

REVISIONS

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A	36-358	Initial Formal Release	BK	WFM	10-11-95
B	36-422	Simplified Procedure	<i>DK</i>	<i>WFM</i>	<i>2/19/96</i>

NAME	DATE	MASSACHUSETTS INSTITUTE OF TECHNOLOGY CENTER FOR SPACE RESEARCH			
Drawn: M. Smith	7-26-95	CLEANTENT MONITORING PROCEDURE			
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CLEANTENT MONITORING PROCEDURE

1.0 Introduction

This procedure is intended to provide the direction for monitoring Temperature, Relative Humidity, Hydrocarbon, Particle Counts, and Operations in the ACIS test and assembly cleantents as required by the ACIS Contamination Control Plan, 36-01207.

1.1 Activity Description

This procedure describes the methods for monitoring all cleantents used for the ACIS critical contamination controlled assemblies. Monitoring is to be performed by the Quality Control Engineer, or designated person(s).

2.0 Requirements

2.1 Applicable Documents

MIT Specifications

36-01207 ACIS Contamination Control Plan

36-01316 ACIS Cleanroom Procedure: Dressing, Behavior, and Material Admittance

Federal Standards

FED-STD-209

2.2 Frequency/Responsibility

Monitoring Activity	Frequency	Responsibility
Temperature	Daily	F. Miller, M. Mcguines, M. Smith
Relative Humidity	Daily	F. Miller, M. Mcguines, M. Smith
Particle counts	Bi-weekly	M. Smith, B. Ware
Operations	Bi-weekly	M. Smith
Cleantent Certification	Yearly	Outside vendor per M. Smith
Hydrocarbon	Assembly Operations	All assembly personnel

3.0 Facilities and Configurations

3.1 Equipment

The following equipment will be used to monitor Temperature, Relative Humidity (RH), Hydrocarbon, and Particle Counts:

Temp/RH Meter	Model DS7400 or Cole Palmer Model # 3310-40 or equivalent
Particle Counter	MET ONE, Model 237B
Hydrocarbon Meter	US Industrial, Model 6200R

4.0 Procedure

All assembly area cleanrooms are to be certified to Class 100 per FED-STD-209 by an outside vendor. Certification will be done on an annual basis. After certification, monitoring shall commence before flight hardware is introduced into the cleanrooms.

For initial start-up of the cleanrooms: Daily measurements will be documented for Temperature and Relative Humidity inside the drybox storage areas only. Bi-weekly measurements will be documented for particle counts.

Bi-weekly random observations will be made for cleanroom operations (dress, material storage, material handling, etc.) This schedule shall remain until QA determines that more or less monitoring is required. Locations of particle count measurements for each cleanroom shall be per pages 11 and 12.

Temperature and Relative Humidity measurements of the cleanrooms shall be documented by the Science Team during each exposure process of assembly and disassembly of CCDs from fixtures and shipping/storage containers.

Hydrocarbons levels shall be observed during exposure of flight hardware. This entails either a visual or an audio observation of the meter. The alarm is set for when the Hydrocarbon limit reaches 15 ppm. In the event that the alarm is sounding, cover the exposed material immediately with proper packaging (clean Nylon 6 for non ESD hardware or placing material in suitable enclosed container, this includes the vacuum chambers for the CCDs). Wait until the alarm stops and continue. If the alarm does not reset call the Contamination Engineer.

4.1 Forms

Attachment A will be used to monitor the cleanroom in NE80-6042 and Attachment B will be used to monitor the cleanrooms in 37-544 for Temperature, Relative Humidity, and Particle Counts. Attachment C will be used to monitor all cleanroom operations.

4.2 Completing Forms

The monitoring person shall INITIALLY VERIFY CALIBRATION DATE OF EQUIPMENT USED. The monitoring person shall fill out the date, record the measurement, and sign initials in each box per Attachment A and B. If the measurement is unacceptable per Table 1 and Table 2, inform Q.A.

Monitoring of operations will be based on the adherence to procedure 36-01316, "ACIS Cleanroom Procedure: Dressing, Behavior, and Material Admittance". After monitoring is completed sign initials at the bottom of each applicable Attachment C.

A copy of the completed forms shall be maintained by the Quality Assurance Engineer.

4.3 Unacceptable Findings

Findings of unacceptable measurements (temperature, humidity, etc.) shall require review and completion of corrective action form in Attachment D by the Quality Assurance Engineer. Any findings of unacceptable operations (dress, material handling, etc.) shall require review and completion of corrective action form in Attachment E, by the Quality Assurance Engineer. As a result, the Quality Assurance Engineer may request further training or monitoring of the cleanrooms, and corrective action from responsible individuals.

MONITORING SCHEDULE FOR NE80-6042
ACIS ASSEMBLY

MEASUREMENT	Location	Monday	Tuesday	Wednesday	Thursday	Friday
		Date	Date	Date	Date	Date
Temperature	Drybox					
Humidity	Drybox					

MEASUREMENT
Particle Count

Location
NE80-6042
CLEANTENT
1
2
3
4
5
6
7

Friday Date
N/A

MEASUREMENT
Temperature
Rel. Humidity

Particle counts

Table 2

LIMITS
65-80 F
40-60 %

less than 100
particles > .5
microns

(Attachment B)

MONITORING SCHEDULE FOR 37-544
CCD TESTING AND CALIBRATION

		Monday	Tuesday	Wednesday	Thursday	Friday
		Date	Date	Date	Date	Date
MEASUREMENT	Location	left/right	left/right	left/right	left/right	left/right
	Temperature					
	Humidity					

Particle Count

Cleantents

Friday Date

MEASUREMENT LIMITS
 Temperature 65-80 F
 Rel. Humidity 40-60%

Particle counts less than 100
 particles > .5
 microns

CT1

CT2

CT3

CT4-A

CT4-B

CT5-A

CT5-B

CT6

(Attachment C)

OPERATIONS CHECK SHEET (for monitoring all cleantents)

DATE _____

MONITORING PERSON _____

Are people properly dressed? yes/no
If no, Explain;

Are people moving at proper pace? yes/no
If no, Explain;

Are people handling material properly? yes/no
If no, Explain;

Is material properly stored? yes/no
If no, Explain;

Is weekly cleaning log signed? yes/no

Are people properly ESD grounded?
If no, Explain;

(Attachment D)

CORRECTIVE ACTION FORM: MEASUREMENTS

Type of measurement? (Temperature, Humidity, Particle Count)

Actual reading _____

Specification limits_____

Were critical contamination surfaces exposed or
compromised?(yes/no)_____

Assembly Part Number_____

Description_____

If yes, Recommendation for disposition of material:

Rework_____

Scrap/Rebuy_____

Use As Is_____

Justification:

Corrective action to prevent reoccurrence:

QA SIGNATURE _____
DATE _____

PERFORMANCE ASSURANCE
MANAGER SIGNATURE _____
DATE _____

(Attachment E)

CORRECTIVE ACTION FORM: OPERATIONS

Describe actions that resulted in unacceptable observation.

Were critical surfaces exposed to unacceptable conditions? yes/ no
If yes, Explain;

If yes, Recommendation for disposition of material:

Rework_____

Scrap/Rebuy_____

Use As Is_____

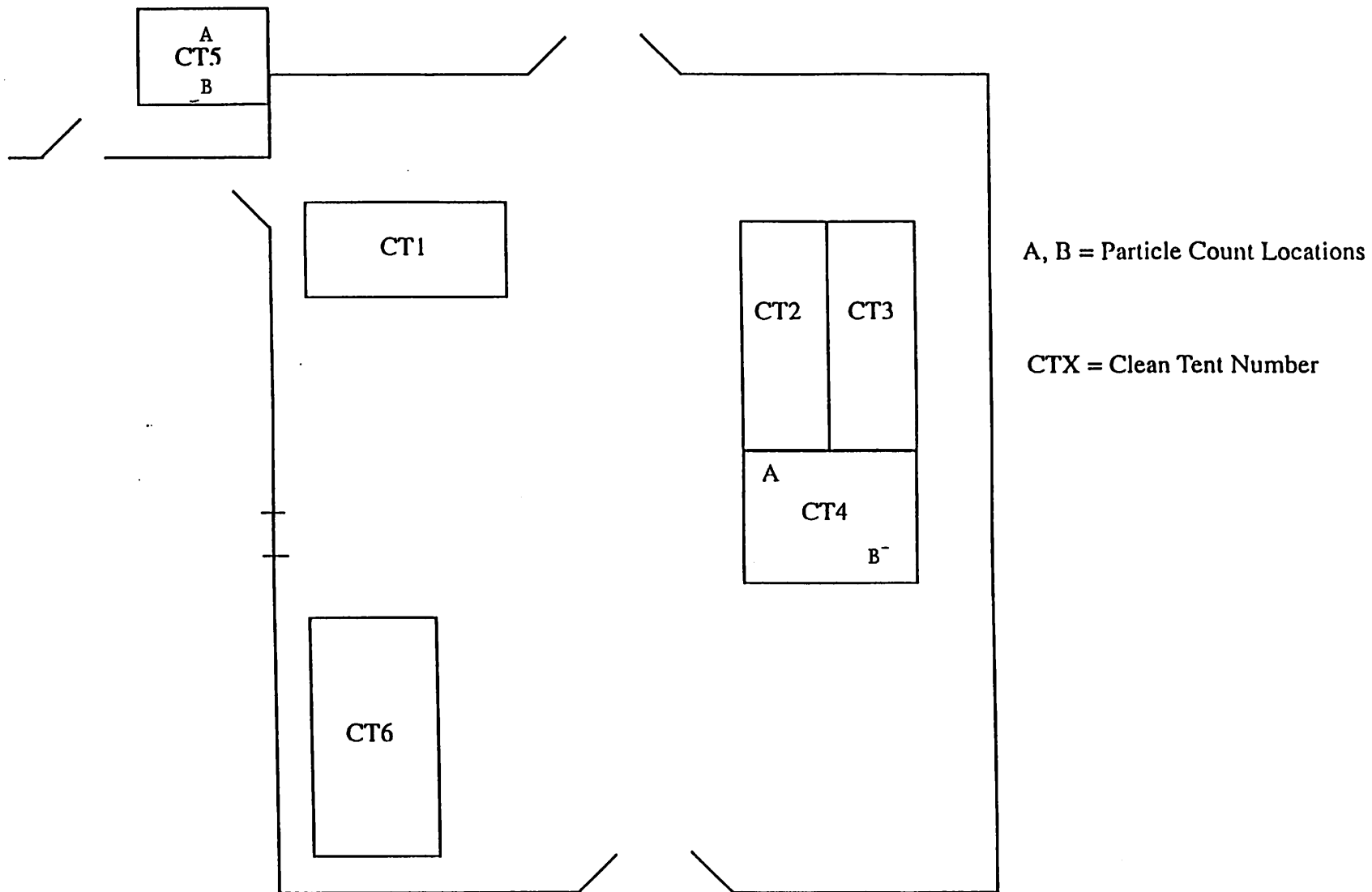
Justification:

Corrective action to prevent reoccurrence:

QA SIGNATURE _____
DATE _____

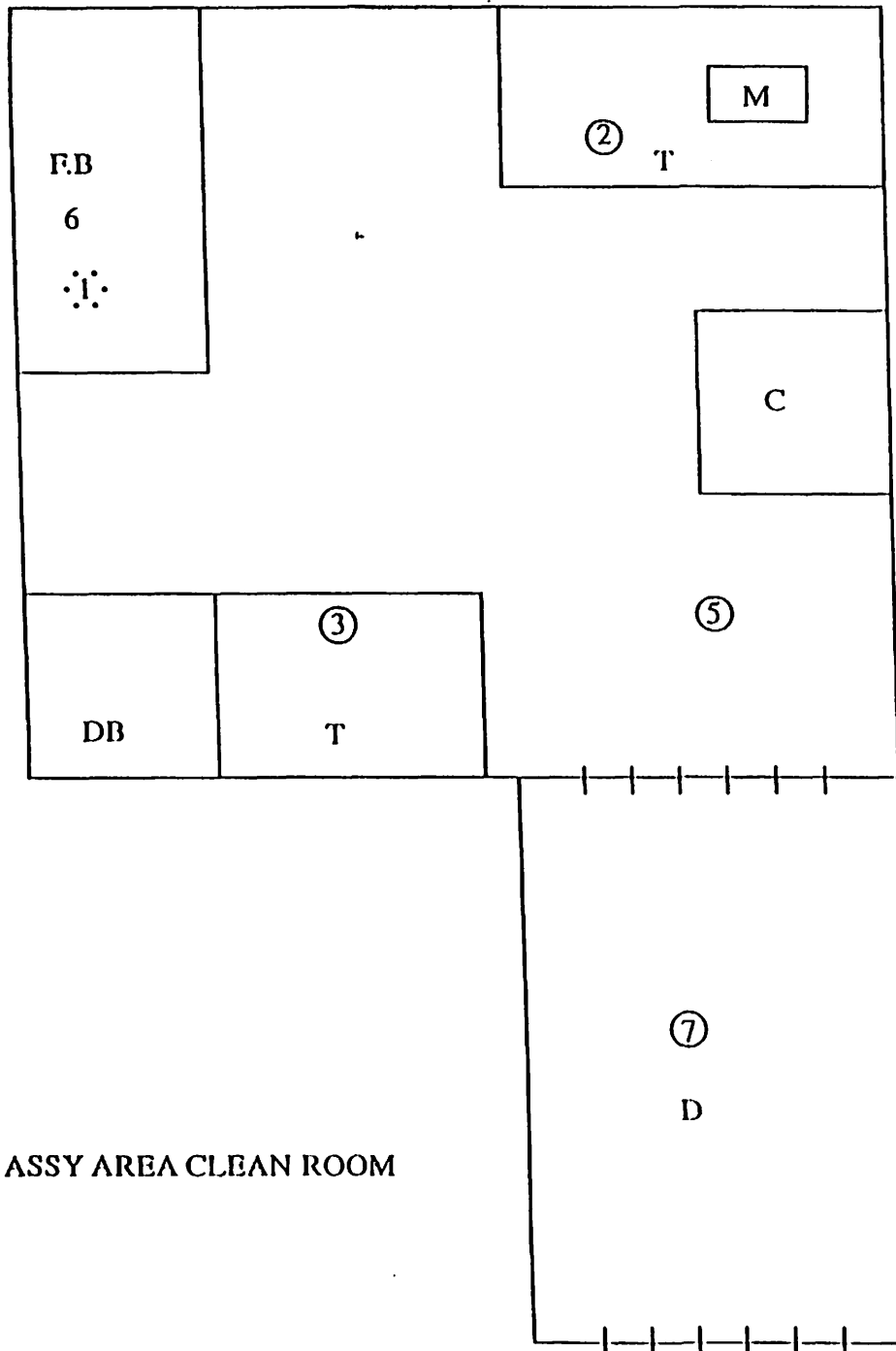
PERFORMANCE ASSURANCE
MANAGER SIGNATURE _____
DATE _____

FIGURE 1



**PARTICLE COUNT AND
IDENTIFICATION OF CLEAN TENTS
IN BUILDING 37-544
ACIS**

FIGURE 2
 CLEAN ROOM PARTICLE COUNT
 LOCATIONS
 NE80-6042



ACIS ASSY AREA CLEAN ROOM

C = STORAGE CABINET
 D = DRESSING AREA
 DB = DRY BOX
 F.B = HORIZONTAL FLOW BOOTH
 M = MICROSCOPE
 T = TABLE

·i· = INSIDE F.B.

② = ON TABLE NEAR M

③ = ON TABLE NEXT TO D.B.

⑤ = AT ENTRANCE

⑥ = ON TOP OF F.B.

⑦ = IN DRESSING AREA