

Langley Research Center
Hampton, Virginia
23665-5225

OCT 15 1986

Reply to Attn of 446

TO: NASA Headquarters
Attn: RI/Director for Institutions

FROM: 103A/Deputy Director

SUBJECT: Summary Preliminary Langley Research Center FY'89 Major CoF Submittal

Enclosed are advance copies of the standardized formats of LaRC's FY'89 Preliminary Major CoF Submittal, as requested in your September 12, 1986, letter. LaRC is proposing that five Major CoF Projects be funded in FY'89:

- | | |
|--|----------------|
| 1. Construction of Supersonic Low-Disturbance Tunnel (1247D) | \$ 5.2M |
| 2. Modifications to Upgrade Hypersonic Aerothermal Complex (1247, 1251, 1275) | 9.4M |
| 3. Modifications for Electromagnetics Scattering Laboratory (1299) | 16.2M |
| 4. Modifications to 4- By 7-Meter Low-Speed Tunnel for Aeroacoustic Research (1212C) | 10.5M |
| 5. Modifications for Space Flight Experiment Development Facility (1250) | 6.0M |
| | <u>\$47.3M</u> |

The first project is a high-priority carry over from FY'88. The second project complies with your September 12, 1986, emphasis on improving the reliability and productivity of those existing facilities which are of great programmatic interest. The third project, "Modifications to Upgrade Electromagnetics Scattering Laboratory (1299)", provides an exciting new opportunity for NASA. The remaining two projects provide new capability to allow LaRC to meet major Agency and National research objectives.

Copies of the package for the fifth project are also being sent to OSS and O SSA since this project also supports missions for these codes.



Paul F. Holloway

5 Enclosures

cc:

NASA - NX/B. J. McGarvey
 NASA - NXF/F. X. Durso
 NASA - NXF/A. L. Farrow
 NASA - E/B. I. Edelson
 NASA - S/A. J. Stofan
 NASA - EPI/H. H. Ellis, Jr.
 LeRC - 3-8/J. W. Gregory
 ARC - 213/C. R. Castellano
 101/General Files
 106/Director
 103/Director Assistant
 117/W. D. Mace
 118/C. R. Blankenship
 116/R. V. Harris
 107/R. R. Nunamaker
 111/J. F. Stokes
 113/J. F. Creedon
 112/R. L. Swain
 112/R. T. Wingate
 112/J. R. Dinkins
 436/J. E. Knemeyer
 104/A. C. Massey
 104/A. C. Fitzgerald
 104/T. E. Caldwell
 446/FPDO Files

*RC446/KRCreleur:jrn 10-15-86 (3467)

446/CRS KRC for CRS

MD
 112/RLS



MODIFICATIONS FOR ELECTROMAGNETICS SCATTERING LABORATORY (1299)

FY 1989 - LARC

REQUIREMENT:

- 0 NEW FACILITY FOR WIDE-FREQUENCY, BI-STATIC, ELECTROMAGNETICS RESEARCH

WHY NOW:

- 0 LARC HAS PACED INDOOR SCATTERING MEASUREMENTS TECHNOLOGY FOR THE NATION, FACILITY NEEDED FOR CURRENT AND FUTURE REQUIREMENTS TO CAPTURE UNIQUE OPPORTUNITIES PROVIDED BY SIGNIFICANT LARC ACHIEVEMENTS FOR ADVANCED AIRCRAFT PROGRAM
- 0 TECHNICAL NEEDS OF RESEARCHERS ARE EXCEEDING THE TECHNICAL LIMITS OF THE PILOT FACILITY
- 0 ELECTROMAGNETICS ISSUES HAVE BECOME PRIME DRIVERS IN AIRCRAFT/SPACECRAFT DESIGN AND NASA NEEDS AN EXPERIMENTAL CAPABILITY TO ENSURE THAT ITS MULTIDISCIPLINARY RESEARCH IS PROPERLY FOCUSED
- 0 ENABLE VITAL IMPROVEMENTS IN ELECTROMAGNETICS RESEARCH FOR FUTURE AEROSPACE DESIGN

DESCRIPTION:

- 0 AN ADDITION OF 125'W X 128'L X 71'H TO EXISTING VEHICLE ANTENNA TEST FACILITY (1299)
 - 0 DUAL RANGES: BI-STATIC, MONO-STATIC
 - 0 15' x 20' x 25' QUIET ZONE IN LARGE RANGE
 - 0 BROAD FREQUENCY RANGE
 - 0 SMALLER REFLECTOR ON TRACKS FOR BI-STATIC TESTS
 - 0 INNOVATIVE MODEL INJECTION AND POSITIONING SYSTEM

CONCEPTUAL STATUS:

- 0 PILOT FACILITY BUILT, DEMONSTRATED AND CERTIFIED AS ACCURATE
- 0 ESL SYSTEMS DESIGN INTEGRATED IN R&T BASE PROGRAM FOR 4 YEARS
- 0 \$324K PRELIMINARY ENGINEERING REPORT (PER NEEDED)

ESTIMATED COST: \$16.2M

R&D FUNDING:	NONE	
O&M REQUIREMENTS:	CIVIL SERVICE FTE	<u>2</u>
	SUPPORT CONT. MYE	<u>5</u>
	UTILITY COSTS	<u>\$20K/YR</u>
	MAINT. COSTS	<u>\$20K/YR</u>

OCTOBER 10, 1986

BACK-UP INFORMATION

MODIFICATION FOR ELECTROMAGNETICS SCATTERING LABORATORY (1299)

\$16.2M

PRIOR BUDGET STATUS: NONE

SCHEDULES: BEGIN END BEGIN END BEGIN END
PER 2Q FY'87 4Q FY'87 DESIGN: 1Q FY'88 4Q FY'88 CONST: 2Q FY'89 4Q FY'90

CRITICAL PROGRAMMATIC MILESTONES:

- 0 PILOT FACILITY DEMONSTRATED AND VALIDATED CONCEPT
- 0 MODIFIED COMPACT REFLECTOR DESIGNED
- 0 SUBREFLECTOR CONCEPT IDENTIFIED
- 0 INNOVATIVE SYSTEMS INTEGRATION CONCEPT DEVELOPED

ALTERNATIVES:

- 0 DELAY ADVANCED AIRCRAFT RESEARCH AS PILOT FACILITY IS UNABLE TO ACHIEVE MEASUREMENT SENSITIVITY NEEDED BY NASA RESEARCHERS
- 0 STOP DEVELOPMENT OF INDOOR MEASUREMENT TECHNIQUE AS TECHNICAL LIMIT OF FACILITY HAS BEEN NEARLY ACHIEVED

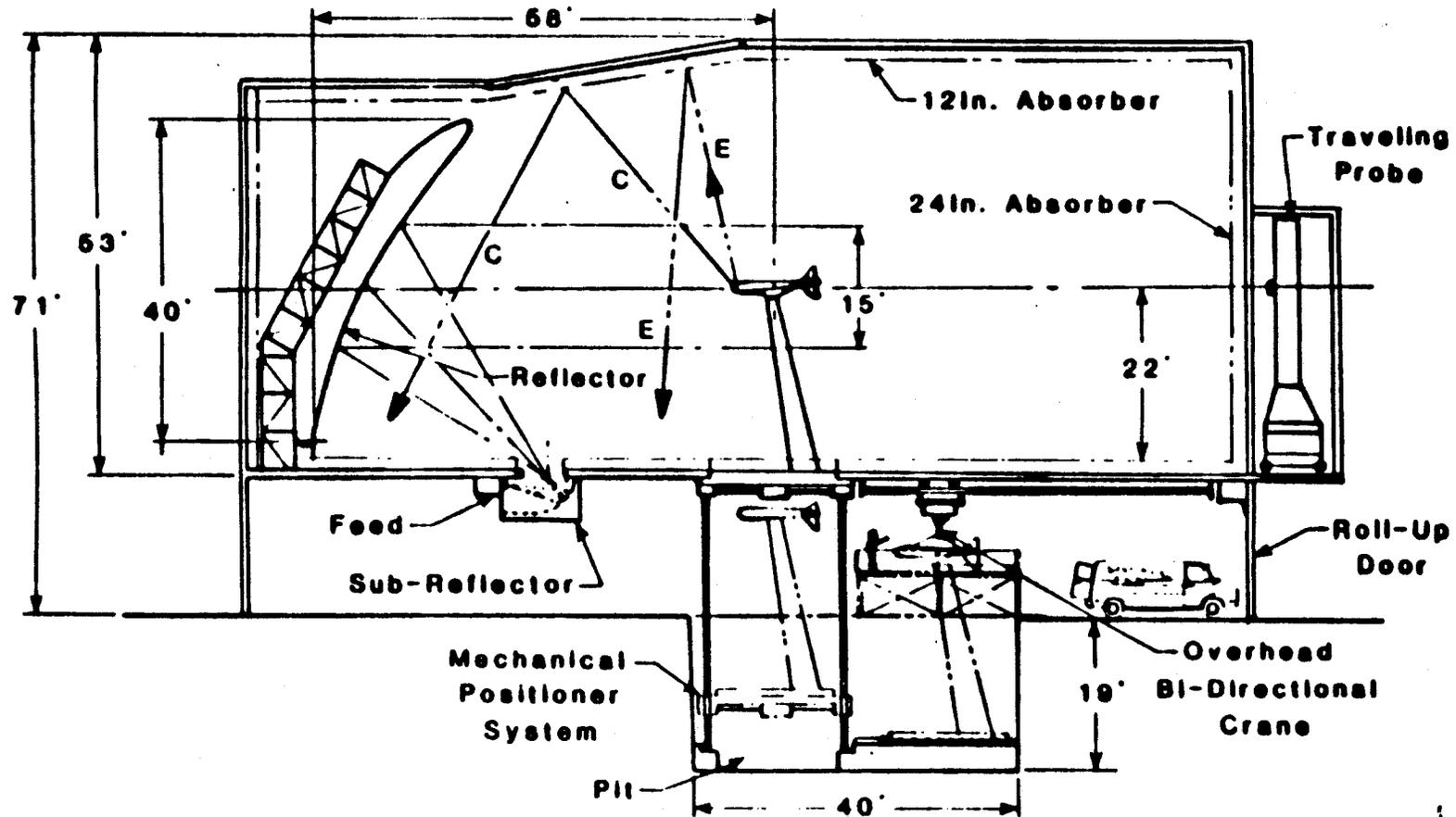
FUTURE REQUIREMENTS/FOLLOW-ON ACTIONS:

NONE ANTICIPATED

CoF PROJECT MANAGER R. K. FAISON, JR.
ADVOCATES/STATUS
CENTER: S. SLIWA
HQS: C. ROSEN
OTHER:

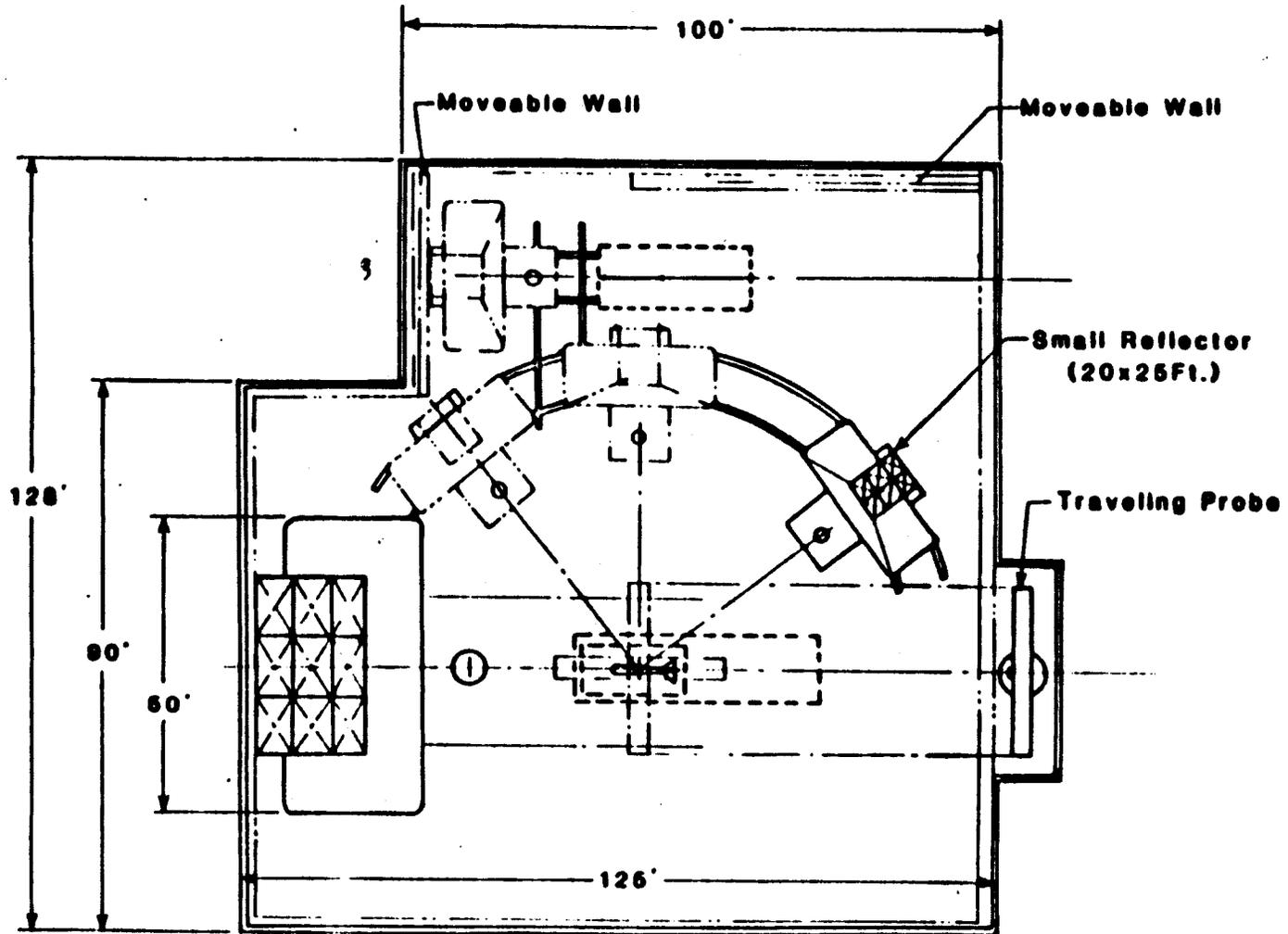
OCTOBER 10, 1986

Langley Research Center
Fiscal Year 1989 Estimates



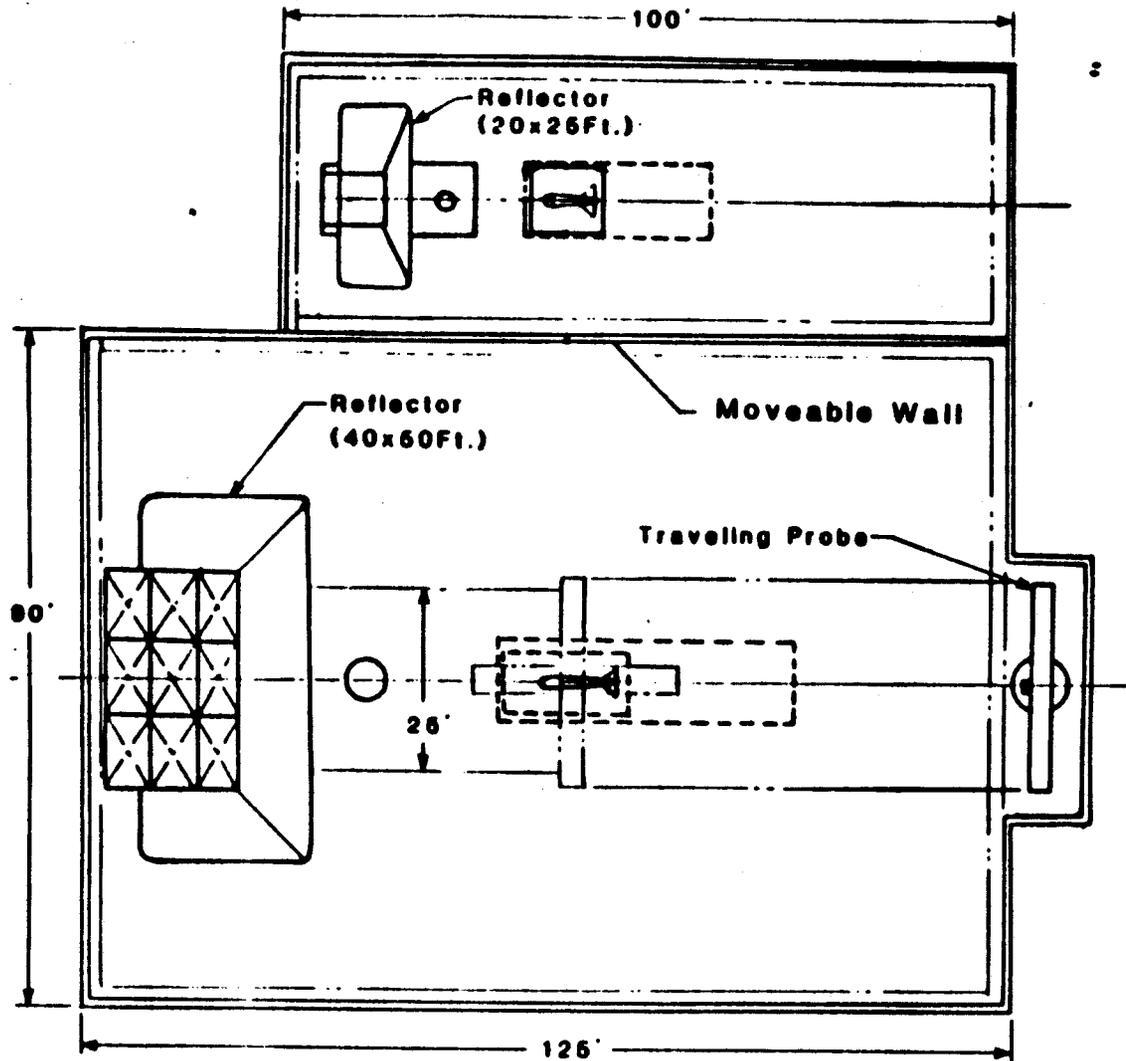
ESL Baseline Configuration-Elevation View

Langley Research Center
Fiscal Year 1989 Estimate



ESL Basic/Bi-Static Configuration-Plan View

Langley Research Center
Fiscal Year 1989 Estimate



ESL Baseline Configuration-Plan View

ELECTROMAGNETICS SCATTERING LAB

PROJECTED INDOOR EM MEASUREMENT TECHNOLOGY EVOLUTION

