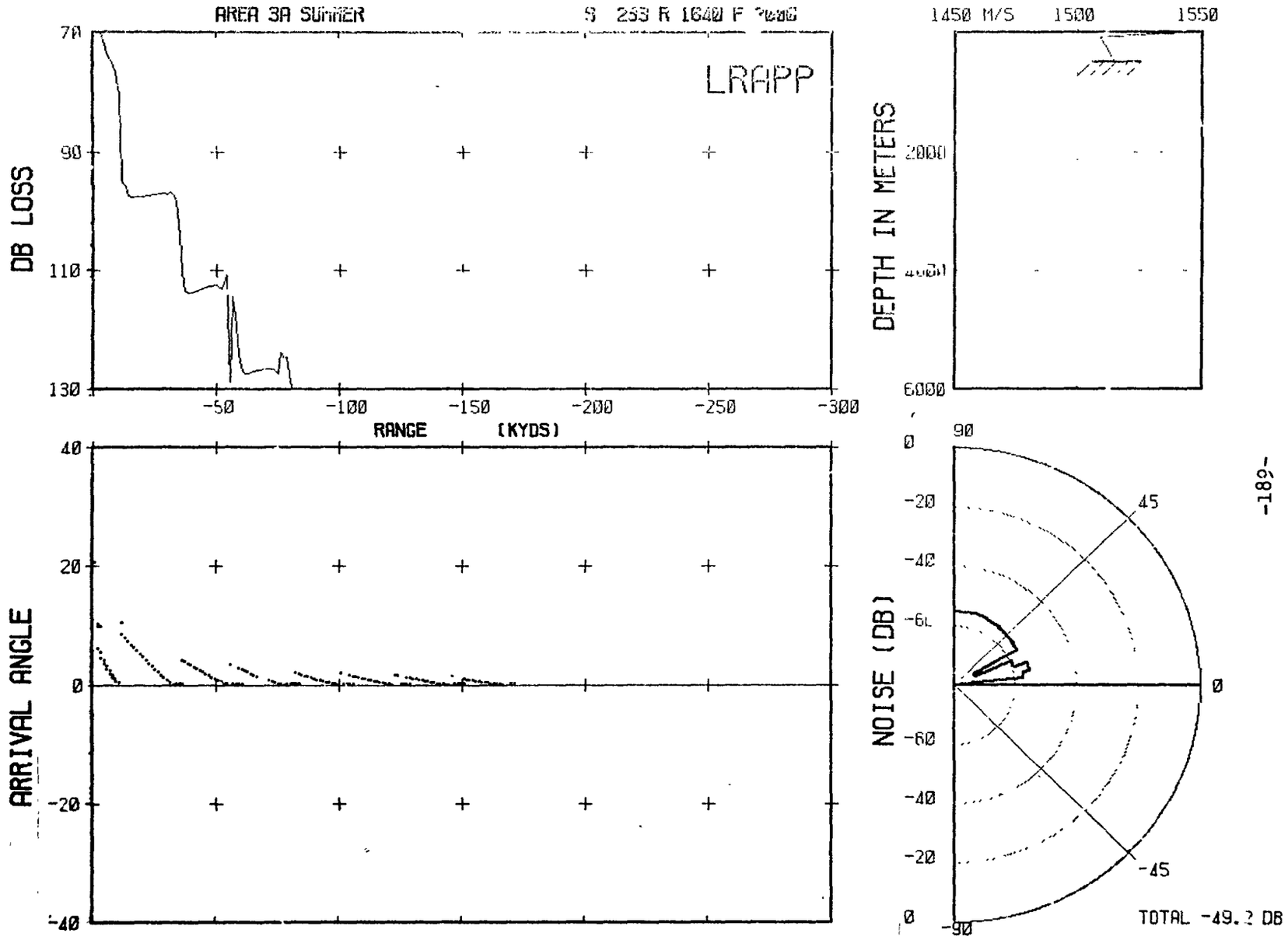
TOTAL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DB LOSS
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-150
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-250
-300
RANGE (KYDS)
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1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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-90
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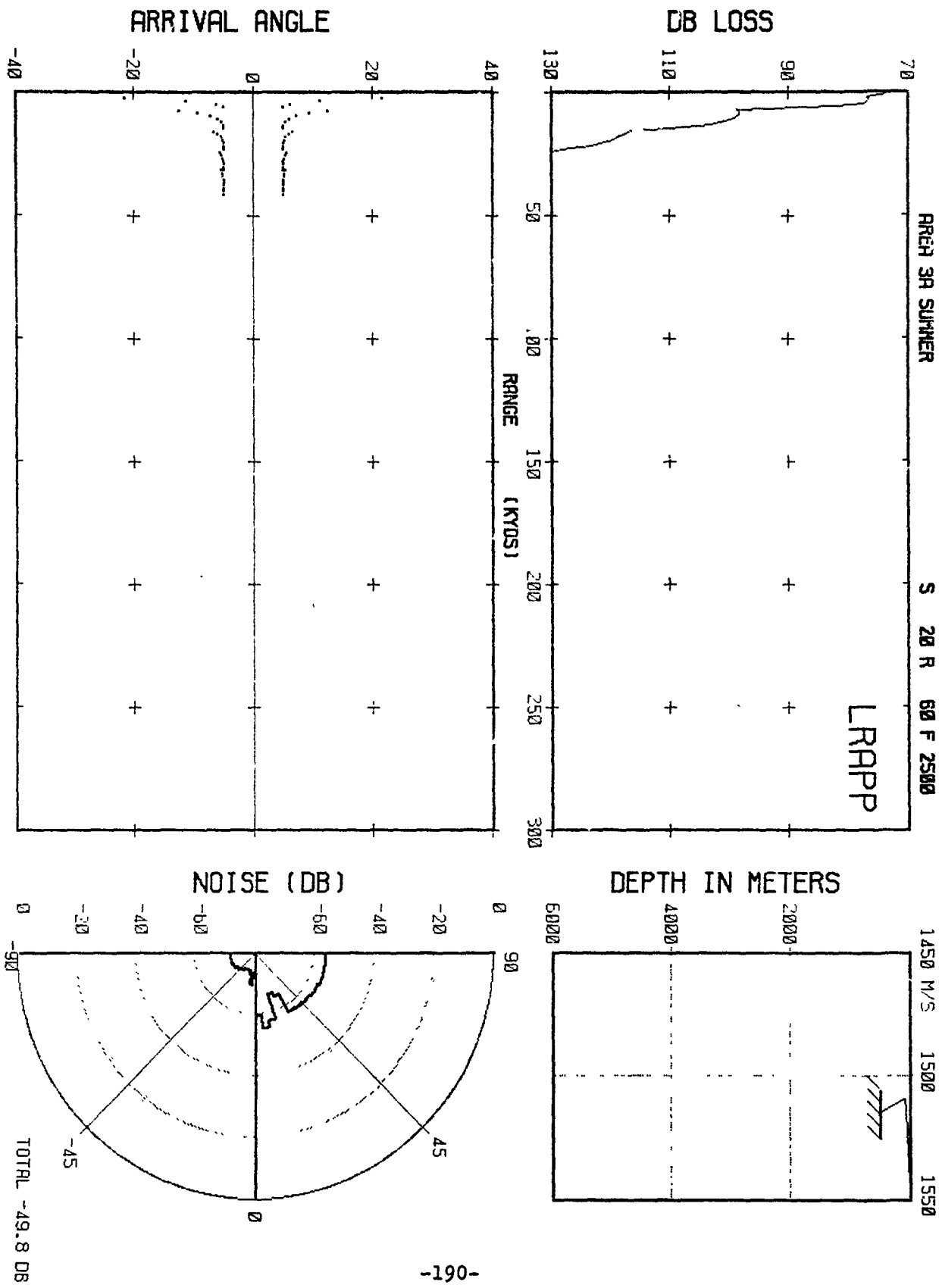
TOTAL -49.2 DB


DB LOSS
ARCH 3A SUMMER
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LRAPP
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130
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100
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200
250
300
RANGE (KYDS)
ARRIVAL ANGLE
-40
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40
DEPTH IN METERS
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4000
2000
1450 M/S
1500
1550
NOISE (DB)
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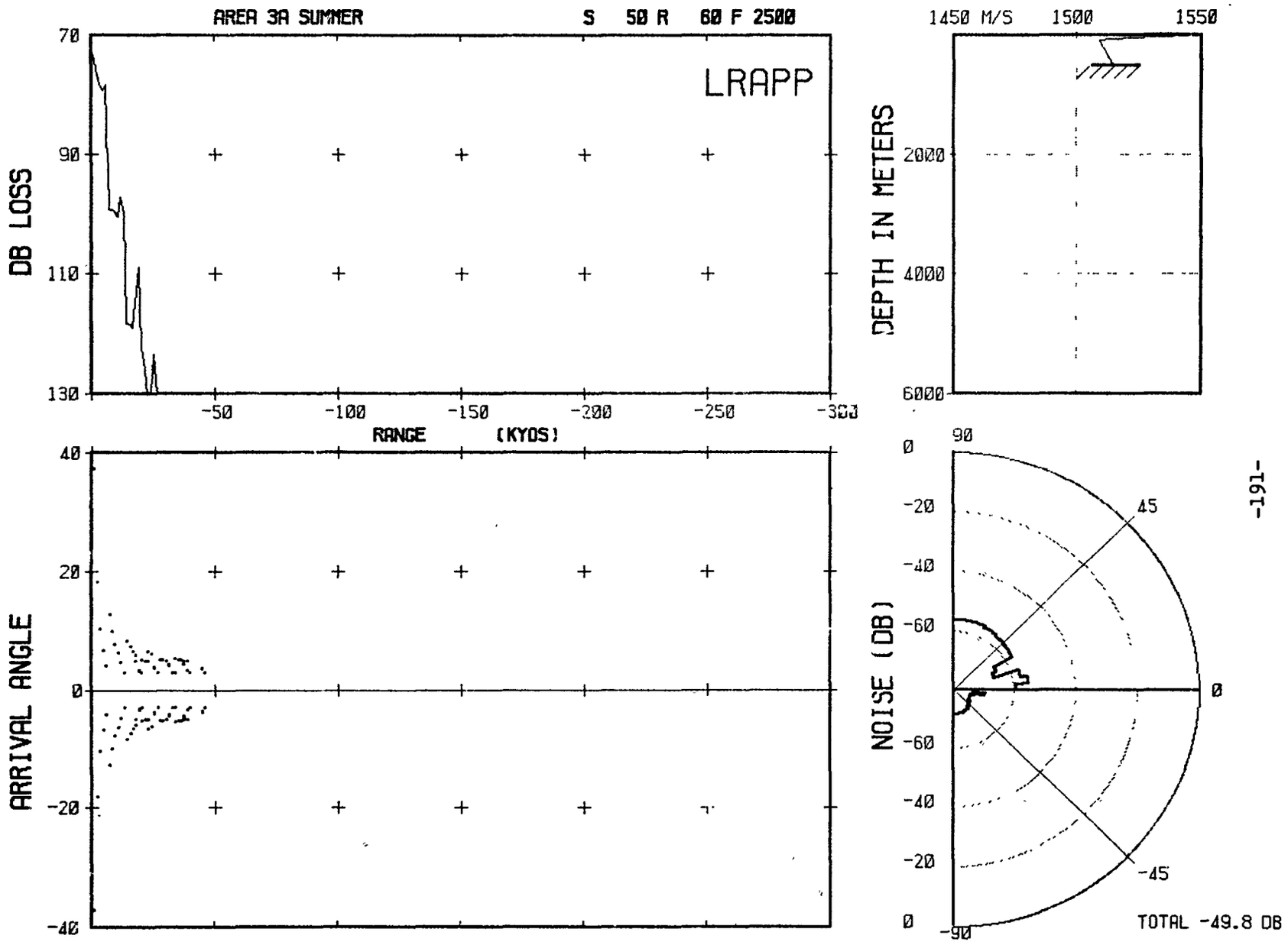
TOTAL -49.8 DB


AREA 3A SUMMER
S 50 R 60 F 2500
LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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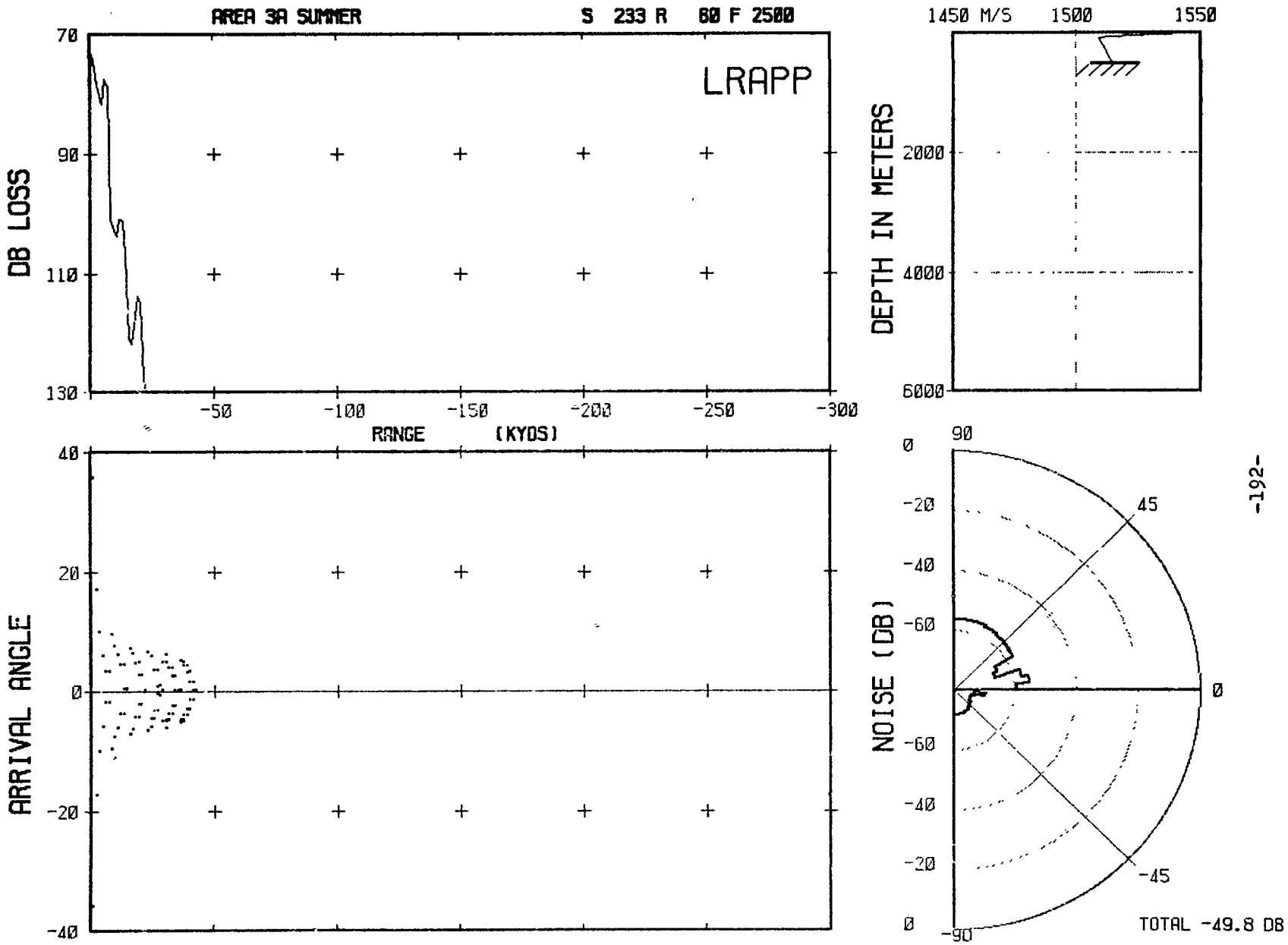
TOTAL -49.8 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
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DEPTH IN METERS
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6000
ARRIVAL ANGLE
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NOISE (DB)
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45
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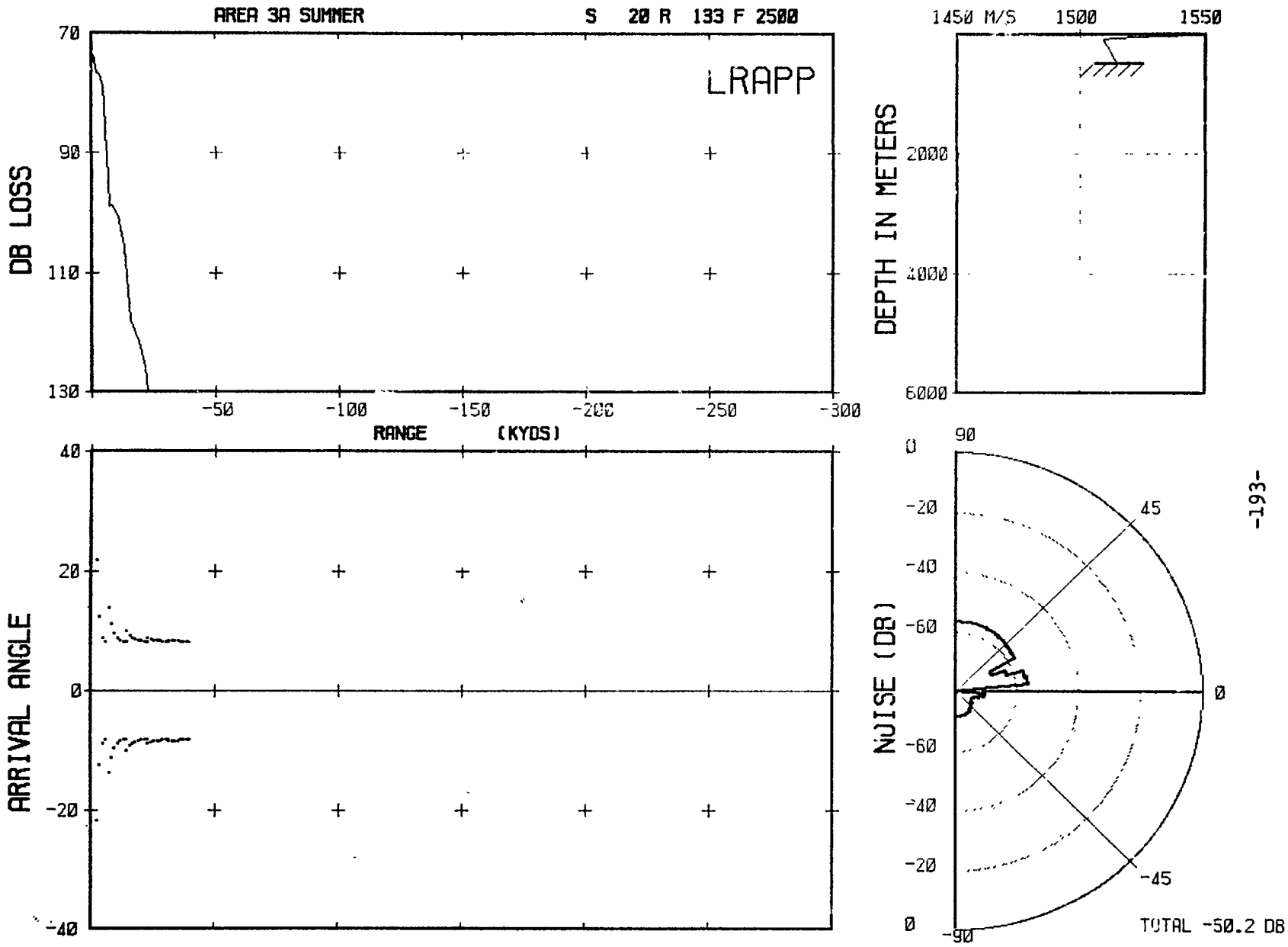
TOTAL -49.8 DB


AREA 3A SUMMER
S 20 R 133 F 2500
LRAPP
DB LOSS
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-250
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
2000
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6000
ARRIVAL ANGLE
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NOISE (DB)
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-45
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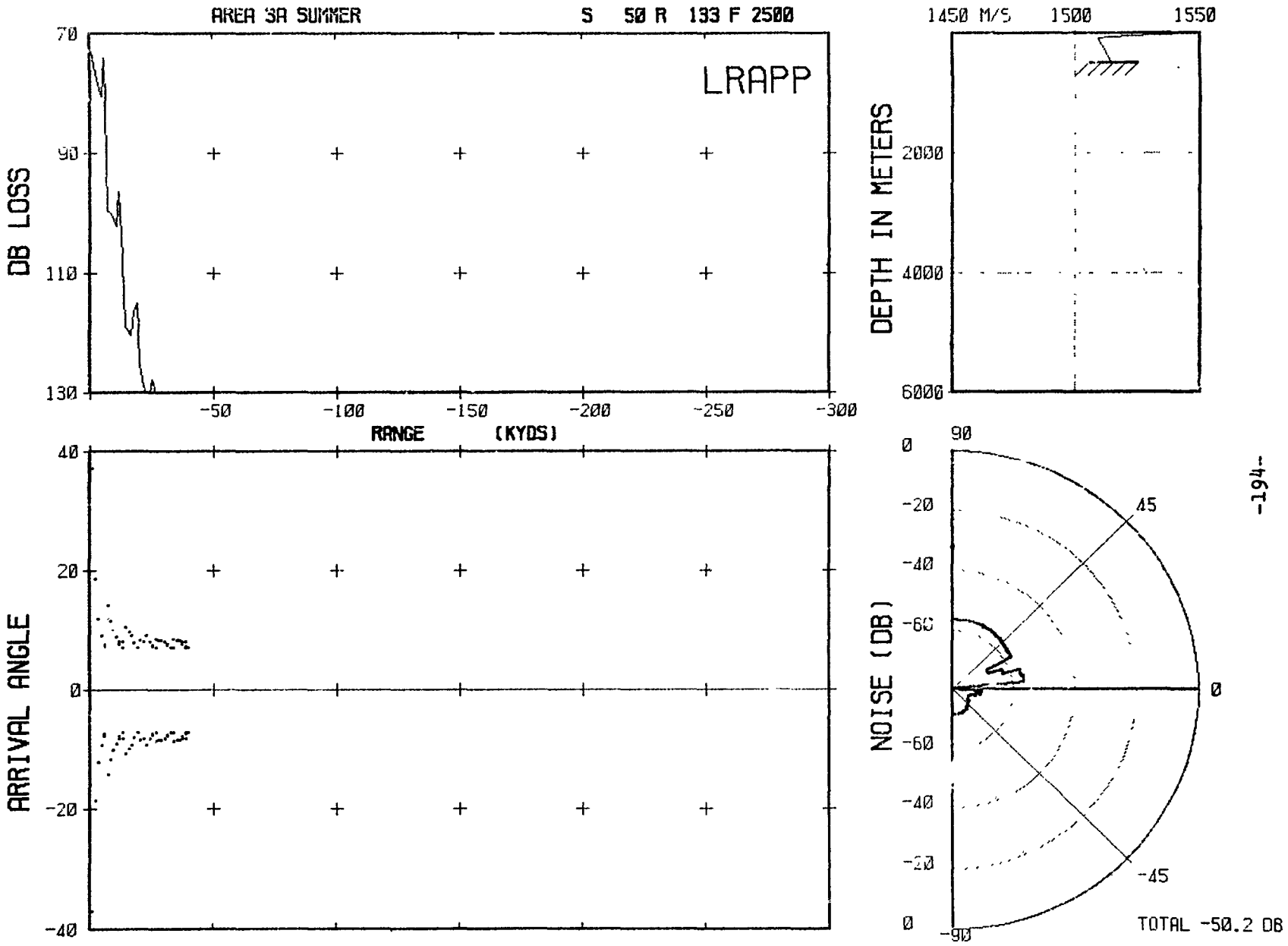
TOTAL -50.2 DB


AREA 3A SUMMER
S 50 R 133 F 2500
LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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NOISE (DB)
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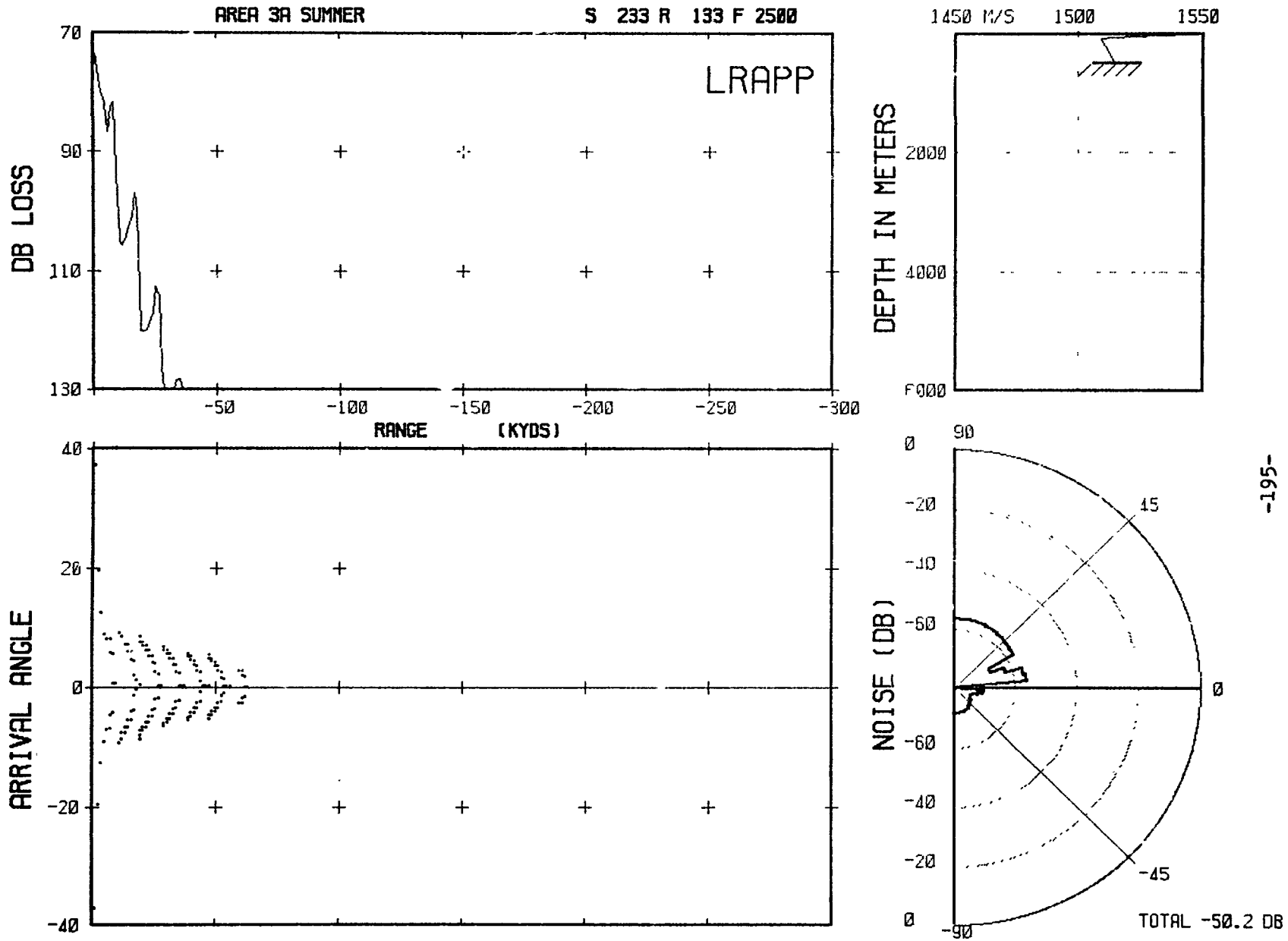
-90
TOTAL -50.2 DB


AREA 3A SUMMER
S 233 R 133 F 2500
LRAPP
DB LOSS
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110
130
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-250
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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ARRIVAL ANGLE
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NOISE (DB)
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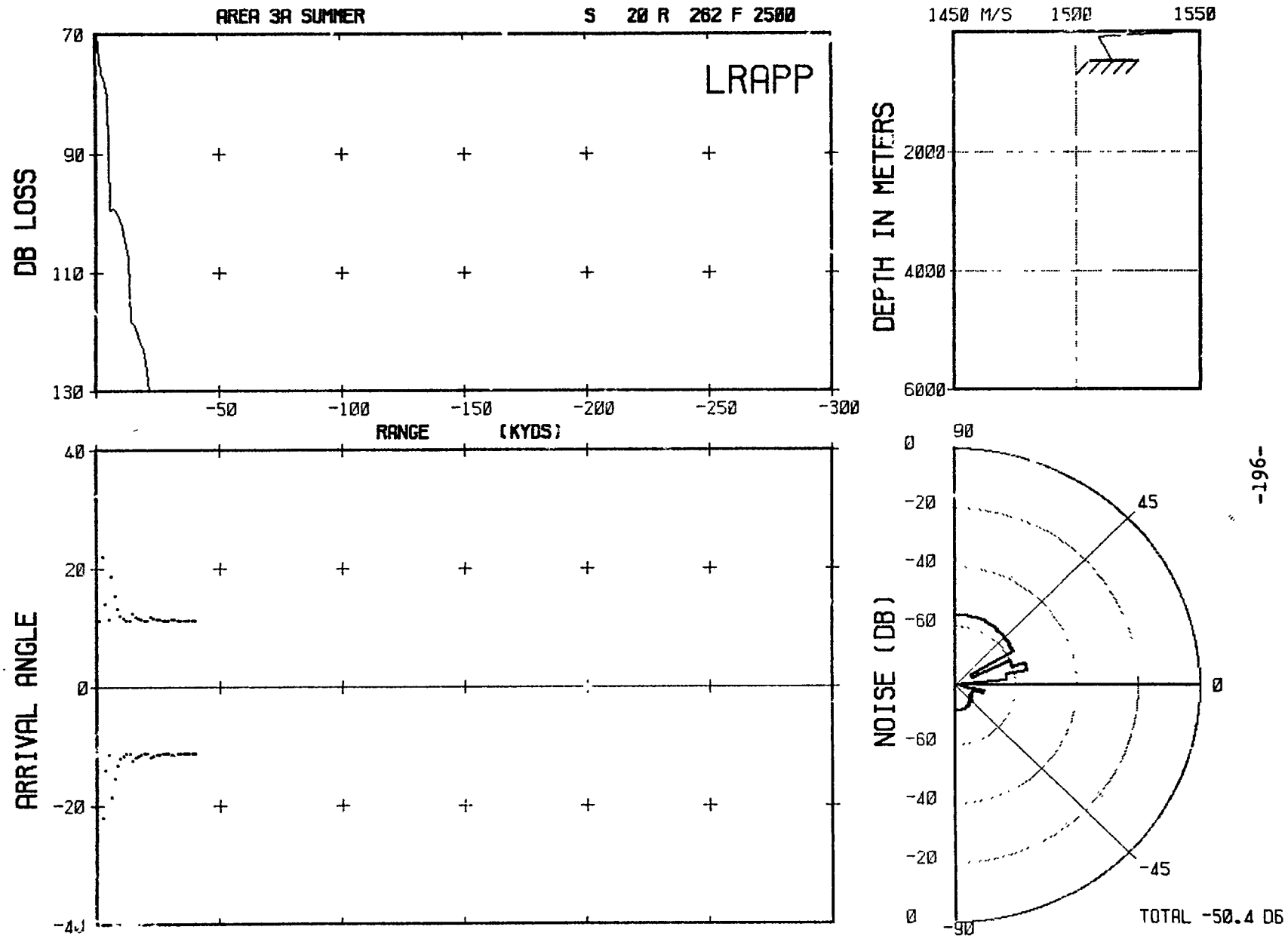
45
-45
-90
TOTAL -50.2 DB


AREA 3A SUMMER
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LRAPP
DB LOSS
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RANGE (KYDS)
1450 M/S
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1550
DEPTH IN METERS
2000
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6000
ARRIVAL ANGLE
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NOISE (DB)
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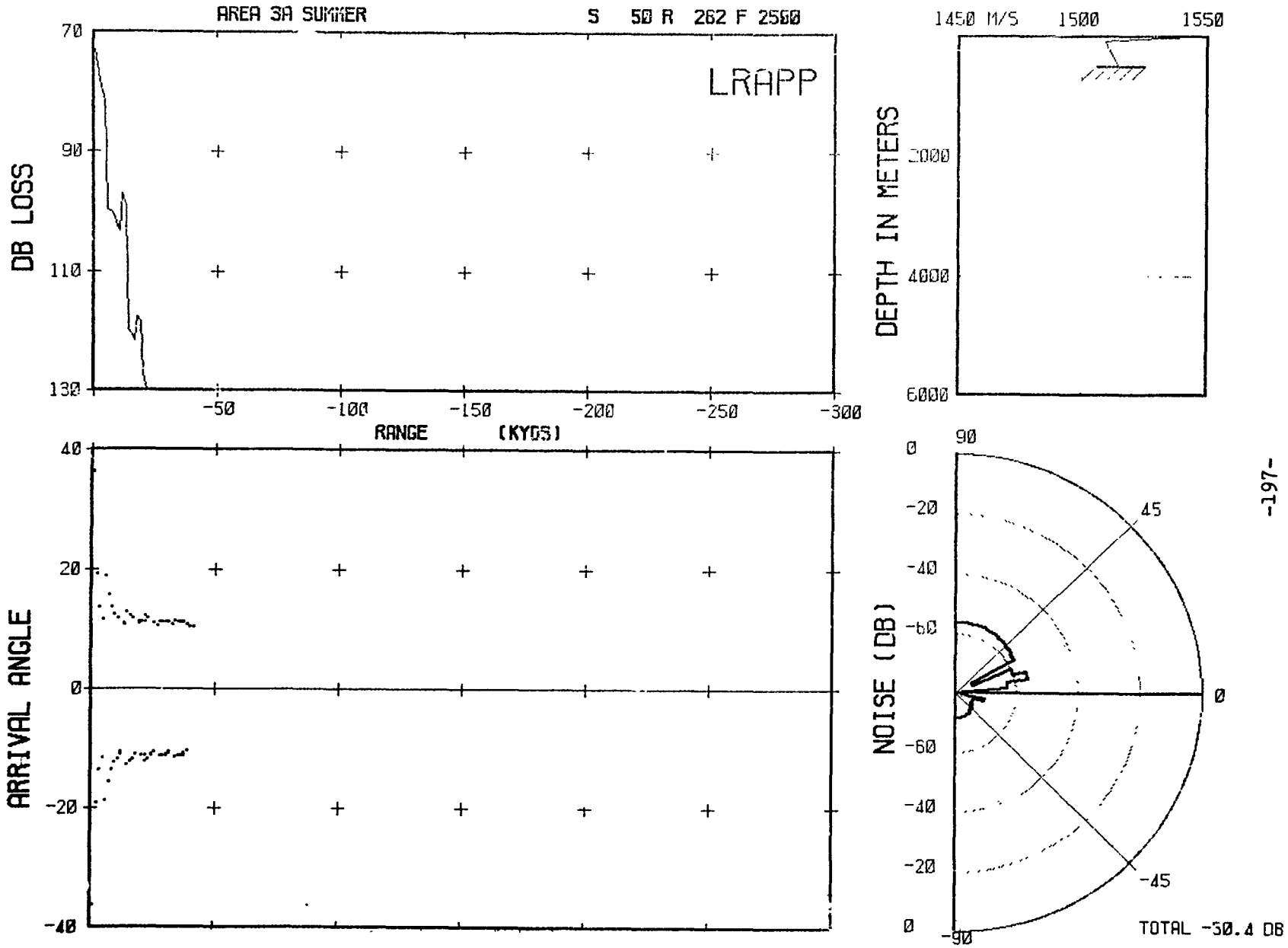
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S 50 R 262 F 2500
LRAPP
DB LOSS
70
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130
-50
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-300
RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
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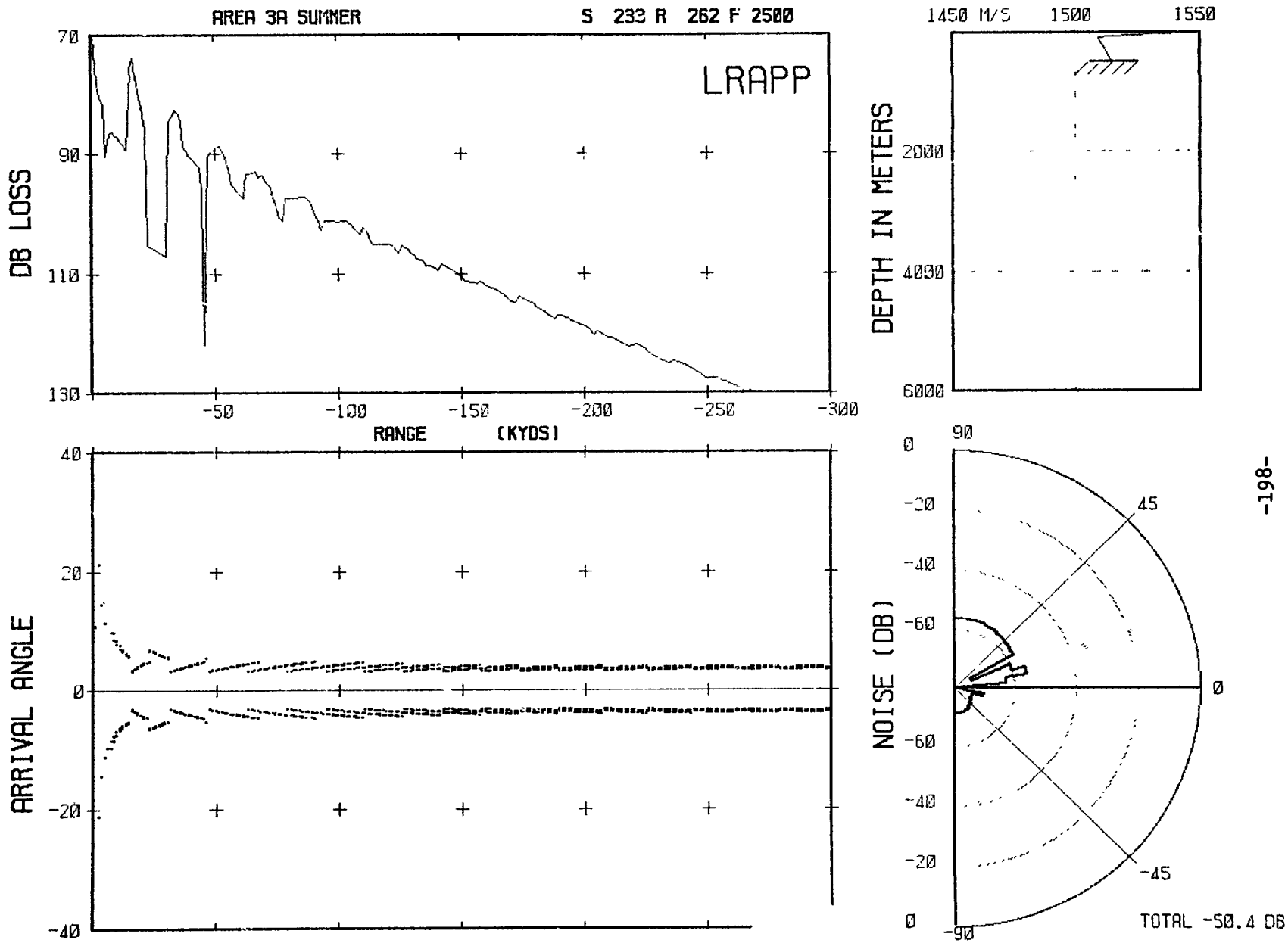
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RANGE (KYDS)
1450 M/S
1500
1550
DEPTH IN METERS
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NOISE (DB)
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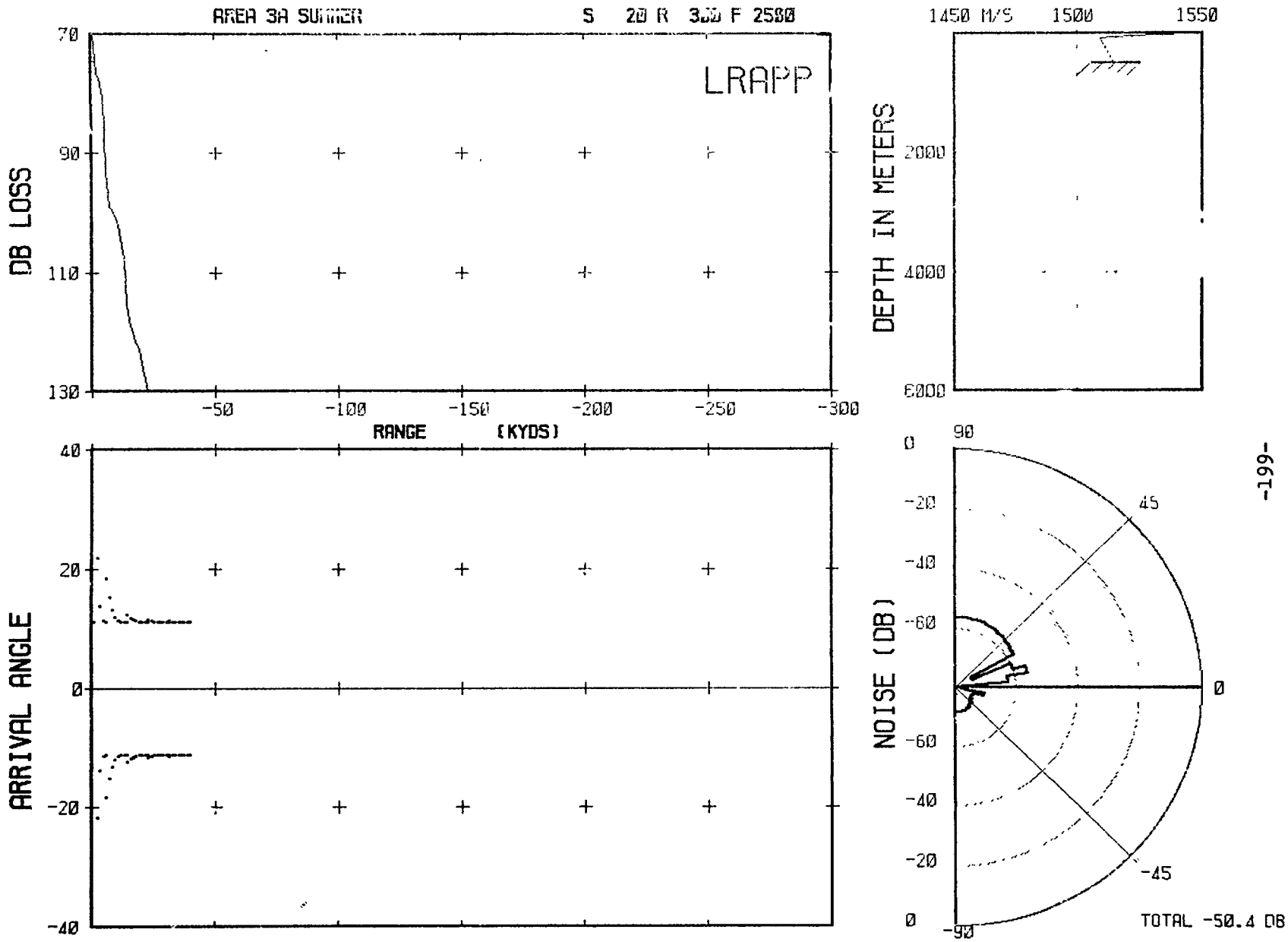
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1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
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-40
NOISE (DB)
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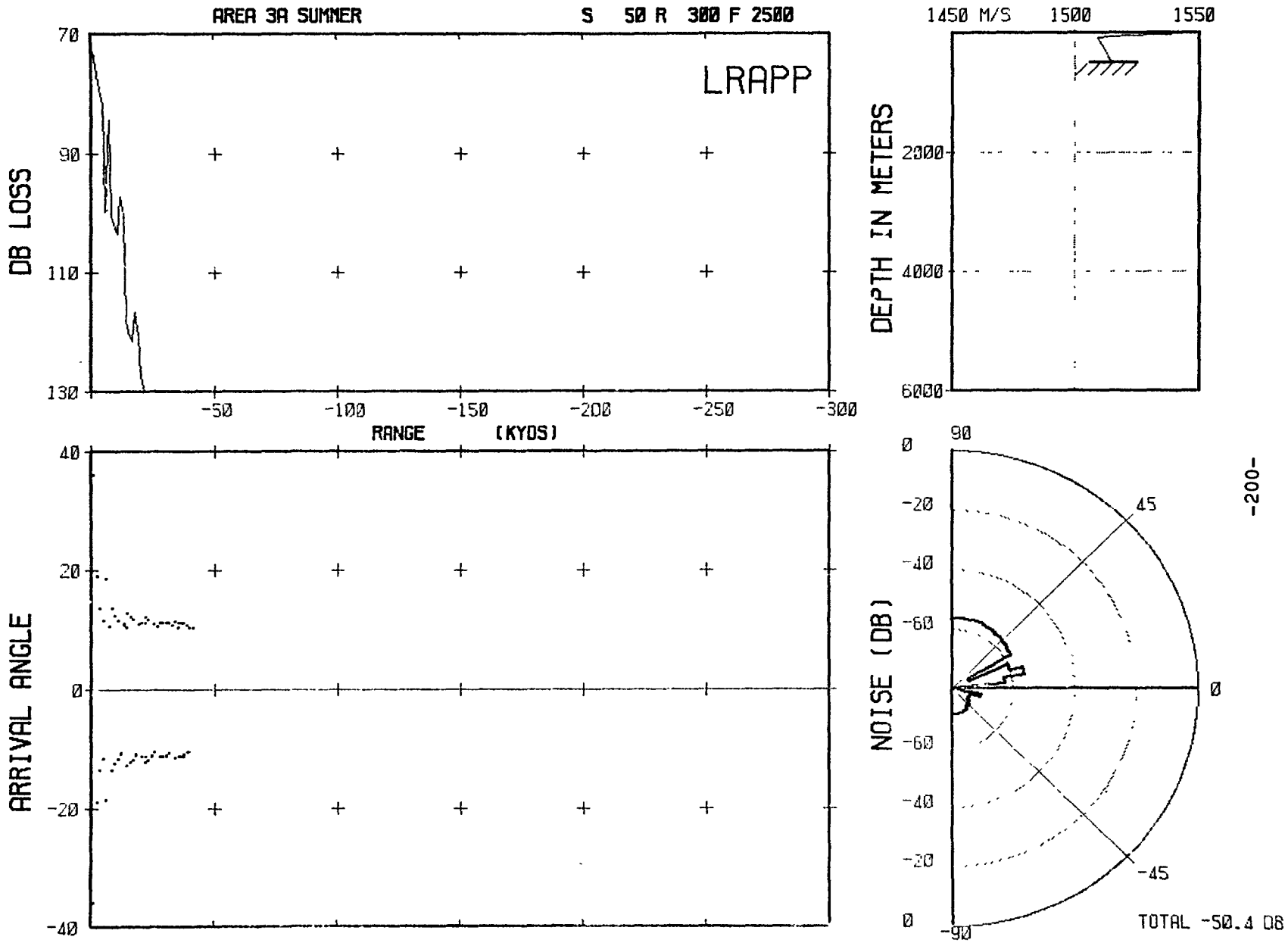
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DEPTH IN METERS
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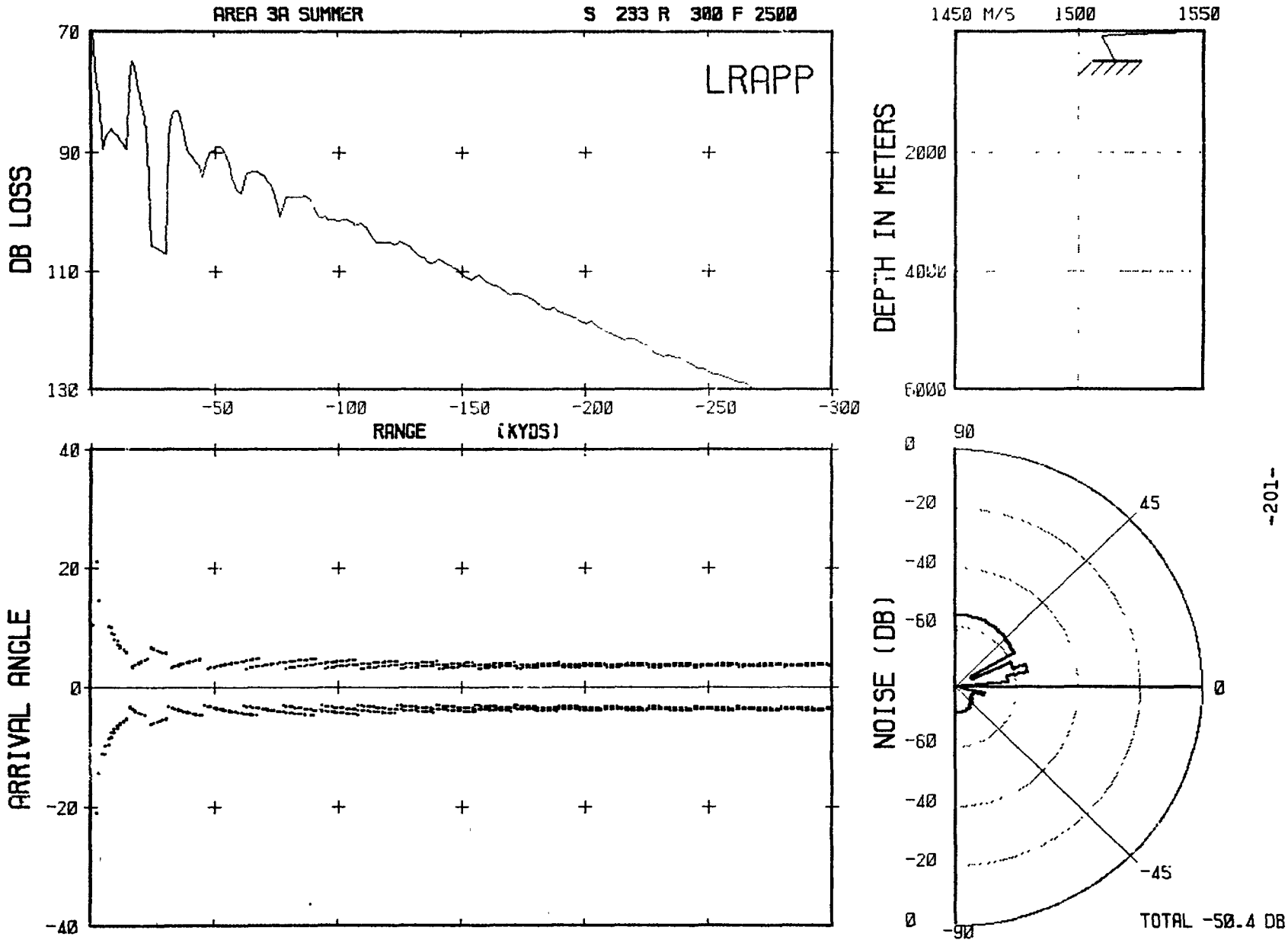
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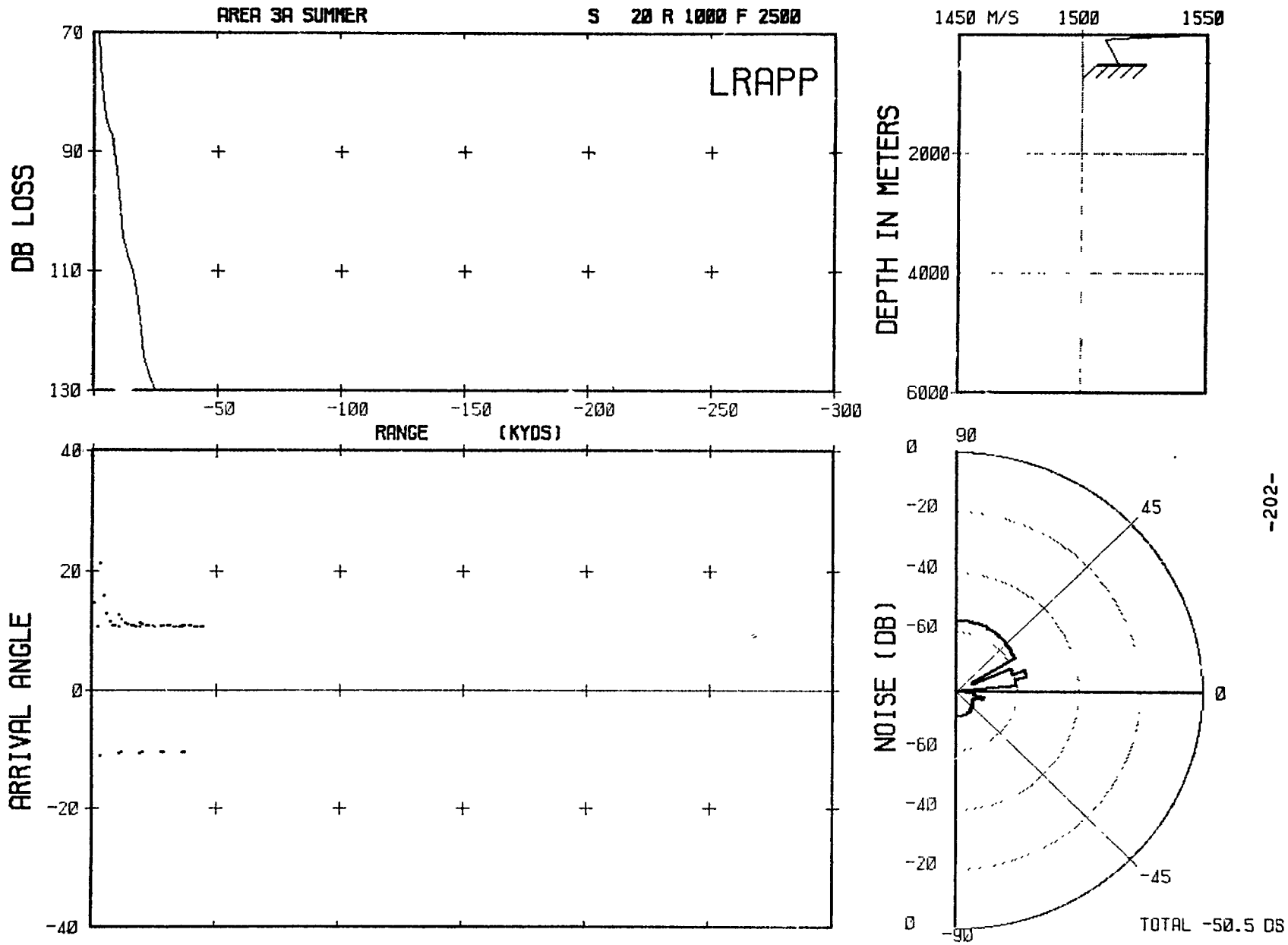
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NOISE (DB)
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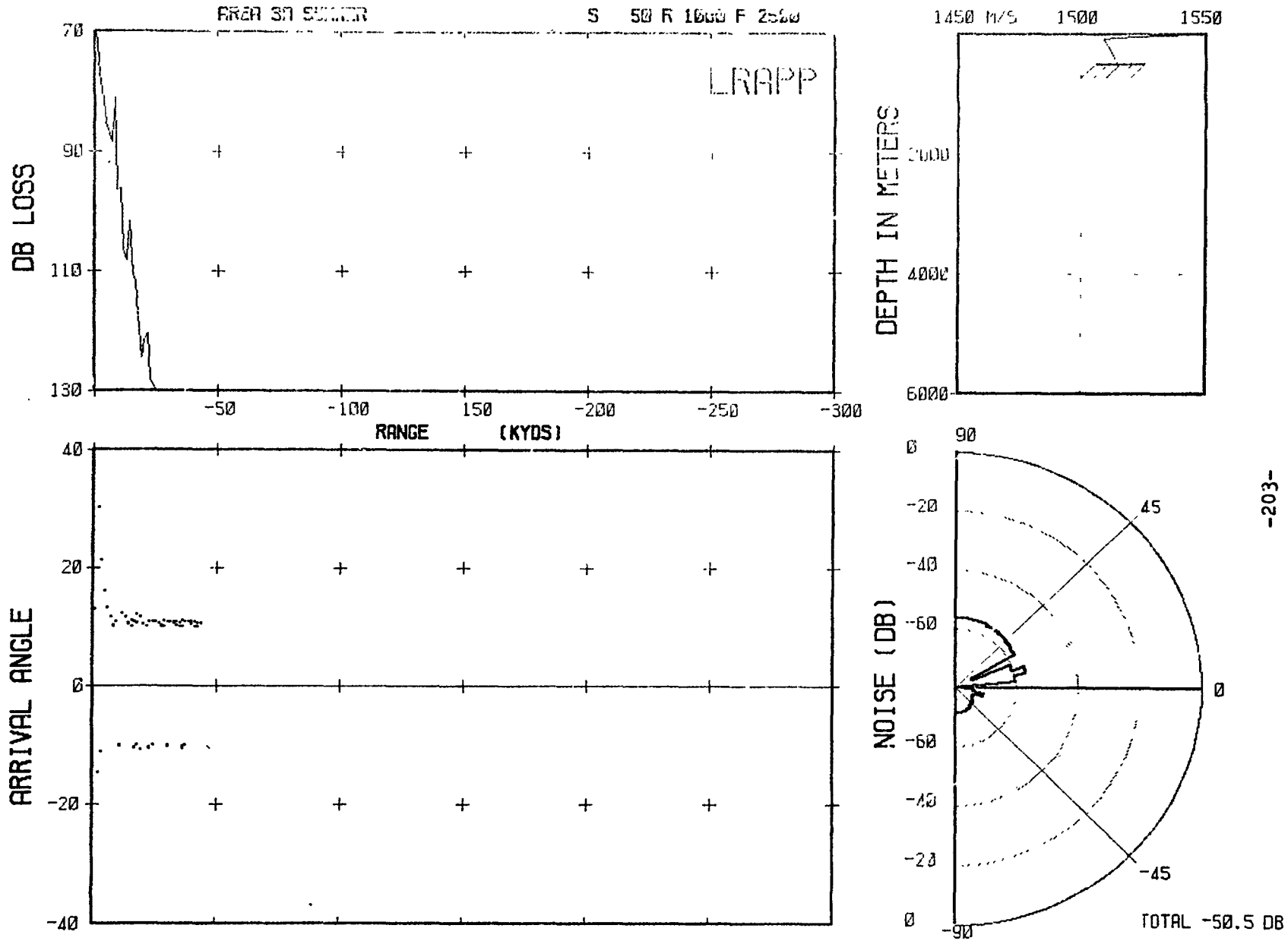
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DEPTH IN METERS
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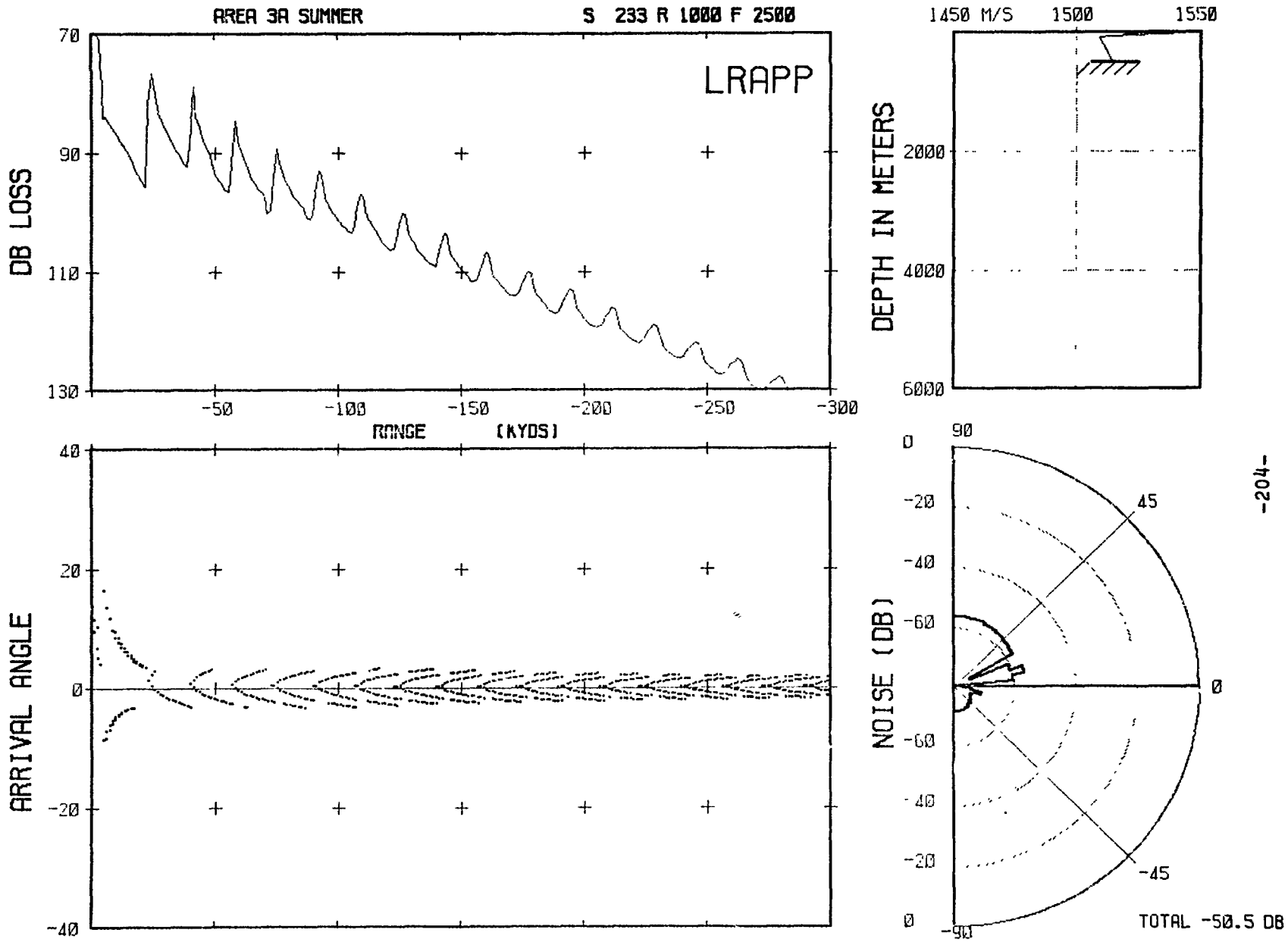
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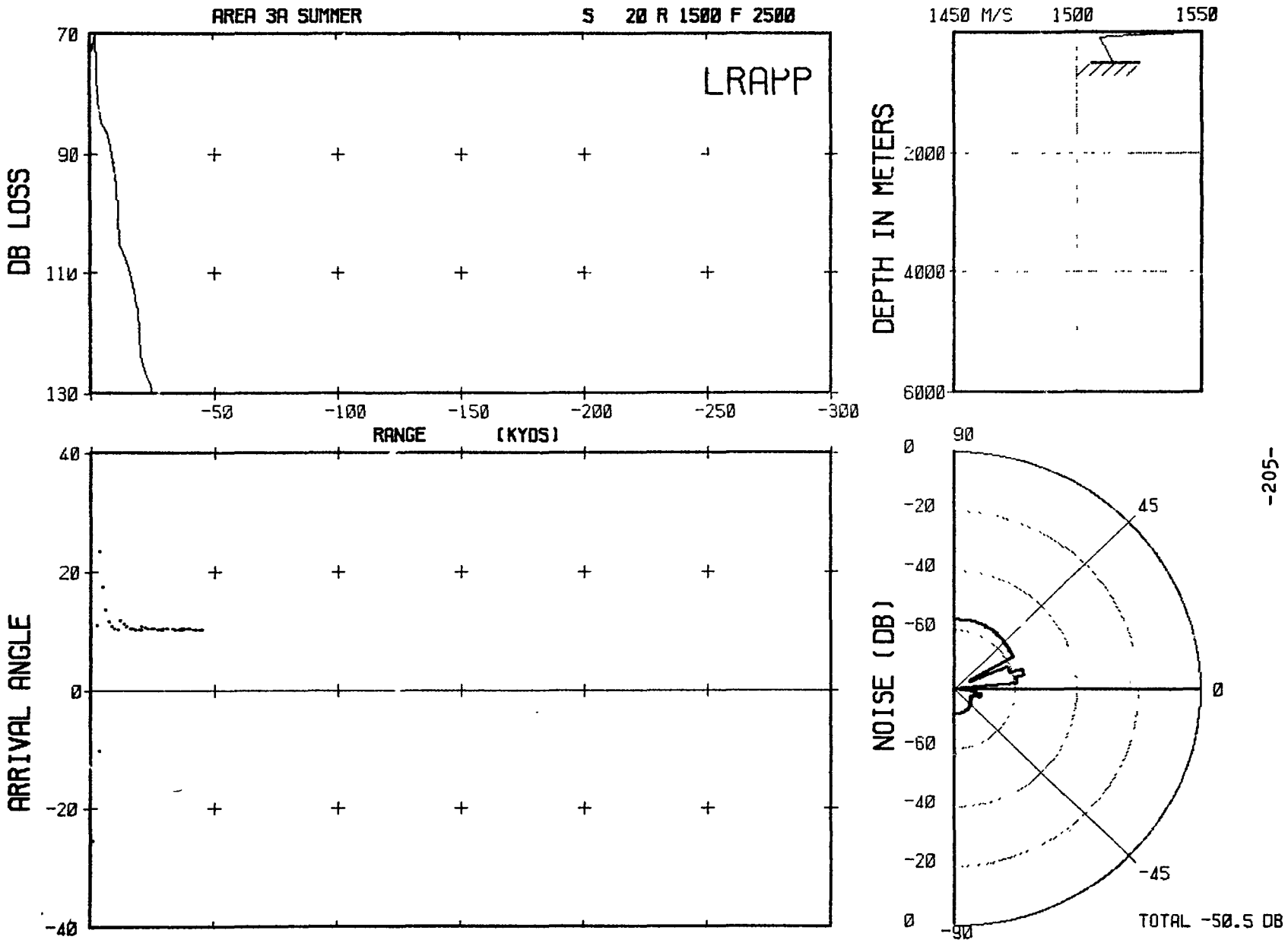
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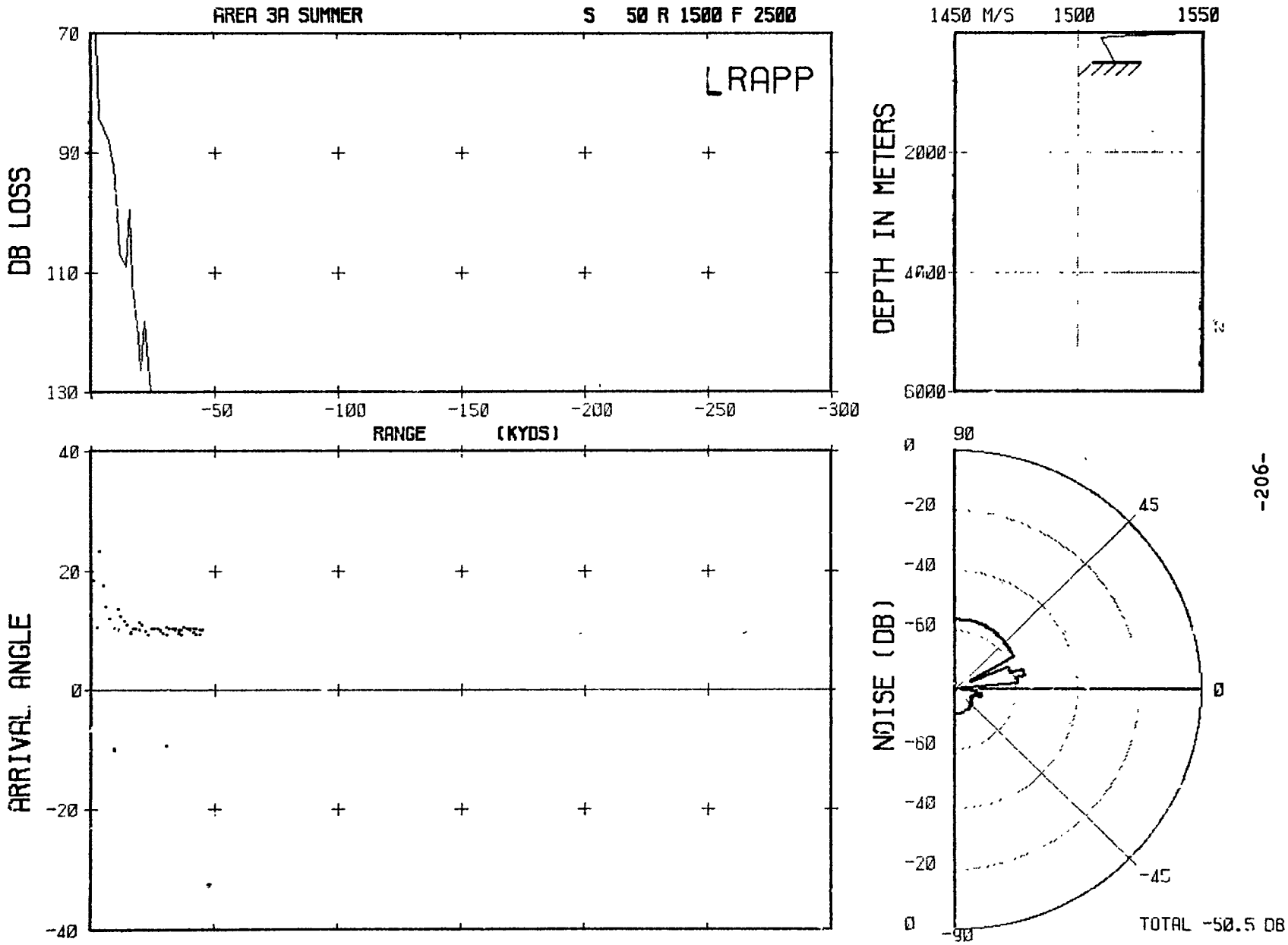
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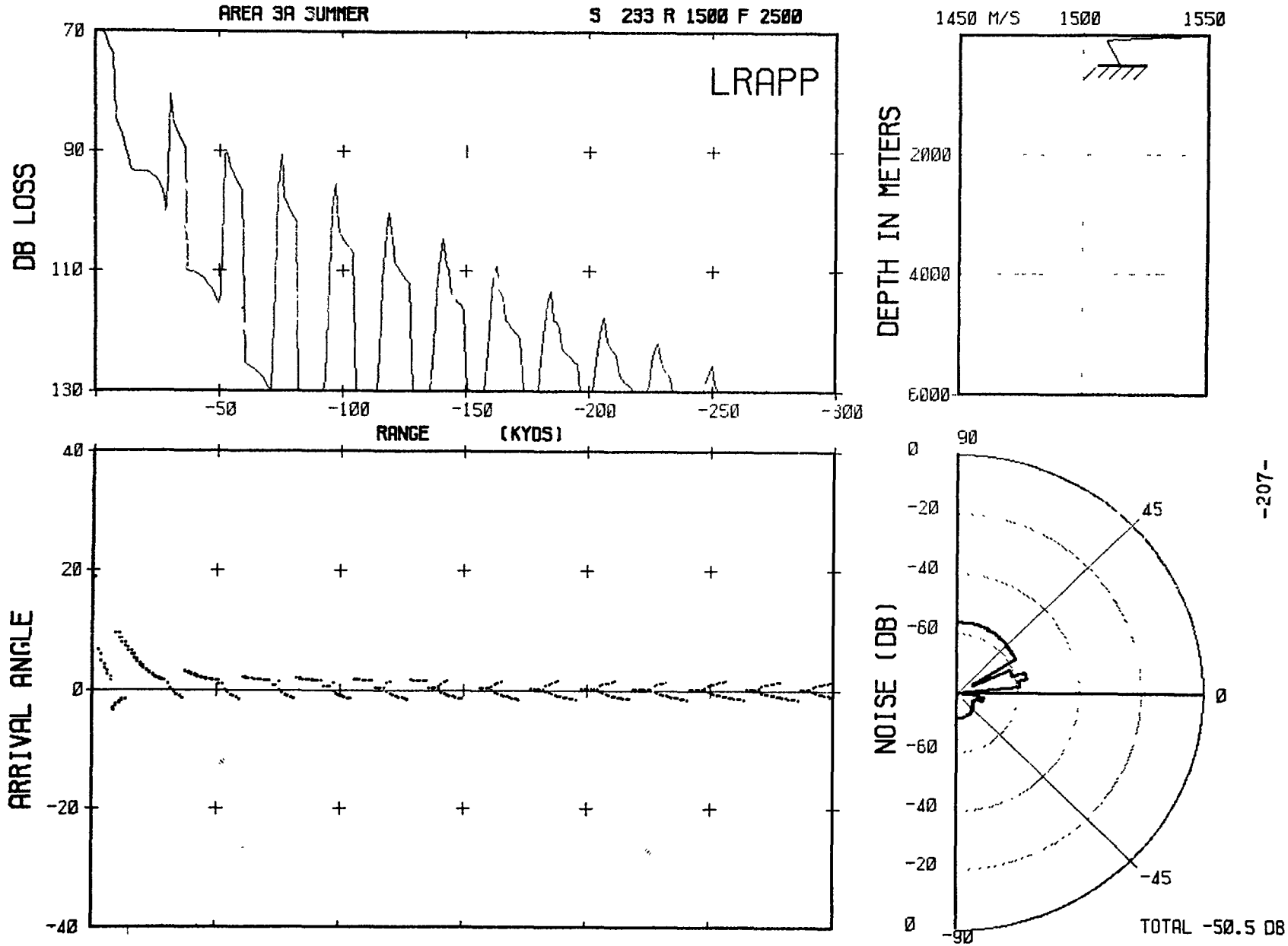
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1550
DEPTH IN METERS
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NOISE (DB)
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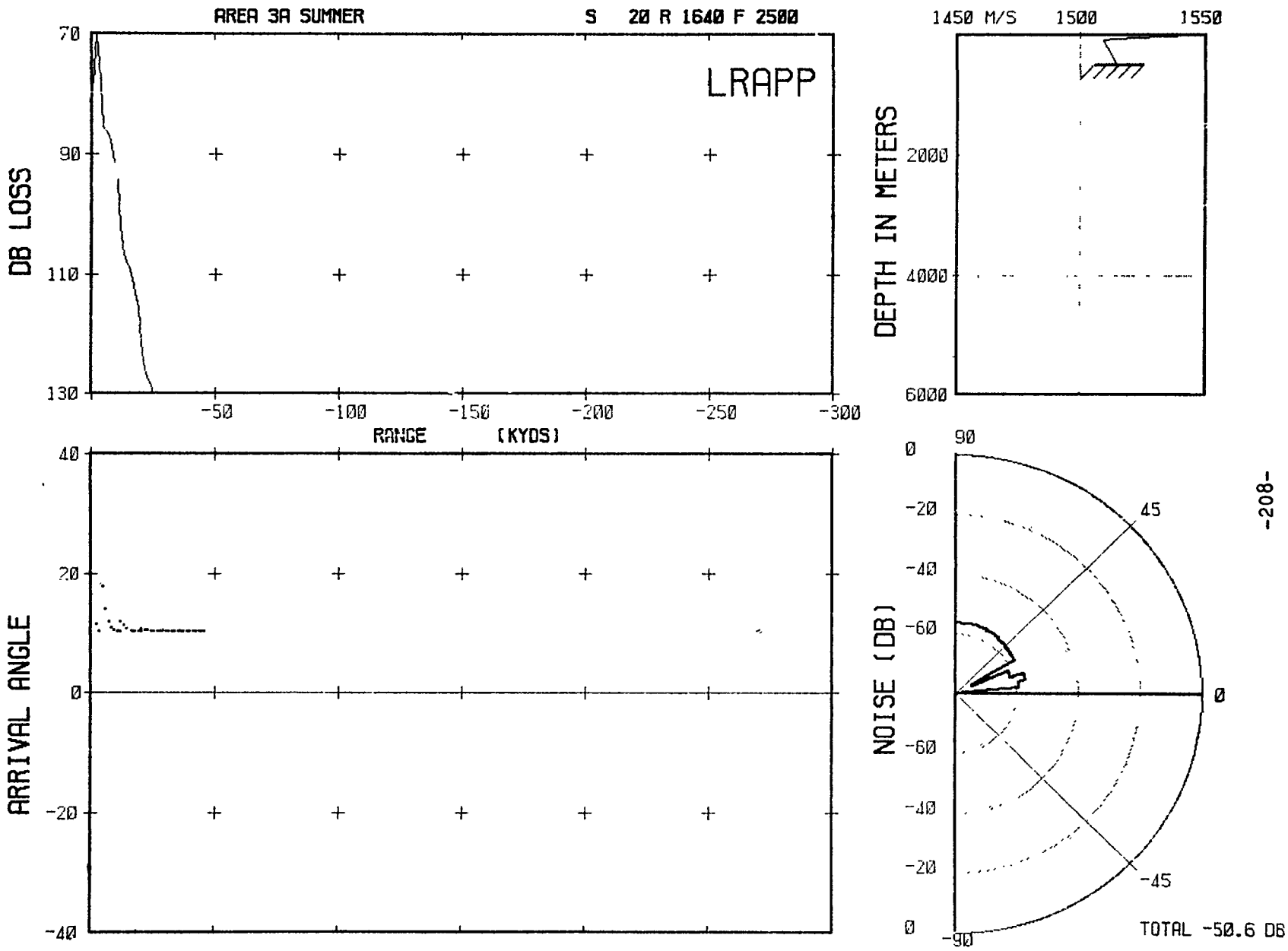
TOTAL -50.5 DB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RANGE (KYDS)
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1550
DEPTH IN METERS
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4000
6000
ARRIVAL ANGLE
40
20
0
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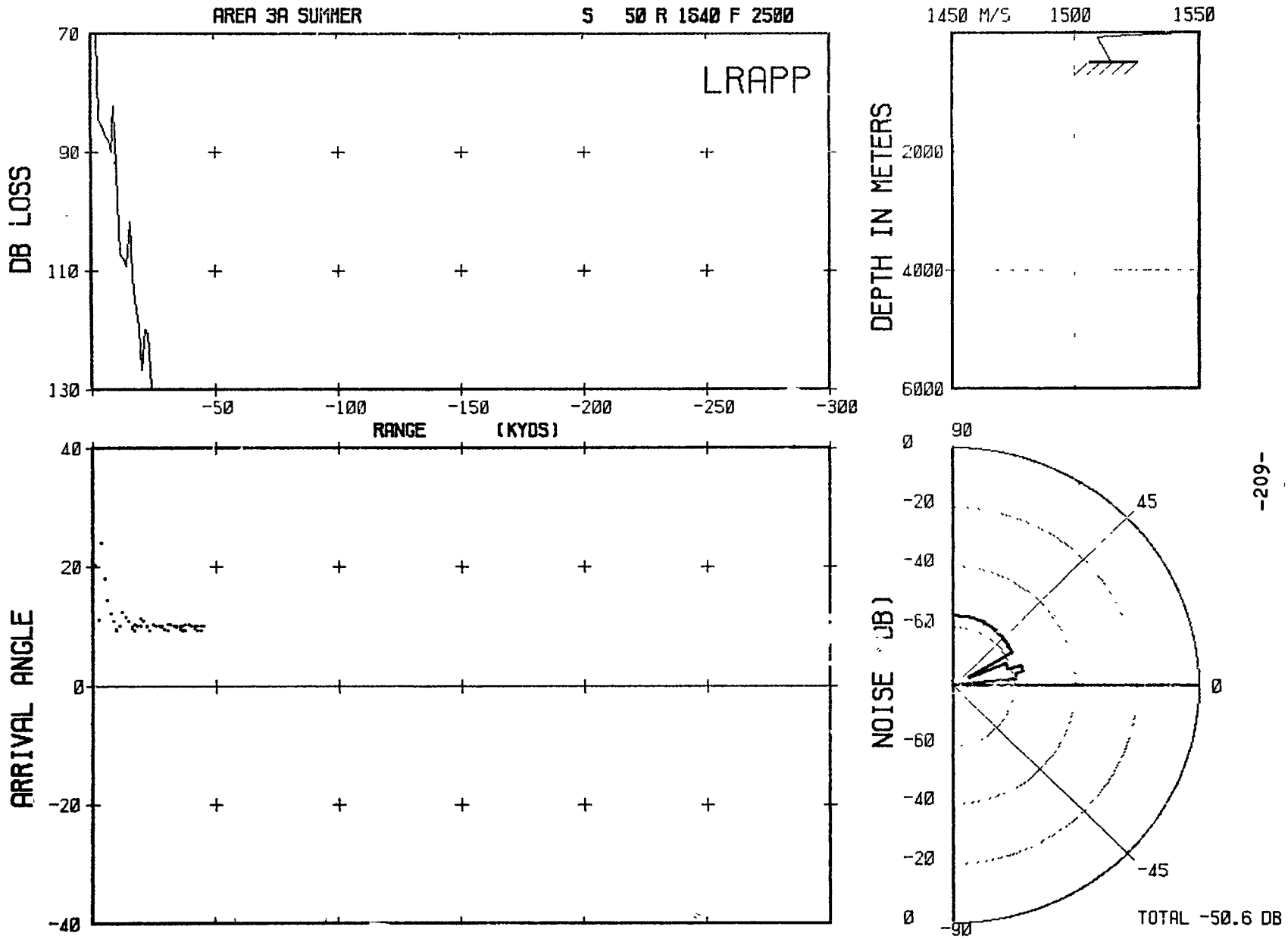
TOTAL -50.6 DB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DEPTH IN METERS
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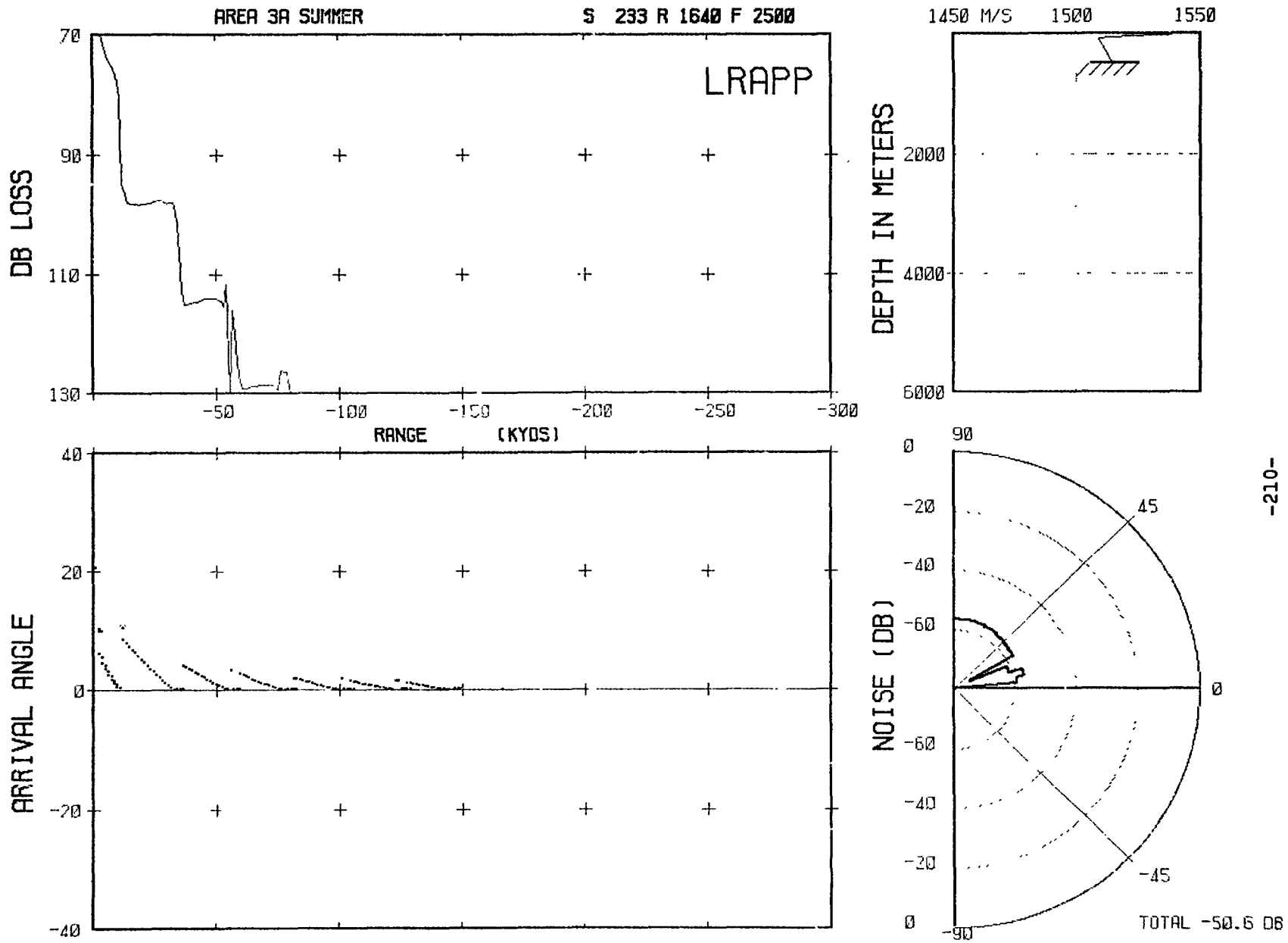
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1550
DEPTH IN METERS
2000
4000
6000
ARRIVAL ANGLE
40
20
0
-20
-40
NOISE (DB)
90
45
-45
-90
TOTAL -50.6 DB

# SUPPLEMENTARY

# INFORMATION

1701 North Fort Myer Drive
Arlington, Virginia 22209
Telephone (703) 524-4870

TWENTY FIFTH ANNIVERSARY

**Bolt Beranek and Newman inc.**

29 May 1973

AD-910342L

Defense Documentation Center
Cameron Station
Alexandria, Virginia 22314

Reference: Maury Center Report 011, Volume 7

Gentlemen:

Errors have been discovered in the ambient noise vertical directionality patterns on pages 106-110, 112, 113, 115, 116, 118, 119, 121, 122, 124 and 125 in Volume 7 of "Acoustic Environmental Scenarios and Predictions for ASW," Maury Center Report 011, October 1972. This volume was mailed to you recently.

Unfortunately, routine checks at The Fleet Numerical Weather Center, where the predictions were generated, and at Bolt Beranek and Newman Inc., where the reports were printed, failed to uncover these errors. Corrective measures are being taken and corrected pages to replace those noted above will be mailed to you as soon as they are available.

Sincerely,

Courtney B. Burroughs

Courtney B. Burroughs
Senior Scientist

CBB:cw

**DEPARTMENT OF THE NAVY**
OFFICE OF NAVAL RESEARCH
875 NORTH RANDOLPH STREET
SUITE 1425
ARLINGTON VA 22203-1995

IN REPLY REFER TO:

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Ser 321OA/011/06
31 Jan 06

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Ref: (a) SECNAVINST 5510.36

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1. In accordance with reference (a), a declassification review has been conducted on a number of classified LRAPP documents.

2. The LRAPP documents listed in enclosure (1) have been downgraded to UNCLASSIFIED and have been approved for public release. These documents should be remarked as follows:

   Classification changed to UNCLASSIFIED by authority of the Chief of Naval Operations (N772) letter N772A/6U875630, 20 January 2006.

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# Declassified LRAPP Documents

| Report Number | Personal Author | Title | Publication Source (Originator) | Pub. Date | Current Availability | Class. |
|---|---|---|---|---|---|---|
| Unavailable | Unavailable | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME VII. AREA 3A SUMMER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science | 721001 | AD0910342 | U |
| Unavailable | Unavailable | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME VIII. AREA 3B WINTER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science | 721001 | AD0910343 | U |
| Unavailable | Unavailable | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME IX. AREA 3B SUMMER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science | 721001 | AD0910344 | U |
| Unavailable | Unavailable | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME V. AREA 2 SUMMER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science | 721001 | AD0911224 | U |
| Unavailable | Unavailable | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME XI. AREA 4A SUMMER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science | 721001 | AD0912560 | U |
| Unavailable | Unavailable | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME X. AREA 4A WINTER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science | 721001 | AD0916556 | U |
| MC-011 VOL. 14 | Unavailable | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME XIV. AREA 5 WINTER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science | 721001 | AD0916557; ND | U |
| MC-011 VOL. 13 | Unavailable | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME XIII. AREA 4B SUMMER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science | 721001 | AD0916610; ND | U |
| MCR008 | Goodman, R. R., et al. | THE NEAT 1 EXPERIMENT (U) | Maury Center for Ocean Science | 721001 | NS; ND | U |
| Unavailable | Cherry, W. R. | LRAPP BEAMFORMER | Scripps Institution of Oceanography Marine Physical Laboratory | 721015 | ADA081876 | U |
| ONR ACR-186 | Gregory, J. B. | PROJECT LRAPP TEST BED- TECHNOLOGY USED IN THE DEVELOPMENT OF A DEEP-OCEAN STABLE PLATFORM (U) | Office of Naval Research | 721024 | AD052370 ~~AD052370~~; ND | U |
| MC-010 | Unavailable | CHURCH GABBRO EXERCISE PLAN- LRAPP (U) | Maury Center for Ocean Science | 721026 | ND | U |
| WHOI-72-87 | Daubin, S. C., et al. | THE ACODAC SYSTEM | Woods Hole Oceanographic Institution | 721101 | AD0756628; ND | U |
| NRLR7516 | Fleming, H. S., et al. | PROJECT NEAT 1 ENVIRONMENTAL DATA REPORT (U) (USNS J.W. GIBBS) | Naval Research Laboratory | 721129 | NS; ND AD523746 | U |